

URAL Motorcycles

Owner's Manual

2003 Model

Retro Solo



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Contents

Introduction	5
Warnings, Cautions, Notes	5

Chapter 1 Specifications

Specifications	7
Torque Specifications	10
Conversions	10

Chapter 2 Motorcycle Controls & Instrumentation

Motorcycle Controls & Instrumentation	11
Controls	12
Control Cable Adjustment	16
Control Cable Maintenance	16
Speedometer	16

Chapter 3 Engine Operation

Engine Operation and Maintenance	17
Pre-Trip Preliminaries	17
Starting the Engine	17
Operating Precautions	21
Running-In the New Motorcycle	21

Chapter 4 Engine Design

Brief Description of Design & Maintenance	23
Lubrication System	24
Fuel System	25
Ignition System	26
Ignition Timing	26

Chapter 5 Carburetors

Carburetors	29
Carburetor Maintenance	30

Chapter 6 Power Transmission

Power Transmission	31
Clutch	31
Gearbox	31
Final Drive	31

Chapter 7 Running Gear

Running Gear	33
Spring-Loaded Hydraulic Shock Absorber	33
Front Fork	34
Steering Head Bearings	34

Chapter 8 Wheel & Tires

Wheels and Tires	35
Tire Data	36
Wheel and Tire Maintenance	37

Chapter 9 Brakes

Brakes	39
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Chapter 10 Electrical

Electrical Equipment	43
Electrical Circuits.....	43
Electrical Equipment Maintenance	44
Electrical Wiring Diagram	46

Chapter 11 Maintenance

Maintenance of Motorcycle	47
List of Recommended Lubricants	47
Lubrication Chart	48
Required Lubrication	48
Care of Motorcycle Paint	48
Preservation and Storage	49
Battery	50
List of Individual Tool Set, Spare Parts, Accessories & Documents	51

Chapter 12 Safe Operating Rules

Safe Operating Rules	53
----------------------------	----

Chapter 13 Warranty

Warranty Agreement	55
Warranty Claim Form	63
Flat Rate Schedule	64

Chapter 14 Service Coupons

Service Coupons	67
New Address Form	77
New Owner Form	78
URAL Starting and Running Tips	Inside Back Cover

INTRODUCTION

Welcome to the URAL Motorcycling Family! Your Ural has been built by the Irbit Motorcycle Factory in Russia and distributed by Irbit Motorworks of America, the United States affiliate of the Irbit Motorcycle Factory. The Ural motorcycle conforms to all applicable US Federal Motor Vehicle Safety Standards and US Environmental Protection Agency regulations effective on the date of manufacture.

This manual has been prepared to acquaint you with the operation, care and maintenance of your motorcycle, and to provide you with important safety information. Follow these instructions carefully for maximum motorcycle performance and for your personal motorcycling safety and pleasure.

Your Owner's Manual contains instructions for operation, maintenance and minor repairs. Major repairs require the attention of a skilled mechanic and the use of special tools and equipment. Your Authorized IMWA Ural Dealer has the facilities, experience and genuine Ural parts necessary to provide this valuable service.

Any suggestions or comments are welcome! Write to us or post an e-mail on the Ural Discussion bulletin board at www.imz-ural.com.

Happy Riding!

Important Notice!

Statements in this manual preceded by the following words are of special importance:

WARNING: MEANS THERE IS THE POSSIBILITY OF PERSONAL INJURY TO YOURSELF OR OTHERS.

CAUTION: Means there is the possibility of damage to the vehicle.

NOTE: Other information of particular importance has been placed in italic type.

CAUTION! During the initial 1,500 km, a fundamental bedding-in of parts for all the mechanisms of the motorcycle takes place. During this period do not race, overload, or lug the engine. Note the riding procedures described in the section "Running-In of New Motorcycle." Following those procedures will ensure that you have the most powerful & smoothly operating engine after break-in.

Maintenance intervals recommended are based on operational experience under various climatic and road conditions. However, these intervals may be extended or reduced following repeated checks of the lubricant condition and general mechanical condition of the motorcycle.

Carefully study this Owner's Manual before starting the motorcycle.
Specifications and design are subject to change without notice.

Chapter 1

SPECIFICATIONS

GENERAL

Retro

Maximum speed of motorcycle	120 km/h 74 mph
Reference fuel consumption at 85% of	14 km/L 33 mpg
Dry mass of motorcycle	680 lb.
Maximum load-carrying capacity	400 lb.
Noise level	below 80db

OVERALL DIMENSIONS

Length	2500 mm / 8 ft
Width	1700 mm / 5 ft 6 in
Height	1100 mm / 3 ft 6 in
Road Clearance	125 mm / 5 in
Seat height	840 mm / 33 in
Wheel base	1470 mm / 58 in

ENGINE

Type	4 stroke, overhead valves, opposed twin-cylinder
Displacement	745 cc
Cylinder bore	78 mm
Piston stroke	78 mm
Compression ratio	9.0 :1
Rated horsepower	33 KW / 44.2 BHp
Rated rotational speed	5600 RPM
Rated torque	36 ft.-lbs @ 3750 RPM
Lubrication system	Dual system of forced lubrication and splashing
Lubricant	SAE 20W/50

CARBURETOR

Carburetor type	32 CVK Keihin
Number of carburetors	2
Air cleaner	Paper Filter Element Lifetime JR
Fuel	91 octane premium unleaded gasoline
PCV Valve	Internal Breather

ELECTRICAL

Ignition system	135.3734.COM-2 (CDI)
Ignition coil	135.3705-2
Spark plugs	NGK BP7H
Ignition timing	Automatic spark timer
Alternator	35 amp / 12 Volt
Battery	Interstate #YB18L-A or equivalent
Headlight	Sylvania Halogen 6024, 7" round sealed beam

TRANSMISSION

Clutch	Dry double-disk clutch
Gearbox	4 speed gearbox with reverse gear lever

GEAR RATIOS

I gear	3.6
II gear	2.28
III gear	1.56
IV gear	1.19
Reverse gear	4.36

Speedometer drive ratio	0.4
Final drive ratio	3.86

FLUID CAPACITIES

Fuel tank	5 Gal / 19L
Reserve	.5 Gal / 2L
Engine	68 oz / 2L
Transmission	30.6 oz / .9 L
Final drive	3.74 oz / 110 ml
Shock Absorbers	3.5 oz / 105 ml

RUNNING GEAR

Frame Tubular welded	
Rear wheel suspension	Swing arms with spring shock absorbers
Front fork	Telescopic
Brakes	Hydraulic Disk on front, Hydraulic Drum on rear
Tires	110/90 - 18"
	Front 22 psi cold (1.5 Bar / 150 kPa) Front 22 psi cold
	Rear 36 psi cold (2.5 Bar / 250 kPa) Rear 36 psi cold

CLEARANCES

	mm	in
Valves with engine cold	0.15 to 0.1	0.006 to 0.004
Between spark plug electrodes	1.016	0.040
Backlash between tooth faces of bevel gears in final drive	0.1 - 0.3	0.001

FREE TRAVEL / ADJUSTMENTS

	mm	in
Hand brake control lever	5 - 8	0.2 - 0.3
Clutch control lever	5 - 8	0.2 - 0.3
Foot brake drive pedal	$\frac{1}{4}$ of full stroke of pedal, 25 - 30	1.0 - 1.2

TORQUE SPECIFICATIONS

Metric	US Equivalent	Location on Bike
54 to 61 Nm	40 ft/lb to 45 ft/lb	cylinder heads
237 to 251 Nm	175 ft/lb to 185 ft/lb	fly wheel tightening screws
19 to 30 Nm top	14 ft/lb to 22 ft/lb	shock absorber
38 to 49 Nm bottom	28 ft/lb to 36 ft/lb	shock absorber
30 to 35 Nm	22 ft/lb to 26 ft/lb	bearing nut
30 to 35 Nm	22 ft/lb to 26 ft/lb	final drive to swing arm bolts
8 to 10 Nm	5.8 ft/lb to 7.2 ft/lb	oil pump bolt
8 to 10 Nm	5.8 ft/lb to 7.2 ft/lb	engine sump
14 to 19 Nm	10 ft/lb to 14 ft/lb	final drive case nuts
68 to 90 Nm	50 ft/lb to 66 ft/lb	nut fastening the pinion bearing
22 to 27 Nm	16 ft/lb to 20 ft/lb	reverse gear brake lever
19 to 22 Nm	14 ft/lb to 16 ft/lb	alternator gear nut
136 to 163 Nm	100 ft/lb to 120 ft/lb	steering stem nut

CONVERSIONS

To convert from mm to in, divide by 25.4 (there are 25.4 mm per inch).

To convert from liters to gallons, divide by 3.785 (there are 3.78 liters per gallon).

To convert from liters to quarts, multiply by 1.056 (there are 1.056 quarts per liter).

To convert from liters to pints, multiply by 2.112 (there are 2.112 pints per liter).

To convert from km to miles, multiply by .62 (there is .62 mile per km).

To convert from km/hr to mph, multiply by .62.

To convert from Newton-meter (Nm) to inch-pound, multiply by 8.86.

To convert from Newton-meter (Nm) to foot-pound, multiply by .7376.

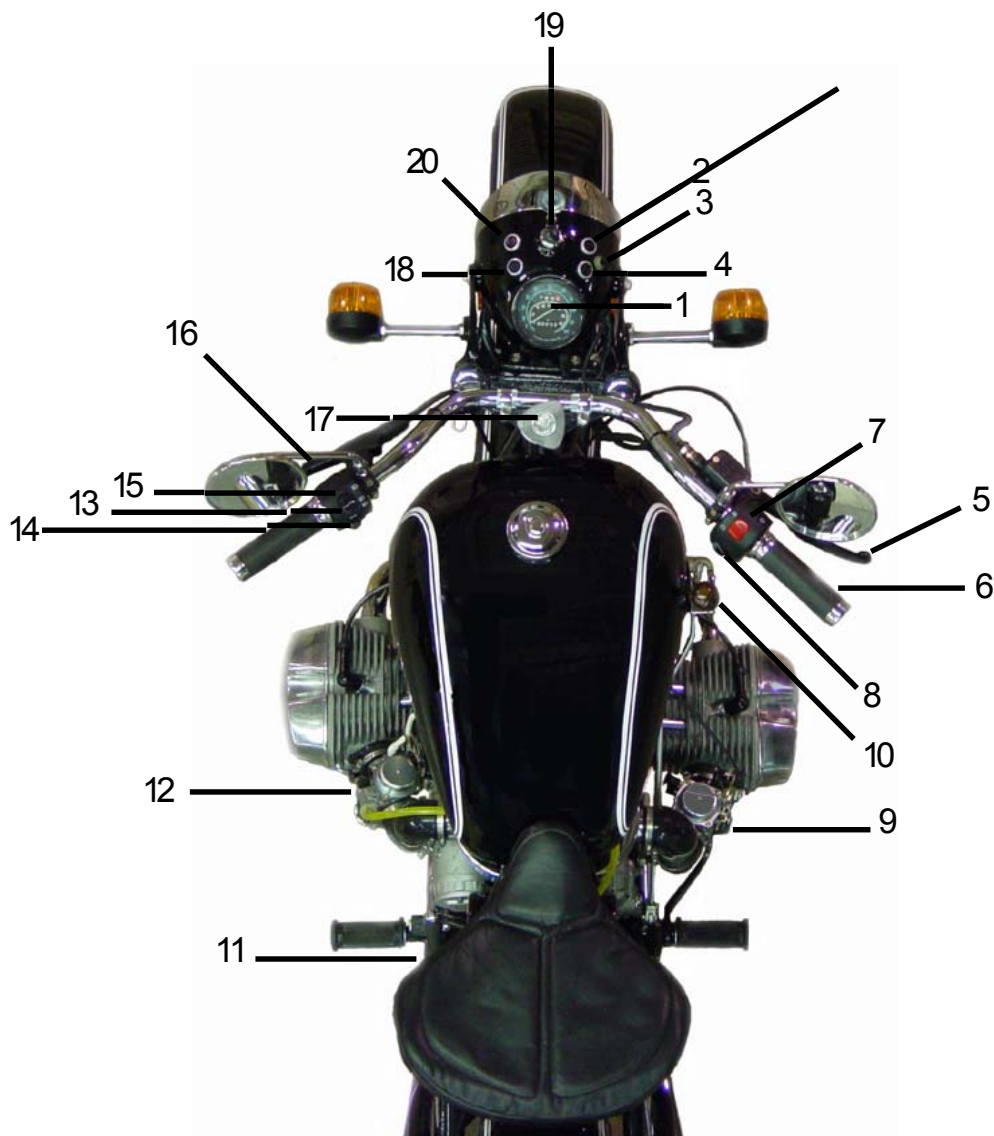
To convert from cm³ (cc) to pints, divide by 473 (there are 473 cc per pint).

To convert Celcius to Fahrenheit: $F^{\circ} = C^{\circ} \times 1.8 + 32$.

To convert Fahrenheit to Celcius, $C^{\circ} = (F^{\circ} - 32) \text{ divide by } 1.8$.

Chapter 2

MOTORCYCLE CONTROLS & INSTRUMENTATION



Controls and Instrumentation

- | | |
|--|--------------------------------------|
| 1 - Speedometer | 12 - Gear shift (foot) pedal |
| 2 - Turn indicator lamp | 13 - Turn signal switch |
| 3 - Trip odometer reset knob | 14 - Horn push-button |
| 4 - Neutral and reverse gear engagement indicator lamp | 15 - "High-low" beam switch |
| 5 - Front brake control lever | 16 - Clutch control lever |
| 6 - Throttle control twist grip | 17 - Steering damper tightening bolt |
| 7 - Ignition cutoff switch | 18 - High-beam indicator lamp |
| 8 - Electric Start Button | 19 - Ignition Switch |
| 9 - Rear brake pedal & sidecar wheel brake | 20 - Battery discharge warning lamp |
| 10 - Reverse gear lever | |
| 11 - Kick start lever | |



Clutch Control Lever



Front Brake Control Lever

Clutch control lever When the clutch lever is squeezed, the engine is disengaged from the gearbox. When the lever is released, the engine and gearbox are connected.

WARNING: MAKE SURE FINGERS ARE NOT POSITIONED BETWEEN HAND CONTROL LEVERS AND HANDLEBAR GRIPS OR OPERATION OF VEHICLE COULD BE IMPAIRED.

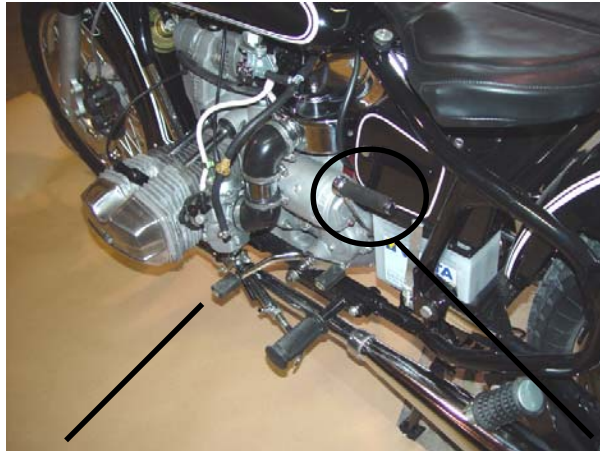
WARNING: BEFORE STARTING ENGINE, ALWAYS SHIFT TRANSMISSION TO NEUTRAL TO PREVENT ACCIDENTAL MOVEMENT WHICH COULD CAUSE POSSIBLE DAMAGE TO MOTORCYCLE AND PERSONAL INJURY.

Caution: Always engage the clutch release lever when shifting. Serious internal damage may result to the transmission if the clutch release lever is not engaged.

Front brake control lever When the lever is squeezed, the front wheel brake is actuated. The front brake should be used together with rear brake. When the brake lever is squeezed, the stop signal lights are switched on.

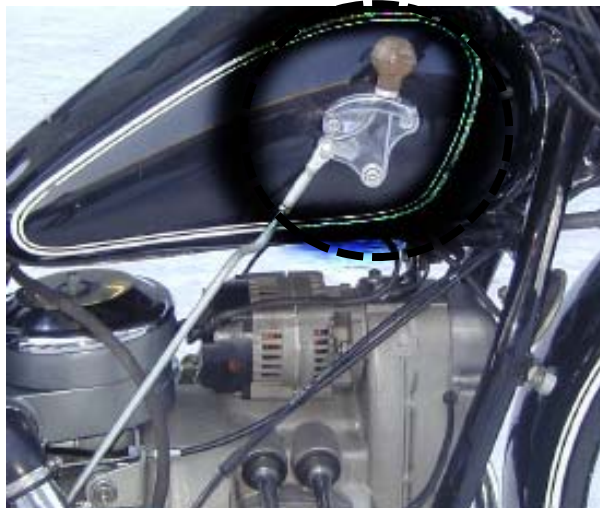
REAR BRAKE PEDAL IS USED TO ACTUATE THE REAR BRAKES.

Kick starter is designed to start the engine. On pressing the lever, the crankshaft of the engine is rotated via the gearbox. The lever is returned to its initial position by a spring inside the gearbox.



Gear shift lever

Kick Starter



Reverse Gear Selector

Gear shift Lever. When the front pedal is pressed, shifting from higher to lower gear takes place. When the rear pedal is pressed, shifting from lower to higher gear takes place. The neutral position is fixed between the 1st and 2nd gears. It is important to shift smoothly with a constant force and not to kick the gear shift pedal.

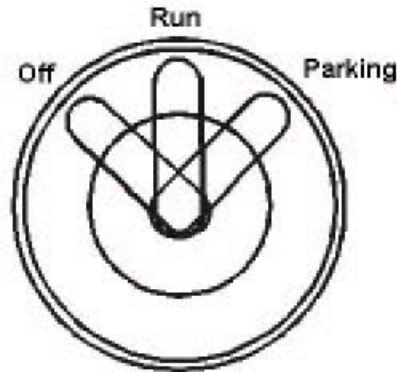
Reverse gear is engaged by pushing forward on the reverse gear selector. Reverse gear should only be engaged from neutral or 1st gear, after the motorcycle has come to a complete stop. When the reverse gear selector is pulled backward, the transmission will be in neutral.

IMPORTANT! The green pilot lamp will illuminate when the transmission is in neutral or reverse gear. (see “Starting the Engine”).

WARNING: DO NOT LET YOUR FOOT REST ON THE EXHAUST HEADER PIPE. SERIOUS INJURY OR BURNS MAY RESULT.

WARNING: DO NOT APPLY EITHER BRAKE STRONGLY ENOUGH TO LOCK THE WHEELS BECAUSE THIS MAY

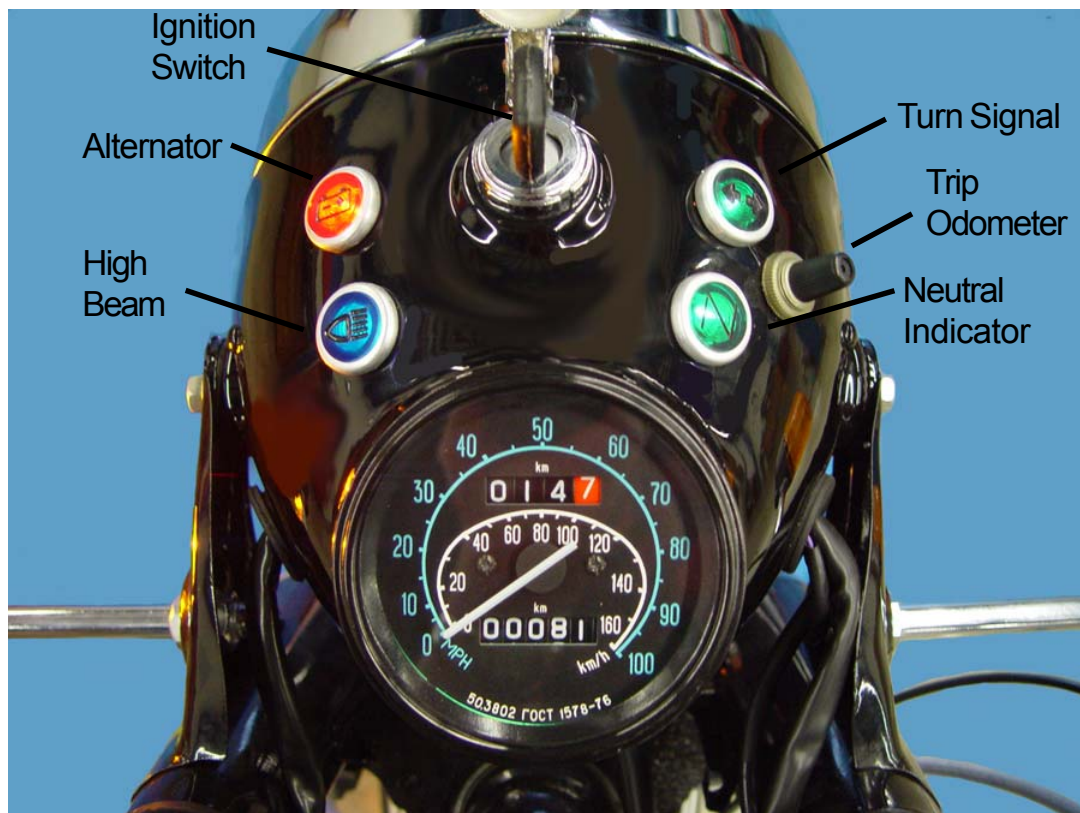
CAUSE POSSIBLE LOSS OF CONTROL OF THE MOTORCYCLE. ALWAYS USE BOTH BRAKES. NEVER STOP WITH FRONT OR REAR BRAKE ONLY.

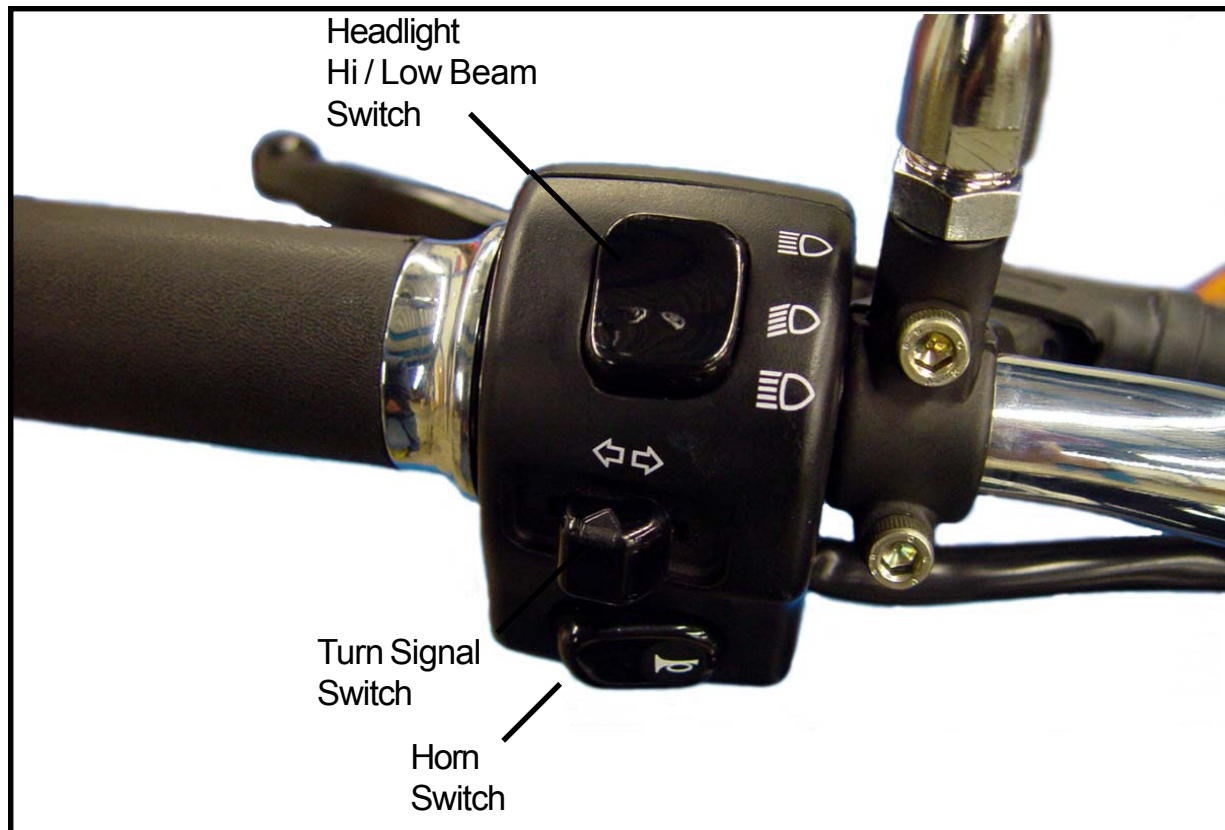
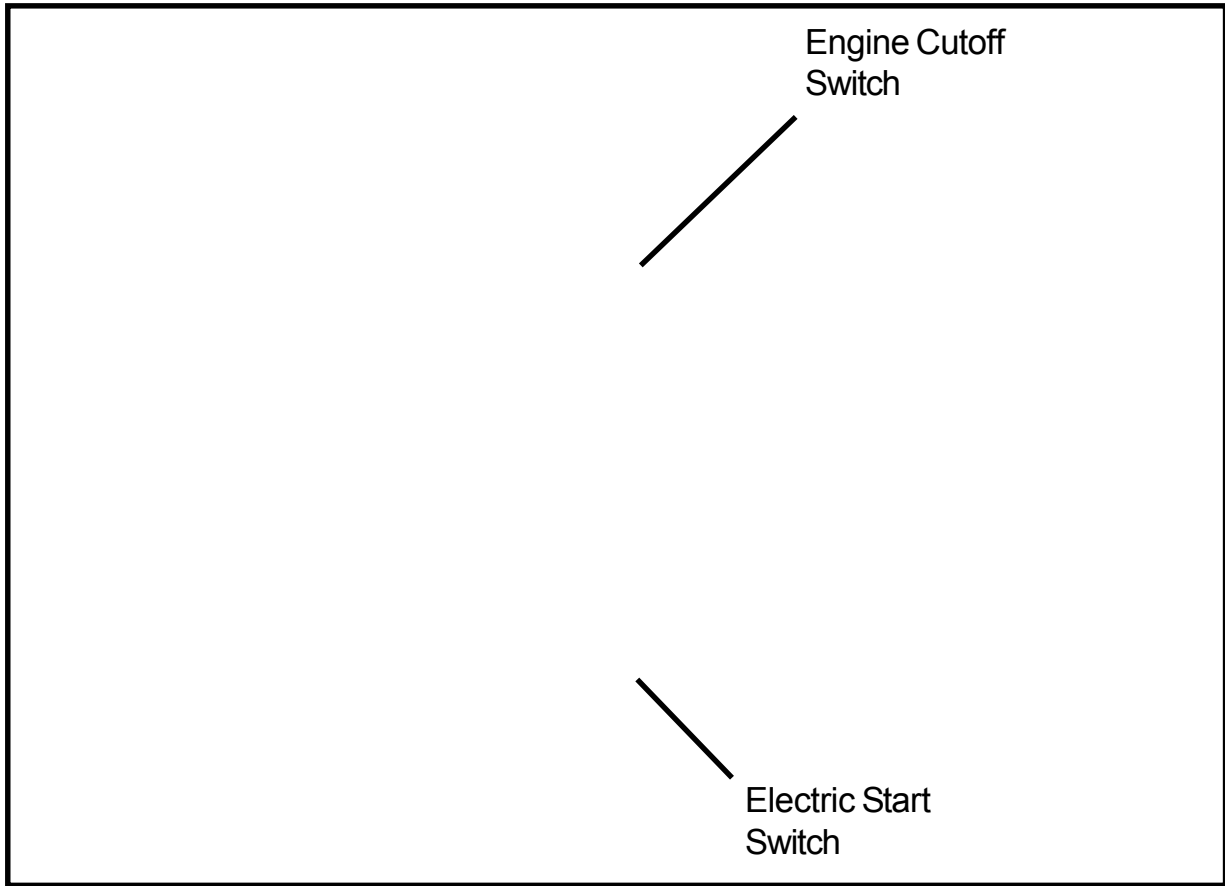


Ignition Switch has three fixed positions of the key.
The positions of the ignition are shown above.

Off	All electrical systems are off.
Run	Voltage is supplied to all electrical systems.
Parking	Voltage is supplied to running lights only.

Note: Leaving the key in the Run or Parking position will discharge the battery.
Always return the key to the Off position before removing it.





CONTROL CABLE ADJUSTMENT

The control cables are adjusted by screw adjustments at the cable ends.

With the control levers released:

- € for the clutch a play at the clutch lever end should be equal to 5 - 8 mm/0.2 - 0.3 in.
- € for the carburetors - carburetor throttle cables synchronized

With the control levers (handles) fully depressed:

- € for the clutch — complete disengagement of the engine from the transmission; noiseless shifting of gears means good adjustment of the clutch cable.
- € for the carburetors — lift of throttles to the maximum and equal height

CONTROL CABLE MAINTENANCE

The daily preventative maintenance involves checking the functioning, condition and fastening of the tie rods, cables and braking action. Refer to the Service Coupons for lubrication schedule.

As per the service coupons, lubricate the throttle control twist grip, the lever pins and ends of cables used in the clutch and the throttles.



SPEEDOMETER MAINTENANCE

After every 10,000 km, remove the speedometer from the motorcycle and add five or six drops of oil into the speedometer where the cable inserts into the speedometer. This will lubricate the speedometer internally.

To lubricate the speedometer cable, remove the cable from the speedometer and pull straight. Use speedometer lubricating oil or light machine oil.

Chapter 3

ENGINE OPERATION

PRE-TRIP PRELIMINARIES

Pre-Trip Check List

1. Check all lights and the horn for proper operation.
2. Check the brake and clutch levers and/or pedals.
3. Make sure all wheels and the final drive assemblies are securely fastened .
4. Check the carburetor flanges and air filter ducts for integrity and proper alignment.
5. Check the tire tread depth - should be greater than 1/8 inch.

Gasoline level in the fully filled tank should be 10 - 15 mm / $\frac{1}{2}$ - $\frac{3}{4}$ in. below the lower edge of the tank filler. Do not overfill the tank.

See that the oil level in the engine crankcase is not higher than the top and not lower than the bottom marks on the dipstick with the filler plug undone. (See chapter 4 Lubrication System)

CAUTION: When checking the engine oil level, be careful that dirt and debris do not contaminate the oil.

STARTING THE ENGINE

WARNING: BEFORE STARTING THE ENGINE, MAKE SURE THAT THE GEAR SHIFT MECHANISM IS IN THE NEUTRAL POSITION (BETWEEN 1ST AND 2ND GEARS) TO PREVENT ACCIDENTAL MOVEMENT WHICH COULD CAUSE POSSIBLE DAMAGE TO MOTORCYCLE AND PERSONAL INJURY. (FOR MORE THAN JUST STARTING, I.E. IDLING, IT IS ADVISABLE TO USE NEUTRAL GEAR.)

When the ignition is switched on, the green & red lamps on the instrument panel should illuminate. This will indicate that the battery is discharging while the engine is not running and that the motorcycle is in neutral.



Prime Position



Fuel On
Position



Reserve Fuel
Position

1. When starting the engine after the motorcycle has been parked for an extended period of time, or after the fuel tank and/or carburetors have been completely emptied of gasoline (e.g. due running out of fuel, evaporation, or installation of replacement parts), set the valve to the "PRI" (Prime) position. This would allow gasoline to fill the float chambers of the carburetors and prepare the engine for starting.
2. Start the engine
3. After the engine starts, set the valve to the "ON" position and keep the valve in this position for regular use of the motorcycle. (When set to "ON", the valve is automatically activated when the engine starts and stops, opening and shutting off the supply of fuel to the carburetors)
4. After using up the main volume of fuel (engines starts stalling due to lack of fuel), set the valve to the "RES" (Reserve) position and continue driving. After refueling, remember to set the valve back to "ON" to avoid running out of fuel completely.

IMPORTANT: When parking the motorcycle for extended periods of time, the valve should remain in the "ON" position.

WARNING: Never leave the motorcycle with the engine turned off and the valve set to "PRI" as this may result in a serious damage to the engine and will void your warranty.

The carburetor enrichers provide extra fuel to the mixture. This extra fuel will allow a cold engine to start and run until it has warmed up sufficiently to allow normal operation. Use caution when using the enrichers, as they can easily cause the engine to flood, or foul the spark plugs. The enrichers should only be left on as long as necessary to keep the engine running while cold and should be turned off as soon as possible.

Depending on the engine and ambient temperature, use the carburetor enrichers and starting procedure as follows:

Enrichener off

Enrichener on

Manual Starting (without electric starter)

1. Turn on the ignition and depress the kick lever about 1/4 of its travel (enough to firmly get the ball of your foot on the lever) with either your left foot or right foot, depending on what position is most comfortable with your right hand on the throttle. Take up the slack in the throttle until you can feel some slight resistance from the return springs in the carburetors, without any advance on the throttle, since this may flood the engine.
2. Give the kick lever a swift kick. When the engine starts, tickle the throttle (quickly increase and decrease it) to keep the engine running, but not too fast. If the engine doesn't start, repeat the kicking procedure. A properly adjusted warm engine should start within a few kicks. If the engine doesn't start, try the procedure described below in item
3. If it still doesn't start or fire, it may be flooded.

Note: Do not completely open the throttle while kicking the engine over since it may flood the engine and the spark plugs may become fouled with gasoline.

Electric Starting

1. Set carburetor enricheners as with kick starting. Unlike manual starting, however, the gearbox does not have to be in neutral as the electric starter may be engaged with the clutch lever pulled in, or with the gearbox in neutral. Make sure the Ignition Cutoff Switch is set to "Ignition On" and push the starter button to turn over the engine.
2. When the engine has been standing for several hours but the ambient temperature is high (60°F/15°C degrees or above), try starting it without any enricheners. If it doesn't fire, then use the procedure described below.

3. When the engine is cool or cold and the ambient temperature is between 40°F-60°F/5°C-15°C, engage both enrichers to start. As soon as the engine starts, immediately retract the enrichers. Run the engine at moderate speed for 30-60 seconds. If it starts to die, blip the twist grip throttle (rapidly twist part way towards full throttle and then back off) to keep the engine running. After 1 to 3 minutes, depending on ambient temperature, the engine should run smoothly without “blipping” the throttle.

4. If the engine is cold and ambient temperature is below 40°F, first, give the engine 5-10 (depending on how cold it is) priming kicks with the ignition off. This will get some oil circulated to key internal parts. Engage the enrichers on both carburetors. The engine should then fire, depending on how cold it is. For example, when the ambient temperature is 0°F, it typically takes about 5-10 rotations to start the engine. As soon as the engine starts, retract both enrichers (after a few seconds).

Note: It is very important to back off on the enrichers as soon as the engine will sustain itself without stalling. Since the Ural is a carbureted air cooled engine, the plugs will foul quickly (as soon as one minute) if the engine mixture is too rich. If one plug fouls and the other doesn't, the engine will run unevenly and may cause internal damage.

When the engine is hot, do not choke or enrichen the carburetors. To do so risks flooding the engine.

To start an engine that is flooded, first open the throttle fully, hold it there and give the engine up to 10 swift kicks. If it still doesn't fire, take the spark plugs out to see if they are wet with gasoline. If they are wet, dry them. Clear excess gasoline from the cylinders by kicking the engine over 10 times with the plugs out and the throttle closed. Then replace the plugs and repeat the starting procedure described at the beginning of this section (1).

WARNING: SUSTAINED OPERATION ON ONLY ONE CYLINDER FOR EVEN JUST A FEW MINUTES COULD OVERHEAT THE CYLINDER AND CAUSE IRREVERSIBLE DAMAGE TO EITHER THE VALVES OR PISTON. THUS IT IS CRITICAL TO IMMEDIATELY SHUT THE ENGINE DOWN IF IT APPEARS TO BE RUNNING ON ONLY ONE CYLINDER.

Additional Warnings: Once the engine starts, do not allow it to run at a high speed as this could cause abnormal wear of the parts and may lead to seizure of the piston pin and pistons in the cylinders since cold oil flows through the oil ducts with difficulty and fails to ensure sufficient lubrication. A correctly adjusted warm engine should run steadily at low speed with the throttle control

twist grip fully closed.

Do not let the motorcycle sit at idle for more than three minutes, as overheating could result.

OPERATING PRECAUTIONS

WARNING: MAKE SURE THAT SIDECAR WINDSHIELD IS IN THE FULL BACK POSITION SO IT DOESN'T INTERFERE WITH THE RIGHT HANDLEBAR .

To move the motorcycle from rest, shift to 1st gear only. Avoid releasing the clutch suddenly, because the engine is liable to stall or the motorcycle will start with a jerk. Do not drive the motorcycle at speeds below the recommended speeds with the 2nd, 3rd or 4th gears engaged. It is not advisable to use the 1st and 2nd gears for a long time, unless so required by road conditions.

RUNNING IN THE NEW MOTORCYCLE

The running-in period for the motorcycle is the first 1,500 km.

There are no special procedures that must be followed, but during the running-in period, a new motorcycle requires the most careful attention. In the course of this period, do not overload the machine. Avoid traveling on freeways and climbing steep hills. Do not race the engine or overheat it at any time. Vary the throttle setting frequently, so as to avoid constant RPMs. Allow the new engine frequent rest periods for cooling down.

WARNING: SHIFTING TO LOWER GEARS WHEN SPEED IS TOO HIGH MAY SEVERELY DAMAGE THE TRANSMISSION OR CAUSE THE REAR WHEEL TO LOSE TRACTION.

CAUTION: Do not run the engine at extremely high rpms with clutch disengaged or transmission in neutral. Do not idle the engine unnecessarily for more than a few minutes with the motorcycle standing still.

When operating the Ural motorcycle on the highway, please try not to run continuously at speeds above 65mph. If it is necessary to drive at speeds of 65mph and above let the engine cool by running at a reduced speed for 10 - 15 minutes every 30 minutes if possible, this will provide longer engine life.

WARNING: WHEN RIDING ON WET ROADS OR UNDER RAINY CONDITIONS, BRAKING EFFICIENCY IS GREATLY REDUCED AND CAUTION SHOULD BE USED WHEN APPLYING THE BRAKES, ACCELERATING OR TURNING. THIS IS ESPECIALLY TRUE IMMEDIATELY AFTER THE RAIN BEGINS AND THE OIL FROM THE ROAD SURFACE COMBINES WITH THE WATER.

When descending a long, steep grade, downshift and use engine compression together with intermittent application of both brakes to slow the motorcycle. Avoid continuous use of brakes to reduce overheating of the brakes and reduced efficiency.

While using the motorcycle in summer, pay special attention to the condition of the tires. Keep them inflated up to pressures specified in this manual.

Chapter 4

ENGINE DESIGN

The motorcycle is equipped with a two-cylinder four-stroke air-cooled engine. The opposed arrangement of cylinders in the horizontal plane is the outstanding feature of the motorcycle design which ensures proper cooling and balancing of the crank gear. The engine valves are located in the cylinder heads.

In summer, carefully observe the heating condition of the engine, power transmission units and the running gear mechanisms. Under normal heating conditions of the engine, the temperature of the cylinder heads should not be over 356°F-428°F/180°C-220°C.

During everyday preventive maintenance, clean the engine of mud and dust, paying special attention to the cooling fins as their fouling will impair the efficiency of the engine cooling. Check engine crankcase, cylinders and cylinder heads for oil and fuel leaks. Check carburetor to cylinder head adapter for any cracks or leaks. Visually inspect the alternator for any oil leaks.

LUBRICATION SYSTEM

The motorcycle engine features a dual lubrication system, some parts are force-lubricated by pressure built up by the oil pump, while others by splashing . A full-flow paper oil filter is provided in the lubrication system to prolong the engine life.

Maintenance of lubrication system. During the daily inspection, check the oil level in the engine crankcase and top off the oil if necessary. Warm up the engine before changing the oil. Drain used oil from the engine and the oil filter cavity after having unscrewed the drain plug and filter plug. Change oil filter at the intervals shown in the service coupons. Set the rubber sealing bushing into the filter and fit the filter with the bushing onto the adapter of plug, then screw the latter into the front cover. Now screw in the plug. Fill the engine with 68 oz. oil, or until the top mark of the dipstick is reached.

Let the engine run for 3 - 5 min. Check the oil level again adding oil up to the top groove of the dipstick if needed. During motorcycle service, keep oil level in the engine crankcase close to the top groove of the oil dipstick. Don't ride the motorcycle if the oil level is below the lower mark of the dipstick until sufficient oil is added to raise the oil level to the top mark.

Correct position to measure the oil level

Make sure that the dipstick is screwed down securely after checking the oil level.

FUEL SYSTEM

The fuel system includes the gasoline tank, the three position fuel valve with filter and two carburetors.



Petcock Location



Petcock

Fuel valve (petcock). The top threaded portion of the valve is screwed into the gasoline tank. The petcock is of an automatic shutoff design. Vacuum from the engine opens the valve when the engine is running. When the engine is stopped and loses vacuum, the petcock automatically shuts off.

WARNING: FILL FUEL TANK SLOWLY TO PREVENT FUEL SPILLAGE. DO NOT OVERFILL ABOVE THE BOTTOM OF FILLER NECK INSERT. LEAVE AIR SPACE TO ALLOW FOR FUEL EXPANSION. FUEL EXPANSION CAN CAUSE OVERFLOW THROUGH THE FILLER CAP VENT ONTO SURROUNDING AREAS. AFTER REFUELING, MAKE SURE FILLER CAP IS SECURELY TIGHTENED.

Fuel system maintenance. Before a trip, check the tightness of gasoline piping joints, & proper functioning of throttle cables.

IGNITION SYSTEM

The ignition system incorporates the power supplies, ignition coil, Hall Effect pickup, electronic module, two spark plugs, a set of low and high voltage wires and the ignition switch.

The ignition system will provide the spark to the spark plugs from 200 to 6000 RPM. With the engine at rest, the ignition system will draw 100 mA. With the engine running, the ignition system will draw 1.5 Amps. The operating voltage for the ignition system ranges between 7 to 16 Volts. The electronic ignition system will automatically provide the required changes in timing to an accuracy of within $\pm 1^\circ$.

Ignition coil The ignition coil has two high voltage terminals, each supplying one of the cylinder spark plugs and operating in conjunction with the Hall Effect pickup.

Periodically, check all wires in the ignition system to be sure they aren't crimped or have loose connections. Loose connections will cause erratic performance and poor fuel economy.

Spark plugs. In certain situations, spark plugs can quickly foul with carbon or soot. The plugs can be cleaned but it is easier to put in a new set of plugs when on the road. We recommend that you purchase an extra set of these plugs from your Authorized Ural Dealer and carry them in the motorcycle at all times.

WARNING: DO NOT OVERTIGHTEN THE SPARK PLUG WHEN MOUNTING IT ON THE ENGINE, SINCE THIS COULD DAMAGE THE CYLINDER HEAD.

Functioning of ignition system. Both plugs fire simultaneously on the left and right-hand cylinders, one spark being formed when the compression stroke terminates in one of the cylinders and the other during the exhaust stroke.

IGNITION TIMING

To set the ignition timing, proceed as follows:

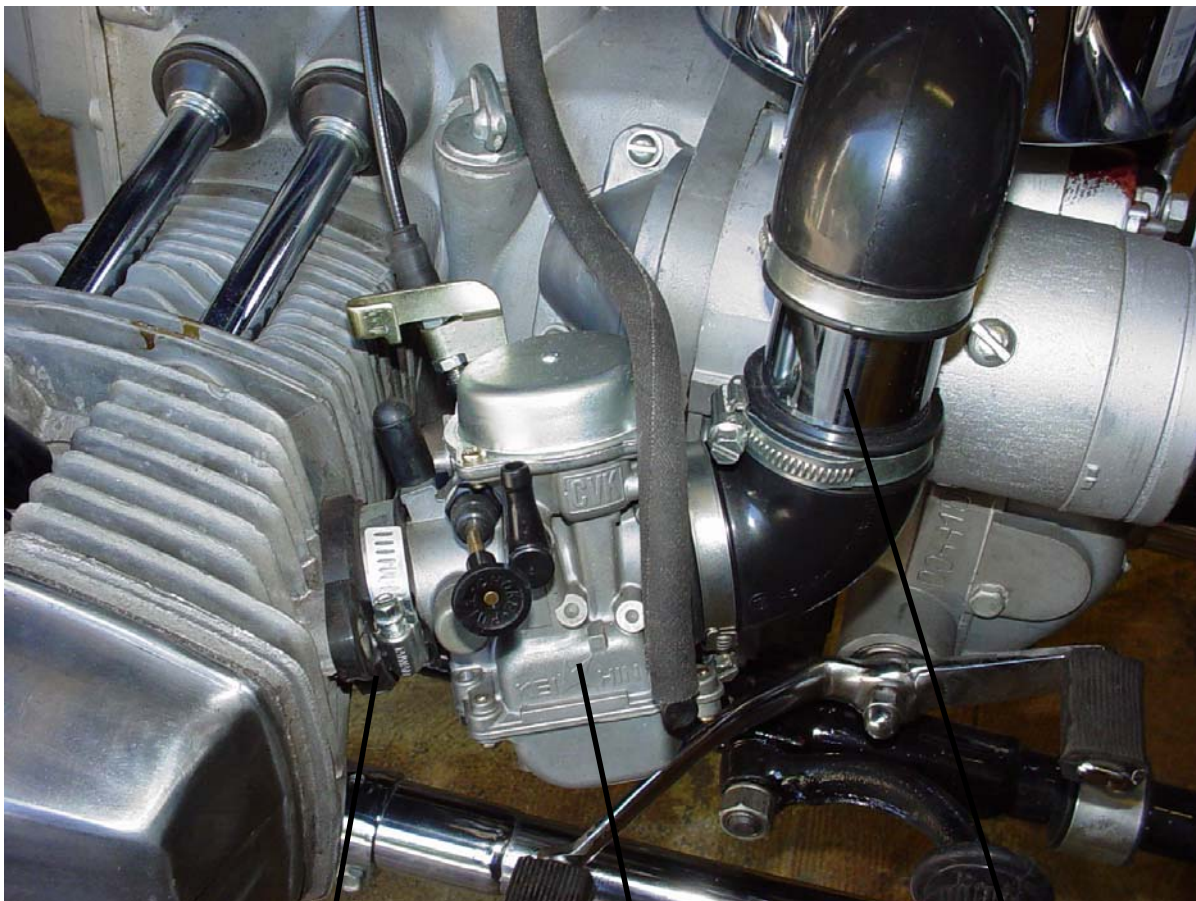
- Match the first mark on the flywheel with the center marks on the engine flywheel window.
- Loosen the fastening screws of the microprocessor unit and turn it counterclockwise until it stops.
- Apply power to the ignition system by switching the ignition on.
- Slowly turn the ignition unit clockwise, (the LED should be on)
- Stop turning the microprocessor unit when the LED turns off.
- Tighten the fastening screws of the microprocessor unit and switch the ignition off.

,JQLWLRQ 0RGXOH &RLO

Chapter 5

CARBURETORS

32mm CVK Keihin Seike carburetors are used on of the Ural motorcycle. They are preset with fixed mixture jetting and adjust automatically for altitude variations. This is due to the vacuum activation mechanism of these constant velocity type carburetors. Be sure to check the condition of all carburetor adapters and air pipes every time before riding. If the carburetor flanges are in need of replacement, use only genuine Ural replacement or Ural recommended parts.



Flange

Carburetor

Branch Pipe

WARNING: TO AVOID SEVERE ENGINE DAMAGE, DO NOT MODIFY CARBURETOR SYNCHRONIZATION, JETS, OR THROTTLE LINKAGE. THIS AIR COOLED ENGINE MUST ALWAYS RUN ON BOTH CYLINDERS AS EVENLY AS POSSIBLE. WHENEVER ONE CYLINDER IS NOT FIRING, STOP THE ENGINE AND DETERMINE THE CAUSE AND CORRECT IT BEFORE PROCEEDING.

WARNING: Never use a metal adapter between the carburetor and cylinder head. This will automatically void the warranty and may cause significant damage.

CARBURETOR MAINTENANCE

The carburetors will require the sediment in the float bowls be drained periodically. This will ensure that any contaminants that have accumulated in the float bowls do not enter the main or idle jets of the carburetors. The fuel can be drained by opening the drains provided on the bottom of the float bowls.

The fuel filters should also be changed every 10,000 km or when they appear to be dirty or not flowing fuel correctly. Changing the filters will ensure that clean fuel is provided to the carburetors and that there is no fuel starvation.

The carburetor to cylinder head adapters should be checked for leaks and cracks every trip. Failure of the adapters will cause the carburetor fuel mixture to become lean and cause internal damage to the engine.

Chapter 6

POWER TRANSMISSION

The power transmission of the motorcycle is comprised of the clutch, gearbox, drive shaft and the final drive.

CLUTCH

The clutch transmits torque from the engine to the gearbox. Disengage the engine from the gearbox during shifting of the gears and during braking to a stop. The clutch provides for smooth starting of the motorcycle from rest, protects the power transmission parts against damage when the engine speed or drive wheel speed is suddenly changed. The clutch is of dry double-disk design. The clutch release mechanism is controlled by the lever on the left grip of the handle bar. With the clutch lever released, the engine is engaged to the gearbox. When the clutch lever is squeezed, the engine is disengaged from the gearbox. **Use the clutch lever for starting from rest and for gear shifting.** Under conditions of heavy traffic, when gears frequently have to be shifted, do not slip the clutch too much, as this will accelerate wear of the disks.

GEARBOX

Shifting the gears is best accomplished by pushing down on the front toe plate for first gear and to downshift from higher gears. To shift up into second, third and fourth gear, use the front toe plate and push upwards quickly and firmly. Since the Ural transmission is a non-synchronized design, it is very important that the clutch be used when shifting. Not using the clutch when shifting can cause damage and void the warranty.

CAUTION: Severe damage due to insufficient lubrication of gears, shafts and bearings can result if the oil level is allowed to get lower than the specified level.

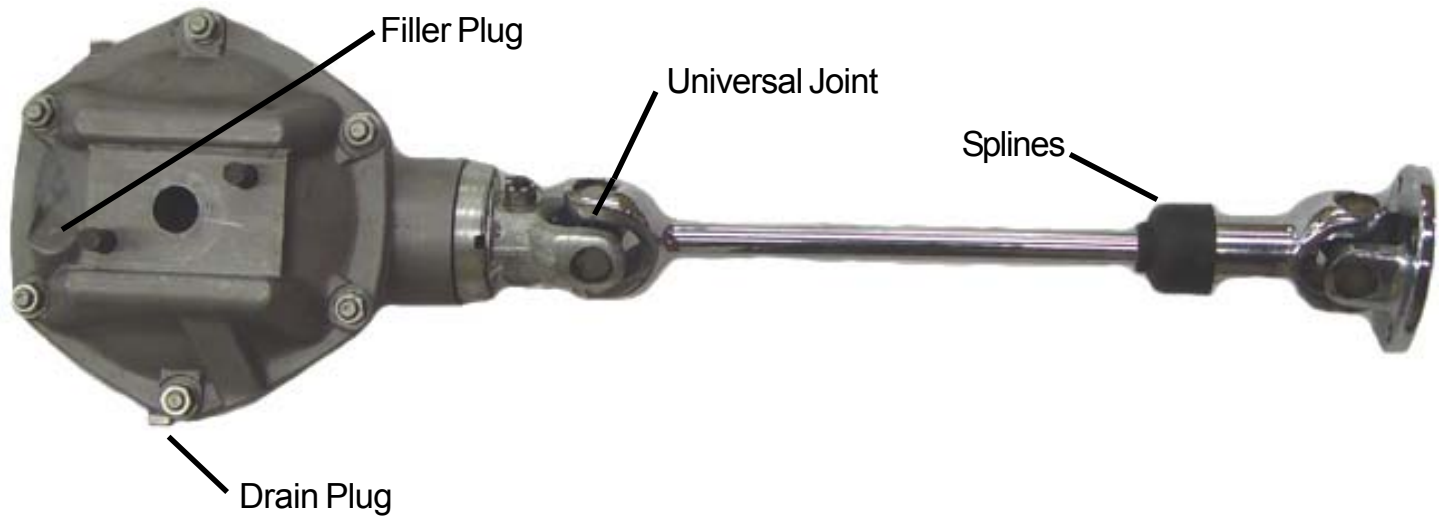
FINAL DRIVE

Maintenance of propeller shaft splines and final drive.

Remove the final drive from the swing arm and pull the final drive towards the rear of the bike. When the drive shaft is free, coat the drive shaft splines with grease. At the same time, use a grease gun to force grease into the drive shaft universal joint.

Typical final drive maintenance includes tightening the nuts which fasten the final drive to the swinging fork arm. Failure to tighten the nuts may result in loose joints and the destruction of the final drive cover. Change the final drive oil as determined by the service coupons. Undo the filler and drain plugs and drain the used oil. Reinsert the drain plug and fill the casing with fresh 20w / 50 Castrol oil and flush the final drive by turning the rear wheel several times. Drain the 20w / 50

Castrol oil and then refill the final drive with the specified lubricant. Reinsert the upper fill plug and wipe off any excess or spilled oil from the final drive.



Final Drive Assy



Rear Universal Joint

Chapter 7

RUNNING GEAR

SPRING LOADED HYDRAULIC SHOCK ABSORBER

The suspension features cam-type adjusters used for varying the pretension of the supporting springs to suit the load and the road condition. The degree of tension of the springs is adjustable allowing two positions. The first (lower) position corresponds to the load due to the motorcycle's own weight and the driver's. the second (upper) position of moving cam corresponds to the maximum load.

Care of shock absorbers. Fill the shock absorber with 105 cm³ of hydraulic fluid. Each time during maintenance, check the bolts fixing the top and bottom ends of the shock absorbers for tightness.