

SV650K1 ('01-MODEL)

This chapter describes service data, service specifications and servicing procedures which differ from those of the SV650 Y ('00-model).

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NOTE:

The specifications and service data are the same as Y-MODEL.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 120 mm (83.5 in) E-17, 18
Overall width	2 070 mm (81.5 in) Others
Overall height	750 mm (29.5 in)
Wheelbase	1 060 mm (41.7 in)
Ground clearance	1 430 mm (56.3 in)
Seat height	140 mm (5.5 in)
Dry mass	805 mm (31.7 in)
	165 kg (363 lbs)

ENGINE

Type	4-stroke, liquid-cooled, DOHC, TSCC, 90°-degree V-twin
Number of cylinders	2
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, twin
Air cleaner	Non-woven fabric element
Starter system	Electric
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)
Final reduction ratio	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)
Drive chain	DID525V8, 110 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type, coil spring, gas/oil damped, spring pre-load 7-way adjustable
Front fork stroke	130 mm (5.1 in)
Rear wheel travel	125 mm (4.9 in)
Caster	25°
Trail	100 mm (3.94 in)
Steering angle	33° (right & left)
Turning radius	2.9 m (9.5 ft)
Front brake	Disk brake
Rear brake	Disk brake
Front tire size	120/60 ZR17 (55W), tubeless
Rear tire size	160/60 ZR17 (69W), tubeless

ELECTRICAL

Ignition type	Electronic ignition (Transistorized)
Ignition timing	5° B.T.D.C. at 1 300 r/min
Spark plug	NGK CR8E or DENSO U24ESR-N
Battery	12V 36.0 kC (10Ah)/10 HR
Generator	Three-phase A.C. generator
Main fuse	30A
Fuse	15/15/15/10/10A
Headlight	12V 60/55W
Position/parking light	12V 5W Except E-03, 33
Brake light/Tailight	12V 21/5Wx2
License plate light	12V 5W
Turn signal light	12V 21W
Speedometer light	12V 1.7Wx2
Turn signal indicator light	12V 1.7W
Neutral indicator light	12V 1.7W
High beam indicator light	12V 1.7W
Oil pressure indicator light	LED
Fuel indicator light	12V 1.7W
Water temp. indicator light	LED

CAPACITIES

Fuel tank, including reserve	15 L (4.0/3.3 US/Imp gal) E-33
	16 L (4.2/3.5 US/Imp gal) Others
Engine oil, oil change	2 300 ml (2.4/2.0 US/Imp qt)
with filter change	2 400 ml (2.5/2.1 US/Imp qt)
overhaul	2 700 ml (2.9/2.4 US/Imp qt)
Coolant	1.6 L (1.7/1.4 US/Imp qt)
Front fork oil (each leg)	491 ml (16.6/17.3 US/Imp oz) E-03, 33
	489 ml (16.5/17.2 US/Imp oz) Others

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	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	_____
	Links	SV650	110 Links	_____
	20-pitch length	_____		319.4 (12.57)
Drive chain slack (on side-stand)	20 – 30 (0.79 – 1.18)			_____
Gearshift lever height	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-DM
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.	
		SV650	
		E-03, 33	The other countries
Headlight	HI	60 W	←
	LO	55 W	←
Parking or position light			5 W
Brake light/Taillight		21/5 W × 2	←
Turn signal light		21 W	←
License light		5 W	←
Speedometer light		1.7 W × 2	←
Turn signal indicator light		1.7 W	←
High beam indicator light		1.7 W	←
Neutral indicator light		1.7 W	←
Oil pressure indicator light		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

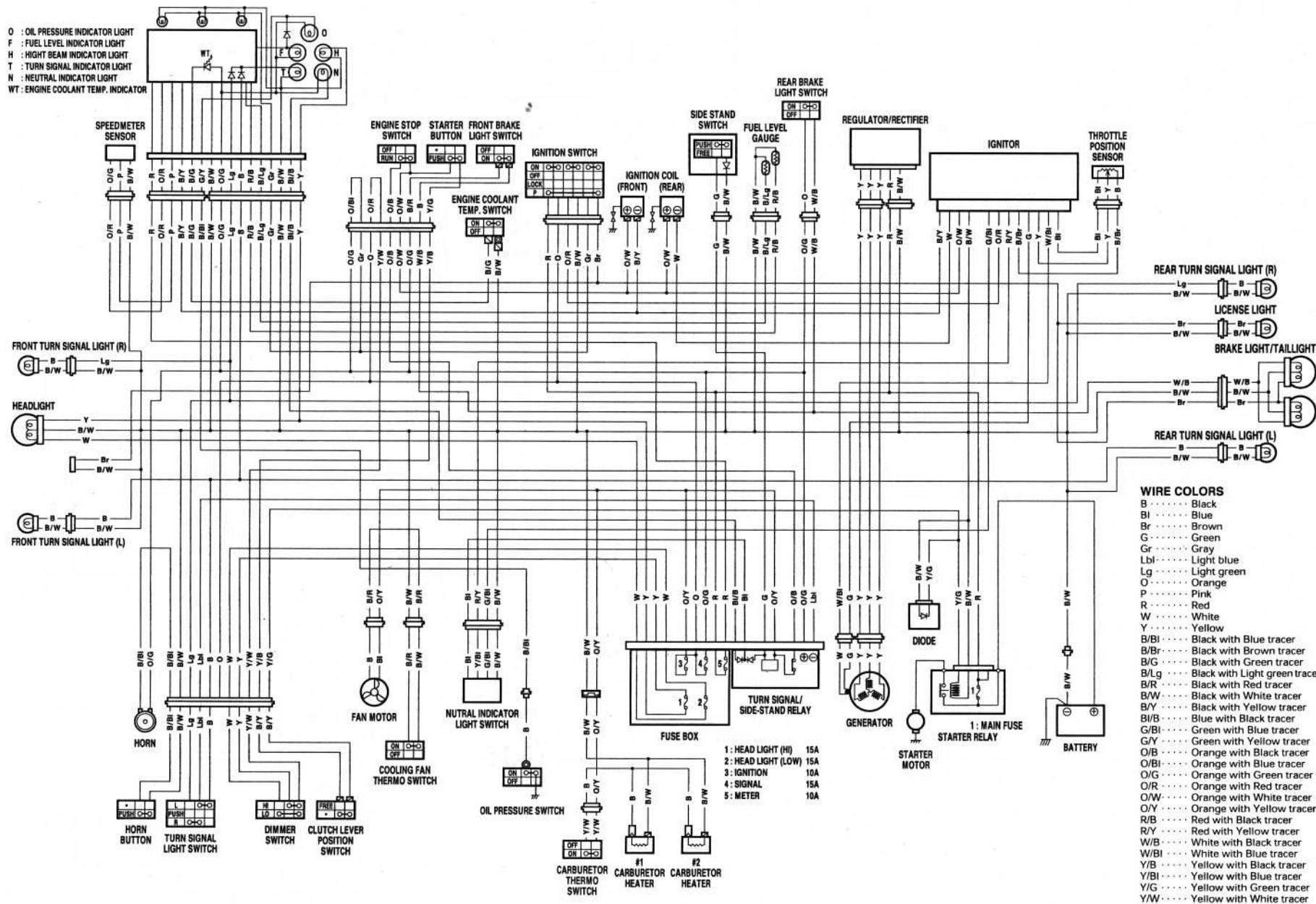
Unit: mm (in)

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	SV650	2/7	—
Rear wheel travel	125 (4.9)		—
Swingarm pivot shaft runout	—		0.3 (0.01)

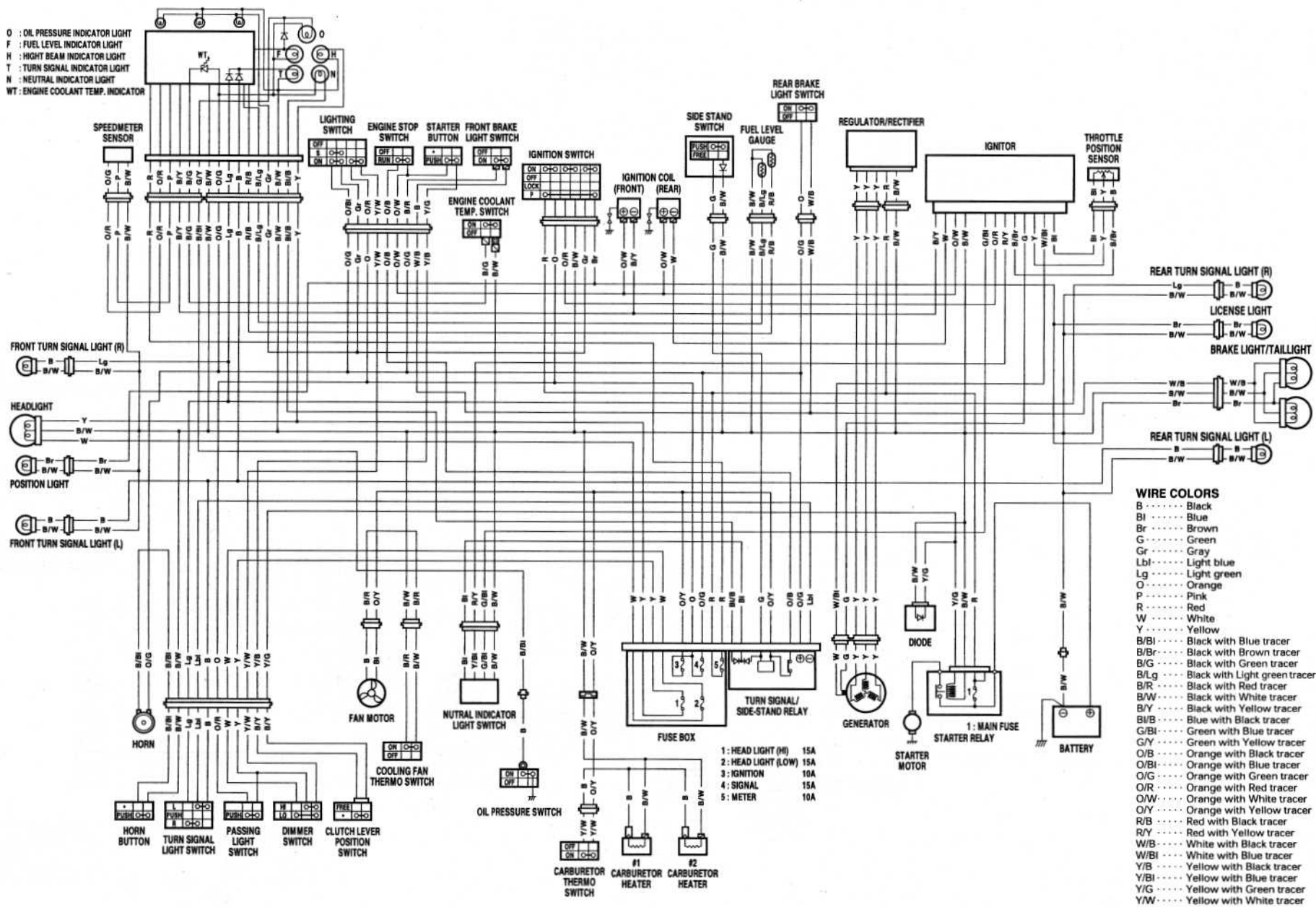
FUEL + OIL

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)	

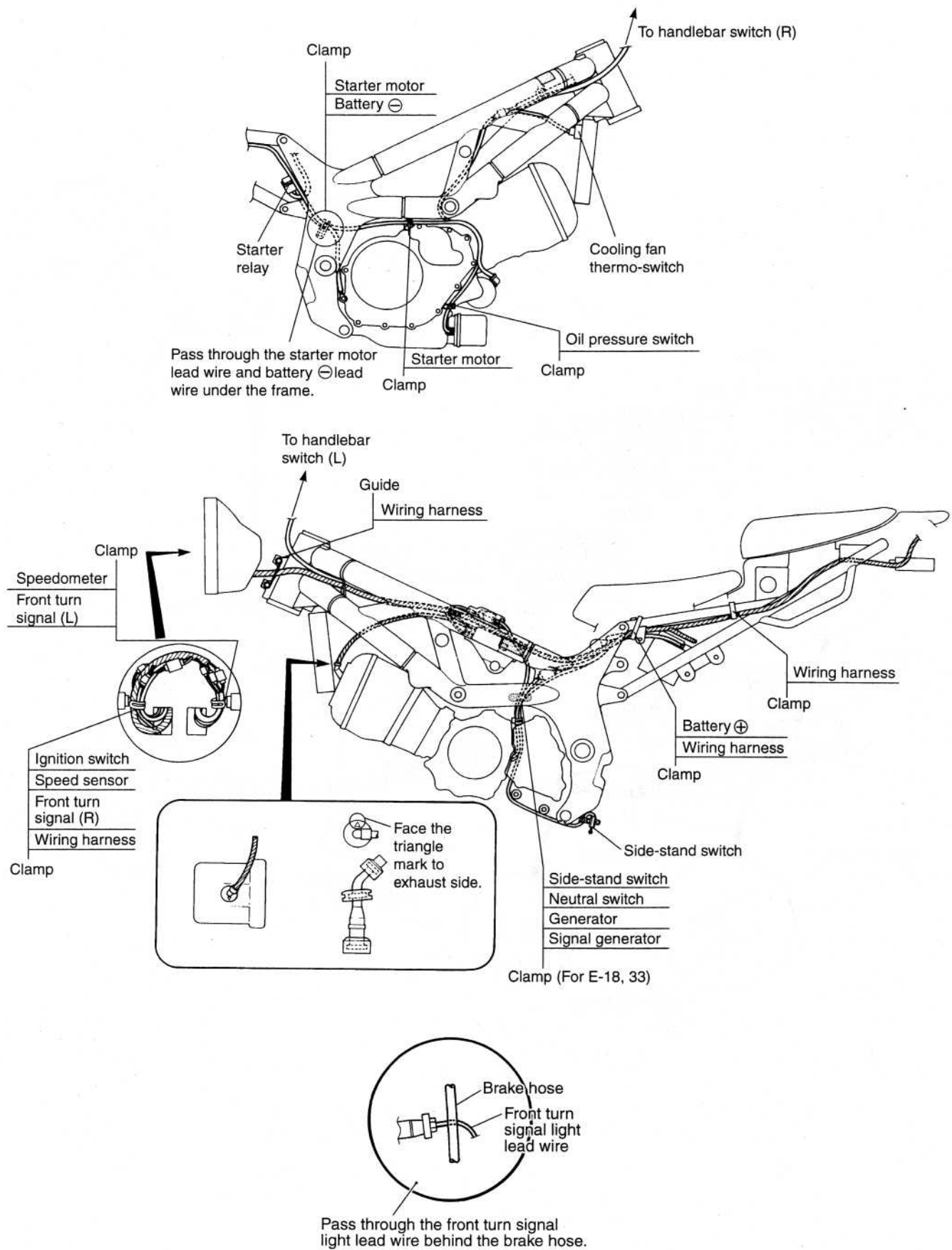
WIRING DIAGRAM FOR E-03, 33 MODELS

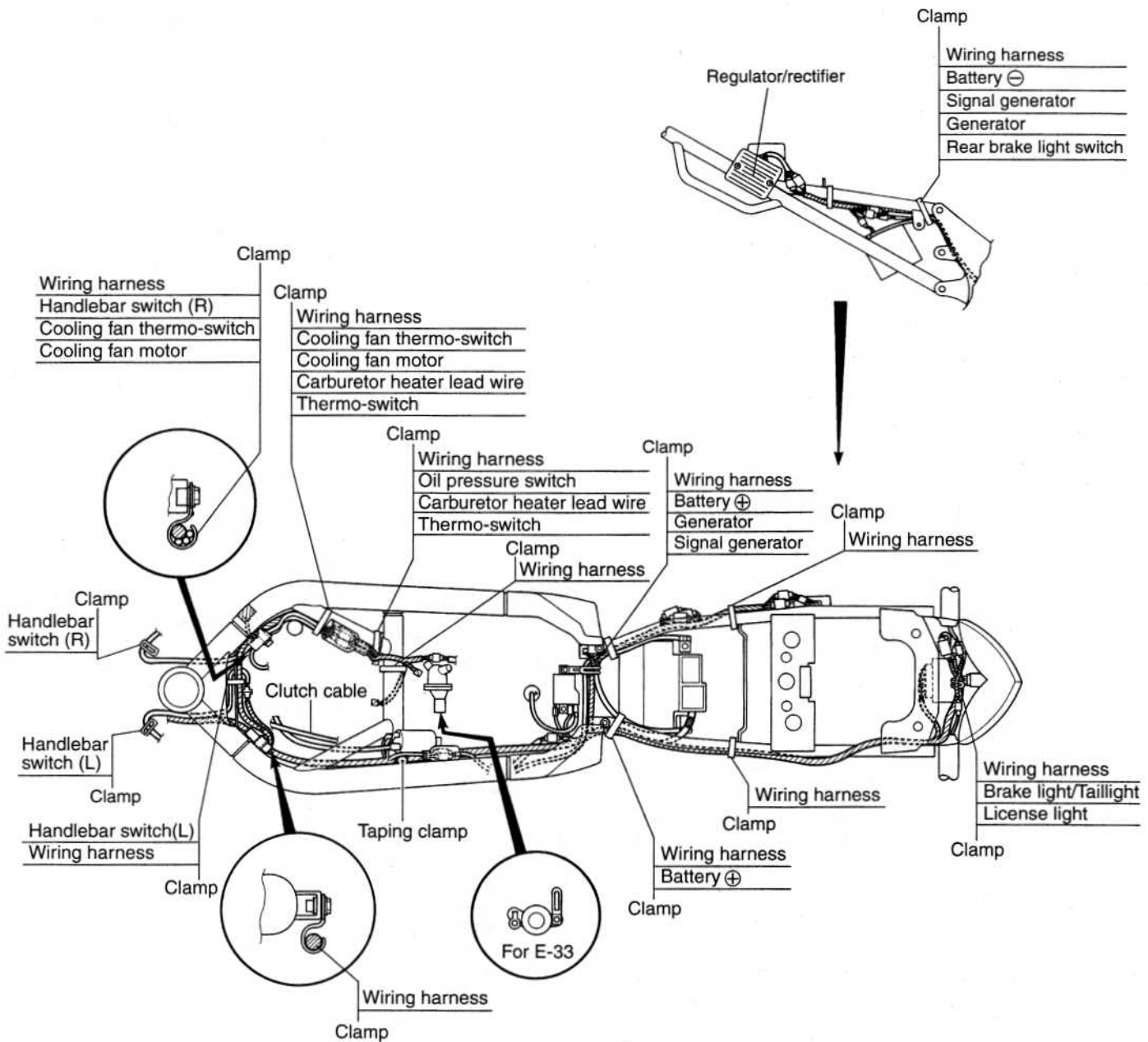


FOR E-02, 04, 17, 18, 22, 25 AND 34 MODELS



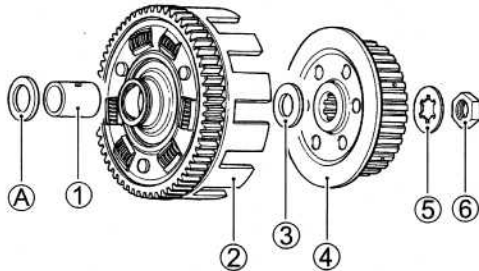
WIRE HARNESS ROUTING





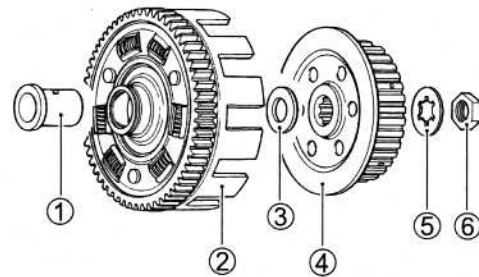
PRIMARY DRIVEN GEAR CONSTRUCTION

- 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