

Training Notes

Discover

 **BAJAJ**
MOTORCYCLES





The Training Notes are a comprehensive training guide on service and maintenance operations and procedures to be followed by service personnel at authorised service centres and dealerships whilst attending to the Bajaj Discover125-UG. The Training Note covers standard workshop procedures simplified for easy learning and understanding for service technicians worldwide.

NOTICE

All information contained in this Training Note 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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Key Learning Points

- Understanding the Complete Anatomy of the Vehicle
- Technical Specifications and Performance Parameters
- Briefing and Educating the Customer on Appropriate Riding and Usage Discipline, and Routine Maintenance



CHAPTER 1

I Read I Learn

Identification

Salient Features

Technical Specifications

Pre-Delivery Inspection Check List

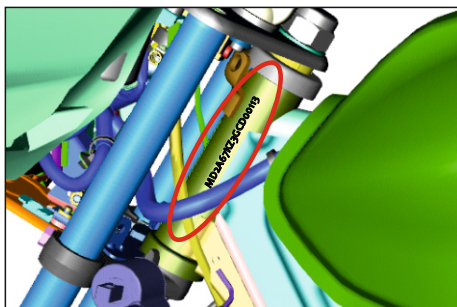
Periodic Maintenance & Lubrication Chart



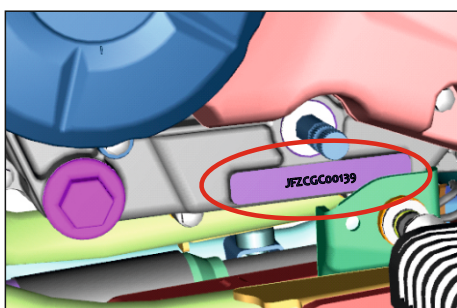
Identification

Chassis Number & Engine Number Location

The Frame and Engine serial numbers are used to register the motorcycle. They are the unique alphanumeric 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)

Speedometer Details



1. **Speedometer:**
Vehicle speed will be displayed in speedometer in Km / Hr.
2. **Odometer :**
The Odometer shows the total distance that the vehicle has covered. Odometer can not be reset to 'Zero'.
3. **Turn Signal Indicator (LH & RH) :**
When Turn signal switch is turned to left or Right, Turn pilot Indicator - LH or RH will flash.
4. **Neutral Indicator:**
When the transmission is in Neutral, Neutral indicator will glow.
5. **Fuel Level Indicator:**
It shows fuel level in fuel tank.
6. **Low Fuel Indicator :**
It blinks incase of low fuel level (1 bar or less).
7. **Hi Beam Indicator:**
When Headlight is 'ON' & Hi beam is selected, Hi beam indicator will glow.
8. **Low Battery Indicator :**
It indicates battery needs charging.
9. **Bajaj Logo:**
Bajaj logo flying 'B' continuously glow.
10. **Service Reminder:**
If the Odometer reading reaches below values : 450 Km, 4450 Km, 9450 Km, 14450 Km & so on after every 5000 Km up to 999450 Km (If prior reset is not done). It should continue the same sequence above even after roll over.
11. **Side Stand :**
Active Low (Vin < 0.5V)



Salient Features

ENGINE:



Features :-

- 124.5 cc Engine.
- 4 stroke, Air cooled, Single Cylinder, SOHC, DTS-I
- 11 Ps @ 7500 rpm & 11 Nm @ 5500 rpm
- Cellulose-based clutch for easy gear shifts.

Benefits :-

- Most fuel efficient bike.
- Better drive-ability and the best fuel economy.
- Easy maneuverability during traffic.

BRAKES & TYRES:



Features :-

- 200 mm dia front brake disc and 130 mm dia rear brake drum.

Benefits :-

- Spider mug-wheels

FRAME:



Features :-

- Telescopic front fork with anti-friction bush & 140 mm stroke.
- Nitrox rear suspension with 120 mm wheel travel.

Benefits :-

- 16% longer travel vs. competition bike.
- Superior comfort, even on bad roads.



Salient Features

STYLE & COMFORT:



Features :-

- Youthful Styling.
- Dual texture seat fabric with stitch line.
- Modern Side Panels.
- Enhanced Comfort.
- Dual-textured seat with stitch-line.
- Enhanced cushion for greater riding comfort.

ELECTRICALS:



Features :-

- DC Head Lamp with 12V, 35/35W, (Halogen)
- Double LED DRL headlamps
- Textured Tail-lamp Bezel
- 12V-5Ah MF Type (Electric Start)

Benefits :-

- Bold, head-turner.
- 'Invented Horns', makes a statement even from a distance.
- Lower battery power consumption, leading to higher mileage.



Salient Features

ELECTRICALS:



Features :-

- Full Function Digital Instrument Cluster.
- Digital speedometer for accurate speed reading.
- Back-lit Display adds style and ease of reading.



Technical Specifications

Engine & Transmission

Type	:	4 stroke, Air cooled, Single Cylinder, SOHC, DTS-I
No. of cylinders	:	Single
Bore	:	52.0 mm
Stroke	:	58.60 mm
Engine displacement	:	124.5 cc
Compression ratio	:	9.8 : 1
Idling speed	:	1400 ± 100 in warm condition
Max. net power	:	11 Ps @ 7500 rpm
Max. net torque	:	11 Nm @ 5500 rpm
Ignition system	:	Load based CDI controlled
Carburettor	:	VM20 (UCAL)
Spark plug	:	Champion PRZ9HC & BOSCH UR4AC (Resistive)
Spark plug gap	:	0.7 to 0.8 mm.
Lubrication	:	Wet sump, Forced lubrication
Primary resuction	:	3.57 : 1 (75/21)
Gear ratios	1st Gear	: 2.83 : 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 ration	:	3.0 : 1 (42/14)
Transmission	:	5 Speed Constant mesh (1D 4UP)

Chassis & Body

Frame Type	:	Semi double cradle frame
Suspension	Front	: 140 mm Fork travel, Telescopic
	Rear	: 120 mm Rear Wheel travel, Nitrox (Gas filled)
Brakes	Front	: Hydraulic operated, 200 mm dia. disc
	Rear	: Mechanically expanding shoes, 110 mm dia. drum
Tyres	Front	: 2.75 X 17
	Rear	: 100/90- 17
Tyre Pressure	Front	: 1.75 Kg/cm ² (25 PSI)
	Rear (Solo)	: 2.00 Kg/cm ² (28.5 PSI)
	Rear (with Pillion)	: 2.25 Kg/cm ² (32 PSI)
Rims	Front	: 1.4 X 17" Die Cast Aluminium Alloy Wheel
	Rear	: 2.15 X 17" Die cast Aluminium Alloy Wheel
Fuel Tank Capacity	:	8.0 Liters
Usable Reserve	:	1.5 Liters
Unusable Reserve	:	0.8 Liters
Speedometer	:	Digital



Technical Specifications

Electricals

System	: 12 Volt (DC)
Battery	: 12V-5Ah MF Type
Head Lamp	: 12V, 35W / 35W, HS-1 (Halogen), Blue ting DRL Watts 5.4 & Position lamp is 0.4 Watt.
Stop / Tail Lamp	: 12V, 5W / 21 W
Side Indicator Lamp	: 12V, 10W (4 Nos. - RY 10W)
Position Lamp	: DRL
Rear No. Plate Lamp	: 12V, 3W
Speedometer Lamp	: LED
Neutral Indicator	: LED
Turn Signal Indicator	: LED
Hi-beam Indicator	: LED
Reserve indicator	: LCD
Fuel Gauge	: LCD
Horn	: 12V, DC

Dimensions

Length	: 2035 mm
Width	: 760 mm
Height	: 1085 mm
Wheel Base	: 1305 mm
Saddle height	: 805 mm
Turning Circle Radius	: 2100 mm (min)
Ground Clearance	: 165 mm

Weights

Vehicle Kerb Weight	: 122 Kg.
Gross Vehicle Weight	: 252 Kg.

Engine Oil

Grade	: 20W50 API SL / JASO MA
Drain & Refill	: 1000 ml
Overhaul	: 1100 ml

Notes :

- Values given above are nominal & for guidance only, 15% variation is allowed to cater for 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.



Pre Delivery Inspection Check List

1. Check points before starting of the vehicle		
Check & correct the below check points before starting the vehicle		
To Check	Check for	? If Ok X If Not Ok
Engine oil	Oil level between lower & upper mark / Top up if required	
Fuel tank / pipes	No leakage / Correct fitment	
Mirror	Fitment & adjustment to ensure clear rear view	
Lock Operation	Steering cum Ignition lock, LH side cover lock, Petrol tank cap lock	
Battery	Check battery Terminal voltage. Fully charged battery voltage should be > 12.4 V DC. Charge battery if required using recommended battery charger.	
	Tightness of battery terminals / cables / Petroleum Jelly application	
Tyre Pressure	Front: 1.75 kg/cm (25.0 psi)	
	Rear: 2.25 kg/cm (32.0 psi)	
Brakes	Front brake cable free play 4 ~ 5 mm	
	Rear brake pedal free play 20 ~ 25 mm	
Clutch cable	Free play 2 ~ 3 mm	
Drive chain	Slackness 25 ~ 30 mm	
	Equal marking of chain adjusters on both side	
	No touching to chain case after adjustment.	

Go Check	Check for	? If Ok X If Not Ok
Fasteners (Check torque) Recommended torque wrench to be used for applying torque on nut - bolts as mentioned in PDI check sheet using reference torque chart as given. However, if any major parts are required to be removed (Except side cover & seat) for accessibility of torque wrench, in those cases the tightness can be ensured using open end / ring spanner / box type spanner as applicable without removing those major parts	Engine foundation bolts - Front	1.8 to 2.2 Kg.m
	Engine foundation bolts - Rear	2.8 to 3.2 Kg.m
	Engine foundation bolts - Top	1.8 to 2.2 Kg.m
	Front Axle Nut	4.5.0 to 5.5 Kg.m
	Rear Axle Nut	8.0 to 10.0 Kg.m
	Front Fork top bolts	3.0 to 3.2 Kg.m
	Front Fork under bracket bolts	3.0 to 3.2 Kg.m
	RSA mounting nut (Upper)	3.0 to 3.2 Kg.m
	RSA mounting nut (Lower)	2.8 to 3.2 Kg.m
	Swing arm shaft nut	4.5 to 5.5 Kg.m
	Rider Foot Rest Mounting	1.8 to 2.2 Kg.m
	LH & RH Pillion stay Bolts	1.8 to 2.2 Kg.m



Pre Delivery Inspection Check List

2. Check points during / after starting the vehicle		
Check & correct the below check points during / after starting the vehicle		
Switch operation	RH & LH control switch, ignition switch, clutch switch & brake switch (Front & Rear)	
Horn	Ensure no distorted sound	
All Bulbs working	Headlight, Tail / Stop lamp, Side indicators, Speedo bulbs, Number plate bulb	
Speedometer (As applicable)	Working of speedometer, Odometer, Fuel gauge.	
	Working of all signal indicators icons (Neutral, Turn signal, High beam)	
Headlamps	Focus confirmation	
3. Check points during Test ride		
Check & correct the below check points during Test ride		
Gear shifting	Smooth operation	
Drive-ability	Throttle response	
	Brake effectiveness - Front & Rear	
Engine noise	No abnormal noise	
Front fork / steering	Smooth working by pumping movement & smooth operation (No play / No Sticky movement)	
Oil leakages	Specify source of leakages & rectify if any.	
4. Idling RPM / CO%		
Check & correct the below check points in engine warm condition		
Idling RPM (Engine warm up condition)	SAI connected – 1350 to 1450 rpm (@ 60°C)	
	SAI disconnected – 1300 to 1400 rpm (@ 60°C)	
CO% Check	SAI connected - < 1% (@ 60°C at idling rpm)	
	SAI disconnected – 4.0% to 5.0% (@ 60°C at idling rpm)	
5. Visual inspection for dent, scratches, rust ...		
6. Clean the vehicle thoroughly before delivery to customer.		



Periodic Maintenance & Lubrication Chart

Sr No	PM Check Point	Recommended Frequency								Remark
		Service	1st	2nd	3rd	4th	5th	6th	7th	
		Kms	500	4500	9500	14500	19500	24500	29500	
			~	~	~	~	~	~	~	
			750	5000	10000	15000	20000	25000	30000	
1	Servicing with water wash		✓	✓	✓	✓	✓	✓	✓	Ensure to prevent water entry in Petrol tank, Silencer & electrical parts. Use caustic free detergent for washing.
2	Engine oil (Bajaj DTSi 10000 oil) & engine oil filter*	C,R	R	Top Up	R	Top Up	R	Top Up	R	"BGO DTS-i 10W30 for 100cc models. BGO DTS-i 20W50 for models above 125cc. "
3	Oil strainer, Body centrifugal filter**	CL	CL		CL		CL		CL	Oil strainer cleaning at the time of oil change. Clean body centrifugal filter at 1st free service & at 20,000 kms
4	Starter Clutch (Dry Type)**	L		L	L	L	L	L	L	Use recommended molycote grease
5	Spark plug	CL,A,R			CL,A		CL,A		R	
6	Air Cleaner Element *** & Cover "O" Ring	CL,R	CL	CL	CL	R	CL	CL	R	Foam & Paper as applicable. O ring check at every service & Replace if cut/damaged
7	In line paper filter or Fuel cock paper filter	R				R			R	
8	Fuel cock sediment bowl cleaning	CL				CL			CL	
9	Carburetor rubber duct	C,R					C,R			Check & replace if required
10	Fuel pipe	C,R	C	C	C	R	C	C	R	
11	Valve tappet clearance	C,A	C,A	C,A	C,A	C,A	C,A	C,A	C,A	
12	Non-Sealed drive chain cleaning & lubrication	CL,L,A	CL,L,A	CL,L,A	CL,L,A	CL,L,A	CL,L,A	CL,L,A	CL,L,A	• During 1st free service : Use lint free cloth for cleaning & SAE 90 oil for lubrication without removing from vehicle. (If chain is excessively dirty, then chain has to be removed, cleaned using diesel & lubricated using molten IOC servo compound chain grease.) • During all other services: Remove, clean using diesel & lubricated using molten chain grease.
13	Sealed drive chain cleaning & lubrication	CL,L,A	CL,L,A	CL,L,A	CL,L,A	CL,L,A	CL,L,A	CL,L,A	CL,L,A	• During regular service use OKS spray for chain cleaning, without removing chain from vehicle. • If chain is excessively dirty, then chain has to be cleaned by removing from vehicle. (Customer to apply OKS chain lube spray at every 500 Kms)
14	Engine air breather tube	C	C	C	C	C	C	C	C	Replace if damaged
15	Silencer drain hole cleaning	CL		CL	CL	CL	CL	CL	CL	
16	Silencer tail pipe cleaning **	CL		CL	CL	CL	CL	CL	CL	
17	Brake lining or pad wear & lubricate brake cam & pivot pin** Check pad wear indicator	C,L,R	C	C,L,R	C,L,R	R	C,L,R	C,L,R	R	Replace brake shoe/pads at every 15,000 kms



Periodic Maintenance & Lubrication Chart

Sr No	PM Check Point	Recommended Frequency								Remark
		Service	1st	2nd	3rd	4th	5th	6th	7th	
			500	4500	9500	14500	19500	24500	29500	
		Kms	~	~	~	~	~	~	~	
			750	5000	10000	15000	20000	25000	30000	
18	Brake fluid level ** - top up / replace	C,A,R				C,A			R	Use recommended DOT 3/4 brake fluid
19	Disc brake assembly---check functionality, leakage or any other damage	C			C		C		C	Replace if damaged
20	All cables & rear brake pedal - free play	C,A	C,A	C,A	C,A	C,A	C,A	C,A	C,A	
21	Battery electrolyte level , specific gravity	C,A,T	C,A,T	C,A,T	C,A,T	C,A,T	C,A,T	C,A,T	C,A,T	Not applicable for VRLA batteries
22	Wiring harness & battery connection - routing, tie bands & clamps tightness	C,A,T	C,A,T	C,A,T	C,A,T	C,A,T	C,A,T	C,A,T	C,A,T	
23	Ignition switch barrel cleaning & handle bar control switches contacts cleaning	C,CL	C,CL	C,CL	C,CL	C,CL	C,CL	C,CL	C,CL	Use recommended Wd40 spray
24	Steering play	C,A	C,A	C,A	C,A	C,A	C,A	C,A	C,A	
25	Steering stem bearing *** & cap steering bearing (Plastic)**	C,CL, L,R			C,CL, L,R		C,CL, L,R		C,CL	Check & replace if damaged. Use HP Lithon RR3 grease for lubrication
26	Main stand & side stand pin **	CL,L			CL,L		CL,L		CL,L	Use recommended AP grease
27	Swing arm pivot pin (For non silent bush)**	L		L	L	L	L	L	L	Not applicable in case of needle roller bearing
28	All fasteners tightness	C,T	C,T	C,T	C,T	C,T	C,T	C,T	C,T	
29	Engine foundation silent bushes **	C				C			C	Replace if damaged
30	General lubrication - clutch lever, front brake lever, kick lever	L	L	L	L	L	L	L	L	Use recommended AP grease
31	Idle speed / CO%	C,A	C,A	C,A	C,A	C,A	C,A	C,A	C,A	
32	Coolant level in expansion tank**	C,A	C,A	C,A	C,A	C,A	C,A	C,A	R	Use recommended 'Ready to Use coolant'. Replace at every 30000 Kms or 2 years (Whichever occurs earlier)
33	Coolant hose damage / clamps / leakage **	C		C	C	C	C	C	C	Check & replace if required
34	Radiator fins **	C		C	C	C	C	C	C	Check & replace if required
35	Spoke tightening ** - Front & Rear	C,T	C,T	C,T	C,T	C,T	C,T	C,T	C,T	
36	Front fork dust seal area & inner pipe cleaning**	CL		CL	CL	CL	CL	CL	CL	Applicable for front fork with rubber bellow
37	SAI system / EVAP hoses - Check functionality, leakage or any other damage**	C, R	C, R	C, R	C, R	C, R	C, R	C, R	C, R	Replace if cut / damaged
38	Pillion foot rest hinge lubrication**	L	L	L	L	L	L	L	L	Use RR 3 Grease
39	EVAP Y connector drain tube	CL	CL	CL	CL	CL	CL	CL	CL	

* It is strongly recommended to use only Bajaj genuine oil, in case of any other engine oil of same specification is used the would be every 5000 kms

** As applicable to model

*** more frequent cleaning is required while driving in dusty environment

C: Check, A: Adjust, CL: Clean, R: Replace, T: Tighten, L: Lubricate

Note :- Periodic parts / lubricants as per periodic maintenance & Lubrication chart are mandatory & the same is chargeable to customer

Notes



Key Learning Points

- Understanding of Carburettor
- Understanding of CO checking procedure and Tune-up for optimum mileage
- Understanding of SAI system



CHAPTER 2

Fuel System

Carburettor Specifications

Overview of Fuel System

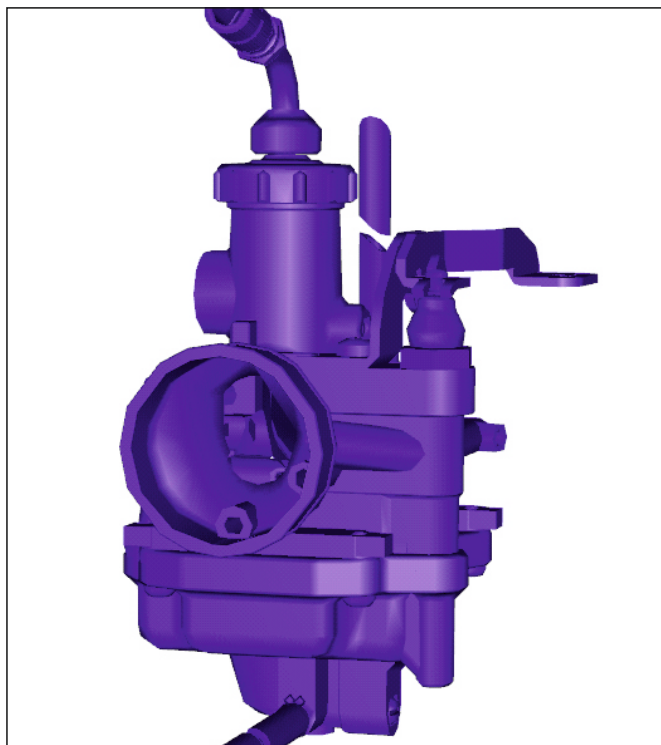
Secondary Air Induction (SAI) System

Evaporative Emission System

Tune-up for Optimum Mileage



Carburettor Specifications

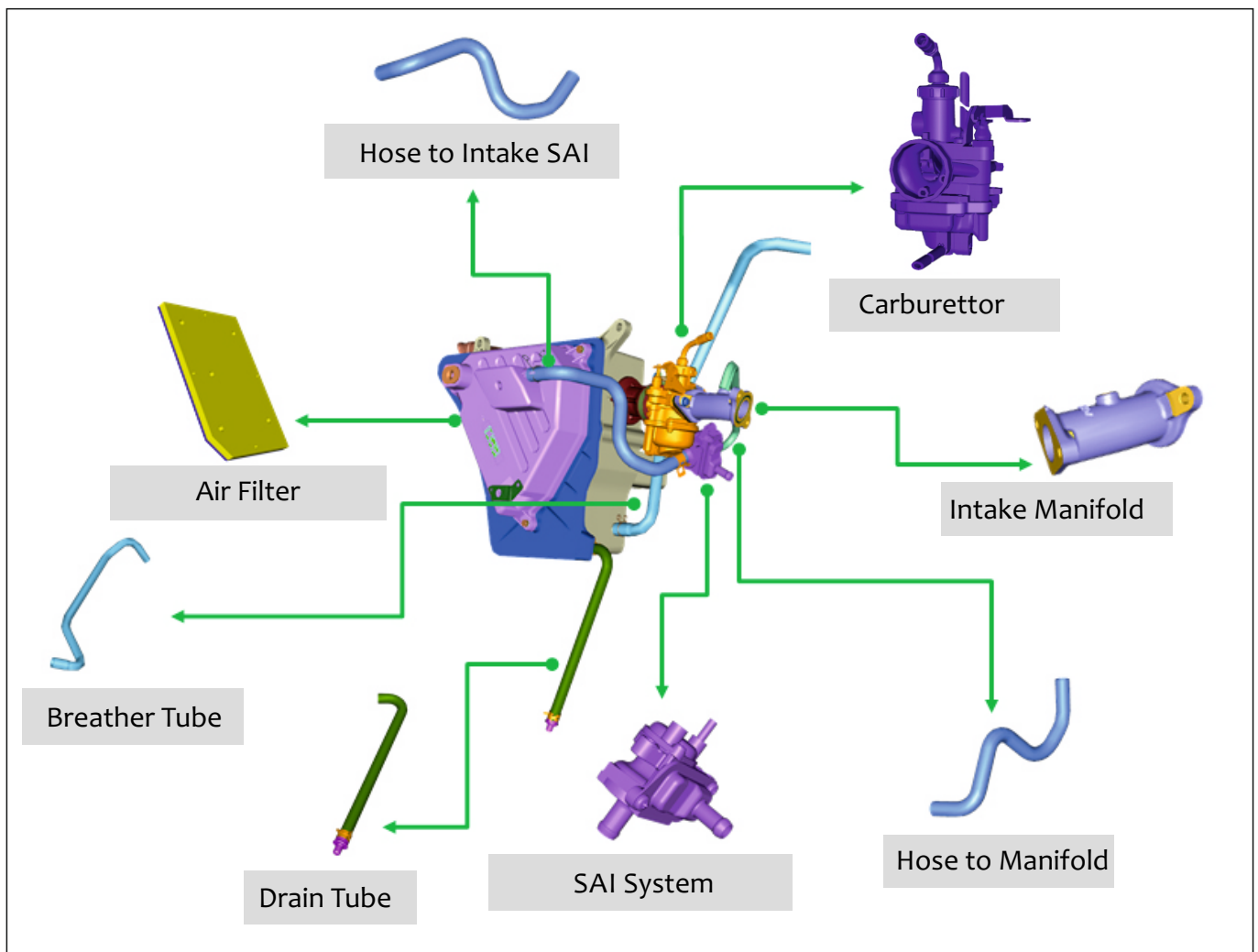


Item	Specification
Make	UCAL
Type	UVD 20
VC Screw Setting	2.5± 1.5
Idling Speed	1400 ± 100 rpm
Main Jet	102.5
Jet Needle 'e' clip Position	Single
Jet Needle Marking	JN
Pilot Jet	17.5
Float Height	14.4 mm
Starter Jet	30
Throttle valve mark	CA
Choke	Manual

Fuel System

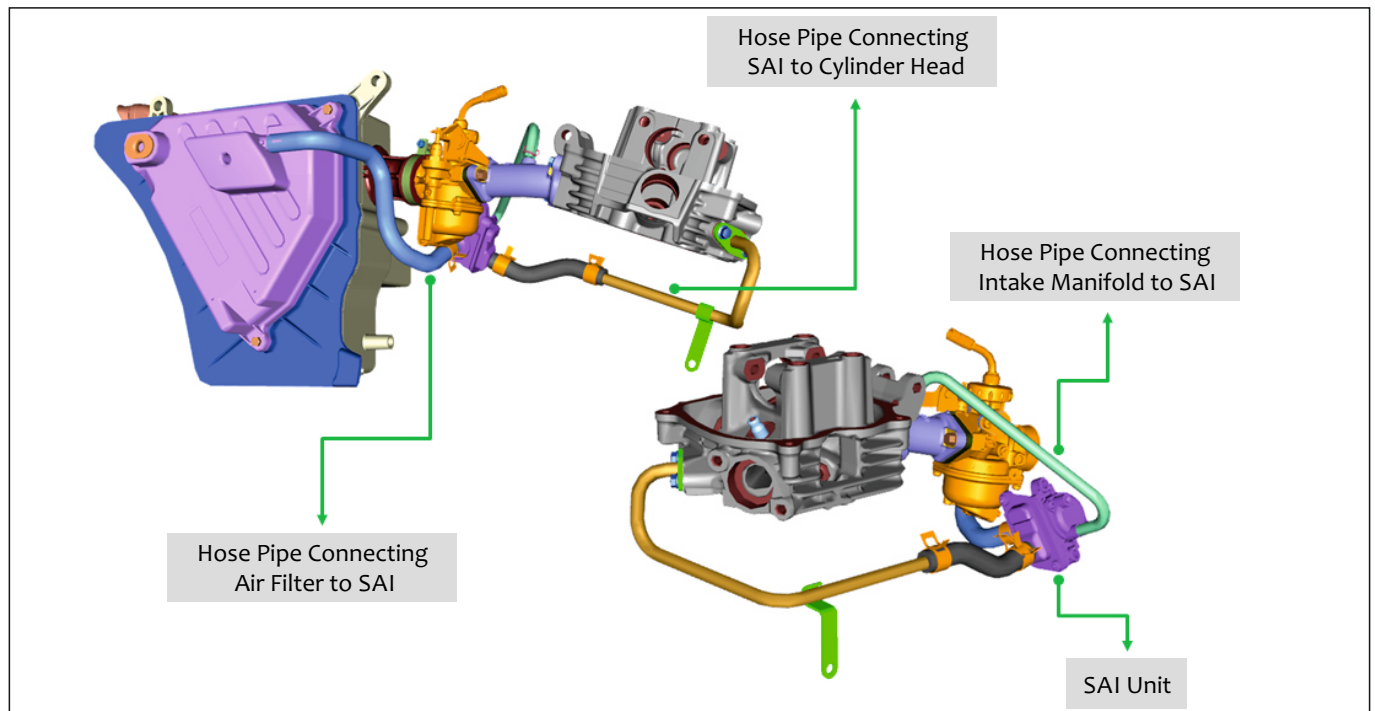


Overview of Fuel System

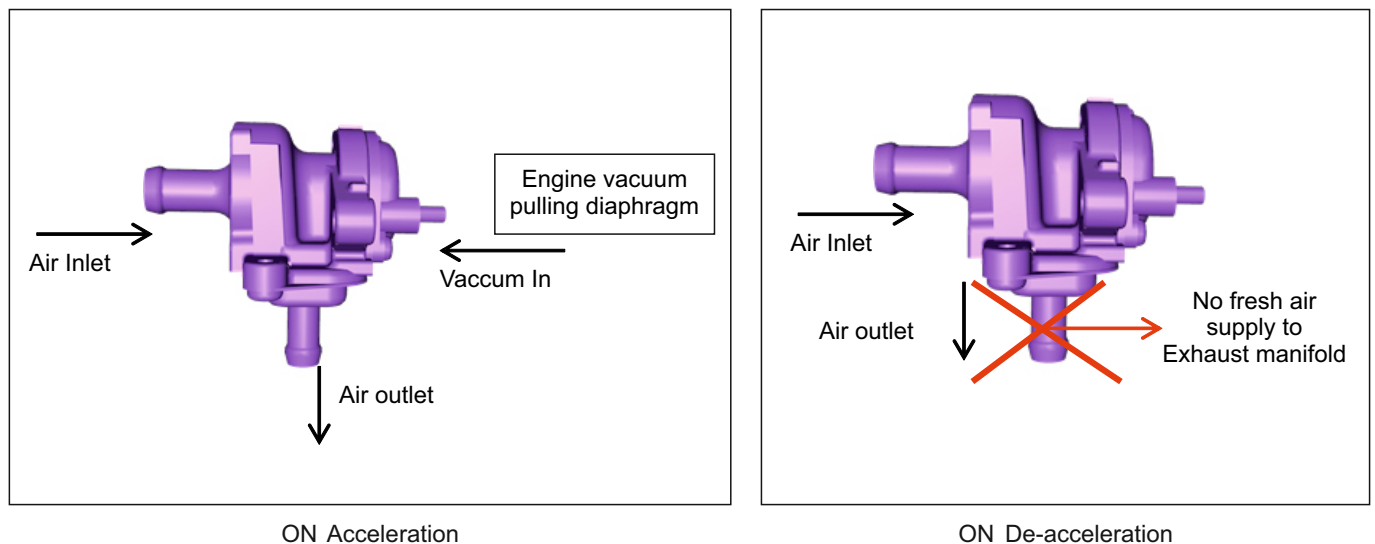




Secondary Air Induction (SAI) System



Secondary Air Induction (SAI) System :



Function:

To reduce the concentration of exhaust gases in exhaust system thus reducing the emission.

Construction:

- Consists of diaphragm valve and reed valve.
- Connected to air filter assembly, exhaust valve passage in the cylinder head and intake manifold.

Fuel System



Secondary Air Induction (SAI) System

Working:

On Acceleration

During the exhaust phase of the engine's operation, exhaust gases enter the exhaust system at high velocity. This causes a drop in the pressure which enables the reed valve to open.

- Fresh and filtered air from air filter is inducted in the exhaust passage, just after the valve.
- The oxygen in the air enables 'CO' to further oxidize and convert into 'CO₂' & HC into H₂O. Thus CO (%) & HC (ppm) at the Silencer tail end is reduced. This results in reduction of exhaust emission.
- The reed valve opening and closing is based on pressure in the exhaust system.

On De-acceleration

When throttle is closed, some amount of fuel particles get discharged into the exhaust. If air is injected into the Exhaust system at this point of time, these fuel particles can get ignited. This causes after burn or misfiring sound in the exhaust system.

- To avoid this, air flow is momentarily stopped by closure of the diaphragm in the injection valve during de-acceleration.

How Diaphragm Works:

- Diaphragm is connected to inlet manifold.
- On de-acceleration vacuum increases in the manifold.
- This pulls the diaphragm against the spring tension and restricts the air flow.
- Once the vacuum reduces the diaphragm opens due to spring tension and air starts flowing.

Advantages:

- Reduced emission of Carbon Monoxide & Hydro Carbons.
- Environment friendly vehicle.

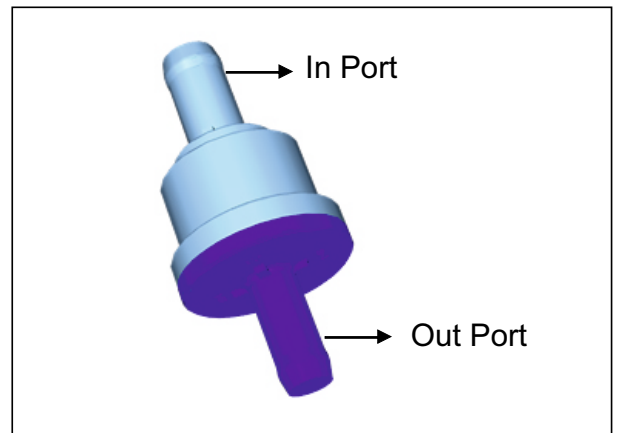
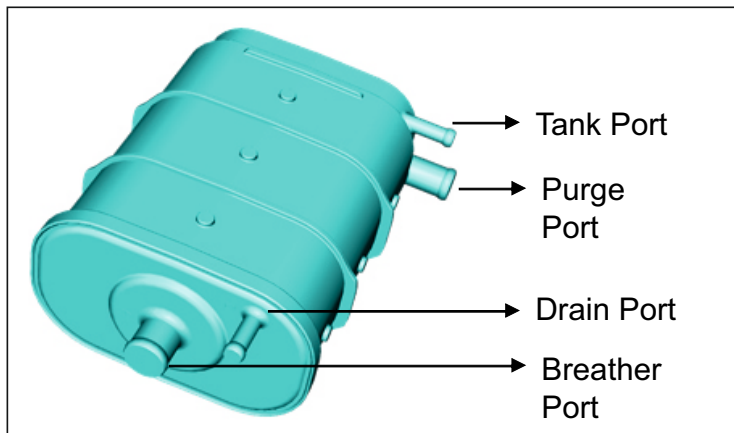


Evaporative Emission System

Working:

EVAP is a evaporative Emission system which prevents fuel vapours going to atmosphere by converting fuel vapours into fuel droplets through canister.

These fuel droplets are feed to engine through one way mechanically operated Purge valve.



Function of canister:

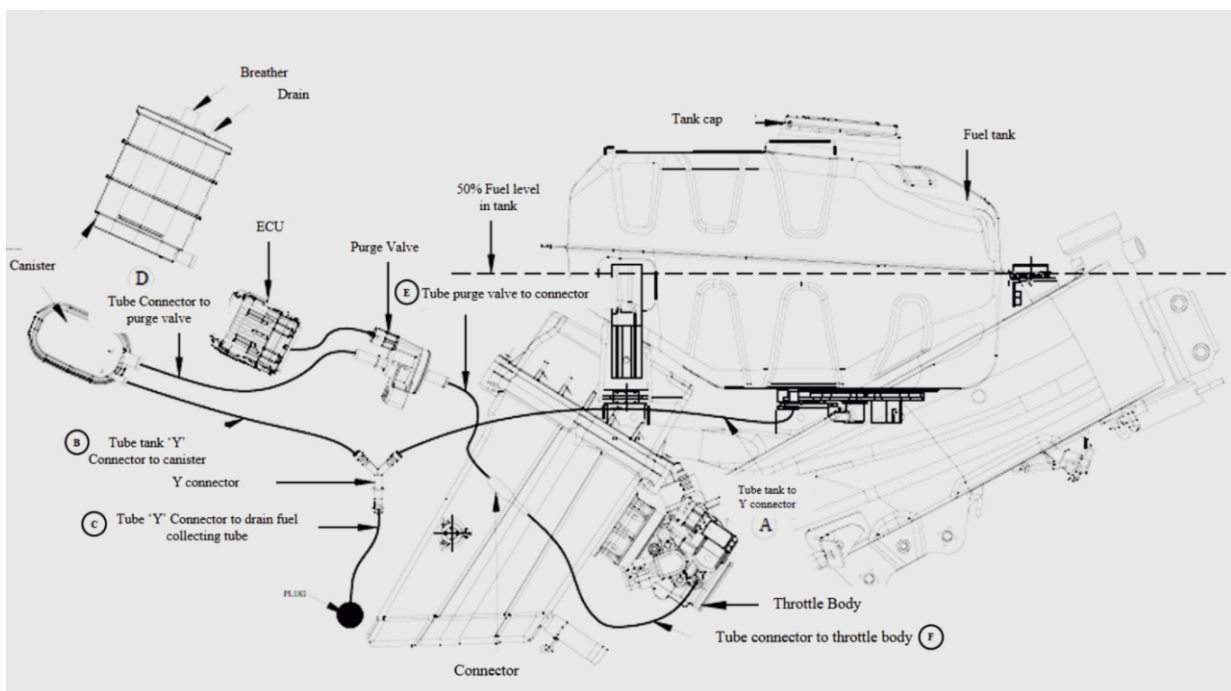
The canister is filled with about a pound or two of activated charcoal. The charcoal acts like a sponge and absorbs and stores fuel vapours. The vapours are stored in the canister until the engine is started, warm and being driven.

Purge valve:

Purge valve is one way valve which controls the flow of HC vapours from canister to carburettor.

Working Principle of EVAP System:

A passage is provided from tank to canister through tank cap. This passage aids in breathing as well as passing HC vapours to canister. Canister acts as storage for these vapours and these vapours are purged to engine through purge valve due to manifold suction in vehicle.



Fuel System



Tune-up for Optimum Mileage

Engine Tune up



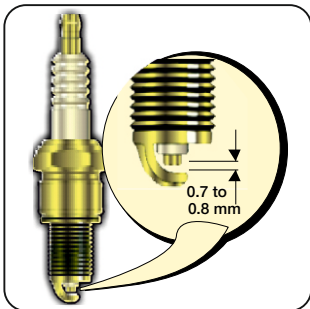
FOAM FILTER:

- Clean at Every : 5000 Kms.
- Replace at Every : 15,000 Kms.



CARBURATTOR

- Idling : 1400 ± 100 rpm.
- Jet Needle Clip Position: Single groove
- VC Screw Setting : 2.5 ± 1.5



SPARK PLUG :

- Spark Plug Gap : 0.7 ~ 0.8 mm.
- Replace at Every : 30,000 Kms



COMPRESSION PRESSURE

- Standard : 12 to 13 Kg/cm²
- Service Limit : 9.5 Kg/cm²



TAPPET CLEARANCE

- Inlet Valve : 0.05 ~ 0.07 mm
- Exhaust Valve : 0.10 ~ 0.12 mm

Other Mandatory Checks

- Ensure no fuel leakage through fuel cock, fuel lines.
- Ensure free rotation of both wheels.
- Ensure correct tyre pressure -
Front wheel : 25 PSI,
Rear (Solo) : 28.5 PSI
Rear (Pillion) : 32 PSI
- Check and confirm proper functioning of spark plug.
- Use of recommended grade of bajaj genuine oil & engine oil level between MIN & MAX level.
- Set control cable free play:
 - Clutch lever 2~3 mm.
 - Rear brake pedal 20 ~ 25 mm.
- Chain slackness : 25 ~ 30 mm.

Notes



Key Learning Points

- Appropriate torque application for various engine component
- Standard operating procedure for engine dismantling
- Understanding of lubrication path in engine



CHAPTER 3

Engine & Transmission

Special Tools

Engine Removal from Frame

Engine Dismantling & Assembling

Service Limits

Tightening Torque

Engine Lubrication Flow of Oil

Dos & Don'ts



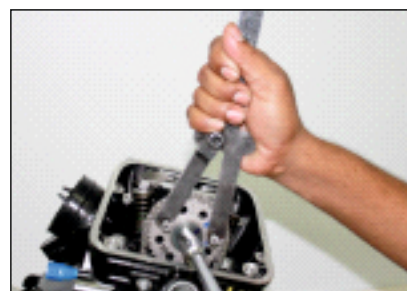
Special Tools



Cam Sprocket Holder

Part No. : 37 10DH 36

Application : For holding cap sprocket, during removal & re-fitment.



LH Spark plug removal

Part No. : 37 2540 34

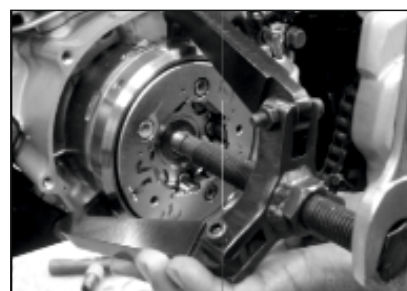
Application : For removing LH spark plug from cylinder head.



Magneto Rotor Puller (For Self Start)

Part No. : F4 1ZJZ 10

Application : To pull out the rotor from crankshaft assembly.



Adapter & Valve Spring Compressor

Part No. : Adapter : 37 1031 08

Part No. : Valve Spring Compressor : 37 1031 07

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



Rocker Shaft Remover

Part No. : 37 10DH 35

Application : To remove Rocker Shaft from cylinder head.



Engine & Transmission



Special Tools

**Bearing Driver Set**

Part No. : 37 1030 61

Application : For pressing bearings in crankcase.

**Input Shaft Bearing Extractor**

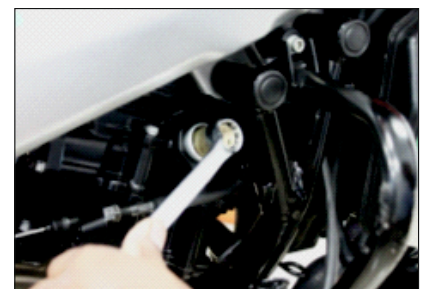
Part No. : 37 10DJ 01

Application : To Pull out main ball bearing from crankshaft, steering races from fork under holder bracket.

**RH Spark Plug Removal Tool**

Part No. : 37 1040 51

Application : For removing RH spark plug.

**Piston Pin Removal Tool**

Part No. : 37 1010 06

Application : For removing piston pin from piston.

**Engine Temperature Sensor Removal Tool**

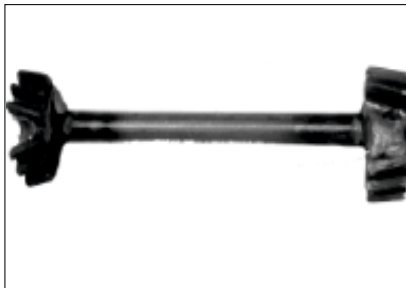
Part No. : 37 1043 46

Application : For removing & fitting Engine temperature sensor.





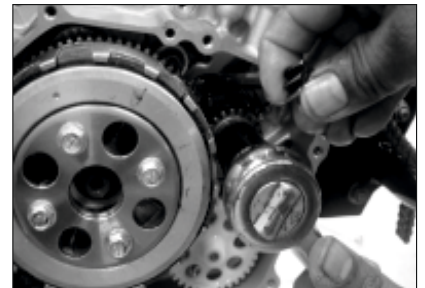
Special Tools



Primary Gear Holder

Part No. : F4 1AJA 11

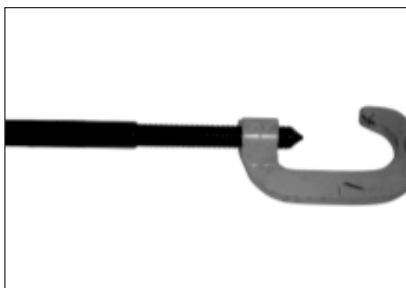
Application : To hold primary & secondary gear while loosening / tightening the primary gear nut and special nut securing clutch.



Valve Tappet Adjuster

Part No. : F4 1ZJW 33

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



Output Sprocket Holder

Part No. : 37 1030 53

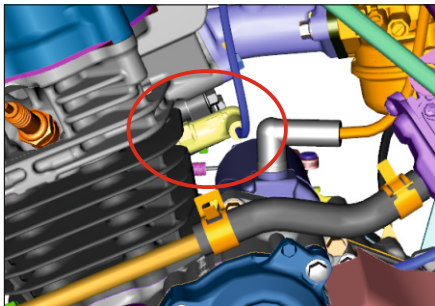
Application : To hold the output sprocket while removing sprocket allen bolts.



Engine & Transmission



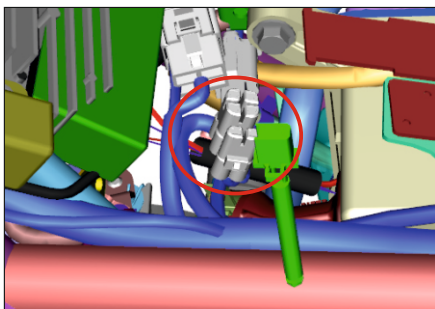
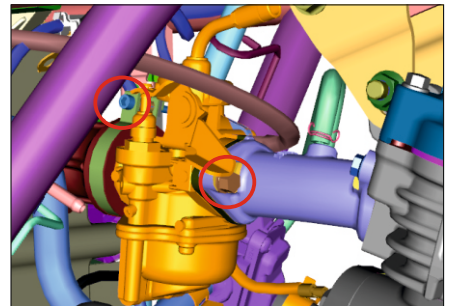
Engine Removal from Frame

**Pull out :**

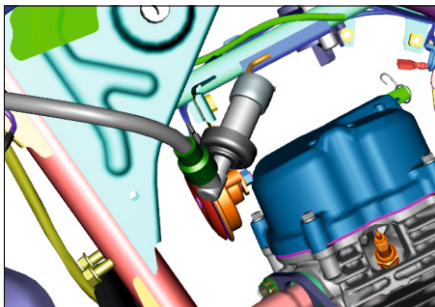
- Rubber cap of thermal sensor.

Remove :

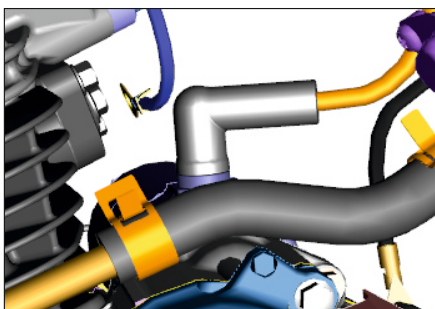
- Ring terminal using 8 mm spanner.
- Carburetor assembly.

**Remove**

- Stator plate coupler connections.
- Neutral switch connection.



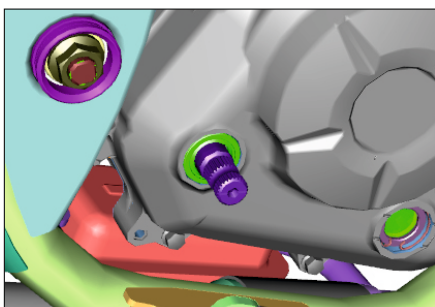
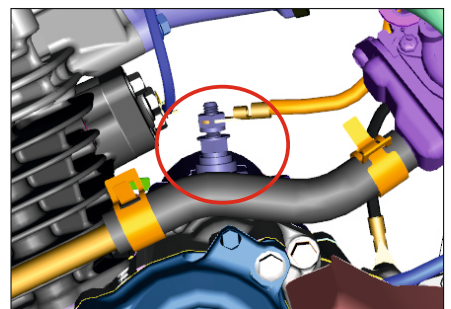
- Remove spark plug caps.

**Pull out :**

- Starter motor wire rubber cap.

Remove :

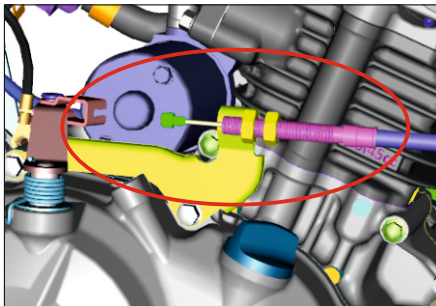
- Starter motor connection.

**Remove :**

- Kick lever mounting bolt.
- Take out kick lever.

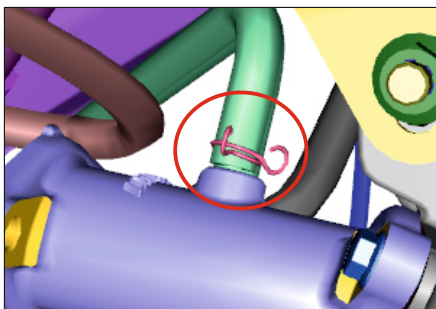
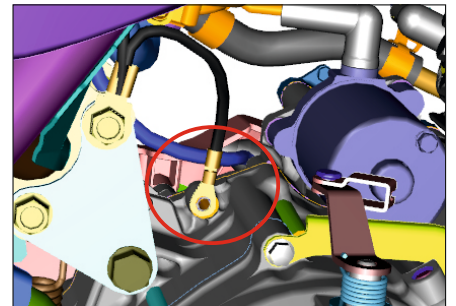


Engine Removal from Frame



Remove :

- Clutch cable mounting bolts.
- Take out bracket clutch cable.
- Earthing connection.

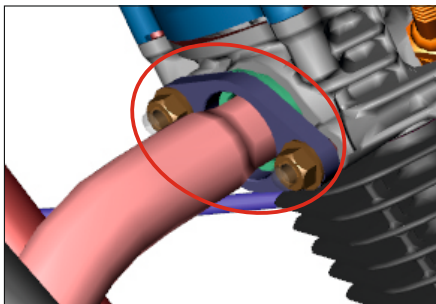
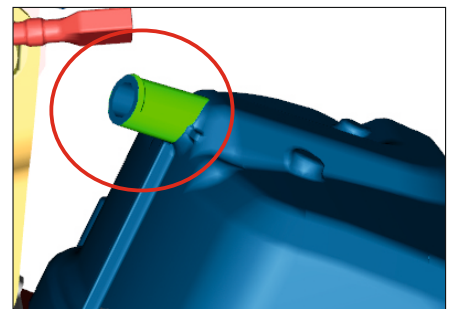


Pull out :

- SAI hose clips.

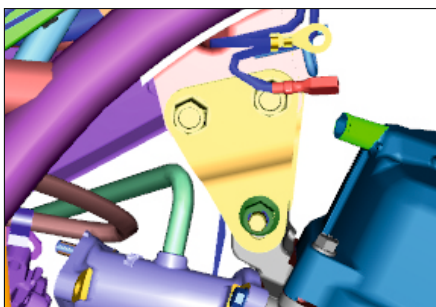
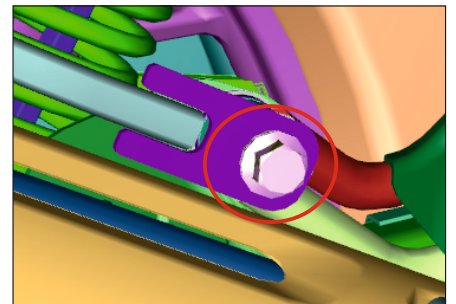
Take out

- SAI hose from intake manifold.
- Engine breather pipe from cylinder head.



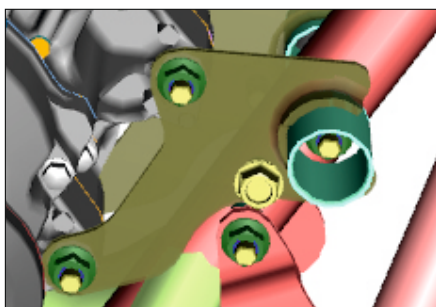
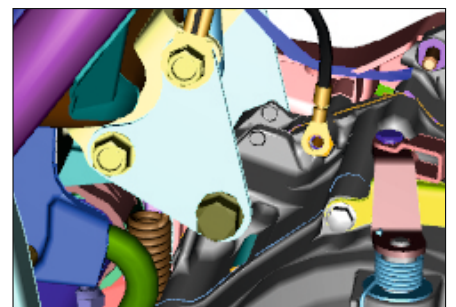
Remove

- Silencer mounting front bolt.



Remove

- Engine mounting rear bottom.
- Take out engine assembly.

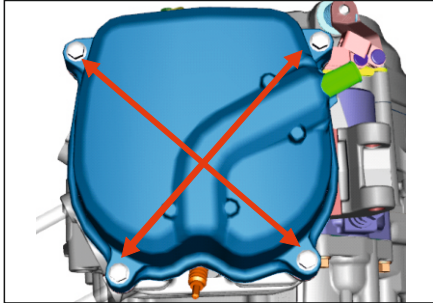


Engine & Transmission



Engine Dismantling & Assembling

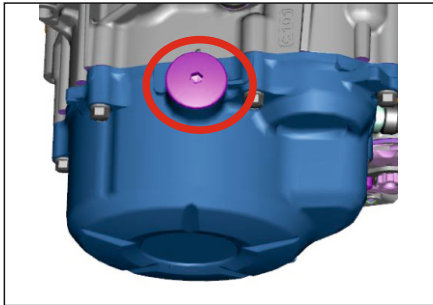
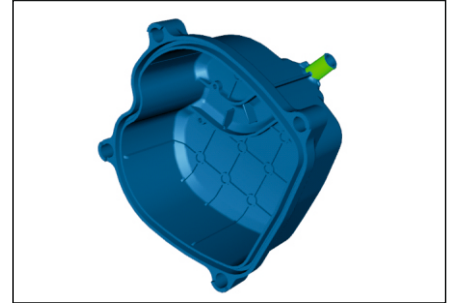
Top Side Dismantling



Remove

- Cylinder head cover bolts
- Take out cylinder head cover & gasket.

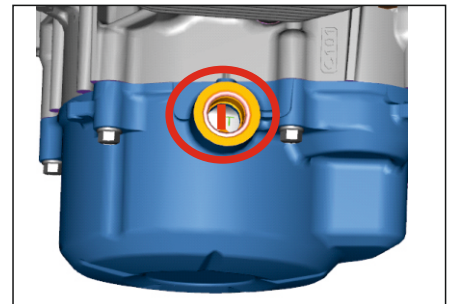
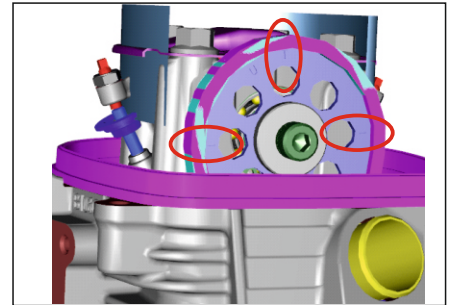
Note - Always loosen cylinder Head mounting bolts in criss - cross pattern



Remove

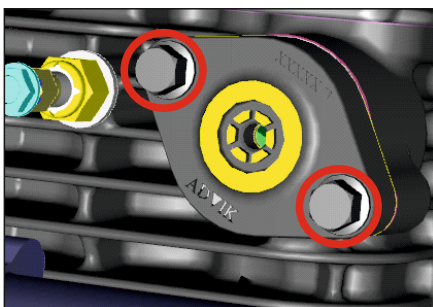
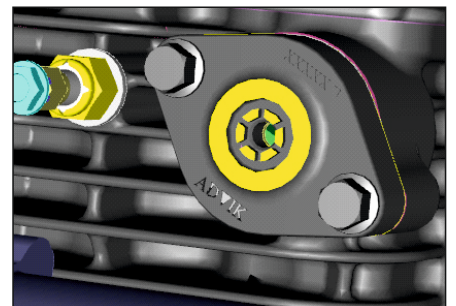
- TDC finder cap
- Check the cam sprocket T mark.

Note - Align the rotor mark w.r.t Crankcase marking.



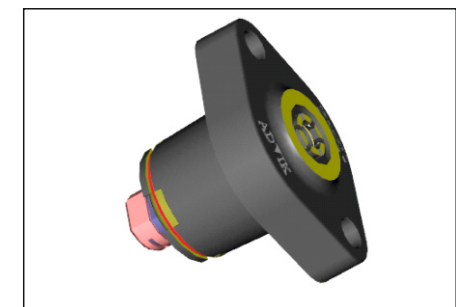
Remove

- Cam chain tensioner bolt
- Rotate chain tensioner screw in clockwise direction to take plunger backwards and lock it.



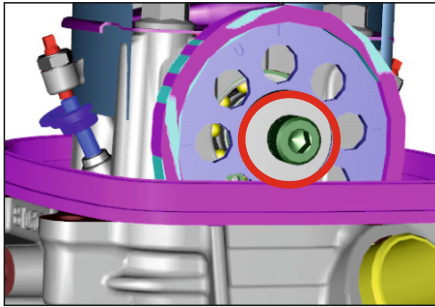
Remove

- Chain tensioner
- Take out chain tensioner along with gasket.





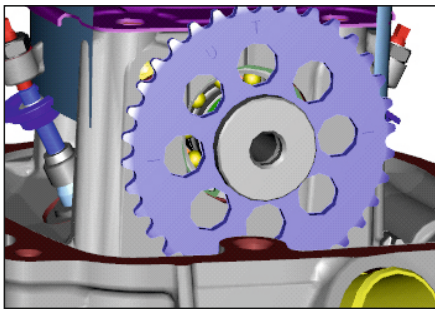
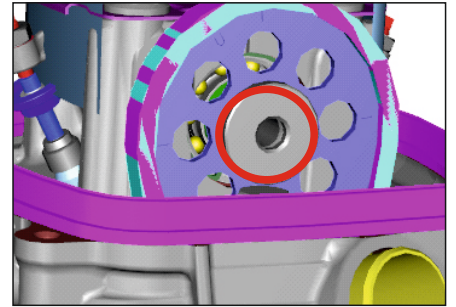
Engine Dismantling & Assembling



Remove

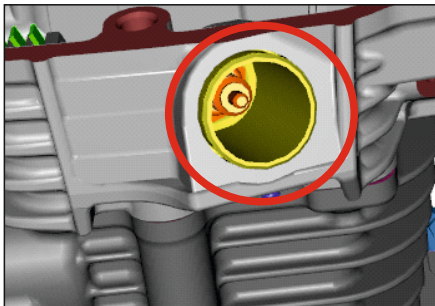
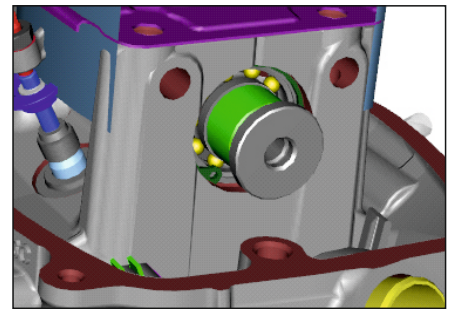
- Cam sprocket bolt

Skill Tip: Using Cam Sprocket Holder Special tool to hold the cam sprocket



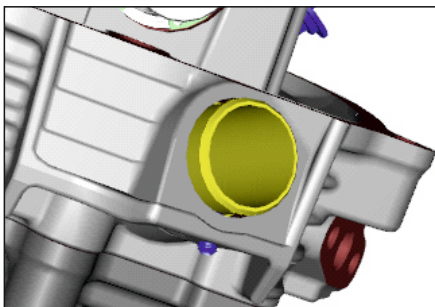
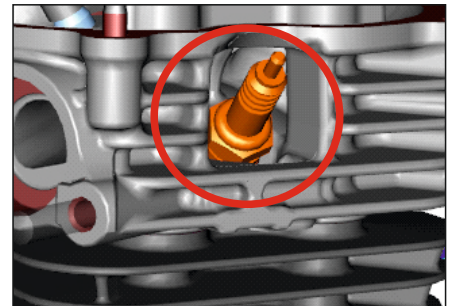
Remove

- Cam sprocket
- Cam sprocket collar



Remove

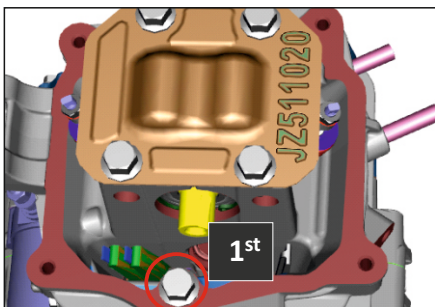
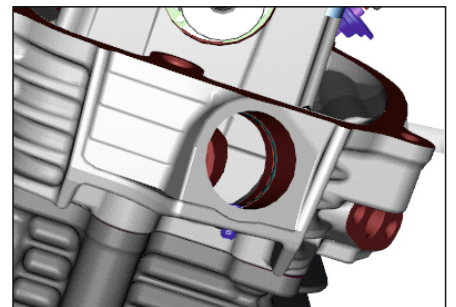
- RH & LH side spark plug by using spark plug removing tool.



Remove

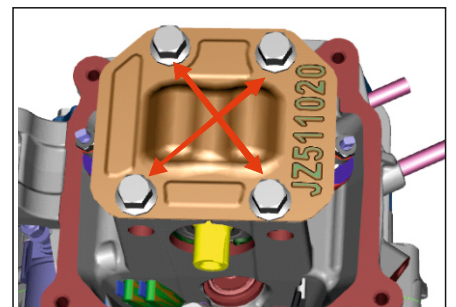
- Spark plug sleeve using

Note : Do not pull spark plug sleeve by plier, to avoid any damage on it.



Remove

- Cylinder head bolts.



Engine & Transmission

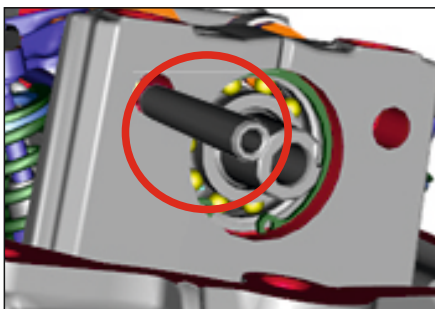
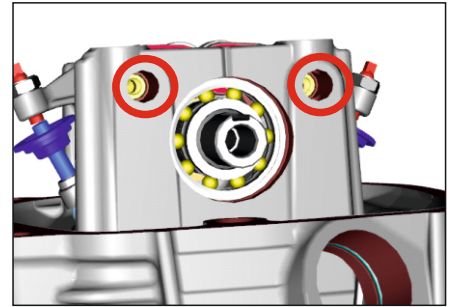


Engine Dismantling & Assembling



Remove

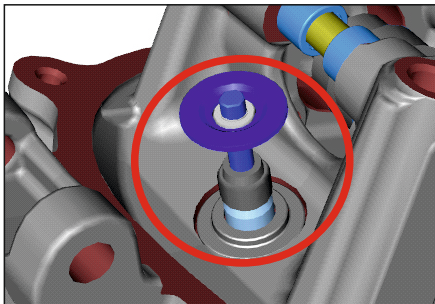
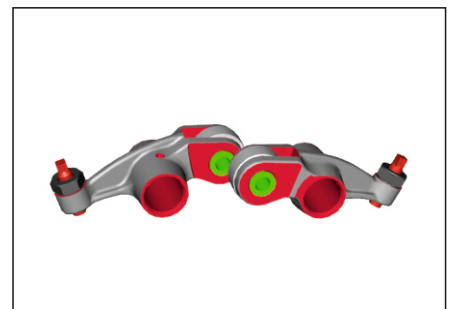
- Cam sprocket Circlip
- Circlip of rocker arm shaft (Inlet & Exhaust)



Remove

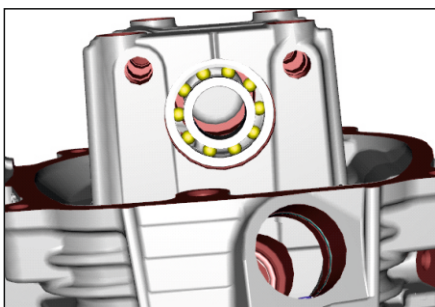
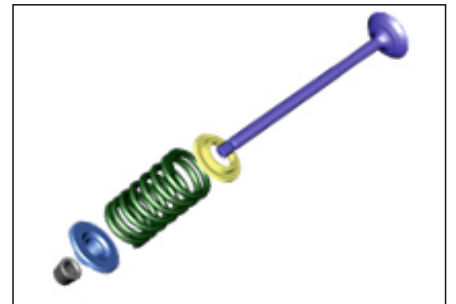
- Rocker arm shaft (Intake & Exhaust) by using rocker shaft removing tool
- Take out rocker arm & rocker arm shaft.

Skill Tip: Using Rocker Shaft Removal Special tool to remove the Rocker Arm Shaft.



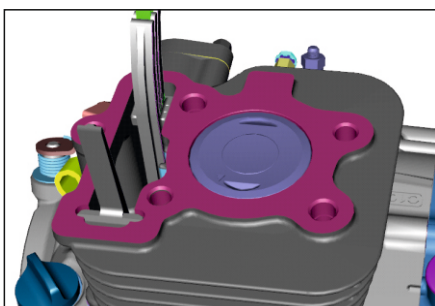
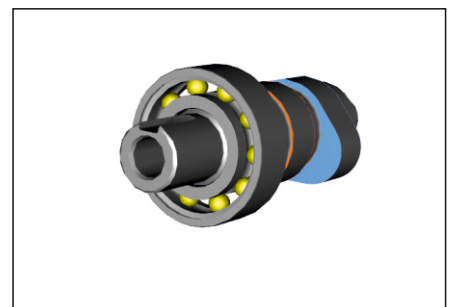
Remove

- Intake & Exhaust valves along with -
 - Retainer
 - Valve spring
 - Oil seal
 - Valve spring seat using valve spring compressor.



- Take out cam shaft assembly.

Skill Tip: Using Adaptor & Valve Spring Compressor Special tool to compress the valve springs.



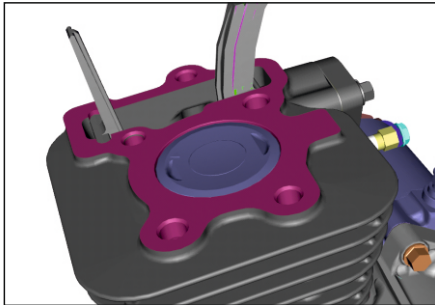
Remove

- Dowels on cylinder block.
- Cylinder head gasket.



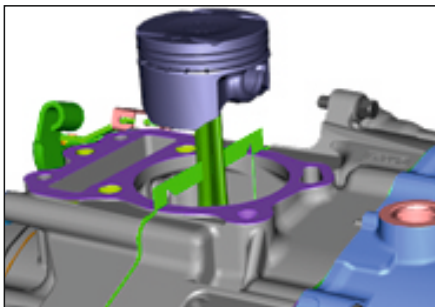
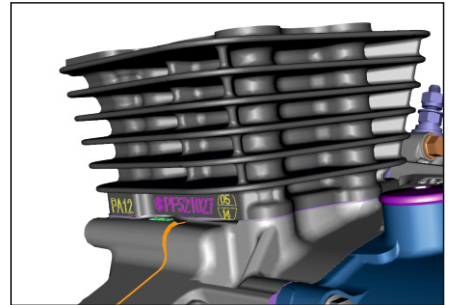


Engine Dismantling & Assembling



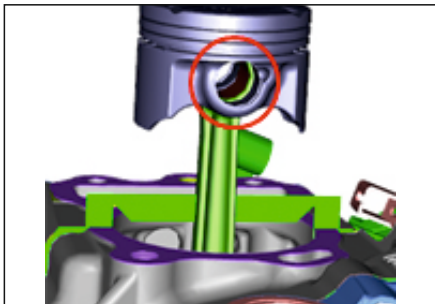
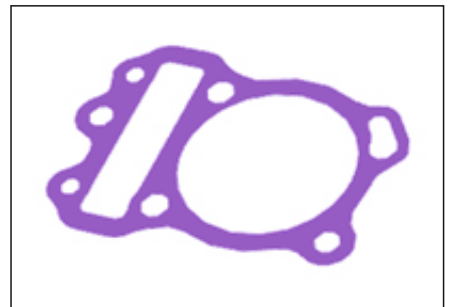
Remove

- Chain guide.
- Cylinder block.



Remove

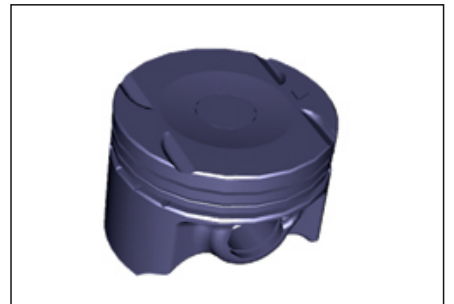
- Dowels.
- Cylinder block gasket.



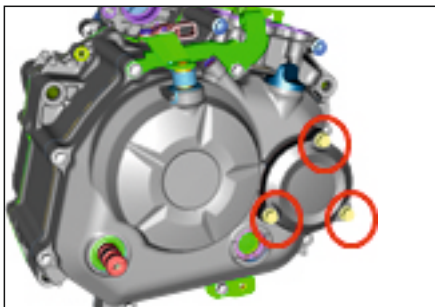
Remove

- Piston pin locking clip
- Piston pin
- Take out piston.

Note - Cover the crankcase bore with clean cloth before removing piston pin locking clip.

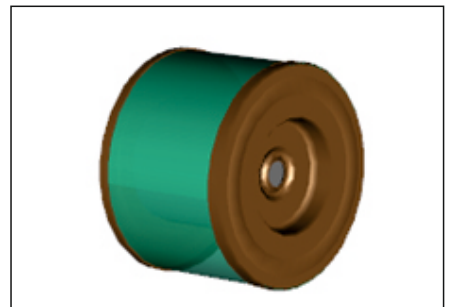


Clutch Side Dismantling



Remove

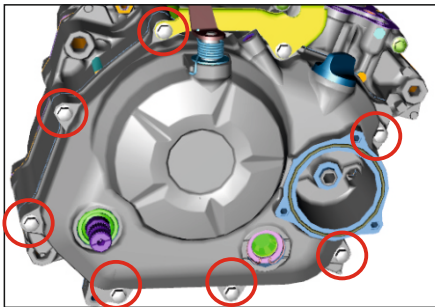
- Engine oil filter cover
- T spanner & take out engine oil filter



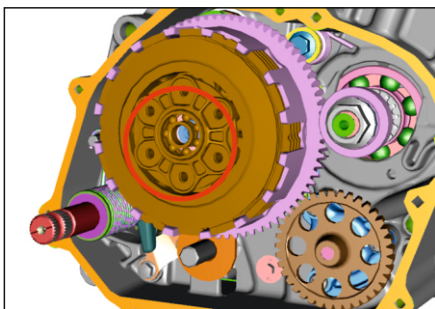
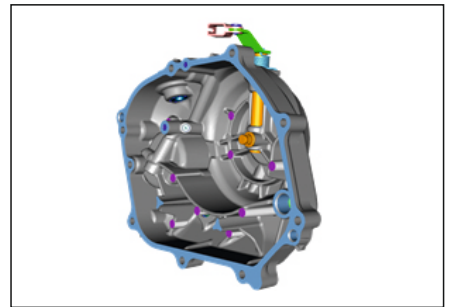
Engine & Transmission



Engine Dismantling & Assembling

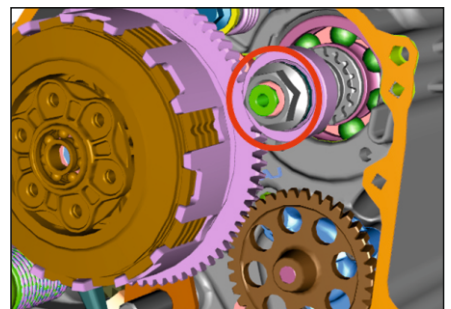
**Remove**

- Clutch cover mounting
- Spanner & take clutch release shaft
- Clutch cable bracket.

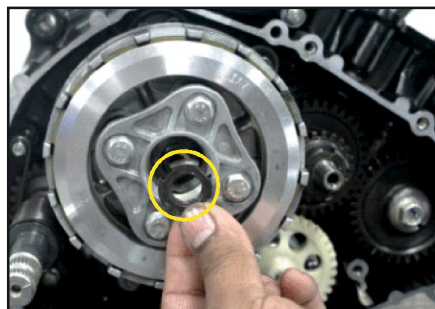
**Remove**

- Clutch thrust bearing
- Primary gear nut with by using clutch nut removing special tool.
- Clutch nut by holding the primary gear.

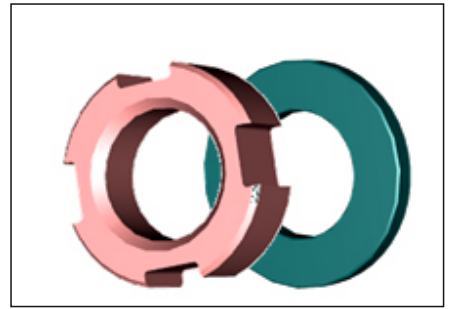
Note - Lock the special tool between primary gear teeth & clutch housing gear from top.

**Skill Tip:**

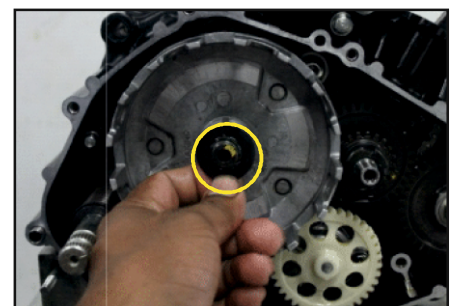
1. Using Primary Gear Holder Special tool to hold the primary gear.
2. Using Clutch Nut removing tool to loosen / tighten special nut securing clutch.

**Remove**

- Clutch nut
- Belleville washer
- Plain washer

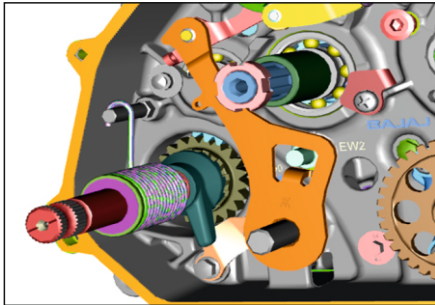
**Remove**

- Clutch stack complete
- Plain washer



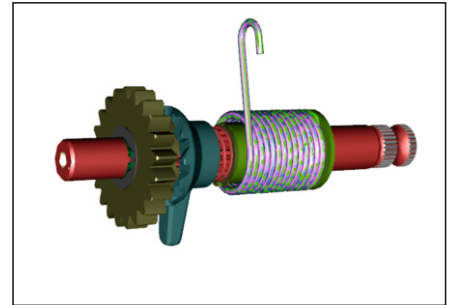


Engine Dismantling & Assembling



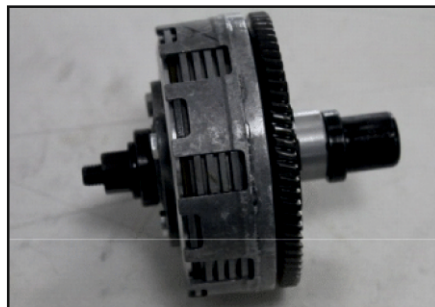
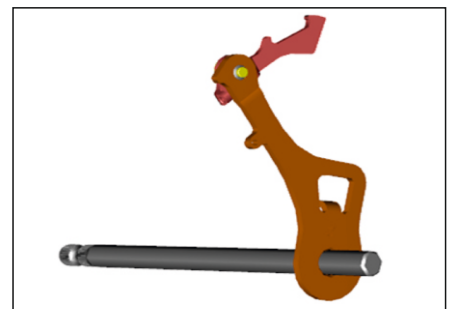
Remove

- Kick return spring
- Take out kick shaft assembly.



Remove

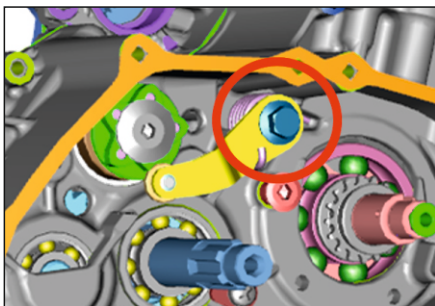
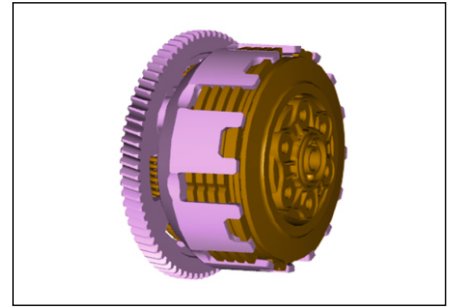
- Lever comp gear shift



Remove

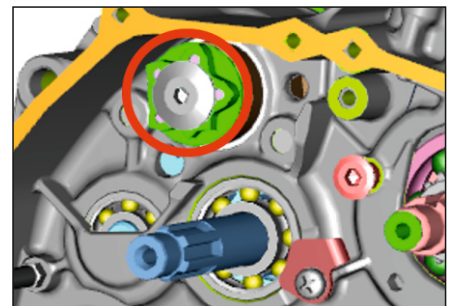
- 4 bolts
- 4 springs
- Clutch holder
- Clutch hub
- Friction plates
- Steel / pressure plates (4 Nos)
- Wheel clutch

Skill tip: Using Clutch Dismantling tool to dismantle & assembled clutch.



Remove

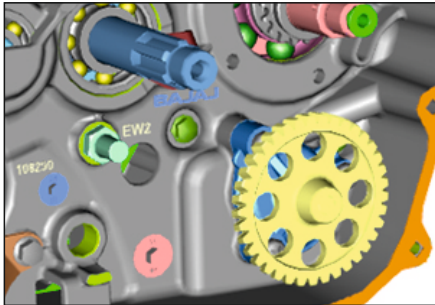
- Inhibitor Assembly
- Guide gear shift
- Take out guide gear shift



Engine & Transmission

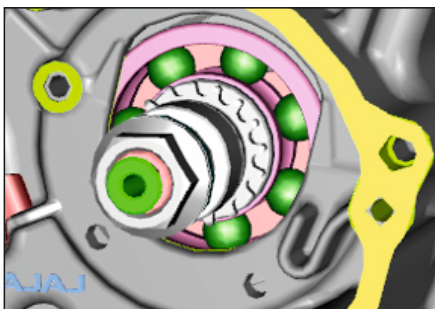
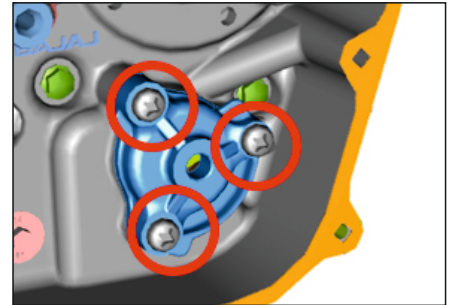


Engine Dismantling & Assembling



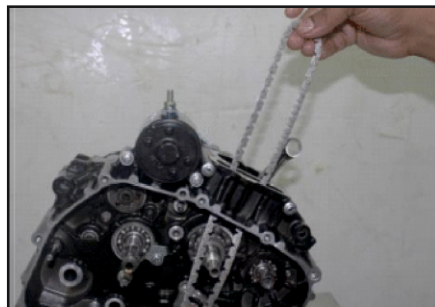
Remove

- Oil pump driven gear
- Oil pump screws
- Take out the oil pump



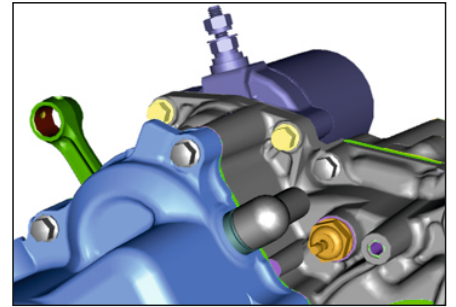
Remove

- Primary gear nut
- Take out
 - Belleville washer
 - Plain washer
 - Primary gear

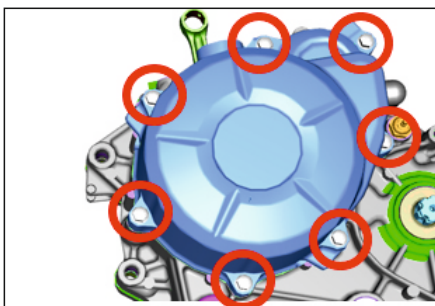


Remove

- Timing chain from sprocket
- Starter motor bolt
- Take out starter motor

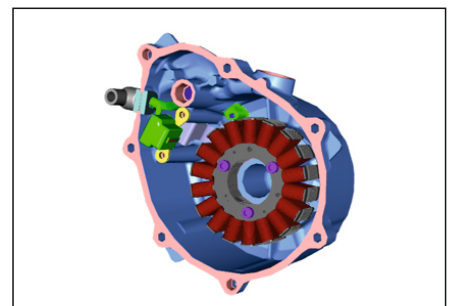


Magneto Side Dismantling



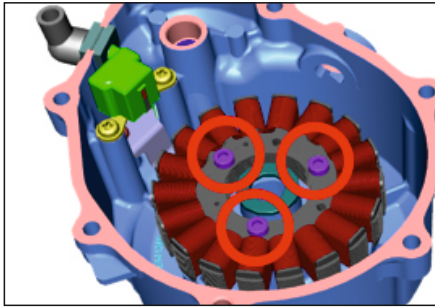
Remove

- Magneto cover bolts



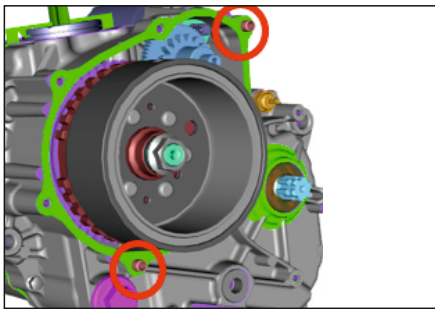
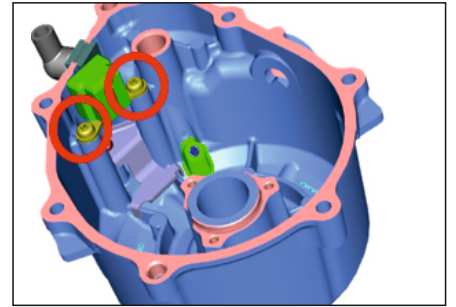


Engine Dismantling & Assembling



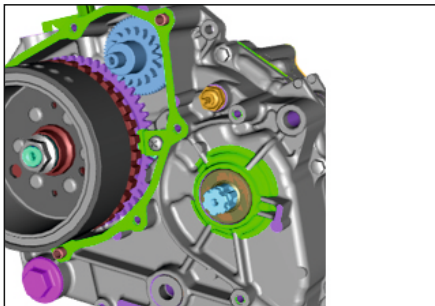
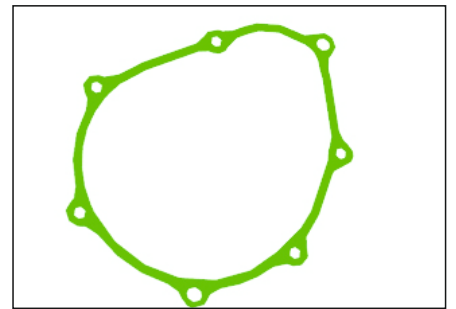
Remove

- Stator plate
- Pick up coil screws



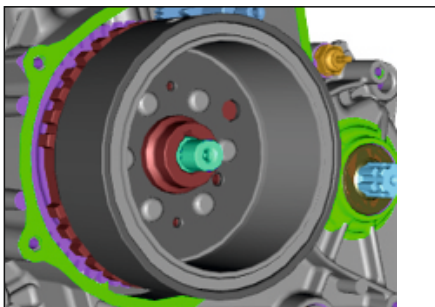
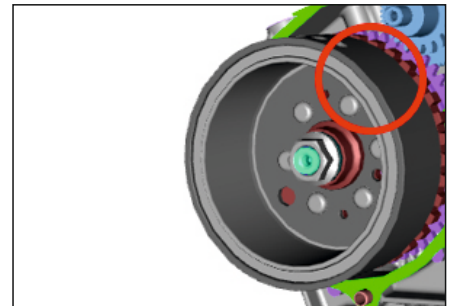
Remove

- Dowels
- Take out magneto cover gasket.



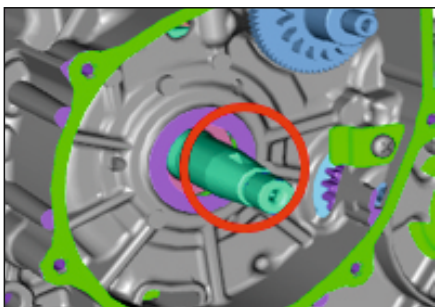
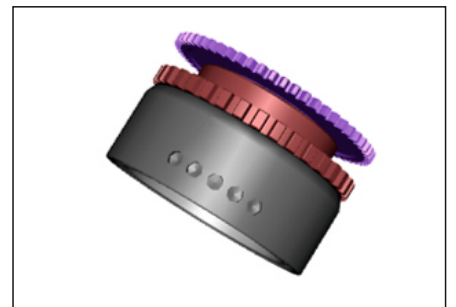
Remove

- Gear starter clutch locking plate screw
- Rotor bolt
- Plain washer



Remove

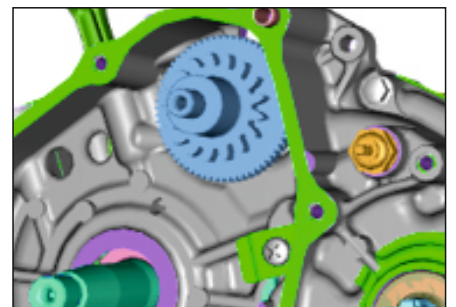
- Rotor
- Gear starter clutch



Remove

- Magneto rotor key
- Starter counter gear assembly

Skill Tip: Using Magneto Rotor Puller Special tool to remove magneto rotor from crankshaft.

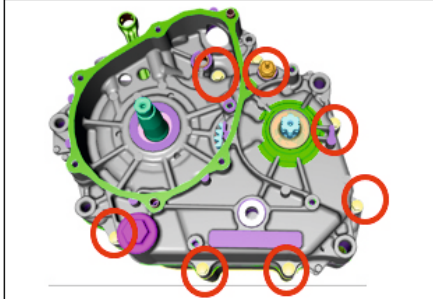


Engine & Transmission



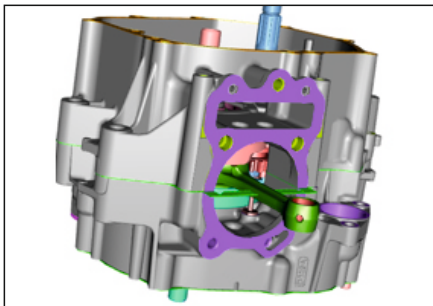
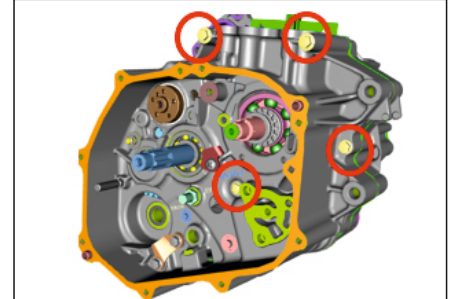
Engine Dismantling & Assembling

Crankcase Splitting



Remove

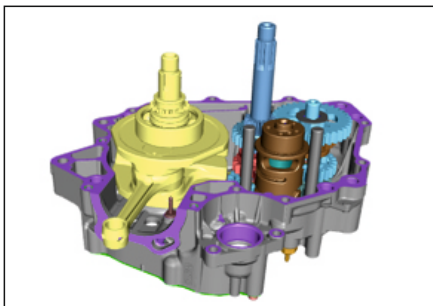
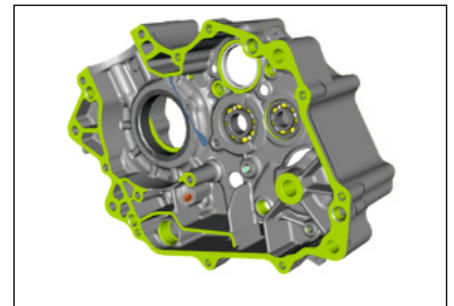
- LH crankcase bolts
- RH crankcase bolts



- Put the engine on engine work table

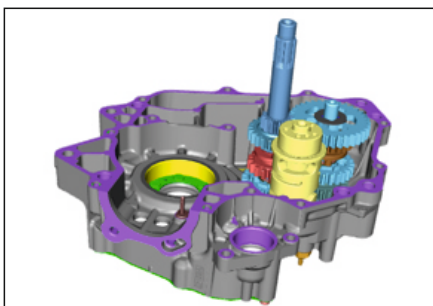
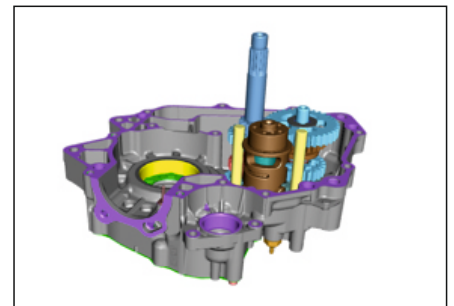
Remove

- RH crankcase



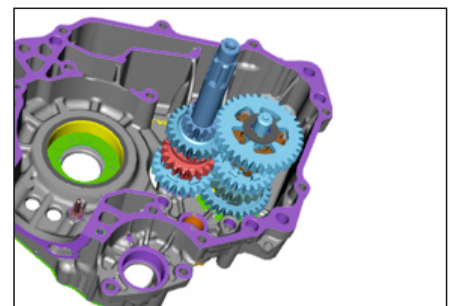
Remove

- Crankshaft
- Fork shaft
- Input & output fork shaft



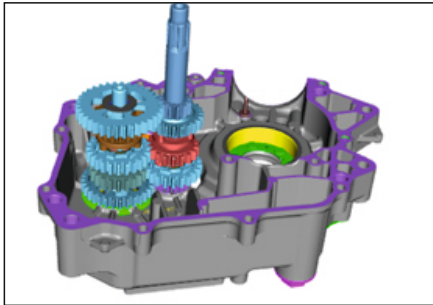
Remove

- Gear change drum
- Input fork & output fork



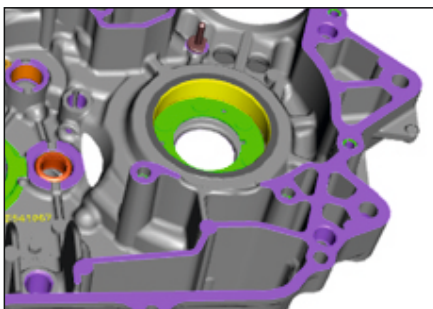
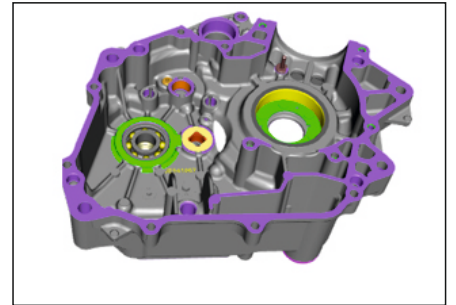


Engine Dismantling & Assembling



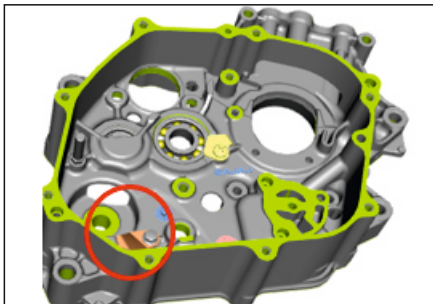
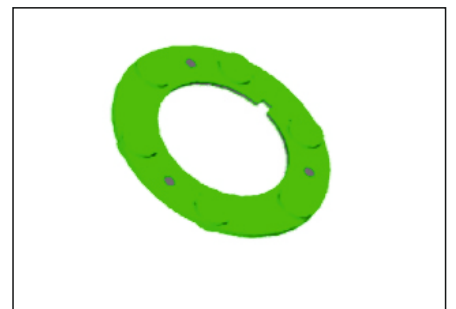
Remove

- Input & output gear shaft assembly
- washer plain of input gear shaft.



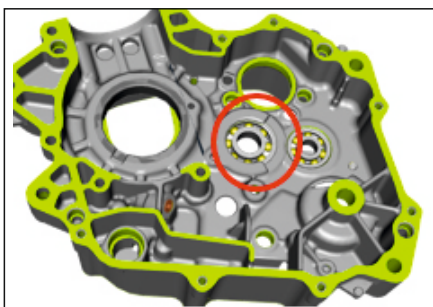
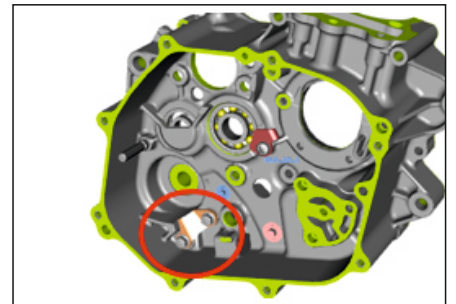
Remove

- Crankshaft damper from crankcase LH.



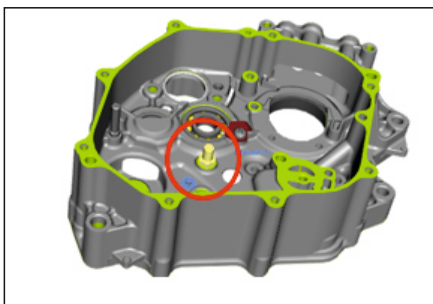
Remove

- Input shaft bearing locking plate
- Kick shaft locking plate bolts



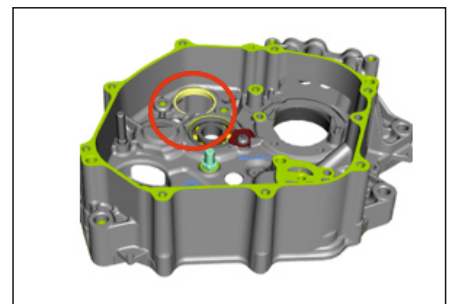
Remove

- Input shaft bearing using bearing driver set.



Remove

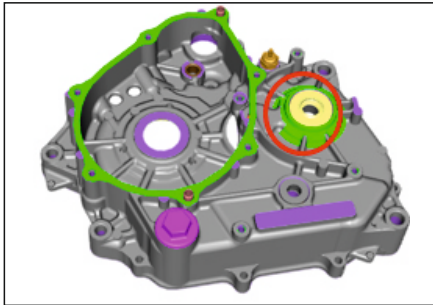
- Bolt gear shift change
- Gear change drum bush using bearing driver set.



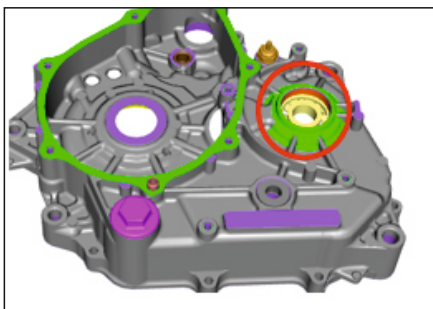
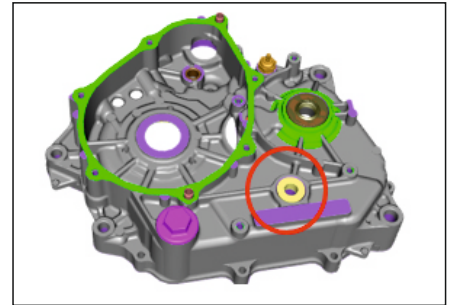
Engine & Transmission



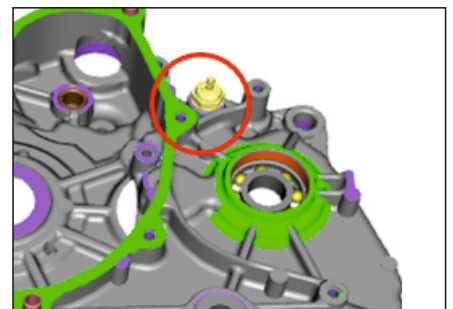
Engine Dismantling & Assembling

**Remove**

- Output shaft oil seal
- Gear change lever oil seal

**Remove**

- Output shaft bearing using bearing driver set
- Neutral switch





Service Limits

Compression Pressure



Std. Limit	12.0 ~ 13.0 Kg/cm ²
Serv. Limit	9.5 Kg/cm ²

Valve Clearance



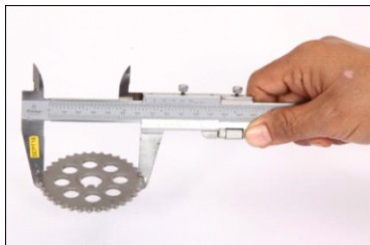
	Inlet	Exhaust
Std. Limit	0.05~0.07	0.10~0.12
Serv. Limit	----	----

Rocker Arm Shaft Dia.



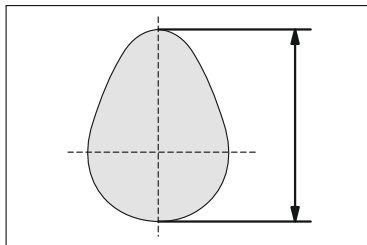
Std. Limit	10.0
Serv. Limit	9.965

Cam Sprocket Root Diameter



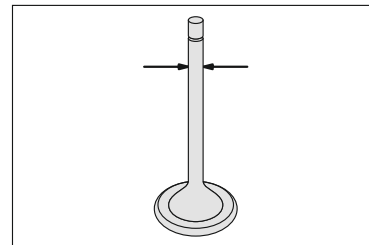
Std. Limit	68.0
Serv. Limit	67.6

Cam Height



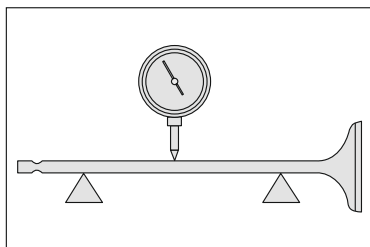
	Inlet	Exhaust
Std. Limit	18.071	18.104
Serv. Limit	18.02	18.05

Valve Stem Diameter



	Inlet	Exhaust
Std. Limit	4.965~4.98	4.945~4.96
Serv. Limit	4.955	4.935

Valve Stem Bend



Std. Limit	0.01
Serv. Limit	> 0.01 replace

Piston Ring End Gap



	TOP	SECOND	OIL RING
Std.Limit	0.1~0.25	0.15~0.3	0.2~0.7
Serv.Limit	0.5	0.6	1.0

Steel Plate Thickness



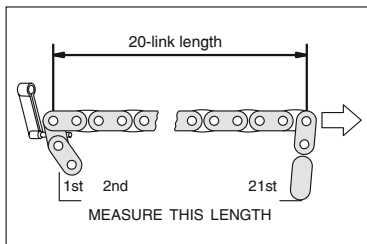
Std. Limit	1.55 ~1.65
Serv. Limit	1.5

Friction Plate Thickness



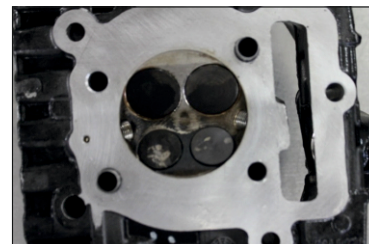
Std. Limit	2.95 ~ 3.05
Serv. Limit	2.75

Cam Chain 20 Links Length



Std. Limit	130.3 ~ 130.43
Serv. Limit	131.06

Cylinder Head Warp



Std. Limit	0.03
Serv. Limit	0.05

Engine & Transmission



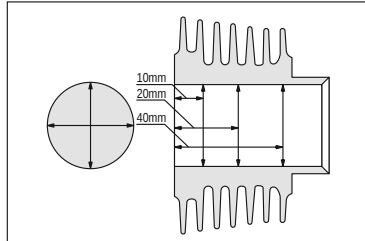
Service Limits

Piston Diameter



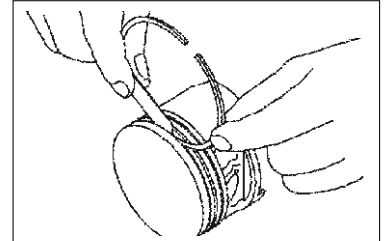
Std. Limit	51.958 ~ 51.972
Serv. Limit	----

Cylinder Inside Diameter



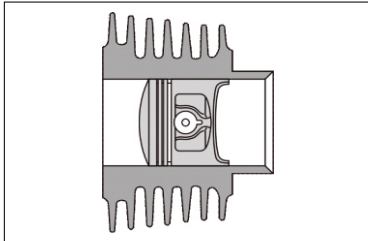
Std. Limit	50 ~ 50.01
Serv. Limit	----

Piston Ring / Groove Clean.



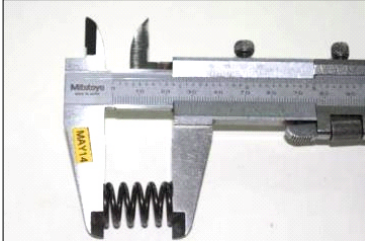
	TOP&SECOND	OIL
Std. Limit	0.025~0.060	0.04~0.010
Serv. Limit	0.15	0.16

Piston / Cylinder Clearance



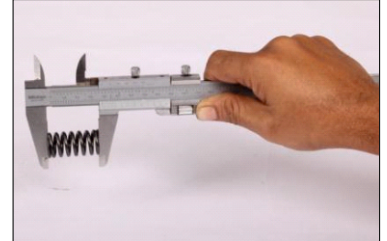
Std. Limit	0.028 ~ 0.052
Serv. Limit	0.1

Valve Spring Free Length



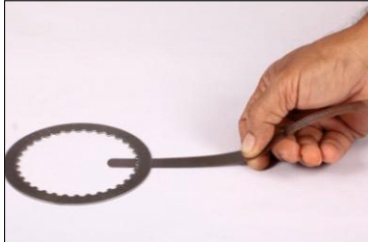
Std. Limit	38.74
Serv. Limit	37.5

Clutch Spring Free Length



Std. Limit	44~46.4
Serv. Limit	43

Pressure Plate Warp



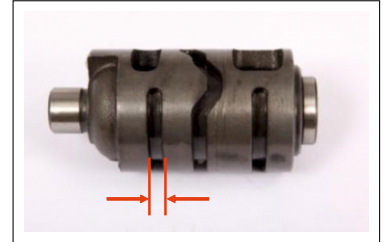
Std. Limit	0.1
Serv. Limit	0.2

Gear Shift Fork Guide Pin Dia.



Std. Limit	4.45 ~ 4.49
Serv. Limit	4.40

Shift Drum Groove Width



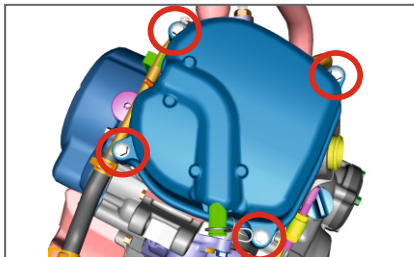
Std. Limit	4.55 ~ 4.70
Serv. Limit	4.75

ALL DIMENSIONS ARE IN MM



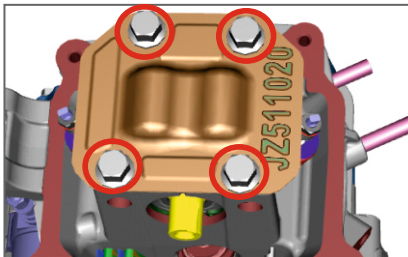
Tightening Torques

Cylinder Head Cover Bolts



1.0 ~ 1.1 Kgm.

Cylinder Head Bolts



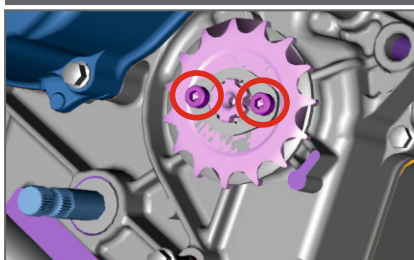
M8 : 2.3 ~ 2.5 Kgm.

Chain Tensioner Mounting Bolts



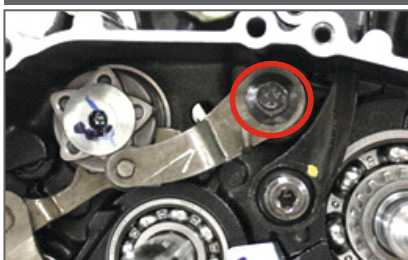
1.0 ~ 1.1 Kgm.

Output Sprocket Bolts



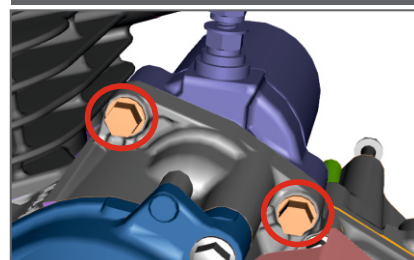
0.6 ~ 0.8 Kgm.

Inhibitor Nut



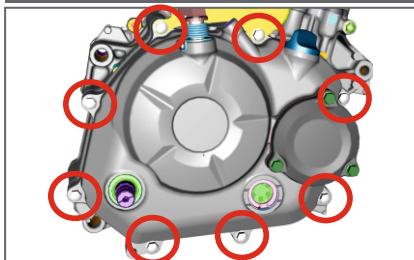
1.0 ~ 1.1 Kgm.

Stator Motor Mounting Nut



1.0 ~ 1.1 Kgm.

Clutch Cover Bolts



1.0 ~ 1.1 Kgm.

Cap Oil Filter Cover Bolts



1.0 ~ 1.1 Kgm.

Crankcase Joining Bolts



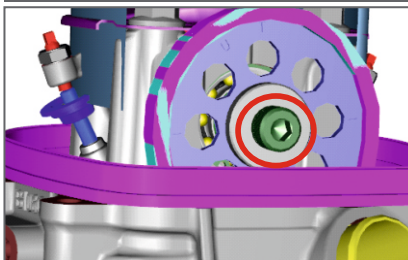
1.0 ~ 1.1 Kgm.

Oil Pump Screws



0.5 ~ 0.7 Kgm.

Cam Sprocket Allen Bolt



1.6 ~ 1.8 Kgm.

Magneto Cover Bolts



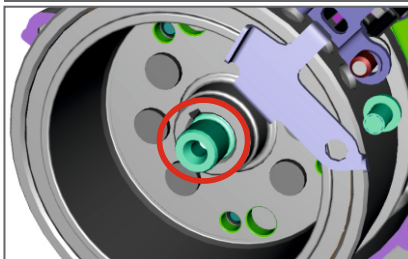
1.0 ~ 1.1 Kgm.

Clutch Nut (L.H. Thread)



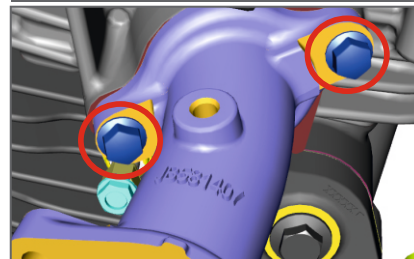
6.0 ~ 6.5 Kgm.

Magneto Rotor Mounting bolt



6.5 ~ 7.0 Kgm.

Manifold Mounting Bolts



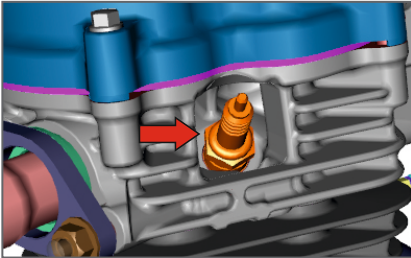
1.0 ~ 1.1 Kgm.

Engine & Transmission

Tightening Torques

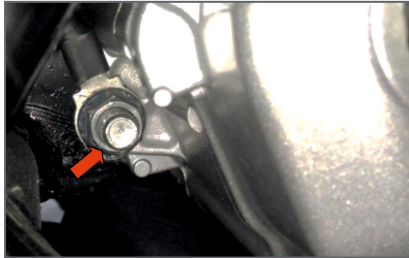


Spark Plugs



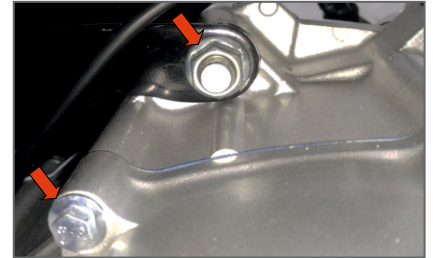
1.3 ~ 1.5 Kgm.

Engine Mounting Nut - Rear



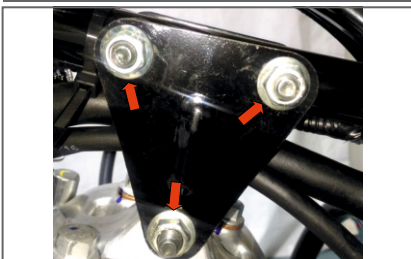
2.8 ~ 3.2 Kgm

Engine Mounting Nut - Front



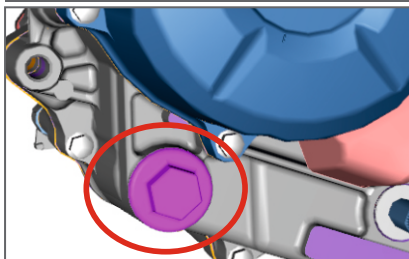
1.8 ~ 2.2 Kgm.

Engine Mounting Nut - Top



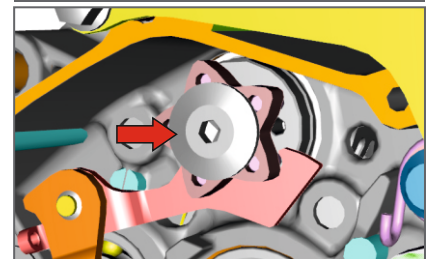
1.8 ~ 2.2 Kgm.

Oil Drain Bolt (18 mm A/F)



1.0 ~ 1.1 Kgm.

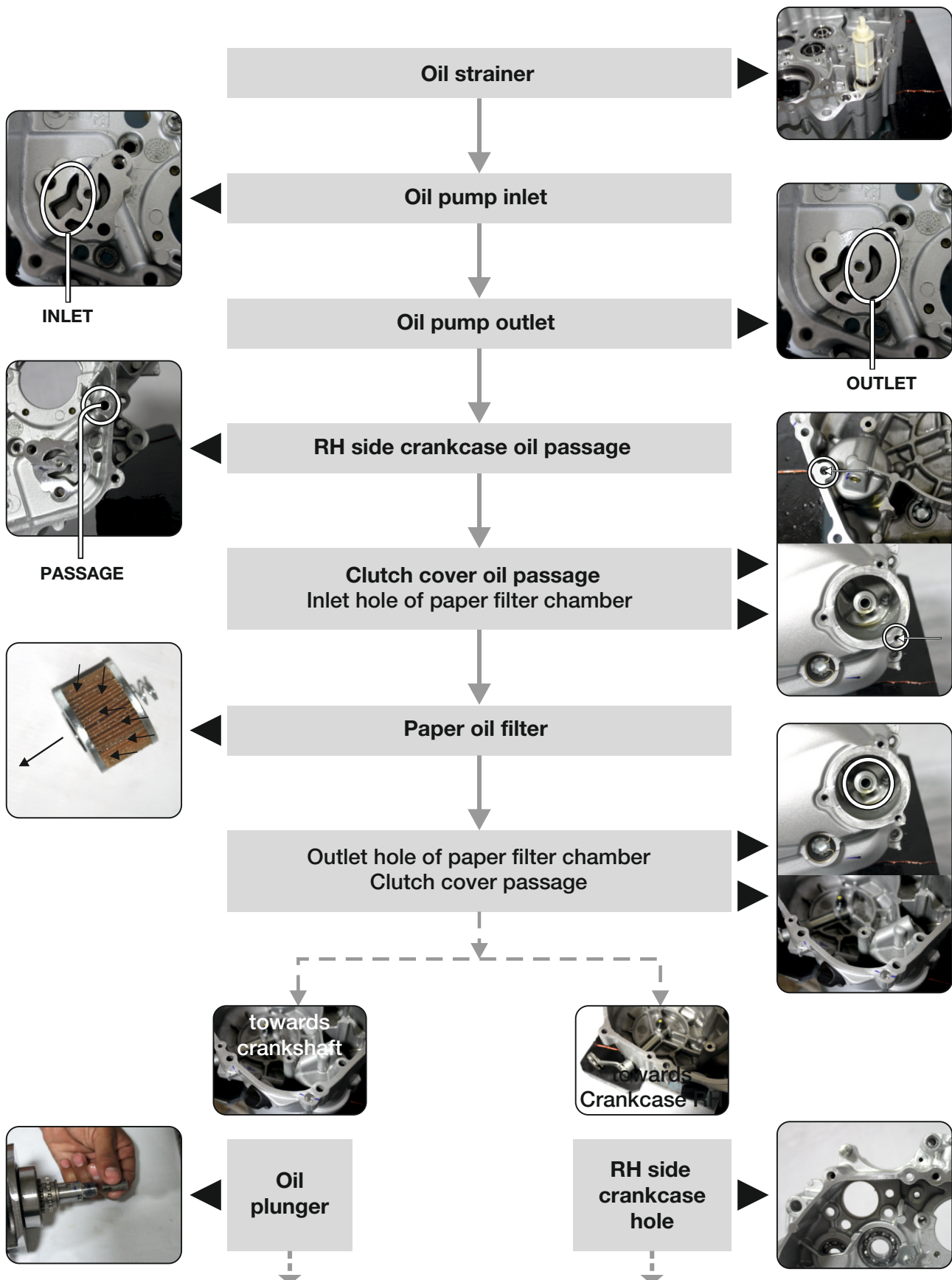
Drum / Cam Allen Bolt



1.0 ~ 1.1 Kgm.

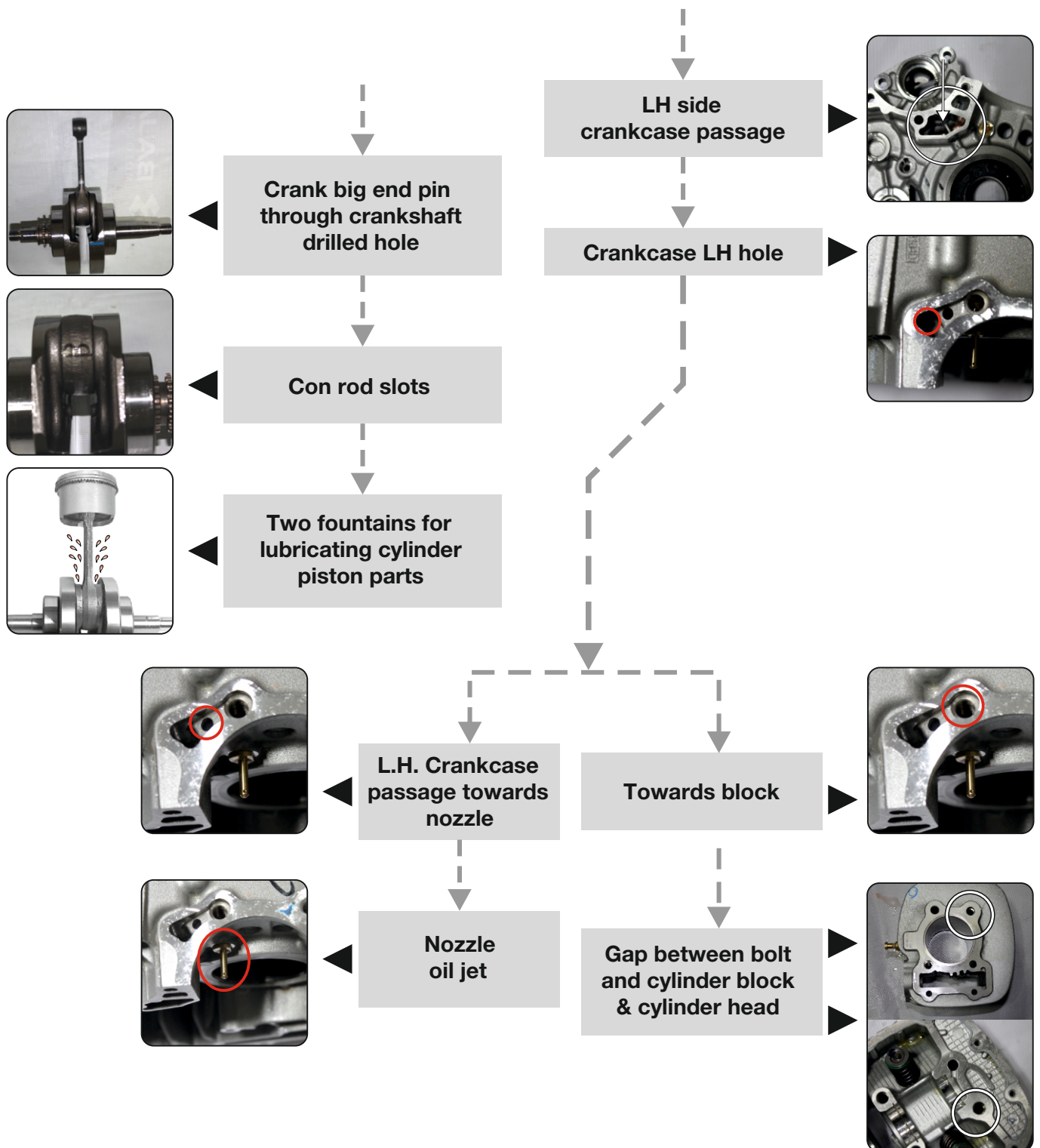


Engine Lubrication - Flow of Oil





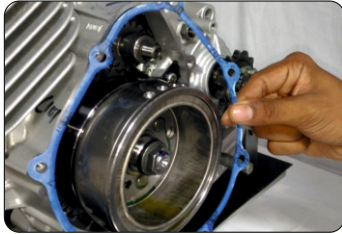
Engine Lubrication - Flow of Oil





Dos & Don'ts

✓ Dos



Always replace gasket 'O' rings of engine If dismantled.



Whenever installing Spark Plug, first screw by hand & then tighten to specified torque.



Always set / adjust valve tappet clearance in engine cold condition.

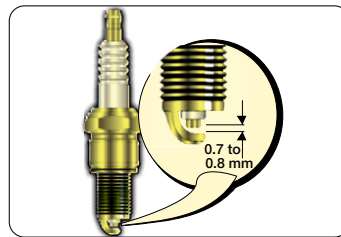


Always blow light pressure compressed air from inside while cleaning 'Oil strainer' that is opposite to the direction of flow of oil.

✗ Don'ts



Do not reuse 'O' rings, gasket, Oil seals, Circlip, Springs & locks as they use their strength & properties, once they are opened.



Do not adjust spark plug electrode gap by hacksaw blade or with judgment of eye otherwise it will affect the engine performance.



Do not set valve tappet clearance in engine hot condition.



Do not reuse torn 'Oil strainer' otherwise it will affect lubrication system of engine & subsequently would lead to seizure.

Engine & Transmission

Notes



Key Learning Points

- Appropriate torque application for various Frame component
- Understanding of special tools and its applications
- Standard operating procedure



CHAPTER 4

Frame & Suspension

Special Tools

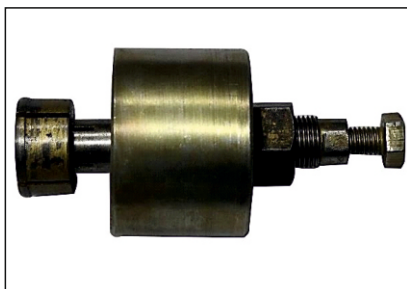
Service Limits

Tightening Torque

Dos & Don'ts



Special Tools



Fork Oil Seal Extraction Tool

Part No. : 37 0043 25

Application : For extracting front fork oil seal from outer tube.



Fork Oil Seal Driver

Part No. : 37 1830 07

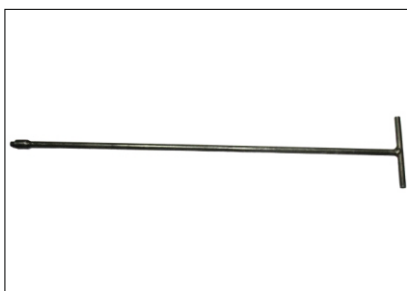
Application : To fit fork oil seal in its seat provided at outer pipe ID.



Stem Bearing Driver

Part No. : 37 1830 05

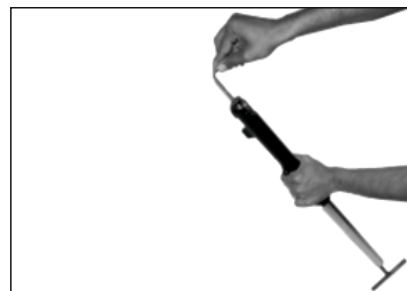
Application : To fit bearing race on fork under holder bracket.



Fork Seat Pipe Holder

Part No. : 37 0043 20

Application : For holding fork seat pipe during outer tube bottom bolt removal.



Steering Slotted Nut Special Tool

Part No. : 37 0043 02

Application : To remove / tighten steering slotted nut.



Frame & Suspension

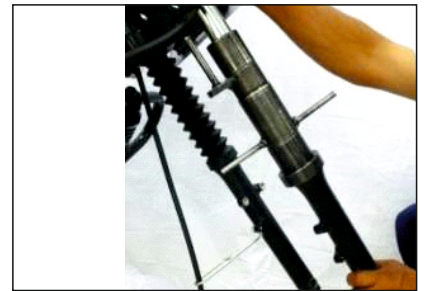
Special Tools



Front Fork Inner Tube Extractor

Part No. : 74 9310 15

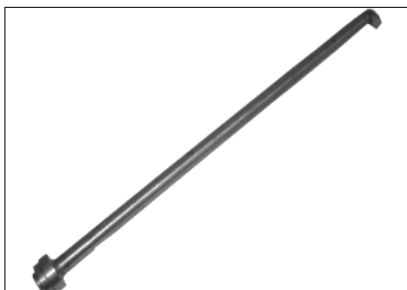
Application : To remove front fork inner tube from outer tube.



Installer Upper & Lower Bearing race Frame

Part No. : 37 1801 06

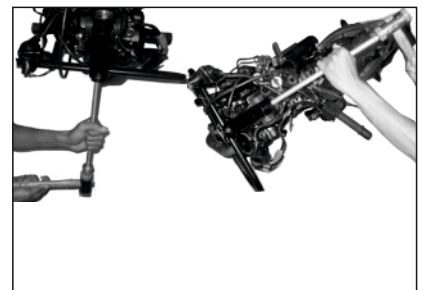
Application : To install upper & lower steering races / cones into their seats inside frame.



Steering Cone Remover

Part No. : 37 1805 06

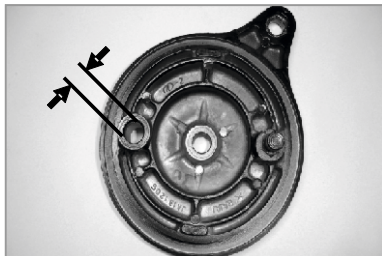
Application : To remove steering cones from frame.





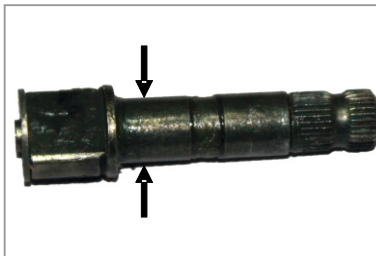
Service Limits

Brake Panel Cam Hole Dia.



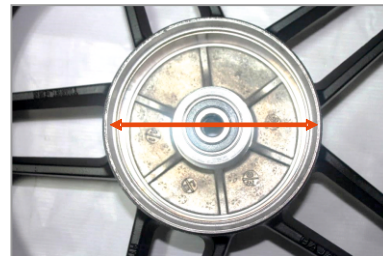
Std. Limit	12.00 ~ 12.027
Ser. Limit	12.15

Brake Cam Front Diameter



Std. Limit	11.957 ~ 11.984
Ser. Limit	11.83

Brake Drum Inside Dia. Rear



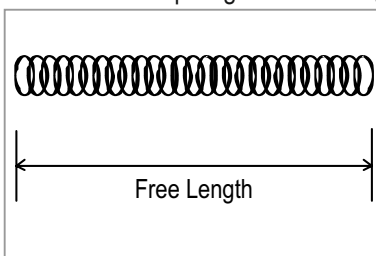
Std. Limit	130 ~ 130.16
Ser. Limit	130.75

Brake Shoe Rear Liner Thickness



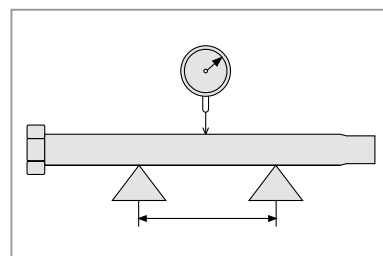
Std. Limit	3.9 ~ 4.5
Ser. Limit	2.0

Front Fork Spring Free Length



Std. Limit	446.5
Ser. Limit	441.5

Axle Run Out



Std. Limit	TIR 0.1
Ser. Limit	TIR 0.2

Axial Wheel Run Out



Std. Limit	TIR 0.5 or Less
Ser. Limit	TIR 2.0

Radial Wheel Run Out



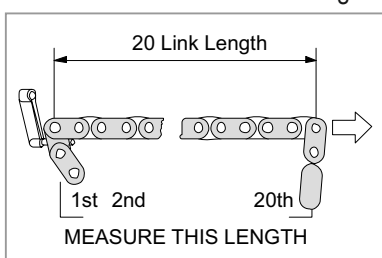
Std. Limit	TIR 0.5 or Less
Ser. Limit	TIR 2.0

Drive Chain Slack



Std. Limit	25 ~ 30
Ser. Limit	45

Drive Chain 20 Link Length



Std. Limit	254 ~ 254.6
Ser. Limit	260.0

Rear Sprocket Warp



Std. Limit	TIR 0.4 or less
Ser. Limit	TIR 0.5

Tyre Tread Depth



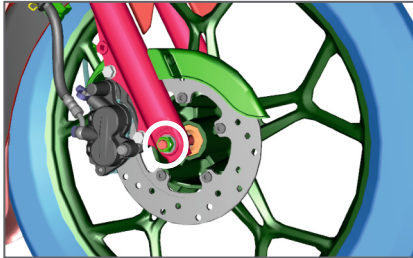
Std. Limit	Rear : 6.5, Front : 5.0
Ser. Limit	Upto TWI

Frame & Suspension

Tightening Torques

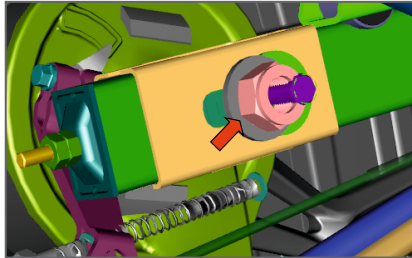


Front Axle Nut



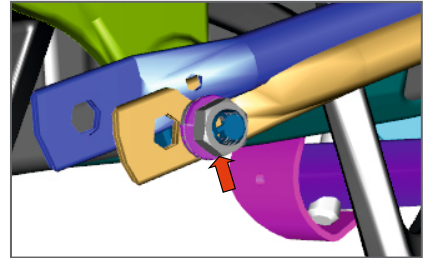
4.5 ~ 5.5 Kgm

Rear Axle Nut



8.0 ~ 10.0 Kgm

Torque Rod Nut



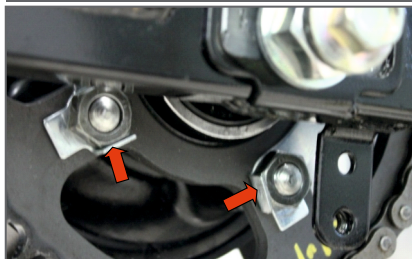
3.0 ~ 3.2 Kgm

Rear Sleeve Nut



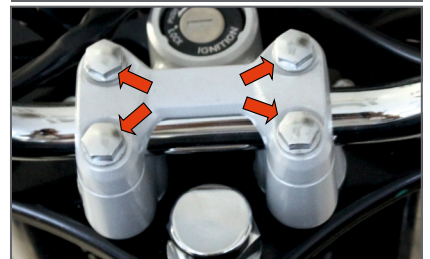
8.0 Kgm

Rear Sprocket Mounting Nut



3.2 ~ 3.8 Kgm

Handle Bar Holder Bolts



2.0 ~ 2.2 Kgm

Fork Pipe Top Bolts



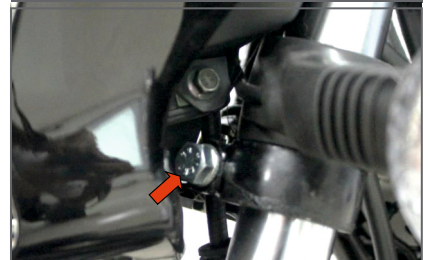
3.0 ~ 3.2 Kgm

Steering Center Nut (Slotted)



0.5 Kgm

Fork Under Bracket Bolts



3.0 ~ 3.2 Kgm

R.S.A. Mounting Nut Upper



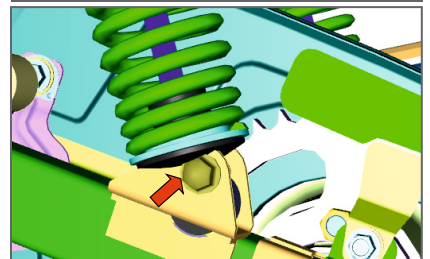
3.0 ~ 3.2 Kgm

Swing Arm Shaft



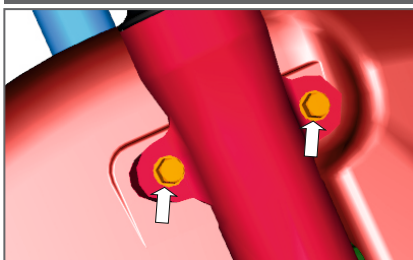
4.5 ~ 5.5 Kgm

R.S.A. Lower Bolt



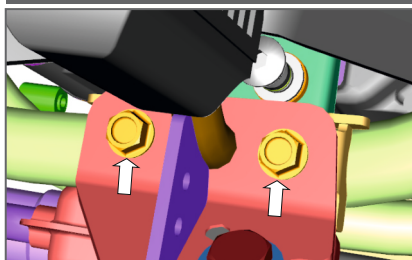
2.8 ~ 3.2 Kgm

Front Fender Mounting Bolts



0.8 ~ 1.2 Kgm

Rider Foot Rest Mounting



1.8 ~ 2.2 Kgm



Dos & Don'ts

✓ Dos



Replace front fork oil with SAE 10W20 grade fork oil.

✗ Don'ts

Do not add any other mineral based oil to front fork.



Maintain correct tyre pressure as per specification.

Do not over / under inflate the tyres.



Check for split pin at torque rod nut.

Avoid Bends / Distortion of torque link rod.



Lubricate the swing arm Bushes / Shafts.

Do not reuse the old swing arm Bushes / Bearings.

Frame & Suspension

Notes



Key Learning Points

- Understanding of Battery specifications & charging procedure
- Checking and inspection of all Electrical component
- Standard operating procedure for Head light assembling and dismantling



CHAPTER 5

Electricals

Battery Specifications

Electrical Checking Procedures

Important SOP

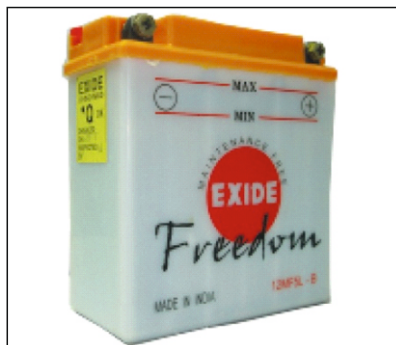
Dos & Don'ts

Electrical Wiring Diagrams



Battery Specifications

Battery Technical Specification



• Make	Exide / Amco
• 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, 1.28 for use below 10°C
• Initial charging duration	13 hrs (This ensures 100% battery is charged).
• Charging current specification	0.5 Amp

Initial Charging Procedure for dry charged Battery

- Fill each cell with battery grade sulfuric acid of the correct sp. gravity (1.24 at room temp. for use above 10°C & 1.28 at room temp. for use below 10°C)
- Allow the battery to stand for 30 min. after filling.
- Keep vent plugs open. Connect battery to charger & charge at 0.5 Amp. Charging voltage of charger should be 14.5 volt min. without connecting the battery.
- Charge continuously for 13 hours (charging duration will depend upon the condition of the battery) Specific gravity of fully charge battery after rest period of 1 hour will be 1.24 & battery voltage will be 12.9 Volts.
- After charging push vent plugs strip firmly into place & wash off acid spillage with water & dry the battery.
- Using the battery load tester confirm for good indication of state of charge of battery.

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

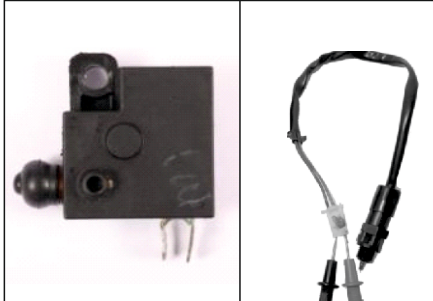
- Remove battery from vehicle
- Clean battery thoroughly
- Remove vent / filler plug strip
- Top up level with distilled water in between Min and Max. level
- Connect to battery charger & ensure respective terminal are connected properly
- Set charging current at 0.5 A DC for 5 Ah Battery. Charging voltage of charger should be more than 14.5 volt without connecting the battery .
- Charge battery (battery charging time depends upon the charging condition of the battery)
- Check specific gravity of each cell & voltage after 1 hour it should be 12.5 volt & specific gravity 1.24 for the fully charged battery.
- Disconnect the battery from the charger.
- Fit vent / filler plug strip firmly.
- Reconnect battery terminals
- Apply petroleum jelly to the battery terminals.

Electricals



Electrical Checking Procedure

Front & Rear Brake Light Switch



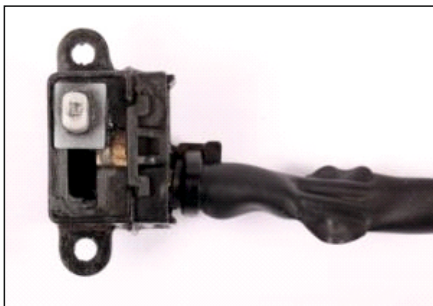
Measuring & Testing Equipment : Multimeter

	Brown	Blue	Continuity check by multimeter
Lever/Pedal Pressed	● — ●	● — ●	Continuity is shown
Lever/Pedal Released	●	●	No continuity

SOP :

- Turn 'ON' the ignition switch.
- The brake light should glow on when the front brake lever / rear brake pedal is pressed.
- If it does not, check the front brake switch.

Clutch Switch

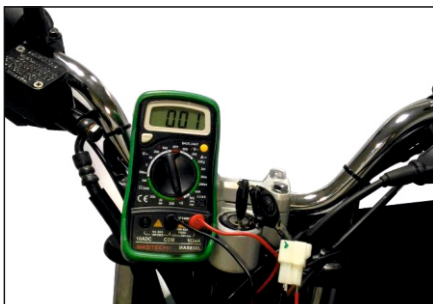


Measuring & Testing Equipment : Multimeter

- Check continuity of clutch switch as follows.

	Black / Yellow	Yellow / Green	Light Green
OFF – Clutch lever not pressed		● — ●	● — ●
ON – Clutch lever pressed	● — ●	● — ●	

Ignition Switch



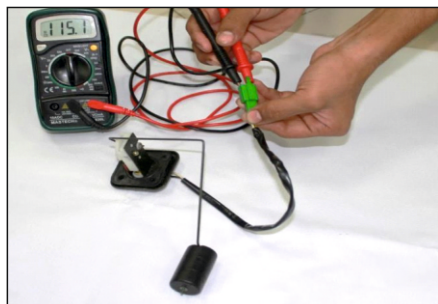
Measuring & Testing Equipment : Multimeter

	Brown	White
OFF	●	●
ON	● — ●	● — ●



Electrical Checking Procedure

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(L)	Standard Value(O)
Empty Tank	1.4	98
Half Tank	5	45
Full Tank	8	8

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.

Stator Relay Inspection



Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value
200 Ohms	Meter +ve	Meter -ve	3.9 Ω $\pm$ 10%
	Yellow / Red	Black	

SOP :

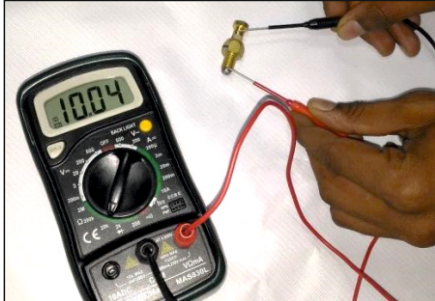
- Connect external 12V DC supply to Radiator relay coil terminals.
- 'Tuk' sound will be heard.
- Set multimeter on continuity mode.
- Connect multimeter at to relay contact terminals.
- Continuity (beep sound) indicates Radiator relay is OK.

Electricals



Electrical Checking Procedure

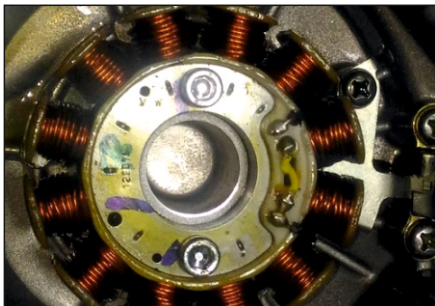
Engine Thermal Sensor



Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value	
200 Ohms	Meter +ve	Meter -ve	Engine Temp ($^{\circ}\text{C}$)	Resistance K Ohms
	As shown in photo		25 $^{\circ}\text{C}$	10.50 $\pm$ 7% K Ω

Battery Charging Coil



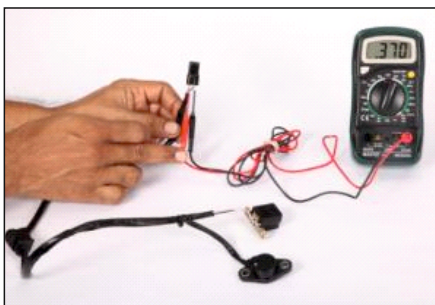
Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value
200 Ohms	Meter +ve	Meter -ve	0.9 Ohms
	Blue-White or Yellow	Blue-White or Yellow	

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 Resistance



Measuring & Testing Equipment : Multimeter

Meter Range	Connections		Standard Value
200 Ohms	Meter +ve	Meter -ve	215 $\pm$ 20 Ω
	White / Red	Black / Yellow	

SOP :

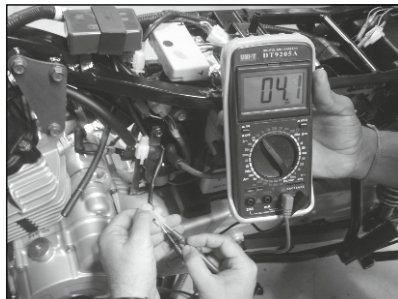
- Switch Off Ignition Key.
- Disconnect Stator Plate Coupler
- Connect multimeter between White / Red & Black / Yellow wires.
- Measure resistance

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



Electrical Checking Procedure

Starter Relay



Measuring & Testing Equipment : Test Jig or Multimeter

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

Meter Range	Connections		Standard Value
200 Ohms	Meter +ve	Meter -ve	3.9 Ω $\pm$ 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.

Horn



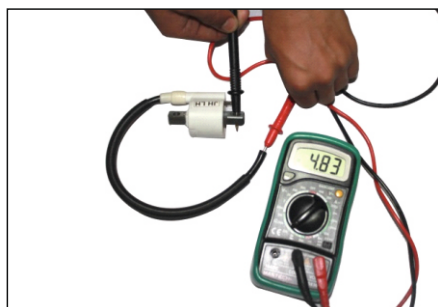
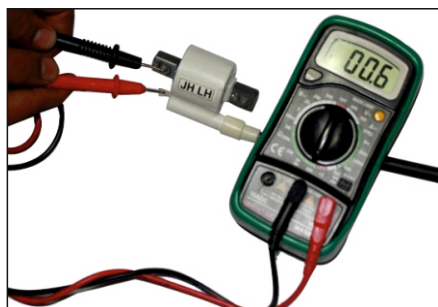
Measuring & Testing Equipment : Multimeter

Meter Range	Conditions	Standard Value
200 DC A	Encircle clamp meter jaws around Brown wire of horn	2.2 Ampere

SOP :

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

H.T. Coils



H.T. Coil : (Inspection Using Multimeter)

- Measure the primary winding resistance as follows
- Connect the multimeter between input terminal & GND plate on the core.
- Measure the secondary winding resistance as follows
- Remove the plug cap by turning it counter clockwise.
- Connect the multimeter between H.T. cable end & GND plate on the core.
- 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 good. However, if the ignition system still does not perform as it should after all other 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	0.45 $\pm$ 10% Ω at 25°C
Secondary Winding	5.0 $\pm$ 10% K W at 25°C

Electricals



Electrical Checking Procedure

Battery Charging Voltage Measurement



Measuring & Testing Equipment : Multimeter

Use fully charged battery while measuring

Meter Range	Connections		At 4500 RPM with Head Light ON
	Meter +ve	Meter -ve	
20 K Ohms	Battery +ve Terminal	Battery -ve Terminal	14.4 + 0.2 Volts

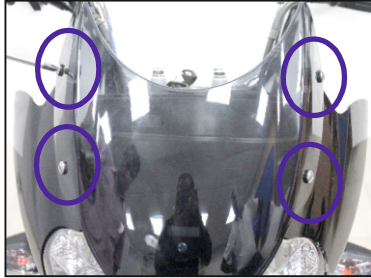
Notes



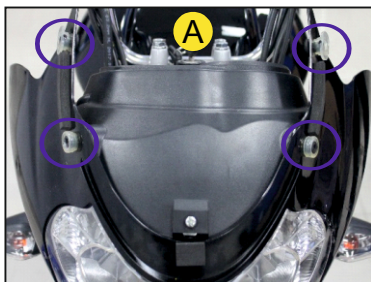
Electricals



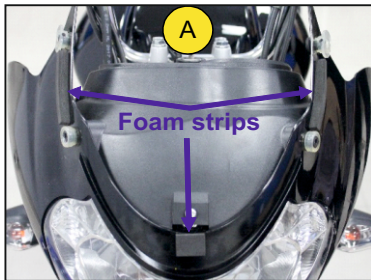
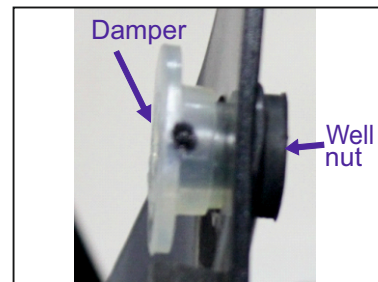
Important SOP

Wind shield (Visor) Replacement

- Remove wind shield mounting screws (Torque value : 0.14 – 0.16 Kg.m) with plastic washers using phillips head screw driver & take out wind shield.

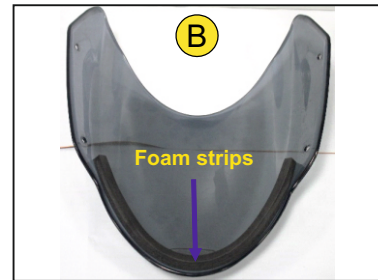


- Ensure that 4 nos well nuts & 4 nos dampers shown in photograph A are in good condition. Replace them with new one if found cut / damaged.

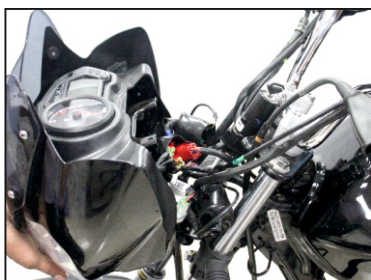
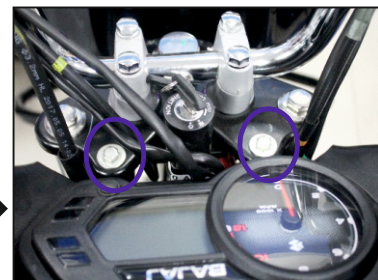


- Ensure that 3 nos foam strips shown in photograph A & 1 nos foam strips as shown in photograph B are in good condition. Replace them with new one if found cut / damaged.

Note :- While refitment, ensure the tightness of screws to avoid rattling noise.

**Bulb Headlight Replacement**

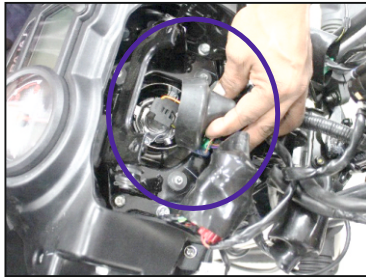
- Remove headlight assembly mounting bracket –
- Bottom bolt with metal washer using 8 mm spanner holding nut with 10 mm spanner.
- Top side 2 nos. bolt with metal washer using 10 mm spanner.



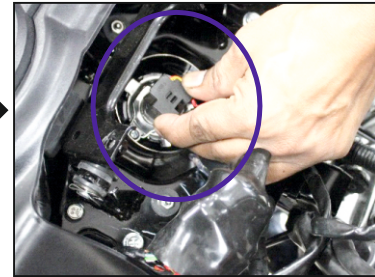
- Take out headlight assembly.



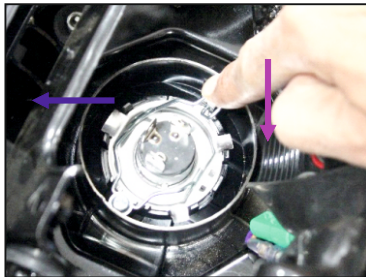
Important SOP



- Pull out dust cap.



- Remove headlight bulb coupler.



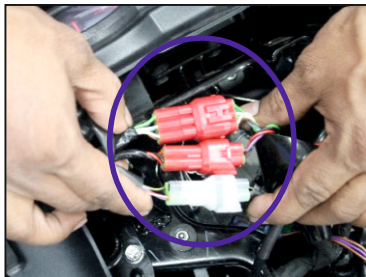
- Press bulb holding clip as shown by pink arrow & take out clip as per blue arrow.



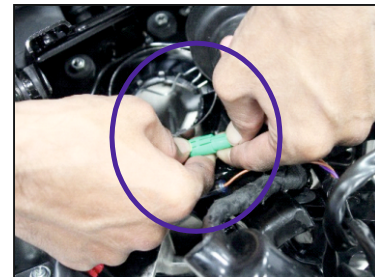
- Take out headlight bulb.

After fitment of all removed parts, adjust headlight focus as per SOP.

Flap Speedometer & Speedometer Assembly Replacement



- Remove headlight bulb.



- Pull out rubber bellow, remove speedometer couplers & DRL couplers.



- Take out headlight assembly.



- Remove wind shield (visor).

Also check dampers & foam strips condition as explained in wind shield replacement SOP.



- Remove speedo flap mounting -

- Front side screw (1 nos) with plastic washer using phillips head screw driver.

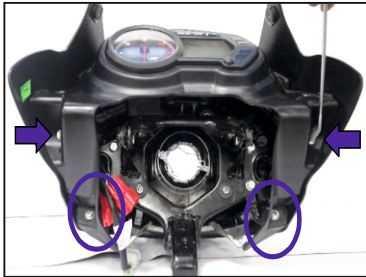
- Top side screws (2 nos) with plastic washer using phillips head / Minus screw driver.



Electricals



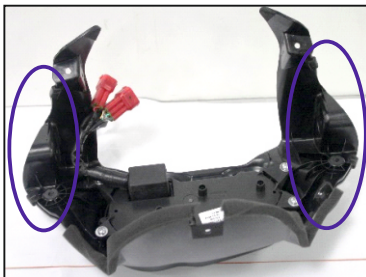
Important SOP



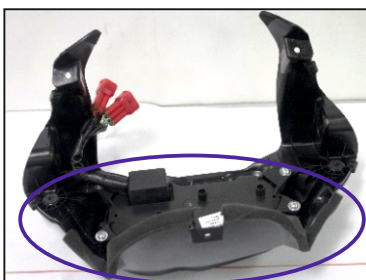
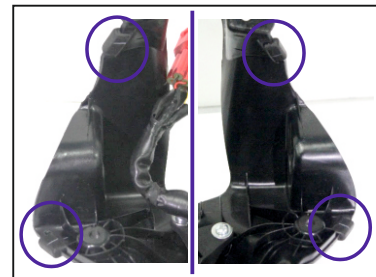
- LH & RH Side bolts (2 nos) with 10 mm spanner as shown by blue arrows.
- Bottom side screws (2 nos) with metal washer using phillips head / Minus screw driver as shown by blue circles.



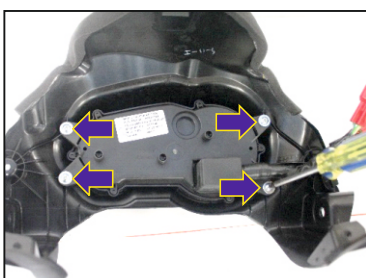
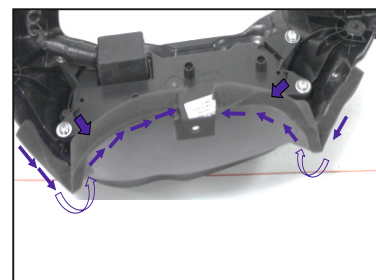
- Take out flap speedometer along with speedometer assembly.



- Ensure that beading strips (4 nos) on speedo flaps are in good condition. Replace with new one if found cut / damaged.



- Ensure that foam strip (2 nos) on speedo flaps are in good condition. Replace with new one if found cut / damaged / Permanent set



- Remove speedometer mounting screws (4 nos.) with metal washers using phillips head screw driver & take out speedometer assembly from flap speedometer.

Note :- While refitment, ensure the tightness of screws & nut - bolts to avoid rattling noise.



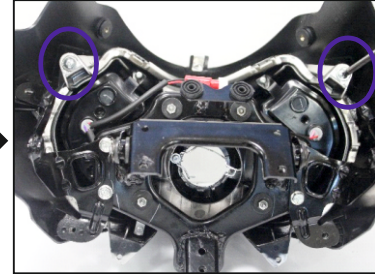


Important SOP

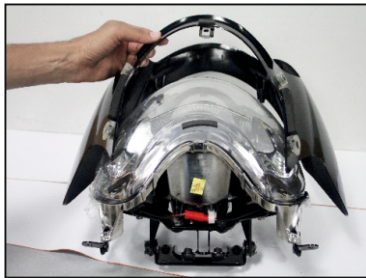
Headlight Fairing / Headlight with DRL / Headlight Mounting Bracket Replacement



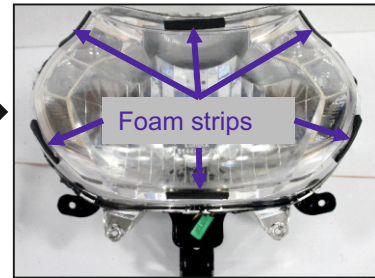
- Remove flap speedometer along with speedometer assembly.



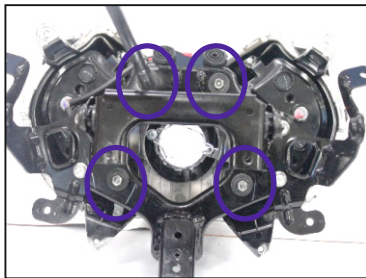
- Remove headlight fairing mounting screws (2 nos) with metal washer using phillips head screw driver.



- Take out headlight fairing.



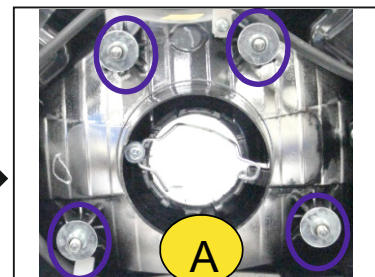
- Ensure that foam strips (6 nos) on headlight are in good condition. Replace with new one if found cut / damaged / permanent set.



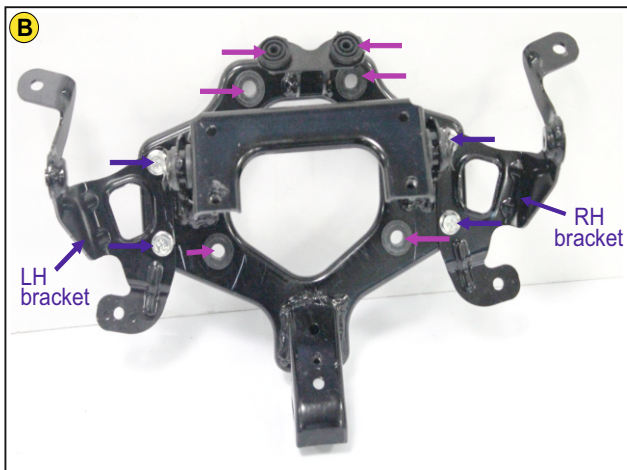
- Remove headlight mounting nuts (4 nos.) with metal washer using 8 mm spanner.



- Separate out Take out headlight assembly mounting bracket & headlight assembly with DRL.



- Take out collars (4 nos.) as shown in photograph - A.



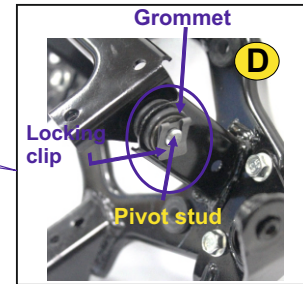
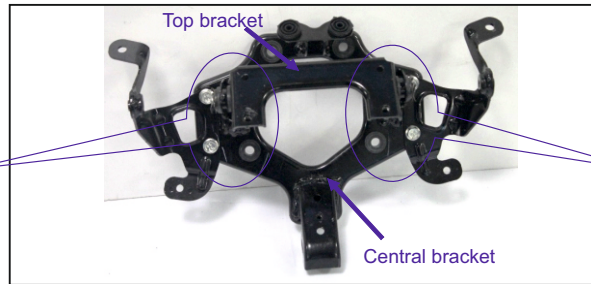
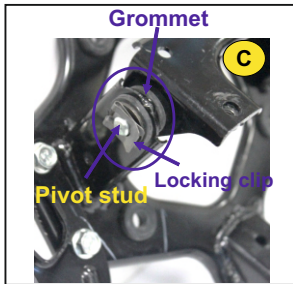
- Ensure that grommets (6 nos) as shown in photograph - B by pink arrow are in good condition. Replace with new one if found cut / damaged

- Remove LH & RH Side bracket mounting bolts (2 nos - each shown by blue arrows in photograph-B) Torque value : 0.31 - 0.42 Kg.m) using 10 mm spanner & take out LH & RH side bracket.

Electricals



Important SOP



- Remove Top bracket pivot stud locking clip with plastic washer using small screw driver as shown in photograph – C, D & E.

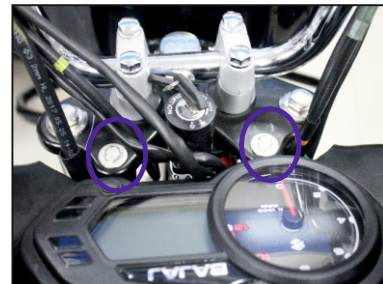
Ensure that grommets (2 nos) as shown in photograph - C & D are in good condition. Replace with new one if found cut / damaged.

- Take out pivot studs & top bracket.

Note :- While refitment, ensure the tightness of screws & nut - bolts to avoid rattling noise.

Harness Headlight Replacement

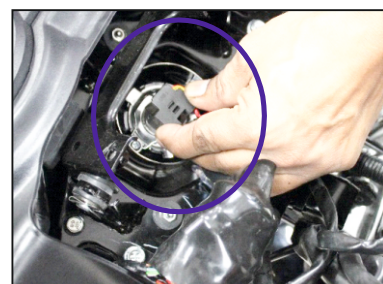
- Remove headlight assembly mounting bracket –
- Bottom bolt with metal washer using 8 mm spanner holding nut with 10 mm spanner
- Top side 2 nos bolt with metal washer using 10 mm spanner.



- Take out headlight assembly.

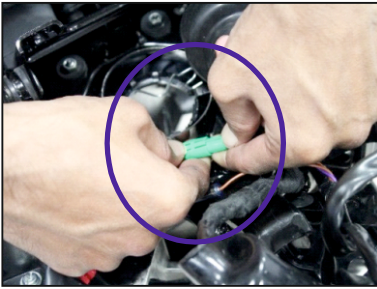


- Pull out dust cap.
- Remove headlight bulb coupler.

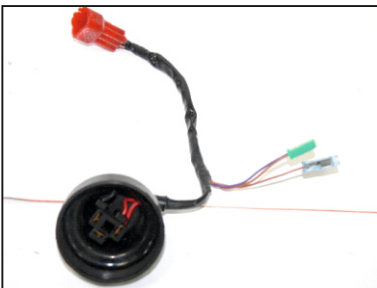




Important SOP



- Remove DRL couplers & harness headlight coupler.



- Take out harness headlight.

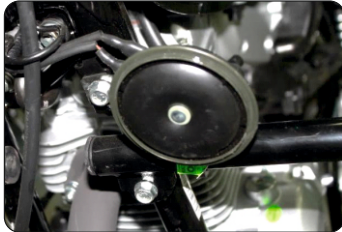
Electricals



Dos & Don'ts

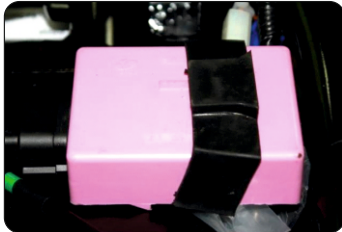
Dos
Don'ts

Horn



- Adjust horn sound by rotating the Phillips screw in the direction of arrow provided on horn.
- Never adjust the nut on horn cap side and bracket end (horn back side) as it will result in horn malfunctioning & failure.
- Do not remove silicon sealant from adjustment screw as it will result in water entry inside the horn.

Ignition System



- Replace spark plugs at every 30,000 kms.
- Ensure that PVC cap on magneto and CDI coupler are intact.
- Grease used in CDI and magneto coupler is in place.
- Do not replace spark plug by non recommended type (different heat range).
- Do not remove grease from CDI and magneto coupler as it is provided for rust prevention.

Switches

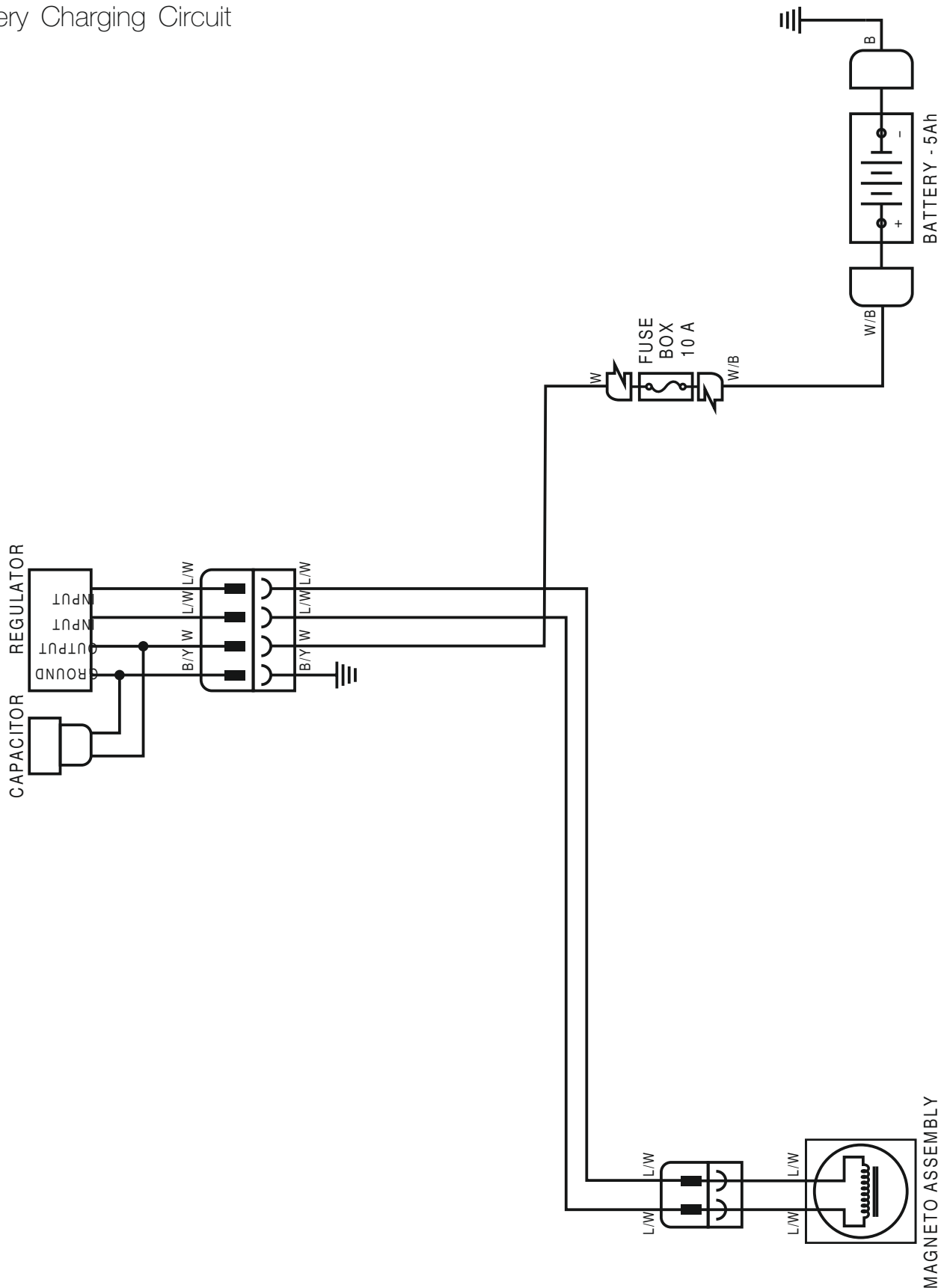


- After washing the vehicle ensure to apply dry air on switches before operation.
- Ensure that grommets provided on clutch switch, front brake switch and rear brake switch are intact.
- Do not apply direct pressurized water jet on control switches.
- Do not lubricate electrical switches by oil or grease.
- Do not over tighten the switch mounting screw.



Electrical Circuit Diagrams

Battery Charging Circuit

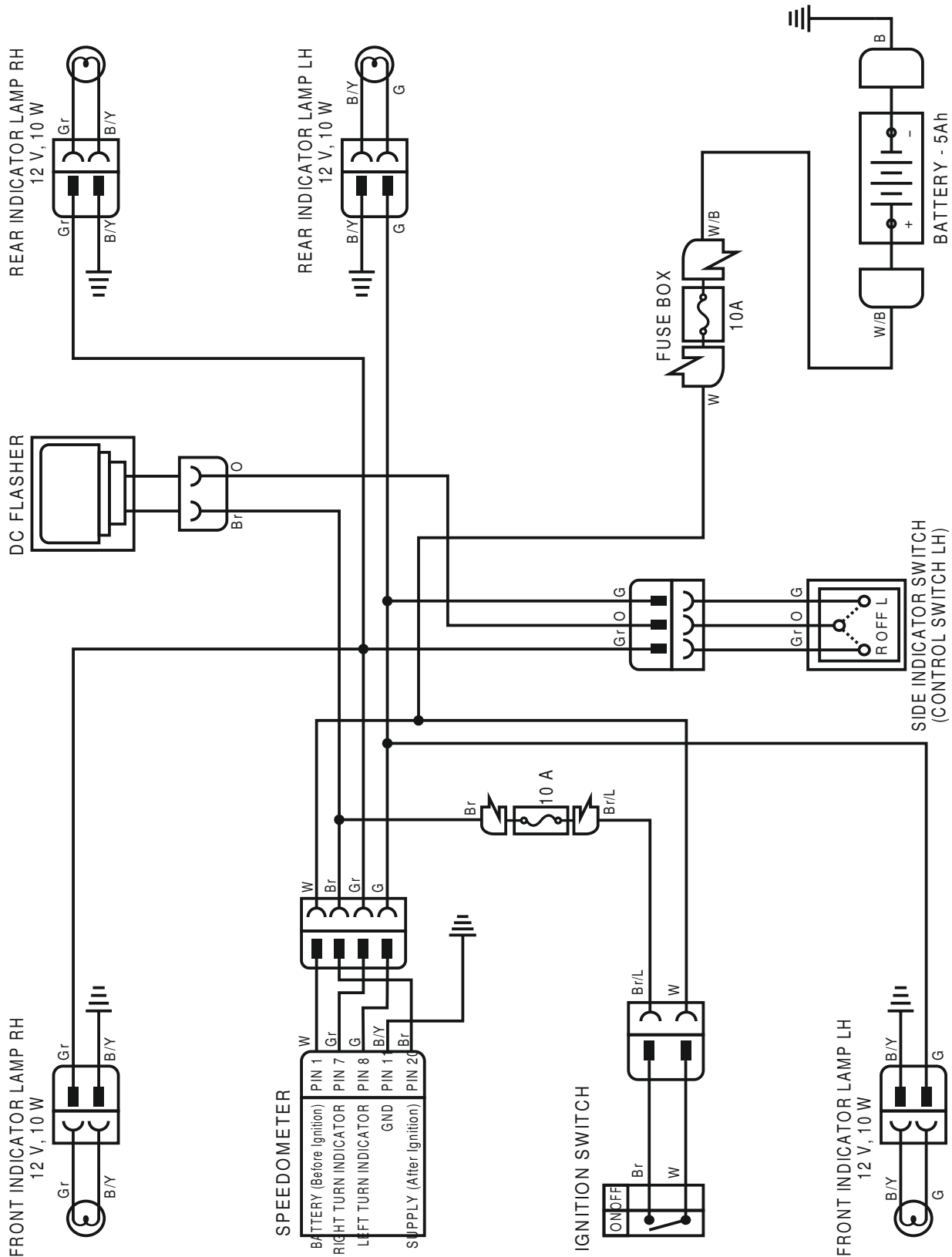


Electricals



Electrical Circuit Diagrams

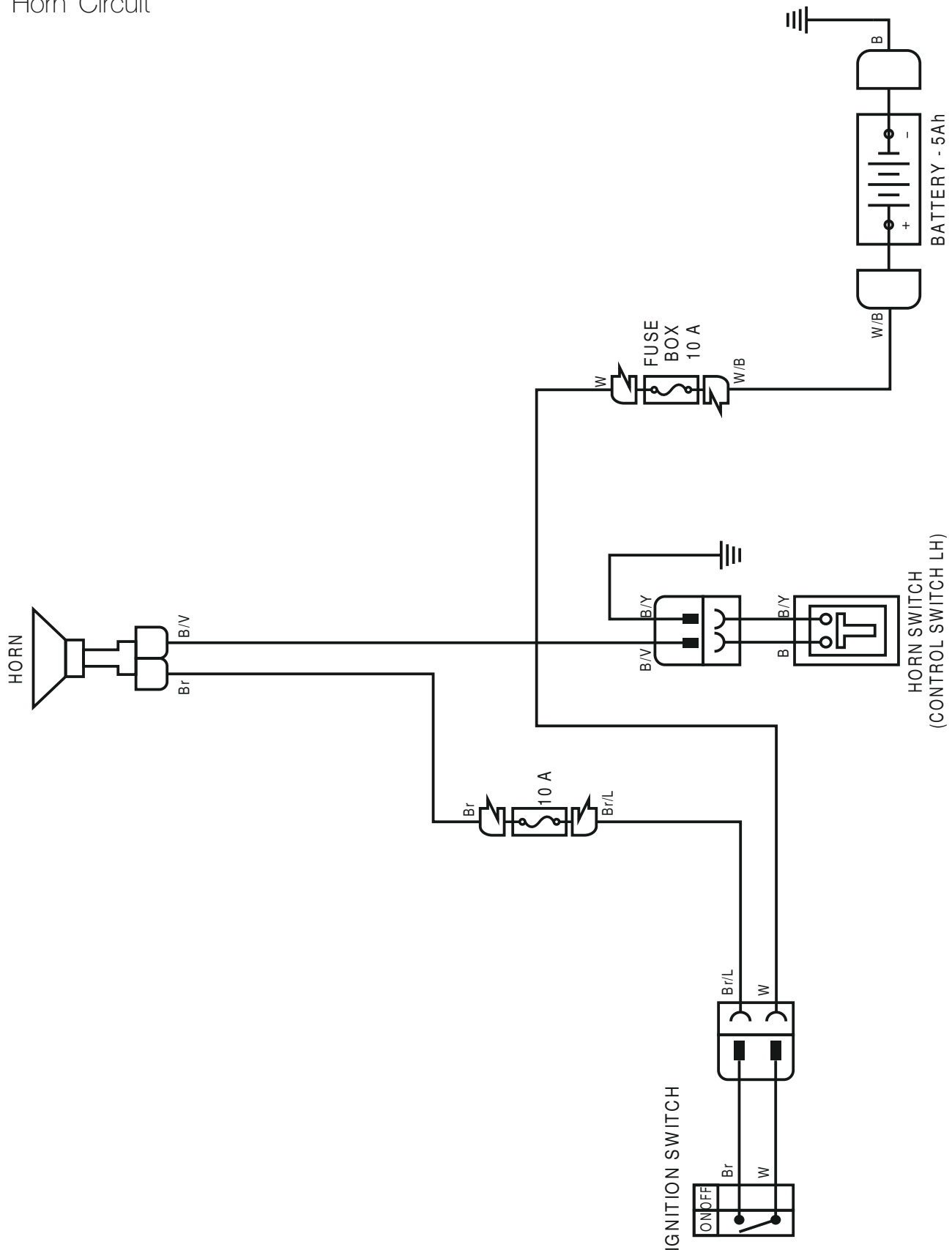
Side Indicator Circuit





Electrical Circuit Diagrams

Horn Circuit

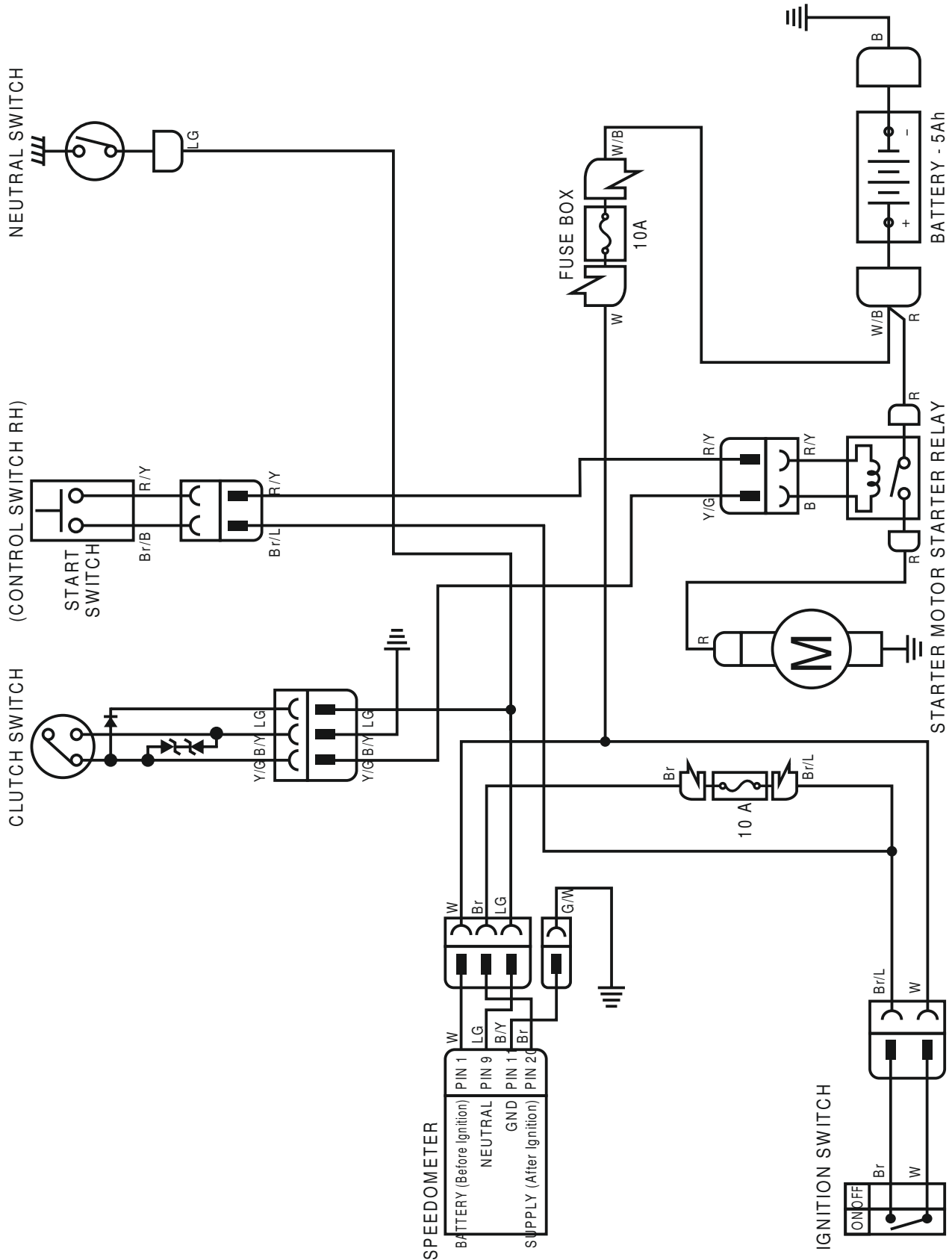


Electricals



Electrical Circuit Diagrams

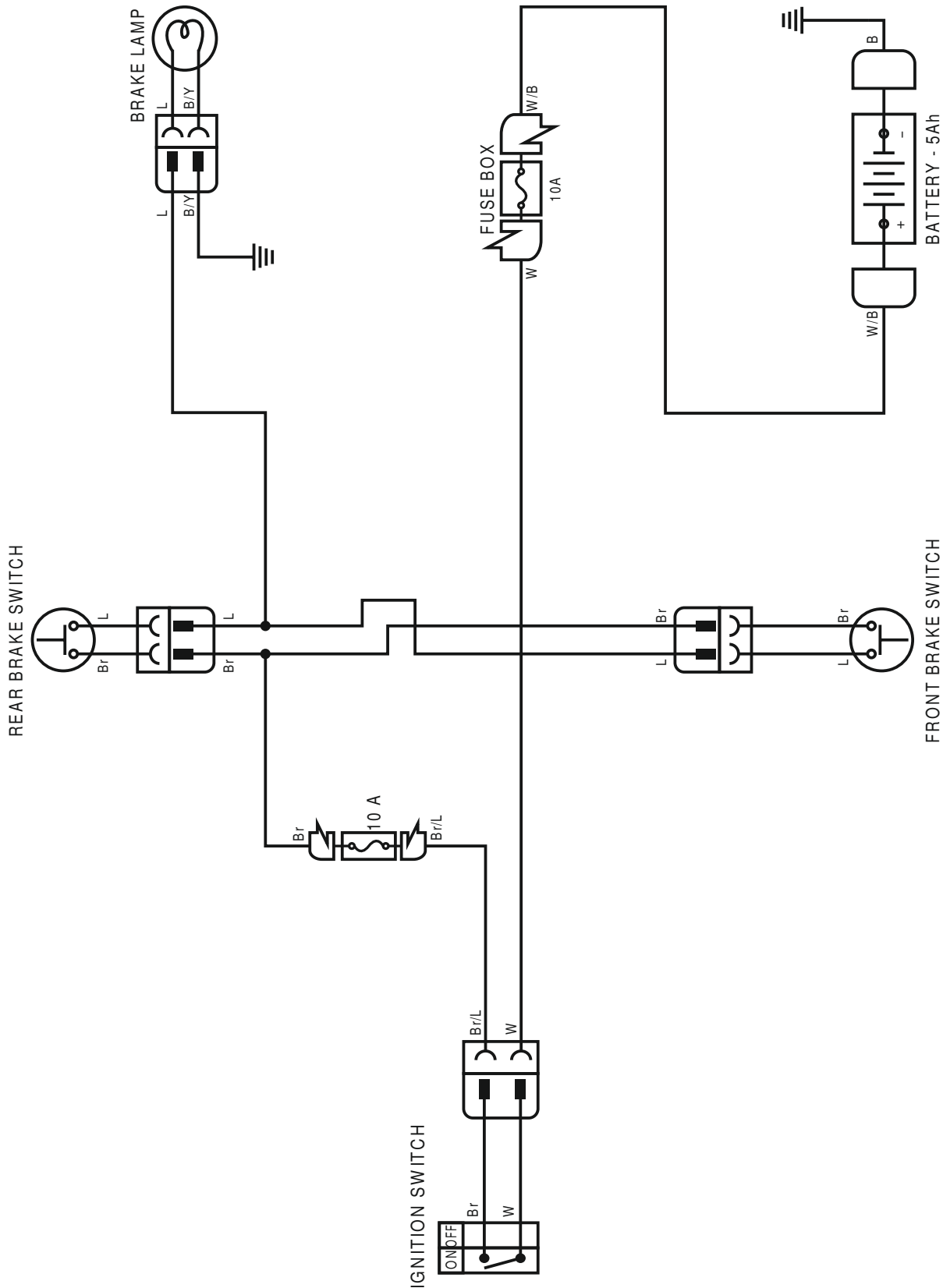
Starter Motor Circuit





Electrical Circuit Diagrams

Brake Lamp Circuit

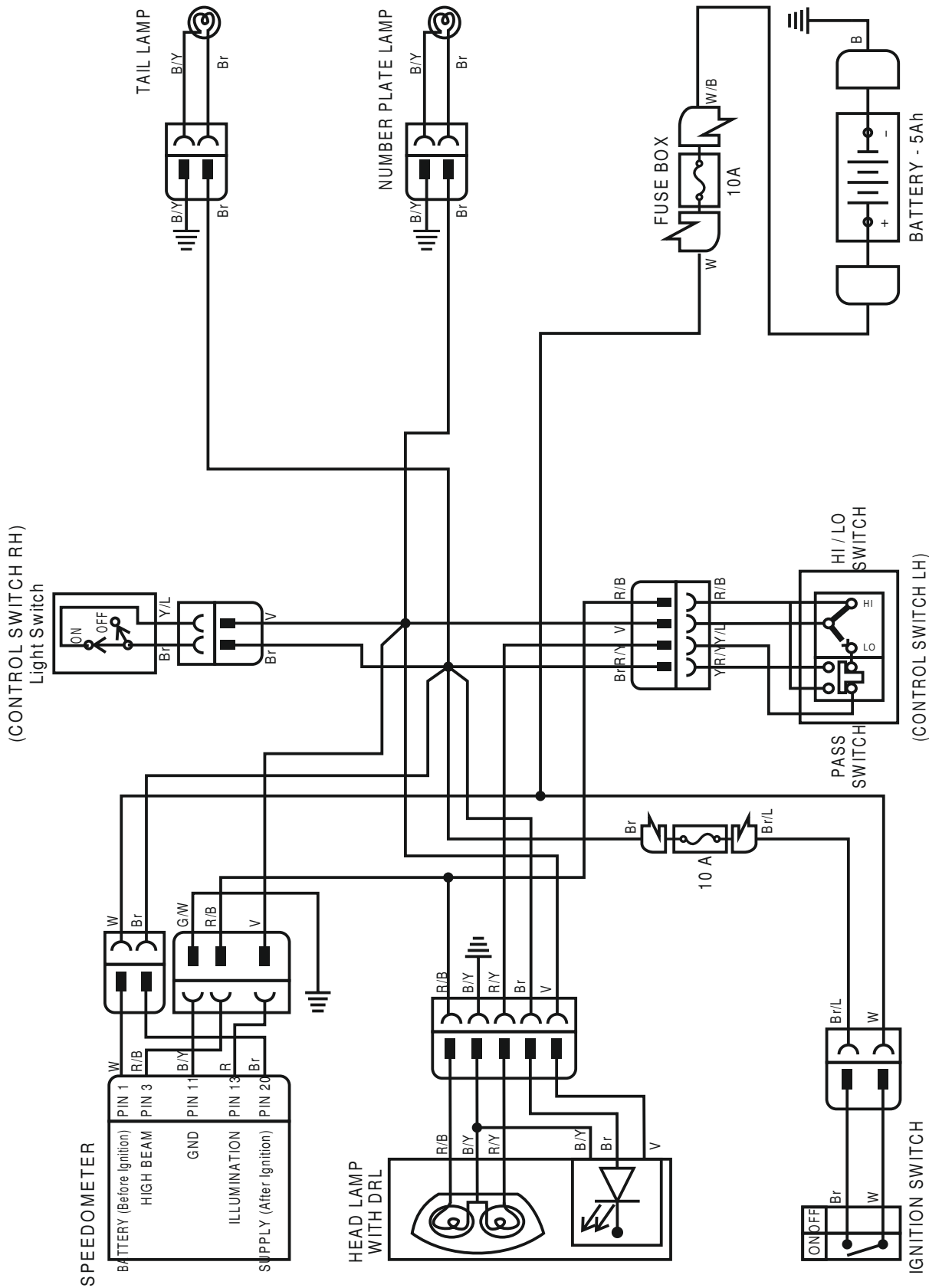


Electricals



Electrical Circuit Diagrams

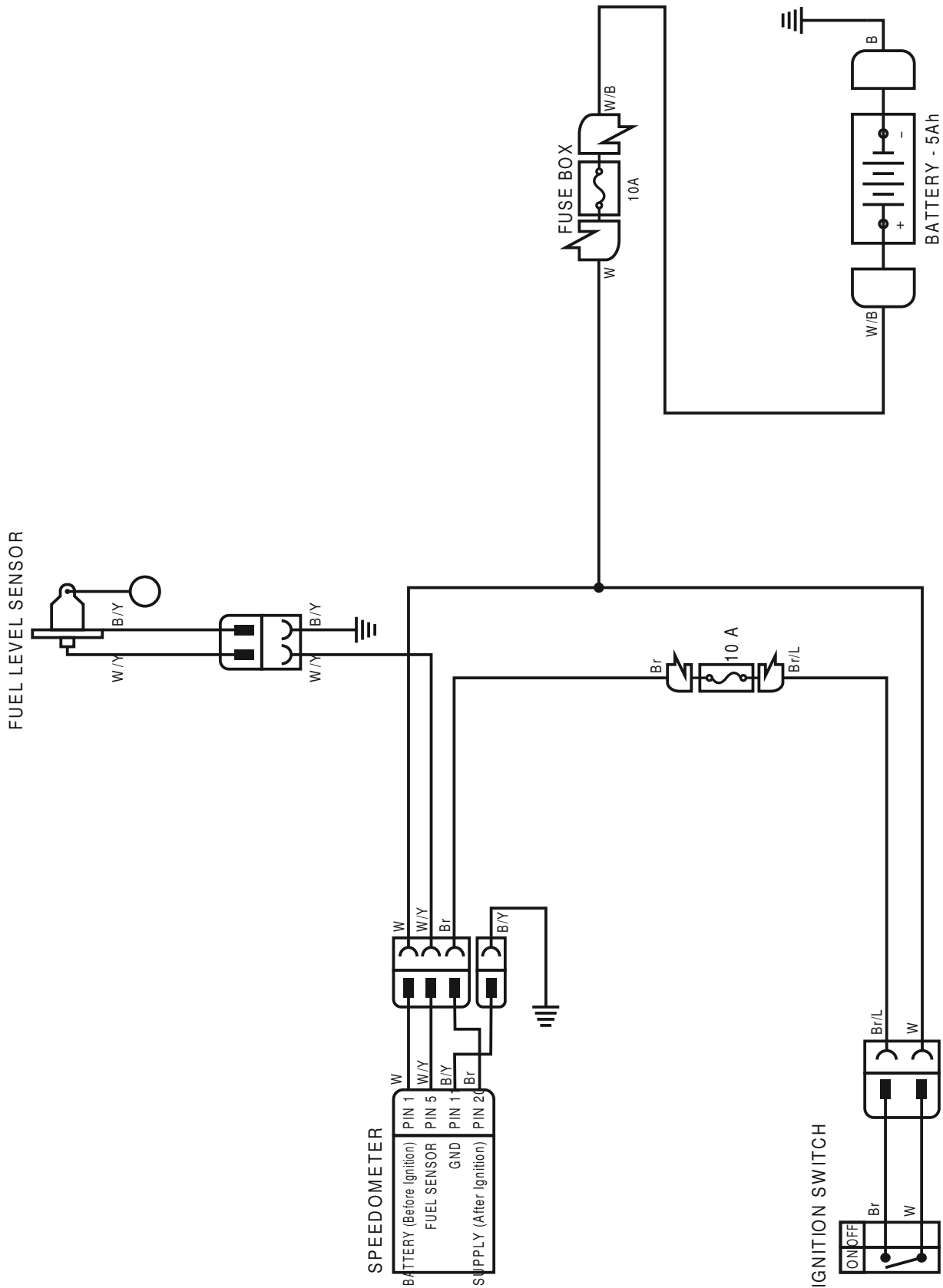
Lighting Circuit with DRL





Electrical Circuit Diagrams

Fuel Meter Circuit

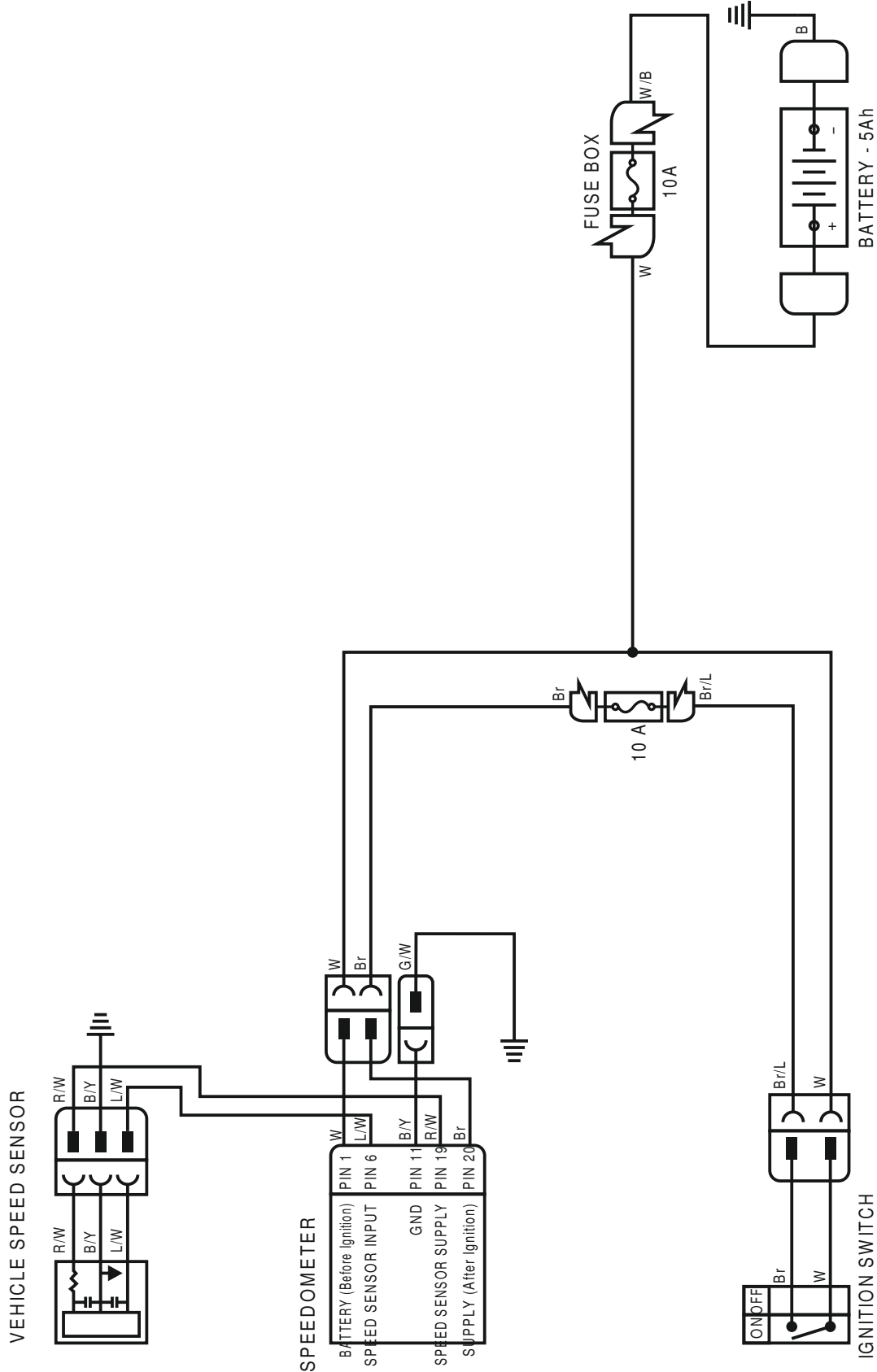


Electricals



Electrical Circuit Diagrams

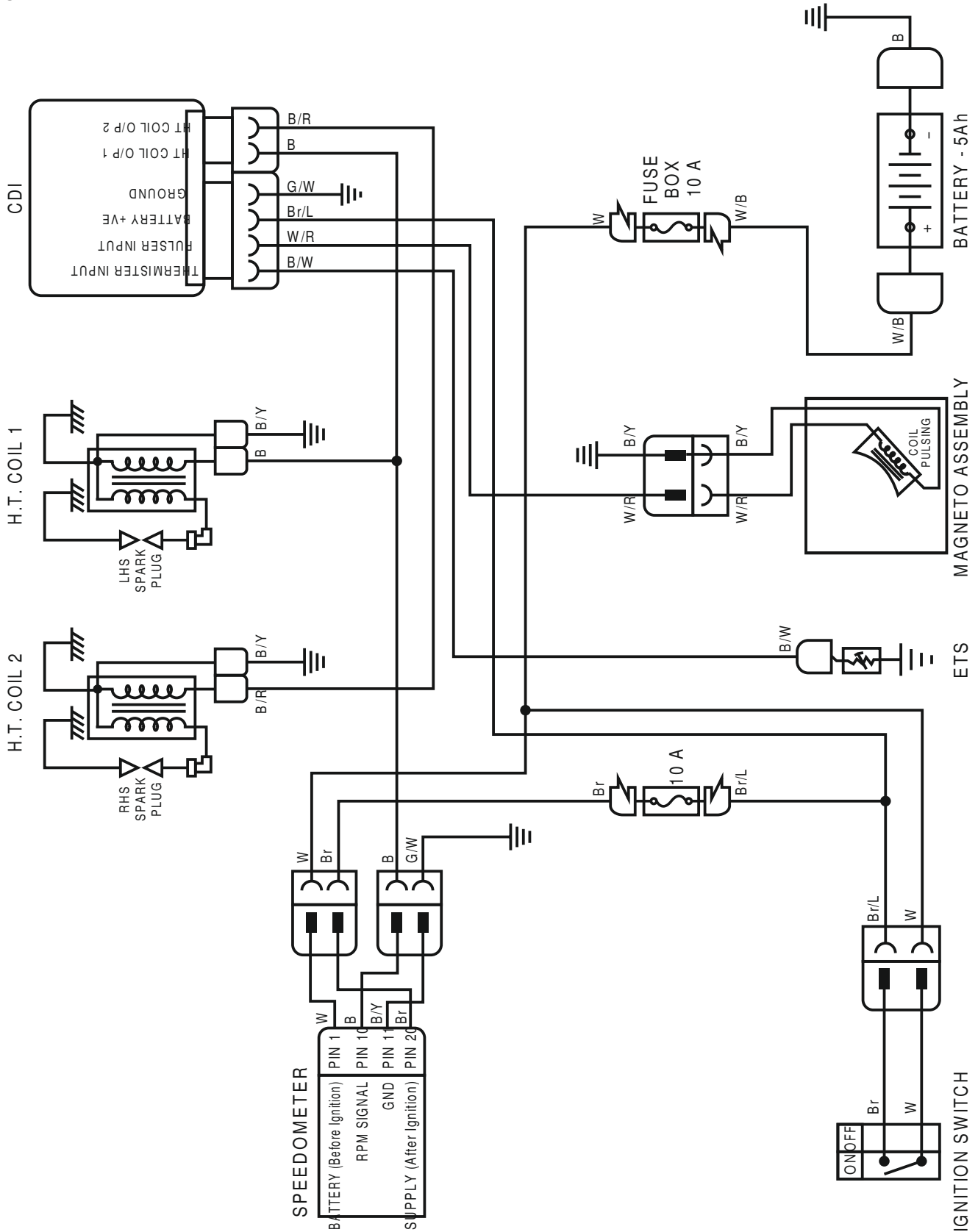
Vehicle Speed Sensor Circuit





Electrical Circuit Diagrams

Ignition Circuit



Electricals

Notes



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