

ZUNDAPP

теорія Т75с

теорія 250с

OPERATION AND MAINTENANCE

Welcome to the Ranks of Zündapp Owners

Your "Trophy S" is easy to ride and maintain. Your local ZÜNDAPP distributor will have demonstrated all the special features of this high-class machine and shown you how to handle it. This manual gives you a summary of riding instructions, as well as hints on maintenance and fault-finding, as a permanent record to which you can refer at your leisure.

Our advice is to study this manual carefully before you take your machine on the road for the first time.

Your ZÜNDAPP dealer and our works are at your disposal at all times for advice and information.

Happy motoring.

ZÜNDAPP-WERKE GMBH

MÜNCHEN 8

Anzinger Strasse 1-3

GERMANY

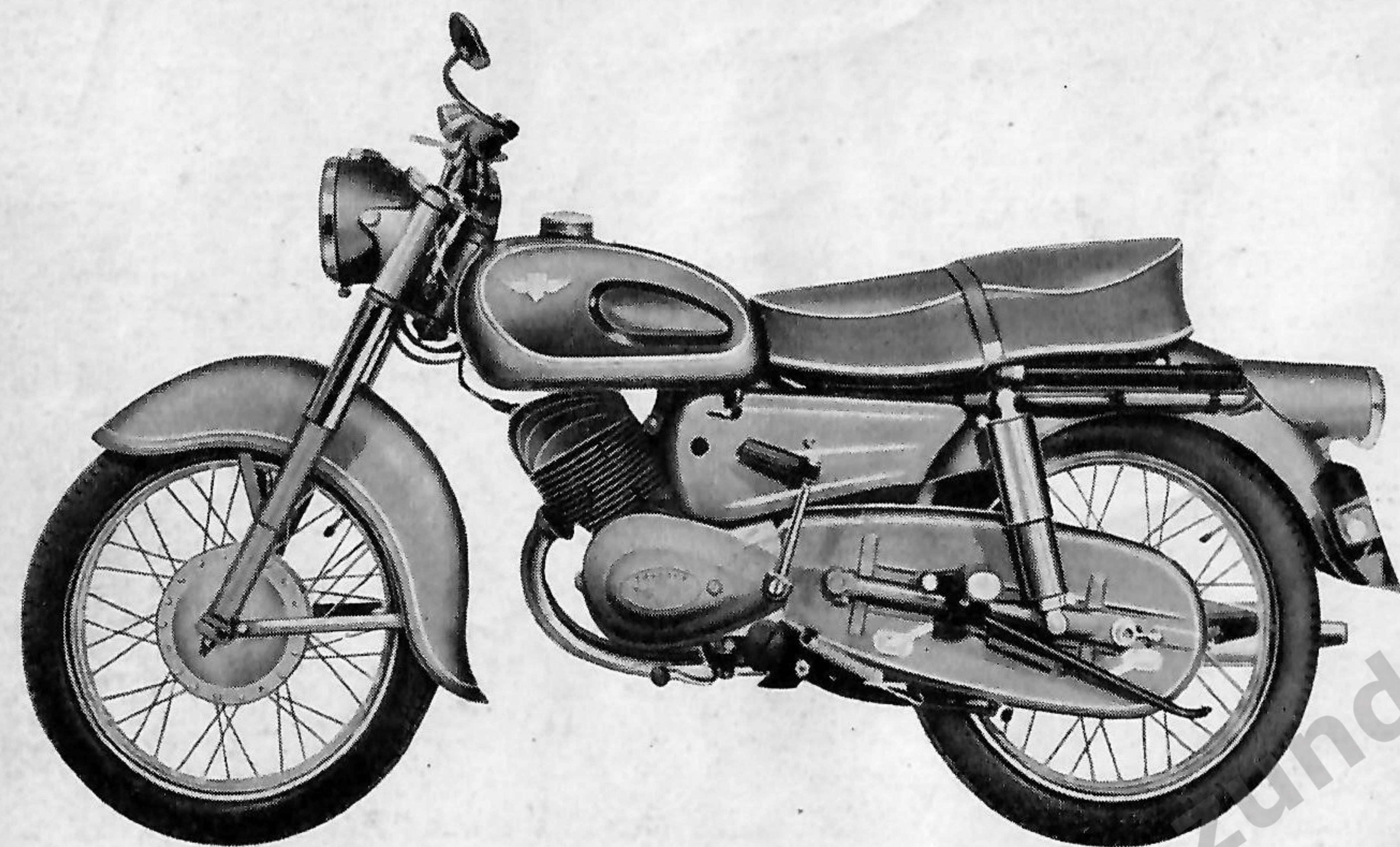


Fig. 1
175 - Trophy S, left-hand side



Fig. 2
175 - Trophy S, right-hand side



Fig. 3
250 - Trophy S, left-hand side



Fig. 4
250 - Trophy S, right-hand side



Fig. 5

Machine Data

As soon as you take delivery of your machine, remember to enter full particulars in the space below. In all your enquiries, correspondence, etc., always quote this information, together with the mileage total.

.....
Name of owner

.....
Address of owner

.....
Name and Address of Dealer

.....
Date of First Registration

.....
Frame No. Engine No.

.....
Any special modifications of machine

Technical Specification 175 - Trophy S

Engine

| | |
|--------------------------------|--|
| Type | 2-stroke |
| No. of cylinders | 1 |
| Stroke | 62 mm |
| Bore | 60 mm |
| Cubic capacity | 174 c.c. |
| Compression ratio | 6.7 : 1 |
| Rated capacity in h.p. | 10.5 h.p. at 5,400 r.p.m. |
| Torque | max. 11.86 ft-lb at 4,200 r.p.m. (1.64 mkg) |
| Piston clearance | 0.0024 in. (0.06 mm) |
| Electrical equipment | Coil ignition - Battery supplied by voltage-regulated generator, type Bosch MLZn 60/6/1600 R |

| | |
|---------------------------------|--|
| Ignition timing | 3.5 mm (0.138 in.) before top dead centre = 24° 30' ± 2° before top dead centre |
| Spark plug | Bosch W 240 T 11, Beru 240/14 u 2 |
| Spark plug gap | 0.7 mm (0.028 in.) |
| Battery | 6 V 8 Ah |
| Cooling system | Air |
| Engine lubrication | Petrol mixture 25 : 1 |
| Two-lever carburettor | Type Bing 2/24/46 Bore 24 mm (0.945 in.) Main jet 110 Needle setting 2nd notch from top Needle jet 2.70 Pilot jet 45 Pilot air screw — open 1-1½ turns |
| Clutch | Multi-plate, oilbath |
| Gearing | ZÜNDAPP |
| No. of gears | 4 |

Reductions:

| | |
|--------------------|-----------|
| 1st gear | 1 : 3.14 |
| 2nd gear | 1 : 1.964 |
| 3rd gear | 1 : 1.405 |
| 4th gear | 1 : 1 |

Drive from gearbox to rear wheel Totally-enclosed roller chain (1/2 x 5/16", 116 links)

Reduction from gearbox to rear wheel 1 : 2.75

Cycle Parts

| | |
|----------------------------------|--|
| Frame | Tubular, spine-type |
| Steering head mounting | Ball bearings |
| Front fork | Telescopic fork with 4 helical springs |
| Rear suspension | Swinging fork with 2 hydraulically damped spring units |

Brakes:

| | |
|---------------------|-------------------------------------|
| Footbrake | Rod linkage, acting on rear wheel |
| Handbrake | Bowden cable, acting on front wheel |

Wheels:

| | |
|-----------------|---------------|
| Rims | 1,85 B x 18 |
| Tyres | Front 3,00-18 |
| | Rear 3,00-18 |

Weights and Dimensions

| | | |
|-------------------------------------|---------------------------|-----------|
| Length | 6 ft. 3 in. | (1900 mm) |
| Width | 2 ft. | (620 mm) |
| Height | 3 ft. 2 in. | (960 mm) |
| Saddle height | 2 ft. 4 in. | (720 mm) |
| Wheelbase | 4 ft. 2 in. | (1260 mm) |
| Turning circle | 15 ft. 9 in. | (4800 mm) |
| Net weight | 294 lb | (133 kg) |
| Permissible all-up weight | 630 lb | (285 kg) |
| Max. speed | up to 60 m.p.h. (95 km/h) | |

Fuel and Lubricants

Power fuel:

| | |
|---------------------|--------------------------------|
| Fuel tank | approx. 3 Imp.gal. (14 Liters) |
| | 4 pints in reserve (2 Liters) |

Lubricants:

| | |
|------------------|---|
| Engine | MobilMix TT self-mixing two-stroke oil, ratio 25 : 1, or equivalent self-mixing two-stroke brand, or equivalent branded oil of grade SAE 30 - SAE 50. |
|------------------|---|

| | |
|-------------------|---|
| Gearbox | 650 c.c. |
| | above 60° F (15° C) ambient temperature, SAE 40-50 engine oil |
| | below 60° F (15° C) ambient temperature, SAE 20 engine oil |

| | |
|---------------------------|---|
| Telescopic fork | 100 c.c. for each leg, above 60° F (15° C) ambient temperature SAE 50 engine oil, below 60° F (15° C) ambient temperature SAE 10 engine oil |
|---------------------------|---|

Technical Specification **250 - Trophy S**

Engine

| | |
|--------------------------------|--|
| Type | 2-stroke |
| No. of cylinders | 1 |
| Stroke | 70 mm |
| Bore | 67 mm |
| Cubic capacity | 245 c.c. |
| Compression ratio | 7 : 1 |
| Rated capacity in h.p. | 14.5 h.p. at 5,500 r.p.m. |
| Torque | max. 15.91 ft-lb at 3,500 r.p.m. (2.2 mkg) |
| Piston clearance | 0.0024 in. (0.06 mm) |
| Electrical equipment | Coil ignition - Battery supplied by voltage-regulated generator, type Bosch MLZn 60/6/1600 R |

| | |
|---------------------------------|--|
| Ignition timing | 3.5 mm (0.138 in) before top dead centre = $23^{\circ} + 2^{\circ}$ $- 1^{\circ} 30'$ before top dead centre |
| Sparking plug | Bosch W 240 P 11 S, Beru 240/14 u 2 |
| Sparking plug gap | 0.7 mm (0.028 in.) |
| Battery | 6 V 8 Ah |
| Cooling system | Air |
| Engine lubrication | Petrol mixture 25 : 1 |
| Two-lever carburettor | Type Bing 2/26/51 Bore 26 mm (1.024 in.) Main jet 120 Needle setting 3rd notch from top Needle jet 2.70 Pilot jet 40 Mixing chamber inset 5 Pilot air screw — open 1-1½ turns |
| Clutch | Multi-plate, oilbath |
| Gearing | ZÜNDAPP |
| No. of gears | 4 |

Reductions:

| | |
|--------------------|-----------|
| 1st gear | 1 : 3.14 |
| 2nd gear | 1 : 1.964 |
| 3rd gear | 1 : 1.405 |
| 4th gear | 1 : 1 |

Drive from gearbox to

| | |
|----------------------|---|
| rear wheel | Totally-enclosed roller chain (1/2 x 5/16", 116 links) |
|----------------------|---|

Reduction from gearbox to

| | |
|----------------------|-----------|
| rear wheel | 1 : 2.625 |
|----------------------|-----------|

Cycle Parts

| | |
|----------------------------------|---|
| Frame | Tubular, spine-type |
| Steering head mounting | Ball bearings |
| Front fork | Telescopic fork with 4 helical springs |
| Rear suspension | Swinging fork with 2 hydraulically damped spring units |

Brakes:

| | |
|---------------------|-------------------------------------|
| Footbrake | Rod linkage, acting on rear wheel |
| Handbrake | Bowden cable, acting on front wheel |

Wheels:

| | |
|-----------------|---------------|
| Rims | 1,85 B x 18 |
| Tyres | Front 3,00-18 |
| | Rear 3,00-18 |

Weights and Dimensions

| | | |
|-------------------------------------|----------------------------|-----------|
| Length | 6 ft. 3 in. | (1900 mm) |
| Width | 2 ft. | (620 mm) |
| Height | 3 ft. 2 in. | (960 mm) |
| Saddle height | 2 ft. 5 in. | (750 mm) |
| Wheelbase | 4 ft. 2 in. | (1260 mm) |
| Turning circle | 15 ft. 9 in. | (4800 mm) |
| Net weight | 300 lb | (136 kg) |
| Permissible all-up weight | 635 lb | (288 kg) |
| Max. speed | up to 68 m.p.h. (110 km/h) | |

Fuel and Lubricants

Power fuel:

| | |
|---------------------|--------------------------------|
| Fuel tank | approx. 3 Imp.gal. (14 Liters) |
| | 4 pints in reserve (2 Liters) |

Lubricants:

| | |
|------------------|---|
| Engine | MobilMix TT self-mixing two-stroke oil, ratio 25 : 1, or equivalent self-mixing two-stroke brand, or equivalent branded oil of grade SAE 30 - SAE 50. |
|------------------|---|

| | |
|-------------------|---|
| Gearbox | 650 c.c. |
| | above 60° F (15° C) ambient temperature, SAE 40-50 engine oil |
| | below 60° F (15° C) ambient temperature, SAE 20 engine oil |

| | |
|---------------------------|---|
| Telescopic fork | 100 c.c. for each leg, above 60° F (15° C) ambient temperature SAE 50 engine oil, below 60° F (15° C) ambient temperature SAE 10 engine oil |
|---------------------------|---|

Check on Taking Delivery of Your Machine

Before handing over your factory-new "Trophy", your dealer will have checked that it is in perfect condition. Nevertheless, it is advisable to have the points listed below checked under your personal supervision and have the check attested by your dealer's signature in the appropriate space on the service voucher he will hand to you. Failure to observe this certification invalidates our works guarantee.

The following should be checked:

1. Headlamp
2. Chain tension and alignment
3. Hand brake, footbrake and clutch settings
4. Lubrication of cycle parts
5. Oil content of gearbox
6. Tyre pressures
7. Battery should be charged (at your expense)
8. Contents of toolbox.

Text and illustrations in this manual are not binding, as improvements are introduced from time to time. Only the terms of the sales contract are considered binding.

Servicing

A network of accredited ZÜNDAPP sales and service agents, staffed by skilled mechanics, is at the disposal of "Trophy" owners. Only the original ZÜNDAPP spare parts stocked by them will ensure trouble-free operation of your machine.

We advise you to ask your ZÜNDAPP dealer to service the machine at regular intervals to ensure that it will give you long years of carefree motoring.

Your First Ride

Even if you are an experienced motorcyclist, do not take the first ride on your new "Trophy" on a busy main road or motorway. Choose a quiet side street or country lane which will allow you to become fully familiar with the machine.

Having taken delivery of the machine in perfect condition, all you have to do is to fill the tank.

The tank holds approx. 3 gallons (14 l). **For the first filling, use a 20 : 1 petrol mixture**, thereafter a mixture of 25 : 1.

Any good-quality branded petrol is suitable, as well as the normal commercial two-stroke oils. At our own works, we have found MobilMix self-mixing two-stroke fuel very satisfactory. We recommend oils with an anti-corrosion additive, or add a shot of our own "Auto-Desolite-Red" additive to your mixture. It is inadvisable to use any other additives claimed to improve performance or reduce fuel consumption.

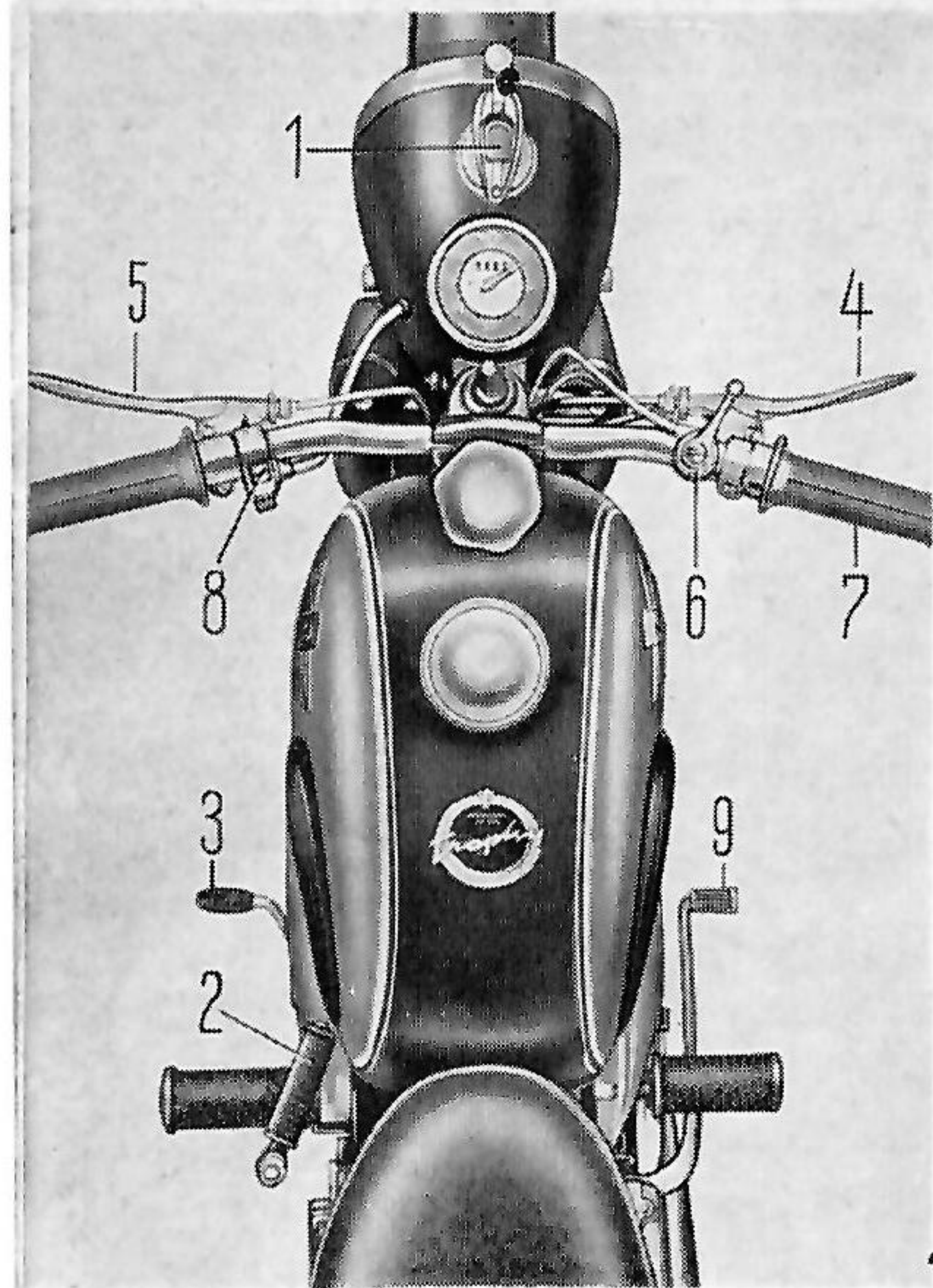


Fig. 6

Starting

is child's play for any experienced motorcyclist. But first you should become familiar with the controls, as shown in fig. 6:

- 1) Ignition switch
- 2) Kickstarter
- 3) Gearchange pedal
- 4) Handbrake lever
- 5) Clutch lever
- 6) Air lever
- 7) Throttle twistgrip
- 8) Dipping-switch and horn button
- 9) Footbrake pedal

To start, proceed in the following sequence and you will never have any trouble in normal conditions:

1. Open fuel tap,
2. Put gear pedal into neutral, close air lever,
3. Depress the carburettor tickler until fuel emerges between the body of the float chamber and its cover,
4. Open the twistgrip approx. $\frac{1}{4}$ turn and depress the kickstarter,
5. Switch on ignition (red pilot lamp - and on "250-Trophy S" green neutral indicator lamp as well-should light up) and start the engine.

Once the engine has fired, throttle back; high revving in neutral is bad for the engine. Open the air lever gradually as the engine warms up. It is not advisable to let the engine warm up in neutral; instead, drive away almost immediately after starting to attain the optimum running temperature as soon as possible.

Driving Off

is simplicity itself. Mount the machine, check that the gear pedal is in neutral between 1st and 2nd gear positions (on the model "250-Trophy S" the green neutral

indicator lamp should light up), then pull clutch lever and press gear pedal downwards to engage 1st gear, then slowly release clutch lever,

gradually opening up the throttle as you release the clutch. Beginners tend to let the clutch engage too quickly or to use too little throttle. In the first case, either the machine will start with a jerk, or the engine will "stall". The use of too little throttle when the machine is under way will produce "snatchy running". On the other hand, if you always release the clutch too slowly or make a habit of letting it "slip", the linings will wear rapidly.

Gear Change

When you gather speed as you open the throttle, you can engage in sequence 2nd, 3rd and 4th gear. On level roads do not change from

- 1st to 2nd gear if your speed is below 12 m.p.h. (20 km/h)
- 2nd to 3rd gear if your speed is below 25 m.p.h. (40 km/h)
- 3rd to 4th gear if your speed is below 37 m.p.h. (60 km/h)

To change to a higher gear, quickly throttle down, declutch, raise the gearchange pedal with your toe as far as it will go, release clutch lever, then throttle up again.

To change to a lower gear, quickly close the throttle, then, without declutching, change into the neutral position which lies between each two gears by a very light pressure on the pedal (do not move it all the way). When in neutral, open the throttle again (to full throttle at high speeds, reduced opening at lower speeds), then declutch, depress the pedal all the way to engage the next lower gear, and finally release the clutch lever again.

Good Riding Practice

For the first 300 miles (500 km) or so, do not ride at full throttle or under any conditions which will make the engine labour. Between 300 and 600 miles (500 and 600 km), you can work the engine gradually up to full load, and thereafter you can call on the machine's full capacity. There is no running-in speed limit even

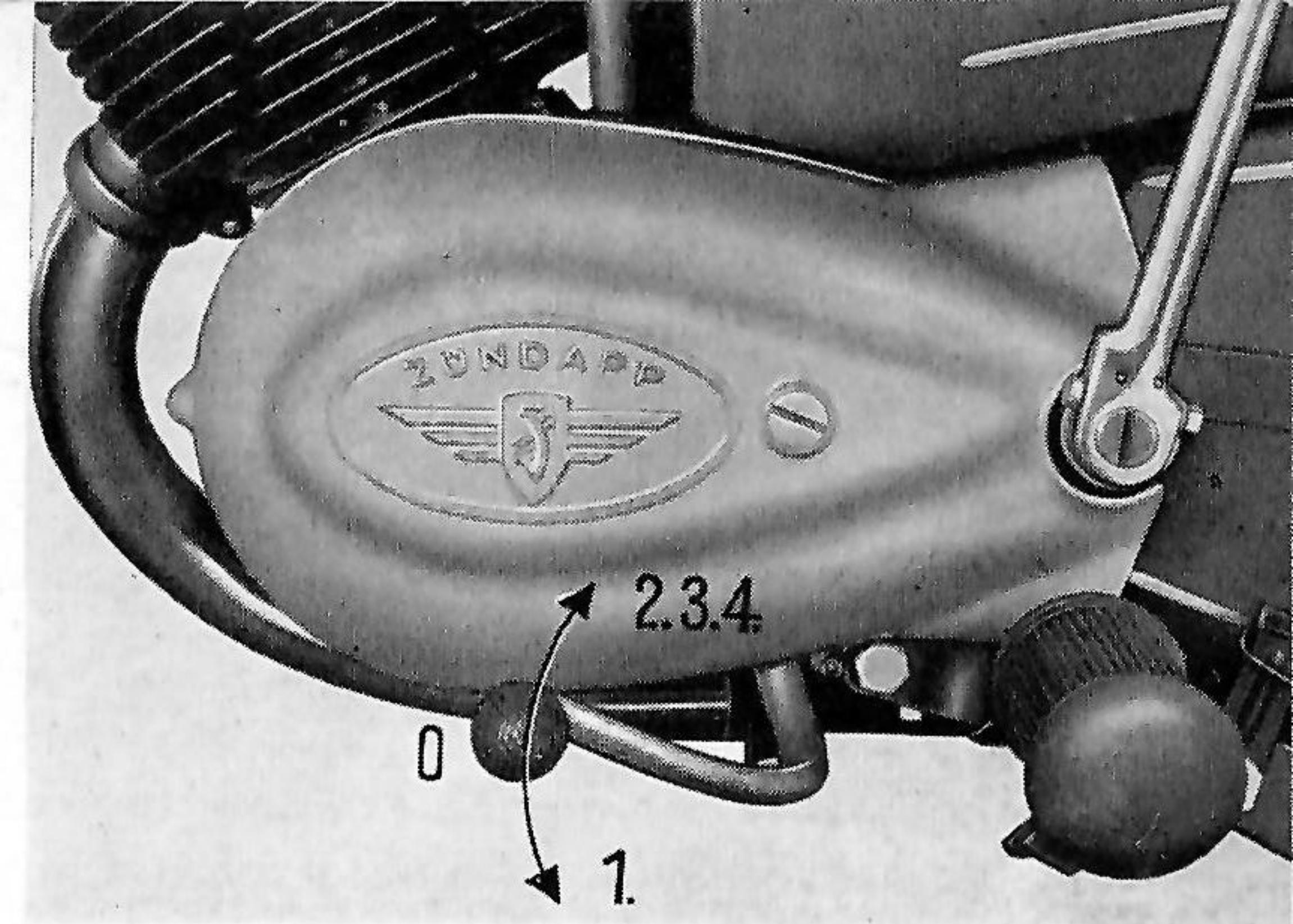


Fig. 7

for the first 600 miles (1000 km), but you should avoid sustained running at full throttle. It is important however, not to keep the engine turning over too slowly, because

a cold engine means increased wear (through reduced lubricating efficiency of the petrol mixture and reduced resistance to corrosion), as well as increased carbon deposits which in turn reduce performance and life.

When approaching a **gradient**, always change down in good time and let the engine turn over fast as you drive uphill. Always ride **downhill** in a gear low enough to let the engine act as a brake, and open the throttle briefly from time to time to ensure adequate lubrication of piston and cylinder. Remember to reduce speed, or better still change to a lower gear, on approaching a **blind corner or any other potential danger spot**. On wet and slippery roads, ride and brake with extra care to avoid skidding.

Fuel consumption

Every engine necessarily uses more fuel when it has to work harder. But within certain limits you can control your fuel consumption by good riding.

You should not, however, try to economise excessively by going too slowly, i.e. with engine insufficiently revved up, in any gear. If the engine is not allowed to warm up properly, lubricating efficiency drops and wear increases.

The original carburettor setting has been carefully selected following extensive trials and should only be altered within narrow limits and with great caution. As you no doubt know, in a 2-stroke engine both the air stream through which the machine moves and the fuel-and-air mixture entering through the carburettor play their part in cooling the engine. If this "inner cooling" is reduced by narrowing the carburettor jet or altering the needle setting, the engine may overheat, resulting in pre-ignition or even piston seizure.

Other factors which will lead to increased fuel consumption are:

- Running for long periods in the lower gears,
- Repeated gear changing (particularly in heavy traffic),
- or on hill climbs,
- Strong headwind.

Consumption also goes up if you:

- Let the engine idle for long in neutral,
- Accelerate too rapidly,
- Stay too long in a higher gear, instead of changing down,
- Set carburettor or ignition incorrectly,
- Allow carbon deposits to accumulate
- or excessive piston play to develop,

Ride on a slipping clutch,
Overload your machine,
Ride with a windscreen,
or overhanging luggage on the carrier,
Let your tyre pressures get too low.

You will find that on reaching the required speed for any road condition, you can throttle back considerably without losing speed, and in this way keep fuel consumption well down.

Stopping

For emergency stops, close the throttle, simultaneously apply the brakes smartly, then declutch just before you come to a stop.

Normally, you should then change into neutral — the best way is to select the neutral between 1st and 2nd gear, so that you can start again in 1st straight away.

Always turn to the nearside kerb to stop. Never brake too hard — skidding causes excessive tyre wear as well as delaying the braking action.

Shutting Off

To shut off for brief periods only, merely close the throttle, take the key out of the ignition and close the fuel tap. If you are putting the machine out of commission for a longer period, or shutting it off when the engine is very hot, proceed as follows:

1. Rev up engine well,
2. Close air lever and
3. Take key out of ignition;
4. Close throttle and
5. Close fuel tap.

In this way, you supply the engine with additional "internal cooling" and all major moving parts with a corrosion-inhibiting oil film.

The Engine

How the Engine Works

The ZÜNDAPP 2-stroke engine works on the tried and tested reverse scavenging system. The fuel/air mixture entering the carburettor on the upward stroke of the piston is compressed in the crankcase during the succeeding downward piston stroke. It is then carried through two transfer ports into the compression chamber, compressed by the next upward stroke of the piston and finally ignited. Expansion of the burning mixture forces the piston downwards on the power stroke, towards the end of which it uncovers the exhaust port, permitting the burnt gases to escape through the exhaust pipe and silencer. Slightly later, the descending piston also uncovers the transfer ports, permitting the entry of a fresh charge.

Separation of the fresh combustion mixture charge from the exhaust gases is achieved by designing the transfer ports so that the incoming charge is directed upwards and **away from** the exhaust port, although, swirling round in a loop-like path, the new mixture will help to "chase out" the burnt gas of the old (hence the term "reverse scavenging").

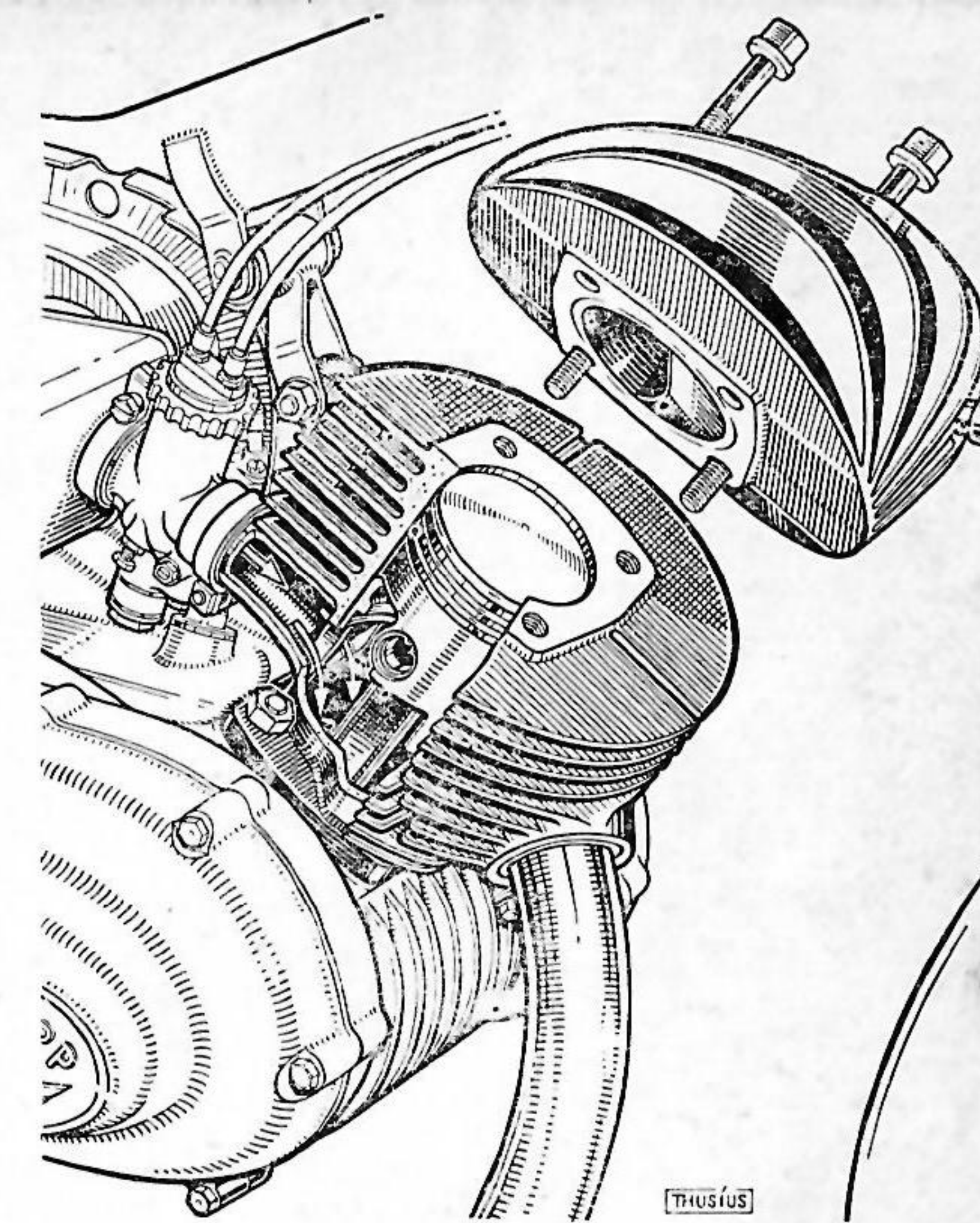


Fig. 8

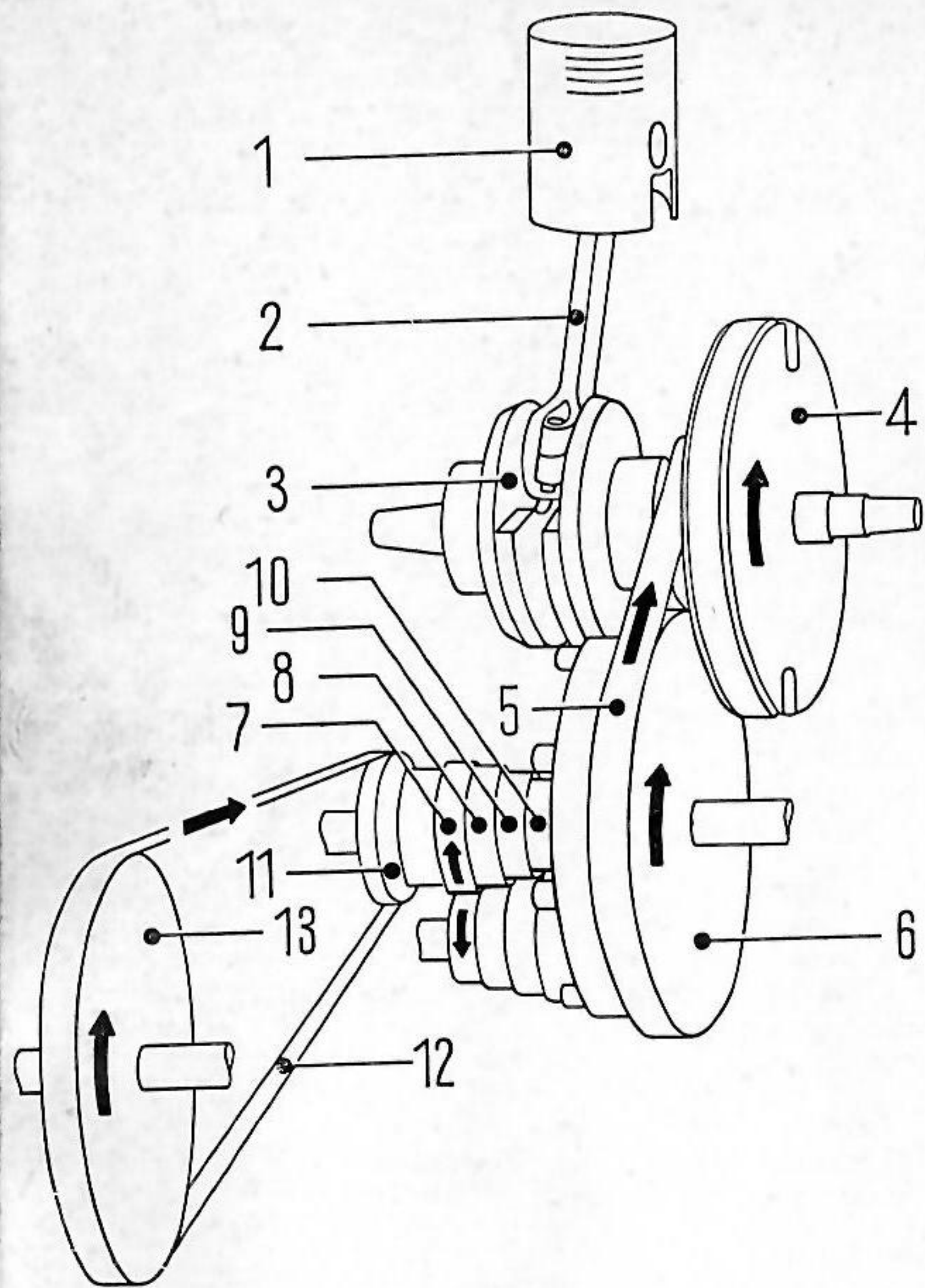


Fig. 9

The Transmission

The pressure set up by the expanding gases is transmitted via piston, gudgeon pin and connecting rod to the crankshaft which converts the reciprocating motion into a rotary one. The fly-wheel ensures that this rotary motion remains uniform.

- 1 Piston
- 2 Connecting rod
- 3 Crankshaft
- 4 Flywheel
- 5 Primary chain
- 6 Clutch
- 7 Pair of gears, 1st gear
- 8 Pair of gears, 2nd gear
- 9 Pair of gears, 3rd gear
- 10 Pair of gears, 4th gear
- 11 Sprocket
- 12 Final drive chain
- 13 Sprocket

The reduction gearing between crankshaft and clutch reduces the r.p.m. (and at the same time increases the torque). Actuation of the clutch interrupts the further transmission of the driving force to the gears when required. The gears effect a further alteration of r.p.m. and torque in accordance with the ratio selected by means of the gearchange pedal.

From the gear cluster, drive is transmitted to a sprocket located outside the engine/gearbox unit and from there by the final drive chain to the rear wheel sprocket.

The Carburettor

together with the air filter, prepares the fuel/air mixture by converting the liquid fuel into a mixture which the spark can ignite.

The carburettor consists of two main components:

- Float chamber, and
- Mixing chamber.

The float is located inside the float chamber and is connected by a clamping spring to the float needle. The task of the float is to ensure a uniform fuel level

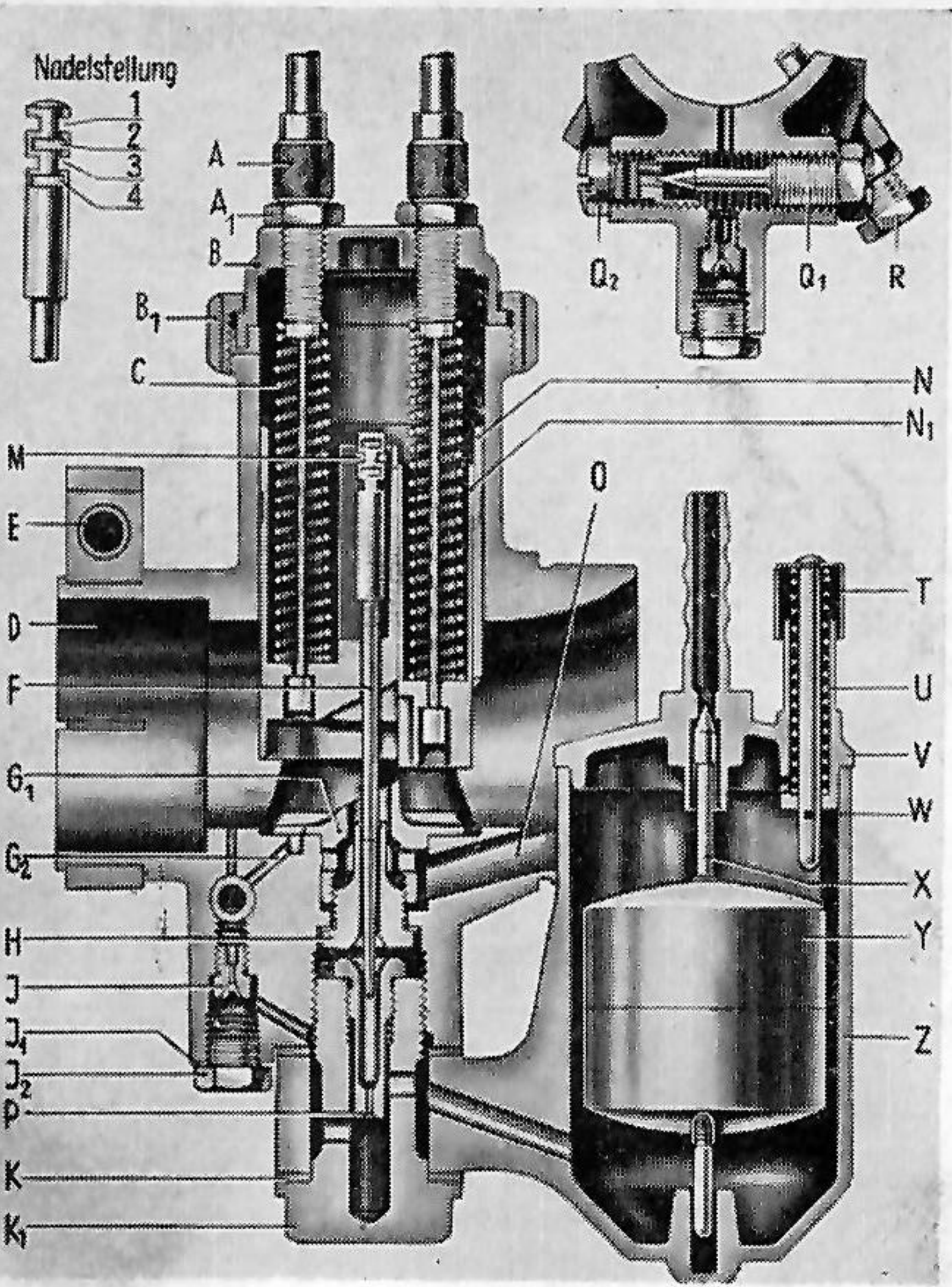


Fig. 10

inside the carburettor. With the fuel tap open, the fuel flows into the float chamber and lifts float and needle. The needle has a taper-ground tip and, in conjunction with the float chamber cover, shuts off the fuel flow as soon as the correct level has been attained. If you depress the "tickler" which pushes the float down, fuel will rise in the carburettor above the normal level and fresh fuel will flow from the feed pipe past the opened needle valve.

The carburettor ensures a correct fuel/air mixture at any engine speed by means of a system of jets. There is first the pilot jet system, consisting of pilot jet J, pilot air hole Q2 and pilot air setting screw Q1.

This system operates alone only when the engine is idling. At higher r.p.m. its work is increasingly taken over by the remaining jet systems, i.e.

Choke member G1 in conjunction with tapered needle F and needle jet H, followed by needle F and needle jet H alone. Only at fairly high speed does main jet P come into operation.

Suitable jet sizes and carburettor settings have been selected by our designers on the basis of extensive experiments and trials. Therefore, only the idling setting and Bowden cables should be adjusted following any cleaning of the carburettor.

1. Idling Adjustment

Let the engine run in neutral. Turn throttle stop screw R inwards (clockwise) until the engine will idle with the twistgrip closed. Turn pilot air screw Q1 inwards as far as it will go, then slowly turn it back again until the engine reaches the highest speed obtainable by altering this adjustment only. Now turn the pilot air screw in again by about one-quarter turn, then slacken throttle stop screw R until the engine ticks over nicely at the desired idling speed.

2. Bowden Cables

Set the Bowden cable adjusters to provide a play of approx. 0.04" or 1 mm between adjuster and outer casing.

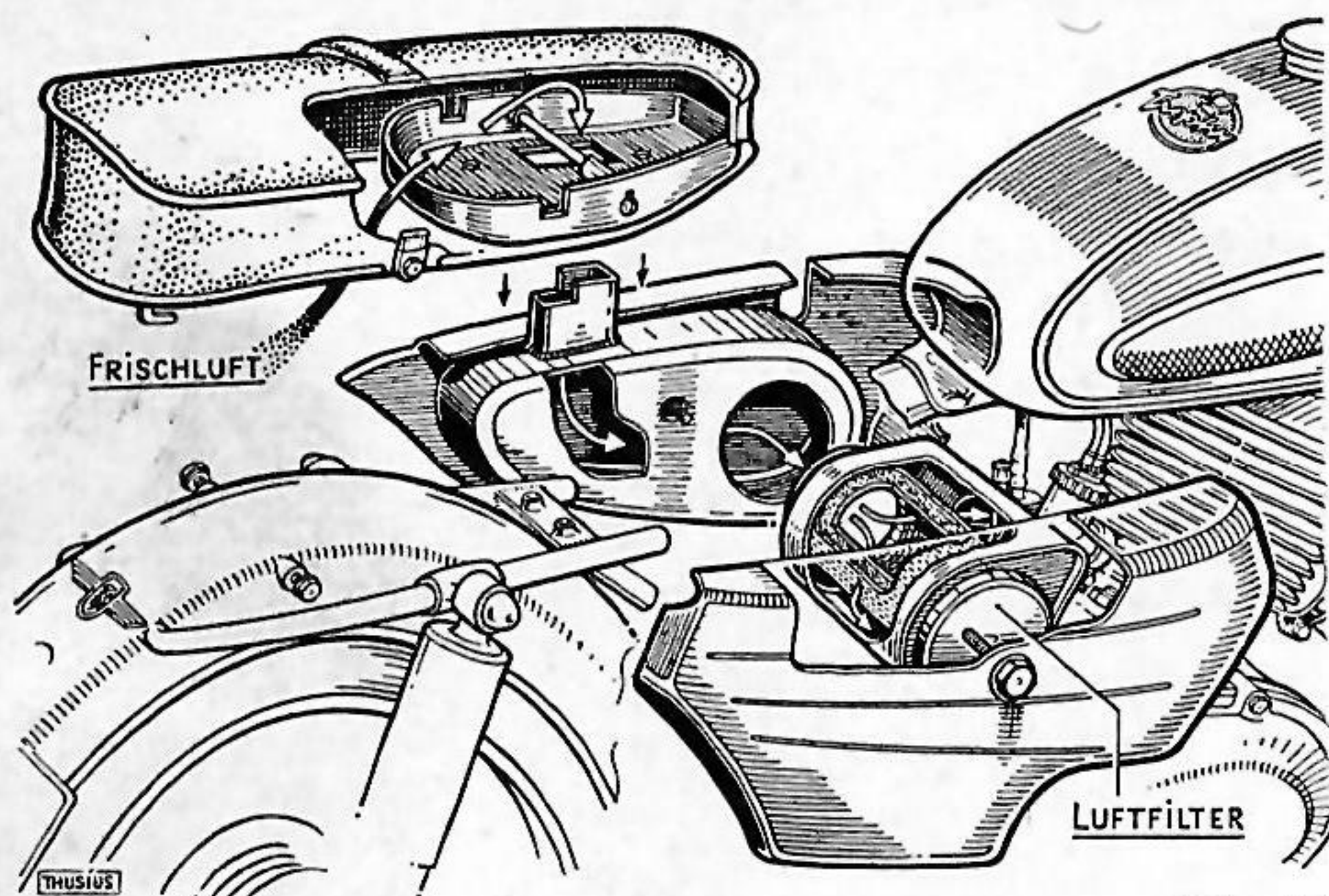


Fig. 11 175-Trophy S

Frischluff = Air inlet
Luftfilter = Air filter

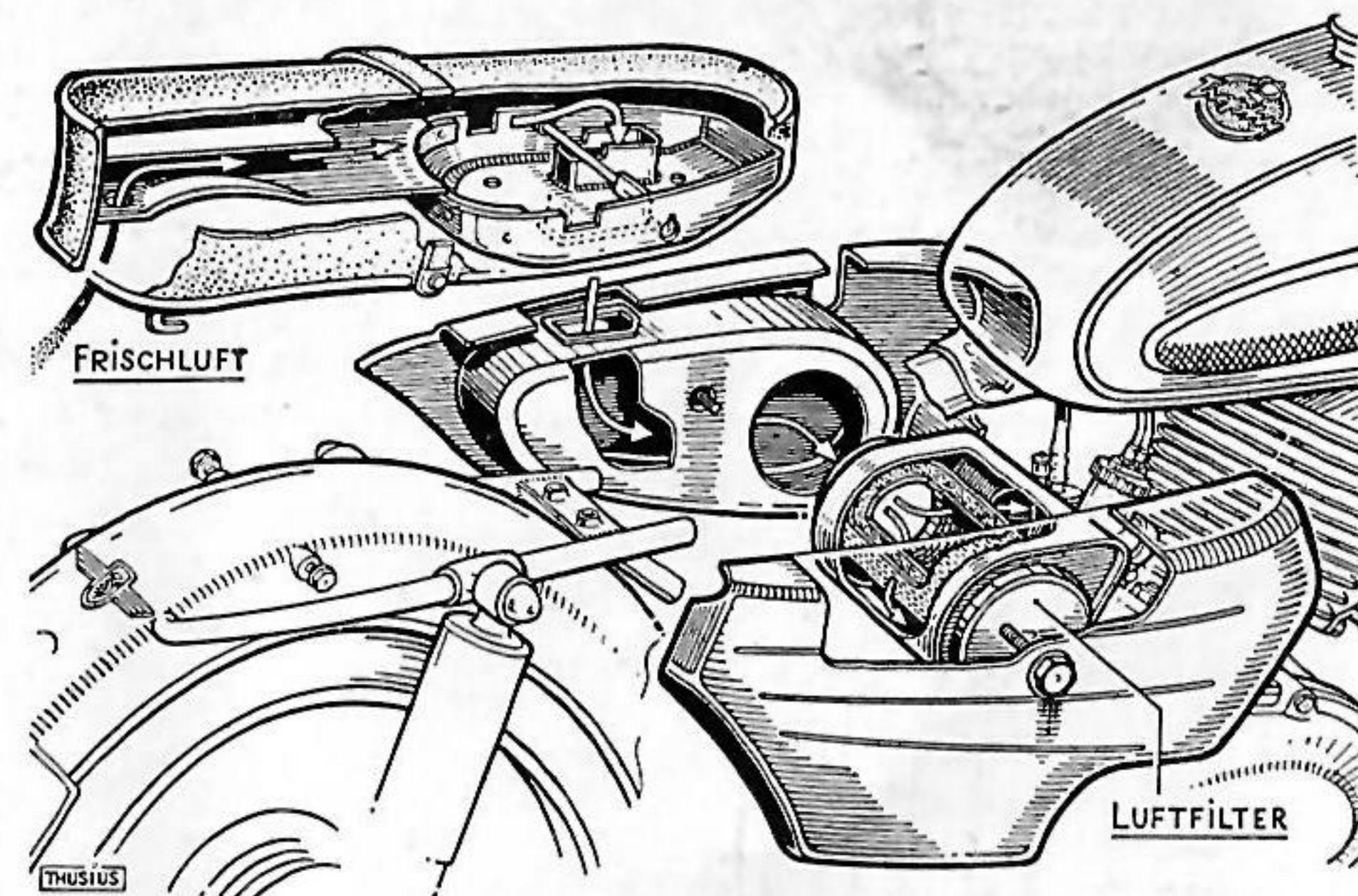


Fig. 12 250-Trophy S

Air Filter

The air filter cleans the air supply to the carburettor. For better effect, the wire mesh is moistened with a film of oil. The more efficient the filtering action, the lower the wear of moving parts. Therefore: **Remember to clean the air filter and replenish the oil film at regular intervals.** (Dip filter in oil and allow surplus to drain off.)

The Cylinder Head

forming the top of the combustion chamber, is mounted on the cylinder by four bolts. Made of light alloy, it is provided with cooling fins to dissipate the heat generated by combustion.

The Sparking Plug

is screwed into the cylinder head (14 x 1.5 mm thread).

We recommend the following

175 - Trophy S Beru 240/14 u 2

Bosch W 240 T 11

250 - Trophy S Beru 240/14 u 2

Bosch W 240 P 11 S

or an equivalent grade of good make.

The Cylinder

is flange-mounted on the light alloy crankcase with four studs. Cast into its cast-iron body are: 1 inlet port, 2 transfer ports and 1 exhaust port. Piston clearance is 0.0024 in. (6/100 mm).

The Piston

of light alloy, is fitted with 3 piston rings to form a seal against the cylinder bore and to conduct away heat. The pressure of the expanding combustion gases on the piston is transmitted via the

Gudgeon Pin

secured at both sides by a circlip to the

Connecting Rod

The bronze small-end bush is a press fit in the small-end eye of the connecting rod. The big end is of the split type. The connecting rod is mounted on the crankpin with two-row caged needle roller bearings.

The Crankshaft

is a single-piece component mounted in 3 bearings. On its left side is the generator rotor, on the right side the flywheel. Riveted to the

Flywheel

is the sprocket transmitting the drive to the clutch sprocket. Transmission to the

Clutch

is by **Drive Chain**.

Six compression springs press three lined plates, which are in constant engagement with the clutch sprocket, against adjacent steel plates in constant engage-

ment with the gearing. When the clutch lever is actuated, the spring pressure is released and this disconnects the clutch sprocket from the gearing.

The Gearing

comprises four pairs of pinions. While the pinions on the selector shaft (which forms, in effect, part of the mainshaft) are free to rotate independently of each other, those on the layshaft form an integral cluster. The kickstarter operates on the layshaft. When the starter is depressed, this shaft turns and a pawl engages with the teeth of the smallest pinion to turn over the engine. Gear selection is effected by a sideways movement of the selector shaft whose integral splines then engage with internal tothing in the selected gear pinion and lock it to the shaft. Between any two gear engagements is a neutral position. From the selector shaft, drive is transmitted to a small sprocket mounted outside the engine/gear casing.

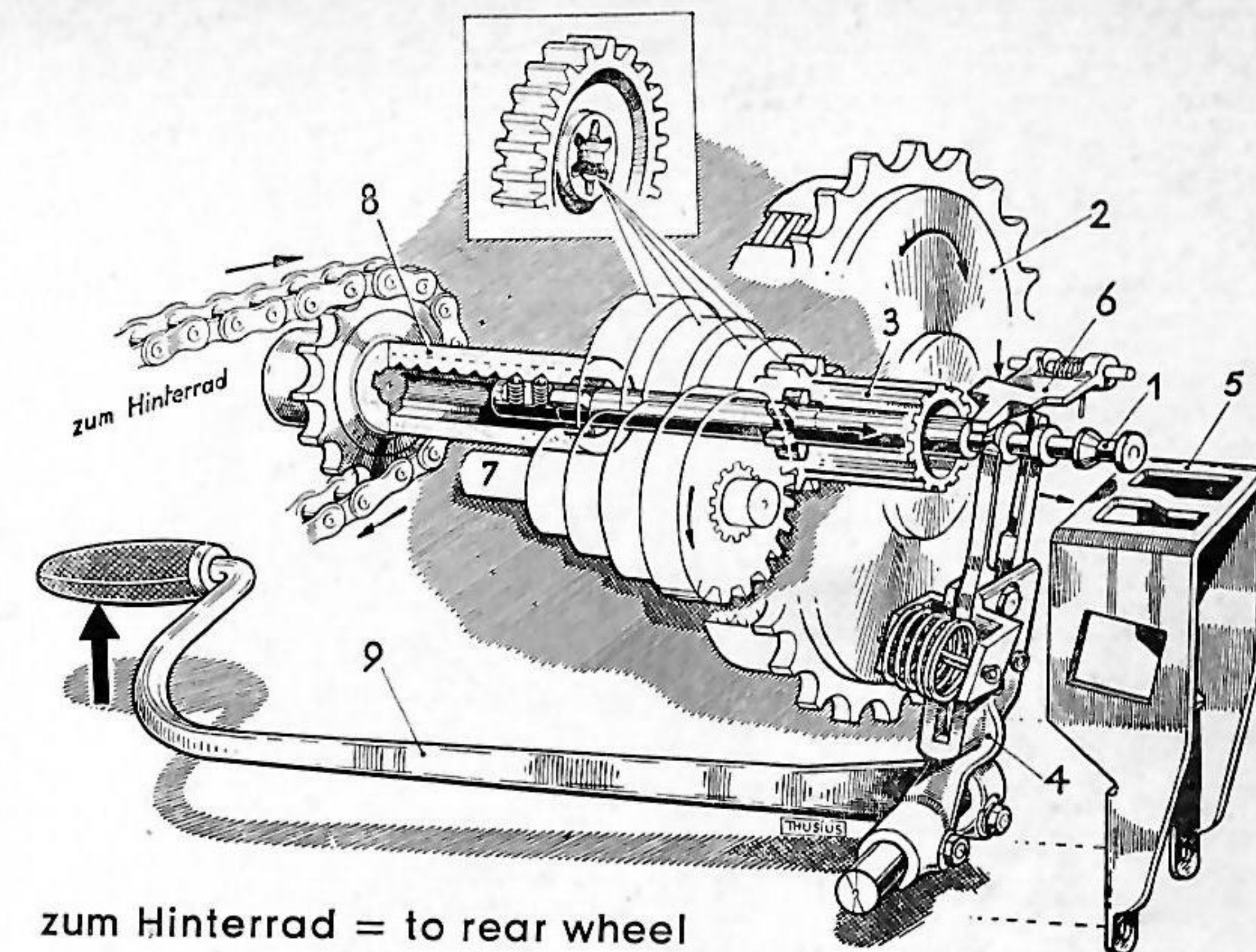


Fig. 13

Final Drive

is via the small sprocket, the chain (1/2" x 5/16", 116 links) and the larger sprocket to the rear wheel.

The Generator

is a voltage-regulated Noris DC unit, capacity 60/90 W. The rotor is mounted on the crankshaft. All other generator components are located in the housing mounted on the engine.

The Cycle Parts

The Frame

of special steel, is of the tubular spine type.

The Telescopic Front Fork

part of the machine's suspension system, helps to take up the shocks caused by uneven road surfaces and damps the recoil. It is fitted with two pairs of springs of different hardness or rate. Extra-strong springs can be fitted to cope with exceptional loads. The grade of oil used can also be varied to suit any loading or weather conditions.

Rear Suspension

is provided by a swinging fork pivoting on the frame. Shocks are reduced by two pairs of springs and each spring is hydraulically damped.

The Wheels

have 1.85B x 16 rims. For both wheels 3.25 by 16 steel cord tyres are specified.

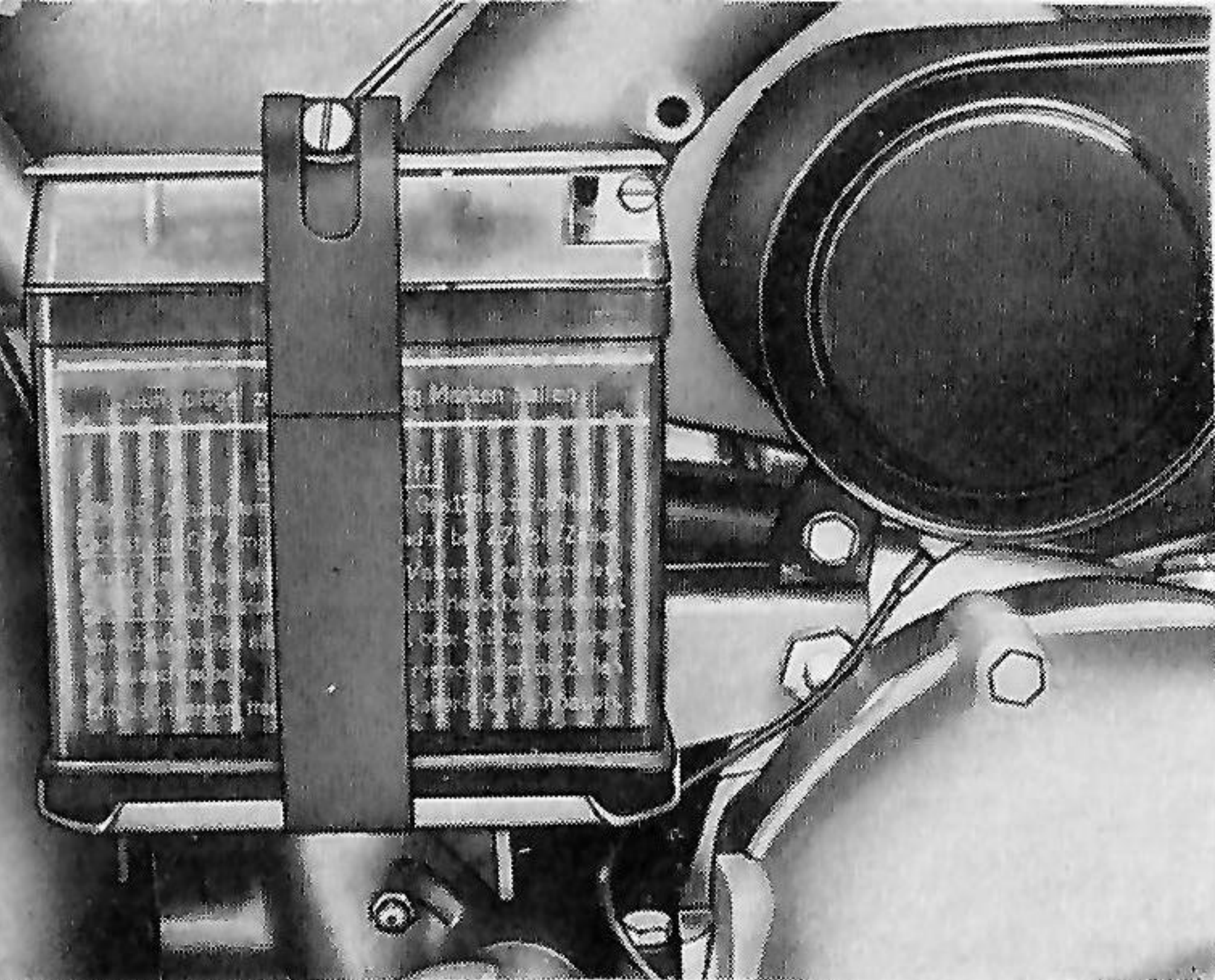


Fig. 14 175-Trophy S

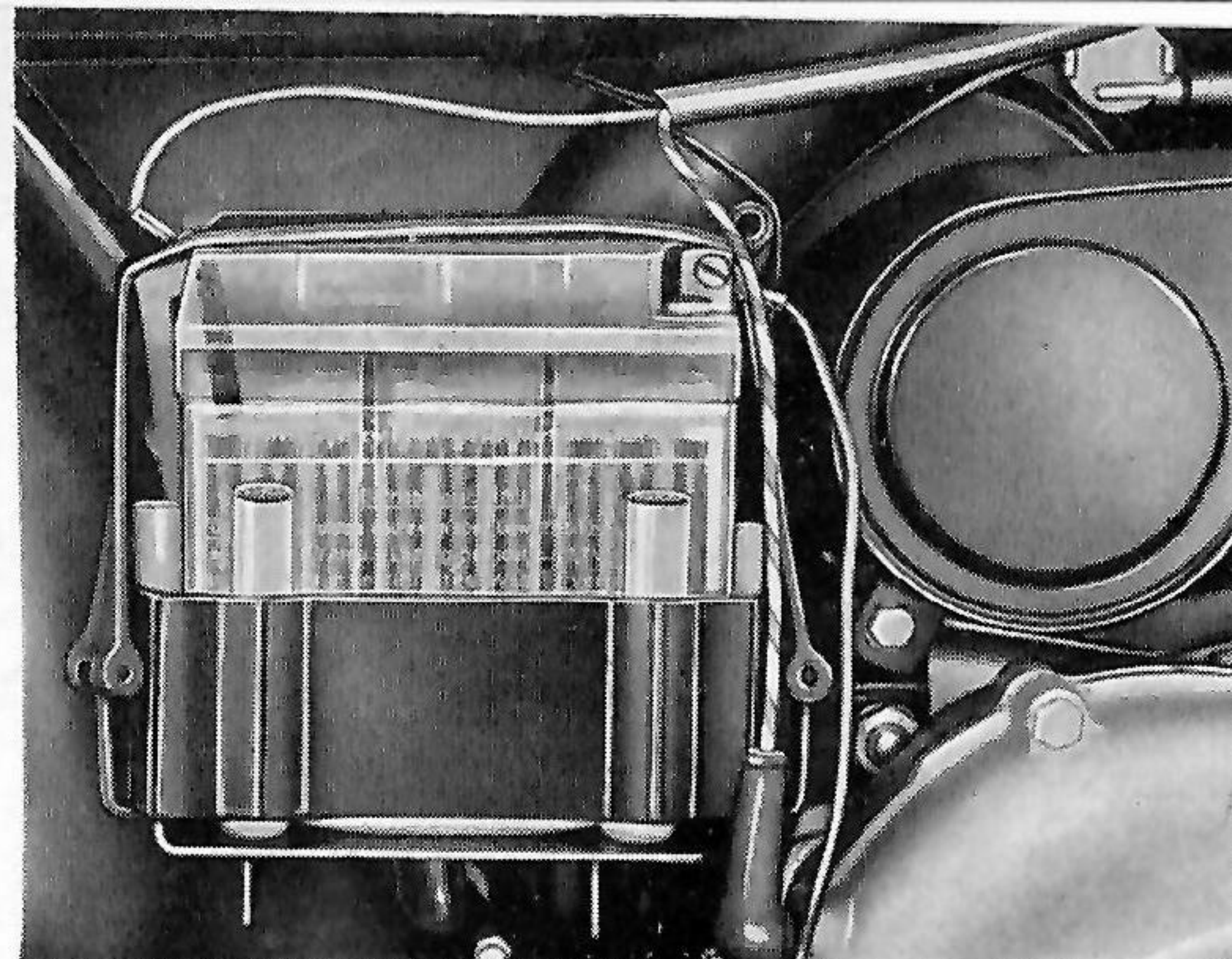


Fig. 15 250-Trophy S

(3.00 by 16 for frontwheel of 175-Trophy S.) The full-width hubs are of light alloy with cast iron liners as brake surfaces.

The Fuel Tank

holds approx. 3 gallons (14 l.). Mounted in rubber bearings, it is clamped into position by the mounting of the toolbox. Fuel reserve is approx. 4 pints (2 l.).

The Battery

has a rated capacity of 8 Ah. It is mounted on a vibration-free base welded to the frame behind the righthand panel of the under-seat enclosure.

The Headlamp

with a diameter of 6 $\frac{1}{3}$ " (160 mm) encloses 5 bulbs:

- 1 Bilux bulb for main and dipped beam, 6 V 35 W
- 1 Parking light bulb, 6 V 2 W
- 1 Ignition warning light, 6 V 2 W
- 1 Neutral indicator light, 6 V 2 W - on 250-Trophy S - and
- 1 Speedometer light, 6 V 1.2 W.

Bulbs, speedometer (incorporated in the headlamp unit) and ignition switch become accessible after taking off the front cover (slacken slotted-head screw at front, lower edge). The concave reflector can be set with the aid of the setscrew in front of the ignition switch to comply with local traffic regulations.

The Tool Kit

is kept in the toolbox below the seat with a lock on the right-hand side. To open, turn key clockwise, then press in to release the catch. Always remove key before lifting seat.

Regular Maintenance

will prolong the life and preserve the attractive appearance of your "ZÜNDAPP" machine.

Cleaning

The dirt thrown up from the road contains corrosive particles which will pit and spoil the paint finish if left on too long. Wash the machine frequently with clean, cold water (which will incidentally strengthen the surface hardness of the paint). But avoid hosing down the machine with an excessively powerful jet of water; always cover up generator and carburettor with a cloth to protect them against splashes.

We advise against the use of soap, soap powders or alkaline detergents of any kind, except where the machine has become very dirty or oily. Always follow the maker's instructions on the packet when using a detergent.

Experience has shown that a 1-2% solution of soft soap in water of approx. 80° F (30° C), (never hotter) is particularly effective.

Whether you use a detergent or not, always rinse your sponge or rag at frequent intervals, otherwise fine grit will scratch and spoil the paintwork.

After sponging down, give the machine a final rinse with water to remove all alkaline detergent traces. Finally, dry the machine with a good-quality chamois leather. Always clean your machine in the shade, as direct sunlight will dry the drops too quickly and lead to spotting, particularly if the water is hard.

Washing the finish removes some of the protective oils, and in time this can lead to cracking of the paint. It is, therefore, advisable to polish the machine after washing with wax or oil polish to restore the protective coating. Use only polishes specially recommended for synthetic enamel paints.

If you keep your machine well polished, you will find cleaning much easier, since dirt will not adhere as firmly to the wax film as to a finish marred by detergents, wind and weather.

Chromed Parts

are best cleaned with water and then dried with a woollen rag. To preserve their high gloss, polish them with a high-grade branded chrome cleaner.

Tyres

should be carefully checked at regular intervals.

Pressure should be as follows

| | 175-Trophy S Solo | | with Pillion Rider | | 250-Trophy S Solo | | with Pillion Rider | |
|------------|-------------------|-------|--------------------|-------|-------------------|-------|--------------------|-------|
| | lb/sq. in. | atü | lb/sq. in. | atü | lb/sq. in. | atü | lb/sq. in. | atü |
| Frontwheel | 17 | (1.2) | 17 | (1.2) | 21 | (1.5) | 21 | (1.5) |
| Rearwheel | 21 | (1.5) | 27 | (1.9) | 25½ | (1.8) | 31 | (2.2) |

Wrong tyre pressure causes:

- bad road holding
- unequal tyre wear
- premature tyre ageing (cracking etc.)

It is advisable to change tyres round approx. every 3,000 miles (5000 km). Repaired tyres should always be fitted to the rear wheel. Oil, grease and excessive heat attack rubber; therefore, always store your tyres in a cool, damp place.

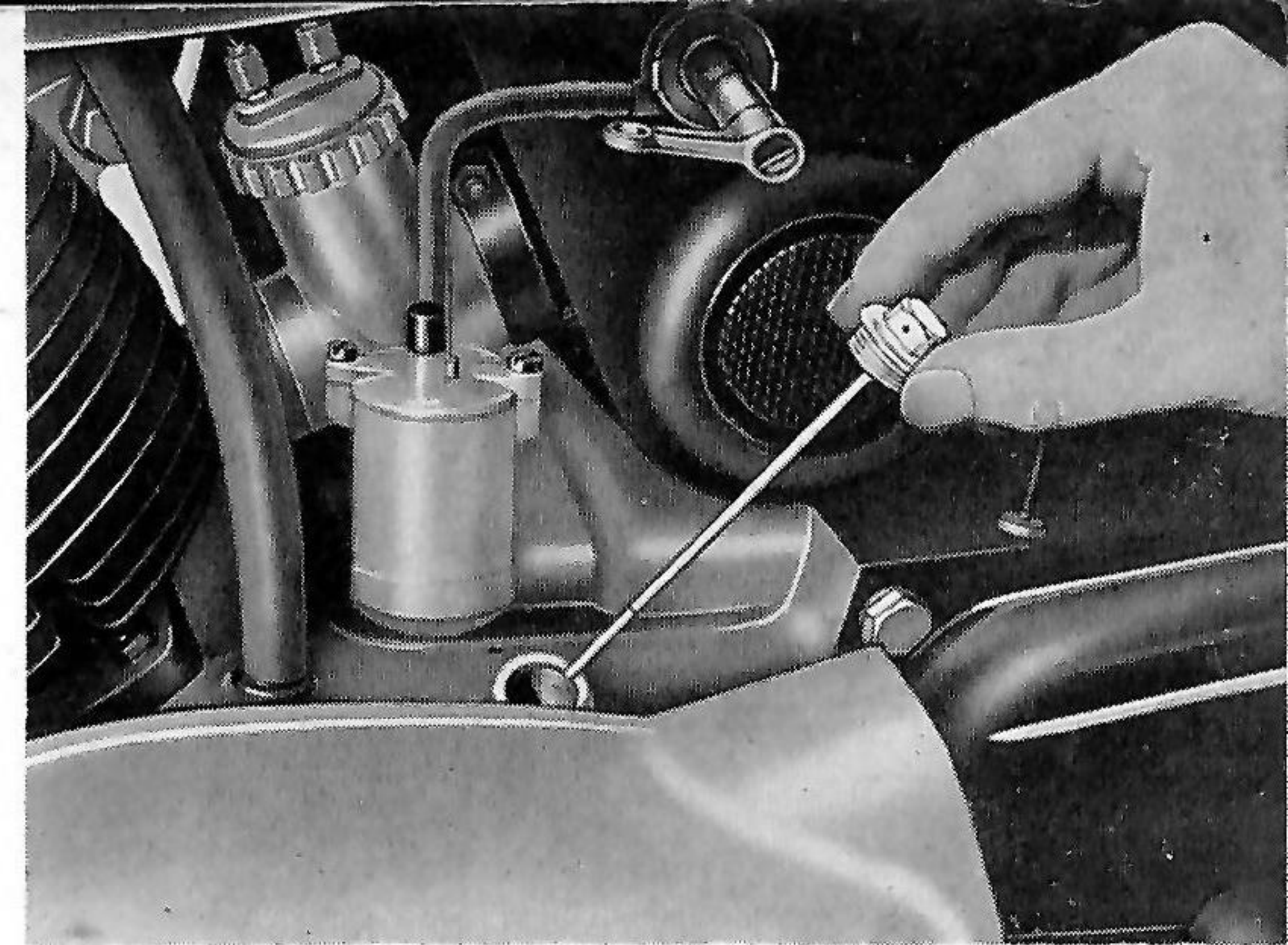


Fig. 16

Oil in Gearbox

Check the oil in the gearbox at regular intervals, and top up where necessary. Do not screw in the dipstick, merely push it in. The mark on the dipstick shows the correct level.

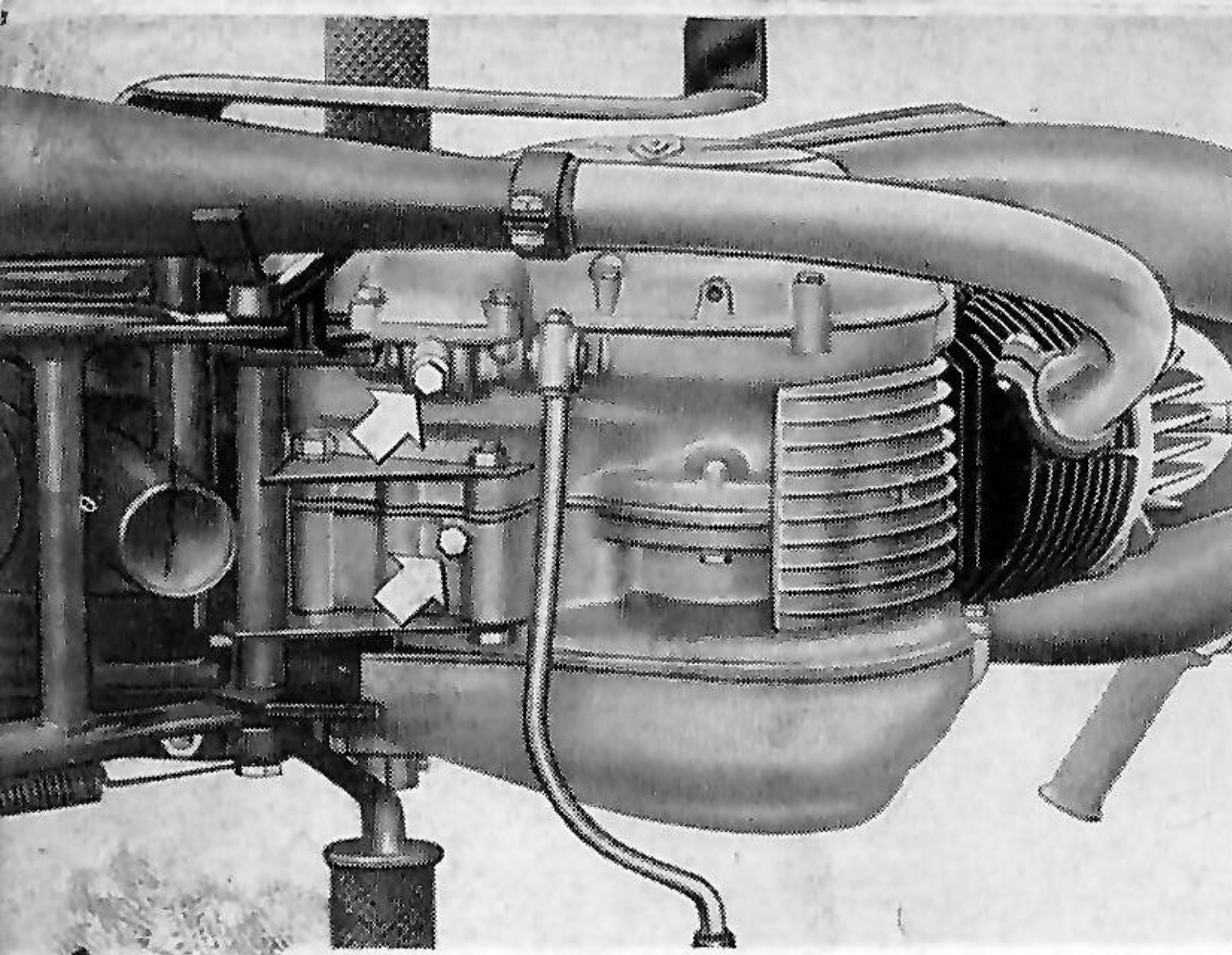


Fig. 17

so that the dipstick will not show the true level until you have ridden the machine for a short while. The 2 drain plugs are shown in Fig. 17.

Oil in Front Fork

not only lubricates the moving parts, but also hydraulically damps the up and down travel of the telescopic tubes.

Normally, the oil should be changed every 6,000 miles (10 000 km) or so. To do so, take out the two drain plugs. Fill with approx. 650 c.c. Depending on weather conditions, we recommend

| | |
|-----------------|-----------|
| in warm weather | SAE 40—50 |
| in cold weather | SAE 20 |

Remember that the fresh oil needs a little time to penetrate evenly through gearing and clutch housing,

Depending on weather conditions and load, we recommend

| | |
|------------------------------------|------------|
| in warm weather with a heavy load | SAE 50 oil |
| in warm weather with a normal load | SAE 40 oil |
| in cold weather with a heavy load | SAE 20 oil |
| in cold weather with a normal load | SAE 10 oil |

The arrow in fig. 18 shows the oil draining screw.

It is advisable to check the lower fork tubes beneath the clamping brackets approx. every 30,000 miles (50 000 km) for any corrosion due to damp. If necessary, tubes should be replaced.

Care of Chain

should never be neglected. Unlike those of rigid-frame motorcycles with large wheels and low speeds, the chains of modern machines work under considerably



Fig. 18

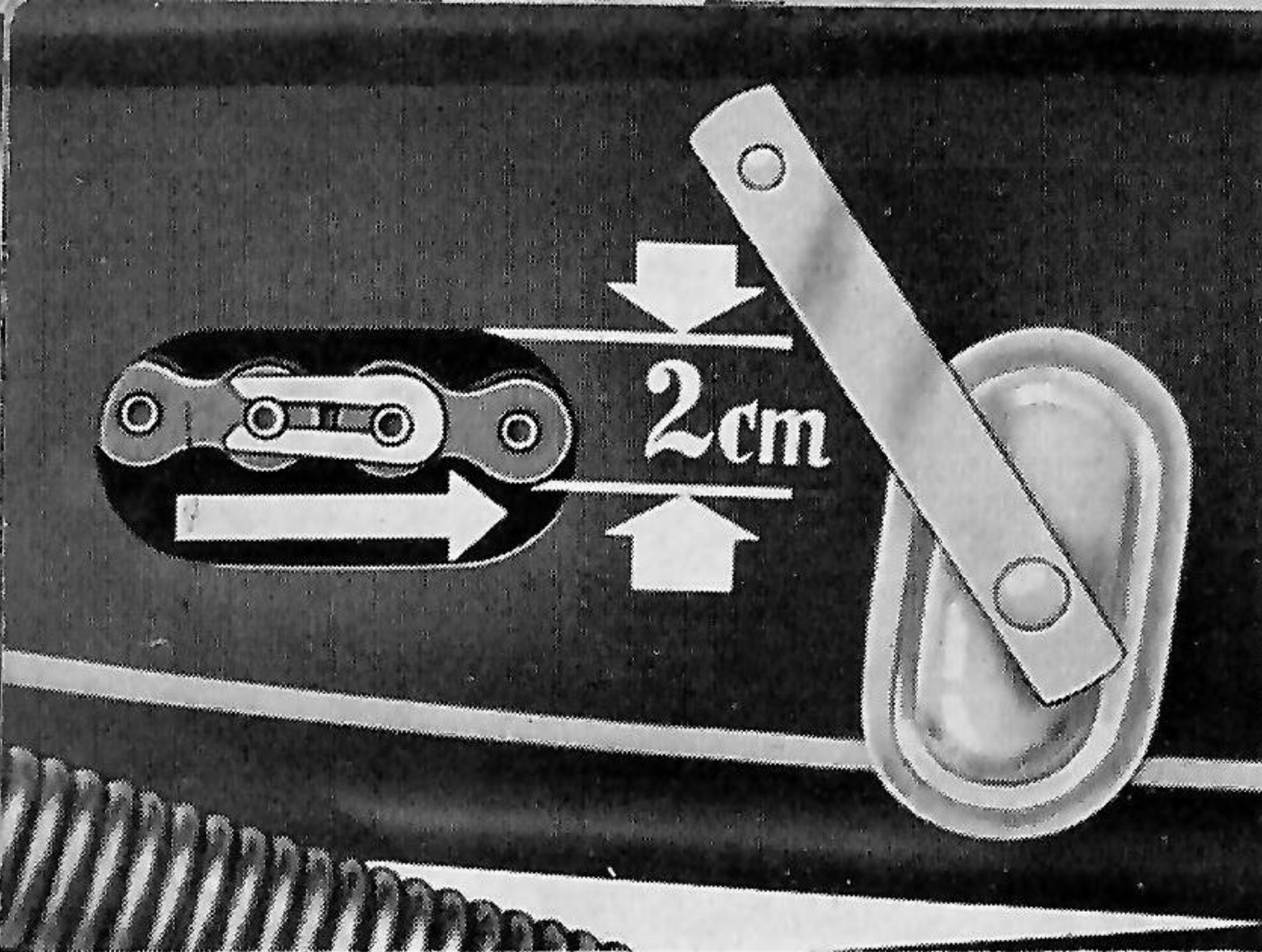


Fig. 19

Chains should also be regularly lubricated, preferably with special chain grease of adequate adhesion and efficiency at high temperatures. We ourselves use and recommend our "ZÜNDAPP" chain lubricant sold in tubes by all ZÜNDAPP distributors.

higher load stresses, due to the suspension travel and the far higher speeds. Chain alignment and tension must, therefore, be very accurately controlled and our lubricating instructions strictly observed. When riding solo, chain slack should be approx. $\frac{3}{4}$ " (20 mm). Chain alignment can be checked by holding a board against both sprockets.

To adjust the chain, slacken the wheel spindle nuts, evenly turn the two chain tensioners, then secure the corrected setting with the tensioner lock nuts and spindle nuts.

At least every 3,000 miles (5 000 km), take off the chain, rinse it in cleaning fluid or kerosene, dry it well, then immerse it in chain grease until the grease has completely penetrated between links, rollers and pins. Finally remember to clean the sprockets before fitting the cleaned and lubricated chain.

When fitting a new chain, always replace sprockets as well, as worn sprockets will ruin the new chain in a very short time.

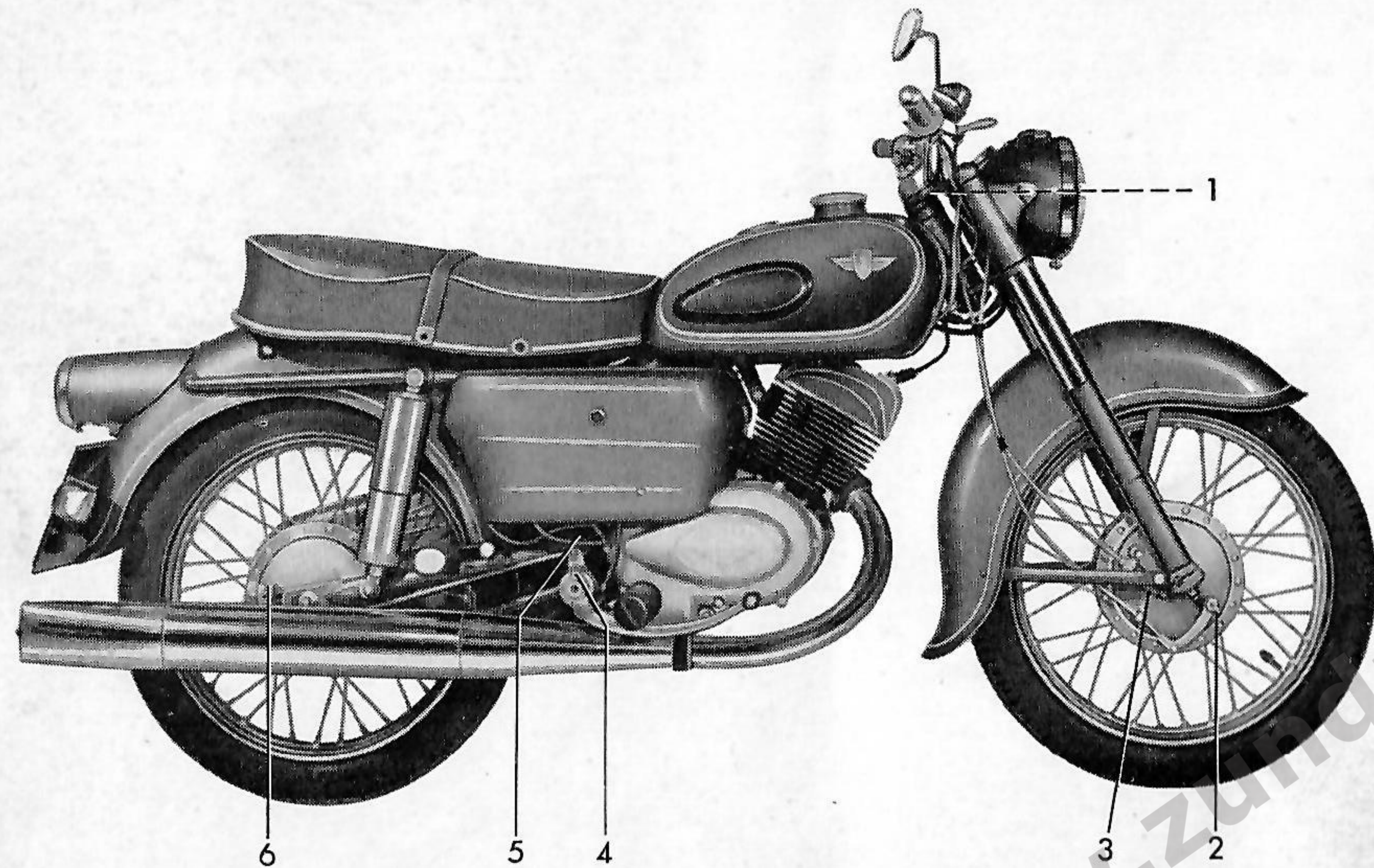


Fig. 20

Lubrication

There are altogether 6 points which should be lubricated by grease gun every 600 miles (1000 km). Before applying the grease gun, wipe the nipples clean.

Each time you lubricate, **test all nuts and screws for security.**



Fig. 21

Adjusting the Clutch

The clutch should always have a little play at the lever, otherwise it may slip. A knurled screw with lock nut is fitted to the handlebars for adjustment.

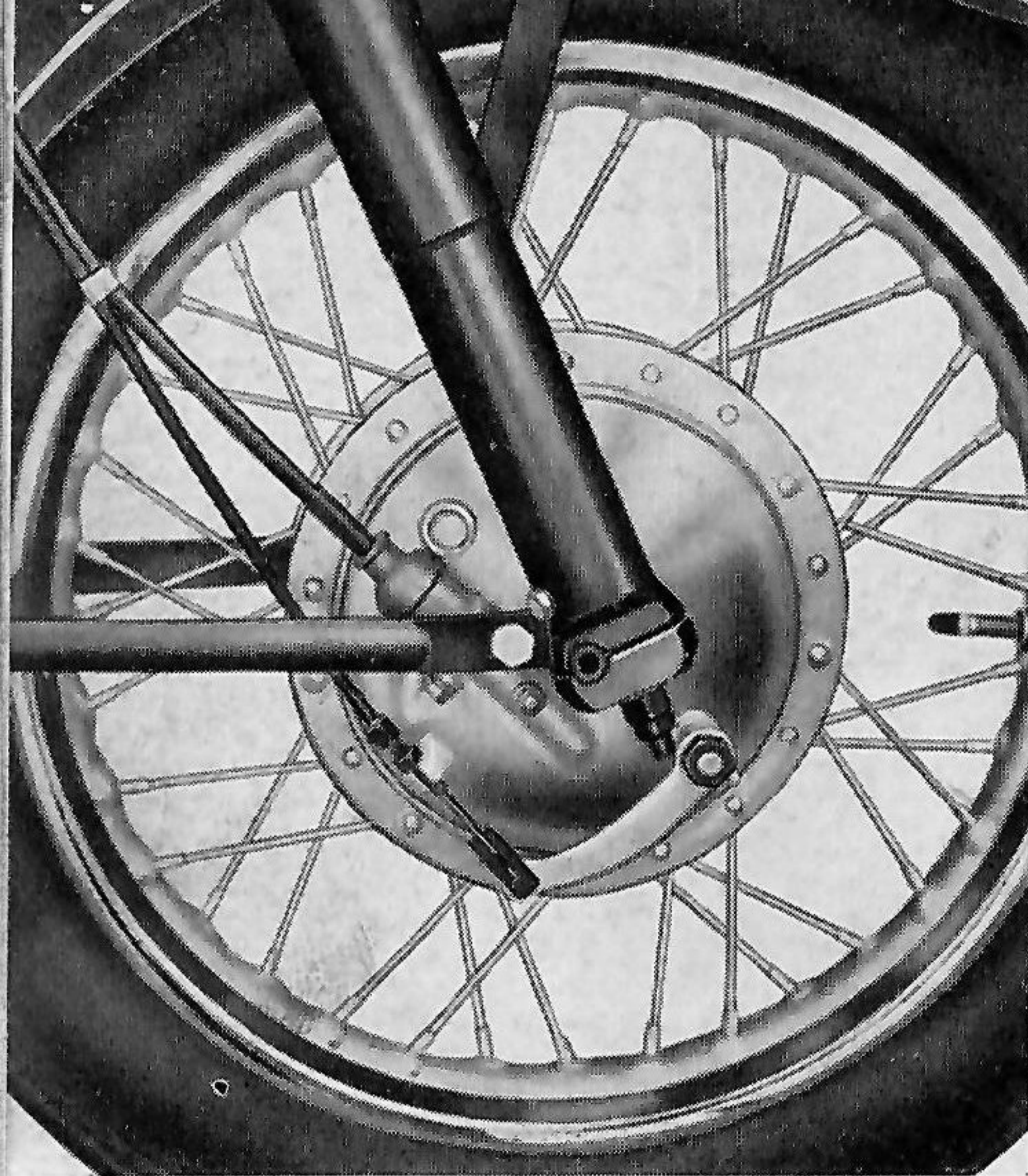


Fig. 22

The front brake can be adjusted by means of a knurled screw and lock nut on the handlebar. Make sure the brake is not set too tightly, otherwise the linings will bind as you drive and the brake may seize.

Adjusting Front Brake

The front brake can be adjusted by

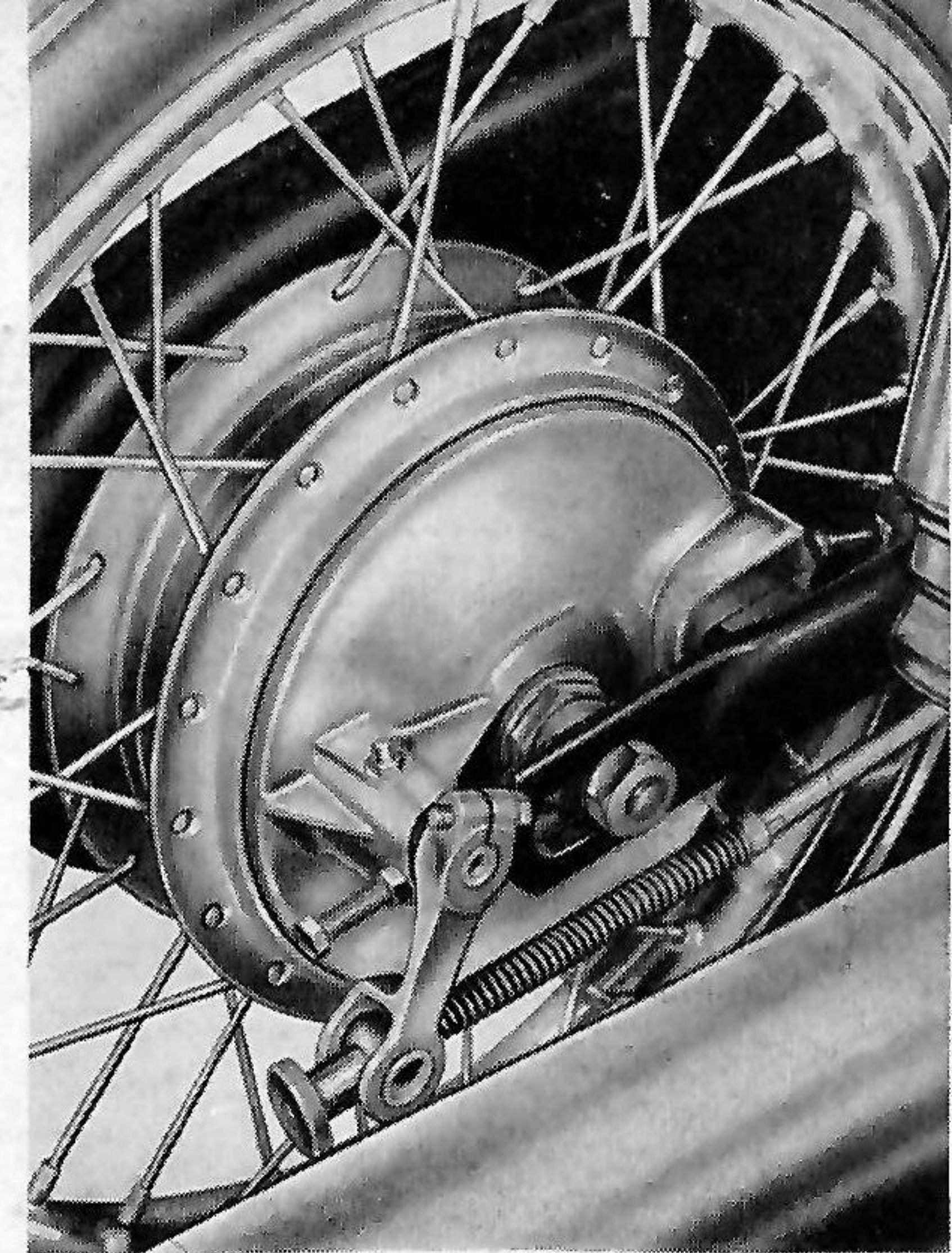


Fig. 23

Adjusting Rear Brake

You can adjust the brake by turning the knurled nut on the rear wheel. Again, do not set it too tightly.

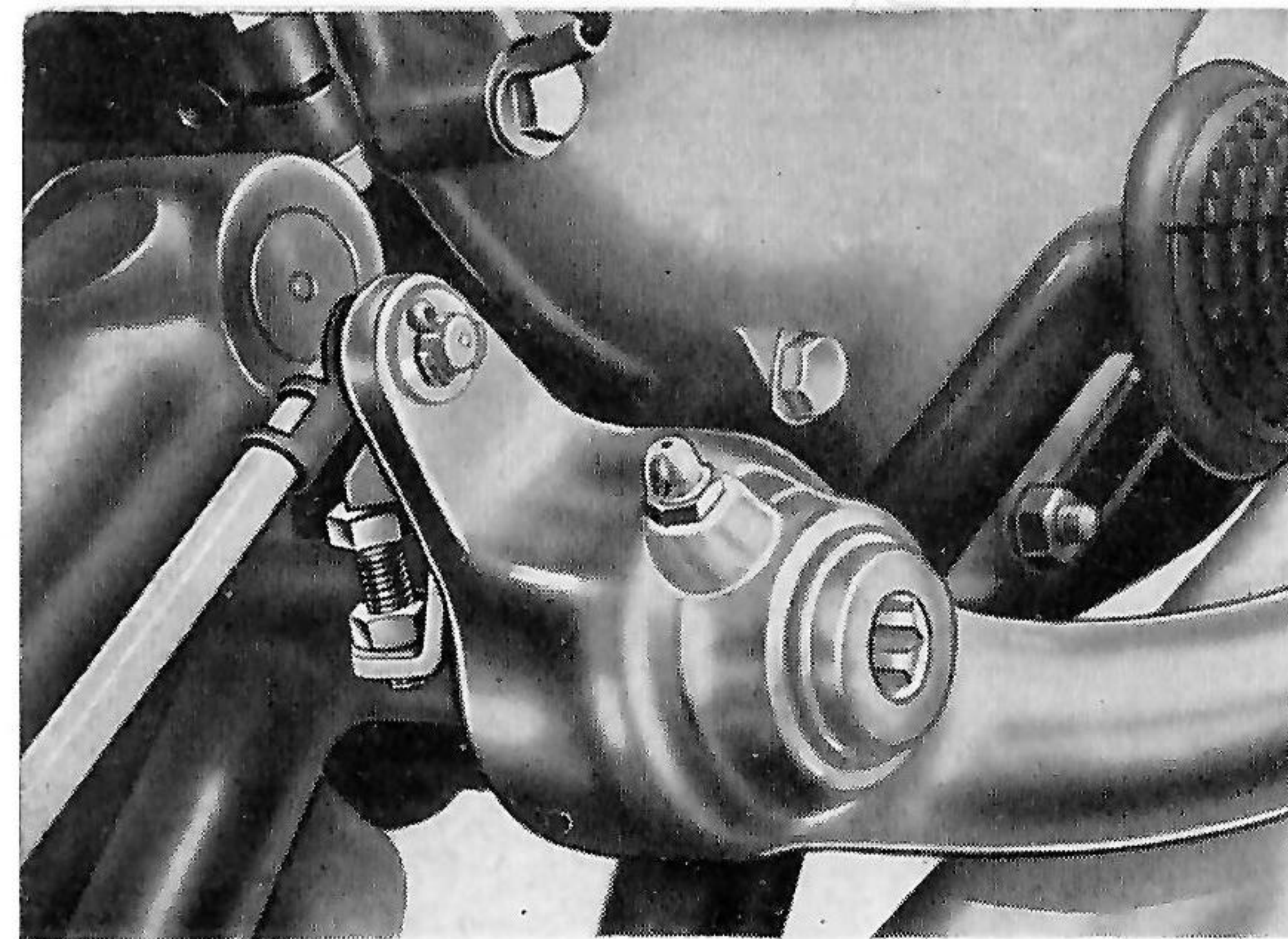


Fig. 24

The position of the footbrake pedal can be altered to suit the rider by turning a setscrew with lock nut.

Adjusting Footbrake Pedal

The Generator

Check contact-breaker gap every 3,000 miles (5000 km). To reset, slacken retaining screw 1), then turn eccentric screw 2) until contact-breaker gap is between 0.012" and 0.016" (0.3 - 0.4 mm). Altering contact gap setting by 0.004" (or 0.1 mm) corresponds to an alteration of ignition timing of 10°.

The felt lubricating pad should also be freshly greased every 3,000 miles (5000 km). Other generator parts require no maintenance.

The Battery

Check the electrolyte level every 600 miles (1000 km). If it falls below the control mark, top up with distilled water (not with acid). If you lay up the machine for any length of time, it is advisable to take the battery off and have it serviced once a month at a garage.

Take special care of your battery in winter. Uncharged batteries will freeze at temperatures below 17° F (— 8° C), insufficiently charged batteries will freeze at somewhat lower temperatures.

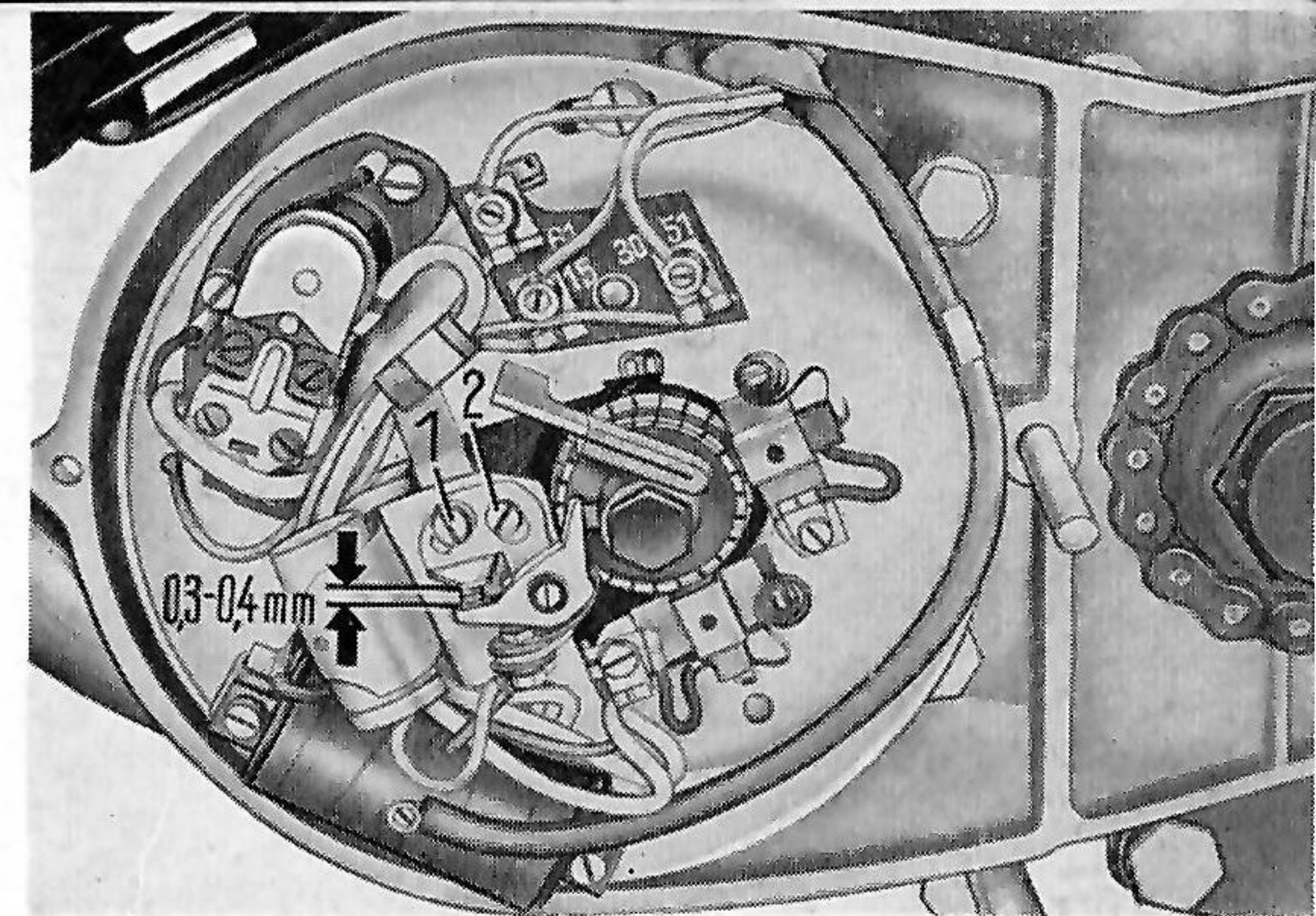


Fig. 25

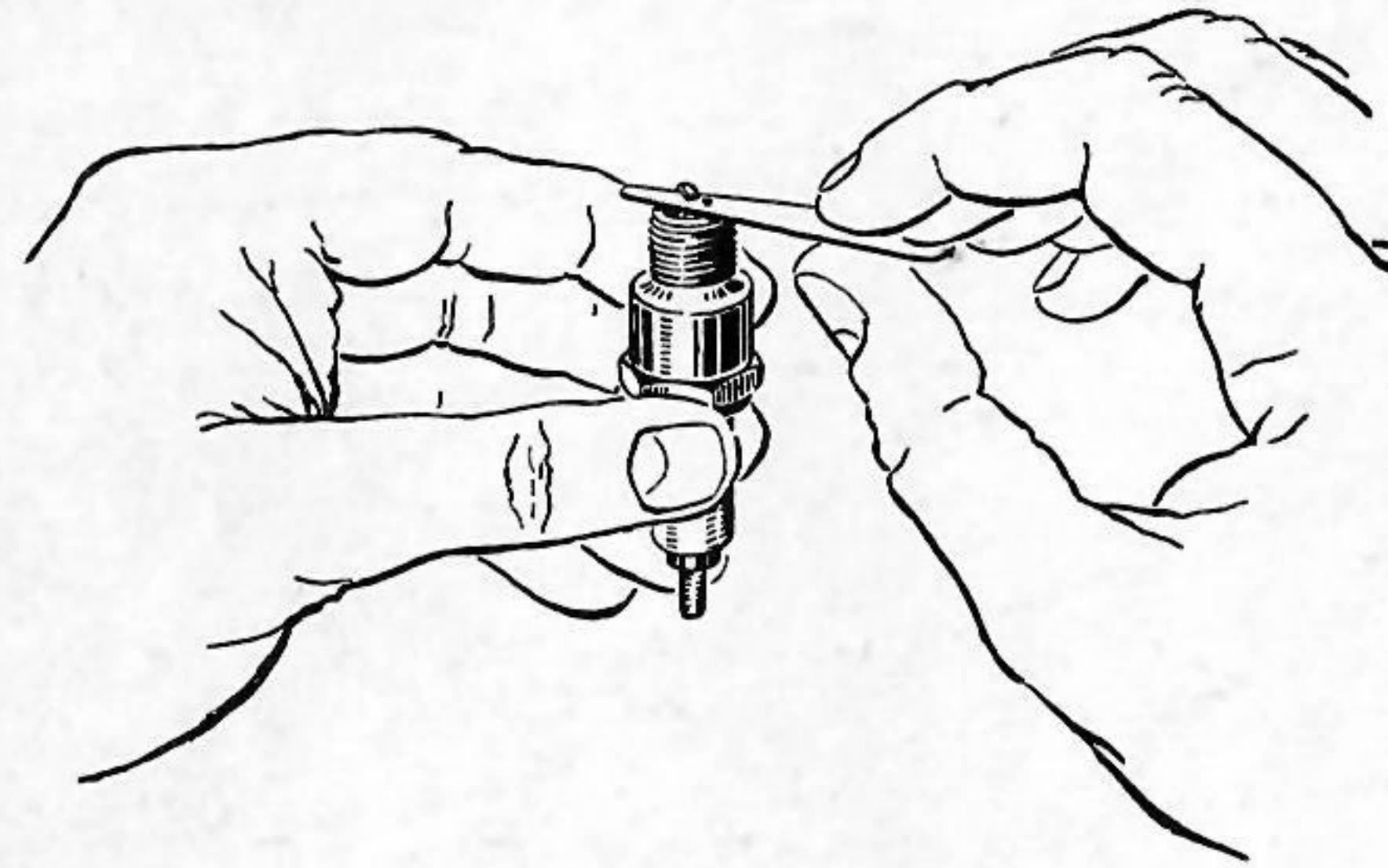


Fig. 26

The Sparking Plug

Sparking gap should be 0.028" (0.7 mm). A careful check of the sparking plug's condition will give you useful information on the condition of your engine as well as on your driving practice.

- Sooty sparking plug: Carburettor mixture too rich,
or engine not allowed to warm up sufficiently
- "Burned" sparking plug: Carburettor mixture too weak,
or ignition wrongly set,
or engine fouled by carbon deposits

Lighting System

First and foremost, see that your lighting complies with local traffic regulations. Faulty bulbs or cables must, of course, be replaced immediately. For correct setting of the headlamp, you should have a pillion passenger on board.

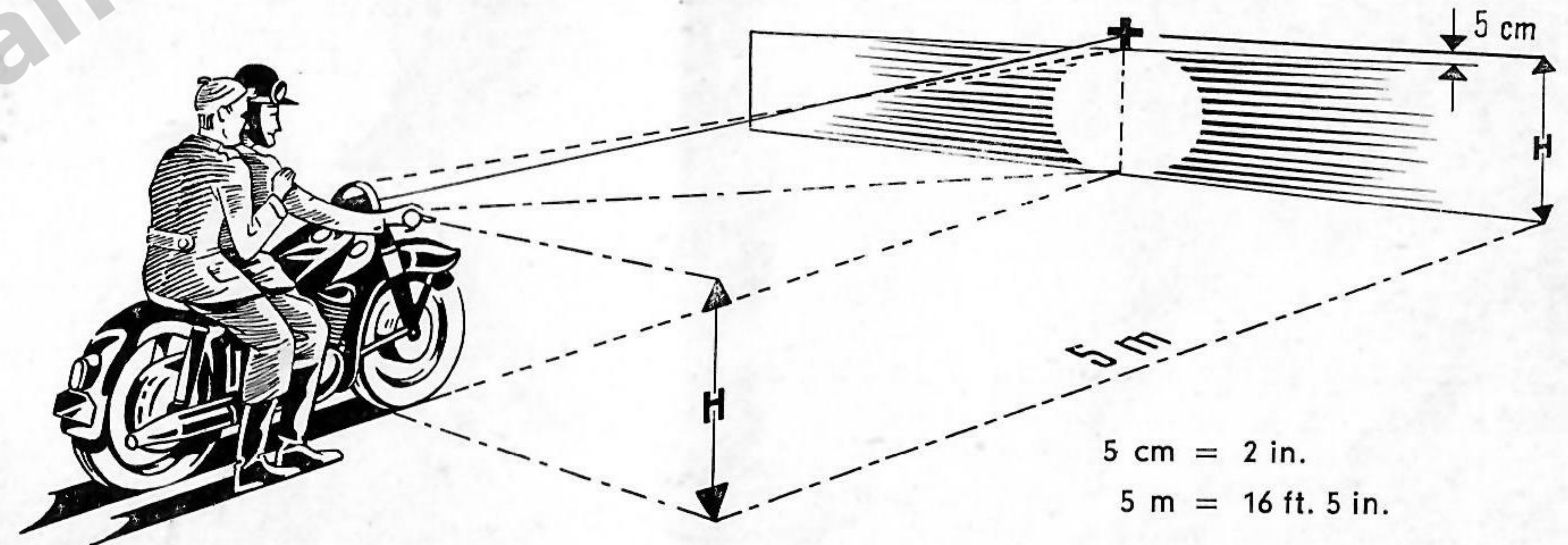


Fig. 27

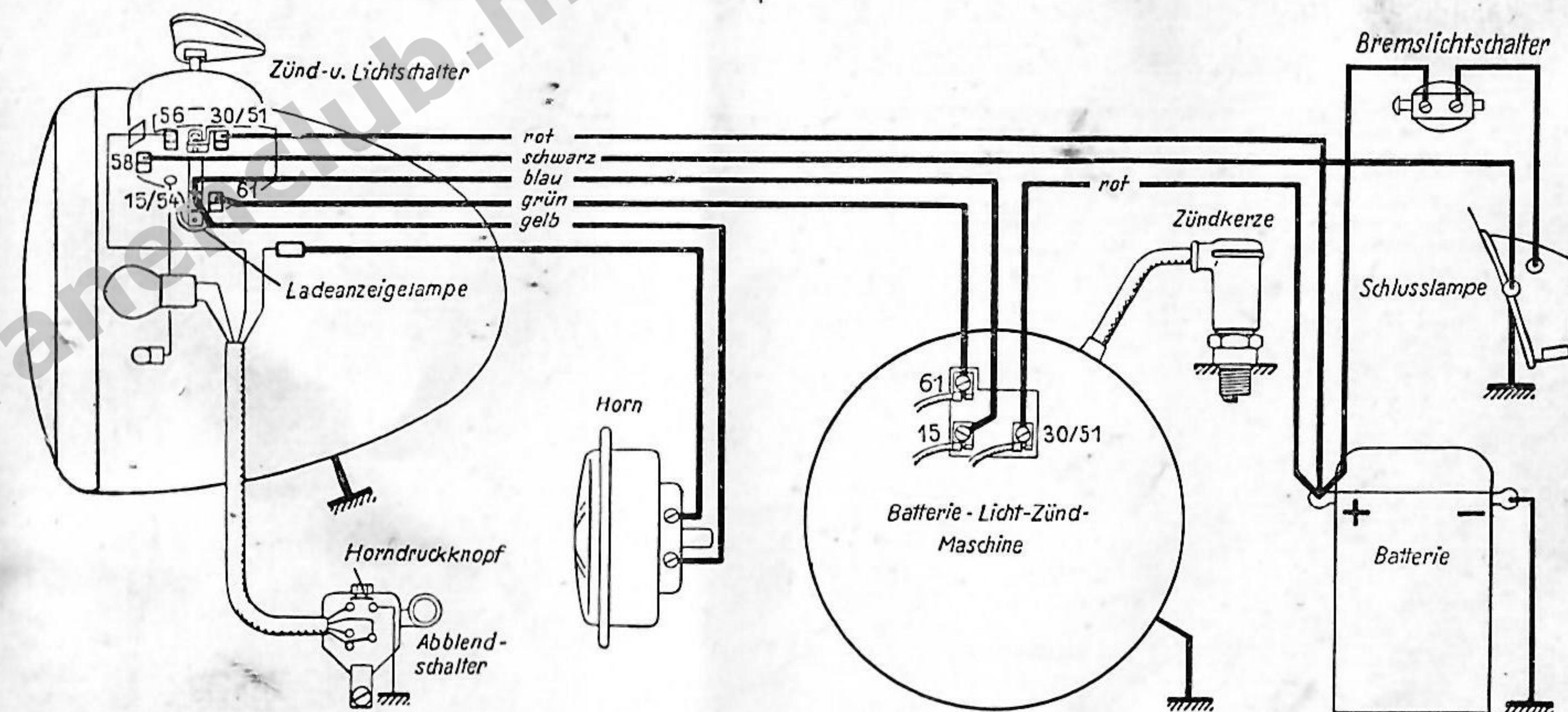
With the machine on level ground, squarely facing a wall at 16 ft. 5 in. (5 m) distance mark height "H" of the headlamp on the wall.

Main beam setting: Switch on the main beam and the centre of the light patch should coincide with your mark on the wall.

Dipped light setting: The upper edge of the light patch should now be at least 2" (5 cm) below your mark and run horizontally, otherwise the headlamp must be adjusted.

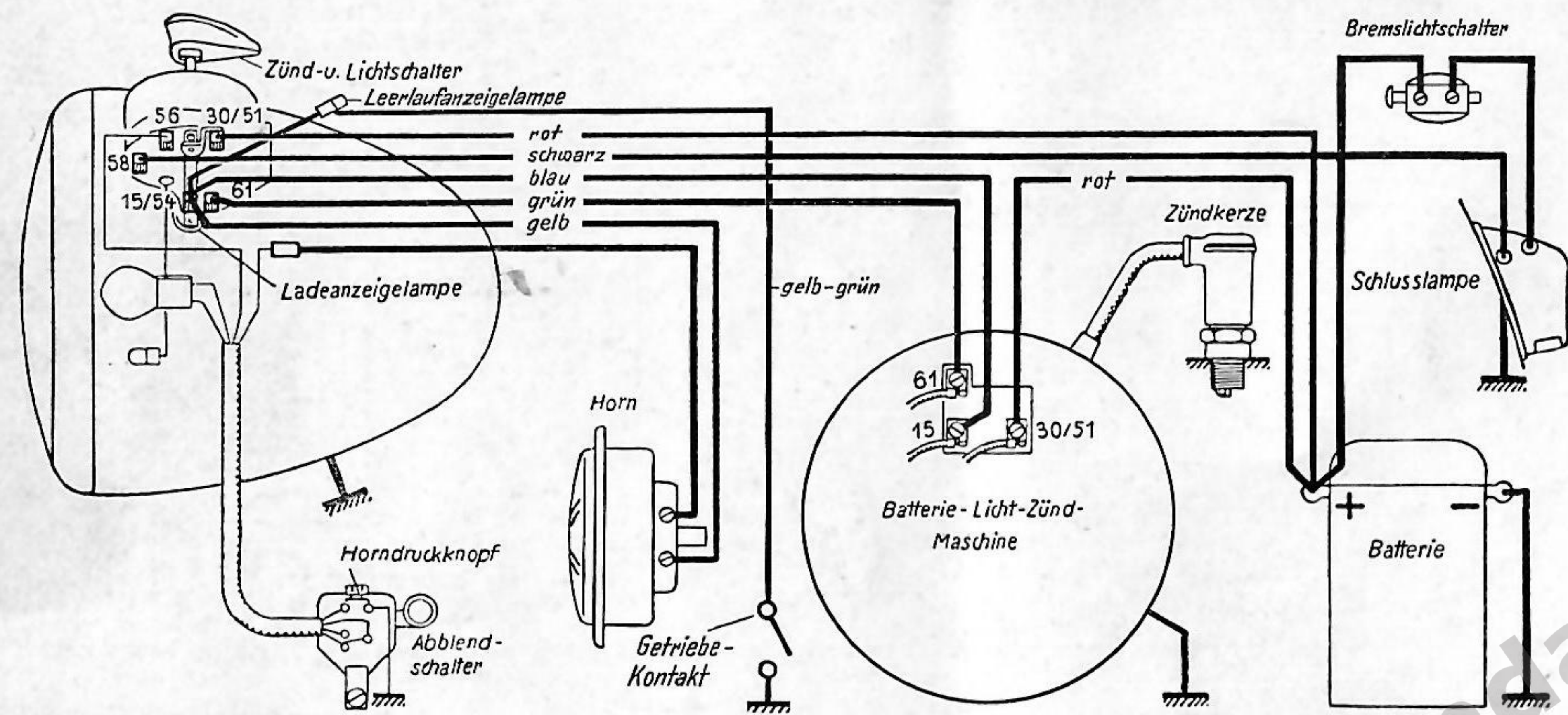
The headlamp has a knurled screw on the top. By turning the screw you can adjust the reflector and the beam to fall at three different angles (even while riding) to ensure adequate and safe illumination of the road ahead under any load.

- | | |
|---|--------------------------|
| Zünd- und Lichtschalter = Ignition and Light Switch | gelb-grün = yellow-green |
| Bremslichtschalter = Stop-Light Switch | rot = red |
| Ladeanzeigelampe = Ignition Warning Lamp | schwarz = black |
| Horn = Horn | blau = blue |
| Horndruckknopf = Horn Button | grün = green |
| Abblendschalter = Dipping Switch | gelb = yellow |
| Batterie-Licht-Zünd-Maschine = Generator | |
| Zündkerze = Sparking Plug | |
| Schlußlampe = Rear Light | |
| Batterie = Battery | |
| Leerlaufanzeigelampe = Neutral Indicator Light | |
| Getriebekontakt = Gearbox Contact (for neutral indicator) | |



Electrical Wiring Diagram

Fig. 28 175-Trophy S



Electrical Wiring Diagram

Fig. 29 250-Trophy S

Care of Machine and Engine when Laid-Up

If you observe the hints given below when laying up your machine for any length of time, you will be able to take it into commission again without any trouble. For best results, proceed in sequence, as follows:

1. Ride your machine for 10 to 15 miles (15 — 20 km) to give the engine a chance to warm up properly.
2. Take off the carburettor, then operate the starter (ignition switched off) and about 50 c.c. of corrosion-inhibiting oil will be sucked through the inlet manifold.
3. Clean carburettor, air filter and fuel line and refit. The throttle twistgrip should remain closed while the machine is laid up.
4. Change the oil in the gearbox.
5. Take off the drive chain. A good tip is to fit a length of old chain in its place for easier re-fitting of the chain when you want to start up again. Clean and lubricate the chain as described above and store it away.

6. Take off the battery and store in a dry place, well protected against frost. Have it charged every 4—6 weeks at a garage (do not empty the battery).
7. Clean all oily parts with a brush dipped in kerosene.
8. Wash (do not hose down) the machine with a suitable cleaning powder etc. (follow makers' instructions). Dry with sponge and leather.
9. Take off the dynamo cover and dry well, wipe inside of dynamo dry.
10. Coat all chromium parts with acid-resistant vaseline.
11. With an atomiser, spray a film of oil (special-purpose oil is obtainable from all usual suppliers) over the entire machine.
12. Lubricate all points indicated in the lubricating chart.
13. Chock up the machine in a dry garage or storage place, making sure that the tyres are clear of the ground
14. Reduce tyre pressure to 15 lb/sq.in. (1 atü).
15. Cover the machine up to protect it against dirt and dust.

Maintenance and Lubrication Chart

| Every Miles (km) | Service Job | Remarks | Details on page |
|------------------|---|---|---------------------------|
| 300 (500) | Minor chain care | ZUNDAPP chain grease | 51 |
| 600 (1000) | Tighten all nuts and bolts Lubricate machine Lubricate pedal and control lever pivots Check battery | Mobilcompound No. 4 Few drops engine oil | 55 55 55 59 |
| 3,000 (5,000) | Lubricate front and rear fork bearings Clean air filter and moisten with oil Check contact-breaker gap Clean sparking plug and check gap Major chain care | Shell-Retinax G ZUNDAPP chain grease | — 38 59 60 51 |
| 6,000 (10,000) | Change oil in gearbox Change oil in telescopic fork | SAE 20 — 40/50 Mobiloil SAE 10 — 50 | 49 50 |
| 12,000 (20,000) | Replenish grease in wheel hubs | Mobilcompound No. 4 | — |

All the maintenance jobs listed on the chart you can carry out yourself. But those listed below should always be left to the skilled staff of your ZÜNDAPP service agent:

Engine adjustment or overhaul
Repair or overhaul of brakes,
telescopic fork,
rear suspension and frame,
Decarbonising of engine and exhaust assembly,
Repair of accident damage.

In case of trouble with your dynamo and lighting system, please apply to your local Bosch agent.

A Few Maintenance Hints

A few of the most common maintenance and assembly jobs are described and illustrated on the following pages to enable you to carry them out in the easiest and quickest manner.

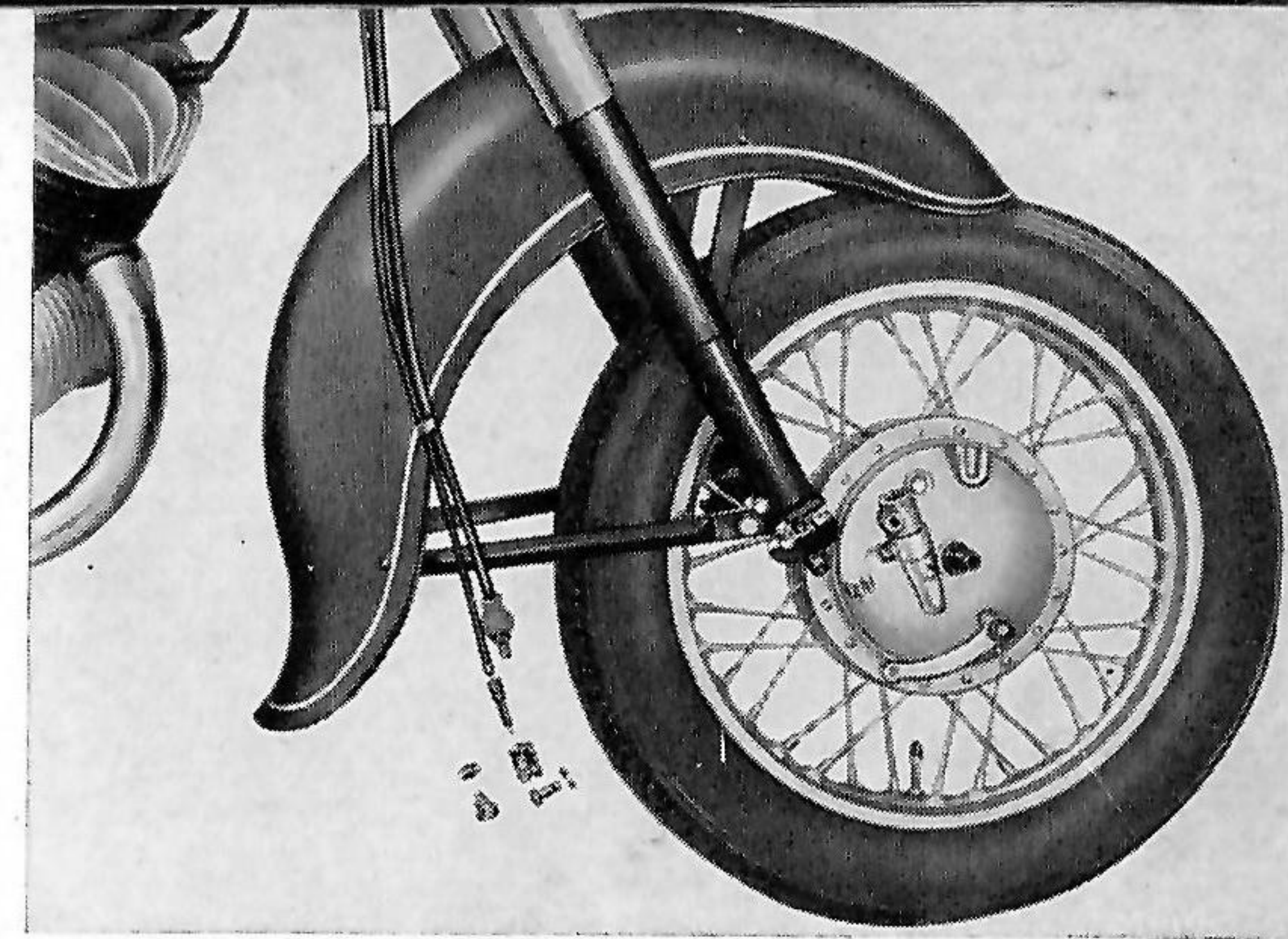


Fig. 30

Taking Off the Front Wheel

1. Place the machine on the centre stand
2. Disconnect brake cable
3. Disconnect speedometer drive
4. Slacken spindle nut, pull out knock-out spindle and the wheel will drop out.

Replace in reverse sequence.

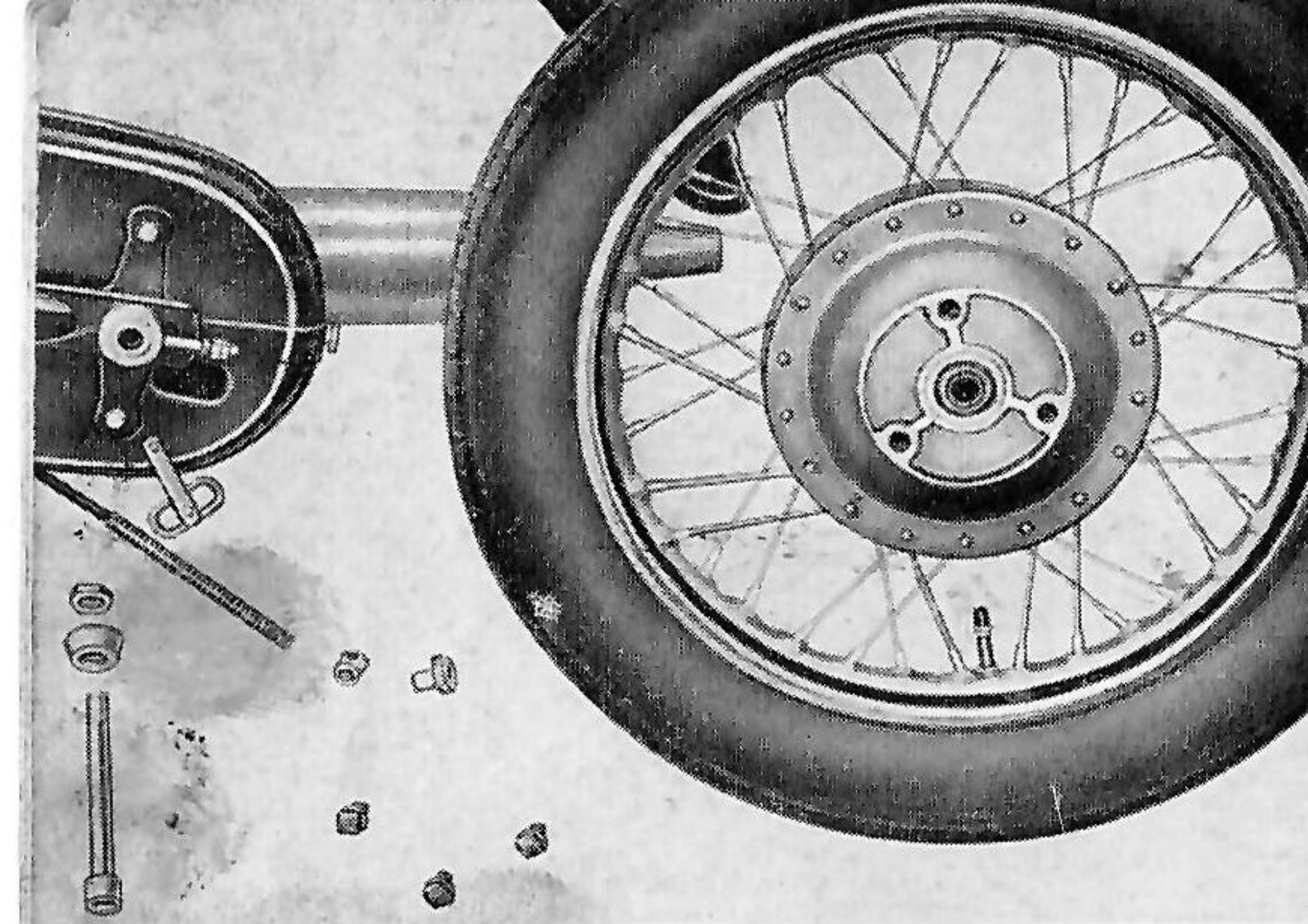


Fig. 31

Taking Off the Rear Wheel

175-Trophy S

1. Place the machine on the centre stand
2. Take off 3 wheel attachment bolts
3. Slacken spindle nut and disconnect brake lever from brake linkage
4. Push out the knock-out spindle.

Replace in reverse sequence.

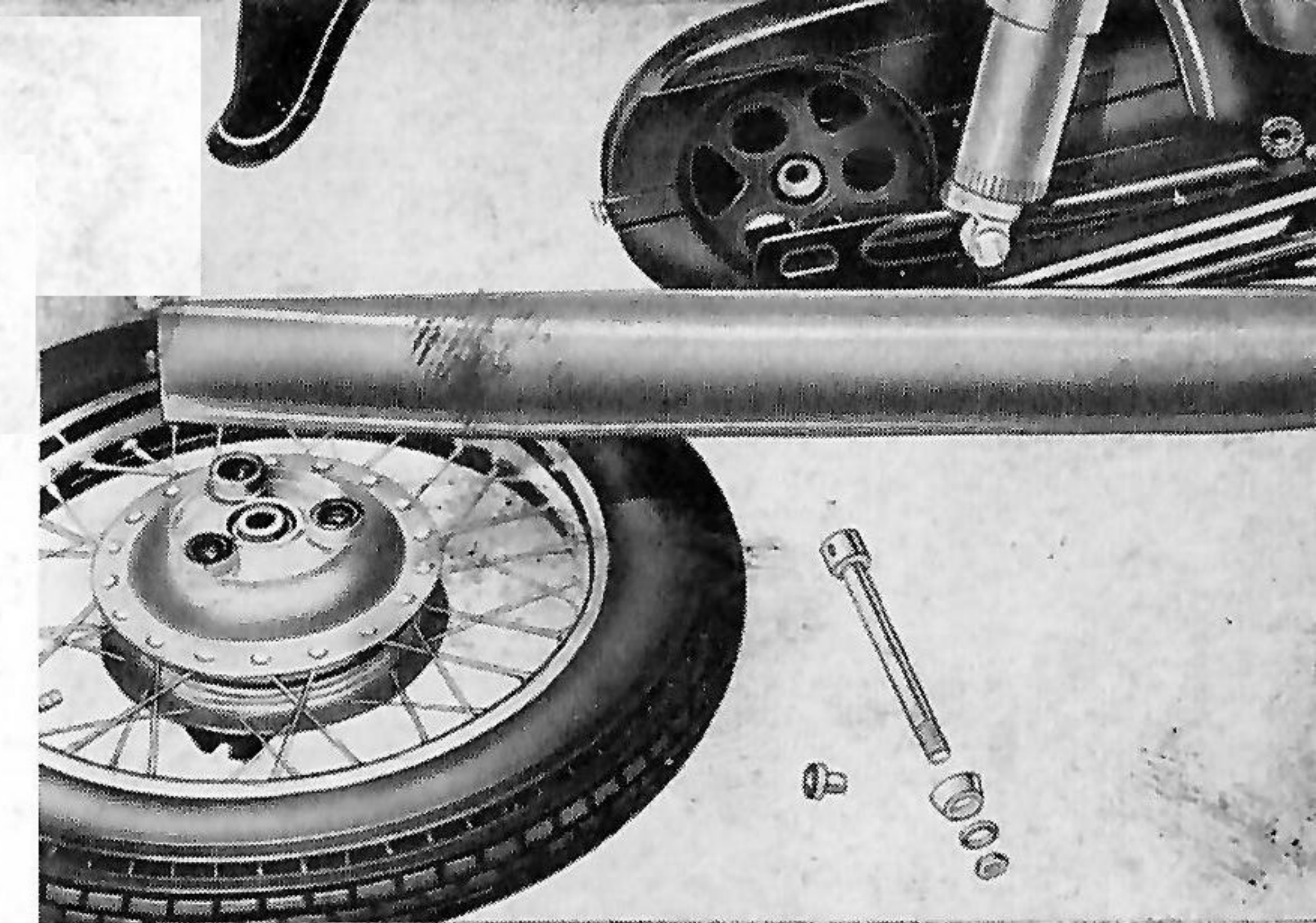


Fig. 32

Taking Off the Rear Wheel

250-Trophy S

1. Place the machine on the centre stand
2. Slacken spindle nut and disconnect brake lever from brake linkage
3. Push out the knock-out spindle.

Replace in reverse sequence.



Fig. 33

Never use excessive force or a pointed tool, as this may damage the tyre edges and inner tubes.

Tyres

can be changed easily and effortlessly; proceed as follows:

1. If any air remains in the tyre, take off valve cap and
2. Unscrew valve
3. Remove valve retaining nut
4. Step on the tyre with both feet on one side (as illustrated) and lever off at the other side with the tyre levers.

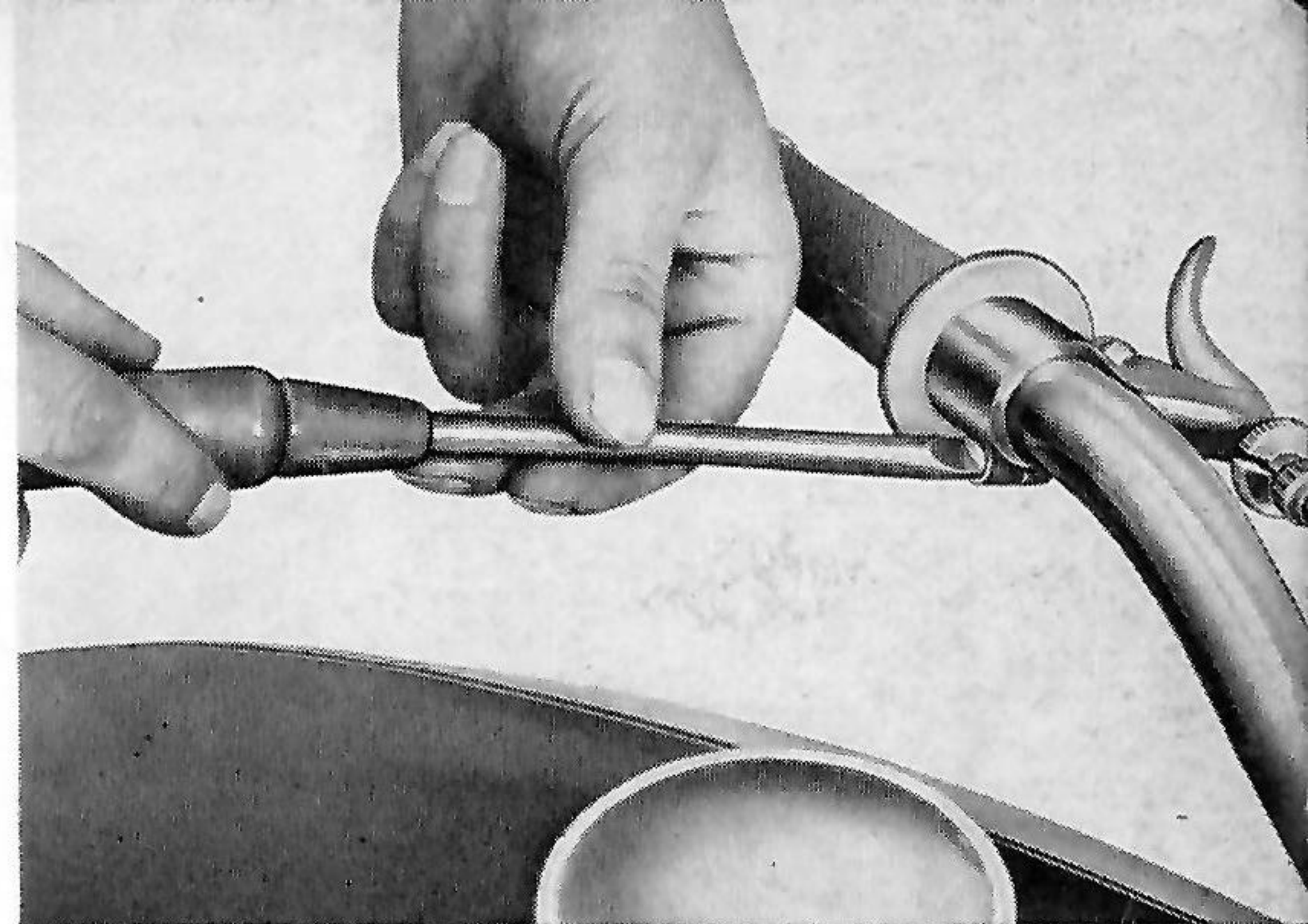


Fig. 34

Adjusting Position of Control Levers

Clutch and handbrake lever positions can be changed to suit your convenience. Merely slacken the retaining screw, turn the lever to the most comfortable position, then secure again with the screw.

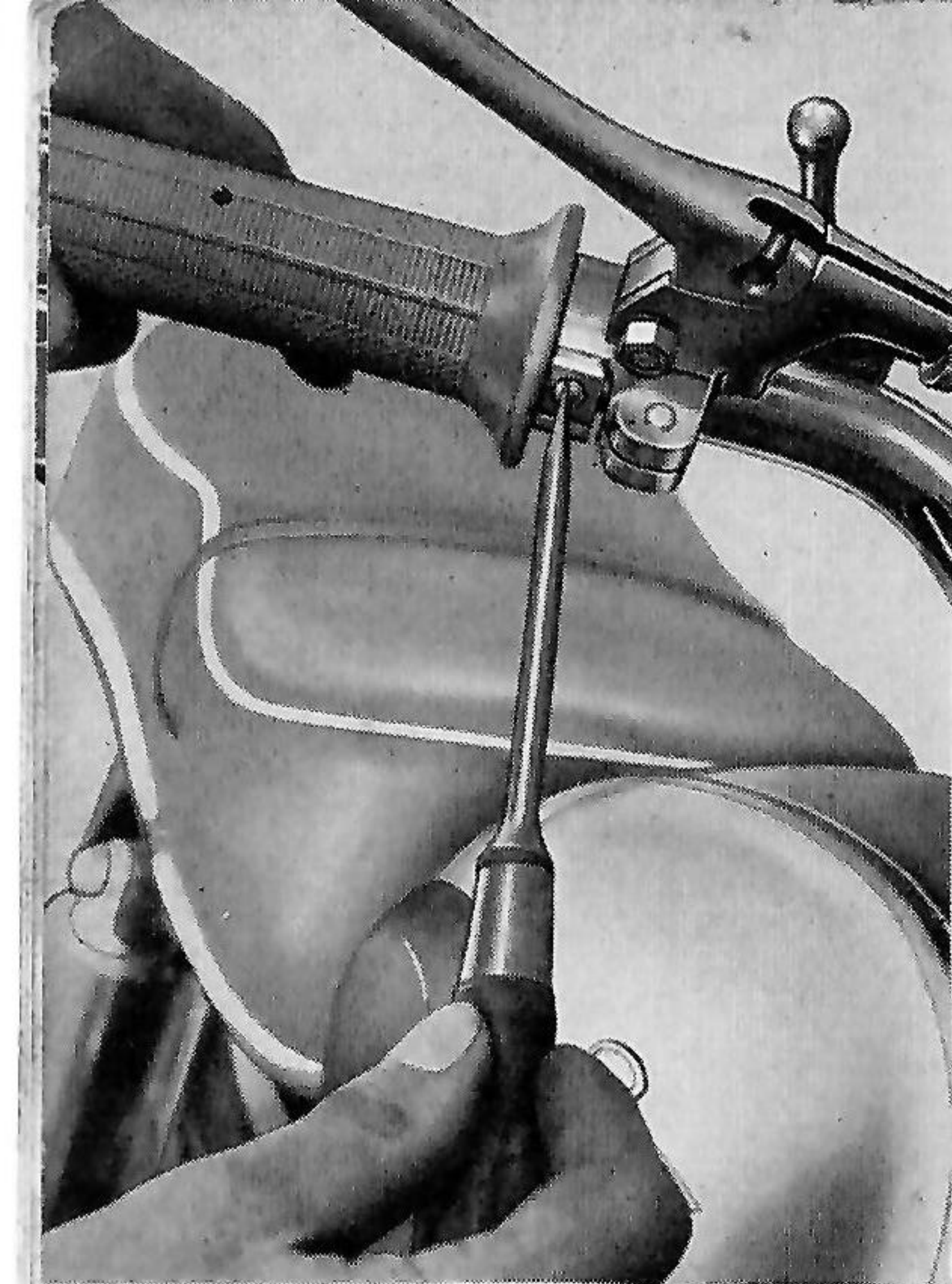


Fig. 35

When touring abroad, we also advise you to take various other important spare parts which you may find difficult to obtain locally, such as a chain, ignition coil and the like.

Adjusting Throttle Twistgrip

The small screw just inboard of the rubber, which controls a leaf spring, slackens or tightens the throttle twistgrip.

These Spares

should always be carried with you, in addition to the standard set of spares supplied:

Spare sparking plug

Spare bulbs

Insulating tape

Chain grease.

Troubles, Their Causes and Remedies

It may be labouring the obvious to say that your "Trophy S" will not start if you have forgotten to fit the key into the ignition or to open the fuel tap. Nevertheless, even experienced motorcyclists have been known to take their machine apart to locate a fault, when all that needed doing was to turn the fuel tap to "Reserve". You may ride your machine for thousands of miles without the least trouble, and suddenly something goes wrong. Well, that happens to the best of us. Just don't lose your head. Dismount, leisurely light a cigarette (well clear of the fuel tank, of course) and THINK. Then systematically test in the following order:

In case of engine failure, the first thing to decide is whether the fault lies with the ignition or the fuel system. Therefore,

remove the sparking plug, place another plug which you know to be in perfect order against an earthed part such as a cooling fin, switch on the ignition and operate the kickstarter. If a regular spark appears, the fault must lie in the fuel system.

Fuel System Faults

No air can get past tank filler cap, so that fuel feed is interrupted.

Remedy: Replace cap or drill a small hole in it (max. dia. 0.08" or 2 mm).

Fuel tap clogged

Remedy: Take tap off and clean (place container below tap to catch escaping fuel).

Fuel lines dirty

Remedy: Remove and clean, first closing fuel tap.

Carburettor faulty

Remedy: Take off and dismantle, rinse in petrol, blow out with compressed air (if no other source is available, use the tyre pump), re-assemble and set correctly (see technical specification).

If you tickle the carburettor too much or operate the kickstarter too often, you may flood the engine, so that it will not start, even if ignition and fuel systems are in good order.

Remedy: Take off sparking plug, close throttle, open engine air lever and, with ignition switched off, turn engine over several times. Then kick-start as usual. (In extreme cases, you may have to slacken the hexagon-headed stud on the crankcase below the crankshaft to allow the excess fuel to drain off).

Ignition Faults

Battery insufficiently charged, charging lamp burns feebly and flickers when you step on the kickstarter.

Remedy: Push-start machine in 2nd gear. Have your battery tested and charged at the first opportunity.

Starting Engine Without Battery

If your battery is heavily discharged or defective, the engine will be difficult to start. In such cases, it is better to cut out the battery altogether by taking off the minus lead and connecting it to earth. You now have to push-start the machine. This will be easier if you connect

terminals 30 and 61, marked on the terminal board inside the generator by a piece of wire. Leave the leads in their terminals. Remove the wire connection when you re-connect the battery.

Poor contact of cable leads to battery (pilot lamp does not light up)

Remedy: Clean battery terminals and cable ends, check earth lead connection.

Ignition switch defective (pilot lamp does not light up). Here, the remedy should be left to your service garage.

Generator defective. Have it seen to by your service garage or nearest Bosch agent.

Other Possible Faults

Engine is difficult to start

When Cold:

Turn the pilot air screw further in (even in winter). Engine has an air leak; have it attended to by your service garage.

When Warm:

Turn pilot air screw farther out (in summer you will need more air for slow running).

Float needle seating leaky; clean, if necessary, replace needle and float-chamber cover.

Engine alternately races and idles

Sparking plug defective; check sparking plug gap. Engine still cold; ride short distance at high revolutions. Mixture has too much oil; empty tank and fill up with 25:1 petrol mixture.

Engine performance falls off

Engine incorrectly adjusted; have ignition and carburettor reset by your garage. Engine and exhaust fouled by carbon deposits; have them decarbonised at your garage. Engine has air leak; have it remedied at your garage. Piston and cylinder worn: have cylinder rebored and piston replaced.

Engine knocks

Incorrect gear changing: change down to lower gear in good time. Ignition over-advanced. Carburettor set for excessively lean mixture. Wrong grade of sparking plug, fit one of correct heat value. Un-suitable fuel (too low in octane number). Combustion space reduced by carbon deposits. Engine overheats because ports have become clogged.

Front fork "bottoms"

Change to oil of higher viscosity; if this brings no improvement, have stronger springs fitted.

Front fork action too hard

Change to oil of lower viscosity.

Brakes ineffective

Brake linings oily; rinse in petrol, test seal, replace if necessary. Brake linings worn; replace.

Excessive chain wear

Chain out of alignment, not regularly cleaned and lubricated. Adjust and maintain as described earlier.

Uneven tyre wear

Wrong tyre pressure. If centre treads wear excessively, pressure is too high. If outside treads wear, pressure is too low.

Poor road-holding

Adjust tyre pressure.

Machine pulls to one side

Align wheels with the aid of a board or similar "straight-edge".

Table of Contents

| | Page |
|------------------------------------|------|
| Foreword | 1 |
| Machine data | 6 |
| Technical Specifications | 7 |
| Check on Taking Delivery | 19 |
| Servicing | 21 |
| Your First Ride | 23 |
| Starting | 24 |
| Driving Off | 25 |
| Gear Change | 26 |
| Good Riding Practice | 27 |
| Fuel Consumption | 28 |
| Stopping | 30 |
| Shutting Off | 31 |

| | |
|---------------------------------|----|
| The Engine | 33 |
| How the Engine Works | 33 |
| The Transmission | 34 |
| Carburettor | 35 |
| Air Filter | 38 |
| Cylinder Head | 39 |
| Sparking Plug | 39 |
| Cylinder | 39 |
| Piston | 39 |
| Gudgeon Pin | 40 |
| Connecting Rod | 40 |
| Crankshaft | 40 |
| Flywheel | 40 |
| Clutch | 40 |
| Drive Chain | 40 |
| Gearing | 41 |
| Final Drive | 42 |
| Generator | 42 |
| Cycle Parts | 43 |
| Frame | 43 |
| Telescopic Front Fork | 43 |

| | |
|-------------------------------------|----|
| Rear Suspension | 43 |
| Wheels | 43 |
| Fuel Tank | 44 |
| Battery | 44 |
| Headlamp | 45 |
| Tool Kit | 45 |
| Regular Maintenance | 46 |
| Cleaning | 46 |
| Chromed Parts | 47 |
| Tyres | 48 |
| Oil in Gearbox | 49 |
| Oil in Front Fork | 50 |
| Care of Chain | 51 |
| Lubrication | 55 |
| Adjusting Clutch | 55 |
| Adjusting Front Brake | 56 |
| Adjusting Rear Brake | 57 |
| Adjusting Footbrake Pedal | 58 |
| Generator | 59 |
| Battery | 59 |
| Sparking Plug | 60 |

| | |
|---|----|
| Lighting System | 61 |
| Care of Machine and Engine When Laid Up | 65 |
| Maintenance and Lubrication Chart | 67 |
| A Few Maintenance Hints | 69 |
| Taking Off Front Wheel | 69 |
| Taking Off Rear Wheel | 70 |
| Tyres | 72 |
| Adjusting Position of Control Levers | 73 |
| Adjusting Throttle Twistgrip | 74 |
| Spares | 74 |
| Troubles, Their Causes and Remedies | 75 |
| Fuel System Faults | 76 |
| Ignition Faults | 77 |
| Other Possible Faults | 78 |



W 2496 II engl.

ZÜNDAPP-WERKE GMBH, MÜNCHEN