



# **OWNER'S HANDBOOK**

FOR

## **UNIT CONSTRUCTION 30 cu. in. (500 c.c.) TWINS**

[See Bookmarks](#)

## **1973 MODELS**

**TRIUMPH ENGINEERING CO. LTD.**

**MERIDEN WORKS · ALLESLEY · COVENTRY · ENGLAND**

TELEPHONE MERIDEN 331  
COVENTRY 20221

TELEGRAMS "TRUSTY, COVENTRY"  
TELEX "TRUSTY" 31305

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U.S.A. EDITION



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## INTRODUCTION

The Owner's Handbook includes all the information that the majority of owners will require. If you require more information for major repairs there is available a Workshop Manual but this is intended for those having basic mechanical knowledge and workshop facilities. To obtain the Workshop Manual order from your local Triumph dealer as we do not supply parts or service literature direct from the distributor to individual customers.

Where specialised advice is required beyond the ability of the dealer he should write to his distributor. Unless the full engine number is quoted it is often difficult to identify the type of motorcycle and give a helpful reply. Any information which may have a bearing on the subject should be included, particularly details of any additions or alterations to the standard equipment.

Where a guarantee claim is involved, consult your dealer who may be able to provide a replacement to enable your motorcycle to be used while the defective part is returned to his distributor. Guarantee claims in respect of proprietary components should be forwarded by your dealer to his distributor.

As soon as you take delivery of your new motorcycle make certain that the colored registration card supplied with the hand book is mailed to the Triumph distributor for your area. This is extremely important and if your card is not on file with the distributor, you will not receive a copy of the Triumph U.S.A. guarantee.

### Eastern Distributors

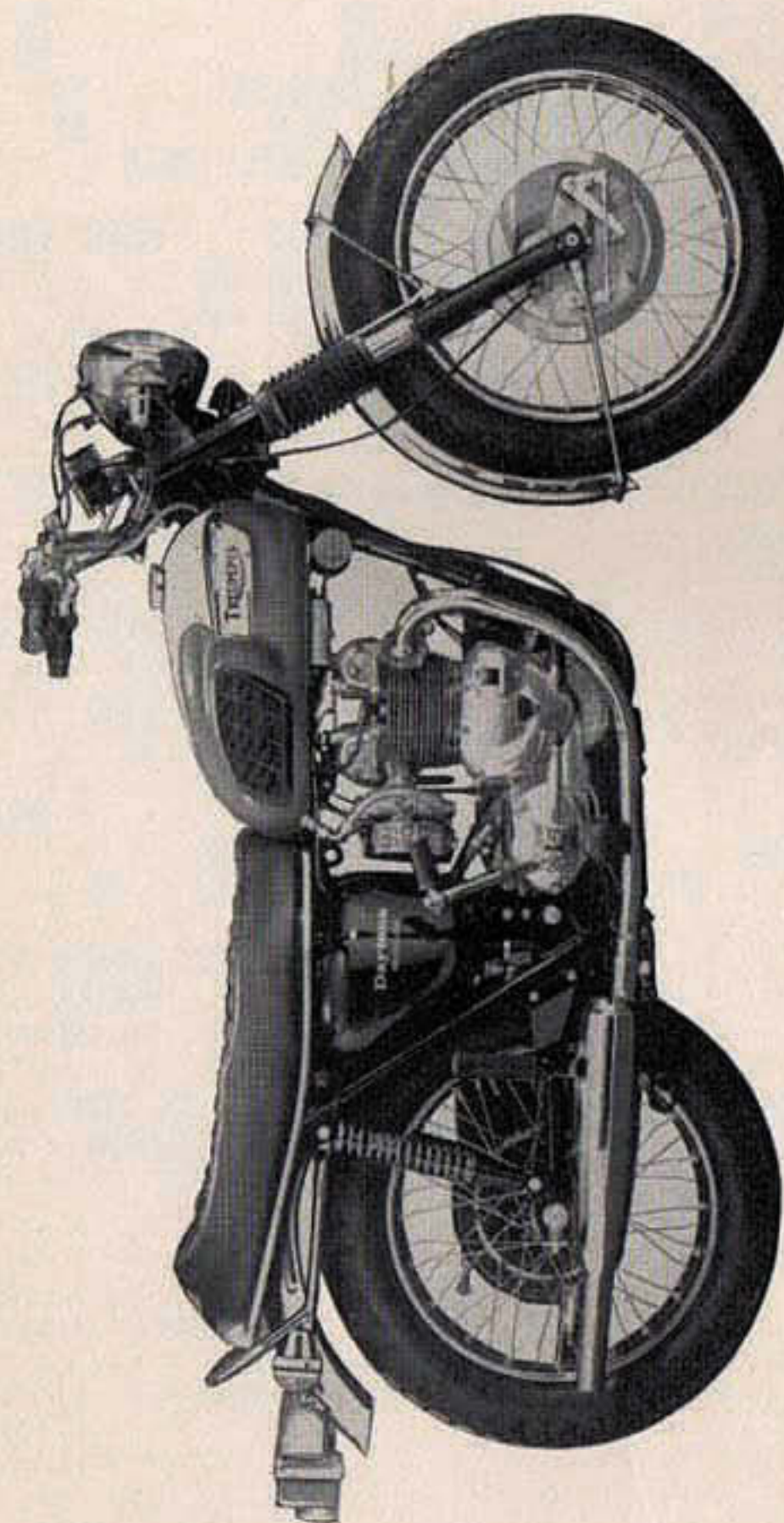
Triumph Motorcycle Corp.,  
Towson,  
Baltimore, 4,  
MD. 21204.

Telex Tricor Baltimore 87728  
Telephone 301-252-1700

### Western Distributors

Triumph Motorcycle Corp.,  
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California,  
91010.

Telex Tricor Duarte 675469  
Telephone 213-359-3221  
213-681-0255



30 cu. ins. DAYTONA (T100R)



## USEFUL DATA

### T100R

#### MOTOR

Bore and stroke—mm. ... ..	69 x 65.5								
—in. ... ..	2.716 x 2.58								
Capacity—c.c. ... ..	490								
—cu. in. ... ..	30								
Compression ratio ... ..	9 : 1								
Tappet clearance, Inlet and Exhaust (Cold)—in. ... ..	0.002, 0.004								
Valve timing checked at 0.020 in. lift at tappet $\pm 2\frac{1}{2}^\circ$ ... ..	<table border="0"> <tr> <td>IO</td> <td>40°</td> </tr> <tr> <td>IC</td> <td>52°</td> </tr> <tr> <td>EO</td> <td>61°</td> </tr> <tr> <td>EC</td> <td>31°</td> </tr> </table>	IO	40°	IC	52°	EO	61°	EC	31°
IO	40°								
IC	52°								
EO	61°								
EC	31°								

#### IGNITION—Static Timing (Before top center)

Crankshaft position ... ..	13°
Piston position—in. ... ..	3/64
Contact gap—in. ... ..	0.014—0.016
Crankshaft position (fully advanced) ... ..	38°

#### SPARK PLUGS

Type ... ..	N4
Point gap ... ..	0.020 in.

#### CAPACITIES

Gas tank ... ..	2.4 U.S. Gals.
Optional... ..	3.6 U.S. Gals.
Oil tank ... ..	6 U.S. Pints
Gearbox ... ..	375 c.c.
Primary chaincase (Initial fill) ... ..	150 c.c.
Front forks (each leg) ... ..	200 c.c.

#### CARBURETTOR

Amal type ... ..	R626/53, L626/54
Main jet ... ..	150
Needle jet ... ..	.106
Needle type ... ..	STD
Needle position ... ..	TOP (1)
Throttle valve ... ..	3

#### FUEL

Octane Rating (minimum) ... ..	97 Premium
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### T100R

#### SPROCKETS

Gearbox ... ..	18
Rear wheel ... ..	46

#### CHAINS

Primary:	
$\frac{3}{8}$ in. pitch Duplex, links ... ..	78
Rear:	
$\frac{3}{8}$ in. pitch x $\frac{3}{8}$ wide links ... ..	102

#### GEAR RATIOS

4th Top ... ..	5.7
3rd Third ... ..	6.9
2nd Second ... ..	9.2
1st Bottom ... ..	14.1
Engine r.p.m. @ 10 m.p.h. top gear ... ..	743

#### TIRE SIZE

Front ... ..	3.25 x 19
Rear ... ..	4.00 x 18

#### TIRE PRESSURE

Front lb./sq.in. ... ..	24
Rear lb./sq.in. ... ..	25

#### BULBS

Headlight ... ..	12 volt Lucas 370 45/35W (vert. dip)
Parking light ... ..	Lucas 989 5W M.C.C.
Stop and tail light ... ..	Lucas 380 21/5W (offset pin)
Speedometer ... ..	Lucas 987 3W M.E.S.
Oil pressure warning light (WL15) 2W ... ..	Lucas 281
Hi-beam warning light (WL15) 2W ... ..	Lucas 281
Direction indicator warning light (WL15) 2W ... ..	Lucas 281
Flashing indicators ... ..	Lucas 382 21W
Fuse rating (Amperes) ... ..	35

#### OVERALL DIMENSIONS

Length—in. ... ..	83 $\frac{1}{2}$
Width—in. ... ..	27
Overall height—in. ... ..	38
Weight—lb. ... ..	336

COLOR ... ..	Hi-fire Vermilion/Ice White
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## GENERAL DESCRIPTION

This handbook refers to the Triumph motorcycles having a combined motor/gearbox unit of 500 c.c. (30 cu.in.) capacity. The vertical, parallel twin-cylinder, air cooled motor has overhead valves operated by push rods and has a bore of 69 m.m. (2.716 in.) and a stroke of 65.5 m.m. The motor is lubricated by pressure through a plunger pump from a 6 pint (U.S.) tank on the frame, the oil draining to the bottom of the crankcase where it is scavenged by the second part of the plunger pump and returned to the tank. The crankcase breathes via the left hand main bearing and primary chaincase.

The primary drive is by Duplex chain and six-plate clutch contained in an oil bath chaincase. The four-speed foot-controlled gearbox is contained in the same housing as the motor but the lubrication systems are entirely separate. The gearbox is lubricated by oil contained in the housing. The final drive is by single chain.

The telescopic front forks are mounted in the frame by cup-and-cone ball bearings. The load is carried by two coil springs in compression and the movement is controlled by integral hydraulic damping which uses normal grade engine oil in each leg.

The rear suspension is a forked member pivoting on bronze bushes which are lubricated by periodical high-pressure greasing. The load is carried by Girling combined coil spring and hydraulic damper units. The spring is adjustable for load but the hydraulic system is completely sealed and needs no attention.

The front wheel size is 19 in. rim diameter, with a 3.25 in. section tire and 8 in. brake. The rear wheel has a 4.00 x 18 in. section tire with a 7 in. diameter brake.

The electrical system is supplied from an alternating current generator contained in the primary chaincase and driven from the crankshaft. The output is fed through a silicon diode bridge connected rectifier to a 12 volt lead-acid battery. The voltage is controlled by a Zener diode.

### IMPORTANT NOTE

The positive side of the battery is grounded to the frame.

## LAYOUT OF CONTROLS

**Clutch lever.** On left handlebar. The clutch couples the motor drive to the gearbox and rear wheel. Pull the lever towards the handlebar to disengage the clutch.

**Kill button.** On left handlebar. Press to stop the motor. Always switch off the ignition and remove the key when parking.

**Direction indicator switch.** On left handlebar. Use the switch to operate the flashing indicators. Move up for right indication and down for left indication.

**Headlamp flasher.** On right handlebar. Press to flash the headlamp 'high' beam.

**Air control lever.** On right handlebar. For starting a cold motor move the lever forward to the slack wire position. Open progressively as the motor warms up.

**Horn push.** On right handlebar. Press to sound the horn.

**Dipper switch.** On right handlebar. Use the lever to change the headlamp beam between 'high' and 'low'.

**Speedometer.** Indicates speed and registers total and trip mileage. To set the trip indicator to zero twist the knob clockwise. Do not pull the knob as it is a snap fit in the speedometer.

**Tachometer.** Indicates the motor speed in revolutions per minute (r.p.m.).

**Front brake lever.** On right handlebar. Pull the lever towards the handlebar to apply the front brake.

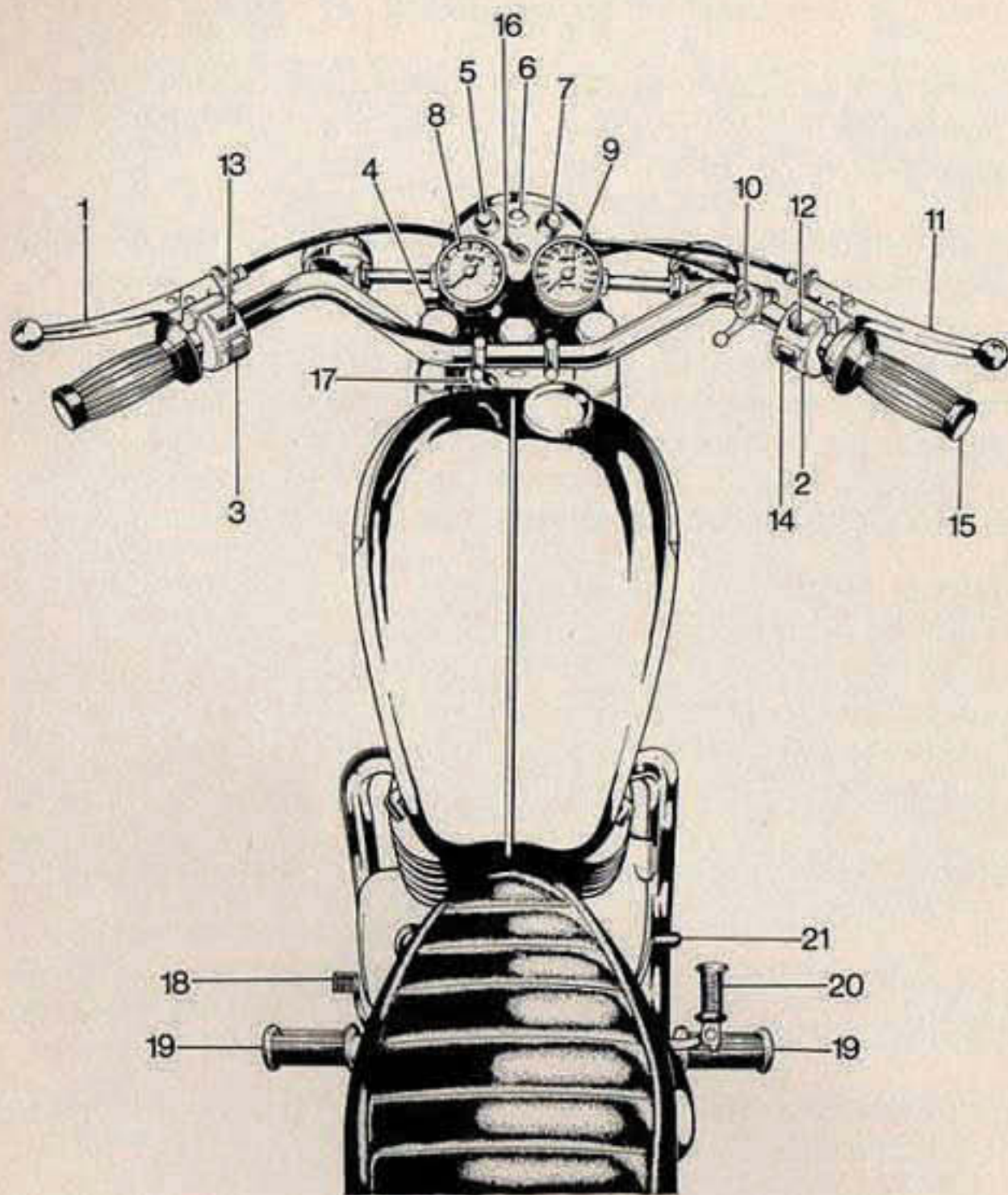
**Throttle control.** Twist the right handlebar grip towards you to increase motor speed.

**Ignition switch.** On left headlamp bracket operated by a key. Turn the key clockwise to turn on ignition. The machine will start normally even with a discharged battery.

**Parking lock.** On the fork top lug. Turn the handlebar to full left lock and turn the key clockwise to lock the steering.

**Oil pressure warning light (Red).** Fitted into the headlamp shell, it illuminates as the ignition is switched on and should extinguish when the motor is running and the oil pressure builds up. If the light fails to extinguish with the motor beyond a tickover, kill the motor and investigate the cause.





- |  |                       |
|--|-----------------------|
| 1. CLUTCH LEVER                              | 10. AIR CONTROL LEVER |
| 2. KILL-BUTTON                               | 11. FRONT BRAKE LEVER |
| 3. DIRECTION INDICATOR SWITCH                | 12. HORN PUSH         |
| 4. IGNITION SWITCH                           | 13. HEADLIGHT FLASHER |
| 5. OIL PRESSURE WARNING LIGHT (RED)          | 14. DIP SWITCH        |
| 6. DIRECTION INDICATOR WARNING LIGHT (AMBER) | 15. THROTTLE CONTROL  |
| 7. HIGH-BEAM WARNING LIGHT (GREEN)           | 16. LIGHTING SWITCH   |
| 8. TACHOMETER                                | 17. PARKING LOCK      |
| 9. SPEEDOMETER                               | 18. REAR BRAKE LEVER  |
|  | 19. FOOTREST          |
|  | 20. KICKSTARTER PEDAL |
|  | 21. GEARSHIFT PEDAL   |

Fig. 1. Control Layout.

**Main beam warning light (Green).** Illuminates as the headlamp 'high' beam is selected.

**Direction indicator warning light (Amber).** A flashing light which operates in conjunction with the direction indicators.

**Lighting switch.** A three position toggle switch fitted into the headlamp shell. From the off position on the left, move the switch to the centre for parking lights and to the right for full lights. The head light is not operative unless the ignition is switch on.

### ON THE MACHINE

**Gas taps.** At the rear underneath the tank. Turn down the lever on the right tap for normal running. When the reserve is required turn down the lever on the left tap. Always turn off both taps when parking to prevent gas flooding the motor.

### FOOT CONTROLS

**Brake pedal.** In front of left footrest. Press down to apply the rear wheel brake.

**Gearshift lever.** In front of right footrest. Press down to shift to a lower gear or pull up to shift to a higher gear. The lever is spring loaded and always returns to the central position.

**Starter pedal.** The folding pedal behind the right footrest.

## TAKING THE MOTORCYCLE ON THE ROAD FOR THE FIRST TIME

In most cases the dealer will have checked the oil levels in the gearbox, primary chaincase and oil tank, checked the tire pressures and properly serviced the battery; if in doubt check them again. Fill the gas tank with the grade of fuel shown in Useful Data and the motorcycle is ready for starting.

### TO START THE MOTOR

1. Select the neutral position between first and second gear.
2. Pull in the clutch lever and operate the starter pedal several times to free the clutch.
3. Turn on the gas tap and hold down for approx. 5 seconds the spring loaded tickler button which floods the carburetor and enrichens the mixture. In cold weather close the air lever.



4. Place the key in the ignition switch and turn clockwise.
5. Press down the starter pedal gently until you feel some resistance; then press harder with the throttle slightly open when the motor should start.
6. Open the air control as soon as the motor will allow it without stalling.

### BREAKING IN YOUR NEW MOTORCYCLE

Although the new parts are machined as accurately as possible the moving parts need to mate with each other or become what is known as "broken-in". At a low constant speed this would take a considerable mileage, therefore the ideal method of breaking-in is to increase progressively the load and length of time the load is maintained. These machines will travel at 50 m.p.h. with only a small throttle opening on a level road without harm when new but any use of a large throttle opening, even in a lower gear, other than for a very short time may cause damage.

Shift gear frequently so that the motor is always working easily; neither pulling hard in a high gear nor revolving fast in a low gear. The extra use of the gearbox helps to break-in all the transmission parts. It is difficult to quote a set mileage but provided that the breaking-in is done intelligently it should be possible to use maximum performance after 1,500 miles. Whenever the maximum performance is used it is a good plan to snap shut the throttle for a moment occasionally as this sucks a certain amount of oil up the cylinders.

### U.S.A. LIGHTING REGULATIONS

Certain States require motorcycles to be ridden with the headlight and taillight illuminated at all times. During stop and start conditions and low speed riding the battery could become discharged. To avoid this it is advisable to ensure that the motor is maintained at a speed in excess of 2100 r.p.m. at which point the alternator provides sufficient current to balance the discharge. If difficulty is experienced in maintaining battery charge during slow speed city use, select a lower gear to obtain a higher motor speed.

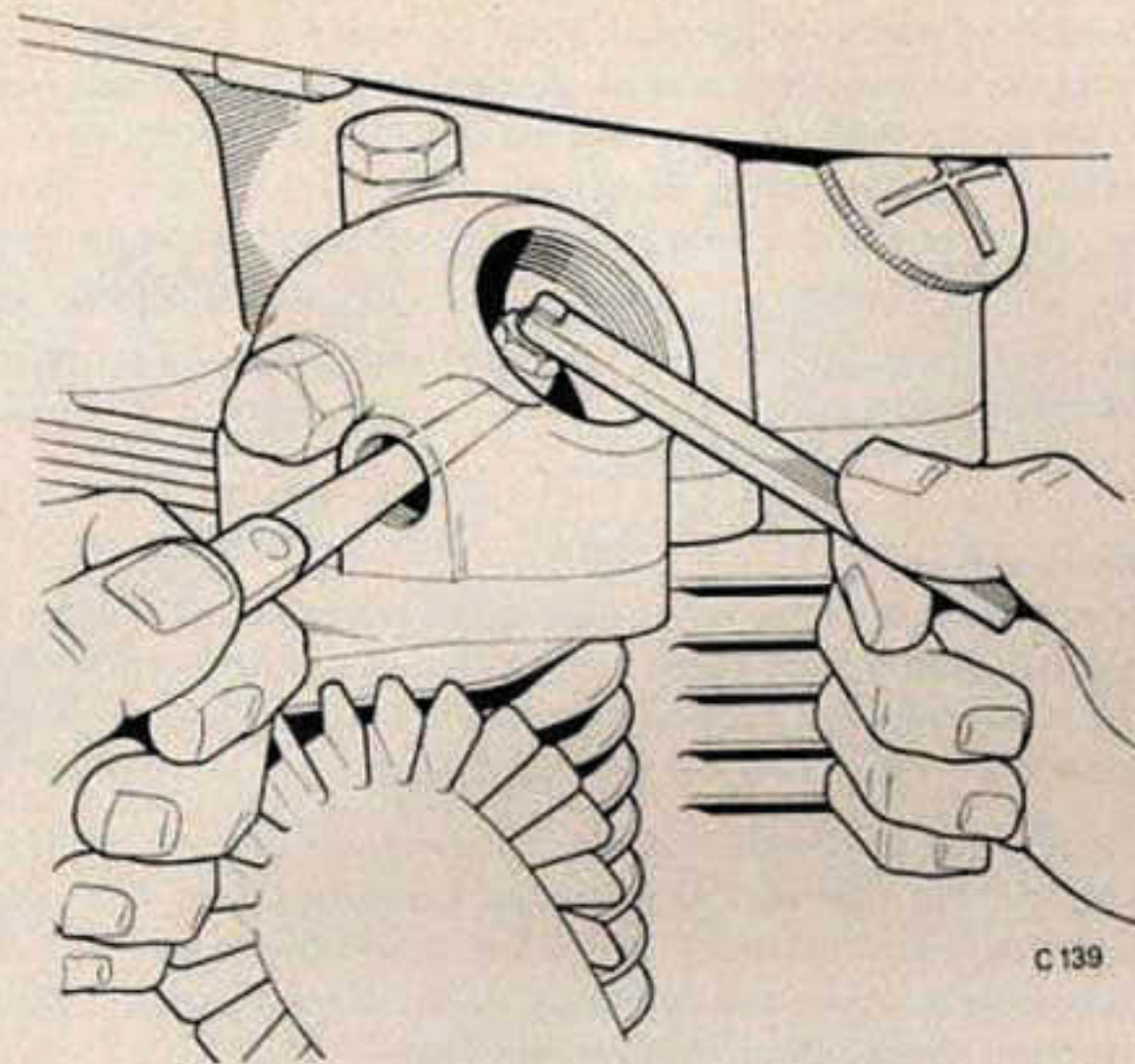


Fig. 2. To adjust the valve operating mechanism.

### TO ADJUST THE VALVE OPERATING MECHANISM

There are four adjusters on the rockers which are accessible after removing the four inspection caps from the rocker boxes. A feeler gauge of the correct thickness can be inserted after removing four blanking plugs, one from the end of each rocker box (see Fig. 2). The clearance must always be checked when the motor is cold. It will be easiest to find the correct point of the stroke to adjust the valve clearance if you put the machine on the centre stand, engage top gear, and then remove the spark plugs. By turning the rear wheel you can then turn the crankshaft and position the valves.

#### Inlet valves (Towards the rear of the motor)

Turn the rear wheel until one of the inlet rockers moves downwards, thus opening the valve. When this valve is fully open the operating



mechanism of the other inlet valve will be seated on the base of the cam and the clearance can now be checked and adjusted if necessary. The clearance is 0.002 in., and is correct when a feeler gauge of that thickness is a tight sliding fit between the valve tip and adjuster screw. Recheck the clearance after having tightened the locking nut. Having adjusted one inlet valve, turn the rear wheel until the valve which you have adjusted is now fully open and repeat the procedure for the other inlet valve.

### Exhaust valves

Having adjusted the inlet valves proceed to the exhaust valves which are situated at the front of the motor. Proceed in the same way as for the inlet valves and position one valve fully open whilst you check the clearance on the other. In this case the clearance will be 0.004 in.

Check that the inspection cap fiber washers are in good condition and replace the caps making sure that they are tight. The access plugs at the end of the rocker boxes are fitted with copper washers. It is advisable to check the condition of these washers and if necessary replace them before refitting the plugs.

## TO ADJUST THE BRAKES

### Front brake

The adjustment of the front brake operating mechanism is by means of a knurled finger-operated nut incorporated in the handlebar abutment. Turn the nut anti-clockwise to take up the clearance in the operating cable. The exact setting will depend on the size of the rider's hand but the lever must not contact the handlebar when the brake is fully applied or the braking effect will be severely restricted.

### Rear brake

The rear brake pedal is adjustable for position and any adjustment for the pedal position should be made before adjusting the free movement. From the static position before the brake is applied there should be about  $\frac{1}{2}$  in. of free movement before the brake starts to operate. The actual adjustment is by means of a finger operated nut on the rear end of the brake operating rod. Turn the nut clockwise to reduce the clearance.

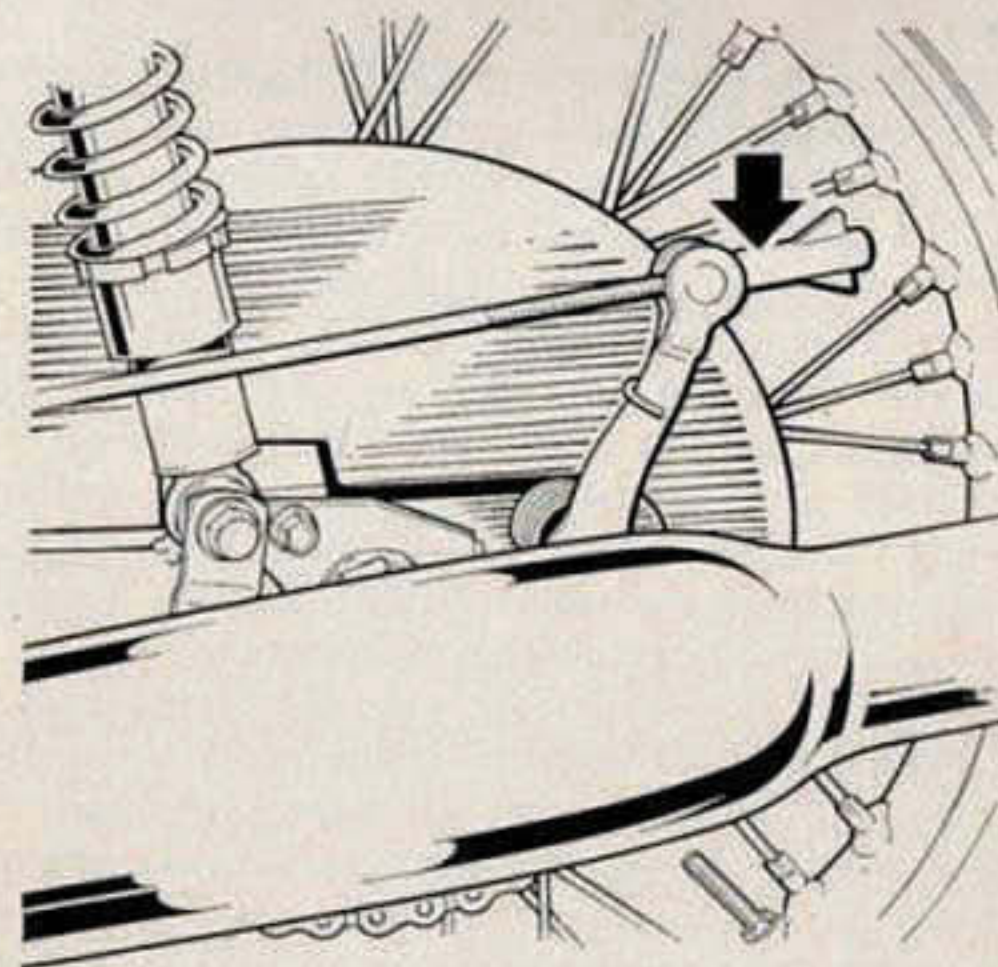
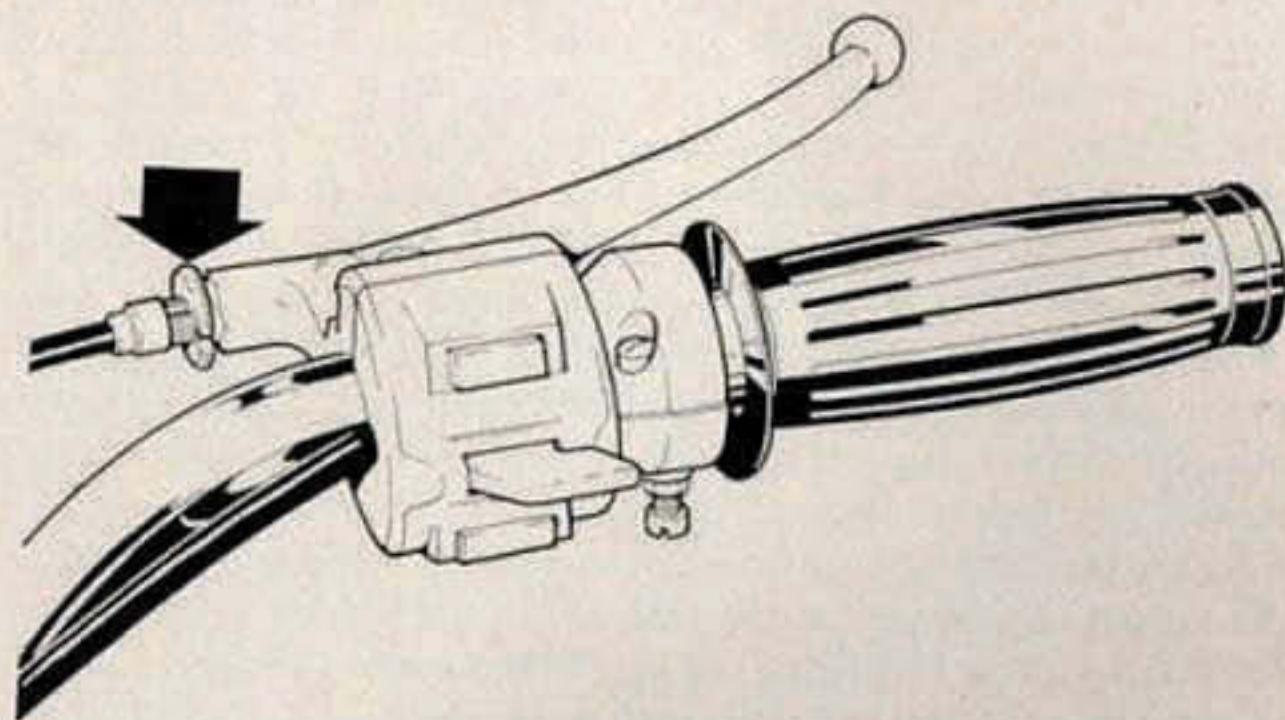


Fig. 3. Showing brake adjusters.



## TO ADJUST THE CHAINS

### Primary chain

The primary chain is of the Duplex type and is not adjustable as the centres of the motor shaft and gearbox are fixed. Provision for the take-up of wear in the primary chain is made by means of a rubber-faced slipper blade below the bottom run of the chain. The free movement in the chain can be felt with a finger after removing the top inspection plug. Do not move the chain by using the starter pedal while your finger is inside the case. The correct chain adjustment is  $\frac{1}{2}$  in. free movement. To reduce the amount of slack remove the backward-sloping plug from the bottom of the case and tighten the slotted adjuster nut at the rear end of the tensioner by using a screwdriver. After replacing the plug in the bottom of the chaincase always remember to replenish with approximately  $\frac{1}{4}$  pint of oil as used in the oil tank. The correct level of oil is maintained by the engine breathing system.

### Rear chain

The adjustment of the rear chain is controlled by draw bolts fitted to each end of the rear wheel spindle. The correct adjustment for the rear chain is  $\frac{3}{4}$  in. free movement with the machine on its wheels and the chain at its tightest point or  $1\frac{3}{4}$  in. with the machine on the stand and the chain at its slackest point. If the adjustment of the chain is outside these limits it should be corrected by loosening the wheel spindle nuts and the brake torque stay nut on the anchor plate and then adjusting the draw bolts an equal number of turns. Always apply the brake pedal to centralise the brake plate and keep it applied while you tighten the left spindle nut. Tighten the wheel spindle nuts and check the chain adjustment again. If the wheel alignment was correct originally the adjustment of the nuts by an equal number of turns should preserve the alignment but if you are doubtful whether the rear wheel is in line then you should use a straight edge or piece of string alongside the rear wheel, making allowance for the difference in section between the rear tire and the front tire and then tighten or loosen the draw bolt adjuster on the right side so that the rear wheel lines up with the front wheel. If the rear wheel is not in line the road holding of the machine will be adversely affected and the effect on the rear chain and rear wheel sprocket will cause rapid wear. When the adjustment is satisfactory check the tightness of the wheel spindle nuts, adjuster draw bolts and brake torque stay nuts. Finally check the adjustment of the

brake operating rod. There is no automatic oil feed to the rear chain which should be lubricated manually with an oil gun at intervals of one week.

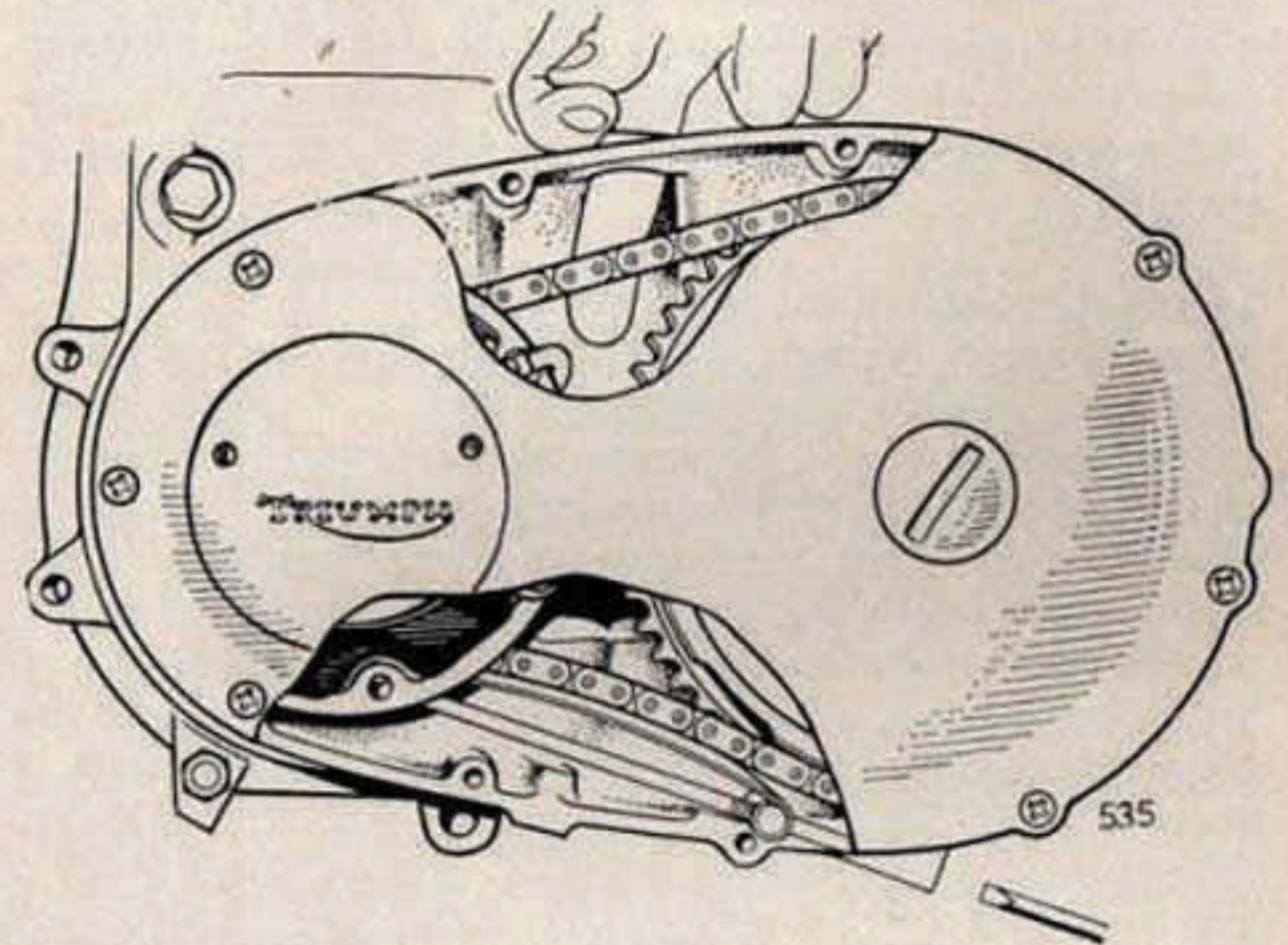


Fig. 4. To adjust the primary chain.

## TO ADJUST THE CLUTCH AND THE CLUTCH OPERATING MECHANISM

The clutch is situated on the left side of the machine inside the primary chaincase. If the clutch is dragging and normal adjustment of the operating mechanism produces no improvement it will be necessary to remove the primary chaincase to adjust the three springs which provide the loading on the pressure plate. To remove the primary chaincase first take off the left exhaust pipe and swing the footrest and brake pedal out of the way. Place a tray underneath, remove the drain plug and unscrew the slotted nut from the chain adjuster. Release the cover by unscrewing ten screws. The three



slotted nuts on the clutch should be tightened initially until the heads are flush with the end of the pins. The handlebar clutch lever should be pulled and the starter pedal operated while you watch the outermost plate of the clutch. This should lift evenly and turn without wobbling. If one side of the plate is high the slotted nut nearest to it should be tightened as necessary until the pressure plate lifts and turns evenly. After replacing the cover, initially fill the chaincase with approximately  $\frac{1}{2}$  pint of engine oil (see recommendations on page 39).

#### **To adjust the clutch operating mechanism**

When the clutch pressure plate lifts evenly it is then possible to adjust the clutch operating mechanism. Slacken off the adjustment at the handlebar end of the clutch cable and then screw in the adjuster situated in the centre of the pressure plate until the pressure plate just starts to lift. Screw back the adjuster one half turn and secure it with the locking nut. This adjustment can be carried out through the inspection hole in the primary chaincase if the chaincase has not been removed. Finally adjust the knurled nut at the handlebar abutment until there is approximately  $\frac{1}{8}$  in. free movement in the cable.

#### **To change the clutch cable**

To remove the clutch cable slacken the adjustment at the handlebar abutment and then at the gearbox end of the cable, slide the rubber cover upwards to give sufficient clearance to allow the slotted ferrule to be removed. Unscrew the abutment from the gearbox outer cover and then lift it upwards until the cable can be detached from the slotted nipple.

To replace the clutch cable, first pass the lower end through the rubber cover and bottom abutment complete with fiber washer. Engage the cable nipple with the slotted nipple in the gearbox and tighten the abutment. Pass the upper end of the cable through the slotted adjuster and abutment of the handlebar lever and fit the cable nipple to the lever. Replace the slotted ferrule at the gearbox end, and slide the rubber cover into position.

## **TELESCOPIC FRONT FORKS**

The only routine attention needed to the front forks is checking the adjustment of the steering head races and changing the oil. Use the grade of oil recommended on page 39, and change the oil at the mileage given on page 38.

#### **To change the oil in the telescopic forks**

Remove the small sloping bolt immediately above the wheel spindle on the outside of each fork leg. Allow the oil to drain into a suitable container and then remove the last drops by pressing on the handlebars and pumping the forks up and down. Replace the drain bolts, making sure that the small aluminium washers are in good condition. To replenish the fork legs it will be necessary to remove the large chromium plated nuts at the top of the fork, and this should be done on each side separately with the machine on the centre stand. The correct quantity for each leg is shown on page 6.

#### **To adjust the steering head races**

The steering head races may require adjustment once or twice in the early stages of a machine's life but will rarely require attention after that. To check the adjustment, stand on the right side of the machine with the fingers of the left hand reaching down behind the fork top lug and resting on the frame and the dust cover of the top bearing. With the right hand apply the front brake and rock the machine forward. Any play will be felt by the fingers of the left hand. To make the adjustment, place the machine on the stand, slacken the pinch bolt at the back of the fork top lug and tighten down the large adjusting nut on the fork stem until the play is just taken-up. The forks and wheel should turn freely from lock to lock without any dragging or hesitation. If the adjustment seems correct but the movement is rough or jerky then the steering head races are probably damaged and it will be necessary to replace them. When the adjustment is correct tighten the pinch bolt.



## REAR SUSPENSION

The swinging fork pivots on bronze bushes which should be lubricated with a high pressure grease gun at least every 1,000 miles until grease is seen to be coming from the end of both bushes. There is one nipple only at the right side of the spindle. If the mileage intervals are not convenient, it is better to grease more frequently rather than to extend the interval.

The movement is controlled by Girling combined coil spring and hydraulic damper units. The hydraulic damping mechanism is completely sealed but the static loading of the spring is adjustable. There is a three position castellated cam ring covered by a shroud below the chromium plated dust cover and a "C" spanner is provided in the toolkit. To increase the static loading of the spring place the machine on the stand so that there is least load on the spring and use the "C" spanner to turn the cam; both units must be on the same notch whichever may be chosen.

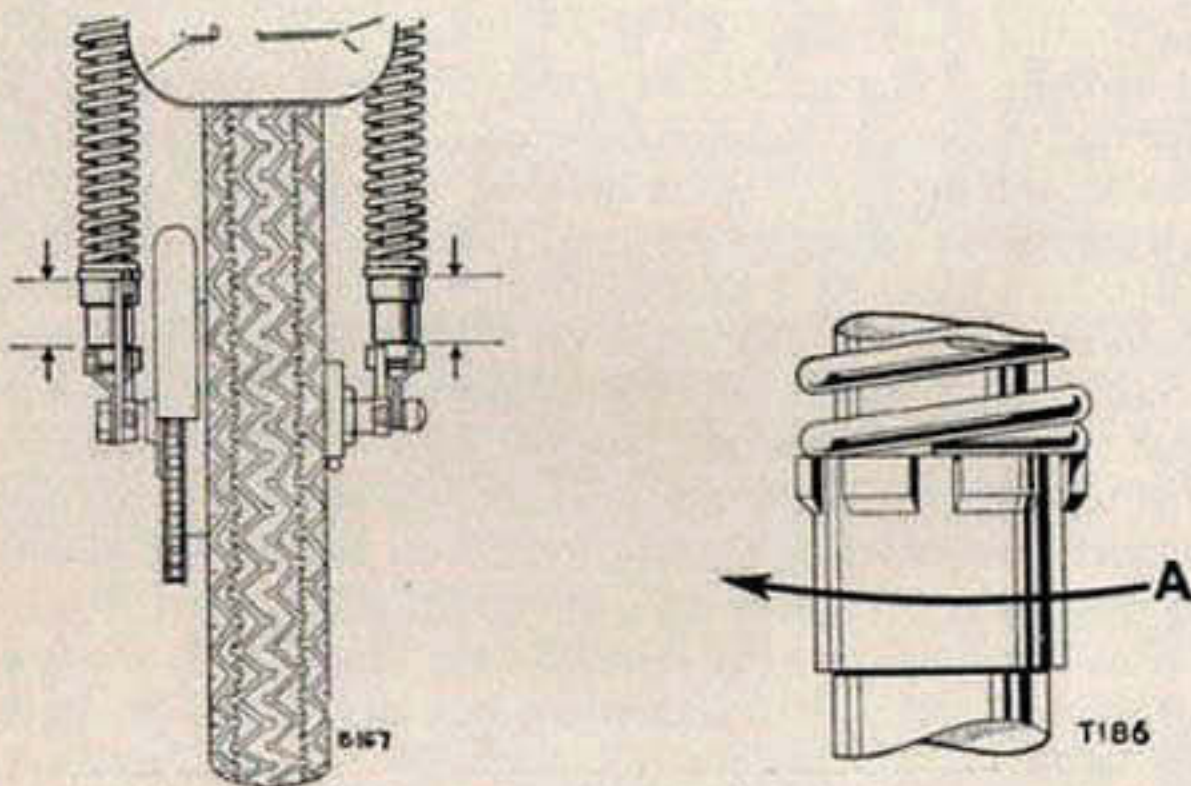


Fig. 5. Rear suspension spring adjustment.

A quick visual check can be made on this point from the rear of the machine as in Fig. 5. Comparing the exposed lengths of the units will establish that the loading is equal. To increase the static loading, turn the castellated cam ring in the direction shown. Alternative heavier springs are available to suit certain requirements and can be obtained from your dealer.

## WHEELS

The wheel bearings are filled with grease on assembly and this should be sufficient to last for approximately 12,000 miles. In particularly dirty conditions it may be necessary to remove the bearings for cleaning and inspection at a lower mileage but this will usually be under cross-country conditions where the rider will be competent to take the decision to carry out this work. Always use the recommended grades of high melting point grease as hub temperatures rise during heavy braking and may cause a softer grease to melt and run into the brakes.

### To remove the front wheel

Disconnect the brake operating cable by removing the clevis pin at the bottom end from the lower end. Unscrew the four nuts securing the two spindle caps to the fork legs, unscrewing each a little at a time until they are completely removed. By pressing down on the rear of the machine it will be possible to take out the wheel. To replace the front wheel engage the slot on the brake plate with the peg on the inside of the fork leg and place the spindle under the fork ends. Hold the caps in position and tighten the four nuts a little at a time until they are fully home.

Refit the brake cable with the clevis pin.

### Rear wheel

The rear wheel has the brake drum bolted to the rear hub and the hub bearings are of the non-adjustable ball journal type. A detachable steel sprocket is bolted to the brake drum by eight bolts. Alternative sprocket sizes of 47-50 teeth are available from your dealer. With hub bearings in good condition, there should not be any detectable side movement at the wheel rim.

### To remove the rear wheel

Slacken the bolt at the rear of the chainguard so that the chainguard can be swung upwards. Make sure that the machine is in gear so that the chain does not fall off the gearbox sprocket and then remove the connecting link. Unscrew the nut from the end of the brake operating rod and disconnect the stop lamp switch spring to allow the chainguard to be moved upwards.

Unscrew the nut which secures the brake torque stay to the anchor plate and finally unscrew the wheel spindle nuts and speedometer drive cable and remove the wheel.

Replacement is the exact reverse of the removal procedure but always check the chain adjustment and wheel alignment, see Page 16.



## TIRES

The tire sizes are 3.25 x 19 front and 4.00 x 18 rear. The pressure should be checked regularly, preferably every two weeks. After checking the pressure the valve cap should always be replaced as it forms a seal against dirt and also prevents accidental deflation of the tire at high speeds.

The tire pressures recommended below are suitable for an average rider but if a pillion passenger is carried the pressure in the rear tire should be increased by 6 lbs./sq. in. and in the front tire by 4 lbs./sq. in.

Tire size		Inflation pressure lb./sq. in.
Front	3.25	24
Rear	4.00	25

For further details consult the Dunlop booklet.

Front wheels are balanced complete with tire and tube before leaving the factory and if the tire is removed it should be replaced in the same position with the balancing spot level with the valve. If a new tire is fitted the weights should be removed and the wheel re-balanced, adding weights as necessary until it will remain at rest in any position. Make sure that the brake is not binding while the balancing operation is being carried out. When balancing the rear wheel, the chain should of course be disconnected and removed from the rear wheel sprocket.

## BRAKES

The rear brake shoes are semi-floating to allow them to centralise themselves on the fulcrum pin. The linings are at the trailing end of the shoes and the shoes must be fitted to the plate with thrust pads against the fulcrum pin. When obtaining replacement brake shoes note that the leading and trailing shoes are not interchangeable.

The following information is in accordance with the requirements of the U.S.A. National Highway Traffic Safety Administration, Motor Safety Regulations part 575, consumer information.

### BRAKE BURNISHING PROCEDURE

Brakes should be bedded in progressively during the first 300 miles. This is done by gradually increasing brake lever pressure during the period, and braking from progressively increasing speeds. For guidance refer to the table below. The deceleration in ft./sec.<sup>2</sup> is converted to the equivalent braking time/distance.

Stage	1	2	3
Speed of commencement of stage (m.p.h.) ... ..	30	50	70
Speed at end of stage (m.p.h.) ...	0	30	30
Deceleration (ft./s. <sup>2</sup> ) ... ..	12.5	12.5	12.5
Distance travelled (ft.) ... ..	77	135	344
Time taken (secs.) ... ..	3.5	2.3	4.7

#### Stage 1

A minimum of 20 stops using the front and rear brakes together. Decelerate from 30 m.p.h. to rest using the distance travelled or time taken to obtain the required deceleration.

#### Stage 2

A minimum of 50 decelerations from 50 to 30 m.p.h. using front and rear brakes together.



### Stage 3

A minimum of 30 decelerations from 70 to 30 m.p.h. using front and rear brakes together.

The distance between brake applications should not be less than  $\frac{1}{4}$  mile in each case. Disengage the clutch when carrying out the procedure to ensure that the brakes receive the full braking load.

The use of the above procedure, subject to traffic conditions will ensure that any high spots on the brake linings are not hardened, resulting in reduced brake efficiency. Correct burnishing will give an approximate minimum lining contact area of 50% which qualifies the published brake performance figures.

## IGNITION TIMING

The ignition contact breaker is in the timing cover on the right of the motor, and is driven by the exhaust camshaft. There is a round chromium-plated cover over it held by two screws. To remove the timing cover, for instance to examine the oil pump, the contact breaker (cam and auto-advance assembly) must be released from the camshaft. To release the contact breaker remove the central bolt and use extractor tool D782 by screwing it into the end of the hollow spindle.

When replacing the contact breaker it must be positioned correctly relative to the exhaust camshaft. A pin is provided in the exhaust camshaft and a slot in the taper end of the auto advance spindle serves as a location. The average owner will find the following method the easiest when setting the ignition timing.

For timing purposes two alternative methods have been used for setting the engine in the 38° fully advanced position. The first utilises service tools D2195 and D572. By turning the engine over gently with the service tool fitted in place of the blanking plug at the top rear of the crankcase, slight hand pressure on the plunger will enable this to locate with a slot cut into the flywheel for this purpose.

There are two slots in the flywheel, one at 38° and one at top dead centre (T.D.C.). When timing as above check with a spark plug removed that the pistons are not at T.D.C. which would indicate the wrong slot being located. The T.D.C. plug is for degree plate use only.

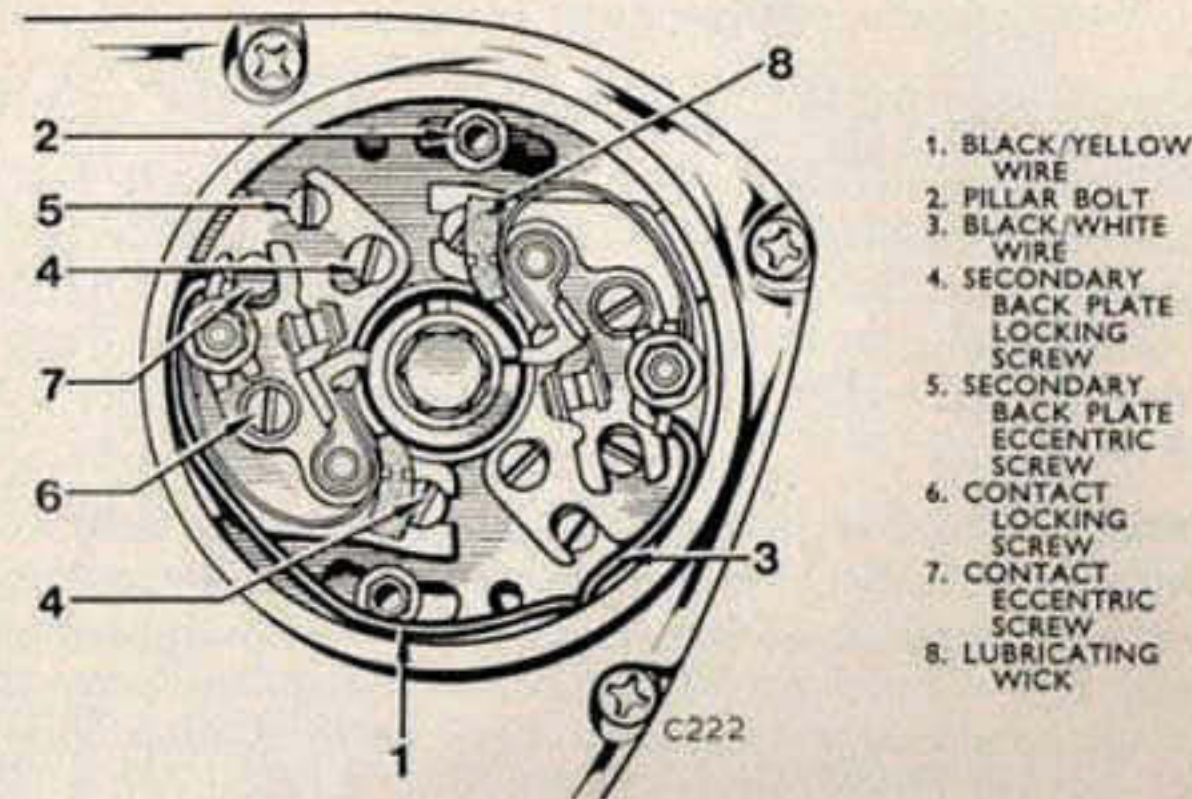


Fig. 6. Contact breaker, type 6CA.

The second method necessitates removal of the circular plate at the forward end of the primary chaincase. Through the aperture will be seen the timing marking on the rotor casting and this aligns with a pointer on the primary chaincase at the edge of the aperture. Placing the rotor marking in line with the pointer again gives the 38° timing position.

Remove both sparking plugs to facilitate turning over the engine. Set both sets of contact breaker gaps. (See page 31.) Set the motor at 38° B.T.D.C. with the contact breaker cam turned clockwise to the fully advanced position. Check the left hand points (Black and Yellow lead) which should just be starting to open. If they are not, slacken both the pillar bolts and turn the contact breaker main backplate. Turn clockwise if the points open too nearly and vice versa. When correct, lock up the backplates, remove the flywheel locating plunger if used and turn the engine over slowly through 360° i.e. one revolution. Set the engine again at 38° B.T.D.C., check the cam is still at the fully advanced position and check that the second set of contacts (Black and White lead) are just starting to open. If there is any discrepancy, slacken the secondary backplate top and bottom screws (Fig. 6) and using the eccentric adjuster screw move the backplate to achieve the correct opening point. Tighten the secondary backplate locking screws.

The timing is now correct. Re-lubricate the felt wicks with 3 drops of clean engine oil and refit the cap.



## SPARK PLUGS

The spark plugs are 14 m.m. thread x  $\frac{3}{4}$  in. reach. The preferred grade is Champion N4.

Suitable alternative spark plugs of K.L.G. FE100 or FE220 grades may be used, but warmer plugs should be used for short distance use around town. It may be advisable to consult your dealer before varying the grade of plugs, as he will know local conditions and your type of use.

To remove a spark plug use the box spanner and short tommy bar provided in the toolkit. If the plug is difficult to unscrew, pour some penetrating oil round the threads and allow it to soak before continuing.

Every 3,000 miles remove the spark plugs and have them cleaned and tested on a plug cleaning machine. If there is no plug cleaning machine available use a penknife or wire brush to remove carbon deposit. Measure the gap with feeler gauges; the correct setting is 0.020 in. To adjust the gap bend the side electrode but never the centre electrode. Every 10,000 miles fit new spark plugs.

When replacing a plug smear a little graphite grease or engine oil round the threads and make sure the joint washer is in good condition. Tighten with the box spanner and short tommy bar provided in the toolkit.

## TO CLEAN YOUR MOTORCYCLE

Do not attempt to remove dried road dirt from your motorcycle, but use a copious supply of water from a hose or bucket containing some proprietary cleaner. Do not direct the water into the electrical system, air cleaner or brakes. Do not use abrasive cleaners on chromium plating but treat it in the same way as the painted surfaces. When the motorcycle is clean and dry, apply a wax polish.

## TO CHANGE THE OIL

Whilst the machine is new it is necessary to change the oil in the motor oil tank, gearbox and primary chain case. The reason for this is that the breaking-in process previously mentioned is a type of controlled wearing and minute particles of metal are produced in this process particularly during the very early stages.

Drain the motor and oil tank, and clean out the gauze filters in the tank after the first 500 miles.

It is advisable to have this operation carried out again at 1,500 miles and at the same time have the gearbox and primary chaincase drained and flushed. Whenever the oil is changed it is advisable to do it when the oil is hot and when the majority of the foreign matter is in suspension. The regular oil change period is every 1,500 miles.

## MOTOR AND OIL TANK

There is a gauze strainer in the crankcase which is removable for cleaning by unscrewing the large hexagon-headed plug which is situated under the motor. Remove the drain plug and disconnect the feed pipe at the threaded union and unscrew the upper part of the union which has attached to it the oil tank gauze filter. Rinse the filters in clean kerosine. Remove all foreign matter from the inside of the tank and finally rinse it in the same way. Replace the filters, with new fiber washers when necessary, and replenish the oil tank to the "Full" position on the dipstick. Start the motor and immediately check the oil issuing from the oil tank return pipe. The filler cap dipstick is calibrated "Add one pint" for topping up purposes.

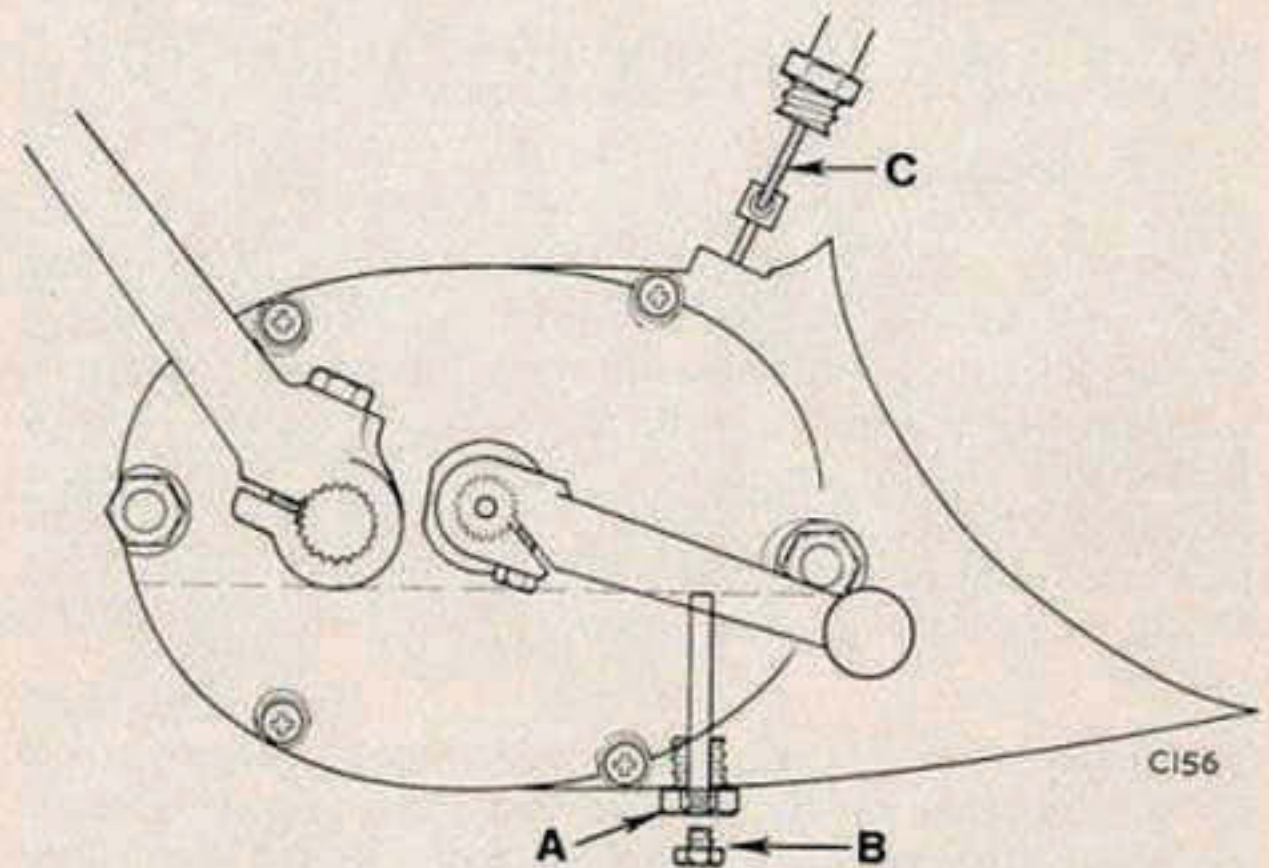


Fig. 7. Gearbox drain and level plugs.



## GEARBOX

The drain plug is situated underneath the gearbox. Remove the plug and drain the oil for a few minutes into a suitable receptacle.

Remove the dipstick/filler plug from the top of the gearbox and replenish with the correct quantity of oil, as shown in the useful data on page 6.

## PRIMARY CHAINCASE

The primary chaincase oil level is automatically maintained by the engine crankcase breathing system. Only after the lubricant has been drained off or lost during adjustment of the primary chain is it necessary to refill with approximately  $\frac{1}{4}$  pint of the same grade of oil as is used in the oil tank. The drain plug is in the bottom of the outer portion of the chaincase.

## THE AMAL CONCENTRIC CARBURETOR

### How it operates

When the motor is idling, mixture is supplied from the pilot jet system, then as the throttle slide is raised, via the pilot by-pass. The mixture is then controlled by the tapered needle working in the needle jet, and finally by the size of the main jet. The pilot system is supplied by a pilot jet, which is non-detachable and which is located in the mixing chamber body. The main jet does not spray directly into the mixing chamber but discharges through the needle jet into the primary air chamber and the fuel goes from there as a rich fuel-air mixture through the primary air choke into the main air choke.

This primary air choke has a compensating action in conjunction with bleed holes in the needle jet, which serve the double purpose of air-compensating the mixture from the needle jet and allowing the fuel to provide a well, outside and around the needle jet, which is available for snap acceleration.

## Adjustment of carburetor parts

**Throttle stop screw.** This screw should be set to open the throttle sufficiently to keep the motor running at a slow tick-over, when the twistgrip is closed.

### Pilot air screw

To set the idling mixture, this screw should be set in to enrich or out to weaken, normal number of turns out from full in is about  $2\frac{1}{2}$ . The screw controls the suction on the pilot jet by metering the amount of air which mixes with the gasoline.

### Needle and needle jet

Machines are delivered from the factory with the needle in the correct position, which should not be altered.

### Throttle valve cut-away

The amount of cut-away is recorded by a number marked on the throttle, viz. 622/3 $\frac{1}{2}$  means throttle type 622 with No. 3 $\frac{1}{2}$  cut-away; a larger cut-away such as 4 gives a weaker mixture or a smaller such as 3 gives a richer mixture.

For settings see Useful Data on Page 6.

### Drain plug

A drain plug is provided in the float chamber. This plug is hollow and collects any foreign matter present in the fuel. The float chamber should be drained periodically and the plug cleaned. The main jet may also be removed through the drain hole, but care must be taken to ensure that the jet is not overtightened as this will lead to the jet holder being unscrewed at the next attempt at removal.

### Air filter

The air filters have cloth and gauze elements. To detach the element, release the clip on the perforated metal rim. Tap the element gently at the same time as a jet of compressed air is directed at it. Never oil the element in this type of filter.

### Twin carburetors

The twin carburetors may require synchronisation and a simple method is as follows: First adjust the cables so that they have the minimum of free play. Now start the motor and take off one plug lead and then adjust the pilot air screw and throttle stop screw in the OPPOSITE carburetor until the motor runs regularly.



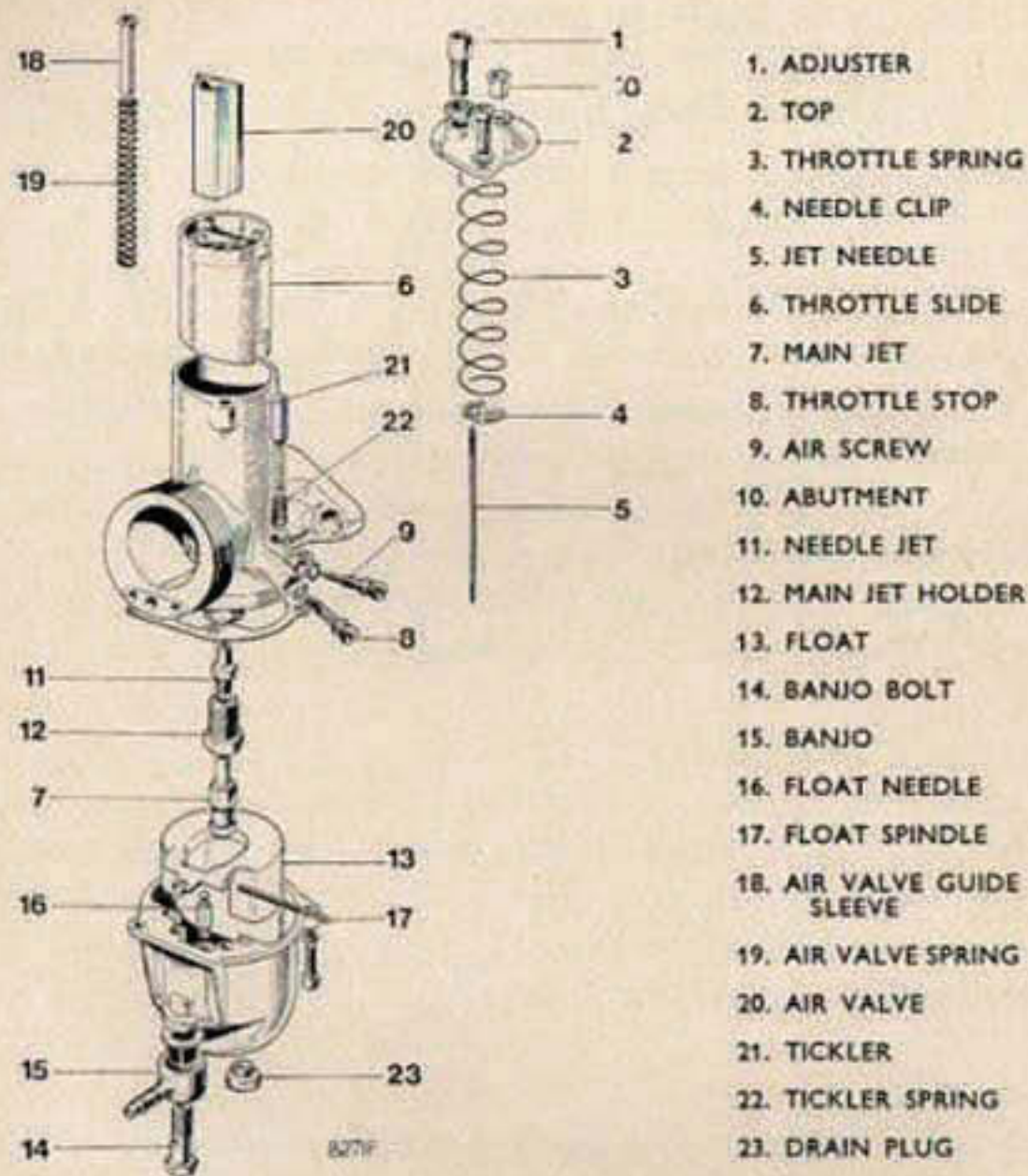


Fig. 8. Amal concentric carburetor.

Replace the plug lead and repeat the process similarly for the other carburetor. With both plug leads replaced the tick-over will be too fast and the stop screws should be lowered simultaneously until correct. It is most important the throttle slides lift simultaneously or the motor will run roughly, particularly when accelerating.

#### Effect of altitude on carburation

Increased altitude tends to produce a rich mixture. The greater the altitude, the smaller the main jet required. As supplied from the factory, carburetor settings are suitable for altitudes of up to

3,000 feet approximately. Machines used constantly at altitudes 3,000 to 6,000 feet should have the main jet size reduced by 5 per cent and thereafter for every 3,000 feet in excess of this, further reductions of 4 per cent should be made.

## ELECTRICAL EQUIPMENT

The electrical system is supplied from an alternating current generator contained in the primary chaincase and driven from the crankshaft. The generator output is then converted into direct current by a silicon diode rectifier. Direct current is supplied to the battery provided on the machine with a Zener diode in circuit to regulate the current that the battery receives, this depending entirely on the state of charge of the battery. The current is then supplied to the ignition system which is controlled by a double contact breaker driven direct from the exhaust camshaft. The contact breaker feeds two ignition coils, one for each cylinder. In the case of a flat battery the machine can still be started without difficulty by switching on the ignition as with the normal starting procedure.

The routine maintenance needed by the various components is set out in the following paragraphs. All electrical components and connections including the ground points to the frame of the machine must be CLEAN and TIGHT.

#### Contact breaker unit, Type 6CA

The contact breaker is contained behind the round chromium plated cover held by two screws on the right side of the motor. See Fig. 6, Page 25. The nylon heels of the moving contacts may settle down initially and it is necessary to check both contact breaker gaps after 500 miles. After checking, apply 3 drops of clean motor oil to the lubricating felts.

To adjust the contact breaker gap, turn the motor with the starter pedal until the scribe mark on the cam aligns with the nylon heel of one set of points (see Fig. 9). Measure the gap (0.015 in.) with feeler gauges. If they are outside the limits, slacken the slotted screw which secures the stationary contact and move the contact until the gap is correct, then tighten the slotted screw. Turn the motor forward until the second pair of contacts just open and adjust them in the same way.



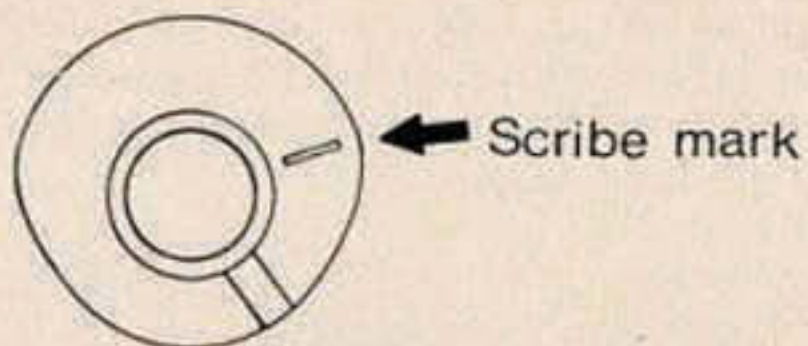


Fig. 9. Showing point setting scribe mark.

Every 3,000 miles subsequently, inspect the contact breaker points and if they are burnt or pitted remove them from the base plates and clean them with fine emery cloth. Wipe with a clean cloth moistened with gasoline. Replace the contacts on the base plate making sure that any insulating washers are in their correct positions. Adjust the gap and then clean the second pair of contacts. Place a few drops of clean motor oil on the centrifugal automatic advance mechanism and one or two drops on the felt pad which lubricates the cam. Two drops of oil should also be applied to the spindle which supports the cam to prevent corrosion and possible seizure. Do not allow any oil on the contacts. Initially the lubricating felts are treated with Shell Retinax A grease and thereafter 3 drops of engine oil should be added to the wicks at 2,000 mile intervals.

#### Ignition coils, Lucas Type 17M12

The twin ignition coils are mounted to the frame beneath the gas tank. Keep the tops of the coils clean particularly beneath the electrical terminals. Inspect the cables for frayed wires or damaged insulation. Any damaged section of cable must be replaced. The coils should be positioned so they cannot short circuit against the gas tank.

#### Battery, Type PUZ5A

A Lead/acid battery is carried beneath the hinged twin seat. Keep the top and the terminals clean. During charging the battery produces gas and this may carry some acid. Wipe up any liquid as it will cause corrosion if it is allowed to remain on metal parts. Check the acid level every week.

Do not overfill a battery. The correct electrolyte level is indicated on the battery case. Add distilled water until the liquid reaches this point. With this type of battery the acid can be reached by a hydrometer, which will indicate the state of charge. If you suspect

a faulty battery have it checked by any Triumph dealer. When replacing the battery on the machine always connect the red (+) positive terminal to the frame of the machine (ground).

#### Lighting and ignition switches

When the ignition is switched off, the current to both the ignition and lighting circuits is cut off. It is therefore not possible to start the machine or to turn on the lights. The switches are sealed and if a fault is suspected, test by substituting another switch. The three connectors should be held firmly in contact with the body of the switch and this should be checked from time to time to ensure constant good electrical contact. An ignition cut out "kill" button is provided on the left handlebar. The oil warning lamp also tells the rider that he has not switched off the ignition with the key provided. It is advisable to make a note of the number of the key in case of subsequent loss.

#### Direction indicators

The flasher unit (type 8FL) is situated beneath the twin seat and is attached to the battery carrier. The unit is sealed and any fault can only be corrected by substituting another unit.

The flashing indicators may not function correctly when the headlamp light unit is removed owing to the ground connections.

#### Alternator, Type RM21

The alternator is contained in the primary chaincase and has no wearing parts. Check that the snap connectors are clean and tight in the output cable underneath the engine unit.

#### Rectifier, Type 2DS506

The central fixing bolt of the rectifier must make electrical contact with the frame of the motorcycle. When tightening a rectifier hold the spanners as shown in the illustration. (See fig. 10) Never disturb the self-locking nut which clamps the plates together. If the plates are twisted the internal electrical connections will be broken. Note that the fixing bolt and nut are  $\frac{1}{4}$  x 28 U.N.F. thread and are both marked by circles to indicate this thread form.



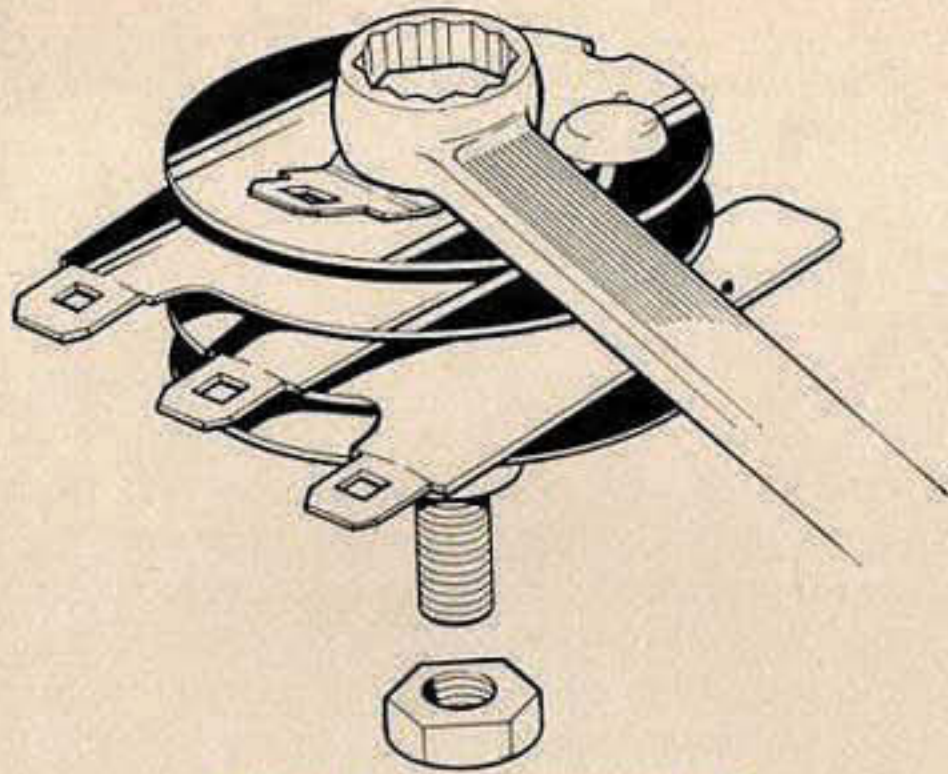


Fig. 10. To secure the rectifier.

### ZENER DIODE

The Zener diode is a small electronic device that acts as a by-pass valve to divert surplus charging current away from the battery. It is mounted on a "heat sink" situated beneath the headlamp to ensure efficient cooling. Care must be taken therefore not to impair the flow of air around the heat sink. Do not place the tag of the red earthing wire between the diode and the heat sink. Providing the diode and its heat sink are kept clean, to ensure maximum efficiency, no maintenance will be necessary.

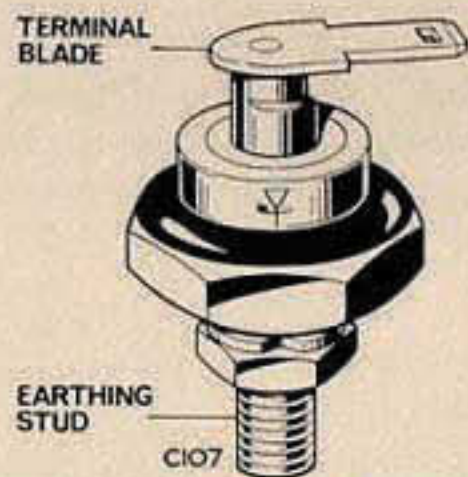


Fig. 11. Zener diode, Model ZD715.

**Caution.** The body of the Zener diode is made of copper to ensure maximum heat conductivity. This means that the fixing stud has a relatively low tensile strength, and should not be subjected to a tightening torque greater than 2 lbs. ft.

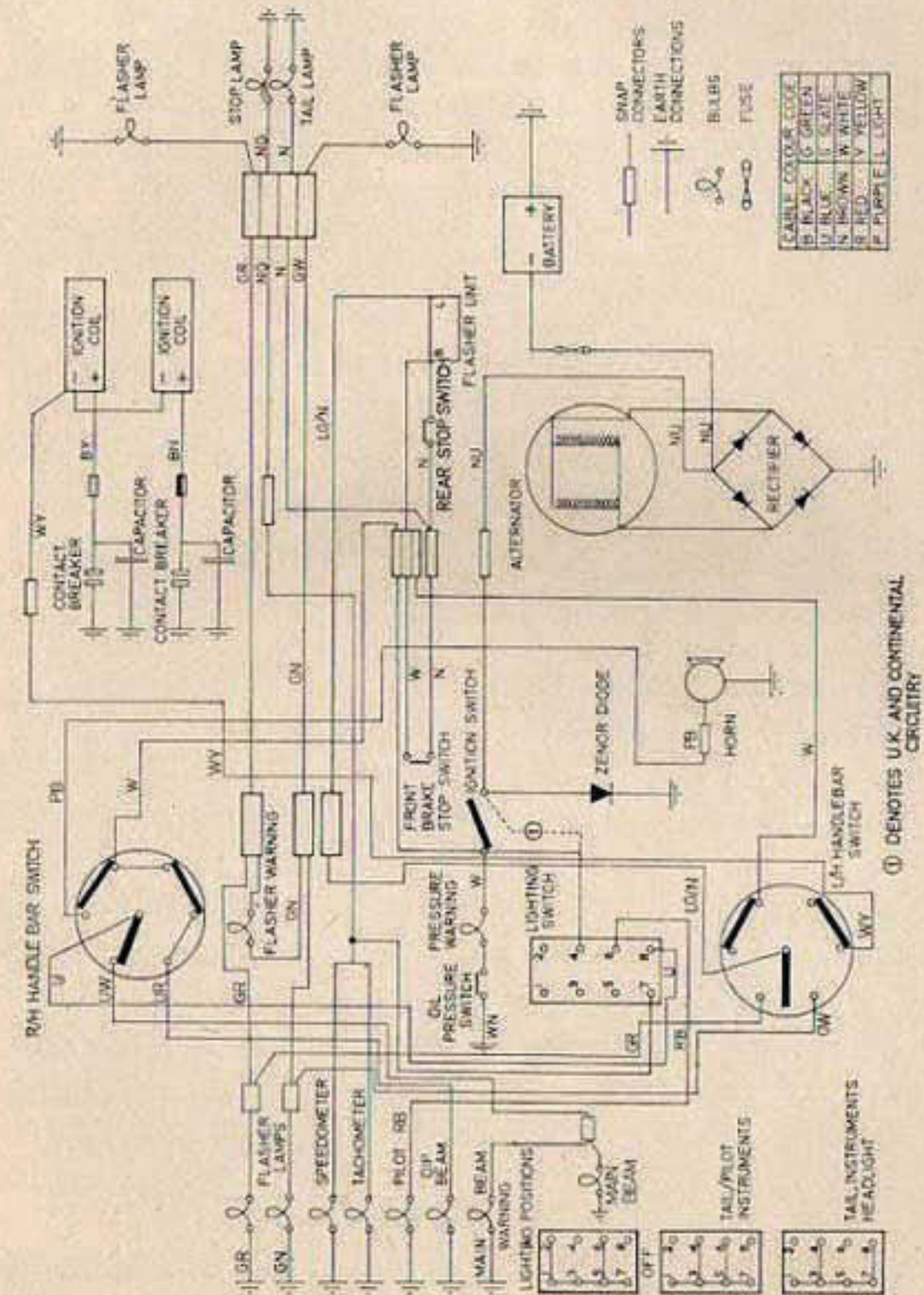


Fig. 12. Wiring diagram. All models.



## Fuse

A line fuse is included in the electrical circuit and is located in the battery live lead. It consists of a plastic tubular holder with a standard 35 ampere rating fuse spring loaded and held in position by a bayonet type fixing cap on the end of the holder. This connection should be checked to ensure that it is clean and tight. It may be necessary to increase the fuse rating if additional electrical equipment is subsequently fitted to the machine. The machine must not be run with a "blown" fuse, otherwise serious damage will result.

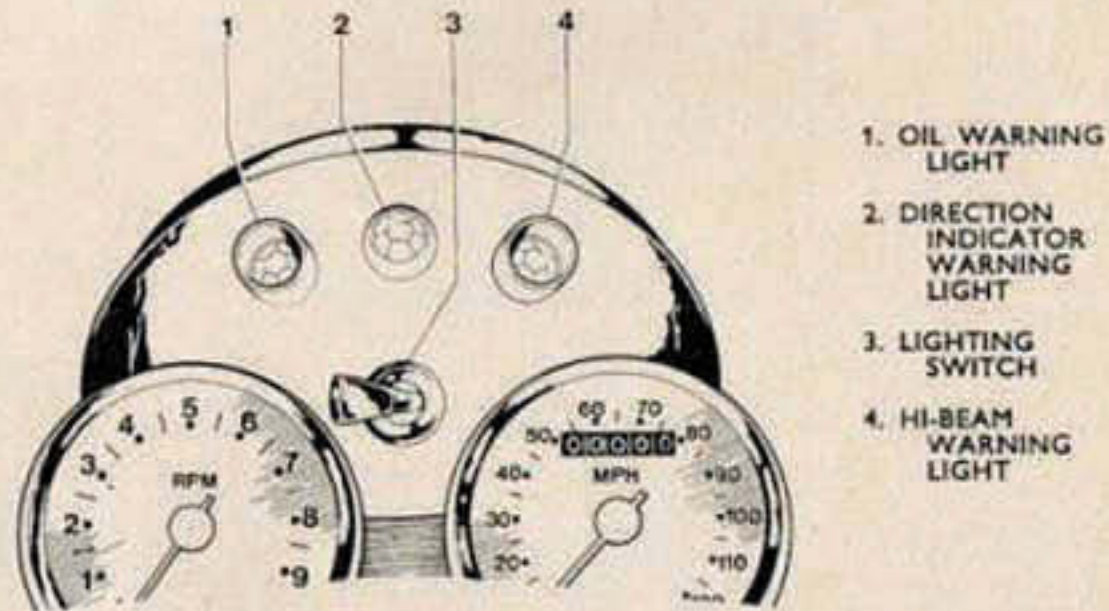


Fig. 13. Headlamp showing lighting switch and warning lights.

## Stoplamp switches

Switches are fitted front and rear. The front switch is fitted into brake cable and the rear to the rear chainguard, operated by the rear brake rod. The switches are sealed units but the rear one can be adjusted for position.

## CONDENSER PACK 2 CP

The two condensers are mounted on a common plate with a rubber shroud. The condenser pack is located beneath the forward petrol tank mounting, between the reflectors. Ensure that the connections, especially the ground tag, are clean and secure.

## ROUTINE MAINTENANCE

	Page
Every week. Check battery acid level ... ..	32
Lubricate rear chain ... ..	16
Every two weeks. Check tire pressure ... ..	22
Every 250 miles	
Check level in oil tank ... ..	27
Every 1,000 miles	
Lubricate and adjust control cables including brakes	General
Grease swinging fork pivot ... ..	20
Check front chain adjustment ... ..	16
Check rear chain adjustment ... ..	16
Check nuts, bolts and screws for tightness ... ..	General
Every 1,500 miles	
Change engine oil ... ..	26
Every 2,000 miles	
Lubricate the contact breaker ... ..	31
Every 3,000 miles	
Check gearbox oil level ... ..	28
Check front forks for external oil leakage ... ..	19
Check adjustment of valve operating mechanism ... ..	12
Clean and adjust spark plugs ... ..	26
Clean and adjust contact breaker ... ..	31
Clean air filter ... ..	29
Every 6,000 miles	
Change oil in gearbox ... ..	28
Change oil in front forks ... ..	19
Check adjustment of head bearings ... ..	19
Every 12,000 miles	
Clean and grease wheel bearings ... ..	Workshop Manual
Clean and grease steering head bearings	Workshop Manual



## RECOMMENDED LUBRICANTS (All Markets)

UNIT	MOBIL	CASTROL	B.P.	ESSO	SHELL	TEXACO
Engine and Primary Chaincase ...	Mobiloil Super	Castrol GTX or Castrol XL 20/50	B.P. Super Visco-Static	Uniflo	Shell Super Motor Oil	Havoline Motor Oil 20W/50
Gearbox ...	Mobilube GX 90	Castrol Hypoy	B.P. Gear Oil SAE 90 EP	Esso Gear Oil GX 90/140	Shell Spirax 90 EP	Multigear Lubricant EP 90
Telescopic Fork ...	Mobil ATF 210	Castrol T.Q.F.	B.P. Autron 'B'	Esso Glide	Shell Donax T.7	Taxomatic 'F'
Wheel Bearings, Swinging Fork and Steering Races ...	Mobilgrease MP or Mobilgrease Super	Castrol LM Grease	B.P. Energrease L2	Esso Multipurpose Grease H	Shell Retinax A	Marfak All Purpose
Easing Rusted Parts ...	Mobil Handy Oil	Castrol Penetrating Oil	—	Esso Penetrating Oil	Shell Easing Oil	Graphited Penetrating Oil

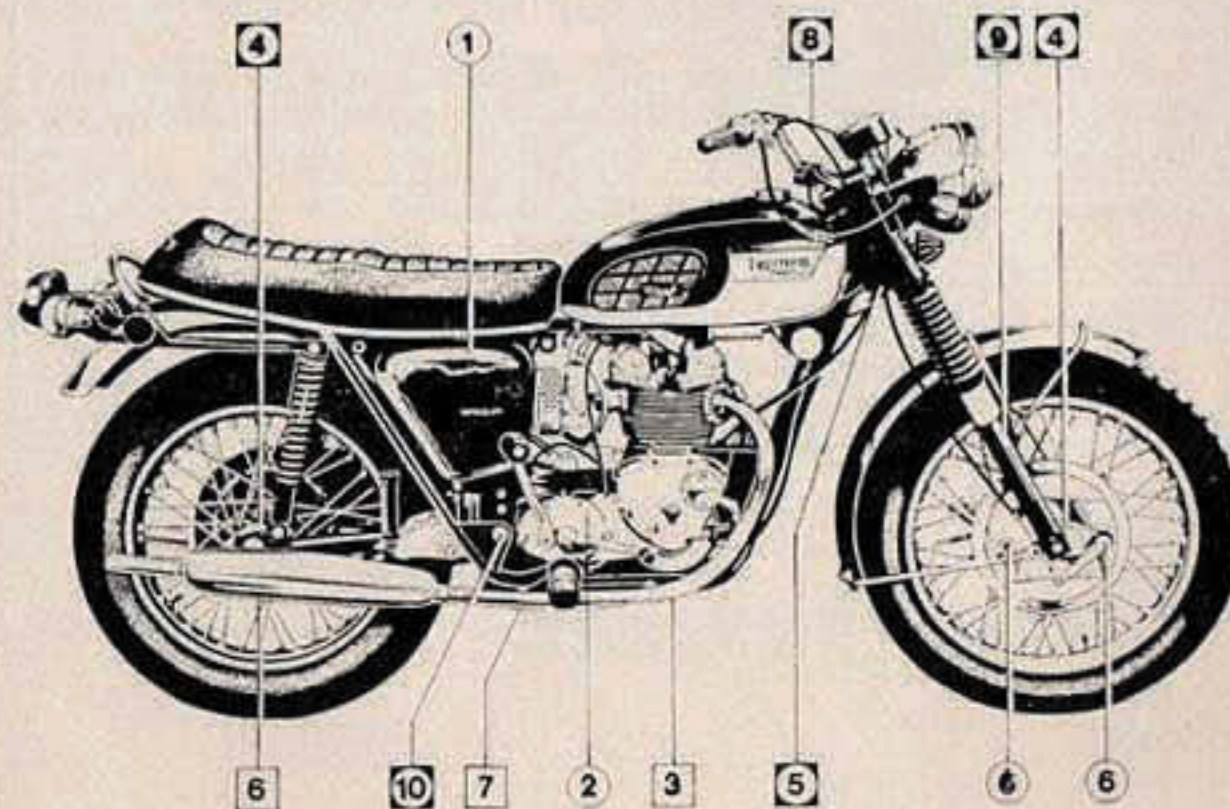
The above lubricants are recommended for all operating temps. above—18°C (0°F) Approval is given to lubricants marketed by companies other than those listed above provided that they have similar multigrade characteristics and meet the A.P.S. Service M.S. performance level.

Also approved are:—

	Engine and Primary Chaincase	Gearbox	Telescopic Fork	Wheel Bearings, Swinging Fork and Steering Races	Easing Rusted Parts
DUCKHAM'S	Duckham's Q20/50	Duckham's Hypoid 90	Duckham's Q-Matic	Duckham's LB10 Grease	Duckham's Adpenol Penetrating Oil
FILTRATE	Filtrate Super 20W/50	Filtrate EP.90	Filtrate A.T. Fluid 'F'	Filtrate Super Lithium Grease	—

## GUIDE TO LUBRICATION POINTS

Illustration No.	Description	SAE Oil grade
1	Motor oil tank ...	20/50
2	Gearbox ...	90
3	Primary chaincase ...	As engine
4	Wheel hubs ...	Grease
5	Steering head ...	Grease
6	Brake cam spindle ...	Grease
7	Brake pedal spindle ...	Grease
8	Exposed cables ...	10/30
9	Telescopic Fork ...	10/30
10	Swinging fork pivot ...	Grease
—	All brake rod joints and pins ...	10/30



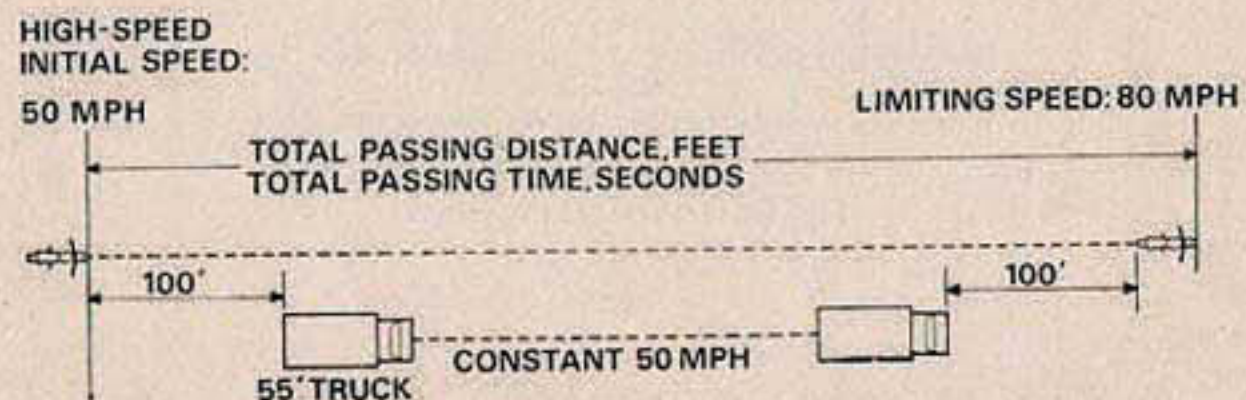
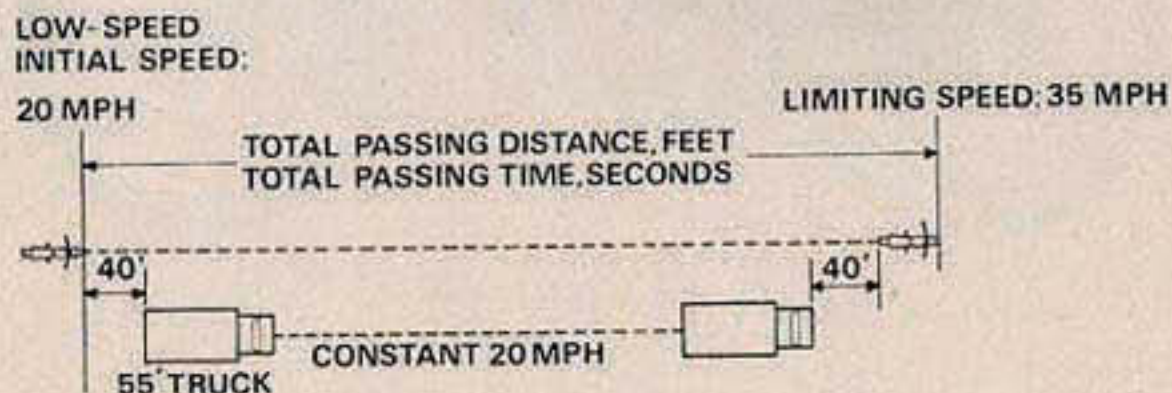
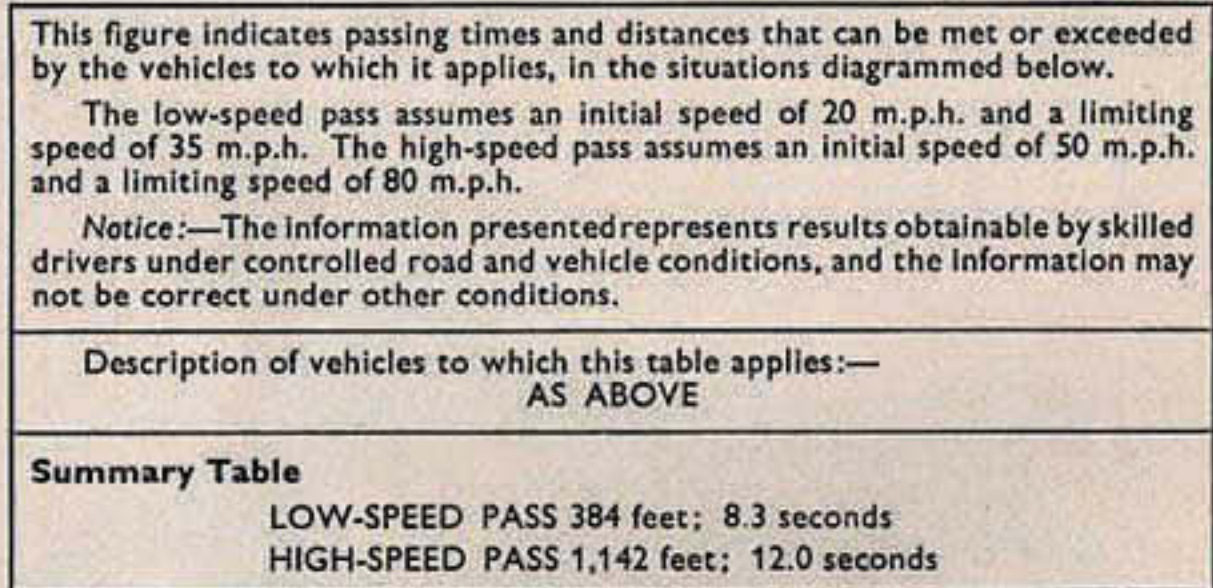
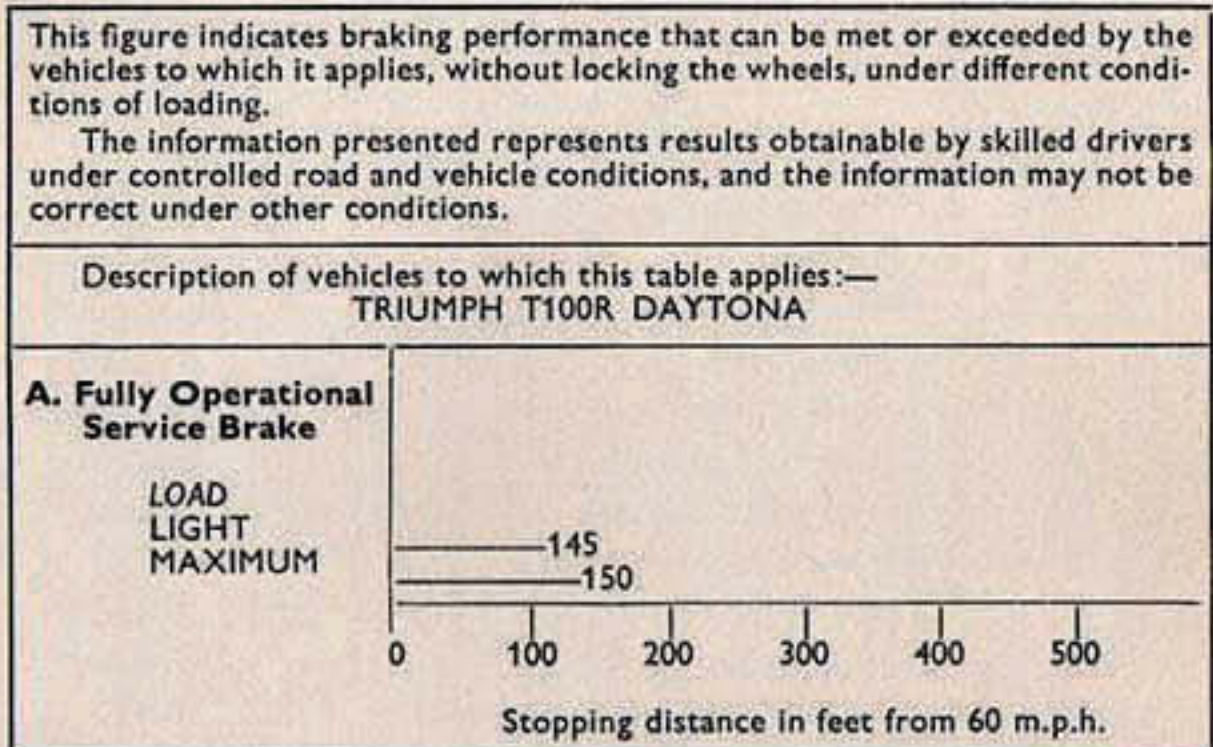
Numbers in circles refer to right side of machine.

Numbers in squares refer to left side of machine.

Fig. 14. Lubrication points.



The following information is in accordance with the requirements of the U.S.A. National Highway Traffic Safety Administration, Motor Safety Regulations part 575, consumer information.



## IMPORTANT NOTE

Any modifications to any Triumph motorcycle made by you or to be made by you in the future shall be held by our company to have been modified at your own risk and responsibility and without either the explicit or implied consent of Triumph Engineering Co. Ltd. or Triumph Motorcycle Corporation. We will assume no liability, obligation or responsibility for any defective or modified parts or for the modified motorcycle itself, or for any claims, demands or legal action for property damage or personal injuries which may result from the modification of any Triumph motorcycle.