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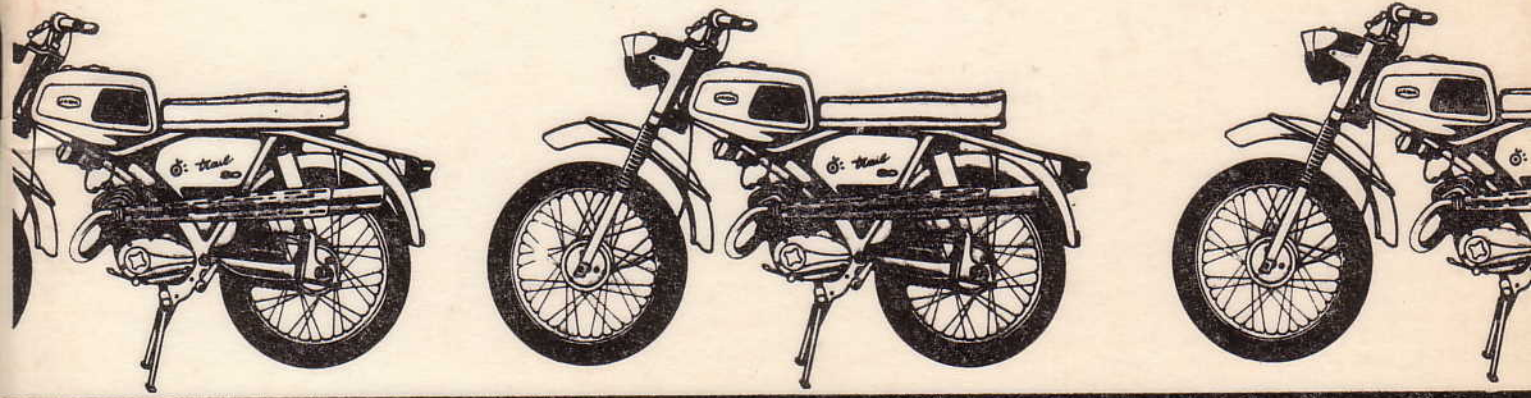
HANDLING INSTRUCTIONS



POVAŽSKÉ STROJÁRNE POVAŽSKÁ BYSTRICA

INSTRUCTIONS FOR USE AND MAINTENANCE

of Motor Cycles Under 100 c. c.

JAWA

Manufactured by: Považské strojárne, n. c., Považská Bystrica

Exported: Motokov ● Praha ● Czechoslovakia

1969

Your new motor cycle is a single track motor vehicle of an up-to-date design, intended for a comfortable and quick transportation of one or two persons. Smart appearance, ample equipment, easy handling and modest servicing requirements will meet even your exacting demands. This handbook will help you to become familiar with your machine and to learn about its servicing, will advise you on methods of maintenance and removing of simple defects. Follow the instructions compiled in this manual in your own interest in order to avoid defects and damage to your machine.

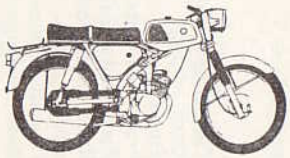
We wish you many beautiful, troublefree, and pleasant kilometres with your machine.

Považské strojárne, n. c.,
Považská Bystrica

The present manual is not decisive for design arrangement and equipment of the motor cycle. Changes may be carried out as a result of development work which may differ from illustrations and description in the following text.

Keys for the seat lock are under a detachable cover at the R. H. side of the motor cycle, inserted under the microfilter retaining rubber band.

Jawa Kit-Design Motor Cycles



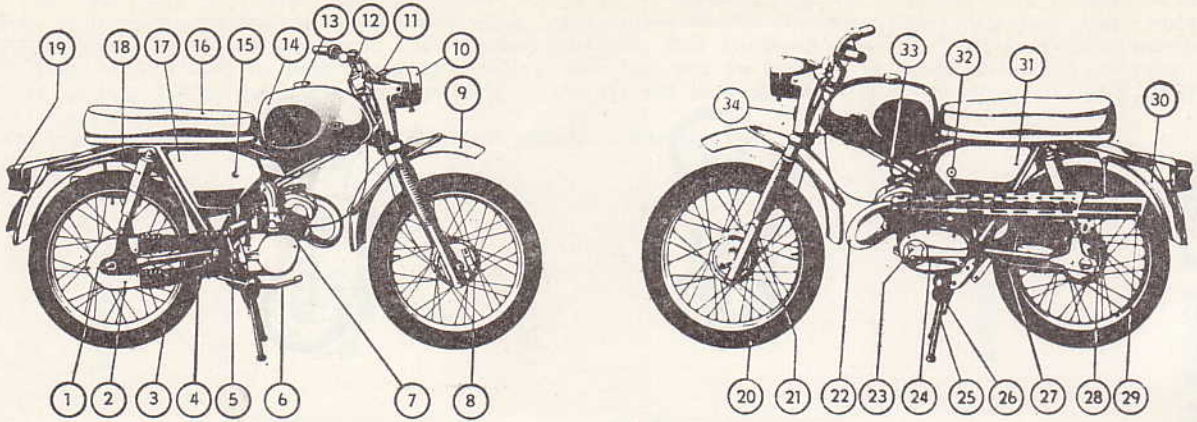
STANDARD

SCOOTERIZED

CROSS

SPRINT

ROADSTER



1 – Survey of vehicle parts and control elements

1 Chain adjusting screw
2 Sprocket shield
3 Rear wheel
4 Chain rubber guard
5 Kick-starter lever
6 Brake pedal
7 Carburettor
8 Front brake adjustment screw
9 Front mudguard
10 Headlamp
11 Speedometer
12 Handlebar
13 Fuel tank filler plug
14 Fuel tank
15 Box screw
16 Seat
17 R. H. box
18 Rear telescopic shock absorber
19 Tail lamp
20 Front wheel
21 Front telescopic forks
22 Exhaust tube elbow
23 Circuit breaker cover
24 Gear change pedal
25 Stand
26 Front foot rests
27 Rear brake tie-rod
28 Rear brake adjusting screw
29 Exhaust silencer
30 Rear mudguard
31 L. H. box
32 Switch box
33 Fuel shut-off cock
34 Horn

I. TYPE MARKING OF KIT-DESIGN MOTOR CYCLES

	Cylinder Capacity			
	50 c. c.		90 c. c.	
	Ignition			
	M	T	M	T
	Type-Code No.:			
CROSS	50.30	50A.30	53.30	53A.30
ROADSTER	50.31	50A.31	53.31	53A.31
SCOOTERIZED	50.32	50A.32	53.32	53A.32
SPRINT	50.33	50A.33	53.33	53A.33
STANDARD	50.34	50A.34	53.34	53A.34

M – Magneto ignition

T – Transistorized ignition

II. Technical Data

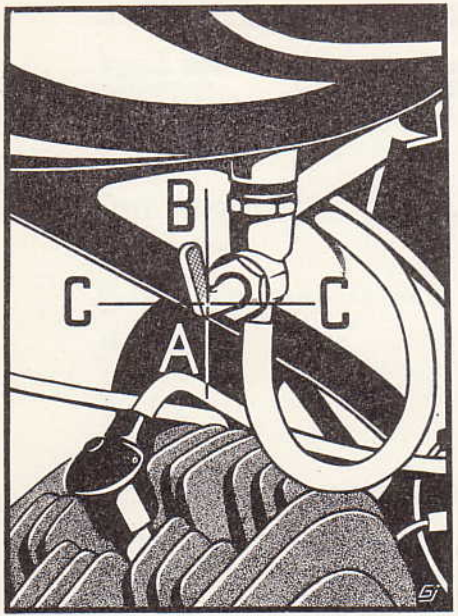
	50 c. c.	90 c. c.
Engine type	single-cylinder air-cooled two-stroke with a disk-type slide valve	
Bore/Stroke, mm	40/39.5	48/49
Cylinder Capacity, c,c,	49.63	88.7
Compression ratio:		
CROSS	1:9.5	1:8.5
All other types	1:9.5	1:8.8

	50 c. c.	90 c. c.
Maximum engine output,		
h. p. per r. p. m.		
	DIN 5.5/7500	9.5/6500
	SAE 6/7500	10.5/6500
Engine starting	JIKOV 2917 SK	JIKOV 2920 SK
Carburettor	with paper microfilter cartridge	by kick-starter
Intake Air cleaner	four-disk,	five-disk
Clutch	by handle at L. H. handlebar end	
Clutch control	with five forward gears	
Gearbox	by foot-pedal at L. H. side of engine	
Gear change		
Transmission		
Primary transmission	16/65	20/61
Gearbox		
1st gear	11/40	
2nd gear	16/35	
3rd gear	20/31	
4th gear	23/28	
5th gear	25/26	
Secondary transmission	15/38	15/34
Transmissions		
1st gear	1 : 37.41	1 : 25.14
2nd gear	1 : 22.51	1 : 15.12
3rd gear	1 : 15.95	1 : 10.72
4th gear	1 : 12.52	1 : 8.41
5th gear	1 : 10.71	1 : 7.19
Starter transmission	1 : 9.97	1 : 7.48

Ignition

a) magneto — Mk. 02-9210.30 ignition coil of 8 volts, and circuit breaker
b) transistorized — TRANZIMO Mk. TK 60 unit

Spark plug	PAL 14-8R
Alternator (with pulse coil for transistorized ignition)	12 volts, a. c., 65 watts
Tyres-front	2.5"×18", M10 tread design; 2,75"×18", M9 tread design
-rear	2.75" x 18", M 9 or S 22 tread design
Vehicle weight	
(differing according to type), between kg	76–80
Fuel tank, overall volume, litres	10.5
reserve, litre	1.5
Permissible load	
(2 persons and luggage), kg	160
Tyre inflation pressures:	
front – driver only, kp. per sq. cm.	1.3
driver and passenger, kp. per sq. cm.	1.4
rear – driver only, kp. per sq. cm.	1.7
driver and passenger, kp. per sq. cm.	2.7
Brakes	internal expansion brakes of 125 mm diameter, friction lining width 25 mm
Brake control – Front	Handle at R. H. side of handlebar
– Rear	foot-pedal at R. H. side of engine
Bulbs	
Headlamp	12 volts, 25/25 watts, Ba 20 d
Parking light	12 volts, 1.5 watt, Ba 9 s
Speedometer illumination	12 volts, 1.5 watt, Ba 9 s
Stop light	12 volts, 15 watts, Ba 15 s
License number plate Illumination	12 volts, 5 watts, Ba 15 s
Distance beam warning light	12 volts, 1.5 watt, Ba 9 s



2 – Fuel cock

III. CONTROL ELEMENT AND THEIR SERVICING

a) Fuel cock

Fuel cock lever has the following positions (Fig. No. 2):
A – Main fuel supply open
B – Reserve fuel supply open
C – Fuel supply shut off
The fuel reserve should cover a driving distance of between 30 to 60 km (depending on load, travelling speed and road profile): therefore the fuel tank should be replenished at the nearest filling station, if the cock lever is in the „B" position. For parking or „stabling" of the motor cycle, the shut-off cock lever should be set to horizontal position (C).

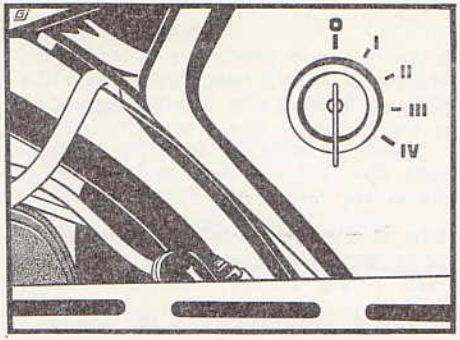
b) Switch box

By inserting the ignition key and its turning to the respective positions the individual circuits of the electric system are closed (Fig. No. 3).
The respective circuit then remains closed in the position shown by a groove on the switch box even if the key is pulled out. The horn and the stop light can be actuated regardless of the position of the groove (or of the key) of the switch box.

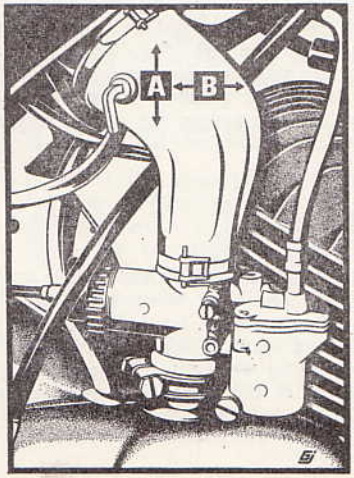
c) Air shut-off flap

The air shut-off flap is fitted in the connecting elbow of the carburettor with the intake air cleaner. It is controlled by means of a lever which has the following positions
(Fig. No. 4):

A – air supply open
B – air supply shut-off.



3 – Switch box



4 – Air shut-off flap

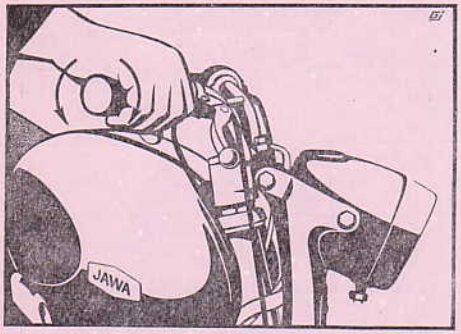
Ignition key position:	Condition:	Contacts closed:	Ignition	Number plate illumination 5 Watts, parking lamp 1.5 Watt, speedometer illumination 1.5 Watt	Headlamp 22/25 Watts
0	Off				
I	Day driving	1b – 1c	0		
II		1b – 1c 58 – 58a, c	0	0	
III	Night driving	1b – 1c, 55 – 55a 58 – 58a, c	0	0	0
IV					

d) Kick-starter pedal

Before cranking the engine, the gearbox should be checked for neutral gear engagement. Then the engine should be cranked by means of the kick-starter lever at the R. H. side of the engine (item No. 5, Fig. No. 1).

e) Clutch lever (Fig. No. 23)

The clutch control handle is located at the left-hand end of the handlebar. It serves to withdraw and to engage the clutch during gear shifting.



5 – Twist-grip

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f) Twist-grip

Engine speed is controlled by turning the twist-grip which is situated at the R. H. end of the handlebar. By turning the twist-grip toward the driver the engine speed increases and by turning it forward the speed is reduced (Fig. No. 5).

g) Brakes

The front brake is controlled by a handle at the R. H. side of the handlebar (Fig. No. 26), and the rear brake by a footoperated pedal at the R. H. side of the engine (Item No. 6, Fig. No. 1 : Fig. No. 27).

h) Gear change foot-lever

The gearbox is equipped with five speed gears, controlled by gear change pedal at the L. H. side of the engine (Item No. 24, Fig. No. 1). Gear shifting is achieved by moving the pedal to stop in the required direction (up or down). After gear engagement, the lever returns automatically to its neutral position. Neutral gear is shifted by depressing the pedal half-way in the required direction. Shifting order and direction for the respective speed gears is shown in Fig. No. 6.

i) Illumination switch and horn push-button

Illumination switch (dip-switch) and horn push-button are located at the end of the L. H. handlebar (Fig. No. 7). By tiping the dipswitch forward the direction S the long distance beam is switched on. By tipping it toward the driver in the direction P, the dipped light is switched on. Dipped light should be used in case of reduced visibility when meeting oncoming vehicles and in urban traffic. By depressing the push-button H towards the center of the handlebar, the horn is actuated.

IV. DRIVING INSTRUCTIONS

a) Fuel tank filling

Two-stroke engines run on a mixture of petrol and oil. When fuelling, insist always on the specified mixture ratio and on its most thorough mixing, if possible in a can (specified oil and petrol ratio as well as oil type are indicated in the lubrication chart).
Petrol of at least No. 84 O. R. should be used. Fuel tank capacity is 10.5 litres, including 1.5 litre fuel reserve. The tank should be filled through a funnel provided with a sieve.

b) Vehicle inspection fefore driving

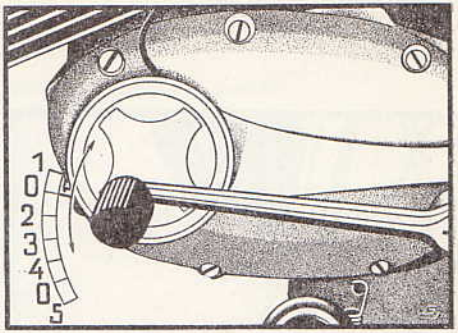
Check the following items before a drive
- Reliable brake operation (Figs. No. 26 and 27)
- Clutch lever dead travel (Fig. No. 23)
- Tyre inflation pressure (according to Section II.: „Technical Data")
- Fuel level in tank
- Oil level in gearbox by means of a dipstick (Fig. No. 11)
- Operation of horn and illumination (Fig. No. 7)

c) The sequence for motor starting

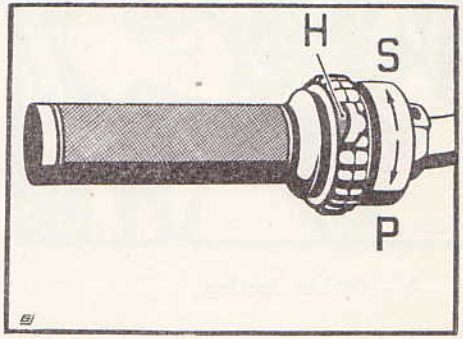
- Check if the gear box is in neutral position.
- Put the ignition key into the switch box and turn it to the position I. (daytime ride) or to II. III. (nighttime ride) – fig. 3.
- Open the air closure – fig. 2.

If the motor is cold

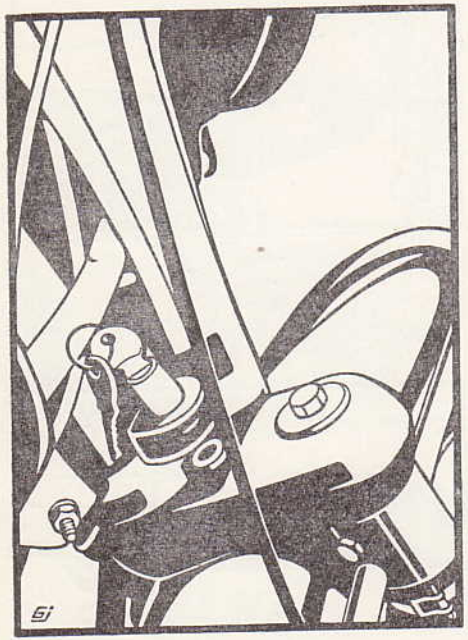
- Flood the carburettor by means of the flooding stem, as far as the fuel come out from the opening.
- Close fully the carburettor slide valve (gas grip – fig. 5).
- Turn over the motor by the starting lever (kickstarter).
- After the motor starts, let it heat up for a while.



6 – Gear shifting



7 – Headlamp switch



8 – Vehicle locking

If the motor is warmed

– Open the carburettor slide valve by turning of the gas grip by about 1/3 and more.
– Turn over the motor by the starting lever.

After the motor stops don't forget always to close the fuel tap

The air closure mounted in the jointing between the carburettor and the suction cleaner can be used for the further increasing of the mixture richness if the motor is cold. If the motors starts it is necessary to open this one immediately.

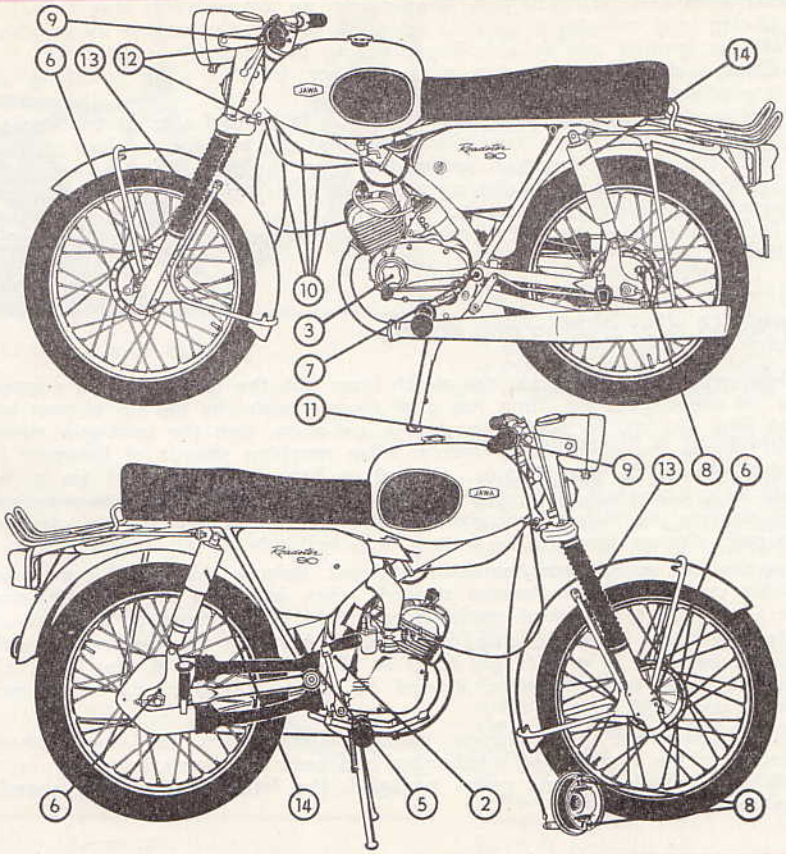
If the motor is flooded axcessively close the fuel tap and turn over the motor with maximum air supply (by the opened air closure and by lifted carburettor slide valve on full gas).

d) Motorcycle run-in

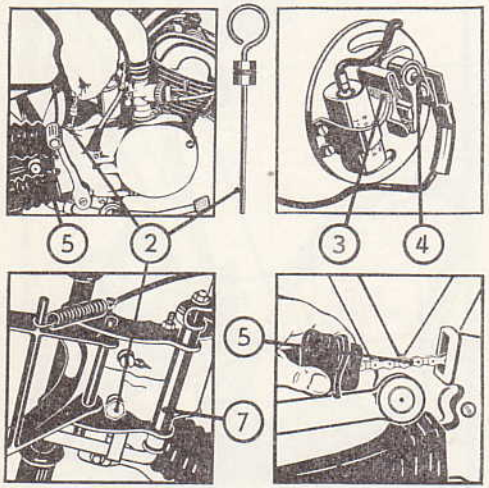
During running-in (1,600 km, i. e. 1,000 miles) the motor cycle should be given increased care, because thorough running-in has a decisive influence on its performance, fuel consumption, and service life. For running-in observe the following instructions:

– Mix the combustion mixture of oil and petrol at the specified ratio of 1 : 25
– With the individual speed gears engaged the following travelling speeds should not be exceeded (in km p. h.):

Gear	1st	2nd	3rd	4th	5th
50 c.c. cylinder capacity	15	25	37	45	50
90 c. c. cylinder capacity	20	35	45	60	–



9 – Vehicle lubricating points



10 – Lubrication particulars

Never drive with 1st speed gear engaged for an unnecessarily long time.

- During long non-stop trips, it is advisable to cool the engine by switching off the ignition and accelerating (opening the throttle) occasionally
- Change down by engaging a lower gear in time when travelling up a gradient
- Occasionally, check the tightness of all the bolts and nuts on the engine, frame and wheel wire spokes as they are apt to become slack due to vibrations during operation, especially after the first 100 km when the joints are setting. Check the nuts and bolts for tightening even after the running-in period as necessary.
- For maintenance and oil changes proceed according to the lubrication chart.

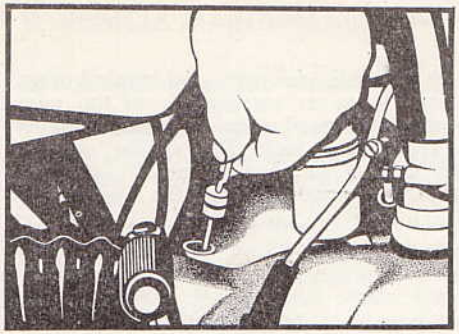
e) Speed gear shifting and driving

When getting away, depress the clutch lever with the left hand and engage the 1st speed gear by lifting the gear change pedal by the tip of your left foot (Fig. No. 6). To achieve a smooth get-away, turn the twist-grip slowly and release the clutch lever evenly. After reaching speeds of between 14 and 20 km p. h. (for 50 c. c. engine) or between 19 and 23 km p. h. (with 90 c. c. engine) in 1st gear, throttle down by turning the twist-grip back and depress the clutch lever simultaneously. With the left foot tip, depress the gear change lever to the bottom stop and release it.

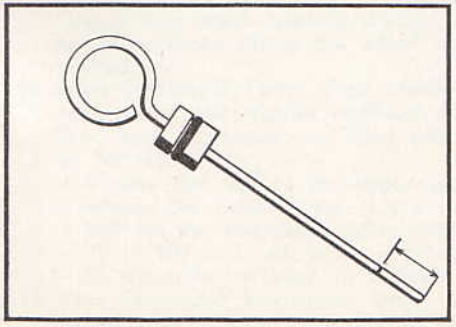
Thus the 2nd speed gear has been engaged. Release the clutch lever more quickly and accelerate. Proceed similarly when engaging the 3rd, 4th, and 5th speed gears. The third speed gear should be engaged at a speed of 23 up to 29 km p. h. (50 c. c.) or 31 to 39 km p. h (90 c. c.), the fourth gear at between 32 and 41 (50 c. c.) or 42 and 52 km p. h. (for 90 c. c.) and 5th speed gear between 36 and 52 km p. h. (50 c. c.) or 52 and 72 km p. h. (90 c. c.).

Never actuate the gear change pedal violently since this would cause damage to the transmission mechanism and gear shift lever bending.

With the individual speed gears engaged, the following travelling speeds may be used:



11 – Oil level checking



12 – Oil gauge (Dipstick)

Speed gear	1st	2nd	3rd	4th	5th
50 c. c. cylinder volume	7–20	12–34	20–48	28–60	above 32 km p. h.
90 c.c. cylinder volume	10–25	20–45	30–60	40–80	above 50 km p. h.

For the most economic and efficient driving the following mean speed values should be applied.:

Do not race the engine by opening the throttle excessively especially under the following conditions:

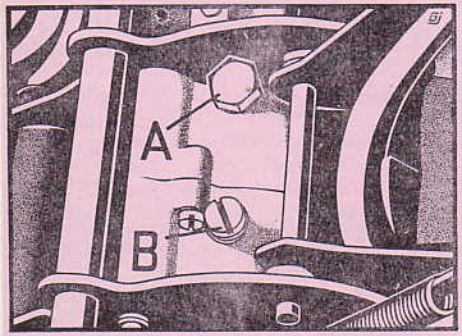
– when the engine is not loaded (i. e. with the motor cycle stationary)
– when shifting down from a higher gear
– when travelling down the hill, regardless of the speed gear engaged.

f) Travelling up a gradient

When going up the hill, the gears must be shifted down as required. When engine speed is dropping while negotiating a gradient, a lower gear must be engaged. In such a case the clutch must be released, the twist-grip turned to its initial position, and a lower gear must be shifted by lifting the gear change pedal quickly so as to avoid speed loss of the motor cycle.

g) Braking and travelling down a gradient

When travelling down a slight gradient, or when it is necessary to reduce speed of the motor cycle, brakes should be applied. Throttle down, apply the rear brake, and only then use the front wheel brake. When driving down a steep hill, a gear speed which is the most suitable one for the safe speed reguired should be selected, the throttle should be closed (but not completely) for engine braking and both rear and front brakes applied. When the rear wheel brake pedal is depressed, the stop lamp is switched on.



13 – Oil drain plug

h) Vehicle stopping and parking

For stopping the motor cycle, close the throttle, declutch, and apply brakes. Depress the gear shift pedal as many times as corresponds to the gear speed engaged (i. e. four times for the 4th speed gear engaged) in order to engage neutral gear and then brake to a halt. The engine can be stopped by turning the ignition key in the switch box to „O" position. Support the motor cycle on its stand. For parking, close the fuel supply and lock the machine (Fig. No. 8).

V. VEHICLE MAINTENANCE AND ADJUSTMENT

a) Lubrication of the machine

Lubrication should be carried out at intervals shown in the Lubrication Chart.

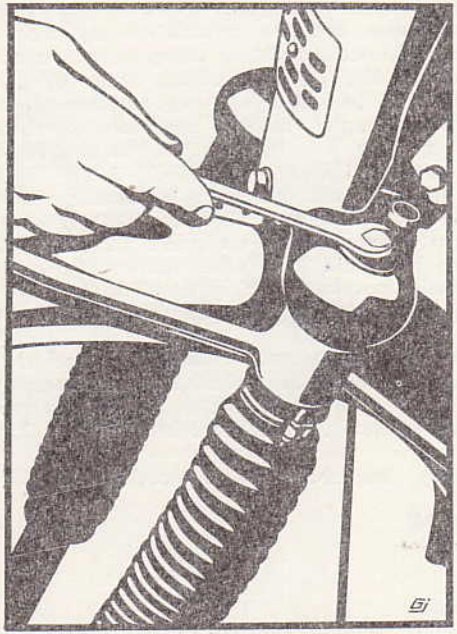
1. The engine is automatically lubricated by engine oil mixed with petrol.
2. Gearbox. Oil level in the gearbox should be checked by means of a dipstick (Fig. No. 11) and topped up, if necessary. The level may vary between the bottom end of the dipstick and the scratch on the dipstick (Fig. No. 12). Oil should be changed at intervals indicated in the Lubrication Chart. Using a box wrench, unscrew the oil drain plug A on the bottom of the engine (Fig. No. 13). Do not release screw B, i. e. the kick-starter segment retainer! Oil must be changed after a trip when both the engine and the oil are warm. Then the gearbox should be cleaned with flushing oil with the engine running at idling speed for about 10 minutes and all speed gears should be shifted. After draining the flushing oil, fill 1 litre of fresh transmission oil through the gearbox filler opening. Check correct oil level with oil dipstick.

3. 4. Contact breaker felt and pin are suplied only with motor cycles equipped with magnetic ignition.

5. Lubricate the secondary chain, if necessary, and wash it in paraffine oil after approximately 6,000 km have been covered. After washing and drying, submerge the chain in a slightly warmed-up grease (60 to 70 °C) and agitate it to facilitate easy penetration of the grease between the chain links. When refitting the chain, the link circlip circle must be fully directed in the direction of chain movement during travelling.
6. After having removed the road wheels, wash the wheel bearings and the sprocket bearing in cleaning petrol, dry and pack them with grease.
   During rear wheel removal always release the sprocket nut B (Fig. No. 30) to facilitate the rear wheel shaft handling. When fitting the wheel again, tighten the nut only after the rear wheel shaft has been properly pushed in.

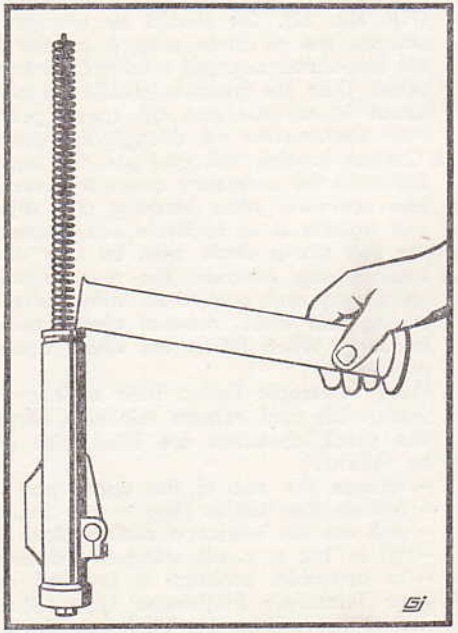
13. Front Telescopic Forks: Their maintenance is very simple, since the hydraulic shock absorbers have a long service life and require minimum servicing.
    The shock absorbers are filled with shock absorber oil. If necessary, they should be dismantled and filled as follows:
    – release the nut of the upper part of the front fork (Fig. No. 14)
    – release the bottom strip of the sealing cup
    – pull out the telescope sliding block together with the spring
    – fill in 100 c. c. oil, using a graduated glass (Fig. No. 15)
    – to assemble, proceed in reversed order.
14. Rear Telescopic Suspension Units. Similarly, rear telescopic shock absorbers require minimum servicing and maintenance. They are filled with shock absorber oil.
    If necessary, they should be dismantled and filled with oil as follows (Fig. No. 16):

– depress the bottom cover and remove two crescent-shape circlips:
– pull out the spring c/w covers
– unscrew the upper lock nut and pull out the piston and cylinder assembly together with the shock absorber body
– pour 50 c. c. of shock absorber oil into shock absorber
– to assemble, proceed in reversed order.



14 – Removal of front telescopic fork

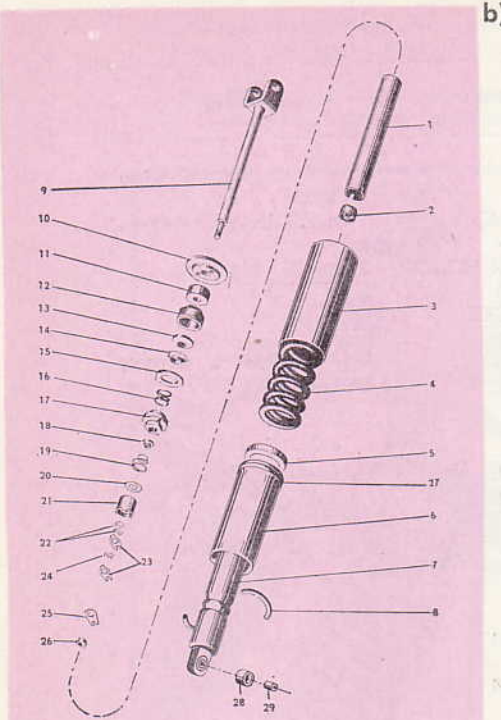
15 – Front telescopic fork oil charge



MOTOR CYCLE LUBRICATION CHART (Figs. No. 9 and 10)

Ref. No.	Lubricating point	Lubrication Interval	Lubricant	Quantity
1	Engine	Permanent	SAE 30 M2T-BH oil SHELL 2T TWO STROKE OIL MOBIL SUPPER MOTOR OIL BP-TWO STROKE OIL	Petroil at the following ratios: 1 to 25 during running-in: 1 to 30 when run in.
2	Gearbox	Supplement as required. First oil change after 500 km, the next one after 1,500 km, further changes after every 10,000 km.	SAE 30–80 oil.	Up to dipstick scratch (approx. 1 litre)
3*	Contact breaker felt	3,000 km	SAE 30–80 oil.	Oil drop
4*	Contact breaker arm pin	3,000 km	SAE 30–80 oil.	Oil drop
5	Secondary chain	Grease, as necessary	A 00 grease	Pack the bearings
6	Wheel bearings	6,000 km	A V 2 grease	
7	Brake pedal pin	6,000 km	A 00 grease	
8	Brake cams,	6,000 km	A 00 grease	
	brake shoe pin	3,000 km	SAE 30–80 oil	
9	Hand lever pins			
10	Bowden cables	3,000 km	SAE 30–80 oil	
11	Twist-grip	3,000 km	A 00 grease	
12	Steering	Wash and lubricate after dismantling	A 00 grease	
13	Front telescopic fork	10,000 km (if necessary)	Shock absorber oil	100 c. c. per telescope
14	Rear telescopic fork	10,000 km (if necessary)	Shock absorber oil	50 c. c. per telescope

*** Does not apply to TRANZIMO range of Jawa 50 and Jawa 90 motorcycles.**



16 – Rear telescopic fork

b) Survey of motor cycle maintenance

In addition to regular lubrication of the vehicle as per the Lubrication Chart, further tasks must be attended to during vehicle maintenance after having covered the specified kilometres (mileage) according to speedometer indications.

After the first 800 km (500 miles):

- inspect and clean contact breaker contacts (of magneto ignition)
- clean spark plug and adjust electrode gap
- tighten nuts of cylinder head, of wheel wire spokes, check and tighten bolts and nuts of other parts of the machine
- adjust clutch
- check secondary chain
- adjust brakes
- check steering and tighten it.

After the first 1,600 km (1,000 miles), i. e. after the machine has been run in:

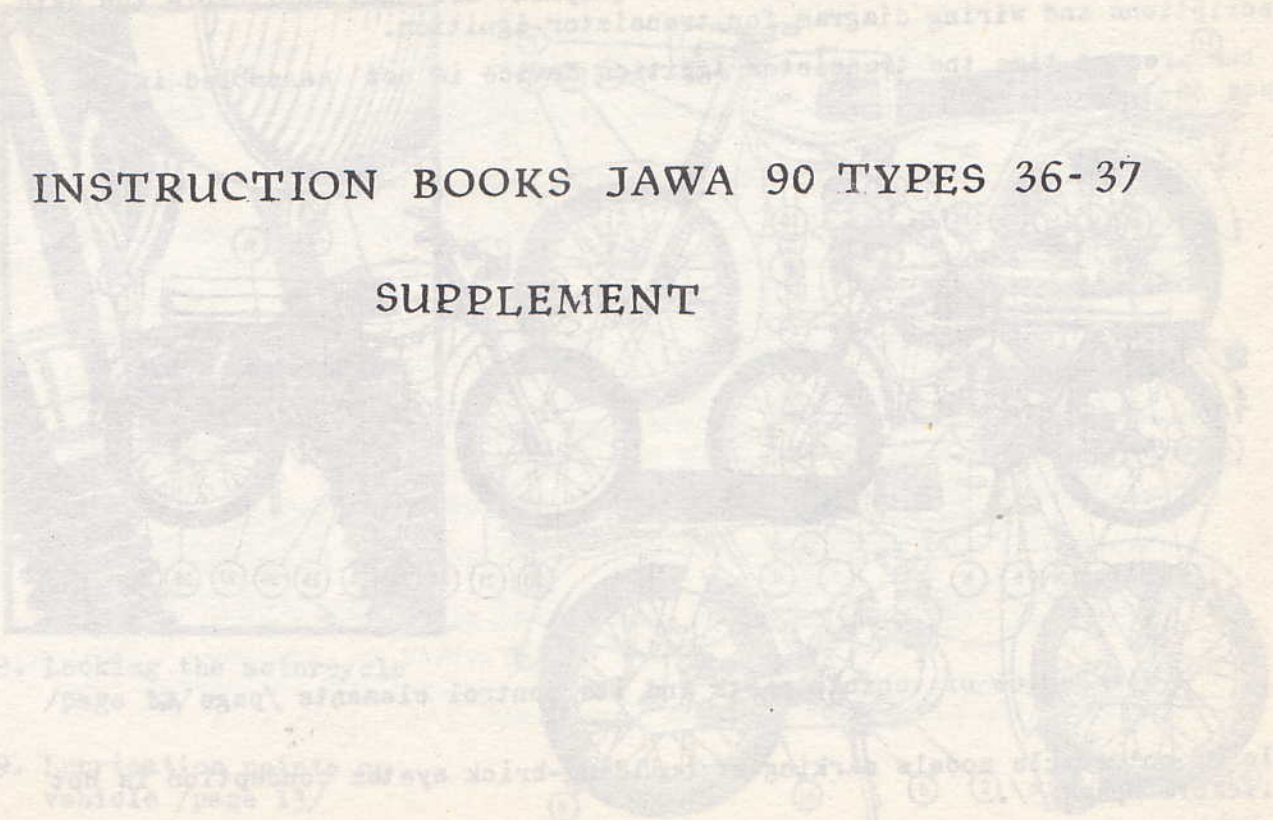
- adjust carburettor
- clean spark plug and check electrode gap.
- inspect, clean and adjust contact breaker contacts (in case of magneto ignition)
- inspect secondary chain
- check and adjust brakes.

Every 5,000 to 6,000 km (3,000 to 4,000 miles):

- check spark plug and clean it
- clean carburettor
- check ignition advance and contact breaking, clean and adjust contact breaker contacts (of magneto ignition)
- clean microfilter
- adjust clutch
- adjust brakes
- check and adjust the secondary chain
- inspect and tighten bolts and nuts all over the machine
- remove carbon deposits

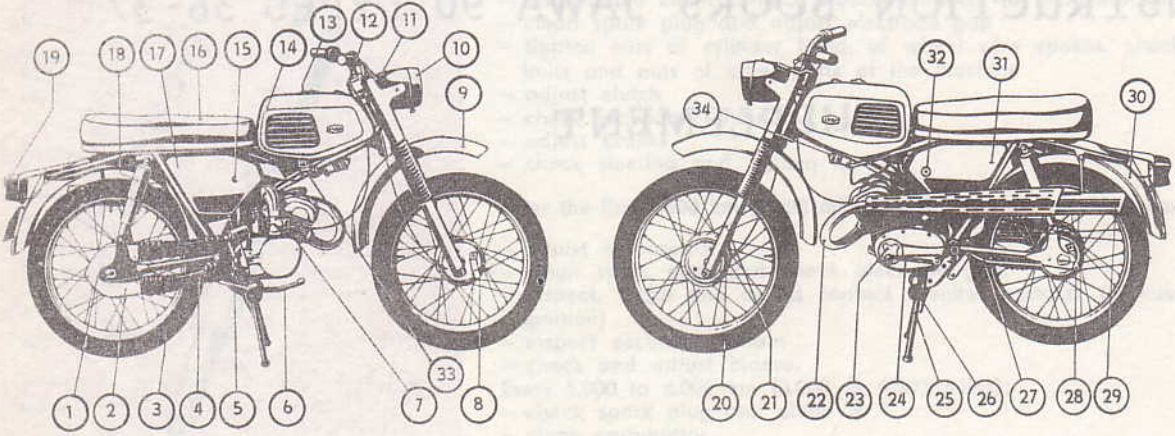
INSTRUCTION BOOKS JAWA 90 TYPES 36-37

SUPPLEMENT



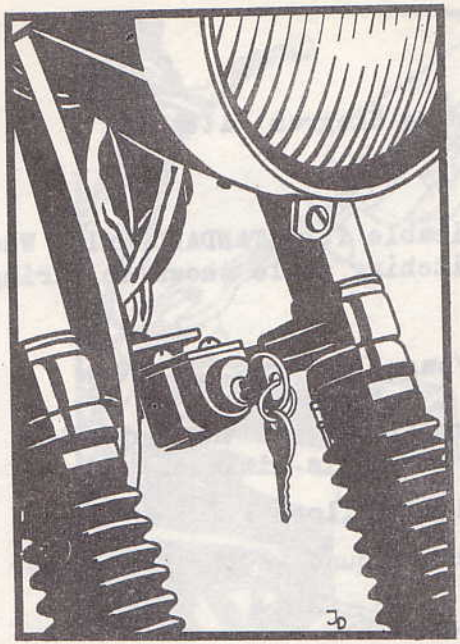
In the instruction booklet for types 36-37 are not applicable all data mentioned for type 50 and in the text of electric equipment are not applicable the data, descriptions and wiring diagram for transistor ignition.

At the present time the transistor ignition device is not assembled in the types 36-37.



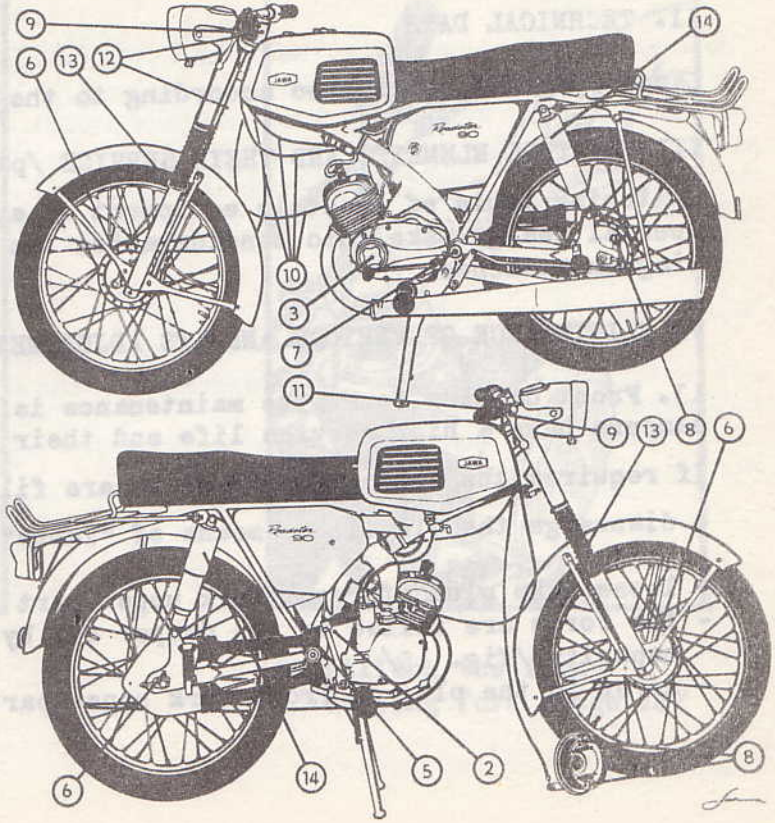
1. Review of vehicle parts and its control elements /page 4/

Table of motorcycle models marking of building-brick system conception is not applicable /page 5/.



8. Locking the motorcycle /page 12/

9. Lubrication points on vehicle /page 13/



II. TECHNICAL DATA

Lamps /page 7/ be checked according to the wiring diagram attached .

III. CONTROL ELEMENTS AND THEIR SERVICE /page 9/

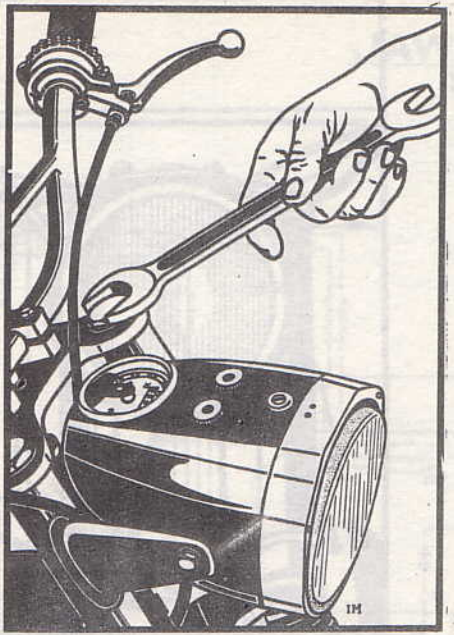
Switching table of electric equipment is applicable for STANDARD only. When special design take into consideration the switching table shown on wiring diagram attached.

V. MAINTENANCE OF VEHICLE AND ITS ADJUSTMENT /page 17/

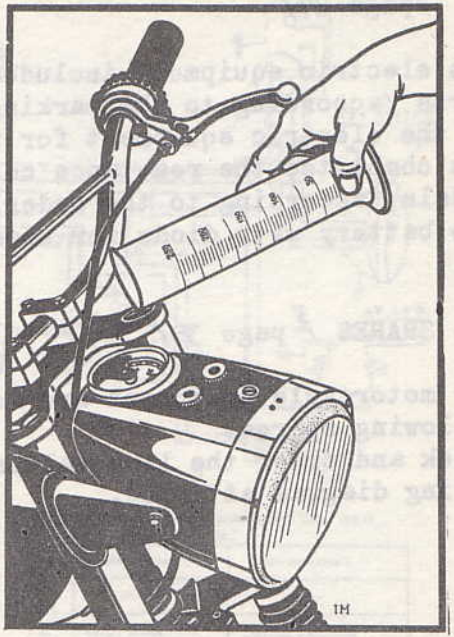
13. Front damping fork. Its maintenance is very simple, as the hydraulic dampers have a high service life and their servicing is minimum.

If required the front damping forks are filled as follows :

- discharge the old oil by means of "imbus" screw found in the fork lower part.
- loosen the plug of front fork upper part /fig. 14/
- the forks are filled by the damper oil by means of measure - 200 cm3 capacity /fig. 15/
- screw in the plug of front fork upper part



14. Dismantling of damping fork plug /page 18/



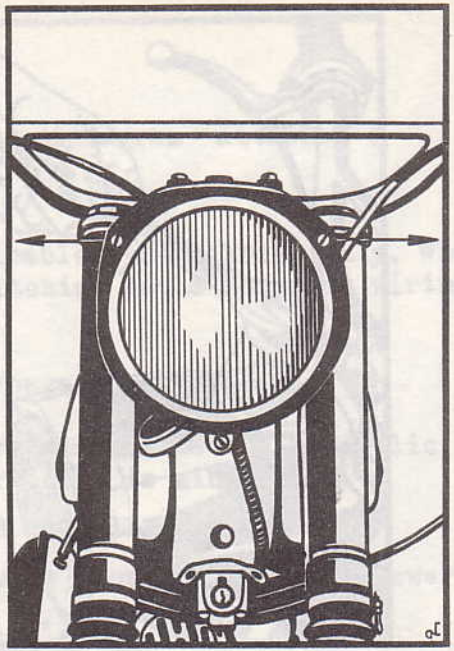
15. Filling the front damping fork /page 18/

VI. ELECTRIC EQUIPMENT AND ITS MAINTENACE
/page 27/

The electric equipment includes the following parts /according to the marking on scheme/. In the electric equipment for Standard model was completed the reactance coil, with other models, according to the order, is completed the battery with diode for boost charging /11/

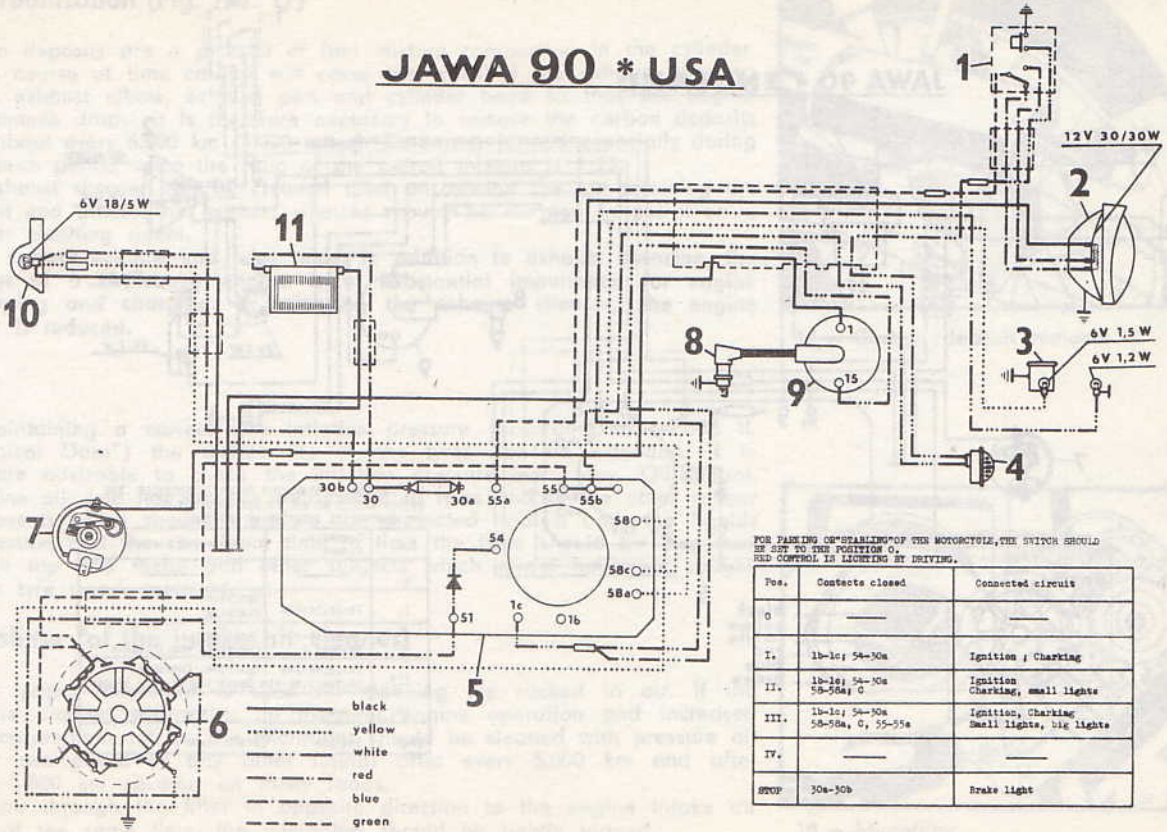
IX. SPARES / page 38/

For motorcycle equipment are recommended the following spares.
Check and order the lamp values as per wiring diagram attached.



40. Headlight horizontal adjustment
/page 31/

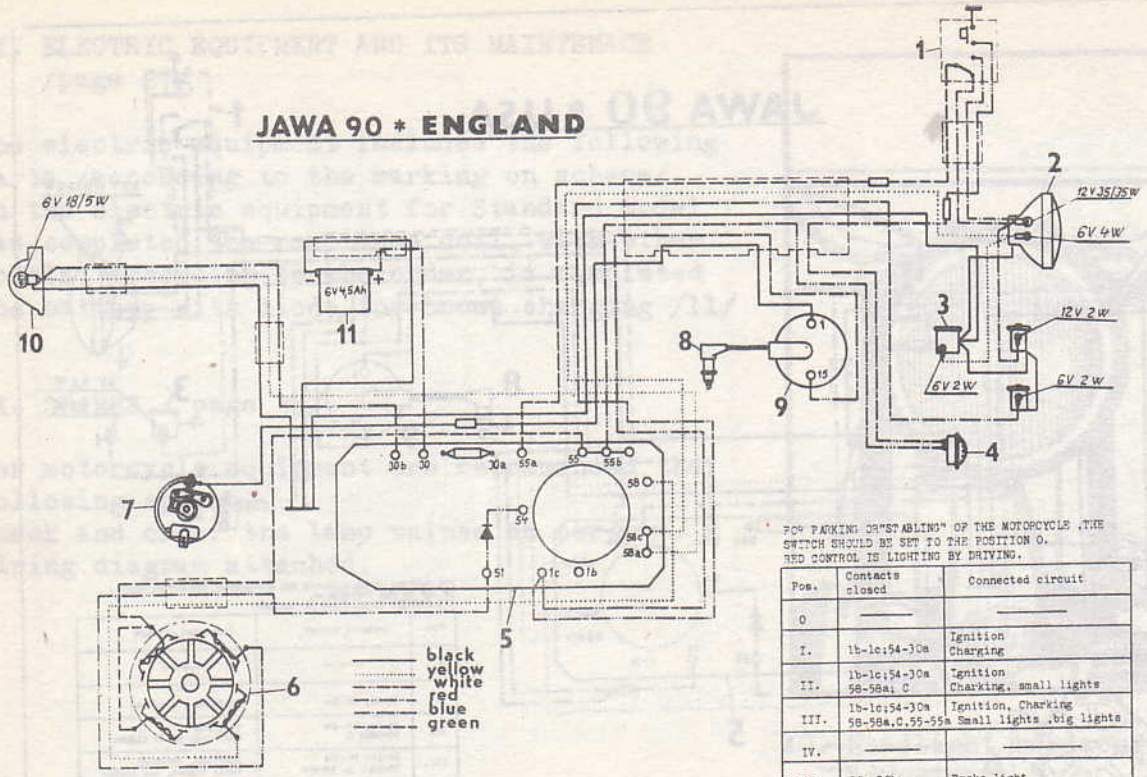
JAWA 90 * USA



FOR PARKING OR "STARTING" OF THE MOTORCYCLE, THE SWITCH SHOULD BE SET TO THE POSITION 0.
RED CONTROL IS LIGHTING BY DRIVING.

Pos.	Contacts closed	Connected circuit
0	——	——
I.	1b-1c; 54-30a	Ignition ; Charking
II.	1b-1c; 54-30a 58-58a; C	Ignition Charking, small lights
III.	1b-1c; 54-30a 58-58a, C, 55-55a	Ignition, Charking Small lights, big lights
IV.	——	——
STOP	30a-30b	Brake light

JAWA 90 * ENGLAND

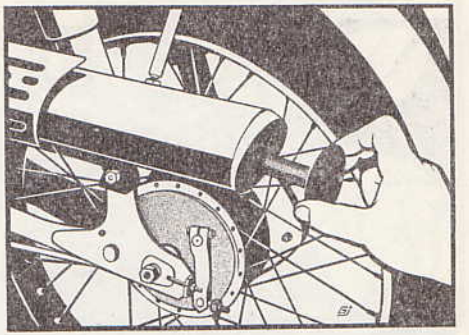


FOR PARKING OR "STABLING" OF THE MOTORCYCLE ,THE SWITCH SHOULD BE SET TO THE POSITION O.
RED CONTROL IS LIGHTING BY DRIVING.

Pos.	Contacts closed	Connected circuit
O	———	———
I.	1b-1c;54-30a	Ignition Charging
II.	1b-1c;54-30a 58-58a; C	Ignition Charking, small lights
III.	1b-1c;54-30a 58-58a,C,55-55a	Ignition, Charking Small lights ,big lights
IV.	———	———
STOP	30a-30b	Brake light

c) Decarbonization (Fig. No. 17)

Carbon deposits are a product of fuel mixture combustion in the cylinder. In the course of time carbon will cover the walls of the exhaust silencer, of the exhaust elbow, exhaust port and cylinder head so that the engine performance drops: it is therefore necessary to remove the carbon deposits after about every 6,000 km (4,000 miles). Carbon is formed especially during the run-in period when the ratio of the petroil mixture is 1:25.
The exhaust silencer can be cleaned after unscrewing the nut retaining the exhaust end piece. The exhaust silencer should be cleaned in petrol or in another cleaning agent.
Never remove exhaust end tube since, in addition to exhaust silencing, the exhaust of a two-stroke engine is of substantial importance for engine scavenging and charging. By removing the exhaust silencer, the engine output is reduced.



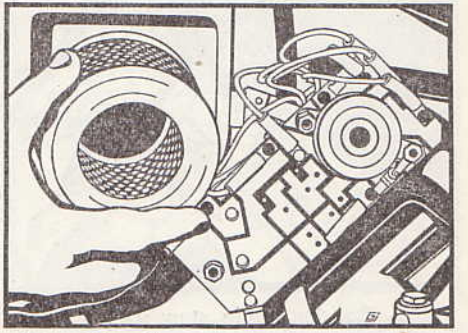
17 – Carbon deposit removal

d) Tyres

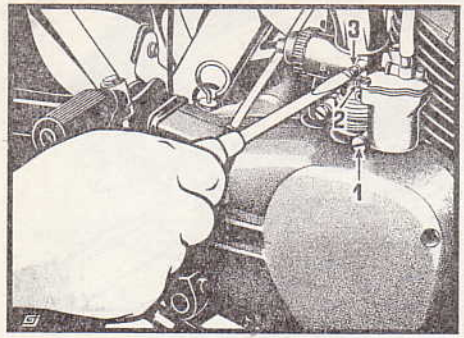
By maintaining a correct tyre inflation pressure (according to section II. „Technical Data") the service life of the tyres can be extended. It is therefore advisable to check the inflation pressure every day. Oil, petrol, paraffine oil, and hot sun are detrimental to tyres and to the other rubber components which should, therefore, be protected against both the liquids in question and the sun. From time to time the tyres should be inspected after a trip and metal and other subjects which might have got caught in the tyre tread, removed.

e) Microfilter (of the intake air cleaner)

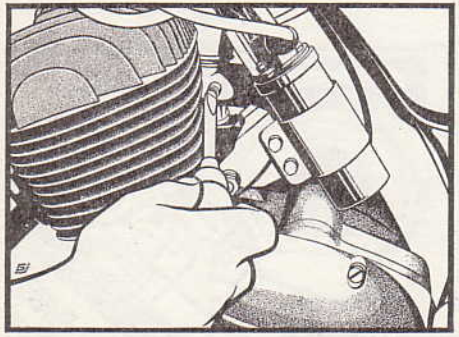
A dry paper microfilter is used for cleaning the sucked in air. If the filter is clogged with dust, an irregular engine operation and increased fuel consumption set in. The microfilter should be cleaned with pressure air (never use petrol or any other liquid) after every 5,000 km and after every, 1,500 km covered on dusty roads.
Blow air through the filter in opposite direction to the engine intake air flow: at the same time, the microfilter should be lightly tapped.



18 – Microfilter



19 – Idling speed adjustment



20 – Bowden cable stop screw

The microfilter should be replaced after about 10,000 km have been covered, and more frequently when driving in dusty environments. For removing the microfilter from the vehicle, unscrew the bolt from the R. H. cover and remove the cover. Take off the rubber strip retaining the intake silencer cover on the frame and remove the cover under which the microfilter is situated (Fig. No. 18).

f) Carburettor

Carburettor basic data and adjustment

Engine cylinder capacity	50 c. c.	90 c. c.
Carburettor model	JIKOV 2917 SK	JIKOV 2920 SK
Carburettor venturi	dia. 17 mm	dia. 20 mm
Main jet (item No. 1, Fig. No. 19)	97	105
Idling jet (item No. 2, Fig. No. 19)	40	50 (52)
Adjustment screw for idling speed mixture richness (item No. 3, Fig. No. 19), turned back from its stop, during running-in, by	360°	360°
after run-in, by	360°	360°
Adjustment of carburettor metering needle:		
during running-in	No. 1 notch from above	No 2. notch from above
	No. 1 notch from above	No 2. notch from above

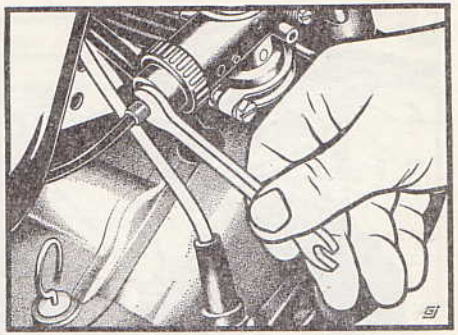
The idling speed circuit consists of
– idling speed jet (item No. 2, Fig. No. 19)
– adjustment screw for mixture richness at idling speed (item No. 3, Fig. No. 19)
– stop screw for carburettor throttle (Fig. No. 20).
The stop screw of carburettor throttle serves to set the idling speed. The speed is increased by screwing in the screw and reduced by releasing it. The adjustment screw serves to adjust correct composition of the fuel mixture with air during idling speed and influences the composition of the mixture, consumption and engine speed up to 1/3 of throttle stroke.

g) Adjustment of throttle cable and twist-grip movement

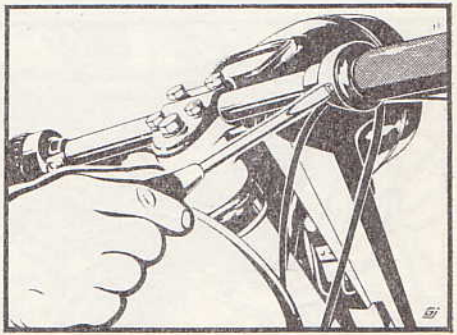
The throttle cable can be adjusted by means of a screw on the cover of the throttle chamber with an 8 mm spanner (Fig. No. 21). Correct play of the cable should amount to 0.5 up to 1 mm (i. e. 0.02 to 0.04"). It ensures full throttle opening and correct idling speed.
Axial play of the twist grip should be taken up by sliding the sleeve on the handlebar. Stiffness of the twist-grip movement can be adjusted by means of the twist-grip brake screw (Fig. No. 22).

h) Clutch adjustment

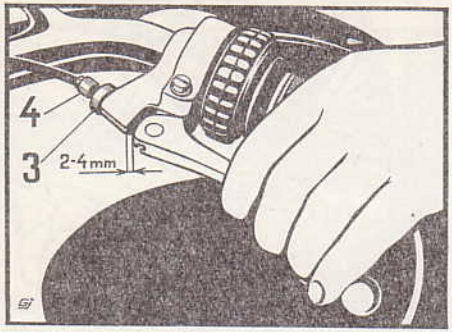
The clutch serves to interrupt torque transmission from the engine to the gearbox. It is disengaged before changing gears in order to protect the gear wheel teeth in the gearbox against impact. The clutch operates in an oil bath, and except for the adjustment of the clutch cable play it requires no maintenance. In order to prevent excessive wear of clutch disks due to slipping, the disks must be sufficiently compressed. Therefore, the clutch lever must have a very small play (Fig. No. 23). In the course of time the clutch cable stretches, the clutch lever play increases, and the clutch does not become disengaged. It is therefore necessary to take up the slack after releasing the lock nut of the adjustment screw (item No. 3, Fig. No. 23) on the handlebar and by releasing the adjustment screw (4). After checking the play of the hand lever (2 to 4 mm), retighten the lock nut.



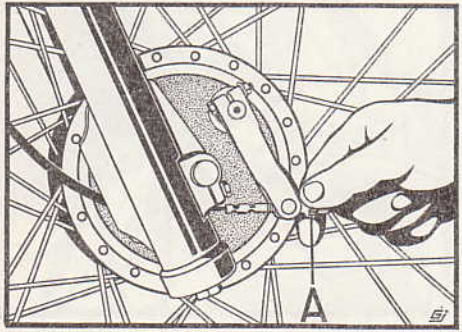
21 – Accelerator bowden cable adjustment



22 – Resistance setting of twist-grip turning



23 – Clutch adjustment



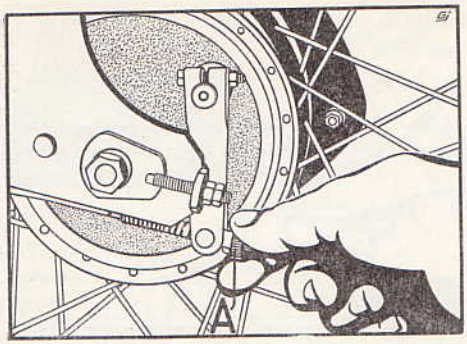
24 – Front brake adjustment

i) Brake adjustment

The operation of brakes can be impaired by friction lining wear. In such a case, the adjustment screw A (Fig. No. 24) of the cable or of the lever (Fig. No. 25) of both the front and rear brake should be screwed in by several turns. After the brake adjustment the road wheels must turn freely. Correct brake adjustment can be checked on brake levers as follows: the hand lever distance on actuation should be 20 to 30 mm from the handlebar grip (Fig. No. 26) and the foot brake pedal should have a free travel of about 20 mm (Fig. No. 27).

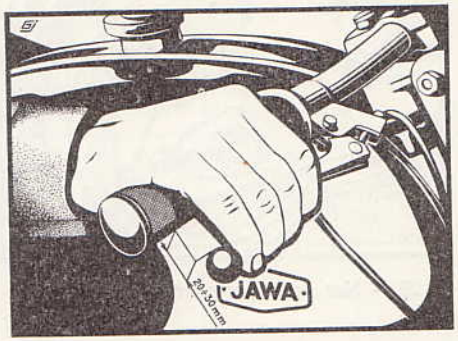
j) Secondary chain adjustment

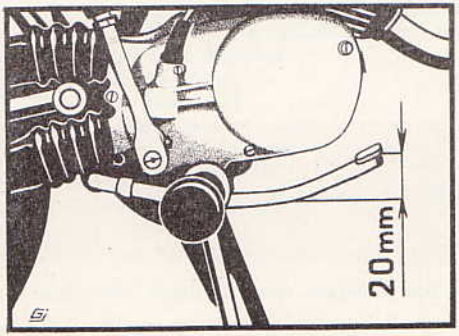
The amplitude of a branch of a correctly set chain should equal approximately 2 cm (Fig. No. 28). For chain tension adjustment release nut A of the rear wheel shaft (Fig. No. 29) and the nut B of the sprocket hub (Fig. No. 30). By equal turning of both nuts C of the chain tighteners, the chain tension can be adjusted. During the described procedure make sure that the rear wheel follows the front wheel track.



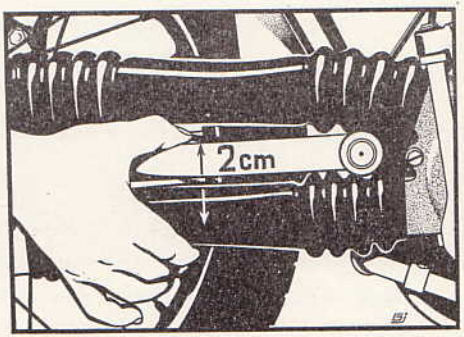
25 – Rear brake adjustment

26 – Clearance of depressed front brake handle

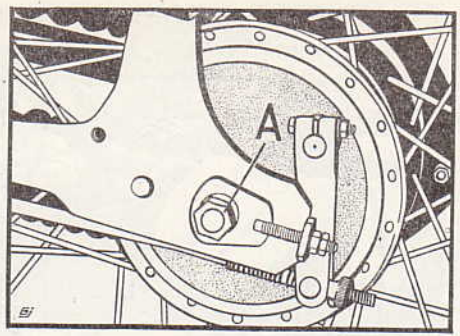




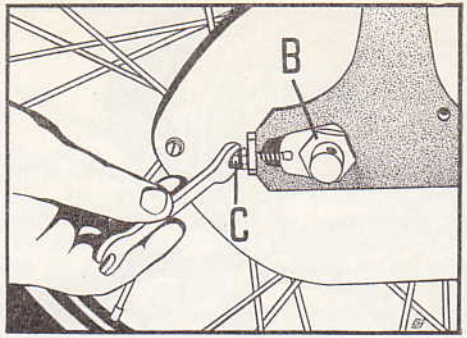
27 – Travel of rear brake pedal



28 – Chain sag checking



29 – Nut for rear wheel shaft



30 – Chain tension adjustment

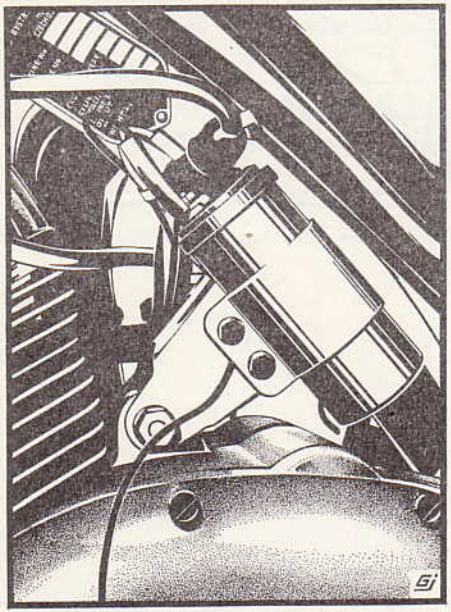
VI. ELECTRICAL EQUIPMENT AND ITS MAINTENANCE

a) Wiring diagram

Wiring diagram of machines with magneto ignition is shown in Fig. No. 31, that of motor cycles equipped with transistorized ignition in Fig. No. 32. The electrical equipment includes the following parts (according to marking on the diagram):

Part No.	Part	Number (Pcs.)	
		Magneto ignition	Transistorized ignition
1	Headlamp dipswitch and horn push-button	1	1
2	Headlamp	1	1
3	Speedometer, speedometer illumination, distance beam warning light	1	1
4	Horn (Buzzer)	1	1
5	Switch box	1	1
6	Alternator (for magneto ignition)	1	1
6a	Alternator c/w pulse coil for transistorized ignition	–	1
7	Contact breaker	1	–
8	Spark plug	1	1
9	Ignition coil	1	–
10	Rear brake lever stop light)	1	1
11	„Tranzimo" unit	1	1
12	Tail lamp (license number plate illumination and	–	1

A motor cycle equipped with magneto ignition is shown in Fig. No. 33. that with transistorized ignition in Fig.No. 34.



33 – Magneto Ignition – Ignition Coil

b) Spark plug

PAL 14-8R plug of 240–260 thermal rating is applied in the engine. Spark plugs of differing thermal values may either cause difficult engine starting or misfiring during travel. The plug should be checked after every 1,000 km: electrode gap should equal 0.5 to 0.7 mm (Fig. No. 35). When cleaning the plug, take care not to damage the porcelain insulator. In operation, the porcelain insulator of a correct spark plug should be baked to brick-red colour.

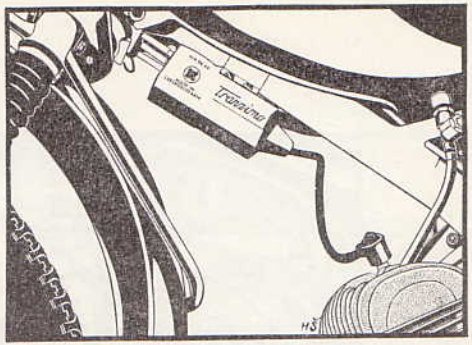
c) Magneto ignition

Adjustment of Contact Breaking and of Ignition Advance Contact breaker and capacitor are situated at the left side of the engine under a cover formed by the factory badge (item No. 3, Fig. No. 9).

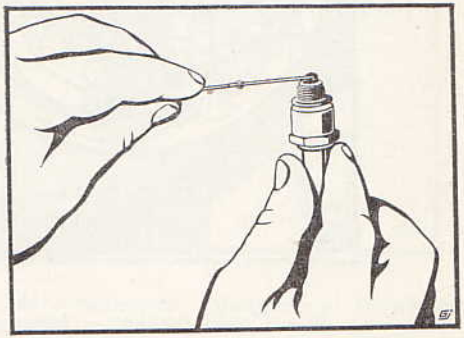
- By turning the fixed contact B of the contact breaker, a gap of 0.35 up to 0.45 mm should be set (the piston is in its upper dead centre), Fig. No. 36
- By turning the crankshaft to the right (i. e. against the direction of engine rotation) the piston should be shifted to the position before the top dead centre of ignition advance value of between 1.6 and 2 mm (to be checked by means of a depth gauge or an indicator)
- When the piston is in the described position, check the contact gap of the contact breaker which should not exceed 0.05 mm (cigarette paper can just pass)
- If the ignition advance is too small, turn the anchor plate A to the right in the direction of arrow A_1. The ignition advance can be reduced by turning the anchor plate in the direction A_2 (Fig. No. 36). After advance setting, the contact breaking should be rechecked. In case of incorrect setting of the ignition advance, the entire adjustment procedure must be repeated. The contact breaking should be checked after every 1,000 to 2,000 km.
- After 3,000 km covered the contact breaker felt C should be checked for touching the cam and for sufficient lubrication.

d) Transistorized ignition – Ignition advance setting

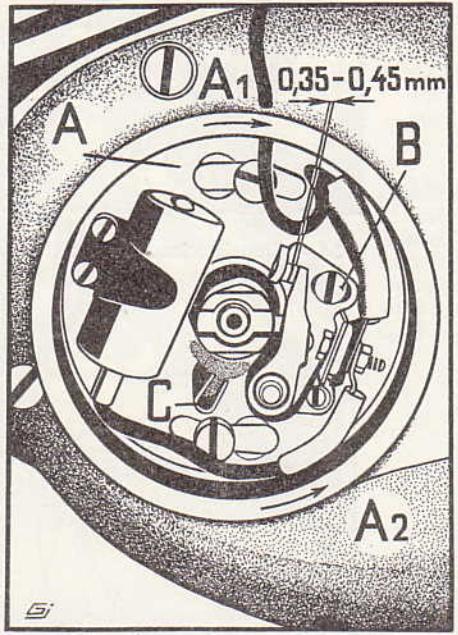
The ignition advance is set to a value of about 1 and 1.5 mm, practically, it need not be re-adjusted in operation. If necessary, the ignition advance can be adjusted by loosening screws A and turning the coil. With the engine piston positioned before the top dead centre to achieve the rate of ignition advance of about 1 mm (to be checked by a depth gauge or a dial indicator), the coil holder should be set in such a way as to make the edge B coincide with line C on the alternator armature (Fig. No. 37). The alternator is positioned below the R. H. engine cover.



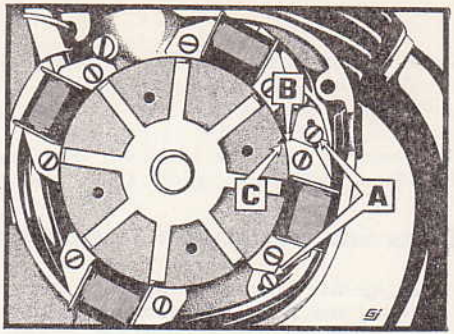
34 – Transistorized Ignition – „Tranzimo" Unit



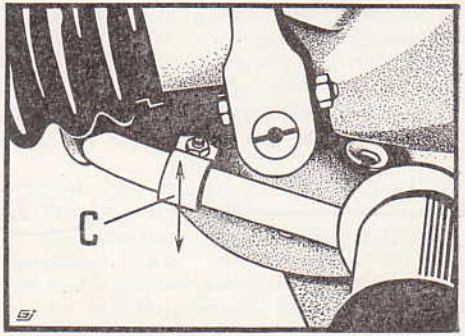
35 – Spark plug inspection



36 – Circuit breaker – Magneto Ignition



37 – Ignition advance adjustment – Transistorized Ignition



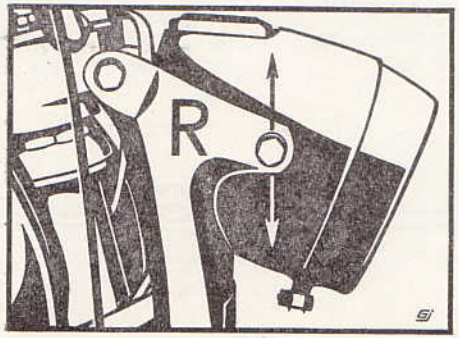
38 – Stop light switch adjustment

e) Stop light switch adjustment

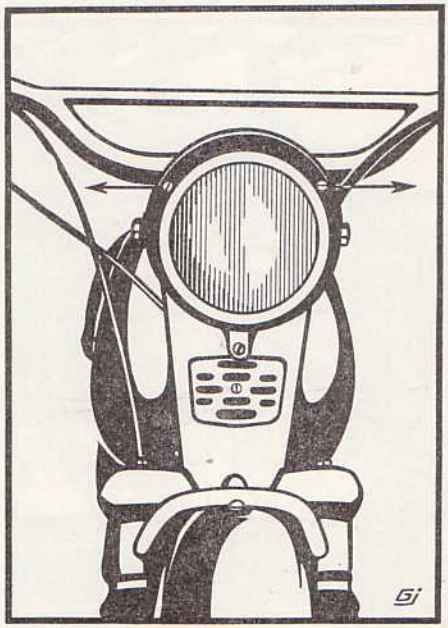
The instant of stop light operation (lighting) can be set by means of the cable retaining clamp on the foot brake pedal as follows: after releasing the nut, turn the clamp C in the required direction (Fig. No. 38). If the stop lamp continues to glows, turn the clamp upward, and if it does not come on after the brake pedal has been actuated, turn the clamp downward. After setting, retighten the nuts.

f) Headlamp adjustment

The headlamp position can be adjusted in two ways. Vertically by releasing the two screws R at either side of the headlamp and by turning the headlamp up or down as required. (Fig. No. 39). Horizontally by means of set screws at either side of the headlamp rim (Fig. No. 40). To turn the headlamp to the right, the R. H. screw should be screwed in, and the L. H. screw in the opposite case.



39 – Verticai adjustment of headlights



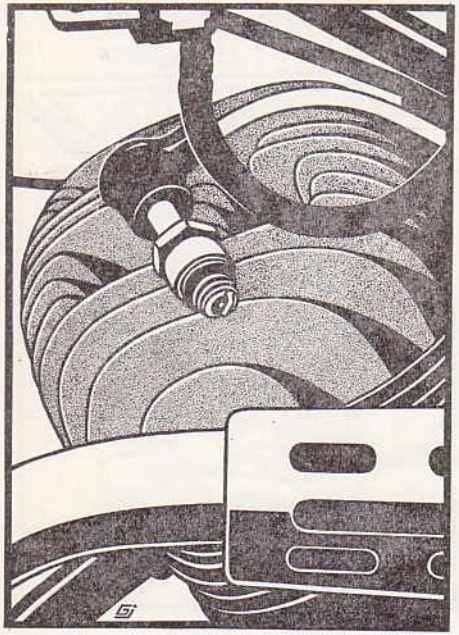
40 – Horizontal adjustment of headlights

VII. TOOLS

Tools supplied with the motor cycle are intended for current maintenance of the machine: they are stowed under the seat. The tool kit contains:

1 – Bag
2 – Socket wrench 14/17 mm
3 – Double-ended spanner 8/10 mm
4. – Socket wrench 10 mm dia.
5 – Grip 5 mm dia.
6 – Combination spanner 32/27 mm
7 – Contact gap (feeler) gauge only for machine equipped with magneto ignition)
8 – Screwdriver 3 mm
9 – Tyre mounting levers
10 – Double-ended screwdriver
11 – Lock
12 – Spark plug spanner
13 – Tyre pump c/w hose
14 – Rag

For more complex repairs special tools are used with which each of our service repair shops is equipped.



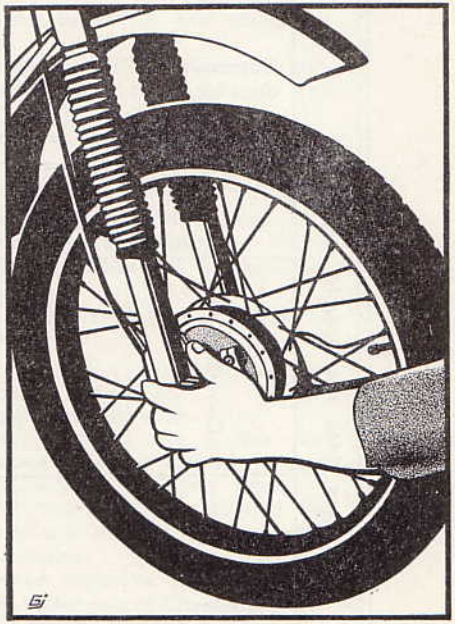
41 – Ignition checking

VIII. DEFECTS AND THEIR REMEDY

For information, the removal of some of the defects that can occur during the motor cycle operation, is described. When locating defects, it is necessary to proceed methodically and not to dismantle a number of motor cycle assemblies at random. The cause of the defect should be quietly reconsidered, the supposed defect sources checked successively and then, eventually, the trouble spot will be found.

In many instances a correct driving technique will prevent many of the troubles and reduce excessive wear of the motor cycle.

The above mentioned defects of contact breaker and capacitor apply only to machines equipped with magneto ignition.



42 – Steering check

Defect symptoms			Defect	Remedy
Engine does not operate regularly	Detonations in cylinder (Piston knocks)		Overheated engine	Let engine cool down: do not race the engine.
			Overheated spark plug electrodes. Defective spark plug (unsuitable thermal value). Excessive carbon deposits in the cylinder head and in exhaust port.	Replace plug. Remove cylinder head and dismantle exhaust tube.
			Too great ignition advance. Clogged exhaust silencer.	Adjust ignition advance. Dismantle and clean exhaust silencer.
	Correct spark	Engine misfires	Water or oil in carburettor. Insufficient fuel supply to the carburettor.	Clean carburettor. Open the fuel shut-off cock fully (or reserve fuel supply), supplement fuel, check feed pipe, clean vent hole in fuel tank filler cap.
			Leaking crankcase.	Check crankcase for tightness.
			Poor mixture (white exhaust smoke). Incorrect mixture of petrol and oil.	Adjust carburettor, clean jet. Prepare fuel mixture correctly and stir thoroughly.
	Irregular spark		Unsuitable spark plug. Fouled spark plug. Dirty or burnt contact breaker contacts.	Replace plug. Unscrew and clean the plug. Clean contacts with a rag soaked in petrol and clean with a fine file.
			Incorrectly adjusted contact breaker contacts.	Set 0.4 mm contact gap.
			Defective capacitor, engine runs at low speed only, regular and intensive sparking between contact breaker contacts.	Replace capacitor.

Engine start, or will not it stopped	No fuel in carburettor			No fuel in the tank. Fuel shut-off cock in feed piping closed or insufficiently open. Clogged fuel filter above the cut-off cock. Clogged pipe or screen in carburettor. Clogged vent opening in fuel filler cover.	Open the fuel cut-off cock of fuel reserve. Open up the fuel cock. Remove fuel cock and clean the filter. Remove and clean pipe and carburettor and blow through the jet. Clean the vent opening.
	Carburettor can be flooded	Spark plug does not spark	Cable end is sparking	Fouled spark plug. Defective plug insulation. Short circuit between spark plug electrodes. Excessive gap of spark plug electrodes.	Replace or clean the plug. Replace the spark plug. Adjust electrode gap to about 0.7 mm. Adjust electrode gap to about 0.7 mm.
			Cable end does not spark	Damaged ignition coil. Contact breaker contacts fouled. Burnt contact breaker contacts. Torn off or loose cable of contact breaker. Burnt cable insulation. Defective capacitor. Water in contact breaker. Defective end piece. Defective „TRANZIMO" unit.	Replace ignition coil. Clean contacts with petrol. Clean contacts with a fine file. Replace cable or connect it and insulate with insulating tape. Wind insulating tape around the cable, and replace cable as soon as possible. Replace capacitor by a new one. Blow water out of the contact breaker, wipe off carefully or let dry. Replace end piece. Replace „TRANZIMO" unit.

Engine will not start, or it stopped	Carburettor can be flooded	Spark plug in good working order	Engine has no compression	Broken piston ring. Sticking piston ring. Untight spark plug gasket ring. Seized piston.	Pull the ring off the piston and replace it by a new one. Pull the ring off, clean and refit it. Replace gasket by a new one. Dismantle and repair it.
		Engine has compression Spark plug is sparking	Carburettor in good working order	Overheated engine. Insufficient lubrication. Broken accelerator cable. Defective gasket between carburettor and cylinder.	Let the engine cool down and keep it running at low speed. Observe correct mixture ratio of petrol and oil. Replace or reconnect the cable. Replace gasket, tighten the flange.
			Carburettor defective	Clogged jet. Perforated float. Float needle does not close. Connection of sparking plug to frame via end piece due to water.	Unscrew jet and clean it. Solder or replace float. Replace defective needle by a new one. Dry cable and end piece.
Engine has insufficient performance	Permanently			Excessive carbon deposits in cylinder, cylinder head, and in exhaust silencer. Partly clogged fuel supply. Maladjusted ignition. Maladjusted carburettor. Carburettor throttle seized. Clogged exhaust silencer.	Remove cylinder head, cylinder, or even the exhaust tube and remove carbon deposits. Remove fuel feed pipe and clean it. Adjust contact breaking and ignition advance. Adjust idling speed, needle position, and clean intake air cleaner. Release and adjust the throttle. Clean the exhaust silencer.

Engine has insufficient performance	Permanently		Worn surfaces of cylinder and piston.	Rebore the cylinder, replace piston and piston rings, determine piston bearing wear.
			Engine sucks in by-pass air (crankcase half or carburettor flange are untight).	(Specialized workshop). Remove one crankcase half, clean bearing surfaces, apply sealing cement and fit tightly. Replace carburettor flange gasket.
			Damaged shaft sealing ring 25 mm dia. × 47 × 10 mm (excessive smoking).	Replace shaft sealing ring.
			Untight cylinder head.	Grind its contact surface.
			Brake shoes rub against brake drums.	Adjust brakes.
	At times		Partly clogged fuel feed pipe or screen in the shut-off cock, or in carburettor.	Clean fuel feed pipe or screen.
			Accelerator cable jamming.	Lubricate or replace cable.
			Defective spark plug.	Replace spark plug.
			Overheated engine.	Let the engine cool down and keep it running at low speed.
			Lost circlip of carburettor needle.	Fit new circlip.
	Difficult Gear Shifting	When starting from rest	Clutch cannot be disengaged properly.	Adjust clutch correctly.
		During travel	Gear change pedal does not return to its neutral position.	Check gear shifting mechanism.
			Speed gears can neither be shifted not disengaged.	Rely on a specialized workshop.
	Unstable steering		Tyre pressure does not conform to specification.	Inflate tyres correctly.
			Front fork loose in steering head.	Tighten steering nut.
			Wheels do not follow the same track.	Adjust rear wheel by means of chain tensioners.

IX. SPARE PARTS

The following spare parts are recommended to be kept in motor cycle equipment:

Manufacture Code-No.:	Part
30–5335	Accelerator cable, assy.
30–5325	Front brake cable, assy.
30–5315	Clutch cable, assy.
6000	Bulb, 12 volts, 25/25 Watts, Ba 20 d
60200	Bulb, 12 volts, 5 Watts, Ba 15 s
60300	Bulb, 12 volts, 1.5 Watt, Ba 9 s
62000	Spark plug Mk. 14-8R
55001	Tyre tube, 2.5" x 18"
62040	Cylindrical Y-tube
62012	Cylindrical tube
62011	Flat tube
	Insulated wire SYA, 1 sq. mm
	Insulated wire SYA, 0.5 sq. mm
	Insulating tape

Engine and frame number is stamped on the name plate fitted on the frame above the engine. The number in question is intended for motor cycle registration as well as for facilitating spare parts ordering. Therefore the number in question and the year of manufacture should always be quoted, if a part is ordered from the agents or from the factory.

When repairing the motor cycle, exclusively original parts should be used, since they are precision-made and factory-checked, and ensure high-quality repair. Have the motor cycle repaired in the guarantee repair shop if any defect occurs during the warranty term: thus a correct and speedy execution of repair is ensured.

The motor cycle is usually equipped with 2.75" x 18" size tyres of M 9 tread design or 2.5"×18", M10 tread design. The owners of the CROSS range motor cycles can obtain tyres with. S 22 off-the-road tread for competition purposes as a spare part.

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