JW50/90/100

SERVICE MANUAL

§CONTENTS §

SAFETY

- GASOLINE IS EXTREMELY FLAMMABLE AND IS EXPLOSIVE UNDER CERTAIN CONDITION.
  DO NOT SMOKE OR ALLOW SPARKS OR FLAMES IN YOUR WORK AREA.
- NEVERRUN THE ENGINE IN A CLOSED AREA. THE EXHAUST GAS CONTAINS POISONOUS CARBON MONOXIDE THAT MAY CAUSE LOSS OF CONSCIOUSNESS AND LEAD TO DEATH.
- THE BATTERY ELECTROLYTE CONTAINS SULFURIC ACID. PROTECT YOUR EYES, SKIN AND CLOTHING. IF YOU CONTACT IT, RINSE THOROUGHLY WITH WATER AND CALL A DOCTOR IF ELECTROLYTE GEST IN YOUR EYES.

PREFACE

THE CONTENTS OF THIS MANUAL PROVIDE THE SREVICE INFORMATION FOR C.P.I **JW50/90/100**
MOST CHAPTERS START WITH A SYSTEM OR ASSEMBLY ILLUSTRATION AND SPECIFICATIONS THE FOLLOWED PAGES GIVE DETAIL PROCEDURES.
IF YOU DO NOT KNOW WHAT THE SOURCE OF THE TROUBLE IS, PLEASE GO THE TROUBLESHOOTING FOR ADDITIONAL HELP.
ALL THE CONTENTS OF THIS MANUAL ARE BASED ON THE LATEST MODEL INFORMATION C.P.I RESERVE THE RIGHT TO MAKE CHANGE AT ANY TIME WITHOUT NOTICE AND WITHOUT ANY RESPONSIBILITY OR ENGAGEMENT ON OUR PART.

一、TECHNICAL INFORMATION

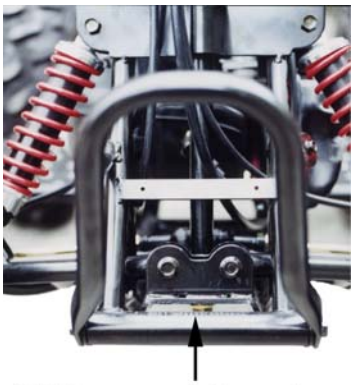
SPECIFICATION

ATV TYPE	JW50	JW90	JW100
ENGINE			
Type	CPI50S	CPI90S	CPIOAS
Displacement	49.8c.c	82c.c	91.3c.c
Bore and stroke	φ40.0×39.6 ㎜	φ50.0×42 ㎜	φ52.0×43.0 ㎜
Compression	6.9:1	6:1	6.6:1
Carburetion	Mikuni	Mikuni	Mikuni
Lgnition	Capacitor Discharge	Capacitor Discharge	Capacitor Discharge
Starting	Electric	Electric	Electric
Lubrication	Oil Pump Separate Supply	Oil Pump Separate Supply	Oil Pump Separate Supply
Oil tank capacity	1 liter	1 liter	1 liter
Transmission	Automatic	Automatic	Automatic
CHASSIS			
Overall Length	1370 ㎜	1395 ㎜	1395 ㎜
Overall Width	865 ㎜	890 ㎜	890 ㎜
Overall High	875 ㎜	950 ㎜	950 ㎜
Wheelbase	865 ㎜	900 ㎜	900 ㎜
Dry weight	103 ㎏	110.5 ㎏	110.5 ㎏
Fuel Tank Capacity	5 liter	5 liter	5 liter
SUSPENSION			
Front	Dual Arm	Dual Arm	Dual Arm
Rear	Swung Ann	Swung Ann	Swung Ann
BRAKES			
Front	Drum	Drum	Drum
Rear	Drum	Drum	Drum
TIRE			
Front	16×8－7	19×7－8	19×7－8
Rear	16×8－7	19×8－8	19×8－8
COLORING	Red/Yellow/Blue/Silver/Brack	Red/Yellow/Blue/Silver/Brack	Red/Yellow/Blue/Silver/Brack

SERIAL NUMBER

Please record the frame and engine serial numbers for future reference. The frame serial number (1) is stamped on the front of the frame.

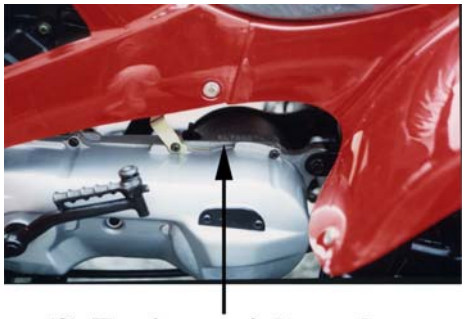
FRAME NO._____



(1) Frame serial number

The engine serial number (2) is stamped on the left side of the engine crankcase.

ENGINE NO. _____



(2) Engine serial number

TORQUE VALUES

ENGINE

	JW50/JW90/JW100
Cylinder head nut	1.3~1.5kg-m
Spark plug	1.5~2.0kg-m
Cylinder head bolt	1.4~2.0kg-m
Alternator bolt	3.5~4.0kg-m

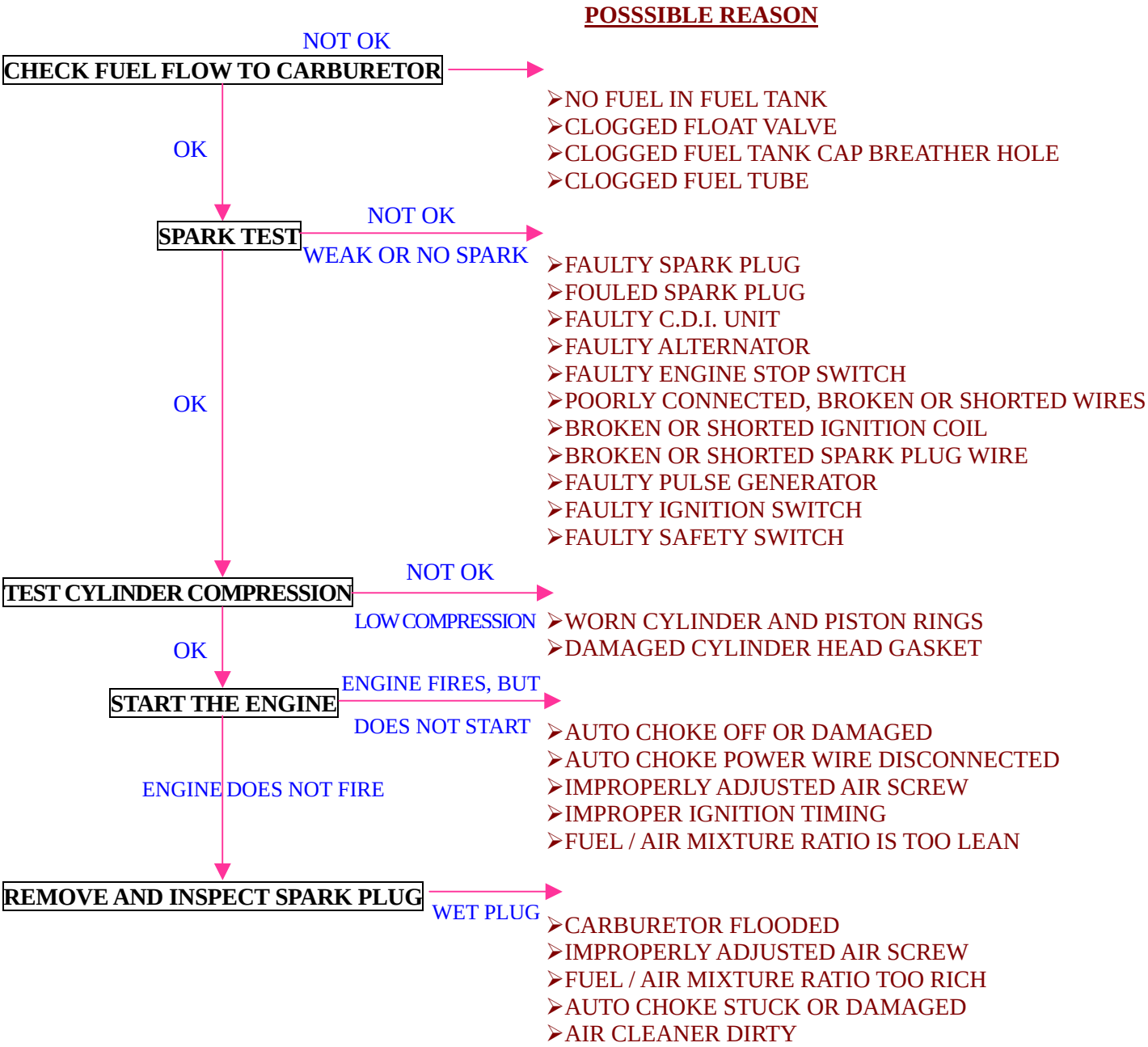
FRAME

	JW50/JW90/JW100
Handlebar upper holder bolt	2.0~2.2kgf-m
Steering shaft nut	4.5~5.0kgf-m
Steering shaft bushing holder nut	2.0~2.2kgf-m
Wheel rim bolt	3.5~4.0kgf-m
Tie rod lock nut	3.0~3.5kgf-m
Knuckle nut	3.5~4.0kgf-m
Handlebar lower holder nut	4.5~5.0kgf-m
Front wheel bolt	3.5~4.0kgf-m
Front axle nut	4.0~4.5kgf-m
Rear axle nut	4.5~5.0kgf-m
Rear wheel bolt	3.5~4.0kgf-m
Exhaust muffler mounting bolt	0.7~1.0kgf-m
Engine hanger bolt	2.0~2.3kgf-m
Drive sprocket 19T	4.5~5.0kgf-m

二、TROUBLESHOOTING

JW50/90/100

ENGINE DOES NOT START



二、TROUBLESHOOTING

JW50/90/100

POOR PERFORMANCE AT LOW AND IDLE SPEEDS

POSSIBLE REASON

CHECK IGNITION TIMING — NOT OK → ➢FAULTY C.D.I

OK ↓

CHECK CARBURETOR AIR SCREW ADJUSTMENT — NOT OK →
- ➢MIXTVRE TOO LEAN
- ➢MIXTURE TOO RICH

OK ↓

CHECK FOR LEAKING INTAKE PIPE — NOT OK →
- ➢DETERIORATED INSULATOR O-RING
- ➢LOOSE CARBURETOR

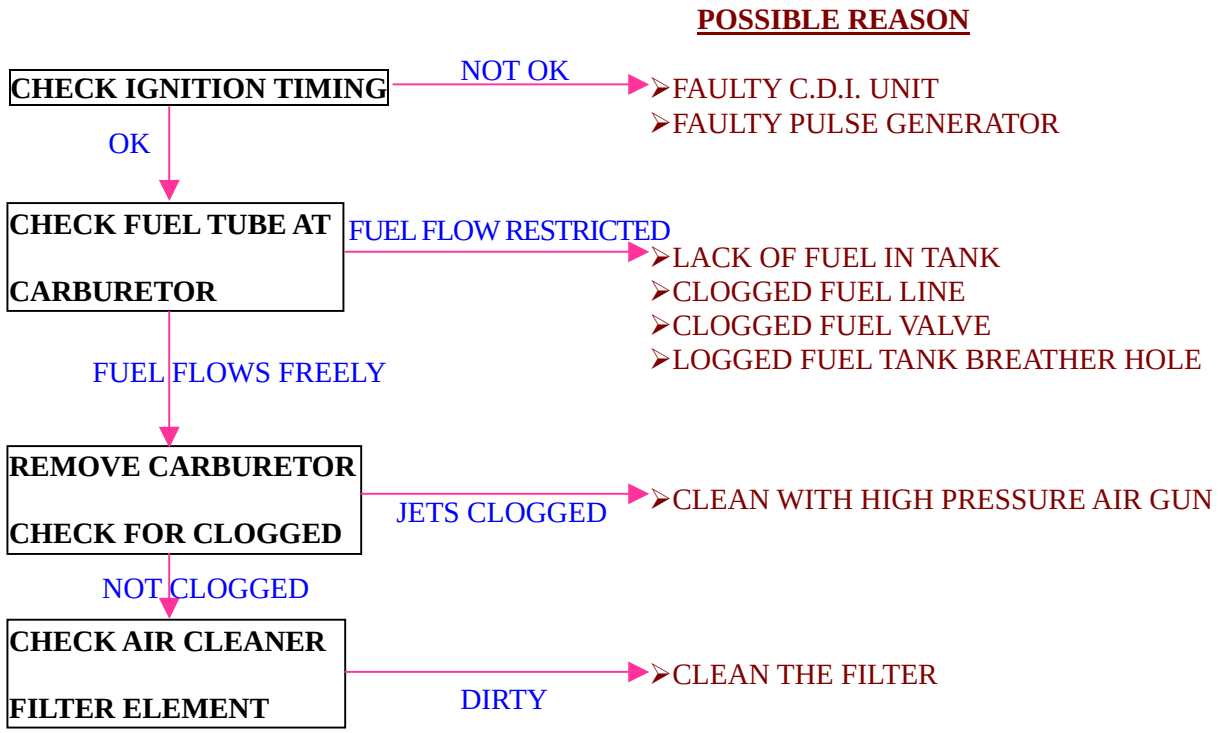
OK ↓

PERFORM SPARK TEST WEAK OR INTERMITTENT SPARK →
- ➢LOOSE OR DISCONNECTED IGNITION SYSTEM WIRES
- ➢FAULTY, CARBON OR WET FOULED SPARK PLUG
- ➢FAULTY ALTERNATOR
- ➢FAULTY C.D.I. UNIT
- ➢FAULTY IGNITION SWITCH
- ➢FAULTY IGNITION COIL
- ➢FAULTY PULSE GENERATOR
- ➢BROKEN OR SHORTED SPARK PLUG WIRE
- ➢FAULTY ENGINE STOP SWITCH

二、TROUBLESHOOTING

JW50/90/100

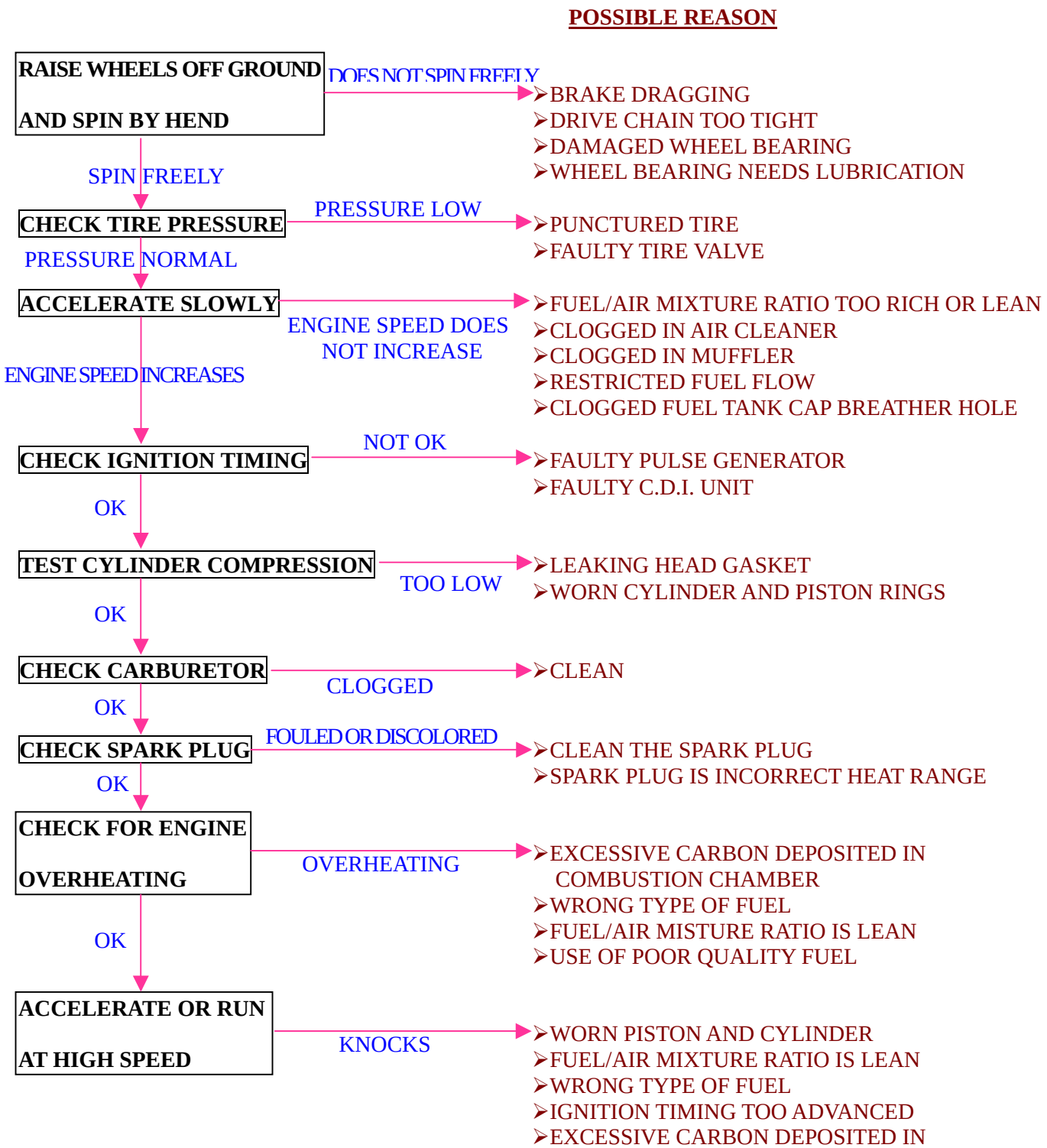
POOR PERFORMANCE AT HIGH SPEED



二、TROUBLESHOOTING

JW50/90/100

LOSS POWER



二、TROUBLESHOOTING

JW50/90/100

COMBUSTION CHAMBER

POOR HANDLING

	POSSIBLE REASON
STEERING IS HEAVY	➢DAMAGED STEERING BEARING ➢DAMAGED STEERING SHAFT BUSHING
ONE WHEEL IS WOBBLING	➢BENT RIM ➢IMPROPERLY INSTALLED WHEEL HUB ➢EXCESSIVE WHEEL BEARING PLAY ➢BENT SWINGARM ➢BENT FRAME ➢SWINGARM BUSHING EXCESSIVELY WORN
VEHICLE PULLS TO ONE SIDE	➢BENT TIE-ROD ➢INCORRECT TIE-ROD ADJUSTMENT ➢REAR TIE AIR PRESSURE INCORRECT ➢IMPROPER WHEEL ALIGNMENT ➢BENT FRAME

3.1 MAINTENANCE SCHEDULE

The maintenance intervals in the table below is based upon average riding and conditions. Riding in unusually dusty areas, require more frequent servicing

C: Clean L: Lubricate R: Replace I: Inspect and Clean, Adjust, Lubricate or Replace, if necessary

	INITIAL SERVICE (First week)	REGULAR SERVICE (Every 30 operating days)	EVERY YEAR
FUEL LINE			I
THUOTTLE OPERATION	I	I	
AIR CLEANER		C	
SPARK PLUG		I	
CARBURETOR IDLE SPEED	I	I	
DRIVE CHAIN	L,I	L,I	
BRAKE SHOE WEAR			I
BRAKE SYSTEM	I	I	
NUT, BOLT, FASTENER	I	I	
WHEEL	I	I	
STEERING SYSTEM			I
SUSPENSION SYSTEM			I
C.V.T. AIR FILTER		C	
GEAR OIL			R

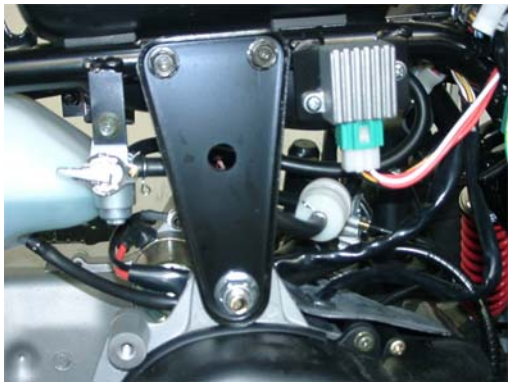
3.2 MAINTENANCE DATA

SPECIFICATION

	JW50/JW90/JW100
SPARK PLUG GAP	0.7-0.8 ㎜
RECOMMENDED SPARK PLUGS	NGK BPR7HS
THROTTLE LEVER FREE PLAY	5-10 ㎜
IDLE SPEED	1800±100rpm
BRAKE LEVER FREE PLAY	15-20 ㎜
DRIVE CHAIN SLACK	10-20 ㎜
FRONT/REAR TIRE PRESSURE	2-10psi (0.15-0.7bar)
TOE-IN	6~10 ㎜
ENGINE OIL	SAE10W-40
GEAR LUBRICATION OIL	SEA 90
BATTERY	12V-5AM

3.3 FUEL TUBE

Inspect the fuel lines for deterioration, damage or leakage and replace if necessary.



3.4 THROTTLE OPERATION

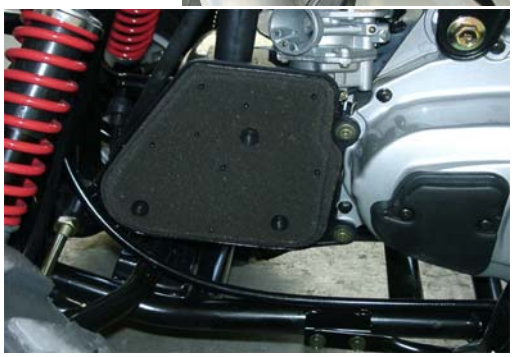
Inspect for smooth throttle lever full opening and automatic full closing in all steering positions.
Inspect if there is no deterioration, damage or kicking in the throttle cable, replace it if necessary.
Check the throttle lever, free play is 5-10 ㎜ at the tip of the throttle lever.
Disconnect the throttle cable at the upper end.
Lubricate the cable to prevent premature wear.

3.5 THROTTLE CABLE ADJUSTMENT

Slide the rubber cap of the adjuster off the throttle
Housing, loosen the lock nut and adjust the free play of the throttle lever by turning the adjuster on the throttle housing. Inspect the free play of the throttle lever.

3.6 AIR CLEANER

Unscrew the air cleaner cover screws.
Pull out the air filter element from the air cleaner case.
Wash the element in non-flammable solvent, squeeze out the solvent thoroughly. Let it dry.
Soak the filter element in air filter oil and then squeeze out the excess oil.
Install the element into air cleaner carefully.



3.7 SPARK PLUG

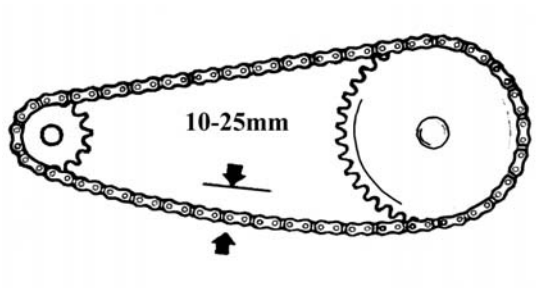
The spark plug located at the front of the engine.
Disconnect the spark plug cap and unscrew the spark plug.
Check the spark plug electrodes for wear out.
Install a new spark plug if the electrodes and insulator tip appear unusually fouled or burned.
The spark plug gap must be 0.7-0.8 ㎜.
With the sealing washer attached, apply cupper grease, and thread the spark plug in by hand to prevent cross threading.
Tighten the spark plug with 1.5-2kg-m

3.8 IDLE SPEED

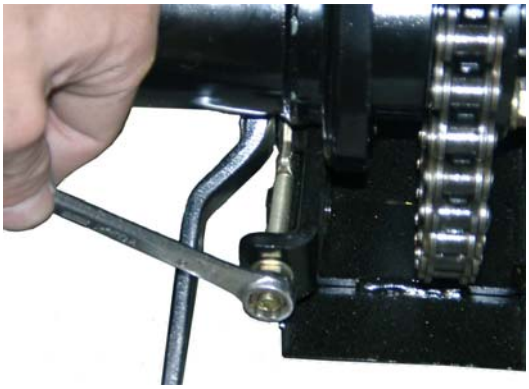
Connect a engine speed meter.
Warm up the engine, 10 minutes are enough.
Turn the idle-speed adjust screw on the carburetor to obtain the idle speed. “Turn in” (clockwise) will get higher speed. “Turn out” (counter clockwise) will result in lower speed.
IDLE SPEED:1800±100rpm

3.9 DRIVE CHAIN

Inspect the chain slack. The standard is 10-25 ㎜.



Adjust the chain slack.(in the rear fork)
Loose the lock bolts (4 PCs) then adjust the drive chain slack by turning the adjustment nut.
Tighten the our lock bolts.
Apply chain lubricant to lubricate the drive chain.



When the drive chain is very dirty, it should be removed, cleaned and lubricated with chain specific grease.
Clean the drive chain with kerosene and wipe it dry, and apply the lubricant.
Inspect the drive chain for possible wear or damage.
Replace the chain, if it is worn excessively or damaged.

Inspect the drive sprocket(19T), if the teeth are worn or damaged, replace it.

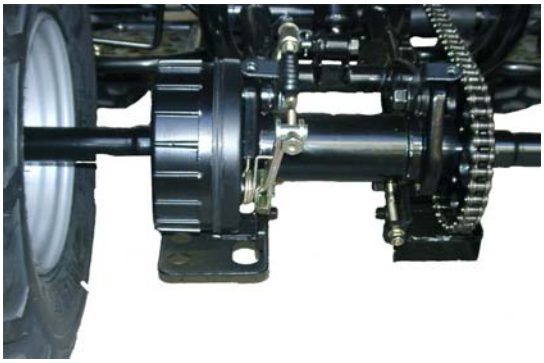
Inspect the rubber sleeve.
It the rubber sleeve are worn or damaged, replace it.

3.10 BRAKE SYSTEM

Inspect the front brake lever and cable for excessive free play or damage.
Replace or repair if necessary.
Measure the free play of the brake cable at the end of the brake lever. The standard free play is 15-25 ㎜

Inspect the rear brake lever and cable for excessive free play or damage.
Replace or repair if necessary.
Measure the free play of the rear brake cable at the end of the lever, The standard free play is 15-25 ㎜

Adjust the free play of the rear brake lever by turning the adjuster on the rear axle.



3.11 WHEELS AND TIRES

Inspect the tire surfaces for cuts, nails or other sharp objects.
Check the pressure at cold tire condition..
The standard of tire pressure is

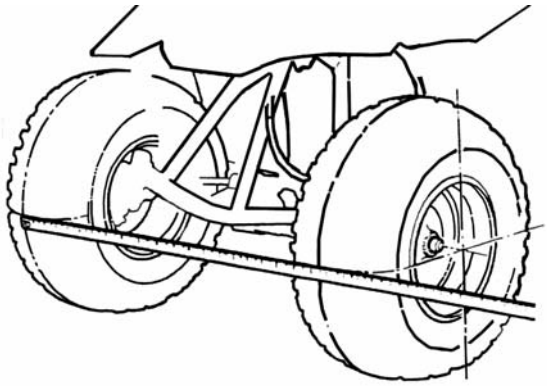
JW50 : 3~6Psi
JW90 : 3~6Psi
JW100: 3~6Psi

3.12 STEERING SYSTEM

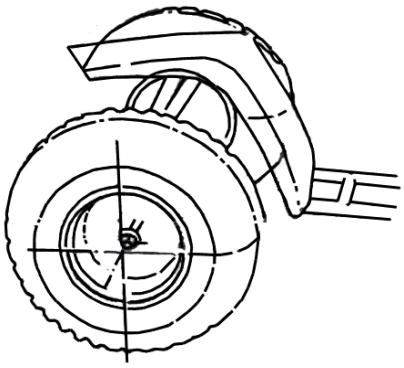
Check the free play of the steering shaft with the front wheels, steering straight ahead.
When there is excessive play, inspect the tie-rod, knuckle bushing and ball joint.

3.13 TOE-IN

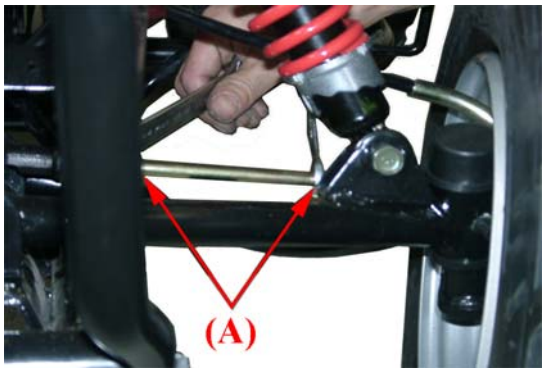
Park the vehicle on level ground and the front wheels facing straight ahead.
Mark the centers of the tires to indicate the axle center height.
Measure the distance between the marks.



Carefully move the vehicle back, let the wheels have turned 180°, so the marks on the tires are aligned with the axle center height.
Measure the distance between the marks.
Calculate the difference in the front and rear measurements.
Toe-in:0~10 ㎜



If the toe-in is out of standard, adjust it by changing the length of the tie-rods equally by turning the tie-rod while holding the ball joint.
Tighten the lock nuts.
(A) Touque:3.0~3.5kgf-m



3.14 GEAR OIL

Gear oil needs to be changed every year.
There is gear oil release bolt at the rear of engine.
Unscrew this release bolt and can let the dirty oil flow out.
The re-add oil hole is on the engine case besides the gear box.

四、ENGINE SYSTEM

JW50/90/100

4-1 ENGINE REMOVAL AND INSTALLATION

4-1-1 ENGINE SHALL BE REMOVED IN THE CONDITIONS OF NECESSARY REPAIRMENT OR ADJUSTMENT TO THE TRANSMISSION AND COMBUSTION SYSTEM ONLY

4-1-2 ENGINE REMOVAL

Remove the seat and rear side cover fender.
Remove the spark plug cap from the spark plug.
Remove the exhaust pipe.
Disconnect the carburetor.
Take off the oil pump cable from the oil pump control plate.
The oil pump is on the right side of the engine.

Discontent the wire connectors.
There are three connectors.:
carburetor auto-choke
starter motor
generator
Remove the drive chain cover.
Remove the drive chain retaining clip and master link, and remove the drive chain.

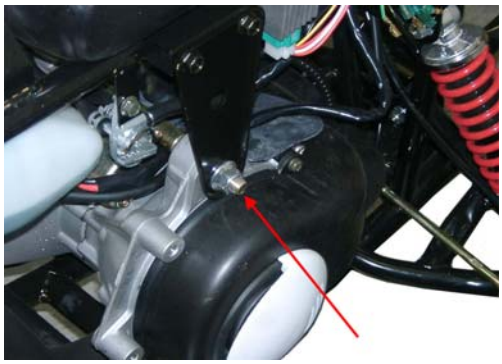
Remove the three engine mounting nuts and bolts.
Remove the engine from the right side of frame.

四、ENGINE SYSTEM

JW50/90/100

4-1-3 ENIGNE INSTALLATION

Engine installation is essentially the reverse order of removal.
The torque of the engine mounting bolts is 4.5~5.0kg-m
Route the wires and cable in reverse order properly.



4-2 ENGINE FUEL SYSTEM

4-2-1 TROUBLESHOOTING

ENGINE DOES NOT STARTIN	➢ NO FUEL IN TANK
	➢ NO FUEL TO CYLINDER
	➢ TOO MUCH FUEL GO INTO CYLINDER
	➢ NO SPARK AT PLUG
	➢ AIR CLEANER CLOGGED
ENG E IDLES UNSTEADY, STALLS OR RUNS POORLY	➢INPROPER ADJUSTMENT OF THELDLE SPEED SCREW
	➢ IGNITION MALFUNCTION
	➢ FUEL/AIR MIXTURE RATIO INCORRECT
	➢ AIR FILTER DIRTY
	➢ INSULATOR LEAKS
	➢ FUEL TANK CAP BREATHING HOLE CLOGGED
LEAN MIXTURE	➢ FUEL JET OF CARBURETOR CLOGGED
	➢ FUEL TANK CAP BREATHING HOLE CLOGGED
	➢ FUEL FILTER CLOGGED
	➢ FUEL FLOW IN THE TUBE UNSMOOTHLY

RICH MIXTURE	➢ FLOAT LEVEL IN CARBURETOR TOO LOW ➢ FLOTAT NEEDLE VALVE IN CARBURETOR FAULTY ➢ FLOAT LEVEL TOO HIGH ➢ AIR DUCT IN CARBURETOR IS CLOGGED ➢ AIR FILTER DIRTY

四、ENGINE SYSTEM

JW50/90/100

4-2-2 FUEL TANK

REMOVAL

Remove the seat front/rear side cover and hand/e bar assy.

Disconnect the fuel line from the carburetor.

Remove the fuel tank cap and front fender.

Unscrew the fuel tank fixed bolts.

Note: Keep gasoline away from flames or sparks.

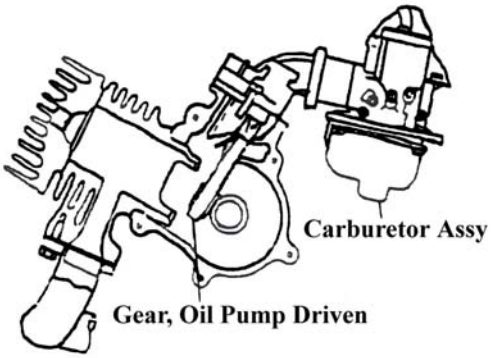
Wipe up spilled gasoline at once.

4-3 ENGINE LUBRICATION AND COOLING SYSTEM

4-3-1 ENGINE LUBRICATION SYSTEM

The pump gears of the oil pump are driven by the engine crankshaft. The pump gears rotate the plunger shaft in the oil pump. This shaft forwards the lubricating oil into the crankcase to mix with the air-fuel mixture flow evenly.

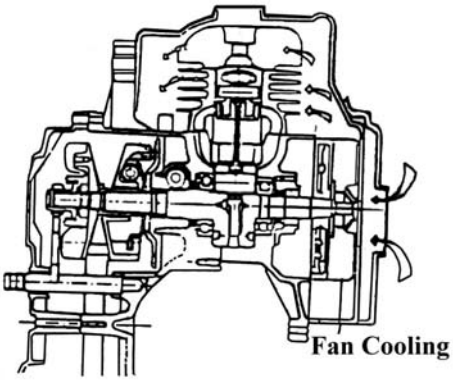
The oiled mixture lubricates the cylinder inner wall, piston surface and piston rings.



4-3-2 COOLING SYSTEM

The cooling fan is on the right side of the engine.

Cool air is forced to flow through cylinder fins and cylinder head. In this way the cylinder and piston will not overheat.



四、ENGINE SYSTEM

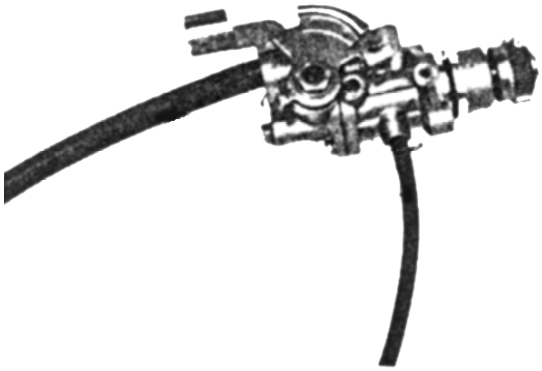
JW50/90/100

4-3-3 OIL PUMP REMOVAL

Remove the front fender rod (L),fan cover assy, cooling fan, generator.
Disconnect the oil tube of oil pump (intake & output.)
Remove the oil pump control cable.
Remove the setting bolt of oil pump.
Remove the oil pump.

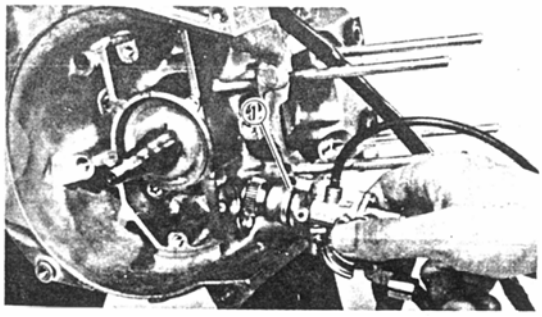
4-3-4 OIL PUMP INSPECTION

Check the O-ring, gear & seal for wear or any damage.
NOTE: Do not disassembly the oil pump body to prevent and damage.

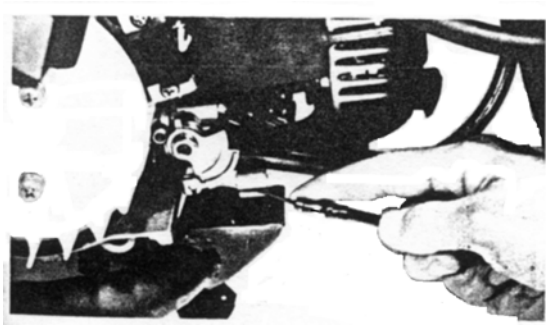


4-3-5 OIL PUMP INSTALLATION

Coating some oil on the O-ring.
Install the oil pump onto the crankcase.

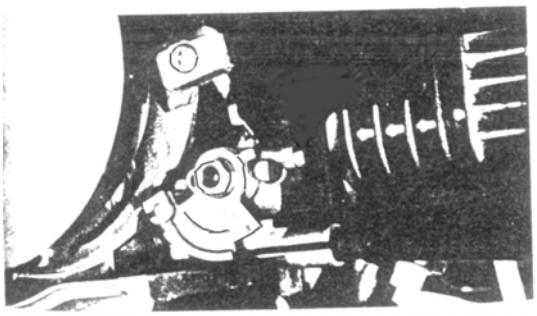


Connect the oil tube.
Connect the oil pump control cable and adjust the clearance.



4-3-6 RELEASE THE AIR OF OIL PUMP

Loosen the drain screw.
Let the oil drain out in smoothly then tight the screw.
NOTE: If the oil can not drain out in smoothly, it is mean some air still in the oil pump.



4-3-7 TROUBLESHOOTING

LACKING OIL SUPPLY TO ENGINE →
- THE OIL LEVEL IN OIL TANK IS TOO LOW
- OIL TUBES WERE NOT FIXED WELL
- OIL HAS LEAKED FROM TUBE ENDS
- OIL TUBES WERE BROKEN
- OIL TUBES WERE CLOGGED
- OIL PUMP DOES NOT FUNCTION

ALWAYS INSUFFICIENT OIL LEVEL IN OIL TANK →
- EXTERNAL OIL LEAKS
- WORN CYLINDER HEAD GASKET
- WORN PISTON RINGS

4-4 ENGINE COMBUSTION SYSTEM

4-4-1 TROUBLESHOOTING

LOW COMPRESSION →
- CYLINDER HEAD

四、ENGINE SYSTEM

JW50/90/100

HEAD GASKET LEAKING OR DAMAGED
WARPED OR CRACKED CYLINDER HEAD
- CYLINDER OR PISTON RINGS WORN OUT

HIGH COMPRESSION →
- EXCESSIVE CARBON BUILD-UP ON PISTON HEAD OR IN COMBUSTION CHAMBER

EXCESSIVE NOISE →
- PISTON AND CYLINDER WORN OUT
- EXCESSIVE CARBON BUILD-UP

EXCESS SMOKE →
- CYLINDER OR PISTON RINGS WORN OUT
- IMPROPER INSTALLATION OF PISTON RINGS
- PISTON OR CYLINDER WALL SCORED OR SCRATCHED

OVERHEATING →
- EXCESSIVE CARBON BUILD-UP ON THE PISTON OR COMBUSTION CHAMBER
- FAULTY ENGINE COOLING SYSTEM (FAN, CYLINDER COVER…...)
- OIL SUPPLY IS OUT OF ORDER
- WRONG IGNITION TIMING

4-4-2 CYLINDER HEAD REMOVAL

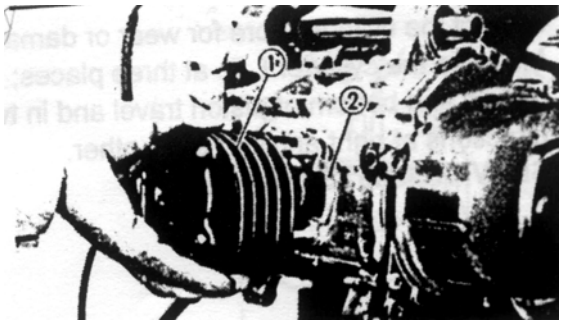
Remove the seat and rear fender.
Remove the exhaust pipe.
Remove the spark plug cap.
Disconnect the wire.
Remove the engine out of the chassis.
Disassemble the air cleaner and carburetor.

四、ENGINE SYSTEM

JW50/90/100

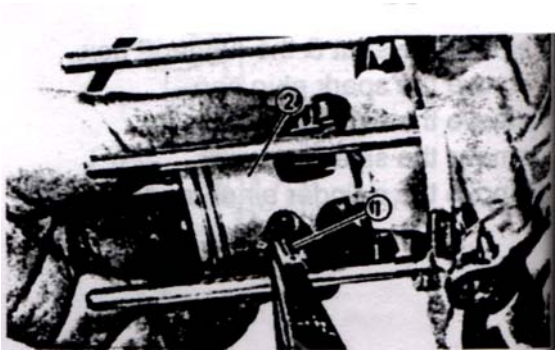
Remove the spark plug.
Remove the setting bolts of cylinder head.
Remove the cylinder head.

CYLINDER REMOVAL
Remove the cylinder head.
Remove the cylinder.
Remove the cylinder gasket.
NOTE: Clean all the material of cylinder gasket with a scraper.



PISTON REMOVAL
Remove the piston pin clip.
NOTE: Do not let the clip fall into the crankcase.

Remove the piston pin.
Remove the piston.



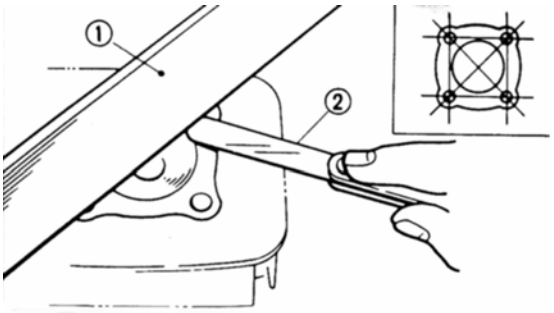
四、ENGINE SYSTEM

JW50/90/100

4-4-3 CYLINDER HEAD INSPECTION

Cylinder head flatness inspection.

SERVICE LIMIT: 0.03 ㎜



4-4-4 CYLINDER INSPECTION

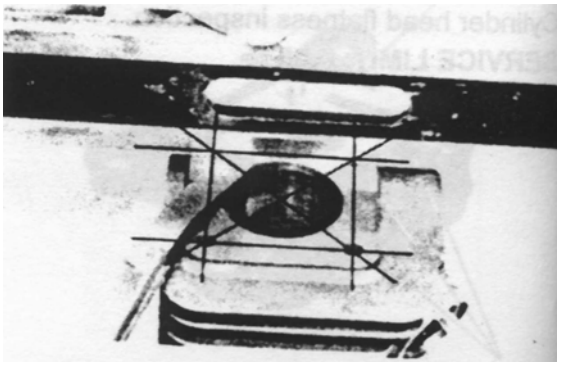
Inspect the cylinder bore for wear or damage.

Measure the cylinder I.D. at three places; top, middle and bottom of piston travel and in two directions at right angle to each other.

SERVICE LIMITS:40.5 ㎜

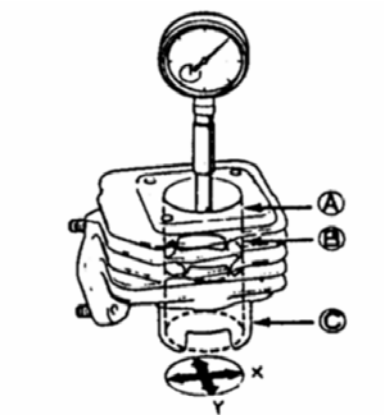
Cylinder block flatness inspections:

SERVICE LIMITS: 0.03 ㎜



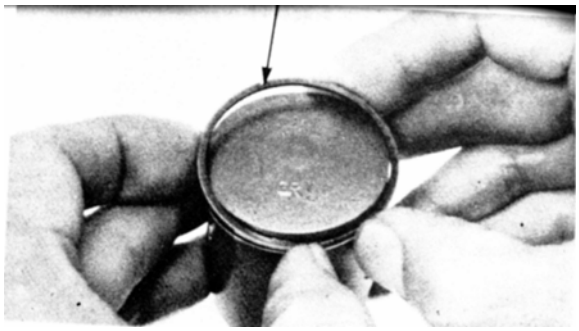
Calculate the piston-to-cylinder clearance.
SERVICE LIMITS:0.1 ㎜

Calculate the taper and out of round.
SERVICE LIMITS:
Out of round: 0.004 ㎜

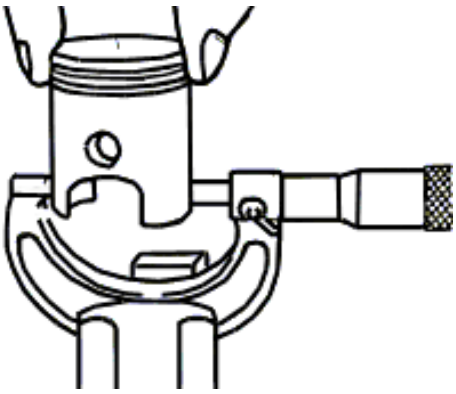


4-4-5 PISTON / PISTON RING INSPECTION

Remove the piston rings
Clean the grooves for carbon deposit completely.
NOTE: Do not damage the piston ring during removal.



Measure piston pin bore O.D, at a point 10 ㎜ from the bottom.
SERVICE LIMITS: 39.95~39.97 ㎜



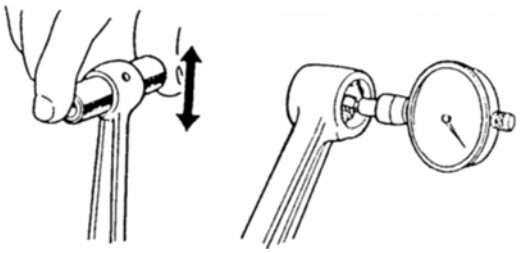
四、ENGINE SYSTEM

JW50/90/100

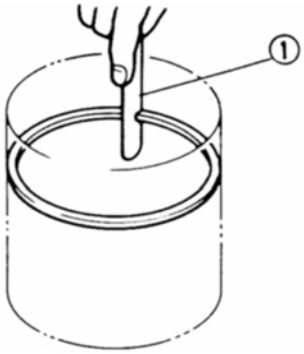
Measure piston pin bore I.D. in two directions at right angle to each other.
SERVICE LIMITS: 9.995~10 ㎜

Measure the piston pin O.D. at the front, center and rear and in to directions across from each other.
SERVICE LIMIT: 9.9 ㎜

Connecting rod small end inspections:
SERVICE LIMIT: 14.05 ㎜

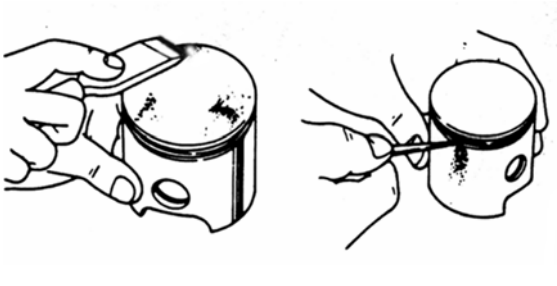


Insert each piston ring into cylinder with the piston and measure the ring end gap in the cylinder to a point 10 ㎜ (0.04 in) from the bottom.



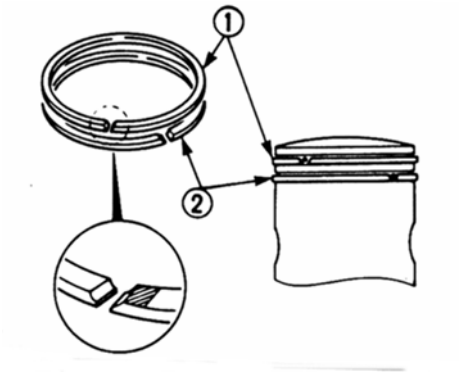
PISTON RING INSTALLATION

Clean the piston ring grooves thoroughly.
Install the piston ring.



NOTE:

- **Avoid piston and piston ring damage during installation.**
- **All ring should be installed with the mark facing up.**

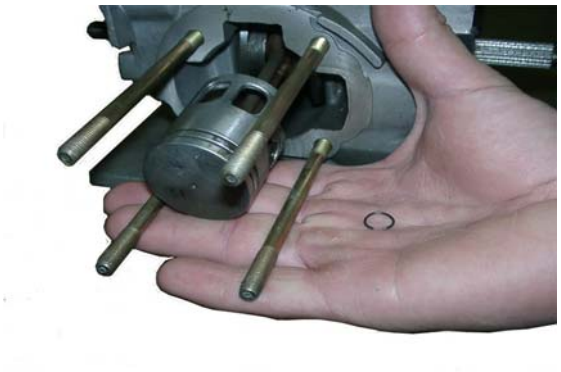


4-4-6 PISTON INSTALLATION

Install the piston, piston pin and new piston pin clips.

NOTE:

- **Piston the "EX" mark on the exhaust side.**
- **Do not let the piston pin clip fall into the crankcase.**

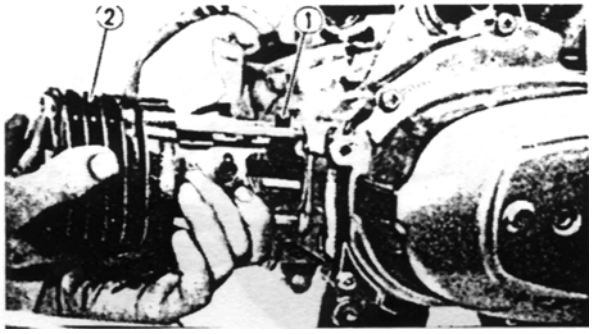


四、ENGINE SYSTEM

JW50/90/100

4-4-7 CYLINDER / CYLINDER HEAD

Install the cylinder gasket.
Coat the cylinder and piston ring with the engine oil.
Install the cylinder.
Install the cylinder head
Tighten the cylinder mounting bolts
The torque is 1.4~2.0kg-m



4-4-8 ENGINE INSTALLATION

The installation sequence is essentially the reverse of removal.

NOTE: Route all the wire and cable properly.
Adjust the throttle cable free play.
Adjust the oil pump control cable clearance.
Adjust the rear brake free play.

4-5 TANSMISSION SYSTEM

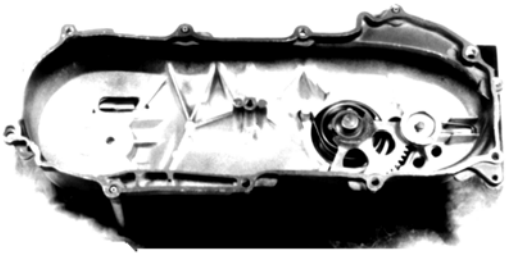
4-5-1 LEFT CRANKCASE COVER REMOVAL

Remove the crankcase cover.
Remove the dowel pin.

四、ENGINE SYSTEM

JW50/90/100

Remove the kick pinion with the kick friction spring.
Disconnect the kick start spring.



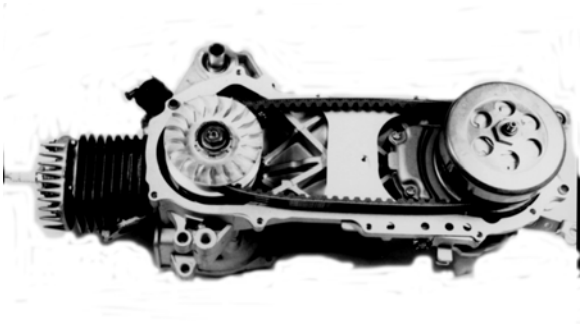
Remove the cir-clip & plate washer.
Remove the kick spindle bush.
Remove the spindle & the spring.

Remove the O-ring.
Remove the setting nut of clutch outer.

四、ENGINE SYSTEM

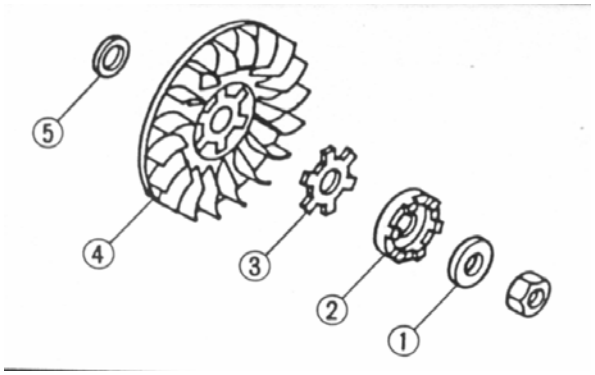
JW50/90/100

Remove the clutch outer & driven pulley.
Remove the drive belt.

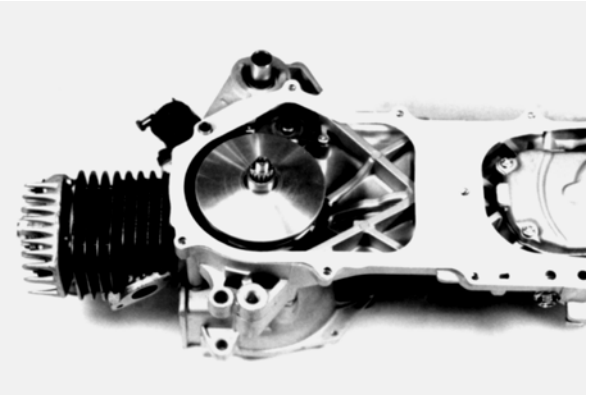


Remove the setting nut of driver face.

Remove the conical spring washer & the one way clutch.
Remove the claw washer, driver face & plat washer.

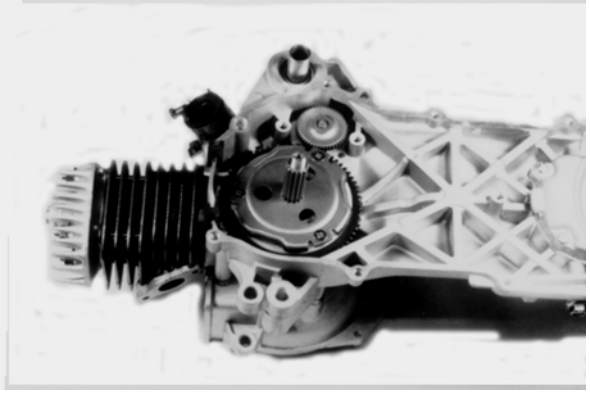


Remove the movable drive face & collar.



4-5-2 START CLUTCH REMOVAL

Remove the starter clutch & starter wheel.
Remove the gear boss.
Remove the plat washer.



Remove the idle gear plate.
Remove the idle gear.

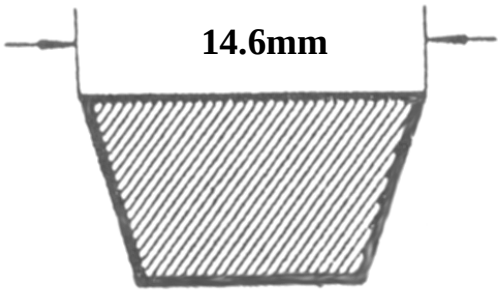
四、ENGINE SYSTEM

JW50/90/100

4-5-3 DRIVEN BELT INSPECTION

Inspect the belt for crack wear or any damage measure the width of belt.

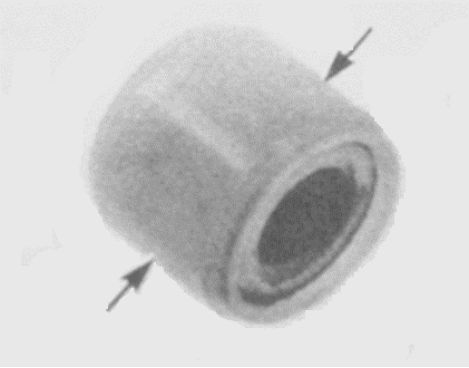
SERVICE LIMIT:14.6 ㎜



4-5-4 WEIGHT ROLLER INSPECTION

Measure the weight roller O.D.

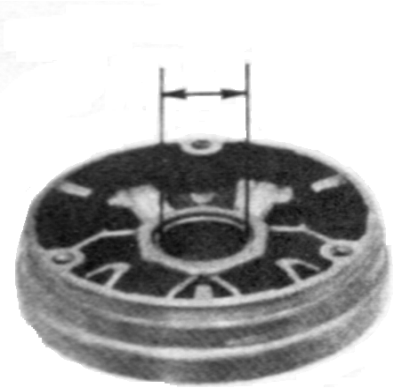
SERVICE LIMIT:14.5 ㎜



4-5-5 MOVABLE DRIVEN FACE INSPECTION

Measure the movable driven face I.D.

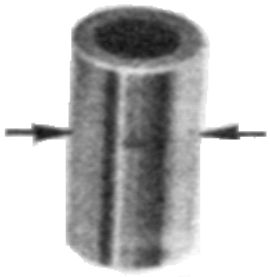
SERVICE LIMIT:18.10 ㎜



4-5-6 BOSS OF DRIVEN FACE INSPECTION

Measure the boss I.D.

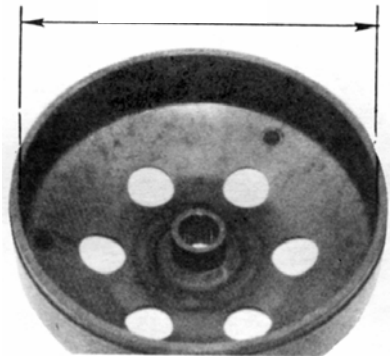
SERVICE LIMIT:17.90 ㎜



4-5-7 CLUTCH OUTER INSPECTION

Measure clutch outer I.D.

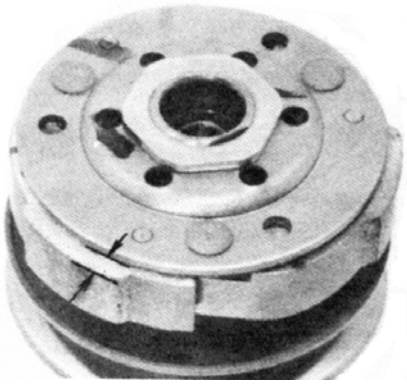
SERVICE LIMIT: 112 ㎜



4-5-8 CLUTCH LINING INSPECTION

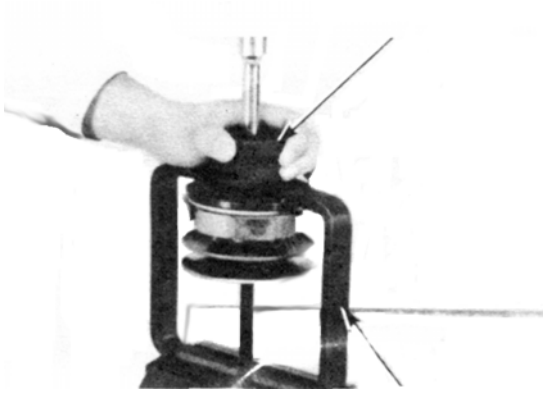
Measure the lining thickness.

SERVICE LIMIT: 1 ㎜



4-5-9 DRVIEN PULLEY DISASSEMBLY

Fix the driven pulley in a compressor.
Remove the special nut
Release the compressor.
Remove the driven plat assy.

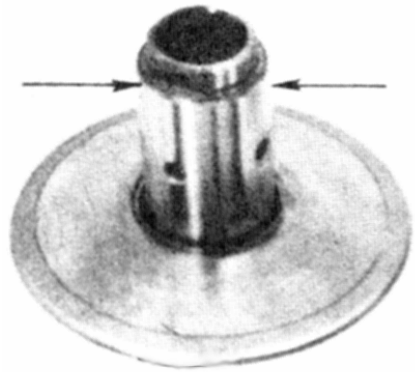


4-5-10 DRIVEN FACE SPRING INSPECTION

Measure the spring free leant.

DRIVEN FACE INSPECTION

Measure the drive face O.D.
SERVICE LIMIT: 32.94 ㎜

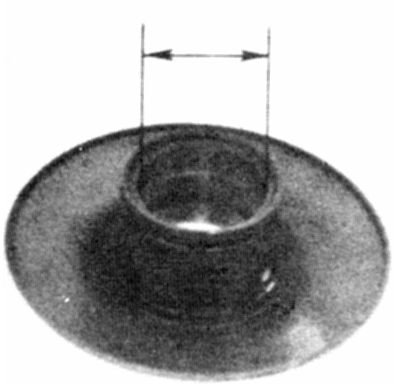


4-5-11 MOVABLE DRIVEN FACE

INSPECTION

Measure the movable driven face I.D.

SERVICE LIMIT: 33.06 ㎜

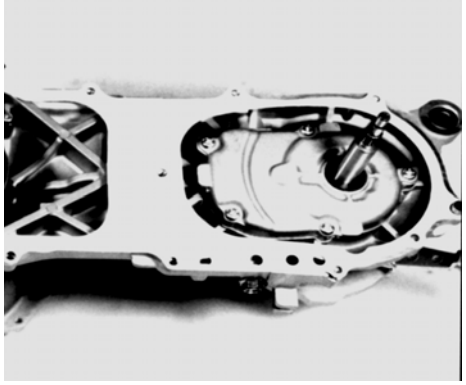


4-5-12 FINAL TRANSMISSION GEAR

REMOVAL

Drain the gear oil

Remove the mission cover.



Remove mission cover gasket & dowel pin.

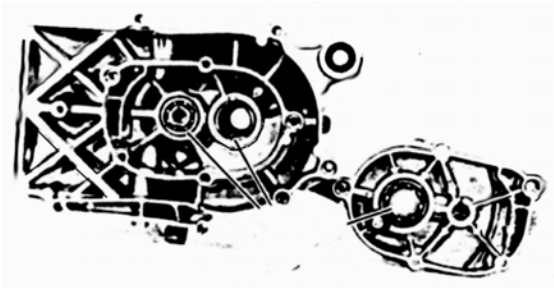
Remove final shaft & final gear.

Remove counter shaft.

4-5-13 FINAL GEAR TRANSMISSION

GEAR INSPECTION

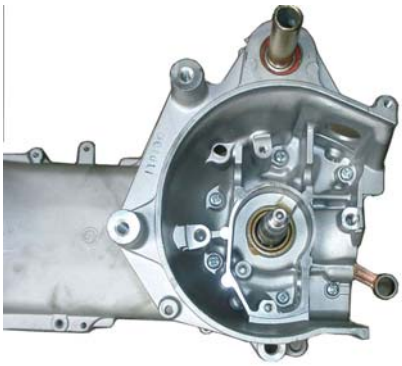
Inspect the gears & shafts for wear or damage.



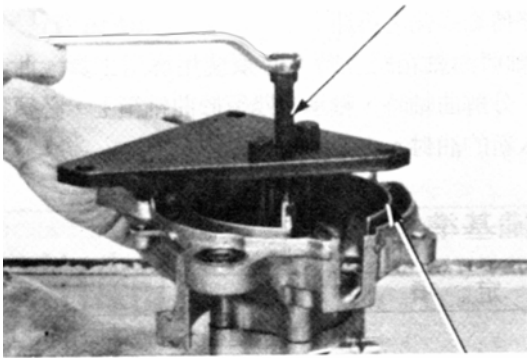
4-6 CRANKSHAFT / CRANKCASE

4-6-1 CRANKCASE REMOVAL

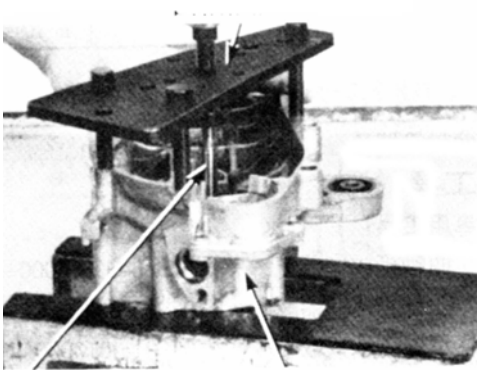
Remove the crankcase setting bolts.



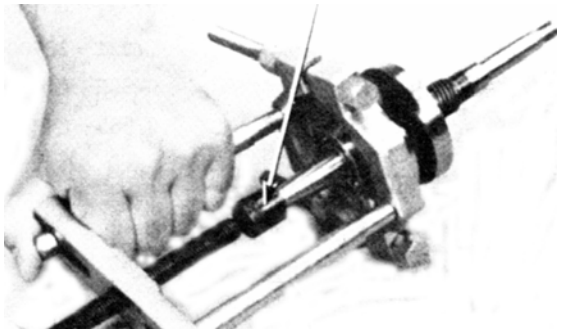
Remove the right crankcase from the left crankcase by using a pulley.



Remove the crankcase from the left crankcase by using a pulley.



Remove the bearing of crankcase by using a bearing pulley.



4-6-2 CRANKSHAFT INSPECTION

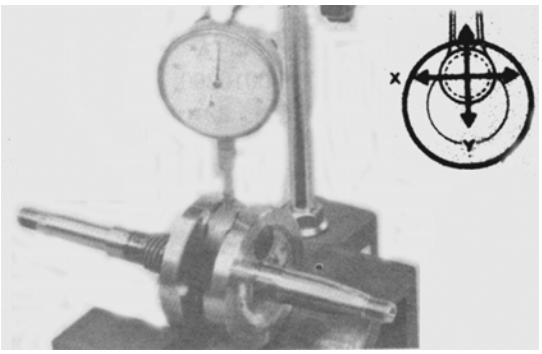
Measure the connecting rod big end side clearance with a feeler gauge.

SERVICE LIMIT:0.2~0.5 ㎜

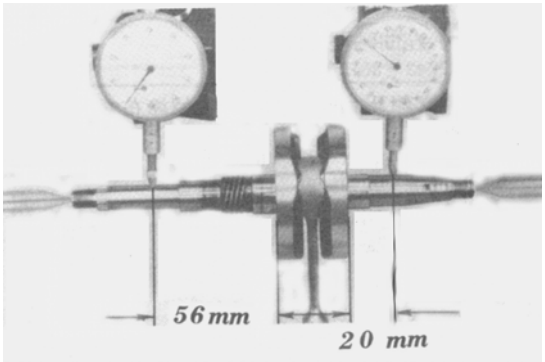
四、ENGINE SYSTEM

JW50/90/100

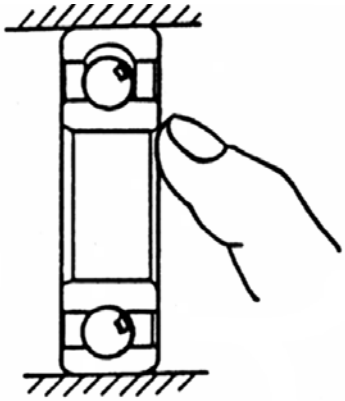
Measure the connecting rod big end radial clearance at two different point across from each other.
SERVICE LIMIT:0.4~0.8 ㎜



Place the crankshaft on a stand or V-blocks and measure the run out using a dial gauge.
Actual bend is 1/2 of total indicator reading.
SERVICE LIMIT: 0.03 ㎜

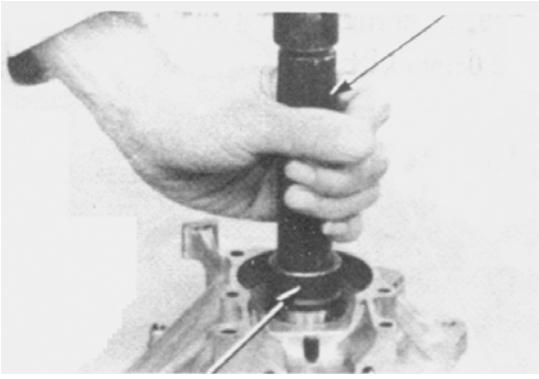


Check the crankshaft bearing play.
If they are noisy or have recessive play, replace a new one.

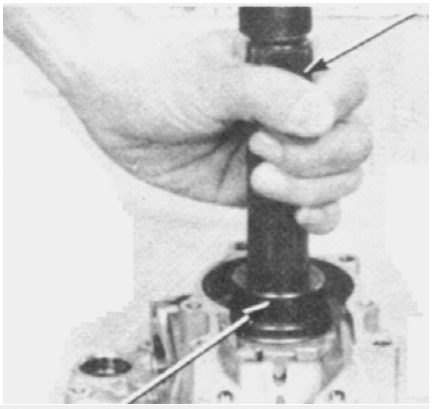


4-6-3 CRANKCASE INSTALLATION

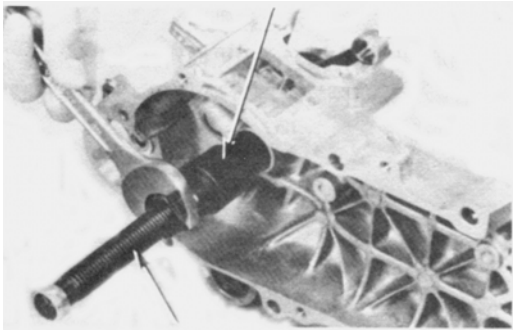
Install the crankshaft bearing into the left crankcase.



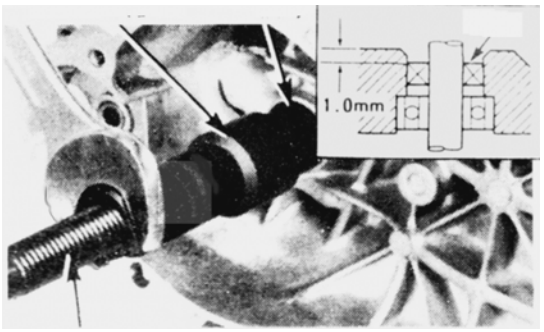
Install the crankshaft bearing into the right crankcase.



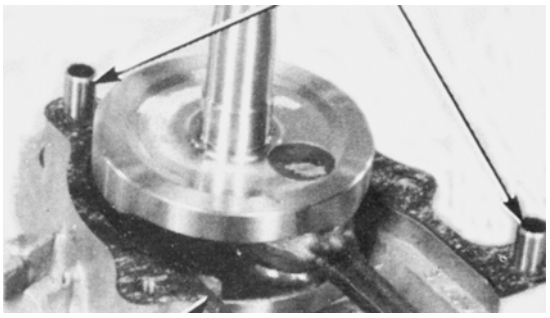
Install the crankshaft into the left crankcase.



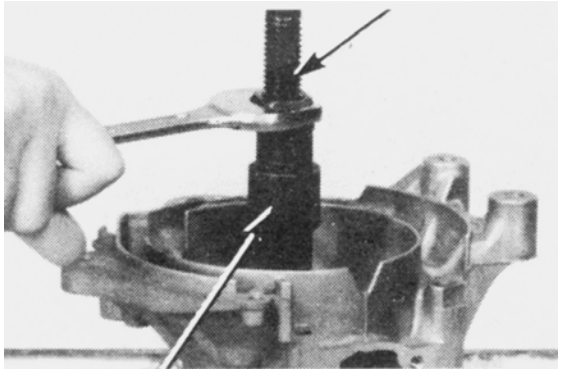
Install the oil seal into the left crankcase.



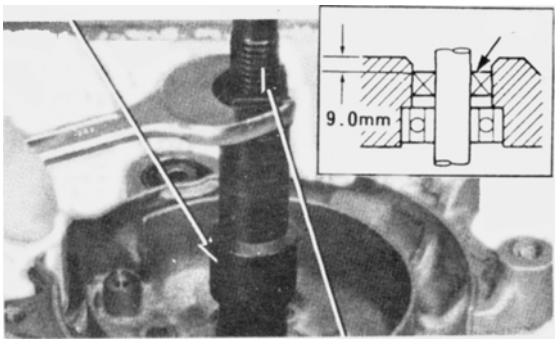
Install the dowel pins.



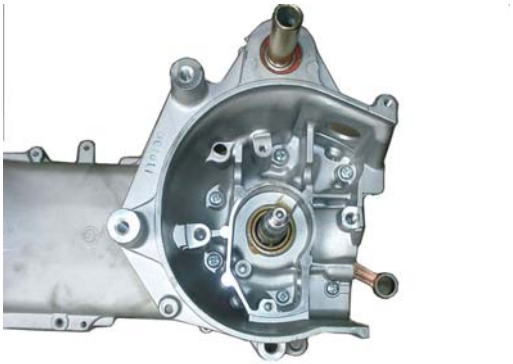
Install the right crankcase.



Install the oil seal into the right crankcase.



Install the setting bolts of crankcase.
TORQUE:0.7~1.0 ㎏-m



4-7 A.C.G ENERATOR

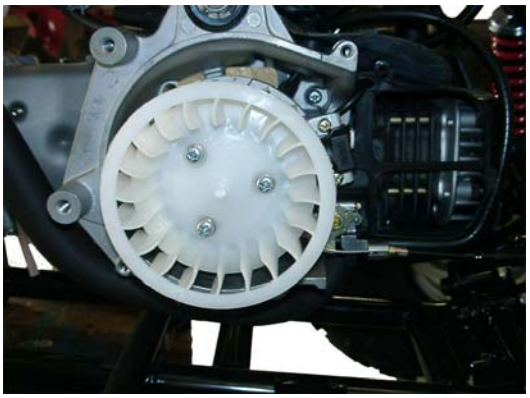
4-7-1 A.C.G ENERATOR REMOVAL

Remove front fender rod (L) and fan cover assy.

四、ENGINE SYSTEM

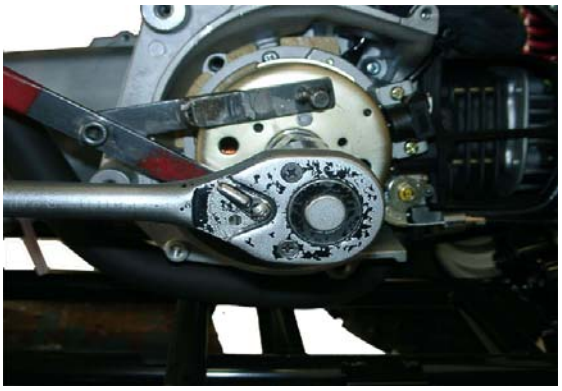
JW50/90/100

Remove the cooling fan setting bolts.
Remove the cooling fan.

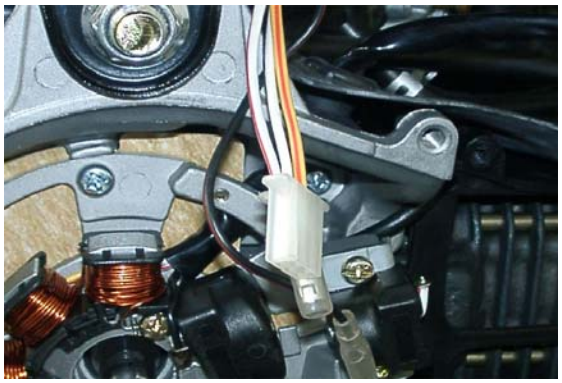


Remove the fly wheel setting nut by using a “Y” fixer.

Remove the fly wheel by using a puller.



Disconnect the wires of A.C.G.



Remove the A.C.G. setting bolts.
Remove the A.C.G.

4-7-2 A.C.G. INSTALLATION

The installation sequence is essentially the reverse of removal.

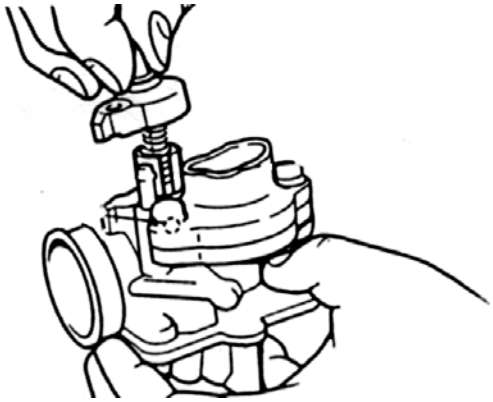
五、CARBURETOR SYSTEM

JW50/90/100

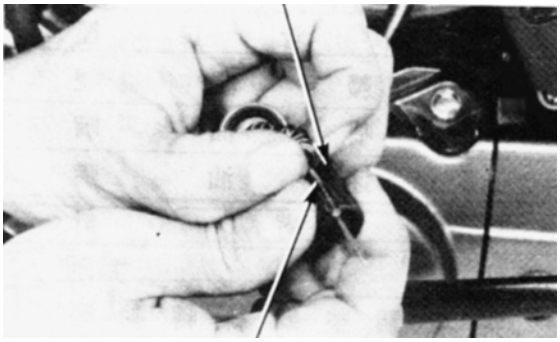
5-1 CARBURETOR REMOVAL

Remove the air cleaner.
Disconnect the fuel line and auto-choke electric wire.
Unscrew the intake pipe mounting bolts at the carburetor then remove the carburetor.
NOTE: Turn fuel tap in off position

Loose the carburetor cap.
Remove the throttle valve from the carburetor.



Remove the throttle valve from the throttle cable.

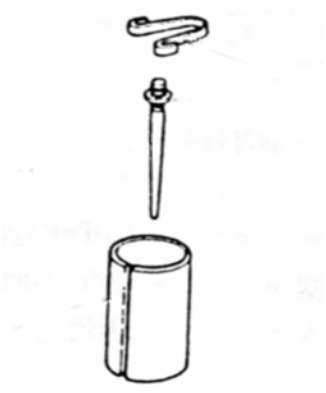


五、CARBURETOR SYSTEM

JW50/90/100

THROTTLE VALVE DISASSEMBLY
Remove the retainer and take out the jet needle clip from the throttle valve.

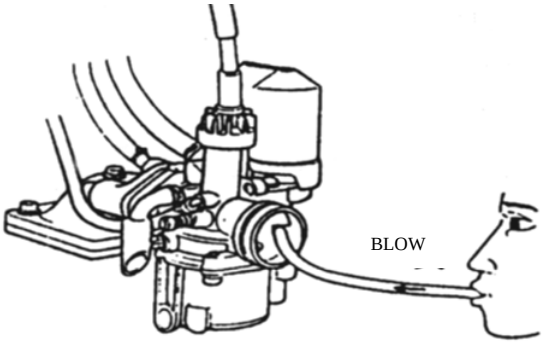
INSPECTION
Check the throttle valve and the jet needle surface of dirt, scratches or wear.



5-2 STARTER PLUNGER INSPECTION

Check the starter plunger wire for continuity.
STANDARE : UNDER 10

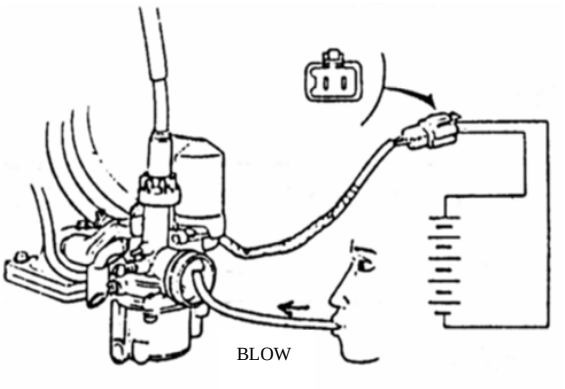
Remove the carburetor and let it cool down by nature for thirty minutes.
Check the current of air route as show.
GOOD : CHECKLESS
NG : CHECKED



五、CARBURETOR SYSTEM

JW50/90/100

Connect a full charged battery to the starter plunger wore for five minutes.
Check the current of route as show.
GOOD : CHECKED
NG : CHECKLESS



5-3 FLOAT CHAMBER DISASSEMBLY

Remove the setting screws.
Remove the chamber cap.

Remove the float setting bolt.
Remove the float pin.
Remove the float.
Remove the float valve.

五、CARBURETOR SYSTEM

JW50/90/100

Remove the main jet, slow jet, needle seat & air screw.
Clean all the jet & all the hole by using high pressure air.

5-4 FUEL HEIGHT INSPECTION

Measure the height by using a gauge.
STANDARD: 18.5 ㎜

5-5 CARBURETOR INSTALLATION

The installation sequence is essentially the reverse of remove.

五、CARBURETOR SYSTEM

JW50/90/100

Adjust the clearance of the throttle valve cable.
Adjust the air screw.

STANDARD : $1\frac{1}{2} \pm \frac{1}{2}$ **round**

Adjust the idle speed.
STANDARD : 1800±100rpm

5-6 REED VALVE

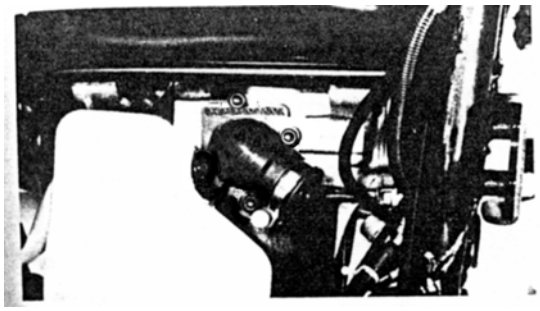
5-6-1 REED VALVE REMOVAL

Remove the carburetor.
Remove the intake pipe.
Remove the reed valve.

5-6-2 REED VALVE INSPECTION

Measure the height of reed valve stopper.

Check the flatness of reed valve.



5-6-3 REED VALVE INSTALLATION

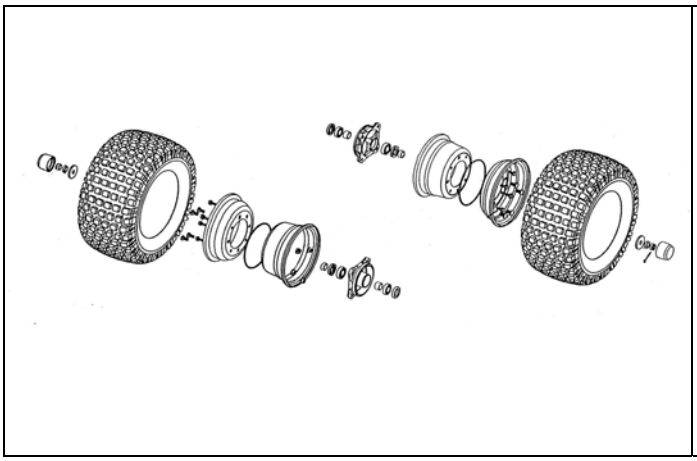
The installation sequence is essentially the reverse of removal.

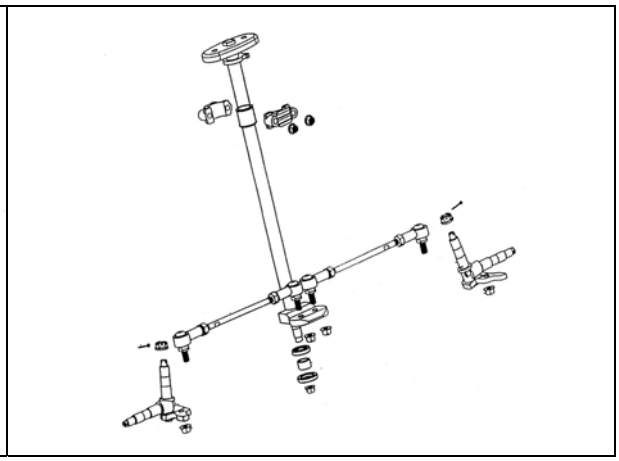
六、FRAME SYSTEM

JW50/90/100

6-1 FRONT WHEEL AND STEERING SYSTEM

6-1-1 DRAWING OF FRONT WHEELS AND STEERING SYSTEM PARTS





6-1-2 TROUBLESHOOTING

HARD STEERING	➢ FAULTY TIRE ➢ STEERING SHAFT HOLDER TOO TIGHT ➢ INSUFFICIENT TIRE PRESSURE ➢ FAULTY STEERING SHAFT ➢ DAMAGED STEERING SHAFT BEARING
FRONT WHEEL WOBBLING	➢ FAULTY TIRE ➢ WORN FRONT BRAKE DRUM BEARING ➢ BENT RIM ➢ AXLE NUT NOT TIGHTENED PROPERLY
BRAKE DRAG	➢ INCORRECT BRAKE ADJUSTMENT ➢ STICKING BRAKE CABLE
STEERS TO ONE SIDE	➢ BENT TIE RODS ➢ WHEEL INSTALLED INCORRECTLY ➢ UNEQUAL TIRE PRESSURE ➢ BENT FRAME ➢ WORN SWING ARM PIVOT BUSHINGS
POOR BRAKE PERFORMANCE	➢ BRAKE SHOES WORN ➢WORN BRAKE DRUM ➢ BRAKE LININGS OILY, GREASY OR DIRTY ➢IMPROPER BRAKE ADJUSTMENT
FRONT SUSPENSION NOISE	➢ LOOSE FRONT SUSPENSION FASTENERS ➢ BINDING SUSPENSION LINK
HARD SUSPENSION	➢ FAULTY FRONT SWING ARM BUSHINGS ➢ IMPROPERLY INSTALLED FRONT SWING ARMS ➢ BENT FRONT SHOCK ABSORBER ROD

六、FRAME SYSTEM

JW50/90/100

SOFT SUSPENSION → ➢ WEAK FRONT SHOCK ABSORBER SPRINGS
➢ WORN OR ADMAGED FRONT SWING ARM BUSHINGS

6-1-3 HANDLE BAR REMOVAL AND INSTALLATION

REMOVAL

Remove the handle cover and protect foam.

Remove the throttle cable on the right level.

Remove the front brake cable. Please note that if you want to take the front brake cable apart, the gap of adjustable screw of brake needs to aim at the gap of right level.

六、FRAME SYSTEM

JW50/90/100

Loose the screw of right level and
remove the right level to the fuel tank.

Remove the right grip.
Take right level apart from handle bar.

Remove the rear brake cable and link
switch electric wire of rear brake light.

六、FRAME SYSTEM

JW50/90/100

Remove the left handle switch and link electric wire.

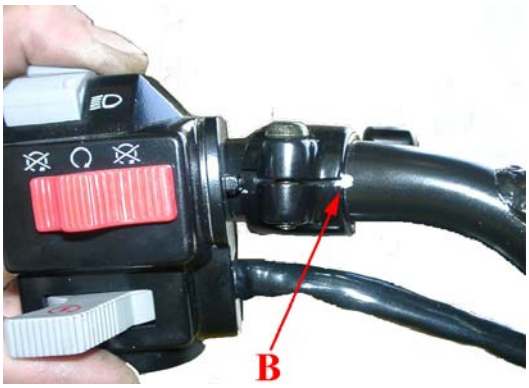
Loose the screw of left level and remove left level to fuel tank.
Remove the left grip.

Remove the handle cover stay.
Remove the L/R handle cover holder.

Remove the handle bar.

INSTALLATION

Installation is the reverse order of removal.



Please pay attention to following items when you assemble L/R level:

A. There are one point of orientation separately located on the left and the right of handle bar.

B. When you assemble left level, the gap of left level must aim at orientation of handle bar (as drawing B).

C. When you assemble right level, the gap of right level must aim at orientation of handle bar (as drawing C).

六、FRAME SYSTEM

JW50/90/100

6-1-4 FRONT WHEEL

REMOVAL

Raise the front wheels off the ground by placing a block under the frame.

Remove the front wheel nuts, washers and wheels.

INSTALLATION

Install and tighten the four-wheel nuts

TORQUE:3.5~4.0kgf-m

Remember to put a cotter pin in the castle nut.

6-1-5 FRONT BRAKES

FRONT BRAKE INSPECTION

Remove the front wheel.

Remove the brake drum.

Measure the brake lining thickness.

The minimum limit: 1.5 ㎜

If they are thinner than the minimum limit, replace the brake linings.

Measure the brake drum inner diameter.

The maximum limit : 86 ㎜

六、FRAME SYSTEM

JW50/90/100

Turn the inner race of each bearing with the fingers.
The bearings should turn smoothly and quietly.
If the race does not turn smoothly or quietly, remove and discard the bearings.

BRAKE PANEL REMOVAL
Disconnect the brake cable from the brake arm.
Remove the brake panel from the knuckle.

Remove brake arm and cam.
Remove return spring.
Remove felt seal.

INSTALL BRAKE PANEL

Apply grease to the brake cam and anchor pin and install the cam in the brake panel.

Soak the felt seal in the engine oil and install the seal on the brake cam.

Install the brake arm on the cam by aligning the punch mark and the groove on the cam.

Tighten the brake arm bolt and nut.

TORQUE:4-7Nm

Install the brake panel on the knuckle.

Connect the brake cable to the brake arm.

Install the brake arm cover.

Tighten the screws securely.

Position the brake shoes in their original location and install the brake shoe spring.

Install the brake drum and the front wheel.

Install the castle nut and cotter pin.

六、FRAME SYSTEM

JW50/90/100

6-1-6 STEERING SYSTEM

REMOVAL OF KNUCKLE AND TIE-ROD

Remove the front wheels and brakes panel.
Remove the four self lock nuts from the tie-rod ball joints and take off the two tie-rods.

Take the rubber cap off the knuckle and remove the cotter pin on the knuckle.
Unscrew the castle nut and remove the knuckle.

TIE-ROD INSPECTION

Inspect the tie-rod for damage or bending.
Inspect the ball joint rubbers for damage, wear or deterioration.
Turn the ball joints with fingers. The ball joints should turn smoothly and quietly.

六、FRAME SYSTEM

JW50/90/100

KNUCHLE INSPECTION

Inspect the knuckle for damage or cracks.
Measure the knuckle outer diameter.
Upper minimum limit : φ 15.40 ㎜
Lower minimum limit : φ 16.90 ㎜

KNUCKLE BUSHING INSPECTION

There are two bushings in the sleeve of the front swing arm, the upper and lower bushing.
Check the knuckle bushings for wear or damage.
Measure the inner diameter of the bushings.
Upper minimum limit : φ 15.60 ㎜
Lower minimum limit : φ 17.10 ㎜

STEERING SHAFT REMOVAL

Remove the handle bar and handle bar cover.
Remove the front side cover.
Unscrew the steering shaft fixing nut from the bottom of the shaft.
Pull steering shaft carefully.

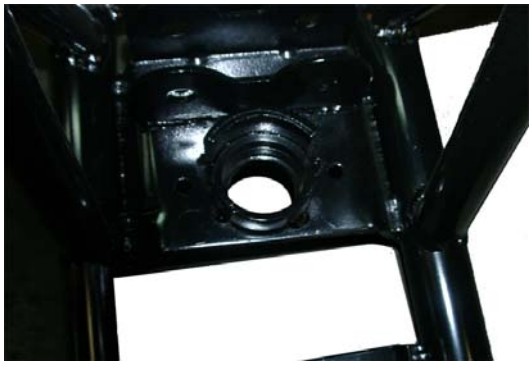
六、FRAME SYSTEM

JW50/90/100

SLEEVE INSPECTION
Remove the steering shaft.
Remove the sleeve from the shaft.
Inspect the sleeve for damage or wear, replace if necessary.
Measure the sleeve inner diameter.

STEERING SHAFT INSPECTION
Inspect the steering shaft for damage or cracks.
Measure the steering shaft outer diameter in the location of the sleeve.

STEERING SHAFT BEARING INSPECTION
The bearing is on the front part of frame.
Turn the shaft bearing by hand.
The bearing should turn smoothly and quietly.
Also check the bearing outer race figment in the holder.
Replace the bearing if necessary.



六、FRAME SYSTEM

JW50/90/100

INSTALLATION OF STEERING SHAFT

Install the steering shaft with the bushing.
Apply grease to the bushing.
Install the bushing holder and tighten the nuts.
TORQUE : 2.0~2.2kgf-m

Install the steering shaft nut and tighten it.
This nut is on the bottom side of the steering shaft.
TORQUE : 4.5~5.0kgf-m

INSTALLATION OF TIE-ROD

Install the ball joint with “L” mark on the steering shaft side.
Install the tie-rod with the mark on the wheel side.

Set the distance between the ball joints at 278 ㎜.
This is a temporary setting.

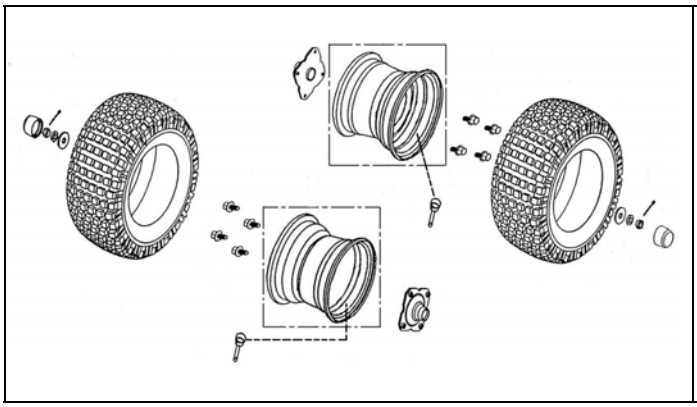
六、FRAME SYSTEM

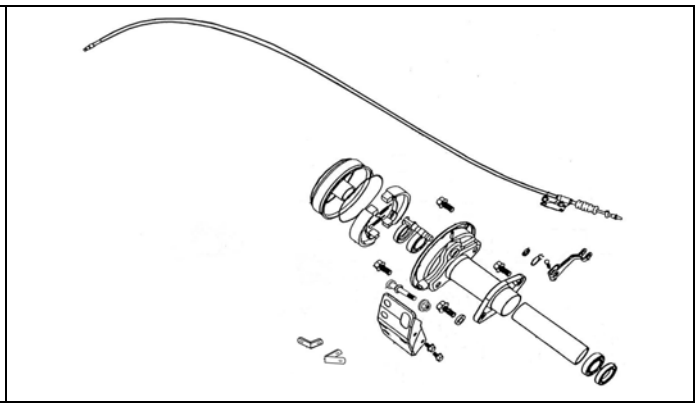
JW50/90/100

INSTALLATION OF KINGPIN
Use grease to the knuckle lower dust seal lips and install it.
Pump grease to the bushing and install the knuckle.
Tighten the knuckle nut, the setting torque is 3.0~4.0kgf-m
Fix the waterproof rubber cap.
Set the temporary distance 278 ㎜ between the ball joints.
Install the tie-rod and tighten the nuts.
The setting torque :3.5~4.0kgf-m
Install the front brake.
Install the front wheel.
Adjust the toe in by changing the distance between the ball joints on the tie rods.

6-2 REAR WHEELS

6-2-1 THE PARTS DRAWING OF REAR WHEEL ASSEMBLY





六、FRAME SYSTEM

JW50/90/100

6-2-2 TROUBLESHOOTING

BAD BRAKE PERFORMANCE	➢ BRAKE SHOES ARE WORN ➢ BAD BRAKE ADJUSTMENT ➢ BRAKE LININGS ARE OILY, GREASY OR DIRTY ➢ BRAKE DRUMS ARE WORN ➢ BRAKE ARM IMPROPERLY ENGAGED
VIBRATION OR WOBBLE	➢ AXLE IS NOT TIGHTENED WELL ➢ BENT RIM ➢ AXLE BEARINGS ARE WORN ➢ FAULTY TIRES ➢ REAR AXLE BEARING HOLDER IS FAULTY
BRAKE DRAG	➢ INCORRECT BRAKE ADJUSTMENT ➢ STICKING BRAKE CAM ➢ STICKING BRAKE CABLE

6-2-3 REMOVE REAR WHEEL AND REAR BRAKE

Lift the rear wheels off the ground.
Release the cotter pin, axle nut and washer.
Release the wheel and wheel hub.

Remove the spacer tube.
Remove the brake drun cover.

Remove the axle collar and brake drum.

Check the brake lining thickness.
The minimum limit is 2.0 ㎜

Check the brake drum for damage.
Replace if necessary.
Check the brake drum inner diameter.
The maximum limit is 130 ㎜

6-2-4 DRIVE MECHANISM
REMOVAL AND INSPECTION

Remove the rear wheel and the rear brake
Remove the lower part of the drive chain cover.

六、FRAME SYSTEM

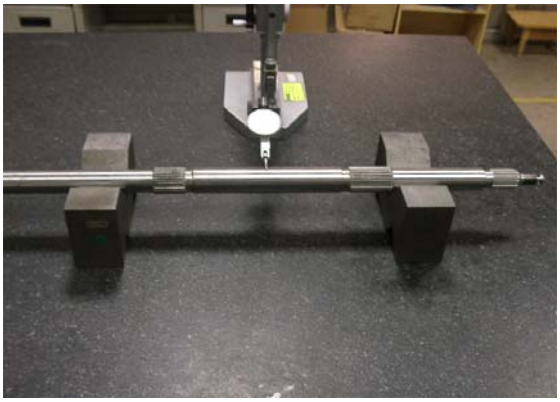
JW50/90/100

Remove the chain retainer clip and master link.

Disassembly the driven sprocket, axle and sprocket collar.
Check the driven sprocket for damage or wear.

Position the rear axle in V-blocks and check the run out.
The run out limit is 0.5 ㎜

Check the ease of rotation of the bearing by hand.
The bearings should turn smoothly and quietly.
Replace if necessary.



INSTALLATION

Add grease to the dust seal lips and install dust seals.
Assemble the rear axle and the driven sprocket.

Assemble the drive chain on the driven sprocket.
Install the master link and retaining clip.
Note the retainer clip direction (open end to back).
Install the complete drive chain cover.

6-2-5 REAR BRAKE AND WHEEL INSTALLATION

Install the brake panel
Add grease to the brake cam and anchor pin.
Install the brake arm spring and oil seal.

Assemble the brake arm aligning the punch marks on the cam and the arm. Tighten the brake arm bolt and nut with 0.8~1.0kgf-m torque. Install the adjusters.

Install the brake shoes and springs.

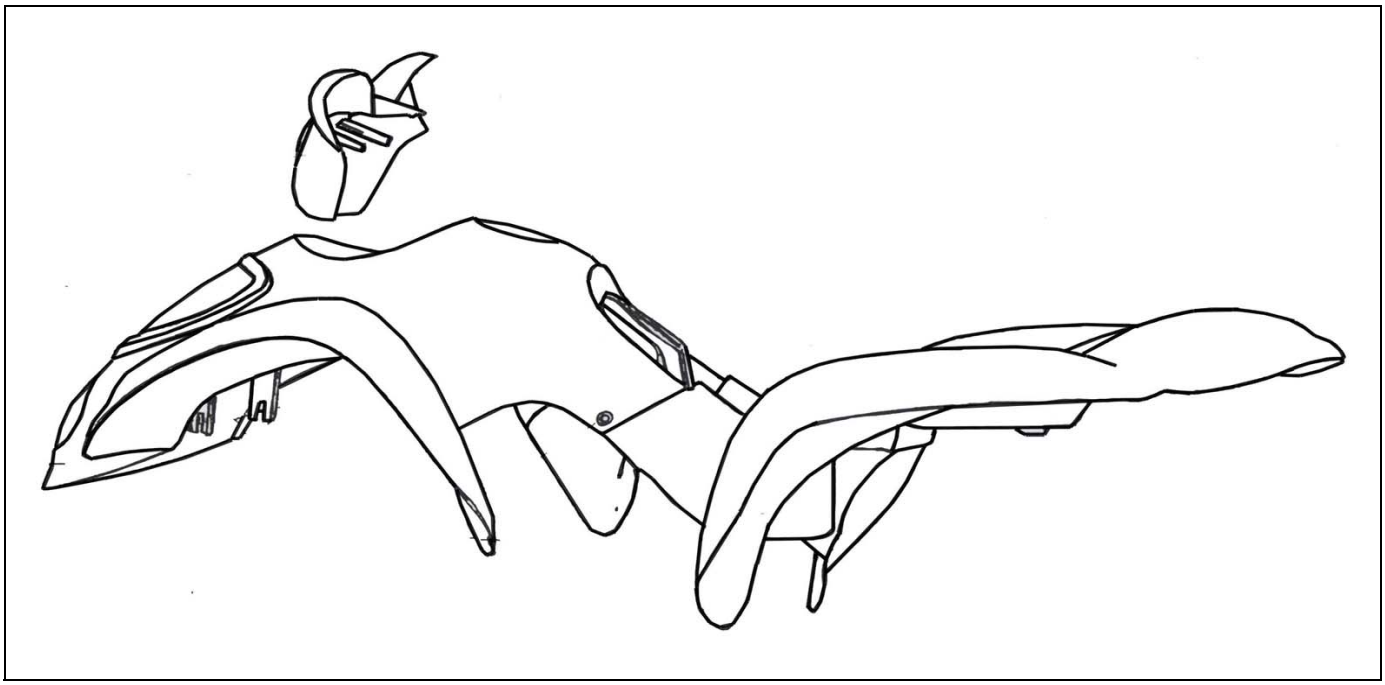
Assemble the brake drum, axle collar and brake drum cover. Mount the wheel. Tighten the rear axle nut with 4.5~5.0kgf-m
Install a new cotter pin.
Adjust free play of the rear brake.
Adjust chain slack.

6-3 FENDERS AND EXHAUST PIPE

6-3-1 DRAWING SIDE COVER ASSY.

六、FRAME SYSTEM

JW50/90/100



6-3-2 FRONT SIDE COVER REMOVAL

Remove the seat and battery.
Disconnect the main switch and head light electric wire.

Remove the six screws which fitted on front side cover (as drawing).
Remove the front side cover.

六、FRAME SYSTEM

JW50/90/100

6-3-3 REAR SIDE COVER REMOVAL

Remove the four screws which fitted on the rear side cover.
Remove the front side cover.

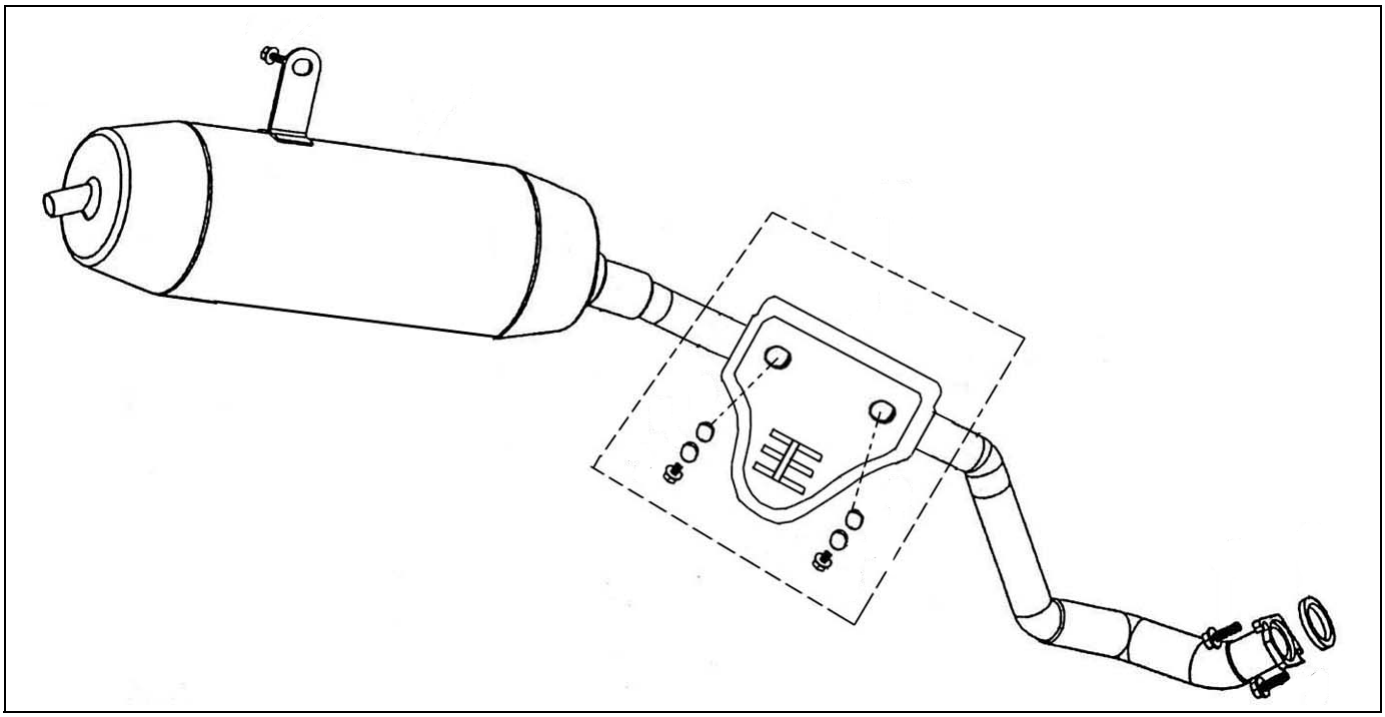
If you only want to take the rear side cover apart, please do followings steps:

- Remove the seat and battery.
- Remove the four screws which fitted on the side cover.
- Loose the four screws which fitted on the front side cover.
- Remove the two screws which fitted on the rear side cover.
- Push the front side cover forward and up, you will take the rear side cover apart.

6-3-4 EXHAUST PIPE DRAWING

六、FRAME SYSTEM

JW50/90/100



6-3-5 EXHAUST PIPE REMOVAL

Do not service the exhaust pipe while it is hot.

Unscrew the bolts that fix the exhaust pipe with the engine.

Remove the exhaust pipe mounting bolts besides the muffler body.

Remove the exhaust pipe carefully.

6-3-6 EXHAUST PIPE INSTALLATION

Installation is the reverse order of removal.

TORQUE : Exhaust muffler bolts2.5~3.0kgf-m

After installation, make sure that there are no exhaust leaks.

7-1 TROUBLESHOOTING

ENGINE STARTS&STALLS →
- IMPROPER IGNITION TIMING
- FAULTY SPARK PLUG

NO SPARK AT PLUG →
- ENGINE STOP SWITCH AT "OFF"
- FAULTY IGNITION COIL
- FAULTY GENERATOR
- FAULTY CDI UNIT
- POOR CONNECTOR CONTACET:
  Between CDI and ignition coil
  Between alternator and CDI unit
  Between CDI and engine stop switch
  Between ignition coil and spark plug
  Between generator and CDI unit

ENGINE STARTS BUT RUNS POORLY →
- IGNITION PRIMARY CIRCUIT
  Faulty generator
  Faulty CDI unit
  Faulty alternator exciter coil
  Loosened contact terminals
  Faulty ignition coil
- IGNITION SECONDARY CIRCUIT
  Faulty plug
  Loosened contact spark plug cable
- IMPROPER IGNITION TIMING
  Faulty generator
  Faulty CDI unit

CHARGING SYSTEM FAILURE →
- LOOSE, BROKEN OR SHORTED WIRE
- FAULTY ALTERNATOR
- FAULTY IGNITION SWITCH

ENGINE INTERMITTENT POWER →
- LOOSE BATTERY CONNECTION
- LOOSE CHARGING SYSTEM CONNECTION

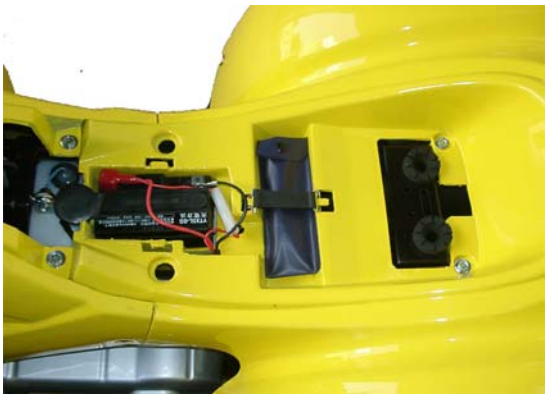
STARTER MOTOR WILL NOT TURN →
- DEAD BATTERY
- FAULTY IGNITION SWITCH
- LOOSE OR DISCONNECTED WIRE

STARTER MOTOR AND ENGINE TURN, BUT ENGINE DOES NOT START →
- FAULTY IGNITION SYSTEM
- ENGINE PROBLEMS
- FAULTY ENGINE STOP SWITCH

7-2 BATTERY REMOVAL / INSTALLATION

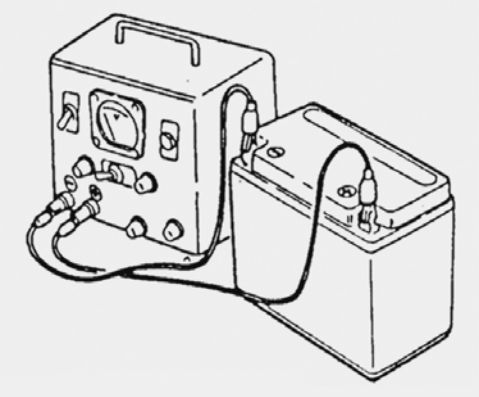
BATTERY INSPECTION
Check the voltage of the battery.
FULL CHARGE : 13.0~13.2 v
UNDER CHARGE : 12.3 v

BATTERY REMOVAL
Remove the battery holder bolt nuts.
Disconnect the negative cable and then the position cable and remove the battery.



BATTERY INSTALLATION
Install the battery in the reverse order of removal. After installing the battery, coat the terminals with clean grease.

BATTERY CHARGING
Connect charge position (+) cable to the battery positive termini.
Connect the charge negative (-) cable to the battery negative (-) terminal.
CHARGING CURRENT :STANDARD : 0.4A
SWIFTNESS : 4A
CHARGING TIME : STANDARD : 5 hrs
SWIFTNESS : 30 min

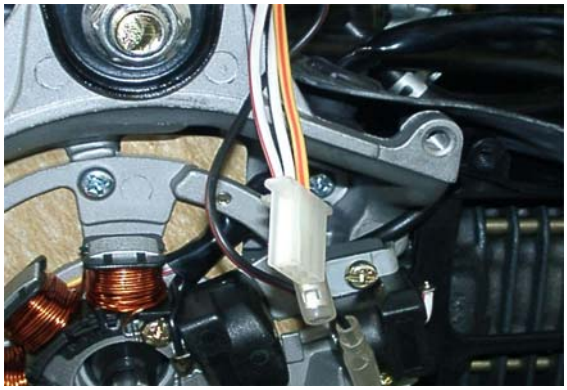


7-3 A.C.G. INSPECTION

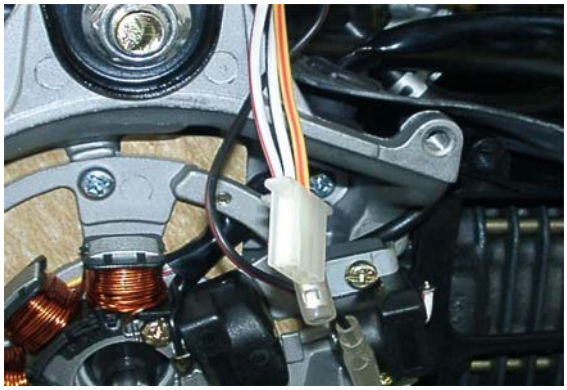
EXCITER COIL INSPECTION

Disconnect the black / red wire of A.C.G.
Check the black / red and earth wire for continuity.

STANDARD : 300Ω~1KΩ (20℃)

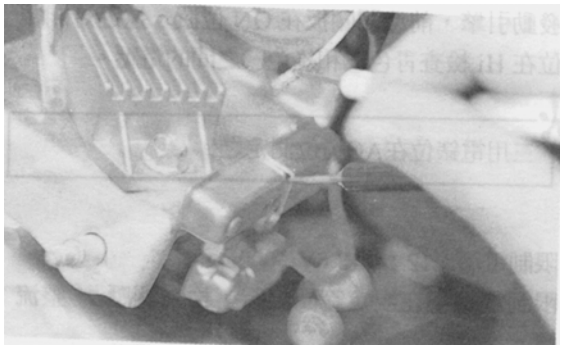


PLUSER COIL INSPECTION
Disconnect the blue / yellow wire of A.C.G.
Check the blue / yellow wire and green wire for continuity.
STANDARD : 40Ω~300Ω (20℃)



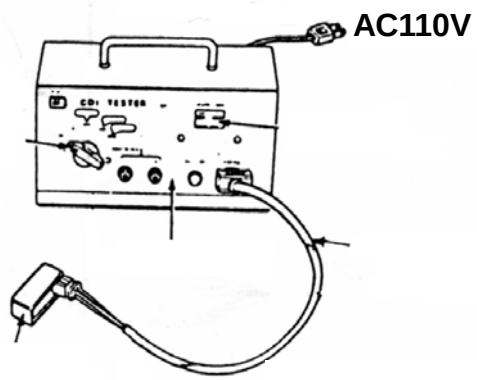
7-4 RESISTER INSPECTION

Check the continuity between the wire of resister and earth.
STANDARD:
RESISTER A:
RESISTER B:



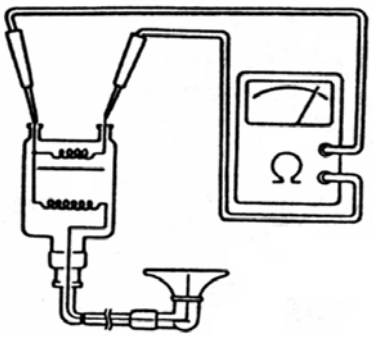
7-5 C.D.I. INSPECTION

	GOOD	NG
1. OFF	NO SPARK	—
2. P	↑	—
3. EXT	↑	SPARK
4. ON.1	SPARK	NO SPARK
5. ON.2	↑	↑



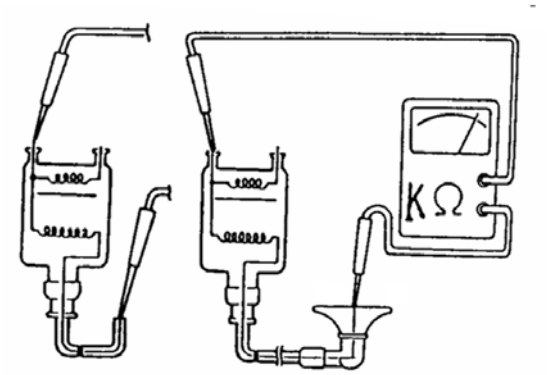
7-6 IGNITION COIL INSPECTION

Check the primary coil for continuity.
Mark connections with an ohmmeter as shown.
The coil is normal if there is continuity.
STANDARD : 0.1Ω~1.0Ω (20℃)



Check the secondary coil for continuity.
The ignite coil is correct if there is continuity.
STANDARD :

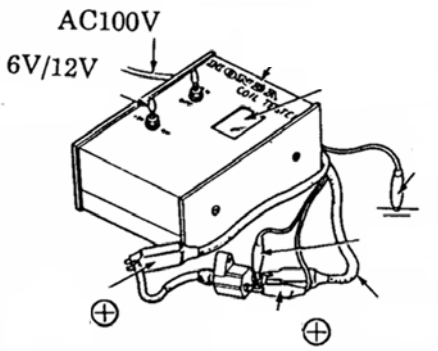
With plug cap : 7Ω~12Ω
No plug cap : 3~5Ω



Check the coil output on a ignition coil tester.
Set the tester to ignition test, dial out the electrodes and observe the spark gap.

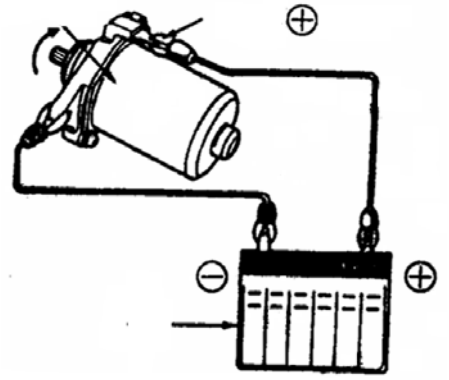
GOOD : Continuous spark.
NG : Discontinuous spark

NOTE:
Follow the instructions supplied with the tester.



7-7 START MOROTR

START MORTOR INSPECTION
Connect a battery (12V) to the motor.
Check the performance of the motor.
NOTE:
Use a fully charged battery.



7-8 START RELLEY INSPECTION

Connect a battery (12V) between (D) and (C) as show.
Check the continuity between the (A) pole (B) pole.
GOOD : continuity
NG : discontinuity

7-9 OIL LEVEL GAUGE INSPECTION

Check the continuity between the brown wire and gray wire as bellow.

OIL FLOAT POSITION		GOOD	NG		
A	UP	×	○	×	○
B	DOWN	○	×	×	○