

BMW R71 Sidecar Replica Instruction for Motorcycle



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1. MAIN STRUCTURAL AND PERFORMANCE DATA

1.1 Components

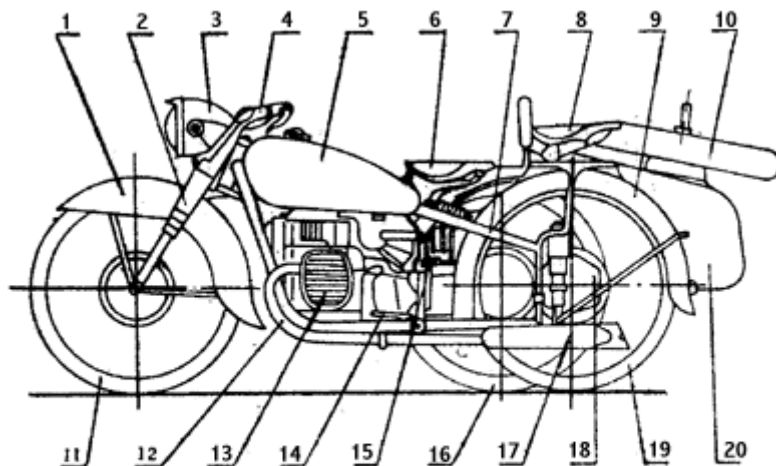


Fig.1 Structural Diagram (Side view)

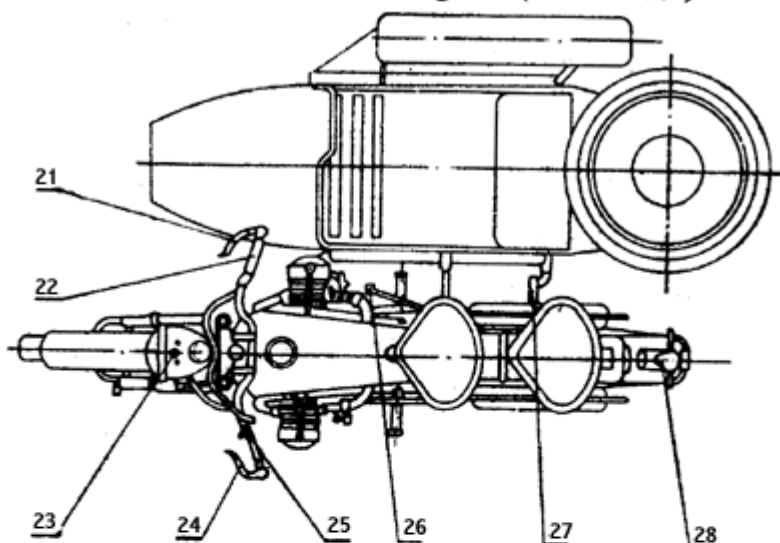


Fig.1 Structural Diagram (top view)

- 1. Front mudguard 2. Front fork 3. Headlight 4. Handlebar
- 5. Gasoline tank 6. Front saddle 7. Main frame 8. Rear saddle
- 9. Rear mudguard 10. Spare wheel 11. Front wheel 12. Exhaust pipe
- 13. Engine 14. Foot gear shift lever 15. Kickstarter
- 16. Sidecar wheel 17. Noise muffler 18. Rear drive
- 19. Rear wheel 20. Sidecar 21. Front brake lever
- 22. Throttle twist grip 23. Master switch 24. Clutch lever
- 25. Ignition advance and delay switch 26. Rear brake pedal
- 27. Ball coupling for sidecar and mainframe 28. Tail light

1.2 Main Dimensional Data

Type	CJ750 (M1) CJ750(M1M)
Dimensions(length × width × height) (mm)	2400 × 1500 × 1000
Wheel base (mm)	1420
Tread (mm)	1100
Ground clearance (mm)	135
Column reach (mm)	60
Angle of column	25°30'

1.3 Main Weight Data

Type	CJ750 (M1)	CJ750 (M1M)
Dry weight (kg)	350	
Max payload (kg)	3 Persons + 100kg	

1.4 Main Performance Data

Type	CJ750 (M1)	CJ750 (M1M)
Top speed (km/h)	85	90
Economic speed fuel consumption (L/100km)	6	

1.5 Modes and Technical Data of Main Parts

Type	CJ750 (M1)	CJ750 (M1M)
Engine	CJ-750	CJ-750D
Cylinder diameter X stroke (mm)	78 X 78	
Total displacement (cm ³)	746	
Compression Ratio	5.7 : 1	6 : 1
Max Power and its corresponding speed (kw / r / min)	16.18/4500-4800	17.65/4200-4800
Applicable gasoline	RQ-70 or RQ-75	
Applicable oil	HQ 10 (for summer)	HQ 6 (for winter)
Starting mode	kick	kick and electric
Type of carburetter	QH-15	PZ24
Capacity of gasoline tank (L)	22	
Oil capacity of crankcase (L)	2	
Oil capacity of gear box (L)	0.8	
Oil capacity of rear drive (L)	0.175	
Clutch	Mechanically controlled double-disk. dry friction	
Gear position No.1	3.6 : 1	
Shift position No.2	2.29 : 1	
Ratio position No.3	1.71 : 1	
position No.4	1.3 : 1	
Mode of driving shaft	one universal joint	
speed reducing ratio of rear drive	4.26 : 1	
Type size (inch)	3.75-19	

2. RUNNING-IN OF MOTORCYCLE

In initial operation period of engine, improper operation will speed up wearing of parts because the parts have not been completely run in. Therefore running-in must be done for new motorcycle.

Running-in period is divided into two phases: The first phase is from 0 to 1000 km and the second one is from 1000 to 2000 km.

During running-in period, top speed of the motorcycle should not exceed limitations given in the following table.

In order to limit the maximum speed of the motorcycle in running-in period, the caps of the two carburetters are provided with stop screws (see Fig.2).

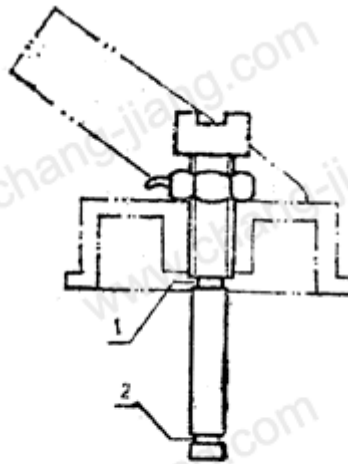


Fig.2 Upper stop screw of carburettor

1. Remove after 2000km

2. Remove after 1000km

The lifted height of throttle valve is limited by the screw. At each end of running-in period, the stop screw should be cut off from the slotted position, as shown in Fig.2. Although the top screw can limit speed, it is necessary to control and operate the motorcycle carefully in running-in period.

Long distance driving is not allowed within 0 to 500 km running-in period to avoid engine temperature rising. Keep on checking temperature of the engine, gear box, rear drive and brake drum. In the meantime, check all parts and components for fixation, adjust gap and tighten loosened parts in time.

Keep on checking quality of oil in crankcase in the running-in period. If viscosity becomes worse, and metal particles are found in the oil within the desired travelling mileage, the oil should be replaced with fresh one. After finishing the running-in period, the oil in gear box and rear drive should be replaced in hot status. Normal oil refilling and replacing should be performed according to the motorcycle lubrication table.

Try to avoid driving the motorcycle on bad road in the running-in period. It is not allowed to drive the motorcycle for long duration at high speed and under overloading condition. Load can be increased gradually when the running-in period is nearly over. The load should be increased gradually after finishing the running-in period. Only when 3000 km travelling is obtained, the motorcycle can run at top speed and with maximum load.

On completion of running-in period, tighten the screw of cylinder cap in hot condition of cylinder.

3. OPERATION OF MOTORCYCLE

3.1 Preparation Before Start

3.1.1 Gasoline filling

Before start, check gasoline and oil quantity first . Refill it if gasoline or oil is insufficient . Fill gasoline directly through the filter to gasoline tank . The gasoline level should be 15-20mm below the edge of filler port.

3.1.2 Oil filling

3.1.2.1 The oil level should be maintained between the upper and lower mark lines of oil dipstick inside crankcase (see Fig.3) To measure oil, the threaded plug should not be screwed in but be on the filler edge. The oil inside gear box and rear drive casing should be filled to start of threads of the plug.

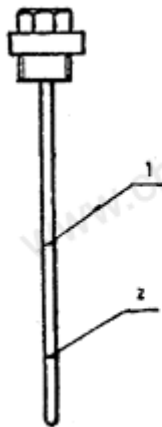


Fig.3 Schematic Diagram of Oil Dipstick in Crankcase

1. Upper limit of oil level
2. Lower limit of oil level

3.1.2.2 Before oil filling, check the oil drain threaded plugs for being tightened.

3.1.3 After gasoline and oil filling, check handle bar, brake and clutch for reliability and flexibility. Check pressure of tyres, fixation of wheels, connection of sidecar to main frame, electrolyte level of battery, and electric circuit and gasoline (oil) lines for serviceability.

3.2 Engine Start

There are two kinds of starting devices for the engines listed in this instruction. One is kickstarter and the other is starting motor and kickstarter. The engine can be started on completion of the above preparation.

The following steps should be taken for "cold" engine starting.

3.2.1 Turn on the gasoline control knob.

This knob is a three-position one. Left position is ON position, right position is STANDBY position (when the knob is set to this position, motorcycle can run 30km more) , and the down position is OFF position.

3.2.2 Set the hand gear shift lever or foot gear shift lever to neutral gear position between gear positions No.1 and No.2 (see Figs 4 and 5). Check to see whether the gear lever is at neutral position by stepping lightly the kickstarter . If the wheels wouldn't move, the neutral gear position is properly set. If the wheels trend to move forward, the neutral gear position is not properly set. 'I'hen it should be reset. The engine can be started only when the neutral gear position is properly set.

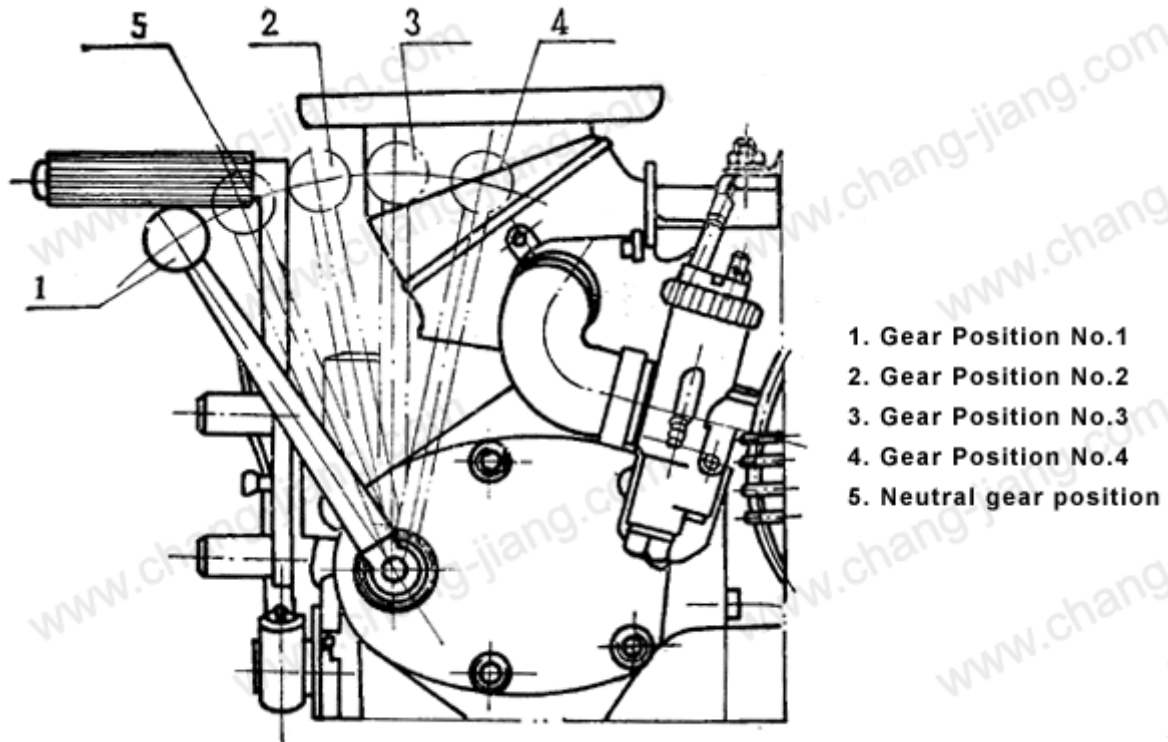


Fig.4 Positions of Hand Gear Shift Lever

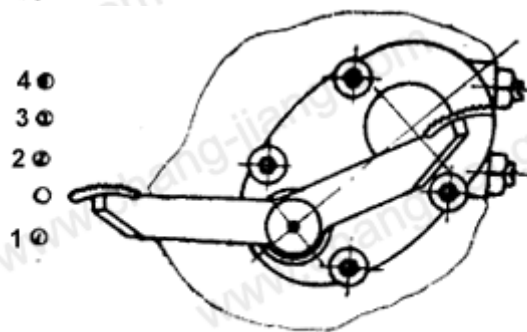


Fig.5 Positions of Foot Gear Shift Lever

3.2.3 Press down the button attached on the float chamber cover until the gasoline spills out from the float chamber cover of the carburetter.

3.2.4 Close the air valve approximately by half (1/2).

3.2.5 Turn outwards the throttle twist grip to the end, then bring it back to 1/8 full travel.

3.2.6 Step the kick starter for 4-5 times to make the crank shaft operate. The cylinders suck in some mixed air and oil is supplied to part surfaces in advance which need to be lubricated.

3.2.7 Cut-in the ignition switch by use of key (turn the key counterclockwise for daytime driving and vice versa).

3.2.8 Press down the kickstarter slightly by foot to make the brake block insert into the ratchet wheel of the starting gear (No idle travel is felt). Then starting can be realized by stepping the kickstarter forcefully. If starting motor is used, first set the levers to neutral position. (see Figs 4 and 5), or hold the clutch lever with left hand to disengage the clutch. Press the starting button with right hand (each press should not take more than 3 seconds. Interval between two presses should not be less than 2 seconds. Restarting should be done one minute later after three successive presses).

Caution: If it fails to start by trying several times, it is forbidden to successs-vely press the starting button or step the kickstarter. Otherwise it will shorten the life of battery and starting mechanism.

3.2.9 After the engine is started, slowly open the air valve according to the engine operating condition.

3.2.10 According to the operation sound of the engine, rotate the throttle grip to warm up the engine at low speed and then drive the motorcycycle.

3.3 Astern driving of three-wheel motorcycle (with sidecar)

For astern driving operate as follows:

- a. Stop the motorcycle.
- b. Set the gear to position No. 1 (or neutral)
- c. Apply the astern lever with teft tiptoe or left sole to Astern position.
- d. Drive astern the motorcycle with normal driving method

Astern operation Positions are shown in Fig 6

3.4 Engine Shutdown

3.4.1 For engine shutdown, reduce the throttle, then turn off the ignition switch.

3.4.2 After engine shutdown, take out the key and set the gasoline control knob to OFF positicn. For long period parking, the battery should be disconnected to avoid electric leakage.

3.5 Parking in Severe Cold Season

In severe cold season, the following procedures should be taken for parking the motorcycle outside.

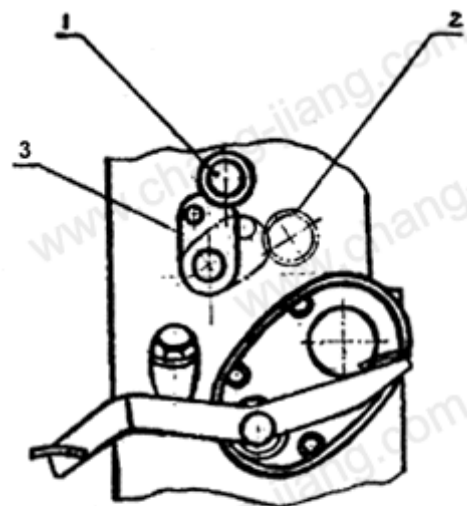


Fig. 6 Operaiton Positions of Foot Controlled Astern Lever
1. Forward driving position
2. Astern driving position
3. Astern level

3.5.1 Before parking, set the gasoline control knob to OFF and press down the float button to make all gasoline remained in the carburetter burnt out.

3.5.2 Remove the battery to prevent it from being damaged by frost.

NOTE : If starting motor is to be used due to engine flameout caused by improper operation to the motorcycle, hold the clutch lever to disengage the clutch, then start the engine with motor. It is not necessary to neutral position for starting and the gear lever may be set at any position, but it is better to be set at lower gear position so as to get smooth starting. If kickstarter is to be used, starting can be performed only when the neutral position is set.

4. MOTORCYCLE COMPONENTS CHECKING AND ADJUSTING

As the motorcycle had been adjusted and tested before delivery, there is no need to make any readjustment. In case there is any fault with the motorcycle, trouble shooting should be performed as the following:

4.1 Spark Plug Gap Adjusting

When new spark Plug is used or after the motorcycle has been driven for 1000 km, spark plug gap should be checked with feeler gauge. If necessary, adjust the gap to 0.6-0.7mm. When the spark plug is needed to be cleaned, it should be cleaned in gasoline with brush (use of metal wire brush is not allowed).

4.2 Mixture Valve Opening Checking and Adjusting

Inadequate valve opening will directly affect the engine power, which will cause difficult starting, unsteady idling, high fuel consumption and poor acceleration. So the valve opening must be properly adjusted.

4.2.1 Open the valve chamber cover (Item 4 in Fig-7)

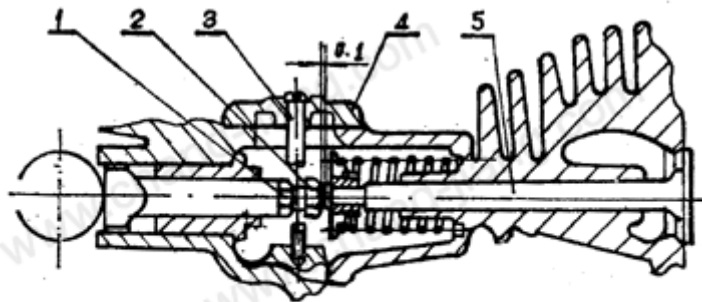


Fig.7 Mixture Valve Adjusting Schematic Diagram

1. Locknut 2. Adjusting screw 3. Long screw
4. Mixture valve chamber cover 5. Inlet (outlet) valve

4.2.2 Apply kickstarter to operate engine crankshaft so as to make the cylinder to be adjusted be in final compression position, i.e. inlet valve opens fully and comes down completely. At this moment, the piston has gone through a complete operating cycle (from upper limit point to lower limit point and then from lower limit point to upper limit point) .

4.2.3 Move the adjusting screw (Item 2 in Fig.7) with screw driver and check the opening, which should be 0.06mm for hot cylinder and 0.1mm for cold cylinder.

4.2.4 If opening does not meet the requirement, loosen nut (Item 1 in Fig.7) and readjust the opening.

4.2.5 Check repeatedly according to para.4.2.2 and 4.2.3 and then tighten the nut.

4.2.6 Refit the valve chamber cover.

4.2.7 If the opening is still too wide , which can not be adjusted, the relative parts such as tappet should be changed.

NOTE: The mixture valve opening for engine CJ-750D can be checked and adjusted as follows:

- a. Open the valve chamber cover (Fig.7) remove rubber block (Fig.10) from observation hole in crankcase, apply kickstarter to operate the crank shaft. When inlet valve of left cylinder opens, apply gently kickstarter to make the "O" scale line on flywheel be in the center of observation hole.
- b. Loosen the locknut, adjust the adjusting screw to make the gap between end of adjusting screw and inlet (outlet) valve be 0.07mm for hot cylinder and 0.1mm for cold cylinder. Then tighten the locknut and recheck the valve opening with feeler gauge.
- c. Apply gently kickstarter to rotate the flywheel for 360 when the O scale line of flywheel appears again in the center of observation hole, check and adjust the right cylinder mixture valve opening with the above method.

4.3 Distributor Platinum Contact Gap Checking and Adjusting

The distributor should be kept clean. The platinum contact should be free from dust and lube (oil) contaminaton. The contacting area of the contact should not be less than 80% and the centers of upper and lower contacts should align with each other.

4.3.1 The distributor of engine CJ-750, installed in the front end cover of crankcase, is of FDQ-1 type, whose contact gap is adjusted as follows (see Fig.8).

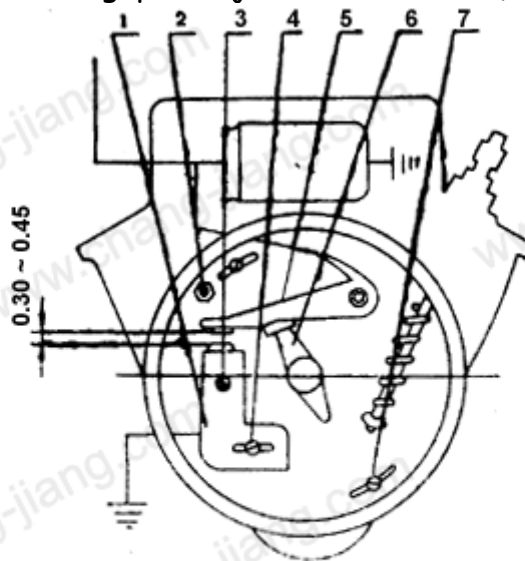


Fig. 8 Schematic Diagram of Distributor FDQ—1

- | | | |
|--|---|-------------------|
| 1. Lower Platinum contact | 2. Ignition-in-time eccentric adjusting screw | |
| 3. Lower Platinum contact securing screw | 4. Lower Platinum contact adjusting screw | |
| 5. Upper Platinum contact | 6. Ignition cam | 7. Pressing screw |

4.3.1.1 Remove crankcase front cover and distributor cover.

4.3.1.2 Rotate camshaft to a certain position by applying kickstarter and take off distributor disk.

4.3.1.3 Rise camshaft by applying kickstarter to separate platinum contacts.

4.3.1.4 Loosen the securing screw, adjust platinum contact gap to 0.4-0.45mm by turning the platinum contact adjusting screw, and then tighten the securing screw.

4.3.1.5 Turn cam 180 more by applying kickstarter and check contact gap at the other end to see whether it meets requirement.

4.3.2 The distributor of engine CJ-750D is of FDQ-5 type, which is an automatic and centrifugal ignition advance distributor. It can automatically change ignition angle with the change of engine RPM to get optimum ignition time for the engine. It is installed on top left of front crankcase. Its adjusting methods are as follows (see Fig.9).

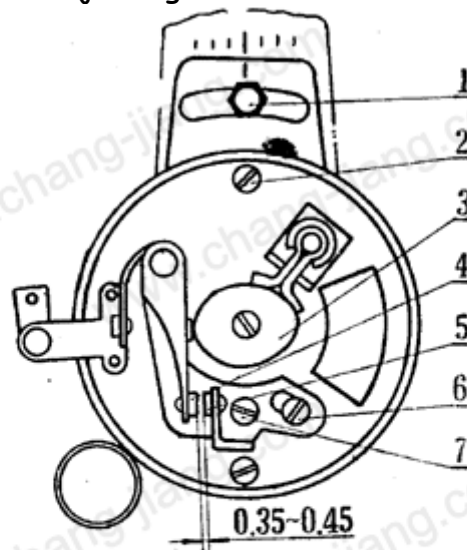


Fig.9 Schematic Diagram of Distributor FDQ—5

- | | |
|---------------------------|---------------------------|
| 1. Pressing nut | 2. Securing screw |
| 3. Ignition cam | 4. Upper platinum contact |
| 5. Lower platinum contact | |
| 6. Adjusting screw | 7. Securing screw |

4.3.2.1 Remove distributor cover.

4.3.2.2 Rotate ignition camshaft by applying kickstarter to push the movable arm of platinum contact to upper most position. Use feeler gauge to check max gap between upper and lower platinum contacts, which should be 0.35-0.45mm.

4.3.2.3 If the gap does not meet the requirement, loosen the securing screw, adjust the gap to 0.35-0.45mm by turning the platinum contact adjusting screw. Then tighten the securing screw.

4.3.2.4 Turn cam by 360 more by applying kickstarter and check the contact point gap with the above method.

4.4 Ignition Angle Checking and Adjusting

4.4.1 Ignition angle checking

4.4.1.1 Remove distributor cover and cylinder head.

4.4.1.2 Operate the crankshaft by applying kickstarter to make piston be in upper limit position of compression stroke, measure distance from piston top to cylinder end face and write down the value. Then operate the crankshaft again to make the piston be 0.5-1 mm to the upper limit position. The ignition angle is proper if platinum contacts are just setting apart. Otherwise the ignition angle should be adjusted.

4.4.2 Ignition angle adjusting

4.4.2.1 The followings shall be followed to adjust the ignition angle of engine CJ-750D:

- a. Loosen slightly the securing bolt in the distributor bottom plate (see Figs 8 and 9) and connect parallelly an indicating light across distributor capacitor. Turn on ignition switch, apply gently kickstarter to operate crankshaft to make piston reach the point 0.5-1mm to its upper limit in cylinder. Rotate the distributor till the indicating light just comes on. Then tighten the securing bolt, reoperate the crankshaft to make the indicating light on. Check to see if the piston is 0.5-1mm to its upper limit in cylinder. If it is not, it should be readjusted.
- b. Loosen slightly the securing bolt in the distributor bottom plate, insert a sheet of thin paper between platinum contacts . Apply gently the kickstarter to operate the crankshaft to make piston reach the point 0.5-1mm to its upper limit in the cylinder. Then rotate the distributor till the inserted paper can be pulled out from contacts.

4.4.2.2 The ignition time delay or advance problem of engine CJ-750 with distributor FDQ-1 can be solved by adjusting the eccentric screw at upper left of platinum contact bottom plate. The ignition time advance can be obtained by adjusting screw to rotate the bottom plate clockwise and vice versa.

4.4.2.3 CJ-750D engine ignition angle adjusting (see Figs 9 and 10).

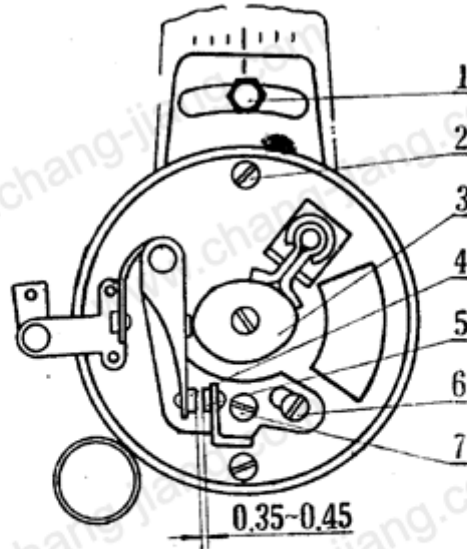
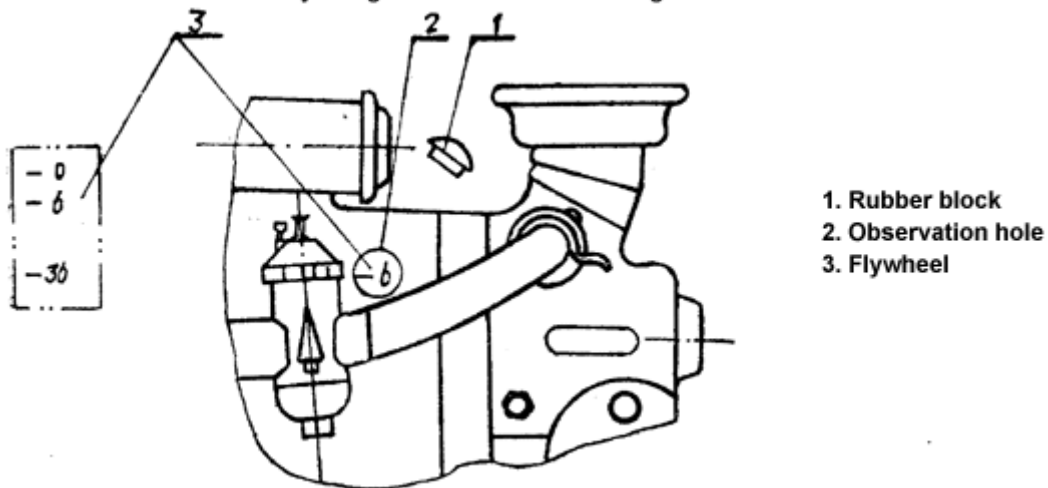


Fig.9 Schematic Diagram of Distributor FDQ-5

- | | |
|---------------------------|---------------------------|
| 1. Pressing nut | 2. Securing screw |
| 3. Ignition cam | 4. Upper platinum contact |
| 5. Lower platinum contact | |
| 6. Adjusting screw | 7. Securing screw |



a. Remove the rubber block from observation hole in crankcase, apply gently kickstarter to make mark "6" on flywheel be in the center of observation hole (see Fig. 10) . Loosen distributor pressing nut (Item 1 in Fig.9) and turn the installation plate to make the scale align with the center scale on front crankcase and then tighten the pressing nut.

b. Remove distributor cover and connect parallelly an indicating light across distributor capacitor. Loosen securing bolt (Item1 in Fig.9), turn on ignition switch, rotate distributor till the indicating light just comes on (at this moment the platinum contacts are just setting apart to the extent of a paper-thick clearance) . Tighten the securing bolt, operate the crankshaft for 360. Check to see if the mark "6" on flywheel is in the center of observation hole when the indicating light just comes on. Otherwise, it should be readjusted. The ignlion angle of the two cylinders should not exceed +/-2.

NOTE: If it is felt in operation that ignition is too much advanced, loosen the pressing nut and rotate, the distributor counter clockwise to move installation plate scale against front crankcase scale (moving one graduation

varies 2 of ignition angle) . If it is felt in operation that ignition is in delay too much. rotate the distributor clockwise, and tighten the pressing nut after adjustment.

4.5 Carburetter Adjusting

Two carburetters are used on left and right cylinders (one for each) in operation . Since two carburetters are used in operation simultaneously they must operate in same state. Otherwise, engine power , fuel consumption, starting performance and low speed stability will be poorer. So the carburetters should be adjusted one by one . The adjusting methods are as follows:

4.5.1 Adjusting at idling

4.5.1.1 Start the engine, carry out the following steps after the engine warms up to normal temperature.

4.5.1.2 Turn outwards throtte twist grip fully home.

4.5.1.3 Screw in the idling adjusting screw (Item 6 in Fig 11) clockwise to raise the throttle valve, increase slightly the engine RPM so that one cylinder can operate continuously with throttle at minimum operating state. Remove the high tension cable from the other cylinder and ground it.

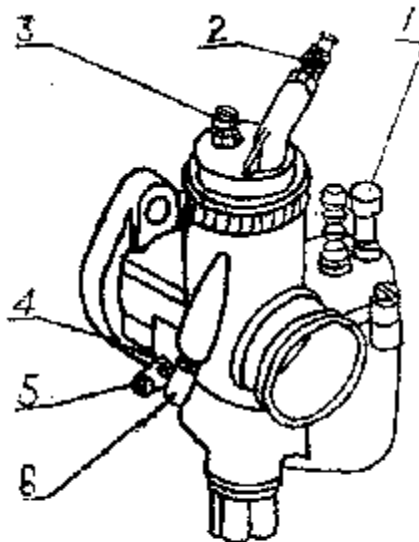


Fig.11

- 1. Float chamber push-button
- 2. Steel cable connector
- 3. Upper speed limiting screw
- 4. Lock nut
- 5. Idling mixture adjusting screw
- 6. Idling adjusting screw

4.5.1.4 Turn slowly idling mixture adjusting screw (Item 5 in Fig 11) to increase the engine RPM to maximum and to make engine operate stably at that speed.

4.5.1.5 Screw out gradually the idling adjusting screw to reduce the throttle valve to minimum engine RPM and to keep engine operating stably and continuously at that speed.

4.5.1.6 Repeat the steps of para .4.5.1.4 and 4.5.1.5 to make the engine operate at min. stable RPM.

4.5.1.7 Tighten lock nuts (Item 4 in Fig.11) of the two screws.

4.5.1.8 Adjust the other cylinder at idle speed by using the above methods. Improper adjustment at idling will result in uneasy starting , unstable operation, even if it is started and single cylinder operation is impossible when a high tension cable is removed from the other cylinder and checking its operation.

4.5.2 Adjusting at intermeidate speed.

Turn inwards the throttle twist grip for about a quarter stoke. Alternately remove high tension cable from cylinders , and listen to the operation sound of the other cylinder. Remove rubber cover from carburett er upper cover of lower speed cylinder , adjust the steel cable connector (Item 2 in Fig11).

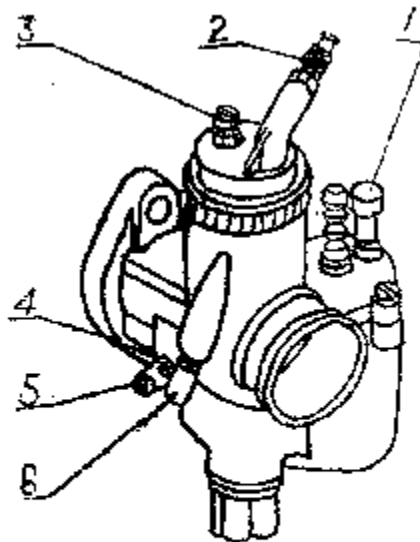


Fig.11

- 1. Float chamber push-button
- 2. Steel cable connector
- 3. Upper speed limiting screw
- 4. Lock nut 5. Idling mixture adjusting screw
- 6. Idling adjusting screw

Check carefully the two cylinders for identical operation and then tighten steel cable connector nut.

To check the carburetter operation turn the throttle twist grip rapidly to center position. At this moment , engine RPM should increase sensitively.

If it increases sluggishly , adjust it as per the above method. The two cylinders should operate in balance when the throttle twist grip is turned outwards fully and rapidly . If flameout happens, adjust it as per the method for adjusting at idling.

If acceleration is not satisfactory when two cylinders are operating in same state . In this case, lean mixture or rich mixture can be checked by closing the air valve narrower or opening the air valve wider . If its power performance becomes better after closing the air valve narrower, it is the lean mixture causing the problem , which can be solved by checking fuel line for being unimpeded or by raising needle in throttle, valve for 1-2 grids . If exhaust sound is heavy, it is rich mixture, which can be solved by dropping appropriately needle in throttle valve.

For the well-adjusted engine , the surface of spark plug insulator skirt should be dry and brown .

4.6 Foot Gear Shift Lever Adjusting

Gear shift is realized by applying foot gear shift lever or hand gear shife lever. If trip stop happens in operation by applying foot gear shift lever, hand gear shift lever can be used to shift the gear to proper position . If trip stop still exists after using hand gear shift lever, joint sleeve , driving fork and sector plate should be repaired or replaced . If trip stop disappears after using hand gear shift lever, the cause is that the foot gear shift lever is not properly adjusted.

Then adjust it as follows:

4. 6.1 If trip-under stop happens in shifting from lower to higher gear position, screw out the lower adjusting screw (Item 2 In Fig.12).

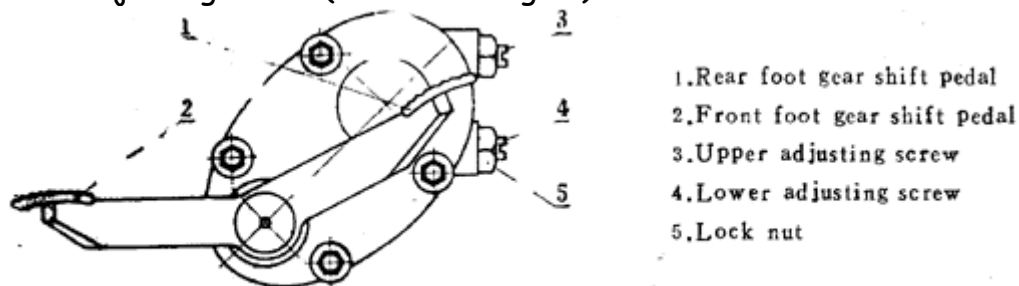


Fig. 12 Schematic Diagram of Foot Gear Shift Mechanism

4.6.2 If trip-over stop happens in shifting from lower to higher gear position , screw in the lower adjusting screw.

4.6.3 If trip-under stop happens in shifting from higher to lower gear position, screw out the upper adjusting screw (Item1 in Fig.12).

4.6.4 If trip-over stop happens in shifting from higher to lower gear position, screw in the upper adjusting screw.

4.7 Front and Rear Brakes Adjusting

The front and rear wheels are equipped with mechanically controlled and unbalanced shoe brakes, which are driven by cams. The front wheel brake is applied by hand. The suitable steel cable free stroke is so adjusted that brake rocker end can move 10-

15mm before brake begins to function. The steel cable free stroke can be adjusted by adjusting hollow screw in front hub cap and the rocker position.

The rear wheel brake is applied by foot. Its suitable free stroke is so adjusted that front end of foot brake pedal goes down 25 mm before brake begins to function. The free stroke can be adjusted by adjusting the butterfly nut on rear brake rod.

4.8 Main Body and Side Car Connection Adjusting

The side car is connected to main body with two ball couplings and to upper frame with two rods. In order to have a smooth and steady travel, a 2° inclination and a 10-12mm toe-in are provided for motorcycle. Inclination can be adjusted by adjusting the front and rear rods (Items 1 and 2 in Fig.13) and toe-in can be adjusted by adjusting rear pipe connector (Item 3 in Fig.13).

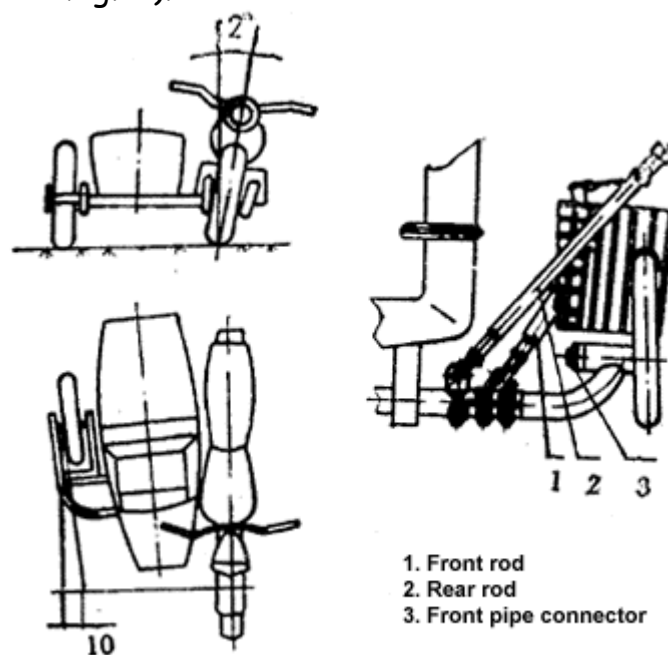


Fig. 13 Adjustable Section of Main Body And Car Connection

The inclination and toe-in can be checked by test run. The inclination, and toe-in are suitable if the motorcycle only deviates one meter after traveling on smooth road for 10-15m with hands off the bars and gear shifted to lowest RPM position.

5. MOTOCYCLE ELECTRIC SYSTEM

5.1 Circuitry

5.1.1 Generator complemented with engine CJ-750 is a positively grounded DC generator MZF-12, whose rated power is 65w, rated voltage is 6v. The motorcycle circuitry is given in Fig 14.

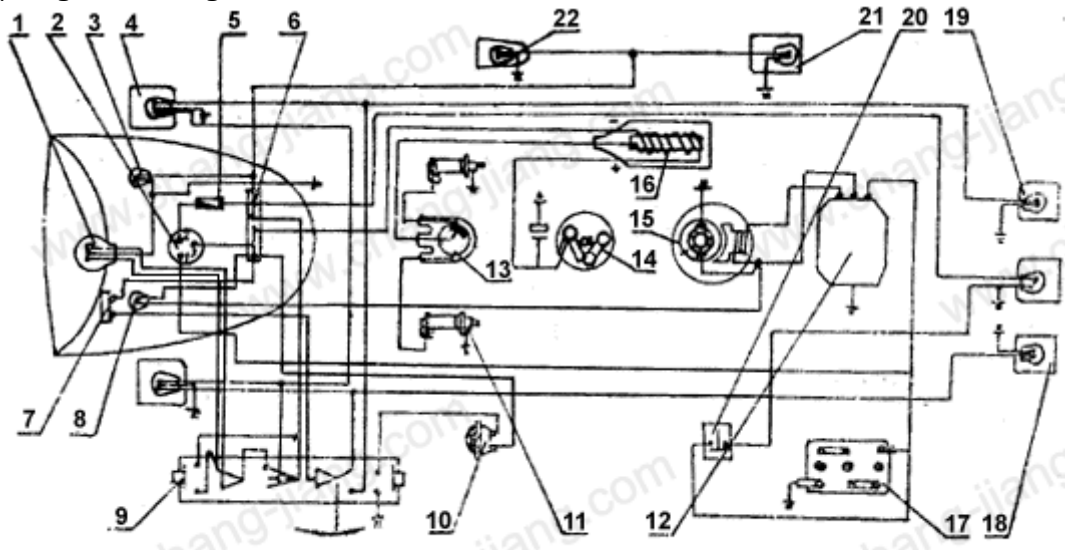


Fig.14 Circuitry of Motorcycle Powered by Engine CJ-750

5.1.2 Generator MJF-280B complemented with engine CJ-750MIM is a negatively grounded AC generator, whose rated power is 280w, rated voltage is 12v. The motorcycle circuitry is shown in Fig 15.

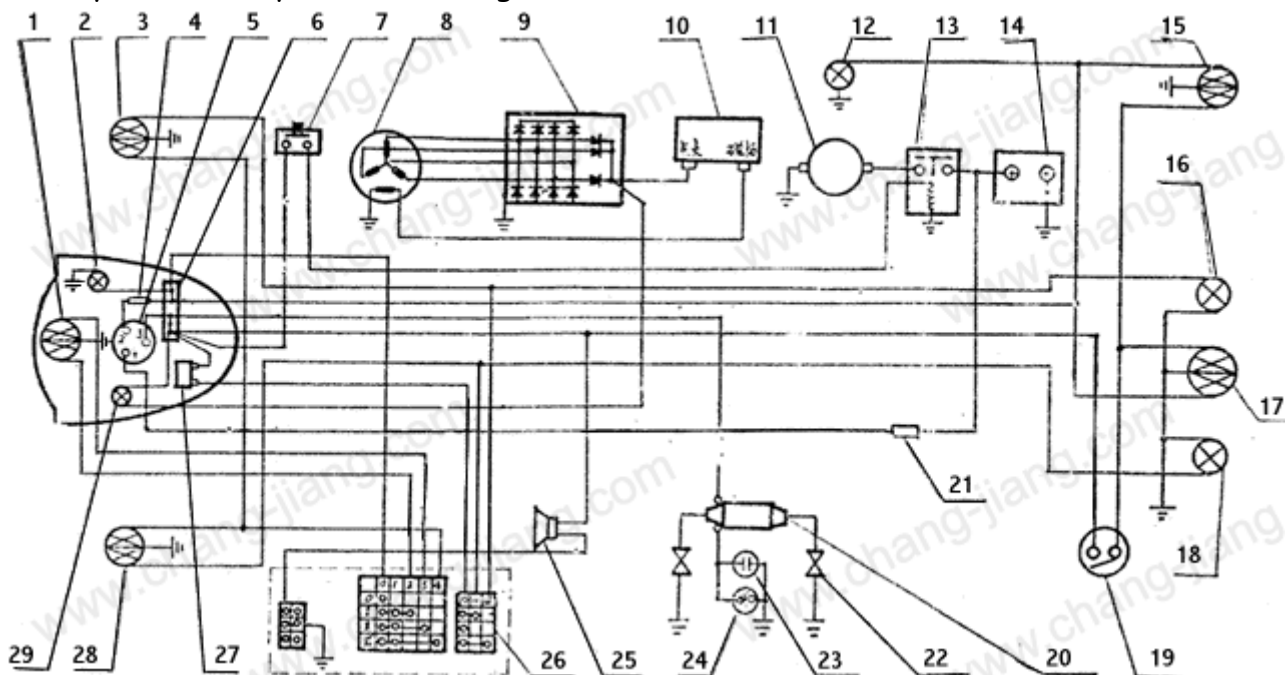


Fig.15 Circuitry of the Motorcycle Powered by Engine CJ—750(MIM)

1. High and low beam 2. Instrument indicating light 3. Front right turn light 4. 15A fuse 5. Ignition switch JK424 6. Terminal plate 7. Electric starting switch JK911A 8. AC generator MJF-280B 9. Rectifier GZL-1 10. Regulator FT111 11. Starter MZQ-07A 12. Side car front light 13. Relay contactor JN3 14. Battery 6-MA-28 15. Side car tail light 16. Rear right turn light 17. Main body tail light 18. Rear left turn light 19. Brake switch 20. Ignition coil DQ107 21. 20A Safeguard 22. Spark plug 4114 23. Capacitor 24. Cutout FDQ-5 25. Electric horn DL 124D 26. Left hand control switch JK719 27. Flasher SD56 (12v) 28. Front left turn light 29. Charging indication light

5.2 Control Switch Operating

5.2.1 Ignition switch

For daytime operation, insert a key into the switch and turn it counter clockwise to cut in switch contacts 1 and 3.

Then power source supplies power to such electrical parts as ignition switch, horn pushbutton, turn switch, brake signal switch and starting pushbutton.

For night operation, insert a key into the ignition switch and turn it clockwise to cut in switch pins 1 to 3. Then power source supplies power to all power consuming parts.

5.2.2 Three-Position switch

5.2.2.1 Lighting control switch-three-position switch, i.e HIGH BEAM, LOW BEAM and FRONT LIGHT. When lighting control switch is set to HIGH only high beam light comes on. When it is set to LOW, only low beam light comes on. And when it is set to FRONT LIGHT, only front light comes on.

5.2.2.3 Horn pushbutton

When it is pressed down, the horn operates and when it is released, the horn stops operating.

5.2.2.4 Turn light switch-when it is turned to left, left turn light comes on and to rights, right turn light comes on.

5.2.3 Electric starting pushbutton -press down this button is to conduct electric starting. Attention should be paid not to making continuous starting for over 3 seconds, otherwise the battery may be damaged.

5.3 Battery Servicing

The battery used on CJ-750 engine powered motorcycle is lead acid battery 3-M-14, whose voltage is 6V. The one used on CJ-750D engine powered motorcycle is dry storage battery 6-MA-28 whose voltage is 12 V.

5.3.1 Make up electrolyte with relative density of $1.28 \pm 0.01 \text{g/cm}^3$ (measured at 15) by mixing distilled water or purified water with pure battery sulphuric acid.

5.3.2 Clean battery surface, take off electrolyte filling cap, make air vent unblocked and pour the ready-made electrolyte into the battery to a level of 5-10mm above the plate.

5.3.3 The dry storage battery 6-MA-28, after being charged with electrolyte, should be put at a standstill for 20 min. before operation. The exterior of the battery should be cleaned with water and electrolyte filling cap tightened before operation.

5.3.4 The lead acid battery 3-M-14 should be precharged for 3-5 hours after filling electrolyte. The current for the first phase of precharging is 0.8A. The current can be changed to 0.4 A when voltage of each cell reaches to 2.4V. The charging can be stopped when charging voltage and electrolyte relative density keep unchanged for 3 hours.

5.3.5 In charging the positive pole of the battery should be connected to positive pole of DC power source and the battery negative pole to negative pole of DC source. At the same time, electrolyte filling cap should be removed to let gas escape. The charging should not be done near tinder to avoid causing explosion. If temperature of electrolyte exceeds 45, the battery should be cooled and then charged again.

5.3.6 If it is found that the electrolyte level is lower than plate in charging or using of battery, distilled water or purified water should be added.

5.3.7 On completion of charging, tighten the electrolyte filling cap and clean exterior of the battery with water.

5.3.8 The battery should be kept at dry and well-ventilated place, Fall, impact and upside-down store of the battery are strictly forbidden.

5.3.9 The battery plate should be cleaned frequently as it is corrode easily, the battery wires after being secured should be coated with vaseline or grease.

5.3.10 The dry storage battery can keep its dry charg within half a year. It should be recharged for 20 hours with 3A current if it is kept for over half a year. The battery should be stored in full-charged state.

Recharge the battery if it has been stored for one month or after being discharged.

6. MOTORCYCLE LUBRICATING

The motorcycle should be lubricated according to Fig. 16 and periodic lubrication table. Standard lubes for the motorcycle are:

Oil: HQ-6, HQ-10, HQ-15, and GB485-72

Calcium grease: ZG-1, ZG-2, ZG-3, ZG-4, ZG-5, and GB491-65

Sodium-base grease: ZN-2, ZN-3, ZN-4 and GB492-65

The shock absorber oil, which can be substituted by oil HQ-10, is made up of 25# transformer oil and 20# turbine oil each in 50% by volume.

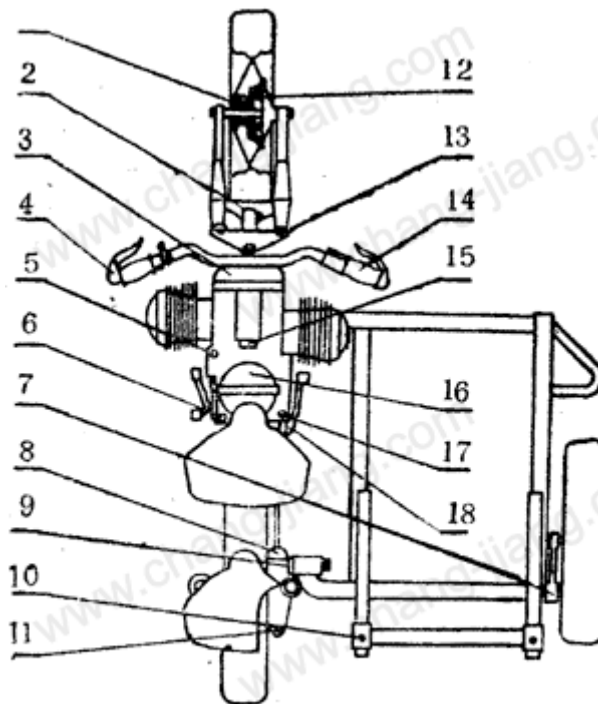


Fig.16 Motorcycle lubrication

Motorcycle Lubrication Table

Item No in Fig 16	Nomenclature	Qty	Contents	Lube	Lubrication interval km					
					Driving to		After that, driving every			
					1000	2000	2000	4000	6000	
1	wheel bearing	6	Cleaning and lubrication	Calcium grease	yes				yes	
2	Direction strut thrust bearing	2			yes				yes	
3	Distributor felt	1	Lubrication	Summer: HQ-10 and HQ-15 Winter: HQ: -6		yes	yes			
4	Clutch and braking rod shaft	2	Cleaning and lubrication	Calcium grease		yes			yes	
5	Crankcase body	1	Lube Change (hot cylinder)	Summer: HQ-10 and HQ-15 Winter: HQ -6	yes		yes			
6	Gear box	1			yes				yes	
7	Sidecar torque bar	1	Cleaning and lubrication	Calcium grease					yes	
8	universal-joint cross trunnion	1				yes				yes
9	Sidecar shell connecting balls	2						yes		
10	Sidecar steel spring plate support	2	Cleaning and lubrication	Calcium grease	yes				yes	
11	Rear drive	1	Lube change	Summer: HQ-10 and HQ-15 Winter HQ-6		yes			yes	
12	Brake camshaft	2	Cleaning and lubrication	Calcium grease		yes			yes	
13	Front fork shock absorber	2	Cleaning and lubrication, Fill 0.1 Lit oil to each tube	Shock absorber oil or HQ-10		yes			yes	
14	Throttle twist grip	1	Cleaning and lubrication	Calcium grease		yes			yes	
15	Generator rear bearing and speed reducer gear	1	Lubrication	Sodium-base grease				yes		
16	Air filter	1	Cleaning and lube changing		yes				yes	
17	Mileage meter flexible shaft	1	Cleaning and lubrication	Calcium grease		yes	yes			
18	Foot brake pull- rod shaft	1				yes				yes

7. LONG TERM STORAGE OF MOTORCYCLE

To avoid corrosion and surface damage, the following should be done for long term stored motorcycle.

7.1 Remove spark plug, fill 30ml engine oil to each cylinder through funnel screen filter, refit the spark plug, apply gently kickstarter to rotate engine crank shaft for 3-4 times.

7.2 Drain away gasoline from gasoline tank and carburettor, remove carburettor cover, fill 15 ml engine oil to the carburettor, rotate throttle twist grip to move throttle valve up and down for 3-4 times.

7.3 Remove air filter , coat air valve with engine oil , open and close the valve 3-4 times, and refit the air filter.

7.4 Remove battery and check its voltage, charge and clean the battery, and store it separately. The battery should be recharged before operation if it has been stored for over half a year.

7.5 Clean thoroughly the motorcycle and coat brakes, clutch shaft and stand shaft with industrial vaseline.

7.6 Coat chromium plated and exposed thread parts with vaseline.

7.7 Store the motorcycle in a dry room with its stand propped.

8 MOTORCYCLE PERIODIC MAINTENANCE

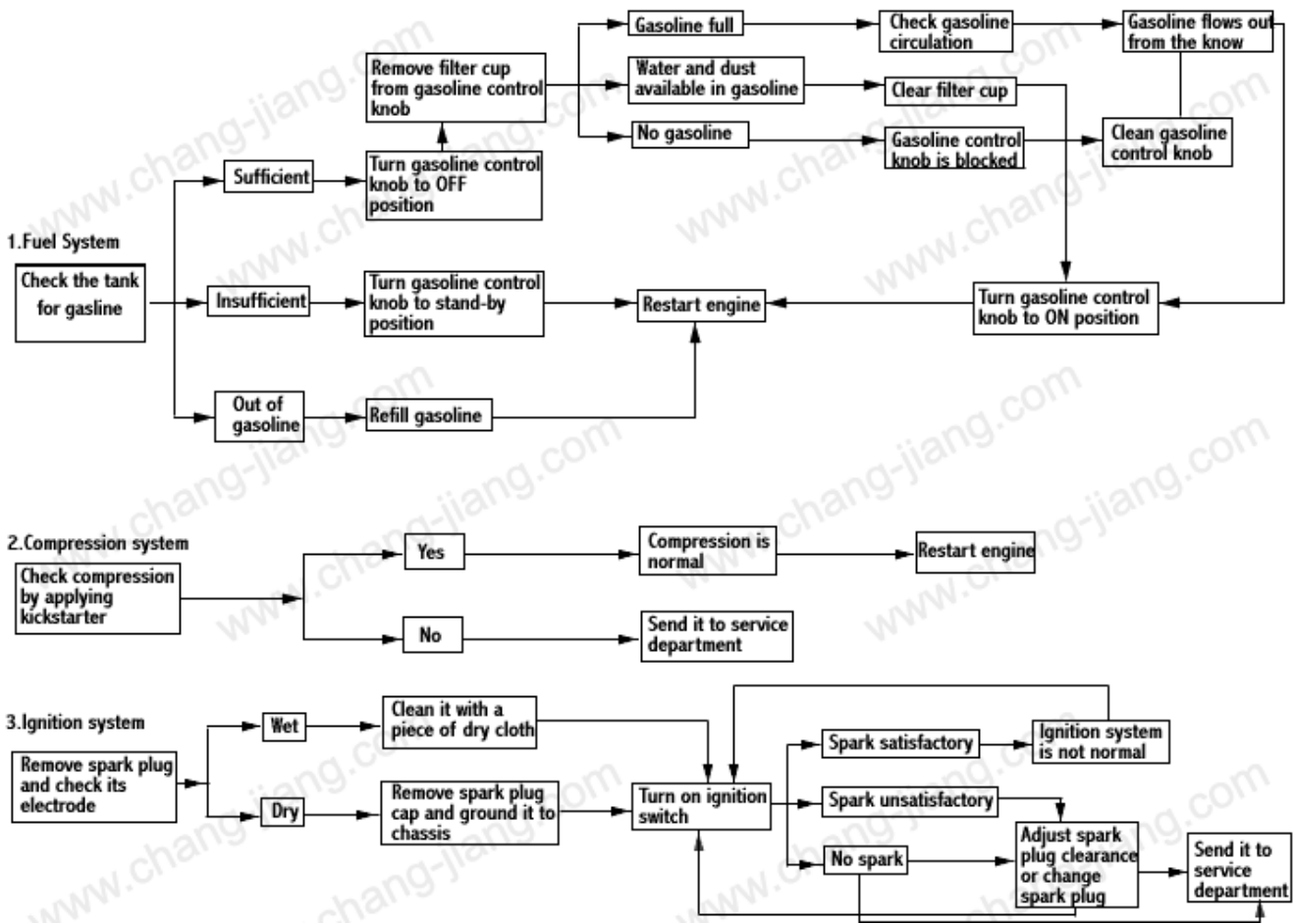
The motorcycle should be periodically maintained as described in the following table :

Items	Contents	Driving to 1000 km	After driving 2000 km	Every 6000 km driving
Spark plug piston and cylinder cap	Removal of deposited carbon	yes	yes	yes
Generator and starter	Removal of deposited carbon	yes		yes
Distributor platinum contact gap	Checking and adjustment	yes	yes	yes
Mixture valve opening		yes	yes	yes
Front and rear brakes		yes	yes	yes
Clutch and Spoke shock absorbers	Checking and adjustment	yes	yes	yes
Inclination and toe-in			yes	yes
Carburettor	Checking and adjustment	yes	yes	yes
Gasoline control knob and air filter	Cleaning and check	yes	yes	
Battery		yes	yes	
Hubs and brake disk		yes	yes	
Rear and side wheels	Exchange		yes	

9 MOTORCYCLE TROUBLESHOOTING

Troubleshoot the motorcycle according to the following charts.

NOTE: Smoking is prohibited and fire is not allowed nearby in checking fuel system.



140 MOTORCYCLE ELECTRICAL DIAGRAM

