ZÜNDAPP

100 cc

OPERATION AND MAINTENANCE

Important:

Only Original ZÜNDAPP spare parts ensure absolute reliability and safety of your vehicle, prevent damage and maintain the validity of our Guarantee. Always insist on having only genuine ZÜNDAPP spare parts fitted by your ZÜNDAPP distributor, and your machine will remain trouble-free and give you long years of satisfactory service. Remember that the fitting of spare parts of other makes invalidates our Guarantee.

Welcome to the ranks of ZÜNDAPP owners

Congratulations on having become the proud owner of a ZÜNDAPP motorcycle. We believe you have made a wise choice – like hundreds of thousands of your fellow ZÜNDAPP riders.

ZÜNDAPP machines are handsomely styled, powerful, economic to run, reliable – and, perhaps even more important, they are easy to handle and maintain. To get the full benefit of all their features, it is important that you should become familiar with your machine right from the first day.

We have compiled this little manual about your ZÜNDAPP KS 100 to tell you in word and pictures all you will want to know about its design and operation – with special emphasis on correct handling and servicing.

Should you have any questions not answered in this manual, or if you are too busy to carry out yourself the routine maintenance work or minor adjustments, remember that your local ZÜNDAPP distributor with his experienced staff and well-equipped workshop is always at your disposal.

Happy and Safe Motoring!

ZÜNDAPP-WERKE GMBH
8 München 8 - Anzinger Straße 1-3

What You Will Find In This Manual

Meet Your New Machine:

ZÜNDAPP 100 cc Motor Cycle

ZÜNDAPP have been building motorised two-wheelers for well over 40 years. Few motor cycle makers anywhere in the world can look back on such a proud tradition, nor on the same steady stream of new designs and technical developments. Few can maintain with ZÜNDAPP that their company's history is at the same time an important chapter in the history of motor cycle engineering. ZÜNDAPP success over all these years, both with their faithful customers and in competitive motor sport, has been based on the flair and experience of their engineers who designed and built at all times machines that kept pace with – or were in advance of – technical progress and met the wishes of riders everywhere.

Today, thanks to technological progress in materials and production methods, and above all because of the experience gained in competitive sport, machines of the smaller cubic capacities are in greatest demand. Side by side with the 50 cc models in various versions (all included in the ZÜNDAPP range), 100 cc machines are today considered the ideal capacity for a nippy, sporting motor cycle. They meet the demand for a versatile daily run-about for solo and, of course, also pillion riding – provided they are designed and built to the standards of qualitiy and workmanship on which ZÜNDAPP insist as a matter of course.

With your ZÜNDAPP KS 100, you have acquired such a perfect little jewel. Fitted with a high-capacity engine of great flexibility, it has a 4-speed gearbox with very easy gear shift, a rigid, torsion-free, yet light-weight, frame, all-wheel spring suspension and generously dimensioned brakes. In short, it offers the rider every feature he rightly expects from a modern motor cycle: excellent acceleration, easy hill climbing, high top

speed, the necessary manoeuvrability and fast spurts essential for threading one's way through modern traffic, good road-holding and short braking distance – in other words, pleasure comfort and safety. All the additional advantages – such as low overall weight giving you extra nippiness, minimum servicing and high running economy – you will find out very quickly. And when you talk to other ZÜNDAPP fans, they will readily confirm them.

Talking about "bikes" with your friends, you will want to show off your technical knowledge. That is why we have included a brief technical description of your new ZÜNDAPP model in the next few paragraphs, followed by a table of technical specifications.

The "heart" of your ZÜNDAPP motor cycle is the high-capacity two-stroke engine with reverse scavenging and non-induced air-cooling, combined into a smooth-sided monobloc unit with the pedal speed selector gearbox. The fuel/air mixture needed to power the engine is supplied by a carburettor with cold-starting system, fitted with a large twin wet air filter on the intake side. In order to reduce noise right at the intake, the air flows to the carburettor through a labyrinth silencer. The intake is located at a point well protected from dust and dirt, so that the air is comparatively clean when it flows through the labyrinth ducts. The mixture is compressed inside the cylinder and ignited by the spark from the flywheel magneto, supplying the ignition voltage. All current-carrying parts of the magneto are fixed. It also supplies the **AC** low voltage for the lighting system (headlamp and rear light with number plate light) while brake light, flashing indicators and horn are operated by **direct current** fed from the battery.

The cylinder is made of light alloy for efficient compression and consequently high performance at maximum fuel economy. Its extra-large fins (broadwall cylinder) provide excellent cooling even on the longest continuous runs. A hard-chrome liner gives the cylinder its exceptional wear resistance. Exhaust noises are damped by a large-volume exhaust system, carefully matched to the combustion gas flow passing through the

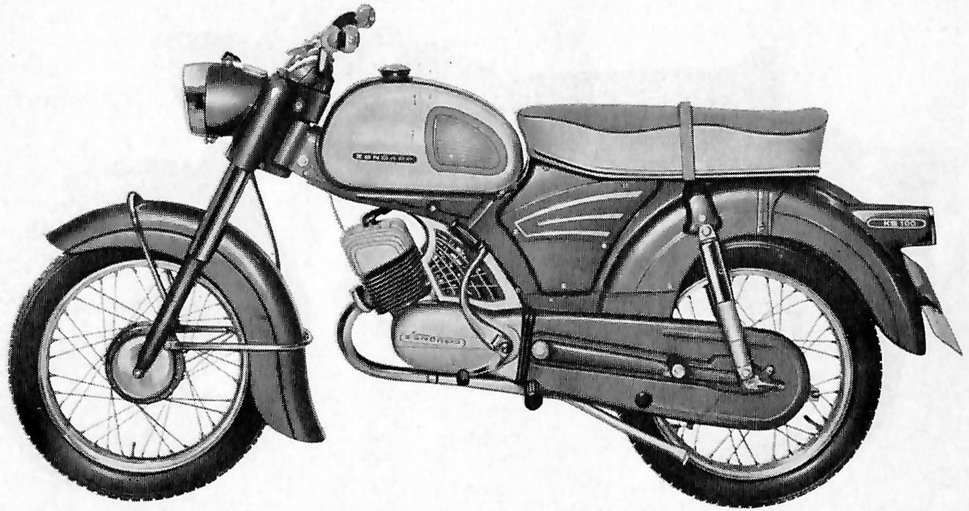
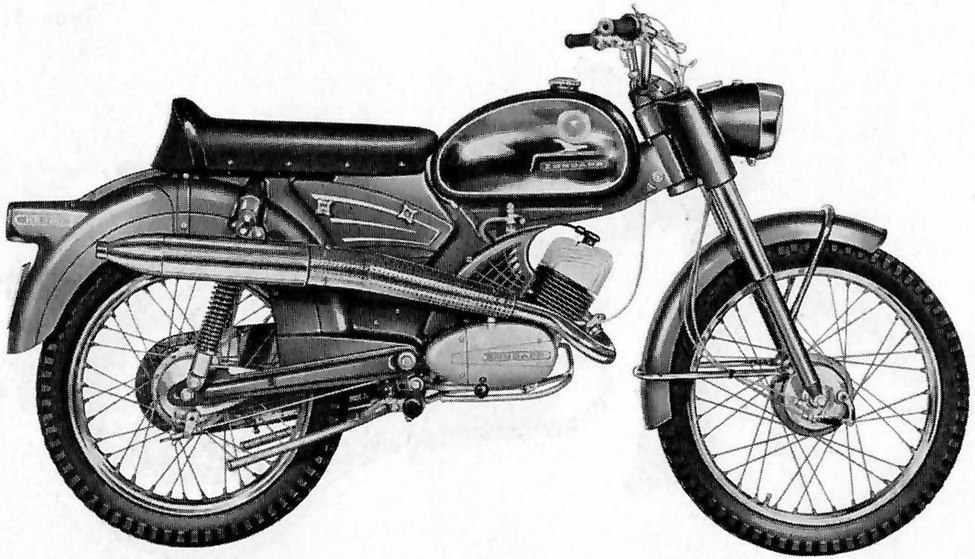
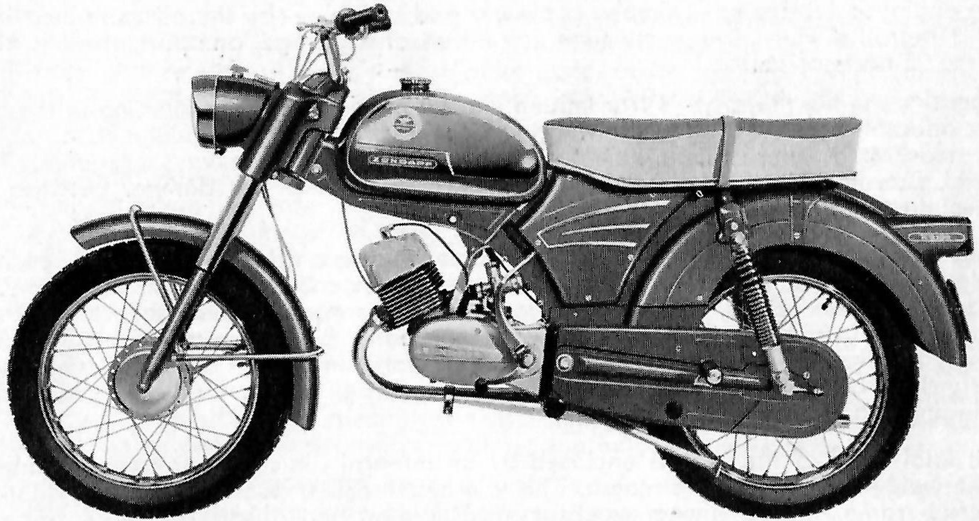


Fig. 1 **KS 100 with broad-wall cylinder, 4 speeds, pedal gear change**



Scrambler with broad-wall cylinder, 4 speeds, pedal gear change Fig. 2



KS 100 with broad-wall cylinder, 4 speeds, pedal gear change Fig. 3

engine and so contributing to increased performance. For this reason, you should on no account have the exhaust modified in the mistaken assumption that this would give you higher performance. On the contrary, you would merely reduce it – and in many countries, you would also be liable to prosecution under the noise abatement laws.

The engine is lubricated – simply, copiously and reliably – by the oil contained in the 25 : 1 petroil mixture, i. e. every time you fill up at a garage, one part of oil is added to the 25 parts of petrol.

From the engine, the drive is transmitted via the multi-plate clutch running in the gearbox oilbath to the gearing inside the gearbox, bevel-toothed for quieter running. From the gearbox, a roller chain, efficiently encased and, therefore, always adequately lubricated, transmits the final drive to the rear wheel. An efficient damper between rear wheel sprocket and hub cushions all drive surges.

The whole transmission is suspended in a frame which is a genuine ZÜNDAPP speciality, tested and proven, like the engine, in countless cross country trials. From the steering head at the handlebars, a rugged tubular member, forming the backbone of the frame, runs at first in a gentle incline to the rear (concealed by the large tank, shaped to fit snugly between the knees), then continues downwards in a short bend. The tube ends in a sturdy shoe to which are fixed the engine/gearbox block, the foot rests and the swinging rear wheel suspension.

The final bend of the tube is enclosed by an integral die-cast rear frame, combining light weight with rugged strength. This die-cast member substantially contributes to overall frame rigidity, giving excellent road holding and absorbing all vibrations. Its design permits the most efficient arrangement of the intake air silencer system, the toolbox and the long mudguard extending well over the rear wheel. Finally, a die-cast tail

section rounds off the frame, ending in the attractively styled, functional combination rearlight fitting. The whole die-cast frame assembly supports the dual seat with its sporting lines and generous space for two to ride in comfort on the longest journey.

Both wheels are fitted with light-alloy internal expanding brakes (full-hub brakes) dimensioned to match top machine speed. The front wheel is mounted in a long-stroke telescopic fork giving outstandingly soft, responsive suspension. The handlebars are mounted in its die-cast top section, which also encloses the headlamp in a handsome casing. The rear wheel is mounted in a long, torsion-resistant, swinging fork, pivoting in a broad, maintenance-free bearing. Hydraulically damped spring units, supporting themselves against the frame tail section, provide efficient suspension. With its long spring travel and rigidy to prevent all side movement, the rear suspension in every respect equals the efficiency of the front fork.

All in all, your ZÜNDAPP machine sets an exemplary standard of design and construction – you have every reason to be proud of it.

Technical Data:

Engine

Design	Single cylinder, two-stroke
Arrangement	Combined in monobloc with gearbox
Cubic capacity	98 cc
Stroke	2 in. (50 mm)
Bore	2 in. (50 mm)
Compression	1 : 9
Max. rated output	8.2 h. p. DIN = 8.5 h. p. SAE at 6.340 r.p.m.
Max. torque	6.5–6.5 lb-ft. (0.93 mkg) at 6,100 r.p.m.
Cooling	Non-induced air-cooling
Lubrication	By oil in petroil mixture (1 : 25)

Carburettor

Type	Bing 1/22/141
Main jet	95
Needle jet	2.64
Needle setting	3rd stop from top
Idling jet	35
Idling adjuster screw	Opened by 2½ turns

Electrical System

Type	Bosch flywheel magneto ignition 6 V/34 W
Ignition coil	6 V, 29/5 W, LM/URC 1/116
Spark plug	Bosch W 260 T 1, or Beru 260/14
Spark gap	.015″ (0.4 mm)

Ignition timing bTDC	.07″–.08″ (1.8–2.0 mm)
Headlamp bulb	6 V, 25/25 W Bilux
Rear light bulb	6 V, 5 W
Brake light bulb	6 V, 5 W
Flashing indicator bulbs	6 V, 18 W
Battery	6 V/8 Ah
Signal	Horn or buzzer, 17 W (DC)

Gearbox and Transmission

Gearbox design	Steel-ball selector gearing
Gear change	By pedal
Gearbox oil, grade and quantity	SAE 80, 450 cc
Gearbox reduction ratios:	
1st gear	1 : 3.636
2nd gear	1 : 2.058
3rd gear	1 : 1.363
4th gear	1 : 1.080
Clutch	Multi-plate, oilbath
Primary drive	Spur gears
Reduction ratio engine/gearbox	1 : 2.785
Final drive	Roller chain, ½ x 5.2 mm, 112 links
Reduction ratio, gearbox/rear wheel	1 : 2.571
Overall reduction	
1st gear	1 : 26.00
2nd gear	1 : 14.75
3rd gear	1 : 9.77
4th gear	1 : 7.74

Frame

Construction	Tube type with **die-cast rear section**
Wheel suspension, front	Telescopic fork (Fork tube oil filling, 35 cc of SAE 20 each tube)
Springs, front	Coil
Wheel suspension, rear	Profiled, long swinging fork
Springs, rear	Hydr. damped spring units
Wheels	Spoke wheel, 16″ rims
Tyres, front and rear	2.75–16
Tyre pressure, front, solo and pillion	19.9 lb. 1.4 atm.
rear, solo	22.7 lb. 1.6 atm.
rear, with pillion rider	32.7 lb. 2.3 atm.
Brakes	Internal-expanding, full-hub type, front and rear, brake drum diameter 5″ (120 mm)
Fuel tank capacity	2¾ Imp. gallon = 3⅓ US gal. (12.5 l)
including a reserve of approx.	3 Imp. pints = 4 US pints (1.8 l)

Weights, Dimensions, Consumption, Speed

Net weight, approx.	196 lb. (89 kg)
Permissible all-up weight	550 lb. (250 kg)
Wheelbase, approx.	4′ 1,230 mm
Length, approx.	6′3″ 1,900 mm
Width, approx.	2′3″ 680 mm
Height, approx.	3′2″ 980 mm
Height of seat, approx.	2′8″ 820 mm
Rated fuel consumption	105 m.p.g. (Imp) = 87 m.p.g. (US) (2.7 l/100 km)
Max. speed, over	56 m.p.h. (90 km/h)

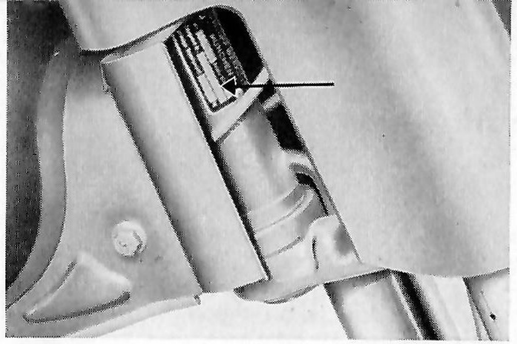


Fig. 3

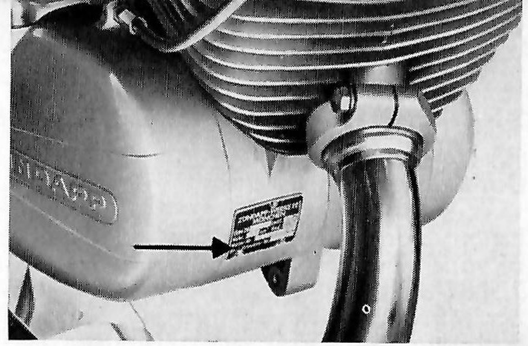


Fig. 4

Important Hint: Note down your frame and engine No. (see figs. 3 and 4)

Each motor vehicle must by law have a frame or chassis and an engine No., as well as a model plate (listing the main data). Since numbers and plate may be checked by road patrols or as you cross a frontier, it is important to know where to find them. What's more, with the aid of these numbers, a stolen machine is much easier to recover. Also, whenever you have occasion to write to ZÜNDAPP in Munich, you should always quote these numbers together with the reading of the mileage counter.

Fig. 3 shows where to find the frame No. and the model plate on your ZÜNDAPP, fig. 4 where to find the engine No.

For extra safety, keep a record of these particulars among your other documents at home, quite separately from the registration papers, so that you can lay hands on it at any time.

The Right Way to Run Your Machine:

Use Correct:

Instant starting, performance, consumption, reliable trouble-free running and the life of your machine all depend on using the specified fuels, lubricants, etc. Not that your ZÜNDAPP motor cycle is particularly fussy – but it is important that you choose the correct fuels and equipment from the vast array of products on the market. You will find our recommendations set out on the following pages.

Fuel

Use only standard grade of petrol sold by any garage, not a super or premium grade. Premium grades will not harm your engine, but neither will they improve its performance in any way, nor reduce your consumption or lengthen engine life, so you might as well save the extra cost. If you should fill up with a premium grade for any reason, on no account alter the carburettor setting to give a leaner mixture or fit a smaller main jet.

Engine Oil

Use the special two-stroke oils, also known as "self-mixing", offered in small cans by most leading makers. Provided they are of the right grade, you can readily mix oils of different makes.

Petroil Mixture

Your ZÜNDAPP engine runs on a petroil mixture which contains the necessary lubricating oil in the ratio of 1 part oil to 25 parts petrol. This simple method does away with the need for a complicated lubricating system with its oil tank, pump and lines. In addition, it has the great advantage that lubricant feed is always proportional to engine load, i. e. the more power the engine develops, the more fuel

it uses, and so automatically also takes up more oil from the petroil mixture.

Take particular care in mixing the petrol and oil; always mix them in a clean container before filling them into the tank.

We advise you to prepare your own mixture, rather than buy it ready-made from the two-stroke engine pump at the garage. Thorough mixing is essential, particularly in cold weather, and it is advisable to use a special container even when adding one of the "self-mixing" oil brands. The ratio of 25 : 1 in your petroil mixture means that you need 1 pint of oil for every 25 pints of petrol. Strictly keep to the correct ratio, since too much oil in the mixture is likely to harm your engine just as much as too little.

Never – not even for the shortest run – fill your tank with petrol alone without any lubricating oil.

Additives

A wide variety of additives to both petrol and oil are on offer today, all claimed to improve performance and lubrication, cut fuel consumption and protect the engine against corrosion. While opinions differ on the validity of these claims, such additives have certainly not been found to harm petroil-operated two-stroke engines. In our opinion, additives to the oil are unnecessary, since modern engine oils already contain them in their formulations in suitable matched proportions, so that their effect is unlikely to be improved by a further additive. Only when using plain engine oil will it be advisable to mix one of the many branded additives into the petrol, to inhibit coking deposits and corrosion; these are obtainable from any garage or your ZÜNDAPP dealer.

Gear Oil

Primary drive, clutch and selector gear train are all housed in a common casing, lubricated by the oil in the box, quite independently of the engine lubrication. Use only special SAE 80 gear oil, in summer and winter alike, in the gearbox, not en-

gine oil. Never mix any additives into the gear oil, as these may impair operation of the clutch.

Vehicle Lubricants

There are no lubricating points on the machine as such.

For the regular lubrication of the drive chain between gearbox and rear wheel, use only special chain grease, never oil or plain machine grease. Lubricate the Bowden cables and moving parts of the operating levers with light cycle oil.

Tyre Pressure

Correctly inflated tyres are very important for riding comfort, safety and the life of the tyres. Pressure should always match your load. Always inflate the tyres to the pressure listed in the "Technical Data".

Spark Plug

The correct spark plugs for your ZÜNDAPP two-stroke engine are:

Bosch W 260 T 1 or Beru 260/14.

The heat rating of the spark plug (designated by the code figure 260) must be accurately matched to the thermal engine load.

In some cases, it may be necessary to change to a plug of different heat rating to suit special operating conditions, or in hot climates. But this should only be done in consultation with a ZÜNDAPP service agency. If you use a spark plug of the wrong rating, the engine is bound to give trouble and may suffer serious damage.
Check the spark gap carefully with a gauge before fitting a new plug, and adjust as necessary, since plugs are not always supplied with the electrode gap set correctly to the specified .015" (0.4 mm).

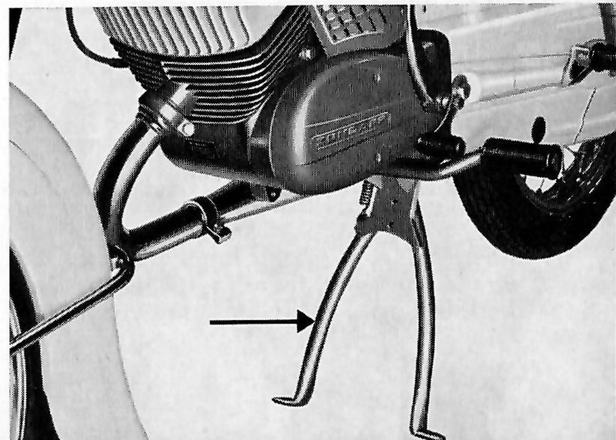
How to Handle Your Machine

Clearly, an operating manual cannot take the place of a driving instructor. We must assume that you already know how to ride a two-wheeled vehicle, and the following pages merely contain all the information which will enable you to become quickly familiar with your ZÜNDAPP motor cycle.

Central Stand (see fig. 5)

To park your machine safely, we have provided a rugged, broad spring-up stand roughly under its centre of gravity. To prop up your machine, fold the stand down and hold it against the ground with your foot. Then grasp the pillion rider handhold strap on the seat with one hand, the handlebar with the other and pull the machine backwards on to the stand. Make sure the ground is firm before parking, and release the steering lock. Lock the steering only after you have parked.

Fig. 5



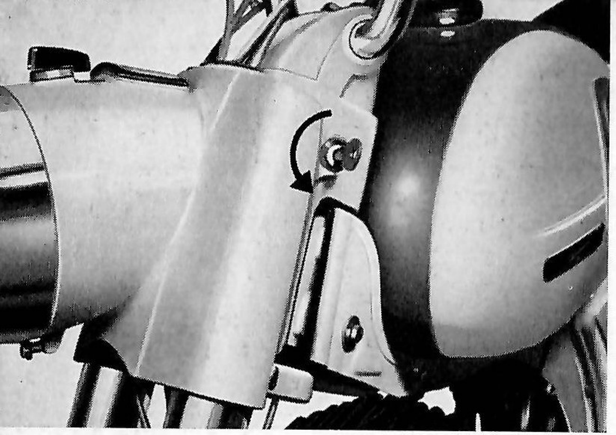


Fig. 6

Steering Lock (see fig. 6)

The theft-proof lock is fitted on the left-hand side of the steering head. To lock the steering, turn the handlebars all the way to the right, then insert the key. Turn the lock barrel anti-clockwise by a quarter turn, then press it inwards (move steering slightly as you do so), then with the key pushed all the way home, turn it clockwise by a quarter turn, when it can be withdrawn again. The vehicle steering is now locked. To unlock it, proceed in reverse order. Never oil the lock, never use force to insert the key. Should the lock freeze in severe weather, warm the key before inserting it, and hold it in the lock until it has thawed out.

Tank Filler Cap and Lock (see fig. 8)

The tank, holding over 2¾ Imp. gallons = 3⅓ US gal. (12.5 l), including the reserve, is closed off by filler cap (8/11) with bayonet lock. To close the cap, turn it clockwise a little way. The cap has an air hole, so that air can flow into the tank, as the fuel flows out. The hole does not allow fuel to leak out. Keep the bore clean and unobstructed, otherwise fuel cannot flow to the carburettor.

Fuel Tap (see figs. 7 and 15)

The fuel tap lever (7 and 15/3) has three positions which set the tap accordingly: Z (close), A (open), R (reserve). Always check that you have closed the tap before parking the machine.

Before putting the machine away for the day, it is best to close the fuel tap shortly before switching off the ignition, so that the engine will take up the fuel remaining in the carburettor. When you start up next day, an empty carburettor will help the fuel flow, as soon as you open the tap, and the engine will start readily.

Under normal conditions, always set the control to A for starting and running. Should the fuel in the tank near its end (engine does not pull properly or starts to cut out), change over to R (reserve). You then have a little over 3 Imp. pints = 4 US pints in hand, sufficient for about 25 miles (40 km), depending on your load, speed and road conditions.

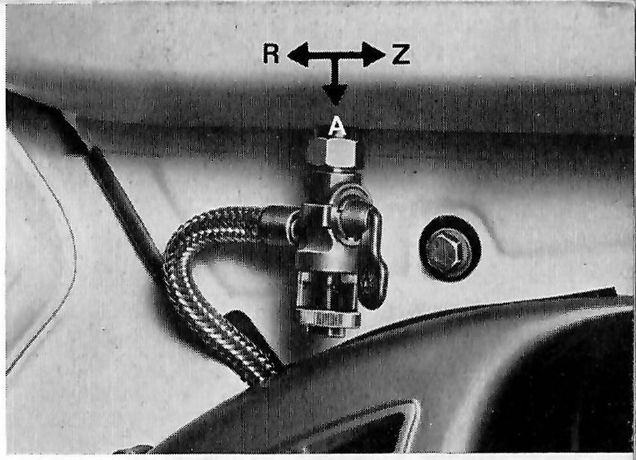
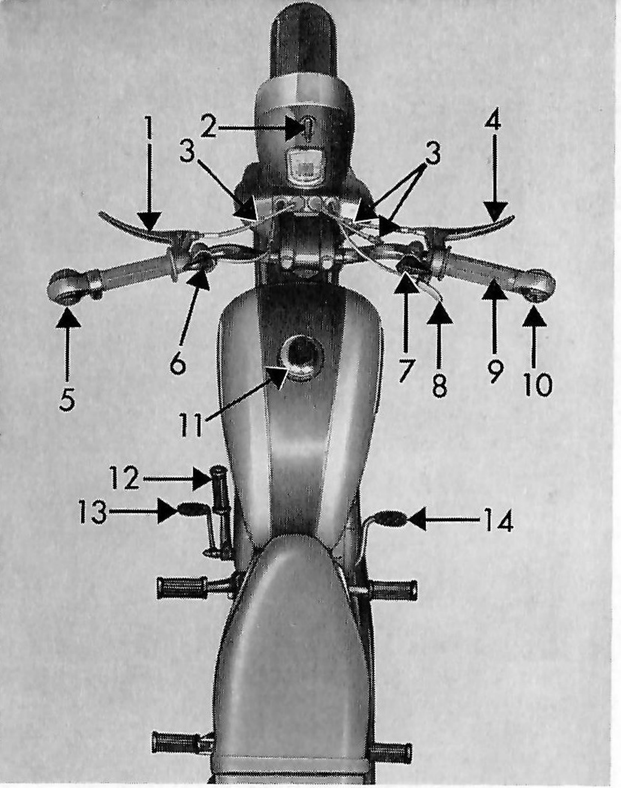


Fig. 7

Cold-Starting Lever (see figs. 8 and 10)

The carburettor is fitted with a cold-starting system (10/2), whose piston and slide is operated by Bowden cable from lever (8/8) fitted to the twist grip of the handlebar. Use this extra starting aid only to start a cold engine or in very cold weather. The piston and slide produce the



extra-rich mixture inside the carburettor needed to start a cold engine, not one already run warm.

To start from cold, press the cold-starting lever against the twist grip, releasing it only when the engine, running at first at

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Fig. 8

1 = Clutch lever
2 = Ignition and light switch
3 = Oil filler inlets
4 = Hand brake lever
5 = Flashing indicator
6 = Dipping switch
7 = Flashing indicator switch and horn button
8 = Starter lever
9 = Throttle twist grip
10 = Flashing indicator
11 = Tank filler cap
12 = Kickstarter lever
13 = Gear change pedal
14 = Foot brake pedal

idling speed, will accept a normal fuel supply, i. e. if it no longer cuts out again as you throttle up.

Clearly, at very low ambient temperatures, you must keep the starter lever depressed somewhat longer until the engine, running in neutral, has had a chance to warm up a little.

On no account use the starter lever to start a warm engine; the extra rich mixture would only choke it off aggain.

Throttle Twist Grip (see fig. 8)

The throttle twist grip (8/9) on the right-hand handlebar moves the throttle slide inside the carburettor to feed more or less fuel to the engine. By turning the adjuster screw on the grip, you can ease or tighten the movement of the twist grip to suit your convenience. Open grip fully to accelerate. Once you have reached the desired cruising speed, turn the grip back a little from full throttle. Your speed will not drop, but you will use less fuel.

Ignition and Light Switch (see fig. 8)

The combined ignition and light main switch (8/2) is recessed into the top of the headlamp casing. To switch on ignition, headlamp and rear number plate light, insert the key and turn clockwise.

1st stop – Ignition on
2nd stop – Ignition and lights on

In both positions, the key cannot be withdrawn. Whenever you turn back to withdraw the key, the ignition is automatically short-circuited, no spark is produced at the plug when you step on the kickstarter, and the engine cannot start.

Dipping Switch and Horn Button
(see fig. 8)

The headlamp of your KS 100 is fitted with a 25/25 W Bilux bulb, having one distance light (i. e. undipped) and one dipped circuit for passing oncoming vehicles and

for use as prescribed by local traffic regulations. Change over from distance to dipped headlight with the dipping switch (8/6) fitted to the left-hand handlebar.

To sound your horn, press the button fitted to the top of the dipping switch.

Flashing Indicator Switch (see fig. 8)

Next to the throttle twist grip on the right-hand handlebar lies the switch operating the flashing direction indicators, fitted to both ends of the handlebars (8/5 and 8/10). Move the switch lever (8/7) down to light up the right-hand indicator, up to show the left-hand one. The flasher (relay, 13/5) fitted above the air filter produces the intervals between signal flashes.

Clutch Lever (see fig. 8)

The clutch lever (8/1) is fitted to the left-hand handlebar. As you pull it in, you disengage the engine from the drive transmission via crankshaft and gearbox to the rear wheel; in other words you declutch.

The clutch forms an essential link of the transmission for two reasons: first, you cannot transmit the running torque of the engine to the rear wheel, as this would stall the engine instead of driving the machine. The clutch slowly engages the transmission – if necessary, you can let it slip a little – so that the running engine has a chance to move the vehicle from a standing start. The clutch is also needed every time you change gear, when it interrupts the transmission of engine power to ensure that gears will shift and mesh silently and without sustaining damage.

The clutch cable should have a certain free play (.04″ to .08″ – 1–2 mm at the cable coupling point on the lever).

To declutch, move the lever smoothly and smartly right up against the handlebar.

To engage the clutch, throttle up with the twist grip, and at the same time release the lever in one smooth movement. Always throttle up briskly and release clutch lever slowly to avoid stalling the engine again, but do not give too much gas or release the lever so slowly that the engine will revv up to the roar.

How to operate the clutch correctly when changing gear will be fully described in the chapter on "Gear change pedal".

Kick-Starter (see figs. 8 and 9)

Since no engine just starts up by itself, you have to turn it before it will spring to life. This is done with the kick-starter (9/1) fitted on left-hand side of the machine. Swing this out, and each time you step on the pedal, you turn the crankshaft 3–4 times to ensure that the engine will start.

To start up the engine, first with the gear change pedal (9/2) set the engine into

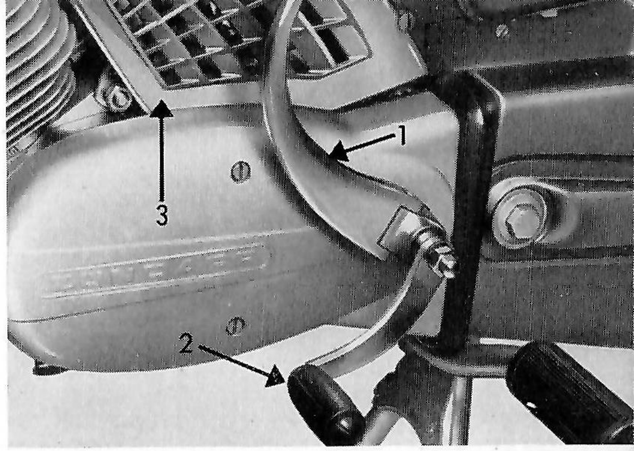

Fig. 9

1 = Kickstarter pedal
2 = Gear change pedal
3 = Carburettor casing

neutral gear (rock machine lightly to and fro to check that you are in neutral). Open the fuel tap (see fig. 7), and if the engine is still cold – but only then – pull starter lever all the way. Next, switch ignition on, and open throttle twist grip a little way. Step smartly on the kick-starter once or twice, then firmly all the way down for the third time, and the engine will spring to life (a warm engine generally the first time you step on the pedal). Close the throttle with the twist grip (turn all the way to the stop) and allow the engine to tick over in neutral for a few minutes. If the engine is still cold, you may have to hold the lever a little longer and even leave the throttle open a little wider at first (for faster idling) until the engine has warmed up.

Gear Change Pedal (see figs. 8 and 9)

Every motor vehicle needs a gearbox in addition to an engine, so that the total drive reduction between engine crankshaft and rear wheel can be correctly matched to riding conditions and the engine will always work within the most suitable speed range.

Your ZÜNDAPP KS 100 is fitted with a 4-speed gearbox. Gears are selected by a system of steel balls and ratchet stops, operated by the gear change pedal. The selector mechanism is so designed that the pedal (8/13, 9/2) automatically returns to the centre position each time you have moved it up or down to engage a gear. Consequently, the pedal position cannot tell you whether you are in neutral or any other gear.

To find the neutral setting without any doubt, engage first gear – possibly by moving the pedal down several times and rocking the machine lightly to and fro. Then push the pedal up by only about half the way needed to change from 1st to 2nd gear.

The drive must always be in neutral (centre position between 1st and 2nd gear) for

starting up. Once the engine is running and you want to drive off, pull the clutch lever all the way against the left-hand handlebar, then stop on the pedal to engage 1st gear. Then slowly release the clutch lever, as already described, smartly throttle up, and the machine will move off. As soon as you reach a speed of approx. 12 m.p.h. (20 km/h), change into 2nd gear. Close the throttle twist grip, and at the same time pull up the pedal beyond the neutral position all the way to the stop at the top. Immediately afterwards gently release the clutch lever and at the same time throttle up again.

Repeat the same manoeuvre to change into 3rd (once your speed has climbed to approx. 28 m.p.h. or 45 km/h), and finally into 4th (at approx. 43 m.p.h. or 70 km/h). Should your speed drop, even if you give more throttle (for instance, when you climb a gradient), change back to a lower gear. This is done as described before, i. e.: pull clutch lever all the way in to declutch, turn throttle twist grip back, push pedal all the way down to the stop, engage clutch again and throttle up. There is, however, one difference: while on changing up, you close the throttle altogether, when changing down, you should leave it just a little open, so that the engine can revv up a little while the clutch is released. In this way, the transmission gears will mesh more readily at the somewhat higher reduction ratio of the lower gear, and you will smoothly drop into the lower gear, not with a sudden jolt.

If the gradient is so steep that the engine cannot make it in 3rd, declutch and change into 2nd as described.

Change down:

from 4th to 3rd when your speed drops below 37 m.p.h. (60 km/h); from 3rd to 2nd when your speed drops below 30 m.p.h. (50 km/h); from 2nd to 1st when your speed drops below 18 m.p.h. (30 km/h).

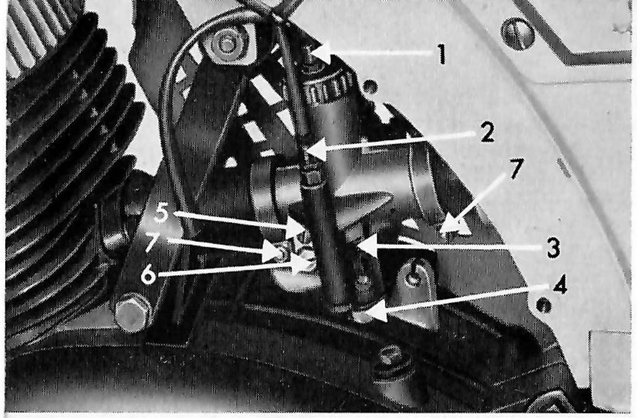

Fig. 10

1 = Bowden cable sleeve adjuster
2 = Adjuster for starter cable
3 = Stop screw
4 = Main jet
5 = Idling speed adjuster screw
6 = Idling jet
7 = Binding screws

In 1st gear, your ZÜNDAPP will easily climb all gradients with a pillion rider up and a load within the permissible all-up weight.

Idling Speed Setting (fig. 10)

In normal operation, i. e. when the engine must pull the machine, the main jet in the carburettor (see fig. 10/4, 14/3), supplies the necessary quantity of fuel to produce the combustion mixture. But when the engine idles in neutral and does not run up to speed, a special little bore in the carburettor intake duct, together with the idling jet (10/6) and the idling speed adjuster (10/5) takes over and feeds the reduced quantity of fuel needed. The throttle slide which determines the amount of fuel/air mixture fed to the engine is only open a little way at idling speed to expose a small gap.

This gap can be made larger or smaller in relation to overall intake cross section by turning the adjuster (10/3) on the left side of the carburettor casing and so reducing or increasing idling speed, i. e. engine revolutions in neutral. Turn the adjuster, which acts as a stop for the throttle slide, clockwise further in to widen the gap and increase idling r.p.m.; turn it anticlockwise further out to reduce it.

Should the engine cut out after a brief run, you have reduced idling speed too far. Correct by turning the adjuster a little further in until the engine will no longer die off. If, on the other hand, the engine races too much when it has warmed up, correct by turning the adjuster further out.

Do not adjust the idling speed by turning the adjuster (10/1) on the Bowden cable sleeve; use exclusively either stop screw (10/3) or idling adjuster screw (10/5). The adjuster on the Bowden cable is only designed to set the required small play in the sleeve. When the throttle twist grip is closed all the way against the stop, i. e. in the neutral position of the throttle slide, there should be about .02″ to .04″ (0.5–1 mm) dead travel in the cable. Only this play should be set with the adjuster on the sleeve, and secured with the nut after adjustment.

Hand Brake Lever (fig. 8)

The hand brake lever (8/4) fitted to the right-hand handlebar operates via Bowden cable the front wheel brake, an internal expanding brake mounted in the front wheel hub.

Foot Brake Pedal (see figs. 8 and 11)

The internal-expanding brake fitted to the hub of the rear wheel is actuated via linkage when you step on brake pedal (8/14, 11/1) with your right foot. As you brake, the brake light switch (11/2) is tripped and the brake light at the tail lights up.

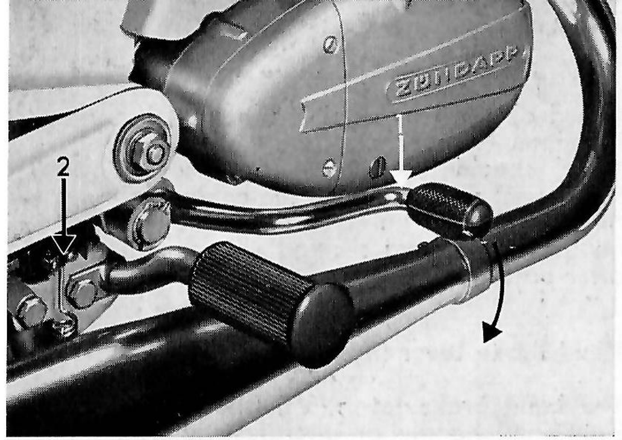

Fig. 11

1 = Foot brake pedal
2 = Brake light switch

Never brake abruptly or even slam the brake on so hard that the wheels become locked. A locked wheel may not only cause a skid and even a fall (particularly on wet roads) but will slip and therefore brake far less efficiently than if you apply the brake firmly but always just this side of blocking a wheel.

Each of the two brakes fitted to your ZÜNDAPP machine will brake it within the legally prescribed distance. Nevertheless, for absolute safety, you should always operate both brakes at the same time, except in a curve on a wet road when you should reduce speed in any case. By using both brakes, you will stop reliably within the shortest distance at minimum applied braking force, and greatly increase riding safety. Do not regard the front brake as a mere "emergency brake" for use in dangerous situations only. Use it like the rear wheel brake whenever you reduce speed. If you do not use the front brake regularly, you are not only wasting an additional safeguard, you also run the risk that in a real emergency the front wheel brake my fail you altogether because it has become dirty or otherwise unserviceable through lack of regular use.

Tools and Tyre Pump (see fig. 12)

The tool kit (12/5) is located in a compartment of the die-cast frame and becomes accessible on opening the cover (12/3), on the right-hand side. Fit the key supplied into the lock in the front turnbuckle (12/1) and push the lock all the way in. You can then move both turnbuckles (12/1 and 2) to the left and take off the cover (behind which the battery 12/4 becomes also accessible).

The air pump is fixed below the bench seat on the right-hand side of the machine.

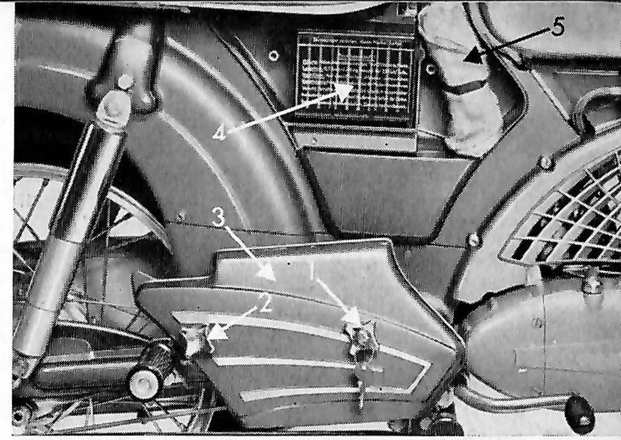

Fig. 12

1 = Turnbuckle with lock
2 = Turnbuckle
3 = Cover
4 = Battery
5 = Tool kit

Essential Care and Maintenance

Every article of daily use needs regular care if it is to give long and satisfactory service and keep its attractive appearance. What is more, your safety depends on conscientious maintenance just as much as trouble-free running. ZÜNDAPP engineers have reduced the necessary maintenance work on your KS 100 to the minimum, so that you can easily carry out yourself the servicing described on the following pages, even if you have no special mechanical skill. Of course, if your prefer it, you can entrust the regular servicing of your machine to the experienced staff of your ZÜNDAPP distributor who must also carry out the first three regulation services which are essential to maintain the validity of your ZÜNDAPP guarantee. Whichever you choose, the important thing is never to neglect regular servicing and inspection. It is surely in your own interest to ride safely and free from trouble, keep your running costs down and maintain the high resale or trade-in value of your machine.

Workshop Inspection

Your ZÜNDAPP distributor is obliged to inspect your vehicle thoroughly before he hands it over to you – even though we have already submitted it to rigorous final inspection before it left the works. This is essential to ensure that you take delivery of your KS 100 in perfect running order. He checks the oil in the gearbox, makes sure all bolts and nuts are tight, particularly those securing the knock-out spindles, that the brake linkage is properly hooked into position, that the front wheel brake cable is correctly set, that gears can be smoothly engaged. He tests engine idling speed, tyre pressure, lights, horn and flashing indicators.

You must next take your new machine for a first service to your ZÜNDAPP distributor or an approved ZÜNDAPP service station when you have run your first 185 miles (300 km), then for a second service after 900 miles (1,500 km) and a third after 1,800 miles (3,000 km). There skilled motor

mechanics will carry out the necessary work promptly and with the utmost care; you will find the low charges for labour and any materials which may be needed money well spent.

Each of these three compulsory services comprises the following work schedule:

1. Change gearbox oil (1st service only) 450 cc;
2. Test fuel pipe connections for leaks;
3. Check and clean fuel tap, air filter and carburettor;
4. Test clutch play, on the suspension claw of the clutch lever on the gearbox; re-set (to .08″/2 mm) if necessary;
5. Check contact-breaker point gap (.015″ /0.4 mm), only 1rst and 3rd inspection;
6. Ignition setting (.07″ – .08″/1.8 – 2 mm bTDC), adjust as required; only 1rst and 3rd inspection;
7. Clean spark plug, check electrode gap (.015″/0.4 mm). Adjust as required;
8. During 3rd service: Clean cylinder, intake and overflow ducts. Take off silencer end piece; clean silencer baffle;
9. When engine cold, tighten cylinder head nuts, working diagonally across on alternate nuts and using a torque wrench giving a running down torque of 10.8 lb-ft (1,5 mkg), only 1rst and 3rd inspection;
10. Lubricate Bowden cables of clutch and gas, brake and of starter, foot brake linkage, check and re-set as required;
11. Check rear wheel chain tension (slack of ½″–¾″/15–20 mm); lightly grease with chain grease;
12. Check wheel alignment and tracking, tighten spoke nipples as required; only 1rst inspection;
13. Test steering bearings, re-set as required; 1rst and 3rd inspection;
14. Check lighting system (incl. headlamp/ beam setting, flashing indicators and horn operation);
15. Check battery, eventually refill water;
16. Tighten all bolts and nuts, accessible from outside;
17. Test both brakes, in solo and pillion passenger operation, adjust as necessary.

Servicing Schedule

Once the first 3 regulation services detailed on the preceding pages have been carried out, your KS 100 should be regularly serviced and checked by your ZÜNDAPP service station, or by yourself, if you prefer it, in accordance with the schedule below:

Miles/km	Carry out	For details see page
310/500	Tighten all nuts and bolts	37
	Test brake action, re-set brake as reqd.	51
	Check clutch play, re-set as reqd. (.08″/2 mm)	45
	Clean spark plug, test spark gap, adjust as reqd. (.015″/0.4 mm)	41
	Lubricate Bowden cables, foot brake linkage and hand brake lever joints	51
1,250/2,000	Check rear wheel chain slack, adjust as reqd. (1/2″–3/4″/15–20 mm), lightly grease chain with grain grease	48

Miles/km	Carry out	For details see page
	Check gearbox oil level, top up as reqd. (SAE 80)	47
	Check wheels for misalignment, tighten spoke nipples as required	54
	Clean and inspect fuel tap, carburettor and air filter	38–40
	Check lighting system, incl. headlamp setting, flashing indicator and horn operation	60
3,100/5,000	Check contact-breaker points gap (.015″/0.4 mm) and ignition setting (.07″–.08″/1.8–2 mm bTDC) adjust as reqd.	43/62
3,700/6,000	Take off, clean and grease rear wheel chain	49
	Tighten cylinder head nuts (with torque wrench of 10.8 lb-ft/ 1.5 mkg)	37
7,500/12,000	Change oil in gearbox (SAE 80, approx. 450 cc)	47
	Decarbonise engine and exhaust system (garage job)	58/59

Terms of Warranty

The manufacturers guarantee the machine purchased, built to the best modern technical standards against any defects in materials and worksmanship for a period of six months from date of purchase or a total mileage of 3,725 (6,000 km), whichever occurs first. The manufacturers will comply with their warranty, at their discretion, either by a repair of the machine or by replacing defective parts forwarded to them.

The manufacturers will carry out such repairs at a place designated by them; parts returned for replacement must be sent postage or freight paid. Replacement shall be confined in all cases to parts found faulty due to defects in materials or workmanship, and to parts sustaining consequential damage, despite careful use of the machine in accordance with instructions. Replaced parts become the property of the manufacturers.

Any reimbursement of assembly charges shall be subject to the work being carried out by the manufacturers or one of their approved service stations. For parts not of their own manufacture, such as tyres, electrical components, speedometer, chains, etc. the manufacturers' warranty shall be limited by the guarantee conditions offered by the makers of such parts.

For the parts mounted by the firm BOSCH, the warranty conditions of BOSCH are in force. In case of eventual defects the warranty claims must be addressed directly to BOSCH or to a BOSCH Service Station. It is necessary to deliver the warranty voucher when raising a claim, the data of which are also acknowledged by BOSCH. For every claim to the factory, the warranty voucher must be handed in.

No claims for exchange or price reduction can be entertained, except where the manufacturers are unable to remedy the defect. Claims for direct or consequential damages cannot be entertained.

This warranty becomes invalid if the machine purchased is modified by a third party or if parts other than those made by the manufacturers are fitted, and the damage is attributable to such modifications. The warranty also becomes invalid if the purchaser fails to observe the manufacturers' instructions on the handling of the machine. The warranty does not extend to normal wear and tear, nor to any damage attributable to negligent or inexpert handling. Claims under the warranty can only be considered if notified immediately, and in writing to the manufacturers or their distributor from whom the machine was purchased. Re-sale of the machine by the original purchaser also invalidates the warranty.

Tightening all Nuts and Bolts accessible from outside

Most screwed connections on motor vehicles are specially secured against coming loose; nevertheless, in the interest of safety, you should check et regular intervals that all are firmly run down, and tighten as necessary, since the unavoidable riding vibrations tend to slacken them.

Check with particular care:

Wheel axles, front and rear, steering head casing.

Exhaust pipe and chamber;

Bearing bolt nut of rear fork; anchoring trunnions and nuts of rear suspension units, top and bottom

Locknuts of bearing bolts for handlebar levers

Engine anchoring on frame

Carburettor and intake socket fixing

Cylinder head nuts (tighten every 3,700 miles = 6,000 km) only when engine is cold, working alternately on diagonally opposite nuts; torque wrench of 10.8 lb-ft. (1.5 mkg).

Always tighten firmly and evenly, using correctly fitting tools; never run nuts or bolts down hard with excessive force, or threads may strip.

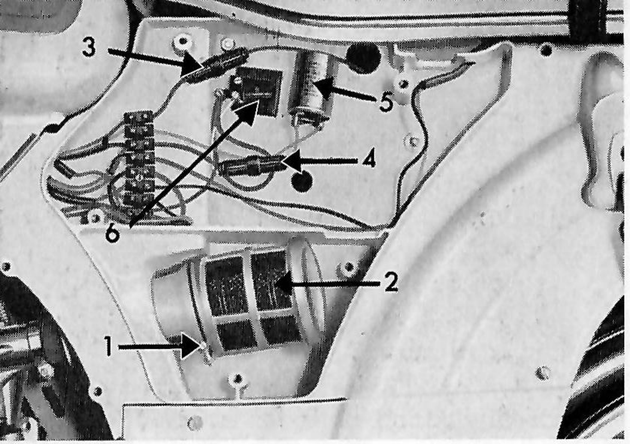

Fig. 13

1 = Binding screw
2 = Air filter
3 = Fuse
4 = Fuse
5 = Flasher unit
6 = Rectifier

Cleaning Air Filter (see fig. 13)

A clogged air filter no longer traps impurities in the intake air which then enter the engine and lead to premature wear; it also reduces engine performance, increases fuel consumption and causes dark exhaust fumes. That is why air filters must be cleaned at the specified intervals.

To do so, take off 5 fixing screws for left-hand cover below seat, take off cover. Slacken binding screw (13/1), then draw off filter element (13/2) from filter chamber. Rinse the filter thoroughly with petrol, moisten it with engine oil (important, as a dry filter will not effectively trap the dirt), allow surplus oil to drip off. Refit filter and silencer in reverse sequence; check correct position of large cover gasket. **Do not lose spring washers.**

Never run the machine without the air filter. Not only will the engine run noisily, the carburettor setting will be affected, and excessively lean mixture may damage the engine. Leaving the filter off will in no way improve engine performance.

Cleaning carburettor (see figs. 10 and 14)

To clean the carburettor and check each part for wear, it must be taken off the engine. First, take off the louvred side panels (unscrew fixing screws) then take off binding screws (10/7), draw off fuel hose (14/1), and you can remove the carburettor. Whenever the carburettor is taken off altogether, unscrew mixing chamber and starter carburettor unions, so that the Bowden cables and slides remain on the machine. Take care not to damage the jet needle suspended on the throttle slide.

If you have insufficient technical knowledge and manual skill, it is advisable to entrust the dismantling and checking of the carburettor to an approved ZÜNDAPP workshop.

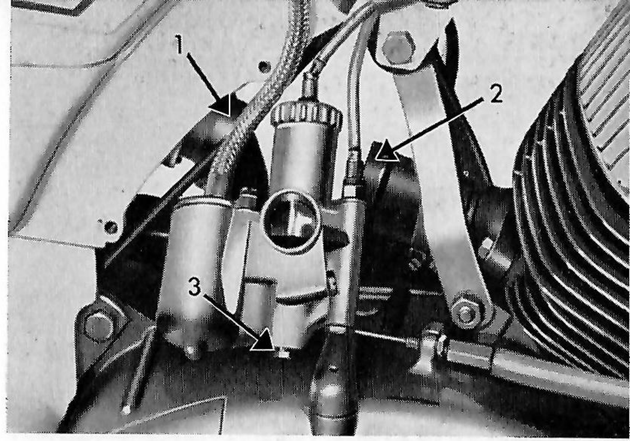

Fig. 14

1 = Fuel hose
2 = Cold-starting cable
3 = Main jet

But if a minor fault (carburettor spits back, for instance) or a drop in engine performance lead you to suspect that the carburettor is merely dirty, you can clean the

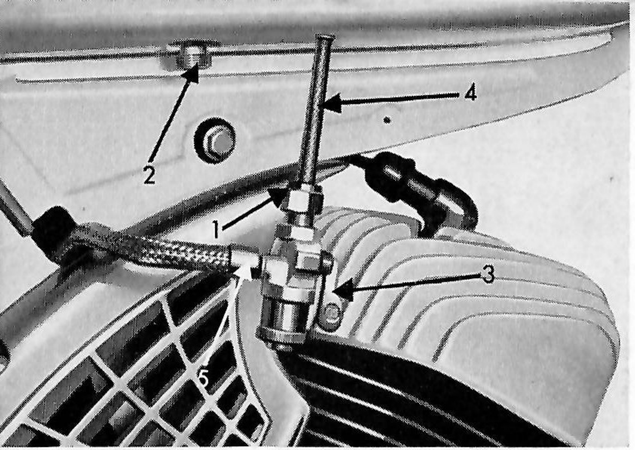

Fig. 15

1 = Hexagon nut
2 = Connector
3 = Lever
4 = Filter element
5 = Fuel hose

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main jet without removing the whole carburettor. Instead, partially dismantle it, as shown in fig. 14. The main jet (14/3) lies, easily accessible, at the bottom of the mixing chamber, once you have taken the closing cap screw off. Unscrew the jet, then blow the bore out with compressed air or clean it with a bristle. On no account, poke with a wire or needle to free the jet, as this is bound to make it unserviceable.

Perhaps we need hardly mention that altering the carburettor setting (e. g. by fitting a main jet of different size) is worse than useless, and might easily damage the engine. Clearly, a manufacturer's main aim is to get the best out of any standard engine at lowest fuel consumption, and he will always select the most suitable carburettor design and setting.

The Bowden cable for the throttle slide should have a little dead travel. You can set this play with the adjuster on the sleeve at the top of the mixing chamber cover (10/1). The same applies to the cold-starting cable (10/2, 14/2). After re-setting either cable, remember to secure the adjustment against inadvertent alteration with the locknut.

Cleaning Fuel Filter (see fig. 15)

The filter element (15/4) fitted to the fuel tap and dipping into the tank, keeps any dirt in fuel or tank away from the carburettor, its jets and feed bores. To clean the filter, drain the tank, then turn hexagon nut (15/1) anti-clockwise to unscrew the fuel tap. The nut has both a right and a left-hand thread, so that when you screw the tap back, you can locate it accurately for convenient reach of its operating lever. The sealing washer between tap fixing nut and the connector (15/2) in the tank must always be clean and undamaged. If it shows traces of wear, fit a new one to prevent any leak. If dirt or water which may be entrained in the fuel settles out in the transparent sediment collector under the tap, close the tap, unscrew the collector and empty it. When re-fitting the collector, check for good seal.

Having re-fitted carburettor or fuel tap, always check that the fuel hose sits tightly on the connector glands.

Cleaning Spark Plug and Checking Spark Gap (see figs. 16 and 17)

Take off the interference-suppressor cap (16/1), then unscrew spark plug (16/2) from cylinder head; if the end projecting into the combustion chamber is coated with coking deposits, clean it with a soft wire brush.

Carbon deposits inside the plug can be removed with a wooden spatula (garages and service workshops have a special cleaning tool for this job). Next check the spark gap, i. e. spacing between outer and centre electrode with a gauge of .015″ (0.4 mm) thickness (gauges can be bought from any motor accessories dealer). The gap becomes too large as a result om normal wear at the points, and this is corrected by bending the outer electrode with great care, until the correct gap is restored. When the gap is too large, the engine will be more difficult to start or may cut out intermittently, particularly when the lights are switched on. If after prolonged service, the outer point shows considerable pitting, or if the insulated base has broken, fit a new plug of the rating listed in the specification table (but not later than every 7,500 miles/12,000 km).

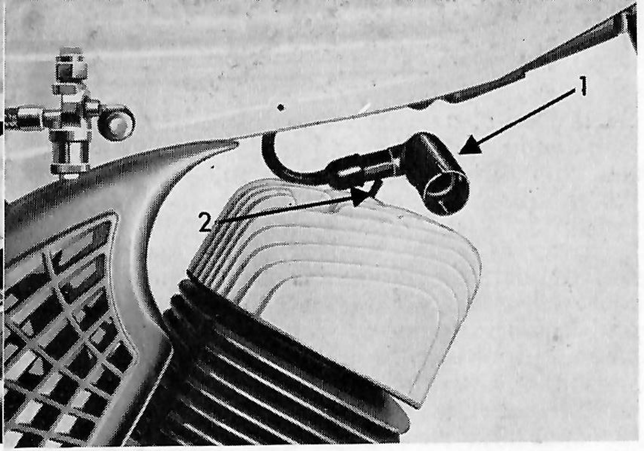

Fig. 16 ▲

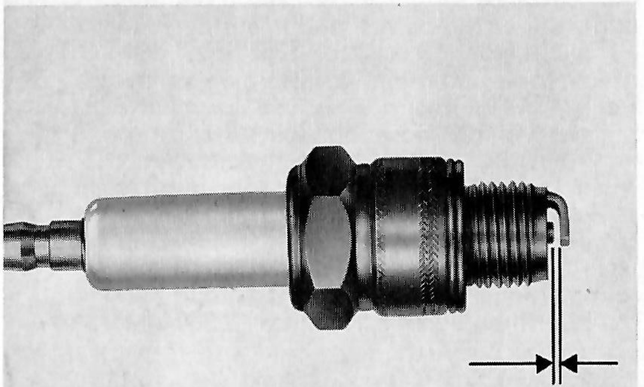

Fig. 17 ▼

Use only a plug of the specified heat rating, indicated by the code number, as all others do not match the characteristics of your engine.

Check the spark gap of a new plug with the gauge, adjusting it, if necessary. Not all plug types are supplied with the gap set correctly for fitting to your ZÜNDAPP machine.

To fig. 16

1 = Interference-suppressor cap
2 = Spark plug

Checking and Re-setting Contact Breaker
(see figs. 9, 18 and 19)

To get at the contact breaker, first take off the left-hand casing cover. Slacken the binding screws of gear pedal and kick-starter pedal, draw both off their spindles. With a suitable screw driver, take off the cover screws, then remove the cover to expose the magneto flywheel (18/1).

Through the top slot in the magneto flywheel, you can now see the contact breaker (18/2) and can check its condition or re-set the points as required. Do not take the flywheel off, since you cannot check the contact breaker gap if you do. Fig. 19 only shows the wheel disassembled to give you a better view of the contact breaker. Having first taken off the spark plug, turn the flywheel clockwise and you will notice that during part of the rotation, contacts (19/1) are closed, and open during the remainder of the revolution.

If it is either too large or too small, adjust

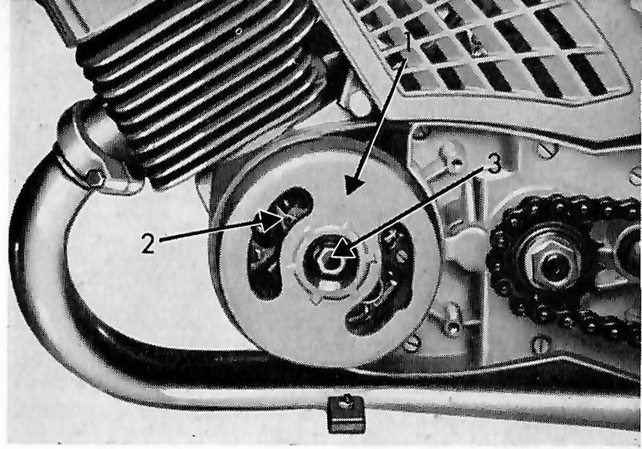

Fig. 18

1 = Magneto flywheel
2 = Contact breaker
3 = Nut

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it, since ready starting, performance and consumption of the engine depend on correct contact setting.

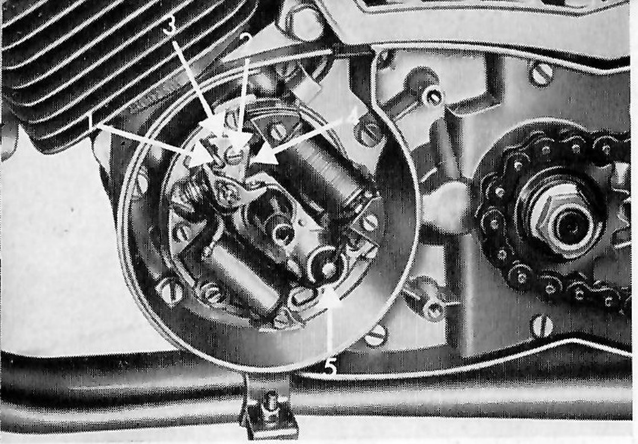

Fig. 19

1 = Contact breaker points
2 = Slotted screw
3 = Contact bracket
4 = Lug on contact bracket
5 = Capacitor

With the .015″ = 0.4 mm spark plug gauge, check the gap when the contacts are fully open. To correct, slacken (do not take off) the slotted screw (19/2), then with a screw driver applied at (19/4) shift the bracket (19/3). Once the contact gap is set to precisely .015″ = 0.4 mm at the highest point of the cam throw (find this by turning the magneto flywheel), firmly tighten slotted screw (19/2) again.

Interruptor contacts must be clean and show a bright surface. Clean off any dirt. If, however, the point surfaces have become rough or one shows a pronounced "bump", have new contacts fitted at an approved ZÜNDAPP service station.

On the whole, it is advisable to entrust the checking and possible re-setting of the contact breaker to a ZÜNDAPP service station, where special tools are available to test the ignition timing at the same time and correct it, if necessary.

Battery Check (fig. 12)

The 8 Ah (ampere-hours) battery (12/4) is located in the rear casing on the right-hand side and becomes accessible, like the tool kit next to it, after taking off the locking cover. It is charged by separate 5 W charging coil in the flywheel magneto via a rectifier (13/6, above the air filter). Battery servicing is confined to regular checking of the acid level in the cells (level should be a fraction of an inch = some millimeters above the top edge of the plates). If it drops, top up all three cells with distilled water only. Do not add and battery acid. Also check that battery, particularly top and posts, are dry and clean. If white crystals form (specially on the posts), clean battery throughly. Regularly check that terminals are firmly connected.

Fuses

Three fuses (13/3, 4) are fitted to the electrical system of your KS 100:

1 8-Amp. fuse between battery and porcelain terminal for circuit 49 a;

1 8-Amp. fuse between rectifier and flasher unit;

1 1-Amp. fuse in the rectifier.

Testing and Setting Clutch Play (see fig. 20)

We have already mentioned earlier that the clutch lever should always have a play of .04″ to .08″ (1–2 mm), as measured from the cable anchorage. This play can be corrected as required with the adjuster on the sleeve.

Specified dead travel at the cable alone, will, however, not be enough to prevent premature clutch wear and slipping of the clutch. The clutch actuating arm on the engine casing must have a similar slight play

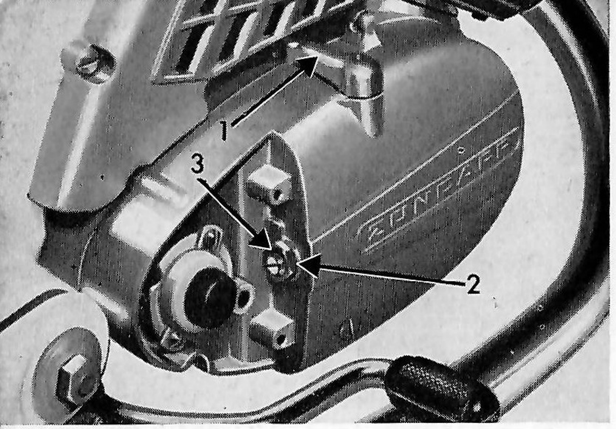

Fig. 20

1 = Clutch actuating lever
2 = Locknut
3 = Slotted screw

should be clearly noticeable. If the play is eliminated in the course of time, or becomes so reduced that you can hardly notice it, it must be re-set (see fig. 20).

To do so, slacken locknut (20/2), then with a screwdriver turn adjuster-screw (20/3), clockwise to reduce the play, anti-clockwise to increase it. Remember to tighten locknut (20/2) firmly again after adjustment.

Once you have re-set the play in the clutch-actuating arm on the casing, check also the play at the clutch lever on the handlebar, as this generally will need a corresponding correction.

A clutch which is set too tight will give trouble and lead to wear, just as one with excessive play will not properly disconnect the drive, so that gears clash and are more and more difficult to engage.

With the travel correctly set, you should be able to push the machine effortlessly forward with any gear engaged and the clutch lever pulled in.

Checking and Topping up Gearbox Oil
(see figs. 21, and 22)

On the right-hand gearbox side, you will find a slotted screw (21/1) marked in red. When you take this off and tilt machine slightly sideways on its wheels, a little oil should emerge from the hole to indicate that the oil in the box stands at the correct level. If no oil trickles out, take off filler cap (see arrow in fig. 22) and fill in a little SAE 80 gear oil. **Never fill in too much oil.** Finally, replace both screws and tighten firmly.

To change the oil completely, first run the engine warm, then take off drain plug (21/2) and let the used oil run off (catch it

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To fig. 21

1 = Slotted screw, marked in red (oil level)
2 = Drain plug

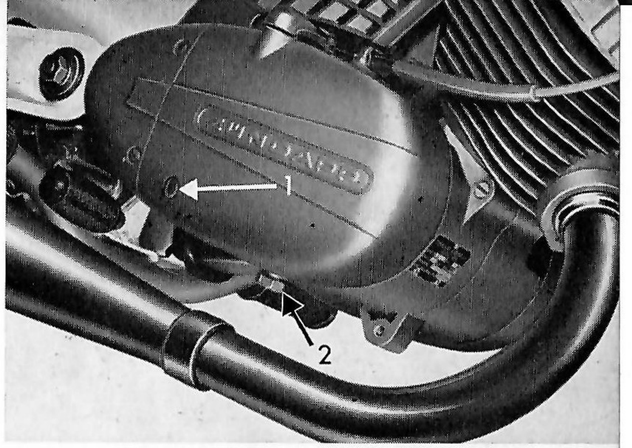
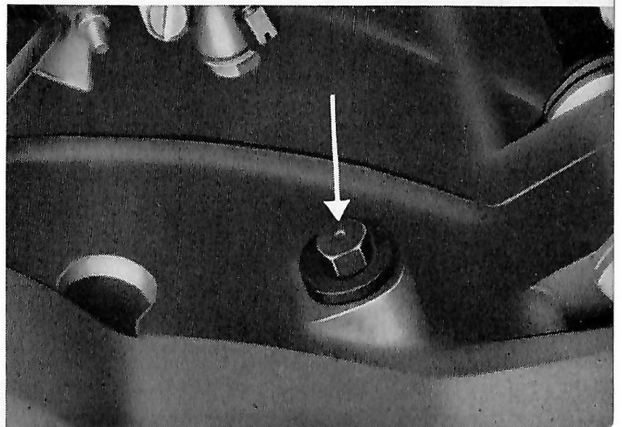


Fig. 21 ▲

Fig. 22 ▼



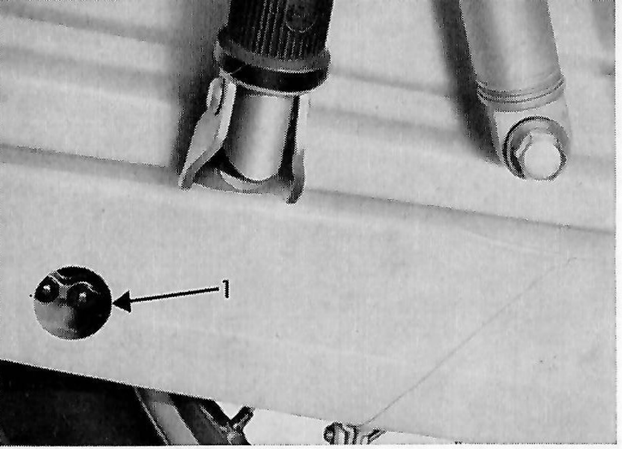


Fig. 23 ▲

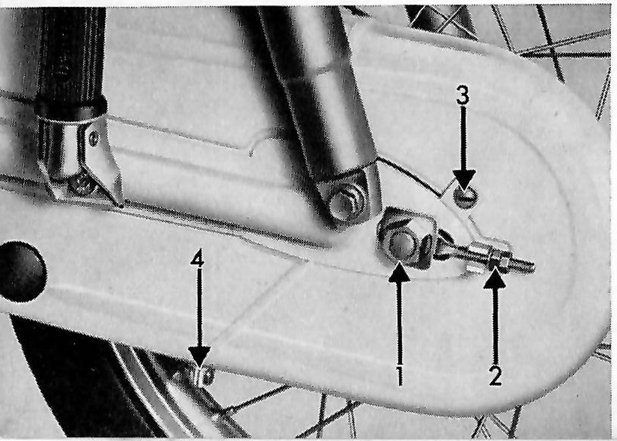


Fig. 24 ▼

in a can). To speed the flow, slacken the filler screw cap as well. Then fit drain plug again, measure the required 450 cc of fresh SAE 80 gear oil in a beaker, and pour it into the inlet.

Check that venting bore in filler cap (22) is free.

Testing and Setting Chain Tension

(see figs. 23, 24 and 25)
Take off the rubber inspection port cover (23/1) on the chain case, and you can

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To fig. 23

1 = Inspection port rubber cover

To fig. 24

1 = Axle nut
2 = Chain tensioner nut
3 = Fixing screw
4 = Fixing screw

then check that the chain is properly tensioned, neither too taut nor with too much slack. At the inspection hole, you should be able to move it up and down by 1/2" to 3/4" (15–20 mm).

Chains always lengthen in the course of service, so that the slack may become too great. To correct, slacken wheel axle by hexagon cap (27/1) and hub flange nut (24/1), then turn chain tensioner (24/2) to shift the rear wheel back until the correct chain tension is restored. Finally, firmly tighten axle nut, then wheel axle (27/1), raising the tail of the machine to do so, to give the rear wheel a chance to assume its correct position.

Chain Lubrication

(removing and fitting chain, see figs. 23, 24 and 25)

Grease rear wheel chain lightly only with special chain grease, applied through the chain inspection hole (23/1) on the case, so that the chain need not be taken off. Brush chain grease in a thin film on the inside of the chain only, while at the same time turning the rear wheel of the machine, which must be propped up for the job.

Even more important than this regular lubrication of the chain is the thorough lubrication of all its links and parts at more infrequent intervals. To do this, the chain must be taken off.

Take off the top fixing screws on the rear case half (24/3 and 24/4), then pull off the chain guard the rear. Lever the chain-lock spring link (25/1) off the link pins with a screw-driver or flat-nosed pliers, take off the outer plate, and the whole locking link can then be pushed inwards and out of the chain ends.

To make it easier to re-fit the chain later, it is advisable to fix a piece of old chain, exactly as long as the rear wheel chain, to one end with the locking link. Then pull the chain you want to clean to the rear,

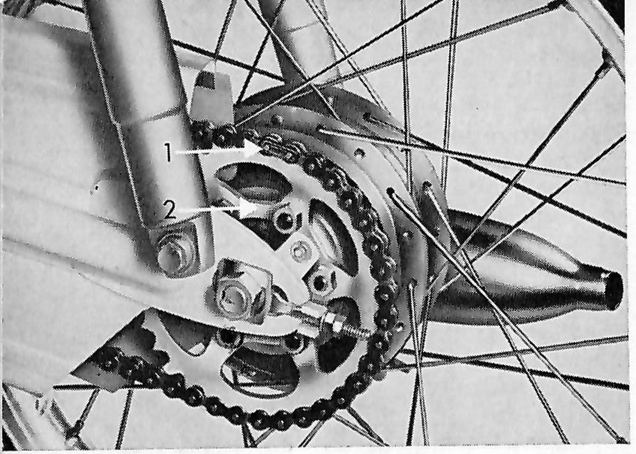

Fig. 25

1 = Spring link of chain lock
2 = Large sprocket

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so that the old chain will run over the sprocket. Leave it there, and detach the chain for cleaning.

The chain should be cleaned by immersing it in cleaning fluid. Flex each link repeatedly, so that the dirt will be rinsed out of the joints. Next place the chain in a container of heated liquid chain grease and move it about, so that all the links will flex again and again.

Take out the chain before the grease has cooled and set, and hang it up to allow excess grease to drain off. When the grease has fully set, wipe the chain clean, then re-fit it in reverse sequence, attaching it to the old piece of chain to guide it over the sprocket.

Fit the spring link into the chain ends positioned slowly at the top, centre of the large sprocket (25/2), fit the outer link plate, then slide on the spring link (25/1) so that the closed side faces in the direction of the chain run.

If you can lift the chain links away from the sprocket by more than half the height of its teeth, the chain has worn out and must be replaced. Do not ride for any length of the time with a badly worn or lengthened chain, as this will, in turn, wear the sprocket teeth (teeth will become pointed). If this happens the chain pinion on the gearbox and the rear wheel sprocket must also be replaced, before a new chain is fitted.

Frame Lubricating Points (see fig. 8)

Just like a modern motor car, your KS 100 has virtually no lubricating points requiring regular attention. Neither telescopic fork, hydraulic spring damper units, nor the bearings of the rear swinging fork need lubrication. Steering bearings, wheel bearings and sliding parts of brakes are adequately supplied during assembly at the works with lubricant which must be renewed only during a complete overhaul. Using thin-flowing engine oil, service with the oil can only the lubricating nipples of the Bowden cables (see fig. 8/3), the lever joints on the handlebars and the joints of the rear wheel brake.

Setting and Testing Brakes

(see figs. 26 and 27)

Both front and rear wheel brakes should grip as soon as the control levers have moved through a short dead travel. To re-set the travel (play) which increases as the brake linings wear, adjusters are fitted to both brakes.

If play at the front-wheel brake lever has increased too much, slacken locknut (26/1), then turn adjuster (26/2) out until correct dead travel has been restored. Finally secure by tightening locknut again firmly. The rear-wheel brake play (see fig. 27) is re-set with adjuster (27/4) at the brake lever on the rear brake drum. Slacken locknut (27/5), then turn adjuster (27/4) clockwise until wheel just turns freely. Then tighten locknut again. The foot brake pedal (11/1) can be re-set for height. Slacken the locknut (27/2) on the brake linkage, then turn wingnut (27/3); finally secure by tightening locknut (27/2) again.

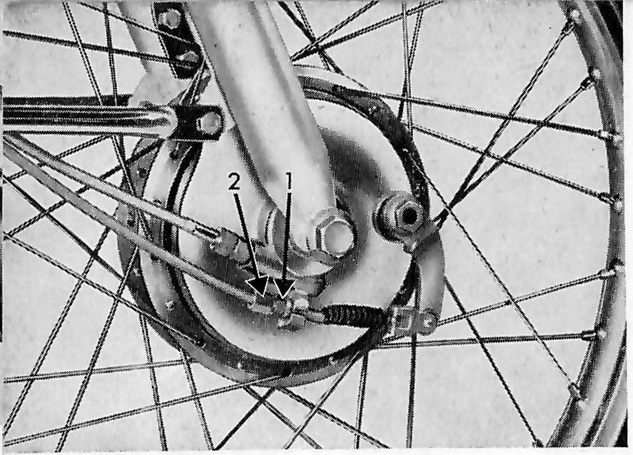

Fig. 26 ▲

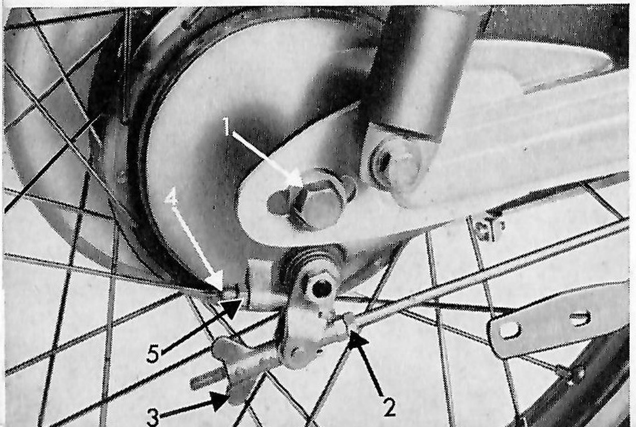

Fig. 27 ▼

Brake lining must never drag. Take great care to keep all oil and grease away from the linings, or the brake may fail.

The brake linkage must never be bent or distorted.

Tyre Care and Fitting (see figs. 28 and 29)

A regular check of tyre pressure is the main requirement in looking after your tyres. Check with the tyre gauge (fig. 28),

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To fig. 26
1 = Locknut
2 = Adjuster screw

To fig. 27
1 = Knock-out spindle
2 = Locknut
3 = Wingnut
4 = Adjuster screw
5 = Locknut

not just by thumb pressure. In addition, keep tyres clean and free from oil or grease at all times. Regularly check that tread and side walls are in good condition and remove all imbedded foreign bodies (stones, nails). Major damaged spots must be repaired by a vulcanised patch, or moisture may enter the tyre and destroy the carcase.

If treads are markedly worn, on no account change over front and rear tyres, but fit a new tyre as soon as the tread had been worn down to .04″ (1 mm), since your safety partly depends on a sufficient depth of tread profile. Generally, the rear wheel tread will wear first.

If a tyre must be taken off for repair, first remove the whole wheel. Then unscrew the valve nut and place the wheel flat on the ground.

Step on the outer tyre on the **opposite** side of the valve with both feet to drive it well into the wheel rim (see fig. 29). Then

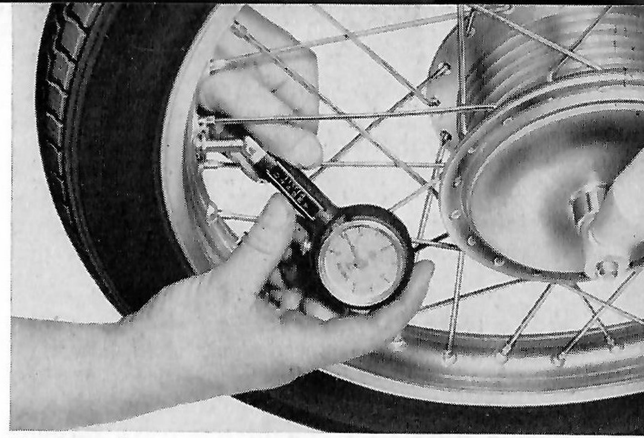


Fig. 28 ▲

Fig. 29 ▼

with the aid of two tyre levers or short bars, lift the tyre at the valve over the rim edge, then lever one side of the cover away all round. You can now take out the inner tube and repair it (by sticking on a puncture patch or vulcanising).

To re-fit the tyre, first dust the inner tube lightly with French chalk and pump it up a little to give it some shape. Place the tube into the tyre still held on one side by the wheel rim and fit the valve through the hole in the rim. Then, either let the air out of the tube again, or unscrew the valve core altogether. As before, press the outer cover back over the rim on the side opposite the valve. With the two tyre levers, work round evenly without using any force, until the whole tyre flange is tucked under the rim, finishing at the valve. Fit the valve core again, then pump up the tyre, making sure that the valve stands up straight. The reference line running round the tyre cover must be accurately concentric with the rim flange. Finally refit valve nut and cap.

Checking Wheel Alignment and Tracking

Accurately tracking wheels, free from wobble, are important for good road holding, particularly on two-wheelers. Your safety may depend on it, especially on wet roads, in the curve and when braking. It is, therefore, essential to check the condition of wheels, their bearings and accurate tracking at regular intervals, and always after a bad skid or fall.

The expert mechanics at your local ZÜNDAPP service station will spot immediately the reason for any wheel misalignment and will know how to remedy it. Wheel wobble to height or side need not always be due to any distortion of the wheel itself, it may be due to a badly fitted tyre.

Again, should a broken spoke have to be replaced, making a new centring and tightening of the whole set necessary, it is best to leave this to the service station. Without the necessary experience, you may not get it right and might even make matters worse.

But accurate tracking you can easily check for yourself. Just ask a friend to hold the machine (not propped up) precisely vertical and with the front wheel facing accurately ahead. Then stand about 6½ ft. (2 m) behind the vehicle and turn your back on it. Looking through your parted legs, sight along the rear wheel on to the front wheel, first on one side, then on the other. You will immediately notice if the rear wheel was not correctly aligned when last mounted (perhaps after chain tensioning or a tyre repair).

Slacken the rear wheel spindle and try to correct the fault. If it cannot be done, consult your service station, since in that case wheel or frame may have become distorted. Your ZÜNDAPP service station will then carry out a more precise test and, of course, remedy any fault found.

Front Wheel Removal (see fig. 30)

Place the machine on its stand to remove the front wheel. First slacken the locknut of the speedometer drive (30/1) and draw the speedometer flexible shaft from the brake plate. Then detach the brake cable nipple (30/2) from its lug (30/3) on the brake lever, then pull back adjuster (30/4) complete with locknut, and draw the cable from the bearing (30/6) on the brake plate. You can now unscrew wheel axle (30/5), and then pull the complete wheel from its seat between the swinging arms of the front fork.

Re-fit in reverse sequence, remembering to fit the fixing link on the right-hand side of the front fork (which also holds the brake plate) into the guide on the counter bearing arm of brake plate (30/6).

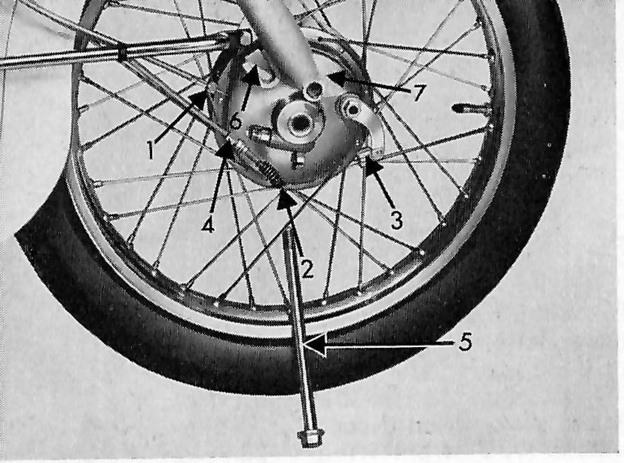


Fig. 30

1 = Speedometer drive
2 = Brake cable nipple
3 = Lug
4 = Adjuster
5 = Knock-out axle
6 = Counter bearing
7 = Brake plate

Rear Wheel Removal (see figs. 31 and 32)

Place the machine on its stand. Slacken the wingnut (31/1) on the brake linkage until you can draw back connector link (31/2), so that brake linkage (31/3) can be taken off the slotted bolt on the brake lever from below. Unscrew the wheel spindle (31/4), draw it out completely, and you can then take off the spacer bush (31/5) between hub and swinging arm. The complete rear wheel can now be shifted to the right and taken off the wheel drive studs on the sprocket (32/1) which remains on the frame. Then draw the wheel off to the rear, tilting the whole machine a little as you do so for easier withdrawal.

For effortless re-fitting of the rear wheel, make sure that the brake linkage does not get between the spokes. As for the front wheel, slide the guide on the counter bearing arm (31/6) over the supporting bolt on the right-hand swinging arm (31/7). Finally, lightly turn the wheel to bring the drive studs on the hub (32/2) and on the sprocket (32/1) into engagement.

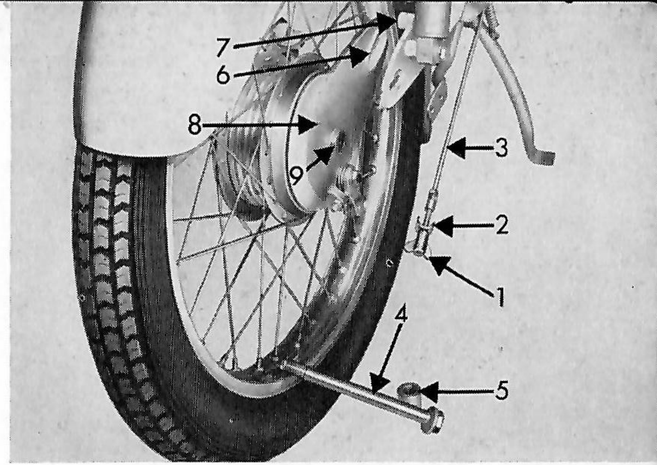
Threaded bush (36/9) in the brake plate (36/8) must lie **loosely** against the rubber ring under its collar. Having fitted the spacer bush (31/5) again, insert the spindle (31/4) and tighten it firmly. Finally, hook the brake linkage into the slot of the bolt in the brake lever, slide the connector slink (31/2) over it, fit the wingnut (31/1) and tighten it firmly.

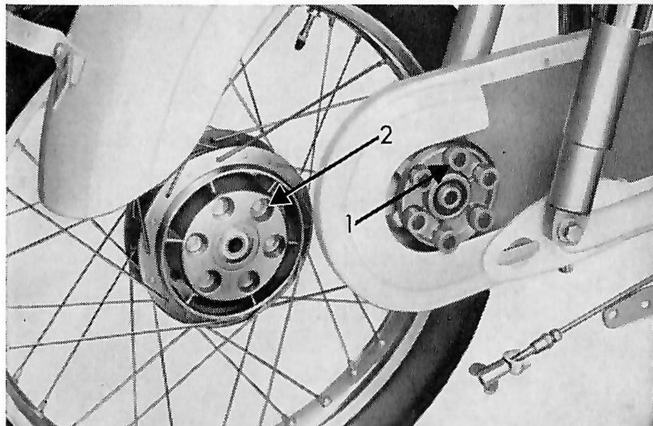
To fig. 31

1 = Wingnut
2 = Connector link
3 = Brake linkage
4 = Knock-out spindle
5 = Spacer bush
6 = Counter bearing arm on brake plate
7 = Supporting bolt
8 = Brake plate
9 = Rubber ring

To fig. 32

1 = Drive studs on sprocket
2 = Drive studs on hub





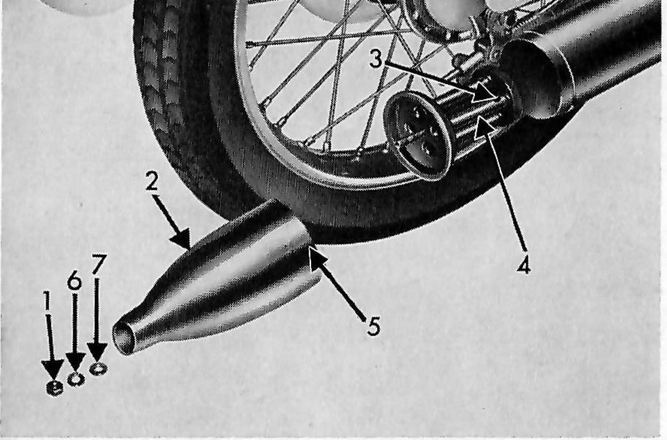


Fig. 33

1 = Nut
2 = Silencer end piece
3 = Baffle
4 = Tube ducts
5 = Asbestos sealing cord (concealed from view)
6 = Locking washer
7 = Locking washer

Cleaning the Exhaust (fig. 33)

Carbon deposits form in every combustion engine, particularly in the exhaust system. They mainly tend to accumulate on the baffle in the detachable snubber at the end of the main chamber. This baffle should therefore be regularly checked and cleaned as required.

To do this, take off nut (33/1) – take care not to lose locking washers 33/6 and 7 – then draw snubber (33/2) from the chamber and baffle (33/3) from the centre rod in the exhaust chamber. Clean baffle, tubes and their cut-outs from all coking deposits. When re-assembling, check that the asbestos sealing cord (33/5) is in good condition, otherwise replace it. On no account, assemble the exhaust without the baffle or modify it in any other way – in the mistaken belief that this might give the engine "more air to breathe" and raise its performance.

This is definitely not so. You will only increase the noise from the exhaust and in many countries there are noise abatement regulations prohibiting any tampering with the exhaust. However loudly the exhaust roars, engine performance will not rise; on the contrary, it will fall, since especially with two-stroke engines, the exhaust system is carefully matched to engine type. What you will increase is fuel consumption and thus running costs. In short: do not modify the exhaust system, trying to do better than the manufacturers. If it were that easy to squeeze an extra few h.p. out of your engine, surely our engineers would have done so right back at the factory.

Decoking the Engine

Carbon deposits do not only collect at the exhaust, they are also invariably produced inside the engine itself (cylinder, piston bottom, piston ring grooves, control ports). The amount of coking deposit depends on running conditions and the petroil mixture used. As we have already mentioned, special oils used in the two-stroke mixture contain additives which inhibit coking.

Nevertheless, at extended intervals (see servicing schedule) the engine and the complete exhaust system must be inspected and decoked, if required, so that the engine will retain its original performance, and fuel consumption will not rise. The engine need not always be taken off for this. But, in any case, it is best to entrust this thorough „inner clean" to a ZÜNDAPP service station. They will use the opportunity to check all inner components for possible wear and replace those which might give trouble in the foreseeable future – a very worth-while preventive measure.

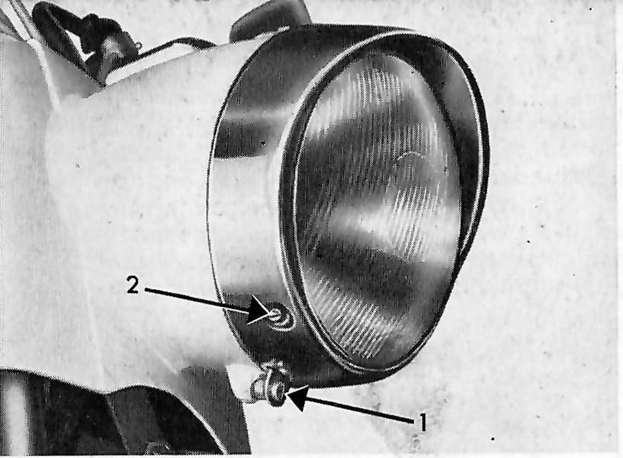


Fig. 34 ▲

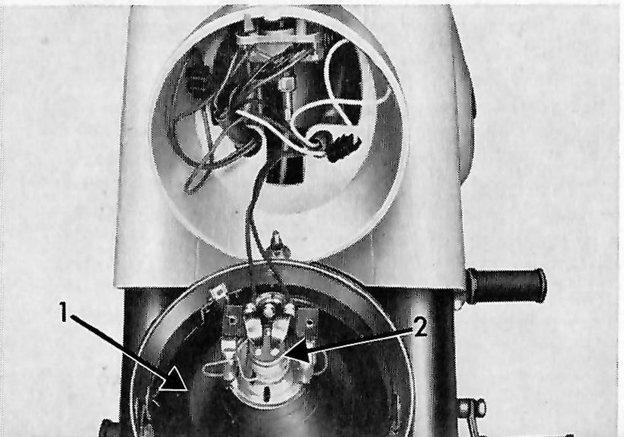


Fig. 35 ▼

Checking Lights, Replacing Bulbs
(see figs. 34, 35 and 36)

Each time before you drive off, check that your lights are in order (head lamp, distance and dipped beam, tail and brake light, flashing indicators), not only because traffic regulations make proper lighting compulsory, but also to save yourself an unpleasant surprise when darkness falls.

To replace a faulty bulb, first open the lamp fitting. On the head lamp remove slotted screw (43/1), and you can then take off the complete lamp unit (35/1). The bulb (35/2) is then very easily exchanged.

To get at the tail lamp bulbs, remove the two slotted screws (36/1 and 36/2), then take off the plastic cover. The tubular

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To fig. 34

1 = Slotted screw
2 = Slotted screw

To fig. 35

1 = Head lamp unit
2 = Head lamp bulb

bulb at the top is the brake light, the round one below the number plate and tail light.

Fit the bulbs listed in the Technical Data.

The leads to the bulbs are not soldered but fixed by spring-loaded terminal pins (36/3). If you press on the spring-loaded head, the lead is released, and you can pull it off. This type of terminal pin prevents any deformation of the leads, but the spring pressure is quite strong enough to ensure a positive and durable connection.

Follow your local road traffic regulations which lay down how your head lamp should be set so that the beam gives you the best visibility but does not dazzle other road users. Your local ZÜNDAPP service station has the necessary equipment to check your head lamp setting quickly and efficiently and to carry out any corrections which may be necessary. The second slotted screw (34/2) fitted at the base of the head lamp case serves to re-set the beam. Turn the screw clockwise to raise the beam, and consequently the bright/dark

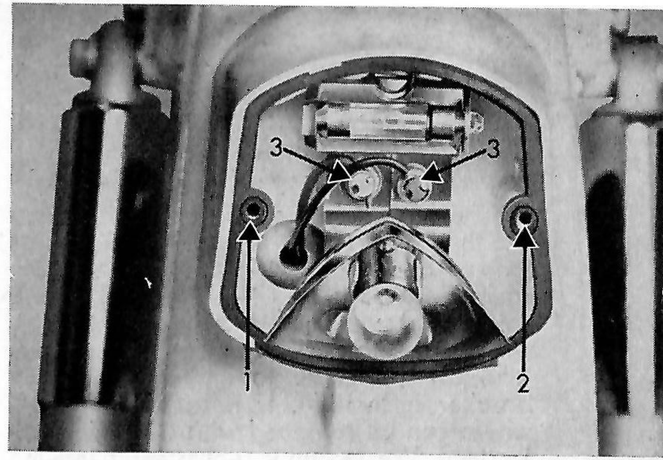

Fig. 36

1 = Slotted screw
2 = Slotted screw
3 = Terminal pins

limits, turn anti-clockwise to lower the beam. It is not advisable to re-set the beam „by feel" alone. If an oncoming driver signals with his headlights to tell you that your beam is dazzling him, or if you think your beam is set too low, so that you cannot see far enough ahead, take the machine as soon as possible to your

ZÜNDAPP service station who will check and correct the setting.

Ignition System, Inspection and Setting

The flywheel magneto/dynamo which supplies the current for the ignition and lights (and also the battery) is located inside the casing, closed off by the left-hand casing cover and well protected against dirt, wind and weather. To make it accessible, take off the cover to make the contact breaker accessible. If necessary, the flywheel can be removed with a special puller tool. We strongly recommend leaving this job to the care of the skilled staff of your ZÜNDAPP service mechanics who are equipped with all the necessary special tools.

Between services the ignition system (and particularly the flywheel magneto) needs no special attention apart from checking contact breaker gap as described earlier. The current generator proper consists of only a very few components which will only wear after a very long service life.

All the same, you should have your ignition system and setting (which may alter due to points wear) checked every 1,250 miles (2,000 km). The ZÜNDAPP service mechanic will inspect the contact points for wear and burns, will set the contact gap correctly and will carefully test and adjust the ignition timing. At the same time, he will test the flywheel magneto/dynamo, so that you can then confidently rely on your ignition and lighting system until the next service is due.

Cleaning your Machine

The dirt thrown up from the road contains many corrosive particles which in due course will attack the glossy paint finish. That is why you should wash your motor cycle at frequent intervals with clean, cold water. Cold water hardens and preserves the paint surface. But avoid hosing your vehicle down with a very strong, hard jet.

Use of soap, car shampoos or other detergents is only advisable if the machine has become exceptionally dirty or smeared with grease. If you do use detergents, dilute them strictly in accordance with the maker's instructions. In our experience,

a 1–2 percent soft-soap suds solution with water of about 85° F (30° C) – never hotter – has proved fully satisfactory for getting even a dirty machine clean.

If you use a sponge, rinse it repeatedly, or the grit left on the sponge will scratch and dull the paint surface. After sponging down, always follow up with a clean water rinse to remove all remnants of detergent. Finally, polish with a soft window leather.

Never wash your machine while the hot sun is shining on it, or the water will dry too fast and leave spots on the paint, particularly in hard-water areas. Washing the paintwork down with detergent removes part of the oily constituents in the paint which give it its glossy shine. It is, therefore, advisable to nourish the paint by polishing from time to time with a good wax polish. But use only polishes specially recommended for synthetic enamel paints.

Chromed parts are best washed down with clean water, then dried with a woollen cloth. If they should dull a little in the course of time, use a good-quality chrome polish.

White paint finish requires special care. Polishes containing oils and fats are unsuitable for white paintwork; oil or grease spots must always be quickly removed with a soft cloth dipped in petrol. Any petroil mixture spilled when the tank is filled must also be wiped off immediately. Use only well- known high-quality polishes for the care of your paintwork which will also be suitable for polishing the chrome, and strictly observe the maker's instructions.

Never use paint thinners, kerosene or a petroil mixture to clean a machine with white colour finish. Unless you follow these hints, the white paint may yellow under the influence of light and heat.

Your ZÜNDAPP dealer stocks everything you need to take care of your machine and keep it bright and shiny – each product of proven, highest quality.
Remember also: Whenever you need a replacement part, use only genuine ZÜNDAPP spares.

Wiring Diagram 100 cc

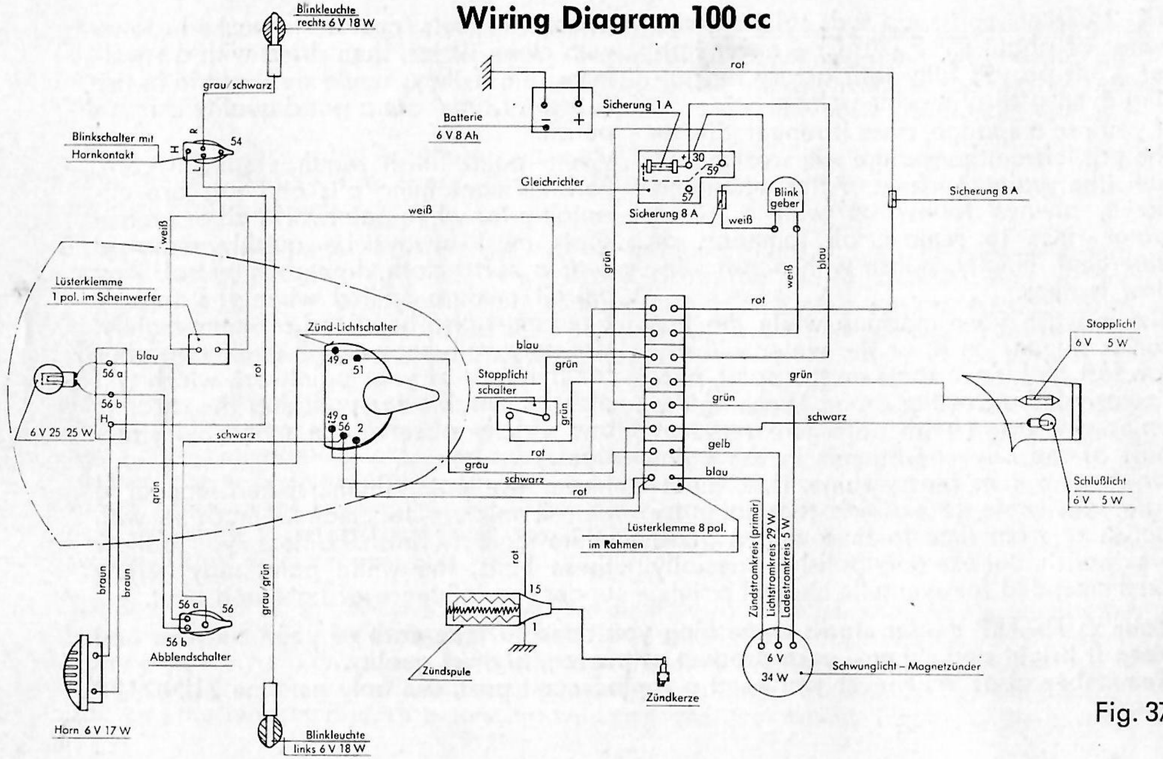

Fig. 37

Blinkleuchte rechts, 6 V/18 W	=	Flashing indicator, right, 6 V/18 W
Blinkschalter mit Hornkontakt	=	Flashing indicator switch with horn contact
Lüsterklemme, 1pol., im Scheinwerfer	=	Porcelain terminal, 1-pole, in head lamp
Horn, 6 V/17 W	=	Horn 6 V/17 W
Blinkleuchte links, 6 V/18 W	=	Flashing indicator, left, 6 V/18 W
Zünd-/Lichtschalter	=	Ignition and light switch
Batterie 6 V/8 Ah	=	Battery 6 V/8 Ah
Zündspule	=	Ignition coil
Gleichrichter	=	Rectifier
Stopplichtschalter	=	Brake light switch
Sicherung 1 A	=	Fuse 1 A
Sicherung 8 A	=	Fuse 8 A
Lüsterklemme, 8pol., im Rahmen	=	Porcelain terminal block, 8-pole, in frame
Zündkerze	=	Spark plug
Blinkgeber	=	Flasher unit
Zündstromkreis, primär	=	Ignition circuit (primary)
Lichtstromkreis, 29 W	=	Light circuit 29 W
Ladestromkreis, 5 W	=	Charging circuit 5 W
Schwunglicht-Magnetzünder	=	Flywheel magneto
Stopplicht 6 V/5 W	=	Brake light
Schlußlicht, 6 V/5W	=	Rear light
weiß	=	white
gelb	=	yellow
braun	=	brown
grün	=	green
schwarz	=	black
rot	=	red
grau	=	grey
blau	=	blue

What Can the Matter Be . . .

No automotive vehicle is quite free from operating troubles. However hard the manufacturers try to improve the quality of their models – as long as we have motor vehicles with us, there will be break-downs. But nowadays drivers are far better off than in the early years of motoring. Break-downs which were a daily occurrence then, are rare today. Even rarer are breakdowns which are so serious that they cannot be remedied en route. Admittedly, some running repairs require a minimum of mechanical skill and some degree of familiarity with your vehicle. Above all, you must know the possible causes of failure and how to trace them, before you can remedy them. In case of trouble, the first rule is not to panic and not to thinker at random, here, there and everywhere. Instead, take your time, stand back and think and you will then be able to cope with most troubles, even if you are not a trained mechanic.

Here, let us remind you again that your ZÜNDAPP distributor and service station are always at your disposal, ready to help in difficult cases. The nearest ZÜNDAPP service station will assist you just as efficiently as your own distributor at home.

"What can the matter be, if . . .

. . . engine will not start

1. Fuel tank may be empty
2. Key not inserted into ignition and turned clockwise to first stop
3. You have not switched over to reserve, or fuel tap is closed
4. Fuel tap filter (in tank) clogged by dirt
5. Float needle in carburettor stuck
6. Main jet in carburettor clogged by dirt

7. You forgot to pull the cold-starting lever (operating cold-starting carburettor system) when starting the engine from cold – or you have pulled it when the engine was warm and flooded it as a result (remedy: close fuel tap, step repeatedly on kickstarter, with throttle fully open, until engine does start; then open fuel tap again).
8. Spark plug dirty, spark gap too large – spark plug may have reached the end of its life and be unserviceable
9. Spark plug cable may be defective or torn loose
10. There may be a short-circuit in the head lamp or other part of the electrical system
11. Contact points may be oily or dirty
12. Contact breaker travel may be too small due to wear
13. Capacitor or ignition coil may be defective
14. There may be a short-circuit in the ignition switch

. . . engine starts but cuts out again immediately

1. Engine may still be too cold, you may have opened throttle or closed choke lever too fast
2. Too little fuel in tank, but tap not changed over to reserve
3. Fuel flow may be interrupted by foreign particle in system
4. Tank venting holes (in tank cover) may be clogged by dirt
5. Spark plug may be smeared with oil
6. Ignition switch may have loose contact piece, or there may be a broken or loose lead elsewhere in the ignition circuit

. . . engine will not run at idling speed

1. Carburettor not properly tuned to idling speed
2. Spark plug may be defective (spark gap may be too large)
3. Engine may draw in air through a leak at a faulty seal

. . . engine takes up no fuel

1. Engine may still be too cold
2. Fuel flow may be interrupted at any point in the system
3. Main jet may be clogged

. . . carburettor "spits back"

1. Engine may still be too cold
2. Fuel feed may be clogged somewhere
3. Ignition timing and contact breaker gap may be wrongly set, particularly breaker contacts do not lift away far enough
4. Capacitor or ignition coil may be defective
5. Contact breaker arm may be jammed
6. Spark plug may be dirty
7. Engine may draw in air from a leaking joint

. . . engine "four-strokes"

(does not purr smoothly in two-stroke cycle, but every second ignition regularly cuts out)

1. Air-filter may be dirty
2. Float needle valve may be stuck
3. Ignition setting may be retarded
4. Exhaust flow circuit may be obstructed by carbon deposits, particularly in exhaust port or exhaust chamber snubber
5. Carburettor may have turned in its mounting socket, or may have worked loose in its seat

. . . engine knocks

1. You may have filled up with low-grade fuel

2. Fuel flow may be obstructed somewhere
3. Excessive carbon deposits may have formed in engine (cylinder barrel, piston ring grooves)

. . . engine runs hot

1. Too little or unsuitable oil in fuel mixture
2. Excessive carbon deposits in engine or exhaust system
3. Ignition setting may be faulty (too early or too late)
4. Engine may draw air through a leak
5. Fuel flow may be obstructed; main jet may be partly clogged

. . . engine cuts out suddenly

1. Tank may be empty
2. Venting holes in tank cover may be clogged
3. You may inadvertently have turned the ignition key off
4. There may be a short-circuit or break in the ignition system
5. Contact breaker may have broken (point bases, points damaged or worn)
6. Ignition coil may have become defective
7. Gradual accumulation of dirt in fuel feed line or carburettor (main jet) has finally interrupted feed altogether

. . . engine performance drops

1. Wear of cylinder liner, piston rings, bearings or seals
2. Air filter or exhaust system may be dirty
3. Clutch may slip
4. Brakes may be wrongly set so that they drag
5. Ignition timing may have altered, possibly due to wear of parts

... Clutch slips

1. Play at lever on handlebar or operating arm on casing may have become too small due to wear
2. Linings may have worn
3. You may have used a gear oil additive which impairs the friction engagement of the plates

... gears cannot be engaged or crash loudly into engagement

1. Due to excessive play, clutch does not disengage properly
2. Gear train may have sustained damage

... fuel consumption rises above normal

1. You may be carrying a greater all-up load (pillion rider)
2. Load on the engine may have been extra high due to consistently higher speed, riding in heavy city traffic or hill climbing
3. You may have made an error in checking you consumption
4. Fuel may seep from a leak
5. Any of the faults leading to "four-stroking" may be present
6. Engine may have worn considerably

... a light fails

1. Bulb may be burnt out
2. Contact points may have oxidised
3. Lead may have come loose
4. A switch may be defective, or there may be a break in the wiring somewhere

... the horn does not sound

1. Horn mechanism itself may be defective
2. Break in circuit (loose lead)
3. Button may be defective or stuck

... the flashing indicators fail

1. All faults listed earlier for failure of a bulb apply, if only one indicator fails
2. If both indicators fail, the flasher relay may be defective

... vehicle swerves on road (steering "floats")

1. Steering bearings may be too loose or too tight
2. Wheel bearings may have play
3. Wheels may not track properly
4. Tyres may have side wobble (possibly unbalanced by vulcanising repair), rim may be damaged, spokes may be loose
5. Body frame (front fork, main frame, rear swinging fork, spring damper units) may have become distorted, due to a fall or similar cause
6. You may have overloaded the luggage carrier
7. Tyre pressure may be too low

Printed in Germany

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