



# Motorcycles URAL

## Category L4



**Owner Manual**



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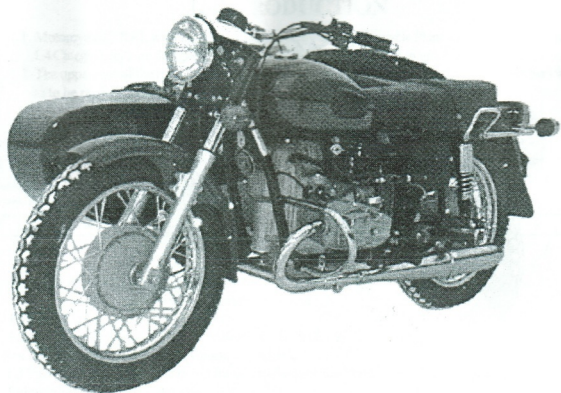


**Owner Manual**

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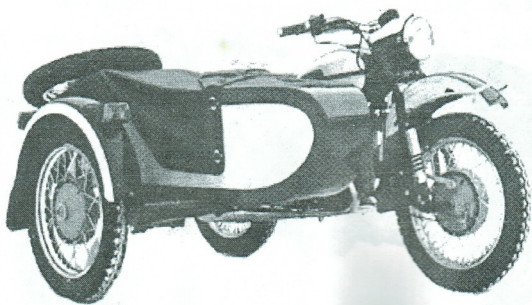
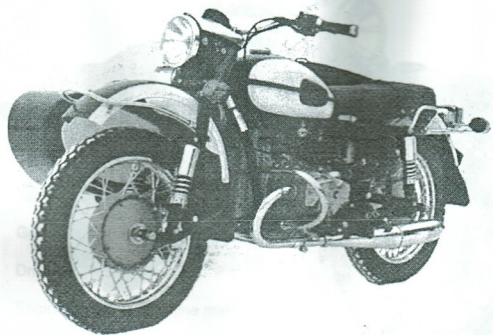
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Motorcycle IMZ-8.1034/37 Classic





Motorcycle IMZ-8.1034/37 Sportsman

## 1. INTRODUCTION

- 1.1. Motorcycles URAL with sidecar manufactured by Irbit Motorcycle Plant are of heavy-duty class of L4 Category and are designed to transport passengers and goods in various environments.
- 1.2. The upper part of the right hand frame pipe has VIN-code (Vehicle Identification Number) which is to be read from bottom to up.

The structure and content of the VIN is as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
International code of Manufacturer			Descriptive part						Indicative part							
X	8	J	M	8	1	0	3	?	X	?	?	?	?	?	?	?

Pos. 1-4: X8JM –Russia, IMZ-Irbit Motorcycle Plant

Pos. 5-8: 8103- Type of the Transportation vehicle

Pos. 9: 0, 1, 2, 3, 4, 5 or 7 -version

Pos. 10: Year of Manufacture (Y – 2000, 1 - 2001, 2 - 2002 .);

Pos. 11-17: serial number of transportation vehicle

1.3 The upper part of the right hand frame pipe locates the Manufacture's Label having the following information (Fig. 1a):

-VIN-code

-Engine version

-List of ECE Regulations under which the Type of the Transportation Vehicle was approved.

- Engine Number, ECE Regulations numbers according to which the type of the motorcycle were approved

1.3. The engine version identification, year of manufacture and serial number are also embossed on the left hand side of engine crankcase and are to be read from bottom to up. (Fig.1b)

1.4 The serial number of gearbox is embossed on the left hand side of gear case. (Fig.1c)

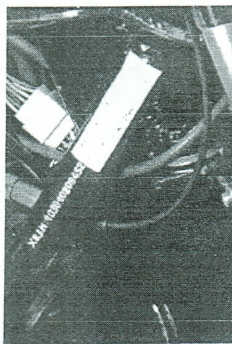


Fig. 1a

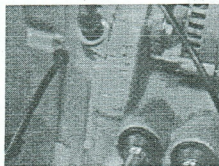


Fig. 1b

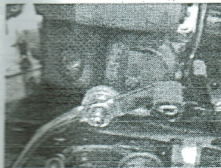


Fig. 1c

## INTRODUCTION

<b>Engine parameters</b>	
Type of the engine	4-stroke, 2-cylinder, opposite OHV, air cooled
Displacement, cc	745,4
Bore / stroke, mm	78 / 78
Compression ratio	8,6 +0,2
Top power at reference engine speed, rpm, kW	30 at 5600
Torque at reference engine speed, rpm, Nm	52 at 4000
Fuel system	L 22 AA KEIHIN
Ignition system	Electronic, contactless
<b>Power train</b>	
Clutch	Dry, friction type, double-plate
Gear box	4-speed
Gear box ration	
I	3,60
II	2,62
III	1,61
IV	1,30
Reverse (IMZ-8.1037 Sportsmen, Gear-Up)	4,20
Final drive	Bevel gear with shaft drive
Gear ratio of final drive	4,625
<b>Running gear</b>	
Frame type	Tubular, welded, duplex
Driver and passenger seats	Seatbench or Separate (Tractor type)
Front fork type	Telescopic or Leading link type
Rear suspension	Swing arm
Front wheel, tyre	2,15 x 19", 4 x 19"
Rear wheel, tyre	2,15 x 19", 4 x 19"
Brakes - front / rear	Drum type, mechanically operated or disc
<b>Electrical equipment</b>	
Alternator	Type 14.3771, 14V, 35A, with in-built voltage regulator
Battery	Capacity 16 to 36
<b>Dimensions</b>	
Length, mm	2580
Height, mm	1100
Width, mm	1700
Wheel base, mm	1500
Clearance, mm	125
Top speed, km/h	105
Reference fuel consumption per 100 km, L	not more than 7,8
Dry mass, kg	not more than 363
<b>Priming capacities and lubricants</b>	
Fuel tank, L	19. Octane 92 and higher
Engine, L	2,3, SAE 15W40
Gear box, L	1,2
Final drive, L	0,13
Front fork tube, L	0,135
Shock absorber, L	0,105

## 2. Motorcycle controls and controlling devices

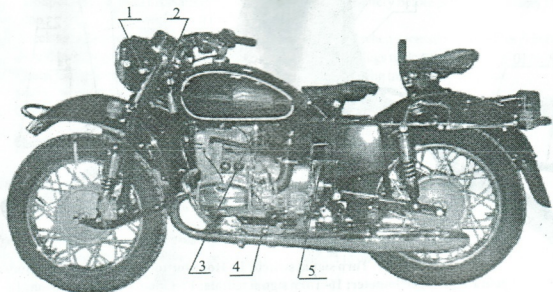


Fig 2.  
1-Ignition lock; 2- Steering lock; 3-Fuel cock; 4-Gear shift pedal; 5- Kick starter pedal

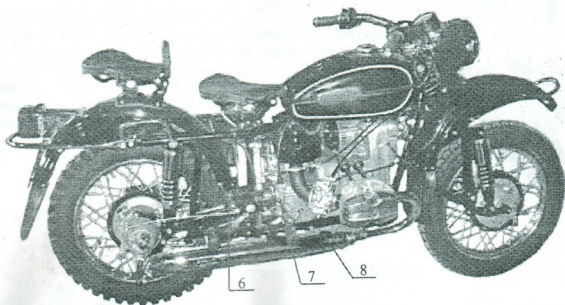


Fig 2a.  
6-Side car drive shift lever; 7-Neutral gear lever; 8-Brake pedal



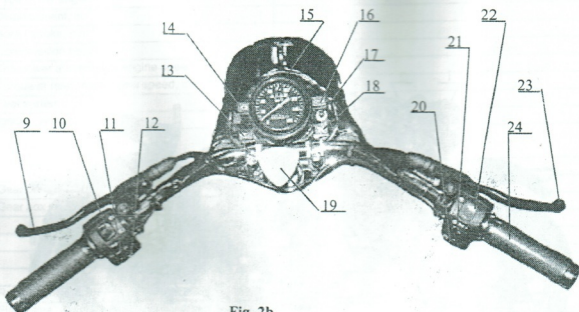


Fig. 2b

9- Clutch lever; 10- Light switch; 11- Turn signal switch; 12- Horn button; 13- High beam telltale; 14- Alternator telltale; 15- Speedometer; 16- Turn signal telltale; 17- Odometer reset button; 18- Neutral gear and reverse gear telltale; 19- Damper bolt; 20- Starter button; 21- Day-Night switch; 22- Ignition kill switch; 23- Front brake lever; 24- Throttle twist grip;



Fig. 2c

To prevent your motorcycle from unauthorized use, the steering lock with individual key is provided on the LH side of frame head pipe. (Fig. 2c) To lock it, turn the handlebar to the right, insert the key, turn it to the left and depress slightly, then release and take the key out. To unlock the steering, insert the key, turn it to the left, pull slightly, release, and take it out.

### 3 Getting-ready of your motorcycle for use

1. Charge the battery, mount it onto the motorcycle and connect to the circuit with minus pole to the "ground". Please, read in details the Instruction Manual for Battery before putting the battery into operation.
2. Check the oil level in engine, gear box, final drive and top up when necessary. The oil level in cases should be between the upper and lower limit marks with the plugs undone.
3. Check the operation of brakes. Should the hydraulic drive during transportation be unsealed, remove the air from the brake system (See BRAKES).
4. Check out and tighten the thread fastenings vital for driving safety.
5. Take clamping rings out of the spare part kit and mount them on the carburetor fuel pipes before priming the gas tank.

**Attention!** The motorcycle units are factory-primed with the oil the grade of which conforms the manufacturing season.

**Warning!** Never disconnect the battery when the engine is in operation or short the battery terminals to the "Ground" or to each other. Failure to do it inevitably results in alternator major damage.

#### Engine start-up.

To start the engine proceed as follows:

- Shift the gear shift pedal into Neutral position (between I and II gears) so that the Neutral telltale on the dashboard goes on with the ignition on.
- Open the fuel cock into Position I (open), see Fig. 7.
- Push the carburetor depressors and make sure that the fuel is supplied to the carburetors and float chambers are full.
- Switch the ignition on.

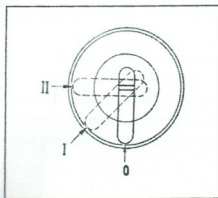


Fig. 3a

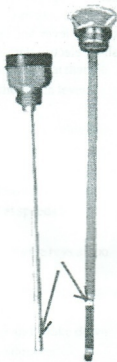


Fig.3

The ignition lock has three fixed positions, Fig. 3a:

- 1- The key is in Position 0 (left position) –all user are cut off.
- 2- The key is turned clockwise into Position I – driving
- 3- The key is turned into Position II –parking, presence lights are on.

The key may be taken out of the ignition lock in Positions 0 and II.

To better start-up the engine, operate the choke of the carburetor and shut it off after the engine starts (see Fig. 3b) . There is no need to enrich the mixture or use the choke when the weather is warm or engine is warmed up.

The following specific features should be taken in consideration whilst starting up the engine with electric starter:

- When starting the engine in the cold weather set the carburetors in enrichment mode, rotate the engine several times with kick starter lever and operate the electric starter.
- Push the electric start button on the right handle bar .

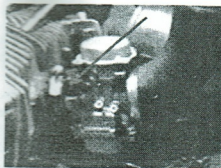


Fig. 3b



## 4. Driving the motorcycle

Check the motorcycle for operable condition before starting up the engine, which includes neutral gear position, fuel level in the gas tank, controls functioning. Open the fuel valve and fill the float chambers of carburetors with gas. The switch the ignition on. Having start up the engine with electric start button.

After engine warms up at low speed within 2...4 minutes, open the air shutter and you are ready to drive away.

The correct riding posture makes the riding easier and decreases fatigue. Sit upright, leaning forward a little, with hands freely covering the handlebar and feet on the foot pegs.

You roll off from the stop only when the engine is warmed up. Roll out the throttle a little, shift down into first gear and rolling the throttle on slightly increase fuel supply, and slowly releasing of the clutch lever rolls the rig.

Never rev the engine at too high speed with the clutch engaged, the engine speed should be that that the engine does not stall whilst easing out the clutch gently. Also you should not ease out the clutch lever abruptly to prevent the engine from stalling and the motorcycle from bouncing forward.

Having increased the speed to 10... 15 km per hour shift to II gear. To shift gears, squeeze the clutch lever, roll of the throttle decreasing the engine speed and step firmly on the heel pad. Ease out the clutch lever and adjust the throttle, increasing engine speed. Shift in the III gear the same way when the speed is about 20...30 km per hour, then IV gear when the speed is 35...40 km per hour. Then adjust the speed rolling throttle off and on. The use of II, III and IV gears is strictly not recommended at speeds below the above said limits as the engine overworks and may operate with twitches.

Do not use gears I and II for a long time, when environment does not dictate it as the engine revs at too high speed, overheats and wears our fast. Use lower gears to drive at low speeds.

When you need to shift the gears too often over do not change the speed by clutch slippage as it wears out the clutch plates badly.

To shift to lower gears decrease the speed, roll of the throttle, squeeze the clutch lever and brake down when necessary, shift to lower gear, then ease out the clutch lever gently rolling on the throttle.

If you are planning to come to a complete stop, roll off the throttle and let the motorcycle stop rolling and brake it down. Then shift to neutral, ease the clutch out and stop the engine.

You may brake down the motorcycles through three ways: by brakes, by engine and both ways in combination.

When using the brakes only roll off the throttle and squeeze the clutch lever, start braking with rear brake activating the front brake immediately after so that front brake operates a little later than the front one.

Using front brake only is strictly not recommended especially at high speeds and whilst turning as it may result in skidding or in toppling over.

To brake down using engine only, roll of the throttle without disengaging the clutch. When faster deceleration is of need, downshift the gear.

The joint braking uses both the drag torque of engine and brake systems. This way is generally used to stop the rig instantaneously to prevent accident or head-on crash as well as when going down the steep hill.

To this purpose roll off the throttle and decelerate the rig with both brakes.

To have the motorcycle turned use the countersteering and then leaning the motorcycle over to the direction of the turn (bikes used without side-car). The side car driver compensates by leaning body weight toward the turn and applying force to the handlebars.

If the road is slippery do not turn sharply, neither roll the throttle on like a shot. Change the engine speed the way the rear wheel does not slip. Reduce the tire pressure on slippery road.

Control the temperature of engine, power train and other parts. The normal summer time temperature of engine is not higher than 180...200C measured under the spark plug. The normal temperature of engine oil is not higher than 90C.

## 5. Engine design and engine maintenance tips

URAL Motorcycles have 4-stroke, 2-cylinder, air cooled engine of carburetor type. The general view of the engine is shown on Fig. 5.

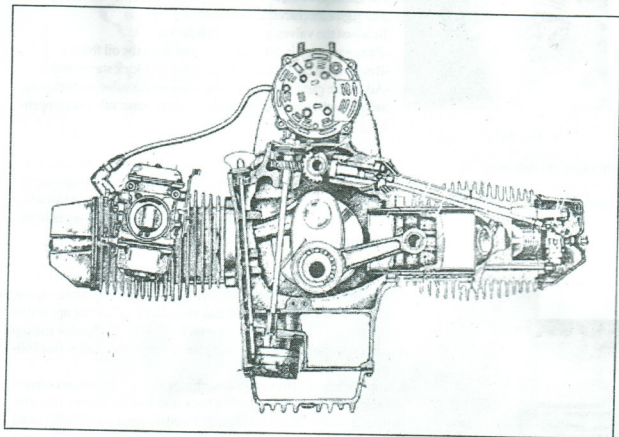


Fig. 5.

### Engine maintenance.

Whilst daily inspection of the engine, do the following:

- Remove dirt and dust from the engine paying special attention to the cooling fins as dirty fins do not cool the engine sufficiently. Wash the engine when necessary. Let the engine cool down before washing. The air shutter and air cleaner should be adequately covered during washing to prevent the moisture from getting inside these units.
- Check routinely the oil level with the dipstick by screwing it out and using upper and lower limit marks as reference. Top up when necessary. Keep the oil level close to the upper mark of the dipstick.

Check the condition and fastenings engine crank case, cylinders and cylinder heads.

Check the following every 1000...1500 km:

- KEIHIN carburetors adjustment (see CARBURETORS ADJUSTMENT)
- Ignition setting (see IGNITION SETTING)
- Valve setting (see VALVE ADJUSTMENT).

## VALVE ADJUSTMENT



Fig. 5a

The thermal gap between valve stem and pushing arm of the rocker should be between 0,1...0,15 mm (see Fig. 5a). The valve should be adjusted after valve grinding or disassembly of timing gear mechanism.

To adjust the valves, proceed as follows:

- Remove the cylinder head cover and drain the oil from it.
- Revolve the crank shaft of the engine with kick starter pedal.
- Adjust the gap for exhaust valve when intake valve starts closing, and adjust the gap for intake valve when exhaust valve starts opening.

## Lubrication system

The engine has combined lubrication system, i.e. some parts oiled by pressure from the oil pump and other by splashing. A full-flow oil filter is provided for longer life of the engine, having paper insert. The dipstick has two marks indicating upper and lower limits for oil level. To check the oil level, wipe the dipstick and dip it into the oil without screwing in the plug. Change the oil after first 500-km run and then every 2500 km.

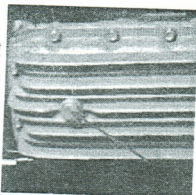


Fig. 5

Warm up the engine before engine oil change (Fig. 5). It is recommended to change the oil after your getting back home as the engine is warm. Drain the oil from the oil filter housing as well (Fig. 5a). Thoroughly clean the surfaces of plugs of drain opening, filler and oil filter cover. Remove header pipes to change the oil filter. Please, be sure to dip the oil filter into engine oil before installing it into the engine. Then place the sealing ring into the filter, place the filter with ring assy onto the tip of the plug and screw in the plug into the front cover.



Fig. 5a

Fill in the fresh oil to upper mark of the dipstick, start up the engine and let warm up within 3...5 minutes to let the fill the oil ducts. Stop the engine and check the engine oil once again after 3...5 minutes, top up to upper mark on the dipstick. The priming capacity of the engine is 2,3 L oil. Use only clean vessel for oil and never let dust, dirt and moisture get into the engine crankcase.

The oil filter is recommended to change every 5000 km. Flush the engine lubrication system before oil filter change. To have it done, fill in 1...2 L of flushing oil into crank case, start the engine and let idle at low revs for 2...3 minutes. Drain the flushing oil from the oil pan, cylinder head covers and oil filter housing and prime the new oil.



## Fuel supply system

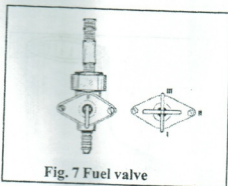


Fig. 7 Fuel valve

### Fuel valve

The fuel valve lever has three positions (Fig. 7).

- I- Open for fuel feed
- II- Closed
- III- Open for reserve fuel feed

The reserve is about 2 L gas.

### Air filter

To clean the air supplied to carburetors, motorcycles IMZ-8.1034/37 have air filters with dry paper insert requiring no maintenance during service life (Fig. 8).

The filter element should be replaced every 5000 km run to which purpose the bolts fastening the side cover of filter case must be undone.

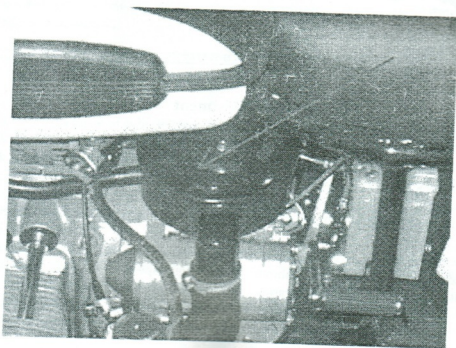


Fig. 8 Air filter with dry paper insert for IMZ-8.1034/37

Check periodically the tightness of junctions and sealing parts in air intake line, as inflow of non-cleaned air results in quick wear-out of the engine.

### Carburetors

The engines uses two L 22 AA Keihin carburetors (Fig. 9),

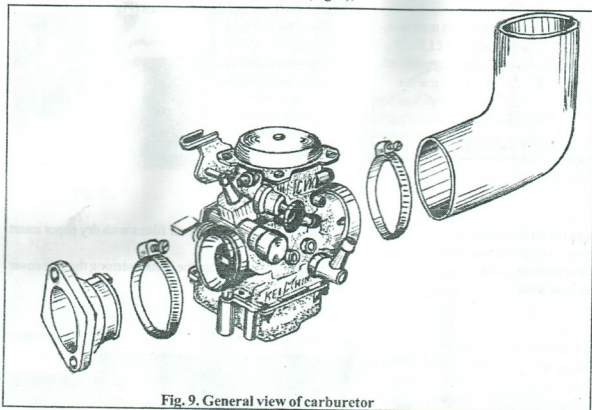


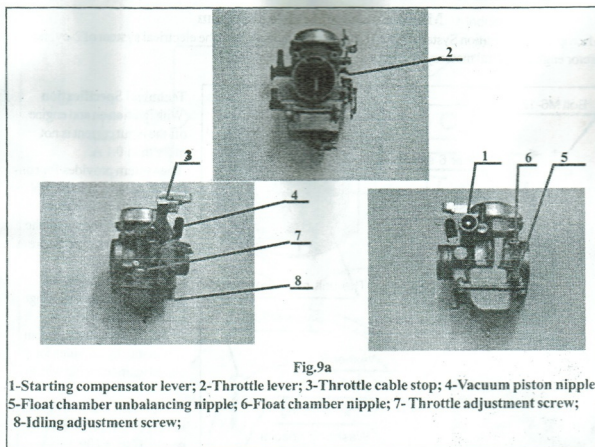
Fig. 9. General view of carburetor

### Carburetor adjustment

To adjust L 22 AA Keihin carburetors, proceed as follows:

1. Using cable adjustment screw, provide free travel of 2...3 mm between cable sheath and throttle cable adjustment screw (Fig 9a).
2. Start and warm up the engine at idling.
3. Screw in the mixture screw (8) until it stops and provide minimum steady speed of the engine using screw (7)
4. Undo screw (8) to have as high engine speed as possible with screw (7) at the same position.
5. Using screw (7), provide possibly minimum steady engine speed.
6. Repeat steps 3...5 for the second carburetor.
7. Using screws (7), adjust steady operation of both cylinders at idling by alternatively shutting down cylinders (HV wires must be grounded during these operations) thus providing steady operation at engine speed as low as possible.
8. Measure CO in exhaust gases the content of which must not exceed 4,5% (ECE Regulation 40). The sampler of gas analyzer should be put into the silencer for not less than 60 mm deep. Measure exhaust in both silencers
  - Screw in screws (8) on both carburetors to ¼ of the turn.
  - Adjust carburetors again as described in Point 7
  - Measure noxious gases again for each silencer.
  - Repeat procedure, Point 9, whenever necessary.

The carburetor fails to adjust and conform to requirement stated above should be replaced.



9. Adjust steady operation of cylinders using cables adjustment screws by alternatively shutting down cylinders (HV wires must be grounded during these operations). Use speedometer readings if your skills in determining engine speed aurally are not sufficient. To do that put the motorcycle on central stand and run the engine at speed corresponding to speed of 50 km per hour with one cylinder in operation. Follow up the speedometer readings alternatively shutting down either cylinder. Unsteady operation within  $\pm 5$  is tolerated.

## CARBURETOR MAINTENANCE

Check the carburetors for the condition of fastenings of carburetors to the cylinder head, fastening of branch pipes and their tightness to air filter and carburetors.

Flush the parts of fuel and air ducts every 5000-km run. Blow the parts by compressed air after flushing.

## Exhaust system

The exhaust system consists of header pipes and two mufflers. The system is factory-marked in accordance with ECE Regulation.



### Microprocessor Ignition System

The Microprocessor Ignition System (Fig 10) is designed for work with the electrical system of 2-cylinder carburetor engines of Ural motorcycles, having nominal voltage of 12 V

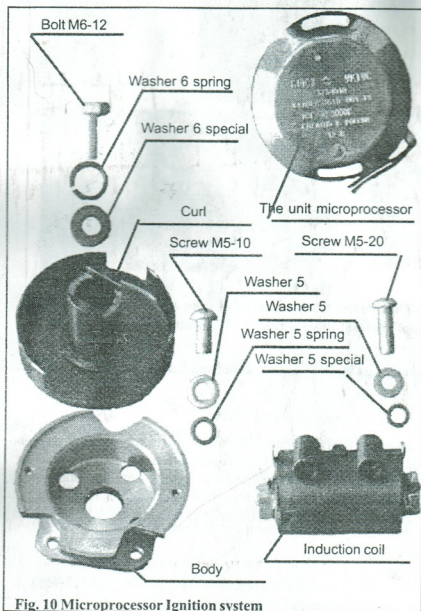


Fig. 10 Microprocessor Ignition system

#### Technical Specification

With ignition on and engine off the input current is not more than 0.1 A.

The system provides for continuous sparking at rotational speed of crank shaft between 200 and 6000 rpm, with the consumed current not more than 1,5 A.

The system provides for sparking in the voltage range between 7 to 16 Volt.

Whilst operation the system automatically provides for required ignition timing with tolerance of  $\pm 1^\circ$ .

The system is able to operate within the temperature range of  $-50^\circ\text{C}$  to  $+100^\circ\text{C}$ .

The best spark parameters are ensured in combination with 3705060-type ignition coil, but the system is also workable with other types of coils like B-204 and B-201.

Mounting of the system onto engine (see Fig. 10,10a)

-Mount the system housing on the timing gear cover using three M5x16 screws

- Mount rotor on the engine camshaft using M6x12 screws
- Mount the microprocessor unit into the housing the way the wires are directed to ignition coil and fix it with two M5x10 screws.
- Connect leads K3 and "+" (black and red correspondingly) of the microprocessor unit to terminals of ignition coil (see Wiring Diagram, Fig. 10.a).

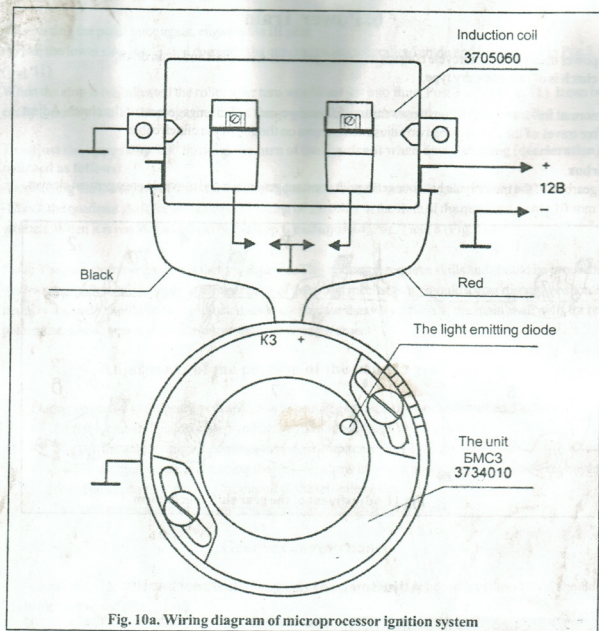


Fig. 10a. Wiring diagram of microprocessor ignition system

### Ignition timing

To time the ignition, proceed as follows:

- Match the first arrow (having the point) on the flywheel with mark M3 on the engine crankcase.
- Loosen the fastening screws of the microprocessor unit and turn it counterclockwise until it stops.
- Power the ignition system having switched the ignition lock on.
- Turn slowly the microprocessor unit clockwise, the LED should be on
- Stop turning the microprocessor unit when the LED goes out.
- Tighten the fastening screws of the microprocessor unit and switch the ignition off.

### Spark plugs

The motorcycle uses spark plugs of the types of A14B (N17C) or A17B (N15YC). The gap between the lower end of the electrode and the side one should 0,5-0,65 mm for the mechanical interrupter or 0,8-1,0 mm for electronic ignition system. To seal the spark plug body with cylinder head, sealing ring is provided.

## 6. Power Train

The power train of the motorcycle consists of clutch, gearbox, drive shaft and main drive.  
The clutch is of two-plate dry type.

The normal free travel of the clutch lever ensures full engagement and disengagement of the clutch. Adjust the free travel of the clutch using two adjustment screws on the end of the clutch cable.

### Gearbox

The gearbox of the motorcycle has four gears with constant gear mesh and movable engagement sleeves.

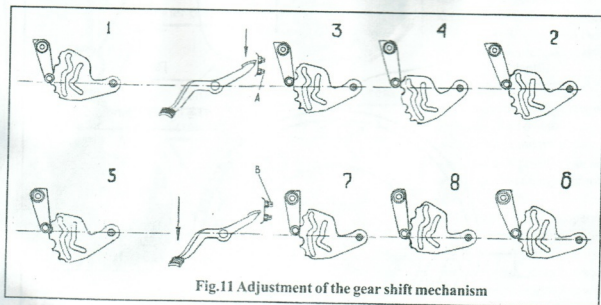


Fig.11 Adjustment of the gear shift mechanism

### Adjustment of the gear shift mechanism

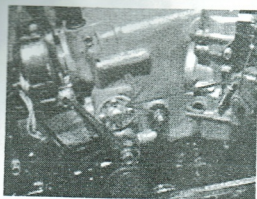


Fig. 11a

To adjust the lower stop "A" limiting the turn of the quadrant when up-shifting (acceleration), proceed as follows (see Fig. 11):

-Depressing the upper arm of the pedal, engage the quadrant in the position of II gear, the retaining roller should fully get into the flute on the quadrant and lock it in the Pos. 1 (Fig. 11) by means of the spring.

Adjust the gear shift mechanism, using stops (adjusting screws) limiting the turn of the pawl crank and gearshift quadrant.

To adjust the gear shift mechanism, proceed as follows :  
-Undo four screws Mx5 and remove the right hand cover of the gearbox, covering the shaft of the quadrant. (Fig. 11a)

-Put the motorcycle on the stand or jack letting the rear wheel freely rotates.

-Shift to the neutral gear and start the engine.

-Depressing the pedal once again, engages the III gear.

-When the lower stop is adjusted correctly the quadrant turns to required angle and locks again in Pos.2 (Fig. 11)

When the stop is maladjusted the roller after turn would not get into flute, Pos. 3 and 4 (Fig. 11). It can be easily found by turning the projecting end of the quadrant this or that way using 10 mm-wrench.

**To adjust the upper stop "B" limiting the turn of the quadrant when down-shifting (deceleration), proceed as follows:**

-Depressing the lower arm of the pedal, shift the quadrant from III gear to II gear, Pos. 5 (Fig.11)

-Check the quadrant shaft for soundness of locking of the roller in the flute of the quadrant, using 10-mm wrench. When it is not locked properly, the stop is maladjusted, Pos. 7 and 8 (Fig. 11)

Note: The gear shift mechanism is factory-adjusted. This operation requires skills and should be proceeded only when major repair or replacements of parts of gear shift mechanism. Should a gear disengage spontaneously the stops should not be readjusted, as in such a case that very pinion of the main shaft calls for replacement, whose gear is involved in spontaneous disengagement

### Adjustment of the position of the neutral gear pick-up.

During operation of the gearbox the position of neutral gear pick-up may be disturbed. Do the following:

- Shift the gear shift mechanism to neutral position (between I and II gears)
- Slacken the wire terminal fastening nut and pick-up screw locking but.
- Switch the ignition on, and turning the pick-up screw in or out, make the green tell-tale on the dash board go on, having checked the circuit of the tell-tale before.
- Lock the screw and with the nut and secure the pick-up lead terminal.

### Gearbox maintenance

Check the oil level in the gearbox every 5000 km and top up whenever necessary (the oil level should be 25-30 mm below the filler spout).

Replace the oil in the gearbox every 10000 km. To do this proceed as follows:

- Undo the plugs of filler spout and drain hole and drain the used oil out (Fig 11b).
- Screw the drain plug in and fill not less than 400 cubic centimeters of flushing oil in.
- Put the motorcycle on stand, start the engine, shift to I or II gear for about 3 minutes flushing the gearbox.
- Drain the flushing oil and prime fresh oil of SAE 15W40 type

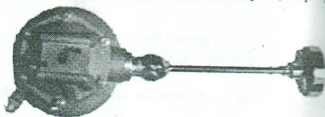


Fig 11b

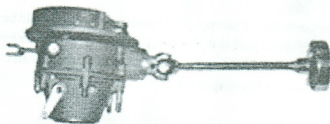


### Drive shaft.

The drive shaft of IMZ-8.1034/37 consists of flexible joint, the propeller shaft and the universal joint.



Also IMZ-8.1034/37 motorcycles may have side car drive connected to the main drive.



### Main drive and drive shaft maintenance.

The preventive maintenance involves tightening up of the nuts fastening the main drive to the swinging arm.

Failure to tighten up the nuts on a timely basis results in loose joints and destruction of the main drive cover. It is recommended to routinely check the fastenings within first 500-km run and tighten screws of seal cover whenever necessary.

After the first 2500 km change the oil in the main drive housing. To do this, undo the filler and drain plugs (Fig 12) and drain used oil. Fill 100-150 cubic centimeters of flushing oil. After short time of main drive operation drain the flushing oil and fill the case with the transmission oil of appropriate grade. The oil level is measured by dipstick and should be between upper and lower marks.

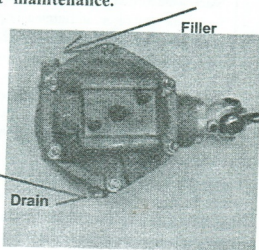


Fig. 12a

Do the following every 5000 km:

- Lubricate the needle bearings of the U-joint. To this purpose dismantle the main drive and using grease gun stuff grease into the U-joint.

Grease amply the side car drive splined joint every 5000 km, as well as the bearing unit of the wheel.



Fig. 12a

## 7.RUNNING GEAR

The running gear includes motorcycle and sidecar frames, front fork, and suspension of rear wheels and sidecar wheel.

### Motorcycle and sidecar frames

The frame is the main supporting element of the motorcycle on which all the parts and components are mounted. The frame is of double tubular welded closed type.

The structure and basic elements of motorcycle and sidecar frames are shown on Fig.13.

The running gear of motorcycle with sidecar drive has the following design features:

- The structure of rear suspension swing arm is modified
- The sidecar frame assy with lever suspension provides for mounting of drive shaft and bearing unit of sidecar wheel.

The frame for motorcycles with electric start has also design modifications as concerns the room to mount the starting battery under the driver seat.

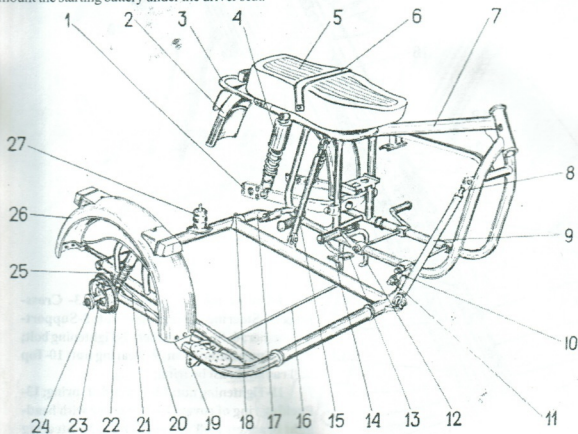


Fig.13. Motorcycle and sidecar frame.

- 1- Rear suspension swing arm; 2-Rear fender; 3-Rear fender strap; 4-Spring and hydraulic shock absorber; 5-Saddle; 6- Saddle handle; 7- Motorcycle frame; 8- Leg adjusting fork; 9,15-Sidecar frame legs; 10- Colett clamp; 11-Collet clamp screw; 12-Motorcycle stand; 13-Foot brake pedal; 14-Sidecar brake lever; 16-Sidecar brake lever axle; 17-Rear collet bracket; 18- Rear bracket bolt; 19- Lever pins; 20- Lever; 21-Brake tie rod; 22-Brake drum cover; 23-Sidecar wheel axle; 24-Protective cap; 25-Tie rod nut; 26-Sidecar fender; 27-rubber member of body suspension.

### Front fork

The front fork is of telescopic type with internal springs and the double-action hydraulic shock absorbers (Fig.14).

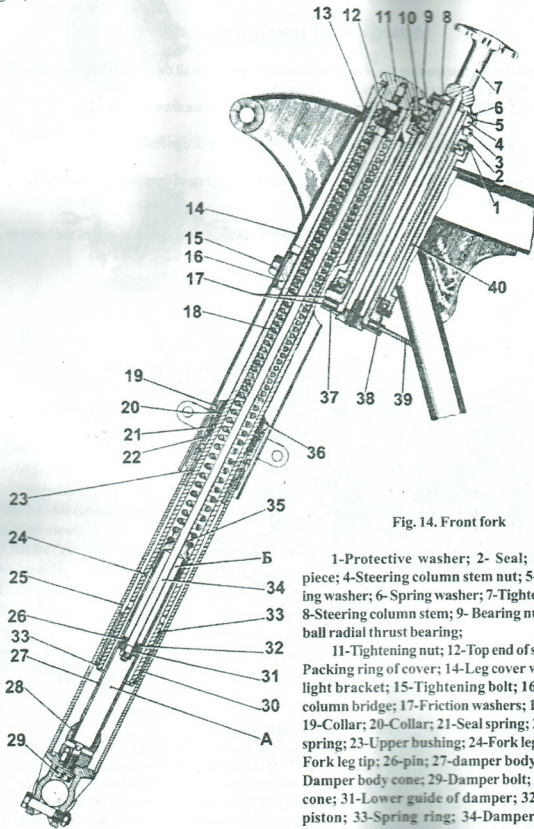


Fig. 14. Front fork

1-Protective washer; 2- Seal; 3- Cross-piece; 4-Steering column stem nut; 5-Supporting washer; 6- Spring washer; 7-Tightening bolt; 8-Steering column stem; 9- Bearing nut; 10-Top ball radial thrust bearing;

11-Tightening nut; 12-Top end of spring; 13-Packing ring of cover; 14-Leg cover with headlight bracket; 15-Tightening bolt; 16-Steering column bridge; 17-Friction washers; 18-Spring; 19-Collar; 20-Collar; 21-Seal spring; 22-Thrust spring; 23-Upper bushing; 24-Fork leg tube; 25-Fork leg tip; 26-pin; 27-damper body tube; 28-Damper body cone; 29-Damper bolt; 30-Lower cone; 31-Lower guide of damper; 32-Damper piston; 33-Spring ring; 34-Damper rod; 35-Damper tube nut; 36-Seal body; 37-Moving washer; 38- Lower ball radial thrust bearing; 39-Fixed washer of steering damper; 40-Frame head

washer; 38- Lower ball radial thrust bearing; 39-Fixed washer of steering damper; 40-Frame head  
piston; A-Cavity under piston; B-Cavity above piston.



The front wheel fender may be mounted either onto protective covers or to fork leg tips.

Each front fork leg is filled through openings under tightening nuts (2) with 135 cubic centimeters of oil used for engine (Fig 14, item 11)

The motorcycle can also mount leading link fork with two spring and hydraulic shock absorbers, having advantages over back roads.

The leading link front fork has shock absorbers interchangeable with motorcycle's shock absorbers. The front fender has additional clip, enhancing the rigidity of the fender (Fig.15).

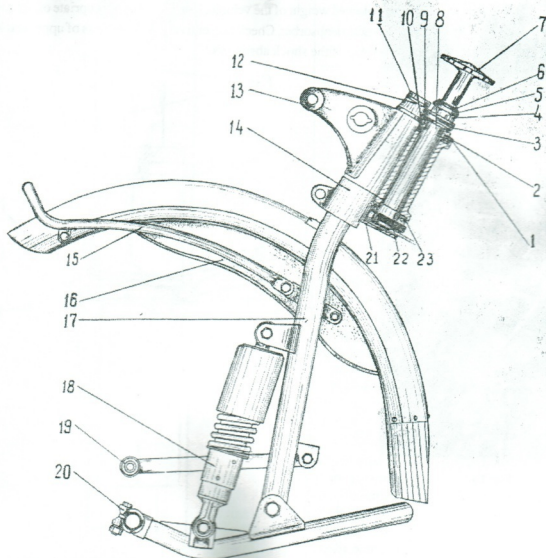


Fig. 15 Front fork of leading link type

1-Protective washer; 2-Seal; 3-Cross-pieces; 4-Steering column stem nut; 5-Thrust washer; 6-Spring washer; 7-Tightening bolt; 8-Steering column stem; 9-Bearing nut; 10- Top ball radial thrust bearing; 11-Tightening nut; 12-Washer; 13- Leg cover with headlight bracket; 14-Steering column bridge; 15-Front fender clip; 16-Front fender; 17-left fork leg tube; 18-spring and hydraulic shock absorber; 19-Brake drum cover thrust link; 20-Wheel lever; 21-Moving ring; 22-Fixed ring; 23-Lower ball radial thrust bearing;

### Rear suspension

Motorcycles IMZ-8.1034/37 have rear wheel suspension of swing arm type. The wheel is guided in relation to the frame by swing arm. The vertical loads on the wheel are taken up by two hydraulic and spring shock absorbers. The absorbers are comprised of springing member which is the spring and absorber itself. The shock absorber takes the oscillations of both sprung weight and non-sprung weight. The shock absorbers are of double-stroke type, i.e. absorption is provided both whilst compression and back stroke. The shock absorber has adjusting facility of cam type (Fig 16) to preset the compression of the spring de-

pending on loads and road environment. The facility has two positions. The lower position corresponds to the weight of driver and motorcycle, the upper position of the cam corresponds maximum allowed weight of the vehicle. Use 105 cc of appropriate oil for the shock absorber. Check preventively the tightness of upper and lower cap of the shock absorbers.

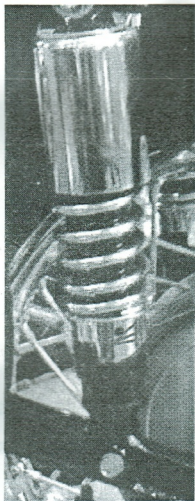


Fig.16

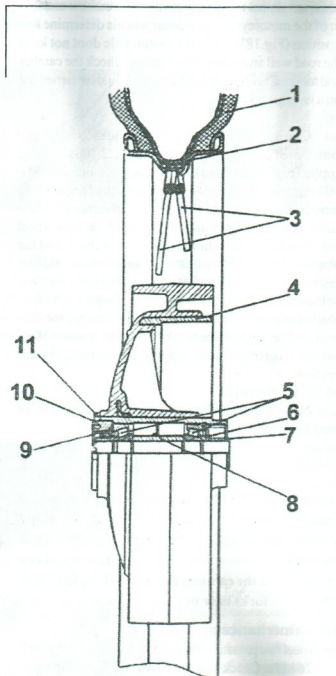
### Wheels

Two adjustable tapered roller bearings are pressed into the wheel hub, which are prelubricated with LITOL-24 type grease.

Depending on motorcycle version the wheels with aluminum cast brake drum may be used on the motorcycle, having spokes of equal length (Fig. 17).

The adjustment of bearings is the same.

For motorcycles with hydraulically operated disc brakes wheels are in use, whose hubs ensure fixed mounting of brake discs.



**Fig.17. Wheel of IMZ-8.1034/37 Motorcycle**  
 1-Tire; 2- Wheel rim; 3-Spokes; 4-Brake drum;  
 5-Bearings;6,7,8 -Wheel hub bushings; 9-Seal;  
 10-Nut; 11-Lock nut.

saddles is adjusted by re-positioning of rubber element depending on driver and passenger weight. To adjust, slacken the member fastening bolts and moving the member back and forth decrease or increase toughness correspondingly. Tighten the bolts after adjustment.

### Adjustment of wheel bearings.

The long life of wheel bearings is ensured greatly by proper adjustment. Check the condition of bearings and adjust tightening of them every 5000 km. To adjust the bearings proceed as follows:

- Remove the wheel from the motorcycle;
- Fit the rear wheel axle (without protective cap), tighten it by nut with the aid of a bushing, 100 mm long, with 21 mm ID and 25...30 mm OD, or a set of bushing of given size.
- Determine if there is a play by turning the axle (but not the wheel on the axle) and rocking it, slacken off the lock nut.
- Screw the seal nut up to the limit, then release it by 1/6..1/8 of the turn so that the axle-bushing system rotates without play, easily and without jamming. The overtightening of bearings is strictly prohibited.
- Tighten the lock nut without effecting the bearing adjustment.
- Pull the axle out.
- Put the wheel onto the motorcycle.

### Saddle

The motorcycle may have seat of bench type or separate (tractor type) saddles for driver and passenger.

To remove the bench type seat, undo the nut located under the seat front, lift the seat a little and move it to the front. To mount the seat bench onto the motorcycle, proceed in reverse order.

The tractor saddles are of rocking type, having rubber top. Resilience of cover tops and rubber members provide the shock absorbing of the saddles. The toughness of the

### Adjustment of sidecar installation

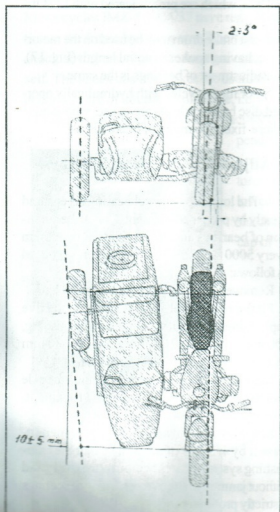


Fig. 18. Adjustment of sidecar installation.

Keep the motorcycle inclination angle in relation to the vertical plane (the camber) within 2...3 degrees or 15...25 mm when measured the distance between the points of projection of the top and bottom side portion of the front or rear wheel tire of the motorcycle. The camber of the motorcycle should be checked using a level gauge, a protractor with a plumb bob with a ruler. Make use of two inclined legs to adjust the angle of wheel camber. To adjust the camber, slacken fork locking nuts and adjust the required length of the legs by screwing the forks in or out.

### Running gear maintenance

Check the tire pressure before driving. The front wheel tire pressure should be 0,15...0,16 MPa, and rear wheel and sidecar tire pressure should be 0,25...0,26 MPa. Check units and parts for fastening tightness. When tightness is bad or excessive plays are found, tighten the fastenings and fix the plays.

Lubricate the parts and components according to Lubrication Chart. Check periodically but every 2,500 km the condition and tensioning of wheel spokes, after running-in period of the motorcycle is over.

The tightness of spokes is checked with the wheels in air. To check the uniformity of spoke tensioning, tap the spokes with nipple wrench.

Replace the wheels in turn clockwise, including a spare one, every 5,000 km.

Replace the grease in wheel bearings every 5,000 km and adjust them.

**Note:** While removing the rear wheel from the main drive with the sidecar drive, use the 22-mm tapered edge wrench. The wrench is put into the cavity of the shaft fork after the cotter pin is removed. Rotate the wheel axle having locked the nut.

The sidecar should be installed in a strictly definite position relative to the motorcycle. The camber and toe-in of the motorcycle and sidecar wheels determine this position (Fig.18). When the motorcycle does not keep the road well and is heavy in steering, check the camber and toe-in. Checking and measuring should be carried out on a level ground.

Check toe-in of the motorcycle and sidecar wheels with the aid of two straight bars, 2,000...2,100 mm long, applied to the side faces of the wheels at a height of 90-100 mm. The toe-in throughout the entire length of the motorcycle wheel base should be  $10\pm 5$  mm, i.e the distance between the bars and on the line of the front wheel axle should be  $10\pm 5$  shorter than that on the line of the rear wheel axle. When adjusting, disjoin the slanting legs fastening the sidecar to the motorcycle, slacken off the bolt clamping the rear bracket, adjust the position of the bracket relative to the rear tube until the required toe-in is provided, and tighten the bracket bolt. The position of the sidecar in horizontal plane is adjusted by turning the rear bracket.

**Note:** The toe-in for motorcycle with sidecar drive must be 0...5mm.



## 8. CONTROLS OF THE MOTORCYCLE

The controls of the motorcycle include handle bar and control drives for throttles, clutch, gear box and brakes.

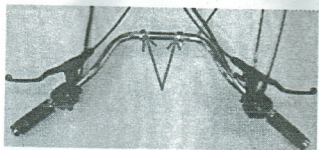


Fig. 19

### Handlebar and control drives

The handle bar (Fig. 19) is connected to the front fork by means of two brackets. The handle bar can be adjusted the way to provide the most comfortable posture for the driver. The control levers are combined with devices by means of cables. Rear brake and sidecar brake has common mechanical drive.

The throttles of the carburetors are operated with throttle twist grip through cables.

The clutch is operated by cable connecting the clutch lever and clutch gear.

The front wheel brakes of both versions are mechanically operated. The rear brakes are operated through systems of levers. The free travel of the brake pedal is adjusted by changing of length of tie rods through threaded connections.

### Adjustment of controls

The controls are adjusted through making the drive of each control shorter or longer. The basics of the adjustment are as below.



Fig. 19a

When the levers fully eased off (grip rolled away):

a) For clutch: total disengagement, which is controlled by free travel of the clutch control lever end. The free travel must be 5...8 mm (Fig. 19a). The free travel is set by two adjusting screws on the ends of the cable. Screwing in or out the screws in the clutch lever or in gear box holder adjusts the free travel.

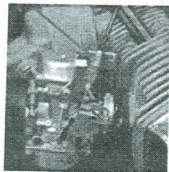


Fig 19b

c) For carburetors: the free travel of cables of not more than 2...3 mm, simultaneous start of their move and throttles lift at the same height at any position of the throttle handle (Fig 19b). The free travel and synchronism of throttle lift are adjusted by screwing in or out the stops located in the covers of carburetors

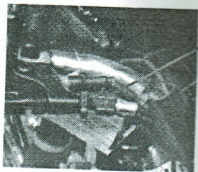


Fig. 19c

b) For brakes: the free travel of front brake lever end of 5...8 mm and free travel of foot brake pedal of 1/4 of turn or 25...30 mm.

The front wheel brake is adjusted with adjusting screw on the brake drum cover, see Fig.20r.

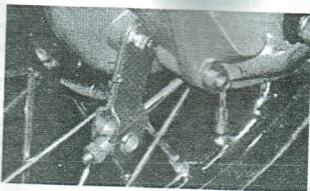


Fig.19d

### Maintenance of controls

Check whilst preventive inspection the operation of controls, condition and fastening of tie rods and cables as well as efficiency of brakes while driving.

Check the condition of brakes every 5000 km. Clean the brake shoes and rubbing area of brake drums (Please, mark the belonging of drums to drums axles before). Grease the following parts: axle and cams of brake shoes, rear brake drive and sidecar brake drive joints, throttle control handle; lever pins, clutch control cable tips and front brake cable tips. Oil the clutch, front brake and throttle cables with engine oil.

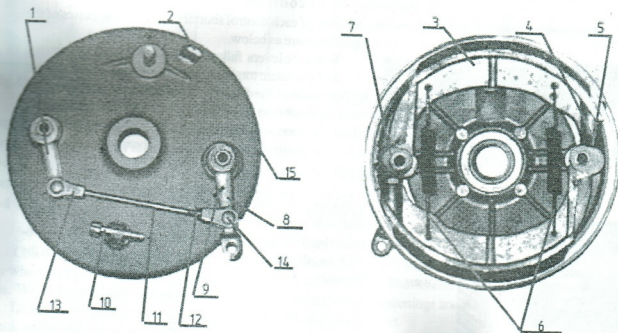


Fig.20 Front wheel brake

1-Upper brake lever; 2-Inspection opening; 3-Brake shoe; 4-Adjustment bolt lock nut; 5-Adjustment bolt; 6-Brake shoe spring; 7-Front brake cam; 8-Lower brake lever; 9-Brake lever spring; 10-Adjustment screw; 11-Tie rod; 12-Lock nut; 13-Tie rod fork; 14-Pin; 15-Brake drum cover

## 9. ELECTRICAL EQUIPMENT

The electrical equipment of the motorcycle is combination of devices to ignite air-and-fuel mixture, to start the engine and to provide lighting and audible and lamp signaling.

The system has two power sources: battery and alternator. The circuit is of one-wire type with negative to the "ground".

The electrical equipment is switched into the circuit by means of male-female connectors.

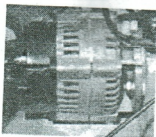


Fig. 21

### Alternator

The motorcycles have three-phase synchronous alternator of type 14.3771 with electromagnetic excitation and contact rings and with in-built semiconductor contactless voltage regulator of Я212А11Е or 363702 type (Fig. 21). The voltage regulator maintains the

required voltage whilst changing of electrical demand and rotor speed through variations in time of switching of rotor winding to and from the circuit. The voltage regulator has the temperature compensator which varies the voltage to the battery depending on the ambient air temperature thus providing optimum charge of it. Higher is the air temperature, higher is the voltage supplied to the battery. The value of temperature compensation is to 0.01 V to 1C.

The voltage regulator is built into the brush assembly.

The regulator requires no adjustment but checking periodically the outer terminals.

The alternator has in-built semiconductor rectifier of 6 power diodes comprising the bridge which transforms the AC into DC. In the front part of the alternator there is a cooling fan. The alternator is mounted on the upper part of the engine with two studs and operated from the driving timing gear. The gear ration between the crank shaft and alternator shaft is 1,33.

### Alternator specification

1. Rated voltage ... 12 V
2. Max. Current ... 35 A
3. Variable voltage at rotor speed of 4000 rpm and load current of 20A with battery connected ...  $14 \pm 0,3$  V

### Battery.

The motorcycle have starter batteries of lead-acid type (see Table 2).

The long life of the battery is ensured only when all the electrical devices are in good repair and the battery is used in strict conformance with BATTERY INSTRUCTION MANUAL.



### Electric starter.

The motorcycle is equipped with electric starter of the type of 391.7708 with solenoid drive and push button on the handle bar. The output of the starter is 1,0 kV.

### Horn

The horn of the type of 20.3721 is used on the motorcycle. The horn is operated with the button located on the left handle bar. The signal is adjusted with the adjusting screws located on the back of the horn body.

## Lighting and lamp signaling devices.

### Headlight.

The motorcycles use ФГ137Б or 226.3711.201 headlights of the type of "European Asymmetrical light spot". The design and of the headlight makes it possible to adjust the direction and configuration of the light spot. Maladjustment or poor light badly affect the traffic safety and may result in dazzling of other traffic members or shortening of light beam distance.

Do the following before headlight adjustment:

- Check tire pressure and adjust as recommended
- Align the light diffuser the way the mark "up" is vertically pointed

### Adjustment of the headlight

Place the laden motorcycle on a flat ground in front of a vertical screen arranged 10 m away from the light glass (Fig. 22).

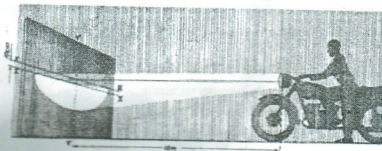


Fig.22 Headlight adjustment

-Slacken off the bolts fixing the headlight and adjust the low beam the way the left-hand horizontal portion of the light and shadow boundary of the light spot falls on the X-X line, and the apex of the angle formed by the light and shadow boundary coincides with the cross of X-X and V-V lines.

Tighten the headlight bolts.

### Tail light

The tail light illuminates the rear license plate, signals on the braking and marks the motorcycle during nighttime. The brake light and marking lights are red. The license plate is illuminated through the colorless diffuser. Also the tail light comprises light reflective member of red color.

### Turn lights

The turn lights are to warn on the turning of the motorcycle or changing the traffic lane. The lights are of amber color and mounted in the rear and in the front of the motorcycle. The lights blink with the rate of 1..2 per second.

### Telltails

The telltails have the following colors:

- blue for high beam
- amber for turn lights
- red for alternator operation
- green for neutral gear

## Electrical equipment maintenance

### Alternator maintenance

Check routinely the condition of wiring and fastening of the wiring to alternator terminals, and clean them. Check the tightness of coupling screw of alternator covers and fastenings of the alternator to engine crank case studs after 10000 km. The alternator has prelubricated bearings with in-built seals.

After 20.000 km the generator must be cleaned from copper and brush dust. For your convenience it is recommended to remove the generator from the engine, remove the cover and brush assembly, and blast them with compressed air. Never use gasoline or other solvents to clean the brush assembly.

#### Electric starter

Check routinely the cleanliness and tightness of fastenings of wires to solenoid switch. Keep the starter clean as dust and mud on the cover may result in short circuit between the brush assembly and "ground". Never let oil or gasoline get onto the alternator case. Remove periodically the brush assembly cover and check the condition of the brushes, brush holder and collector. Remove dust and dirt from the brushes and cover with compressed air. Pay special attention the color of the collector. Normally the color must be a little bit dark without burn marks. Remove small burn marks with glasspaper and wipe the surface with clothes moistened with gasoline. The brushes in the brush holder should move freely without seizure. Trim the burned contacts of solenoid switch with broach file. Check the fastenings of starter to gear box studs to prevent the starter gear from the wrong mesh with flywheel crown.

Diagnose the starter as well as the alternator for the following:

- rotor exciting winding insulation
- armature coil insulation
- insulation of commutator segment insulation to the "ground"
- hold-down of brushes against the contact rings and collector
- value of transient resistance of connections
- operation of the starter at idling and braking down.

The alternator should also be checked for efficiency at the starting and full efficiency.

The starter and alternator should be diagnosed with special test bench.

#### General recommendations.

Be sure the polarity is right whilst mounting the battery onto the motorcycle (see Wiring Diagram). Failure to it results in immediate major damage of alternator rectifier and possible inflammation of wire leads.

Check battery charging which is to be not less than 50% in the summertime and not less than 75% in the wintertime. (see Battery Instruction Manual).

**Warning!** Operation of totally exhausted battery is not possible as exciting winding would be de-energized resulting in no output of the alternator.

Check the conditions and tightness of connectors and leads coverings.

The lighting and light signaling devices should have bulbs of adequate wattage.

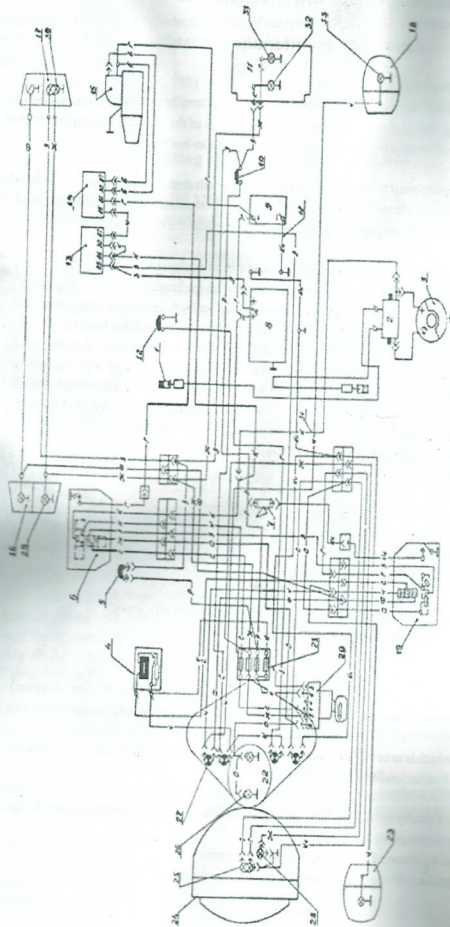


Fig. 23 Electric circuit diagram

1-Spark plug; 2-Ignition coil; 3-Ignition module; 4-Turn indicator interrupter; 5-Hand brake signal switch; 6-RH switch 182.3709-10; 7-Horn; 8-Alternator; 9-Battery; 10-Brake signal switch; 11-Tail light; 12-Neutral gear contact; 13-Starter disabling relay; 14-Starter switch relay; 15-Starter; 16-sidecar light, front; 17-sidecar light, rear; 18-turn indicator, rear; 19-LH hand switch 182.3709-10; 20-Ignition lock; 21-Fuse box; 22-Speedometer; 23-Turn indicator, front; 24-headlight; 25-Lowbeam-high beam bulb; 26-Speedometer illuminating bulb; 27-Tail light; 28-Marker and parking brake bulb; 29-sidecar marker light bulb; 30-Marker light and brake signal bulb; 31-Marker light and license plate illumination bulb; 32-Brake signal bulb; 33-Turn indicator bulb.

Color legend: O-orange; F-blue; K-yellow; C-gray; K-brown; Ø-black; 3-green; 4-black; P-Rose; K-red; E-White.

## 10.AUXILIARY EQUIPMENT

The motorcycle can be extra equipped with the following, see Fig. 24

- Rack carrier
- RH rear view mirror
- Driver and sidecar windscreens
- Leg mud guards
- LH cylinder protection bar
- Side decorative panels
- Hand wind protectors

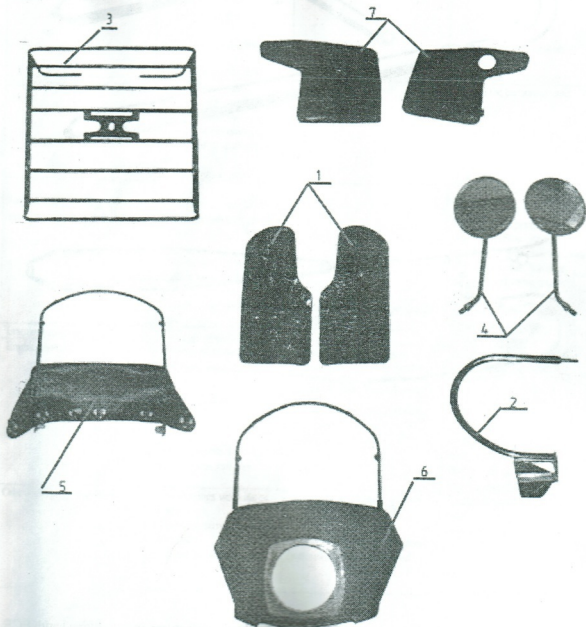


Fig.24 Auxiliary equipment of the motorcycle

- 1- Leg mud protection; 2-Cylinder protection bar; 3-Rack carrier; 4-Rear view mirror;  
5- Sidecar windscreen; 6-Driver windscreens ;7- Side decorative panels



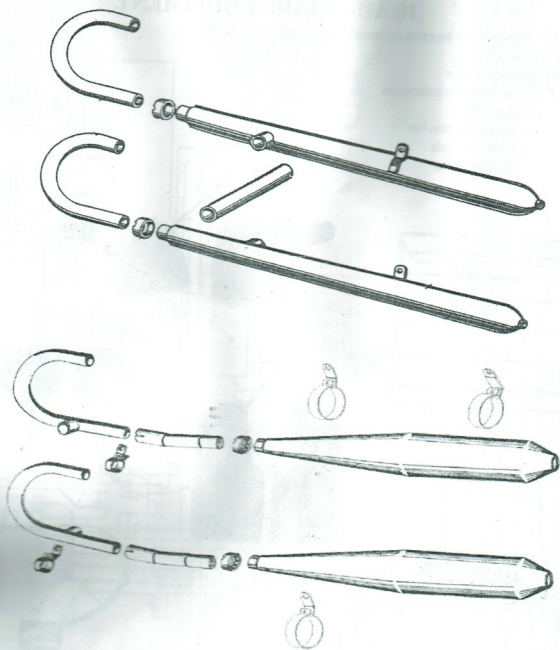


Fig. 25

### Exhaust system

Fig. 25 shows versions of exhaust system that are marked by manufacturer in accordance with ECE Regulation.

Exhaust system with swept-up silencers.

Exhaust system of types 2 or 2-in-2 horizontally arranged.

## 11. TROUBLESHOOTING AND REMEDIES

Failure	Possible whys	Signs and determination of failure	Remedy
1	2	3	4
<b>ENGINE</b>			
Engine won't start	1. -The fuel supply is in place, but no spark on the spark plug a) commutator is faulty b) Ignition coil is down		a) Replace commutator b) Replace ignition coil
Engine sputters, either cylinder lopes	1) Mixture too lean: a) unsteady supply of gas to carburetor b) jets or unbalancing passage of float chamber dirty 2) Spark plugs are faulty	1. Engine fires back	1. Clean the carburetor and adjust 2. Replace spark plugs
Engine won't develop full power	1. Air filter or ventilation hole in the gas tank plug blocked 2. Valves are not tight to seats because of varnish 3. Piston rings broken or burnt	2. Too low compression 3. Too low compression, engine smokes, plugs are oily	1. Remove and flush air filter, dry it out and prime with engine oil (First check if clutch slips or brakes too hot) 2. Engine repair, Varnish cleaning and valve grinding 3. Engine repair, cleaning or replacement of rings.
Engine overheats	1. Wrong ignition timing		1. Adjust ignition timing
Engine clatters	1. Engine overheats 2. Too lean mixture a) Wrong adjustment of carburetors b) Air inflow in duct from carbs to cylinder head	1. Surface ignition, engine won't stop immediately after ignition is switched off a) Engine does not accelerate under load b) Engine fires back	1. Stop the engine, let it cool down and fix the fault a) Adjust carburetors b) Tighten nuts fastening carbs to cylinder heads. Replace the gasket when result is negative.
Oil consumption too high	1. Piston rings worn out or broken 2. Cylinder mirror or piston worn out 3. Valve guides worn out	1. Breather and engine smokes, spark plugs are oily 3. Excessive varnish on piston bottom and in cylinder head	1. Engine repair. Replace rings 2. Engine repair. Oversize cylinders or replace them replacing piston and rings at the same time 3. Cylinder head repair

Squealing and varying in pitch sound in breather	1. Snow or water in breather  2. Breather stuck in cover bore	1. Breather releases water  2. Aluminum dragging on breather and tearing of seal surface	1. Oil the breather through its duct with rubber pipe and pressure gun. Turn the crankshaft with kick starter. Start the engine. The squealing should disappear. 2. Engine repair
Liquid cooled engine overheats	1. Too low level of cooling agent in cooler. Gasket between cylinder and head down.	1. Inspect	Top up the liquid. Replace the gasket
Starter won't start	Starting relay is down. Battery exhausted. Starter solenoid is down.	Starter switches off spontaneously.	Replace starting relay. Charge the battery. Replace or fix solenoid.
<b>POWER TRAIN</b>			
Clutch slips	1. Clutch does not engages fully due to wrong adjustment  2. Oily driving plates	1. Check if there is free travel of clutch control lever  2. Dismantle and inspect	1. Adjust the drive so that to provide free travel of clutch lever of 5...8 mm  2. Wash in gas in dry out.
Clutch does not disengages fully	Wrong clutch adjustment, too big free travel of lever	Check the free travel of the clutch lever on the handlebar.	Turning in and out adjustment screws, provide free travel of clutch lever of 5...6 mm
Kicking the kick starter lever does not turn the engine crank shaft	1. Broken or worn out ratchet pawl, pawl axle, ratchet teeth. 2. Pawl spring broken or lost spring power	1. Kick the kick starter lever with any gear shifted on	1. Replace the pawl or put it the other side. Replace pawl axle. Replace ratchet gear 2. Replace spring.
A gear shifts out spontaneously when driving	1. Worn-out gear 2. Worn-out parts of shift mechanism		1. Replace gears 2. Replace faulty parts
Noise in gearbox	1. Low level of oil in gearbox 2. Worn-out gears	1. Check the oil level	1. Top up oil  2. Replace gears
Main drive overheats	1. No oil inside  2. Parts broken or worn-out 3. Wrong adjustment of free travel of brake pedal	1. Check oil level and oil quality 2. Dismantle and check with dealer 3. No free travel or free travel insufficient	1. Top up oil  2. Replace faulty parts  3. Adjust free travel of the pedal
<b>RUNNING GEAR</b>			
Front fork clatters	1. Play in thrust bearings of front fork  2. Bushings of leg pipes worn out lower bushing disconnected	1. Brake down the front wheel, and, pushing the handlebar back and forth, determine by hand if there is a play in power thrust bearing 2. Put the motorcycle on stand and lift the front wheel. Big play while rocking the legs up and down indicates the front fork in troubles.	1. Fix the play tightening thrust bearings  2. Put apart front legs, inspect the parts and replace bushings.

## TROUBLESHOOTING AND REMEDIES

Repeated strong bangs in front fork (poor damping)	<ol style="list-style-type: none"> <li>No oil or shortage of oil in front fork</li> <li>Front fork springs lost spring power or springs broken</li> </ol>	<ol style="list-style-type: none"> <li>Check the front fork for oil. (135 cc for each leg). Inspect and locate oil leak.</li> <li>Put apart the front fork and inspect spring.</li> </ol>	<ol style="list-style-type: none"> <li>Undo tightening nut of front leg, top up oil and check if there is a leak. When leak shows from under the axle, remove tips in assy with shock absorbers. The leak is probable through the bolted junction of shock absorber. Tighten the bolt</li> <li>Replace springs.</li> </ol>
Front fork legs leak	<ol style="list-style-type: none"> <li>Leg seals worn out or damaged</li> </ol>	<ol style="list-style-type: none"> <li>Oil traces on the leg tips. Inspect the seals.</li> </ol>	<ol style="list-style-type: none"> <li>Replace the seals.</li> </ol>
Shock absorber leaks	<ol style="list-style-type: none"> <li>Seal damaged or plunger</li> </ol>		<ol style="list-style-type: none"> <li>Replace the seal or plunger.</li> </ol>
Shock absorber bumps while operating	<ol style="list-style-type: none"> <li>Rubber bushings or silent blocks of tips damaged</li> </ol>	<ol style="list-style-type: none"> <li>Check the condition and fastenings of parts.</li> </ol>	<ol style="list-style-type: none"> <li>Replace bushings or silent blocks.</li> </ol>
Breakage of wheel spokes	<ol style="list-style-type: none"> <li>Loosen spokes or non-uniform spoke tensioning</li> </ol>		<ol style="list-style-type: none"> <li>Replace broken spokes and tension spokes uniformly.</li> </ol>
Wheel wobbles on the axle	<ol style="list-style-type: none"> <li>The wheel axle not properly tightened after wheel change or bearings worn out</li> <li>Seal nut loosen</li> </ol>	<ol style="list-style-type: none"> <li>Check having put the motorcycle on stand</li> <li>Inspect</li> </ol>	<ol style="list-style-type: none"> <li>Fix the wobbling</li> <li>Screw the nut in and lock it</li> <li>Adjust bearings or replace bushings</li> </ol>
<b>CONTROLS</b>			
Wheel won't brake down.	<ol style="list-style-type: none"> <li>Wrong adjustment of free travel of brake pedal or brake lever</li> <li>Oily linings of shoes</li> <li>Brake shoes worn out</li> </ol>	<ol style="list-style-type: none"> <li>Try changed adjustment</li> <li>Adjustment according to P.1 done but no results</li> <li>Same</li> </ol>	<ol style="list-style-type: none"> <li>Make the free travel of pedal or lever shorter. Check the wheel for rotation to prevent the brake drum from heating. Check brakes in driving.</li> <li>Remove the wheel, rinse shoes in gas and dry out. When repeated oiling check oil level in main drive, and seals.</li> <li>Adjust gap with adjusting bolts of brake shoes.</li> </ol>
<b>ELECTRICAL EQUIPMENT</b>			
Turning the ignition key to the right (position 1) the tell tale does not go on.	<ol style="list-style-type: none"> <li>Ignition fuse is down</li> <li>No contact on                             <ol style="list-style-type: none"> <li>Battery terminals</li> <li>Main switch terminals</li> <li>Generator "+" terminal</li> <li>Terminals 2 and 3 of ignition key</li> </ol> </li> <li>Lead broken in tell tale circuit</li> </ol>	<ol style="list-style-type: none"> <li>Check the fuse</li> <li>Check the contacts for cleanliness and tightening, check the leads running to fuse pins and ignition key pins.</li> </ol>	<ol style="list-style-type: none"> <li>Replace the fuse</li> <li>Clean the terminals and lead tips, fix wires, tighten screws and nuts of contacts.</li> </ol>



At any engine speed generator operation tell tale lights evenly	1. Generator is down		1. Check and fix generator
With turn indicator switch on, turn indicators do not blink	1 Fuse is down 2. Tell tale bulb is down 3. No contact in leads 4. No contact to ground	1 Check fuse and blinker relay 2. Check blinker relay 3. Check contacts and bulb 4. Check contact to ground	1. Replace fuse 2. Replace blinker relay 3. Replace bulb 4. Restore contact to ground

## 12. PREVENTIVE MAINTENANCE OF MOTORCYCLE

The preventive maintenance of motorcycle should be done after certain run disregard the technical condition of the motorcycle. The system of preventive maintenance includes:

- everyday inspection before or after driving
- Maintenance during running-in period
- Preventive maintenance every 2,500 km (PM1)
- Preventive maintenance every 5,000 km (PM2)
- Preventive maintenance every 10,000 km (PM3)
- Preventive maintenance every 20,000 km (PM4)

The service for battery is described in Instruction Manual enclosed.

The schedule and maintenance works for units and parts of motorcycle are described in Service Booklet enclosed.

Check routinely the following: oil level, gas level, controls, brakes, tire pressure, lights and light signaling devices, turn indicators, horn.

## STORAGE

To store the motorcycle for a long period of time put it on blocks. The tire pressure must be 0,05...1,0 MPa.

. Never put the motorcycle close to acids or bases, mineral fertilizers and other aggressive agents.

Start the motorcycle and make it work with fuel cock closed to empty the float chambers of carburetors.

. Fill about 50 cm of engine oil through spark plugs openings into every cylinder. Kicking the kick-starter several times spreads oil on internal surface of cylinders.

Chromed and zinc-coated surfaces should be covered with protective stuff.

Run the works indicated in GETTING READY OF YOUR MOTORCYCLE FOR USE before driving it again.

List of oils and lubricants used with Ural Motorcycles (or similar to them)

Gasoline	Octane 91 and higher
Engine oil	Castrol super GP 15W40 or 20 W50 ESSO UNIFLO 15W40 4-t MOTORCYCLE OIL 20W50 EUROTEX MULTIGRADE 15W40
Gear box and final drive	Castrol SMX 80W90 or 85W90 ESSO GEAR OIL GPD 85W90 TRANS GEAR OIL X-18 80W90 GEARTEX EP-C 80W90
Front fork	5W1 -10W1 Fork oil
Shock absorber	Shock absorber oil
Brake fluid	According to DOT 4, FMVSS 116 or similar

### Spark plugs

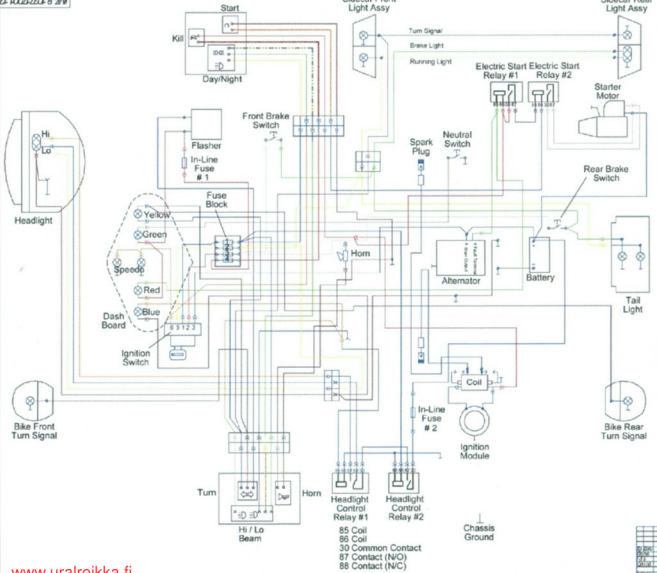
Manufacturer	Type
Russia	A17B
Bosh	W7BC, W7BP
Beru	14-17b, 173/14-A
Motorcraft	AE-32, AE-22
Ac Deico	C42C-FS
Champion	L12Y, L87YC
Marelli	CW6-NP
Lodg	HNY
Iskra	F70
Brisk	N15YC
Autolite	283, 274
NGK	BP7H, BP6HS
Nippondenko	W22FS-U

List of tools, spare parts and accessories delivered with motorcycle

Pos.	Description	Q-ty
	<b>Tools</b>	
1	Wrench 7x8	1
2	Wrench 10x12	1
3	Wrench 13x14	1
4	Wrench 14x17	1
5	Wrench 19x22	1
6	Spanner 19x21	1
7	Mandrel	1
8	Tool bag	1
9	Double-ended wrench 27	1
10	Pin wrench	1
11	Double-ended spanner 36x41	1
12	Pin wrench	1
13	Wrench 22	1
	<b>ACCESSORIES</b>	
1	Air pump	1
2	Tire pressure gauge	1
3	Ignition key	2
4	Anti-theft device key	2
5	Tire iron	2
	<b>SPARE PARTS</b>	
1	First aid kit with broach file	1
2	Touch-up	1
3	Filter element	1
4	Spare part bag	1
	<b>DOCUMENTS</b>	
1	Owner Manual	1
2	Service Booklet	1
3	Certificate	1
4	Battery Instruction Manual	1







Fuse Functions

- 1 Headlight Control Relays
- Running Lights
- 2 Running Lights
- 3 Brake Lights
- 4 Ignition
- Electric Start Relays

In-Line Fuse # 1  
 Turn Signals  
 Alternator Fault Indicator Lamp  
 Neutral Indicator Lamp

In-Line Fuse # 2  
 Headlight Filaments

Fuse Sizes

- # 1 5 Amp
- # 2 5 Amp
- # 3 5 Amp
- # 4 5 Amp
- # 1 In-line 15 Amp
- # 2 In-line 15 Amp

- 85 Coil
- 86 Coil
- 30 Common Contact
- 87 Contact (N/O)
- 88 Contact (N/C)

IME-810377001 13	
REV	DATE
1	11.08.2004
2	11.08.2004
3	11.08.2004
4	11.08.2004
5	11.08.2004
6	11.08.2004
7	11.08.2004
8	11.08.2004
9	11.08.2004
10	11.08.2004
11	11.08.2004
12	11.08.2004
13	11.08.2004
14	11.08.2004
15	11.08.2004
16	11.08.2004
17	11.08.2004
18	11.08.2004
19	11.08.2004
20	11.08.2004

#### 4. ГАРАНТИИ ЗАВОДА

Завод гарантирует безотказную работу мотоцикла, а также исправное действие всех агрегатов в течение 12 месяцев со дня продажи мотоцикла торгующей организацией при условии, что пробег в этот период не превысил 10000 км.

В указанный срок завод бесплатно устраняет дефекты и заменяет вышедшие из строя детали при условии соблюдения потребителем правил ухода и эксплуатации, изложенных в «Руководстве по эксплуатации».

#### 5. КОМПЛЕКТ ПОСТАВКИ

Мотоцикл укомплектован:

- инструментами,
- принадлежностями,
- паспортом на мотоцикл,
- руководством по эксплуатации,
- сервисной книжкой,
- дополнением к Руководству по эксплуатации при наличии конструктивных изменений в модели мотоцикла.

ООО «ИРБИТСКИЙ МОТОЦИКЛЕТНЫЙ ЗАВОД»



### ПАСПОРТ

мотоцикл дорожный с коляской «Урал»  
тип ИМЗ-8-103, его модификации

ИМЗ-8.1030

ИМЗ-8.1032

ИМЗ-8.1034

ИМЗ-8.1035

Изготовитель \_\_\_\_\_

Модель ИМЗ-8.1035

Шасси \_\_\_\_\_

Двигатель \_\_\_\_\_

Одобрение типа транспортного средства  
N РОСС. РUMT.02E02667

Выдана Межотраслевым фондом «Сертификация автотранспорта»  
30.06.2000. сроком на 3 года

Изготовитель подтверждает соответствие продукции  
одобренному образцу.

ОТК завода \_\_\_\_\_ (подпись)

Мотоцикл продан \_\_\_\_\_ М. П.

(наименование и адрес торгующей организации)

Подпись И.И.И. число 23.07.02 М. П.

# 1. ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ МОТОЦИКЛОВ

Модель	ИМЗ-8.1030	ИМЗ-8.1032	ИМЗ-8.1034	ИМЗ-8.1035
Максимальная скорость, км/ч	105	105	105	105
Контрольный расход топлива на 100 км пути при скорости 75% от максимальной	7,8	7,8	7,8	7,8
Максимальная нагрузка	255	255	255	255
Масса (сухая), кг	310	310	330	330
Длина	2580	2580	2580	2580
Ширина	1700	1700	1700	1700
Высота	1100	1100	1100	1100
Колеса	1150	1150	1150	1150
База	1150	1150	1150	1150
Дорожный просвет	125	125	125	125
Тип двигателя	Четырехтактный двухцилиндровый с оппозитным расположением цилиндров			
Рабочий объем, куб см	650	650	750	750
Степень сжатия	7,0±0,2	8,8±0,2	9,1±0,2	8,6±0,2
Диаметр цилиндра, мм	78	78	78	78
Ход поршня, мм	68	68	78	78
Максимальная мощность, кВт	23,5	23,5	33,1	33,1
Частота вращения, соответствующая максимальной мощности, мин <sup>-1</sup>	5600	3600	5800	5400
Крутящий момент, Нм	44,1	44,1	49,0	49,0
Частота вращения, соответствующая крутящему моменту, мин <sup>-1</sup>	3600	3600	3400	3400
Наименьшая устойчивая частота вращения холостого хода, мин <sup>-1</sup>	800	800	800	800
Система охлаждения	Воздушная, встречным потоком			
Система смазки	Комбинированная, под давлением и разбрызгиванием. Масло М6/12Г1 или SAE 15W40. (дублирующее - М5/10Г1)			
Система питания				
Модель карбюраторов	K68Y	K68Y	KeiHin (Япония)	K68Y
Бензин с октановым числом	72-80	92-95	92-95	92-95
Система зажигания	От прерывателя ИМ-302А	Бесконтактная электронная		
Электрооборудование	12В. Аккумуляторная батарея 6МТС-9. Для двигателей со стартером - импортного производства			
Сцепление	Сухое двухдисковое			
Коробка передач	Четырехступенчатая с передачей заднего хода			
Передачные числа КПП				
I передача			1:3,60	
II передача			1:2,28	
III передача			1:1,71	
IV передача			1:1,30	
Задний ход			1:4,36	
Главная передача	Карданная с одноступенчатым коническим редуктором			
Передачное число главной передачи	4,62	4,62	4,62	4,62
Привод колеса коляски (может быть установлен на любую модель)	Дифференциальный или отключаемый карданный			
Тормозная система	Барабанного типа с механическим приводом. Возможна установка переднего дискового тормоза на телескопическую переднюю вилку.			

# 2. РЕГУЛИРОВОЧНЫЕ ДАННЫЕ

Тепловой зазор между клапаном и коромыслом, мм		
	650 см <sup>3</sup>	0,01-0,1
	750 см <sup>3</sup>	0,10-0,15
Зазор в контактах прерывателя, мм		0,4-0,6
Зазор между ротором электромагнитным датчиком, мм		0,45±0,04
Зазор между электродами свечей зажигания, мм		
	ИМ-302А	0,6±0,1
	БСЗ	0,8-1,0
Свободный ход (на конце) рычагов управления тросов сцепления и ручного тормоза, мм		5-8
Свободный ход педали ногожного механического тормоза		1/4 полного хода педали
Давление воздуха в шинах колес, МПа (кгс/см <sup>2</sup> )		
	переднее колесо	0,15-0,16 (1,5-1,6)
	заднее колесо	0,25-0,26 (2,5-2,6)
	колесо коляски	0,15-0,16 (1,5-1,6)

# 3. ЗАПРАВОЧНЫЕ ЕМКОСТИ

Бензобак, л		19
Картер двигателя, л	2,3 (М6/12Г1 или SAE15W40)	
Картер коробки передач, л	1,2 (М6/12Г1 или SAE15W40)	
Главная передача (серийная), л		0,140 (ТАП 15В)
Главная передача с отключаемым приводом колеса коляски, л		0,140
Главная передача с дифференциальным приводом колеса коляски, л		0,140
Передняя вилка (одно перо), л		0,135
Воздушный фильтр контактно-масляный, л		0,150
Гидравлический амортизатор, л		0,105