Index

Dear friend of MZ,

these Operating Instructions are intended for you as a help to ensure that your motor-cycle will always be your reliable companion. Due to our experiences gathered in many years of motor cycle construction, the ETZ machine is a sturdy, highly efficient, reliable vehicle that requires but little maintenance. In order that this will remain so for ever, we ask you to observe the following information regarding care and treatment of your motor-cycle.

"Bon voyage"!

VEB Motorradwerk Zschopau
Betrieb des IFA-Kombinates Zweiradfahrzeuge

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1. Technical Data

1.1. Engine and Power Transmission

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	ETZ 125	ETZ 150	ETZ 150
Type of engine	EM 125	EM 150.2	EM 150
Cycle	two-stroke reserve scavenging		
Output	7.5 kW at 6,000 rpm	9 kW at 6,000 rpm	10.5 kW at 6,500 rpm
Maximum torque	12.3 Nm at 5,500 rpm	15 Nm at 5,500 rpm	15.8 Nm at 6,200 rpm
Lubrication	petroil lubrication 50:1		
Gearbox			
Number of speeds	5	5	5
Idling tell-tale light	yellow tell-tale lamp - only for de luxe model		
Power transmission to rear wheel			
Roller chain	0,8 B-1-128 TGL 11796 (12.7 x 7.75 x 128)		
Transmission gearbox - rear wheel	3.2 (15:48 teeth)	3.0 (16:48 teeth)	3.2 (15:48 teeth)

1.2. Carburetter

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	ETZ 125	ETZ 150	ETZ 150
Type	22 N 2-2	24 N 2-2	24 N 2-2

Suction pipe diameter	22 mm	24 mm	24 mm
Main jet	100	120	120
Needle jet	70 [2])	70 [2])	70 [2])
Partial load needle	2,5 A 513	2,5 A 513	2,5 A 513
Partial load needle position from top	3 [1]) (2 after running-in)	3 [1]) (2 after running-in)	3 [1]) (2 after running-in)
Starting jet	70	70	70
Idling jet	40	40	40
Idle air adjusting screw	for about 1.5 revolutions open, but adjustment of the maximum concentration of CO in exhaust gas to 2.5 to 3.5 per cent by volume at 1,200 rpm		

[1]) Pay attention to the sparking-plug appearance!
The lower plate of the needle holder counts!

[2]) with 2 compensator tack-type jets 60

1.3. Cycle Parts

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	ETZ 125	ETZ 150	ETZ 150
Springing			
front	telescopic fork with hydraulic damping, spring deflection 185 mm		

rear	suspension units with hydraulic damping, spring deflection 105 mm, spring pre-load and setting angle adjustable		
Wheels	wire spokes		
Rims			
front	1.60 x 18	1.60 x 18	1.60 x 18
rear	1.85Bx16	1.85Bx16	1.85Bx16
Tyres			
front	2.75 x 18	2.75 x 18	2.75 x 18
rear	3.25 x 16	3.25 x 16	3.25 x 16
Tyre inflation pressure (gauge pressure)			
Solo			
front	150 kPa (1.5 kp/cm)		
rear	190 kPa (1.9 kp/cm)		
with permissible total mass			
front	150 kPa (1.5 kp/cm)		
rear	270 kPa (2.7 kp/cm)		
Brakes			
front	Simplex internal expanding shoe brake or hydraulically actuated disk brake		
rear	Simplex internal expanding shoe brake		

1.4. Electrical Equipment

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	ETZ 125	ETZ 150	ETZ 150
Rated voltage	12 V	12 V	12 V
Ignition	2.5 $^{+0.5}$ mm (22°45' to 23°45') before top dead centre,		
Ignition timing	invariable battery ignition		
Contact-breaker gap	0.3 $^{+0.1}$ mm (closing angle 132° + 5° in idling)		
Sparking-plug	Isolator ZM 14-260 or comparable foreign types (multi range plugs)		
Electrode gap	0.6 mm	0.6 mm	0.6 mm
Three-phase current dynamo	three-phase current 14 V, 15 A with rectifier and regulator		
Battery	12 V, 5.5 Ah	12 V, 5.5 Ah	12 V, 5.5 Ah
Electric bulbs			
headlamp	12 V, 45/40 W, TGL 11413, or H 4, passing beam asymmetric		
parking light	12 V, 4 W, cap BA 9 s, TGL 10833		
tail light	12 V, 5 W, cap BA 15 s		
stop light	12 V, 21 W, cap BA 15 s		
flashing light	12 V, 21 W, cap BA 15 s		
control lamps and instrument lighting	12 V, 2 W, cap BA 7 s, TGL 10833		

Fuses	
main fuse	2 x fuse link A 16 TGL 11135 (16 A)
flashing-light direction indicator system	fuse link A 4 TGL 11135 (4 A)
dynamo excitation	fuse link T 2 A (miniature fuse 2 A)

1.5. Masses

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	ETZ 125	ETZ 150	ETZ 150
Empty mass (with fuel and tools)	118 kg [1]) 120 kg [2])118 kg [1]) 120 kg [2])	118 kg [1]) 120 kg [2])	
Permissible total mass	290 kg	290 kg	290 kg
[1]) Variant with drum brake			
[2]) Variant with disk brake			

1.6. Capacities

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	ETZ 125	ETZ 150	ETZ 150
Fuel tank	13 l	13 l	13 l
including reserve of	1.5 l	1.5 l	1.5 l
Gear oil	0.5 l	0.5 l	0.5 l

1.7. Road Performances

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	ETZ 125	ETZ 150	ETZ 150.1
Maximum speed	100 km/h	105 km/h	110 km/h
	depending an load, atmospheric conditions and sitting position		
Fuel consumption	2.3 to 3.5 l/100 km	2.4 to 3.6 l/100 km	2.6 to 4.0 l/100 km

2. Fuel, Lubricants etc.

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Engine

Petrol having an octane rating of 88 (ROZ) which is mixed with **two-stroke engine** oil in the ratio of 50:1.

Example: 10 l fuel to be mixed with 0.2 l of two-stroke engine oil.

Gearbox

Gear oil SAE 80 or non-additive type of engine oil SAE 40 for summer and winter. In the GDR, oil of grade GL 100 is used.

Cycle parts

Gear oil SAE 80 and antifriction bearing grease.

Electrical equipment

For a new battery use accumulator sulphuric acid having a density of 1.28 g/cm^3 (in the tropics 1.23 g/cm^3) at 25 °C. For topping up the battery, only use distilled water. Use grease battery terminals for protection against corrosion of the battery connections.

Use hypoid oil (gear oil of a high degree of viscosity) for the contact-breaker lubricating felt pad.

3. Operation

3.1. Controls

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Figs. 1 to 9 show all control elements required for operating the motor-cycle and their functions. Please, familiarise yourself with them throughly before the first start.

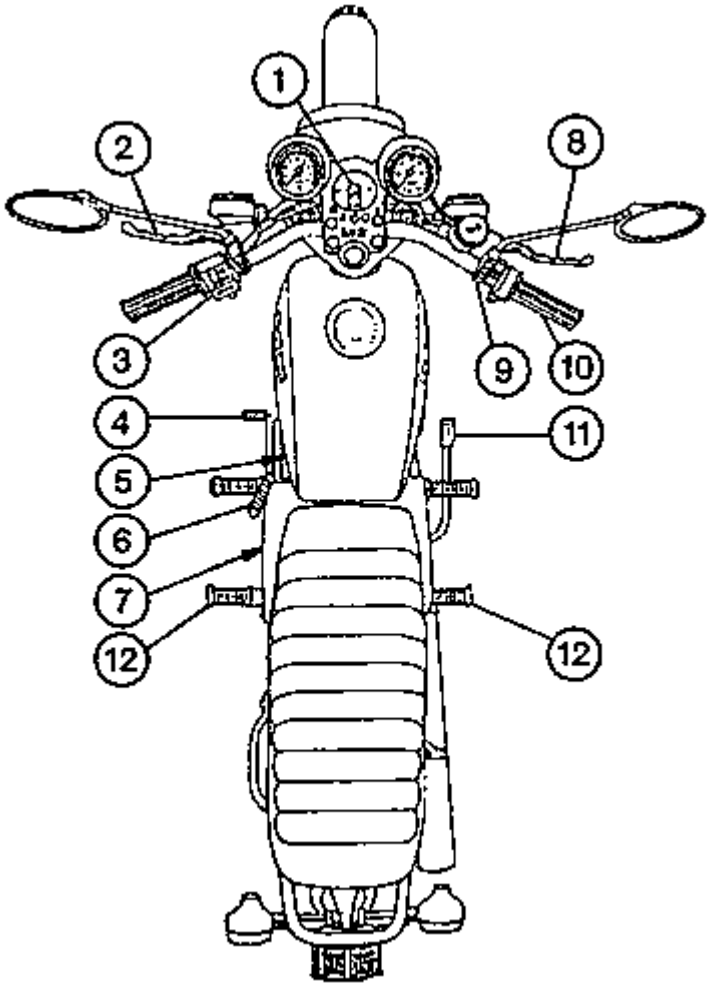

Fig. 1. Controls of the motor-cycle

(1) Ignition and light switch
(2) Clutch lever
(3) Combined switches for electrical system
(4) Gearchange pedal
(5) Fuel shut-off cock
(6) Kick-Starter
(7) Prop stand
(8) Hand brake lever
(9) Lever for cold-starting device
(10) Throttle twist-grip
(11) Brake pedal
(12) Pillionist's foot rests

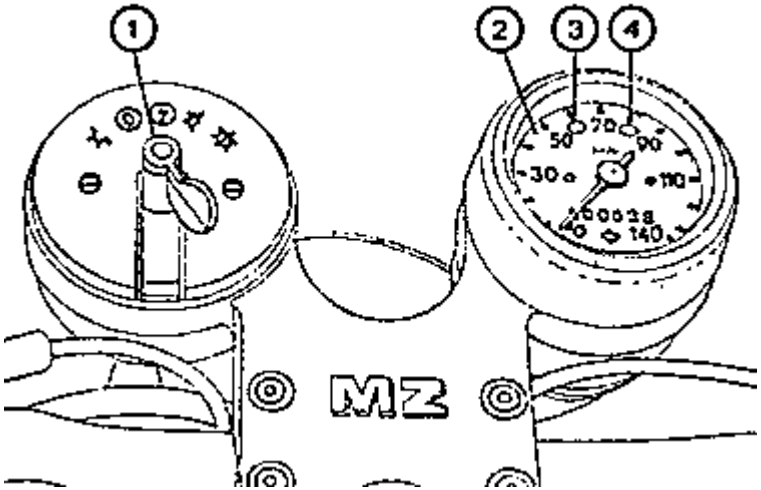

Fig. 2. Instruments (standard design)

(1) Ignition and light switch (switch positions as shown in Fig. 3)
(2) Speedometer with kilometer counter

(3) High-beam headlight indicator (blue)
(4) Tell-tale light for dynamo and flashing-light direction indicator system (green)

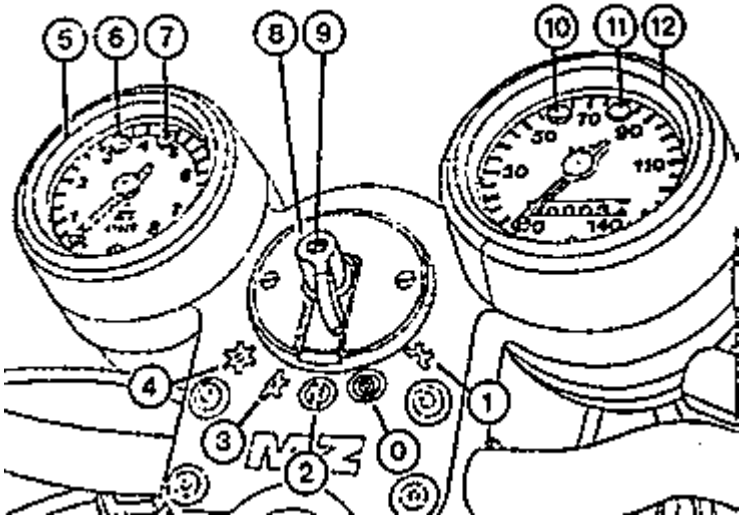

Fig. 3. Instruments (deluxe model)

(0) All loads switched off - key (9) can be withdrawn
(1) Parking position at night - key can be withdrawn, town light switched on
(2) Ignition switched on, riding in the daytime - key cannot be withdrawn - pushing the motor-cycle for starting without battery is possible with the 2nd gear in engagement
(3) Ignition switched on, parking and tail lamps burn - key cannot be withdrawn
(4) Ignition switched on, night operation - key cannot be withdrawn
(5) Revolution counter
(6) Idling indicator (yellow)
(7) Control light for dynamo (red)
(8) Ignition and light switch
(9) Ignition key
(10) High-beam headlight indicator (blue)

(11) Tell-tale light for flashing-light direction indicator system (green)

(12) Speedometer with kilometer counter

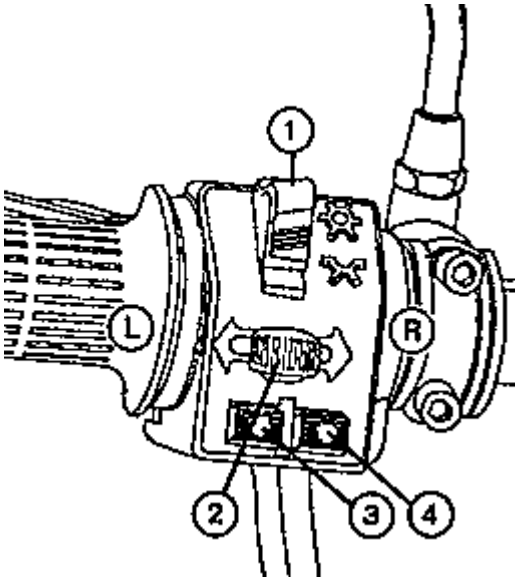

Fig. 4. Combined switches at handle-bars

(1) Dimmer switches for headlamp

high-beam headlight

passing beam

(2) Switch for direction indication

(L) left-hand flashing-light indicator

(R) right-hand flashing-light indicator

(3) Push-button for horn

(4) Push-button for by-pass light signal

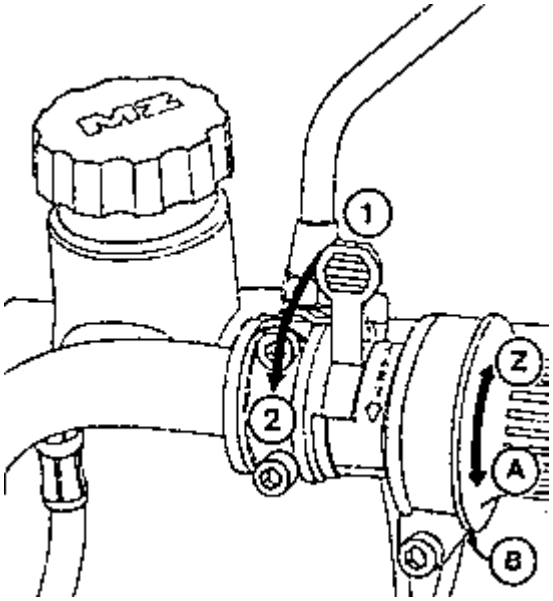

Fig. 5. Throttle twist-grip and cold-starting device

(1) Cold-starting device closed
(2) Cold-starting device switched on
(Z) Throttle twist-grip closed
(A) Throttle twist-grip open (full throttle)
(B) Friction brake throttle twist-grip - adjusting screw

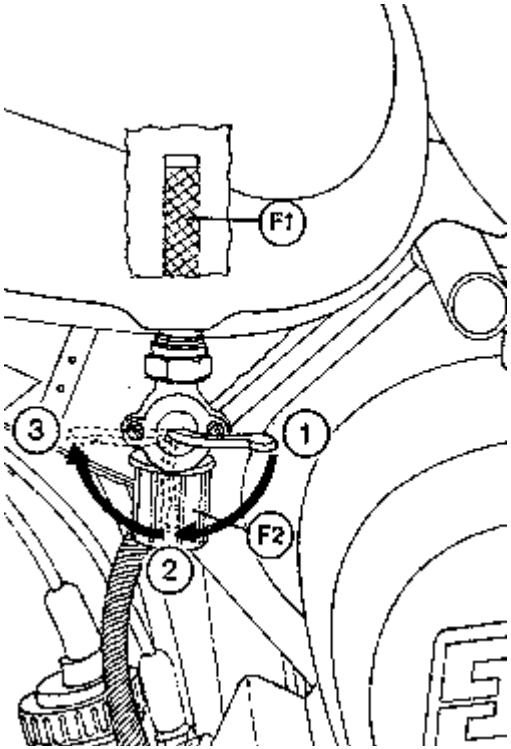

Fig. 6. Fuel shut-off cock

(1) Fuel shut-off cock closed
(2) Fuel shut-off cock open
(3) Reserve position
(F_1) Inlet filter
(F_2) Outlet filter

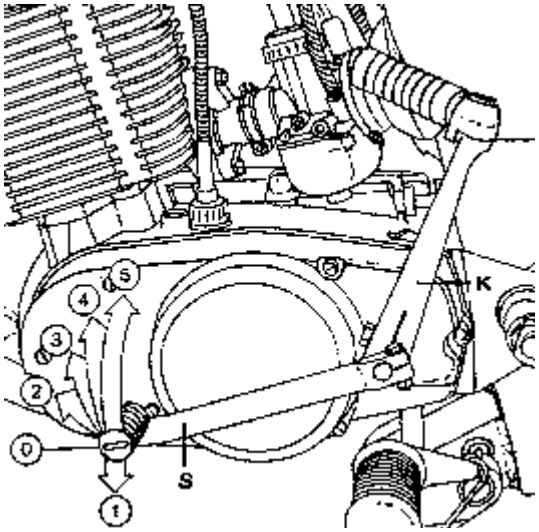

Fig. 7. Gearchange pedal

Numbers: position of the gears

(F) Gearchange pedal
(K) Kick-starter

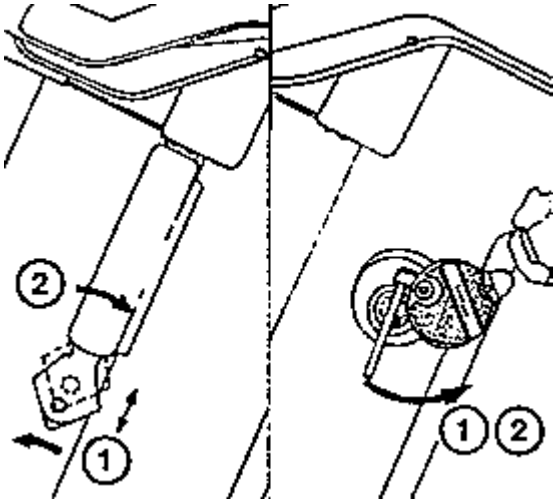

Fig. 8. Theft prevention (at the right in Fig. 8. Special version for export)

(1) Sense of rotation for unlatching the look
(2) Sense of rotation for latching the look

The theft prevention device has to be locked after unlatching by shifting the lock upwards (to the interior in the export design).

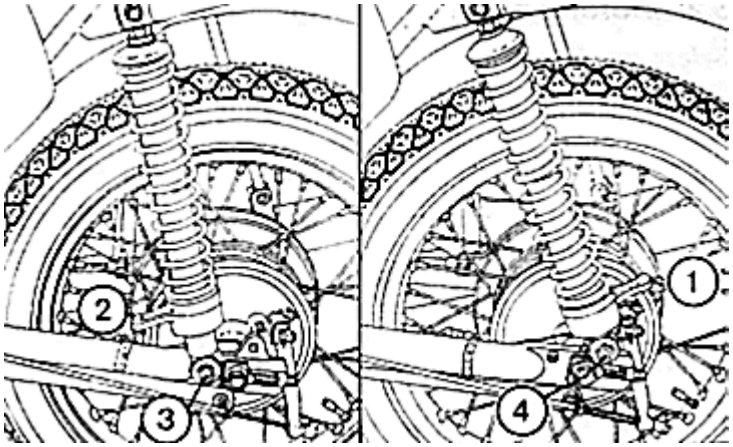

Fig. 9. Changing the pre-load on the spring

(1) Setting for single-person operation
(2) Setting for higher loads
(3) Fastening point for 'soft' springing
(4) Fastening point for 'harder' springing

3.2. Starting and Driving

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Before any ride, check the vehicle for reliability of operation and roadworthiness according to the Maintenance Chart (see Section 4.2.).

Starting

1. Shift the gearbox to neutral position (Fig. 7).
2. Switch an the ignition system (Fig. 3).
   Control light for dynamo will light.
   Control light for idling will light (de luxe model).
3. Open the fuel shut-off cock (Fig. 6).
4. **With the engine in a cold state:** Open the cold-starting device (Fig. 5).
   With the engine in a hot state: Leave the cold-starting device in the closed position.
5. **With the engine in a cold state:** Throttle-twist grip is in the neutral position.
   With the engine in a hot state: Open the throttle-twist grip for about one quarter of a revolution.
6. Vigorously actuate the kick-starter.
7. Close the cold-starting device when the engine readily accepts gas.

Notice! In the case of extremely low ambient temperatures, and when the engine has been subjected to several starting trials in vain, allow the engine to rest for 20s in order that fuel in the cold-starting device can be restored to normal level.

Driving

The temperature of the engine need not be raised when the vehicle is stationary, it rises during road operation. Actuate the clutch lever and shift gears, starting with the first gear in engagement. The operating ranges of the various gears are shown in Figs. 10 and 11.

Notice!

Only use the clutch for moving off and for shifting gears. When stopping for a prolonged period of time, shift to the neutral.

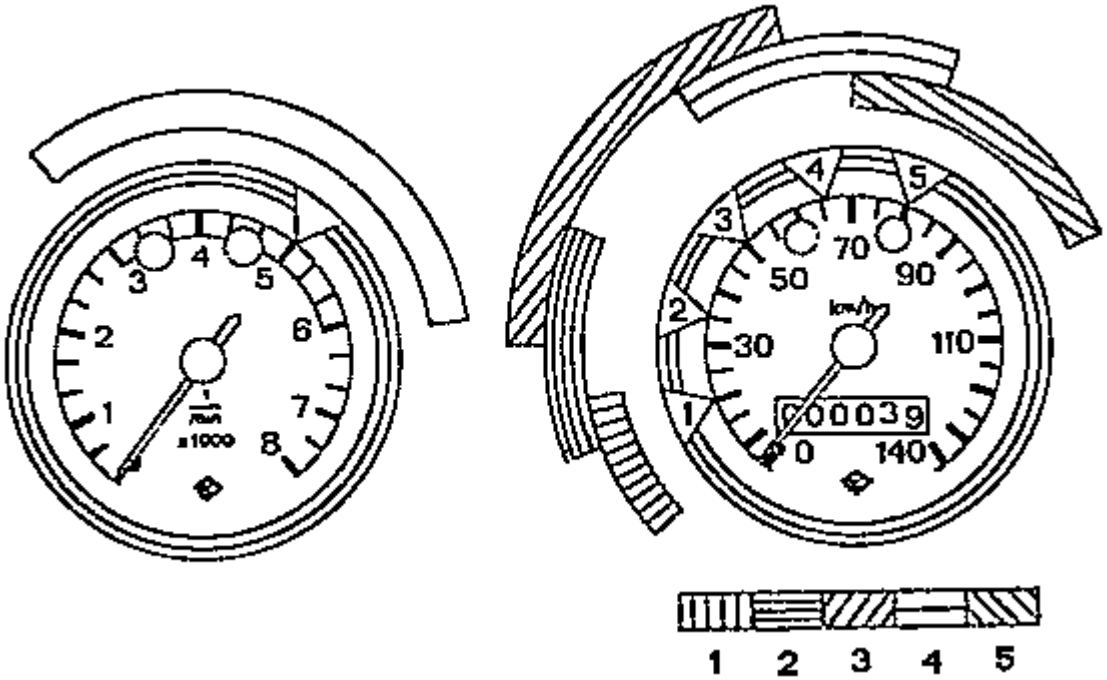

Fig. 10. Engine speed and travel speed ranges of ETZ 125

▽ Maximum engine speed and travel speed during the running-in period

▭ Main operating ranges (engine speed and travel speed) after the running-in period

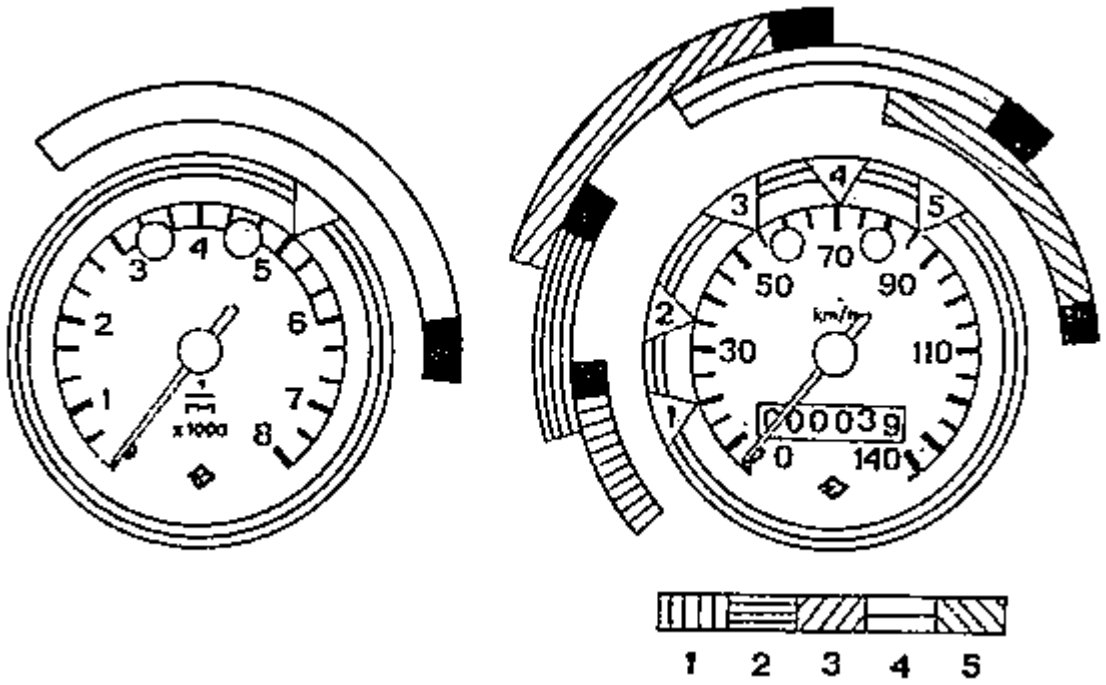

Fig. 11. Engine speed and travel speed ranges of ETZ 150

▽ Maximum engine speed and travel speed during the running-in period

▭ Main operating ranges (engine speed and travel speed) after the running-in period
The extension of the ranges shown in black applies to the ETZ 150 with an output of 10.5 kW

Braking

Always use both brakes, applying them in accordance with the given situation. Blocking brakes extend the braking distance and impair roadholding of the vehicle.

Parking

Switch off the ignition system, withdraw the ignition key. Close the fuel shut-off cock, turn the handle-bars to the right and block the steering system by

means of the thief-proofing device according to Fig. 8.

3.3. Information for Running-in

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A distance of 1,500 to 2,000 km is considered as running-in period for the engine. During this time, observe the following information.

1. Allow the engine with the vehicle in a stationary Position to run for as short a period as possible but move off and then the engine will soon reach operating temperature; in the case of a prolonged stop, shut off the engine.
2. Observe the ranges specified for the various gears in Figs. 10 and 11 during running-in, and change gears in time.
3. Systematically increase the travelling speeds and engine speeds until the end of the running-in period.
4. Frequently change engine speeds and travelling speeds. - Normal highways are suited better for running-in than superhigways (Autobahn)!
5. Strictly adhere to the specified inspections in an MZ-Service Workshop.

4. Maintenance

4.1. General Instructions

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The tool kit accomodated under the right-hand side panel enables you to perform almost all maintenance operations according to the Maintenance Chart. Take the Guarantee Regulations into consideration.

Have the faults removed that you found during the maintenance.

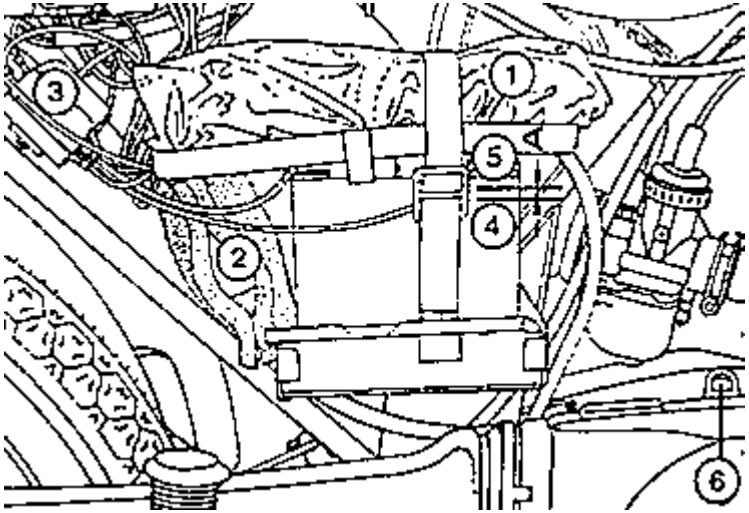

Fig. 12. Battery and tool accomodation

(1) Tool kit	(4) Top edge of plate
(2) Flasher unit (in foamed plastic pocket)	(5) Electrolyte level
(3) Fuse box	(6) Oil filling opening

A = 5 mm (level of electrolyte an top of plate)

4.2. Maintenance Chart

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Maintenance operations							
	before a ride	after a ride	after 500 km	every 2,500 km	every 5,000 km	every 10,000 km	every 20,000 km
Engine and gearbox							

Check the clutch clearance	x						
Check the gear oil level				x			
Change the gear oil			x[1]				x
Retighten the exhaust pipe mounting at the cylinder (93 Nm)			x[1]				
Check the engine fastening screws for tight fit						x	
Clean the carburetter, retighten the mounting of the individual parts			x[1]		x		
Check the carburetter tuning			x[1]	x[1]	x		
Checking the emission of noxious substances according to the values determined by law	annually						
Electrical equipment							
Check the lighting and signalling systems for proper functioning	x						
Check and adjust the sparking-plug				x			
Replace sparking-plug by a new one						x	
Check the contact-breaker gap			x[1]		x		
Check for advanced ignition			x[1]		x		
Apply three drops of Hypoid oil to the lubricating felt pad of contact-breaker cam			x[1]		x		
Check the level of the electrolyte in the battery				x[2]			
Cycle parts							
Check the brakes for proper functioning	x						

Check the brake fluid level in the reservoir	x						
Change the brake fluid	every two years						
Check the thickness of lining an brake shoes (disk brake)				x			
Wipe the guide tubes of the telescopic fork (model with protective cap)	x	x					
Telescopic fork - inspection for leaks	x						
Check the tyre inflation pressure	x						
Check amount of fuel in fuel tank	x						
Dismantle the fuel shut-off cock, clean the filter			x[1]		x		
Clean the air filter by tapping					x		
Wipe the air filter bowl					x	x	
Replace the air filter by a new one						x	
Check all accessible screwed connections for tight fit			x[1]		x		
Driving chain- check the sag				x			
Lubricate the driving chain				x			
Lubricate the hand levers and throttle-twist grip				x			
Dismantle the cable controls and oil them						x	
Oil the drive shafts for speedometer and revolution counter						x	
Dismantle the brake shoes at the front and rear, the brake cam at the front; clean and lubricate the points of support						x	

Lubricate the rear brake cam				x			
Clean and lubricate the wheel bearings						x	
Check the swing-arm bearing and the springing						x	

Have the faults removed that you found during the maintenance.

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x¹ On the occasion of the 1st and 2nd inspection under guarantee
x² or every four weeks

4.3. Lubrication Points (Figs. 13 and 14)

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Point of Lubrication		Lubricant
1	Adjusting sleeve for suspension unit	antifriction bearing grease
2	Speedometer drive	antifriction bearing grease (permanently lubricated)
3	Speedometer drive shaft	gear oil
4	Secondary chain	antifriction bearing grease
5	Gearbox	gear oil

6	Lubricating felt pad for contact breaker	Hypoid oil
7	Drive shaft for revolution counter	gear oil
8	Wheel bearings	antifriction bearing grease
9	Steering bearing	antifriction bearing grease
10	Hand brake lever	gear oil
11	Throttle-twist grip	antifriction bearing grease
12	Clutch lever	gear oil
13	Cable controls	gear oil
14	Guide tubes of telescopic fork, external (design without protective bellows)	gear oil
15	Bearing tube for prop stand	antifriction bearing grease
16	Swing-arm bearing bolt	graphited oil (only when mounting)
17	Pedal brake lever shaft	antifriction bearing grease
18	Brake cam, rear	gear oil
19	Brake cam, front, Brake shoe bearings, front and rear	antifriction bearing grease
20	Pressure spindle of clutch actuation	antifriction bearing grease

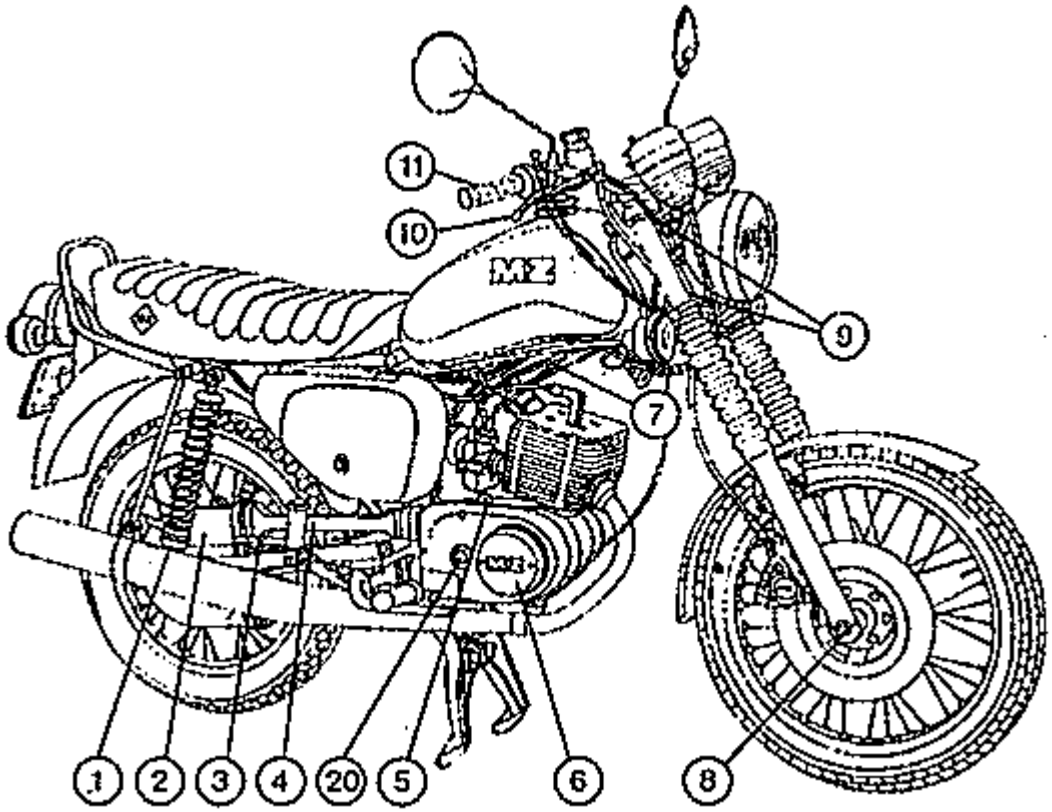

Fig. 13. ETZ 125/150 - View from the right (For explanation of the legends see Section 4.3.)

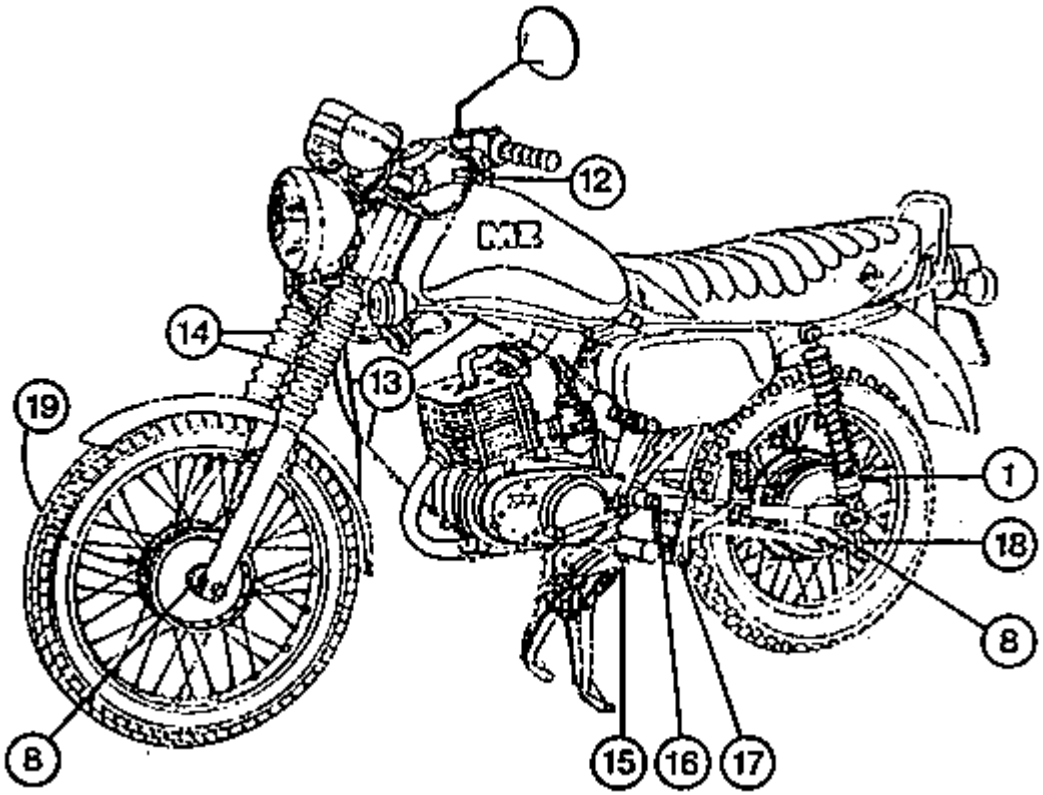

Fig. 14. ETZ 125/150 - View from the left (For explantation of the legends see Section 4.3.)

4.4. Gearbox Lubrication

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Checking the oil level

For this purpose, the vehicle must stand horizontally. This operation should be carried out about 15 min after the stopping of the engine or the filling

of oil. When the correct amount has been poured in, the oil level coincides with the lower edge of the checking hole.

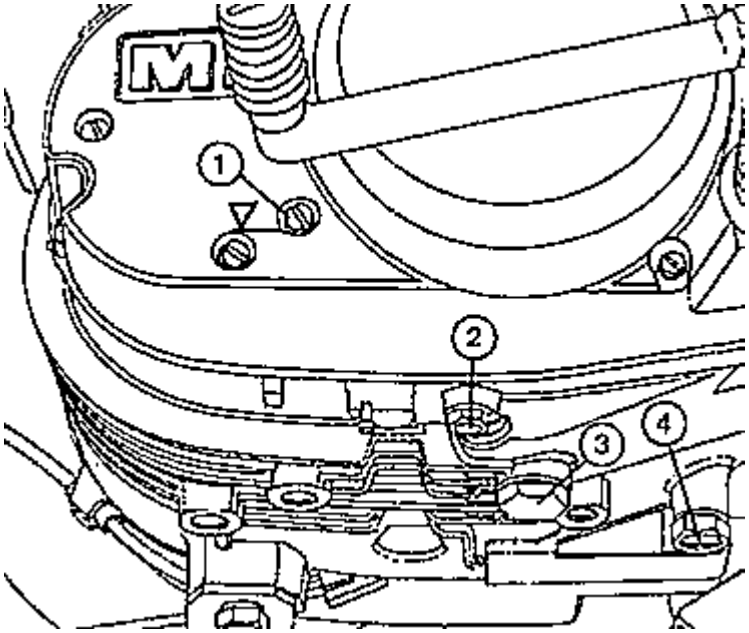

Fig. 15. Oil checking screw and oil drain screw plugs

(1) Oil checking screw
(2) Oil drain screw plug for clutch compartment
(3) Oil drain screw plug for gearbox
(4) Idle gear detent - **do not screw out !**

Arrow: Level of oil in gearbox

Oil change

For this purpose, the engine must be in a hot state, i. e. it must have operating temperature in order that abraded particles are drained together with the oil. Unscrew the two oil drain plugs. Clean the magnet in the screw (3). Replace the sealing rings, if necessary.

4.5. Clutch and Brakes

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Clutch

Adjust the clutch clearance of 3 mm by means of the adjusting screw (1). Lock the adjusting screw again. If the adjusting screw (1) is no longer sufficient for correcting the adjustment, then correct the coarse adjustment. For this purpose, slacken back the lock nut (Fig. 17) for one revo-

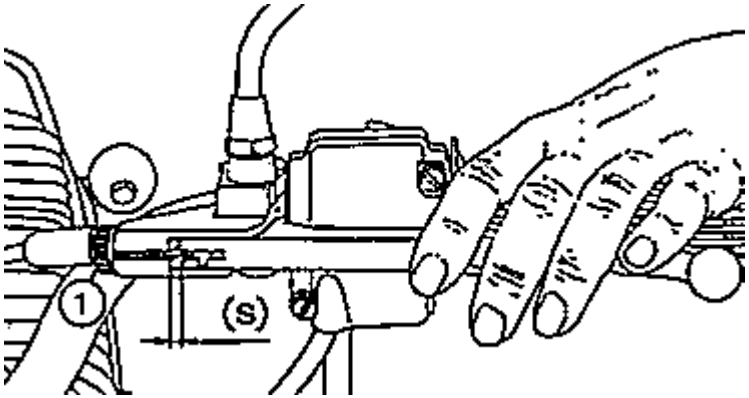

Fig. 16. Adjusting the clutch (also mechanical brake) at the hand lever

(1) Adjusting screw with check nut
(S) Clutch clearance

lution. Then screw down the adjusting screw until the stop can just be felt and then slacken it back through 3/4 of a revolution. Then fix this setting by means of the lock nut.

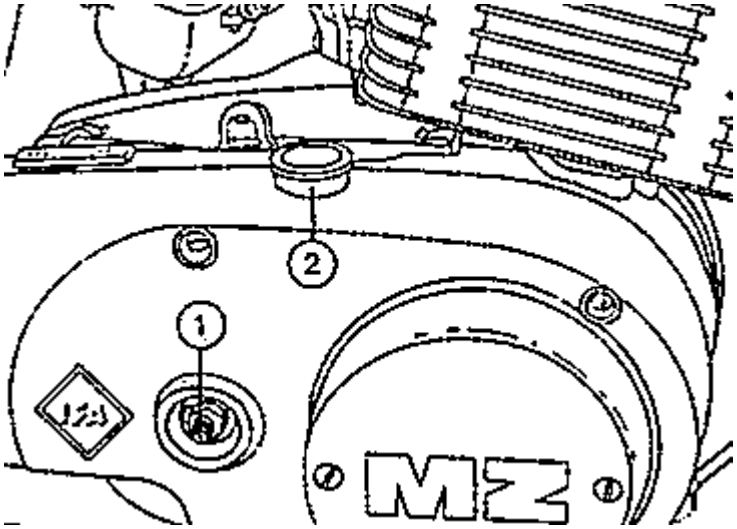

Fig. 17. Rough adjustment of clutch

(1) Adjusting screw and lock nut
(2) Covering cap

Mechanical brakes

Adjust the front mechanical brake at the hand lever to the dimension S = 3 to 5 mm (Fig. 16). When not actuated, the brake shoes must not slide. Adjust the pedal brake in such a way that, in a convenient sitting position, full braking effect is achieved with a short travel of actuation of the pedal. Then adjust the stop light switch:

- switch on the ignition system
- loosen the check nut
- actuate the brake lever - brake shoes are just applied enough to start sliding
- turn the contact screw until the stop light flashes up
- tighten the check nut

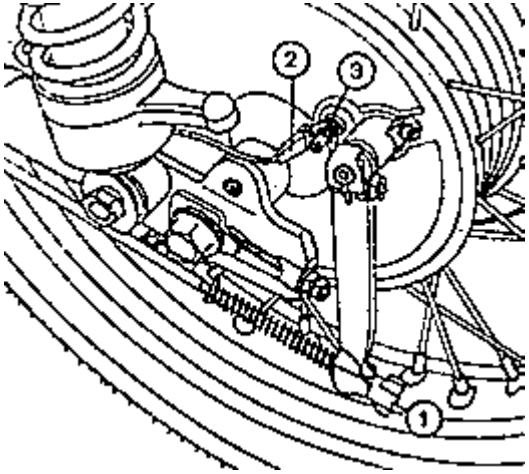

Fig. 18. Adjusting the rear wheel brake and stop-light switch

(1) Adjusting nut of rear wheel brake
(2) Connection cable
(3) Setting screw

Disk brake

The brake lever is not adjustable. Screw the stop light switch (1) into the jointed piece (9) only to such an extend that the stop light flashes up immediately at the beginning of actuating the brake lever while the brake lever in its rest position still contacts the jointed piece. The brake fluid level must be between the marks 'max.' and 'min.' on the reservoir. When closing the cover of the reservoir, put the hermetic bellows and the vent ring in

place.

The brake shoes must be replaced by new ones when their linings are worn down to minimum thickness.

Any work at the disk brake should be carried out by a specialised workshop.

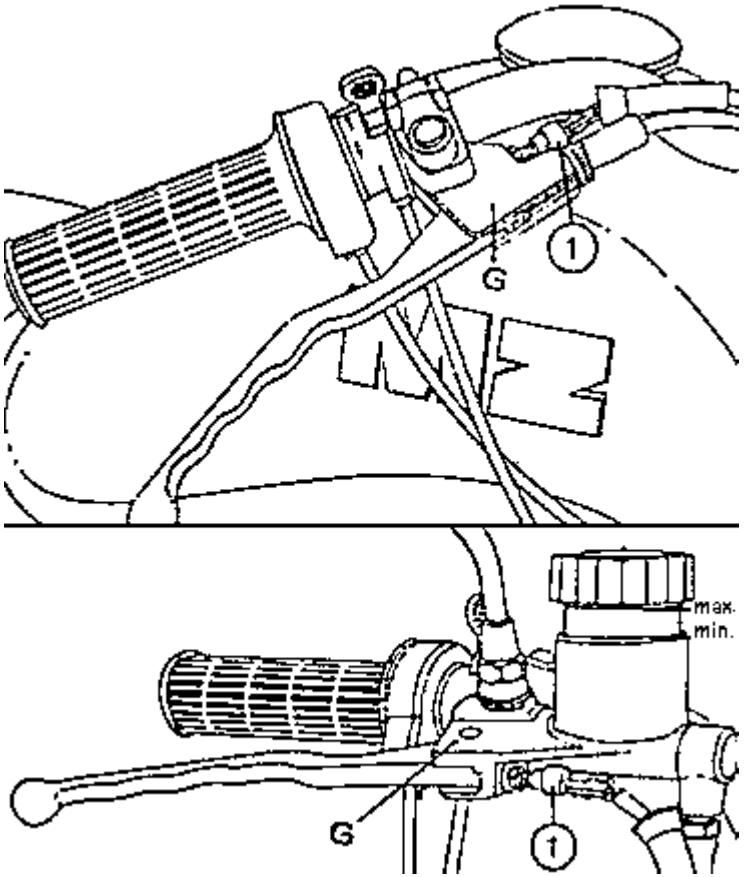

Fig. 19. Adjusting the stop light switch

(1) Stop light switch, front

(G) Jointed piece

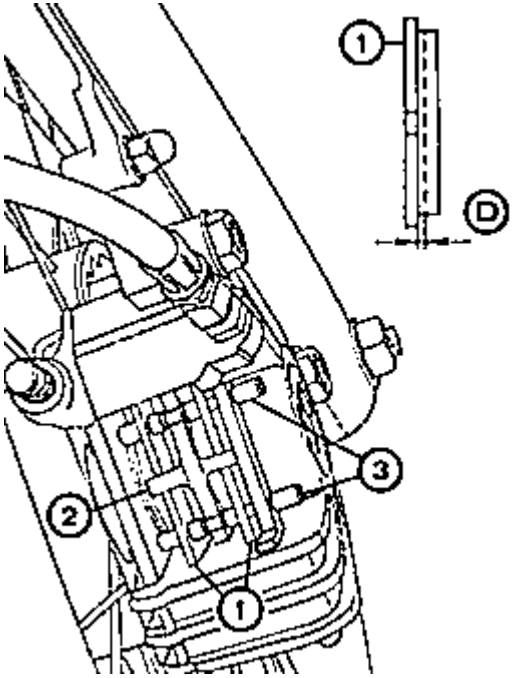

Fig. 20. Replacement at the brake shoes

(1) Brake shoes
(2) Return spring
(3) Fastening bolt
(D) Minimum thickness of brake lining (0.5 mm)

4.6. Fuel Feed, Carburetter, Induction System

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The fuel is cleaned in the fuel shut-off cock whose filter (F_2) (Fig. 6) can be cleaned after unscrewing the filter bowl. The Filter (F_1) (Fig. 6) in the fuel tank is only accessible when the fuel shut-off cock is unscrewed.

- Before screwing it off, drain the fuel.

Notice!

The screws for the spring plate for pressing an the lever (Fig. 6) must not be screwed down so far that they contact the housing.

Maintenance of the carburetter is limited to cleaning and the setting of the idling speed by means of the stop screw

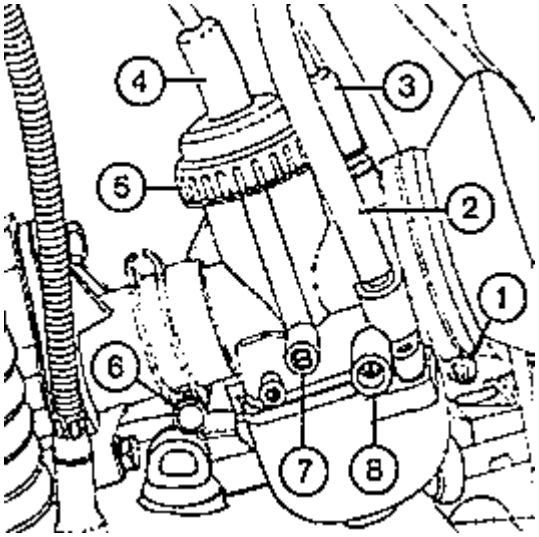

Fig. 21. Carburetter 22 N 2-2 or 24 N 2-2

(1) Clamping ring with screw
(2) Fuel feed
(3) Screwing of the cold-starting device with adjusting screw

(4) Adjusting screw for throttle - cable control
(5) Locking nut
(6) Clamping screw
(7) Stop screw for throttle valve
(8) Idling air adjusting screw

(7). For cleaning the carburetter, dismantle it in the order 1 to 6 (Fig. 21).

Notice!

Do not distort the float. Do not push wire through the jets - blow air through them.

Adjust the friction brake (B in Fig. 5) at the throttle-twist grip in such a way that the twist grip does not return automatically into the initial position and that it can still be turned conveniently.

The paper air filter is accessible after the removal of the battery (Fig. 22). Carefully tap the filter - do not wash it. Moist air filters must be dried or replaced by new ones. The induction system must be tight, that is to say, it must be assembled with every care.

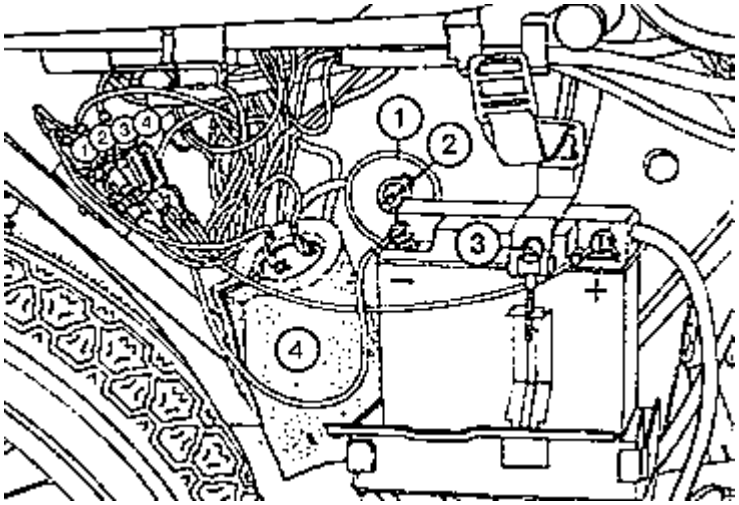

Fig. 22. Removing the air filter - position of fuses

(1) Cover for filter bowl (3) Battery holder
(2) Screwing (4) Flasher unit
Position of the fuses:
(1) Generator (T 2 A) (3) Main fuse (16 A) - positive line
(2) Direction indicator (4 A) (4) Main fuse (16 A) - negative line

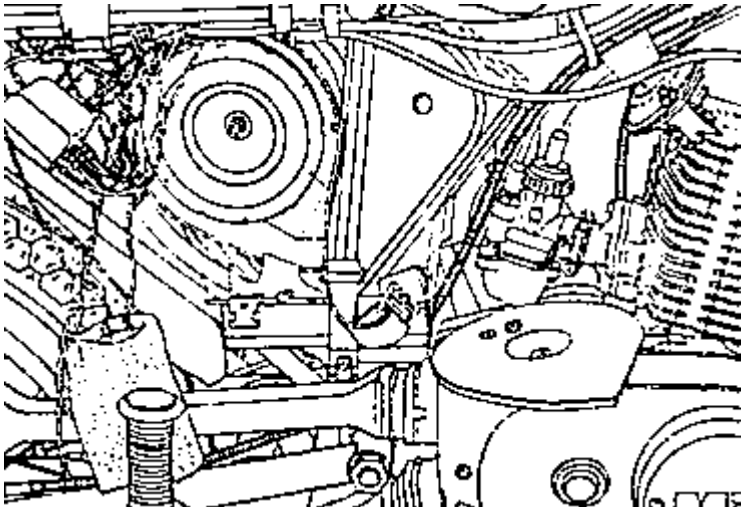

Fig. 23. Seat of air filter in filter bowl

4.7. Wheels and Tyres

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Removal and fitting the front wheel

Remove the wheel according to the sequence of numbers indicating the operations (Fig. 24). When having pulled out the axle, place it on the tool bag.

Press the brake shoes of the disk brake apart before fitting the wheel.

First tighten the axle nut (1), apply the hand brake and deflect the telescopic fork springs by hand, and then tighten the clamping screw (3) (Fig. 24).

Notice!

When the wheel is removed, do not actuate the hand brake lever of the disk brake.

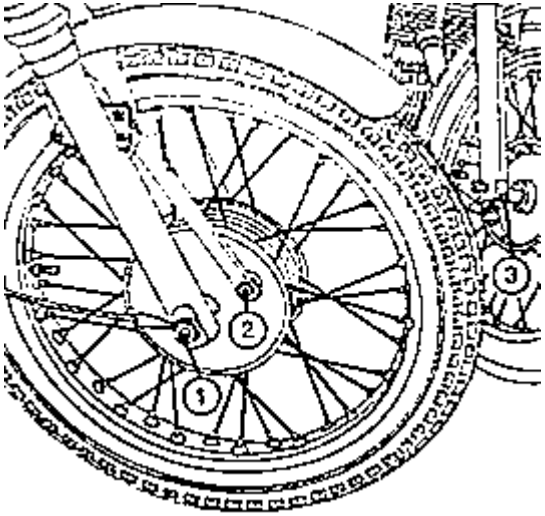

Fig. 24. Removing the front wheel (drum broke)

(1) Axle nut
(2) Fastening of the abutment brace
(3) Clamping screw

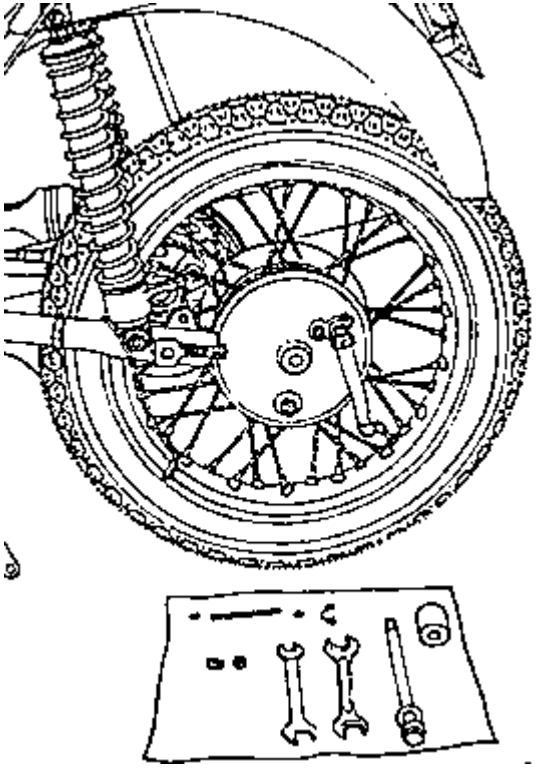

Fig. 25. Removal of rear wheel, 1st stage

Removal and fitting of the rear wheel

Place the wheel on the prop stand. Demount all parts visible in Fig. 25 and place them on the tool bag; bring the wheel into the position indicated and pull out the brake abutment.

When fitting the wheel, engage a gear of the gearbox - consequently, the dogs (Fig. 27) can be inserted more easily.

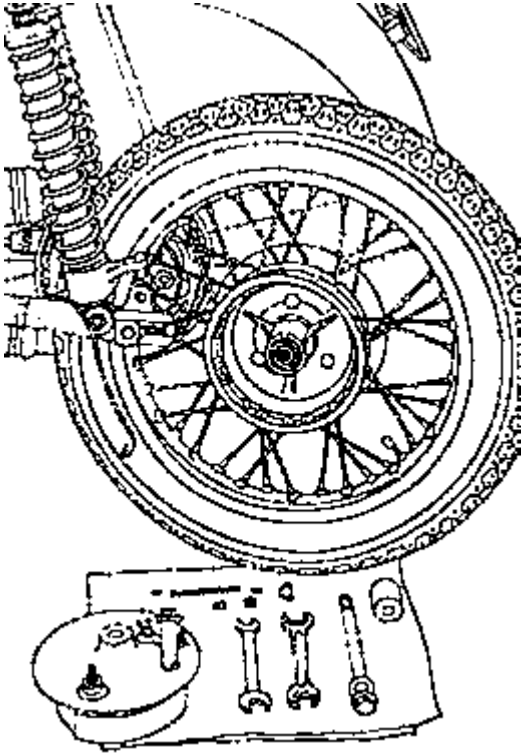

Fig. 26. Removal of rear wheel, 2nd stage

Changing tyres and inner tubes

Allow the air to escape and place the wheel on the ground. Protect the bearings by a rag placed under them.

At first, the tyre must be pushed off the rim round the whole circumference before it can be pressed into the well base opposite the valve. Then, starting from the valve, lift the tyre over the rim flange by means of the two tyre levers.

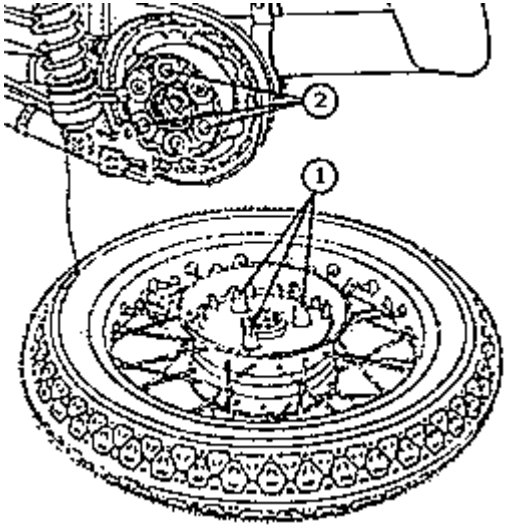

Fig. 27. Arrangement dog - damping rubber

(1) Dog
(2) Dog accomodation in damping rubber

Then remove the inner tube. Before putting the new inner tube in place, check the interior of the tyre for foreign particles and damage; apply talcum to the new inner tube, put it in place and, starting from opposite the valve, fit the tyre.

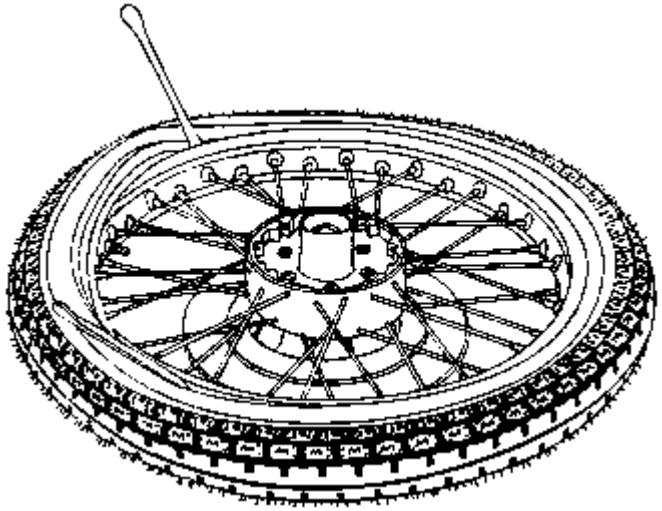

Fig. 28. Removal of tyre

Notice!

Do not squeeze or clamp the inner tube. After fitting, the tyre must run true; i. e. the check margin must be the same distance from the clinch at any point.

The inflation pump is arranged at the frame and accessible alter demounting the dual seat.

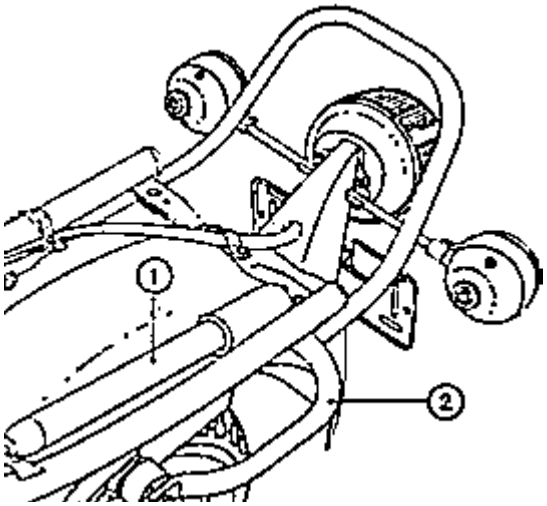

Fig. 29. Accomodation of the inflation pump

(1) Inflation pump
(2) Handle for propping up the motor-cycle

Care of the tyres

Before any ride, check the tyre inflation pressure. It must always correspond to the selected load on the vehicle. The tyres should be protected from intense direct insolation and fuel.

4.8. Rear Wheel Drive

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Checking the chain sag

Place the motor-cycle without any load on the prop stand. The upper chain protection hose with the chain inside must be slack enough to be pressed just down to the cross tube of the rear wheel swing-arm by two fingers. Turn the rear wheel during this checking operation.

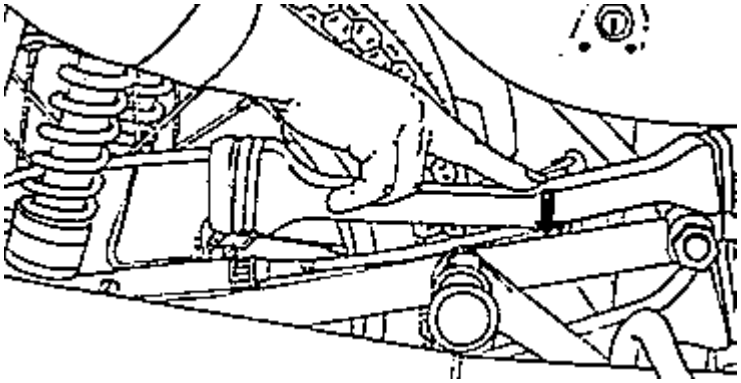

Fig. 30. Checking the chain sag

Tensioning the chain

The knock-out axle (1) and the nut for fastening the rear wheel drive must be loosened. Then uniformly turn the adjusting screw (3) of the two chain tighteners (2) and provide the screw with a check nut after setting (Fig. 31). Check the wheel track according to Fig. 32 by means of the check staff or by visual inspection from the front. The gap (S) results from the different widths of front wheel and rear wheel.

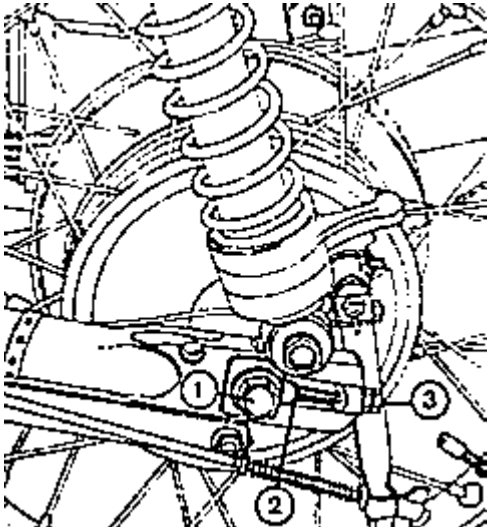

Fig. 31. Tensioning the chain

(1) Knockout axle
(2) Chain tensioner, left-hand side
(3) Adjusting nuts

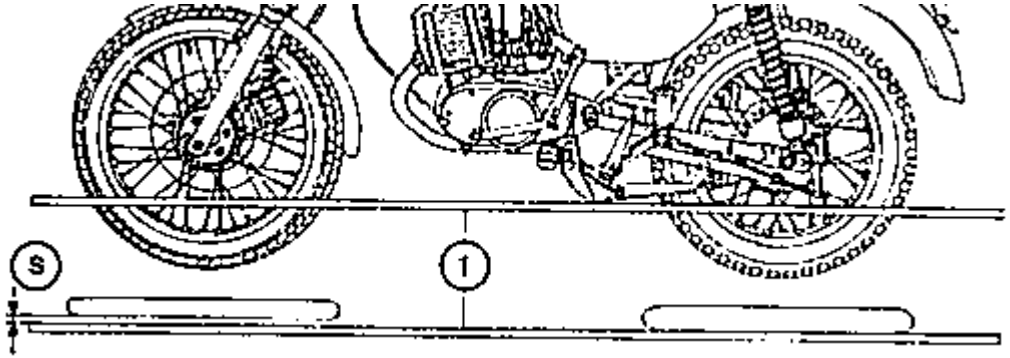

Fig. 32. Aligning the wheels

(1) Lath for alignment

(S) Gap between measuring lath and front wheel (about 0.7 cm)

Replacing the chain

If two rollers adjacent to each other or more than 5 rollers altogether are broken, or if the play between the chain joints is excessive, replace the chain by a new one and remove

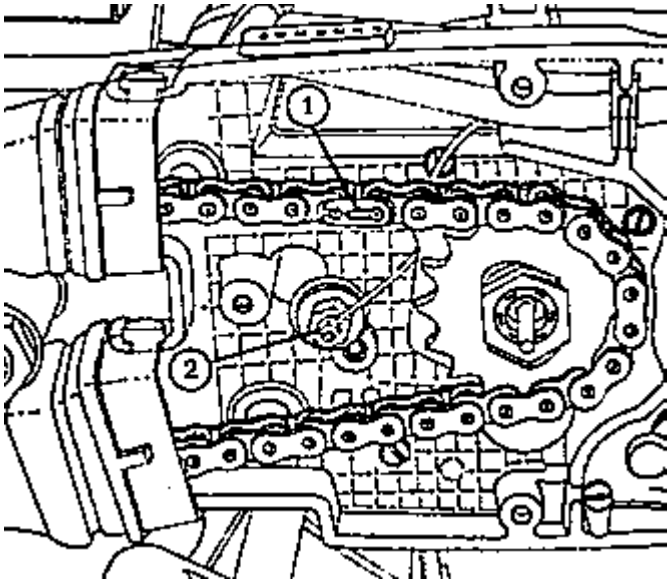

Fig. 33. Mounting position of the end spring of the chain lock

(1) End spring
(2) Idling switch

broken pieces of the old chain. You may attach the new chain to the old one and draw it through the chain protection. The locking spring clip of the

chain connecting link must be inserted so that the open end is opposite to the sense of rotation.

4.9. Electrical Equipment

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Take care to see to it that the insulation of the cables and electrical devices is always in proper condition and that all line connections are tight and free from oxide. Never replace blown fuses by other metal objects.

Electrical welding operations in the motor-cycle should only be done after the disconnection of the battery. No positive line must get into contact with the welding electrode.

Three-phase current dynamo

The three-phase current dynamo does not require any care. The charging-control lamp flashes up when the ignition system is switched on and will go out when the engine has started up. Faults are given when the control lamp fails to flash up or emits a dim light only upon switching an the ignition system or when it fails to go out when the engine is running.

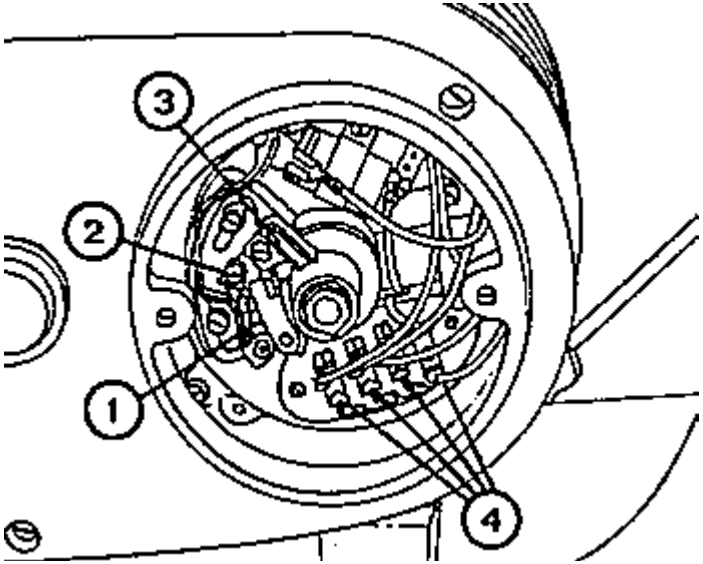

Fig. 34. Three-phase current dynamo and contact breaker

(1) Contact breaker
(2) Setting eccentric for contact breaker
(3) Lubricating felt pad for contact breaker
(4) Cable connection for the dynamo

Ignition system

This system includes contact breaker (Fig. 34), ignition coil (Fig. 35) and sparking-plug. Ignition timing and the adjustment of the contact-breaker gap must be left to a specialised workshop. Provide the lubrication felt pad withs 3 drops of Hypoid oil, if necessary. The felt should just touch the highest point of the cam. Clean the sparking-plug at the specified intervals and readjust the electrode gap. Keep the plug connector clean and dry inside. Colour deviations of the plug body - normal colour is, depending an the driving habit, grey-yellow to light brown - are indicative of faults or defects which have to be removed by a workshop.

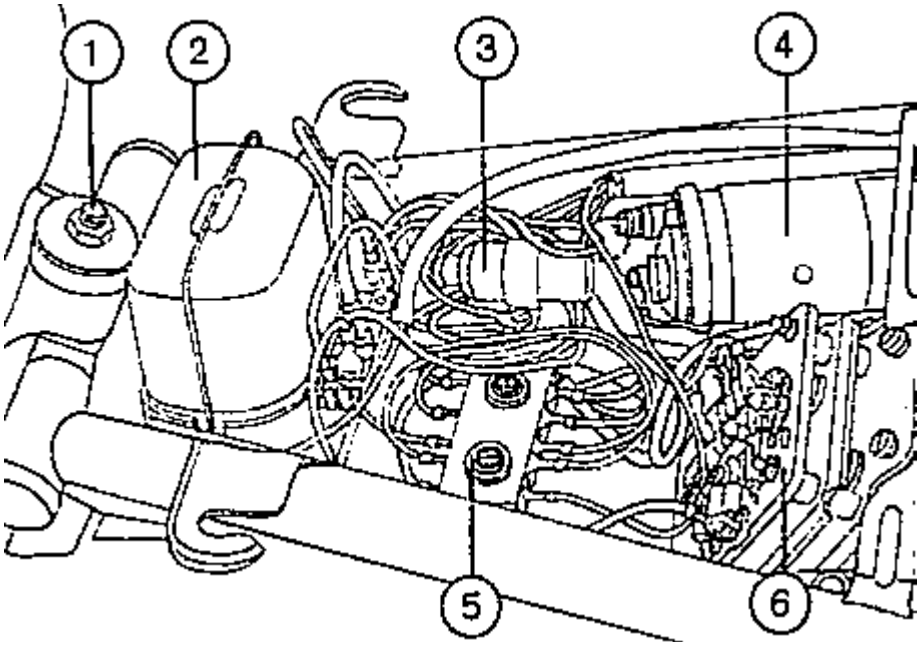

Fig. 35. Electrical equipment under the dual seat

(1) Fastening of the fuel tank
(2) Regulator of the dynamo
(3) Interference suppression capacitor
(4) Ignition coil
(5) Line connector at chassis
(6) Rectifier of the dynamo

Battery

The battery terminals and the pole connections must always be kept clean and, after cleaning, be provided with a film of grease for battery terminals. Check the level of the electrolyte (Fig. 12) regularly at an interval of about four weeks.

For topping up, only use distilled water.

When the vehicle is inoperative for a prolonged period of time, re-charge the battery once a month.

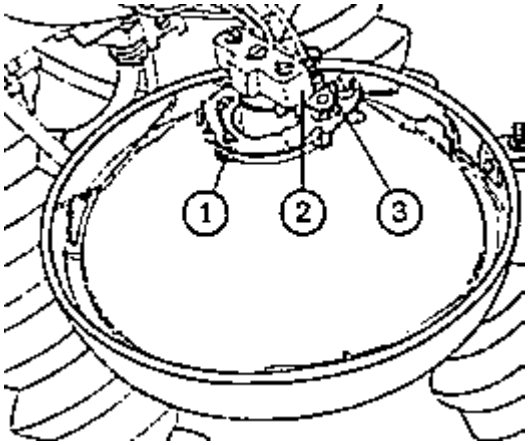

Fig. 36. Replacement of electric bulbs for headlamp

(1) Retaining spring
(2) Connecting piece of twin-filament bulb
(3) Cable for parking lamp

Notice!

When changing by mistake the battery cables (positive and negative), diode of the rectifier and battery will be destroyed.

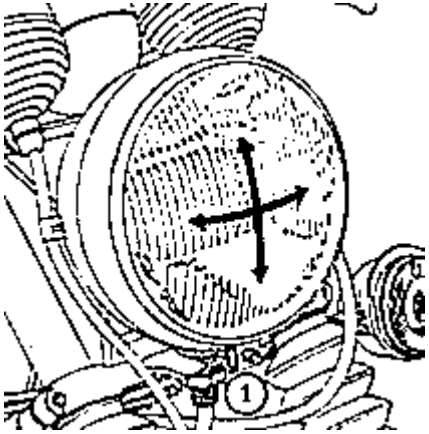

Fig. 37. Mounting of headlamp

(1) Fastening screw

Headlamp

When replacing the twin-filament bulb by a new one, take care that the lamp properly engages with the reflector.

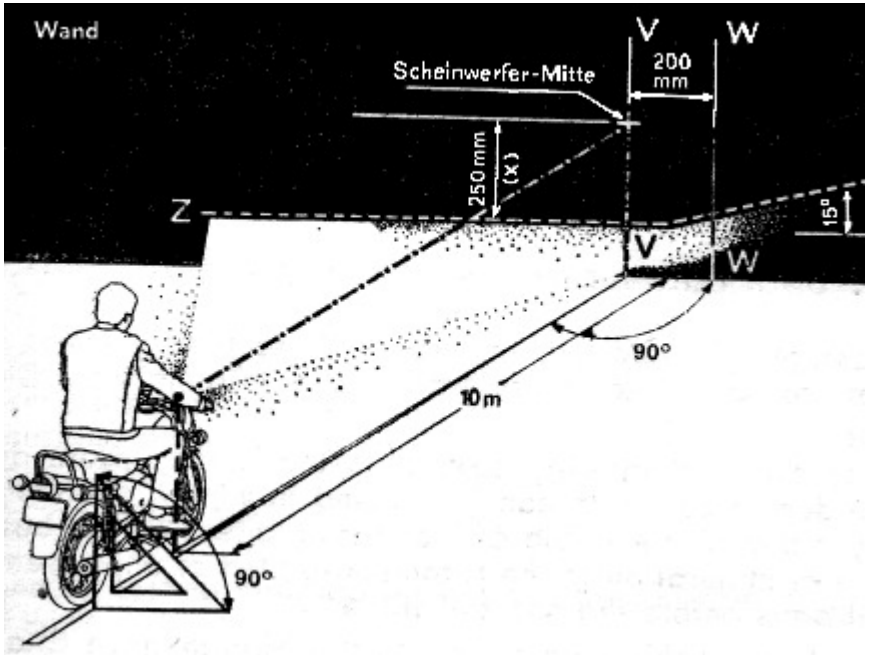

Fig. 38. Focusing and adjustment diagram for headlamp

Wand	Wall
Scheinwerfer-Mitte	Headlamp Centre

The contacts must be clean and put on correctly. Do not touch the glass bulb of the incandescent lamps with your fingers!

Adjust the headlamp according to the schematic representation in Fig. 38. For this purpose, load the vehicle with the driver and set the suspension units to 'soft'. For adjusting, loosen the headlamp mounting - now, the headlamp can be turned to any side.

Direction indication

The operation of the flashing-light direction indicators can be observed at the edge (Fig. 39/1) or at the control lamp (Fig. 2/4 or Fig. 3/11). When one flashing-light direction indicator fails, the other one will flash, and thus the control lamp, at double the normal frequency.

4.10. Information about Winter Operation

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We ask all of our customers who will use their vehicles in winter, to take into consideration the information given below.

Due to chemical thawing agents on the roads, severe damage due to corrosion can be caused in winter. Therefore, apply a film of a suitable anti-corrosion agent on the basis of wax or mineral oil to the chromium-plated or unprotected metal parts before the onset of winter.

Lubricate the vehicle according to the Maintenance Chart. Parts such as the guide tubes of the telescopic fork, which cannot be protected for a longer period of time, must be treated with an anti-corrosion agent after every ride in winter.

At the end of the winter season, the preserving agents can be removed.

5. Faults and Their Remedies

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Fault	Remedy
No voltage in the electrical system	
One or the two fuses defective	replace the fuses and remove the short-circuit
Battery insufficiently charged or defective	charge the battery or replace it by a new one
Cable broken or corroded at the connections	repair the cable, clean the connections

Dynamo defective	repair it
Ignition system switched on but charging-control lamp fails to light	
No voltage in the electrical system	all that has been said above applies
Ignition switch defective	replace it
Electric bulb defective	replace it
Fuse of the flashing-light direction indicator system defective (only standard design)	replace it by a new one
Ignition system switched on, charging-control lamp emits a dim light	
Lamp holder makes poor contact	clean the contacts
Cable DF between dynamo and regulator interrupted or fuse 4 (2 A) defective	repair or replace it by a new one
Rectifier defective	replace it by a new one
Rotor of the three-phase current dynamo defective	replace it by a new one
Cable U, V or W interrupted	repair it
Charging-control lamp lights while the engine is running	
Three-phase current dynamo, regulator or rectifier defective	have them repaired
Cable between three phase current dynamo, regulator, rectifier and battery defective	have it repaired
Electric bulbs in headlamp or tail lamp fail to light	
No voltage in the electrical system	see above

Electric bulbs defective or poor contact	replace them and/or clean them
Cable defective	repair it
Dimmer switch or ignition light switch defective	replace them
Stop lamp fails to light	
No voltage in the electrical system	see above
Electric bulb defective or poor contact	replace and/or clean them
Cable defective	replace it
Stop-licht switch incorrectly adjusted	adjust it
Direction indicator system defective	
No voltage in the electrical system	see above
Fuse of the flashing-light direction indicator system blown	replace it and remove the short-circuit
Flasher unit defective	replace it
Electric bulbs defective or poor contact	replace and/or clean them
Cable defective	repair it
Ignition system emits no or irregular sparks	
No voltage in the electrical system	see above
Sparking-plug wet	dry the plug, close the fuel shut-off cock and, with the ignition system switched off and the plug removed, actuate the kick-starter several times
Sparking-plug defective or oiled up	replace it or clean it

Plug connector wet or insulation broken	dry it or replace the defective part
Contact-breaker contacts fail to open	set the assembly or replace the contact-breaker by a new one
Contact-breaker oiled up	clean it
Cable between contact breaker and ignition coil defective or poor contact	repair it or clean the parts in question
Ignition coil defective	replace it by a new one
Capacitor defective	replace it by a new one
Fuel feed impaired	
No fuel in fuel tank	fill in fuel
Vent hole in cap of fuel tank clogged	clean it
Filter in fuel shut-off cock dirty	clean it
Packing under the lever at the fuel shut-off cock squeezed	replace it by a new one
Carburetter overflow	
Float valve sticks	clean it or replace it
Float leaky	replace it by a new one
Float extremely maladjusted	adjust it
Engine fails to start	
Fuel feed impaired	see above under this headline
Ignition system fails to produce a spark	see above under this headline

When cold starting, cold starting device not open, throttle twist grip opened too muck	see Section 3.2.
When the engine is in a hot state, cold-starting device opened	see Section 3.2.
Engine runs erotically	
Fuel feed impaired	see respective Section above
Ignition system emits irregular sparks	see respective Section above
Induction system or air filter faulty	remove the fault
Engine fails to pull	
Carburetter tuning wrong	regulate it
Ignition timing incorrect	readjust it
Air filter wet or induction system clogged	replace it or dry and clean it
Riding with the incorrect gear in engagement	see Section 3.2.
Clutch slips	adjust clutch clearance
Exhaust pipe clogged due to wrong driving habit	clean exhaust pipe by driving for 10 to 20 km at high engine speeds with the throttle fully open
Excessive fuel consumption	
Air filter wet or induction system clogged	replace it, dry and clean it
Carburetter tuning wrong	have it regulated
Wrong driving habit	see Section 3.2.

Cold-starting device fails to close	adjust a clearance of 2 mm at the cable control
Uncommon noise when shifting gears	
Clutch defective or improperly adjusted	adjust or repair it
Idling speed too high	adjust it
Gear oil level too low	top up with oil
Rear wheel springing deflects too much	
In spite of a high load, suspension units screwed in the front tapped holes of the rear-wheel swing arm	fasten the suspension units in the rear tapped holes
Adjusting sleeves not set to 'hard'	re-adjust the adjusting sleeves
Permissible total mass exceeded	strictly adhere to the permissible total mass
Poor roadholding properties	
Tyre inflation pressure wrong	inflate the tyres correctly
Tyre tread worn	replace tyres by new ones
Wheel track wrong	adjust the track
Brake fails to stop	
Brake shoes worn	re-adjust the cable controls, replace the brake shoes
Brake disk oiled up	clean the disk and the brake shoes
Brake blocked	
Brake ring or brake disk oxidised because vehicle was inoperative for a prolonged period of time	after a prolonged period of time of inoperation, carefully brake the vehicle several times - always use the front wheel brake together with the other brake

Lost motion of hand brake lever is excessive (disk brake)	
Air in brake system	have the brake system bled in a specialised workshop
Compensation hole in brake cylinder is not released	have the clearance of the hand brake lever re-adjusted in a specialised workshop
Brake fluid level in reservoir too low	
Brake shoes worn	replace the brake shoes by new ones
Brake lines leaky	have the brake system repaired

6. After-sales Service

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In all of your inquiries, please, give full information both as to your vehicle and as to the defect presumed. As a rule, however, you should call on one of our authorised Workshops. We are not in a position to deliver spare parts directly to you. We only deliver spare parts to our authorised Workshops and MZ special sales shops and to our importers in foreign countries.

7. For Making the Motor-cycles Complete

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For reasons of facilitating transport, a few parts have not been mounted by the manufacturer. These parts must be mounted subsequently in order to complete the vehicle. When connecting the rear lighting fittings to the line connector, ground point and fuse box, observe the wiring diagram.

Correctly attach the flashing-light direction indicators and do not omit the packings between flashing-light direction indicator and its carrier. Remove the foil from under the oil filler screw plug in order that the ventilation of the gearbox compartment becomes free.

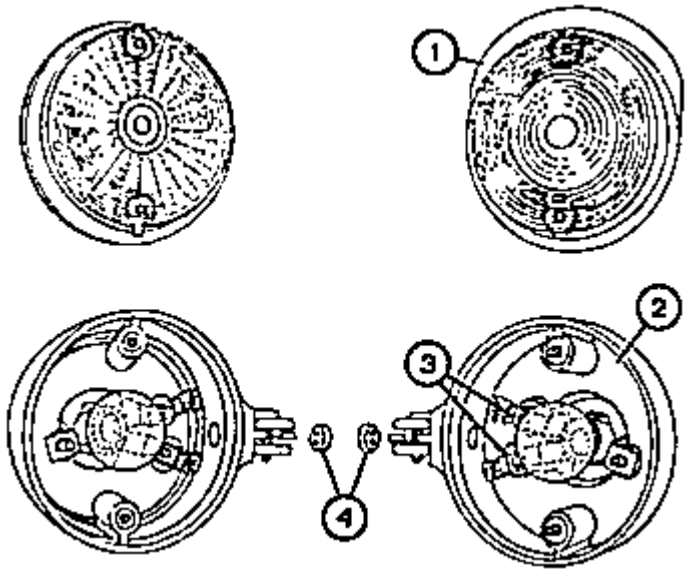

Fig. 39. Flashing-light direction indicators (on the left rear, on the right front)

(1) Edge for checking the flashing procedure
(2) Plastic reflector
(3) Terminals
(4) Packing

8. Fresh-oil Dosing Device

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If your ETZ is provided with an oil proportioning device, please, observe the following instructions in addition to the explanations given in the general Operating Instructions.

Fuel	Octane rating 88 **without** admixture of oil
Engine lubrication	Branded two-stroke oil. The oil is kept in the oil container under the intake silencer (capacity about 1.3 l) and is pumped into the crankcase by means of a Mikuni oil pump.
Actuation of the pump	By means of the throttle twist-grip
Range of operation	Depending an the driving habit, up to about 1,600 km with one oil filling
Putting into operation	Will be carried out by the seller in accordance with the instructions given by the manufacturer (trailer under the oil filler plug)
Care and maintenance	
Before any ride:	Checking the oil level in the oil reservoir (oil sight glass or marking at the lower part of the screw plug)
After every 2,500 km:	Checking the actuating cable control for wear and the oil pipes for tight fit.
After every 5,000 km:	• lubricating the actuating cable control • checking the setting of the pump and, if required, re-adjusting it (Fig. 40) When the markings (3) are **not opposite**, then 1. remove the idling speed by screwing out the stop screw for the throttle valve (7, Fig. 21); 2. set the engine speed to 1,200 to 1,500 rpm by means of the throttle twist-grip;

	3. re-adjust the cable control by means of the setting screw (2) until the markings coincide; 4. set the idling speed to 1,200 to 1,500 rpm.
Repairs	• The oil pump is not intended for repairs. If required, have a new pump installed. • The fastening screws have to be tightened uniformly with a torque of maximum 2.5 Nm in order that the fastening flange of the pump will not be distorted. • Before putting into operation the new pump, bleed it (1, Fig. 40) and newly adjust the pump.

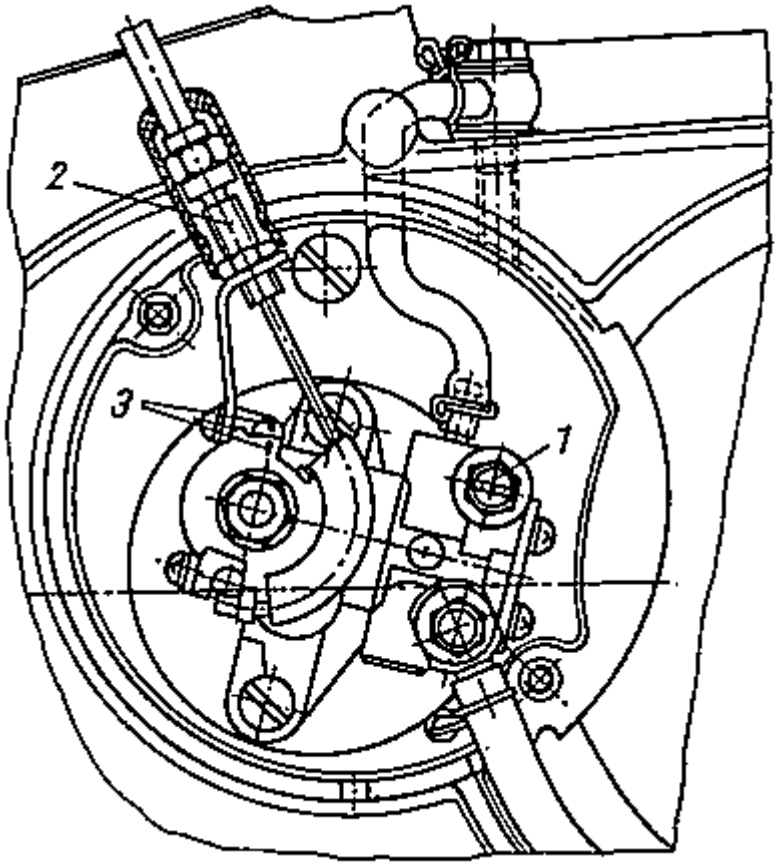

Fig. 40. Maintenance of the dosing pump

(1) Bleeder screw
(2) Cable control setting screw
(3) Marking of the setting point

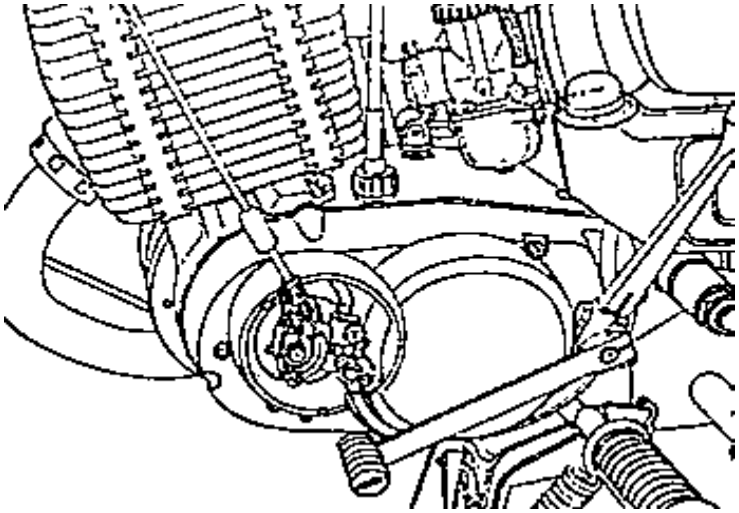

Fig. 41. ETZ 125/150 with oil dosing device