

SV650SK1 ('01-MODEL)

This manual describes service data, service specifications and servicing procedures which differ from those of the SV650K1 ('01-MODEL).

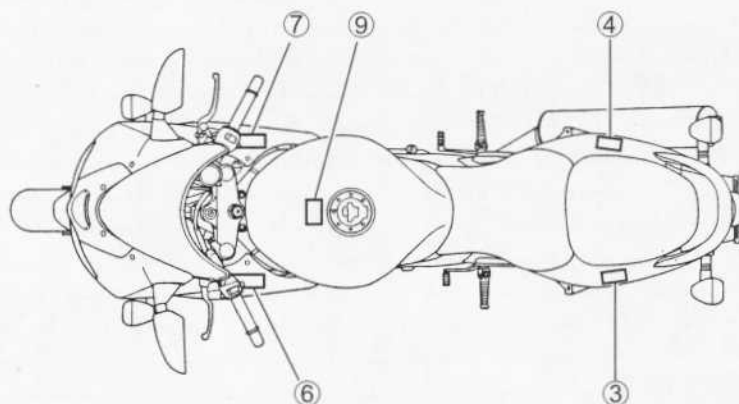
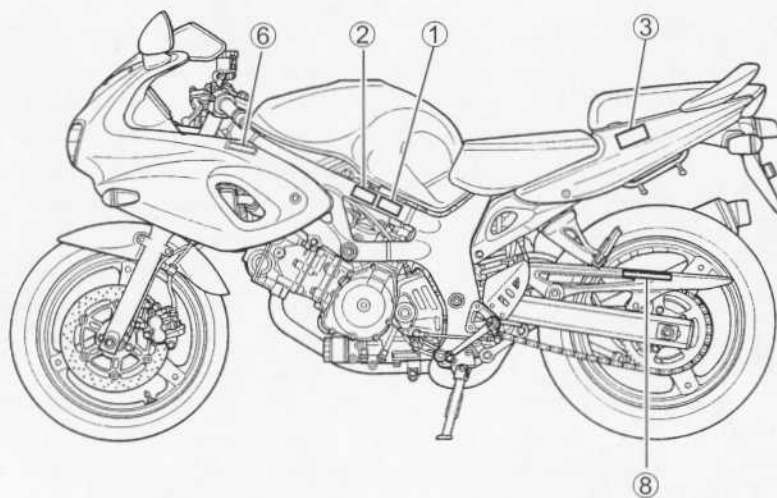
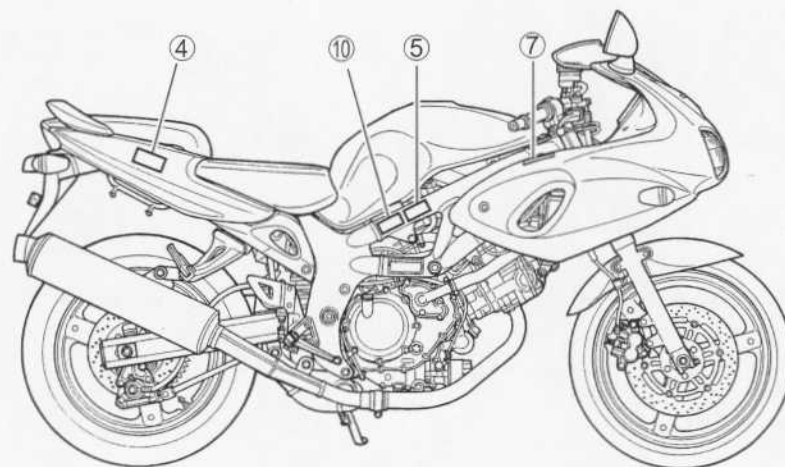
NOTE:

- Any differences between the SV650K1 ('01-MODEL) and SV650SK1 ('01-MODEL) in specifications and service data are clearly indicated with an asterisk mark (*).
- Please refer to the SV650 Service Manual for details which are not given in this manual.

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INFORMATION LABELS



①	Noise label	⑥	Warning screen label
②	Information label	⑦	Warning steering label
③	Vacuum hose routing label (For E-33)	⑧	Tire pressure label
④	Manual notice label	⑨	Warning safety label
⑤	Frame caution plate	⑩	Safety plate

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	* 2 045 mm (80.5 in)
Overall width	* 740 mm (29.1 in)
Overall height	* 1 130 mm (44.5 in)
Wheelbase	* 1 420 mm (55.9 in)
Ground clearance	140 mm (5.5 in)
Seat height	805 mm (31.7 in)
Dry mass	* 169 kg (372 lbs)

ENGINE

Type	Four-stroke, Liquid-cooled, DOHC, TSCC, 90-degree V-twin
Number of cylinders	2
Tappet clearance, IN	0.10 – 0.20 mm (0.004 – 0.008 in)
EX	0.20 – 0.30 mm (0.008 – 0.012 in)
Bore	81.0 mm (3.189 in)
Stroke	62.6 mm (2.465 in)
Piston displacement	645 cm ³ (39.4 cu. in)
Compression ratio	11.5 : 1
Carburetor	MIKUNI BDSR39 × 2
Air cleaner	Non-woven fabric element
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	6-speed constant, mesh
Gearshift pattern	1-down, 5-up
Primary reduction ratio	2.088 (71/34)
Gear ratios, Low	2.461 (32/13)
2nd	1.777 (32/18)
3rd	1.380 (29/21)
4th	1.125 (27/24)
5th	0.961 (25/26)
Top	0.851 (23/27)
Final reduction ratio	* 2.933 (44/15)
Drive chain	* D.I.D 525 V9, 108 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type system, gas/oil damped, coil spring
Front fork stroke	130 mm (5.1 in)
Rear wheel travel	125 mm (4.9 in)
Steering angle	* 30° (right & left)
Caster	25°
Trail	100 mm (3.94 in)
Turning radius	* 3.1 m (10.2 ft)
Front brake	Disc brake, twin hydraulically operated
Rear brake	Disc brake, hydraulically operated
Front tire size	120/60 ZR17 (55 W), tubeless
Rear tire size	160/60 ZR17 (69 W), tubeless

ELECTRICAL

Ignition type	Electronic ignition (Transistorized)
Ignition timing	5° B.T.D.C. at 1 300 r/min
Spark plug	NGK CR8E, DENSO U24ESR-N
Battery	12V 36.0 kC(10 Ah)/10HR
Generator	Three-phase A.C. Generator
Main fuse	30A
Fuse	15/15/15/10/10A
Headlight	* 12V 45/45W × 2
Turn signal light	12V 21W
Brake light/Taillight	12V 21/5W × 2
License plate light	12V 5W
Speedometer light	* 12V 0.84W × 3
Neutral indicator light	12V 1.7W
High beam indicator light	12V 1.7W
Turn signal indicator light	* 12V 3W
Oil pressure indicator light	12V 1.7W
Fuel level indicator light	12V 1.7W
Water temp. indicator light	LED

CAPACITIES

Fuel tank, including reserve	16.0 L (4.2/3.5 US/lmp gal) E-03
	15.0 L (4.0/3.3 US/lmp gal) E-33
Engine oil, oil change	2 300 ml (2.4/2.0 US/lmp qt)
with filter change	2 400 ml (2.5/2.1 US/lmp qt)
overhaul	2 700 ml (2.9/2.4 US/lmp qt)
Coolant	1 600 ml (1.7/1.4 US/lmp qt)

These specifications are subject to change without notice.

PERIODIC MAINTENANCE

BRAKE

(BRAKE)

Inspect initially at 1 000 km (600 miles, 1 month) and every 6 000 km (4 000 miles, 6 months) thereafter.

(BRAKE HOSE AND BRAKE FLUID)

Inspect every 6 000 km (4 000 miles, 6 months). Replace hoses every 4 years. Replace fluid every 2 years.

BRAKE FLUID LEVEL CHECK

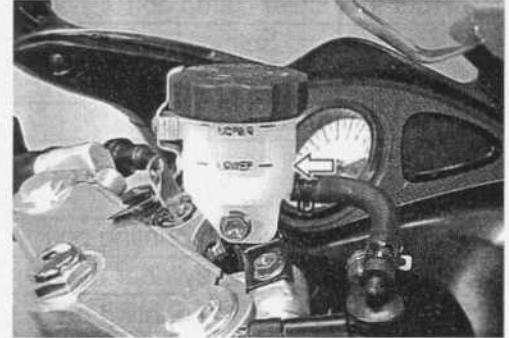
- Keep the motorcycle upright and place the handlebars straight.
- Remove the rear seat. (☞ 6-3 of the SV650 Service Manual)
- Check the brake fluid level by observing the lower limit lines on the front and rear brake fluid reservoirs.
- When the level is below the lower limit line, replenish with brake fluid that meets the following specification.



Specification and Classification: DOT 4

⚠ WARNING

- * The brake system of this motorcycle is filled with a glycol-based brake fluid. Do not use or mix different types of fluid such as silicone-based and petroleum-based fluids. Do not use any brake fluid taken from old, used or unsealed containers. Never re-use brake fluid left over from the last servicing or stored for a long period of time.
- * Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces. Check the brake hoses and hose joints for cracks and oil leakage before riding.

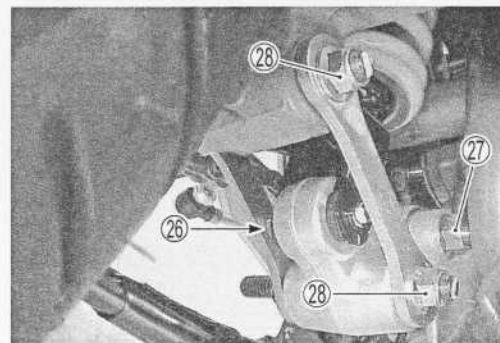
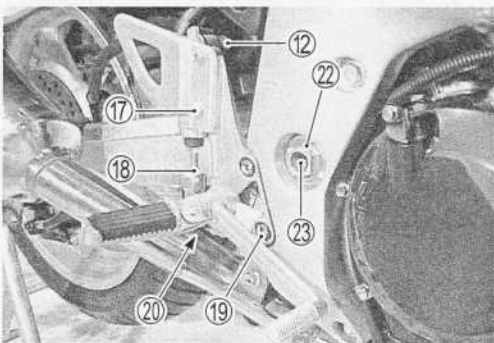
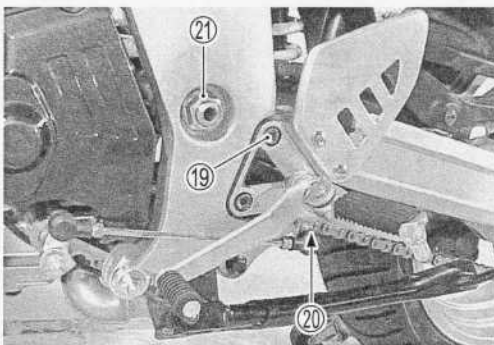
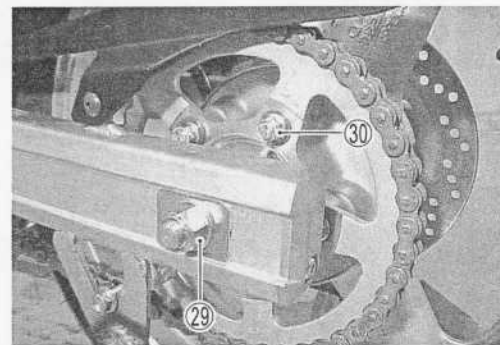
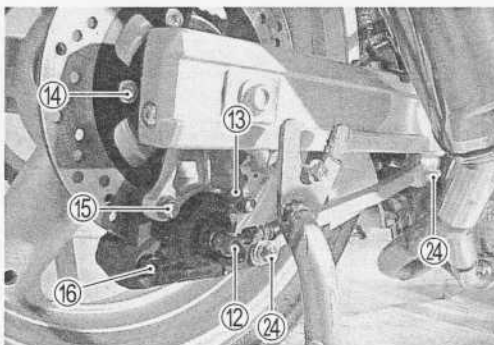
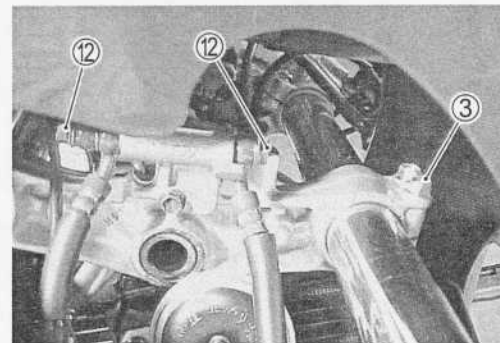
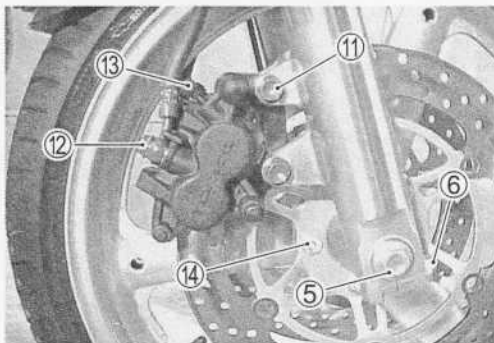
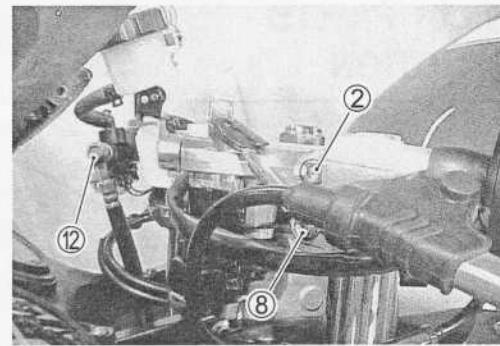
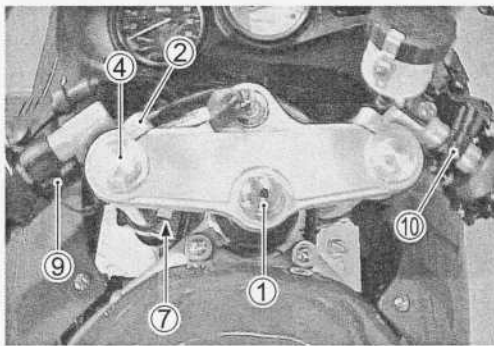


CHASSIS BOLT AND NUT

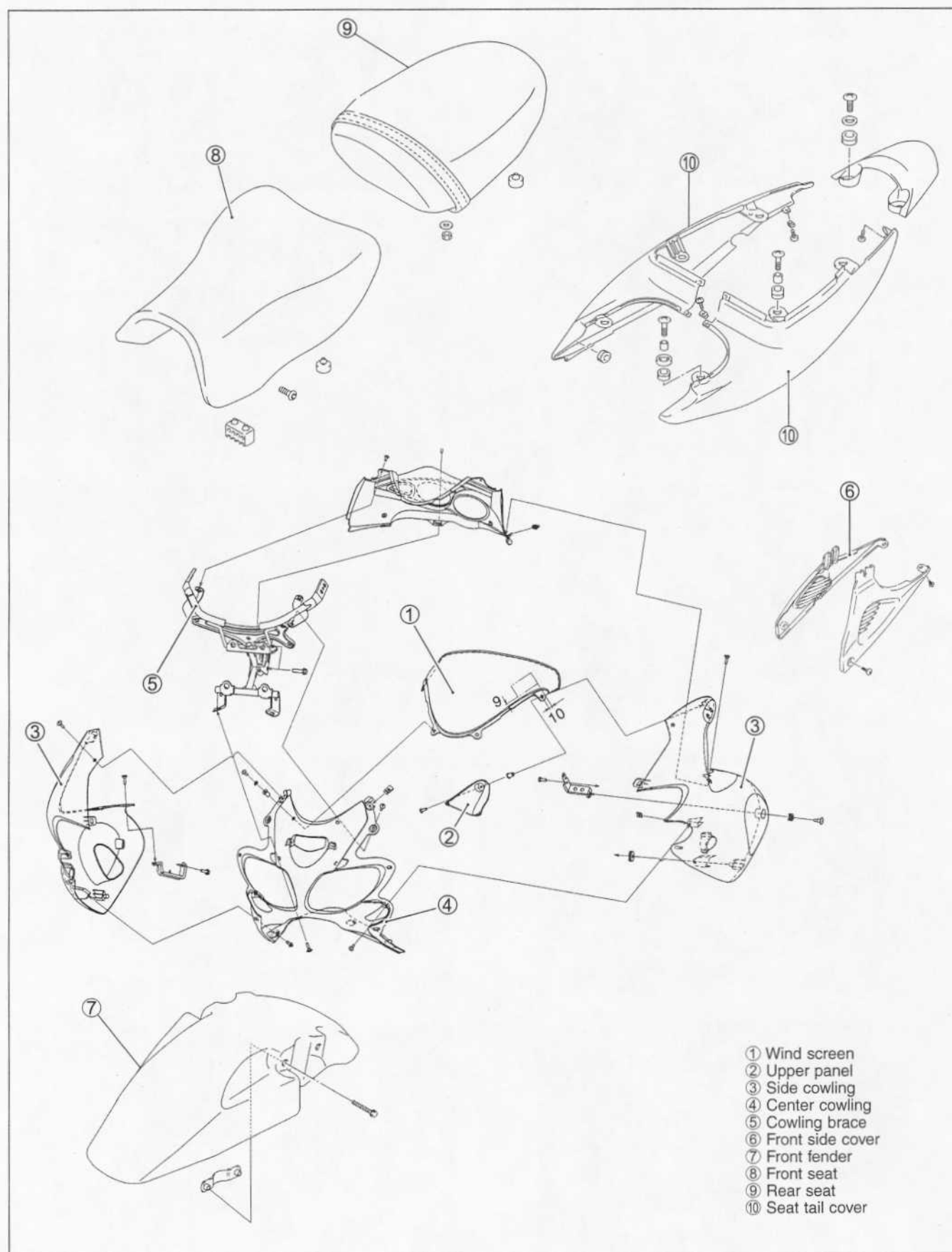
Tighten initially at 1 000 km (600 miles, 1 month) and every 6 000 km (4 000 miles, 6 months) thereafter.

Check that all chassis bolts and nuts are tightened to their specified torque. (Refer to the next page for the locations of the following nuts and bolts on the motorcycle.)

Item	N·m	kgf·m	lb·ft
① Steering stem head nut	65	6.5	47.0
② Front fork upper clamp bolt	23	2.3	16.5
③ Front fork lower clamp bolt	23	2.3	16.5
④ Front fork cap bolt	23	2.3	16.5
⑤ Front axle	65	6.5	47.0
⑥ Front axle pinch bolt	23	2.3	16.5
⑦ Handlebar set bolt	10	1.0	7.0
⑧ Handlebar clamp bolt	23	2.3	16.5
⑨ Clutch lever holder mounting bolt	10	1.0	7.0
⑩ Front brake master cylinder mounting bolt	10	1.0	7.0
⑪ Front brake caliper mounting bolt	39	3.9	28.0
⑫ Brake hose union bolt	23	2.3	16.5
⑬ Air bleeder valve	7.5	0.75	5.5
⑭ Brake disc bolt (Front and Rear)	23	2.3	16.5
⑮ Rear brake caliper mounting bolt	26	2.6	19.0
⑯ Rear brake caliper housing bolt	30	3.0	21.5
⑰ Rear brake master cylinder mounting bolt	10	1.0	7.0
⑱ Rear brake master cylinder rod lock nut	18	1.8	13.0
⑲ Front footrest bracket mounting bolt	23	2.3	16.5
⑳ Front footrest bolt	39	3.9	28.0
㉑ Swingarm pivot shaft nut	100	10.0	72.5
㉒ Swingarm pivot shaft lock nut	90	9.0	65.0
㉓ Swingarm pivot shaft	15	1.5	11.0
㉔ Torque link nut (Front & Rear)	35	3.5	25.5
㉕ Rear shock absorber mounting nut	50	5.0	36.0
㉖ Rear shock absorber mounting bolt	50	5.0	36.0
㉗ Cushion lever mounting nut	78	7.8	56.5
㉘ Cushion rod mounting nut	78	7.8	56.5
㉙ Rear axle nut	65	6.5	47.0
㉚ Rear sprocket nut	60	6.0	43.5

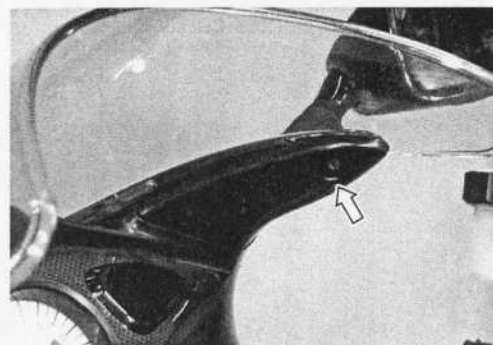


EXTERIOR PARTS CONSTRUCTION

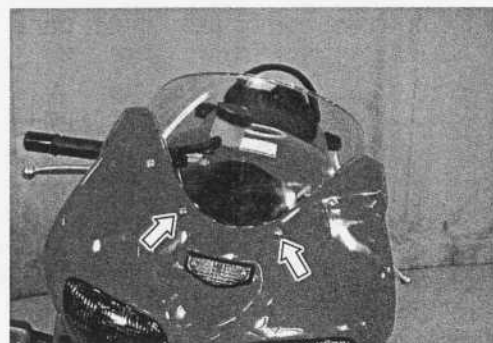


COWLING

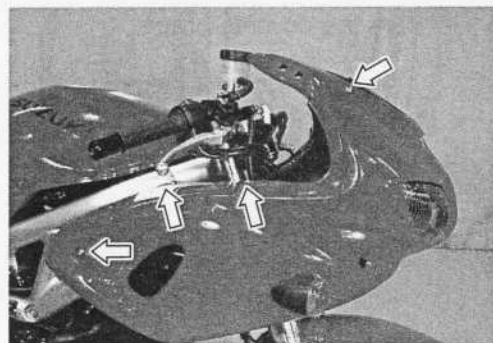
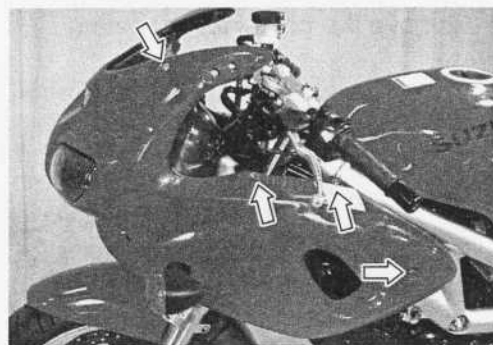
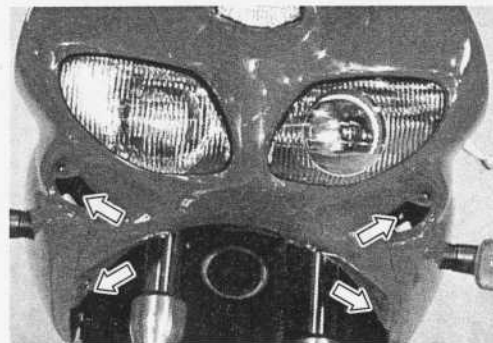
- Remove the left and right upper panels.
- Remove the rear view mirrors.



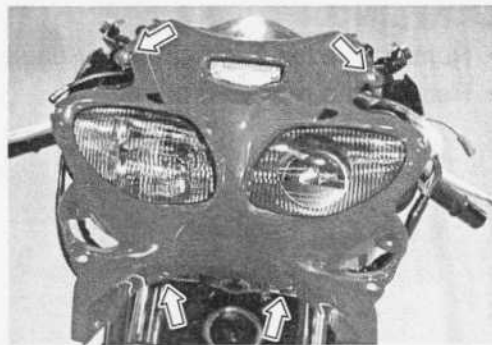
- Remove the wind screen.



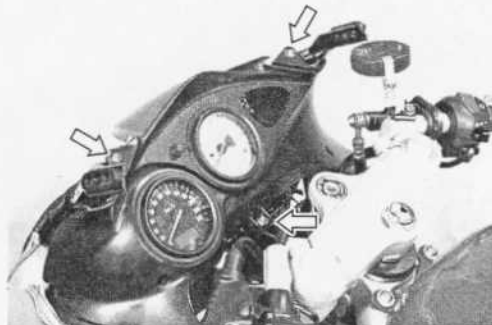
- Remove the left and right side cowling.
- Remove the turn signal lights.



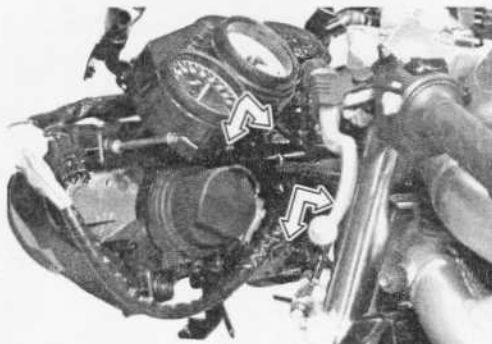
- Remove the center cowl.



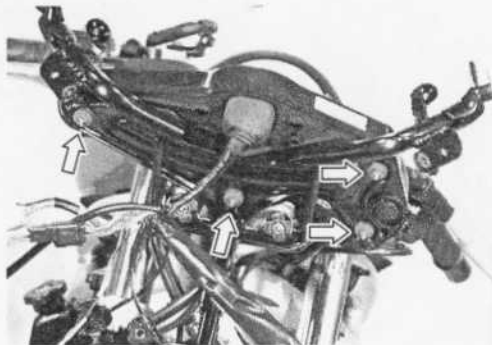
- Remove the combination meter panel.



- Remove the headlight assembly.



- Remove the combination meter.



- Remove the cowl brace.



- Remount the cowl in the reverse order of removal.

FRONT FORK REMOVAL

- Remove the brake hose clamp bolts and speed sensor clamp bolt.
- Remove the front brake calipers. (☞ 6-48 of the SV650 Service Manual)
- Remove the front wheel. (☞ 6-7 of the SV650 Service Manual)
- Remove the front fender. (☞ 6-3 of the SV650 Service Manual)
- Loosen the front fork upper clamp bolt ①.

NOTE:

Slightly loosen the front fork cap bolt before loosening the lower clamp bolts to facilitate later disassembly.

- Loosen the handlebar clamp bolt ②.

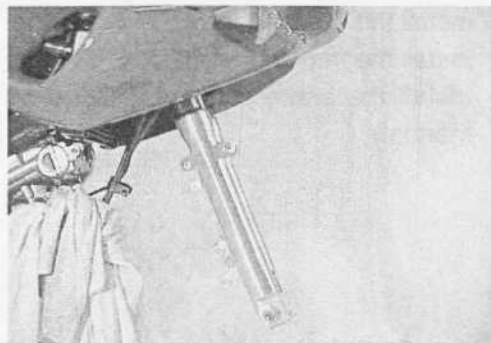
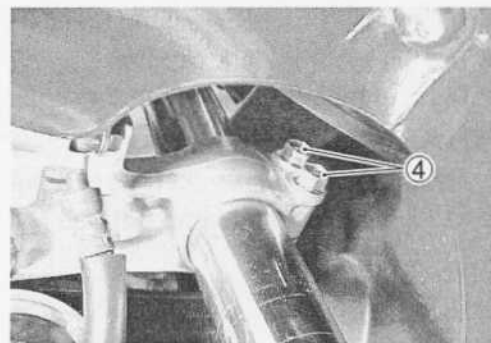
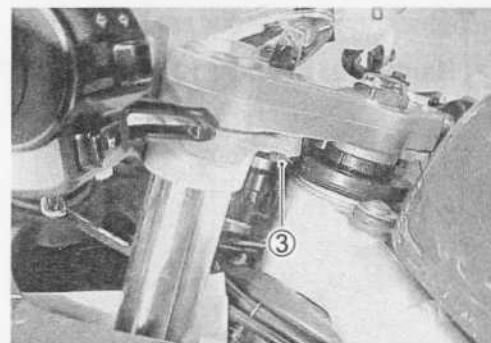
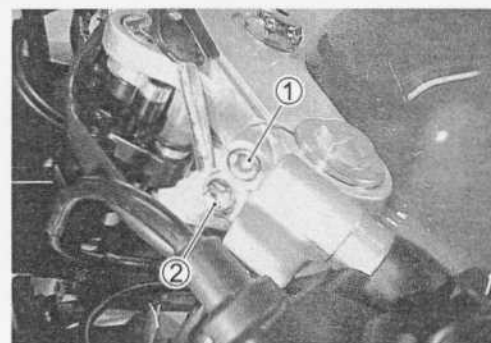
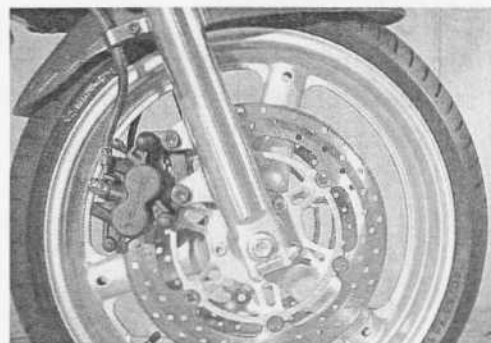
- Loosen the handlebar set bolt ③.

- Loosen the front fork lower clamp bolts ④.

NOTE:

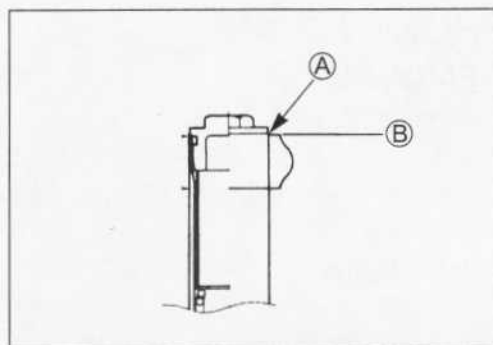
Be careful not to drop the front fork when loosening the bolts.

- Remove the front forks.



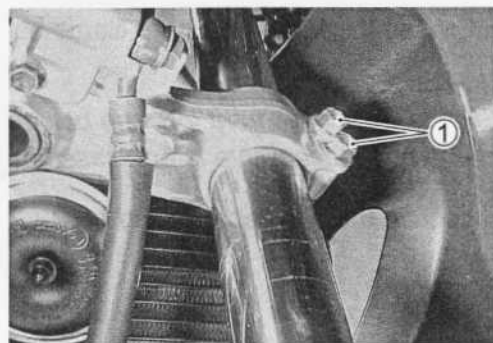
REMountING

- Align the upper surface (A) of the inner tube with the upper surface (B) of the steering stem upper bracket.



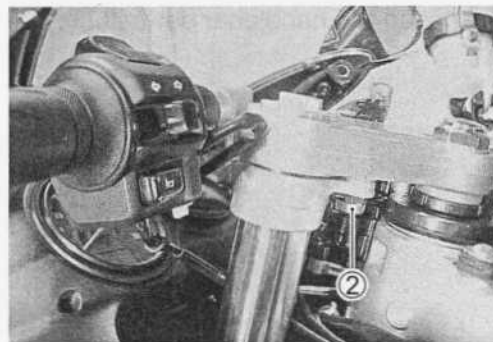
- Tighten the front fork lower clamp bolts (1) to the specified torque.

Front fork lower clamp bolt: 23 N·m (2.3 kgf·m, 16.5 lb-ft)



- Tighten the handlebar set bolt (2) to the specified torque.

Handlebar set bolt: 10 N·m (1.0 kgf·m, 7.0 lb-ft)

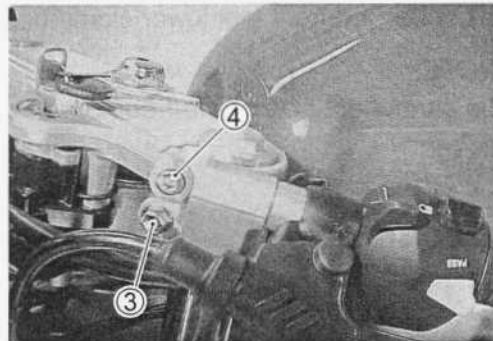


- Tighten the handlebar clamp bolt (3) to the specified torque.
- Tighten the front fork cap bolt.
- Tighten the front fork upper clamp bolt (4).

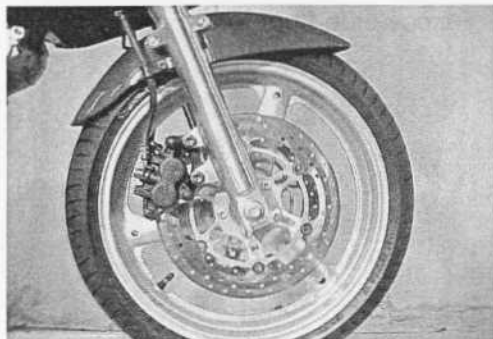
Handlebar clamp bolt: 23 N·m (2.3 kgf·m, 16.5 lb-ft)

Front fork cap bolt: 23 N·m (2.3 kgf·m, 16.5 lb-ft)

Front fork upper clamp bolt: 23 N·m (2.3 kgf·m, 16.5 lb-ft)



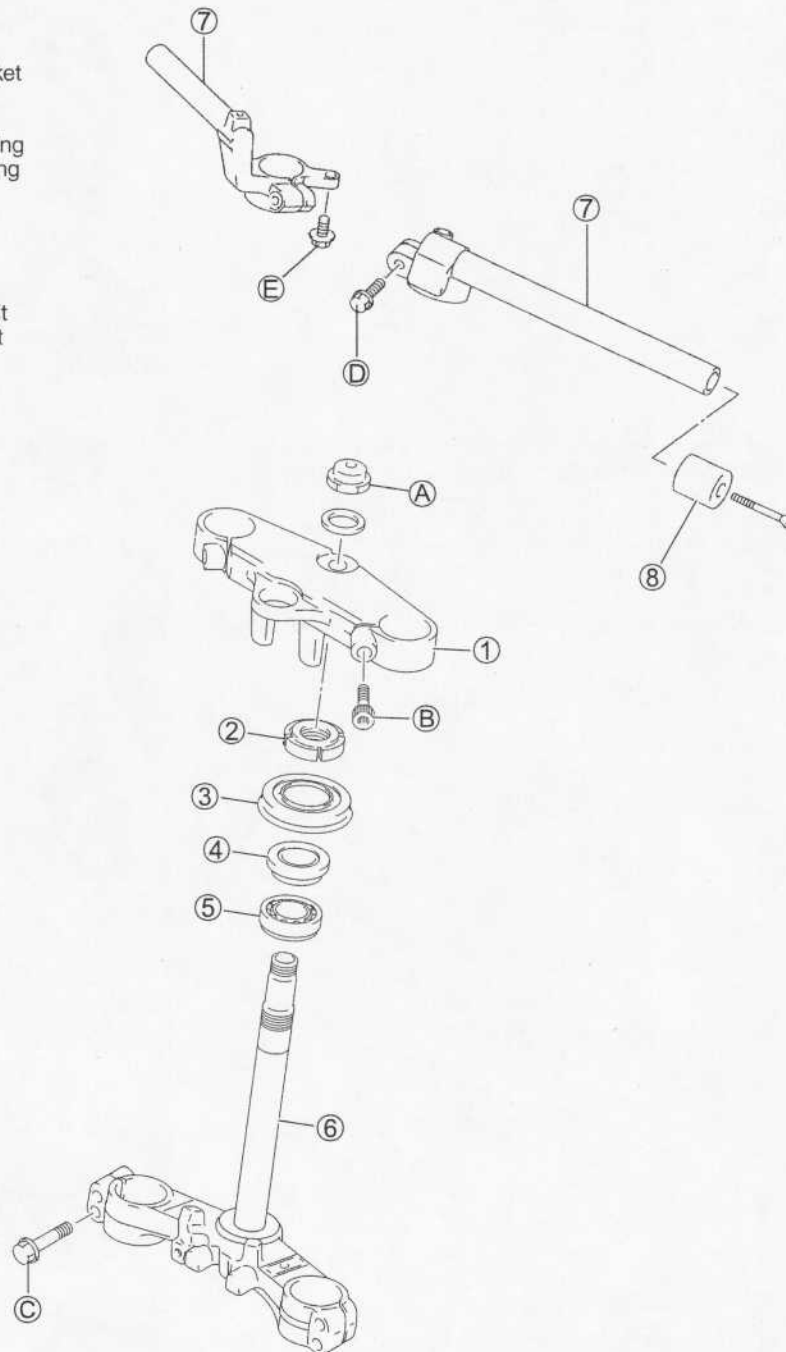
- Install the front fender. (6-3 of the SV650 Service Manual)
- Install the front wheel. (6-9 of the SV650 Service Manual)
- Install the brake calipers. (6-50 of the SV650 Service Manual)



STEERING CONSTRUCTION

- ① Steering stem upper bracket
- ② Steering stem nut
- ③ Dust seal
- ④ Steering stem upper bearing
- ⑤ Steering stem lower bearing
- ⑥ Steering stem
- ⑦ Handlebar
- ⑧ Handlebar balancer

- A Steering stem head nut
- B Front fork upper clamp bolt
- C Front fork lower clamp bolt
- D Handlebar clamp bolt
- E Handlebar set bolt



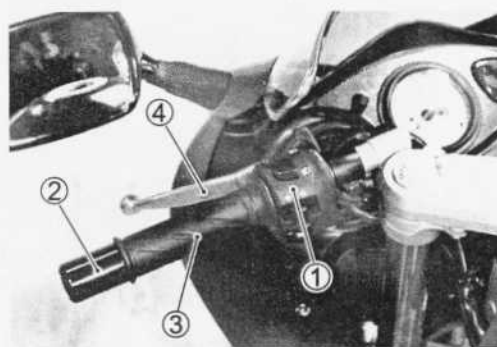
ITEM	N·m	kgf·m	lb·ft
A	65	6.5	47.0
B/C/D	23	2.3	16.5
E	10	1.0	7.0

HANDLEBARS

REMOVAL

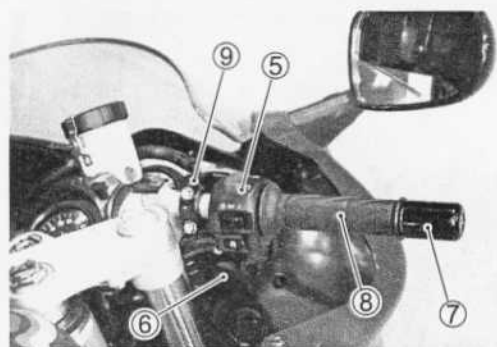
- Remove the following items from the left handlebar.

- ① Left handlebar switch
- ② Handlebar balancer
- ③ Grip rubber
- ④ Clutch cable/Clutch lever holder



- Remove the following items from the right handlebar.

- ⑤ Right handlebar switch
- ⑥ Throttle cables
- ⑦ Handlebar balancer
- ⑧ Throttle grip
- ⑨ Front brake master cylinder/reservoir



▲ CAUTION

Do not turn the front brake master cylinder upside down.

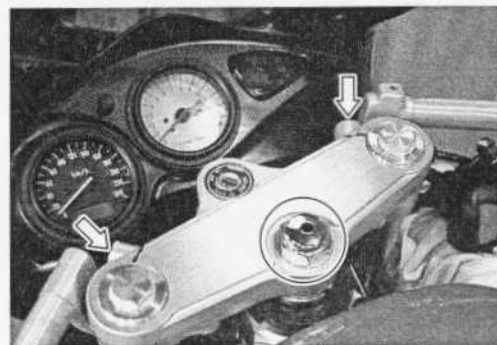
- Lift and support the fuel tank. (➡ 4-4 of the SV650 Service Manual)
- Remove the air cleaner box. (➡ 3-4 of the SV650 Service Manual)
- Disconnect the ignition switch lead wire coupler.



- Remove the handlebar set bolts.



- Remove the steering stem upper bracket.
- Loosen the handlebar clamp bolts and remove the handle bars.



INSTALLATION

- Install the handlebars to the front forks.

NOTE:

After installing the steering stem upper bracket, tighten the handlebar set bolts and the clamp bolts.

- Tighten the steering stem head nut and the front fork upper clamp bolts to the specified torque.



Steering stem head nut: 65 N·m (6.5 kgf·m, 47.0 lb-ft)

Front fork upper clamp bolt: 23 N·m (2.3 kgf·m, 16.5 lb-ft)

- Connect the ignition switch lead wire coupler.

- Tighten the handlebar clamp bolts and the set bolts to the specified torque.



Handlebar clamp bolt: 23 N·m (2.3 kgf·m, 16.5 lb-ft)

Handlebar set bolt: 10 N·m (1.0 kgf·m, 7.0 lb-ft)

- Install the following items to the right handlebar.

- ① Front brake master cylinder/reservoir
- ② Throttle grip
- ③ Handlebar balancer
- ④ Throttle cables
- ⑤ Right handlebar switch

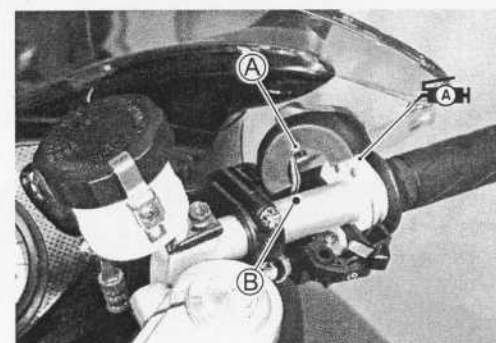
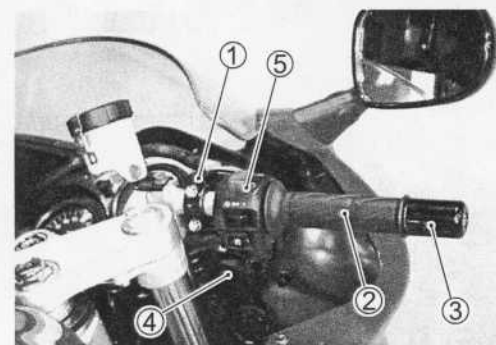
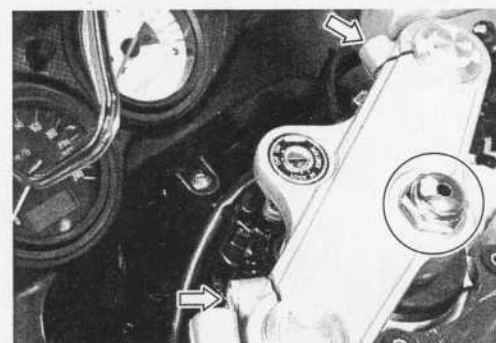
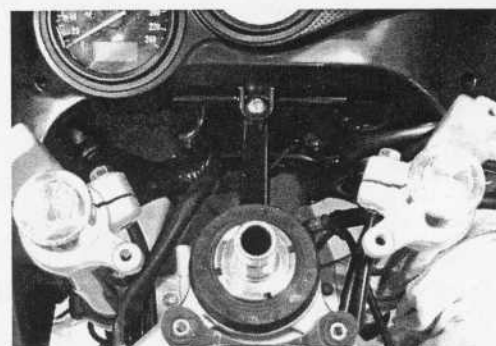
NOTE:

* Apply grease to the throttle cable and the cable drum.

99000-25010: SUZUKI SUPER GREASE "A"

* Align the portion **(A)** of the right handlebar switch with the hole **(B)** of the handlebar.

* Adjust the throttle cable play. (2-16 of the SV650 Service Manual)



- Tighten the front brake master cylinder mounting bolts to the specified torque.

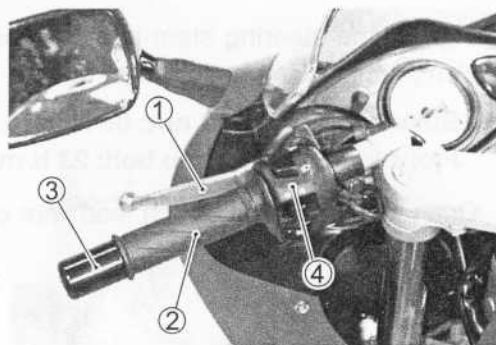
NOTE:

Align the front brake master cylinder holder's matching surface with the punched mark on the handlebar and tighten the upper mounting bolt first, then lower one.

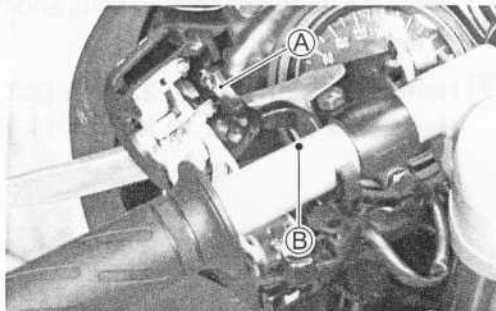
 **Front brake master cylinder mounting bolt: 10 N·m
(1.0 kgf·m, 7.0 lb-ft)**

- Install the following items to the left handlebar.

- ① Clutch cable/Clutch lever holder
- ② Grip rubber
- ③ Handlebar balancer
- ④ Left handlebar switch

**NOTE:**

- * Align the portion (A) of the left handlebar switch with the hole (B) of the handlebar.
- * Lightly adhere the grip rubber to the handlebar.

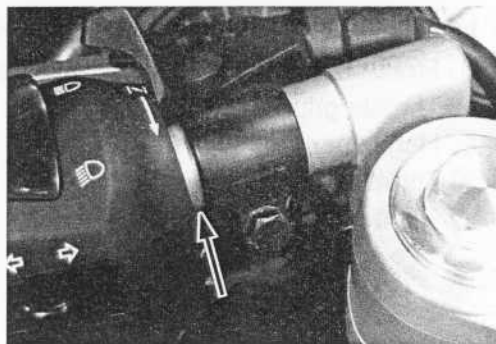


- Tighten the clutch holder mounting bolt to the specified torque.

NOTE:

Align the clutch holder's matching surface with the punched mark on the handlebar.

 Clutch holder mounting bolt: 10 N·m (1.0 kgf·m, 7.0 lb-ft)



STEERING REMOVAL

- Remove the following items.
Cowling (🔧 12-9)
Front wheel (🔧 6-7 of the SV650 Service Manual)
Handlebars (🔧 12-14)
Front fork (🔧 12-11)
Horn

NOTE:

Remove the horn with its bracket.

- Remove the front brake assembly by removing the brake hose joint.

▲ CAUTION

Do not turn the front brake master cylinder upside down.

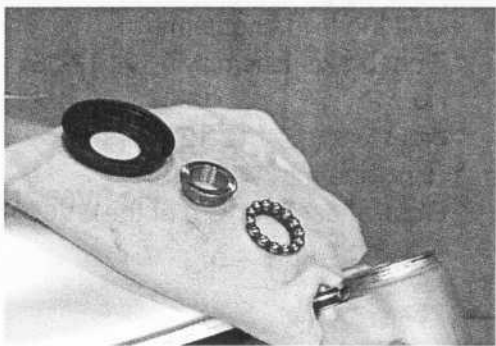
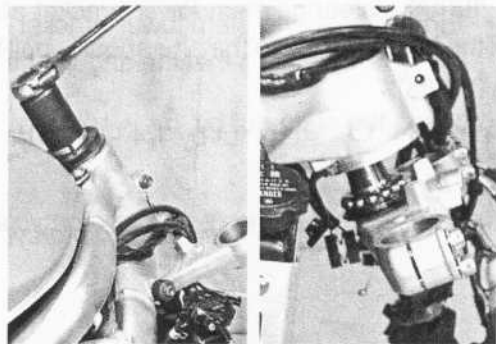
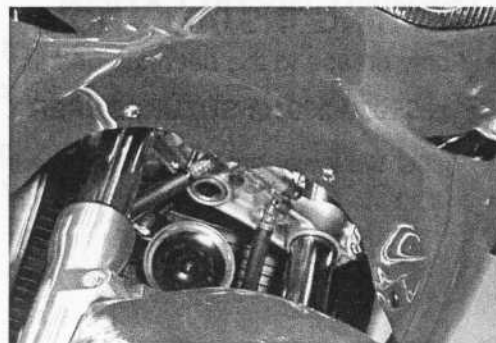
- Remove the steering stem nut using the special tool.

 **09940-14911: Steering stem nut wrench**

NOTE:

Hold the steering stem lower bracket to prevent it from falling.

- Remove the steering stem.
- Remove the dust seal, the inner race and the bearing.

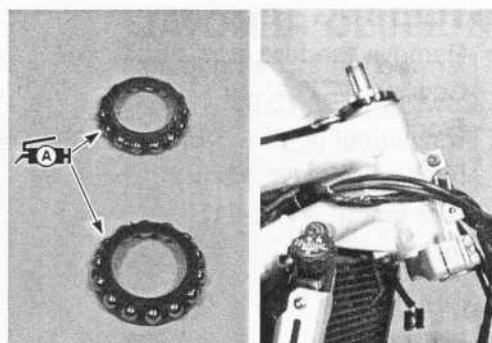


STEERING INSTALLATION

- Apply grease to the bearings and lip of dust seal.

 **99000-25010: SUZUKI SUPER GREASE "A"**

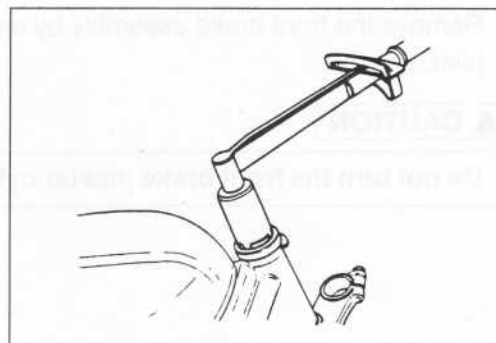
- Install the lower bearing to the steering stem lower bracket.
- Install the upper bearing, bearing inner race and dust seal.



- Tighten the steering stem nut to the specified torque with the special tools.

 **09940-14911: Steering stem nut wrench**

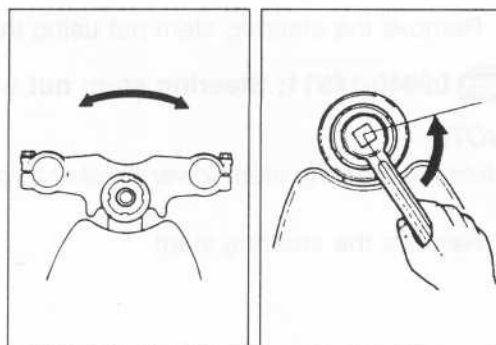
 **Steering stem nut: 45 N·m (4.5 kgf·m, 32.5 lb-ft)**



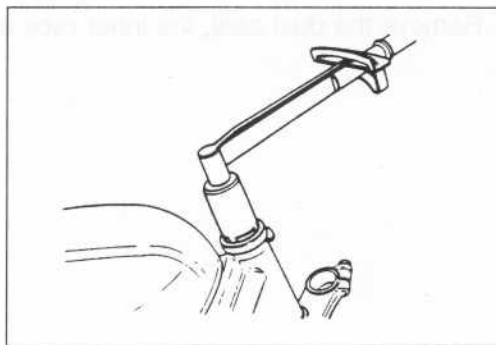
- Turn the steering stem lower bracket about five or six times to the left and right so that the angular ball bearings will be seated properly.
- Loosen the stem nut by 1/4 – 1/2 turn.

NOTE:

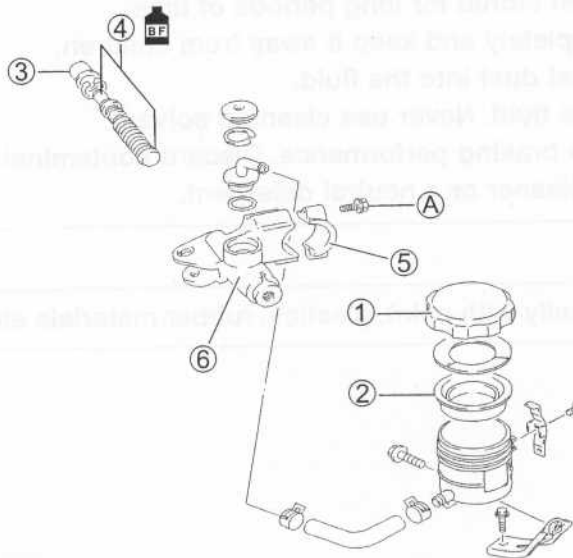
This adjustment will vary from motorcycle to motorcycle.



- Install the following items.
 - * Front brake assembly ( 12-35)
 - * Horn
 - * Front fork ( 12-12)
 - * Handlebars ( 12-15)
 - * Front wheel ( 6-9 of the SV650 Service Manual)
 - * Cowling

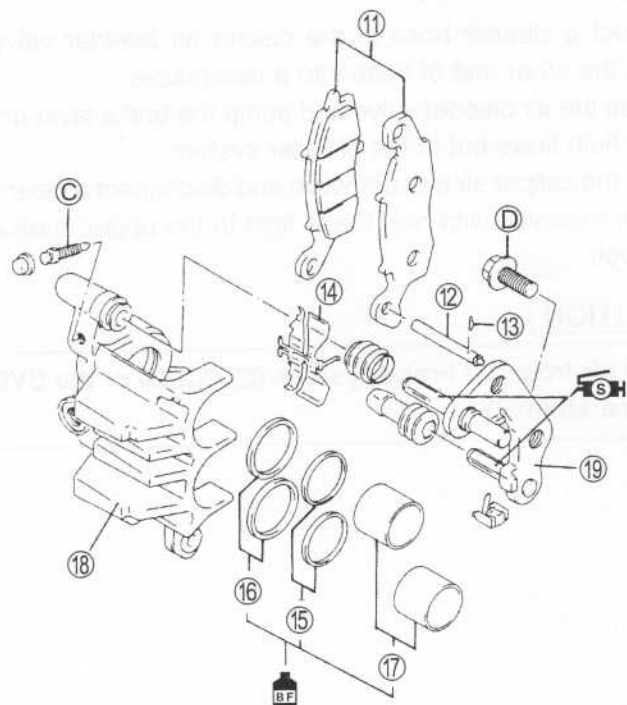
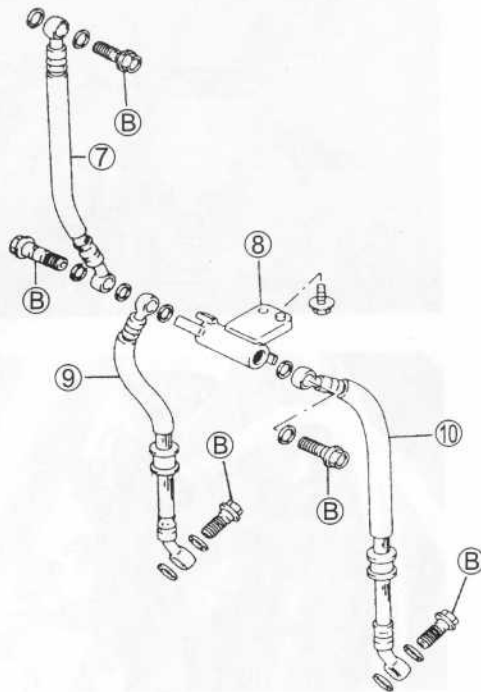


FRONT BRAKE CONSTRUCTION



- ① Master cylinder reservoir cap
- ② Diaphragm
- ③ Dust boot
- ④ Piston/cup set
- ⑤ Master cylinder clamp
- ⑥ Master cylinder
- ⑦ Brake hose #1
- ⑧ Brake hose joint
- ⑨ Brake hose #2 (R)
- ⑩ Brake hose #2 (L)
- ⑪ Brake pads
- ⑫ Brake pad mounting pin
- ⑬ Clip
- ⑭ Spring
- ⑮ Dust seal
- ⑯ Piston seal
- ⑰ Brake caliper pistons
- ⑱ Brake caliper
- ⑲ Brake caliper holder

- A Master cylinder clamp bolt
- B Brake hose union bolt
- C Air bleeder valve
- D Brake caliper mounting bolt



ITEM	N·m	kgf·m	lb·ft
A	10	1.0	7.0
B	23	2.3	16.5
C	7.5	0.75	5.5
D	39	3.9	28.0

⚠ WARNING

- * This brake system is filled with an ethylene glycol-based DOT 4 brake fluid. Do not use or mix different types of fluid, such as silicone-based or petroleum-based fluids.
- * Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or which has been stored for long periods of time.
- * When storing brake fluid, seal the container completely and keep it away from children.
- * When replenishing brake fluid, take care not to get dust into the fluid.
- * When washing brake components, use new brake fluid. Never use cleaning solvent.
- * A contaminated brake disc or brake pad reduces braking performance. Discard contaminated pads and clean the disc with high quality brake cleaner or a neutral detergent.

⚠ CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc..

BRAKE FLUID REPLACEMENT

- Place the motorcycle on a level surface and keep the handlebars straight.
- Remove the brake fluid reservoir cap and diaphragm by removing the cap stopper.
- Suck up the old brake fluid as much as possible.
- Fill the reservoir with new brake fluid.

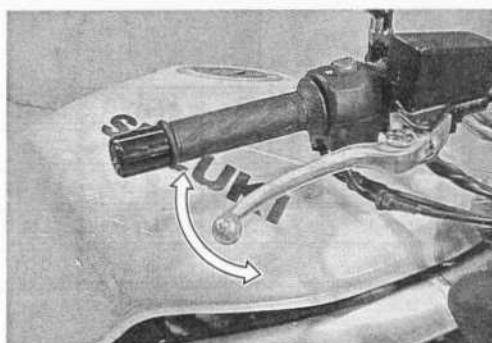
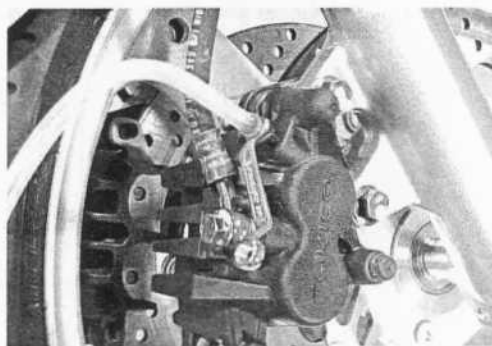
DATA Brake fluid type

Specification: DOT 4

- Connect a cleaner hose to the caliper air bleeder valve and insert the other end of hose into a receptacle.
- Loosen the air bleeder valve and pump the brake lever until old brake fluid flows out of the bleeder system.
- Close the caliper air bleeder valve and disconnect a clear hose. Fill the reservoir with new brake fluid to the upper mark of the reservoir.

⚠ CAUTION

Bleed air from the brake system. (➞ 2-24 of the SV650 Service Manual)



FRONT MASTER CYLINDER

REMOVAL AND DISASSEMBLY

- Drain brake fluid. (➡ 6-47 of the SV650 Service Manual)
- Disconnect the brake light switch lead wire.

- Place a rag underneath the brake hose union bolt on the master cylinder to catch any split brake fluid. Remove the brake hose union bolt and disconnect the brake hose.

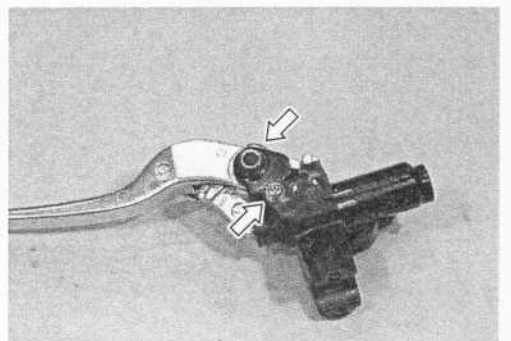
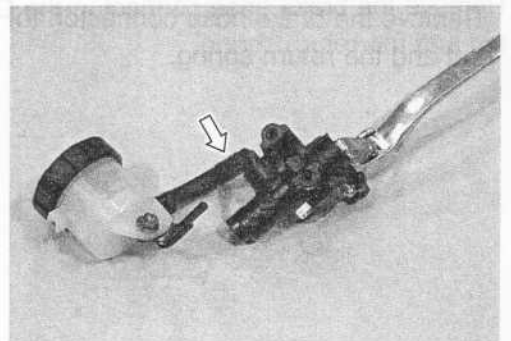
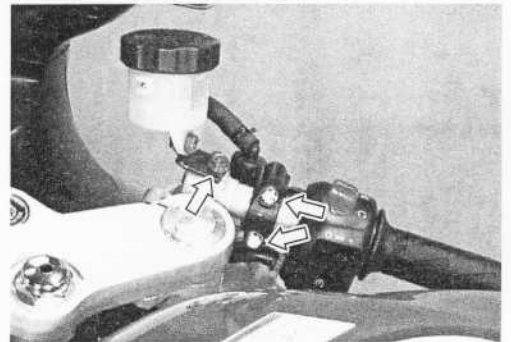
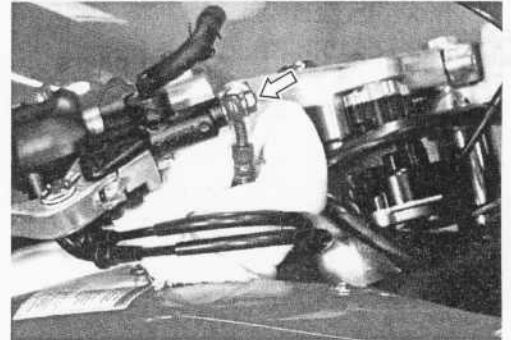
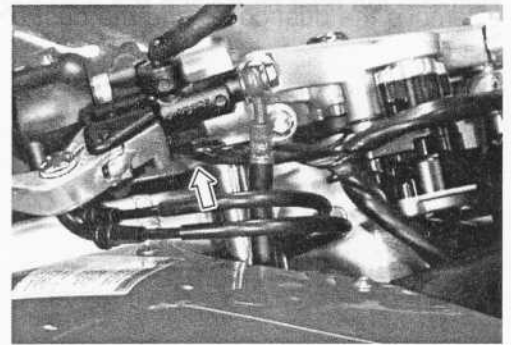
⚠ CAUTION

Immediately wipe off any brake fluid contacting any part of the motorcycle. The brake fluid reacts chemically with paint, plastics and rubber materials, etc., and will damage them severely.

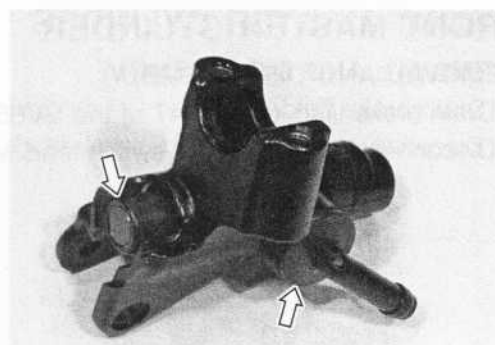
- Remove the master cylinder with the reservoir.

- Remove the reservoir from the master cylinder.

- Remove the brake lever and the brake light switch.

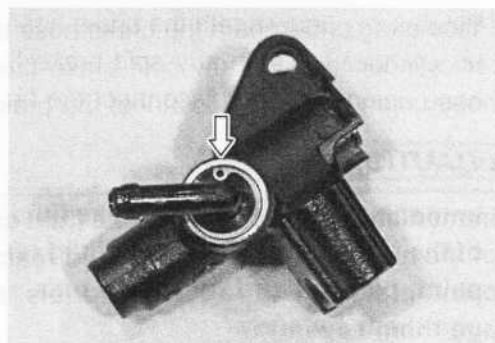


- Remove the dust cover and the dust boot.

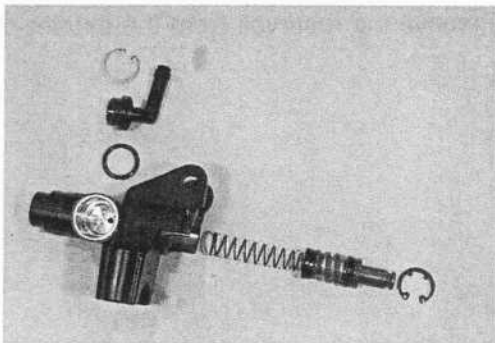


- Remove the circlips.

 09900-06108: Snap ring pliers



- Remove the brake hose connector, the O-ring, the piston/cup set and the return spring.



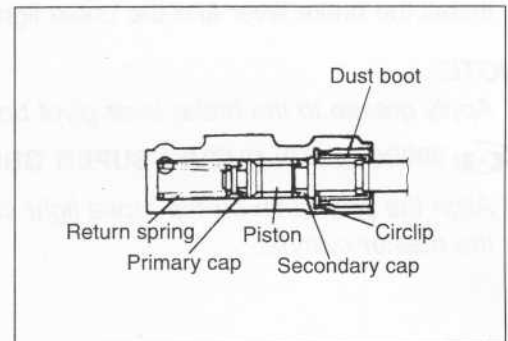
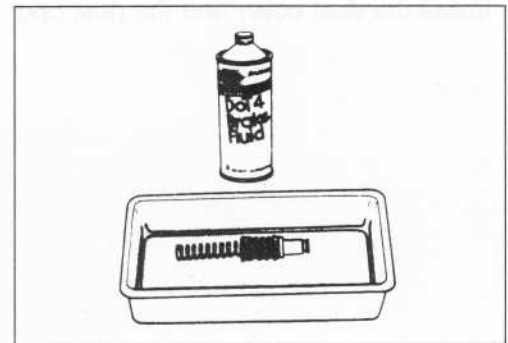
REASSEMBLY AND REMOUNTING

Reassemble the master cylinder in the reverse order of removal and disassembly. Pay attention to the following points:

⚠ CAUTION

- * Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
- * Do not wipe the components with a rag.
- * Apply brake fluid to the cylinder bore and all the component to be inserted into the bore.

- Install the piston/cup set into the master cylinder.



- Install the brake hose connector.

⚠ CAUTION

Use a new O-ring to prevent the fluid leakage.

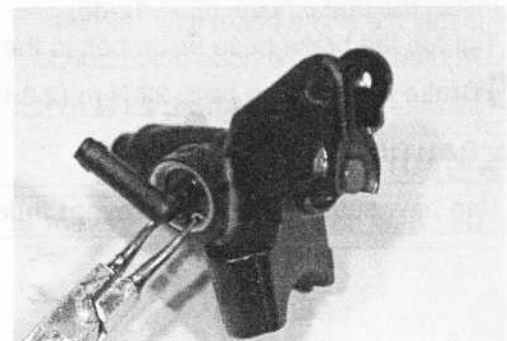
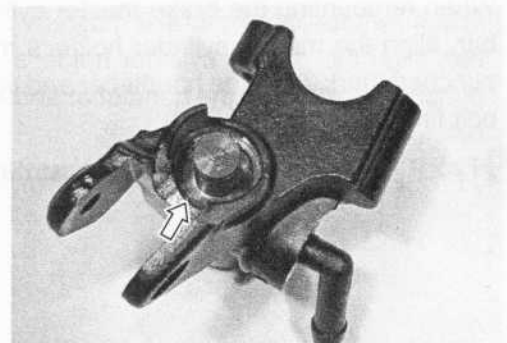


- Install the circlips.

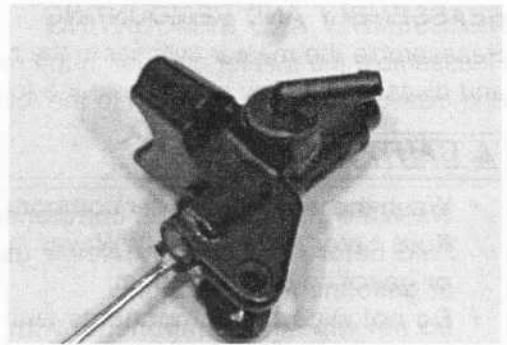
 09900-06108: Snap ring pliers

⚠ CAUTION

The round edge side of the circlip must be against to inside.



- Install the dust cover and the dust boot.



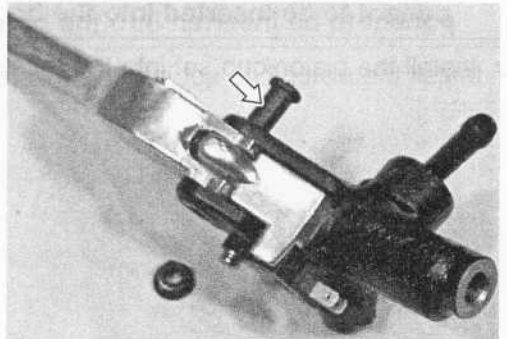
- Install the brake lever and the brake light switch.

NOTE:

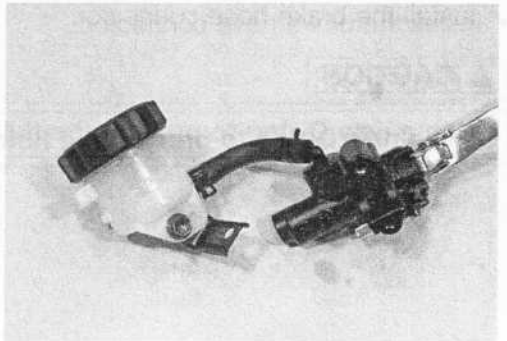
- * Apply grease to the brake lever pivot bolt when installing.

99000-25010: SUZUKI SUPER GREASE "A"

- * Align the projection on the brake light switch with the hole on the master cylinder.

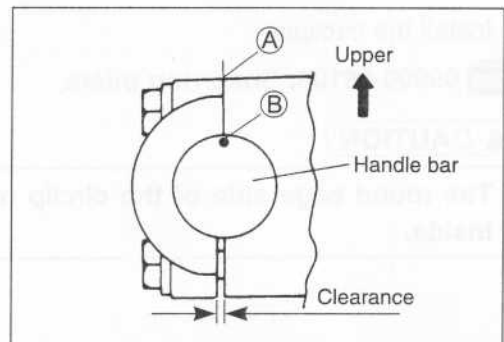


- Install the reservoir to the master cylinder.



- When remounting the brake master cylinder onto the handlebar, align the master cylinder holder's mating surface (A) with punched mark (B) on the handlebar and tighten the upper clamp bolt first as shown.

**Front brake master cylinder mounting bolt: 10 N·m
(1.0 kgf·m, 7.0 lb-ft)**

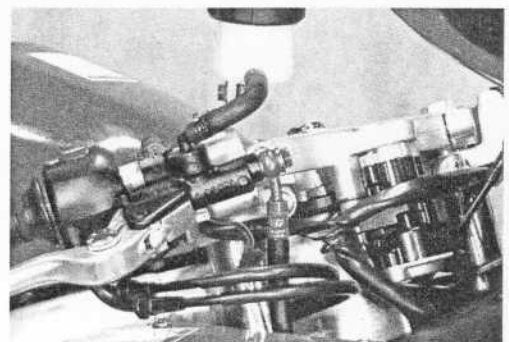


- Install the brake hose. (12-35)
- Tighten the brake hose union bolt to the specified torque.

Brake hose union bolt: 23 N·m (2.3 kgf·m, 16.5 lb-ft)

CAUTION

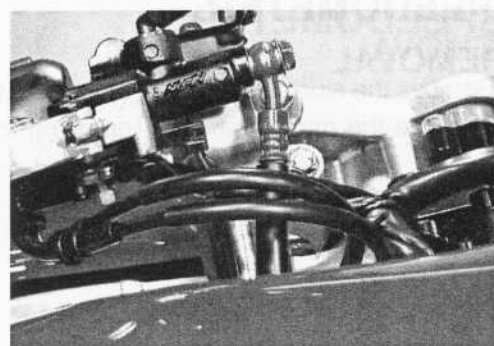
Use new seal washers to prevent fluid leakage.



- Connect the brake light switch lead wire.

▲ CAUTION

Bleed air from the brake system after reassembling the master cylinder. (➡ 2-24 of the SV650 Service Manual)

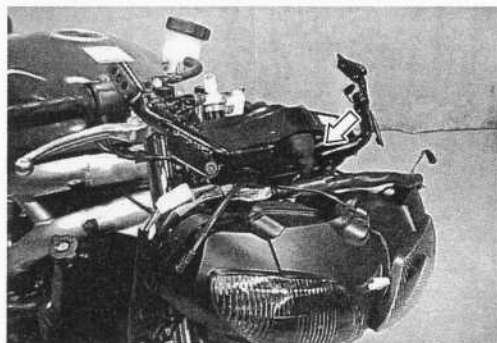


SPEEDOMETER REMOVAL

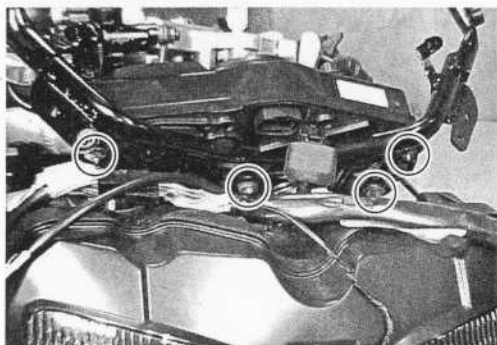
- Remove the side cowling (R), (L) and center cowling. (12-9)
- Remove the meter panel by removing the screws.



- Disconnect the speedometer coupler.

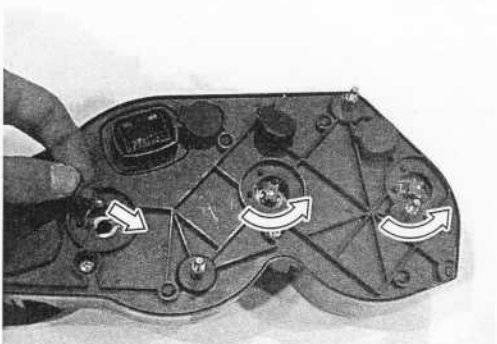
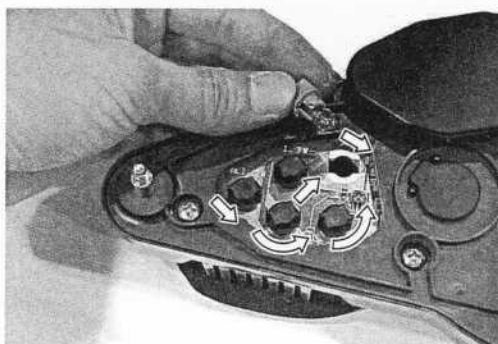
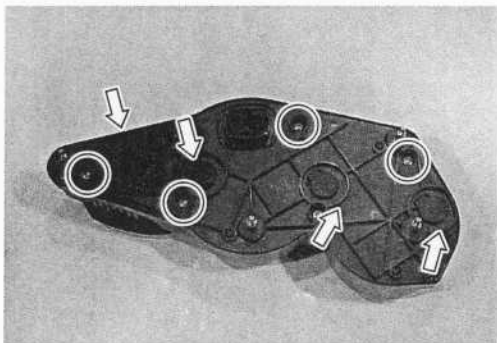


- Remove the nuts.
- Remove the speedometer.

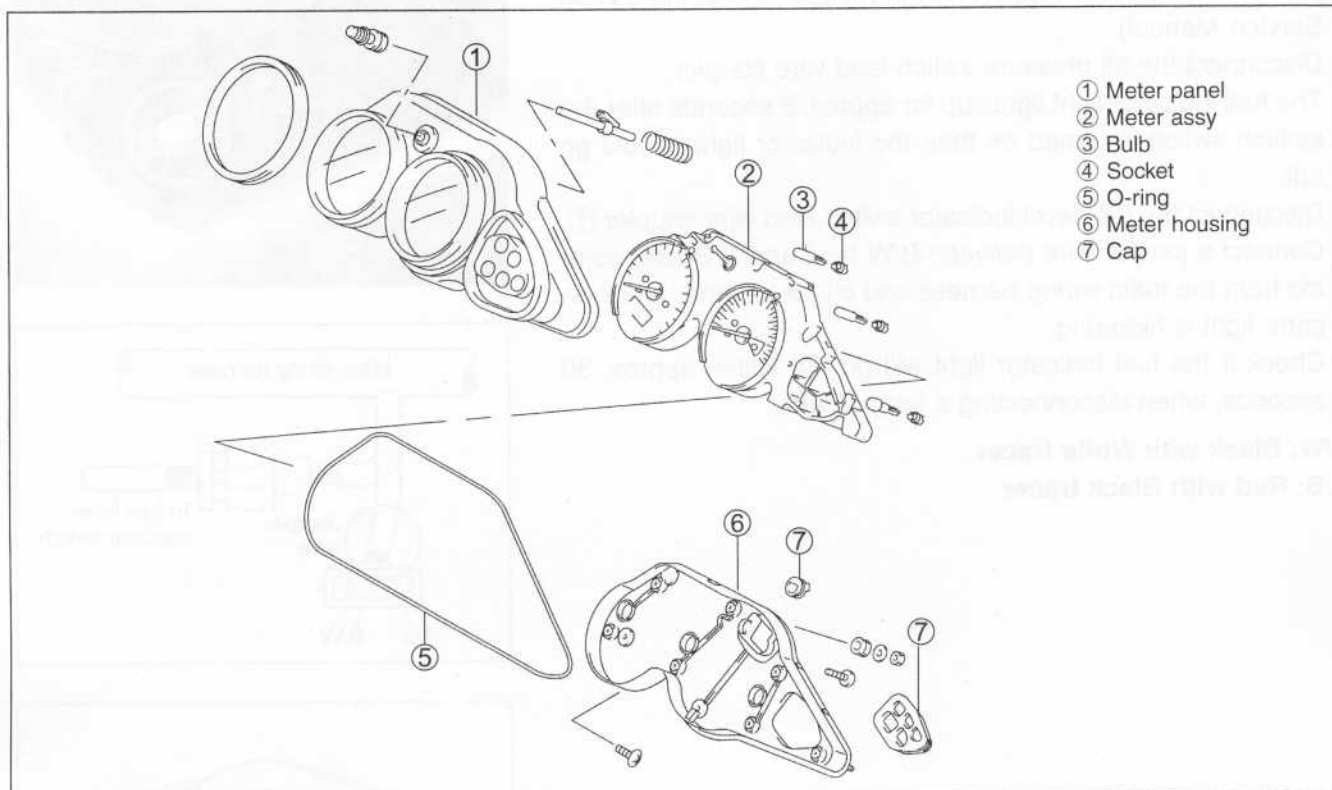


BULB REPLACEMENT

- Remove the sockets.
- Remove the bulbs.
- Reassemble and remount the speedometer assy is the reverse order of removal and disassembly.



CONSTRUCTION



INSPECTION

Using the tester, check the continuity between terminals in the following diagram. If the continuity measured is incorrect, remove and check the bulb.

If the bulb is failure, install the new bulb and check the continuity again. If the bulb is correct, replace the unit with a new one.

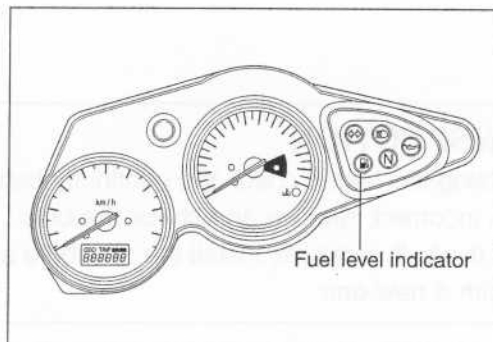
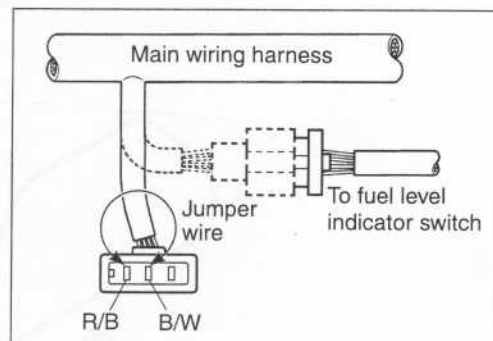
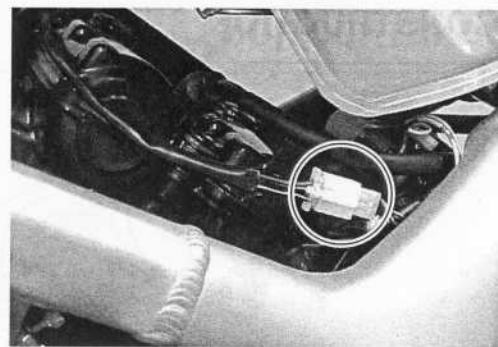
Tester knob indication: Diode test (+←)

ITEM	+ Probe of tester to:	- Probe of tester to:
TURN SIGNAL	⑪, ⑫	⑧
FUEL	②	⑤⑥
NEUTRAL	②	⑬
HI BEAM	⑩	⑧
OIL	②	⑦
OIL (LED)	②	⑦
WATER TEMPERATURE (LED)	②	⑮
METER ILLUMINATION	⑨	⑧

①	BATTERY +
②	IGNITION +
③	SPEED SENSOR +
④	IGNITION COIL (SIGNAL)
⑤	FUEL LEVEL GAUGE B
⑥	FUEL LEVEL GAUGE A
⑦	OIL PRESSURE GAUGE
⑧	GROUND (POWER)
⑨	ILLUMINATION +
⑩	HIGH BEAM +
⑪	TURN (L) +
⑫	TURN (R) +
⑬	NEUTRAL SWITCH
⑭	SPEED SENSOR (SIGNAL)
⑮	WATER TEMPERATURE SWITCH
⑯	GROUND (SIGNAL)

FUEL LEVEL INDICATOR LIGHT INSPECTION

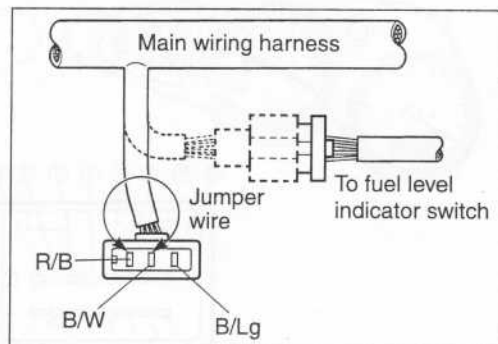
- Lift the fuel tank and support it by prop. (☞ 4-4 of the SV650 Service Manual)
- Disconnect the oil pressure switch lead wire coupler.
- The fuel indicator light lights up for approx. 3 seconds after the ignition switch is turned on then the indicator light should go out.
- Disconnect the fuel level indicator switch lead wire coupler ①.
- Connect a jumper wire between B/W lead and R/B lead coming from the main wiring harness and check whether fuel indicator light is flickering.
- Check if the fuel indicator light will go out within approx. 30 seconds, when disconnecting a jumper wire.

B/W: Black with White tracer**R/B: Red with Black tracer**

- Connect jumper wires between B/W lead and R/B lead and B/W lead and B/Lg lead coming from the main wiring harness and check whether the fuel indicator light comes on.
- Check if the fuel indicator light will go out within approx. 30 seconds, when disconnecting jumper wires.

R/B: Red with Black tracer**B/W: Black with White tracer****B/Lg: Black with Light green tracer**

If the fuel indicator light does not function properly, check the bulb. If the bulb is in good condition, replace the meter with a new one.



SPEED SENSOR INSPECTION

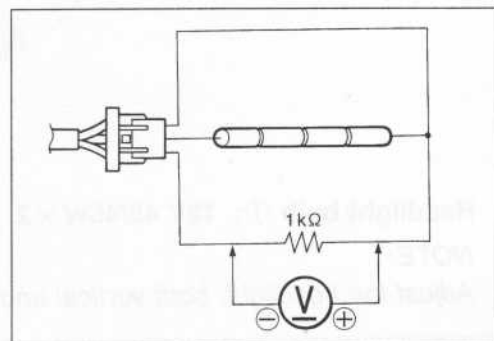
- Lift the fuel tank and support it by prop. (☞ 4-4 of the SV650 Service Manual)
- Remove the air cleaner. (☞ 4-18 of the SV650 Service Manual)
- Disconnect the speed sensor coupler.



- Connect four 1.5 V dry cells, 1k Ω resistance and the tester to the speed sensor lead coupler as shown.

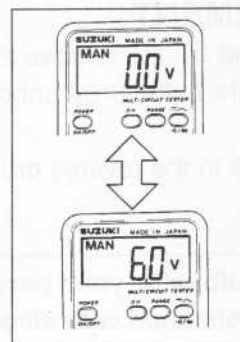
 **09900-25008: Multi-circuit tester**

 **Tester knob indication: Voltage (---)**

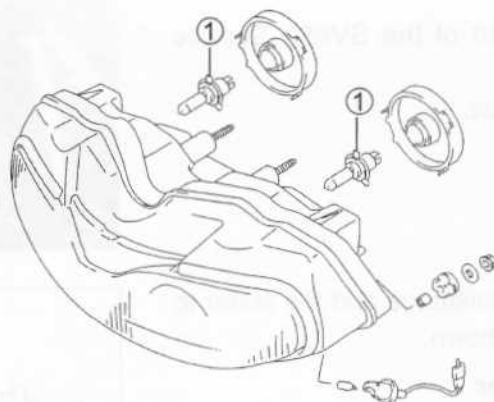


Lift and turn the front wheel and check that voltage varies between 0 – 6 V.

If any abnormal condition is noted, replace the sensor.



HEADLIGHT



Headlight bulb ①: 12V 45/45W × 2

NOTE:

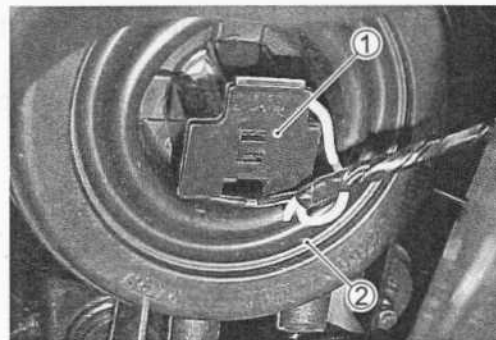
Adjust the headlight, both vertical and horizontal, after reassembling.

BULB REPLACEMENT

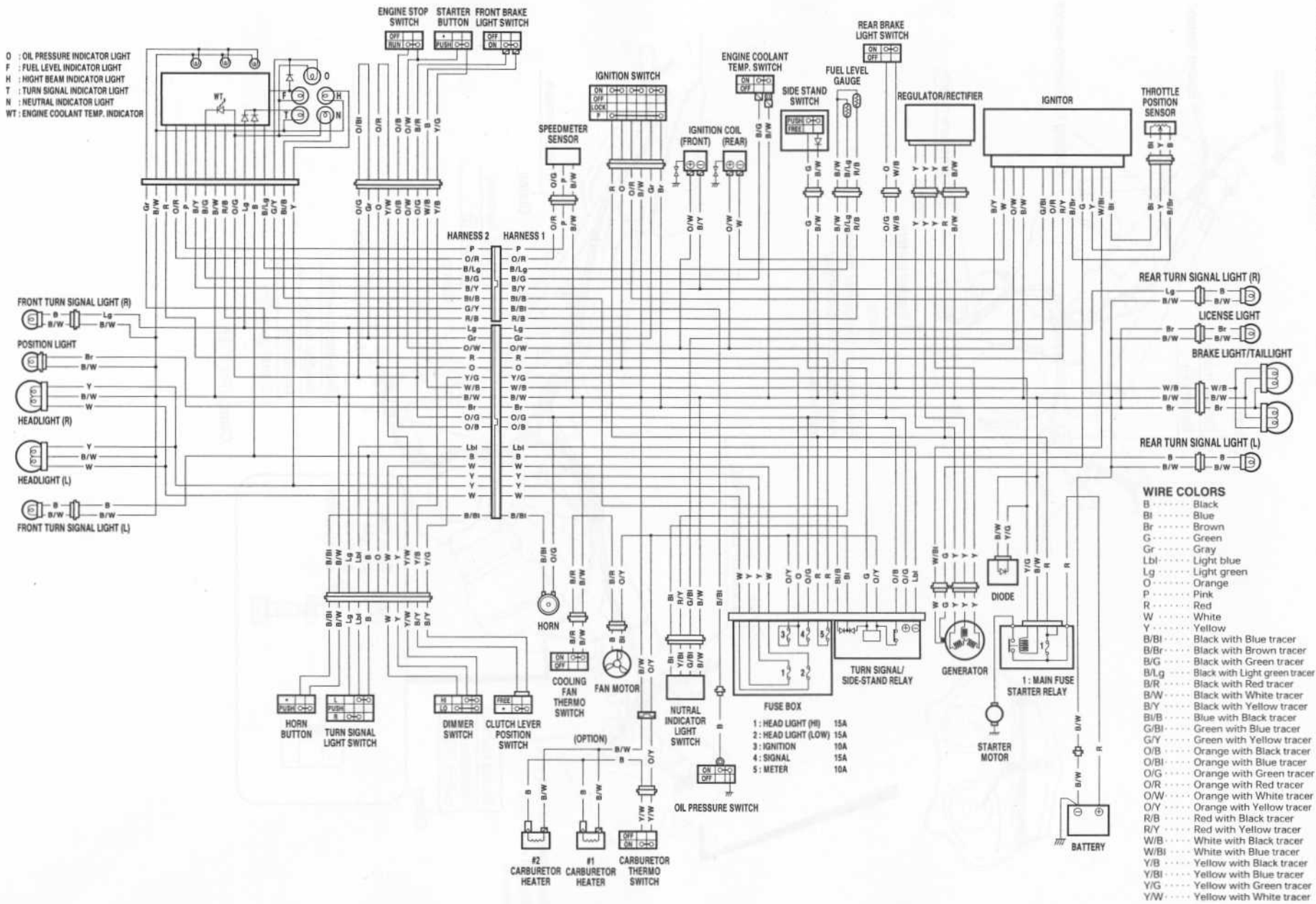
- Disconnect the socket ① and remove the rubber cap ②.
- Remove the headlight bulb ④ by unhooking the bulb holder spring ③.
- Reassemble the bulb in the reverse order of removal.

▲ CAUTION

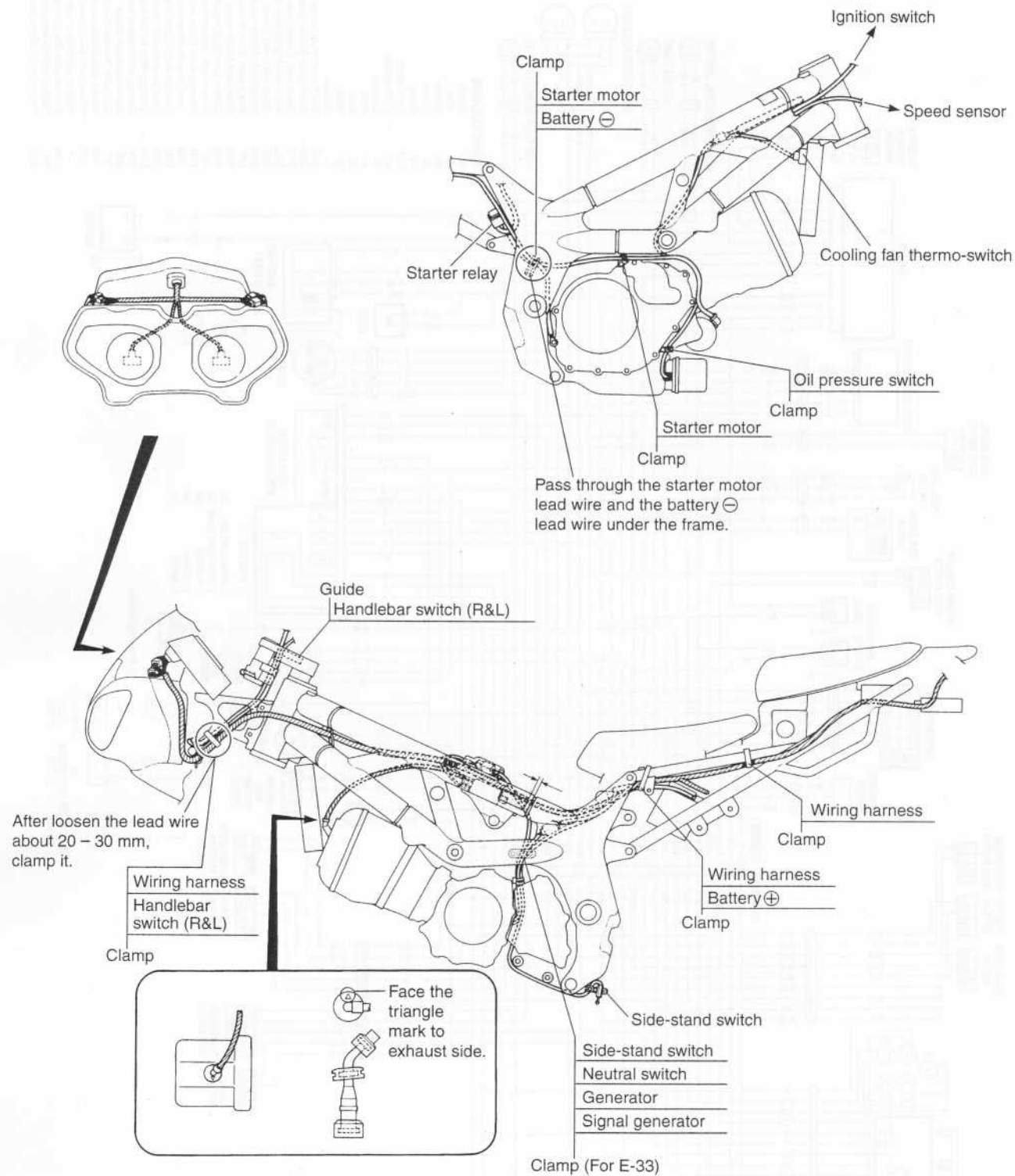
If you touch the bulb with your bare hands, clean the bulb with a cloth moistened with alcohol or soapy water to prevent premature bulb failure.

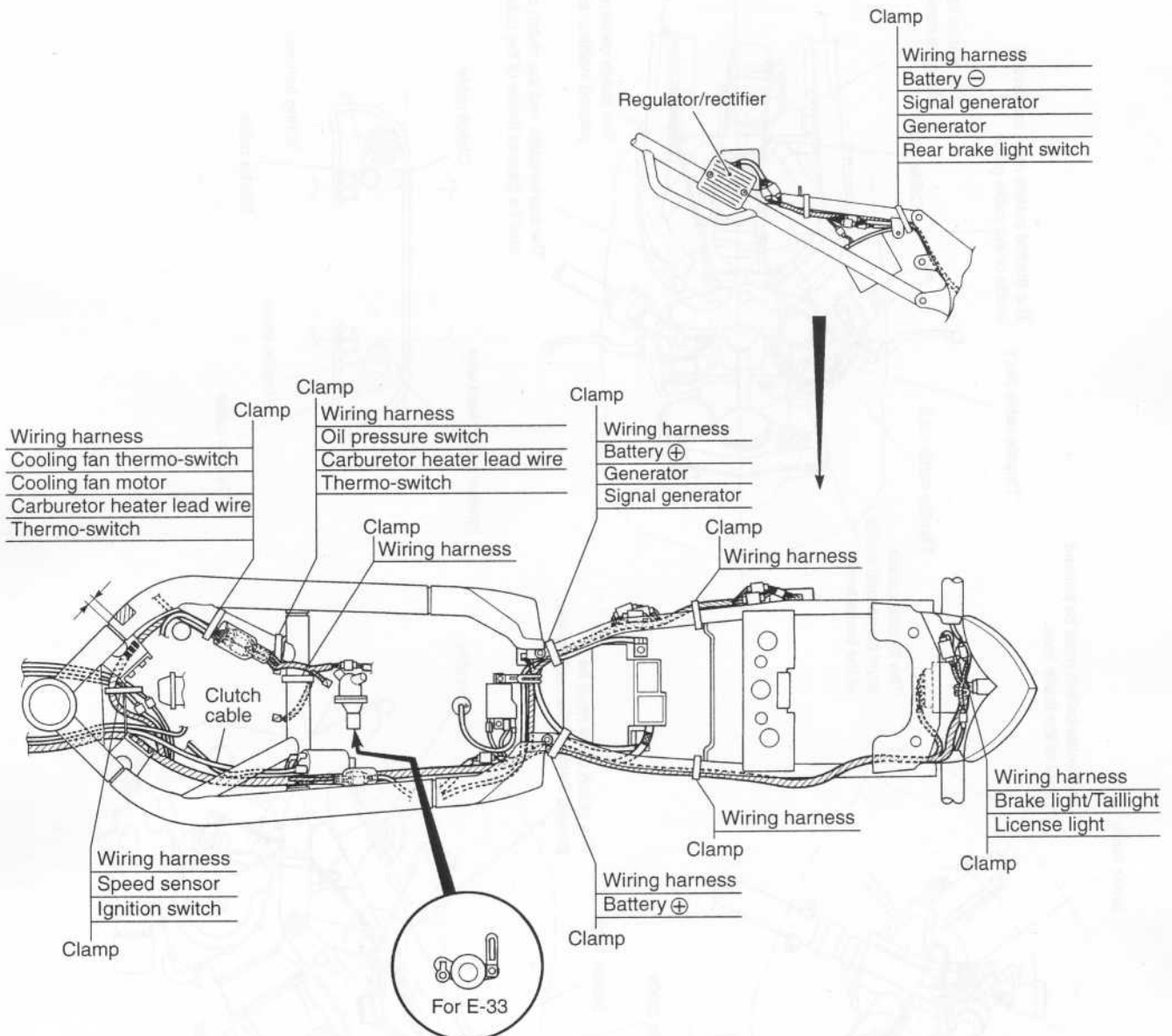


WIRING DIAGRAM

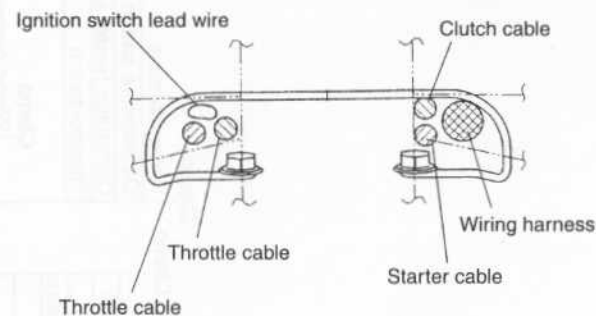
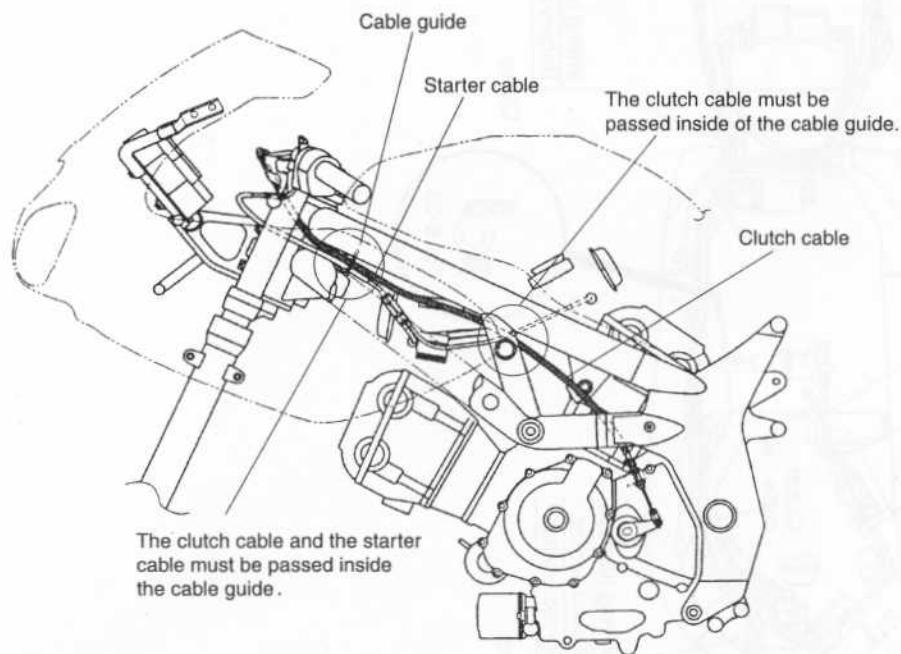
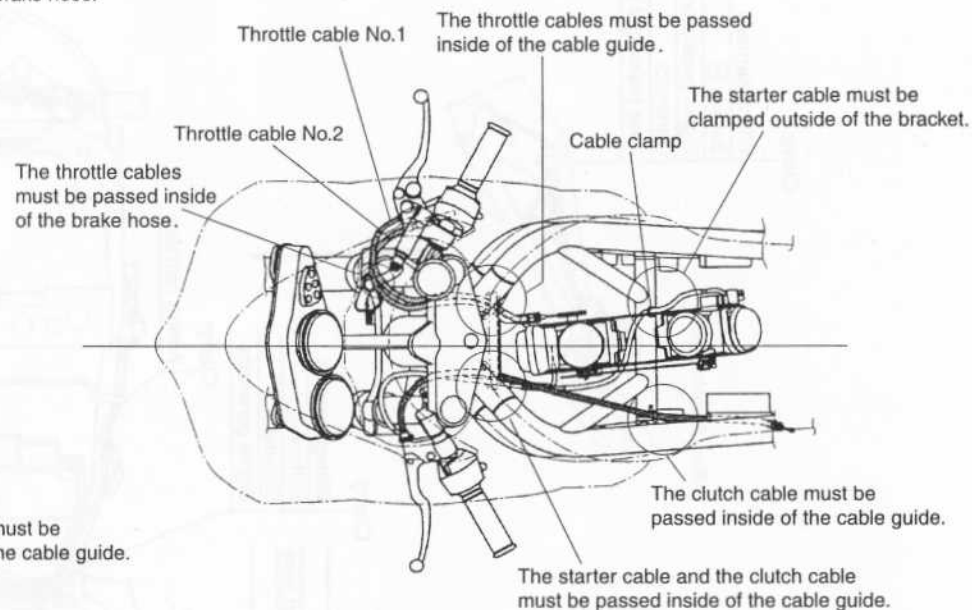
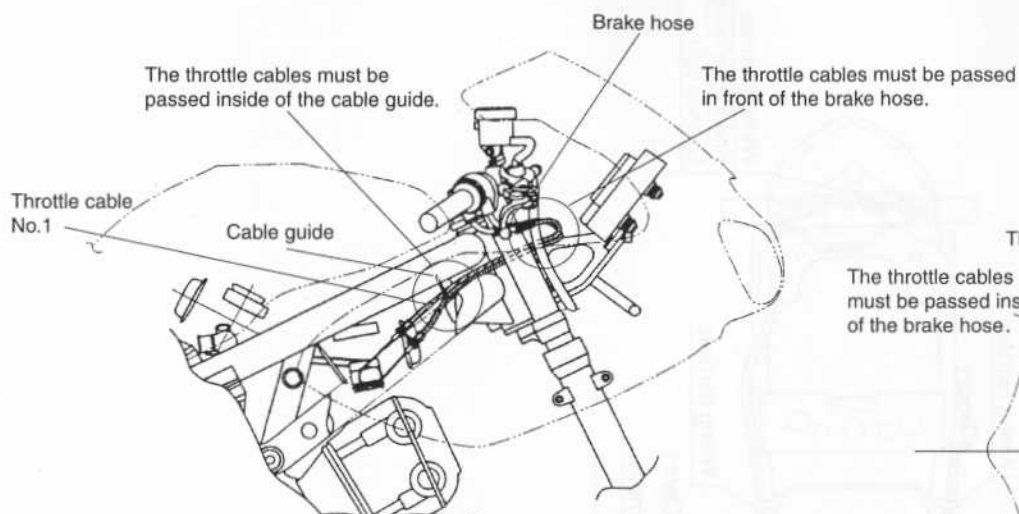


WIRE HARNESS ROUTING

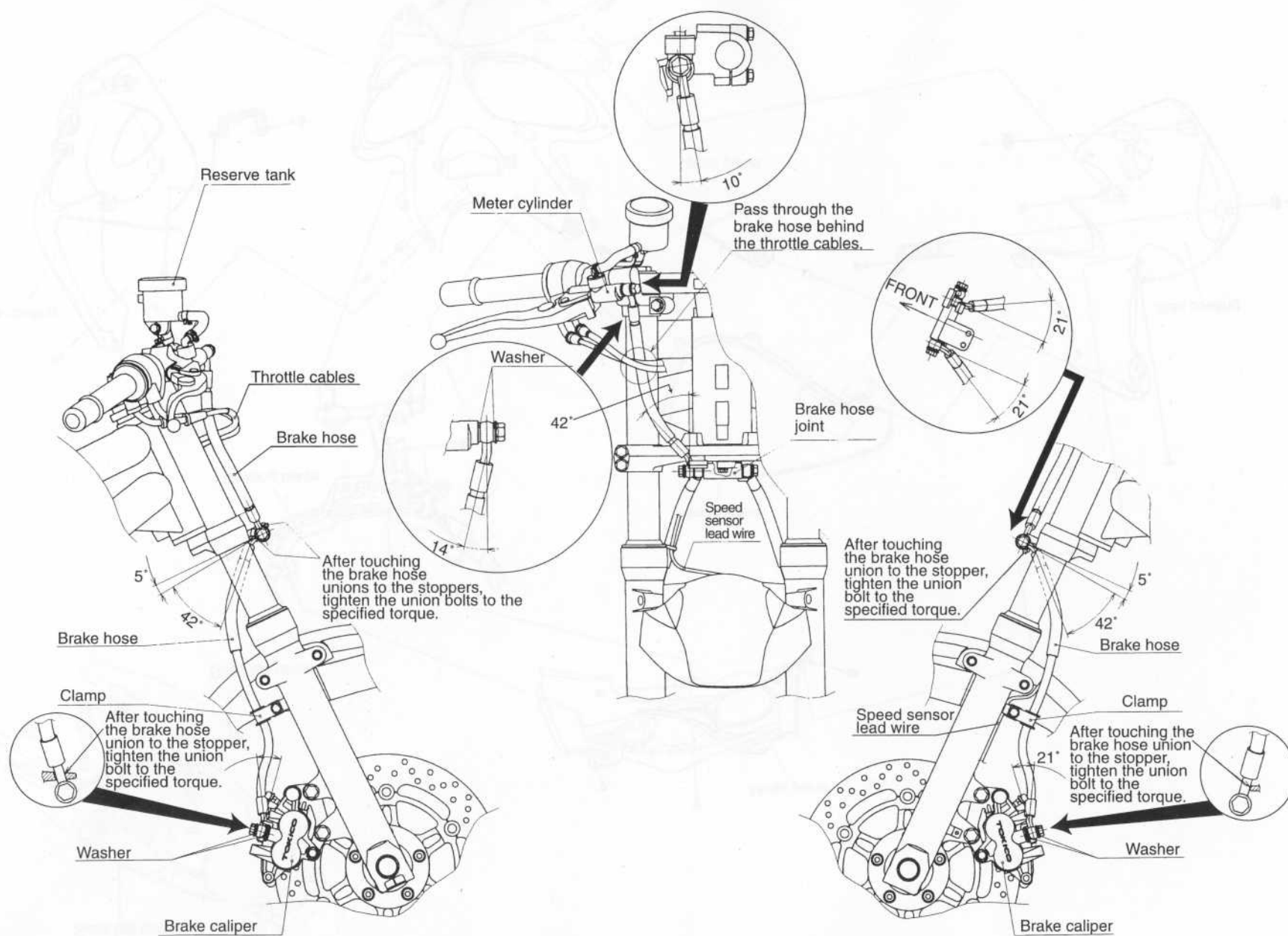




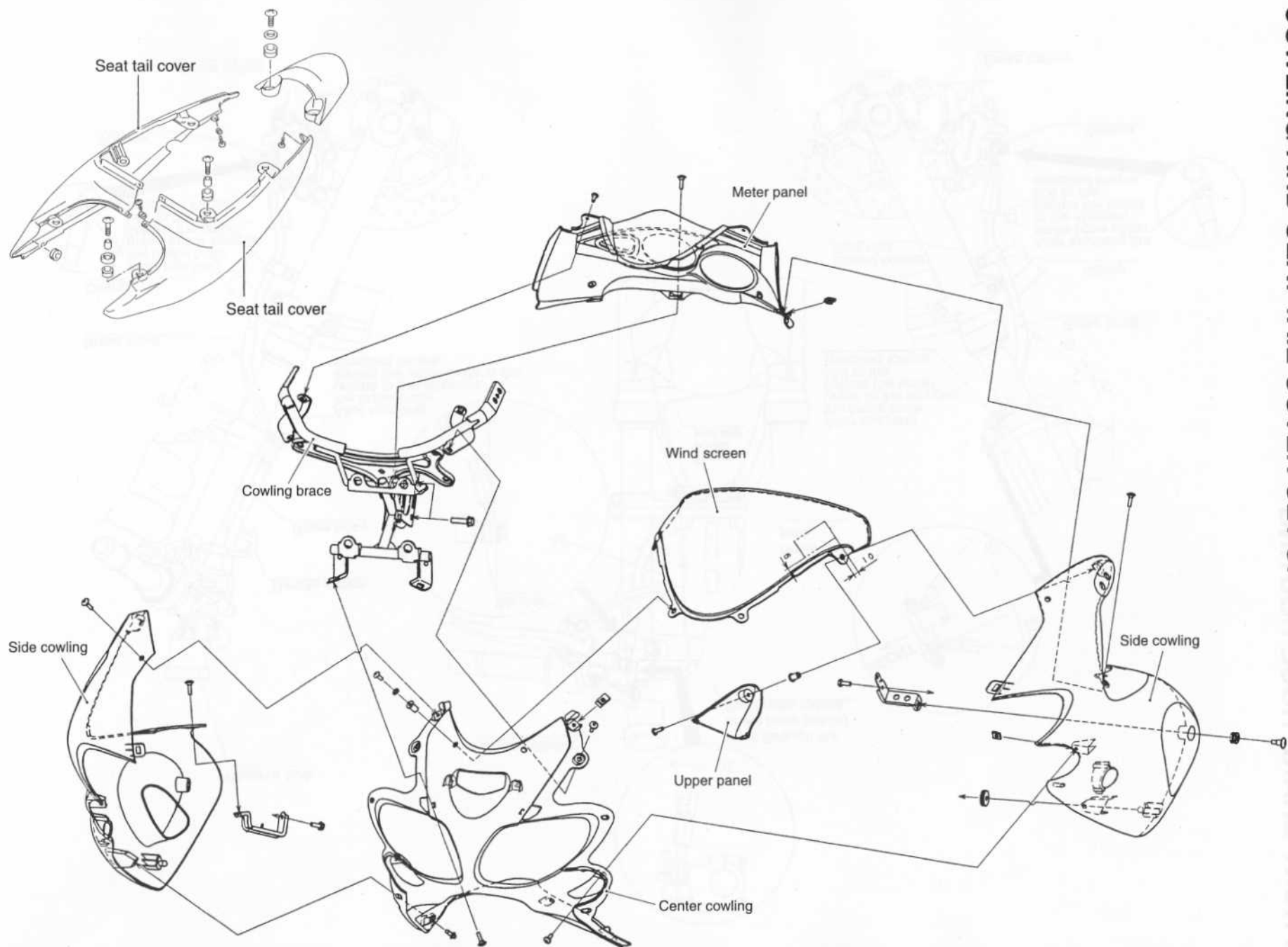
CABLE ROUTING



FRONT BRAKE HOSE ROUTING



COWLING AND SEAT TAIL COVER SET-UP



SERVICE DATA**VALVE + GUIDE**

Unit: mm (in)

ITEM	STD/SPEC.		LIMIT
Valve diam.	IN.	31 (1.2)	—
	EX.	25.5 (1.0)	—
Valve clearance (When cold)	IN.	0.1 – 0.2 (0.004 – 0.008)	—
	EX.	0.2 – 0.3 (0.008 – 0.012)	—
Valve guide to valve stem clearance	IN.	0.020 – 0.047 (0.0008 – 0.0019)	—
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	—
Valve guide I.D.	IN. & EX.	4.500 – 4.512 (0.1772 – 0.1776)	—
Valve stem O.D.	IN.	4.465 – 4.480 (0.1758 – 0.1764)	—
	EX.	4.455 – 4.470 (0.1754 – 0.1760)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	—	36.8 (1.45)
	OUTER	—	39.8 (1.57)
Valve spring tension (IN. & EX.)	INNER	4.2 – 4.8 kgf (9.26 – 10.58 lbs) at length 29.9 mm (1.18 in)	—
	OUTER	17.0 – 19.6 kg (37.48 – 43.21 lbs) at length 33.4 mm (1.31 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STD/SPEC.		LIMIT
Cam height	IN.	35.480 – 35.530 (1.397 – 1.399)	35.18 (1.385)
	EX.	33.480 – 33.530 (1.318 – 1.320)	33.18 (1.306)
Camshaft journal oil clearance	IN. & EX.	0.032 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	—
Camshaft journal O.D.	IN. & EX.	21.959 – 21.980 (0.8645 – 0.8654)	—
Camshaft runout	IN. & EX.	—	0.10 (0.004)
Cam chain pin (at arrow "3")	16th pin		—
Cylinder head distortion	—		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STD/SPEC.		LIMIT
Compression pressure	1 500 kPa (15 kgf/cm ²) 213 psi		1 100 kPa (11 kgf/cm ²) 156 psi
Compression pressure difference	—		200 kPa (2 kgf/cm ²) 28 psi
Piston to cylinder clearance	0.055 – 0.065 (0.0022 – 0.0026)		0.120 (0.0047)
Cylinder bore	81.000 – 81.015 (3.1890 – 3.1896)		81.075 (3.1919)
Piston diam.	80.940 – 80.955 (3.1866 – 3.1872) Measure at 20 mm (0.79 in) from the skirt end.		80.88 (3.184)
Cylinder distortion	—		0.05 (0.002)
Piston ring free end gap	1st	Approx. 9.9 (0.39)	7.9 (0.31)
	2nd	Approx. 10.5 (0.41)	8.4 (0.33)
Piston ring end gap	1st	0.20 – 0.35 (0.008 – 0.014)	0.70 (0.028)
	2nd	0.20 – 0.35 (0.008 – 0.014)	0.70 (0.028)
Piston ring to groove clearance	1st	—	0.180 (0.0071)
	2nd	—	0.150 (0.0059)
Piston ring groove width	1st	1.21 – 1.23 (0.0476 – 0.0484)	—
	2nd	1.01 – 1.03 (0.0398 – 0.0406)	—
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	—

ITEM	STD/SPEC.		LIMIT
Piston ring thickness	1st	1.17 – 1.19 (0.0461 – 0.0469)	—
	2nd	0.97 – 0.99 (0.0382 – 0.0390)	—
Piston pin bore		20.002 – 20.008 (0.7875 – 0.7877)	20.030 (0.7886)
Piston pin O.D.		19.992 – 20.000 (0.7871 – 0.7874)	19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STD/SPEC.	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Conrod big end side clearance	0.170 – 0.320 (0.0067 – 0.0126)	0.5 (0.02)
Conrod big end width	20.95 – 21.00 (0.825 – 0.827)	—
Crank pin width	42.17 – 42.22 (1.660 – 1.662)	—
Conrod big end oil clearance	0.032 – 0.056 (0.0013 – 0.0022)	0.080 (0.0031)
Crank pin O.D.	37.976 – 38.000 (1.4951 – 1.4960)	—
Crankshaft journal oil clearance	0.008 – 0.035 (0.0003 – 0.0014)	0.080 (0.0031)
Crankshaft journal O.D.	41.985 – 42.000 (1.6529 – 1.6535)	—
Crankshaft thrust bearing thickness	1.925 – 2.175 (0.0758 – 0.0856)	—
Crankshaft thrust clearance	0.050 – 0.110 (0.0020 – 0.0043)	—
Crankshaft runout	—	0.05 (0.002)

OIL PUMP

ITEM	STD/SPEC.	LIMIT
Oil pressure (at 60°C, 140°F)	Above 200 kPa (2.0 kgf/cm ² , 28 psi) Below 600 kPa (6.0 kgf/cm ² , 85 psi) at 3 000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STD/SPEC.		LIMIT
Clutch cable play	10 – 15 (0.4 – 0.6)		—
Clutch release screw	1/4 turn(s) back		—
Drive plate thickness	No.1	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
	No.2	3.42 – 3.58 (0.135 – 0.141)	3.12 (0.123)
Drive plate claw width	No.1 & No.2	15.9 – 16.0 (0.626 – 0.630)	15.1 (0.59)
Driven plate distortion	—		0.10 (0.004)
Clutch spring free length	58.9 (2.32)		56.0 (2.20)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in)

ITEM	STD/SPEC.			LIMIT
Primary reduction ratio	2.088 (71/34)			_____
Final reduction ratio	SV650S	* 2.933 (44/15)		_____
	SV650	3.000 (45/15)		_____
Gear ratios	Low	2.461 (32/13)		_____
	2nd	1.777 (32/18)		_____
	3rd	1.380 (29/21)		_____
	4th	1.125 (27/24)		_____
	5th	0.961 (25/26)		_____
	Top	0.851 (23/27)		_____
Shift fork to groove clearance	0.1 – 0.3 (0.004 – 0.012)			0.5 (0.020)
Shift fork groove width	5.5 – 5.6 (0.217 – 0.220)			_____
Shift fork thickness	5.3 – 5.4 (0.209 – 0.213)			_____
Drive chain	Type	SV650	DID525V8	_____
		SV650S	* DID525V9	_____
	Links	SV650	110 Links	_____
		SV650S	* 108 Links	_____
	20-pitch length	_____		319.4 (12.57)
Drive chain slack (on side-stand)	20 – 30 (0.79 – 1.18)			_____
Gearshift lever height	SV650S	* 60 – 70 (2.4 – 2.8)		_____
	SV650	55 – 60 (2.2 – 2.4)		_____

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM	STD/SPEC.		LIMIT
Thermostat valve opening temperature	Approx. 82°C (179.6°F)		—
Thermostat valve lift	Over 8.0 mm (0.31 in) at 95°C (203°F)		—
Engine coolant temperature switch operating temperature	OFF → ON	Approx. 115°C (239°F)	—
	ON → OFF	Approx. 108°C (226.4°F)	—
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm ² , 13.5 – 17.8 psi)		—
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 96°C (204.8°F)	—
	ON → OFF	Approx. 91 °C (195.8°F)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		—
Engine coolant including reserve	Reserve tank side	Approx. 250 ml (0.26/0.22 US/Imp qt)	—
	Engine side	Approx. 1 350 ml (1.43/1.19 US/Imp qt)	—

CARBURETOR

ITEM	STD/SPEC.	
	E-02, 04, 17, 22, 24, 25, 34	E-03, 28
Carburetor type	MIKUNI BDSR39	←
Bore size	39 mm	←
I.D. No.	20F0	20F2
Idle r/min	1 300 ± 100 r/min	←
Fuel level	16.9 ± 0.5 mm (0.68 ± 0.02 in)	←
Float height	7.0 ± 0.5 mm (0.28 ± 0.02 in)	←
Main jet (M.J.)	#137.5	#137.5
Jet needle (J.N.)	6E38-54-2	6E42-52
Needle jet (N.J.)	P-0	P-0M
Throttle valve (Th.V.)	#95	←
Pilot jet (P.J.)	#17.5	#15
Pilot screw (P.S.)	PRE-SET (2½ turns back)	PRE-SET (3 turns back)
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)	←

CARBURETOR

ITEM	STD/SPEC.	
	E-33	E-22 (U-Type)
Carburetor type	MIKUNI BDSR39	←
Bore size	39 mm	←
I.D. No.	20F4	20F5
Idle r/min	1 300 ± 100 r/min	←
Fuel level	16.9 ± 0.5 mm (0.68 ± 0.02 in)	←
Float height	7.0 ± 0.5 mm (0.28 ± 0.02 in)	←
Main jet (M.J.)	#137.5	#137.5
Jet needle (J.N.)	6E43-54	6E38-54-2
Needle jet (N.J.)	P-DM	P-0
Throttle valve (Th.V.)	#95	←
Pilot jet (P.J.)	#15	#17.5
Pilot screw (P.S.)	PRE-SET	PRE-SET (3½ turns back)
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)	←

CARBURETOR

ITEM	STD/SPEC.	
	E-18	
Carburetor type	MIKUNI BDSR39	
Bore size	39 mm	
I.D. No.	20F3	
Idle r/min	1 300 ± 50 r/min	
Fuel level	16.9 ± 0.5 mm (0.68 ± 0.02 in)	
Float height	7.0 ± 0.5 mm (0.28 ± 0.02 in)	
Main jet (M.J.)	#137.5	
Jet needle (J.N.)	6E38-54-2	
Needle jet (N.J.)	P-0	
Throttle valve (Th.V.)	#95	
Pilot jet (P.J.)	#15	
Pilot screw (P.S.)	PRE-SET (2¾ turns back)	
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)	

ELECTRICAL

ITEM		STD/SPEC.		NOTE
Firing order		1 - 2		
Spark plug	Type	NGK: CR8E DENSO: U24ESR-N		
	Gap	0.7 - 0.8 mm (0.028 - 0.031 in)		
Spark performance		Over 8 mm (0.3 in) at 1 atm.		
Signal coil resistance		140 - 230 Ω		
Signal coil peak voltage		More than 3 V		
Ignition coil resistance	Primary	3.5 - 5.5 Ω		Terminal - Terminal
	Secondary	20 - 31 k Ω		Plug cap - Terminal
Ignition coil primary peak voltage		More than 150 V		
Generator coil resistance		0.2 - 0.55 Ω		
Generator Max. output		Approx. 300 W at 5 000 r/min		
Generator no-load voltage (When cold)		More than 70 V (AC) at 5 000 r/min		
Regulated voltage		13.5 - 15.0 V at 5 000 r/min		
Starter relay resistance		3 - 6 Ω		
Battery	Type designation	YT12A-BS		
	Capacity	12 V 36.0 kC (10Ah)/10HR		
Fuse size	Headlight	HI	15A	
		LO	15A	
	Signal	15A		
	Ignition	10A		
	Meter	10A		
	Main	30A		

WATTAGE

ITEM		STD/SPEC.			
		* SV650S		SV650	
		E-02, 03, 24, 28, 33	The other countries	E-03, 33	The other countries
Headlight	HI	45 W $\times$ 2	55 W	60 W	←
	LO	45 W $\times$ 2	55 W	55 W	←
Parking or position light		5 W	←	5 W	
Brake light/Taillight		21/5 W $\times$ 2	←		
Turn signal light		21 W	←	←	←
License light		5 W	←	←	←
Speedometer light		0.84 W $\times$ 3	←	1.7 W $\times$ 2	←
Turn signal indicator light		3 W	←	1.7 W	←
High beam indicator light		1.7 W	←	←	←
Neutral indicator light		1.7 W	←	←	←
Oil pressure indicator light		1.7 W	←	LED	←
Water temp. indicator light		LED	←	←	←

BRAKE + WHEEL

Unit: mm (in)

ITEM	STD/SPEC.		LIMIT
Rear brake pedal free travel	20 – 30 (0.8 – 1.2)		—
Rear brake pedal height	55 – 65 (2.17 – 2.56)		—
Brake disc thickness	Front	4.5 (0.18)	4.0 (0.16)
	Rear	5.0 (0.20)	4.5 (0.18)
Brake disc runout	—		0.3 (0.012)
Master cylinder bore	Front	15.870 – 15.913 (0.6248 – 0.6265)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diam.	Front	15.827 – 15.854 (0.6231 – 0.6242)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	30.230 – 30.306 (1.1902 – 1.1931)	—
	Rear	38.180 – 38.256 (1.5031 – 1.5061)	—
Brake caliper piston diam.	Front	30.150 – 30.200 (1.1870 – 1.1890)	—
	Rear	38.098 – 38.148 (1.4999 – 1.5019)	—
Brake fluid type	DOT 4		
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel rim size	Front	17 × MT3.50	—
	Rear	17 × MT4.50	—
Wheel axle runout	Front	—	0.25 (0.010)
	Rear	—	0.25 (0.010)

TIRE

Unit: mm (in)

ITEM	STD/SPEC.		LIMIT
Cold inflation tire pressure (Solo riding)	Front	225 kPa (2.25 kgf/cm ² , 33 psi)	_____
	Rear	250 kPa (2.50 kgf/cm ² , 36 psi)	_____
Cold inflation tire pressure (Dual riding)	Front	225 kPa (2.25 kgf/cm ² , 33 psi)	_____
	Rear	250 kPa (2.50 kgf/cm ² , 36 psi)	_____
Tire size	Front	120/60ZR17 (55W)	_____
	Rear	160/60ZR17 (69W)	_____
Tire type	Front	METZELER: MEZ4 FRONT	_____
	Rear	METZELER: MEZ4	_____
Tire tread depth	Front	_____	1.6 (0.06)
	Rear	_____	2.0 (0.08)

SUSPENSION

Unit: mm (in)

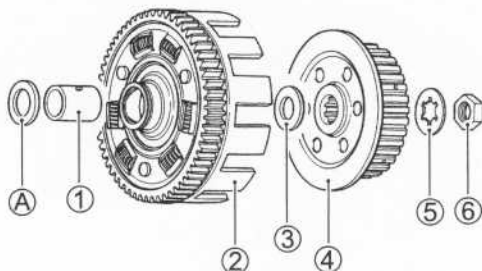
ITEM	STD/SPEC.		LIMIT
Front fork stroke	130 (5.1)		_____
Front fork spring free length	314.6 (12.39)		308 (12.13)
Front fork oil level (without spring, inner tube fully compressed)	E-03, 33	102 (4.02)	_____
	Others	104 (4.09)	_____
Front fork oil type	SUZUKI FORK OIL G10 (#10) or equivalent fork oil		_____
Front fork oil capacity (each leg)	E-03, 33	491 ml (16.6/17.3 US/Imp oz)	_____
	Others	489 ml (16.5/17.2 US/Imp oz)	_____
Rear shock absorber spring adjuster	SV650S	* 4/7	_____
	SV650	2/7	_____
Rear wheel travel	125 (4.9)		_____
Swingarm pivot shaft runout	_____		0.3 (0.01)

FUEL + OIL

ITEM	STD/SPEC.		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03, 28, 33
	Gasoline used should be graded 91 octane or higher. An unleaded gasoline is recommended.		The others
Fuel tank capacity	15 L (4.0/3.3 US/Imp gal)		E-33
	16 L (4.2/3.5 US/Imp gal)		The others
Engine oil type	SAE 10W/40, API SF or SG		
Engine oil capacity	Change	2 300 ml (2.4/2.0 US/Imp qt)	
	Filter change	2 400 ml (2.5/2.1 US/Imp qt)	
	Overhaul	3 000 ml (3.2/2.6 US/Imp qt)	

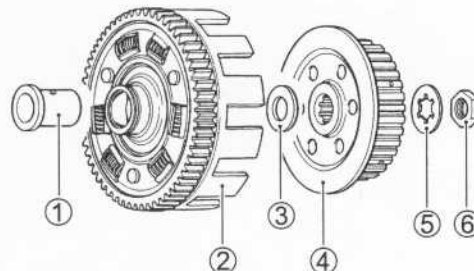
PRIMARY DRIVEN GEAR CONSTRUCTION

- The primary driven gear washer has been united to the spacer from SV650K1/SK1 ('01-model) as shown in the illustration.



- Ⓐ Washer
- ① Spacer
- ② Primary driven gear assembly
- ③ Washer
- ④ Clutch sleeve hub
- ⑤ Lock washer
- ⑥ Clutch sleeve hub nut

X, Y-MODELS



- ① Spacer
- ② Primary driven gear assembly
- ③ Washer
- ④ Clutch sleeve hub
- ⑤ Lock washer
- ⑥ Clutch sleeve hub nut

From K1-MODEL