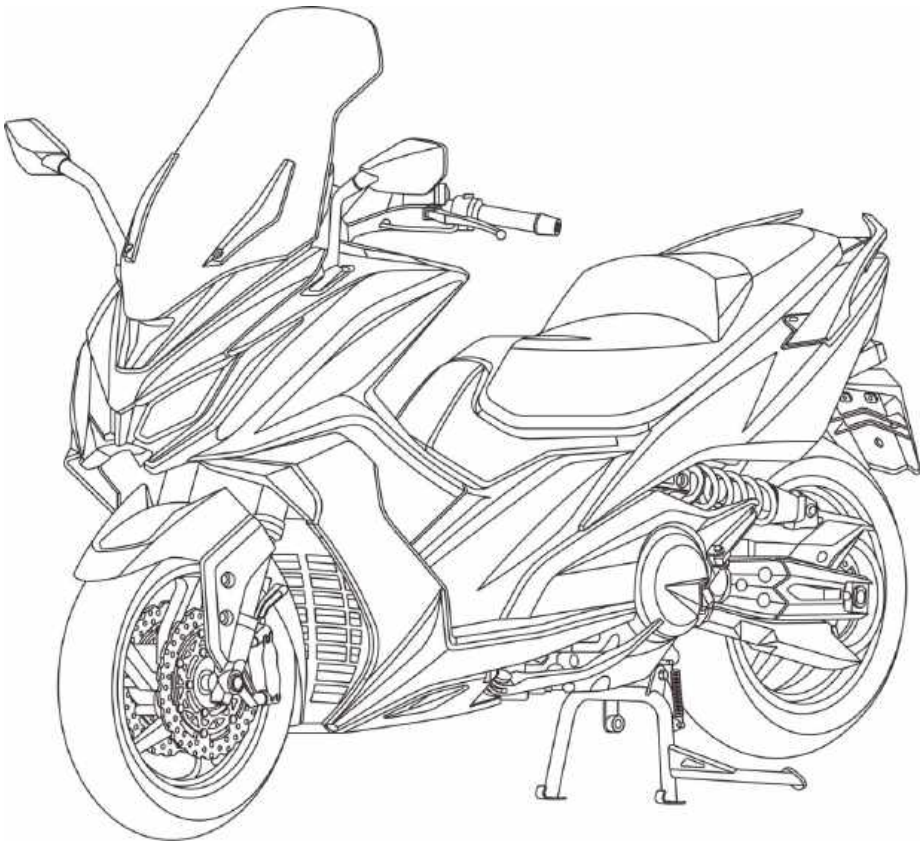
KYMCO AK 550 Service Manual



Using this manual

This manual has been designed to assist trained mechanics in servicing the models listed above. If you do not have the proper training or tools to perform a particular task it is best if you seek out a service professional.

This manual was written using the latest information available at the time of publication. Illustrations in this manual are shown to help you with the basics of performing the jobs listed. The pictures in this manual may not depict the actual vehicle you're working on, however the procedures will be similar.

Inexperienced technicians without the correct tools and knowledge may not be able to perform these jobs as intended. Caution needs to be taken for the vehicle and its operator as serious injury can occur. Always read a procedure in its entirety before attempting any repairs.

While the instructions, photographs and illustrations in this manual have been reviewed for accuracy it is up to the individual performing the procedures to use good judgement when performing any procedures described. Every precaution has been taken in the manufacture of this manual however the publisher assumes no responsibility for errors and omissions. Furthermore, no liability or responsibility is assumed for damages to property or injury to persons resulting from the use of the information contained in this guide. Use of this information to perform service procedures is done entirely at your own risk.

1. Quick Reference

2.Periodic Maintenance

3.External Components

4.Engine

5.Cooling System

6.Fuel Injection System

7.CVT Continuously Variable Transmission

8.Final Drive

9.Electrical Systems

This chapter covers the location and servicing of the electrical systems for the KYMCO AK 550 model.

10.Brakes

11.Steering

12.Front Suspension

13.Rear Suspension

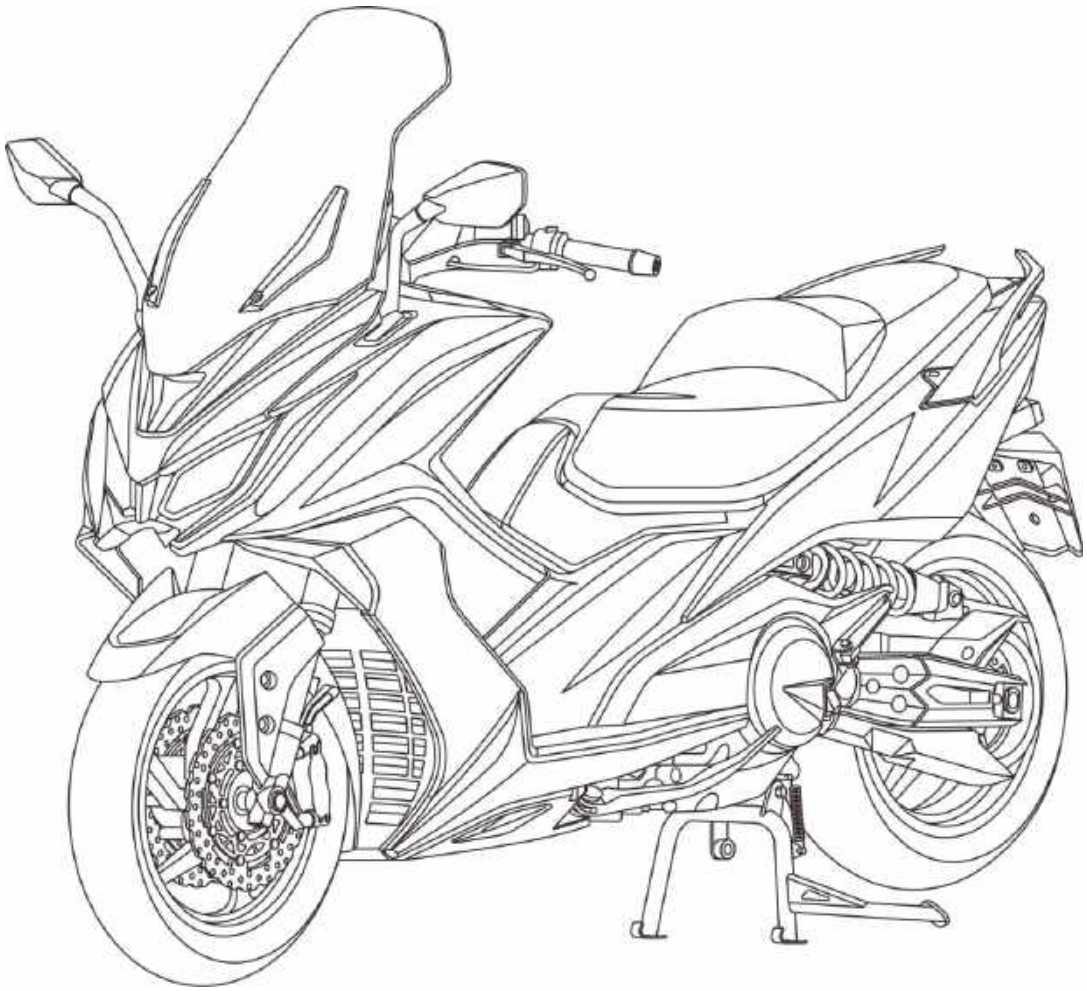
14.Wheels

This chapter covers the location and servicing of the wheels for the KYMCO AK 550 model.

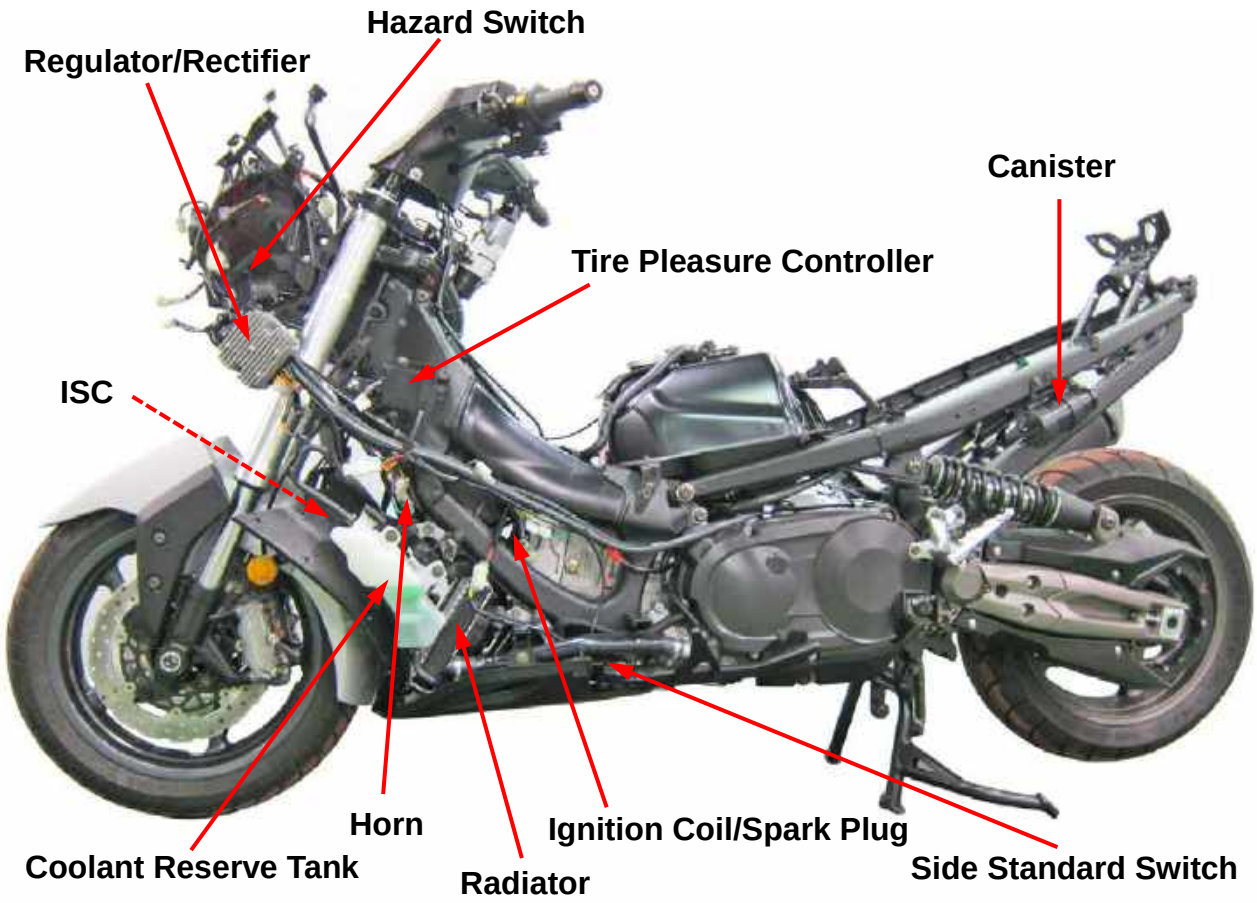
15.EEC SYSTEM

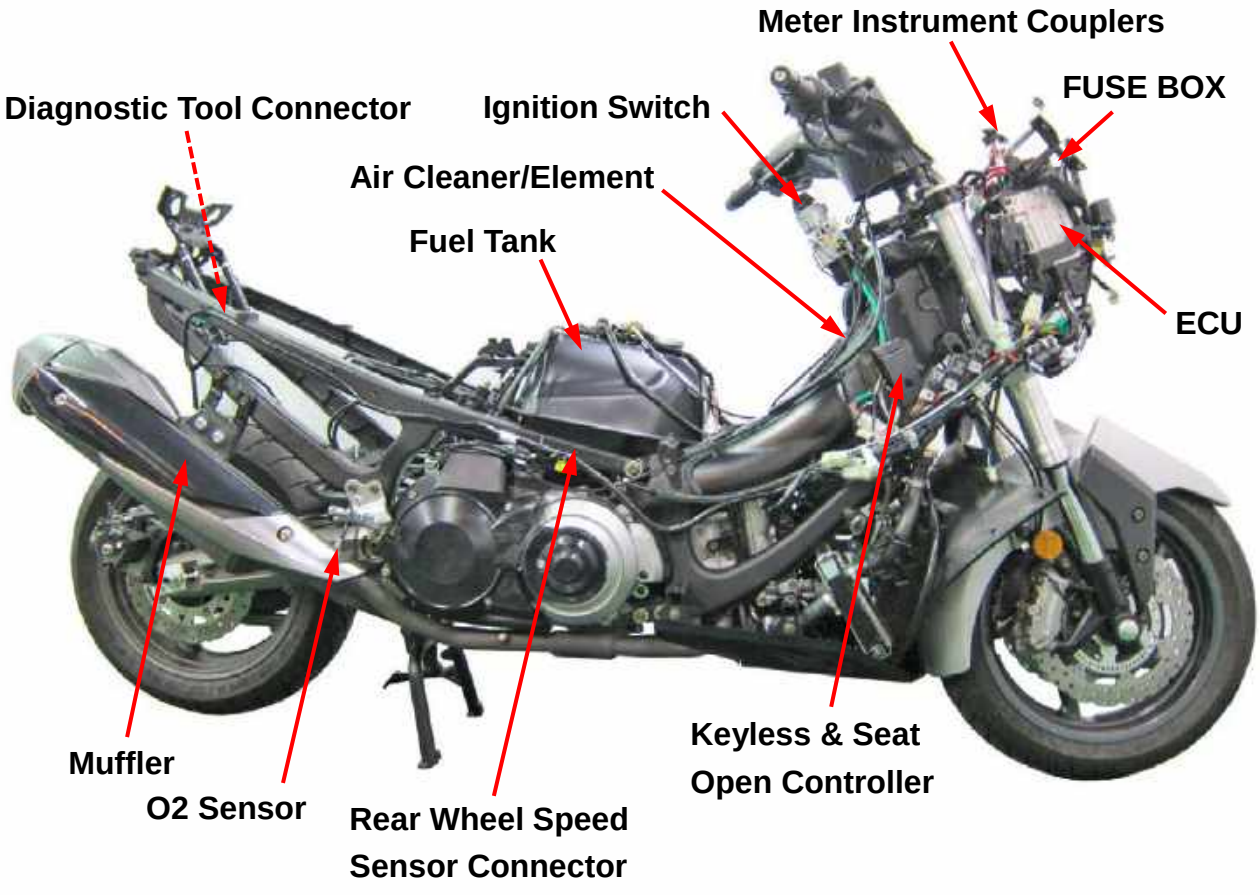
1. Quick Reference

This chapter provides a quick reference source of technical specifications and information for KYMCO AK 550 model.

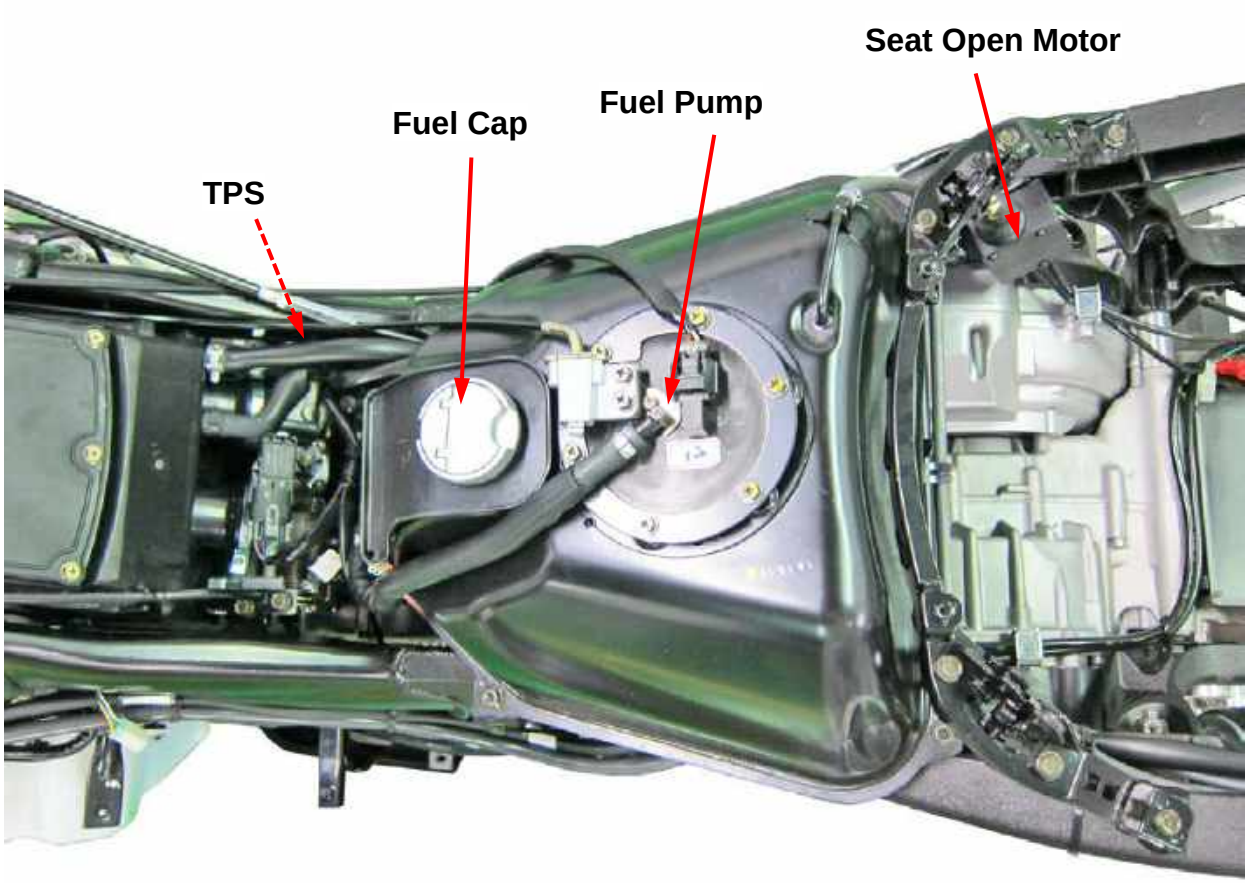


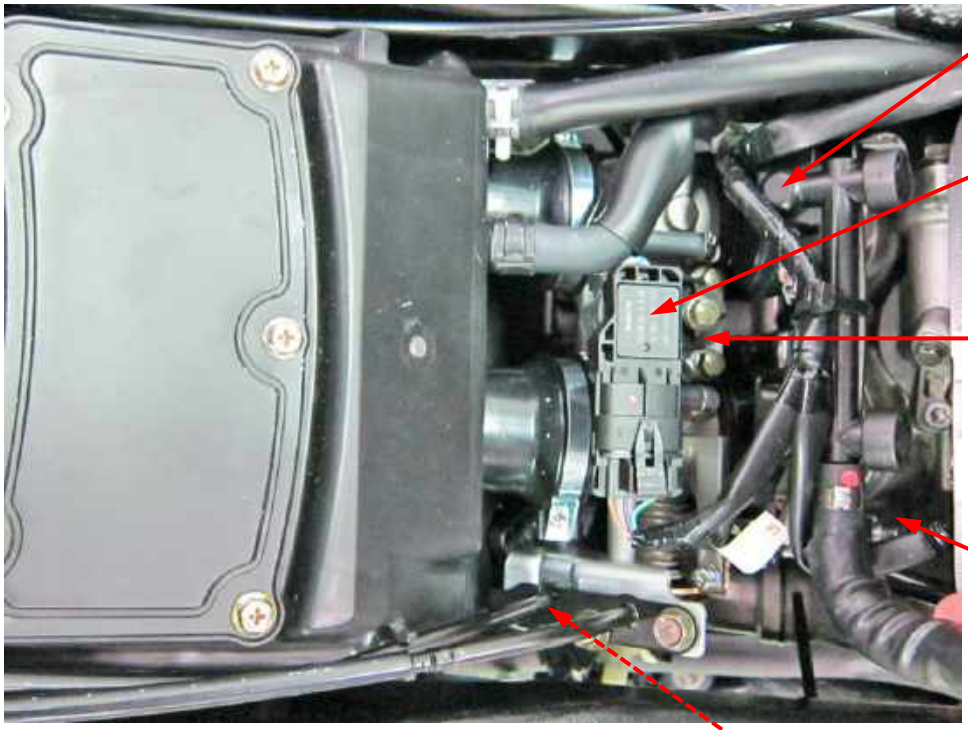
Component Location



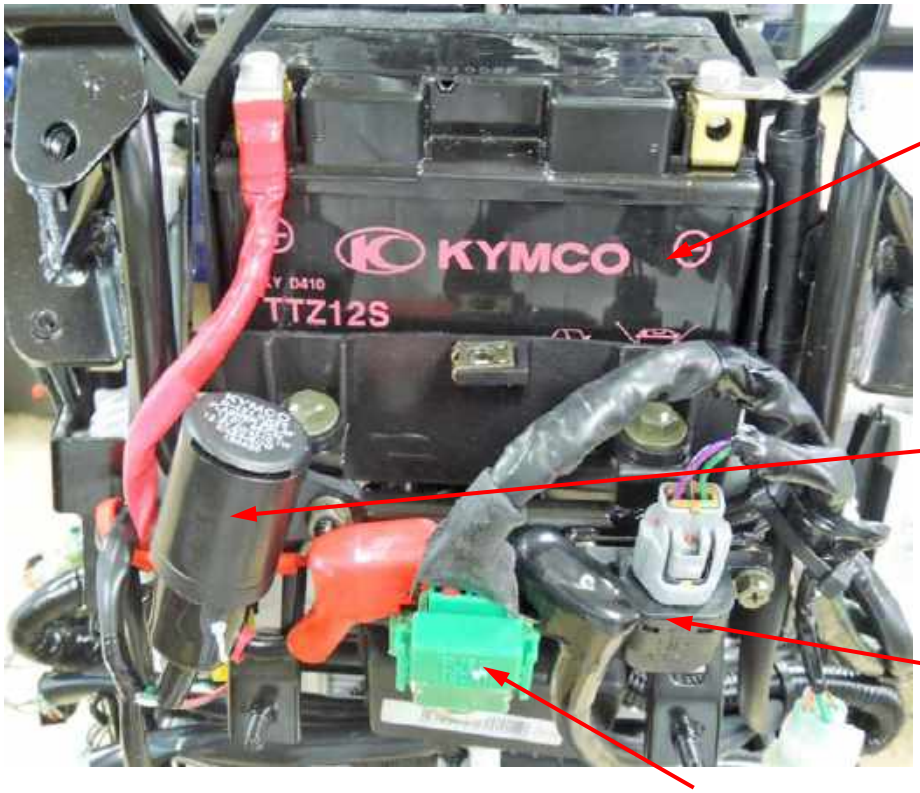


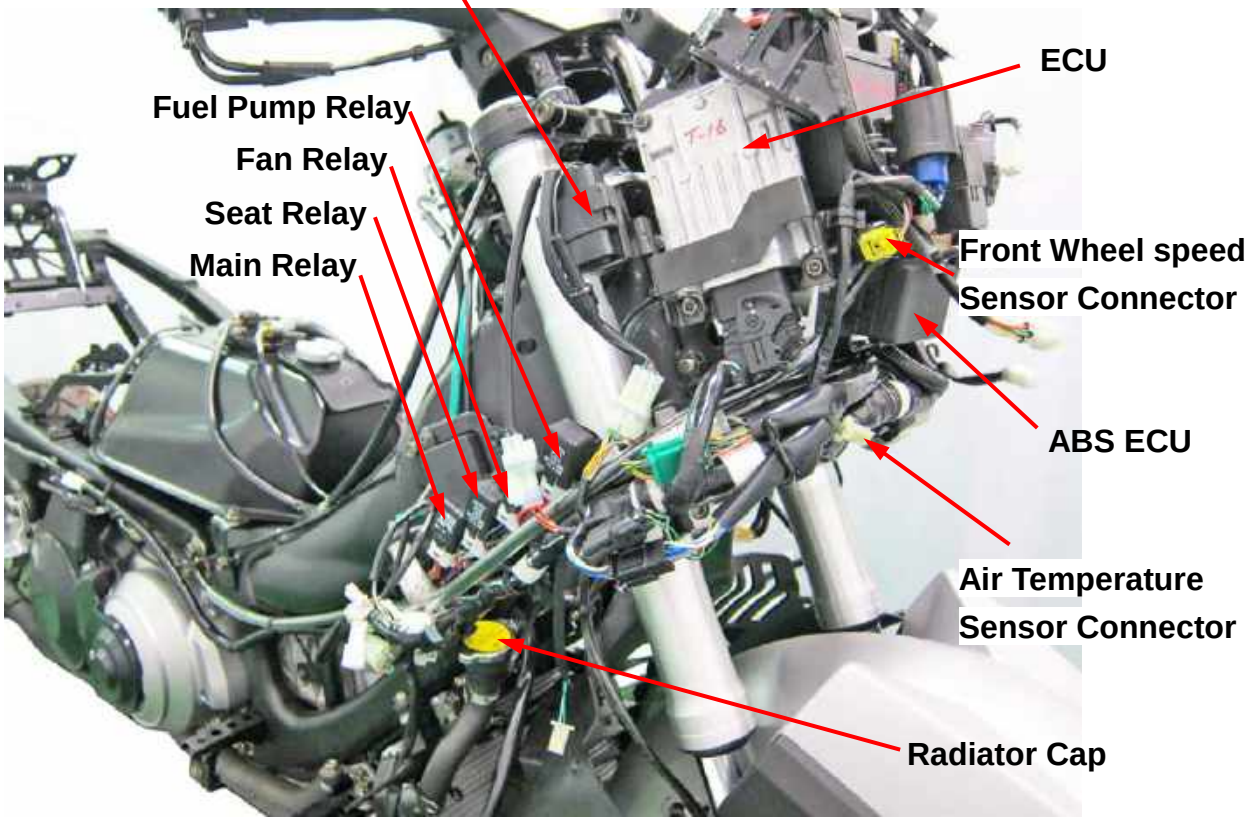
Component Location





Component Location





Special Tools

NO.	CODE	NAME	Illustration
E039	A120 E00039	CYLINDER COMPRESSION GAUAGE	
E048	A120 E00048	FUEL PRESSURE GAUAGE	
E053	A120 E00098	CLUTCH SPRING COMPRESSOR(E053*E028)	
E056	A120 E00017	UNIVERSAL HOLDER	
E058	A120 E00021	DRIVE PULLEY HOLDER	
E064	A120 E00014	OIL SEAL & BEARING INSTALLER	
E084	A120 E00084	FLYWHEEL PULLER	
E085	A120 E00085	INJECTOR CLEANER	
E090	A120 E00090	WIRES INJECTOR CONNECTOR	

NO.	CODE	NAME	Illustration
E093	A120 E00093	BEARING PULLER	
F002	A120 F00002	STEERING STEM LOCK NUT WRENCH	
F023	A120 F00023	STEERING STEM TOP THREAD WRENCH	
F030	A120 F00030	BAND REMOVER/INSTALLER	
F031	A120 F00031	PLIERS FUEL PIPE	
F032	A120 F00032	ELECTRIC REPAIR KIT	
F033	A120 F00033	DIGITAL ELECTRIC GAUGE	
F034	A120 F00034	VACUUM PUMP	
F035	A120 F00035	RADIATOR PRESSURE GAUAGE	
F038	A120 F00038	REAR WHEEL HUB & DISK REMOVER	

KYMCO AK 550 Specifications

General Information

Name (Model Code)		AK 550 (LGC6)
Overall length (mm)		2165±20
Overall width (mm)		795±20
Overall height (mm)		1400±20
Wheel base (mm)		1580±10
Engine type		4 stroke DOHC
Displacement (cc)		550
Fuel recommended		90 # nonleaded gasoline
Curb weight (kg)	Front wheel	110±4
	Rear wheel	116±4
	Total	226±4
Max. weight capacity (kg)	Front wheel	177
	Rear wheel	218
	Total	395
Tires	Front wheel	120/70-R15
	Rear wheel	160/60-R15
Ground clearance (mm)		140
Performance	Braking distance (m)	12.3m / 50 km/hr
	Min. turning radius (m)	2.7

Engine	Starting system			Starting motor
	Type			Gasoline, 4-stroke
	Cylinder arrangement			TWIN CYLINDER
	Combustion chamber type			Semi-sphere
	Valve arrangement			D.O.H.C. Chain drive
	Bore x stroke (mm)			69 x 73.6
	Compression ratio			11
	Compression pressure			19 (kg/cm^2)
	Max. Horsepower			M1:53/7500 PS/rpm M2:46/7000 PS/rpm
	Max. Torque			5.4/6000 Kg-m/rpm
	Valve timing	Intake	Open	16° BTDC
			Close	30° ABDC
		Exhaust	Open	35° BBDC
			Close	3° ATDC
	Valve clearance (cold) (mm)		Intake	0.175
			Exhaust	0.225
	Idle speed (rpm)			1200 ± 100
	Lubrication System	Lubrication type		Forced pressure & Wet pump
		Oil pump type		Inner/outer rotor type
		Oil filter type		Full-flow filtration
		Oil capacity		Exchanging capacity 2.6 liter Total capacity 3.0 liter
	Cooling Type			Liquid cooling

Fuel System	Air cleaner type & No			Paper element, wet
	Fuel capacity			14.5 liter
	Injection	Brand		Synerjet
		Type		Throttle body
		Venturi dia.(mm)		34
		Fuel pump pressure		3 Bar
Electrical Equipment	Ignition System	Type		ECU
		Spark plug	Spec.	CR7E (NGK)
			Gap	0.7~0.8 mm
	Battery Capacity			12V11AH
Power Drive System	Clutch Type			Dry multi-clutch
	Transmission Gear	Type		CVT
		Operation		Automatic centrifugal type
	Reduction Gear	Type		Two-stage reduction
		Reduction ratio	1st	0.8 ~2.4
			2nd	2.659
Moving Device	Tire type			Tubeless
	Wheel material			Aluminum
	Tire pressure Kgf/cm^2		Front	2.35
			Rear	2.7
	Handle turning angle(L/R)		Left	40°
			Right	40°
Brake system type			Front	Disc brake
			Rear	Disc brake
Damping Device	Suspension type		Front	Telescope Upside-down Fork
			Rear	Swing arm
	Shock absorber stroke		Front	120 mm
			Rear	48 mm
Frame type				UNDER BONE

ENGINE		
Throttle grip free play	2 ~ 6 mm	
Spark plug	NGK: CR7E	
Spark plug gap	0.7 mm ~ 0.8 mm	
Valve clearance	IN: 0.175 mm	EX: 0.225 mm
Idle speed	1200 ± 100 rpm	
Cylinder compression ratio	11 ± 0.2 kg/cm^2	
Ignition timing	ECU	
Coolant type	Coolant type	
Engine oil capacity:		
At disassembly	3 Liter	
At change	2.6 Liter	

Coolant capacity:	
Radiator with cool coolant	1200 cc
Reserve tank	300 cc

Cooling System

Radiator cap relief pressure		0.9 ± 0.15 kg/cm^2 (12.8 ± 2.1 psi)
Thermostat temperature	Begins to open	80-84 °C
	Full-open	95 °C
	Valve lift	5 mm

COOLANT GRAVITY CHART

Temp.℃ / Concentration	0	5	10	15	20	25	30	35	40	45	50
5	1.009	1.009	1.008	1.008	1.007	1.006	1.005	1.003	1.001	0.999	0.997
10	1.018	1.017	1.017	1.016	1.015	1.014	1.013	1.011	1.009	1.007	1.005
15	1.028	1.027	1.026	1.025	1.024	1.022	1.020	1.018	1.016	1.014	1.012
20	1.036	1.035	1.034	1.033	1.031	1.029	1.027	1.025	1.023	1.021	1.019
25	1.045	1.044	1.043	1.042	1.040	1.038	1.036	1.034	1.031	1.028	1.025
30	1.053	1.051	1.051	1.049	1.047	1.045	1.043	1.041	1.038	1.035	1.032
35	1.063	1.062	1.060	1.058	1.056	1.054	1.052	1.049	1.046	1.043	1.040
40	1.072	1.070	1.068	1.066	1.064	1.062	1.059	1.056	1.053	1.050	1.047
45	1.080	1.078	1.076	1.074	1.072	1.069	1.056	1.063	1.062	1.057	1.054
50	1.086	1.084	1.082	1.080	1.077	1.074	1.071	1.068	1.065	1.062	1.059
55	1.095	1.093	1.091	1.088	1.085	1.082	1.079	1.076	1.073	1.070	1.067
60	1.100	1.098	1.095	1.092	1.089	1.086	1.083	1.080	1.077	1.074	1.071

Fuel Injection System Failure Code

Failure Code	Contents	Causes
C0064	Tilt Sensor	Voltage Abnormal
P0031	O2 Sensor Heater	Circuit Voltage Too High
P0032	O2 Sensor Heater	Circuit Voltage Too Low Or Broken Circuit
P0107	T-Map Sensor	Circuit Voltage Too Low Or Broken Circuit
P0108	T-Map Sensor	Circuit Voltage Too High
P0112	T-Map Sensor	Circuit Voltage Too Low Or Broken Circuit
P0113	T-Map Sensor	Circuit Voltage Too High
P0114	T-Map Sensor	Temperature's Variation Too Much
P0117	Engine Temperature Sensor	Circuit Voltage Too Low
P0118	Engine Temperature Sensor	Circuit Voltage Too High Or Broken Circuit
P0119	Engine Temperature Sensor	Temperature's Variation Too Much
P0121	TPS	Abnormal Adapted Value
P0122	TPS	Circuit Voltage Too Low Or Broken Circuit
P0123	TPS	Circuit Voltage Too High
P0131	O2 Sensor	Circuit Voltage Too Low Or Air Leakage
P0132	O2 Sensor	Circuit Voltage Too High
P0171	O2 Correction	O2 Correction Too Much
P0172	O2 Correction	O2 Correction Too Low
P0217	Engine Temperature Sensor	Engine Temperature Too High
P0219	Engine rpm	rpm Too High
P0231	Fuel Pump Relay	Circuit Voltage Too Low Or Broken Circuit
P0232	Fuel Pump Relay	Circuit Voltage Too High
P0261	Injector(Right)	Circuit Voltage Too Low Or Broken Circuit
P0262	Injector(Right)	Circuit Voltage Too High
P0264	Injector(Left)	Circuit Voltage Too Low Or Broken Circuit
P0265	Injector(Left)	Circuit Voltage Too High
P0335	CPS	CPS Malfuction Or Breaken Circuit
P0484	Fan Switch	Circuit Voltage Too High
P0485	Fan Switch	Circuit Voltage Too Low Or Broken Circuit
P0501	Speed(Front Wheel)	No Signal From Meter To ECU
P0508	ISC(Stepper Motor)	Circuit Voltage Too Low Or Broken Circuit
P0509	ISC(Stepper Motor)	Circuit Voltage Too High
P0560	Battery Voltage (KEY)	Voltage Too Hight/Low Or Broken Circuit
P0561	Battery Voltage (Main-Relay)	Voltage Too Hight/Low Or Broken Circuit
P0615	Starter Relay	Broken Circuit
P0616	Starter Relay	Circuit Voltage Too Low
P0617	Starter Relay	Circuit Voltage Too High
P0642	Sensor Voltage	Sensor Voltage Too Low
P0643	Sensor Voltage	Sensor Voltage Too High
P2300	Ignition Coil	Circuit Voltage Too Low Or Broken Circuit
P2301	Ignition Coil	Circuit Voltage Too High
P2303	Ignition Coil	Circuit Voltage Too Low Or Broken Circuit
P2304	Ignition Coil	Circuit Voltage Too High
P263A	MIL(Malfuction Indicated Light)	Circuit Voltage Too Low Or Broken Circuit
P263B	MIL(Malfuction Indicated Light)	Circuit Voltage Too High

Electrical

Item			Standard
Battery	Capacity		12V 11AH
	Voltage (20°C)	Fully charged	13.2V
		Insufficient charged	< 12.3V
	Charging current		1.1A* 5 - 10H

Item		Standard
Spark plug	Standard type	NGKCR7E
Spark plug gap		0.7 - 0.8 mm
Throttle Position Sensor		3500 - 6500 Ω
Fuel Pump		1.9 Ω approx.
Fuel Injector		10.6~15.9 Ω
Oxygen Sensor (engine warming condition)		6.7 Ω - 9.5 Ω
Crank Position Sensor		100 - 130 Ω
Tilt Switch		0.4V - 1.4V(normal) 3.7V - 4.4V (fall down)

Water temperature sensor resistance	At -20°C/-4°F	28.6 KΩ
	At 40°C/104°F	1.46 KΩ/3.51 KΩ±10%
	At 100°C/212°F	0.176 KΩ

Engine Torque Specifications

NO	ITEM	THREAD SIZE AND TYPE	TORQUE N·m	TORQUE kgf·m	PR VALUES N·m	REMARKS	THREAD DWG. NO.	THREAD DWG. NAME	QTY	SPECIFICATION
1	CYLINDER HEAD	M9x1.25	3rd step: 105°±5°			APPLY OIL	90031-LGC6-E000	BOLT, UBS M9X160	6	NOTE.3
2	CYLINDER HEAD	M6x1.0	9.8~13.7	1.0~1.4	11.8		96001-06130-06	BOLT FLANGE SH 6*130 (G)	2	
3	CYLINDER HEAD	M18x1.5	31.5~38.5	3.2~3.9	35.0		90085-KKE5-E000	BOLT SEALING 18MM	2	
4	THERMOSTART COVER	M6x1.0	9.8~13.7	1.0~1.4	11.8		96008-PRA1-E000	BOLT M6x25-8.8 ZNNIV SI	2	
5	EX PIPE STUD BOLT	M8x1.25	6.9~10.8	0.7~1.1	8.9		90033-KGB4-C000	BOLT STUD 8*40	4	
6	SPARK PLUG	M10x1.0	9.8~13.7	1.0~1.4	11.8		98059-57916-00	SPARK PLUG CR8E	2	
7	CAM HOLDER	M6x1.0	9.8~10.8	0.9~1.1	9.8	APPLY OIL	96014-PRA1-E000	BOLT M6x1x40	16	12200-LGC6-E000 NOTE.6
8	TENSIONER LIFTER	M18x1.0	17.7~21.6	1.8~2.2	19.6		90005-LEH6-E000	BOLT SPECIAL, M18 x 1.0	1	
9	CAM CHAIN TENSIONER PIVOT	SPECIAL BOLT M8x1.25	7.8~11.8	0.8~1.2	9.8	APPLY OIL	14531-KHE7-9000	PIVOT CAM CHAIN TENSIONER	1	
10	HEAD COVER	M6x1.0	9.8~13.7	1.0~1.4	11.8		90027-PUA5-E000	JACK SCREW M6 VALVE COVER	4	
11	DOWN CASE	M8x1.25	18.6~24.6	1.8~2.5	22.6	APPLY OIL	95801-08090-06	BOLT FLANGE 8*90(G)	6	11110A-LGC6-E000
12	DOWN CASE	M6x1.0	9.8~13.7	1.0~1.4	11.8	APPLY OIL	96001-06090-06	BOLT FLANGE, SH 6x90	8	NOTE. 5
13	DOWN CASE	M6x1.0	9.8~13.7	1.0~1.4	11.8	APPLY OIL	96001-06055-06	BOLT FLANGE SH 6*55(G)	4	
14	DOWN CASE	M6x1.0	9.8~13.7	1.0~1.4	11.8	APPLY OIL	96001-06035-06	BOLT FLANGE SH 6*35(G)	8	
15	CONROD	M8x1.0	1st step:5 2nd step:16 3rd step:45°			APPLY OIL 5W-50	13213-LGC6-E000	BOLT CONN ROD	4	13210-LGC6-E000 SIDE CLEARANCE OF CONNECTION ROD TO BE 0.1 TO 0.25mm
16	OIL PUMP	M6x1.0	7.8~11.8	0.8~1.2	9.8		96001-06035-06	BOLT FLANGE SH 6*35(G)	3	
17	STUD BOLT, 10x35	M10x1.25	9.8~13.7	1.0~1.4	11.8	APPLY LOCTITE 2701	90033-LGC6-E000	BOLT STUD 11, 10 x 35	5	
18	ONEWAY CLUTCH	BOLT SOCKET M6x1.0	7.8~11.8	0.8~1.2	9.8	APPLY THREAD LOCK	96600-LDG7-9000	SOCKET BOLT 6x20	6	
19	ACG FLYWHEEL	N.F. M14x1.25	53.9~63.7	5.5~6.5	58.8	APPLY OIL	90201-KHR8-7520-M1	NUT FLANGE 14NM(C)	1	
20	L COVER	M6x1.0	9.8~13.7	1.0~1.4	11.8		96013-LGC6-E000	BOLT M6x1x35	16	
21	PLUG SCREW SECTION FILTER	M22x1.5	7.8~11.8	0.8~1.2	9.8		15161-LGC6-E000	PLUG SCREW SECTION FILTER	2	
22	MISSION CASE R/L	M10x1.25	29.0~39.0	3.0~4.0	34.0	APPLY OIL	94050-10060	NUT FLANGE 10MN(G)	5	NOTE.4
23	MAGNETIC SCREW	M16x1.5	25.2~30.8	2.6~3.1	28.0		11205-PUA5-E000	MAGNETIC SCREW M16*1.5	1	
24	L MISSION CASE	M6x1.0	9.8~13.7	1.0~1.4	11.8		96015-PRA1-E000 96018-PRA1-E000	BOLT M6x1x45 BOLT M6x1x60	13 2	
25	WET CLUTCH	M16x1.0	58.5~71.5	5.9~7.3	65.0	APPLY OIL	90204-LGC6-E000	NUT, FLANGE, M16X1.0	1	
26	COVER,L MISSION	M6x1.0	9.8~13.7	1.0~1.4	11.8		96011-PRA1-E000	BOLT M6x1x30	14	
27	CVT CASE	M8x1.25	17.7~21.6	1.8~2.2	19.7		95701-08025-06	BOLT FLANGE 8x25(G)	5	
28	FRONT CVT PULLEY	M18x1.0	75.0~91.3	7.6~9.3	83.0	APPLY OIL	94050-LKF5-E000	NUT FLANGE 18MM	1	
29	DRIVEN PULLEY	M18x1.0	81.0~99.0	8.3~10.0	90.0	APPLY OIL	94001-LGC6-E000	NUT,FLANGE M18X1.0	1	
30	CVT COVER	M8x1.25	17.7~21.6	1.8~2.2	19.7		96033-PRA1-E000	BOLT M8x45	4	
31	CVT COVER	M6x1.0	9.8~13.7	1.0~1.4	11.8		96012-PRA1-E000	BOLT M6x1x30	7	
32	ACG STATOR	M6x1.0	9.8~13.7	1.0~1.4	11.8		96013-LGC6-E000	M6X35-8.8-ZNNIV SI	3	
33	ACG COVER	M14x1.5	6.0~7.0	0.6~0.7	6.5		90084-KKAK-9000	CAP A.C GENERATOR ASSY	1	
34	SW ASSY, POL PRESSURE	PT 1/8	20.3~29.3	2.1~3.0	24.8	APPLY SEAL	35500-KE09-9000	SW ASSY OIL PRESSURE	1	
35	ACG STARER	M5x0.8	7.8~9.8	0.8~1.0	8.8		93500-05016-0F	SCREW PAN 5*16 (G)	2	
36	OIL-WATER HEAT EXCHANGER	M20x1.5	31.5~38.5	3.2~3.9	35.0		15421-PRA1-E000	PIPE OIL FILTER	1	
37	OIL JET	M6x12	9.8~13.7	1.0~1.4	9.8		96005-PRA1-E000	M6x12	2	
38	OIL FLITER	3/4"-16 UNF	8.0~12.0	0.8~1.2	11.0		1541A-LGC6-E000	OIL FILTER ASSY	1	
39	CASE/COVER	M6 x 1.0	5.0~7.0	0.5~0.7	6.0	APPLY LOCTITE 2701	13341-LGC6-E000	GRUB SCREW M6x7	5	

Frame Torque Specifications

No.	ITEM	THREAD SIZE AND TYPE	TORQUE		PR Kgf-m	REMARK	THREAD DWG NO.	Imp
			Kgf-m	N-m				
1	STEERING							
	HANDLE NUT	M10x1.25	3.0~4.0	30~40	3.5	U NUT	90304-LEA1-9000	A
	STEM NUT(TOP BRID.)	M22x1.5	6.0~6.5	60~65	6.2	—	90304-KKE5-E000	A
	TOP BRIDGE BOLT	M8x1.25	2.0~2.6	20~26	2.3	—	96600-08025-06	A
	BOT BRIDGE BOLT	M8x1.25	2.0~2.6	20~26	2.3	—	96600-08035-06	A
	STEM LOCK	BCI	5.0~6.0	50~60	5.5	—	50306-1F96-0010	A
	RACE NUT(HEAD)	BCI	1.8~2.2	18~22	2.0	—	53220-LGC6-E000	B
2	WHEEL							
	FR.AXLE BOLT	M16x1.5	7.0~7.5	70~75	7.2	—	50604-LGC6-E000	A
	RR.AXLE NUT	M20x1.5	12~14	120~140	13	U NUT	90306-LBA2-9000	A
3	SUSPENSION							
	FR FORK BOLT	M8x1.25	2.0~2.6	20~26	2.3	—	96600-08035-06	A
	RR. CUSH. UP	M10x1.25	3.5~4.5	35~45	4.0	—	96700-LGC6-E000	A
	RR. CUSH. LWR	M10x1.25	3.5~4.5	35~45	4.0	—	96700-LGC6-E000	A
4	BRAKE							
	FR CALIPER	M10x1.25	3.0~4.0	30~40	3.5	—	90122-LKF5-E000	A
	RR CALIPER	M10x1.25	3.0~4.0	30~40	3.5	—	90131-LGC6-E000	A
	BRK OIL BOLT	M10x1.0	3.0~4.0	30~40	3.5	—	90145-LFH1-E100	A
	BRK OIL BOLT(C/P)	M10x1.0	2.3~2.6	23~26	2.4	—	4335A-LGC6-E000	A
	M/C HOLDER	M5x0.8	0.6~1.0	6~10	0.8	—	A1.68.3W.143	C
	M/C CAP SCREW	M4x0.7	0.08~0.15	0.8~1.5	0.12	—		B
	C/P BLEEDER	M8x1.25	0.4~0.7	4.0~7.0	0.55	—	4335A-LGC6-E000	B
	DISK BOLT	M8x1.25	3.2~3.8	32~38	3.5	—	90105-KCR3-0010	A
5	FRAME							
	ENG SIDE UP	M12x1.5	8.6~9.1	86~91	8.8	U NUT	90306-KLF0-0040	A
	ENG SIDE DOWN(R)	M10x1.25	4.3~4.8	43~48	4.5	—	95801-10055-06	A
	ENG SIDE DOWN(L)	M10x1.25	4.3~4.8	43~48	4.5	—	95801-10060-06	A
	ENG SIDE REAR	M12x1.5	8.6~9.1	8.6~9.1	8.8	U NUT	90306-KLF0-0040	A
	FRAME SIDE	M12x1.5	8.6~9.1	86~91	8.8	—	50194-LGC6-E000	A
6	MUFFLER							
	EXH. PIPE	M8x1.25	1.8~2.2	18~22	2.0	—	90033-GFY6-9000	B
	MUFF. BRKT/FRAME	M10x1.25	2.7~3.2	27~32	3.0	FLANGE BOLT	95801-10045-06	A
7	RR FORK							
	RR FORK R/L	M10x1.25	3.0~3.5	30~35	3.2	—	95801-10110-06	A
	RR FORK R/L(DOWN)	M10x1.25	3.5~4.5	35~45	3.7	U NUT	90304-GHE8-0040	A
	SWING AXLE R	M22x1.5	9.5~10.5	95~105	10.0	—	90201-LGC6-E000	A
	SWING AXLE R	M22x1.5	0.6~1.0	6~10	0.8	—	90101-LGC6-E000	A
8								
	SPDMT SENSOR CABLE	M6x1.0	1.0~1.4	10~14	1.2	—	96001-06012-06	C
	FR BELT SPROCKET	M16x1.5	11.5~12.5	115~125	12.0	U NUT	90304-KNBN-90B	A
	IGN COIL	M6x1.0	1.0~1.4	10~14	1.2	—	95701-06020-06	B
	START RELAY	M6x1.0	0.25~0.35	2.5~3.5	0.3		94050-06060	C
	O2 SENSOR	M12x1.25	2.0~3.0	20~30	2.5	—	39450-LEA6-8000	B
	MAIN STAND	M10x1.25	3.0~4.0	30~40	3.5	—	95801-10030-06	A
	MAIN STAND STAY	M10x1.25	3.0~4.0	30~40	3.5	—	95801-10025-06	B
	MAIN STAND APRON	M8x1.25	2.0~2.8	20~28	2.4	U NUT	90309-GLW0-90A	C
	RR CARRIER	M8x1.25	1.8~2.5	18~25	2.1	—	90106-KKC4-9000	C

General Torque Specifications

Item	Torque	
	kgf-m	lb-ft
5 mm bolt, nut	0.45 - 0.6	3.25 - 4.34
6 mm bolt, nut	0.8 - 1.2	5.79 - 8.68
8 mm bolt, nut	1.8 - 2.5	13.02 - 18.08
10 mm bolt, nut	3.0 - 4.0	21.70 - 28.93
12 mm bolt, nut	5.0 - 6.0	36.17 - 43.40
5 mm screw	0.45 - 0.6	3.25 - 4.34
6 mm screw, SH bolt	0.7 - 1.1	5.06 - 7.96
6 mm flange bolt, nut	1.0 - 1.4	7.23 - 10.13
8 mm flange bolt, nut	2.4 - 3.0	17.36 - 21.70
10 mm flange bolt, nut	3.0 - 4.5	21.70 - 32.55

Troubleshooting

Vehicle can not be started

Preliminary 6 Step Inspection

1. Is the battery fully charged (12 V or higher). See the Battery topic for more information.

2. Key-On and listen for any action with Fuel Pump / Fuel Pump Relay (It will turn off automatically in 5-10 seconds)

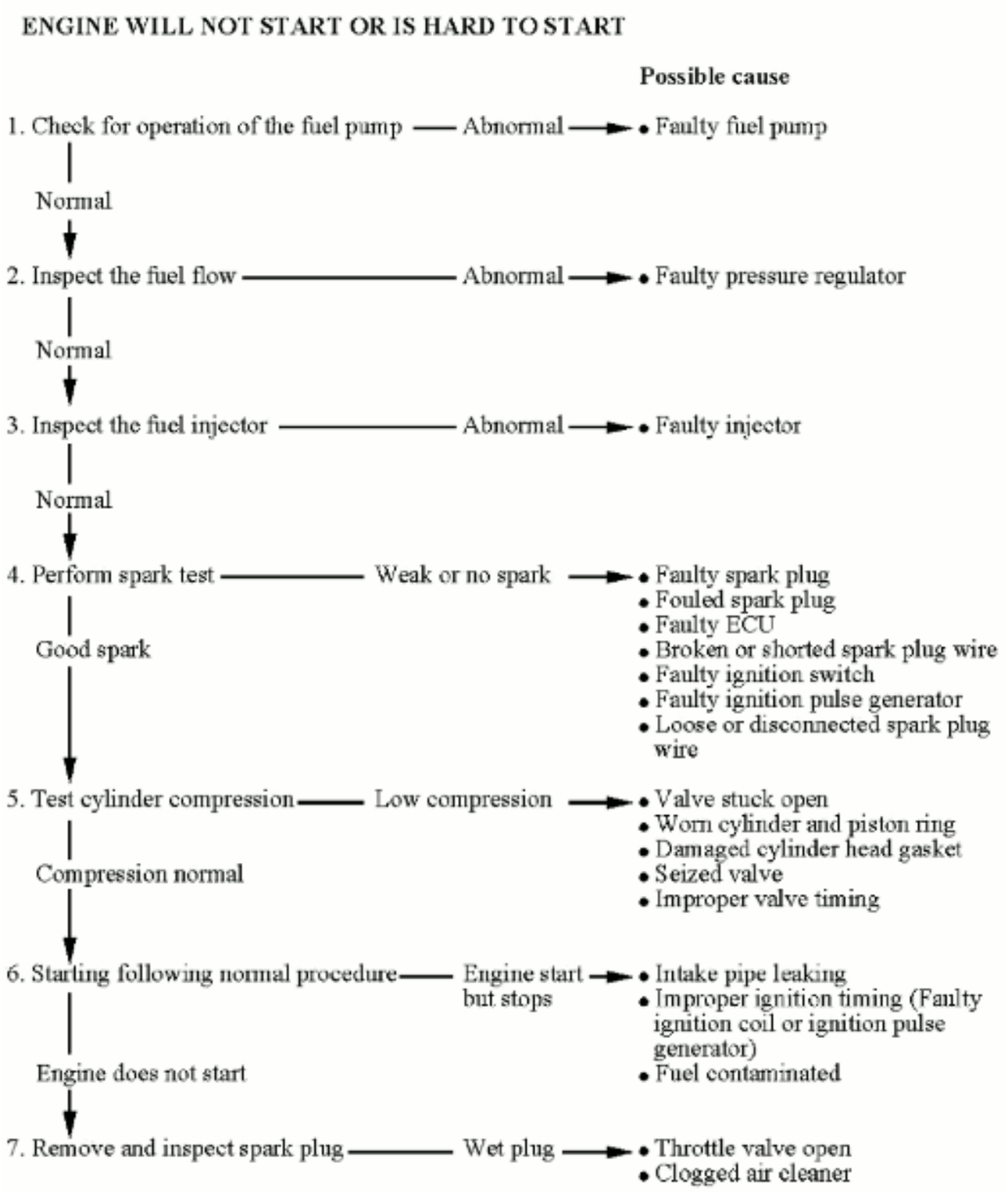
3. Key-On to check for any failure lamp light up on dashboard. See theSelf-Diagnosis topic for more information.

4. Is the Idle screw of Throttle Valve being changed or loose?

5. Has the vehicle under regular service? Is the gas station a good one?

6. Is the spark plug the correct model of specified by the vehicle builder? See the Spark Plug topic for more information.

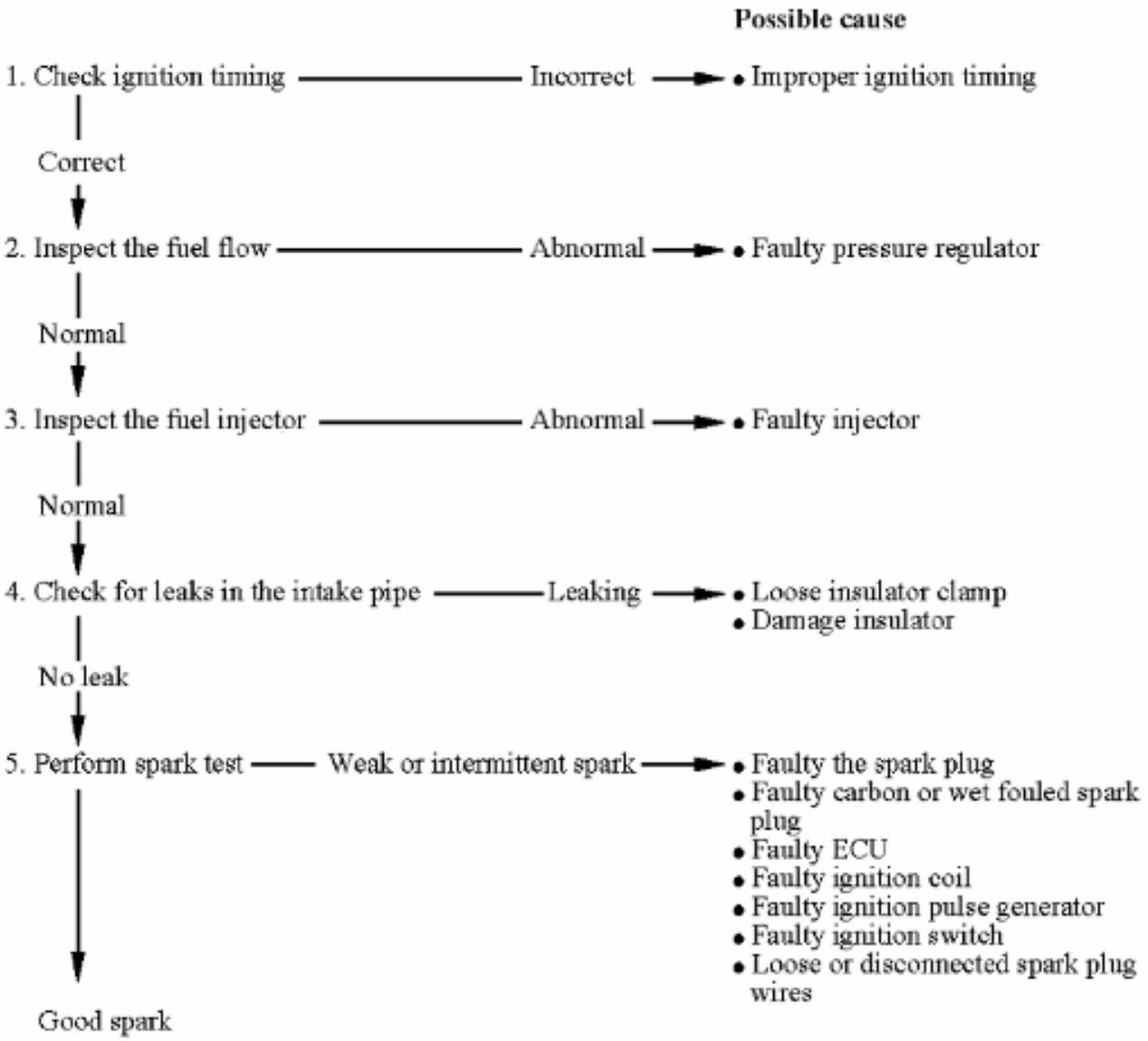
General Troubleshooting



ENGINE LACKS POWER

		Possible cause
1. Raise wheel off the ground and spin by hand	Wheels do not spin freely	• Brake dragging • Worn or damaged wheel bearing
Wheel spins freely		
2. Check tire pressure	Pressure low	• Faulty tire valve • Punctured tire
Pressure normal		
3. Accelerate lightly	Engine speed does not increase	• Air cleaner dirty • Restricted fuel flow • Clogged muffler • Pinched fuel tank breather
Engine speed increase		
4. Check ignition timing	Incorrect	• Faulty ECU • Faulty ignition pulse generator
Correct		
5. Test cylinder compression	Incorrect	• Valve stuck open • Worn cylinder and piston rings • Leaking head gasket • Improper valve timing
Normal		
6. Inspect fuel flow	Abnormal	• Faulty pressure regulator
Normal		
7. Inspect the fuel injector	Abnormal	• Faulty injector
Normal		
8. Remove spark plug	Fouled or discolored	• Faulty spark plug
Not fouled or discolored		
9. Check oil level and condition	Incorrect	• Oil level too high • Oil level too low • Contaminated oil
Correct		
10. Remove cylinder head cover and inspect lubrication	Valve train not lubricated properly	• Clogged oil • Clogged oil control orifice
Valve train lubricated properly		
11. Check for engine overheating	Overheating	• Fan motor not working • Excessive carbon build-up in combustion chamber • Use of poor quality fuel • Wrong type of fuel • Drive and driven pulleys/clutch slipping
Not overheating		
12. Accelerate or run at high speed	Engine knocks	• Worn piston and cylinder • Worn type of fuel • Excessive carbon build-up in combustion chamber • Ignition timing to advanced (faulty ECU)
Engine does not knock	• Lean fuel mixture	

POOR PERFORMANCE AT LOW AND IDLE SPEED



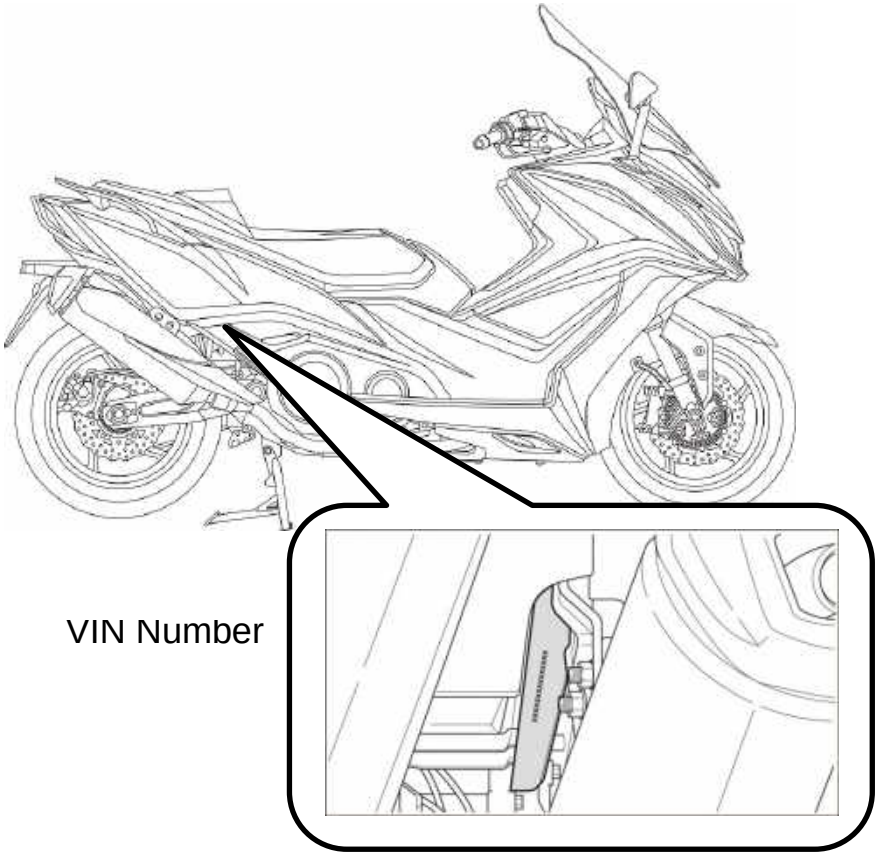
POOR PERFORMANCE AT HIGH SPEED

		Possible cause
1. Check ignition timing	Incorrect	• Faulty ECU
Correct ↓		
2. Inspect the fuel flow	Abnormal	• Faulty pressure regulator
Normal ↓		
3. Inspect the fuel injector	Abnormal	• Faulty injector
Normal ↓		
4. Check valve timing	Incorrect	• Camshaft not installed properly
Correct ↓		
5. Check valve spring	Weak	• Faulty valve spring
Not weak		

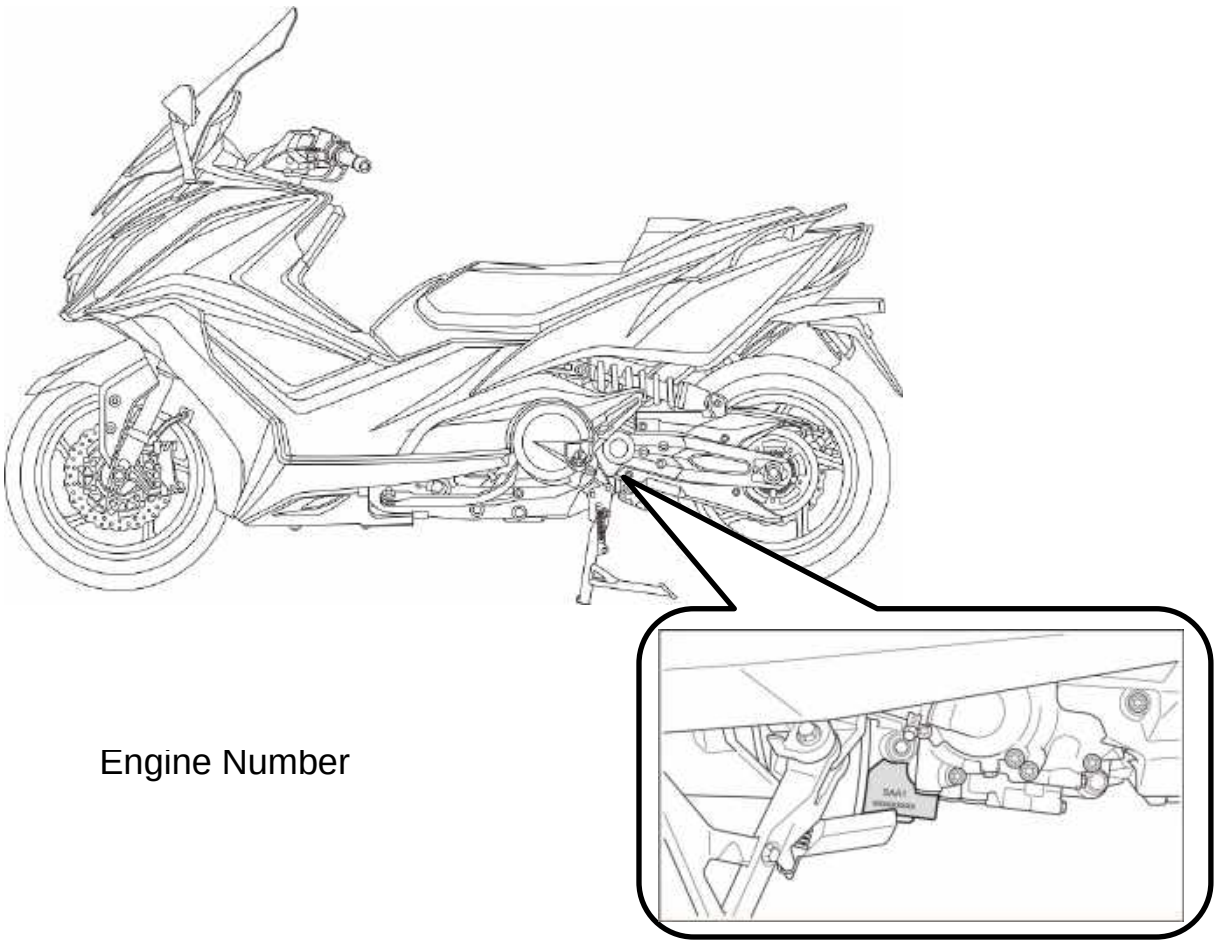
POOR HANDLING

	Possible cause
1. If steering is heavy	• Steering stem adjusting nut too tight • Damaged steering head bearings
2. If either wheel is wobbling	• Excessive wheel bearing play • Bent rim • Improper installed wheel hub • Swing arm pivot bearing excessively worn • Bent frame
3. If the motorcycle pulled to one side	• Faulty the shock absorber • Front and rear wheel not aligned • Bent fork • Bent swing arm • Bent axle

VIN and Engine Number Location



VIN Number



Engine Number

2.Periodic Maintenance

This chapter covers the periodic maintenance for the KYMCO AK 550.

WARNING:

• Before running the engine, make sure that the working area is well ventilated. Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas, which may cause death to people.

• Gasoline is extremely flammable and is explosive under some conditions. The working area must be well ventilated and do not smoke or allow flames or sparks near the working area or fuel storage area.

Maintenance Schedule

Perform the pre-ride inspection at each scheduled maintenance period. This interval should be judged by odometer reading or months, whichever comes first.

Maintenance schedule

I: Inspection; clean, lubricate, replenish, remedy or replace as required. A: Adjustment. C: Cleaning. R: Replace. T: Tightening. M: Maintenance. D: Diagnosis

The maintenance schedule specifies the maintenance required to keep your AK 550 scooter in peak operating condition. Maintenance work should be performed in accordance with KYMCO standards and specifications by properly trained and equipped technicians. Your KYMCO dealer meets all of these requirements.

* Should be serviced by your KYMCO dealer, unless you have the proper tools, service data and are technically qualified.

** In the interest of safety, we recommend these items be serviced only by your KYMCO dealer. KYMCO recommends that your KYMCO dealer road test your scooter after each periodic maintenance service is completed.

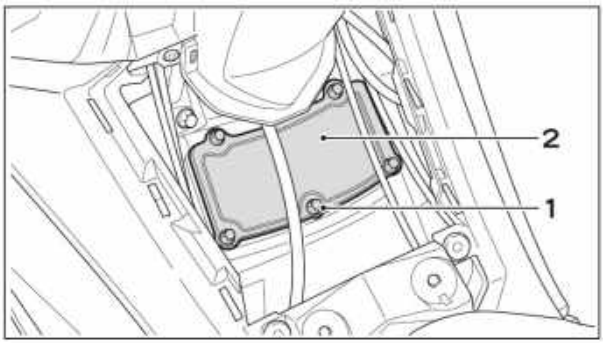
FREQUENCY		WHICHEVER COMES FIRST	ODOMETER READING						
		X 1000 km	0.3	5	10	15	20	25	30
ITEM		X 1000 mi	0.6	3	6	9	12	15	18
		MONTH	1	6	12	18	24	30	36
＊	Air Filter Servicing			R	R	R	R	R	R
	Spark Plug				I		R		I
＊	Throttle Free Play			I	I	I	I	I	I
＊	Valve Clearance	Check/Adjust.	Every 40000 km (24000 mi)						
＊	Hose Inspection				I		I		I
＊	Engine Oil		R	R	R	R	R	R	R
＊	Engine Oil Screen			C	C	C	C	C	C
＊	Engine Oil Filter		R	R	R	R	R	R	R
＊	Fuel Injection Diagnostic Tool				I		I		I
＊	CVT Removal			I	I	I	I	I	I
＊	CVT Air Filter			C	C	C	C	C	C
＊ ＊	CVT Clutch Removal				I		I		I
	Brake Fluid			I	R	I	R	I	R
	Brake Pad Replacement			I	I	I	I	I	I
	Brakes			I	I	I	I	I	I
＊	Switches			I	I	I	I	I	I
	Steering			I	I	I	I	I	I
＊	Lights			I	I	I	I	I	I
＊	Torque Specifications			I	I	I	I	I	I
＊ ＊	Wheels/Tires			I	I	I	I	I	I
	Coolant Level Check			I	R	I	R	I	R
	Drive Belt			I	I	I	R	I	I
	Timing Belt(Drive Belt)			I	I	I	I	I	I

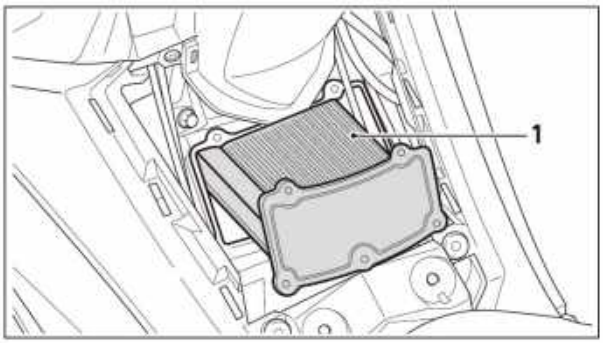
Air Filter Servicing

Replace Air Filter as specified in Regular Maintenance Schedule. Check and replace Air Filter Cartridge more frequently if vehicle is often used in dusty environments or damp areas.

Replace Air Filter Cartridge

1. Remove outer casing of vehicle.
2. Remove Air Filter Cover.
3. Loosen Air Filter Cover Fixing Screw and take out Air Filter Cartridge.





Precautions on replacing Filter Cartridge:

1. Make sure the Air Filter Cartridge is positioned correctly in the casing.

2. Do not start engine when Air Filter Cartridge is not installed, or dirty air may enter the engine and cause abnormal wear.

3. Do not wet the Air Filter Cartridge when cleaning the vehicle, or engine start may become difficult.

4. Install Air Filter Cover and tighten Fixing Screw.

5. Re-install outer casing of vehicle.

⚠ NOTICE

- **Air Filter Cartridge made of paper is used. Clean the Cartridge every 2000 km.**
- **Replace with a new Air Filter Cartridge every 5000km.**

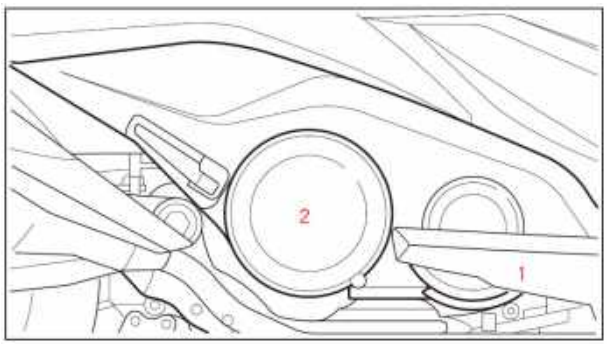
Check CVT Transmission System Filter Wool

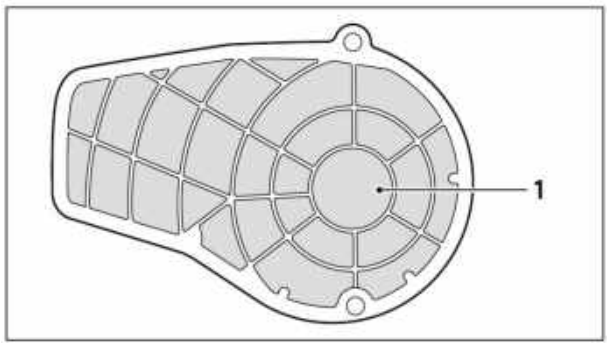
CVT Transmission System Filter Wool

Excessive dust accumulation in CVT Transmission System may result in unsmooth engine operation; clean and replace Filter Wool regularly.
Clean Filter Wool regularly as specified in Maintenance Schedule; replace or clean Filter Wool every 5000km

Replace Filter Wool

1. Remove side plate on the right.
2. Remove Fixing Bolts of Crankcase Right Cover.
3. Remove 2 Fixing Bolts of Filter Wool.
4. Replace Filter Wool.





Insert Method

Operate in reversed procedures as removal.

Cleaning Method

1. Remove side plate on the right.
2. Remove Fixing Bolts of Crankcase Right Cover.
3. Remove 2 Fixing Bolts of Filter Wool.
4. Clean Filter Wool body with air jet and clean out dirt from Crankcase Right Cover.

Brake Fluid

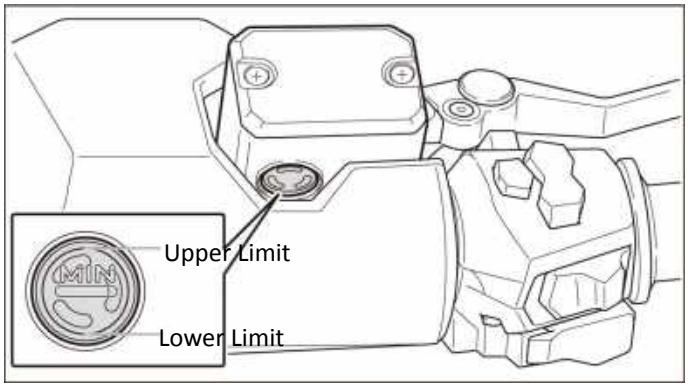
The KYMCO AK 550 uses DOT 4 brake fluid that should be inspected after 3,000 mi (5,000 km) of use. It should be flushed and bled every 12 months, 6,000 mi (10,000 km), whenever the brakes feel spongy, or if the brake system has been taken apart and rebuilt. Always use fresh brake fluid from a tightly sealed container.

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Checking Front Brake Fluid

1. Straighten the Handlebar, check brake fluid in the Right Reservoir. Keep the level between the Upper Mark and Lower Mark.
2. If level lowers near the Lower Mark, check the brake lining for a worn condition.
3. If the brake lining is not worn exceeding a specified limit, most likely there is a leakage of brake fluid; go to a dealer for repair.

Viewing Window of Front Brake Fluid



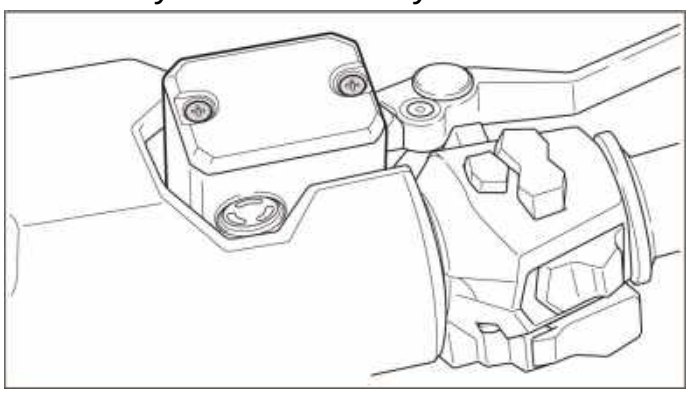
Warning: Brake fluid is very caustic and can damage paint, chrome and plastic. Wipe up any spills immediately.

Replenishing Brake Fluid

1. Straighten the Handlebar, remove 2 fixing screws of Reservoir and remove Reservoir Cover.

2. Replenish Reservoir with recommended DOT-4 Brake Fluid to the Upper Scale. Replace Reservoir Cover and tighten 2 fixing screws.

3. Replace Brake Fluid every 10000km or 1 year.



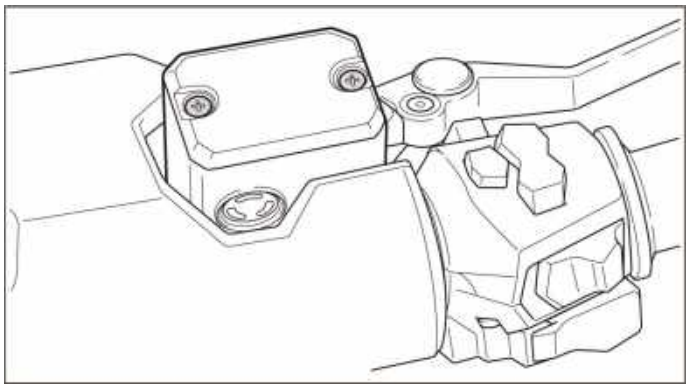
⚠ WARNING

◆ Mixed use of Brake Fluids of different brand and different specifications may result in braking fault and danger.

◆ When replenishing braking fluid, cover coated parts with a cloth to prevent damaging them.

Draining

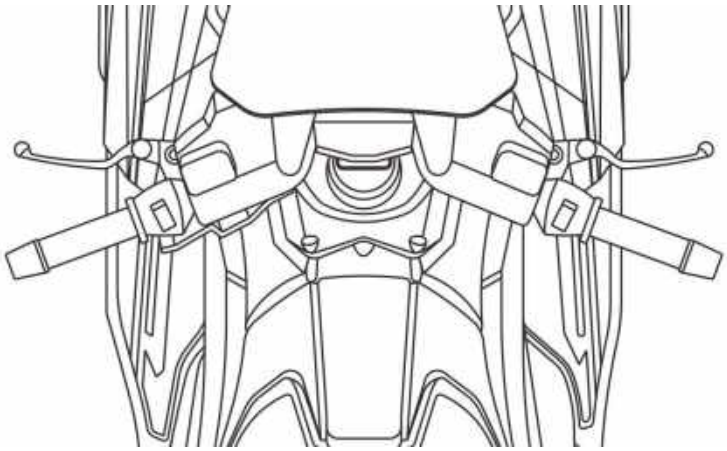
The brake bleeding process is the same for the front and rear brakes.
Remove the two master cylinder cover screws with a #2 Phillips head screwdriver.
Remove the master cylinder cover, plastic piece and rubber accordion diaphragm.
Pour out any remaining brake fluid.



Clean and inspect the rubber diaphragm for tears or other damage. Replace as necessary.

Pull off the rubber cap over the bleeder valve and crack open the bleeder valve on the brake caliper using an 8 mm wrench. This valve is usually very tight so use a box end wrench or a 6 point socket and ratchet to prevent rounding off the head. Snug the bleeder valve back down.

Open the valve and remove the old brake fluid with a Mighty -Vac or a similar device.



Pump the brake lever several times and hold the lever in. While holding the lever in, crack open the bleeder valve. The front brake lever will travel all the way to the grip and brake fluid and/or air will come out of the bleeder valve into the 6 mm hose. Tighten the bleeder valve before releasing the front brake lever. Pump the lever several times again and repeat the process.

Be certain to check the master cylinder reservoir occasionally to make sure the reservoir doesn't run dry. Add more brake fluid as necessary. Continue this process until clean brake fluid comes out of the bleeder valve and there are no air bubbles. The brake lever should feel firm.

Tighten the bleeder valve to specification and push its rubber cover over the nipple.

Make sure the reservoir has the proper amount of fluid.

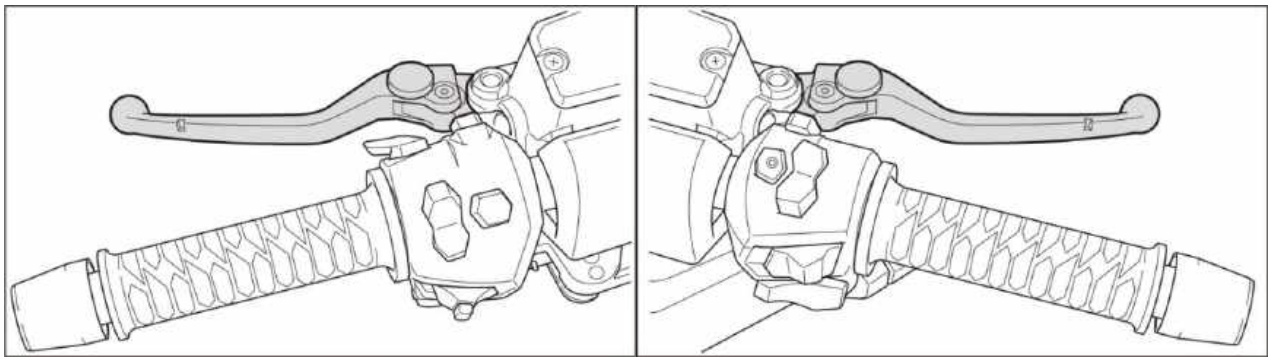
Place the rubber diaphragm, plastic piece and cover over the reservoir.

Thread in the reservoir cover screws and tighten them securely with a #2 Phillips screwdriver.

Check the function of the brakes before operating the machine.

Brake Inspection

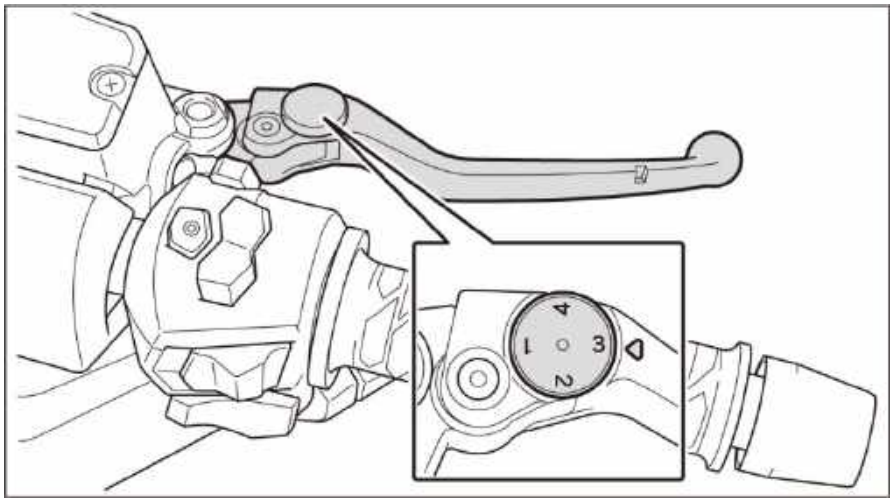
Brake Lever Adjuster



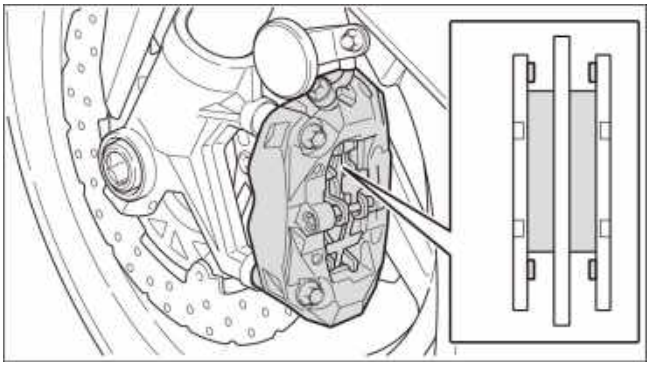
There is adjuster on each brake lever. Each adjuster has four positions so that the released lever position can be adjusted to suit the rider's hands.To adjust the distance of the lever from the handlebar grip, push the lever forward and turn the adjuster knob to align the number with the arrow mark on the lever holder.

Check and Adjust Brakes

1. Adjust brake lever clearance using adjustment knob (totally 4 adjustment positions).
2. Push the brake lever forward when adjusting the knob (default setting is 2).
3. After adjustment, pull the Brake Lever (1) with hand until reaching a position where fingers feel comfortable; check if the clearance at the front end of Brake Lever is within the specified dimension.



Brake Pad



- Is braking effective?
- Verify braking effect of front and rear brakes in low speed.

Brake Pad Removal

Remove the snap clip of the pin.

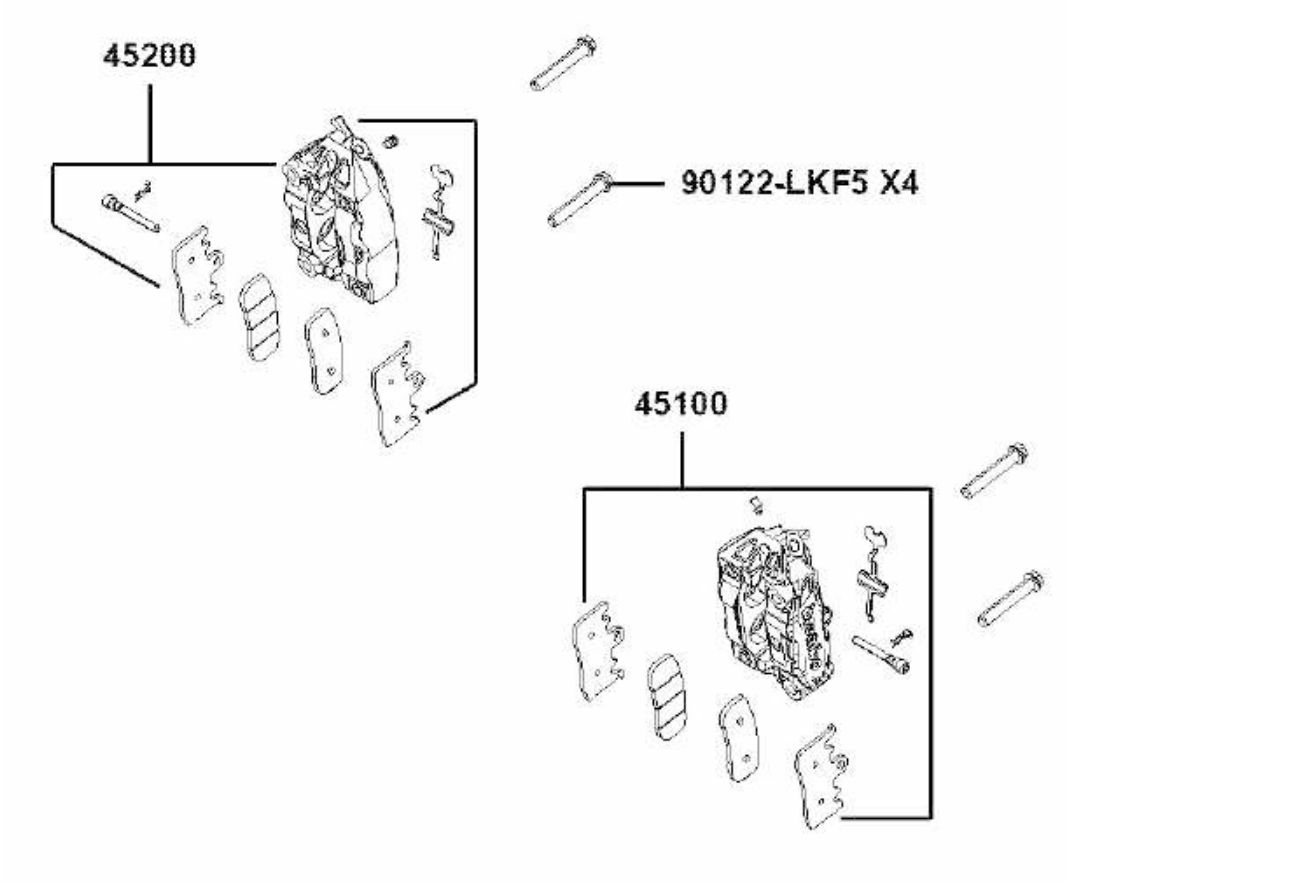
Remove the screw, loosen the brake pad.

Remove the spring of the brake pad.


Remove the right and left brake pads.
Replace the pads if the brake wear exceeds the wear indicator lines or if the wear is uneven. Insert new brake pads as needed.


Remove the two bolts of caliper and remove the caliper.
Installation torque: 3~4 kgf-m (30~40 N-m)


Remove the two caliper mounting bolts with a 12 mm socket.
And remove the front caliper.



When installation:

Apply a light coat of waterproof grease to the brake pad pin. Push the pads against the pad spring and insert the brake pad pin.

It may be necessary to spread the pads and force the pistons back into the caliper in order to allow room for the brake disc to fit between the new pads.

Install the front caliper. Guide the brake disc between the pads. Line up the caliper bracket mounts with the fork.

Install the two caliper bracket mounting bolts. Tighten the mounting bolts to specification.

Coolant

For the sake of safety, check level of cooling water before riding the vehicle. Replace the cooling liquid as specified in Regular Maintenance Schedule.

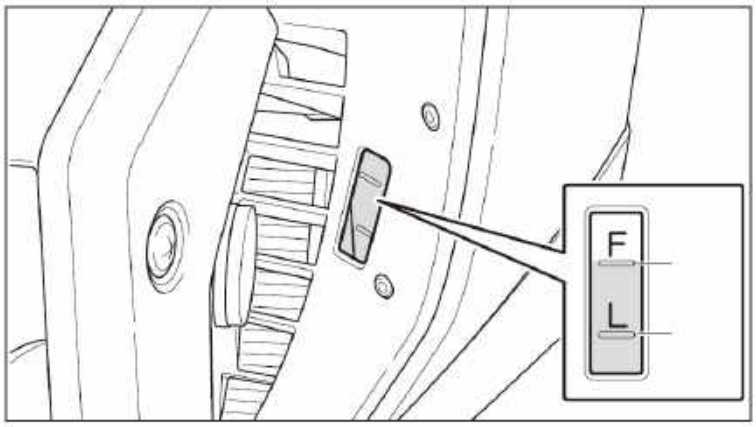
Check Level of Cooling Water

1. Park the vehicle on level ground and brace it up with Main Stand.
2. Figure to be inserted

⚠ NOTICE

- **Temperature in the engine may cause false reading of Cooling Water level. Check water level after the engine cools down.**
- **Inclined vehicle may cause false reading of Cooling Water level.**

3. Check level of Cooling Water via viewing window on the water preserving tank. Make sure the level is between “F” and “L” marks.

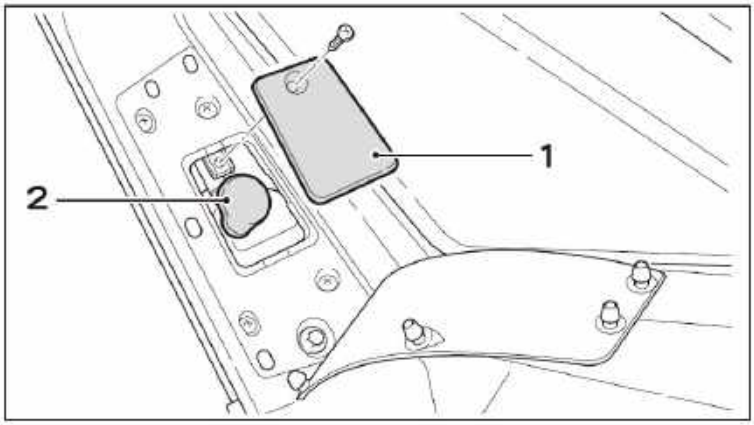


⚠ NOTICE

- **Before riding the vehicle, check the water tank and piping or any leakage.**
- **Check the ground where the vehicle is parked for any leakage mark.**
- **Before riding the vehicle, check the fin and front protection screen of water tank for any foreign object. Foreign objects may reduce the cooling function or even cause vehicle or engine damage in worse conditions.**

Replenish Cooling Water (Fill the Reserve Water Tank)

1. Stand the vehicle upright on level ground.
2. Open Reserve Water Tank (remove screw 1 and cover 2), replenish water to Upper Limit.
   If level of cooling water gets excessively low, something must be wrong. Go to a KYMCO Dealer for check and repair.



⚠ NOTICE

- **Water temperature is very high after riding, do not open the cap of water tank.**
- **Use soft water for mixing cooling liquid.**
- **Using poor quality cooling water may shorten the service life of water tank. Please be careful.**
- **Replace cooling water in the tank every 10000km.**
- **Add proper amount of water tank additives to ensure performance of the cooling system.**

In case of fault of vehicle:

Go to a KYMCO dealer for check and repair if any fault occurs when riding the vehicle. Use only original parts for replacement.

Check following items if engine does not start or engine stops when riding the vehicle:

- Whether gasoline is sufficient.
- Whether Dashboard Fuel Indicator approaches E. Replenish with 95 unleaded gasoline or better.
- Whether proper method is used for starting the engine.
- Others, whether any part is faulty.

Filling

When the coolant has fished draining return the drain bolt to the water pump with a new sealing washer. Tighten the drain bolt securely with an 8 mm socket.

Fill the cooling system with a mix of distilled water and KYMCO SIGMA Coolant Concentrate. Continue filling until the coolant until it reaches the bottom of the filler neck as shown.

Coolant capacity	Total 1500 cc	Radiator: 1200 cc Reserve tank: 300 cc

• Use coolant of specified mixing rate. (The mixing rate of KYMCO coolant/distilled water is 50%.)

• Do not mix coolant concentrate of different brands.

• Do not drink the coolant, which is poisonous.

• The freezing point of coolant mixture shall be 5 °C lower than the freezing point of the riding area.

Add coolant to the reserve tank until it reaches the upper level mark.

Gently rock the vehicle side-to-side to release any air bubbles trapped in the cooling system.

Place the vehicle on its center stand and start the engine. Let it run for several minutes. This will purge any air out of the cooling system. Check for coolant leaks

When the air bubbles stop coming up turn off the engine and recheck the coolant level, add coolant if necessary. Check the reserve tank and add coolant if needed. Wet the seal of the radiator cap and install.

Engine Oil

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Caution: Hot engine oil can burn. Avoid letting used motor oil contact exposed skin.

TROUBLESHOOTING

Oil level too low

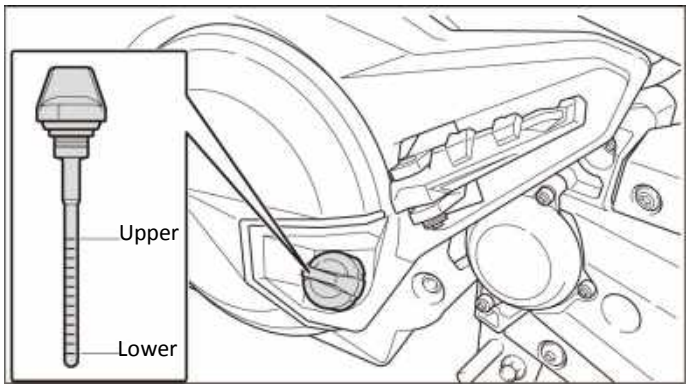
1. Natural oil consumption
2. Oil leaks
3. Worn or poorly installed piston rings
4. Worn valve guide or seal

Poor lubrication pressure

1. Oil level too low
2. Clogged filter or oil passages
3. No use the specified oil

Oil Level Inspection

Check the engine oil level each day before operating the scooter.
Place the motorcycle upright on level ground for engine oil level check. Run the engine for 2 ~ 3 minutes and check the oil level after the engine is stopped for 2 ~ 3 minutes.



The oil filler cap/dipstick is located on the left side of the engine.

Remove the oil filler cap/dipstick and wipe off the oil. Inspect the O-ring and replace it as needed. Insert the dipstick in without threading it in. Remove the dipstick and check the oil level.

The level must be maintained between the upper and lower level marks on the oil filler cap/dipstick.

If the oil level is at or below the lower mark add more of the same type and brand of oil to the engine through the oil filler hole. If the oil level is to high remove the drain plug and the excess oil.

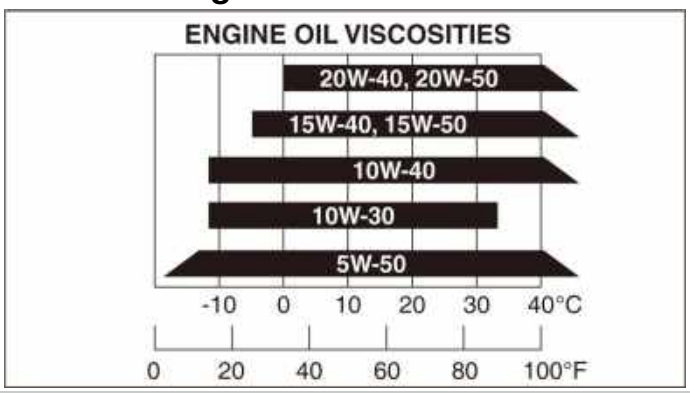
Oil Change Period
First oil change when running 300km; afterwards every 5000km.
In order to maintain optimal engine performance, check oil level every 1000km. Replenish to standard level in case of shortage.

Oil Capacity:
Dismantle: 3.0L (full capacity)
Change oil: 2.6L(excluding oil filter)
2.7L(including oil filter)

⚠ NOTICE

If vehicle is used rarely and 5000km is not reached after using for 6 months, it is suggested that oil shall still be changed since it may deteriorate along with time and cause damage to the engine.

Applicable Temperature of Engine Oil

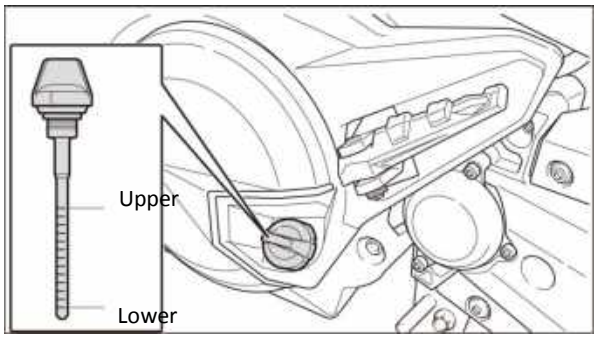


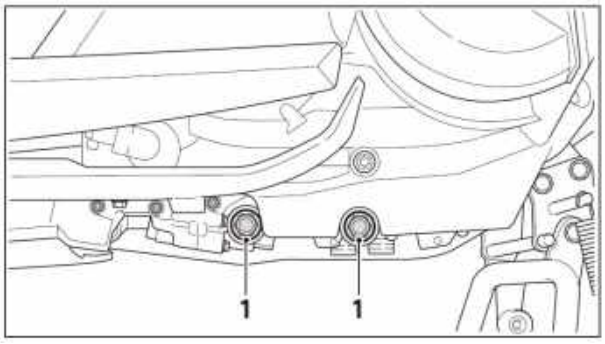
⚠ NOTICE

◆ **To avoid using poor quality oil, please go to a KYMCO dealer for oil change.**

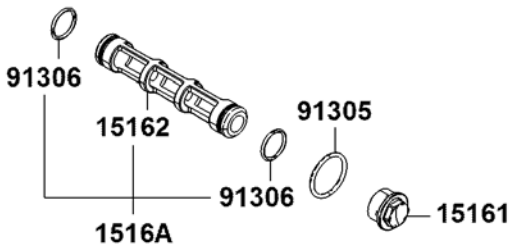
Oil Change Method

1. Remove Oil Scale. Remove Drain Cock. Drain all the oil. Warming up the engine before changing oil facilitates oil draining.



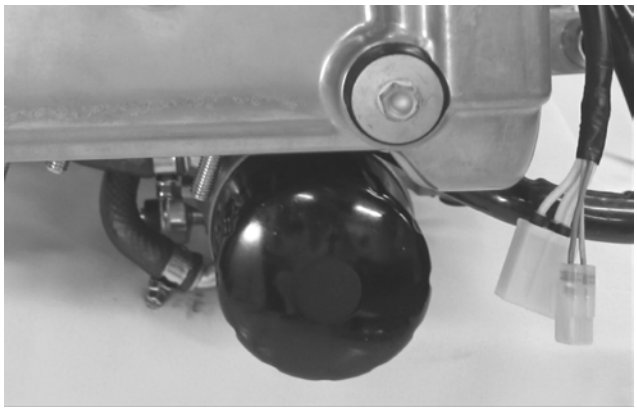


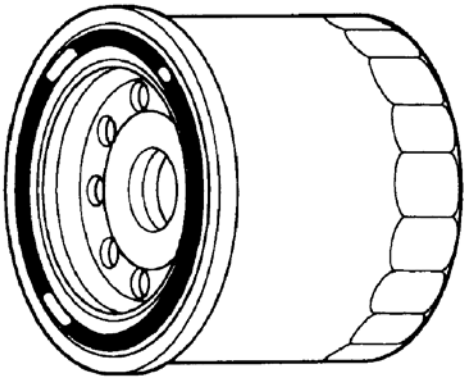
2. Clean Oil Filter and re-install it. Tighten Drain Cock after wiping it clean.



3. Fill in new oil. Filling capacity is 3.0L. (If Oil filter cartridge is replaced, oil change shall be 2.7L).

Oil Capacity:
Dismantle: 3.0L (full capacity)
Change oil: 2.6L(excluding oil filter)
2.7L(including oil filter)





Make sure the O-ring is positioned correctly in the groove of the oil filter cartridge.
Oil filter cartridge installation torque: 0.8~1.2 kgf-m (8~12 N-m)

4. Fully tighten the Oil Scale

5. After warming up the engine, stop engine and wait for 10-20 seconds, then verify oil level with Oil Scale.

⚠ NOTICE

- **It is recommended to use KYMCO original 4-stroke engine oil.**
- **The following conditions may expedite oil deterioration, an early oil change is advised.**
  Riding on pebbled roads often.
  Riding short distances often.
  Idling often.
  Riding in the cold area.
- **When replenishing oil, make sure the oil level is not exceeding the Upper Limit mark.**
- **Do not mix-use oils of different brand, class or low quality ones; they may cause engine faults.**
- **Change oil while the engine is still hot; be careful not to burn your skin.**

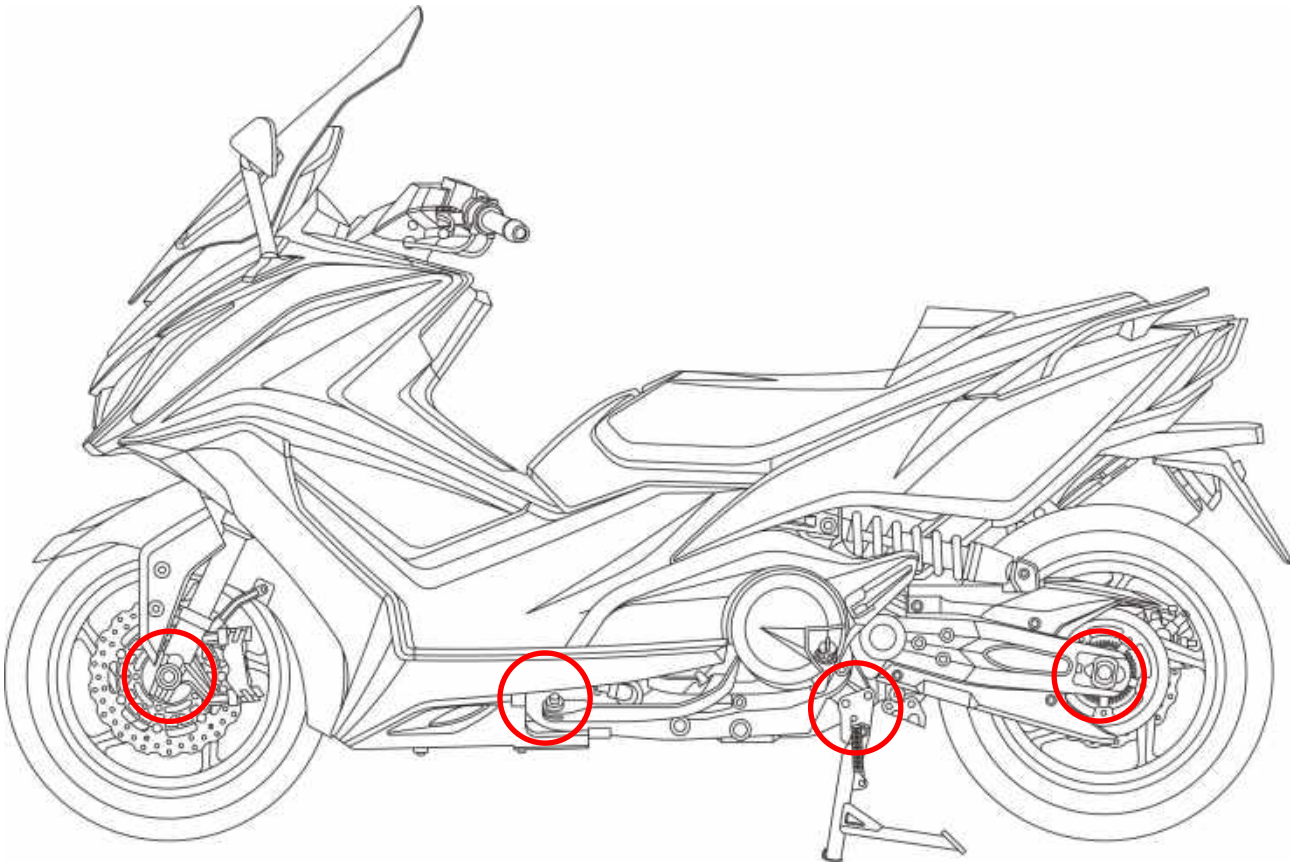
Oil Filter Cartridge Tightening Torque:
11 Nm (110 kgf•cm)
Engine Oil Drain Cock Tightening Torque:
9 Nm (90 kgf•cm)
Magnet Screw Tightening Torque:
28 Nm (280 kgf•cm)

Precautions on Oil Change

◆ Excessive and insufficient oil amount can both affect engine performance.
Excessive Oil—Increased friction resistance of moving parts in the engine, which lowers output power and increases engine temperature, leading to early deterioration of engine oil.
Insufficient Oil—Reduced oil supply to moving parts in the engine, therefore results in worn parts, parts ablation, etc.
◆ Do not mix-use oils of different brand, class or low quality ones; they may cause engine faults.
◆ Kymco Emissary Engine Oil contains additives (e.g., spirits, etc.) during the manufacturing process.
◆ Arbitrarily mixing additives bought from the market may deteriorate the oil, affect lubricating properties and shorten the service life of engine.

General Lubrication

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.



The frame lubrication points are listed below. Use general purpose grease. Apply clean engine oil or grease to cables and movable parts not specified. This will avoid abnormal noise and increase the durability of the motorcycle.

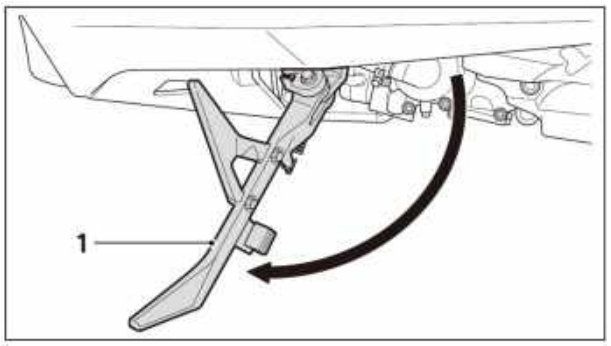
- Front Wheel Axle
- Side Stand Pivot
- Center Stand Pivot
- Rear Wheel axle

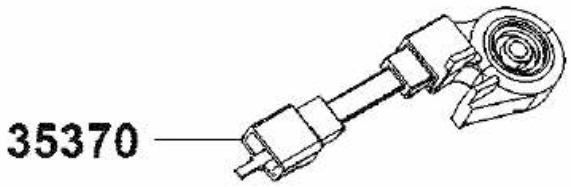
Side Stand

Interlock Function Check

Your scooter's side stand is not only necessary when you park, but it contains an important safety feature. This feature cuts-off the ignition if you try to ride the scooter when the side stand is down. Perform the following side stand inspection.

Place the vehicle on the center stand.
Unplug the three-pin side stand switch connector.

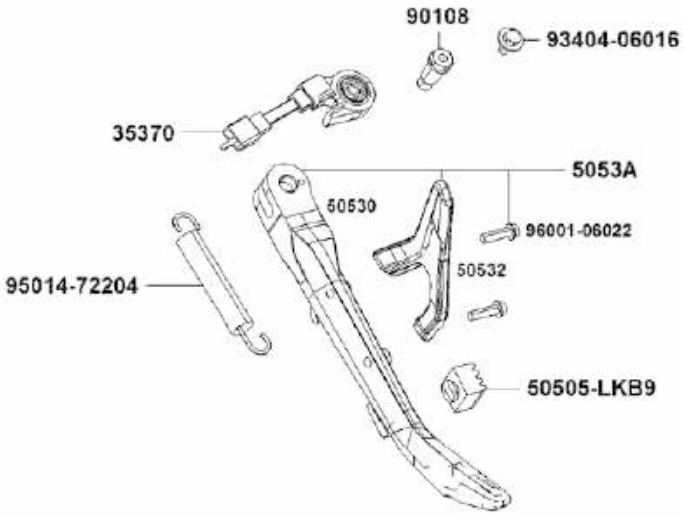




Use a digital multimeter to check for continuity.

With the side stand retracted there should be continuity between the yellow/green wire and the green wire terminals.

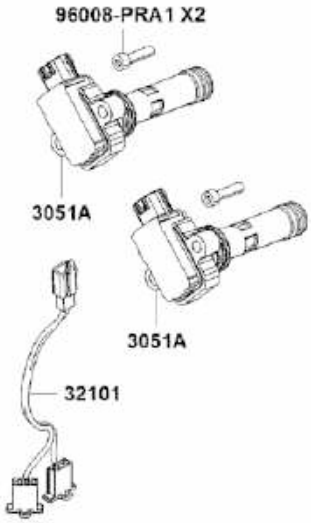
With the side stand extended there should be continuity between the yellow/black wire and the green wire terminals.



Spark Plug

remove the spark plug wire off of the spark plug.

Remove the connectors of the ignition coil.
Remove the two ignition coil mounting bolts and remove the ignition coil.



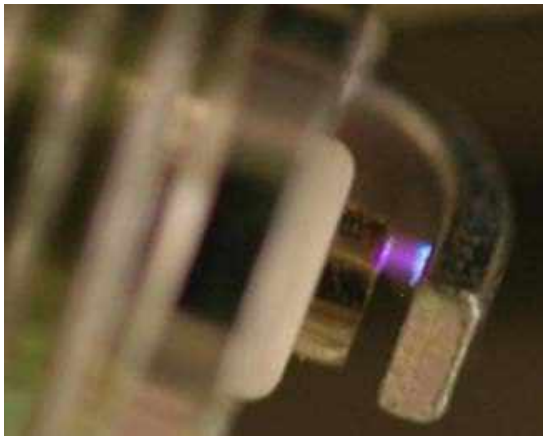
Clean off the area surrounding the spark plug with compressed air or a shop towel to make sure debris doesn't get into the combustion chamber when the spark plug is removed.

NOTE: Always wear safety glasses when using compressed air and never point it directly at yourself or anyone else.
Remove the spark plug with a spark plug with a 5/8 in socket.

Installation torque

Spark plug	NGKCR7E

Check the spark plug to see if it is the correct type and gapped properly. If the spark plug is black and fouled, replace it.



If the spark plug center electrode or side electrode are corroded or damaged, or if the insulator is cracked, replace the plug.

Measure the gap with a wire-type thickness gauge.
If the gap is incorrect, replace the spark plug.

Always check the gap of the spark plug before installation. Inspect the color of the porcelain nose of the spark plug. The color of the spark plug can indicate how the mixture is burning. A white colored plug shows a lean mixture, where a dark plug shows a rich mixture. Do not hesitate to replace a spark plug. Always replace a spark plug if any part of it is damaged.

Spark plug gap	0.7 - 0.8 mm

Do not over tighten the spark plug. The cylinder head is made out of soft metal, and it can be easily damaged.

Item	Torque
Spark plug	8 - 12 N-m (0.8 – 1.2 kgf-m)

Engine Compression Test

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Remove the under cowl set. See the external topic for more information.

Before testing the compression make sure the cylinder head bolts are tightened securely and the valve clearance is specification.

See the Cylinder Head and Valve Clearance topics for more information.

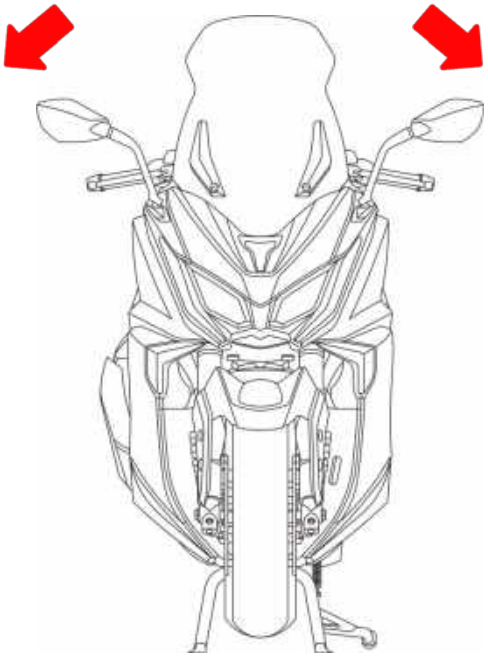
Remove the spark plug. See the Spark Plug topic for more information.

Thread a compression tester into the spark plug hole hand tight. Hold the throttle all the way open. Crank the engine with the starter motor until the needle on the gauge stops rising. Do not crank the engine more than a few seconds.

Cylinder compression	11 ± 0.2 kg/cm^2

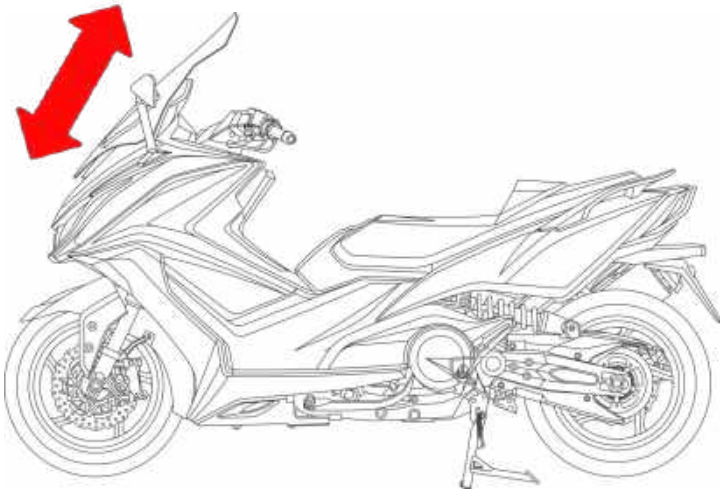
Low compression is an indication of excessive engine wear, possibly worn rings or poorly sealing valves, or maybe a tight valve with not enough valve clearance. High compression is possibly an indication of excessive carbon buildup on the piston or performance modifications.

Steering Inspection



Raise the front wheel off the ground and check that the steering handlebar rotates freely. If the handlebar moves unevenly, binds, or has vertical movement, adjust the steering head bearing. See the Steering Stem Removal topic for more information.

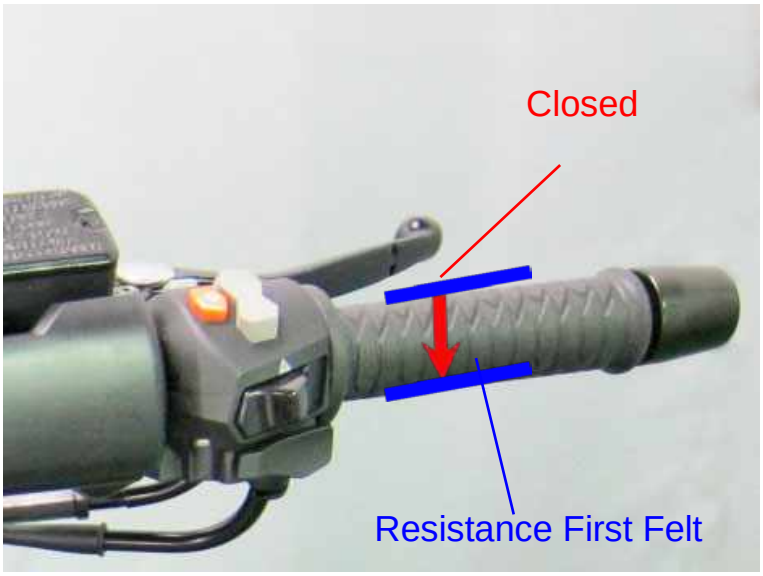
Front Suspension Inspection



Check the action of the front shock absorbers by compressing them several times. Check the entire shock absorber assembly for oil leaks, looseness or damage.

Throttle Free Play

Inspection

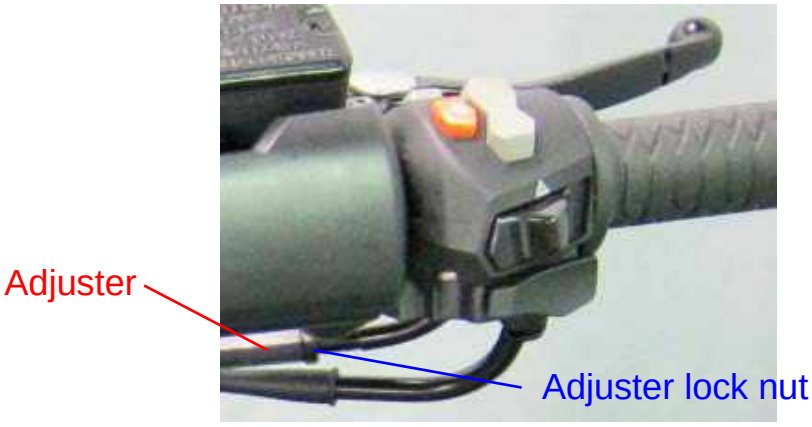


Check the throttle cable free play by gently rotating the throttle grip back until resistance is felt.

Throttle grip free play	2 ~ 6 mm

Make sure the throttle moves smoothly and returns on its own. Start the engine and let it warm up. Turn the handlebars from side to side, if the engine rpm changes either the free play is too small or the throttle cables are not routed properly. Check and correct the cause.

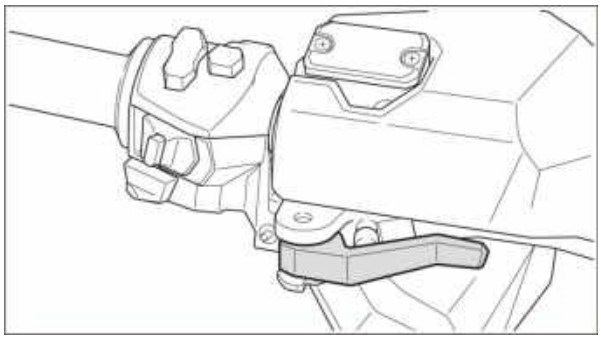
Adjustments of the throttle free play can be made with the cable adjusters below the grip throttle.

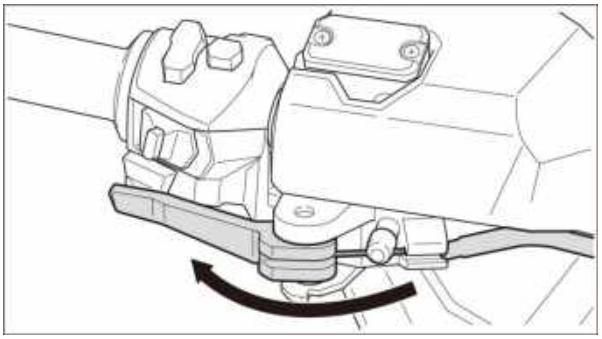


Loosen the throttle cable adjuster lock nut and turn the adjuster to achieve the specified free play.
When the free play has been moved into specification hold the adjuster in place and tighten the locknut securely.

Parking Brake

When using the Parking Brake Arm, verify if rear wheel is truly stopped from moving.

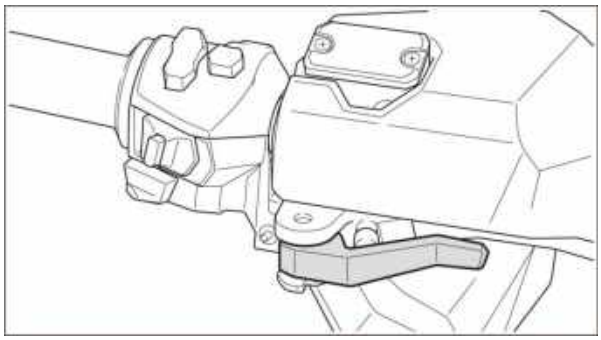


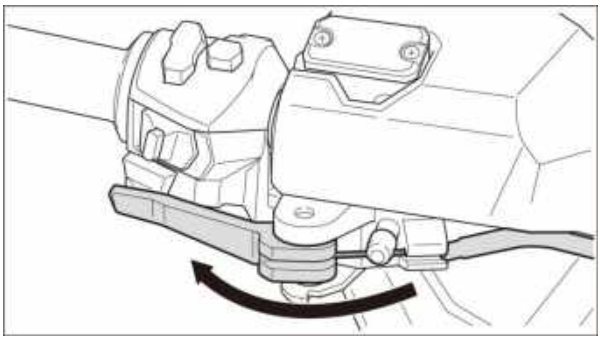


Apply the parking brake lever and release, then remove the spring.

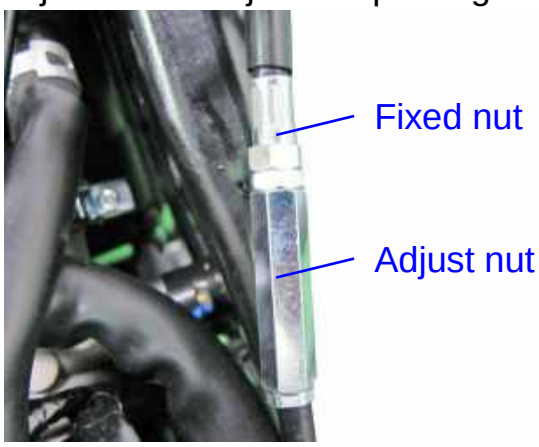
Remove the screws of handle bar switch, parking brake wire and remove the parking brake set.

Parking Brake Adjustment





Release the fixed nut, and rotate the adjust nut to adjust the parking brake.



Note: Do not use the rear brake lock lever while driving.

Light Inspection

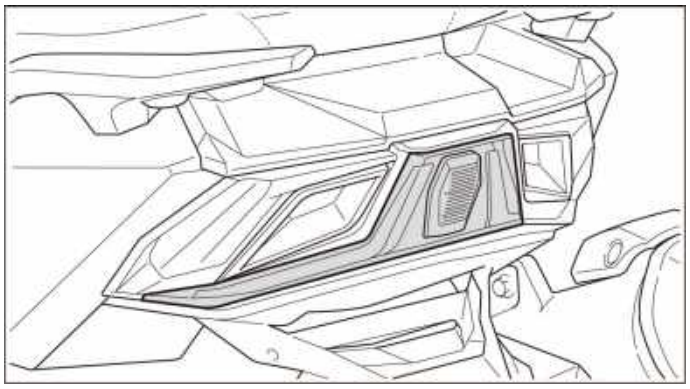
Check Brake Light

- Turn KEYLESS Main Switch to ○ position.
- Respectively pull the Front and Rear Brake Levers, verify if Brake Light goes on.

Check Brake Light for stain or fracture.

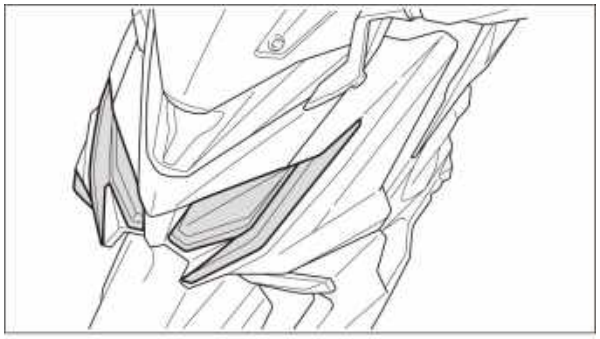
⚠ NOTICE

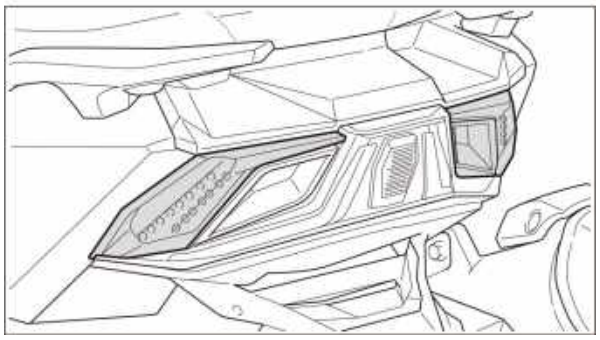
Turn KEYLESS Main Switch to ○ position but Engine Stop Switch to ⊗ position.



Check Direction Lights

- Turn KEYLESS Main Switch to ○ position.
- Operate Direction Light Switch to verify if each Direction Light goes on.
- Check Light Switch casing for stain or fracture.





Tires

Check grip between tire and ground and a normal tire pressure.
In case of a gripping anomaly, check tire pressure for normal reading using a pressure gauge.

Pressure measurements of cool tire:

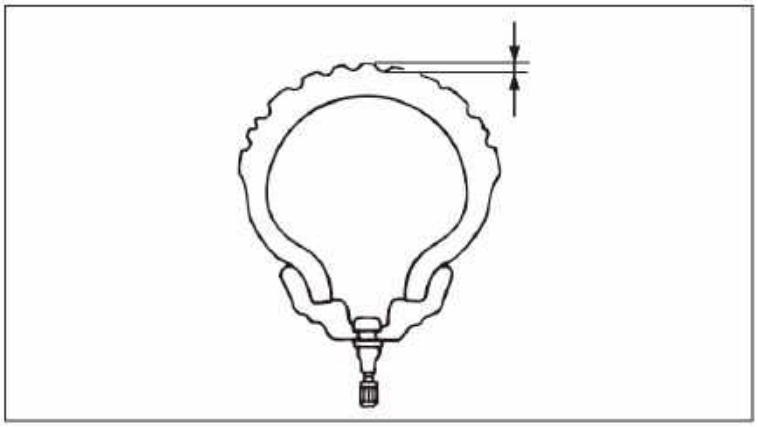
With 1 rider

Front Wheel 2.4 kgf/cm^2 Rear Wheel 2.7 kgf/cm^2

With 2 persons

Front Wheel 2.4 kgf/cm^2 Rear Wheel 2.7 kgf/cm^2

Measure pattern depth at center of tread pattern. Measurements shall be taken at several points due to uneven wear.
Replace the tire if any of the measurements is lower than the service limit. Make sure the wheel is properly balanced when a new tire is replaced.



Service Limits:

Front Wheel 0.8 mm

Rear Wheel 0.8 mm

Check Tread Pattern for Wear

Check tires before each riding. In case of finding a transverse line (minimum pattern depth), nail or glass chip on the tire, or crack line on the side wall of tire, go to Kymco dealer for replacing with new one. Excessive wear of tire tread pattern will result in widened tread which is more prone to be punctured.

Tire Dimensions:

Front Tire Dimensions: 120/70-R15 56H

Rear Tire Dimensions: 160/60-R15 67H

TPMS Tire Pressure Management System

Operation of TPMS, Electronic Tire Pressure Sensor

◆ TPMS consists of 2 wireless Tire Pressure Sensors (1 each on respective nozzle of front and rear tire) and a controller. The sensor detects the current tire pressure and sends the signal to Controller by wireless transmission. The Controller then sends the signal to Dashboard, informing the rider of pressure condition with the displayed indicator.

⚠ NOTICE

1. When KEYLESS Main Switch is set ON, the Tire Pressure Sensor related pressure symbol on the left side of Dashboard will light up; if this symbol then goes out automatically, the tire pressure is normal (as shown in the Figure).
2. When KEYLESS Main Switch is set ON, the Tire Pressure Sensor related pressure symbol on the left side of Dashboard will light up; if this symbol stays on constantly, the tire pressure is not normal (as shown in the Figure).

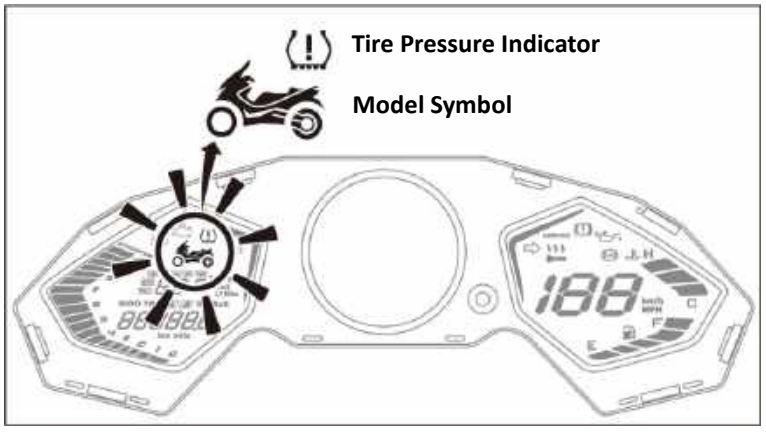
Front Tire Pressure ≧3.2kgf/cm2 or < 1.6kgf/cm2

Rear Tire pressure≧3.75kgf/cm2 or < 1.65kgf/cm2

The owner needs to replenish or release tire pressure if the reading is too low or too high. Consult the dealer for assistance if you have any questions.

(Standard tire pressure under normal inflation: Front Wheel 2.3kgf/cm2; Rear Wheel 2.7kgf/cm2)

3. Do Not remove wireless Tire Pressure Sensor or Controller, or TPMS function will be lost.
4. No re-adjustment of TPMS is required when a new tire or rim is replaced.
5. Re-adjustment of TPMS is required when replacing a new wireless tire pressure sensor and controller; please consult a KYMCO dealer.
6. When replacing a tire rim, the Tire Pressure Sensor shall be kept in a correct order to distinguish the front one and the rear one.



Owner Learn Code Operation:

- ◆ Applicable to owner and dealer service personnel.
- ◆ Re-adjustment of TPMS is required when replacing a new wireless tire pressure sensor and controller.
- ◆ When performing code learning, keep the vicinity clear of other vehicle or transmitter, to prevent miss-triggering.
- ◆ After installing Tire Pressure Sensor, inflate the tire to correct pressure and install it properly onto the vehicle.

Learn Code Activation Procedure:

1. Press and hold Operation Button (∧ button on the Handlebar), but it is necessary to switch over to Dashboard position “m” in advance.

2. KEY ON the KEYLESS Main Switch.

3. Release the Operation Button (∧) when the front tire of the Model Symbol flashes and tire pressure unit disappears.

4. TPMS is now entered into Code Learning Mode.

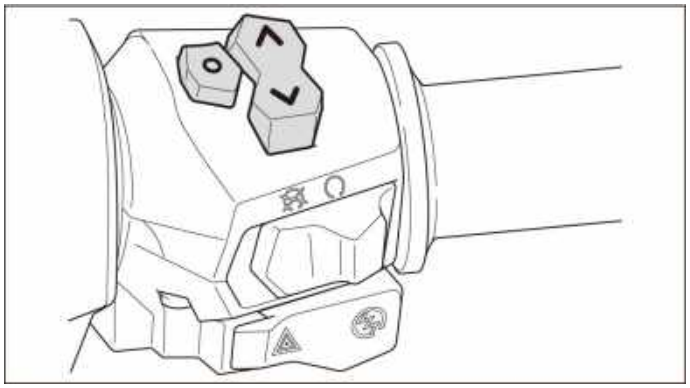
5. The Front Tire in the Symbol flashes continuously.

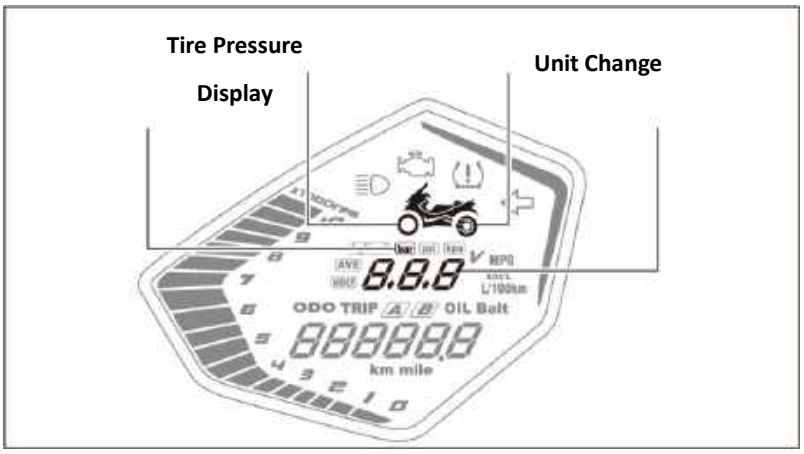
6. Operator releases or inflates the Front Tire to get a pressure change > 3psi, the sensor will be awakened within 1 minute; setting of the front wheel is complete when the pressure value appears.(If a Code Learn is not performed when the Front Tire flashes, press the UP button to jump to Rear Tire Code Learn. If a Code Learn is not accomplished within 2 minutes, the program exits Code Learn Mode.)

7. Now that the Rear Tire of the Model Symbol flashes continuously.

8. Operator releases or inflates the Rear Tire to get a pressure change > 3psi, the sensor will be awakened within 1 minute; setting of the rear wheel is complete when the pressure value appears.(If a Code Learn is not performed when the Rear Tire flashes, press the UP button to exit Code Learn Mode. If a Code Learn is not accomplished within 2 minutes, the program exits Code Learn Mode.)

9. Now that Front Tire flashes, tire pressure value appears with unit displayed.





Remarks:

1. The dealer and owner are requested to inflate the tires to 20psi or more, so that TPMS computer can automatically learn the initial values and facilitate the subsequent normal operation.

2. Re-do Code Learning after replacing parts.

3. When replacing a tire, care must be taken to avoid inserting a tool onto the nozzle.

4. Make sure the direction is correct when replacing a part.

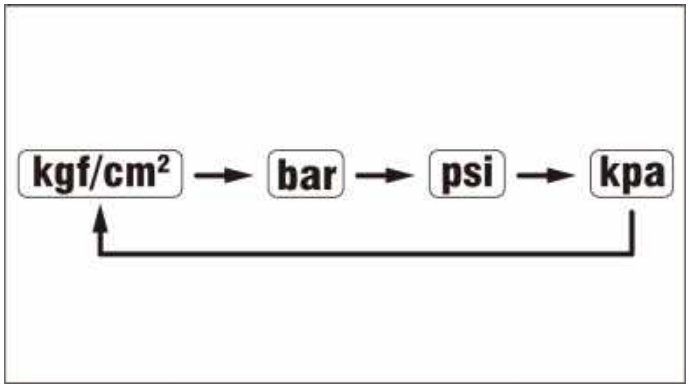
5. Tire Pressure values are for reference only.

6. Slackening of nut during parts installation will cause air leakage.

7. If tire pressure cannot be detected, the unit may be out of battery power and requires replacement of a new part.

Change Pressure Unit

Turn KEYLESS Main Switch ON, the Model Symbol will light up. Push the Dashboard and noodoe Switch to “m” position and press the UP button to change over to TPMS Mode. Pressing “O” button on the Right Handlebar Switch to change units in the sequence of [kgf/cm^2 → bar → psi → kpa].



€

■Anomaly:

1. With Main Switch set to ON, when Tire Pressure Indicator in the Dashboard lights up continuously, it may be due to a pressure > 3.2 kgf/cm^2 or < 1.6 kgf/cm^2 of Front Tire; or a pressure >3.75 kgf/cm^2 or < 1.65 kgf/cm^2 (23.4psi) of Rear Tire. Change over to TPMS Mode by pressing the Mode button, the tire pressure value will be flashing.

2. Tire Pressure Indicator will light up continuously if controller is faulty. Change over to TPMS Mode by pressing the Mode button, the *Err* symbol will appear.

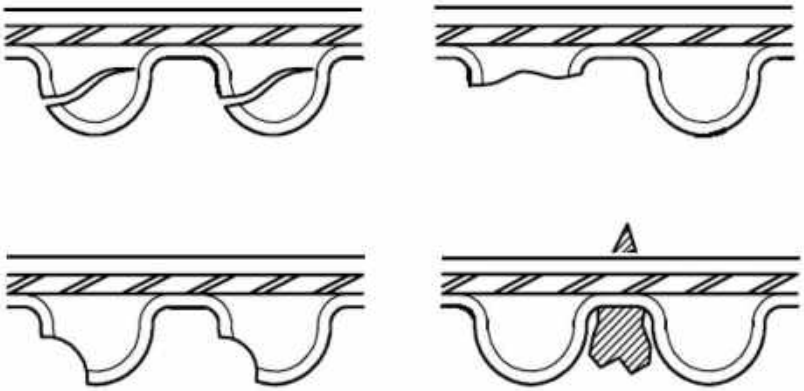
3. Tire Pressure Indicator will light up continuously if signal of tire pressure sensor fails to reach the controller due to environmental interference. Change over to TPMS Mode by pressing the Mode button, - - - will appear.

4. When power of battery in Tire Pressure Sensor is low, Tire Pressure Indicator will light up constantly. Change over to TPMS Mode by pressing the Mode button, *BAr* will appear and flash. The owner shall prepare for replacing with a new wireless Tire Pressure Sensor.

5. Tire Pressure Indicator flashes quickly if tire pressure drops fast; it flashes slowly if tire pressure drops slowly.

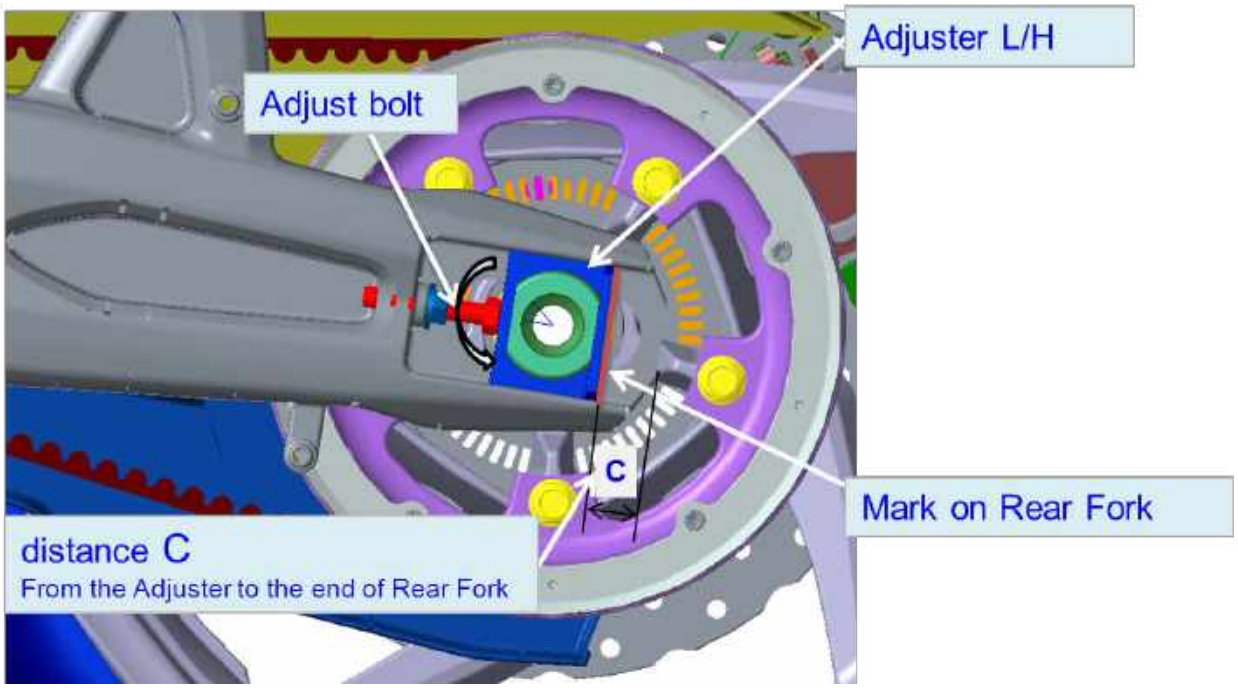
Drive Belt Inspection

Check the drive belt.
If the drive belt crack, missing teeth, hook wear or damage replace the drive belt with a new one.



Drive Belt Tension Adjustment

Step 1: Adjusting the Adjusters



~1. Adjust L/H Adjuster place to the Mark on Rear Fork.

~2. Adjust R/H Adjuster place to be aligned the L/H Adjuster.

~3. Check the distance C of both L/H and R/H Adjusters are the same (18.8mm±0.5mm).

Step 2-1: Sonic Tension Meter setting and use
Recommended~ Gates Unitta, U-508

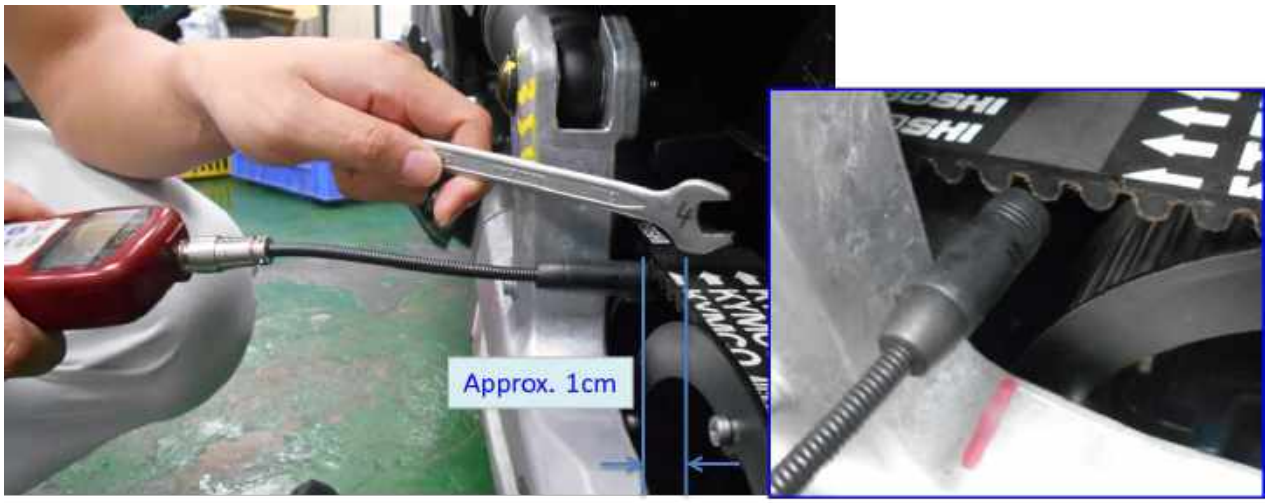
~1. Setting mass constant(M) / width(W) / span(S)
M 008.3 g/m **W** 040.0 mm/R **S** 0381 mm

~2. Align the meter probe and press “MEASURE” button.

~3. Knock the belt gently to get the tension reading.

Step 2-2: Measure the belt tension

P.S. distance C vs. tension (for reference only)
18.8mm --- (1300~1700N)
19.2mm --- (1100~1500N)



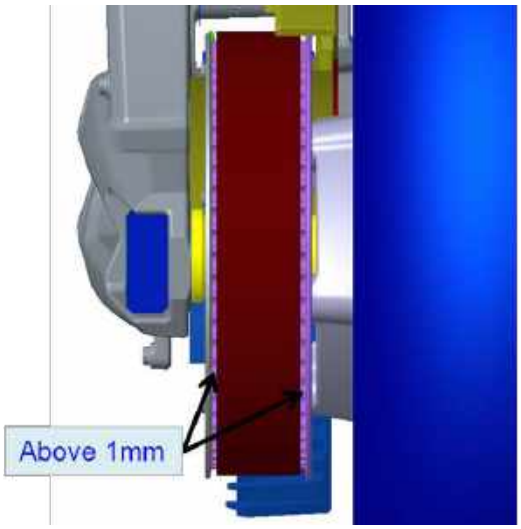
~1. Probe of Sonic Tension meter should be parallel to the belt as shown above pictures.

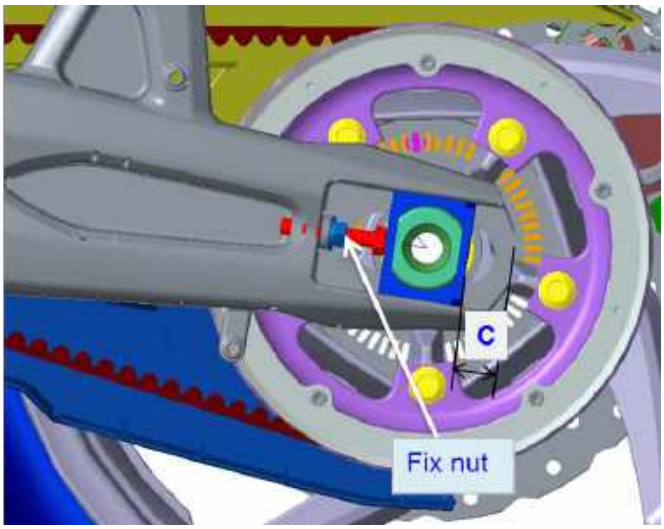
~2. Distance between probe and belt is approx. 1cm, location as shown above pictures.

~3. Appropriately hit the belt with metal tool.

~4. Tension reading should be 1300~1700N(brand new, after running 1000~1400N).

Step 3: Belt side Clearance





~1. Turn the wheel for several runs, check the belt is located at the center of driven pulley, (both sides clearance should be more than 1mm), if not, slightly adjust R/H Adjuster, and distance C of R/H and L/H Adjuster must remained within the range 18.8±0.5mm.

~2. Then, tightening the rear axle nut to specific tighten torque, and the fix nut(shown above) as well.

Valve Clearance

The valve clearance specification is only relevant if the engine is cold.

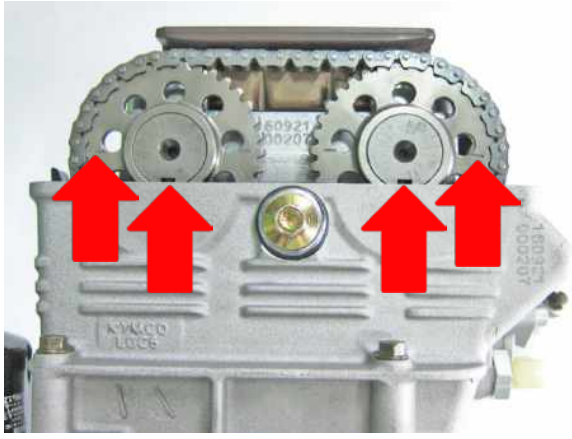
Inspection

Remove the timing inspection cap from the left side of the engine. And rotate the crankshaft from the right side of the engine.

When installation, inspect the O-ring on the cap and replace it as needed.

Rotate the crankshaft to TDC mark.

And align the TDC mark at camshaft sprocket.

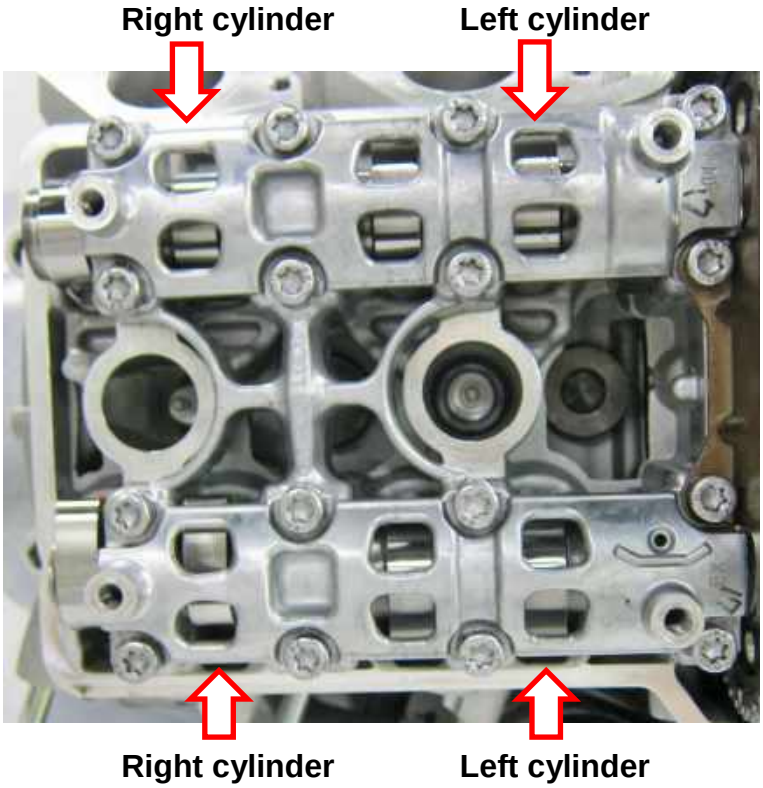


For correct engine timing the marks on the camshaft sprocket must be even with the cylinder head mating surface at the same time the "T" mark is lined up with the with the index notch in the timing inspection hole.

If this is not the case, rotate the crankshaft 360° clockwise until the "T" mark is once again aligned with the notch on the case cover.

Note: Valve clearance measuring sequence: First to adjust the left cylinder then turn the crankshaft clockwise 180° to adjust the right cylinder.

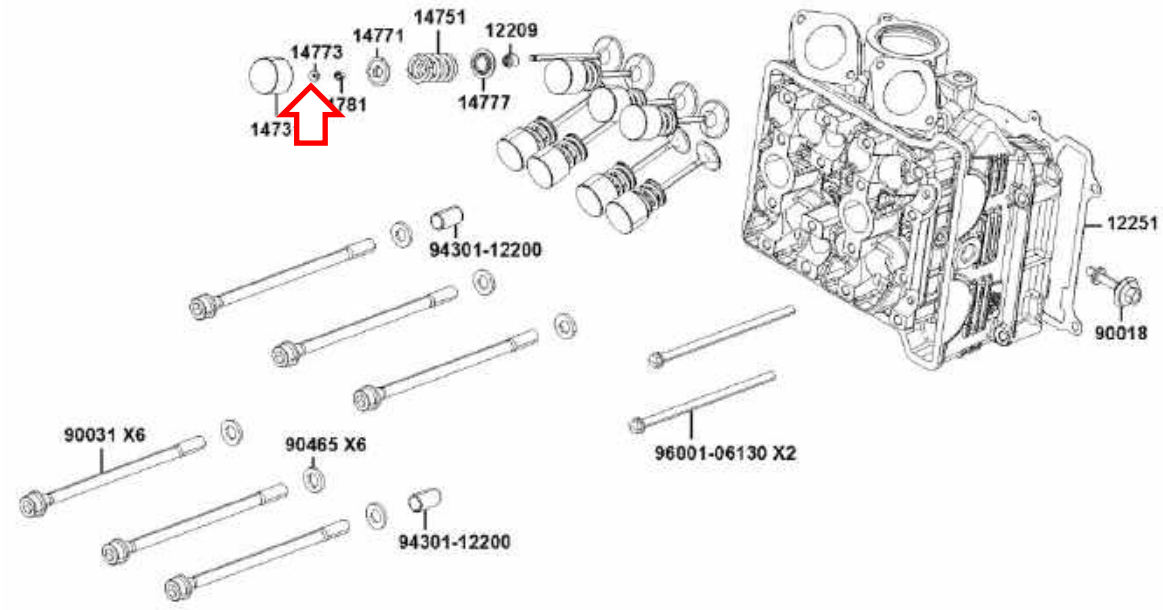
Valve Clearance Adjustment



Measure the valve clearance with a thickness feeler gauge.

Valve clearance	IN: 0.175 mm	EX: 0.225 mm

If the clearance is out of specification, replace the shim to fit in the standard.



Measure the valve clearance with a thickness feeler gauge.

Valve clearance	IN: 0.175 mm	EX: 0.225 mm

If the clearance is out of specification, replace the shim to fit in the standard.

Specification of shim: 1.8~3.0mm

01	1.8	1800
02	1.825	1825
03	1.85	1850
04	1.875	1875
05	1.9	1900
06	1.925	1925
07	1.95	1950
08	1.975	1975
09	2.0	2000
10	2.025	2025
11	2.05	2050
12	2.075	2075
13	2.1	2100
14	2.125	2125
15	2.15	2150
16	2.175	2175
17	2.2	2200
18	2.225	2225
19	2.25	2250
20	2.275	2275
21	2.3	2300
22	2.325	2325
23	2.35	2350
24	2.375	2375
25	2.4	2400
26	2.425	2425
27	2.45	2450
28	2.475	2475
29	2.5	2500
30	2.525	2525
31	2.55	2550
32	2.575	2575
33	2.6	2600
34	2.625	2625
35	2.65	2650
36	2.675	2675
37	2.7	2700
38	2.725	2725
39	2.75	2750
40	2.775	2775
41	2.8	2800
42	2.825	2825
43	2.85	2850
44	2.875	2875
45	2.9	2900
46	2.925	2925
47	2.95	2950
48	2.975	2975
49	3.0	3000

thickness feeler gauge

Shim

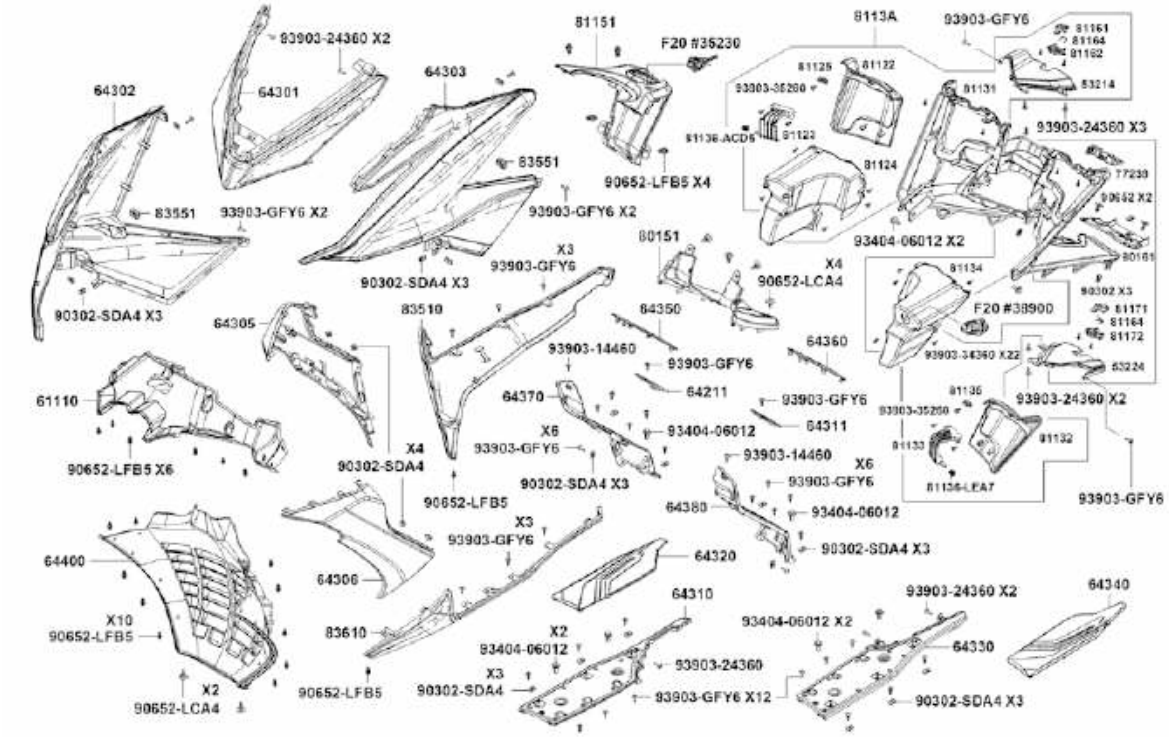
Note: Valve clearance measuring sequence: First to adjust the left cylinder then turn the crankshaft clockwise 180° to adjust the right cylinder.

3.External Components

This chapter covers the location and servicing of the external components for the KYMCO AK 550 model.

General Instructions

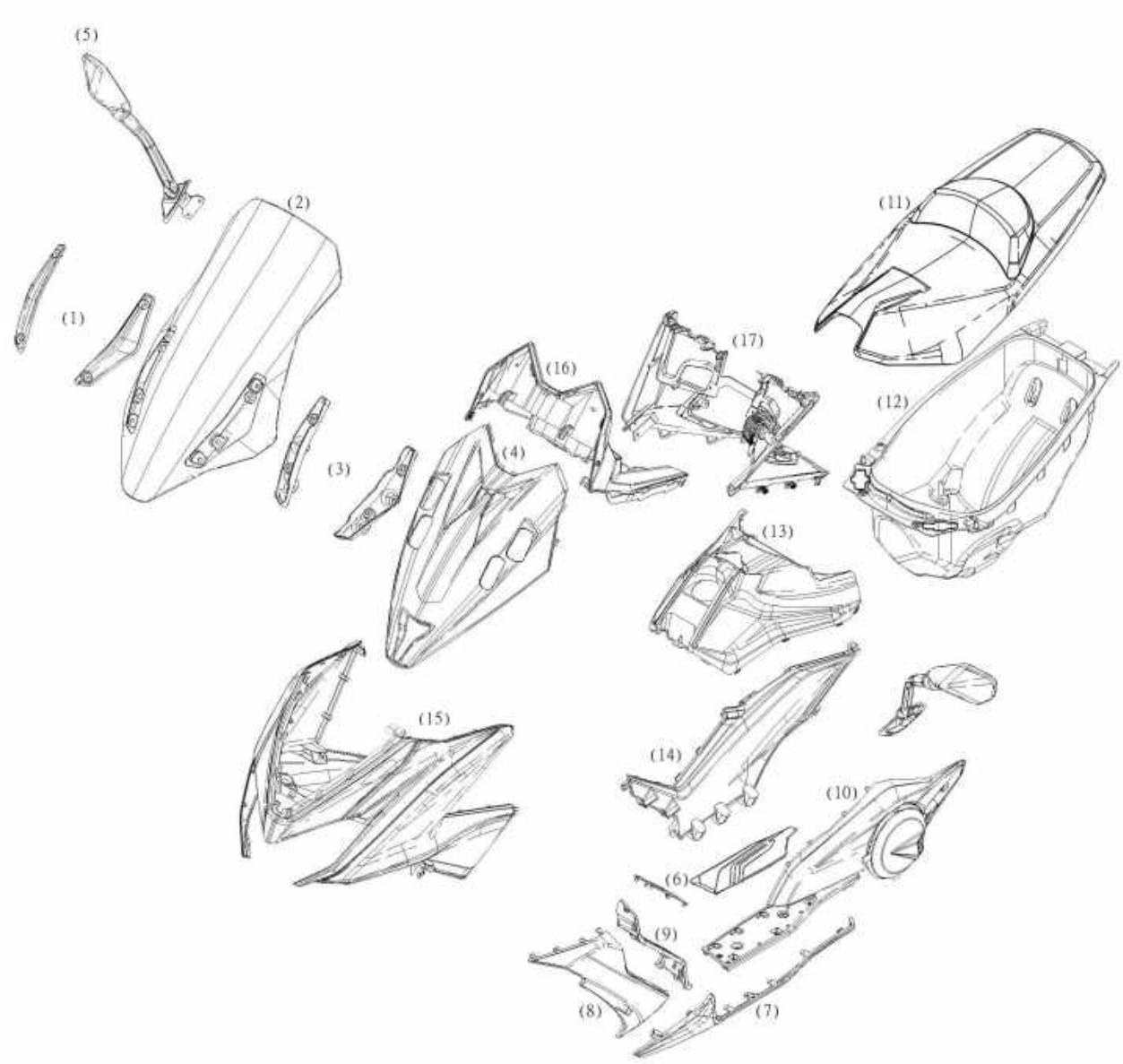
• When removing frame covers, use care not to pull them by force because the cover joint claws may be damaged.
• Make sure to route cables and harnesses according to the Cable & Harness Routing.



Dismantled and assembly order

Follow the dismantled order as below illustration.

Assembly is reverse of dismantled order.



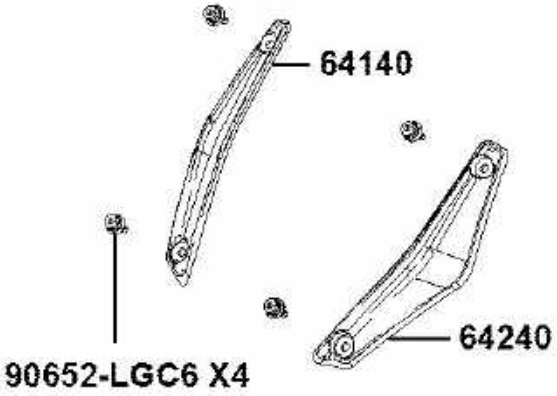
Note:

• When removing frame covers, use care not to pull them by force because the cover joint claws may be damaged.

• Make sure to route cables and harnesses according to the Cable & Harness Routing.

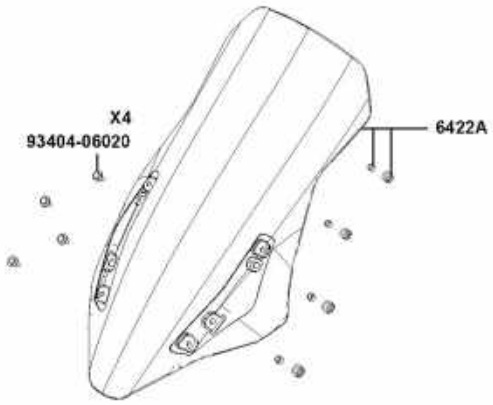
Windscreen Cover Removal

Remove four fasteners and remove the windscreen covers.



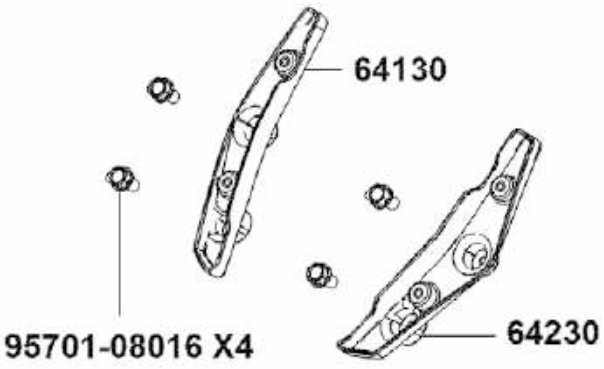
Windscreen Removal

Remove four bolts and remove the windscreen.



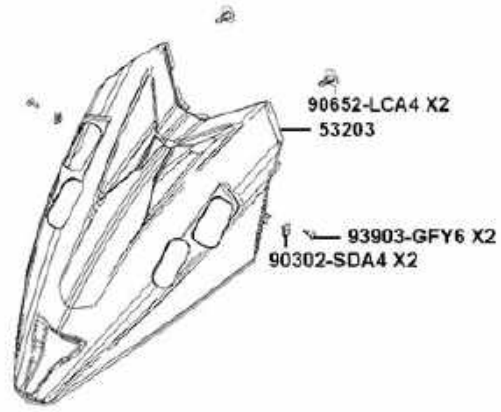
Windscreen Holder Removal

Remove four bolts and remove the windscreen holders.



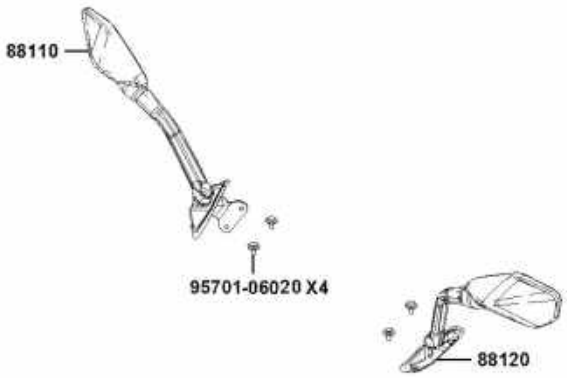
Front Meter Cover Removal

Remove two screws and two fasteners. Remove the front meter cover.



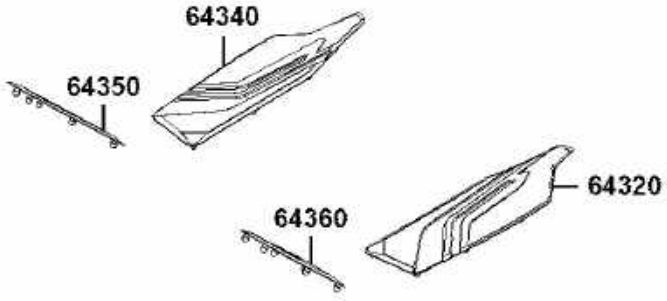
Back Mirror Removal

Remove four bolts and remove the back mirrors.



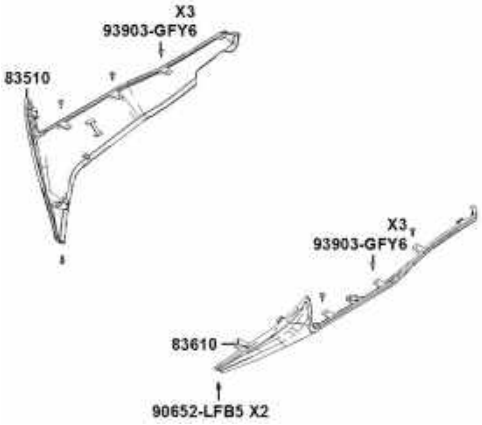
Mats Of Floor And Leg Shield Removal

Remove four mats of floor and leg shield.



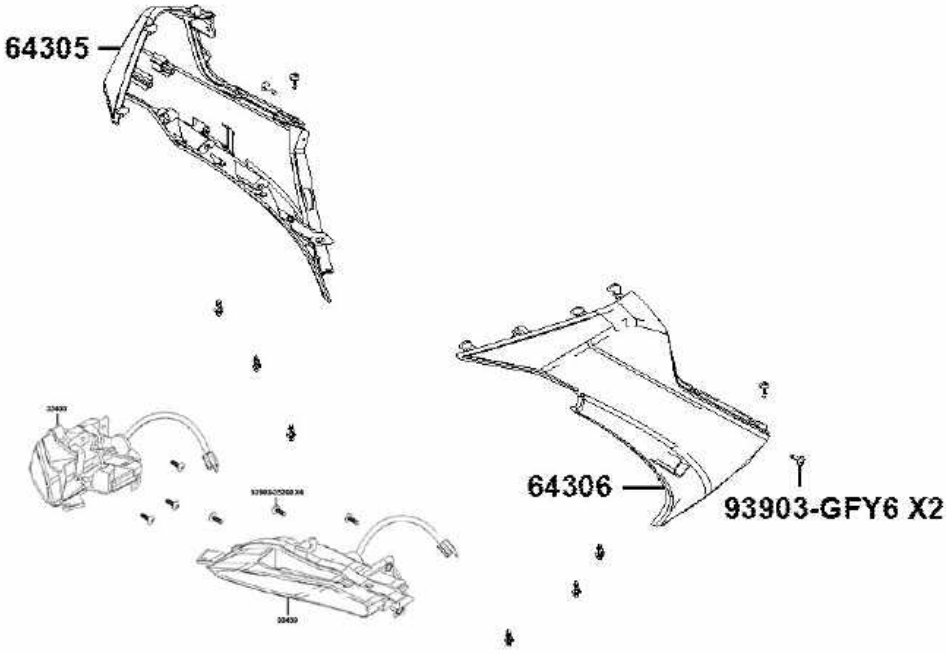
Side Cover Removal

Remove 6 screws, 4 fasteners and remove the left and right side covers.



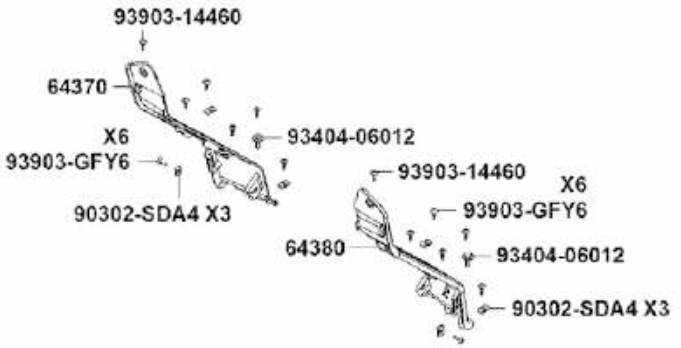
Side Skirt Set Removal

Remove 4 screws, 6 small fasteners and remove the left and right side skirts set.



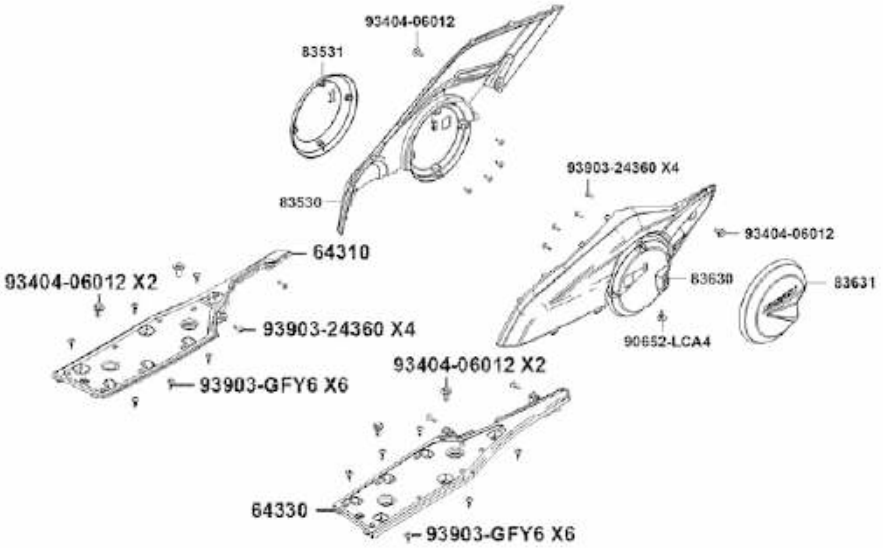
Panel Floor B Removal

Remove screws, two bolts and fasteners, remove the right and left panel floor B.



Panel Floor A Set Removal

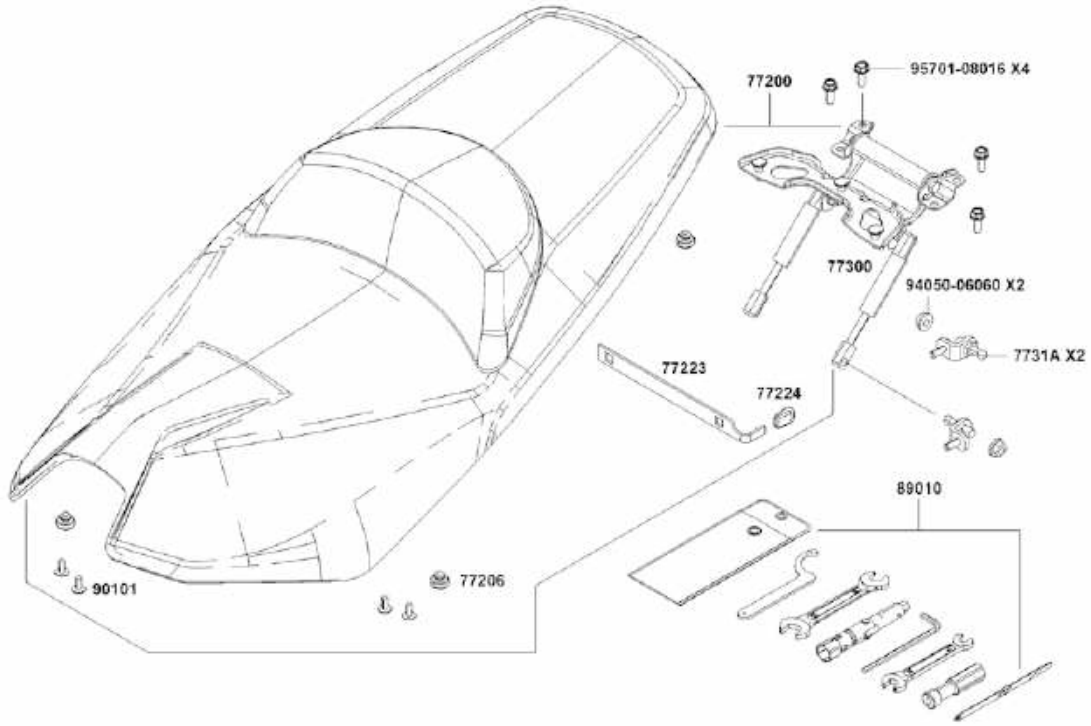
Remove screws, bolts, remove the right and left panel floor A set.



Seat Removal

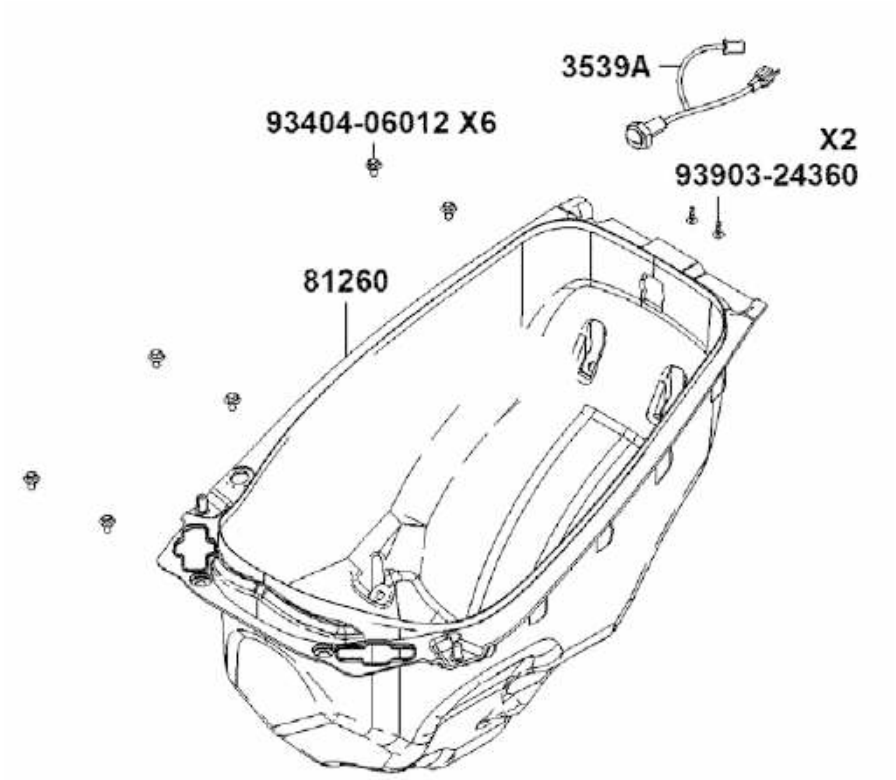
Turn the ignition switch counter clockwise to open the seat.

Lift up the seat and remove 3 nuts and remove the seat.



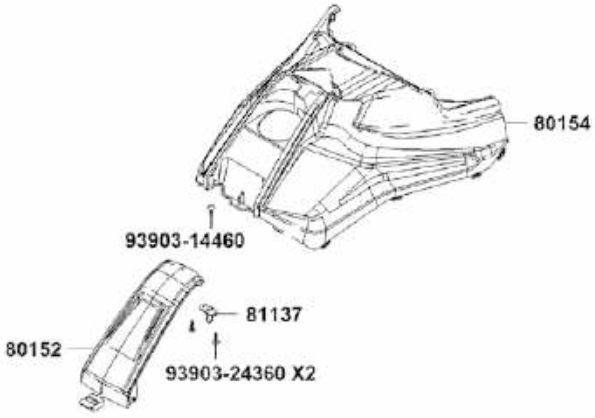
Luggage Box Removal

Remove 6 bolts, lamp coupler and remove the luggage box.



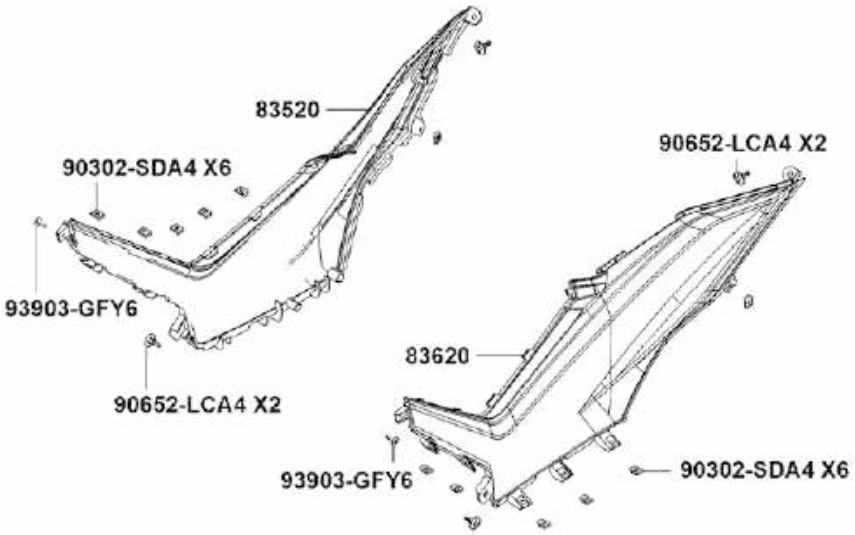
Center Cover B Removal

Open the fuel cap lid and open the fuel cap.
Remove a screw and remove the center cover B.



Side Board A Removal

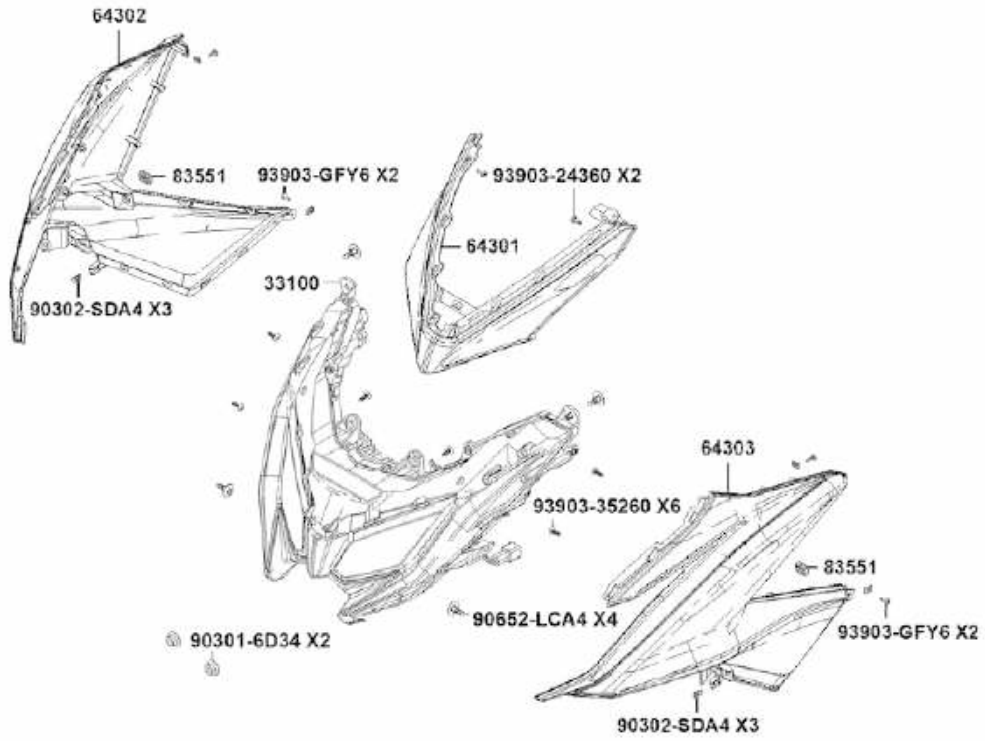
Remove two fasteners, four screws, remove the side board A.

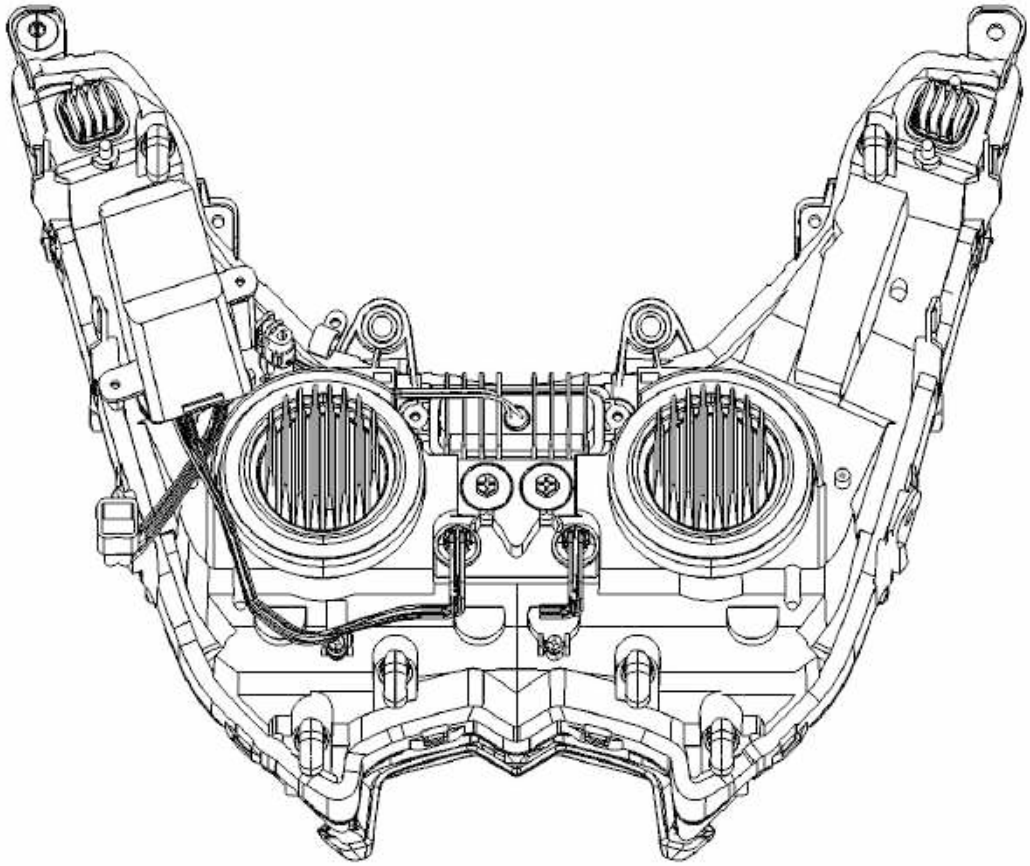


Front Cover Set Removal

Remove nuts and coupler. , remove the front cover set.

Remove the screws and remove the front cover set.

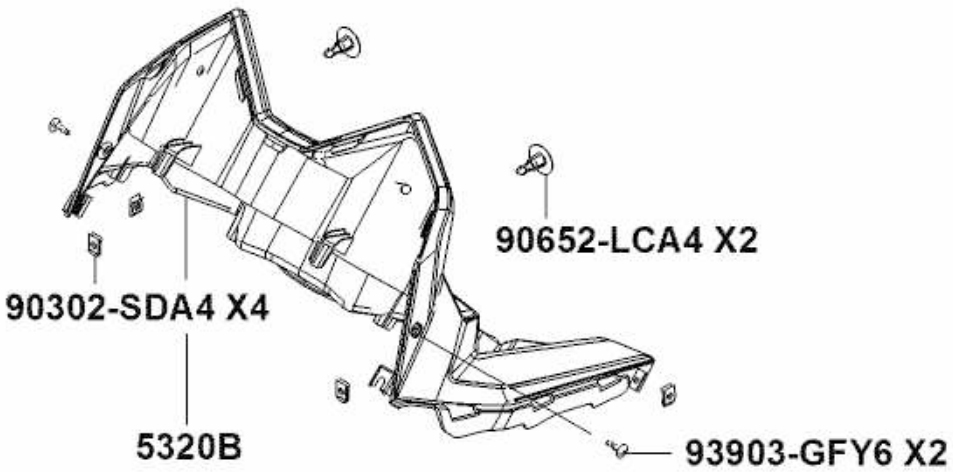




Meter Cover Set Removal

Remove couplers.

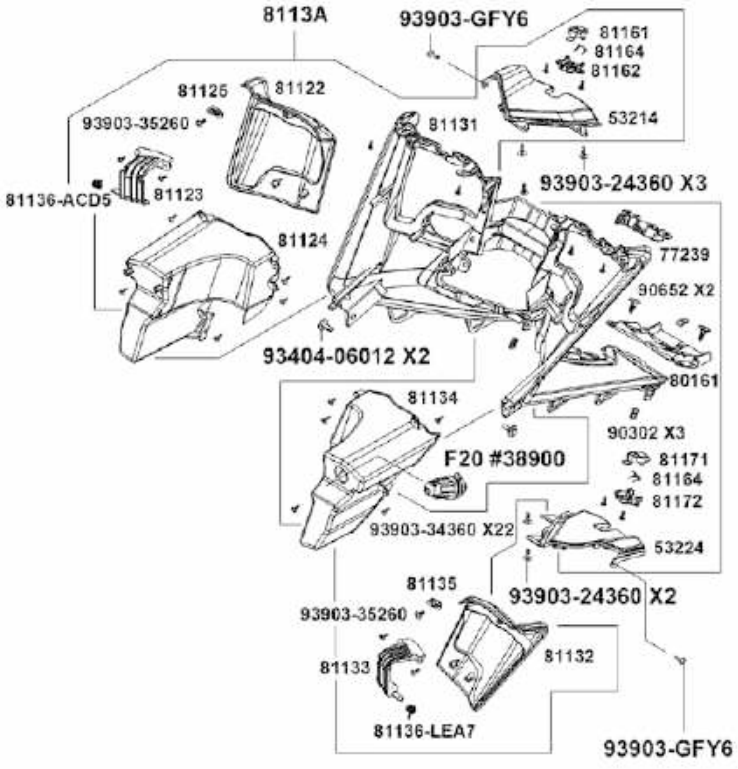
Remove fasteners, screws, bolts and remove the meter cover set.



Leg Shield Assy. Removal

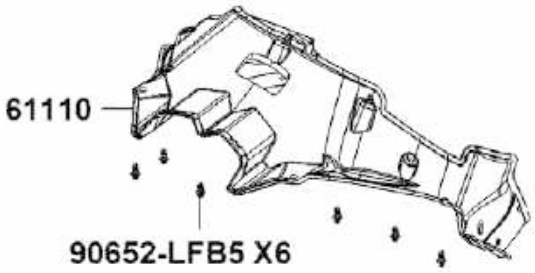
Remove the screw, rotate and remove the main switch plate.

Remove bolts, screws, couplers and remove the leg shield assembly.



Front Inner Fender Removal

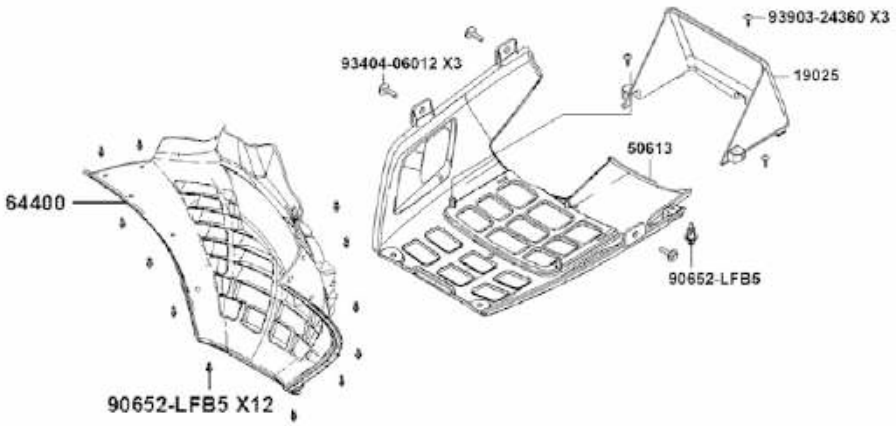
Remove fasteners, temperature sensor couplers and remove the front fender.



Remove the connecter of the air temperature sensor.

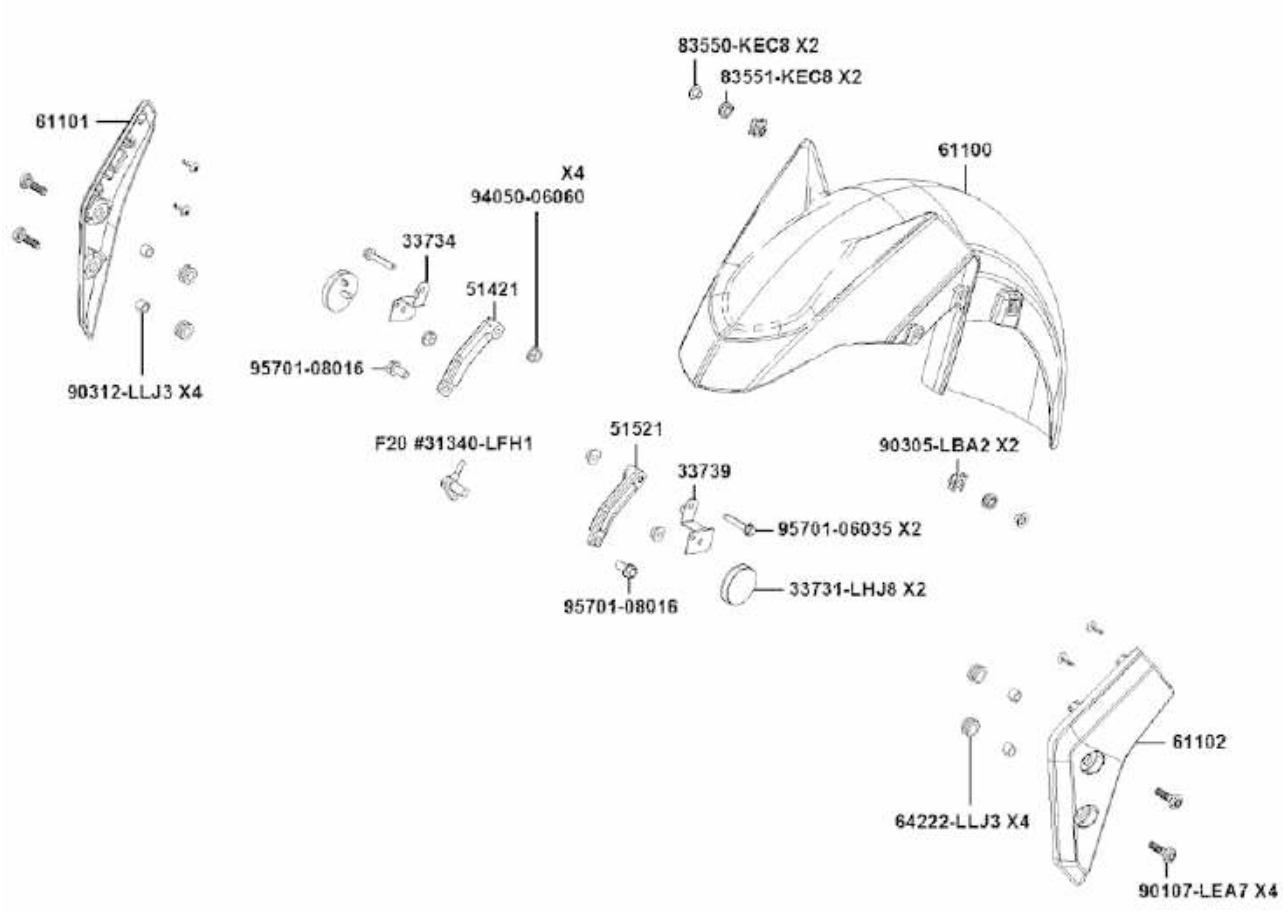
Under Cowl Set Removal

Remove the bolts, screws and remove the under cowl set.



Front Fender Assy. Removal

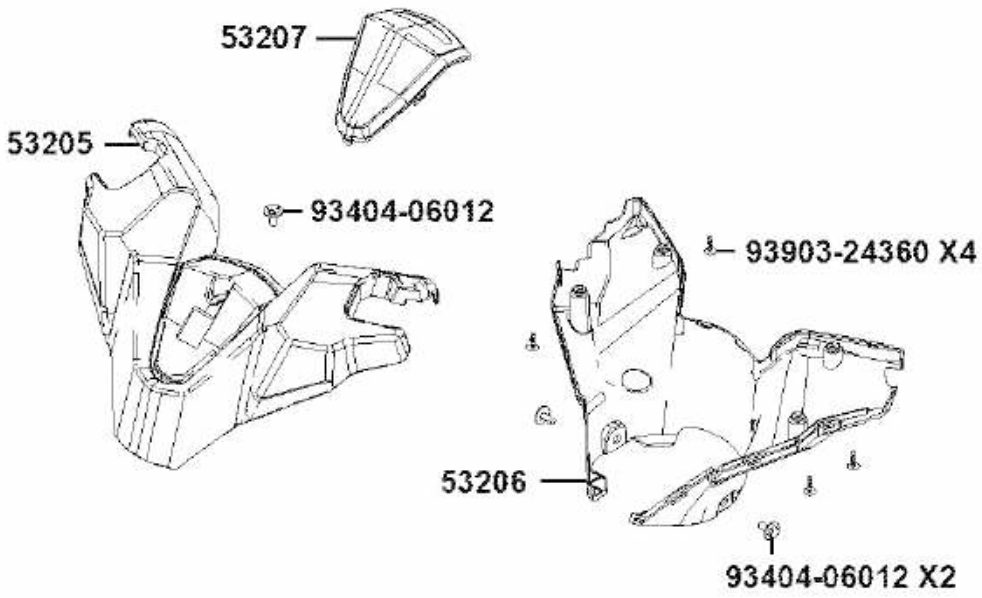
Remove the bolts, plates and reflectors.
Remove the front fender assembly.



Up And Low Handle Cover Removal

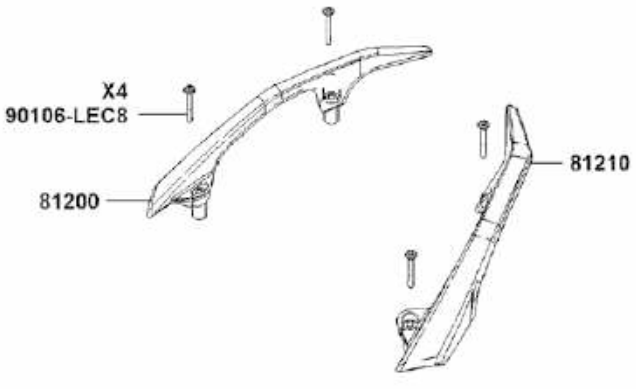
Remove the top handle cover.
Remove the bolts, screws and remove the up handle cover.


Remove the bolts, screws.
Remove throttle and parking brake cables and remove the low handle cover.

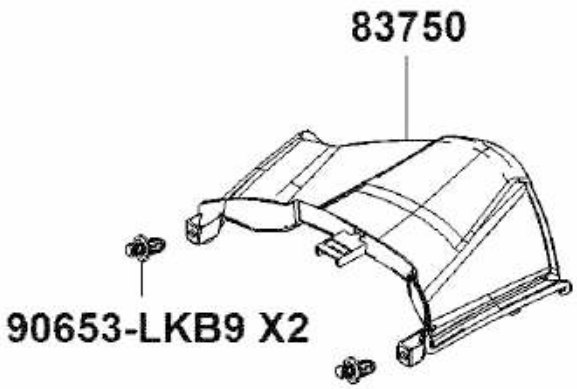
Rear carriers Removal

Remove four bolts and remove the right and left rear carriers.



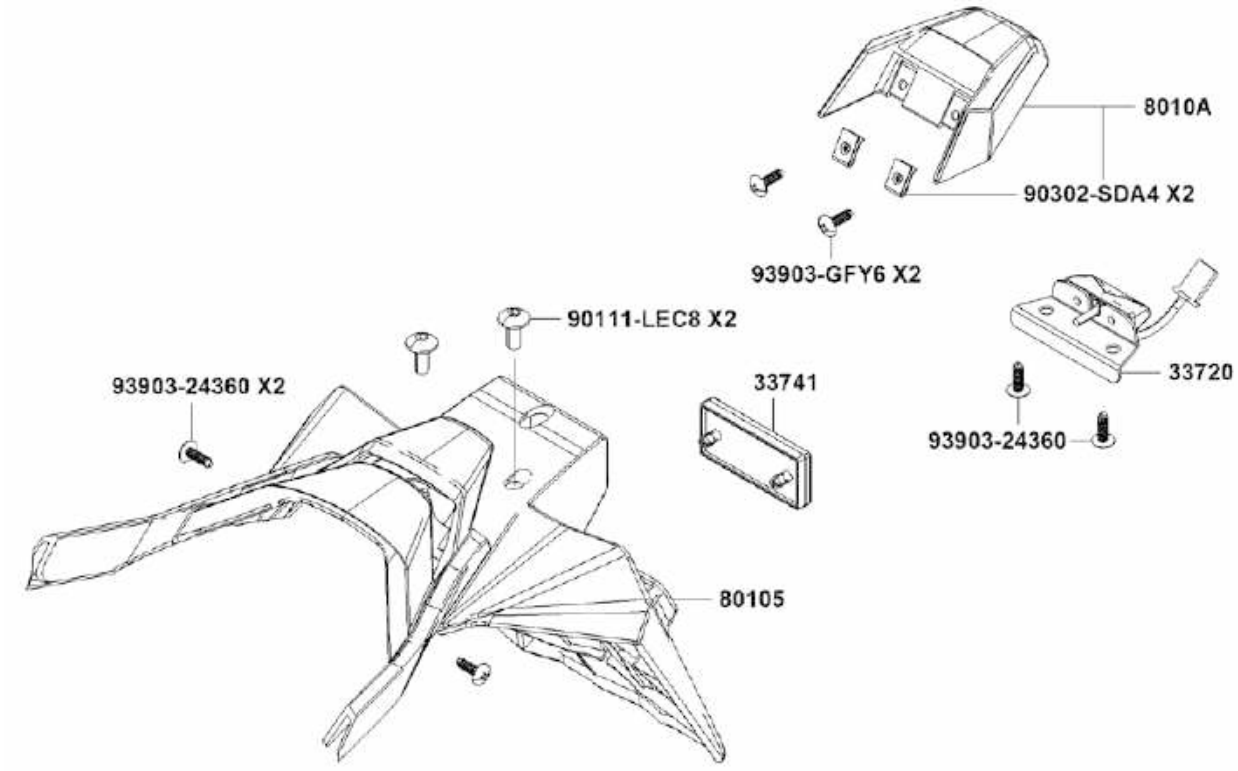
Rear Center Cover Removal

Remove fasteners and remove the rear center cover.



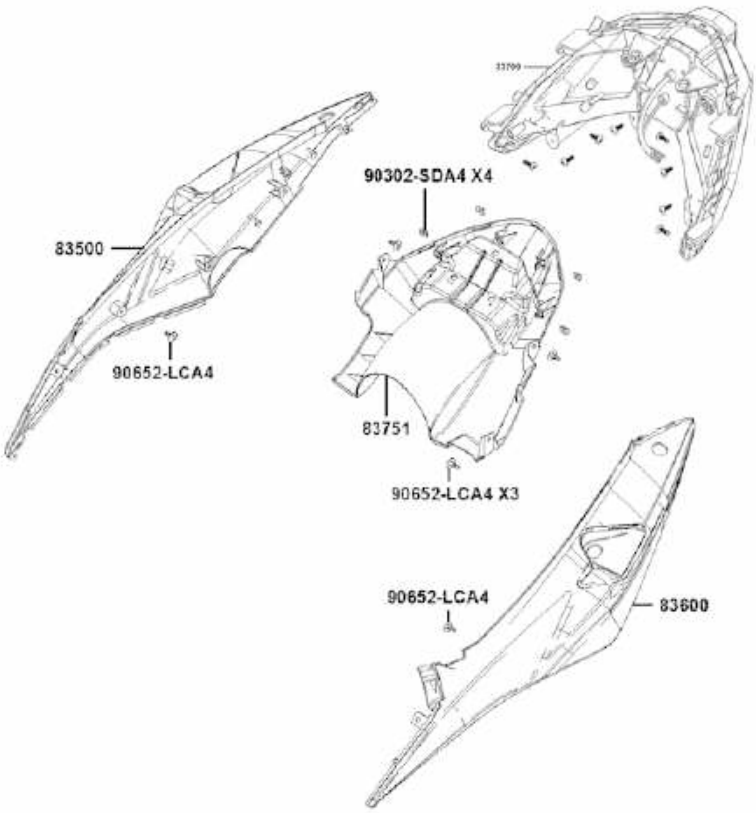
Rear Fender Set Removal

Remove the 3 bolts, coupler and remove the rear fender set.



Body Cover Set Removal

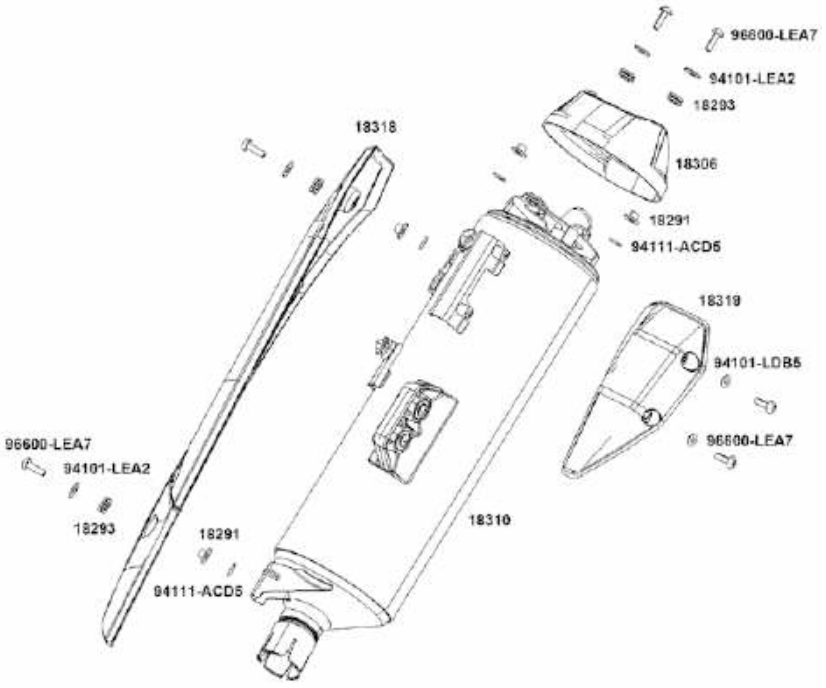
Remove fasteners, bolts, screws, coupler and remove the body cover set.



Heat Shield Removal

Remove bolts, washers, rubbers and remove the heat shields.

Remove bolts, washers, rubbers and remove the heat shields.



Exhaust System

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Troubleshooting

Noisy exhaust muffler

- Damaged exhaust muffler
- Exhaust muffler joint air leaks

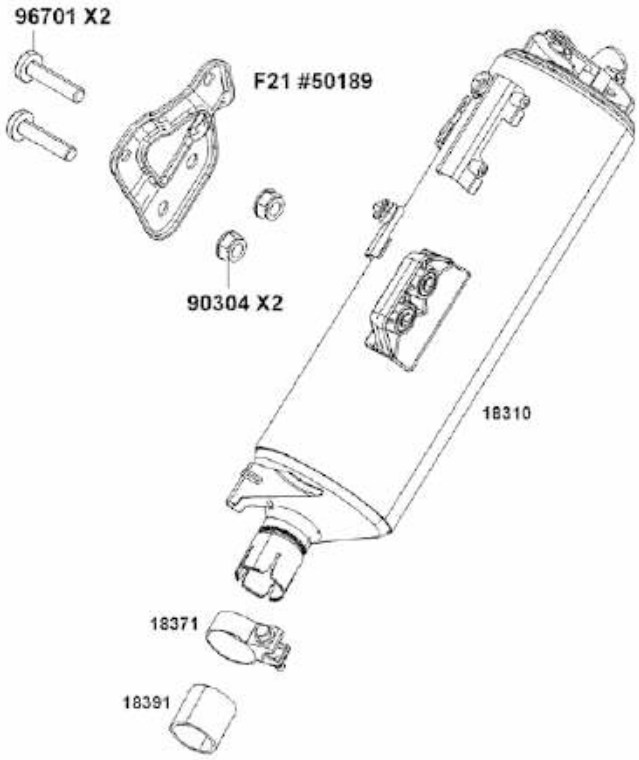
Lack of power

- Caved exhaust muffler
- Clogged exhaust muffler
- Exhaust muffler air leaks

Muffler Removal

Remove bolts of the muffler.
Fix bolts installation torque: 2.7~3.2 kgf-m (27~32 N-m)

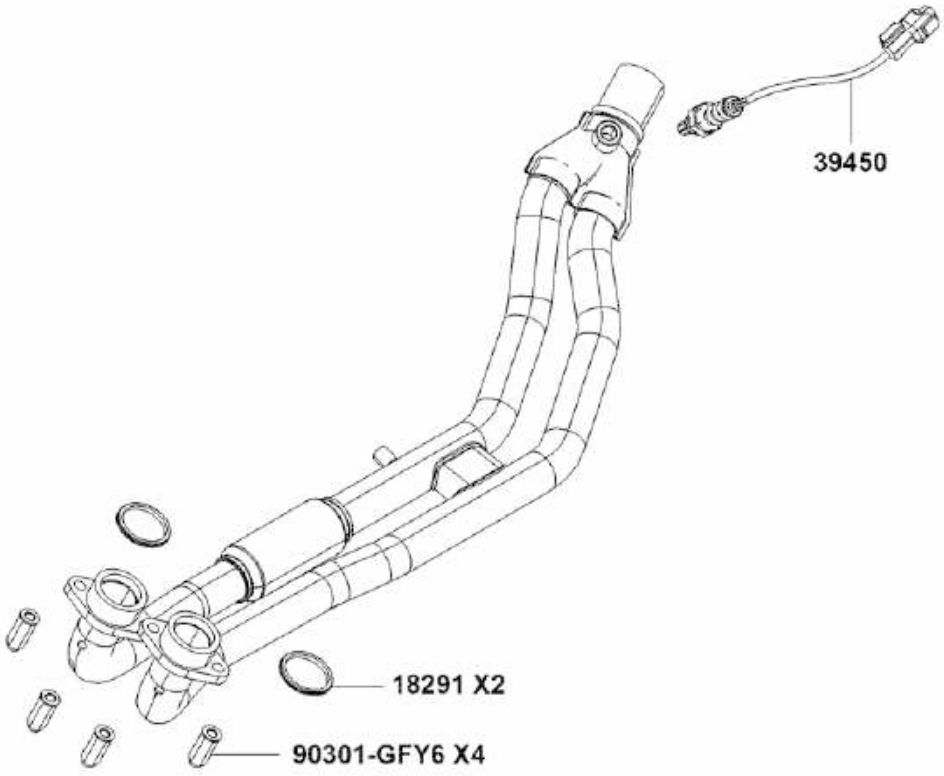
Remove the muffler.
Replace the new exhaust pipe gasket(18391) when installation.



Exhaust Pipe Removal

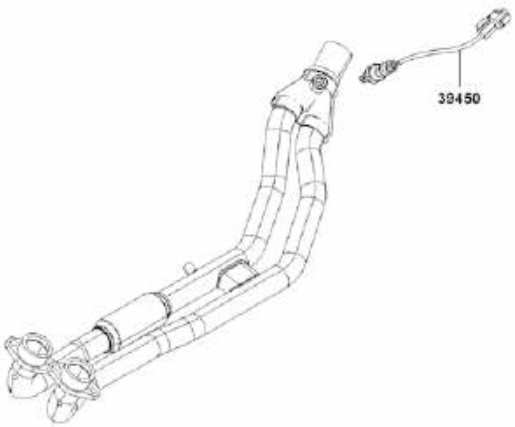
Unplug the O^2 sensor connector.
Remove 4 nuts of the exhaust pipe.

Remove the exhaust pipe.
Replace the new exhaust pipe gasket(18291) when installation.



O2 Sensor Removal

Remove the O^2 sensor with a 17 mm wrench. Use care not to pinch the wires.



Installation torque: 2~3 kgf-m (20~30 N-m)
Apply anti-seize compound to the threads of the O^2 sensor. Install the O^2 sensor and tighten it to specification with a 17 mm wrench. Use care not to pinch the wires.

The O^2 sensor issues signal to ECU when the temperature is over 350°C while the engine is running.

Test the O^2 sensor at room temperature.

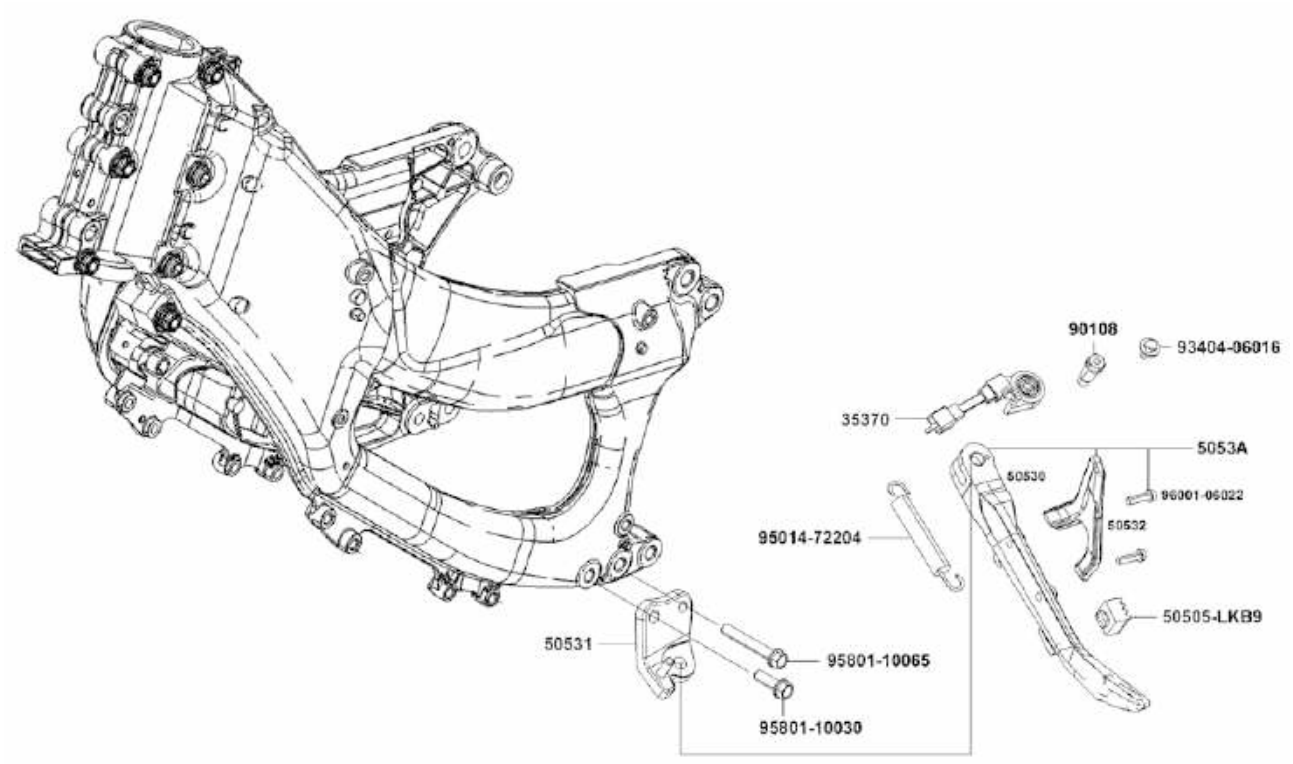
Use a digital multimeter set to ohms of resistance to inspect the O^2 sensor.

Measure the resistance between the white wire terminals of the O^2 sensor connector. Replace the O^2 sensor if the reading is out of specification.

ITEM	SPECIFICATIONS
O^2 heater sensor resistance (at 20°C/68°F)	6.7 - 9.5 Ω (engine warming condition)

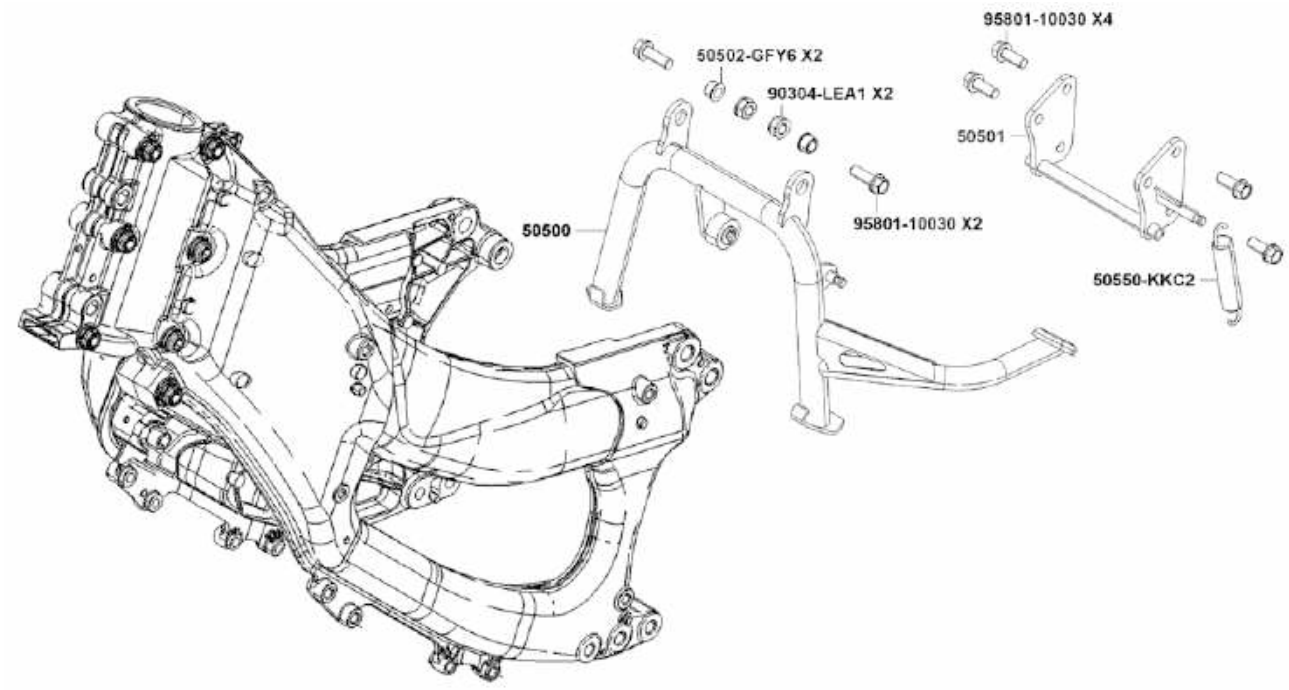
Side Stand Removal

Unplug the three-pin side stand switch connector.
Remove the spring, side stand bolt, switch, and side stand.



Center Stand Removal

Lift up the vehicle by a jack carefully.
Remove the center stand spring with a spring puller.
Remove the nuts and bolts. Remove the center stand.



4.Engine

This chapter covers the location and servicing of the engine components for the KYMCO AK 550 model.

GENERAL INSTRUCTIONS

Lubrication System

The maintenance of lubrication system can be performed with the engine installed in the frame. Use care when removing and installing the oil pump not to allow dust and foreign matters to enter the engine and oil line.

Do not attempt to disassemble the oil pump.

After the oil pump is installed, check each part for oil leaks.

TROUBLESHOOTING

Oil level too low

1. Natural oil consumption
2. Oil leaks
3. Worn or poorly installed piston rings
4. Worn valve guide or seal

Poor lubrication pressure

1. Oil level too low
2. Clogged filter or oil passages
3. No use the specified oil

Cylinder Head Camshaft and Valves

• The cylinder head can be serviced with the engine installed in the frame. Coolant in the radiator and water hoses must be drained.

• When assembling, apply molybdenum disulfide grease or engine oil to the valve guide movable parts and valve arm sliding surfaces for initial lubrication.

• The valve rocker arms are lubricated by engine oil through the engine oil passages. Clean and unclog the oil passages before assembling the cylinder head.

• After disassembly, clean the removed parts and dry them with compressed air before inspection.

• After removal, mark and arrange the removed parts in order. When assembling, install them in the reverse order of removal.

TROUBLESHOOTING

• The poor cylinder head operation can be diagnosed by a compression test or by tracing engine top-end noises.

Poor performance at idle speed

• Compression too low

Compression too low

• Incorrect valve clearance adjustment
• Burned or bent valves
• Incorrect valve timing
• Broken valve spring
• Poor valve and seat contact
• Leaking cylinder head gasket
• Warped or cracked cylinder head
• Poorly installed spark plug

Compression too high

• Excessive carbon build-up in combustion chamber

Abnormal noise

• Incorrect valve clearance adjustment
• Sticking valve or broken valve spring
• Damaged or worn camshaft
• Worn cam chain tensioner
• Worn camshaft and rocker arm

White smoke from exhaust muffler

• Worn valve stem or valve guide
• Damaged valve stem oil seal

Cylinder and Piston

• The cylinder and piston cannot be serviced with the engine installed in the frame.
• After disassembly, clean the removed parts and dry them with compressed air before inspection.
• If replacing the piston or cylinder, they must be changed as a pair.

TROUBLESHOOTING

Compression too low or uneven compression

• Worn, stuck or broken piston rings
• Worn or damaged cylinder and piston

Compression too high

• Excessive carbon build-up in combustion chamber or on piston head.

Excessive smoke from exhaust muffler

• Worn or damaged piston rings
• Worn or damaged cylinder and piston

Abnormal noisy piston

• Worn cylinder, piston and piston rings
• Worn piston pin hole and piston pin

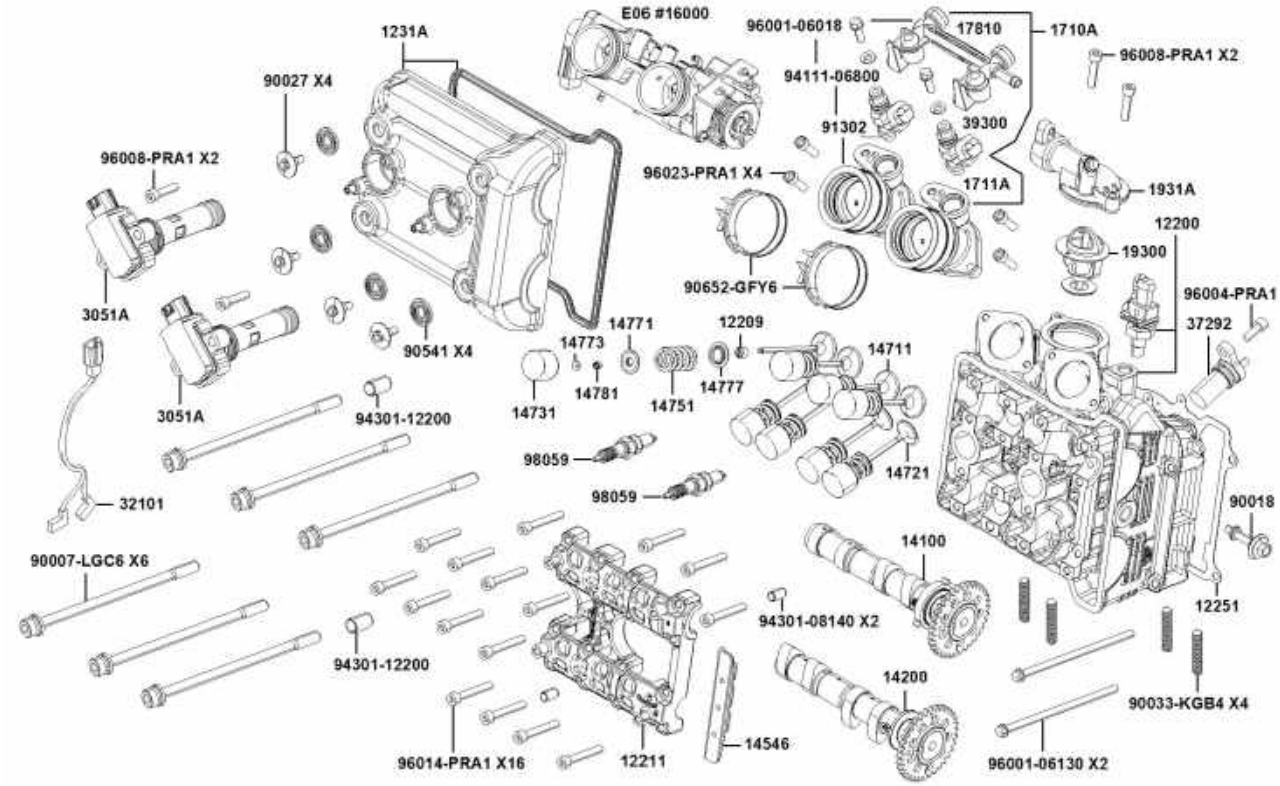
Engine Torque Specifications

NO	ITEM	THREAD SIZE AND TYPE	TORQUE N·m	TORQUE kgf·m	PR VALUES N·m	REMARKS	THREAD DWG. NO.	THREAD DWG. NAME	QTY	SPECIFICATION
1	CYLINDER HEAD	M9x1.25	3rd step: 105°±5°			APPLY OIL	90031-LGC6-E000	BOLT, UBS M9X160	6	NOTE.3
2	CYLINDER HEAD	M6x1.0	9.8~13.7	1.0~1.4	11.8		96001-06130-06	BOLT FLANGE SH 6*130 (G)	2	
3	CYLINDER HEAD	M18x1.5	31.5~38.5	3.2~3.9	35.0		90085-KKE5-E000	BOLT SEALING 18MM	2	
4	THERMOSTART COVER	M6x1.0	9.8~13.7	1.0~1.4	11.8		96008-PRA1-E000	BOLT M6x25-8.8 ZNNIV SI	2	
5	EX PIPE STUD BOLT	M8x1.25	6.9~10.8	0.7~1.1	8.9		90033-KGB4-C000	BOLT STUD 8*40	4	
6	SPARK PLUG	M10x1.0	9.8~13.7	1.0~1.4	11.8		98059-57916-00	SPARK PLUG CR8E	2	
7	CAM HOLDER	M6x1.0	9.8~10.8	0.9~1.1	9.8	APPLY OIL	96014-PRA1-E000	BOLT M6x1x40	16	12200-LGC6-E000 NOTE.6
8	TENSIONER LIFTER	M18x1.0	17.7~21.6	1.8~2.2	19.6		90005-LEH6-E000	BOLT SPECIAL, M18 x 1.0	1	
9	CAM CHAIN TENSIONER PIVOT	SPECIAL BOLT M8x1.25	7.8~11.8	0.8~1.2	9.8	APPLY OIL	14531-KHE7-9000	PIVOT CAM CHAIN TENSIONER	1	
10	HEAD COVER	M6x1.0	9.8~13.7	1.0~1.4	11.8		90027-PUA5-E000	JACK SCREW M6 VALVE COVER	4	
11	DOWN CASE	M8x1.25	18.6~24.6	1.8~2.5	22.6	APPLY OIL	95801-08090-06	BOLT FLANGE 8*90(G)	6	11110A-LGC6-E000
12	DOWN CASE	M6x1.0	9.8~13.7	1.0~1.4	11.8	APPLY OIL	96001-06090-06	BOLT FLANGE, SH 6x90	8	NOTE. 5
13	DOWN CASE	M6x1.0	9.8~13.7	1.0~1.4	11.8	APPLY OIL	96001-06055-06	BOLT FLANGE SH 6*55(G)	4	
14	DOWN CASE	M6x1.0	9.8~13.7	1.0~1.4	11.8	APPLY OIL	96001-06035-06	BOLT FLANGE SH 6*35(G)	8	
15	CONROD	M8x1.0	1st step:5 2nd step:16 3rd step:45°			APPLY OIL 5W-50	13213-LGC6-E000	BOLT CONN ROD	4	13210-LGC6-E000 SIDE CLEARANCE OF CONNECTION ROD TO BE 0.1 TO 0.25mm
16	OIL PUMP	M6x1.0	7.8~11.8	0.8~1.2	9.8		96001-06035-06	BOLT FLANGE SH 6*35(G)	3	
17	STUD BOLT, 10x35	M10x1.25	9.8~13.7	1.0~1.4	11.8	APPLY LOCTITE 2701	90033-LGC6-E000	BOLT STUD 11, 10 x 35	5	
18	ONEWAY CLUTCH	BOLT SOCKET M6x1.0	7.8~11.8	0.8~1.2	9.8	APPLY THREAD LOCK	96600-LDG7-9000	SOCKET BOLT 6x20	6	
19	ACG FLYWHEEL	N.F. M14x1.25	53.9~63.7	5.5~6.5	58.8	APPLY OIL	90201-KHR8-7520-M1	NUT FLANGE 14MM(C)	1	
20	L COVER	M6x1.0	9.8~13.7	1.0~1.4	11.8		96013-LGC6-E000	BOLT M6x1x35	16	
21	PLUG SCREW SECTION FILTER	M22x1.5	7.8~11.8	0.8~1.2	9.8		15161-LGC6-E000	PLUG SCREW SECTION FILTER	2	
22	MISSION CASE R/L	M10x1.25	29.0~39.0	3.0~4.0	34.0	APPLY OIL	94050-10060	NUT FLANGE 10MM(G)	5	NOTE.4
23	MAGNETIC SCREW	M16x1.5	25.2~30.8	2.6~3.1	28.0		11205-PUA5-E000	MAGNETIC SCREW M16*1.5	1	
24	L MISSION CASE	M6x1.0	9.8~13.7	1.0~1.4	11.8		96015-PRA1-E000 96018-PRA1-E000	BOLT M6x1x45 BOLT M6x1x60	13 2	
25	WET CLUTCH	M16x1.0	58.5~71.5	5.9~7.3	65.0	APPLY OIL	90204-LGC6-E000	NUT,FLANGE, M16X1.0	1	
26	COVER,L MISSION	M6x1.0	9.8~13.7	1.0~1.4	11.8		96011-PRA1-E000	BOLT M6x1x30	14	
27	CVT CASE	M8x1.25	17.7~21.6	1.8~2.2	19.7		95701-08025-06	BOLT FLANGE 8x25(G)	5	
28	FRONT CVT PULLEY	M18x1.0	75.0~91.3	7.6~9.3	83.0	APPLY OIL	94050-LKF5-E000	NUT FLANGE 18MM	1	
29	DRIVEN PULLEY	M18x1.0	81.0~99.0	8.3~10.0	90.0	APPLY OIL	94001-LGC6-E000	NUT,FLANGE M18X1.0	1	
30	CVT COVER	M8x1.25	17.7~21.6	1.8~2.2	19.7		96033-PRA1-E000	BOLT M8x45	4	
31	CVT COVER	M6x1.0	9.8~13.7	1.0~1.4	11.8		96012-PRA1-E000	BOLT M6x1x30	7	
32	ACG STATOR	M6x1.0	9.8~13.7	1.0~1.4	11.8		96013-LGC6-E000	M6X35-8.8-ZNNIV SI	3	
33	ACG COVER	M14x1.5	6.0~7.0	0.6~0.7	6.5		90084-KKAK-9000	CAP A.C GENERATOR ASSY	1	
34	SW ASSY, POL PRESSURE	PT 1/8	20.3~29.3	2.1~3.0	24.8	APPLY SEAL	35500-KED9-9000	SW ASSY OIL PRESSURE	1	
35	ACG STARER	M5x0.8	7.8~9.8	0.8~1.0	8.8		93500-05016-0F	SCREW PAN 5*16 (G)	2	
36	OIL-WATER HEAT EXCHANGER	M20x1.5	31.5~38.5	3.2~3.9	35.0		15421-PRA1-E000	PIPE OIL FILTER	1	
37	OIL JET	M6x12	9.8~13.7	1.0~1.4	9.8		96005-PRA1-E000	M6x12	2	
38	OIL FLITER	3/4"-16 UNF	8.0~12.0	0.8~1.2	11.0		1541A-LGC6-E000	OIL FILTER ASSY	1	
39	CASE/COVER	M6 x 1.0	5.0~7.0	0.5~0.7	6.0	APPLY LOCTITE 2701	13341-LGC6-E000	GRUB SCREW M6x7	5	

TORQUE(GENERAL)		
ITEM	N·m	kgf·m
5mm bolt and nut	4.4~6	0.45~0.6
6mm bolt and nut	8~12	0.8~1.2
8mm bolt and nut	18~25	1.8~2.5
10mm bolt and nut	29~39	3.0~4.0
12mm bolt and nut	49~59	5.0~6.0
5mm screw	3.4~5	0.35~0.5
6mm screw and flange bolt(SH TYPE)	7~11	0.7~1.1
6mm flange bolt and nut	10~14	1.0~1.4
8mm flange bolt and nut	24~29	2.4~3.0
10mm flange bolt and nut	34~44	3.5~4.5

CYLINDER HEAD/VALVES

SCHEMATIC DRAWING



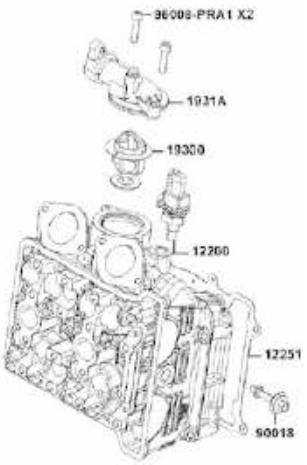
Cylinder Head Cover Removal

Cylinder head cover can be removed when engine is installed on the vehicle.

Remove the bolts and remove the thermostat cover.
The seal need to be replace when remove the thermostat cover.

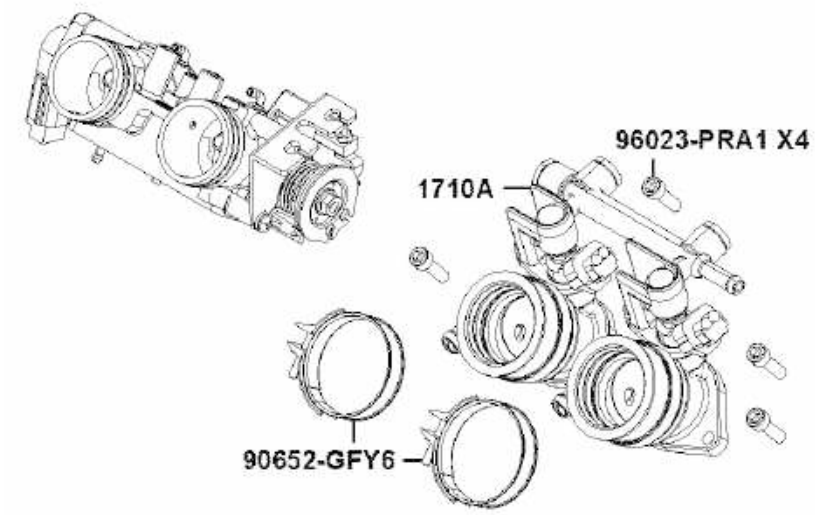
Note: Replace a new seal when installing.

Remove the thermostat.



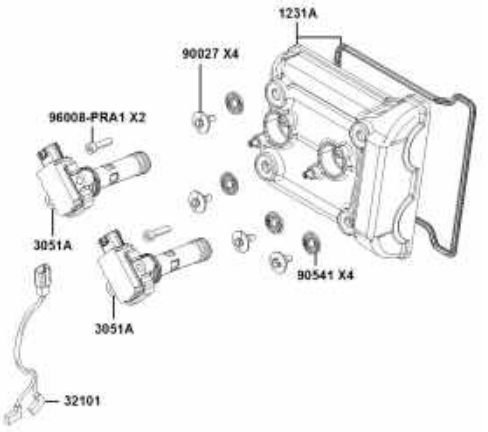
Remove four bolts and the fuel supply rail.

Remove injectors.
Remove 4 bolts and inlet pipes.



Remove two bolts and two ignition coils.
Remove bolts and mounting rubbers of the cylinder head cover.

Remove the cylinder head cover. Replace the rubbers when installation.

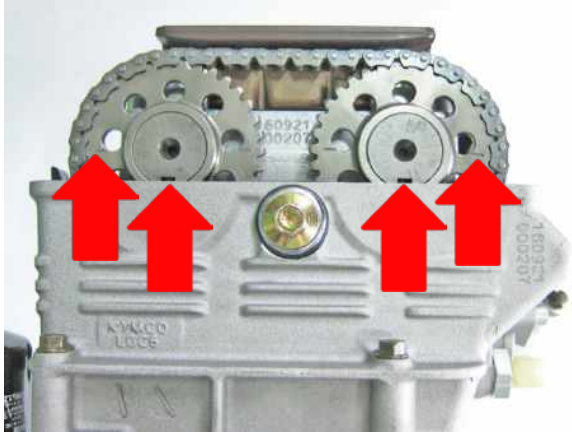


Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)

Camshaft Removal

Remove the timing inspection cap from the left side of the engine. And rotate the crankshaft from the right side of the engine.
When installation, inspect the O-ring on the cap and replace it as needed.

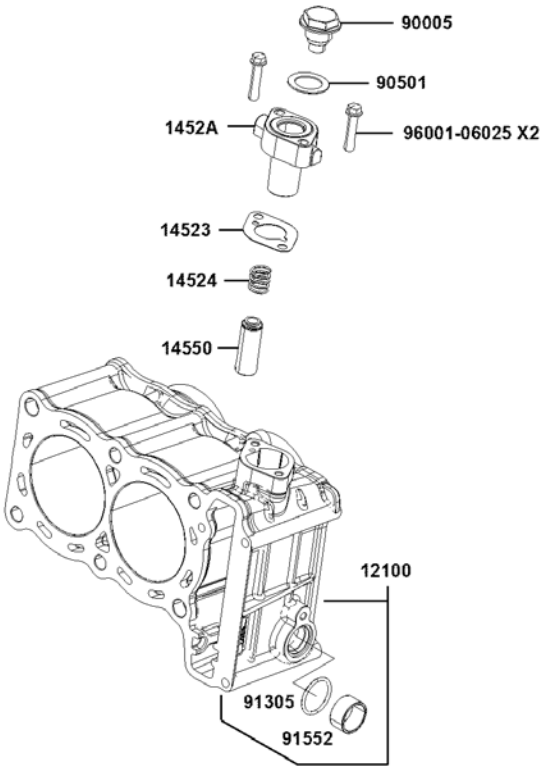

Rotate the crankshaft to TDC mark.
And align the TDC mark at camshaft sprocket.

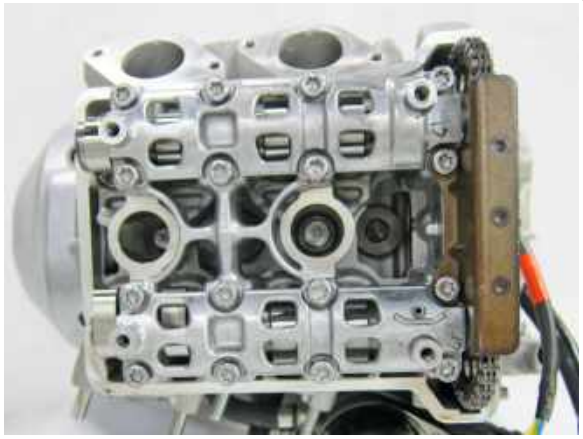
For correct engine timing the marks on the camshaft sprocket must be even with the cylinder head mating surface at the same time the "T" mark is lined up with the with the index notch in the timing inspection hole.

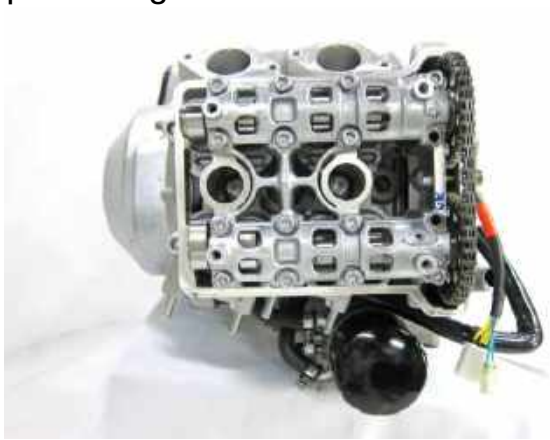
If this is not the case, rotate the crankshaft 360° clockwise until the "T" mark is once again aligned with the notch on the case cover.

Remove the cam chain tensioner cap bolt. Loosen the cam chain tensioner mounting bolts evenly with an 8 mm socket. Lift the cam chain tensioner out of the cylinder. Remove the cam chain tensioner gasket.

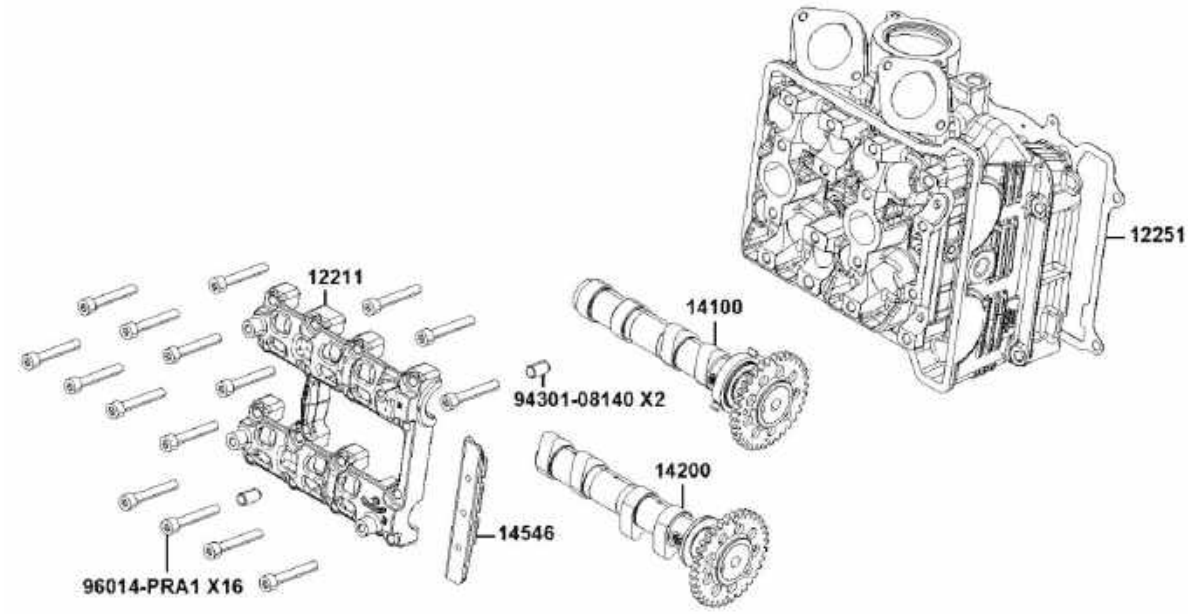


Remove two bolts and remove the upper train guide.

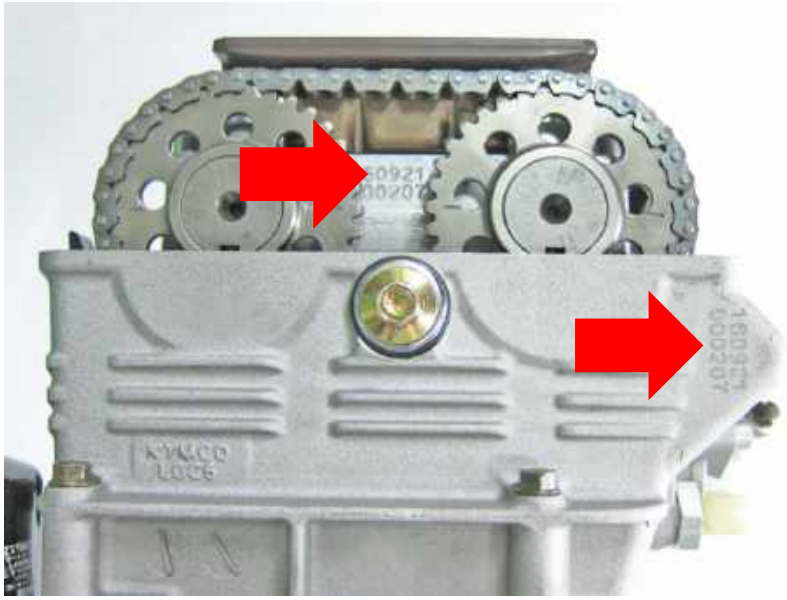




Loosen and remove the camshaft holder bolts in a crisscross pattern in several steps, then remove the camshaft holder. And remove camshafts.

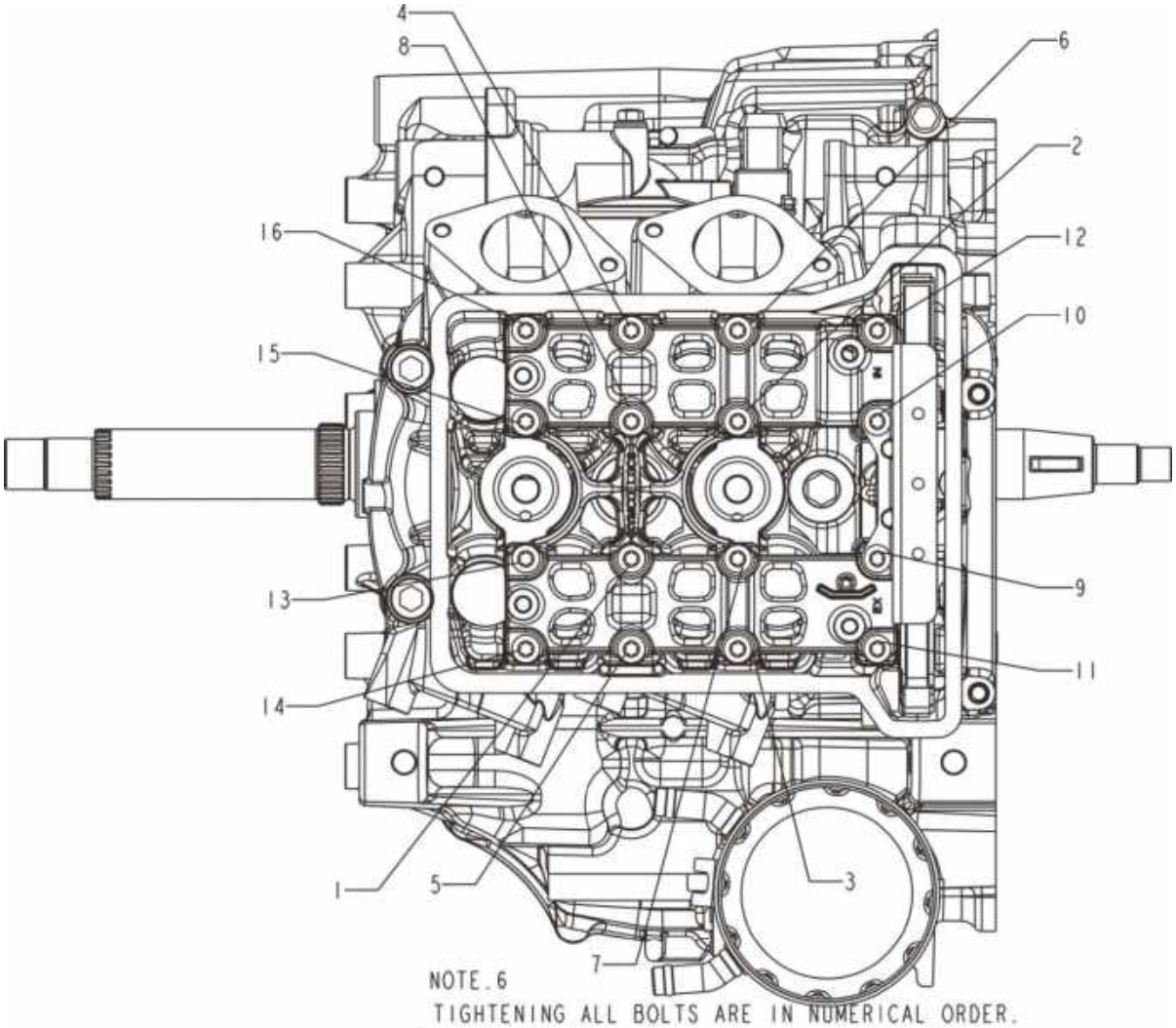


The camshaft holder and cylinder need with the same number mark.



Install the cam holder.

The bolts mounting order and torque should follow the below rule.



NOTE.6

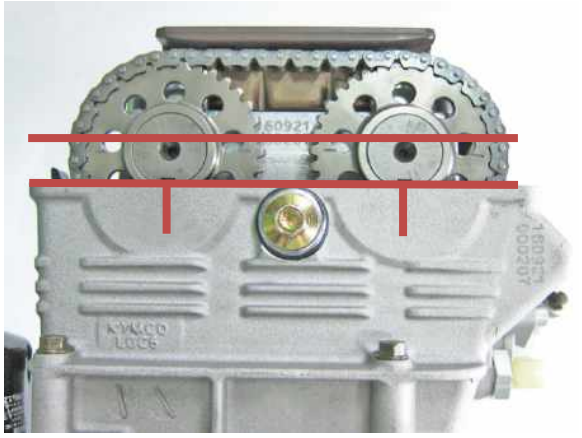
TIGHTENING ALL BOLTS ARE IN NUMERICAL ORDER.

	1->2->3->4->5->6->7->8->9 ->10->11->12->13->14->15->16
1ST	40kg_cm
2ND	60kg_cm
3RD	100kg_cm

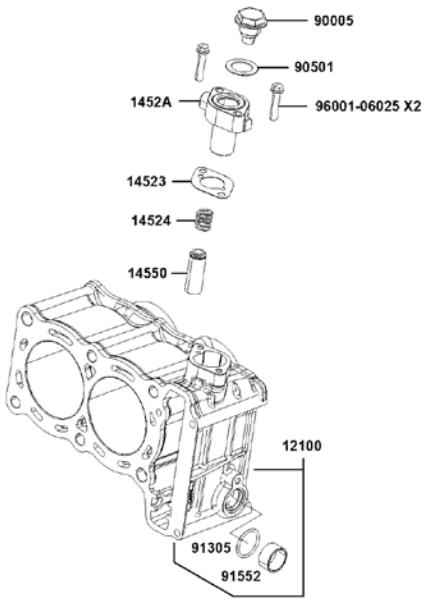
Install the upper train guide.

Cam Holder Installation

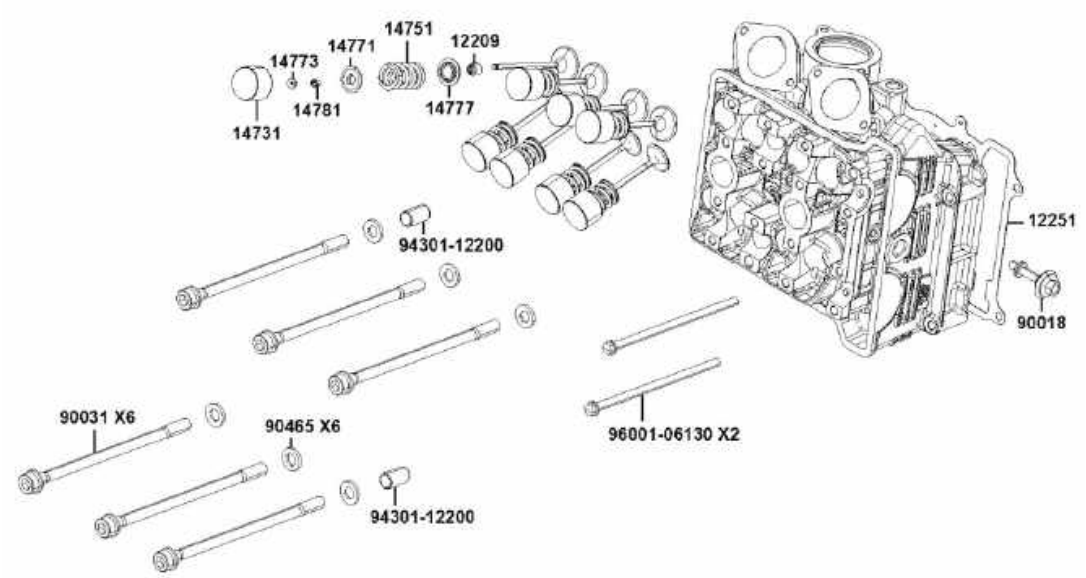
Rotate (clockwise) the crankshaft until the piston is at top dead center (TDC) on the compression stroke.
And align the TDC mark at camshaft sprocket.



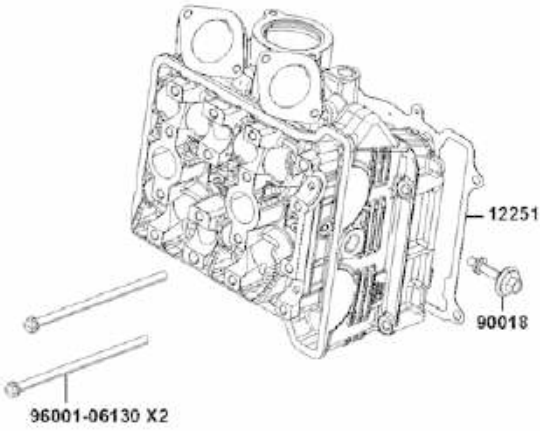
Install the tensioner.
Note: Replace a new gasket when installing.
Tensioner cap bolt installation torque: 1.8~2.2 kgf-m (17.7~21.6 N-m)



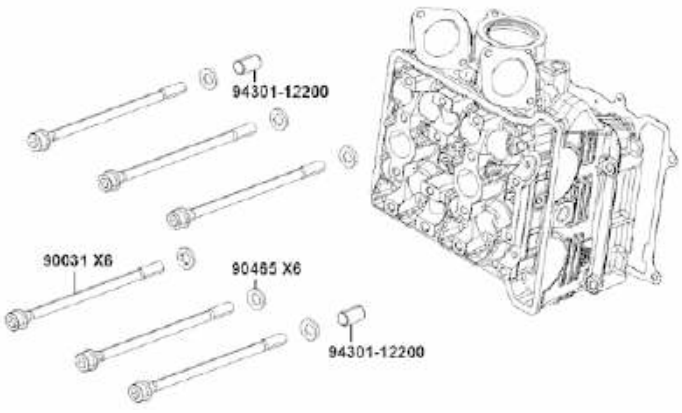
Cylinder Head Removal



Remove bolts of cylinder head.
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)

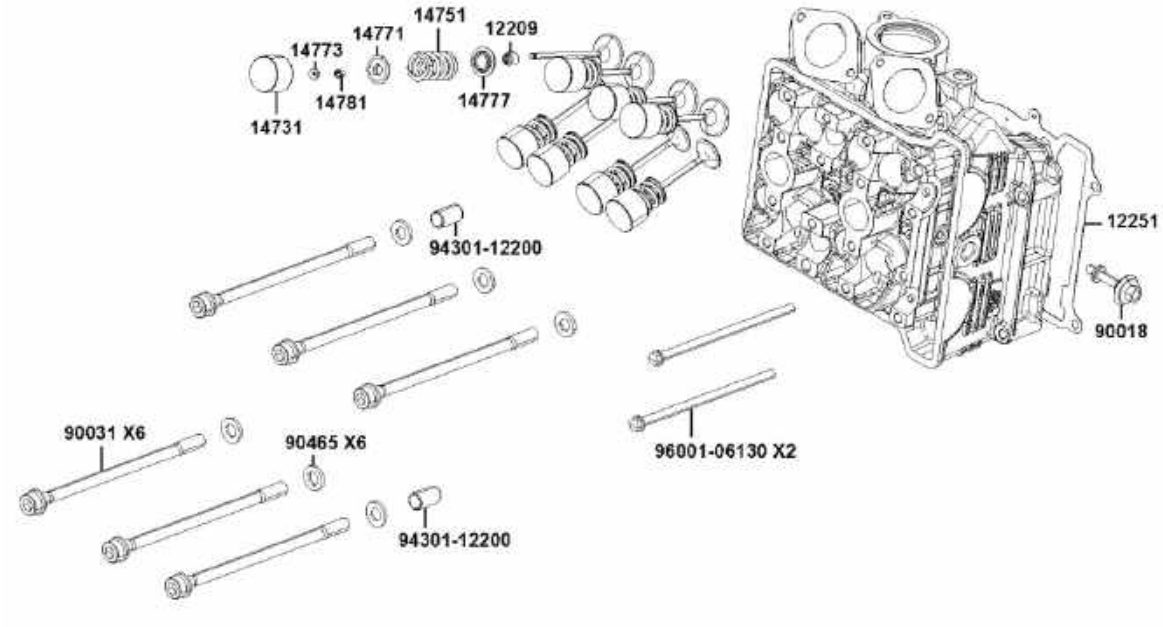


Loosen and remove the cylinder head bolts in a crisscross pattern in several steps, then remove the cylinder head.

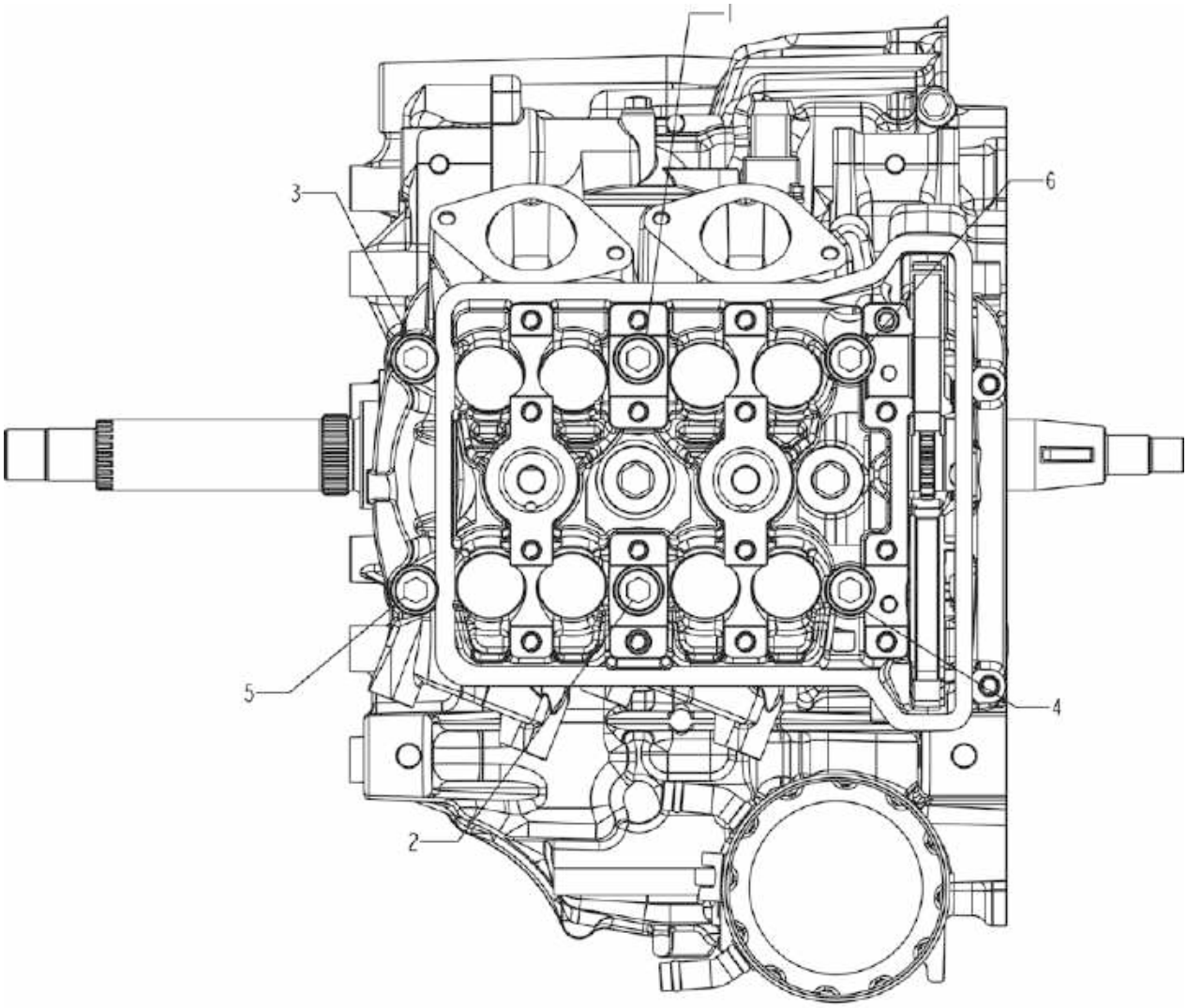


Remove the cylinder head gasket and dowel pins.
Replace a new gasket when installation.

After removal, mark and arrange the removed parts in order. When assembling, install them in the reverse order of removal.
Place this cylinder head carefully, do not fall out the lifter and shim.

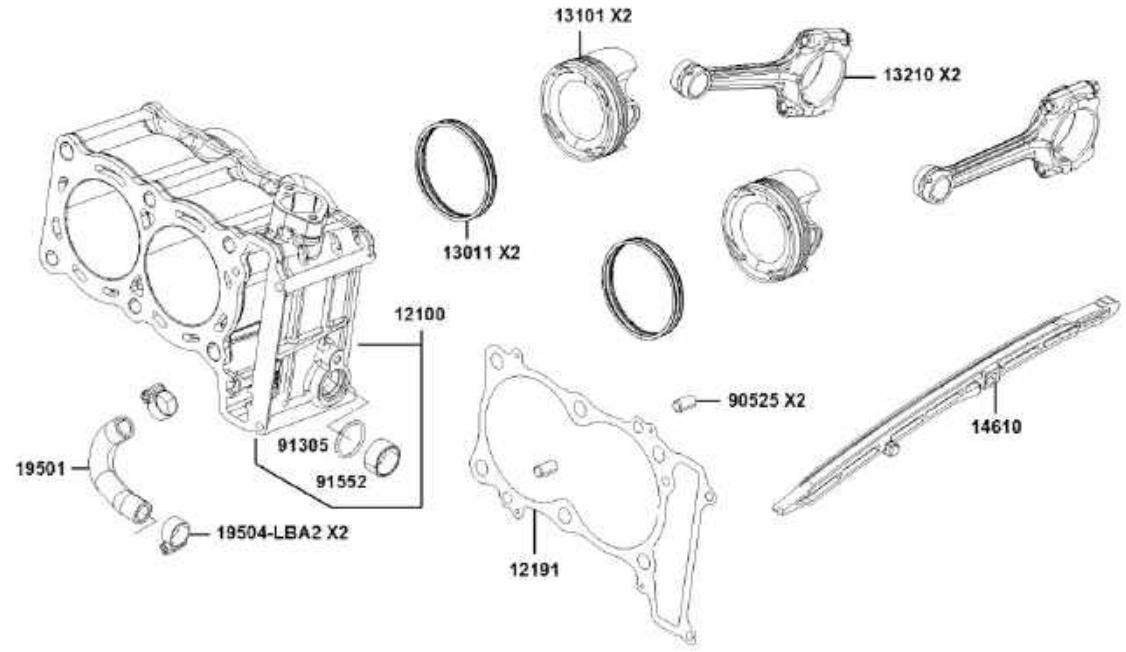


Installation: The bolts mounting order and torque at 3 stages follow the below rule.



NOTE.3 TIGHTENING SEQUENCE:
1st:10 ± 1 N-m
2nd:20 ± 2 N-m
3rd:105° ± 5°

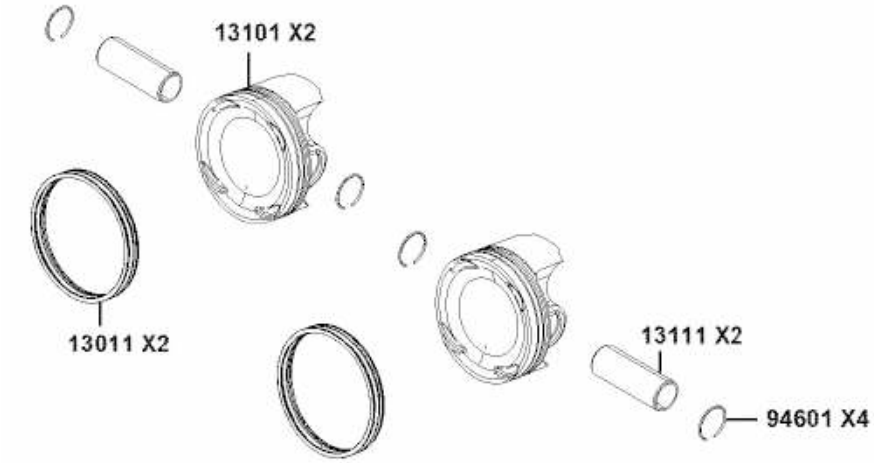
Cylinder Removal



Remove the cylinder head gasket and dowel pins.
Replace a new gasket when installation.

Remove the cylinder, gasket and dowel pins.
Replace a new gasket when installation.

Pistons Removal



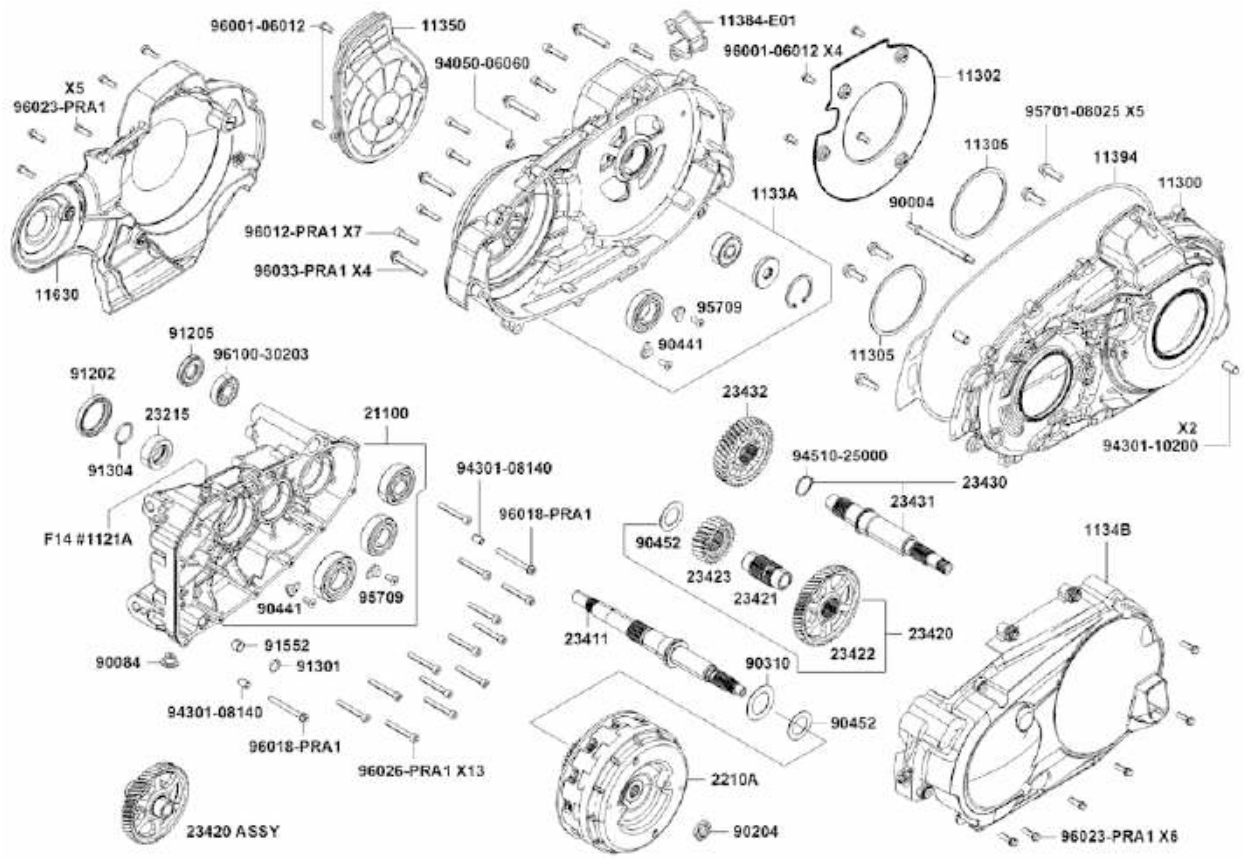
Place a clean shop towel under and around the base of the piston to prevent any parts or debris falling into the crankcase.

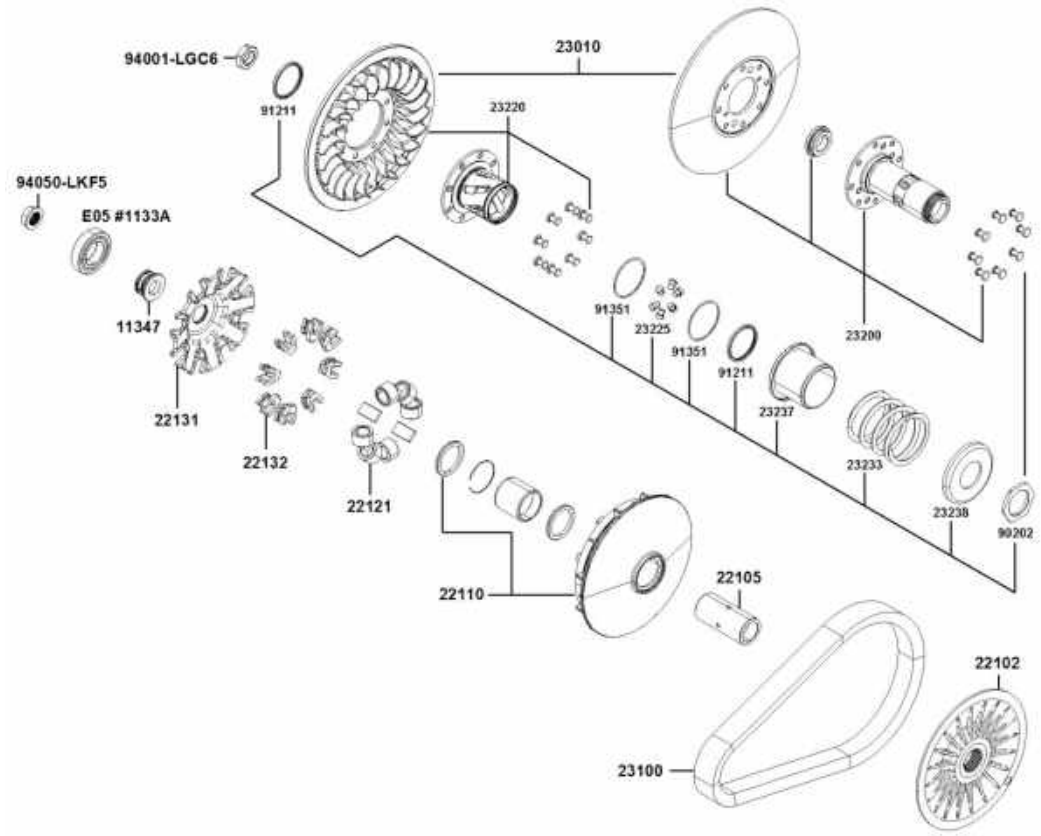
Remove the piston pin clips with a pick or needle nose pliers. Discard the piston pin clips.

Remove the piston pin and the piston.

CVT Removal

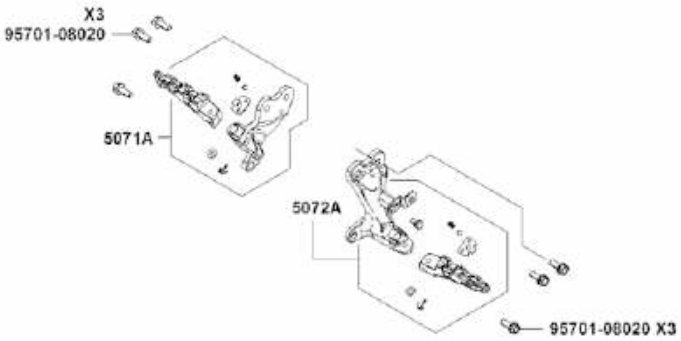
SCHEMATIC DRAWING



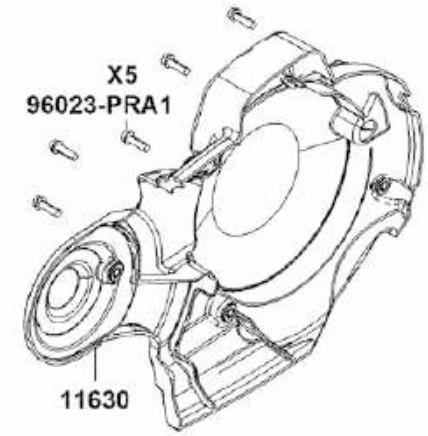


Belt Case Removal

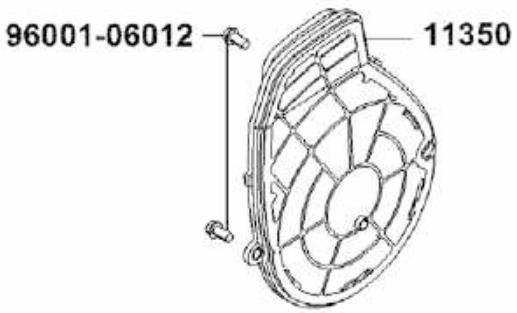
Remove three bolts. And remove the pillion step set.



Remove five bolts and remove the CVT right cover.

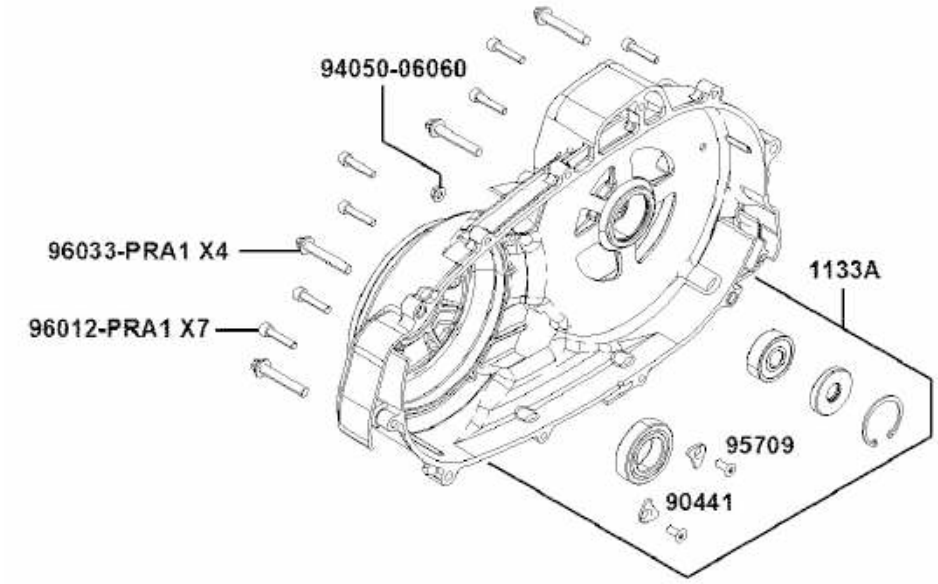


Remove two bolts and remove the CVT cover element.
Clean the cover element if necessary.



Remove the bolts, nut and remove the CVT cover.

Remove the gasket and two dowel pins.



Inspect the belt case bearing by turning it with a finger. Replace the bearing if it is rough or noisy.

Remove the bearing snap ring with snap ring pliers.
Remove the bearing with a suitable bearing puller.


Remove two screws and plates.
Remove the bearing with a suitable bearing puller.

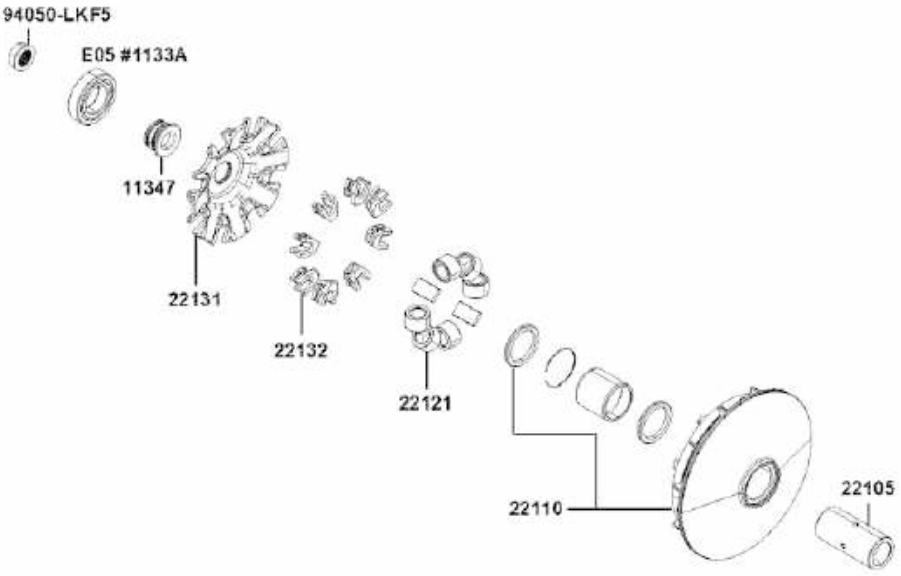

Drive in a new bearing with a suitable bearing driver that has the same outside diameter as the bearing.
Install a new snap ring with snap ring pliers.


CVT Removal

Remove the nut and boss of drive pulley.
Installation torque: 7.6~9.3 kgf-m (75~91.3 N-m)
Lubricate the threads of the nut before installation.

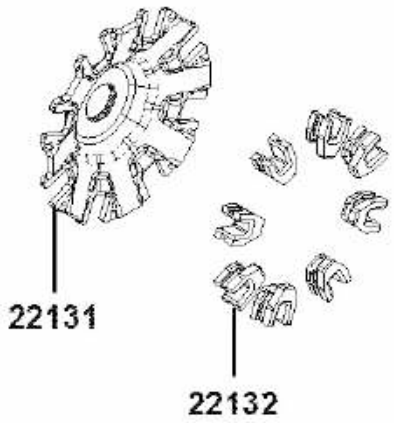

Remove the movable face set.


Drive Pulley Disassembly



Inspect the faces of the drive pulley. Clean away any grease from the faces.
Lift the ramp plate out of the back of the movable drive pulley face.

Remove the rubber damper pieces from the ramp.



There are eight weight rollers in the back of the movable face of the drive pulley.

Remove the rollers and check them for excessive or uneven wear. Replace the weight rollers as needed.
Installation: Install the rollers into the back of the movable drive face of the driven pulley. Position the rollers so that their colored sides are clockwise.
Fit the ramp into the back of the movable drive face of the drive pulley. Make sure the rubber dampers fit onto the ridges as shown.

Inspect the movable drive face and bushing for wear and damage. Replace the parts as needed.


Hold the drive pulley with a universal holder tool.
Remove the nut of driven pulley.


Lubricate the threads of the nut before installation.
Installation torque: 8.3~10 kgf-m (81~99 N-m)
When installation, make sure the drive face are clean and grease free where they will contact the belt.

Screw in the bolts and loosen the belt.


Remove the belt from the driven pulley.
Inspect the drive belt for cracks or excessive wear. Replace it if needed.


Remove the driven pulley.


Remove the drive face.

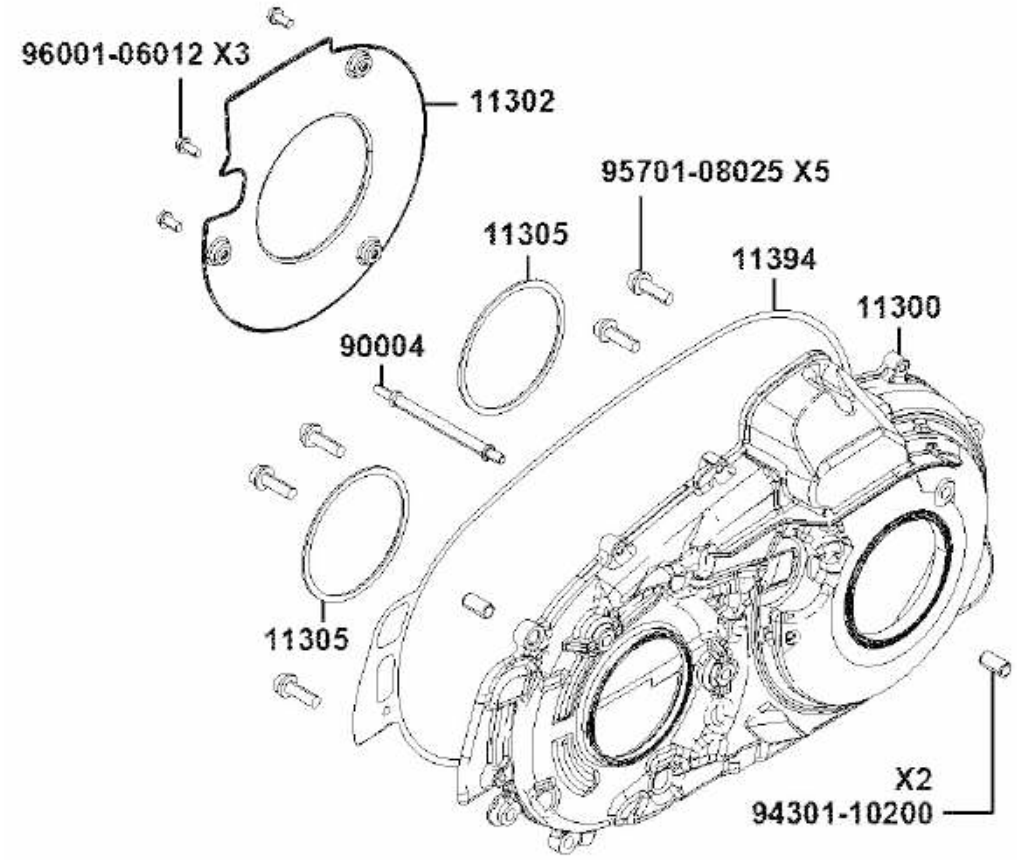

When installation, make sure the drive face are clean and grease free where they will contact the belt.

Remove the three bolts.
Remove the air intake plate.

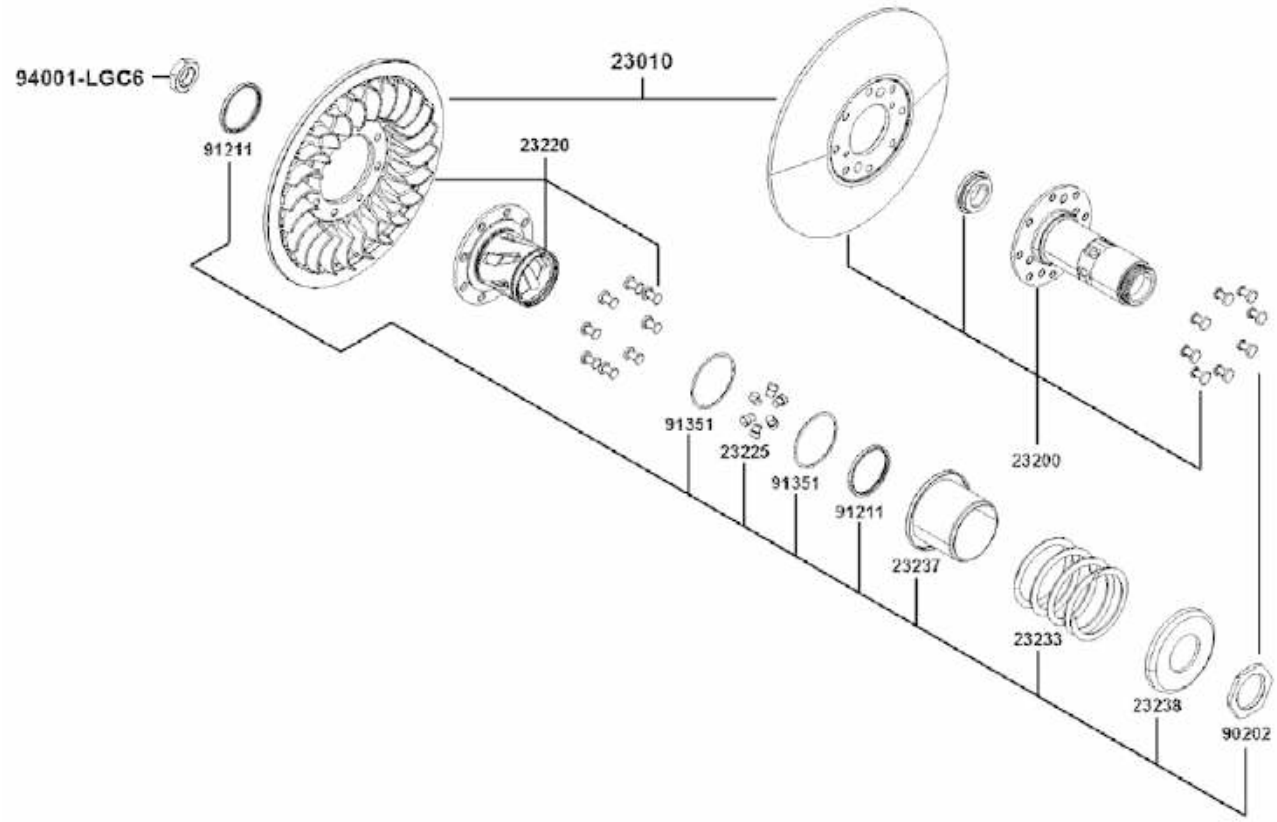

Remove the five bolts of the CVT case.
Installation torque: 1.8~2.2 kgf-m (17.7~21.6 N-m)


Remove the CVT case.


Remove the gaskets of CVT case.
Replace with new gaskets when installation.



Driven Pulley Disassembly



Set the compressor tool to disassemble the driven pulley.

ITEM	TOOL NO.	DESCRIPTION
Compressor Tool	A120E00053	Driven Pulley disassembly

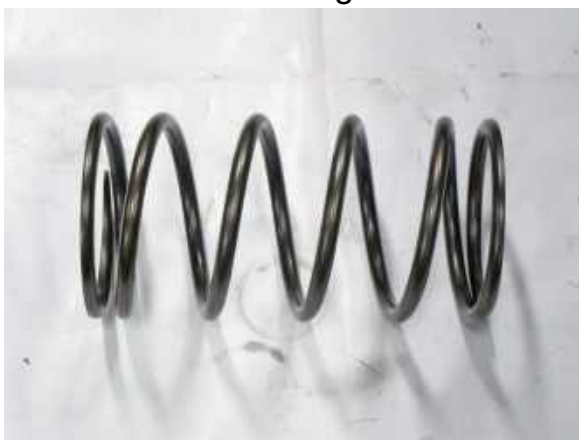
Tighten the bolt of the fitting tool to compress the spring.


Secure the spring compressor tool in a vise. Loosen the plate nut with the socket.
And remove the plate nut of driven pulley set.


Loosen and remove the spring compressor tool.
Remove the collar of spring.


Remove the spring.

Measure the free length of the clutch spring. Replace the spring if needed.



Remove the seal collar.

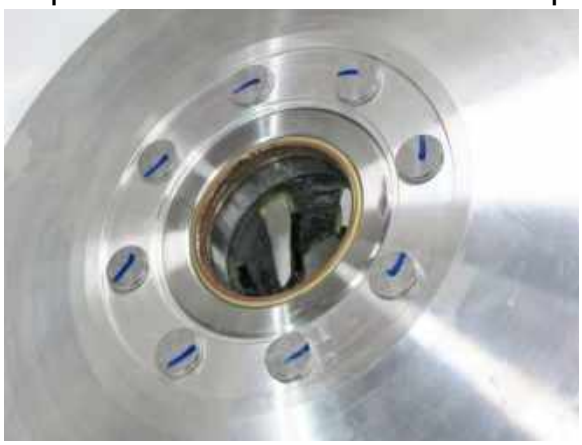

Remove the six guide rollers with guide roller pins.
Note: When installation, lubricate the guide pins and rollers with grease.


Separate the left and right faces of the driven pulley.


When installation, wipe away any grease that gets on the faces where the belt will ride.

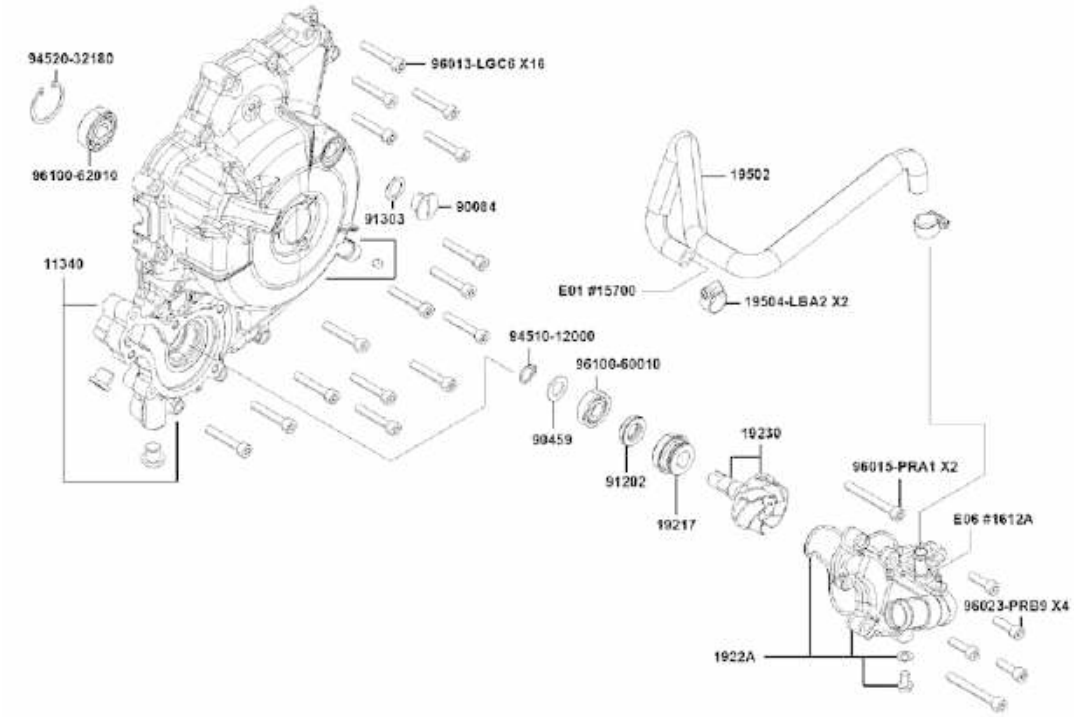
Inspect the faces of the driven pulley. Clean away any grease from the faces where the belt rides.


Replace the seals from the driven pulley.

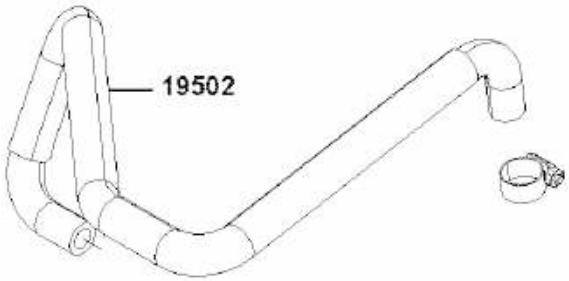



Replace the O-rings of the driven pulley.

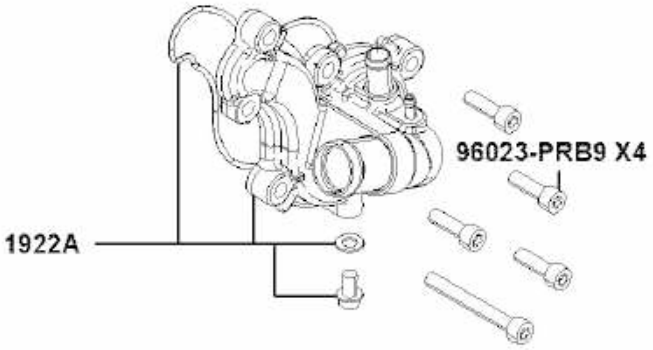
Left Side Cover Removal



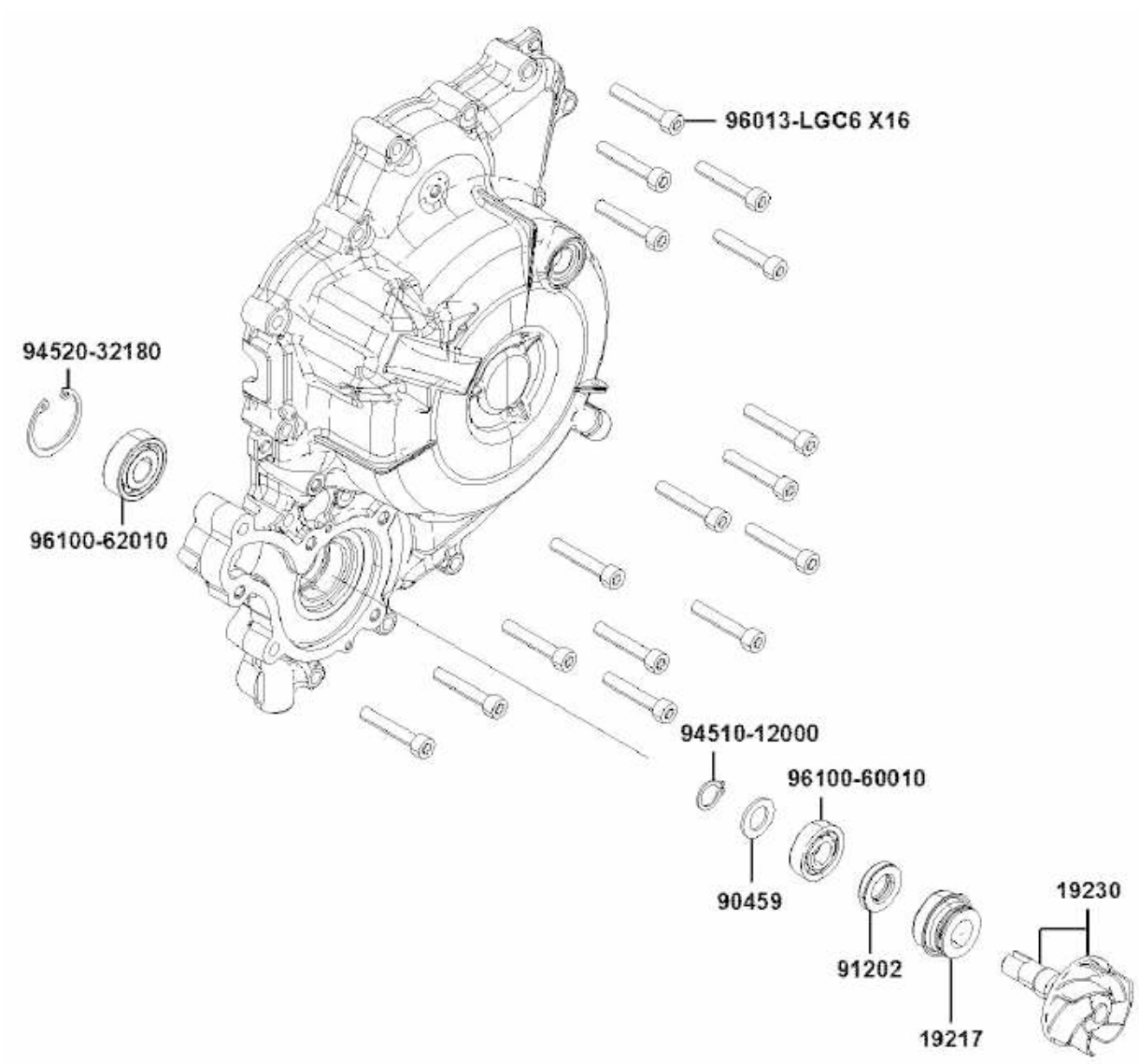
Remove the clamp and water hose.



Remove the bolts, water pump cover.



Remove the bolts and left side cover.



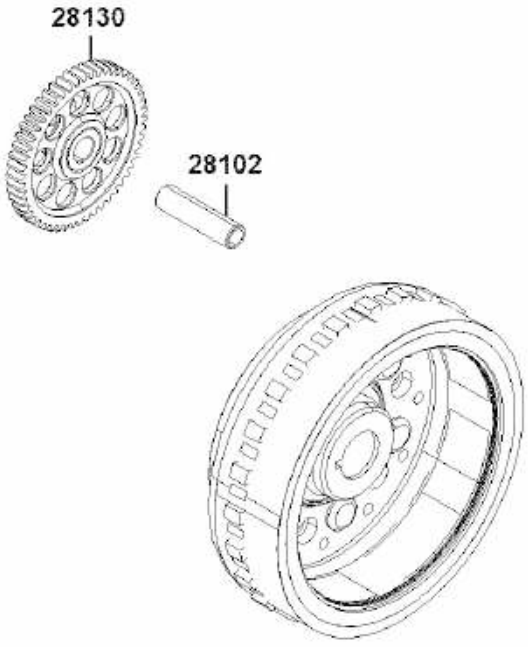
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)

Flywheel Removal

Remove the starter reduction gear and shaft.

Remove the nut of flywheel and remove the washer.

Installation torque: 5.5~6.5 kgf-m (53.9~63.7 N-m)



Mount the shaft protector.


Use the special tool and remove the flywheel.
Special tool: A120 E00084


Inspect the one way bearing, replace if necessary.

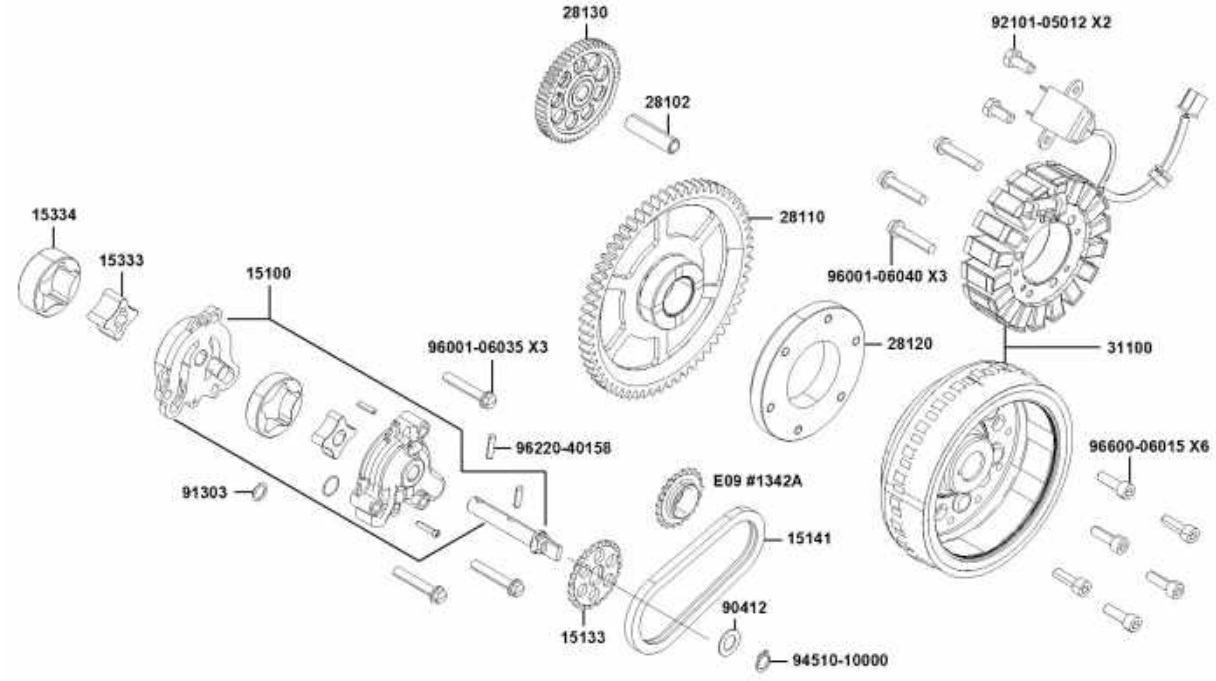

Remove the starting clutch gear.

Remove the cam chain.

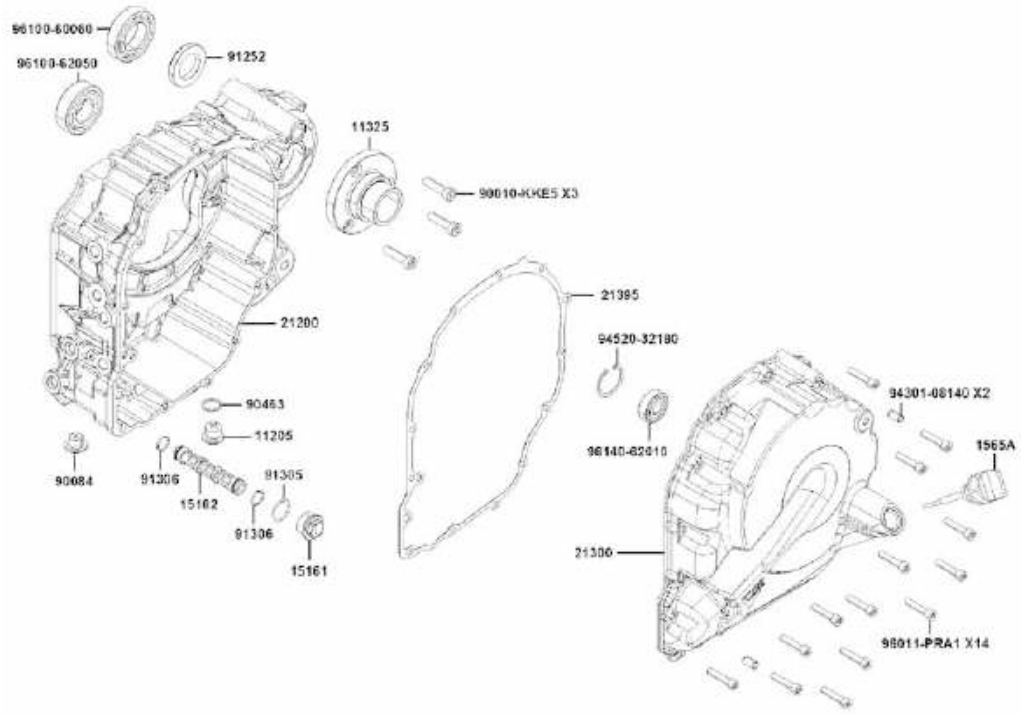
Remove the c-clip of the sprocket.
Remove the chain of the oil pump and remove the sprocket.

Remove the three bolts and remove the oil pump.

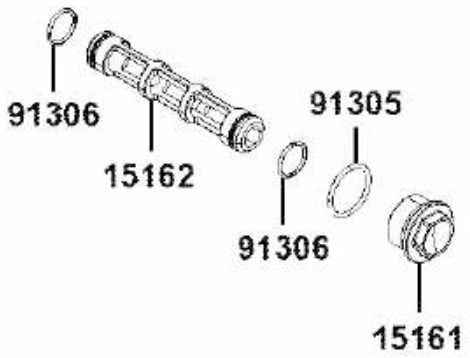
Installation torque: 0.8~1.2 kgf-m (7.8~11.8 N-m)



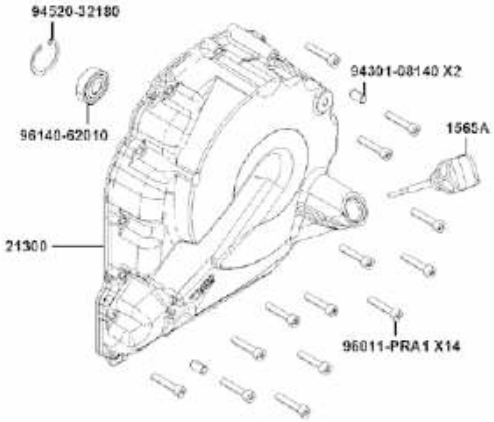
Mission Box Removal



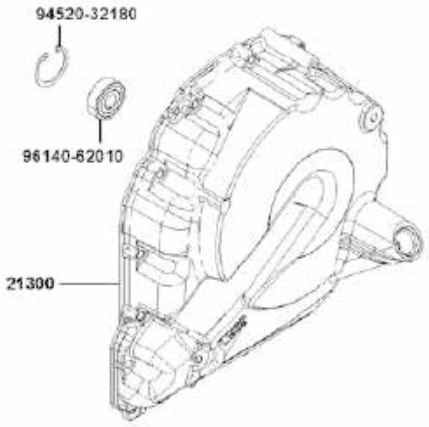
Remove the filter plug bolt and remove the filter.
Replace with new filter when installation.



Remove the bolts and remove the mission cover.
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)



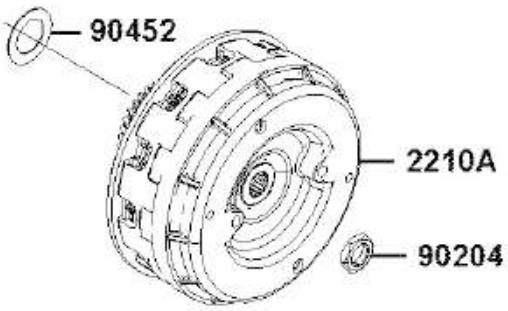
Remove the clip and check the bearing for wear or damage.
Replace a new bearing if needed.



Remove the gasket of the mission case.
Replace a new gasket when installation.

Remove the nut and remove the wet clutch.
Installation torque: 5.9~7.3 kgf-m (58.5~71.5 N-m)

Remove the washer.



Wet Clutch Disassembly

Remove the C-clip.

Remove the C-clip.

Remove the retainer and spring.

Remove the retainer and brake shoes set.

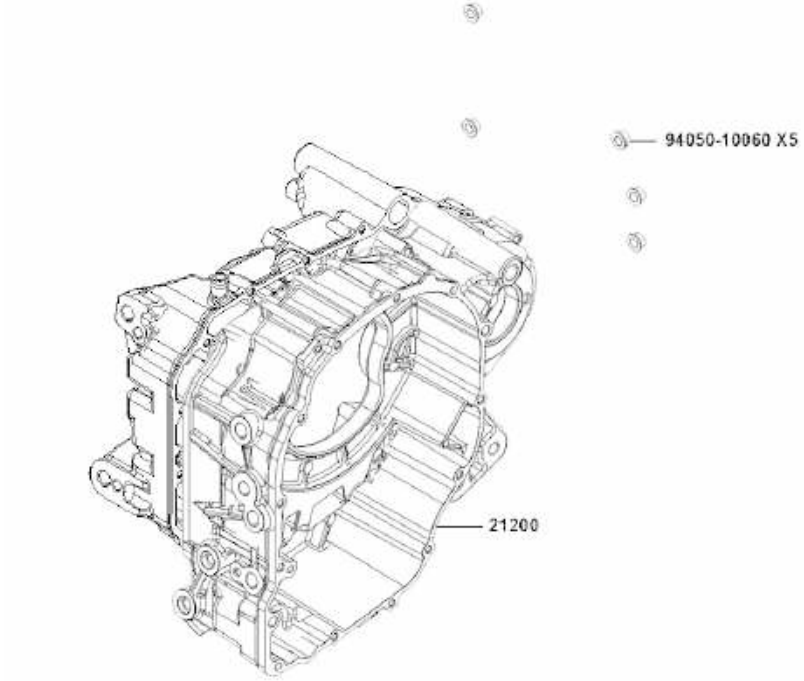
Remove the washer and collar.


Remove the spring and lower retainer set.

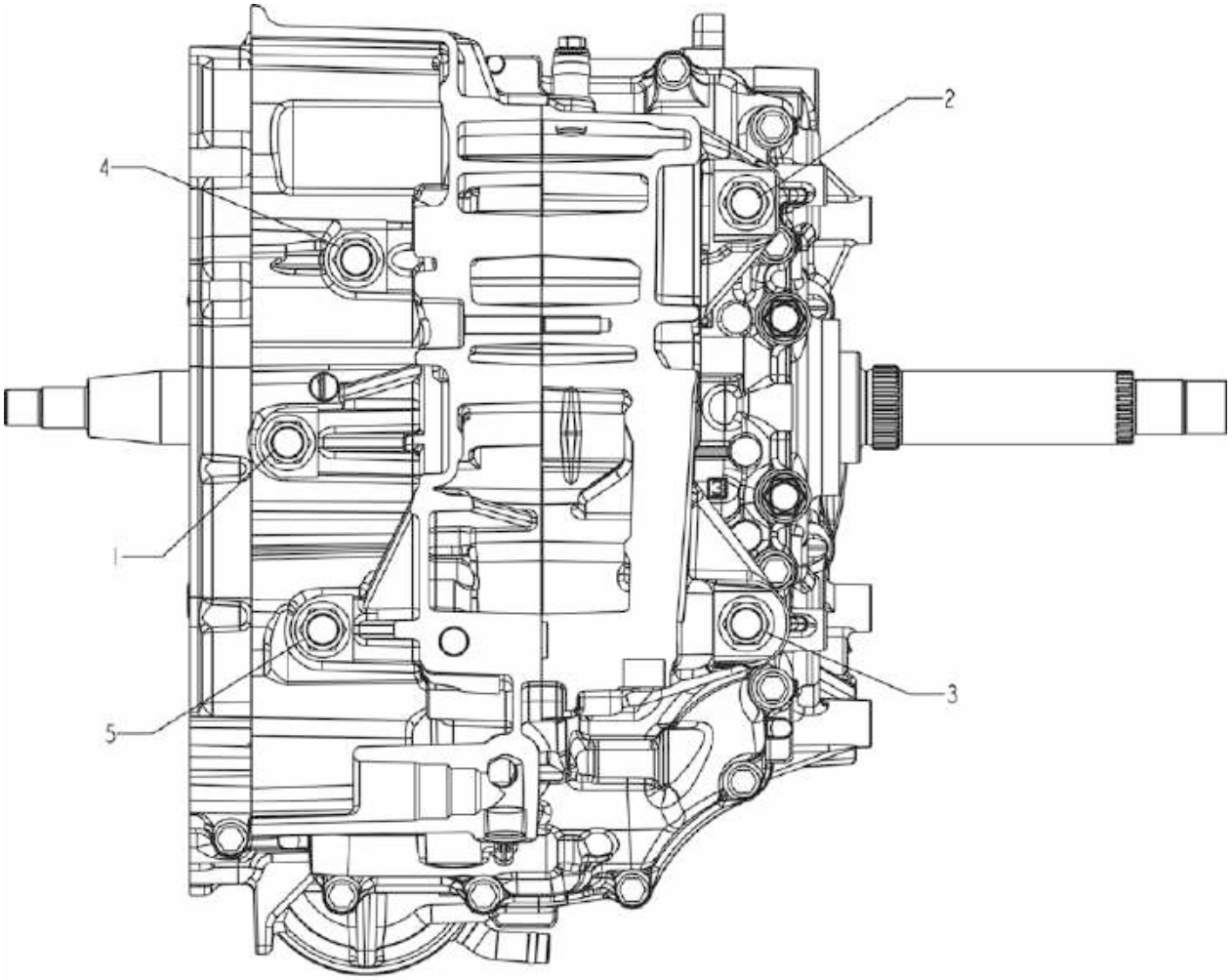

Remove the rollers.


Remove the left side three nuts and right side two nuts.
Remove the mission case set.

Remove the mission box.



Installation: The nuts tighten order and torque should follow the below rule.

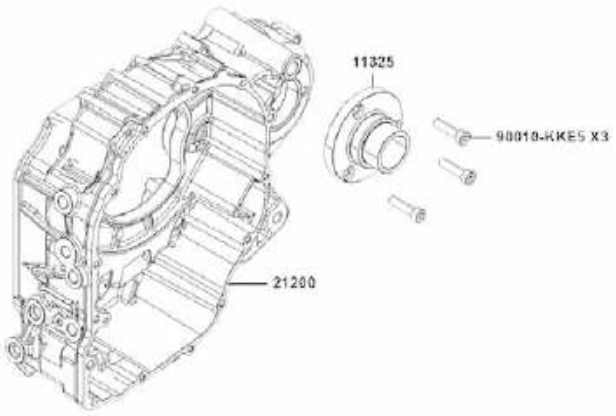


NO.4 NUT TIGHTENING SPECIFICATION

SEQUENCE / TORQUE kgf-m	1	2	3	4	5	1
1ST TIGHTENING	1.2	3.4	3.4	3.4	3.4	3.4

Mission Box Disassembly

Remove the 3 bolts and remove the swim arm pivot.



The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)

Remove the bolts and remove the left mission case.
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)

Remove the final shaft.


Remove the counter A gear and remove the final gear.

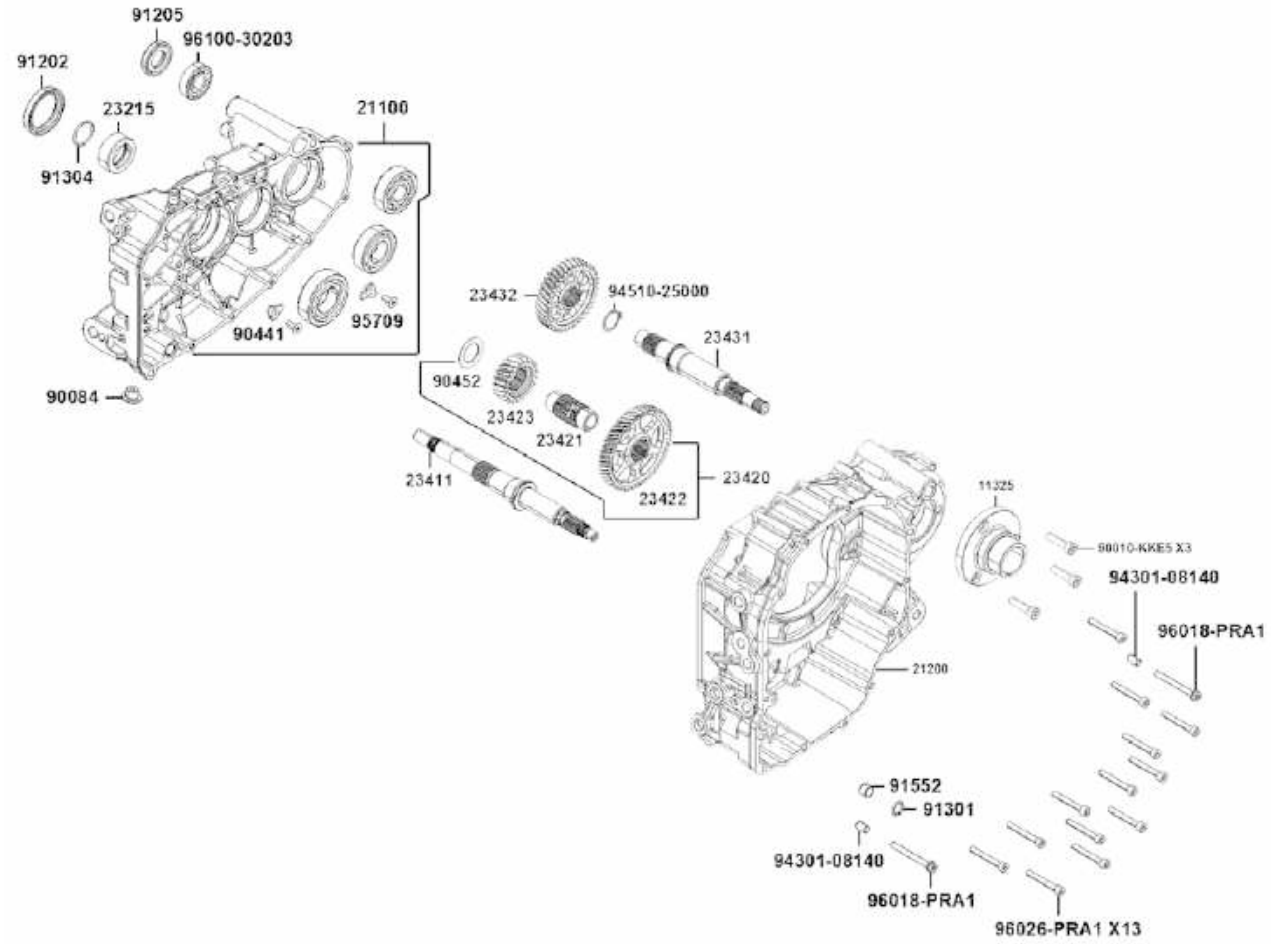

Remove the counter B gear and remove the counter gear.


Remove the washer and remove the drive shaft.

Remove the two screws of the bearing fixed plate.

Remove the two bearing fixed plate.

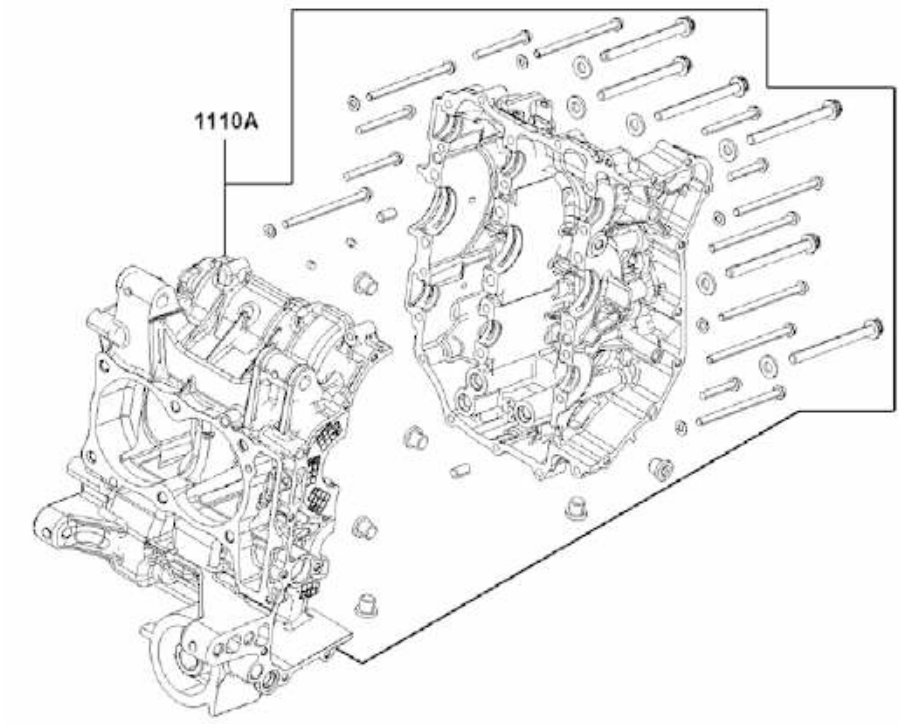
Remove the bearing by bearing puller tool.
Tap the new bearing in when installation.



Crankcase Removal

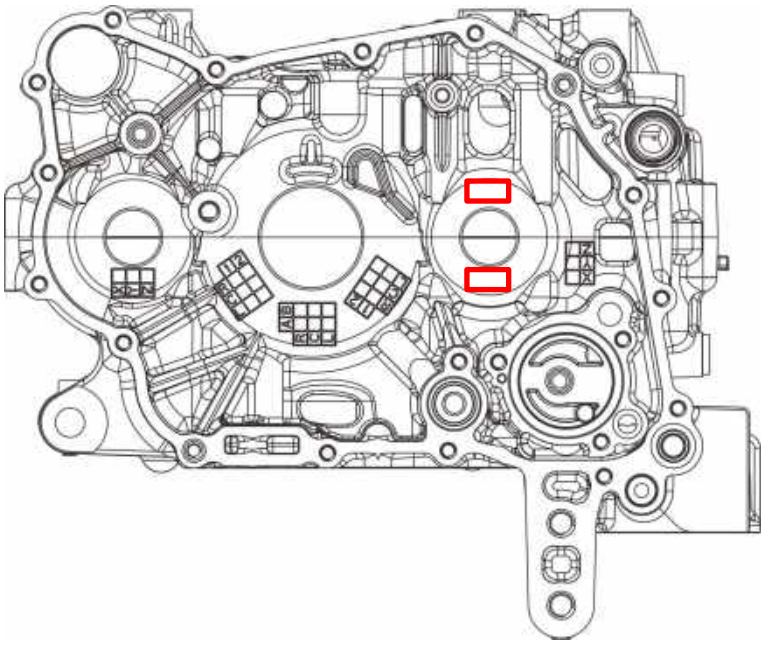
Remove the bolts, washers and rubber seals.
Replace the washers and rubber seals when installation.


Remove the upper crankcase.

CRANKCASE INSTALLATION

Note: Make sure the Upper/Lower crankcases are with the same number mark. Both are pairing of parts, assembly machining.

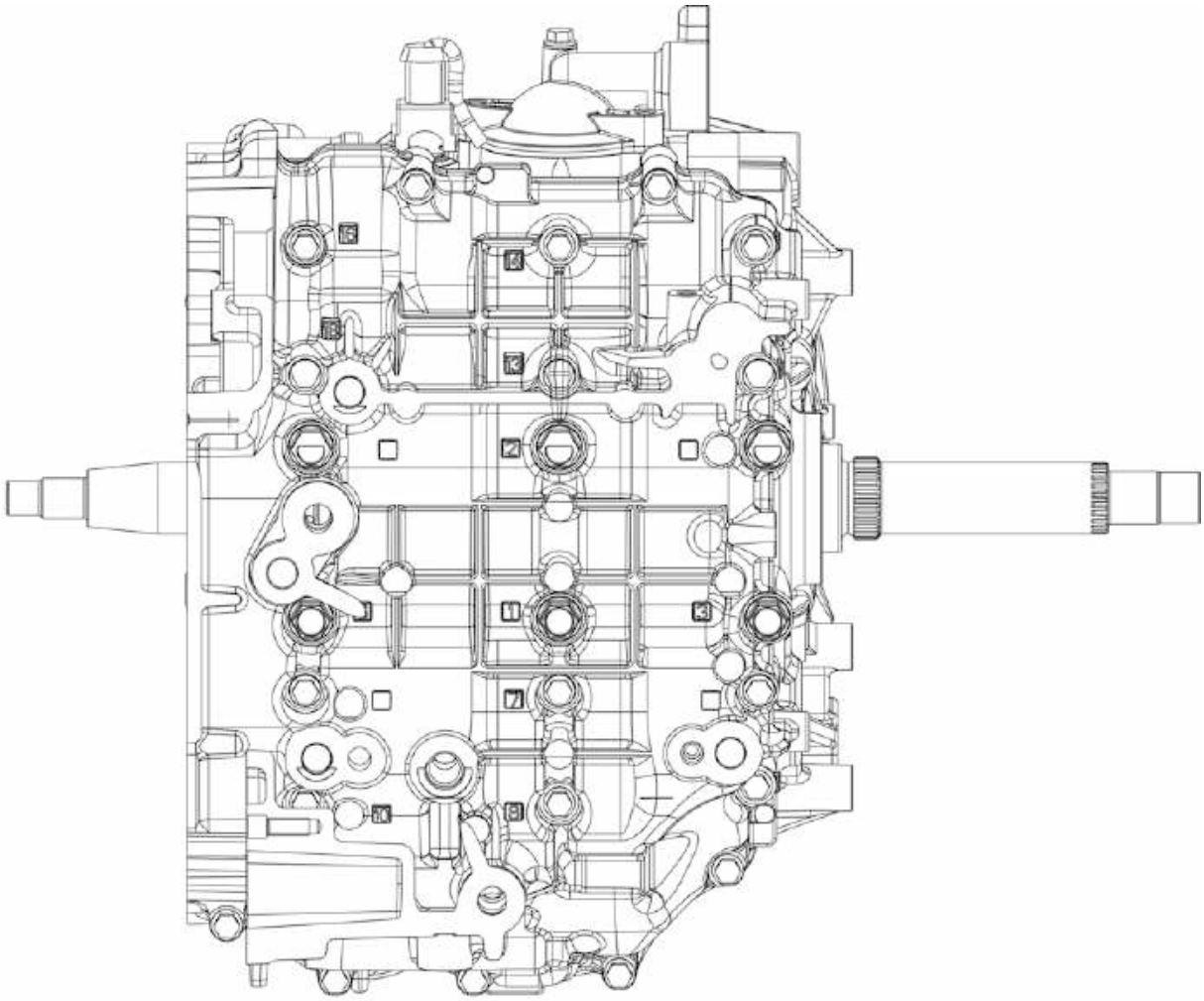


Thoroughly clean the crankcase mating surface.
Apply sealant uniformly to the crankcase mating surface as indicated. Do not allow sealant to enter oil passages or get in bearings.

And set the upper crank case half down on top of the lower case.

CRANKCASE INSTALLATION

The bolts mounting order and torque follow the below rule.



NOTE.5

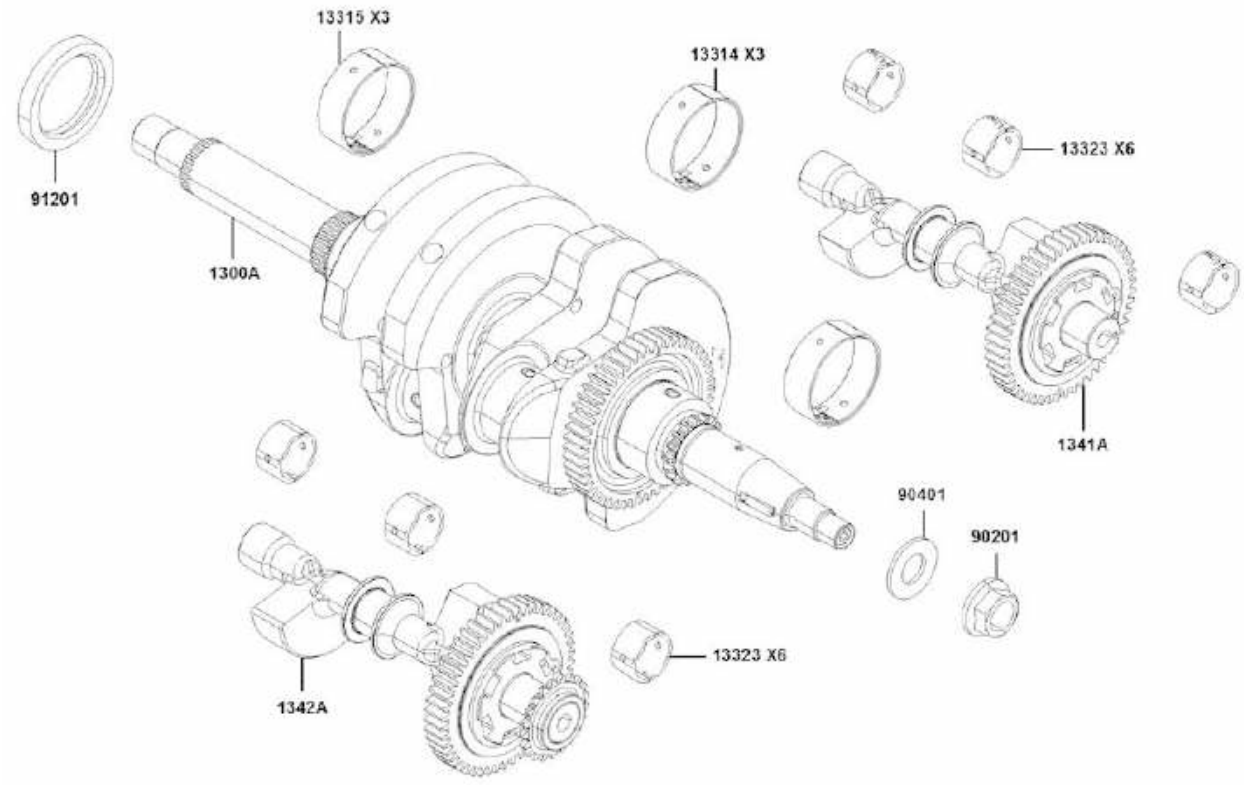
BOLT TIGHTENING SPECIFICATION BEFORE MACHINING

SEQUENCE / TORQUE kgf-m	1	2	3	4	5	6
1ST TIGHTENING	1.2	1.2	1.2	1.2	1.2	1.2
2ND TIGHTENING	1.8	1.8	1.8	1.8	1.8	1.8
3RD TIGHTENING	2.3	2.3	2.3	2.3	2.3	2.3

SEQUENCE / TORQUE kgf-m	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4TH TIGHTENING	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

Crankshaft/Balancer Gear/Plane Bearing Removal

Remove the crankshaft, balancer gears and plane bearing.
Check the balancers for worn or damage, replace if necessary.



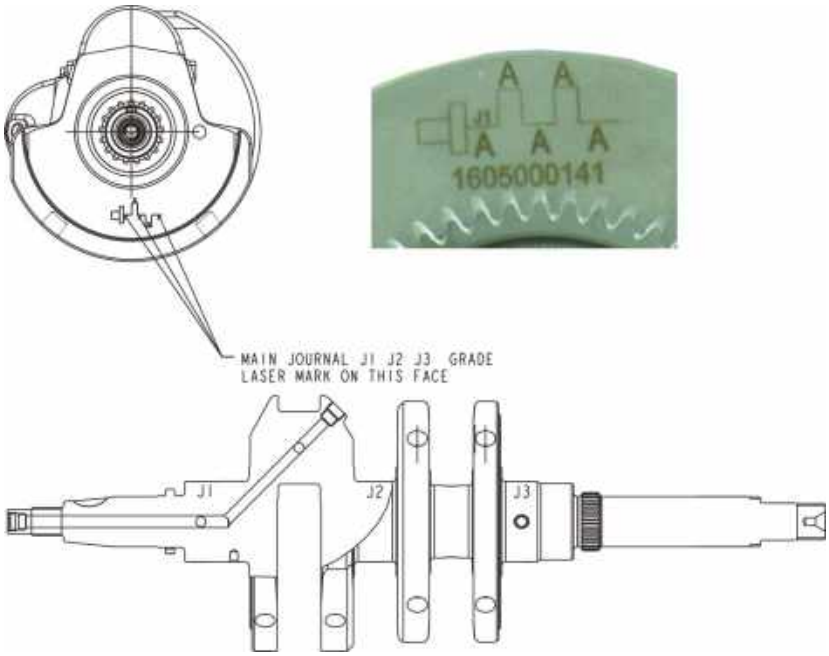
Plane Bearing Selection

Inspect the bearings for signs of damage and wear. Replace the bearings if they show any kind of imperfection.

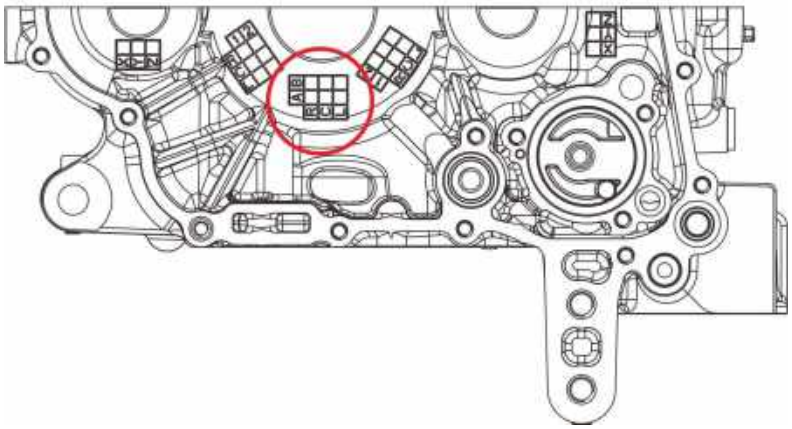
Plane bearing color: For example: Red.

Crankshaft And Crankcase Plane Bearing Selection

Crankshaft main journal grade marks (A or B).



Crankcase grade marks (A or B).



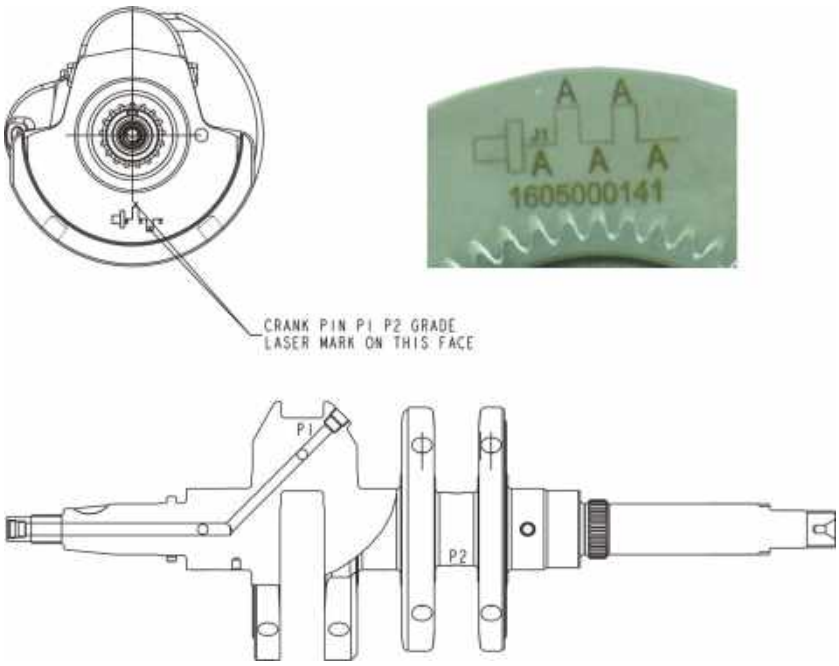
Crankshaft plane bearing color selection follows the below charts.

TABLE FOR ASSEMBLING BRG. AND CRANK CASE AND CRANKSHAFT

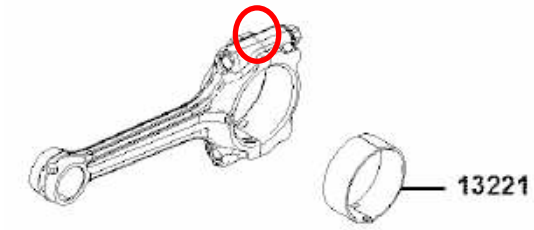
		CRANK CASE TOLERANCE	
		MARK	
CRANK SHAFT TOLERANCE		A	B
Ø40.015 (0~-0.008)	MARK	Ø43 (0 ~+0.008)	Ø43 (+0.008 ~+0.016)
	A	BLACK 1.5(-0.010 ~ -0.014)	GREEN 1.5(-0.006 ~ -0.010)
Ø40.015 (-0.008~ -0.016)	B	GREEN 1.5(-0.006 ~ -0.010)	RED 1.5(-0.002 ~ -0.006)

Crankshaft And Connecting Rod Plane Bearing Selection

Crankshaft grade marks (A or B).



Connecting rod grade marks (1 or 2).



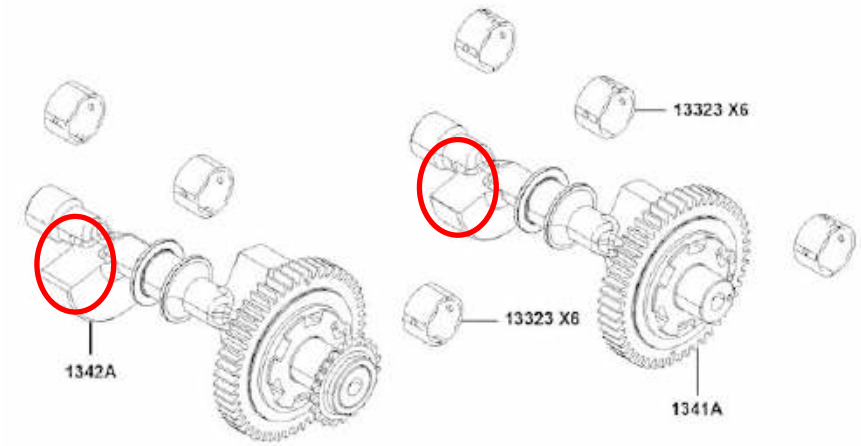
Connecting rod plane bearing color selection follows the below charts.

TABLE FOR ASSEMBLING BRG. AND CON-ROD AND CRANK PIN

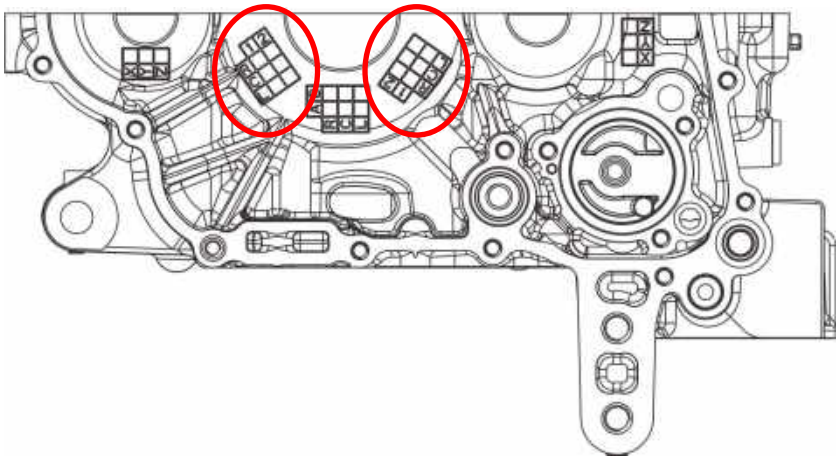
		HOUSING TOLERANCE	
		MARK	
PIN TOLERANCE		1	2
Ø36.015 (0~-0.008)	MARK	Ø39 (+0.008 ~0)	Ø39 (+0.016 ~+0.008)
	A	BLACK 1.5(-0.010 ~-0.014)	GREEN 1.5(-0.006 ~ -0.010)
Ø36.015 (-0.008~ -0.016)	B	GREEN 1.5(-0.006 ~ -0.010)	RED 1.5(-0.002 ~ -0.006)

Balancer Gear Shaft And Crankcase Plane Bearing Selection

Balancer gear shaft grade marks (A or B).



Crankcase grade journal marks (1 or 2).



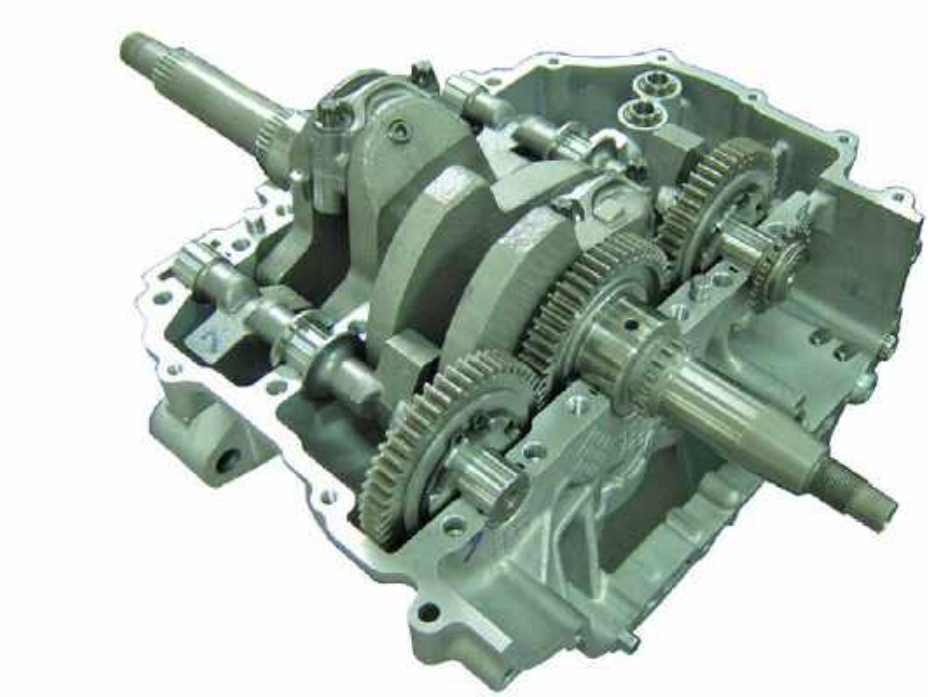
Balancer gear shaft and crankcase plane bearing color selection follows the below charts.

TABLE FOR ASSEMBLING BRG. AND UP/DOWN CASE AND BALANCER SHAFT

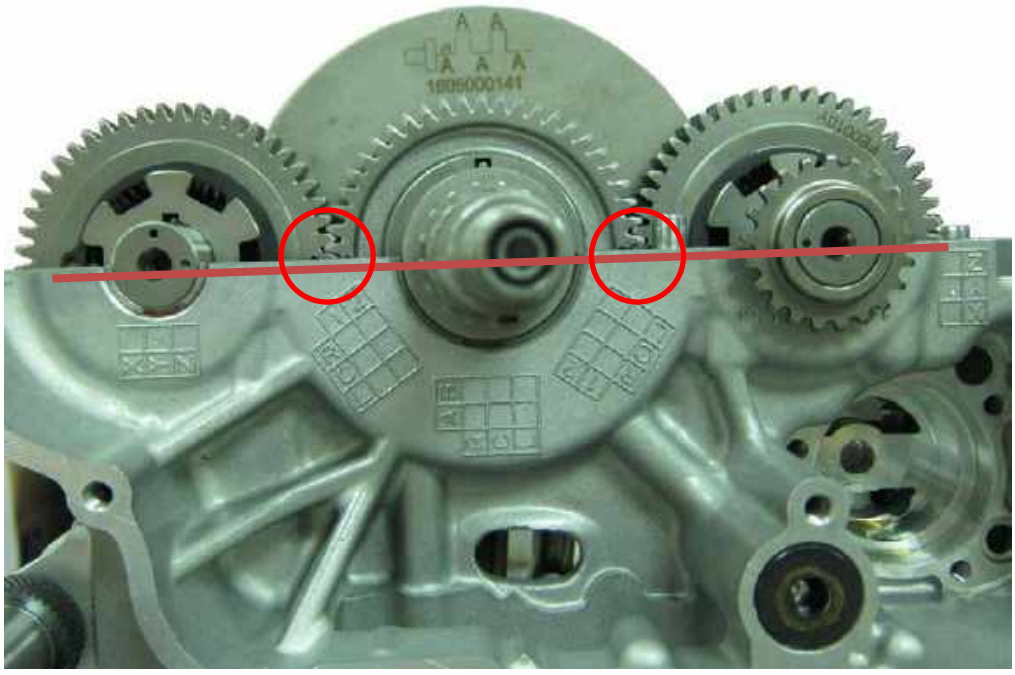
UPPER/LOWER		CRANK CASE TOLERANCE	
		MARK	
BALANCER SHAFT TOLERANCE		1	2
Ø20 (-0.001~ -0.010)	MARK	Ø23.25 (-0.01 ~-0.02)	Ø23.25 (0 ~-0.01)
	A	YELLOW/BROWN 3.25(-0.02 ~-0.032)	BROWN/BROWN 3.25(-0.01 ~ -0.022)
Ø20 (+0.008~-0.001)	B	YELLOW/YELLOW 3.25(-0.03 ~ -0.042)	BROWN/YELLOW 3.25(-0.02 ~ -0.032)

Crankshaft/Balancer Gear Installation

Install the crankshaft, balancer gears in the correct timing.
Check the balancers for worn or damage, replace if necessary.



Install the crankshaft, balancer gears in the correct timing.
Align the timing mark as below illustrator.



Engine Removal

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

• A floor jack or other adjustable support is required to support and maneuver the engine. Be careful not to damage the scooter body, cables and wires during engine removal.

• Use shop towels to protect the scooter body during engine removal.

Place the scooter on the center stand.

Drain the coolant. Drain the engine oil.

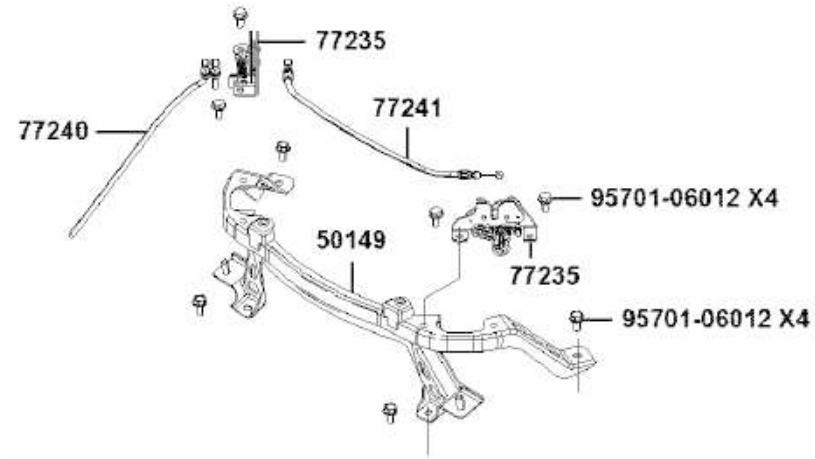
Remove the external components: See the external topic for more information.

Remove the rear brake caliper, rear suspension and the rear wheel. See those topic for more information.

Remove the exhaust system. See the Exhaust System topic for more information.

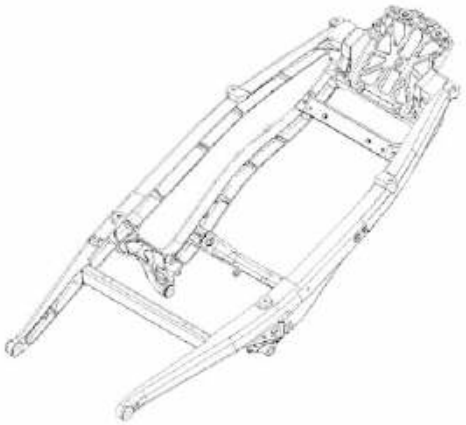
Remove the throttle body, cables and wires and fuel tank.

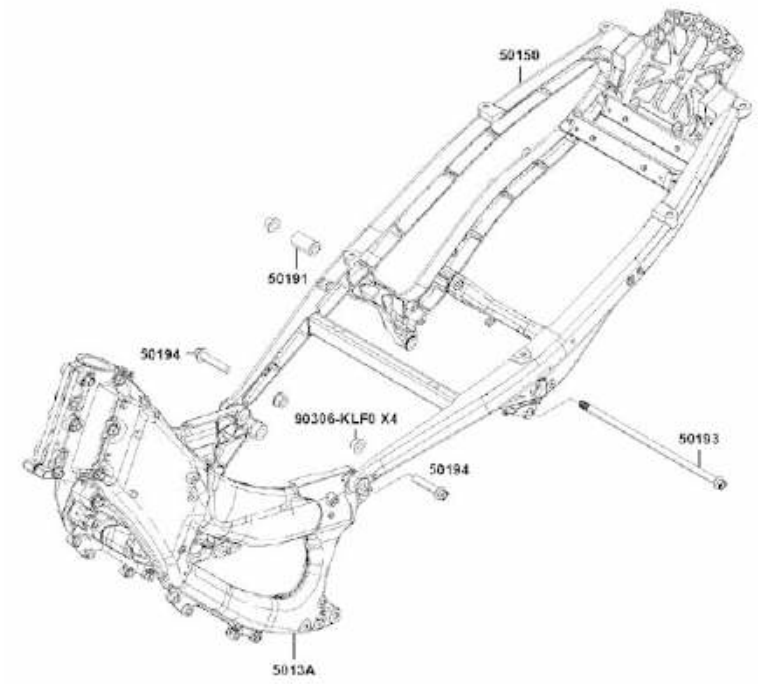
Remove the seat catch wire and remove the seat catch wire stay.



Remove the bolt, nut and collar of rear frame body.
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)

Remove the bolts and nuts and remove the rear frame body.
Installation torque: 8.6~9.1 kgf-m (86~91 N-m)

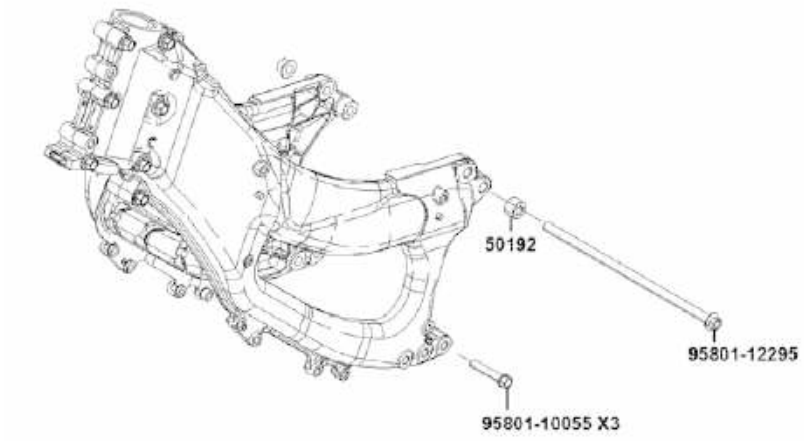




Support the engine with a suitable jack or stand.
Remove the bolt, collar and nut.


Remove the four bolts.


Carefully move the front frame forward and separate it from the engine.
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)



5.Cooling System

This chapter covers the location and servicing of the cooling system components for the KYMCO AK 550 model.

GENERAL INSTRUCTIONS

• The water pump must be serviced after removing the engine. Other cooling system service can be done with the engine installed in the frame.

• The engine must be cool before servicing the cooling system. When the coolant temperature is over 100℃, never remove the radiator cap to release the pressure because the boiling coolant may cause danger.

• Avoid spilling coolant on painted surfaces because the coolant will corrode the painted surfaces. Wash off any spilled coolant with fresh water as soon as possible.

• After servicing the system, check for leaks with a cooling system tester.

TROUBLESHOOTING

Engine temperature too high

- Faulty temperature gauge or sensor
- Faulty radiator cap
- Faulty thermostat
- Insufficient coolant
- Passages blocked in hoses or water jacket
- Clogged radiator fins
- Passages blocked in radiator
- Faulty water pump

Temperature gauge shows the wrong temperature

- Faulty temperature gauge or sensor
- Faulty thermostat

Coolant leaks

- Faulty pump mechanical (water) seal
- Deteriorated O-rings
- Damaged or deteriorated water hoses

Coolant

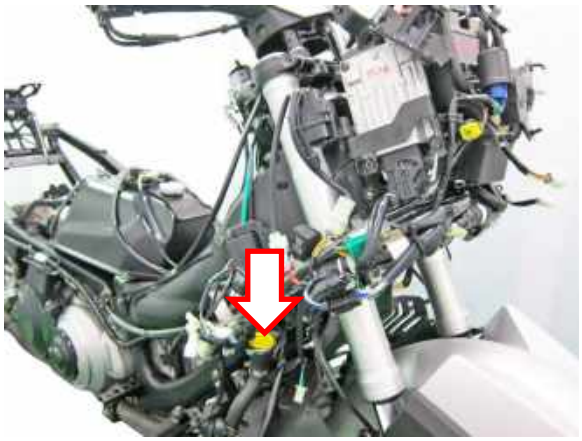
SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Warning: Allow the engine sufficient time to cool before handling or working on the cooling system components.

Draining

SAFETY FIRST: Antifreeze is highly toxic and can kill pets and animals if drank. Do not leave coolant where animals (including children!) can get to it.

Remove the right side cover and right side skirt set.



Remove the radiator cap in two stages. Allow any built up pressure to vent and then open the cap all the way and remove it.

The water pump is located on the left side of the engine. Ready a drain pan under the water pump drain bolt. Remove the drain bolt and sealing washer and allow the coolant to drain into a suitable container.

Loosen the coolant drain bolt with an 8 mm socket.


The coolant reserve tank is under the left floorboard. Remove the left floorboard.


Remove the engine coolant lid screw, and remove the engine coolant lid.


Open the coolant reserve tank lid. Siphon the coolant out of the reserve tank with an appropriate suction device. If a suction device is unavailable remove the reserve tank and poor it out.

Filling

When the coolant has fished draining return the drain bolt to the water pump with a new sealing washer. Tighten the drain bolt securely with an 8 mm socket.

Fill the cooling system with a mix of distilled water and KYMCO SIGMA Coolant Concentrate. Continue filling until the coolant until it reaches the bottom of the filler neck as shown.

Coolant capacity:	
Radiator with cool coolant	1200 cc
Reserve tank	300 cc

• Use coolant of specified mixing rate. (The mixing rate of KYMCO coolant/distilled water is 50%.)

• Do not mix coolant concentrate of different brands.

• Do not drink the coolant, which is poisonous.

• The freezing point of coolant mixture shall be 5 °C lower than the freezing point of the riding area.

Add coolant to the reserve tank until it reaches the upper level mark.

Gently rock the vehicle side-to-side to release any air bubbles trapped in the cooling system.

Place the vehicle on its center stand and start the engine. Let it run for several minutes. This will purge any air out of the cooling system. Check for coolant leaks

When the air bubbles stop coming up turn off the engine and recheck the coolant level, add coolant if necessary. Check the reserve tank and add coolant if needed. Wet the seal of the radiator cap and install.

Radiator

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

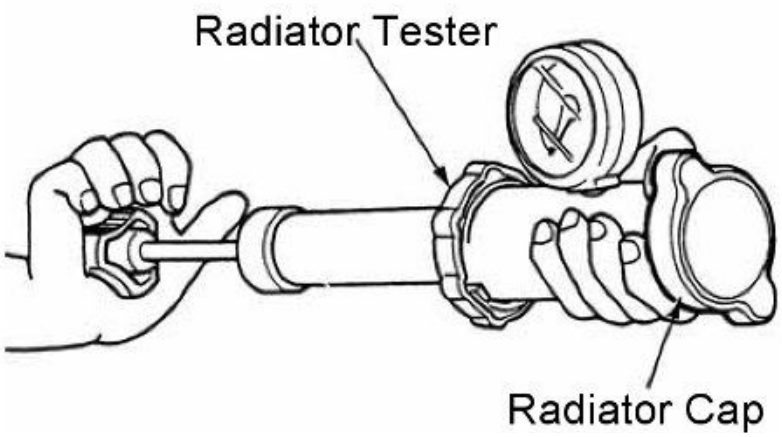
Warning: Allow the engine sufficient time to cool before handling or working on the cooling system components.

Pressure Testing

Remove the radiator cap in two stages. Allow any built up pressure to vent and then open the cap all the way and remove it.

When checking the cooling system for leaks you will need a pressure tester. Remove the radiator cap, wet the tester seal, and install the end of the pressure tester onto the filler neck. Pump the tester up until the gauge reads 0.84 kg/cm^2 or 12 psi. The cooling system should hold this pressure for at least 6 seconds. If it does not you will need to inspect the entire system for leaks. Do not pressurize the cooling system more than 1.05 kg/cm^2 or 14.9 psi.

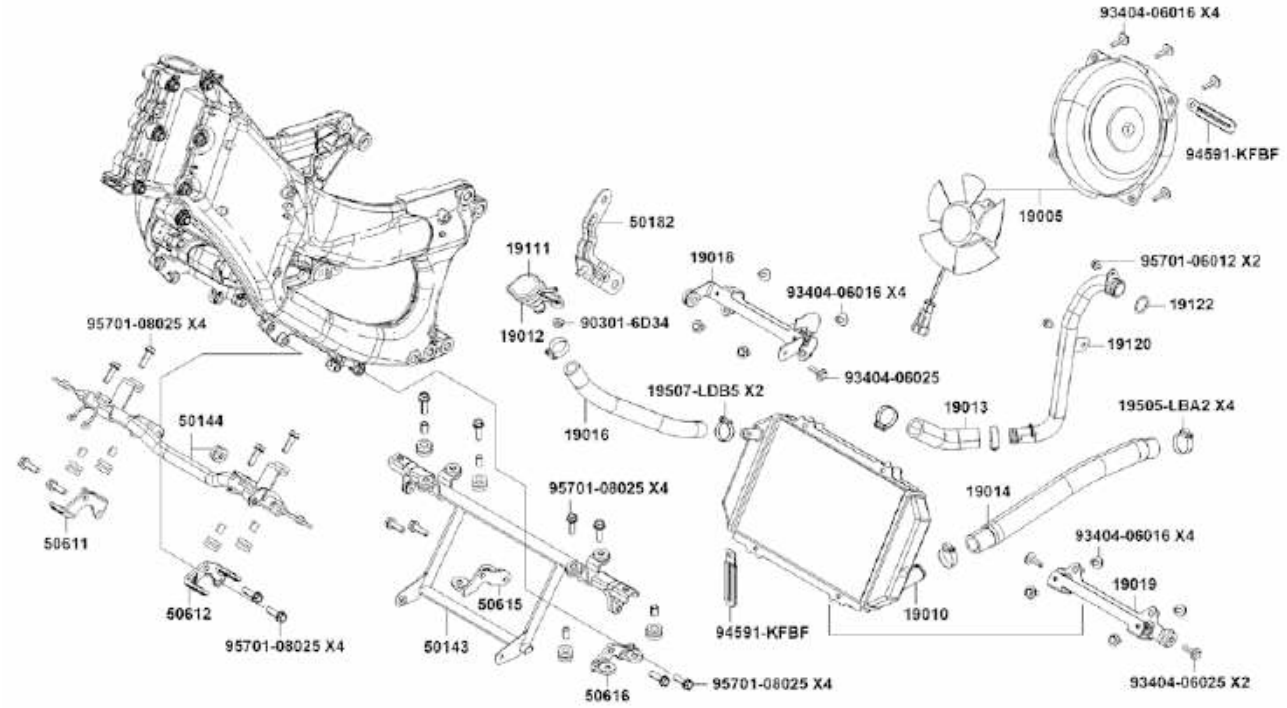
CAUTION: Never remove the radiator cap when the engine is hot.



Wet the seal on the radiator cap and install it to the pressure tester. Replace the cap if it does not relieve the pressure as specified.

Radiator cap relief pressure	0.9 ± 0.15 kg/cm^2 (12.8 ± 2.1 psi)

Radiator Removal



Drain the coolant.

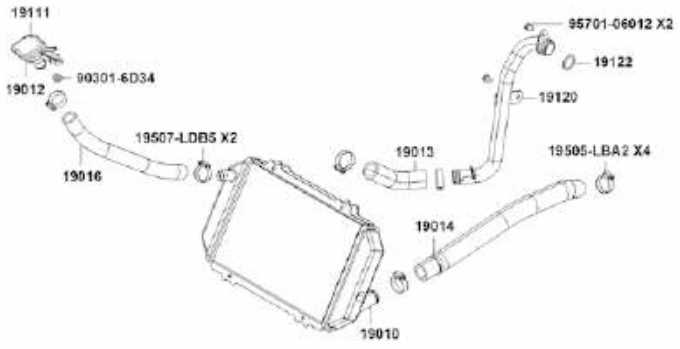
Unplug the cooling fan motor connector, blue and black color of wires.

There are three coolant hoses that connect to the radiator. The top left hose runs to the filler neck and cap. The top back of left hose runs to the thermostat on the cylinder head. The bottom right hose runs to the water pump.

Loosen the coolant hose clamps with a #2 Phillips screwdriver.
Free the filler neck coolant hose from the stay and remove it from the radiator.


Loosen the coolant hose clamps with a #2 Phillips screwdriver.
Free the thermostat coolant hose from the stay and remove it from the radiator.

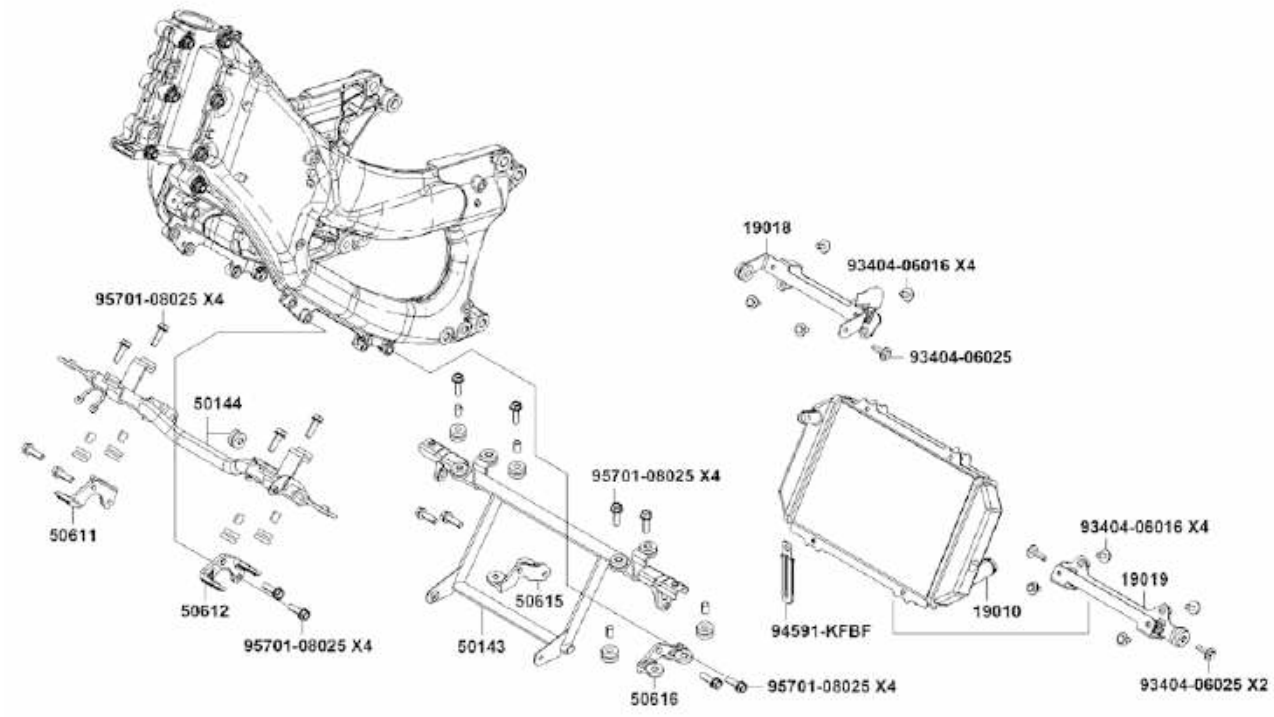

Loosen the coolant hose clamps with a #2 Phillips screwdriver.
Free the water pump coolant hose from the stay and remove it from the radiator.

Remove the radiator mounting bolts with a 10 mm socket.

Remove the radiator and free the grommet from the radiator.
And remove the tube and remove bolts of the fixed plate.

Remove the radiator from the frame.

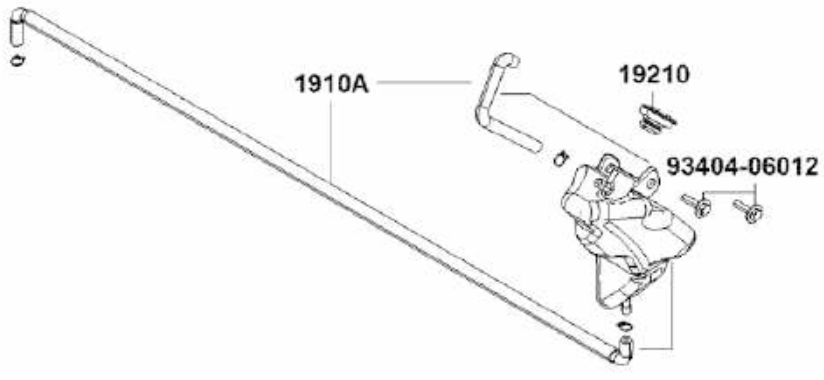


Coolant Reserve Tank

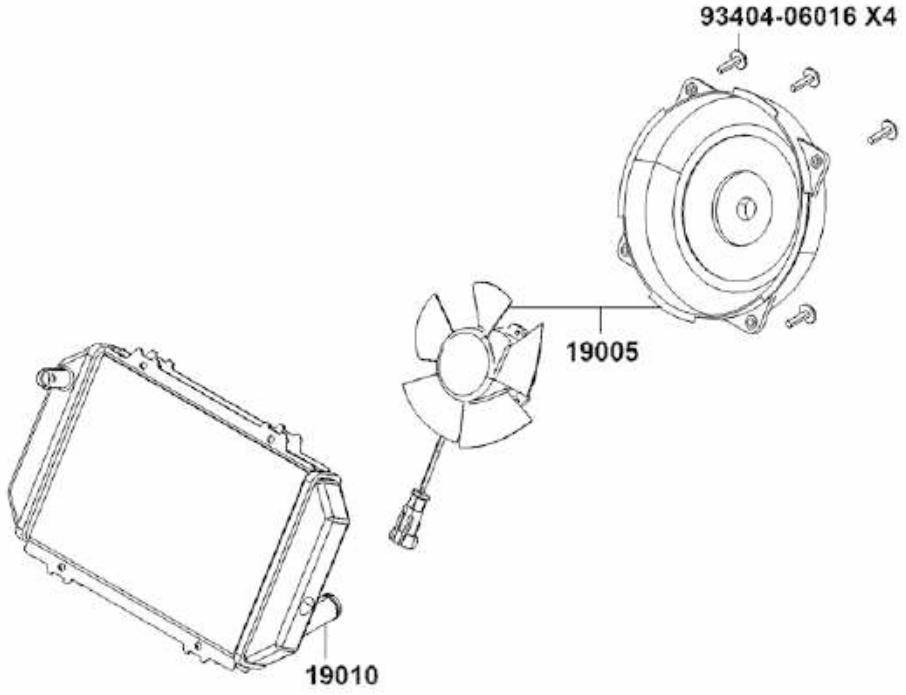
The coolant reserve tank is mounting to the frame with two bolts. There are two hoses that connect to the reserve tank. The top hose is a dump hose that hangs over the other side. The bottom hose is the overflow hose that runs to the filler neck.


Position a suitable container below the reserve tank.
Pull back the clamp and free the overflow hose from the bottom of the reserve tank. Allow the coolant in the reserve tank to drain into the container.

Remove the two reserve tank mounting bolts with a 10 mm socket.
Remove the reserve tank from the frame.

Radiator Inspection



Inspect the radiator fins for damage and clogging. Clean out the fins with low pressure compressed air and water. Check the radiator for any bent or damaged fins. Use a small flat blade screwdriver to straighten them out, but be careful not to puncture the radiator.

Check the radiator for any bent or damaged fins. Use a small flat blade screwdriver to straighten them out, but be careful not to puncture the radiator.

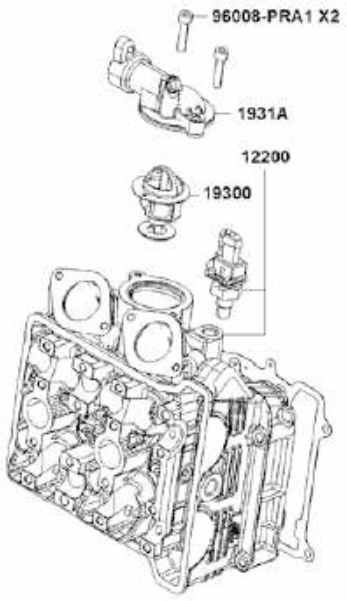
Jump a 12 volt battery to the fan connector and make sure the radiator fan operates.

Water Temperature Sensor (WTS)

Unplug the water temperature sensor.

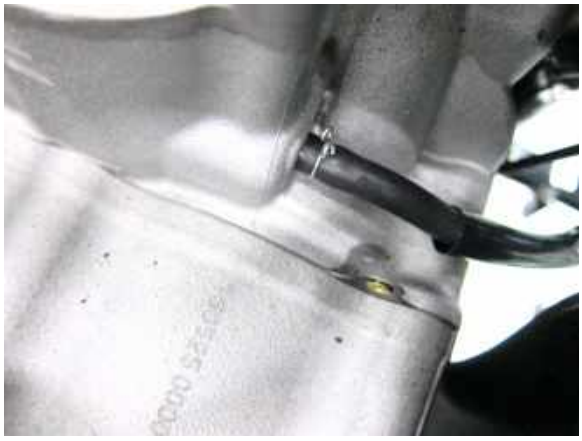
Use a 17 mm wrench to remove the water temperature sensor.

Installation torque: 1.8~2.2 kgf-m (18~22 N-m)



Thermostat

Remove the bolts and remove the coolant pipe.
And remove the Cir-clip and tube.

Loosen the two bolts of thermostat cover.


Lift out and remove the thermostat.

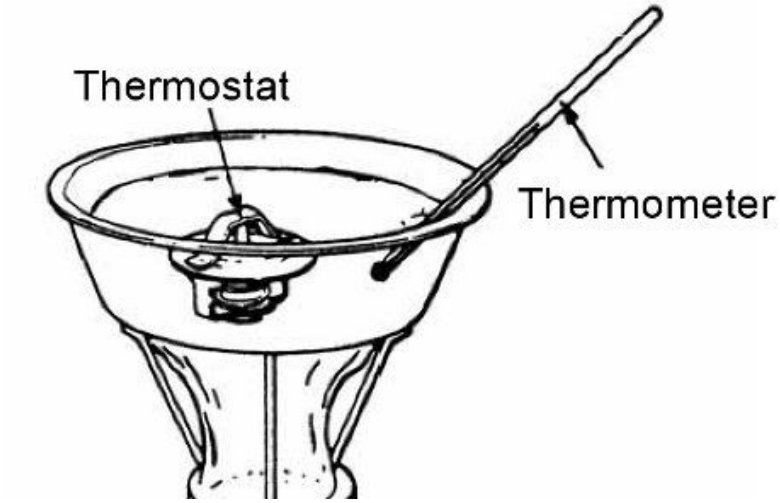

Inspection

Water Temperature Sensor
Inspect the WTS in a similar manner as the thermosensor. Measure the resistance between the WTS terminals and compare this to the specifications.

Water temperature sensor resistance	At -20°C/-4°F	28.6 KΩ
	At 40°C/104°F	1.46 KΩ/3.51 KΩ±10%
	At 100°C/212°F	0.176 KΩ

Thermostat

The thermostat should be closed at room temperature.



Suspend the thermostat and a thermometer in a pot of water with string. Make sure the thermostat and the thermometer are not touching the pot. Bring the temperature up to the specification slowly and check the operation of the thermostat.

The valve should begin to open around 71° C (160° F). The valve should lift 3.5 - 4.5 mm (0.14 - 0.18 in) at 80° C (176° F).
After the thermostat has been open for around 5 min. allow the thermostat to cool. The thermostat should close at 70° C (158° F).

Replace the thermostat with a new unit if it fails to function properly.

Water Pump

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Mechanical Seal Inspection

Inspect the telltale hole in the generator cover below the water pump for signs of coolant leaking. If there is coolant coming from this hole the mechanical seal is compromised and must be replaced.

Removal

Water Pump Cover

Drain the coolant. See the Coolant topic for more information.

Loosen the water pump hose clamp with a #2 Phillips screwdriver. Slide up the clamp and free the coolant hose from the water pump. Allow any remaining coolant to drain into a suitable container.

Remove the other coolant hose and tube. And remove the bolts of coolant pump cover.


Remove the water pump cover bolts.
Remove the water pump cover.

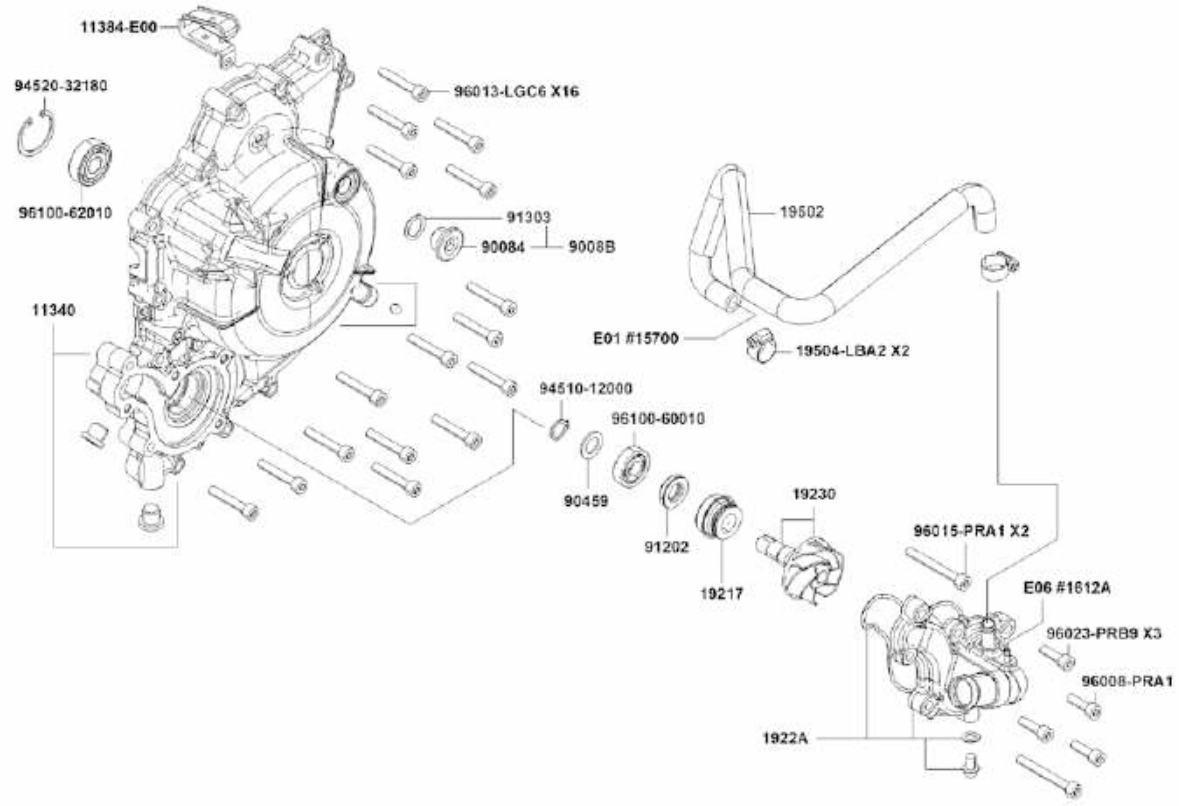

Remove the generator cover. See the A.C. Generator and Starter clutchtopic for more information.

Remove the clip.


Remove the washer.

Remove the water pump shaft and impeller

Remove the two dowel pins and the water pump cover gasket.



6.Fuel Injection System

This chapter covers the location and servicing of the fuel system components for the KYMCO AK550 model.

GENERAL INSTRUCTIONS

- Scooter services can be done with the engine installed in the frame.
- Be sure to relieve the fuel pressure before fuel pump or fuel hose removal.
- Bending or twisting the control cables will affect operation and could cause the cables to stick or bind, resulting in loss of vehicle control.
- Work in a fully ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- Do not apply the Carburetor Cleaners to the inside of the throttle body, which is coated with molybdenum.
- Do not snap the throttle valve from fully open to fully close after the throttle cable has been removed; it may cause incorrect idle speed.
- Do not loosen or tighten the painted bolts and screws of the throttle body. Loosening or tighten them can cause throttle and idle valve synchronization failure.
- Seal the cylinder head intake ports with tape or a clean towel to prevent dirt and debris from entering the intake ports after the throttle body has been removed.
- Do not damage the throttle body. It may cause incorrect throttle and idle valve synchronization.
- Do not take the fuel pump on the ground downward.

- Always replace the packing when the fuel pump is removed.

- The electronic fuel injection system is equipped with the self-diagnostic system. If the Check Engine Lamp “CELP” illuminate while riding, follow the self-diagnostic procedures to solve the problem.

- A faulty AFI problem is often related to poorly connected or corroded connectors. Check those connections before proceeding.

- When disassembling the fuel injection parts, note the location of the O-rings. Replace them with new ones upon reassembly.

- Do not disconnect the battery negative (-) or positive (+) cable while engine is running, it may cause ECU damage.

- **Do not disconnect or connect the ECU connector during the ignition switch “ON”; it may cause the ECU damage.**

TROUBLESHOOTING

Engine fail to start

- Intake manifold air leak
- Fuel contaminated/deteriorated
- Pinched or clogged fuel hose
- Faulty fuel pump
- Clogged fuel filter, throttle body
- Sticking fuel injector needle
- Faulty fuel pump operating system
- Carbon deposit stayed on the fuel injector
- Spark plug dirty
- Fuel pressure incorrect

Backfiring or misfiring during acceleration

- Ignition system malfunction

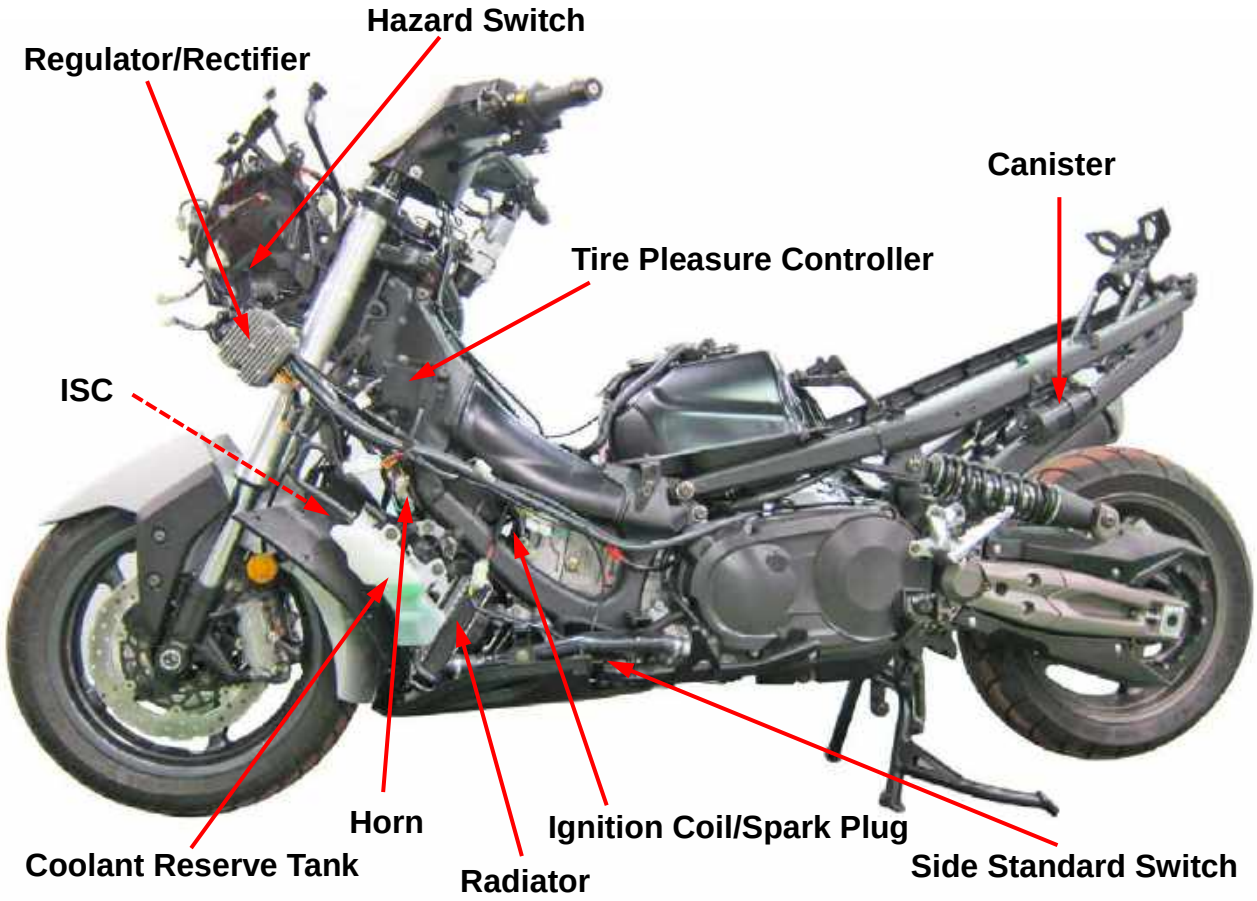
Engine stall, hard to start, rough idling

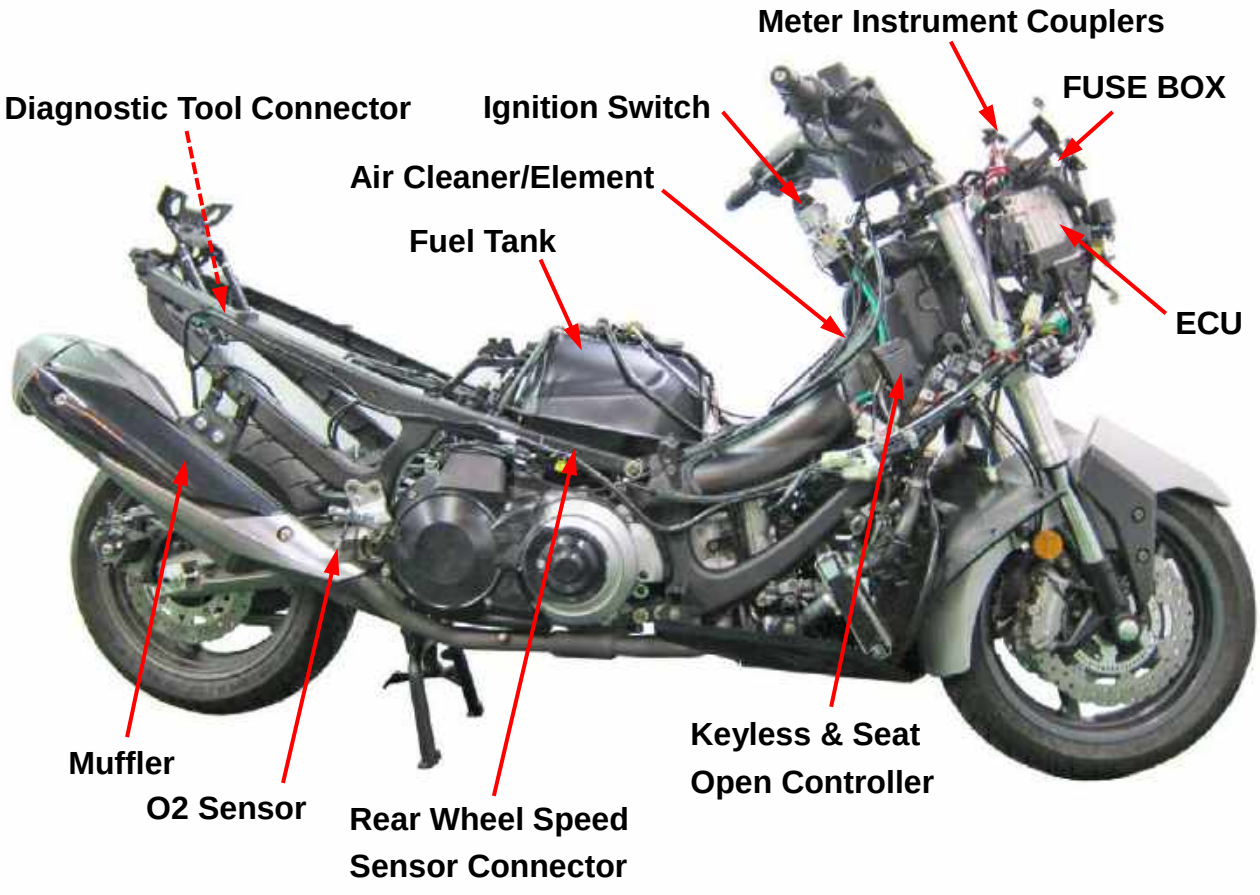
- Intake air leak
- Fuel contaminated/deteriorated
- Pinched or clogged fuel hose
- Idle speed fail to adjust
- Fail to perform TPS/ISC reset

Poor performance (drive ability) and poor fuel economy

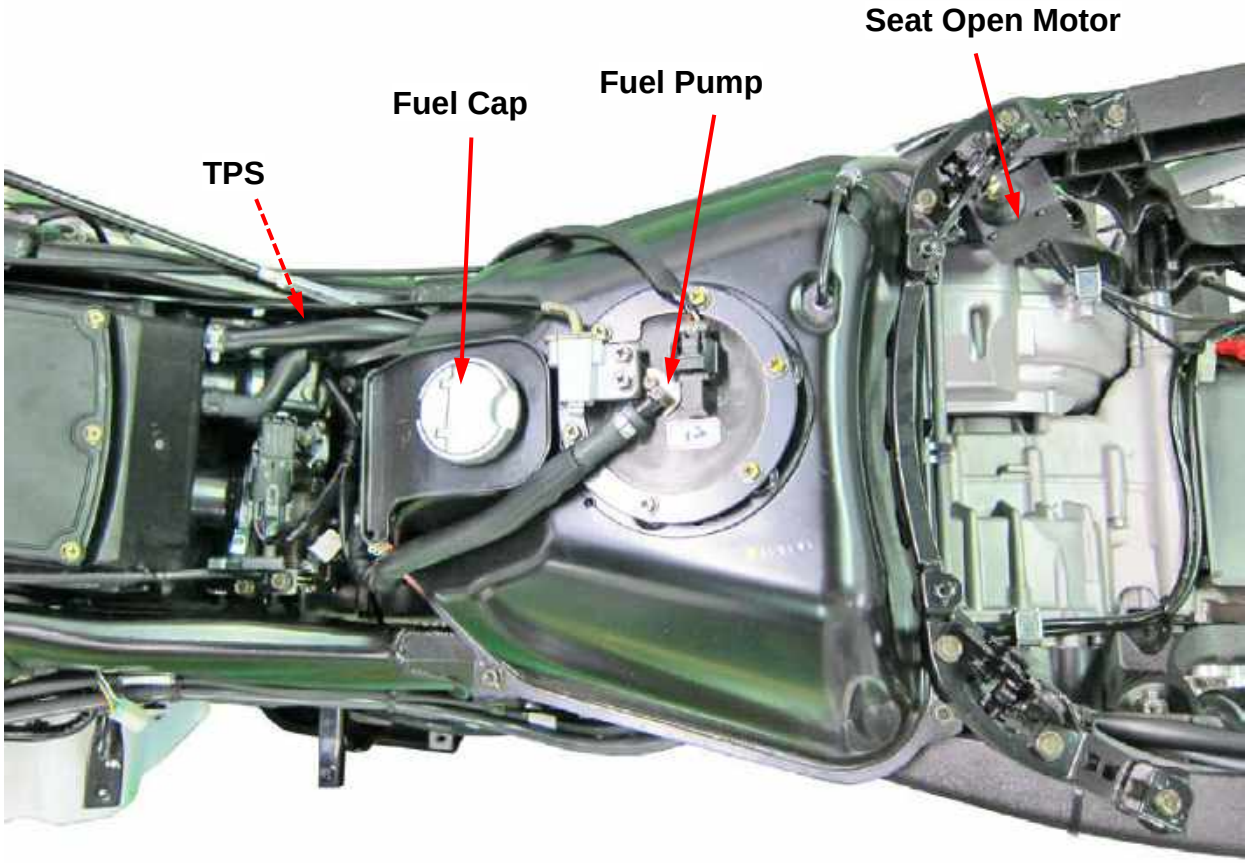
- Pinched or clogged fuel hose
- Faulty injector

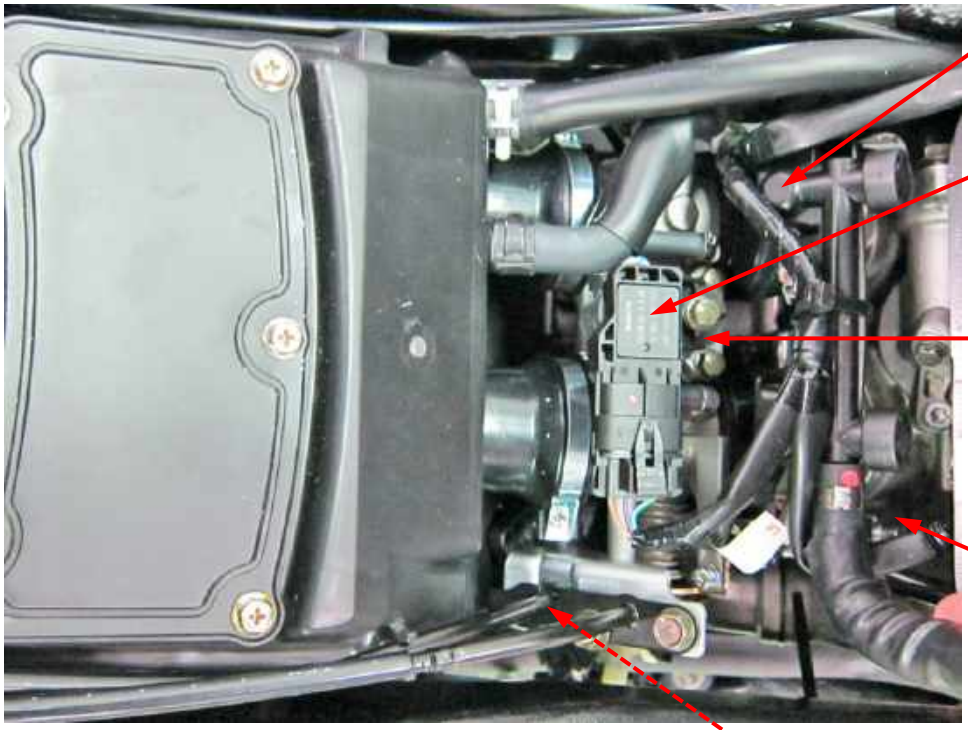
Component Location



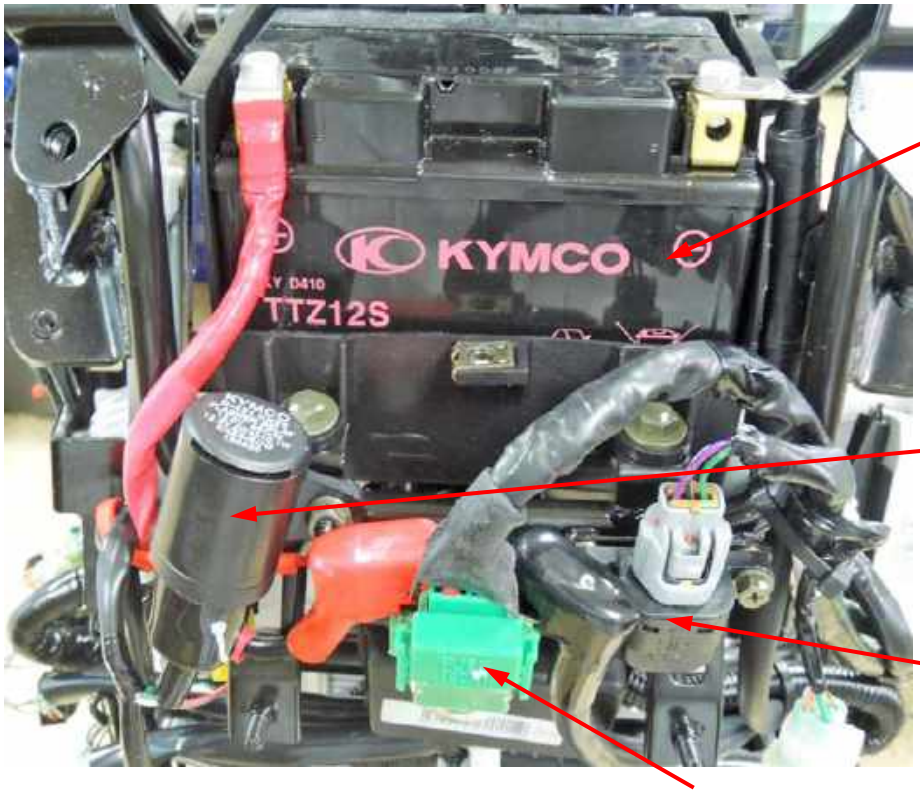


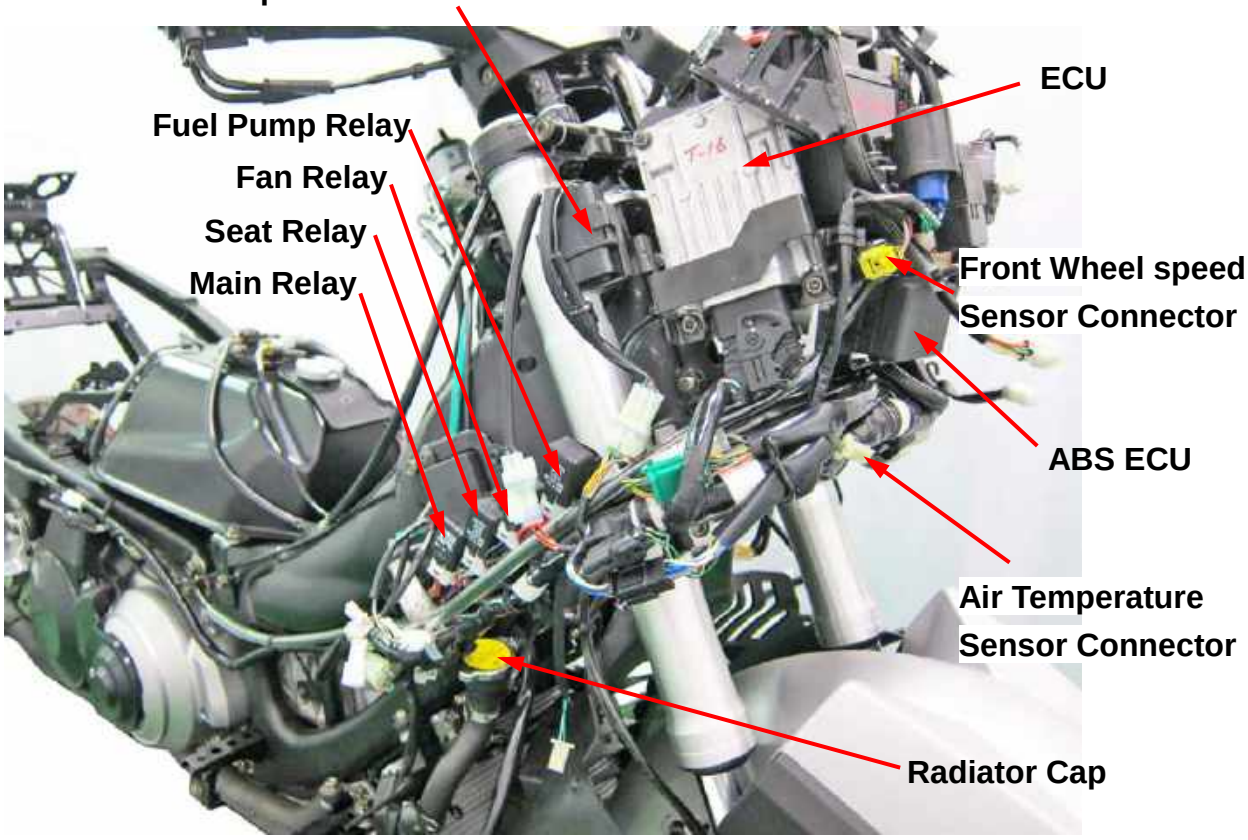
Component Location





Component Location





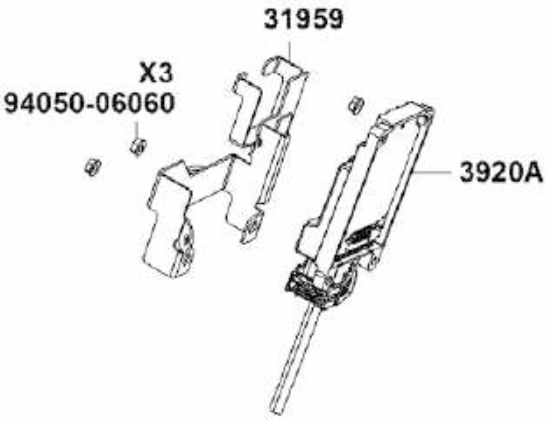
ECU

Remove the front cover set. See the external topic for more information.

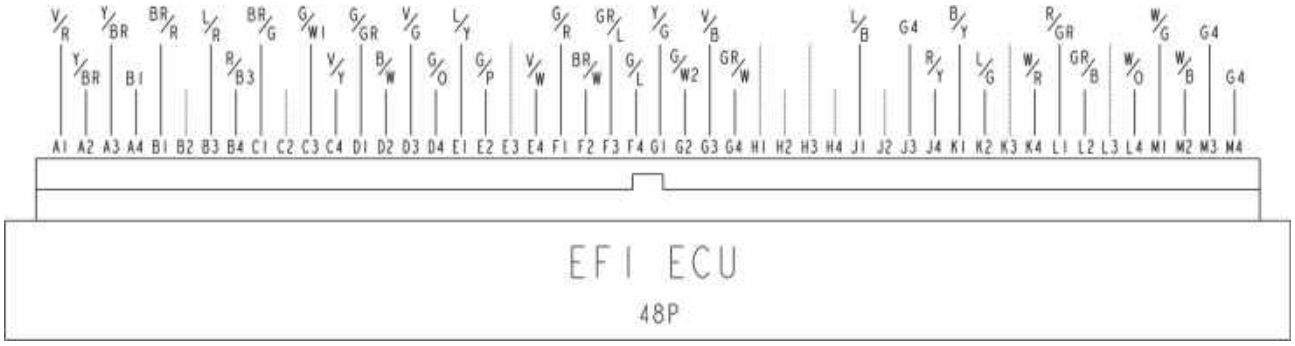
Note: The ECU could be damaged if dropped or the connector is disconnected when the key is on. The excessive voltage may damage the ECU. Always turn off the ignition switch before servicing.

Press the tab and rotate the rod to disconnect the ECU harness.

Remove the nuts and bracket to remove the ECU.



Inspection



Check for continuity between pin M3 and M4 of the ECU side connector.

There should be continuity at all times.

Check for continuity between each pins C3, D1 of the ECU side connector.

There should be continuity at all times.

A1	V/R		SENSOR POWER(+5V)	D1	G/GR		CRANK ANGLE(-)
A2	Y/BR		STARTER RELAY	D2	B/W		TILT SW
A3	Y/BR		STARTER RELAY	D3	V/G		STEP MOTOR A2
A4	B1		VOLTAGE AFTER KEY(VBK)	D4	G/O		STEP MOTOR A1
B1	BR/R		CAN-HIGH(+)	E1	L/Y		CRANK ANGLE(+)
B2				E2	G/P		DRIVING MODE SW
B3	L/R		ENG CHECK	E3			
B4	R/B3		DIRECT BATTERY VOLTAGE(VBD)	E4	V/W		STEP MOTOR B1
C1	BR/G		CAN-LOW(-)	F1	G/R		STARTER SWITCH
C2				F2	BR/W		MANIFOLD AIR PRESSURE
C3	G/W1		SIGNAL GROUND(TPS,TIA)	F3	GR/L		AIR INTAKE TEMP
C4	V/Y		STEP MOTOR B2	F4	G/L		ENGINE COOLANT TEMP
PIN	COLOR	LABEL	PI FUNCTION	PIN	COLOR	LABEL	PI FUNCTION

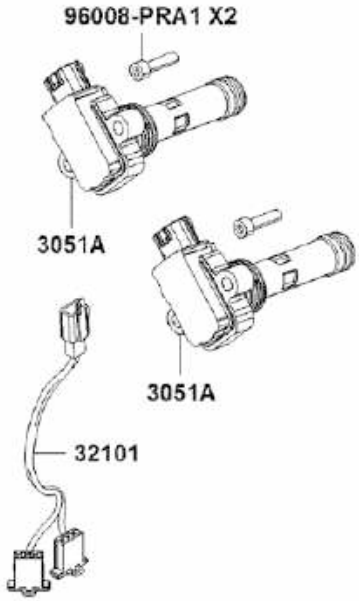
G1	Y/G		RUN/STOP SW	K1	B/Y		MAIN RELAY
G2	G/W2		SIGNAL GROUND(O2,MAP,TCO)	K2	L/G		FAN RELAY
G3	V/B		THROTTLE POSITION SENSOR	K3			
G4	GR/W		O2 SENSOR SIGNAL(+)	K4	W/R		INJ-1(LEFT)
H1				L1	R/GR		BATTERY VOLTAGE (VBR)
H2				L2	GR/B		O2 HEATER CONTROL
H3				L3			
H4				L4	W/O		INJ-2(RIGHT)
J1	L/B		FUEL PUMP RELAY	M1	W/G		IGNITION COIL#2(RIGHT)
J2				M2	W/B		IGNITION COIL#1(LEFT)
J3			LEVER SW	M3	G4		POWER GROUND
J4	R/Y		SIDE STAND SW	M4	G4		POWER GROUND
PIN	COLOR	LABEL	PI FUNCTION	PIN	COLOR	LABEL	PI FUNCTION

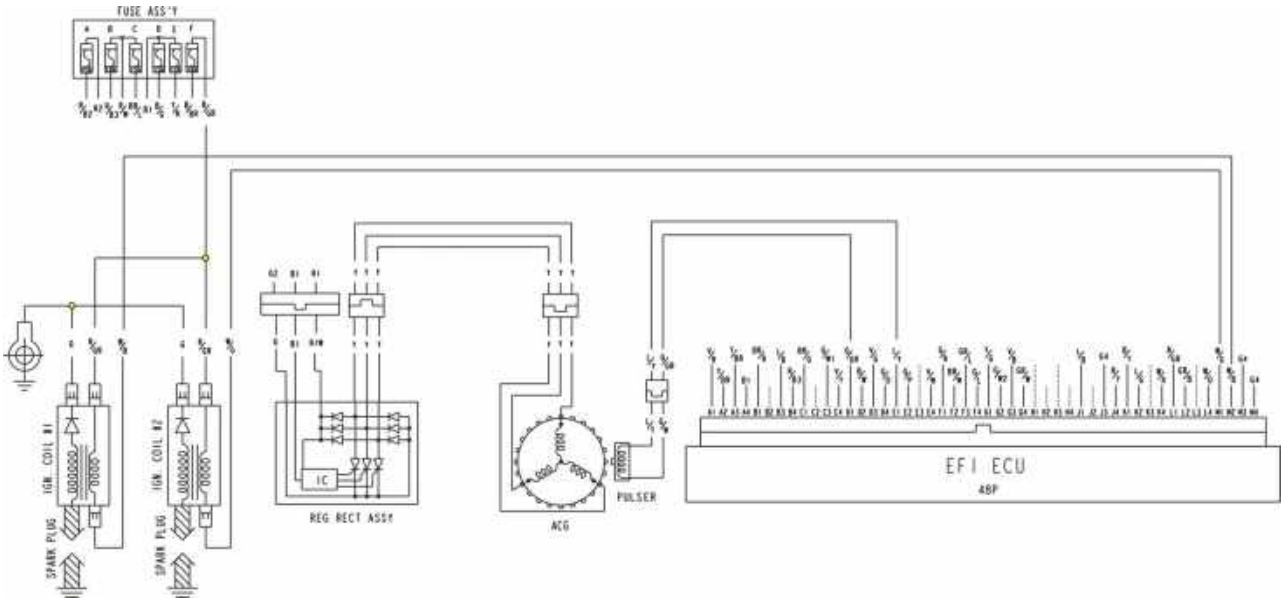
Ignition System

The ignition timing is set at the factory and is not adjustable. Perform the following checks. Before performing any tests make sure the electrical connections are not loose or corroded.

Ignition Coil

Remove the connectors.
Remove the two ignition coil mounting bolts and remove the ignition coil.





Spark Plug

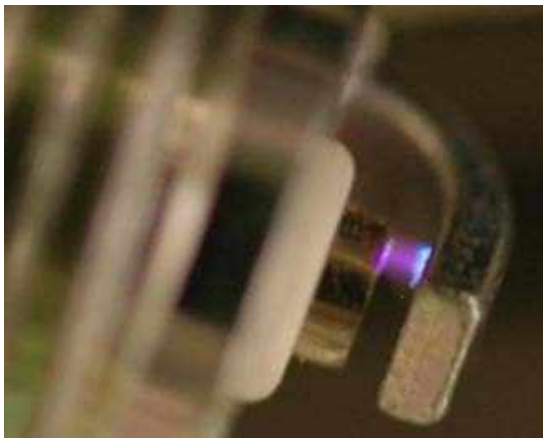
Turn the ignition switch to ON, lift the side stand, hold in one of the brake levers, and push the engine start button. The plug should spark.

Caution: Do not touch the spark plug or spark plug wire while cranking or running the engine as this can result in a severe shock.

Remove the spark plug with a spark plug with a 5/8 in socket.

Spark plug	NGKCR7E

Check the spark plug to see if it is the correct type and gapped properly. If the spark plug is black and fouled, replace it.



If the spark plug center electrode or side electrode are corroded or damaged, or if the insulator is cracked, replace the plug.

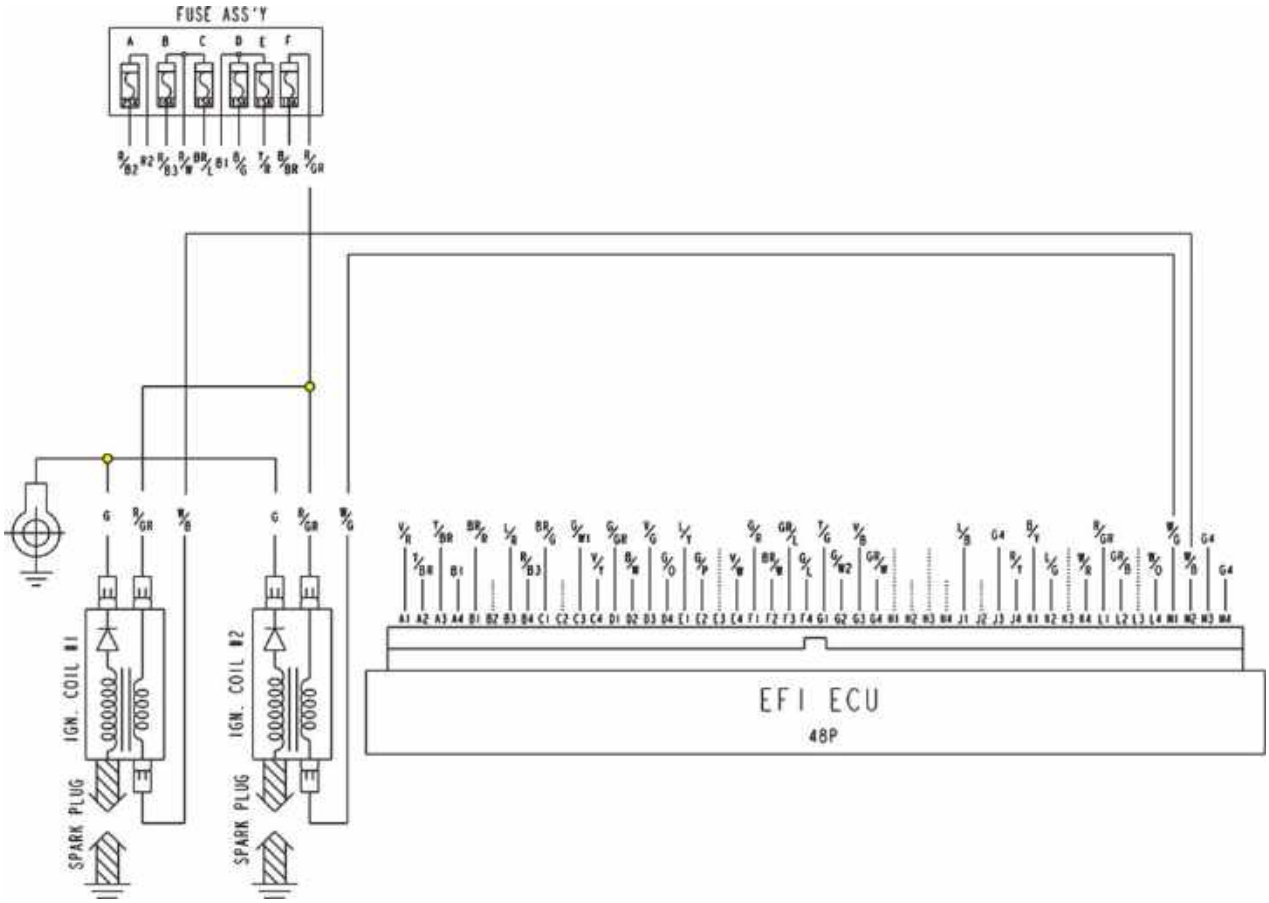
Measure the gap with a wire-type thickness gauge.
If the gap is incorrect, replace the spark plug.

Always check the gap of the spark plug before installation. Inspect the color of the porcelain nose of the spark plug. The color of the spark plug can indicate how the mixture is burning. A white colored plug shows a lean mixture, where a dark plug shows a rich mixture. Do not hesitate to replace a spark plug. Always replace a spark plug if any part of it is damaged.

Spark plug gap	0.7 - 0.8 mm

Do not over tighten the spark plug. The cylinder head is made out of soft metal, and it can be easily damaged.

Item	Torque
Spark plug	0.8~1.2 kgf-m

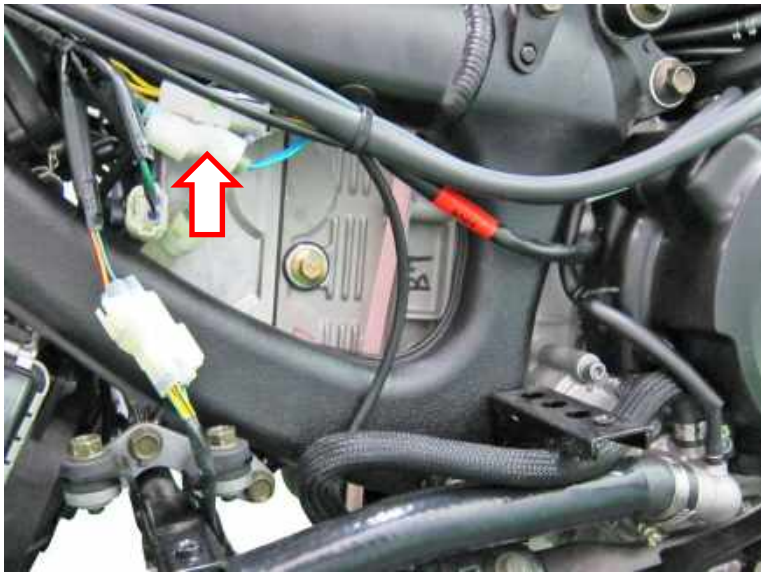


AC Generator Inspection

Crank Position Sensor Inspection

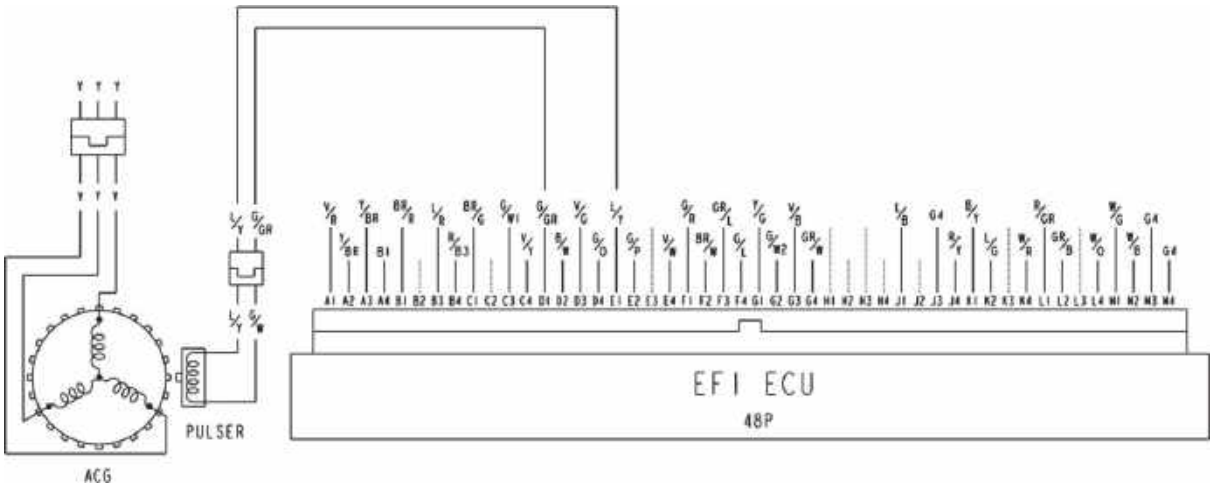
Note: This test is performed with the stator installed in the engine.

Disconnect the crank position sensor wire coupler. Measure the resistance between L/Y and G/GR wire terminals.



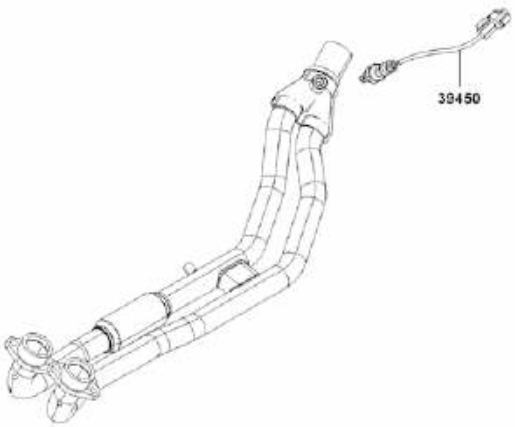
Resistance	
L/Y – G/GR	115 Ω ± 15 Ω

To replace the crank position sensor see the A.C. Generator and Starter clutch topic.



O2 Sensor Removal

Remove the O^2 sensor with a 17 mm wrench. Use care not to pinch the wires.



Installation torque: 2~3 kgf-m (20~30 N-m)
Apply anti-seize compound to the threads of the O^2 sensor. Install the O^2sensor and tighten it to specification with a 17 mm wrench. Use care not to pinch the wires.

The O^2 sensor issues signal to ECU when the temperature is over 350°C while the engine is running.

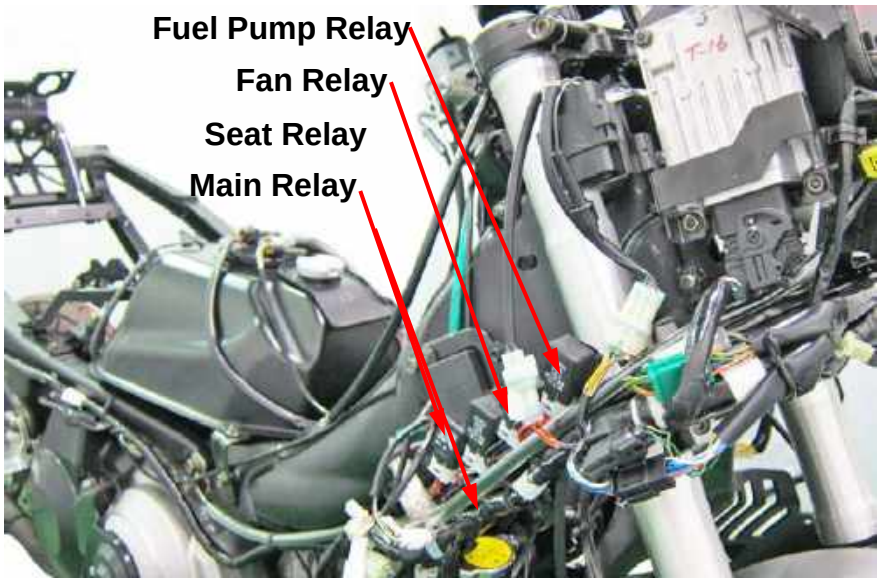
Test the O^2 sensor at room temperature.

Use a digital multimeter set to ohms of resistance to inspect the O^2 sensor.

Measure the resistance between the white wire terminals of the O^2 sensor connector. Replace the O^2 sensor if the reading is out of specification.

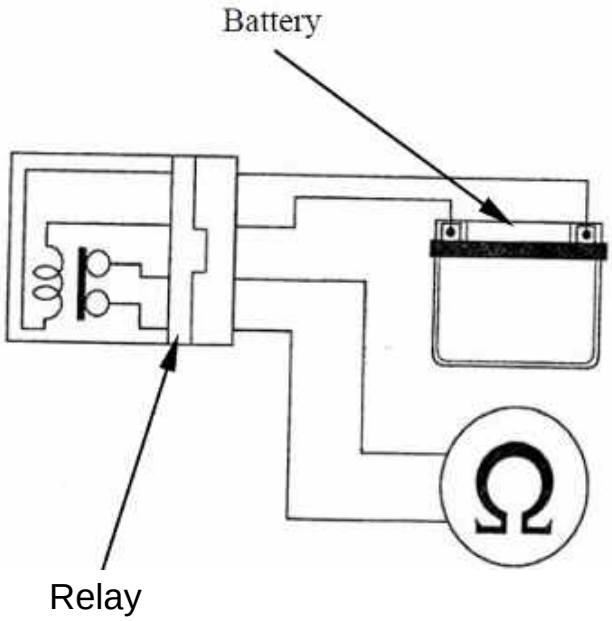
ITEM	SPECIFICATIONS
O^2 heater sensor resistance (at 20°C/68°F)	6.7 - 9.5 Ω (engine warming condition)

Relays



Relays Inspection

Use a digital multimeter to inspect the relay.



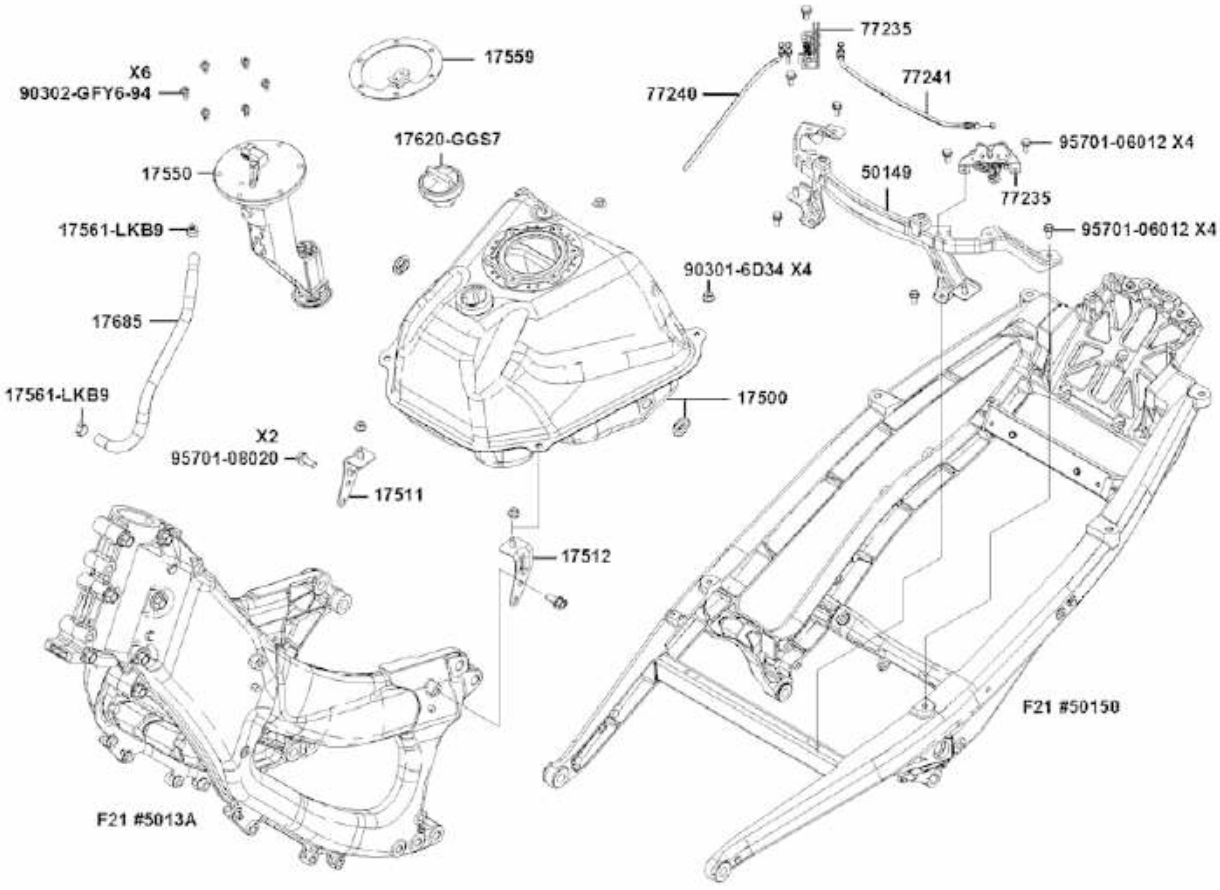
Connect 12 V battery with the fuel cut-off relay connector.

There should be continuity only when 12 V battery connected.
If there is not continuity when the 12 V battery is connected, replace the relay.

Fuel Tank

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Warning: Gas is extremely flammable! Do not work around an open flame or a source of sparks.



Fuel Tank Removal

In order to drain the fuel from the fuel pipe and release the fuel pressure unplug the fuel pump connecter. Start the engine and let it run until it dies of fuel starvation. Turn the ignition switch off.

Remove the two bolts.
And remove the seat lock.

Disconnect the coupler.


Clamp the fuel hose for safety.
And loosen the fuel hose clamp.


To separate the fuel hose from the fuel pump pipe.


Clean up any remaining fuel immediately.


Note: When slide back the fuel hose carefully not to damage the fuel pump pipe, and replace the clamp with a new one when installation.

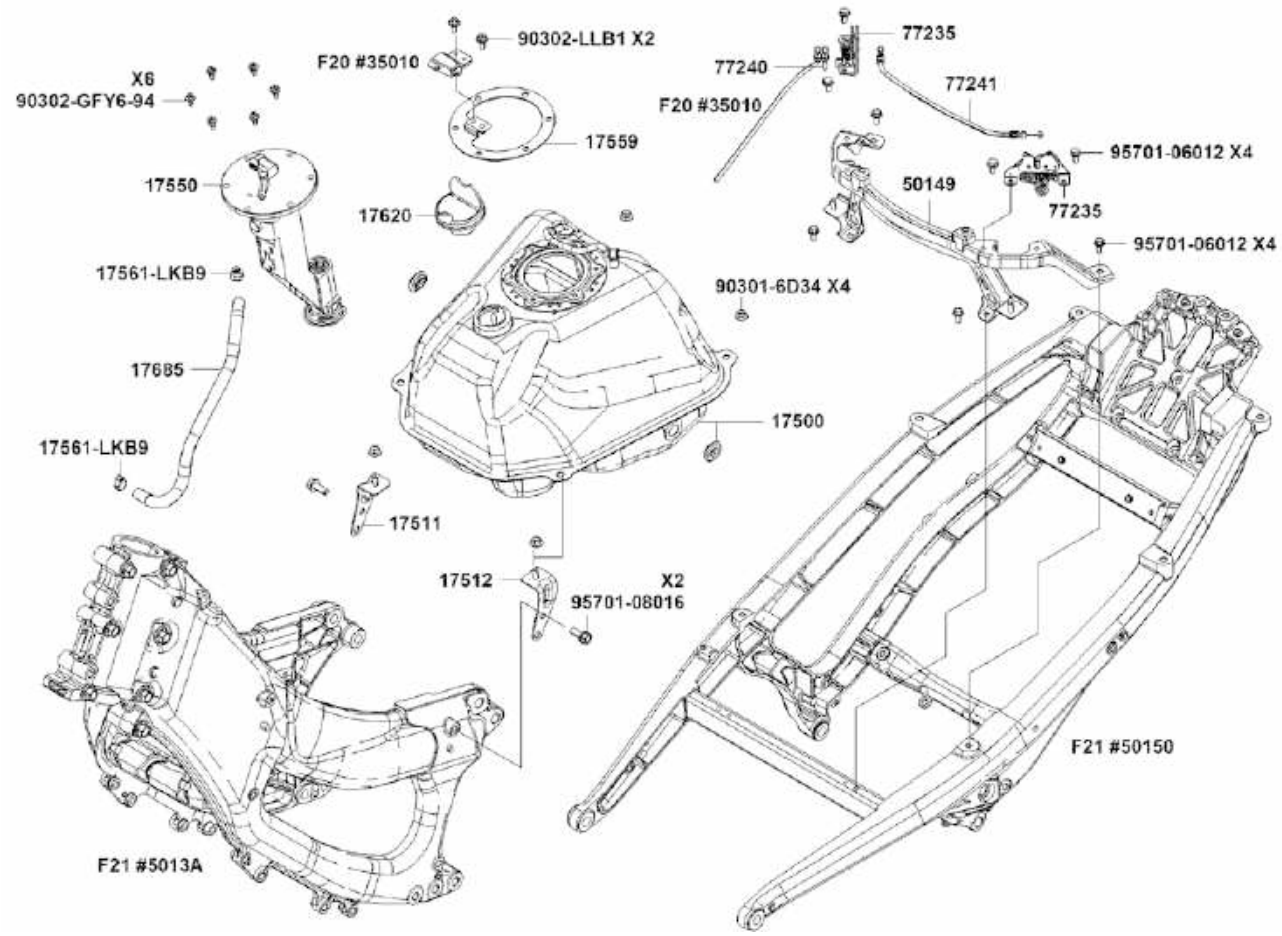
Remove the fuel pump mounting bolts.
And remove the bracket.


Remove the fuel pump assembly.


Loosen the clip and remove the air tube.


Remove the fuel tank mounting nuts.


Remove the fuel tank mounting nuts and remove the fuel tank from the frame.



Fuel Pump

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Warning: Gas is extremely flammable! Do not work around an open flame or a source of sparks.

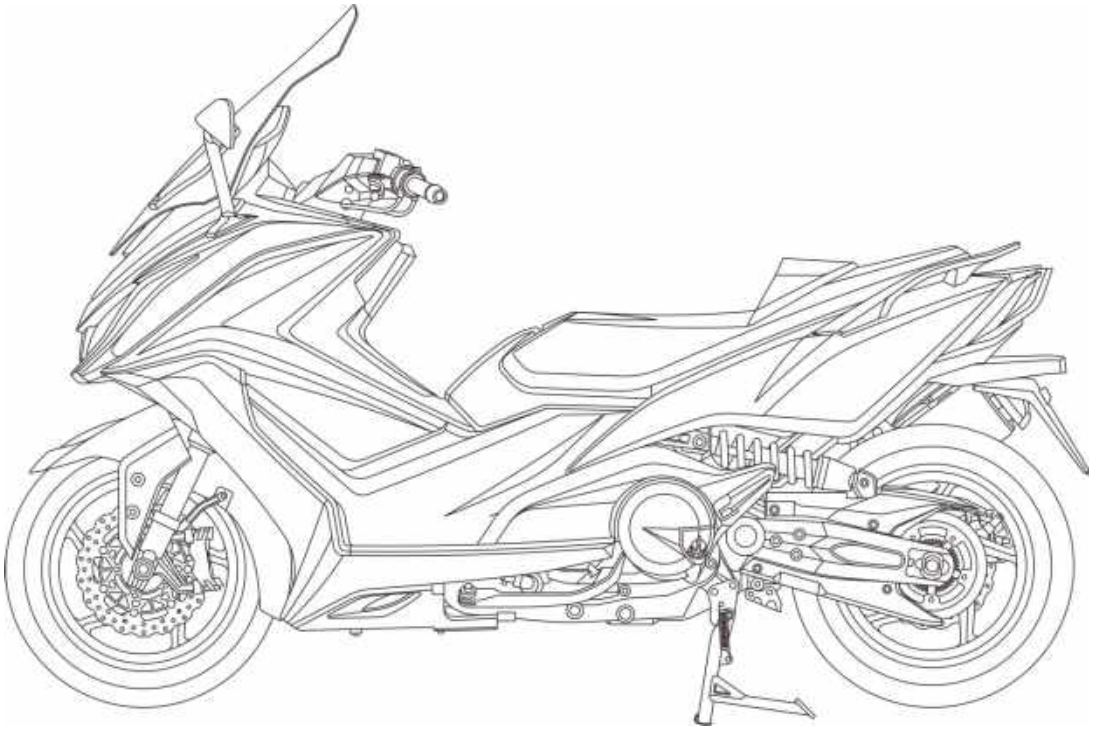
Input Voltage Inspection

Remove the seat. See the Seat topic for more information.

Remove the luggage box. See the Seat topic for more information.

Remove the center cover. See the Center Cover topic for more information.

Turn the ignition switch off.



Place the scooter on its main stand and put the side stand up.

Set the engine stop switch to the “RUN” position.

Unplug the fuel pump connecter.
Set the multi meter to read battery voltage.

Touch the multi meter leads to the harness side of the fuel pump connector, with the positive lead touching the red/black wire terminal and the negative lead touching the green wire terminal.

Turn the ignition switch on. The battery voltage should show for a few seconds. Replace the fuel pump if it is not functioning and the input voltage is correct.

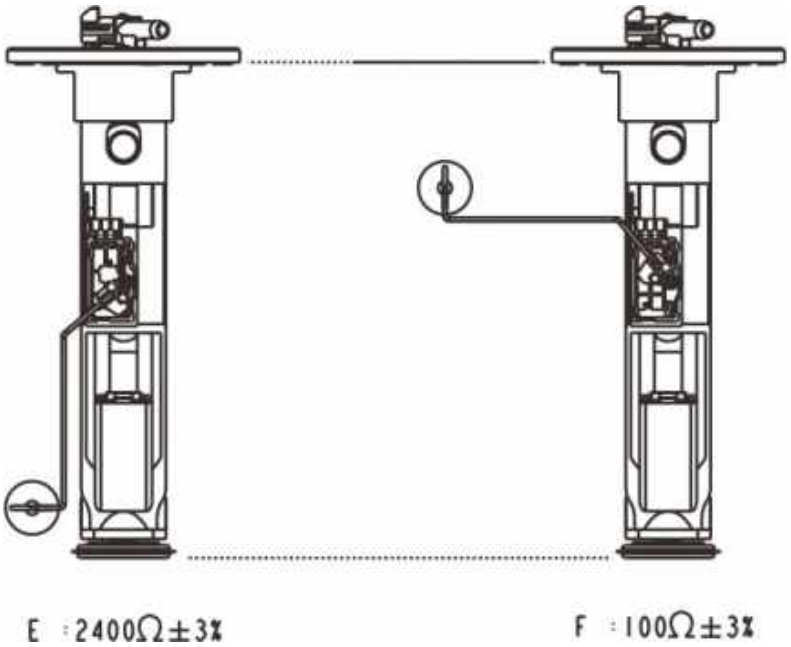
If the battery voltage is not present check the following:
- Fuse
- Fuel cut-off relay
- ECU

Fuel Pump

Lift the fuel pump out of the tank.
Discard the fuel pump O-ring, and when installation, replace the O-ring with new item and apply a small amount of fresh engine oil to the new O-ring.

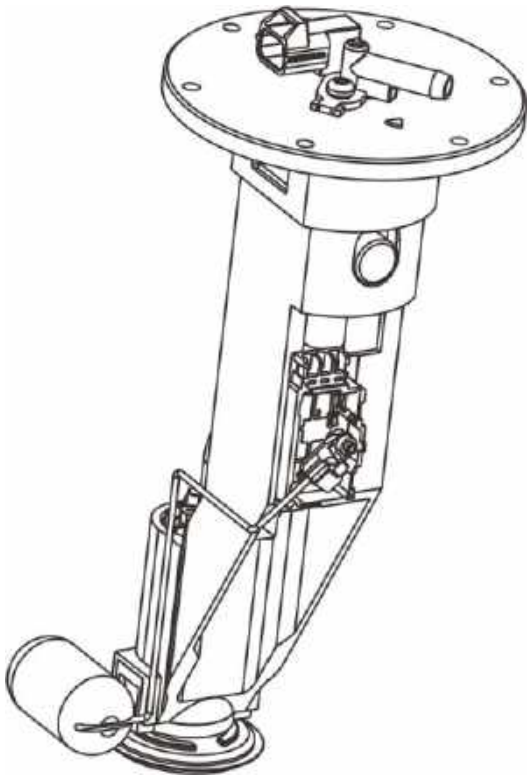
Fuel Level Gauge Inspection

Using a digital multi meter set to ohms of resistance (Ω), measure the resistance between the fuel pump/level gauge connector terminals (green and yellow/white) with the float raised to the positions indicted below.



Fuel Level Float Position	Resistance
Full	100Ω± 3%
Empty	2400Ω± 3 %

Replace the fuel level float unit with a new part if the resistance is out of specification.



Fuel Pump Output Pressure

Turn the key to the OFF position.
Use a fuel hose clamp as shown.


To separate the fuel hose from the fuel pump pipe.


Clean up any remaining fuel immediately. Disconnect the fuel hose from the fuel injector. Connect the fuel pressure gauge. Remove the fuel hose clamp. Turn the key to the ON position. Check the fuel pressure.


If the fuel output pressure is less than 3.0 bar, may fail to start the engine or in trouble in case of riding.

Turn the key to the OFF position and use the fuel hose clamp to block the fuel hose. Return the fuel line to the injector.

To inspect the fuel pump relay see the Relays topic.

Fuel Injector Removal

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Warning: Gas is extremely flammable! Do not work around an open flame or a source of sparks.

In order to release fuel pressure from the fuel pipe when removing the fuel injector, unplug the fuel pump connecter. Start the engine and let it run until it dies of fuel starvation. Turn the ignition switch off.

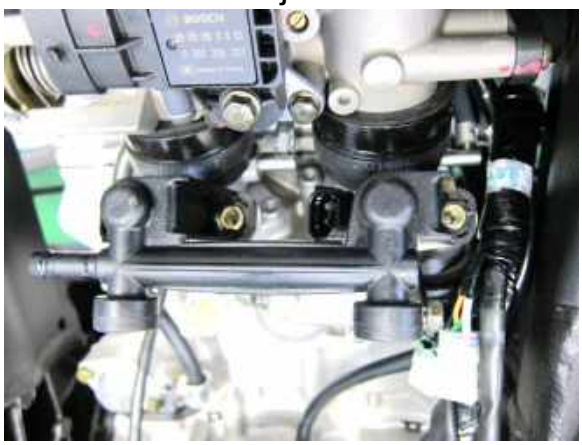
Clamp the fuel hose for safety. And loosen the fuel hose clamp.


To separate the fuel hose from the fuel pump pipe.


Slide back the clamp and free the injector fuel pipe from the fuel hose.
Inspect the fuel hose for signs of deterioration or damaged. Replace the fuel hose as needed.

Remove the two fuel injector mounting bolt with a socket.

Remove two spring washers.
And lift the fuel injector out of the intake pipe.

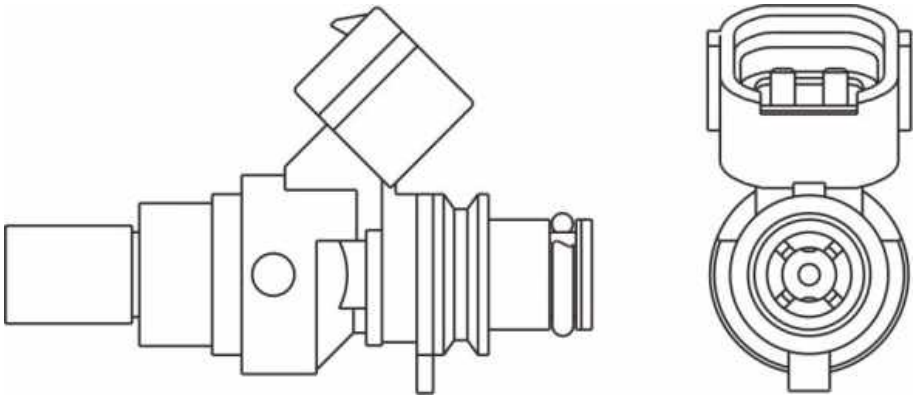


Inspection

A digital multi meter is needed to test the fuel injector.

Measure the resistance between the fuel injector terminals.

ITEM	SPECIFICATIONS
Fuel injector resistance (at 20°C/68°F)	10.6 - 15.9 Ω

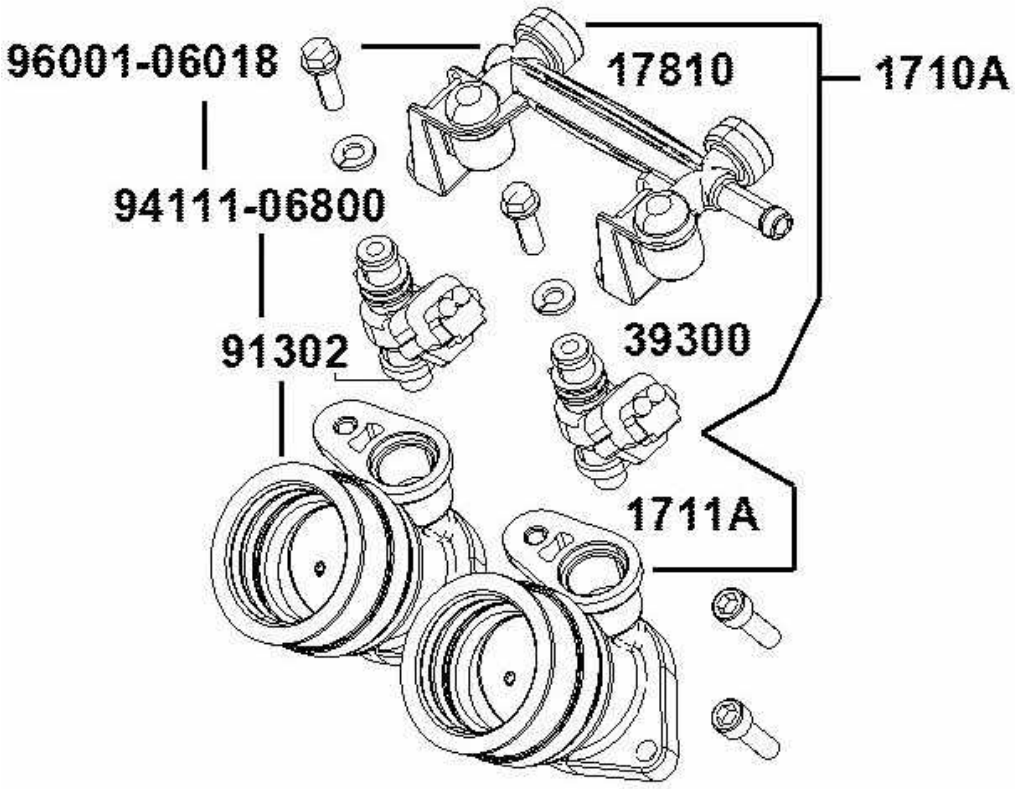


Check for signs of clogging.

Set the multi meter to read ohms of resistance (Ω).

When installation:

Apply a light coat of fresh engine oil to a new fuel injector O-ring.
Install the O-ring to injector before install injector to inlet pipe.



Fit the fuel injector pipe onto the top of the injector. The injector must securely fit into the pipe.

Cleaning

PROBLEM

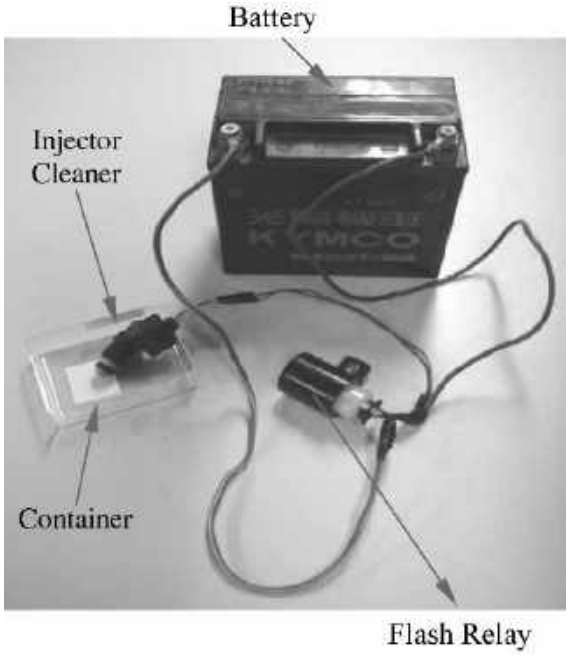
1. Fuel Injector cannot output the fuel.
2. The Injector injection time (ms) is shorter or longer.
Standard: < 1.6ms

ANALYSIS

Injector block (With some carbons).

TROUBLESHOOTING

1. Use the specified injector cleaner.
2. Pouring the liquid of carburetor cleaner until half container.
3. Connect the battery as picture.
4. The injector cleaner with the flash relay.
5. Keeping the fuel Injector operation.
6. Waiting for 20-30 minutes.
7. Cleaning the carbons completely.



Throttle Body Removal

● Turn off the ignition switch during removal/installation.
● Check and confirm if the voltage is over 12V with a voltmeter after replacement.
● Check and confirm if the other connectors are installed correctly after replacement.
● Do not damage the throttle body, it may cause the throttle and idle valve to fail synchronization.
● The throttle body is preset in KYMCO factory, do not disassemble it incorrectly.
● Do not loosen or tighten the painted bolts and screws for the throttle body. Loosening or tightening them can cause the throttle and idle valve synchronization to fail.

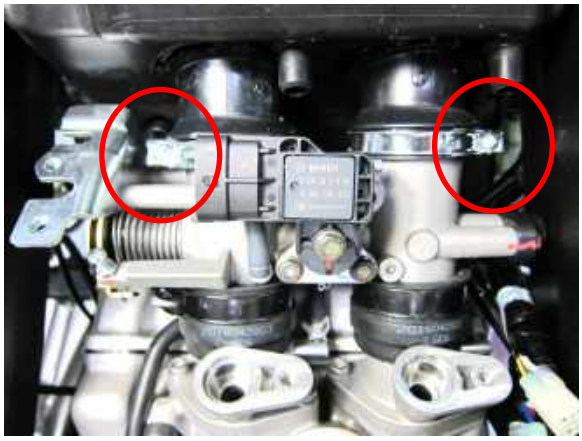
Remove the seat. See the external topic for more information.

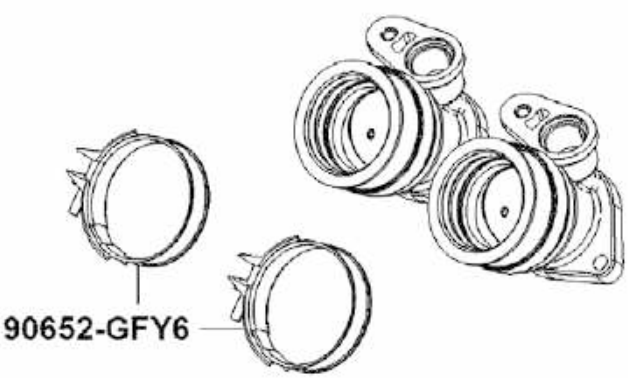
Remove the luggage box and center cover.

Remove the two bolts of throttle cables fixed plate.

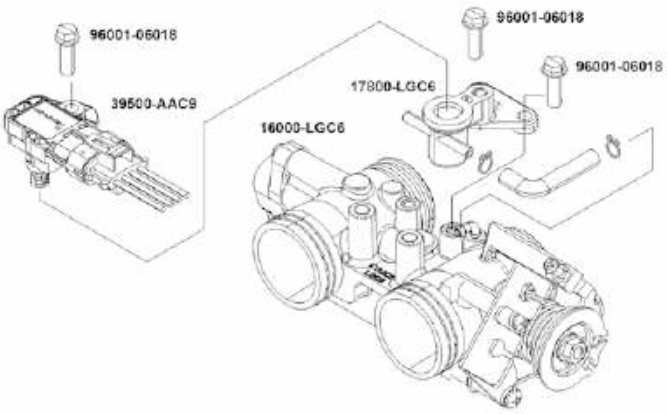

Free the throttle cables from the throttle drum.


Loosen the two screws of throttle body/air cleaner clamps.

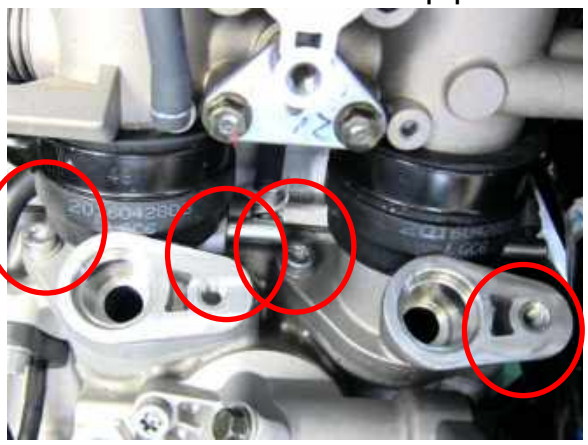


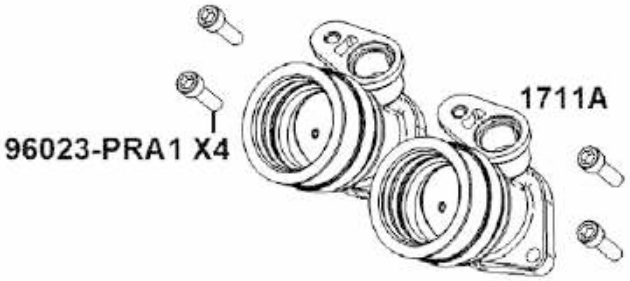


Remove the bolt of T-MAP sensor.
And remove the T-MAP sensor.

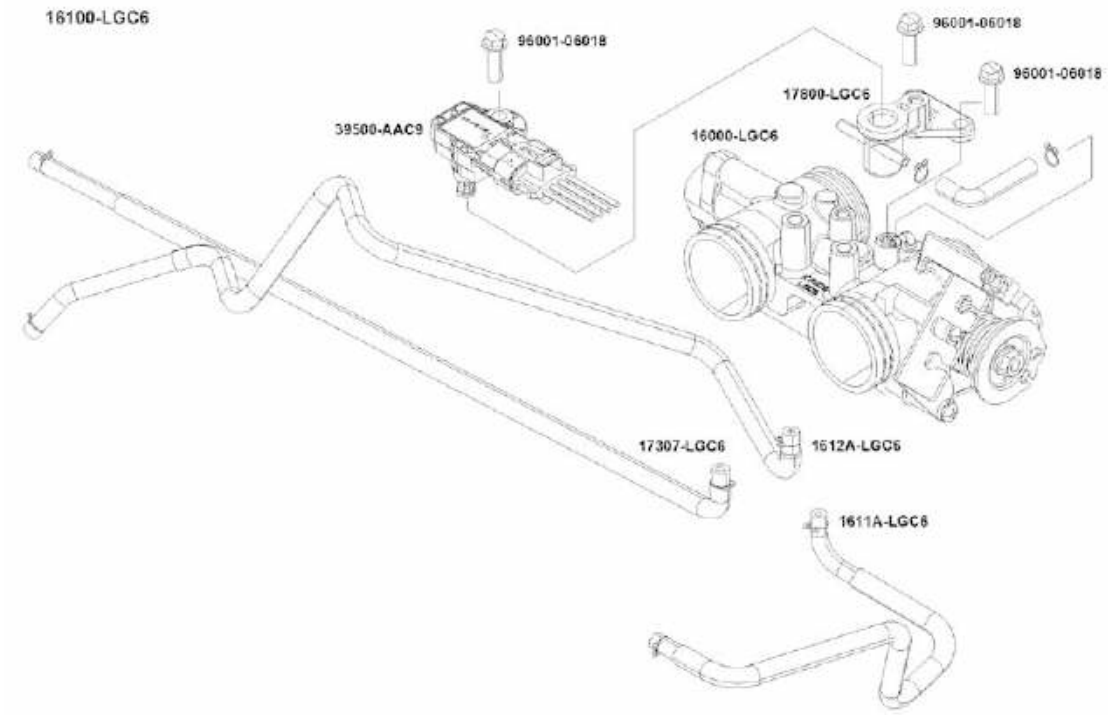


Remove four bolts of inlet pipe.

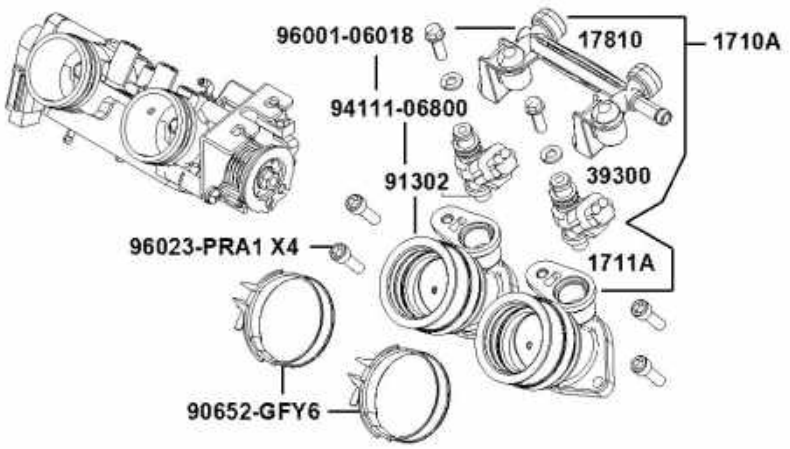




Slide back and remove the throttle body.
Remove the tubes of throttle body.



Remove the throttle body.



T-MAP Inspection

Support the scooter on a level surface.

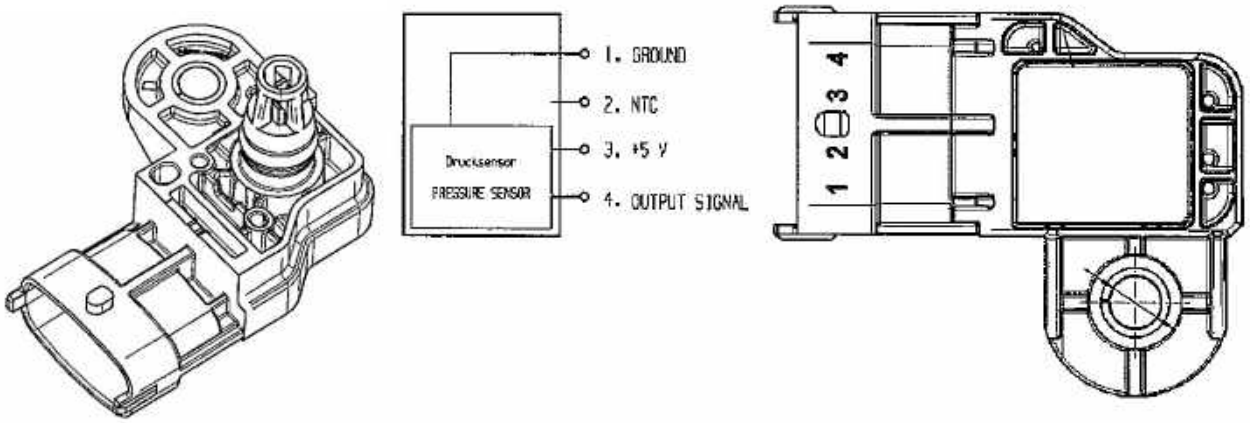
Put the side stand up and engine stop switch is at “RUN”.

Turn the ignition switch to “ON” position.

Unplug the MAP sensor connector.

Measure if the ECU voltage outputs to the MAP between the following terminals of the MAP connector.

Terminal	Normal
Violet/Red (+) – Green/Pink (-)	5 V



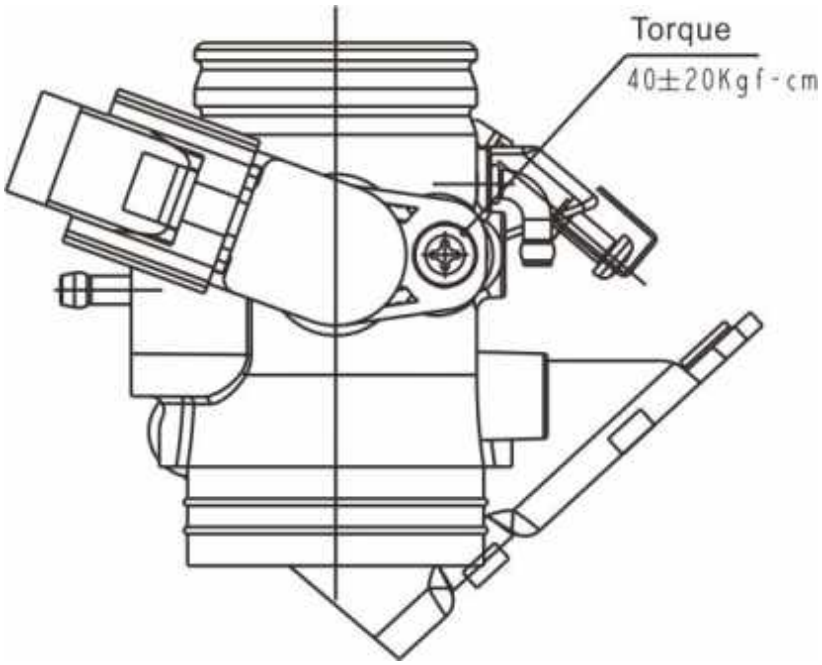
TPS Inspection

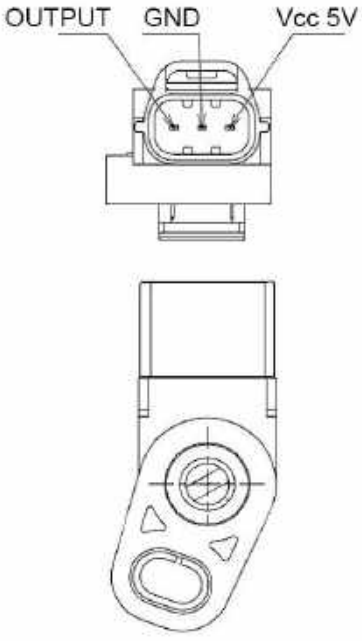
Unplug the TPS sensor connector.

Measure if the ECU voltage outputs to TPS between the following terminals of the TPS connector.

Terminal	Normal
Violet/Red (+) – Green/Pink (-)	5 V

Throttle Position Sensor (TPS) resistance (at 20°C/68°F)	3500 - 6500 Ω



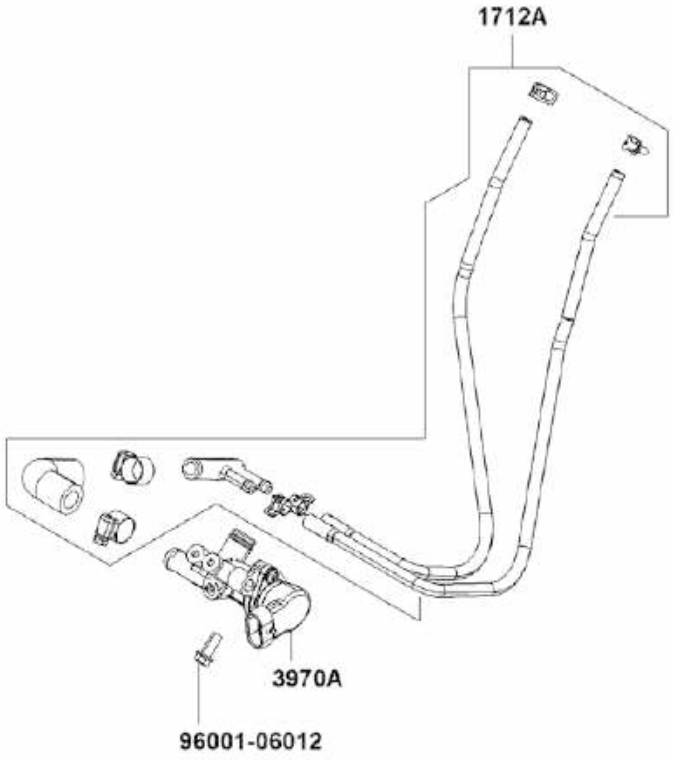


When installation, apply oil onto a new O-ring. Install the TPS onto the throttle body, being careful not to damage the O-ring. Install and tighten the screw securely.

ISC (Air Bypass Valve)

Remove the ISC screw with a #2 Phillips.

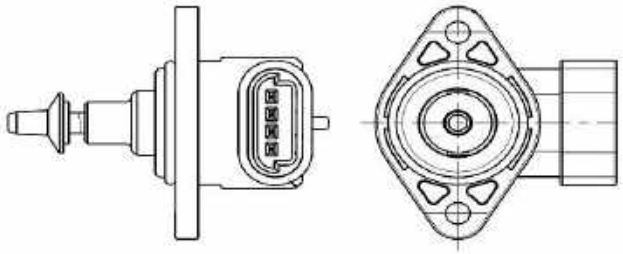

Remove the ISC screw with a #2 Phillips.

Remove the ISC.




When installation, apply oil onto a new O-ring. And being careful not to damage the O-ring.

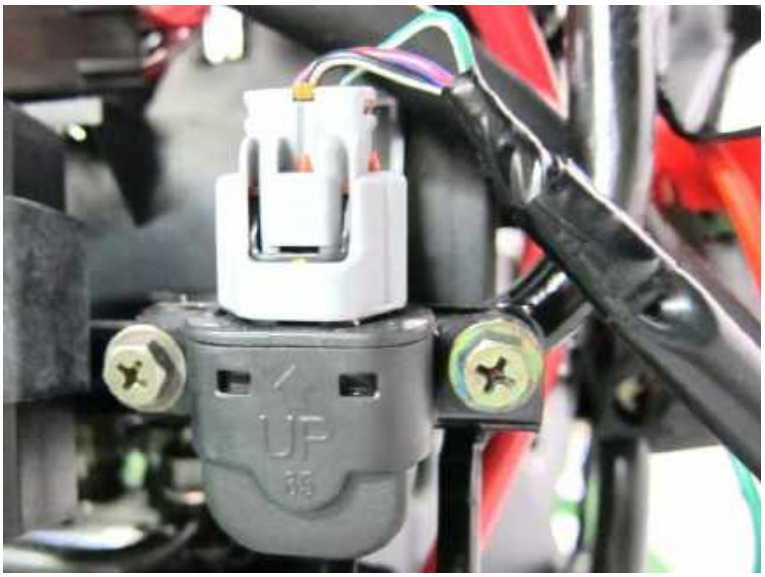
Tilt Switch

Remove the front cover. See the external topic for more information.

Support the scooter level surface.

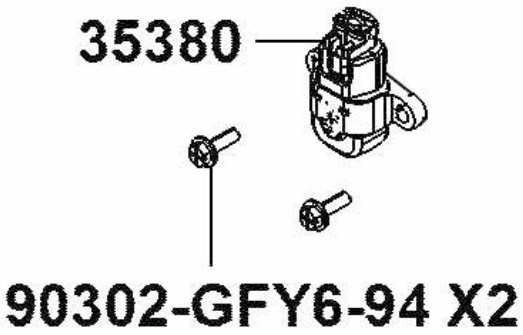
Put the side stand up and engine stop switch on “RUN”. Turn the ignition switch to “OFF”.

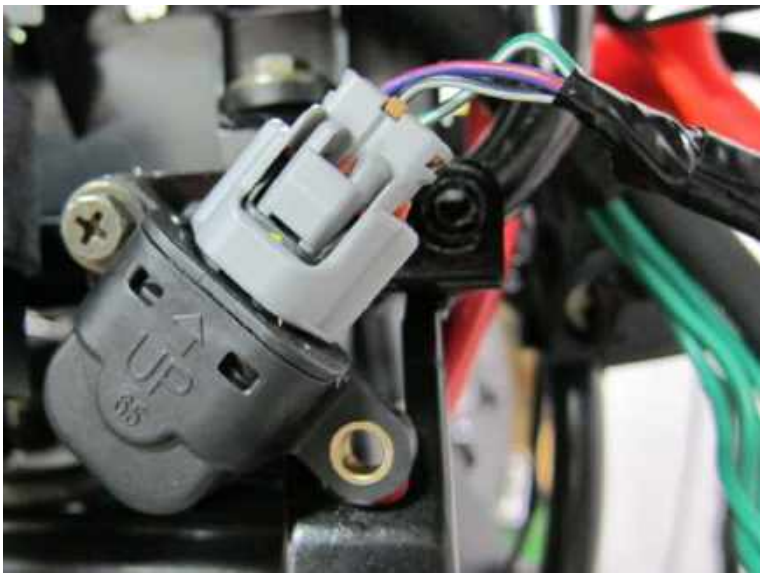
Note: Do not disconnect the tilt switch connector during inspection. The capacity of battery must be fully charged.



Place the tilt switch vertical as shown and the ignition switch “ON”. Measure the voltage as below.

Terminal	Standard
Violet/Red (+) ~ Green/Pink (-)	5 V (ECU voltage)
Black/Blue (+) ~ Green/Pink (-)	0.4 - 1.4 V less

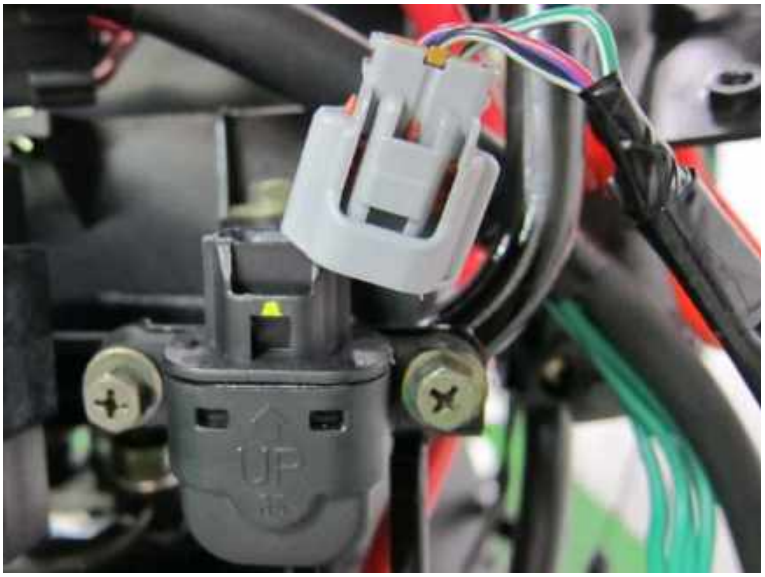




Incline the tilt switch 65±10 degrees to the left or right at the ignition switch “ON”.
Measure the voltage as below.

Terminal	Standard
Violet/Red (+) ~ Green/Pink (-)	5 V (ECU voltage)
Black/Blue (+) ~ Green/Pink (-)	3.7 - 4.4 V

Note: Repeat this test, first turn the ignition switch to “OFF”, then turn the ignition switch to “ON”.



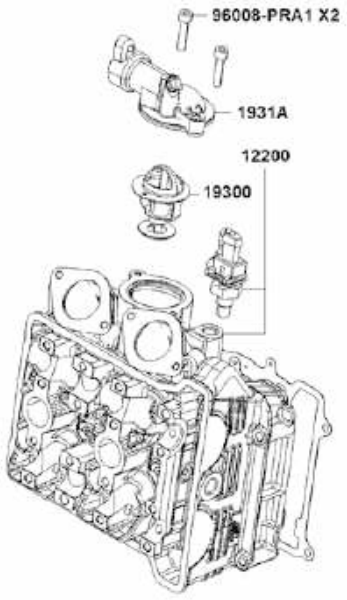
Disconnect the connector to remove the tilt switch.
Note: Install the tilt switch with its “up” mark facing up and tighten the two screws securely.

Water Temperature Sensor (WTS)

Unplug the water temperature sensor.

Use a 17 mm wrench to remove the water temperature sensor.

Installation torque: 1.8~2.2 kgf-m (18~22 N-m)



Self-Diagnosis

Note: No matter when the CELP illuminated while riding condition, should find out the cause of the problem as soon as possible.

If the ECM connectors, or battery leads are disconnected the stored malfunction codes will be lost.

Fuel Injection Diagnostic Tool

OPERATION INSTRUCTIONS

Diagnostic tool Part Number: 3620A-LEB2-E00

This tool has been developed by KYMCO and for KYMCO vehicles only.

The tool software can be updated for new models with a computer via the USB cable.

Please refer to the specifications when serving this vehicle.

This tool does not have an internal battery. The power for the tool is provided by the vehicle when connected. The vehicle should have a fully charged battery when using the diagnostic tool.

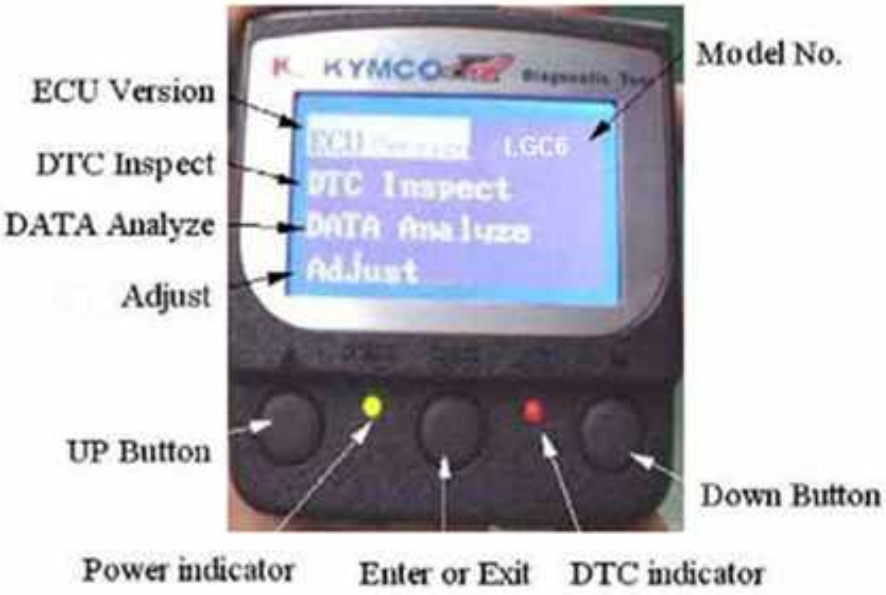
The diagnostic tool is located under the seat.
Remove the protective rubber cover.


Use the Sub cord, OBD diagnostics connecter (part number:36205-LGC6-E00) and can linker to connect between vehicle and diagnostic tool.


OBD diagnostics connecter (part number:36205-LGC6-E00) and can linker .


Plug in the tool to the ECU connector and turn on the ignition switch to send power to the tool.

Place the scooter on its main stand and put the side stand up prior to using the diagnostic tool.



□The functions of the diagnostic tool include ECU version, model name, data analysis and reset.

ECU version: includes model name, ECU number, identifications number and software version.

Failure codes: DTC reading, DTC clearing, and troubleshooting.

Data analysis: For ECU's software inspection.

Reset: For the setting function adjustment.

ECU Version

The four functions will display when the tool is powered on. The model name will show LGC6 for the AK 550.

Pressing the enter button on the ECU version will show model name, ECU number, identifications number and software version.

Press the down button (right) to return to the first page.

DTC (Diagnostic Trouble Code) INSPECTION PROCEDURE

Press the down button (right) to move the item selector down to the DTC Inspect item.

Pressing the enter button on the DTC Inspect item will bring up the options shown above.

Press the down button to select the load DTC option. Press the enter button on the Load DTC item to display the DTC options.

Move the selector to the Current option and press enter to display current DTC.

The diagnostic tool will display all current DTC.

Fuel Injection System Failure Code

Failure Code	Contents	Causes
C0064	Tilt Sensor	Voltage Abnormal
P0031	O2 Sensor Heater	Circuit Voltage Too High
P0032	O2 Sensor Heater	Circuit Voltage Too Low Or Broken Circuit
P0107	T-Map Sensor	Circuit Voltage Too Low Or Broken Circuit
P0108	T-Map Sensor	Circuit Voltage Too High
P0112	T-Map Sensor	Circuit Voltage Too Low Or Broken Circuit
P0113	T-Map Sensor	Circuit Voltage Too High
P0114	T-Map Sensor	Temperature's Variation Too Much
P0117	Engine Temperature Sensor	Circuit Voltage Too Low
P0118	Engine Temperature Sensor	Circuit Voltage Too High Or Broken Circuit
P0119	Engine Temperature Sensor	Temperature's Variation Too Much
P0121	TPS	Abnormal Adapted Value
P0122	TPS	Circuit Voltage Too Low Or Broken Circuit
P0123	TPS	Circuit Voltage Too High
P0131	O2 Sensor	Circuit Voltage Too Low Or Air Leakage
P0132	O2 Sensor	Circuit Voltage Too High
P0171	O2 Correction	O2 Correction Too Much
P0172	O2 Correction	O2 Correction Too Low
P0217	Engine Temperature Sensor	Engine Temperature Too High
P0219	Engine rpm	rpm Too High
P0231	Fuel Pump Relay	Circuit Voltage Too Low Or Broken Circuit
P0232	Fuel Pump Relay	Circuit Voltage Too High
P0261	Injector(Right)	Circuit Voltage Too Low Or Broken Circuit
P0262	Injector(Right)	Circuit Voltage Too High
P0264	Injector(Left)	Circuit Voltage Too Low Or Broken Circuit
P0265	Injector(Left)	Circuit Voltage Too High
P0335	CPS	CPS Malfuction Or Breaken Circuit
P0484	Fan Switch	Circuit Voltage Too High
P0485	Fan Switch	Circuit Voltage Too Low Or Broken Circuit
P0501	Speed(Front Wheel)	No Signal From Meter To ECU
P0508	ISC(Stepper Motor)	Circuit Voltage Too Low Or Broken Circuit
P0509	ISC(Stepper Motor)	Circuit Voltage Too High
P0560	Battery Voltage (KEY)	Voltage Too Hight/Low Or Broken Circuit
P0561	Battery Voltage (Main-Relay)	Voltage Too Hight/Low Or Broken Circuit
P0615	Starter Relay	Broken Circuit
P0616	Starter Relay	Circuit Voltage Too Low
P0617	Starter Relay	Circuit Voltage Too High
P0642	Sensor Voltage	Sensor Voltage Too Low
P0643	Sensor Voltage	Sensor Voltage Too High
P2300	Ignition Coil	Circuit Voltage Too Low Or Broken Circuit
P2301	Ignition Coil	Circuit Voltage Too High
P2303	Ignition Coil	Circuit Voltage Too Low Or Broken Circuit
P2304	Ignition Coil	Circuit Voltage Too High
P263A	MIL(Malfuction Indicated Light)	Circuit Voltage Too Low Or Broken Circuit
P263B	MIL(Malfuction Indicated Light)	Circuit Voltage Too High

DTC Clear Procedure

Press the down button (right) to move the item selector down to the DTC Inspect item.

Pressing the enter button on the DTC Inspect item will bring up the options shown above.

Move the selector down to the Clear DTC option and press enter.

The diagnostic tool will show when the DTC in memory are cleared. Also, the DTC indicator light between the center and right buttons will be off.

Data Analysis Procedure

Press the down button (right) to move the item selector down to the DATA Analyze item. Press enter to bring up the DATA Analyze page 01 shown below. Press the down button to continue through the seven DATA Analyze pages.

Page 01

The 01 page shows engine speed, idle speed set point, and battery voltage.

Page 02

The 02 page shows TPS position and TPI idle adapted.

Page 03

The 03 page shows engine temperature, air temperature, and intake pressure.

Page 04

The 04 page shows atmospheric pressure, fuel injection interval, and ignition advance.

Page 05

The 05 page shows the rollover voltage.

Page 06

The 06 page shows the ISC step and ISC learn step.

Page 07

The 07 page shows the ECU counter.

KYMCO Diagnostic Report

AK 550

Dealer : **Customer :** **VIN:**

Production Date : **Service Date :** **Mileage :**

Reason of repair: ☐ **maintenance** ☐ **breakdown**

	Item	Reference	Data	Memo
ECU Version	ECU No	LGC6		
	Hardware Ver			
	Software Ver	QK420010		
	Calibration Ver	**A3LGC6E4AA**		
	Model Name	KYMCO-LGC6		
DTC	Active			
	Occurred			
	History			
(Cool Engine) EngineStop	DTC Number			
	Engine Temp.(°C)	Environ.temp ± 2 °C		
	Atom. Temp.(°C)	Environ.temp ± 2 °C		
	Atom. Pressure(Kpa)	101.3 ± 3 kPa		When the height goes up at an elevation of 1000 meters, the atmosphere pressure goes down 12kpa.
	Throttle Position(%)	0.0 °/85 ° Above		Close Throttle/Full Throttle
	Engine speed (rpm)	_		
	ISC Step (step)	_		
	ECU Running Time	_		
	Battery Voltage(V)	>11.8 V		
	O2 Sensor Voltage(V)	5±0.1 V		
	Roll Sensor State	ON(stand)		
	Spark plug Type	CR7E		
	CO Set	0		Original Setting: 0
(Hot Engine) BeforeRepair	Engine speed (rpm)	1200 ± 100 rpm		
	Engine Temp.(°C)	90~95°C		Fan Activation Duration
	Atom. Temp.(°C)	30~40°C		
	Atom. Pressure(Kpa)	50~65 kPa		
	Fuel Inject Interval(ms)	1.0~2.0 ms		
	Ignition Timing (°)	-2 ~ 7 BTDC		
	O2 Sensor Voltage(V)	0~1 V		
	O2 Correction	± 15%		
	ISC Learn Step	+20%~-15%		
	IDLE CO(%)	0.3~1.3%		Before muffler
(Hot Engine) AfterRepair	Engine speed (rpm)	1200 ± 100 rpm		
	Engine Temp.(°C)	90~95°C		Fan Activation Duration
	Atom. Temp.(°C)	30~40°C		
	Atom. Pressure(Kpa)	50~65 kPa		
	Fuel Inject Interval(ms)	1.0~2.0 ms		
	Ignition Timing (°)	-2 ~ 7 BTDC		
	O2 Sensor Voltage(V)	0~1 V		
	O2 Correction	± 15%		
	ISC Learn Step	+20%~-15%		
	IDLE CO(%)	0.3~1.3%		Before muffler
Repair description				

Report ID=

Report Version : Feb/6/2017

7.CVT Continuously Variable Transmission

This chapter covers the location and servicing of the CVT components for the KYMCO AK 550 model.

GENERAL INSTRUCTIONS

• The drive pulley and driven pulley can be serviced with the engine installed.
• Avoid getting grease and oil on the drive belt and pulley faces. Remove any oil or grease from them to minimize the slipping of drive belt and drive pulley.

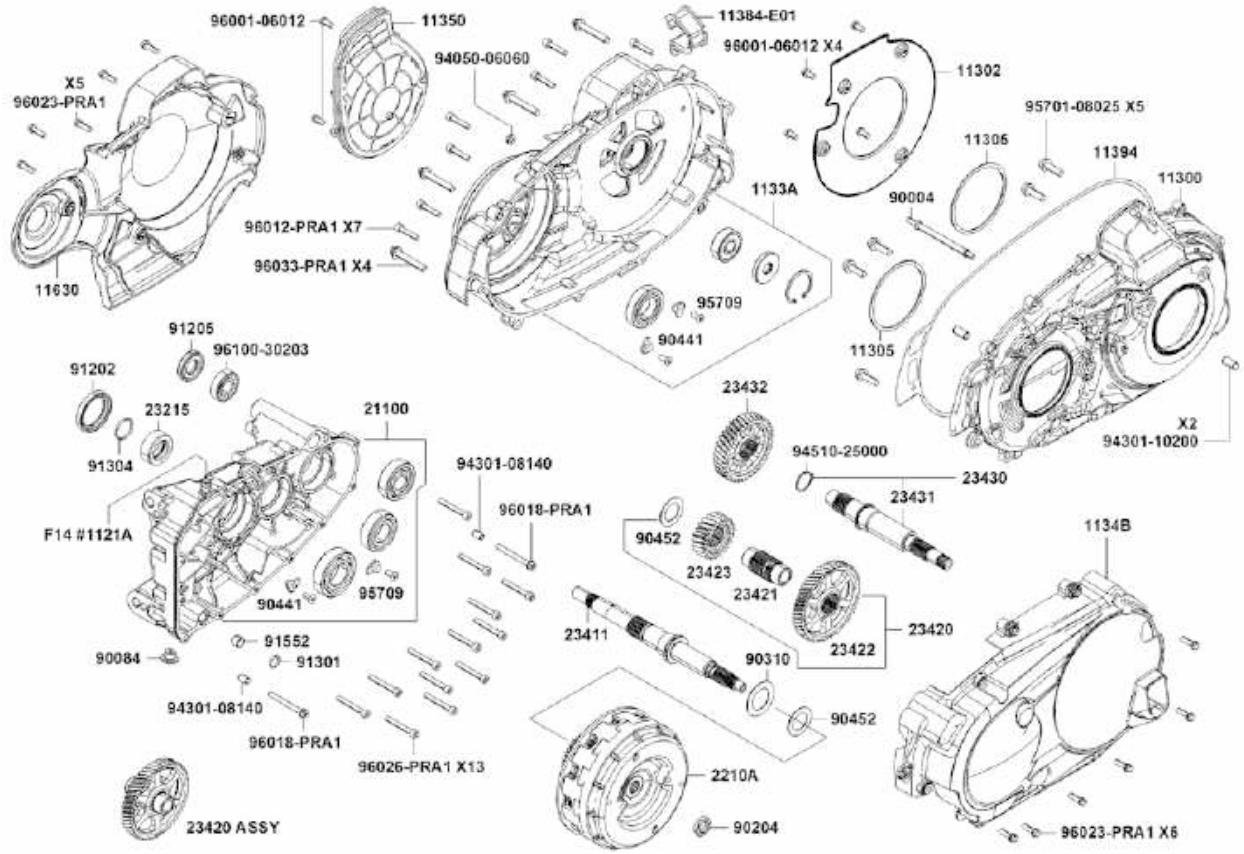
TROUBLESHOOTING

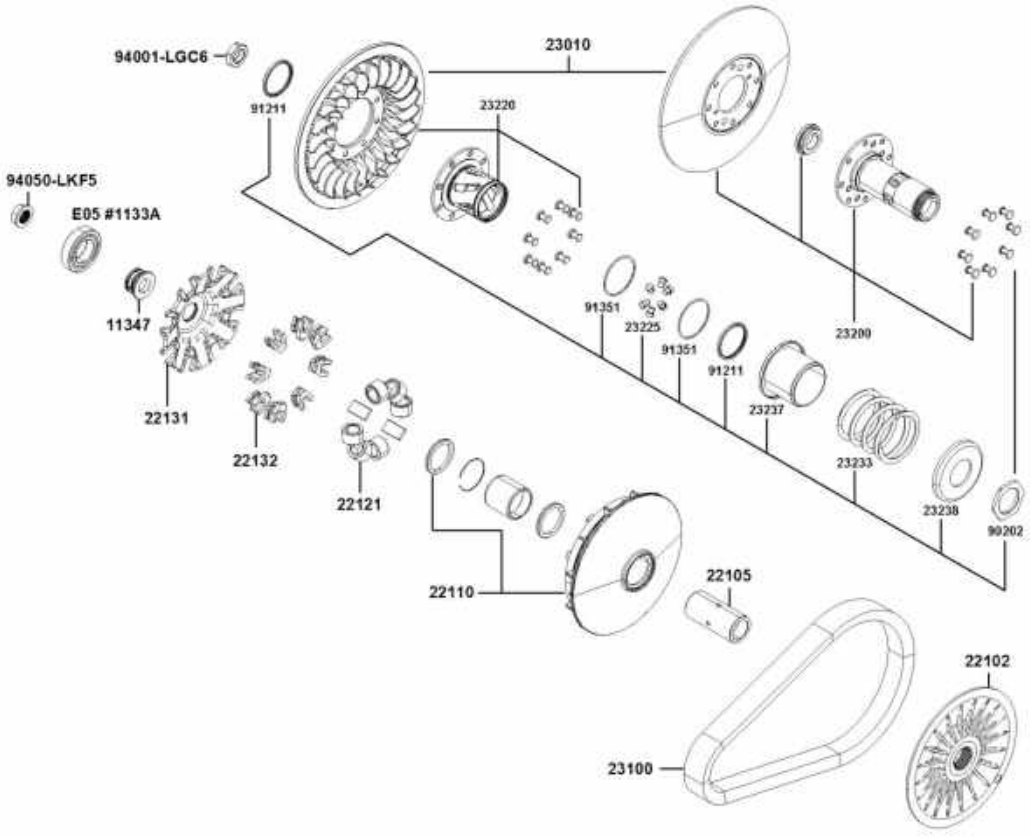
Engine starts but motorcycle won't move
• Worn drive belt
• Broken ramp plate
• Broken driven face spring

Lack of power

• Worn drive belt
• Weak driven face spring
• Worn weight roller
• Faulty driven face

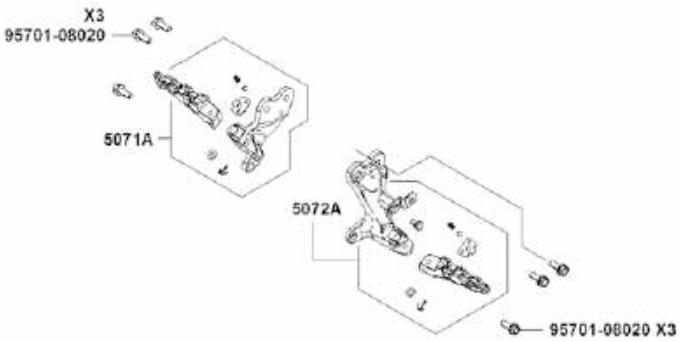
SCHEMATIC DRAWING



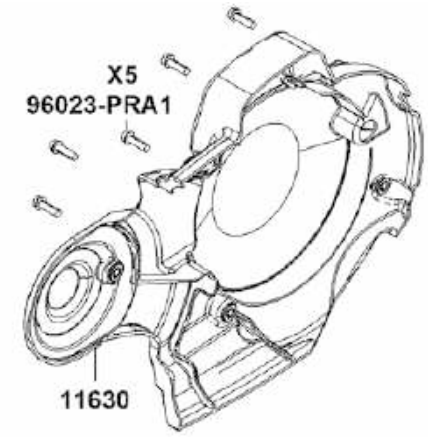


Belt Case Removal

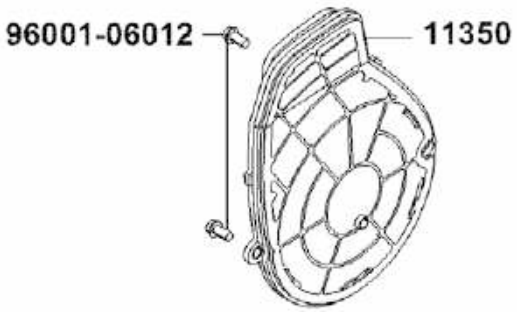
Remove three bolts. And remove the pillion step set.



Remove five bolts and remove the CVT right cover.

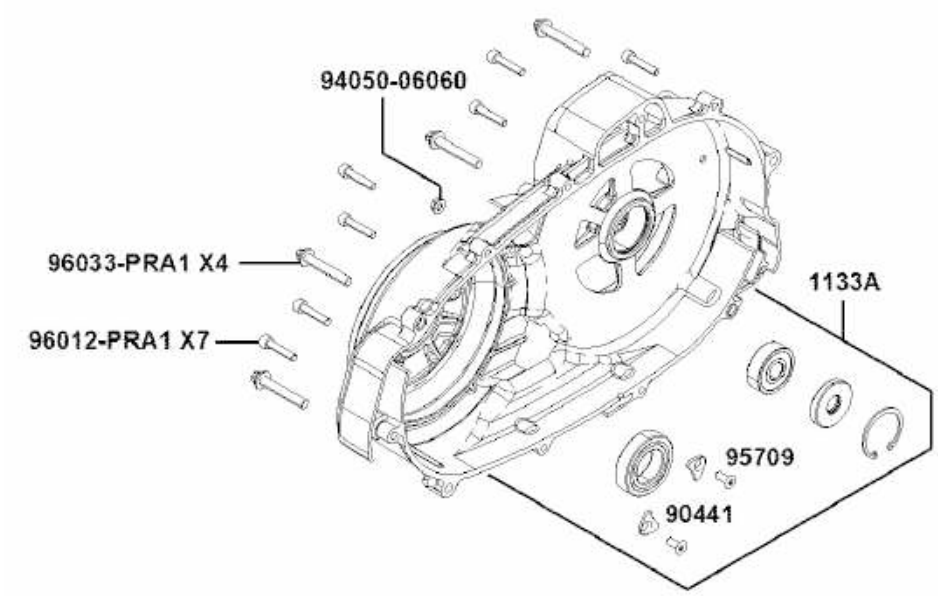


Remove two bolts and remove the CVT cover element.



Remove the bolts, nut and remove the CVT cover.

Remove the gasket and two dowel pins.



Inspect the belt case bearing by turning it with a finger. Replace the bearing if it is rough or noisy.

Remove the bearing snap ring with snap ring pliers.
Remove the bearing with a suitable bearing puller.


Remove two screws and plates.
Remove the bearing with a suitable bearing puller.

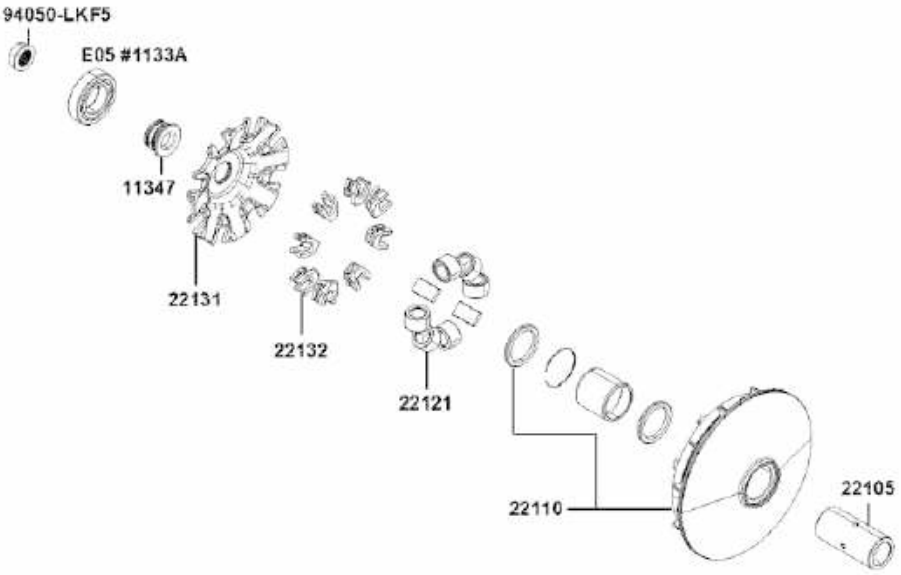

Drive in a new bearing with a suitable bearing driver that has the same outside diameter as the bearing.
Install a new snap ring with snap ring pliers.


CVT Removal

Remove the nut and boss of drive pulley.
Installation torque: 7.6~9.3 kgf-m (75~91.3 N-m)
Lubricate the threads of the nut before installation.

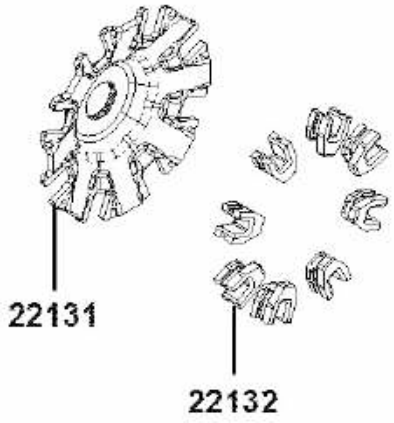

Remove the movable face set.


Drive Pulley Disassembly



Inspect the faces of the drive pulley. Clean away any grease from the faces.
Lift the ramp plate out of the back of the movable drive pulley face.

Remove the rubber damper pieces from the ramp.



There are eight weight rollers in the back of the movable face of the drive pulley.

Remove the rollers and check them for excessive or uneven wear. Replace the weight rollers as needed.
Installation: Install the rollers into the back of the movable drive face of the driven pulley. Position the rollers so that their colored sides are clockwise.
Fit the ramp into the back of the movable drive face of the drive pulley. Make sure the rubber dampers fit onto the ridges as shown.

Inspect the movable drive face and bushing for wear and damage. Replace the parts as needed.


Hold the drive pulley with a universal holder tool.
Remove the nut of driven pulley.


Lubricate the threads of the nut before installation.
Installation torque: 8.3~10 kgf-m (81~99 N-m)
When installation, make sure the drive face are clean and grease free where they will contact the belt.

Screw in the bolts and loosen the belt.

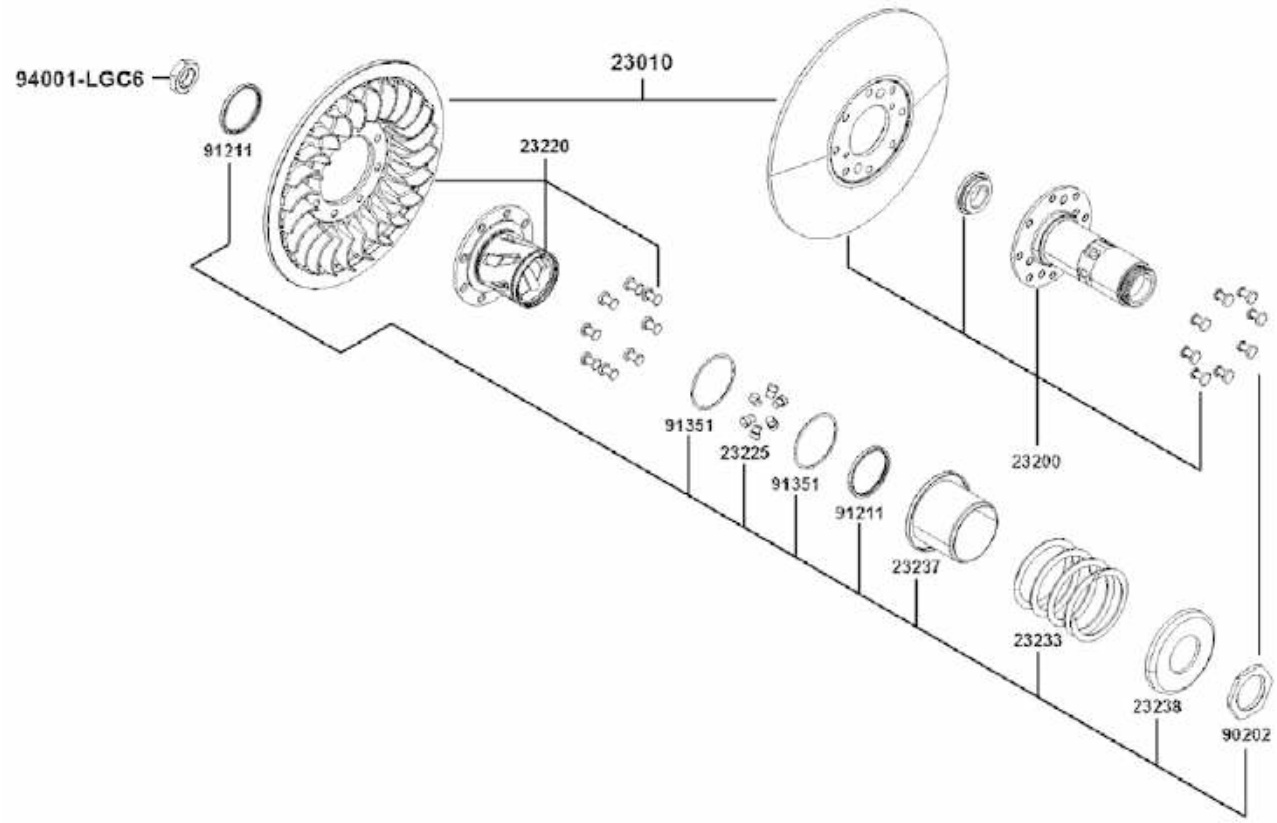

Remove the belt from the driven pulley.
Inspect the drive belt for cracks or excessive wear. Replace it if needed.


Remove the driven pulley.


Remove the drive face.


When installation, make sure the drive face are clean and grease free where they will contact the belt.

Driven Pulley Disassembly



Set the compressor tool to disassemble the driven pulley.

ITEM	TOOL NO.	DESCRIPTION
Compressor Tool	A120E00053	Driven Pulley disassembly

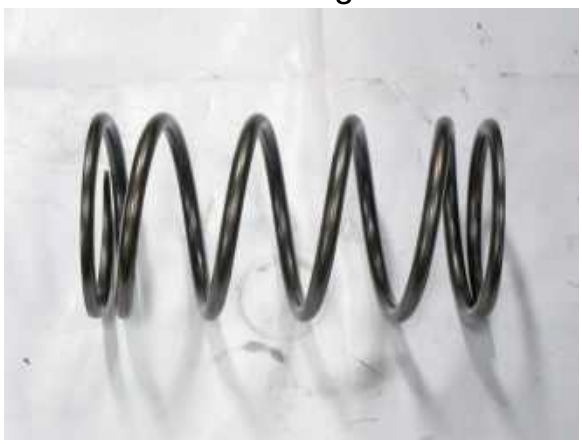
Tighten the bolt of the fitting tool to compress the spring.

Secure the spring compressor tool in a vise. Loosen the plate nut with the socket.
And remove the plate nut of driven pulley set.

Loosen and remove the spring compressor tool.
Remove the collar of spring.

Remove the spring.

Measure the free length of the clutch spring. Replace the spring if needed.



Remove the seal collar.

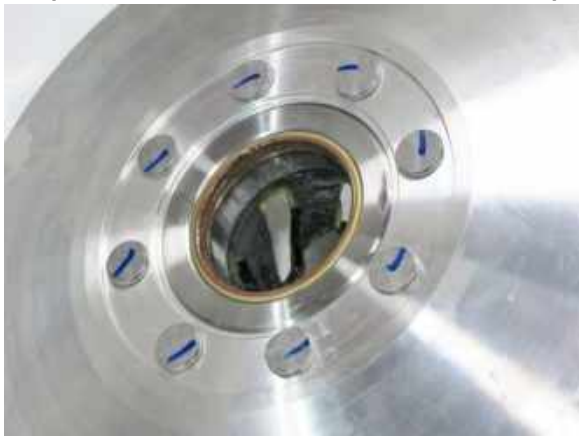

Remove the six guide rollers with guide roller pins.
Note: When installation, lubricate the guide pins and rollers with grease.


Separate the left and right faces of the driven pulley.


When installation, wipe away any grease that gets on the faces where the belt will ride.

Inspect the faces of the driven pulley. Clean away any grease from the faces where the belt rides.

Replace the seals from the driven pulley.

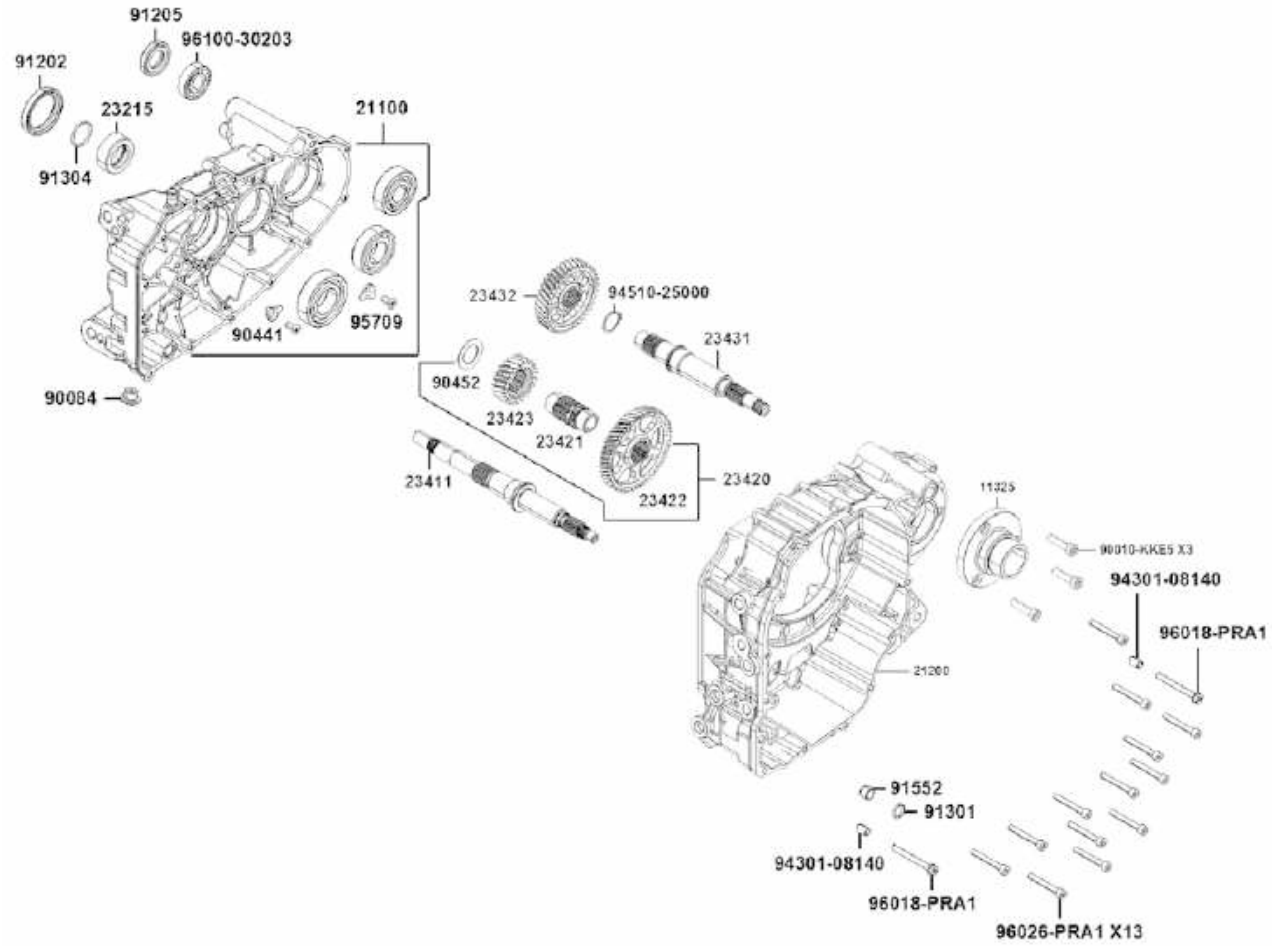


Replace the O-rings of the driven pulley.

8.Final Drive

This chapter covers the location and servicing of the final drive components for the KYMCO AK550 model.

SCHEMATIC DRAWING



TROUBLESHOOTING

Engine starts but motorcycle won't move

- Damaged transmission
- Seized or burnt transmission

Abnormal noise

- Worn, seized or chipped gears
- Worn bearing

Oil leaks

- Oil level too high
- Worn or damaged oil seal

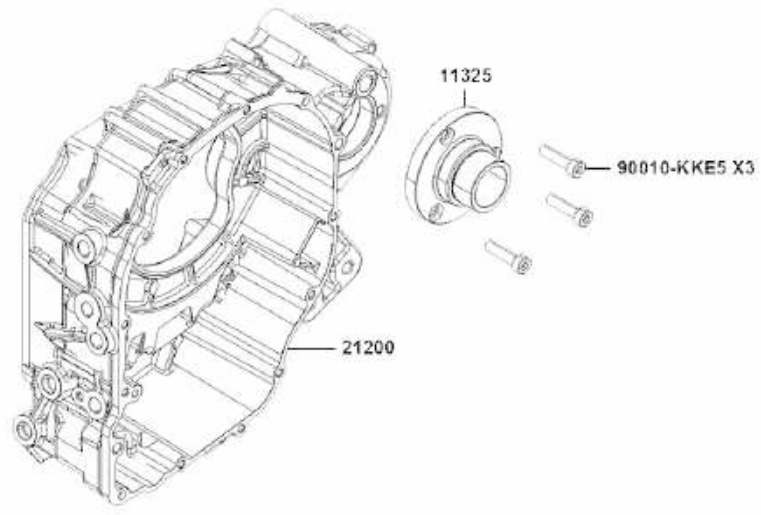
Final Reduction

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Disassembly

Note: Do not remove the transmission case cover except for necessary part replacement. If the drive shaft is replaced, make sure to also replace the bearing and oil seal.

Remove the 3 bolts and remove the swim arm pivot.



The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)

Remove the bolts and remove the left mission case.
Installation torque: 1~1.4 kgf-m (9.8~13.7 N-m)

Remove the final shaft.
Inspect the final shaft for wear or damage. Replace it if necessary.


Remove the counter A gear and remove the final gear.
Inspect the gears for wear or damage. Replace the gear if necessary.

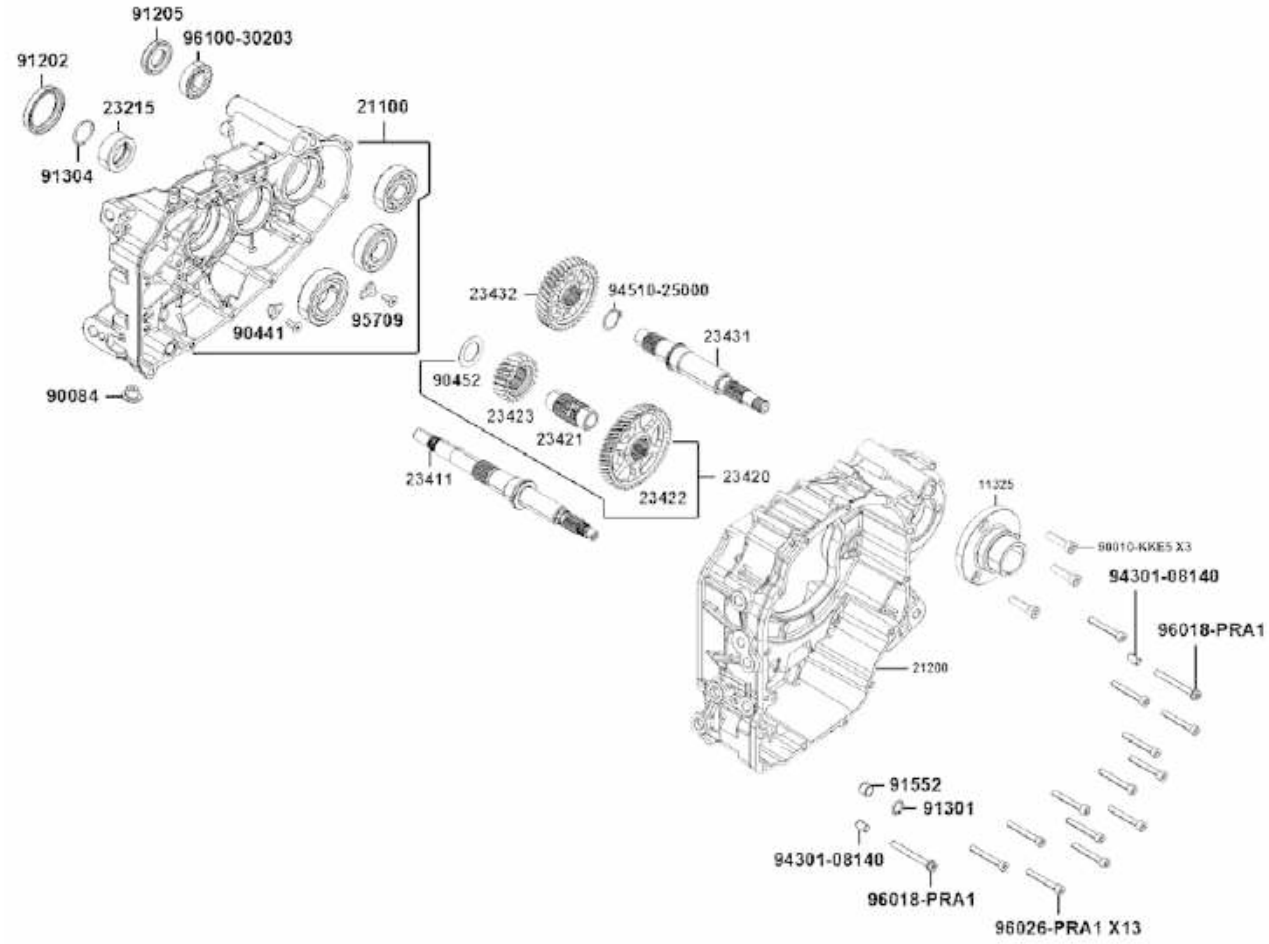

Remove the counter B gear and remove the counter gear.
Inspect the gears for wear or damage. Replace the gear if necessary.


Remove the washer and remove the drive shaft.
Inspect the drive shaft for wear or damage. Replace it if necessary.


Remove the two screws of the bearing fixed plate.


Remove the two bearing fixed plate.


Remove the bearing by bearing puller tool.
Inspect the bearing for wear or damage. Replace it if necessary.
Tap the new bearing in when installation.



9.Electrical Systems

This chapter covers the location and servicing of the electrical systems for the KYMCO AK 550 model.

GENERAL INSTRUCTIONS

• The battery can be charged and discharged repeatedly. If a discharged battery is not used for a long time, its service life will be shortened. Generally, the capacity of a battery will decrease after it is used for 2～3 years. A capacity-decreased battery will resume its voltage after it is recharged but its voltage decreases suddenly and then increases when a load is added.

• When a battery is overcharged, some symptoms can be found. If there is a short circuit inside the battery, no voltage is produced on the battery terminals. If the rectifier won‘t operate, the voltage will become too high and shorten the battery service life.

• If a battery is not used for a long time, it will discharge by itself and should be recharged every 3 months.

• A new battery filled with electrolyte will generate voltage within a certain time and it should be recharged when the capacity is insufficient. Recharging a new battery will prolong its service life.

• Inspect the charging system according to the sequence specified in the Troubleshooting.

• Do not disconnect and soon reconnect the power of any electrical equipment because the electronic parts in the regulator/rectifier will be damaged. Turn off the ignition switch before operation.
• It is not necessary to check the MF battery electrolyte or fill with distilled water.
• Check the load of the whole charging system.
• Do not quick charge the battery. Quick charging should only be done in an emergency.

• Remove the battery from the motorcycle for charging.
• When replacing the battery, do not use a traditional battery.
• When charging, check the voltage with an electric tester.

TROUBLESHOOTING

No power

- Dead battery
- Disconnected battery cable
- Fuse burned out
- Faulty ignition switch

Intermittent power

- Loose battery cable connection
- Loose charging system connection
- Loose connection or short circuit in the ignition system

Low power

- Weak battery
- Loose battery connection
- Charging system failure
- Faulty regulator/rectifier

Charging system failure

- Loose, broken or shorted wire or connector
- Faulty regulator/rectifier
- Faulty A.C. generator

Ignition System

GENERAL INSTRUCTIONS

• Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is “ON” and current is present.

• When servicing the ignition system, always follow the steps in the troubleshooting on page above.

• The ignition timing cannot be adjusted since the ignition control module is already adjusted in factory.

• The ignition control module or ECU maybe damaged if dropped or the connector is disconnected when the key is "ON", the excessive voltage may damage the ignition control module or ECU. Always turn off the ignition switch before servicing.

• A faulty ignition system is often related to poor connections. Check those connections before proceeding.

• Make sure the battery is adequately charged. Using the starter motor with weak battery results in a slower engine cranking speed as well as no spark at the spark plug.

• Use a spark plug of the correct heat range. Using spark plug with an incorrect heat range can damage the engine.

TROUBLESHOOTING

No peak voltage

• Short circuit in engine stop switch or ignition switch wire.
• Faulty engine stop switch or ignition switch.
• Loose or poorly connected ignition control module connectors.
• Open circuit or poor connection in ground wire of the ignition control module.
• Faulty crank position sensor.
• Faulty ignition control module.

Peak voltage is normal, but no spark jumps at the plug

• Faulty spark plug or leaking ignition coil secondary current.
• Faulty ignition coil.

Starting System

GENERAL INSTRUCTIONS

• The removal of starter motor can be accomplished with the engine installed.

• After the starter clutch is installed, be sure to add the engine oil and coolant and then bleed air
from the cooling system.

TROUBLESHOOTING

Starter motor will not turn

- Fuse burned out
- Weak battery
- Faulty ignition switch
- Faulty starter clutch or gear
- Faulty front or rear stop switch
- Faulty starter relay
- Poorly connected, broken or shorted wire
- Faulty starter motor

Lack of power

- Weak battery
- Loosed wire or connection
- Foreign matter stuck in starter motor

Starter motor rotates but engine does not start

- Faulty starter pinion
- Starter motor rotates in reverse
- Weak battery

Lights, Switches, AND Fuel Pump

GENERAL INSTRUCTIONS

- Note the following when replacing the halogen headlight bulb

1. Wear clean gloves while replacing the bulb. Do not put finger prints on the headlight bulb, as they may create hot spots on the bulb and cause it to fail.
2. If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.
3. Be sure to install the dust cover after replacing the bulb.

• Check the battery condition before performing any inspection that requires proper battery voltage.

• A continuity test can be made with the switches installed on the scooter.

• Route the wires and cables properly after servicing each component.

TROUBLESHOOTING

Lights do not come on when ignition switch is “ON”
• Burned bulb
• Faulty switch
• Poorly connected, broken or shorted wire

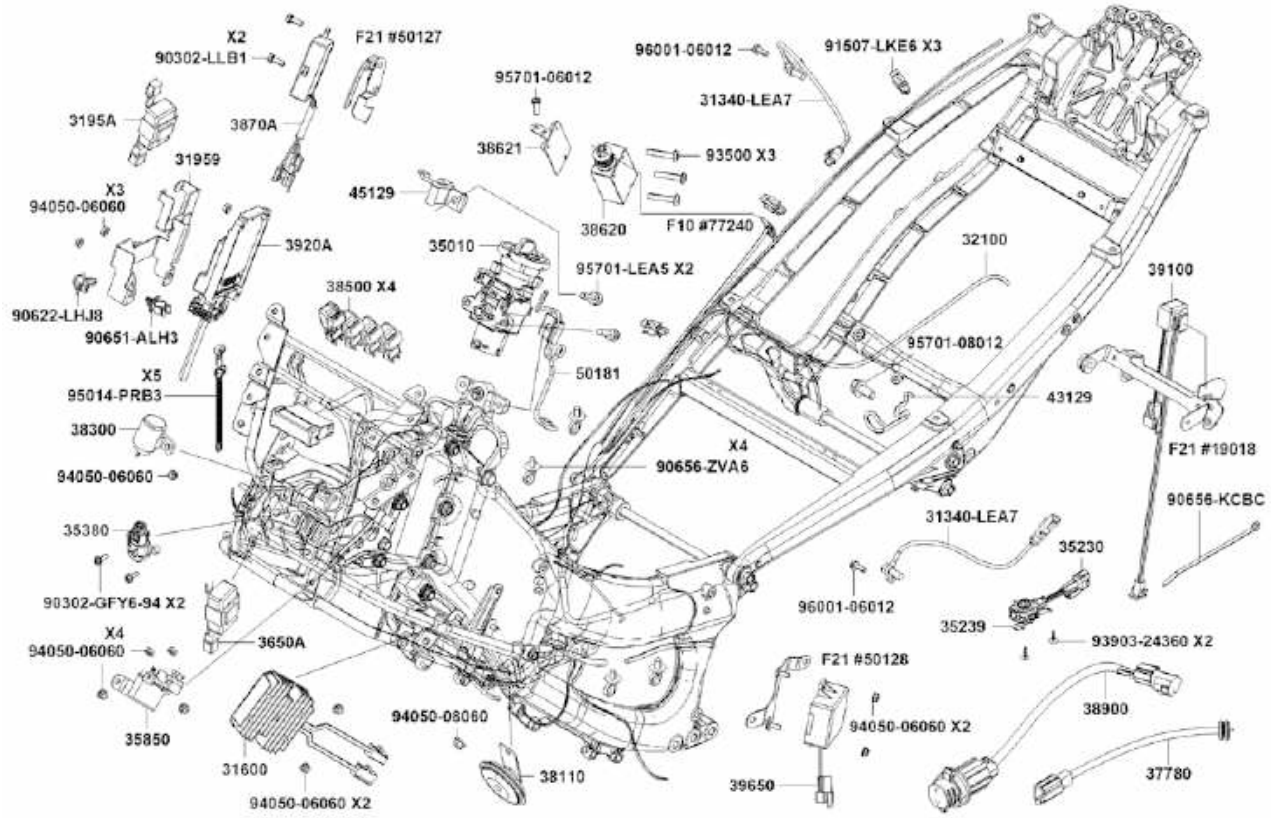
Temperature gauge does not register correctly

• Faulty temperature gauge
• Faulty thermosensor
• Broken or shorted wire between the temperature gauge and thermosensor

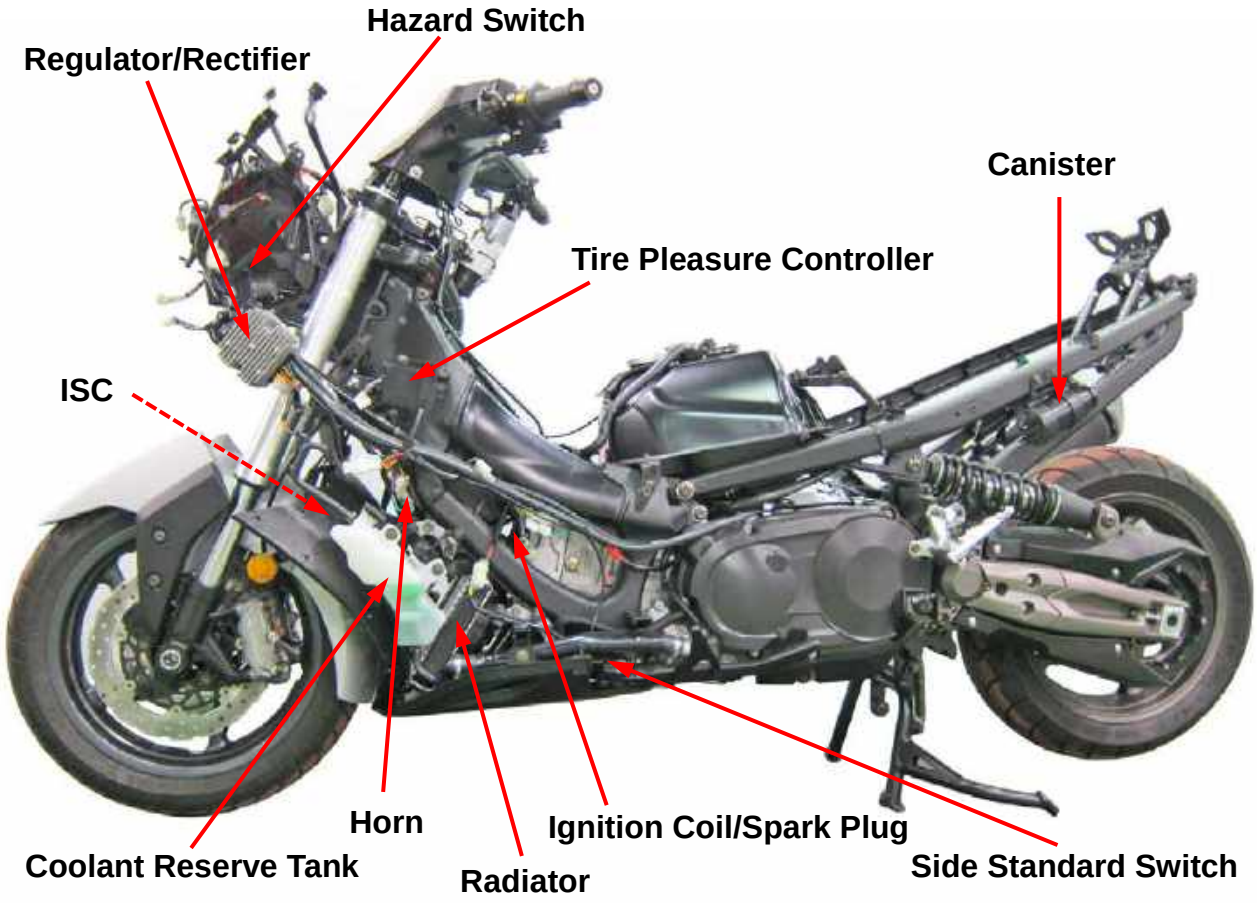
Fuel gauge does not work or shows wrong figures

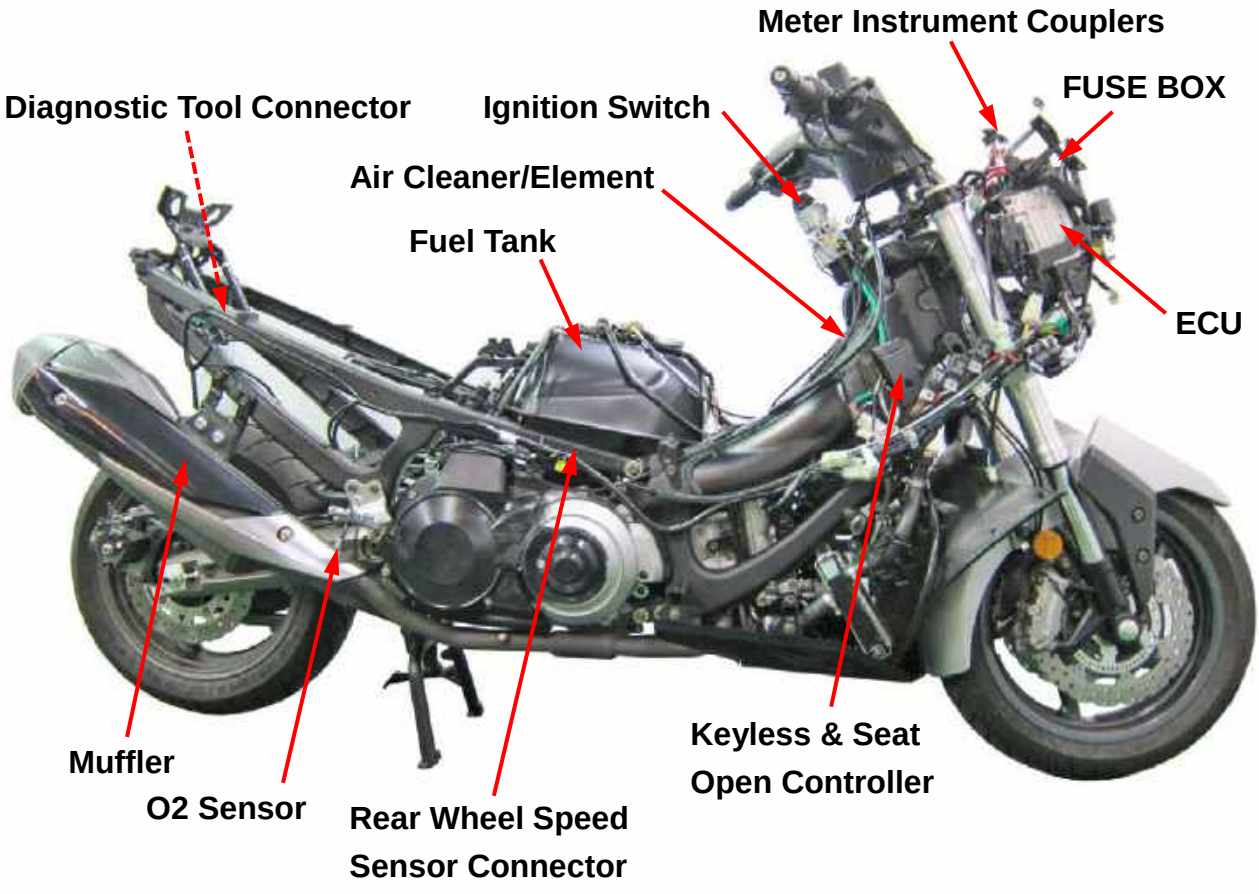
• Faulty fuel gauge
• Faulty fuel unit
• Poorly connected wire between fuel gauge and fuel unit
• Fuse burned out

Component Location

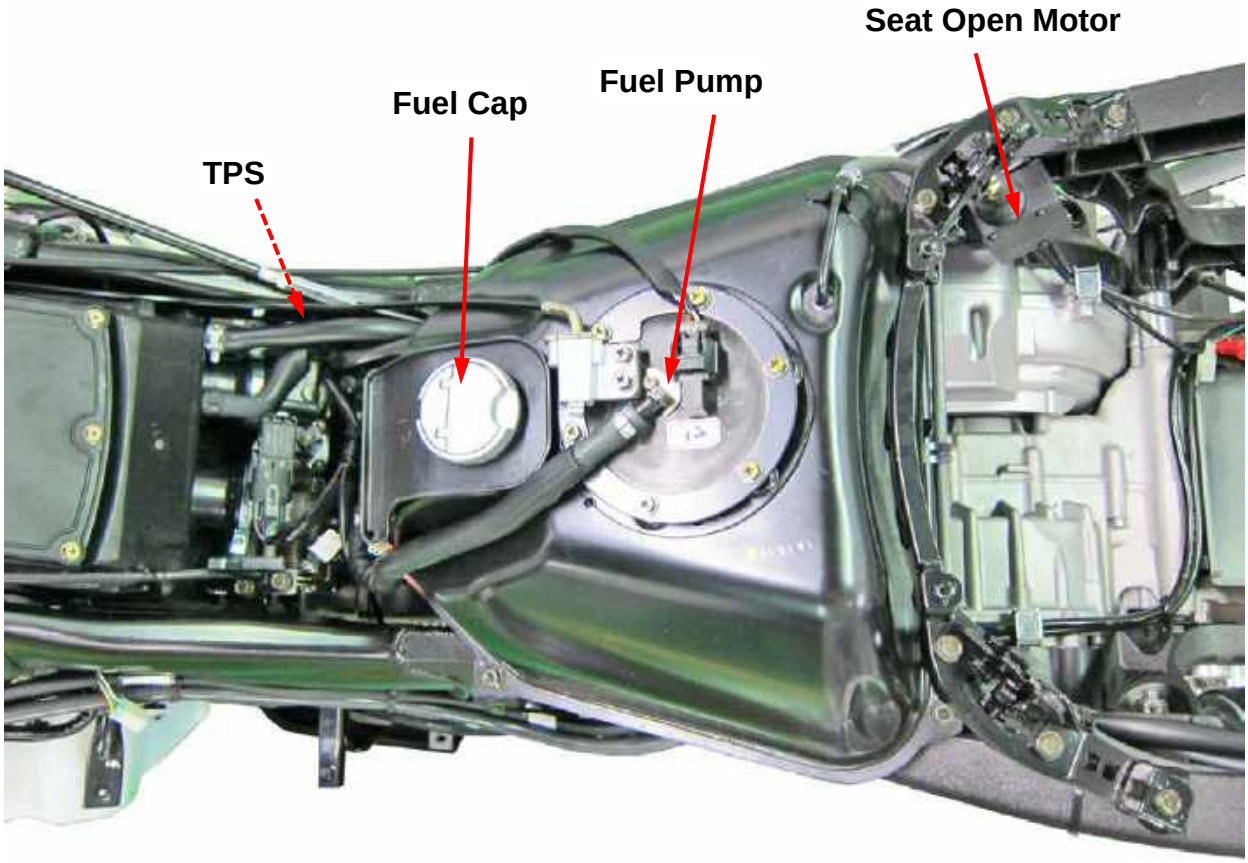


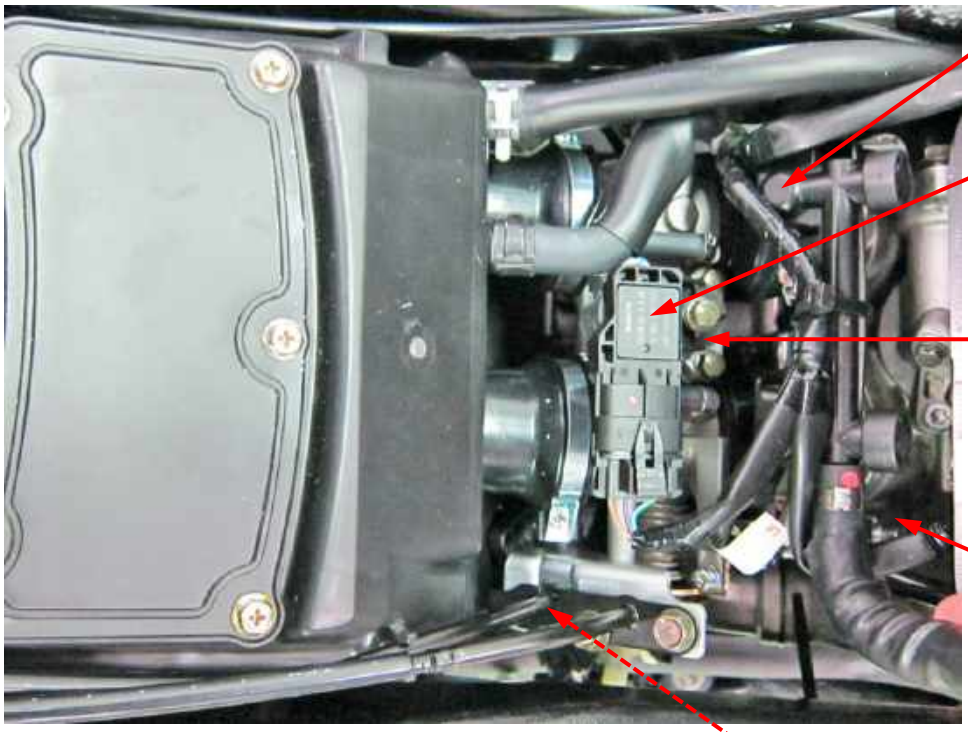
Component Location



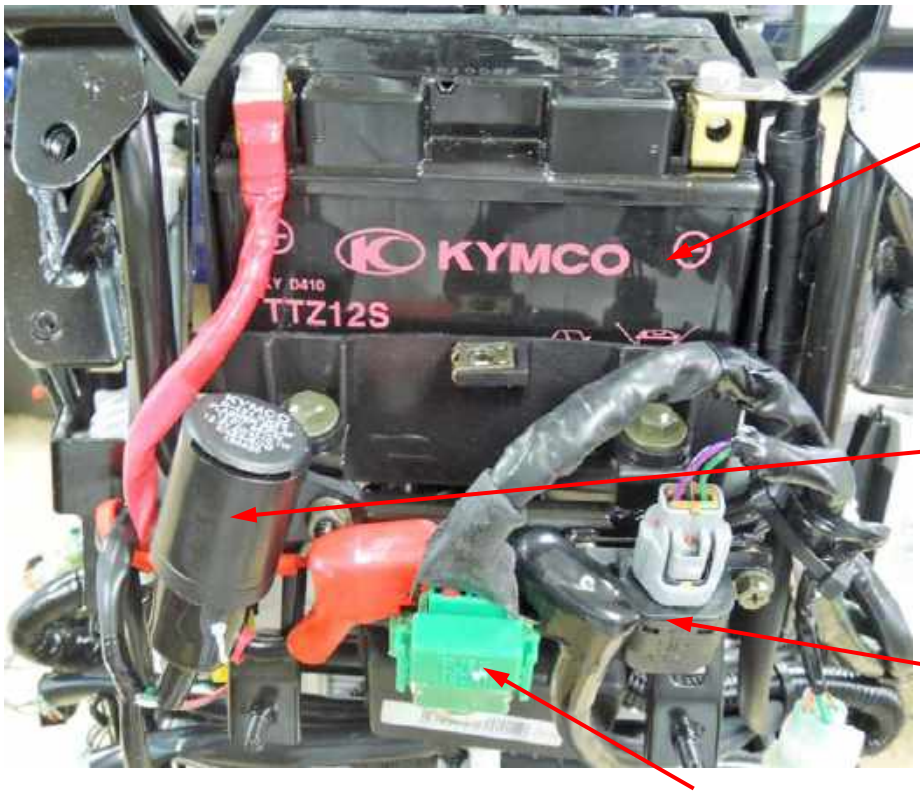


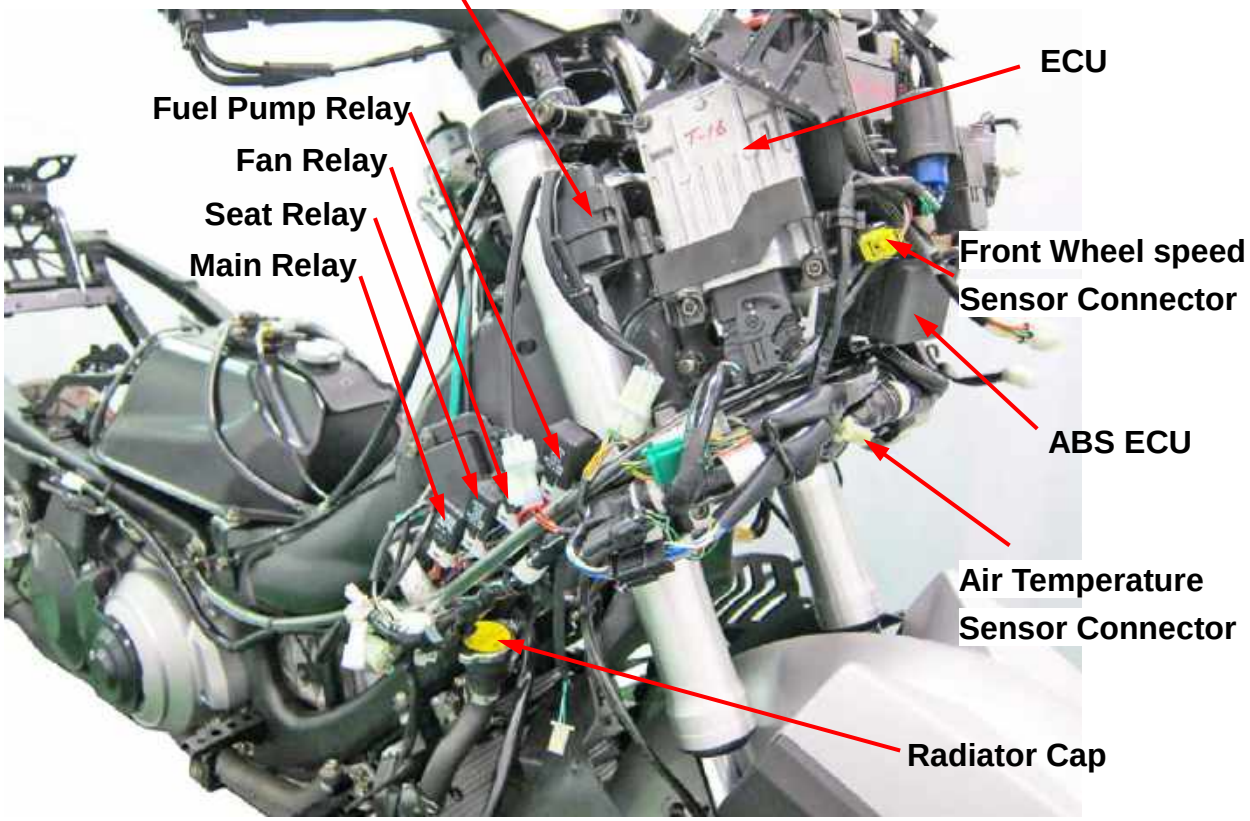
Component Location





Component Location



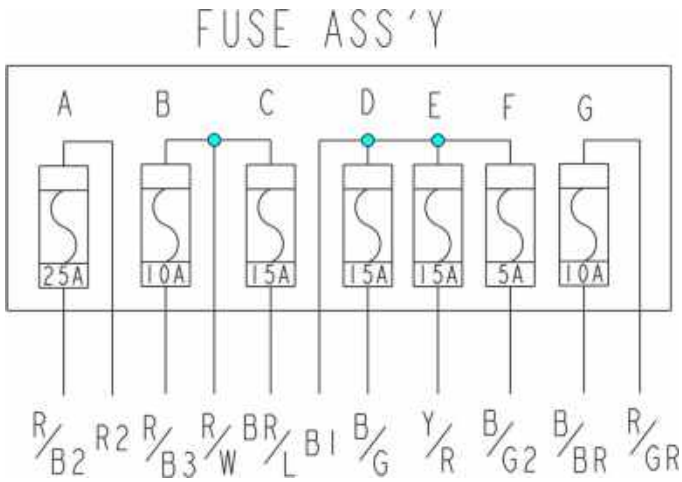


Fuses

Fuse Box

Remove the windscreen and meter cover. See the external topic for more information.

The fuse box is located on top of the battery.
Open the covers to access the fuses.



FUSE A:ABS MOTOR

FUSE B:METER(BAT.), ABS ECU, ECU(BAT.), TPM CONTROLLER(BAT.), KEYLESS CONTROLLER(BAT.), LUGGAGE BOX LIGHT, ECU(VBR), SEAT OPEN MOTOR

FUSE C:MAIN RELAY

FUSE D:HEAD LIGHT, POSITION LIGHT, WINKER LIGHT, TAIL LIGHT, LICENCE LIGHT, PASSING, HORN

FUSE E:HEATED GRIP, USB CHARGE, SEAT OPEN SW LED

FUSE F:ABS IGN

FUSE G:FAN

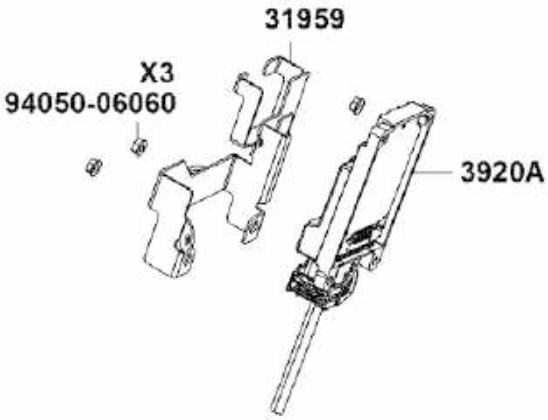
ECU

Remove the front cover set. See the external topic for more information.

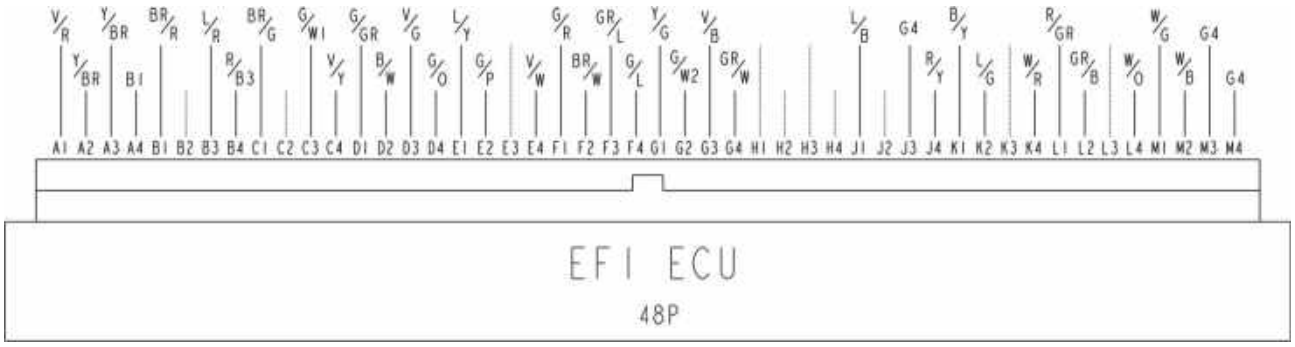
Note: The ECU could be damaged if dropped or the connector is disconnected when the key is on. The excessive voltage may damage the ECU. Always turn off the ignition switch before servicing.

Press the tab and rotate the rod to disconnect the ECU harness.

Remove the nuts and bracket to remove the ECU.



Inspection



Check for continuity between pin M3 and M4 of the ECU side connector.

There should be continuity at all times.

Check for continuity between each pins C3, D1 of the ECU side connector.

There should be continuity at all times.

A1	V/R		SENSOR POWER(+5V)	D1	G/GR		CRANK ANGLE(-)
A2	Y/BR		STARTER RELAY	D2	B/W		TILT SW
A3	Y/BR		STARTER RELAY	D3	V/G		STEP MOTOR A2
A4	B1		VOLTAGE AFTER KEY(VBK)	D4	G/O		STEP MOTOR A1
B1	BR/R		CAN-HIGH(+)	E1	L/Y		CRANK ANGLE(+)
B2				E2	G/P		DRIVING MODE SW
B3	L/R		ENG CHECK	E3			
B4	R/B3		DIRECT BATTERY VOLTAGE(VBD)	E4	V/W		STEP MOTOR B1
C1	BR/G		CAN-LOW(-)	F1	G/R		STARTER SWITCH
C2				F2	BR/W		MANIFOLD AIR PRESSURE
C3	G/W1		SIGNAL GROUND(TPS,TIA)	F3	GR/L		AIR INTAKE TEMP
C4	V/Y		STEP MOTOR B2	F4	G/L		ENGINE COOLANT TEMP
PIN	COLOR	LABEL	PI FUNCTION	PIN	COLOR	LABEL	PI FUNCTION

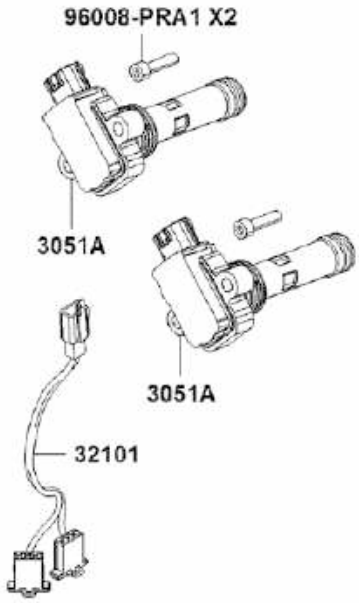
G1	Y/G		RUN/STOP SW	K1	B/Y		MAIN RELAY
G2	G/W2		SIGNAL GROUND(O2,MAP,TCO)	K2	L/G		FAN RELAY
G3	V/B		THROTTLE POSITION SENSOR	K3			
G4	GR/W		O2 SENSOR SIGNAL(+)	K4	W/R		INJ-1(LEFT)
H1				L1	R/GR		BATTERY VOLTAGE (VBR)
H2				L2	GR/B		O2 HEATER CONTROL
H3				L3			
H4				L4	W/O		INJ-2(RIGHT)
J1	L/B		FUEL PUMP RELAY	M1	W/G		IGNITION COIL#2(RIGHT)
J2				M2	W/B		IGNITION COIL#1(LEFT)
J3			LEVER SW	M3	G4		POWER GROUND
J4	R/Y		SIDE STAND SW	M4	G4		POWER GROUND
PIN	COLOR	LABEL	PI FUNCTION	PIN	COLOR	LABEL	PI FUNCTION

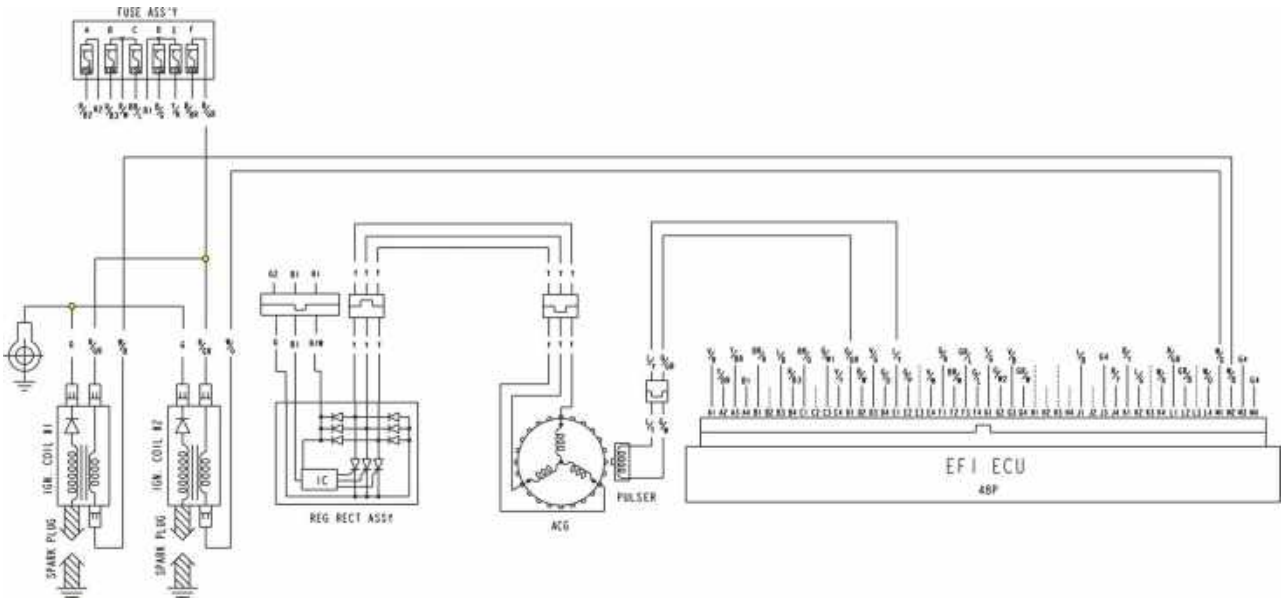
Ignition System

The ignition timing is set at the factory and is not adjustable. Perform the following checks. Before performing any tests make sure the electrical connections are not loose or corroded.

Ignition Coil

Remove the connectors.
Remove the two ignition coil mounting bolts and remove the ignition coil.





Spark Plug

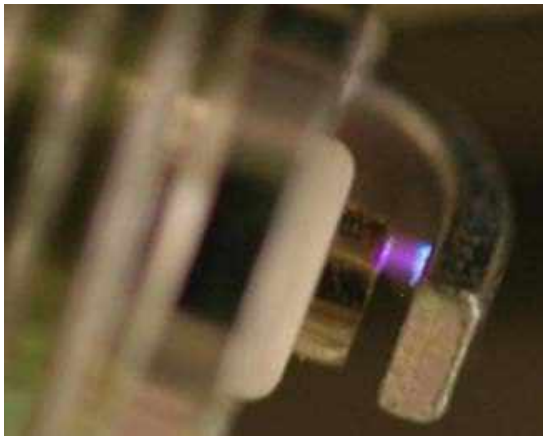
Turn the ignition switch to ON, lift the side stand, hold in one of the brake levers, and push the engine start button. The plug should spark.

Caution: Do not touch the spark plug or spark plug wire while cranking or running the engine as this can result in a severe shock.

Remove the spark plug with a spark plug with a 5/8 in socket.

Spark plug	NGKCR7E

Check the spark plug to see if it is the correct type and gapped properly. If the spark plug is black and fouled, replace it.



If the spark plug center electrode or side electrode are corroded or damaged, or if the insulator is cracked, replace the plug.

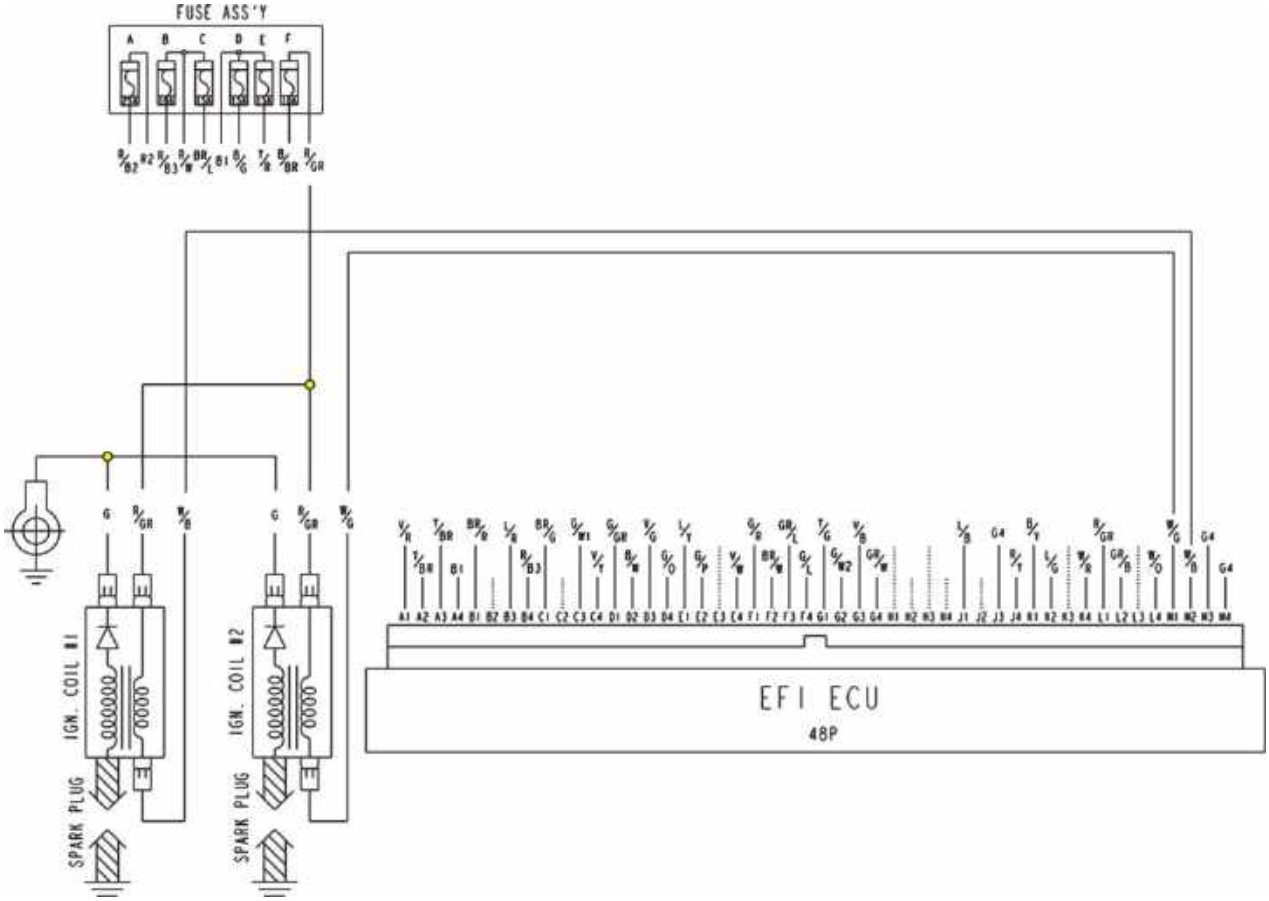
Measure the gap with a wire-type thickness gauge.
If the gap is incorrect, replace the spark plug.

Always check the gap of the spark plug before installation. Inspect the color of the porcelain nose of the spark plug. The color of the spark plug can indicate how the mixture is burning. A white colored plug shows a lean mixture, where a dark plug shows a rich mixture. Do not hesitate to replace a spark plug. Always replace a spark plug if any part of it is damaged.

Spark plug gap	0.7 - 0.8 mm

Do not over tighten the spark plug. The cylinder head is made out of soft metal, and it can be easily damaged.

Item	Torque
Spark plug	8 - 12 N-m (0.8 – 1.2 kgf-m)

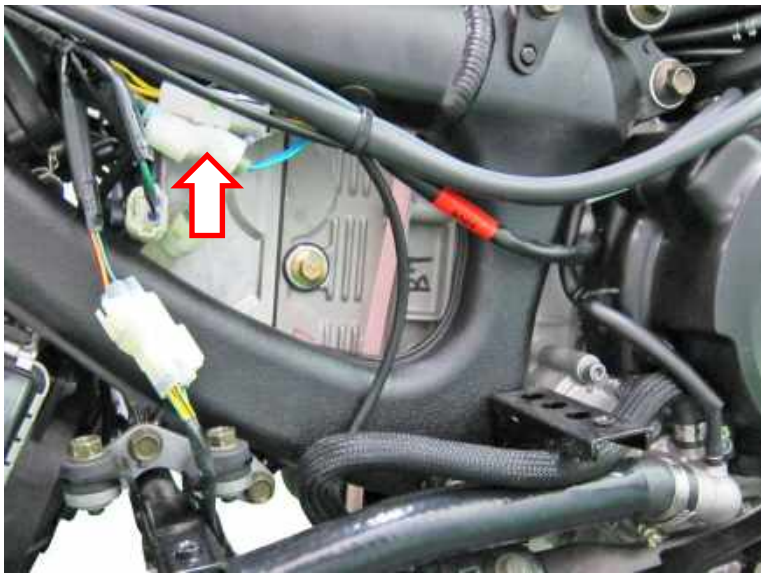


AC Generator Inspection

Crank Position Sensor Inspection

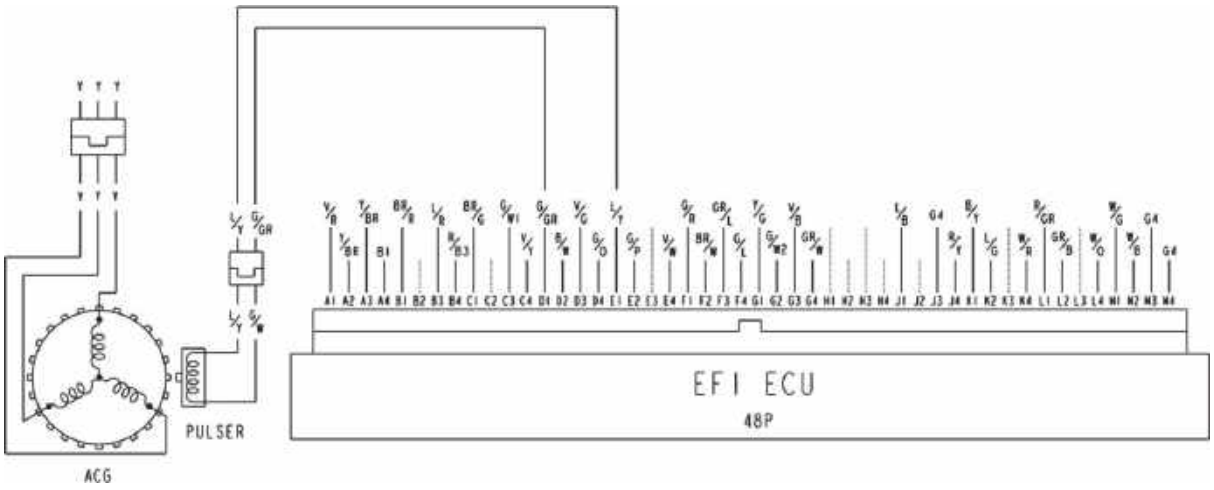
Note: This test is performed with the stator installed in the engine.

Disconnect the crank position sensor wire coupler. Measure the resistance between L/Y and G/GR wire terminals.



Resistance	
L/Y – G/GR	115 Ω ± 15 Ω

To replace the crank position sensor see the A.C. Generator and Starter clutch topic.



Charging System

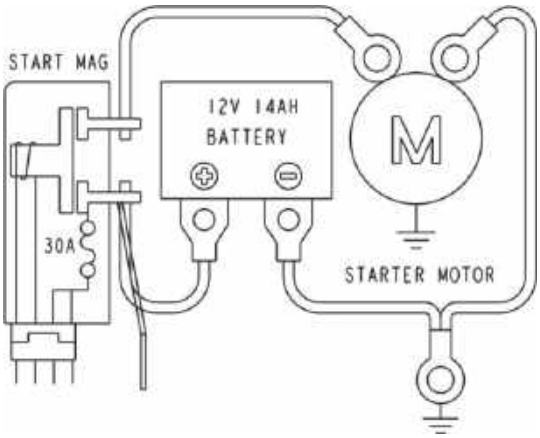
To replace the stator/charging coil see the A.C. Generator and Starter clutch topic.

Charging Voltage Inspection

Remove the battery cover. See the Battery topic for more information.

Note: The battery should be fully charged prior to making charging system checks.

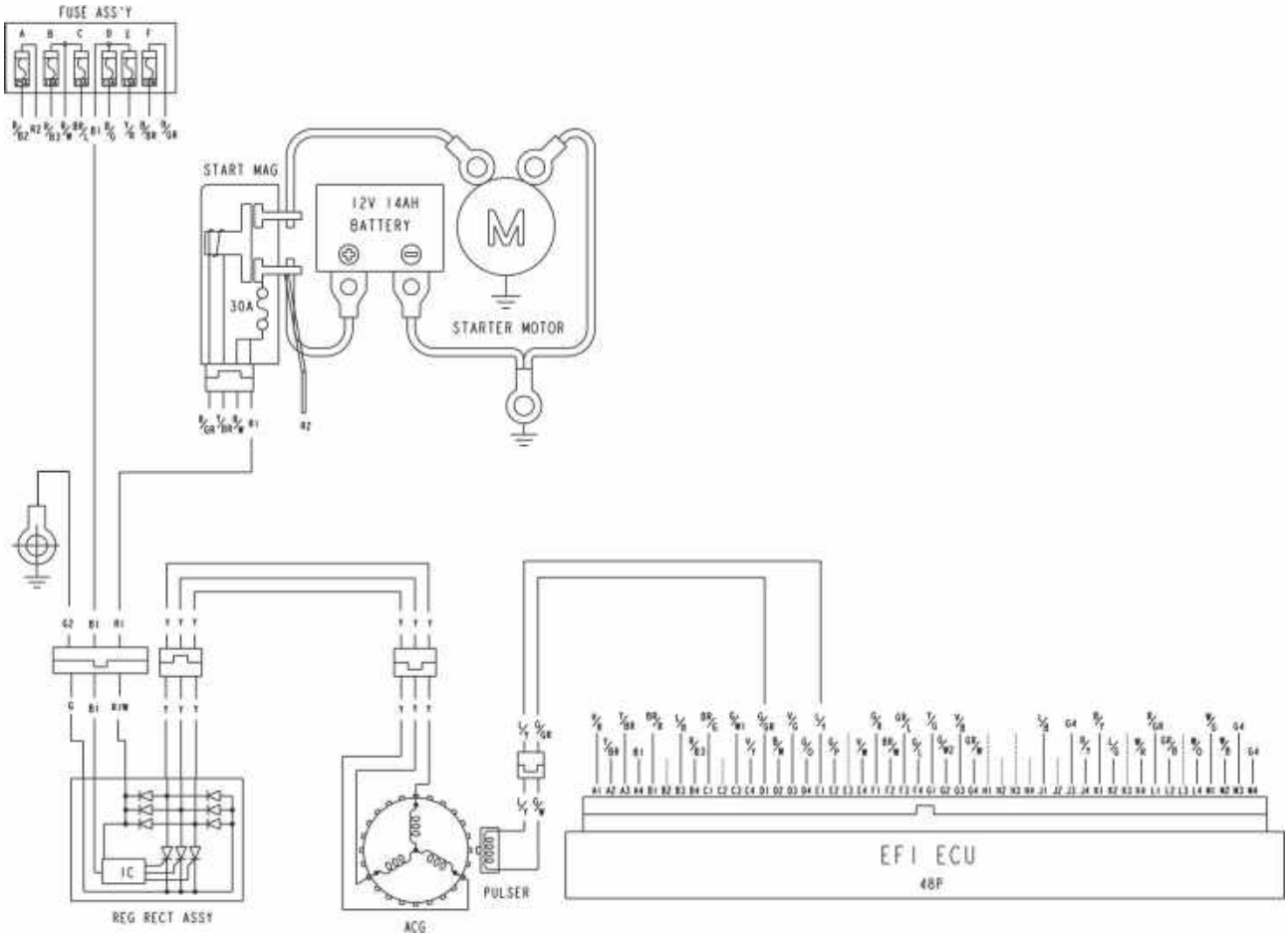
Start the engine and warm it up to the operating temperature; stop the engine. Connect the multimeter between the positive (+) and negative (-) terminals of the battery. To prevent short, make absolutely certain which are the positive (+) and negative (-) terminals or cable.



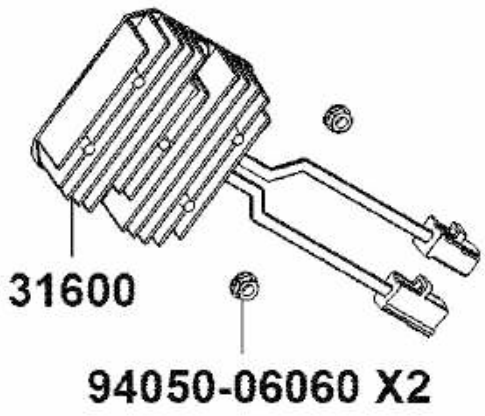
Turn the ignition switch on and turned to the high beam position, restart the engine. Measure the voltage on the multimeter when the engine runs at 5000 rpm.

Battery charging voltage@ 5000 rpm	14 ~ 15V

Regulator/Rectifier



Remove the front cover set. See the front cover topic for more information.
Remove two nuts and remove the regulator/rectifier.



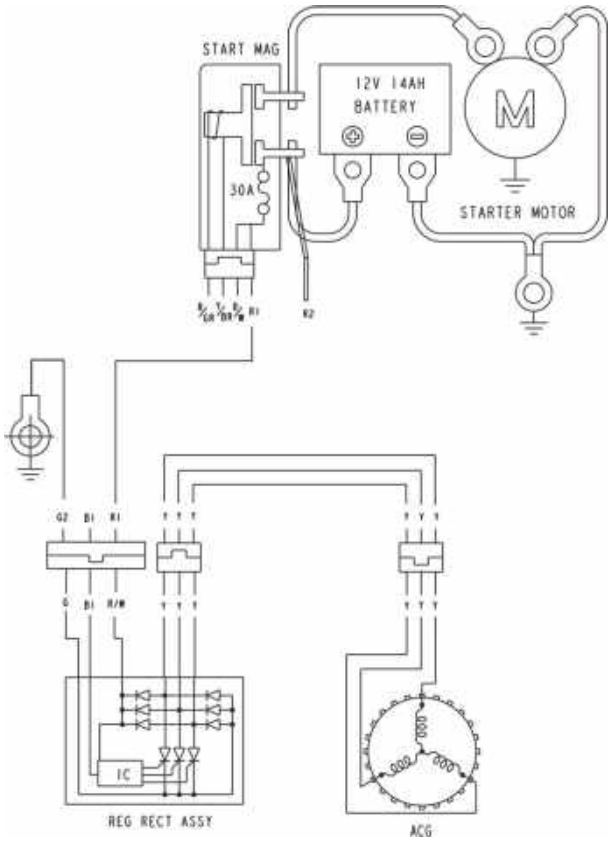
Disconnect the regulator/rectifier connector. Check the connectors for loose contacts or corroded terminals.

Battery Wire

Measure the voltage between the Red/White wire terminal and ground. There should be battery voltage at all times.

Ground Wire

Check the continuity between the Green wire terminal and ground. There should be continuity at all times.

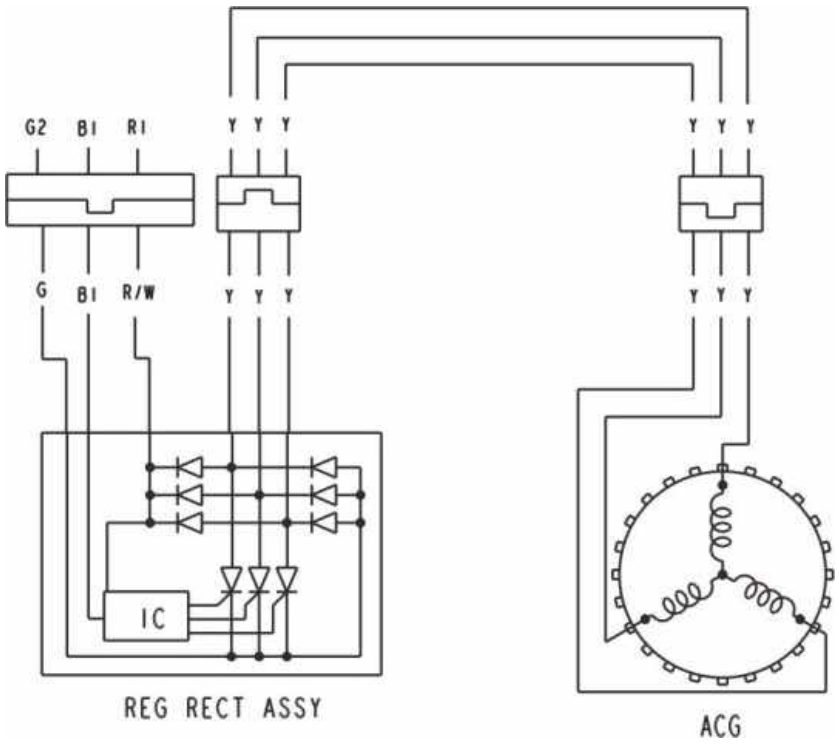


Charging Coil Wire

Disconnect the generator 3-pin connector. Check the connectors for loose contacts or corroded terminals.

Measure the resistance between each Yellow wire terminals.

Check for continuity between each yellow wire terminal regulator/rectifier side and ground. There should be no continuity.



Battery

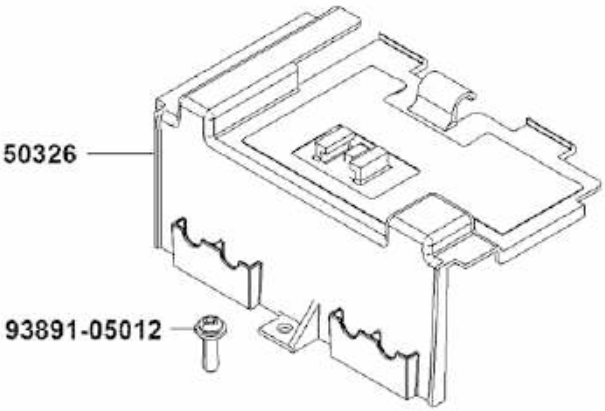
SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Warning: The battery electrolyte (sulfuric acid) is poisonous and may seriously damage the skin and eyes. Avoid contact with skin, eyes, or clothing. In case of contact, flush with water and get prompt medical attention.

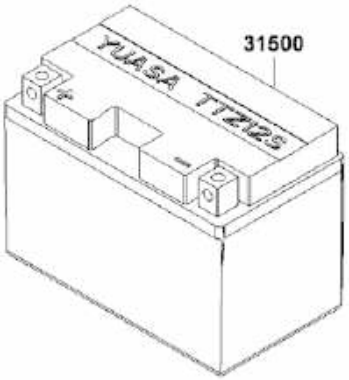
Removal

The battery is located in the front of the vehicle.
Remove the windscreen and meter cover. See the external topic for more information.

Remove the battery cover screws and remove the battery cover.



Remove the negative battery cable bolt and free the negative cable from the battery first. Then remove the positive battery cable bolt and lift the battery out of the battery tray.



Battery Testing

Check the battery voltage with a multi-meter. Place the positive probe onto the positive battery terminal and the negative probe to the negative battery terminal. If the battery reads under 12.3 V it is undercharged.

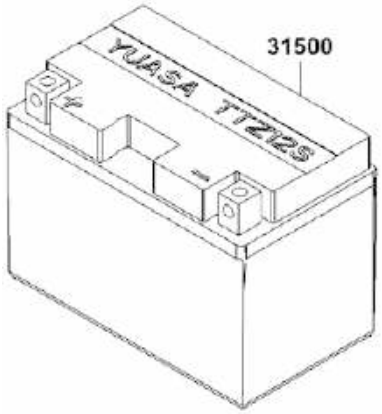
Battery Voltage (20°C/68°F)	
Fully Charged	13.0 - 13.2 V

Battery Charging

Charge the battery with a motorcycle specific battery charger at the specified rate. Connect the charger leads to their appropriate battery terminals. Keep open flames away from a charging battery.

Standard Charge	
1.2 Amps	5 - 10 Hours

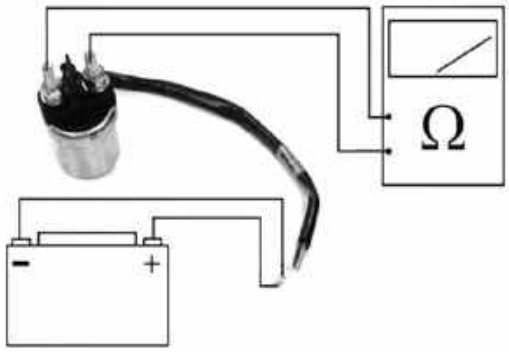
Note: For battery charging, do not exceed the charging current and time specified on the battery. Using excessive current or extending the charging time may damage the battery.



Starting System

Starter Relay Inspection

Disconnect the starter relay wire connector.
And remove the starter relay.



Check for continuity between the yellow/red wire and green/yellow wire. There should be continuity when the starter button is depressed. If there is no continuity, check the starter button for continuity and inspect the wire.

Connect the electric meter to the starter relay terminals that connect to the battery positive cable and the starter motor cable. Connect a fully charged battery across the starter relay yellow/red and green/yellow wire terminals.

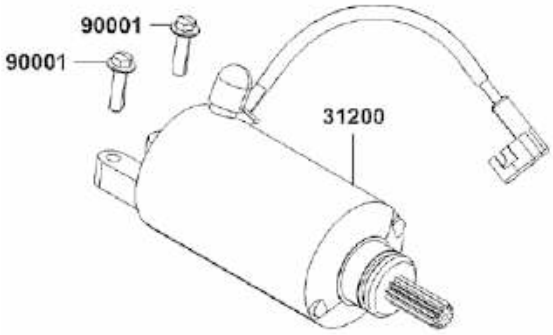
Check for continuity between the starter relay large terminals. The relay is normal if there is continuity and hear sounds.

Warning: Do not apply the battery voltage jump for more than five seconds or the relay may be damaged.

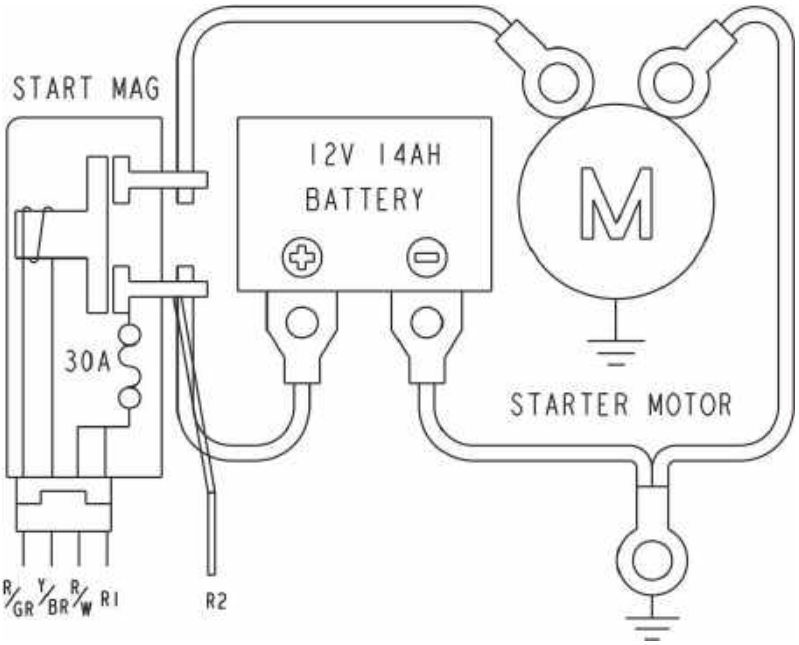
Do not over tight the nuts or the relay may be damaged.

Starter Motor

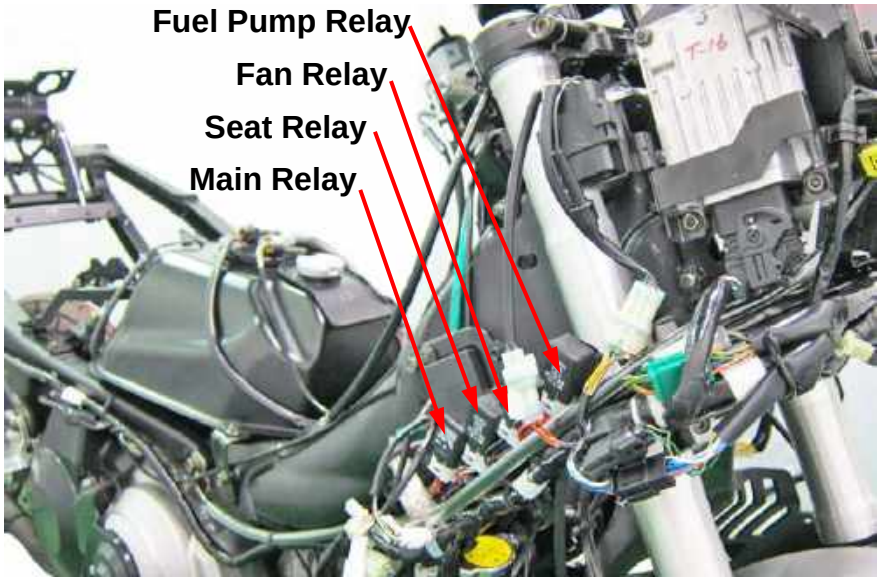
Pull back the rubber starter motor lead cover and remove the nut. Remove two starter motor mounting bolts and remove the starter motor.



Inspect the starter motor O-ring and replace it as needed.

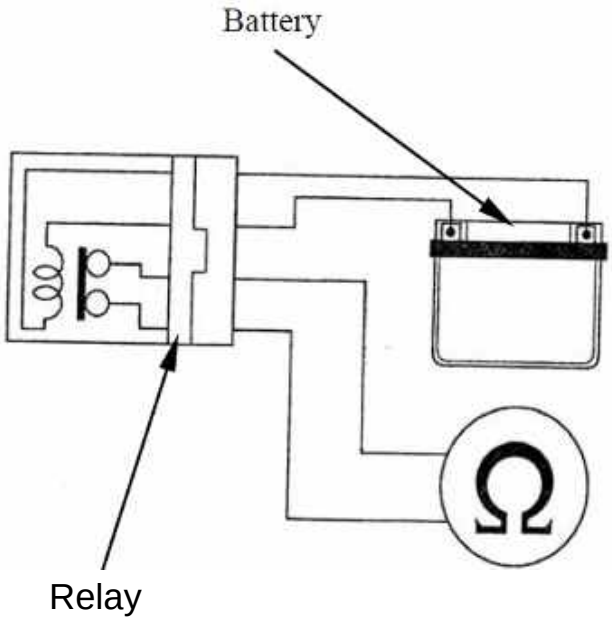


Relays



Relays Inspection

Use a digital multimeter to inspect the relay.



Connect 12 V battery with the fuel cut-off relay connector.

There should be continuity only when 12 V battery connected.
If there is not continuity when the 12 V battery is connected, replace the relay.

Switches

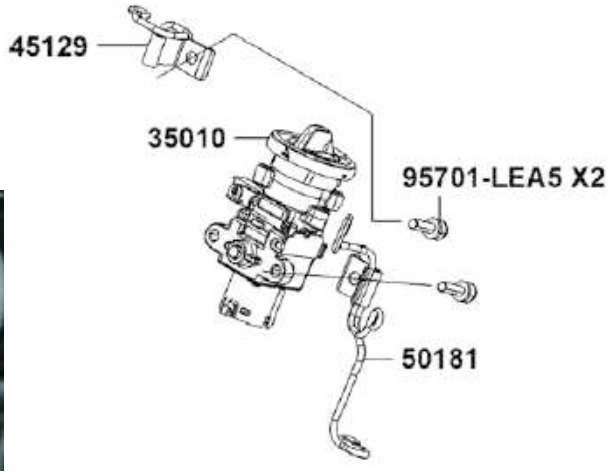
Ignition Switch

Remove the fixed screw, rotate and remove the keyless main panel and leg shield. See the external topic for the details.
Unplug the two connectors which connect to keyless controller.

Remove the screws, remove the seat and fuel cap latch cables from the ignition switch.

Unplug the two ignition switch connectors which connect to keyless controller.

To remove the anti-tamper bolts use a punch and a hammer to strike the bolts so that they rotate loose. Turn the bolts clockwise to loosen them.

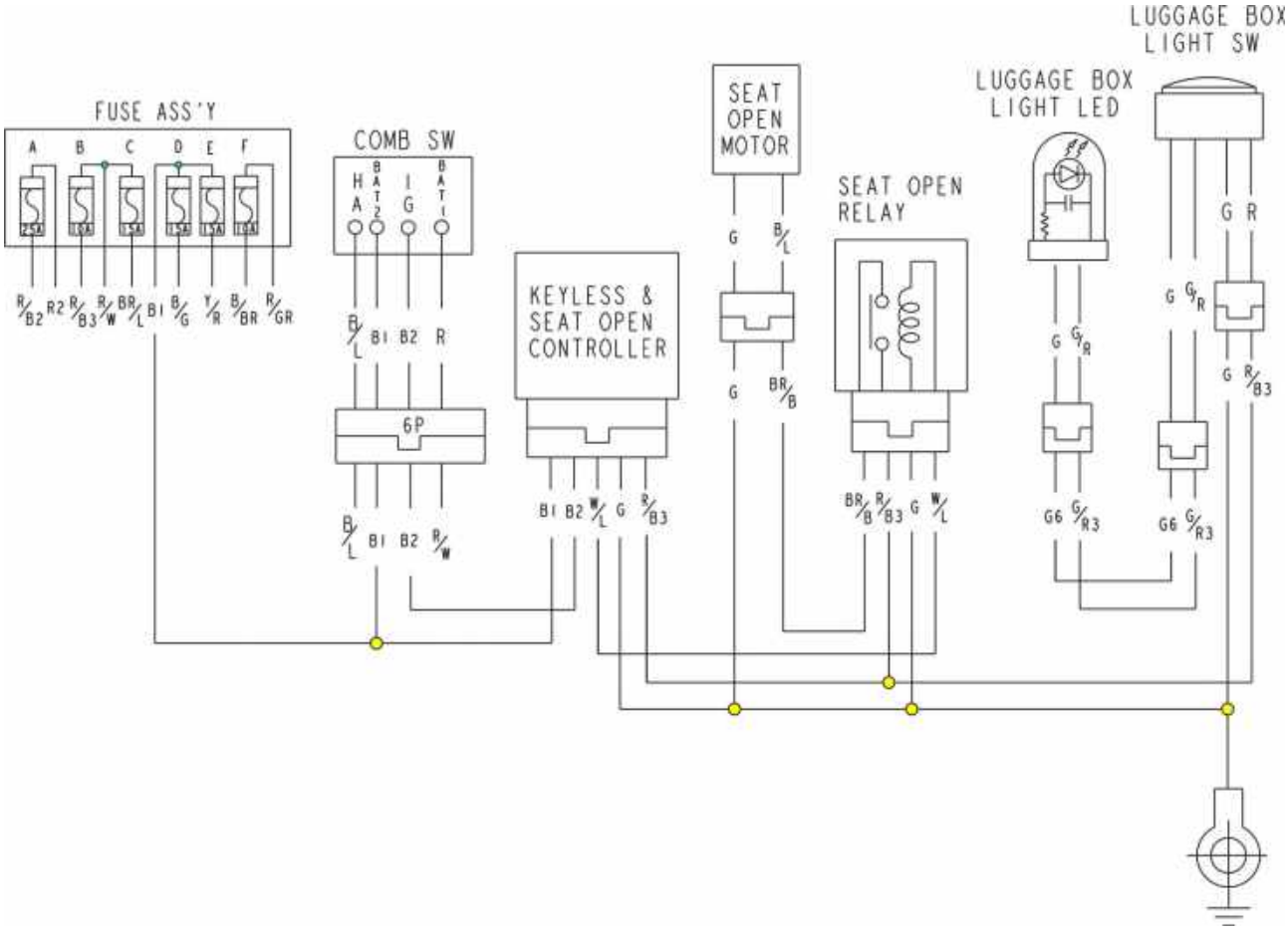


Use a digital multimeter to check for continuity to inspect the ignition switches. Continuity should exist between the wires as indicated.

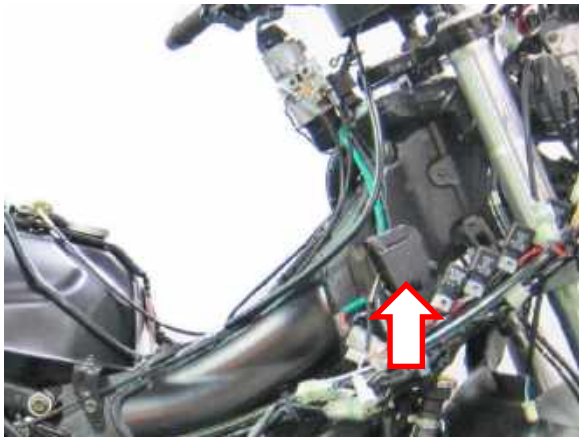
COMB SW

		BAT1	BAT2	BAT3	BAT4	HA(+)	COME1	COME2	KEY INSTALL AND REMOVE
OPEN	MAX70° CAP OPEN	○	○		○	○	○	○	NO
OFF	20°	○	○		○	○	○	○	AUTO REVERSE
ON		○	○	○	○	○	○	○	NO
OPEN	PUSH SEAT OPEN	○	○	○	○	○	○	○	NO AUTO REVERSE
OFF	45°				○	○	○	○	YES
OPEN	SEAT OPEN				○	○	○	○	NO AUTO REVERSE
LOCK	PUSH						○	○	YES
OPEN	SEAT OPEN						○	○	NO AUTO REVERSE
COLOR CORD		RED	BLUE / BLACK	BLACK	GREEN	GREEN	BLACK / YELLOW	BLACK / YELLOW	

Keyless And Seat Open Controller

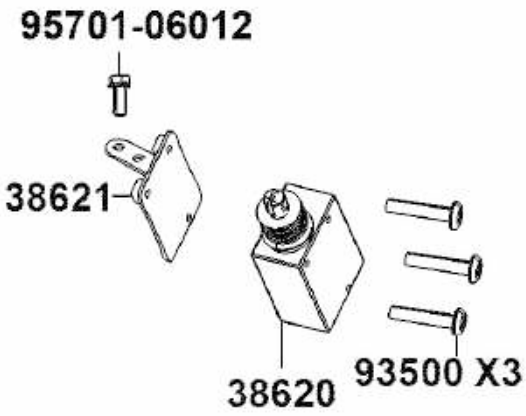


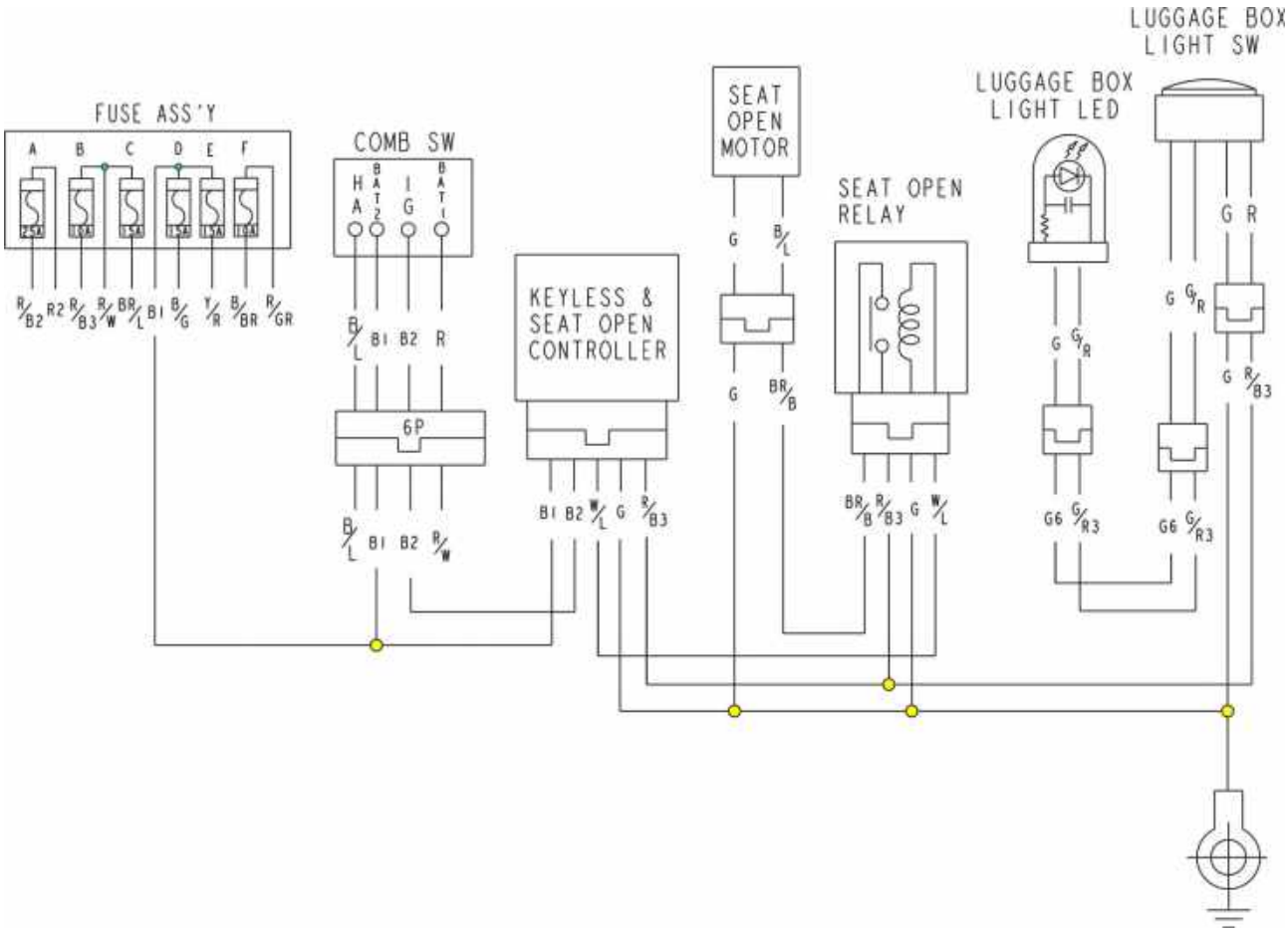
Remove the front cover set. See the external topic for more information.
Remove the keyless control connecters and remove the keyless controller.



Remove the luggage box. See the external topic for more information.

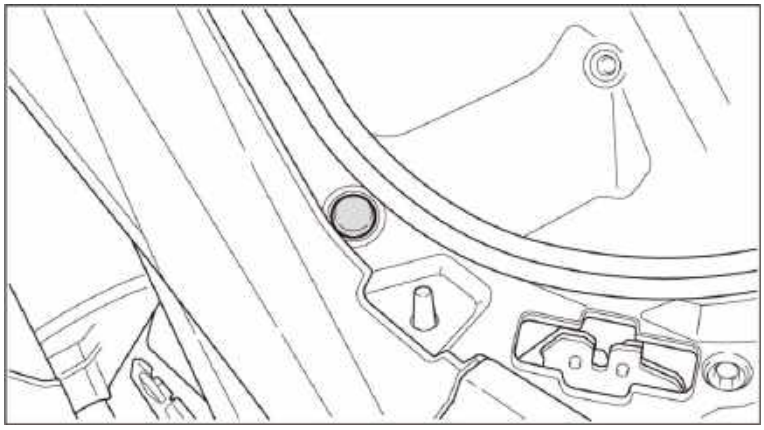
Remove the bolt, screws and remove the seat open motor.





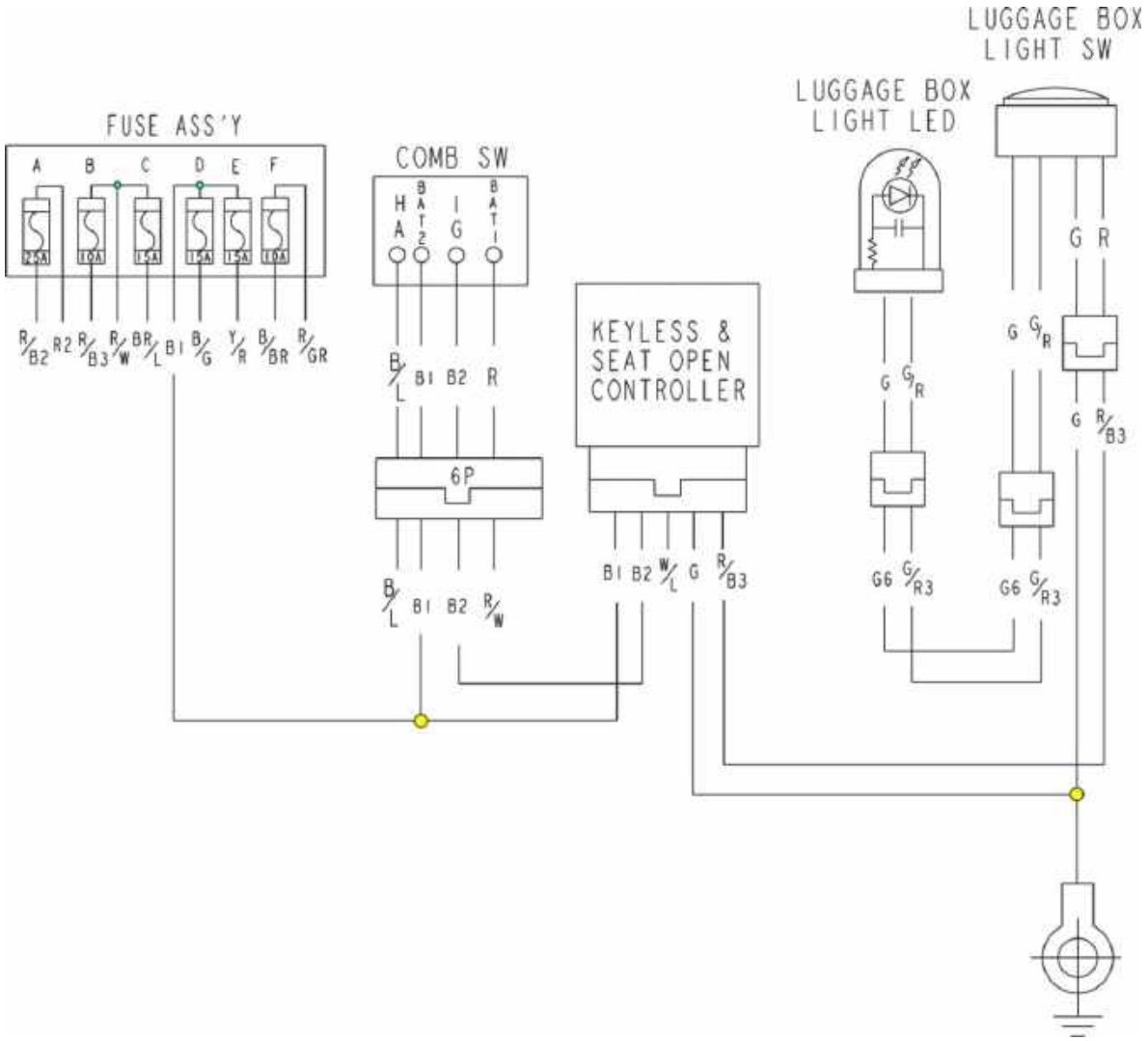
Luggage Box Light

Light (Lighting angle adjustable):
The lamp lights up when Seat Pad is lifted up, goes out when closed. (The Cabinet Light is provided with light-sensing switch; in case the user forgets to close the Seat Pad or the Pad fails to fully close up, system will cut the power automatically after a set time, preventing any power loss of battery.)



Remove 6 bolts, lift up the luggage box. See the external topic for the details.
Remove the luggage box switches connectors.
Remove the luggage box and switches.

Check the circuit following below wiring dirgram.



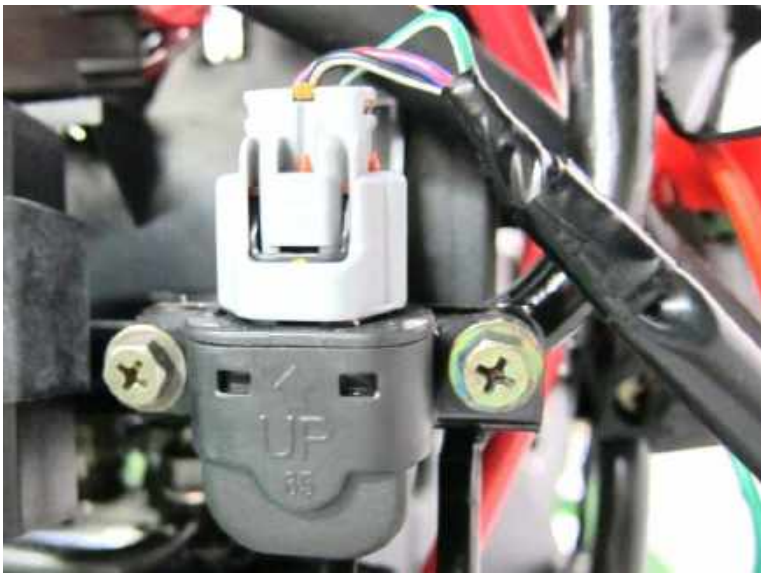
Tilt Switch

Remove the front cover. See the external topic for more information.

Support the scooter level surface.

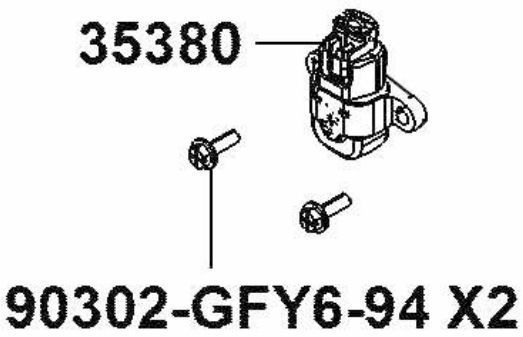
Put the side stand up and engine stop switch on “RUN”. Turn the ignition switch to “OFF”.

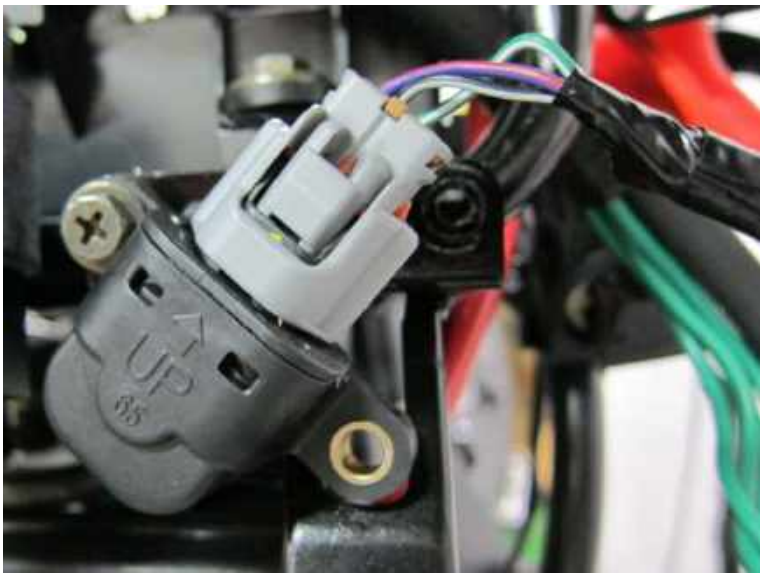
Note: Do not disconnect the tilt switch connector during inspection. The capacity of battery must be fully charged.



Place the tilt switch vertical as shown and the ignition switch “ON”. Measure the voltage as below.

Terminal	Standard
Violet/Red (+) ~ Green/Pink (-)	5 V (ECU voltage)
Black/Blue (+) ~ Green/Pink (-)	0.4 - 1.4 V less

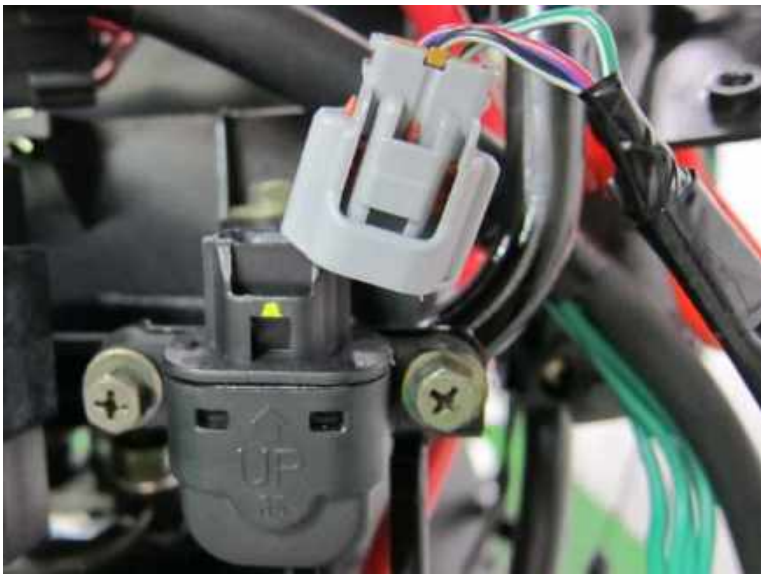




Incline the tilt switch 65±10 degrees to the left or right at the ignition switch “ON”. Measure the voltage as below.

Terminal	Standard
Violet/Red (+) ~ Green/Pink (-)	5 V (ECU voltage)
Black/Blue (+) ~ Green/Pink (-)	3.7 - 4.4 V

Note: Repeat this test, first turn the ignition switch to “OFF”, then turn the ignition switch to “ON”.



Disconnect the connector to remove the tilt switch.

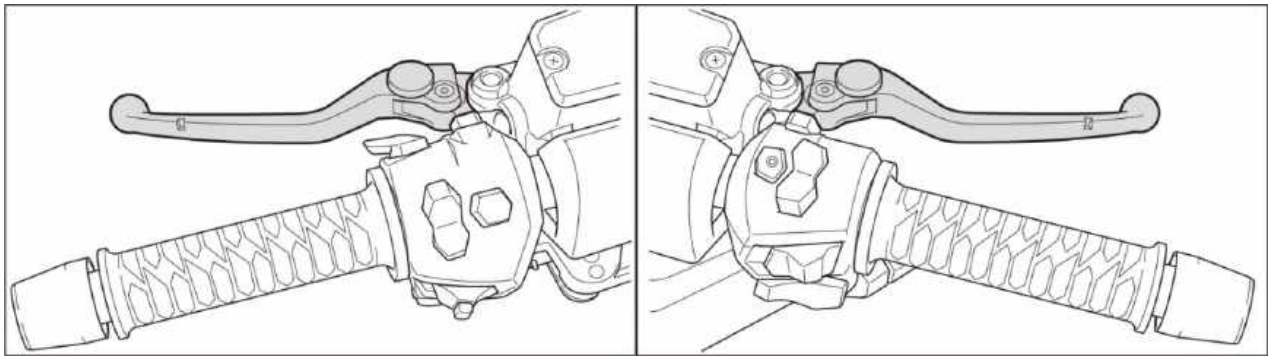
Note: Install the tilt switch with its “up” mark facing up and tighten the two screws securely.

Handlebar Switch

Remove the front cover. See the external topic for more information.

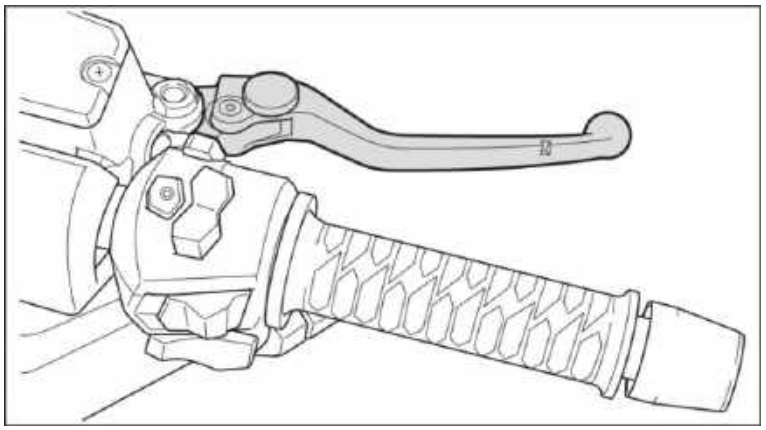
Unplug the black connector for the left handlebar switches.

Unplug the green connector for the right handlebar switches.



Use a digital multimeter to check for continuity to inspect the handlebar switches. Continuity should exist between the wires as indicated.

Right Handlebar Switches



Use a digital multimeter to check for continuity to inspect the handlebar switches. Continuity should exist between the wires as indicated.

START		
FREE		
⚡	○	○
CORD SIZE	AVSS0.5f	AVSS0.5f
CORD COLOR	Y/R	G1

HAZARD		
FREE		
△	○	○
CORD SIZE	AVSS0.75f	AVSS0.75f
CORD COLOR	B/L	Y/B

KILLER		
FREE	○	○
⊗		
CORD SIZE	AVSS0.75f	AVSS0.75f
CORD COLOR	B/W	B/G

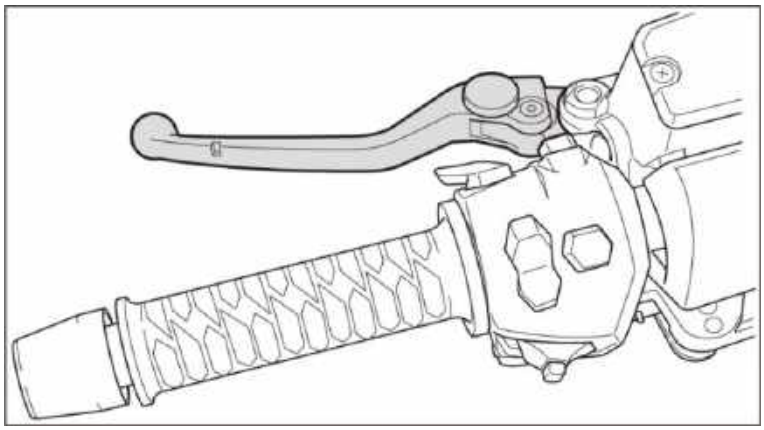
NOODOE		
FREE		
O	○	○
CORD SIZE	AVSS0.5f	AVSS0.5f
CORD COLOR	O/BR	G2

DOWN		
FREE		
V	○	○
CORD SIZE	AVSS0.5f	AVSS0.5f
CORD COLOR	G/V	G2

UP		
FREE		
∧	○	○
CORD SIZE	AVSS0.5f	AVSS0.5f
CORD COLOR	Y/V	G2

DEFINE		
FREE		
O	○	○
CORD SIZE	AVSS0.5f	AVSS0.5f
CORD COLOR	G/BR	G2

Left Handlebar Switches



Use a digital multimeter to check for continuity to inspect the handlebar switches. Continuity should exist between the wires as indicated.

MODE		
FREE		
PUSH	○—○	
CORD SIZE	AVSS0.5f	AVSS0.5f
CORD COLOR	G/P	G

HEATING		
FREE		
PUSH	○—○	
CORD SIZE	AVSS0.5f	AVSS0.5f
CORD COLOR	Y/L	G

WINKER			
⇦	○—○		
(N)			
⇨	○		○
CORD SIZE	AVSS0.5f	AVSS0.5f	AVSS0.5f
CORD COLOR	GR	O	SB

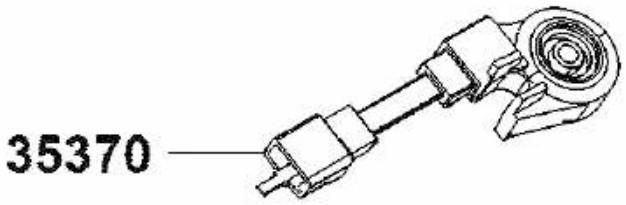
PASSING		
FREE		
PUSH	○—○	
CORD SIZE	AVSS0.75f	AVSS0.75f
CORD COLOR	BR/L	L

HORN		
FREE		
📯	○—○	
CORD SIZE	AVSS0.75f	AVSS0.75f
CORD COLOR	BR/L	L

DIMMER			
≡D	○—○		
≡D	○		○
CORD SIZE	AVSS0.75f	AVSS0.75f	AVSS0.75f
CORD COLOR	L	W	L/W

Side Stand Switch

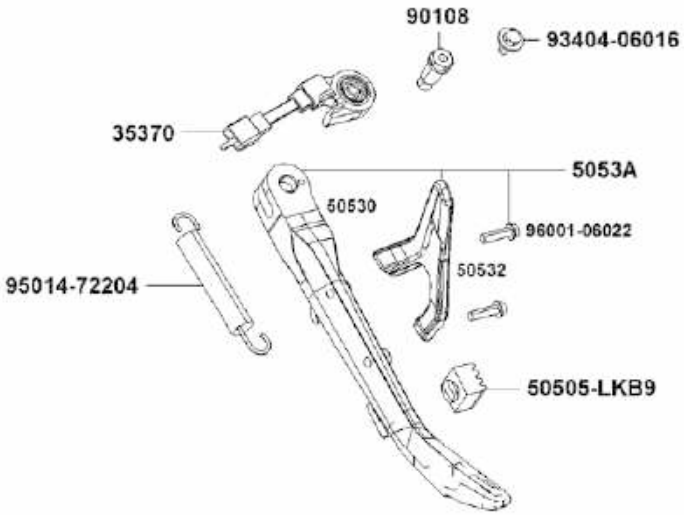
Place the vehicle on the center stand.
Unplug the three-pin side stand switch connector.

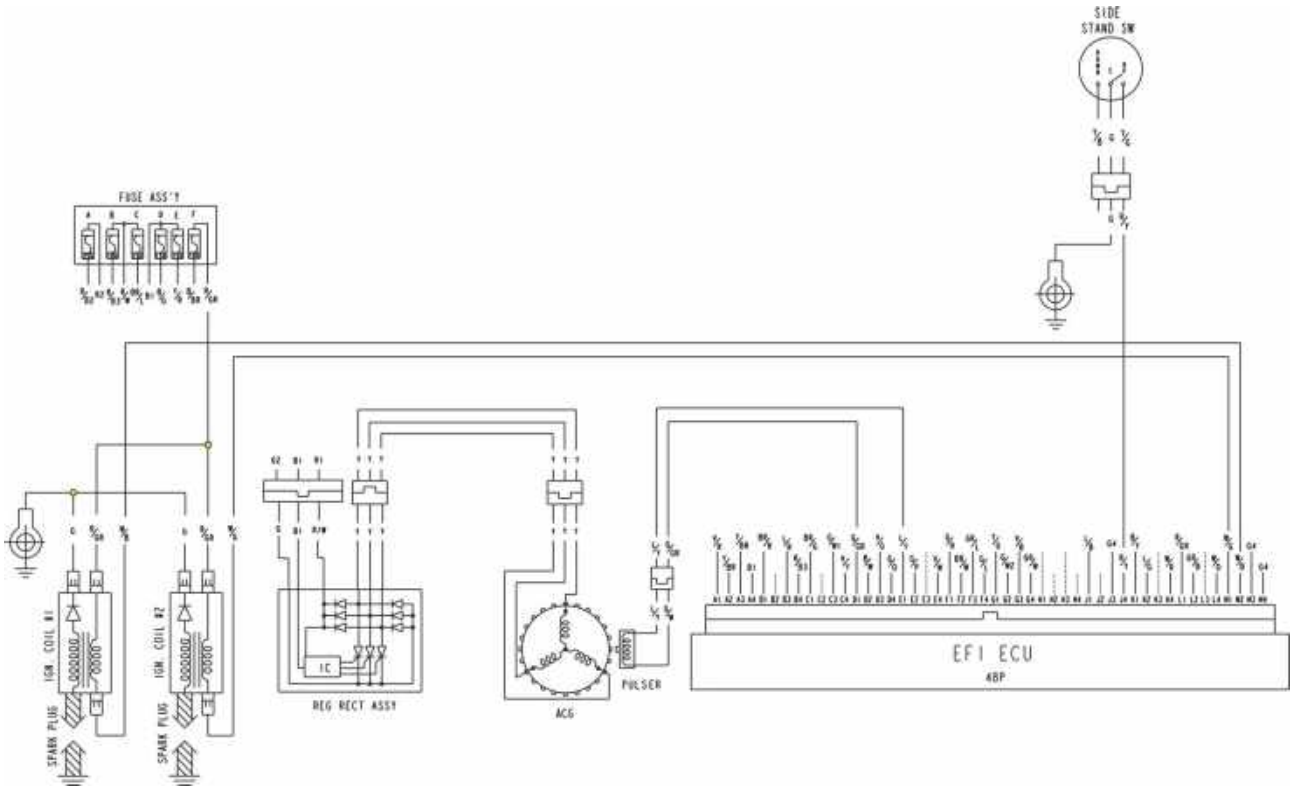


Use a digital multimeter to check for continuity.

With the side stand retracted there should be continuity between the yellow/green wire and the green wire terminals.

With the side stand extended there should be continuity between the yellow/black wire and the green wire terminals.

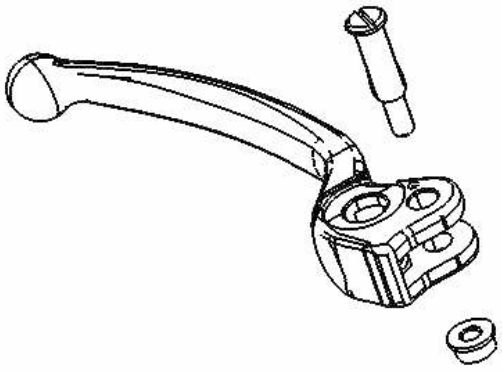



SIDE
STAND SW
FUSE ASS'Y
IGN COIL #1
IGN COIL #2
SPARK PLUG
SPARK PLUG
IC
REG RECT ASSY
ACG
PULSER
EFI ECU
48P

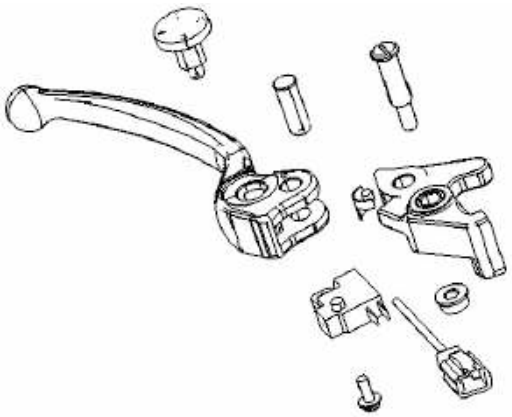
Brake Light Switches

Test the front and rear brake light switches in the same manner. Use a digital multimeter to check for continuity.

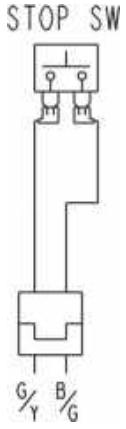
Remove the nut of lever and brake light switch.



Unplug the brake light switch connector.
Remove the lever and brake light switch.



Check for continuity between the brake light switch connectors. There should be continuity when the lever is pulled and none when released.

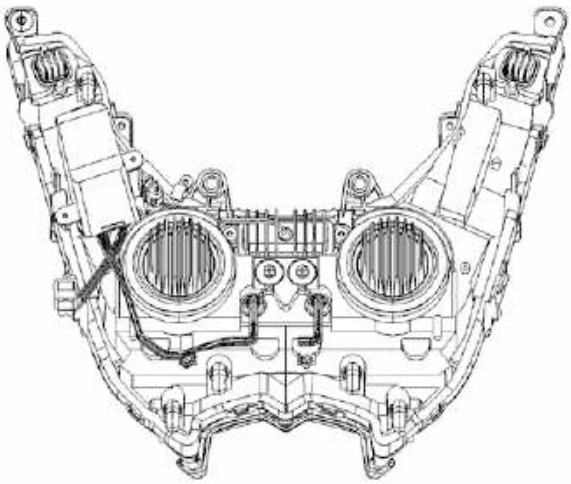


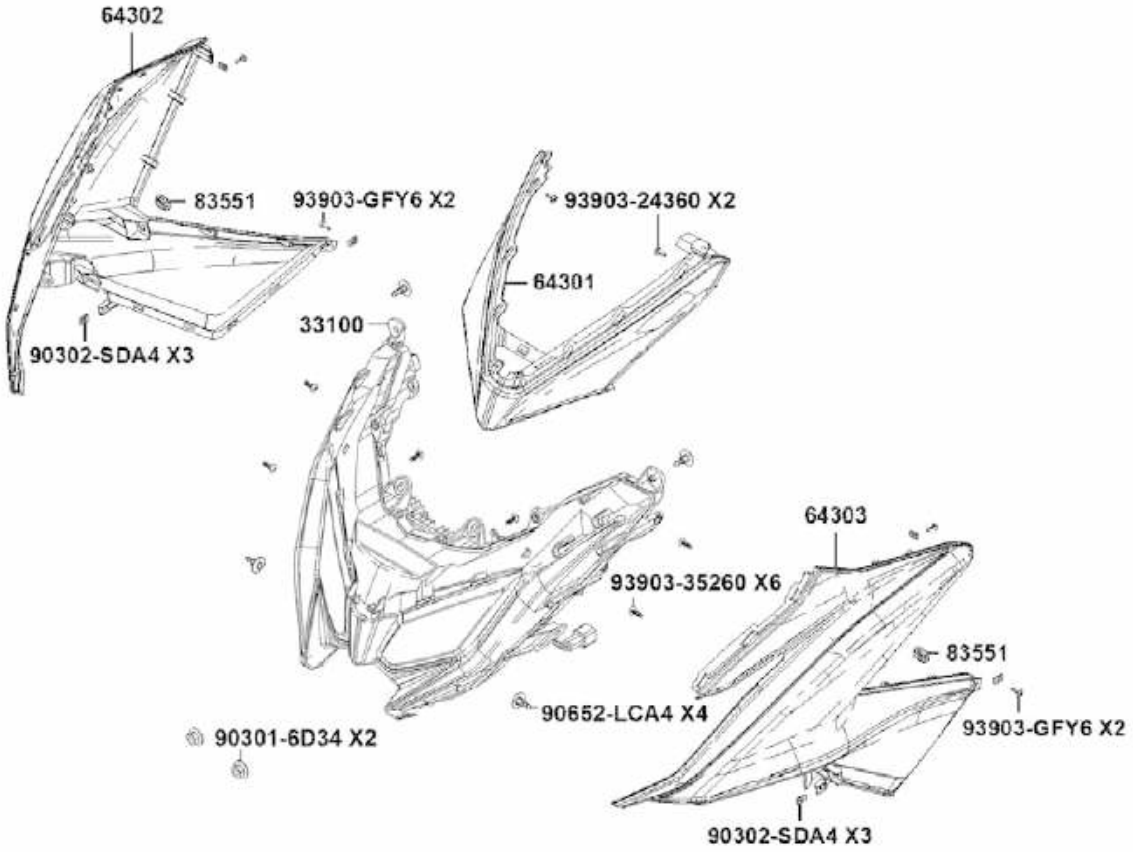
Lights

Headlight

Make sure the machine has been off for several minutes before removing the headlight bulb.

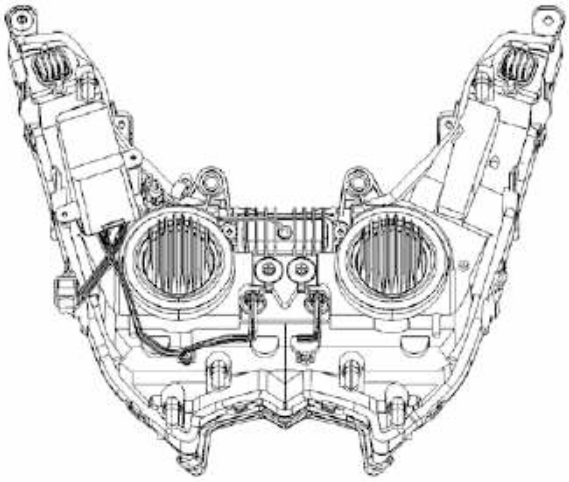
Remove the front cover set see the external topic.
Remove the screws, fasteners and separate the covers and headlight set.





Headlight Replacement

Headlight set need to be replaced as a set. And the headlight and position light drivers can be replaced if needed.

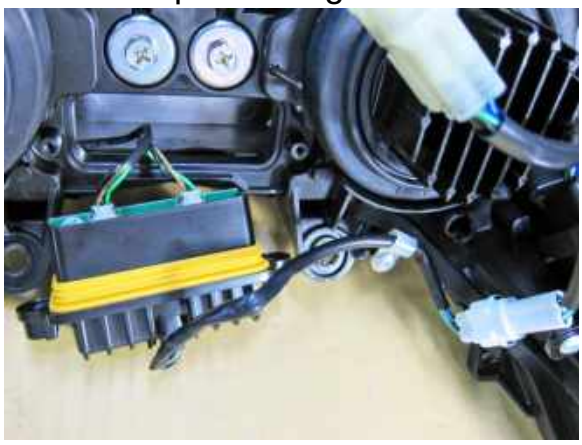


Headlight Driver Replacement

Remove the screws and remove the headlight driver.

Position light Driver Replacement

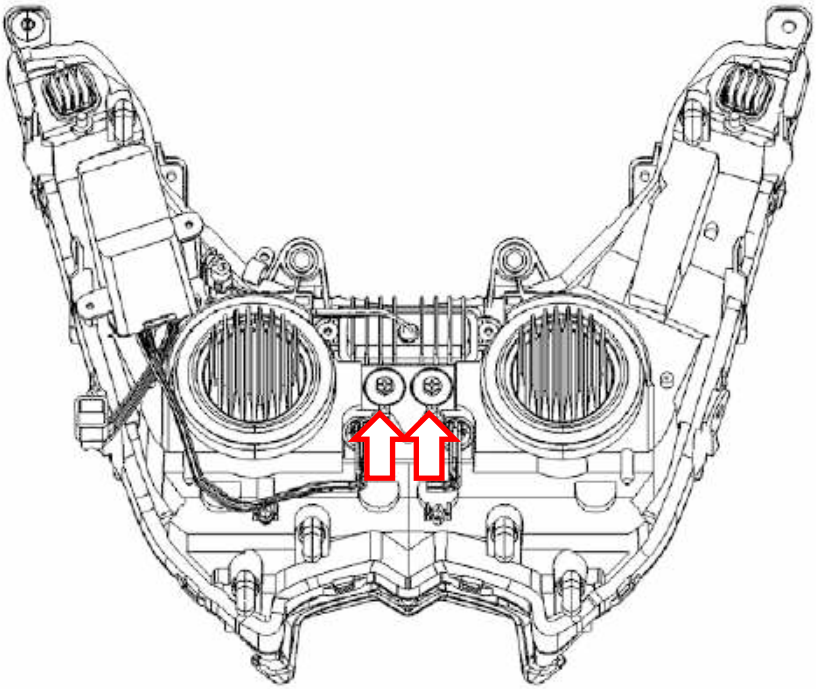
Remove the screws, connecter and remove the position light driver.



Aim Adjustment

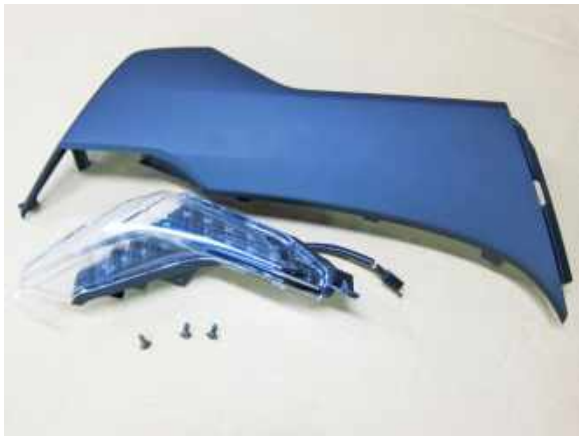
Use a long screw driver to adjust the aim.

Turn the screws to adjust the right and left head lights aim as needed.



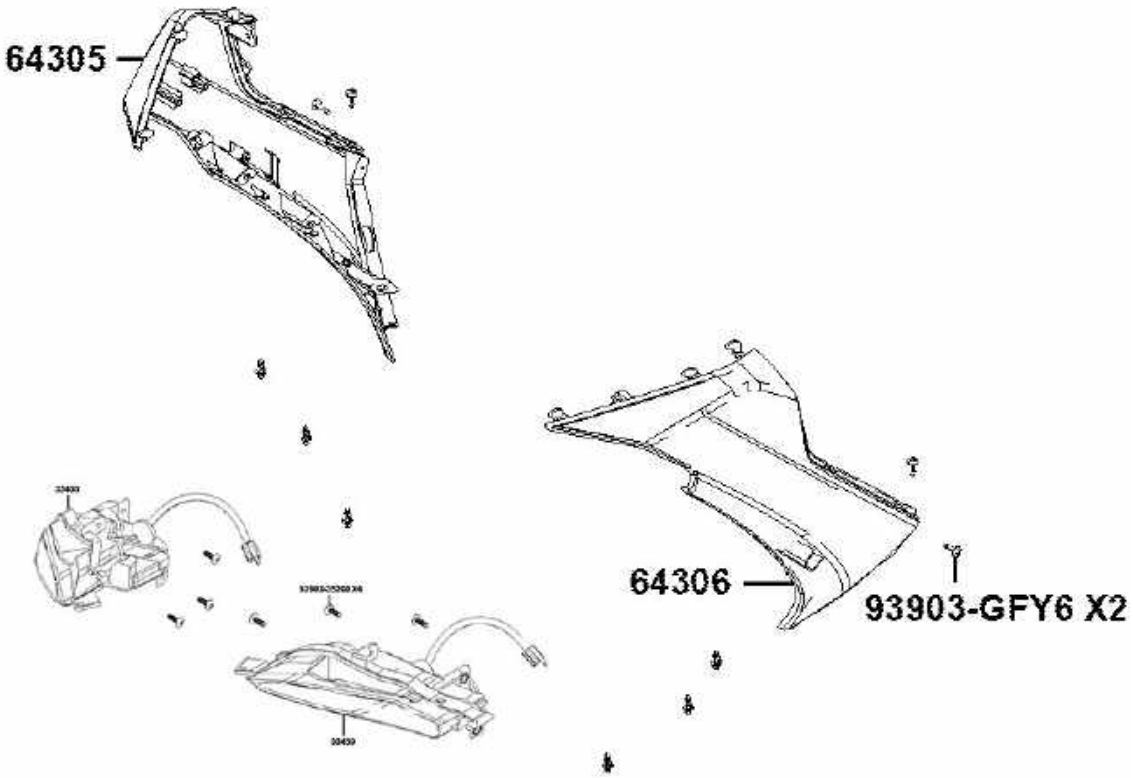
Front Turn Signals

Remove 3 screws to separate the cover and front turn signal light set.



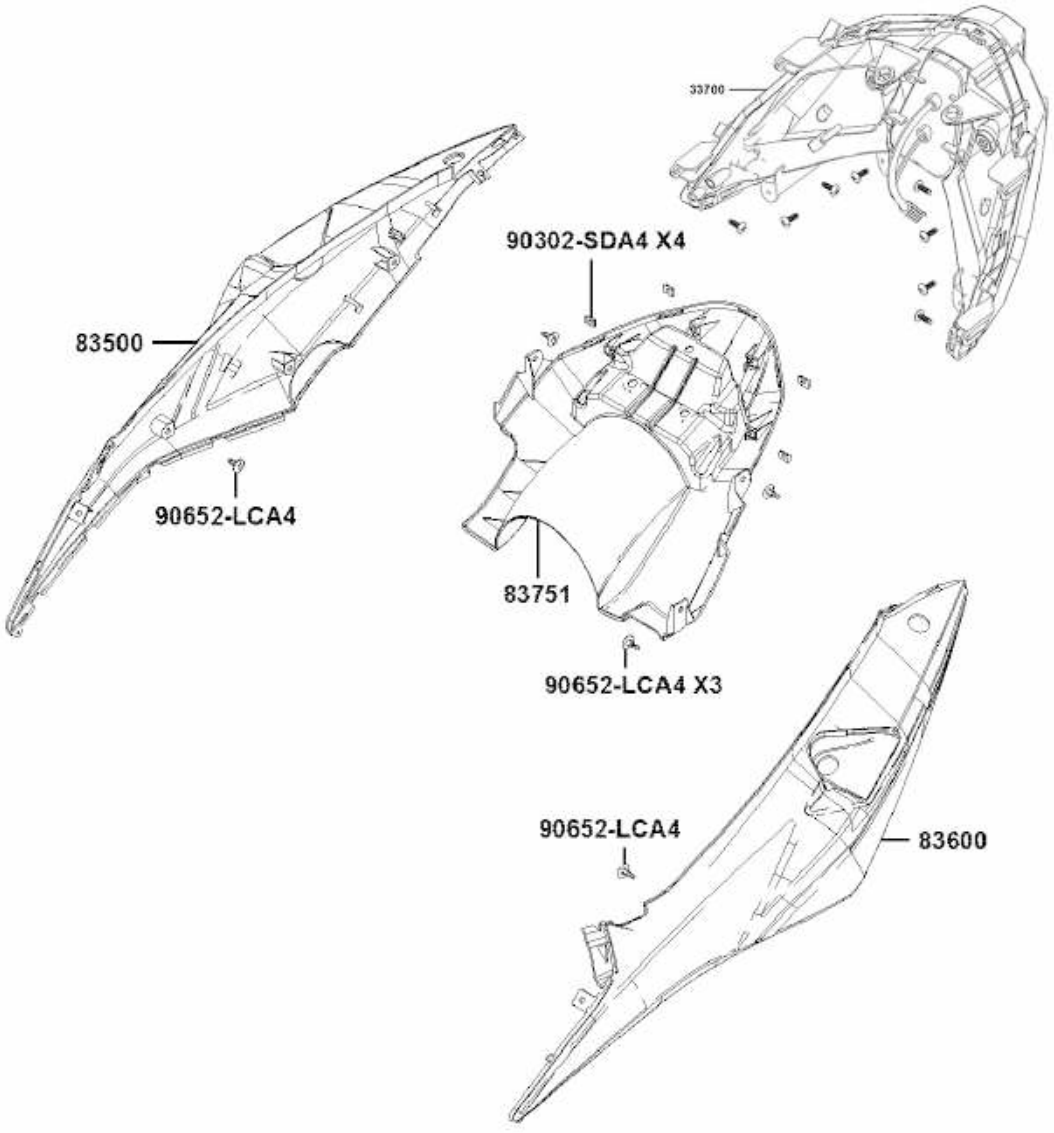
Remove the front turn signal light set.

Replace the front turn signal light set if needed.



Tail/Stop/Rear turn signal lights

Remove the body cover set. See the external topic for more information.
Remove the screws, fasteners and separate the covers tail/stop/rear turn signal lights set.



Rear turn signal lights

Rear turn signal lights need to be replaced as a set. And the tail/stop light set can be replaced if needed.

Tail/Stop lights set Replacement

Remove the screws and remove the tail/stop lights set.

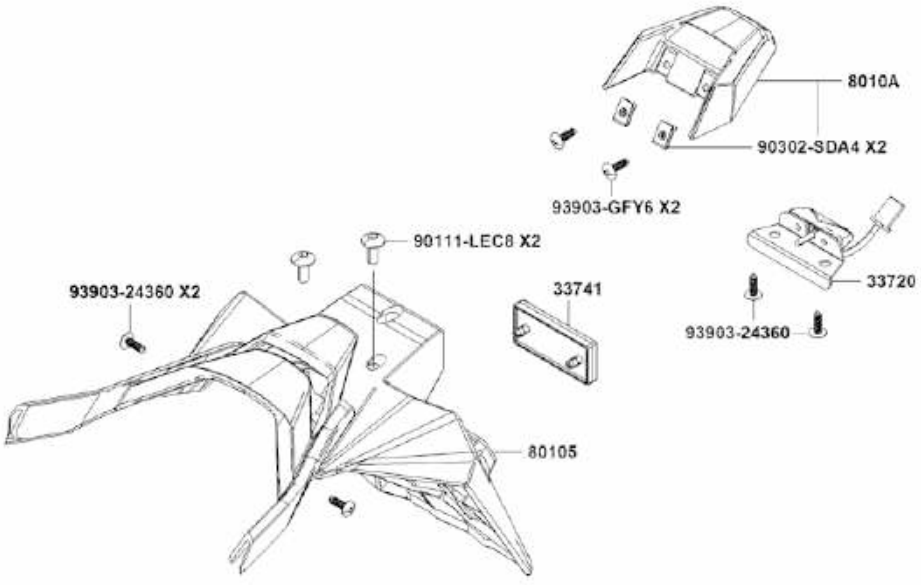
Replace the tail/stop lights set if needed.

License Tag Light

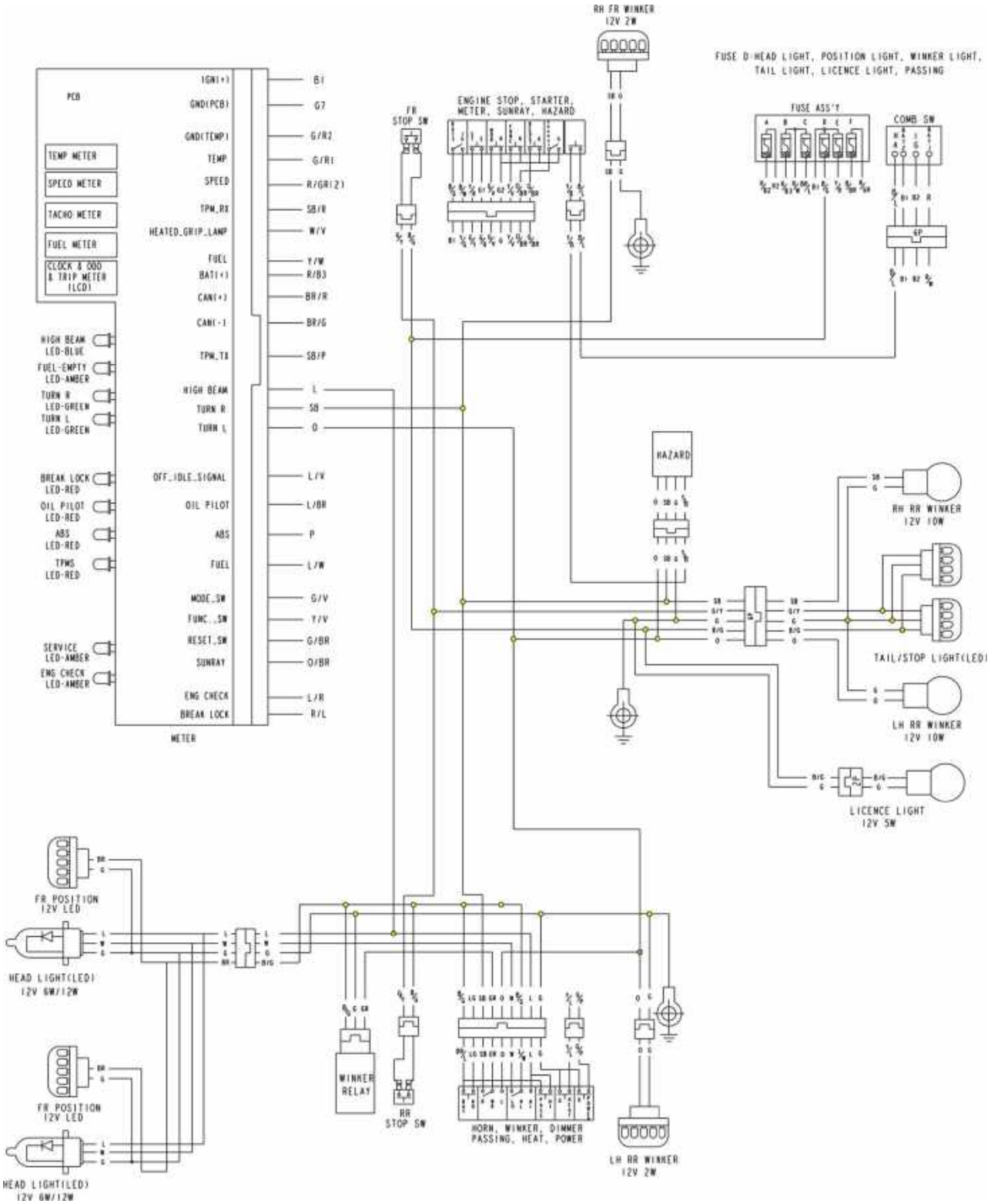
Remove the 3 bolts, coupler and remove the rear fender set.

Remove the screws.

Remove the license tag light from the rear fender.

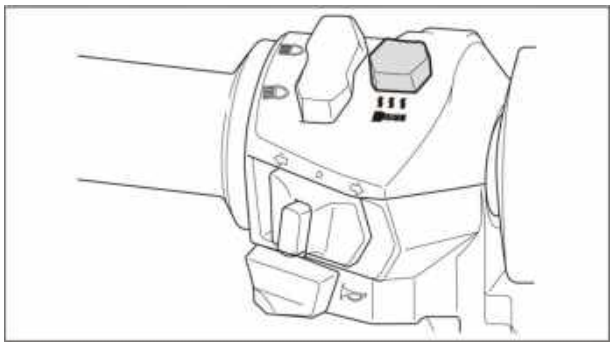


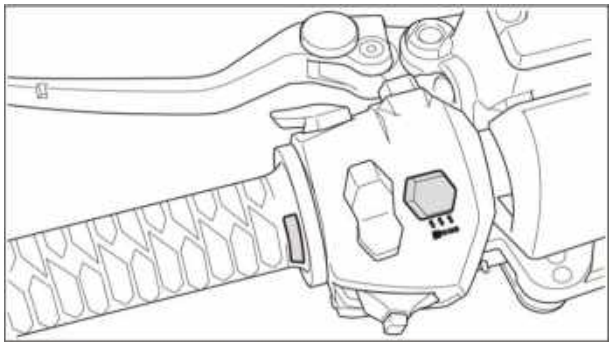
Lights Wiring Diagram



Grip Heater

After turning ON the Main Switch, press and hold Handlebar Heater Button for 3 seconds or more to activate/deactivate Handlebar Heating Function.
After activating Handlebar Heater controller, click the Heater button to select heating level in the sequence of 1 > 2 > 3 > 1 > 2 ...





Handlebar Heater State Indicator:
1. After turning ON KEYLESS Main Switch, a self-check is performed with the LED indicator flashing in a 1-white and 1-red format.
2. After KEYLESS Main Switch ON and indicator self-check, in the event of a Handlebar Heater anomaly, the indicator will flash in red, with the Handlebar Heater function disabled. (Refer to anomaly states below for indicator flashing modes.)
3. After KEYLESS Main Switch ON, press and hold the button to activate Handlebar Heater. Indicator lights in white constantly for normal operation.
4. Turn KEYLESS Main Switch OFF or press and hold the button to deactivate Handlebar Heater. The indicator will go out, indicating the function is switched off.
5. If Handlebar Heater is faulty, the indicator will flash in red.

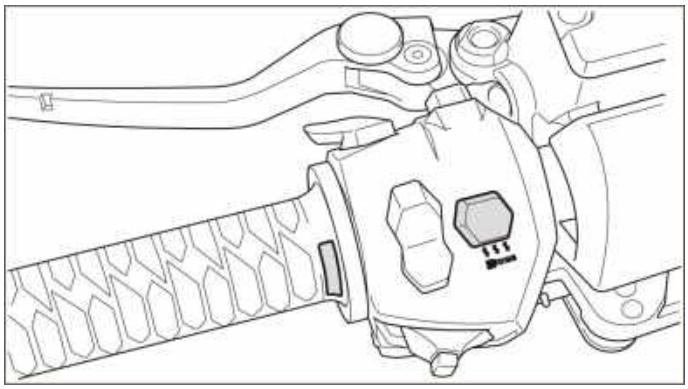
When Handlebar Heater function is OFF, anomaly states are as follows:
a. 2 flashes (on/off) per 0.2s followed by 2s off: Handlebar Heater function is faulty.
b. 3 flashes (on/off) per 0.2s followed by 2s off: Handlebar Heater temperature sensor is faulty.
c. 4 flashes (on/off) per 0.2s followed by 2s off: Pushbutton is faulty.
d. 1 flash (on/off) per 0.3s followed by 0.3s off: Handlebar/ Controller Circuit is faulty.

After eliminating the fault and re-starting (Key Off → Key On) the vehicle, indicator will resume normal operation.
Clicking the button when the indicator is flashing in red will stop the flashing. For the sake of your safety, please go to a KYMCO dealer for check-up.

NOTICE

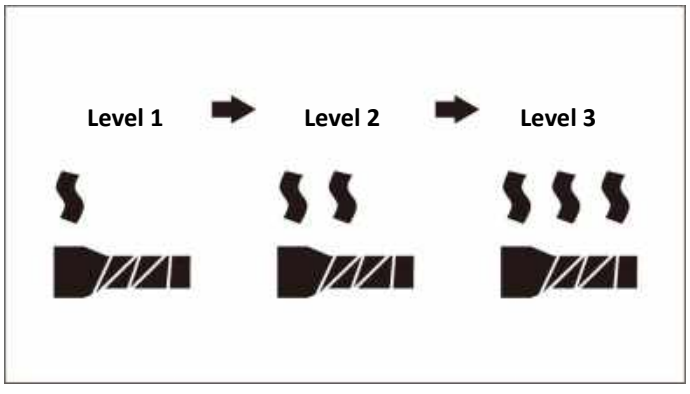
◆ When clicking the button without eliminating the fault, the flashing of red indicator is turned off temporarily. It will still flash in red if restarting (Key Off → Key On) the vehicle.

◆ When clicking the button to stop red flashing without eliminating the fault, the heating function will remain inactive when starting the vehicle by pressing and holding the pushbutton, and the indicator will still flash in red.



Dashboard Level Indication:

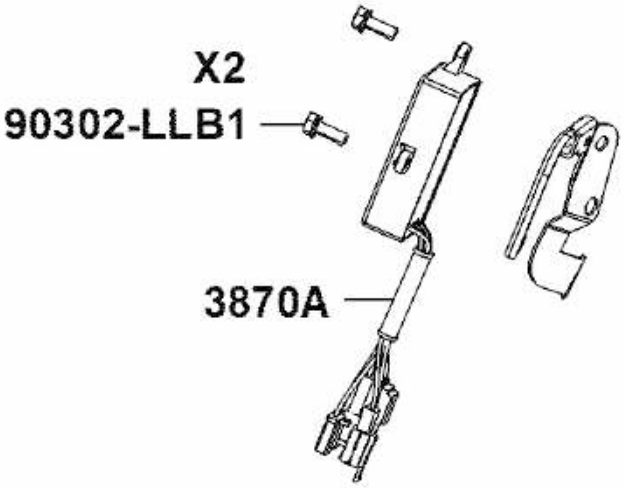
1. On activation of heating function, Dashboard will receive signal from controller and display the current heating level to the user.
2. Level Indication:
   Level 1: 35℃
   Level 2: 45℃
   Level 3: 55℃
   Heating Function OFF: All goes off.
3. In the event of signal anomaly from the controller to Dashboard, the Dashboard will give flashing ** symbols to alert.



Grip Heater Controller

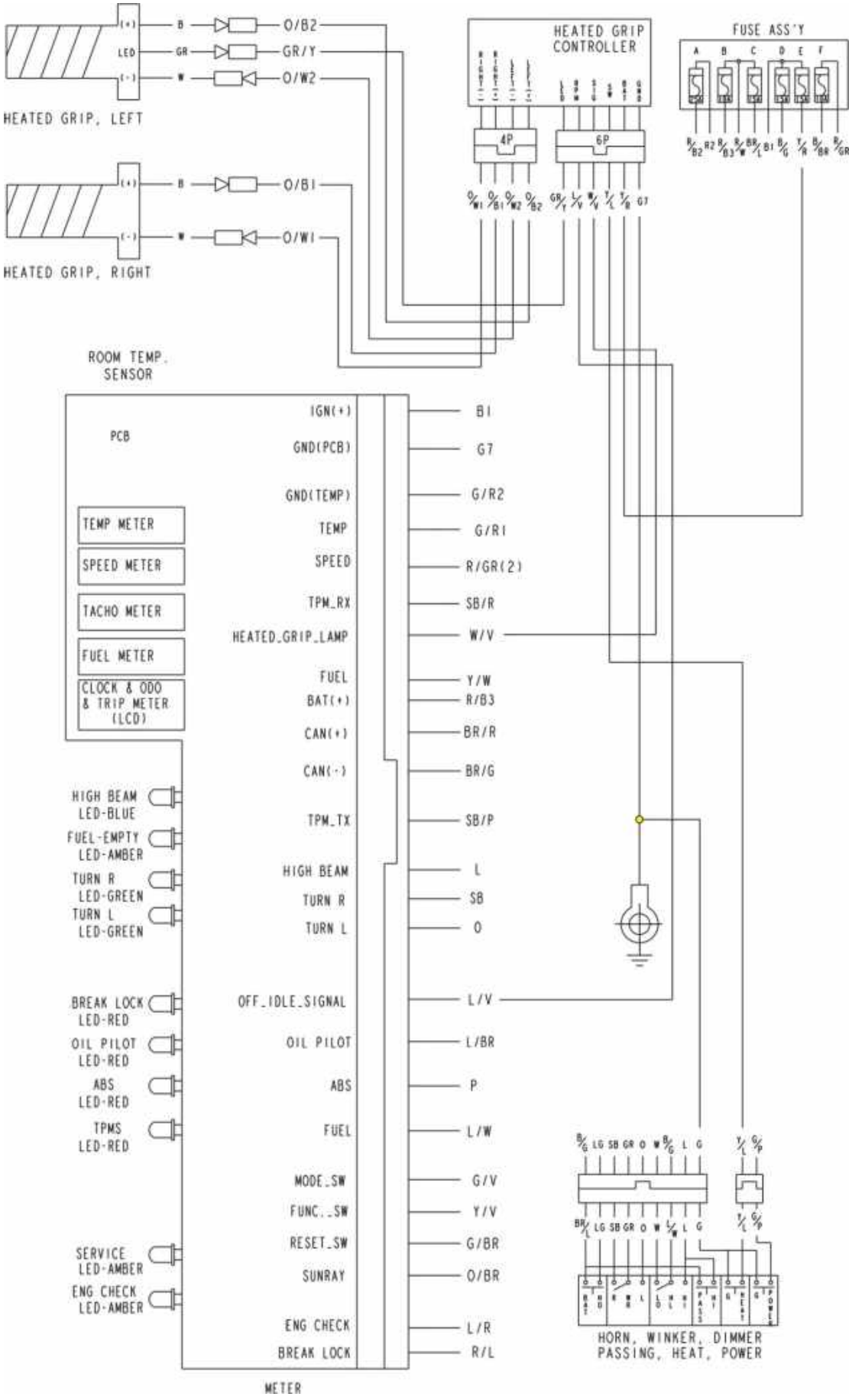
Remove the covers, see the external topic.
Unplug the grip heater controller connectors.
Remove two bolts and remove the grip heater controller.

Open the fuse box.
Inspect the fuse and replace it if needed.



Remove the couplers and grip heaters replace the grip set if necessary.

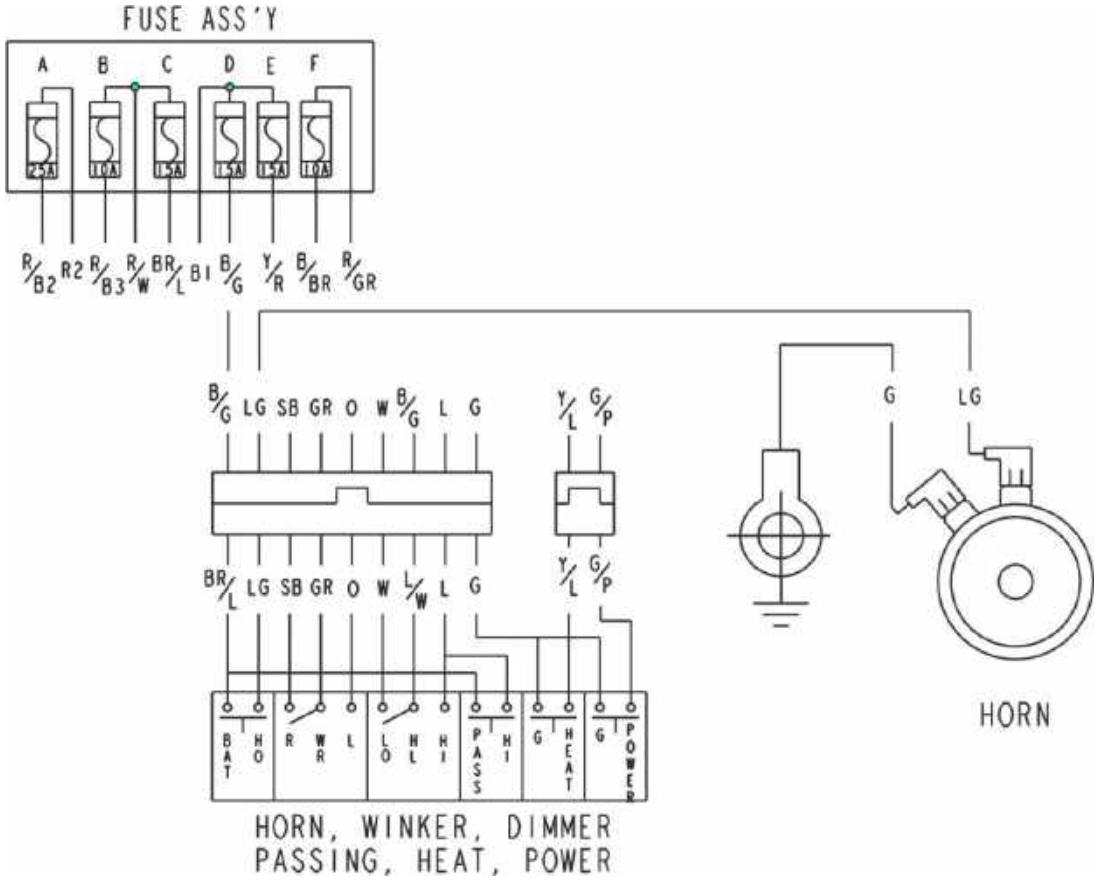
Check the circuit referring to the following diagram.



Horn

Remove the front cover. See the external topic for more information.

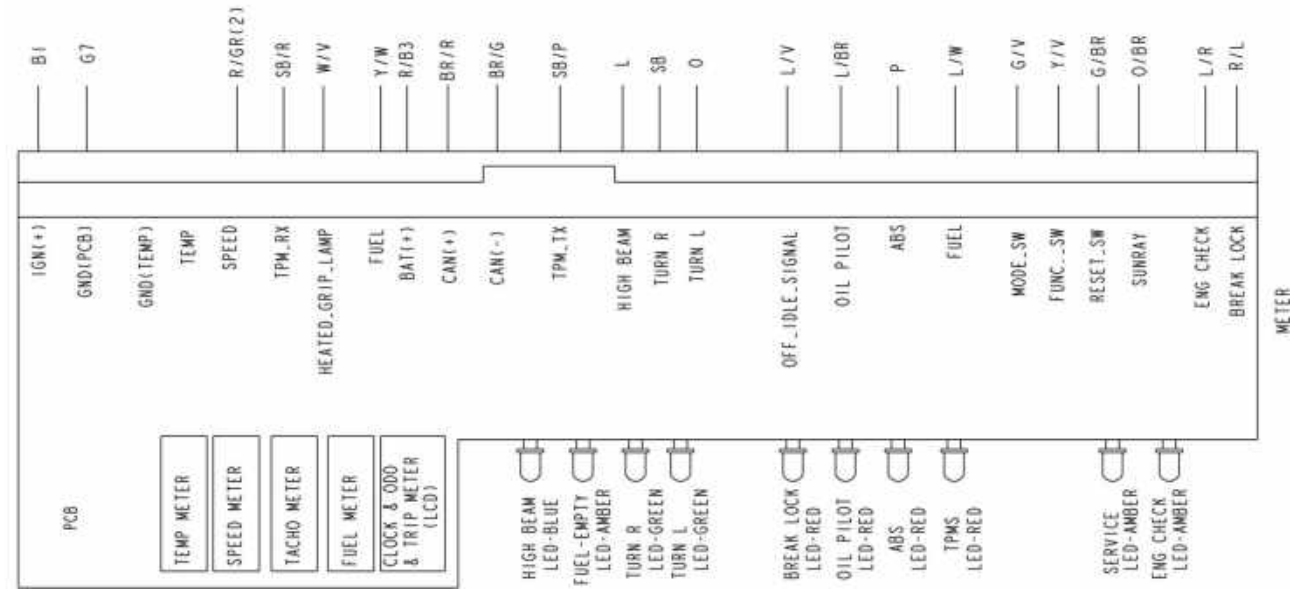
Disconnect the horn connectors from the horn. Connect a 12 V battery to the horn terminals. The horn is normal if it sounds when the 12 V battery is connected across the horn terminals.



Meter Instrument

Remove couplers.

Check the wiring diagram to inspect circuit.



Noodoe Meter

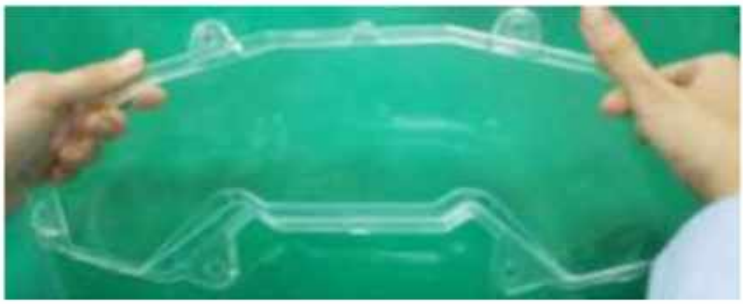
The Noodoe meter can be replaced individually if needed. To avoid the humidity getting in, following the process as following.

Remove the screw and loosen the claw as below pictures.



Remove the cover of meter. There is anti-fogging agent applied on the surface of inside cover.

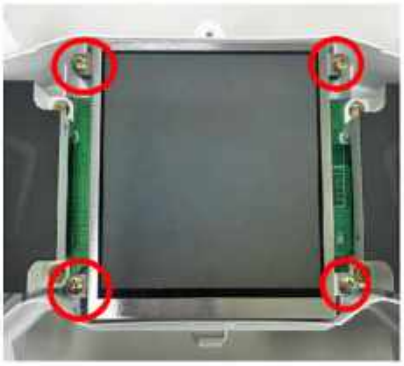
Warning: Never to touch the surface of bottom or the anti-fogging function will be failed.

Correct Incorrect

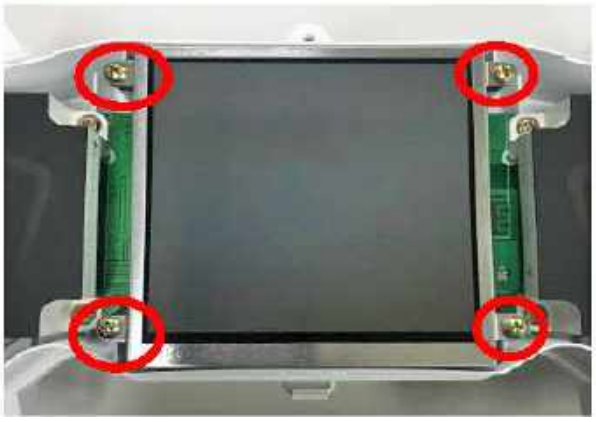
Remove the meter board and remove four screws.

Warning: Never to scratch the surface of TFT module.

Remove the TFT module and replace with a new one.


The boss need to be matched firmly and fasten four screws crisscross evenly.

Install the meter board and remove dust by air tool tenderly.



Install the cover of meter firmly and install the screws crisscross evenly.


TPMS Tire Pressure Management System

Operation of TPMS, Electronic Tire Pressure Sensor

◆ TPMS consists of 2 wireless Tire Pressure Sensors (1 each on respective nozzle of front and rear tire) and a controller. The sensor detects the current tire pressure and sends the signal to Controller by wireless transmission. The Controller then sends the signal to Dashboard, informing the rider of pressure condition with the displayed indicator.

⚠ NOTICE

1. When KEYLESS Main Switch is set ON, the Tire Pressure Sensor related pressure symbol on the left side of Dashboard will light up; if this symbol then goes out automatically, the tire pressure is normal (as shown in the Figure).
2. When KEYLESS Main Switch is set ON, the Tire Pressure Sensor related pressure symbol on the left side of Dashboard will light up; if this symbol stays on constantly, the tire pressure is not normal (as shown in the Figure).

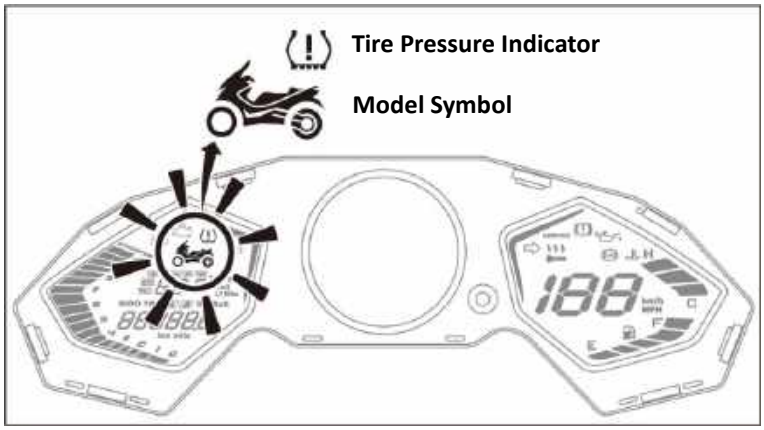
Front Tire Pressure ≧3.2kgf/cm2 or < 1.6kgf/cm2

Rear Tire pressure≧3.75kgf/cm2 or < 1.65kgf/cm2

The owner needs to replenish or release tire pressure if the reading is too low or too high. Consult the dealer for assistance if you have any questions.

(Standard tire pressure under normal inflation: Front Wheel 2.3kgf/cm2; Rear Wheel 2.7kgf/cm2)

3. Do Not remove wireless Tire Pressure Sensor or Controller, or TPMS function will be lost.
4. No re-adjustment of TPMS is required when a new tire or rim is replaced.
5. Re-adjustment of TPMS is required when replacing a new wireless tire pressure sensor and controller; please consult a KYMCO dealer.
6. When replacing a tire rim, the Tire Pressure Sensor shall be kept in a correct order to distinguish the front one and the rear one.



Owner Learn Code Operation:

- ◆ Applicable to owner and dealer service personnel.
- ◆ Re-adjustment of TPMS is required when replacing a new wireless tire pressure sensor and controller.
- ◆ When performing code learning, keep the vicinity clear of other vehicle or transmitter, to prevent miss-triggering.
- ◆ After installing Tire Pressure Sensor, inflate the tire to correct pressure and install it properly onto the vehicle.

Learn Code Activation Procedure:

1. Press and hold Operation Button (∧ button on the Handlebar), but it is necessary to switch over to Dashboard position “m” in advance.

2. KEY ON the KEYLESS Main Switch.

3. Release the Operation Button (∧) when the front tire of the Model Symbol flashes and tire pressure unit disappears.

4. TPMS is now entered into Code Learning Mode.

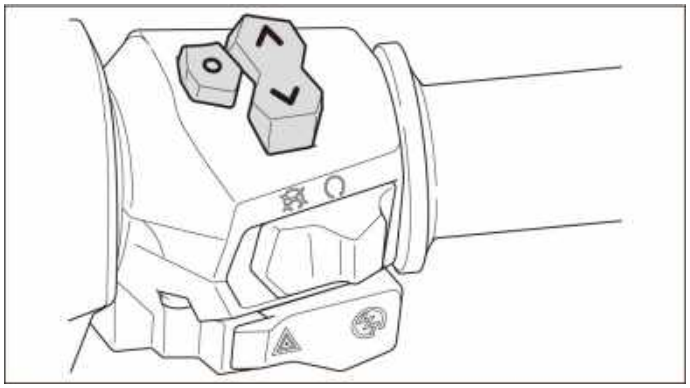
5. The Front Tire in the Symbol flashes continuously.

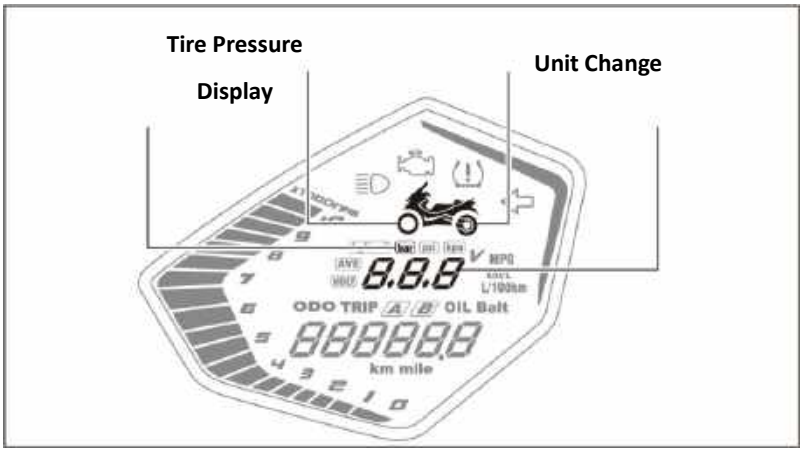
6. Operator releases or inflates the Front Tire to get a pressure change > 3psi, the sensor will be awakened within 1 minute; setting of the front wheel is complete when the pressure value appears.(If a Code Learn is not performed when the Front Tire flashes, press the UP button to jump to Rear Tire Code Learn. If a Code Learn is not accomplished within 2 minutes, the program exits Code Learn Mode.)

7. Now that the Rear Tire of the Model Symbol flashes continuously.

8. Operator releases or inflates the Rear Tire to get a pressure change > 3psi, the sensor will be awakened within 1 minute; setting of the rear wheel is complete when the pressure value appears.(If a Code Learn is not performed when the Rear Tire flashes, press the UP button to exit Code Learn Mode. If a Code Learn is not accomplished within 2 minutes, the program exits Code Learn Mode.)

9. Now that Front Tire flashes, tire pressure value appears with unit displayed.





Remarks:

1. The dealer and owner are requested to inflate the tires to 20psi or more, so that TPMS computer can automatically learn the initial values and facilitate the subsequent normal operation.

2. Re-do Code Learning after replacing parts.

3. When replacing a tire, care must be taken to avoid inserting a tool onto the nozzle.

4. Make sure the direction is correct when replacing a part.

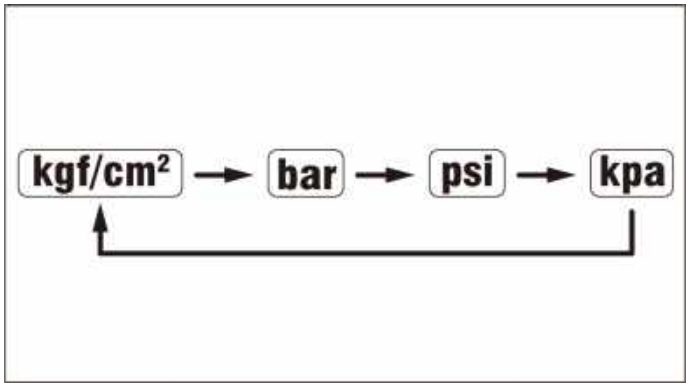
5. Tire Pressure values are for reference only.

6. Slackening of nut during parts installation will cause air leakage.

7. If tire pressure cannot be detected, the unit may be out of battery power and requires replacement of a new part.

Change Pressure Unit

Turn KEYLESS Main Switch ON, the Model Symbol will light up. Push the Dashboard and noodoe Switch to “m” position and press the UP button to change over to TPMS Mode. Pressing “O” button on the Right Handlebar Switch to change units in the sequence of [kgf/cm^2 → bar → psi → kpa].



■Anomaly:

1. With Main Switch set to ON, when Tire Pressure Indicator in the Dashboard lights up continuously, it may be due to a pressure > 3.2 kgf/cm^2 or < 1.6 kgf/cm^2 of Front Tire; or a pressure >3.75 kgf/cm^2 or < 1.65 kgf/cm^2 (23.4psi) of Rear Tire. Change over to TPMS Mode by pressing the Mode button, the tire pressure value will be flashing.

2. Tire Pressure Indicator will light up continuously if controller is faulty. Change over to TPMS Mode by pressing the Mode button, the *Err* symbol will appear.

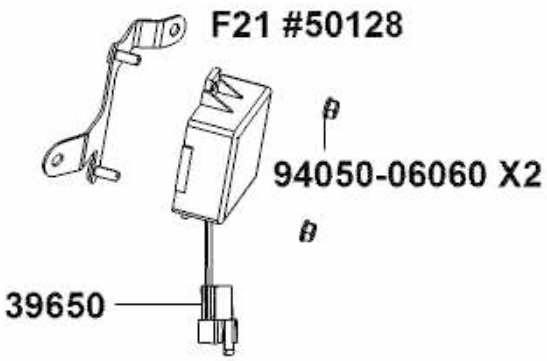
3. Tire Pressure Indicator will light up continuously if signal of tire pressure sensor fails to reach the controller due to environmental interference. Change over to TPMS Mode by pressing the Mode button, - - - will appear.

4. When power of battery in Tire Pressure Sensor is low, Tire Pressure Indicator will light up constantly. Change over to TPMS Mode by pressing the Mode button, *BAr* will appear and flash. The owner shall prepare for replacing with a new wireless Tire Pressure Sensor.

5. Tire Pressure Indicator flashes quickly if tire pressure drops fast; it flashes slowly if tire pressure drops slowly.

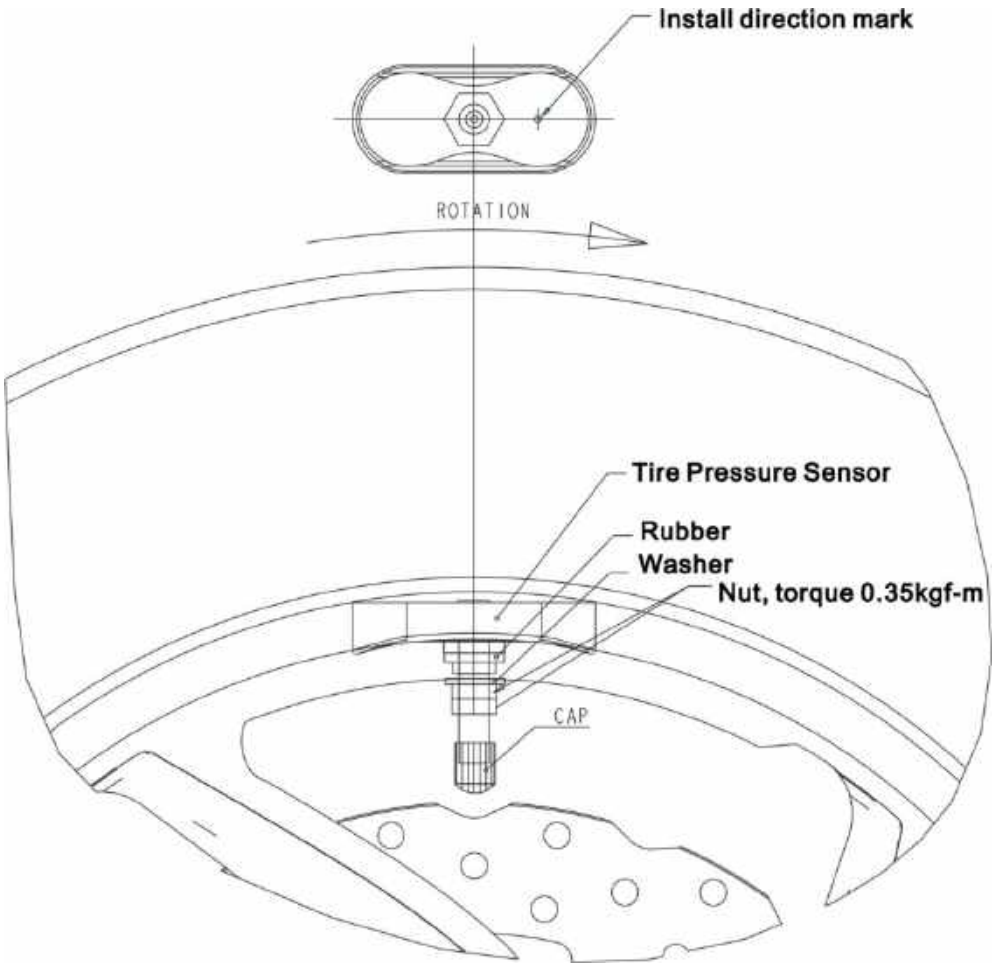
Tire Pressure Controller

Remove the two nuts of tire pressure controller.
Remove the tire pressure controller.



Tire Pressure Sensor

Remove the tire. Loosen the nut and remove the tire pressure sensor.
When installation, notice the sensor direction and mounting torque as following instruction.



Tires

Check grip between tire and ground and a normal tire pressure.
In case of a gripping anomaly, check tire pressure for normal reading using a pressure gauge.

Pressure measurements of cool tire:

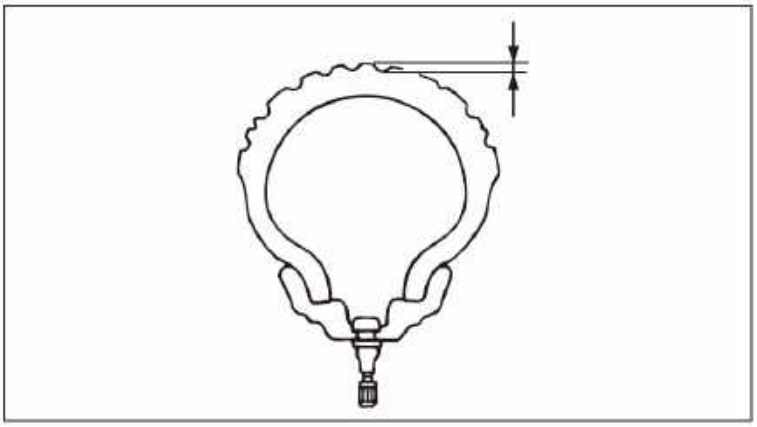
With 1 rider

Front Wheel 2.4 kgf/cm^2 Rear Wheel 2.7 kgf/cm^2

With 2 persons

Front Wheel 2.4 kgf/cm^2 Rear Wheel 2.7 kgf/cm^2

Measure pattern depth at center of tread pattern. Measurements shall be taken at several points due to uneven wear.
Replace the tire if any of the measurements is lower than the service limit. Make sure the wheel is properly balanced when a new tire is replaced.



Service Limits:

Front Wheel 0.8 mm

Rear Wheel 0.8 mm

Check Tread Pattern for Wear

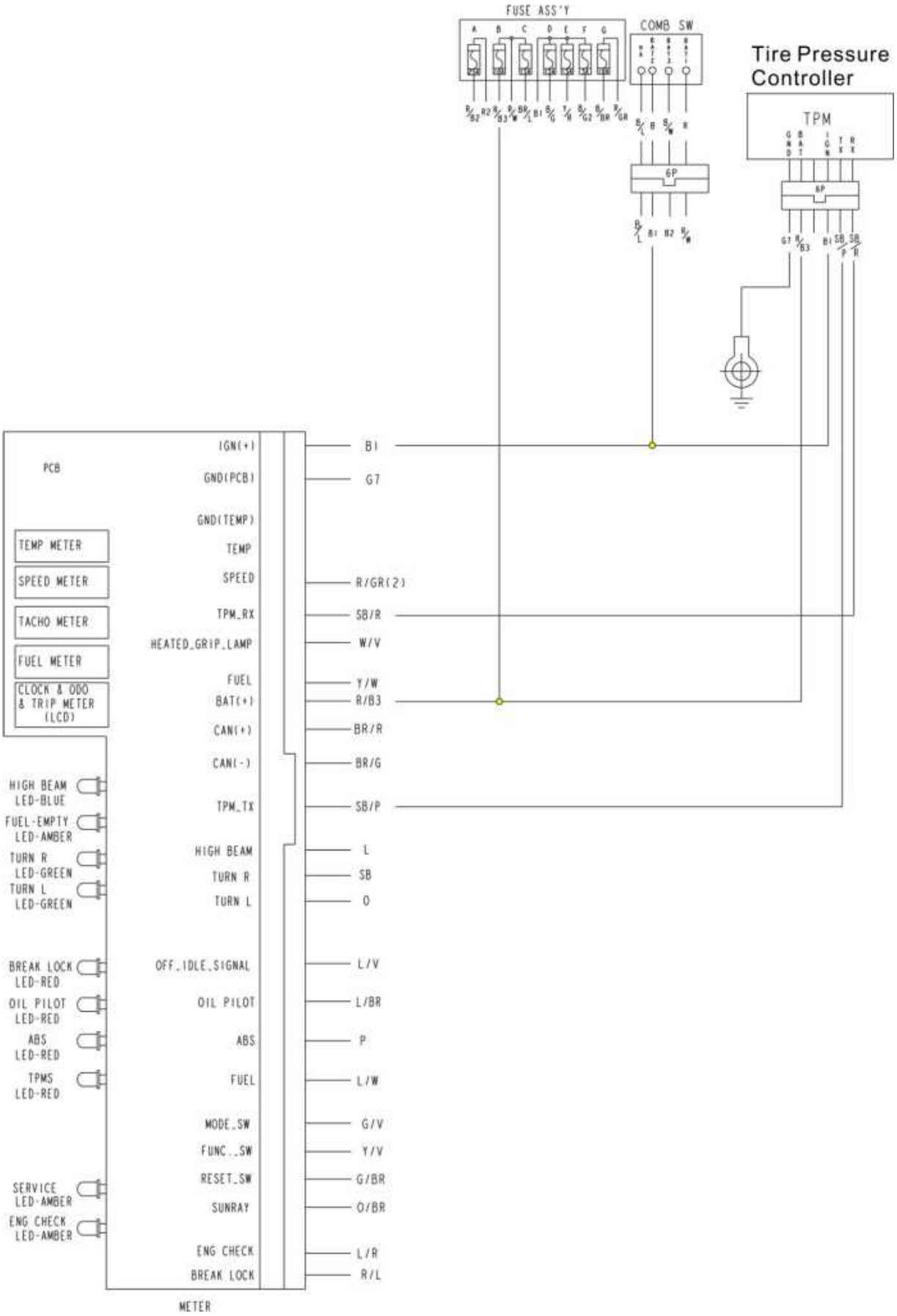
Check tires before each riding. In case of finding a transverse line (minimum pattern depth), nail or glass chip on the tire, or crack line on the side wall of tire, go to Kymco dealer for replacing with new one. Excessive wear of tire tread pattern will result in widened tread which is more prone to be punctured.

Tire Dimensions:

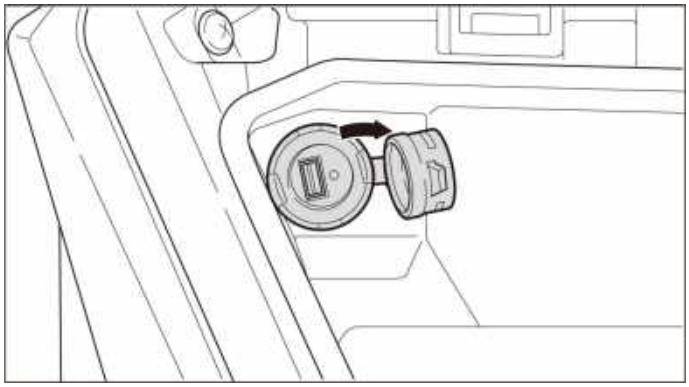
Front Tire Dimensions: 120/70-R15 56H

Rear Tire Dimensions: 160/60-R15 67H

Check the wiring diagram to inspect the circuit.



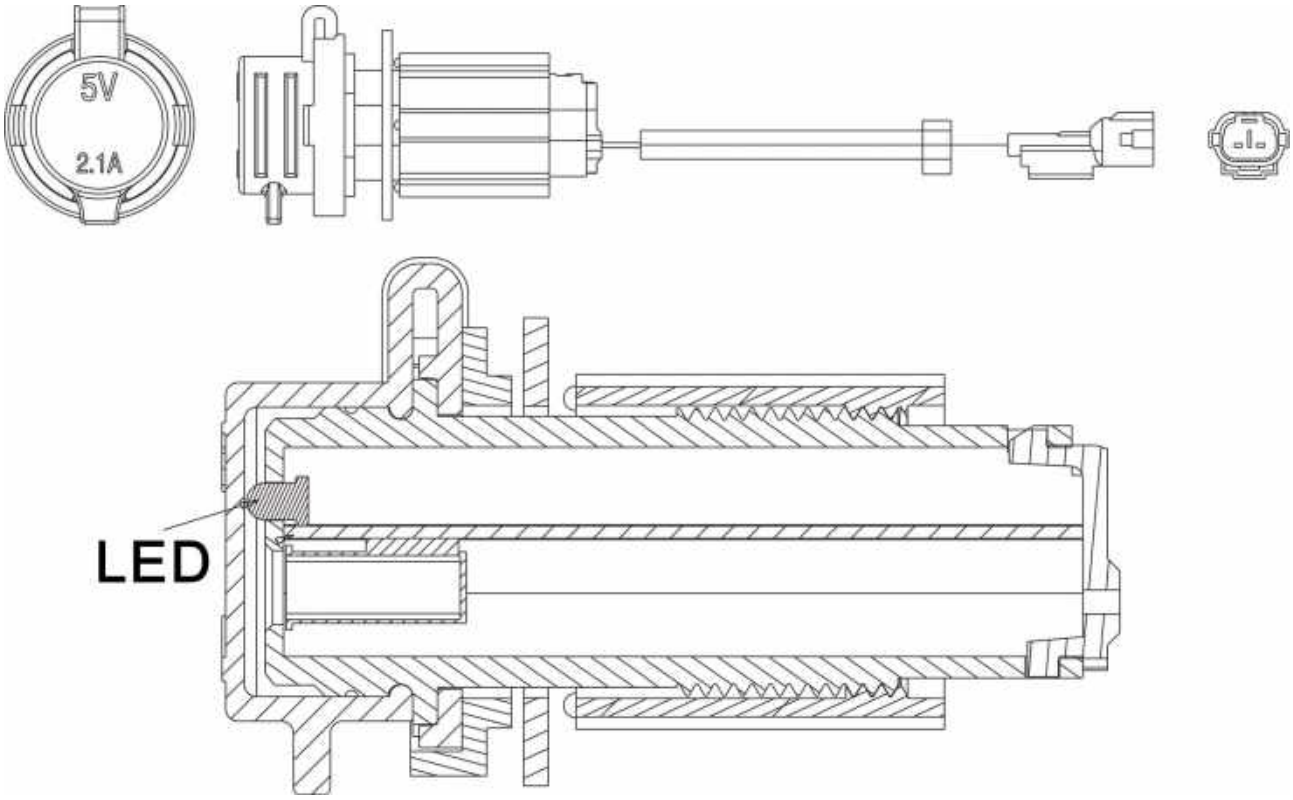
USB Power Socket



This vehicle is provided with a USB Power Socket. You may connect a low power consumption product to the Socket, for charging the product while the engine is running.

⚠ WARNING

- **To avoid electrocution or short-circuit, make sure to cover-up the protection cap after using the USB Power Socket.**
- **To prevent any accident from occurring, park your Motorcycle at a safe location before using the USB Power Socket.**



Note:

1. Output voltage: DC 5V ± 0.5V
2. Max output current: 2.3A±0.2A
3. When charging the LED will turn to red, if not, check the circuit.

10.Brakes

This chapter covers the location and servicing of the brake system components for the KYMCO AK 550 model.

GENERAL INSTRUCTIONS

- A contaminated brake disc or pad reduces stopping power. Discard contaminated parts and clean a contaminated disc with high quality brake degreasing agent.
- Avoid spilling brake fluid on painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.
- Never allow contamination (dirt, water, etc.) to get into and open brake reservoir.
- Once the hydraulic system has been opened, or if the brake feel spongy, the system must be bled.
- Always use fresh DOT 4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid as they may not be compatible.
- Always check brake operation before riding the vehicle.

Warning: Frequent inhalation of brake pad dust, regardless of material composition could be hazardous to your health. Avoid breathing dust particles.

TROUBLESHOOTING

Brake lever soft or spongy

- Air in the hydraulic system
- Low brake fluid level
- Clogged fluid passage
- Contaminated brake disc pad
- Warped/deformed brake disc
- Worn brake disc pad
- Sticking worn master cylinder piston
- Contaminated master cylinder
- Contaminated caliper
- Caliper not sliding properly
- Leaking hydraulic system
- Worn caliper piston seal
- Worn master cylinder piston cups
- Bent brake lever

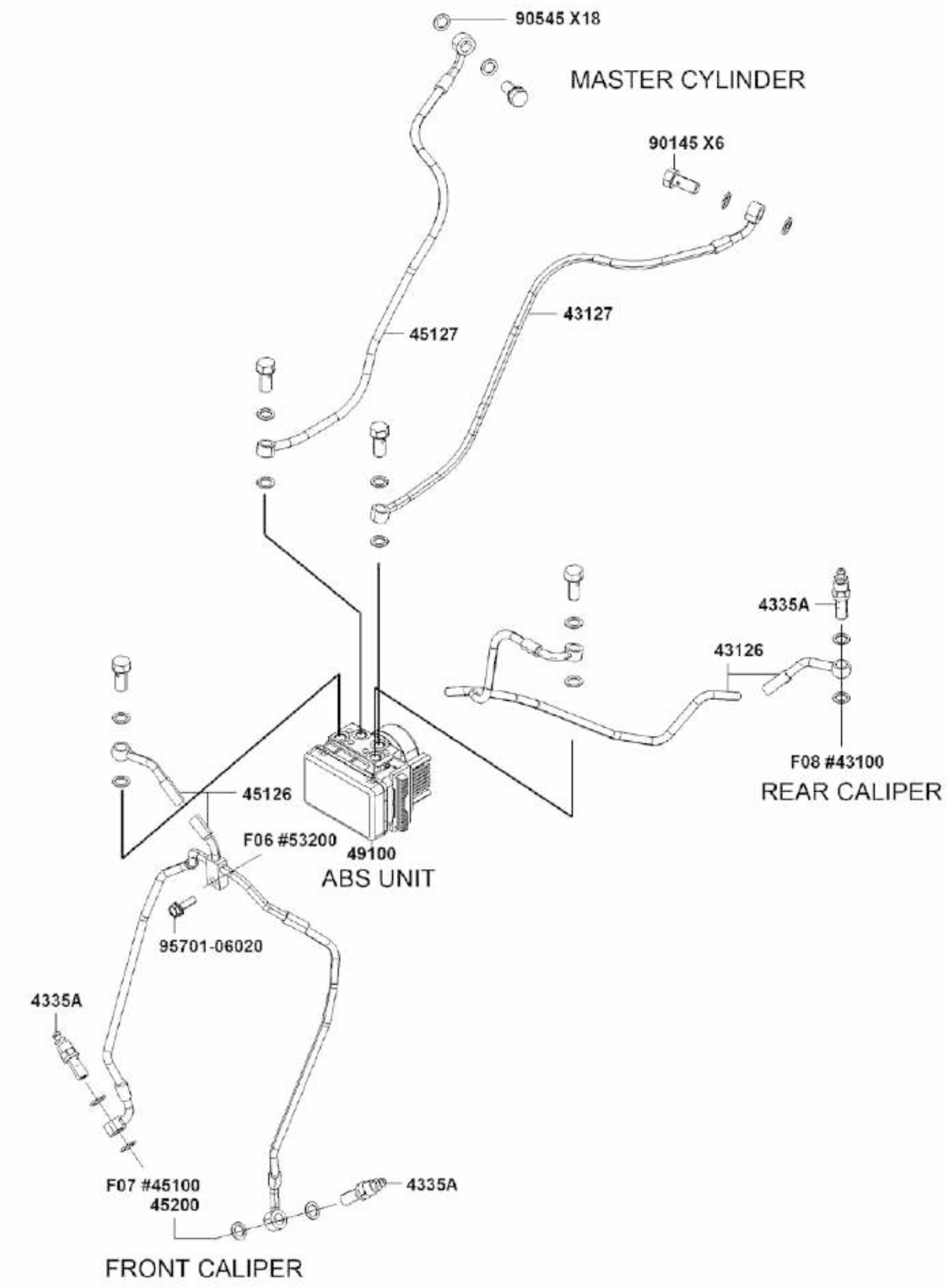
Brake lever hard

- Clogged restricted brake system
- Sticking/worn caliper piston
- Caliper not sliding properly
- Clogged restricted fluid passage
- Worn caliper piston seal
- Sticking worn master cylinder piston
- Bent brake lever

Brake drag

- Contaminated brake disc pad
- Worn brake disc pad
- Warped/deformed brake disc
- Caliper not sliding properly

Diagram


90545 X18
MASTER CYLINDER
90145 X6
45127
43127
4335A
43126
F08 #43100
REAR CALIPER
45126
F06 #53200
49100
ABS UNIT
95701-06020
4335A
F07 #45100
45200
4335A
FRONT CALIPER

Brake Pad Replacement

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Replace the pads if the brake wear exceeds the wear indicator lines or if the wear is uneven.

Remove the bolt of speed sensor.
And remove the speed sensor.


Remove the bolt of state of front fender.
And remove the state of front fender.


Front Brake Pad Removal

Remove the snap clip of the pin.

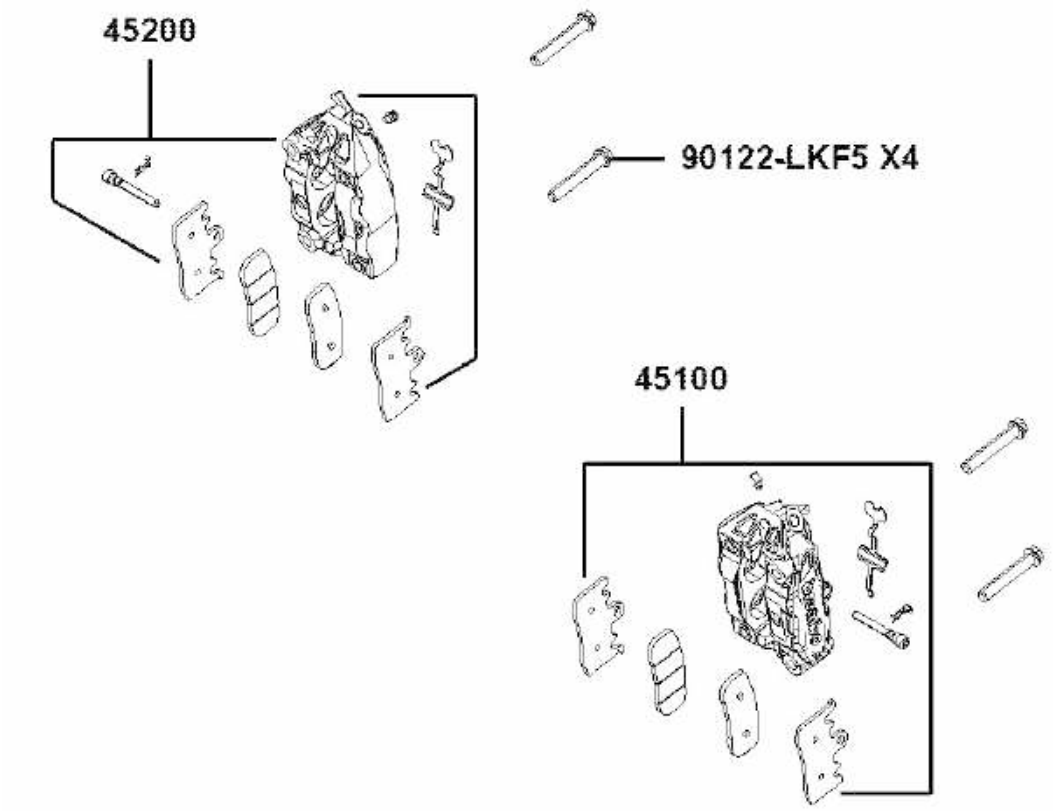
Remove the screw, loosen the brake pad.

Remove the spring of the brake pad.


Remove the right and left brake pads.
Replace the pads if the brake wear exceeds the wear indicator lines or if the wear is uneven. Insert new brake pads as needed.


Remove the two bolts of caliper and remove the caliper.
Installation torque: 3~4 kgf-m (30~40 N-m)


Remove the two caliper mounting bolts with a 12 mm socket.
And remove the front caliper.



When installation:

Apply a light coat of waterproof grease to the brake pad pin. Push the pads against the pad spring and insert the brake pad pin.

It may be necessary to spread the pads and force the pistons back into the caliper in order to allow room for the brake disc to fit between the new pads.

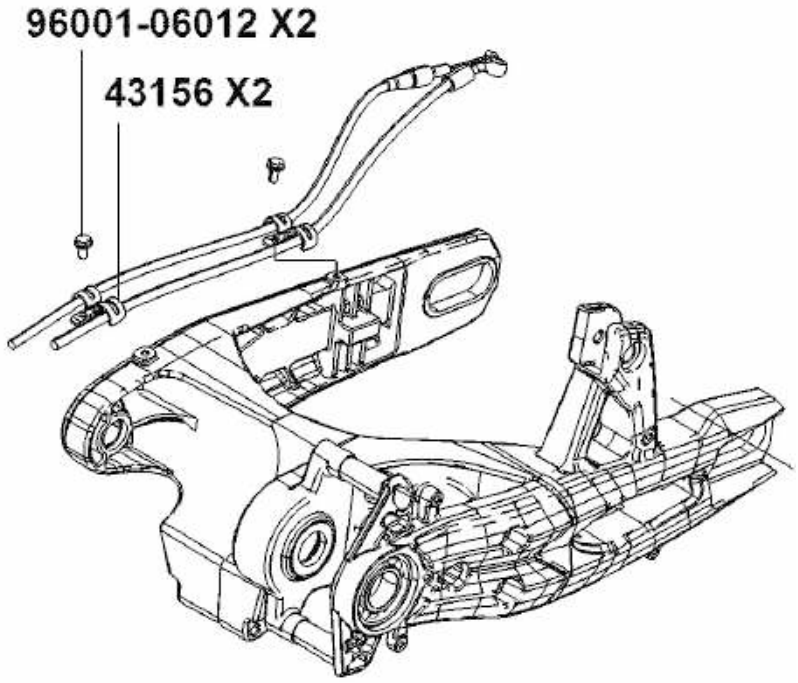
Install the front caliper. Guide the brake disc between the pads. Line up the caliper bracket mounts with the fork.

Install the two caliper bracket mounting bolts. Tighten the mounting bolts to specification.

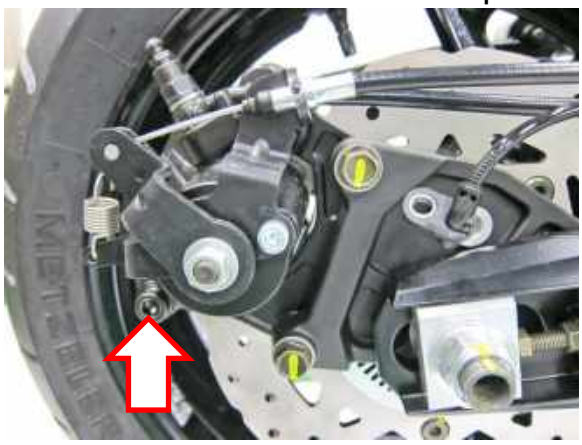
Rear Brake Pad Removal

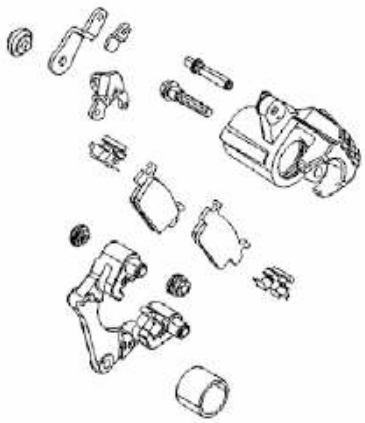
Release the cable of speed sensor. And release the cable of rear brake.

Remove the bolt of rear fixed plate.



Loosen the hex bolt of the caliper.



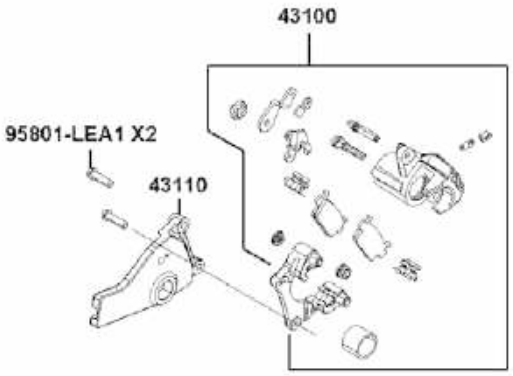


Loosen and remove the two bolts of rear caliper. The bolts are with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.
Installation torque: 3~4 kgf-m (30~40 N-m)

Remove the hex bolt, and separate the caliper.

Remove the right and left brake pads.
Replace the pads if the brake wear exceeds the wear indicator lines or if the wear is uneven. Insert new brake pads as needed.

Rotate the piston clockwise to backward it for installation.



When installation:

Apply a light coat of waterproof grease to the brake pad pin. Push the pads against the pad spring.

It may be necessary to rotate the piston and force the pistons back into the caliper in order to allow room for the brake disc to fit between the new pads.

Install the rear caliper. Guide the brake disc between the pads.

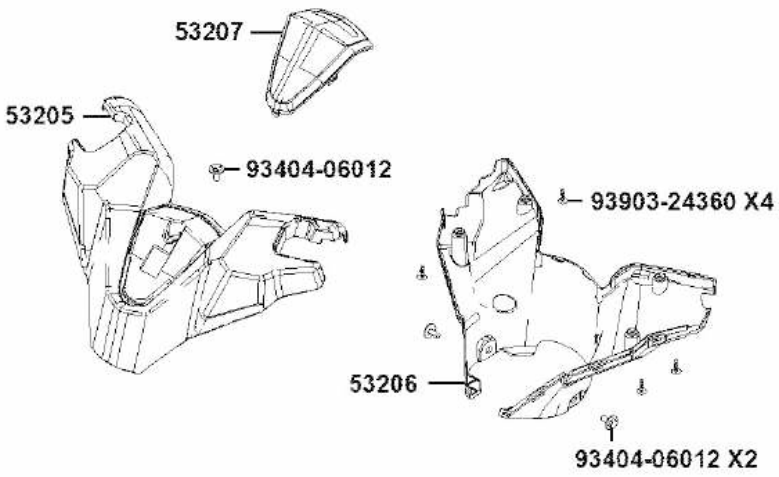
Install the two caliper bracket mounting bolts. Tighten the mounting bolts to specification.

Master Cylinders

Up And Low Handle Cover Removal

Remove the top handle cover.
Remove the bolts, screws and remove the up handle cover.


Remove the bolts, screws.
Remove throttle and parking brake cables and remove the low handle cover.

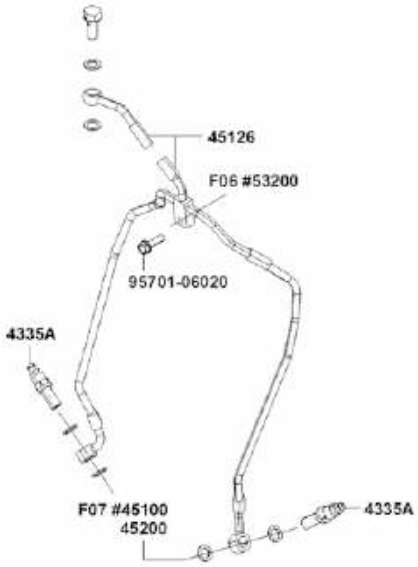



SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

NOTE: Brake fluid is a corrosive chemical and can damage paints and some plastics. Avoid contact with skin. Master Cylinders Removal
The master cylinders for the front and rear brakes are essentially the same way.

Bleed the brake fluid.

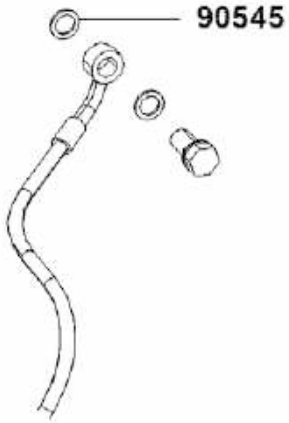
Place a suitable container under the banjo bolt to catch any remaining brake fluid. Remove the banjo bolt that holds the brake hose to the caliper using a 12 mm socket. Discard the two sealing washers.



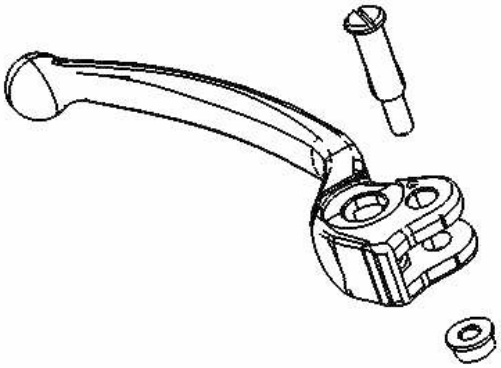
Replace the brake hose banjo bolt sealing washers with new items on assembly.

Remove the two master cylinder cover screws with a #2 Phillips head screwdriver. Remove the master cylinder cover, plastic piece and rubber accordion diaphragm. Pour out any remaining brake fluid.

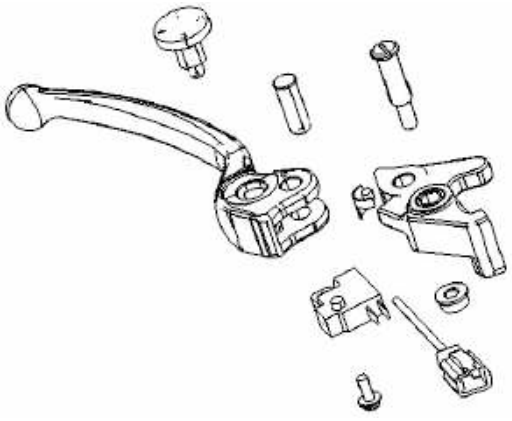
Remove the brake hose banjo bolt from the master cylinder using a 12 mm socket. Discard the sealing washers and replace with new ones.



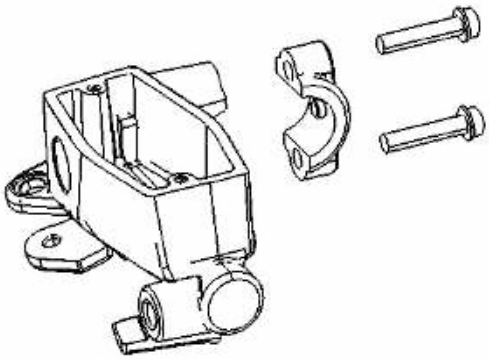
Remove the nut of lever and brake light switch.



Unplug the brake light switch connector.
Remove the lever and brake light switch.

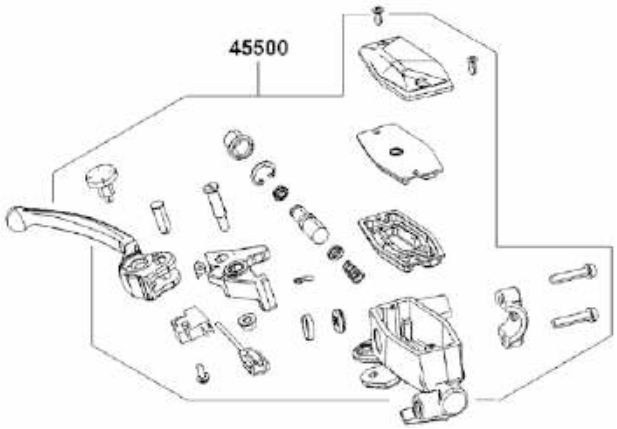


Remove the two master cylinder mounting bolts with an 8 mm socket.



Be sure to insert the pin on the clamp into the hole on the handlebar when installation.

Remove the left master cylinder in the same way.



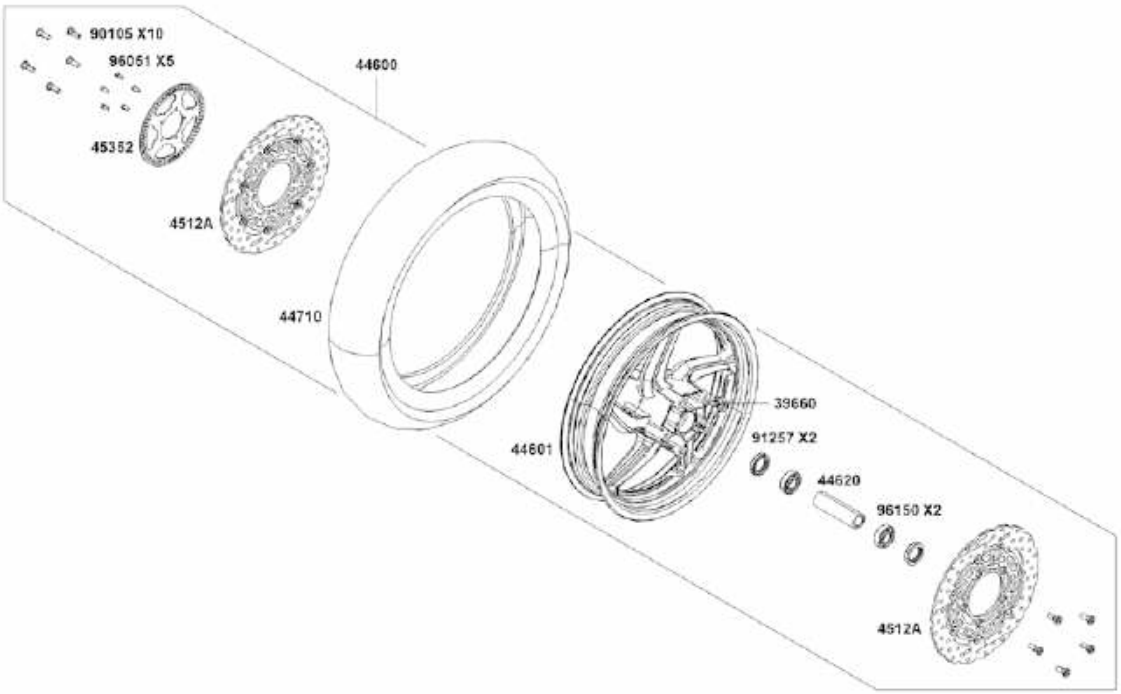
When installation, fill the rear brake system with fresh brake fluid and bleed out the air. Pump the brake lever to seat the caliper pistons against the pads. Check the operation on the brakes before returning the vehicle to service.

Front Wheel Disassembly

Remove the collars from each side of the wheel. Inspect the bearing seals and the O-rings seals on the collars. Replace the seals if they are in poor condition.

Inspect the wheels and axle.
Inspect the wheel bearings by turning them in the hub. If the bearings have play in them or are rough replace all the bearings for that wheel.

When installation: Make sure the tire direction of rotation marker is correct. Slide the front wheel into the fork. Fit the brake disc between the brake pads in the front caliper.
Set the front wheel on the ground. Pump the front suspension up and down several times to seat the front axle. Pump the front brake lever to establish pressure and to seat the pads against the disc. If the Brakes do not pump up correctly check the brake fluid.



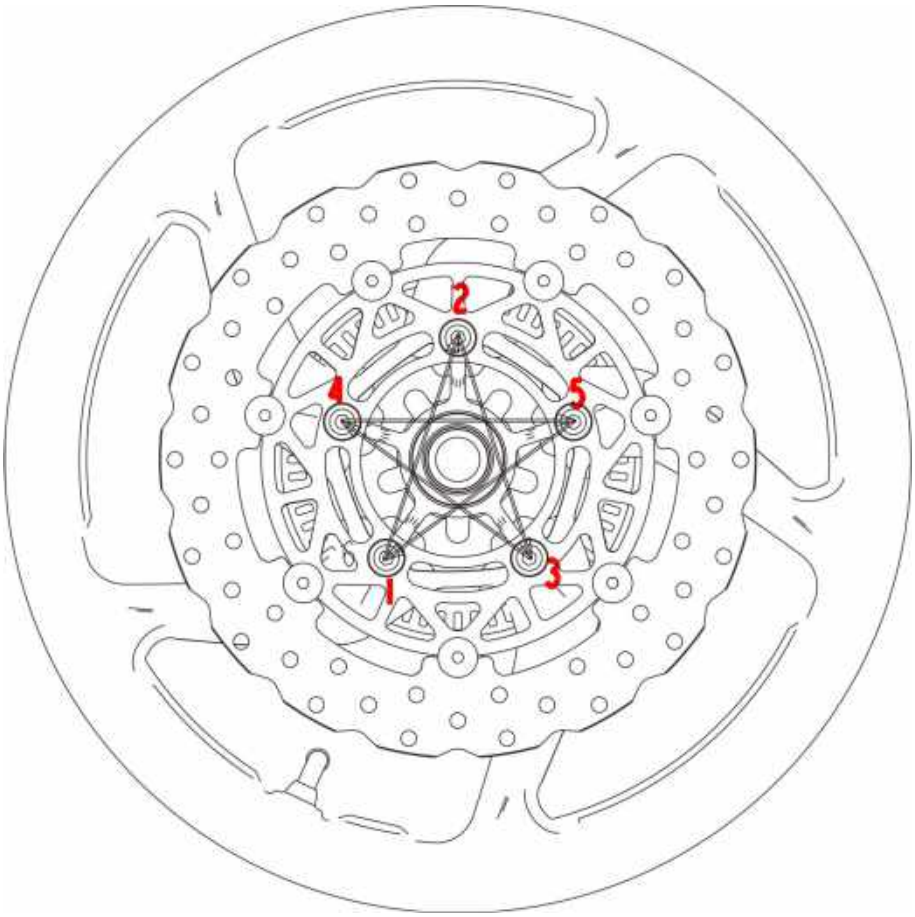
Loosen the front axle pinch bolt with a 6 mm Allen. Inspect the wheel speed sensor and brake disc for wear and damage. Replace the parts as needed.

Remove the bolts of brake disk.

The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.

When installation, follow the order below, first time tighten the bolts with torque: 1.5 kgf-m (15 N-m)

And second time installation torque: 3.2~3.8 kgf-m (32~38 N-m)



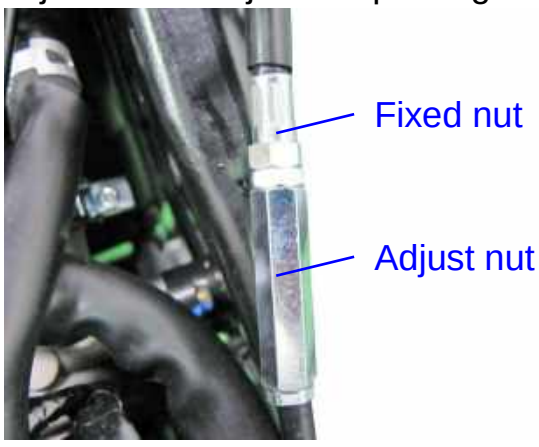
Parking Brake

Apply the parking brake lever and release, then remove the spring.


Remove the screws of handle bar switch, parking brake wire and remove the parking brake set.


Parking Brake Adjustment

Release the fixed nut, and rotate the adjust nut to adjust the parking brake.

Note: Do not use the rear brake lock lever while driving.

Disc Brake

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Inspection

Measure the thickness of the brake rotor with a micrometer.

Item	Standard mm
Brake disk thickness (rear)	5
Brake disk thickness (front)	4.5

Check if the brake rotor runout is within the service limit.

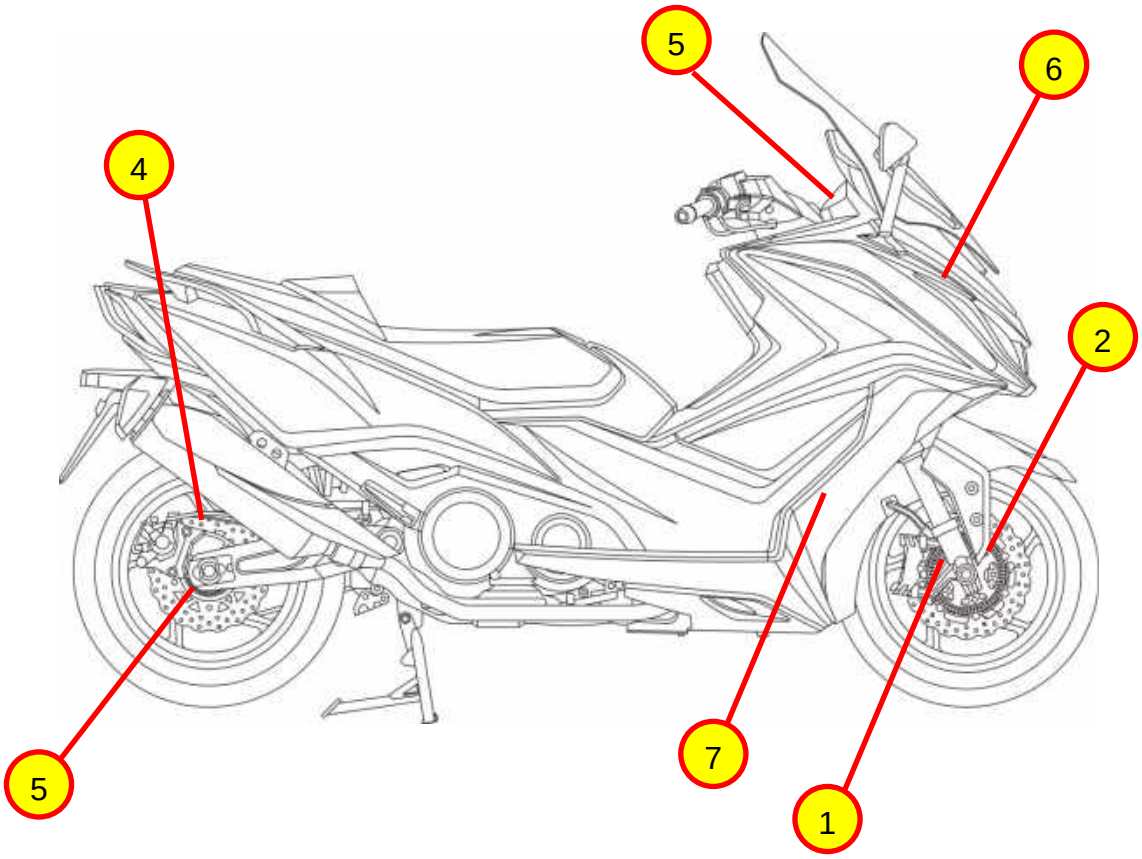
Measure the runout of the brake disc with a dial gauge. If the reading is out of specification remove the disc from the wheel and recheck.

Item	Standard mm (in)	Service Limited
Brake disc runout	—	0.03 (0.012)

ABS

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

ABS Component Location



1. Front Wheel speed Sensor
2. Front Wheel speed Sensor Rotor
3. Rear Wheel speed Sensor
4. Rear Wheel speed Sensor Rotor
5. ABS Indicator Light
6. ABS Hydraulic Unit
7. ABS diagnosis tool Connector (Near battery position)

Introduction to KYMCO Anti-Lock Brake System

ABS is designed to help prevent the wheels from locking up when the brakes are applied hard while running straight. The ABS automatically regulates brake force.

Intermittently gaining gripping force and braking force helps prevent wheel lock-up and allows stable steering control while stopping.

Brake control function is identical to that of conventional vehicle. The brake lever is used for the front brake and rear brake.

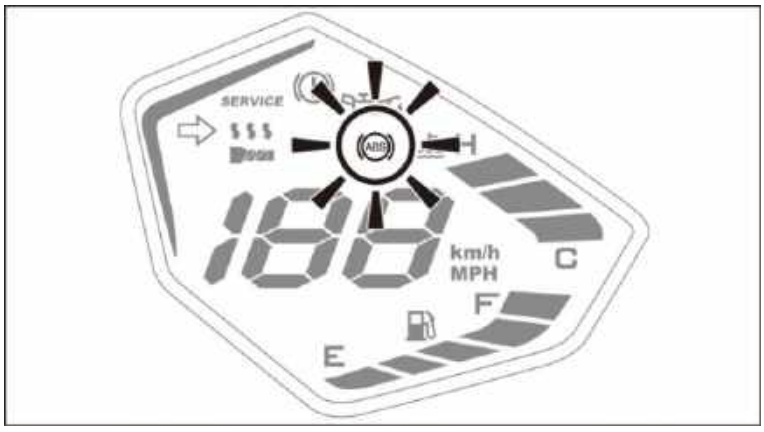
Although the ABS provides stability while stopping by preventing wheel lock-up, remember the following characteristics:

- ABS can not compensate for adverse road conditions, misjudgment or improper application of brakes. You must take the same care as with vehicle not equipped with ABS.
- ABS isn't designed to shorten the braking distance. On loose, uneven or downhill surfaces, the stopping distance of a vehicle with ABS may be longer than that of an equivalent vehicle without ABS. Use special caution in such areas.
- ABS will help prevent wheel lock-up when braking in straight line but it cannot control wheel slip which may be caused by braking during cornering. When turning a corner, it is better to limit braking to a light application of both brakes or not to brake at all. Reduce your speed before you get into the corner.
- The computers integrated in the ABS compare vehicle speed with wheel speed. Since non-recommended tires can affect wheel speed, they may confuse the sensors resulting in extended braking distance.

Caution: Use of non-recommended tires may cause malfunctioning of ABS and lead to extended braking distance. The rider could have an accident as a result. Always use the standard tires for this vehicle.

Notice:

- When the ABS is functioning, you may feel a pulsing in the brake lever. This is normal - you need not suspend applying the brakes.
- ABS does not function below speeds of approximately 10 kph or 7 mph.
- ABS does not function if battery is discharged or there is a battery power supply malfunction (ABS light will come on).



ABS Servicing Precautions

There are a number of important precautions that should be followed servicing the ABS system.

□ This ABS system is designed to be used with a 12V sealed battery as its power source. Do not use any other battery except for a 12V sealed battery as a power source.
□ Do not reverse the battery cable connections. This will damage the ABS hydraulic unit.
□ To prevent damage to the ABS parts, do not disconnect the battery cables or any other electrical connections when the ignition switch is ON or while the engine is running.

□ Take care not to short the leads that are directly connected to the battery positive (+) terminal to the chassis ground.

□ Do not turn the ignition switch is ON while any of the ABS electrical connectors are disconnected. The ABS hydraulic unit memorizes service codes.

□ Do not spray water on the electrical parts, ABS parts, connectors, leads and wiring.

□ Whenever the ABS electrical connections are to be disconnected, first turn off the ignition switch.

□ The ABS parts should never be struck sharply, as with a hammer, or allowed to fall on a hard surface. Such a shock to the parts can damage them.
□ The ABS parts cannot be disassembled. Even if a fault is found, do not try to disassemble and repair the ABS parts, replace the ABS unit with a new component.

□ The ABS has many brake lines, pipes, and leads. And the ABS cannot detect problems with the conventional braking system (brake disk wear, unevenly worn brake pads and other mechanical faults). To prevent trouble, check the brake lines and pipes for correct routing and connection, the wiring for correct routing, and the brakes for proper braking power. Be sure to check for fluid leaking, and bleed the brake line thoroughly.

Caution

If any of the brake line fittings, including the ABS hydraulic unit joint nuts, or the bleed valve are opened at any time, the air must be bled completely from the brake line.

Do not ride the scooter with air in the brake line, or the ABS could malfunction.

□ The ABS indicator light may light if the tire pressure is incorrect, a non-recommended tire is installed, or the wheel is deformed. If the indicator light lights, remedy the problem and clear the service code.

□ When the ABS operates, the ABS makes noise and the rider feels the reaction force on the brake lever and brake pedal. This is a normal condition. It informs the rider that the ABS is operating normally.

□ Service codes detected once by the ABS hydraulic unit will be memorized in the ABS hydraulic unit. Therefore, after maintenance work is finished, be sure to erase the service codes. Do not erase the service codes during troubleshooting. Wait until all the checks and repair work is finished to prevent duplication of previous service codes and unnecessary maintenance work.

□ Before delivering the scooter to the customer, be sure to erase any service codes which might be stored in the ABS hydraulic unit. Test run the scooter at a speed of more than 6 kph (4 mph) to see that the ABS indicator light does not come on. Finally, test run the scooter at a speed of more than 30 km/h (20 mph) and brake suddenly to see that the scooter stops without loss of steering control and the ABS operates normally. (The reaction force generated is felt in the brake lever and pedal.) This completes the final inspection.

ABS Troubleshooting Outline

The ABS indicator light lights up to alert the rider when an abnormality is detected by the system. The service codes are stored in the ABS unit memory. The codes will not be erased unless manually cleared. After the fault has been corrected erase the service codes.

Even when the ABS is operating normally, the ABS indicator light may light up under the conditions listed below. Turn the ignition switch OFF to stop the indicator light. If the scooter runs without erasing the service codes, the light may light up again.

□ After continuous riding on a rough road.
□ When the ABS has been subjected to strong electrical interference.
□ When tire pressure is abnormal. Adjust tire pressure.
□ When a tire different in size from the standard size is being used. Replace with standard size.

□ When the wheel is deformed. Replace the wheel.

Much of the ABS troubleshooting work consists of confirming continuity of the wiring. The ABS parts are assembled and adjusted by the manufacturer, so there is no need to disassemble or repair them. Replace the ABS hydraulic unit if needed.

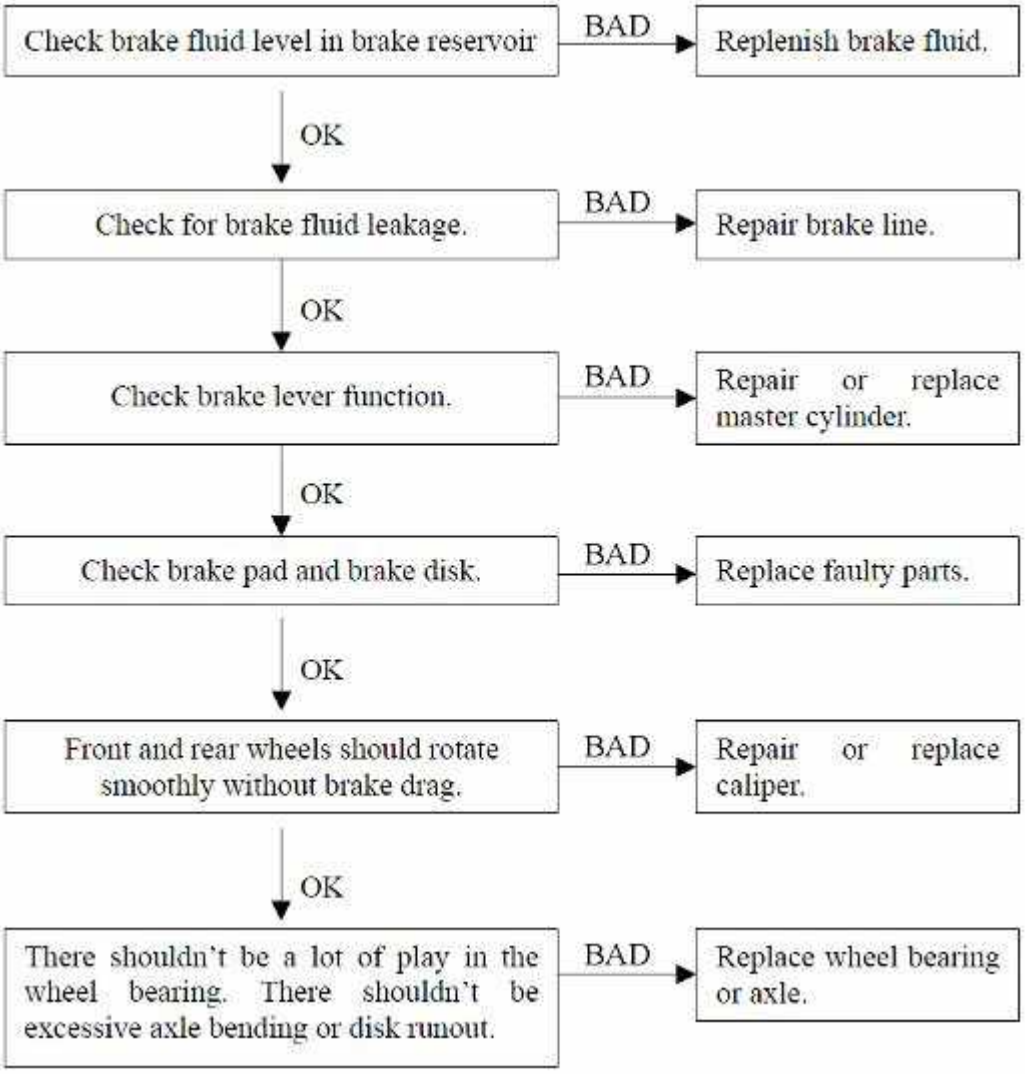
The basic troubleshooting procedures are listed below.

□ Carry out pre-diagnosis inspections as a preliminary inspection.
□ Check wiring and connections from the ABS hydraulic unit connector to the suspected ABS part, using the diagnosis tool.

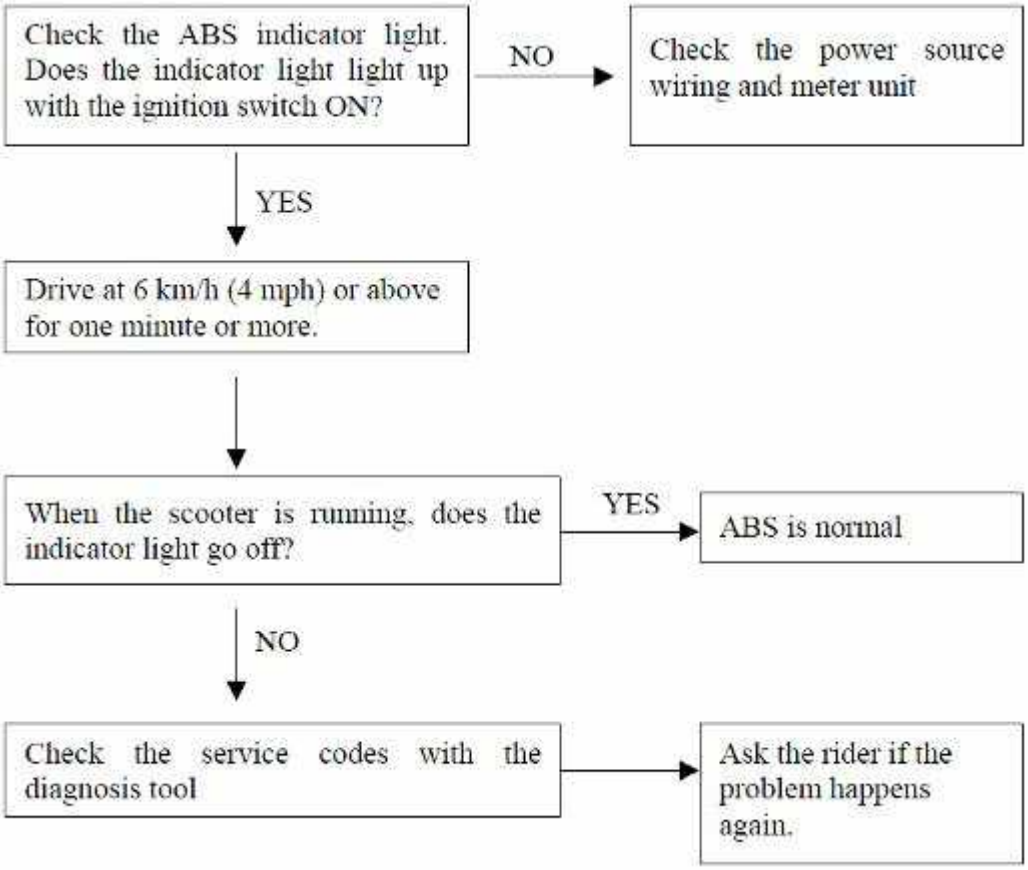
Special tool - Diagnosis tester: 3620A-LEB2-E00

□ Visually inspect the wiring for signs of burning or fraying. If any wiring is poor, replace the damaged wiring.
□ Pull each connector apart and inspect it for corrosion, dirt and damage. If the connector is corroded or dirty, clean it carefully. If it is damaged, replace it.
□ Check the wiring for continuity.

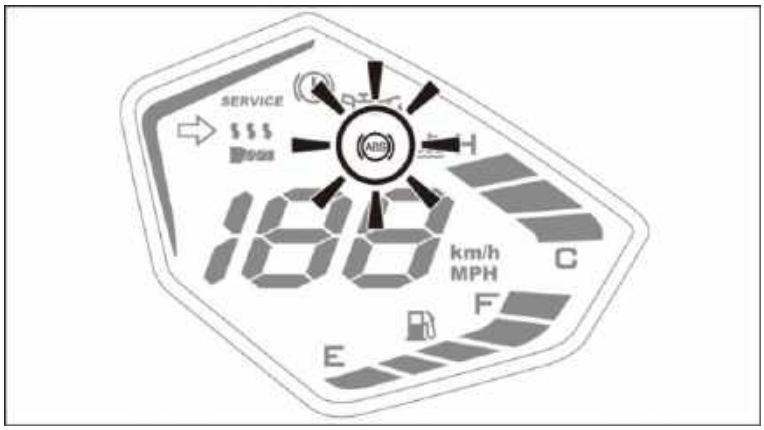
Pre-diagnosis Inspection Chart 1



Pre-diagnosis Inspection Chart 2



Meter Instruments



The ABS indicator light is on the left side of the meter. This light will comes on when the ignition switch is turned on and goes off shortly after the vehicle starts moving. The light stays off as long as the system is ok.

If something is wrong with the ABS the indicator comes on and remains it. When the indicator light is on the ABS doesn't function, but the conventional brake system will still work normally.

ABS Indicator Light Is Unlit (When The Ignition Switch Turned To ON)

1st step test.

Disconnect the meter connector.

Check the terminal voltage between the ABS signal wire (Pink lead) terminal of the meter connector and ground. Turn the ignition switch ON.

Terminal Voltage
Standard: About 8V
If the terminal voltage correct, replace the meter assembly.

2nd step test.

Disconnect the meter connector.
Check for continuity between the ABS signal wire (Pink lead) terminal of the main harness side connector and ground.
If there is the continuity in the lead, replace or repair the main harness.

3rd step test.

Press the craw to release the coupler of ABS module.

Press the craw to release the coupler of ABS module.

Disconnect the ABS hydraulic unit connector.

Check for continuity between the ABS signal wire (Pink lead) terminal of the meter side connector and the ABS signal wire (Pink lead) terminal of the ABS unit side connector.

If there is the continuity in the lead, replace the ABS hydraulic unit.

If there is not the continuity in the lead, replace or repair the main harness.

ABS Indicator Light lights (When the scooter is running, - no service code)

1st step test.

Disconnect the ABS hydraulic unit connector and meter connector.

Check for continuity between the ABS signal wire (Pink lead) terminal of the meter side connector and the ABS signal wire (Pink lead) terminal of the ABS unit side connector.

If there is the continuity in the lead, replace the ABS hydraulic unit.

If there is not the continuity in the lead, replace or repair the main harness.

Solenoid Valve Inspection (Service Code 13,14,17,18)

1st step test.

Recheck the service code indication: erase the service code, perform the pre-diagnosis inspection 1 and 2. and retrieve the service code.

If the ABS indicator light lit, faulty solenoid valve in the ABS hydraulic unit. Replace the ABS hydraulic unit.

If the ABS indicator light unlit. ABS system is normal.

ABS solenoid valve relay inspection (service code 19)

1st step test.

Check the ABS solenoid valve relay fuse (25A).

Front, Rear Wheel Rotation Difference Abnormal (service code 25)

1st step test.

Check the following and correct the
faulty part.

1. Incorrect the tire pressure

2. Tire not recommended for the scooter were installed (incorrect tire size).

3. Deformation of the wheel or tire.

4. Sensor rotor for missing teeth and clogging with foreign matter.

If the all parts are correct move on to the 2nd step.

2nd step test.

Recheck the service code indication: erase the service code, perform the pre-diagnosis inspection 1 and 2, and retrieve the service code.

If the ABS indicator light lit, faulty ECU in the ABS hydraulic unit. Replace the ABS hydraulic unit.

If the ABS indicator light unlit. ABS system is normal.

ABS Motor Relay Inspection (service code 35)

1st step test.

Check the ABS motor relay fuse (25A).

Front Wheel Rotation Sensor Signal Abnormal (service code 42)

1st step test.

Measure the clearance between the front wheel rotation sensor and sensor rotor.

Standard: 1 mm (0.04 in.)

If the measurement is over standard, check each part for deformation and looseness and correct accordingly. Recheck the clearance.

Check that there is iron or other magnetic deposits between the sensor and sensor rotor, and the sensor rotor slots for obstructions.

Check the installation condition of the sensor for looseness.

Check the sensor and sensor rotor tip for deformation or damage (example chipped sensor rotor teeth).

Front Wheel Rotation Sensor Wiring Inspection (service code 43)

1st step test.

Disconnect the ABS hydraulic unit connector and front wheel sensor connector.

Short the white/brown and red-green lead terminals of the main harness side connector with a jumper lead, and check for continuity between the white/brown and red green lead terminals of the main harness side connector.

If there is not the continuity in the lead, replace the rear wheel rotation sensor.

Rear Wheel Rotation Sensor Wiring Inspection (service code 44)

1st step test.

Measure the clearance between the rear wheel rotation sensor and sensor rotor.

Standard: 1 mm (0.04 in.)

If the measurement is over standard, check each part for deformation and looseness and correct accordingly. Recheck the clearance.

Check that there is iron or other magnetic deposits between the sensor and sensor rotor, and the sensor rotor slots for obstructions.

Check the installation condition of the sensor for looseness.

Check the sensor and sensor rotor tip for deformation or damage (example chipped sensor rotor teeth).

Rear Wheel Rotation Sensor Wiring Inspection (service code 45)

1st step test.

Disconnect the ABS hydraulic unit connector and rear wheel sensor connector.

Short the light-blue/brown and black/red lead terminals of the main harness side connector with a jumper lead, and check for continuity between the light-blue brown and black/red lead terminals of the main harness side connector.

If there is not the continuity in the lead, replace the rear wheel rotation sensor.

Power Supply Voltage Abnormal (under-voltage) (service code 52)

1st step test.

Disconnect the ABS diagnosis connector and ABS hydraulic unit connector.

Check for continuity for the black lead terminal of the main harness side connector.

2nd step test.

Connect the ABS diagnosis connector and ABS hydraulic unit connector.

Check the battery terminal voltage, connect the diagnosis tool to the ABS diagnosis connector.

Turn the ignition switch ON.
Battery terminal voltage
Standard: 9.6V or more

3rd step test.

Inspect the following parts.

Battery, ignition switch, main harness and main fuse 10A.

4th step test.

Recheck the service code indication: erase the service code, perform the pre-diagnosis inspection 1 and 2, and retrieve the service code.

If the ABS indicator light lit, faulty ECU in the ABS hydraulic unit. Replace the ABS hydraulic unit.

If the ABS indicator light unlit, ABS system is normal.

Power Supply Voltage Abnormal (over-voltage) (service code 53)

1st step test.

Disconnect the ABS diagnosis connector and ABS hydraulic unit connector.

Check for continuity for the black lead terminal of the main harness side connector.

2nd step test.

Connect the ABS diagnosis connector and ABS hydraulic unit connector.

Check the battery terminal voltage, connect the diagnosis tool to the ABS diagnosis connector.

Turn the ignition switch ON.
Battery terminal voltage
Standard: 16.6V or less

3rd step test.

Inspect the following parts.
Battery, ignition switch, main harness and main fuse 10A

4th step test.

Recheck the service code indication; erase the service code, perform the pre-diagnosis inspection 1 and 2, and retrieve the service code.

If the ABS indicator light lit, faulty ECU in the ABS hydraulic unit. Replace the ABS hydraulic unit.

If the ABS indicator light unlit. ABS system is normal.

ECU Inspection (service code 55)

1st step test.

Recheck the service code indication; erase the service code, perform the pre-diagnosis inspection 1 and 2, and retrieve the service code.

If the ABS indicator light lit. faulty ECU in the ABS hydraulic unit. Replace the ABS hydraulic unit.
If the ABS indicator light unlit, ABS system is normal.

ABS Diagnostic Tool

Connect the diagnostic tool and set the ECU to the ABS. See the Diagnostic Tool topic for more information.

Check and clear the ABS DTCs in the same manner as the fuel injection DTCs.

Bosch ABS9m DTC LIST		
Code NO (Diagnostic Tool 3620A-LEB2-E00)	DTC (PDA)	description
01	5013	Rear Inlet Valve malfunction (EV)
02	5014	Rear Outlet Valve malfunction (AV)
03	5017	Front Inlet Valve malfunction (EV)
04	5018	Front Outlet Valve malfunction (AV)
05	5019	Valve Relay malfunction (Failsafe relay)
06	5025	Deviation between Wheel speeds (WSS_GENERIC)
07	5035	Pump Motor Malfunction
08	5042	Front wheel speed sensor malfunction-Plausibility
09	5043	Front wheel speed sensor Disconnection/gnd Short/Battery Voltage Short
10	5044	Rear wheel speed sensor malfunction - Plausibility
11	5045	Rear wheel speed sensor Disconnection/gnd Short/Battery Voltage Short
12	5052	Power Supply Malfunction (Under Voltage)
13	5053	Power Supply Malfunction (Over Voltage)
14	5055	ECU malfunction

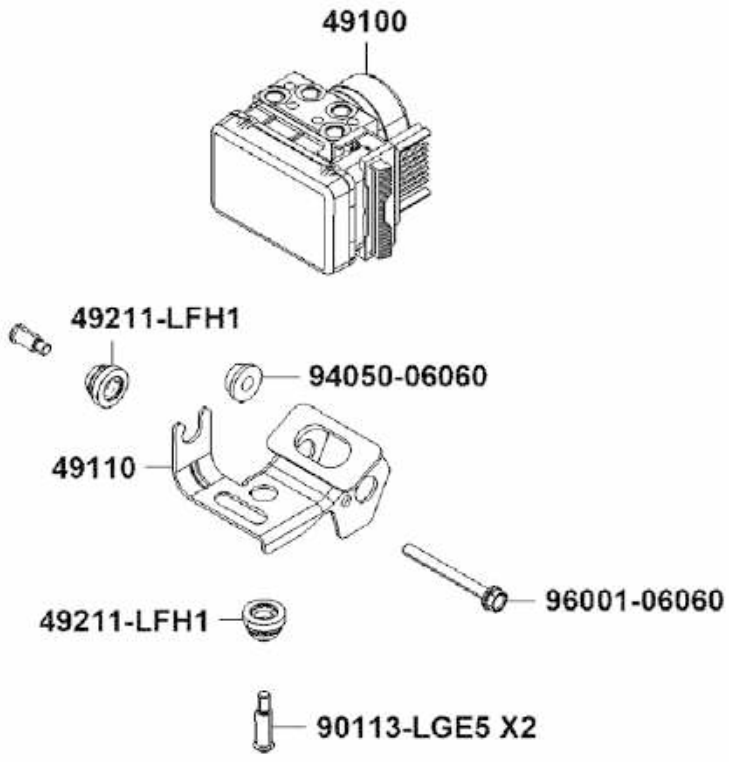
When using the DATA Analyze feature of the diagnostic tool with the ABS system the front and rear wheel speed sensors should show speed when the wheels are rotated.

Inspect the wheel speed sensors, rotors, wires, and connectors if the speed doesn't show correctly.

Check the speed sensor to rotor clearance with a feeler gauge and make sure that it is 0.3 - 1.2 mm (0.0012 - 0.048 in).

ABS Unit

Note the markings on the ABS unit for the brake Front (F) and Rear (R) brake hose positions.



Do not attempt to disassemble the ABS unit.

If the ABS unit must be replaced the new unit should come filled with brake fluid. Install the new component immediately so that the brake fluid doesn't drain out.

11.Steering

This chapter covers the location and servicing of the steering components for the KYMCO AK 550 model.

TROUBLESHOOTING

Hard steering (heavy)

- Excessively tightened steering stem top cone race
- Broken steering balls
- Insufficient tire pressure

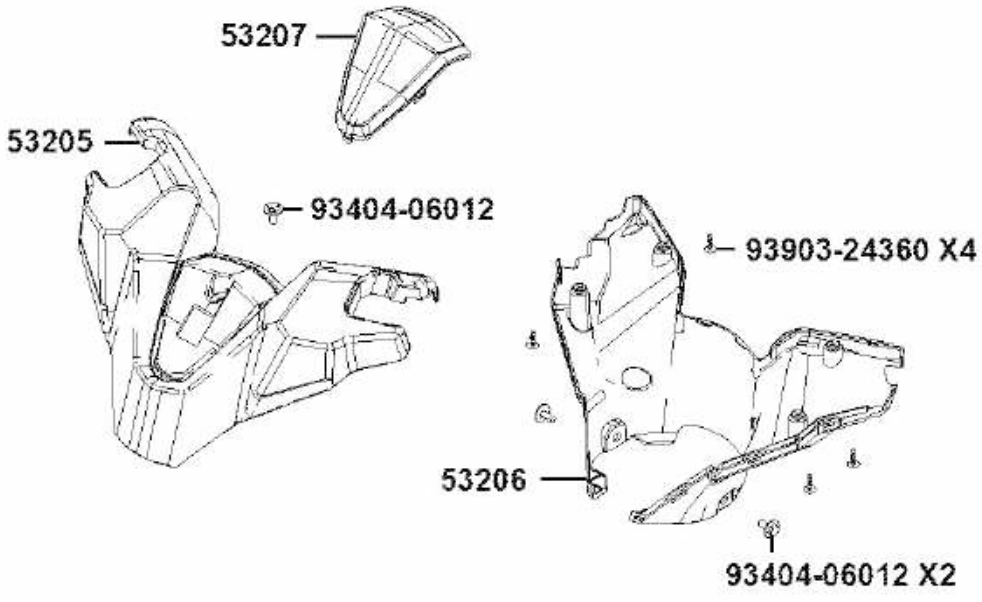
Steers to one side or does not track straight

- Uneven front shock absorbers
- Bent front fork
- Bent front axle or uneven tire

Up And Low Handle Cover Removal

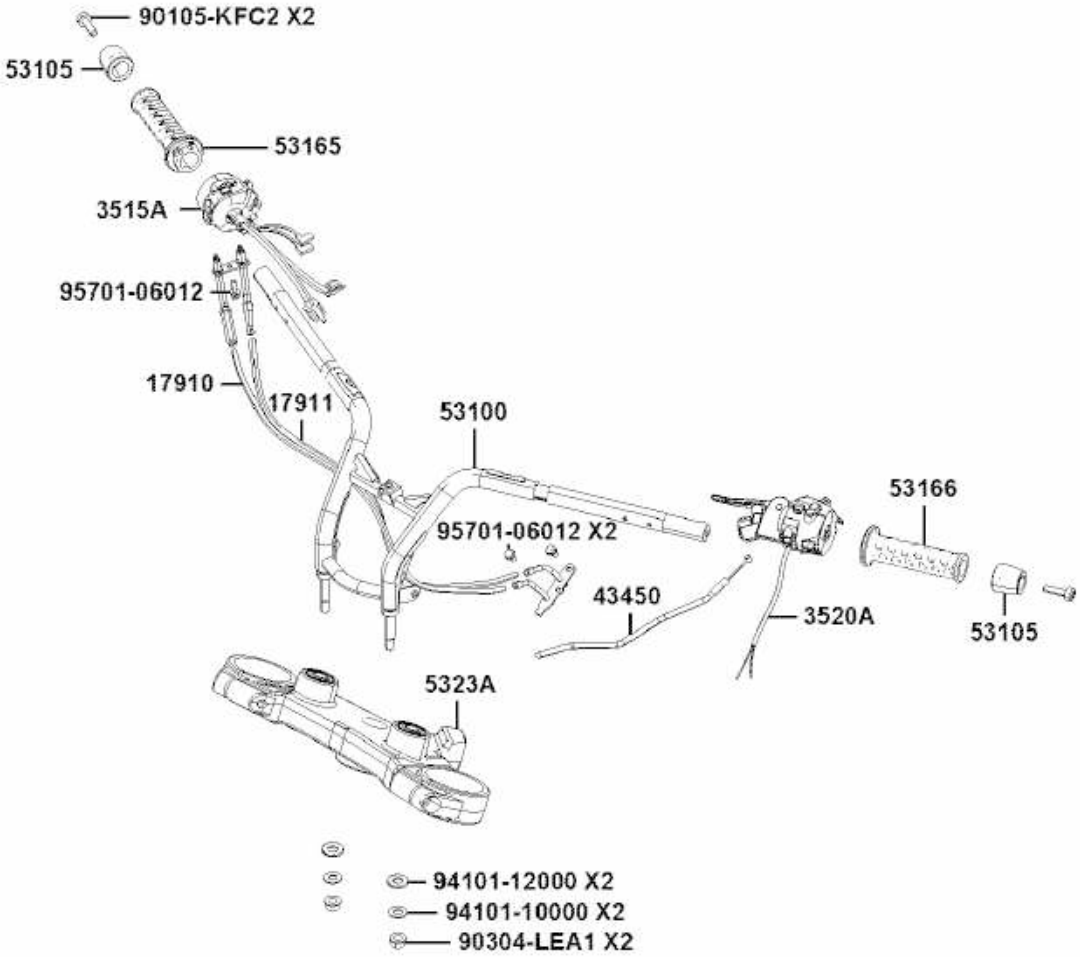
Remove the top handle cover.
Remove the bolts, screws and remove the up handle cover.


Remove the bolts, screws and remove the handle bar heater connecters.
Remove throttle and brake wire and remove the low handle cover.

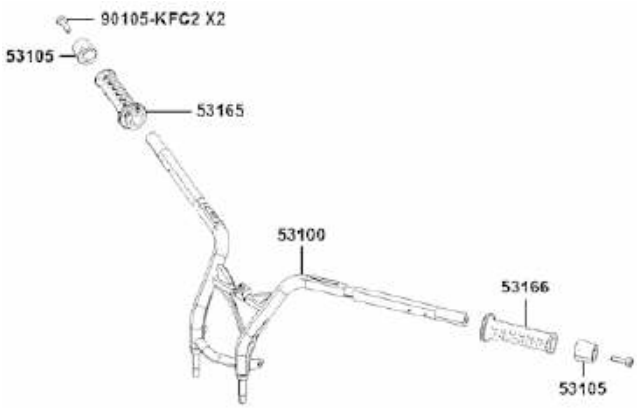
Handlebar

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.



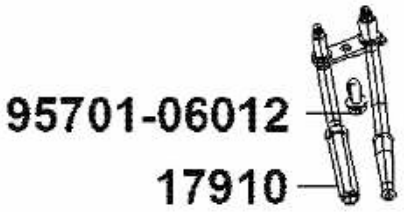
Bar Ends Removal

Remove the left and right bar ends with a 6 mm Allen.

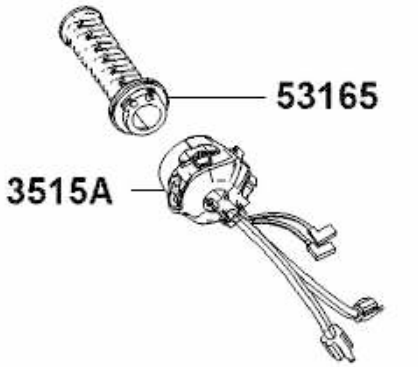


Switch Housings and Throttle

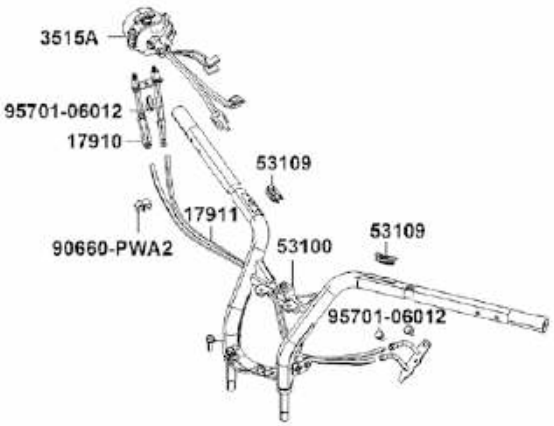
Remove the bolt of right switch throttle cable fixed state.



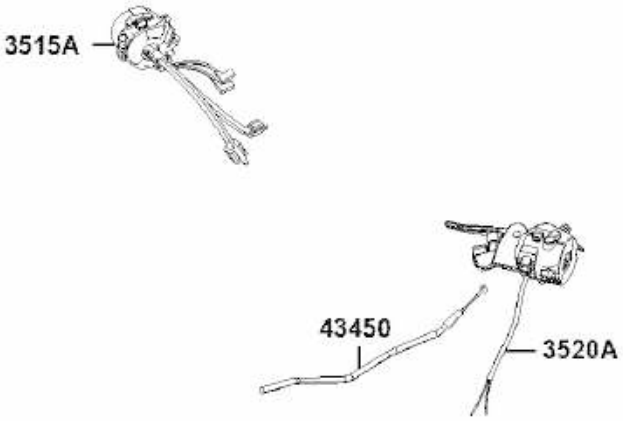
Remove the front right switch housing mounting screws with a #2 Phillips screwdriver. Disconnect the switches.



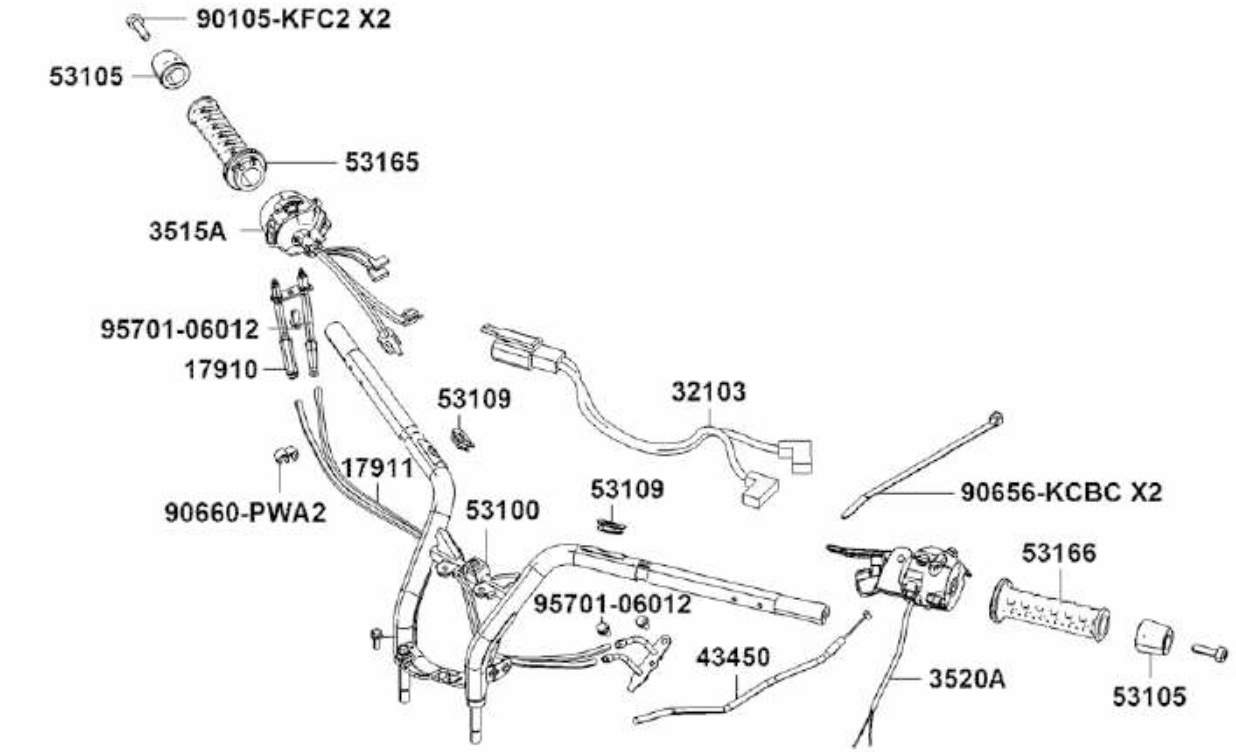
Disconnect the switches and heater connecter.



Disconnect the throttle cables and free the right switch housing from the handlebar. Separate the switch housing from the handlebar.



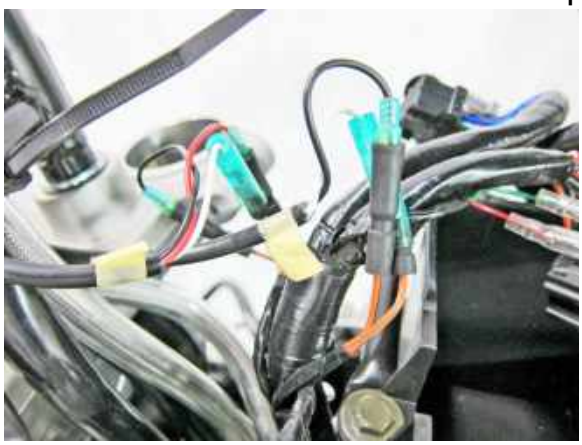
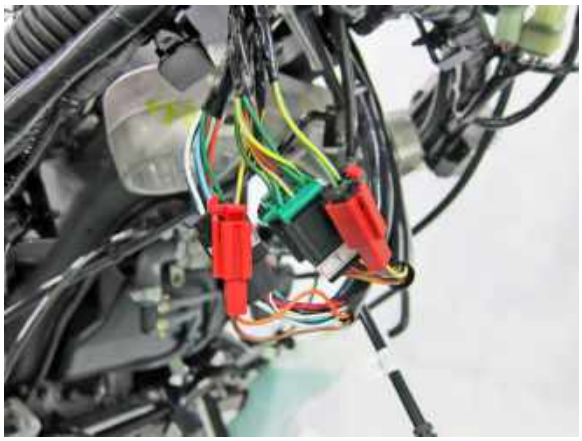
Remove the parking brake cable.
And remove the left switch housing as the same way.



Handlebar Removal

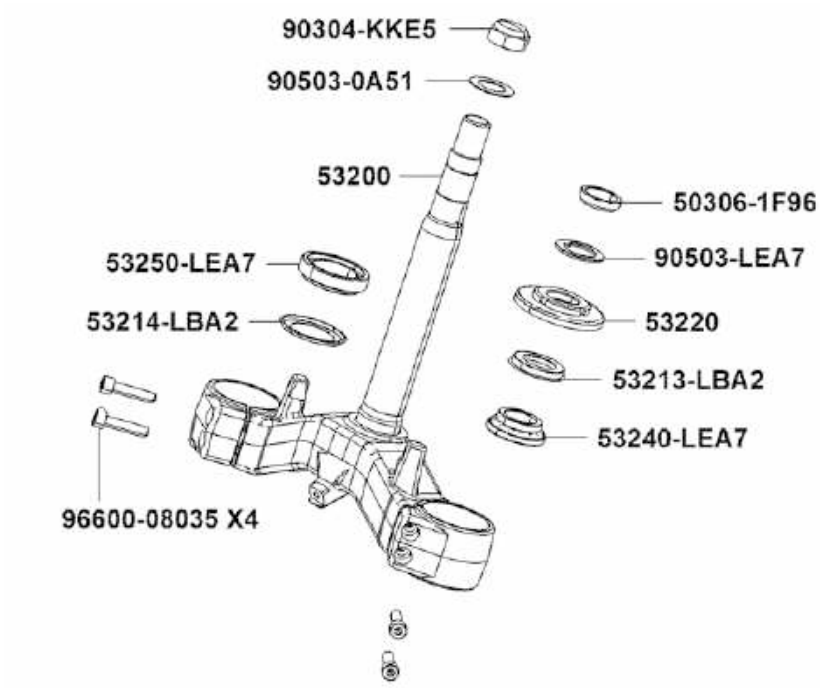
Release the cables and lines from the handlebar cable bind.


Disconnect the connecters and couplers of the switches.

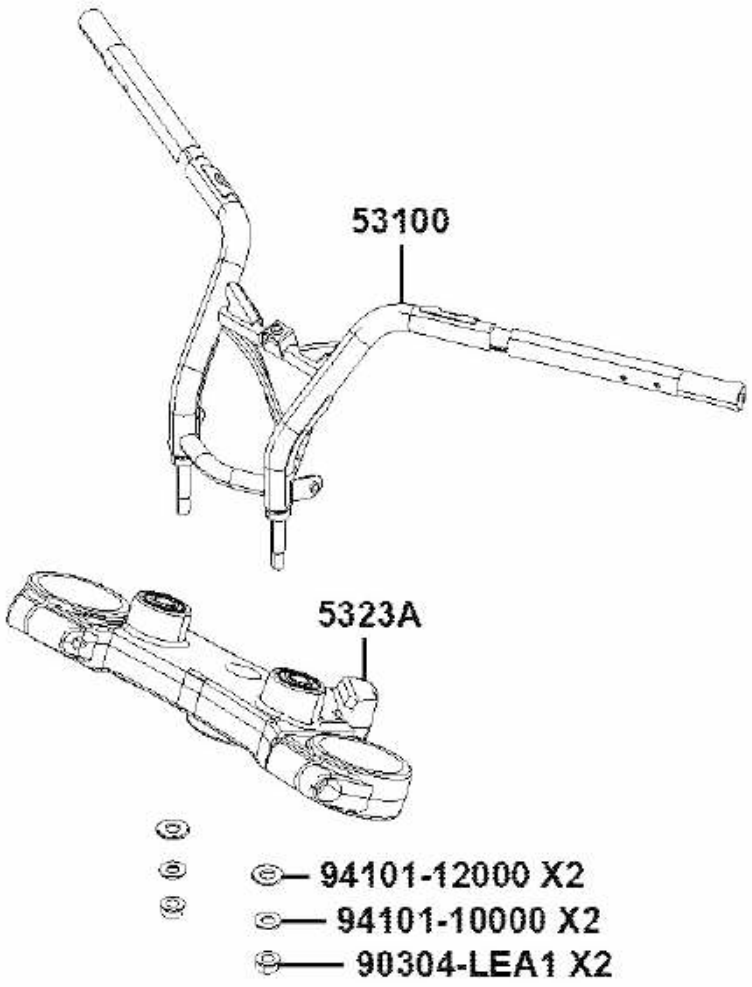
Remove the nut of bottom bridge with a 29 mm socket.
Installation torque: 6~6.5 kgf-m (60~65 N-m)


Remove the washer of bottom bridge.



Remove the handle bar assembly.

Remove the nuts and washer to separate the handle bar assembly.
Installation torque: 3~4 kgf-m (30~40 N-m)



Grips

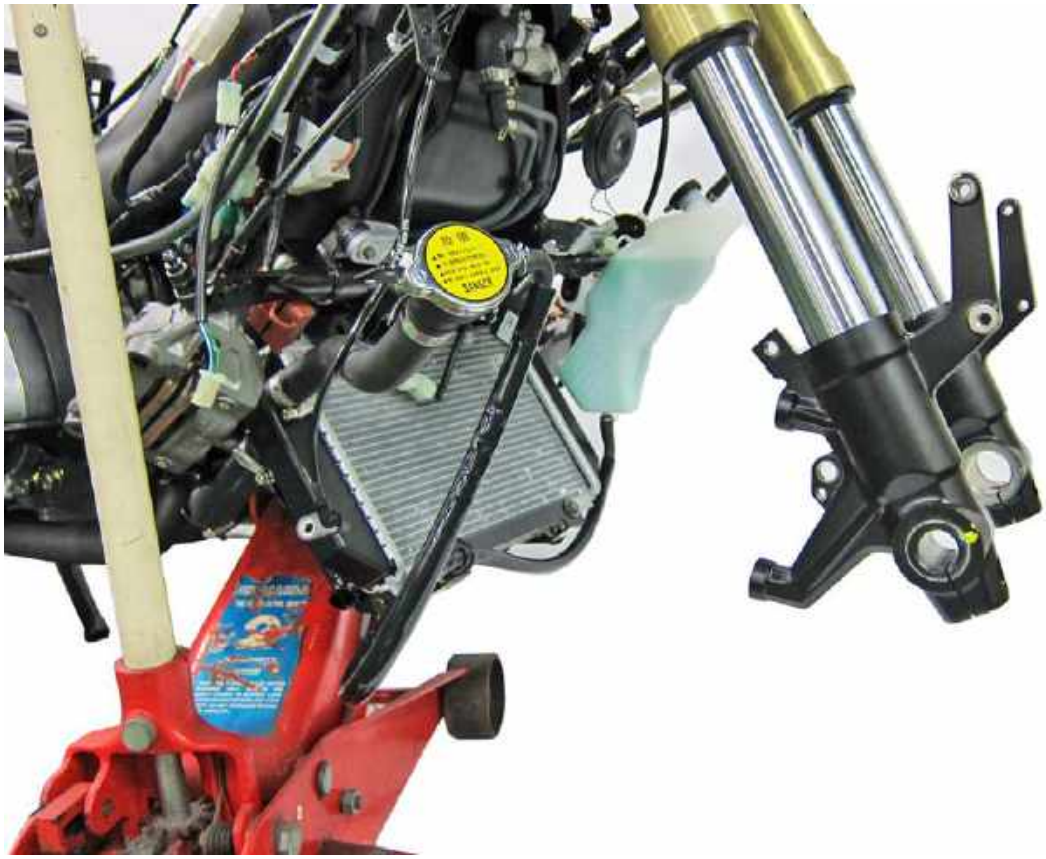
If you plan to replace the grips you can slice them lengthwise with a razor blade and peel them off. To remove the grips without cutting them use a screwdriver to open a gap between the grip and the handlebar. Spray in contact cleaner to break up the grip cement. Use compressed air to expand the grip so it can be easily slid off the end of the handlebar. Note the relationship between the angle of the grip and the throttle tube so that the new grip can be installed with the correct angle.

NOTE: Always wear safety glasses when using compressed air and never point it directly at yourself or anyone else.

Before installing the grips to either the throttle tube or the handlebar, wipe down the area with a brake or parts cleaner that will dry without leaving a residue. When you are sure the area is dry apply grip cement to the bar or tube. Install the left grip at an angle of your preference. Install the throttle grip onto the tube with the same angle as the original grip.

Steering Stem Removal

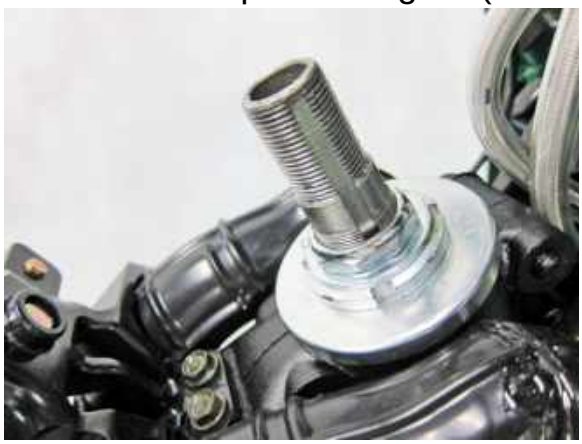
SAFETY FIRST: Protective gloves and eyewear are recommended at this point.



Support the vehicle with a suitable stand or jack so that the front wheel is off the ground. Grip the bottom of the fork legs and turn the front end side-to-side. If the movement is rough the bearings should be greased or replaced. If the movement is to tight or loose the steering stem adjusting nut may need to be adjusted.

The KYMCO AK 550 uses ball bearings in the steering. Always replace the races at the same time as the bearings.

A special lock nut wrench is needed to loosen the steering stem lock nut.
Special Tool - Lock Nut Wrench: F00002
Loosen and remove the lock nut.
Installation torque: 5~6 kgf-m (50~60 N-m)

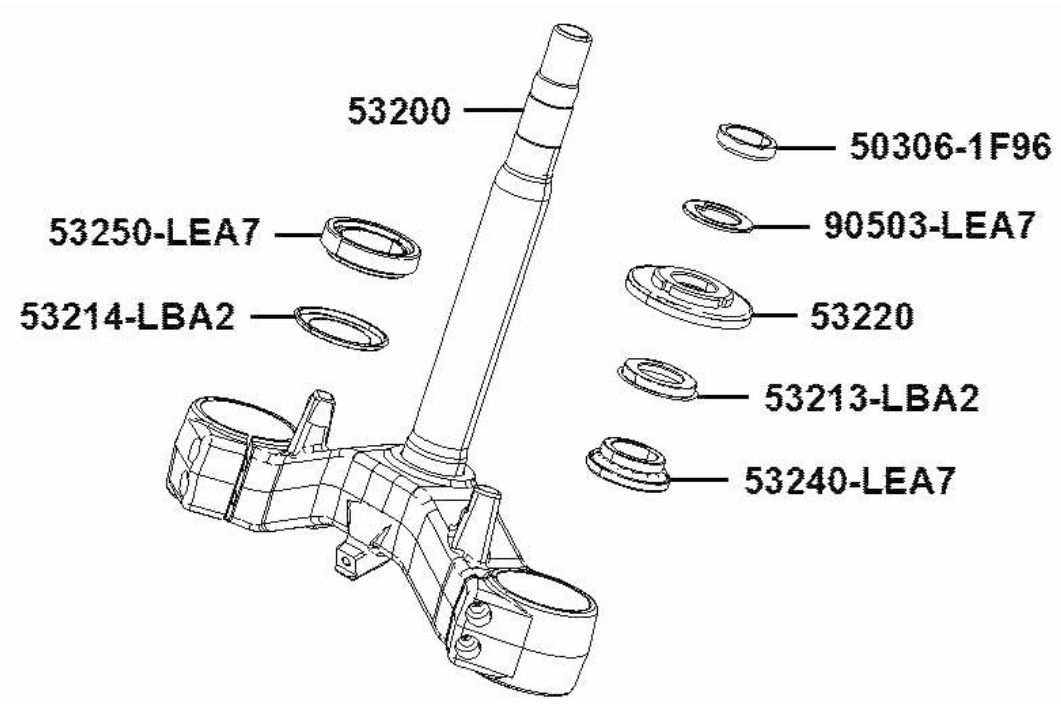



Slide off the lock washer.


A special race nut wrench is needed to loosen the steering stem lock nut.
Special Tool - race Nut Wrench: F00023.
Loosen and remove the race nut and lower the steering stem out of the frame.
Installation torque: 1.8~2.2 kgf-m (18~22 N-m)

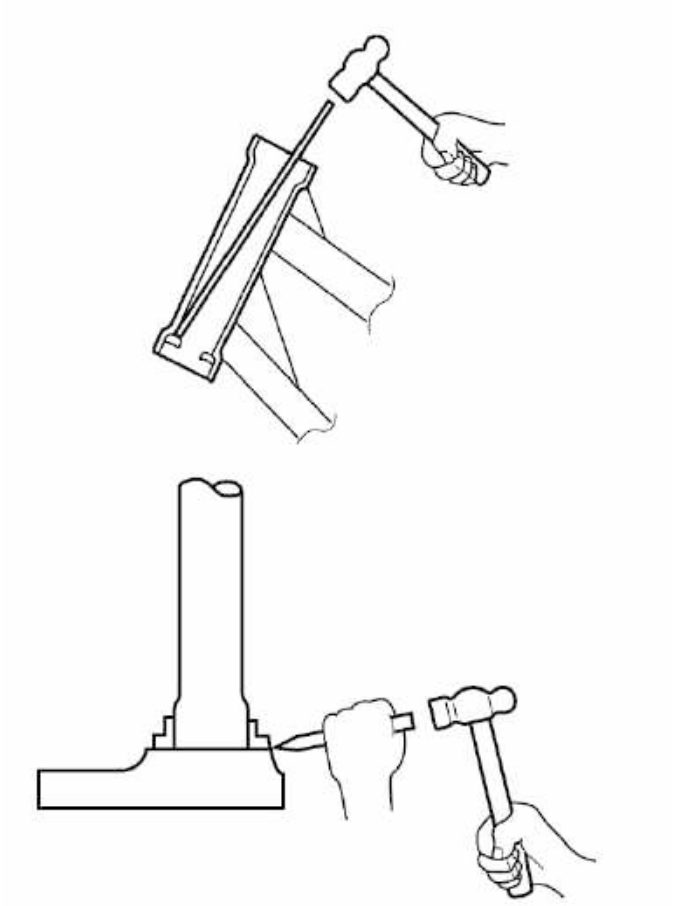

Remove the dust cover.

Remove the collar and remove the upper ball bearing.



Use a chisel and hammer to drive out the bearing races. Do not damage the frame pipe and steering stem.

Have the drift set against the lip of the race, and work around the race evenly to drive it out. Repeat the process with the remaining bearing race.



12.Front Suspension

This chapter covers the location and servicing of the front fork components for the KYMCO AK 550 model.

TROUBLESHOOTING

Soft front shock absorber

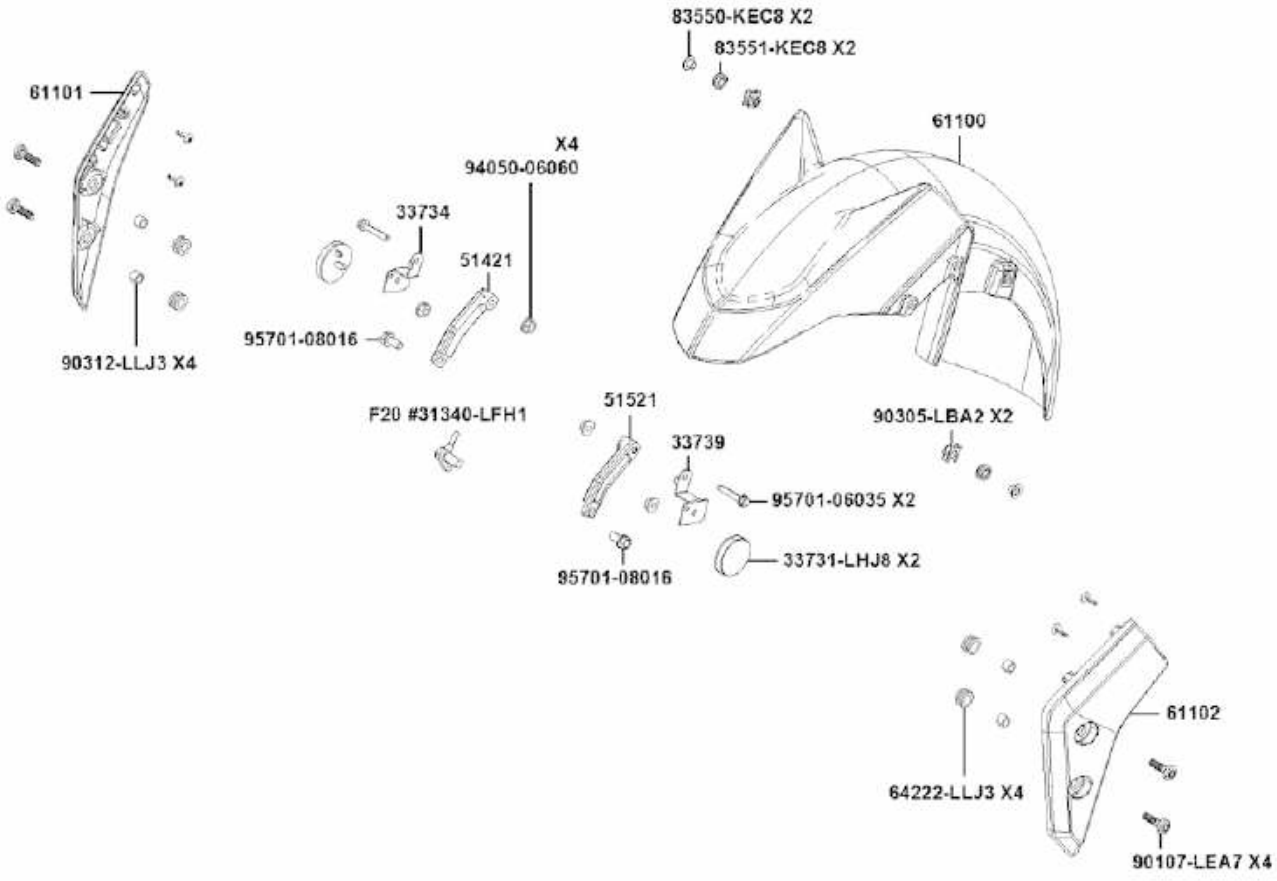
- Weak shock springs
- Insufficient damper oil

Front shock absorber noise

- Slider bending
- Loose fork fasteners
- Lack of lubrication

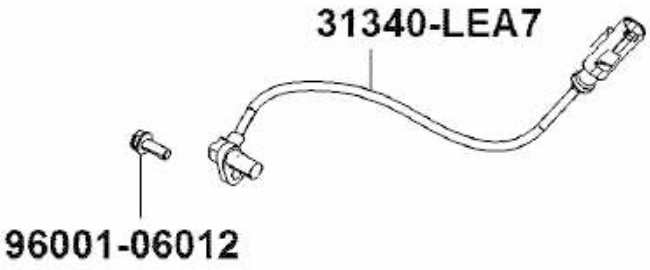
Front Fender Assy. Removal

Remove the bolts, plates and reflectors.
Remove the bolts and front fender assembly.



Front Fork Removal

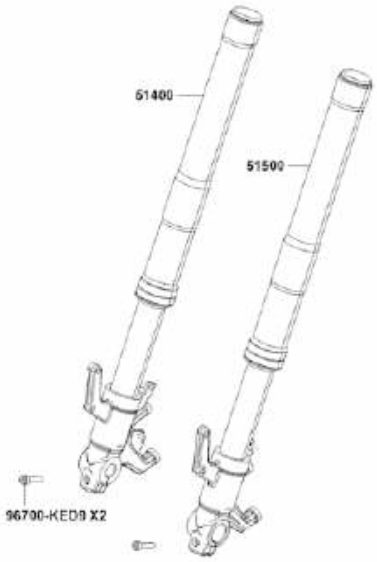
Remove the bolt of speed sensor.
And remove the speed sensor.



Remove two bolts and remove the front caliper. And remove the left of caliper.
Installation torque: 3~4 kgf-m (30~40 N-m)

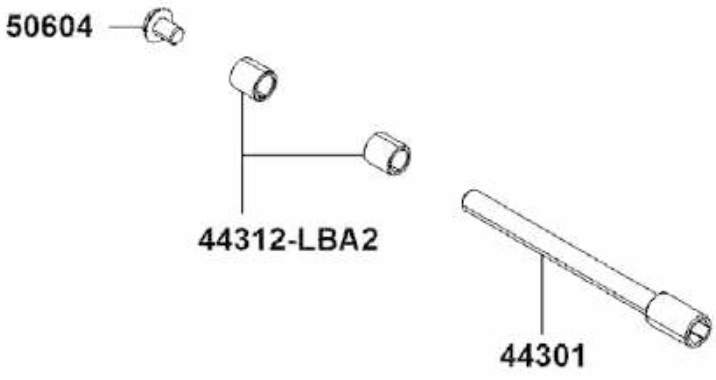
Remove the bolt of front axle.
Installation torque: 7~7.5 kgf-m (70~75 N-m)
The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.

Loosen the front axle pinch bolt with a 6 mm Allen.
Installation torque: 2~2.6 kgf-m (20~26 N-m)



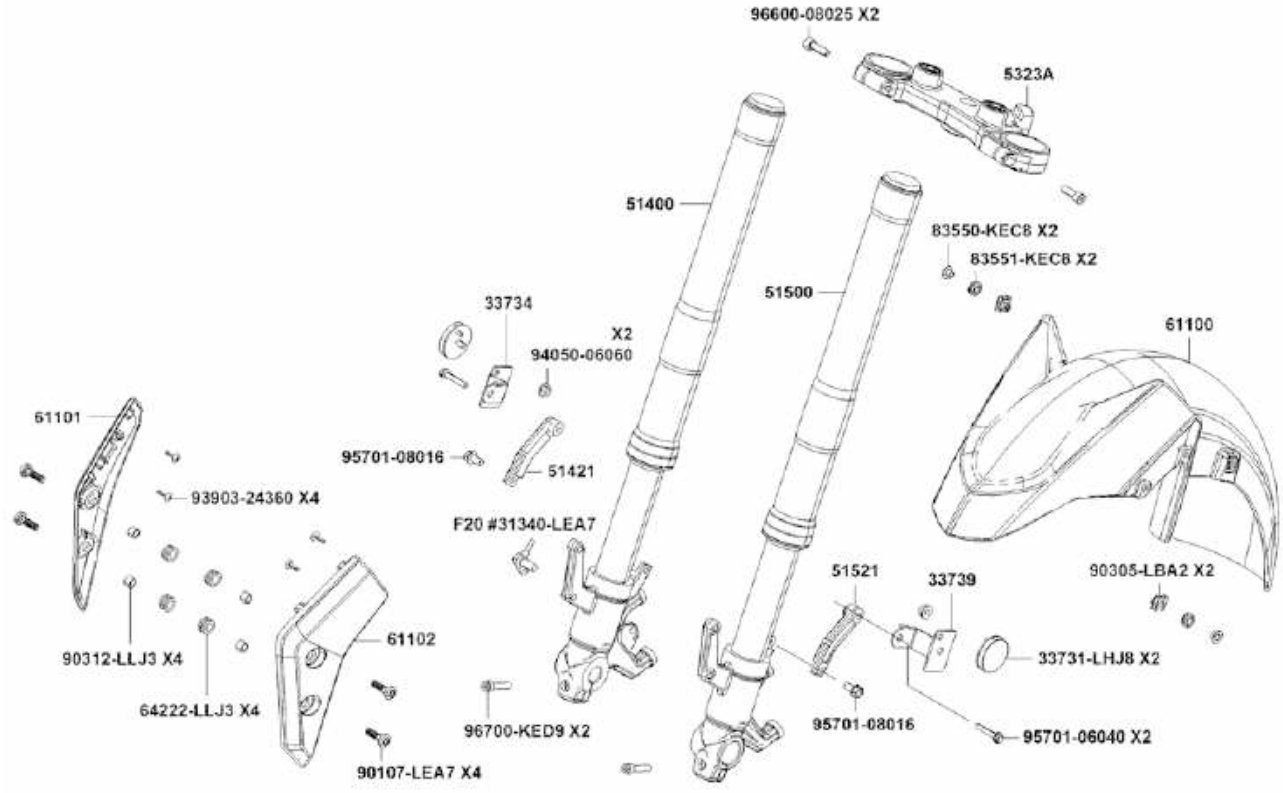
Lift the front end of the vehicle with a suitable stand or jack so that the front wheel comes off of the ground.
Support the front wheel and slide the front axle out from the left side.

Apply a light coat of grease to the front axle when installation.

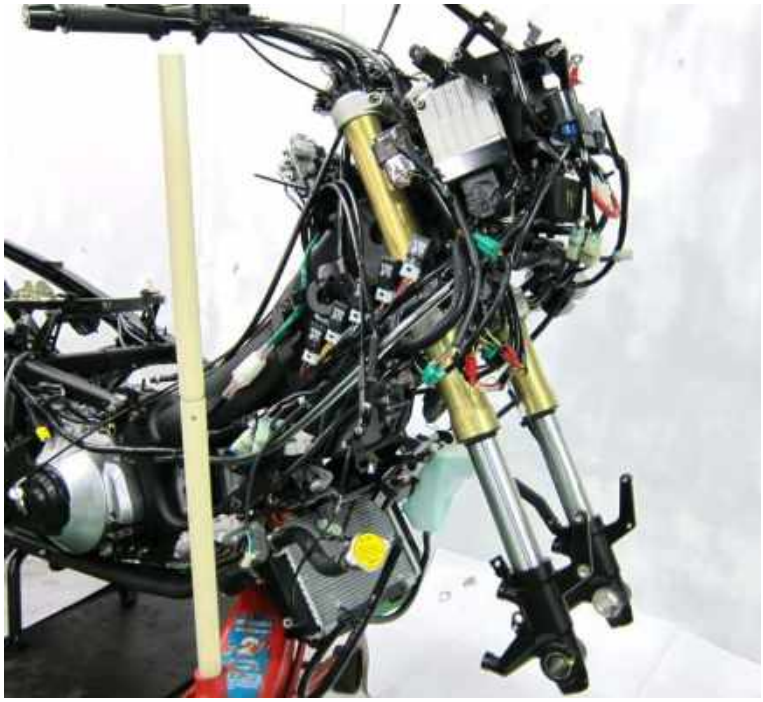


Guide the front wheel out from the fork and the brake disc out from between the pads. Do not squeeze the brake lever while the disc is not present between the pads.

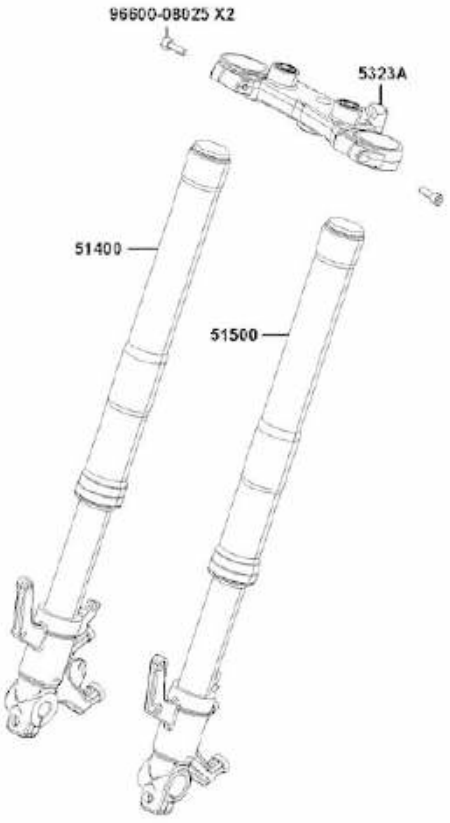
When installation: Apply grease to the lips of the dust seals and collar O-rings. Insert the collars into the hub.



Remove the front wheel assembly.

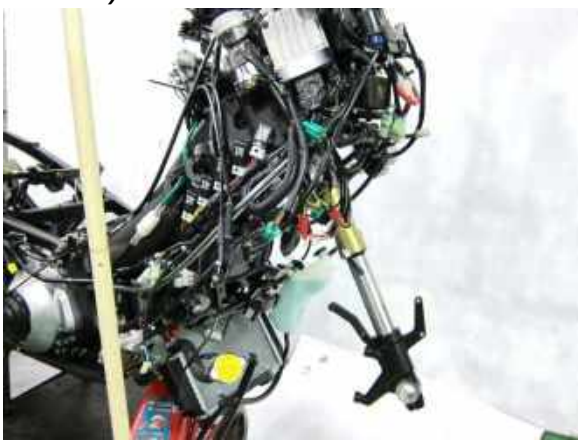


Remove the right and left bolts of top bridge.
Installation torque: 2~2.6 kgf-m (20~26 N-m)



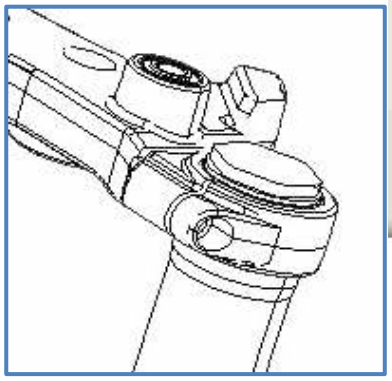
Remove the right and left bolts of top bridge.
Installation torque: 2~2.6 kgf-m (20~26 N-m)

Remove the right and left bolts of top bridge.
Remove the right and left fork.
Installation torque: 2~2.6 kgf-m (20~26 N-m)



Note: When install the cushions,

1. Fork oil replacement quantity of fork oil
   Right: 375±2cc/Left: 555±2cc Use fork oil type SS#8 (10W).
2. The cushions need to be kept upward when storage.
3. Assembly process of the product must be kept upward.
4. Oil pressure must be reverted before assembling warranted product, to ensure activity of damping.
5. When installation, align the top surface to the bridge's surface as illustration below.



13.Rear Suspension

This chapter provides information on the rear suspension components of the KYMCO AK 550 model.

TROUBLESHOOTING

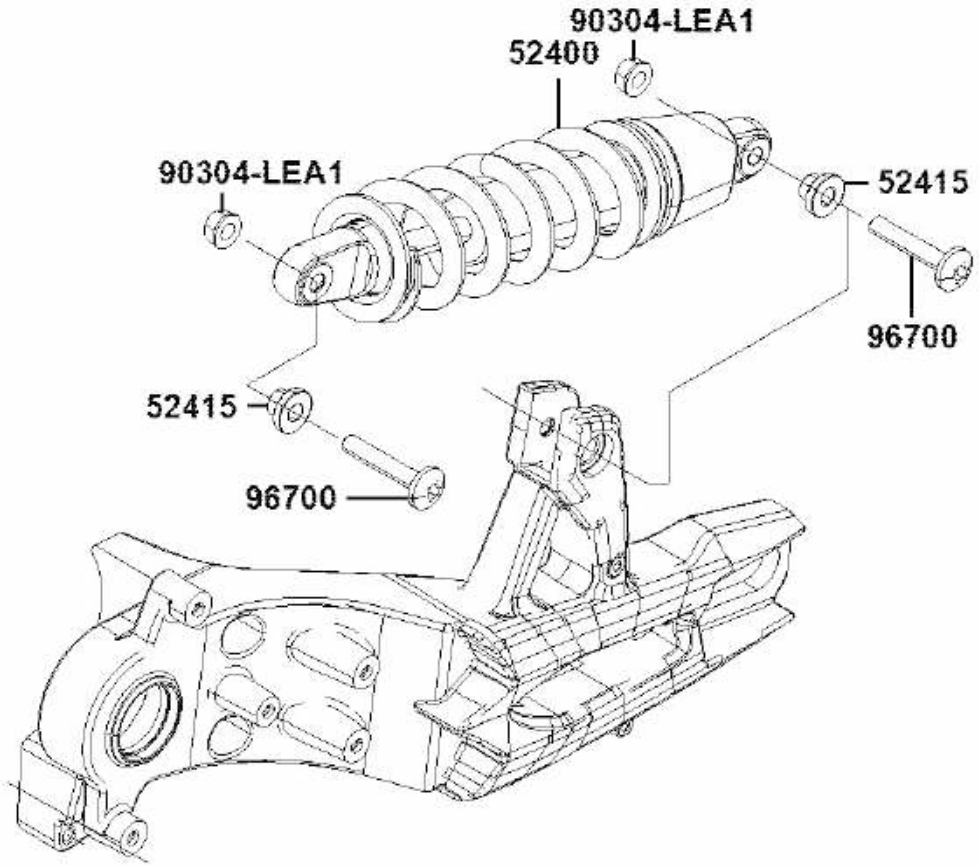
Soft rear cushion

- Weak shock absorber spring
- Damper oil leaks

Rear Cushion

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Remove the two bolts and remove the rear cushion.
Installation torque: 3.5~4.5 kgf-m (35~45 N-m)



Rear Wheel Removal

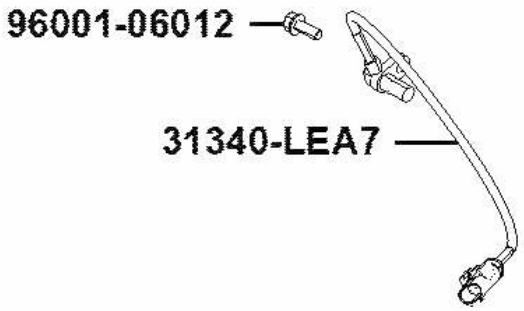
SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

• When performing the services stated in this section, the engine and exhaust muffler must be cold to avoid scalding.

• During servicing, keep oil or grease off the brake pads and brake disk.

Removal

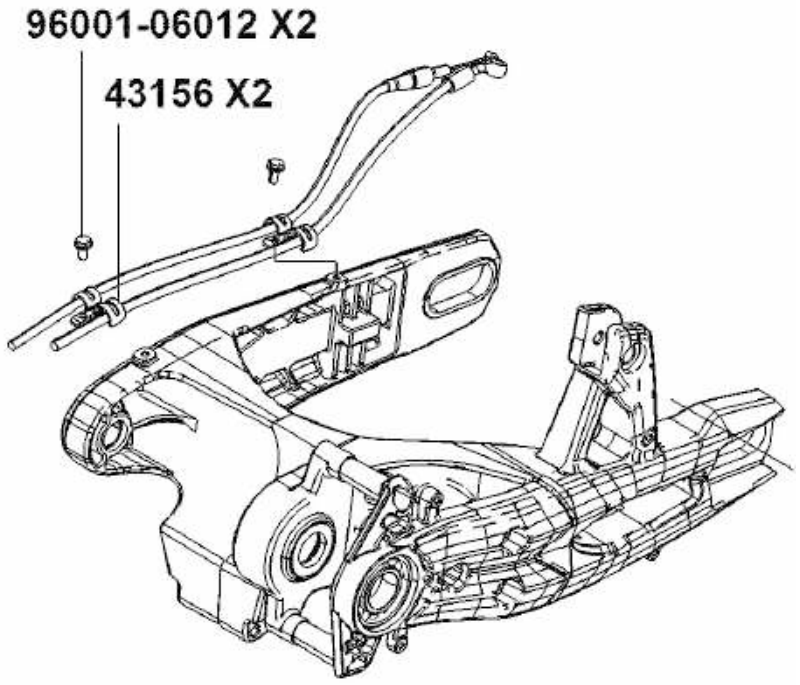
Remove the bolt and remove the speed sensor.



Release the cable of speed sensor.
And release the cable of rear brake.

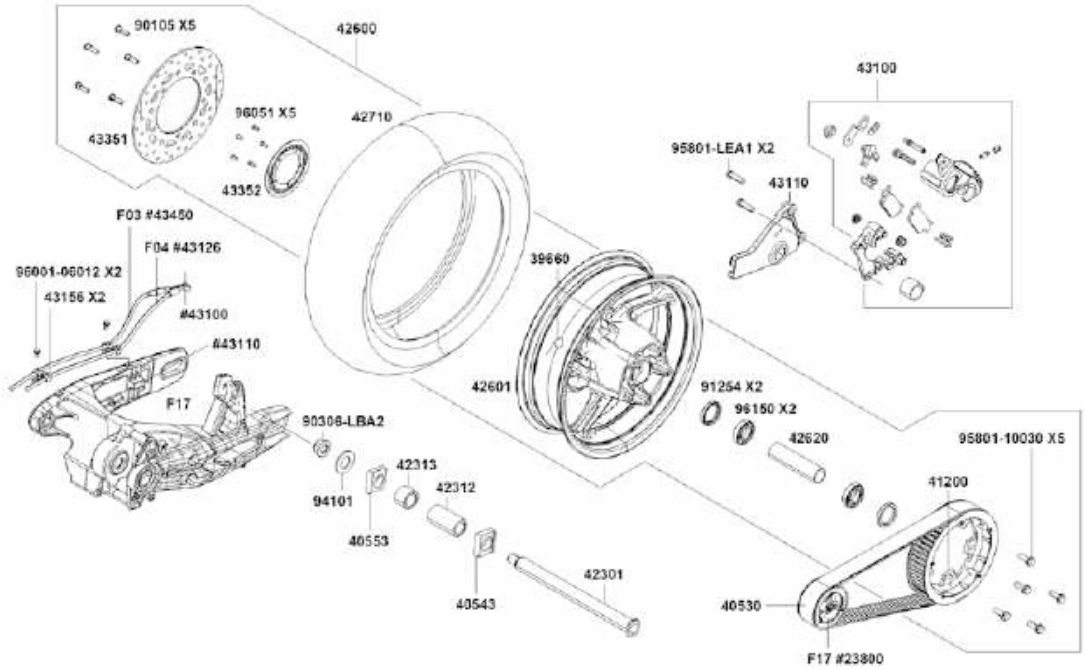
Remove the bolt of rear fixed plate.

Remove the bolt of front fixed plate.



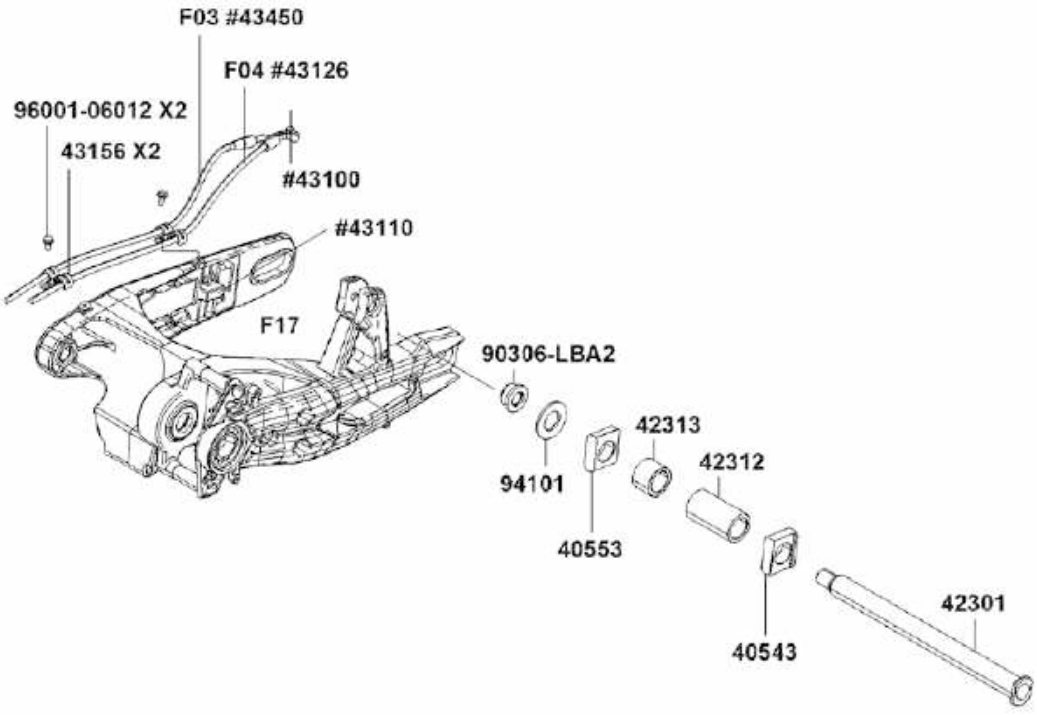
Loosen and remove the two bolts of rear caliper.
The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.
Installation torque: 3~4 kgf-m (30~40 N-m)


Remove the rear caliper.

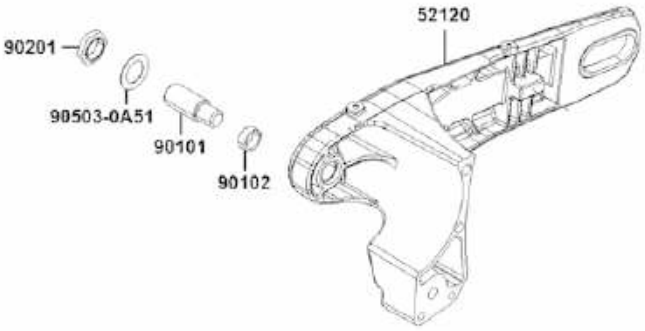
Loosen the fixed nut (front), rotate the adjust bolt (rear) counter clockwise and move wheel forward to loosen the belt.

Loosen and remove the rear wheel axle nut, move wheel forward to loosen the belt. Installation torque: 12~14 kgf-m (120~140 N-m)



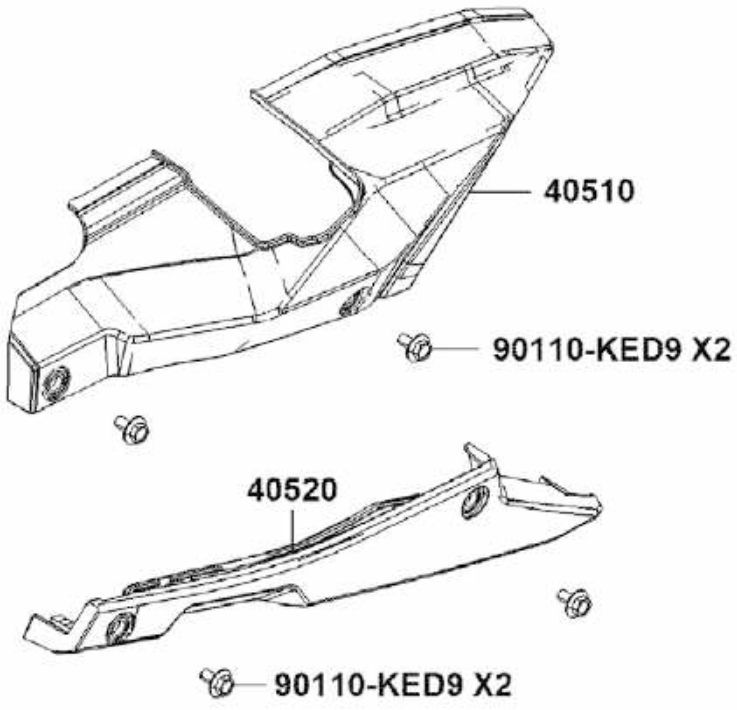
Loosen and remove the rear swing axle nut and washer.
Installation torque: 9.5~10.5 kgf-m (95~105 N-m)

Loosen the rear swing axle bolt.
Installation torque: 0.6~1 kgf-m (6~10 N-m)

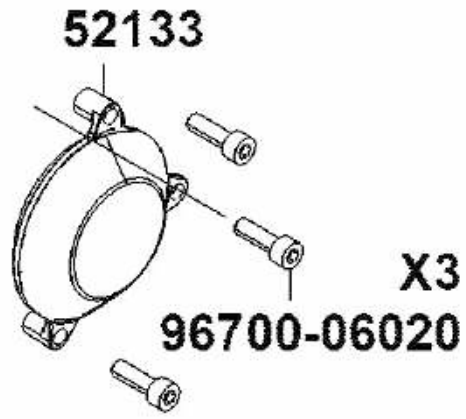


Loosen the fixed nut (left), and rotate the adjust bolt (right) counter clockwise to loosen belt.

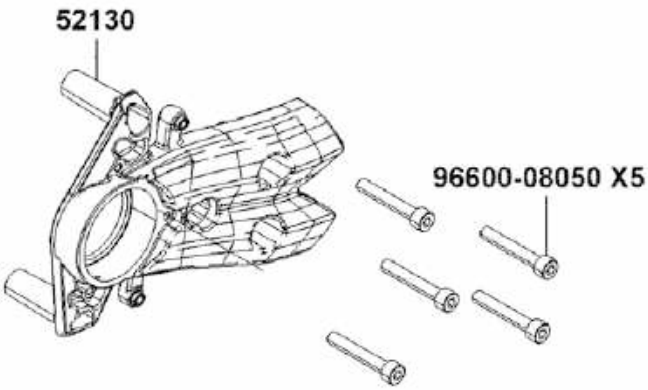
Remove two bolts and remove the chain up cover A.
Remove two bolts and remove the chain low cover A.



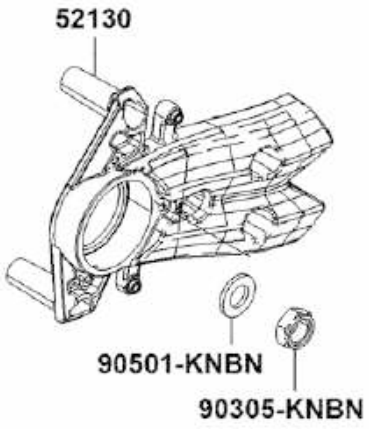
Loosen and remove the three bolts.
Remove the final shaft holder cap.



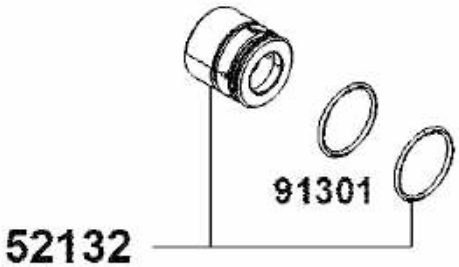
Loosen and remove the five bolts of the drive sprocket stopper.



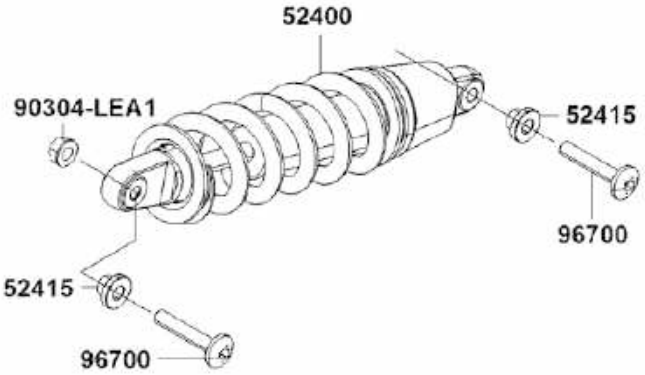
Remove the drive sprocket nut and washer.
Remove the drive sprocket stopper cover.
Installation torque: 11.5~12.5 kgf-m (115~125 N-m)



Remove the drive sprocket collar.
Replace the seal and grease the collar when installation.



Remove the two bolts and remove the rear cushion.
Installation torque: 3.5~4.5 kgf-m (35~45 N-m)



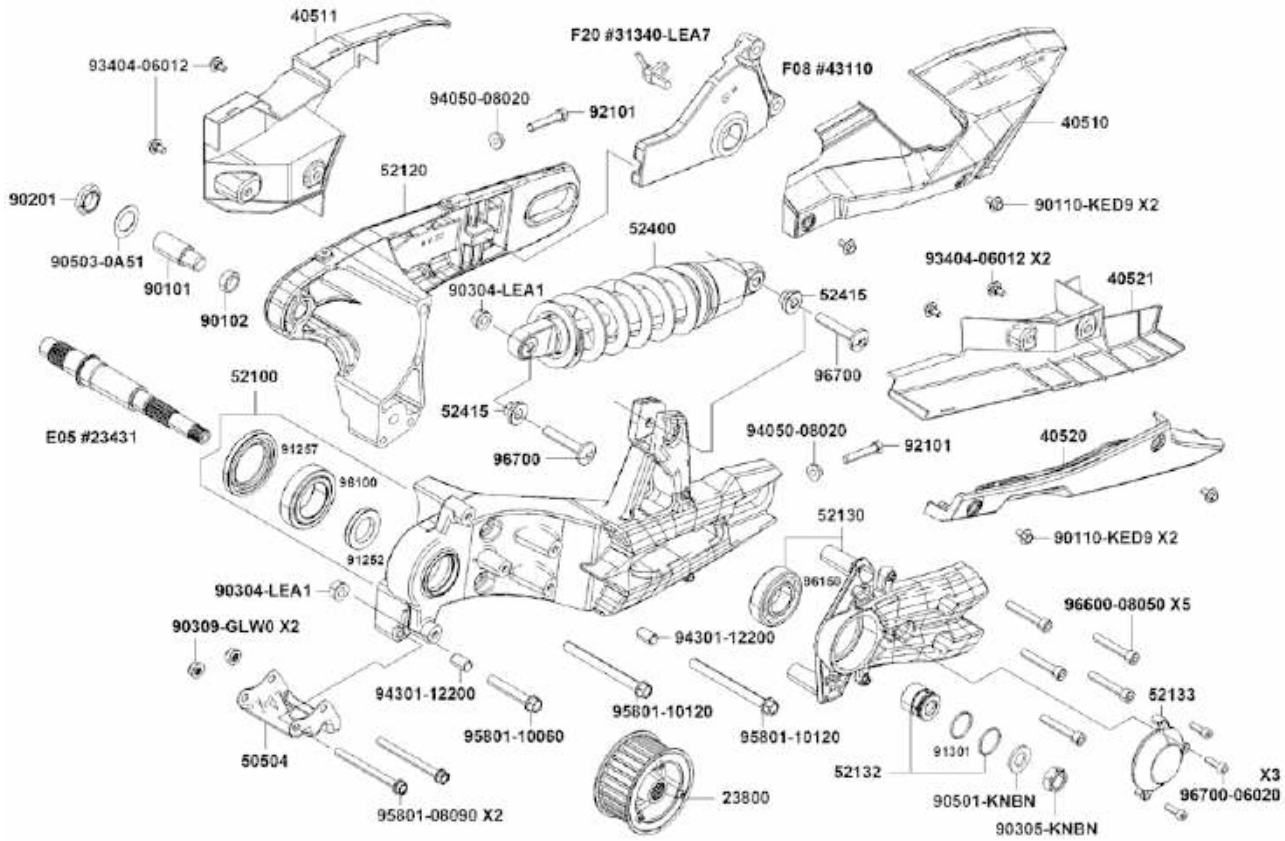
Remove the three bolts and remove the stop plate.

Slide out and remove the belt.


Remove the drive sprocket.

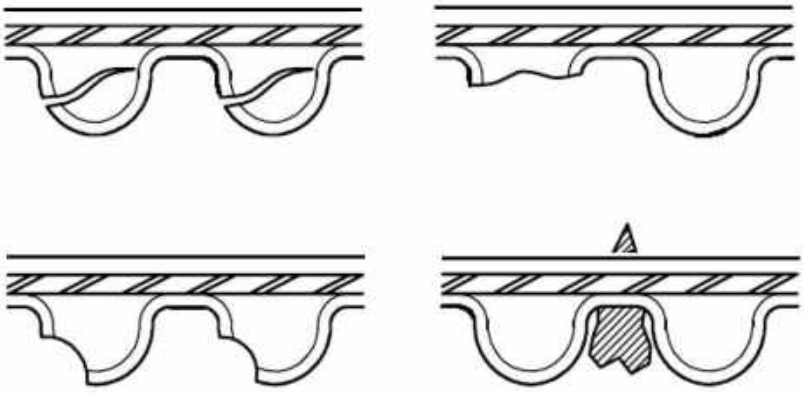

Slide out and remove the rear wheel axle.


Slide out the rear wheel assembly.



Drive Belt Inspection

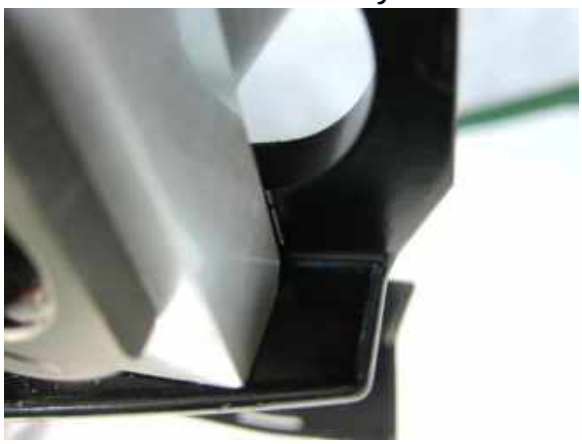
Check the drive belt.
If the drive belt crack, missing teeth, hook wear or damage replace the drive belt with a new one.

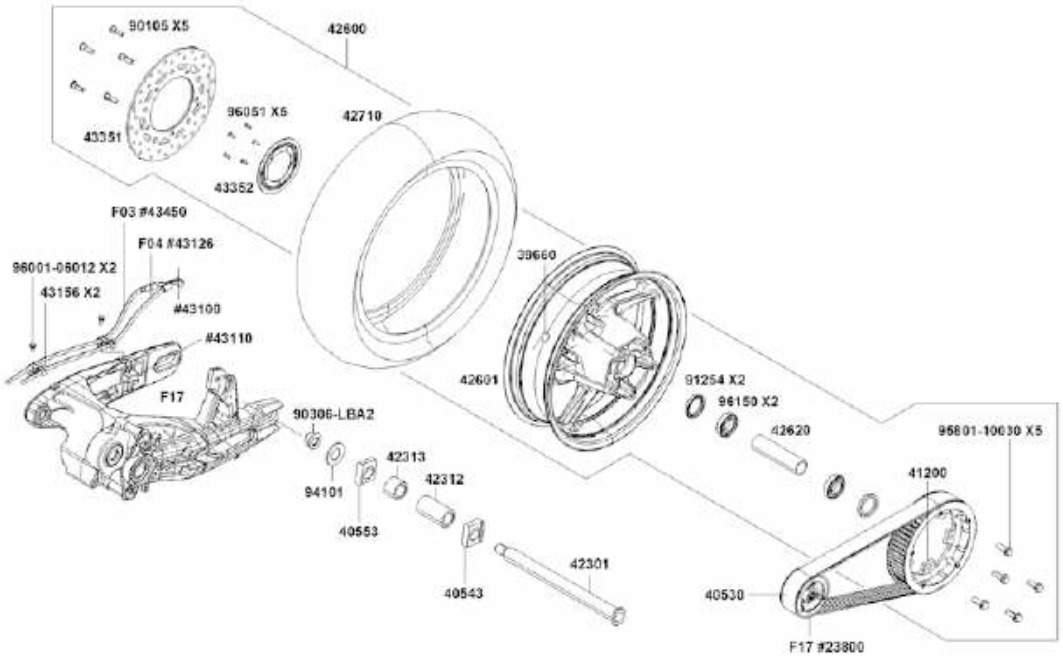


Drive Belt Installation

When installation: Make sure the belt direction of rotation marker is correct.

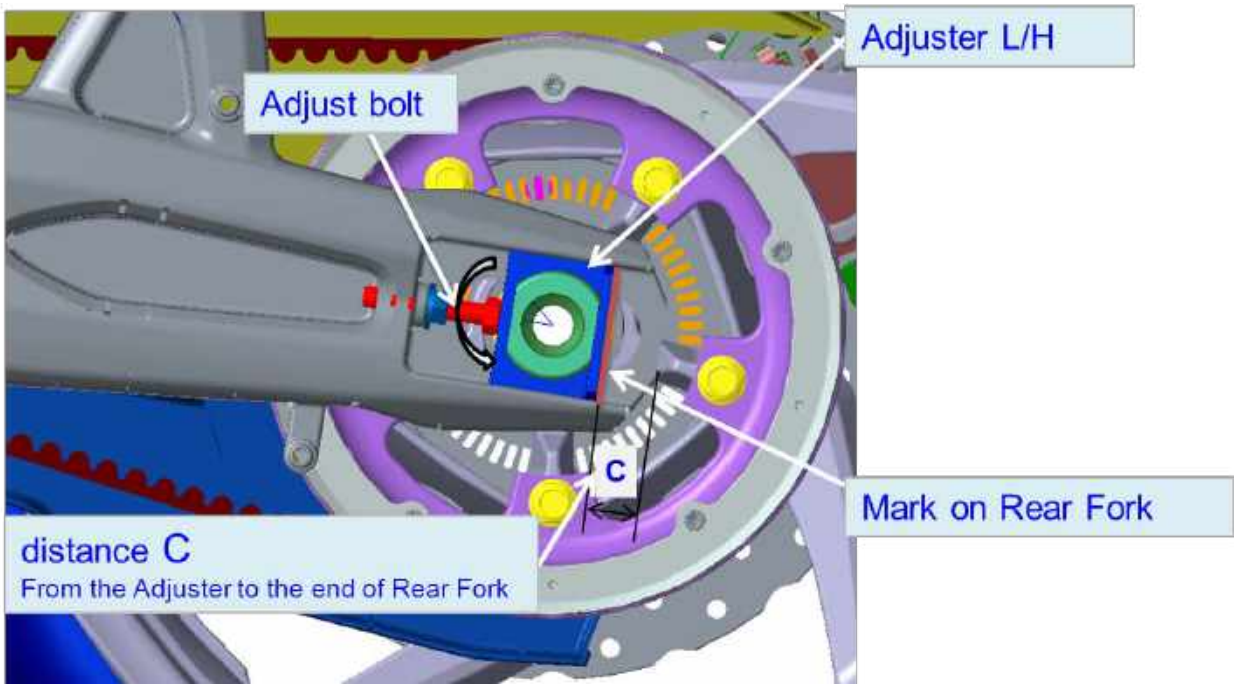
Rotate the adjust bolt clockwise until the plate edge align the mark to tense the belt then tighten the fixed nut. Right side is with the same way.





Drive Belt Tension Adjustment

Step 1: Adjusting the Adjusters



~1. Adjust L/H Adjuster place to the Mark on Rear Fork.

~2. Adjust R/H Adjuster place to be aligned the L/H Adjuster.

~3. Check the distance C of both L/H and R/H Adjusters are the same (18.8mm±0.5mm).

Step 2-1: Sonic Tension Meter setting and use
Recommended~ Gates Unitta, U-508

~1. Setting mass constant(M) / width(W) / span(S)
M 008.3 g/m **W** 040.0 mm/R **S** 0381 mm

~2. Align the meter probe and press “MEASURE” button.

~3. Knock the belt gently to get the tension reading.

Step 2-2: Measure the belt tension

P.S. distance C vs. tension (for reference only)
18.8mm --- (1300~1700N)
19.2mm --- (1100~1500N)

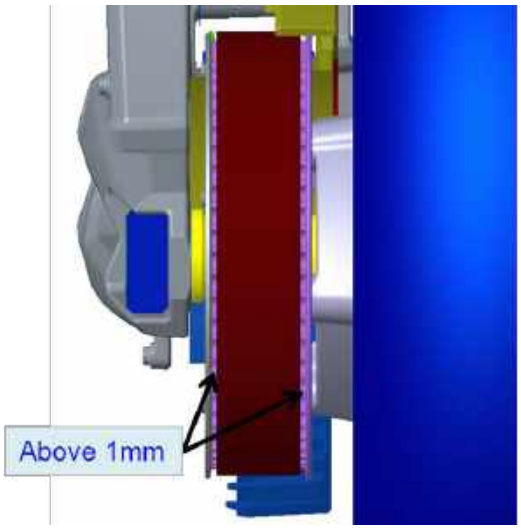
~1. Probe of Sonic Tension meter should be parallel to the belt as shown above pictures.

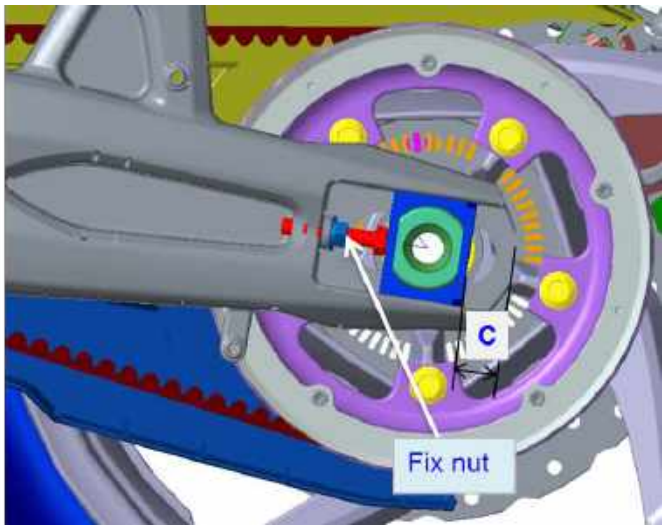
~2. Distance between probe and belt is approx. 1cm, location as shown above pictures.

~3. Appropriately hit the belt with metal tool.

~4. Tension reading should be 1300~1700N(brand new, after running 1000~1400N).

Step 3: Belt side Clearance



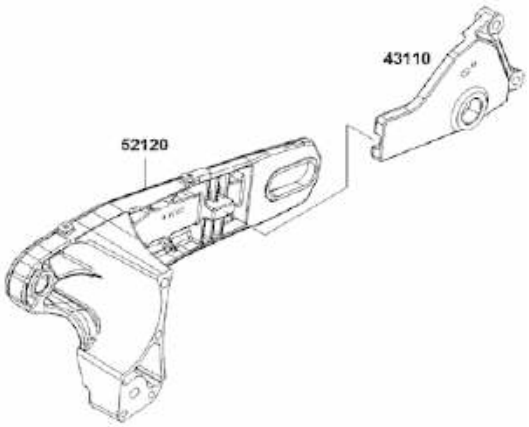


~1. Turn the wheel for several runs, check the belt is located at the center of driven pulley, (both sides clearance should be more than 1mm), if not, slightly adjust R/H Adjuster, and distance C of R/H and L/H Adjuster must remained within the range 18.8±0.5mm.

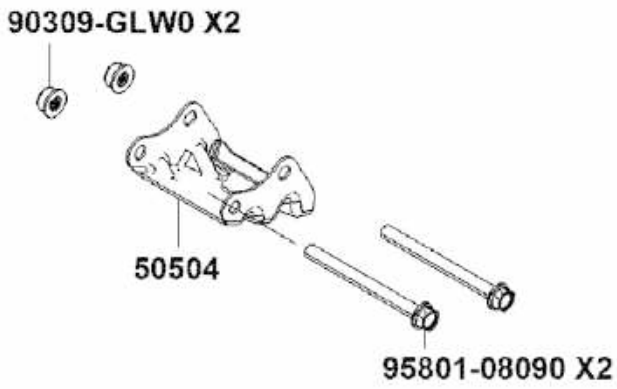
~2. Then, tightening the rear axle nut to specific tighten torque, and the fix nut(shown above) as well.

Rear Fork Removal

Slide backward and remove the rear axle holder.



Remove the two bolts, nuts.
And remove the main stand plate.

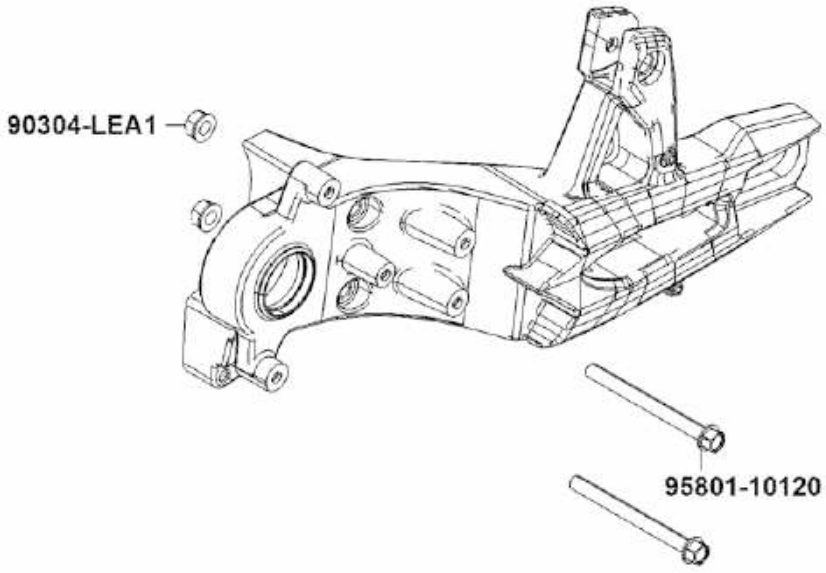


Remove the bolt, nut and upper plate.

Loosen the two bolts of left rear fork.

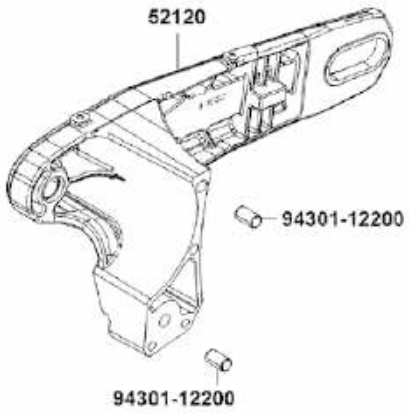
Remove the two bolts and nuts of left rear fork. And Slide out and remove the left rear fork.

Installation torque: 3~3.5 kgf-m (30~35 N-m)

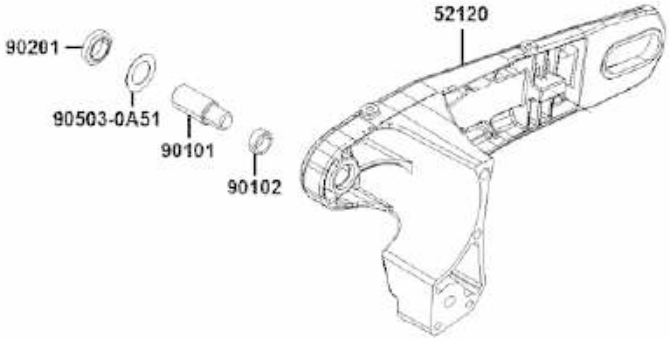


Remove the two dowl pin of the rear fork.

Slide out and remove the right rear fork.

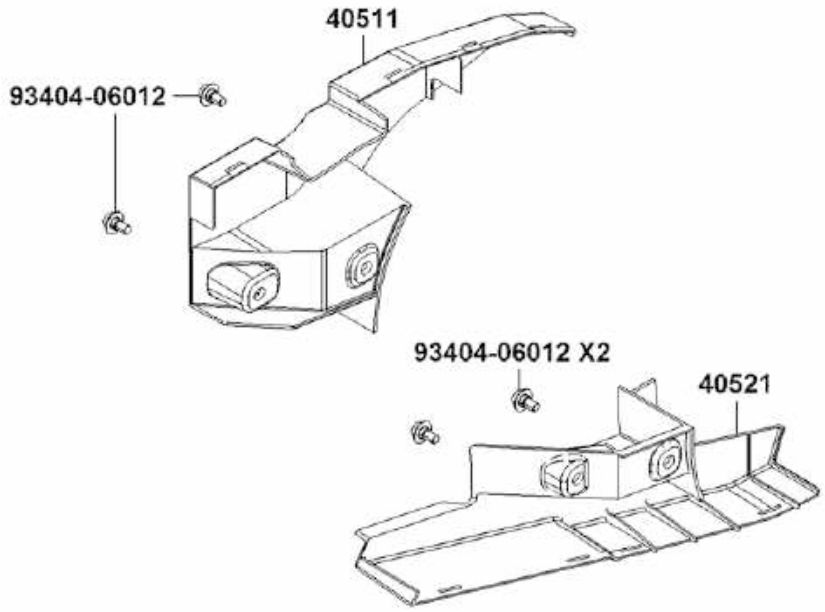


Loosen and slide out the rear swing axle bolt.

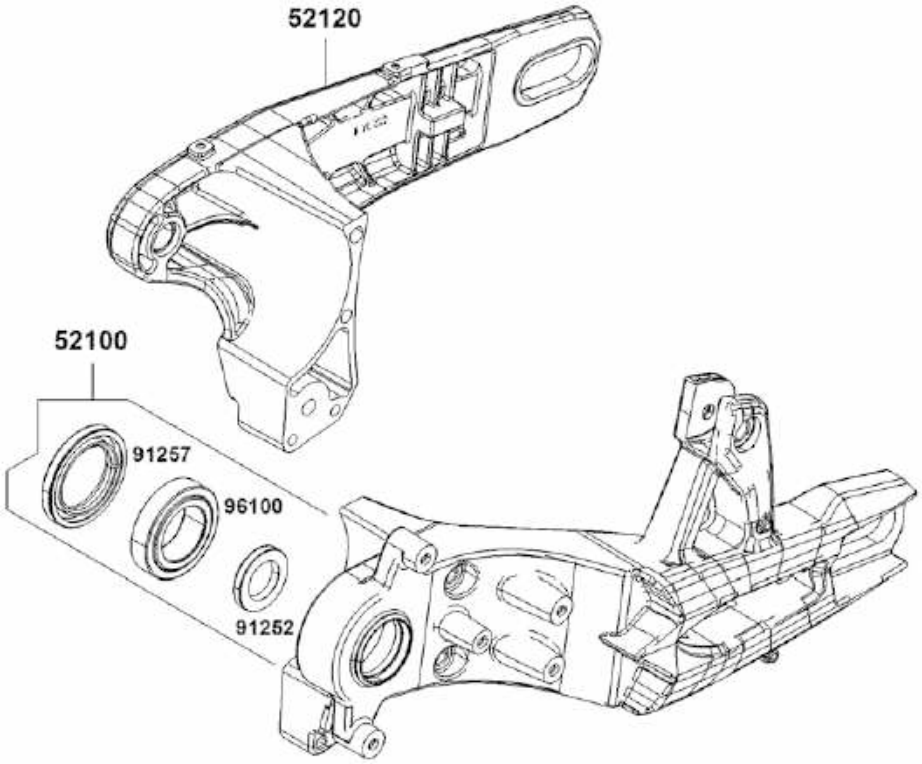


Remove the two bolts.
And remove the chain cover up B.


Remove the two bolts.
And remove the chain cover low B.

Check the seal and bearing for wear or damage.
Replace them if necessary.



14.Wheels

This chapter covers the location and servicing of the wheels for the KYMCO AK 550 model.

Troubleshooting

Front wheel wobbling

- Bent rim
- Loose front axle
- Faulty tire
- Improperly tightened axle nut

Rear wheel wobbling

- Bent rim
- Faulty tire
- Axle nor tightened properly

Rear wheel noise

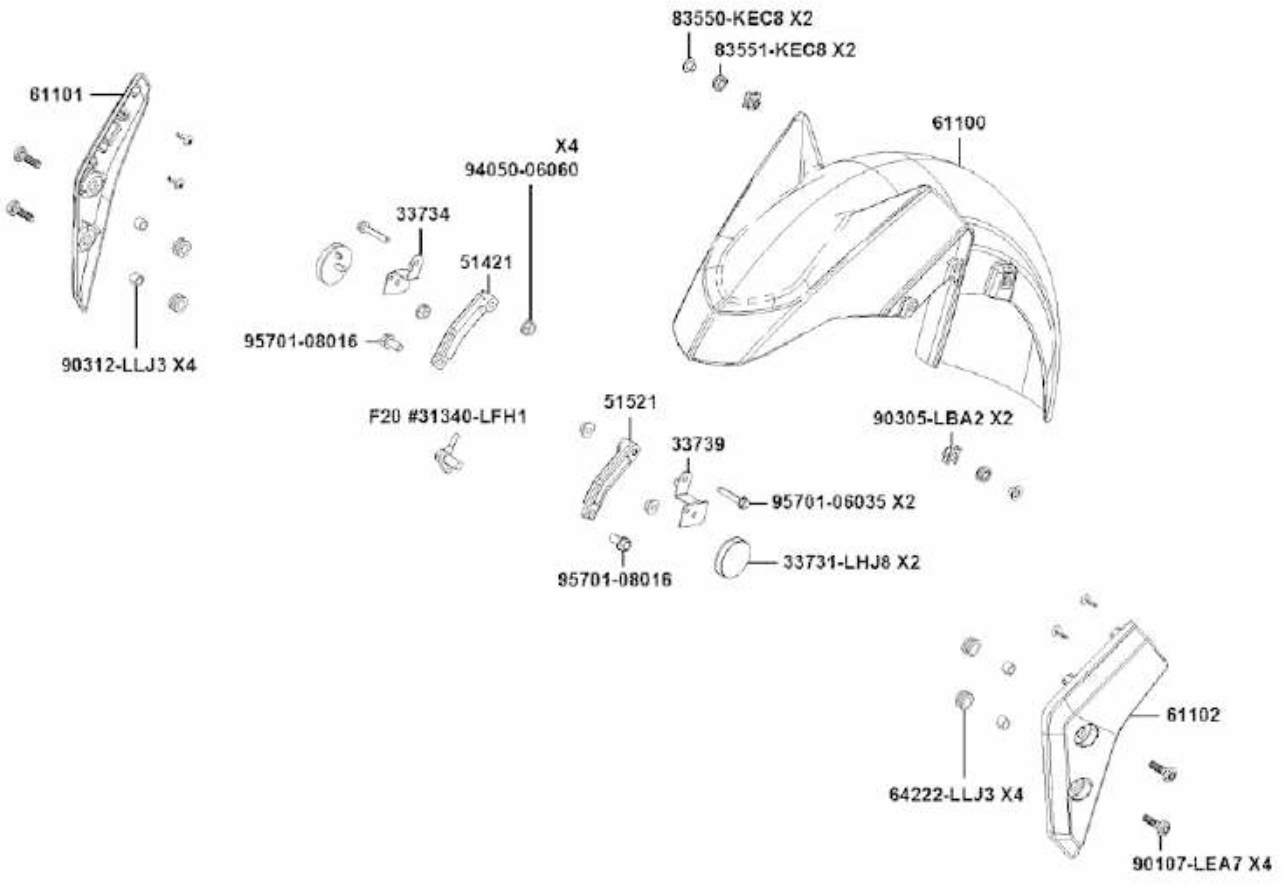
- Worn rear wheel axle bearings
- Worn rear fork bearings
- Deformed rear fork

Front Wheel

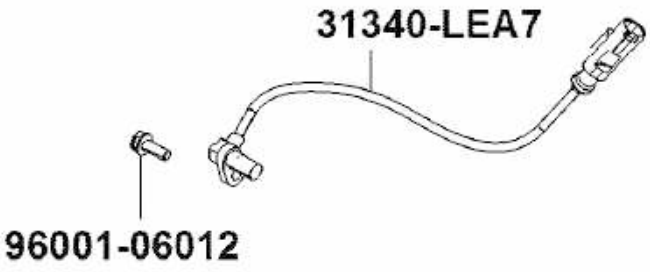
SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Front Fender Assy. Removal

Remove the bolts, plates and reflectors.
Remove the bolts and front fender assembly.



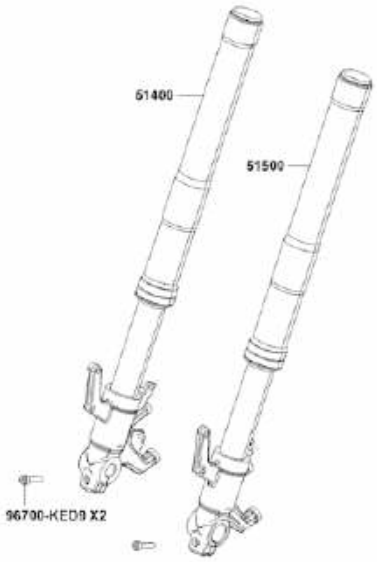
Remove the bolt of speed sensor.
And remove the speed sensor.



Remove two bolts and remove the front caliper. And remove the left of caliper.
Installation torque: 3~4 kgf-m (30~40 N-m)

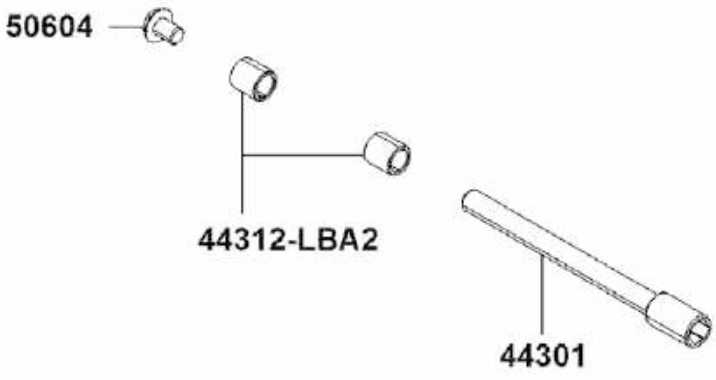
Remove the bolt of front axle.
Installation torque: 7~7.5 kgf-m (70~75 N-m)
The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.

Loosen the front axle pinch bolt with a 6 mm Allen.
Installation torque: 2~2.6 kgf-m (20~26 N-m)



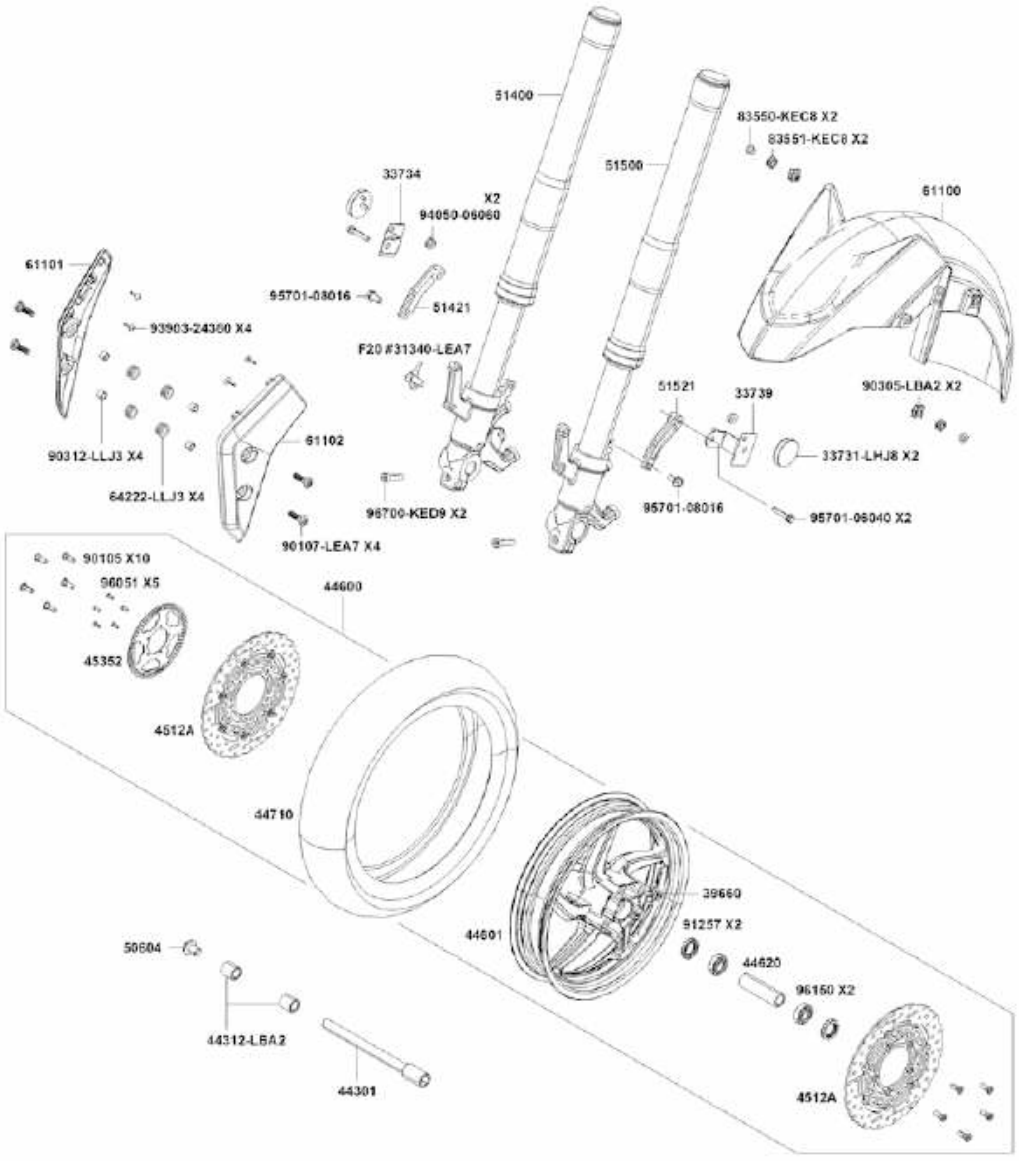
Lift the front end of the vehicle with a suitable stand or jack so that the front wheel comes off of the ground.
Support the front wheel and slide the front axle out from the left side.

Apply a light coat of grease to the front axle when installation.



Guide the front wheel out from the fork and the brake disc out from between the pads. Do not squeeze the brake lever while the disc is not present between the pads.

When installation: Apply grease to the lips of the dust seals and collar O-rings. Insert the collars into the hub.

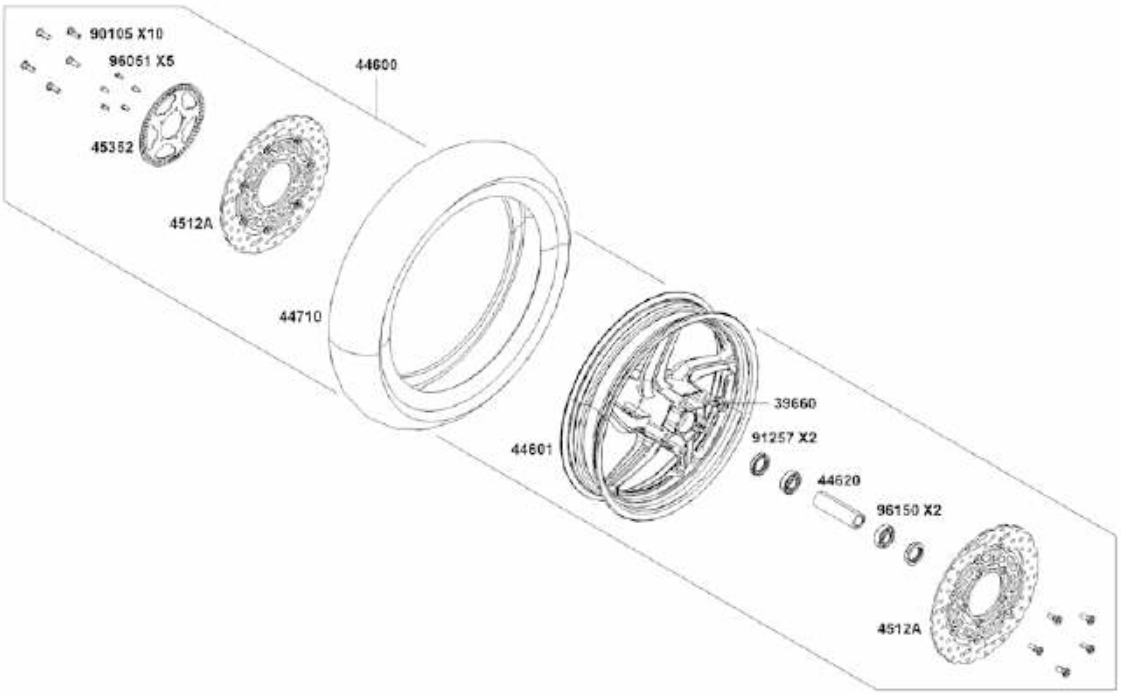


Front Wheel Disassembly

Remove the collars from each side of the wheel. Inspect the bearing seals and the O-rings seals on the collars. Replace the seals if they are in poor condition.

Inspect the wheels and axle.
Inspect the wheel bearings by turning them in the hub. If the bearings have play in them or are rough replace all the bearings for that wheel.

When installation: Make sure the tire direction of rotation marker is correct. Slide the front wheel into the fork. Fit the brake disc between the brake pads in the front caliper.
Set the front wheel on the ground. Pump the front suspension up and down several times to seat the front axle. Pump the front brake lever to establish pressure and to seat the pads against the disc. If the Brakes do not pump up correctly check the brake fluid.



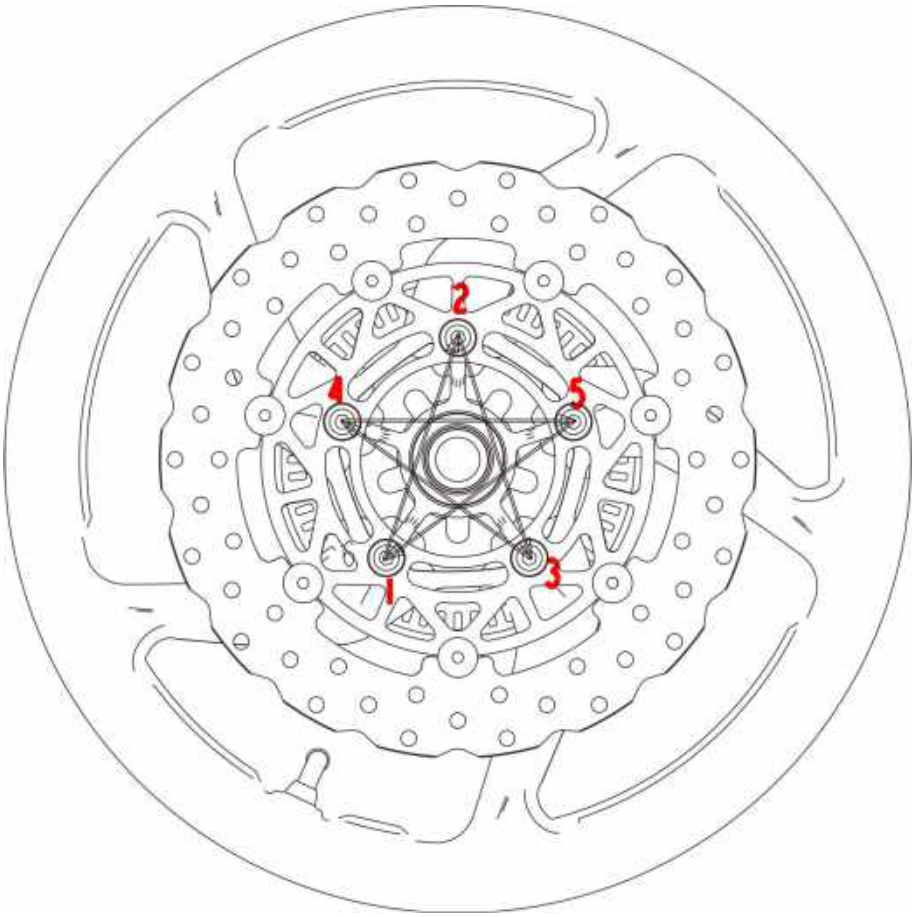
Loosen the front axle pinch bolt with a 6 mm Allen. Inspect the wheel speed sensor and brake disc for wear and damage. Replace the parts as needed.

Remove the bolts of brake disk.

The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.

When installation, follow the order below, first time tighten the bolts with torque: 1.5 kgf-m (15 N-m)

And second time installation torque: 3.2~3.8 kgf-m (32~38 N-m)



Wheel Bearing Replacement

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Replace bearings as a set, and do not reuse old bearings. Place the new bearings in the freezer about an hour before you plan to install them.

Remove the dust seal from the right side of the front wheel using a seal pick or large flat blade screwdriver. Discard the dust seal, it should be replaced by a new item.

Inspect the wheel bearings by turning them in the hub. If the bearings have excessive play in them or are rough replace all the bearings for that wheel.

Remove one of the bearings with a bearing puller.

Special Tools- Bearing Puller: E00037

Repeat the procedure and remove the other bearing and seal. The seal should be replaced with a new item.

Heat the bearing area of the wheel with a heat gun, take the bearing out of the freezer and install it. You can use a bearing installer tool or a socket with the same outside diameter as the bearing. Make sure the bearing is fully seated and the marked side is facing out.

Special Tools-Bearing Installer: E00014

Apply grease to the lips of the dust seals. Drive in new dust seals.

Rear Wheel Removal

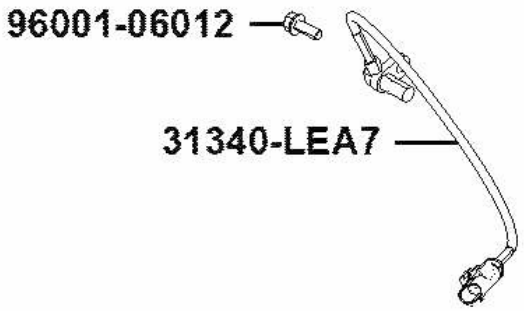
SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

• When performing the services stated in this section, the engine and exhaust muffler must be cold to avoid scalding.

• During servicing, keep oil or grease off the brake pads and brake disk.

Removal

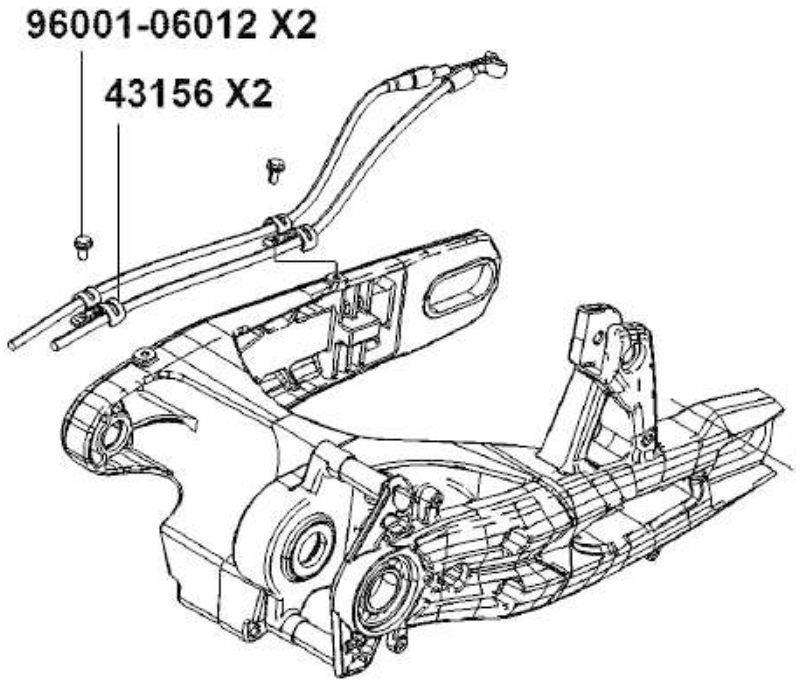
Remove the bolt and remove the speed sensor.



Release the cable of speed sensor.
And release the cable of rear brake.

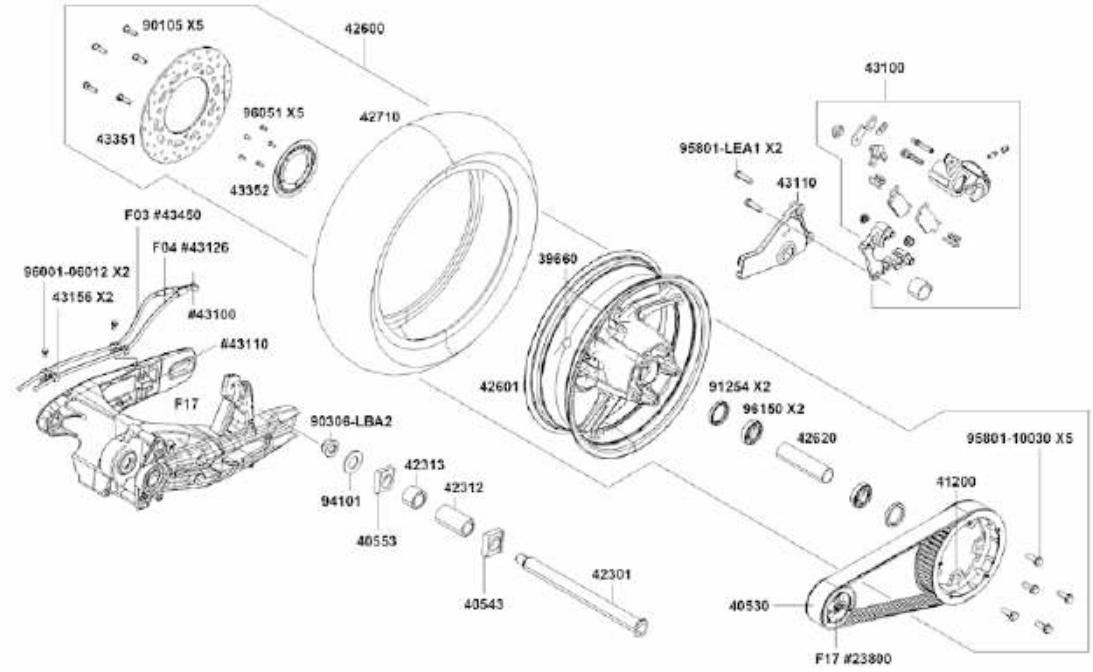
Remove the bolt of rear fixed plate.

Remove the bolt of front fixed plate.



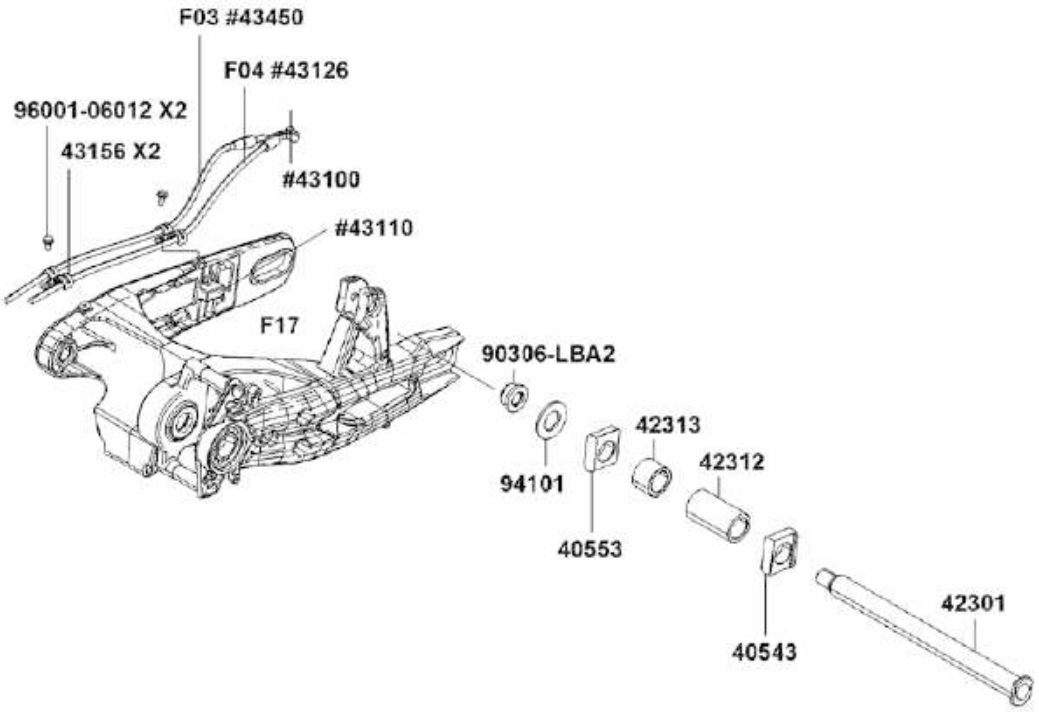
Loosen and remove the two bolts of rear caliper.
The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.
Installation torque: 3~4 kgf-m (30~40 N-m)


Remove the rear caliper.

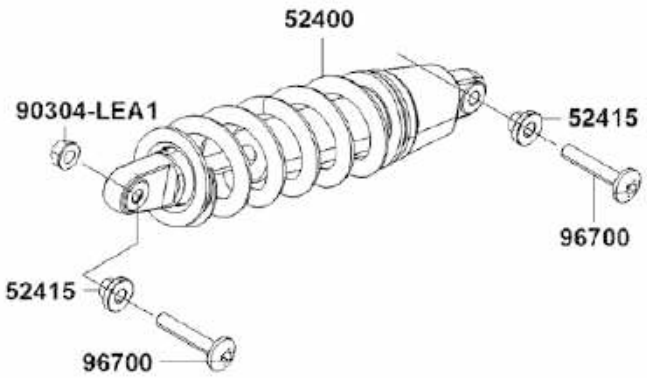
Loosen the fixed nut (front), rotate the adjust bolt (rear) counter clockwise and move wheel forward to loosen the belt.

Loosen and remove the rear wheel axle nut, move wheel forward to loosen the belt. Installation torque: 12~14 kgf-m (120~140 N-m)



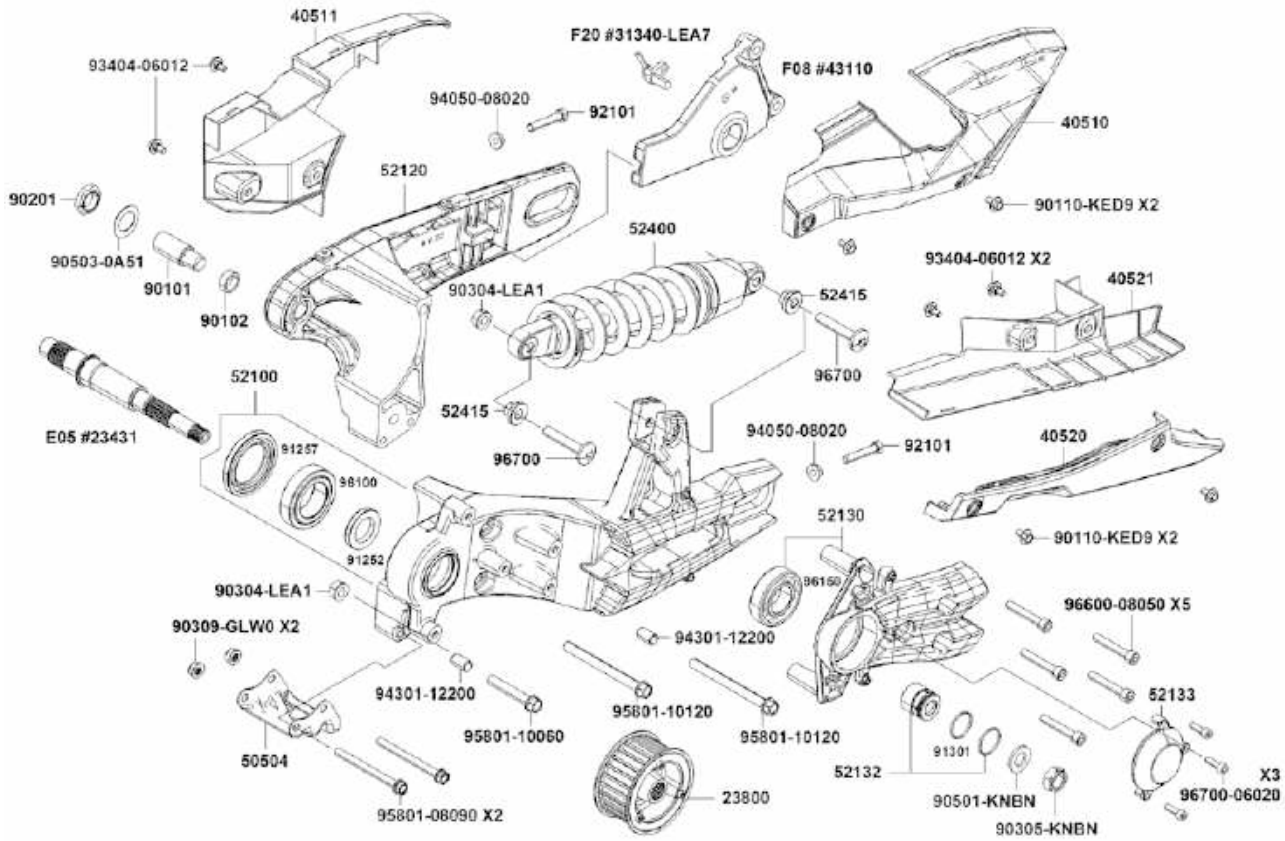
Loosen the fixed nut (left), and rotate the adjust bolt (right) counter clockwise to loosen belt.

Remove the two bolts and remove the rear cushion.
Installation torque: 3.5~4.5 kgf-m (35~45 N-m)



Slide out and remove the rear wheel axle.

Slide out the rear wheel assembly.



Rear Wheel Inspection

Remove the collar of the rear axle.

Remove the five bolts of the driven belt sprocket.
Installation torque: 3~4 kgf-m (30~40 N-m)

Remove the driven belt sprocket.

Remove the seal.
Replace with a new one and grease it when installation.


Replace the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub.
Remove one of the bearings with a bearing puller.
Special Tools- Bearing Puller: E00037


Heat the bearing area of the wheel with a heat gun, take the bearing out of the freezer and install it. You can use a bearing installer tool or a socket with the same outside diameter as the bearing. Make sure the bearing is fully seated and the marked side is facing out.

Special Tools-Bearing Installer: E00014

Apply grease to the lips of the dust seals. Drive in new dust seals.

Check the right side of the rear wheel.


Remove the collar.
And remove the 5 bolts of the rear ABS toothed ring.


Remove the rear ABS toothed ring.
Check the wear or damage, replace with a new one if necessary.


Remove the 5 bolts of the rear brake disk.
Check the wear or damage, replace with a new one if necessary.


Remove the brake disk.
Installation torque: 3.2~3.8 kgf-m (32~38 N-m)

The bolts are all with blue Loctite (non-permanent) to the threads. Using this type of bolts when installation.

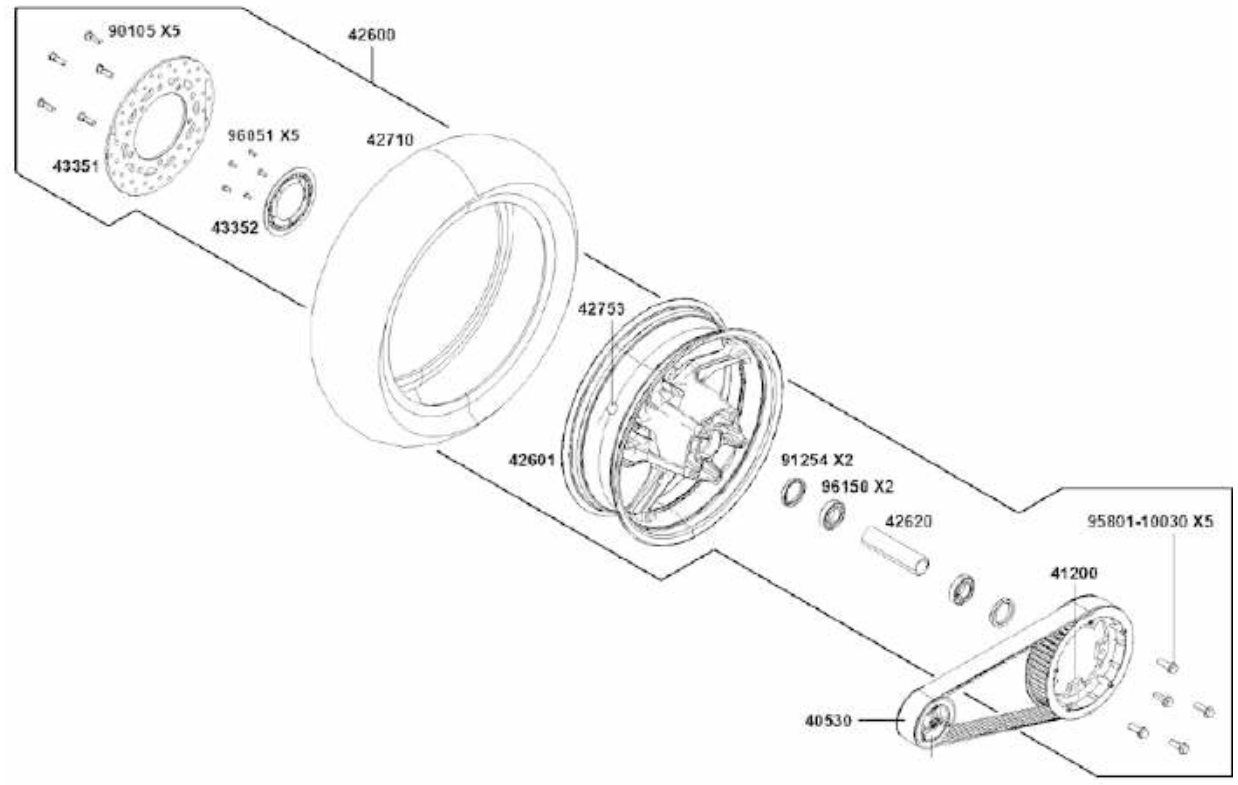

Inspect the wheel bearings by turning them with a finger. If the bearings have play in them or are rough replace the bearings for that wheel.
Remove one of the bearings with a bearing puller.
Special Tools- Bearing Puller: E00037


Heat the bearing area of the wheel with a heat gun, take the bearing out of the freezer and install it. You can use a bearing installer tool or a socket with the same outside diameter as the bearing. Make sure the bearing is fully seated and the marked side is facing out.

Special Tools-Bearing Installer: E00014
Apply grease to the lips of the dust seals. Drive in new dust seals.

Wheel Inspection

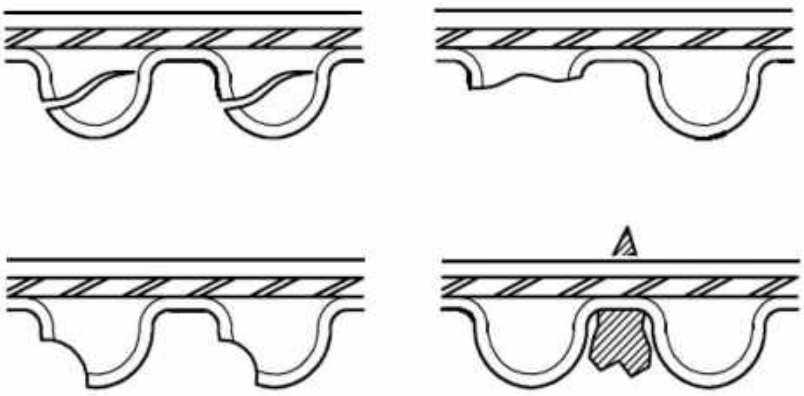
Turn the inner race of each bearing with your finger to see if they turn smoothly and quietly. Also check if the outer race fits tightly in the hub.
Replace the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub.



Rear Wheel Installation

Drive Belt Inspection

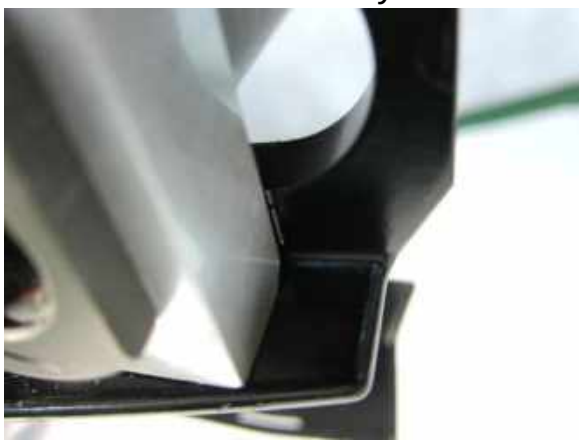
Check the drive belt.
If the drive belt crack, missing teeth, hook wear or damage replace the drive belt with a new one.

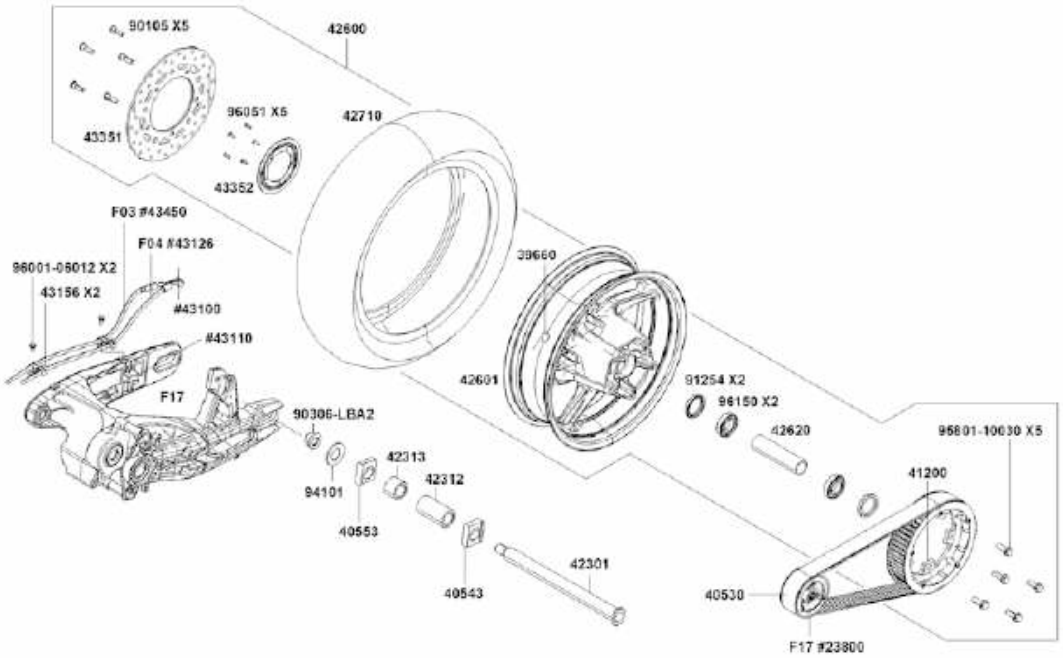


Drive Belt Installation

When installation: Make sure the belt direction of rotation marker is correct.

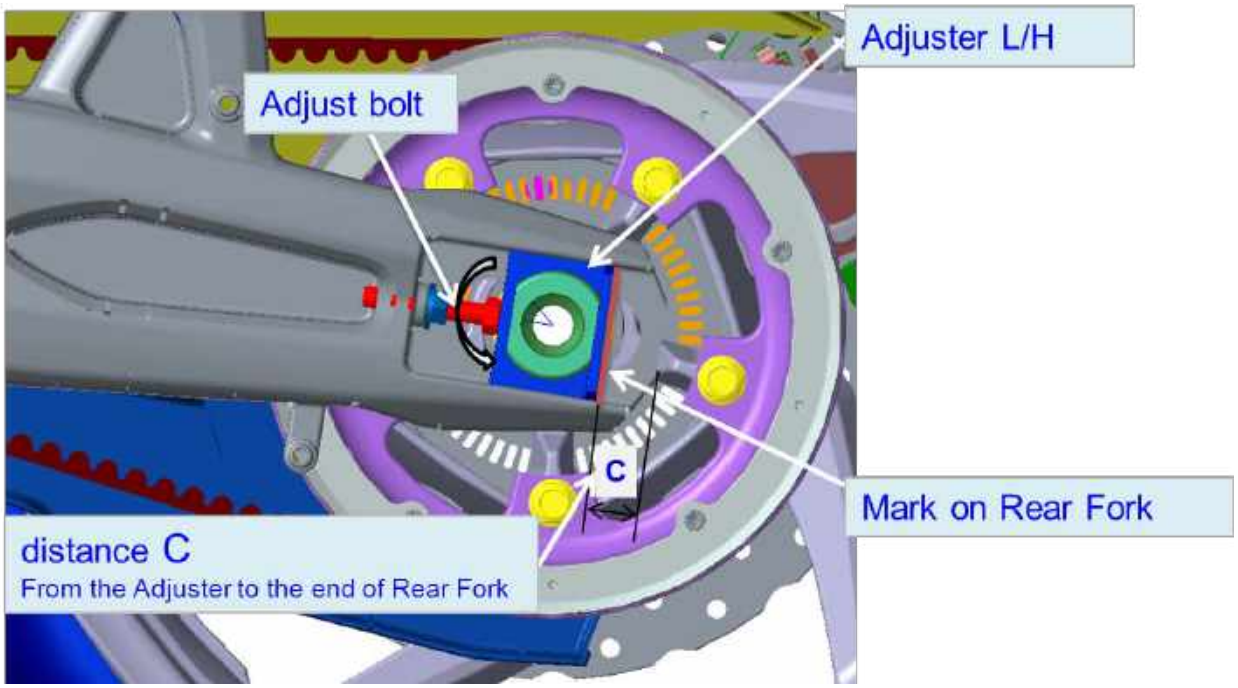
Rotate the adjust bolt clockwise until the plate edge align the mark to tense the belt then tighten the fixed nut. Right side is with the same way.





Drive Belt Tension Adjustment

Step 1: Adjusting the Adjusters



~1. Adjust L/H Adjuster place to the Mark on Rear Fork.

~2. Adjust R/H Adjuster place to be aligned the L/H Adjuster.

~3. Check the distance C of both L/H and R/H Adjusters are the same (18.8mm±0.5mm).

Step 2-1: Sonic Tension Meter setting and use
Recommended~ Gates Unitta, U-508

~1. Setting mass constant(M) / width(W) / span(S)
M 008.3 g/m **W** 040.0 mm/R **S** 0381 mm

~2. Align the meter probe and press “MEASURE” button.

~3. Knock the belt gently to get the tension reading.

Step 2-2: Measure the belt tension

P.S. distance C vs. tension (for reference only)
18.8mm --- (1300~1700N)
19.2mm --- (1100~1500N)

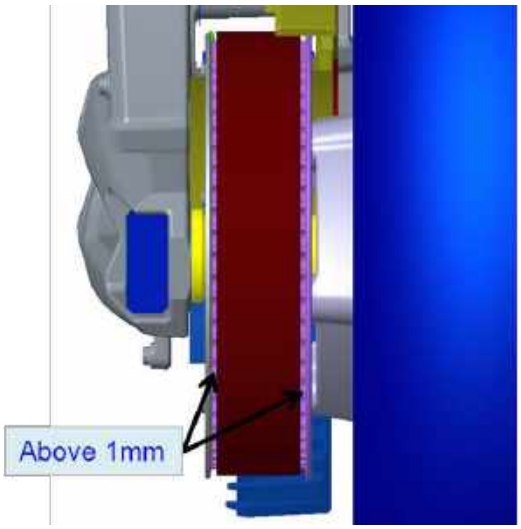
~1. Probe of Sonic Tension meter should be parallel to the belt as shown above pictures.

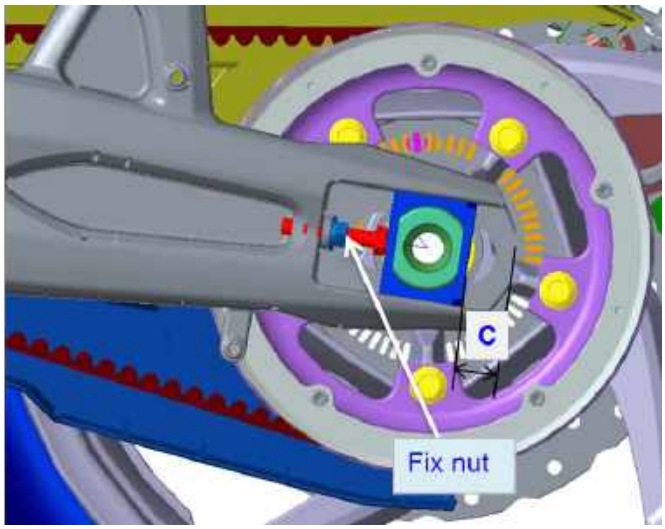
~2. Distance between probe and belt is approx. 1cm, location as shown above pictures.

~3. Appropriately hit the belt with metal tool.

~4. Tension reading should be 1300~1700N(brand new, after running 1000~1400N).

Step 3: Belt side Clearance





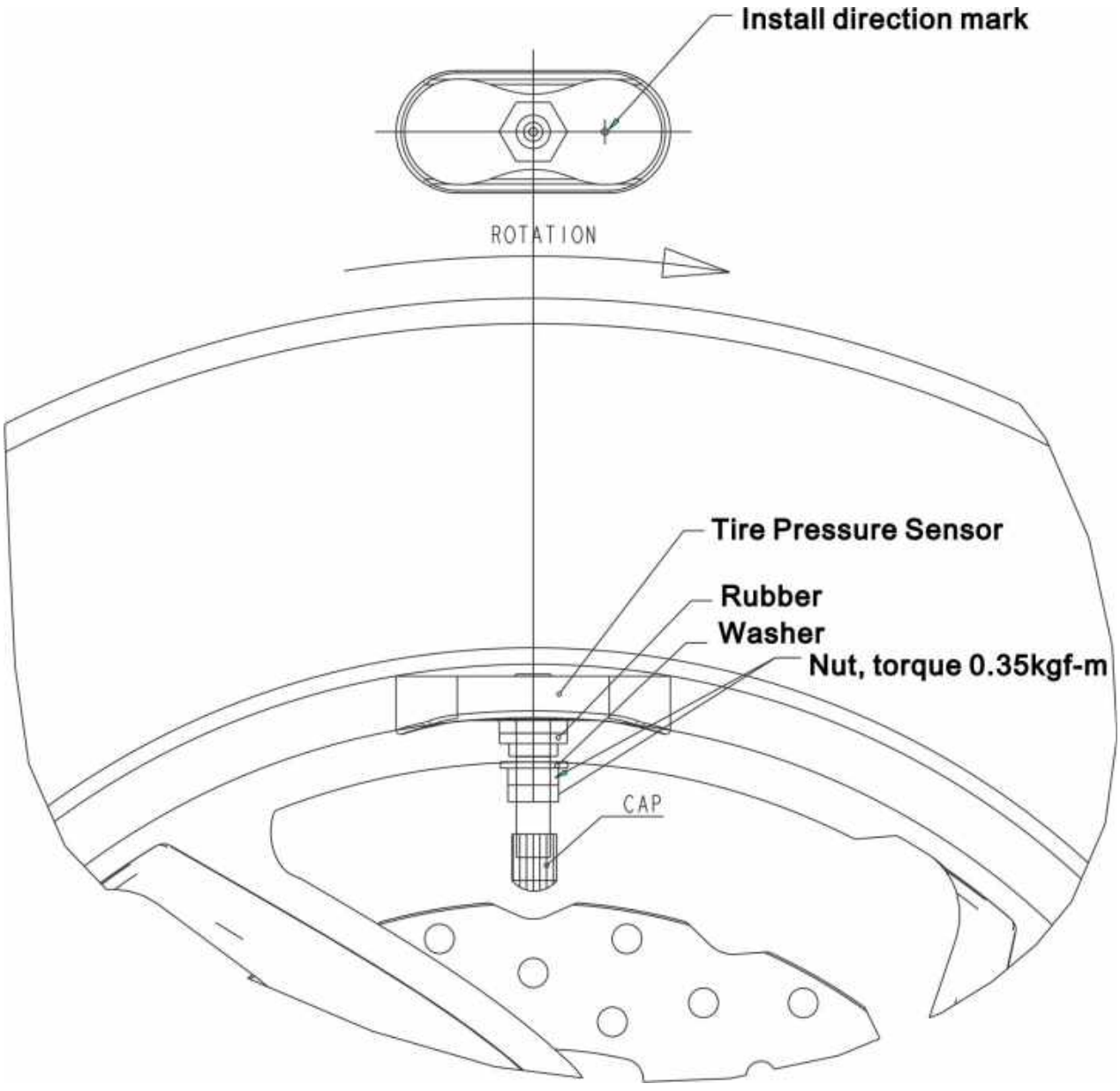
~1. Turn the wheel for several runs, check the belt is located at the center of driven pulley, (both sides clearance should be more than 1mm), if not, slightly adjust R/H Adjuster, and distance C of R/H and L/H Adjuster must remained within the range 18.8±0.5mm.

~2. Then, tightening the rear axle nut to specific tighten torque, and the fix nut(shown above) as well.

Tire Pressure Sensor

Remove the tire.
Loosen the nut and remove the tire pressure sensor.

When installation, notice the sensor direction and mounting torque as following instruction.



Tires

Check grip between tire and ground and a normal tire pressure.
In case of a gripping anomaly, check tire pressure for normal reading using a pressure gauge.

Pressure measurements of cool tire:

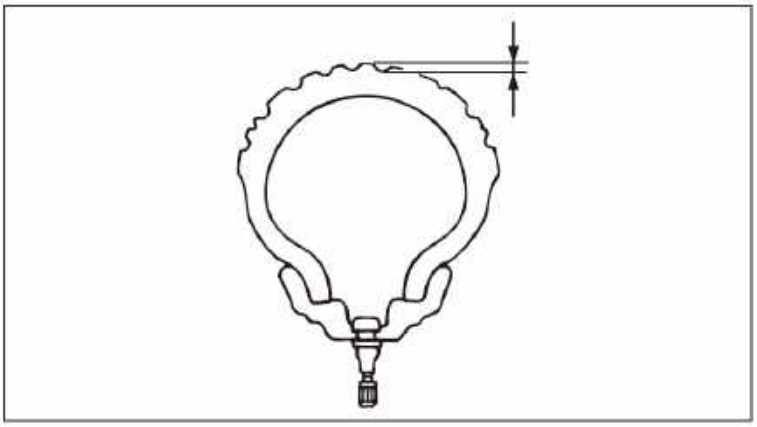
With 1 rider

Front Wheel 2.4 kgf/cm^2 Rear Wheel 2.7 kgf/cm^2

With 2 persons

Front Wheel 2.4 kgf/cm^2 Rear Wheel 2.7 kgf/cm^2

Measure pattern depth at center of tread pattern. Measurements shall be taken at several points due to uneven wear.
Replace the tire if any of the measurements is lower than the service limit. Make sure the wheel is properly balanced when a new tire is replaced.



Service Limits:

Front Wheel 0.8 mm

Rear Wheel 0.8 mm

Check Tread Pattern for Wear

Check tires before each riding. In case of finding a transverse line (minimum pattern depth), nail or glass chip on the tire, or crack line on the side wall of tire, go to Kymco dealer for replacing with new one. Excessive wear of tire tread pattern will result in widened tread which is more prone to be punctured.

Tire Dimensions:

Front Tire Dimensions: 120/70-R15 56H

Rear Tire Dimensions: 160/60-R15 67H

TPMS Tire Pressure Management System

Operation of TPMS, Electronic Tire Pressure Sensor

◆ TPMS consists of 2 wireless Tire Pressure Sensors (1 each on respective nozzle of front and rear tire) and a controller. The sensor detects the current tire pressure and sends the signal to Controller by wireless transmission. The Controller then sends the signal to Dashboard, informing the rider of pressure condition with the displayed indicator.

⚠ NOTICE

1. When KEYLESS Main Switch is set ON, the Tire Pressure Sensor related pressure symbol on the left side of Dashboard will light up; if this symbol then goes out automatically, the tire pressure is normal (as shown in the Figure).
2. When KEYLESS Main Switch is set ON, the Tire Pressure Sensor related pressure symbol on the left side of Dashboard will light up; if this symbol stays on constantly, the tire pressure is not normal (as shown in the Figure).

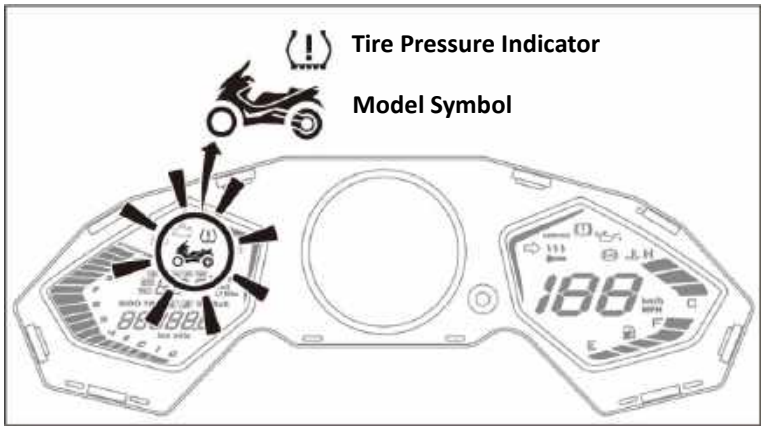
Front Tire Pressure ≧3.2kgf/cm2 or < 1.6kgf/cm2

Rear Tire pressure≧3.75kgf/cm2 or < 1.65kgf/cm2

The owner needs to replenish or release tire pressure if the reading is too low or too high. Consult the dealer for assistance if you have any questions.

(Standard tire pressure under normal inflation: Front Wheel 2.3kgf/cm2; Rear Wheel 2.7kgf/cm2)

3. Do Not remove wireless Tire Pressure Sensor or Controller, or TPMS function will be lost.
4. No re-adjustment of TPMS is required when a new tire or rim is replaced.
5. Re-adjustment of TPMS is required when replacing a new wireless tire pressure sensor and controller; please consult a KYMCO dealer.
6. When replacing a tire rim, the Tire Pressure Sensor shall be kept in a correct order to distinguish the front one and the rear one.



Owner Learn Code Operation:

- ◆ Applicable to owner and dealer service personnel.
- ◆ Re-adjustment of TPMS is required when replacing a new wireless tire pressure sensor and controller.
- ◆ When performing code learning, keep the vicinity clear of other vehicle or transmitter, to prevent miss-triggering.
- ◆ After installing Tire Pressure Sensor, inflate the tire to correct pressure and install it properly onto the vehicle.

Learn Code Activation Procedure:

1. Press and hold Operation Button (∧ button on the Handlebar), but it is necessary to switch over to Dashboard position “m” in advance.

2. KEY ON the KEYLESS Main Switch.

3. Release the Operation Button (∧) when the front tire of the Model Symbol flashes and tire pressure unit disappears.

4. TPMS is now entered into Code Learning Mode.

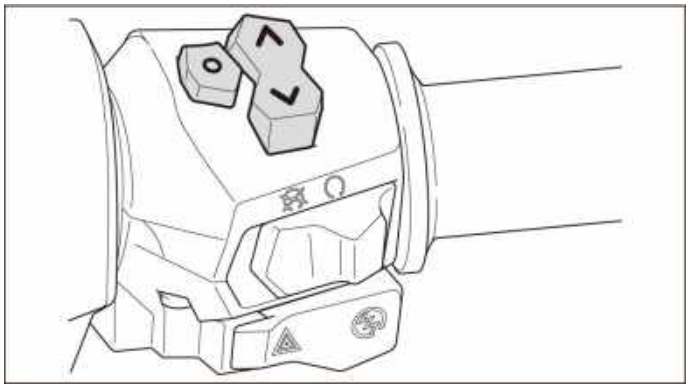
5. The Front Tire in the Symbol flashes continuously.

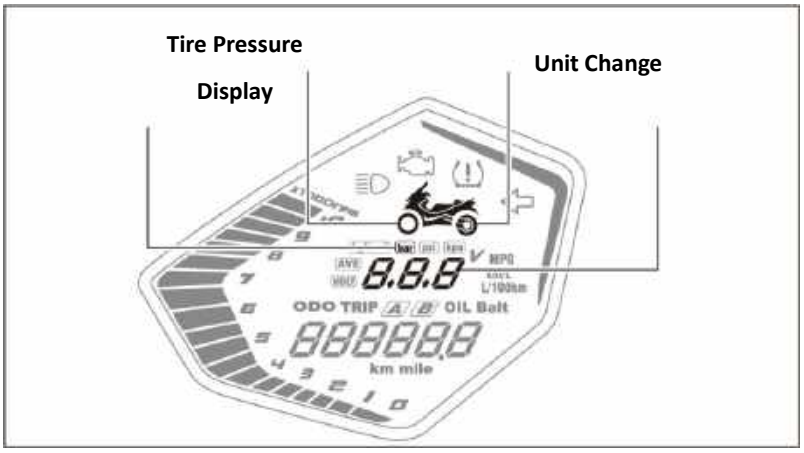
6. Operator releases or inflates the Front Tire to get a pressure change > 3psi, the sensor will be awakened within 1 minute; setting of the front wheel is complete when the pressure value appears.(If a Code Learn is not performed when the Front Tire flashes, press the UP button to jump to Rear Tire Code Learn. If a Code Learn is not accomplished within 2 minutes, the program exits Code Learn Mode.)

7. Now that the Rear Tire of the Model Symbol flashes continuously.

8. Operator releases or inflates the Rear Tire to get a pressure change > 3psi, the sensor will be awakened within 1 minute; setting of the rear wheel is complete when the pressure value appears.(If a Code Learn is not performed when the Rear Tire flashes, press the UP button to exit Code Learn Mode. If a Code Learn is not accomplished within 2 minutes, the program exits Code Learn Mode.)

9. Now that Front Tire flashes, tire pressure value appears with unit displayed.





Remarks:

1. The dealer and owner are requested to inflate the tires to 20psi or more, so that TPMS computer can automatically learn the initial values and facilitate the subsequent normal operation.

2. Re-do Code Learning after replacing parts.

3. When replacing a tire, care must be taken to avoid inserting a tool onto the nozzle.

4. Make sure the direction is correct when replacing a part.

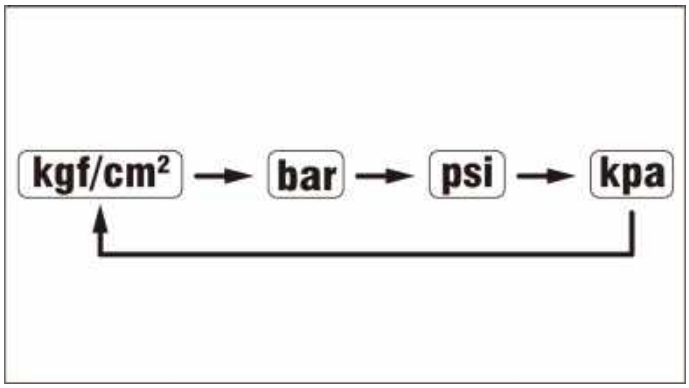
5. Tire Pressure values are for reference only.

6. Slackening of nut during parts installation will cause air leakage.

7. If tire pressure cannot be detected, the unit may be out of battery power and requires replacement of a new part.

Change Pressure Unit

Turn KEYLESS Main Switch ON, the Model Symbol will light up. Push the Dashboard and noodoe Switch to “m” position and press the UP button to change over to TPMS Mode. Pressing “O” button on the Right Handlebar Switch to change units in the sequence of [kgf/cm^2 → bar → psi → kpa].



■Anomaly:

1. With Main Switch set to ON, when Tire Pressure Indicator in the Dashboard lights up continuously, it may be due to a pressure > 3.2 kgf/cm^2 or < 1.6 kgf/cm^2 of Front Tire; or a pressure >3.75 kgf/cm^2 or < 1.65 kgf/cm^2 (23.4psi) of Rear Tire. Change over to TPMS Mode by pressing the Mode button, the tire pressure value will be flashing.

2. Tire Pressure Indicator will light up continuously if controller is faulty. Change over to TPMS Mode by pressing the Mode button, the Err symbol will appear.

3. Tire Pressure Indicator will light up continuously if signal of tire pressure sensor fails to reach the controller due to environmental interference. Change over to TPMS Mode by pressing the Mode button, - - - will appear.

4. When power of battery in Tire Pressure Sensor is low, Tire Pressure Indicator will light up constantly. Change over to TPMS Mode by pressing the Mode button, BAr will appear and flash. The owner shall prepare for replacing with a new wireless Tire Pressure Sensor.

5. Tire Pressure Indicator flashes quickly if tire pressure drops fast; it flashes slowly if tire pressure drops slowly.

15.EEC SYSTEM

This chapter covers the E.E.C system for the KYMCO AK 550.

WARNING:

• Before running the engine, make sure that the working area is well ventilated. Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas, which may cause death to people.

• Gasoline is extremely flammable and is explosive under some conditions. The working area must be well ventilated and do not smoke or allow flames or sparks near the working area or fuel storage area.

E.E.C System Introduction:

Evaporative Emission Control System

The evaporative emission control system is used to prevent gasoline vapors from escaping into the atmosphere from the fuel tank and fuel system.

Crankcase Emission Control System

The scooter is equipped with a closed crankcase system. Blow-by gas is recycled into the combustion chamber via the intake system. This arrangement is to prevent blow-by gas from spreading to the atmosphere.

Exhaust Emission Control System

The exhaust emission from the scooter is controlled by combustion management, fuel delivery, ignition setting and exhaust system. The exhaust system also includes the catalytic converter in the muffler.

Noise Exhaust Emission Control System

The engine, intake and exhaust systems of the scooter are designed to comply with federal or local noise regulations. Do not modify the intake or exhaust system, this behavior will offend against the noise regulations.

Note: Do not adapt any original factory design and setting, which will deteriorate the sound or emission level.

Function

Item	Function	Description
Evaporative Emission Control Valve	It is used to prevent gasoline vapors from escaping into the atmosphere from the fuel tank and fuel system.	Storage the gasoline vapors to canister, conduct the gasoline vapors to engine by vacuum when starting the engine.
Canister	Storage the gasoline vapors from fuel tank and fuel system.	The gasoline vapors storage by canister, to meet the regulation, the HC emission con not exceed 2 grams.
P.C.V	Recycle the fuel gas from the crankcase blow by.	Recycle the fuel gas from the crankcase blow by to the engine.
Oxygen Sensor	To control the air/fuel mixture in best condition.	Sending the mixture condition info to ECU by voltage signal, ECU control the fuel injection to meet the emission regulation.
Catalyst	To reduce the emission of HC, CO and NOx produced from the exhaust gas.	Using the catalyst convert the HC and CO to oxygen and reduce the NOx pollution.
ECU	To control the injector, ignition and bypass air of fuel injection system to reach the best driving condition.	ECU (Electric Control Unit), receiving sensor which equipped on engine to precisely control fuel injection and ignition to reduce the exhaust emission pollution.

Trouble Shooting

Low engine power, instable engine idle speed

- Clog in canister or tubes.
- Emission control valve malfunction.
- E.E.C. system tubes loosen or crack.
- ECU malfunction.

Engine idle speed and acceleration in bad condition

- Clog in canister or tubes.
- Emission control valve malfunction.

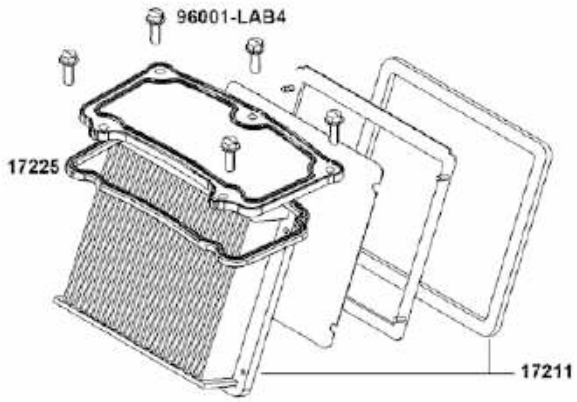
Air Filter Servicing

SAFETY FIRST: Protective gloves and eyewear are recommended at this point.

Replace the air filter according to the Maintenance Schedule, and more often in exceptionally rainy or dusty areas.

Air cleaner element replacement

Remove bolts from the air cleaner element set , then remove and discard this air cleaner element.



The new air cleaner element set installation is in the reverse order of removal.

Use the KYMCO genuine air cleaner element or an equivalent air cleaner element specified for your model. Using the wrong KYMCO air cleaner element or a non-KYMCO air cleaner element which is not of equivalent quality may cause premature engine wear or performance problems..

Remove the air filter from the airbox. Discard the air filter in favor of a new item.

Caution:

- The air cleaner element has a viscous type paper element. Do not clean it with compressed air.
- Be sure to install the air cleaner element and cover securely.

Maintenance Information

Note of maintenance:

Install the tubes in correct position.
If the tubes broken should be replaced with a new one.
The tubes should be installed tightly.
The leakage hole should be installed downward.

Tool

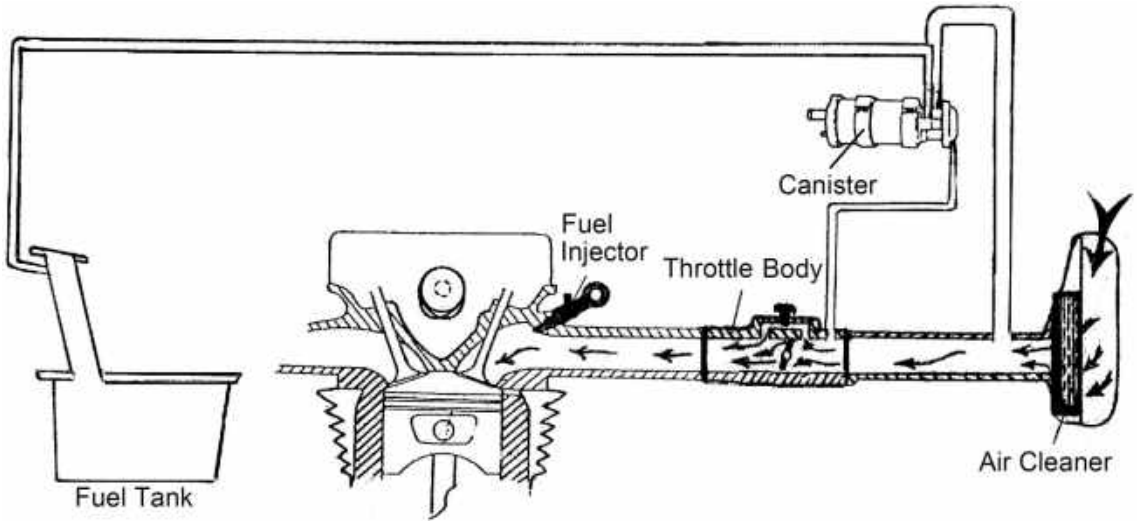
Vacuum pump
Pressure pump

Maintenance standard

Emission vacuum standard: 45m/mHg
Capacity of canister: 90cc
Install angle: incline 60°

Evaporative Emission Control System

The location of tube connection diagram.



Leakage checking

1. Connection between canister and fuel tank.
2. Tubes of canister.

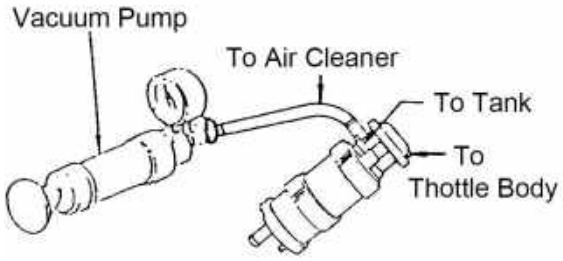
Dismantle of Canister

1.Dismantle the windshield, front cover and head light assembly.
2.Dismantle the canister tube set and canister.

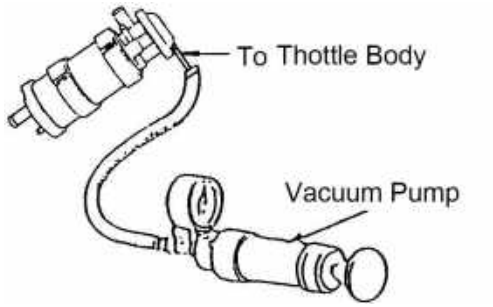
Canister

Inspection of canister evaporative control valve

Connecting a vacuum pump to the tube of canister. (Follow the illustration below.)
Applying 250m/mHg pressure to the canister evaporative control valve.
If the pressure will be kept without change obviously in one minute, that means the valve are with good condition, otherwise the valve malfunction, a new canister should be replaced.



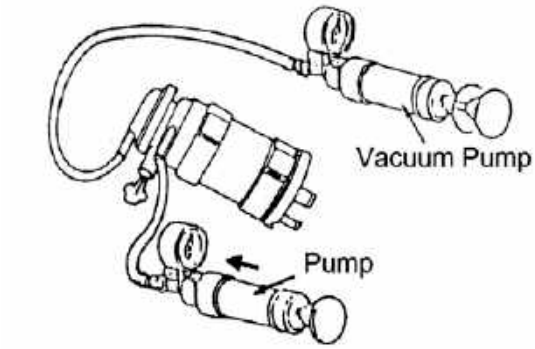
Connecting a vacuum pump to the tube of canister. (Follow the illustration below.)
Applying 45m/mHg vacuum pressure to the canister evaporative control valve.
If the pressure will be kept without change obviously in one minute, that means the valve are with good condition, otherwise represents the valve with malfunction. A new canister should be replaced.



Inspection of the flow rate of the canister vacuum valve

1. Using a vacuum pump connecting to the vacuum tube of canister and apply 45m/mHg of negative pressure.

2. Apply pressure to the emission control valve of canister, if the flow rate above 9.4 litters per minute that means the valve is in good condition, otherwise the canister should be replaced.



NOTE: Always using the pump by manual, do not apply high pressure for testing to prevent the valve from malfunction.

Installation of canister

1.Installation is the reverse order to the dismantling.

2.Connect the tubes and circlips firmly.

NOTE: The tube should not be wrenched or crashed and never refit the canister.

P.C.V. Dismantle

1.Dismantle the cover of air cleaner.

2.Dismantle the P.C.V cover.

3.P.C.V , if there is oil in the red drain tube, it should be cleaned.

Inspection of emission system

Clean or replace the air cleaner.
Inspection of the spark plug.
Inspection of the ignition system.
Plug in the diagnostic tool the check the information.
Warm up the engine reach above 80°C.

This model equipped the catalyst in the muffler to reduce the pollution emission.

Inspection Of Catalyst Converter

Inspection of catalyst converter efficiency at idle speed.
Warm up the engine 8~10 minutes, connect to emission machine.
To check the CO value before catalyst and after.
Normally, measuring after catalyst converting, the CO figure will be lower than the CO figure before catalyst converting.
If the number is abnormal, the catalyst converter could be deteriorated, the exhaust pipe should be replaced to prevent from the further pollution.

Oxygen Sensor

It uses DC-8-16V Battery Power with 4 pins: one power pin, one heater pin, one signal output pin and one earthing pin. The sensor is installed to the front pipe of exhaust pipe to detect the oxygen concentration of exhaust gas for determining if ECU shall instruct to increase or reduce fuel supply for meeting waste gas emission standard of environment legislation. When the temperature of exhaust is less than 350℃, the sensing portion can not be activated and there is no signal output, and ECU will turn on the heater inside sensor to accelerate the temperature rise of sensor and cause the Oxygen Sensor to work normally. In normal hours, the impedance of heater is 7.7 +/- 1.2 ohm and can be told with multimeter. Output of sensor after the engine is warmed up is
A/F <14.7 (mixing ratio too thick) >0.7V
A/F > 14.7 (Mixing ratio too thin) <0.18V

Inspection and adjustment of emission

1.Start the engine and warm up for several minutes engine temperature 80~90℃, connect the diagnostic tool to check the information.
2.Idle speed should be in standard.
3.The emission machine should be connected to the front of the exhaust pipe measure hole. (Before Catalyst Converter)

4.Standard：CO:0.3~1.5 %

5.If the figure is out of range, check with the injection relative components.(For example, injector, fuel pump…etc.)
6.If the problem insist, please check the emission related system and check if there is any leakage from the cylinder head inlet/outlet valve.