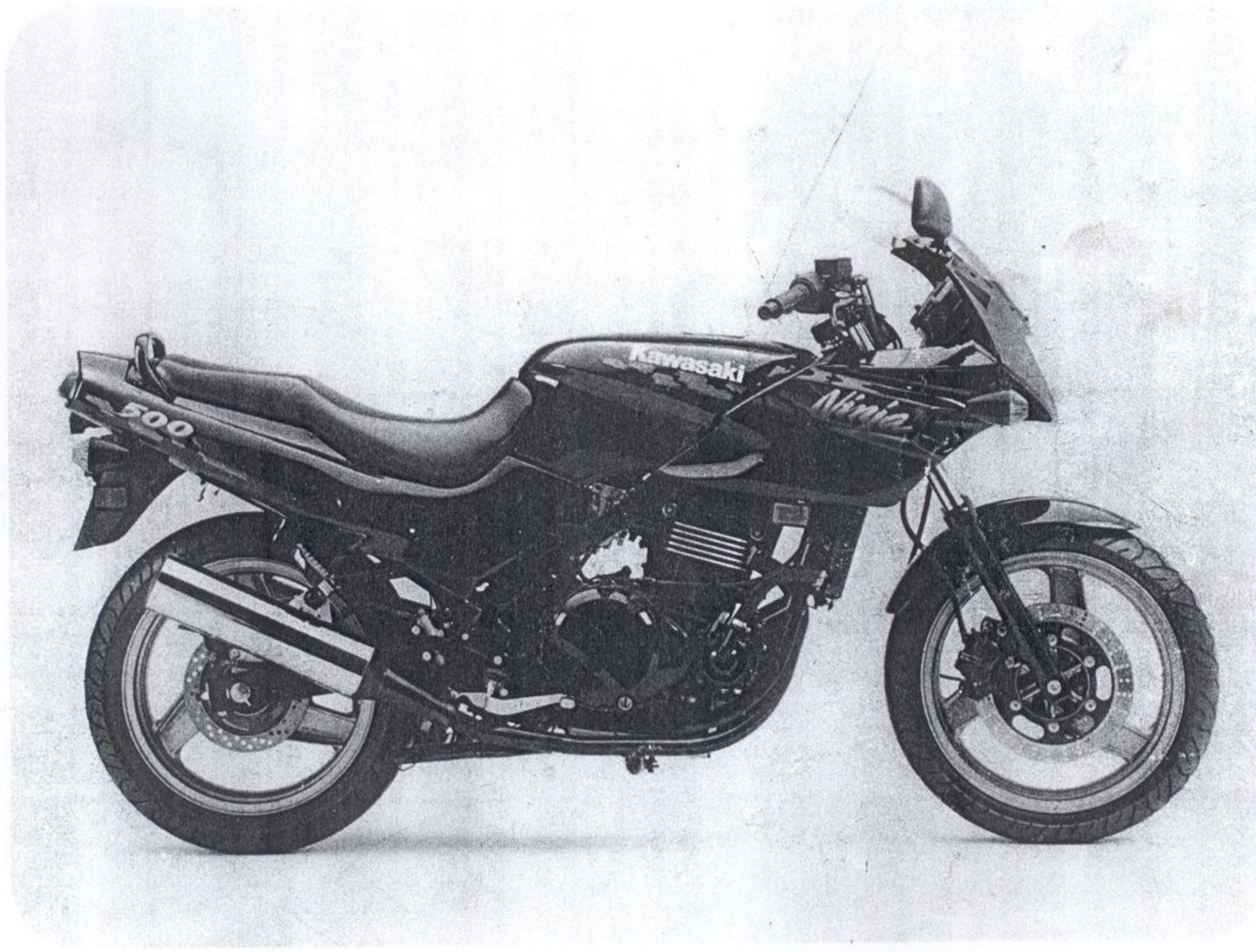
Kawasaki

Ninja 500
GPZ 500S



Motorcycle
Service Manual
Supplement

Kawasaki

Ninja 500
GPZ 500S

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Service Manual
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First Edition (1) : Nov. 1, 1993 (C)

LIST OF ABBREVIATIONS

A	ampere(s)	lb	pound(s)
ABDC	after bottom dead center	m	meter(s)
AC	alternating current	min	minute(s)
ATDC	after top dead center	N	newton(s)
BBDC	before bottom dead center	Pa	pascal(s)
BDC	bottom dead center	PS	horsepower
BTDC	before top dead center	psi	pound(s) per square inch
°C	degree(s) Celsius	r	revolution
DC	direct current	rpm	revolution(s) per minute
F	farad(s)	TDC	top dead center
°F	degree(s) Fahrenheit	TIR	total indicator reading
ft	foot, feet	V	volt(s)
g	gram(s)	W	watt(s)
h	hour(s)	Ω	ohm(s)
L	liter(s)		

Read OWNER'S MANUAL before operating.

Quick Reference Guide

This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired chapter number with the black tab on the edge at each table of contents page.
- Refer to the sectional table of contents for the exact pages to locate the specific topic required.

1

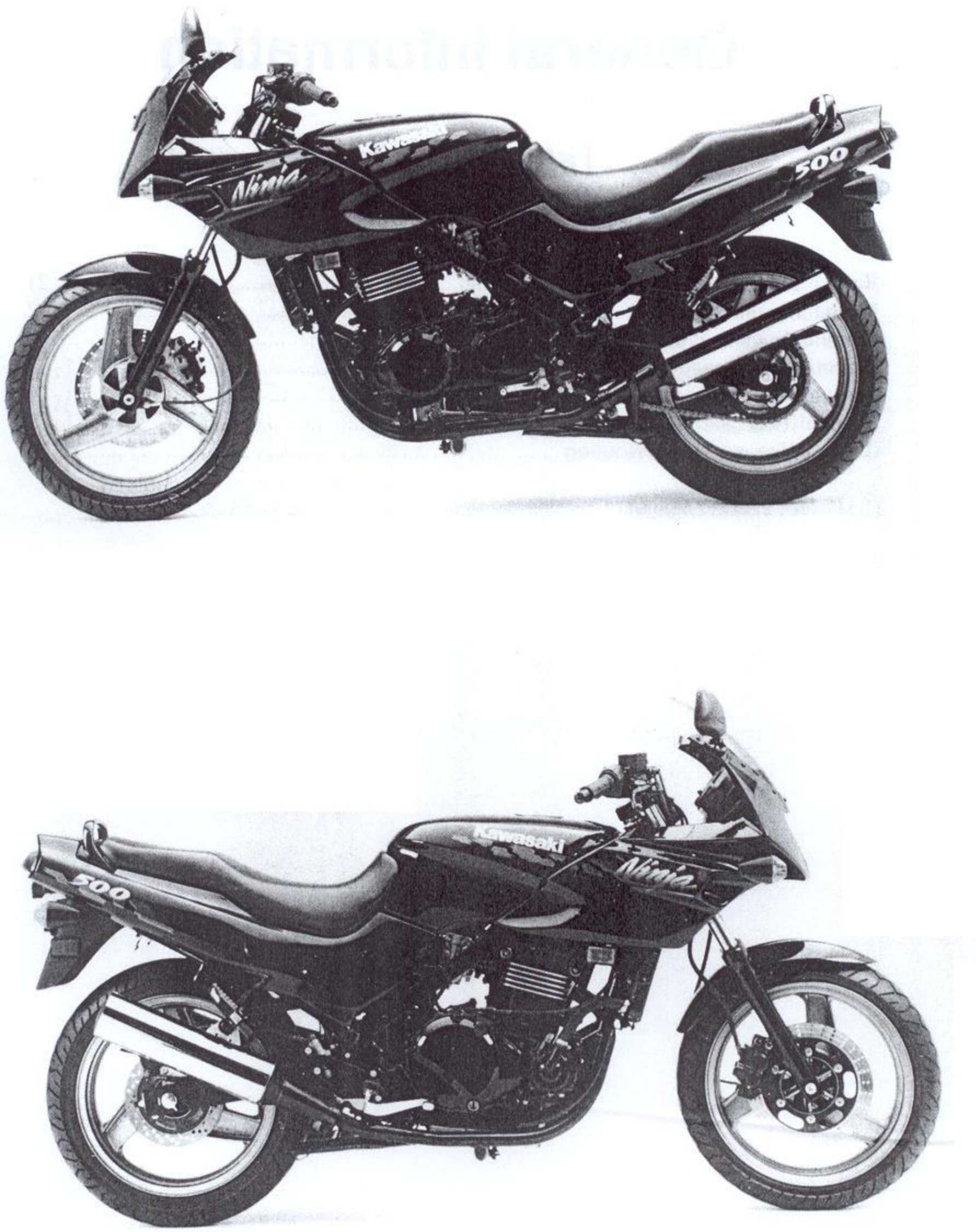
General Information

Table of Contents

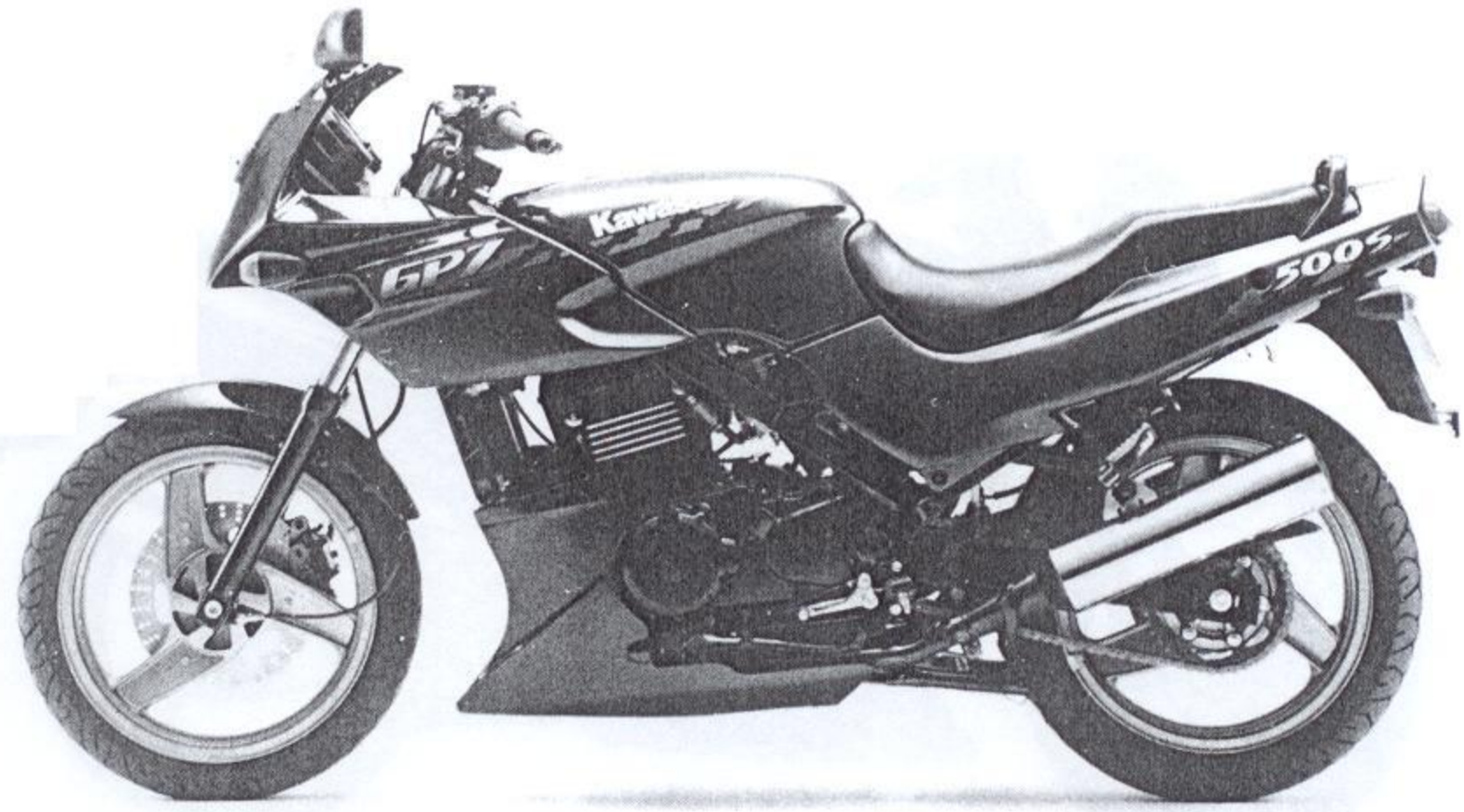
( ): Refer to Base Manual

Model Identification

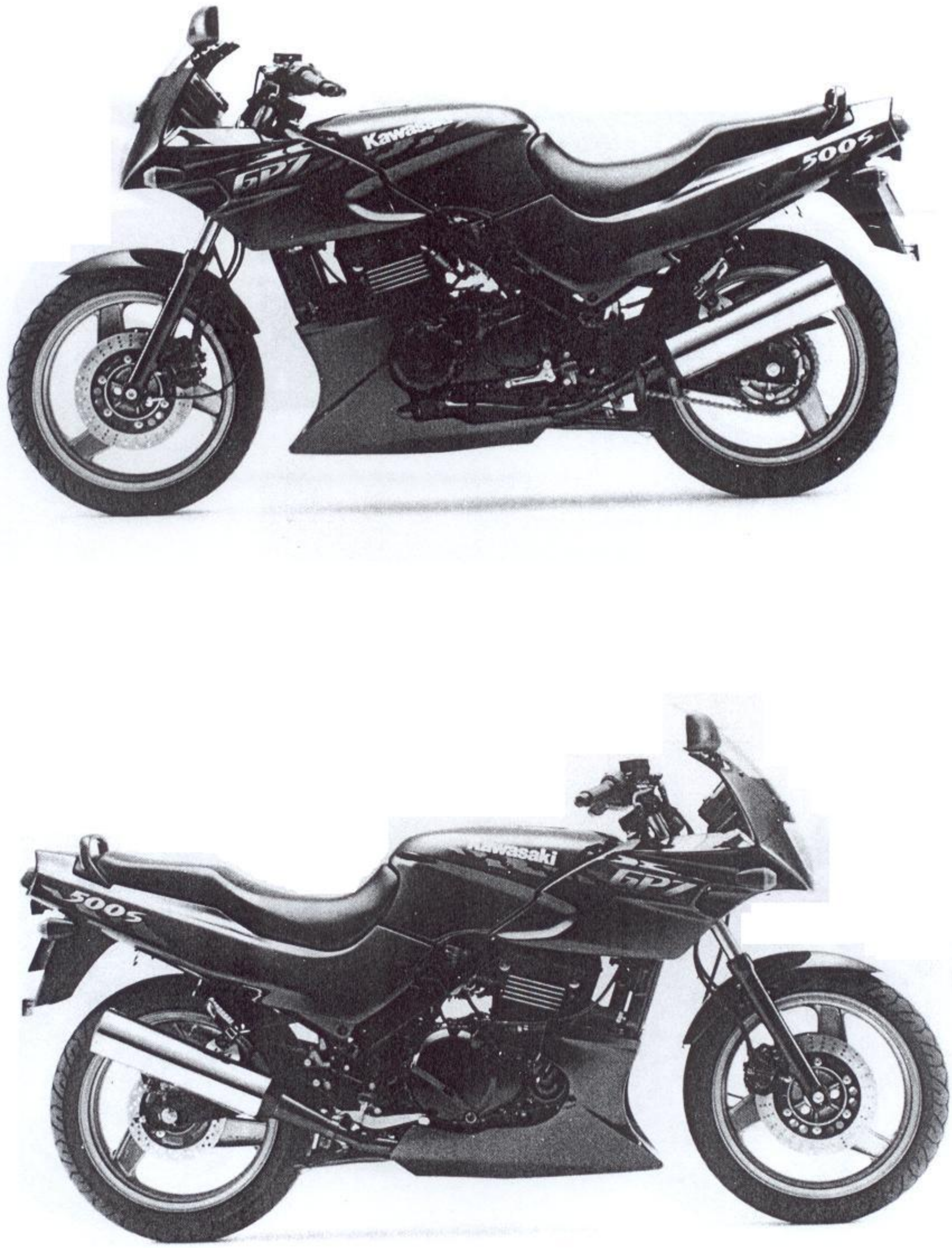
EX500-D1 (US, Canada Models)



EX500-D1 (UK, Sweden Models), EX500-F1



EX500-E1



General Specifications

Items	EX500-D1
Dimensions:	
Overall length	2 095 mm, (SD) 2 115 mm
Overall width	700 mm
Overall height	1 160mm
Wheelbase	1 435 mm
Road clearance	120 mm
Seat height	775 mm
Dry weight	176 kg, (CA) 176.5 kg, (SD, UK) 177 kg
Curb weight: Front	93 kg, (CA) 93.5 kg
Rear	104 kg, (SD, UK) 105 kg
Fuel tank capacity	18 L
Performance:	
Minimum turning radius	2.8 m
Engine:	
Type	4-stroke, DOHC, 2-cylinder
Cooling system	Liquid-cooled
Bore and stroke	74.0 x 58.0 mm
Displacement	498 mL
Compression ratio	10.8
Maximum horsepower	44.1 kW (60 PS) @9 800 r/min (rpm)
	(US, CA) – – –
Maximum torque	46.1 N-m (4.7 kg-m, 34.0 ft-lb) @8 500 r/min (rpm)
	(US, CA) – – –
Carburetion system	KEIHIN CVK34 × 2
Starting system	Electric starter
Ignition system	Battery and coil (transistorized)
Timing advance	Electronically advanced (digital igniter)
Ignition timing	From 10° BTDC @1 200 r/min (rpm) to
	37.5° BTDC @10 000 r/min (rpm)
Spark plug	NGK D9EA or ND X27ES-U
	(CN) NGK DR9EA or ND X27ESR-U
Cylinder numbering method	Left to right, 1-2
Firing order	1-2
Valve timing:	
Inlet Open	45° (BTDC)
Close	65° (ABDC)
Duration	290°
Exhaust Open	70° (BBDC)
Close	40° (ATDC)
Duration	290°
Lubrication system	Forced lubrication (wet sump)
Engine oil:	
Grade	SE, SF or SG class
Viscosity	SAE10W-40, 10W-50, 20W-40, or 20W-50
Capacity	3.4 L
Drive Train:	
Primary reduction system:	
Type	Gear
Reduction ratio	2.652 (61/23)
Clutch type	Wet multi disc

Items		EX500-D1
Transmission:		
Type		6-speed, constant mesh, return shift
Gear ratios:	1st	2.571 (36/14)
	2nd	1.777 (32/18)
	3rd	1.380 (29/21)
	4th	1.125 (27/24)
	5th	0.961 (25/26)
	6th	0.851 (23/27)
Final drive system:		
Type		Chain drive
Reduction ratio		2.562 (41/16)
Overall drive ratio		5.789 (Top gear)
Frame:		
Type		Tubular, double cradle
Caster (rake angle)		27°
Trail		91 mm
Front tire:		
	Type	Tubeless
	Size	110/70-17 54H
Rear tire:	Type	Tubeless
	Size	130/70-17 62H
Front suspension:		
	Type	Telescopic fork
	Wheel travel	130 mm
Rear suspension:		
	Type	Swingarm (uni-trak)
	Wheel travel	100 mm
Brake type:	Front	Single disc
	Rear	Single disc
Electrical Equipment:		
Battery		12 V 14 Ah
Headlight:	Type	Semi-sealed beam
	Bulb	12 V 60/55 W (quartz-halogen)
Tail/brake light		12 V 5/21 W × 2, (CA, CN, US) 12 V 8/27 W × 2
Alternator:	Type	Three-phase AC
	Rated output	17 A–14V @6 000 r/min (rpm)

Specifications are subject to change without notice, and may not apply to every country.

(CA) : California Model
(CN) : Canada Model
(SD) : Sweden Model
(US) : U.S. Model
(UK) : U.K. Model

Items		EX500-E1
Dimensions:		
Overall length		2 095 mm, (FG, GR, NR) 2 115 mm
Overall width		700 mm
Overall height		1 160mm
Wheelbase		1 435 mm
Road clearance		120 mm
Seat height		775 mm
Dry weight		179 kg
Curb weight:	Front	96 kg
	Rear	104 kg
Fuel tank capacity		18 L
Performance:		
Minimum turning radius		2.8 m
Engine:		
Type		4-stroke, DOHC, 2-cylinder
Cooling system		Liquid-cooled
Bore and stroke		74.0 x 58.0 mm
Displacement		498 mL
Compression ratio		10.8
Maximum horsepower		44.1 kW (60 PS) @9 800 r/min (rpm) (FG) 25.0 kW (34 PS) @8 500 r/min (rpm) (FR) 42.7 kW (58 PS) @9 800 r/min (rpm) UTAC's norm
Maximum torque		46.1 N-m (4.7 kg-m, 34.0 ft-lb) @8 500 r/min (rpm) (FG) 33.5 N-m (3.4 kg-m, 24.6 ft-lb) @4 300 r/min (rpm) (FR) – – –
Carburetion system		KEIHIN CVK34 × 2
Starting system		Electric starter
Ignition system		Battery and coil (transistorized)
Timing advance		Electronically advanced (digital igniter)
Ignition timing		From 10° BTDC @1 200 r/min (rpm) to 37.5° BTDC @10 000 r/min (rpm)
Spark plug		NGK DR9EA or ND X27ESR-U
Cylinder numbering method		Left to right, 1-2
Firing order		1-2
Valve timing:		
Inlet	Open	45° (BTDC)
	Close	65° (ABDC)
	Duration	290°
Exhaust	Open	70° (BBDC)
	Close	40° (ATDC)
	Duration	290°
Lubrication system		Forced lubrication (wet sump)
Engine oil:		
Grade		SE, SF or SG class
Viscosity		SAE10W-40, 10W-50, 20W-40, or 20W-50
Capacity		3.4 L
Drive Train:		
Primary reduction system:		
Type		Gear
Reduction ratio		2.652 (61/23)
Clutch type		Wet multi disc

Items		EX500-E1
Transmission:		
Type		6-speed, constant mesh, return shift
Gear ratios:	1st	2.571 (36/14)
	2nd	1.777 (32/18)
	3rd	1.380 (29/21)
	4th	1.125 (27/24)
	5th	0.961 (25/26)
	6th	0.851 (23/27)
Final drive system:		
Type		Chain drive
Reduction ratio		2.562 (41/16)
Overall drive ratio		5.789 (Top gear)
Frame:		
Type		Tubular, double cradle
Caster (rake angle)		27°
Trail		91 mm
Front tire:		
	Type	Tubeless
	Size	110/70-17 54H
Rear tire:	Type	Tubeless
	Size	130/70-17 62H
Front suspension:		
	Type	Telescopic fork
	Wheel travel	130 mm
Rear suspension:		
	Type	Swingarm (uni-trak)
	Wheel travel	100 mm
Brake type:	Front	Dual discs
	Rear	Single disc
Electrical Equipment:		
Battery		12 V 14 Ah
Headlight:	Type	Semi-sealed beam
	Bulb	12 V 60/55 W (quartz-halogen)
Tail/brake light		12 V 5/21 W × 2
Alternator:	Type	Three-phase AC
	Rated output	17 A–14V @6 000 r/min (rpm)

Specifications are subject to change without notice, and may not apply to every country.

(FR) : France Model
(FG) : Germany Model
(NR) : Norway Model
(GR) : Greece Model

Items		EX500-F1
Dimensions:		
Overall length		2 095 mm
Overall width		700 mm
Overall height		1 160mm
Wheelbase		1 435 mm
Road clearance		120 mm
Seat height		775 mm
Dry weight		176 kg
Curb weight:	Front	93 kg
	Rear	104 kg
Fuel tank capacity		18 L
Performance:		
Minimum turning radius		2.8 m
Engine:		
Type		4-stroke, DOHC, 2-cylinder
Cooling system		Liquid-cooled
Bore and stroke		74.0 x 58.0 mm
Displacement		498 mL
Compression ratio		10.8
Maximum horsepower		44.1 kW (60 PS) @9 800 r/min (rpm)
Maximum torque		46.1 N-m (4.7 kg-m, 34.0 ft-lb) @8 500 r/min (rpm)
Carburetion system		KEIHIN CVK34 × 2
Starting system		Electric starter
Ignition system		Battery and coil (transistorized)
Timing advance		Electronically advanced (digital igniter)
Ignition timing		From 10° BTDC @1 200 r/min (rpm) to 37.5° BTDC @10 000 r/min (rpm)
Spark plug		NGK D9EA or ND X27ES-U
Cylinder numbering method		Left to right, 1-2
Firing order		1-2
Valve timing:		
Inlet	Open	45° (BTDC)
	Close	65° (ABDC)
	Duration	290°
Exhaust	Open	70° (BBDC)
	Close	40° (ATDC)
	Duration	290°
Lubrication system		Forced lubrication (wet sump)
Engine oil:		
Grade		SE, SF or SG class
Viscosity		SAE10W-40, 10W-50, 20W-40, or 20W-50
Capacity		3.4 L
Drive Train:		
Primary reduction system:		
Type		Gear
Reduction ratio		2.652 (61/23)
Clutch type		Wet multi disc

Items		EX500-F1
Transmission:		
Type		6-speed, constant mesh, return shift
Gear ratios:	1st	2.571 (36/14)
	2nd	1.777 (32/18)
	3rd	1.380 (29/21)
	4th	1.125 (27/24)
	5th	0.961 (25/26)
	6th	0.851 (23/27)
Final drive system:		
Type		Chain drive
Reduction ratio		2.562 (41/16)
Overall drive ratio		5.789 (Top gear)
Frame:		
Type		Tubular, double cradle
Caster (rake angle)		27°
Trail		91 mm
Front tire:		
	Type	Tubeless
	Size	110/70-17 54H
Rear tire:	Type	Tubeless
	Size	130/70-17 62H
Front suspension:		
	Type	Telescopic fork
	Wheel travel	130 mm
Rear suspension:		
	Type	Swingarm (uni-trak)
	Wheel travel	100 mm
Brake type:	Front	Single disc
	Rear	Single disc
Electrical Equipment:		
Battery		12 V 14 Ah
Headlight:	Type	Semi-sealed beam
	Bulb	12 V 60/55 W (quartz-halogen)
Tail/brake light		12 V 5/21 W × 2,
Alternator:	Type	Three-phase AC
	Rated output	17 A–14V @6 000 r/min (rpm)

Specifications are subject to change without notice, and may not apply to every country.

Periodic Maintenance Chart

The scheduled maintenance must be done in accordance with this chart to keep the motorcycle in good running condition. **The initial maintenance is vitally important and must not be neglected.**

FREQUENCY / OPERATION	Whichever comes first — Every	†ODOMETER READING 800km	5000km	10000km	15000km	20000km	25000km	30000km	
Spark plug -- clean			●	●	●	●	●	●	
Spark plug -- check*			●	●	●	●	●	●	
Valve clearance -- check*		●		●		●		●	
Air suction valve -- check*			●	●	●	●	●	●	
Air cleaner element -- clean		●		●		●		●	
Air cleaner element -- replace	5 cleanings					●			
Throttle grip play -- check*		●		●		●		●	
Idle speed -- check*		●	●	●	●	●	●	●	
Carburetor synchronization -- check*		●	●	●	●	●	●	●	
Fuel system -- check*				●		●		●	
Evaporative emission control system (CA) -- check*		●	●	●	●	●	●	●	
Battery electrolyte level -- check*	month	●	●	●	●	●	●	●	
Engine oil -- change	year	●		●		●		●	
Oil filter -- replace		●		●		●		●	
Radiator hoses, connections-- check*	year	●		●		●		●	
Coolant --change	2 years							●	
Fuel hose -- replace	4 years								
Clutch -- adjust		●	●	●	●	●	●	●	
Drive chain wear - check*			●	●	●	●	●	●	
Drive chain -- lubricate	300 km								
Drive chain slack -- check*	800 km								
Brake lining or pad wear -- check*			●	●	●	●	●	●	
Brake fluid level -- check*	month	●	●	●	●	●	●	●	
Brake fluid -- change	2 years					●			

FREQUENCY / OPERATION	Whichever comes first — Every	* ODOMETER READING 800km	5000km	10000km	15000km	20000km	25000km	30000km	
Brake hose -- replace	4 years								
Brake master cylinder cup and dust seal -- replace	2 years								
Caliper piston seal and dust seal -- replace	2 years								
Brake light switch -- check*		●	●	●	●	●	●	●	
Steering -- check*		●	●	●	●	●	●	●	
Steering stem bearing -- lubricate	2 years					●			
Front fork oil -- change								●	
Tire wear -- check*			●	●	●	●	●	●	
Swing arm pivot, uni-trak linkage -- lubricate				●		●		●	
General lubrication -- perform			●	●	●	●	●	●	
Nut, bolt, and fastener tightness -- check*		●		●		●		●	

† : For higher odometer readings, repeat at the frequency interval established here.

* : Replace, add, adjust, clean, or torque if necessary.

(CA) : California Model

Torque and Locking Agent

The following tables list the tightening torque for the major fasteners requiring use of a non-permanent locking agent or liquid gasket.

Letters used in the "Remarks" column mean:

L : Apply a non-permanent locking agent to the threads.
LG : Apply liquid gasket to the threads.
Lh : Left-hand threads.
M : Apply molybdenum disulfide grease.
O : Apply an oil to the threads and seating surface.
S : Tighten the fasteners following the specified sequence.
SS : Apply silicone sealant.
St : Stake the fasteners to prevent loosening.
R : Replacement parts

The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts. Use this table for only the bolts and nuts which do not require a specific torque value. All of the values are for use with dry solvent-cleaned threads.

Basic Torque for General Fasteners

Threads dia. (mm)	Torque		
	N-m	kg-m	ft-lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in-lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in-lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Fuel System:				
Fuel Tap Plate Screws	0.8	0.08	7 in-lb	
Fuel Tap Diaphragm Cover Screws	1.0	0.10	9 in-lb	
Air Cleaner Cap Tapping Screws	2.0	0.20	17 in-lb	
Cooling System:				
Radiator Hose Clamp Screws	2.0	0.20	17 in-lb	
Radiator Screen Screws	4.9	0.50	43 in-lb	
Radiator Bolts	9.8	1.0	87 in-lb	
Thermostat Housing Cover Bolts	11	1.1	95 in-lb	
Thermostat Housing Mounting Bolts	11	1.1	95 in-lb	
Coolant Drain Plug	11	1.1	95 in-lb	
Radiator Fan Switch	18	1.8	13.0	
Water Temperature Sensor	7.8	0.80	69 in-lb	SS
Water Pump Impeller	9.8	1.0	87 in-lb	Lh
Water Pump Shaft	25	2.5	18.0	Lh
Water Pump Cover Bolts	11	1.1	95 in-lb	
Engine Top End:				
Spark Plugs	14	1.4	10.0	
Air Suction Valve Cover Bolts	11	1.1	95 in-lb	
Cylinder Head Cover Bolts	9.8	1.0	87 in-lb	
Chain Tensioner Mounting Bolts	11	1.1	95 in-lb	
Chain Tensioner Cap	4.9	0.50	43 in-lb	
Valve Adjusting Screw Locknuts	25	2.5	18.0	
Camshaft Cap Bolts	12	1.2	104 in-lb	S
Camshaft Sprocket Bolts	15	1.5	11.0	L
Water Pipe Screws	11	1.1	95 in-lb	
Oil Pipe Bolts(in the cylinder head)	11	1.1	95 in-lb	
Oil Pipe Mounting Bolt	11	1.1	95 in-lb	
Oil Pipe Banjo Bolts M10	20	2.0	14.5	
M8	12	1.2	104 in-lb	
Cylinder Head Bolts M10	51	5.2	38	S
M6	9.8	1.0	87 in-lb	S
Rocker Shafts	39	4.0	29	

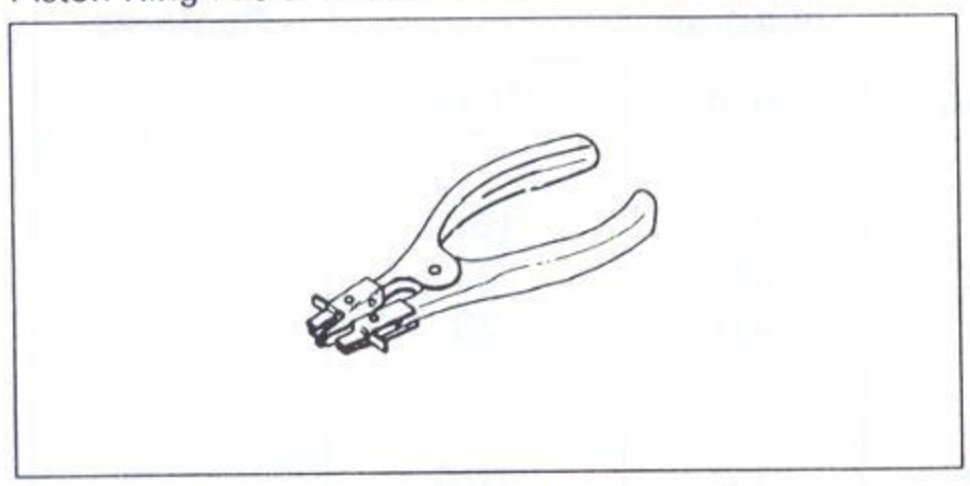
Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Cylinder Head Jacket Plugs	9.8	1.0	87 in-lb	L
Exhaust Connecting Pipe Clamp Bolt	20	2.0	14.5	
Muffler Clamp Bolts	20	2.0	14.5	
Clutch:				
Oil Filler Plug	1.5	0.15	13 in-lb	
Clutch Cable Holder Bolt	11	1.1	95 in-lb	
Clutch Cover Bolts	11	1.1	95 in-lb	
Clutch Spring Bolts	8.8	0.90	78 in-lb	
Clutch Hub Nut	130	13.5	98	R
Engine Lubrication System:				
Oil Filler Plug	1.5	0.15	13 in-lb	
Engine Drain Plug	29	3.0	22	
Oil Filter (Cartridge type)	Hand-tight	←	←	R, O
	or 17	or 1.75	or 12.5	
Oil Filter Mounting Bolt	25	2.5	18.0	L
Oil Pan Bolts	12	1.2	104 in-lb	
Oil Pressure Relief Valve	15	1.5	11.0	L
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in-lb	
Oil Pressure Switch	15	1.5	11.0	SS
Oil Pump Bolts	11	1.1	95 in-lb	L
Oil Pump Filter Bolts	9.8	1.0	87 in-lb	
Oil Pipe Banjo Bolts M10	20	2.0	14.5	cylinder
M8	12	1.2	104 in-lb	cylinder
Oil Pipe Mounting Bolt	11	1.1	95 in-lb	L, cylinder
Oil Pipe Banjo Bolts M10	20	2.0	14.5	lower crankcase
M8	12	1.2	104 in-lb	
M6	7.8	0.80	69 in-lb	
Oil Pipe Mounting Bolts (lower crankcase)	11	1.1	95 in-lb	L
Main Oil Passage Plug	17	1.75	12.5	
Breather Body Bolt	5.9	0.60	52 in-lb	
Engine Removal/Installation:				
Engine Mounting Bolts and Nuts	44	4.5	33	
Crankshaft/Transmission:				
Crankcase Bolts M8	27	2.8	20	S
M6	12	1.2	104 in-lb	S
Connecting Rod Big End Cap Nuts	36	3.7	27	
Alternator Cover Bolts	11	1.1	95 in-lb	
Alternator Rotor Bolt	69	7.0	51	
Starter Motor Terminal Nut	4.9	0.50	43 in-lb	
Starter Motor Mounting Bolts	11	1.1	95 in-lb	
Starter Chain Guide Bolts	11	1.1	95 in-b	
Primary Chain Guide Bolts	11	1.1	95 in-lb	L
Starter Motor Clutch Bolts	34	3.5	25	L
Oil Pipe Mounting Bolts (lower crankcase)	11	1.1	95 in-lb	L
Shift Linkage Rod Nuts	11	1.1	95 in-lb	Lh (1)
Shift Pedal Lever Clamp Bolt	11	1.1	95 in-lb	
External Shift Mechanism Cover Bolts	11	1.1	95 in-lb	
Gear Positioning Lever Stud	–	–	–	L
Gear Positioning Lever Nut	11	1.1	95 in-lb	
Return Spring Pin (Bolt)	20	2.0	14.5	L

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Neutral Switch	15	1.5	11.0	
Shift Rod Holder Bolt	11	1.1	95 in-lb	
Shift Drum Holder Bolt	11	1.1	95 in-lb	L
Shift Drum Cam Screw	–	–	–	L
Wheels/Tires:				
Front Axle Clamp Bolts	20	2.0	14.5	S
Front Axle Nut	88	9.0	65	S
Rear Axle Nut	110	11.0	80	
Final Drive:				
Engine Sprocket Holding Plate Bolts	9.8	1.0	87 in-lb	
Drive Chain Guide Bolts	11	1.1	95 in-lb	
Rear Sprocket Nuts	59	6.0	43	
Rear Sprocket Studs	–	–	–	L (tap end)
Rear Axle Nut	110	11.0	80	
Brakes:				
Bleed Valves	7.8	0.80	69 in-lb	
Brake Hose Banjo Bolts	25	2.5	18.0	
Brake Lever Pivot Bolt	1.0	0.10	9 in-lb	
Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in-lb	
Front Brake Reservoir Cap Screws	1.5	0.15	13 in-lb	
Front Brake Light Switch Screws	1.0	0.10	9 in-lb	
Front Master Cylinder Clamp Bolts	8.8	0.90	78 in-lb	S
Caliper Mounting Bolts (Front, Rear)	25	2.5	18.0	
Front Single Brake Disc Bolts	23	2.3	16.5	
Front Dual Brake Disc Bolts	27	2.8	20	L
Rear Brake Pedal Bolt	8.8	0.90	78 in-lb	
Rear Brake Disc Bolts	23	2.3	16.5	
Rear Brake Reservoir Bolt	6.9	0.70	61 in-lb	
Rear Master Cylinder Mounting Bolts	23	2.3	16.5	
Rear Master Cylinder Bracket Locknut	18	1.8	13.0	
Footpeg Bracket Bolts	25	2.5	18.0	
Suspension:				
Front Fork Clamp Bolts (Upper)	20	2.0	14.5	
Front Fork Clamp Bolts (Lower)	34	3.5	25	
Front Fork Bottom Allen Bolts	20	2.0	14.5	L
Front Axle Clamp Bolts	20	2.0	14.5	S
Rear Shock Absorber Nuts	59	6.0	43	
Rear Shock Spring Adjusting Locknuts	49	5.0	36	
Swingarm Pivot Nut	88	9.0	65	
Uni-trak:				
Rocker Arm Nut	59	6.0	43	
Tie-rod Nuts	59	6.0	43	
Steering:				
Steering Stem Head Bolt	44	4.5	33	
Steering Stem Nut	Hand-tight	←	←	
	or 4.9	or 0.50	or 43 in-lb	
Handlebar Bolts	23	2.3	16.5	L
Handlebar Holder Bolts	23	2.3	16.5	
Handlebar Weight Screws	–	–	–	L
Handlebar Switch Housing Screws	3.4	0.35	30 in-lb	
Front Fork Clamp Bolts Upper	20	2.0	14.5	
Lower	34	3.5	25	

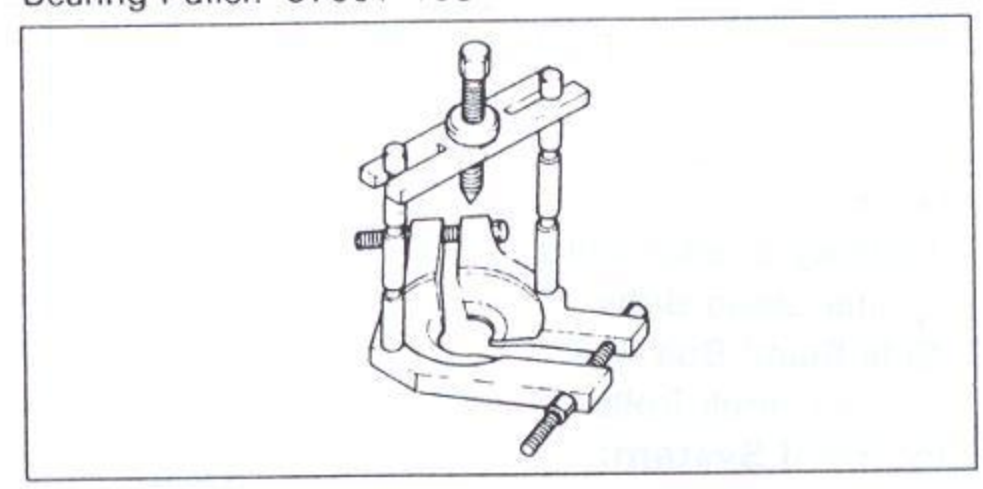
Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Frame:				
Footpeg Bracket Bolts	25	2.5	18.0	
Center Stand Bolts	44	4.5	33	
Side Stand Bolt	44	4.5	33	
Helmet Hook Bolts	–	–	–	L
Electrical System:				
Spark Plugs	14	1.4	10.0	
Pickup Coil Screws	2.9	0.30	26 in-lb	
Timing Inspection Plug	2.5	0.25	22 in-lb	
Alternator Rotor Bolt Plug	1.5	0.15	13 in-lb	
Alternator Cover Bolts	11	1.1	95 in-lb	
Alternator Rotor Bolt	69	7.0	51	Lh
Alternator Stator Bolts	12	1.2	104 in-lb	
Alternator Lead Clamp Screws	2.9	0.30	26 in-lb	
Starter Motor Terminal Locknut	6.9	0.70	61 in-lb	
Starter Motor Terminal Nut	4.9	0.50	43 in-lb	
Starter Relay Terminal Nut	4.9	0.50	43 in-lb	
Starter Motor Retaining Bolts	6.9	0.70	61 in-lb	
Starter Motor Mounting Bolts	11	1.1	95 in-lb	
Starter Chain Guide Bolts	11	1.1	95 in-lb	
Starter Motor Clutch Bolts	34	3.5	25	L
Handlebar Switch Housing Screws	3.4	0.35	30 in-lb	
Radiator Fan Switch	18	1.8	13.0	
Water Temperature Sensor	7.8	0.80	69 in-lb	SS
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in-lb	
Oil Pressure Switch	15	1.5	11.0	SS
Neutral Switch	15	1.5	11.0	
Side Stand Switch Screws	3.9	0.40	35 in-lb	

Special Tools and Sealant

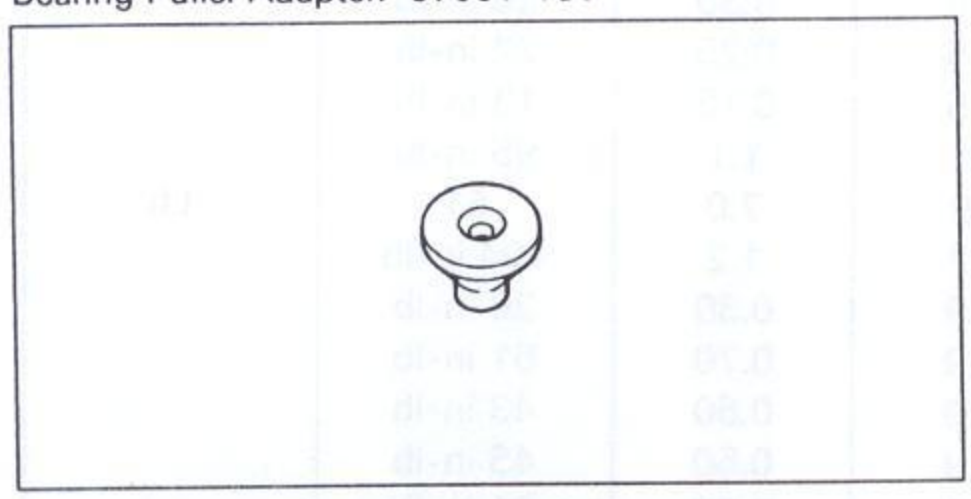
Piston Ring Pliers: 57001-115



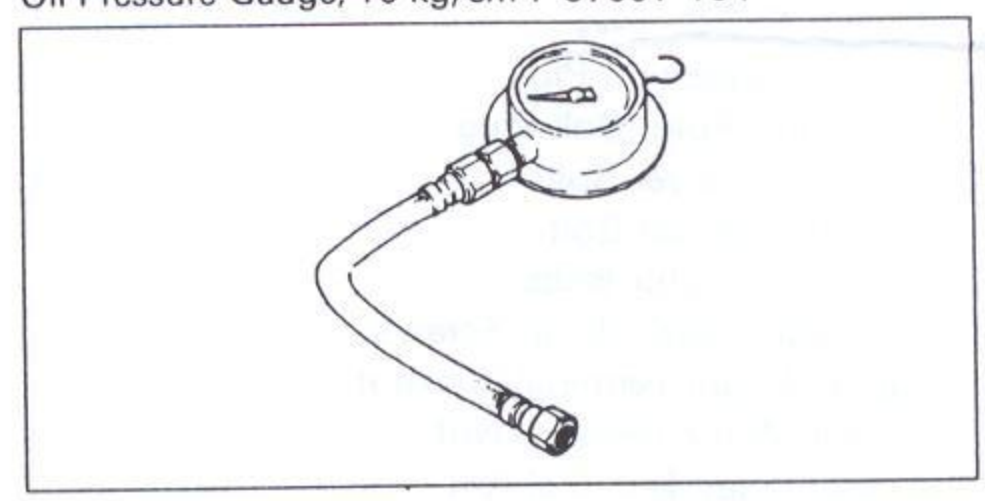
Bearing Puller: 57001-158



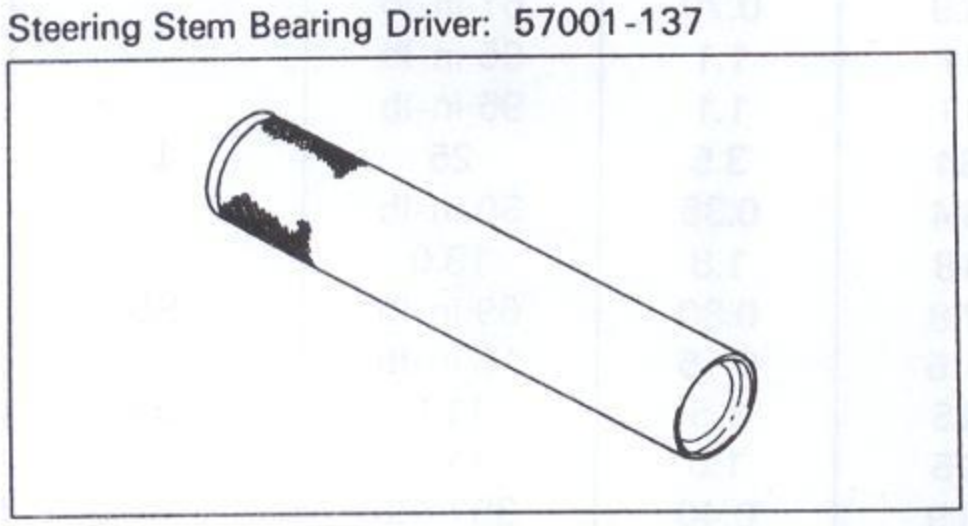
Bearing Puller Adapter: 57001-136



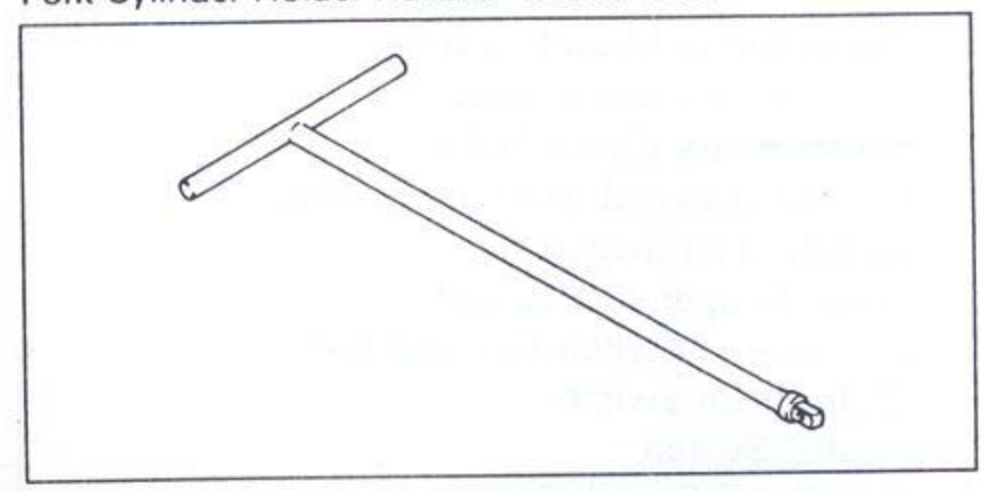
Oil Pressure Gauge, 10 kg/cm²: 57001-164



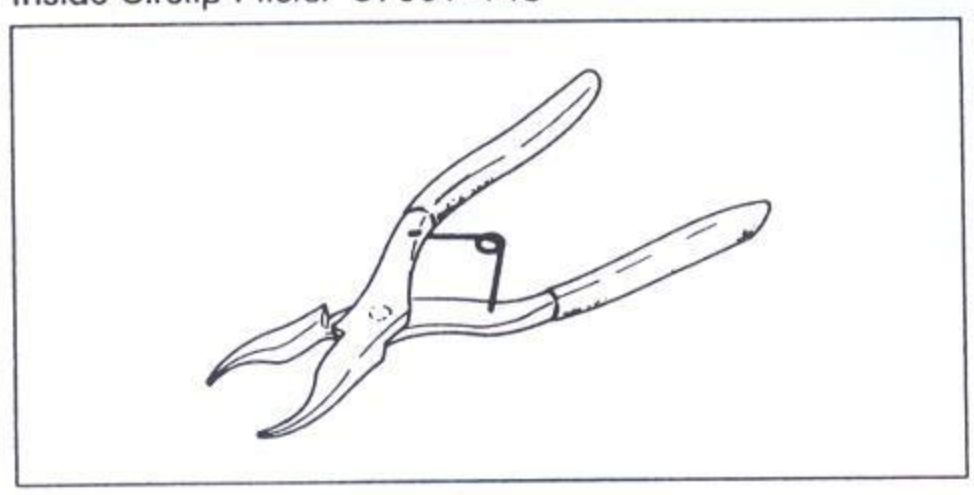
Steering Stem Bearing Driver: 57001-137



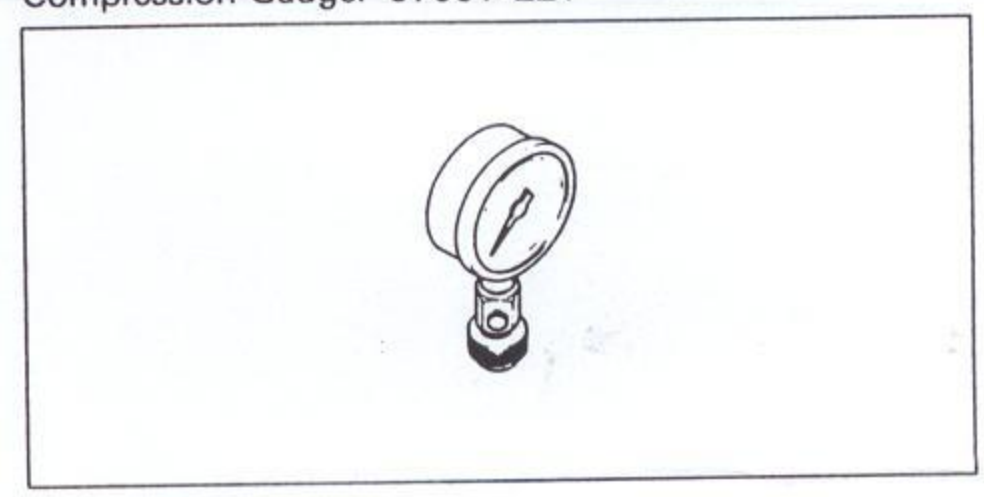
Fork Cylinder Holder Handle: 57001-183



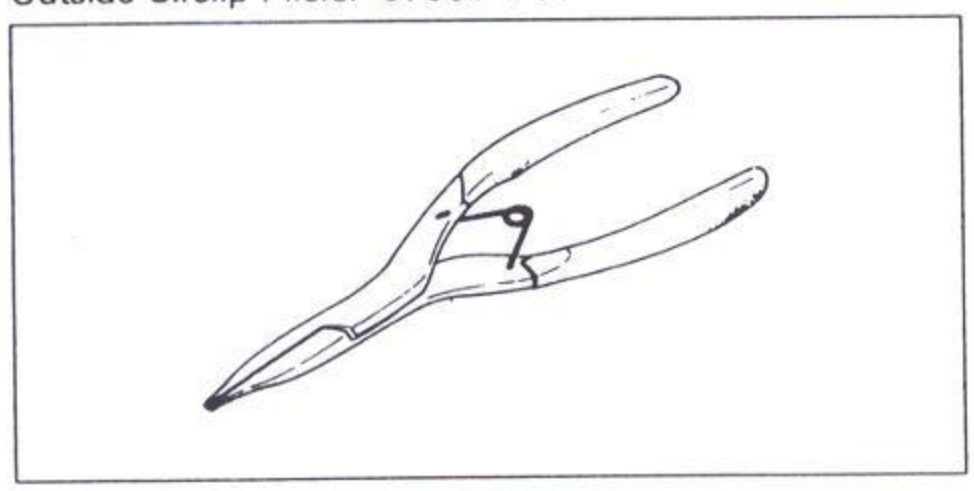
Inside Circlip Pliers: 57001-143



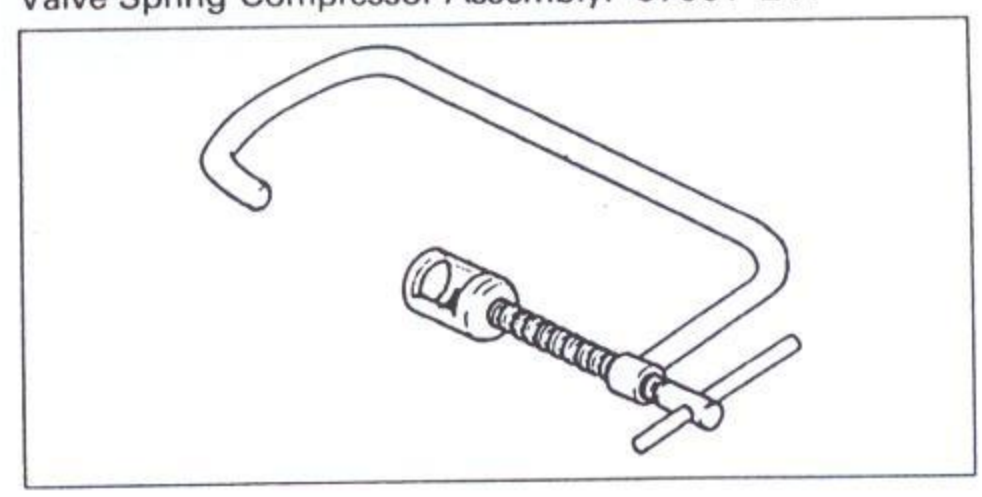
Compression Gauge: 57001-221



Outside Circlip Pliers: 57001-144

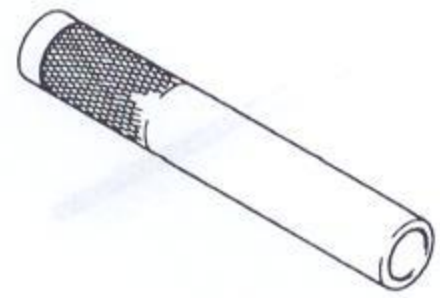


Valve Spring Compressor Assembly: 57001-241

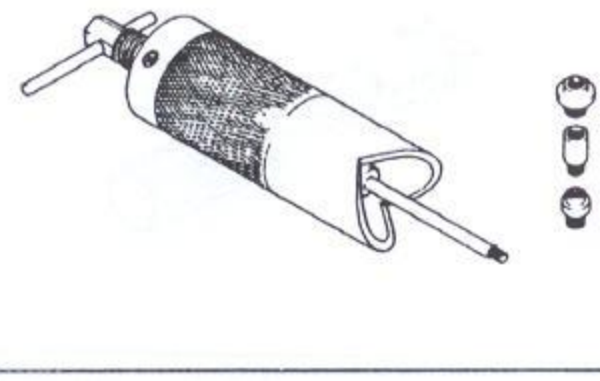


Bearing Puller Adapter: 57001-317

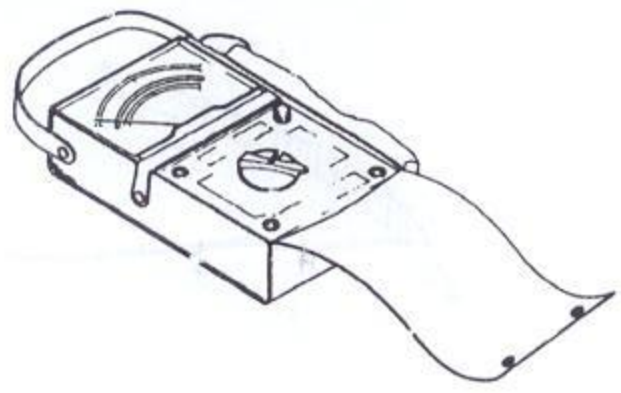
Bearing Driver: 57001-382



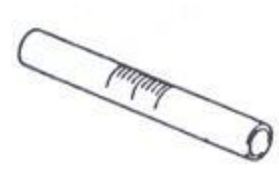
Piston Pin Puller Assembly: 57001-910



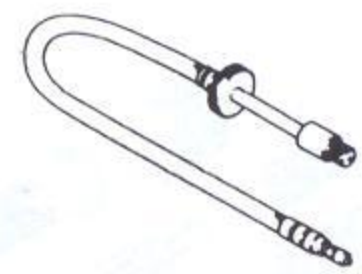
Hand Tester: 57001-983



Fuel Level Gauge: 57001-1017



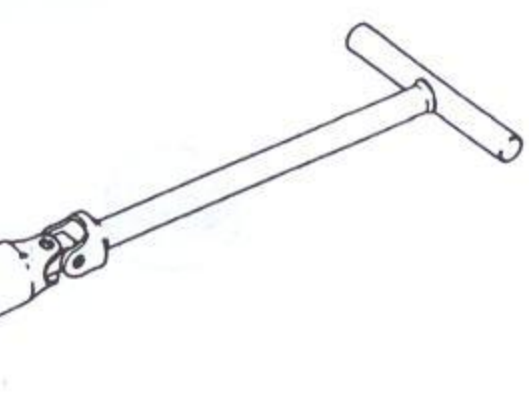
Compression Gauge Adapter, M12 x 1.25: 57001-1018



Valve Spring Compressor Adapter, Φ25: 57001-1019

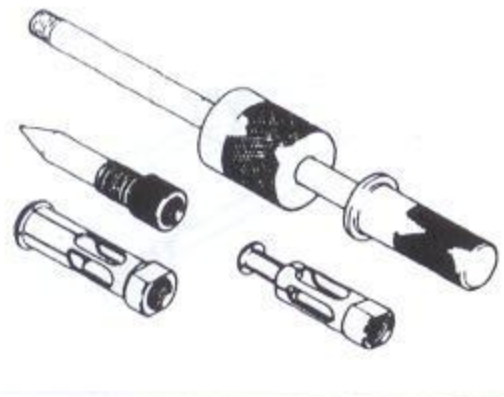
Valve Guide Arbor, Φ5.5: 57001-1021

Spark Plug Wrench, Hex 18: 57001-1024



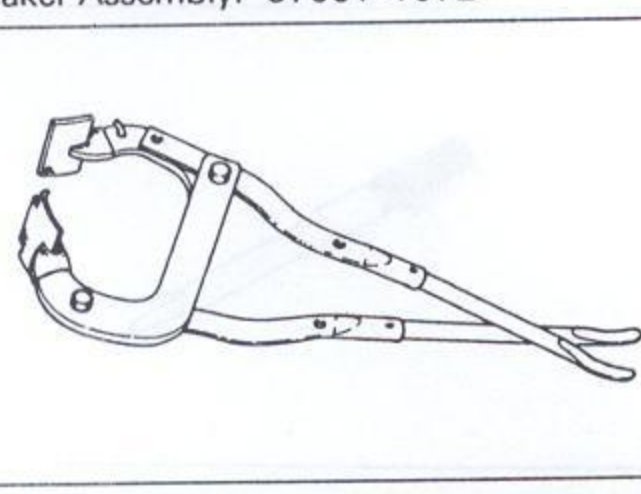
Fork Cylinder Holder Adapter: 57001-1057

Oil Seal & Bearing Remover: 57001-1058



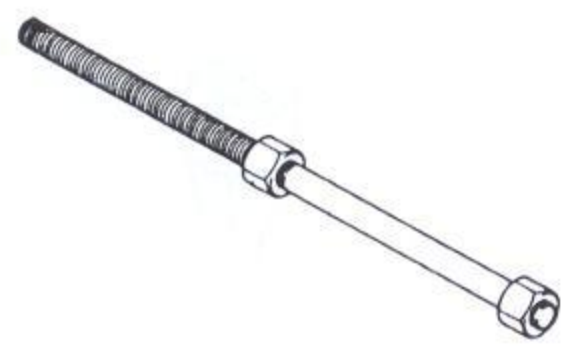
Rim Protector: 57001-1063

Bead Breaker Assembly: 57001-1072



Steering Stem Bearing Driver Adapter: 57001-1074

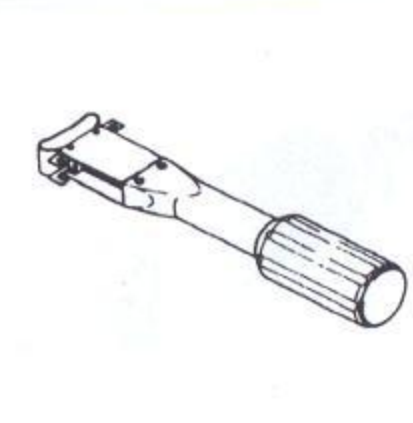
Head Pipe Outer Race Press Shaft: 57001-1075



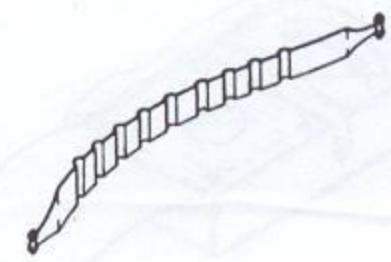
Head Pipe Outer Race Driver: 57001-1076

Valve Guide Reamer, Φ5.5: 57001-1079

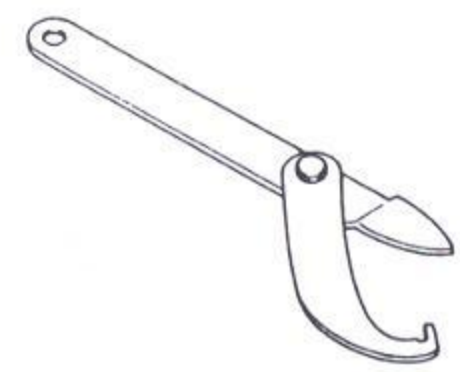
Piston Ring Compressor Grip: 57001-1095



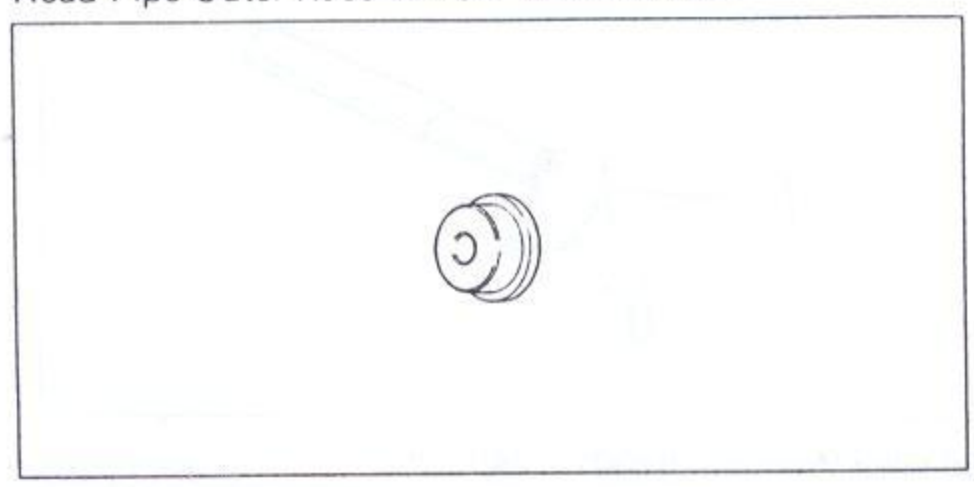
Piston Ring Compressor Belt, Φ67 ~ Φ79: 57001-1097



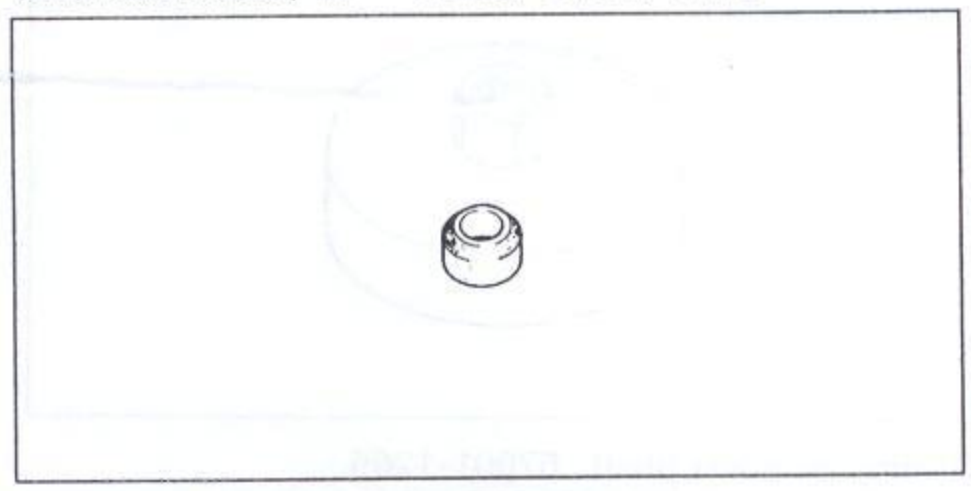
Steering Stem Nut Wrench: 57001-1100



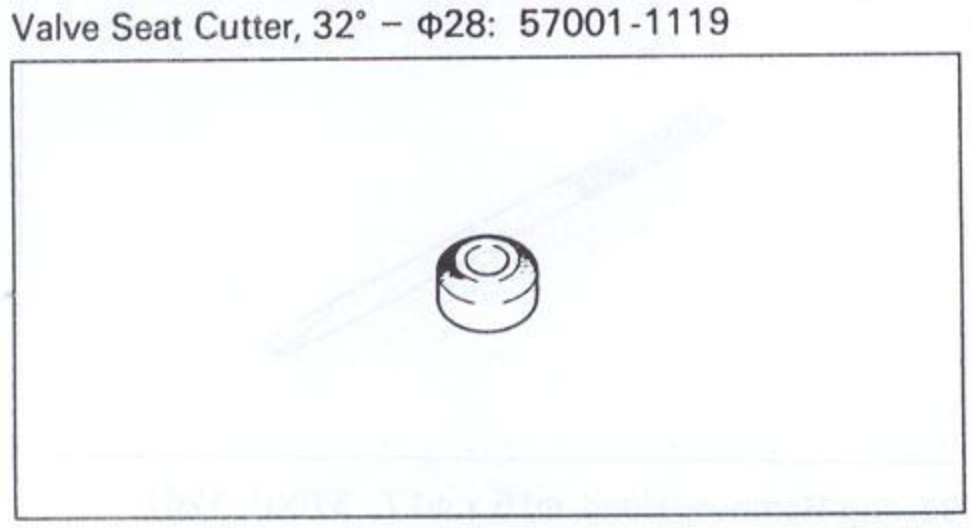
Head Pipe Outer Race Driver: 57001-1106



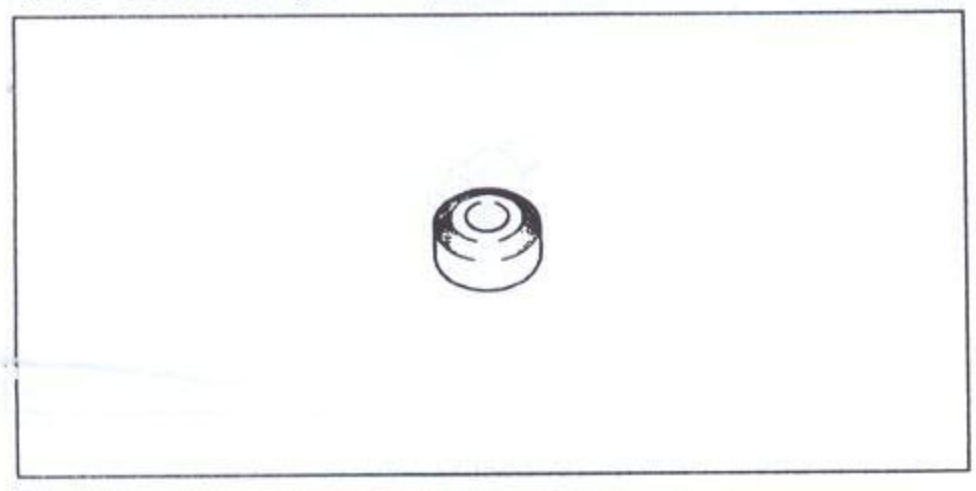
Valve Seat Cutter, 45° – Φ24.5: 57001-1113



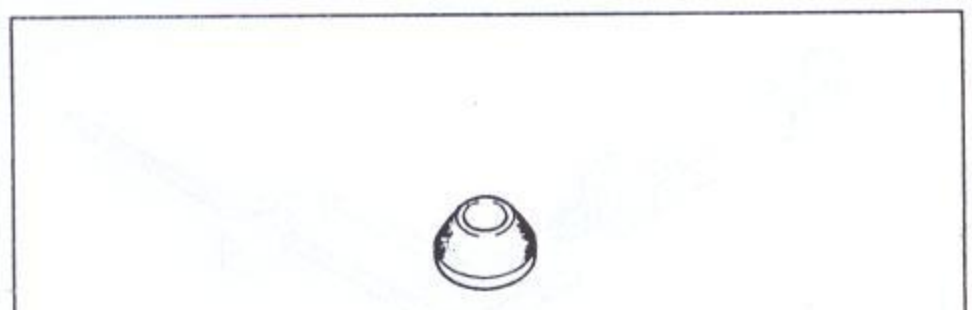
Valve Seat Cutter, 32° – Φ28: 57001-1119



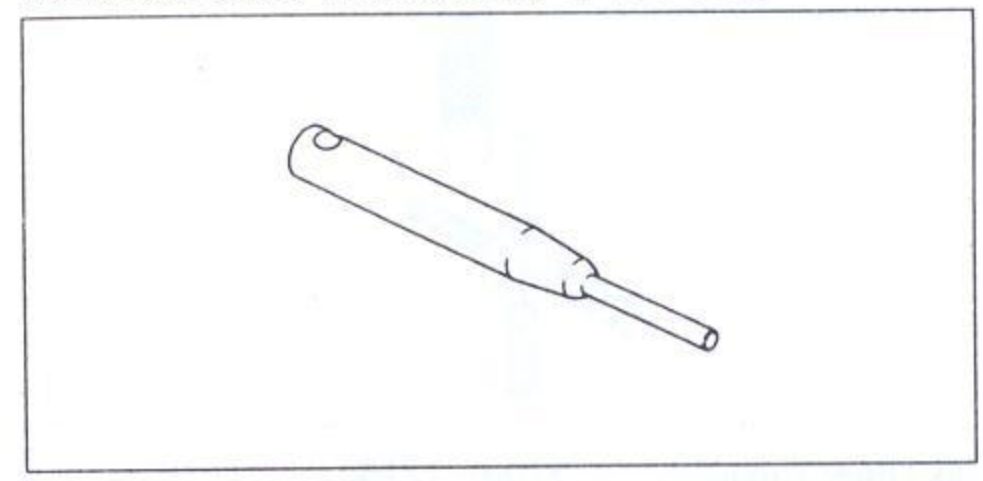
Valve Seat Cutter, 32° – Φ30: 57001-1120



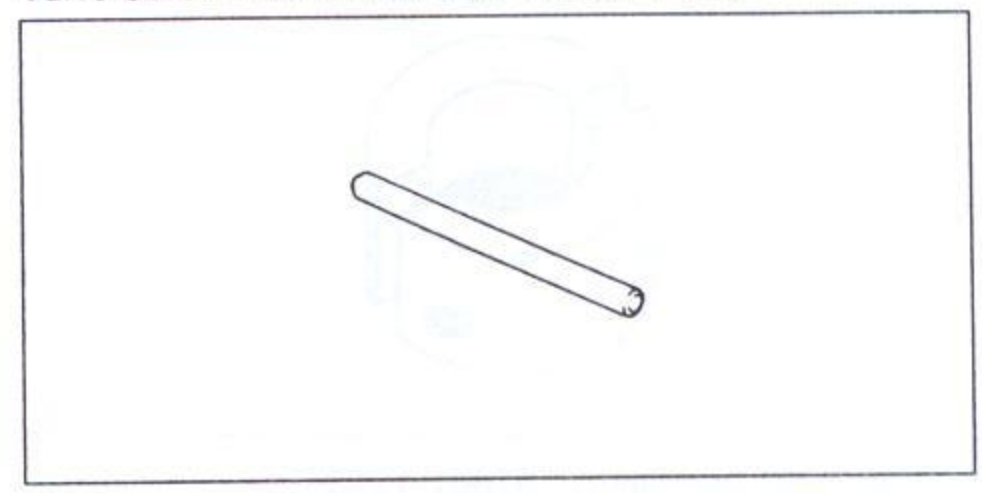
Valve Seat Cutter, 60° – Φ30: 57001-1123



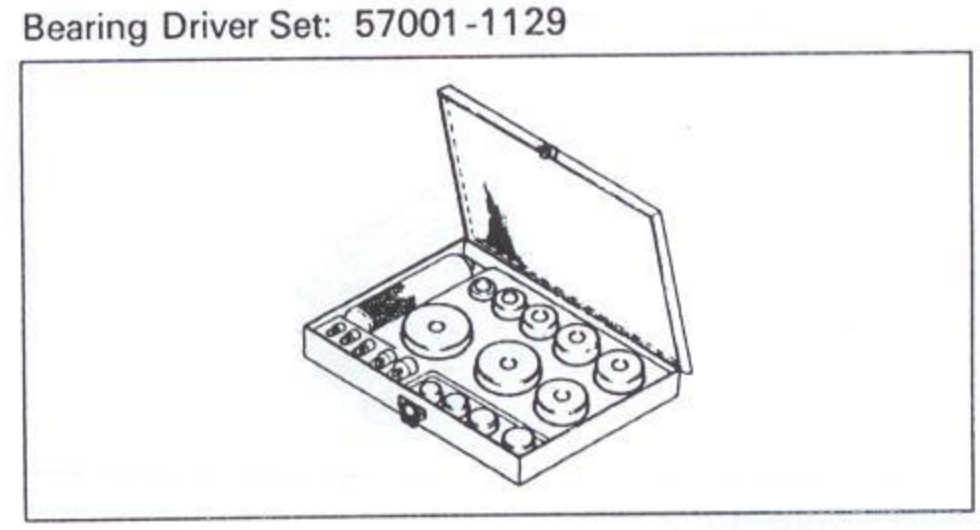
Valve Seat Cutter Holder, Φ5.5: 57001-1125



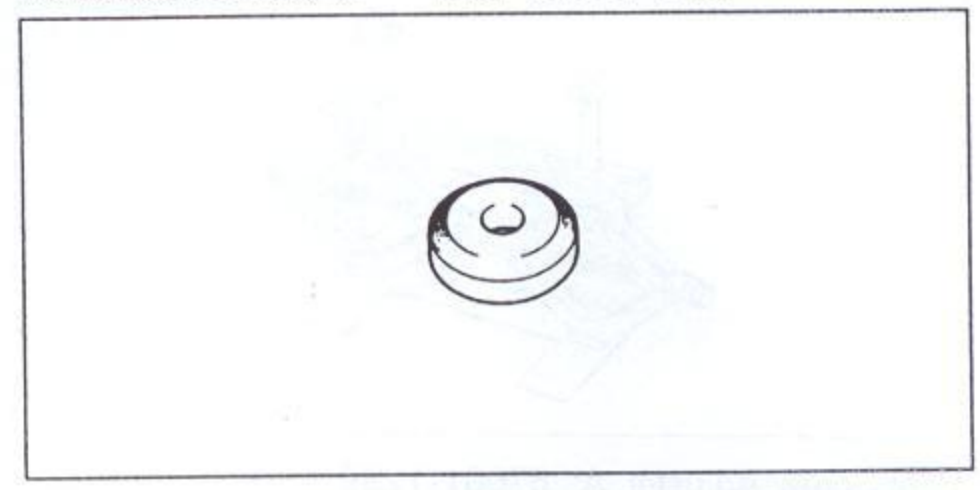
Valve Seat Cutter Holder Bar: 57001-1128



Bearing Driver Set: 57001-1129

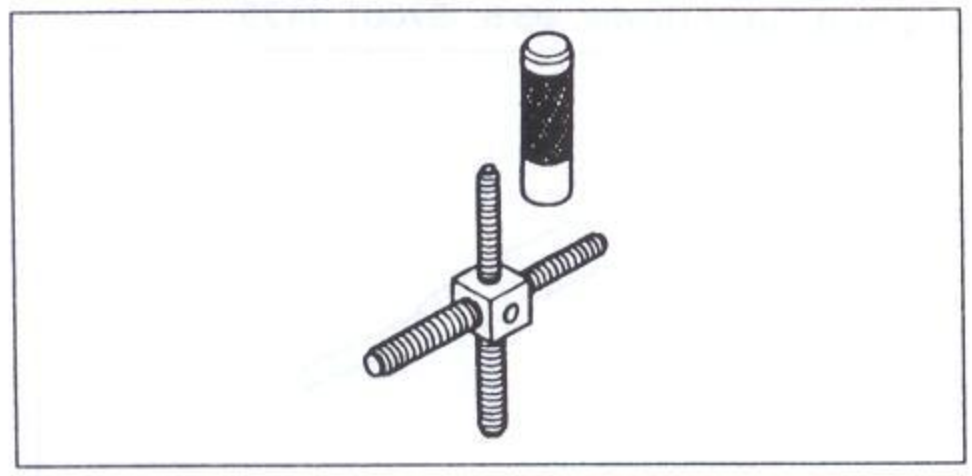


Valve Seat Cutter, 45° – Φ30: 57001-1187

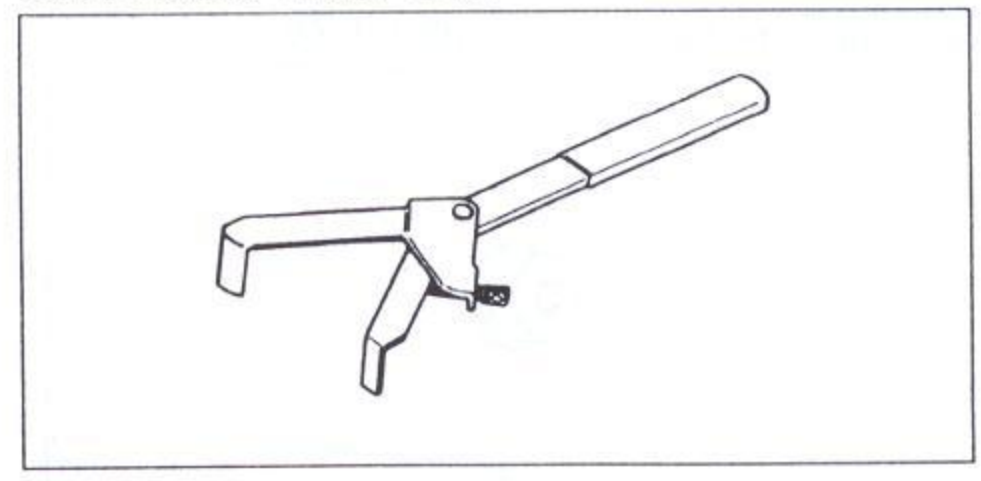


Oil Pressure Gauge Adapter, M14 x 1.5: 57001-1209

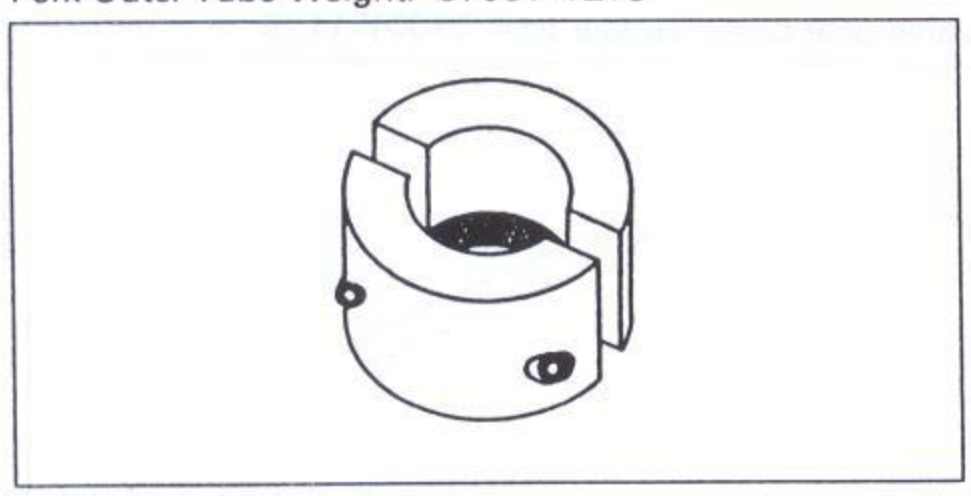
Rotor Puller, M16/M18/M20/M22 x 1.5: 57001-1216



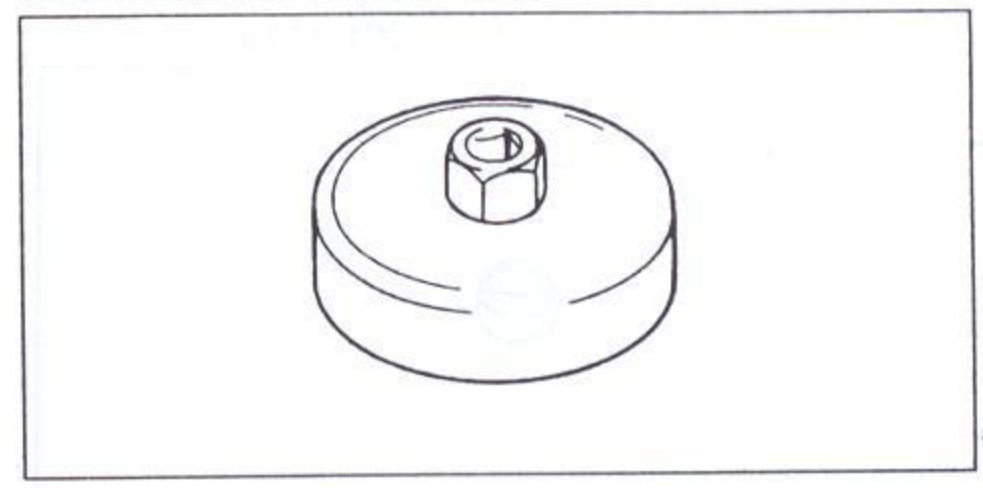
Clutch Holder: 57001-1243



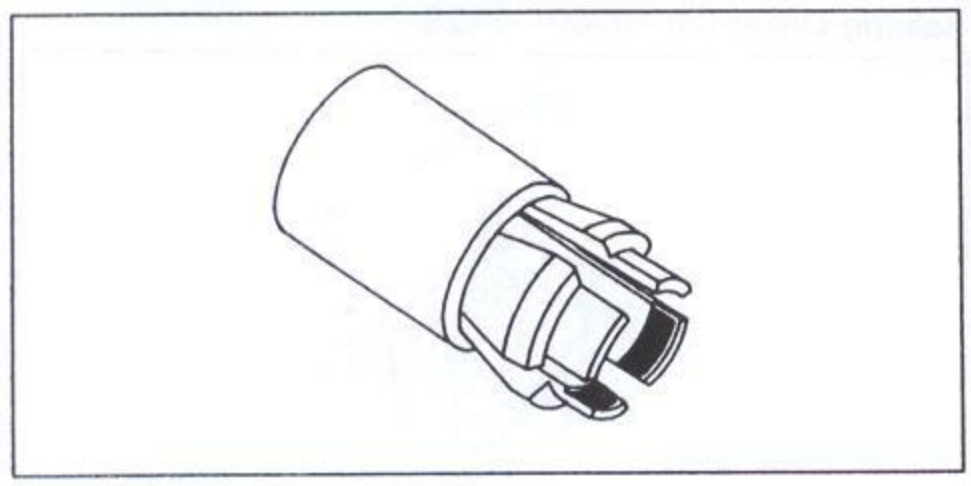
Fork Outer Tube Weight: 57001-1218



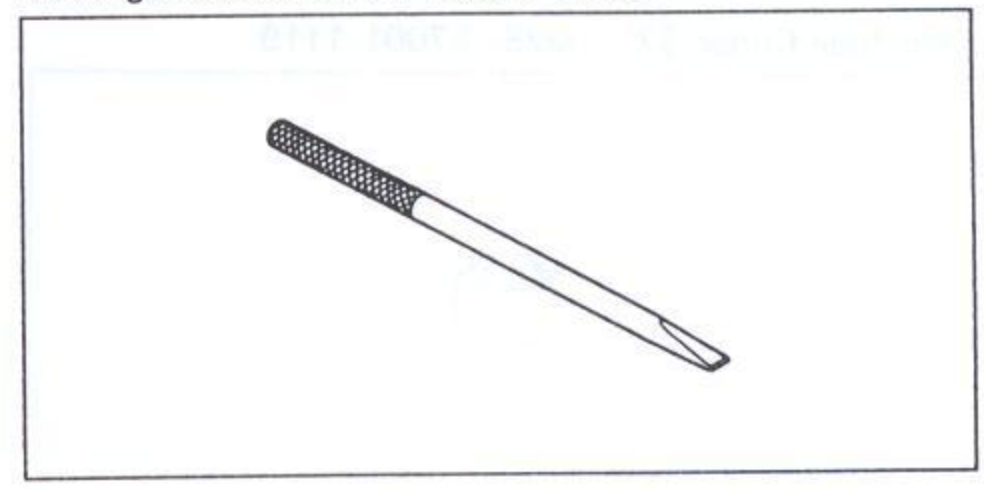
Oil Filter Wrench: 57001-1249



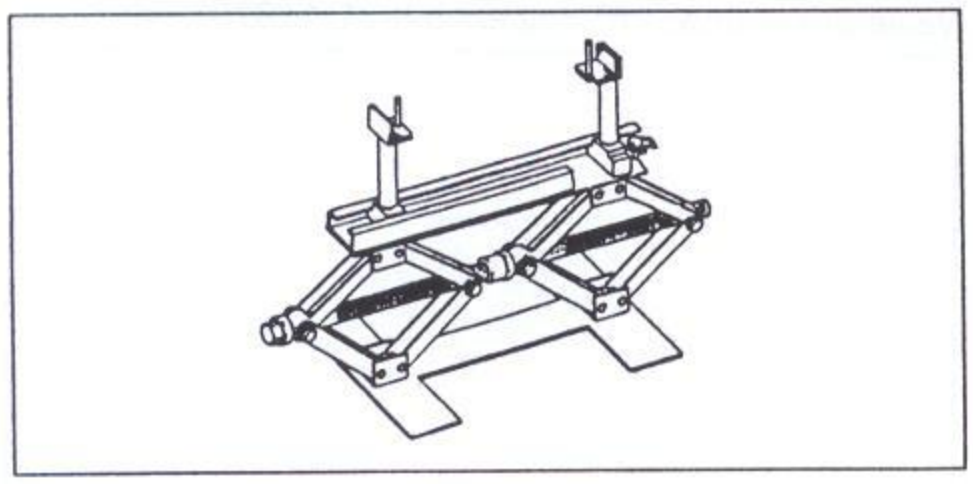
Front Fork Oil Seal Driver: 57001-1219



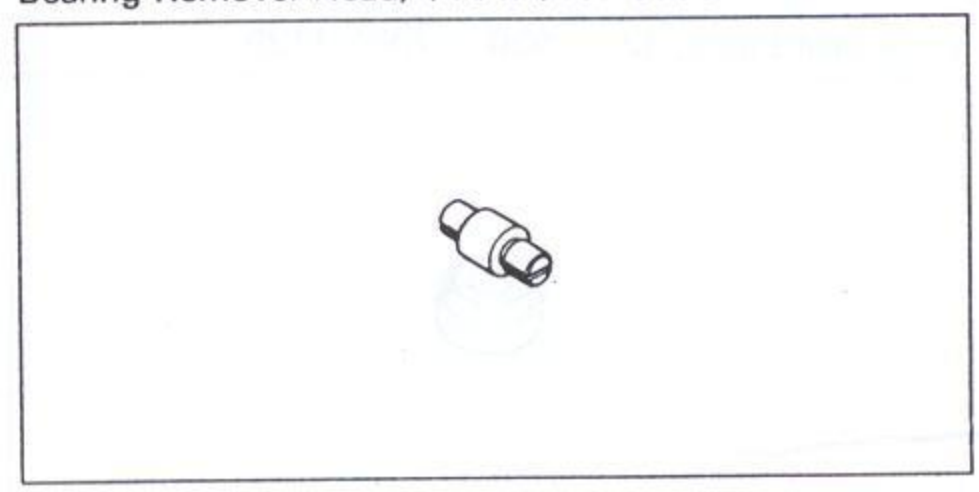
Bearing Remover Shaft: 57001-1265



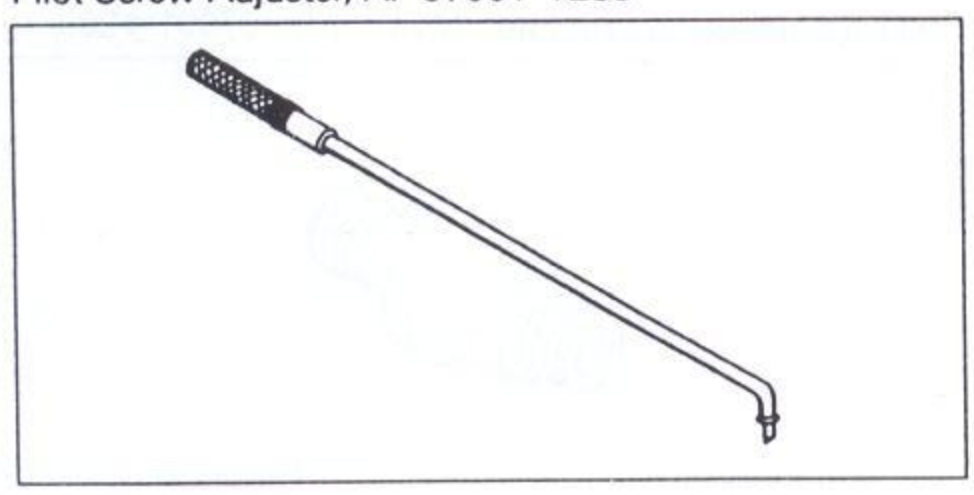
Jack: 57001-1238



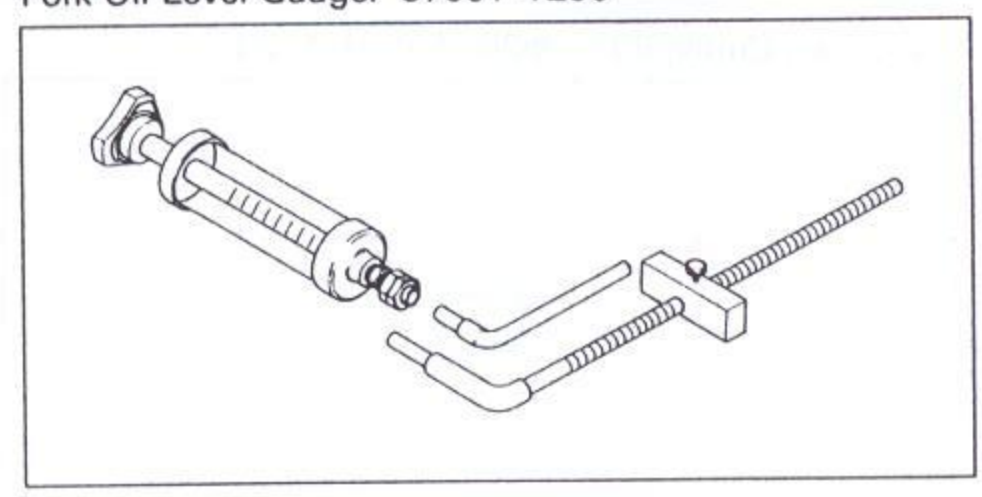
Bearing Remover Head, Φ15 x Φ17: 57001-1267



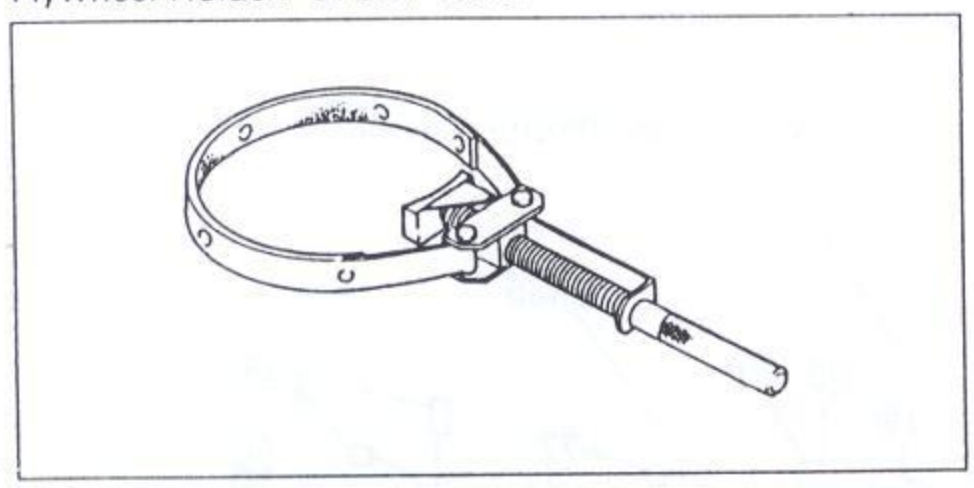
Pilot Screw Adjuster, A: 57001-1239



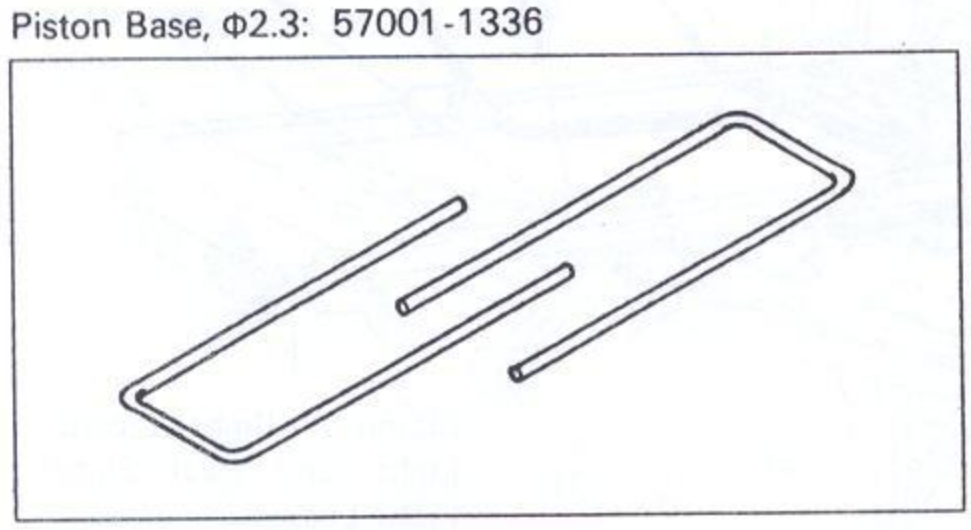
Fork Oil Level Gauge: 57001-1290



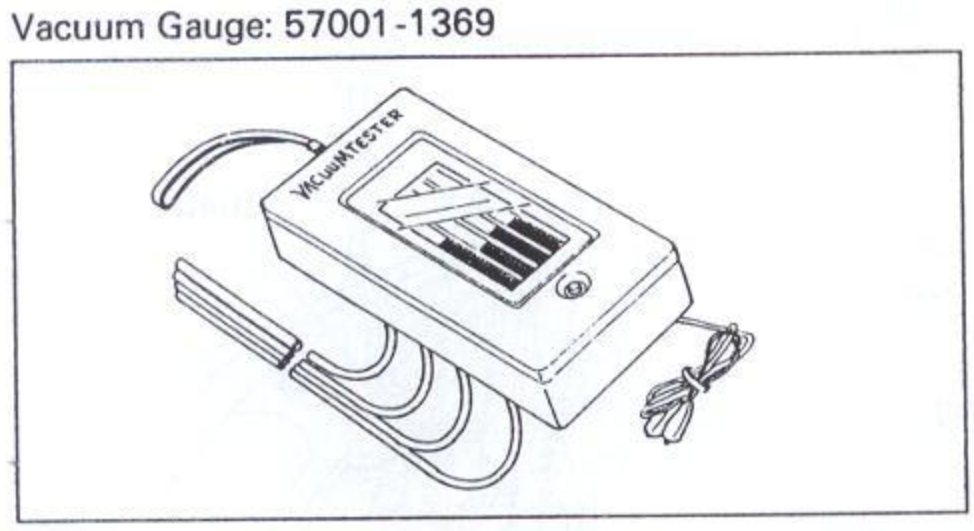
Flywheel Holder: 57001-1313



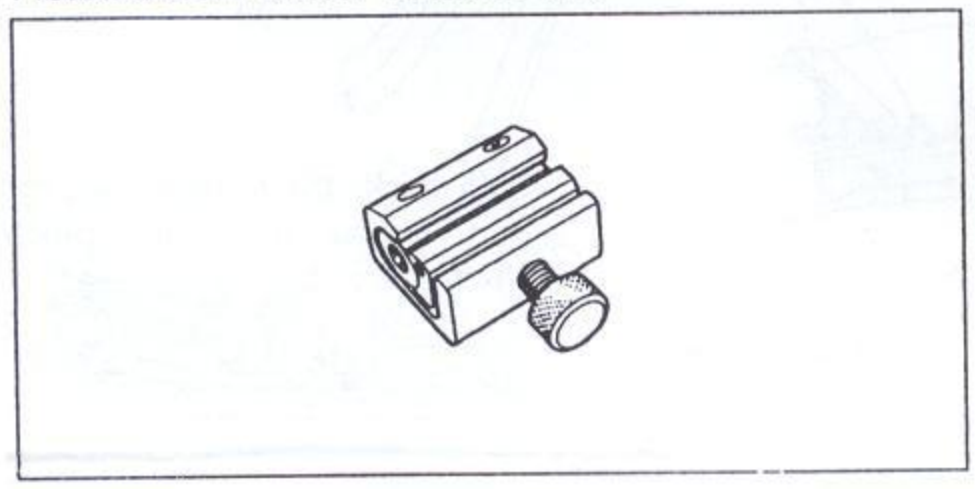
Piston Base, Φ2.3: 57001-1336



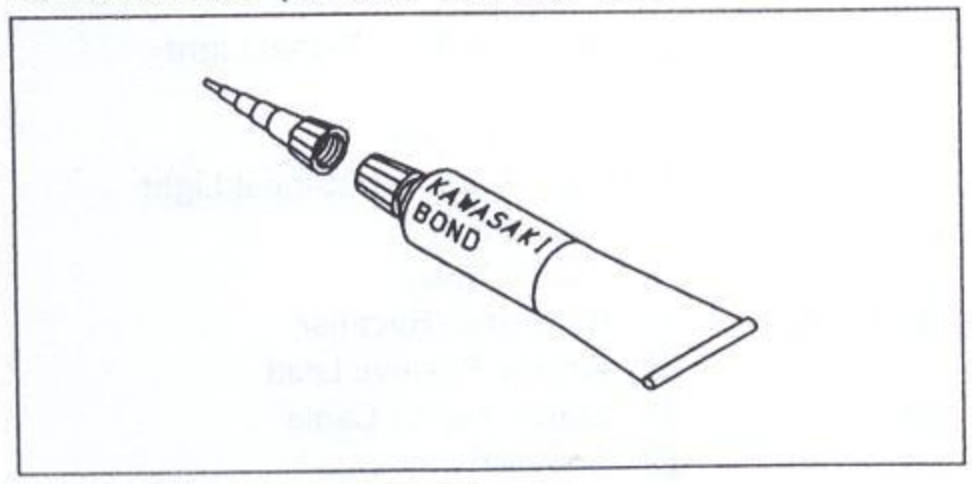
Vacuum Gauge: 57001-1369



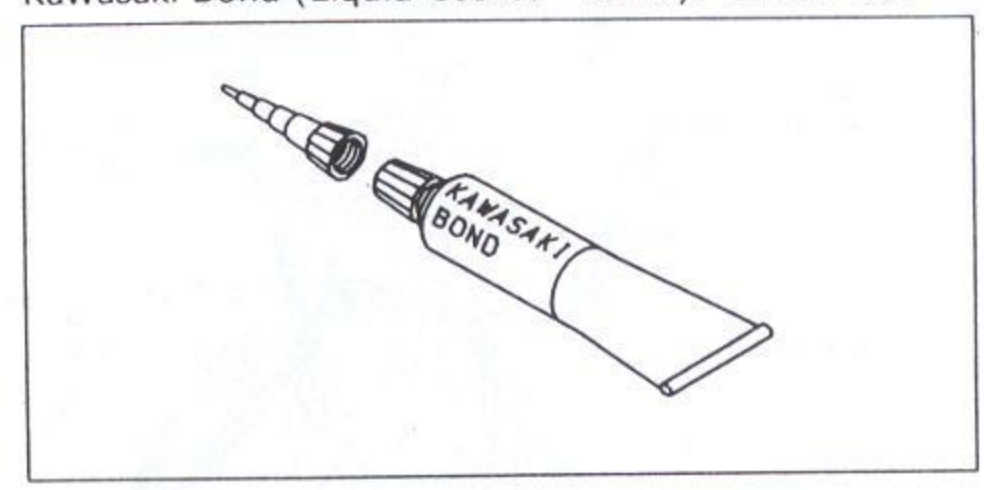
Pressure Cable Luber: K56019-021



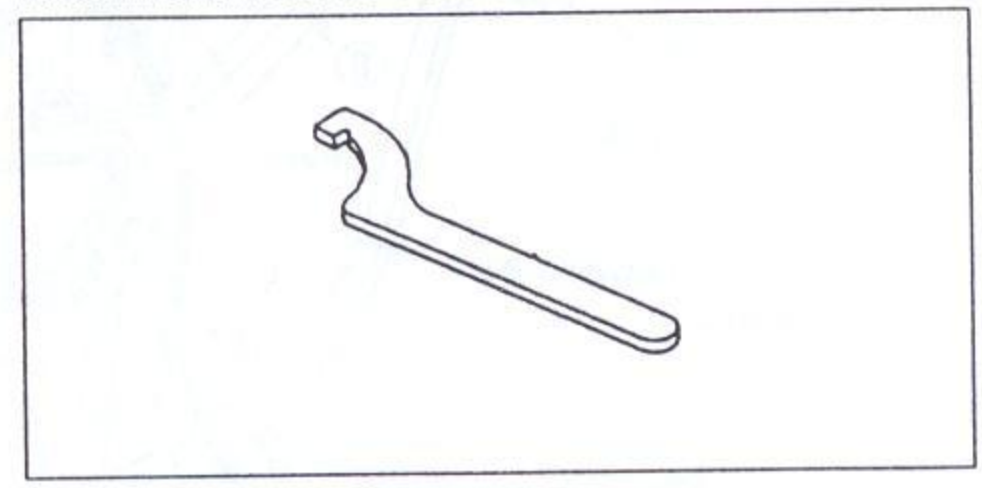
Kawasaki Bond (Silicone Sealant): 56019-120



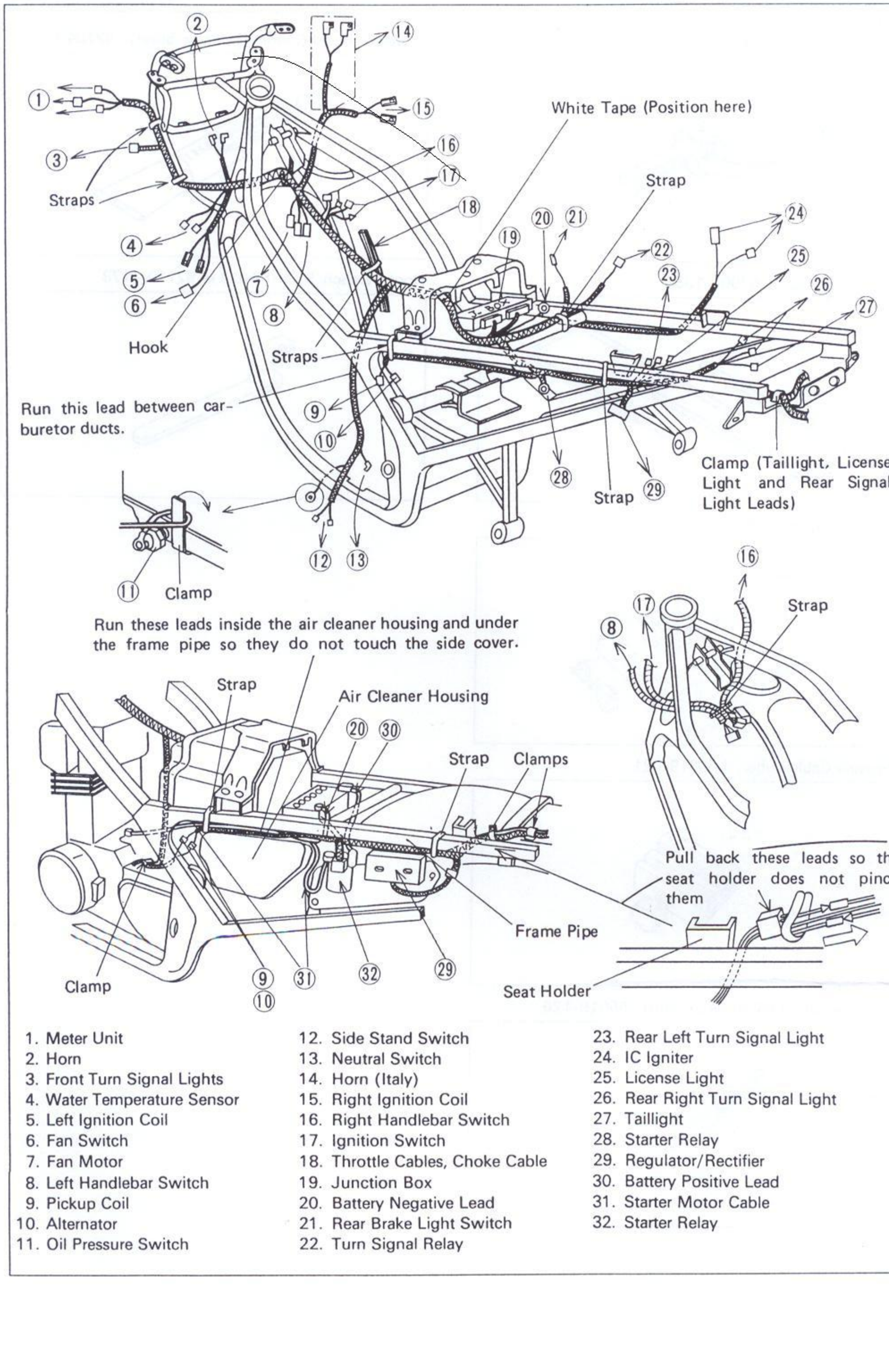
Kawasaki Bond (Liquid Gasket – Silver): 92104-002



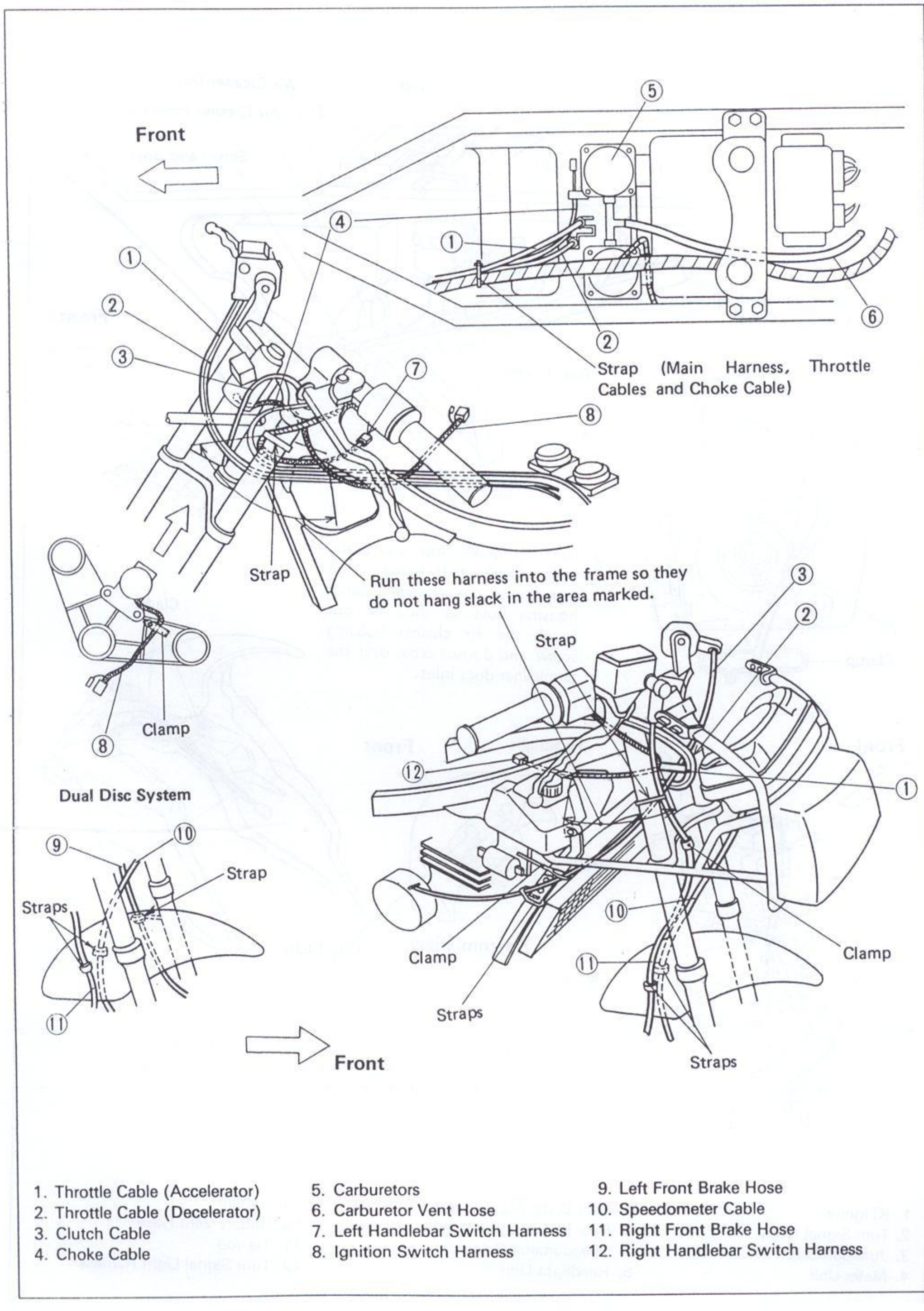
Hook Wrench: 92110-1019 or 92110-1173



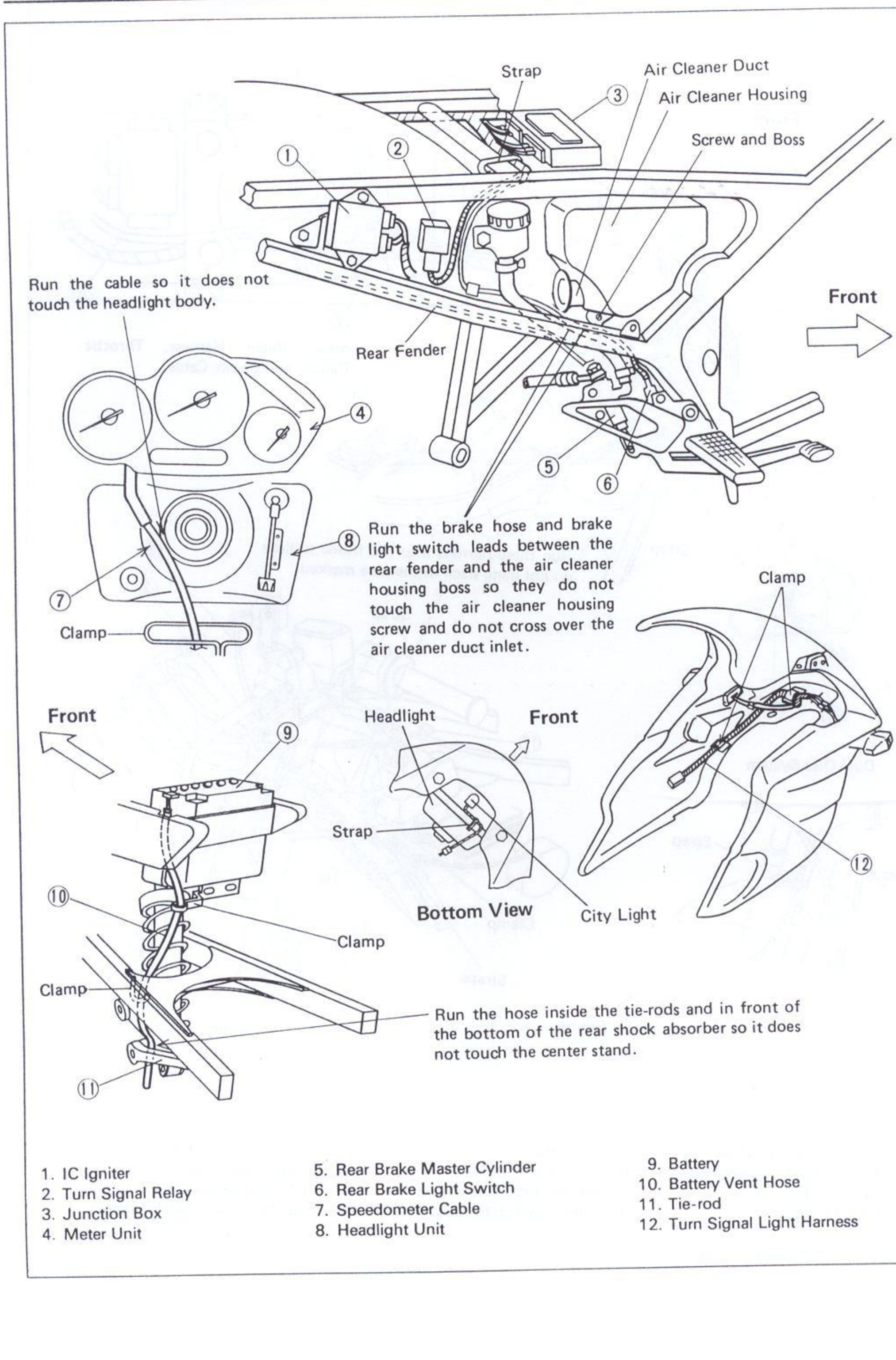
Cable, Wire, and Hose Routing



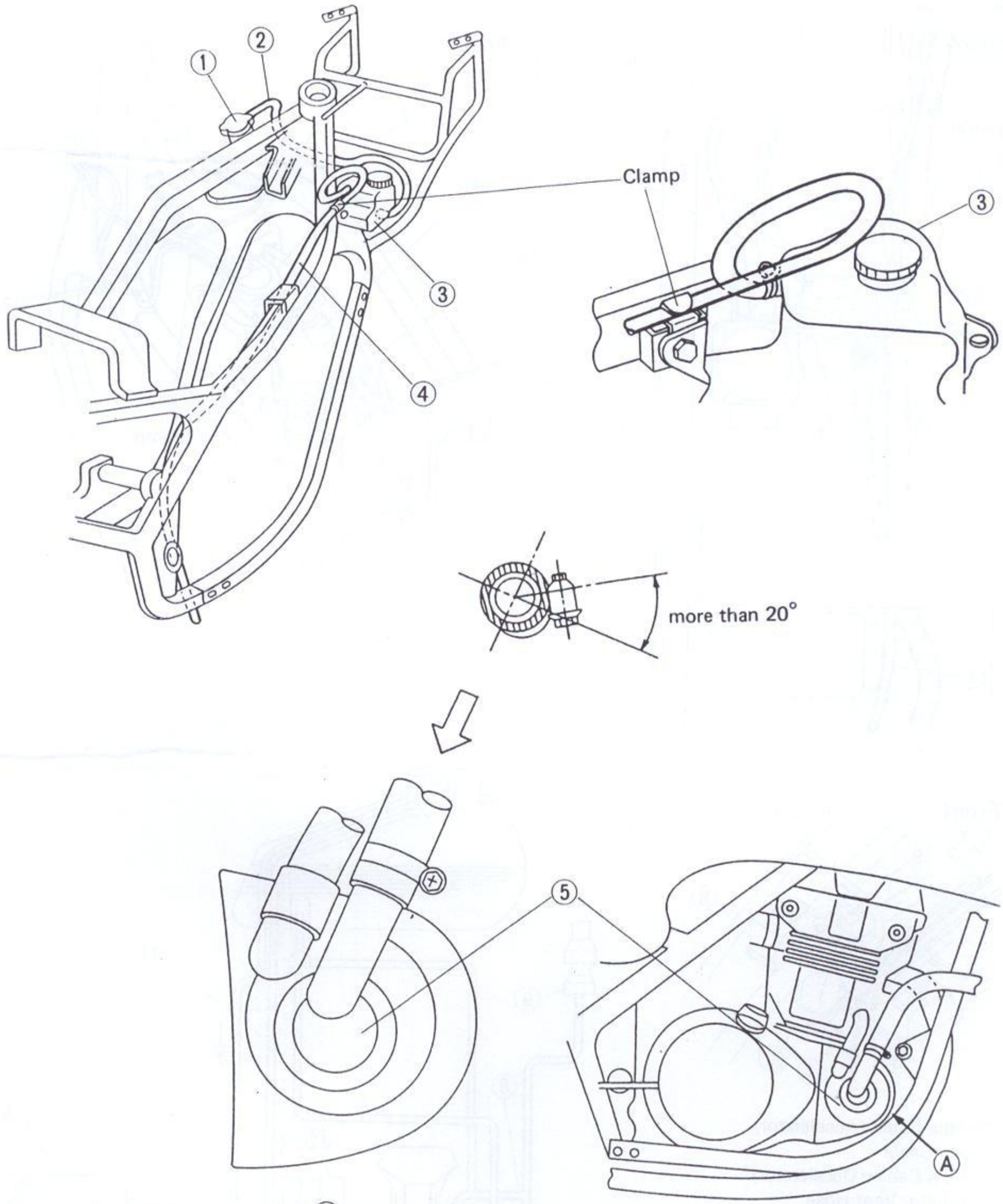
1. Meter Unit
2. Horn
3. Front Turn Signal Lights
4. Water Temperature Sensor
5. Left Ignition Coil
6. Fan Switch
7. Fan Motor
8. Left Handlebar Switch
9. Pickup Coil
10. Alternator
11. Oil Pressure Switch
12. Side Stand Switch
13. Neutral Switch
14. Horn (Italy)
15. Right Ignition Coil
16. Right Handlebar Switch
17. Ignition Switch
18. Throttle Cables, Choke Cable
19. Junction Box
20. Battery Negative Lead
21. Rear Brake Light Switch
22. Turn Signal Relay
23. Rear Left Turn Signal Light
24. IC Igniter
25. License Light
26. Rear Right Turn Signal Light
27. Taillight
28. Starter Relay
29. Regulator/Rectifier
30. Battery Positive Lead
31. Starter Motor Cable
32. Starter Relay



1. Throttle Cable (Accelerator)
2. Throttle Cable (Decelerator)
3. Clutch Cable
4. Choke Cable
5. Carburetors
6. Carburetor Vent Hose
7. Left Handlebar Switch Harness
8. Ignition Switch Harness
9. Left Front Brake Hose
10. Speedometer Cable
11. Right Front Brake Hose
12. Right Handlebar Switch Harness

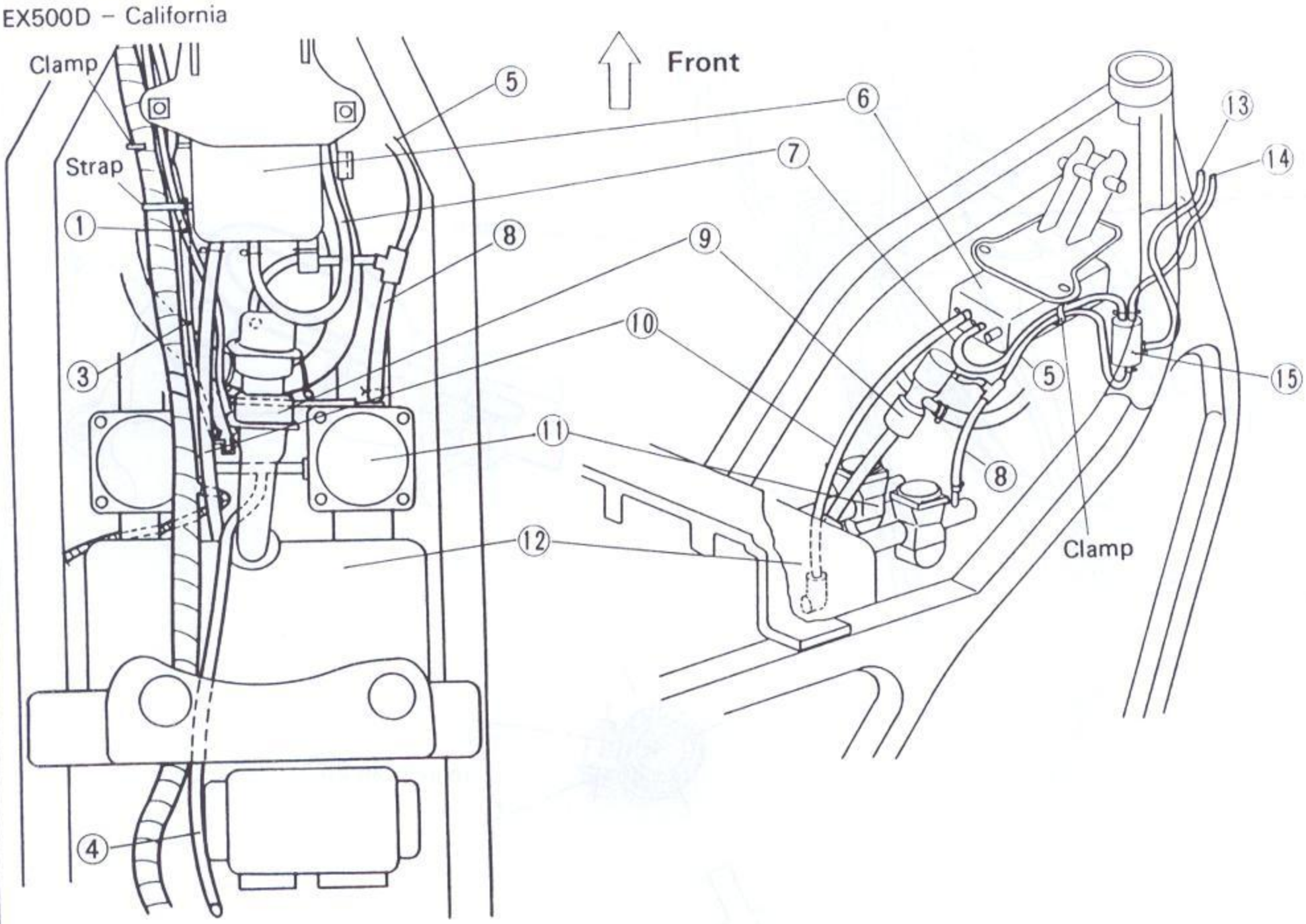


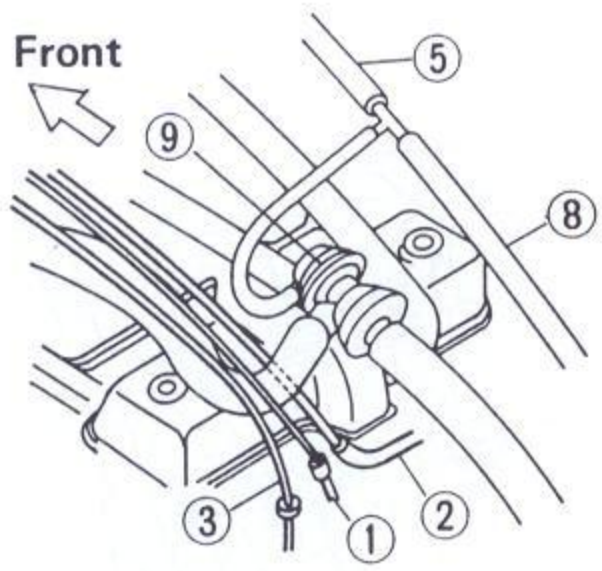
1. IC Igniter
2. Turn Signal Relay
3. Junction Box
4. Meter Unit
5. Rear Brake Master Cylinder
6. Rear Brake Light Switch
7. Speedometer Cable
8. Headlight Unit
9. Battery
10. Battery Vent Hose
11. Tie-rod
12. Turn Signal Light Harness

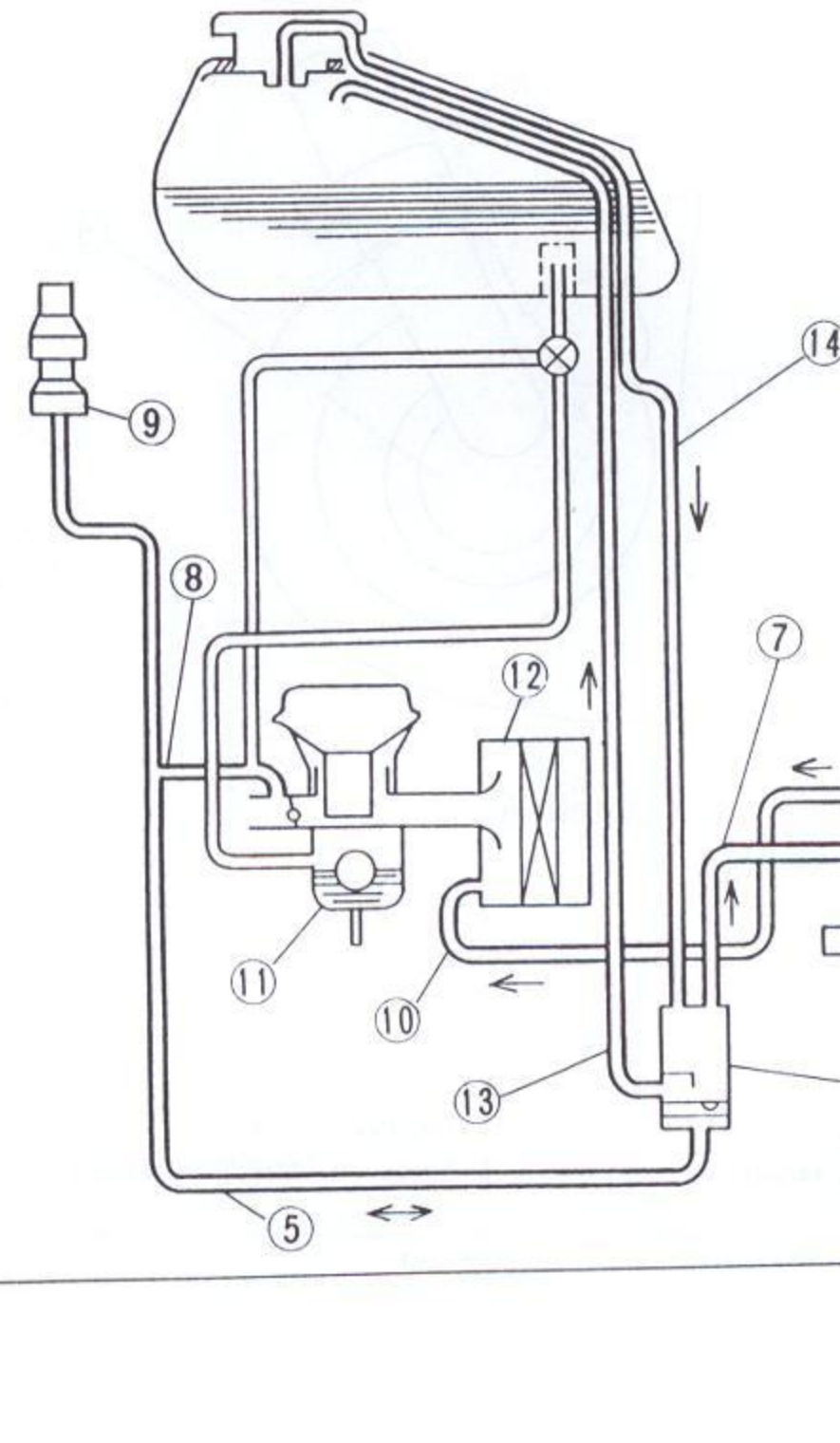


1. Radiator Cap
2. Reserve Tank Hose
3. Reserve Tank
4. Reserve Tank Vent Hose
5. Water Pump

EX500D – California







1. Throttle Cable (Accelerator)
2. Choke Cable
3. Throttle Cable (Decelerator)
4. Carburetor Vent Hose
5. Vacuum Hose (White)
6. Canister
7. Breather Hose (Blue)
8. Vacuum Hose (White)
9. Vacuum Switch Valve
10. Purge Hose (Green)
11. Carburetors
12. Air Cleaner Housing
13. Fuel Return Hose (Red)
14. Breahter Hose (Blue)
15. Separator

2

Fuel System

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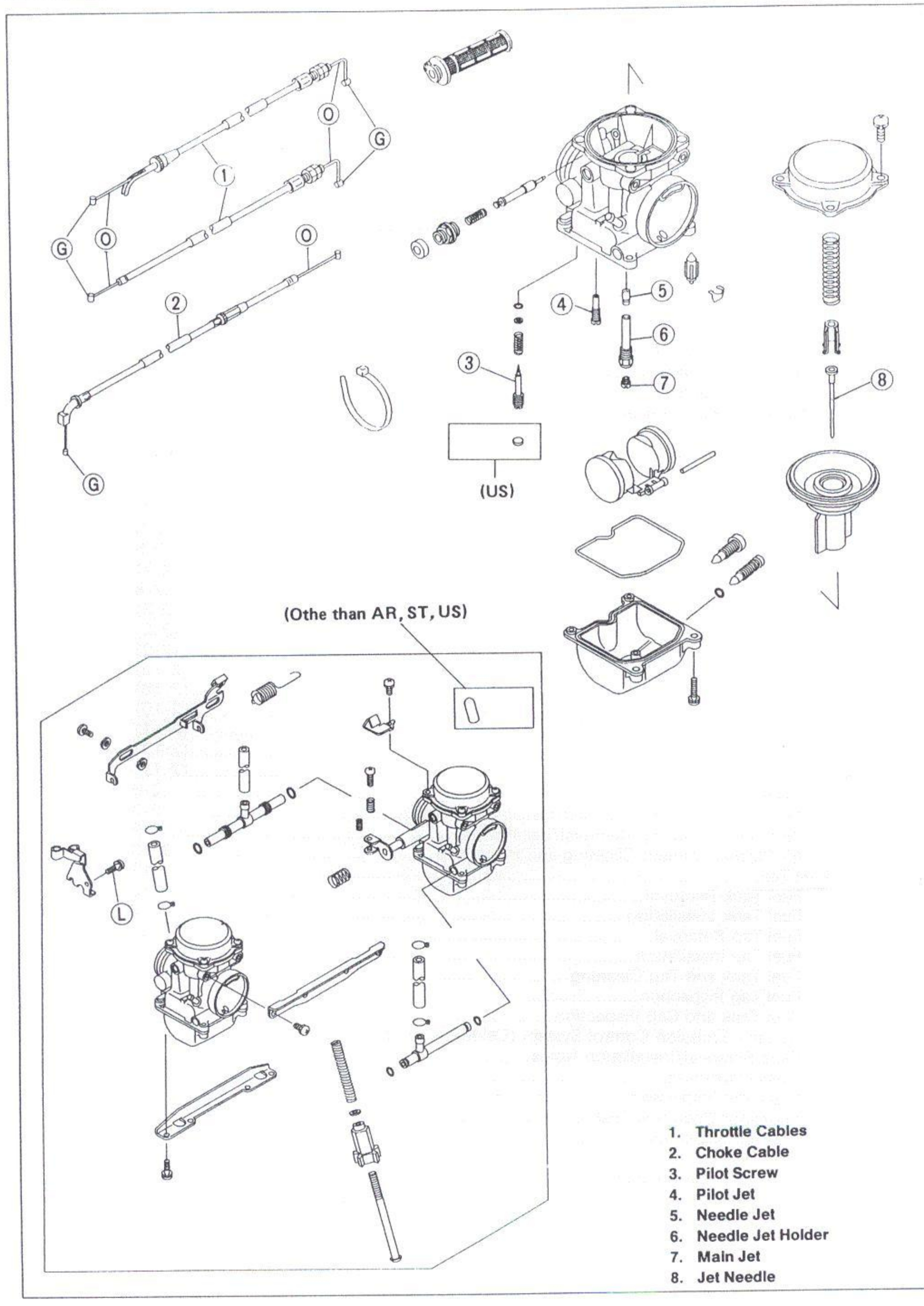
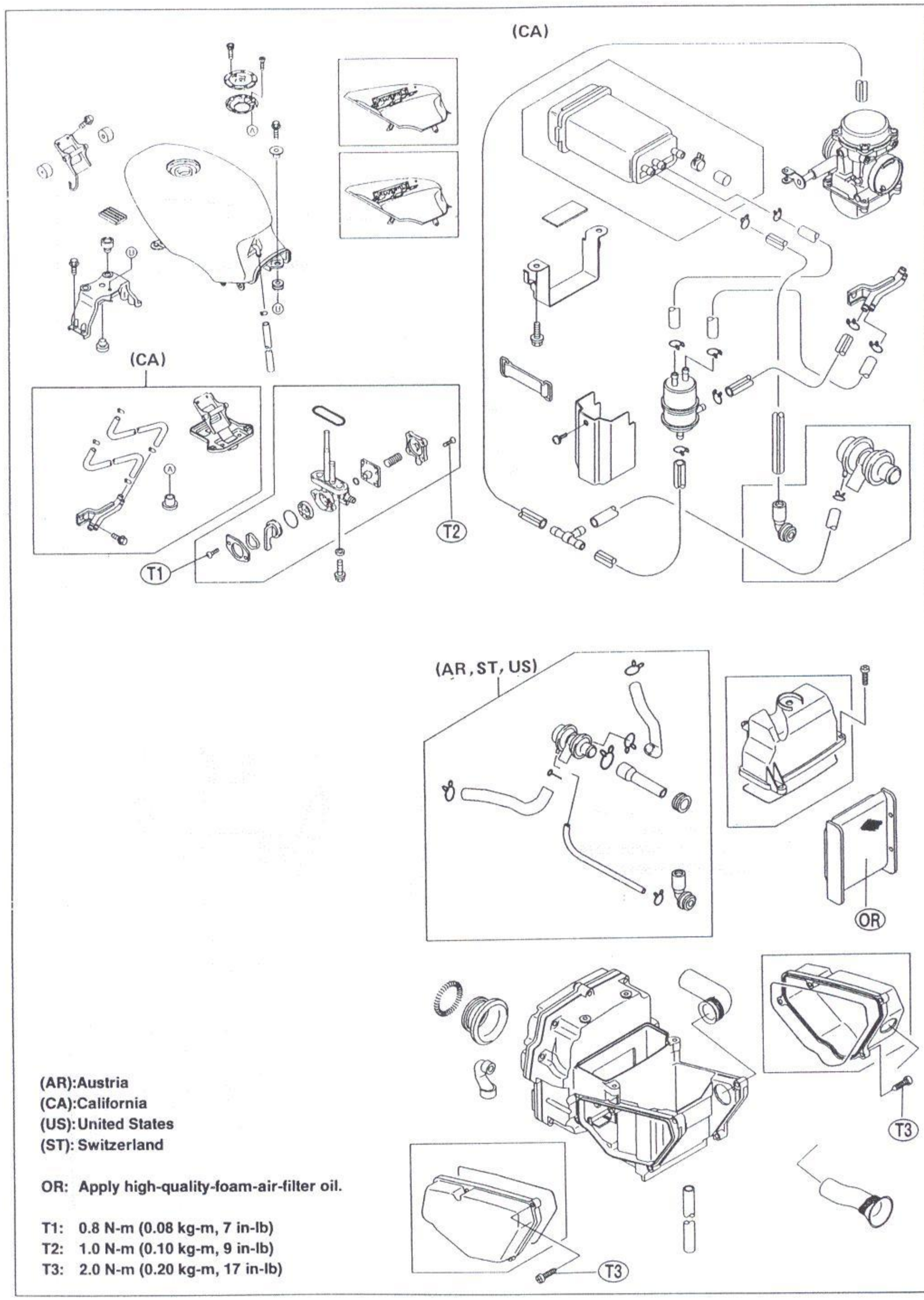


1. Throttle Cables
2. Choke Cable
3. Pilot Screw
4. Pilot Jet
5. Needle Jet
6. Needle Jet Holder
7. Main Jet
8. Jet Needle



(AR):Austria
(CA):California
(US):United States
(ST): Switzerland

OR: Apply high-quality-foam-air-filter oil.

T1: 0.8 N-m (0.08 kg-m, 7 in-lb)
T2: 1.0 N-m (0.10 kg-m, 9 in-lb)
T3: 2.0 N-m (0.20 kg-m, 17 in-lb)

2-4 FUEL SYSTEM

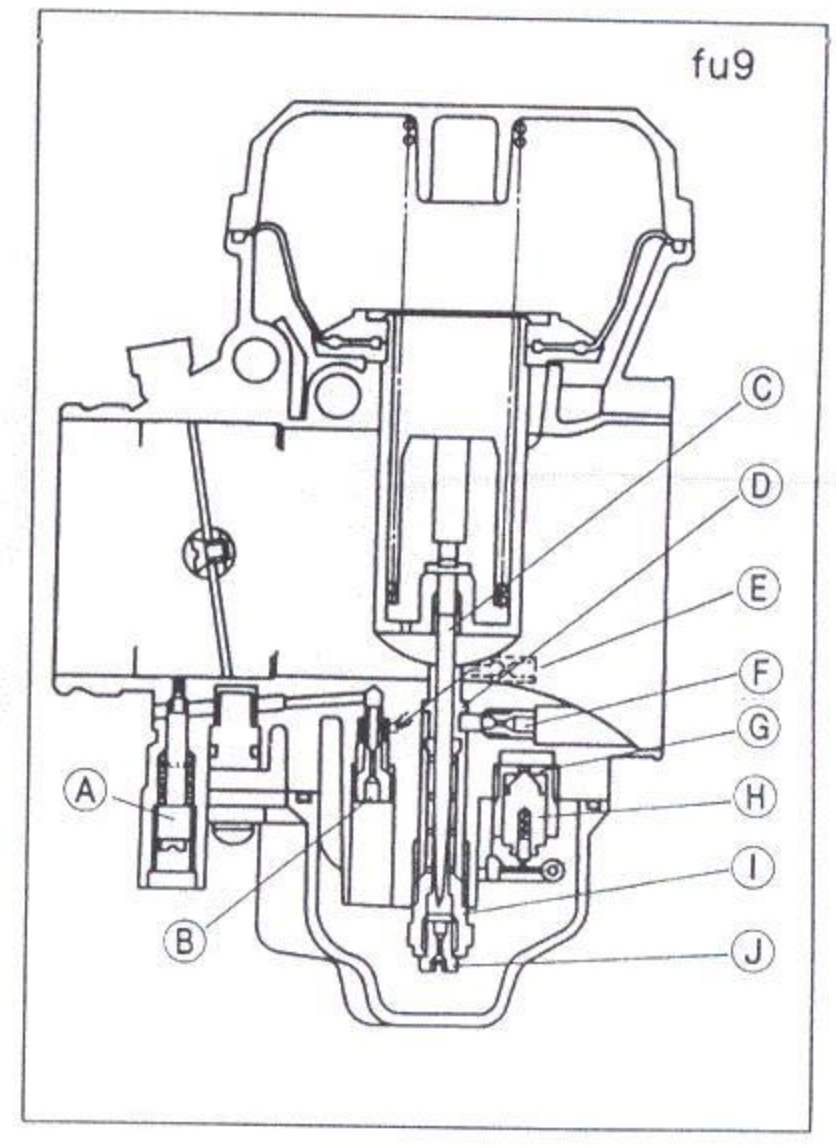
Specifications

Item		Standard
Throttle Grip Free Play		2 ~ 3 mm
Choke Cable Free Play		2 ~ 3 mm
Carburetor		
Make, type		KEIHIN, CVK34
Idle speed		1200 ± 50 r/min (rpm)
Pilot screw (turns out)		2 ± ¼, (FG, AR) 1 ¾ ± ¼, (ST) 1 ½ ± ¼, (US) – – –
Synchronization vacuum		2.7 kPa (2 cmHg) or less difference between two carburetors
Service fuel level		1.5 mm above ~ 0.5 mm below the float bowl mating surface
Float height		17 ± 2 mm
Main jet		#130, (ST) #132
Main air jet		#100
Needle jet		16017-1208, (US) 16017-1059
Jet needle		N36N, (ST) N36U
Pilot jet (slow jet)		#35
Pilot air jet (slow air jet)		#130
Starter jet		#50 (unremovable)
Throttle valve angle		11°
Air Cleaner Element Oil		
	Grade	SE or SF class
	Viscosity	SAE30

(AR): Austria Model
(FG): Germany Model
(ST): Switzerland Model
(US): U.S. Model

Pilot Screw [A]
Pilot Jet [B]
Jet Needle [C]
Needle Jet [D]
Pilot Air Jet [E]
Main Air Jet [F]
Valve Seat [G]
Float Valve [H]
Jet Needle Holder [I]
Main Jet [J]

Special Tools – Pressure Cable Luber: K56019-021
Vacuum Gauge: 57001-1369
Pilot Screw Adjuster, A: 57001-1239
Fuel Level Gauge: 57001-1017



Throttle Grip and Cables

Throttle Grip Free Play Inspection

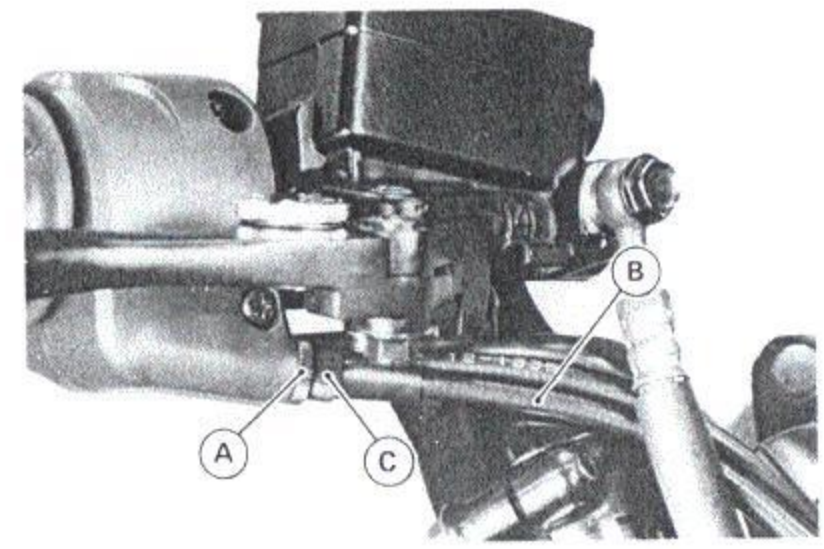
● Check the throttle grip free play [A].

★ If the free play is incorrect, adjust the throttle cables.

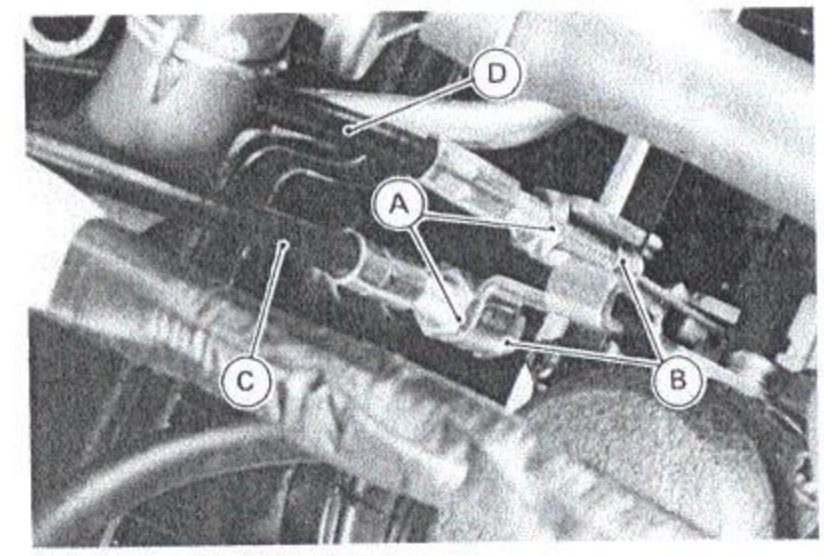
Throttle Grip Free Play
Standard: 2 ~ 3 mm

Throttle Cable Adjustment

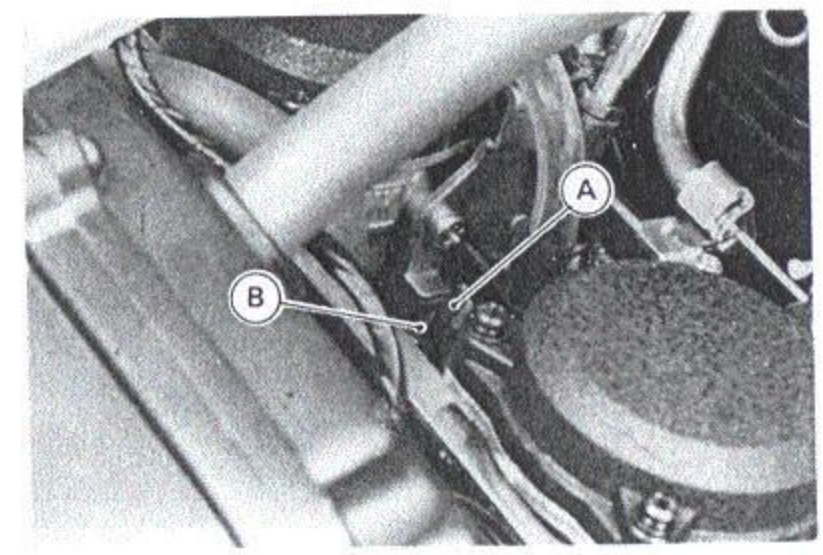
● Loosen the locknut [A] at the upper end of the accelerator cable [B], and turn the adjuster [C] until the proper amount of throttle grip play is obtained.
● Tighten the locknut.
★ If the throttle cables can not be adjusted by using the cable adjuster at the upper end of the accelerator cable, use the upper and lower nuts at the lower ends of the throttle cables.
● Loosen the locknut at the throttle grip and turn in the adjuster fully.
● Tighten the locknut.



● Remove the fuel tank (see this chapter).
● Turn out both upper nuts [A] and turn in both lower nuts [B] as far as they will go so as to give the throttle grip plenty of play.
● With the throttle grip completely closed, turn out the lower nut and turn in the upper nut of the decelerator cable [C] until the inner cable just becomes tight.
● Turn out the lower nut and turn in the upper nut of the accelerator cable [D] until the specified free play is obtained.



● Check that the throttle linkage lever [A] stops against the idle adjusting screw [B] with the throttle grip closed.



● Start the engine.
● Turn the handlebar from side to side while idling the engine.
★ If idle speed varies, the throttle cable may be poorly routed or it may be damaged (see Cable Routing in the General Information chapter).
● Correct any problem before operating the motorcycle.

⚠WARNING

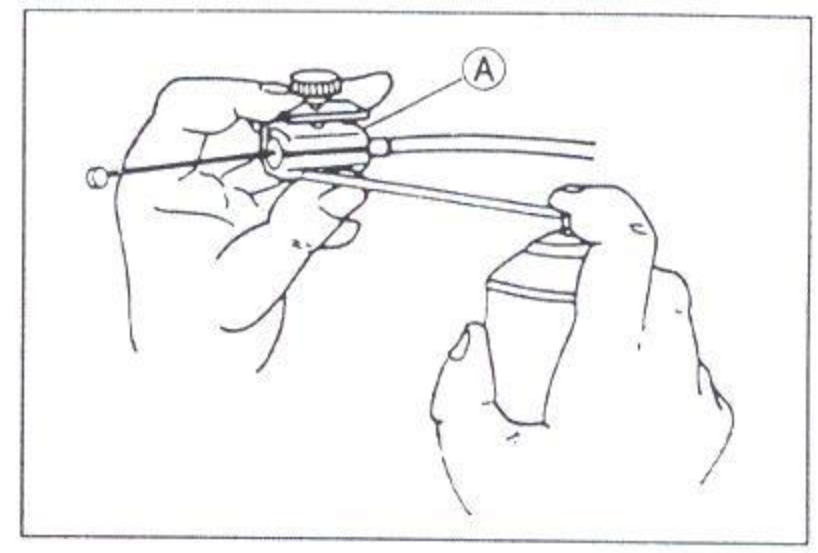
Operation with improperly adjusted, incorrectly routed, or damaged cables could result in an unsafe riding condition.

Throttle Cable Lubrication

Refer to the Base Manual, noting the following.

● Lubricate the cable with a penetrating rust inhibitor.

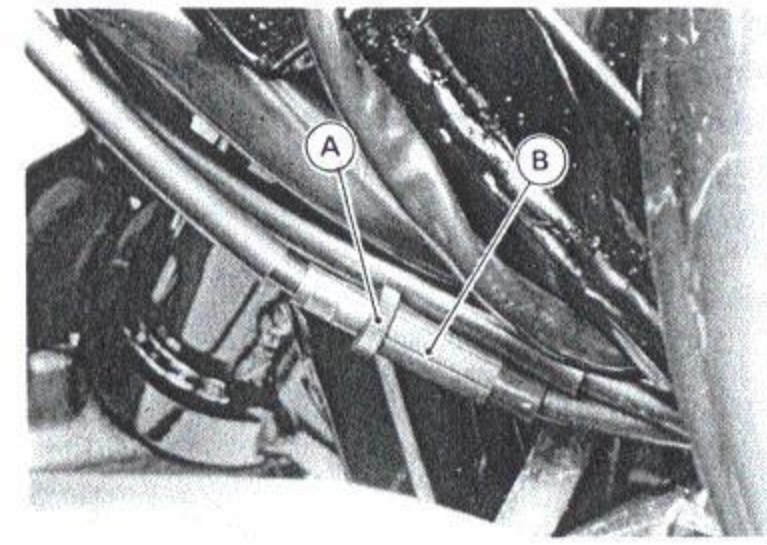
Special Tool – Pressure Cable Luber: K56019-021 [A]



Choke Cable

Choke Cable Adjustment

- Loosen the locknut [A] and turn the adjusting nut [B] until the cable has the proper amount of free play.
- Tighten the locknut after adjustment.

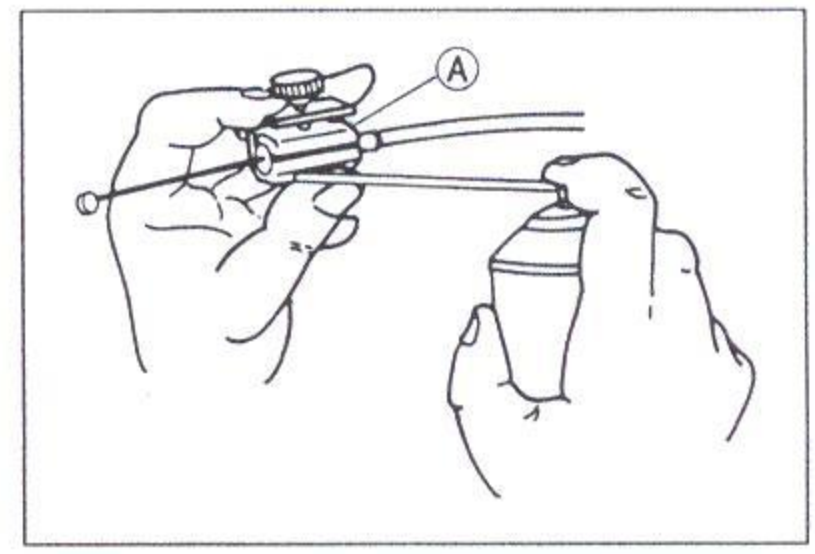


Choke Cable Lubrication

Refer to the Base Manual, noting the following.

- Lubricate the cable with a penetrating rust inhibitor.

Special Tool – Pressure Cable Luber: K56019-021 [A]



Carburetors

Idle Speed Inspection

Refer to the Base Manual, noting the following.

● Check the cable routing before idle speed inspection (see Cable Routing in the General Information chapter).

Idle Speed

1200 ± 50 r/min (rpm)

Vacuum Synchronization Inspection

Refer to the Base Manual, noting the following.

Carburetor Synchronization Vacuum

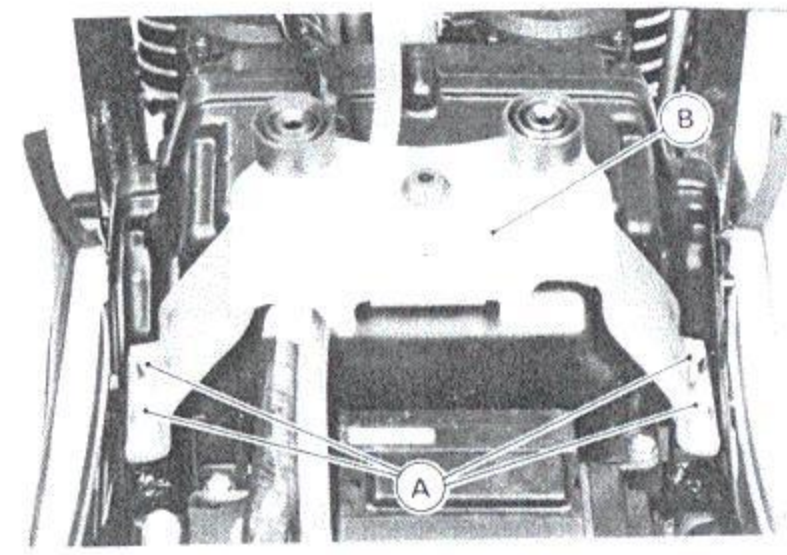
Standard: **Less than 2.7 kPa (2 cmHg) difference between two carburetors**

Air Cleaner

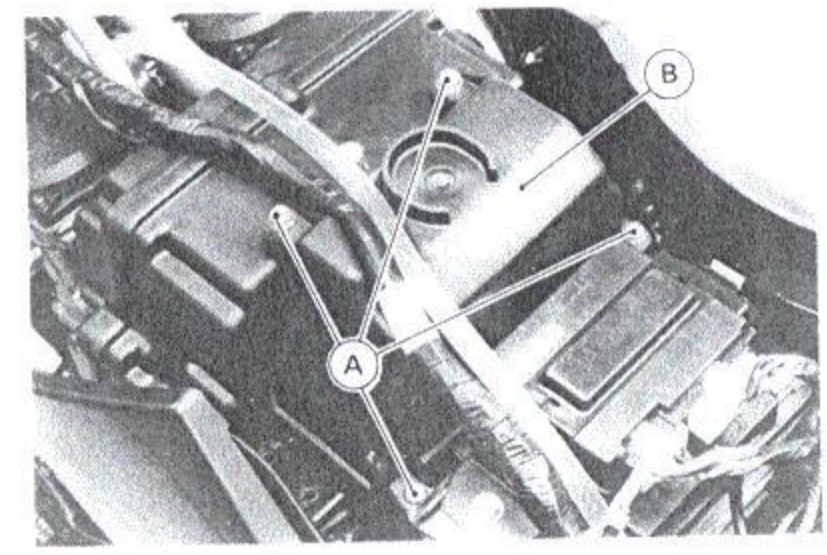
Air Cleaner Element Removal/Installation Notes

● Remove:
Seat
Fuel Tank (see Fuel Tank Removal)

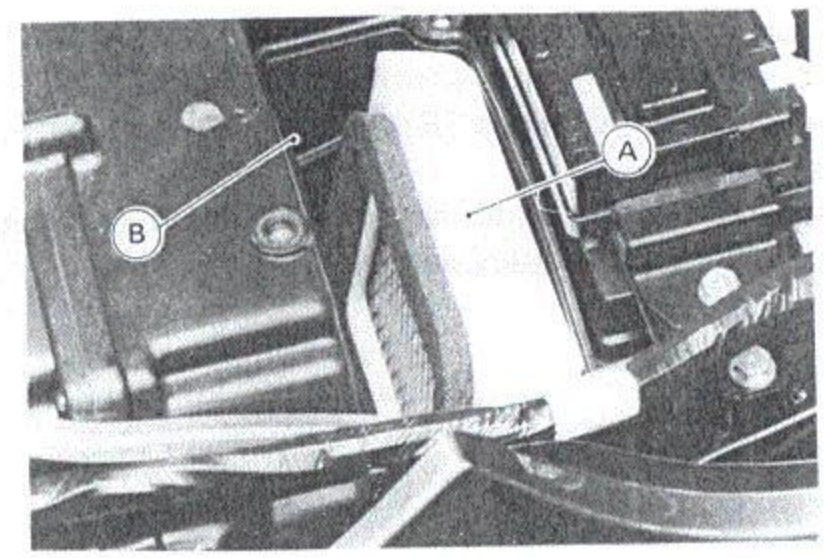
● Remove the mounting bolts [A], and take off the fuel tank bracket [B].



● Remove the mounting bolts [A], and take off the air cleaner housing cover [B].



● Remove the air cleaner element [A] from the housing [B].



● Push a clean, lint-free towel into the air cleaner housing to keep dirt or other foreign material from entering.

⚠WARNING

If dirt or dust is allowed to pass through into the carburetors, the butterfly valves may become stuck, possibly causing an accident.

CAUTION

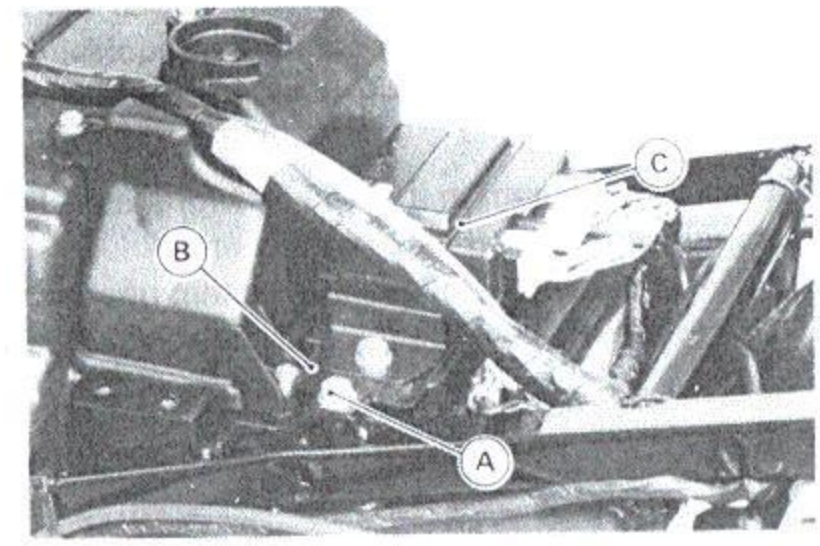
If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.

Air Cleaner Housing Removal/Installation

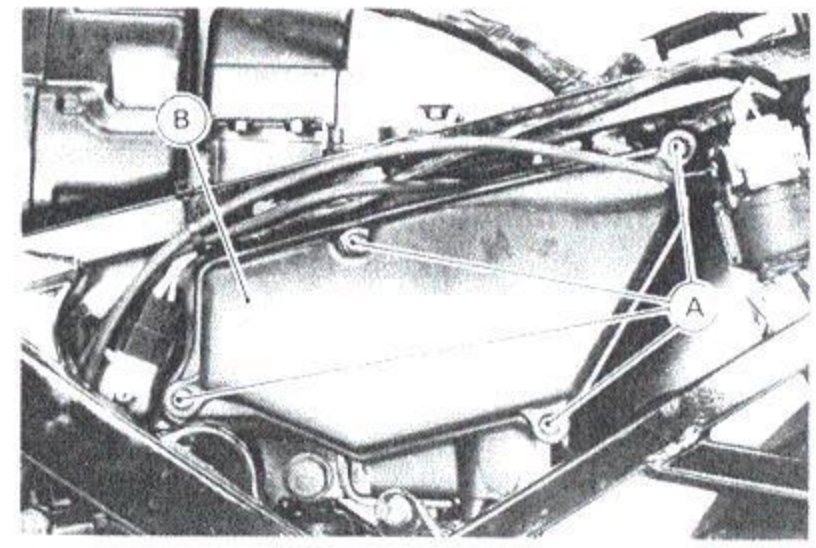
● Remove:
Seat and Side Covers (see Frame chapter)
Fuel Tank (see Fuel Tank Removal)

● Remove the mounting bolt [A], and take off the junction box bracket [B] with the junction box [C].

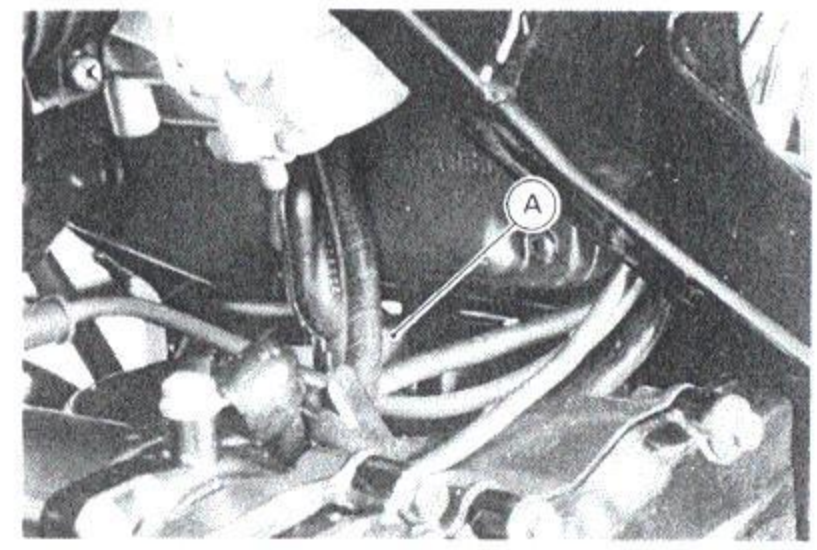
● Remove the battery.



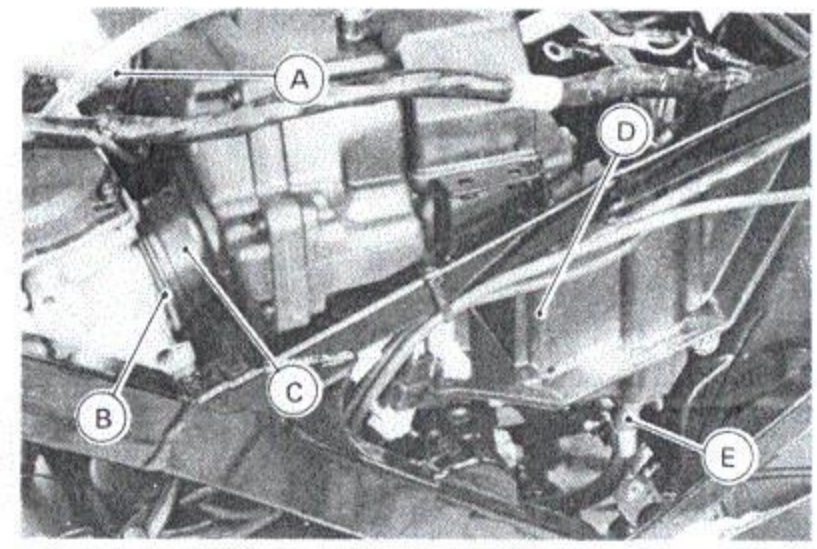
● Remove the mounting screws [A], and take off the air cleaner housing side covers [B] on both sides.



● Disconnect the engine breather hose [A] from the engine.



● Disconnect the air suction valve hose [A] from the air cleaner housing (US, Switzerland, and Austria models).
● Slide the spring bands [B], and disconnect the ducts [C] from the carburetors.
● Remove the air cleaner housing [D], and pull out the prolongation hose [E] on the battery vent hose.



Air Cleaner Element Cleaning and Inspection

NOTE

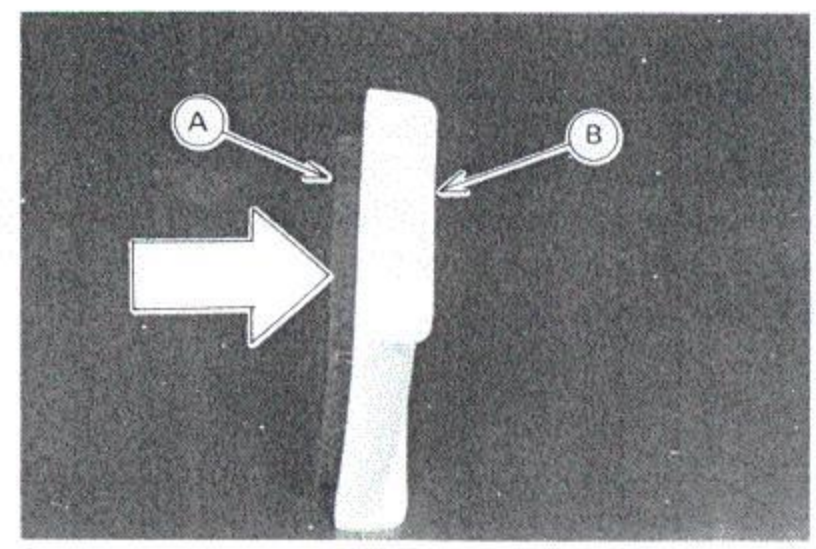
○ *In dusty areas, the element should be cleaned more frequently than the recommended interval.*
○ *After riding through rain or on muddy roads, the element should be cleaned immediately.*

● Remove the air cleaner element (see Air Cleaner Element Removal).

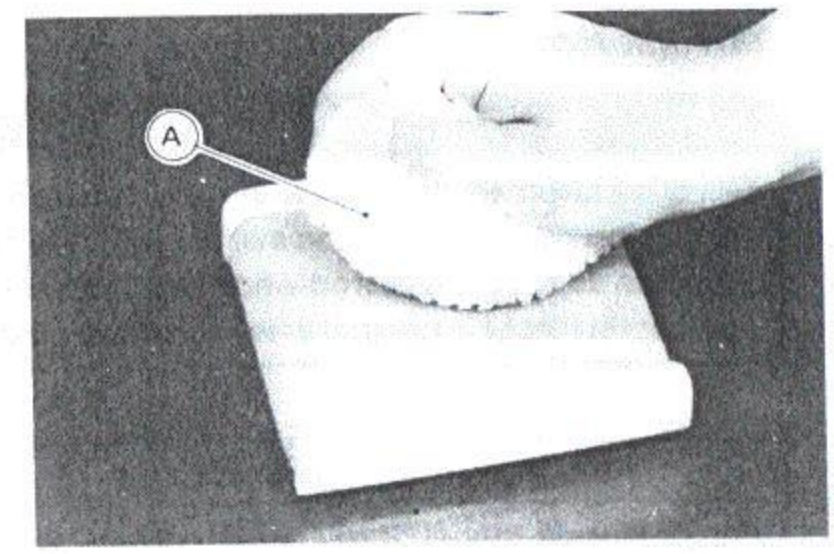
⚠WARNING

Clean the element in a well-ventilated area, and make sure that there are no sparks or flame anywhere near the working area. Because of the danger of highly flammable liquids, do not use gasoline or a low flash-point solvent to clean the element.

● Clean the element in a bath of a high flash-point solvent, and then dry it with compressed air or by shaking it.
○ Dry the element by directing a stream of compressed air from the inside [A] to the outside [B] (from the clean side to the dirty side).



● After cleaning, saturate a clean, lint-free towel with SE class SAE30 oil and apply the oil to the element by tapping the element outside with the towel [A].

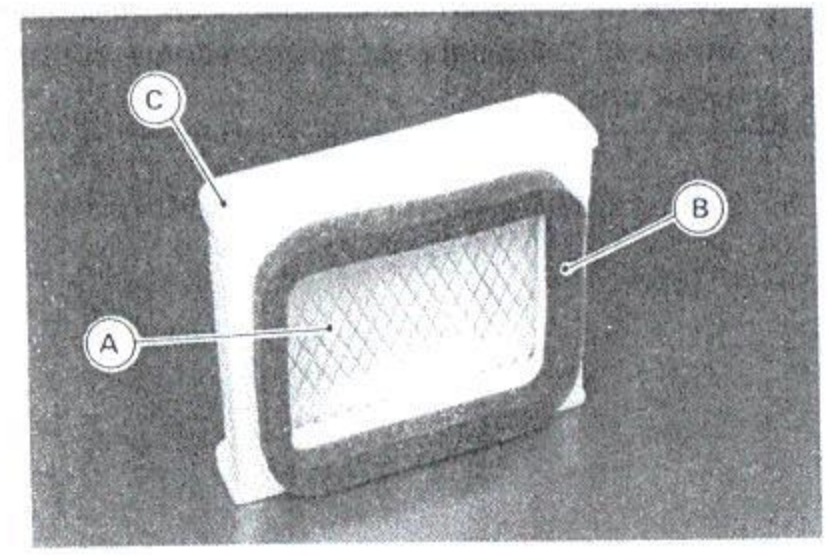


● Visually check the element [A] for tears or breaks. Check the sponge gasket [B] also, and the plastic frame [C].

★ If the element or gasket has any tears or breaks, replace the element.

★ If the element frame is damaged or distorted, replace the element.

★ If the sponge gasket comes loose, stick it back on with an adhesive sealant.



Fuel Tank

Fuel Tank Removal

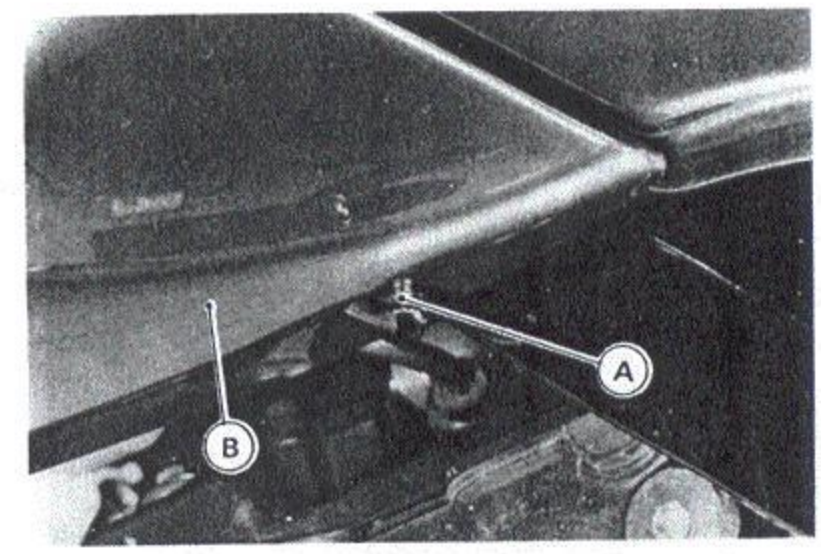
⚠WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

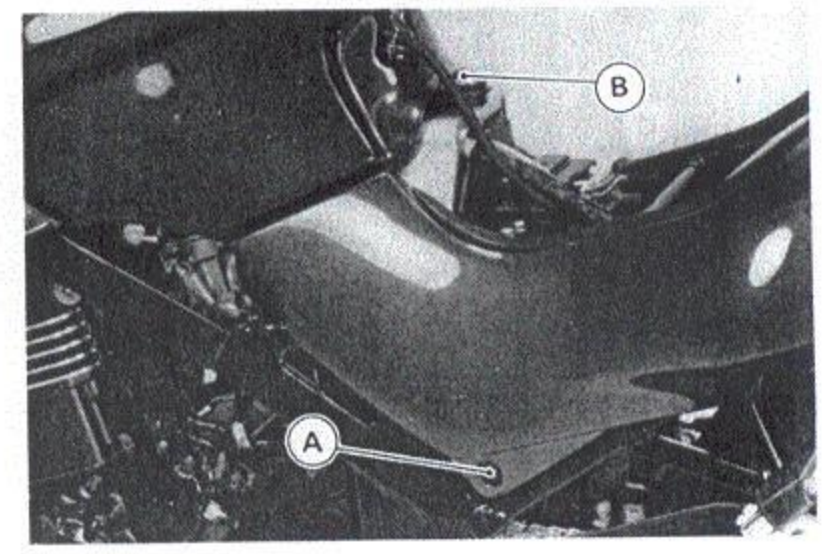
CAUTION

For California model, if gasoline, solvent, water or any other liquid enters the canister, the canister's vapor absorbing capacity is greatly reduced. If the canister does become contaminated, replace it with a new one.

● Remove the screws [A] on the rear ends of the fairing [B].



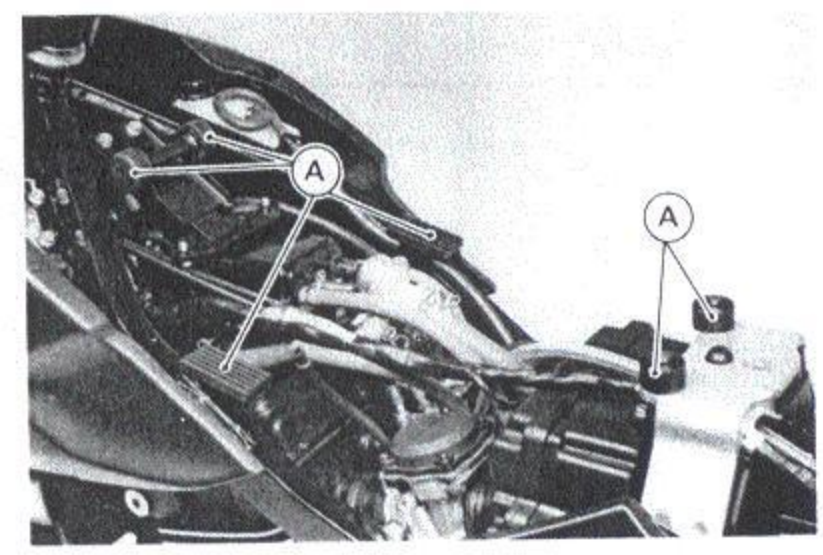
● Remove:
Side Cover Front Screws [A] (right and left)
Fuel Tank Mounting Bolt [B]



● Turn the fuel tap to the OFF position.
● Pull the hoses off the tap.
○ For California vehicles, the breather and fuel return hoses must be disconnected from the tank fittings before tank removal. Plug the fuel return fitting. This prevents gasoline from flowing into the canister.
● Remove the fuel tank.

Fuel Tank Installation

● Fuel tank installation is the reverse of removal. Note the following.
● Read the above WARNING.
● Check the rubber dampers [A] on the frame.
★ If the dampers are damaged or deteriorated, replace them.
● Be sure the hoses are clamped securely to prevent leaks.



Evaporative Emission Control System (California Model only)

The Evaporative Emission Control System routes fuel vapors from the fuel system into the running engine or stores the vapors in a canister when the engine is stopped. Although no adjustments are required, a thorough visual inspection must be made at the intervals specified by the Periodic Maintenance Chart.

Parts Removal/Installation Notes

⚠WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

CAUTION

If gasoline, solvent, water or any other liquid enters the canister, the canister's vapor absorbing capacity is greatly reduced. If the canister does become contaminated, replace it with a new one.

- To prevent the gasoline from flowing into or out of the canister, hold the separator perpendicular to the ground.
- Connect the hoses according to the diagram of the system (see Cable Routing in the General Information chapter). Make sure they do not get pinched or kinked.

Cooling System

3

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( ) : Refer to Base Manual

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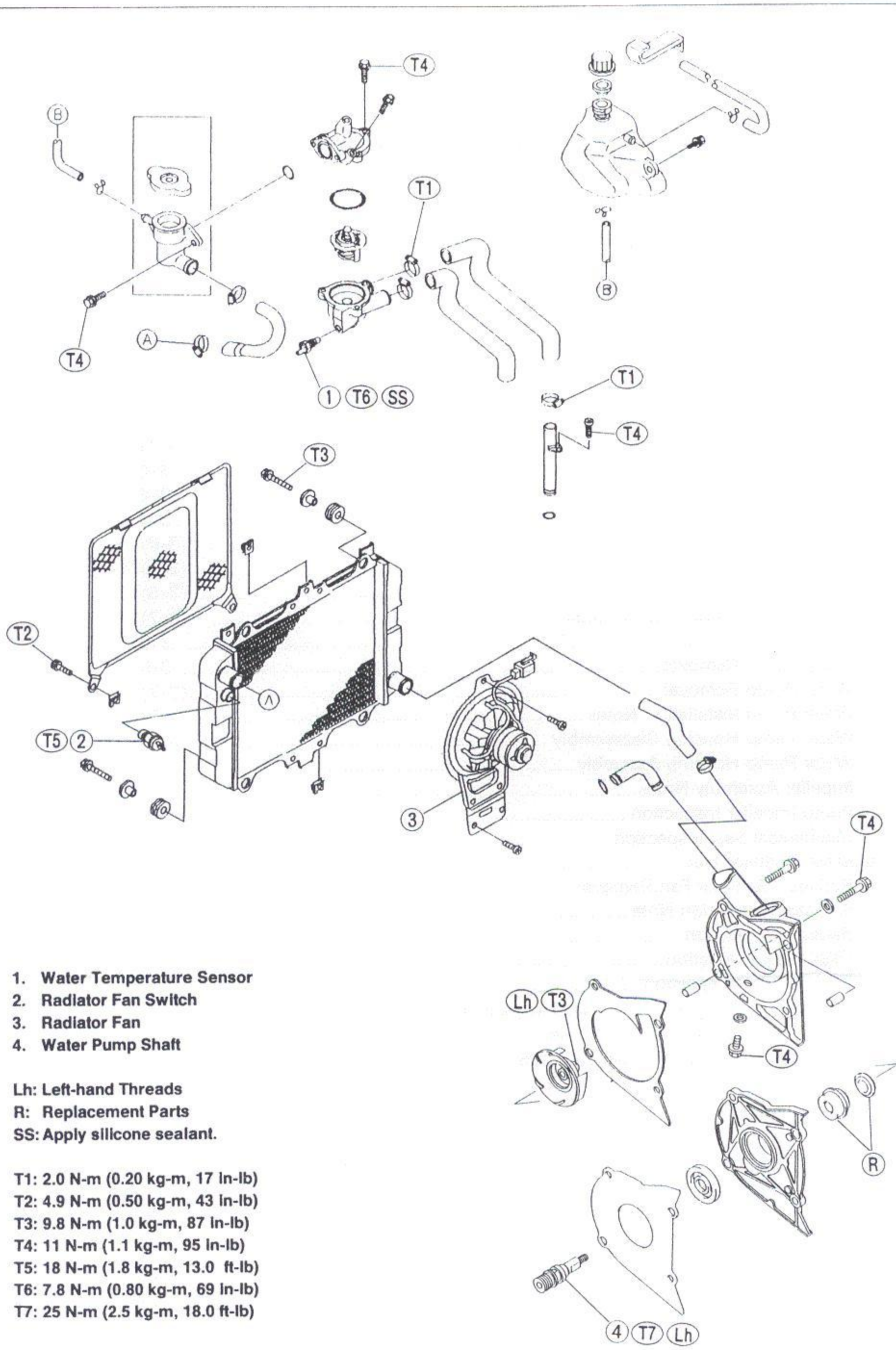


1. Water Temperature Sensor
2. Radiator Fan Switch
3. Radiator Fan
4. Water Pump Shaft

Lh: Left-hand Threads
R: Replacement Parts
SS: Apply silicone sealant.

T1: 2.0 N-m (0.20 kg-m, 17 in-lb)
T2: 4.9 N-m (0.50 kg-m, 43 in-lb)
T3: 9.8 N-m (1.0 kg-m, 87 in-lb)
T4: 11 N-m (1.1 kg-m, 95 in-lb)
T5: 18 N-m (1.8 kg-m, 13.0 ft-lb)
T6: 7.8 N-m (0.80 kg-m, 69 in-lb)
T7: 25 N-m (2.5 kg-m, 18.0 ft-lb)

Specifications

Item		Standard
Coolant Provided When Shipping		
	Type	Permanent type of antifreeze (soft water and ethylene glycol plus corrosion and rust inhibitor chemicals for aluminum engines and radiators)
	Color	Green
	Mixed ratio	Soft water 50%, coolant 50%
	Freezing point	−35°C (−31°F)
	Total amount	1.8 L (reserve tank full level including radiator and engine)
Radiator Cap:	Relief pressure	93 ~ 123 kPa (0.95 ~ 1.25 kg/cm², 14 ~ 18 psi)
Thermostat:	Valve opening temperature	80.5 ~ 83.5°C (177 ~ 182°F)
	Valve full opening lift	8 mm or more @ 95°C (203°F)

Special Tool − Bearing Driver Set: 57001-1129

Sealant − Kawasaki Bond (Silicone Sealant): 56019-120

Coolant

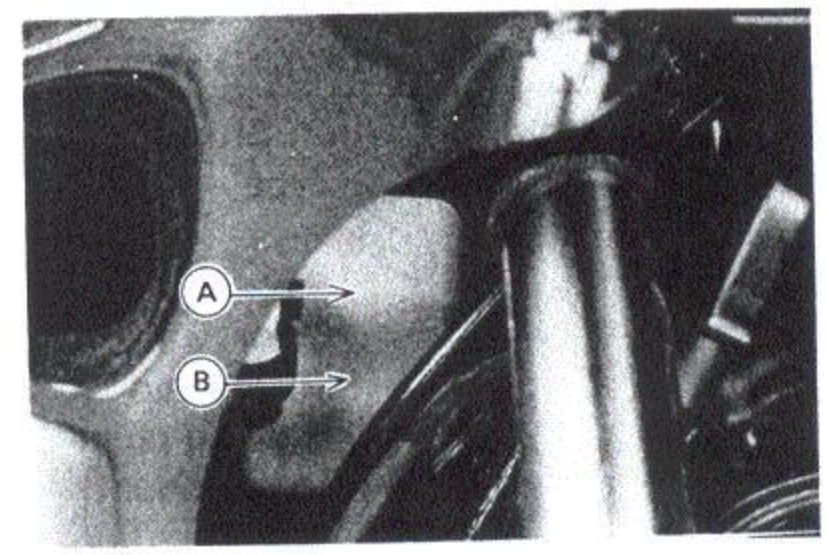
Coolant Level Inspection

Refer to the Base Manual, noting the following.

● Check the level through the coolant level gauge.

[A] FULL Mark

[B] LOW Mark



Coolant Draining

Refer to the Base Manual, noting the following.

● Remove the upper and lower fairings before coolant draining (see Frame chapter).

Coolant Filling

Refer to the Base Manual, noting the following.

Original Coolant

Total Amount: **1.8 L**

Water Pump

Pump Cover Removal

Refer to the Base Manual, noting the following.

● Remove the lower fairing (see Frame chapter).

○ The right footpeg assembly removal is not needed.

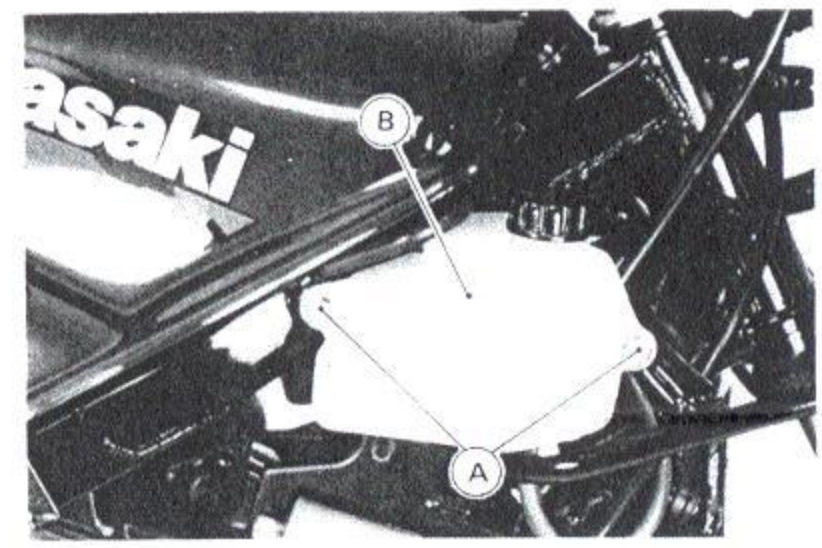
Radiator, Radiator Fan

Radiator, Radiator Fan Removal

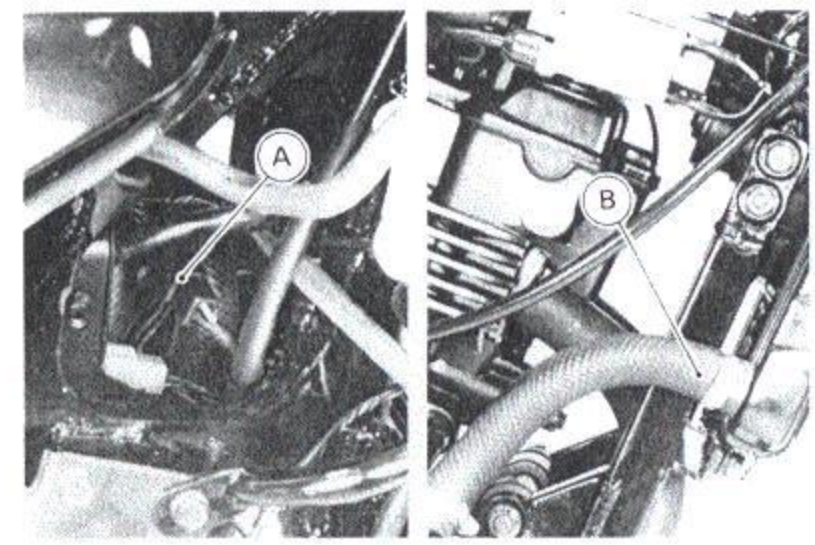
● Drain the coolant (see Coolant Draining).

● Remove:

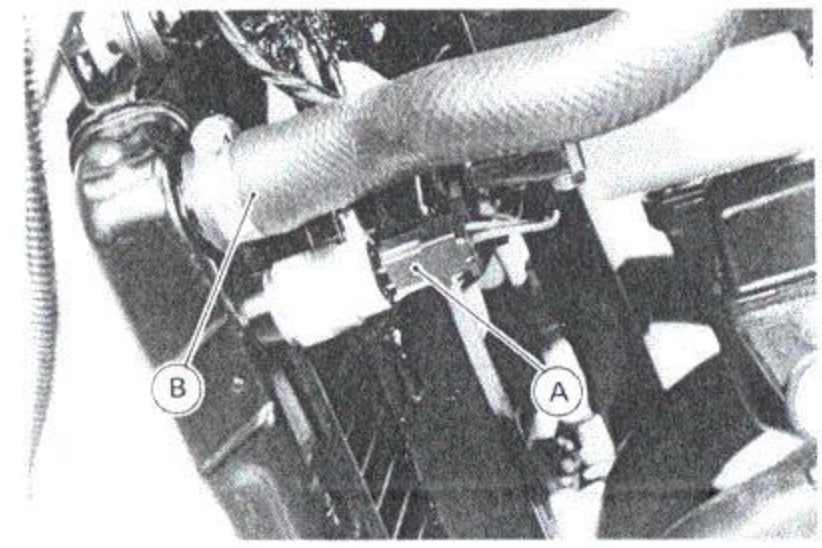
Mounting Bolts [A]
Reserve Tank [B] (with Hoses)



Radiator Fan Motor Lead Connector [A]
Radiator Hose [B]

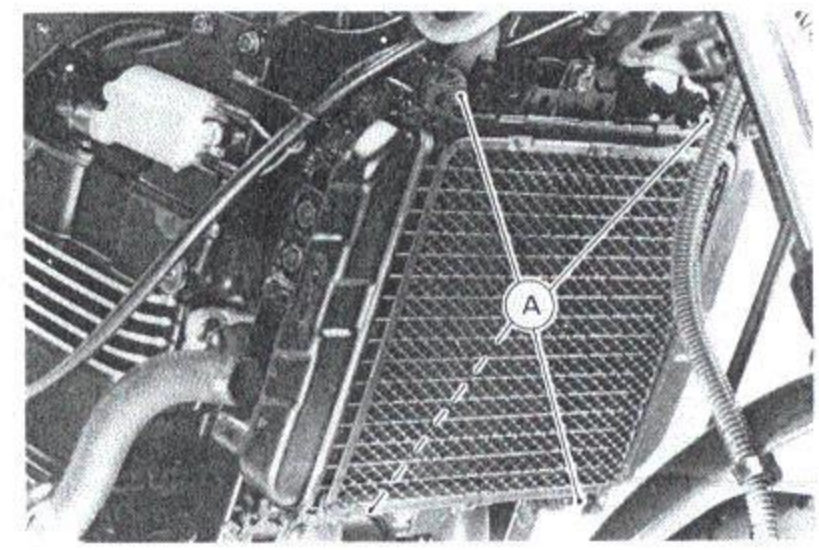


Radiator Fan Switch Connector [A]
Radiator Hose [B]



Mounting Bolts [A]

● Remove the radiator with the radiator fan.



Radiator Hose, Pipe, Air Vent Hose, Reserve Tank Hose Installation Notes

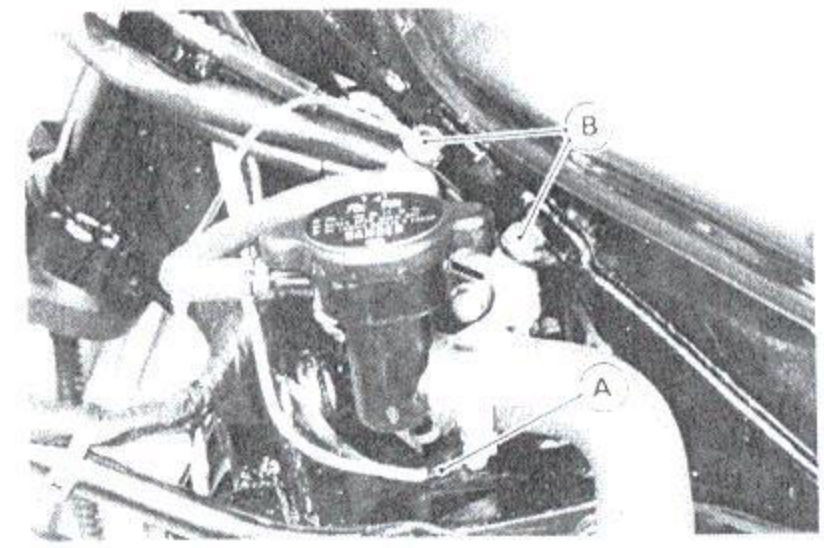
● Install the radiator hoses. Avoid sharp bending, kinking, flattening, or twisting (see Cable Routing in the General Information chapter).

○ Tighten the hose clamps securely.

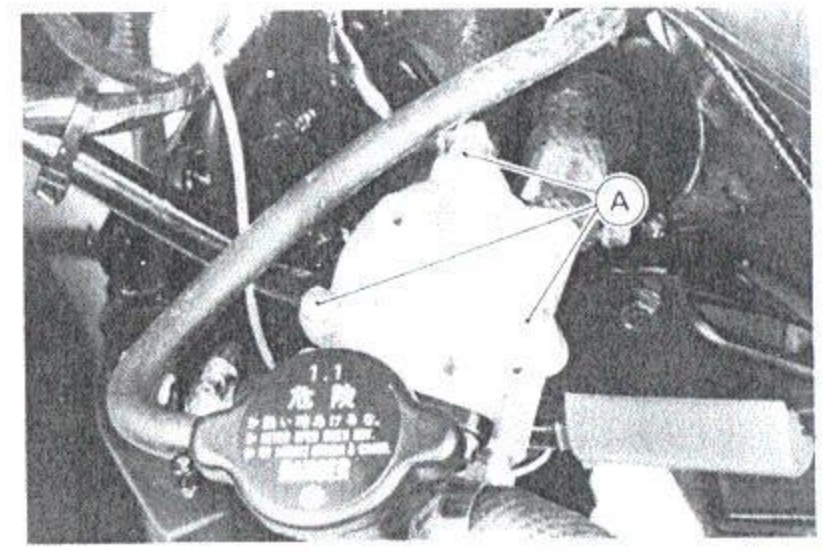
Thermostat

Thermostat Removal

- Drain the coolant (see Coolant Draining).
- Remove:
  Water Temperature Sensor Connector [A]
  Thermostat Housing Mounting Bolts [B]

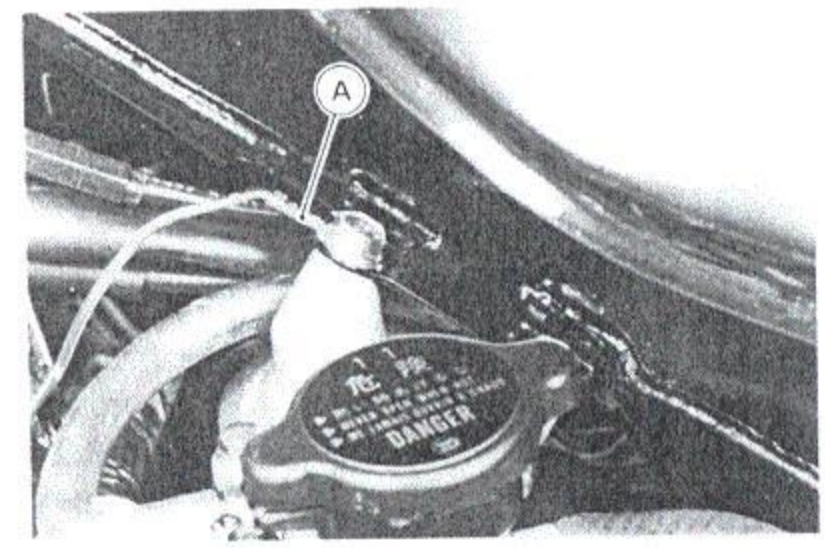


  Housing Cover Bolts [A]
- Remove the thermostat from the housing.



Thermostat Installation Note

- Be sure to install the main harness ground lead [A] on the frame.



Thermostat Inspection

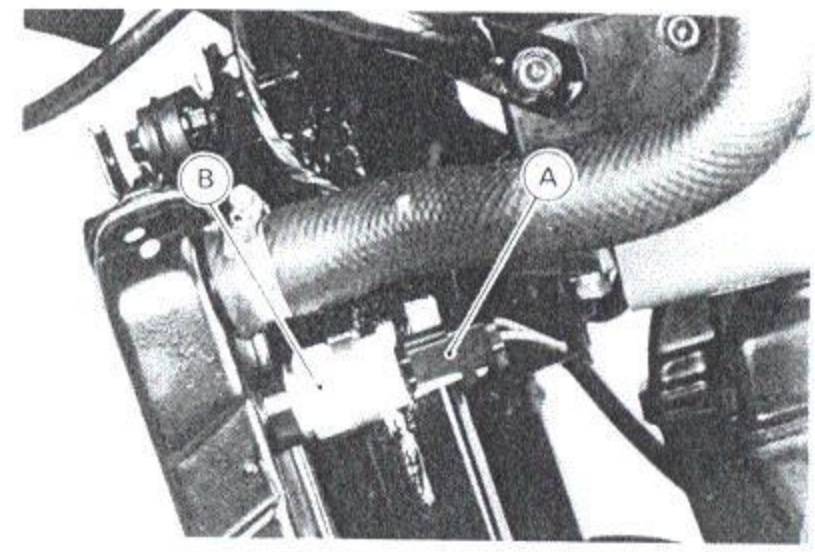
Refer to the Base Manual, noting the following.

Thermostat Valve Opening Temperature
80.5 ~ 83.5 °C (177 ~ 182°F)

Radiator Fan Switch, Water Temperature Sensor

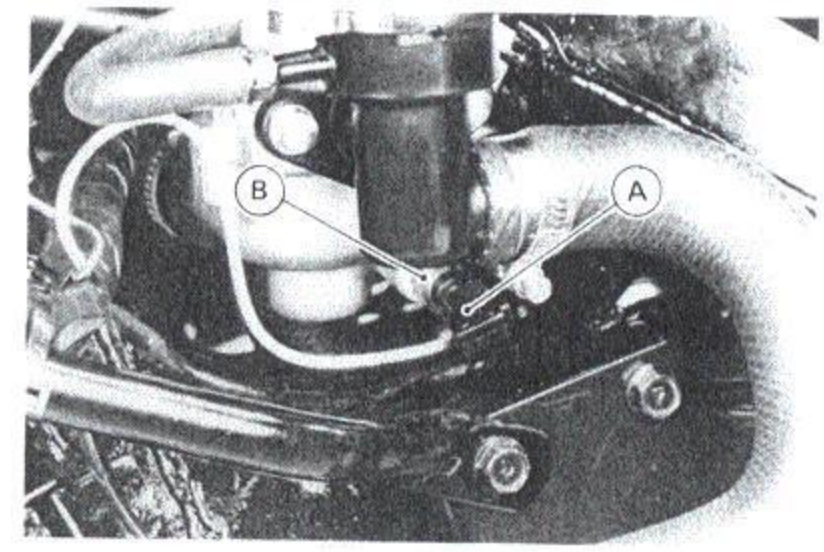
Radiator Fan Switch Removal

- Drain the coolant (see Coolant Draining).
- Disconnect the radiator fan switch connector [A].
- Unscrew the radiator fan switch [B].



Water Temperature Sensor Removal

- Drain the coolant (see Coolant Draining).
- Disconnect the water temperature sensor connector [A].
- Unscrew the water temperature sensor [B].



Engine Top End

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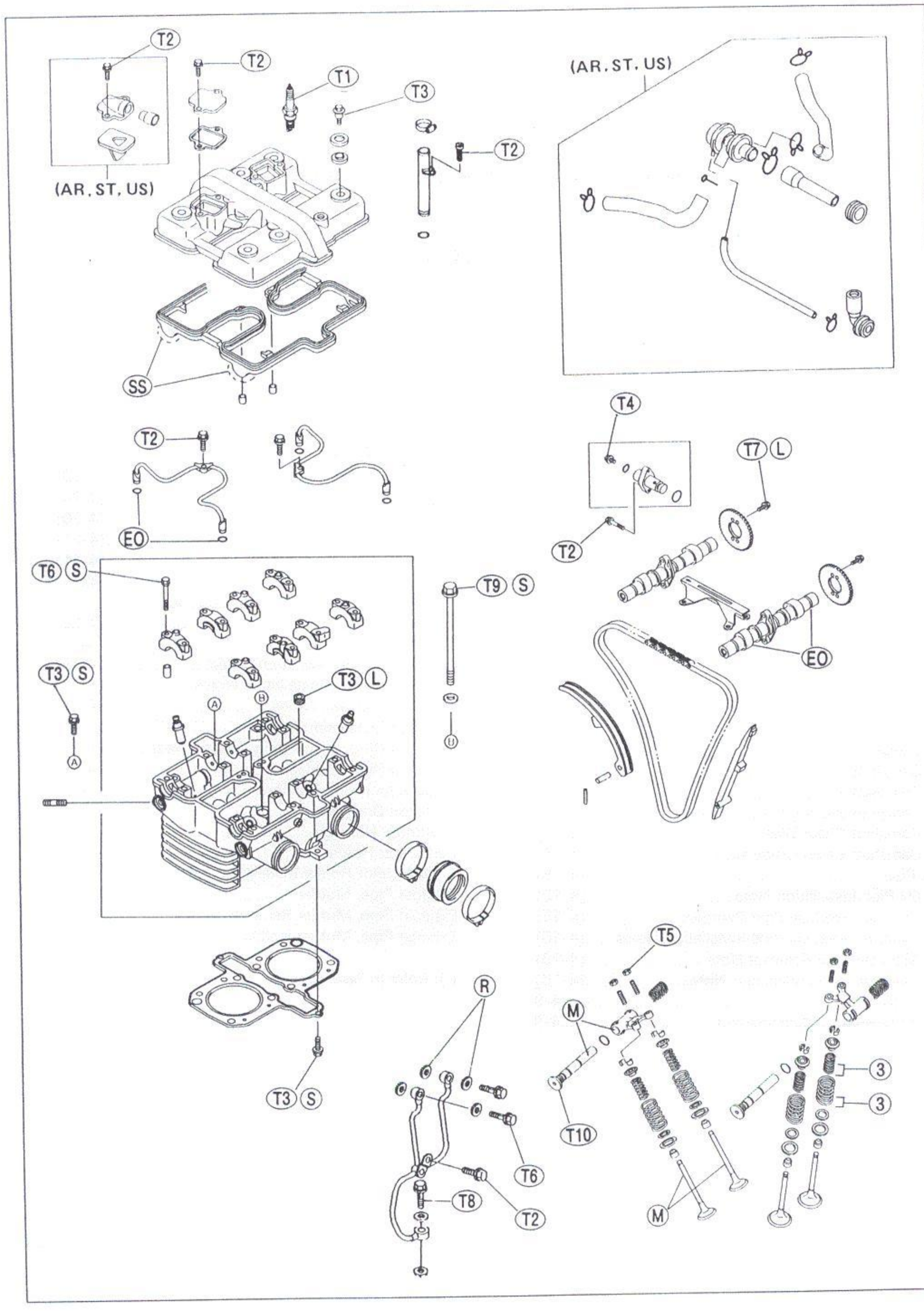
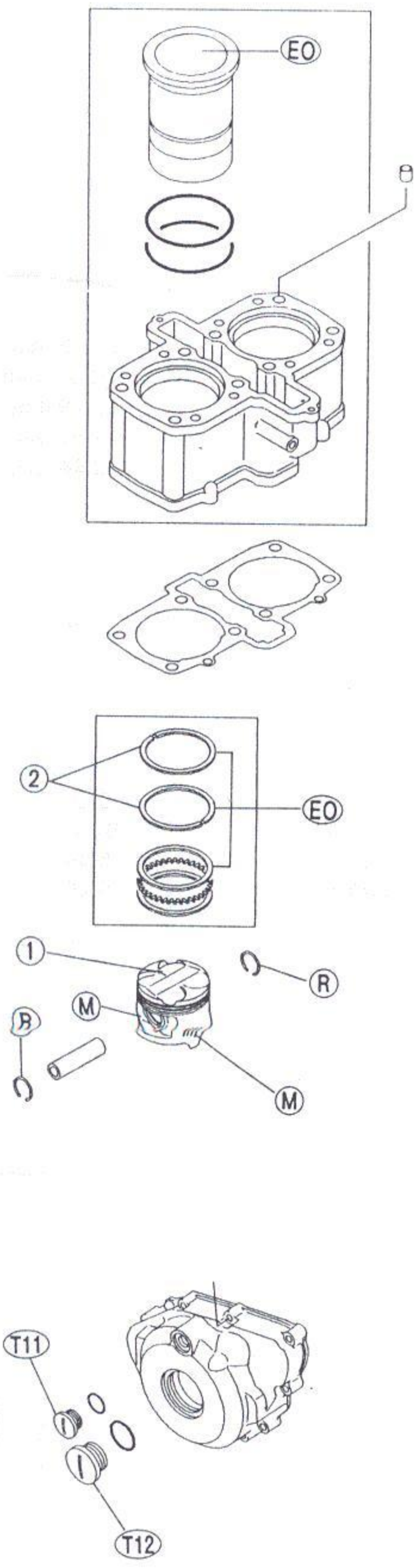
( ): Refer to Base Manual

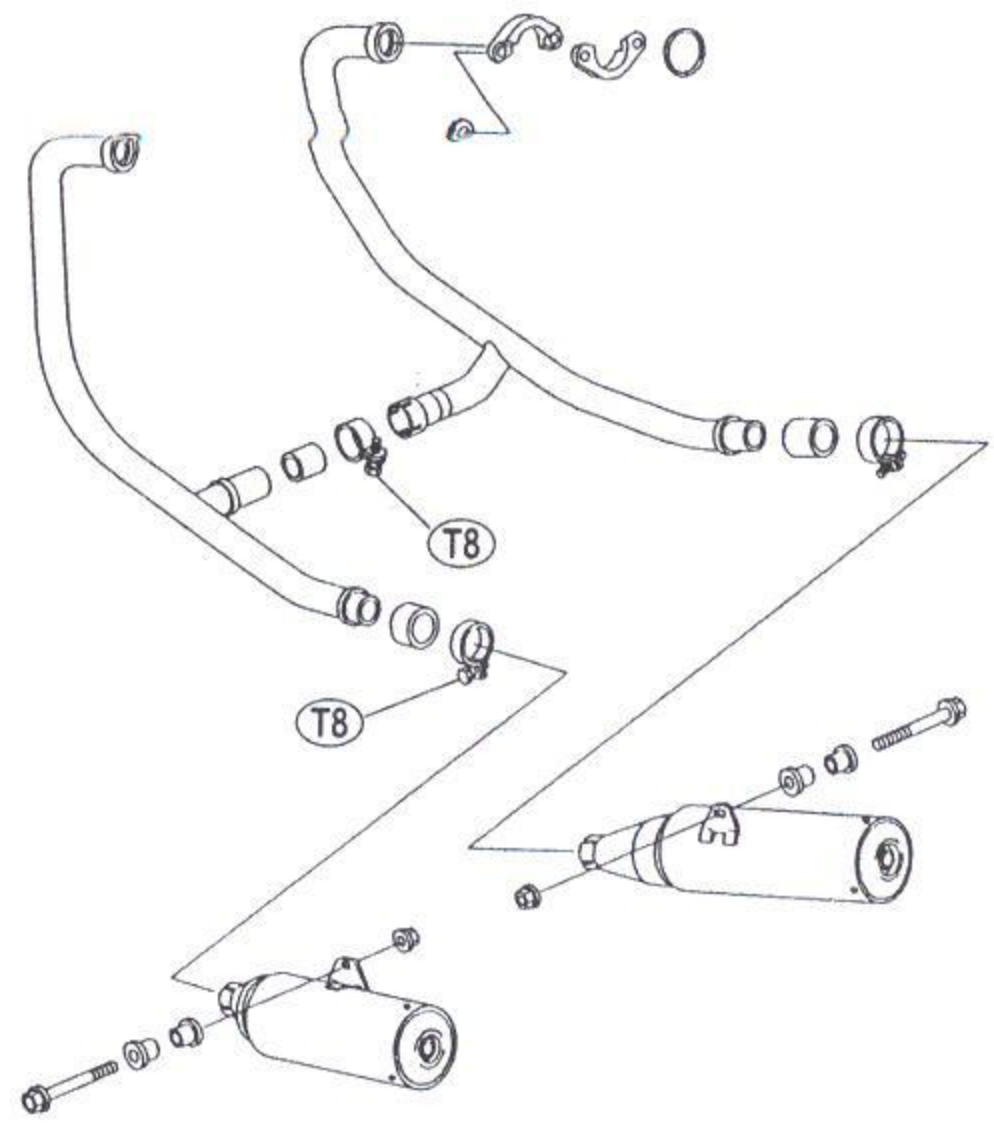
Exploded View





1. Arrow points to the front.
2. "N" mark faces up.
3. Closed coil end faces down.

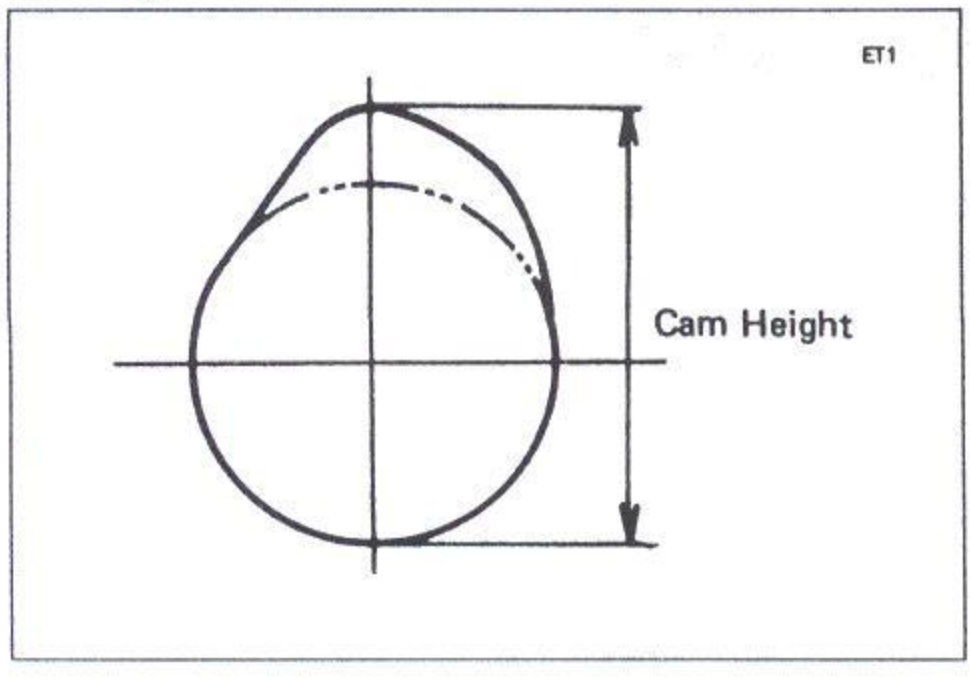
EO: Apply engine oil.
L: Apply a non-permanent locking agent.
M: Apply molybdenum disulfide grease.
R: Replacement Parts
S: Follow the specific tightening sequence.
SS: Apply silicone sealant.
T1: 14 N-m (1.4 kg-m, 10.0 ft-lb)
T2: 11 N-m (1.1 kg-m, 95 in-lb)
T3: 9.8 N-m (1.0 kg-m, 87 in-lb)
T4: 4.9 N-m (0.50 kg-m, 43 in-lb)
T5: 25 N-m (2.5 kg-m, 18.0 ft-lb)
T6: 12 N-m (1.2 kg-m, 104 in-lb)
T7: 15 N-m (1.5 kg-m, 11.0 ft-lb)
T8: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T9: 51 N-m (5.2 kg-m, 38 ft-lb)
T10: 39 N-m (4.0 kg-m, 29 ft-lb)
T11: 2.5 N-m (0.25 kg-m, 22 in-lb)
T12: 1.5 N-m (0.15 kg-m, 13 in-lb)



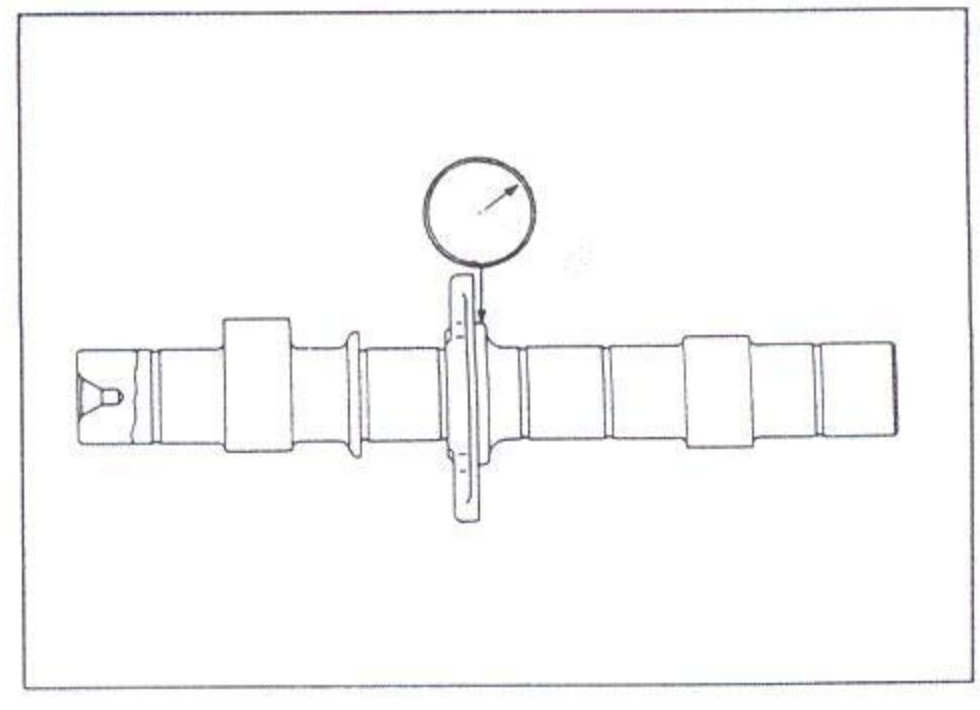
Specifications

Item	Standard	Service Limit
Clean Air System: (AR, ST, US)		
Vacuum switch valve closing pressure:	Open → Close 57 ~ 65 kPa (430 ~ 490 mm Hg)	– – –
Camshaft:		
Cam height:		
Exhaust	35.649 ~ 35.765 mm	35.55 mm
Inlet	35.649 ~ 35.765 mm	35.55 mm
Camshaft, camshaft cap clearance	0.030 ~ 0.071 mm	0.16 mm
Camshaft journal diameter	24.95 ~ 24.97 mm	24.92 mm
Camshaft bearing inside diameter	25.000 ~ 25.021 mm	25.08 mm
Camshaft runout	TIR 0.03 mm or less	TIR 0.1 mm
Camshaft chain 20-link length	127.0 ~ 127.4 mm	128.9 mm
Rocker arm inside diameter	12.500 ~ 12.518 mm	12.55 mm
Rocker shaft diameter	12.466 ~ 12.484 mm	12.44 mm
Cylinder Head		
Cylinder compression	885 ~ 1 350 kPa (9.0 ~ 13.8 kg/cm², 128 ~ 196 psi) @440 r/min (rpm)	– – –
Cylinder head warp	– – –	0.05 mm
Valves		
Valve Clearance: Exhaust	0.18 ~ 0.23 mm	– – –
Inlet	0.13 ~ 0.18 mm	– – –
Valve head thickness:		
Exhaust	1.0 mm	0.7 mm
Inlet	0.5 mm	0.25 mm
Valve stem bend	TIR 0.01 mm or less	TIR 0.05 mm
Valve stem diameter: Exhaust	5.455 ~ 5.470 mm	5.44 mm
Inlet	5.475 ~ 5.490 mm	5.46 mm
Valve guide inside diameter:		
Exhaust	5.500 ~ 5.512 mm	5.58 mm
Inlet	5.500 ~ 5.512 mm	5.58 mm
Valve/valve guide clearance:		
(wobble method): Exhaust	0.07 ~ 0.14 mm	0.27 mm
Inlet	0.02 ~ 0.08 mm	0.22 mm
Valve seat cutting angle	45°, 32°, 60°	– – –

Cam Height Measurement



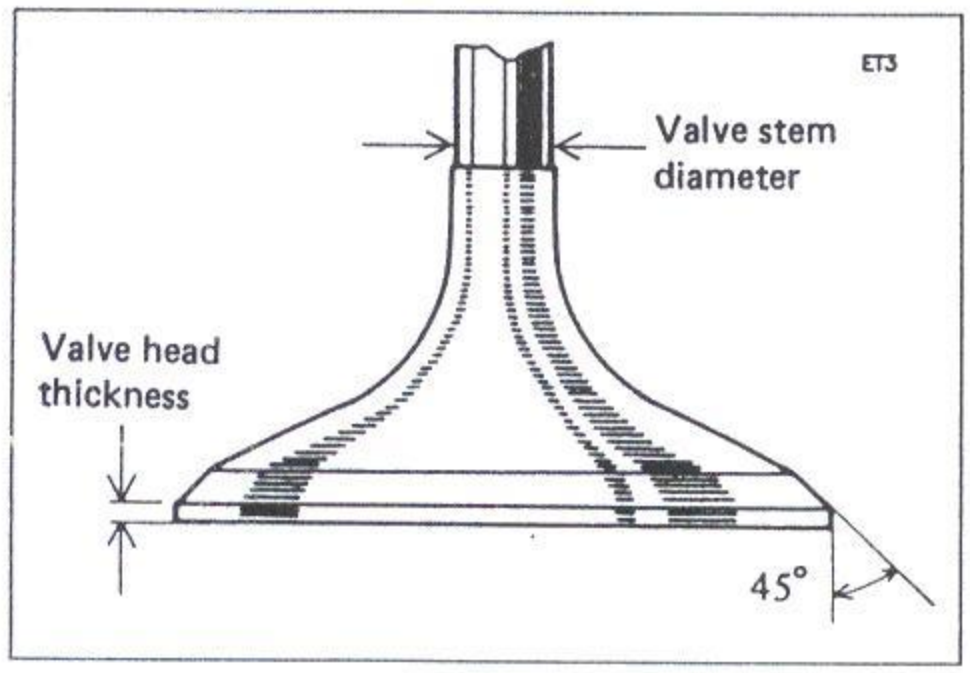
Camshaft Runout



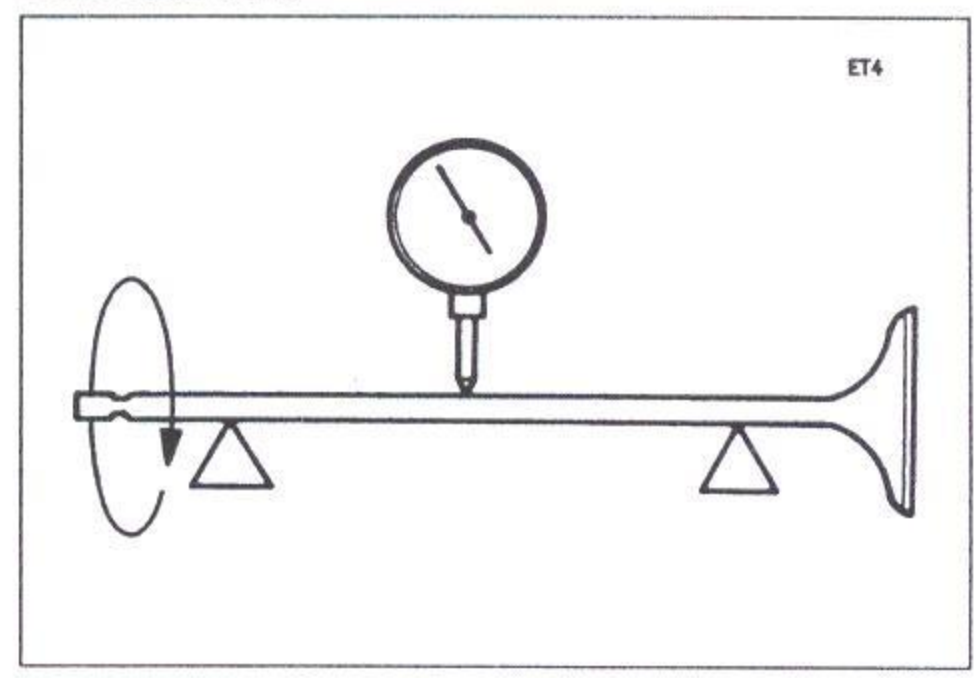
Item		Standard	Service Limit
Valve seat surface:			
Width:	Exhaust	0.5 ~ 1.0 mm	– – –
	Inlet	0.5 ~ 1.0 mm	– – –
Outside diameter:	Exhaust	28.3 ~ 28.5 mm	– – –
	Inlet	24.0 ~ 24.2 mm	– – –
Valve spring free length			
	Outer	40.4 mm	39 mm
	Inner	36.3 mm	35 mm
Cylinder, Piston:			
Cylinder inside diameter		74.000 ~ 74.012 mm	74.1 mm
Piston diameter		73.942 ~ 73.957 mm	73.79 mm
Piston/cylinder clearance		0.043 ~ 0.070 mm	– – –
Oversize piston and rings		+0.5 mm	– – –
Piston ring/groove clearance:			
	Top	0.03 ~ 0.07 mm	0.17 mm
	Second	0.02 ~ 0.06 mm	0.16 mm
Piston ring groove width:			
	Top	0.82 ~ 0.84 mm	0.9 mm
	Second	1.01 ~ 1.03 mm	1.1 mm
Piston ring thickness:			
	Top	0.77 ~ 0.79 mm	0.7 mm
	Second	0.97 ~ 0.99 mm	0.9 mm
Piston ring end gap:			
	Top	0.20 ~ 0.35 mm	0.7 mm
	Second	0.20 ~ 0.35 mm	0.7 mm
	Oil	0.2 ~ 0.7 mm	1.0 mm

(US): U.S. Model (ST): Switzerland Model (AR): Austria Model

Valve Head



Valve Stem Bend



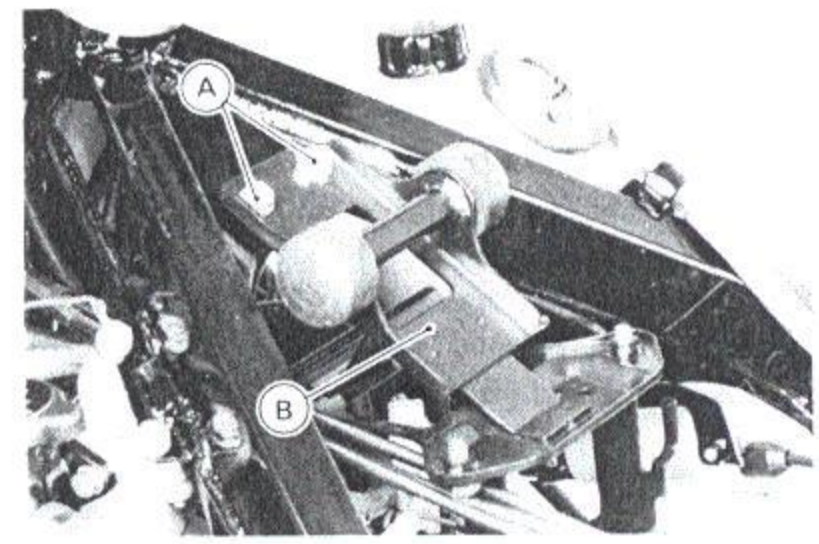
Special Tools – Vacuum Gauge: 57001-1369
Compression Gauge: 57001-221
Compression Gauge Adapter, M12 x 1.25: 57001-1018
Valve Spring Compressor Assembly: 57001-241
Valve Spring Compressor Adapter, Φ25: 57001-1019
Valve Guide Arbor, Φ5.5: 57001-1021
Valve Guide Reamer, Φ5.5: 57001-1079
Valve Seat Cutter, 45° – Φ30: 57001-1187
Valve Seat Cutter, 32° – Φ30: 57001-1120
Valve Seat Cutter, 60° – Φ30: 57001-1123
Valve Seat Cutter, 45° – Φ24.5: 57001-1113
Valve Seat Cutter, 32° – Φ28: 57001-1119
Valve Seat Cutter Holder, Φ5.5: 57001-1125
Valve Seat Cutter Holder Bar: 57001-1128
Piston Ring Compressor Grip: 57001-1095
Piston Ring Compressor Belt, Φ67 ~ Φ79: 57001-1097
Piston Pin Puller Assembly: 57001-910
Piston Ring Pliers: 57001-115
Piston Base, Φ2.3: 57001-1336

Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

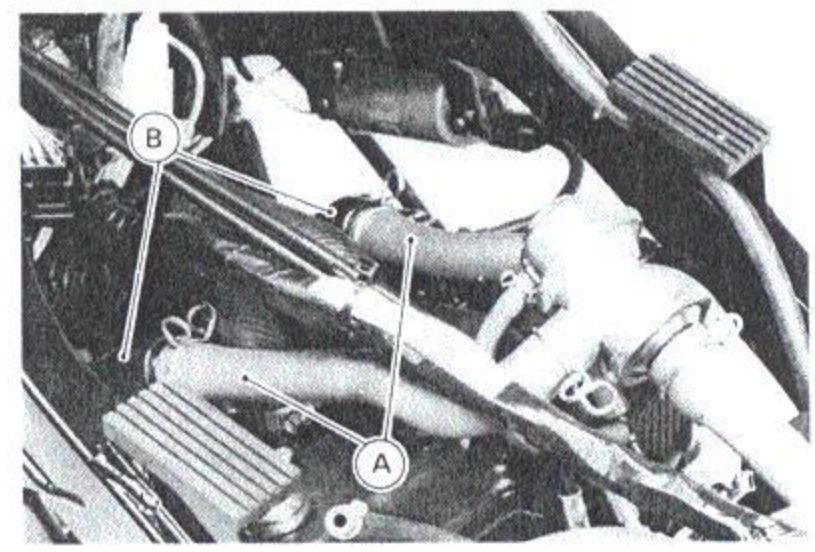
Clean Air System (US, Switzerland, and Austria models)

Air Suction Valve Removal

● Remove:
Seat, Side Covers (see Frame chapter)
Fuel Tank
Mounting Bolts [A]
Fuel Tank Bracket [B]



● Pull off the hoses [A] from the air suction valve covers [B].
● Unscrew the valve cover bolts.
● Open the cover, and take out the air suction valve.

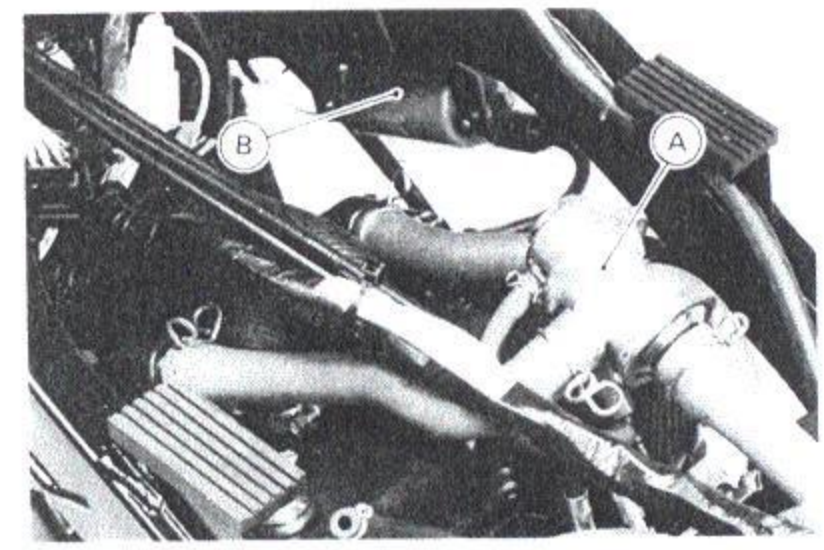


Cylinder Head Cover

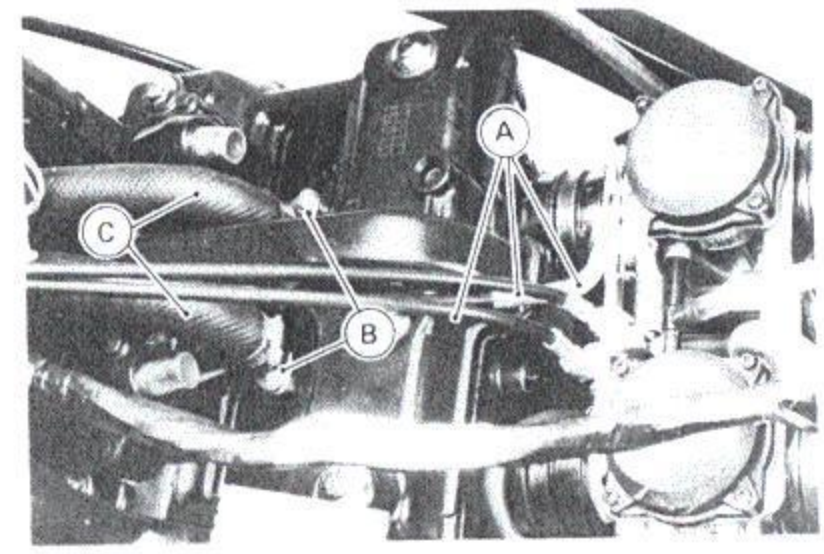
Cylinder Head Cover Removal

- Drain the coolant (see Cooling System chapter).
- Remove:

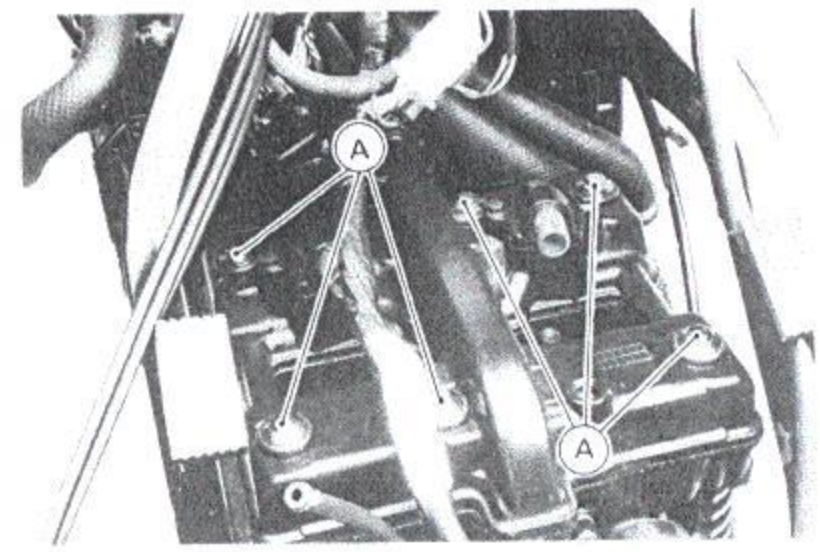
Seat, Side Covers (see Frame chapter)
Fuel Tank (see Fuel System chapter)
Fuel Tank Bracket
Vacuum Switch Valve [A] with Hoses (US, Switzerland, and Austria models)
Ignition Coils [B]



Throttle and Choke Cables [A]
Water Pipes [B] with Hoses [C]



- Unscrew the cylinder head cover bolts [A], and remove the cover.



Cylinder Head

Compression Measurement

Refer to the Base Manual, noting the following.

● After warming up the engine, remove the following parts and then attach compression gauge using adapter firmly into the spark plug hole.

Fuel Tank (see Fuel System chapter)
Upper Fairing (see Frame chapter)
Vacuum Switch Valve with Hoses (US, Switzerland, and Austria models)
Spark plugs

Special Tools – Compression Gauge: 57001-221
Compression Gauge Adapter, M12 x 1.25: 57001-1018

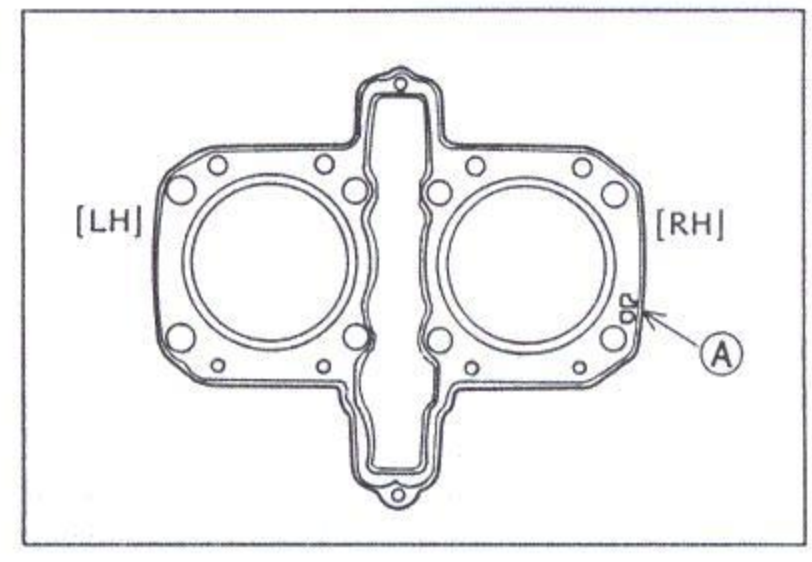
Cylinder Compression (Usable Range)
885 ~ 1,350 kPa (9.0 ~ 13.8 kg/cm², 128 ~ 196 psi) @440 r/min (rpm)

Cylinder Head Installation Notes

Refer to the Base Manual, noting the following.

● Install the gasket as shown.

[A] "UP" Mark



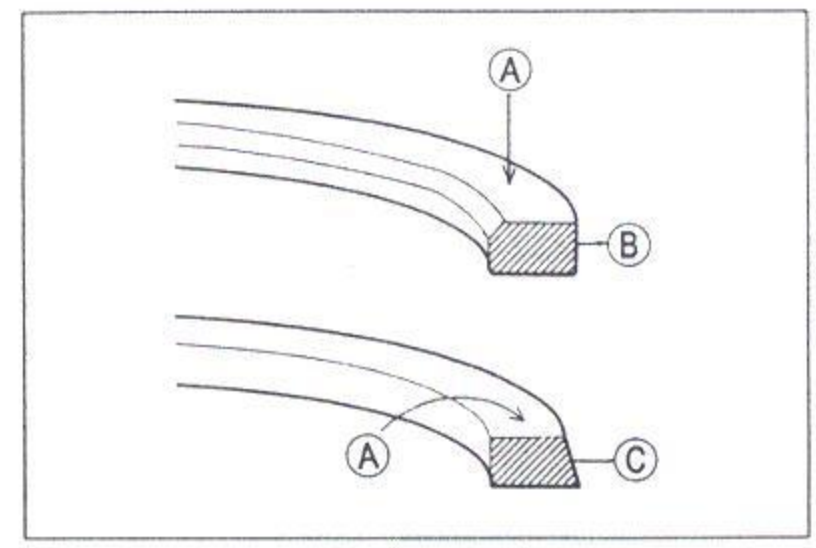
Cylinder, Piston

Piston Installation Note

Refer to the Base Manual, noting the following.

● The top and second rings are not symetrical and must be installed as shown.

[A] "N" Mark
[B] Top Ring
[C] Second Ring

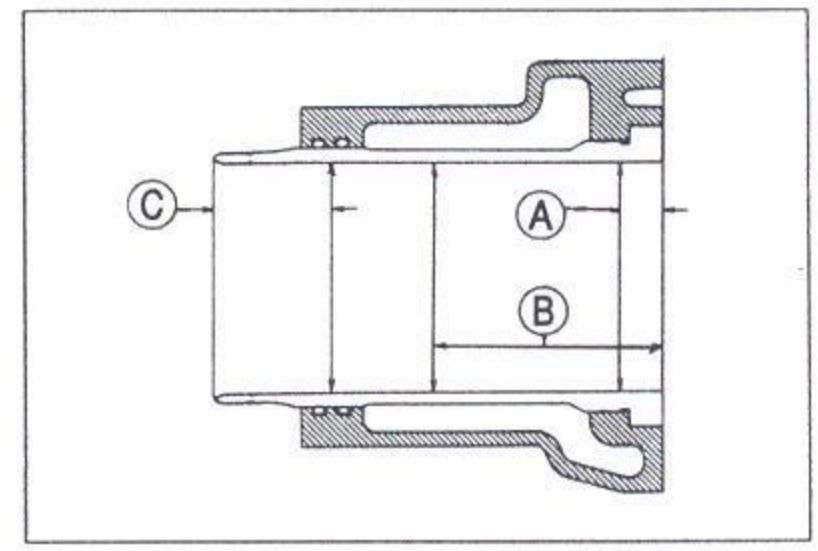


Cylinder Inside Diameter

● Since there is a difference in cylinder wear in different directions, take a side-to-side and a front-to-back measurement at each of the 3 locations (total of 6 measurements) shown in the figure.

★ If any of the cylinder inside diameter measurements exceeds the service limit, the cylinder will have to be bored to oversize and then honed.

[A] 10 mm
[B] 60 mm
[C] 40 mm



Cylinder Inside Diameter

Standard:	**74.000 ~ 74.012 mm and less than 0.01 mm difference between any two measurement**
Service Limit:	**74.1 mm, or more than 0.05 mm difference between any two measurements**

Piston Diameter

Refer to the Base Manual, noting the following.

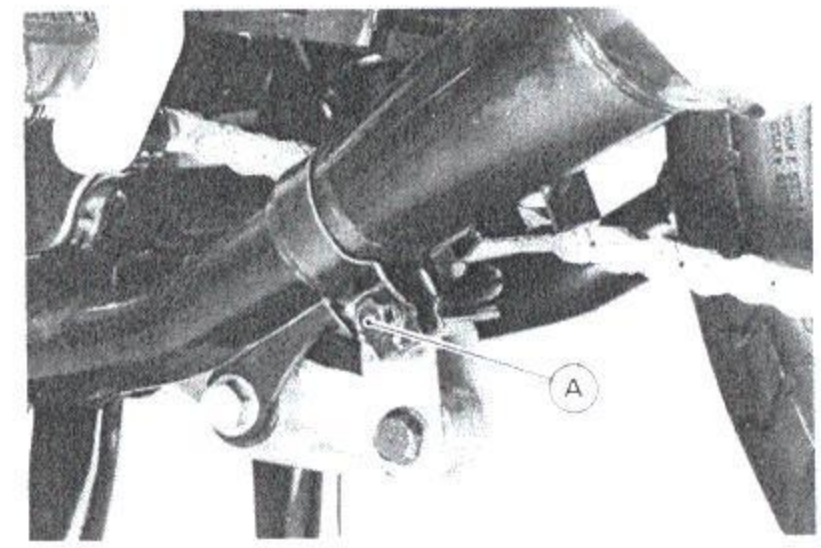
Piston Diameter

Standard:	**73.942 ~ 73.957 mm**
Service Limit:	**73.79 mm**

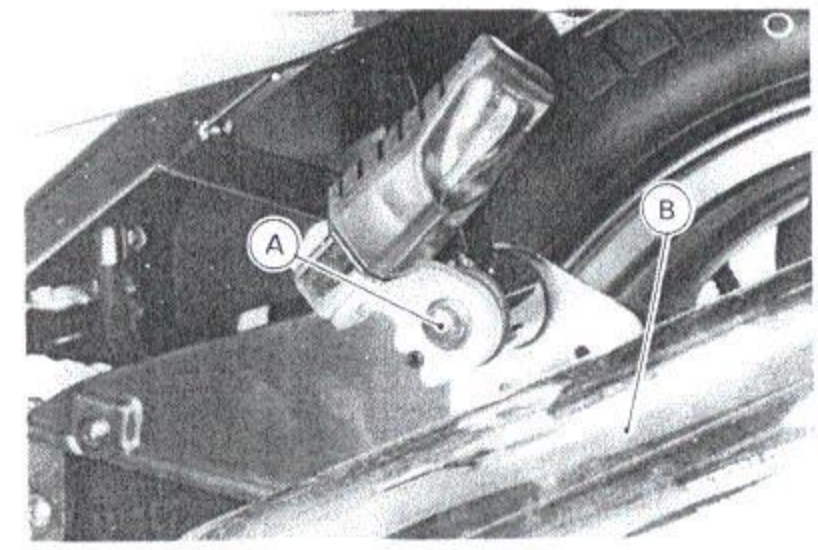
Exhaust Pipe, Muffler

Exhaust Pipe, Muffler Removal Notes

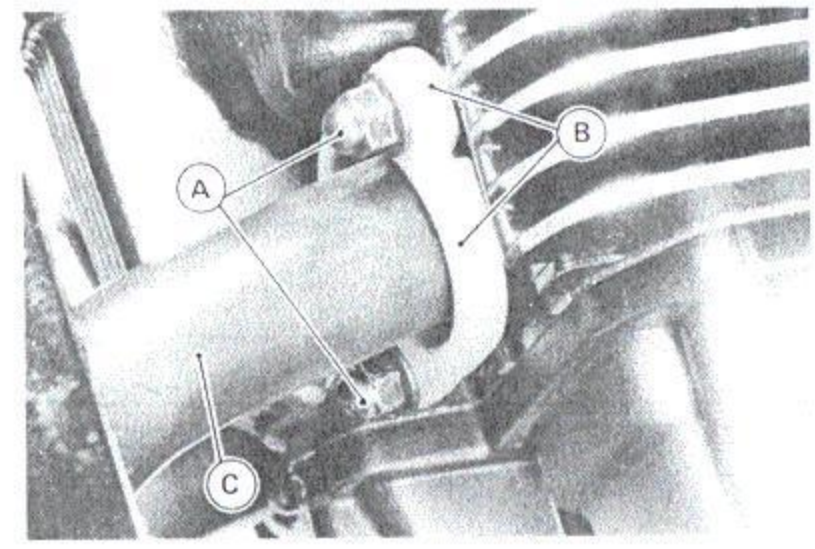
● Remove the lower fairing (see Frame chapter).
● Loosen the muffler clamp bolts [A] on both sides.



● Unscrew the muffler mounting bolts [A] on both sides, and remove the muffler [B].



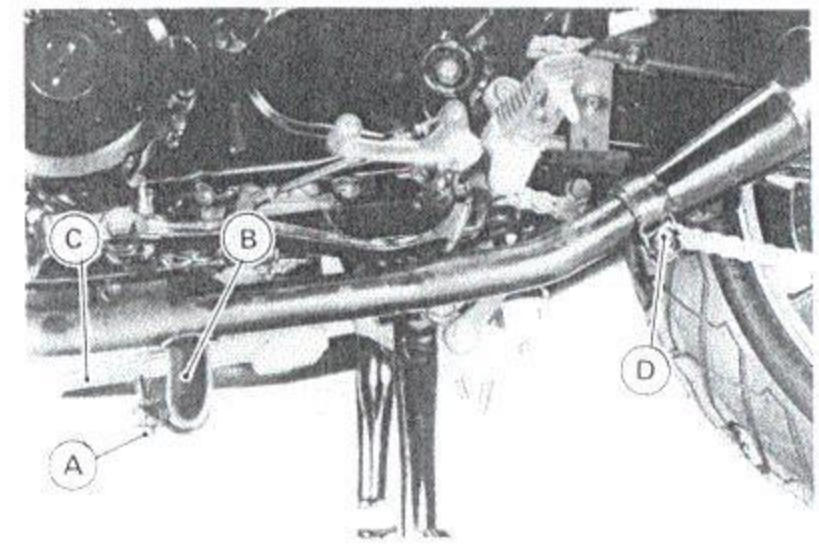
● Remove the exhaust pipe holder nuts [A], and remove the exhaust pipe holders [B].
● Remove the exhaust pipe [C].



Exhaust Pipe, Muffler Installation Notes

Refer to the Base Manual, noting the following.

● Install the clamp bolt [A] for the RH and LH exhaust pipes [B] to the front side so that the bolt do not touch the oil pan [C].
● Install the clamp bolt [D] for the exhaust pipe and muffler as shown.



Clutch

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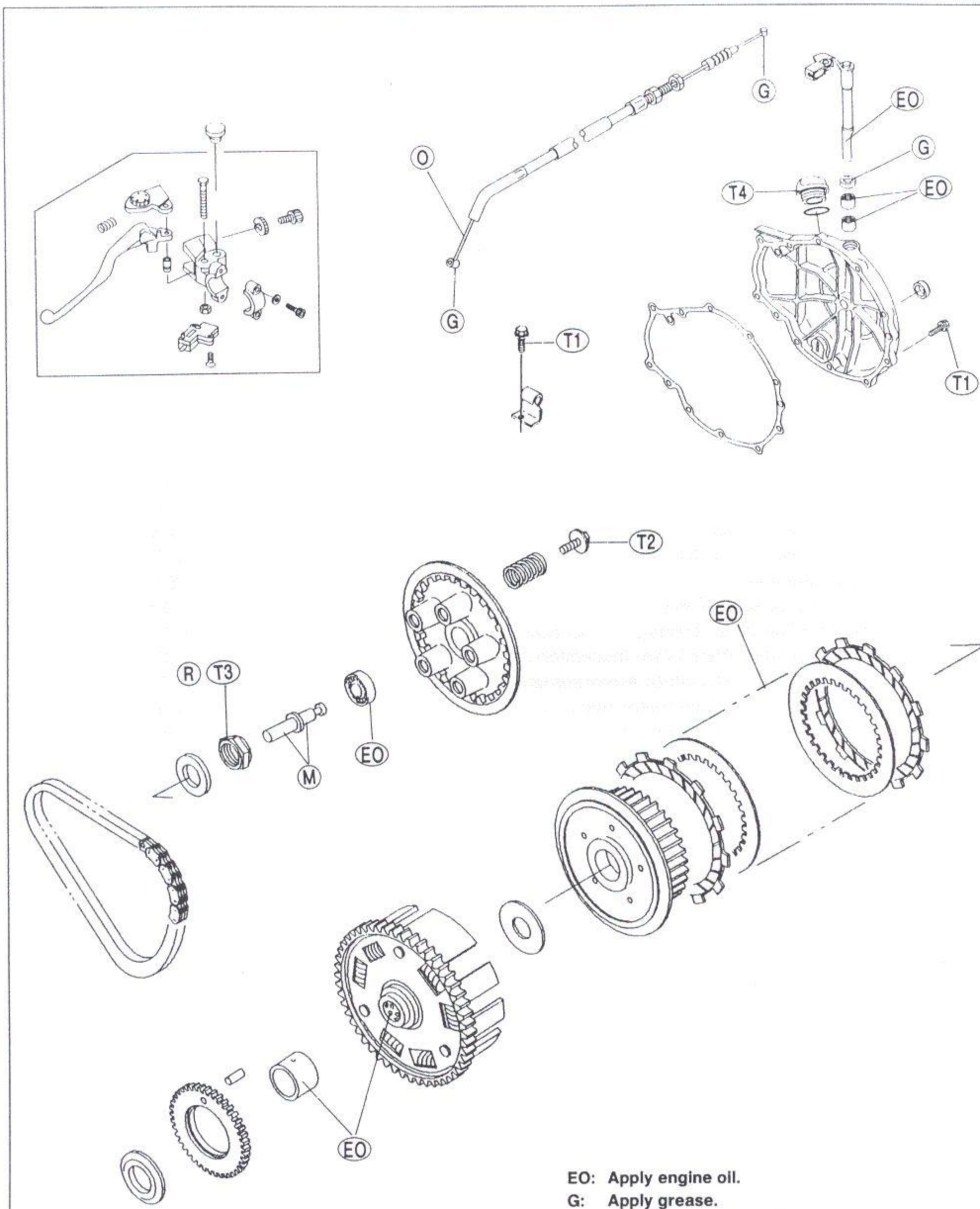
( ) : Refer to Base Manual

Exploded View



Specifications

Item	Standard	Service Limit
Clutch Lever Position	5-way adjustable (to suit rider)	– – –
Clutch Lever Free Play	2 ~ 3 mm	– – –
Clutch		
Friction plate thickness	2.9 ~ 3.1 mm	2.75 mm
Friction and steel plate warp	0.2 mm or less	0.3 mm
Clutch spring free length	34.2 mm	33.1 mm

Special Tool – Pressure Cable Luber: k56019-021
Clutch Holder: 57001-1243

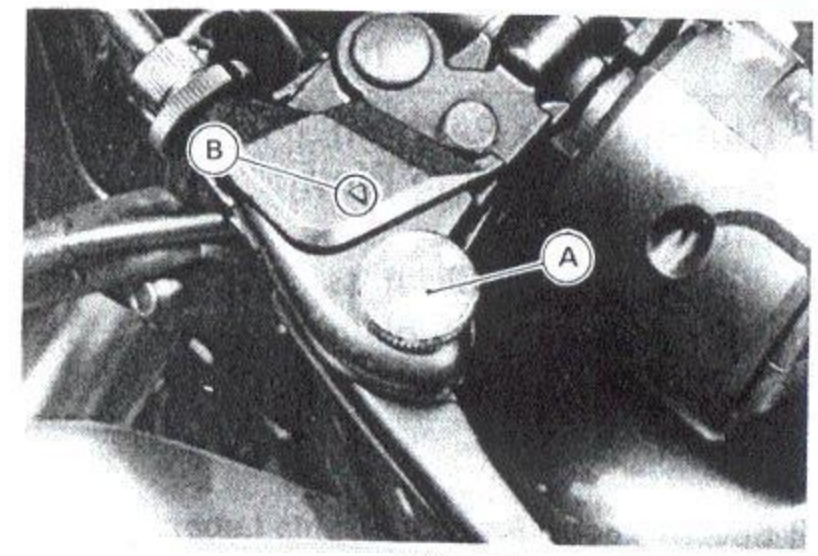
Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

Clutch Lever

Lever Position Adjustment

The adjuster has 5 positions so that the clutch lever position can be adjusted to suit the operator's hand.

- ● Push the lever forward and turn the adjuster [A] to align the number with the triangular mark [B] on the lever holder.
- ○ The distance from the grip to the released lever is minimum at Number 5 and maximum at Number 1.



Clutch

Clutch Release Removal

Refer to the Base Manual, noting the following.

● The positioning bolt is not on the EX500, omit the description for it.

Clutch Removal

Refer to the Base Manual, noting the following.

● The right footpeg assembly removal is not needed. Skip the removal description in the base manual.

Engine Lubrication System

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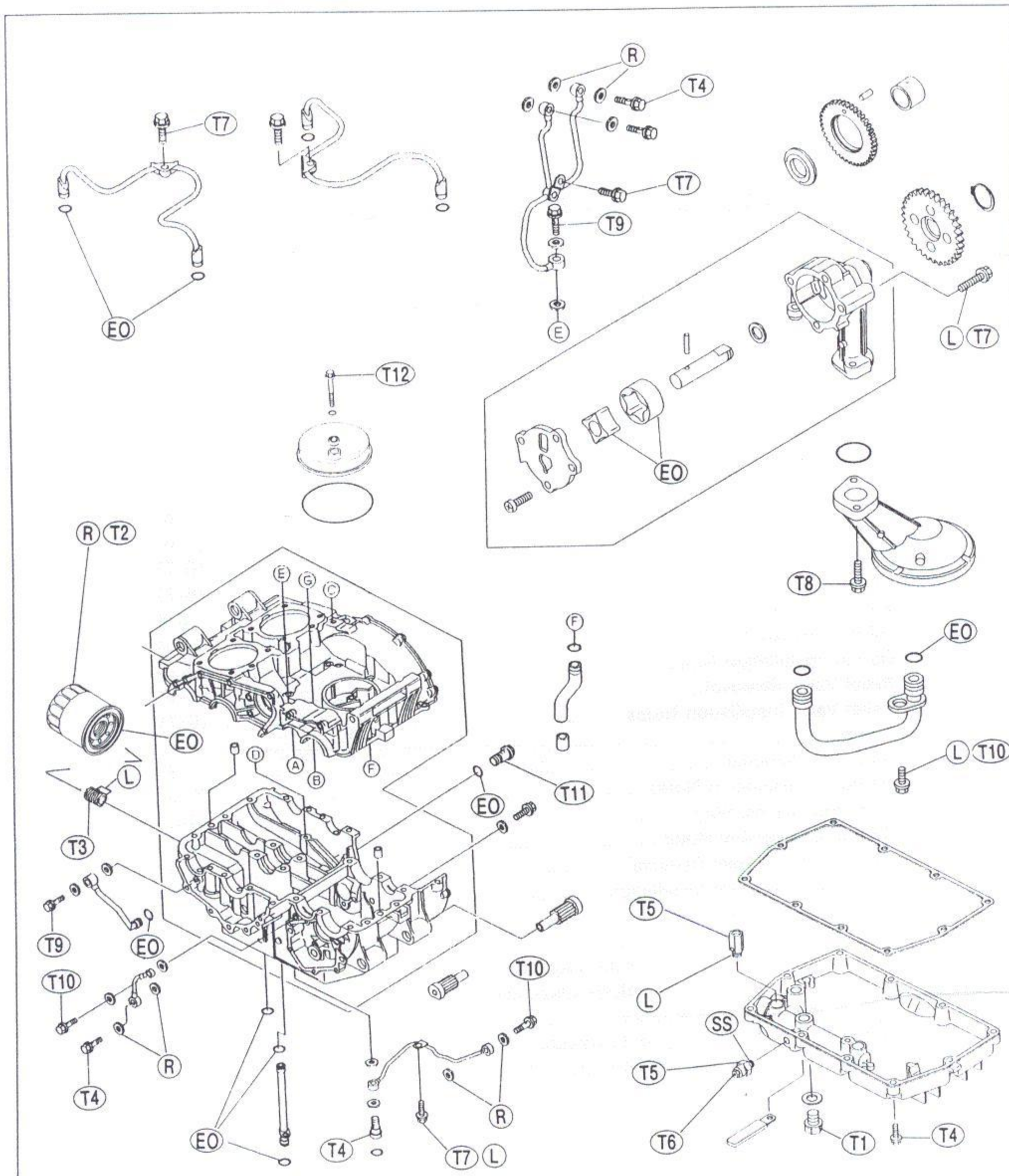
( ) : Refer to Base Manual

Exploded View



L: Apply a non-permanent locking agent.
EO: Apply engine oil.
R: Replacement Parts
T1: 29 N-m (3.0 kg-m, 22 ft-lb)
T2: Hand-tight or 17 N-m (1.75 kg-m, 12.5 ft-lb)
T3: 25 N-m (2.5 kg-m, 18.0 ft-lb)
T4: 12 N-m (1.2 kg-m, 104 in-lb)
T5: 15 N-m (1.5 kg-m, 11.0 ft-lb)
T6: 1.5 N-m (0.15 kg-m, 13 in-lb)
T7: 11 N-m (1.1 kg-m, 95 in-lb)
T8: 9.8 N-m (1.0 kg-m, 87 in-lb)
T9: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T10: 7.8 N-m (0.80 kg-m, 69 in-lb)
T11: 17 N-m (1.75 kg-m, 12.5 ft-lb)
T12: 5.9 N-m (0.60 kg-m, 52 in-lb)

Specifications

Item	Standard	Service Limit
Engine Oil:		
Grade	SE, SF, or SG class	– – –
Viscosity	SAE 10W-40, 10W-50, 20W-40, or 20W-50	– – –
Capacity	2.8 L (when filter is not removed)	– – –
	3.0 L (when filter is removed)	– – –
	3.4 L (when engine is completely dry)	– – –
Level	Between upper and lower level lines	– – –
Oil Pressure Measurement:		
Relief valve opening pressure	430 ~ 590 kPa (4.4 ~ 6.0 kg/cm², 63 ~ 85 psi)	– – –
Oil Pressure @4,000 r/min (rpm), oil temp. 90°C (194°F)	275 ~ 335 kPa (2.8 ~ 3.4 kg/cm², 40 ~ 48 psi)	– – –
Oil Pump:		
Outer rotor/inner rotor clearance	0.15 mm or less	0.20 mm
Outer rotor/pump body clearance	0.15 ~ 0.23 mm	0.30 mm
Outer rotor diameter	40.53 ~ 40.56 mm	40.45 mm
Body inside diameter	40.71 ~ 40.74 mm	40.80 mm
Rotor side clearance	0.02 ~ 0.08 mm	0.12 mm

Special Tools – Oil Filter Wrench: 57001-1249
Oil Pressure Gauge, 10 kg/cm²: 57001-164
Oil Pressure Gauge Adapter, M14 x 1.5: 57001-1209

Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

Engine Removal / Installation

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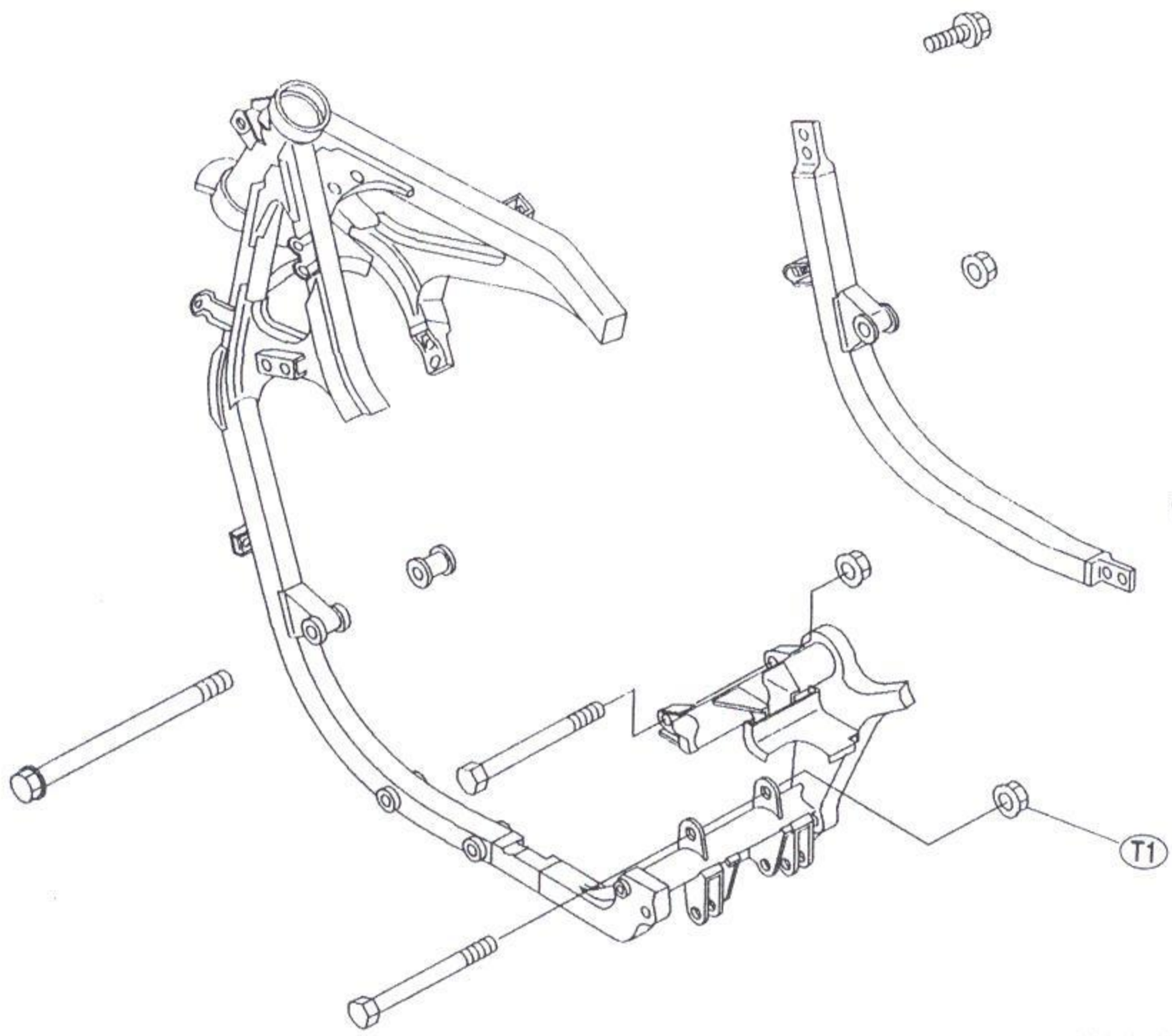
Exploded View

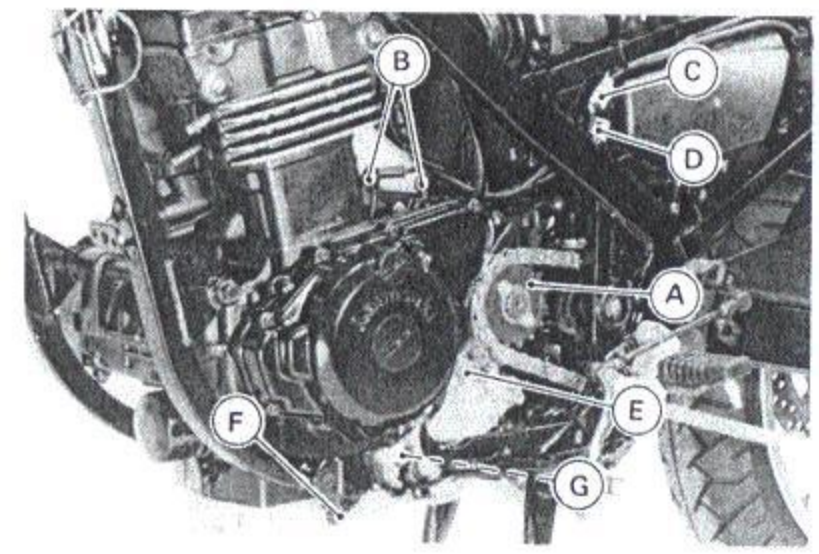


T1: 44 N-m (4.5 kg-m, 33 ft-lb)

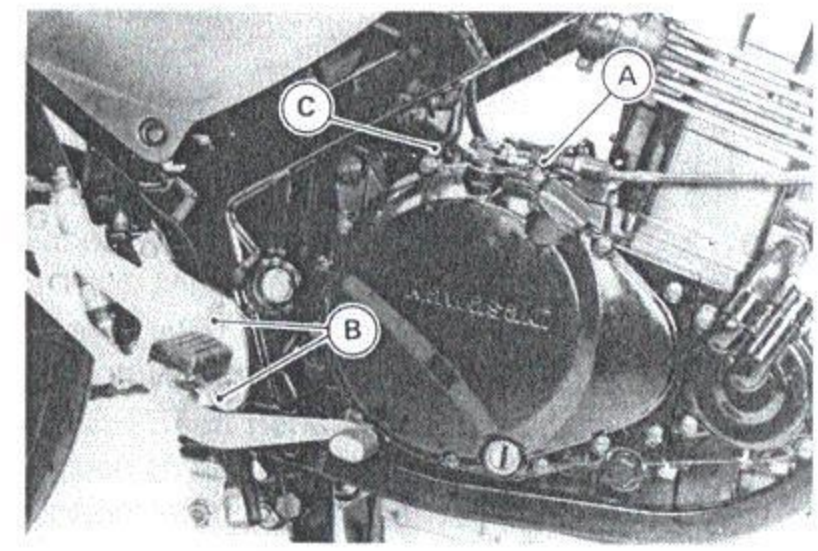
Engine Removal/Installation

Engine Removal

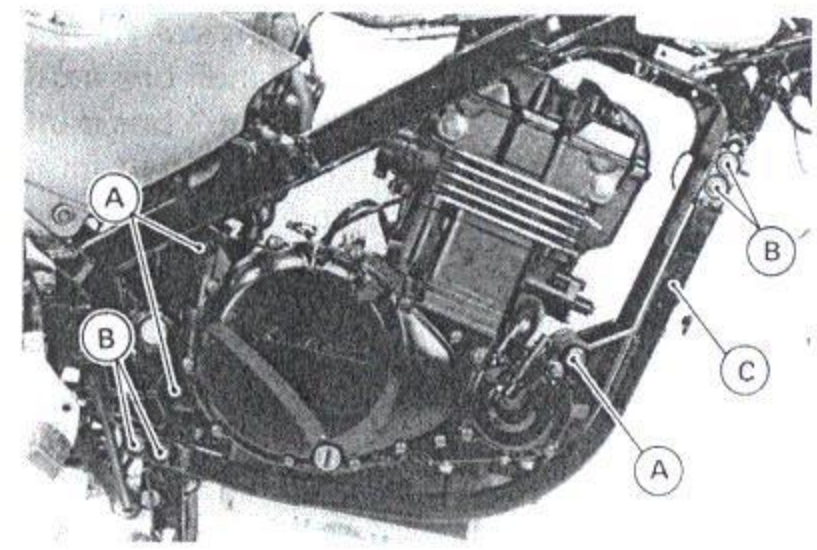
- Drain:
  - Engine Oil (see Lubrication System chapter)
  - Coolant (see Cooling system chapter)
- Remove or disconnect (see Appropriate chapters):
  - Seat
  - Left Side Cover
  - Fuel Tank
  - Fuel Tank Bracket
  - Vacuum Switch valve with Hoses
  - Water Pipes with Hoses
  - Ignition Coils with Bracket
  - Carburetors
  - Radiator
  - Mufflers
  - Engine Sprocket [A]
  - Starter Motor Leads [B]
  - Alternator Lead Connector [C]
  - Pickup coil Lead Connector [D]
  - Neutral Switch Lead Connector [E]
  - Oil Pressure Switch Lead [F]
  - Side Stand Switch Lead Connector [G]



- Clutch Cable Lower End [A]
- Brake Pedal Bracket Mounting Bolts [B]
- Breather Hose [C]



- Loosen the engine mounting bolts [A].
- Loosen the down tube mounting bolts [B].
- Jack the engine up slightly to take the weight off the mounting bolts, and remove the bolts.
- Remove the down tube [C].
- Remove the engine toward the right.



Engine Installation Notes

Refer to the Base Manual, noting the following.

- Adjust the drive chain slack (see Final Drive Chapter).

Crankshaft / Transmission

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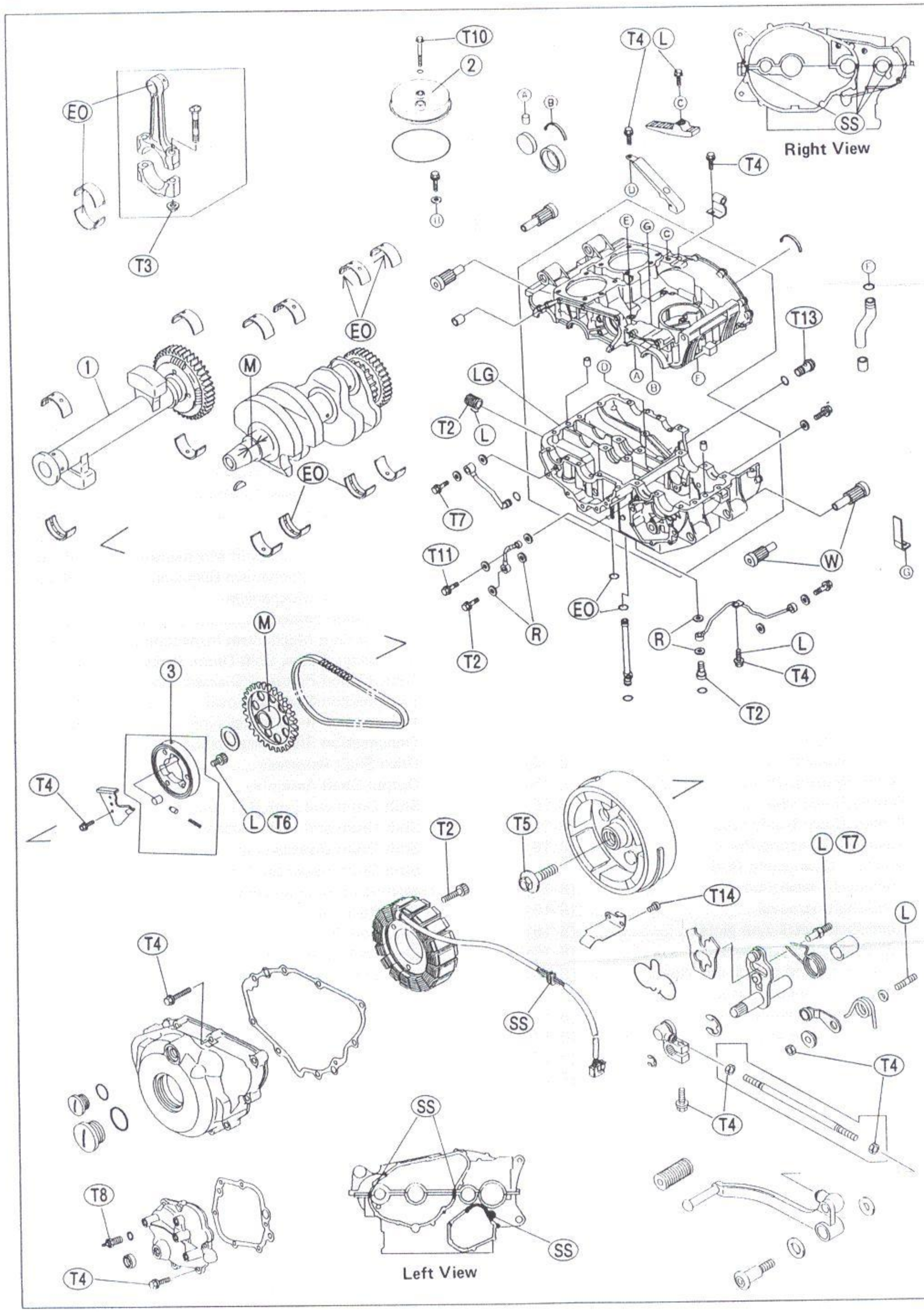
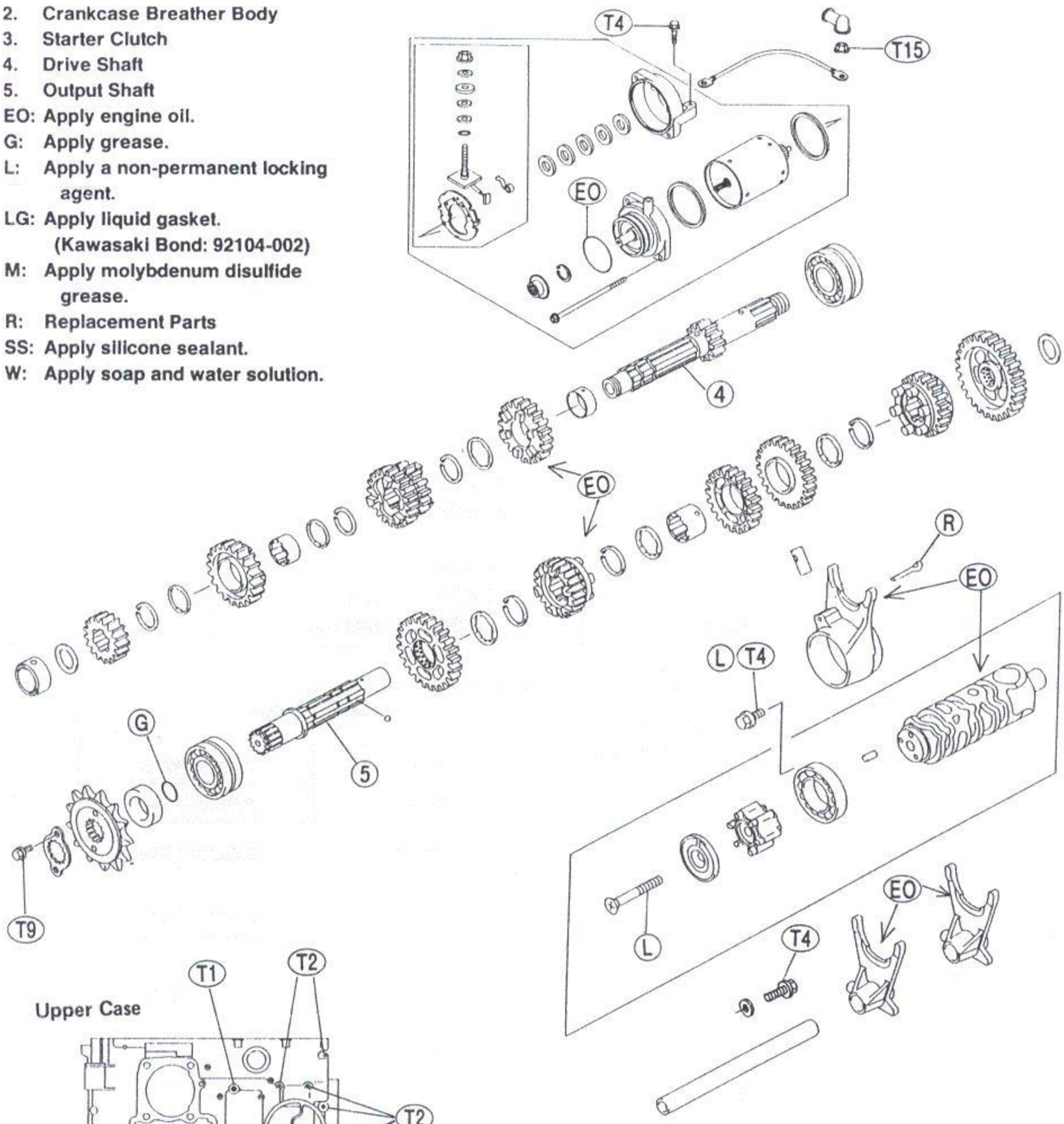
( ) : Refer to Base Manual

Exploded View



1. Balancer Shaft
2. Crankcase Breather Body
3. Starter Clutch
4. Drive Shaft
5. Output Shaft

EO: Apply engine oil.
G: Apply grease.
L: Apply a non-permanent locking agent.
LG: Apply liquid gasket. (Kawasaki Bond: 92104-002)
M: Apply molybdenum disulfide grease.
R: Replacement Parts
SS: Apply silicone sealant.
W: Apply soap and water solution.



T1: 27 N-m (2.8 kg-m, 20 ft-lb)
T2: 12 N-m (1.2 kg-m, 104 in-lb)
T3: 36 N-m (3.7 kg-m, 27 ft-lb)
T4: 11 N-m (1.1 kg-m, 95 in-lb)
T5: 69 N-m (7.0 kg-m, 51 ft-lb)
T6: 34 N-m (3.5 kg-m, 25 ft-lb)
T7: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T8: 15 N-m (1.5 kg-m, 11.0 ft-lb)
T9: 9.8 N-m (1.0 kg-m, 87 in-lb)
T10: 5.9 N-m (0.60 kg-m, 52 in-lb)
T11: 7.8 N-m (0.80 kg-m, 69 in-lb)
T12: 25 N-m (2.5 kg-m, 18.0 ft-lb)
T13: 17 N-m (1.75 kg-m, 12.5 ft-lb)
T14: 2.9 N-m (0.30 kg-m, 26 in-lb)
T15: 4.9 N-m (0.50 kg-m, 43 in-lb)

Specifications

Item		Standard	Service Limit
Alternator, Starter Mechanism:			
Starter chain 20-link length		155.5 ~ 155.9 mm	159 mm
Clutch Housing Primary Chain:			
Primary chain 20-link length		190.5 ~ 190.97 mm	193.4 mm
Crankshaft, Connecting Rods:			
Connecting rod bend		- - -	0.2/100 mm
Connecting rod twist		- - -	0.2/100 mm
Connecting rod big end side clearance		0.13 ~ 0.38 mm	0.50 mm
Connecting rod big end bearing insert/ crankpin clearance		0.043 ~ 0.073 mm	0.10 mm
Crankpin diameter:		37.984 ~ 38.000 mm	37.97 mm
Marking	None	37.984 ~ 37.994 mm	- - -
	○	37.995 ~ 38.000 mm	- - -
Connecting rod big end bore diameter:		41.000 ~ 41.016 mm	- - -
Marking	None	41.000 ~ 41.008 mm	- - -
	○	41.009 ~ 41.016 mm	- - -
Connecting rod big end bearing insert thickness:	Brown	1.474 ~ 1.479 mm	- - -
	Black	1.479 ~ 1.484 mm	- - -
	Blue	1.484 ~ 1.489 mm	- - -

Connecting rod big end bearing insert selection:

Con-rod Big End Bore Diameter Marking	Crankpin Diameter Marking	Bearing Insert	
		Size Color	Part Number
None	○	Brown	92028-1350
None	None	Black	92028-1349
○	○		
○	None	Blue	92028-1348

Crankshaft runout	TIR 0.02mm or less	TIR 0.05 mm
Crankshaft main bearing insert/ journal clearance	0.020 ~ 0.044 mm	0.08 mm

Item		Standard	Service Limit
Crankshaft main journal diameter:		35.984 – 36.000 mm	35.96 mm
Marking	None	35.984 ~ 35.992 mm	– – –
	1	35.993 ~ 36.000 mm	– – –
Crankcase main bearing bore diameter:		39.000 ~ 39.016 mm	– – –
Marking	○	39.000 ~ 39.008 mm	– – –
	None	39.009 ~ 39.016 mm	– – –
Crankshaft main bearing insert thickness			
	Brown	1.490 ~ 1.494 mm	– – –
	Black	1.494 ~ 1.498 mm	– – –
	Blue	1.498 ~ 1.502 mm	– – –

Crankshaft main bearing insert selection:

Crankcase Main Bearing Bore Diameter Marking	Crankshaft Main Journal Diameter Marking	Bearing Insert*		
		Size Color	Part Number	Journal Nos.
○	1	Brown	92028-1102	2,3
			92028-1274	1,4
○	None	Black	92028-1101	2,3
None	1		92028-1273	1,4
None	None	Blue	92028-1100	2,3
			92028-1272	1,4

*The bearing insert for Nos. 2 and 3 journals have oil grooves.

Crankshaft side clearance		0.05 ~ 0.25 mm	0.40 mm
Balancer Shaft:			
Balancer shaft bearing insert/ journal clearance		0.02 ~ 0.05 mm	0.09 mm
Balancer shaft journal diameter:		27.987 ~ 28.000 mm	27.96 mm
Marking	None	27.987 ~ 27.993 mm	– – –
	○	27.994 ~ 28.000 mm	– – –
Crankcase bearing bore diameter:		31.008 ~ 31.024 mm	– – –
Marking	○	31.008 ~ 31.016 mm	– – –
	None	31.017 ~ 31.024 mm	– – –
Balancer shaft bearing insert thickness:			
	Brown	1.495 ~ 1.499 mm	– – –
	Black	1.499 ~ 1.503 mm	– – –
	Blue	1.503 ~ 1.507 mm	– – –

<table>
<tr><th>Item</th><th>Standard</th><th>Service Limit</th></tr>
<tr><td colspan="3">Balancer shaft bearing insert selection:
<table>
<tr><th rowspan="2">Crankcase Bearing Bore Diameter Marking</th><th rowspan="2">Balancer Shaft Journal Diameter Marking</th><th colspan="2">Bearing Insert</th></tr>
<tr><th>Size Color</th><th>Part Number</th></tr>
<tr><td>○</td><td>○</td><td>Brown</td><td>92028-1497</td></tr>
<tr><td>○</td><td>None</td><td rowspan="2">Black</td><td rowspan="2">92028-1496</td></tr>
<tr><td>None</td><td>○</td></tr>
<tr><td>None</td><td>None</td><td>Blue</td><td>92028-1495</td></tr>
</table></td></tr>
<tr><td>Transmission:
Gear backlash
Gear shift fork groove width
Shift fork ear thickness
Shift fork guide pin diameter
Shift fork guide dowel pin diameter
Shift drum groove width</td><td>
0.02 ~ 0.19 mm
5.05 ~ 5.15 mm
4.9 ~ 5.0 mm
7.9 ~ 8.0 mm
7.985 ~ 8.0 mm
8.05 ~ 8.20 mm</td><td>
0.23 mm
5.3 mm
4.8 mm
7.8 mm
7.8 mm
8.3 mm</td></tr>
</table>

Special Tools – Flywheel Holder: 57001-1313
Rotor Puller, M16/M18/M20/M22 x 1.5: 57001-1216
Outside Circlip Pliers: 57001-144
Bearing Puller: 57001-158
Bearing Puller Adapter: 57001-317
Bearing Driver: 57001-382
Bearing Driver Set: 57001-1129

Sealant – Kawasaki Bond (Liquid Gasket – Silver): 92104-002

Alternator/Starter Mechanism

Alternator Rotor and Starter Clutch Removal

Refer to the Base Manual, noting the following.

○The engine pully cover is not on the EX500.

○Do not loosen the left footpeg mounting bolt.

○Do not remove the following parts.

Shift Pedal

Circlip and Washer

●Remove:

Lower Fairing (see Frame chapter)

Engine Sprocket Cover

Crankcase Splitting

Crankcase Splitting

Refer to the Base Manual, noting the following.

○ The drive shaft plug retaining plate is not on the EX500.

○ Do not remove the clutch release when removing the clutch cover.

● Remove the chain guard.

Balancer

Balancer Shaft Bearing Insert/Journal Wear

Refer to the Base Manual, noting the following.

Balancer Shaft Bearing Insert/Journal Clearance

Standard: **0.02 ~ 0.05 mm**
Service Limit: **0.09 mm**

Bearing Insert Selection

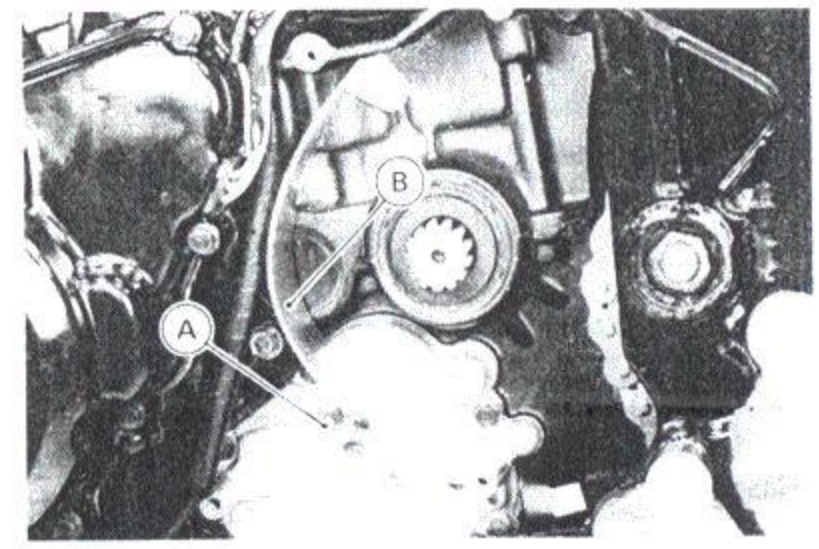
Crankcase Bearing Bore Diameter Marking	Balancer Shaft Journal Diameter Marking	Bearing Insert	
		Size Color	Part Number
○	○	Brown	92028-1497
○	None	Black	92028-1496
None	○		
None	None	Blue	92028-1495

Transmission

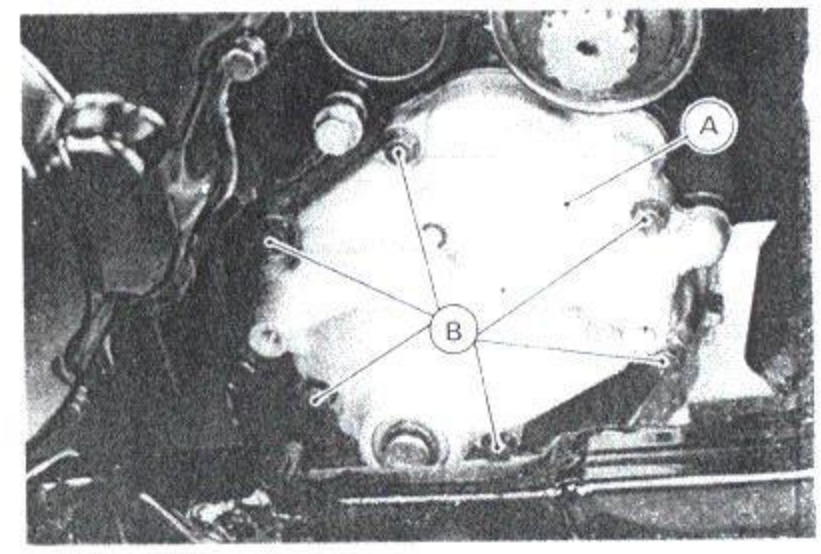
Transmission External Shift Mechanism:

External Shift Mechanism Removal

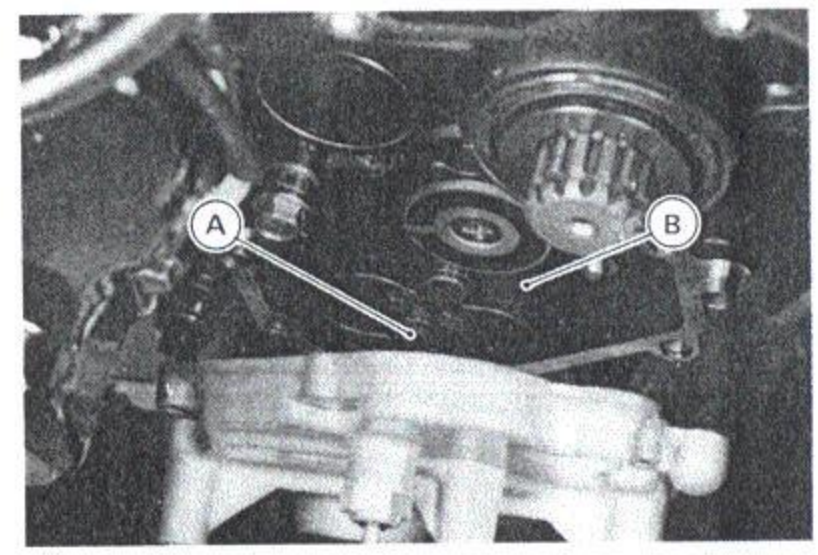
● Remove:
Lower Fairing (see Frame chapter)
Shift Lever
Engine Sprocket (see Final Drive chapter)
Neutral Switch Lead Connector [A]
Chain Guard [B]



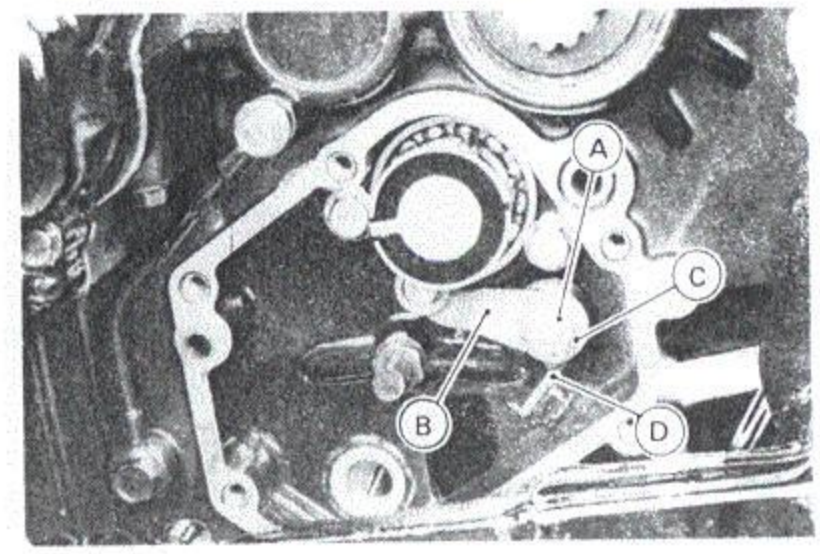
● Place an oil pan beneath the external shift mechanism cover [A].
● Remove the cover bolts [B].



● Pull the cover toward the this side.
● Remove the cover with the shift shaft assembly [A] while pushing the shift mechanism arm [B].



● Remove the nut [A] and take off the positioning lever [B]. The lever has a collar [C], spring [D], and washer.



External Shift Mechanism Installation Notes

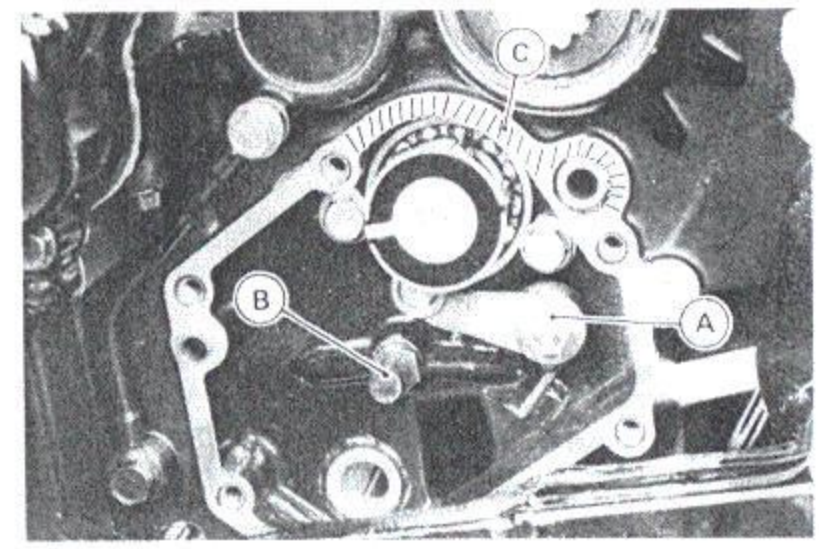
○ The small diameter side of the collar in the gear positioning lever must face toward the crankcase.
● Tihgten the positioning lever nut [A].

Torque – Gear Positioning Lever Nut : 11 N-m (1.1 kg-m, 95 in-lb)

● Check that the return spring pin [B] is not loose.
★ If it is loose, remove it, apply a non-permanent locking agent to the threads, and tighten it.

Torque – Return Spring Pin : 20 N-m (2.0 kg-m, 14.5 ft-lb)

● Apply silicone sealant to the area [C].

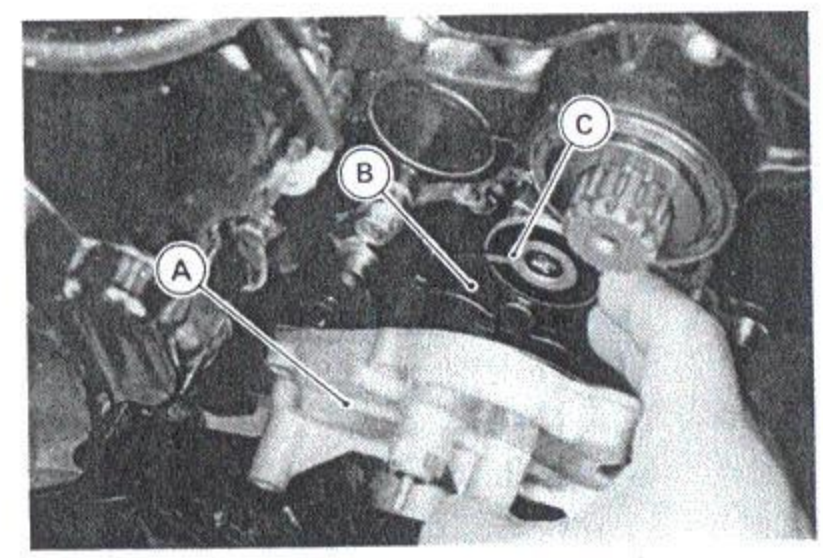


● Replace the cover gasket with a new one.
● Apply high temperature grease to the oil seal lips.

● Insert the shift shaft into the cover [A], and then fit the shift mechanism arm [B] to the shift drum [C].
● Tighten the cover bolts.

Torque – External Shift Mechanism Cover Bolts : 11 N-m (1.1 kg-m, 95 in-lb)

● Check:
Drive Chain Slack (see Final Drive chapter)
Engine Oil Level (see Engien Lubrication System chapter)



Transmission Maintenance:

Gear Backlash

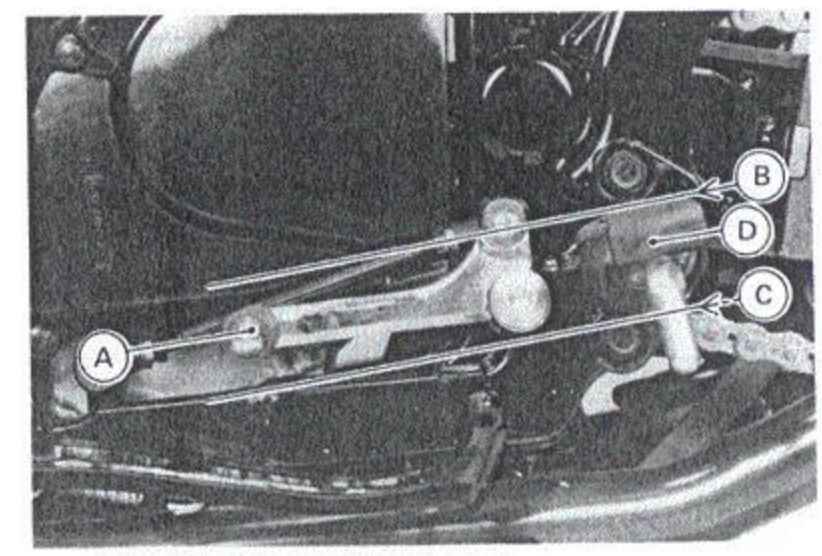
Refer to the Base Manual, noting the following.

Gear Backlach
Standard: **0.02 ~ 0.19 mm**
Service Limit: **0.23 mm**

Shift Pedal:

Shift Pedal Installation Note

● Install the shift pedal so that its front end [A] positions between the top end line [B] and the bottom end line [C] of the foot peg [D].



Wheels / Tires

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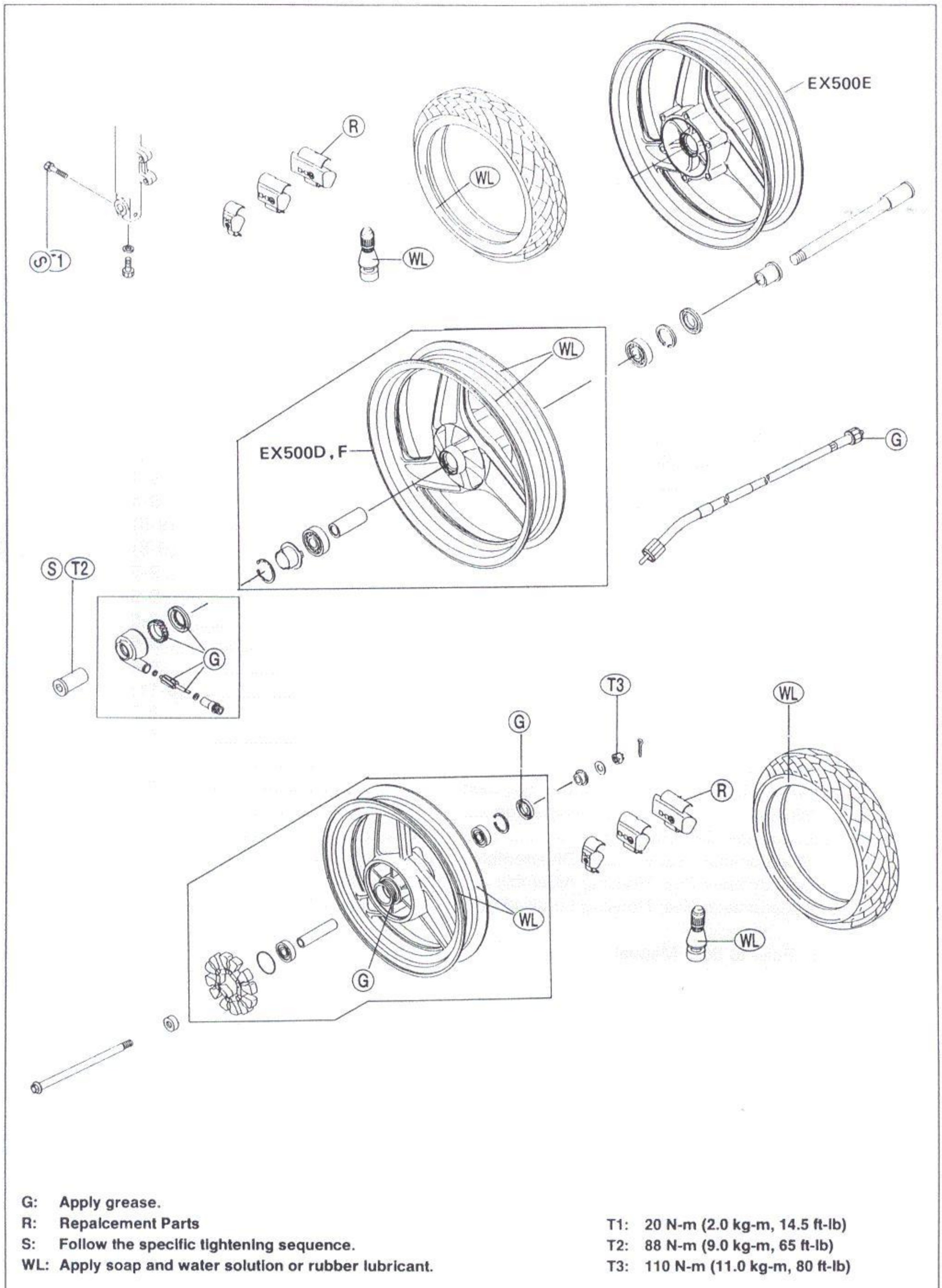
( ) : Refer to Base Manual

Exploded View



G: Apply grease.
R: Repalcement Parts
S: Follow the specific tightening sequence.
WL: Apply soap and water solution or rubber lubricant.

T1: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T2: 88 N-m (9.0 kg-m, 65 ft-lb)
T3: 110 N-m (11.0 kg-m, 80 ft-lb)

Specifications

Item		Standard	Service Limit
Wheels			
Rim runout:	Axial	– – –	0.5 mm
	Radial	– – –	0.8 mm
Axle runout/100 mm:		0.05 mm or less	0.2 mm
Wheel balance		10 g or less	– – –
Balance weights		10 g, 20 g, 30 g	– – –
Tire tread depth:	Front	4 mm	1 mm
	Rear	6 mm	2 mm (Up to 130 km/h) 3 mm (Over 130 km/h)

Tire air pressure		Load	Air Pressure (when cold)
	Front	Up to 180 kg (397 lb)	225 kPa (2.25 kg/cm², 32 psi)
	Rear	Up to 180 kg (397 lb)	250 kPa (2.5 kg/cm², 36 psi)

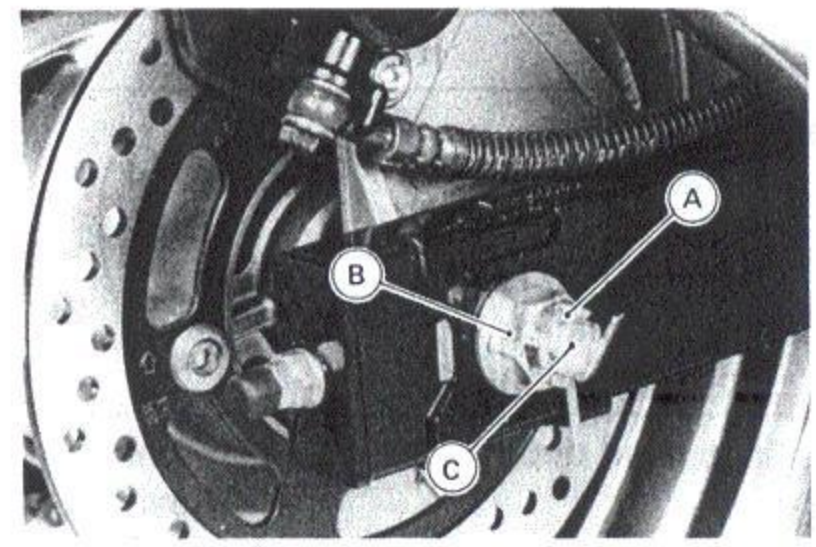
Standard tire	Front	Make, Type	BRIDGESTONE, G549 (Tubeless)
			DUNLOP, K275FJ (Tubeless)
		Size	110/70-17 54H
	Rear	Make, Type	BRIDGESTONE, G550 (Tubeless)
			DUNLOP, K275J (Tubeless)
		Size	130/70-17 62H

Special Tools – Rim Protector: 57001-1063
Bead Breaker Assembly: 57001-1072
Inside Circlip Pliers: 57001-143
Bearing Remover Shaft: 57001-1265
Bearing Remover Head, Φ15 x Φ17: 57001-1267
Bearing Driver Set: 57001-1129

Wheels (Rims)

Rear Wheel Removal

- Remove:
  Cotter Pin [A]
  Axle Nut [B]
  Axle [C]
- Move the rear wheel to front, and remove the drive chain from the rear sprocket toward the left.
- Remove the rear wheel.



CAUTION

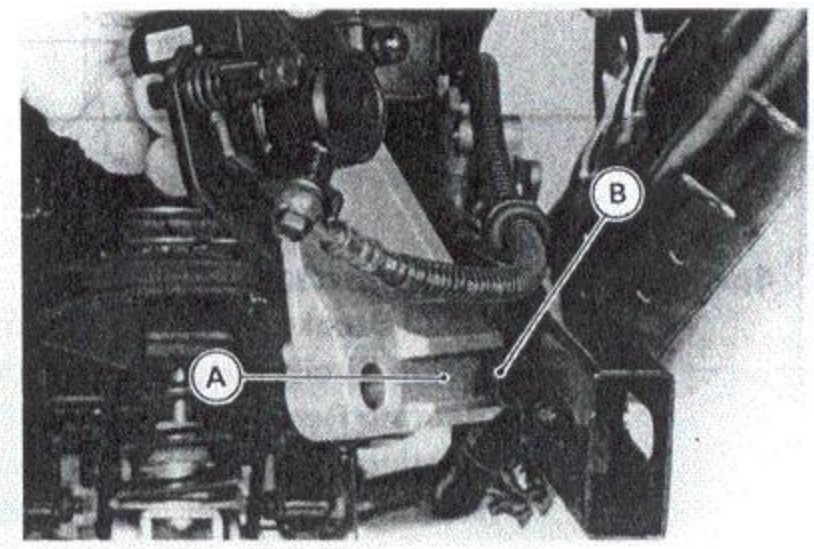
Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so that the disc does not touch the ground.

Rear Wheel Installation Notes

- Engage the drive chain with the rear sprocket.
- Install the caliper bracket [A] onto the swingarm stop [B].
- Insert the axle from the left side of the wheel, and tighten the axle nut.

Torque – Rear Axle Nut : 110 N-m (11.0 kg-m, 80 ft-lb)

- Adjust the drive chain slack after installation (see Final Drive chapter).
- Check the rear brake.



⚠WARNING

Do not attempt to drive the motorcycle until a full brake pedal is obtained by pumping the brake pedal until the pads are against the disc. The brake will not function on the first application of the pedal if this is not done.

Wheel Balance

Installation of Balance Weight:

Refer to the Base Manual, noting the following.

- Install balance weight at both sides of the rim flange when required total weight exceeds 40 g as shown.
- The balance weight lower than 30 g can be installed at either side of the rim flange.

Required Total Weight	Weight Selection	
	One Side	Other Side
90 g	30 g × 2	30 g
80 g	30 g + 20 g	30 g
70 g	20 g × 2	30 g
60 g	30 g	30 g
50 g	30 g	20 g
40 g	20 g	20 g
30 g	20 g or (30 g)	10 g or (−)
20 g	10 g or (20 g)	10 g or (−)
10 g	10 g	−

Balance Weight

Part Number (Sliver)	Weight (grams)
41075-1014	**10**
41075-1015	**20**
41075-1016	**30**

Tires

Tire Removal

Refer to the Base Manual, noting the following.

● The wheel cap is not on the EX500. Omit the description for it.

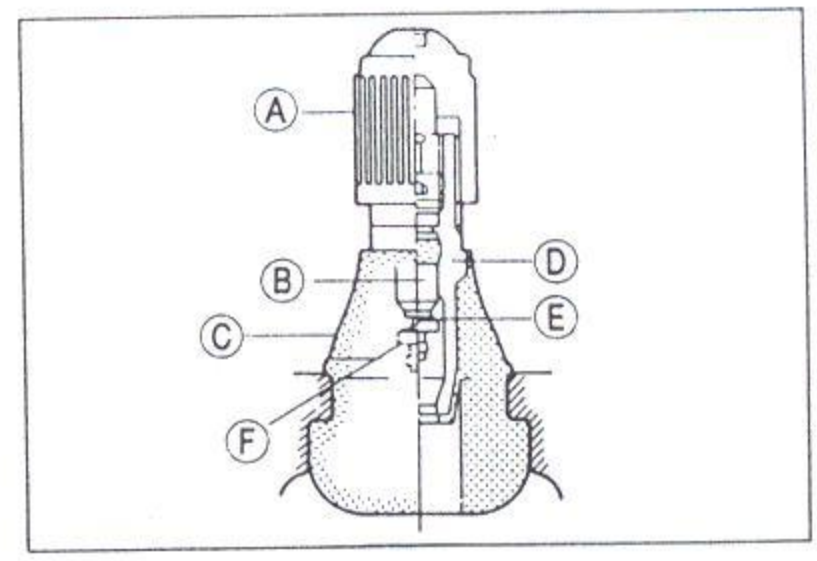
Tire Installation

Refer to the Base Manual, noting the following.

New air valves and wheels are used on the EX500.

[A] Valve Cap
[B] Valve Core
[C] Stem Seal
[D] Valve Stem
[E] Valve Seat
[F] Valve Opened

● Remove the air valve and discard it.

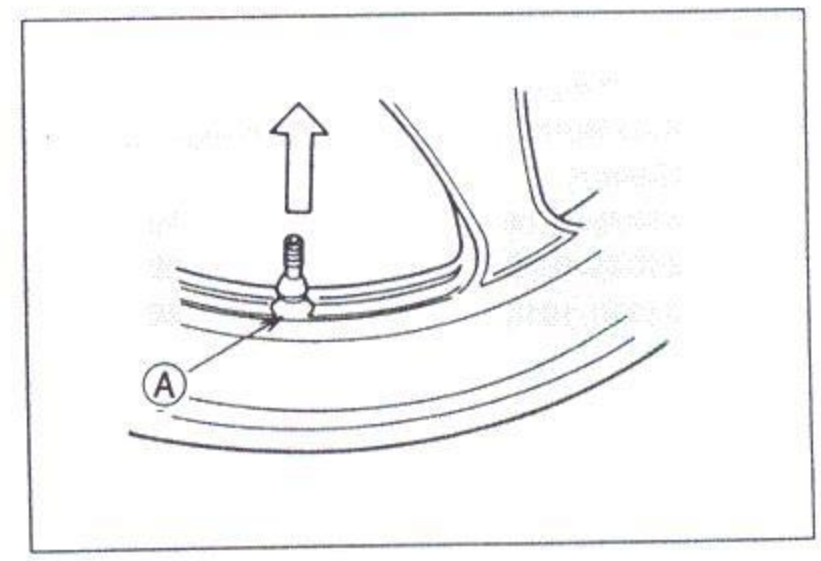


CAUTION

Replace the air valve whenever the tire is replaced. Do not reuse the air valve.

● Install a new valve in the rim.

○ Remove the valve cap, lubricate the stem seal [A] with a soap and water solution or rubber lubricant, and pull the valve stem through the rim from the inside out until it snaps into place.



CAUTION

Do not use engine oil or petroleum distillates to lubricate the stem because they will deteriorate the rubber.

Tire Inspection

Refer to the Base Manual, noting the following.

Tire Tread Depth

Front

Standard:	**4 mm**
Service Limit:	**1 mm**

Rear

Standard:	**6 mm**
Service Limit:	**2 mm (Up to 130 km/h)**
	3 mm (Over 130 km/h)

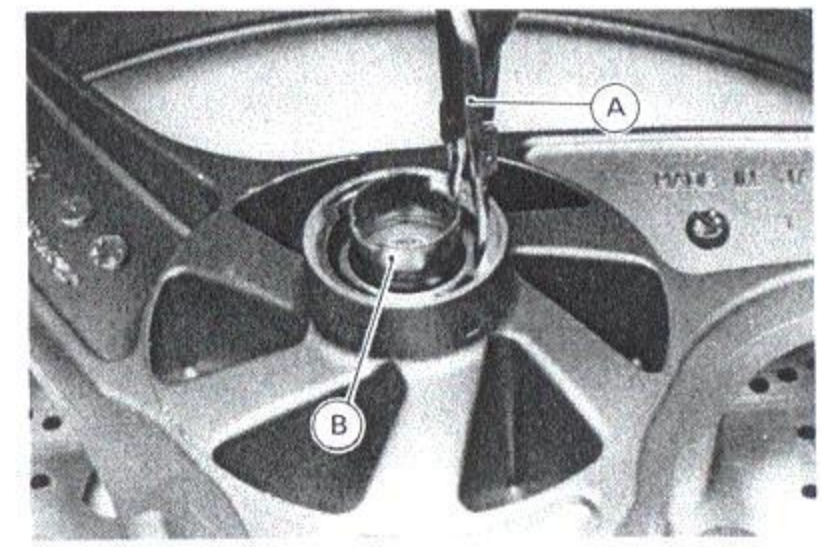
Wheel Bearings

Wheel Bearing Removal

● Remove the wheel, and take out the following.
Collars
Coupling (out of rear hub)
Grease Seals
Circlips

Special Tool – Inside Circlip Pliers: 57001-143 [A]

Speedometer Gear Drive (out of front hub) [B]

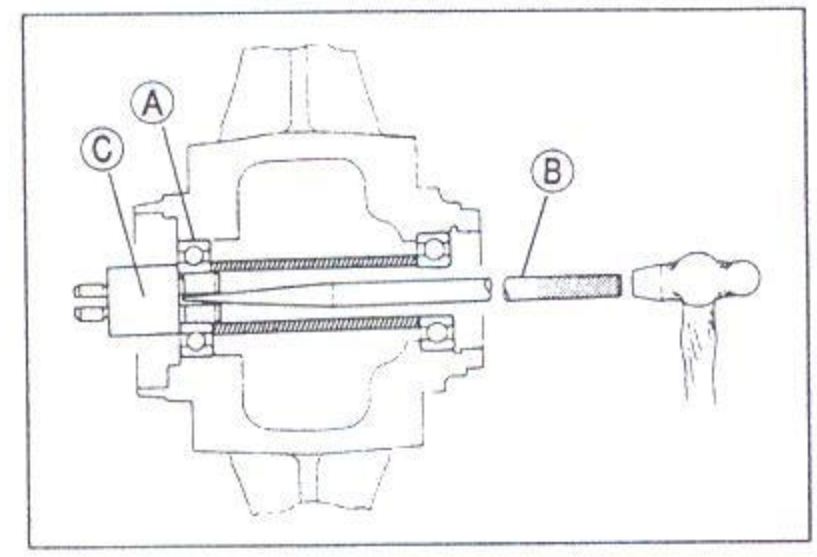


● Take the bearings [A] out of the hub.

CAUTION

Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so that the disc does not touch the ground.

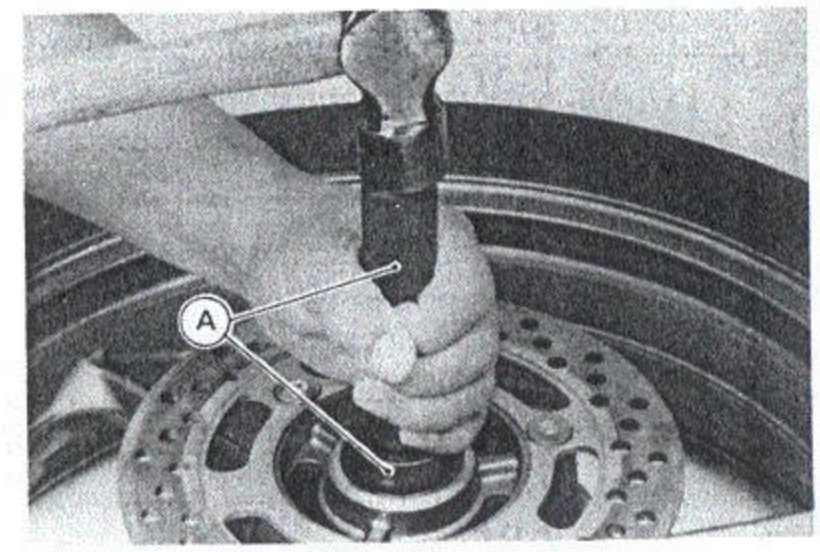
Special Tool – Bearing Remover Shaft: 57001-1265 [B]
Bearing Remover Head, Φ15 x Φ17: 57001-1267 [C]



Wheel Bearing Installation Notes

● Before installing the wheel bearings, blow any dirt or foreign particles out of the hub with compressed air to prevent contamination of the bearings.
● Replace the bearings with new ones.
● Press in the bearings until they are bottomed.

Special Tool – Bearing Driver Set: 57001-1129 [A]



NOTE

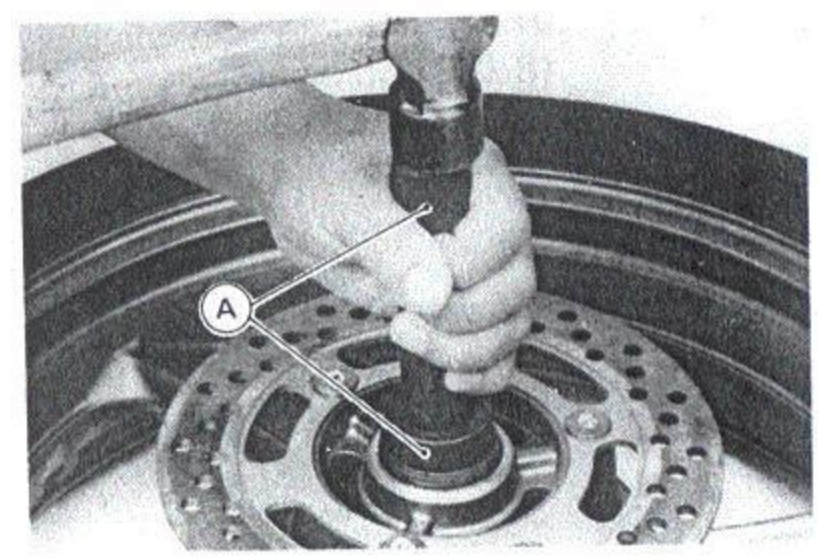
○ *Install the bearings so that the marked side faces out.*

● Replace the circlips with new ones.

Special Tool – Inside Circlip Pliers: 57001-143

● Replace the grease seals with new ones.
● Press in the grease seals so that the seal surface is flush with the end of the hole.
○ Apply high temperature grease to the grease seal lips.

Special Tool – Bearing Driver Set: 57001-1129 [A]



Wheel Bearing Inspection and Lubrication

● Lubrication is not needed for the EX500.

NOTE

○ *It is not necessary to remove any bearings for inspection. If any bearings are removed, they will need to be replaced with new ones.*

● Spin it by hand to check its condition.
★ If it is noisy, does not spin smoothly, or has any rough spots, it must be replaced.
● Examine the bearing seal for tears or leakage.
★ If the seal is torn or is leaking, replace the bearing.

Final Drive

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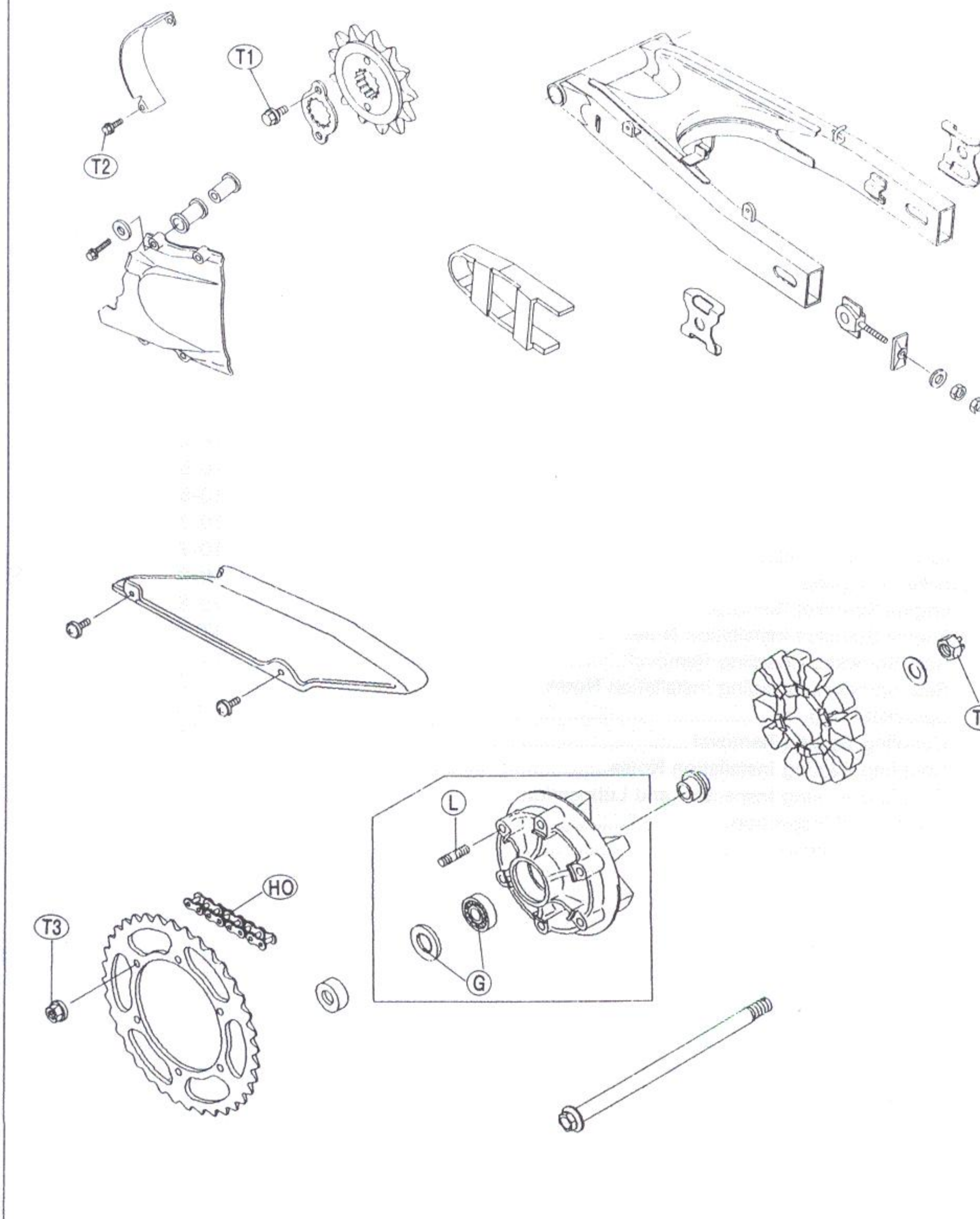


G: Apply grease.
HO: Apply heavy oil.
L: Apply a non-permanent locking agent.

T1: 9.8 N-m (1.0 kg-m, 87 in-lb)
T2: 11 N-m (1.1 kg-m, 95 in-lb)
T3: 59 N-m (6.0 kg-m, 43 ft-lb)
T4: 110 N-m (11.0 kg-m, 80 ft-lb)

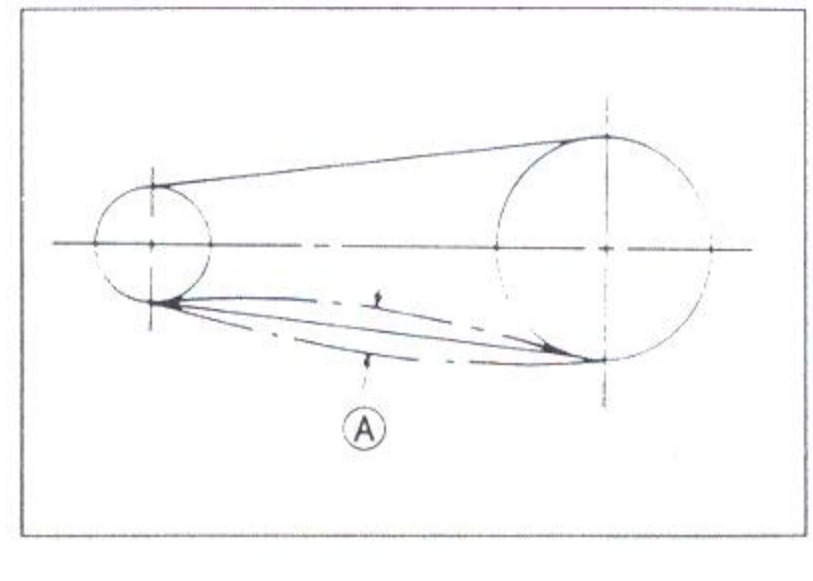
Specifications

Item		Standard	Service Limit
Drive Chain:			
Standard Chain			
	Make	ENUMA	– – –
	Type	EK520SX-O, Endless	– – –
	Link	104 links	– – –
Chain slack		35 ~ 40 mm	Too tight: less than 35 mm Too loose: more than 45 mm
20-link length		317.5 ~ 318.2 mm	323 mm
Sprockets:			
Rear sprocket warp		0.4 mm or less	0.5 mm

Special Tools – Bearing Driver Set: 57001-1129

Drive Chain

Drive Chain Slack Inspection



- Set the motorcycle up on its center stand.
- Check the wheel alignment (see Wheel Alignment Inspection).

NOTE

○ *Clean the chain if it is dirty, and lubricate it if it appears dry.*

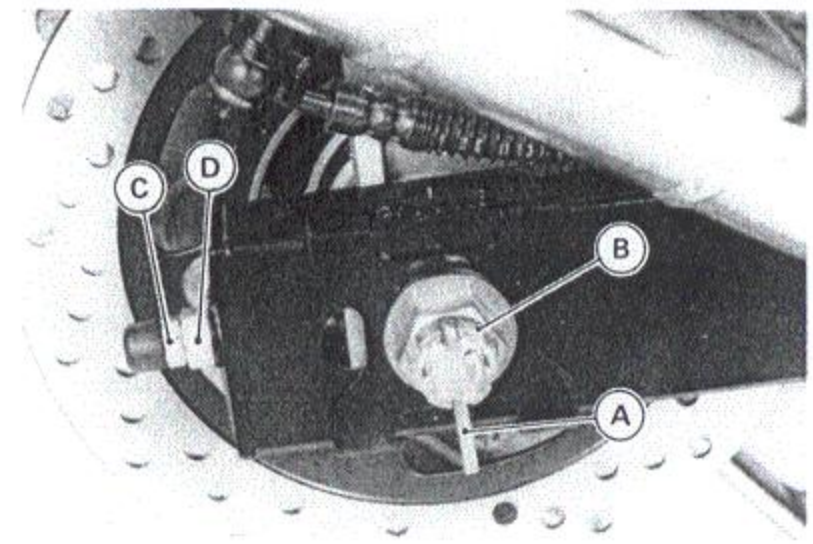
- Rotate the rear wheel to find the position where the chain is tightest.
- Measure the vertical movement (chain slack) [A] midway between the sprockets.

★If the chain slack exceeds the standard, adjust it.

Chain Slack

Standard:	**35 ~ 40 mm**
Too Tight:	**Less than 35 mm**
Too Loose:	**More than 45 mm**

Drive Chain Slack Adjustment



- Remove the cotter pin [A], and loosen the axle nut [B].
- Loosen the left and right chain adjuster locknuts [C].

○ When the chain is too tight, back out both the chain adjusting nuts [D] evenly, and push the wheel forward until the chain is too loose.

○ When the chain is too loose, turn in both the chain adjusting nuts evenly until the drive chain has the correct amount of slack. To keep the chain and wheel properly aligned, the notch on the left chain adjuster should align with the same swingarm mark that the right chain adjuster notch aligns with.

⚠WARNING

Misalignment of the wheel will result in abnormal wear, and may result in an unsafe riding condition.

- Tighten both chain adjuster locknuts securely.
- Tighten the rear axle nut.

Torque – Rear Axle Nut : 110 N-m (11.0 kg-m, 80 ft-lb)

⚠WARNING

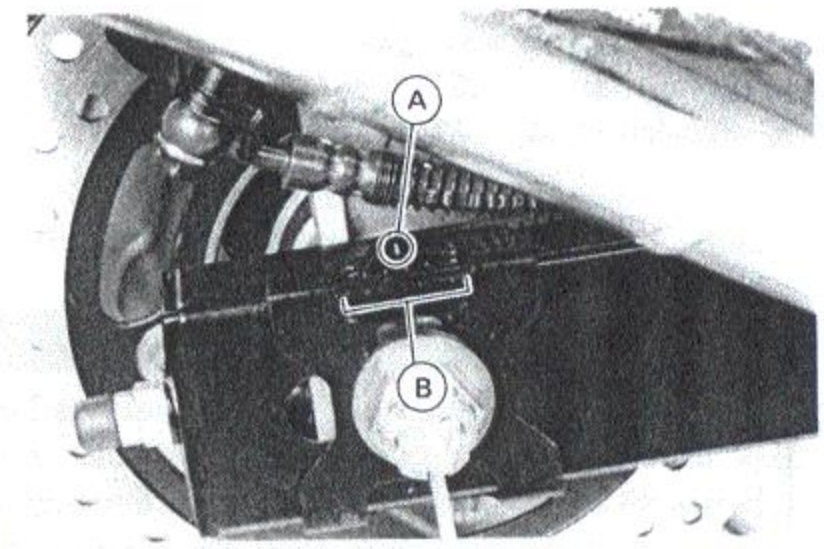
If the axle nut is not securely tightened, an unsafe riding condition may result.

- Rotate the wheel, measure the chain slack again at the tightest position, and readjust if necessary.
- Insert a new cotter pin and spread its ends.
- Check the rear brake effectiveness.

Wheel Alignment Inspection

- Set the motorcycle up on its center stand.
- Check to see if wheel alignment is properly adjusted. The left and right notches [A] on the alignment indicator should point to the same marks [B] on the swingarm.

★If they do not, adjust the wheel alignment.



NOTE

○ *Wheel alignment can also be checked using the straightedge or string method.*

⚠WARNING

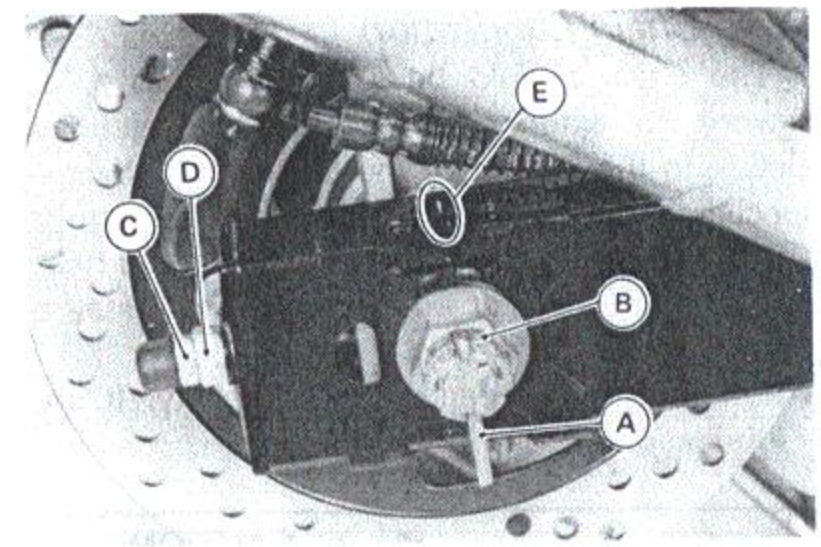
Misalignment of the wheel will result in abnormal wear, and may result in an unsafe riding condition.

Wheel Alignment Adjustment

- Set the motorcycle up on its center stand.
- Remove the cotter pin [A], and loosen the axle nut [B].
- Loosen the one side chain adjuster locknut [C].
- Turn the adjusting nut [D] so that the left and right notches may point to the same positions [E] on the both sides of the swingarm.
- Tighten the chain adjuster locknut securely.
- Tighten the axle nut.

Torque – Rear Axle Nut : 110 N-m (11.0 kg-m, 80 ft-lb)

- Inspect the drive chain slack (see Drive Chain Slack Inspection).



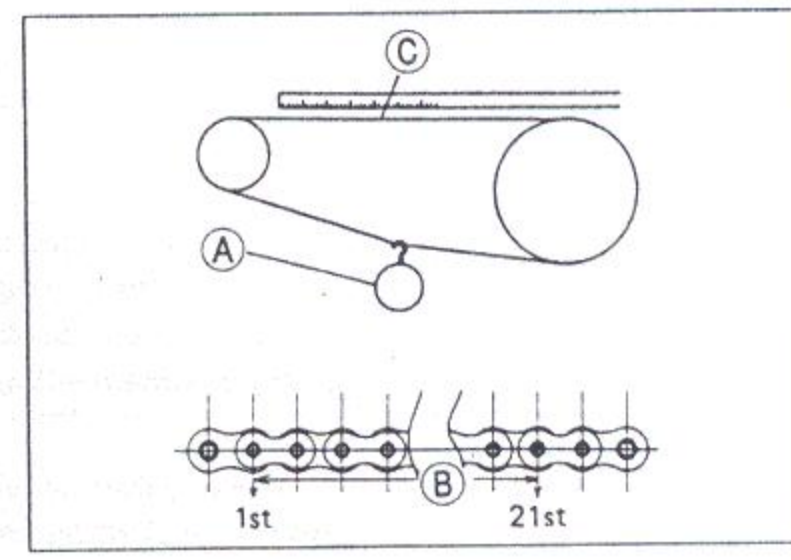
Drive Chain Wear Inspection

- Remove the chain cover.
- Rotate the rear wheel to inspect the drive chain for damaged rollers, and loose pins and links.

★If there is any irregularity, replace the drive chain.

★Lubricate the drive chain if it appears dry.

- Stretch the chain taut hanging a 98 N (10 kg, 20 lb) weight [A] on the chain.
- Measure the length of 20 links [B] on the straight part [C] of the chain from the pin center of the 1st pin to the pin center of the 21st pin. Since the chain may wear unevenly, take measurements at several places.



Drive Chain 20-link Length
Standard: 317.5 ~ 318.2 mm
Service Limit: 323 mm

★If any measurements exceed the service limit, replace the chain. Also, replace the engine and rear sprockets when the drive chain is replaced.

⚠WARNING

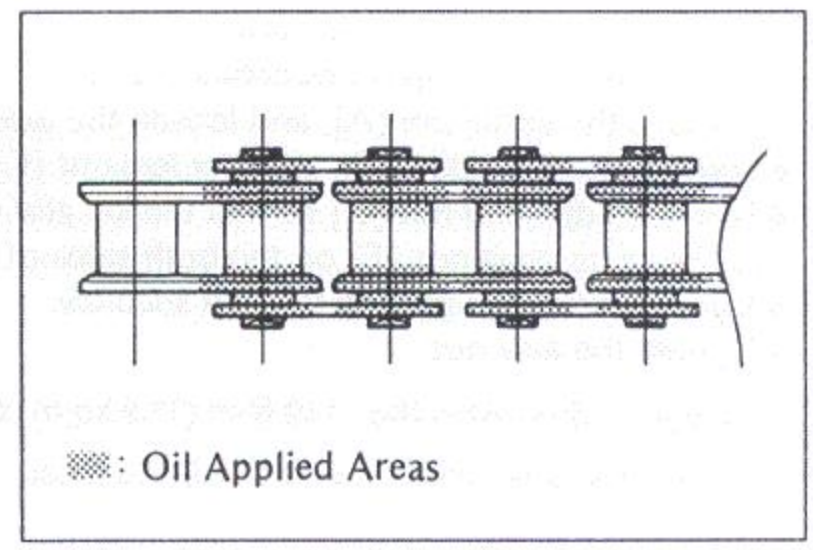
If the drive chain wear exceeds the service limit, replace the chain or an unsafe riding condition may result. A chain that breaks or jumps off the sprockets could snag on the engine sprocket or lock the rear wheel, severely damaging the motorcycle and causing it to go out of control.
For safety, use only the standard chain. It is an endless type and should not be cut for installation.

Drive Chain Lubrication

The chain should be lubricated with a lubricant which will both prevent the exterior from rusting and also absorb shock and reduce friction in the interior of the chain. An effective, good quality lubricant specially formulated for chains is best for regular chain lubrication.

If a special lubricant is not available , a heavy oil such as SAE 90 is preferred to a lighter oil because it will stay on the chain longer and provide better lubrication.

- If the chain appears especially dirty, it should be cleaned before lubrication.



▒: Oil Applied Areas

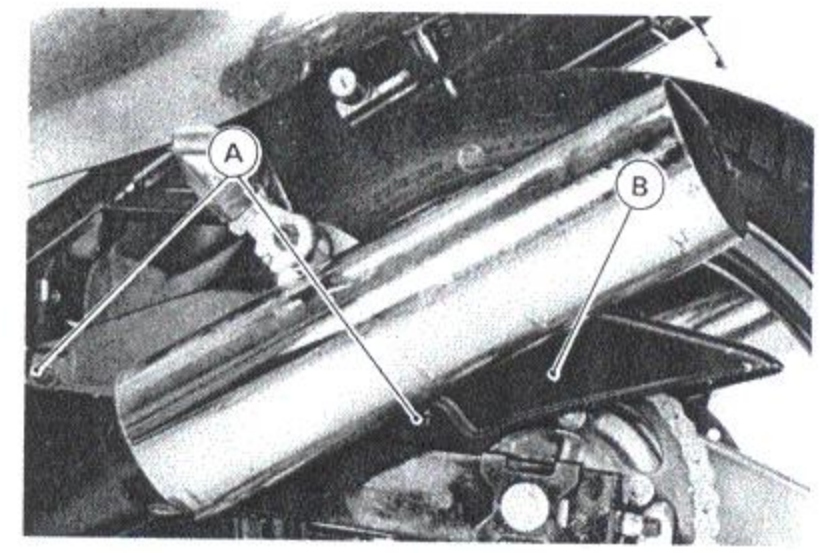
CAUTION

The O-rings between the side plates seal in the lubricant between the pin and the bushing. To avoid damaging the O-rings and resultant loss of lubricant, observe the following rules.
Use only kerosene or diesel oil for cleaning an O-ring drive chain. Any other cleaning solution such as gasoline or trichloroethylene will cause deterioration and swelling of the O-rings.
Immediately blow the chain dry with compressed air after cleaning.
Complete cleaning and drying the chain within 10 minutes.

- Apply oil to the sides of the rollers so that oil will penetrate to the rollers and bushings. Apply the oil to the O-rings so that the O-rings will be coated with oil.
- Wipe off any excess oil.

Drive Chain Removal

- Remove:
  Chain Cover Mounting Screws [A] and Chain Cover [B]
  Engine Sprocket Cover (see Engine Sprocket Removal)
  Rear Wheel (see Wheels/Tires chapter)
  Swingarm (see Suspension chapter)
- Disengage the drive chain from the engine sprocket, and take it off the chassis.



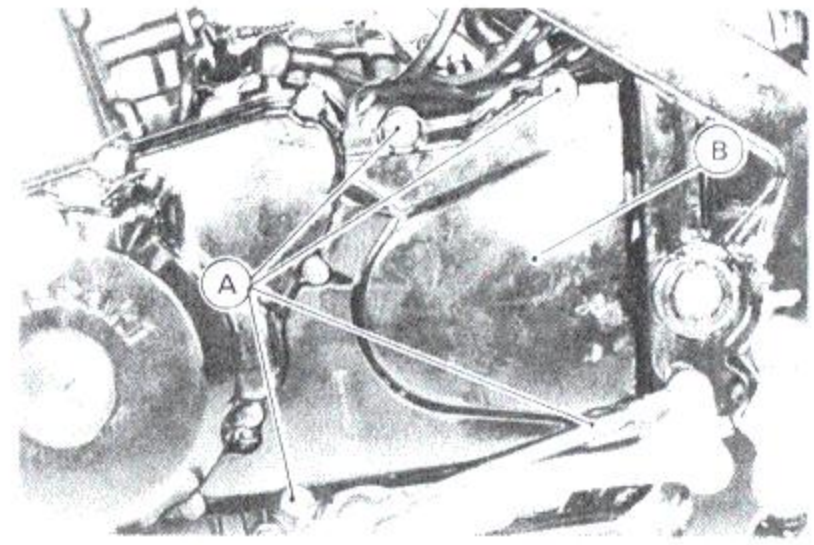
Drive Chain Installation Notes

- Installation is the reverse of removal.
- Adjust the chain slack after installing the chain (see Drive Chain Slack Adjustment).

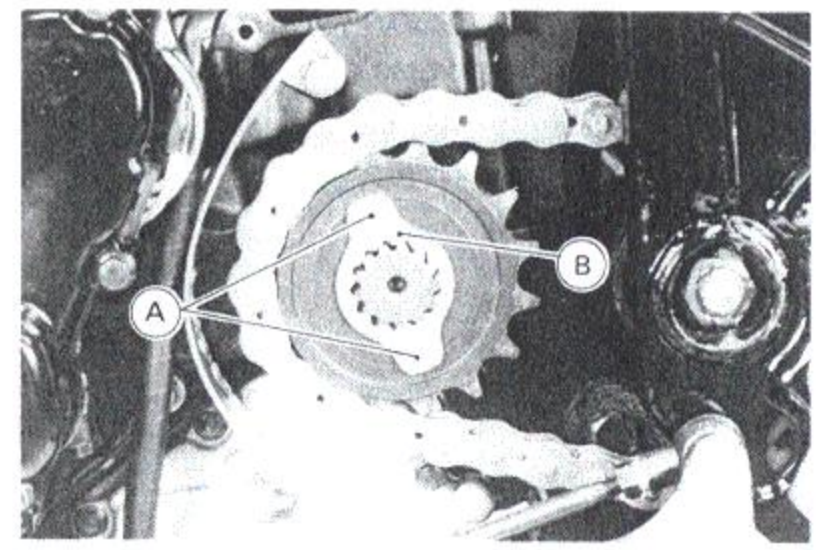
Sprocket, Coupling

Engine Sprocket Removal

● Remove:
Engine Sprocket Cover Bolts [A]
Engine Sprocket Cover [B]



● Fully loosen the drive chain (see Drive Chain Slack Adjustment).
● Unscrew the engine sprocket bolts [A], and remove the holding plate [B].
● Pull the engine sprocket off the output shaft with the drive chain, and then separate them.

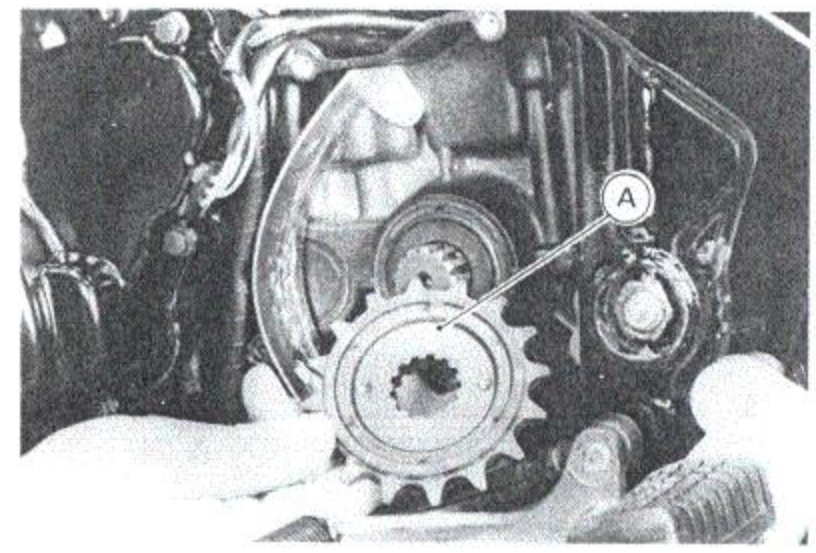


Engine Sprocket Installation Notes

● Installation is the reverse of removal. Note the following.
○ Engage the sprocket with the chain so that the recess [A] faces inwards.
○ Install the holding plate, and tighten the engine sprocket bolts.

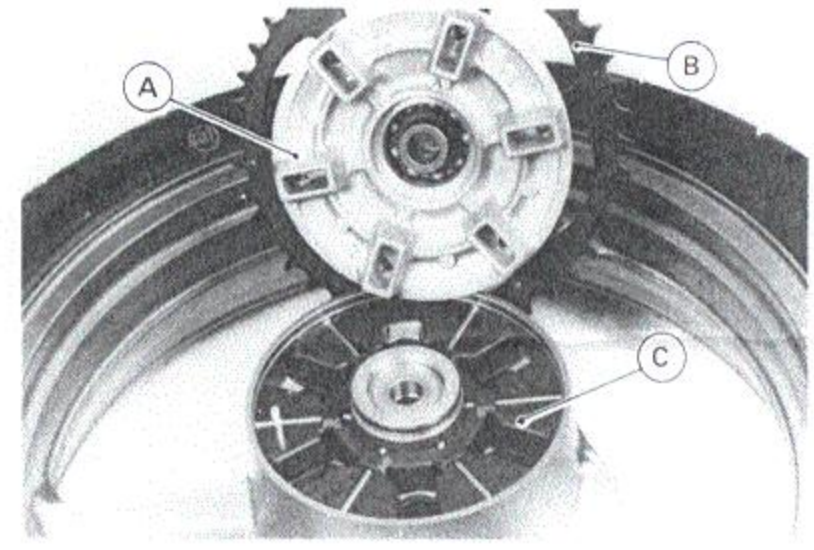
Torque – Engine Sprocket Holding Plate Bolts : 9.8 N-m (1.0 kg-m, 87 in-lb)

● Adjust the drive chain slack after installing the sprocket (see Drive Chain Slack Adjustment).

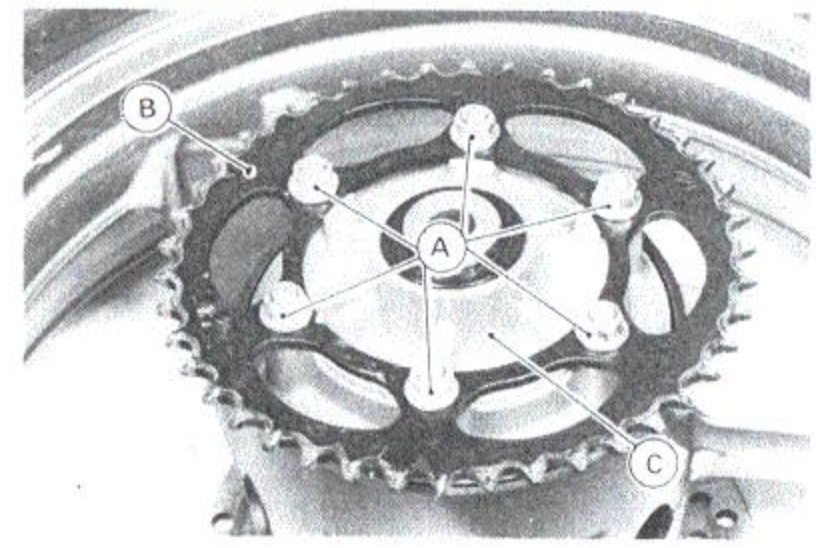


Rear Sprocket, Coupling Removal

● Remove the rear wheel (see Rear Wheel Removal in Wheels/Tires chapter).
● Remove the coupling [A] with the rear sprocket [B] from the wheel.
● Pull out the coupling collar from the left, and the coupling sleeve from the right.
● Install the rubber damper [C] and wheel coupling temporarily on the rear hub to aid in rear sprocket removal.



● Remove the rear sprocket nuts [A] to separate the rear sprocket [B] and coupling [C]
● Remove the rear sprocket and coupling from the rear wheel.



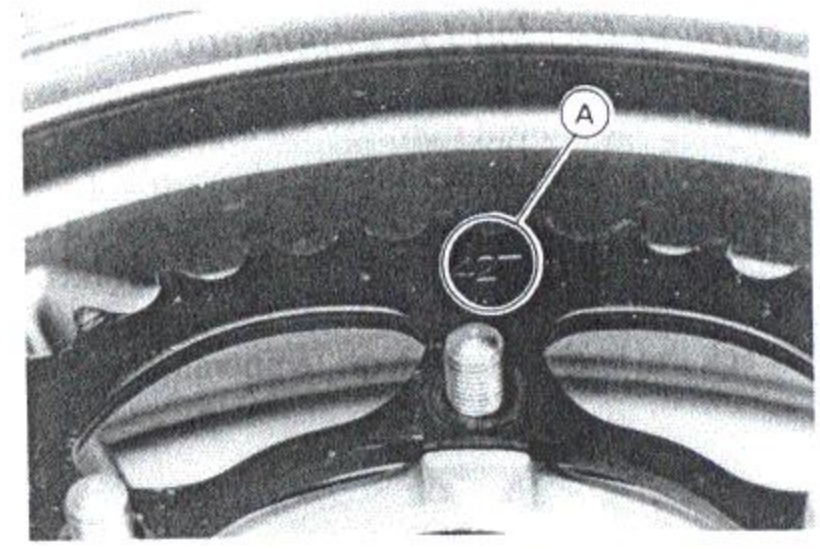
Rear Sprocket, Coupling Installation Notes

● Installation is the reverse of removal. Note the following.

○ Install the rear sprocket facing the tooth number [A] marking side outward.

○ Tighten the sprocket nuts.

Torque – Rear Sprocket Nuts : 59 N-m (6.0 kg-m, 43 ft-lb)



Sprocket Warp

● Set the motorcycle on its center stand.

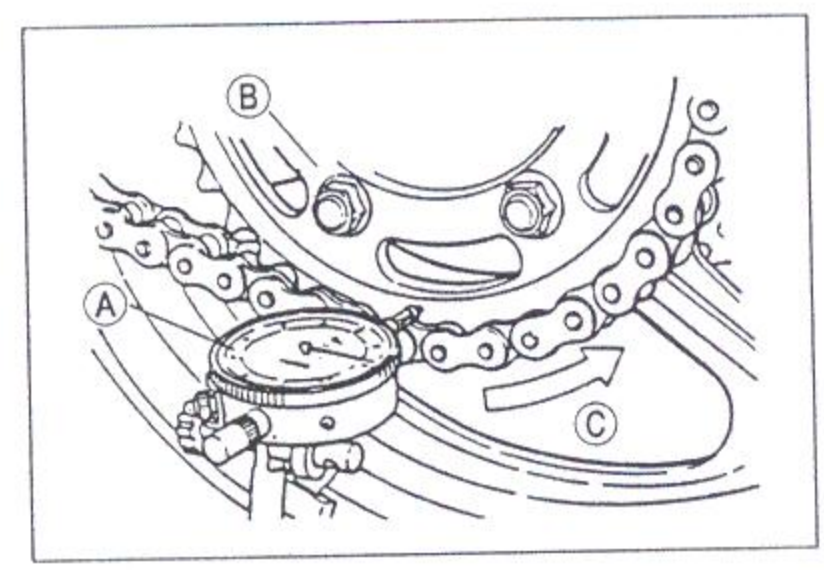
● Set a dial gauge[A] against the rear sprocket [B] near the teeth as shown. Rotate [C] the rear wheel. The difference between the highest and lowest dial gauge readings is the amount of runout (warp).

★ If the runout exceeds the service limit, replace the rear sprocket.

Rear Sprocket Warp

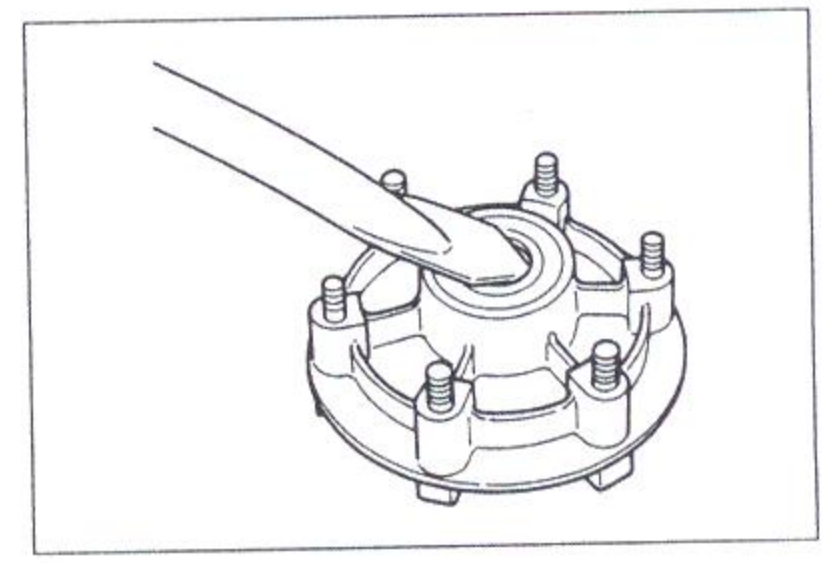
Standard: 0.4 mm or less

Service Limit: 0.5 mm



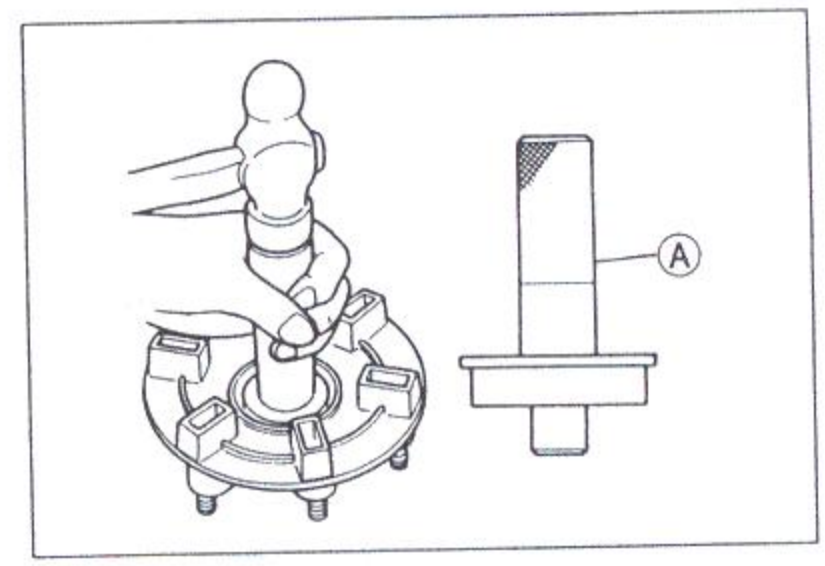
Coupling Bearing Removal

● Using a hook, pull out the grease seal.



● Using the bearing driver set, remove the bearing by tapping from the wheel side.

Special Tool – Bearing Driver Set: 57001-1129 [A]



Coupling Bearing Installation Notes

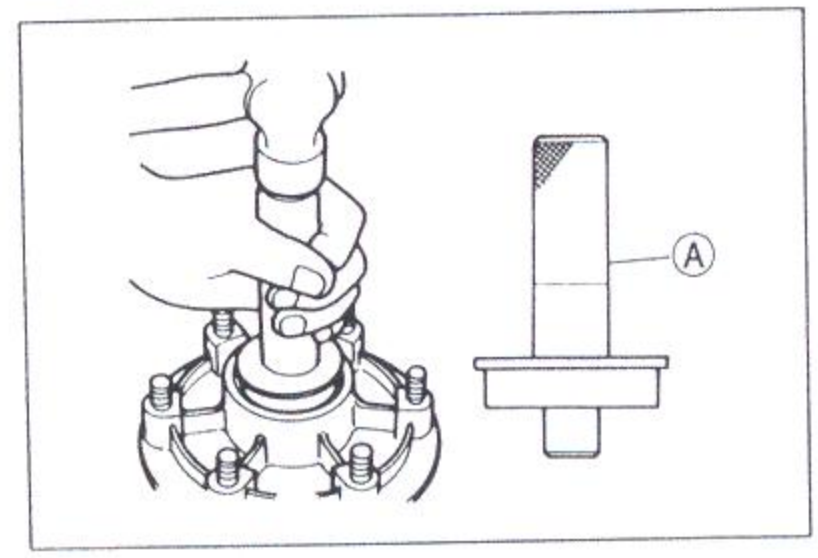
● Installation is the reverse of removal.

● Replace the bearing with a new one.

● Press in the bearing until it is bottomed.

Special Tool – Bearing Driver Set: 57001-1129 [A]

● Pack the bearing with high temperature grease.



Coupling Bearing Inspection and lubrication

Since the coupling bearings are made to extremely close tolerances, the clearance cannot normally be measured.

- Wash the bearing with a high flash-point solvent, dry it (do not spin it while it is dry), and oil it. Spin it by hand to check its condition.
- ★If it is noisy, does not spin smoothly, or has any rough spots, it must be replaced.
- Pack the bearing with high temperature grease.

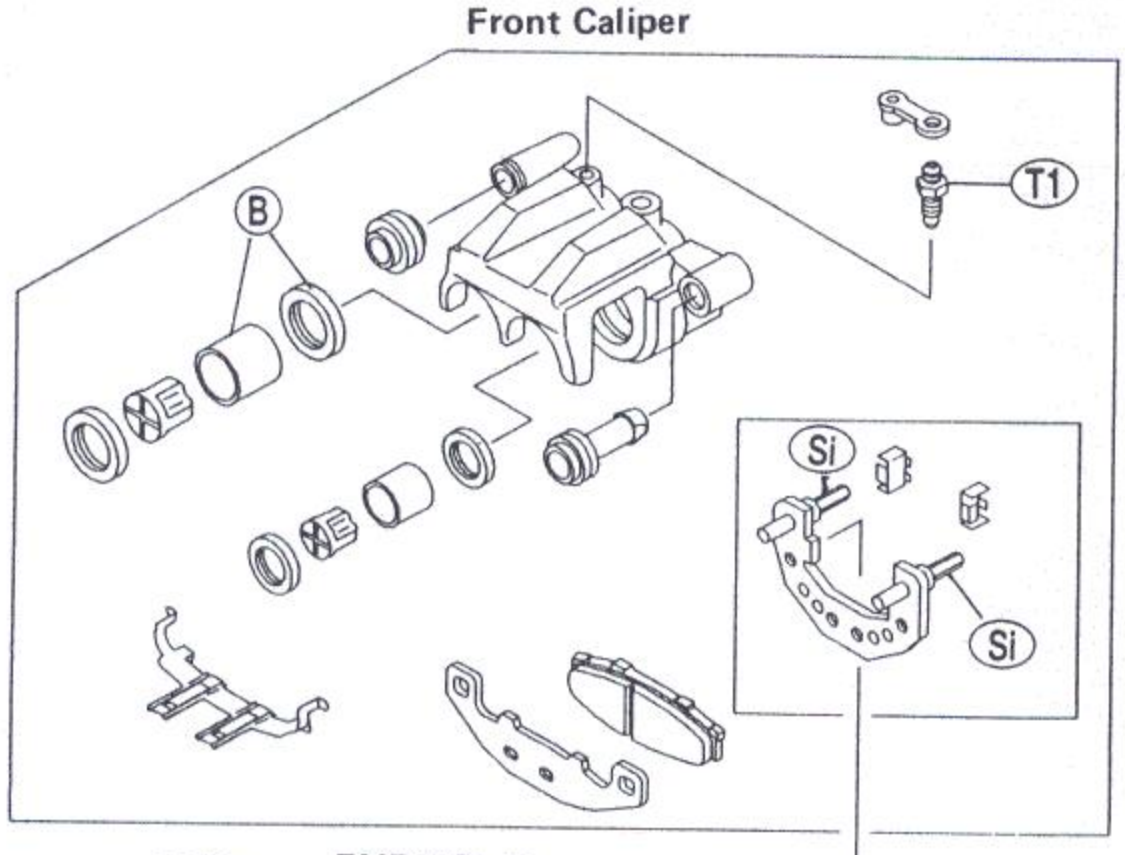
Brakes

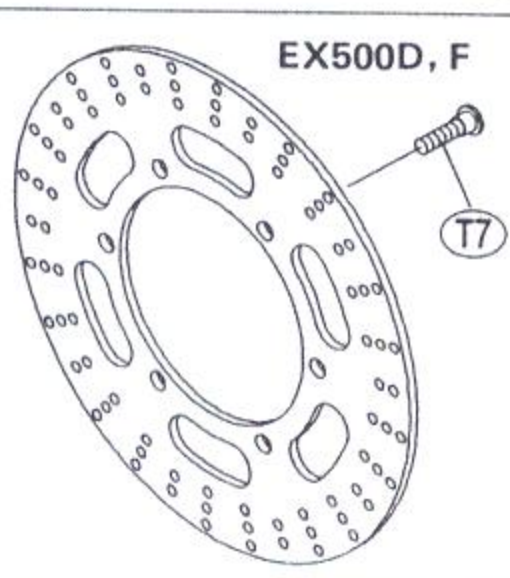
Table of Contents

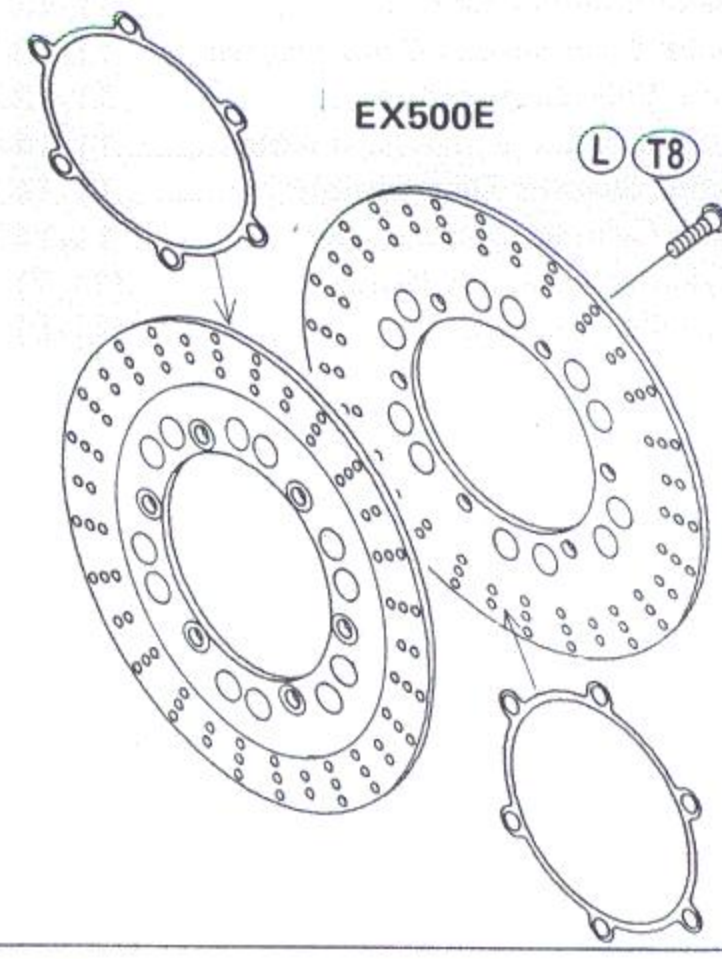
( ) : Refer to Base Manual

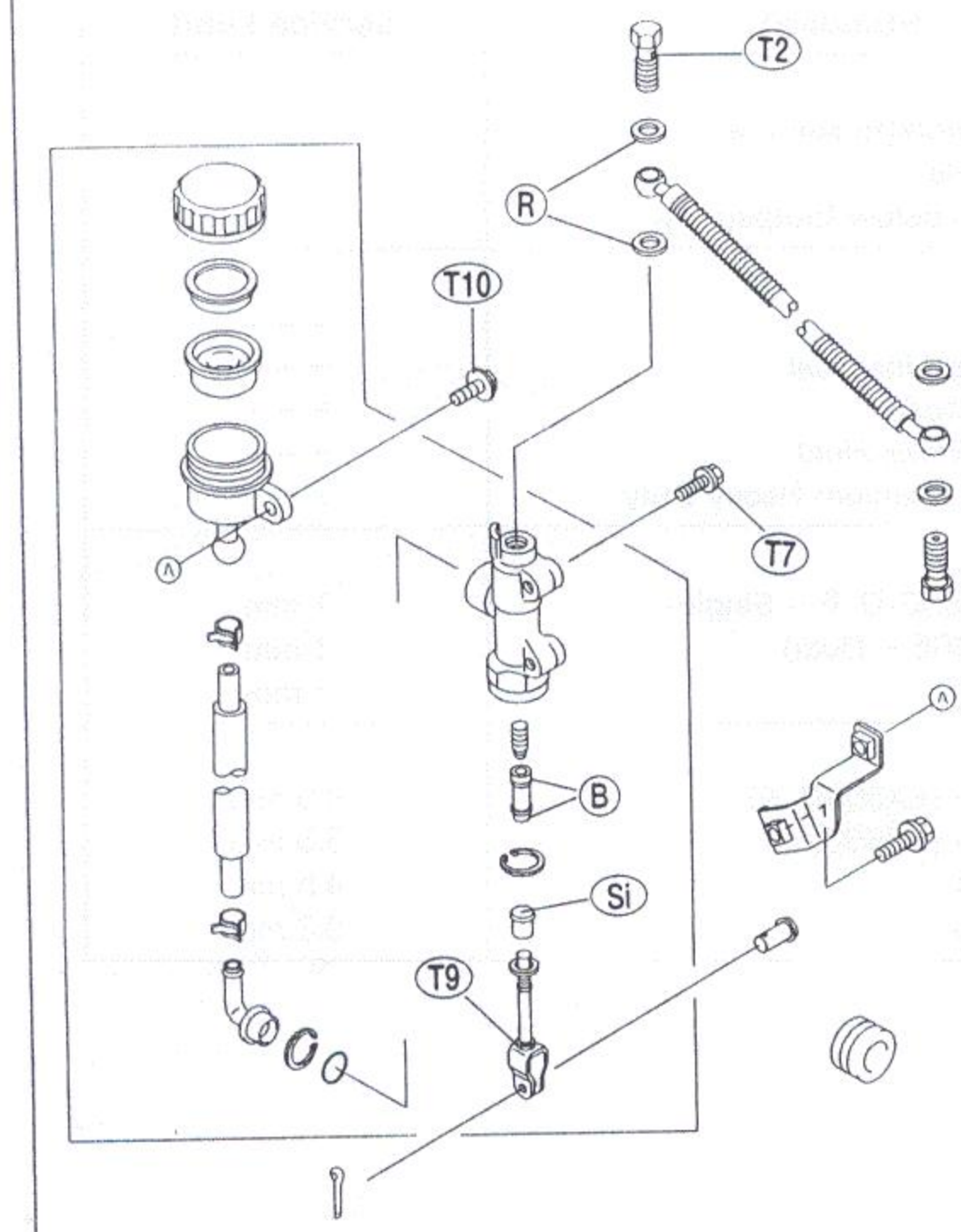
Exploded View

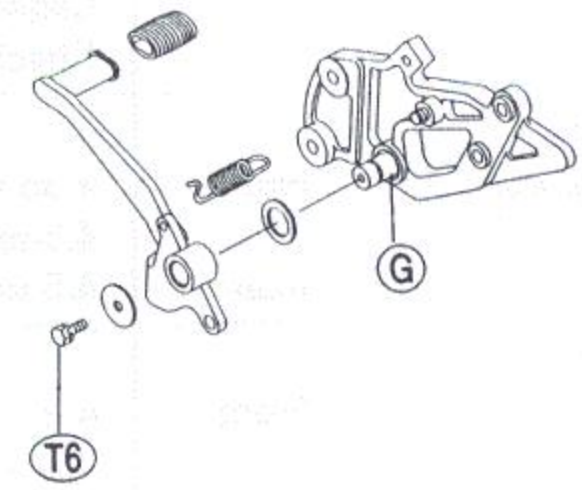
B: Apply brake fluid.
G: Apply grease.
L: Apply a non-permanent locking agent.
R: Replacement Parts
S: Follow the specific tightening sequence.
SI: Apply silicone grease.



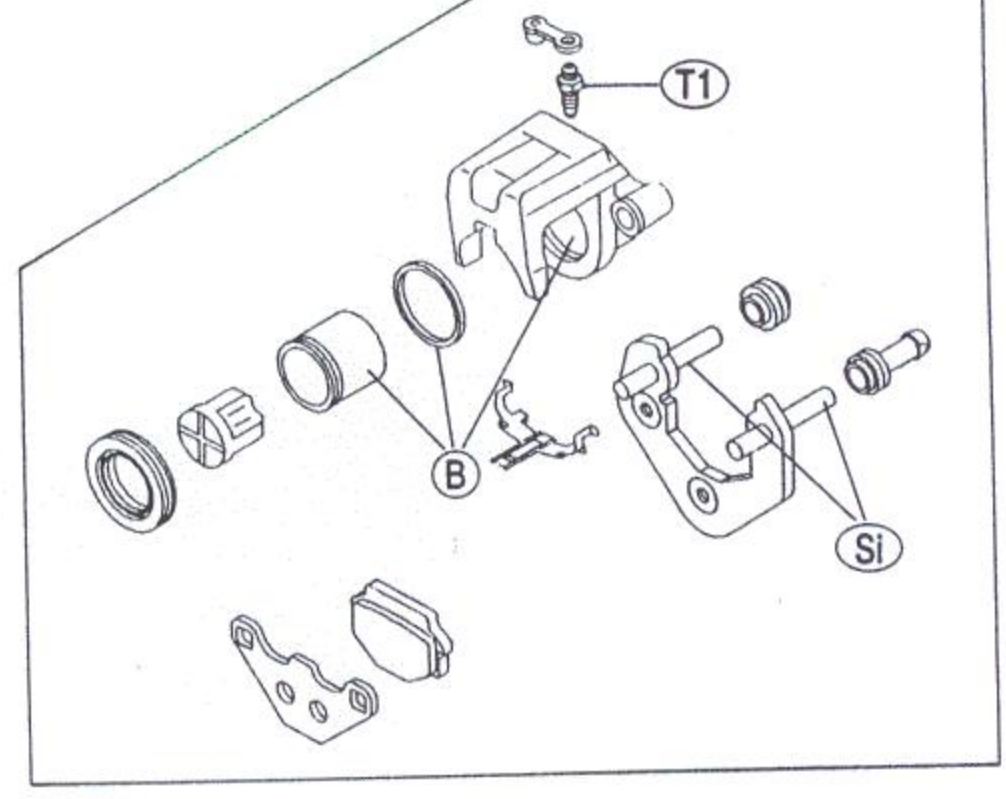


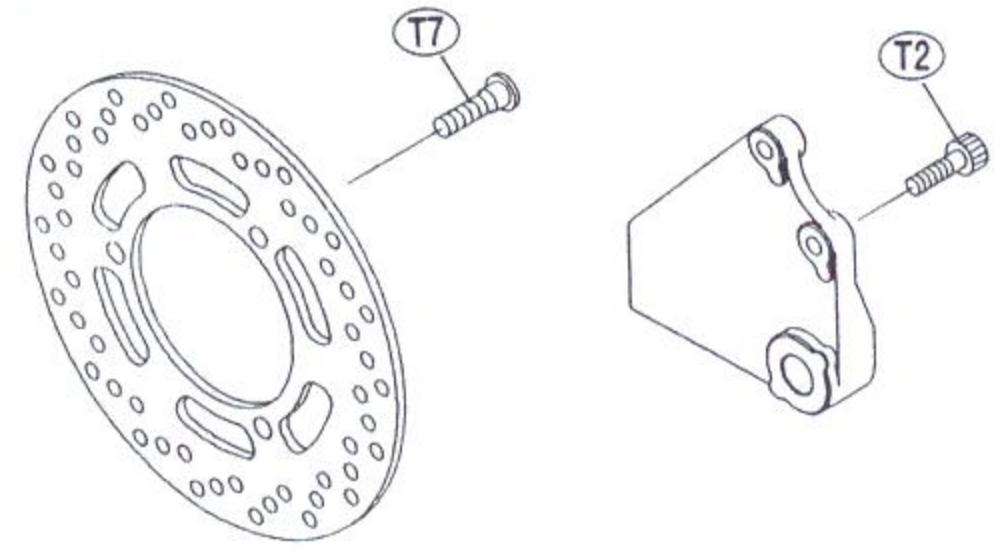






Rear Caliper





T1: 7.8 N-m (0.80 kg-m, 69 in-lb)
T2: 25 N-m (2.5 kg-m, 18.0 ft-lb)
T3: 1.0 N-m (0.10 kg-m, 9 in-lb)
T4: 5.9 N-m (0.60 kg-m, 52 in-lb)
T5: 1.5 N-m (0.15 kg-m, 13 in-lb)
T6: 8.8 N-m (0.90 kg-m, 78 in-lb)
T7: 23 N-m (2.3 kg-m, 16.5 ft-lb)
T8: 27 N-m (2.8 kg-m, 20 ft-lb)
T9: 18 N-m (1.8 kg-m, 13.0 ft-lb)
T10: 6.9 N-m (0.70 kg-m, 61 in-lb)

Specifications

Item		Standard	Service Limit
Brake Lever, Brake Pedal:			
Brake lever position		4-way adjustable(to suit rider)	– – –
Lever or pedal free play		Non-adjustable	– – –
Pedal position		About 50 mm below footpeg top	– – –
Brake Fluid:			
Grade		D.O.T.4	– – –
Brand (recommend)		Castrol Girling-Universal	– – –
		Castrol GT (LMA)	– – –
		Castrol Disc Brake Fluid	– – –
		Check Shock Premium Heavy Duty	– – –
Brake Pads:			
Lining thickness:	Front	4.35 mm (EX500-D, F – Single)	1 mm
		4.3mm (EX500E – Dual)	1 mm
	Rear	4.5 mm	1 mm
Brake Disc:			
Thickness:	Front	4.8 ~ 5.2 mm (EX500D, F)	4.5 mm
		3.8 ~ 4.2 mm (EX500E)	3.5 mm
	Rear	4.8 ~ 5.1 mm	4.5 mm
Runout		0.2mm or less	0.3 mm

Special Tool – Inside Circlip Pliers: 57001-143

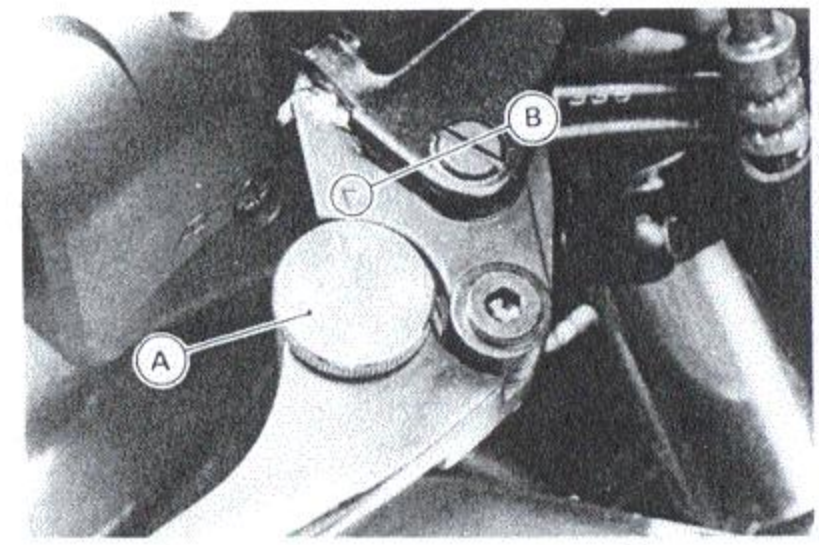
Brake Lever, Brake Pedal

Lever Position Adjustment

The adjuster has 4 positions so that the brake lever position can be adjusted to suit the operator's hand.

● Push the lever forward and turn the adjuster [A] to align the number with the triangular mark [B] on the lever holder.

○ The distance from the grip to the released lever is minimum at Number 4 and maximum at Number 1.



Pedal Position Inspection

● Check that the brake pedal is in the correct position.

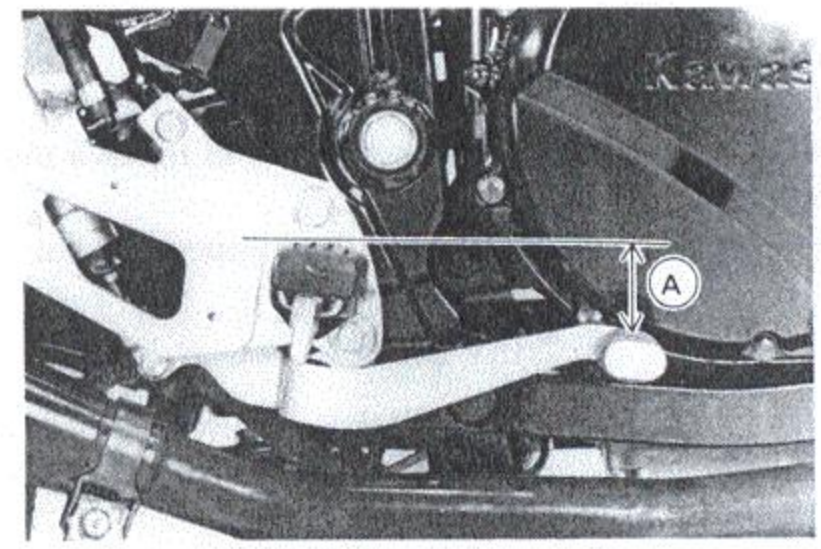
★ If it is not, adjust the brake pedal position.

Pedal Position

Standard: About 50 mm below top of footpeg [A]

NOTE

○ *Usually it is not necessary to adjust the pedal position, but always adjust it when the master cylinder is disassembled.*

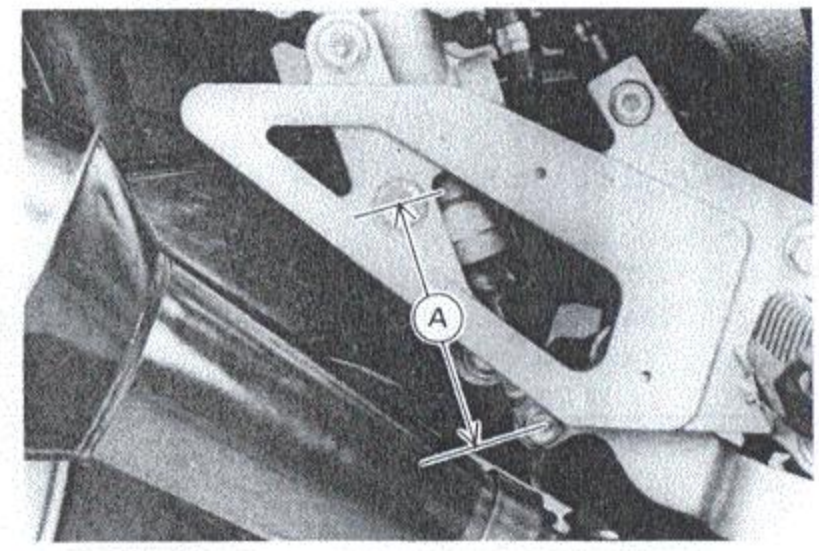


Pedal Position Adjustment

● When the brake pedal is in its rest position, measure the length [A] indicated in the figure.

Length [A]

Standard: 80 mm



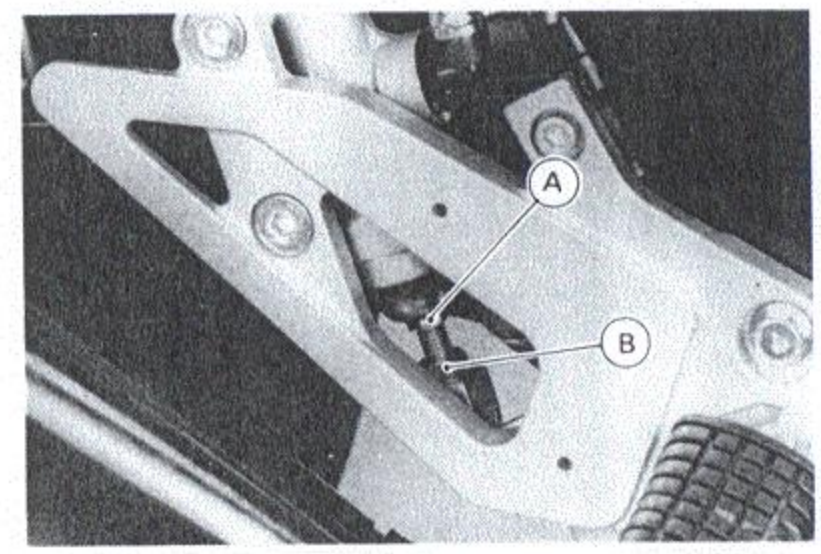
● If the length is not within the specified length, adjust the hex head [A] as following.

○ Loosen the bracket locknut [B].

○ Turn the hex head to obtain the specified length.

● Tighten the locknut.

Torque – Rear Master Cylinder Bracket Locknut : 18 N-m (1.8 kg-m, 13.0 ft-lb)



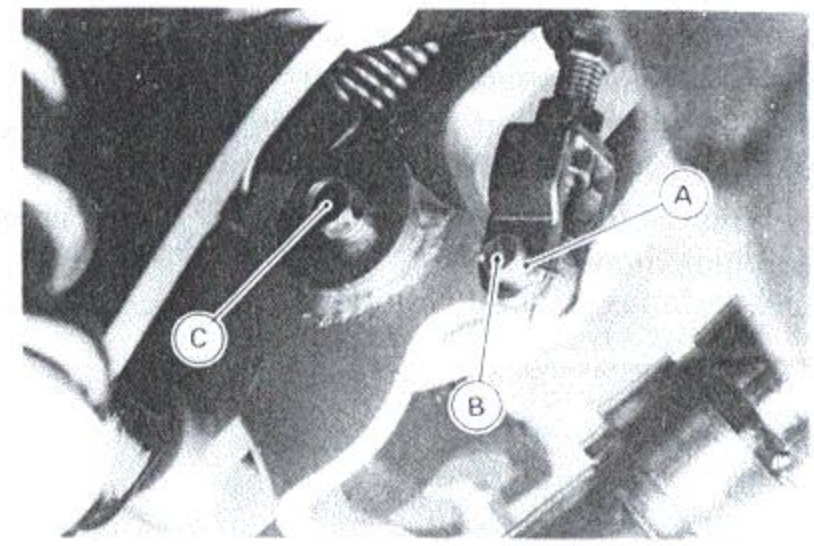
NOTE

○ *If the pedal position cannot be adjusted by turning the hex head, the brake pedal may be deformed or incorrectly installed.*

● Adjust the brake light switch if necessary (see Brake Light Timing Inspection in Electrical System chapter).

Brake Pedal Removal

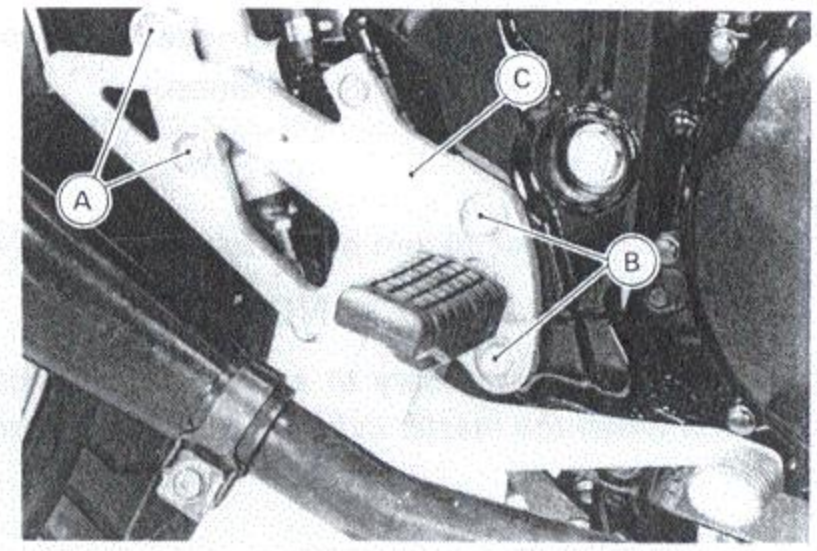
● Remove:
Cotter Pin [A]
Joint Pin [B]
Brake Pedal Mounting Bolt [C]



Rear Master Cylinder Mounting Bolts [A]
Footpeg Bracket Bolts [B]

● Take out the footpeg bracket [C], and remove the return spring and rear brake switch spring.

● Remove the brake pedal from the footpeg bracket.



Brake Pedal Installation Notes

● Installation is the reverse of removal.

● Tighten the footpeg bracket bolts and rear master cylinder mounting bolts.

Torque – Footpeg Bracket Bolts : 25 N-m (2.5 kg-m, 18.0 ft-lb)
Rear Master Cylinder Mounting Bolts : 23 N-m (2.3 kg-m, 16.5 ft-lb)

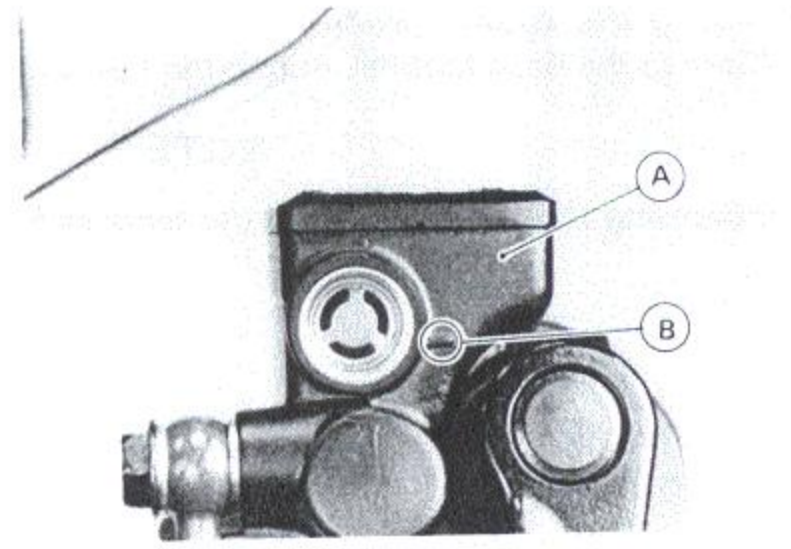
● Replace the cotter pin with a new one.

Brake Fluid

Level Inspection

In accordance with the Periodic Maintenance Chart, inspect the brake fluid level in the front and rear brake fluid reservoirs.

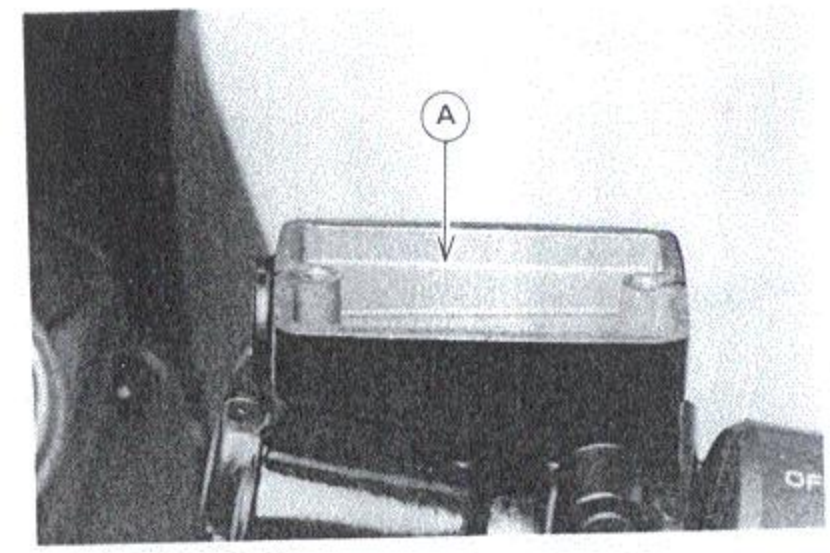
● Check that the brake fluid level in the front brake reservoir [A] is above the lower level line [B].



NOTE

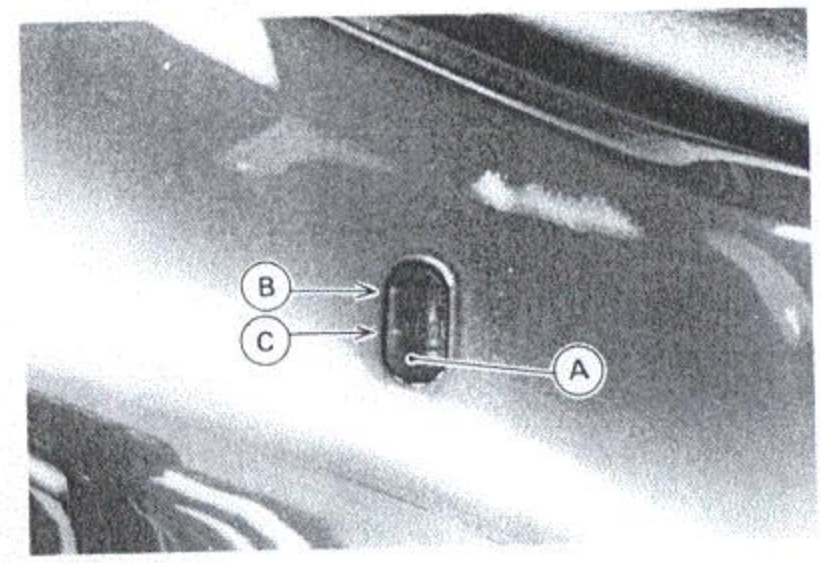
○ *Hold the reservoir horizontal by turning the handlebar when checking brake fluid level.*

★ If the fluid level is lower than the lower level line, fill the reservoir to the upper level line [A] in the reservoir.



● Check that the brake fluid level in the rear brake reservoir [A] is between the upper [B] and the lower [C] level lines.

★ If the fluid level is lower than the lower level line, fill the reservoir to the upper level line.



⚠WARNING

Change the brake fluid in the brake line completely if the brake fluid must be refilled but the type and brand of the brake fluid that is already in the reservoir are unidentified. After changing the fluid, use only the same type and brand of fluid thereafter.

Recommended Disc Brake Fluid

Grade:	**D.O.T.4**
Brand:	**Castrol Girling-Universal**
	Castrol GT (LMA)
	Castrol Disc Brake Fluid
	Check Shock Premium Heavy duty

Brake Fluid Change

Refer to the Base Manual, noting the following.

NOTE

○ *Changing the rear brake fluid is the same as for the front brake.*

Bleeding the Brake Line

Refer to the Base Manual, noting the following.

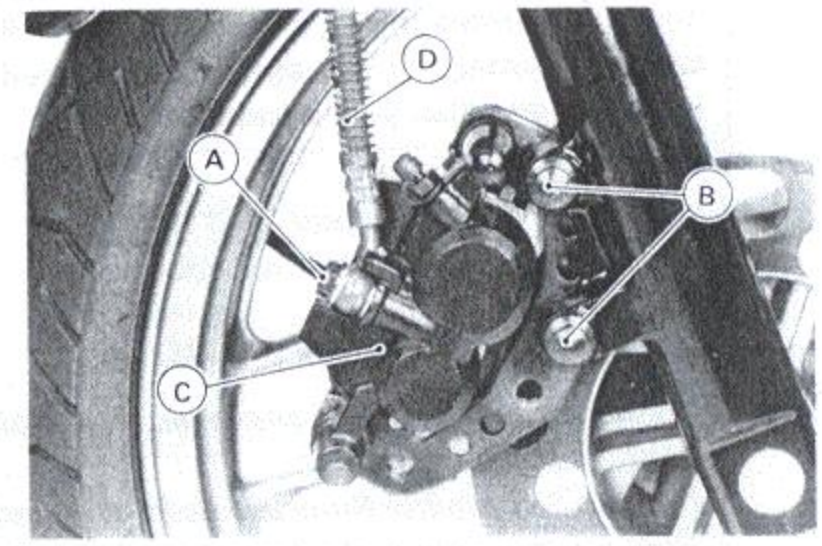
NOTE

○ *Bleeding the rear brake line is the same as for the front brake.*

Caliper

Caliper Removal

- Loosen the banjo bolt [A] at the brake hose lower end, and tighten it loosely.
- Unscrew the caliper mounting bolts [B], and detach the caliper [C] from the disc.
- Unscrew the banjo bolt and remove the brake hose [D] from the caliper (see Brake Hose Removal/Installation Notes).

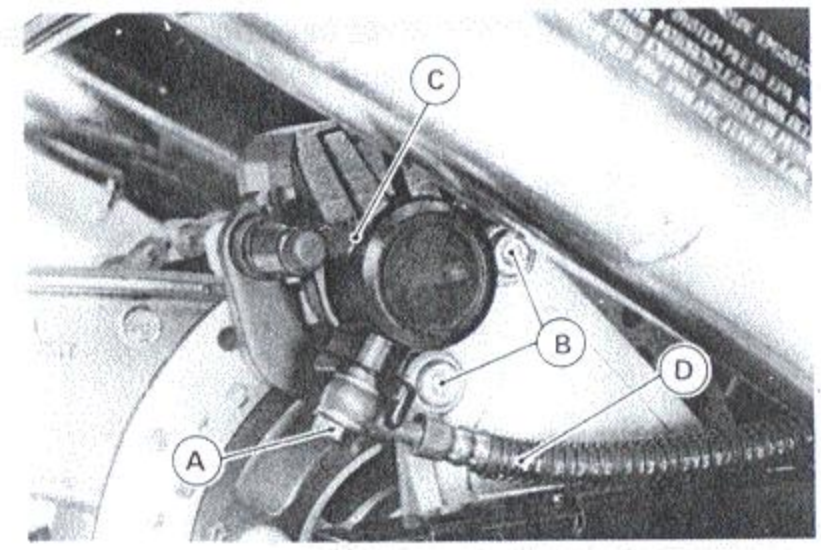


CAUTION

Immediately wash away any brake fluid that spills.

NOTE

○ *If the caliper is to be disassembled after removal and if compressed air is not available, disassemble the caliper before the brake hose is removed (see Caliper Disassembly).*



Caliper Installation Notes

- Install the caliper, and the brake hose lower end.
  - ○ Replace the washers that are on each side of hose fitting with new ones.
- Tighten the banjo bolt.

Torque – Caliper Mounting Bolts: 25 N-m (2.5 kg-m, 18.0 ft-lb)
Brake Hose Banjo Bolt: 25 N-m (2.5 kg-m, 18.0 ft-lb)

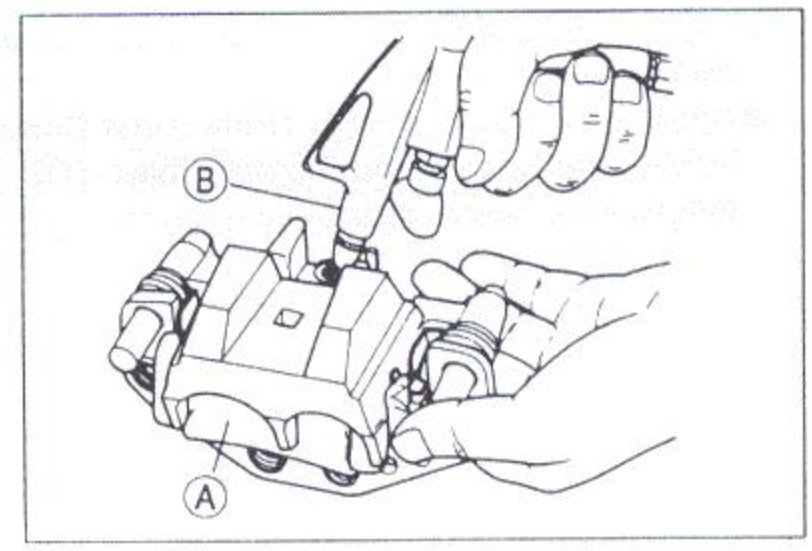
- Bleed the brake line (see Bleeding the Brake Line).
- Check the fluid level in the brake reservoirs.
- Check the brake for good braking power, no brake drag, and no fluid leakage.

⚠WARNING

Do not attempt to drive the motorcycle until a full brake lever or pedal is obtained by pumping the brake lever or pedal until the pads are against the disc. The brakes will not function on the first application of the lever or pedal if this is not done.

Front Caliper Disassembly

- Remove the front caliper.
- Remove the pads and anti-rattle spring (see Front Brake Pad Removal).
- Remove the piston insulators.
- Using compressed air, remove the pistons.
  - ○ Cover the caliper opening with a clean, heavy cloth [A].
  - ○ Remove the pistons by lightly applying compressed air [B] to where the brake line fits into the caliper.



⚠WARNING

To avoid serious injury, never place your fingers or palm inside the caliper opening. If you apply compressed air into the caliper, the pistons may crush your hand or fingers.

- Remove the dust seals and fluid seals.
- Remove the bleed valves and rubber caps.

NOTE

○If compressed air is not available, do as follows with the brake hose connected to the caliper.
○Prepare a container for brake fluid, and perform the work above it.
○Remove the pads and spring (see Front Brake Pad Removal).
○Pump the brake lever to remove the caliper pistons.

Front Caliper Assembly

- Clean the caliper parts except for the pads.

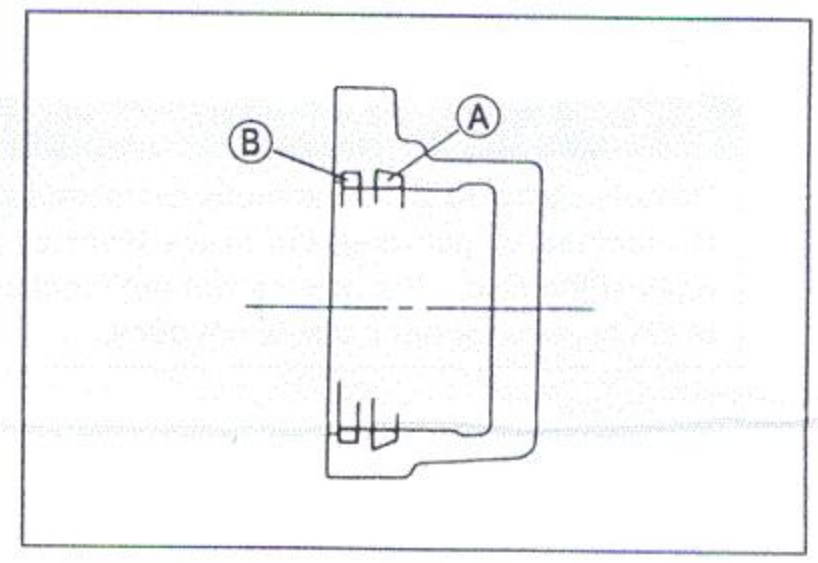
CAUTION

For cleaning the parts, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol.

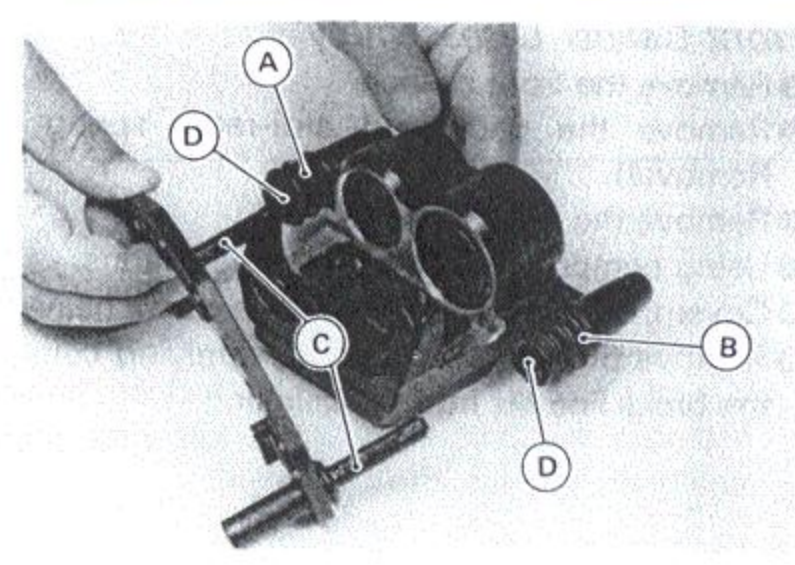
- Install the bleed valves and rubber caps.

Torque – Bleed Valves: 7.8 N-m (0.80 kg-m, 69 in-lb)

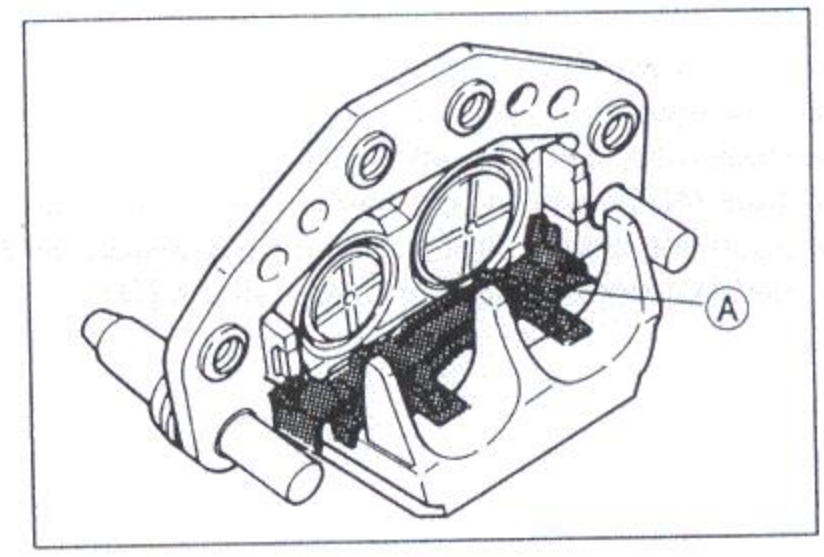
- Replace the fluid seals [A] with new ones.
○Apply brake fluid to the fluid seals, and install them into the cylinders by hand.
- Replace the dust seals [B] with new ones if they are damaged.
○Apply brake fluid to the dust seals, and install them into the cylinders by hand.



- Apply brake fluid to the outside of the pistons, and push them into each cylinder by hand.
- Replace the shaft rubber friction boot [A] and dust cover [B] if they are damaged.
- Apply a thin coat of PBC (Poly Butyl Cuprysil) grease to the caliper holder shafts [C] and holder holes [D] (PBC is a special high temperature, water-resistance grease).



- Install the anti-rattle spring [A] in the caliper as shown.
- Install the piston insulators.
- Install the pads (see Rear Brake Pad Installation Notes).
- Wipe up any spilled brake fluid on the caliper with wet cloth.



Rear Caliper Disassembly

- Rear caliper disassembly is the same as the Caliper Disassembly Notes in the Base Manual.

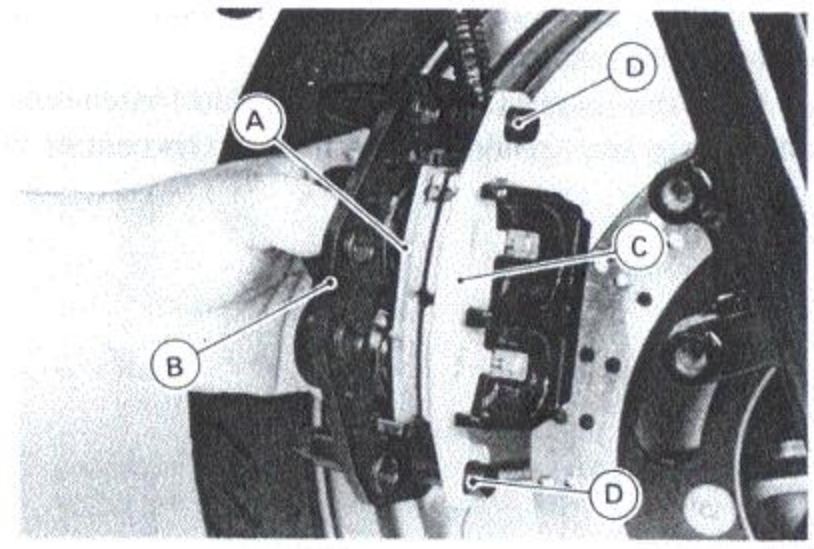
Rear Caliper Assembly

- Rear caliper assembly is the same as the Caliper Assembly Notes in the Base Manual.

Brake Pads

Front Brake Pad Removal

- Unscrew the caliper mounting bolts.
- Detach the caliper from the disc.
- Take off the piston side pad [A] out of the caliper holder [B].
- Push the caliper holder toward the piston, and then remove another pad [C] from the caliper holder shafts [D].



Front Brake Pad Installation Notes

- Push the caliper pistons in by hand as far as they will go.
- Install the anti-rattle spring in place.
- Install the piston side pad first, and the another pad.
- Install the caliper (see Caliper Installation Notes).

⚠WARNING

Do not attempt to drive the motorcycle until a full brake lever is obtained by pumping the brake lever until the pads are against the disc. The brake will not function on the first application of the lever if this is not done.

Rear Brake Pad Removal/Installation

- Rear brake pad removal/installation is the same as the Pad Removal/ Installation Notes in the Base Manual.

Lining Wear Inspection

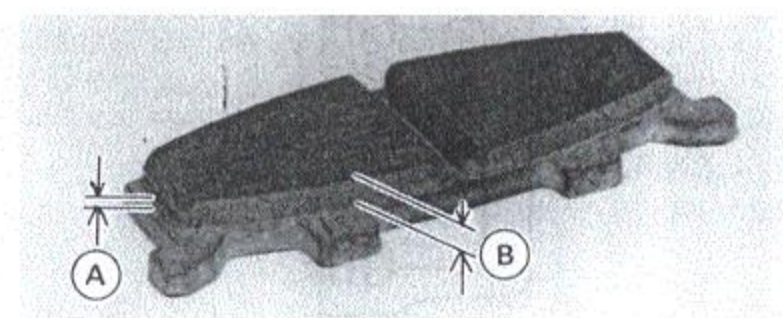
- Check the lining thickness and condition of the pads in each caliper.

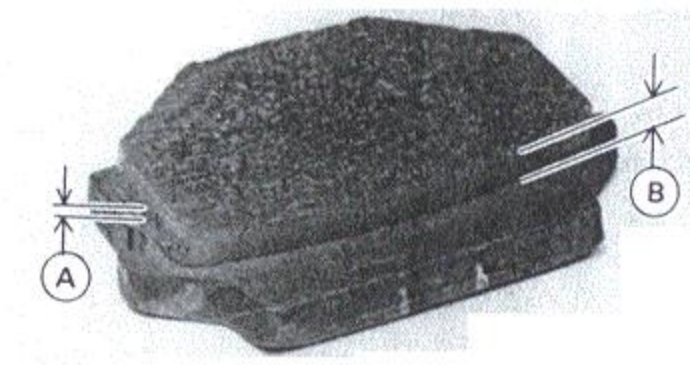
★If either pad is damaged, replace both pads in the caliper as a set.

★If the lining thickness of either pad is less than the service limit [A], replace both pads in the caliper as a set.

Lining thickness

Standard:	**Front [B]**	**4.35mm (EX500-D, F – Single)**
		4.3 mm (EX500E – Dual)
	Rear [C]	**4.5 mm**
Service Limit:		**1 mm**



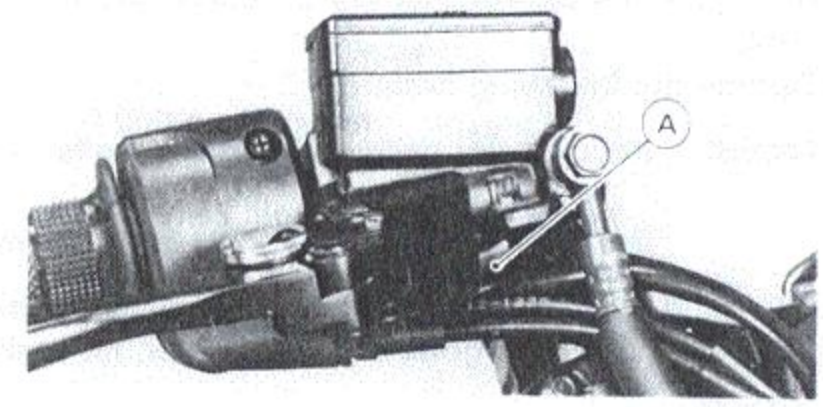


Master Cylinder

CAUTION
Brake fluid quickly ruins painted or plastic surfaces; any spilled fluid should be completely wiped up immediately with wet cloth.

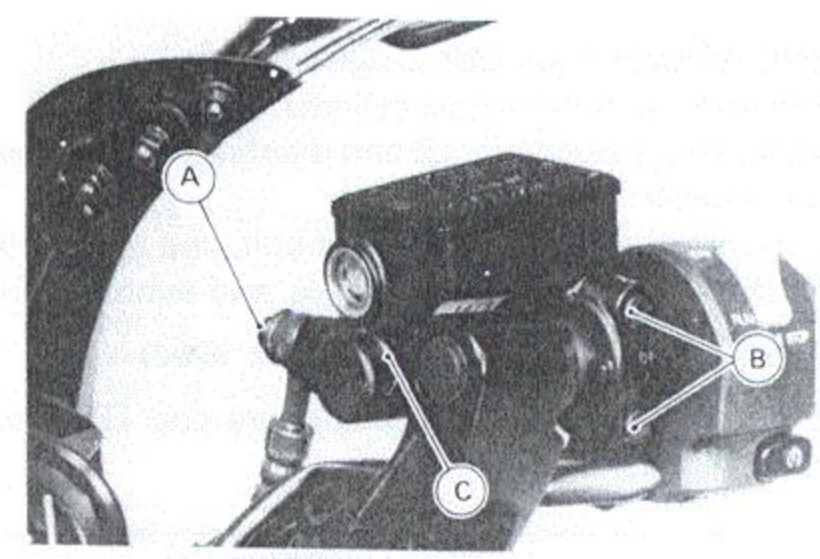
Front Master Cylinder Removal

● Disconnect the front brake light switch connector [A].



● Remove the banjo bolt [A] to disconnect the brake hose from the master cylinder (see Brake Hose Removal/Installation Notes).

● Unscrew the clamp bolts [B], and take off the master cylinder [C] as an assembly with the reservoir, brake lever, and brake switch installed.

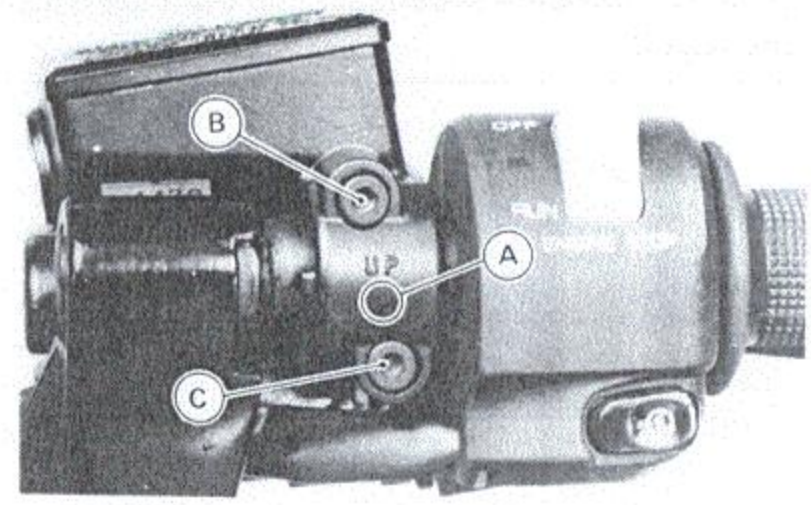


Front Master Cylinder Installation Notes

● The master cylinder clamp must be installed with the arrow mark [A] upward.

● Tighten the upper clamp bolt [B] first, and then the lower clamp bolt [C]. There will be a gap at the lower part of the clamp after tightening.

Torque – Front Master Cylinder Clamp Bolts: 8.8 N-m (0.90 kg-m, 78 in-lb)



● Replace the washers that are on each side of the hose fitting with new ones.

● Tighten the brake hose banjo bolt.

Torque – Brake Hose Banjo Bolt: 25 N-m (2.5 kg-m, 18.0 ft-lb)

● Bleed the brake line (see Bleeding the Brake Line).

● Check the brake for good braking power, no brake drag, and no fluid leakage.

Rear Master Cylinder Removal

● Pull off the reservoir hose lower end [A], and drain the brake fluid into a container.

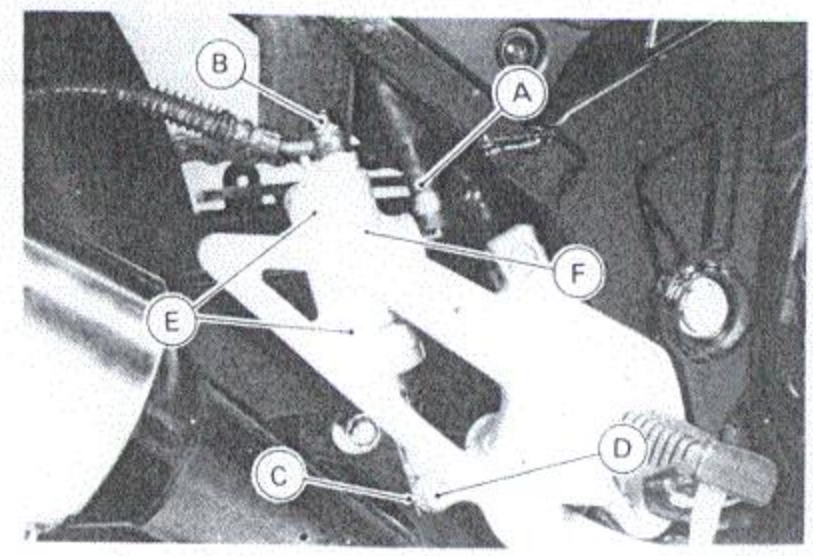
● Unscrew the brake hose banjo bolt [B] on the master cylinder (see Brake Hose Removal/Installation Notes).

● Remove the cotter pin [C] and joint pin [D].

NOTE

○ *Pull off the joint pin while pressing down the brake pedal.*

● Unscrew the master cylinder mounting bolts [E], and take off the master cylinder [F].



Rear Master Cylinder Installation Notes

- Replace the cotter pin with a new one.
- Replace the washers that are on each side of hose fitting with new ones.
- Tighten the following bolts.

Torque – Rear Master cylinder Mounting Bolts: 23 N-m (2.3 kg-m, 16.5 ft-lb)
Brake Hose Banjo Bolt: 25 N-m (2.5 kg-m, 18.0 ft-lb)

- Bleed the brake line (see Bleeding the Brake Line).
- Check the brake for good braking power, no brake drag, and no fluid leakage.

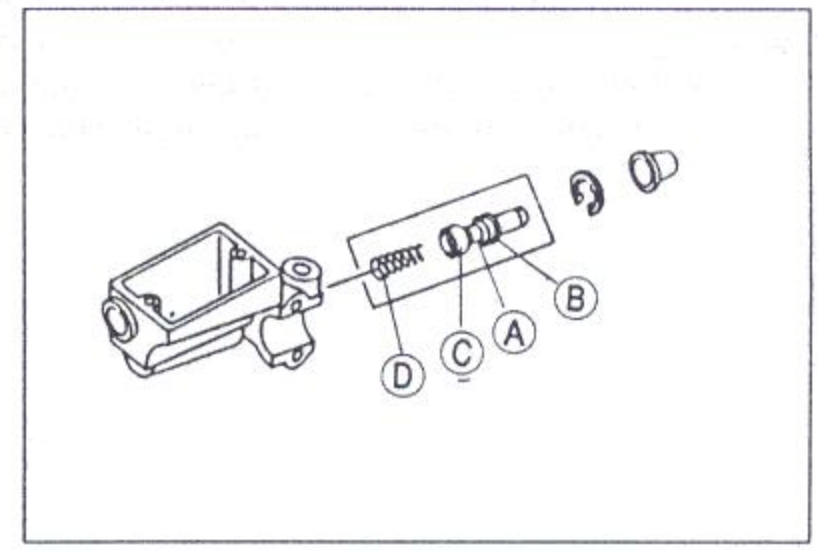
Front Master Cylinder Disassembly

- Remove the front master cylinder.
- Remove the reservoir cap and diaphragm, and pour the brake fluid into a container.
- Unscrew the locknut and pivot bolt, and remove the brake lever.
- Push the dust cover out of place, and remove the circlip.

Special Tool – Inside Circlip Pliers: 57001-143

- Pull out the piston [A], secondary cup [B], primary cup [C], and return spring [D].

CAUTION
Do not remove the secondary cup from the piston since removal will damage it.



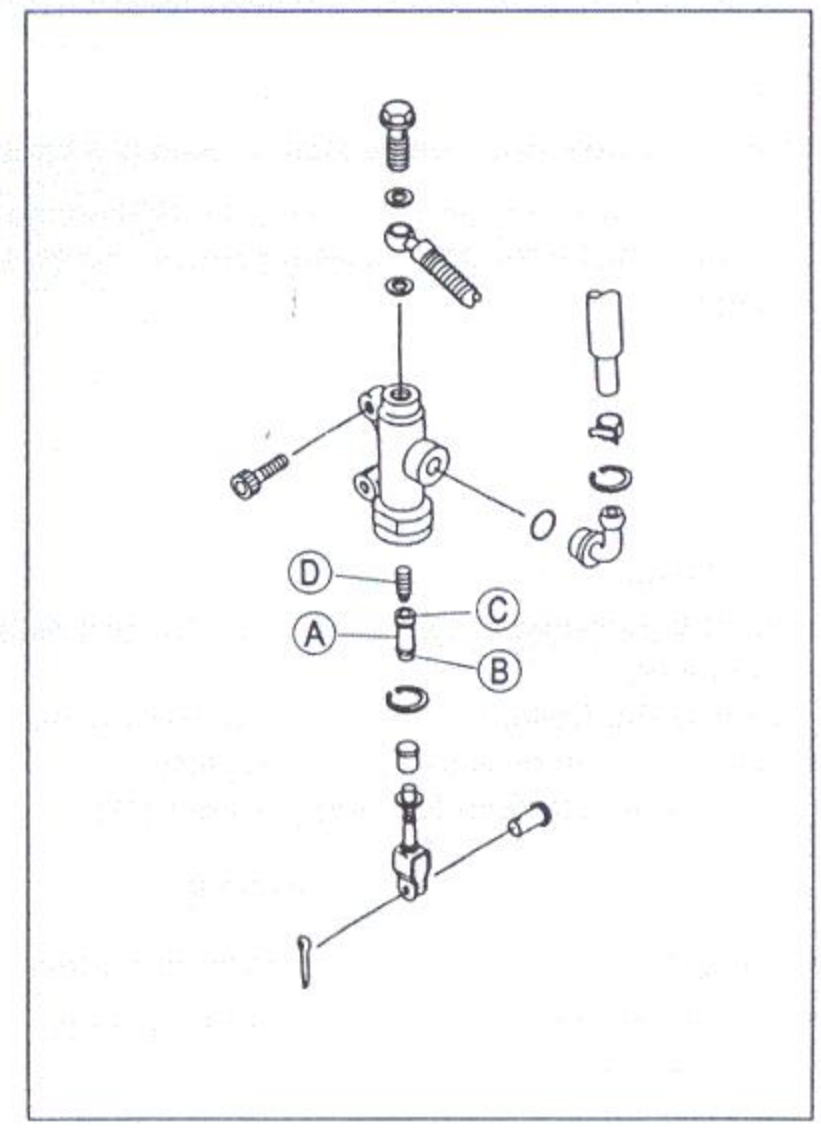
Rear Master Cylinder Disassembly

- Remove the rear master cylinder.
- Slide the dust cover on the push rod out of place, and remove the circlip.

Special Tool – Inside Circlip Pliers: 57001-143

- Pull out the push rod with the piston stop.
- Take off the piston [A], secondary cup [B], primary cup [C], and return spring [D].

CAUTION
Do not remove the secondary cup from the piston since removal will damage it.



Brake Hose

Brake Hose Removal/Installation Notes

CAUTION
Brake fluid quickly ruins painted or plastic surfaces; any spilled fluid should be completely wiped up immediately with wet cloth.

- When removing the brake hose, take care not to spill the brake fluid on the painted or plastic parts.
- When removing the brake hose, temporarily secure the end of the brake hose to some high place to keep fluid loss to a minimum.
- There are washers on each side of the brake hose fitting. Replace them with new ones when installing.
- When installing the hoses, avoid sharp bending, kinking, flattening or twisting, and route the hoses according to the Hose Routing section in the General Information chapter.
- Tighten the banjo bolts at the hose fittings.

Torque – Brake Hose Banjo Bolts: 25 N-m (2.5 kg-m, 18.0 ft-lb)

- Bleed the brake line after installing the brake hose (see Bleeding the Brake Line).

Brake Hose Inspection

- The high pressure inside the brake line can cause fluid to leak or the hose to burst if the line is not properly maintained. Bend and twist the rubber hose while examining it.

★Replace it if any cracks or bulges are noticed.

Suspension

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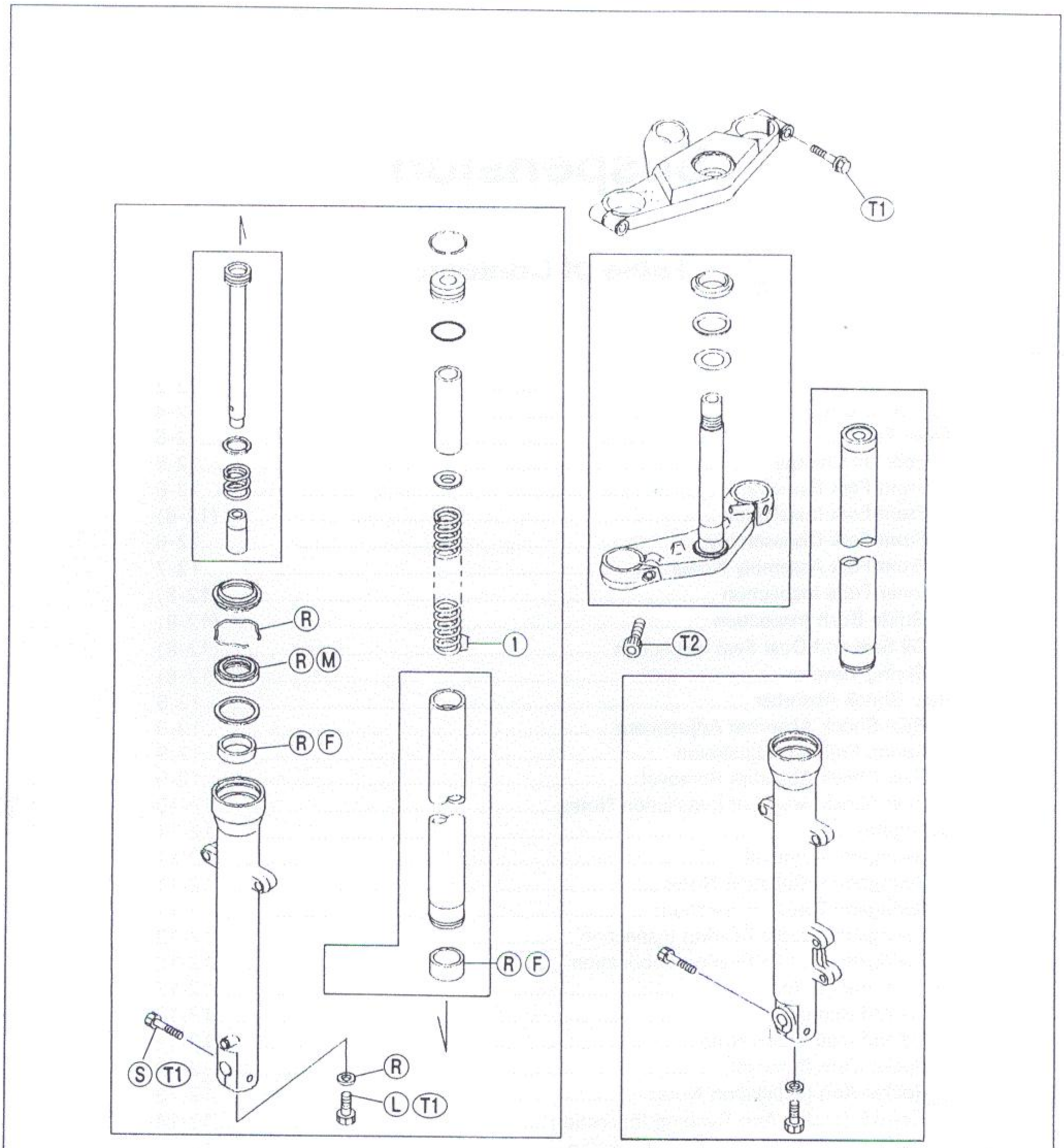
( ) : Refer to Base Manual

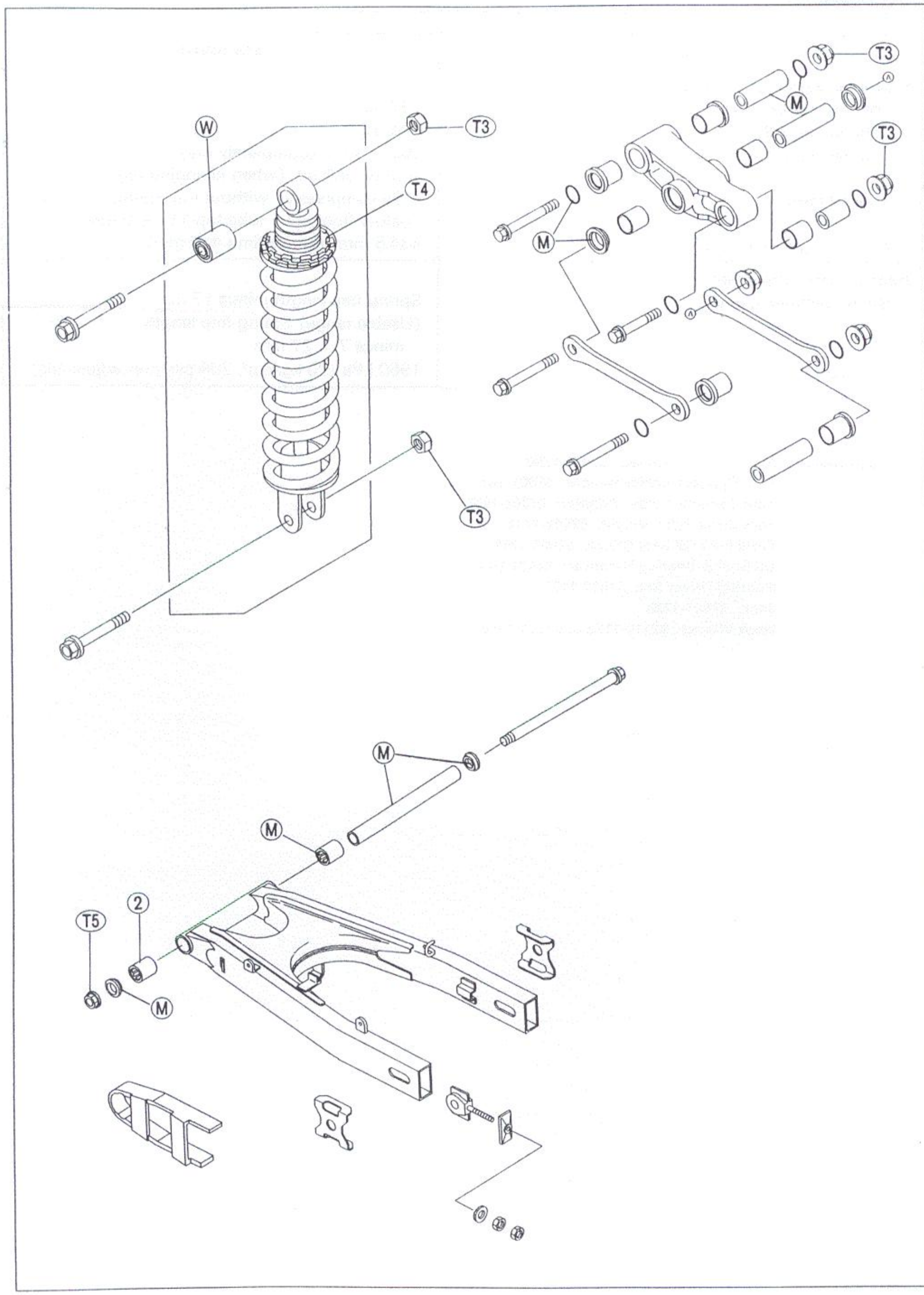
1

Exploded View



1. Fork Spring: Face the smaller end down.
2. Needle Bearing: Face the manufacturer's marks out.

F: Apply fork oil.
L: Apply a non-permanent locking agent.
M: Apply molybdenum disulfide grease.
R: Replacement Parts
S: Follow the specific tightening order.
W: Apply soap and water solution.
T1: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T2: 34 N-m (3.5 kg-m, 25 ft-lb)
T3: 59 N-m (6.0 kg-m, 43 ft-lb)
T4: 49 N-m (5.0 kg-m, 36 ft-lb)
T5: 88 N-m (9.0 kg-m, 65 ft-lb)


W
T3
T4
T3
M
T3
M
T3
M
M
2
T5
M

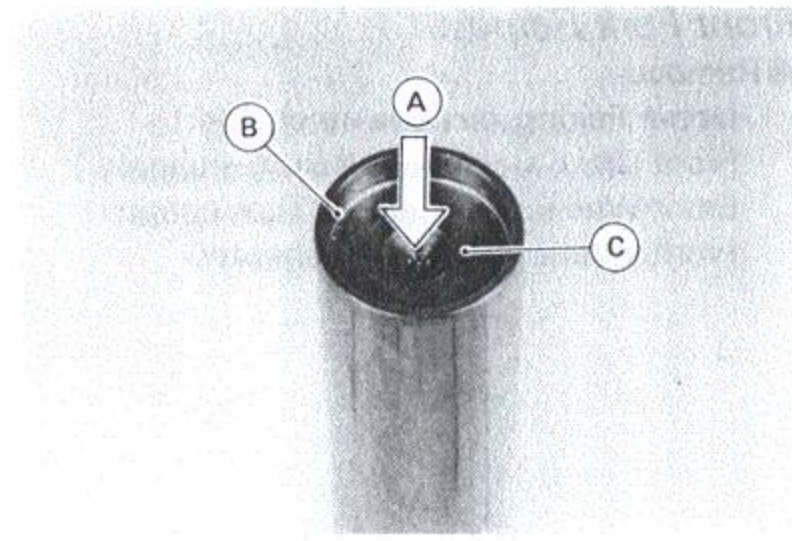
Specifications

Item	Standard
Front Fork(per one unit):	
Fork inner tube diameter	Φ37 mm
Fork oil viscosity	SAE 10W-20
Fork oil capacity	352 ± 4 mL (completely dry) approx. 300 mL (when changing oil)
Fork oil level	Fully compressed, without fork spring, below from inner tube top 117 ± 2 mm
Fork spring free length	434.5 mm (service limit 425 mm)
Rear Shock Absorber:	
Spring preload setting	Spring free length minus 17 mm (Usable range) Spring free length minus 7 ~ 27 mm
Gas pressure	1960 kPa (20 kg/cm², 284 psi, non-adjustable)

Special Tools – **Fork Oil Level Gauge: 57001-1290**
Fork Cylinder Holder Handle: 57001-183
Fork Cylinder Holder Adapter: 57001-1057
Fork Outer Tube Weight: 57001-1218
Front Fork Oil Seal Driver: 57001-1219
Oil Seal & Bearing Remover: 57001-1058
Bearing Driver Set: 57001-1129
Jack: 57001-1238
Hook Wrench: 92110-1173 or 92110-1019

Front Fork

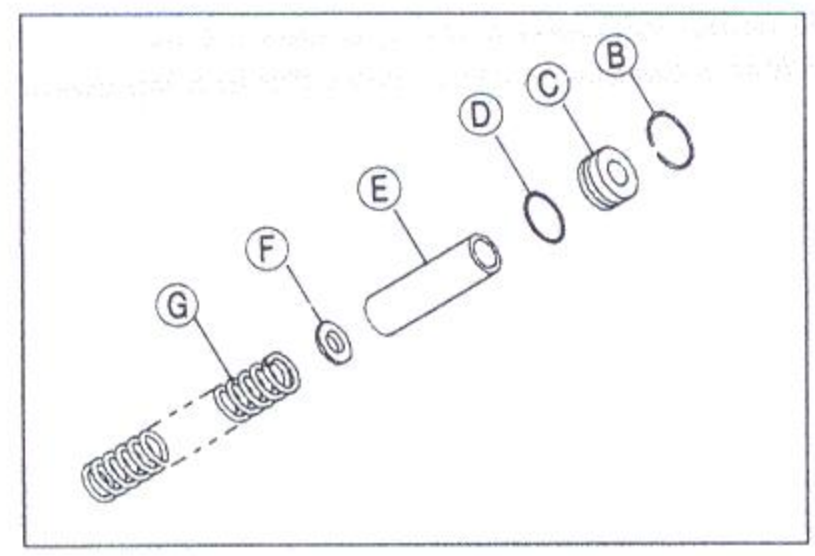
Fork Oil Change



- Remove the front fork (see Front Fork Removal).
- Press the top plug down [A], and remove the top plug retaining ring [B], and then remove the top plug [C] with the O-ring [D].
- Remove:
  Spacer [E]
  Spring Seat [F]
  Spring [G]
- Drain the fork oil into a suitable container.

NOTE

○*Turn the fork upside down, and force out the oil by pumping.*



- Pour in the specified type and amount of fork oil.

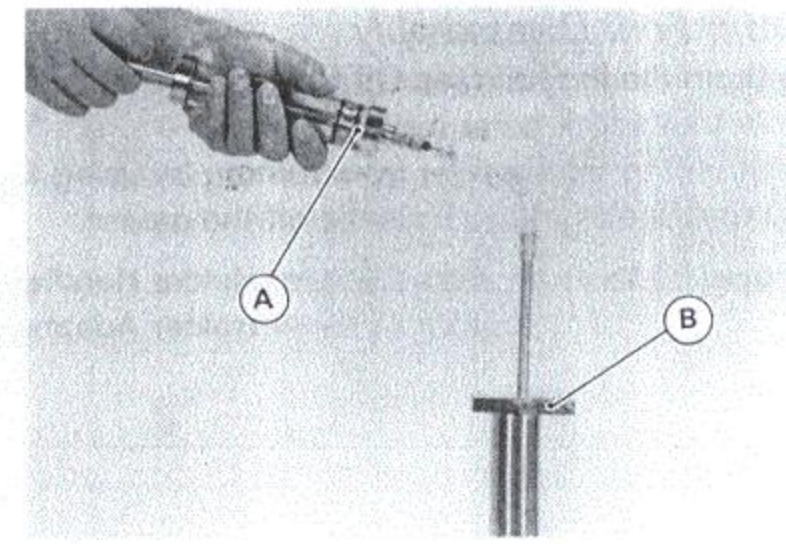
Fork Oil
Viscosity: SAE 10W-20
Amount (per side):
When changing oil: approx. 300 mL
After disassembly and completely dry: 352 ± 4 mL

- Adjust the oil level.

Special Tool – Fork Oil Level Gauge: 57001-1290 [A]

○Set the gauge stopper [B] so that its lower side shows the oil level distance specified.

Oil Level (fully compressed, without spring)
Standard: 117 ± 2 mm (from the top of the inner tube)



○With the fork fully compressed, insert the gauge tube into the inner tube and position the stopper across the inner tube top end.

NOTE

○*Adjust the oil level with the fork fully compressed and without the fork spring.*

○Pull the handle slowly to pump out the excess oil until the oil no longer comes out.
★If no oil is pumped out, there is insufficient oil in the inner tube. Pour in enough oil, then pump out the excess oil as shown above.

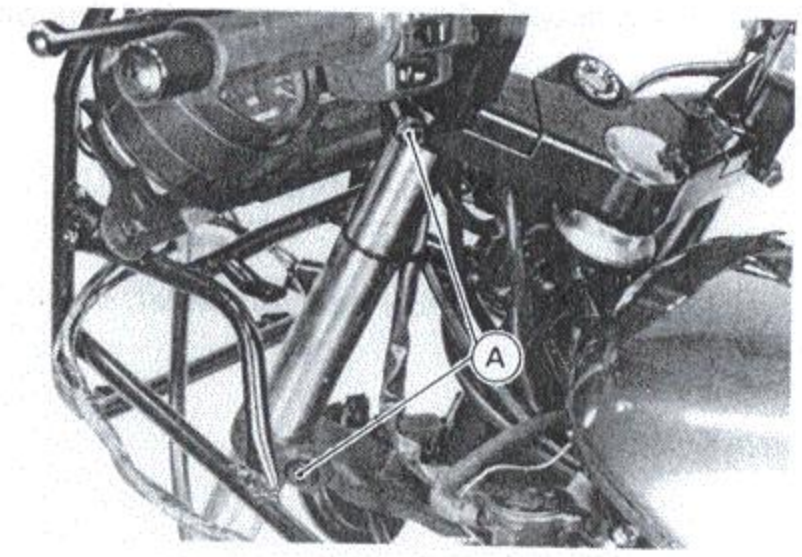
- Insert the spring with the small diameter end facing down.
- Install the spring seat and spacer.
- Check the O-ring at the top plug, and replace it with a new one if damaged.
- Push down the top plug, and install the retaining ring.
- Change the oil of the other fork leg in the same manner.
- Install the fork (see Installation Notes).

Torque – Front Fork Clamp Bolts (Upper): 20 N-m (2.0 kg-m, 14.5 ft-lb)
Front Fork Clamp Bolts (Lower): 34 N-m (3.5 kg-m, 25 ft-lb)

Front Fork Removal

● Remove:
Upper Fairing (see Frame chapter)
Front Brake Caliper (see Brakes chapter)
Front Wheel (see Wheels/Tires chapter)
Front Fender (see Frame chapter)

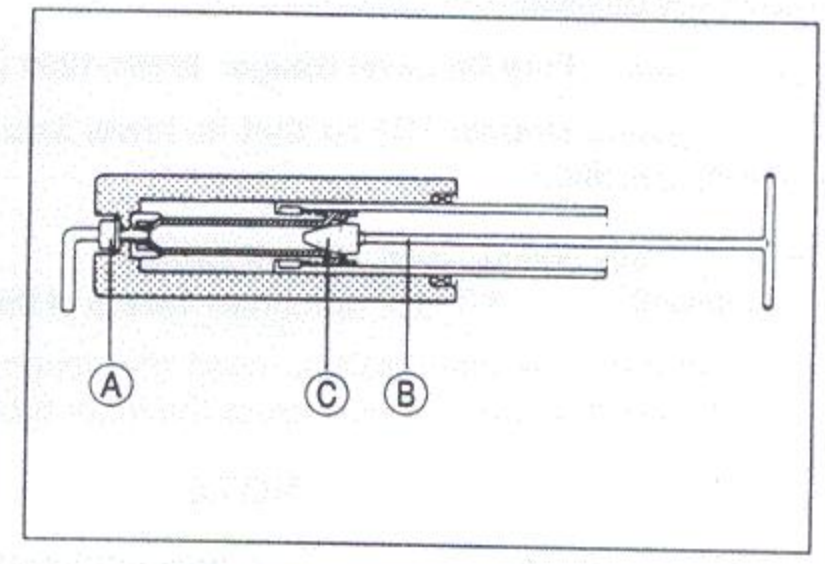
● Loosen the lower and upper clamp bolts [A].
● With a twisting motion, work the fork leg down and out.



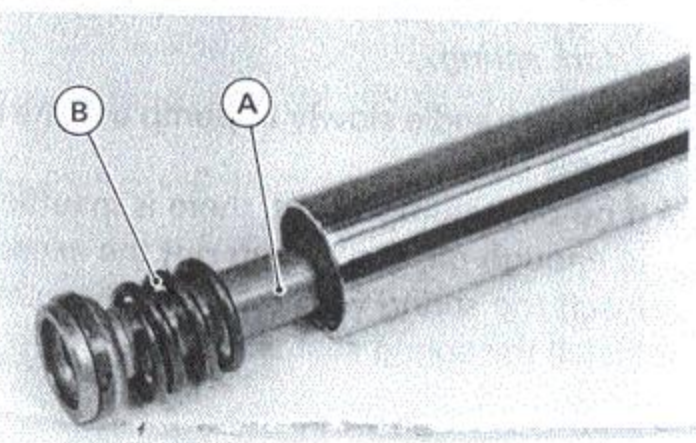
Front Fork Disassembly

● Drain the fork oil (see Oil Change).
● Hold the fork outer tube in a vice.
● Stopping the cylinder from turning by using the special tools, unscrew the Allen bolt [A], and take off the gasket.

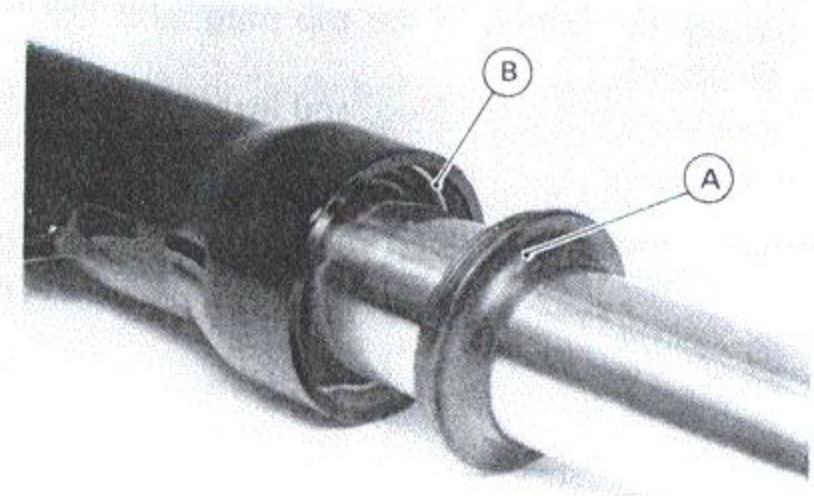
Special Tools – Fork Cylinder Holder Handle: 57001-183 [B]
Fork Cylinder Holder Adapter: 57001-1057 [C]



● Remove the cylinder unit [A] and the short spring [B] from the top of the front fork tube.



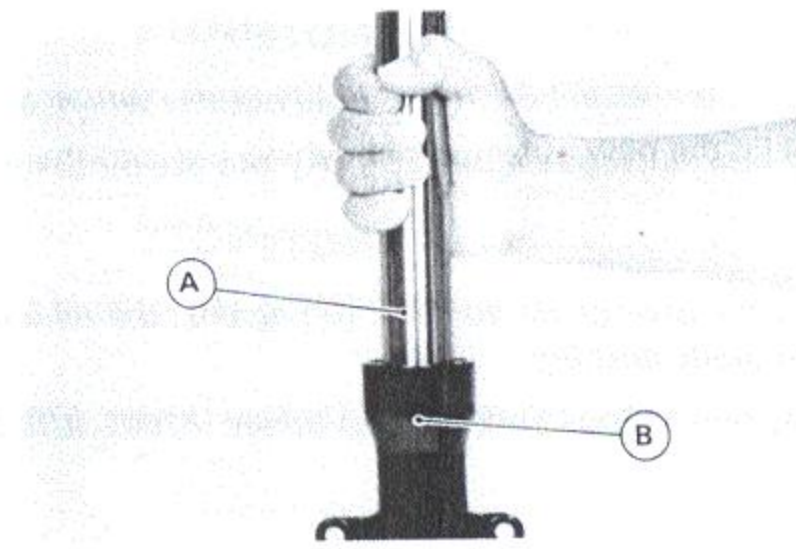
● Remove the following from the top of the outer tube:
Dust Seal [A]
Retaining Ring [B]



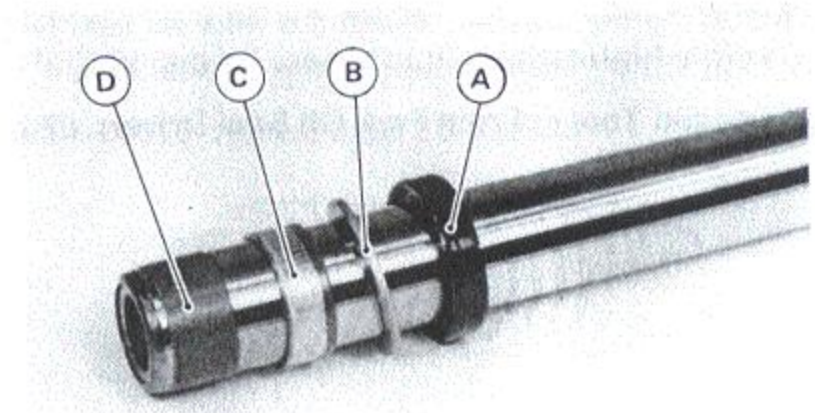
● Separate the inner tube [A] with the oil seal, washer and guide bushes from the outer tube [B].

NOTE

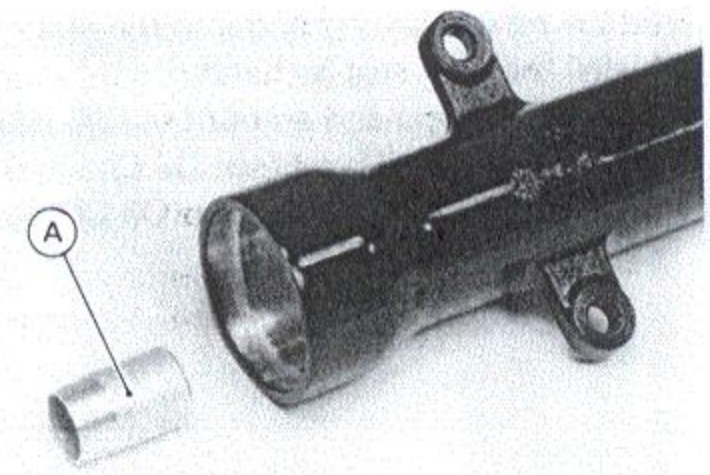
○ *Holding the inner tube by hand in a vertical position, stroke the outer tube up and down several times and pull it down.*



○ Remove the following from top of the inner tube:
Oil seal [A]
Washer [B]
Guide Bushing (outer) [C]
Guide Bushing (inner) [D]



● Remove the cylinder base [A] from the bottom of the outer tube.



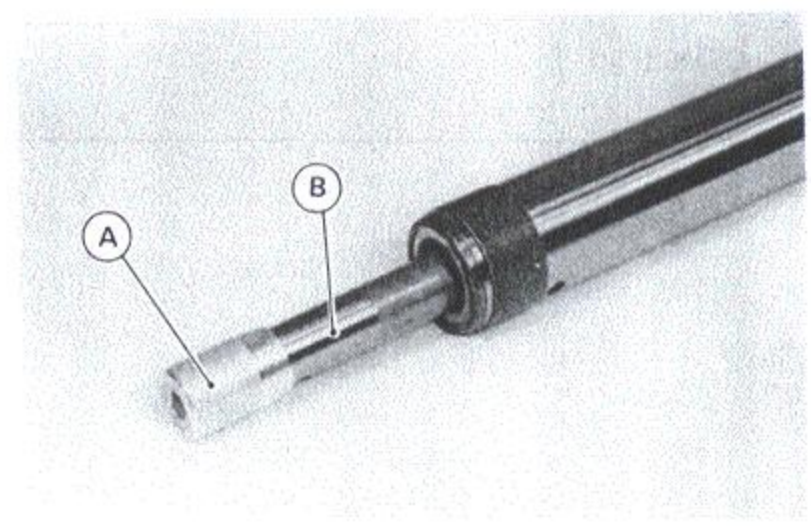
Front Fork Assembly Notes

● Check the O-ring at the top plug. Replace it with a new one if damaged.
● Replace the following with new ones:
Retaining Ring
Oil Seal
Guide Bushings (inner, outer)
Fork Bottom Allen Bolt Gasket
● Fit the inner tube guide bushing on the inner tube.
● Insert the cylinder unit and short spring into the inner tube.

● Install the cylinder base [A] on to the end of the cylinder unit [B].
● Insert the inner tube, cylinder unit, cylinder base as a set into the outer tube.
● Fasten the cylinder unit into the outer tube with the Allen bolt.
○ Apply a non-permanent locking agent to the threads of the Allen bolt.

Torque – Front Fork Bottom Allen Bolt: 20 N-m (2.0 kg-m, 14.5 ft-lb)

Special Tool – Fork Cylinder Holder Handle: 57001-183
Fork Cylinder Holder Adapter: 57001-1057



NOTE

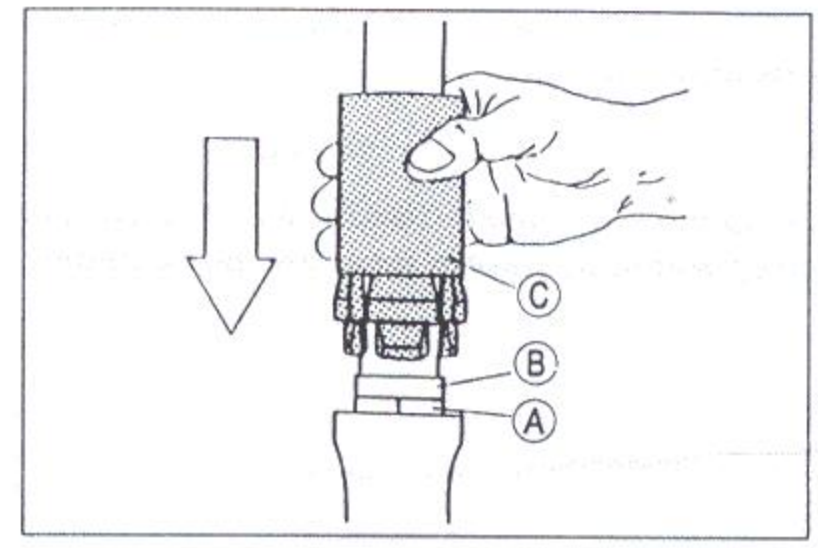
○ *Tighten the Allen bolt in the same manner when loosening.*

● Fit the new outer guide bushing [A] into the outer tube.

NOTE

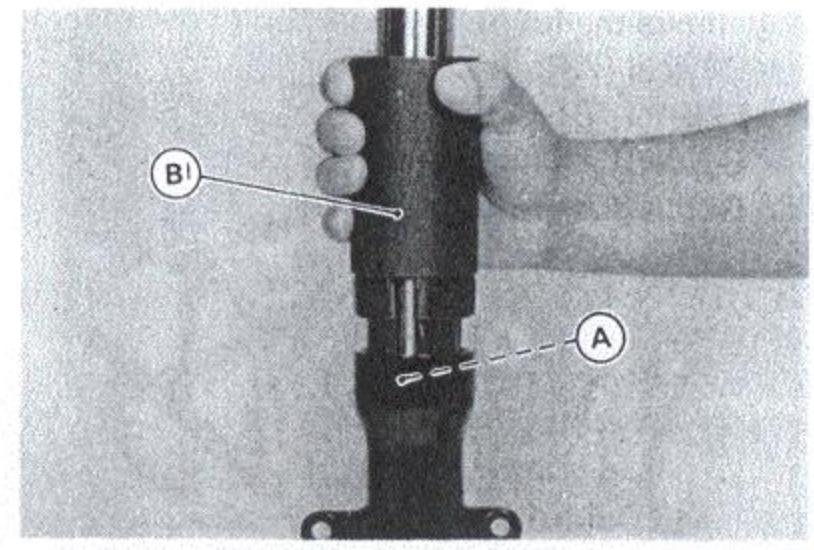
○ *Hold the used guide bushing [B] against the new one, and tap the used guide bushing.*

Special Tool – Front Fork Oil Seal Driver: 57001-1219 [C]



● After installing the washer, install the new oil seal [A].
○ Apply high temperature grease to the oil seal lips.

Special Tool – Front Fork Oil Seal Driver: 57001-1219 [B]



● Fit the new retaining ring into the outer tube.
● Install the dust seal by hand.
● Pour in the type and amount of fork oil specified (see Specifications), and adjust the oil level (see Oil Change).
● Install the parts removed (see Oil Change).

Rear Shock Absorber

Rear Shock Absorber Adjustment

The rear shock absorber can be adjusted by changing the spring preload to suit various riding and loading conditions.

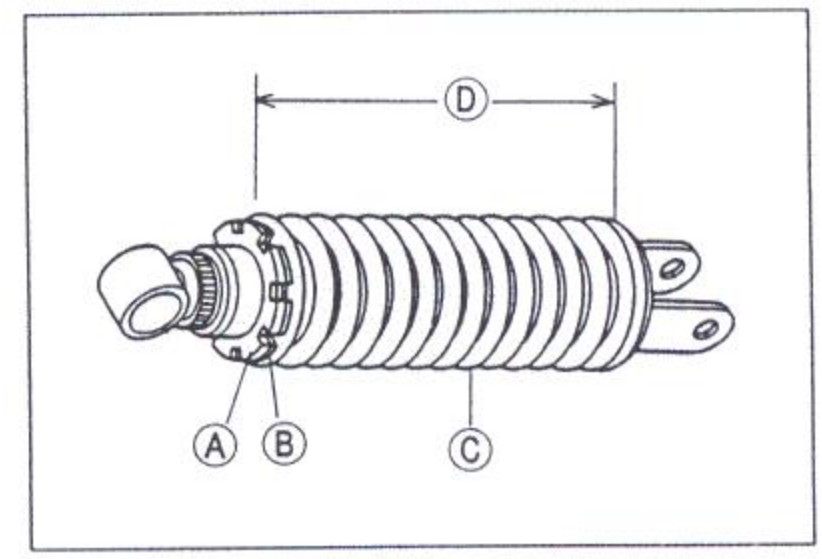
Spring Preload Adjustment

- Remove the shock absorber (see Rear Shock Absorber Removal).
- Using the wrenches, loosen the locknut [A] and turn out the adjusting nut [B] until the spring [C] is fully extended.

Special Tool – Hook Wrench: 92110-1173 or 92110-1019

- Measure the free length of the shock absorber spring.
- Turn in the adjusting nut as required.

○The standard spring position is compressed 17 mm than free length.
[D] Spring Length



Spring Preload Setting

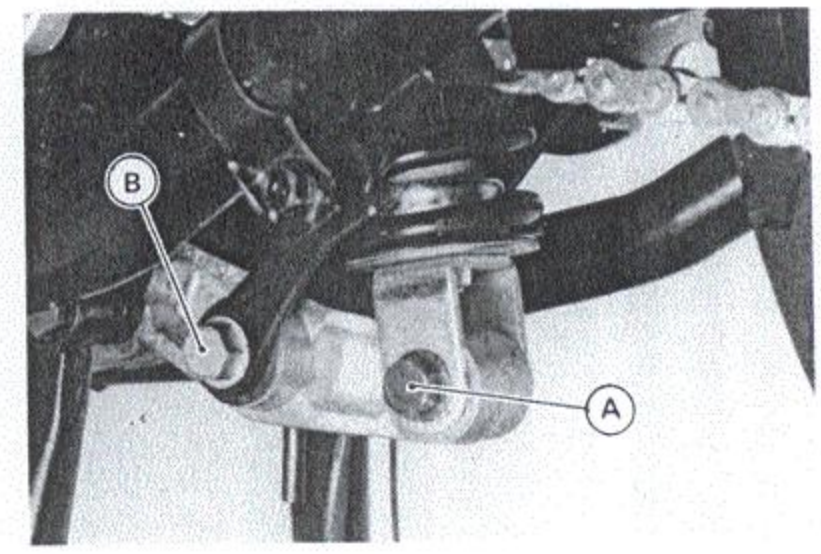
Standard:	**Spring Free Length minus 17 mm**
Usable Range:	**Spring Free Length minus 7 to 27 mm (weaker to stronger)**

Spring Adjustment

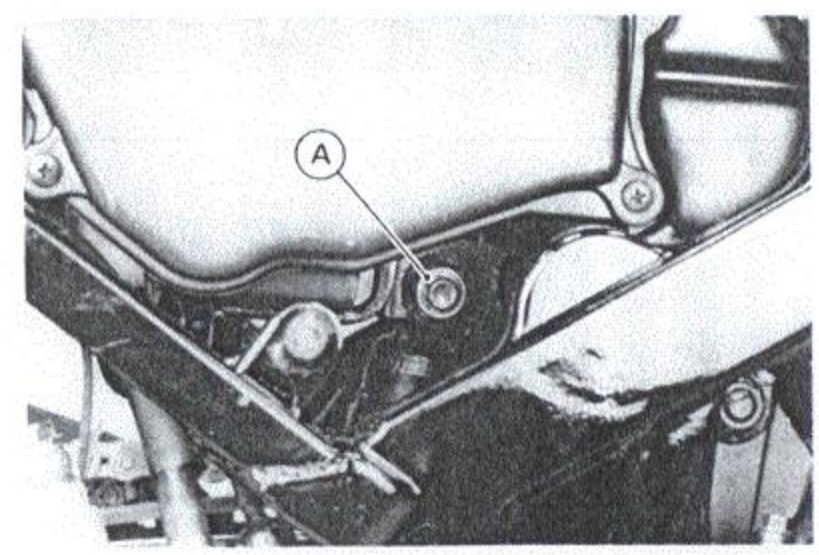
Adjuster Position	Spring Force	Setting	Load	Road	Speed
7 mm ↑ ↓ 27mm	Weak ↑ ↓ Strong	Soft ↑ ↓ Hard	Light ↑ ↓ Heavy	Good ↑ ↓ Bad	Low ↑ ↓ High

Rear Shock Absorber Removal

- Set the motorcycle up on its center stand.
- Remove the seat, and side covers (see Frame chapter).
- Remove the lower shock absorber bolt [A], and the tie-rod lower bolt [B].



- Remove the upper shock absorber nut [A] and bolt, then take off the rear shock absorber unit toward the ground.



Rear Shock Absorber Installation Notes

- Installation is the reverse of removal.
- Tighten the upper and lower shock absorber nuts and the tie rod nut.

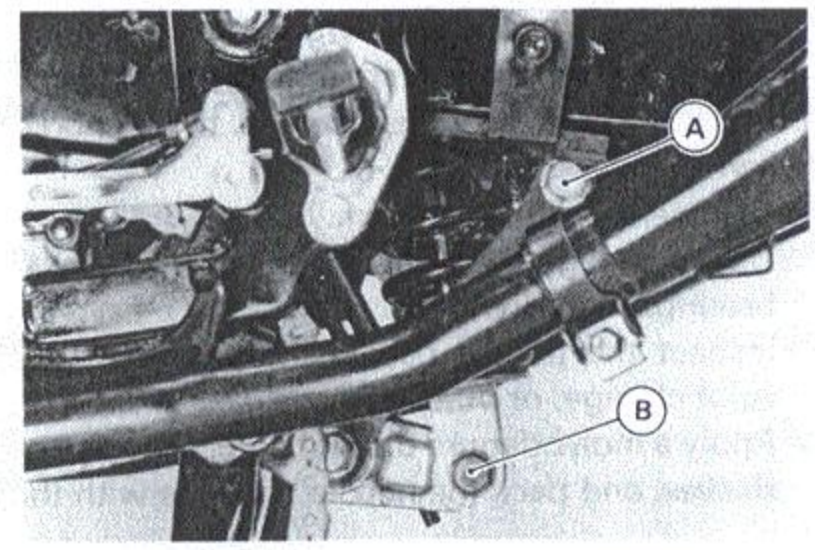
Torque – Rear Shock Absorber Nuts: 59 N-m (6.0 kg-m, 43 ft-lb)
Tie-rod Nut: 59 N-m (6.0 kg-m, 43 ft-lb)

Swingarm

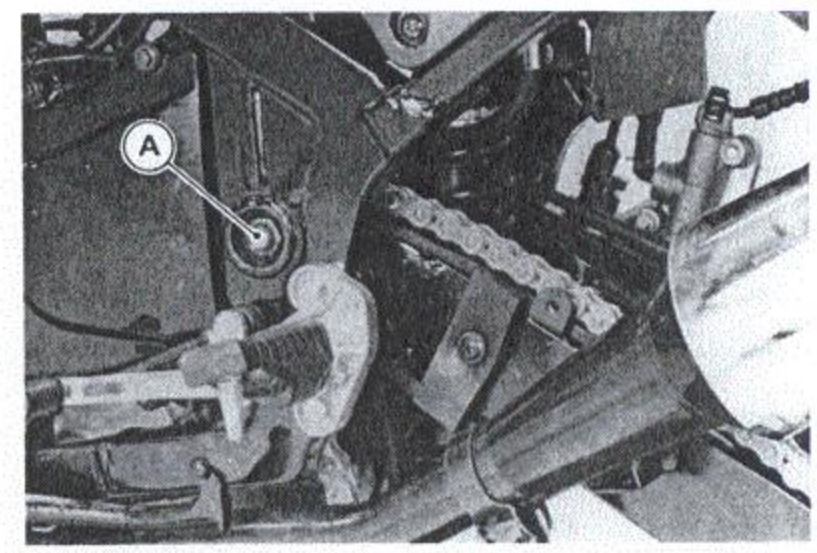
Swingarm Removal

● Remove:
Seat and Side Covers (see Frame chapter)
Rear Wheel (see Wheels/Tires chapter)
Chain Cover
● Remove the rear brake hose from the clamp.

● Remove:
Upper Tie-rod Bolt [A]
Lower Rear Shock Absorber Bolt [B]



● Remove the swingarm pivot shaft [A] while supporting the swingarm.
● Remove the swingarm toward the rear.



Swingarm Installation Notes

● Apply molybdenum disulfide grease to the inside of the needle bearings.
● Tighten the following nuts.

Torque – Swingarm Pivot Nut : 88 N-m (9.0 kg-m, 65 ft-lb)
Rear Shock Absorber Nut : 59 N-m (6.0 kg-m, 43 ft-lb)
Tie-rod Nut : 59 N-m (6.0 kg-m, 43 ft-lb)

● Install the parts removed (see appropriate chapter).

Swingarm Sleeve Inspection

★ If there is visible damage, replace the sleeve and needle bearing as a set.

Swingarm Needle Bearing Inspection

- The rollers in the needle bearings wear so little that the wear is difficult to measure. Instead, inspect the needle bearings for abrasion, color change, or other damage.

★If there is any doubt as to the condition of either needle bearing, replace the bearing and sleeve as a set.

Swingarm Needle Bearing Lubrication

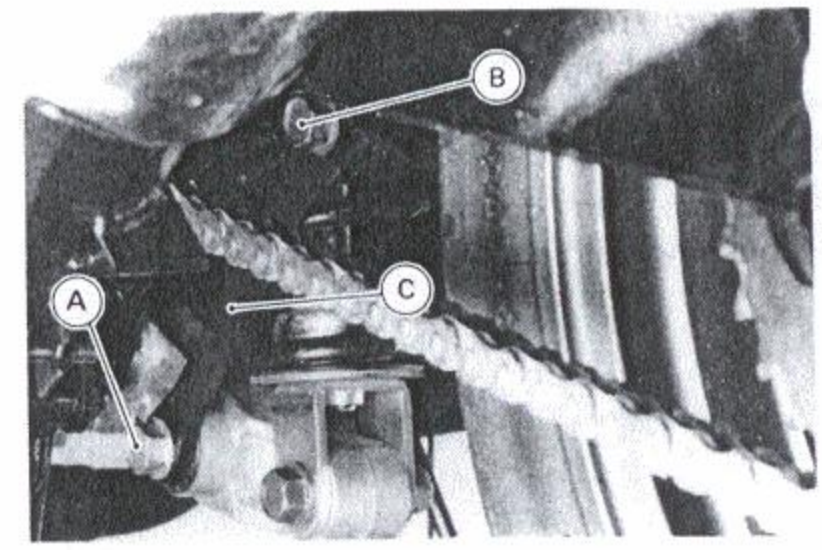
In order for the swingarm to function safely and wear slowly, it should be lubricated in accordance with the Periodic Maintenance Chart or whenever disassembled.

- Disassemble the swingarm.
- Using a high flash-point solvent, wash the sleeves and needle bearings, and dry them.
- Inspect the needle bearings, sleeves and grease seals for abrasion, color change, or other damage.
- Apply a molybdenum disulfide grease to the outer circumference of the sleeves, and pack the needle bearings with the same grease.

Tie-rod, Rocker Arm

Tie-rod Removal

● Remove:
Tie-rod Lower Bolt [A]
Tie-rod Upper Bolt [B]
Tie-rod [C]
● Remove the other tie-rod.



Tie-rod Installation Note

● Tighten the tie-rod upper and lower nuts.

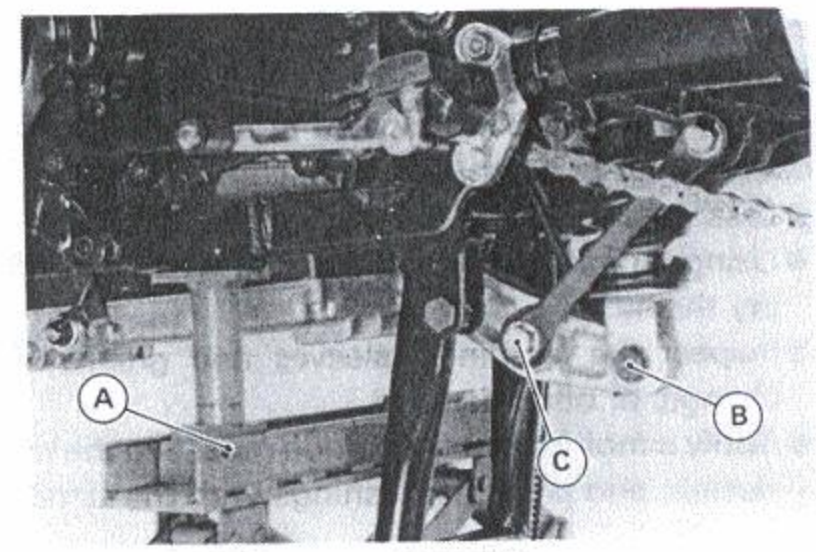
Torque – Tie-rod Nuts : 59 N-m (6.0 kg-m, 43 ft-lb)

Rocker Arm Removal

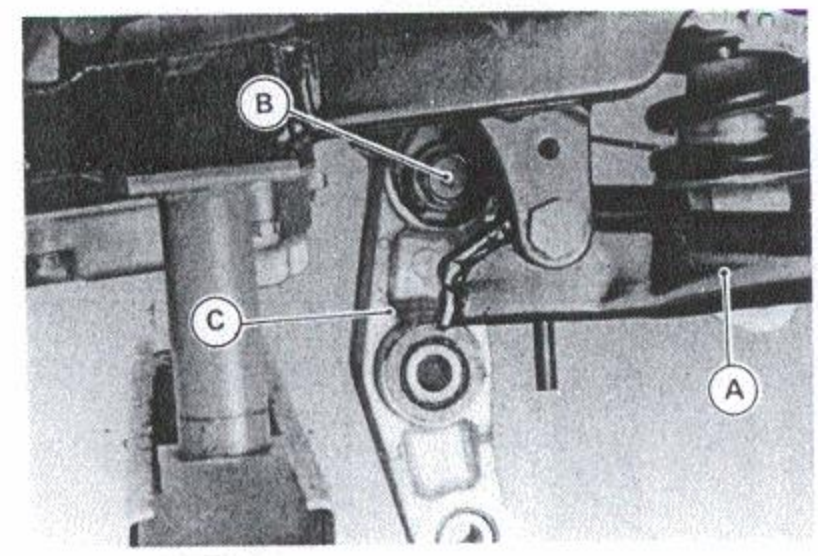
● Remove the exhaust pipes (see Engine Top End chapter).
● Set a jack [A] under the engine.

Special Tool – Jack: 57001-1238

● Remove:
Rear Shock Absorber Lower Bolt [B]
Tie-rod Lower Bolt [C]



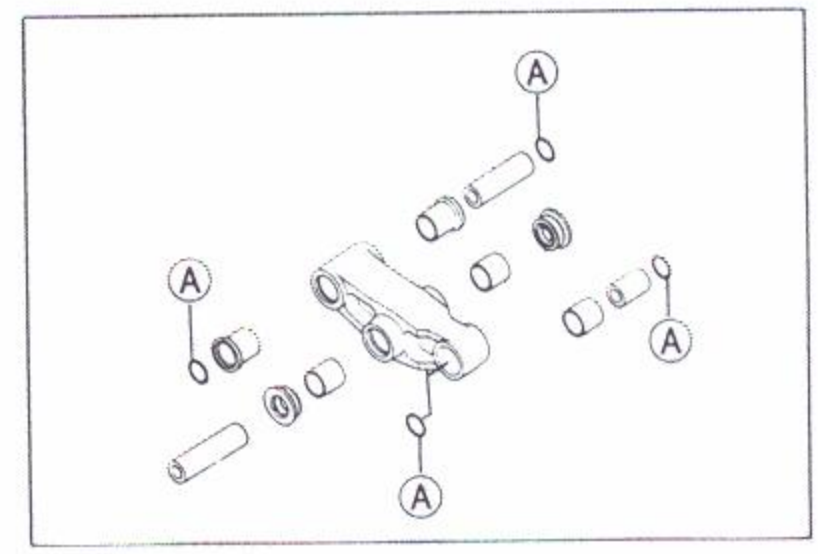
● Retract the center stand [A].
● Remove:
Rocker Arm Bolt [B]
Rocker Arm [C]



Rocker Arm Installation Notes

● Check that the O-rings [A] are in good condition.
★ If they are damaged, replace them with new ones.
● Tighten the following nuts.

Torque – Tie-rod Lower Nut : 59 N-m (6.0 kg-m, 43 ft-lb)
Rear Shock Absorber Nut : 59 N-m (6.0 kg-m, 43 ft-lb)
Rocker Arm Nut : 59 N-m (6.0 kg-m, 43 ft-lb)



Tie-rod, Rocker Arm Bushing Inspection

- The bushings wear so little that the wear is difficult to measure. Instead, inspect the bushings for abrasion, color change, or other damage.

★If there is any doubt as to the condition of either bushing, replace the bushing with a new one.

Tie-rod, Rocker Arm Sleeve Inspection

★If there is visible damage, replace the sleeve with a new one.

Tie-rod, Rocker Arm Bushing Lubrication

In order for the tie-rod and rocker arm to function safely and wear slowly, it should be lubricated in accordance with the Periodic Maintenance Chart or whenever disassembled.

- Disassemble the tie-rod and rocker arm.
- Using a high flash-point solvent, wash the sleeves and bushings, and dry them.
- Inspect the bushings, sleeves and grease seals for abrasion, color change, or other damage.
- Apply a molybdenum disulfide grease to the outer circumference of the sleeves, and pack the bushings with the same grease.

Steering

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( ) : Refer to Base Manual

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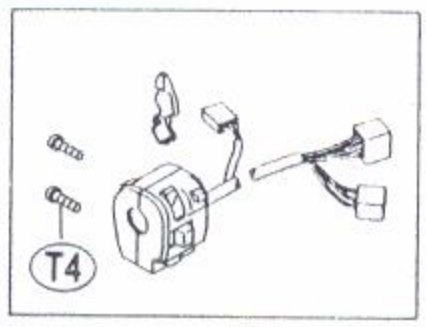
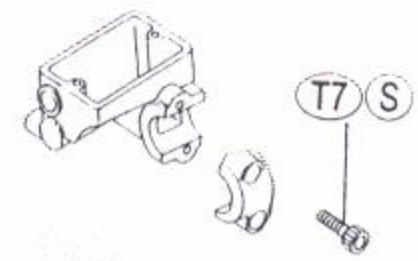
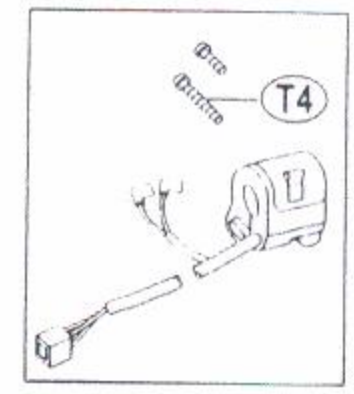
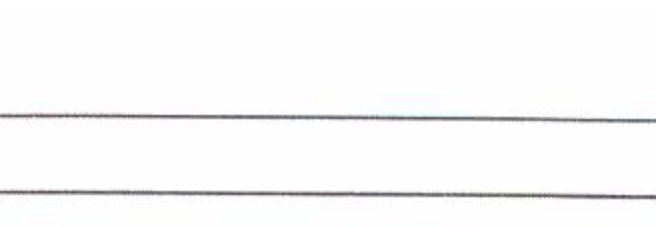
Exploded View









1. Steel Balls (19)
2. Steel Balls (20)

AD: Apply adhesive.
G: Apply grease.
L: Apply a non-permanent locking agent.
S: Follow the specific tightening sequence.
T1: 44 N-m (4.5 kg-m, 33 ft-lb)
T2: Hand-tight or
4.9 N-m (0.50 kg-m, 43 in-lb)
T3: 23 N-m (2.3 kg-m, 16.5 ft-lb)
T4: 3.4 N-m (0.35 kg-m, 30 in-lb)
T5: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T6: 34 N-m (3.5 kg-m, 25 ft-lb)
T7: 8.8 N-m (0.90 kg-m, 78 in-lb)

Specifications

Special Tools – **Bearing Puller: 57001-158**
Bearing Puller Adapter: 57001-136
Head Pipe Outer Race Press Shaft: 57001-1075
Head Pipe Outer Race Driver: 57001-1076
Head Pipe Outer Race Driver: 57001-1106
Steering Stem Bearing Driver Adapter: 57001-1074
Steering Stem Bearing Driver: 57001-137
Steering Stem Nut Wrench: 57001-1100
Jack: 57001-1238

Steering

Steering Adjustment

● Check the steering.

○ Lift the front wheel off the ground using the jack stand.

Special Tool – Jack: 57001-1238

○ With the front wheel pointing straight ahead, alternately tap each end of the handlebar. The front wheel should swing fully left and right from the force of gravity until the fork hits the stop.

★ If the wheel binds or catches before the stop, the steering is too tight.

○ Feel for steering looseness by pushing and pulling the forks.

★ If you feel looseness, the steering is too loose.

NOTE

○ *The cables and wiring will have some effect on the motion of the fork which must be taken into account.*
Be sure the wires and cables are properly routed.

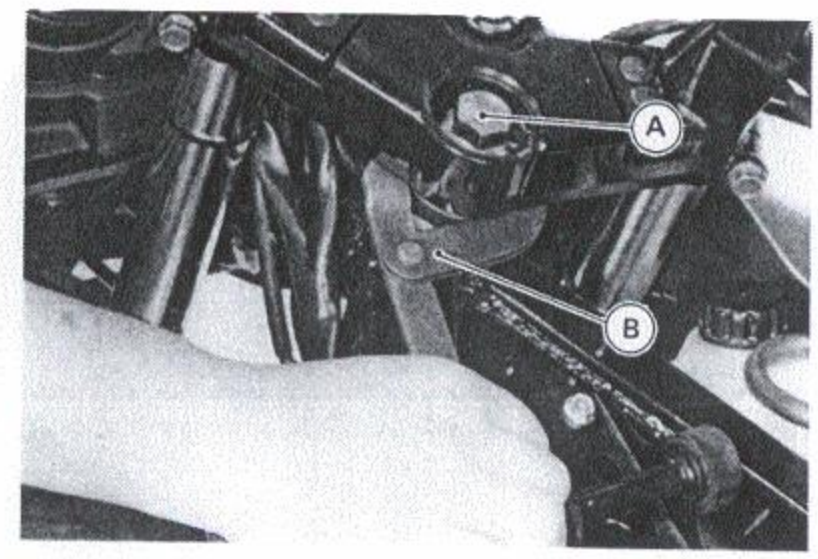
○ *The beatings must be in good condition and properly lubricated in order for any test to be valid.*

★ Adjust the steering if necessary.

● Remove:
Seat
Fuel Tank
Upper Fairing
Fork Lower Clamp Bolts (both sides)
Stem Head Cover
Stem Head Bolt (Loosen) [A]

● Adjust the steering.

Special Tool – Steering Stem Nut Wrench: 57001-1100 [B]



★ If the steering is too tight, loosen the stem locknut a fraction of a turn.

★ If the steering is too loose, tighten the locknut a fraction of a turn.

NOTE

○ *Turn the locknut 1/8 turn at a time maximum.*

● Tighten the steering stem head bolt.

Torque – Steering Stem Head Bolt : 44 N-m (4.5 kg-m, 33 ft-lb)

● Check the steering again.

★ If the steering is still too tight or too loose, repeat the adjustment.

Steering Stem

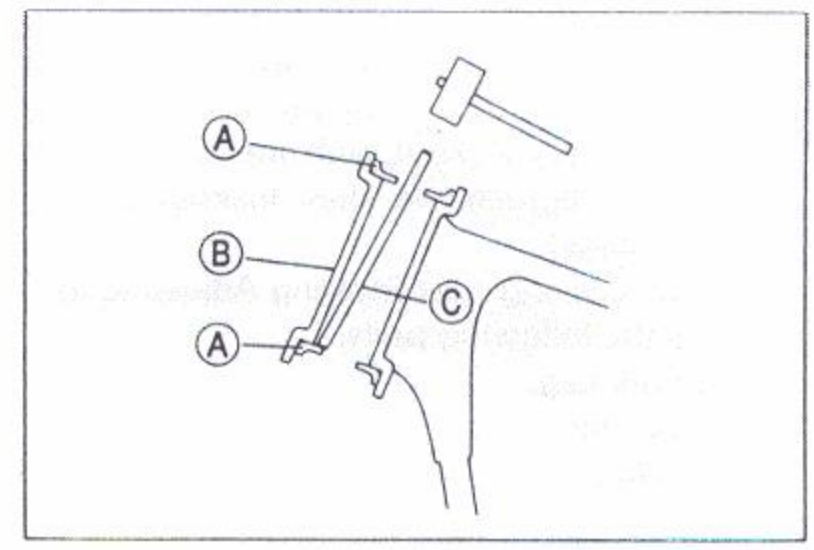
Steering Stem Removal

- Remove (see appropriate chapters):
  Fuel Tank
  Fairings
  Handlebars
  Front Caliper
  Front Wheel
  Front Fender
  Front Fork Legs
- Remove the mounting bolts, and free the horn bracket from the stem base. Then remove the front brake assembly as a set.
- Remove the stem head bolt.
- Remove the steering stem head.
- Push up on the stem base, and remove the steering stem locknut with the stem nut wrench. Remove the steering stem and stem base (single unit).

Special Tool – Steering Stem Nut Wrench: 57001-1100

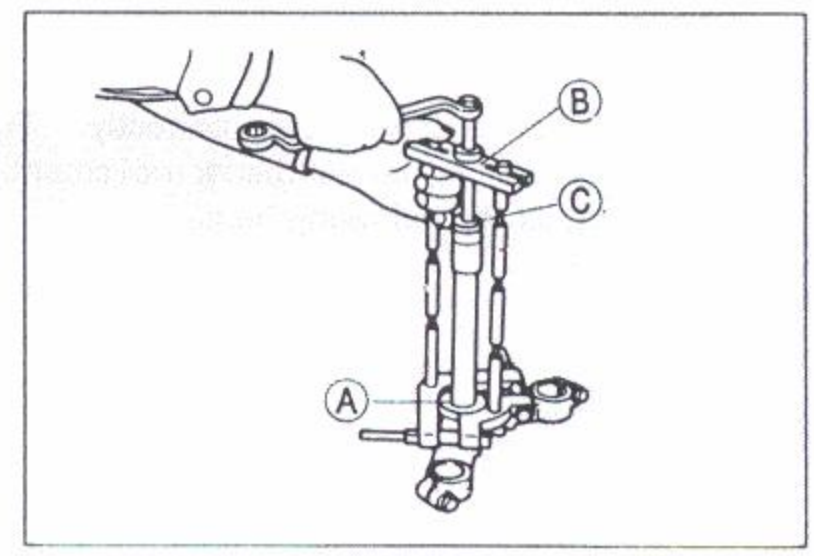
- As the stem is removed, some of the steel balls will drop out of the lower outer race. Remove the remaining balls. There are 20 steel balls in the lower outer race.
- Remove the steering stem cap, the upper inner race, and the upper steel balls (19).

- To remove the outer races [A] pressed in the head pipe [B], insert a bar [C] into the head pipe, and hammer evenly around the circumference of the opposite race to drive it out.



- Remove the lower inner race [A] (with its grease seal) which is pressed onto the steering stem, with the steering stem bearing puller [B] and adapter [C].

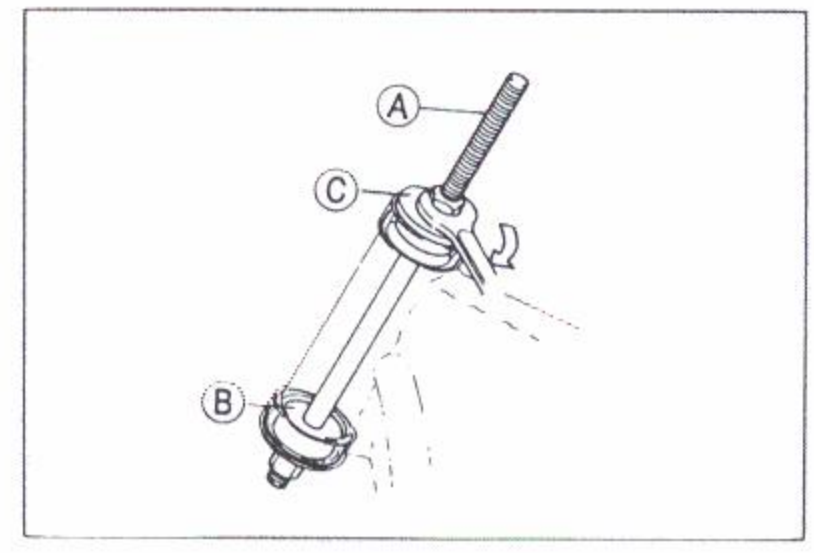
Special Tool – Bearing Puller: 57001-158
Bearing Puller Adapter: 57001-136



Steering Stem Installation

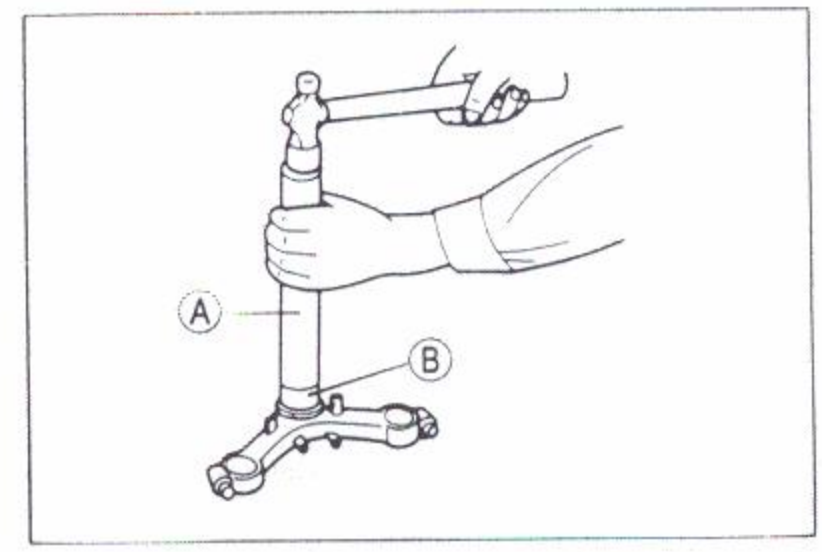
- Replace the outer races with new ones.
- Apply grease to the outer race, and drive them into the head pipe using the drivers and press shaft [A].

Special Tool – Head Pipe Outer Race Press Shaft: 57001-1075 [A]
Head Pipe Outer Race Driver: 57001-1076 [B]
Head Pipe Outer Race Driver: 57001-1106 [C]

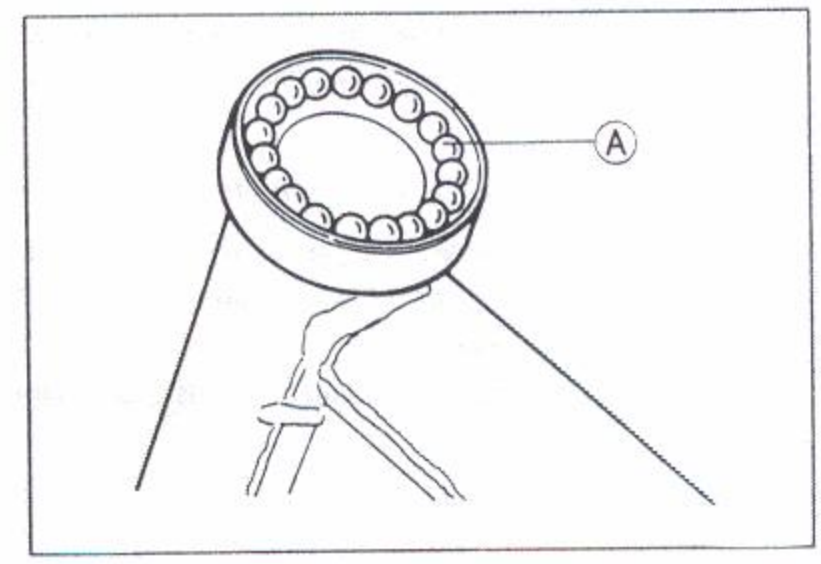


● Replace the inner races with new ones.
● Apply grease to the lower inner race, and drive it onto the stem using the driver and adapter.

Special Tool – Steering Stem Bearing Driver: 57001-137 [A]
Steering Stem Bearing Driver Adapter: 57001-1074 [B]



● Apply grease to the upper and lower outer races in the head pipe so that the steel balls will stick in place during stem insertion. Install the upper steel balls (19) and lower steel balls (20). All the steel balls [A] are same size.

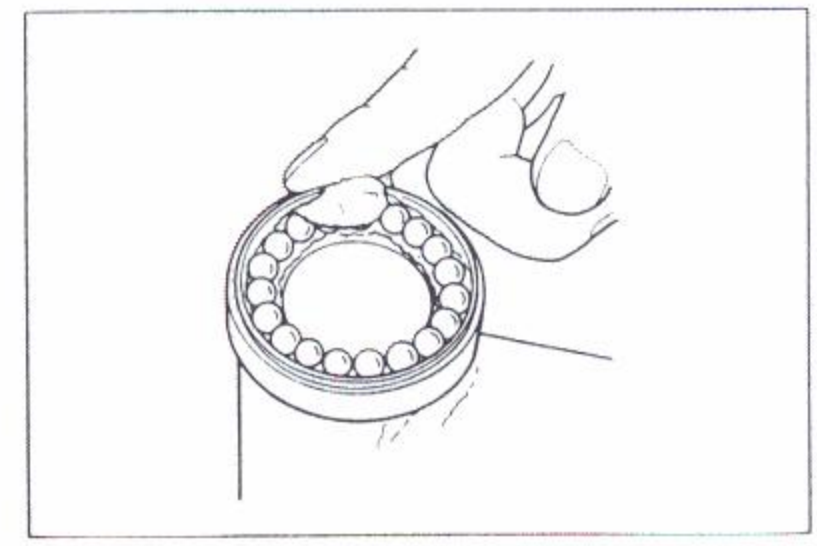


● Put on the upper inner race and steering stem cap and insert the steering stem into the head pipe.
● Turn in the stem locknut with the chamfered side facing toward the ground, and tighten the stem locknut to the specified torque (see Exploded View).
● Adjust the steering (see Steering Adjustment).
● Reinstall the following parts.
Front Fork Legs
Front Fender
Front Wheel
Front Caliper
Handlebars
Fuel Tank
Fairings
● Route the cables and harnesses correctly. The cables and wiring harnesses must not hinder handlebar movement.
● Check and adjust the following items.
Front Brake
Clutch
Throttle Cable
Rear View Mirrors

Steering Maintenance

Steering Stem Bearing Lubrication

- Remove the steering stem.
- Wipe all the old grease off the races and steel balls, washing them in a high flash-point solvent.
- Visually check the races and the balls.
- ★Replace the bearing assemblies if they show wear or damage.
- Pack the upper and lower races with grease, and stick the balls in place with grease.
- Install the steering stem, and adjust the steering.



Bearing Wear, Damage

- Using a high flash-point solvent, wash the bearings clean of grease and dirt, and examine the races and steel balls.
- Visually check the balls or races.
- ★If the balls or races are worn, or if either race is dented, replace both races and all the balls for that bearing as a set.

Frame

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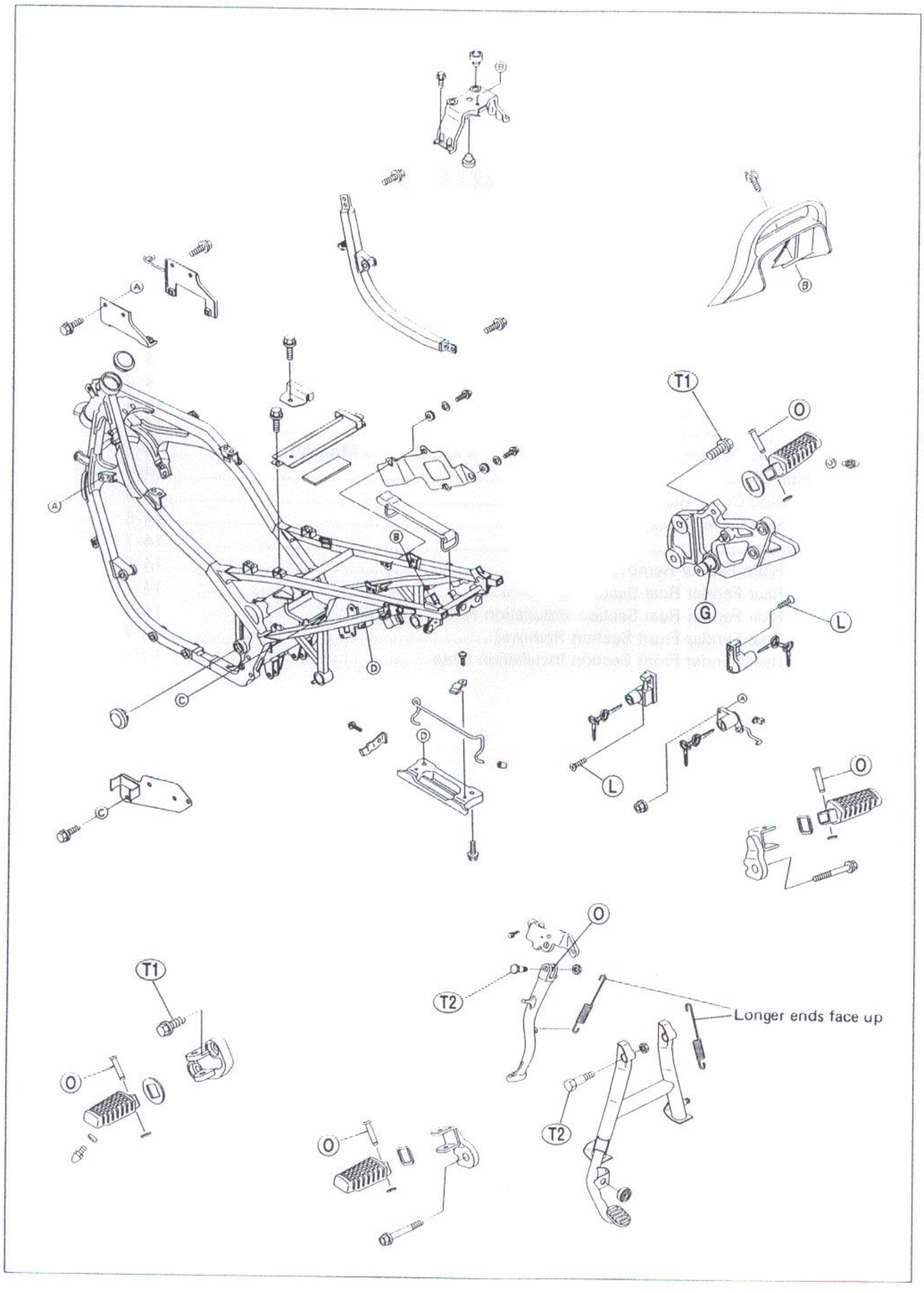
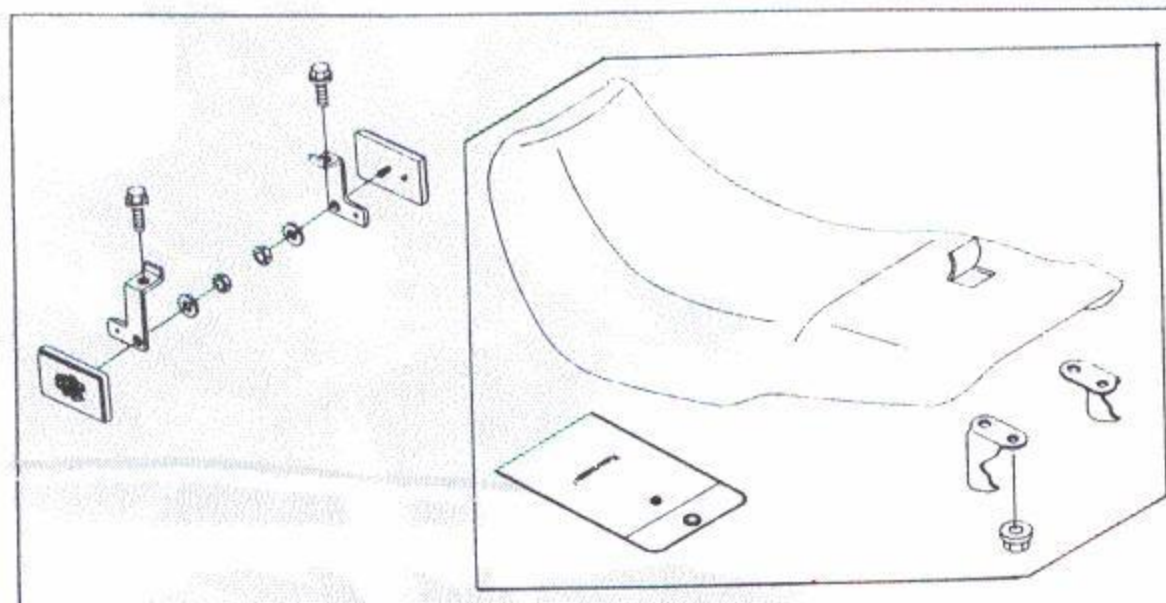
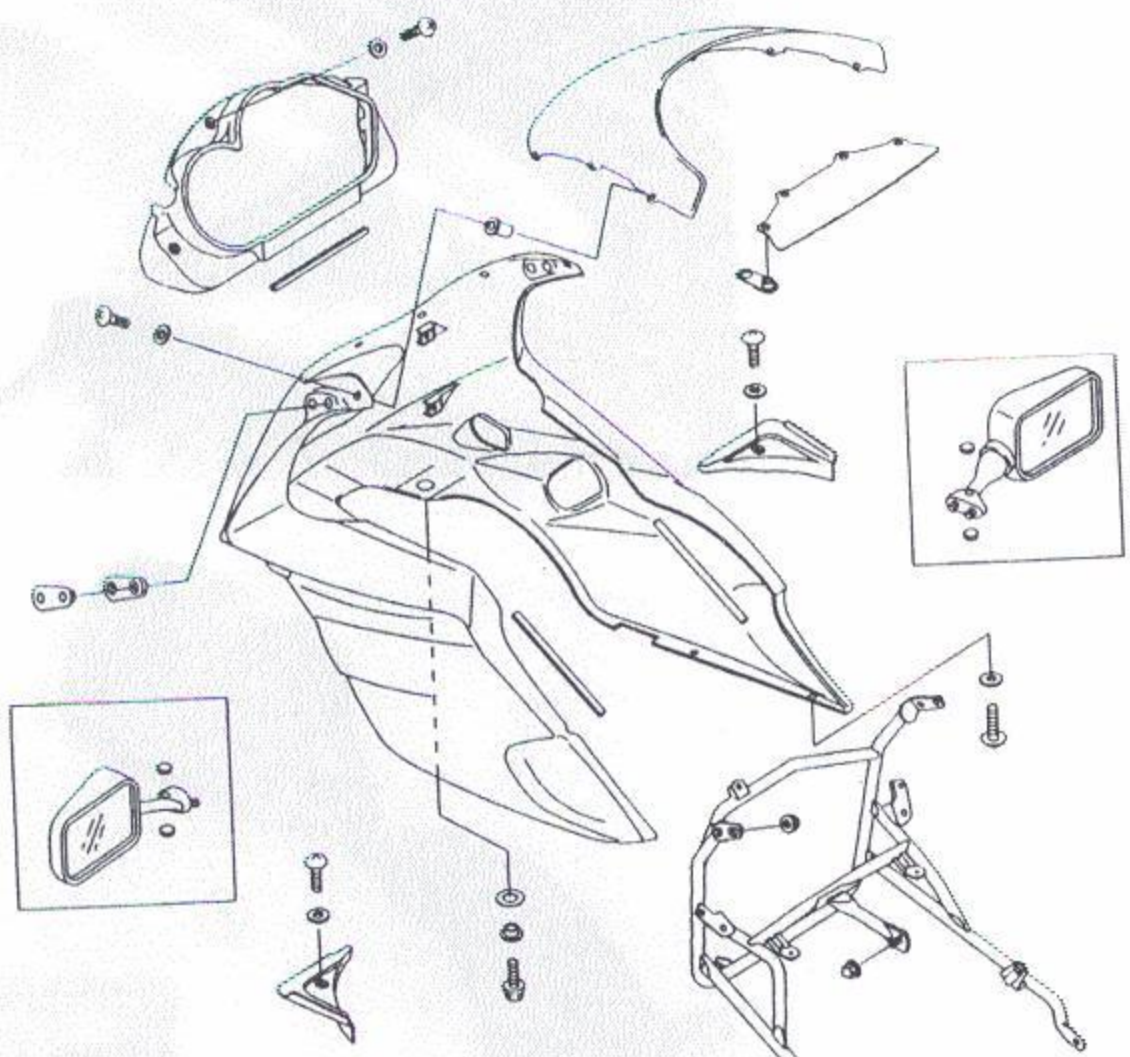
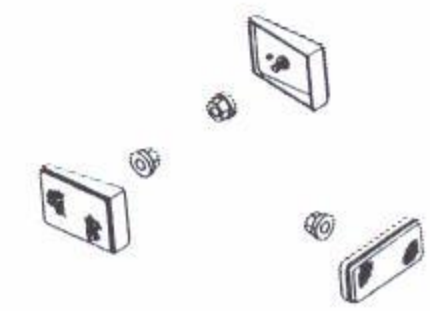
Exploded View

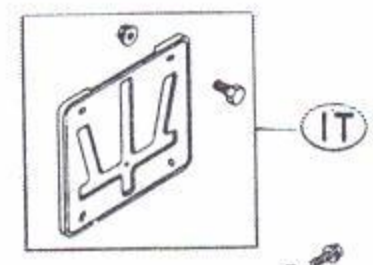


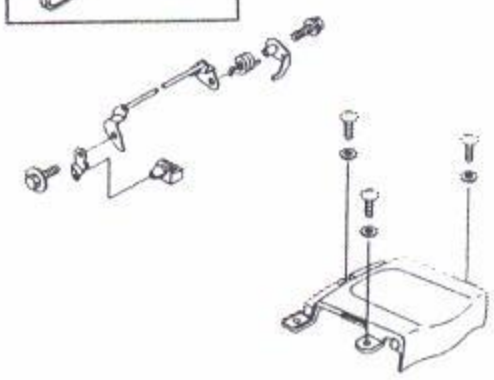


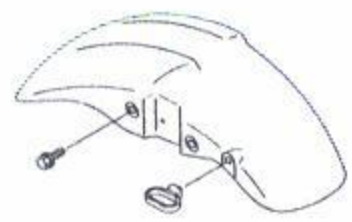
(US): United States
(CN): Canada
(IT): Italy
G: Apply grease.
L: Apply a non-permanent locking agent.
O: Apply oil.
T1: 25 N-m (2.5 kg m, 18.0 ft-lb)
T2: 44 N-m (4.5 kg m, 33 ft-lb)

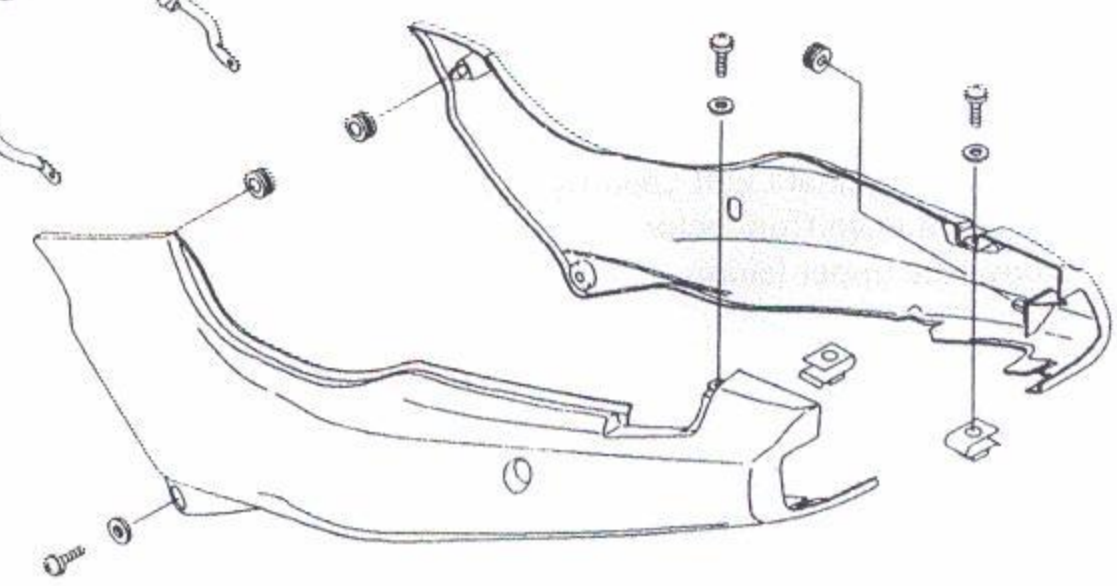




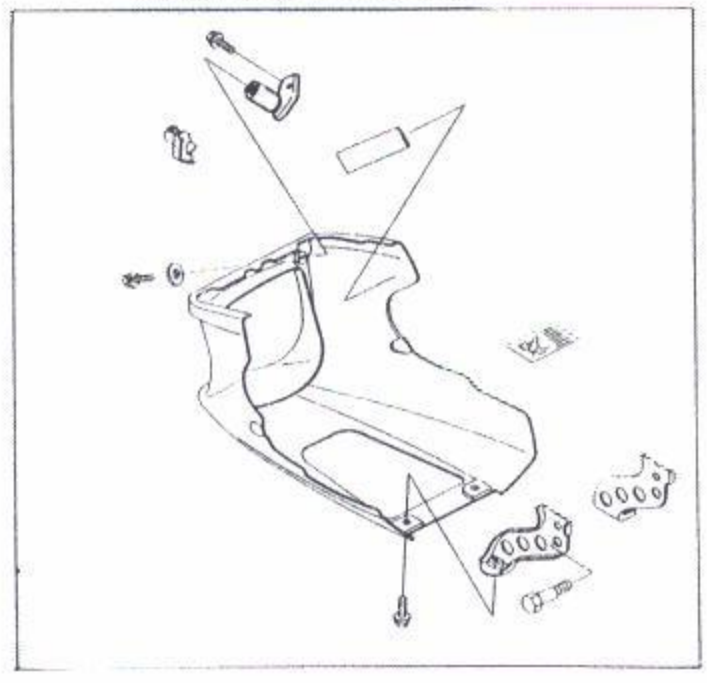




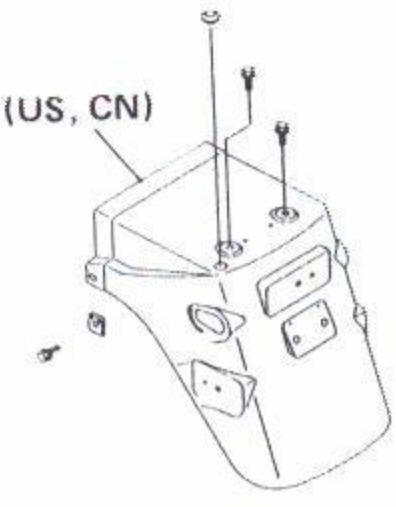


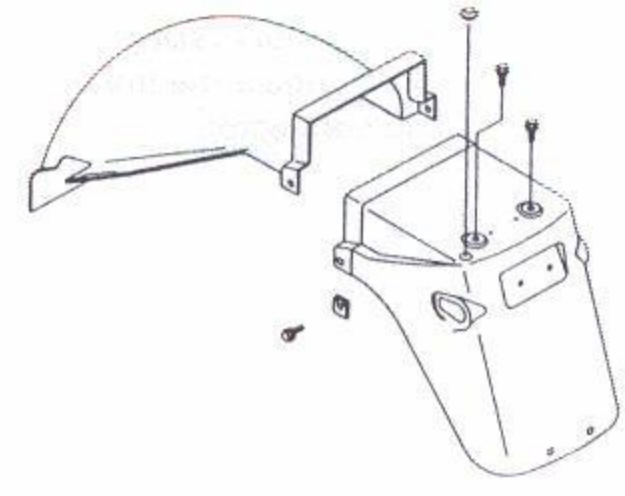


Other than (US, CN)



(US, CN)

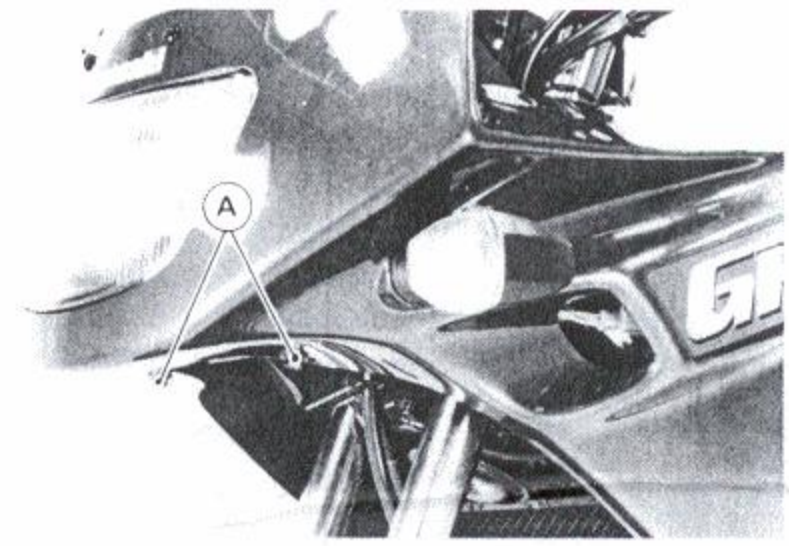




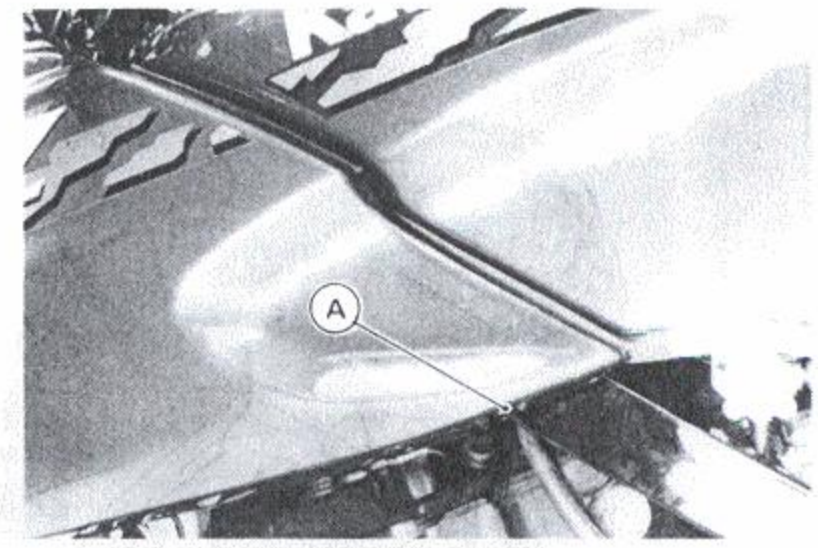
Fairings

Upper Fairing Removal

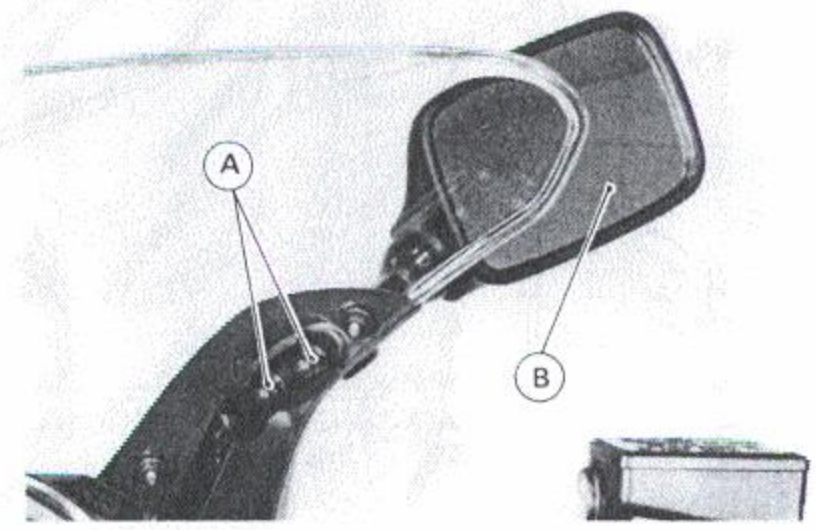
● Remove the mounting bolts [A].



● Remove the mounting screws [A] on both sides.



● Remove the nuts [A] and take off the left and right rear view mirrors [B].



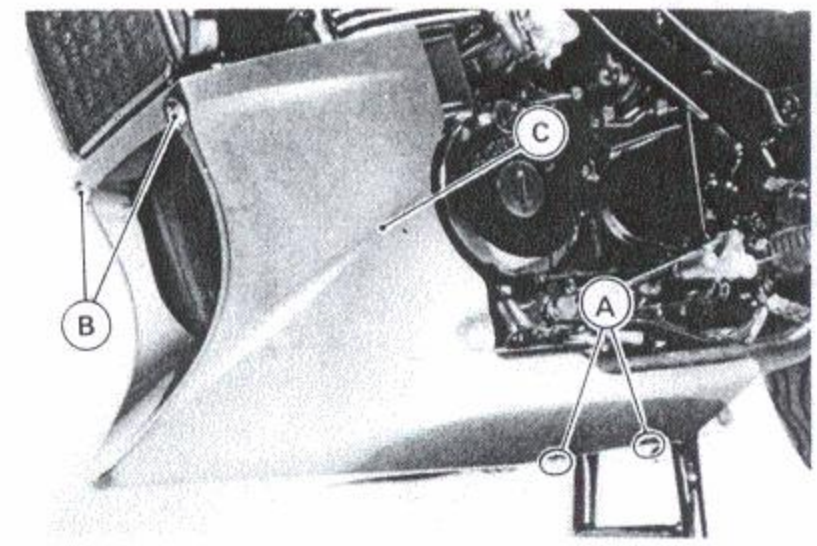
● Disconnect:
Front Turn Signal Light Lead Connectors
Headlight Lead Connector
● Remove the upper fairing.

Upper Fairing Installation Note

● Before installation, connect the front turn signal light lead connectors and headlight lead connector.

Lower Fairing Removal (Other than US and Canada Models)

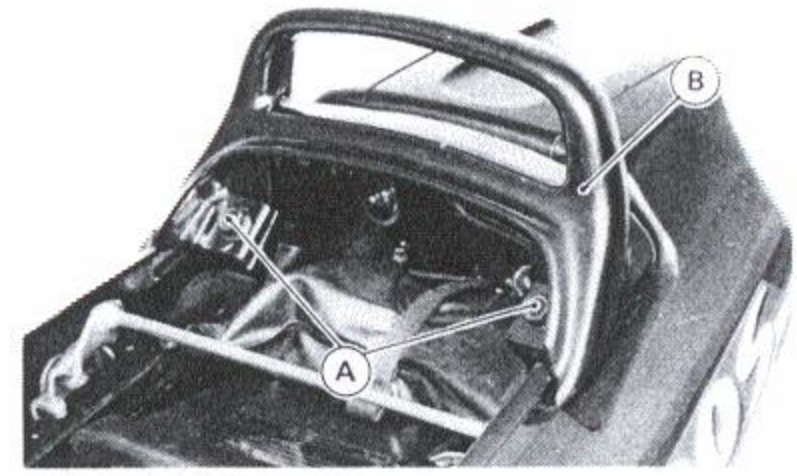
- Remove:
  Mounting Bolts [A]
  Mounting Screws [B]
- Remove the lower fairing [C].



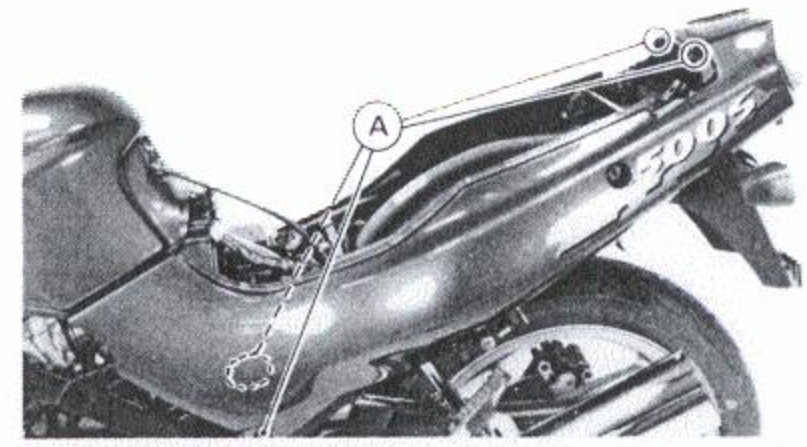
Side Cover

Side Cover Removal

● Remove:
Seat
Mounting Bolts [A]
Grab Rail [B]

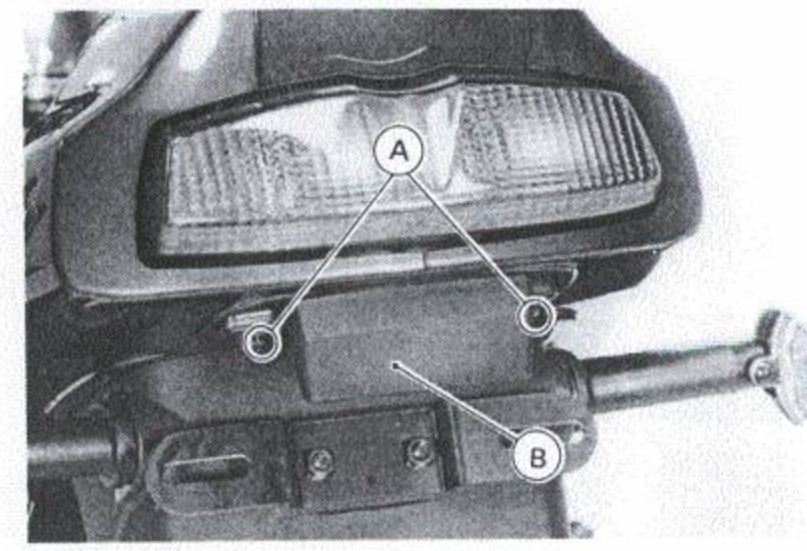


Mounting Screws [A]



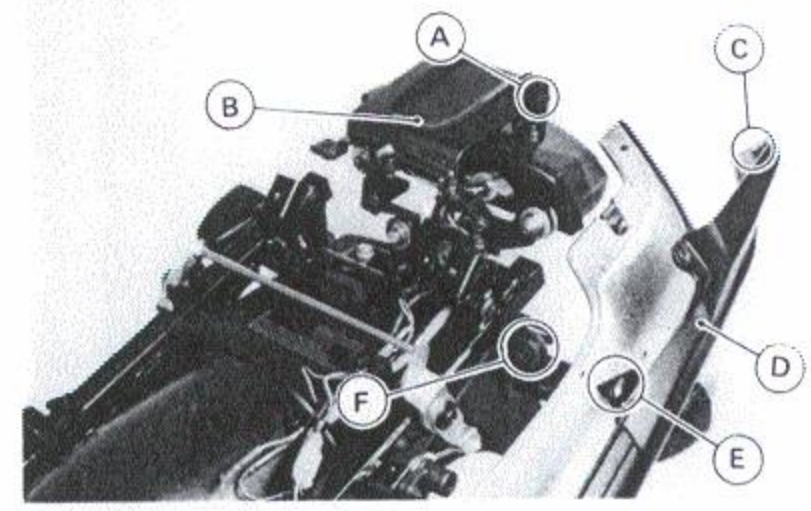
Mounting Screws [A]
License Plate Light Cover [B]

● Pull the front part of the side cover outward to clear the stopper, and then remove the cover toward the rear.



Side Cover Installation Note

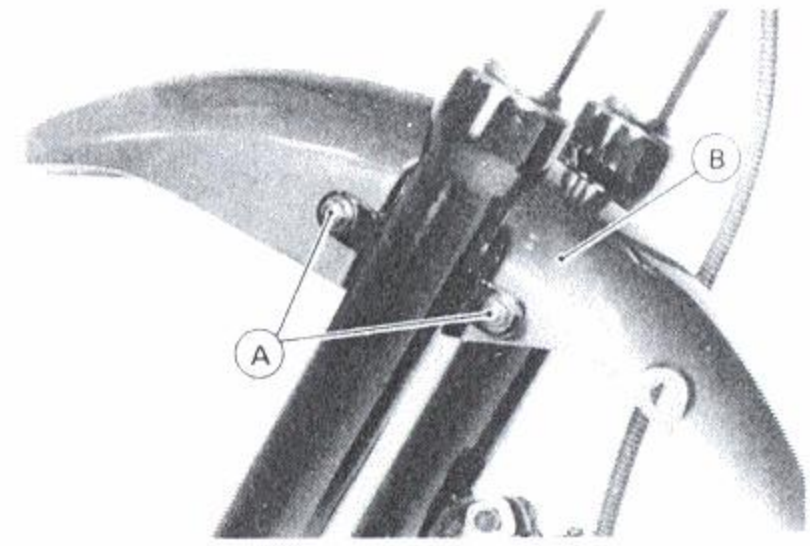
● Fit the projection [A] on the tail/brake light cover [B] into the slot [C] in the side cover [D], at the same time, fit the projection [E] on the side cover into the hole [F] in the frame.



Fenders

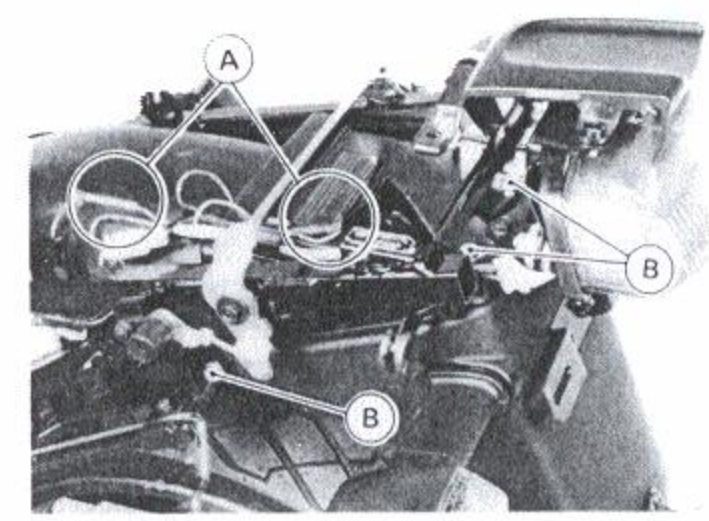
Front Fender Removal

- Remove:
  - Front Wheel (see Wheels/Tires)
  - Speedometer Cable Guide
  - Front Brake Hose Clamp
  - Fender Mounting Bolts [A]
- Remove the front fender [B] from the front fork



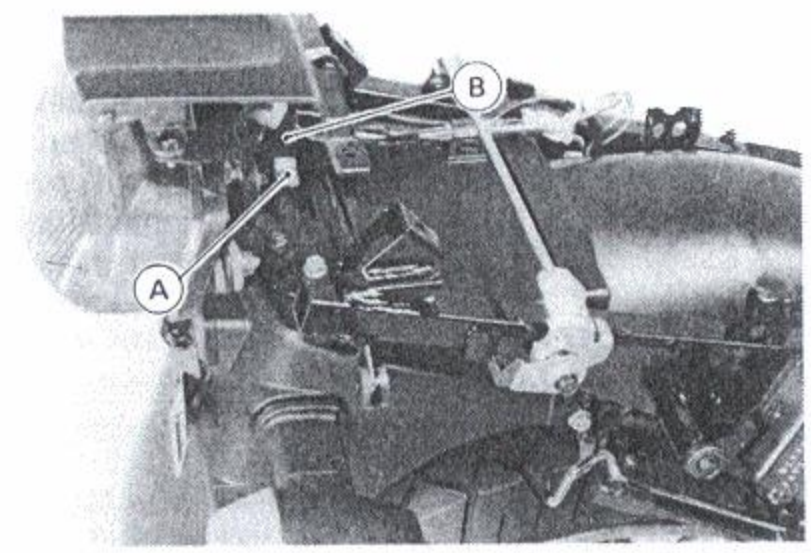
Rear Fender Rear Section Removal

- Remove:
  - Seat
  - Side Covers
  - Tool Kit
  - Turn Signal Light Lead Connectors [A]
- Unscrew the mounting bolts [B] while supporting the rear fender rear section, and then remove it.



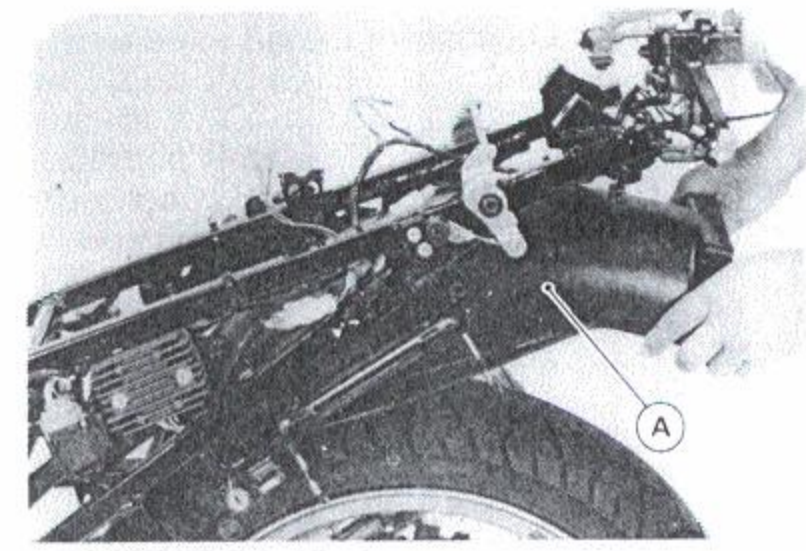
Rear Fender Rear Section Installation Note

- Tighten the mounting bolt [A] with the clamp [B]



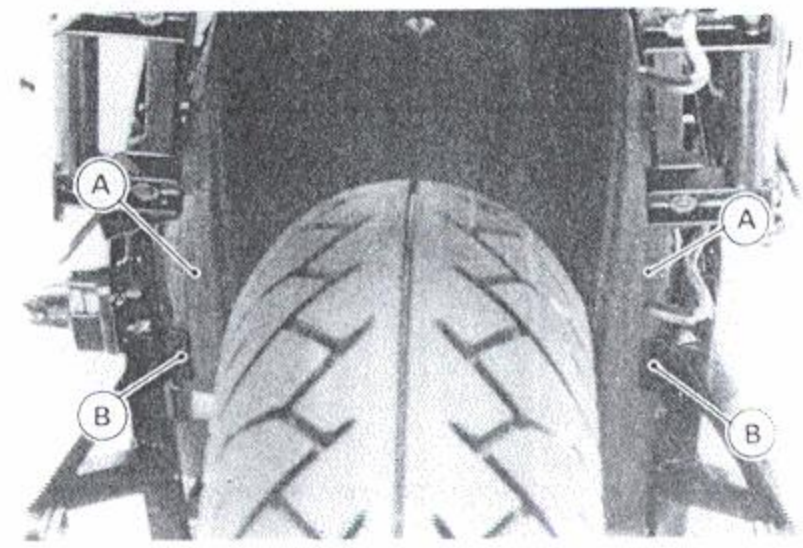
Rear Fender Front Section Removal

- Remove:
  - Seat
  - Side Covers
  - Rear Fender Rear Section (see Rear Fender Rear Section Removal)
- Pull the rear fender front section [A] toward the rear.



Rear fender Front Section Installation Note

- Fit the flaps [A] into the slots [B] in the rear frame

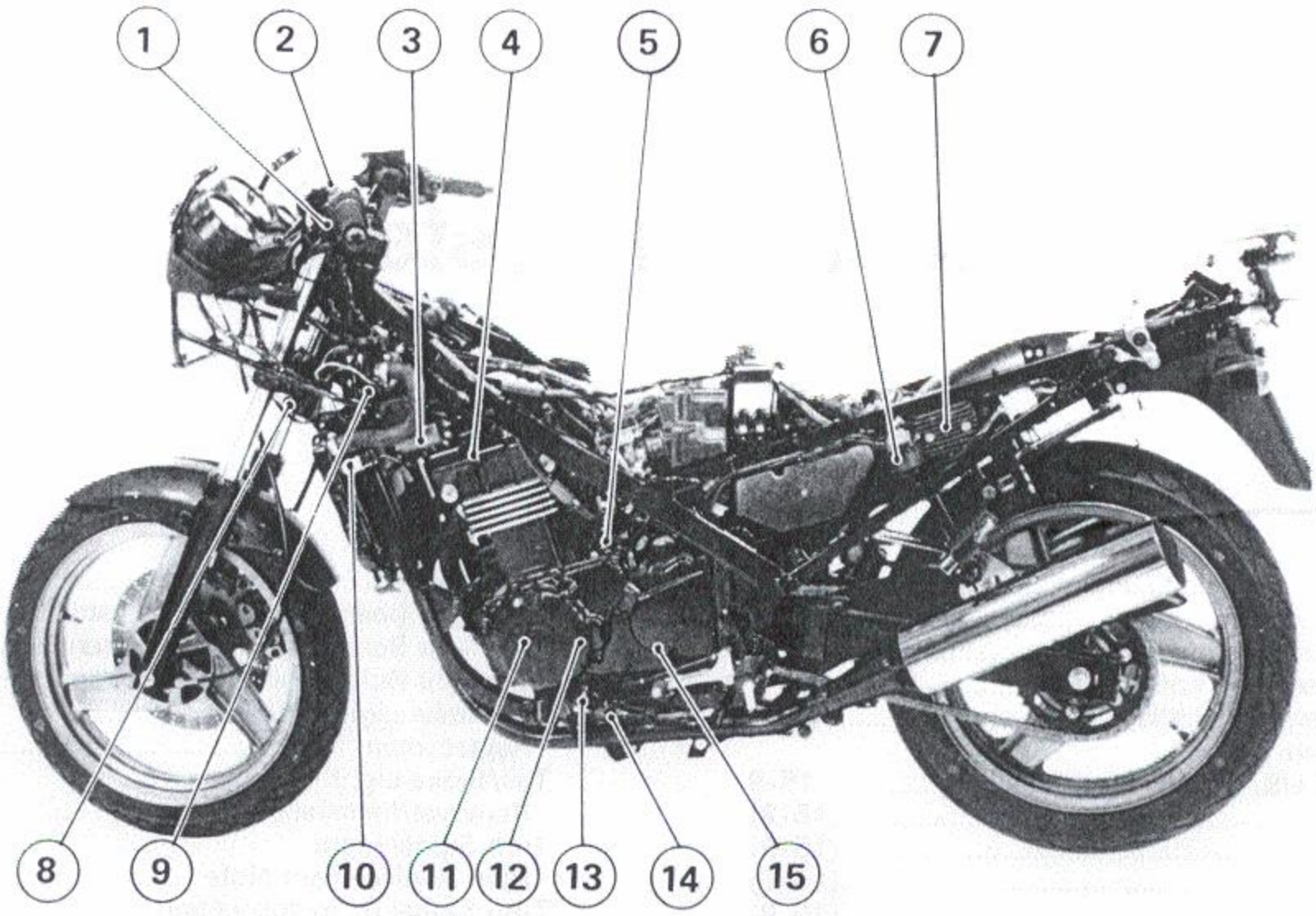


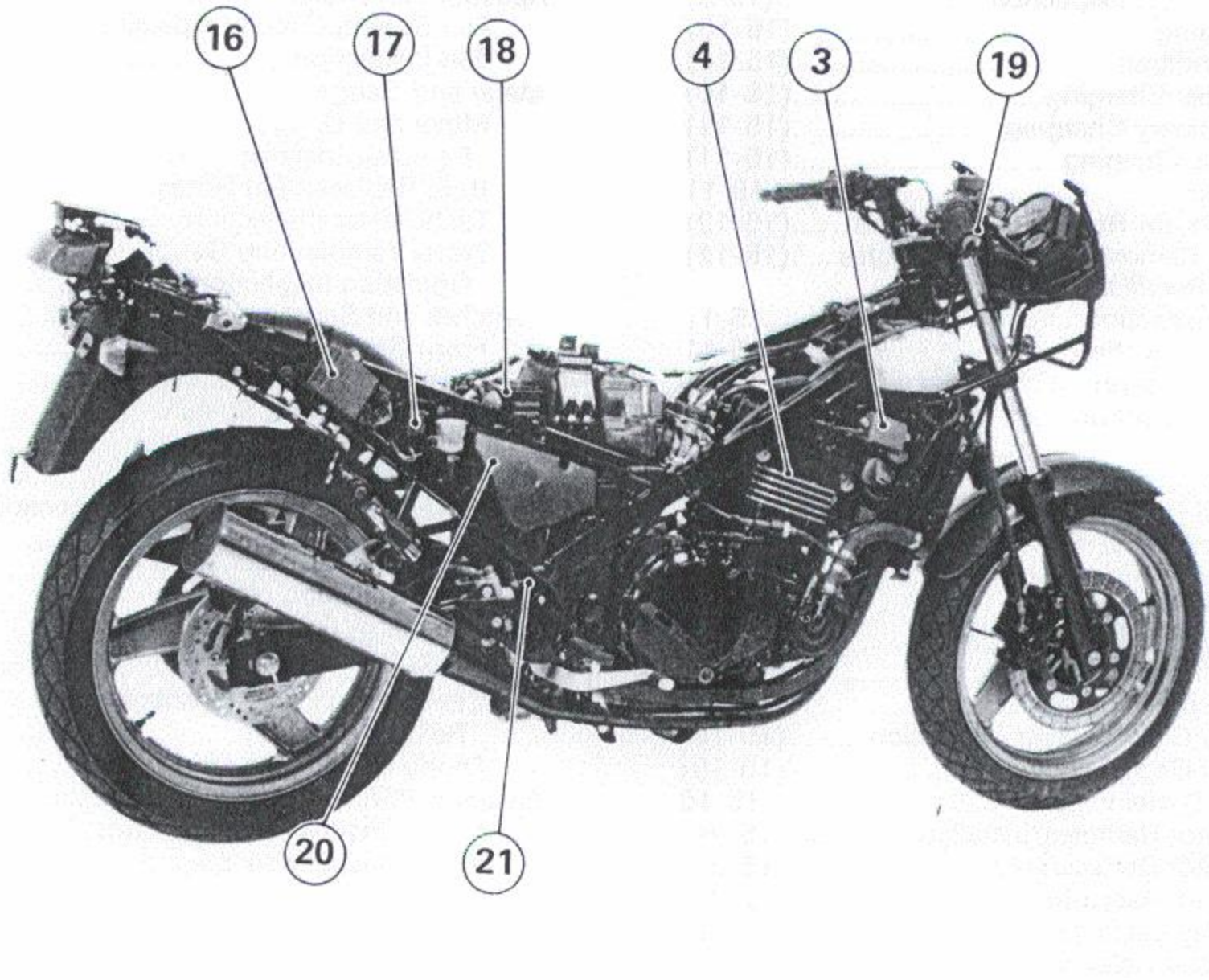
Electrical System

Table of Contents

( ) : Refer to Base Manual

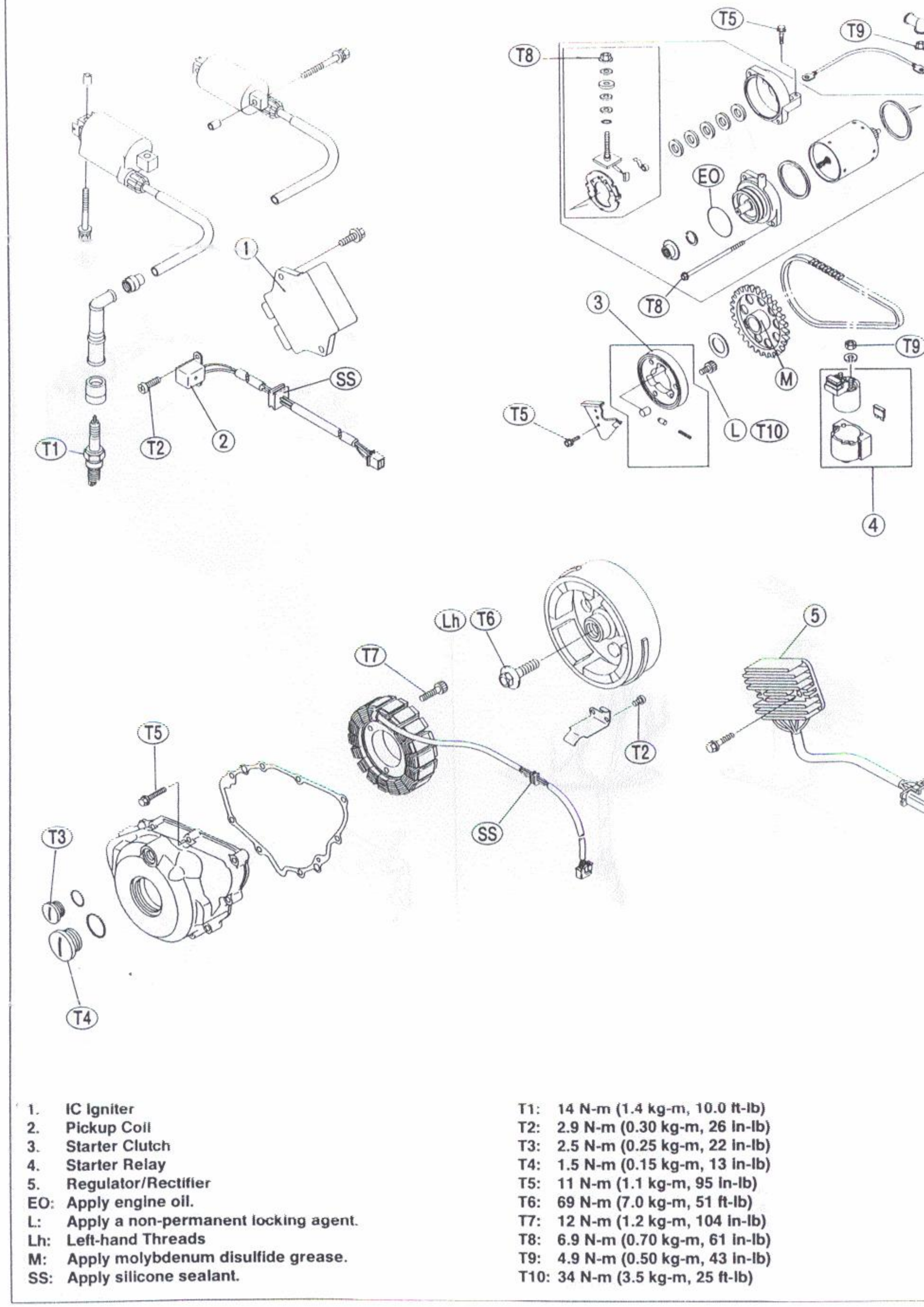
Parts Location





1. Starter Lockout Switch
2. Ignition Switch
3. Ignition Coil
4. Spark Plug
5. Starter Motor
6. Starter Relay and Main Fuse
7. Regulator/Rectifier
8. Horn
9. Water Temperature Sensor
10. Radiator Fan Switch
11. Alternator
12. Pickup Coil
13. Side Stand Switch
14. Oil Pressure Switch
15. Neutral Switch
16. IC Igniter
17. Turn Signal Relay
18. Junction Box
19. Front Brake Light Switch
20. Battery
21. Rear Brake Light Switch

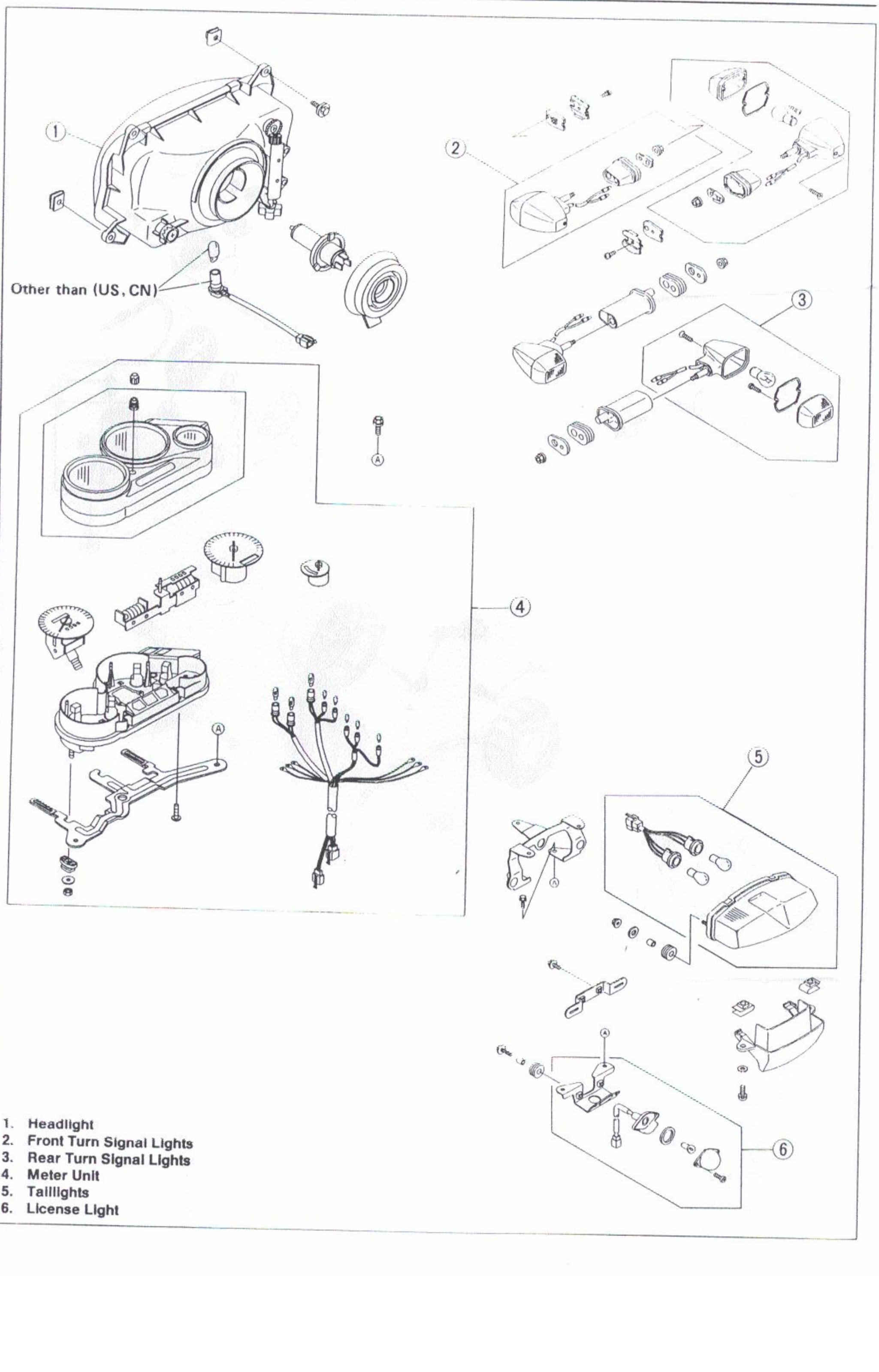
Exploded View



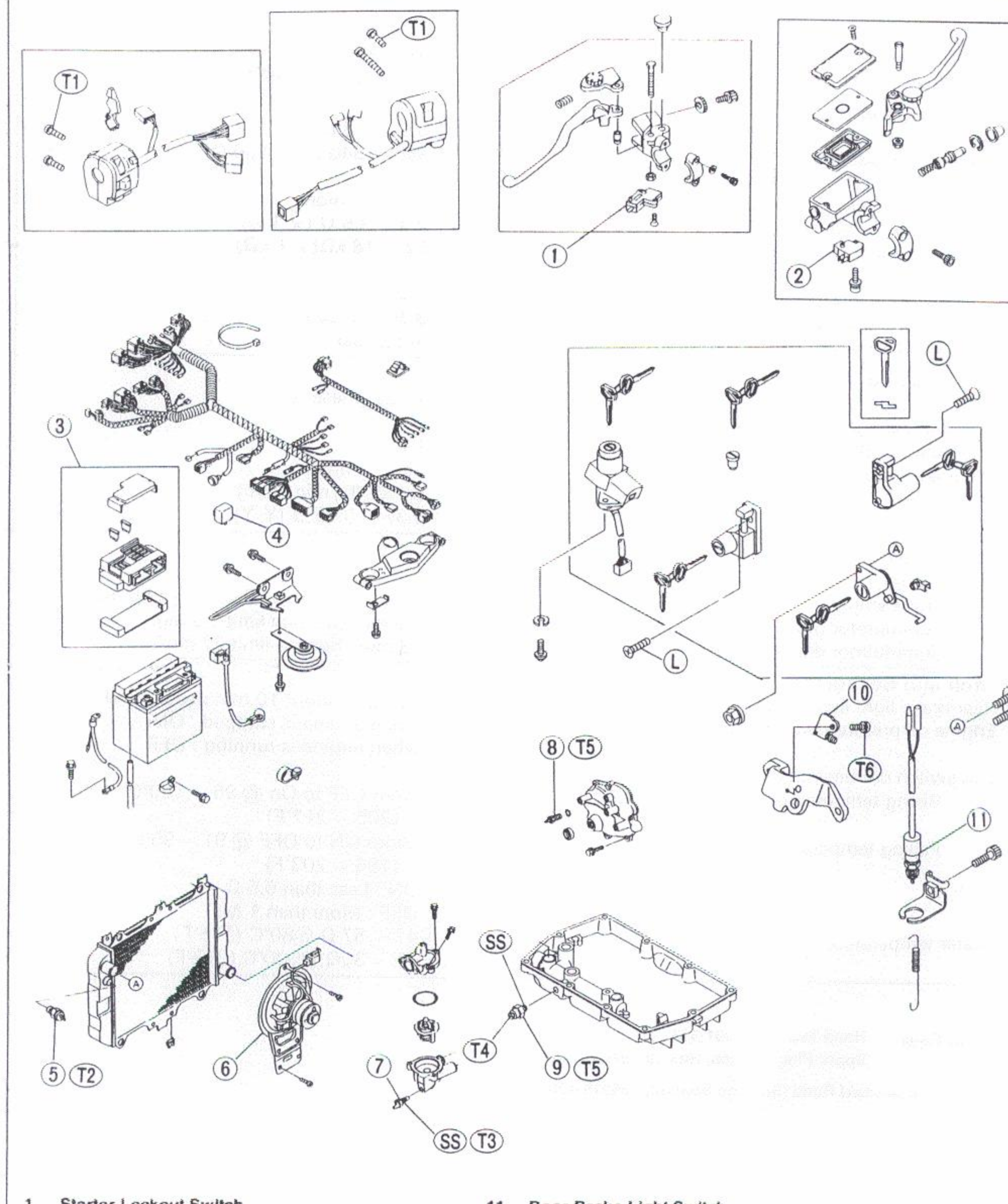
1. IC Igniter
2. Pickup Coil
3. Starter Clutch
4. Starter Relay
5. Regulator/Rectifier

EO: Apply engine oil.
L: Apply a non-permanent locking agent.
Lh: Left-hand Threads
M: Apply molybdenum disulfide grease.
SS: Apply silicone sealant.

T1: 14 N-m (1.4 kg-m, 10.0 ft-lb)
T2: 2.9 N-m (0.30 kg-m, 26 in-lb)
T3: 2.5 N-m (0.25 kg-m, 22 in-lb)
T4: 1.5 N-m (0.15 kg-m, 13 in-lb)
T5: 11 N-m (1.1 kg-m, 95 in-lb)
T6: 69 N-m (7.0 kg-m, 51 ft-lb)
T7: 12 N-m (1.2 kg-m, 104 in-lb)
T8: 6.9 N-m (0.70 kg-m, 61 in-lb)
T9: 4.9 N-m (0.50 kg-m, 43 in-lb)
T10: 34 N-m (3.5 kg-m, 25 ft-lb)



1. Headlight
2. Front Turn Signal Lights
3. Rear Turn Signal Lights
4. Meter Unit
5. Taillights
6. License Light



1. Starter Lockout Switch
2. Front Brake Light Switch
3. Junction Box
4. Turn Signal Relay
5. Radiator Fan Switch
6. Radiator Fan
7. Water Temperature Sensor
8. Neutral Switch
9. Oil Pressure Switch
10. Side Stand Switch
11. Rear Brake Light Switch

L: Apply a non-permanent locking agent.
SS: Apply silicone sealant.
T1: 3.4 N-m (0.35 kg-m, 30 in-lb)
T2: 18 N-m (1.8 kg-m, 13.0 ft-lb)
T3: 7.8 N-m (0.80 kg-m, 69 in-lb)
T4: 1.5 N-m (0.15 kg-m, 13 in-lb)
T5: 15 N-m (1.5 kg-m, 11.0 ft-lb)
T6: 3.9 N-m (0.40 kg-m, 35 in-lb)

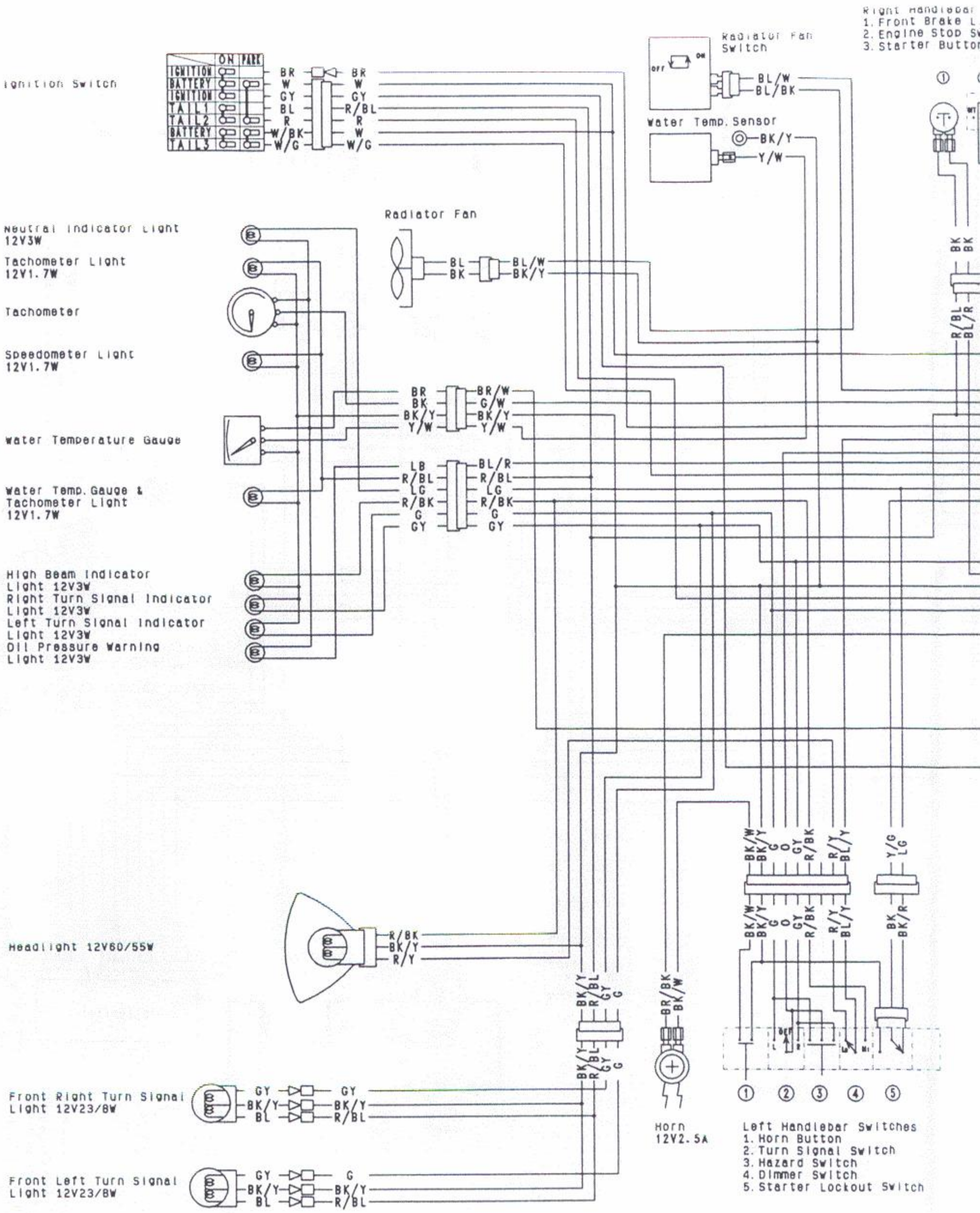
Specifications

Item	Standard
Battery:	
Capacity	12V14Ah
Electrolyte level	Between upper and lower levels
Specific gravity of electrolyte	1.280 @ 20°C (68°F)
Ignition System:	
Pickup coil air gap	0.6 ~ 0.8 mm
Pickup coil resistance	360 ~ 540 Ω (× 100 Ω)
Ignition coil:	
3 needle arcing distance	6 mm or more
Primary windings resistance	2.3 ~ 3.5 Ω (× 1 Ω)
Secondary winding resistance	12 ~ 18 kΩ(× 1 kΩ)
Spark plug:	
Spark plug gap	0.6 ~ 0.7 mm
Spark plug cap resistance	3.75 ~ 6.25 kΩ (× 1 kΩ)
IC igniter resistance	in the text
Charging System:	
Alternator type	Three-phase AC
Charging voltage (regulator/rectifier output voltage)	14 ~ 15 V
Alternator output voltage	56 V or more @ 4000 r/min (rpm)
Charging coil resistance	0.37 ~ 0.55 Ω (Y-Y)
Electric Starter System:	
Starter motor:	
Brush length	12.0 ~ 12.5 mm (Service limit 6 mm)
Commutator groove depth	2.0 mm (Service limit 1.5 mm)
Commutator diameter	28 mm (Service limit 27 mm)
Switch and Sensor:	
Rear brake light switch timing	ON after about 10 mm pedal travel
Engine oil pressure switch connections	when engine is stopped : ON when engine is running : OFF
Fan switch connections:	
Rising temperature	From OFF to On @ 96 ~ 100°C (205 ~ 212°F)
Falling temperature	From ON to OFF @ 91 ~ 95°C (196 ~ 203°F)
	ON : Less than 0.5 Ω OFF : More than 1 MΩ
Water temperature sensor resistance	47 ~ 57 Ω @80°C (176°F) 25 ~ 30Ω @100°C (212°F)

Special Tools – **Hand Tester: 57001-983**
Spark Plug Wrench, Hex 18: 57001-1024

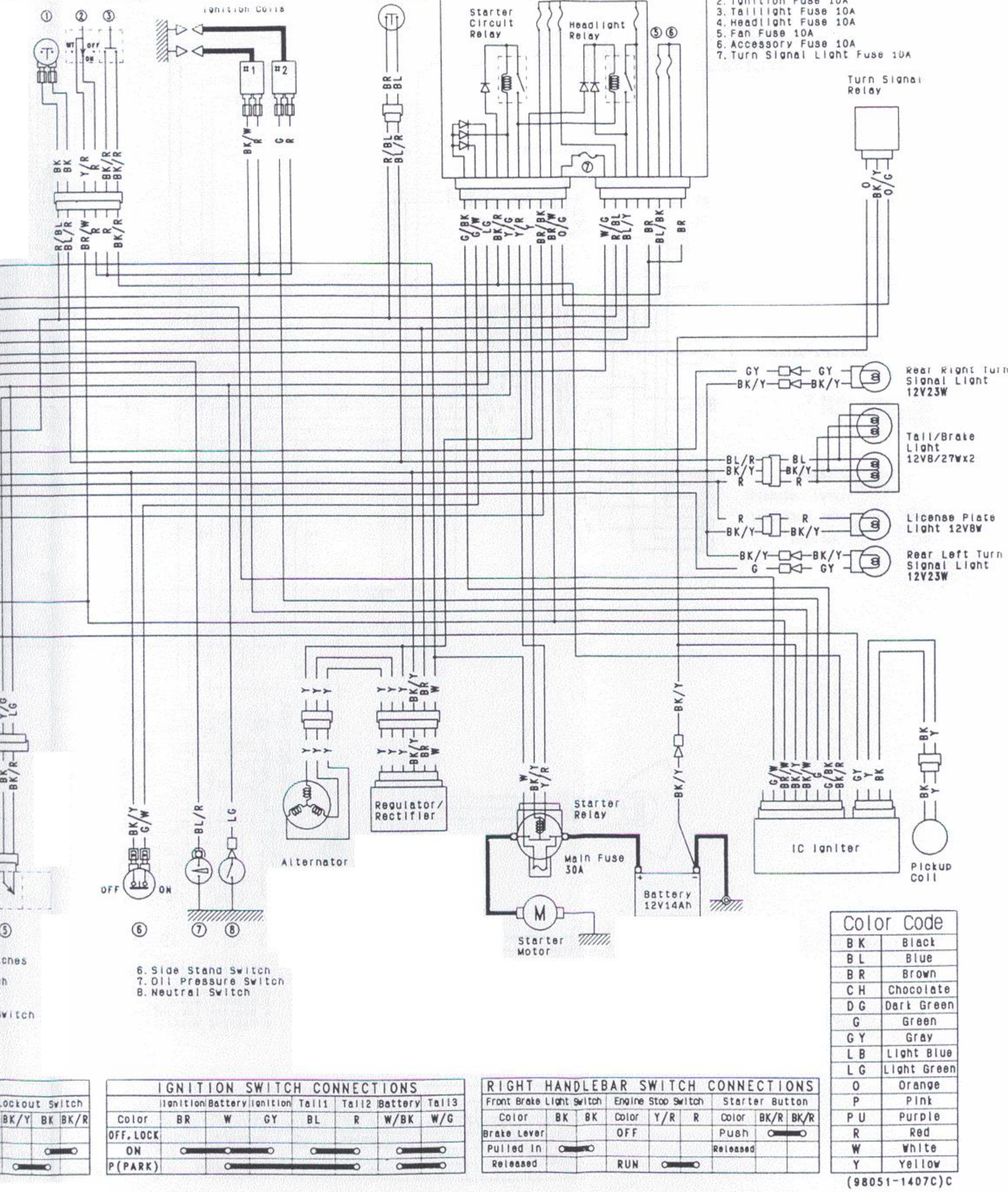
Sealant – **Kawasaki Bond (Silicone Sealant): 56019-120**

Wiring Diagram (US and Canada)



LEFT HANDLEBAR SWITCH CONNECTIONS																		
Horn Button			Turn Signal Switch				Hazard Switch				Dimmer Switch				Starter Lockout Switch			
Color	BK/W	BK/Y	Color	G	O	GY	Color	G	O	GY	Color	R/Y	BL/Y	R/BK	Color	BK/Y	BK	BK/
Push	●	●	R		●		ON	●	●	●	LO	●			Clutch Lever			
Released			OFF (Push)				OFF								Released		●	
			L	●							HI		●		Pulled In	●		

t Handlebar Switches
ont Brake Light Switch
ngine Stop Switch
tarter Button



Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

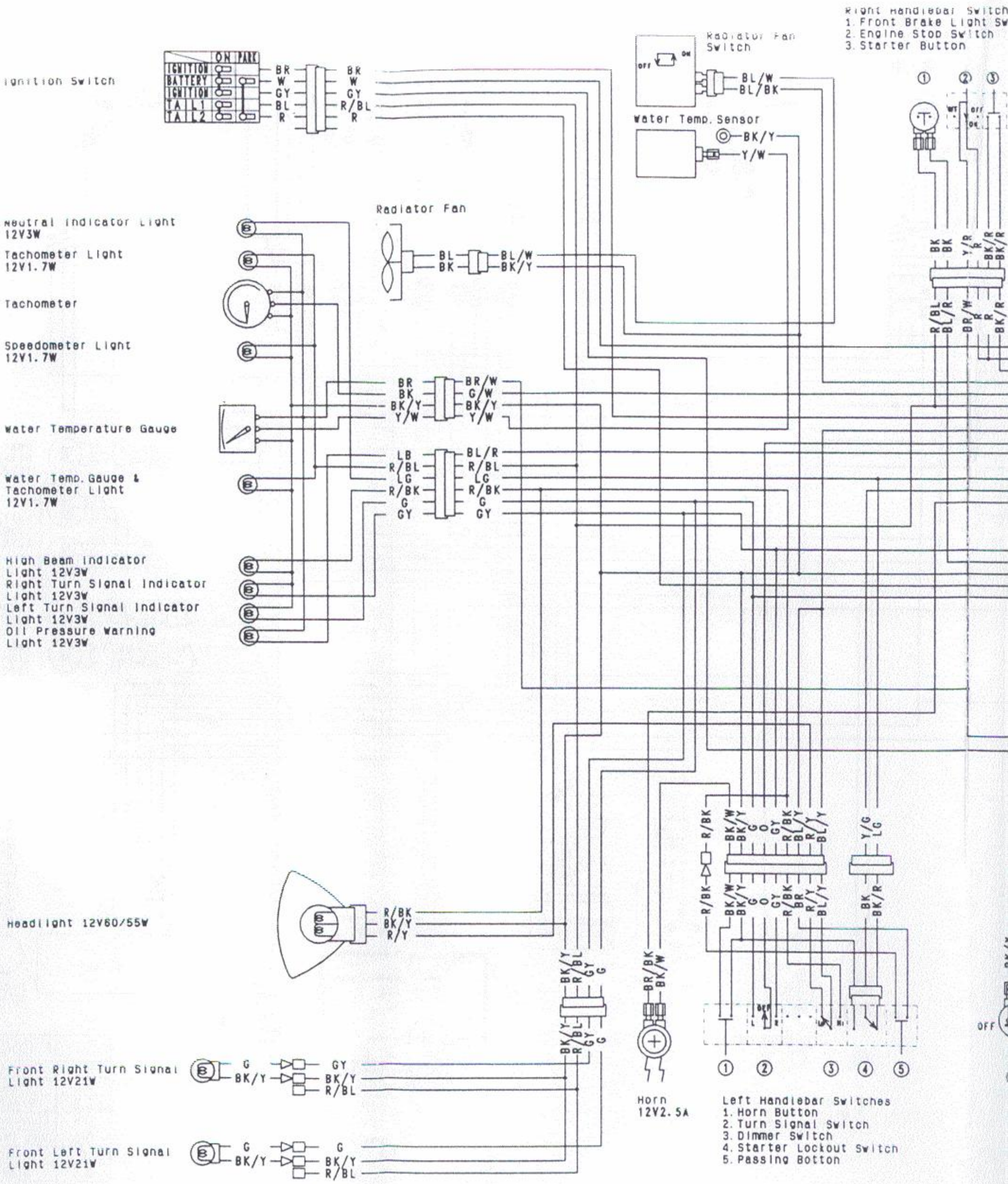
(98051-1407C)C

Lockout Switch			
	BK/Y	BK	BK/R
		●	
	●		

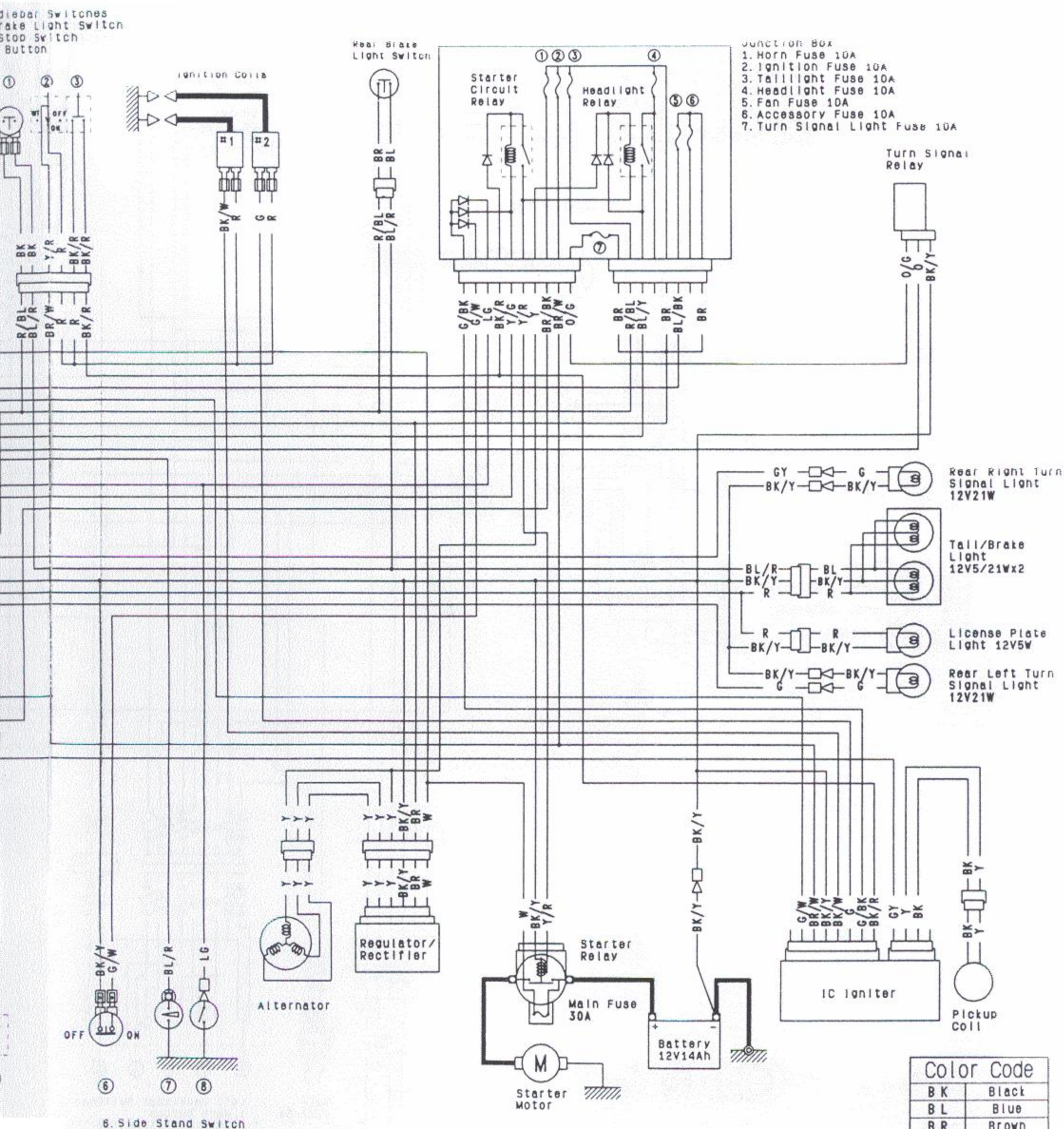
IGNITION SWITCH CONNECTIONS							
	Ignition	Battery	Ignition	Tail1	Tail2	Battery	Tail3
Color	BR	W	GY	BL	R	W/BK	W/G
OFF, LOCK							
ON	●	●	●	●		●	
P(PARK)		●	●	●		●	

RIGHT HANDLEBAR SWITCH CONNECTIONS								
Front Brake Light Switch			Engine Stop Switch			Starter Button		
Color	BK	BK	Color	Y/R	R	Color	BK/R	BK/R
Brake Lever			OFF			Push	●	
Pulled In	●					Released		
Released			RUN	●				

Wiring Diagram (Australia)



LEFT HANDLEBAR SWITCH CONNECTIONS																
Horn Button			Turn Signal Switch				Dimmer Switch				Starter Lockout Switch				Pas	
Color	BK/W	BK/Y	Color	G	O	GY	Color	R/Y	BL/Y	R/BK	Color	BK/Y	BK	BK/R	Col	
Push	○—●		R		○—●		LO	○—●			Clutch Lever				Pu	
Released			OFF(Push)								Released		○—●		Rele	
			L	○—●			HI		○—●		Pulled in	○—●				



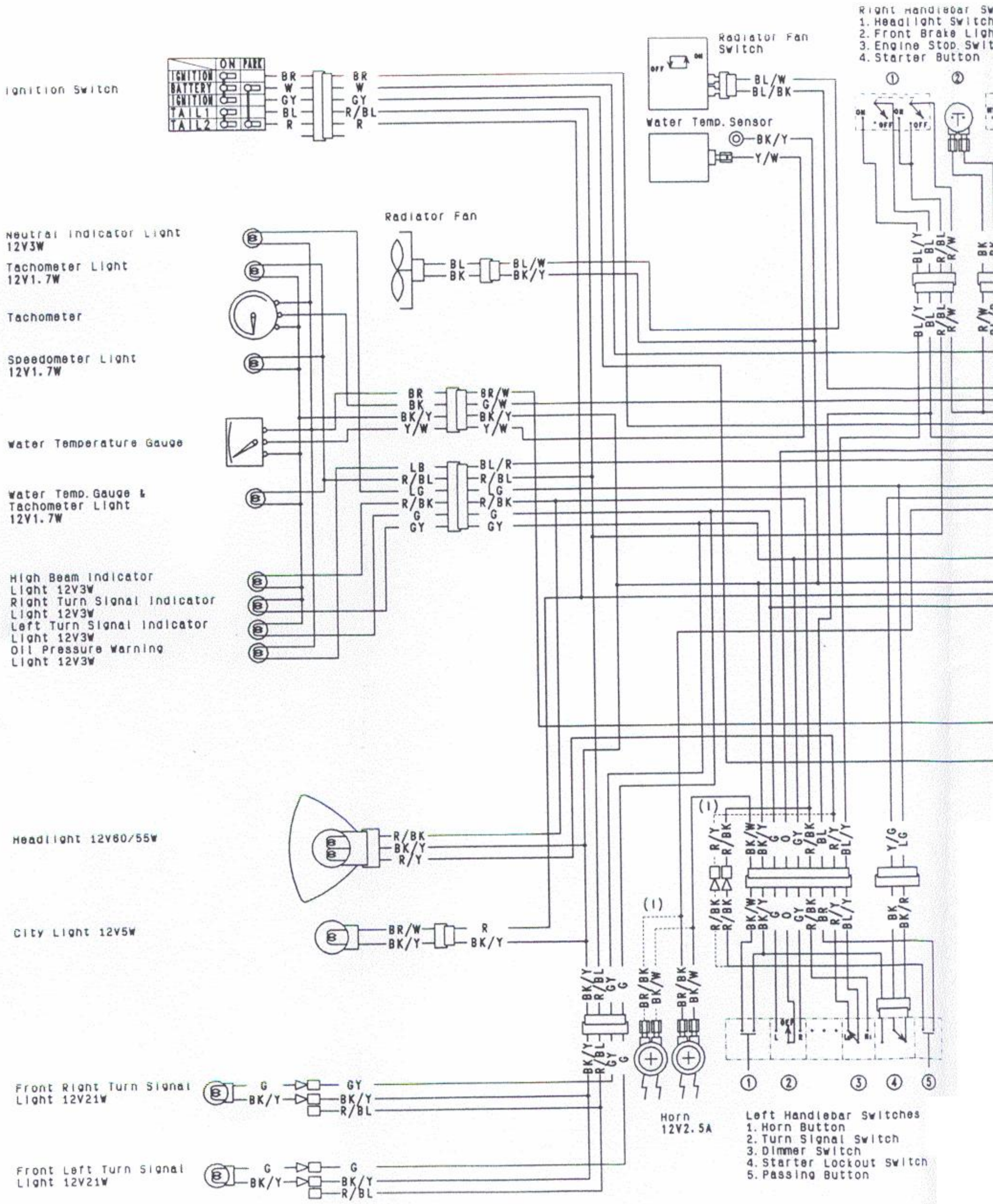
IGNITION SWITCH CONNECTIONS					
	Ignition	Battery	Ignition	Tail1	Tail2
Color	BR	W	GY	BL	R
OFF, LOCK					
ON	○	○	○	○	
P(PARK)		○	○	○	○

RIGHT HANDLEBAR SWITCH CONNECTIONS								
Front Brake Light Switch			Engine Stop Switch			Starter Button		
Color	BK	BK	Color	Y/R	R	Color	BK/R	BK/R
Brake Lever			OFF			Push	○	○
Pulled in	○	○				Released		
Released			RUN	○	○			

Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

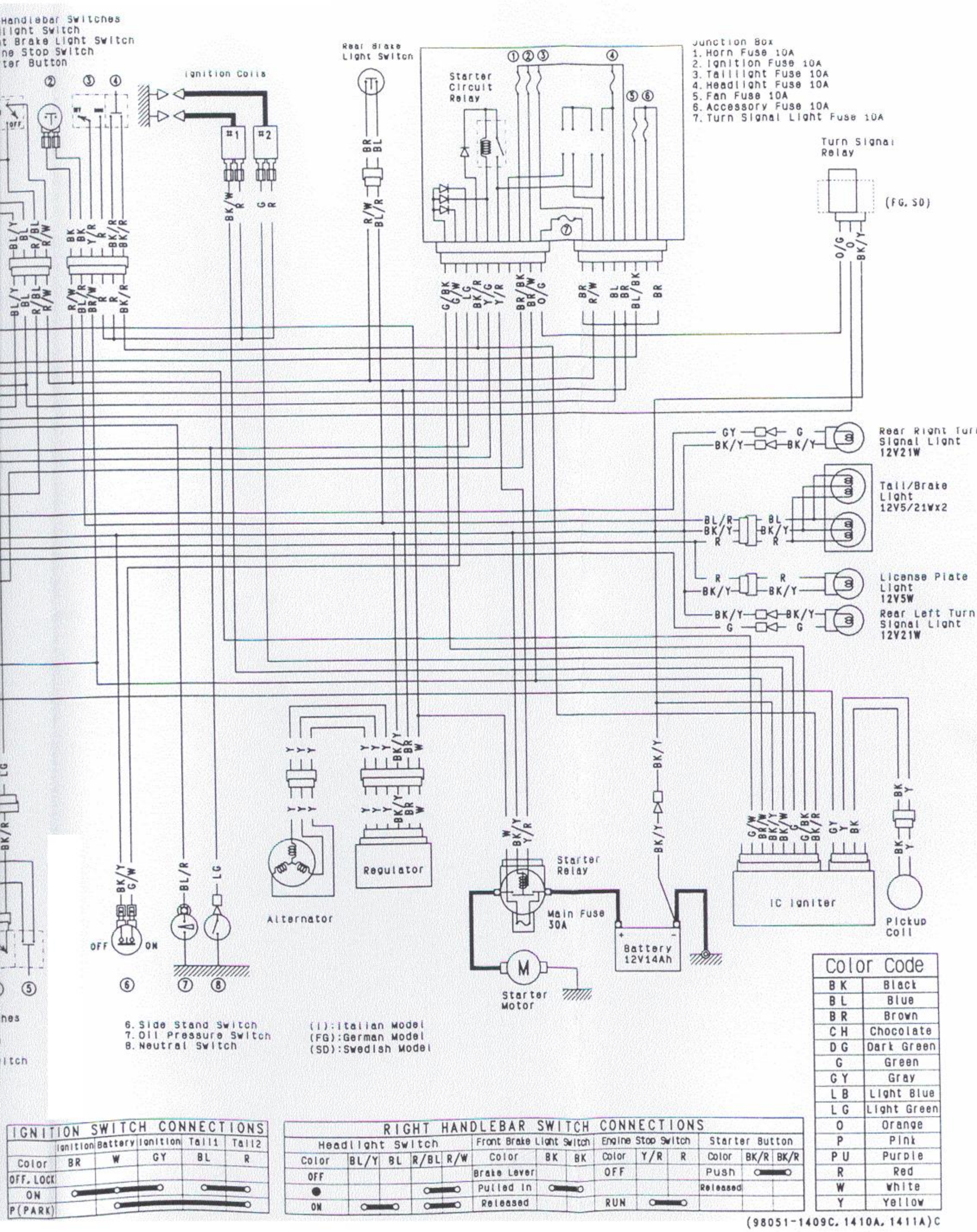
(98051-1408C)C

Wiring Diagram (Other than US, Canada, and Australia)



LEFT HANDLEBAR SWITCH CONNECTIONS																	
Horn Button			Turn Signal Switch				Dimmer Switch				Starter Lockout Switch				Passing Button		
Color	BK/W	BK/Y	Color	G	O	GY	Color	R/Y	BL/Y	R/BK	Color	BK/Y	BK	BK/R	Color	BR	R/BK
Push	●	●	R		●		LO	●			Clutch Lever				Push	●	●
Released			OFF(Push)								Released		●		Released		
			L	●			HI		●		Pulled in	●					

IGNITION	
	Ignit
Color	BR
OFF, LOCK	
ON	●
P(PARK)	



IGNITION SWITCH CONNECTIONS					
	Ignition	Battery	Ignition	Tail1	Tail2
Color	BR	W	GY	BL	R
OFF, LOCK					
ON	●		●	●	
P(PARK)		●			●

RIGHT HANDLEBAR SWITCH CONNECTIONS														
Headlight Switch					Front Brake Light Switch			Engine Stop Switch			Starter Button			
Color	BL/Y	BL	R/BL	R/W	Color	BK	BK	Color	Y/R	R	Color	BK/R	BK/R	
OFF					Brake Lever			OFF			Push	●		
●			●		Pulled in	●					Released			
ON	●		●		Released			RUN	●					

Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

(98051-1409C, 1410A, 1411A)C

Charging System

Regulator/Rectifier Output Voltage Inspection

Refer to the Base Manual, noting the following.

● The connector 1 is not on the EX500, therefore connect the hand tester to the battery as shown in the table.

Regulator/Rectifier Output Voltage

Meter	Connectings		Reading
Range	Meter (+) to	Meter (−) to	
25 V DC	Battery (+)	Battery (−)	14 ~ 15 V

● Turn off the headlight of US, Canada, and Australia models by remove the 10A headlight fuse in the junction box.

Alternator Inspection

Refer to the Base Manual, noting the following.

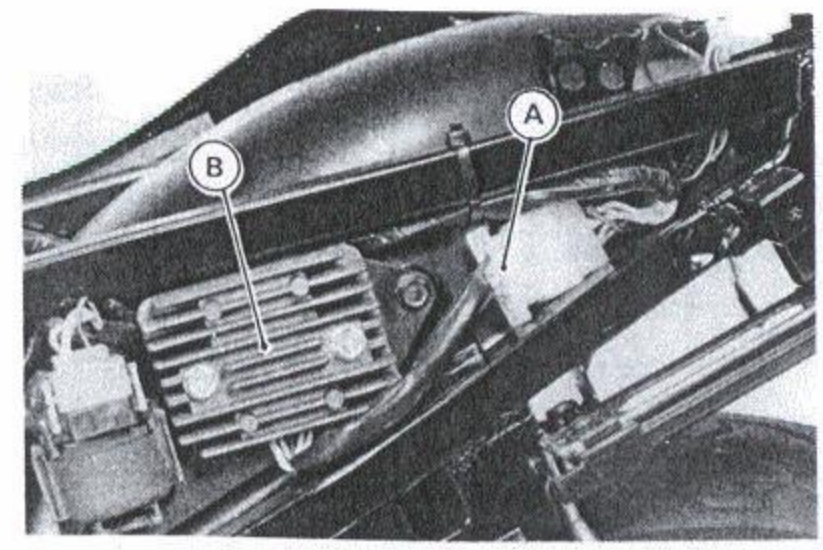
● Removal of the air filter is not needed for the EX500.

● Remove the left side cover (see Frame chapter).

Rectifier Inspection

● Remove:

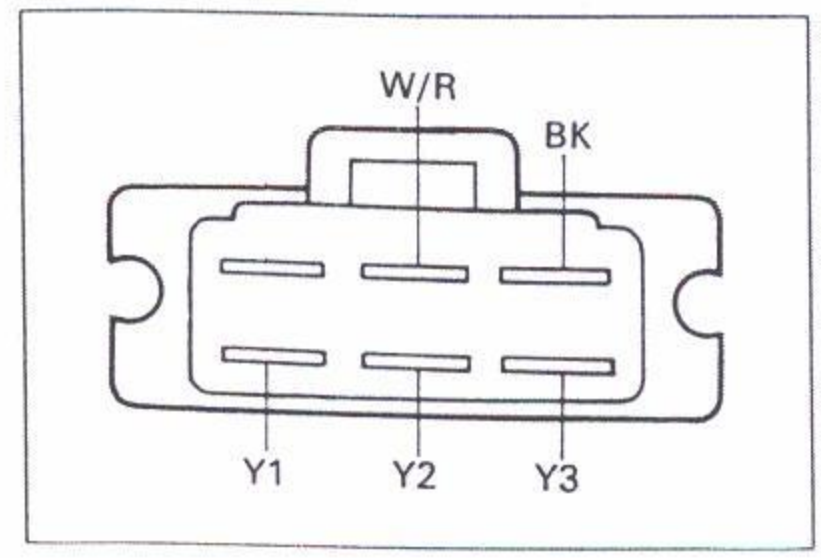
Left Side Cover (see Frame chapter)
Connector [A] (disconnect)
Regulator/Rectifier [B]



● Check conductivity of the following pair of terminals.

Rectifier Circuit Inspection

Tester Connection	W/R−Y1 , W/R−Y2 , W/R−Y3
	BK−Y1 , BK−Y2 , BK−Y3

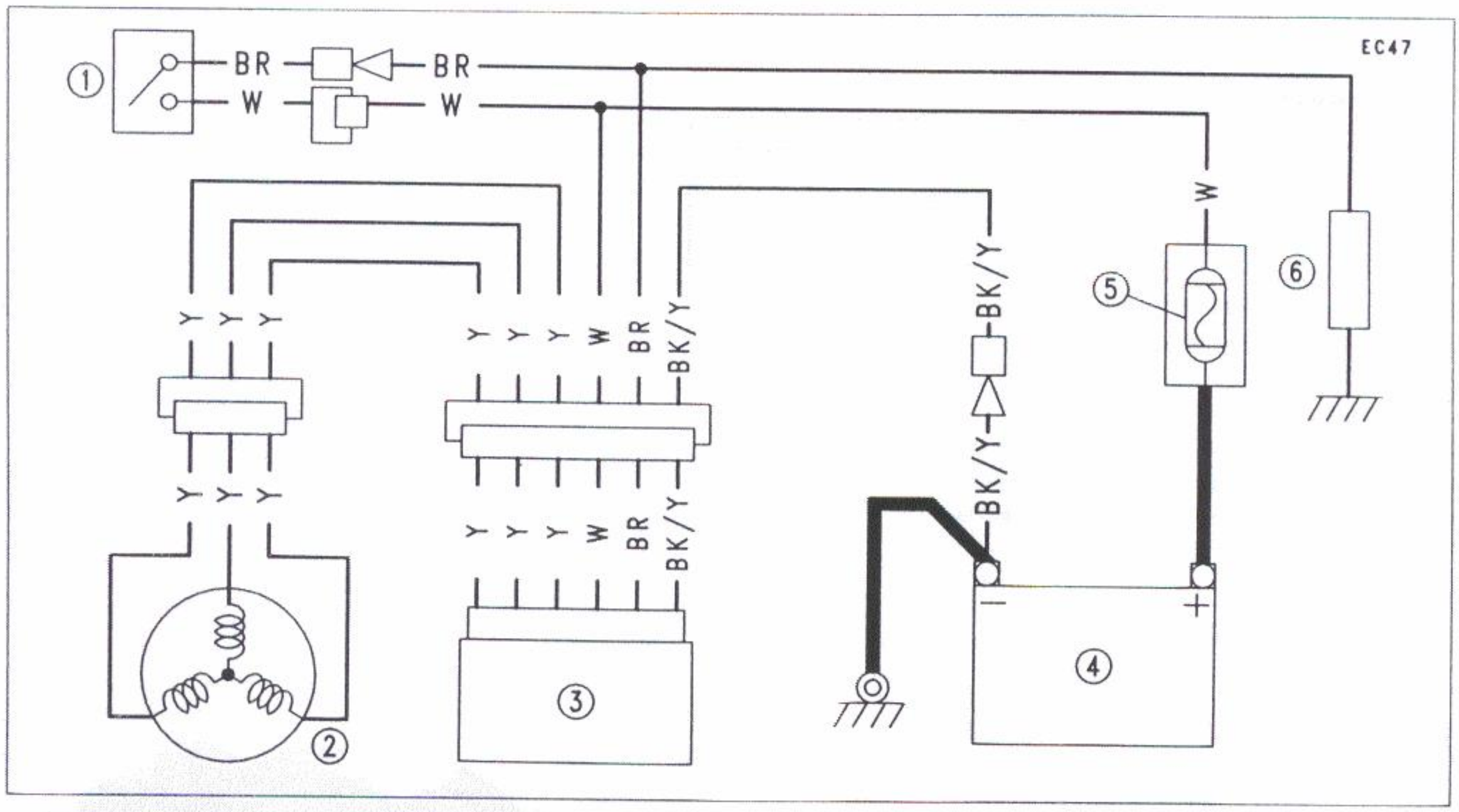


★ The resistance should be low in one direction and more than ten times as much in the other direction. If any two leads are low or high in both directions, the rectifier is defective and must be replaced.

NOTE

○ *The actual meter reading varies with the meter used and the individual rectifier, but, generally speaking the lower reading should be from zero to one half the scale.*

Charging System Circuit



1. Ignition Switch
2. Alternator
3. Regulator/Rectifier
4. Battery
5. 30A Main Fuse
6. Load

Ignition System

Ignition Coil Removal/Installation Note

● Connect the primary wires to the primary coil terminals as follows.

Black/White and red wires → No. 1 Ignition coil

Green and red wires → No. 2 Ignition coil

IC Igniter Inspection

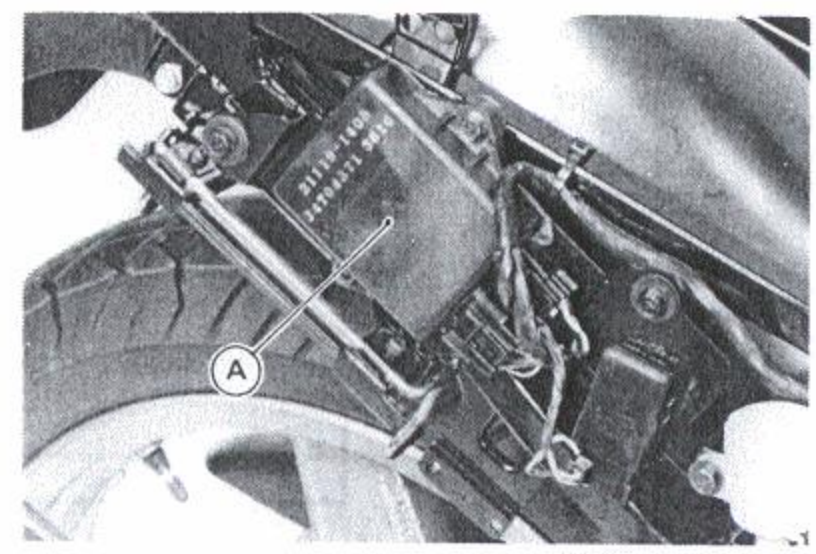
Refer to the Base Manual, noting the following

● The IC Igniter [A] is installed on the right side of the frame.

● Set the hand tester to the × 1 kΩ range and make the measurements shown in the table.

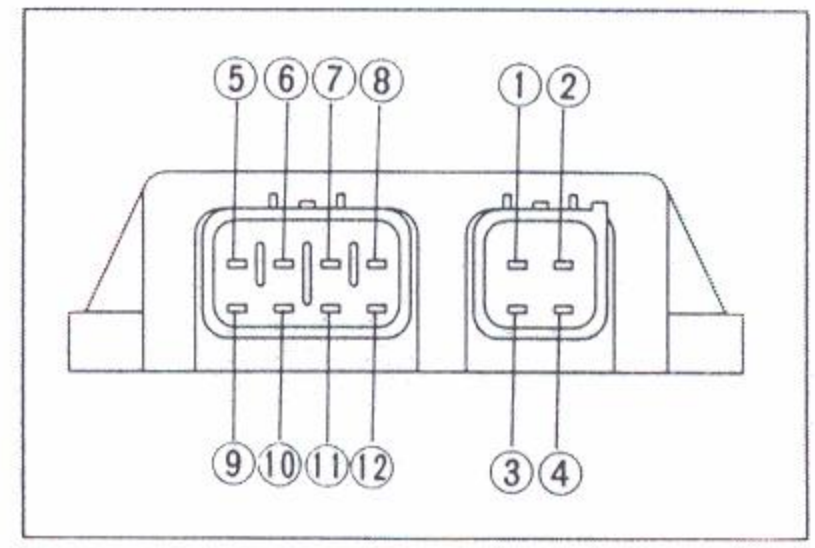
Special Tool – Hand Tester: 57001-983

★ If the tester readings are not as specified, replace the IC igniter.



CAUTION

Use only Hand Tester 57001-983 for this test. A tester other than the Kawasaki Hand Tester may show different readings.
If a megger or a meter with a large-capacity battery is used, the IC igniter will be damaged.



IC Igniter Internal Resistance (4P) **Unit: kΩ**

		Tester (+) Lead Connection			
	Terminal	1	2	3	4
(−)*	1	–	∞	∞	∞
	2	∞	–	0 ~ 0.8	28 ~ 100
	3	∞	0 ~ 0.8	–	28 ~ 100
	4	∞	26 ~ 100	26 ~ 100	–

(−)*: Tester (−) Lead Connection

IC Igniter Internal Resistance (8P) **Unit: kΩ**

		Tester (+) Lead Connection							
	Terminal	5	6	7	8	9	10	11	12
(−)*	5	–	∞	∞	∞	∞	∞	∞	∞
	6	30 ~ 150	–	24 ~ 90	19 ~ 80	30 ~ 150	45 ~ 300	∞	15 ~ 60
	7	6.5 ~ 26	7 ~ 28	–	2 ~ 4.6	6.5 ~ 26	5.5 ~ 22	∞	3.8 ~ 15
	8	3.8 ~ 16	4.4 ~ 18	1.8 ~ 7.5	–	3.8 ~ 16	2.8 ~ 11	∞	1.8 ~ 7.5
	9	∞	∞	∞	∞	–	∞	∞	∞
	10	∞	∞	∞	∞	∞	–	∞	∞
	11	∞	∞	∞	∞	∞	∞	–	∞
	12	1.4 ~ 5.5	1.6 ~ 6.5	2 ~ 8	1.6 ~ 6	1.4 ~ 5.5	5 ~ 20	∞	–

(−)*: Tester (−) Lead Connection

Ignition Coil Inspection

Refer to the Base Manual, noting the following.

Ignition Coil Arcing Distance

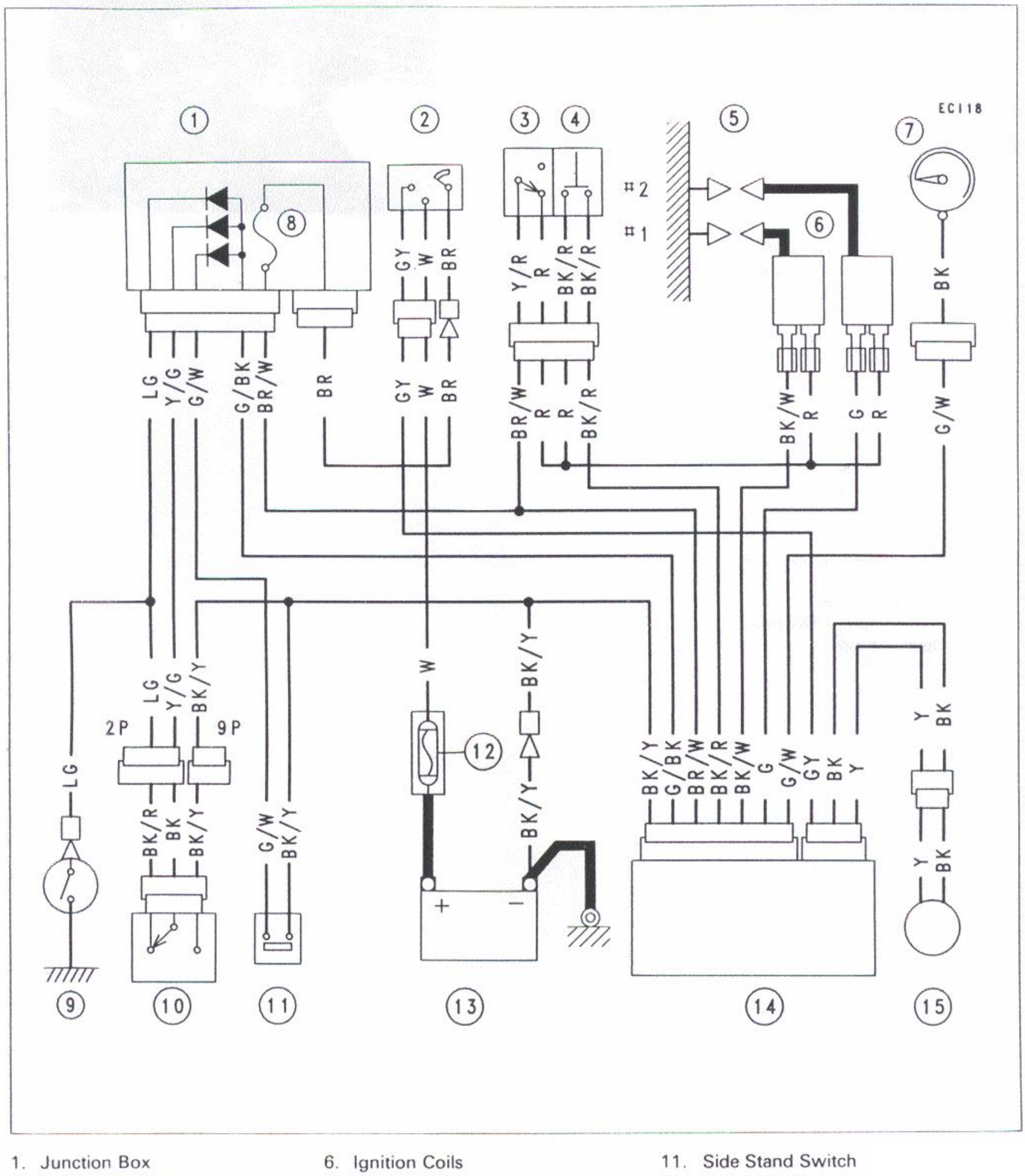
6 mm or more

Ignition Coil Winding Resistance

Primary windings: **2.3 ~ 3.5 Ω**

Secondary windings: **12 ~ 18 kΩ**

Ignition System Circuit



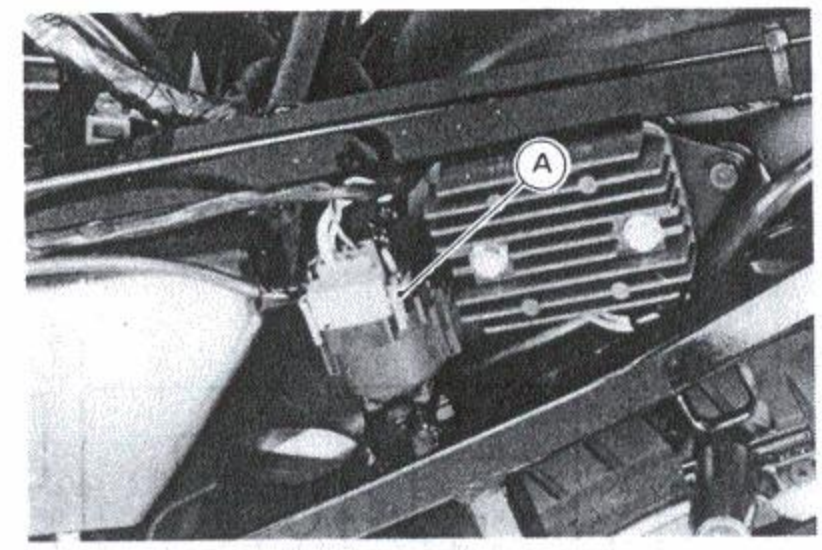
1. Junction Box
2. Ignition Switch
3. Engine Stop Switch
4. Starter Button
5. Spark Plugs
6. Ignition Coils
7. Tachometer
8. 10A Ignition Fuse
9. Neutral Switch
10. Starter Lockout Switch
11. Side Stand Switch
12. 30A Main Fuse
13. Battery
14. IC Igniter
15. Pickup Coil

Electric Starter System

Starter Relay Inspection

Refer to the Base Manual, noting the following.

● The starter relay [A] is installed on the left side of the frame.



Starter Circuit Relay Inspection

● The starter circuit relay is in the junction box for the EX500 (see Junction Box in this chapter).

Brush Inspection

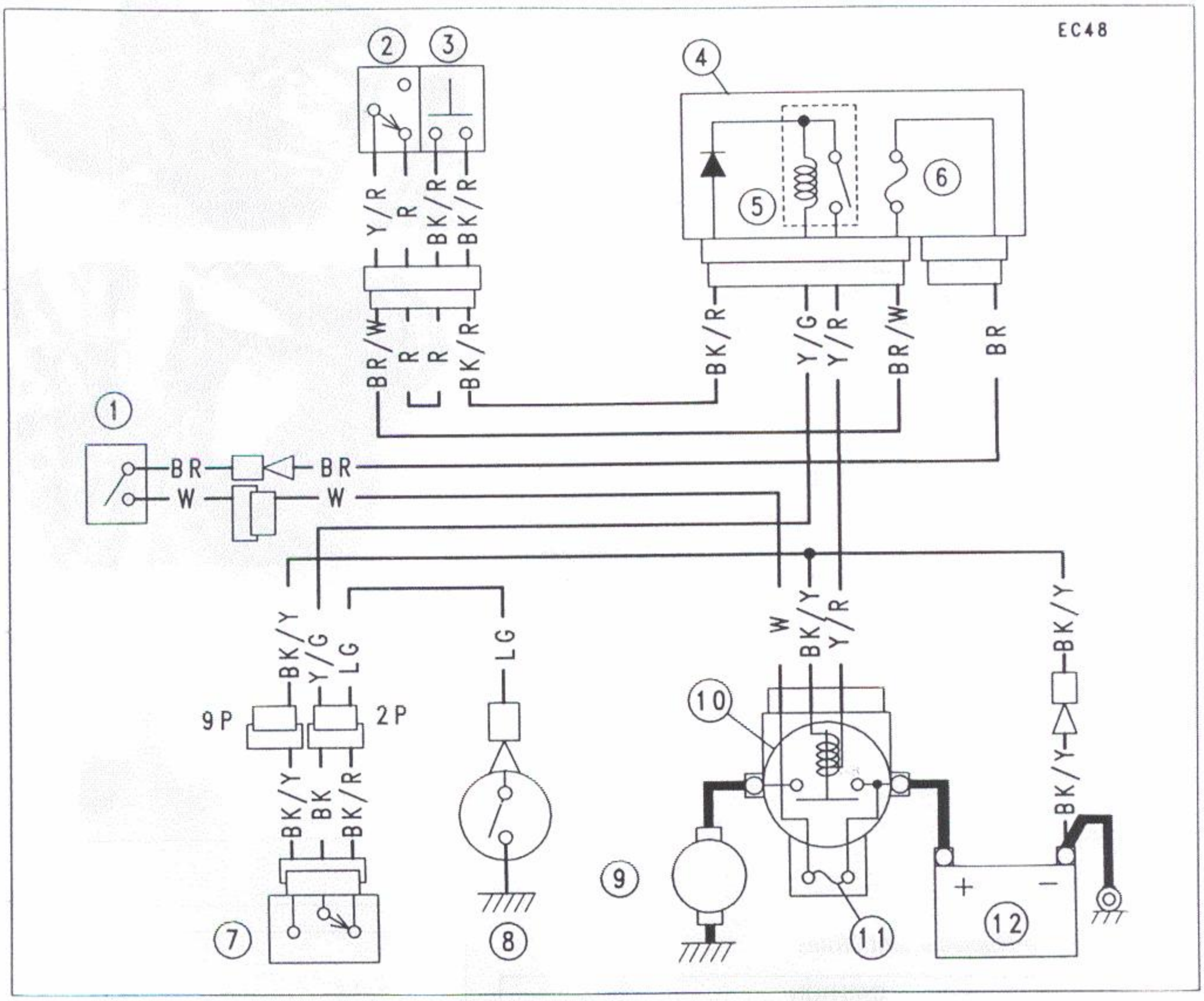
Refer to the Base Manual, noting the following.

Starter Motor Brush Length

Standard: **12.0 ~ 12.5 mm**

Service Limit: **6 mm**

Electric Starter System Circuit

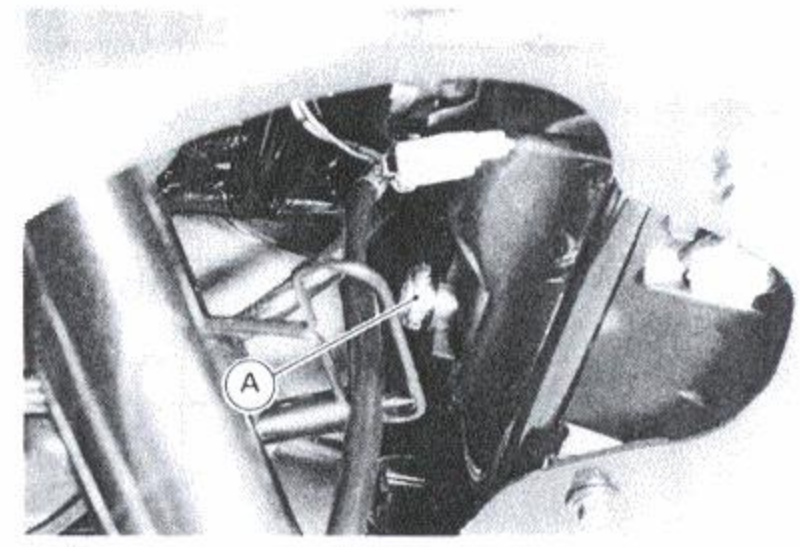


1. Ignition Switch
2. Engine Stop Switch
3. Starter Button
4. Junction Box
5. Starter Circuit Relay
6. 10A Ignition Fuse
7. Starter Lockout Switch
8. Neutral Switch
9. Starter Motor
10. Starter Relay
11. 30A Main Fuse
12. Battery

Lighting System

Headlight Beam Horizontal Adjustment

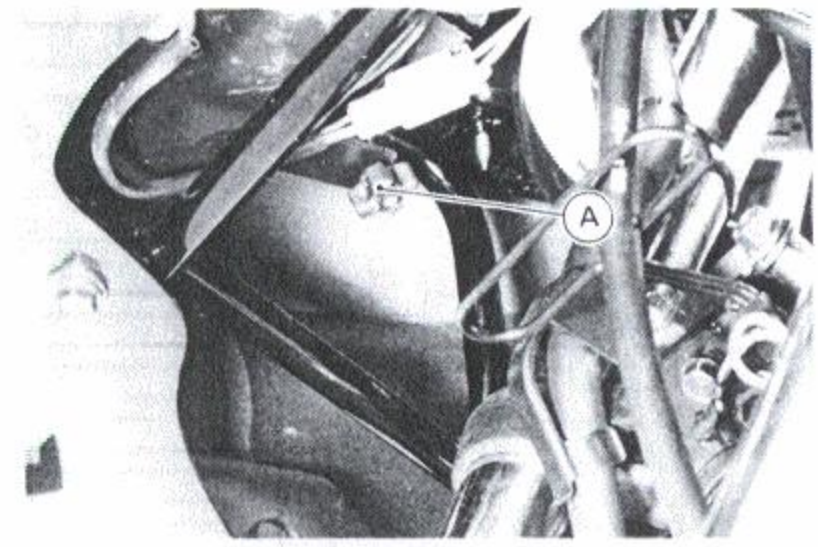
● Turn the adjuster [A] on the headlight in or out until the beam points straight ahead.



Headlight Beam Vertical Adjustment

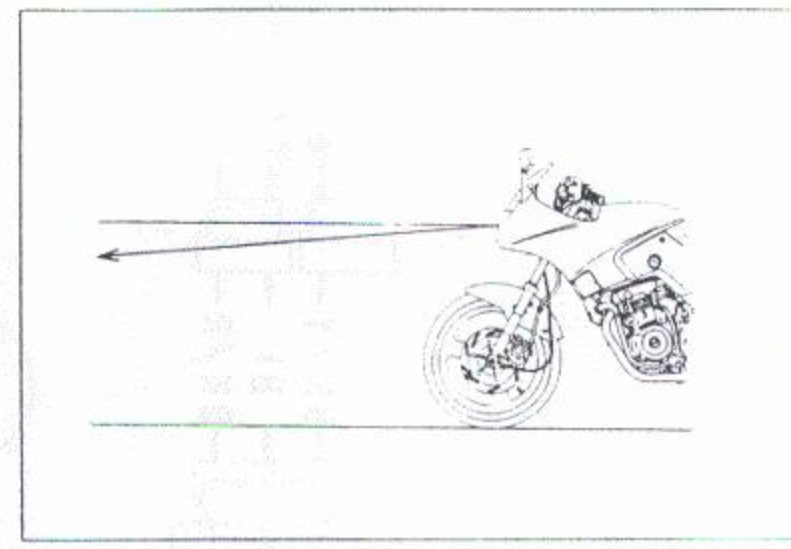
If the headlight beam is adjusted too low, neither low nor high beam will illuminate the road far enough ahead. If adjusted too high, the high beam will fail to illuminate the road close ahead, and the low beam will blind oncoming drivers.

● Turn the adjuster [A] on the headlight in or out to adjust the headlight vertically.



NOTE

○ *On high beam, the brightest point should be slightly below horizontal with the motorcycle on its wheels and the rider seated. Adjust the headlight to the proper angle according to local regulations.*

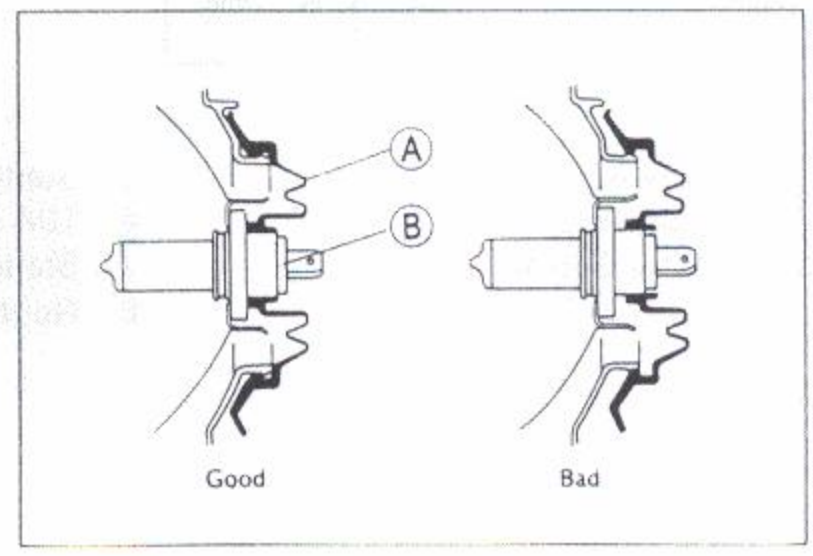


Headlight Bulb Replacement Notes

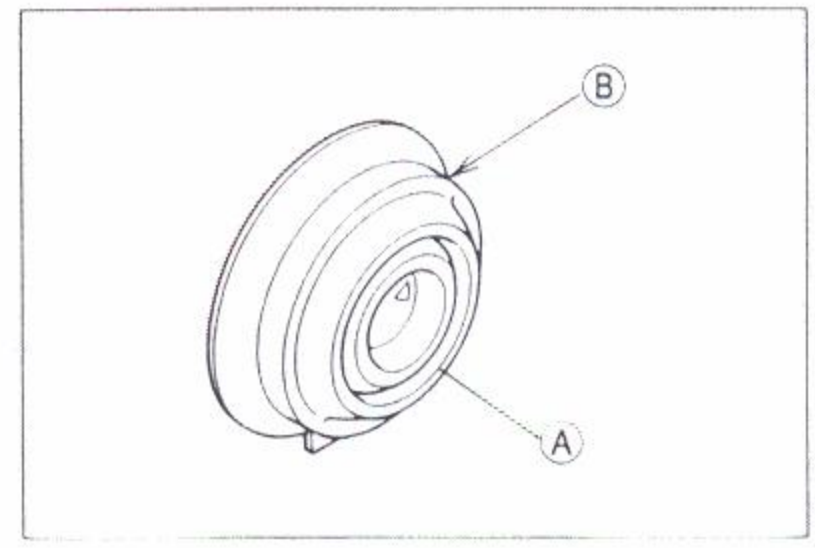
CAUTION

When handling the quartzhalogen bulbs, never touch the glass portion with bare hands. Always use a clean cloth. Oil contamination from hands or dirty rags can reduce bulb life or cause the bulb to explode.

● Fit the dust cover [A] onto the headlight bulb [B] firmly as shown in the figure.

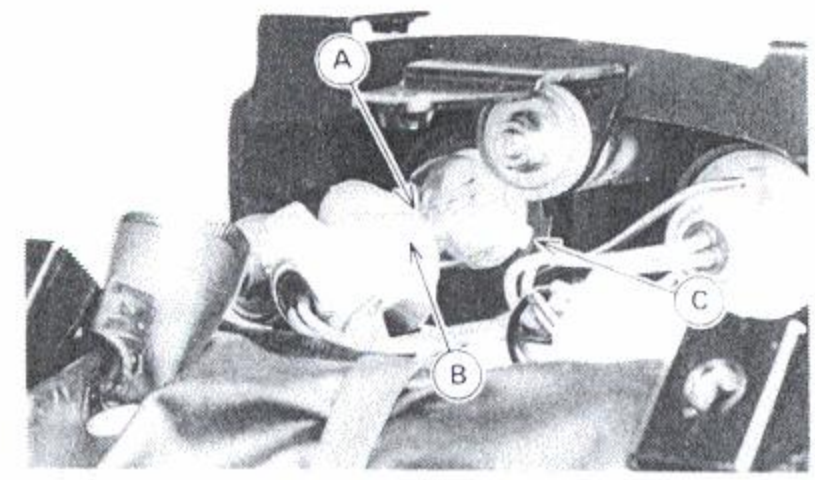


● Install the dust cover [A] so that the "TOP" mark [B] on the cover points up.



Tail/Brake Light Bulb Replacement Notes

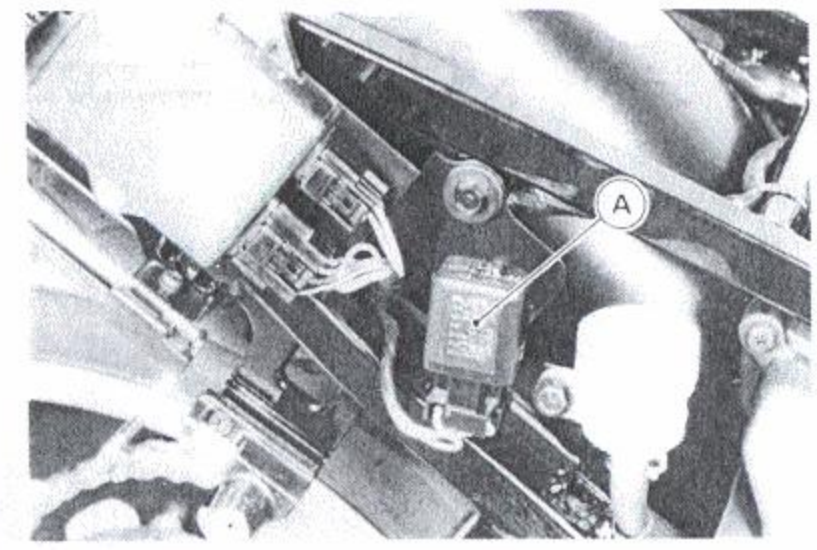
- Turn the socket counterclockwise and remove the bulb.
- Insert the new bulb in the socket and turn the bulb clockwise.
- Insert the socket by aligning the projection [A] on the triangular mark [B] with the notch [C] and turn the socket clockwise.



Turn Signal Relay Inspection

- Remove:
  Seat
  Left Side Cover
  Turn Signal Relay [A]
- Connect one 12 V battery and turn signal lights as indicated in the figure, and count how many times the lights flash for one minute.

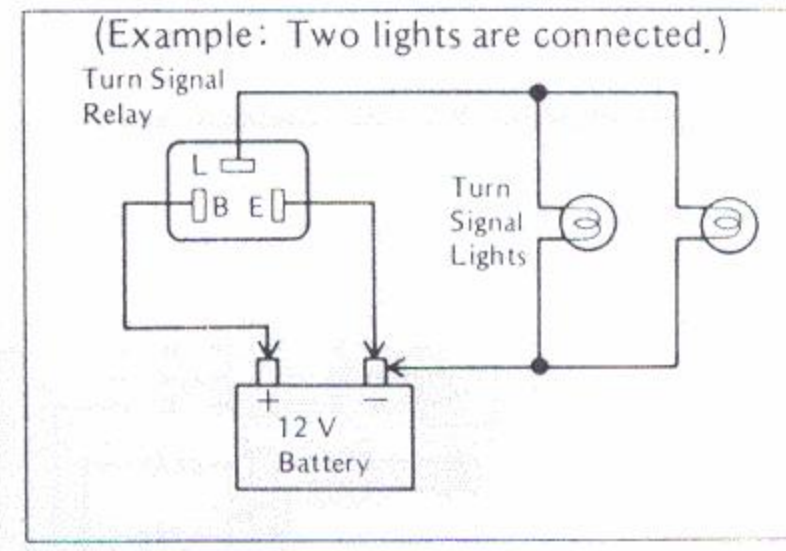
★If the lights do not flash as specified, replace the turn signal relay.



Testing Turn Signal Relay (US, Canada, Germany, and Sweden Models)

Load		Flashing times (c/m*)
The Number of Turn Signal Lights	Wattage(W)	
1	21 – 23	More than 150
2	42 – 46	75 – 95
3	63 – 69	
4	84 – 92	

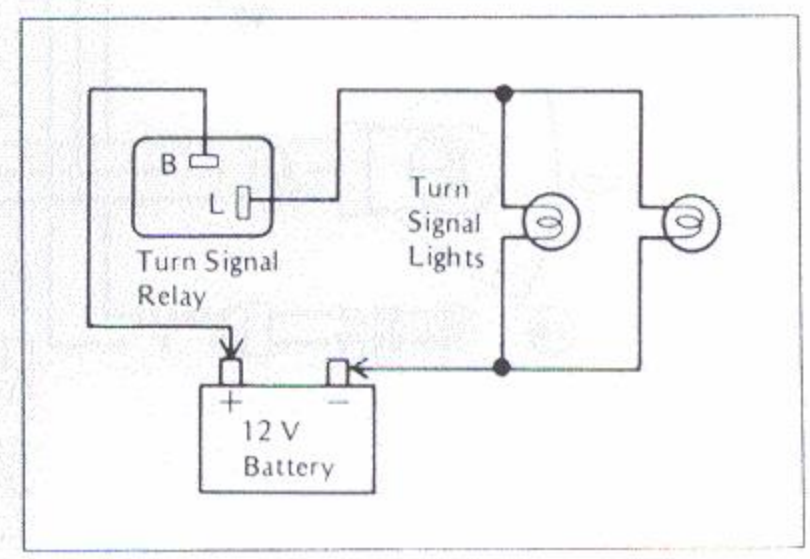
*: Cycle(s) per minute



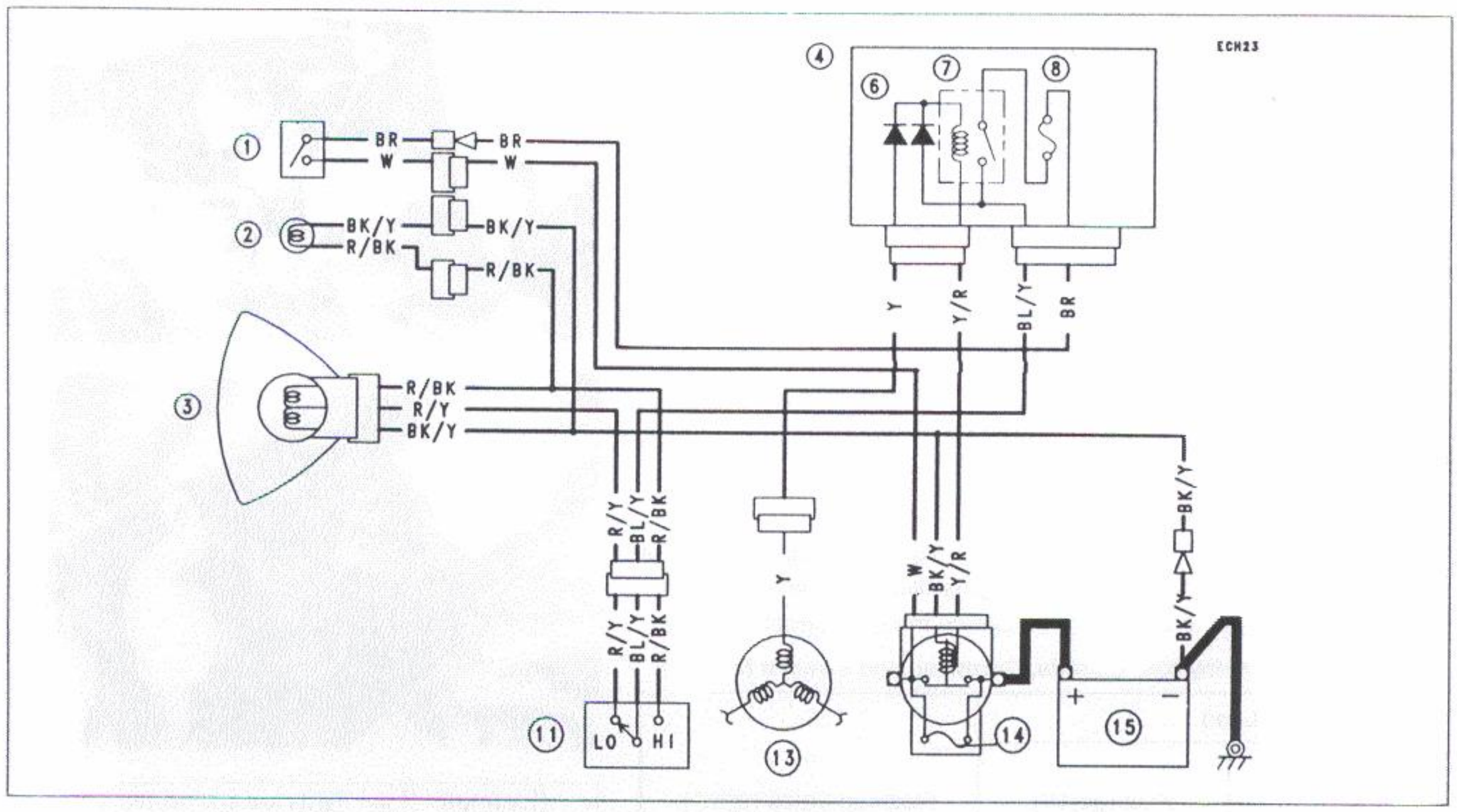
Testing Turn Signal Relay (Other than above Models)

Load		Flashing times (c/m*)
The Number of Turn Signal Lights	Wattage(W)	
1	21	Light stays on
2	42	75 – 95

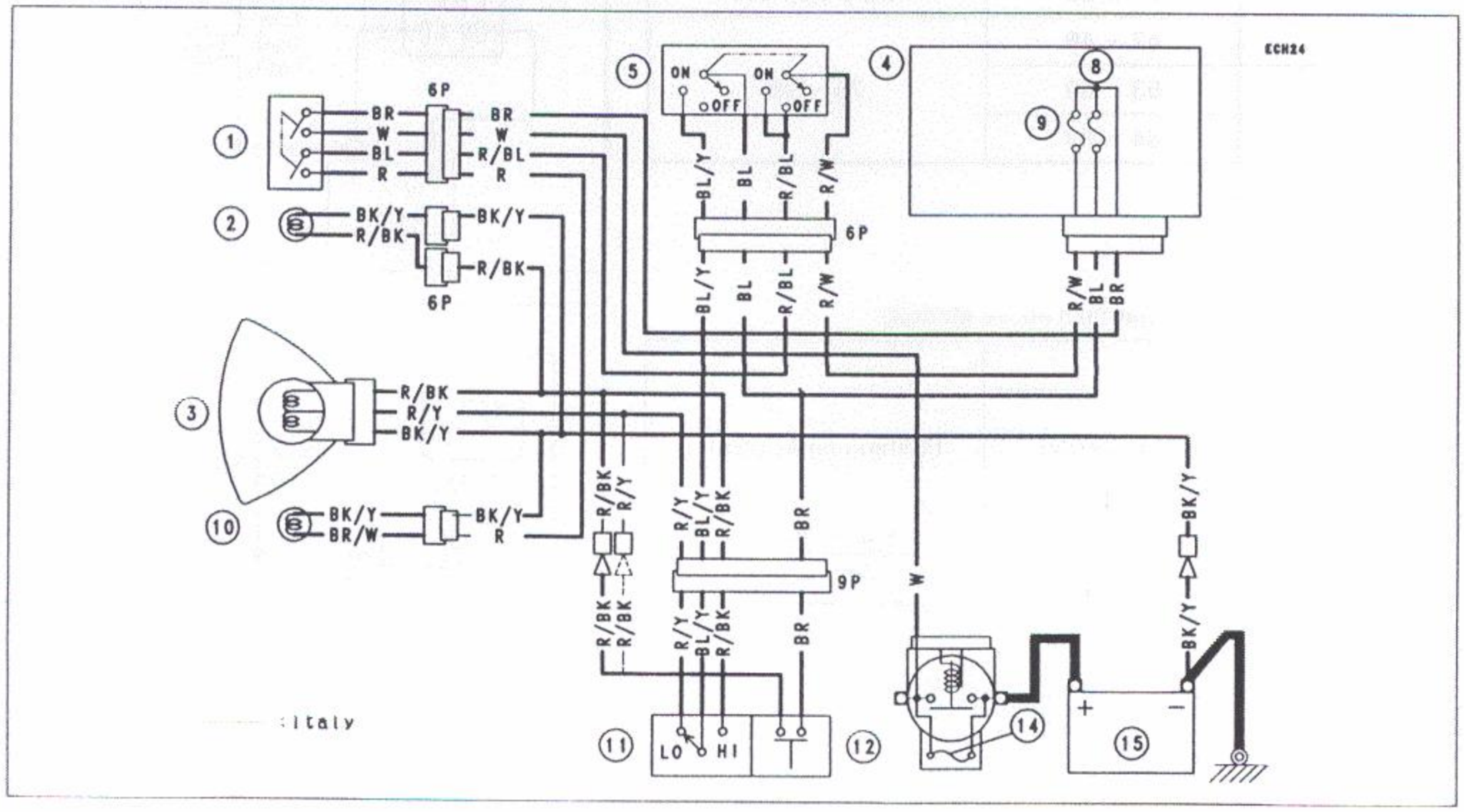
*: Cycle(s) per minute



Headlight Circuit (US, Canada, and Australia)

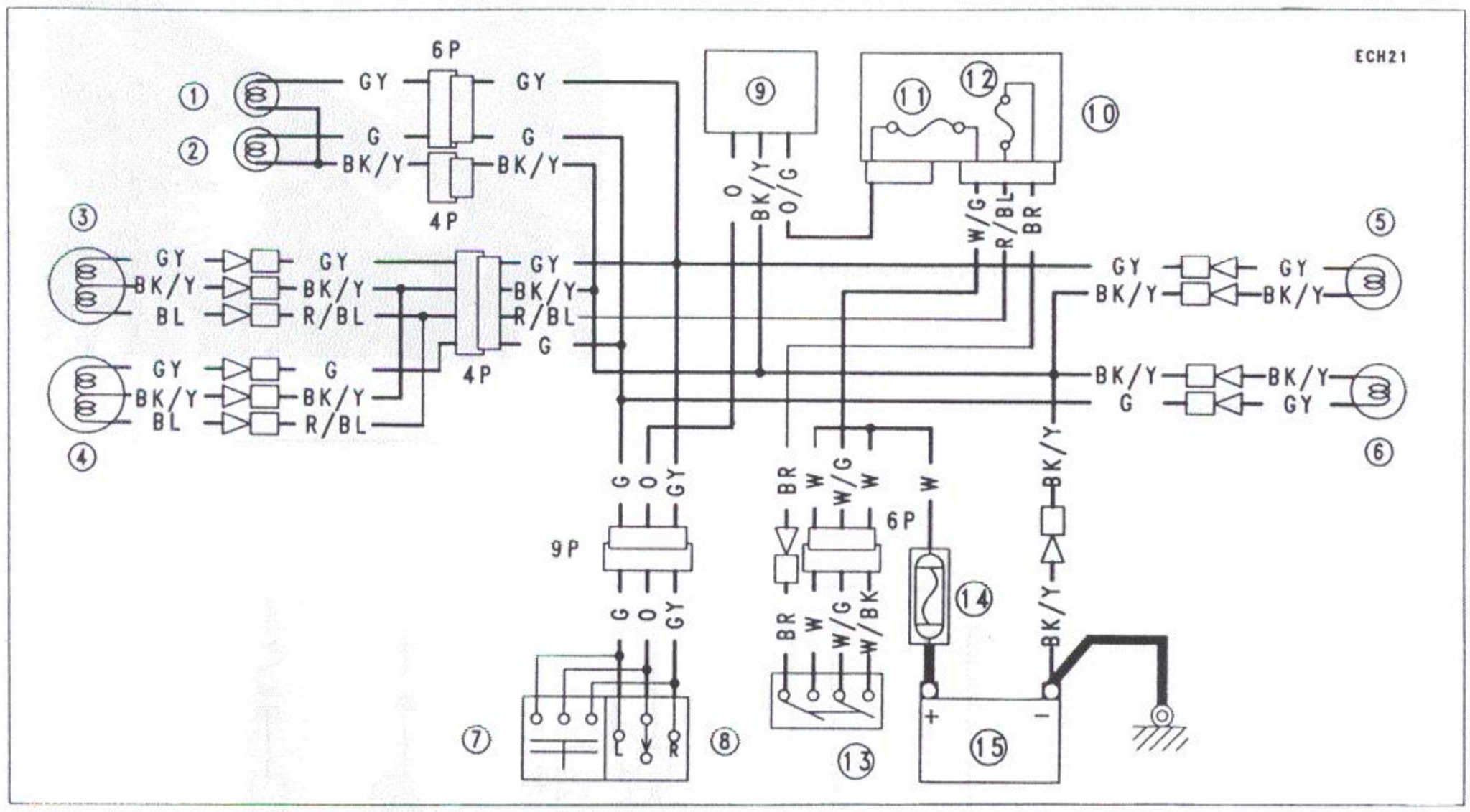


Headlight Circuit (Other than US, Canada, and Australia)

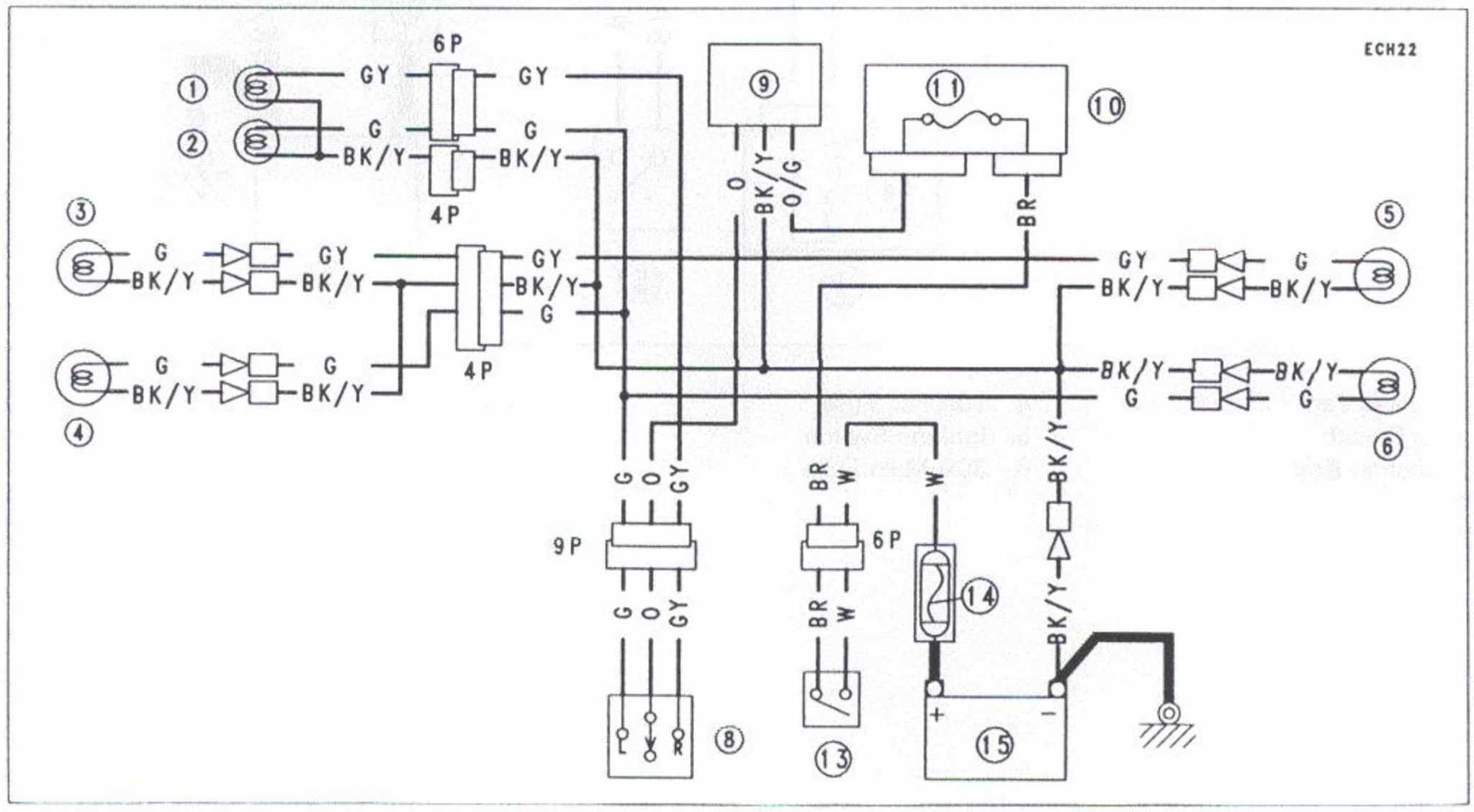


1. Ignition Switch
2. High Beam Indicator Light
3. Headlight
4. Junction Box
5. Headlight Switch
6. Diodes
7. Headlight Circuit Relay
8. 10A Headlight Fuse
9. 10A Taillight Fuse
10. City Light
11. Dimmer Switch
12. Passing Button
13. Alternator
14. 30A Main Fuse
15. Battery

Turn Signal Light Circuit (US and Canada)



Turn Signal Light Circuit (Other than US and Canada)



1. Right Turn Signal Indicator Light
2. Left Turn Signal Indicator Light
3. Front Right Turn Signal Light
4. Front Left Turn Signal Light
5. Rear Right Turn Signal Light
6. Rear Left Turn Signal Light
7. Hazard Switch
8. Turn Signal Switch
9. Turn Signal Relay
10. Junction Box
11. 10A Turn Signal Fuse
12. 10A Taillight Fuse
13. Ignition Switch
14. 30A Main Fuse
15. Battery

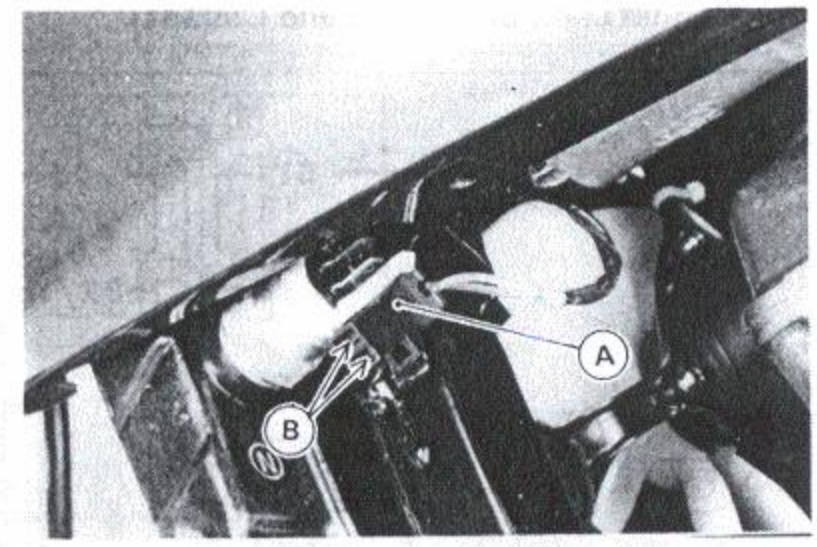
Radiator Fan System

Fan System Circuit Inspection

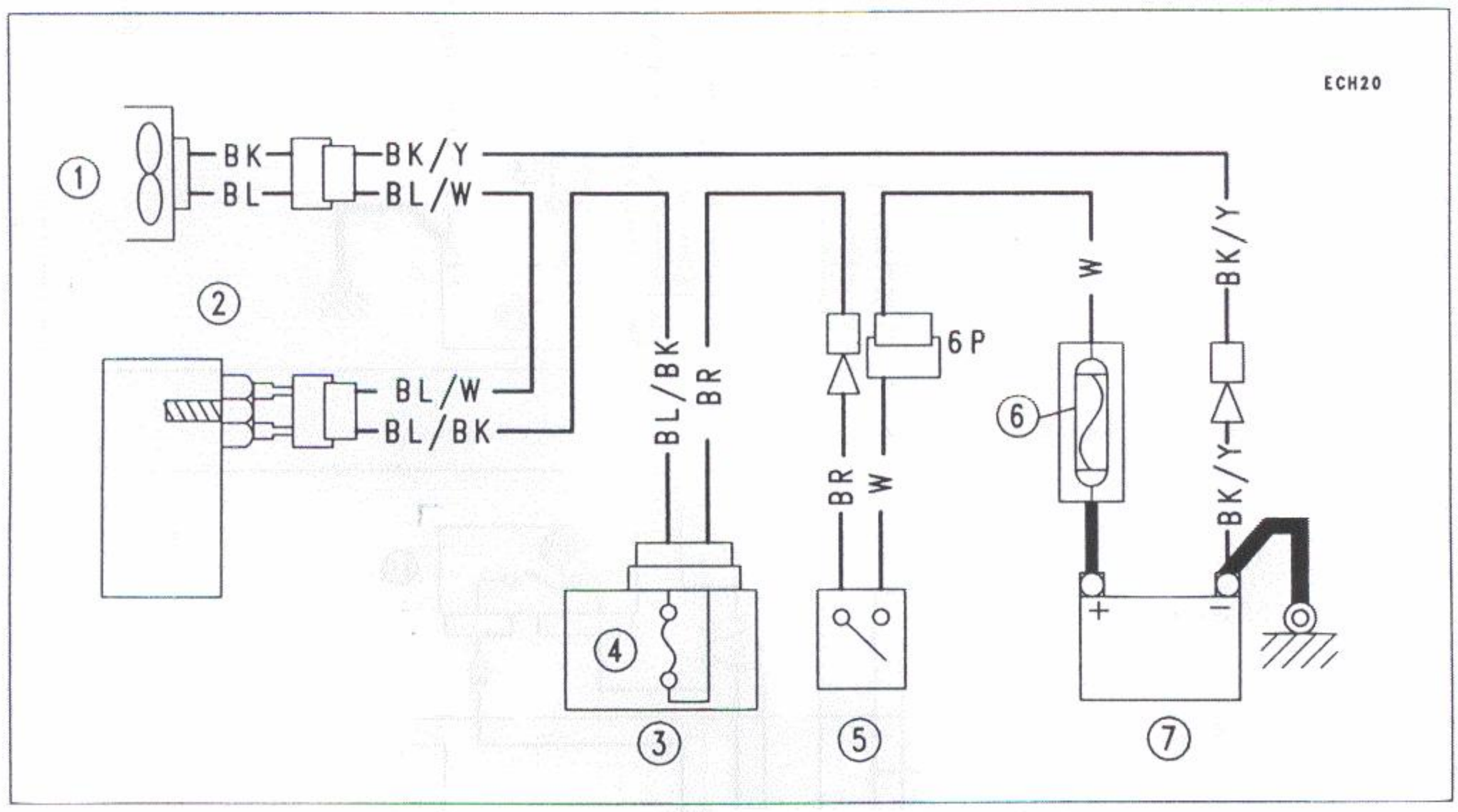
- Remove the fairing (see Frame chapter).
- Disconnect the connector [A] from the radiator fan switch.
- Turn on the ignition switch.
- Using an auxiliary wire, connect the radiator fan switch leads [B].

★If the fan turns, inspect the fan switch.

★If the fan does not turns, inspect the following.
Main Fuse and Fan Fuse
Radiator Fan (see Fan Inspection in the Base Manual)



Radiator Fan System Circuit



1. Radiator Fan
2. Fan Switch
3. Junction Box
4. 10A Fan Fuse
5. Ignition Switch
6. 30A Main Fuse
7. Battery

Meter and Gauge

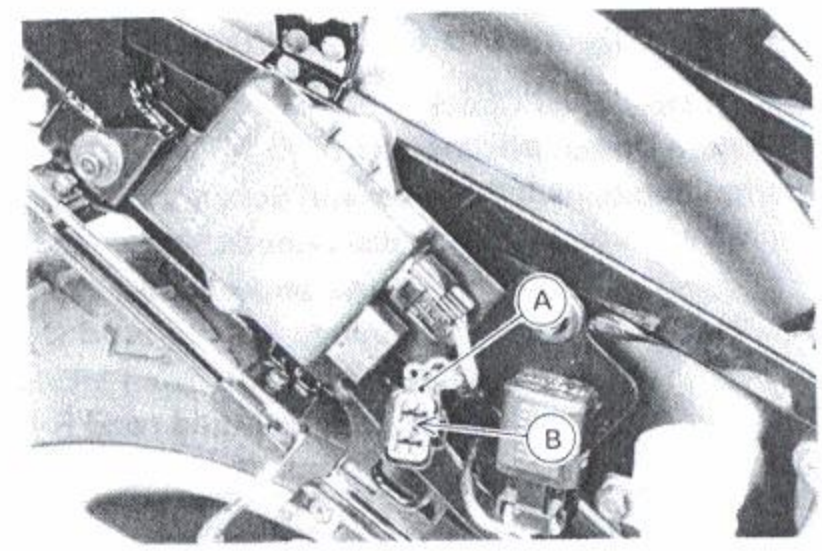
Tachometer Inspection

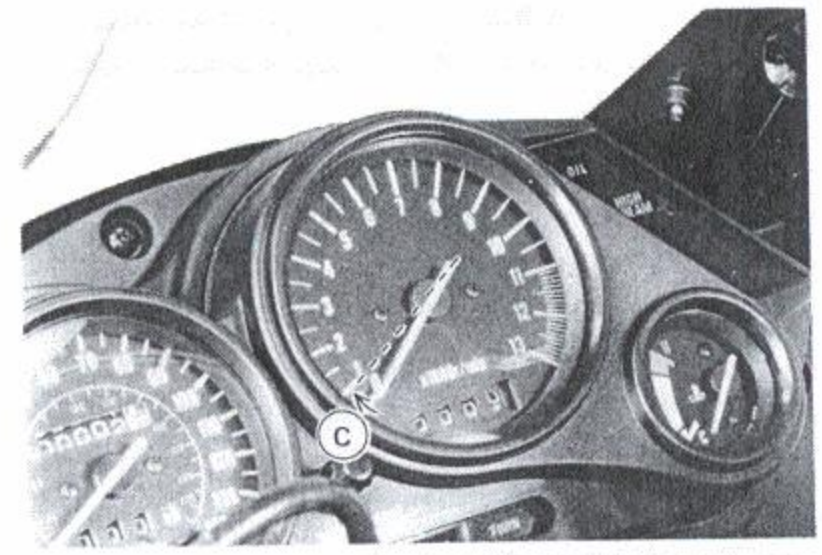
- Check the tachometer circuit wiring.

★If all wiring and components other than the tachometer unit check out good, the unit is suspect. Check the unit as shown.

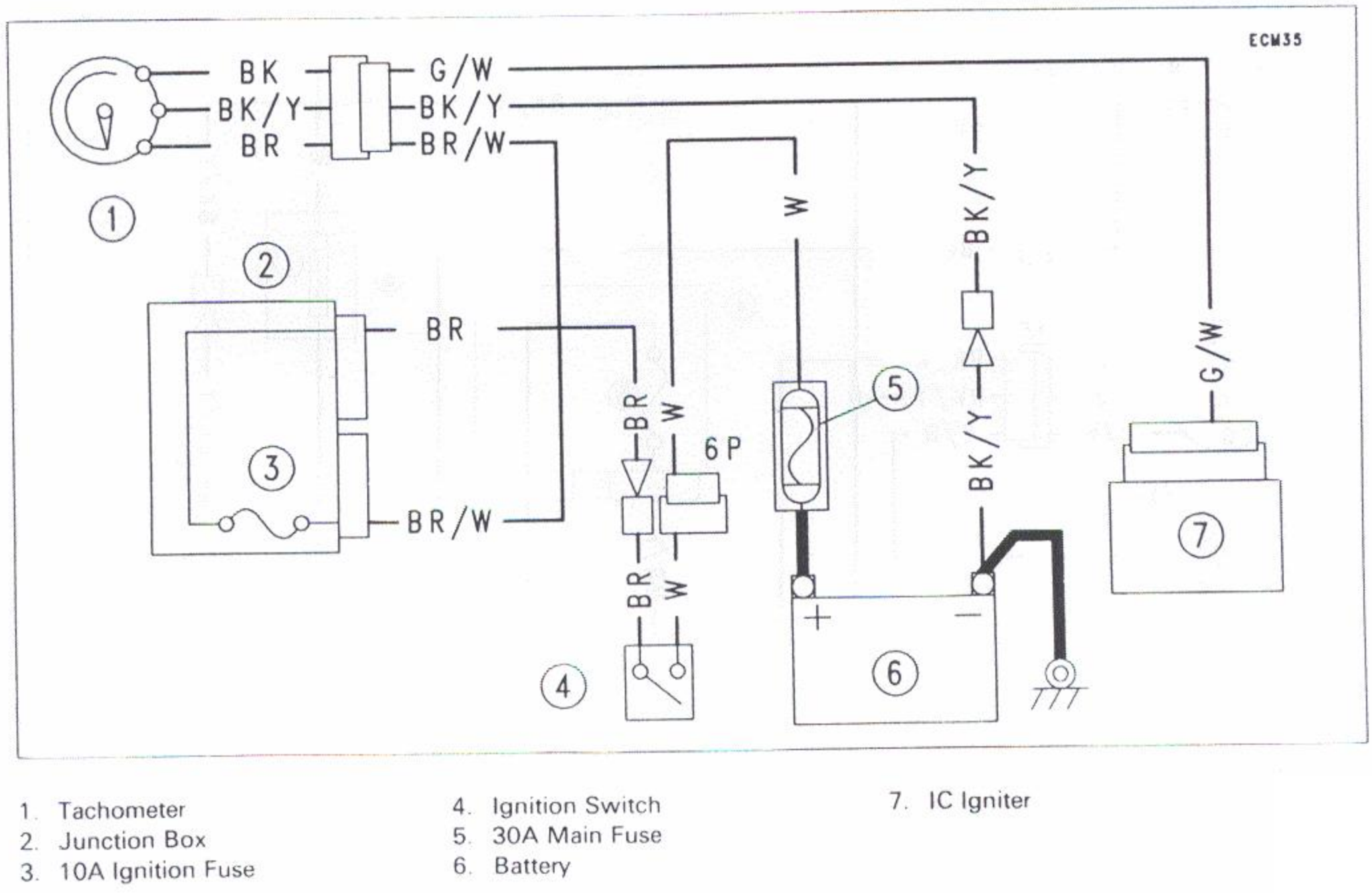
- Remove the right side cover (see Frame chapter).
- Disconnect the connector [A] from the IC igniter.
- Turn the ignition switch ON.
- Open or connect the G/W lead [B] to the battery positive terminal using an axiliary lead. Then the pointer [C] should flick.
- Turn the ignition switch OFF.

★If the pointer does not flick, replace the tachometer unit.





Tachometer Circuit

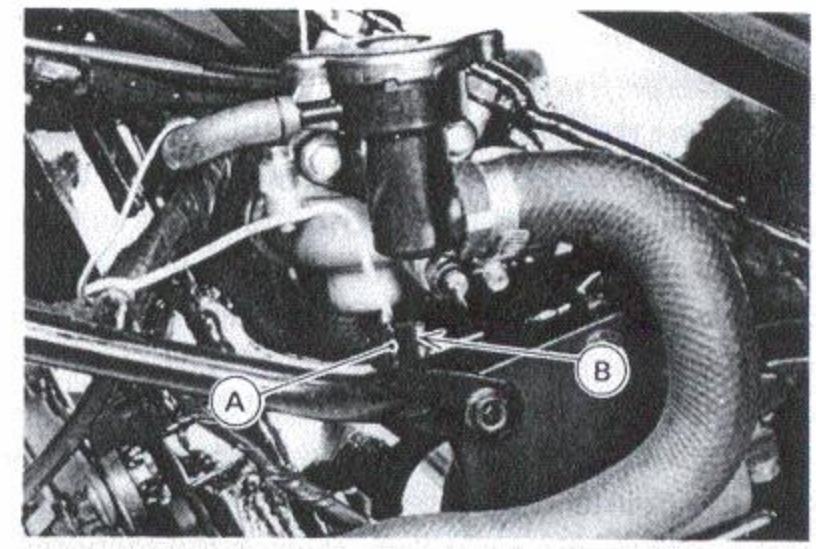


1. Tachometer
2. Junction Box
3. 10A Ignition Fuse
4. Ignition Switch
5. 30A Main Fuse
6. Battery
7. IC Igniter

Water Temperature Gauge Operation Inspection

● Prepare an auxiliary wire, and check the operation of the gauge.

Gauge Operation Check
Ignition Switch Position: ON
Wire Location: **Female, Sensor connector [A] (disconnected)**
Results: **Gauge should read C when connector wires is opened.**
Gauge should read H when connector wire [B] is grounded to engine.



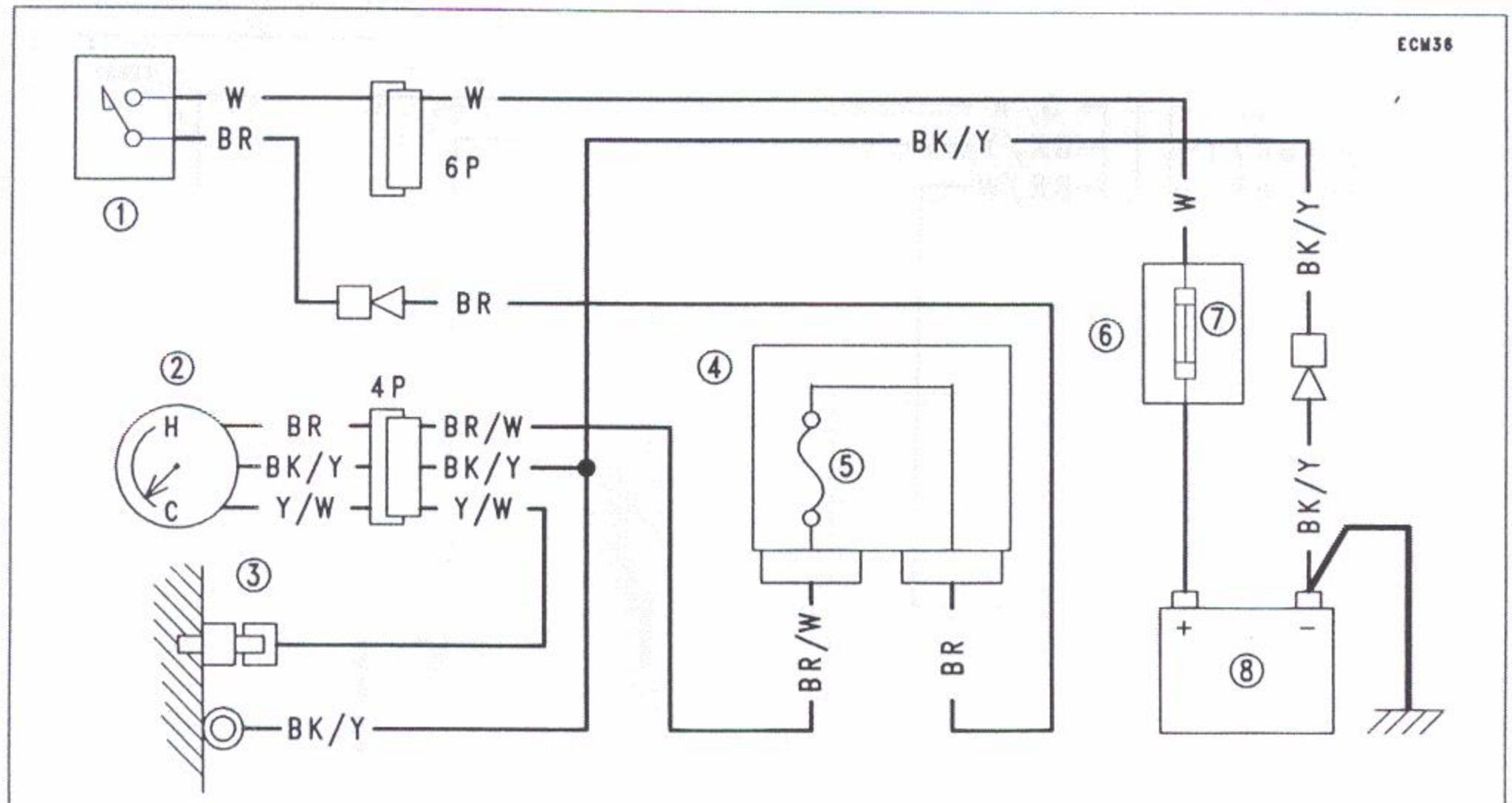
CAUTION
Do not ground the wiring longer than necessary. After the needle swings to the H position, stop the test. Otherwise the gauge could be damaged.

★ If these readings are not correct, the trouble is with the gauge and/or wiring.

● Check the water temperature gauge circuit wiring.

★ If all wiring and components other than the water temperature gauge unit check out good, the unit is defective.

Water Temperature Gauge Circuit



1. Igntion Switch
2. Water Temperature Gauge
3. Water Temperature Sensor
4. Junction Box
5. 10A Ingnition Fuse
6. Starter Relay
7. 30A Main Fuse
8. Battery

Switches and Sensors

Front Brake Light Testing

- Turn on the ignition switch.
- The brake light should go on when the front brake is applied.

★If it does not, inspect the switch.

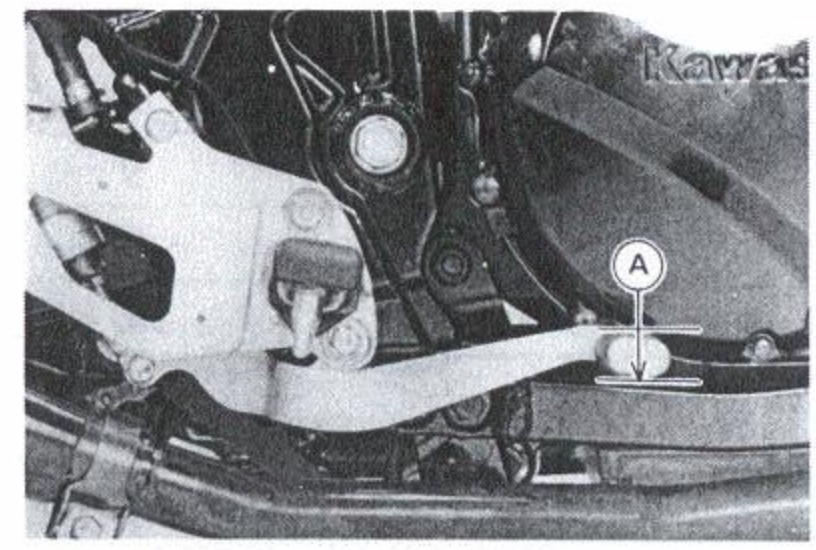
Rear Brake Light Testing

- Turn on the ignition switch.
- Check the operation of the rear brake light switch by depressing the brake pedal.

★If it does not as specified, adjust the brake light switch.

Rear Brake Light Switch Timing

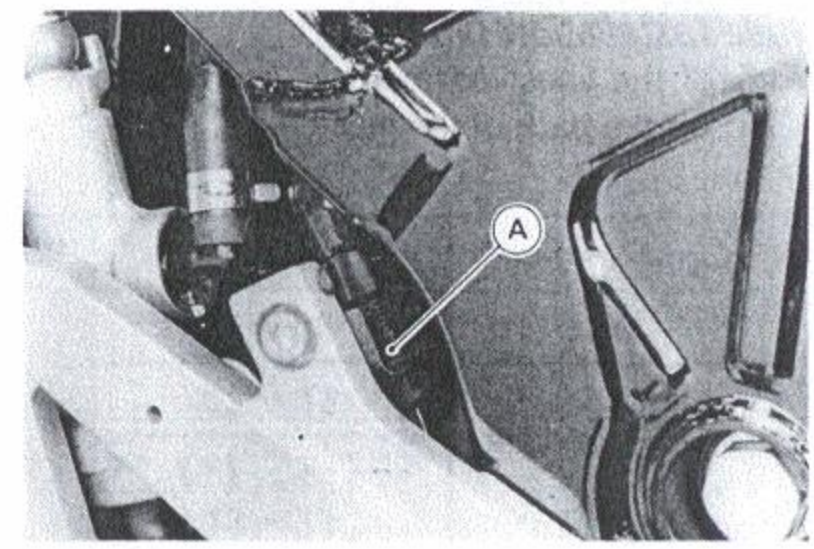
Standard: ON after about 10mm pedal travel [A]



Rear Brake Light Switch Position Adjustment

- Remove the Right side cover (see Frame chapter).
- Turn the adjusting nut [A] to adjust the switch.

CAUTION
To avoid damaging the electrical connections inside the switch, be sure that the switch body does not turn during adjustment.



Switch Inspection

Refer to the Base Manual, noting the following.

○For the handlebar switches and the ignition switch, refer to the tables in the Wiring Diagram.

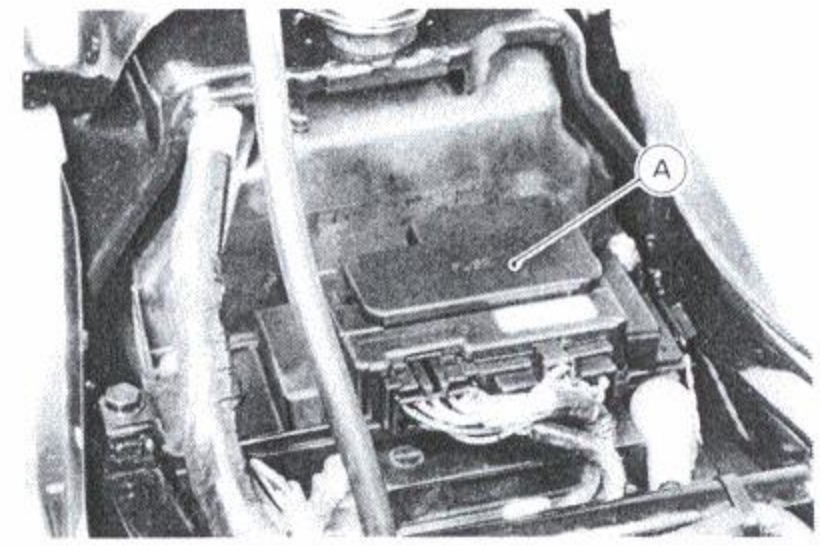
Side Stand Switch Connections

	BK/R	BK/Y
When side stand is up	○——	——○
When side stand is down		

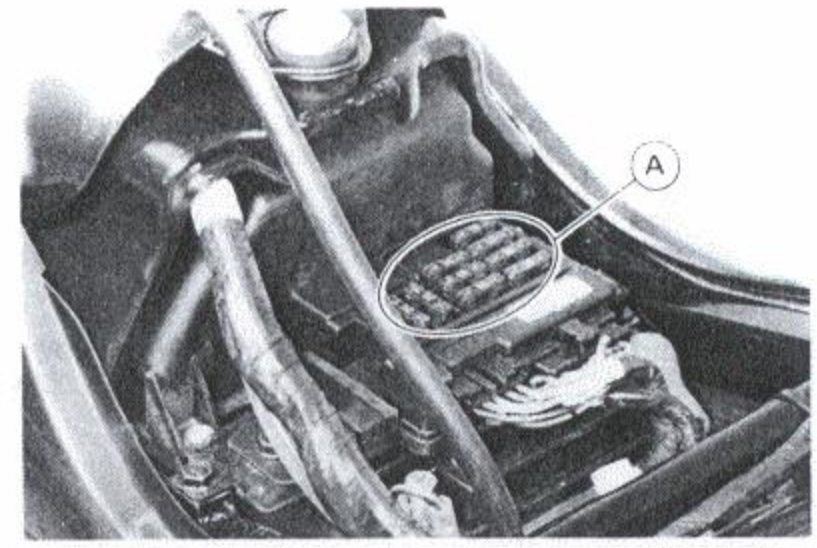
Junction Box

Fuse Removal

- Remove the seat (see Frame chapter)
- Remove the fuse cover [A] from the junction box

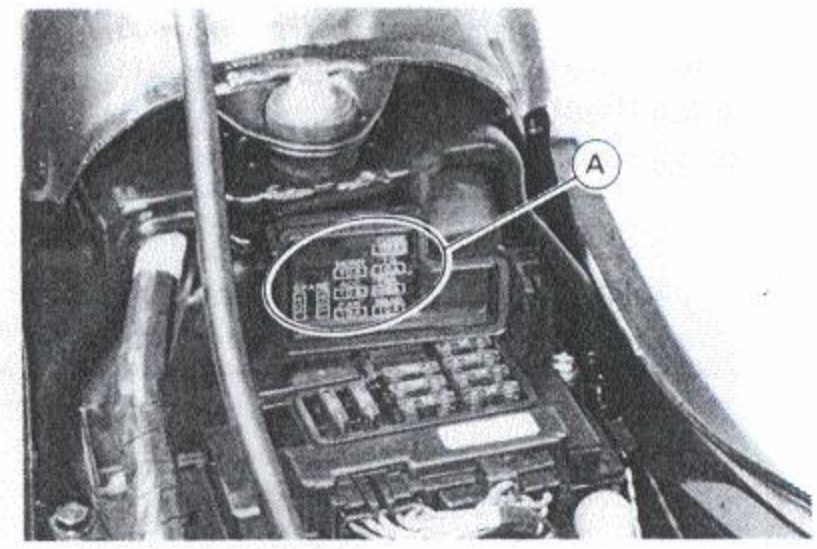


- Pull the fuses [A] straight off the junction box with needle nose pliers



Fuse Installation Note

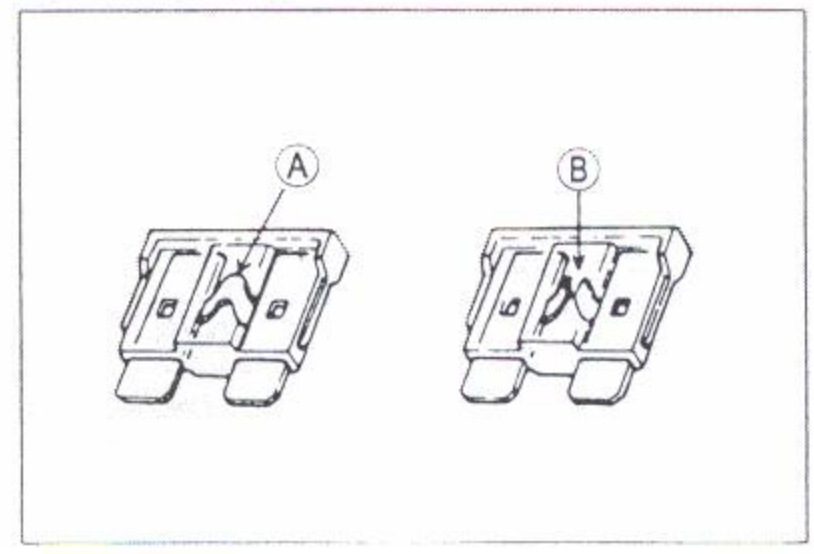
- Install the specified fuses in accordance with the arrangement plan [A] on the back of the fuse cover.



Fuse Inspection

- Remove the fuse from the junction box
- Inspect the fuse element [A].

★If it is blown out [B], replace the fuse.



NOTE

○*Before replacing a blown fuse, always check the amperage in the affected circuit. If the amperage is equal to or greater than the fuse rating, check the wiring and related components for a short circuit.*

CAUTION

When replacing a fuse, be sure the new fuse matches the specified fuse rating for that circuit. Installation of a fuse with a higher rating may cause damage to wiring and components.

Junction Box Fuse Circuit Inspection

- Remove the junction box.
- Make sure all connector terminals are clean and tight, and none of them have been bent.

★Clean the dirty terminals, and straighten slightly-bent terminals.

- Check conductivity of the numbered terminals with the hand tester.

★If the tester does not read as specified, replace the junction box.

Fuse Circuit Inspection

Tester Connection	Tester Reading (Ω)
1 – 1A	0
1 – 2	0
3A – 4	0
6 – 5	0
6 – 10	0
6 – 7	0
6 – 17	0

Tester Connection	Tester Reading (Ω)
1A – 8	∞
2 – 8	∞
3A – 8	∞
6 – 2	∞
6 – 3A	∞
17 – 3A	∞

Starter Circuit and Headlight Relay Inspection

- Remove the junction box.
- Check conductivity of the following numbered terminals by connecting the hand tester and one 12 V battery to the junction box as shown.

★If the tester does not read as specified, replace the junction box.

Relay Circuit Inspection (with the battery disconnected)

	Tester Connection	Tester Reading (Ω)		Tester Connection	Tester Reading (Ω)
Headlight Relay	*7 – 8	∞	Starter Circuit Relay	9 – 11	∞
	*7 – 13	∞		12 – 13	∞
	(+) (–) *13 – 9	Other than ∞		(+) (–) 13 – 11	∞
				(+) (–) 12 – 11	Other than ∞

*: US, Canada, and Australia Models only
(+)(–): Terminal lead connection is limited.

Relay Circuit Inspection (with the battery connected)

	Battery Connection (+) (–)	Tester Connection	Tester Reading (Ω)
Headlight Relay	*9 – 13	*7 – 8	0
Starter Circuit Relay	11 – 12	(+) (–) 13 – 11	Other than ∞

*: US, Canada, and Australia Models only
(+)(–): Terminal lead connection is limited.

ode Circuit Inspection

Remove the junction box.

Check conductivity of the following pair of terminals.

Diode Circuit Inspection

ester Connection	*13-8, *13-9, 12-11, 12-14, 15-14, 16-14

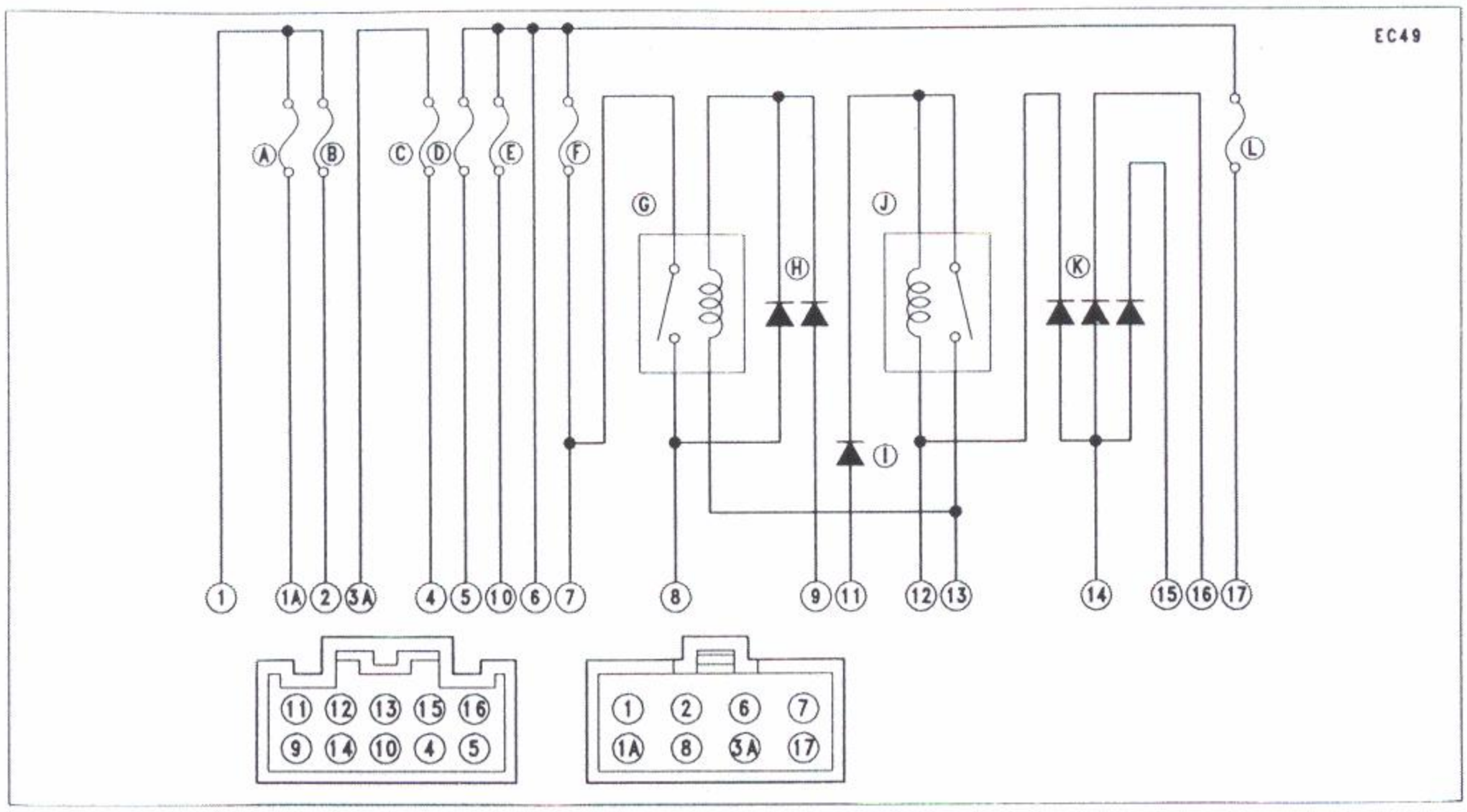
US, Canada, and Australia Models only

he resistance should be low in one direction and more than ten times s much in the other direction. If any diode shows low or high in both irections, the diode is defective and the junction box must be eplaced.

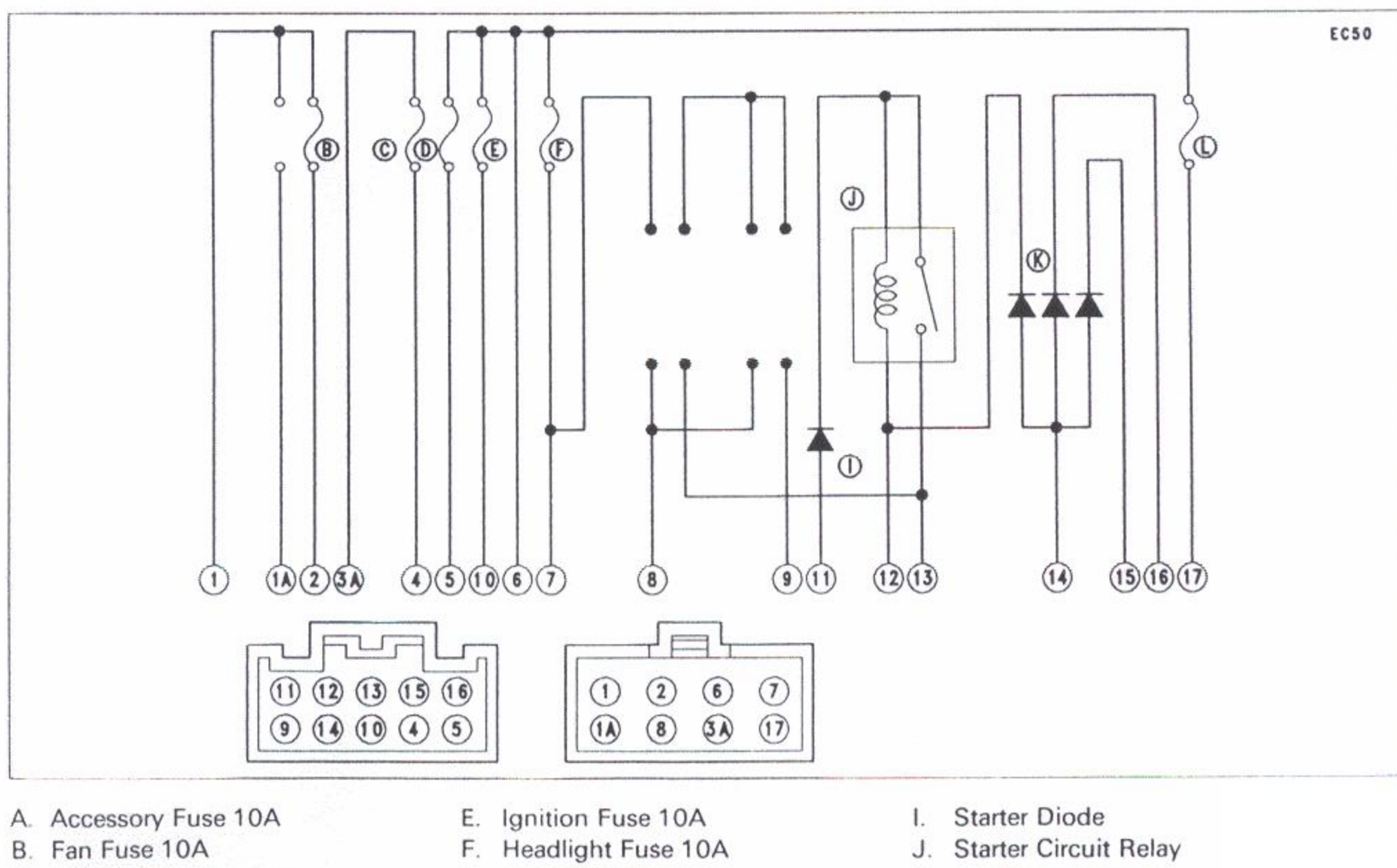
NOTE

The actual meter reading varies with the meter used and the individual diodes, but, generally speaking, the lower reading should be from zero to one half of the scale.

Junction Box Internal Circuit (US, Canada, and Australia)



Junction Box Internal Circuit (Other than US, Canada, and Australia)



A. Accessory Fuse 10A
B. Fan Fuse 10A
C. Turn Signal Fuse 10A
D. Horn Fuse 10A
E. Ignition Fuse 10A
F. Headlight Fuse 10A
G. Headlight Relay
H. Headlight Diodes
I. Starter Diode
J. Starter Circuit Relay
K. Interlock Diodes
L. Taillight Fuse 10A

Electrical Wiring

Wiring Installation Note

- Route the cable and harnesses correctly. The cables and wiring harnesses must not hinder handlebar movement (see Cable, Wire, and Hose Routing in the General Information chapter).

Appendix

Table of Contents

( ) : Refer to Base Manual

Troubleshooting Guide

NOTE

○ *This is not an exhaustive list, giving every possible cause for each problem listed. It is meant simply as a rough guide to assist the troubleshooting for some of the more common difficulties.*

Engine Doesn't Start, Starting Difficulty:

Starter motor not rotating:
- Starter lockout or neutral switch trouble
- Starter motor trouble
- Battery voltage low
- Relays not contacting or operating
- Starter button not contacting
- Wiring open or shorted
- Ignition switch trouble
- Engine stop switch trouble
- Fuse blown

Starter motor rotating but engine doesn't turn over:
- Starter motor clutch trouble

Engine won't turn over:
- Valve seizure
- Rocker arm seizure
- Cylinder, piston seizure
- Crankshaft seizure
- Connecting rod small end seizure
- Connecting rod big end seizure
- Transmission gear or bearing seizure
- Camshaft seizure
- Balancer bearing seizure

No fuel flow:
- Fuel tap vacuum hose clogged
- Fuel tank air vent obstructed
- Fuel tap clogged
- Fuel line clogged
- Float valve clogged

Engine flooded:
- Fuel level in carburetor float bowl too high
- Float valve worn or stuck open
- Starting technique faulty
- (When flooded, crank the engine with the throttle fully opened to allow more air to reach the engine.)

No spark; spark weak:
- Battery voltage low
- Spark plug dirty, broken, or maladjusted
- Spark plug cap or high tension wiring trouble
- Spark plug cap not in good contact
- Spark plug incorrect
- IC igniter trouble
- Neutral, starter lockout, or side stand switch trouble
- Pickup coil trouble
- Ignition coil trouble
- Ignition or engine stop switch shorted
- Wiring shorted or open
- Fuse blown

Fuel/air mixture incorrect:
- Pilot screw and/or idle adjusting screw maladjusted
- Pilot jet, or air passage clogged
- Air cleaner clogged, poorly sealed, or missing
- Starter jet clogged

Compression Low:
- Spark plug loose
- Cylinder head not sufficiently tightened down
- No valve clearance
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/groove clearance excessive
- Cylinder head gasket damaged
- Cylinder head warped
- Valve spring broken or weak
- Valve not seating properly (valve bent, worn, or carbon accumulation on the seating surface)

Poor Running at Low Speed:

Spark weak:
- Battery voltage low
- Spark plug dirty, broken, or maladjusted
- Spark plug cap or high tension wiring trouble
- Spark plug cap shorted or not in good contact
- Spark plug incorrect
- IC igniter trouble
- Pickup coil trouble
- Ignition coil trouble

Fuel/air mixture incorrect:
- Pilot screw maladjusted
- Pilot jet, or air passage clogged
- Air bleed pipe bleed holes clogged
- Air cleaner clogged, poorly sealed, or missing
- Starter plunger stuck open
- Fuel level in carburetor float bowl too high or too low
- Fuel tank air vent obstructed
- Carburetor holder loose
- Air cleaner duct loose

Compression low:
- Spark plug loose
- Cylinder head not sufficiently tightened down
- No valve clearance
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/groove clearance excessive
- Cylinder head warped
- Cylinder head gasket damaged
- Valve spring broken or weak
- Valve not seating properly (valve bent, worn, or carbon accumulation on the seating surface)

Other:
- IC igniter trouble
- Carburetors not synchronizing
- Vacuum piston doesn't slide smoothly
- Engine oil viscosity too high
- Drive train trouble
- Brake dragging
- Air suction valve trouble (AS, ST, US)
- Vacuum switch valve trouble (AS, ST, US)

Poor Running or No Power at High Speed:

Firing incorrect:
- Spark plug dirty, broken, or maladjusted
- Spark plug cap shorted or not in good contact
- Spark plug incorrect
- IC igniter trouble
- Pickup coil trouble
- Ignition coil trouble

Fuel/air mixture incorrect:
- Starter plunger stuck open
- Main jet clogged or wrong size
- Jet needle or needle jet worn
- Air jet clogged
- Fuel level in carburetor float bowl too high or too low
- Bleed holes of air bleed pipe or needle jet clogged
- Air cleaner clogged, poorly sealed, or missing
- Air cleaner duct poorly sealed
- Water or foreign matter in fuel
- Carburetor holder loose
- Fuel tank air vent obstructed
- Fuel tap clogged
- Fuel line clogged

Compression low:
- Spark plug loose
- Cylinder head not sufficiently tightened down
- No valve clearance
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/groove clearance excessive
- Cylinder head gasket damaged
- Cylinder head warped
- Valve spring broken or weak
- Valve not seating properly (valve bent, worn, or carbon accumulation on the seating surface.)

Knocking:
- Carbon built up in combustion chamber
- Fuel poor quality or incorrect
- Spark plug incorrect
- IC igniter trouble

Miscellaneous:
- Throttle valve won't fully open
- Vacuum piston doesn't slide smoothly
- Brake dragging
- Clutch slipping
- Overheating
- Engine oil level too high
- Engine oil viscosity too high
- Drive train trouble
- Air suction valve trouble (AS, ST, US)
- Vacuum switch valve trouble (AS, ST, US)

Overheating:

Firing incorrect:
- Spark plug dirty, broken, or maladjusted
- Spark plug incorrect
- IC igniter trouble

Fuel/air mixture incorrect:
- Main jet clogged or wrong size
- Fuel level in carburetor float bowl too low
- Carburetor holder loose
- Air cleaner poorly sealed, or missing
- Air cleaner duct poorly sealed
- Air cleaner clogged

Compression high:
- Carbon built up in combustion chamber

Engine load faulty:
- Clutch slipping
- Engine oil level too high
- Engine oil viscosity too high
- Drive train trouble
- Brake dragging

Lubrication inadequate:
- Engine oil level too low
- Engine oil poor quality or incorrect

Gauge incorrect:
- Water temperature gauge broken
- Water temperature sensor broken

Coolant incorrect:
- Coolant level too low
- Coolant deteriorated

Cooling system component incorrect:
- Radiator clogged
- Thermostat trouble
- Radiator cap trouble
- Thermostatic fan switch trouble
- Fan relay trouble
- Fan motor broken
- Fan blade damaged
- Water pump not turning
- Water pump impeller damaged

Over Cooling:

Gauge incorrect:
- Water temperature gauge broken
- Water temperature sensor broken

Cooling system component incorrect:
- Thermostat fan switch trouble
- Thermostat trouble

Clutch Operation Faulty:

Clutch slipping:
- No clutch lever play
- Friction plate worn or warped
- Steel plate worn or warped
- Clutch spring broken or weak
- Clutch cable maladjusted
- Clutch inner cable catching
- Clutch release mechanism trouble
- Clutch hub or housing unevenly worn

Clutch not disengaging properly:
- Clutch lever play excessive
- Clutch plate warped or too rough
- Clutch spring compression uneven
- Engine oil deteriorated
- Engine oil viscosity too high
- Engine oil level too high
- Clutch housing frozen on drive shaft
- Clutch release mechanism trouble
- Loosen clutch hub locknut

Gear Shifting Faulty:

Doesn't go into gear; shift pedal doesn't return:
- Clutch not disengaging
- Shift fork bent or seized
- Gear stuck on the shaft
- Gear positioning lever binding
- Shift return spring weak or broken
- Shift return spring pin loose
- Shift mechanism arm spring broken
- Shift mechanism arm broken
- Shift pawl broken

Jumps out of gear:
- Shift fork worn
- Gear groove worn
- Gear dogs and/or dog holes worn
- Shift drum groove worn
- Gear positioning lever spring weak or broken
- Shift fork guide pin worn
- Drive shaft, output shaft, and/or gear splines worn

Overshifts:
- Gear positioning lever spring weak or broken
- Shift mechanism arm spring broken

Abnormal Engine Noise:

Knocking:
- IC igniter trouble
- Carbon built up in combustion chamber
- Fuel poor quality or incorrect
- Spark plug incorrect
- Overheating

Piston slap:
- Cylinder/piston clearance excessive
- Cylinder, piston worn
- Connecting rod bent
- Piston pin, piston pin holes worn

Valve noise:
- Valve clearance incorrect
- Valve spring broken or weak
- Camshaft bearing worn

Other noise:
- Connecting rod small end clearance excessive
- Connecting rod big end clearance excessive
- Piston ring worn, broken, or stuck
- Piston seizure, damage
- Cylinder head gasket leaking
- Exhaust pipe leaking at cylinder head connection
- Crankshaft runout excessive
- Engine mounts loose
- Crankshaft bearing worn
- Primary chain worn
- Camshaft chain tensioner trouble
- Camshaft chain, sprocket, guide worn
- Loose alternator rotor
- Air suction valve damaged (AS, ST, US)
- Vacuum switch valve damaged (AS, ST, US)
- Balancer gear worn or chipped
- Balancer shaft position maladjusted
- Balancer bearing worn
- Starter chain, sprocket, guide worn

Abnormal Drive Train Noise:

Clutch noise:
- Rubber damper weak or damaged
- Clutch housing/friction plate clearance excessive
- Clutch housing gear worn

Transmission noise:
- Bearings worn
- Transmission gears worn or chipped
- Metal chips jammed in gear teeth
- Engine oil insufficient

Drive chain noise:
- Drive chain adjusted improperly
- Drive chain worn
- Rear and/or engine sprocket worn
- Chain lubrication insufficient
- Rear wheel misaligned

Abnormal Frame Noise:

Front fork noise:
- Oil insufficient or too thin
- Spring weak or broken

Rear shock absorber noise:
- Shock absorber damaged

Disc brake noise:
- Pad installed incorrectly
- Pad surface glazed
- Disc warped
- Caliper trouble

Other noise:
- Bracket, nut, bolt, etc. not properly mounted or tightened

Oil Pressure Warning Light Goes On:

- Engine oil pump damaged
- Engine oil screen clogged
- Engine oil level too low
- Engine oil viscosity too low
- Camshaft bearings worn
- Crankshaft bearings worn
- Oil pressure switch damaged
- Wiring damaged
- Relief valve stuck open
- O-ring at the oil passage in the crankcase damaged

Exhaust Smokes Excessively:

White smoke:
- Piston oil ring worn
- Cylinder worn
- Valve oil seal damaged
- Valve guide worn
- Cylinder head gasket damaged
- Engine oil level too high

Black smoke:
- Air cleaner clogged
- Main jet too large or fallen off
- Starter plunger stuck open
- Fuel level in carburetor float bowl too high

Brown smoke:
- Main jet too small
- Fuel level in carburetor float bowl too low
- Air cleaner duct loose
- Air cleaner poorly sealed or missing

Handling and/or Stability Unsatisfactory:

Handlebar hard to turn:
- Cable routing incorrect
- Hose routing incorrect
- Wiring routing incorrect
- Steering stem nut too tight
- Bearing damaged
- Steering bearing lubrication inadequate
- Steering stem bent
- Tire air pressure too low

Handlebar shakes or excessively vibrates:
- Tire worn
- Swingarm pivot bearing worn
- Rim warped, or not balanced
- Wheel bearing worn
- Handlebar bolts loose
- Steering stem head bolt loose

Handlebar pulls to one side:
- Frame bent
- Wheel misalignment
- Swingarm bent or twisted
- Steering maladjusted
- Front fork bent
- Right/left fork legs unbalanced (oil level)

Shock absorption unsatisfactory:

(Too hard)
- Front fork oil excessive
- Front fork oil viscosity too high
- Rear shock absorber maladjusted
- Tire air pressure too high
- Front fork bent

(Too soft)
- Front fork oil insufficient and/or leaking
- Front fork oil viscosity too low
- Front fork, rear shock absorber spring weak
- Rear shock absorber oil leaking

Brake Doesn't Hold:
- Air in the brake line
- Pad or disc worn
- Brake fluid leakage
- Disc warped
- Contaminated pad
- Brake fluid deteriorated
- Primary or secondary cup damaged
- Master cylinder scratched inside

Battery Discharged:
- Battery faulty (e.g., plates sulphated, shorted through sedimentation, electrolyte level too low)
- Battery leads making poor contact
- Load excessive (e.g., bulb of excessive wattage)
- Ignition switch trouble
- Alternator trouble
- Wiring faulty
- Regulator/Rectifier trouble

Battery Overcharged:
- Regulator/Rectifier trouble

(AS): Austria Model
(ST): Switzerland Model
(US): US Model

General Lubrication

Lubrication

- Before lubricating each part, clean off any rusty spots with rust remover and wipe off any grease, oil, dirt, or grime.
- Lubricate the points listed below with indicated lubricant in accordance with the Periodic Maintenance Chart.

NOTE

○ *Whenever the vehicle has been operated under wet or rainy conditions, or especially after using a high-pressure spray water, perform the general lubrication.*

Chain: Lubricate with Heavy Oil.

Pivots: Lubricate with Motor Oil.

- **Side Stand**
- **Clutch Lever**
- **Brake Pedal**
- **Rear Brake Rod Joint**
- **Footpegs**

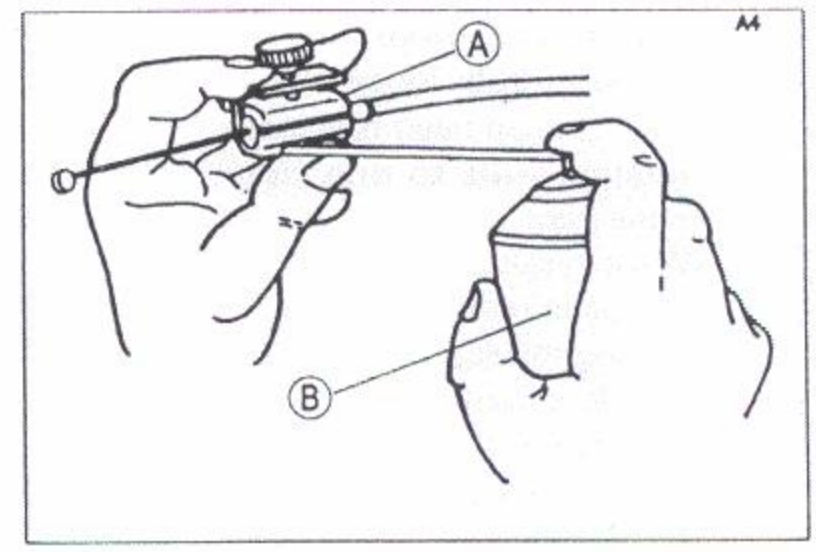
Cables: Lubricate with Cable Lubricant

- **Throttle Cables**
- **Clutch Cable**
- **Choke Cable**

- Lubricate the cables by seeping the oil between the cable and housing.

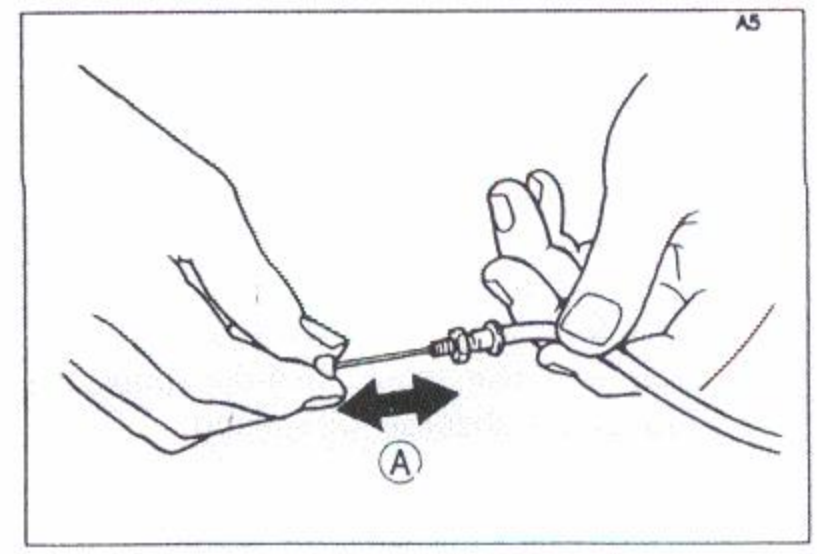
○ The cable may be lubricated by using a pressure cable luber [A] with an aerosol cable lubricant [B].

Special Tool – Pressure Cable Luber: K56019-021 [A]



- With the cable disconnected at both ends, the cable should move freely [A] within the cable housing.

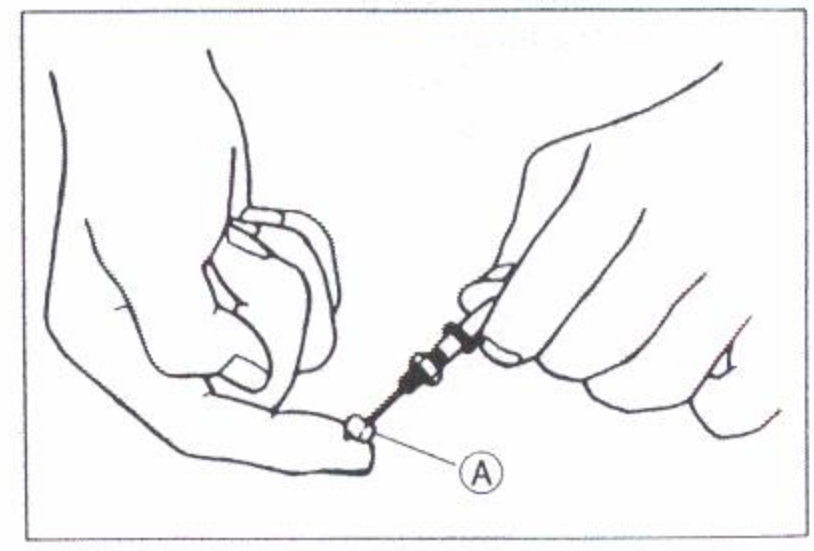
★ If cable movement is not free after lubricating, if the cable is frayed, or if the cable housing is kinked, replace the cable.



Points: Lubricate with Grease.

- **Throttle Inner Cable Lower Ends [A]**
- **Choke Cable Lower End**
- **Clutch Cable Ends [A]**
- **Speedometer Gear Housing and Inner Cable ***

(*): Grease the lower part of the inner cable sparingly.



Nut, Bolt, and Fastener Tightness

Tightness Inspection

● Check the tightness of the bolts and nuts listed here in accordance with the Periodic Maintenance Chart. Also, check to see that each cotter pin is in place and in good condition.

NOTE

○ *For the engine fasteners, check the tightness of them when the engine is cold (at room temperature).*

★ If there are loose fasteners, retorque them to the specified torque following the specified tightening sequence. Refer to the Torque and Locking Agent section of the General Information chapter for torque specifications. For each fastener, first loosen it by 1/2 turn, then tighten it.

★ If cotter pins are damaged, replace them with new ones.

Nut, bolt and fastener to be checked

Wheels:
- Front Axle
- Front Axle Clamp Bolts
- Rear Axle Nut Cotter Pin
- Rear Axle Nut

Final Drive:
- Chain Adjuster Locknuts
- Rear Sprocket Nuts

Brakes:
- Front Master Cylinder Clamp Bolts
- Caliper Mounting Bolts
- Rear Master Cylinder Bolts
- Brake Pedal Bolt
- Brake Lever Pivot Nut
- Brake Rod Joint Cotter Pin

Suspension:
- Front Fork Clamp Bolts
- Front Fender Mounting Bolts
- Swingarm Pivot Nut
- Uni-trak Link Nuts
- Rear Shock Absorber Nuts

Steering:
- Stem Head Bolt
- Handlebar Bolts

Engine:
- Engine Mounting Bolts, Nuts
- Cylinder Head Cover Bolts
- Shift Pedal Bolt
- Exhaust Connecting Pipe Clamp bolt
- Muffler Connecting Clamp Bolts
- Muffler Bolt and Nut
- Clutch Lever Pivot Nut

Others:
- Side Stand Bracket Bolts
- Footpeg Bolts
- Center Stand Bolts and Nuts
- Footpeg Circlips

MODEL APPLICATION

Year	Model	Beginning Frame No.
1994	EX500-D1 EX500-E1	JKAEXVD1□RA000001 or EX500D-000001
	EX500-F1	EX500C-001001

□: This digit in the frame number changes from one machine to another.

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