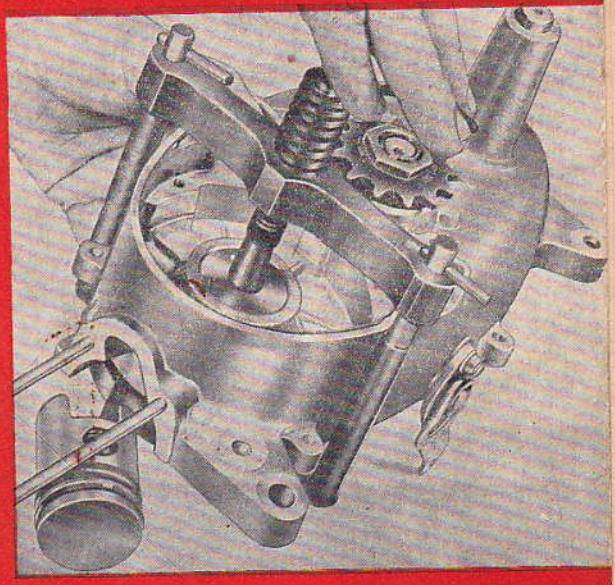
OWNERS CLUB



WORKSHOP MANUAL

TYPE 05

JAWA 50

WORKSHOP MANUAL

JAWA 50 type 05

1963

Považské strojárne, Považská Bystrica
MOTOKOV, Praha, Czechoslovakia

Contents

I. TECHNICAL DATA AND MAINTENANCE

1. Technical data

Weights

Weight of the vehicle less fuel	65 kgs or 143.3 lbs ± 2%
Maximum loading of front axle	62 kgs or 136.7 lbs
Maximum load of rear axle	168 kgs or 370.4 lbs

Engine

Type of engine	05 — two-stroke engine
Capacity of cylinder	49.9 cc or 3.05 cu.ins.
Bore of cylinder	38 mm or 1.496 ins.
Stroke of piston	44 mm or 1.732 ins.
Compression ratio	1 : 7.5
Maximum output of engine	3 HP at 6000 r.p.m.
Maximum torque	365 kgm at 4,800 r.p.m.
Scavenging	reverse
Basic ignition advance	2.7 to 3 mm or 1.063 to 1.181 ins.
Contact breaker points gap	.4 mm or. .0157 ins.
Bearings of engine	6002dia. 15/53×11 — 1 pc 6302 dia. 15/42×13 — 2 pcs 6004 dia. 20/42×12 — 1 pc
Material of the cylinder barrel	aluminium alloy with liner made of grey cast iron
Spark plug	PAL 14—7 RZ
Type of carburettor employed	Jikov 2915 PS
Main jet	60
Idling run jet	38 or 40
Diameter of venturi	dia. 15 mm or. 59 ins.
Weight of the engine	12 kgs or 26.455 lbs.
Minimum specific fuel consumption	400 g/HP/h at 5,800 r.p.m.
Level of noise	75 dB

Fuel consumption, Speed

When loaded 2 persons (160 kgs)	With a single person (80 kgs)
Average fuel consumption 3.21/100 km	2.3 1/100 km
or 88.3 mpg	or 122.8 m.p.g.
Top speed 50 km.p.h.	60 km.p.h.
or 31 m.p.h.	37.28 m.p.h.
Maximum climbing ability 15 per cent	25 per cent

Transmission system

Number of gears in gearbox	three
Clutch	double-plate in oil bath

Primary transmission with chain	3/8" × 3/8" — 44 links
Secondary transmission with chain	12.7 × 5.21 mm 109 + 1 link
Overall transmission: 1st gear	28,99 or 31,58
2nd gear	15,21 16,47
3rd gear	10,28 11,13

Frame

Suspension of front wheel	telescopic fork
Front suspension travel	90 mm or 3.54 ins.
Rear suspension travel	85 mm or 3,346 ins
Rear suspension system	Pivoted fork with two telescopic shock absorbers

Brakes

Diameter of brake drum (brake shoes)	125 mm or 4.92 ins.
Width of brake shoe lining	20 mm or .787 ins.

Wheels

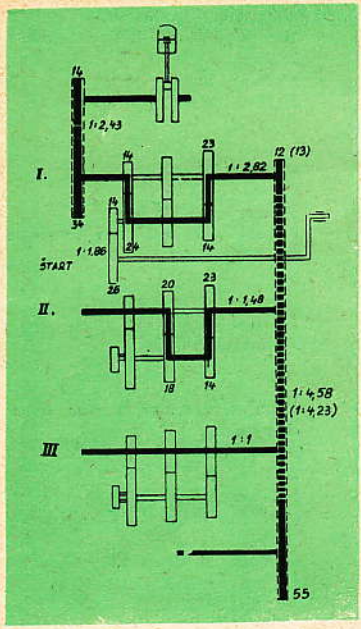
Execution	identical for front or rear, interchangeable
Dimensions of wheel rims	1.5 A × 16"
Dimensions of tyres	2.75 × 16"
Brake drums	full hub width
Bearing of wheels	6201 dia. 12/32 × 10 — 4 pcs
Bearing of driven wheel of secondary transmission	6004 dia. 20/42 × 12 — 1 pc
Pressure of inflation: front tyre	1.5 atp. or 21.3 p.s.i.
rear tyre	1.9 atp. or 27 p.s.i.

Fuel tank

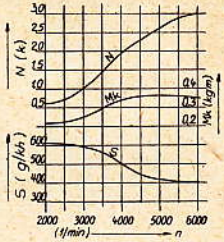
overall capacity	5.5 lit or 1.21 imp. gals.
Speedometer	dia. 48 mm, scale 0 to 80 km/h

Electric equipment and accessories

Ignition system	magnet 6 V
Lights — headlamp	15 watts
rear light	5 watts
Electric current generator	magneto 6 V, 20 watts
Ignition coil	6 V, 02 — 9211.04
Condenser	.27 pF



Diagrammatic plan of gears.



Power output Ne/HP, torque Mk (kgm) and fuel consumption Sp (grams/HP/hour) diagram with regard to r.p.m.

2. Classification of pistons and cylinder barrels

The pistons and cylinder barrels have been classified into three classes (A, B, C) in accordance with their diameters. The letter indicating their class is embossed on the part. Having rebored a cylinder barrel, mark it at its top seating face with the due letter of class and the number of rebore. The cylinders are rebored to diameters as indicated in the following table. Marking of the piston must be in agreement with the marking of cylinder for which it is being used.

Classification of cylinders

	A	B	C
Standard cylinder	38,00 + 0,006	38,006 + 0,005	38,011 + 0,005
Ist rebore	38,25 + 0,006	38,256 + 0,005	38,261 + 0,005
IInd rebore	38,50 + 0,006	38,506 + 0,005	38,511 + 0,005
IIIrd rebore	38,75 + 0,006	38,756 + 0,005	38,761 + 0,005
IVth rebore	39,00 + 0,006	39,006 + 0,005	39,011 + 0,005

Classification of pistons

	A	B	C
Standard piston	37,94 $^{+\ 0,00}_{-\ 0,01}$	37,95 $^{+\ 0,00}_{-\ 0,01}$	37,96 $^{+\ 0,00}_{-\ 0,01}$
Ist rebore	38,19 $^{+\ 0,00}_{-\ 0,01}$	38,20 $^{+\ 0,00}_{-\ 0,01}$	38,21 $^{+\ 0,00}_{-\ 0,01}$
IInd rebore	38,44 $^{+\ 0,00}_{-\ 0,01}$	38,45 $^{+\ 0,00}_{-\ 0,01}$	38,46 $^{+\ 0,00}_{-\ 0,01}$
IIIrd rebore	38,69 $^{+\ 0,00}_{-\ 0,01}$	38,70 $^{+\ 0,00}_{-\ 0,01}$	38,71 $^{+\ 0,00}_{-\ 0,01}$
IVth rebore	38,94 $^{+\ 0,00}_{-\ 0,01}$	38,95 $^{+\ 0,00}_{-\ 0,01}$	38,96 $^{+\ 0,00}_{-\ 0,01}$

Note: dimensions for classification of piston are checked 32 mm or 1.259 ins. from the base of the piston.

3. Classification table for assembly of connecting rod bearing

Connecting rod		Rollers								
		A	B	C	D	E	F	G	H	I
Pins	1					VII	VI	V	IV	III
	2				VII	VI	V	IV	III	II
	3			VII	VI	V	IV	III	II	I
	4		VII	VI	V	IV	III	II	I	
	5	VII	VI	V	IV	III	II	I		

Assembly groups

Connecting rod: (4, 4a) Part No. 05 — 1209	Roller (7) Part No. 05 — 1210	Crankshaft pin (5) Part No. 05 — 1213
I. 26,188 + 0,002	A 3,000 — 0,002	1 20,200 — 0,002
II. 26,190 + 0,002	B 2,999 — 0,002	2 20,198 — 0,002
III. 26,192 + 0,002	C 2,998 — 0,002	3 20,196 — 0,002
IV. 26,194 + 0,002	D 2,997 — 0,002	4 20,194 — 0,002
V. 26,196 + 0,002	E 2,996 — 0,002	5 20,192 — 0,002
VI 26,198 + 0,002	F 2,995 — 0,002	
VII. 26,200 + 0,002	G 2,994 — 0,002	
	H 2,993 — 0,002	
	I 2,992 — 0,002	

Example of classification in accordance with the table above:

At the presumption, that connecting rod dia. 26,192 + 002 (group III) and the crankshaft pin dia. 20.192 — .002 (group 5), and in accordance with the table rollers dia. 2,996 — .002 (group E) must be used.

Ref. No.	Operation
1.	Thorough cleaning of the vehicle
2.	Check tyre pressure — inflation
3.	Check the lights and buzzer
4.	Check and adjust the brakes
5.	Check the sparking plug, clean it and set the point gap
6.	Decarbonise the exhaust silencer
7.	Decarbonise cylinder head, piston, exhaust port and exhaust pipe
8.	Clean the induction silencer and oil the wire mesh (9)
9.	Check and tighten all leads in their terminals. Check lead insulation
10.	Check and tighten spoke nipples
11.	Check and tighten all surface screws, bolts, nuts and pins, incl. engine fastening studs
12.	Check and clean the carburetter and the fuel tap
13.	Check and adjust the clutch
14.	Clean the contact breaker points and check the ignition advance
15.	Lubricate the contact breaker arm pin and felt (7)
16.	Clean and lubricate the rear chain on the machine (10)
17.	Check the rear chain tension
18.	Remove the rear chain, wash and lubricate it with graphited grease Fit and adjust (10)
19.	Lubricate the hand lever pins (2) and foot brake pedal pin (3)
20.	Lubricate the telescopic front fork (4)
21.	Lubricate the wheel ball bearings (6)
22.	Lubricate the twist grip (8)
23.	Check and top up oil in the gearbox (5)
24.	Change the oil in the gearbox (5)
25.	Lubricate the throttle, clutch and brake control cables (14)
26.	Lubricate the kickstarter pedal pin (12), centre stand pin (13), speedometer drive (17), brake cams (11), and speedometer flexible shaft (16)
27.	Lubricate the steering head ball bearing (15)
28.	Check the operation of the pivoted rear fork dampers, if necessary, top up the damper liquid (18)

MAINTENANCE TABLE

Mileage covered:							Note
0	600	1800	3000 9000	4500 10500	6000 12000	7500 15000	
	x	x	x	x	x	x	If necessary
x	x	x	x	x	x	x	Before every ride
x	x	x	x	x	x	x	Before every ride
x	x	x	x	x	x	x	Before every ride
	x	x	x	x	x	x	If necessary
		x	x	x	x	x	First after 900 miles
			x		x		
	x	x	x	x	x	x	Every 500 — 600 miles
	x	x	x	x	x	x	
	x	x	x	x	x	x	
	x	x	x	x	x	x	
	x	x	x	x	x	x	
x	x	x	x	x	x	x	
		x	x	x	x	x	
		x	x	x	x	x	Every 500 — 600 miles
	x						Every 500 — 600 miles
	x						
		x	x	x	x	x	
	x	x	x	x	x	x	Every 500 — 600 miles
	x	x	x	x	x	x	Every 500 — 600 miles
		x	x	x	x	x	
		x	x	x	x	x	
x	x		x		x		Every 500 — 600 miles
		x		x		x	First after 300 miles
		x	x	x	x	x	
			x		x		
			x		x		
					x		If necessary

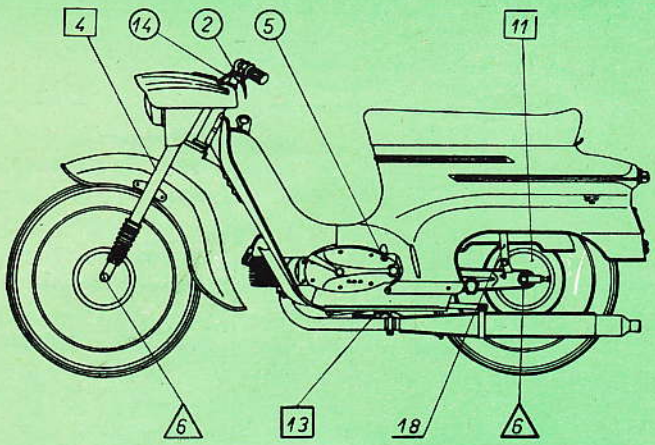


FIG. 4

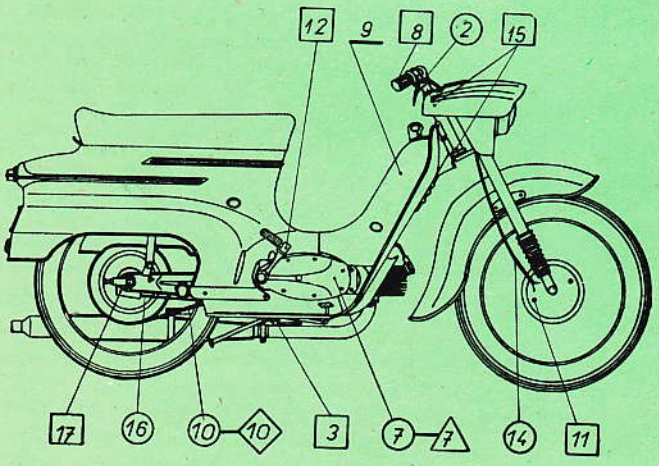


FIG. 5

5. LUBRICATION CHART OF THE VEHICLE

Miles (km) covered	○	□ ◇	△
	In hot weather: Gearbox oil PP 7 Castrol SAE 50 Shell Spirax 90 E.P. In cold weather: Gearbox oil PP 7 Castrol SAE 20–30 Shell Spirax 90 E.P.	Grease A 00 Castrolease CL Castrolease graphited Shell Retinax A	Grease AV2 Castrolease heavy Shell Retinax A
	Lubrication point		
500–600 (900–1000)	2 Hand lever pins 5 Gearbox (topping up) 10 Rear chain (add grease)	3 Foot brake pedal pin 4 Telescopic front fork	
1.500–1.600 (2.400–2.600)	7 Contact breaker arm pin (oil drop) 14 Control cables	8 Twist grip 10 Rear chain (place in hot lubricant)	7 Contact breaker felt (saturate with grease and oil) 6 Wheel bearings
3.000–3.200 (4.800–5.200)	5 Gear box (oil change) 16 Speedometer flexible shaft (after detaching oil some drops)	11 Brake cams 12 Kickstarter pedal pin 13 Centre stand pin 15 Steering head (grease after dismantling and washing) 17 Speedometer drive gear	
	18 **Rear suspension telescopic dampers** — top up, if necessary. 30 c.c. of damper liquid per damper: damper oil (Shock Oil, Damper Oil, X 100 20 W). When dismantling grease the damper coil spring with grease (Castrolease CL, Shell Retinax A). Change oil once in two years.		

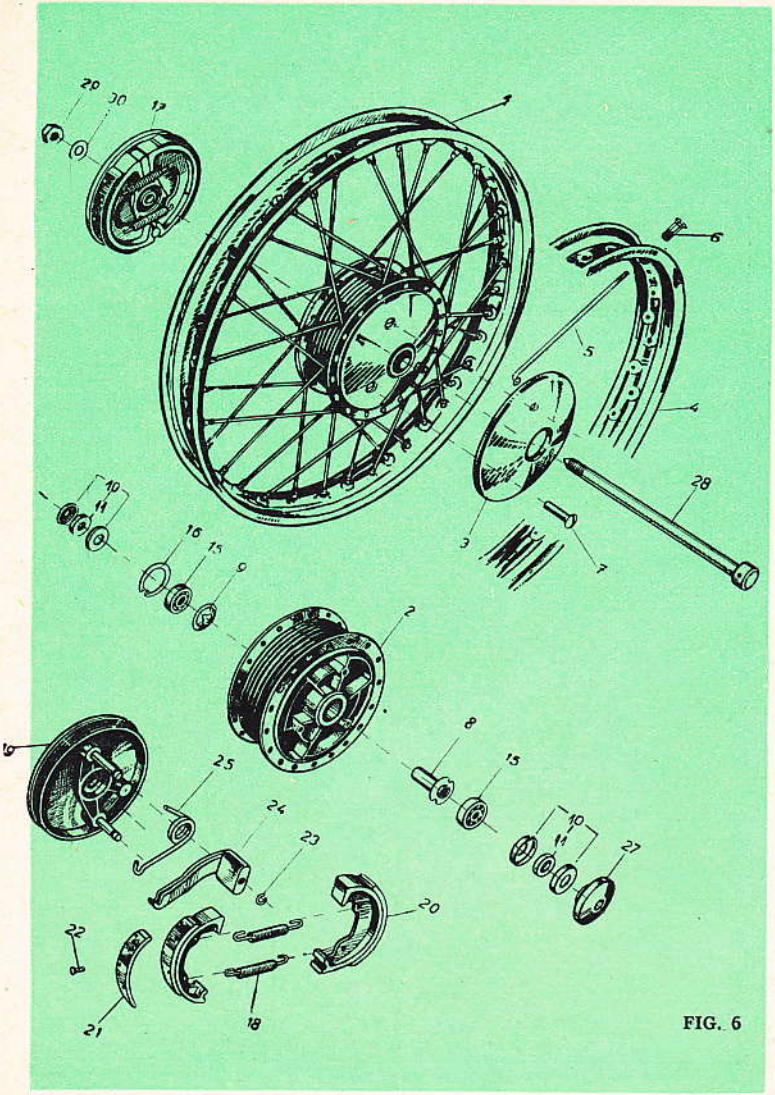


FIG. 6

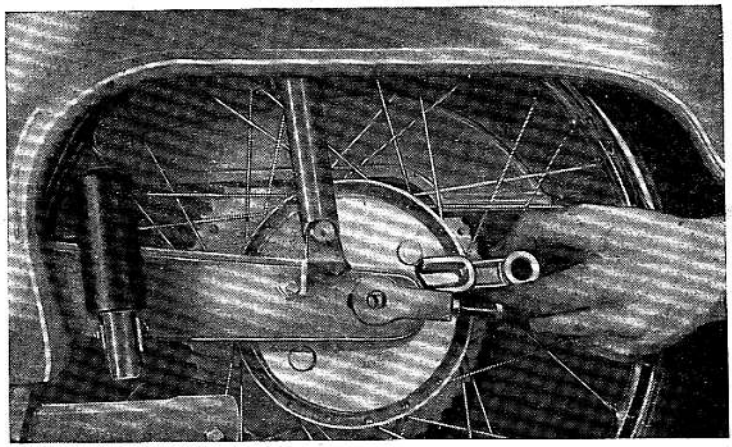
500—600 (900—1000)	9 Air cleaner — after washing in petrol moisten with oil. On dusty roads more often, if necessary.
	5 Gear-box — during running-in after the first 300 miles (500 km) and next 1.500 miles (2.500 km) change the oil.
	Fuel mixture: During running in (up to 900 miles — 1500 km) petrol with oil at a ratio of 20 to 1 (petrol with Castrol SAE 40—50 or Shell at a ratio of 20 to 1). After running in period (having covered 900 miles — 1500 km) petrol with Castrol SAE 40—50 or Shell at a ratio of 24 to 1.

II. FRAME

6. Removing the front wheel (refer to fig. No. 6)

By means of a socket spanner opening 19 screw out the nut (29), remove the spring washer (3) and pull out wheel spindle (28). By a slight lowering of the wheel pull out pin of the brake drum back plate (17) of out the reaction catch and remove the wheel. The brake back plate with its brake shoes (17) remain on the cable of the front brake.

FIG. 7



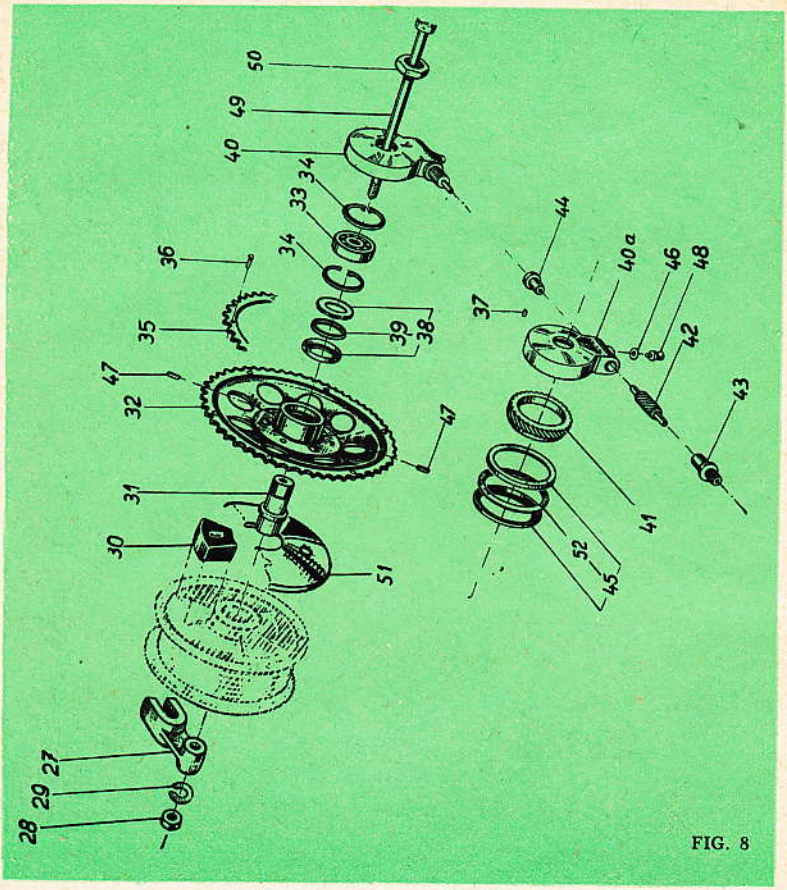


FIG. 8

7. **Removing the rear wheel** (refer to fig. No. 8)

The spindle and the nut are removed in the same way as previously mentioned (front wheel). Free the rear wheel brake control cable from under the clamp (from inside the pivoted rear fork). At the l.h. side pull reaction catch rearwards (27). Slip out wheel off the engagement pins of the chainwheel (32), place it to the upper rear part of the rear cowl, take off the brake back plate and put it freely over the

left arm of the pivoted rear fork. Lift the motorcycle catching the grip on the rear cowl that the wheel could fall out freely.

Note: When fitting the rear wheel to the machine take care that the reaction catch is not fixed upside down (fig. No. 7).

8. Exchanging bearings in wheels (refer to fig. No. 6)

Exchanging of bearings is identical for both wheels. Screw out three countersunk screws (7) fixing the metal sheet cover (3) to hub of wheel (2) and remove the cover. From both sides of the wheel hub take out seals (10). From the l.h. side of the hub remove circlip (16)by means of circlip installing pliers. Into the bearing orifice (15) fit the puller N 16 and pull out the bearing (refer to fig. No. 9).

In the same way carry out unassembly of the r.h. side bearing (15). The unassembly finished, clean all the parts from old grease and wash in kerosene. If the bearing has been found to be worn, replace it with a new one. When assembling the bearing, proceed as follows: To make the assembly easier, warm up slightly the brake drum hub to approximately 80°C or 176°F. From the l.h. side slip in the bearing, secure it with Seeger circlip and insert seal with felt ring. Then press grease into the hub, insert the spacing ring, the r.h. side bearing and felt ring. Make sure to soak the felt ring with oil prior to assembly.

9. Removing brakes (refer to fig. No. 6)

Having removed the brake back plate (17) off the wheel hub, pull the brake shoes (20)apart and remove them off the brake back plate (19). Then depress the brake lever (24) and slip off the cylinder with the cable protecting tube. Then screw out of the brake back plate (19) the adjusting screw and pull out brake cable guide. For the purpose of assembly take the reverse steps. Lubricate slightly with grease both the pins and brake cam.

10. Removing rear chainwheel and exchange of bearing (refer to fig. No. 8).

The rear chainwheel can be unassembled and taken out of the rear wheel. The secondary transmission chain is disconnected, the flexible driving shaft of the speedo-

FIG. 9

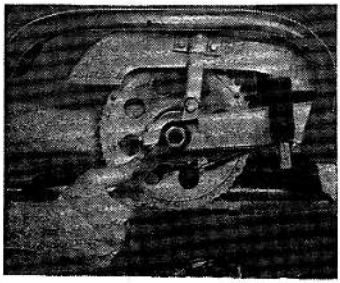
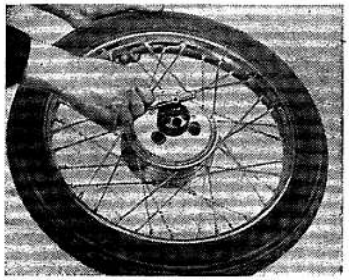


FIG. 10



meter is removed (40). By means of spanner N 42 the fixing nut (50) is screwed out and the chainwheel complete (32), (refer to fig. No. 10) is removed from the r.h. side arm of the pivoted fork. Then remove drive of speedometer (40) off the chainwheel hub and by means of light tapping with a wooden mallet knock off hub (31) from its bearing. Remove the seal (38) with its felt ring (39). By means of Seeger circlip pliers remove the securing circlip (34). By means of puller N 16 pull off bearing (33).

For the purpose of assembly make use of reverse steps. Be sure to lubricate the bearing and soak felt ring with transmission oil.

11. Removing and assembly of covers

a) **Front cover**

Having unlocked the lock, grip the front cover (1) by its bottom part, pull apart slightly and lift (refer to fig. No. 11).

Then pull the entire cover rearwards, until in its top part a hook is slipped out from the orifice in the frame.

b) **Front windshield**

In removing the windshield do the following:

Remove the screw of the headlamp and tilt it off. Disconnect flexible shaft from speedometer. Screw out terminal from the cable of the ignition coil. Both the flexible shaft and the cable of the ignition coil are pulled out simultaneously through the rubber grommets out of the windshield towards the engine. On both the sides of the footrest screw out per one screw M 5 × 10, which are fixing the tunnel (17) to the footrests and remove the tunnel. In the top part of the windshield (16) remove three screws, in the bottom part five screws M5 × 10, fixing the front windshield to the frame and floors and remove the shield.

c) **Rear cover**

Remove three screws M6 × 10 under the saddle in its front part and then remove the saddle. Disconnect the yellow conduit of the rear light in its bakelite terminal base plate located over the engine. Having removed two nuts M6 in the top part of the rear cover, one screw M6 × 10 fixing the cover to the frame and four screws M5 × 10 with nuts, fixing the rear part of the cover to the floors, remove the cover by a slight pulling apart.

When covers are assembled, take the reverse steps.

12. Removing headlamp

Having removed the screw M5 at the bottom part of the headlamp rim, tilt the headlamp. By turning the body with lock at the rear part of the reflecting parabolic mirror, remove the headlamp.

13. Removing handlebars

The handlebars are removed together with the throttle valve control cable. Remove the front cover, the r.h. side crankcase cover, and disconnect throttle valve control

cable (chapter 23). Then remove lever of the front brake on the handlebars together with the clutch lever and with their control cables. Remove the headlamp (chapter 12) off its lock, disconnect conduits leading from the choke and buzzer to the dipswitch on the handlebars. Then with a spanner opening 10 slacken the handlebar spindle and knock it down by means of a wooden mallet. By slight turning of the handlebars (levering), pull them out together with the control cable of throttle valve. For the purpose of assembly, take reverse steps of work.

14. **Removing headlamp cowling** (refer to fig. No. 12)

In this operation it is necessary to remove the handlebars and headlamp in the first place. Then, in the space of the headlamp cowling (1) the flexible shaft of speedometer (30) is disconnected and in the top part of the cowling two screws (41) fixing the switchbox (40) are removed. From the electric buzzer (37) the electric conduit is disconnected. Remove two screws and nuts that fix the cowling of the headlamp to the carrier part and the cowling is then taken off.

For the purpose of reassembly follow reverse steps of operation indicated. Take care, however, that bushes are inserted into the brake and clutch operating levers.

FIG. 11

15. **Removing fork from frame** (refer to fig. No. 12).

Remove the front wheel, handlebars and headlamp cowling as has been described in the previous chapters. Remove nuts M6 (12) and both plugs (24) from both the arms of the fork. Remove two screws M6 × 7 (11) and take off covering sheet

with choke. Unscrew two nuts (5) and remove top carrier beam (4), the metal sheet (2) and pull out the front fork. When pulling out the front fork take care that the bearing balls do not fall off.

When carrying out assembly, take reverse steps. Be sure to grease thoroughly the bearing races and balls and then tighten the fork by means of nuts (5) in such a way, that it revolves freely, but in the absence of any play.

16. **Unassembly of plungers and legs of front fork** (refer to fig. No 12).

Remove the front wheel. Release the tightening strap (26) from rubber sleeves (27) and by turning the plungers to the left (anticlockwise), unscrew and pull it out. For assembly select reverse steps.

Having fuly mounted the plungers, lubricate them with grease.

17. **Unassembling the rear wheel telescopic shock absorbers** (refer to fig. No. 14).

Remove the saddle from the machine
Remove front cover
Remove rear cover

By means of spanner opening 14 remove screws and nuts fixing the shock absorbers to the frame of the machine and to the arms of the pivoted rear fork. Then remove the shock absorbers. By means of the pressing tool N 11 (fig. No. 13) adjust for both unassembly and assembly the rear telescopic shock absorbers, making use of the following service tools:

1. Tube with wrench of the puller N 10
2. Puller of bearing N 16

These tools are put into the extracting tool N 11 in accordance with the illustration fig. No. 13.

Into the prepared extracting tool N 11 insert the telescopic shock absorber and depress to such an extent as to be able to remove the peg (82) from the hinge of the shock absorber (85). In depressed state insert spanner opening 7 into the milled faces of the tie rod (97), thus securing the tie rod against turning and screw out the hinge.

Then pullout the spanner and release the depressed parts. The top cover (104), the spring (106), the bottom cover (105) and the rubber buffer (107) are removed from the cylinder complete (84).

Unscrew from the cylinder assy the sealing bush assy (88) and remove it together with the plunger assy (96).

Pour the old damper oil out of the cylinder assy and wash the cylinder together with the plunger in paraffin oil. To repair the plunger assy (96) or the sealing bush assy (88) proceed with the dismantling as follows: Remove the sealing bush assy from the plunger rod. Unscrew nut M 8 (102) from the bottom portion of the rod (97) and remove the plunger (98) together with the sleeve (99).

Push the two pins (93) securing the clamping screw (90) to the bush (89) out of the sealing bush (88) and pull out the clamping screw.

Should the damper be leaky replace if necessary the silon ring (94) or the two rubber rings (95) in the clamping screw or replace the whole clamping screw (90).

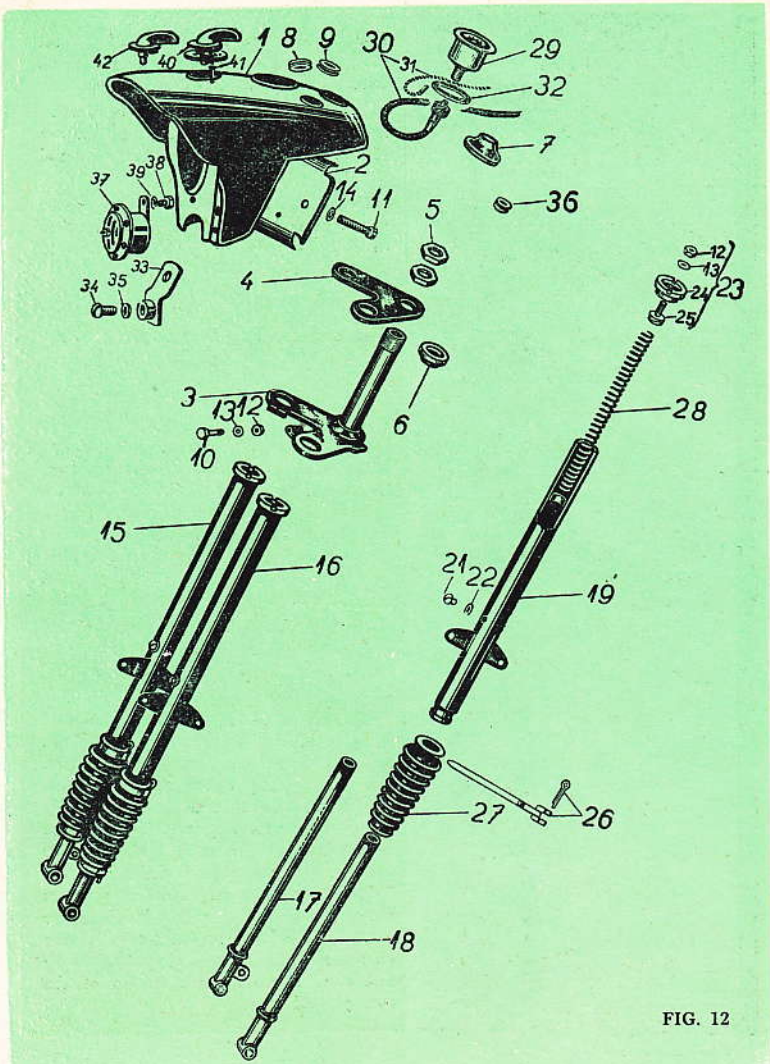

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FIG. 12

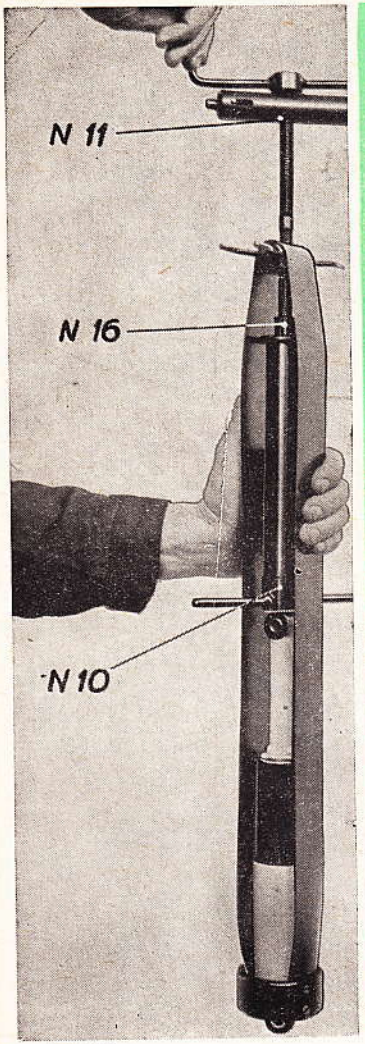


FIG. 13

Before fitting the silon ring (94) to the clamping screw heat the ring in oil heated to approx. 150° C (300 F).

To assemble proceed in reverse manner. After screwing the nut (102) to the rod (97) secure the nut by tapping the rod end.

Before fitting the plunger assy (96) in the cylinder (84) pour in the prescribed amount (30 c.c. — 1,804 cu. ins) of damper oil.

18. Unassembling the rear pivoted fork
(refer to fig. No. 14)

The rear pivoted fork can be unassembled only by means of a press, in that the pin is pressed out of the bushes of the pivoted fork and frame. Unassembly of the pivoted fork is carried out off the frame only, off which all the other parts as described in the previous chapters have been stripped. Unassembly of the rubber blocks of the rear pivoted fork is also done by means of a press, in that the bush is pressed out of the rubber block.

Assembly is done in the following way:

The rubber block (34) is slipped into the pivoted fork and then a leading pin is inserted into the bush (refer to fig. No. 15a). Then smear the bush (23) slightly with liquid cement and press by means of a pressing machine into the rubber block. Put a straight object under the eye of the pivoted fork, with an orifice in such a way, that it prevents pressing out of the rubber block in the course of pressing in the bush. Having assembled both the rubber blocks by means of a press, force in pin of the rear pivoted fork.

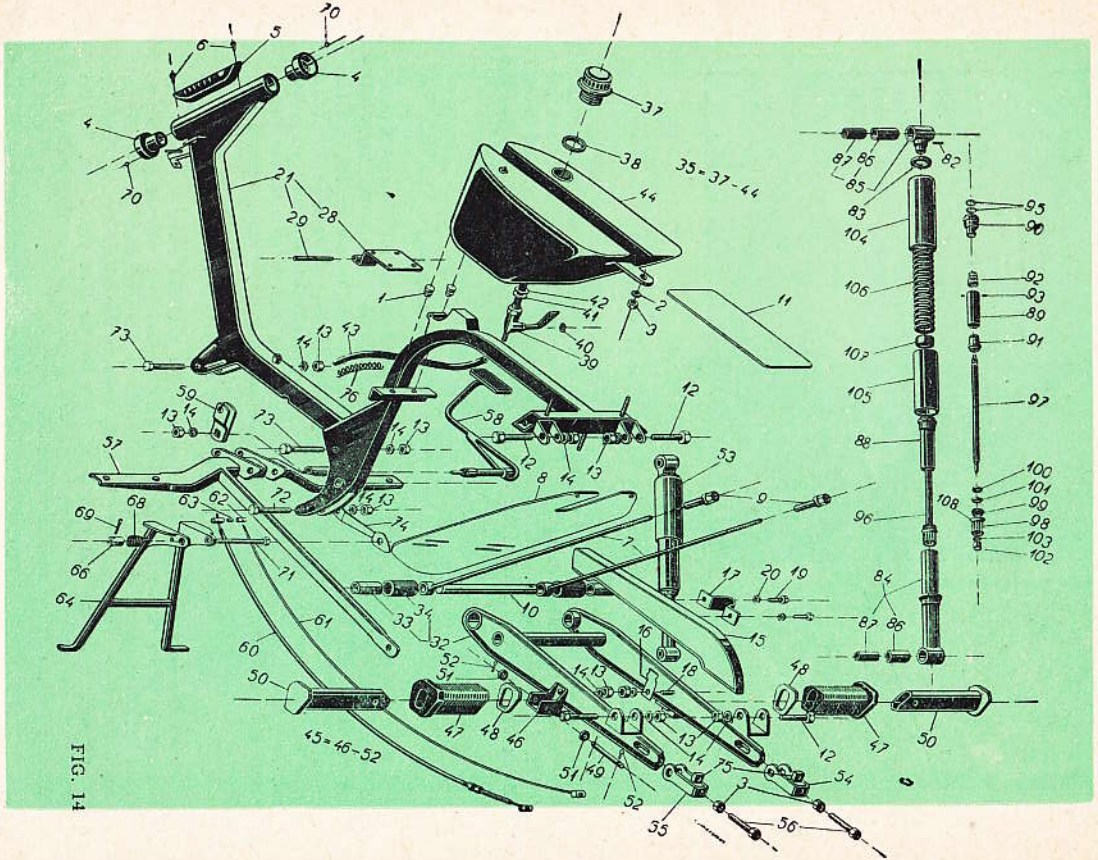


FIG. 14

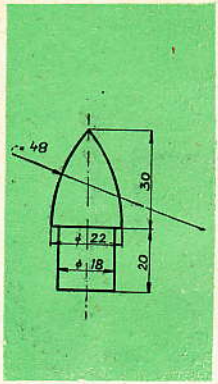


FIG. 15

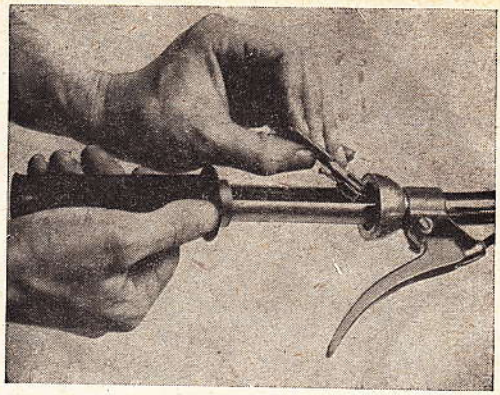


FIG. 16

19. Exchanging the flexible shaft of speedometer

Remove the front cover and the headlamp. From the speedometer in the space of the headlamp screw out the knurled nut of the flexible shaft and pull the shaft together with the rubber grommet in the direction towards the engine. From the inside of the r.h. side arm of the pivoted fork remove the fixing eye. Out of the driving box in the rear wheel remove the knurled nut and pull out the flexible shaft.

For the purpose of assembly follow reverse progress of work.

20. Exchanging the throttle valve control cable.

Remove the headlamp and the front cover. Disconnect the throttle control cable at the carburettor (chapter 23). Turn the twistgrip in such a way as to allow screwing out the securing screw of plug in handlebars through its side orifice. Then the twistgrip is pulled off together with the plug. The end piece of the cable is removed from the sliding runner and both the cable protecting tube and the cable are pulled out. Assembly is carried out in that the progress of work is reversed, the sliding runner and the twistgrip in its inside space having been previously smeared with grease.

21. Exchanging the clutch control cable.

Remove the front cover, the headlamp and the r.h. side cover of engine. By releasing the screw of the securing roller the cable has been released and can be pulled out of the control lever. At the r.h. side of the handlebars the rest cup is slipped out of the clutch operating lever. By twisting the cable, slip out the roller and the cable protecting tube as well as the cable are then pulled out. For the purpose of reassembly follow reverse progress of work to that described above. Adjusting is done as indicated in chapter 59.

FIG. 17

22. Exchanging the front and rear brake control cable.

When exchanging the control cable and cable protecting tube of either the rear or front brake, it is necessary to unassemble the rear or the front wheel. Then, the brake shoes must be removed from the brake back plate and from the brake cam the control cable must be released. Having removed the cable roller off the cable, screw out of the cover the adjusting screw and then pull the cable out.

When exchange of the front brake cable is carried out, also the headlamp is to be removed. The front brake control cable is released off the brake lever and the cable is pulled out. The rear brake control cable is released by means of a screwdriver in that its securing screw is released through an aperture in the r.h. side floor and then the cable is pulled out.

For the purpose of reassembly, make use of reverse progress of work. The cables are to be duly lubricated prior to assembly with oil indicated in the „chart of lubrication".

III. CARBURETTOR

23. Unassembly and assembly of the carburettor 2915 (refer to fig. No. 18)

Remove the front cover (chapter 11).

Close the fuel tap; out of the carburettor float chamber disconnect the fuel hose. Remove the air cleaner off the carburettor venturi (the air cleaner forms at the same time the intake silencer). On the carburettor unscrew the cover of the mixing chamber (3), which pull out together with the throttle valve (7) out of the carburettor body (16). By depressing the spring (4) disconnect the cable end piece out of the throttle valve and then take out the throttle valve together with its spring and with the cover.

The float chamber is unassembled by releasing two screws M5 (12), then the cover (13) is removed and the float with the needle (15) are pulled out.

At the l.h. side body of the carburettor the main jet is to be unscrewed (8), the idling jet (9) and the screw of the throttle valve (10) with its spring (11).

Remove the carburetter body together with the carburetter stub after slackening two nuts fastening the carburetter stub to the cylinder barrel.

The intake silencer can be removed after releasing the rubber ring and pulling out the cleaning insertion out of the silencer jacket.

For the purpose of assembly follow reverse progress of work.

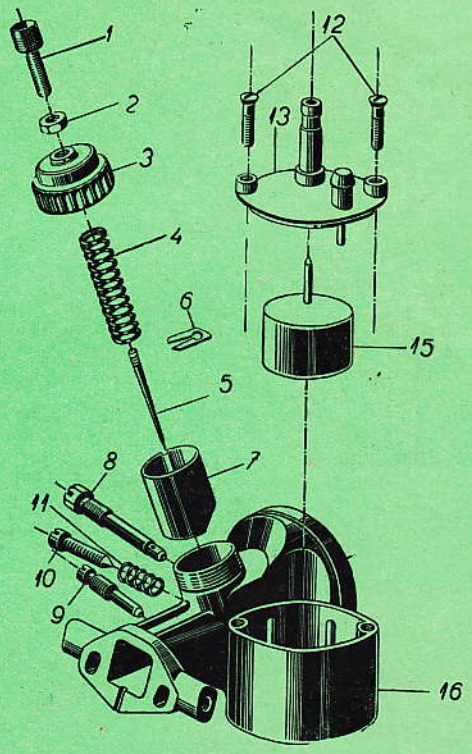
24. Cleaning and maintenance of carburettor (refer to fig. 18)

Cleaning is done in the following way: The carburettor is removed from the motorcycle (refer to chapter 23). Having unassembled all of its component part, wash them in pure petrol. Jets and orifices in the carburettor body must be blown through. Cleaning and maintenance is to be done in accordance with the Maintenance table.

Note: Orifices in jets and ports in the carburettor body must not be cleaned by means of hard objects (e.g. wire).

The carburettors are carefully set and adjusted in the production works already. The correct efficiency of the carburettor is obtained by employment of the main jet

FIG. 18



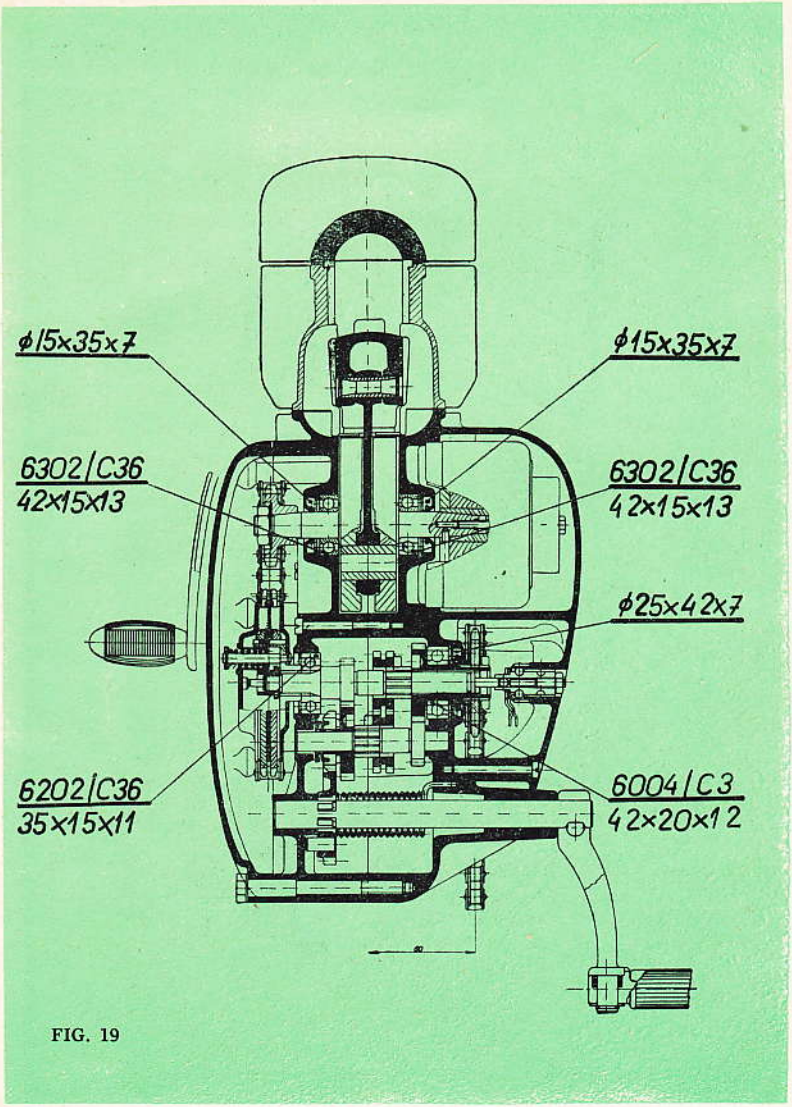

ϕ15x35x7
ϕ15x35x7
6302/C36
42x15x13
6302/C36
42x15x13
ϕ25x42x7
6202/C36
35x15x11
6004/C3
42x20x12

FIG. 19

60. Generally the employment of jets in the carburettor is as follows: two jets (the main one 60 (8) and idling jet 38 or 40 (9)). Between both the jets there is in the carburettor body an adjusting screw assembled for the throttle valve with spring (10), by means of which idling run of the engine is adjusted. The needle of the throttle valve is adjusted for the breaking-in period into the third groove from top, after the machine has been duly run-in, into the second groove from top. Idling run is adjusted by means of the throttle valve screw (10) and after due adjustment play of the control cable is eliminated by means of the knurled-head screw in the cover of the mixing chamber.

IV. ENGINE

A. Unassemblies and assemblies in the absence of removing the engine from the frame of the machine

25. Removing the cylinder head and the cylinder barrel

Remove the front cowl, the air cleaner and the tunnel over the cylinder and slacken the front shield. Then remove two nuts fixing the exhaust pipe and slip the exhaust pipe out of the self tapping screws downwards. Then remove two nuts of the intake neck of the carburettor and remove the carburettor. Then by means of a socket spanner 10 from the tool kit of the machine or alternatively with the special spanner N 37 (refer to fig. No. 20) screw out four nuts of the cylinder head and take them off together with their washers. If the cylinder head cannot be removed easily from the cylinder barrel, release it by a slight tapping with a wooden mallet or by careful prying by means of two screwdrivers. Then put the piston into its B.D.C. position by depressing the kickstarter lever and remove the cylinder barrel (refer to fig. No. 21). Having carried out these operation, cover immediately the

FIG. 20

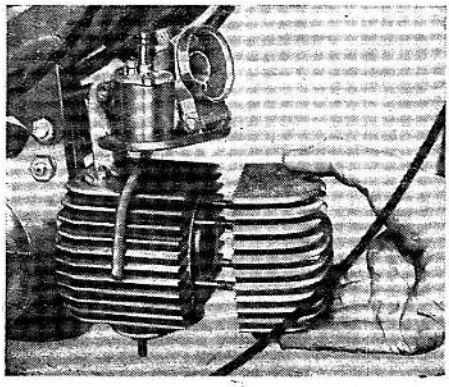
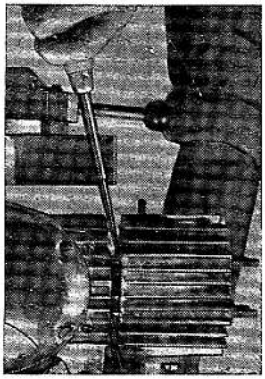


FIG. 21



orifice in the crankcase (caused by removing the cylinder barrel) with a piece of clean cloth to prevent dirt and dust from penetrating into the crankcase space. Removing of carbon deposits can follow.

26. Exchanging the piston rings

Carry out unassemblies as has been indicated previously (in the chapter 25). Then remove piston rings by means of three thin stripes of metal sheet. One of the stripes should be installed in the middle part of the piston ring, the other two at the end parts of the ring, and the rings should be pulled off one by one. Removing of the piston rings can also be done by opening the individual ring with fingers, taking care, however, that the piston ring is not broken. Do carry out exchange of the piston rings as soon as the lock gap exceeds .8 mm or .03149 ins. The correct of the new ring should be approximately .2 mm or .0787 ins.

The width of the gap is ascertained in that the removed piston ring is inserted into the top part of the cylinder barrel and lock gap is measured with a feeler gauge. Instaling new piston rings is done by means of an installing bush N 49 in such a way that the bush is fitted onto the piston and the rings are then slipped over one by one into their due grooves (refer to fig. No. 22).

27. Unassembling and assembling the piston (refer to fig. No. 39)

Remove the cylinder head, cylinder barrel and piston rings. By means of flat pliers remove two Seeger circlips (12) securing the gudgeon pin (11). By means of the pressing tool N7 press out gudgeon pin (11) out of the piston (9). When removing the piston take care that bearing needles (13) do not get lost of the connecting rod small end (if the piston bearing is thus designed). The piston bearing has the bush in the connecting rod (18) or needles (13) with washers (8).

For the purpose of assembly follow the reverse progress of work, i.e.:

Lubricate the small end of the connecting rod with grease and mount bearing needles between two rings (8). Then warm up the piston with hot air or alternatively with water temperature 80°Centigrade or 176°F and by means of a puller N 7 fit the pin. Secure pin in position from both sides with circlips.

FIG. 22

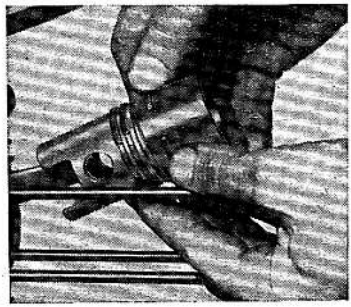
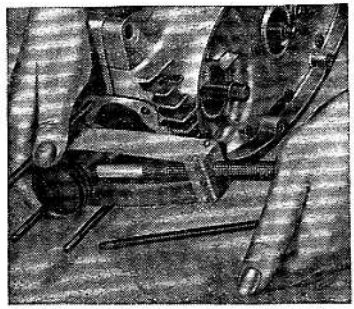


FIG. 23



28. Assembling the cylinder head and cylinder barrel.

Clean the fitting area of the cylinder barrel on the crankcase and slip gasket on the bolts, the gasket being duly soaked in oil. Put the piston into its T.D.C. position by due depressing the starter lever. Lubricate the piston rings with oil, adjust them to correct positions against the securing pegs in the piston grooves. By means of a socket N 50 depress the piston rings and slip in the cylinder barrel over the piston be sure to lubricate it in the inside. Having installed the cylinder barrel over the piston, pull out the auxiliary installing socket. Take care, that washers are duly put on each of the cylinder bolts under each tightening nut, fixing the cylinder head to the cylinder barrel and crankcase. Cylinder head nuts should be tightened in such a way, as to ensure correct and uniform tightening all around the circumference of the cylinder. Prior to assembly be sure to clean thoroughly all the seating faces and smear them slightly with oil. No gasket or sealing putty are put under the cylinder head. Tightness of the cylinder head is ensured by means of two recesses (labyrinths) on the cylinder liner.

29. Unassembling and assembling the starting and gear shifting lever
(refer to fig. No. 37)

At the r.h. side of the engine in the top part release with spanner opening 14 the nut M 8 and the lever (7)is then to be pulled out of the orifice. Disconnect from the „automat" the tie rod of shifting gears and the shifting lever is removed. The starting lever is pulled off after screwing off nut M6, the cotter pin of the starter lever is knocked out and the lever is then pulled off its shaft. When reinstalling both the levers make use of reverse progress of work.

30. Unassembly and assembly of the secondary chain sprocket.

Remove the r.h. side cover of crankcase and disconnect chain of the secondary transmission. Under the nut straighten the safety washer by means of the straighten-

FIG. 24

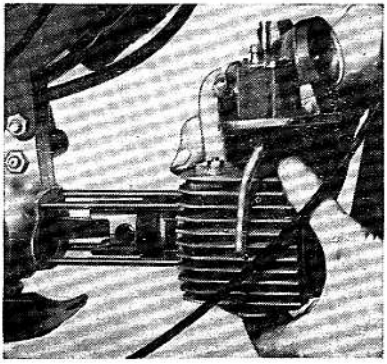
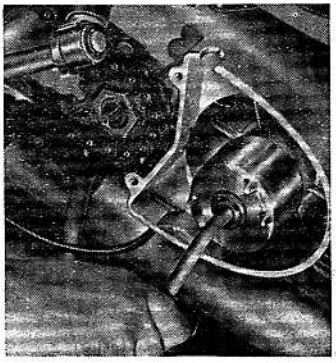


FIG. 25



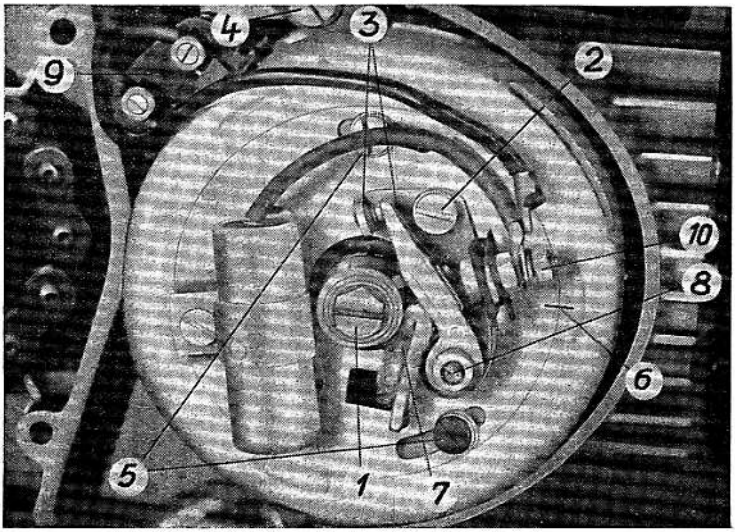
ing tool N 26 and spanner N 40 the nut is removed. By means of the puller N9 remove the chain sprocket. Under the bolt of the puller N9 put a flat washer not to damage the fibre plug on the wheel with hub. For the purpose of assembly proceed in reverse progress of work.

31. Adjusting ignition advance (refer to fig. No. 25).

Screw out sparking plug off the cylinder head and remove the crankcase r.h. side cover. Into the sparking plug orifice the ignition advance gauge N 29 is screwed in, by means of which the piston is put into its T. D. C. position.

In this position adjust distance between contact points of the contact breaker (3) by releasing the adjusting screw (2) to .4 mm or .01157 ins. and then the screw is tightened again. Gap between contact points is ascertained by means of a feeler gauge. Then insert cigarette paper between the contact points of the contact breaker and crank the engine anticlockwise (in the direction opposite to its normal direction of revolutions), thus attracting the contact points together. As son as they have reached the distance of approximately .05 mm (the inserted cigarette paper can be pulled out by a slight pull) the ignition advance is measured. Position of the piston is ascertained by the ignition advance gauge, and its value should be approximately 2.7 to 3.0 mm or .0669 to .118 ins before T.D.C. of the piston. If, however, axis of the gauge is not flush with the axis of the cylinder, this values correspond to

FIG. 26



approximately 3.0 to 3.4 mm or .118 to .1338 ins. as indicated by the gauge. If ignition advance is found to be out of the indicated tolerance 2.7 to 3.0 mm (or 3.0 to 3.4 mm on the gauge), it is necessary to adjust it by turning the magnet. Prior to turning the stator of the magneto, slacken two clamps (4) and by turning the stator clockwise, decrease ignition advance, by turning anticlokwise, increase it. Having correctly adjusted ignition advance, tighten the screws of the clamps and check once more correct size of ignition advance as well as contact breaker gap. When adjustment has been found correct, tighten all the screws and secure in position by paint.

Important note: In the course of adjusting ignition advance two screws secured with paint (5) must not be slackened, which fix the base plate to the body of the magnet. The position of the base plate has duly been adjusted by the producers in the oscilograph method for the most advantageous path of sparking and it is marked with a gauge mark (6). Should the entire base plate be exchanged, it is necessary to adjust the correct position a new by means of an oscilograph. In the absence of this instrument do not carry out exchange of the base plate, but only the magneto complete or contact points of the contact breaker only.

In case of adjusting ignition advance by turning the base plate (by error), the base plate is to be returned into its original position (i.e. flush with gauge marks (6)) and then correct ignition advance is adjusted by turning the entire stator of the magneto.

32. Unassembly and assembly of ignition magnet (refer to fig. No. 25).

Remove the r.h. side cover, disconnect conduits from terminal base plate (9) and the conduit to contact breaker by removing the nut (10). Remove two screws (4) fixing the stator of the magneto by means of clamps to the crankcase. Then remove the stator. Screw out screw (1) fixing cam and rotor to the pin of the crankshaft mechanism and remove the cam. Into the orifice of the screw (1) in the rotor instal the puller N 44 (fig. No. 26) or alternatively a long screw M 8. By revolving the puller, remove the rotor from the crankshaft and extract peg off the crankshaft mechanism pin.

Important note: Having duly removed rotor off the pin, slip it immediately into the stator or alternatively slip the socket P 29 over it, in which way it is protected from demagnetizing.

For the purpose of assembly put into the orifice of the crankshaft pin the peg, and then slip rotor on the pin and fix the cam. Then bolt on the stator, connect conduits and duly adjust ignition advance and contact points gap. In case that the peg is exchanged, which sets position of the rotor, take care that not an excessively high one is used. A high peg would cause non-fitment of the rotor on the self-aligning taper, and the rotor would „throw".

33. Unassembly of primary transmission and clutch (refer to fig. No. 27)

Remove the front cover. By means of a socket spanner N 39 screw out nut M 8, that fixes the shifting lever to the engine and remove the lever. Unassemble the l.h. side floor. In the bottom part of the engine screw out with spanner N 39 the draining plug and drain oil out of the engine. At the left hand side of the engine release all the fixing screws of the cover and by means of spanner opening 12

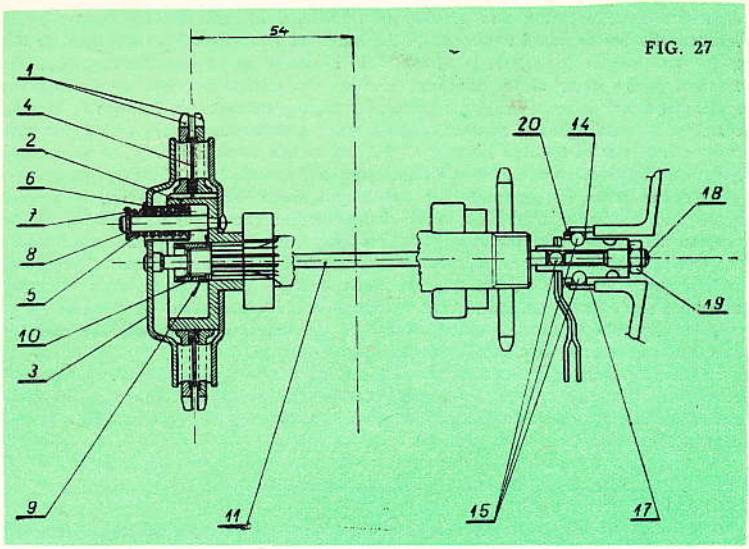


FIG. 27

FIG. 28

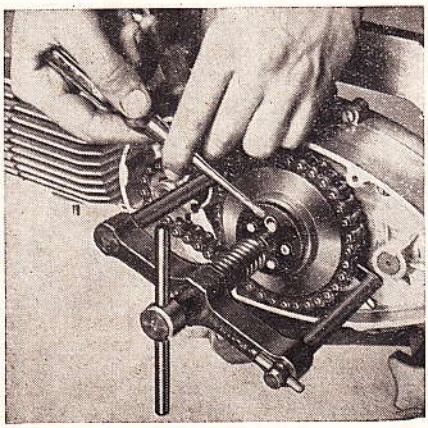
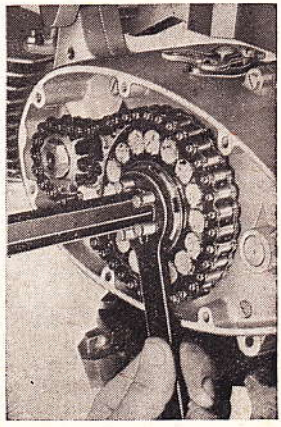


FIG. 29



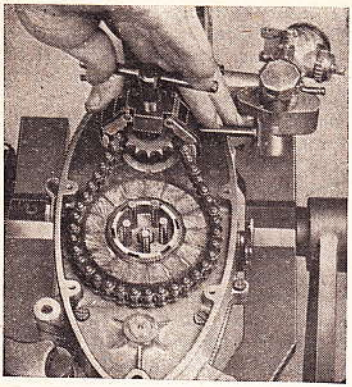


FIG. 30

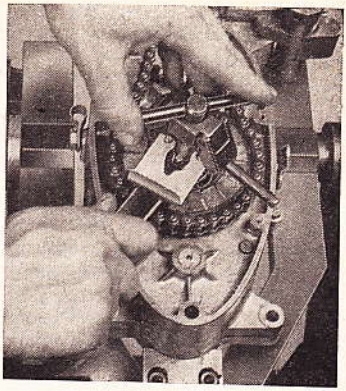
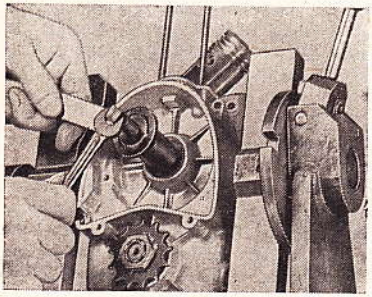


FIG. 31

FIG. 32



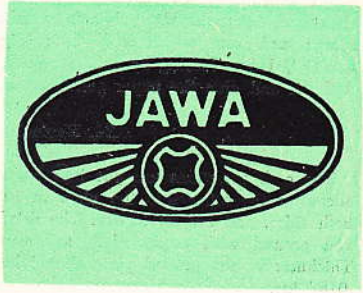
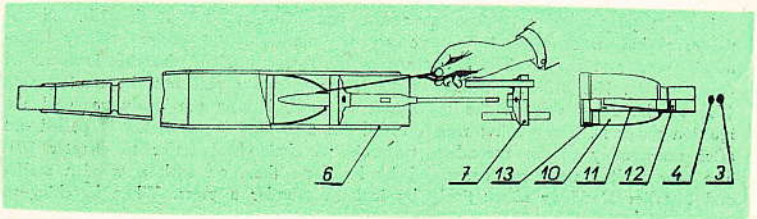


FIG. 33



screw out bolt in the rear part. If the cover cannot be removed easily, after all of its fixing screws have been removed, it should be released by slight tapping with a wooden mallet. By means of a pressing tool N 4 and five holes insertion N 62 the clutch springs are depressed (5) and then the circlips (8) are removed by means of a screwdriver (refer to fig. No. 28).

Having released the pressing tool N 4, remove the pressure plate of the clutch (3) together with the cups (6), springs (5) and washers (7). By means of the washer straightener N 26 the washer (9) is straightened under the nut (10) of the fixed plate (2). On the bolts of the fixed plate (2) the securing tool for clutch N 42 is fitted. A fixing insertion N 51 is fitted between the teeth of the chainwheel and those of the clutch.

Remove nut (10) (refer to fig. No. 29) with the box-spanner 14 and spanner N 40 is then used for removing nut (16) of the primary transmission sprocket. By means of puller N 9 the chainwheel (14) is released from the crankshaft (fig. No. 30). The primary wheel, chain and both the cork plates (1) are removed together. The securing insertion of clutch is slipped on pegs of the fixed plate and secured against falling off with the securing piece N 52, which is slipped into the grooves of pegs and by means of the puller N 9 the driven plate is removed from the main shaft (refer to fig. No. 31).

Important note: When exchanging the cork facings or alternatively the transmission chains, it is necessary to unassemble the entire primary transmission together with the clutch.

On assembling the primary transmission and the clutch the progress of work should be reversed. Care should be taken that those washers are fitted under the screws and nuts, which have been originally fitted. After screwing in secure the nut (10) before loosing by bending the washer border (9). Lubricate the cover seating with oil end glue the paper gasket on it.

34. Replacing cork insertions

The cork insertions are put into boiling water to get soft. Then they are pressed one after the other into the plate in such a way, that they protrude uniformly on both sides, and are let to dry. The dried insertions are then cut with a sharp knife and ground with emery cloth to ensure their uniform protruding to both sides. Thickness of the ground plate should be in the region of 8.8 — .2 mm od .346 to .0787 ins.

35. Exchanging seal rings (Gufero sealing rings) (refer to fig. No. 36).

For the purpose of replacing the sealing ring Gufero (29) at the l.h. side of the crankshaft mechanism, it is necessary to unassemble the entire primary transmission (refer to chapter 33). By means of the extractor N 12 the ring is extracted (refer to fig. No. 32). By means of the same extractor pull out the sealing ring (29) at the other side of the crankshaft as well, having previously removed the ignition magneto. The sealing ring (30) of the secondary transmission is pulled out after unassembly of the secondary transmission chainwheel (refer to chapter 30). The new sealing rings are assembled by knocking them on with a wooden mallet and installer N 56 or alternatively by installing under a press. When knocking-on

the sealing ring take care that the tightening spring of the sealing ring does not fall off. Prior to assembly the rings should be put into engine oil bath to make them more elastic.

36. Unassembling the exhaust silencer and removing of carbon deposits
(refer to fig. No. 33)

By means of a tube spanner opening 10 remove the nuts M6 (3) and from the needle welded remove the end piece (11) together with the cover (12) provided with four slots. Remove the end taper (10) and the partition (7). When the partition is strongly clogged with carbon and cannot be freely pulled off the needle and the body of the silencer (6), make use of a piece of bent steel wire, approximately 300 mm or 12 ins. long and its bent end is put into whichever of the two orifices of the partition. The second piece of the wire is held by pliers and by pulling the partition is removed. Remove the body of the exhaust silencer from the machine.

All the removed parts are to be cleaned by means of a steel brush and the orifices of the terminal taper in the space of location of the end piece should be scraped off by means of a sharp object. If carbon deposit layers are thick, the nonchromium plated component parts may be burnt in fire. (Do not overlook the danger of fire! Carry out in free space.)

Orifices in the partition, which is welded in the space of the exhaust silencer body space as well as the anular space of the difuser and the oblong orifices of needle should be scraped with a pointed object. Removing of carbon deposits should be done in accordance with the instruction given in the Maintenance schedule.

B. UNASSEMBLIES AND ASSEMBLIES WITH THE ENGINE REMOVED FROM FRAME

37. Removal of engine from frame

Remove covers (refer to chapter 11), disconnect supply line of fuel, throttle valve control cable, clutch control cable and tie rod of gear shifting lever. Disconnect the secondary transmission chain and by means of the socket spanner N 39 screw out 4 fixing screws M8. Then remove engine from frame. Having carried out removal of carburettor from the engine, fix the engine into the assembly stand P 1. On thus prepared engine it is possible to carry out all of the unassemblies and assemblies as indicated in part IV A.

38. Dividing engine crankcase (refer to fig. No. 36)

For the purpose of repairing the gearbox, crankshaft mechanism and exchange of bearings or alternatively of the gear shifting „automat", it is necessary to divide the crankcase. Dividing is done in the following way: Remove the cylinder head and the cylinder barrel as well as the l.h. side cover (8) and the primary transmission with clutch. For the purpose of repairs of the crankshaft mechanism also the magneto is to be removed. The drift N 47 is used for driving out the centering bushes (24). Screw out 9 screws (17, 18, 19) connecting the crankcase and remove also the stop-screw of the „automat". Divide the crankcase by means of the tool N 3 (refer to fig. No. 34) or alternatively F 1 (refer to fig. No. 35), in the following way: The divider F 1 is fitted in such a way, that the middle screw rests against the pin of the crankshaft. Make sure that the dividor N3 rest on the pin of the crankshaft and the layshaft. The screws of the dividing tool has been fixed in the correct way and correct position and only then start turning the screws alternatively, by means of which the crankcase halves are pressed apart.

Check whether dividing is done uniformly if the case seems to cross, this defect

FIG. 34

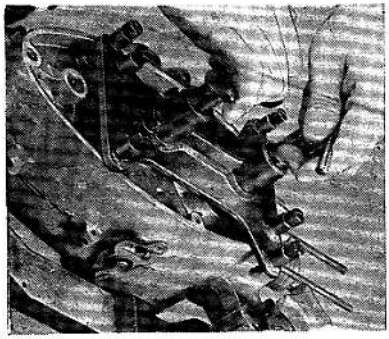


FIG. 35

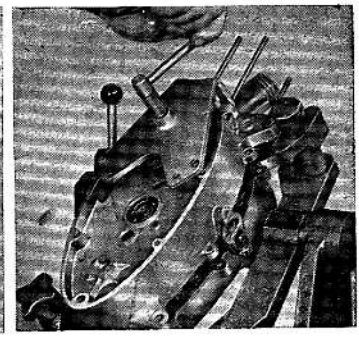


FIG. 35

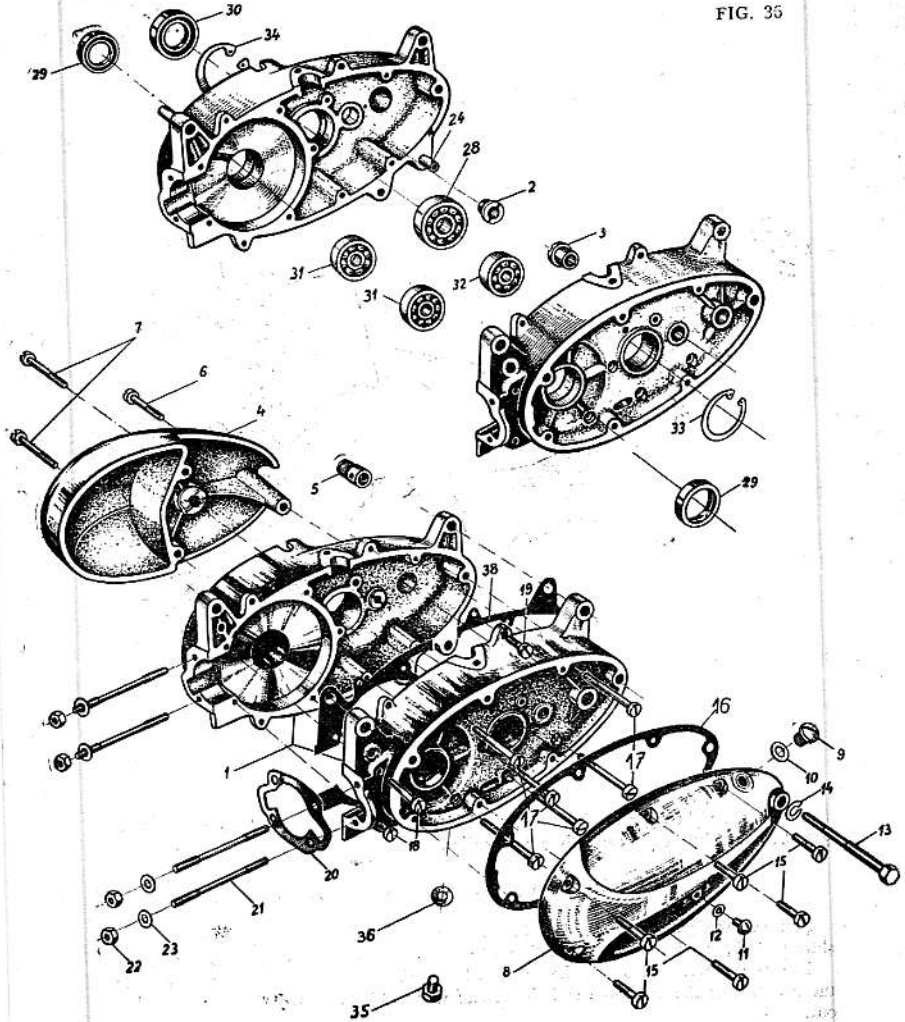

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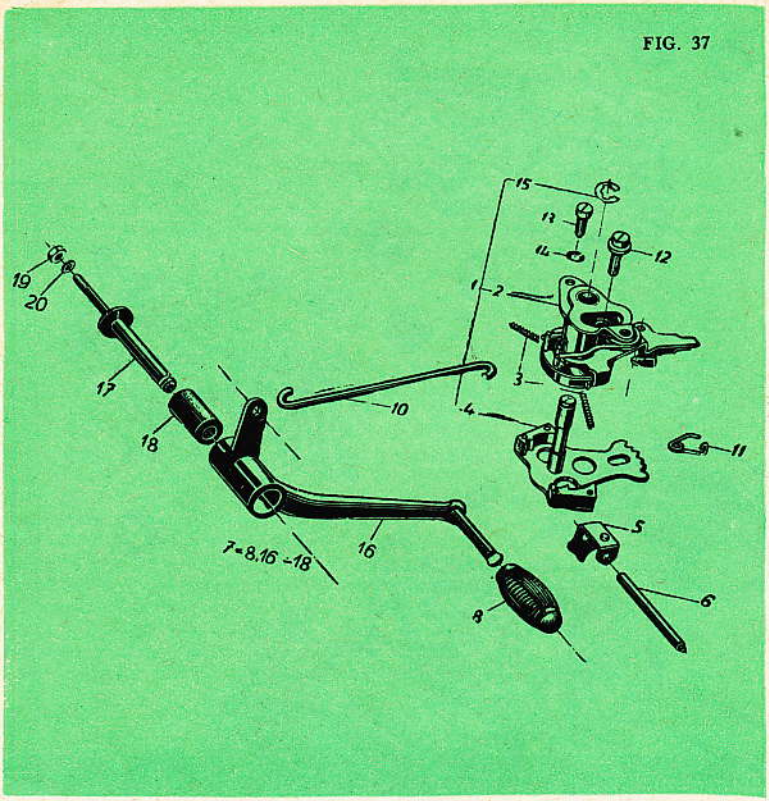
FIG. 37



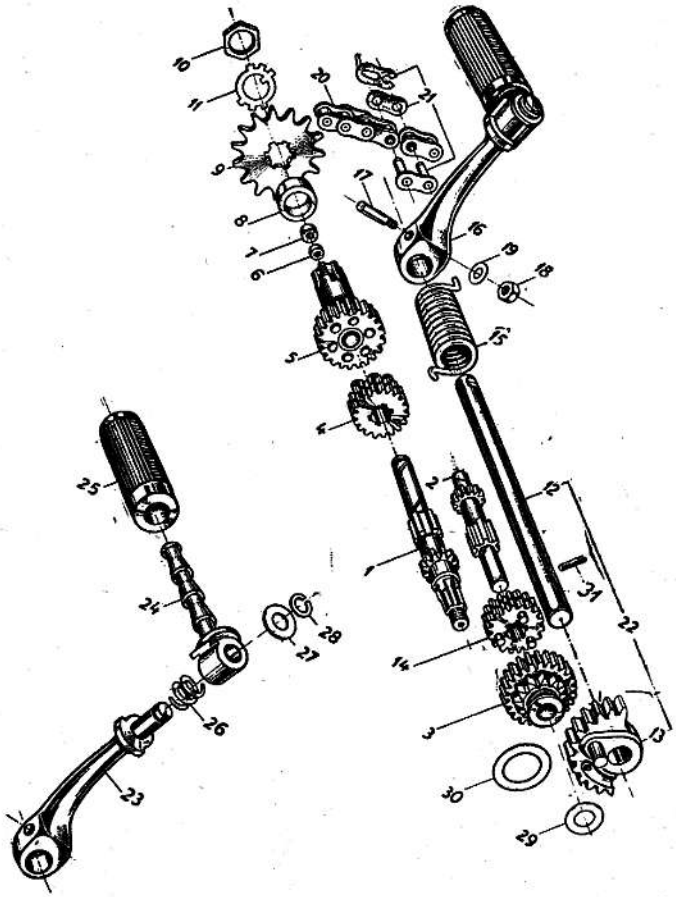
is to be put right by a slight tapping with a wooden mallet in the spot, in which gap between the crankcase halves is smaller.

39. **Unassembling the gearbox** (refer to fig. No. 37, 39)

Pull out the guide (6, fig. No. 37) of the gear shifting fork (5). Pull out the shifting fork, the layshaft (2) together with the sprocket (3) and gear 29t (14).

The return spring (15) of the starter shaft (12) is pushed out from bearing in the r.h. side of the crankcase and the starter shaft with the segment (13) are pushed out.

FIG. 38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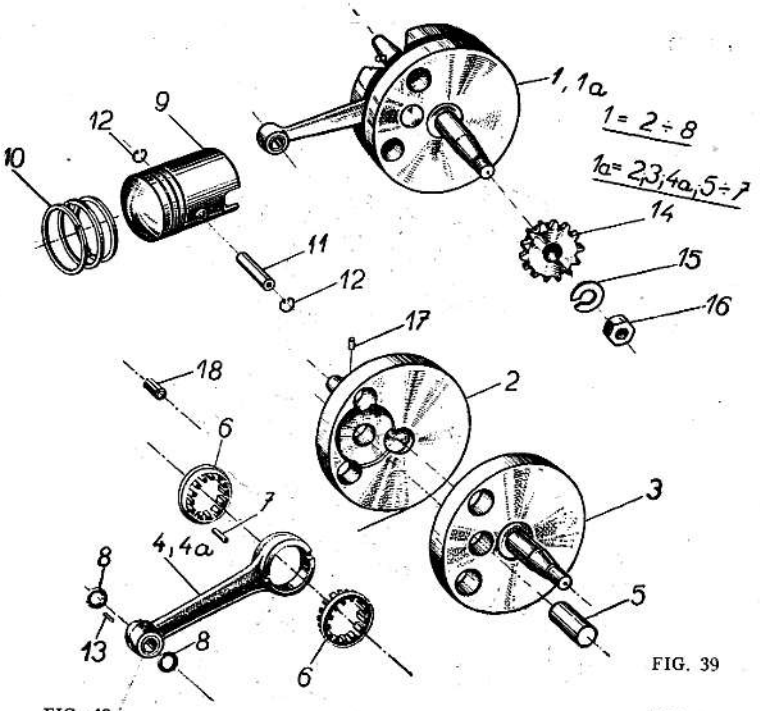
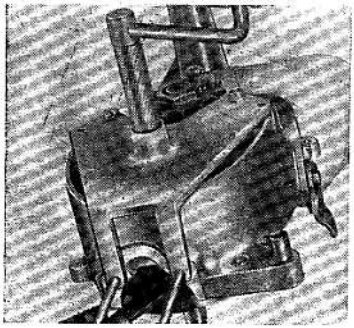


FIG. 39

FIG. 40

FIG. 41



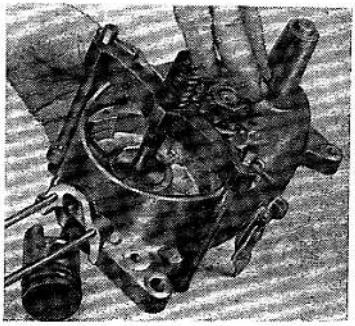


FIG. 42

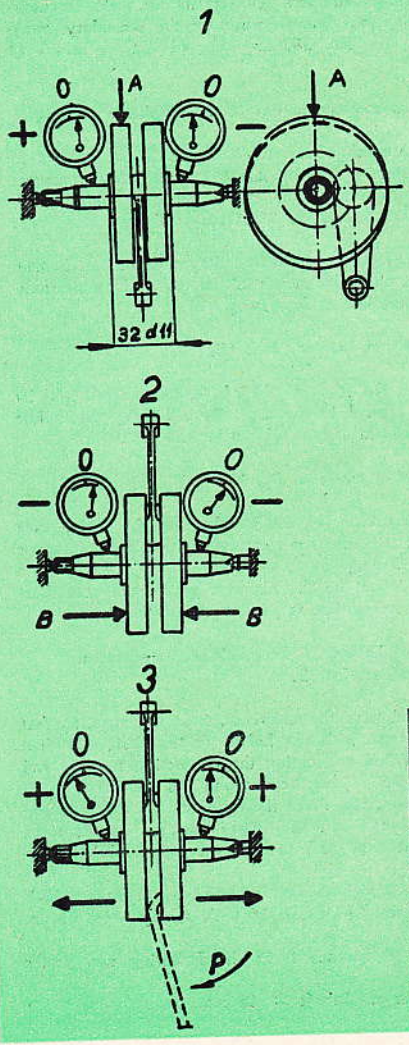
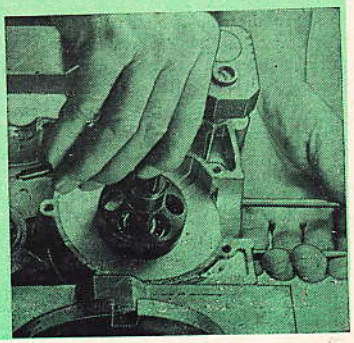


FIG. 43



From the top part of the r. h. side crankcase half remove screw M 6 × 18 (13, fig. No. 37) connecting the shifting „automat" (1) to the r.h. side crankcase half, and remove the „automat" mechanism. Remove wheel of the secondary transmission and the wheel with hub (5, fig. No. 38) are knocked out by means of a wooden mallet.

40. Removing the crankshaft mechanism out of the crankcase

Prior to unassembling the crankshaft mechanism out of the crankcase, remove in the first place the engaging lever (refer to chapter 29) Then remove the magnet (refer to chapter 32), the primary transmission with clutch (refer to chapter 33), cylinder head with cylinder barrel (refer to chapter 38), remove the gearbox (refer to chapter 39).

Two ways may be employed for the purpose of removing the crankshaft mechanism out of the r.h. side crankcase half, i. e. either by means of the tool F 1 or alternatively making use of the tool N 4, i.e. the clutch depressing tool.

a) Unassembly as carried out by means of the tool F 1 (fig. 40)

The dividing tool F 1 is installed on the studs of the r.h. crankcase half and by means of two screws M6 × 25 it is bolted to the case. By revolving the middle screw of the tool, the crankshaft mechanism is pressed out of the case.

b) Unassembly by means of the tool N 4 (refer to fig. No. 41)

The swivelling arms of the depressing tool N4 are installed on the fitting face of the r.h. side crankcase half and both the arms are supported with pieces of copper sheat, approximate gauge 2 to prevent damage to these faces.

The screw of the pressing tool N 4 is put on the r.h. side pin of the crankshaft and it is revolved, until the crankshaft mechanism is pushed out of the case.

41. Repairing (unassembling) and balancing the crankshaft mechanism (refer to fig. No. 39)

When the crankshaft has been removed from the crankcase, it is put apart in that the crankshaft pin is pressed out (5) from both the halves of the shaft and then all the defective parts are exchanged. When assembling the connecting rod big end bearing, all the roller (7), crankshaft pin (5) and connecting rod (4) have to be selected to match as per the classification table. Place the cage (6) into the connecting rod and slip together onto the crakshaft pin (5) that is pressed on the right flywheel. Place the rollers (7) into the cage and press down the crankshaft mechanism.

On pressing the crankshaft together, straighten by means of a set square both the r.h. side (2) and the l.h. side (3) crankshaft half in such a way as to ensure approximattely their alignment.

Having pressed the crankshaft together, balance it in the following way (refer to fig. No. 42):

Tolerable excentricity of the pins of the crankshaft ± .01 mm. Tolerated deviation

of pin excentricity as against the flywheel ± .02 mm. Axial tolerance of flywheel must be in the class d 11.

Pins of the crankshaft must be flush, i.e. in plane intersecting the axis of the connecting rod (both indicators used must show deviation of identical direction, i.e. either (++) or (−−).

Progress of work to be adopted:

If indicators deviate (+ −):

a) ascertain highest spot on pin of crankshaft

b) knock with adequate power by means of a copper mallet on the (+) arm of crankshaft in direction as indicated (pointer A). Center the pins of the crankshaft, which intersect the axis of the connecting rod pin (value of deviation of indicattor pointers is ascertained in the spot opposite to the connecting rod pin.).

When the indicator pointers direct (+), the crankshaft arms are to be adjusted in the direction marked by means of a lever. When the indicator pointers direct (−), the arms of the crankshaft are rectified by hammering from side as indicated by the arrow „B" in the indicated direction.

When centering is in the plane (+ −), which passes through the axis of connecting rod pin and the pins of the crankshaft, then centering of the crankshaft mechanism is not possible (as the distances of the center of the connecting rod pin and of the crankshaft pins are different in the arms of the crank. In such a case the crankshaft must be assembled into the crankcase in the absence of the specified centering, but only under the condition, that the maximum magnitude of tolerance equals .02 mm. Otherwise the crankshaft must be replaced with a new one.

42. Pressing bearings out of the crankcase.

Carry out complete unassembly of gearbox (refer to chapter Nó. 39) and wash it duly. Remove the sealing rings (Gufero) and by means of circlip pliers remove the securing circlips. By means of the puller N 16 (refer to fig. No. 43) remove all the bearing in the r.h. and l.h. side halves of the crankcase. In the course of removing be sure to observe that the bearings are not extracted over the grooves of the circlips. To make removal of the bearings easier, it is recommended to warm up the housing to approximately 80°C or 176°F.

43. Exchange of bushes (refer to fig. No. 36)

The layshaft is mounted in two bronze bushes (2, 3), which are to be driven out of the housing by means of a tube, the diameter of which is identical with that of the bushes outside diameter. These bushes are only exchanged, if they have been found damaged or considerably worn. Having pressed in new bushes, their orifices must be reamed to dia.

11 $^{+ .0027 \text{ mm}}_{- .0000 \text{ mm}}$

44. Assembling the engine (Progress of work for assembly)

Prior to starting assembly of the engine, be sure to wash all the component parts thoroughly and then do not fail to dry them well. All the contacting faces of the

covers and crankcase halves should be cleaned with careful scaping. Then inspect all the component parts carefully and the damaged ones or those, that have been found worn, should be replaced with new ones. Make exclusive use of original parts, as supplied by the producers of the machine. Should one of the crankcase halves be damaged, both the halves must be replaced as they are produced in matching pairs by the factory. On assembly all the moving parts are lubricated with oil, i.e. the pins, shafts, wheels etc.

The individual component parts should be put on clean paper sheet on the work-bench prior to starting the assembly proper.

45. Assembly of bearings and securing circlips

Prior to assembling bearings bushes have to be pressed into both the crankcase halves. Into the recesses of both the crankcase halves the circlips are mounted. The crankcase halves are warmed up to approximately 70 to 80°Centigrade or 158 to 176°F. When the crankcase halves have been warmed to specified temperature, fit the respective bearing into their due orifices until they fit on the circlips. Be sure to take care that they are not pressed in inclined position. In such a case edges of the orifices would be damaged and fitting would not be in due alignment.

46. Assembly of crankshaft mechanism

Into the warmed up r.h. side crankcase half the crankshaft is mounted, then the gearbox is assembled (refer to chapter 47). Seating faces of the r.h. side crankcase half is lubricated with oil, paper seal is put on it and the l.h. side crankcase half is fitted to the r.h. side one.

47. Assembling the gearbox (refer to fig. No. 37 and 38)

Assembly is carried out after fitting of the crankshaft and of the gear with hub (5). Into the recess in the r.h. side crankcase half the shifting „automat" (1) is

FIG. 44

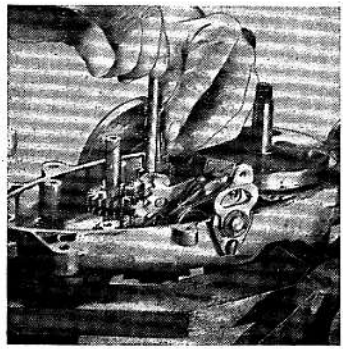
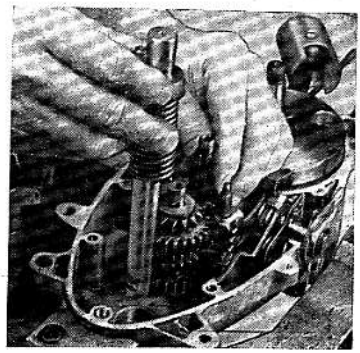


FIG. 45



mounted, its rear part being put into the groove of the boss of the crankcasse and it is fixed in position with screw (13). To make assembly of the gearbox easier, engage neutral gear in the „automat" between the IInd and IIIrd gears. Then fit in the starter shaft with its segment (22) and the return spring (15), the end piece of which is mounted into the orifice of the crankcase. On the end part of the shaft mount the starter lever (16) and secure with cotter pin (17). Insert layshaft (2) into the r.h. side bush in such a way, that teeth of the third gear wheels get engaged. On the layshaft fit wheel of the IInd gear with 20 teeth (14) so that the three pegs direct to the left. Into the oval orifice of the „automat" mount the engaging fork (5), which slip into the groove of the layshaft wheel of the IInd speed. Then fit into the engaging fork the guide (6) (refer to fig. 44) in such a way, that its reduced end points to the left. Fit on the fork the wheel of the Ist gear 18teeth (4) that its three pegs direct to the right. Into the grooved orifices of the wheels of IInd and IIIrd speed the mainshaft is fitted (1). Fit wheel of Ist speed on layshaft (wheel with 24 teeth — refer to fig. 45), on which the starter wheel has been fitted (14 teeth) previously. To eliminate correct axial play of the layshaft fit a thin spacing washer (29) on the starter wheel. Having thus mounted gears into the r.h. side crankcase half, check shifting of gears by actually engaging the individual gears.

48. Connecting the crankcase halves (refer to fig. No. 36)

The seating face of the r.h. side crankcase half is lubriceted with oil and then paper gasket is stuck on it (38). Depress the kickstarter lever forwards and push in teeth of the segment into the starter wheel. Keep the kickstarter lever depressed until both the crankcase halves fit together. In the front and rear part of the crankcase push in centering bushes and then, with nine screws (17, 18, 19) tighten the crankcase halves together and screw in the stop screw (12, refer to fig. No. 37) of the „automat".

Then mount the Gufero sealing rings on both sides of the crankshaft mechanism and on the shaft of the secondary transmission wheel (refer to chapter 35).

49. Assembling the other parts of the engine

All the remaining parts of the engine as are the cylinder head, the cylinder barrel, the primary transmission with the clutch mechanism etc. are assembled in the way as described in the respective chapters of the part IV.A. As soon as the entire engine has been assembled, fill. 5 lit. or .1100 imp. glas of oil into the engine in quality as specified in the chart of lubrication and fit the engine into the frame of the machine.

V. ELECTRICAL EQUIPMENT

50. Source of electric power and harnessing the electrical equipment of the machine.

A dual circuit magneto is the source of electric power of the machine — a generator of A.C. 6 V current. When loaded with two electric bulbs 6V/15watts and 6V/5 watts the voltage characteristics of the generator is in dependence on revolutions as shown in fig. No. 47.

In the circuit there is a choke interconnected, protecting the electric bulb against overcurrent, possibly resulting from defects in contacts of the switch or in the circuit of electric conduits. The choke also shields one electric bulb from being blown in the case of the other one fails (due to fatigue etc.). The choke is provided with dual winding connected one against the other. The first winding, at the front end of which the bulb of the headlamp 6V/15 watts is connected incorporates 43 coils of copper wire dia. .75 mm/composition CuS). The second winding incorporates 125 coils of wire dia. .4 mm (CuS composition) and to its end the electric bulb 6V/5 watts is connected. The end of the first and the beginning part of the second winding are connected to the terminal base plate 56 of the switchbox/illumination and ignition. The core of the choke is made of transformer sheets E 12 and I 12. The conduit covers are in colours, marked in accordance with the scheme of connection.

When repairing the machine, check even the conduit covers for damage by rubbing. In this way unexpected short-cuts can be eliminated. The conduits, the insulation of which has been found damaged should either be repaired by an insulating tape or replaced with new ones. All the connections are to be tightened and secured with paint. Check all the soldered connections. Remove all the causes of damage to conduit insulation (sharp edges, loosened conduit etc.).

The rotor of the ignition magneto is provided with a permanent magnet made of ALNI material. It is fixed to the crankshaft. The stator of the magneto is fixed to the crankcase and it can be turned in the range of 20° for the purpose of adjusting the ignition advance. It incorporated two independent windings, ones serving the purpose of ignition, the second one the lights of the vehicle. Nominal voltage of both the windings is 6 V. The ignition winding comprises four coils, wire dia. .80 Cu A+H. The coils have 47 coils each (resistance of the entire winding equalling to approximately 1.45 ohms.) The winding serving the lamps of the vehicle incorporates 4 coil per 72 coils, made of wire CuS dia. .85mm. Resistance of the entire winding equals to approximately 1.65 ohms. The magneto does not require any servicing. Clean it merely at the occasion of removing the stator. From time to time be sure to check tightening of outlets for ignition and for lights and tighten well the fixing screws of the stator.

To prevent decreasing of the magnetic power of the rotor permanent magnet in the course of removing the stator, slip in unassembled parts (both the stator and the rotor) one into the other. When winding of the stator is repaired, both poles of the rotor magnet are connected with a metal sheet cylinder (rotor is inserted into a metal sheet cylinder).

The following defects can appear on the magneto:

a) Defect of the ignition or light winding, that can be caused exclusively in result of mechanical damage.

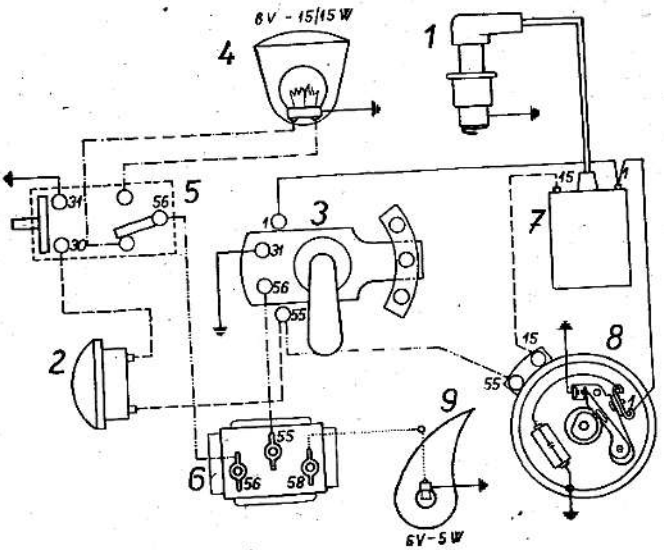
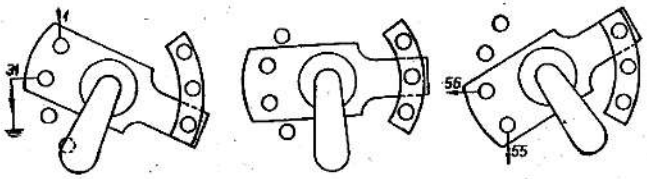


FIG. 46

Electric conduits:

———	black
- - - - -	green
—·—·—	blue
—··—··—	red
———·———	white
——·—·—·—	yellow



In such defects voltage is measured at the terminals of the magneto (at the engine revolutions of approximately 4,000 r.p.m.) by means of a voltmeter for alternating current. Range to 12 — 30 V. Defective winding or alternatively the entire magneto is to be exchanged.

b) Decreased value of the permanent magnets:

The permanent magnets decrease their power with time and in this way also the voltage of the magneto is decreased, i.e. voltage of both the ignition and of the light magnet. The spark plug produces a weak spark and lamps produce less intensive light. In the case of decreased value of magnets the low intensity of light is clearly apparent and the ignition system produces quality spark only in high revolutions of the engine. Decreased power of the magnets is ascertained by measuring voltage at the winding for lighting purposes, with connected electric bulbs 15 and 5 watts. At the engine speed of approximately 4,000 r.p.m. (the speedometer shows the speed of approximately 37 km or 23 m.p.h. with 3rd gear engaged), voltage should amount to approximately 6 V ± .4 V. Re-magnetizing of the rotor magnet should be entrusted with an expert workshop that possesses an electrical magnet reviving apparatus.

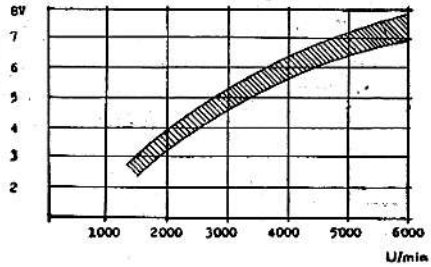


FIG. 47

Dependence of voltage on revolutions of magneto loaded with the electric bulbs 5 + 15 watts

c) Friction of rotor by the stator. This defect causes a difficult start or alternatively makes starting utterly impossible. In some cases the engine stops in low revolutions. If the magneto is damaged to such an extent, that it cannot be repaired, the entire magneto should be replaced, i.e. both the rotor and stator with the contact breaker base plate, adjusted from the production works.

52. Ignition System

Ignition coil

The ignition coil does not require any servicing, but in only should be kept clean, and checked for fast tightening as well as correct connecting of electric conduits. If the ignition coil is defective, the engine cannot be started or alternatively it stops all at once, as ignition system fails. Defect of the ignition coil also is manifested either by irregular spark on the sparking plug or alternatively by a poor spark of blueish colour. The defective coil (burns primary or cut-through secondary winding) is to be replaced with a new one. Make exclusive use of coils 6 V, marked 02-9211.04, which have especially been designed for the ignition system operating with alternating current generator. The conduit to the spark plug is not provided with an interference suppressing terminal, if the spark plug 14 — 7 RZ is used.

Defects in the ignition system can be assertained by means of a checking instrument (refer to fig. No. 51).

When the needle of the tester is put to the electric conduit, the tester light must oscilate. The tester, however, produces oscilating light if the spark plug is in working order or not.

Spark plug

The spark plug employed is the PAL 14-7RZ, which incorporates an interference suppressor in the plug body. If a spark plug of a different type is used less the interference suppressor, the spark plug cable end piece with an interference suppressor must be used. The spark plug must be kept clean, especially the outside part of the insulator. Electrode gap should be .4—.5 mm or .0157—0196 ins. This gap is adjusted by bending the outside electrode. Check also the correct thermal value of the spark plug.

Most of the defects of the ignition system are caused by spark plug failure.

a) Spark plug with low thermal value — the electrodes get hot and then the engine detonates (the piston knocks).

b) Spark plug with high thermal value — the spark plug is too cold and accumulates oil, deposits of carbon.

c) An oiled spark plug causes failure of engine operation — the spark is irregular or alternatively the engine cannot be started or alternatively it stops all of a sudden, in the course of riding. The cause of the spark plug getting oiled or clogged with carbon is usually incorrect choice of spark plug thermal value or alternatively an incorrectly adjusted carburettor. Soiled spark plug must be thoroughly cleaned or even sand blasted.

d) If gap between electrodes is excessive, similar defects come up as in the case of the spark plug getting oiled.

e) In the case of a short-cut between electrodes of a spark plug or alternatively in the case of damage of the spark plug insulator, the engine cannot be started. If such a defect occurs in the course of riding, the engine stops.

Contact breaker

The contact breaker points faces should be plane and clean. Burnt or soiled contact points should be cleaned with petrol and uneventies should be filed off by means

of a fine flat file or alternatively with a sharp knife. Excessively worn contact points should be exchanged with new ones. Soiled or badly burn contact points of the contact breaker cause irregular run of the engine, the spark delivered is irregular in its quality and in some instances the engine stops and cannot be started.

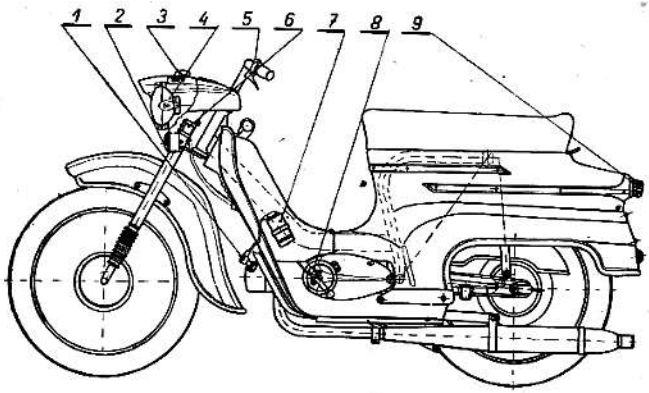


FIG. 48

Sources and appliances — electric power.

1. Sparking plug
2. Electric buzzer
3. Switchbox (lights and ignition)
4. Headlamp
5. Dipswitch and buzzer button
6. Choke
7. Ignition coil
8. Magneto
9. Tail light

The arm of the contact breaker must swivel freely on its pin, the flat spring must contact well with the supply screw. The lubricating felt must be saturated with grease sufficiently to ensure that the cam does not wear the arm of the contact breaker made of texgumoid, novotex or similar material, and in this way gap between the contacts is not reduced.

If defect in the ignition system has been diagnosed to be in the contact breaker, check whether the arm of the contact breaker deviates in the course of revolving of the engine by the specified distance, whether the contact points are clean and plane, and whether they are not loose or oiled.

It is further important to check whether the cam is not mounter excentrically, thus causing double breaks or whether the contact breaker arm spring is not excessively

tired or even broken and last but not least, whether the contact breaker arm has not seized in its pin, not having been lubricated sufficiently.

The last mentioned defects cause misfiring of the engine especially at engine high speeds. When water penetrates into the contact breaker (ignition system fails altogether), in must be removed by blowing off, wiping and letting dry.

Condenser

A defective condenser causes a complete failure of the ignition system or in some cases irregular operation of the system. Cut through condenser or one, causing surface shortcircuit causes stoppage of the engine in the course of riding. There is no spark at the spark plug, however spark is created between the contact points of the contact breaker, if it (the condenser) is disconnected and the engine is revolved. In this way the above defect is ascertained.

A damaged insulation of the condenser is manifested by an irregular function of the ignition system and by vigorous sparking at the contact points.

Outlets of the condenser may become broken in consequence of vibrations or alternatively, they work loose sometimes. In consequence of that the contact points of the contact breaker get badly burnt due to vigorous sparking and a defect in the ignition system results.

For this reason outlets of the condenser must be checked and in case of a short-cut, clean the condenser front face from all dirt. If no apparent outer defect has been found and the condenser does not operate correctly, it should be exchanged for a new one.

53. Lights and acoustic warning equipment.

The headlamp dia is 110 mm or 4.33 ins. houses an electric bulb with two-filaments 6V/15/15 watts. The beam of the headlamp is adjusted by adjusting the angle of the parabolic reflector towards the surface of the road, after releasing the adjusting screw located at the top of the headlamp. Then the screw is either pressed forwards or rearwards, as the case may be, and secured in the adjusted position by tightening it. The electric bulb is removed out of the socket by pressing it in and turning anticlockwise until it is pressed out by its spring loading. The tail lamp is provided with a soffite electric bulb 6 V-5watts.

The electric buzzer is connected to the light terminal of the magneto No. 55 (at the dipswitch).

The other contanct point of the buzzer is connected to the mass of the vehicle through the control button.

Intensity of the signal is adjusted by means of an adjusting screw, which is located in the center of the buzzer at its front side. The securing nut of the screw is slackened and then, intensity is adjusted by fine turning of the screw. Having duly adjusted both tone and intensity of the warning signal, be sure to secure the adjusting in position by tightening the securing nut.

VI. DEFECTS AND THEIR ELIMINATION

54. Engine performance low

a) Incorrectly adjusted ignition advance

Correct adjustment should result in 2.7 to 3.00 mm before T.D.C. — refer to chapter 31)

b) Leaky spots in engine

— Leaking-in of air under the intake neck is eliminated by replacing the gasket of alternatively by tightening the neck.

— Leakage of air through the Gufero sealing ring is eliminated by replacing the sealing ring with a new one.

c) Leakage of oil into the crankcase is made obvious by strong smoking of the engine and the spark plug is oiled all the time. This defect is caused by sucking-in of oil through the Gufero sealing ring at the l.h. side half of the crankcase. Elimination of the defect is done by replacing the Gufero sealing ring with a new one.

d) Engine warms up excessively

This defect may be caused by carbon clogged exhaust silencer. Elimination of the defect is carried out by cleaning the exhaust silencer (refer to chapter 36).

e) Engine detonates — it stalls and cannot be rewed easily. The defect is caused by a defectively adjusted carburettor, by a stopped jet or alternatively clogged cartridge of the intake air silencer.

Elimination — by cleaning carburettor and intake silencer catridge and by due adjustment of carburettor.

f) Decreased output of engine — insufficient compression — this defect is to be ascribed to wear of cylinder barrel and piston rings.

Defect is eliminated by replacing piston rings with new ones or alternatively by a rebore of the cylinder barrel — refer to rebore table.

g) Leakage of burning gases under cylinder head.

Tighten cylinder head (replace gasket if blown).

h) Braking of wheels

Defect is caused by brake lining which is in contact with the wheel brake drum. Elimination of this defect is done by regrinding the brake shoe facings and due adjustment of brakes.

55. Noises in engine

Noisy gearbox

The defect is caused by the following reasons:

a) Low oil lever or no oil at all in the gearbox housing. Fill oil to specified level and duly check from time to time.

b) Worn bearing of crankshaft mechanism or alternatively some other bearing of the gearbox — the engine produces whistling and other unpleasant noises.

The defect il eliminated by exchange of the respective bearing.

c) Non-lubricated felt of cam —. The machine squeaks.

This defect is eliminated by filling the lubricating felt lining with oil and grease.

d) Rotor rubs by stator

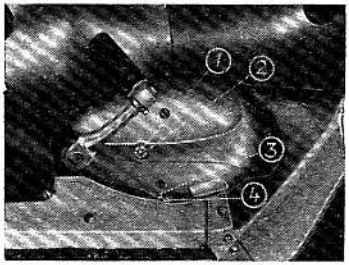


FIG. 49

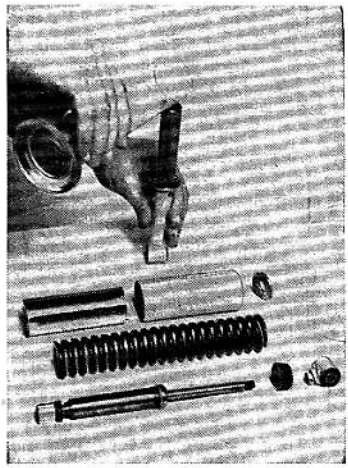


FIG. 50

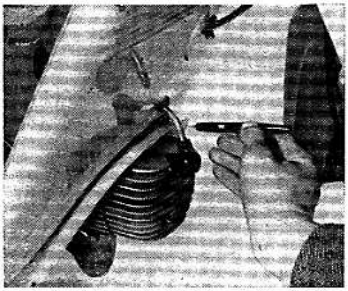
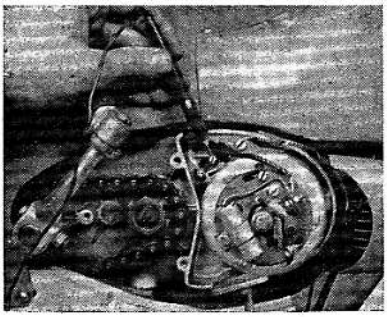
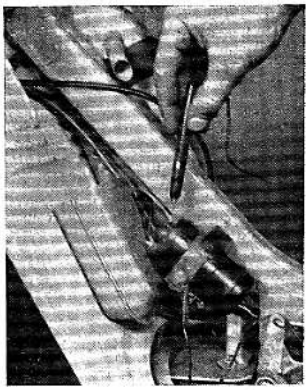


Abb. 51

FIG. 53

FIG. 52





Clean taper in the rotor and at the crankshaft pin. The rotor is then tightened correctly.

e) Primary transmission chain, being too slack, hammers the chain case. It is to be replaced with a new one.

56. Engine is knocking

a) Slack pudgeon pin (sharp knocking). Gudgeon pin should be replaced with a new one.

b) Worn bearing of connecting rod big end.

Exchange of the crankshaft mechanism or its repair (refer to chapter 41).

c) Excessive ignition advance

The defect is eliminated by correct adjustment of ignition advance in accordance to specification (2.7 to 3.0 mm).

d) Large deposits of carbon in cylinder head and on piston. Carry out removing of carbon.

e) Large deposits of carbon in cylinder exhaust port.

Remove exhaust pipe and clean exhaust port.

57. Defects of carburettor.

The most common defect of the carburettor is usually clogging of the supply orifices with dirt. Stopping is prevented by a periodical inspection of the fuel tap strainer. If jets are stopped, they must be removed and cleaned with pressure air or by blowing (do not use any hard objects for cleaning). The further defects of the carburettor may be caused by the following:

a) Seized throttle valve (regrind by lapping paste)

b) Loosened throttle valve knocks at the carburettor body (replace with a new one)

c) Bent needle of throttle valve (replace with a new one)

d) Pierced float (replace or alternatively, having duly dried, solder pierced spot carefully)

e) Leaky float needle valve (replace needle valve or alternatively grind-in with lapping paste)

58. Defects in gear shifting mechanism

a) Deformed leading plate of the „automat" due to forcible engaging for gears. In consequence of that gears cannot be engaged.

b) Seized pawl in the „automat" body.

In consequence of this defect gears cannot be engaged.

Elimination of the defect — by cleaning the mounting of the pawls, which must swivel freely.

c) Self-disengaging of Ist or IIIrd speed.

This defect can be caused by turning duly the engaging „automat", by defective execution of cylindrical bosses on the 20-teeth wheel. The edges of the matching orifices of the wheel with hub are badly worn. Turning of the „automat" is caused either by misfitting the groove in the housing, into which the „automat" fits or alternatively the „automat" has been deformed. When the gearbox has been unass-

embled, carry out inspection of all the mentioned sources of defects. Wheels, that have been much worn at their edges and those, the fitting orifices of which are worn, should be replaced with new ones.

d) Knocking in the gearbox housing with neutral gear engaged:

This defect is caused by the shifting fork, which has been bent, a loose pin in the dove, or alternatively the bent template of the „automat". The defects are eliminated by either straightening the „automat" template or alternatively be exchanging the defective parts with new ones.

e) When starting, the kickstarter lever travel is dead — no engagement is felt.

The defect is to be ascribed to the ratchet wheel, which is seizing. The defect is eliminated by unassembling and duly repairing the bush.

f) The starter lever sticks.

This defect is caused by the starter segment. Teeth of the starting segment are broken.

Defect is eliminated by exchange of the segment with a new one.

59. Defects of the clutch and clutch adjustment

The clutch slips.

This defect can be eliminated by due adjusting the starter screw.

If the clutch continues to slip, the above adjustment having been done (check at the handlebar declutching lever, which must show a certain amount of play) the defect is not eliminated by any further decreasing of play. Check the cork clutch facing, i.e. whether an insertion has not fallen out or alternatively whether the facing is not worn altogether.

Tired springs of the pressure plate cause slipping of clutch. Slipping is eliminated by putting washers under the springs or by replacing the springs with new ones.

The clutch does not disengage

The defect is caused by the disengaging rod being seized. The rod should be replaced with a new one. Do not overlook the necessity to lubricate from time to time disengaging rod and ball.

Adjusting the clutch is carried out in the following way (ref. to fig. 49):

1. Slacken nut (2) and screw (1) in the middle of the crankcase cover r.h. side center part and eliminate play. Having duly eliminated play, tighten the nut again duly.

2. If cable has elongated, clutch play is eliminated by releasing the securing nut of the adjusting screw (4) at the bottom part of the r.h. side crankcase cover and by screwing out the adjusting screw (3) per requirement.

Having tested correct adjustment on the hand operated lever, tighten the securing nut of the adjusting screw.

60. Defects of frame of the machine

a) Loosened engine in the frame.

Defect causes loud knocking when the engine runs.

Remove this defects by tightening the screws of engine.

b) Front telescops are seized.
Remove the defect by polishing and greasing of the plunger.
c) Knocking of rear telescops.
Remove the defect by exchange and filling up the oil in telescops.
(Refer to chap. 17; pic. 50).

61. Defects in ignition system of the engine

1. The engine cannot be started or it stops all of a sudden and it cannot be re-started.

D e f e c t may be caused in the fuel supply line, in the carburettor or alternatively in the ignition system of the machine. When supply of fuel has been checked and found in working order, and there is a sufficient level of fuel in the fuel tank, check if there is spark at the spark plug. Most frequently defects of ignition originate in the defect of the spark plug (oiled, damaged plug insulator, short cutting between electrodes of the plug or alternatively an excessive gap between the electrodes.). For this reason, check spark on spark plug, having removed it previously from the cylinder head. When there is no spark between the electrodes of the spark plug in the course of starting or alternatively, if the spark is feeble, check and test whether there is any spark at the end of the electric cable and whether it is sound enough. If the spark plug is defective (there is a mighty spark at the end of the electric cable) adjust electrodes of the plug duly or replace with a new one. If spark is feeble at the end of the electric cable, the defect may be caused by inadequately powerful permanent magnets. Check voltage at the light winding of the stator with lights switched in.

No spark at the end of the electric conduit (refer to fig. No. 51)
Possible defect: dipswitch in stop position
Defect of the contact breaker:
Check contact breaker and eliminate defect.
Defective condenser — exchange with a new one.
Water in contact breaker — blow out water and dry thoroughly. Damaged ignition coil — replace damaged coil with new one. Damaged electric cable end piece — replace with a new one. Disconnected of loose electric leads from ignition winding of magneto to contact breaker and to spark plug.
Short circuit of electric conduits to mass. Check all the conduits and repair their insulation or alternatively replace the damaged with new ones. Defect in ignition winding of the stator. Have the stator re-wound or alternatively exchange the entire magneto for a new one.

If there is no spark at the end of the electric cable, neither at the outlet from the ignition coil, and the defect cannot be traced by a routine inspection, trace the defect gradually by means of a testing apparatus feg from a monocell battery, or alternatively with a A.C. voltmeter.

One pole of the testing apparatus (electric bulb connected in series with battery) is connected to the mass of the vehicle. By the other pole (outlet) the individual circuits are checked. Disconnect conduits from the coil clamp (1). To the electric conduit leading to the contact breaker connect the testing apparatus and revolve with the engine. When the electric bulb of the testing apparatus is alight all the time, there may be a short circuit between the conduit and the mass or alternatively the

condenser is cut through. If the electric bulb oscilates after the condenser has been disconnected and the engine revolved, the condenser is to be exchanged or alternatively its surface short circuit must be eliminated. Otherwise the short circuit in the conduit 1 or contact breaker is to be detected. In the case of contact breaker it is possible, that in result of the arm being damaged, no contact breaking is effected at all. If the electric bulb does not alight at all in the course of revolving the engine, the defect may be caused by defective connections or broken conduit 1, in burnt contact points of the contact breaker, in a broken spring of the contact breaker arm or in the spring being tired. The defect is traced more readily if checking is done directly at the contact breaker.

When the part from the electric cable to the contact breaker has been found in order, the outlet of the testing apparatus is connected to the second disconnected conduit, leading to the dipswitch. The electric bulb should alight only when the switch is in its stop position, otherwise the conduit is short-cutting to mass. Defects of the ignition winding of the stator are detected by measuring voltage at the terminal 15 of the magneto. When revolving the engine (cranking it by means of the starter lever) the indicator of a voltmeter should show voltage, the size of which is in dependence to revolutions of the engine.

When the ignition winding of the magneto develops due voltage and the clamp 1 of the coil is less voltage, the coil is defective and then it should be replaced with a new one.

2. **Engine operation is irregular — it fails from time to time.**

a) Correct spark

Next to defects in the carburettor and in the fuel supply system, the defect may also be caused by periodical short circuit of the electric conduits from the magneto to contact breaker and switch of lights (dipswitch; conduits 15,1), or alternatively by breakage of the ignition electric cable. The reason of a short circuit is to be detected and eliminated, the defective electric conduits should be replaced or alternatively repaired with insulation tape. The connecting terminals of the conduits should be tightened and secured with paint.

b) The spark is irregular

This defect is caused either by oiled or thermally unsuited spark plug; the spark plug should be cleaned or alternatively replaced with a new one.

Large gap between electrodes of the spark plug. The gap should be adjusted to .5 mm or .0197 ins.

Soiled or burnt contact points of contact breaker. The points should be cleaned with a piece of cloth dipped in petrol and then scraped and leveled by means of a fine file. Incorrectly adjusted gap of contact breaker contact points. Gap should be adjusted to approximately .4 mm or.0157 ins. Defective condenser — engine operates in low revolutions only. Regular, strong sparking between contact points of the contact breaker. The condenser must be replaced with a new one.

Periodical short-cutting of electric conduits, as even with correct spark.

3. **Engine does not stop, when switch is turned to position stop.**

Disconnected electric conduit 1. from ignition coil to switch.

Defective connections of electric conduit 1 on coil or alternatively on switch.

Defective contact point of switch (through clamp 31) to mass. Oxidated contact points in switchbox.

62. Defects of lamps.

Blown electric bulbs. Exchange bulbs for new ones. Loose connections in clamps (55, 56, 58) or alternatively damaged electric conduits. Connections should be tightened, their soldered ends in the switches should be checked and repaired if necessary, electric conduits repaired or alternatively exchanged.

Defective dipswitch or switchbox: Contacts should be cleaned, switches either repaired or replaced with new ones.

Short circuit of electric conduits 55, 56, 57 to mass. Detect cause of short circuit and eliminate it. Defective cables should be repaired or replaced with new ones. A short-cutting electric wire is detected by gradual disconnecting the individual wires. In the first place switch the dipswitch to position „riding in daytime", then start the engine and depress the electric buzzer press button. If the buzzer functions correctly, defect is to be looked for from the terminal 56 at the switchbox to bulbs. Switch the switchbox to position „night riding" and disconnect gradually the individual conduits from electric bulbs to switch.

Defective magneto — short circuit or interrupted (broken) winding of stator. In such a case it is necessary either to re-wind the stator or carry out replacement.

Electric bulbs light is feeble even at high revolutions of the engine.

Bulbs used are of an excessively high input. Fit electric bulbs of specified values, i.e. 15/15 watts/6V and 5watts/6V. Some of the electric conduits is partly short-cutting to mass.

Insufficient contact of conduits in terminals, oxidated terminals. Be sure to tighten conduits in terminals, which should be duly clean.

Short circuit in some of the coil for lights. Re-wind the stator or alternatively replace the entire magneto. Permanent magnets of low value. The rotor is to be magnetized to due value.

63. Defects of acoustic warning signals

The electric buzzer does not operate:

Defects in the electric buzzer can be caused by disconnected or alternatively short-cutting electric conduits from the terminal 53 of the switch via press button to mass, defective connections in terminals of the buzzer or alternatively defective contact points of the press button. The buzzer does not function even with the lights on and lower revolutions of the engine and if it has been completely misadjusted.

The electric conduits should be repaired or alternatively exchanged with new ones, the contact points should be cleaned and tensioned. If the buzzer has been found burnt, it must be replaced with a new one.

VII. SERVICE TOOLS FOR THE MOTORCYCLE JAWA 50/05

P 1 Assembly stand for engine	used for the purpose of fixing the engine in the course of unassembly and assembly
N 3 Dividing tool of crankcase	used for separating crankcase halves.
or:	
F 1 Dividing tool of crankcase	used for separating crankcase halves and pressing out crankshaft mechanism
N 4 Clutch depressing tool	used for the purpose of depressing clutch in the course of its unassembly and assembly together with application of the tool N 62; for pressing out the crankshaft mechanism together with two washers
N 62 Pressing tool for clutch springs	
N 7 Puller of gudgeon pin	for removing gudgeon pin from piston
N 9 Puller of chainwheels	for removing all the chainwheels and for removing the driven drum of clutch
N 11 Depressing tool for rear telescope spring	used for the purpose of removing springs of rear telescope, together with tools N 10 and N 16
N 16 Puller for crankshaft mechanism bearing	used for the purpose of removing crankshaft mechanism and wheel bearings
N 10 Remover of rear pivoted fork pin	used for removing the mentioned pin, using also tools N 11 and N 16
N 26 Straightening tool	used for straightening nut washers in the course of unassemblies of the secondary sprocket and of the driven drum of clutch. In the course of assembly, the tool is used for bending the washers.
N 27 Protecting cap	By installing the protecting cap on the l. h. pin of the crankshaft the Gufero sealing ring is protected against damage in the course of assemblies.
N 29 Ignition advance gauge	ingnition advance of 2.7 mm to 3 mm equals to 3 — 3.4 mm at the gauge.
N 33 Installer	is used for installing of the primary and secondary transmission chainwheels and of the driven clutch drum
N 34 Centering needle	for the purpose of centering the slots in the course of assembling engine into frame of the machine.
N 37 Socket spanner 9 × 10	for the purpose of releasing
N 39 dtto 14 × 17	screws and nuts of due sizes
N 44 Rotor puller	for removing rotor magneto
N 42 Spanner 27 and securing tool of	together with N 52 for securing and

clutch driven drum

N 47 Remover of bushes — removing the clutch driven drum with the assistance of the puller N 9 and for slackening of nut of secundary chainwheel

N 48 Nipple spanner — used for removing the centering bushes of the engine.
used for tightening of wheel spokes and nipples

N 49 Installing bush — used for the purpose of assembling piston rings.

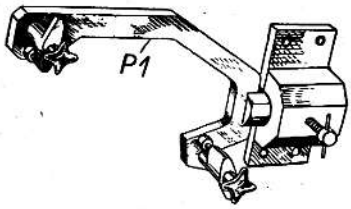
N 50 Socket for piston rings depressing — used for the purpose of piston rings in the course of assembling cylinder barrel

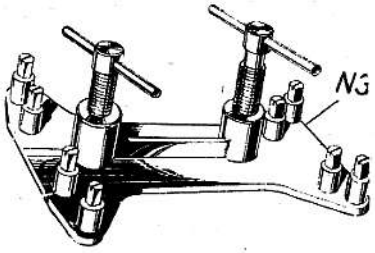
N 51 Fixing insertion — used for securing the primary chainwheel and of the driven clutch drum in the course of unassembly.

N 52 Template (securing tool for unassembly) — used together with the tools N 42 and N 9 in the course of removing the clutch

N 53 Screwdriver for telescope screw — used both for assembly and unassembly of the telescope.

Note: Most of the tools mentioned can be used for assembly and unassembly of even the previous motorcycles JAWA 50, types 550 and 555. Some of the tools are universal ones, having been designed for the assembly of JAWA 50 and scooters Manet S 100 (the following tools are concerned: N3, N4, N7, N9, N10, N11, N16, N26, N27, N29, N33, N34, N39).


P1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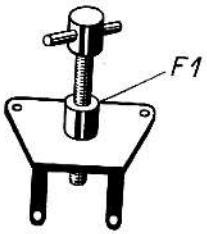
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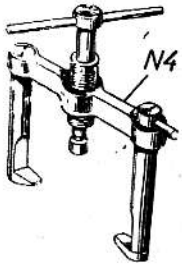
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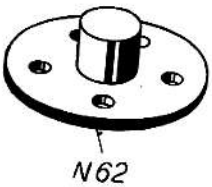
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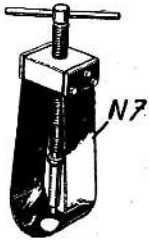
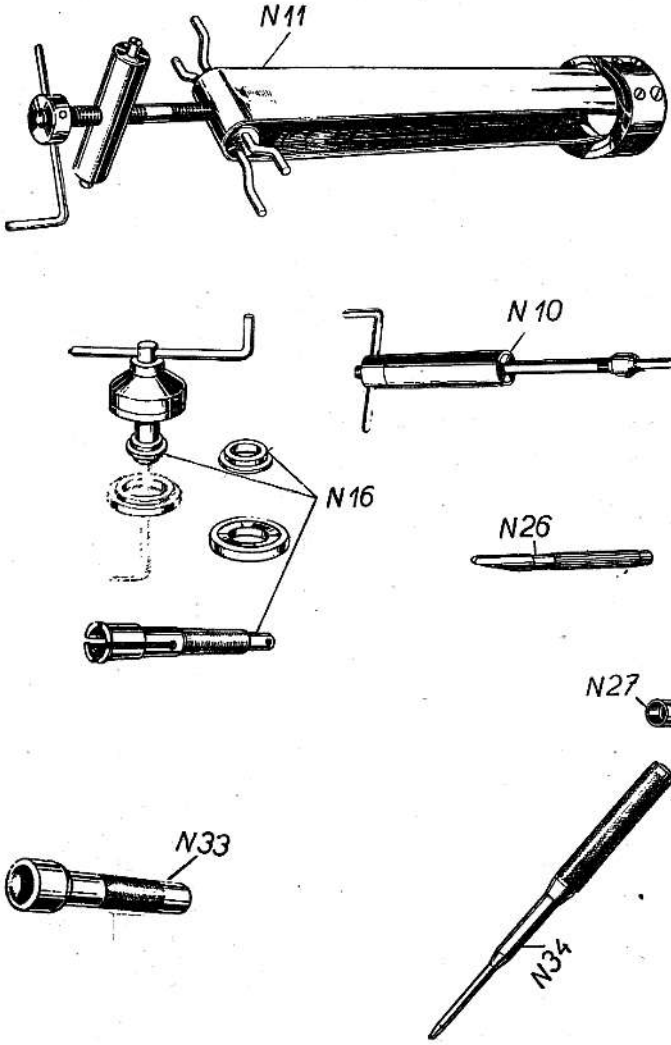

N7


N11
N10
N16
N26
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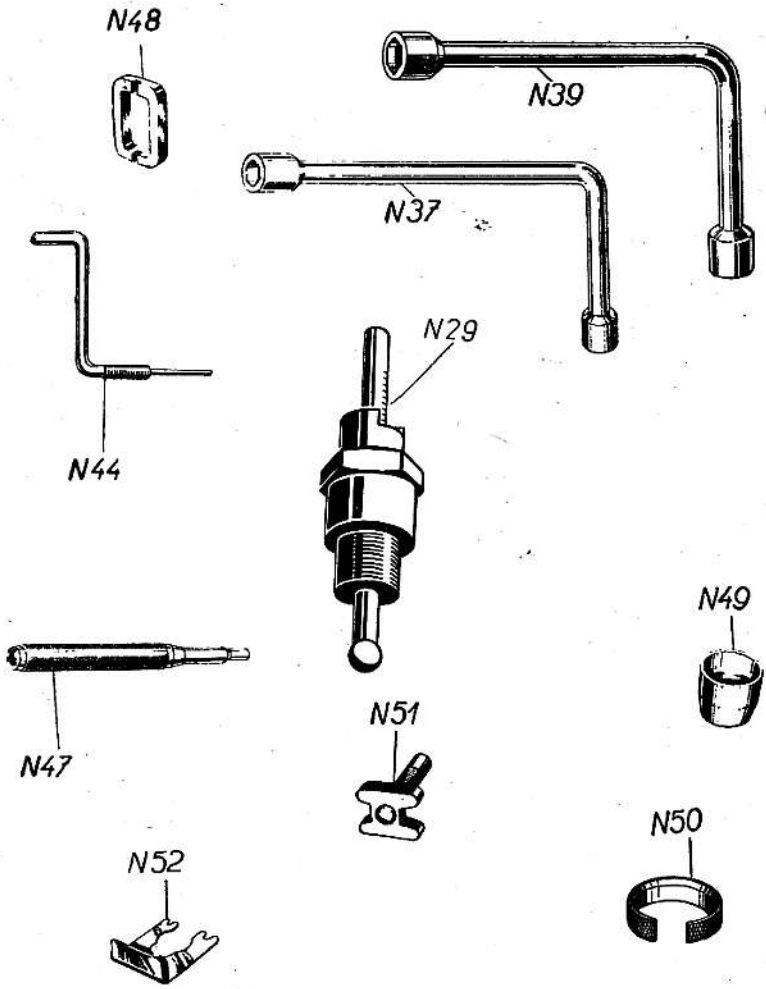
N33
N34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N39
N37
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N52

MOTOKOV PRAHA
CZECHOSLOVAKIA