

**МИНИ-МОКИК
MINIMOKICK**

STELLA

**РУКОВОДСТВО ПО РЕМОНТУ
REPAIR MANUAL
MANUEL DE RÉPARATION
REPARATURANLEITUNG
MANUAL DE REPARACIONES
NÁVOD NA OPRÁVU**



**РИЖСКИЙ МОТОЗАВОД
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MINIMOKICK STELLA

INTRODUCTION

This Manual is intended for workers of repair shops.

The minimokick repair is reduced mainly to replacing the worn out parts and units with new ones. Therefore, given in this Manual are only the principal rules and technological practices of disassembly and reassembly of the minimokick STELLA (PM3-2.134) most important units which are not given in the Operation Manual.

The technical condition of parts and units must be determined after their cleaning and washing and after obtaining the results of the inspection and of measurements taken. Before repairing the minimokick, ask the owner about the circumstances the defects had appeared under and after that check thoroughly operation of units and assemblies. The defects in the minimokick can be found by the inspection, starting the engine, checking operation of units while driving the minimokick or while dismantling the latter.

When reassembling the minimokick, lubricate friction surfaces of parts and check tightening of fastening joints.

I. GENERAL

I.1. TIGHTENING TORQUES OF ENGINE THREADED CONNECTIONS

Place of tightening	Thread size, mm	Torque, N·m
Engine crankcase	6	8
Cylinder head	6	7
Acceleration clutch	10	25
2nd speed clutch drum	10	20
Output gear	10	25

I.2. SERIAL NUMBER

Serial No. can be found:

- on the steering column nameplate;
- on the front part of the engine crankcase right half.

I.3. SPARK ADVANCE

1—1.5 mm before the top dead centre.

I.4. SERVICE TOOLS (Fig. 1)

Ref. No.	Designation	Name	Purpose
1	3T 210-10000-14.5	Remover for dismantling crankcase	Dismantling of engine
2	928-1000-1.5	Clutch drum clamp	Removal of clutch drum
3	50-1200-1.1	Piston pin pusher	Piston pin pressing in and off
4	4T 210-2100	Washer	Starting clutch assembly and dismantling
5	4T 210-2200-01	Clutch drum remover	Removal of clutch drum
6	975-1400-1.1	Advance meter	Spark advance adjustment
7	4T 928-1200-01.03	Mandrel for gland	Gland protection during dismantling
8	928-6000-1.1	Rotor remover	Removal of generator rotor
9	MN 1100-7.1	Hook	Mounting of starting clutch spring
10	4T 928-1200-01.4 4T 928-1200-01.5	Mandrel A, B	Mounting and dismantling of piston
11	4MT 28-1000-1.2	Yoke for piston rings	Contraction of piston rings when installing cylinder
12	KN 14 000	Tools for removing blocks	Removal of second gear blocks
13	KN 14 002	Fitting tools	Fitting of rubber packing ring 18x12

I.5. LIST OF ENGINE BEARINGS, PACKING RINGS AND SLEEVES (Fig. 2)

Ref. No.	Designation as per catalogue	Name	Size	Qty
<i>Bearings</i>				
1	324 162 028 303	Bearing 6203/CI	17×40×12	2
2	324 162 028 303	Bearing 6202/CI	15×35×11	1
3	324 165 068 303	Bearing 6006/CI	30×55×13	1
4	324 592 523 140	Roller bearing	K 15×19×15	2
5	324 931 020 853	Needle bearing	Ø 2×7.8	25

Ref. Nos.	Designation as per catalogue	Name	Size	Q
Packing rings				
6	273 521 000 517	Packing ring	17×28×7	1
7	273 521 002 617	Packing ring	15×24×7	2
8	273 521 005 317	Packing ring	22×32×7	1
9	273 521 009 517	Packing ring	35×47×7	1
10	273 521 007 617	Packing ring	28×38×7	1
11	273 111 010 104	Packing ring	∅ 19×15	2
	273 111 010 024	Washer	∅ 9×5	1
Crankcase sleeves				
12	451 9 224 11 018	Sleeve	∅ 12×18×3	2
13	451 9 225 11 006	Sleeve		1
14	451 9 225 11 009	Sleeve		1
15	273 111 010 114	Ring	∅ 20×16	1

1.6. GEAR TRAINS KINEMATIC DIAGRAM (Fig. 3)

Gearbox

The gear train diagram for the two-gear automatic gearbox is shown in Fig. 3. The torque from crankshaft 1 is imparted to the gearing 2—2' by the toothed belt via acceleration clutch B.

1st speed

The 1st speed includes two gears with involute tooth system (parts 3—4—5—6) which includes also overrunning clutch D located between countershaft parts 4 and 5. The torque from part 6 is imparted to output shaft 7 via the mechanical linkage and further, with the help of the secondary drive, to the rear wheel of the minimokick.

2nd speed

Parts 3, 6, 7 are connected with clutch C thus having the same number of revolutions. Overrunning clutch D ensures different number of revolutions of gears 4 and 5 of the idler. Automatic centrifugal block clutch C fitted with two blocks arranged as running on ones realizes change-over between the 1st and 2nd speeds. This clutch operates under the action of the mechanical power feedback between parts 2', 6 and 7. The torque from output shaft 7 is then imparted to the rear wheel of the minimokick with the help of the secondary drive. Depending on such conditions as the minimokick speed, the torque at the gearbox outlet, direction of acceleration and resistance to the minimokick motion along the road the clutch with the mechanical power feedback determines actuation of one or other speed.

Output shaft 7 with the control mechanism is supported in two ball bearings. The countershaft is supported in two plain bearings made in the form of bronze sleeves.

2. ENGINE M225

2.1. REMOVING ENGINE FROM FRAME

- Remove the covering;
- disconnect the spark-plug wire, the fuel pipeline and remove the carburettor from the cylinder;
- disconnect the wiring;
- disconnect the secondary drive chain;
- disconnect the exhaust pipe from the cylinder;
- unscrew bolts securing the engine and remove the engine from the frame.

Having removed the engine from the frame, clean it from dirt. Drain oil from the gearbox. When dismantling the engine, clean at once the parts removed and place them in the order following that of their dismantling. This will facilitate future correct reassembly and will cut down the time for repair.

2.2. DISMANTLING CYLINDER HEAD, CYLINDER AND PISTON

- Unscrew four nuts M6 and remove washers from studs;
- remove the cylinder head;
- remove the cylinder (Fig. 4);
- for removing the piston (Fig. 5), take out the piston pin lock rings and, using service tool 50-1200-1.1, press off the piston pin.

Special attention should be paid to the needle rollers ∅ 2×7.8 (25 in number) of the piston pin. The maximum gap in the worn-out piston pin lock may be 0.6—0.8 mm.

2.3. REPAIR SIZES OF CYLINDERS AND PISTONS

Repair Sizes of Cylinders, mm

Name of repair size	Group		
	A	B	C
Normal	39.01 ^{+0.01}	39.015 ^{+0.01}	39.025 ^{+0.01}
Repair size 1	39.26 ^{+0.01}	39.265 ^{+0.01}	39.275 ^{+0.01}
Repair size 2	39.51 ^{+0.01}	39.515 ^{+0.01}	39.525 ^{+0.01}
Repair size 3	39.76 ^{+0.01}	39.765 ^{+0.01}	39.775 ^{+0.01}
Repair size 4	40.01 ^{+0.01}	40.015 ^{+0.01}	40.025 ^{+0.01}

Repair Sizes of Pistons, mm

Name of repair size	Group		
	A	B	C
Normal	38.950 ^{-0.01}	38.960 ^{-0.01}	38.970 ^{-0.01}
Repair size 1	39.200 ^{-0.01}	39.210 ^{-0.01}	39.220 ^{-0.01}
Repair size 2	39.450 ^{-0.01}	39.460 ^{-0.01}	39.470 ^{-0.01}
Repair size 3	39.700 ^{-0.01}	39.710 ^{-0.01}	39.720 ^{-0.01}
Repair size 4	39.950 ^{-0.01}	39.960 ^{-0.01}	39.970 ^{-0.01}

The repair sizes of pistons are checked at 13.5 mm distance from the piston base (Fig. 6).

2.4. CLUTCH DISASSEMBLY (ENGINE LEFT-HAND SIDE)

Having unscrewed two bolts M5×30, remove the left protective cover of the clutch. Using service tool 928-1000-1.5, hold back the clutch starting drum and unscrew the nut with the help of wrench 17 (Fig. 7). Then remove the drum with the help of service tool 4T210-2200-01 as shown in Fig. 8. Using the screwdriver, pull three retaining rings out of the grooves and take out the acceleration clutch blocks (Fig. 9). For subsequent reassembly use washer 4T 210-2100 and remover 4T 210-2200-01 of the clutch drum; here, the clutch should be fixed with retaining rings (Fig. 10). Having removed the drum with the acceleration clutch blocks, take out the starting drum with the small pulley by slightly turning it and pulling out together with the cogged belt. While dismantling, keep an eye on needle rollers and washers. Packing ring 15×24×7 in the drum hub and packing ring 22×32×7 in the crankcase should never be damaged. Both marked rings are used to seal the crankshaft case. The starting blocks assembly and dismantling are carried out with the help of tool MN 1100-7.1 (Fig. 11) or with the help of the flat-nosed pliers. The nut of the drum the blocks are mounted in should be released with the help of wrench 17: fix the output shaft against turning over from the output gear side using wrench 10. To avoid oil leakage into the second speed drum, it is advisable to turn the engine so that the ignition system is below. With the nut unscrewed and protective cover removed, take off the round washer; using tool KN 14 000 for removing blocks, take out the control blocks together with their carrier. Place all the parts on the clean spot. If oil has got onto the drum or block linings, degrease them carefully. Finally, take out the control clutch drum.

When dismantling and mounting the block carrier, pay attention to packing ring 19×15 and to adjusting washers.

2.5. DISMANTLING ENGINE CRANKCASE

- Turn off eleven screws M5×45 and take them out of the crankcase left-hand half;
- fit remover 3T 210-10000-14.5 for dismantling the crankcase on the studs and secure it with two more screws M5×30 to the crankcase left-hand half;
- using the remover, take off the crankcase left-hand half (Fig. 12).

2.6. DISMANTLING GEARBOX

- Take out the shaft and gears of the starter (Fig. 13);
- take out the countershaft (Fig. 13, arrow A);
- take out the drive gear with 28 teeth (Fig. 13, arrow B);
- take out the driven gear with 37 teeth (Fig. 13, arrow C).

2.7. REMOVING OUTPUT SHAFT

- Using the screwdriver, straighten the safety washer (Fig. 14);
- unscrew nut M10×1.25;

- remove the sprocket. Having removed retaining rings, press the output shaft out of the crankcase (Fig. 15).

When reassembling the output shaft, use mandrel 4T 928-1200-01.03.

2.8. DISMANTLING GENERATOR

- Remove the generator casing spring together with the ignition system housing. Unscrew bolt M5×25;

- using the rotor remover from the set of service tools remove the armature (Fig. 16);

- undo two screws M4×22 securing the stator and remove the latter from the crankcase right-hand half together with electric wiring.

Having dismantled the clutch, the gearbox and the generator, press the crankshaft out of the crankcase.

2.9. ASSEMBLING ENGINE

The engine is assembled in the reverse order, as follows:

- when pressing in the bearings, heat the crankcase left- and right-hand parts preliminarily to a temperature of 80–100 °C;

- insert the crankshaft into the crankcase right-hand half (with bearings) heated up to about 70–80 °C;

- assemble the gearbox and the stator shaft (Fig. 17);

- press on the crankcase left-hand half heated up to about 70–80 °C;

- place in position and tighten up all the screws;

- assemble the clutch;

- install the generator in assembly and the drive disk;

- using service tool 50-1200-1.1, install the piston, the cylinder and the cylinder head.

Inspect visually all the parts; replace damaged or wornout parts with new ones.

2.10. INSTALLING 2nd SPEED CLUTCH

When assembling the 2nd speed clutch, special attention should be paid to cleanliness of parts to be assembled. The drum (big pulley) should be thoroughly degreased with the help of a degreaser (for example, acetone or trichloroethylene, etc.) and wiped with a clean cloth. Roughness adversely affects durability of friction linings. Packing ring 28×38×7 in the drum hub should not be damaged. Insert the block carrier in assembly with the 2nd speed blocks and with the inserted adjusting carrier into the drum. The parts should be clean and dry. If, during the previous dismantling, oil had found way onto the contact surfaces, remove it by dipping the carrier with blocks into the degreaser. By turning the blocks carrier together with the inserted large adjusting carrier counterclockwise and pressing on it slightly, set it in the correct position using service tool KN 14 000 for the purpose. Do not touch the surfaces of friction linings with greasy hands. Install two washers 451 9 224 21 002 and rubber packing ring ∅ 19×15 which should be forced out with the help of service tool KN 14 002. Prior to

reassembly apply a small amount of oil to the rubber packing ring. In installing the latter it is inadvisable to use the screwdriver or any other sharp object. Install the check ring and the inner carrier which ensures exact operation of both blocks simultaneously. Install the bearing plate and the protective cover of the clutch. Screw in nut M10×1.25 and torque it to 35 N·m (see Fig. 18).

2.11. CARBURETTOR (Fig. 19)

Used in the minimokick is the carburettor JIKOV 2912D C having the following specifications:

main jet	63
idling jet	35
control valve needle	second slot from above
mixture quality adjusting screw	360—540° (1—1.5 rev).

The carburettor maintenance is reduced mainly to its dismantling, washing in clean petrol and blowing through with compressed air. For cleaning the jets use petrol (or acetone) and air only. Never use wire or any other hard objects as they can damage the calibration orifices.

The carburettor maintenance procedure should be as follows:

1. Remove the carburettor from the engine, dismantle it and thoroughly clean separate parts.
2. Replace the wornout parts with new ones.
3. Check the flange for flatness and if irregularities are detected grind it with emery cloth on an even board.
4. Thoroughly clean the carburettor body after grinding.
5. Check the adjusting elements for being in accordance with the preset values.
6. Adjust the control valve needle and the mixture quality adjusting screw to meet the standard values and finish mounting.
7. Install the carburettor on the engine. Start the engine, let it warm up and adjust the mixture quality with the help of the adjusting screw. The idle speed (1600—1800 r. p. m.) should be adjusted by the stop screw; the control valve and the handle free running are adjusted by the cable stop.

Check and Adjustment of Fuel Level

Check should be always performed with the carburettor floats submerged, the other parts (needle, float) serviceability being checked in advance, and also when replacing the double float with a new one.

Mechanical Adjustment of Carburettor (Fig. 20)

Remove the carburettor and then take off the float chamber cover. Turn the carburettor so that its floats are directed upwards. Check the floats free motion along the spindle. Check squareness of both floats to the carburettor axis and their height. The float height should exceed that of the emulsion tube by 1 mm (the main jet removed). The float position is adjusted by unbending the suspended levers. The floats thus adjusted must ensure the correct fuel level.

2.12. CRANKSHAFT

Straightening crankshaft

The crankshaft alignment and permissible run-out are checked in a special appliance (in centres) with the help of two clock-type indicators. Install the crankshaft in the centres so that it can be cranked. The maximum permissible mutual circular run-out of working surfaces is 0.016 mm. The journals for bearings are considered to be the working surfaces. This is ensured by the crankshaft design and production technology. Check should be always performed before installing the crankshaft into the engine. Irregularities in the new crankshaft may be caused by break-down, improper handling during transportation, falling to the ground. The correct axial (circumferential) backlash of the crankshaft in the crankcase can be ensured by observing the dimension $38_{-0.2}$ mm (distance of fillets for bearings) after pressing in. Pay attention to the distance between flywheels in the crankpin location which should be minimum 12.2 mm.

Crankshaft Straightening Procedure

Check alignment of main journals as shown in Fig. 21.

Measure the mutual displacement (misalignment) of the crankshaft halves, remove the crankshaft from the centres and having placed it on the relevant support (copper, aluminium) correct the displacement of journals by tapping with a mallet made of a soft material or with the help of the hand press until their maximum alignment is ensured. The crankshaft halves are considered aligned when, with the shaft being cranked, readings on both indicators are the same. On completing this operation (if the mutual run-out of working surfaces exceeds 0.016 mm), align the crankshaft axes finally by unbending the flywheels in the required direction.

The procedure is shown in Fig. 21. The flywheels should be bent (with readings — —) or unbent (with readings + +) depending on the crank axle sag (as per readings of the indicators). When required, the alignment should be performed in several planes and only as shown in Fig. 21. The reading 0.016 mm for mutual run-out of working surfaces is decisive for the final alignment. If the procedure described fails to ensure the specified run-out, the crankshaft is unfit for service and should be replaced.

Crankshaft Dismantling and Reassembly

1. Use the press of about 50 000 N force. Before dismantling, mark mutual position of the crankshaft flywheels with the help of a triangle.
2. Press the crankpin off one half of the crankshaft first and then off the other.
3. Use the connecting rod as the set supplied by the Manufacturer only.
4. Thoroughly clean the crankshaft parts; the crankshaft journals must be dry.
5. Press the crankpin into the flywheel so that its end is flush with the flywheel outer surface.
6. Install the cage with rollers and apply grease.

7. Press the flywheels in accordance with marks made earlier.

8. Pressing-in over, align the crankshaft.

3. FRONT FORK (Fig. 22)

For dismantling the front fork from the frame:

1. Remove the front wheel.
2. Turn handlebar tubes about their fastening bolts having first unscrewed decorative nuts.
3. Unscrew the check-nut, two bolts, remove the washer and then the top bridge.
4. Lift the internal tubes one by one, let down the cup, take out the pin and remove the internal tubes.
5. Unscrew the nut on the framework rod and separate the front fork framework from the frame. When assembling the front fork, apply solid oil "C" to the bearings, the rod and to the upper ends of internal tubes at 250 ± 20 mm length from the end. The internal tubes should move easily, without jamming or seizing, in their sleeves. When installed on the frame, the front fork should easily but without play turn in the bearings.

4. FRONT AND REAR WHEELS (Fig. 23)

For preventive inspection or repair of brakes, remove the wheels and take the brake disk out of the wheel boss. Wash dirty brake linings with clean petrol.

The correct functioning of brakes is ensured with the minimum size of $\varnothing 81.5$ mm as measured over the wornout brake linings. With smaller size the brake blocks must be replaced.

5. REAR SHOCK ABSORBER (Fig. 24)

For dismantling shock absorbers:

1. Unscrew nuts, remove washers and take out bolts.
 2. Remove shock absorbers from the axle.
 3. Press thrust bush R1.28.09.112-1 and insert R1.28.09.111-1 off the housing and the end piece.
 4. Unscrew the spring from the housing and end piece having gripped them in the vice one by one.
 5. Remove buffer R1.28.09.118-1 from the end piece with the rod.
 6. Using the screwdriver, take sleeve R1.28.09.120-1 out of the housing.
- Reassembly should be done in the reverse order.

6. ELECTRICAL EQUIPMENT

The electrical equipment diagram is shown in Fig. 25.

The generator (Fig. 26) with the rotor fitted with permanent magnets is used as the electric power source. The filament lamps are supplied with power from three stator coils 20 W, 6 V. The fourth stator coil feeds current to the ignition circuit. The thyristor block is controlled from the pulse coil. The rotor-to-coil nominal gap is 0.3 mm.

6.1. IGNITION SYSTEM

The thyristor, contactless, semiconductor block is encapsulated in plastic. The induction coil is accommodated in the cylindrical aluminium housing.

Power supply	generator coil
Starting	pulse coil
Spark plug	PAL N7R
Distance between electrodes	0.5 mm
Spark advance	1—1.5 mm before TDC.

The minimokick is equipped with the contactless, semiconductor ignition system requiring no maintenance (except for periodical spark plug cleaning) and the system malfunction can be the result of incompetent interference of the User only. The spark advance is not to be adjusted also as there is no mechanical wear. The spark advance should be adjusted only in case of the loose stator screws or after dismantling the generator. Therefore, it is advisable not to interfere with the ignition adjustment. In case of any failure contact the specialized workshop. The spark advance is set as follows.

Turn the generator rotor clockwise up to the top dead centre of the piston — Fig. 27, arrow A. Insert the spark-advance adjustment appliance, the indicator or the thickness gauge into the hole for the spark plug. Then turn the rotor counterclockwise till the reading 1.5 mm is obtained. If the readings do not meet this value, release screws E (Fig. 28) and turn the stator in the direction of arrow C or D. If the spark advance is adjusted correctly, marks B on the stator and rotor (see Fig. 27) should coincide. Having set the spark advance, tighten screws and check the correctness of adjustment again.

6.2. ELECTRONIC IGNITION SYSTEM DIAGNOSTICS

It is advisable to use the ohmmeter for 1.5—3 V power supply. The ohmmeter scale range should be 1 kOhm (10 kOhm).

When checking the thyristor ignition block (TIB) proceed from its internal electric circuit. Check the thyristor starting circuit (Fig. 29) by measuring the resistance value between leads I and I; repeat measurement after rearrangement of measuring tips (opposite polarities of voltage being fed). The resistance value should be different for both measurements. The TIB is clearly faulty when the resistance value obtained in both measurements is close to 0 or ∞ .

When taking measurement between points G and I (as well as in rearrangement of tips), the value obtained should be equal to ∞ in both cases. If a certain deviation is obtained in one direction (+ at G), it testifies to the thyristor breakdown which is a failure. With the TIB intact, it is necessary also to measure ∞ between points G-I and I—15.

Some instruments (those with higher sensitivity of their own measuring system) make it possible to detect the defective elements between points G and 15 in the range of 10 kOhm. With measuring tip connected so that + is at G, the instrument shows deviation, however, the pointer in some time returns to ∞ . In rearrangement of tips the resistance

shows ∞ . If there is a short circuit at capacitor C, the resistance during the first measurement has the constant value. With short circuit of the diode, the result of the first measurement is repeated also with the measuring tips position changed. It is logically correct that with D or C opening, both measurements show ∞ .

It should be emphasized ensuring from the first measurement the capacitor is charged to the measuring instrument voltage and the repeated measurement may be performed after the capacitor is spontaneously discharged only which may take from several minutes to one hour. When replacing the thyristor ignition block in the minimokick, use the TIB 443 990 883 014 only. If the ignition coil is intact, the instrument must show the value of about 220^{+20} Ohm between the core of the coil, the minimokick mass and its lead (Fig. 30). If the pulse coil is intact, it should have resistance of about (17 ± 1) Ohm between its lead and the stator base (Fig. 31).

If the induction coil is intact, its resistance between terminals 1 and 15 should be below 1 Ohm (Fig. 32). The resistance between the high-voltage lead and terminal 15 should be about 6000 Ohm (Fig. 33). The fault can be revealed unambiguously in the case of an open circuit only — the instrument in this case shows infinite resistance.

The induction coil failure is met but very rarely; therefore, before replacing it, it is advisable first to check the quality of connecting wires and tips. For replacing the induction coil, use only the original coil 443 212 210 801.

7. CAUSES OF TROUBLES

7.1. The engine will not be started.

1. The fuel valve is closed.
2. There is no fuel in the tank.
3. The fuel pipeline, strainer or carburettor main jet is clogged. Presence of water in the float chamber.

4. Ignition system is faulty: carbon deposit on the spark plug, spark plug insulator damaged, too large gap between the spark plug electrodes, failure of the thyristor ignition block, faulty ignition coil or pulse coil, faulty induction coil.

5. The engine is supersaturated with fuel. Remedy: shut the fuel valve. With the carburettor throttle valve fully open, crank the engine until it is started up. Then only open the fuel valve. Sometimes it is necessary to unscrew the spark plug and clean it. After that crank the engine several times to drain excessive fuel through the hole for the spark plug. Screw the spark plug in and repeat the starting procedure.

6. The starting clutch is slipping or out of order. To detect the defect, remove the crankcase right-hand cover. In this case, the crankshaft with the ignition rotor will not be cranked.

7.2. The engine misses.

1. The engine is overheated.
2. The spark plug is out of order.
3. The fuel pipeline or the carburettor main jet is partially clogged.
4. The crankshaft case tightness is disturbed.
5. The ignition wire tip is damaged.
6. The ignition system is out of order.

7. Poor ventilation of the fuel tank. (Hole in the tank plug is clogged).

7.3. The engine fails to develop full power.

1. The air filter is clogged.
2. Too much carbon deposit in the exhaust system.
3. The crankshaft case gland is damaged.
4. The piston, cylinder or piston rings are damaged.
5. The cylinder head seal is disturbed.
6. Ignition is adjusted incorrectly.

7.4. The engine develops sufficient power but minimokick acceleration is very poor or minimokick fails to attain maximum speed.

1. Jamming of brake blocks.
2. Low pressure in tyres.
3. Slipping of the acceleration clutch or of the 2nd speed clutch.

7.5. Speeds.

This clause describes troubles less frequently met with that may arise in the course of operation of the minimokick. When revealing the defect in actuating the 2nd speed, it should be taken into account that the minimokick moves along the horizontal road, with the driver of the specified mass, with no wind and with normal pressure in tyres. There are no unforeseen resistances to the minimokick motion such as poorly adjusted brakes and there is no unforeseen interference at the 2nd speed such, for example, as replacement of the sprocket with another one having different number of teeth.

7.6. TROUBLESHOOTING

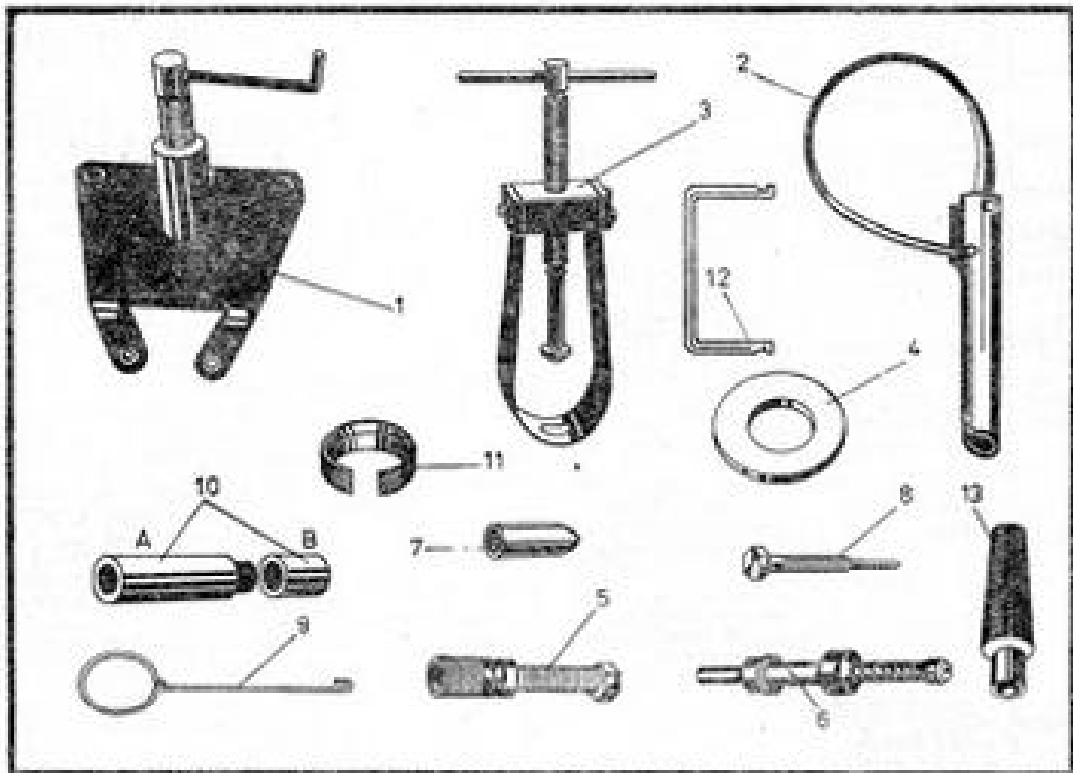
Trouble, symptoms	Probable cause	Remedy
Engine fails to be started (cranked)	2nd speed clutch slips	<ol style="list-style-type: none"> 1. Degrease working surface and linings 2. Dry working surface and linings 3. Release carrier or replace it. Nut M10x $\times 1.25$ may be damaged (for example, thread is cut slantwise) 4. Replace 2nd speed blocks
	2nd speed clutch in good repair, engaged belt rotates, but starting clutch is slipping	<ol style="list-style-type: none"> 1. Oil or water on linings 2. Lining wornout or broken

Trouble, symptoms	Probable cause	Remedy
Starting is a success with more abrupt pressure on kickstarter only	<ol style="list-style-type: none"> 1. Starting block springs over-lightened 2. Starting blocks move with difficulty 3. 2nd speed clutch blocks jammed on blocks carrier 	<ol style="list-style-type: none"> 1. Replace or stretch springs 2. Ensure their free motion 3. Ensure free motion of blocks
Rotation of rear wheel with engine running idle. Minimokick is placed on support	<ol style="list-style-type: none"> 1. High idle speed 2. Gland in small pulley is pressed in insufficiently 3. Acceleration blocks do not return to initial position 4. Starting blocks displace with acceleration clutch overheating. Probably, block positions are changed 	<ol style="list-style-type: none"> 1. Reduce speed 2. Press gland in as far as it can go 3. Check chambers in flat springs 4. Bring blocks back to their initial positions
Acceleration clutch slips in acceleration	Friction linings are worn out	Replace blocks
Engine runs, acceleration clutch is in good working order but minimokick fails to get under way at 1st speed or gets under way for a short while, then its motion is suddenly stopped. Sometimes, with engine speed reduced, getting under way recommences	<ol style="list-style-type: none"> 1. Overrunning clutch in engine is not engaged 2. Working surface of overrunning clutch rollers damaged (crumpled) 	<ol style="list-style-type: none"> 1. Change oil in gearbox. In cold season use oil of lower viscosity 2. Replace over-running clutch gear
With full-throttle acceleration on flat-bottomed land engine develops high speed at 1st speed. This phenomenon may not always be considered a trouble	<ol style="list-style-type: none"> 1. 2nd speed clutch blocks move with difficulty 2. Increased friction between adjusting carrier and block roller 3. Engine develops higher power than required or has other torque characteristic 	<ol style="list-style-type: none"> 1. Ensure free motion of blocks 2. Regrind chrome-plated surfaces on carrier. Replace carrier if required. Do not lubricate contact surfaces. Friction acts as vibration damper of 2nd speed blocks in changing over 3. If minimokick maximum speed is maintained, it is not considered a defect. Accelerate with throttle cut
1st-to-2nd speed change-over is too long as compared with normal time	1. First four cold clutch change-overs last longer until operating temperature is attained	1. This should not be considered a defect

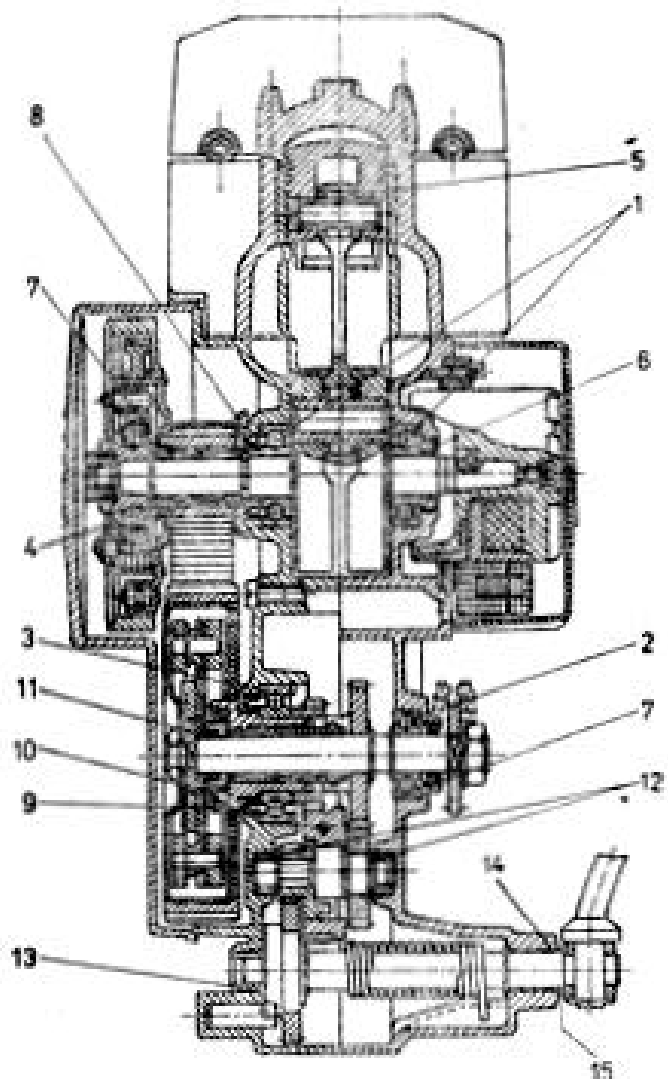
Trouble, symptoms	Probable cause	Remedy
	2. Contact surfaces of adjusting carrier with blocks are oily. With 2nd speed engagement slight vibration of system may take place	2. Degrease
1st-to-2nd speed change-over lasts too long or is not achieved at all (slipping). With 2nd speed clutch slipping, it is inadvisable to run more than 1 km. High temperature may reduce durability of belt	<p>2nd speed clutch slips</p> <ol style="list-style-type: none"> 1. Oil or dirt on working surface of clutch 2. Water on working surface 3. 2nd speed blocks rearranged 	<ol style="list-style-type: none"> 1. Remove mechanical dirt. Degrease drum and linings with solvent. Then break in clutch to run in friction surfaces. Remedy source of contamination (gland, packing ring, fragments) 2. Dry clutch by slipping. Do not dismantle clutch 3. Put blocks in initial place. Grinding in new lining made to touch drum at the running-on side requires 20—25 shiftings until it is ground in properly
1st-to-2nd speed change-over lasts shorter than normally or occurs very quickly. In some cases, minimokick gets under way at 2nd speed or, when moving upgrade, changes over from 2nd to 1st speed too late	<p>2nd speed clutch block clamping by adjusting carrier incorrectly adjusted</p> <ol style="list-style-type: none"> 1. Check of interaction of pair: internal carrier — adjusting carrier under load. Contact surfaces with hard chrome-plating on internal carrier should be lustreous and undamaged 	1. Reveal or eliminate defect by replacing internal carrier with new one
	<p>Changing of properties of such interaction may be revealed by checking the 1st-to-2nd speed change-over at full throttle; prior to checking proceed as follows:</p> <p>A) Reduce the minimokick speed by braking from 2nd to 1st speed and, after releasing the brakes, smoothly change the minimokick over from 1st to 2nd speed.</p> <p>B) Reduce the minimokick speed by throttling back. The adjusting carrier gets free and turns to the opposite side. During acceleration and changing over from 1st to 2nd speed at full throttle, change-over becomes more abrupt than in item A. That shows that adjusting carrier is set on internal carrier with greater difficulty and that contact surfaces are not quite intact</p>	

Trouble, symptoms	Probable cause	Remedy
	2. During turn and contact with working surfaces internal carrier outer contour should have gap around perimeter	2. Replace parts with new ones. It is inadvisable to reduce thickness of part walls by grinding
	3. Hard chrome-plated layer between adjusting carrier and brass layer on block is disturbed; brass layer can be destroyed. Oxides formed under pressure increase friction	3. Install new adjusting carrier and new block

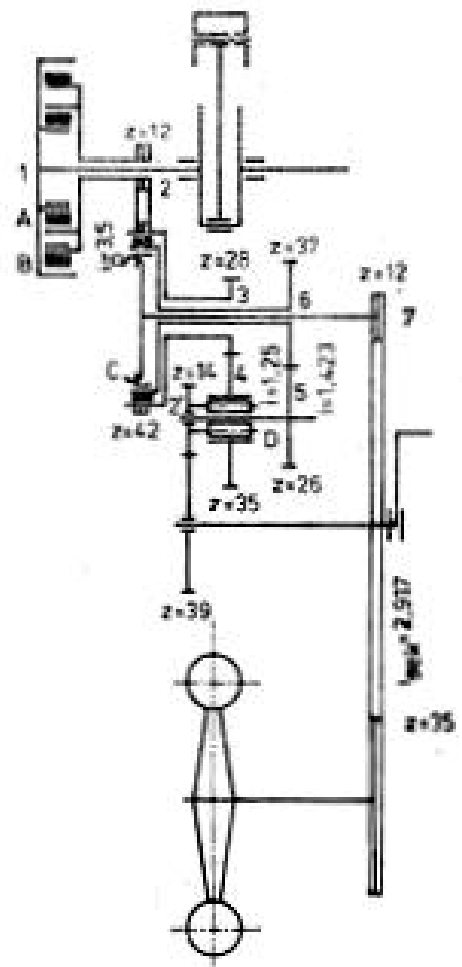
Trouble, symptoms	Probable cause	Remedy
	Other factors: 4. Elevated air humidity in clutch compartment	4. Warm up clutch compartment by driving minimokick without changing over speeds. Each time after washing minimokick start up engine and warm it up
	5. High operating temperature of 2nd speed clutch with frequent repeated change-over (15 times and more)	5. Drive minimokick for 10—15 s without changing over speeds for clutch to restore former properties. Normal property of friction linings, not a defect
	6. Coarse, scaly layer of wornout friction material on working surface	6. Eliminate cause of lining damage. Eliminate wear mechanically, say, by emery paper. In doing so, do not change form of ground-in lining



Pac. 1
 Fig. 1
 Abb. 1
 Obr. 1



Pac. 2
 Fig. 2
 Abb. 2
 Obr. 2



Pac. 3
 Fig. 3
 Abb. 3
 Obr. 3

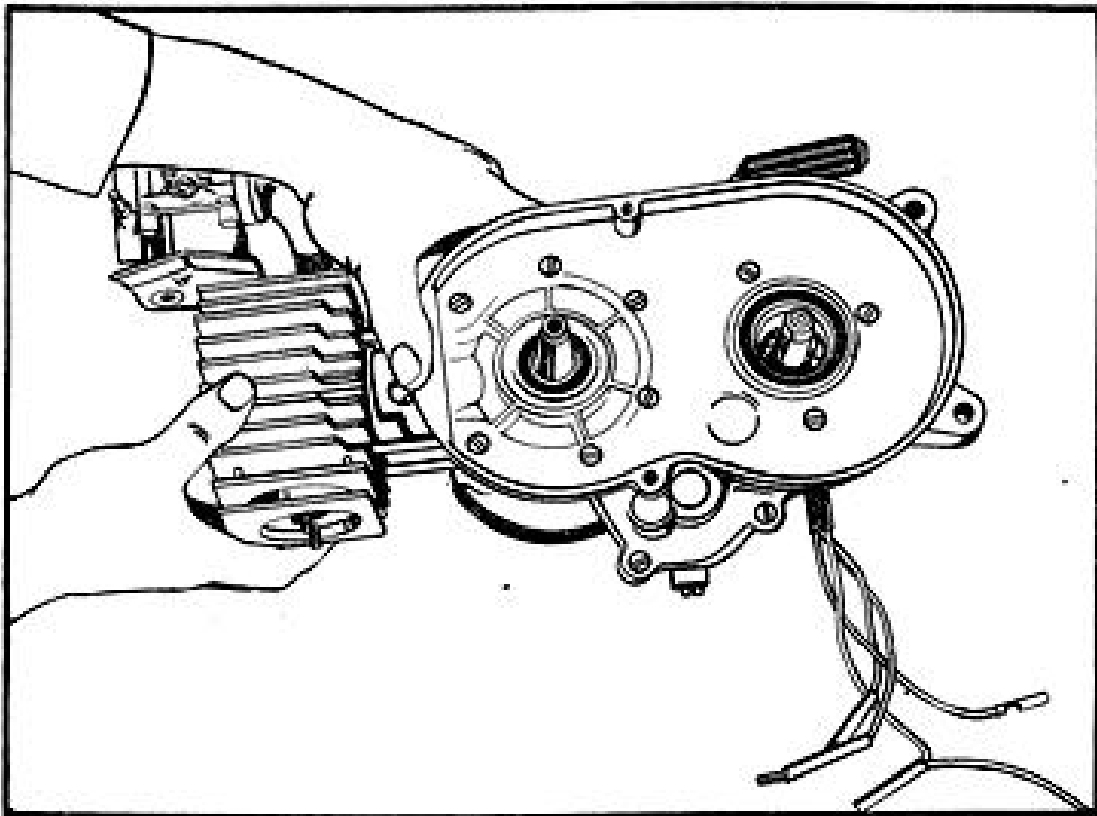
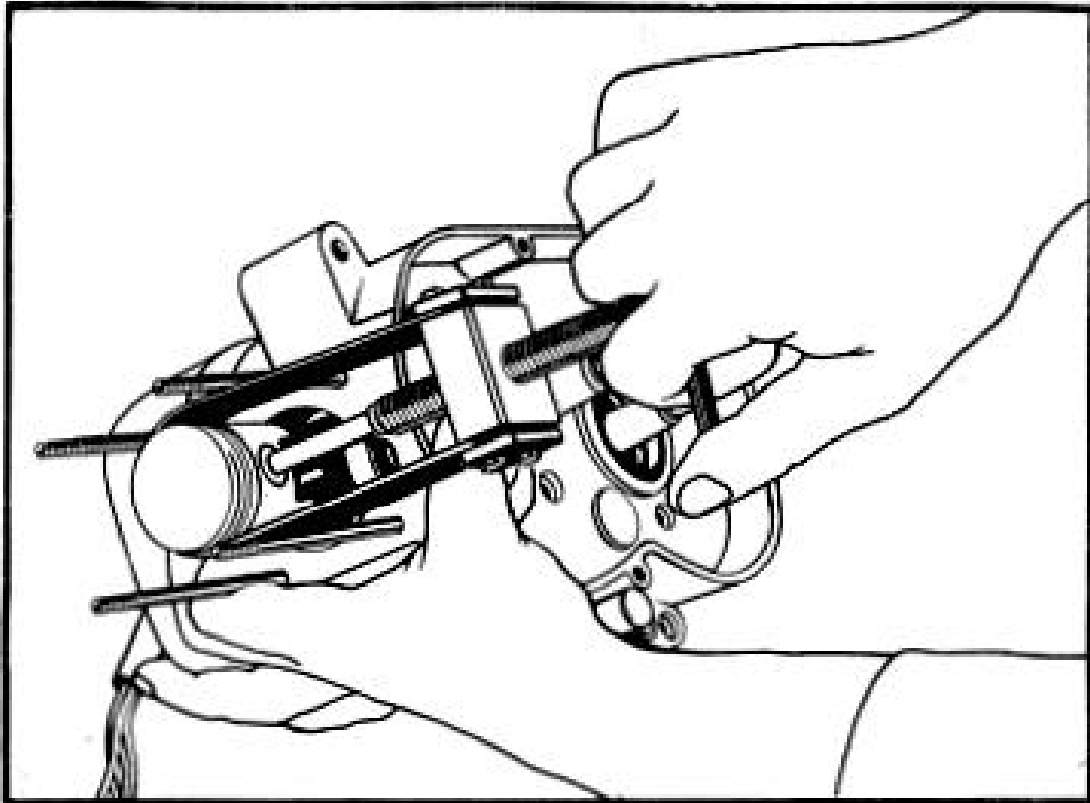
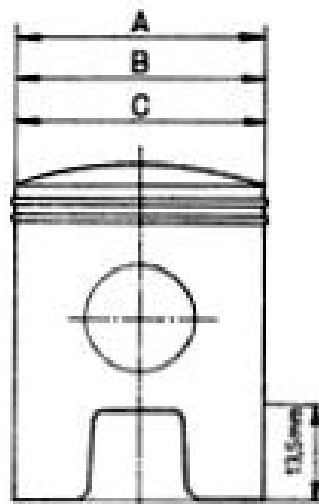


Рис. 4
Fig. 4
Abb. 4
Obr. 4



Pac. 5
 Fig. 5
 Abb. 5
 Obr. 5



Pac. 6
 Fig. 6
 Abb. 6
 Obr. 6

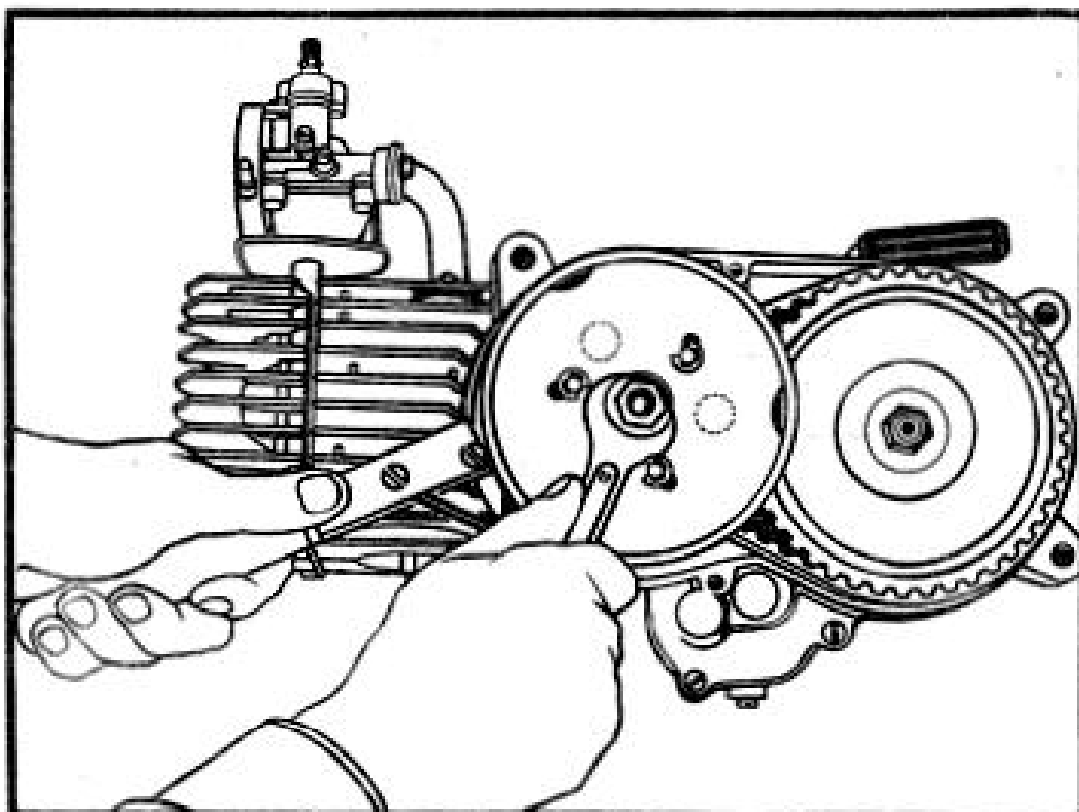


Рис. 7
Fig. 7
Abb. 7
Obr. 7

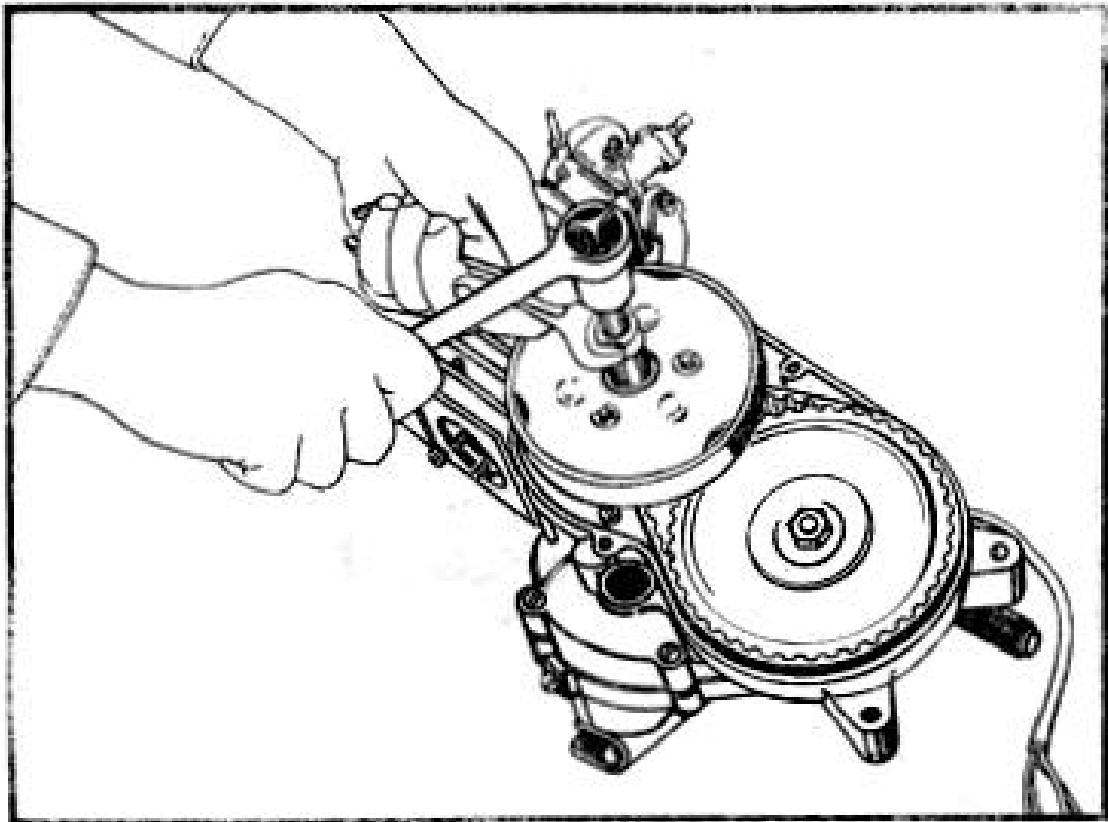
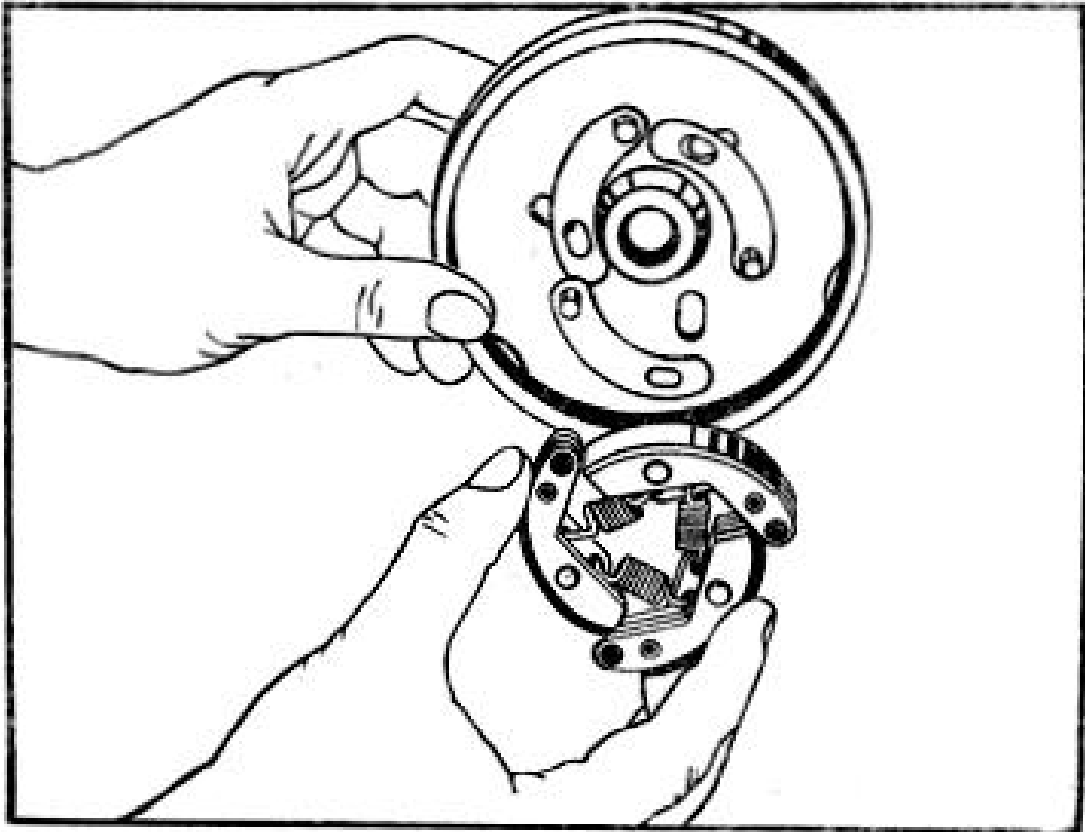
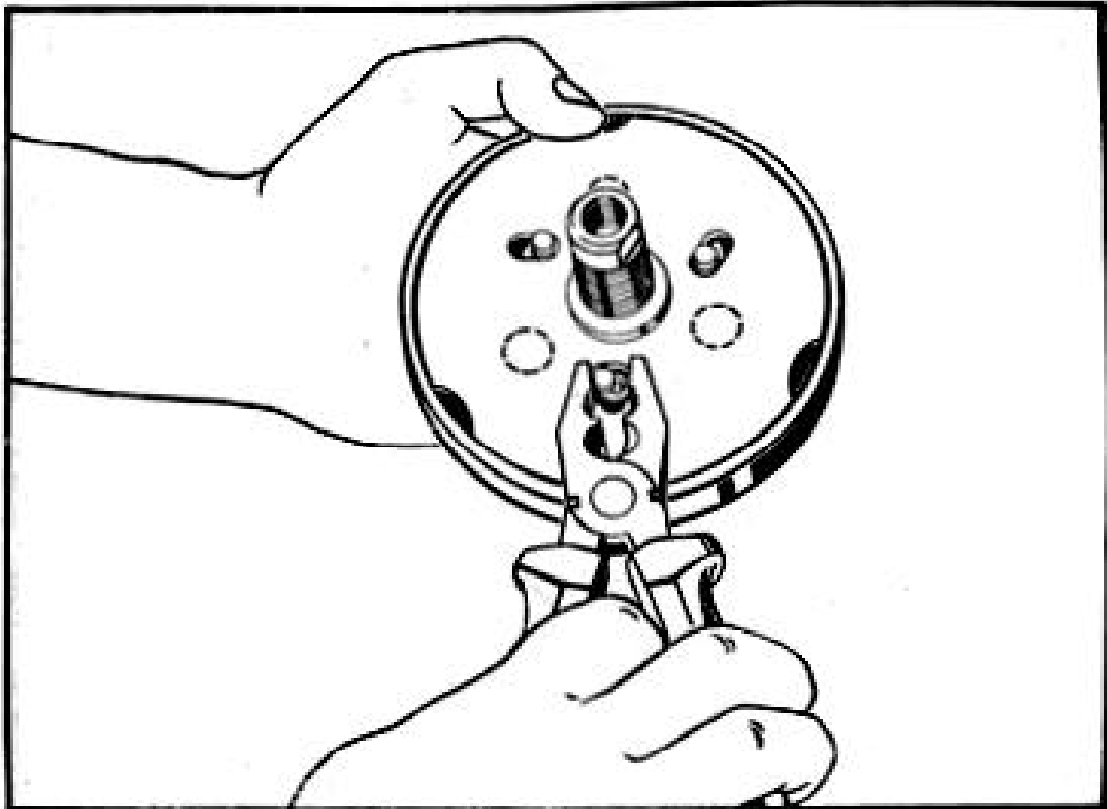


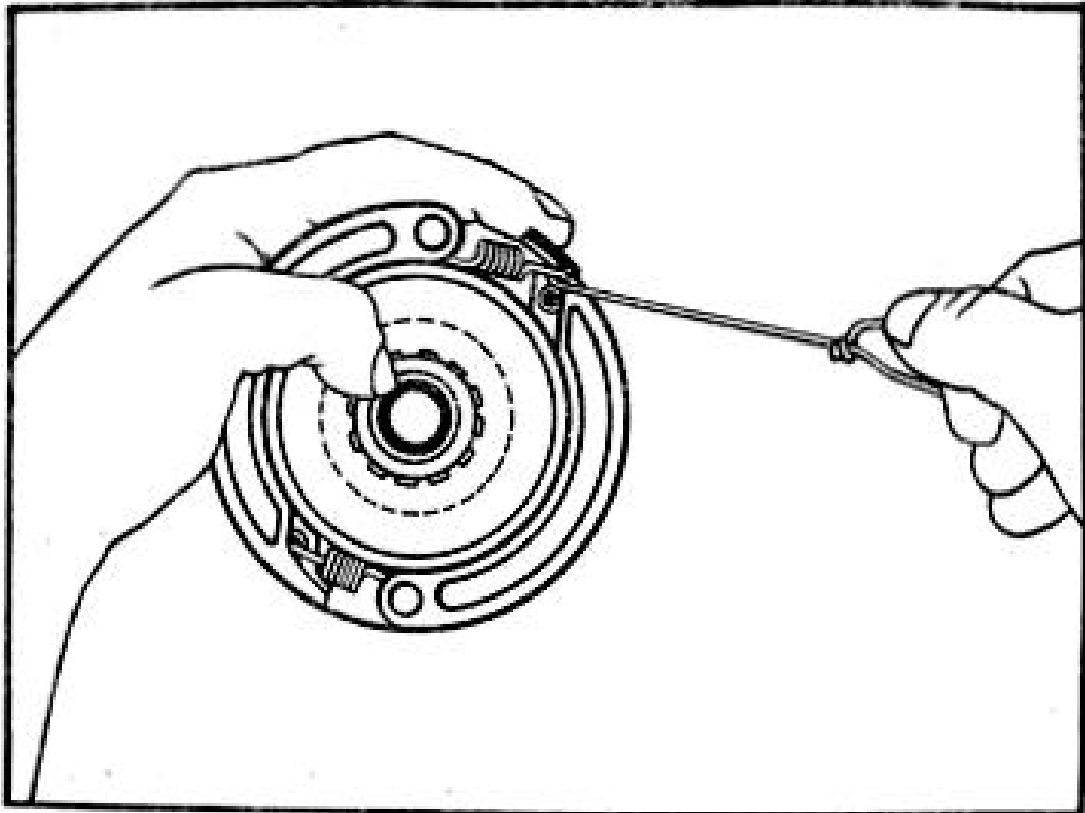
Fig. 6
Fig. 6
Abb. 6
Obr. 6



Pat. 9
Fig. 9
Abb. 9
Obr. 9



Pec. 10
Fig. 10
Abb. 10
Obr. 10



Pat. 11
Fig. 11
Abb. 11
Obr. 11

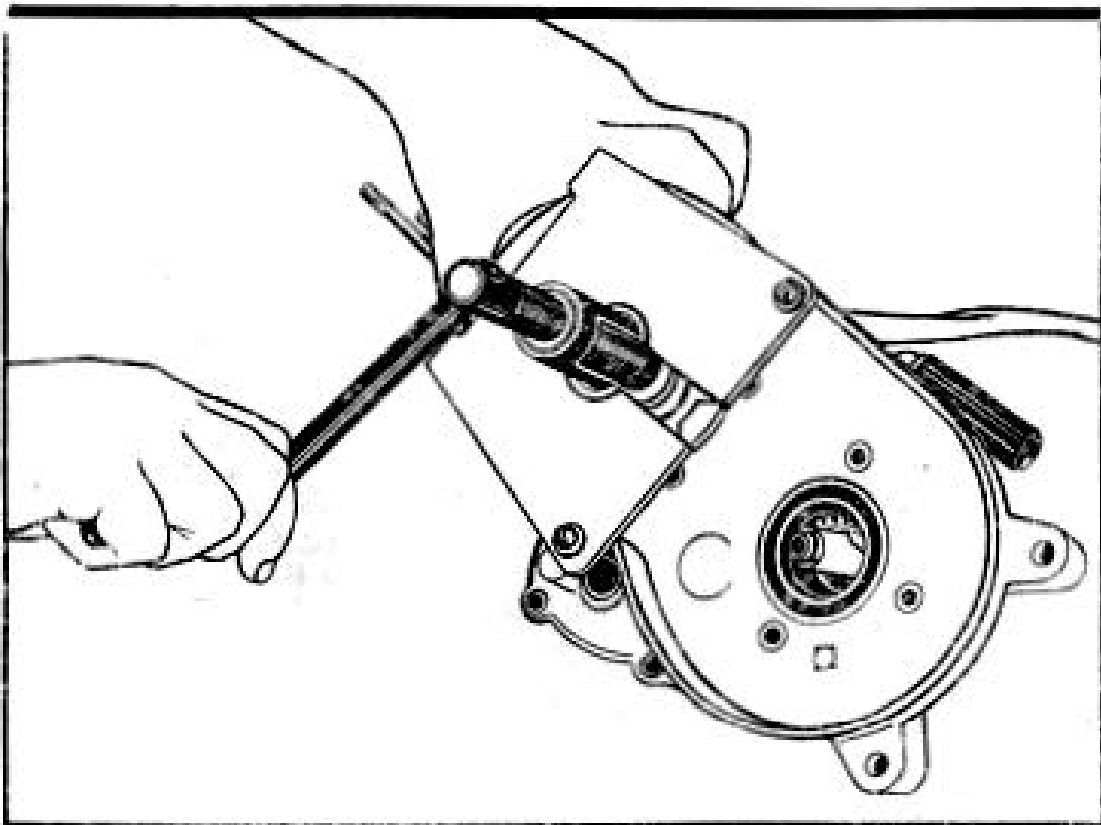


Рис. 12
Fig. 12
Abb. 12
Obr. 12

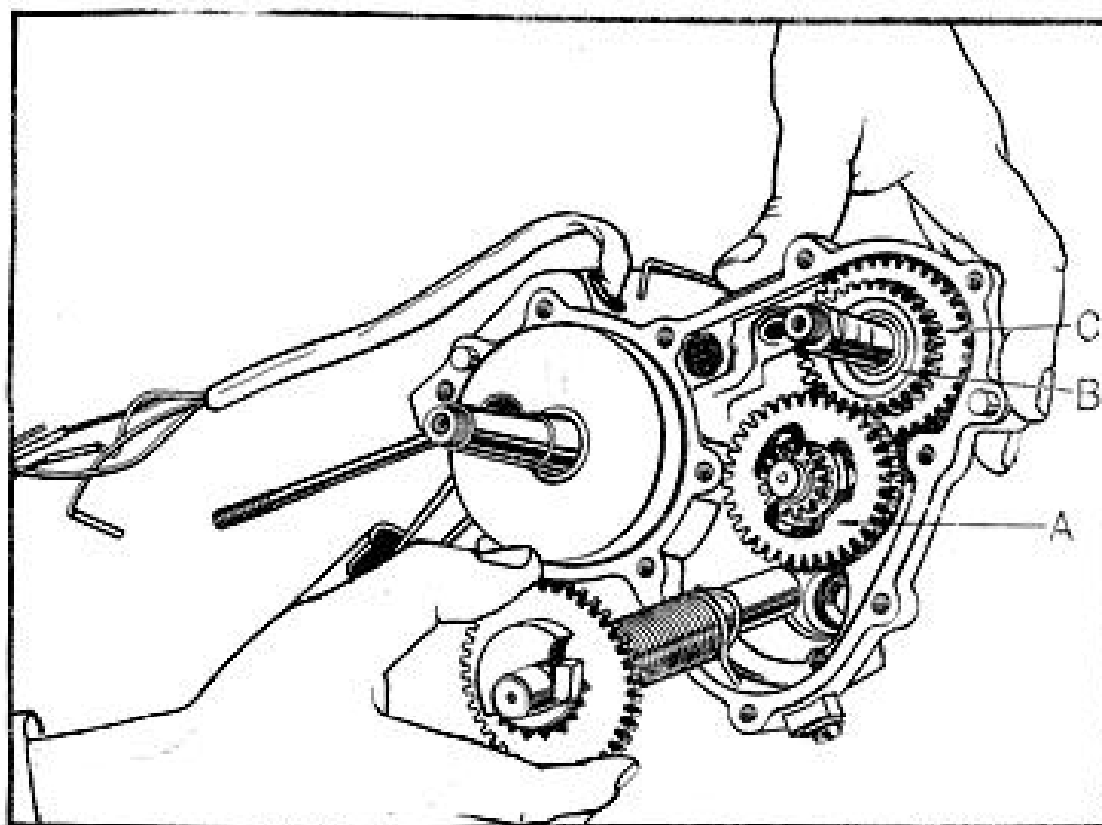
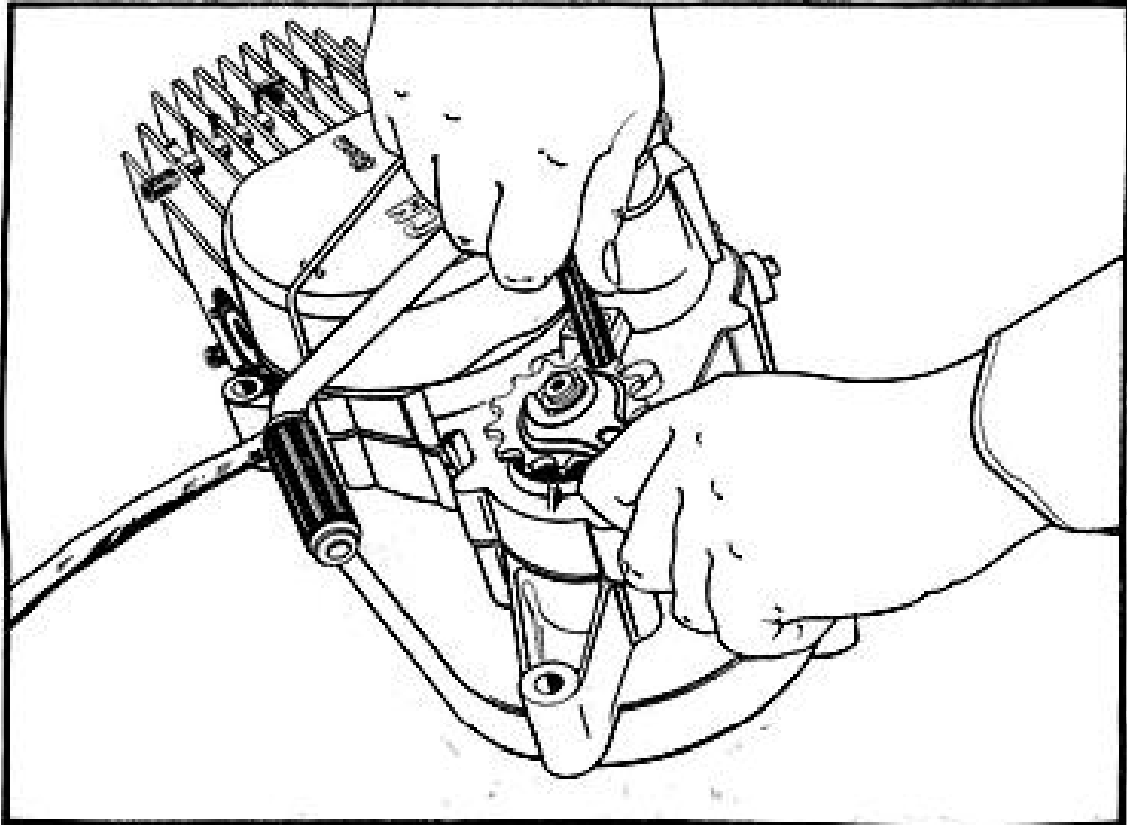


Рис. 13
Fig. 13
Abb. 13
Obr. 13



Proc. 14
Fig. 14
Abb. 14
Obr. 14

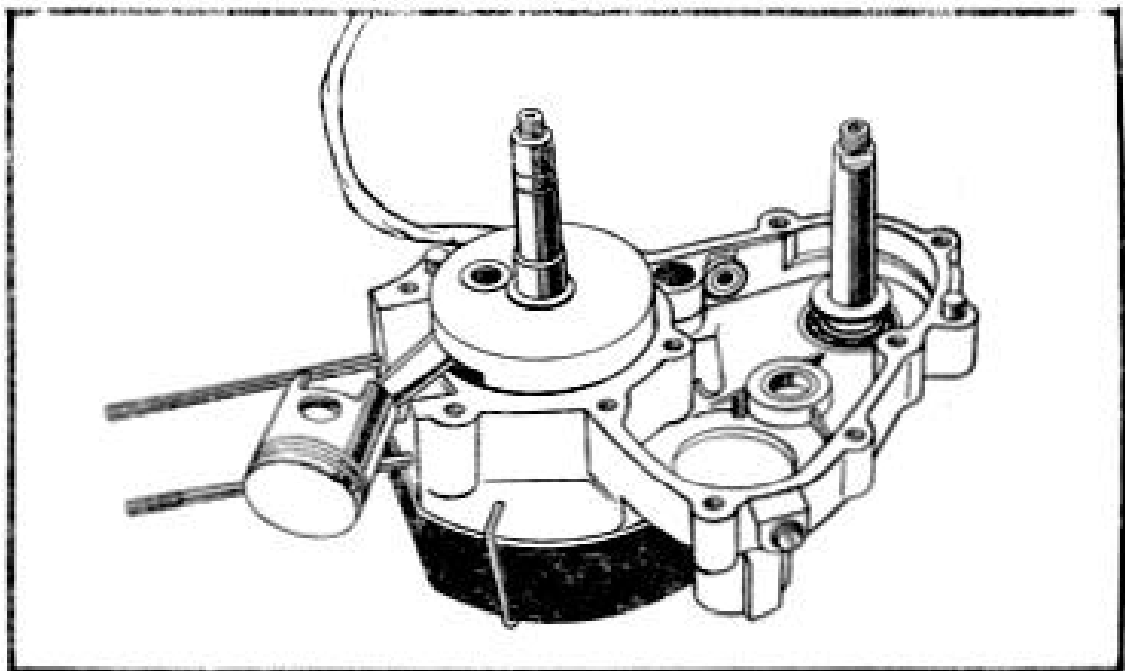


Рис. 15
Fig. 15
Abb. 15
Obr. 15

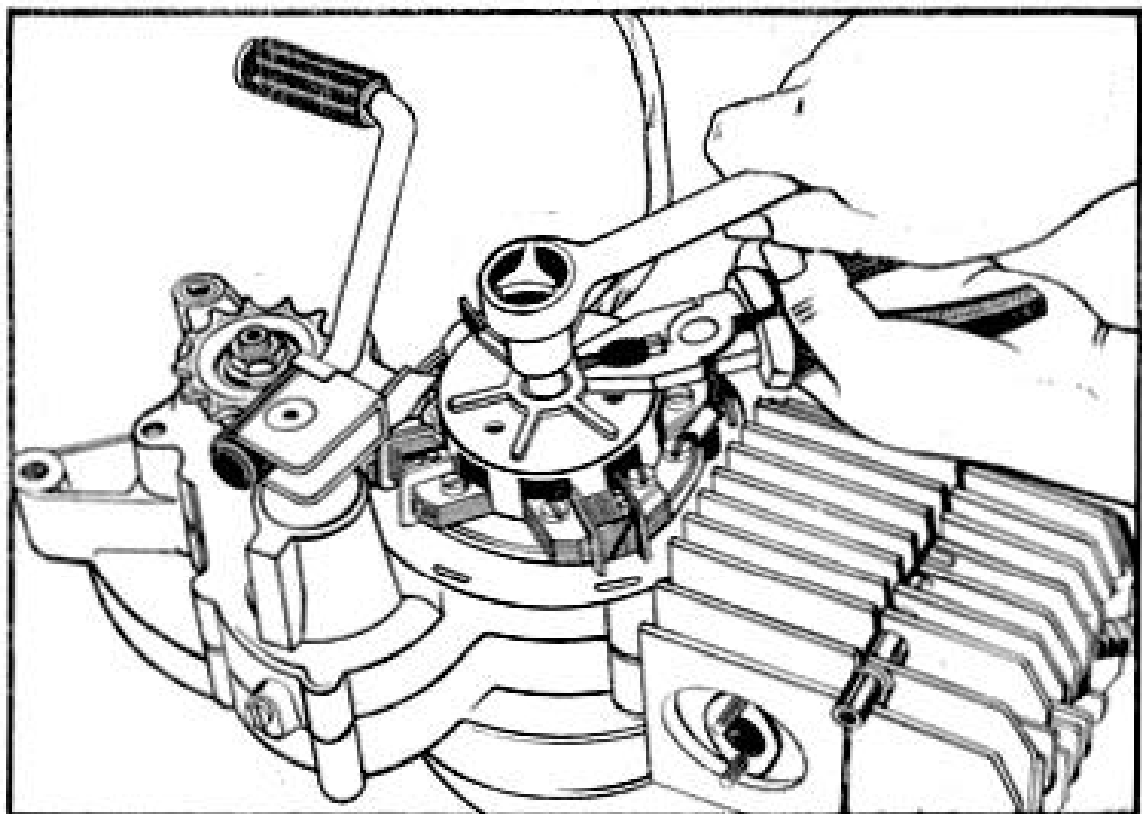
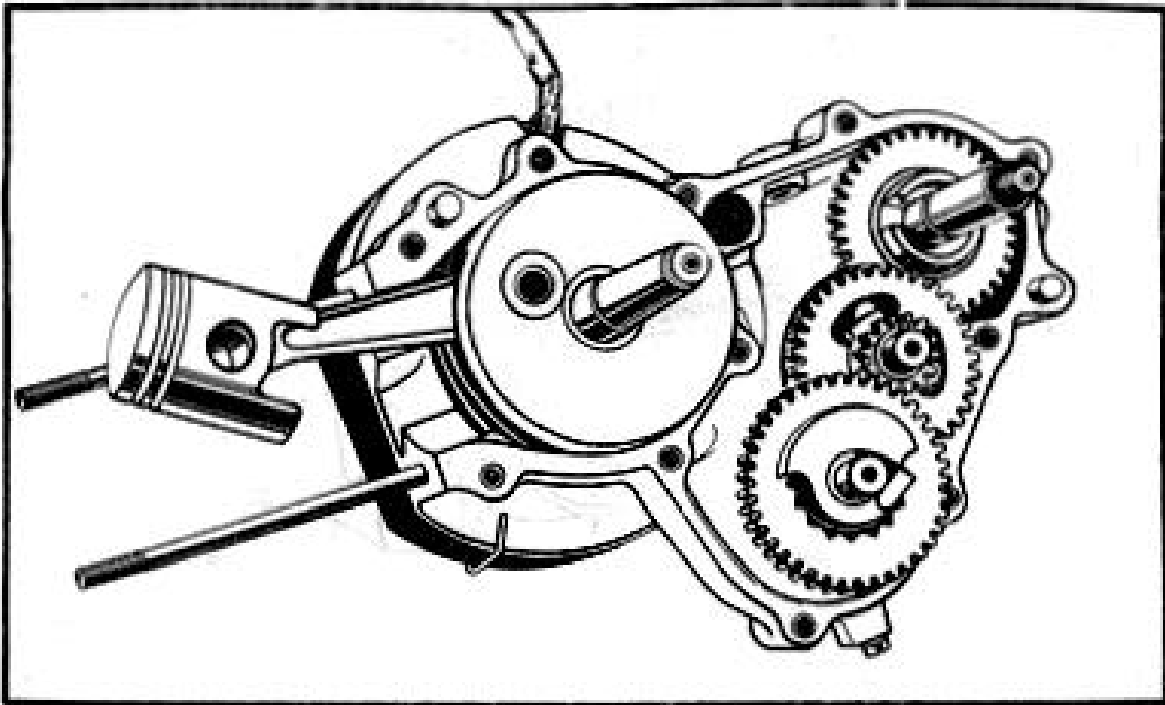
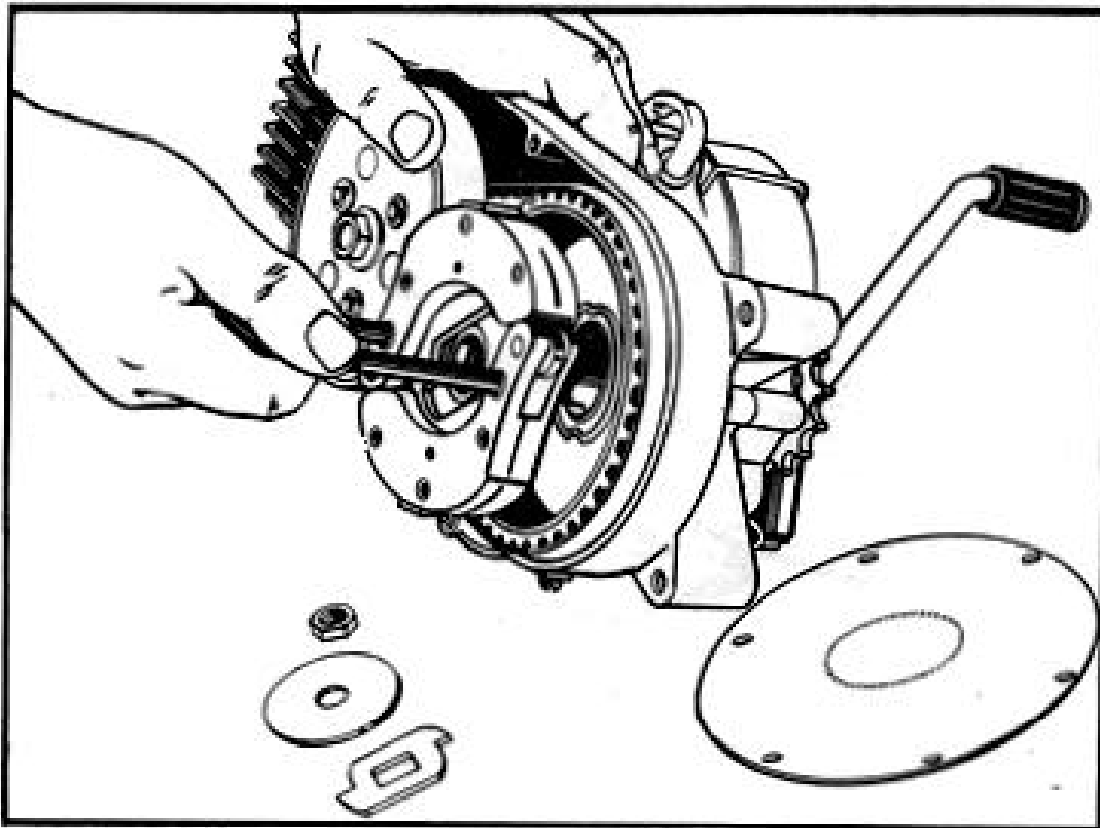


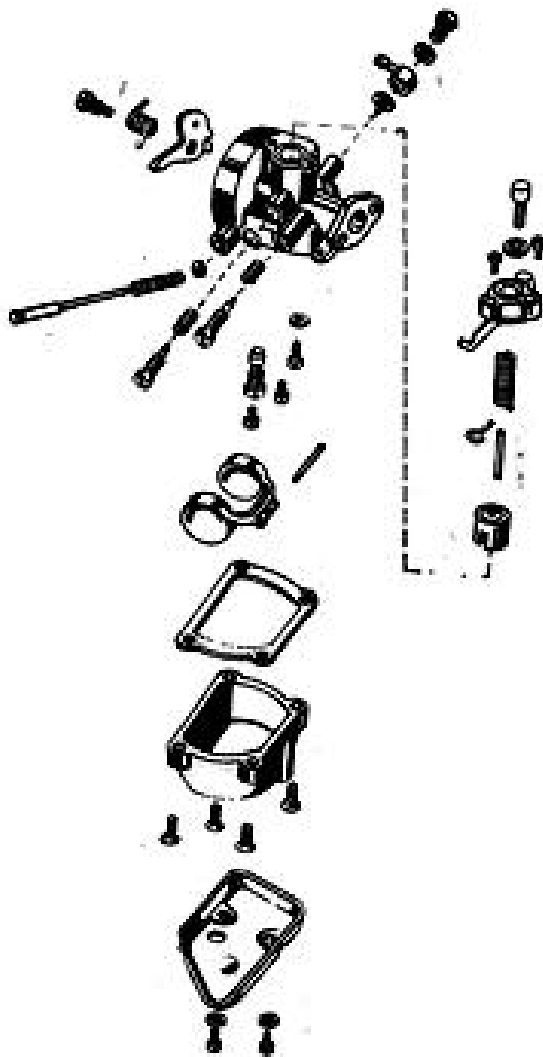
Рис. 16
Fig. 16
Abb. 16
Obr. 16



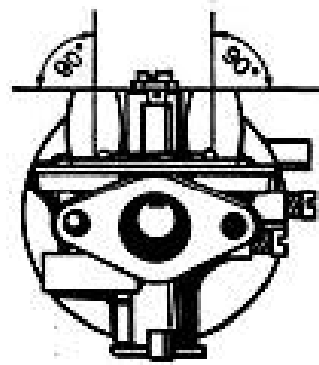
Pat. 17
Fig. 17
Abb. 17
Obr. 17



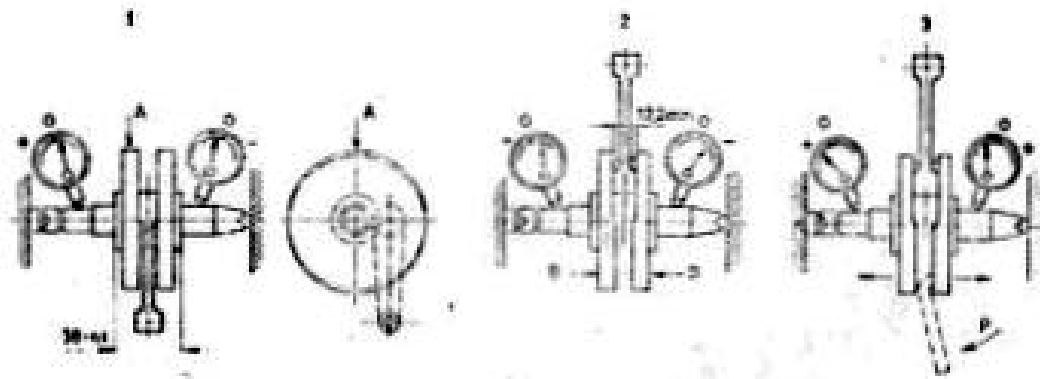
Des. 18
Fig. 18
Abb. 18
Obr. 18



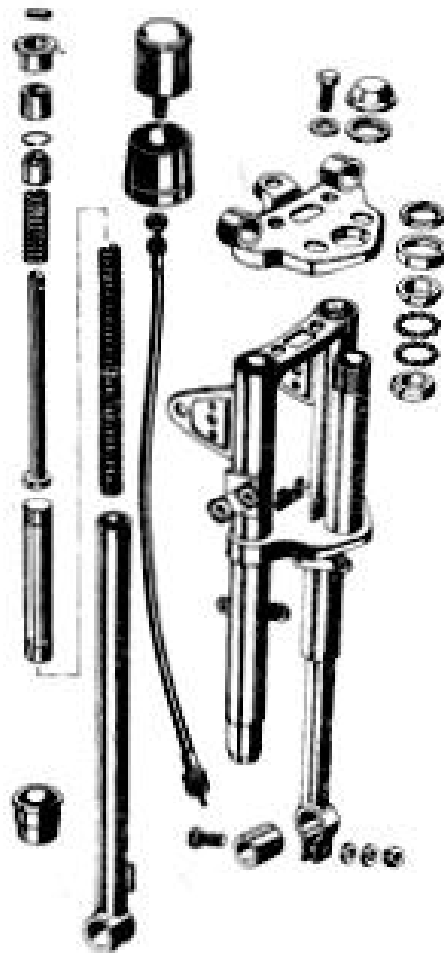
Pac. 19
 Fig. 19
 Abb. 19
 Obr. 19



Pac. 20
 Fig. 20
 Abb. 20
 Obr. 20



Pat. 21
 Fig. 21
 Abb. 21
 Otr. 21



Pat. 22
 Fig. 22
 Abb. 22
 Otr. 22

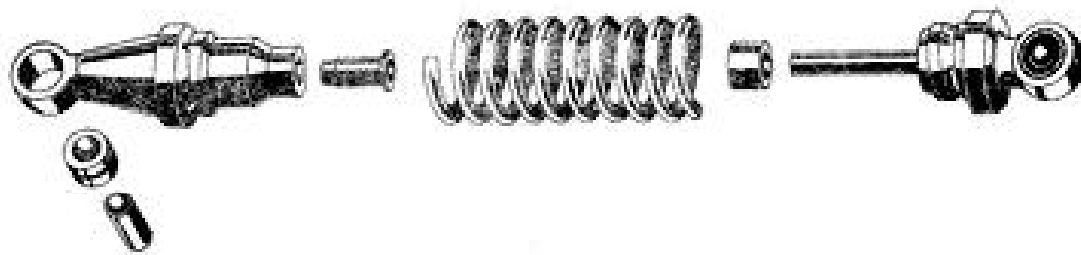


Fig. 24
Abb. 24
Obr. 24

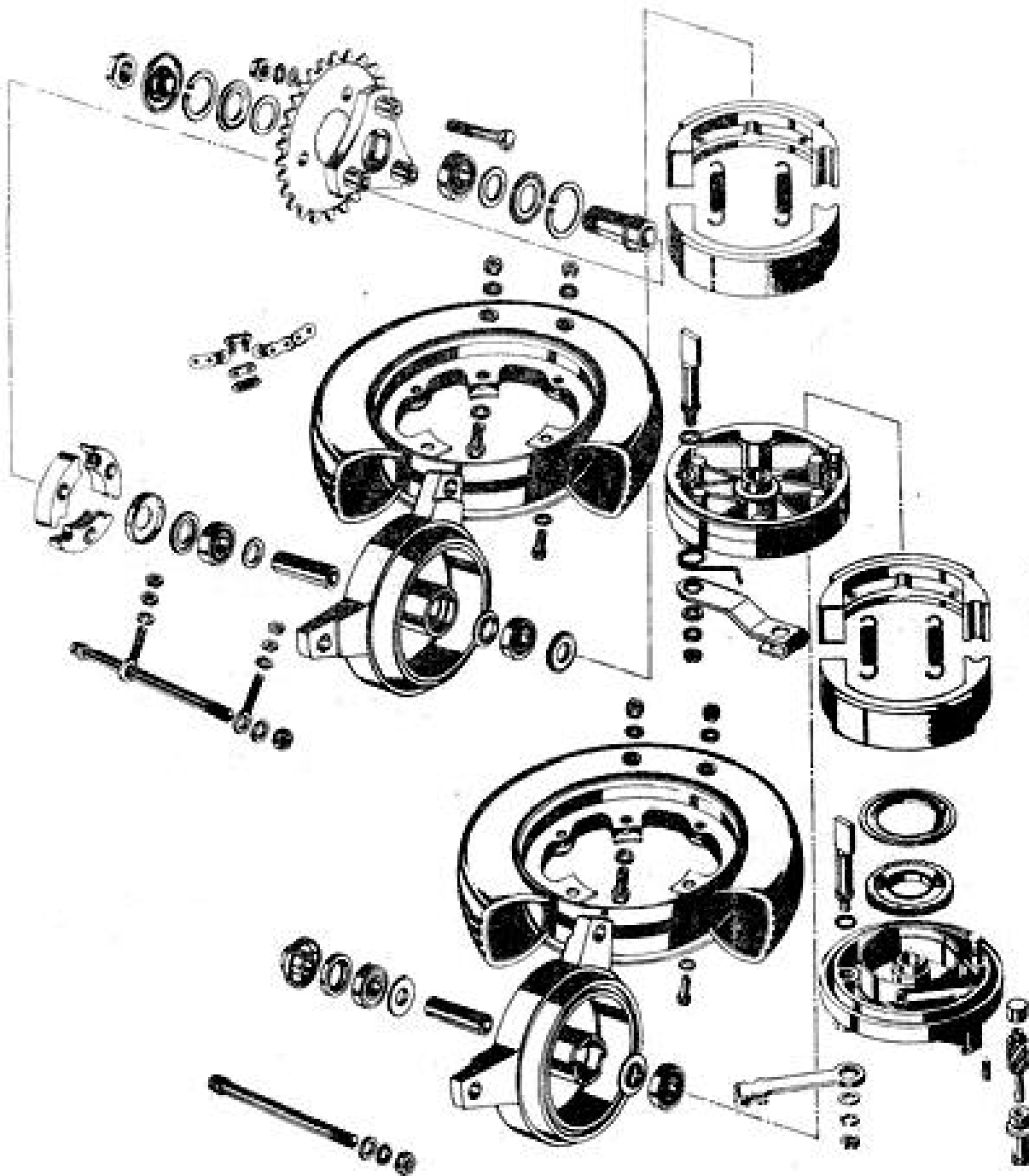


Fig. 23
Abb. 23
Obr. 23

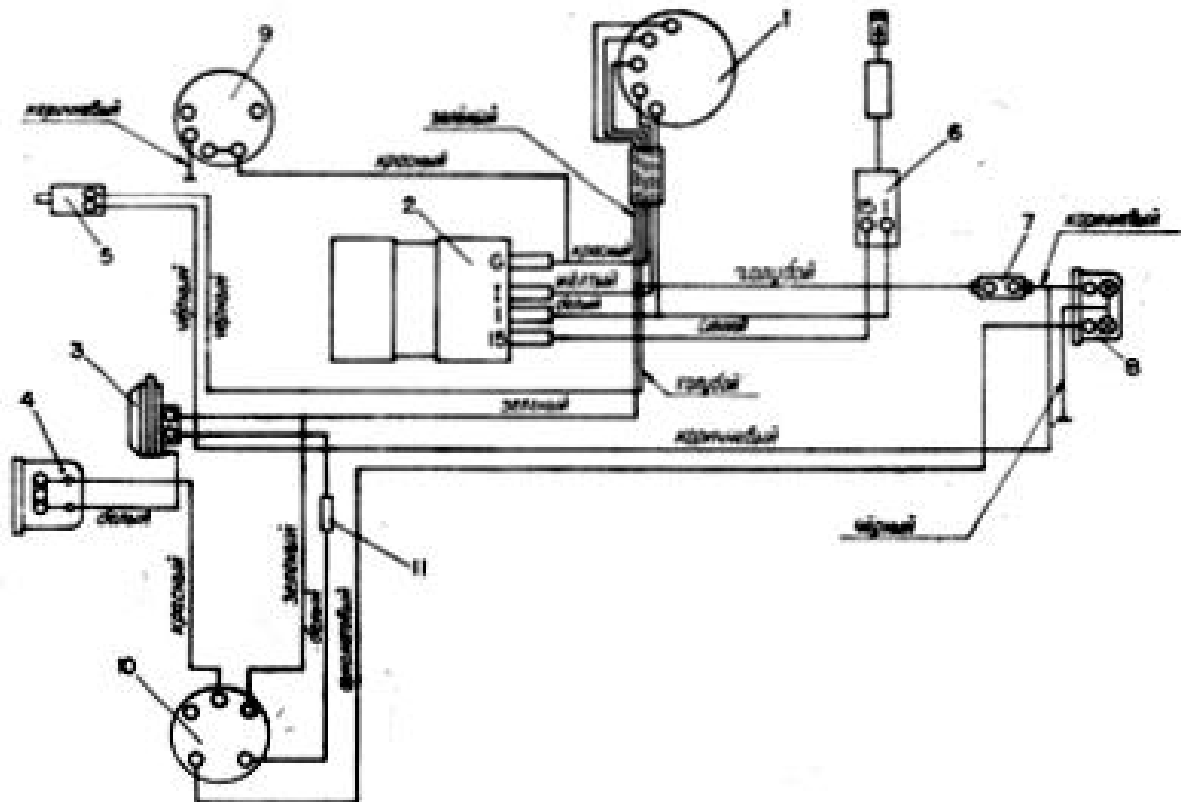


Рис. 25. Схема электрооборудования

1 — генератор; 2 — блок тиристорного зажигания; 3 — звуковой сигнал; 4 — фара; 5 — выключатель стоп-сигнала; 6 — трансформатор; 7 — выключатель BK-854B; 8 — задний фонарь; 9 — переключатель П1201; 10 — переключатель П125-А; 11 — диод КД 202А.

Допускается замена расцветки одного провода другой расцветкой, не входящей в данный жгут.

Fig. 25. Electrical Equipment Diagram

1 — generator; 2 — thyristor ignition block; 3 — horn; 4 — headlight; 5 — stop-signal switch; 6 — transformer; 7 — switch BK-854B; 8 — tail light; 9 — switch П1201; 10 — switch П125-А; 11 — diode КД 202А.

Wire colour code:

- белый — white
- голубой — blue
- желтый — yellow
- зеленый — green
- коричневый — brown
- красный — red
- синий — dark blue
- фиолетовый — violet
- черный — black

The wire of one colour may be replaced with wire of another colour not available in this cable assembly.

Fig. 25. Schéma de l'équipement électrique

1 — génératrice; 2 — bloc d'allumage à thyristors; 3 — avertisseur sonore; 4 — phare; 5 — interrupteur du signal de stop; 6 — transformateur; 7 — interrupteur BK-854B; 8 — lumière arrière; 9 — commutateur П1201; 10 — commutateur П125-А; 11 — diode КД 202А.

Code de couleurs de câbles:

- белый — blanc
- голубой — bleu clair
- желтый — jaune
- зеленый — vert
- коричневый — marron
- красный — rouge
- синий — bleu foncé
- фиолетовый — violet
- черный — noir

Il est permis de remplacer un câble par un autre de différente couleur ne faisant pas partie du faisceau donné.

Abb. 25. Schaltplan der elektrischen Anlage

1 — Lichtmaschine; 2 — Thyristorzündeinheit; 3 — Hupe; 4 — Scheinwerfer; 5 — Bremslichtschalter; 6 — Transformator; 7 — Schalter BK-854B; 8 — Schlussleuchte; 9 — Schalter П1201; 10 — Schalter П125-А; 11 — Diode КД 202А.

Drachtfarbe:

- белый — weiß; голубой — hellblau; желтый — gelb; зеленый — grün; коричневый — braun; красный — rot; синий — blau; фиолетовый — lila; черный — schwarz

Drähte anderer Farbe, vorausgesetzt, daß sie im jeweiligen Drahtbündel fehlen, auch anwendbar.

Fig. 25. Diagrama del equipo eléctrico

1 — generador; 2 — unidad de encendido de tiristores; 3 — señal acústica; 4 — faro; 5 — interruptor de la señal de parada; 6 — transformador; 7 — interruptor BK-854B; 8 — luz trasera; 9 — selector П1201; 10 — selector П125-А; 11 — diodo КД 202А.

Coloración de conductores:

- белый — blanco; голубой — azul claro; желтый — amarillo; зеленый — verde; коричневый — marrón; красный — rojo; синий — azul; фиолетовый — violeta; черный — negro

Es admisible sustituir la coloración de un conductor por la otra que no hay en este haz de conductores.

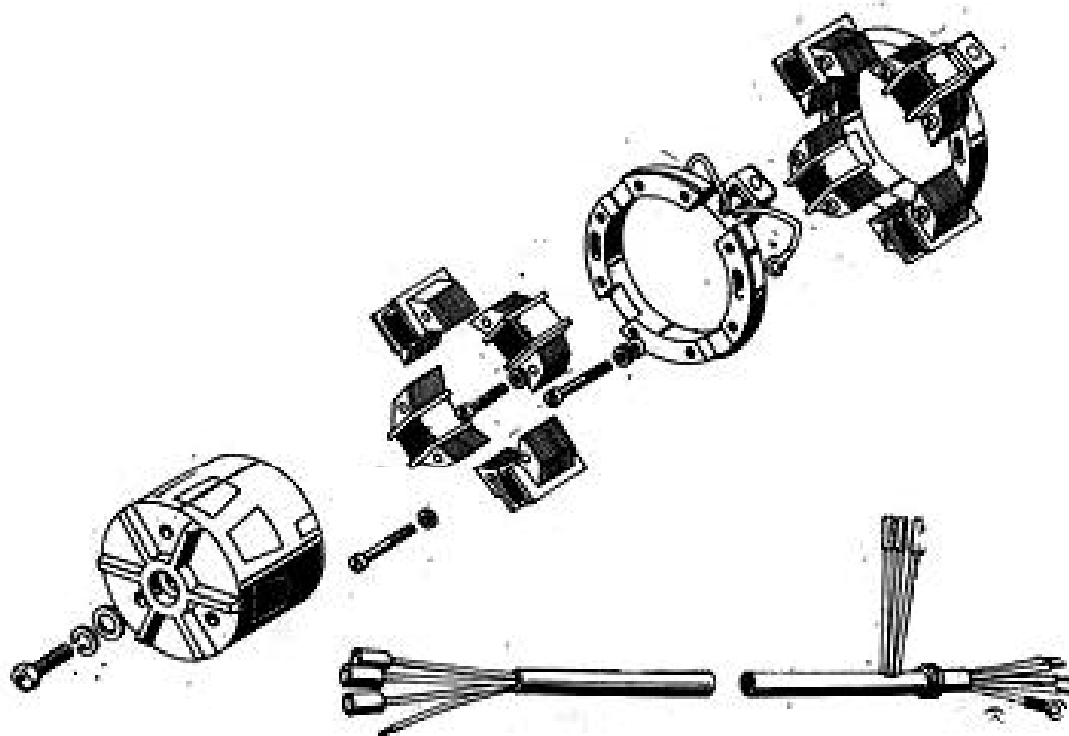
Obz. 25. Schéma elektrického vybavení

1 — generátor; 2 — blok tyristorového zapalování; 3 — bučkováč; 4 — světloměr; 5 — vypínač brzdové světliny; 6 — transformátor; 7 — vypínač BK-854B; 8 — zadní světlina; 9 — přepínač П1201; 10 — přepínač П125-А; 11 — dioda КД 202А.

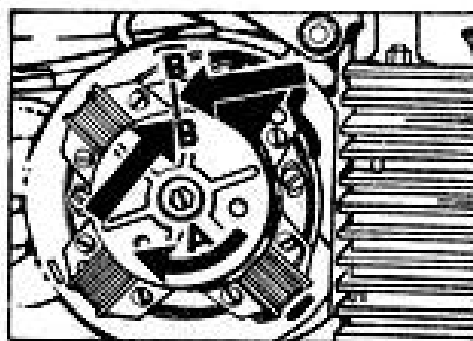
Barva vodiče:

- белый — bílá
- голубой — světle modrá
- желтый — žlutá
- зеленый — zelená
- коричневый — hnědá
- красный — červená
- синий — modrá
- фиолетовый — fialová
- черный — černá

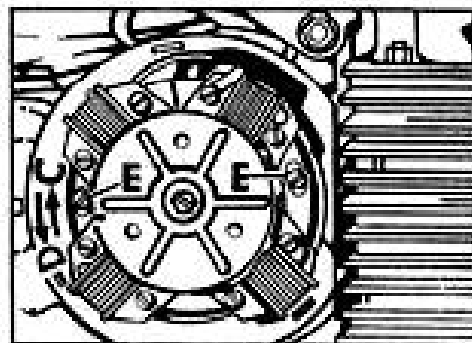
Dovoluje se záměnou barvením jednotlivé vodiče jiným barvením, které nepatří do daného kablu.



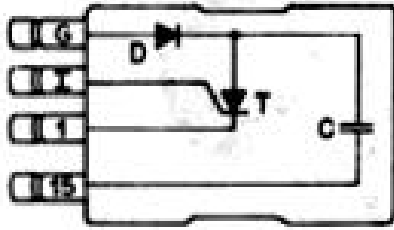
Pac. 26
 Fig. 26
 Abb. 26
 Obr. 26



Pac. 27
 Fig. 27
 Abb. 27
 Obr. 27



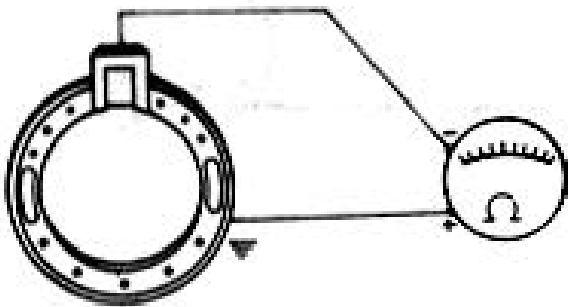
Pac. 28
 Fig. 28
 Abb. 28
 Obr. 28



Pat. 29
Fig. 29
Abb. 29
Obr. 29



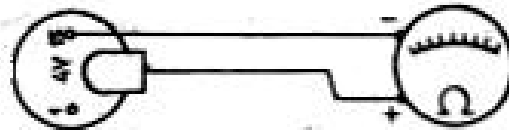
Pat. 30
Fig. 30
Abb. 30
Obr. 30



Pat. 31
Fig. 31
Abb. 31
Obr. 31



Pat. 32
Fig. 32
Abb. 32
Obr. 32



Pat. 33
Fig. 33
Abb. 33
Obr. 33

