BAJAJ

Distinctly Ahead

pulsar 135 LS

Training Notes

NOTICE

All information contained in this Training Notes is based on the latest product information at the time of publication. Bajaj Auto Limited accepts no liability for any inaccuracies or omissions in this publication, although every possible care has been taken to make it as complete and accurate as possible. All procedures and specifications subject to change without prior notice. The right is reserved to make such changes at any time without prior notice.

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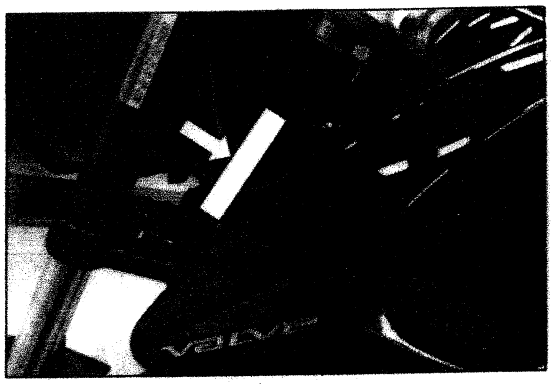
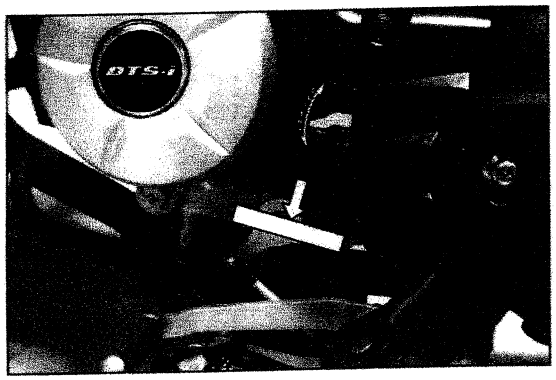
Contents

The Frame and Engine serial numbers are used to register the motorcycle. They are the unique alpha-numeric codes to identify your particular vehicle from others of the same model and type.

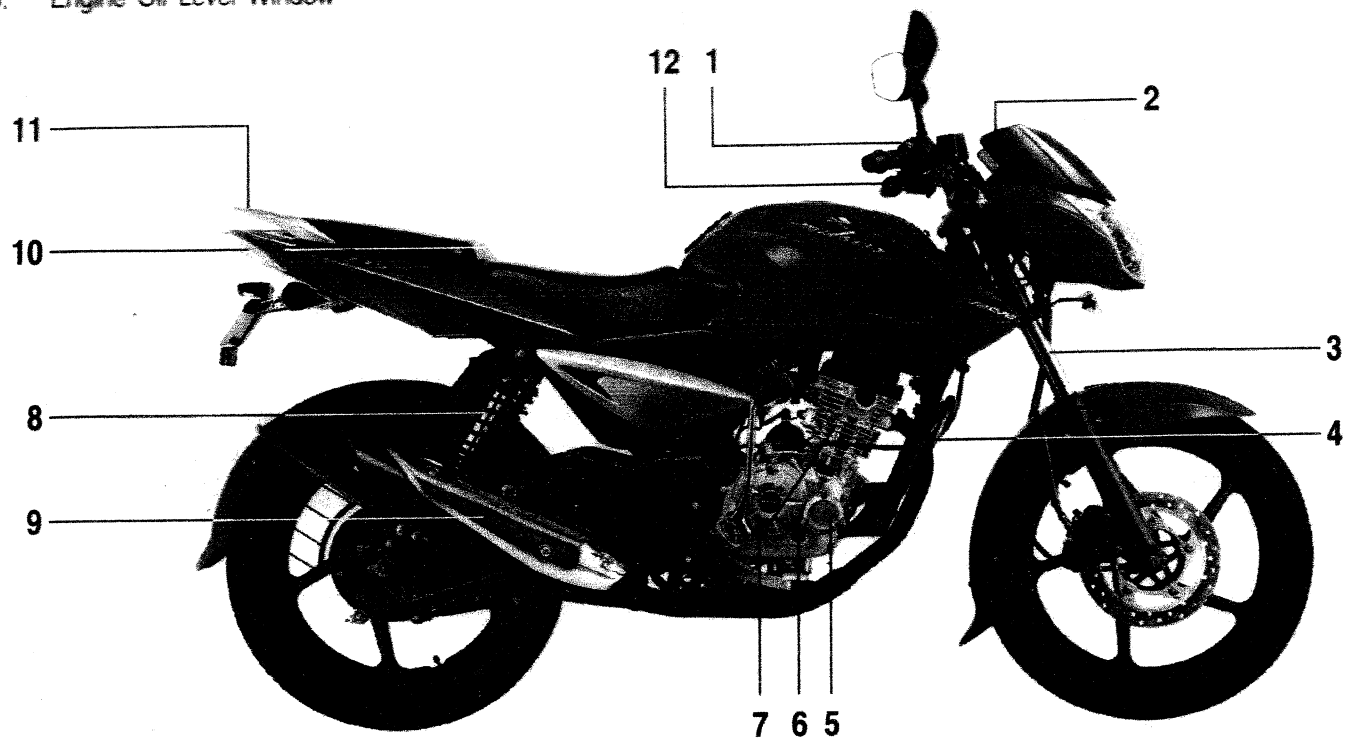


Frame Number Location
On LH Side of Steering Tube
(Alpha-Numeric - 17 Digits)

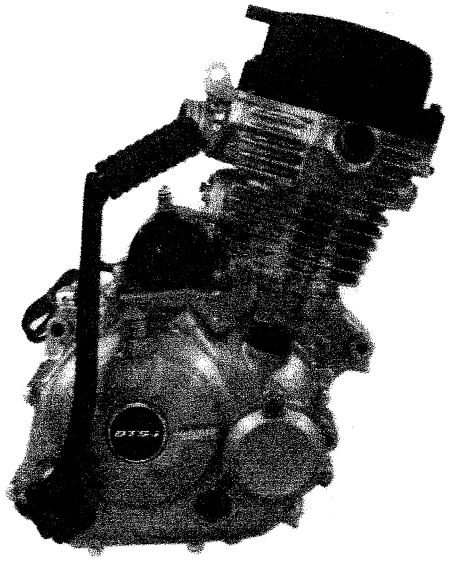


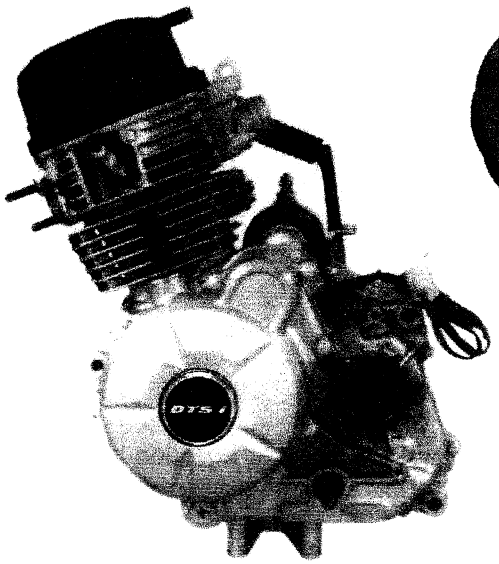
Engine Number Location
On LH Side Crankcase Near Gear Change Lever
(Alpha-Numeric - 11 Digits)

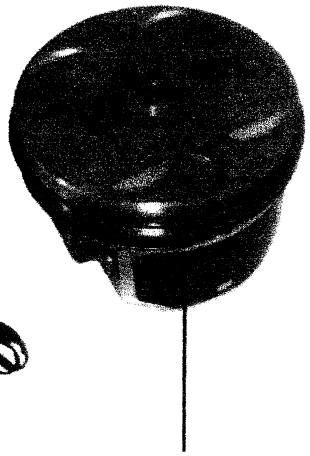
1. RH Control Switch
2. Speedo Console
3. Front Fork with Anti Friction Bush
4. Single Down Tube
5. Paper Oil Filter
6. Engine Oil Level Window
7. 4 Valve Engine - 5 Speed Transmission
8. Nitrox Rear Suspension
9. Silencer
10. LED Tail Lamp
11. Split type Grab Handle
12. LH Control Switch



PERFORMANCE



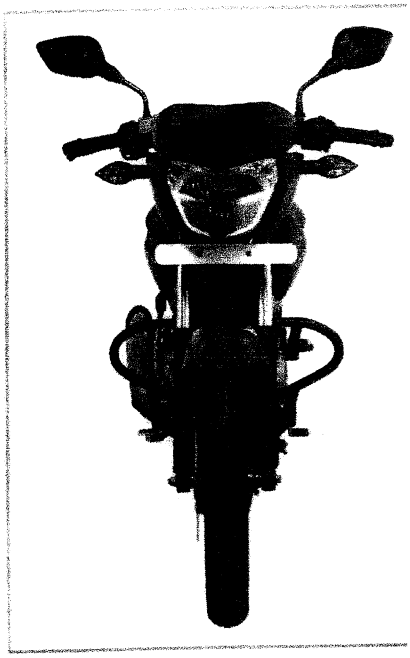




Molycote

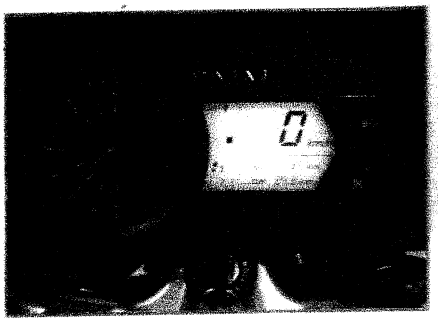
Features	Benefits
4 Valve Engine • DTSi • Engine power : 13.5 PS • Engine torque : 11.4 Nm	Innovative and advanced technology engineered for the best engine performance at all engine speeds. • More powerful • More fuel efficient • Smooth engine beats • Light weight • Absolute joy to ride.
• Engine power : 13.5 PS • Engine torque : 11.4 Nm	• Complete utilization of high engine torque • Better drive-ability & knock free performance
• Molycote piston • Nozzle oil jet in lubrication circuit	• Frictionless operation of piston, better cooling of piston crown • Better life of engine components
• Electric start • Digital multi map CDI • DC Ignition • Continuous type TPS • Auto Choke	• Feather touch engine starting – hassle free, convenient for quick stop-start in traffic. • Consistent engine performance – Power, Pick up & Mileage • Seamless changes in ignition maps for better engine performance. • No hassle of choke operation – quick & easy engine starting even in severe cold condition.
• DC Lighting system	• Constant bright beam from head light even at low engine / vehicle speed.

STYLE



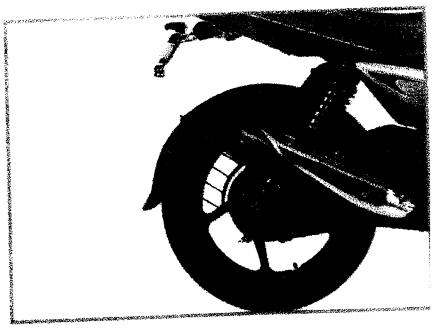
Features	Benefits
• Muscular petrol tank with tank pad • Attractive tank spoilers • Aerodynamic side covers • Split seats • Clip on handle bar • 2 piece grab rail	• Stylish & Sporty looks • Perfect Light Sports bike with premium looks. • Sporty stance
• New generation head lamp • 3 piece attractive fairing with louvers • Twin pilot lamps • Floating visor	
• Aluminum rider steps with foldable foot rests.	

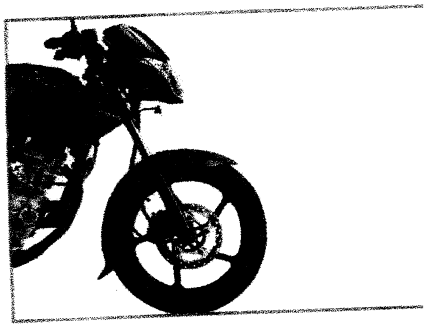
COMFORT AND CONVENIENCE



Features	Benefits
• Digital Speedometer	• Accurate display of speed, consumes minimum battery power & adds to look.
• Trip Meter	• Easy to record trip distance.
• Low Battery Indicator	• For maintaining battery in healthy condition.
• Telescopic front fork with anti-friction bush & 130 mm stroke.	• Comfortable ride on any type of roads and for any distance. • Better life of front fork oil seal & other parts of fork.
• Nitrox - gas filled rear shockers with 105 mm wheel travel	• Plush ride comfort for rider as well as pillion on all road conditions.
• MF battery with unique vent mechanism.	• No hassle of frequent topping up of battery.
• LED tail lamps.	• Low maintenance cost and enhanced battery life.
• Twin pilot lamps.	• Add to looks. • Safe driving during dawn & dust.
• Clip-on handle bar • Stylish split seat	• Enhances sporty stance - slight slanted riding posture.

SAFETY





Features	Benefits
• Robust single down tube frame with longest wheel base - 1325 mm - in its class of motorcycles.	• Safe to drive on highway.
• 240 mm dia front disc brake & 130 mm dia rear brake drum.	• Safety.
• Powerful head light, Number plate lamp, and Pass switch.	• Safe night driving. • Safe overtaking.
• Alloy wheels & unidirectional tyres.	• Easy to maneuver and safe to drive. No maintenance of spoke tightening.
• 100/90 wide rear tyre.	• Safe to drive on highway.

Engine & Transmission

Type		:	Four stroke, Natural air cooled
No. of cylinders		:	One
Bore		:	54.00 mm
Stroke		:	58.8 mm
Engine displacement		:	134.66 cc
Compression ratio		:	9.8 :1
Idling Speed		:	1400 ± 100 rpm in warm condition
Max. net power		:	13.5 PS @ 9000 rpm
Max. net torque		:	11.4 Nm @ 7500 rpm
Ignition System		:	DC, Microprocessor controlled Digital CDI with TPS
Ignition Timing		:	Variable Timing with Multiple maps
Fuel		:	Unleaded Petrol, 87 RON Minimum
Carburettor		:	BS26 with Continuous TPS
Spark Plug		:	Champion PRZ9HC & BOSCH UR4AC (Resistive)
Spark Plug Gap		:	0.6 to 0.7 mm
Lubrication		:	Wet sump, Forced Lubrication
Starting		:	Kick & Electric Start
Clutch		:	Wet, Multi Disc Type
Transmission		:	5 Speed Constant Mesh
Primary reduction		:	3.75 : 1 (75/20)
Gear Ratios	1st Gear	:	2.833 : 1 (34/12)
	2nd Gear	:	1.824 : 1 (31/17)
	3rd Gear	:	1.333 : 1 (28/21)
	4th Gear	:	1.087 : 1 (25/23)
	5th Gear	:	0.909 : 1 (20/22)
Final Drive Ratio		:	2.867 : 1 (43/15)
Overall Gear Ratios	1st Gear	:	30.458 : 1
	2nd Gear	:	19.603 : 1
	3rd Gear	:	14.333 : 1
	4th Gear	:	11.685 : 1
	5th Gear	:	09.773 : 1

Chassis & Body

Frame Type		:	Single down tube
Suspension	Front	:	130 mm Fork travel, Telescopic
	Rear	:	105 mm Rear Wheel travel, Nitrox (Gas Filled)
Brakes	Frt.	:	Hydraulically operated disc type
	Rr.		Mechanically expanding shoes
Brake Size	Front	:	240 mm Disc brake
	Rear	:	130 mm Drum brake
Tyres	Front	:	2.75 x 17, 41 P, Unidirectional
	Rear	:	100/90, 17, 55 P Unidirectional
Tyre Pressure	Front	:	1.75 Kg / Cm^2 (25.0 PSI)
	Rear (Solo)	:	2.00 Kg / Cm^2 (28.5 PSI)
	Rear (with Pillion)	:	2.25 Kg / Cm^2 (32.0 PSI)
Rims	Front	:	1.4 x 17" 5 Spoke Alloy Wheel
	Rear	:	2.15 x 17" 5 Spoke Alloy Wheel
Fuel Tank Capacity		:	8.0 Liters
Usable Reserve		:	1.6 Liters
Unusable Reserve		:	0.9 Liter

Controls

Steering		:	Handlebar
Accelerator		:	On handle bar, RH grip
Gears		:	Left foot pedal operated, Step shift
Brakes	Front	:	On handle bar, RH lever.
	Rear	:	Pedal operated by RH foot

Electricals

System	:	12 V (DC)
Battery	:	12V 5Ah MF Type (Electric Start)
Head Lamp	:	12 V 35/35 W, HS-1 (Halogen)
Tail / Stop Lamp	:	LED Type
Side Indicator Lamp	:	12 V 10 W (4 Nos. - Amber Bulbs)
Position Lamp	:	12 V 5 W (2 Nos.)
Rear Number Plate Lamp	:	12 V 5 W
Speedometer Back light	:	LCD Back light
Neutral Indicator	:	LED
Turn Signal Indicator	:	LED
Hi-beam Indicator	:	LED
Reserve Indicator	:	LED
Horn	:	12 V DC, Type 2A (2 Nos.)
Fuel Gauge	:	TFR Type

Dimensions

Length	:	1995 mm
Width	:	765 mm
Height	:	1045 mm
Wheel Base	:	1325 mm
Saddle Height	:	800 mm
Turning Circle Radius	:	2300 mm (min)
Ground Clearance	:	170 mm

Weights

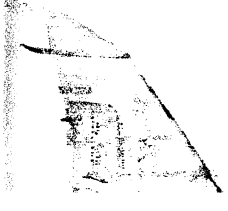
Vehicle Kerb Weight	:	122.0 Kg (Electric Start)
Gross Vehicle Weight	:	252.0 Kg (Electric Start)

Performance

Maximum speed	:	115 Kmph (with single rider 68 Kg)
Climbing ability	:	26%

Notes :

- Values given above are nominal & for guidance only, 15% variation is allowed to cater production & measurement.
- All dimensions are under un-laden conditions.
- Definitions of terminologies wherever applicable are as per Relevant IS/ISO standards.
- Specifications are subject to change without notice.



What are the distinct features of 'Pulsar 135 LS'?

Distinct Features :

- **Engine:** In addition to the proven DTS-i engine with ExhausTEC technology, It has following key features.
  - 4 Valve engine for optimization of volumetric efficiency & improved scavenging process.
  - Oil jet for piston cooling.
  - Molycote piston
  - Electric start for feather touch starting of the engine & DC Ignition system.
  - Auto Choke that enables quick start of the engine even in severe cold condition.
  - Highest power to weight ratio in its class of motorcycles.
- **Styling:** 'Pulsar 135 LS' wears a new Sporty look that has following aesthetics
  - New generation Head lamp with Stylish fairing
  - Attractive petrol tank with unique spoilers & side covers
  - Stylish Split seats
  - Clip on Handle Bar
  - 2 piece grab rail
  - LED tail lamp
- Front fork with anti friction bush & Nitrox (gas filled) rear shockers for most comfortable & smooth ride
- Bigger Tyres & longest wheel base in its class of motorcycles Widest rear tyre (100/90 17" 55P) & 1325 mm wheel base for the best road grip & safe highway driving.

What LS stands for in the brand name of the bike?

LS stand for "Light Sports".

What are the advantages of 4 Valve engine incorporated on 'Pulsar 135 LS'?

4 Valve engine will have following advantages.

- Optimized intake of fresh air fuel mixture and disperse of exhaust gases.
  - Better Power
  - Better Fuel Efficiency
  - Low Emissions
- Better Power to Weight Ratio
- No limitation of engine RPM 4 valve engine doesn't have RPM limitation that a 2 - valve engine has.

How come 'Pulsar 135 LS' being 135 cc delivers power near to 150 cc engine? OR

How 'Pulsar 135 LS' delivers better engine performance?

'Pulsar 135 LS' has a DTS-i engine with 4 Valves, 2 Intake & 2 Exhaust valves.

With all other proven technology of DTS-i breed, the 4 Valve incorporated in the engine helps in supplying more volume of air-fuel mixture & better evacuation of burnt gases which leads to

- Optimized volumetric efficiency & improved scavenging process.
- Very less scavenging losses

Thus 'Pulsar 135 LS' engine delivers more power & better performance.

- ***Why only Pulsar 135 LS is having 4 valve engine whereas other Pulsars still come with 2 valve engine?***
- 'Pulsar 135 LS' being a "Light Sports" bike needs light weight & compact engine. The 4 valve engine technolog developed by Bajaj Auto gives cutting edge to 'Pulsar135 LS' over 2 valve engine in terms of power & pick up engin performance when compared with similar capacity 2 valve engines.
- Other Pulsars are heavy sports bikes & having regular 2 valve engines of higher capacities.
- Pulsar 135 LS shows a glimpse of future Pulsars to come.

- ***Can existing Pulsar 150 / 180 DTSi bike be converted into 4 valve technology?***
- No. It is not possible.

- ***Is the life of 4 valve engine compromised since the engine delivers high performance?***
- Absolutely No. 4 valve engine components are made of superior material composition and are well designed t withstand higher engine power, torque - performance.
- Moreover, a great amount of durability & reliability work ensures that there will be no impact on the life of the engine.
- 4 Valve technology is tried and tested under extreme conditions by Bajaj Auto Ltd.

- ***Is the running & maintenance cost of 4 Valve engine is higher than that of regular 2 Valve engine?***
- Absolutely No.
- In fact, the mileage of the bike is better than equivalent capacity 2 valve engine if driven sanely.
- The maintenance cost is similar to 2 valve engine.

- ***Is 4 Valve technology adopted by any other 2 wheeler manufacturer?***
- No.
- Bajaj has always been the pioneer with indigenous new technology by Indians for Indians. This is an area where Baj has always been distinctly ahead.

- ***What is the difference between 'Pulsar 150 DTSi' and 'Pulsar 135 LS'?***
- Pulsar 150 DTSi is engineered to deliver more power (14.09 ps @ 8500 rpm) & torque (12.76 Nm @ 6500 rpm) whi Pulsar 135 LS is designed to deliver power of 13.5 ps @ 9000 rpm & torque 11.4 Nm @ 7500 rpm.
  - Pulsar 150 DTSi is having 150 cc bigger 2 valve engine while Pulsar 135 LS is having compact & light weig smaller capacity 4 valve engine 135 cc.
  - Pulsar 150 DTSi is a complete sports bike while Pulsar 135 LS is a light sports bike.
  - Pulsar 150 DTSi is having heavy black colour engine & alloy wheels while Pulsar 135 LS is having silver colo engine & black alloy wheels.

- ***What is the benefit of Auto Choke ?***
- Basically the choke is a system of carburetor, which enables easy engine starting in cold condition. In case of manu choke, if rider forgets to put off choke, this effects on fuel efficiency adversely.
- However, in Auto choke system incorporated on 'Pulsar 135 LS' no manual intervention is required for switching 'On' 'Off' the choke. It operates automatically as per the need of engine.

How does DC ignition / Lighting system work? What are its advantages?

Both Ignition & Lighting works on Direct Current (DC) supplied by the Battery and not directly from the AC current generated by Magneto.

Advantages of DC Electrical System -

1. Easy & quick starting of engine due consistent power supply even at low engine rpm
2. Consistent engine performance Power, Pick up, Mileage
3. Constant bright beam of head light even at very low engine / vehicle speed

Would it be possible to start the engine if Battery is discharged or the fuse is blown-off?

Yes. DC electrical system of 'Pulsar 135 LS' is designed in such a way that engine can be started by kick even if battery is discharged or fuse gets blown off. But it is advised to get the battery charged immediately if found discharged.

In case, battery is disconnected or removed and given for charging to service center, can the bike be started?

No. this should not be done.

Though engine can be started without battery, it should not be done since the electrical & electronic components of vehicle would get damaged due to electrical surge.

Does DC system vehicle cost more in maintenance?

No. It is important to ensure Good health of battery that's all!

Description	**BAJAJ PULSAR 135 LS**	Hero Honda Passion Pro	Hero Honda Glamour	Honda Shine	Honda Stunner	**Advantages of BAJAJ PULSAR 135 LS DTS-i**
POWER AND PERFORMANCE						
Engine C.C	134.66	97.2	124.7	124.6	124.7	4 valve DTSi engine engineered for the best performance.
Engine H.P	13.5 PS @ 9000 rpm	7.5 PS @ 8000 rpm	9.13 PS @ 9000 rpm	10.44 PS @ 7500 rpm	11.15 PS @ 8000 rpm	
Engine Torque	11.4 Nm @ 7500 rpm	7.95 Nm @ 5000 rpm	10.35 Nm @ 4000 rpm	10.9 Nm @ 5500 rpm	11 Nm @ 6500 rpm	
Transmission	5 Speed	4 Speed	4 Speed	4 Speed	5 Speed	• Utilization of high engine torque. • Excellent drive-ability
Max Speed	115 Kmph	Not Specified	85 Kmph	90 Kmph	Not Specified	Highest in its class
Starting Mechanism	Electric + Kick Start	Electric Start Optional	Electric + Kick Start	Electric + Kick Start	Electric + Kick Start	Soft & easy self start
Kerb Weight	122 kg	116 kg	129 kg	122 kg	129 kg	Highest power to weight ratio in its class. The best performance
Power to Weight Ratio	110.65 ps/ton	64.66 ps/ton	69.77 ps/ton	84.43 ps/ton	85.27 ps/ton	
Ignition System	DC Multi Map CDI	CDI	CDI	CDI	DC Multi Map CDI	Seamless changes in ignition map according to change in vehicle loa Quick & effort less engine starting
Trics	YES	No	No	No	No	
Exhaust System	YES	No	No	No	No	High engine torque & knock free engine.
STYLE						
Pilot Lamp	Twin Pilot Lamps	No	No	No	Twin Pilot Lamps	• Add to looks. • Safe driving during dawn & dus
Tail Lamp LED	LED	Regular	Regular	Regular	Regular	• Minimal consumption battery energy & long life. • No maintenance of bulb
Rear No. Plate Lamp	YES	NA	NA	NA	NA	Clear visibility even from long distance
Styling	Sporty	Conventional	Conventional	Conventional	Over Done	• Sporty looks. • The best in its class of bikes.
Graphics	Unique	Regular	Regular	Regular	New	
Head Light With Fairing	Fairing with visor. New design adds to sporty looks	Regular	Regular	Regular		

2

I Check.....I Maintain

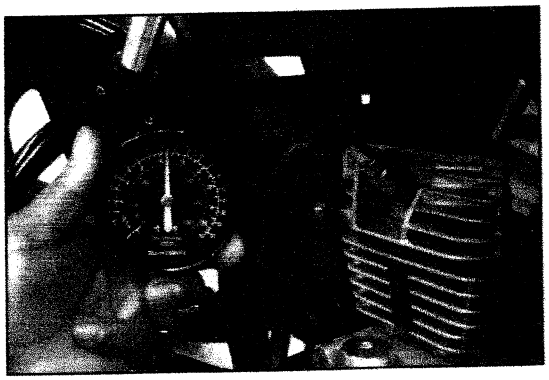
PDI Check List

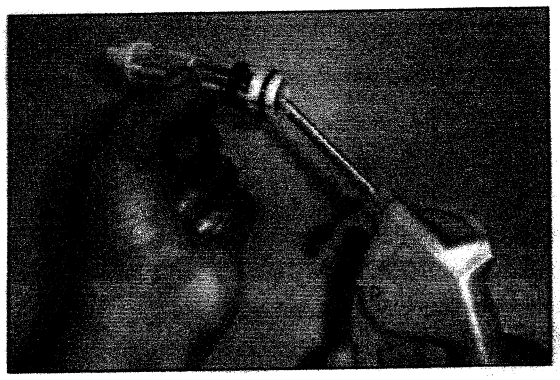
PDI SOP & Time Chart

Periodic Maintenance & Lubrication Chart

Periodic Service SOP

Periodic Maintenance Points





Frame No. MD2JDZZSC

Engine No. JE

Dealer's Name _____ **Dealer's Code** _____

Date of PDI _____ **PDI done by** _____

Please insure that following checks are carried out during PDI before delivery of vehicle.

To Check	Check For	✓ if OK or ✗ if NOT OK	Observations / Remarks
ENGINE			
Engine oil SAE 20W50 API 'SJ' **OR** 'SL' + JASO MA Grade	Oil level OK / Top up if required	☐	
	Oil leakage if any - Specify source of oil leakage	☐	
Idling RPM (Warm up)	Check / Adjust if required (1400 ± 100 rpm)	☐	
Kick Operation	Smooth operation, Tightness of kick boss bolt	☐	
Fasteners (Check torque)	Magneto, Clutch & Oil filter cover bolts - 0.9 ~ 1. Kgm	☐	
	Side stand bracket - 1.8 ~ 2.2 Kgm	☐	
	Engine foundation nut / bolts - M 10 : 3.2 Kgm, M 8 : 2.2 Kgm)	☐	
	Cap oil strainer - 0.9 ~ 1.1 Kgm	☐	
	Kick boss bolt - 2.0 ~ 2.2 Kgm	☐	
	Silencer bracket bolts - 3.5 Kgm, Mouth nuts - 2.0 ~ 2.2 Kgm	☐	
	Cylinder head cover bolts - 0.9 ~ 1.1 Kgm	☐	
FUEL SYSTEM			
Fuel Tank / Pipes	No leakage / Correct fitment	☐	
Carburettor	No leakage / Correct fitment	☐	
Fuel Cock	Smooth operation	☐	
		☐	
Tyre Pressure	Front : 1.75 Kg / Cm^2 (25.0 PSI)	☐	
	Rear (Solo) : 2.00 Kg / Cm^2 (28.5 PSI)	☐	
	Rear (with Pillion) : 2.25 Kg / Cm^2 (32.0 PSI)	☐	
CONTROLS			
Brakes	Front brake lever free play - 2 ~ 3 mm	☐	
	Rear brake pedal free play - 20 ~ 25 mm	☐	
Throttle	Grip free play - 2 ~ 3 mm. Smooth operation	☐	
Clutch	Smooth operation, No juddering, Free play - 2 ~ 3 mm	☐	
Clutch Cable	Ensure correct routing	☐	
Drive Chain	Slackness standard - 25 ~ 30 mm, Service Limit - 40 mm	☐	
SUSPENSION			
Front Fork	No leakage. Smooth working	☐	

To Check	Check For	✓ if OK or ✗ if NOT OK	Observations / Remarks
Rear Shock Absorber	Spring adjuster notch position : 2nd notch (Standard)		
Steering	Smooth operation (No play / Sticky movement)	☐	
Lock Operation	Steering cum Ignition, Seat, LH side cover lock	☐	
Fasteners (Check torque)	Front axle nut - 4.5 ~ 5.5 Kgm	☐	
	Rear axle nut - 8.0 ~ 10.0 Kgm	☐	
	Front fender bolts - 2.0 ~ 2.2 Kgm	☐	
	Fork pipe top bolts - 3.0 ~ 3.2 Kgm	☐	
	Fork under bracket bolts - 2.5 ~ 3.0 Kgm	☐	
	Holder handle upper bolts (4 Nos) - 2.0 ~ 2.2 Kgm	☐	
	Rear shock upper nut - 3.0 ~ 3.2 Kgm	☐	
	Swing arm - 4.5 ~ 5.5 Kgm	☐	
	Rear shock mounting lower bolt - 2.8 ~ 3.2 Kgm	☐	
	Steering stem head nut - 5.0 Kgm		
ELECTRICAL		☐	
Battery	Charge status (12.5 V open circuit terminal voltage)	☐	
	Tightness of battery terminals / cables	☐	
	Position of fuse box	☐	
All Bulbs Working	Head light, Pilot lamps - 2, LED tail / stop, Side indicators, Speedo bulb,	☐	
	No. plate lamp, Turn pilot, High beam, Battery & Neutral indicator	☐	
Switch Operation	RH & LH control switch, Ignition switch & Brake switch (Front & Rear)	☐	
Starter Motor	Proper working / Engagement		
TEST DRIVE		☐	
Starting	Cold start & Warm start	☐	
	Idling speed (Warm condition) (1400 ± 100 rpm)	☐	
Drive ability	Throttle response	☐	
	Brakes - Front & Rear	☐	
	Speedometer, Odometer & Trip meter	☐	
CO % Check	Co should be 2 ± 0.5 % in engine warm condition at idling RPM		
Cleaning	Wash & Clean vehicle properly	☐	

IMPORTANT NOTE :

Look for any external damages in transit : Please check, record & rectify send report with photos.

- Moisture / Oil collecting tube of air filter should be properly fitted and routed correctly.
- **Both RH & LH side spark plug caps must be tightly secured and ensure proper functioning of spark plugs.**
- **Auto choke functioning on carburettor. Apply 12 V DC supply to terminal & check its functioning without removing from t carburettor.**
- **TPS on carburettor for functioning.**
- **Thermal sensor resistance at room temperature (25°C to 35°C) with multi meter. (7 K Ohm to 10.5 K Ohm)**

Sr. No.	Activity / Inspection Points	Position of the Technician w.r.t. Vehicle	Standard Man Minutes	GP Tools, Special Tools, PNR & PNR-A, M & T Instruments, Equipments	Consumables
1	Identify & park the vehicle on work bay		0.80	Lifter bay	
2	Remove the thermocol & additional packing if any		0.06		
3	Open petrol tank & pour petrol		0.23	Measuring jar, Funnel	Petrol, Waste cloth
4	Check for smooth operation of fuel cock lever	LH	0.12		
5	Check accelerator cable free play	LH	0.08	8-9, 10-12 OE spanner, Nose plier	
6	**Check TPS on carburettor for proper functioning as per the procedure**	LH	4.60	Multi meter, 8 No. Ring spanner	
7	**Check thermal sensor resistance at room temperature (25°C to 35°C) with multi meter. (7 K Ohm~10.5 K Ohm)**	LH	0.60	Multi meter, 8 No. Ring spanner	
8	Check gear shifter lever operation	LH	0.07	10 no. Ring & 17 no. OE spanner	
9	Check battery voltage, Top up electrolyte level by distilled water (If required), Apply petroleum jelly, Connect terminals properly	LH	0.57	Screw driver, Distilled water, Filler, 8 mm 'T' spanner, Hydrometer, Battery charger, Battery load tester	Cloth, Fine polish paper, Petroleum jelly, Distilled water
10	Lubricate drive chain and Check / Adjust chain slackness if required	LH	0.38	10-11 OE spanner, 14-15,16-17, 24-27 ring spanner	Cloth, SAE 90 oil
11	Inspect rear shock absorber setting and correct if necessary	LH	0.09	Special tool, Spanner	Standard setting : 2nd notch
12	Check front brakes for efficient working and adjust if required	Front / RH	0.20	14-15 Ring OE spanner	
13	Check and Adjust steering & handle bar for free movement	RH / Front	0.16	16-17 Ring spanner, Fork spanner, 32 no. socket & Handle ratchet	
14	Check front mudguard alignment w.r.t. front wheel	Front	0.04		
15	Check and correct tyre inflation pressure - Front wheel	Front	0.20	Pencil type pressure gauge, Analogue / Digital type pressure gauge, Air filling alve	
16	Check & Top up engine oil level if required	RH	0.08		SAE 20W50 API 'SJ' / 'SL' + JASO 'MA'
17	Check clutch cable operation & Adjust free play if required	RH	0.10	12-13 OE spanner	
18	**Check auto choke functioning on carburettor. Apply 12V supply to its terminals & check for proper functioning without removing it from the carburettor**	RH	1.00	Multi meter, Auxiliary 12V DC power source	

Sr. No.	Activity / Inspection Points	Position of the Technician w.r.t. Vehicle	Standard Man Minutes	GP Tools, Special Tools, PNR & PNR-A, M & T Instruments, Equipments	Consumables
19	Inspect rear shock absorber setting and Correct if necessary	RH	0.09	Special tool, Spanner	Standard setting : 2nd notch
20	Check rear brakes for efficient working and Adjust if required	Rear	0.08	14-15 No. OE spanner, Nose plier	Cloth, Graphite, Grease, Fine polis paper
21	Check & Correct tyre inflation pressure - Rear wheel	Rear	0.24	Pencil type pressure gauge, Analogue / Digital type pressure gauge, Air filling alve	
22	Check all important nut bolts for torque and tightness • Side stand bracket (Torque - 1.8~2.2 Kgm) • Silencer mouth nuts (Torque - 2.0~2.2 Kgm) • Engine foundation bolts (Torque - M10: 3.2 Kgm, M8 : 2.2 Kgm) • Handle bar upper bracket mounting bolt • Handle bar lower bracket mounting bolt • Fork side & top bolts • Steering special nut • Front axle nut • Swing arm pivot axle nut • Silencer cover shield allen bolts • Both LH / RH engine mountings bolts • RSA dome nuts, Lower bolts	LH / RH	1.90	12-13, 14-15, 16-17, 18-19 Ring spanner, 32 No. socket spanner with Handle ratchet, Piston grip PNR Dial type torque wrench	
23	Check the following and Lubricate if necessary a. Rear brake lever b. Rear brake pedal / cam c. Pillion foot rest d. Center stand e. Side stand f. Kick lever boss pin g. Clutch lever h. Front brake lever / cam	LH / RH / Front / Rear	1.10	Oil can	SAE 20W50 oil
24	Check all locks for proper operation	LH / RH	0.33		
25	Ensure proper functioning of both the spark plugs. Spark plug caps must be tightly secured	LH / RH	0.70		
26	Start vehicle, Check operation of electrical like - Head light, Number plate light, LED tail light, Brake light, Horn, Speedometer, Trip meter, Odometer, Side indicators, Pilot lights & pass light working	LH / RH	0.33		

Sr. No.	Activity / Inspection Points	Position of the Technician w.r.t. Vehicle	Standard Man Minutes	GP Tools, Special Tools, PNR & PNR-A, M & T Instruments, Equipments	Consumables
27	Check idling RPM & CO%	LH / RH	0.68	Small screw driver	CO-HC analyzer, Tachometer, Silicon tube (300mm length)
28	OE accessories fitment - Mirrors RH & LH	LH / RH	0.76	17 mm OE spanner	
29	OE accessories fitment - Leg guard	LH / RH	3.96	12 No. box / Ring spanner	Piston grip PNR
30	OE accessories fitment - Saree guard	LH	0.55	12-13 Ring spanner	
31	Test drive the vehicle, Check working of speedometer. Study of job card and Verify work done. Take vehicle out & park		1.14	OE spanner, Ring spanner	
32	Clean / Wash the vehicle before delivery		1.00		
	Total SMM		**22.24**		
33	Repair for any other defects seen or observed during test drive				
Expected Output in 480 Minutes / Man / 22 Vehicles					

GPT : General Purpose Tools **SPT** : Special Tools **PNR** : Pneumatic Nut Runner **RSD** : Ratchet Screw Driver
PNR-A : Pneumatic Nut Runner Attachments **M&T** : Measuring & Testing Equipment

Note :

1. ***Total time taken for carrying out PDI of 'Pulsar 135 LS is within 22 minutes approximately.***
2. ***That means in a shift of 480 minutes, One technician can do 22 vehicles PDI comfortably.***

PERIODIC MAINTENANCE & LUBRICATION CHART

Sr. No.	Operation	Servicing	RECOMMENDED FREQUENCY							
			1st	2nd	3rd	4th	5th	6th	7th	
		Kms	750	5000	10000	15000	20000	25000	30000	
1.	Servicing		✓	✓	✓	✓	✓	✓	✓	1st - 750 Kms / 30 Days 2nd onward @5000 Kms
2.	Engine idling speed / CO%	A	A	A	A	A	A	A	A	
3.	Valve tappet clearance	A	A	A	A	A	A	A	A	
4.	Engine oil* - Bajaj DTS-i 10000	R	R		R		R		R	Replace at 10000 Kms*
5.	Oil strainer / Centrifugal filter	CL	CL		CL		CL		CL	Clean at 10000 Kms
6.	Engine oil filter / Paper oil filter	R	R	R	R	R	R	R	R	Replace at every service
7.	Spark plug functioning / Gap (2 nos.)	C, A, R	C, A	C, A	C, A	R	C, A	C, A	R	Replace at every 15000 Km
8.	Air cleaner element Clean / Replace**	CL, R	CL	CL	CL	R	CL	CL	R	Clean at every 5000 Kms Replace at every 15000 Km
9.	Air filter cover 'O' Ring	R					R			Replace at every 20000 Km
10.	Fuel cock sediment bowl cleaning	CL		CL	CL	CL	CL	CL	CL	
11.	Carburettor float bowl cleaning	CL			CL		CL		CL	Clean at every 10000 Kms
12.	Carburettor rubber duct	C, R	C	C	C	C	R	C	C	Replace at every 20000 km
13.	Fuel pipes	C, R	C	C	C	C	R	C	C	Replace at every 20000 km
14.	Battery electrolyte level	C, A	C, A	C, A	C, A	C, A	C, A	C, A	C, A	
15.	*Clutch lever free play*	C, A	C, A	C, A	C, A	C, A	C, A	C, A	C, A	
16.	Throttle grip play	C, A	C, A	C, A	C, A	C, A	C, A	C, A	C, A	
17.	Rear brake pedal free play	C, A	C, A	C, A	C, A	C, A	C, A	C, A	C, A	
18.	Brake lining or pad wear	CL, R		CL	CL	CL, R	CL	CL	CL, R	Replace at every 15000 km
19.	Brake fluid level / Top up / Replace	C, A, R	C, A	C, A	C, A	C, A	C, A	C, A	R	Replace at every 30000 km
20.	Master cylinder cup and dust seal	R							R	Replace at every 30000 km
21.	Caliper piston seal and dust seal	R							R	Replace at every 30000 km
22.	Brake hose pipe	C, R							C, R	Replace at every 30000 km
23.	Brake cam & pedal pivot pin	L				L			L	
24.	Steering play	C, A	C, A	C, A	C, A	C, A	C, A	C, A	C, A	
25.	Steering stem bearing	C, L, R			C,L,R		C,L,R		C,L,R	
26.	All fasteners tightness	C, T	C, T	C, T	C, T	C, T	C, T	C, T	C, T	
27.	Rear sprocket fasteners	C, T	C, T	C, T	C, T	C, T	C, T	C, T	C, T	
28.	Rear wheel rubber shock damper	C, R			C, R		C, R		C, R	Replace at every 10000 kr
29.	Silencer drain hole cleaning	CL	CL	CL	CL	CL	CL	CL	CL	Clean at every 5000 Kms
30.	Cylinder head de-carbonising, valve lapping & Replace valve oil seals	CL				CL			CL	Clean at every 15000 Kms
31.	Engine air breather tube	R					R			Replace at every 20000 K
32.	Drive chain slackness adjustment & lubrication	C, A, L	C,A,L	C,A,L	C,A,L	C,A,L	C,A,L	C,A,L	C,A,L	Lubricate at every 500 km A- slackness whenever re
33.	Drive chain remove, clean, insp. & lubricate (O/H)	CL, L			CL, L		CL, L		CL, L	At every 10000 Kms
34.	Drive chain link lock	R			R		R		R	Replace at every 10000 K
35.	Wheel bearing (for non sealed bearings only)	C, L					C, L			At every 20000 Kms

Sr. No.	Operation		RECOMMENDED FREQUENCY							
		Servicing	1st	2nd	3rd	4th	5th	6th	7th	
		Kms	750	5000	10000	15000	20000	25000	30000	
36.	Tyre tread wear (replace if worn out till TWI limit)	C, R			C, R	C, R	C, R	C, R	C, R	At every 5000 kms i.e. at every service after 2nd service
37.	Front fork oil	R					R			Replace at every 20000 Kms
38.	TPS, Thermal sensor & Auto choke functioning	C, A	C, A	C, A	C, A	C, A	C, A	C, A	C, A	At every 5000 Kms
39.	Rear shock absorber- Check gas pressure	C, A					C, A			At every 20000 Kms.
40.	Starter clutch bush kit	CL, R				CL, R			CL, R	
41.	Clutch switch cleaning	CL			CL		CL		CL	
42.	General lubrication	L	L	L	L	L	L	L	L	
43.	Swing arm pivot pin lubrication	L					L			Lubricate at every 20000 Kms

● - Indicates operation to be performed

* - More frequent cleaning may be required when driving in dusty condition

A - Adjust • C - Check • CL - Clean • L - Lubricate • T - Tighten • R - Replace

Note :

Parts / Lubricants to be replaced as per Periodic Maintenance & Lubrication Chart are mandatory and the same are chargeable to customer.

Recommended Oil :

"Bajaj DTS-i 10000" a high performance engine oil developed by Bajaj auto, specially formulated for vehicles with DTS-i engine.

Bajaj Auto recommends "Bajaj DTS-i 10000" engine oil for 10,000 kms drain interval, better performance of engine components & warranty benefits.

Bajaj DTS-i 10000	SAE 20W50 of API 'SL', JASO MA Grade.
Replacement Frequency*	1st replacement at 750 Kms. / 1st service. Thereafter at every 10,000 Kms.
Recommended Quantity	Drain & Refill 1000 ml., Engine Overhaul 1100 ml.
*For any other branded oil of equivalent grade replacement frequency will be 5000 Kms.	

⚠ **CAUTION :**

- It is most important to adhere to recommended grade & frequency of oil change for the purpose of long life of critical engine components. For details refer P.M. chart.
- Do not reuse drained oil.

Sr. No.	Activity / Inspection Points	Position of the Technician w.r.t. Vehicle	Standard Man Minutes	GP Tools, Special Tools, PNR & PNR-A, M & T Instruments, Equipments	Consumables
1	Wash vehicle thoroughly			To be done by washing boy	
2	Identify the vehicle		0.30		
3	Bring vehicle & position on bay		0.50		
4	Raise the lift		0.30		
5	Start vehicle & Warm up. Remove RH, LH side covers, Seat assembly, Petrol tank and keep properly	RH & LH	2.30	**GPT** : Connector, Vehicle key	
6	Drain engine oil	LH	1.30	**GPT** : Extension & Tommy bar, Plastic tray **Equipment** : Oil disposer, Air gun **PNR** : Pistol grip, 18mm socket set	Cloth
7	Check oil strainer. Replace if torn	LH	0.80	**GPT** : Handle ratchet **Equipment** : Filter cleaning stand **PNR** : Pistol grip PNR, 18mm socket set	Cloth, 20W50 oil, Diesel, 'O' ring, Oil strainer, 'O' ring cap
8	Check battery, Top up with distilled water, Clean the terminals & apply petroleum jelly, Route cables properly & Fit the terminal caps properly, Recharge battery if required.	LH	1.80	**GPT** : 8 mm 'T' spanner, Philips screw driver **Equipment** : Battery charger **M&T** : Multi meter, Hydrometer	Electrolyte, Distilled water, Petroleum jelly, Cotton waste
9	**Check TPS carburettor for proper functioning as per the procedure**	LH	4.00	**GPT** : Nose plier **M&T** : Multi meter	
10	**Check thermal sensor resistance at room temperature (25°C to 35°C) with Multi meter (7 K Ohm to 10.5 K Ohm)**	LH	0.60	**GPT** : 8 mm ring spanner **Equipment** : Auxiliary 12 V DC power source **M&T** : Multi meter, Hydrometer	
11	Check accelerator & adjust free play	LH	0.40	**GPT** : 8 No. OE spanner	
12	Clean, Check and Adjust LH side spark plug electrode gap. Replace if necessary	LH	2.40	**GPT** : Spark plug spanner, Wire brush **Equipment** : Air gun, Plug cleaner **M&T** : Feeler gauge	Cloth, Fine polish paper, Spark plug Champion PRZ9HC and BOSCH UR4AC
13	Check and adjust tappet valve clearance (If required). During 4th servicing or at 5000 kms. whichever is later.	RH / LH	2.40	**GPT** : 8-9 No. ring spanner, 6 No. allen key, 8 mm 'T' spanner, Spark plug spanner **PNR** : Pistol grip **SPT** : Tappet holder **M&T** : Feeler gauge	Cloth

Sr. No.	Activity / Inspection Points	Position of the Technician w.r.t. Vehicle	Standard Man Minutes	GP Tools, Special Tools, PNR & PNR-A, M & T Instruments, Equipments	Consumables
14	Check LH side important fasteners & tight • Side bolts of front fork • Engine foundation bolts • Side stand • RSA top nut & bottom bolt • Front fork top bolts • Saree guard bolts • Al step holder bolts	LH	0.60	**GPT** : Handle ratchet, 12,13,14, 16,17 ring spanner, 6 mm allen key **PNR** : Pistol grip PNR, 12,14 socket set	
15	Adjust chain slackness & Lubricate. Remove & clean if required	Rear, LH	3.90	**GPT** : 10,11 OE spanner, 14,15,24,27 ring spanner **PNR** : Pistol grip, Socket set **Equipment** : Air gun	Cloth, SAE 90 oil, Diesel, Kerosene
16	Check rear brakes for efficient working and adjust if required	RH	0.60	**GPT** : Nose plier, Screw driver, 14,17 Ring spanner **Equipment** : Air gun	Cloth, Graphite, Grease, Fine polish paper
17	Check and Adjust rear tyre air pressure	Rear, RH	0.40	**GPT** : Air gun with feeler **M&T** : Pencil type pressure gauge	Cloth
18	Clean air filter, Replace if necessary & Clean fire arrestor	RH	4.50	**GPT** : 8 mm 'T' spanner **Equipment** : Filter cleaning stand, Air gun **PNR** : Pistol grip, Screw driver bits	Cloth, 20W40 oil, Diesel, Kerosene, Air filter element
19	Drain carburettor, Overhaul if required	RH	1.30	**GPT** : Philips screw driver, Soft nylon brush, Plastic tray, 8 No. ring / OE spanner **Equipment** : Air gun **M&T** : Float gauge	Cloth, Diesel
20	Check clutch and Adjust free play	RH	0.30	**GPT** : 12 No. OE spanner	
21	**Check auto choke functioning on carburettor : Apply 12V supply to its terminals & check for proper functioning without removing it from carburettor**	RH	1.00	**M&T** : Multi meter, Auxiliary 12 V DC power source	
22	Replace paper oil filter	RH	1.91	**GPT** : 8 No. 'T' spanner **PNR** : Pistol grip, Socket 8 mm	Paper oil filter, Kerosene / Diesel, Nylon brush, Cotton cloth
23	Fill engine oil (Qty : 1000 ml)	RH	1.35	**GPT** : 6" comb plier, Funnel **Equipment** : Oil disposer, Air gun **M&T** : Measuring jar 1 liter	Oil SAE 40 API 'SJ' / 'SL' + JASO MA grade
24	Clean, Check & Adjust RH side spark plug	RH	2.40	**GPT** : Spark plug spanner, Wire brush **PNR** : Pistol grip **Equipment** : Air gun, Plug cleaner **M&T** : Feeler gauge	Cloth, Fine polish paper, Spark plug

Sr. No.	Activity / Inspection Points	Position of the Technician w.r.t. Vehicle	Standard Man Minutes	GP Tools, Special Tools, PNR & PNR-A, M & T Instruments, Equipments	Consumables
25	Check / Adjust front brake and wheel freeness	Front	0.80	**GPT** : '-' screw driver, 17 ring spanner, 10, 14 OE spanner **Equipment** : Air gun	Cloth, Fine polish paper
26	Check and Adjust front tyre air pressure	Front	0.40	**GPT** : Air gun with feeler **M&T** : Pencil type pressure gauge	Cloth
27	Check and Adjust steering	Front	0.80	**GPT** : 17 ring spanner, 32 mm socket, Handle ratchet **SPT** : Fork spanner **PNR** : Pistol grip PNR, Socket set	
28	Check RH side important fasteners & tight • Side stand bracket bolt (Torque : 1.8 ~ 2.2 Kgm) • Silencer mouth nuts (Torque : 2.0 ~ 2.2 Kgm) • Engine foundation bolts (Torque : M10: 3.2 Kgm, M8: 2.2 Kgm) • Front axle nut • Side bolts of front fork • Handle bar bolts • RSA top nut & bottom bolt • Swing arm axle nut • Silencer protective cover bolts • Rear view mirror • Kick boss bolt • Front fork top bolt • RH stay assembly bolts • Swing arm axle	Front	1.30	**GPT** : 12,13,14,15,16,17,18,19 ring spanner, 6 mm allen key, 4 mm allen key **PNR** : Pistol grip, Socket set	
29	Lubricate as per lubrication schedule • Clutch lever • Rear brake pedal / cam • Pillion foot rest • Center stand • Side stand • Kick boss pin	LH	1.1	**GPT** : Oil can, Grease gun	20W50 oil, Graphite, Grease, Cloth
30	Refit RH & LH side covers, Seat, Petrol tank assembly	LH	0.5	**GPT** : Nose plier, Connector	
31	Check fuel lines & Clean petrol tank lid	RH / LH	0.50	**GPT** : Air gun	
32	Check Speedometer, Trip meter, Odometer for proper functioning & correct if required	Front	0.50		
33	Start vehicle, Check operation of electrical like : Head light, LED tail light, No. plate light, LED brake light, Horn, Speedometer, Odometer, Pass, Parking light, Front & Rear side indicator, Fuel indicator	RH / LH	0.95	**GPT** : Nose plier, Connector, '+' screw driver	

Sr. No.	Activity / Inspection Points	Position of the Technician w.r.t. Vehicle	Standard Man Minutes	GP Tools, Special Tools, PNR & PNR-A, M & T Instruments, Equipments	Consumables
34	**Ensure proper functioning of both the spark plugs. Spark plug caps must be tightly secured.**	RH / LH	0.70		
35	Tune engine and carburettor	RH / LH	2.00	**GPT :** Connector, '+' screw driver Equipment : CO-HC analyser, Tachometer, Silicon tube 300 mm length	
36	Study job card & Verify work		1.00		
37	Lower the lift		0.3		
38	Take out and park the vehicle		0.5		
39	**Sub Total**	**LH** **RH**	**23.10** **21.21**		
40	Carry out any additional work as indicated by the customer or as required.		**5.0**		
	Total Time	**LH** **RH**	**28.10** **26.21**		
41	Test drive the vehicle, Check speedometer working. Study the job card & Verify work done. Take vehicle out & park		1.5	To be done by expert	
42	Clean the vehicle at the time of delivery		1.0	To be done by delivery boy	

GPT : General Purpose Tools **SPT :** Special Tools **PNR :** Pneumatic Nut Runner **RSD :** Ratchet Screw Driver
PNR-A : Pneumatic Nut Runner Attachments **M&T :** Measuring & Testing Equipment

Note :

1. ***Total time taken for carrying out Periodic Service is 54 minutes approximately.***
2. ***That means in a shift of 480 minutes, One technician can do 9 vehicles periodic service comfortably.***
3. ***It is definite that the output of 18 vehicles per bay per day can be achieved comfortably with 1B 2T working.***

Periodic Maintenance (in accordance with the periodic maintenance chart) of a vehicle it is utmost important to prolong vehic life, trouble free running & ensure safety while driving.

Washing (Water Servicing) - Dos & Don'ts

Do's

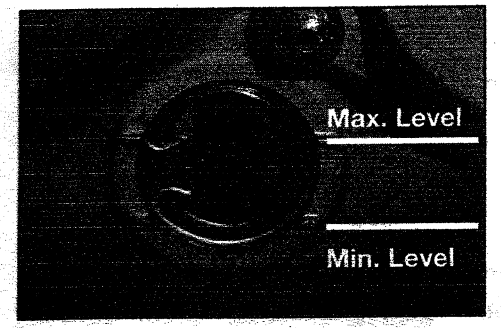
- ✓ Rinse the Bike thoroughly with water to remove loose dirt and mud.
- ✓ Clean the Bike with a Sponge or soft cloth using water.
- ✓ Clean the exterior surfaces of engine metal parts by kerosene / diesel spray & plastic / nylon brush.
- ✓ Cover silencer tail end by PVC cap.
- ✓ Clean the plastic parts using a soft cloth or sponge dampened with a solution of mild car shampoo / liquid soap & water. Rub the soiled area gently rinsing it frequently with fresh water.

Don'ts

- ✗ Do not direct pressurized water jet on head lar glass, tail lamp glass, electrical components (H. Coil, C.D.I., Flasher, Horn & all electrical di console switches) to avoid water entry & subseque damage.
- ✗ Do not direct pressurized water jet on steering rac (cones) to avoid rusting & subsequent pitting steering balls & races.
- ✗ Do not direct high pressurized water jet on plast spark plug cap don't direct jet on componer especially on decals.
- ✗ Avoid directing water jet in to silencer muffler outle
- ✗ Do not use detergent or strong solvent to cle painted / plated parts. Avoid cleaning products th are not specifically designed for automobile surface Strong detergent residues can corrode alloy pa and also painted surfaces loose their shine / gloss

Caution : Water may enter on the brake liners during washing & brake slippage may occur. Ensu that brake liners are dry before driving the vehicle.

Engine Oil Level Checking



⚠ **CAUTION :**

- It is most important to adhere to recommended grade & frequency of oil change for the purpose of long life of critical engine components. For details refer P.M. chart.
- Do not reuse drained oil.

- Park the vehicle on level surface on center stand to check the oil level.
- Inspect the oil level through oil inspection window.
- It should be in between Max and Min mark.
- Top up if required.

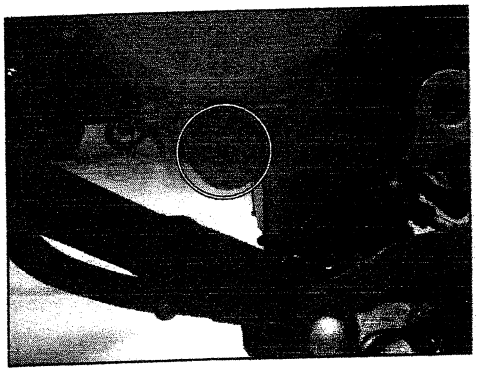
Recommended Oil :

"Bajaj DTS-i 10000" a high performance engine oil developed by Bajaj auto, specially formulated for vehicles with DTS-i engine.

Bajaj Auto recommends "Bajaj DTS-i 10000" engine oil for 10,000 kms drain interval, better performance of engine components & warranty benefits.

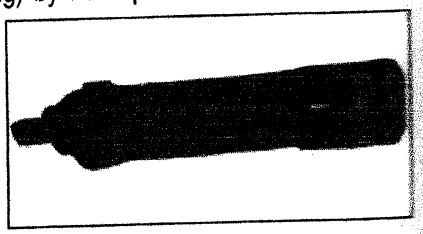
Bajaj DTS-i 10000	SAE 20W50 of API 'SL', JASO MA Grade.
Replacement Frequency*	1st replacement at 750 Kms. / 1st service. Thereafter at eve 10,000 Kms.
Recommended Quantity	Drain & Refill 1000 ml., Engine Overhaul 1100 ml.
*For any other branded oil of equivalent grade replacement frequency will be 5000 Kms.	

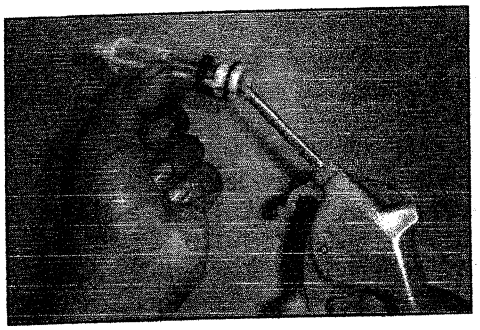
Oil Strainer Cleaning



Remove :

- Cap strainer (18 mm A/F) with 'O' ring.
- Pull out strainer (mesh filler oil with 'O' ring) by nose plier.
- Drain engine oil.

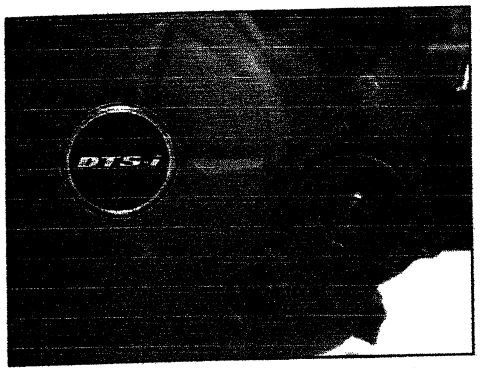




Remove :

- Clean oil strainer with Kerosene / Diesel & blow low pressure compressed air from inside i.e. air must be blown in opposite direction of oil flow.

Paper Oil Filter Replacement

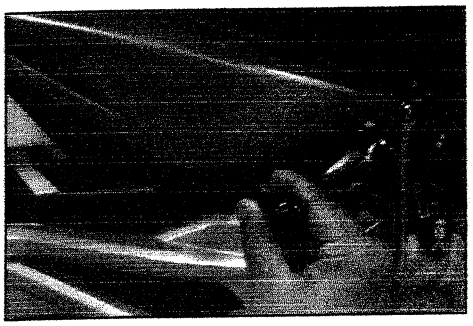


Remove :

- 3 bolts (8 mm A/F)
- Take out 'Cover oil filter' with 'O' ring.
- Take out 'Paper oil filter' along with spring.
- Replace 'Paper oil filter' during 1st free service and thereafter at every 5000 Kms.

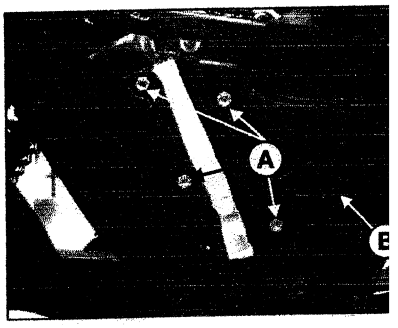
Caution :
Before fitting 'Paper oil filter' ensure intact condition of oil seal from its rear side & one way valve from its front side.

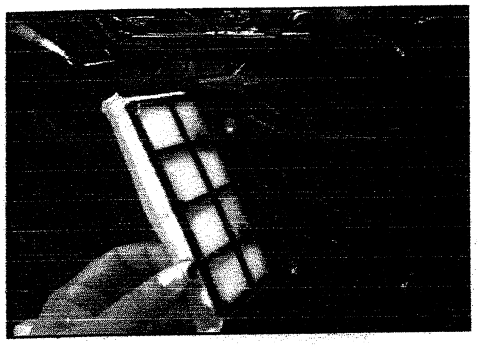
Air Filter



Remove :

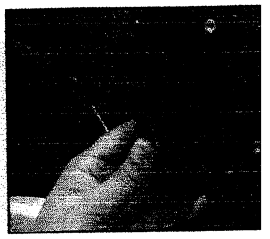
- RH side panel by loosening a Phillips screw.
- 4 flange bolts (A) (8m A/F).
- Air filter cover (B)





Remove :

- Air filter element assly along with cage.
- Flame arrestor.



Note / Skill Tip :

- ***Clean flame arrestor in kerosene & blow air.***
- ***Insert thinner edge of flame arrestor into slot of air filter box. Thick edge should face out word.***
- ***Ensure that rubber 'O' ring is placed properly before fitting cover.***

Air Filter Cleaning

Primary & Secondary Air Foam Filter

Precautions :

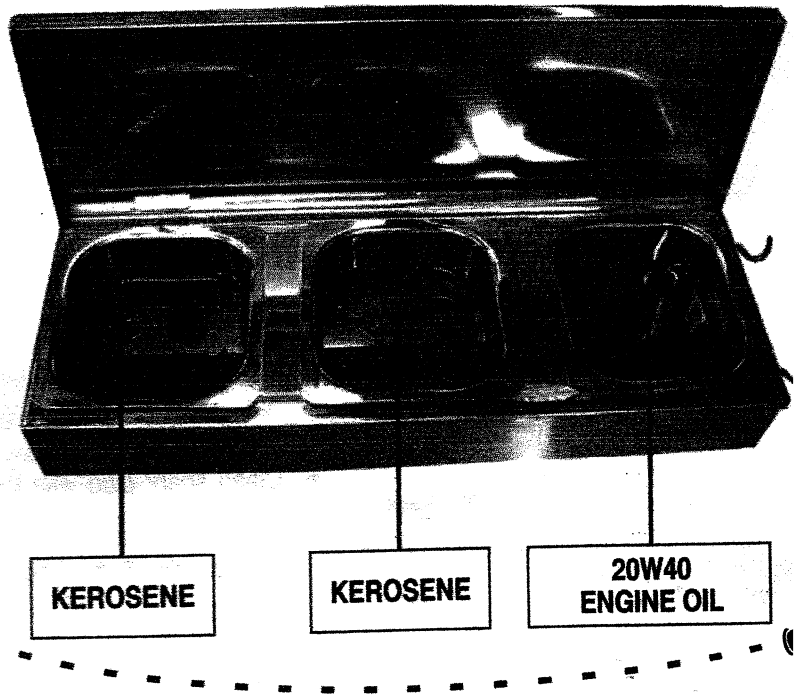
1. Never use high flash point petro-chemicals for cleaning air filter foam.

This increases :

- Possibility of foam catching flame.
- Poracity & may lead to dust passing through it in long term.

2. Don't twist air filter foam, as it may lead to tear / bulge.
3. Foam lubrication is utmost important since dry foam can lead to dust entry inside engine.
4. Never use other grade oil for lubrication of the foam.
5. Dry excess oil by cotton cloth.
6. Replace kerosene and engine oil after cleaning 20 to 25 foams.
7. In dusty area, increase cleaning frequency of foam.

AIR FILTER CLEANING STAND

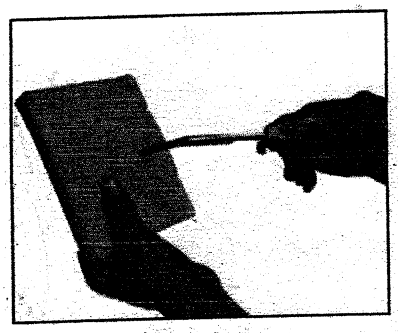


CLEANING PROCEDURE

1st Stage:
Clean with
Kerosene

Squeeze

2nd Stage:
Clean with
Kerosene
again



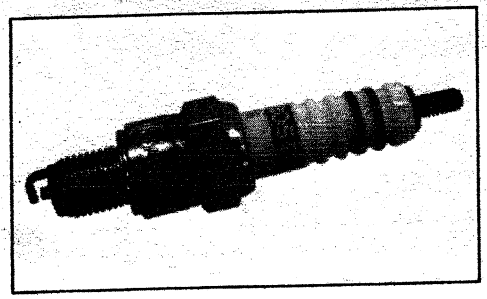
Blow Low Pressure
Compressed Air

3rd Stage:
Dip into
engine oil

Squeeze &
remove
excess oil

Dry with
cotton cloth

Spark Plug Cleaning



Remove :

- Clean spark plug with the help of spark plug cleaning machine.

Recommended Spark Plug	Champion PRZ9HC & BOSCH UR4AC
Electrode Gap	0.6 ~ 0.7 mm
Replace Spark Plug	After every 15,000 Kms.

Battery (MF)

12V 5Ah for ES Version

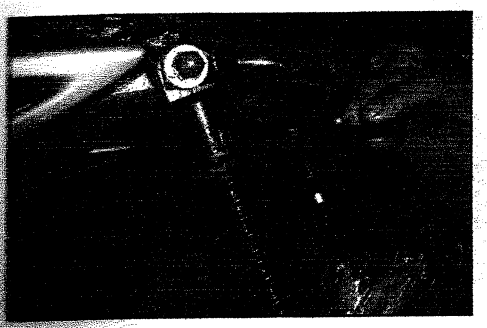
- Remove L.H. cover.
- Check Battery electrolyte level in each cell and ensure that the level between the Max & Min mark lines. If level is below Min level mark th remove the battery filler caps and fill with distilled water until the electrol level in each cell reaches the Max level line.
- Apply petroleum jelly to battery terminals & cable clamps.

Note: Use only distilled water to top up the battery. Tap water is no substitute for distilled water & will shorten the life of the battery.

Nitrox Rear Shock Absorber

Adjusting Spring Tension

- RSA spring tension can be adjusted with the help of 5 stepped adjuster c to suit individual requirement as per load & road conditions.
- Turn the adjuster cam on each shock absorber to same required positi Setting the adjuster cam to higher notch position increases the spring stiffn & vice-versa.
- Shock Absorbers adjusted either too soft or too stiff could adversely af riding comfort & vehicle stability.



Notch Position	1	2	3	4	5
Spring Action	Soft →			→	Stiff

- LH & RH RSA spring adjuster cams must be adjusted equally to the sa position, otherwise vehicle may wobble / become in stable.

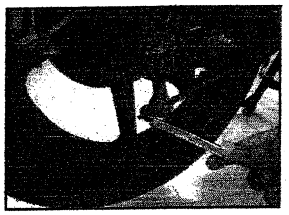
Note: Standard setting is done in 2nd notch.

Drive Chain Slack / Lubrication

- Park the motorcycle on its center stand.
- Rotate the rear wheel to find the position where the chain is tightes measure the vertical movement midway between the sprockets (from cl inspection window).
- If the drive chain is too tight or too loose, adjust within the standard limit.
- Check drive chain slackness at every 1000 kms.

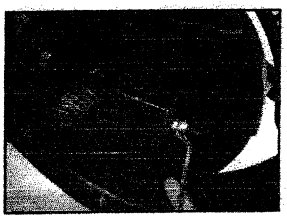
Drive Chain Slackness	
Standard : 25 ~ 30 mm	Service Limit : 35 ~ 40 mm

Chain Slack Adjustment SOP

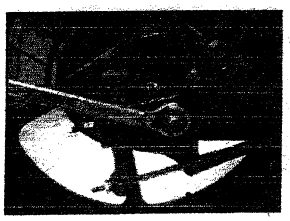


- Loosen the rear brake adjuster nut.

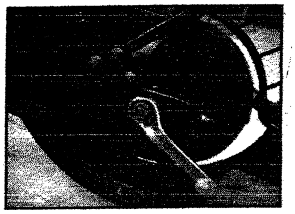
- Pull out the lock clip.
- Loosen torque rod (tie rod) securing bolt fitted on rear brake panel.



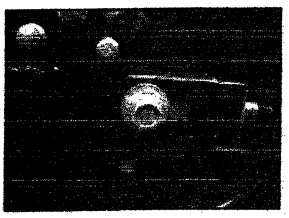
- Loosen the left and right chain adjuster locknuts.

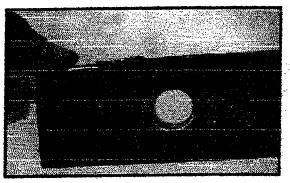


- Loosen the axle nut.

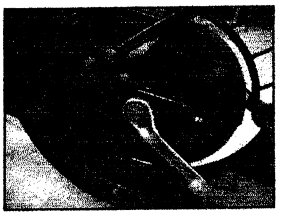


- Loosen the coupling sleeve nut.

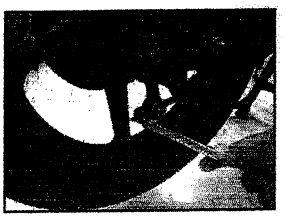




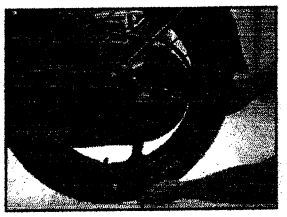
- Adjust the chain slackness by evenly setting both R.H. and L.H. chain adjusters.
- The arrow marks on L.H. and R.H. chain adjusters must be equidistant from swing arm slot edge). It ensures chain & wheel proper alignment.



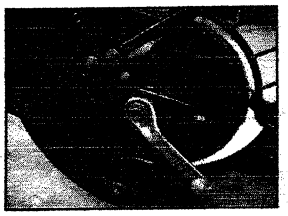
- Pre-Tighten the coupling sleeve nut, axle nut & tighten the left and right adjusting nuts slightly. Take care that the adjustment does not get disturbed during the adjusting nut tightening.



- Tighten both chain adjuster locknuts securely.



- Rotate the wheel and apply rear brake so that rear brake panel will take its own position. Measure the chain slack again at the tightest position, and readjust if necessary.

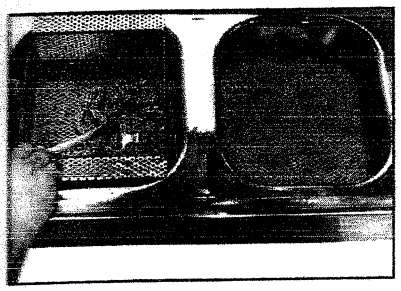


- Tighten the coupling sleeve nut to the specified torque.

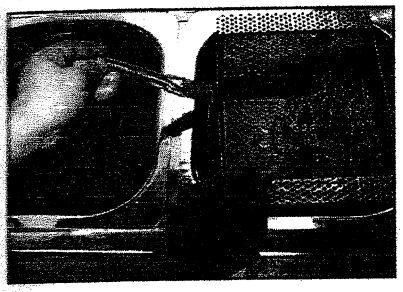
- Tighten the axle nut to the specified torque.

- Tighten torque rod securing bolt & refit lock clip.
- Adjust rear brake properly by tightening brake adjuster nut.

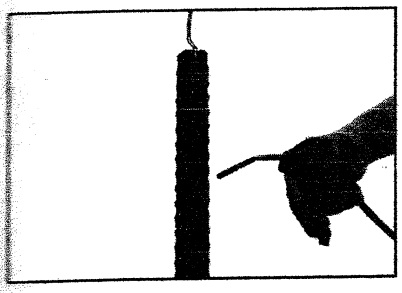
Drive Chain Cleaning



1st Stage:
Clean with
Kerosene

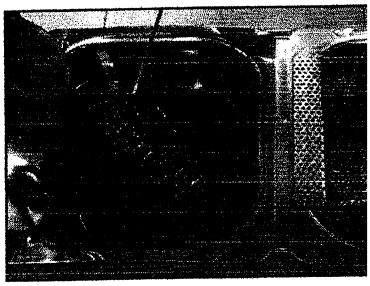


2nd Stage:
Clean with
Kerosene
again

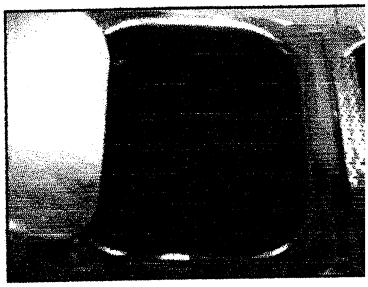


Blow Low Pressure
Compressed Air

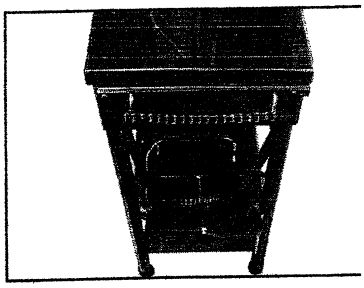
3rd Stage:
Dip into
SAE 90 oil



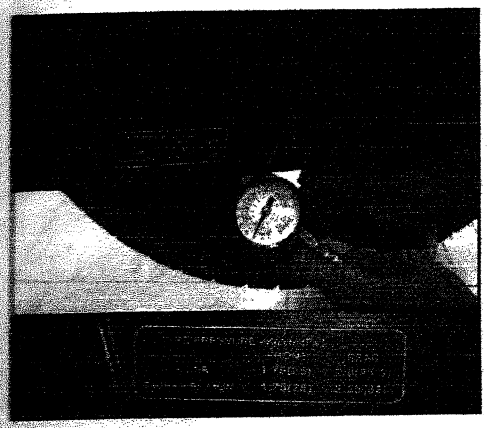
Soak into
SAE 90 oil



Final Stage :
Hook chain for
dripping of
excess oil



Tyre Air Pressure

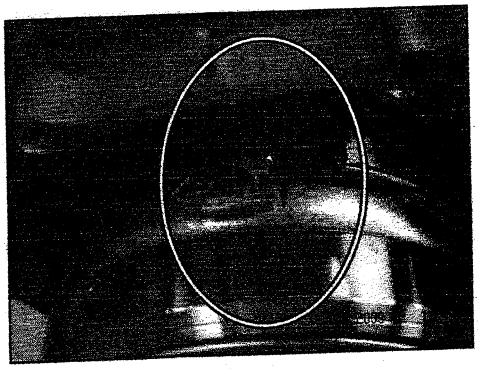


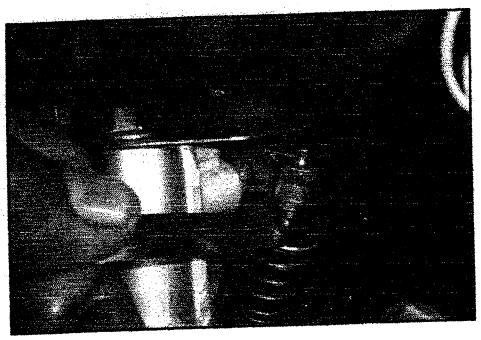
Remove :

- Inflate tyres as per recommended pressure to get better tyre life & optim mileage.
- Check tyre pressure every week.

Front	1.75 Kg/ cm^2 (25 PSI)
Rear - with Solo	2.00 Kg/ cm^2 (28.5 PSI)
Rear - with Pillion	2.25 Kg/ cm^2 (32.0 PSI)

Tappet Clearance Setting





- Ensure that the engine is in cold condition.
- Ensure the 'T' mark on the 'Rotor' match with the mark on the 'Crankcase LH'. At this stage the 'Piston' is at TDC & both the rocker arms are free.
- Holding tappet screw firmly with special tool loosen the tappet screw nut.
- Put the feeler gauge, measure and adjust the clearance.
- Lock the nut holding screw with special tool after getting required clearance.
- Again check the tappet clearance with gauge. The feeler gauge should slide with slight resistance between tappet screw tip & valve stem head. Tighten the check nut with a spanner.
  - Inlet Valve : 0.05 mm
  - Exhaust Valve : 0.1 mm
  - M & T Equipment : Feeler Gauge
  - Special Tool : Valve Adjusting Screw Holder
    Part No. : F41ZJW33

Note : Tappet setting of 2 Intake & 2 exhaust valve must be done individually as per SOP.

Clutch Lever Free Play Adjustment

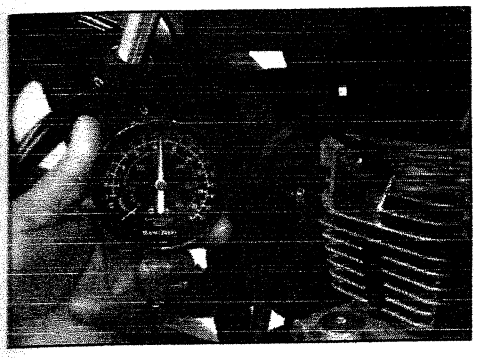
- Slide the dust cover at lever yoke end.
- Check that the clutch cable outer end is fully seated in the adjuster.
- Turn the adjuster until the proper amount of free play can be obtained.
- Tighten the lock nut against the adjuster. If the clutch free play cannot be adjusted with the adjuster at the handle bar end, use the adjuster at the lower ends of the clutch cable secured on clutch cover.
- Loosen the 2 lock nuts (12mm A/F) on clutch cable bracket and adjust threading in the adjuster provided on the clutch cover. Tighten both the lock nuts on clutch cable bracket by holding one nut and tightening the other, after the required free play is set.
  - **Clutch Lever Free Play : 2 ~ 3 mm**

Accelerator Free Play Adjustment

- Turn the adjuster until the proper amount of free play can be obtained.
- Tighten the lock nut against the adjuster.
- If the accelerator free play can not be adjusted with the adjuster at the handle bar end, use the adjuster at the lower ends of the accelerator cable situated on carburettor.
- Loosen the 2 lock nuts on accelerator cable bracket end & adjust free play by adjuster provided on the cable.
- Tighten both the lock nuts on bracket by holding one nut and tightening the other, after ensuring the required free play.

■ **Accelerator Grip Free Play : 2 ~ 3 mm**

Engine Compression Pressure

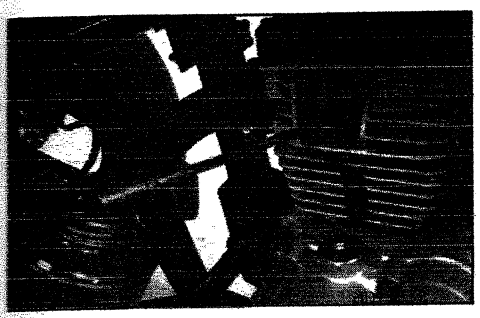


Dry Compression Test

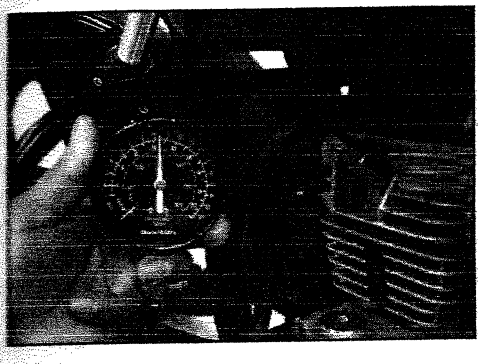
- Start the engine & warm it up by driving vehicle for 2 ~ 3 Kms.
- Remove exhaust side spark plug.

Caution: Disconnect H.T. cable lead from intake side spark plug

- Thread in compression gauge with adapter into cyl. hd. spark plug hole.
- Open the throttle fully & apply 5 sharp kicks.
- Note reading displayed on compression gauge dial.
- Set compression gauge pointer to zero position by pressing release valve.
- Take such 3 readings. Calculate mean reading .
- Confirm that mean compression pressure is between 11 to 13 Kg/Cm^2



■ **Service limit is 9.5 Kg/Cm^2**



Wet Compression Test

- If the mean compression pressure reading is less than service limit specifie put few drops of engine oil through the cylinder head spark plug hole & app 2 ~ 3 idle kicks.
- Again conduct compression pressure test.
- If wet compression pressure reading is considerably greater than d compression pressure reading, this means there is compression leakage pa the rings. In this case check cylinder piston assembly as per visual dimensional inspection parameters.
- If Wet Compression pressure reading is same as dry compression pressu reading then the cause could be pitted valve seat, bent valves or to cylinder head gasket etc.

3

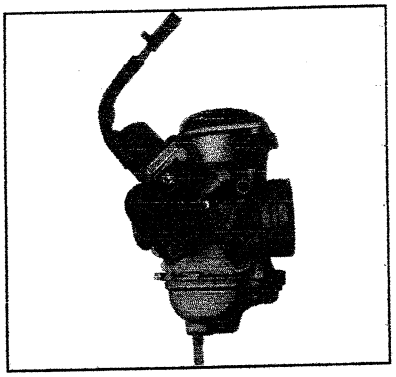
Fuel System

Carburettor Specifications

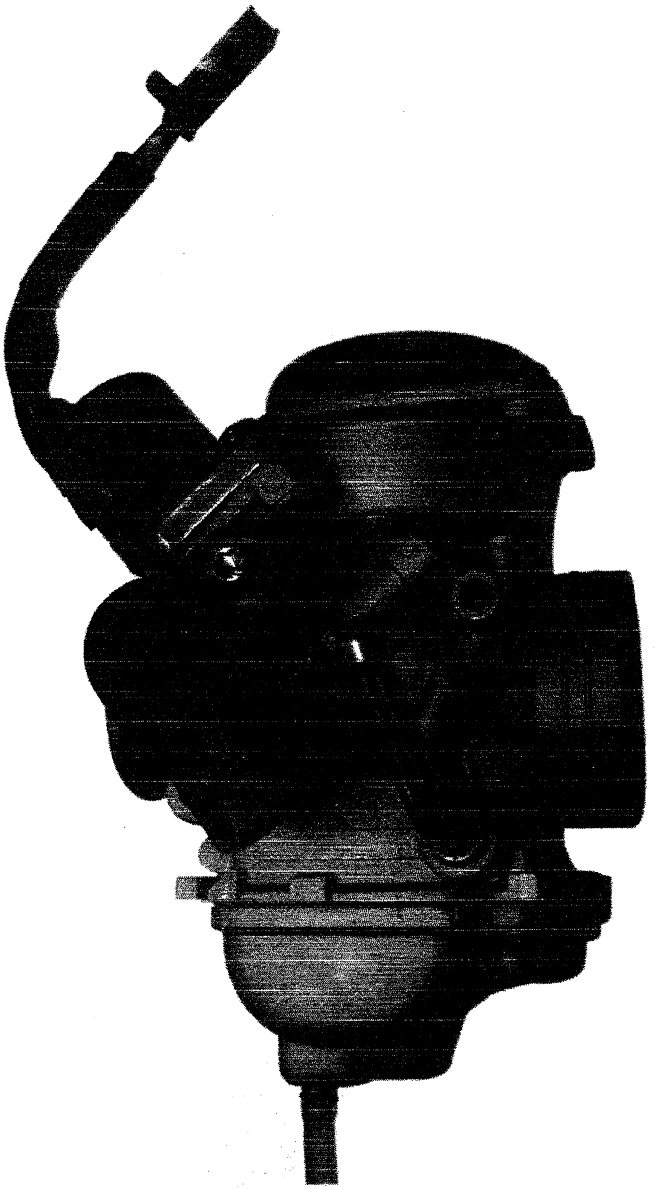
Carburettor Dos & Don'ts

CO Checking & Setting

Tune up for Optimum Mileage



UCAL

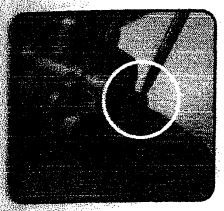


Item	Specification
Make	UCAL
Type	BS26 with Continuous TPS
Idling Speed	1400 ± 100 rpm
Main Jet	107.5
Jet Needle Mark	U-4E0K1
Needle Jet Marking	0-2M (971)
Pilot Jet	12.5
Throttle Valve Mark	125
Choke	Solenoid Operated Auto Choke

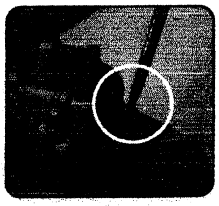
Do's

Don'ts

Handling

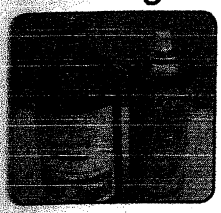


- Use appropriate screw drivers.



- Never use oversize screw driver
- Do not over tighten the jets screws.
- These will damage the jets their seats.

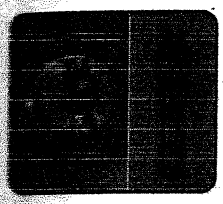
Cleaning



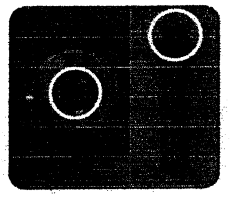
- For cleaning always use carburettor cleaner like
  - Acetone
  - Carbon Tetra chloride
  - Aerosol
  - CVC spray

- Never clean the carburettor water.
- Jets & air passages will clogged due to sediments if clea by water.

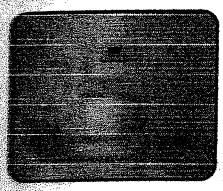
Maintenance



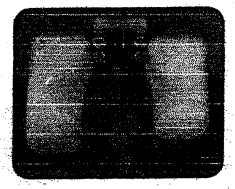
Ensure
- Jets
  - Holes are clean.
  - Holes are not worn out.
  - Size as per specification.



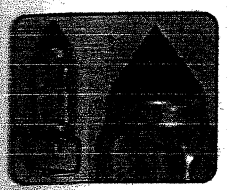
Replace
- Jets
  - Worn out jet.
  - Incorrect size jet.



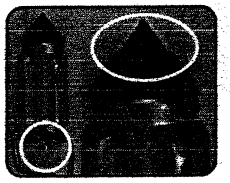
- Float is in good condition.



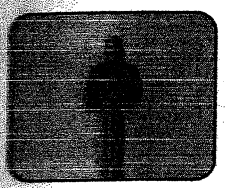
- Punctured, Squeezed a distorted float.



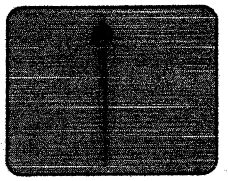
- Float Pin
  - Tip having no wear mark.
  - Spring loaded pin is free in movement.



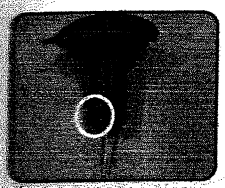
- Worn out tip.
- If spring loaded pin is sticky.



- Needle Jet
  - No wear at taper portion.
  - Circlip position is in specified groove.



- Needle worn out at taper portic



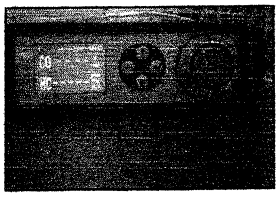
- Piston valve
  - No wear mark.
  - Diaphragm condition.

- Piston valve worn out. Scoring marks.
- Diaphragm punctured.

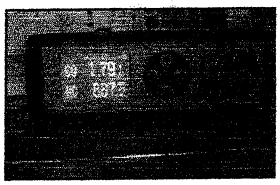
Clean carburettor bowl at every 10,000 Kms and inspect the parts

CAUTION : While cleaning carburettor with acetone / carbon tetrachloride, remove TPS, Auto choke and all 'O' rings Rubber parts. Otherwise these parts would get damage due to chemical action of acetone / carbon tetrachloride.

Readiness of CO Gas Analyser



Warm up the CO Gas Analyzer for 10~15 minutes before proceeding further. Warming up is essential every time machine is put on to purge out any gases left in side.



Carry out Span Check as per manufacturer's Recommendation to confirm the OK condition of the Equipment (If Span Check does not confirm the reading, then carry out Gas Calibration as per mfgrs. recommendation). Set the Equipment display to Zero before taking the reading.

Readiness of the Vehicle

Before checking CO emission, prepare the vehicle for checking the CO.

- Warm up the engine to its normal operating temp. by riding 5~6 Kms. The c'case cover should be warm enough by feel. (Engine Oil Temp. = 60°C).

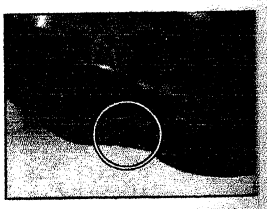
Caution: In choke 'ON' condition CO % is high : 9~10%. Hence warming up of engine is a must.

- Screw in VC Screw completely. Engine should die down in this condition.

Note: If engine does not go off, then attend to the additional air supply problem in the carburetor circuit & intake system. After solving the problem once again confirm that engine should die down on closing the VC Screw.

- Confirm the VC Screw setting as per specification.
- Set Idling speed to specified Idling 1400 ± 100 rpm. Raise the engine to moderate speed at no load condition for about 15 seconds. Then bring back to specified idling RPM.

Taking the Reading



- Remove M-5 bolt & aluminum washer fitted to the nozzle (12mm OD) shown in figure, of the connecting tube welded to silencer pipe before CAT converter.
- Use a Silicon Rubber tube of approximately 300mm to fit onto the nozzle. Only a Silicon rubber tube should be used, as it has better high temp. resistance & will not deform / melt due to high temp. at the nozzle.
- Connect the other end of the Silicon Rubber tube to the flexible probe pipe of machine. Ensure that the inner diameter of Silicon tube perfectly matches with outer diameter of flexible probe pipe of Gas Analyzer.
- The Silicon rubber tube must fit snugly onto the nozzle to prevent any air / exhaust gas leakage.
- Note the CO / HC readings when the reading display stabilizes.
- As per Emission Norms the recommended CO% for 2 Wheelers is 3.5% at idling RPM. But CO% for Bajaj Vehicles, for best results in terms of fuel efficiency are different for different models. **The ideal CO% is between 1.5 to 2.5% at idling RPM = 1400 ± 100.**
- If the reading is shown excess or less than BAL specifications, try to achieve by adjusting VC Screw.
- Turning in VC Screw will lead to less CO% and turning out will lead to more CO%.

Note: Remember the VC Screw should not be taken out more than the recommended position. Every time VC Screw setting is changed specified Idling RPM must be restored and then reading should be considered.

- If the CO% is not falling within recommended % in spite of adjusting the VC Screw then find out the cause & rectify. After rectifying the problem confirm the CO% in the same way as mentioned above.

Important: For Better Mileage and Performance achieve CO% as recommended.

In **Pulsar 135 LS** motorcycle for better mileage & performance achieve values given below.

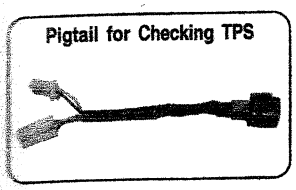
Recommended CO% value w.r.t. VC Screw and Idling RPM for Better Fuel Efficiency		
Model	Recommended CO%	Recommended Idling RPM
Pulsar 135 LS	1.5% ~ 2.5%	1400 ± 100 rpm

TPS Checking

Check CDI to TPS DC Supply :

SOP :

- TPS coupler is in connected condition.
- Switch 'ON' ignition key.
- Check voltage between Grey / White & Black / Yellow wire in irrespective of throttle condition.
- Standard value : 5.0 ± 10% DCV



Voltage Check in 0% Throttle Condition:

SOP :

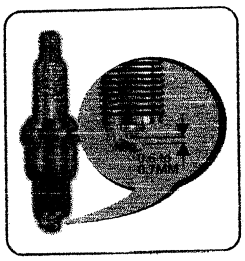
- Ensure 1400 ± 100 engine idling rpm before checking.
- Disconnect 4 pole white coupler of CDI.
- Set multi meter to 20 V DC range.
- Connect pig tail (for checking TPS) in between 4 pole natural coupler from harness & mating DC, CDI white coupler.
- Switch 'ON' ignition key & Kill switch.
- Check voltage between Pink & Black / Yellow wire of pig tail in accelerator closed position.
- Voltage must be 0.7 V ± 10%.

Voltage Check in 100% Throttle Condition:

SOP :

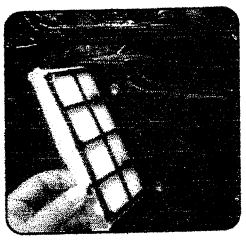
- Ensure accelerator play is 2~3 mm.
- Ensure 1400 ± 100 engine idling rpm before checking.
- Disconnect 4 pole White coupler of CDI.
- Set multi meter to 20 V DC range.
- Connect a pig tail (for checking TPS) in between 4 pole natural coupler from harness & mating DC CDI white coupler.
- Switch 'ON' ignition key & Kill switch.
- Rotate accelerator to 100% throttle position.
- Check voltage between Pink & Black / Yellow wire of pig tail.
- Voltage must be 3.4 ~ 3.8 V.

Engine Tune-Up



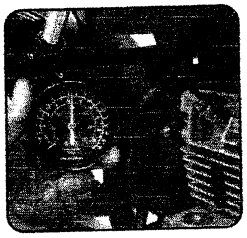
SPARK PLUG :
Champion PRZ9HC, BOSCH UR4AC

- Spark Plug Gap : 0.6 ~ 0.7 mm.
- Replace at Every : 15000 Kms



AIR FILTER :

- Clean at Every : 2,500 Kms.
- Replace at Every : 15,000 Kms.

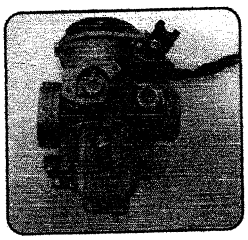


COMPRESSION PRESSURE

- Standard : 11 to 13 Kg/cm^2
- Service Limit : 9.5 Kg/cm^2

TAPPET CLEARANCE

- Inlet Valve : 0.05 mm
- Exhaust Valve : 0.1 mm



CARBURATTOR

- Idling : 1400 ± 100 rpm.

Other Mandatory Checks

a. Ensure no fuel leakage through fuel cock, fuel lines.
b. Ensure free rotation of both wheels.
c. Ensure correct tyre pressure - Front : 25 PSI, Rear : 32.0 PSI
d. Set control cable free play:
   - Clutch lever 2~3 mm.
   - Front brake lever 2~3 mm.
   - Rear brake pedal 20~25 mm.
e. Chain slackness : 25~30 mm.
f. Check & confirm proper functioning of both spark plugs.
g. Check & confirm resistance of thermal sensor at room temp. (2 ~ 35°C). It must be 7K ohm ~ 10.5K ohm.
h. Ensure that thermal sensor wire is firmly connected.
i. Ensure that the solenoid operated auto choke is switching 'C once engine cylinder block temp. reaches ≥ 30°C.

4

Engine & Transmission

4 Valve Technology

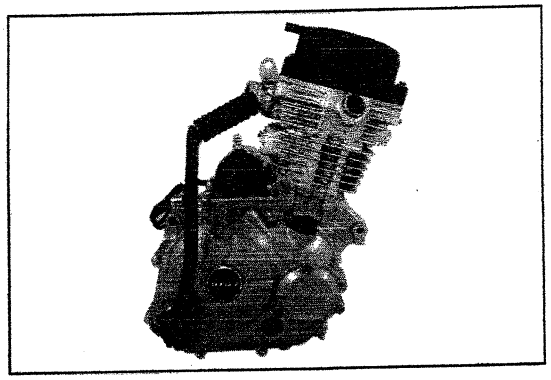
Special Tools

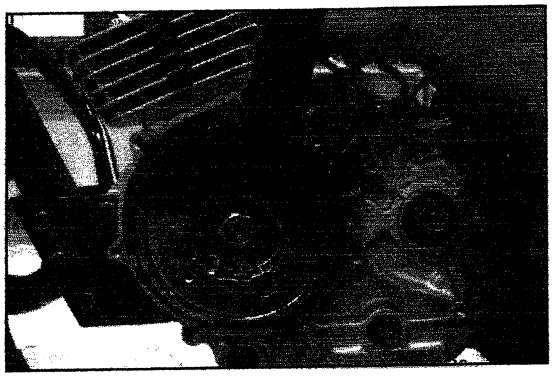
Service Limits

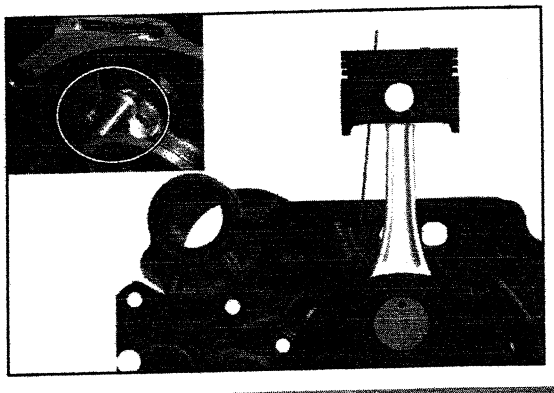
Tightening Torques

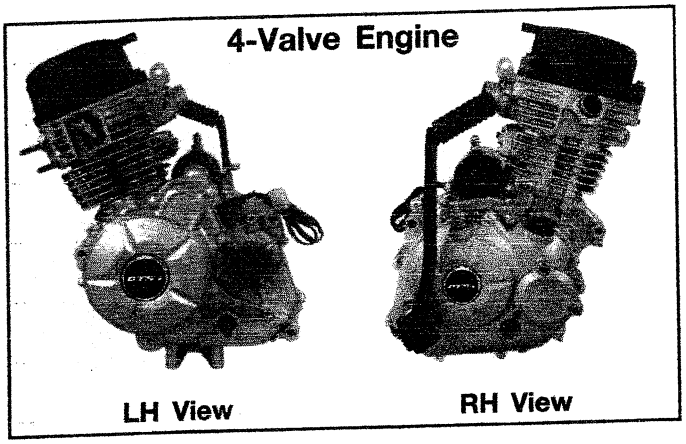
Engine Lubrication - Flow of Oil

Dos & Don'ts



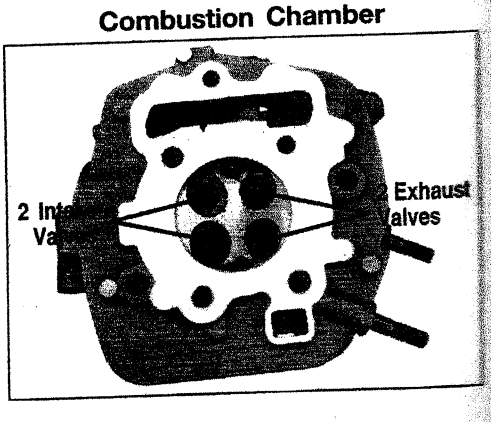






Pulsar 135 LS is incorporated with World's First DTS-i 4 valve Engine designed for better performance than an equivalent capacity 2 Valve Engine.

Combustion Chamber



This engine has 2 Intake & 2 Exhaust valves compared to 1Intake & 1 Exhaust valve of a 2 valve engine. These valves are smaller & light weight compared to that of 2 valve engine.

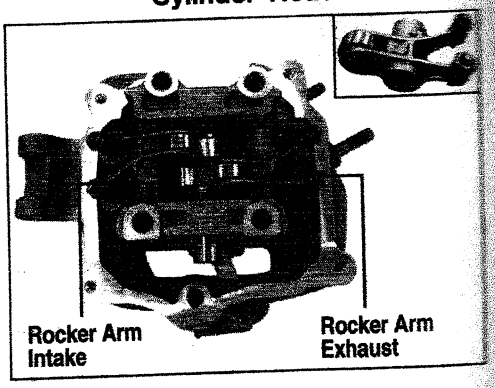
4 valves (2 Intake & 2 Exhaust valves) are introduced to improve breathing means-Intake & Exhaust process of engine.

A typical 2 valve engine has just 1/3 combustion chamber head area covered by the valves, but a 4 valve head increases that to more than 50% area. Because of this flow area of Intake & Exhaust port/passages leading to valves also get increased. This facilitates induction of more quantity of charge (air-fuel mixture) & also evacuation of all burnt gases inside the combustion chamber - hence smoother & quicker breathing. Also 2 spark plugs located on LH & RH side of combustion chamber ensure faster, cleaner & more efficient combustion.

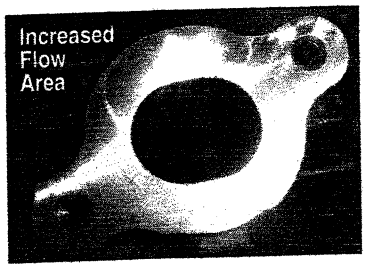
The result is increased engine performance-power, throttle response, pick-up at all engine speeds.

Moreover the 4 valve engine can be revved up to much higher rpm easily, there by allowing the rider to enjoy light sports bike performance.

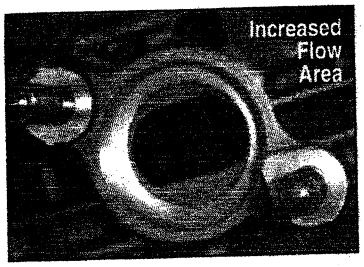
Cylinder Head



Intake Valve Passages / Ports

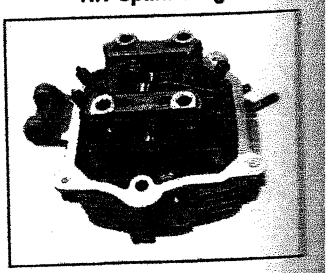


Exhaust Valve Passages / Ports



LH Spark Plug

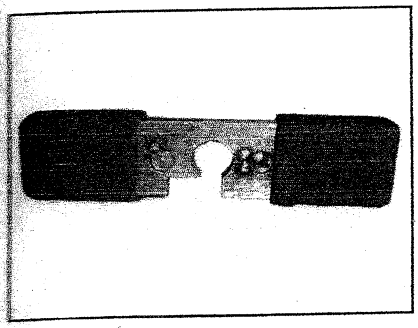
RH Spark Plug



Advantages :

1. Better engine performance
   - Better power, pick-up & throttle response
   - Better fuel efficiency
   - Low emissions
2. Light weight & compact Engine
3. No limitation of RPM :
   - 4 valve engine doesn't have rpm limitations that a 2 valve engine has.

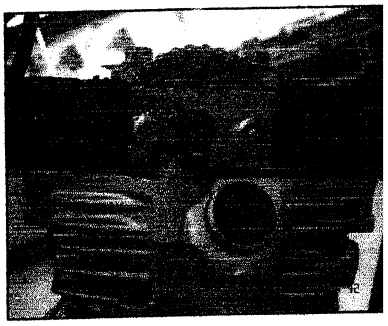
Special Tools

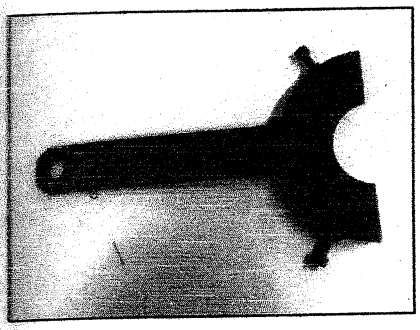


Cam Sprocket Holder

Part No. : F41ZJZ47

Application : For holding sprocket during removal / refitting of Cam sprocket allen bolt.

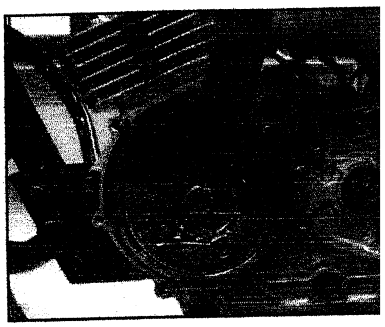


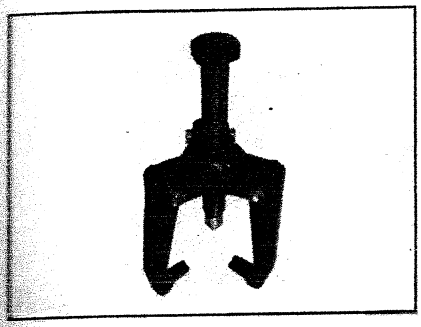


Magneto Rotor Holder (For Self Start)

Part No. : F41ZJZ44

Application : To hold rotor while loosening / tightening its nut.

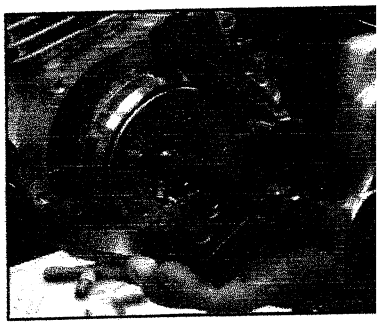




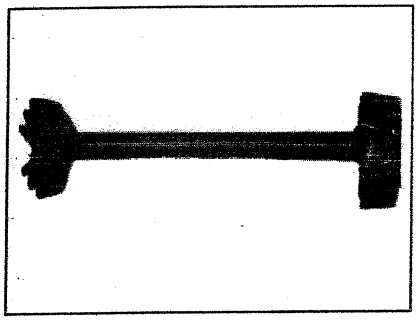
Magneto Rotor Puller (For Self Start)

Part No. : F41ZJZ46

Application : To pull out the rotor from crankshaft assembly.



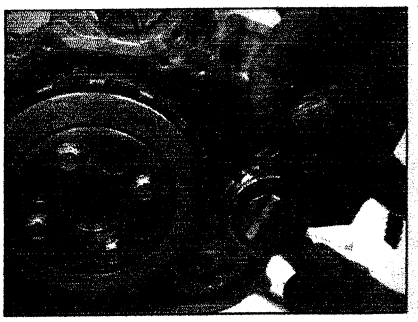
Other Common Special Tools

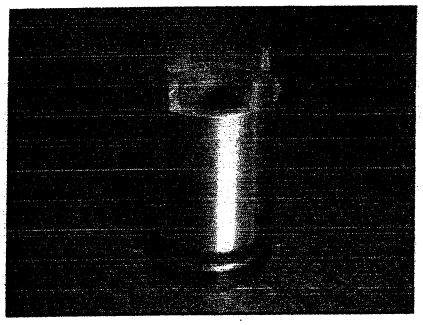


Primary Gear Holder

Part No. : F41AJA11

Application : To hold primary and secondary gear while loosening/tightening the primary gear nut & special nut securing clutch.



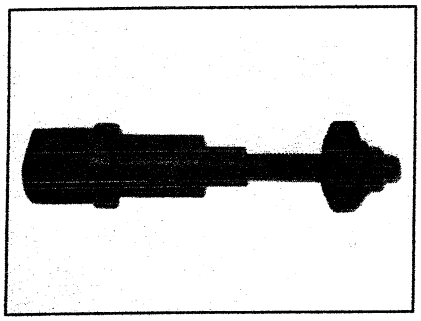


Socket for Clutch Nut

Part No. : 37 10DJ 43

Application : To loosen / tighten special nut securing clutch.

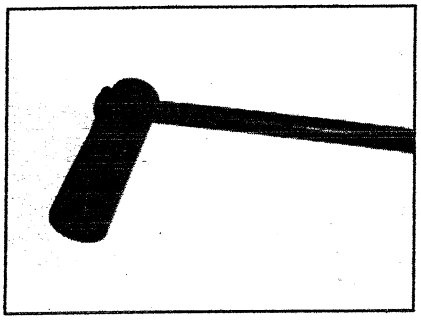
Note : Existing tool can be used by reducing diameter to 25.5 ± 0.1 mm.



Clutch Dismantling Tool

Part No. : F41AJA58

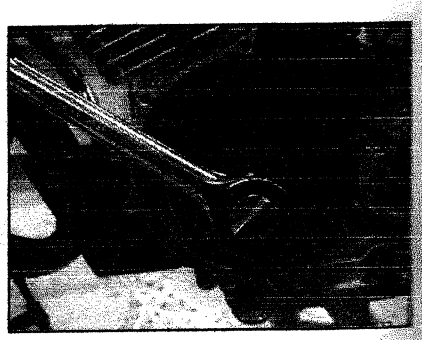
Application : To dismantle & assembled clutch of DISCOVER DTS-Si kick start as well as self start vehicle.

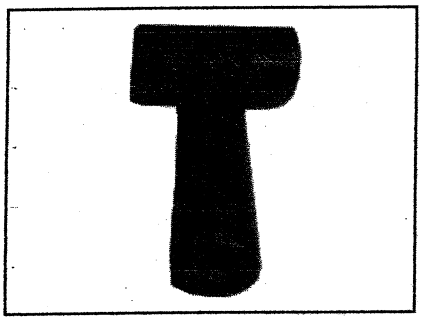


Spark Plug Spanner

Part No. : 37 1040 51

Application : For removing and refitting spark plug R.H. and L.H. side.



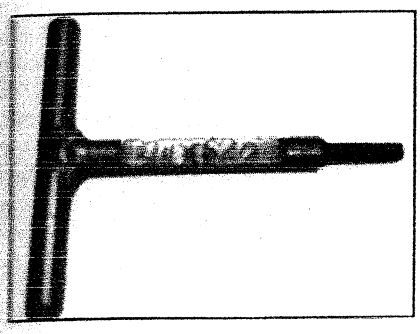


Valve Tappet Adjuster

Part No. : F41ZJW33

Application : To hold the Valve Tappet screw while adjusting tappet clearance.

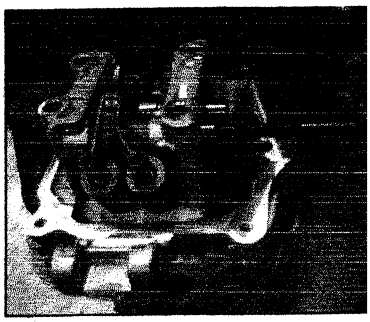
Other Common Special Tools

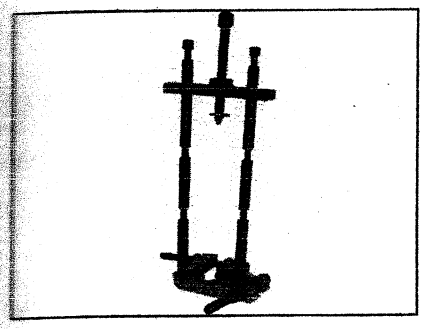


Rocker Shaft Remover

Part No. : 37 10CS 22

Application : To remove Rocker Shaft from cylinder head.

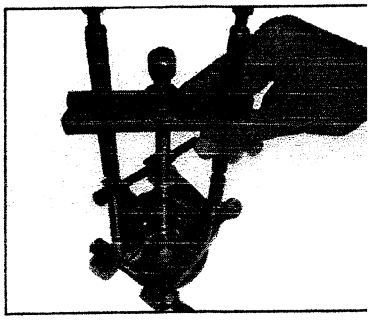


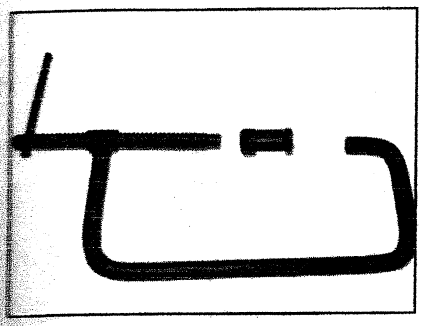


Bearing Extractor

Part No. : 37 1030 48

Application : To Pull out main ball bearing from crankshaft



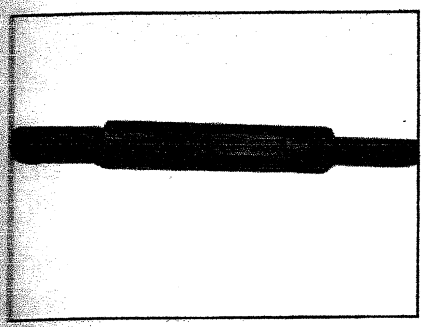


Adaptor & Valve Spring Compressor

Adaptor Part No. : 37 1031 08

Valve Spring Compressor : 37 1031 07

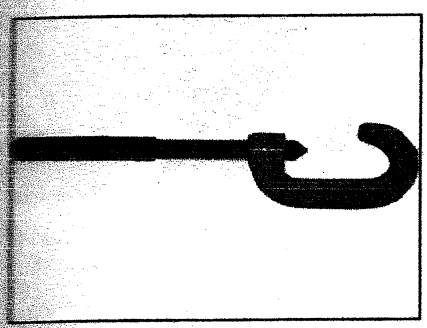
Application : To assemble / dismantle intake, exhaust valve by compressing spring in cylinder head.



Drift Piston Pin

Part No. : 37 1010 06

Application : To remove refit piston pin.

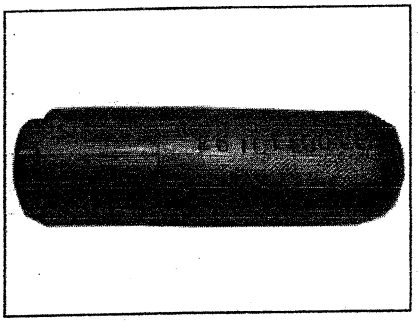


Output Sprocket Holder

Part No. : 37 1030 53

Application : To hold the output sprocket while removing sprocket allen bolts.

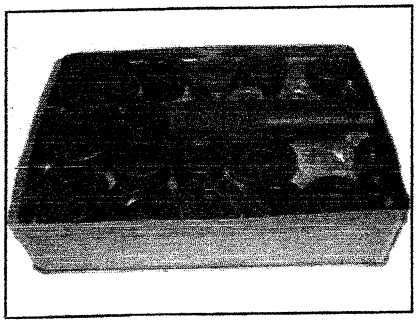
Other Common Special Tools



Driver for Fitting Bushing Gear Shift Drum

Part No. : E6101100TE

Application : To assemble "Bushing with PTFE Lining" at parent hole of crankcase RH for "Gear Shift Drum" mounting.

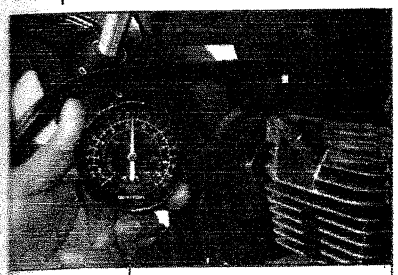


Bearing Driver Set

Part No. : 37 1030 61

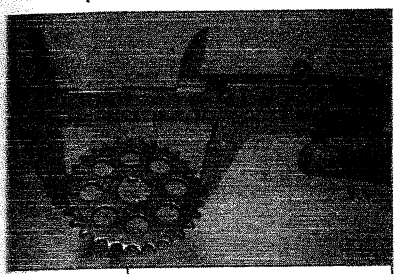
Application : Common bearing driver set for fitting & removing bearings from crankcase.

Compression Pressure



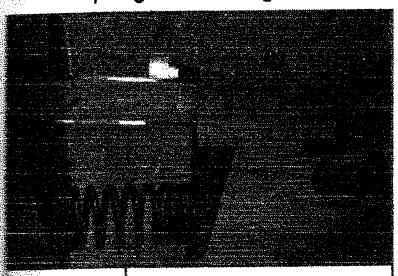
Std. Limit	11.0 ~ 13.0 kg/cm^2
Ser. Limit	9.5 kg/cm^2

Cam Sprocket Diameter



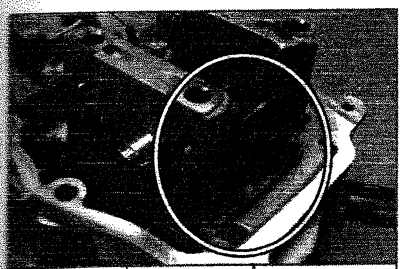
Std. Limit	61.165 ~ 61.285
Ser. Limit	60.865 ~ 61.285

Valve Spring Free Length



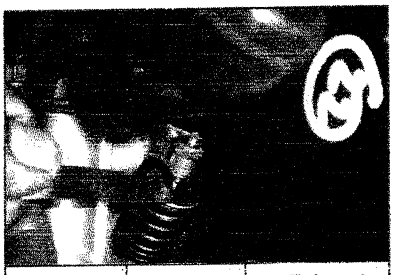
Std. Limit	38.68
Ser. Limit	35.23

Valve Stem to Guide Clearance



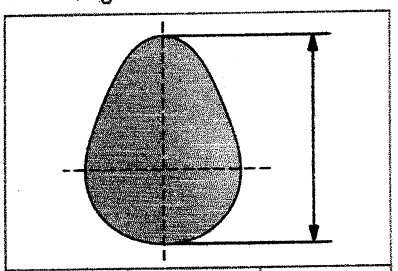
	Intake	Exhaust
Std. Limit	0.01~0.37	0.025~0.052
Ser. Limit	0.07	0.07

Valve Clearance



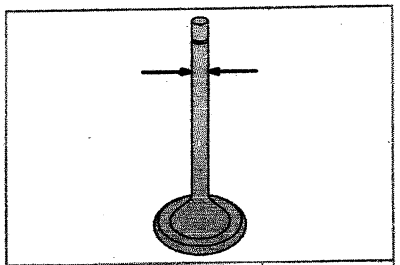
	Intake	Exhaust
Std. Limit	0.05	0.10
Ser. Limit	—	—

Cam Height



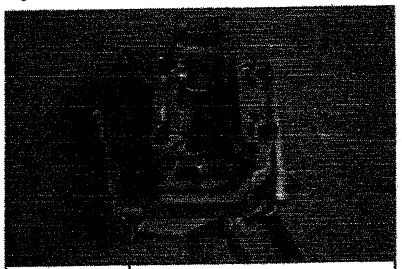
	Intake	Exhaust
Std. Limit	29.368	29.408
Ser. Limit	29.293	29.333

Valve Stem Diameter



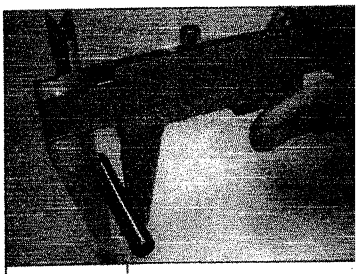
	Intake	Exhaust
Std. Limit	4.47~4.49	4.45~4.47
Ser. Limit	4.46	4.45

Cylinder Head Warp



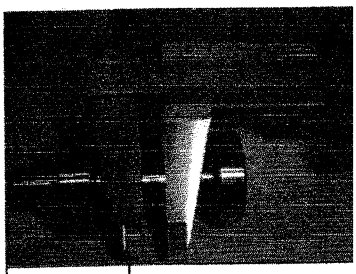
Std. Limit	0.03
Ser. Limit	0.05

Rocker Arm Shaft Diameter



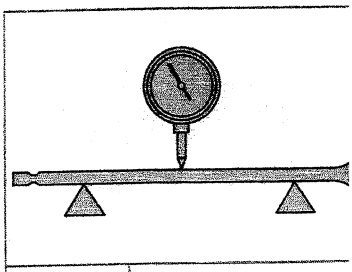
Std. Limit	7.994 ~ 8.0
Ser. Limit	7.98

Cam Lobe Width



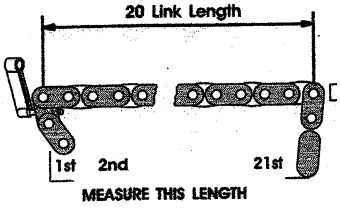
Std. Limit	9.0
Ser. Limit	—

Valve Stem Bend



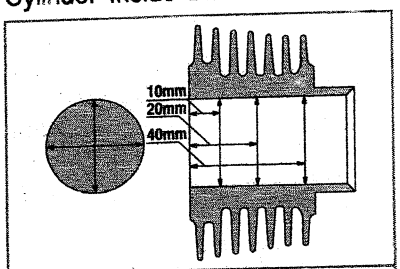
Std. Limit	TIR 0.01
Ser. Limit	> 0.01 Replace

Camshaft Chain Length



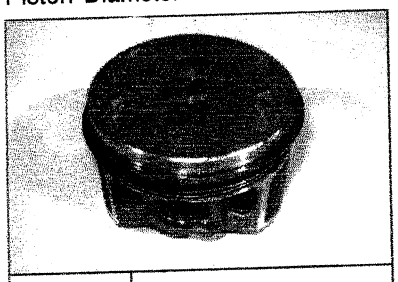
Std. Limit	127.00 ~ 127.48
Ser. Limit	128.9

Cylinder Inside Diameter



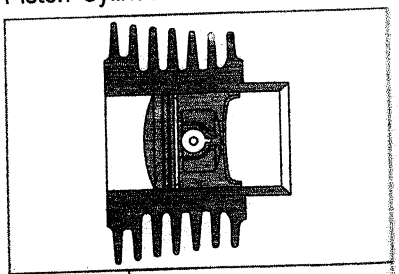
Std. Limit	54.008 ~ 54.018

Piston Diameter



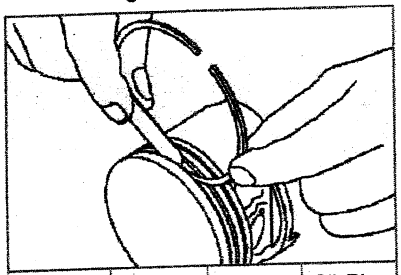
Std. Limit	53.981 ~ 53.969

Piston Cylinder Clearance



Std. Limit	0.02 ~ 0.04
Ser. Limit	0.06

Piston Ring Groove Clearance

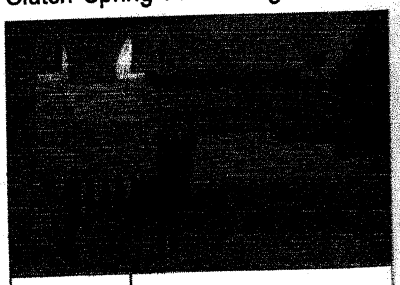


	Top	Second	Oil Ring
Std. Limit	0.03~0.07	0.02~0.06	0.03~0.15
Ser. Limit	0.15	0.15	—

Piston Ring End Gap

	Top	Second	Oil Ring
Std. Limit	0.1~0.25	0.3~0.45	0.2~0.7
Ser. Limit	0.4	0.6	—

Clutch Spring Free Length



Std. Limit	35.9
Ser. Limit	35.0

Friction Plate Thickness

Std. Limit	2.9 ~ 3.0
Ser. Limit	2.7

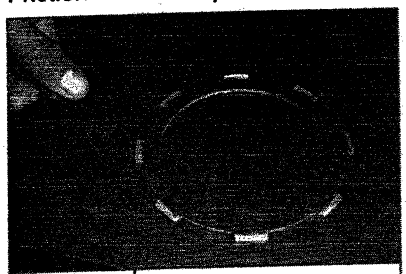
Steel Plate Thickness

Std. Limit	1.55 ~ 1.65
Ser. Limit	1.55

Steel Plate Warp

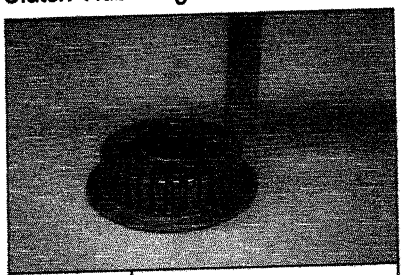
Std. Limit	0.1
Ser. Limit	0.15

Friction Plate Warp



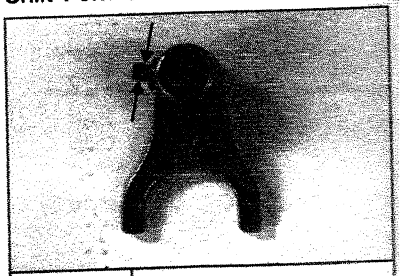
Std. Limit	0.1
Ser. Limit	—

Clutch Hub Height



Std. Limit	21.0 ~ 21.2
Ser. Limit	21.4

Shift Fork Guide Pin Diameter



Std. Limit	4.45 ~ 4.49
Ser. Limit	4.4

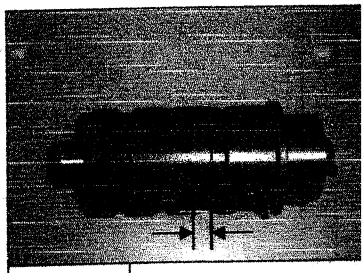
Shaft Fork Shift O.D.

Std. Limit	9.972 ~ 9.987
Ser. Limit	9.96

Fork Shift I.D.

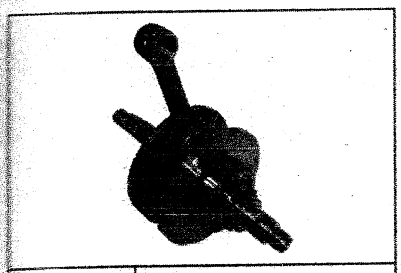
Std. Limit	10.0 ~ 10.022
Ser. Limit	10.03

Shift Drum Groove Width



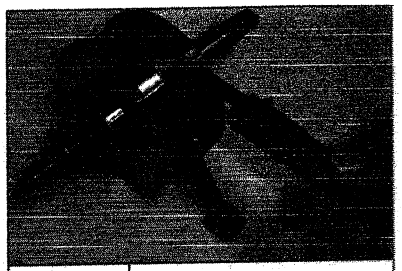
Std. Limit	4.55 ~ 4.70
Ser. Limit	4.75

Crankshaft Run Out



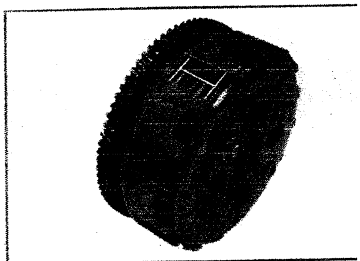
Std. Limit	0.02 Max
Ser. Limit	0.05

Con Rod Side Clearance



Std. Limit	0.1 ~ 0.35
Ser. Limit	0.7

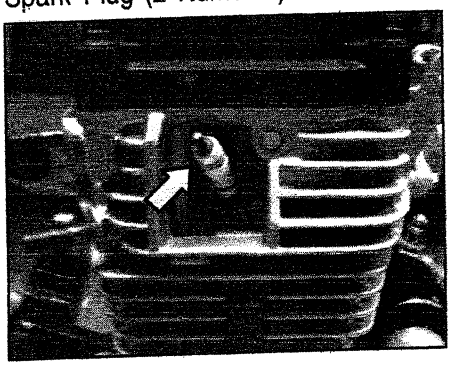
Clutch Stackup Height



Std. Limit	22.17 ~ 21.57
Ser. Limit	20.3

ALL DIMENSIONS ARE IN MM

Spark Plug (2 Numbers)

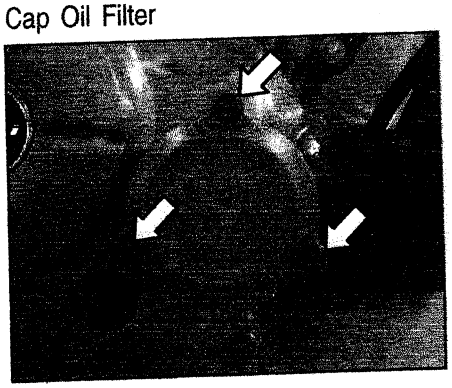


1.3 ~ 1.5 Kgm

Cap Strainer (Drain Bolt)

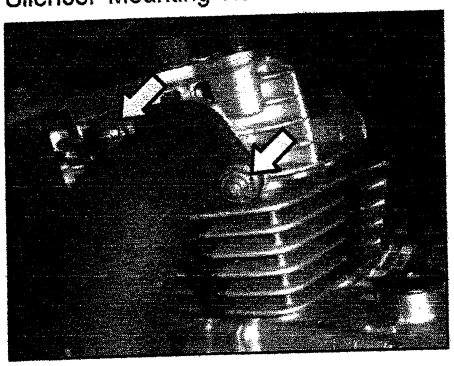
0.9 ~ 1.1 Kgm

Cap Oil Filter



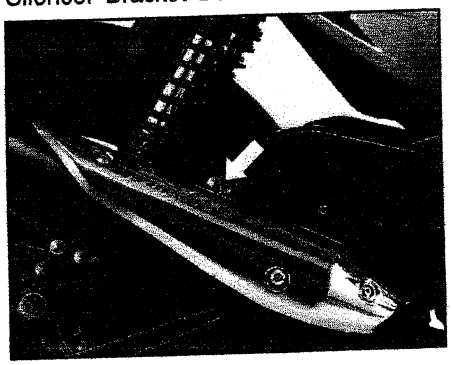
0.9 ~ 1.1 Kgm

Silencer Mounting Nuts



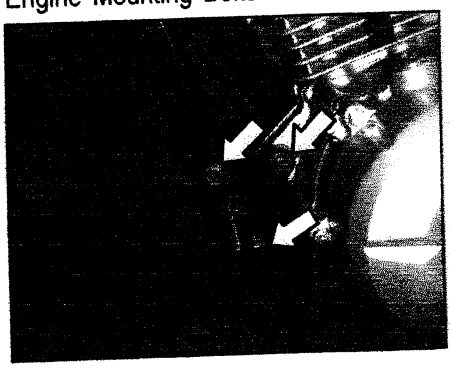
2.0 ~ 2.2 Kgm

Silencer Bracket Bolt



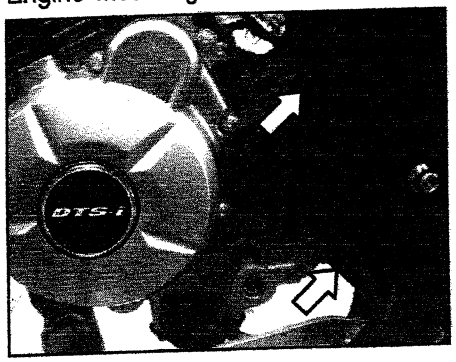
3.5 Kgm

Engine Mounting Bolts



2.0 ~ 2.2 Kgm M8 : 12 MM

Engine Mounting Bolts

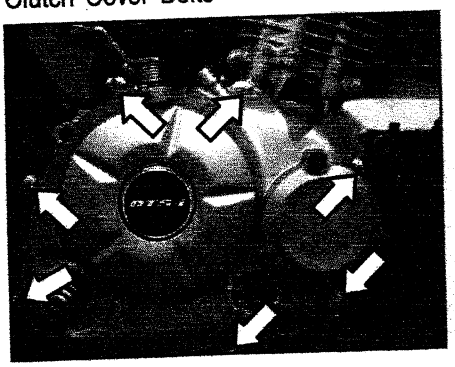


3.0 ~ 3.2 Kgm M10 : 14 MM

Engine Mounting Bolts

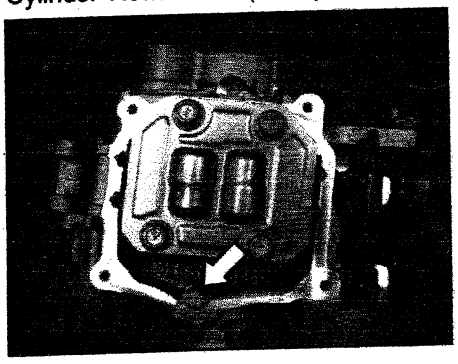
2.0 ~ 2.2 Kgm M8 : 12 MM

Clutch Cover Bolts



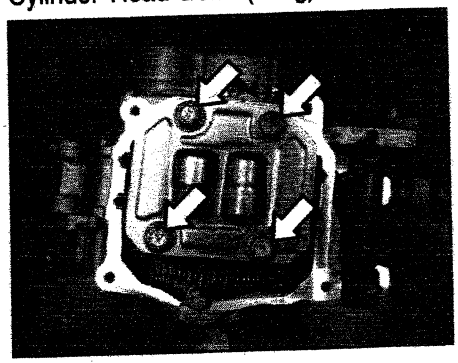
0.9 ~ 1.1 Kgm

Cylinder Head Bolts (Short)



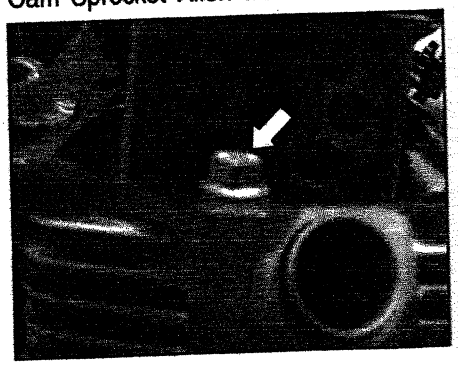
2.2 ~ 2.5 Kgm

Cylinder Head Bolts (Long)



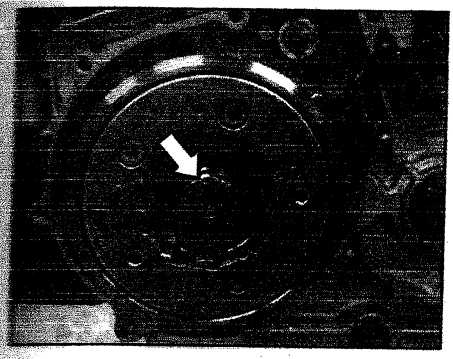
2.2 ~ 2.5 Kgm

Cam Sprocket Allen Bolt



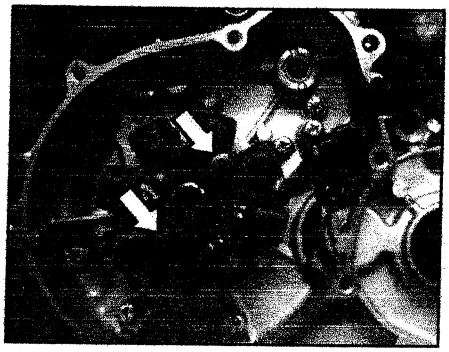
1.0 ~ 1.1 Kgm

Rotor Mounting Nut



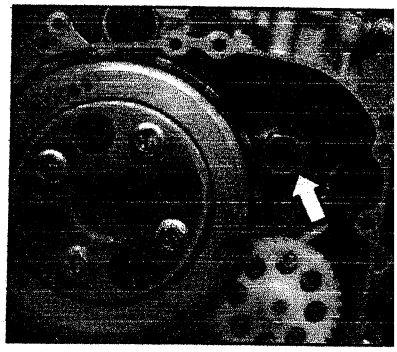
5.0 ~ 5.5 Kgm

Stator Plate Bolts



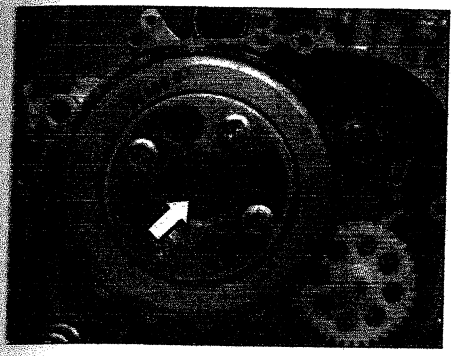
0.9 ~ 1.1 Kgm

Primary Gear Nut



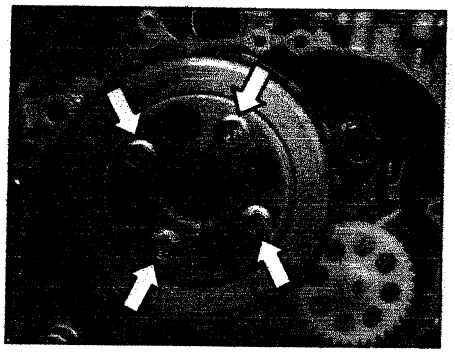
5.0 ~ 5.5 Kgm

Clutch Nut (L.H. Thread)



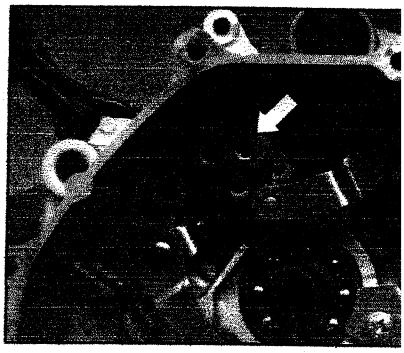
6.5 Kgm

Clutch Holder Bolts



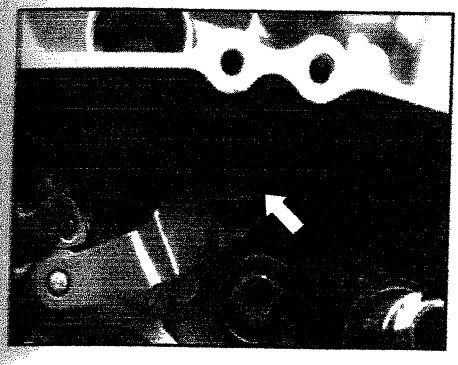
1.1 ~ 1.0 Kgm

Guide Gear allen Bolt



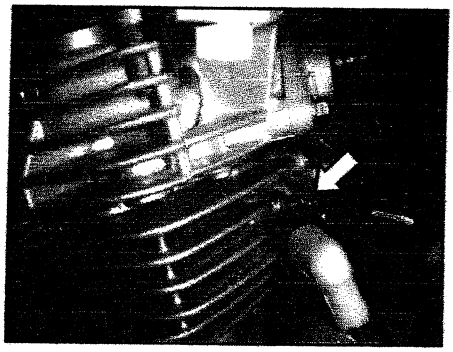
0.9 ~ 1.1 Kgm

Stud Inhibitor Nut



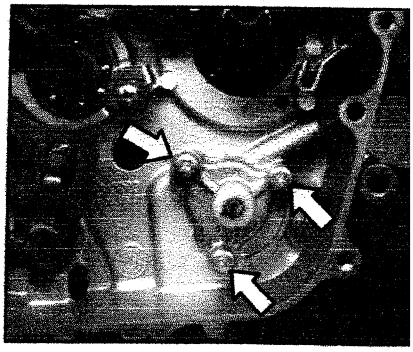
0.9 ~ 1.1 Kgm

Thermal Sensor



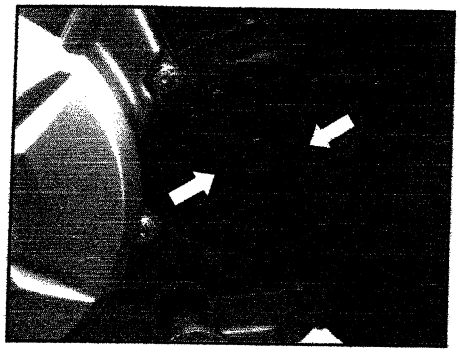
0.5 Kgm

Oil Pump Mounting Screws



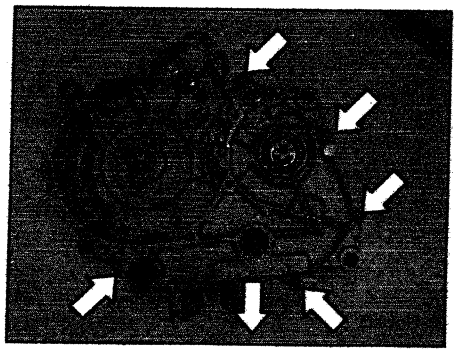
0.5 ~ 0.7 Kgm

Output Sprocket Bolts



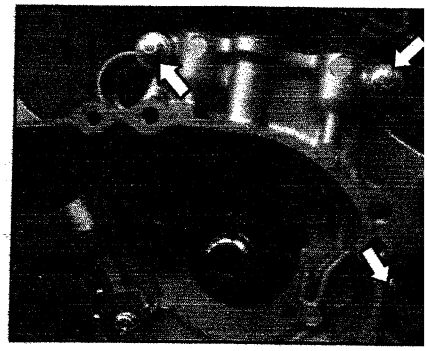
0.8 Kgm

Crankcase Joining Bolts



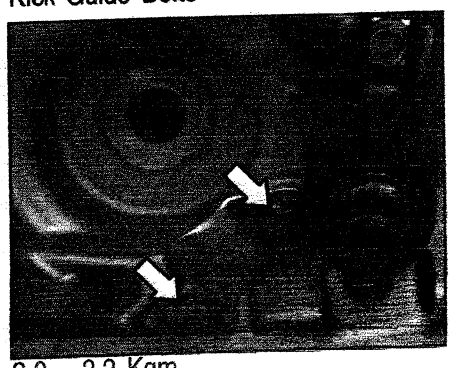
0.9 ~ 1.1 Kgm

Crankcase Joining Bolts



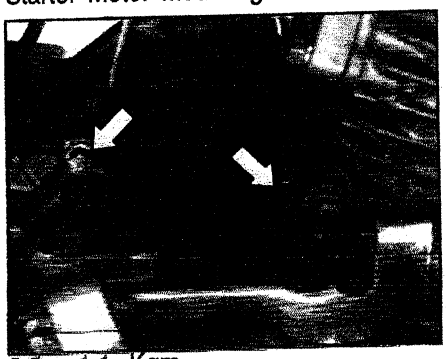
0.9 ~ 1.1 Kgm

Kick Guide Bolts



2.0 ~ 2.2 Kgm

Starter Motor Mounting Bolts

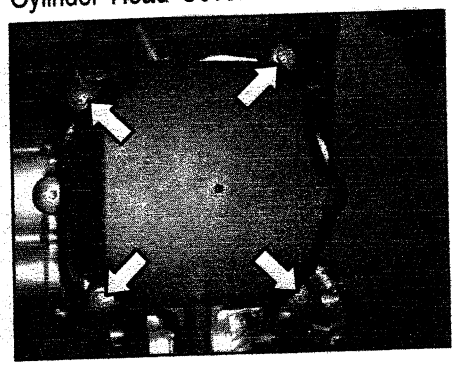


0.9 ~ 1.1 Kgm

Bolt Kick Lever

2.0 ~ 2.2 Kgm

Cylinder Head Cover Bolts



0.9 ~ 1.1 Kgm

Chain Tensioner Mounting Bolts

0.9 ~ 1.1 Kgm

Magneto Cover Bolts

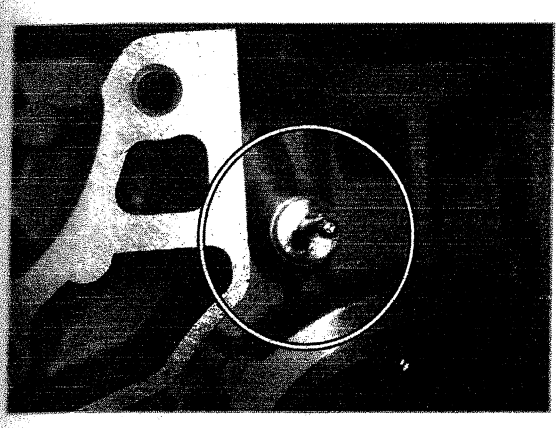
0.9 ~ 1.1 Kgm

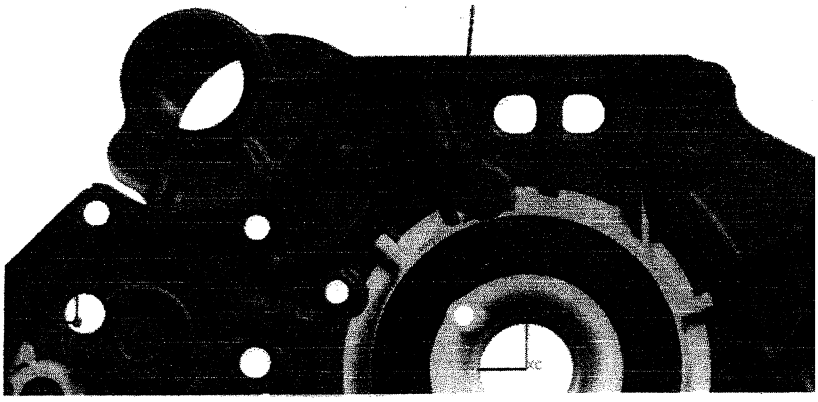
Manifold Mounting Bolts

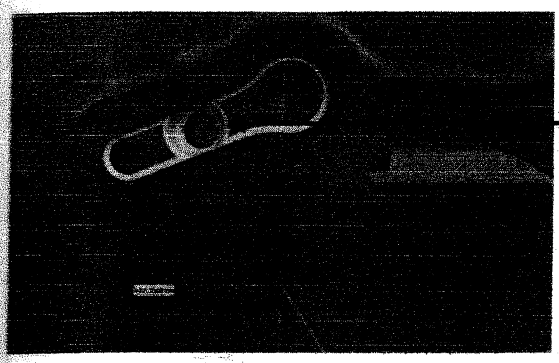
0.9 ~ 1.1 Kgm

Nozzle Oil Jet

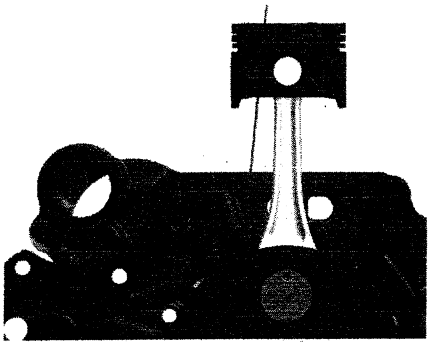
'Nozzle Oil Jet' is press fitted in the crankcase L.H. and it is an important part of lubrication circuit. It sprays the oil, pressure, on the piston ribs to take out heat. Thus keeps piston relatively cool & protects it from seizure.







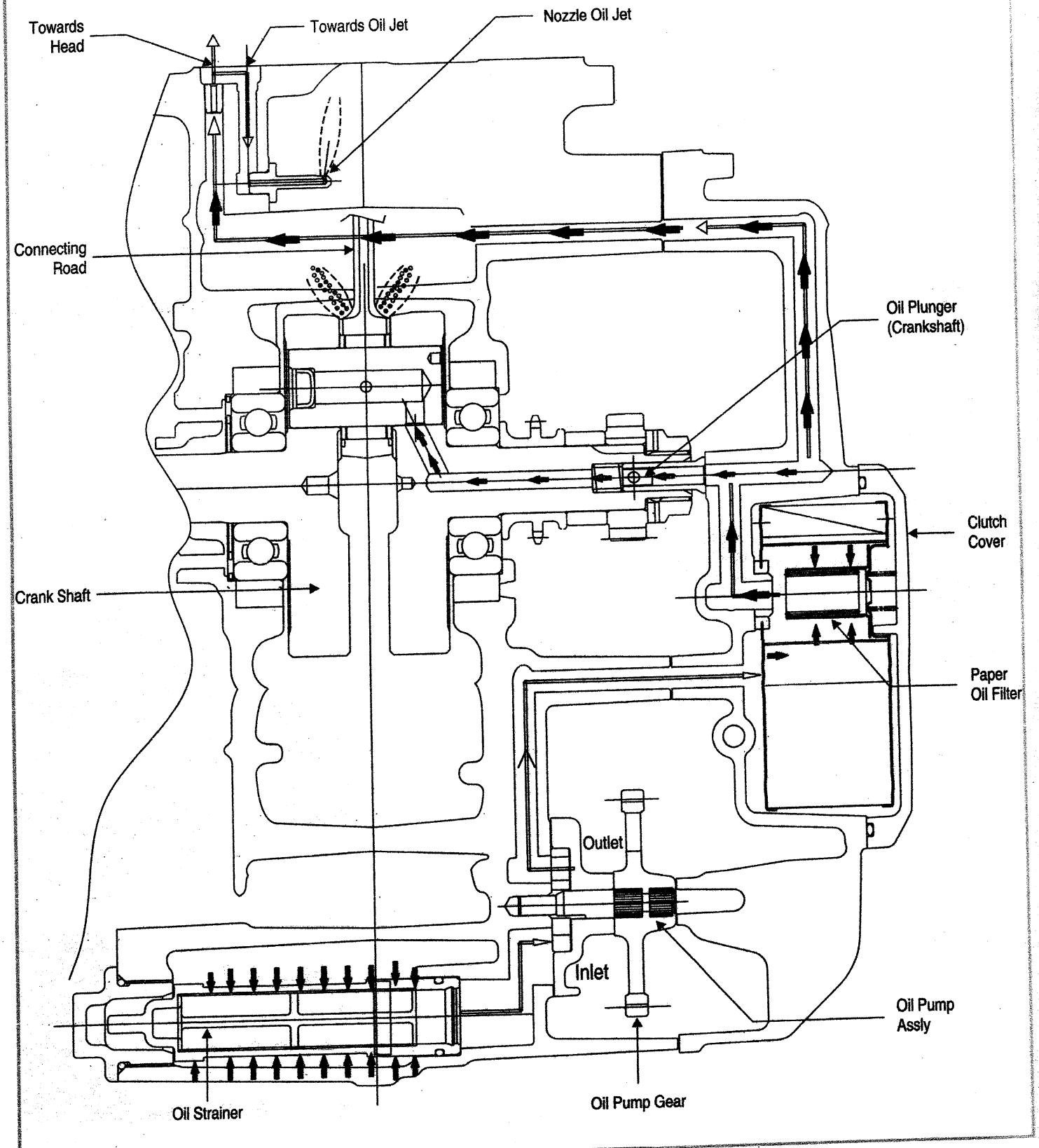
Oil Passage for Nozzle Oil Jet



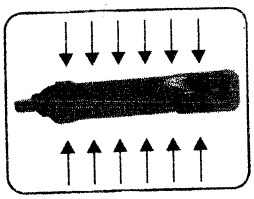
Checking & Cleaning SOP

- Blow compressed air from the hole provided on 'Nozzle Oil Jet' to clear the crankcase passage (as shown arrow & photograph).
- Pump oil through L.H. crankcase oil passage leading to 'Nozzle Oil Jet' and check whether oil comes out from hole provided on the 'Nozzle Oil Jet'.
- Check & Clean 'Nozzle Oil Jet' whenever cylinder piston is seized / engine is overhauled.
- Do not use plier.
- Do not repair by removing from crankcase.
- Do not apply loctite in case Nozzle gets loose.

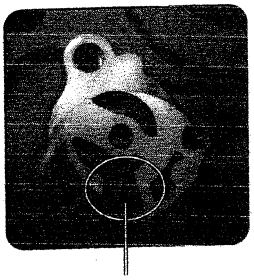
Lubrication Circuit



Oil strainer

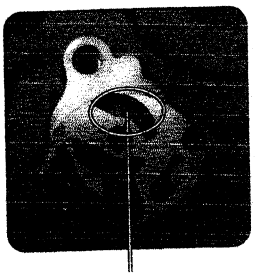


Oil pump inlet



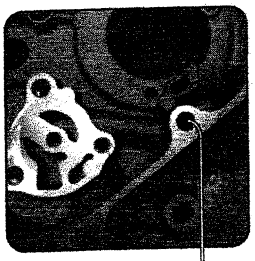
INLET

Oil pump outlet



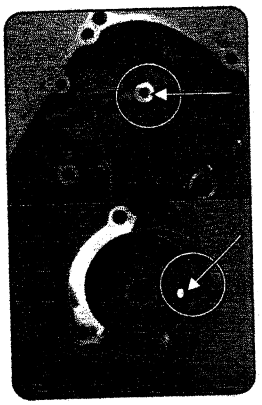
OUTLET

RH side crankcase oil passage

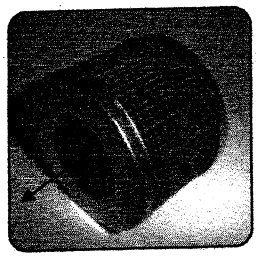


PASSAGE

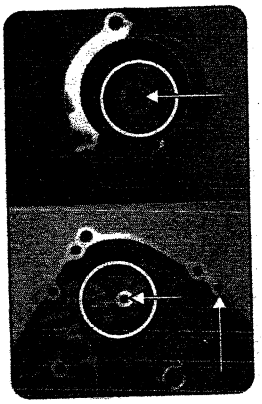
Clutch cover - Inlet hole of paper filter chamber



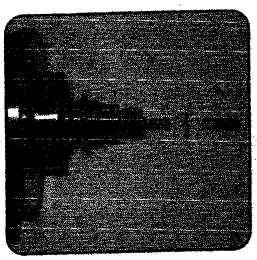
Paper filter



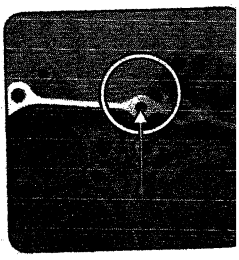
Clutch cover - Outlet hole of paper filter chamber



Oil plunger



RH side crankcase hole

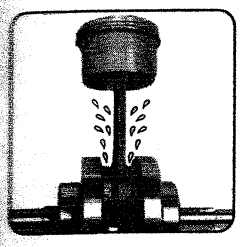


continued.....

Crankshaft drilled hole - RH side

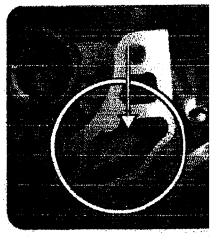
Crank big end pin

Con rod slots

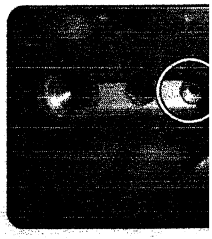


Two fountains for lubricating cylinder piston parts

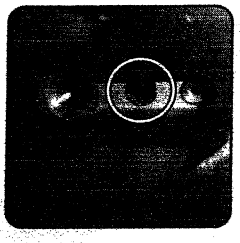
LH side crankcase hole



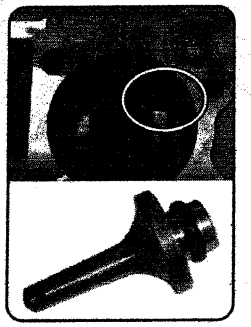
Orifice



LH crankcase passage

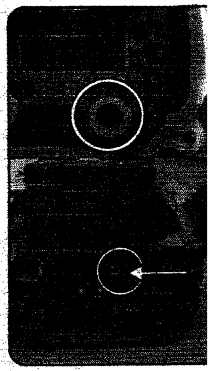


L.H. Crankcase passage towards nozzle

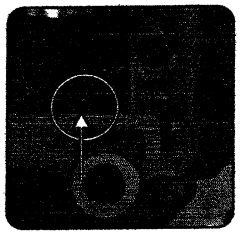


Nozzle oil jet

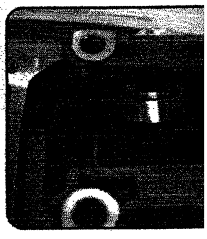
Gap between bolt and cylinder block & cylinder head



Cylinder head hole

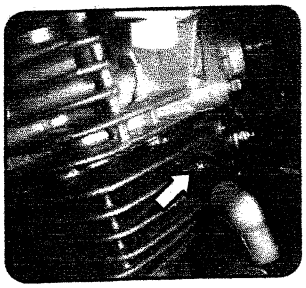


Small oil sump - for lubricating various cylinder head parts

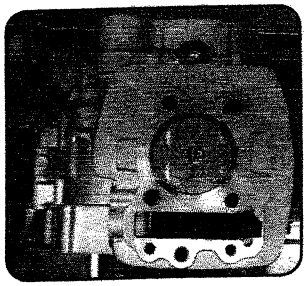


☑ Dos

- Always replace engine oil by recommended quantity and quality of oil.
  Recommended grade :
  20 W 50API 'SJ' grade.
  Engine oil capacity :
  Drain & Refill : 1000 ml and
  Overhaul : 1100ml



- Always ensure firm connection of thermal sensor's wiring harness connection.

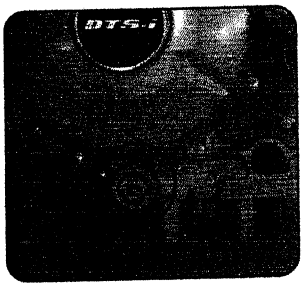


- Always replace gaskets, 'O' rings of engine if dismantled.

- Whenever installing Spark Plugs, first screw by hand and then tighten to specified torque. This is to ensure proper fitment & avoid thread damage.
- Always use wire gauge for setting spark plug Electrode gap.

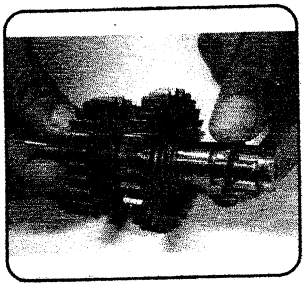
- Always set / adjust valve tappet clearance in engine cold condition.
  Intake : 0.0 5mm
  Exhaust : 0.10mm
- Always use feeler gauge for setting valve tapper clearance
- **Always set the clearance for each valve individually**

☒ Don'ts

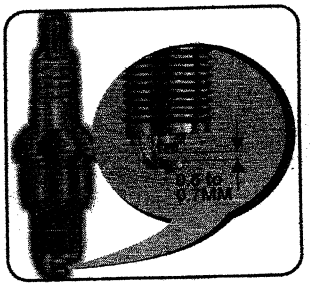


- Don't over tighten 'Cap oil strainer' (Drain bolt).
  (Tightening torque : 0.9 ~ 1.1 Kgm)

- Don't drop down thermal sensor on floor otherwise it may get damaged permanently.
- Don't over tighten thermal sensor fitted on cylinder block (Tightening torque 0.5 Kgm)



- Don't reuse 'O' rings, gaskets, Oil seals, Circlip locks as they use their strength & properties, once they are opened.

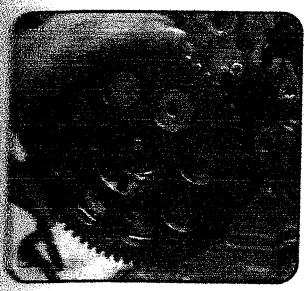


- Don't adjust spark plug electrode gap by hacksaw blade or with judgement of eye otherwise it will affect the engine performance.

- Don't adjust valve tappet clearance by hacksaw blade or with judgement of eye otherwise it will affect the engine performance.
- Don't set valve tappet clearance in engine hot condition.

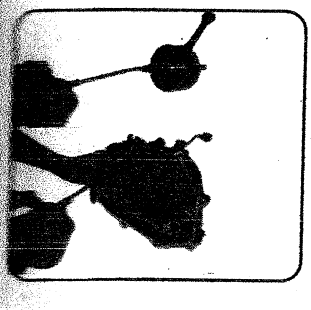
☑ Dos

☒ Don'ts



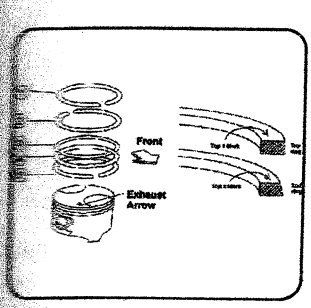
- Always ensure correct fitment of magneto rotor by rotating it in both the Directions.
- Always rotate 'Gear Starter Clutch' in clockwise direction & pull it out. Immediately place Plastic cap into one way clutch rollers for securing them their position.

- While removing rotor, don't rest the rotor holder (Specia tool no: F41AJA09) against stopper provided for 'Gear Starter clutch'.



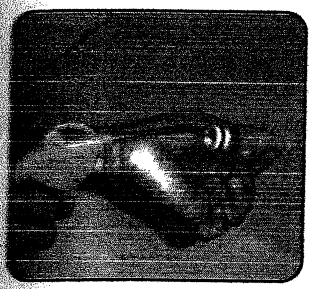
- Ensure crankcase / clutch cover oil passages are clear by pumping oil from 'Oil Can'.

- Don't blow compressed air into crankshaft oil passage. This would damage crank big end bearing.



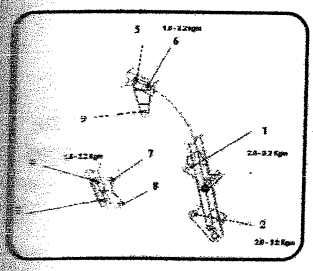
- Always fit piston ring as per standard SOP & ensure their end position.

- Don't fit 2nd piston ring 'UP' side 'Down'. This could lead to smokey exhaust & higher engine oil consumption.



- Always blow light pressure compressed air from inside while cleaning 'Oil strainer' that is opposite to the direction of flow of oil.

- Don't reuse torn 'Oil strainer' otherwise it will affect lubricatic system of engine & subsequently would lead to seizure.

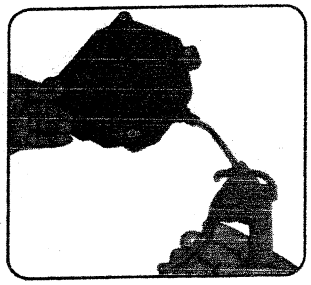


- Always tighten engine foundation bolts as per recommended sequence.

- Don't over tighten engine foundation bolts

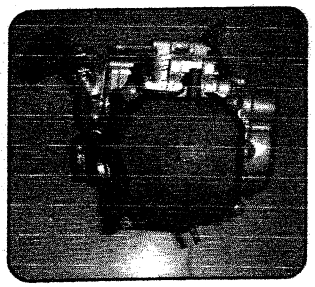
☑ Dos

☒ Don'ts



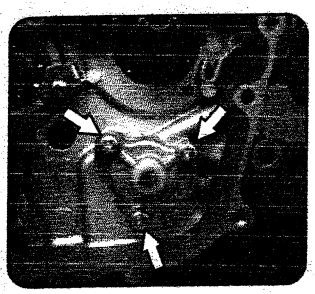
- Ensure Cylinder Head Cover breather passage is clear by blowing compressed air in opposite direction of flow of fumes. Clogged breather passage would lead to oozing out of oil through oil seals, 'O' Rings, Gaskets & Breather pipe.

- Don't fill excess engine oil beyond std. engine oil capacity otherwise oil will ooze out from engine breather pipe / leak from gasket - oil seal



- Always follow loosening / tightening sequence of cylinder head bolts otherwise its surface may get warped
- Tighten nut- bolts in criss-cross pattern for matching of mating surfaces to avoid distortion otherwise It leads to oil leakage.
- Standard Tightening Torque : 0.9~1.1 Kgm

- Don't over tighten cylinder head cover bolts otherwise plastic cylinder head cover may get cracked.
- If cylinder head cover bolts are not tightened to specified torque & in criss-cross pattern it would lead to oil leakage.

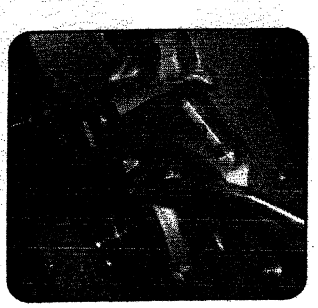


- Always apply loctite to oil pump securing screws / bolts

- While assembling oil Pump shaft having integral nylon gear, don't hammer / tap the gear for matching. Instead, rotate the gear slowly 'D' slot on shaft so that perfectly matches with the 'D' slot of inner rotor.

- Always use Loctite to bolts, screws & nuts wherever recommend.

- If nut, bolts & screws are assembled with out loctite application it would lead to their loosening & subsequent problem in engine.



- Blow dust free / moisture free air in all the orifices, passages of the engine components & confirm that the oil passages are clear.
- The dust free air must be blown opposite to the direction of oil flow.

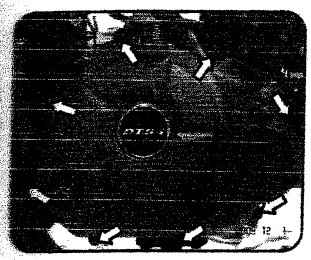
- If air is blown in to orifices, oil passages of the engine in the direction of oil flow, the passage would get jammed / clogged instead of getting cleared.

☑ Dos

☒ Don'ts

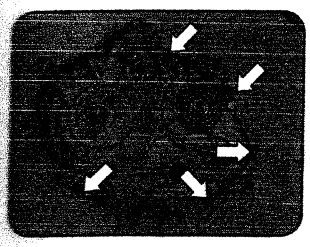
- Confirm the crankshaft centering & free rotation after fitment otherwise non centered crankshaft would lead to engine knocking.

- Don't hammer crankshaft while fitting it in crankcase otherwis it would lead to its run out & subsequent engine noise



- Always tighten clutch cover and crankcase bolts to their specified torque (0.9 ~ 1.1 Kgm) in crisscross pattern

- Don't over tighten clutch cover & crankcase bolts otherwi crankcase parent hole threading would get damaged.



- Always replace circlips & locks of transmission gears, kick shaft assembly if removed. Circlips / locks tend to loose their spring tension once removed.
- While assembling cylinder block, always apply engine oil to cylinder walls & piston rings for ease of fitment & to prevent dry running.
- Always apply oil during assembling engine components, particularly at friction prone area to avoid dry running.
- Confirm seating of circlip locks by rotating on their seat to avoid further consequences.
- While installing engine bearings always tap / press on the race which is taking seat to avoid damage to the bearing otherwise axial / radial clearance may increase.

- Don't wash air filter foam element with water.
- Don't clean air filter foam element with petrol otherwise foa would catch fire during 'After fire process'. This would lead dust entry inside engine.
- Don't wash engine bearings with water otherwise they will g permanently spoiled
- Don't blow compressed air on engine bearing otherwise the will get permanently spoiled.
- Don't tap engine components by hammer in order to avo damage. Engine components are precisely machined, they a critical & costly.

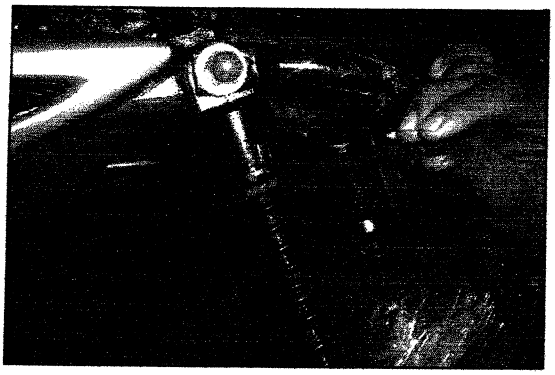
5

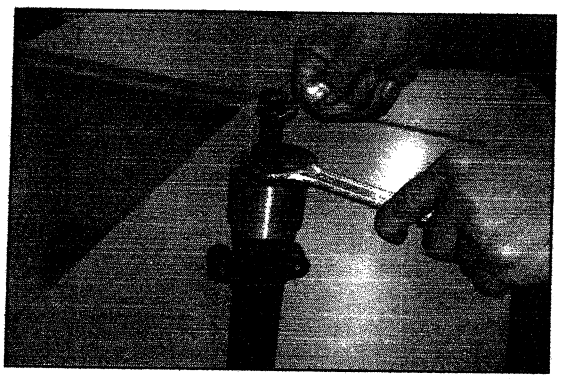
Vehicle (Frame)

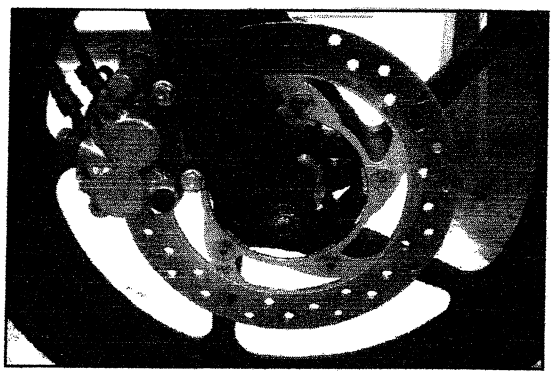
Tightening Torques

Service Limits

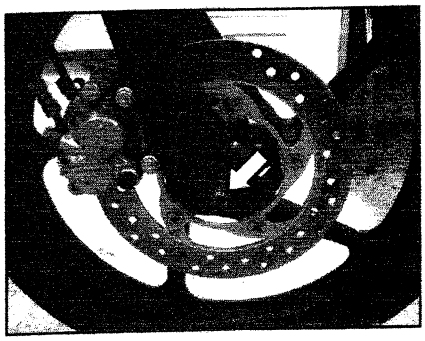
Special Tools





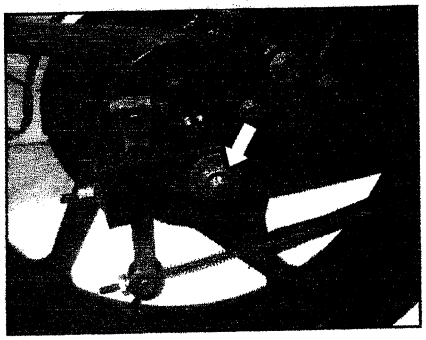


Front Axle Nut



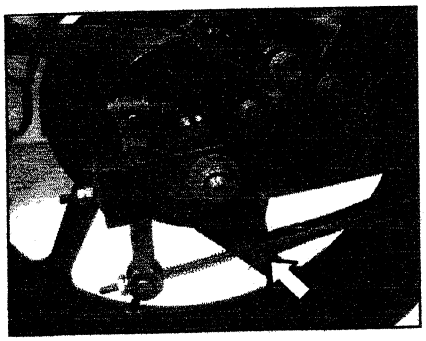
4.5 ~ 5.5 Kgm

Rear Axle Nut



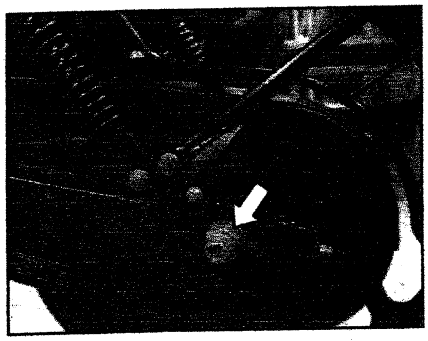
8.0 ~ 10.0 Kgm

Tie Rod Nut



3.0 ~ 4.0 Kgm

Rear Sleeve Nut

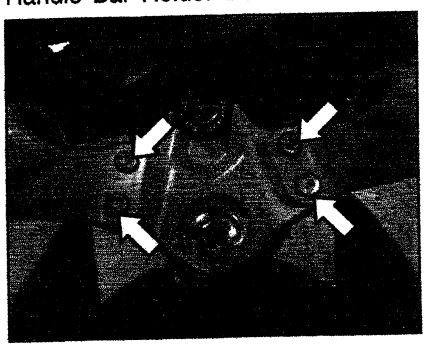


8.0 Kgm

Rear Sprocket Mounting Nut

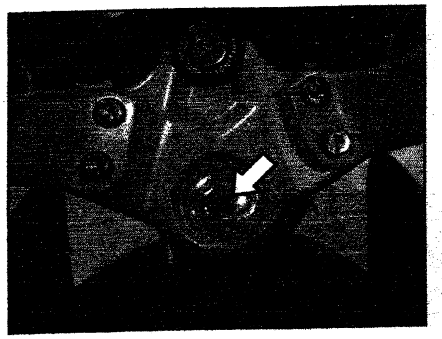
3.2 ~ 3.8 Kgm

Handle Bar Holder Bolts



2.0 ~ 2.2 Kgm

Fork Center Nut

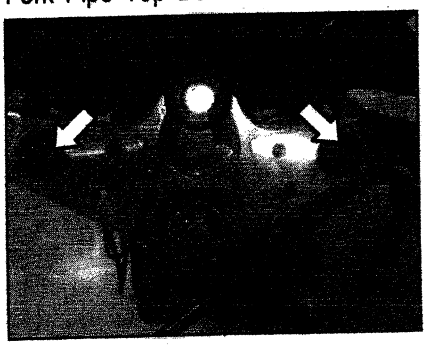


5.0 Kgm

Steering Stem Nut Slotted

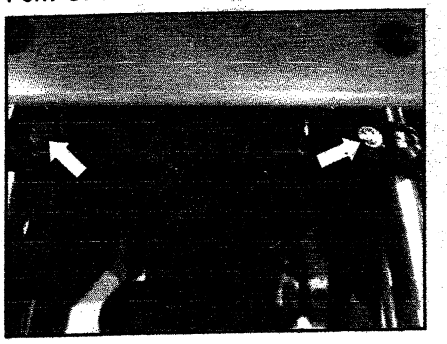
0.5 Kgm

Fork Pipe Top Bolts



3.0 ~ 3.2 Kgm

Fork Under Bracket Bolts

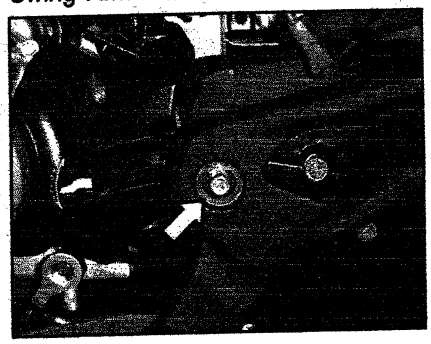


2.5 ~ 3.0 Kgm

RSA Mounting Nut (Upper)

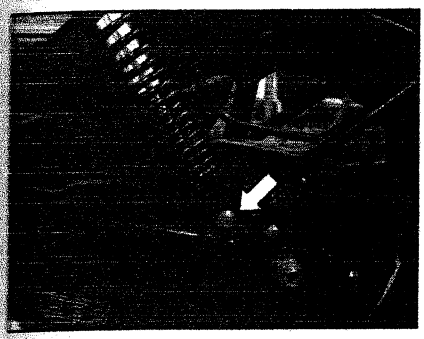
3.0 ~ 3.2 Kgm

Swing Arm Shaft



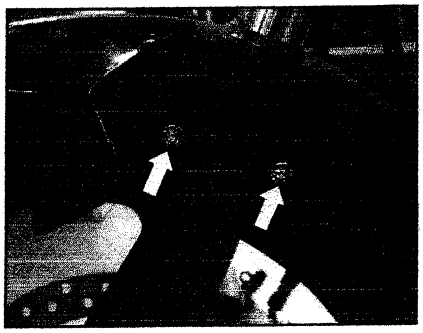
4.5 ~ 5.5 Kgm

RSA Lower Bolt



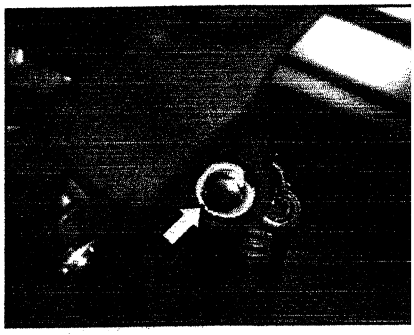
2.8 ~ 3.2 Kgm

Front Fender Mounting Bolts



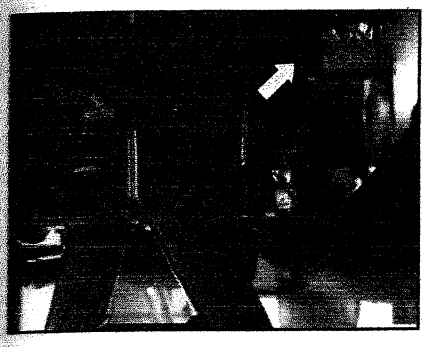
2.0 ~ 2.2 Kgm

Al Step Holder Bolts



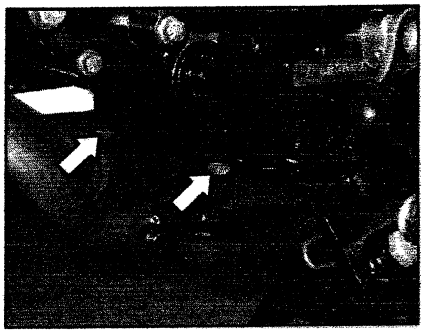
1.8 ~ 2.2 Kgm

Rear Brake Pedal Bolt



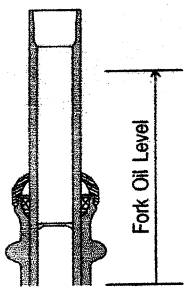
2.0 ~ 2.2 Kgm

Side Stand Bracket Mounting Bolts



1.8 ~ 2.2 Kgm

Front Fork Oil Grade & Capacity



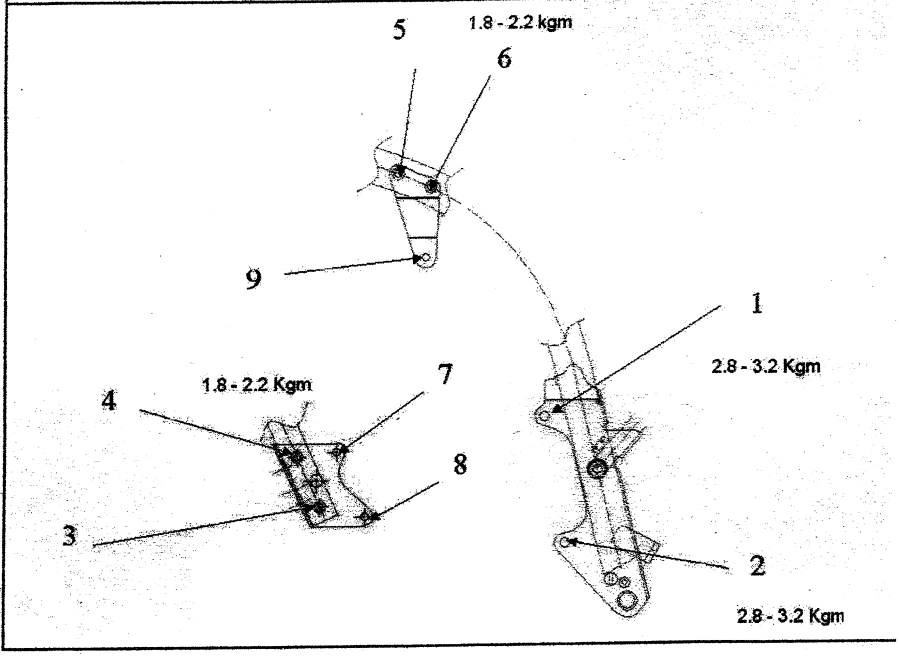
Grade :
SAE 10W20
Bajaj Genuine
Fork Oil
Quantity :
140 ± 2.5 ml /
Fork Leg Assly
(Drain & Refill)

Disc Brake Rotor Thickness Limit : 3.5 mm

Grease Application Points

S.N.	Vehicle Component	Type of Grease
1.	Bearing balls of steering	Servo GEM RR3 grease
2.	Swing arm shaft	
3.	Front wheel axle	
4.	Rear wheel axle	
5.	Brake pedal pivot	
6.	Center stand shaft	
7.	Side stand 'U' bracket	
8.	Gear shifter lever pivot	

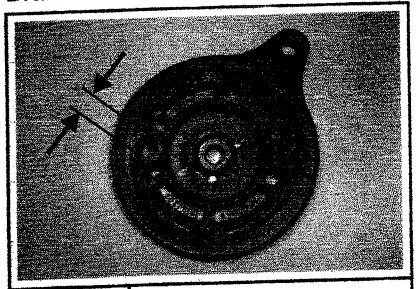
Engine Mounting Bolt Tightening Sequence



Loctite Applications

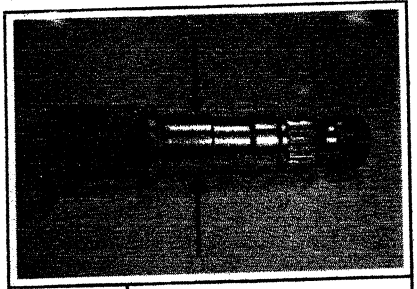
S.N.	Vehicle Fastener	Type of Loctite & Loctite Colour
1.	Rider step mtg. bolts	243 Dark Blue colour
2.	RSA lower bolt	

Brake Panel Cam Hole Dia.



Std. Limit	12.00 ~ 12.03
Ser. Limit	12.15

Brake Cam Diameter

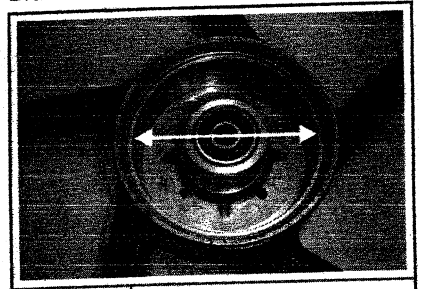


Std. Limit	11.95 ~ 11.98
Ser. Limit	11.88

Brake Shoe Lining Thickness

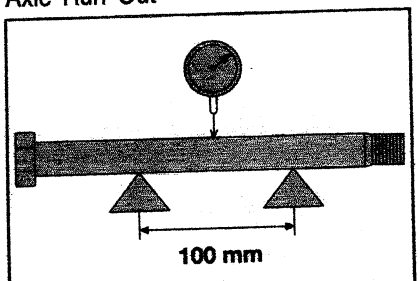
Std. Limit	8.0 (Frt)	3.85~4.15 (Rr)
Ser. Limit	3.8 (Frt)	2.0 (Rr)

Brake Drum Inside Diameter Rear



Std. Limit	130~130.16
Ser. Limit	130.75

Axle Run Out



Std. Limit	TIR 0.1 or Less
Ser. Limit	TIR 0.2

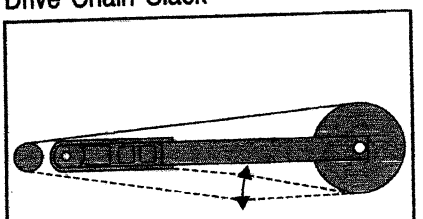
Axial Wheel Run Out

Std. Limit	TIR 1.0 or Less
Ser. Limit	TIR 2.0

Radial Wheel Run Out

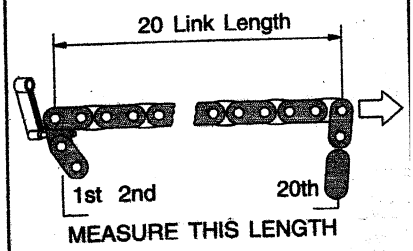
Std. Limit	TIR 0.8 or Less
Ser. Limit	TIR 2.0

Drive Chain Slack



Std. Limit	25 ~ 30
Ser. Limit	35 ~ 40

Drive Chain Length

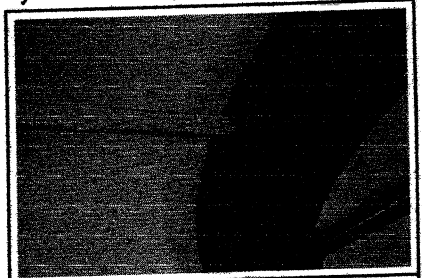


Std. Limit	254.0 ~ 254.6
Ser. Limit	259.0

Rear Sprocket Warp

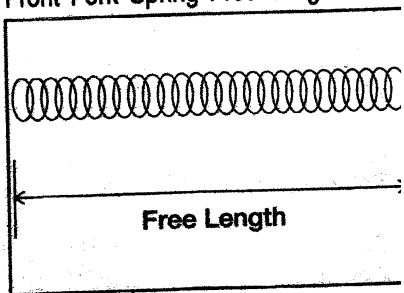
Std. Limit	TIR 0.4 or Less
Ser. Limit	0.5

Tyre Tread Depth



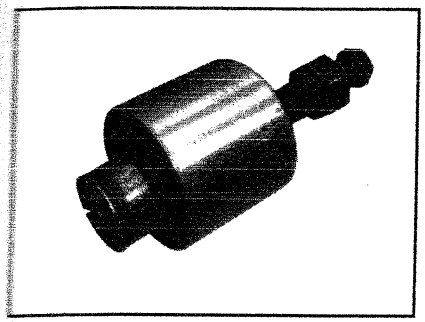
Std. Limit	Front : 5.0	Rear : 6.8
Ser. Limit	Front : 1.0	Rear :1.5

Front Fork Spring Free Length



Std. Limit	398.5
Ser. Limit	391.0

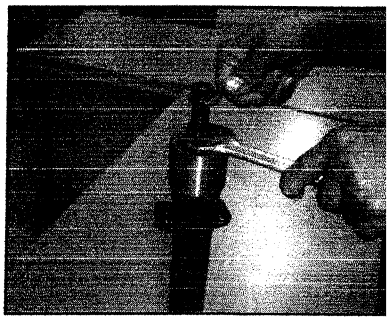
Common Special Tools

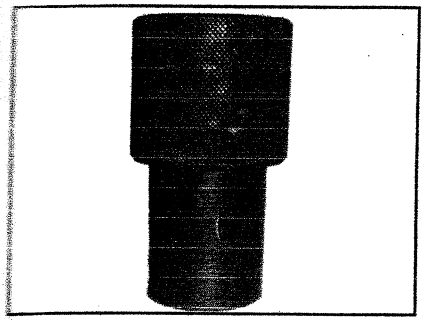


Special Tool to Remove Anti-Friction Bush

Application :

To remove anti-friction & oil seal bush from front fork outer pipe.



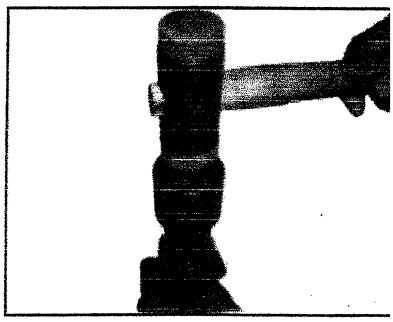


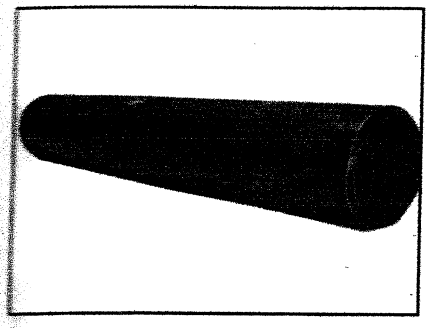
Fork Oil Seal Driver

Part No. : 37 1830 07

Application :

To fit fork oil seal in its seat provided at outer pipe ID.



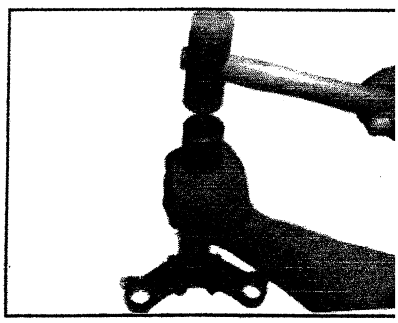


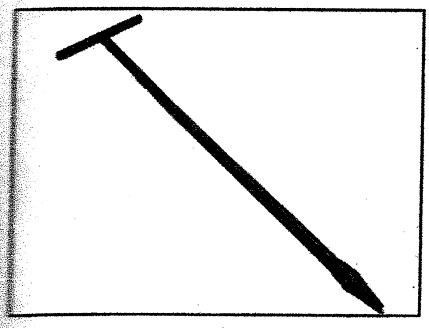
Stem Bearing Driver

Part No. : 37 1830 05

Application :

To fit bearing race on fork under holder bracket



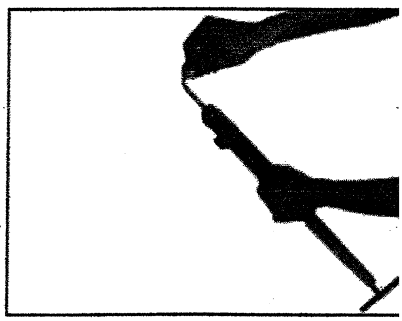


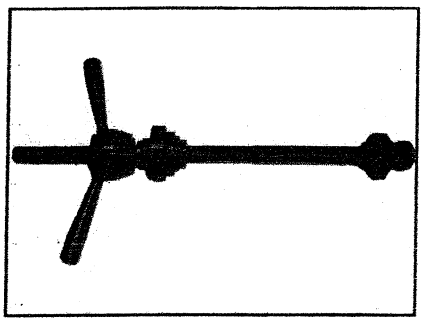
Front fork cylinder holder handle with adaptor

Part No. : 37 1830 06

Application :

To hold fork cylinder while loosening / tightening fork allen head bolt at bottom.



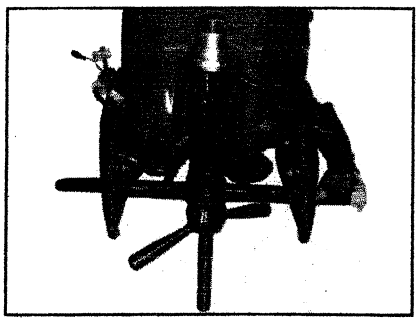


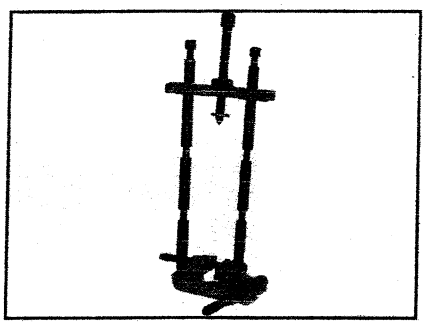
Installer Upper & Lower Bearing Race Frame

Part No. : 37 1801 06

Application :

To install upper & lower steering races / cones into their seats inside frame.



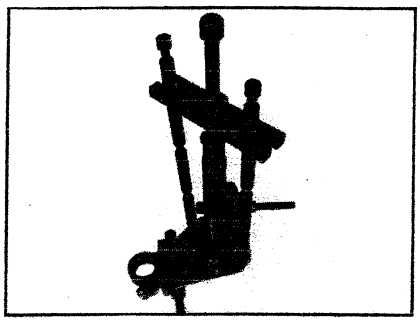


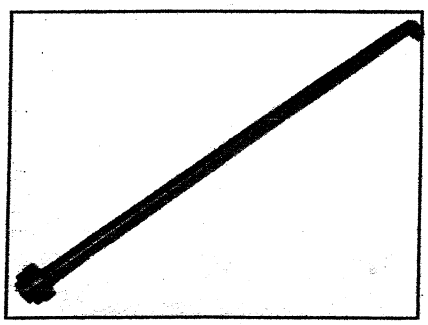
Bearing Race Extractor

Part No. : 37 1030 48

Application :

To Pull out steering race from ' Fork Under Holder bracket'



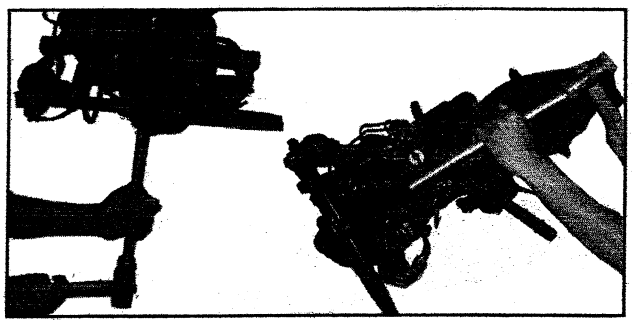


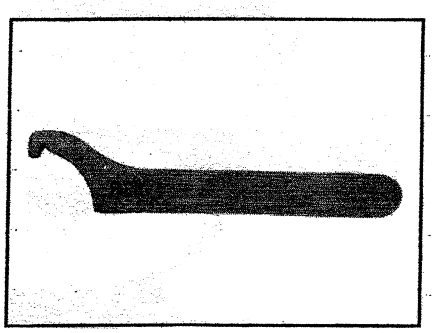
Steering Cone Remover

Part No. : 37 1805 06

Application :

To remove steering cones from frame.



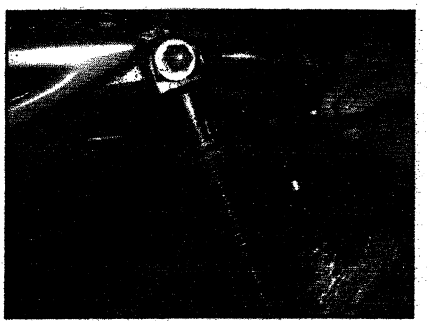


Special Tool to Adjust RSA Spring

Part No. : 37 00DS 01

Application :

To adjust rear shock absorber spring tension by adjusting the position of spring cam between 1st to 5th notch position.



6

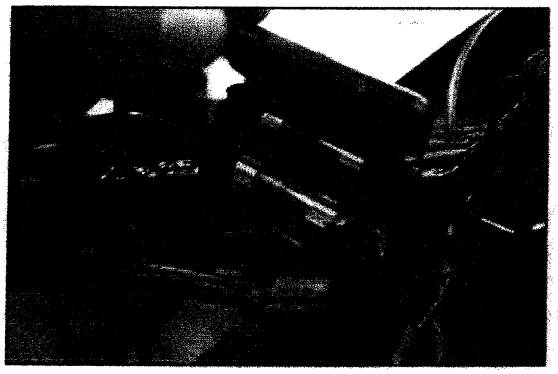
Electricals

Battery

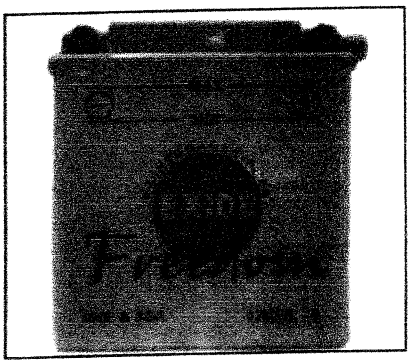
Electrical Checking Procedure

Head Light Control Unit

Electrical Diagrams



Battery Technical Specification



	For Self Start	
• Make	Exide / Minda	
• Voltage	12 Volt	
• Type	MF Battery	
• Capacity	5 Ah	
• Specific gravity of electrolyte for initial filling of new battery	1.24 for use above 10°C	
• Initial charging duration	10 ~15 hrs	
• Charging current specification	0.5 Amp	

Battery Features

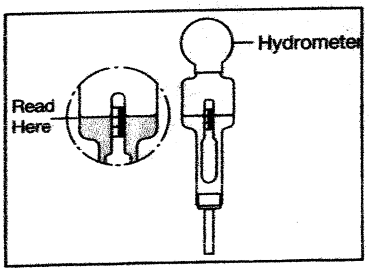
- Frequency of electrolyte topping-up is very less compared to conventional battery.
- Low self discharge.
- Unique vent system / mechanism.
- No vent tube hence no discharge of electrolyte through vent tube.
- Enhanced safety
- Compact design-High efficiency in compact package.

Battery Charging Procedure

In case battery is discharged follow the procedure given below by using constant current. "Battery Charger" of 0.5 Amp. charging current specification for 5 Ah battery & 0.25 Amp for 2.5 Ah battery

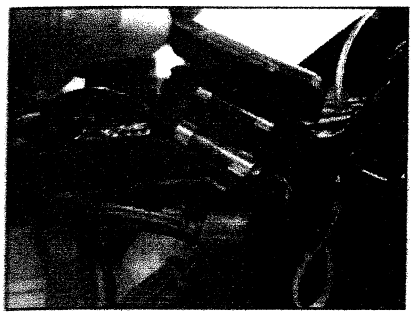
- Remove battery from vehicle
- Clean battery throughly
- Remove vent / filler plug strip
- Top up level with distilled water in between Min and Max. level
- Connect to battery charger & ensure respective terminal are connected properly
- Set charging current at 0.5 A DC for 5 Ah Battery & 0.25 A DC for 2.5 Ah battery.
- Charge battery for 3 ~ 4 hrs, then check voltage and specific gravity.
- Voltage should be 12.5 volts and specific gravity in all 6 cells should be 1.240. This is a confirmation check for a fully charged battery.
- Disconnect the battery from the changer.
- Fit vent / filler plug strip firmly.
- Reconnect battery terminals
- Apply petroleum jelly to the battery terminals.

How to Determine Condition of Battery



Specific Gravity check: - Whether battery is fully charged or partially charged, it will always show same "no load voltage" of 12 volts or more (unless battery cells are damaged due to sulphation etc). But specific gravity of the fully charged battery and partially charged battery will be different. Fully charged battery will show Sp. gravity of 1.240 while partially charged battery will show less specific gravity. Therefore, specific gravity check is very important to know condition of the battery.

Fuse Inspection (Capacity = 10 Amp)

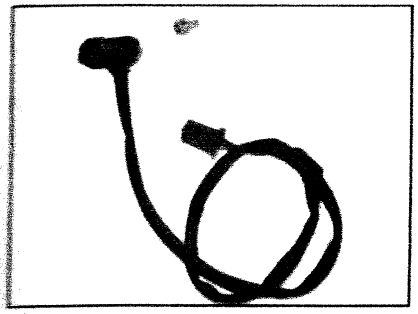


Fuse

- Inspect the fuse element.
- Check continuity of fuse.
- If it is blown out, replace.
- If a fuse fails repeatedly, check the electrical system to determine the cause. Replace with a new fuse of proper amperage capacity.
- If fuse is replaced by lower capacity fuse, it may lead to repetitive fuse blowi problem.

Note : Never use higher capacity fuse.

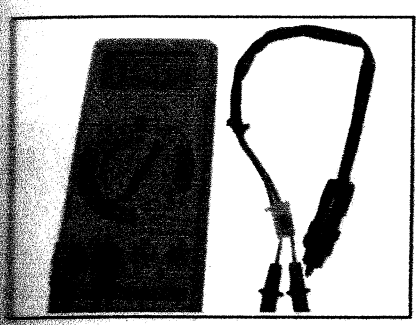
Caution : When replacing a fuse be sure the new fuse matches the specified fuse rati for that circuit. Installing that a fuse with a higher rating may cause damage to wiring components.



Front Brake Light Switch

- Turn 'ON' the ignition switch.
- The brake light LED bank should glow brightly when the front brake lever pressed.
- If it does not, check the front brake switch.

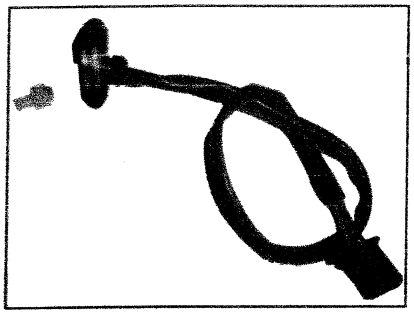
	Brown	Blue	Continuity check by multimeter
Lever Pressed	●	●	Continuity is shown
Lever Released	●	●	No Continuity



Rear Brake Light Switch

- Turn 'ON' the ignition switch.
- Check the operation of the rear brake light switch by depressing the brake pedal
- If it does not operate check continuity of rear brake switch.

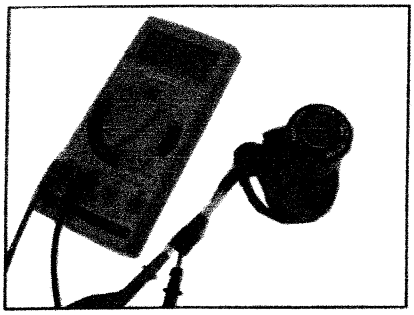
	Brown	Blue	Continuity check by multimeter
Brake Pedal Pressed	●	●	Continuity is shown
Brake Pedal Released	●	●	No Continuity



Clutch Switch

The clutch switch has 3 wires. In neutral conditions, clutch switch is in non-operated condition closing 'C' & 'NC' terminals. In gear condition, clutch switch is operated there by connecting 'C' & 'NO' terminals.

Meter Range	Light Green	Yellow / Green	Black /Yellow
OFF - Clutch lever not pressed	●	●	●
ON - Clutch lever pressed	●	●	●



Ignition Switch

Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Continuity Check
Continuity Mode	Meter +ve	Meter -ve	OFF - No continuity
	Brown	White wire	ON - Continuity

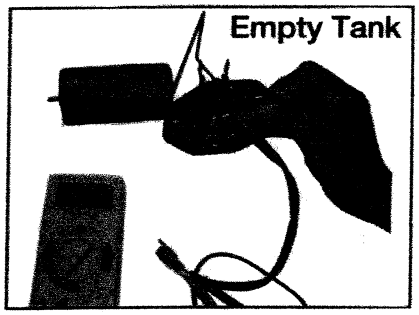
SOP :

- Switch OFF Ignition key.
- Disconnect Ignition switch's coupler.
- Remove Ignition Switch from vehicle .
- Check continuity between wires in 'ON' & 'OFF' position.

Standard Value :

- Beep Sound & Continuity in 'ON' position. No continuity in 'OFF' position.

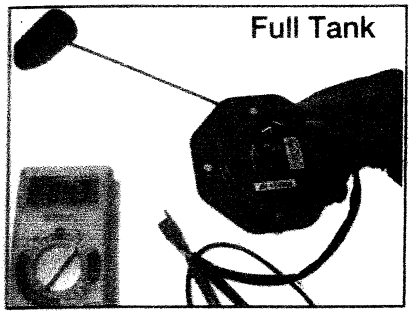
Note:
- Don't use duplicate or non-OE Ignition key.
- Never lubricate Ignition switch by oil / grease.



Fuel Gauge - Tank Unit

Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value
200 Ohms	Meter +ve	Meter -ve	As per chart given below
	White / Yellow	Black / Yellow	



Standard Value :-

Fuel Level	Fuel Quantity Liter	Standard value Ohm	Bars in Speedo
Empty Tank	less than 0.8 liters	78 ± 3	0
Reserve	2.4 liters	50 ± 2	2 bars
Half	4.0 liters	36 ± 2	4 bars
Full Tank	7.2 liters	14 - 4	6 bars

Note: If display in speedo console is not proper then please check following
- Battery Voltage
- Speedometer coupler & fuel gauge tank unit coupler connection is firm.

Starter Relay

Measuring & Testing Equipment : Test Jig or Multimeter

Connection : Test Jig - Connect starter relay coupler to Test Jig & it show result OK / Defective

Meter Range	Connections		Standard Value	Measured Valu
200 Ohms	Meter +ve	Meter -ve	4 Ohms ± 10%	---------
	Starter Relay Coil Red - Yellow Wire	Starter Relay Coil Black Wire		

SOP :
- Switch OFF engine.
- Disconnect coupler from Relay.
- Connect multimeter to Starter Relay coil terminals.
- Check resistance.

Capacitor

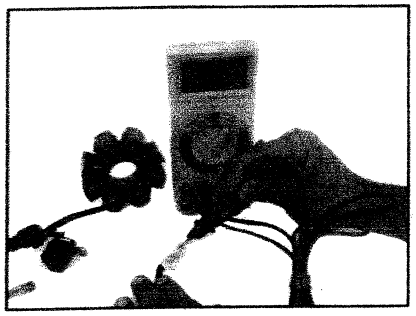
Checking Method :
Touch +ve wire of capacitor to earth. Spark will occur.
This Indicates capacitor is OK.

Note: Capacitor is very important for Battery charging function, so ensure capacitor coupler is always firmly connected.

Engine Thermal Sensor

Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value	
	Meter +ve	Meter -ve	Engine Temp (°C)	Resistance K Ohms(Ω)
20 K Ohms	Black / White	Earth / Ground	@ 10 °C	20.702 KΩ + 10%
			@ 20 °C	12.889 KΩ + 10%
			@ 30 °C	8.653 KΩ + 10%
			@ 40 °C	5.636 KΩ + 10%
			@ 50 °C	3.818 KΩ + 10%
			@ 60 °C	2.782 KΩ + 10%



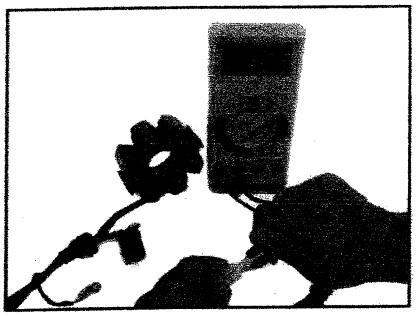
Battery Charging Coil

Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value	Measured Value
200 Ohms	Meter +ve	Meter -ve	0.8~1.1 Ohms at 25°C	---------
	Blue / White	Blue / White		

SOP :

- Switch OFF engine.
- Disconnect stator plate coupler
- Connect multimeter between two Blue / White wires.
- Check resistance value between Blue / White & Blue / White.



Pick-up Coil

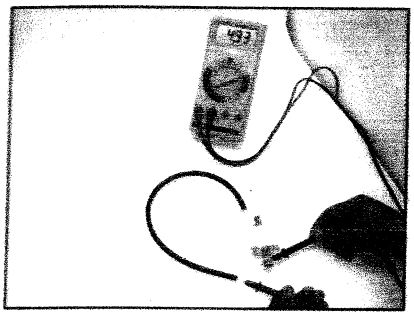
Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value	Measured Value
2 K Ohms	Meter +ve	Meter -ve	180 ~ 245 Ohms	---------
	White / Red	Black / Yellow		

SOP :

- Switch Off Ignition Key.
- Disconnect Stator Plate Coupler
- Connect multimeter between White / Red & Black / Yellow wires.
- Measure resistance

Note: Ensure gap 0.5~0.7 mm between pole of pick-up coil & rotor peep.

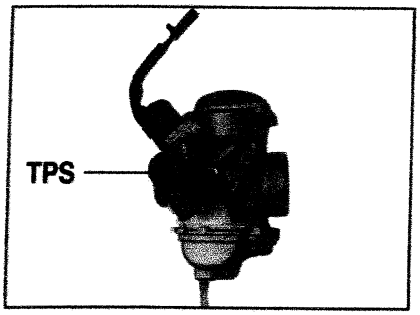


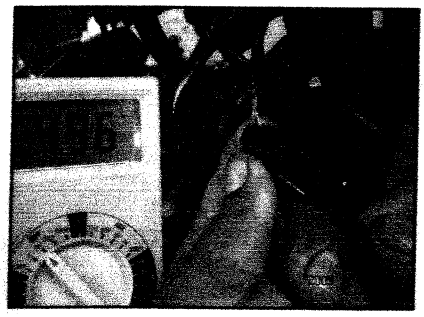
H. T. Coil Inspection

H.T. Coils : (Inspection Using Multimeter)

- Measure the primary winding resistance as follows
- Connect the hand tester between the coil terminals.
- Measure the secondary winding resistance as follows
- Remove the plug cap by turning it counter clockwise.
- Connect the tester between the spark plug leads.
- Measure primary winding & secondary winding resistance.
- If the value does not match as per, specifications replace the coil.
- If the meter reads as specified, the ignition coil windings are probably goo However, if the ignition system still does not perform as it should after all oth components have been checked test replace the coil with one OK coil.
- Visually inspect the secondary winding lead.
- If it shows any damage, replace the coil.

Primary Winding	0.40 to 0.50 Ohms at 25°C
Secondary Winding	4.23 to 5.17 K Ohms at 25°C





TPS - Continuous Potentiometer Type

A. Input Voltage check in TPS coupler disconnected condition.

Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value
20 V DC	Meter +ve	Meter -ve	5 V DC ± 10%
	Grey / White	Black / Yellow	

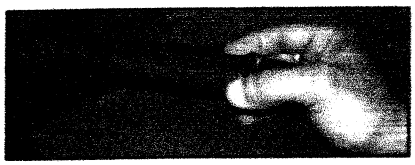
SOP :

- Switch 'ON' ignition key.
- Disconnect coupler of TPS (TPS is mounted on CV carburettor)
- Check Voltage between Grey / White (Gr/W) & Black / Yellow (B/Y) wire.
- Voltage must be at 5V ± 10%.

No Voltage means:

a) Grey / White wire broken / loose connection.
b) Earthing loose connection.
c) Loose connection at CDI coupler.

Pigtail for Checking TPS



B. Voltage check at 0% Throttle (In accelerator closed position)

Measuring & Testing Equipment : Multimeter

Meter Range	Connections at Pig Tail Coupler		Standard Value
20 V DC	Meter +ve	Meter -ve	0.7 V ± 10%
	Pink	Black / Yellow	

SOP :

- Ensure 1400 ± 100 engine idling rpm before checking.
- Disconnect 4 pole white coupler of CDI.
- Set multi meter to 20 V DC range.
- Connect pig tail (for checking TPS) in between 4 pole natural coupler from harness & mating DC, CDI white coupler.
- Switch 'ON' ignition key & Kill switch.
- Check voltage between Pink & Black / Yellow wire of pig tail in accelerator closed position.
- Voltage must be 0.7 V ± 10%.

C. Voltage check at 100% Throttle position.
(In accelerator completely opened condition).

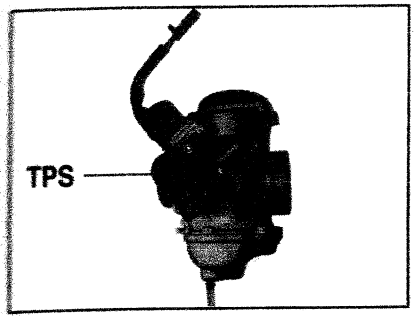
Measuring & Testing Equipment : Multimeter

Meter Range	Connections at Pig Tail Coupler		Standard Value
20 V DC	Meter +ve	Meter -ve	3.4 ~ 3.8 V
	Pink	Black / Yellow	

SOP :

- Ensure accelerator play is 2~3 mm.
- Ensure 1400 ± 100 engine idling rpm before checking.
- Disconnect 4 pole White coupler of CDI.
- Set multi meter to 20 V DC range.
- Connect a pig tail (for checking TPS) in between 4 pole natural coupler from harness & mating DC CDI white coupler.
- Switch 'ON' ignition key & Kill switch.
- Rotate accelerator to 100% throttle position.
- Check voltage between Pink & Black / Yellow wire of pig tail.
- Voltage must be 3.4 ~ 3.8 V.

Pigtail for Checking TPS

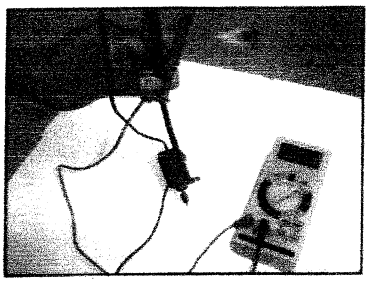


SOP For Replacing Continuous TPS

- Ensure / set engine rpm to 1400 ± 100.
- Ensure / set accelerator free play 2~3 mm std.
- Take out carburettor from the vehicle.
- Replace TPs unit (Fit new TPS & keep Tuskon screw securing TPS loose).
- Connect a Pig Tail (For checking TPS) in between 4 pole natural coupler from harness & mating DC CDI white coupler.
- Switch 'ON' ignition key & Kill switch.
- Set multi meter to 20 V DC range.
- In accelerator that is 'Butterfly Valve' closed condition, measure voltage between Pink & Black / Yellow wire of Pig Tail.
- Adjust TPS position to get 0.7 V in 'Butterfly Valve' closed condition. Tighten the Tuskon screw securing TPS in this position.
- Reinstall carburettor on the vehicle.

Meter Range	Connections at Pig Tail Coupler		Standard Value
20 V DC	Meter +ve	Meter -ve	0.7 ± 10%
	Pink	Black / Yellow	

- Tighten securely the special Tuskon screw & install carburettor on the vehicle.
- Verify the working of TPS by test ride.



Auto Choke Solenoid Coil

Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value	Measured Value
200 Ohms	Meter +ve	Meter -ve	12 ± 10 %	
	Orange	Black		---------

SOP :

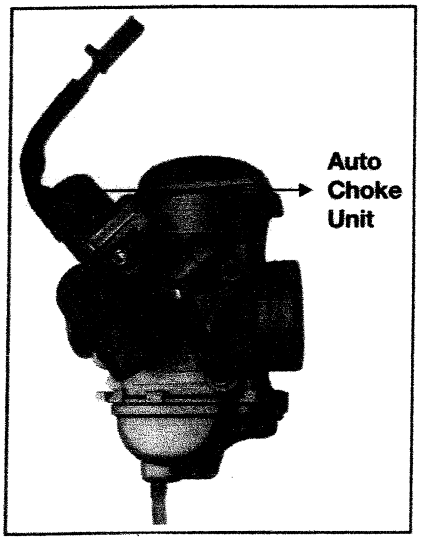
- Disconnect coupler of solenoid operated choke.
- Connect Multimeter lead wires to Orange & Black wires.
- Check resistance of Coil

Auto Choke Working

In Engine running condition & when engine RPM are greater than 1500 the solenoid operated choke is switched 'ON' for specified time depending upon engine temperature. The chart of choke operation vis-a-vis engine temperature is given below.

Engine RPM	Temperature of Engine Sensed by Thermal Sensor	Approximate time for which solenoid choke is 'ON'
RPM > 1500	< 15°C	A minute or Two
	15 ~ 20°C	Few Seconds
	20 ~ 25°C	Fewer Seconds
	25 ~ 30°C	Very Few Seconds
	> 30°C	CHOKE OFF

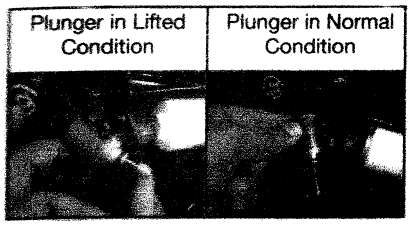
★ Incase if engine temperature shoots (in between) above 30°C, choke gets switched off & the period of choke operation would get reduced.



AUTO CHOKE

This choke circuit is by-starter type and choke actuation is electric, automatically controlled by an electronic circuit. No user intervention is necessary. 'CDI' controls the Auto Choke circuit. When engine is started either by kick or self start mechanism, the thermal sensor senses engine temperature. If engine temperature is below predefined temperature, the coil in solenoid choke gets energized & the choke plunger gets lifted. The choke is switched off as soon as engine attains predefined temperature. During choke operation, additional air-fuel mixture is supplied for starting the engine. This increases the mixture strength and it facilitates easy and quick engine start even in very cold conditions.

- The choke operation is optimized for starting under all conditions for minimizing fuel consumption as well as for optimizing battery life
- Temperature sensor is mounted on cylinder block for giving engine temperature input to CDI.

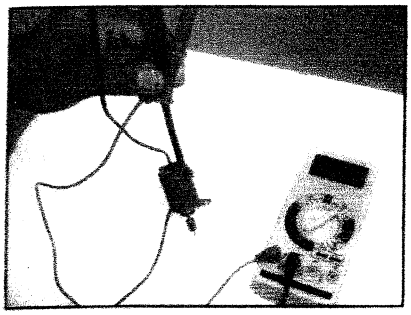


Auto Choke Functional Check

Visual Confirmation on component :

Check 1:

- Remove Choke Unit from Carburettor assembly.
- Switch 'ON' Ignition Key.
- Solenoid operated choke plunger must get lifted for a second & then aga plunger must fall down in engines OFF condition. With one Rotation of cranksh i.e. one pulse, choke is on for approx. 10 Sec. If engine temperature is less tha 30°C



Check 2 :

- Connect solenoid operated choke connection to external supply of 12volt DC check / confirm the working of choke (whether solenoid operated choke gets 'O i.e. plunger remaining lifted as long as the external supply is in connection.

Connection of External Supply (Another battery)	
+ ve terminal	- ve terminal
Orange	Black

Check 3 :

- Remove Choke Unit from carburettor assembly but coupler is connected harness.
- Disconnect Black/White wire of Thermal Sensor. (Means thermal sensor is 'Open' condition)
- Solenoid operated choke plunger must get lifted for few seconds (Approximate 10 seconds) in engine idling condition.

Check 4 :

- Remove Choke Unit from carburettor assembly but coupler is connected harness.
- Short Black / White wire to ground /earthing. (Means thermal sensor is in 'Sho condition).
- Solenoid operated choke plunger must get lifted for few seconds (Approximate 10 seconds) in engine idling condition.

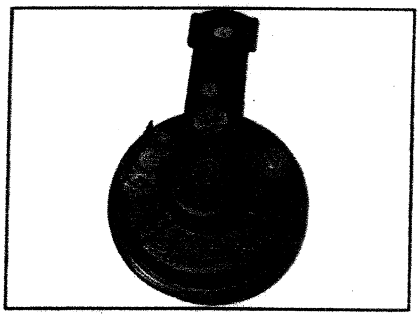
Starter Motor - Current Drawn

Measuring & Testing Equipment : DC Clamp Meter

Meter Range	Connections	Standard Value	Measured Value
200 DC A	Encircle clamp meter transformer jaws around thick Red wire of starter motor.	30 ~ 38 Amps Spark Plug Caps removed	---------

SOP :

- Switch 'ON' Ignition Key & disconnect both spark plug caps (care to be taken so that spark plug does not jump to metal part)
- Select range & set clamp meter Zero reading.
- Encircle red input wire of starter motor by clamp meter jaws.
- Crank engine by pressing self starter button.
- Press self starter button 3 seconds & check cranking current displayed on clamp meter LCD display.



Horn

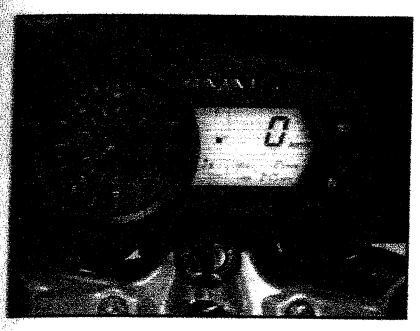
Measuring & Testing Equipment : DC Clamp Meter

Meter Range	Connections	Standard Value	Measured Value
200 DC A	Encircle clamp meter jaws around Brown wire of horn	2.2 Amps	---------

SOP :

- Encircle clamp meter jaws around Brown wire of Horn.
- Press horn switch & check instantaneous current drawn by horn.

Speedometer Console



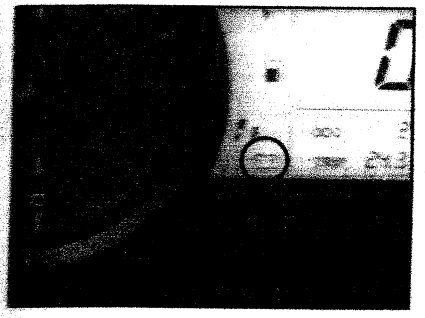
The speedometer has a Digital LCD screen with a orange backlit display mode superb visibility during night riding condition.
This speedo instrument cluster houses following :-

- Digital Display for -
  - Linear Speed in Km / hour.
  - Tripmeter
  - Odometer
  - Fuel Level Indicator
- LED display of
  - Battery Indicator-
  - Reserve Indicator
  - Turn Signal Indication

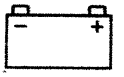
  Netural Indicator
  - High Beam Indication

Reserve Indication: This indicator starts glowing when petrol quantity in the t remains less than or equal to 2.7 to 3 liters

- Tachometer : As soon as ignition switch is turned on, tachometer needle mo from 'Zero' to '12,000' rpm & returns back. This a self check of Tachometer.
- A unique Day-Night mode functioning feature.
  LED's glow bright in day time & they glow dim during night for convenience safety of rider.



Battery charge Indication



- Continuous display of this indication/icon means battery is in / charged condition. Battery voltage V_B>11.5 Volts.
- Pop-up of this indication at frequency 1HZ (1 second 'ON & second 'OFF') for more than 10 seconds means battery is low charged condition & needs charging. Battery Voltage V_B 11.5 Volt.

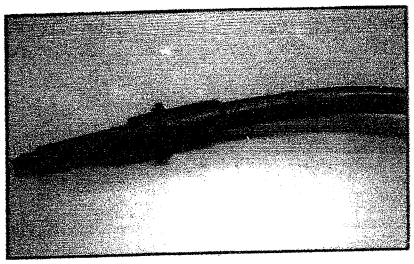
Do's & Don'ts

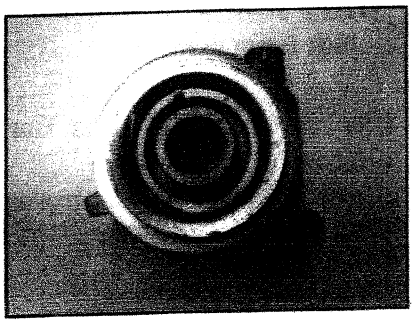
- Don't apply pressurized water jet on speedo console.
- Speedo console should not be kept in inverted position
- Park vehicle in shade & avoid direct sun rays. Cover LCD screen, by a cotton cl if motorbike is parked under direct sun-light.

Note:

- ***The speedometer console has a unique built in memory logic function which sto the data in its memory***
- ***Warm-up time required for Digital speedo console is 1.5 seconds.***

Vehicle Speed Sensor





- Non contact Wheel Sensor - In LCD speedo console there are no moving parts as wheel speed is sensed through a non contact hall effect sensor. The hall sensor is an electronic switch which operates due to magnetic field. The sensor has 3 wires - Supply, Earth & Output. This sensor converts one rotation of front wheel into 8 pulses & these are transmitted to digital speedometer through a sensor cable.

Do's & Don'ts

- Do not apply pressurized water jet on vehicle speed sensor.
- Handle wheel sensor carefully while working on front brake drum related repairs.
- Ensure sensor cable is intact & not fouling with any other part.
- Speed sensor should not physically touch to magnetic ring.

Note: Gap between speed sensor & magnetic ring must be :- Max:- 4mm & Min - 0.5 mm. Ensure intact condition of 'O' Ring for speed sensor. Use correct size 'O' Ring in case of replacement.

DC Charging Voltage Measurement

Use fully charged battery while measuring

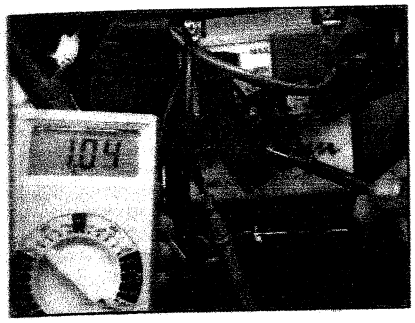
Ensure V_B = 12.5 ± 0.3 V before checking

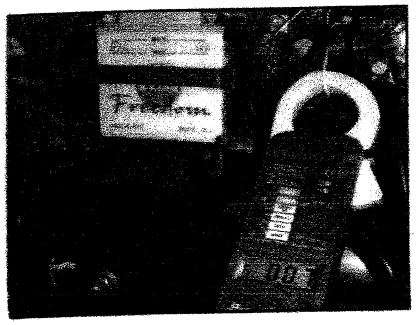
V_B = Battery open circuit terminal voltage with Battery terminals in disconnected condition.

To measure the DC voltage; set the meter at 20V DC range. Connect the meter +ve lead to Battery +ve terminal & meter -ve lead to battery -ve terminal without disconnecting battery wires. Start the engine & set it at 1500 RPM. Measure the voltage with headlight switch in 'ON' position. Switch OFF Ignition key & disconnect the meter leads.

Meter Range	Meter Connections		Specified at 1500 RPM	Measured Value
20 V DC	+ve lead	-ve lead	14.4 ± 0.3 Volts	---------
	Battery +ve terminal	Battery -ve terminal		

Note : For DC voltage measurement connect multimeter in parallel circuit.





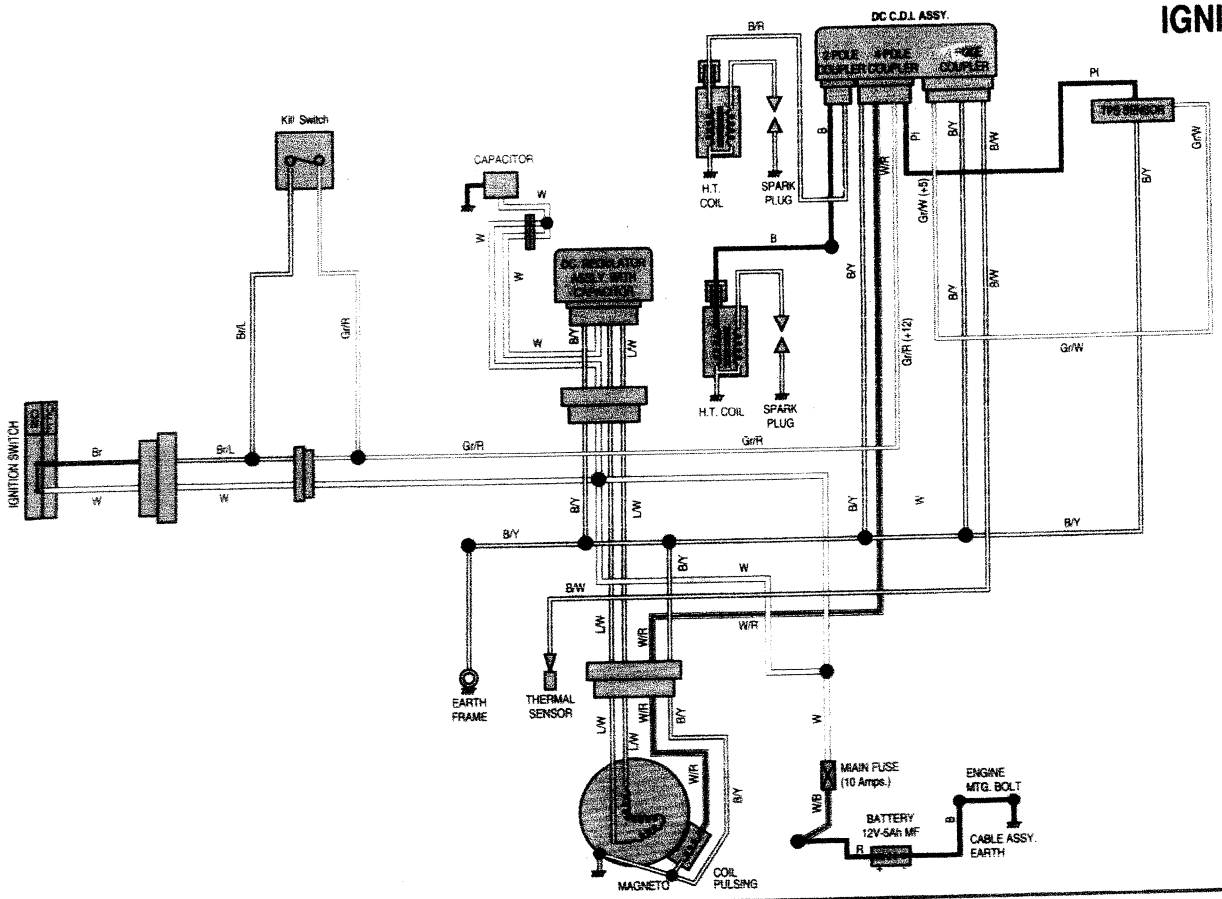
Battery DC Charging current

Use fully charged battery while measuring.
Ensure $V_B = 12.5 \pm 0.3$ V before checking.
To measure the DC charging current, set the meter to 10A DC range. Disconnect Red wire from Battery +ve terminal connect meter +ve lead to Red wire of wiring of wiring harness & -ve lead to +ve terminal of battery. Start the engine & set it at 4000 RPM. Put ON the headlight & measure the DC charging current. The DC charging current should be 0.7 A max. Switch OFF Ignition key & disconnect the meter leads. Connect the RR unit & battery.

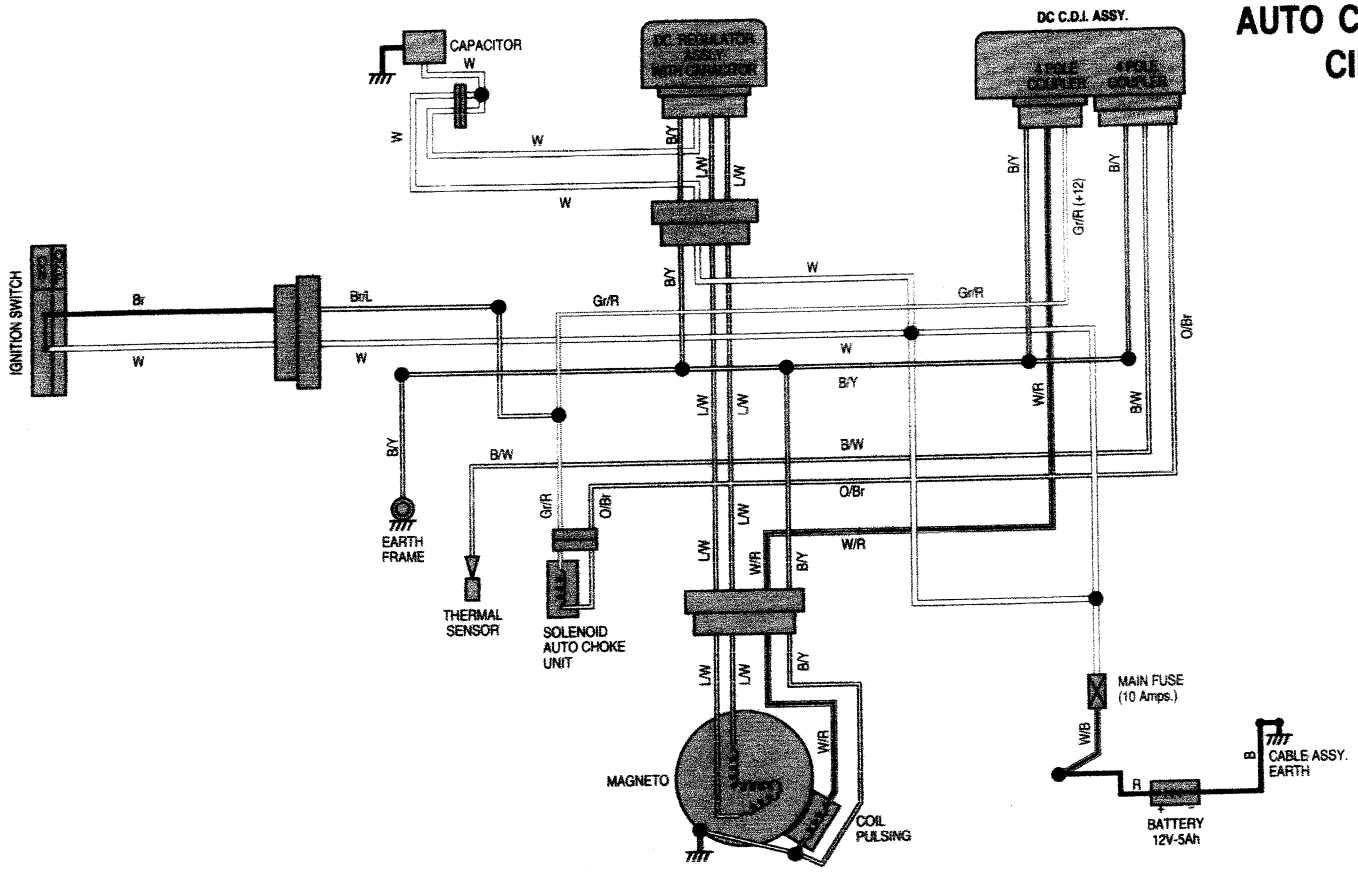
Meter Range	Meter Connections		Specification	Measured Value
DC 10 Amp	Meter +ve	Meter -ve	0.7 A Max. @ 4000 RPM with fully charged battery	---------
	Red wire of Harness	Battery +ve Terminal		

Note : For DC current measurement connect multimeter in series circuit.

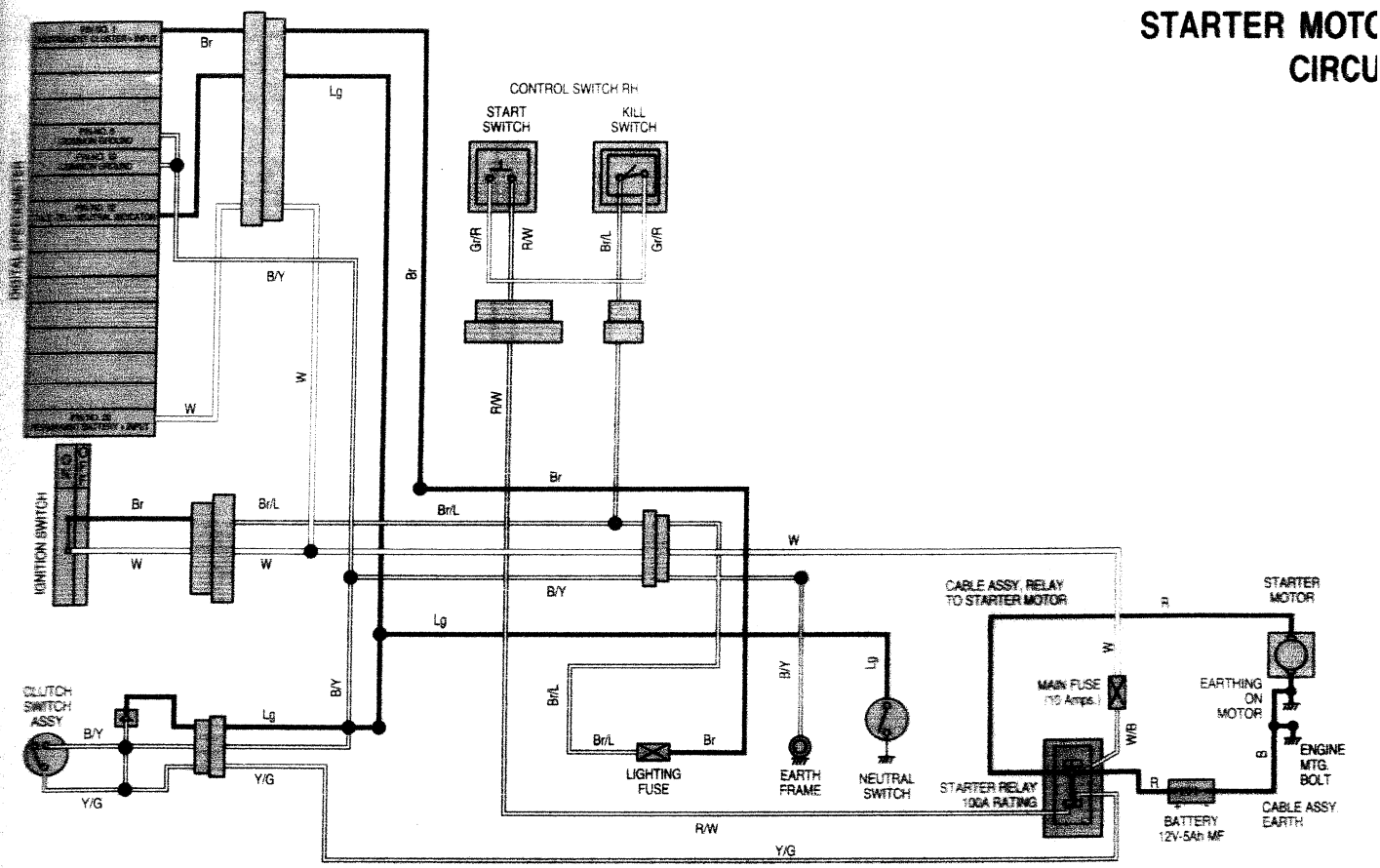
IGNITION CIRCUIT



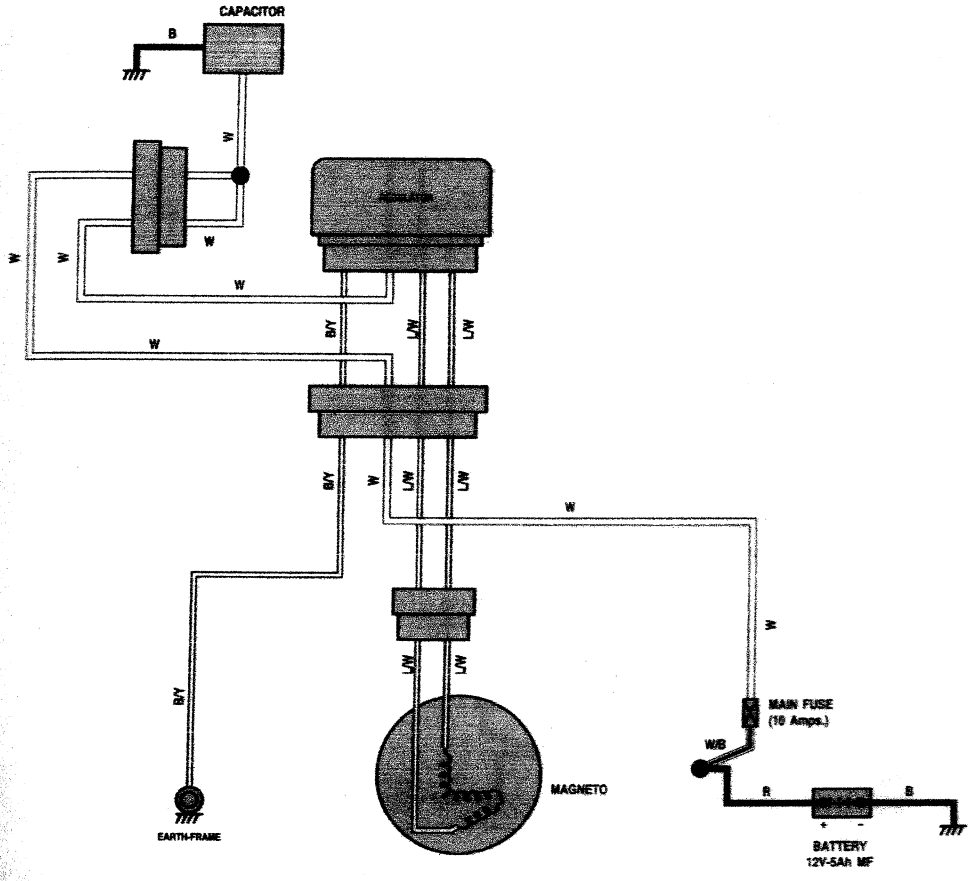
AUTO CHOKE CIRCUIT



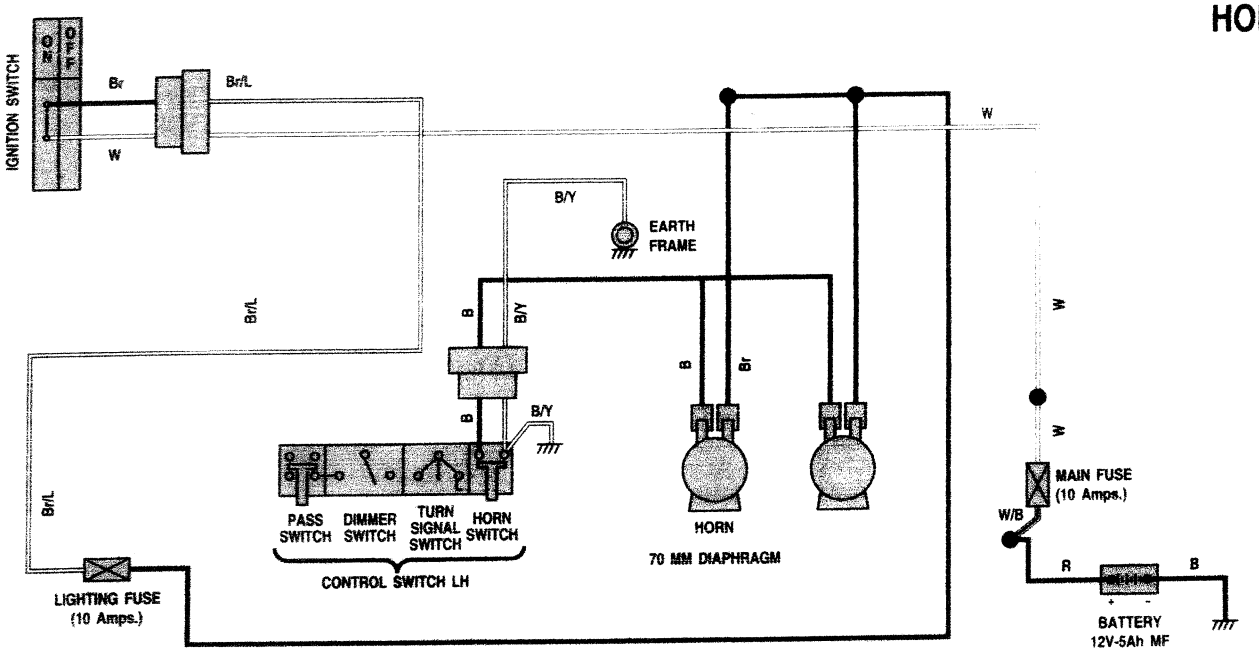
STARTER MOTO CIRCU



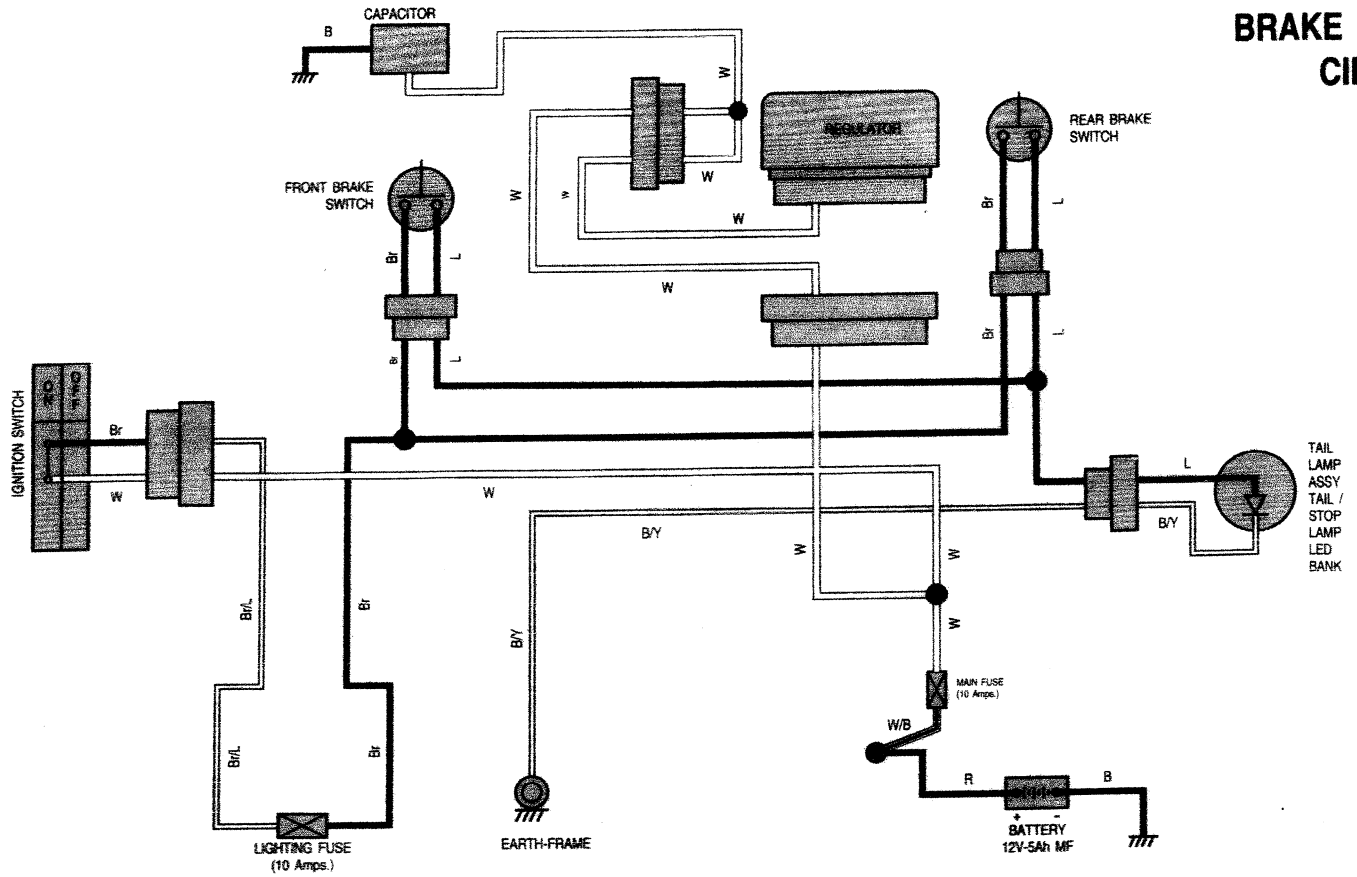
BATTERY CHARGIN CIRCU



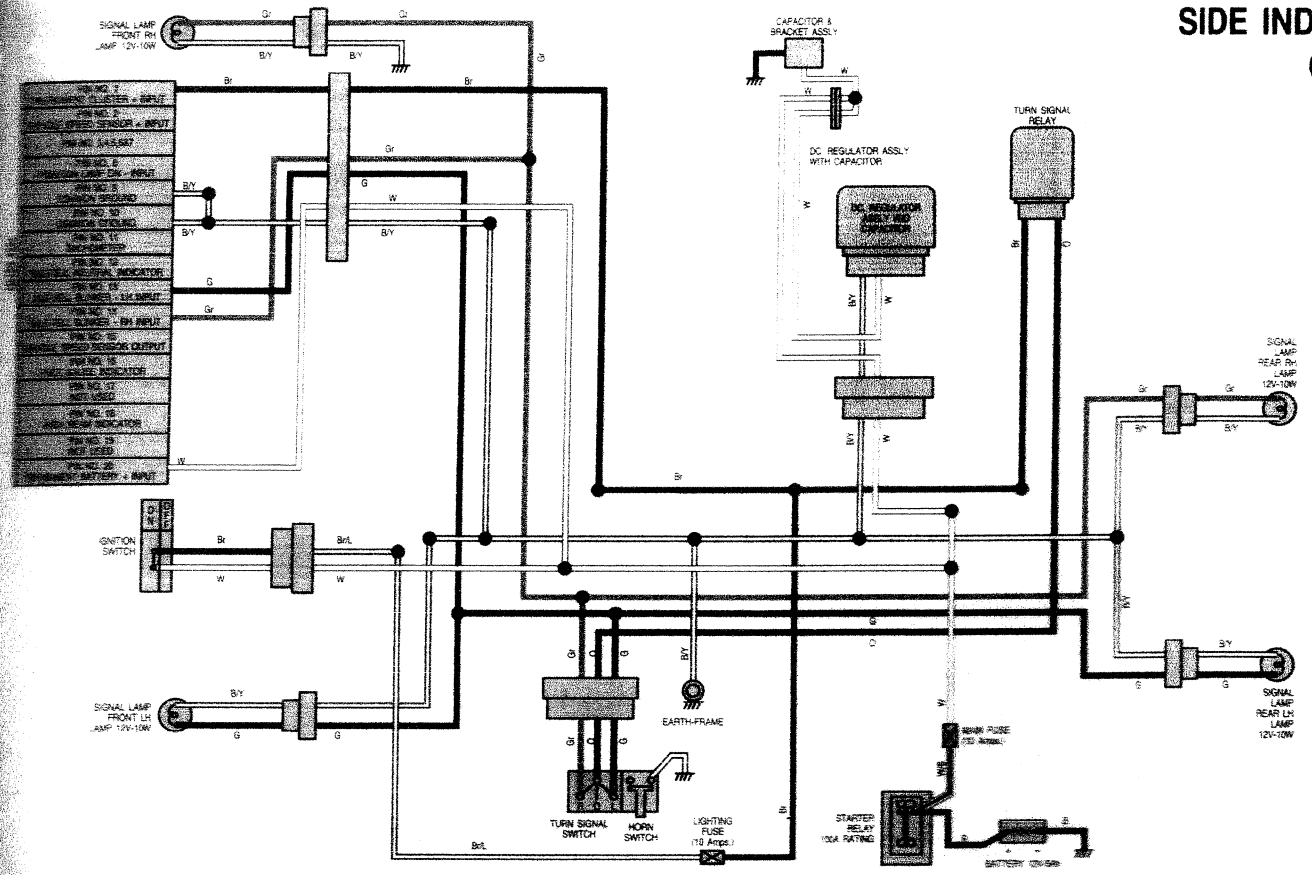
HORN CIRCUIT



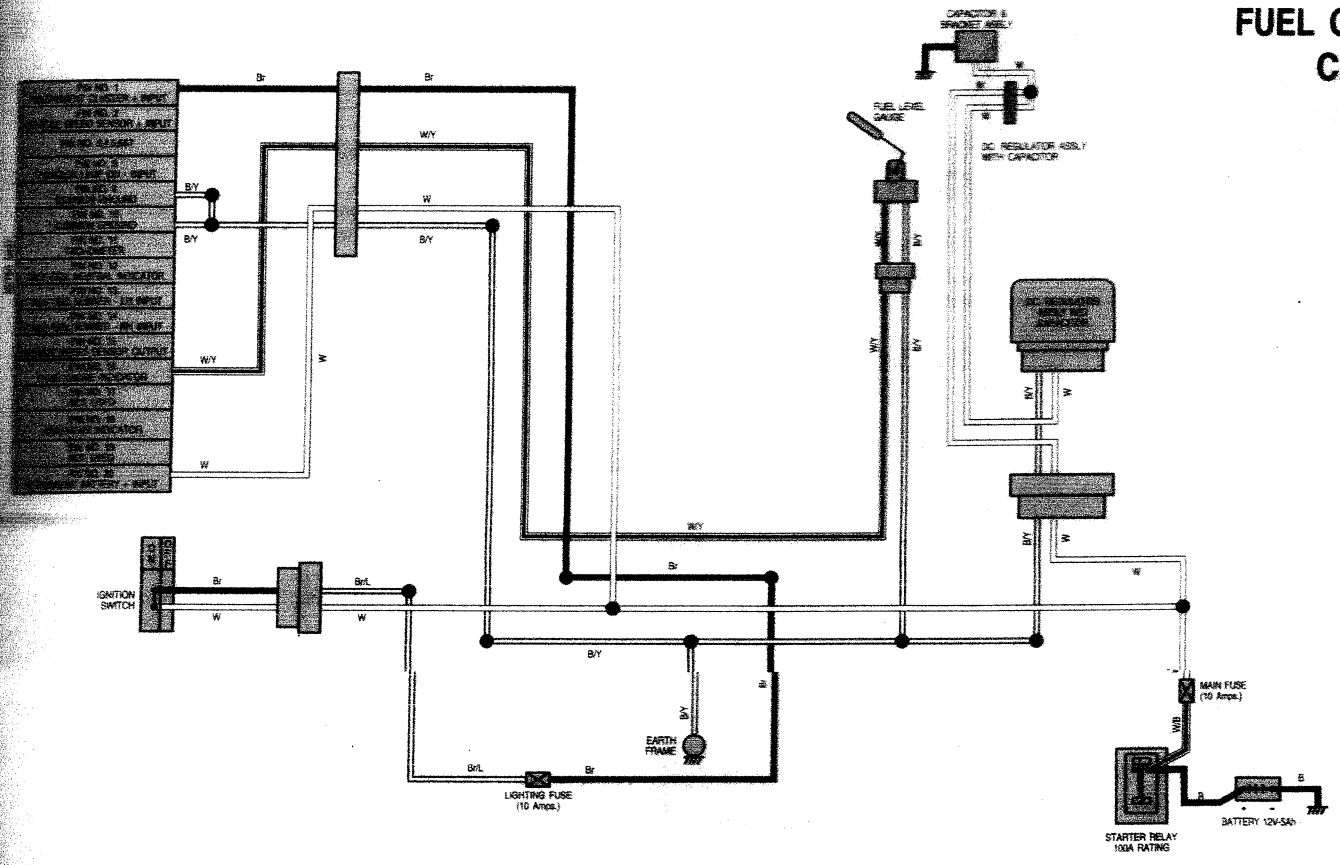
BRAKE LAMP CIRCUIT



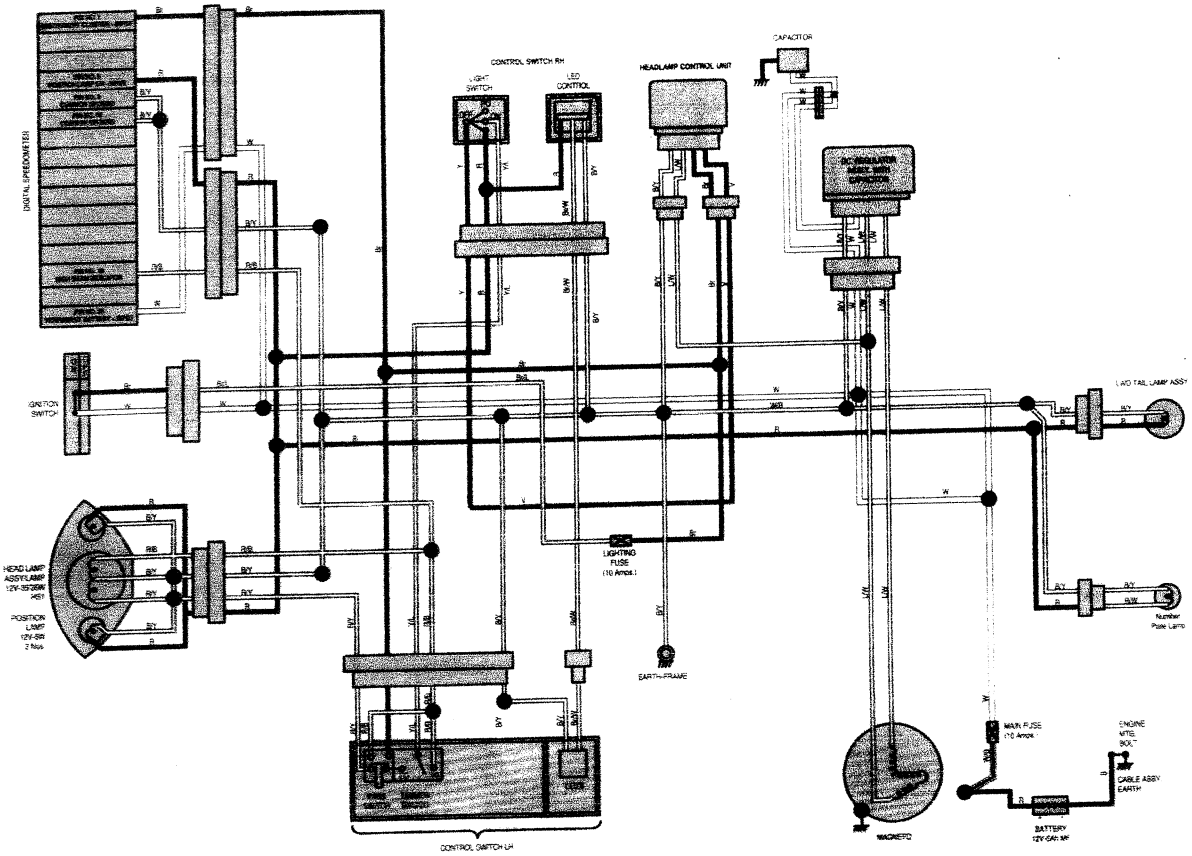
SIDE INDICATO
CIRCUI



FUEL GAUGI
CIRCUI



LIGHT SYSTEM CIRCUIT



SPEEDOMETER & ODOMETER CIRCUIT