

# GV1400GCH/GDH('87-MODEL)

## FOREWORD

*This section describes service data and servicing procedures which differ from those of the GV1400GCG/GDG ('86-model).*

**NOTE:**

*Any differences between "G" ('86-model) and "H" ('87-model) in specifications and service data are clearly indicated with the asterisk marks (\*). Refer to the previous section for details which are not given in this section.*

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## SPECIFICATIONS

### DIMENSIONS AND DRY MASS

Overall length	2530 mm (99.6 in)
Overall width	935 mm (36.8 in)
Overall height	1620 mm (63.8 in) . . GC 1550 mm (61.0 in) . . GD
Wheelbase	1670 mm (65.7 in)
Ground clearance	130 mm (5.1 in)
Seat height	780 mm (30.8 in)
Dry mass	366 kg (806 lbs) . . GC E03 367 kg (809 lbs) . . GC E33 349 kg (769 lbs) . . GDE03 350 kg (771 lbs) . . GDE33

### ENGINE

Type	Four-stroke, water-cooled, DOHC, 82-degree V-four
Number of cylinders	4
Bore	81.0 mm (3.189 in)
Stroke	66.0 mm (2.598 in)
Piston displacement	1360 cm <sup>3</sup> (83.0 cu. in)
Compression ratio	9.5 : 1
Carburetor	MIKUNI BDS 33 SS
Air cleaner	Polyester fiber element
Starter system	Electric
Lubrication system	Wet sump

### TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction	1.756 (72/41)
Gear ratios, Low	2.750 (33/12)
2nd	1.684 (32/19)
3rd	1.250 (25/20)
4th	1.000 (25/25)
Top	0.851 (23/27)
Secondary reduction	1.000 (19/19)
Final reduction	2.666 (32/12)
Drive system	Shaft drive

### CHASSIS

Front suspension	Telescopic, coil spring oil damped
Rear suspension	Swinging arm, pneumatic/coil spring, oil damped with Suzuki Auto Leveling system
Steering angle	35° (right & left)
Caster	61°
Trail	119 mm (4.7 in)
Turning radius	3.3 m (10.8 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	130/90-16 67H
Rear tire size	150/90-15 74H
Front fork stroke	150 mm (5.9 in)
Rear wheel travel	106 mm (4.2 in)

### ELECTRICAL

Ignition type	Transistorized
Ignition timing	7° B.T.D.C. below 1500 r/min and 35° B.T.D.C. above 3000 r/min
Spark plug	*NGK.: PJR 7A or N.D.: X22EPR-GL
Battery	12V 72kC (20Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	10/10/10/10/10/5/3/10A
Circuit breaker	30A

### CAPACITIES

Fuel tank	23 L (6.1 US gal)
Engine oil, without filter change	3.2 L (3.4 US qt)
with filter change	3.7 L (3.9 US qt)
Secondary gear oil	330 – 350 ml (11.2 – 11.8 US oz)
Final gear oil	330 – 350 ml (11.2 – 11.8 US oz)
Coolant, including reservoir tank	3600 ml (3.8 US qt)
reservoir tank	600 ml (0.63 US qt)
Front fork oil	482 ml (16.3 US oz)

- These specifications are subject to change without notice.
- Asterisk mark (\*) indicates the new H model specification.

# SERVICE DATA

## VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	30.0 ( 1.18 )	—
	EX.	26.0 ( 1.02 )	—
Valve lift	IN	7.0 ( 0.28 )	—
	EX.	6.0 ( 0.24 )	—
Lash-adjuster plunger stroke	0–0.2 ( 0–0.008 )		—
Valve guide to valve stem clearance	IN.	0.020–0.047 ( 0.0008–0.0019 )	0.35 ( 0.014 )
	EX.	0.035–0.062 ( 0.0014–0.0024 )	0.35 ( 0.014 )
Valve guide I.D.	IN. & EX.	5.000–5.012 ( 0.1969–0.1973 )	—
Valve stem O.D.	IN.	4.965–4.980 ( 0.1955–0.1961 )	—
	EX.	4.950–4.965 ( 0.1949–0.1955 )	—
Valve stem runout	IN. & EX.	—	0.05 ( 0.002 )
Valve head thickness	IN. & EX.	—	0.5 ( 0.02 )
Valve stem end length	IN. & EX.	—	3.3 ( 0.13 )
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	—		34.5 ( 1.36 )
Valve spring tension	9.4–11.0 kg ( 20.7–24.3 lbs ) at length 31.5 mm ( 1.24 in )		—

## CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	32.652–32.692 ( 1.2855–1.2871 )	32.36 ( 1.274 )
	EX.	32.065–32.105 ( 1.2624–1.2640 )	31.77 ( 1.251 )
Camshaft journal oil clearance	IN. & EX.	0.032–0.066 ( 0.0013–0.0026 )	0.150 ( 0.0060 )
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 )

ITEM	STANDARD	LIMIT
Driven plate distortion	—	0.1 ( 0.004 )
Clutch spring free length	—	34.0 ( 1.34 )
Clutch master cylinder bore	14.000–14.043 ( 0.5512–0.5529 )	—
Clutch master cylinder piston diam.	13.957–13.984 ( 0.5495–0.5506 )	—
Clutch release cylinder bore	38.100–38.162 ( 1.5000–1.5024 )	—
Clutch release cylinder piston diam.	38.042–38.075 ( 1.4977–1.4990 )	—

## THERMOSTAT + RADIATOR + FAN

ITEM	STANDARD	LIMIT
Thermostat valve opening temperature	75.0° ± 1.5°C ( 167° ± 2.7°F )	—
Thermostat valve lift	Over 8 mm (0.13 in) at 90°C (194°F)	—
Radiator cap valve release pressure	0.90 ± 0.15 kg/cm <sup>2</sup> ( 12.8 ± 2.1 psi, 90 ± 15 kPa )	—
Electric fan thermo-switch operating temperature	E-03 ON 105° ± 3°C ( 221° ± 5.4°F )	—
	OFF Approx. 98°C ( 208.4°F )	—
	E-33 ON 95° ± 3°C ( 203° ± 5.4°F )	—
	OFF Approx. 84°C ( 183°F )	—
Electric fan relay resistance	Approx. 70 Ω	—
Thermo-gauge resistance	27.4 Ω at 100°C ( 212°F )	—

## TRANSMISSION

Unit: mm (in) Except ratio

ITEM	STANDARD	LIMIT
Primary reduction ratio	1.756 ( 72/41 )	—
Secondary reduction ratio	1.000 ( 19/19 )	—
Final reduction ratio	2.666 ( 32/12 )	—
Gear ratios	Low 2.750 ( 33/12 )	—
	2nd 1.684 ( 32/19 )	—
	3rd 1.250 ( 25/20 )	—
	4th 1.000 ( 25/25 )	—
	Top 0.851 ( 23/27 )	—
Shift fork groove clearance	0.10–0.30 ( 0.004–0.012 )	0.50 ( 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 )	—

## SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Secondary bevel gear backlash	0.05–0.32 ( 0.002–0.013 )	—

ITEM	STANDARD		LIMIT
Cam chain 20-pitch length	————		161.0 ( 6.34 )
Cam chain pin (at aligning mark)	Front	18th pin	————
	Rear	18th pin	————
Idler chain 20-pitch length	————		161.0 ( 6.34 )
Idler chain pin (at aligning mark)	29th pin		————
Cylinder head distortion	————		0.10 ( 0.004 )

**CYLINDER + PISTON + PISTON RING**

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	10—14 kg/cm <sup>2</sup> ( 142—200 psi )			8 kg/cm <sup>2</sup> ( 114 psi )
Compression pressure difference	————			2 kg/cm <sup>2</sup> ( 28 psi )
Piston to cylinder clearance	0.045—0.055 ( 0.0018—0.0022 )			0.120 ( 0.0047 )
Cylinder bore	81.000—81.015 ( 3.1890—3.1896 )			81.085 ( 3.1923 )
Piston diam.	80.950—80.965 ( 3.1870—3.1876 ) Measure at 14 mm (0.6 in) from the skirt end.			80.880 ( 3.1842 )
Cylinder distortion	————			0.10 ( 0.004 )
Piston ring free end gap	1st	R	Approx. 10.5 ( 0.41 )	8.4 ( 0.33 )
	2nd	R	Approx. 11.7 ( 0.46 )	9.4 ( 0.37 )
Piston ring end gap	1st	R	0.20—0.35 ( 0.008—0.014 )	0.70 ( 0.028 )
	2nd	R	0.20—0.35 ( 0.008—0.014 )	0.70 ( 0.028 )
Piston ring to groove clearance	1st	————		0.18 ( 0.007 )
	2nd	————		0.15 ( 0.006 )
Piston ring groove width	1st	1.01—1.03 ( 0.0398—0.0406 )		————
	2nd	1.21—1.23 ( 0.0476—0.0484 )		————
	Oil	2.51—2.53 ( 0.0988—0.0996 )		————
Piston ring thickness	1st	0.970—0.990 ( 0.0382—0.0390 )		————
	2nd	1.170—1.190 ( 0.0461—0.0469 )		————
Piston pin bore	20.002—20.008 ( 0.7875—0.7877 )			20.030 ( 0.7886 )
Piston pin O.D.	19.996—20.000 ( 0.7872—0.7874 )			19.980 ( 0.7866 )

**CONROD + CRANKSHAFT**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Conrod small end I.D.	20.010–20.018 ( 0.7878–0.7881 )		20.040 ( 0.7890 )
Conrod big end side clearance	0.10–0.25 ( 0.004–0.010 )		0.30 ( 0.012 )
Conrod big end width	19.95–20.00 ( 0.785–0.787 )		—
Crank pin width	40.10–40.15 ( 1.579–1.581 )		—
Conrod big end oil clearance	0.032–0.056 ( 0.0013–0.0022 )		0.090 ( 0.0035 )
Crank pin O.D.	39.976–40.000 ( 1.5739–1.5748 )		—
Crankshaft journal oil clearance	0.020–0.044 ( 0.0008–0.0017 )		0.080 ( 0.0031 )
Crankshaft journal O.D.	39.976–40.000 ( 1.5739–1.5748 )		—
Crankshaft thrust bearing thickness	Left side	2.850–3.000 ( 0.112–0.118 )	—
	Right side	2.925–2.950 ( 0.115–0.116 )	—
Crankshaft thrust clearance	0.045–0.100 ( 0.0018–0.0039 )		—
Crankshaft journal holder width	24.05–24.13 ( 0.947–0.950 )		—
Crankshaft journal width	30.00–30.05 ( 1.181–1.183 )		—
Crankshaft runout	—		0.05 ( 0.002 )

**OIL PUMP + FUEL PUMP + WATER PUMP**

Unit: mm (in)

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.756 ( 72/41 × 37/35 )	—
Oil pressure (at 60°C, 140°F)	Above 5.0 kg/cm <sup>2</sup> ( 71 psi ) Below 8.0 kg/cm <sup>2</sup> ( 114 psi ) at 3 000 r/min.	—
Fuel pump discharge	Over 500 ml/min.	—
Fuel pump resistance	1–2 Ω	—
Water pump drive chain 10-pitch length	—	64.5 ( 2.54 )

**CLUTCH**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive plate thickness	No. 1	2.72–2.88 ( 0.104–0.116 )	2.42 ( 0.095 )
	No. 2	3.45–3.55 ( 0.128–0.140 )	2.58 ( 0.102 )
Drive plate claw width	15.8–16.0 ( 0.62–0.63 )		15.0 ( 0.59 )

ITEM	STANDARD		LIMIT
Final bevel gear backlash	Drive side	0.03–0.64 ( 0.001–0.025 )	—
	Driven side	0.02–0.35 ( 0.0008–0.0138 )	
Secondary drive bevel gear preload	3–7 kg-cm ( 2.6–6.1 lb-in )		—
Secondary driven bevel gear preload	3–7 kg-cm ( 2.6–6.1 lb-in )		—

## CARBURETOR

ITEM	SPECIFICATION	
	E-03	E-33 (for CA)
Carburetor type	MIKUNI BDS33SS	←
Bore size	33 mm ( 1.30 in )	←
I.D. No.	24A10	24A20
Idle r/min.	950 ± 100 r/min.	←
Fuel level	17.0 ± 0.5 mm ( 0.67 ± 0.02 in )	←
Float height	11.5 ± 1.0 mm ( 0.45 ± 0.04 in )	←
Main jet (M.J.)	#105	←
Main air jet (M.A.J.)	0.6 mm	←
Jet needle (J.N.)	5D24	←
Needle jet (N.J.)	γ-7	←
Throttle valve (Th.V.)	#125	←
Pilot jet (P.J.)	#25	←
By-pass (B.P.)	0.8 mm, 0.8 mm, 0.8 mm	←
Pilot outlet (P.O.)	0.7 mm	←
Valve seat (V.S.)	1.5 mm	←
Starter jet (G.S.)	#25	←
Pilot screw (P.S.)	PRE-SET	←
Pilot air jet (P.A.J.1 & 2)	PRE-SET	←
Throttle cable play	2–3 mm ( 0.08–0.12 in )	←
Choke cable play	0.5–1.0 mm ( 0.02–0.04 in )	←

## ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	7° B.T.D.C. Below 1 500 ± 250 r/min. and 35° B.T.D.C. Above 3 000 ± 250 r/min.		
Firing order	1-3-2-4		
Spark plug	Type	* NGK: PJR7A N.D.: X22EPR-GL	
	Gap	0.6–0.7 ( 0.024–0.028 )	

Asterisk mark (\*) indicates the new H model specification.

ITEM		STANDARD		LIMIT
Spark performance		Over 8 (0.3) at 1 atm.		
Signal coil resistance		50—200 Ω		P—Lg/R, Gr—Bl/W
Ignition coil resistance	Primary	2—6 Ω		O/W—W or B/Y
	Secondary	10—25 kΩ		Plug cap— W or B/Y
Generator no-load voltage		More than 90 V (AC) at 5 000 r/min.		
Regulated voltage		14—15 V at 5 000 r/min.		
Starter motor	Brush length	Limit:	6 (0.24)	MITSUBA
	Commutator under-cut	Limit:	0.2 (0.008)	
Starter relay resistance		2—6 Ω		
Cornering light relay resistance		108—162 Ω		
Battery	Type designation	SY50-N18L-A		
	Capacity	12 V 72 kC (20 Ah)/10HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
Fuse size	Headlight	10 A		
	Signal	10 A		
	Ignition	10 A		
	Tail	10 A		
	Power source	10 A		
	CB	3 A		
	Audio	5 A		
	ALC	10 A		
Circuit breaker		30 A		

**WATTAGE**

Unit W

ITEM		SPECIFICATION
Headlight	HI	60
	LO	55
Tail/Brake light		8/23
Turn signal light		23
Cornering light (For GC)		35
Combination meter light		3.4
Turn signal indicator light		3.4
High beam indicator light		1.7
Neutral indicator light		3.4
Oil pressure indicator light		3.4
Cruise indicator light		3.4
License plate light		8
Travel trunk light		5



**BRAKE + WHEEL**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake pedal height	Above 15 ( 0.6 )		—
Brake disc thickness	Front (R. & L.)	$5.0 \pm 0.2$ ( $0.197 \pm 0.008$ )	4.5 ( 0.18 )
	Rear	$6.7 \pm 0.2$ ( $0.264 \pm 0.008$ )	6.0 ( 0.24 )
Brake disc runout	—		0.30 ( 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 (R. & L.)	42.850–42.926 ( 1.6870–1.6900 )	—
	Rear	45.000–45.076 ( 1.7717–1.7746 )	—
Brake caliper piston diam.	Front (R. & L.)	42.770–42.820 ( 1.6839–1.6858 )	—
	Rear	44.930–44.980 ( 1.7689–1.7709 )	—
Wheel rim runout	Axial	—	2.0 ( 0.08 )
	Radial	—	2.0 ( 0.08 )
Wheel axel runout	Front	—	0.25 ( 0.010 )
	Rear	—	0.25 ( 0.010 )
Tire size	Front	130/90-16 67H	—
	Rear	150/90-15 74H	—
Tire tread depth	Front	—	1.6 ( 0.06 )
	Rear	—	2.0 ( 0.08 )
Ventilator control cable play (For GC)	0.5–1.0 ( 0.02–0.04 )		—

**SUSPENSION**

Unit: mm (in)

ITME	STANDARD	LIMIT	NOTE
Front fork stroke	150 ( 5.9 )	—	
Front fork spring free length	—	454 ( 17.9 )	
Front fork oil level	121 ( 4.8 )	—	

ITEM	STANDARD	LIMIT	NOTE
Front suspension stroke	150 ( 5.9 )	—	
Rear wheel travel	106 ( 4.2 )	—	

## TIRE PRESSURE

COLD TIRE INFLATION PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm <sup>2</sup>	psi	kPa	kg/cm <sup>2</sup>	psi
FRONT	225	2.25	32	225	2.25	32
REAR	280	2.80	40	280	2.80	40

## FUEL + OIL + COOLANT

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded or low-lead type gasoline of at least 85-95 pump octane ( $\frac{R+M}{2}$ method) or 89 octane or higher rated by the Research Method.		
Fuel tank including reserve	23 L ( 6.1 US gal )		
Engine oil type and grade	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	3 200 ml ( 3.4 US qt )	
	Filter change	3 700 ml ( 3.9 US qt )	
	Overhaul	4 200 ml ( 4.4 US qt )	
Front fork oil type	Fork oil #15		
Front fork oil capacity (each leg)	407 ml ( 13.8 US oz )		
Bevel gear and propeller shaft oil type	SAE 90 hypoid gear oil with GL-5 under API classification		
Bevel gear oil capacity	Secondary	330–350 ml ( 11.2–11.8 US oz )	
	Final	330–350 ml ( 11.2–11.8 US oz )	
Brake and clutch fluid type	DOT4		
Coolant including reservoir tank	3.6 L ( 3.8 US qt )		
reservoir tank	0.6 L ( 0.6 US qt )		

# TIGHTENING TORQUE

## ENGINE

ITEM		N·m	kg·m	lb·ft
Camshaft journal holder bolt		23 – 27	2.3 – 2.7	16.5 – 19.5
Cylinder head bolt		46 – 51	4.6 – 5.1	33.5 – 37.0
Cylinder head cover bolt		13 – 15	1.3 – 1.5	9.5 – 11.0
Cylinder head nut		8 – 12	0.8 – 1.2	6.0 – 8.5
Con-rod bearing cap bolt		49 – 53	4.9 – 5.3	35.5 – 38.5
Crankcase bolt	12 mm	60 – 70	6.0 – 7.0	43.5 – 50.5
	10 mm	45 – 55	4.5 – 5.5	32.5 – 40.0
	8 mm	24	2.4	17.5
	6 mm	13	1.3	9.5
	8 mm Allen bolt	20 – 28	2.0 – 2.8	14.5 – 20.0
	6 mm Allen bolt	12 – 16	1.2 – 1.6	8.5 – 11.5
Oil pressure regulator		25 – 30	2.5 – 3.0	18.0 – 21.5
Oil pan bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Engine oil drain plug		20 – 25	2.0 – 2.5	14.5 – 18.0
Rotor bolt		150 – 170	15.0 – 17.0	108.5 – 123.0
Oil pump bolt		7 – 9	0.7 – 0.9	5.0 – 6.5
Idler shaft driven sprocket bolt		50 – 60	5.0 – 6.0	36.0 – 43.5
Water pump bolt		7 – 11	0.7 – 1.1	5.0 – 8.0
Water pump drive sprocket bolt		50 – 60	5.0 – 6.0	36.0 – 43.5
Water pump drain plug		10 – 14	1.0 – 1.4	7.0 – 10.0
Clutch sleeve hub nut		50 – 70	5.0 – 7.0	36.0 – 50.5
Clutch spring bolt		11 – 13	1.1 – 1.3	8.0 – 9.5
Cam chain tensioner bolt		20 – 25	2.0 – 2.5	14.5 – 18.0
Chain tensioner adjuster bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Cam chain tensioner spring holder		20 – 25	2.0 – 2.5	14.5 – 18.0
Cam chain guide bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Exhaust pipe clamp bolt		20 – 25	2.0 – 2.5	14.5 – 18.0
Muffler mounting bolt		27 – 43	2.7 – 4.3	19.5 – 31.0
Radiator mounting bolt		7 – 9	0.7 – 0.9	5.0 – 6.5
Engine mounting bolt (Front & Rear lower)		70 – 88	7.0 – 8.8	50.0 – 64.0
Engine mounting (Rear upper)		60 – 72	6.0 – 7.2	43.5 – 52.0
Down tube mounting bolt		60 – 65	6.0 – 6.5	43.5 – 47.0
		30 – 35	3.0 – 3.5	21.5 – 25.5
Engine mounting bracket bolt		18 – 28	1.8 – 2.8	13.0 – 20.0

**SHAFT DRIVE**

ITEM	N-m	kg-m	lb-ft
Secondary driven bevel gear nut	120 – 150	12.0 – 15.0	87.0 – 108.5
Secondary driven bevel gear housing bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Secondary drive bevel gear nut	120 – 150	12.0 – 15.0	87.0 – 108.5
Secondary drive bevel gear housing bolt	6 mm	8 – 12	0.8 – 1.2
	8 mm	20 – 26	2.0 – 2.6
Secondary gear case bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Final drive bevel gear nut	90 – 130	9.0 – 13.0	65.0 – 94.0
Final driven gear bearing retainer screw	8 – 10	0.8 – 1.0	6.0 – 7.0
Final gear bearing case bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Final drive bevel gear coupling nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Final driven bevel gear adjuster lock nut	40 – 60	4.0 – 6.0	29.0 – 43.5

**CHASSIS**

ITEM	N-m	kg-m	lb-ft
Steering stem head nut	*60 – 100	*6.0 – 10.0	*43.5 – 72.5
Front fork upper clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork lower clamp bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Front fork cap bolt	15 – 30	1.5 – 3.0	11.0 – 21.5
Front fork damper rod bolt	34 – 46	3.4 – 4.6	24.5 – 33.5
Front axle nut	36 – 52	3.6 – 5.2	26.0 – 37.5
Front axle clamp nut	15 – 25	1.5 – 2.5	11.0 – 18.0
Front brake master cylinder bolt	*8 – 12	*0.8 – 1.2	*6.0 – 8.5
Front caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Front caliper housing bolt	30 – 36	3.0 – 3.6	21.5 – 26.0
Brake hose union bolt (Front & Rear)	20 – 25	2.0 – 2.5	14.5 – 18.0
Air bleeder valve (Front & Rear)	6 – 9	0.6 – 0.9	4.5 – 6.5
Handlebar holder nut	30 – 40	3.0 – 4.0	21.5 – 29.0
Handlebar clamp bolt	25 – 30	2.5 – 3.0	18.0 – 21.5
Disc plate bolt (Front & Rear)	15 – 25	1.5 – 2.5	11.0 – 18.0
Auto level hose mounting nut	10 – 16	1.0 – 1.6	7.0 – 11.5
Air compressor hose union bolt	7 – 9	0.7 – 0.9	5.0 – 6.5
Front foot rest bolt	27 – 43	2.7 – 4.3	19.5 – 31.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Rear wheel driven joint bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
Rear shock absorber nut (Upper & Lower)	20 – 30	2.0 – 3.0	14.5 – 21.5
Rear shock absorber air valve	7 – 9	0.7 – 0.9	5.0 – 6.5
Rear swingarm pivot bolt	3.5 – 4.5	0.35 – 0.45	2.5 – 3.0
Rear swingarm pivot nut	110 – 130	11.0 – 13.0	79.5 – 94.0

Asterisk mark (\*) indicates the new H model specification.

ITEM	N·m	kg-m	lb-ft
Rear caliper mounting bolt	25 – 40	2.5 – 4.0	18.0 – 29.0
Brake pedal link nut	15 – 25	1.5 – 2.5	11.0 – 18.0
Rear caliper housing bolt	28 – 32	2.8 – 3.2	20.0 – 23.0
Brake pedal link arm bolt	10 – 15	1.0 – 1.5	7.0 – 11.0
Rear torque link nut (Front & Rear)	20 – 30	2.0 – 3.0	14.5 – 21.5
Rear brake master cylinder bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Rear brake rod lock nut	15 – 25	1.5 – 2.5	11.0 – 18.0
Rear axle clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Clutch master cylinder bolt	5 – 8	0.5 – 0.8	3.5 – 6.0

## PERIODIC MAINTENANCE

### SPARK PLUG

**Clean Every 6 000 km (4 000 miles) and  
Replace Every 18 000 km (11 000 miles)**

The plug gap should be adjusted to 0.6 – 0.7 mm (0.024 – 0.028 in) using a thickness gauge. When carbon is deposited on the spark plug, remove the carbon with a tool with a pointed end. If electrodes are extremely worn or burnt, or other damage is found, replace the plug.

NIPPON DENSO X22EPR-GL or NGK PJR7A listed in the table should be used as the standard plug. However, the heat range of the plug should be selected to meet the requirements of speed, actual load, fuel, etc. Proper heat range would be indicated if all insulators were light brown in color. If they are blackened by carbon, they should be replaced by a hot type NIPPON DENSO X20EPR-GL or NGK PJR6A and if baked white, by NIPPON DENSO X24EPR-GL or NGK PJR8A.

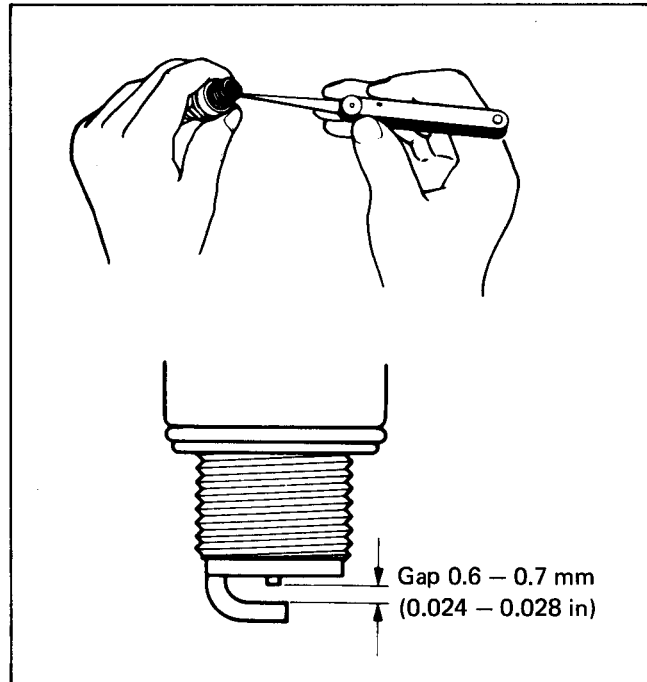
NIPPON DENSO	NGK	REMARKS
X20EPR-GL	PJR6A	If the standard plug is apt to get wet, replace with this plug. (Hot type)
X22EPR-GL	PJR7A	Standard
X24EPR-GL	PJR8A	If the standard plug is apt to overheat, replace with this plug. (Cold type)

#### NOTE:

To check the spark plugs, first make sure that the fuel tank contains unleaded gasoline, and after a test ride if the plugs are either sooty with carbon or burnt white. If you replace the plugs, replace them all together.

#### CAUTION:

Confirm the thread size and reach when replacing the plug. If the reach is too short, carbon will be deposited on the screw portion of the plug hole and engine damage may result.



## ENGINE OIL AND OIL FILTER

**Replace at Initially 1 000 km (600 miles) and  
Every 12 000 km (7 500 miles)**

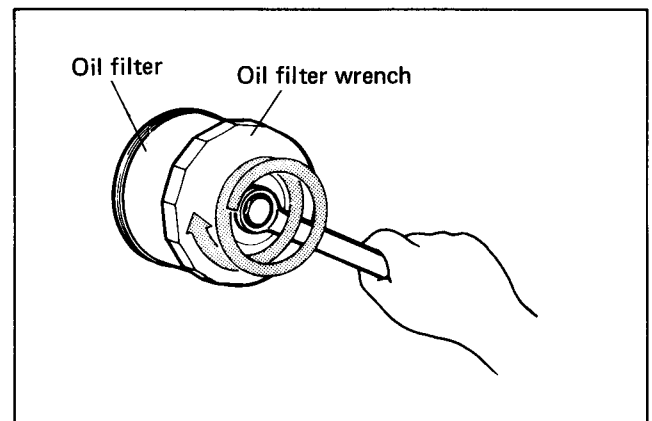
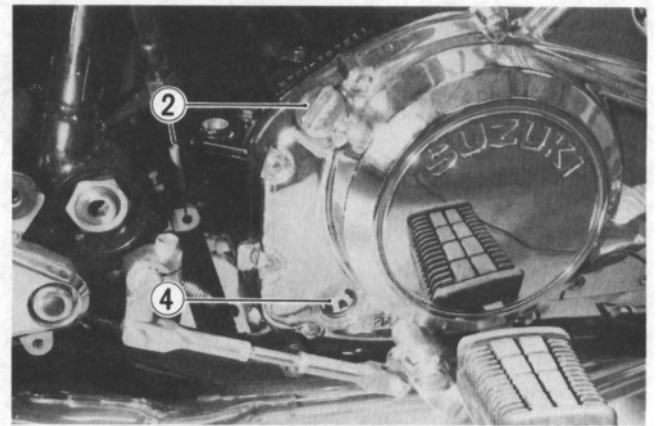
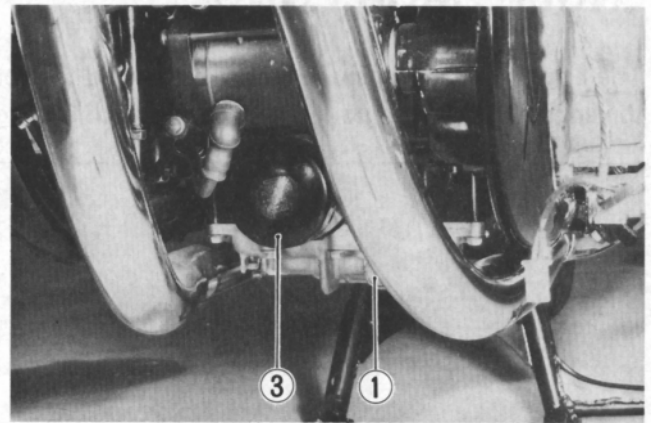
The oil should be changed while the engine is hot. Oil filter replacement should be done together with engine oil change.

- Keep the motorcycle upright, supported on the center stand.
- Place an oil pan below the engine and drain the oil by removing the drain plug ① and filler cap ②.
- Remove the oil filter ③.
- Smear engine oil to the gasket of the new filter before installation.
- Screw on the new filter by hand until the filter gasket contacts the mounting surface.
- Tighten the filter 2 turns after contacting the mounting surface by using the oil filter wrench.

09915-40610

Oil filter wrench

- Fit drain plug ① securely, and install fresh oil through the filler. The engine will hold about 3.7 L (3.9 US qt) of oil.  
Use API classification of SE or SF oil with SAE 10W/40 viscosity.
- Start up the engine and allow it to run for several seconds at idling speed.
- Check for oil leakage around the oil filter and the drain plug.
- Turn off the engine and wait about one minute, then check the oil level through the inspection window ④. If the level is below mark "F", supply oil to that level.

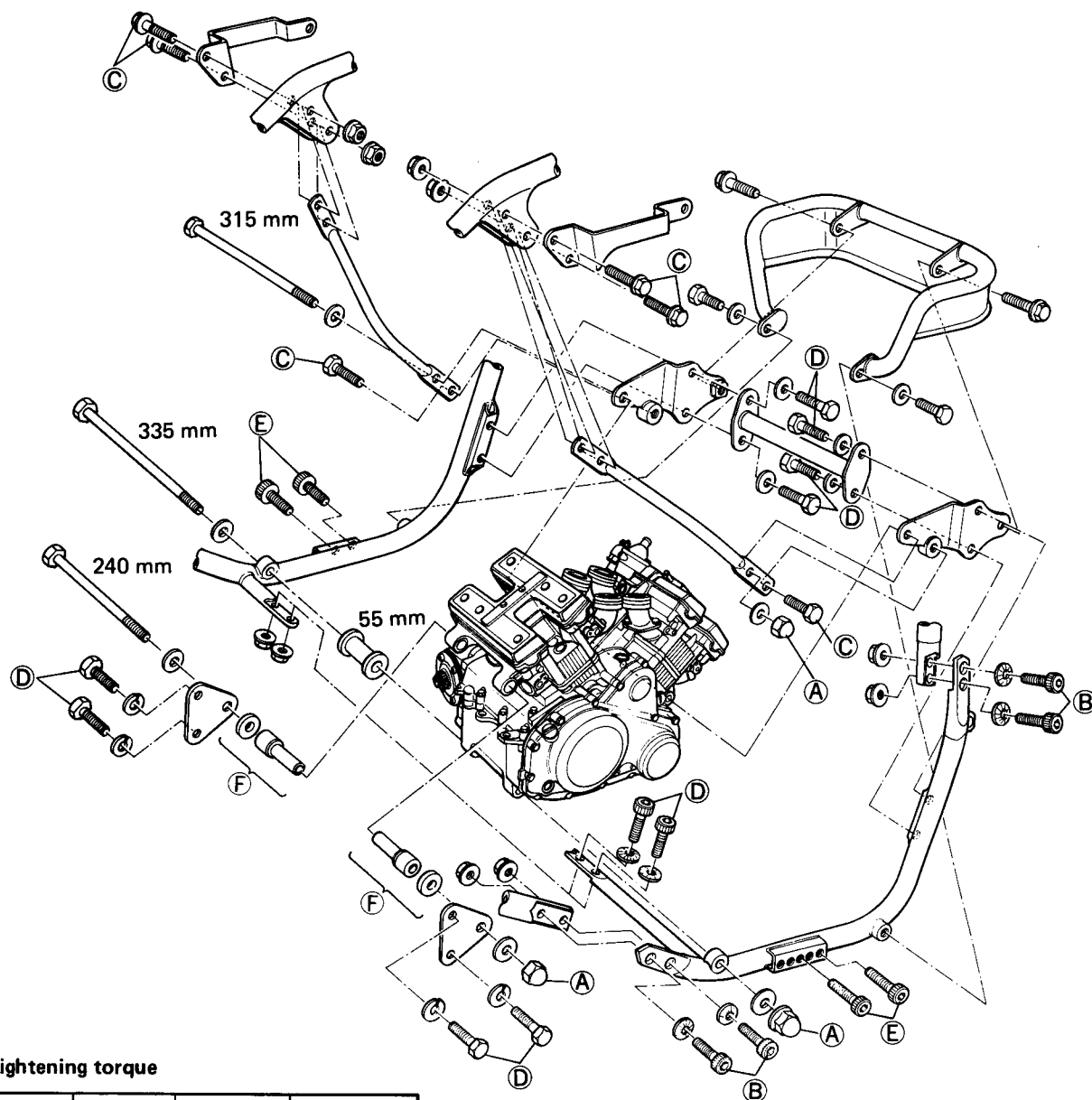


### NECESSARY AMOUNT OF ENGINE OIL

Oil change	3.2 L (3.4 US qt)
Oil and filter change	3.7 L (3.9 US qt)
Engine overhaul	4.2 L (4.4 US qt)

## ENGINE MOUNTING

The engine mounting spacers (F) are changed to separate type as shown in the illustration. When mounting the engine, install the bolts, nuts, spacers and brackets correctly.

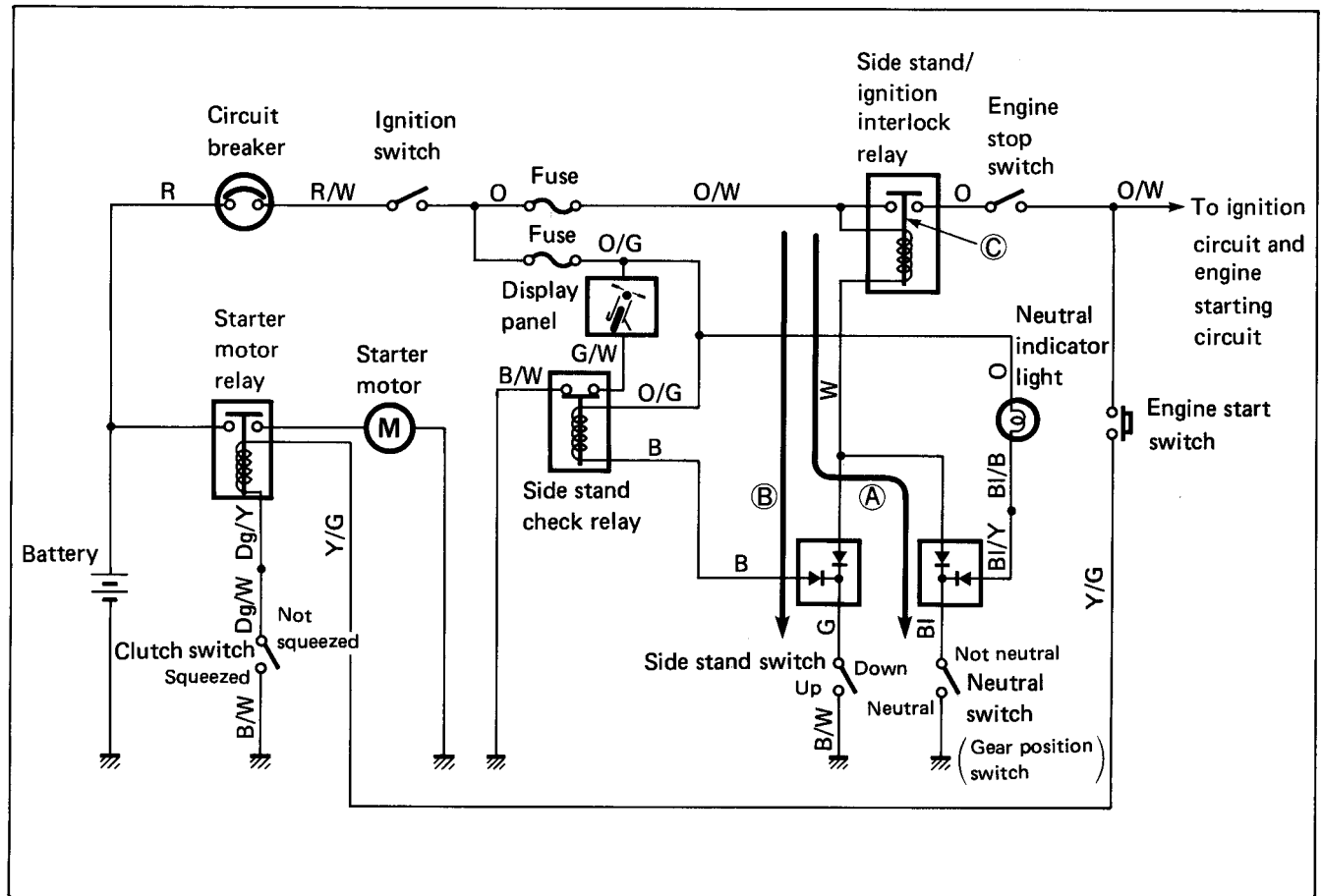


**Tightening torque**

Item	N·m	kg·m	lb·ft
(A)	70 - 88	7.0 - 8.8	50.0 - 64.0
(B)	60 - 65	6.0 - 6.5	43.5 - 47.0
(C)	40 - 60	4.0 - 6.0	29.0 - 43.5
(D)	25 - 28	2.5 - 2.8	18.0 - 20.0
(E)	27 - 43	2.7 - 4.3	19.5 - 31.0



## SIDE STAND/IGNITION INTERLOCK SYSTEM



The side stand/ignition interlock system has been newly equipped to prevent starting the motorcycle with the side stand left down. This system works as follows:

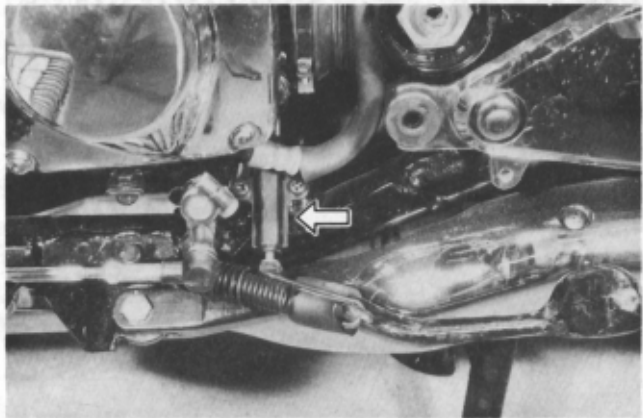
- (1) The engine can only be started if:
  - a) The transmission is in neutral and the clutch is disengaged (current ① flows and the switch ③ in the interlock relay is closed), or
  - b) The side stand is fully up and the clutch is disengaged (current ② flows and the switch ③ is closed).
- (2) If the engine is running and the transmission is shifted into gear with the side stand down, the engine will stop running.

Transmission	Side stand	Clutch lever	Starter motor	Spark plug
Neutral	Up	Squeezed	Rotate	Spark
		Not squeezed	Not rotate	Spark
	Down	Squeezed	Rotate	Spark
		Not squeezed	Not rotate	Spark
Not neutral	Up	Squeezed	Rotate	Spark
		Not squeezed	Not rotate	Spark
	Down	Squeezed	Not rotate	Not spark
		Not squeezed	Not rotate	Not spark

**INSPECTION**

If the interlock system does not operate properly, check each component. If any abnormality is found, replace the component with a new one.

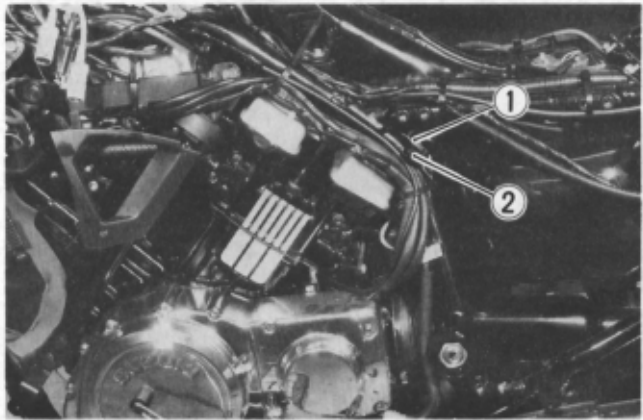
09900-25002	Pocket tester
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**SIDE STAND SWITCH**

Disconnect the side stand switch lead wires and connect the pocket tester to terminals ① and ②. Check the side stand switch function by moving the side stand upward and downward.

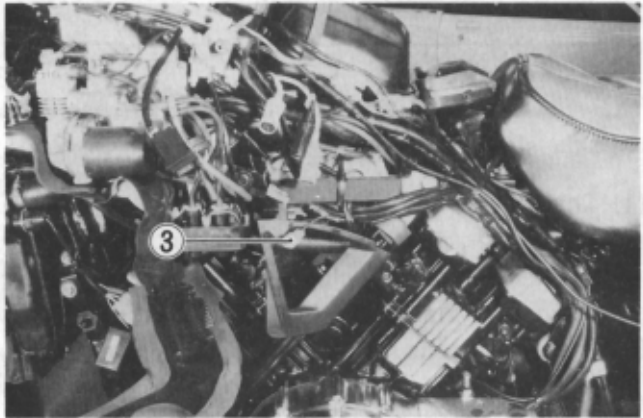
	G	B/W
Fully up position	○ — ○	○ — ○
Down position		



**NEUTRAL SWITCH**

Disconnect the neutral switch lead wire and connect the pocket tester to terminal ③ and the ground. Check the neutral switch function by shifting the transmission into neutral and out of neutral.

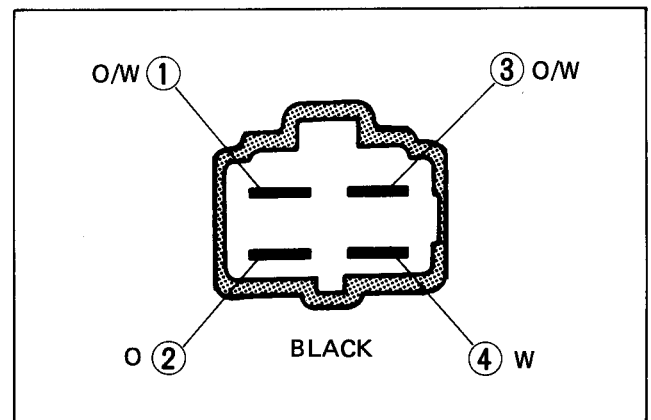
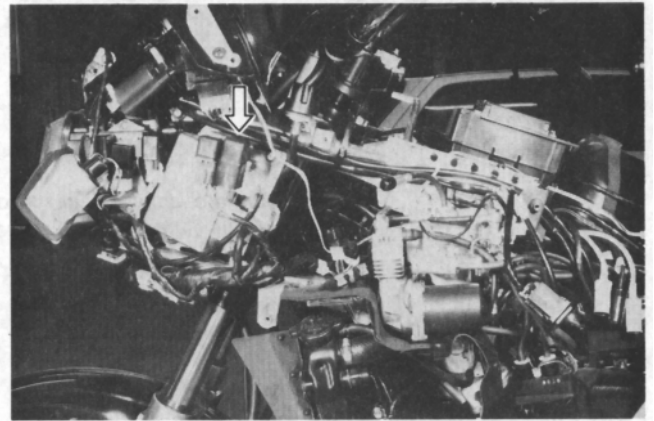
	BI	Ground
Neutral	○ — ○	○ — ○
Not neutral		



**SIDE STAND/IGNITION INTERLOCK RELAY**

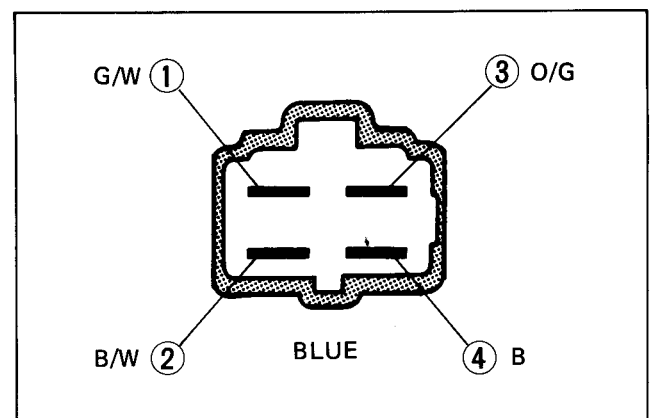
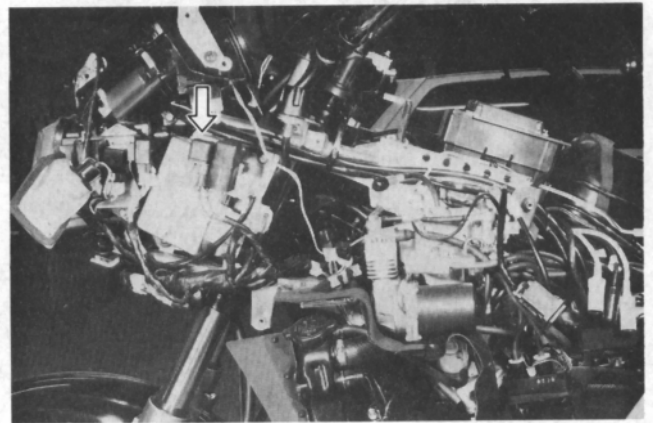
First, check the insulation between ① and ② terminals with pocket tester. Then apply 12 volts to ③ and ④ terminals,  $\oplus$  to ③ and  $\ominus$  to ④, and check the continuity between ① and ②.

If the relay does not work properly, replace it with a new one.

**SIDE STAND CHECK RELAY**

First, check the continuity between ① and ② terminals with pocket tester. Then apply 12 volts to ③ and ④ terminals,  $\oplus$  to ③ and  $\ominus$  to ④, and check the insulation between ① and ②.

If the relay does not work properly, replace it with a new one.



## WIRE, CABLE AND HOSE ROUTING

