SUZUKI

GSX400

SERVICE MANUAL

99500-34000-01E
(英)

FOREWORD

The SUZUKI GSX400 has been developed as a new generation motorcycle to the GS-models. It is packed with highly advanced design concepts including a forged one piece crankshaft assembly and a new highly efficient combustion system (TSCC). Combined with precise control and easy handling, the GSX400 provides excellent performance and outstanding riding comfort.
This service manual has been produced primarily for experienced mechanics whose job is to inspect, adjust, repair and service SUZUKI motorcycles. Apprentice mechanics and do-it-yourself mechanics, will also find this manual an extremely useful guide.

Model GSX400 manufactured to standard specifications is the main subject matter of this manual. However, the GSX400 machines distributed in your country might differ in minor respects from the standard-specification GSX400 and, if they do, it is because some minor modifications (which are of no consequence in most cases as far as servicing is concerned) had to be made to comply with the statutory requirements of your country.

This manual contains up-to-date information at the time of its issue. Latermade modifications and changes will be explained to each SUZUKI distributor in respective markets, to whom you are kindly requested to make query about updated information, if any.

NOTE:
This service manual gives only servicing procedures which differ from those of the GSX250 and describes the new features of the GSX400. Before performing any servicing, please read thoroughly GSX250 service manual.

SUZUKI MOTOR CO., LTD.
Administration Department
Overseas Service Division

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VIEW OF SUZUKI GSX400E

RIGHT SIDE

LEFT SIDE

BREAKING-IN R/MIN

Keep to these breaking-in engine speed limits:

Initial 800 km	Below 4,000 r/min
Up to 1,600 km	Below 6,000 r/min
Over 1,600 km	Below 9,500 r/min

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 075 mm
Overall width	755 mm
Overall height	1 075 mm
Wheelbase	1 385 mm
Ground clearance	155 mm
Seat height	815 mm
Dry mass	175 kg

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	2
Bore	67.0 mm
Stroke	56.6 mm
Piston displacement	399 cm^3
Compression ratio	10.0 : 1
Carburetor	MIKUNI BS34SS, twin
Air cleaner	Polyurethane foam 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	2.714 (76/28)
**Final reudction	2.750 (44/16)
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	DAIDO DID50UB, 104 links

**Modification of Rear sprocket for manufactured on and after June, 1981. [2.812 (45/16)]

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swing arm, oil dampened spring 5-way adjustable
Steering angle	42° (right & left)
Caster	62° 00'
Trail	105 mm
Turning radius	2.4 m
Front brake	Disc brake
Rear brake	Internal expanding
Front tire size	3.00S18 4PR
Rear tire size	3.50S18 4PR 3.75S18 4PR (for W. Germany and Denmark)
Front fork stroke	140 mm
Rear wheel travel	100 mm
Front tire pressure	175 kPa (1.75 kg/cm^2) (Normal solo riding)
Rear tire pressure	200 kPa (2.00 kg/cm^2) (Normal solo riding)

ELECTRICAL

Ignition type	Battery ignition (for General) Fully transistorized (for the others)
Ignition timing	Contact point type 20° B.T.D.C. below at 1 650 r/min and 35° B.T.D.C. above at 3 500 r/min Fully transistorized type 20° B.T.D.C. below at 1 650 r/min and 40° B.T.D.C. above at 3 500 r/min
Spark plug	NGK D8EA/DR8ES-L or NIPPON DENSO X24ES-U/X24ESR-U
Battery	12V 43.2 kC (12 Ah)/10 HR
Generator	Three-phase A.C. generator
Fuse	15A

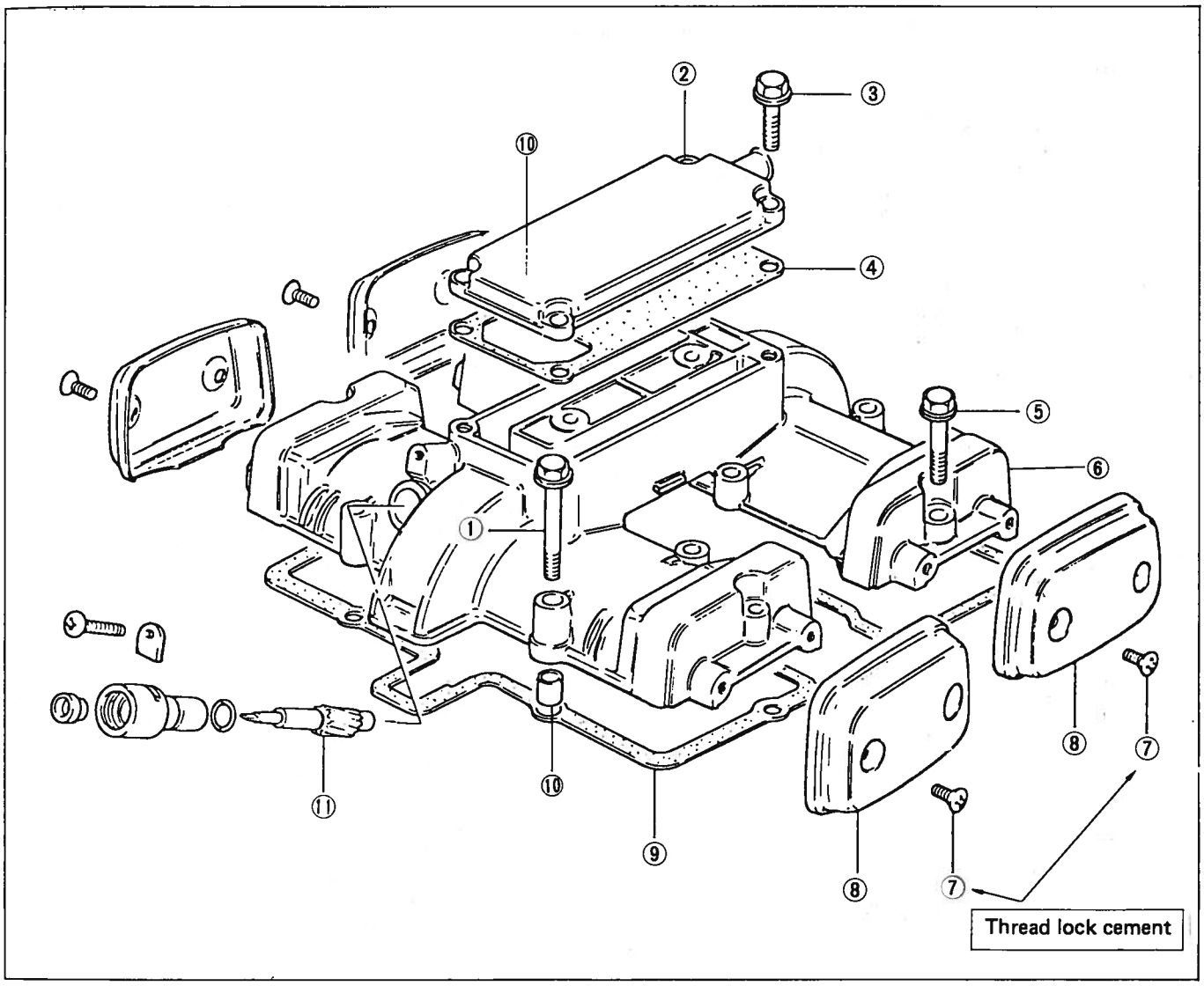
CAPACITIES

Fuel tank including reserve	14.5 L (3.2 Imp gal)
Reserve	3.0 L (2.6 Imp qt)
Engine oil	2.6 L (2.3 Imp qt)
Front fork oil (each leg)	145 ml (5.11 Imp oz)

* These specifications are subject to change without notice.

ENGINE

CYLINDER HEAD COVER



REMOVAL

- It is unnecessary to remove four cover cap bolts ③ before removing cylinder head cover ⑥. Four bolts ⑤ cannot be remove unless camshaft end caps ⑧ are not removed.

99000-32040	Suzuki Thread lock cement

TIGHTENING TORQUE

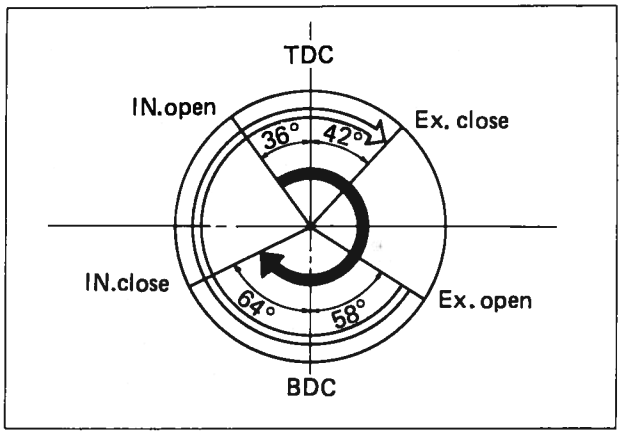
Bolt ①, ③ and ⑤	9 – 10 N·m (0.9 – 1.0 kg-m)

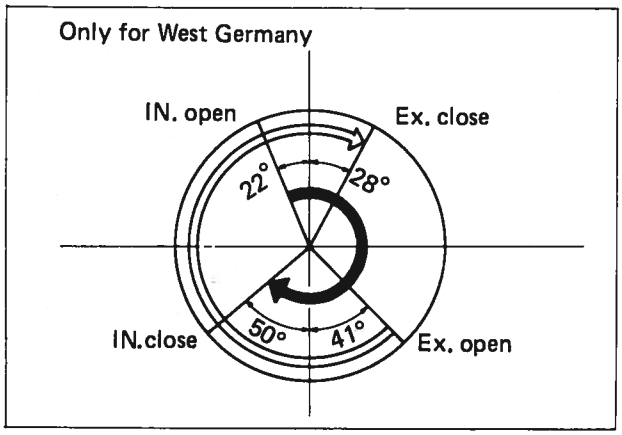
INSTALLATION

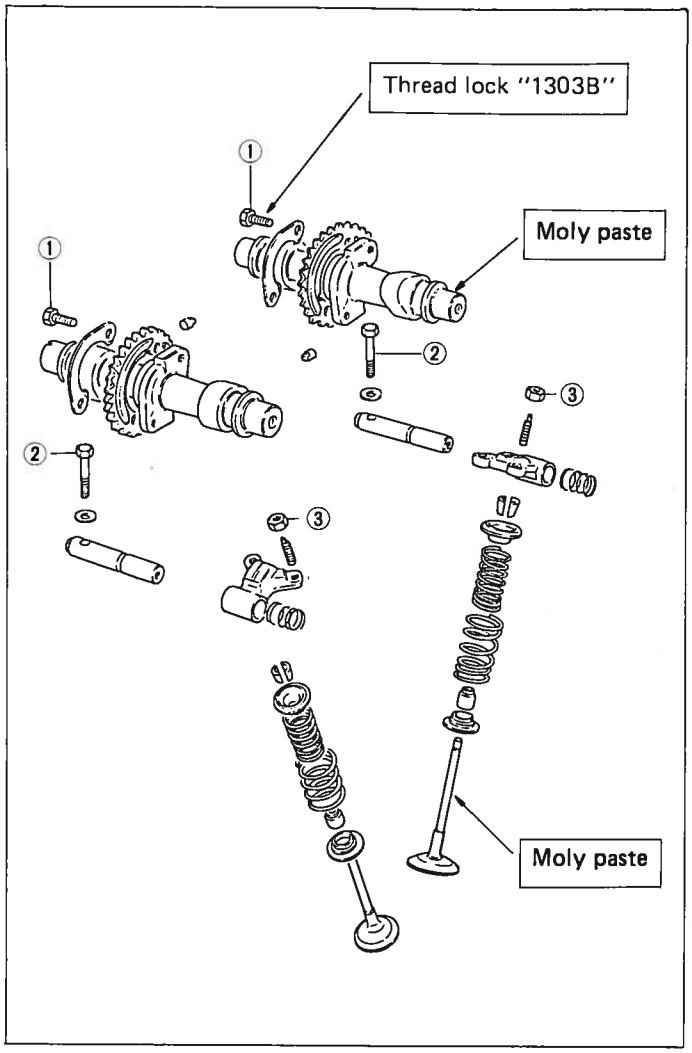
- Be sure to replace gaskets ④ and ⑨ with new ones.
- Fill approx. 50 ml of engine oil in four pockets of the cylinder head before mounting the head cover on the cylinder head.
- Set two positioning pins ⑩ at proper position and tighten with long bolts (6 x 35 mm).
- Apply small amount of SUZUKI thread lock cement on screw ⑦ which clamps camshaft end cap ⑧.
- Install tachometer drive gear after cylinder head cover is fitted to the cylinder head.
- Gasket ④ should be fit that breather hole side faces toward front.

VALVE AND CAMSHAFT

VALVE TIMING







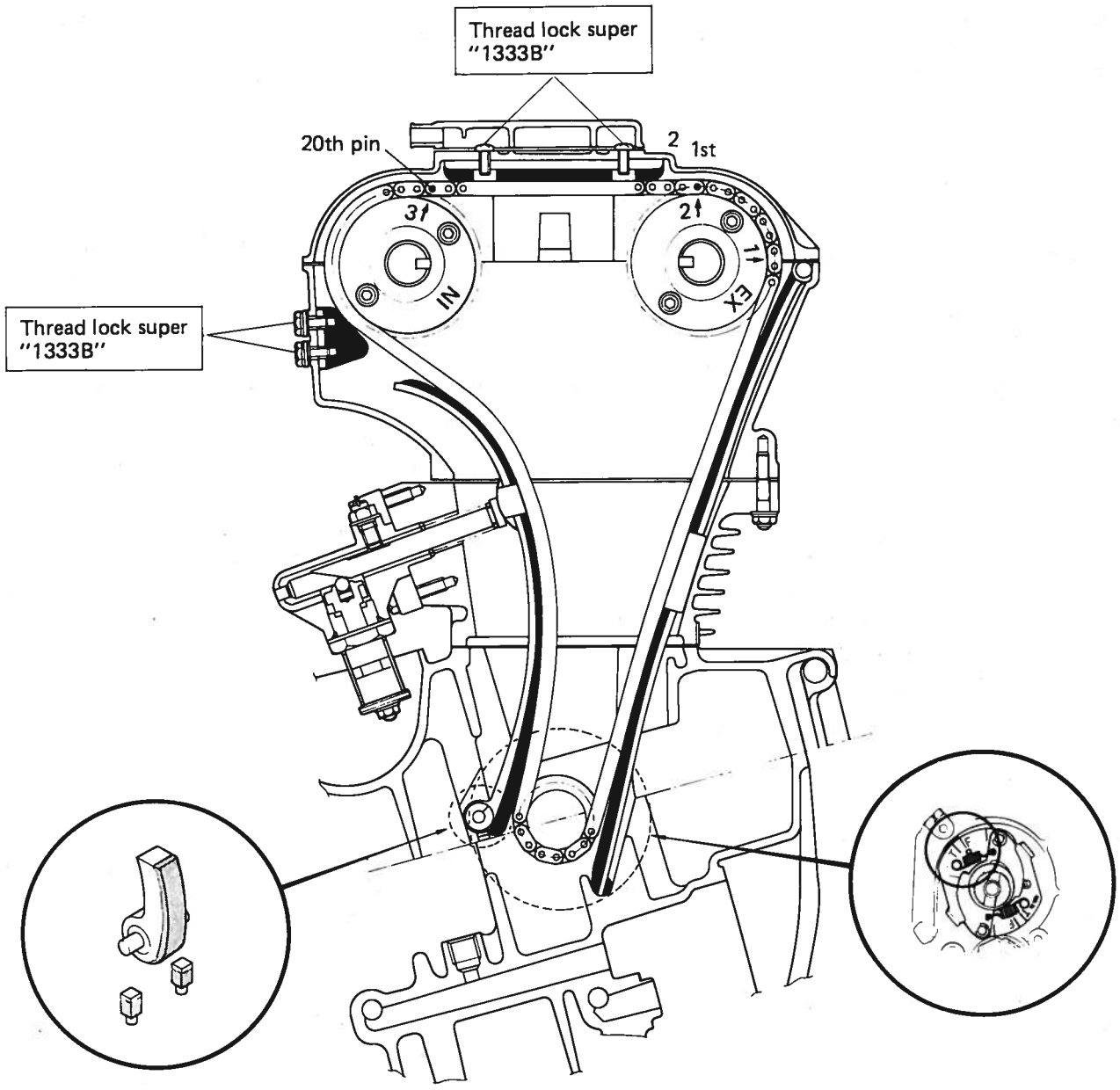
REASSEMBLY

- Apply SUZUKI MOLY PASTE lightly without break on camshaft journal and valve stem.
- Apply Suzuki thread lock super "1303B" to the cam sprocket bolts ①.

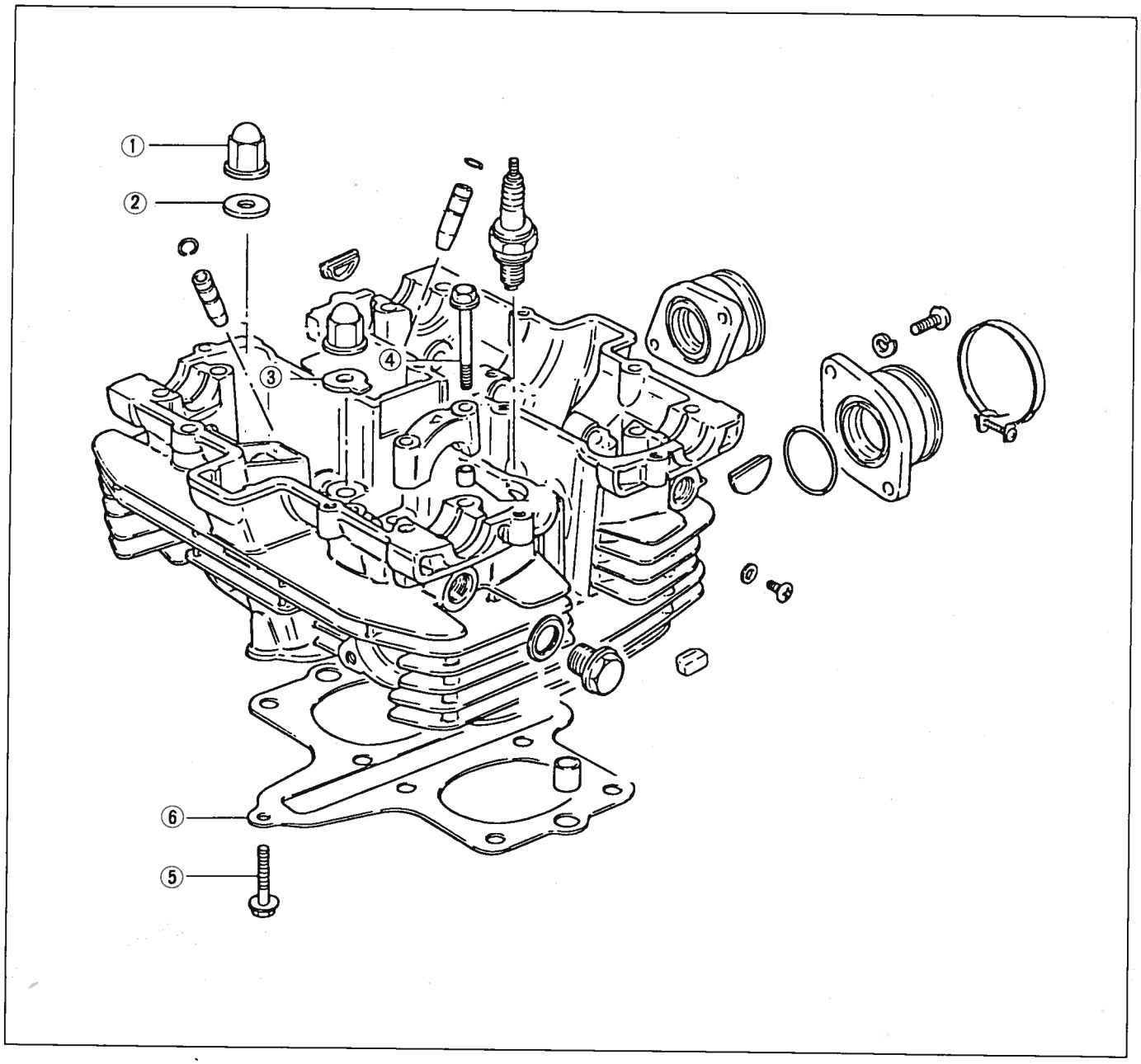
TIGHTENING TORQUE

①	15 – 20 N·m (1.5 – 2.0 kg-m)
②	8 – 10 N·m (0.8 – 1.0 kg-m)
③	9 – 11 N·m (0.9 – 1.1 kg-m)

NOTE:
The timing chain is now riding on all three sprockets. Be careful not to disturb the crankshaft until four holders are secured.



CYLINDER HEAD



VALVE GUIDE

Part No.	Part Name
11115-49290	Valve guide
09289-05003	Oil seal

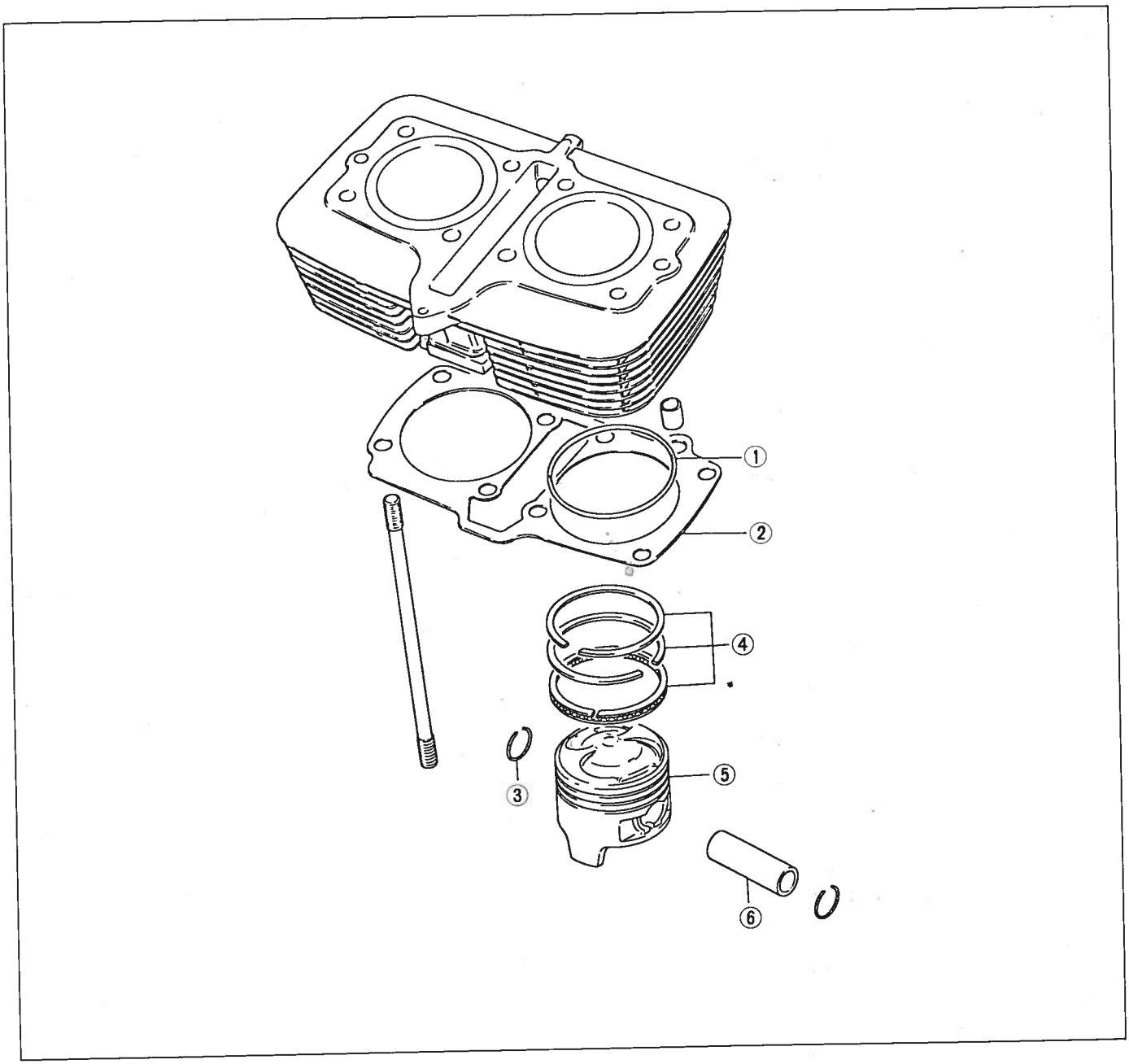
REASSEMBLY

- Be sure to replace cylinder head gasket ⑥ with new one.
- There are two different washers ② and ③ for cylinder head nuts, so identify each to use in the specified place.
- Camshaft cap bolt ④ has "9" mark on crown part, so do not use other bolt.

TIGHTENING TORQUE

	N·m	kg-m
①	35 – 40	3.5 – 4.0
④	8 – 12	0.8 – 1.2
⑤	7 – 11	0.7 – 1.1

CYLINDER, PISTON AND RING



OVERSIZE OIL RING

SIZE	COLOR CODE
STD	Painted Blue
0.5 mm O.S.	Painted Red
1.0 mm O.S.	Painted Yellow

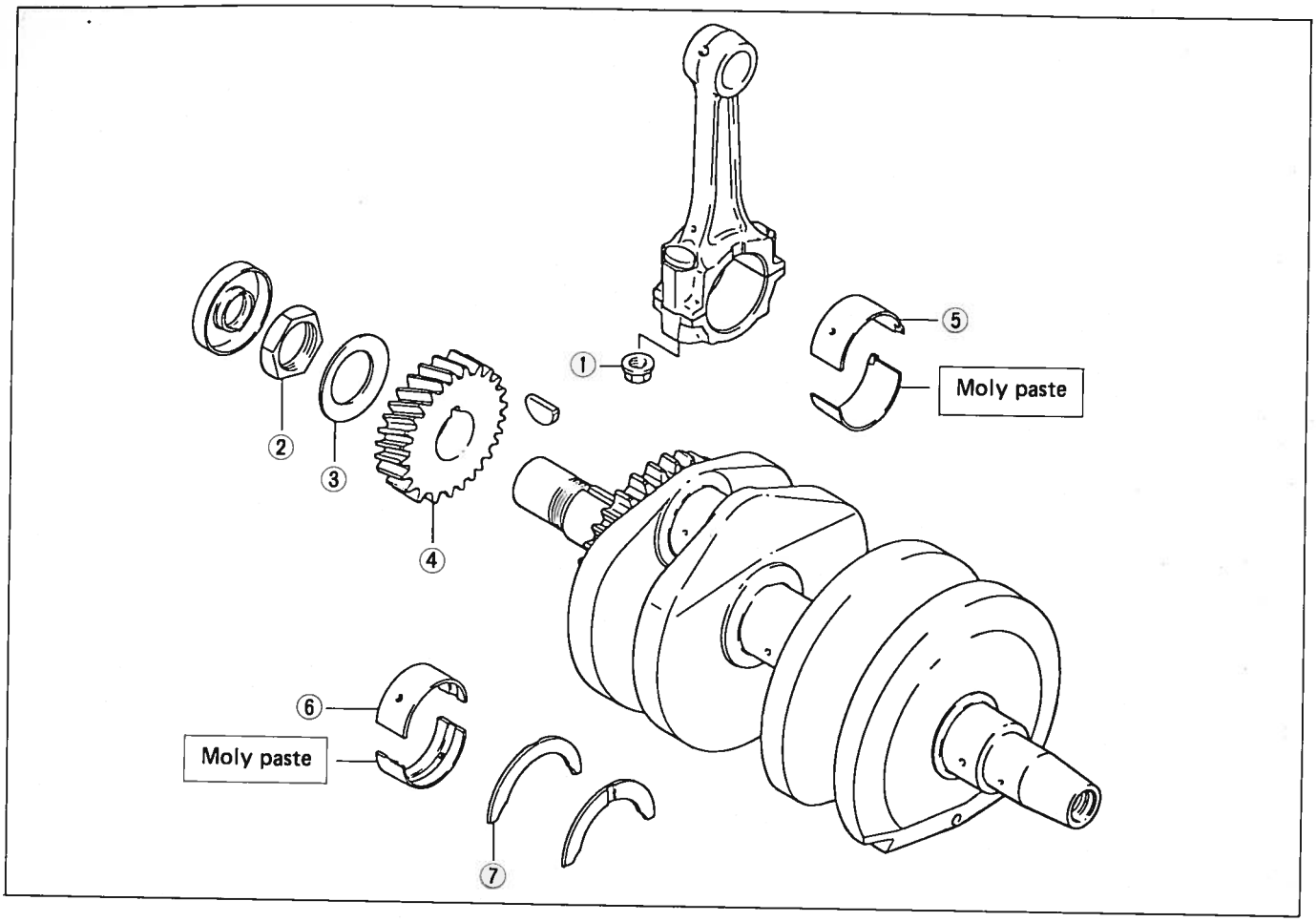
REASSEMBLY

- Mount new O-ring ①, gasket ② and circlips ③.
- Be sure to apply oil on cylinder surface, piston sliding part, piston rings ④ and piston pin ⑥.
- Use special tools when mounting piston on cylinder.

Part No.	Part Name
09916-74520	Piston ring holder
09916-74540	Band (bore 63 – 75 mm)

- Confirm that O-ring ① is properly installed to groove of the lower cylinder, and then install piston into the cylinder.

CRANKSHAFT AND CONNECTING ROD



TIGHTENING TORQUE

ITEM	N·m	kg-m
①	30 – 34	3.0 – 3.4
②	90 – 110	9.0 – 11.0

CONNECTING ROD BIG END BEARING

- Connecting rod bearing side part has each color code, so identify I.D. code of crankshaft and connecting rod to mount proper color one. (Refer to GSX250 Service Manual page 3-39.)

CAUTION:
Bearings should be replaced as a set.

COLOR (Part Number)	THICKNESS (mm)
Green (12164-44100-010)	1.484 – 1.488
Black (12164-44100-020)	1.488 – 1.492
Brown (12164-44100-030)	1.492 – 1.496
Yellow (12164-44100-040)	1.496 – 1.500

NOTE:
Two kinds of under-size bearings are available as an optional parts.

SIZE (Part Number)	THICKNESS (mm)
0.25 Under-size (12164-44100-025)	1.625
0.50 Under-size (12164-44100-050)	1.750

CRANKSHAFT AND COUNTER BALANCER BEARINGS

- Both bearings have their I.D. color code painted on the side of bearing. According to the specifications for crankcase and crankshaft, select proper bearing. (Refer to the GSX250 Service Manual page 3-43.)

STANDARD SIZE BEARING SPECIFICATIONS

COLOR (Part Number)	THICKNESS (mm)
Green (12229-44100-010)	1.486 – 1.490
Black (12229-44100-020)	1.490 – 1.494
Brown (12229-44100-030)	1.494 – 1.498
Yellow (12229-44100-040)	1.498 – 1.502

UNDER-SIZE BEARING SPECIFICATIONS

SIZE (Part Number)	THICKNESS (mm)
0.25 Under size (12229-44100-025)	1.625
0.50 Under size (12229-44100-050)	1.750

THRUST BEARING THICKNESS

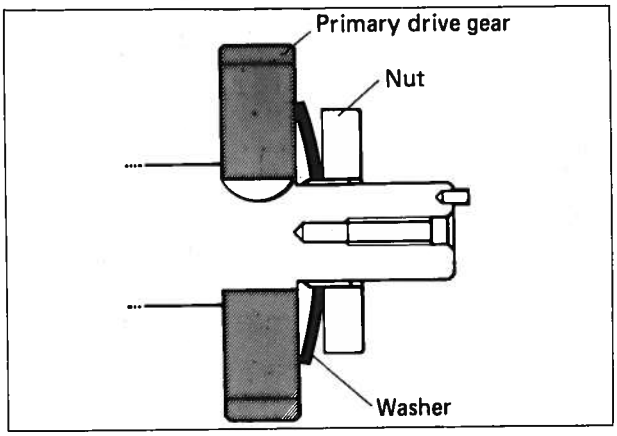
- Check the crankshaft thrust bearing ⑦ thickness for wear. If wearing portion exceeds the following limit, replace with new ones as a set.

Service Limit	2.85 mm

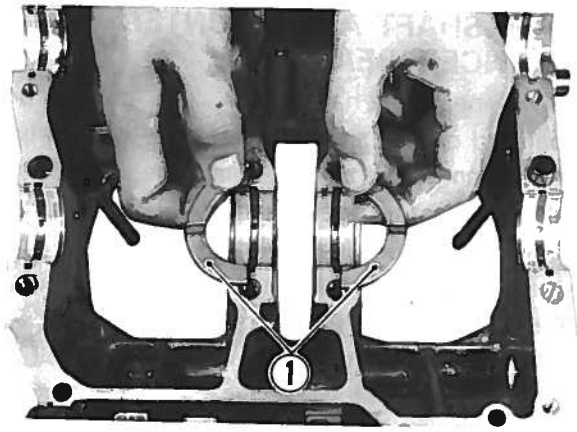
REASSEMBLY

- Be sure to apply SUZUKI MOLY PASTE (99000-25140) on connecting rod bearings, counter balancer bearings and crankshaft bearings at the time of reassembly.
- The washer ③ between primary drive gear and nut is in dish form when free state. Be sure to face its concave side to the gear as shown below when fitting.

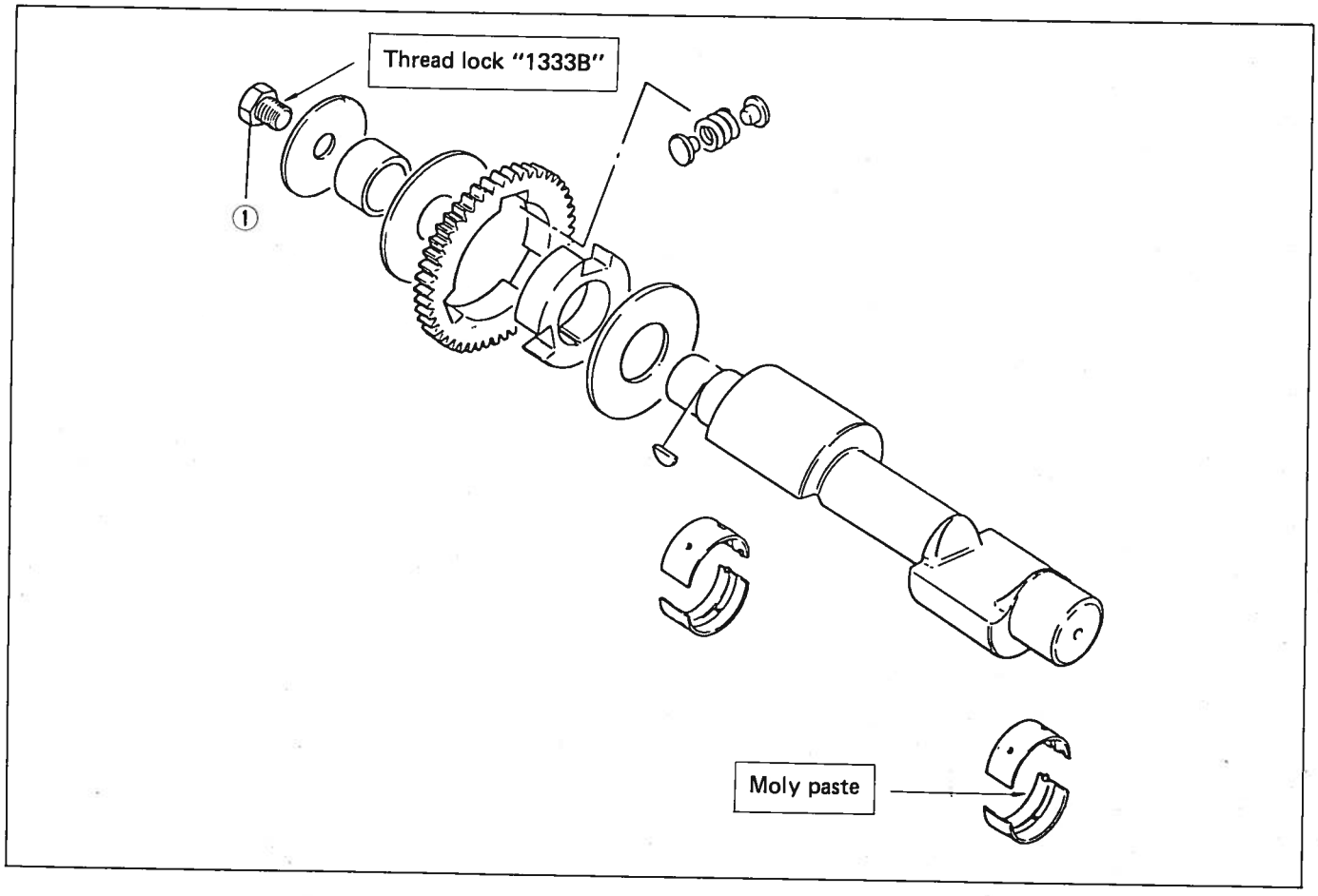
Tightening torque	90 – 110 N·m (9.0 – 11.0 kg-m)



- Thrust bearing for the crankshaft go into place with their oil groove side ① facing the crank webs.

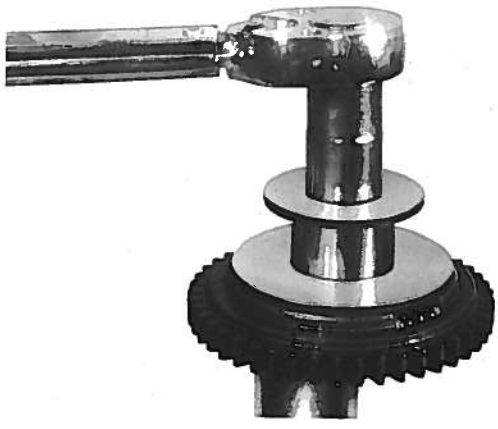


COUNTER BALANCER



DISASSEMBLY

- Remove the counter balancer setting bolt.
- Pull out the counter balancer drive gear.

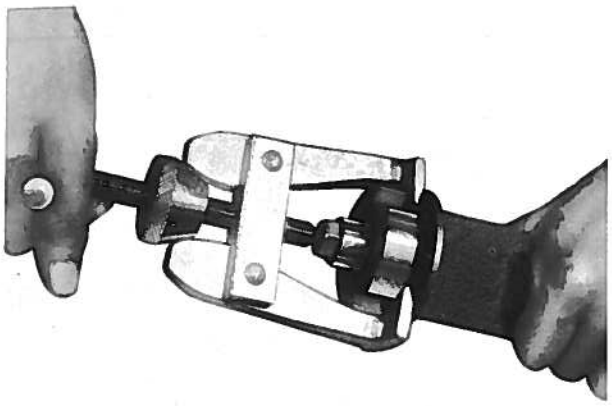


TIGHTENING TORQUE

①	35 – 45 N·m (3.5 – 4.5 kg-m)

- Pull out the counter balancer inner race with special tool.

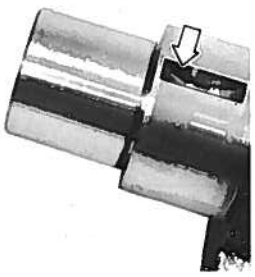
09913-61110	Bearing puller

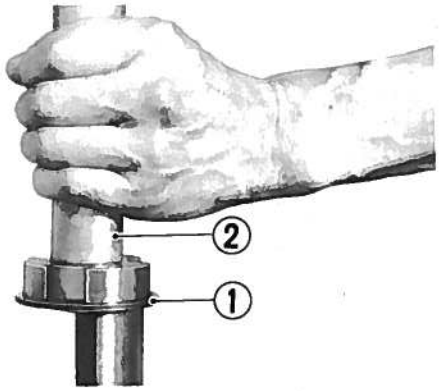


REASSEMBLY

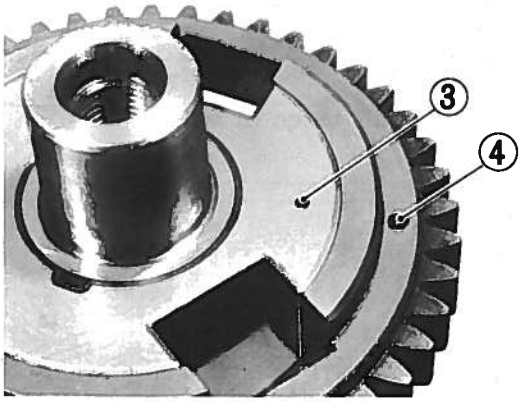
- Locate washer ① on the balancer shaft and fix the key in the groove, then tap the counter balancer inner race by using special tool ② during the punched mark side facing out side.

09913-80112	Bearing installer



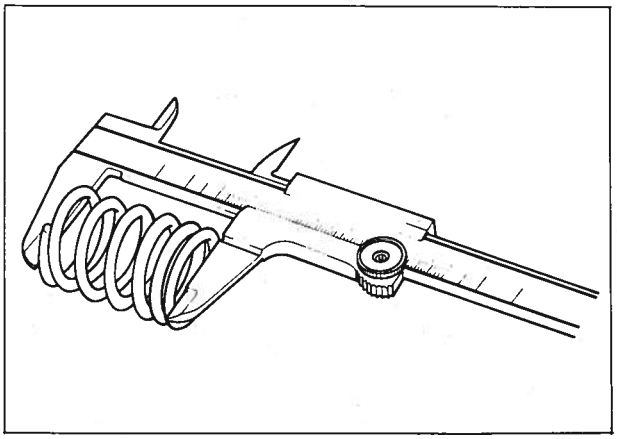


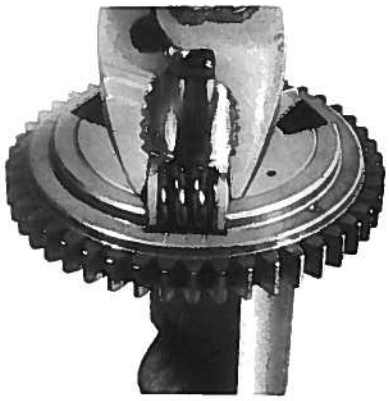
- When mounting the balancer drive gear, be sure to locate the dent mark ④ right on the radial line through punch mark ③ provided on the race.



- Check the springs for strength by measuring their free length and if one of them is shorter than limit, replace all of them with new ones.

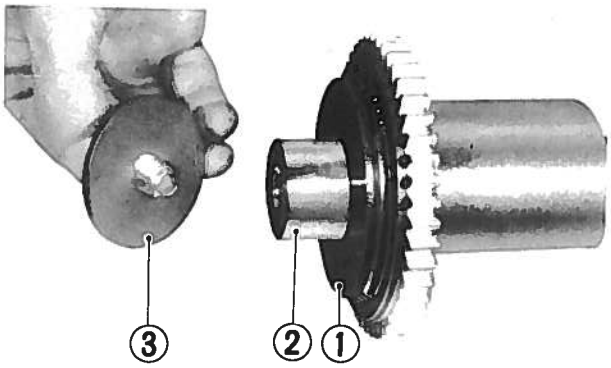
Service Limit	14.2 mm (0.56 in)



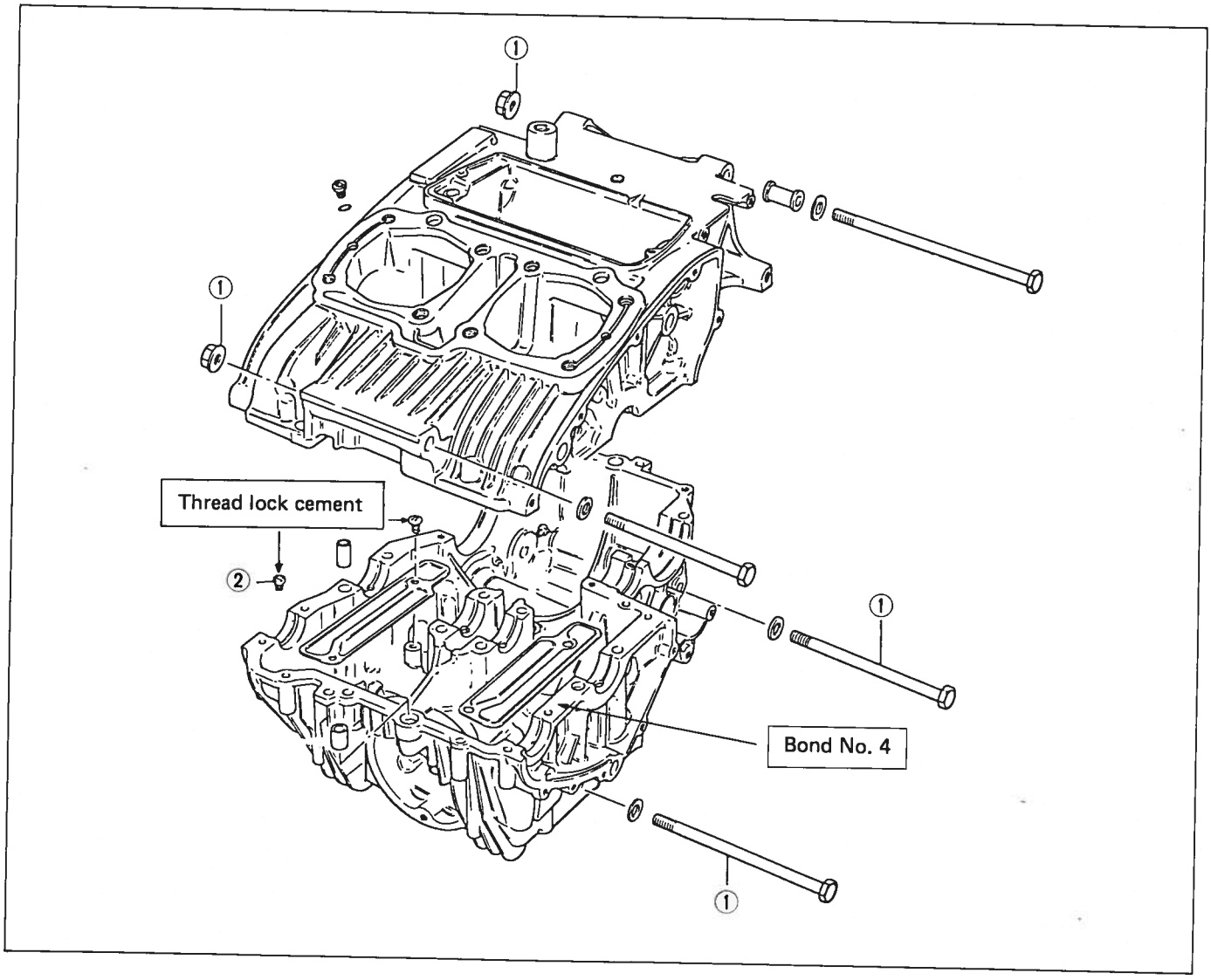


- Fix the washer ①, spacer ② and washer ③, tighten the counter balancer setting bolt with specified torque.

Tightening torque	35 – 45 N·m (3.5 – 4.5 kg-m)



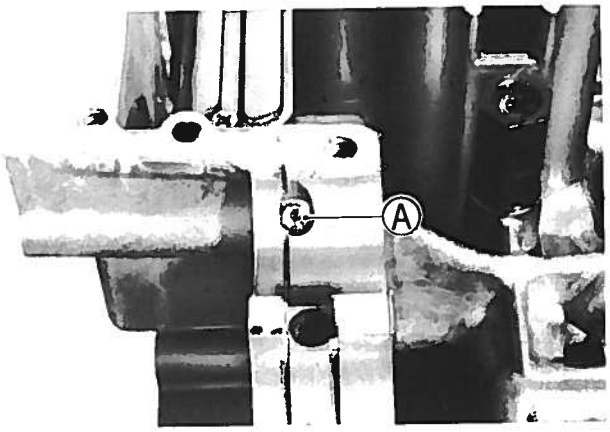
CRANKCASE



TIGHTENING TORQUE

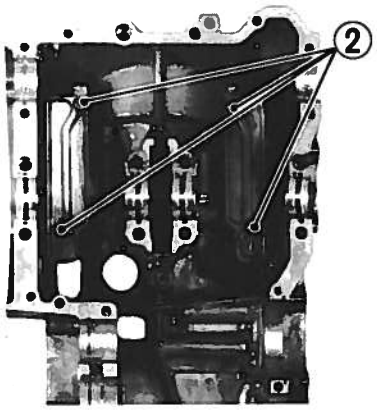
①	40 N·m (4.0 kg-m)

- Check oil orifice Ⓐ for clogging by foreign materials.



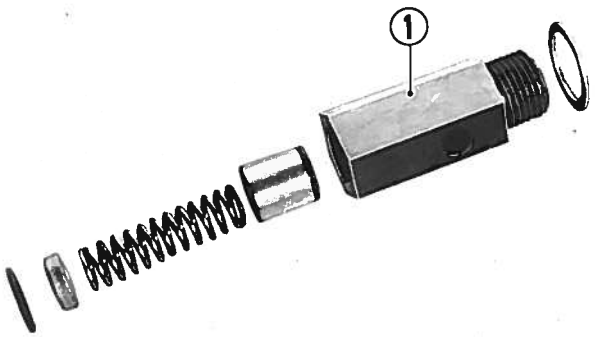
- Fix two oil separater plate ② with 4 screws applying thread lock cement.

9900-32040	Thread lock cement



- Seat washer and tighten oil pressure regulator ① with specified torque.

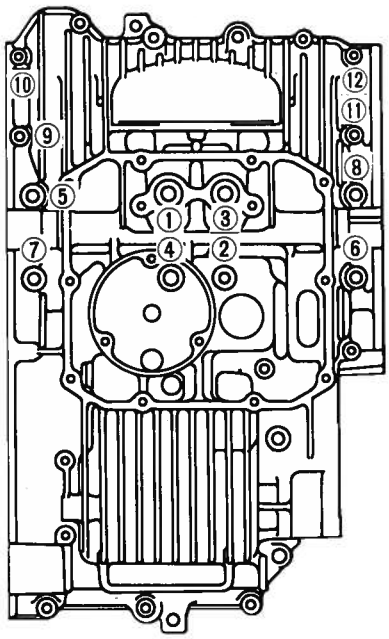
Tightening torque	17 – 20 N·m (1.7 – 2.0 kg-m)



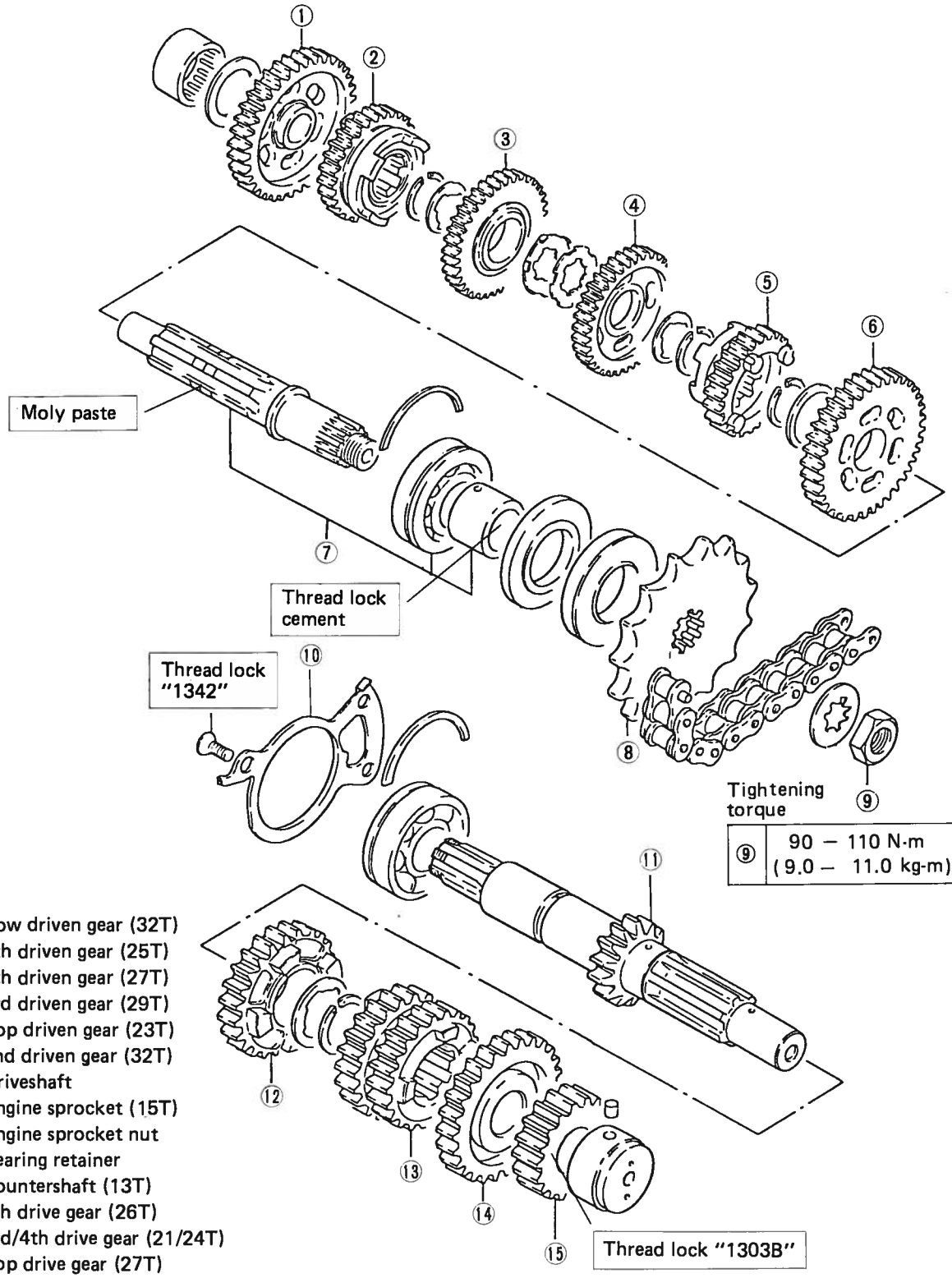
- Apply Suzuki Bond No. 4 to the mating surface of the upper crankcase.
- Mate the lower crankcase with the upper crankcase and tighten the crankcase securing bolts with specified torque value in the following order.

Item	Initial	Final
① – ⑧	13 N·m (1.3 kg-m)	20 – 24 N·m (2.0 – 2.4 kg-m)
⑨ – ⑫	6 N·m (0.6 kg-m)	9 – 13 N·m (0.9 – 1.3 kg-m)
The other 6 mm oblt	6 N·m (0.6 kg-m)	10 N·m (1.0 kg-m)
The other 8 mm bolt	13 N·m (1.3 kg-m)	20 N·m (2.0 kg-m)

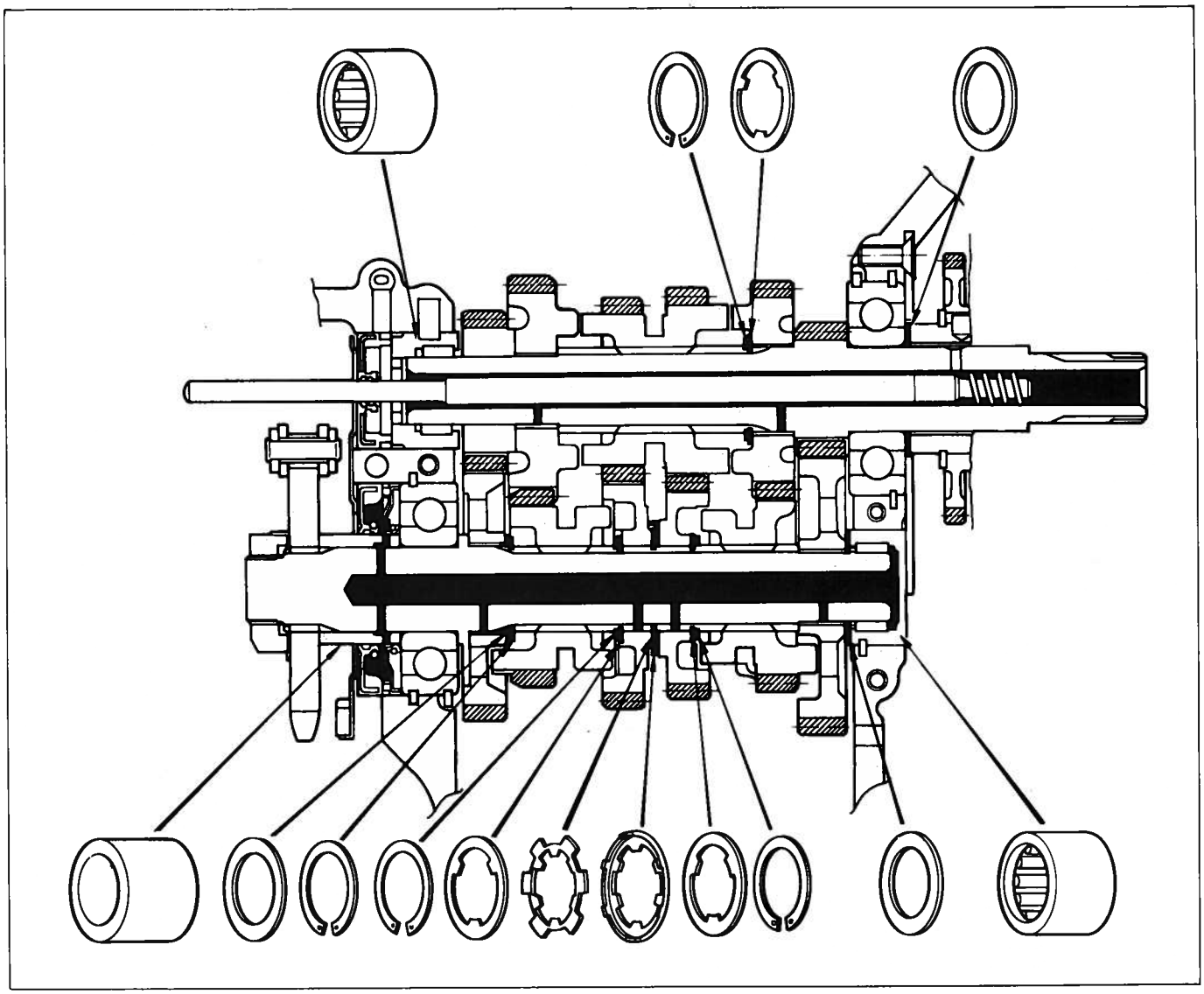
CAUTION:
Do not allow to apply Bond No. 4 to the bearing surface.



TRANSMISSION

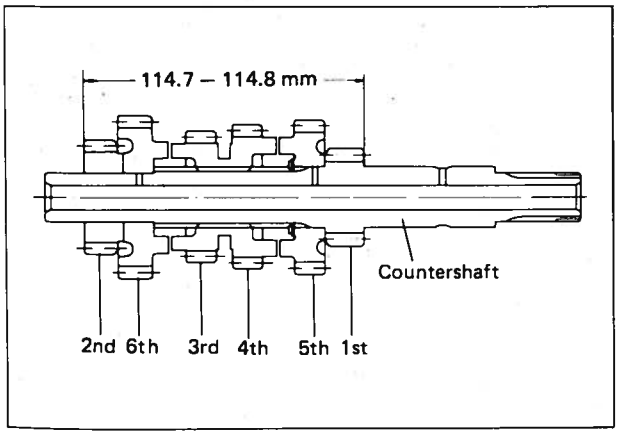


① Low driven gear (32T)
② 5th driven gear (25T)
③ 4th driven gear (27T)
④ 3rd driven gear (29T)
⑤ Top driven gear (23T)
⑥ 2nd driven gear (32T)
⑦ Driveshaft
⑧ Engine sprocket (15T)
⑨ Engine sprocket nut
⑩ Bearing retainer
⑪ Countershaft (13T)
⑫ 5th drive gear (26T)
⑬ 3rd/4th drive gear (21/24T)
⑭ Top drive gear (27T)
⑮ 2nd drive gear (18T)



MOUNTING 2ND DRIVE GEAR

Force-fit 2nd drive gear to a position where the distance between this drive gear and the 1st drive gear assumes the value indicated:



Countershaft length (low to 2nd)

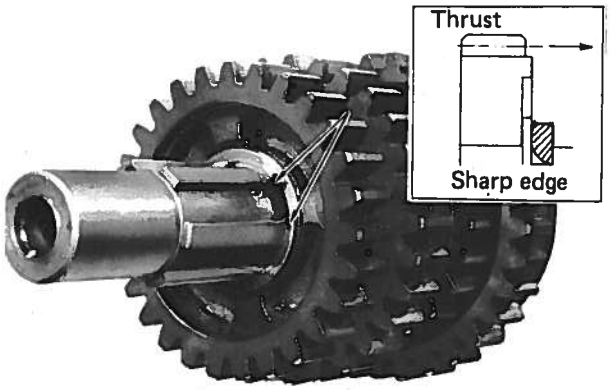
STD Length	114.7 mm (4.52 in)

99000-32020	Thread lock super "1303B"

NOTE

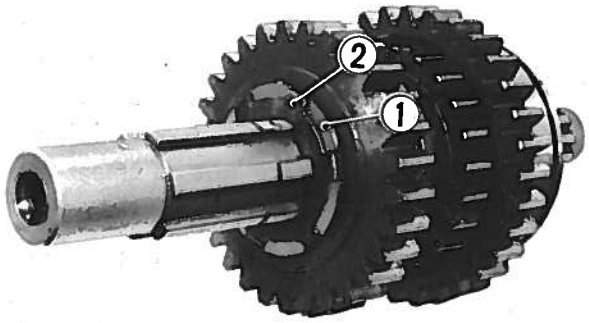
* **Before mounting 2nd drive gear, apply THREAD LOCK SUPER "1303B" to its bore, taking care not to smear top drive gear with "SUPER 1303B".**
* **After mounting the 2nd drive gear, check that top drive gear spins smoothly by moving it with your fingers.**

- When mounting circlip, pay attention to the direction of the circlip. Fit it to the side where the thrust is as shown in the figure.

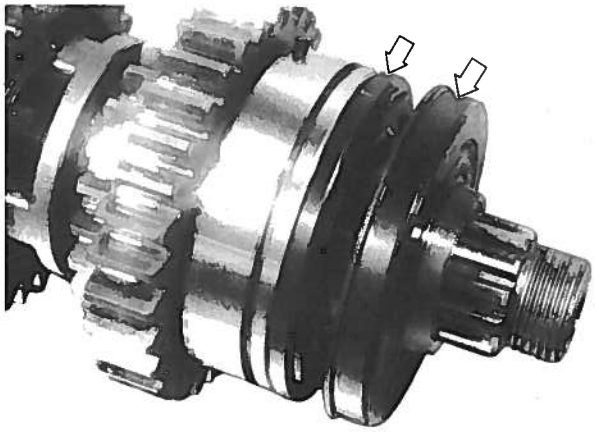


3RD DRIVEN GEAR ASSEMBLY

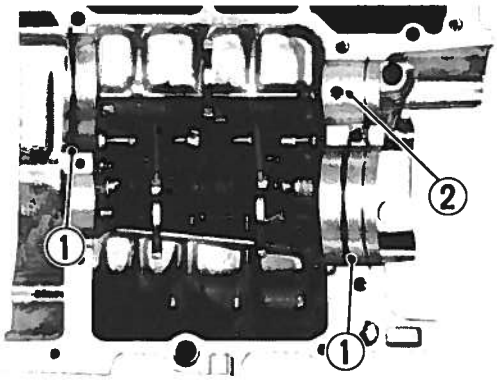
When mounting the 3rd driven gear on the drive shaft, insert lock washer No. 2 ① into the drive shaft, and turn it to fit it into the groove. Then, fit the lock washer No. 1 ② in the lock washer No. 2.



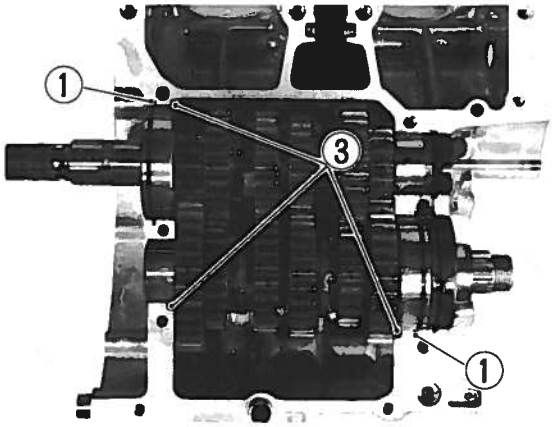
- Install the two drive shaft oil seals, positioning each as shown.



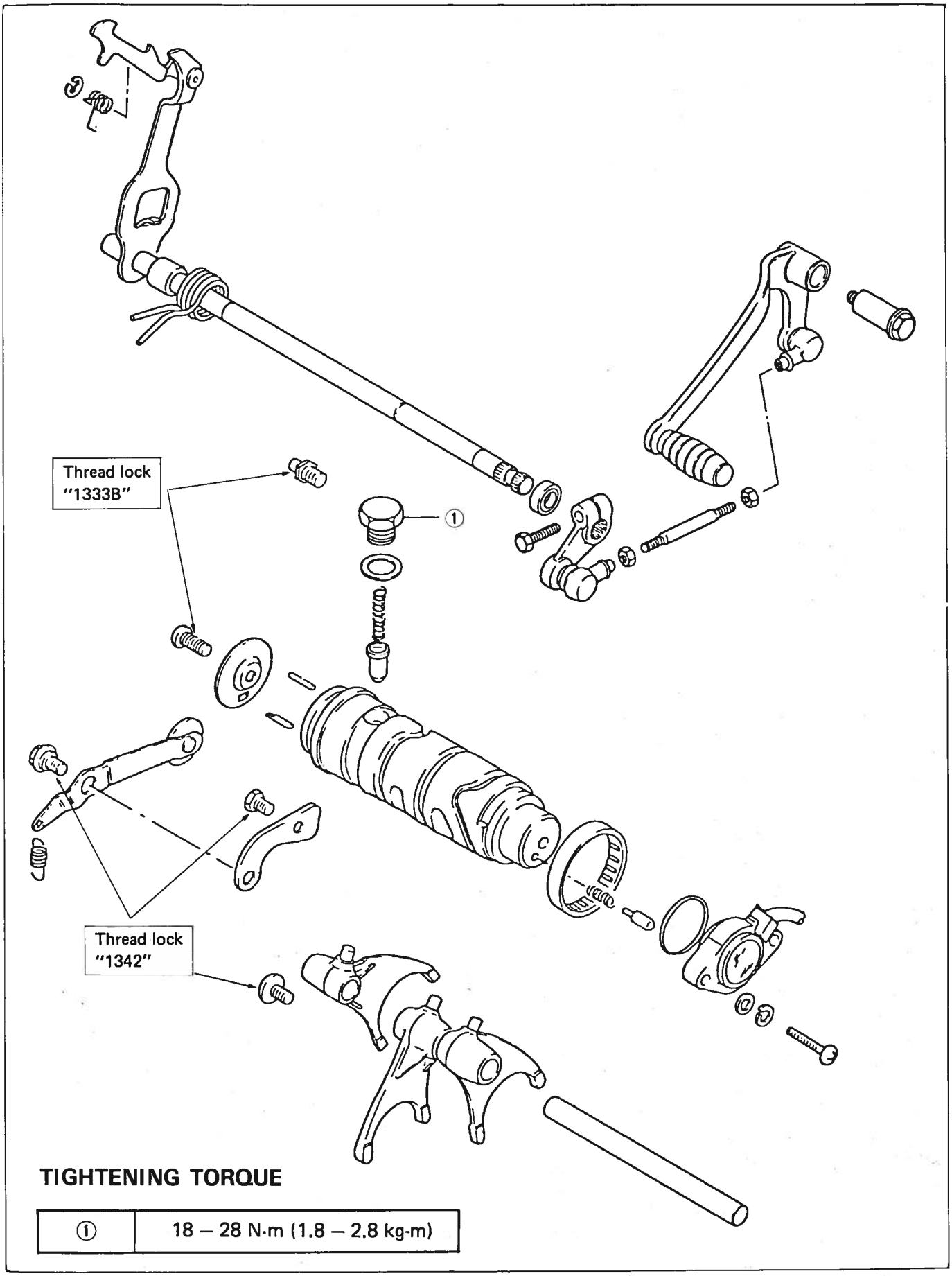
- Place two "C" rings ① and knock pin ② and install drive and counter shafts.



- Be sure to install the bearing dowel pins ③ in the locations indicated.



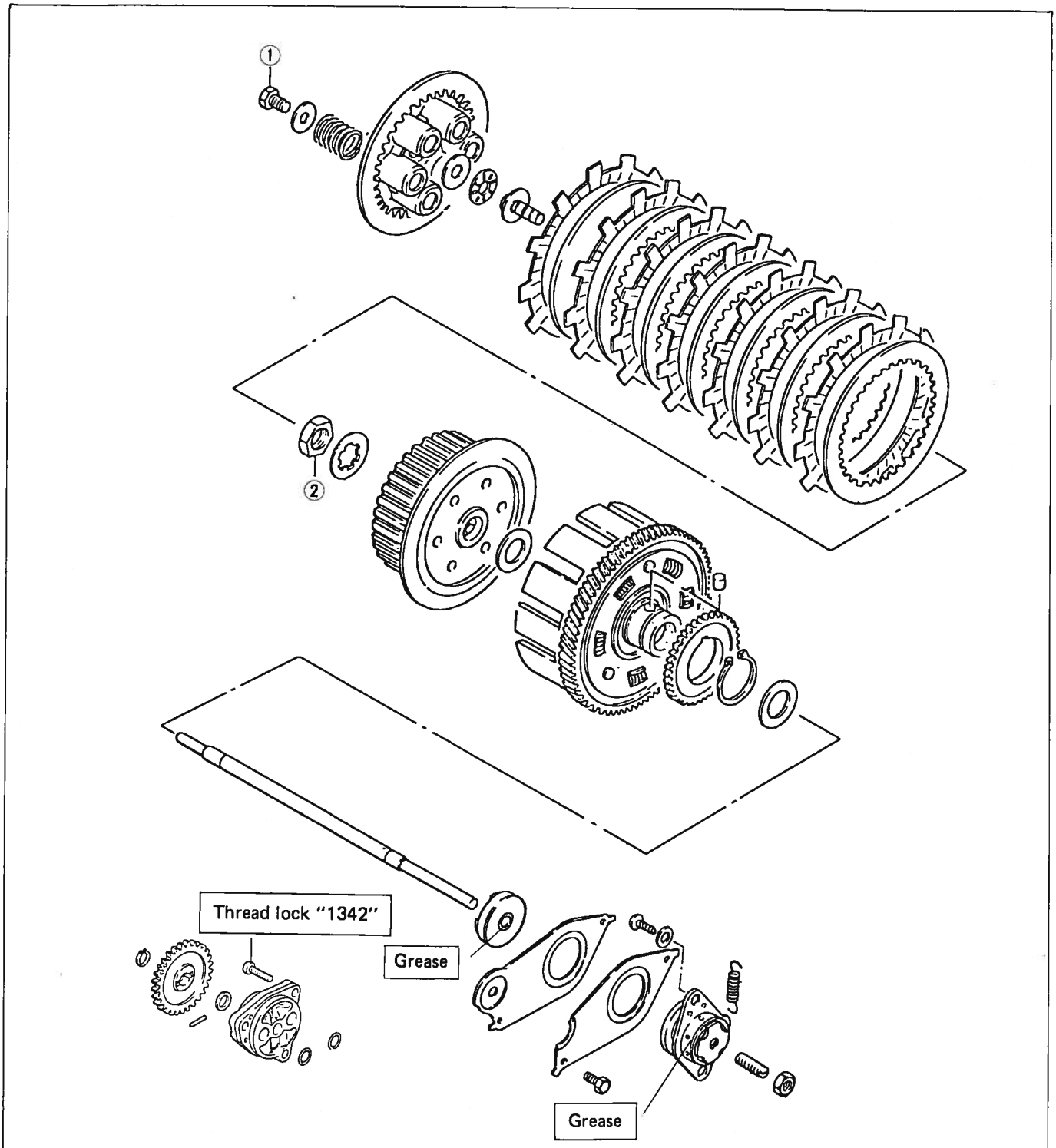
GEARSHIFT CAM AND FORK



TIGHTENING TORQUE

①	18 – 28 N·m (1.8 – 2.8 kg-m)

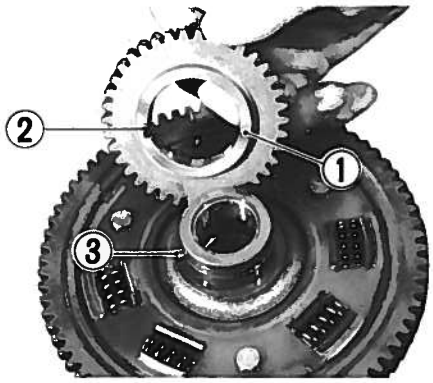
CLUTCH AND OIL PUMP

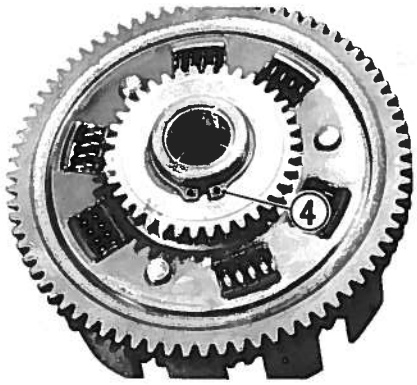


Tightening torque

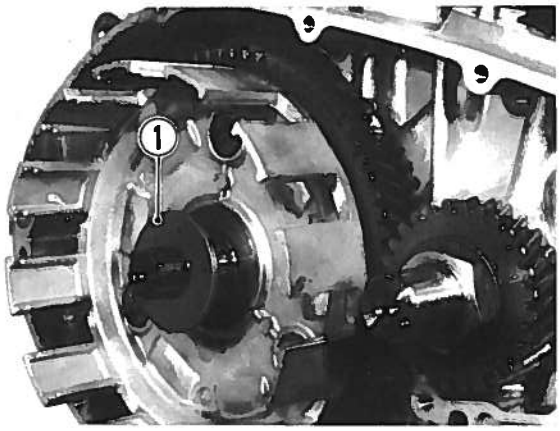
Item	N·m	kg-m
①	4 – 6	0.4 – 0.6
②	40 – 60	4.0 – 6.0

- Oil pump drive gear has a boss on each side. Be sure to position it so that the tall boss ① faces on the clutch side and its groove ② admit locating pin ③.
- Fix it with circlip ④.





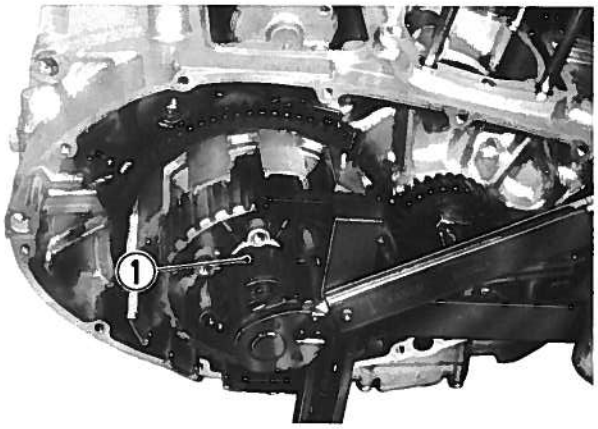
- Install primary driven gear and thrust washer ①.



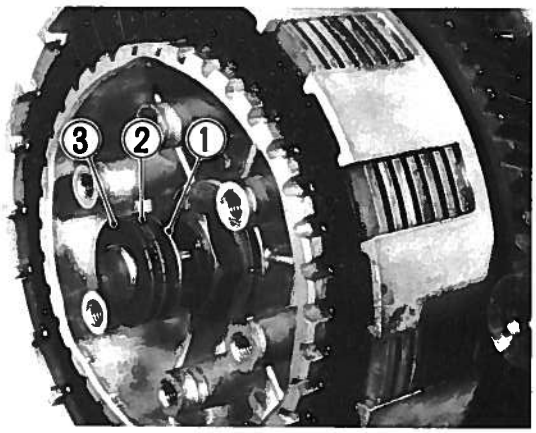
- After tightening the clutch sleeve hub nut ①, be sure to lock the nut by positively bending the tongue of the washer. Tightening torque for the nut is specified.

09920-50410	Clutch sleeve hub holder

Tightening torque	40 – 60 N·m (4.0 – 6.0 kg-m)



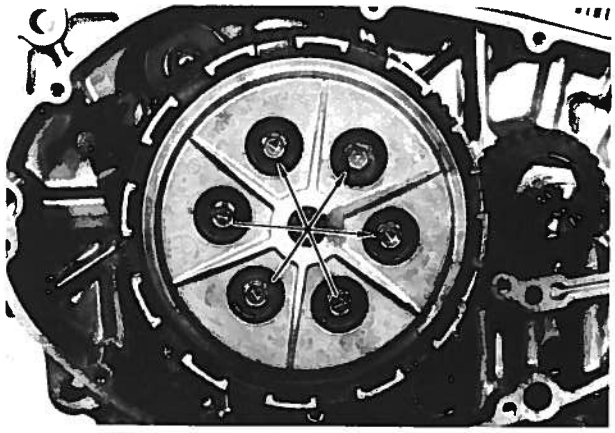
- Driven plate is the first to go into the sleeve hub.
- Install push piece ①, thrust bearing ② and thrust washer ③ properly.



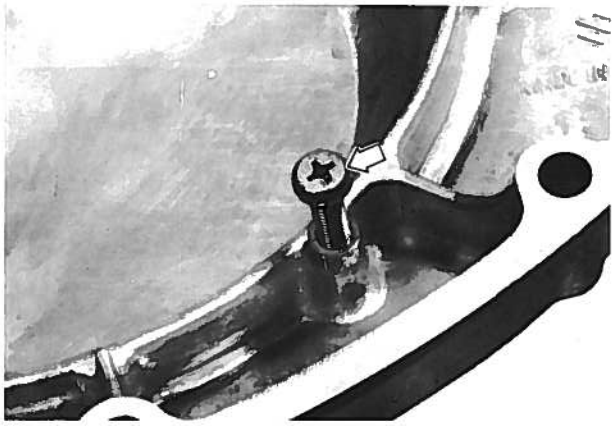
NOTE
Using conrod stopper, tighten the clutch spring set bolts in the indicated manner, making sure that they are tightened just a little at a time to the same final tighteness.

09910-20115	Con rod stopper

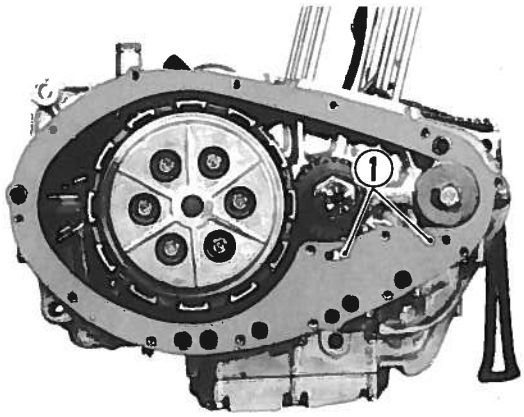
Tightening torque	4 – 6 N·m (0.4 – 0.6 kg-m)



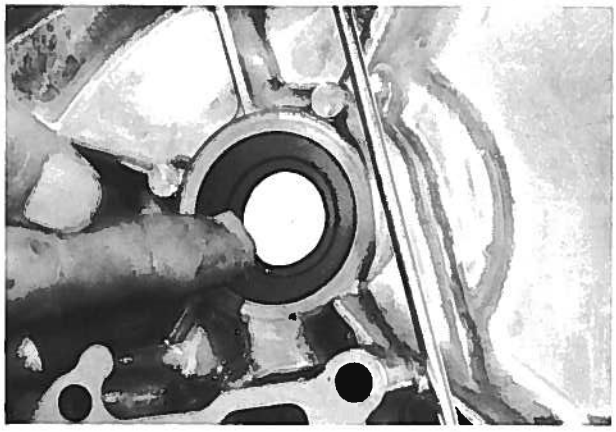
- Check gearshifting shaft stopper screw on clutch cover for loose.



- Position new gasket to align two holes ① with oil passage of crankcase.

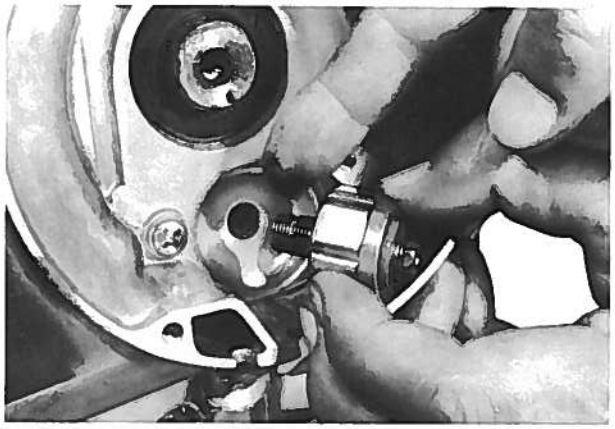


- Apply grease to oil seal lip of the crankshaft.

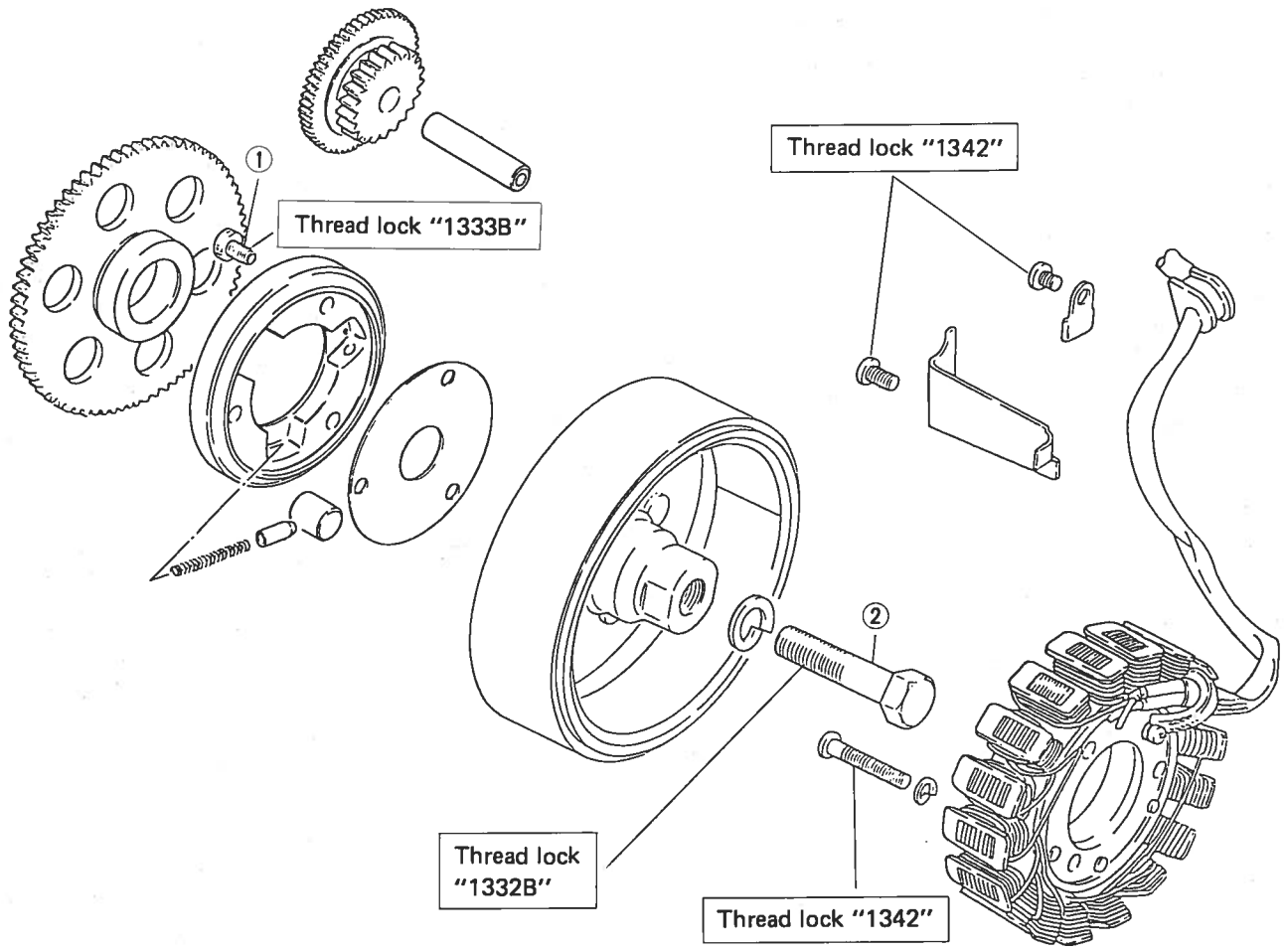


- Apply suzuki bond No. 4 to oil pressure switch thread.

99000-31030	Suzuki Bond No. 4



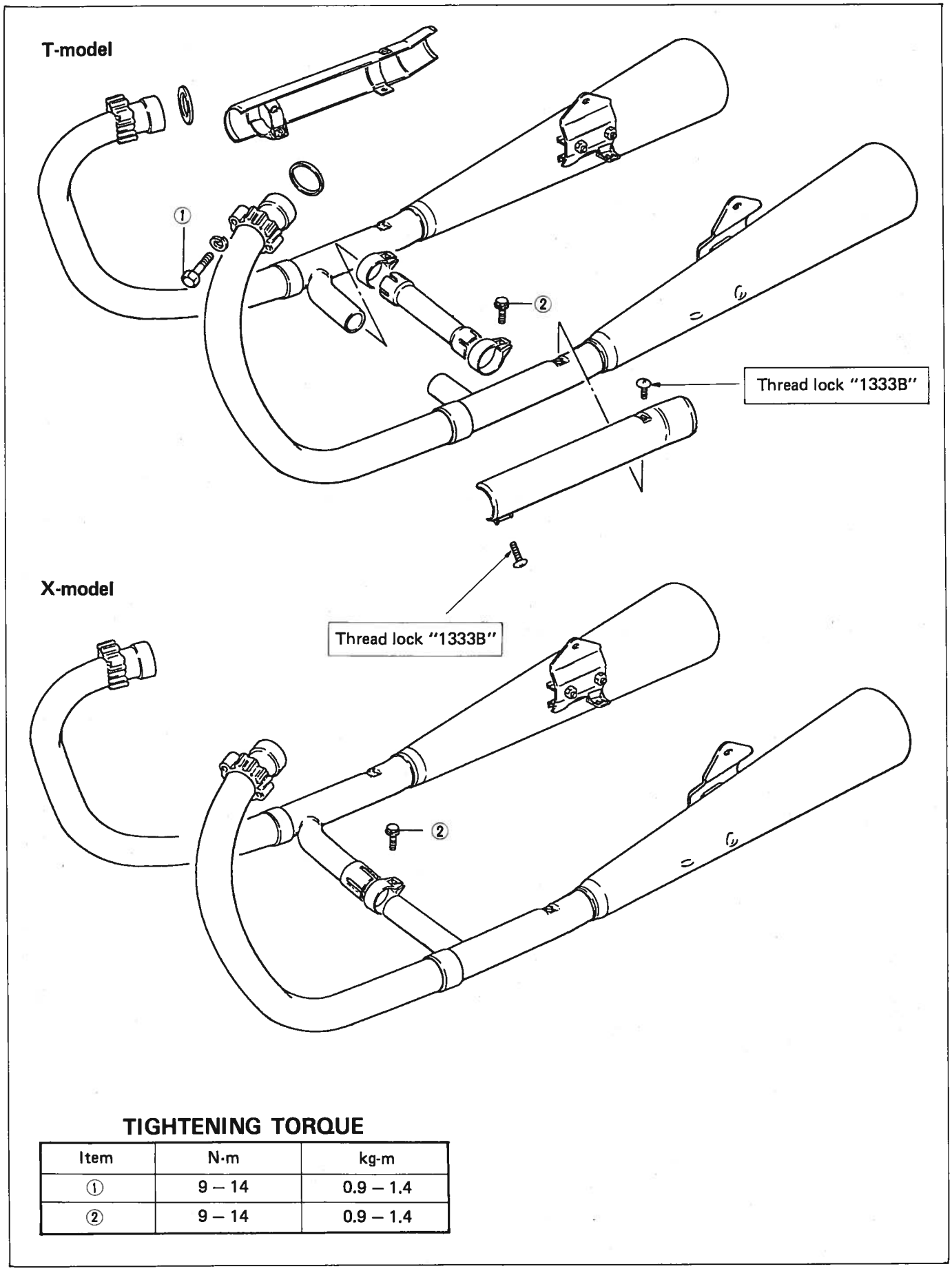
STARTER CLUTCH AND GENERATOR



TIGHTENING TORQUE

Item	N·m	kg-m
①	15 – 20	1.5 – 2.0
②	90 – 100	9.0 – 10.0

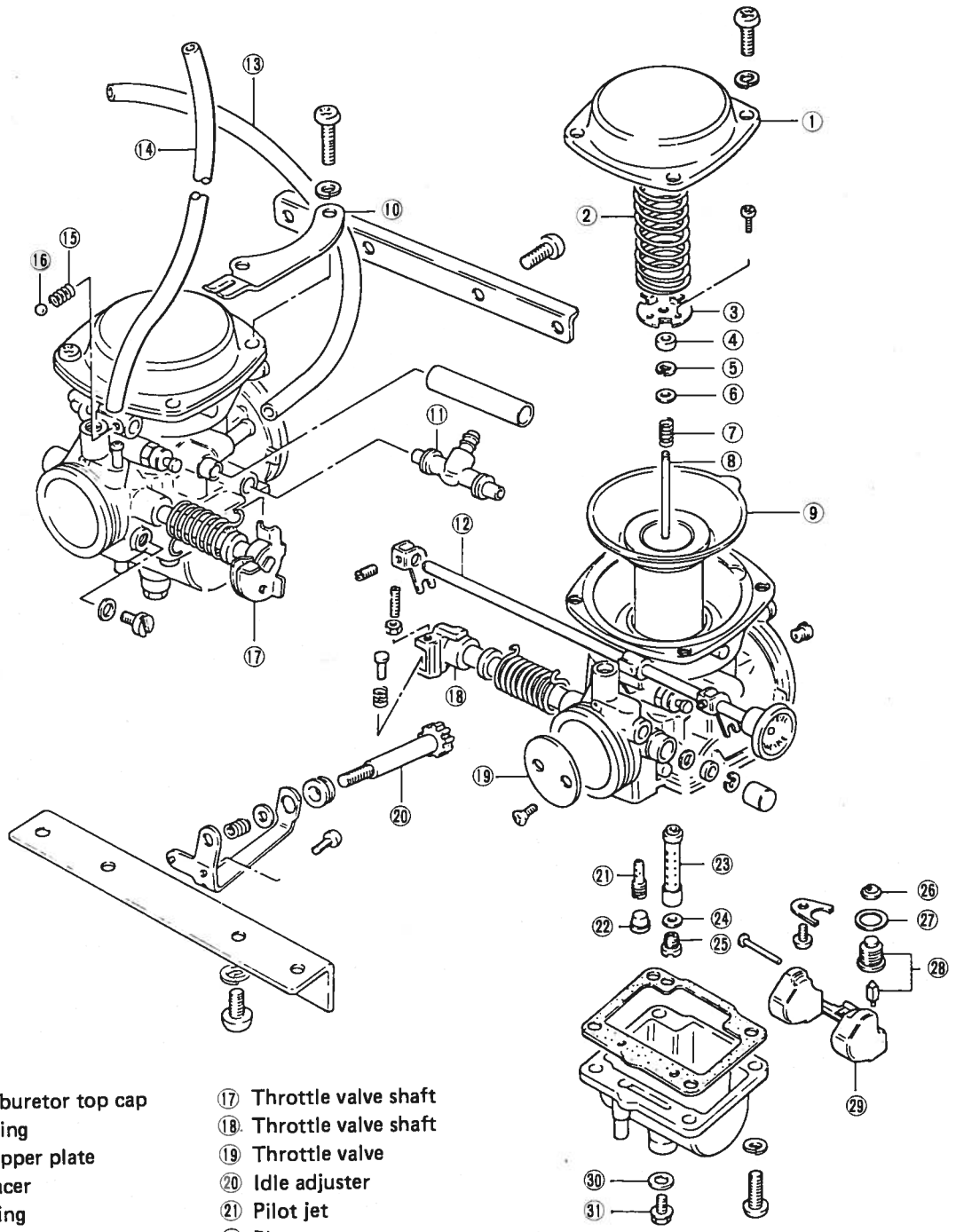
EXHAUST PIPE AND MUFFLER



TIGHTENING TORQUE

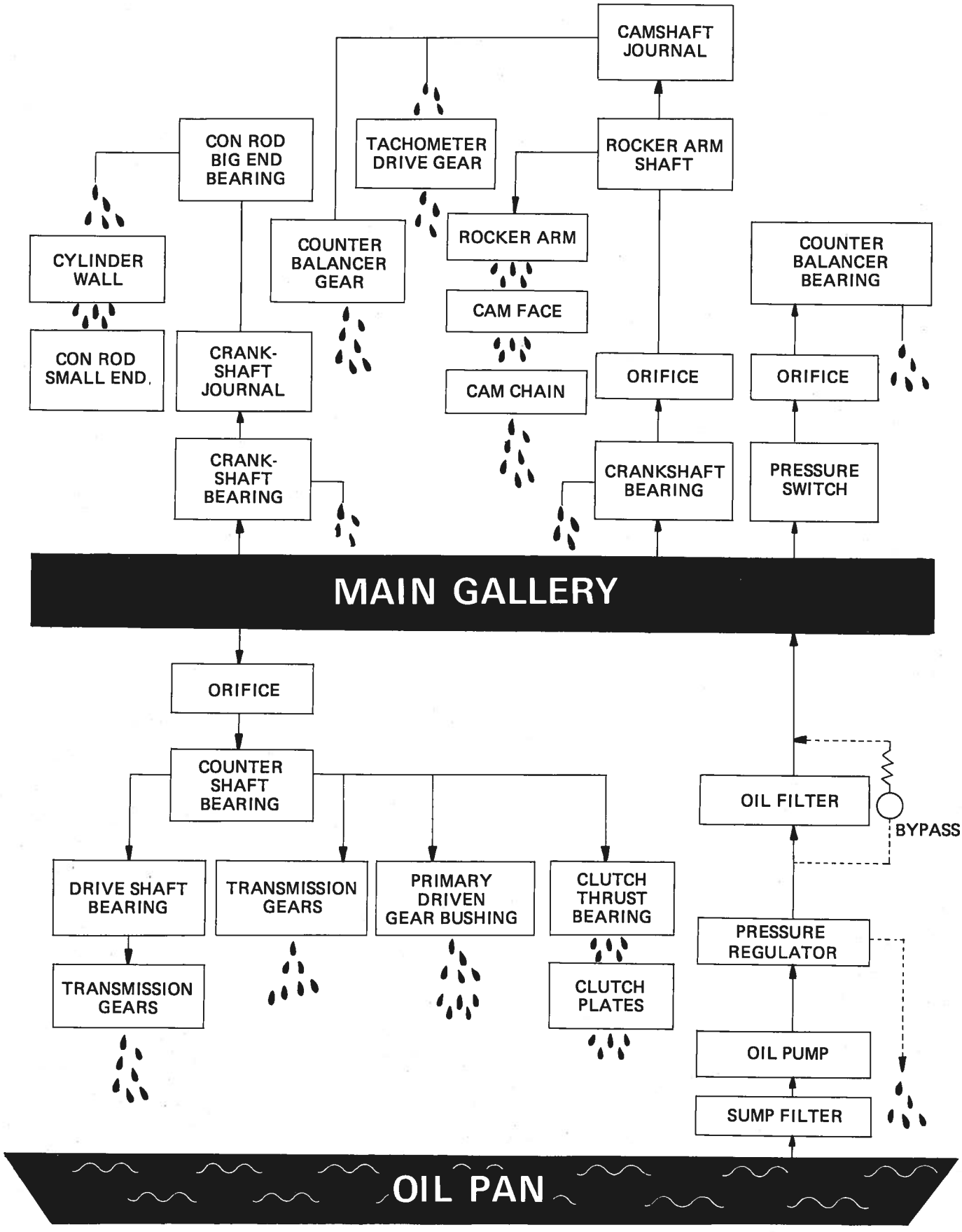
Item	N·m	kg-m
①	9 – 14	0.9 – 1.4
②	9 – 14	0.9 – 1.4

CARBURETOR

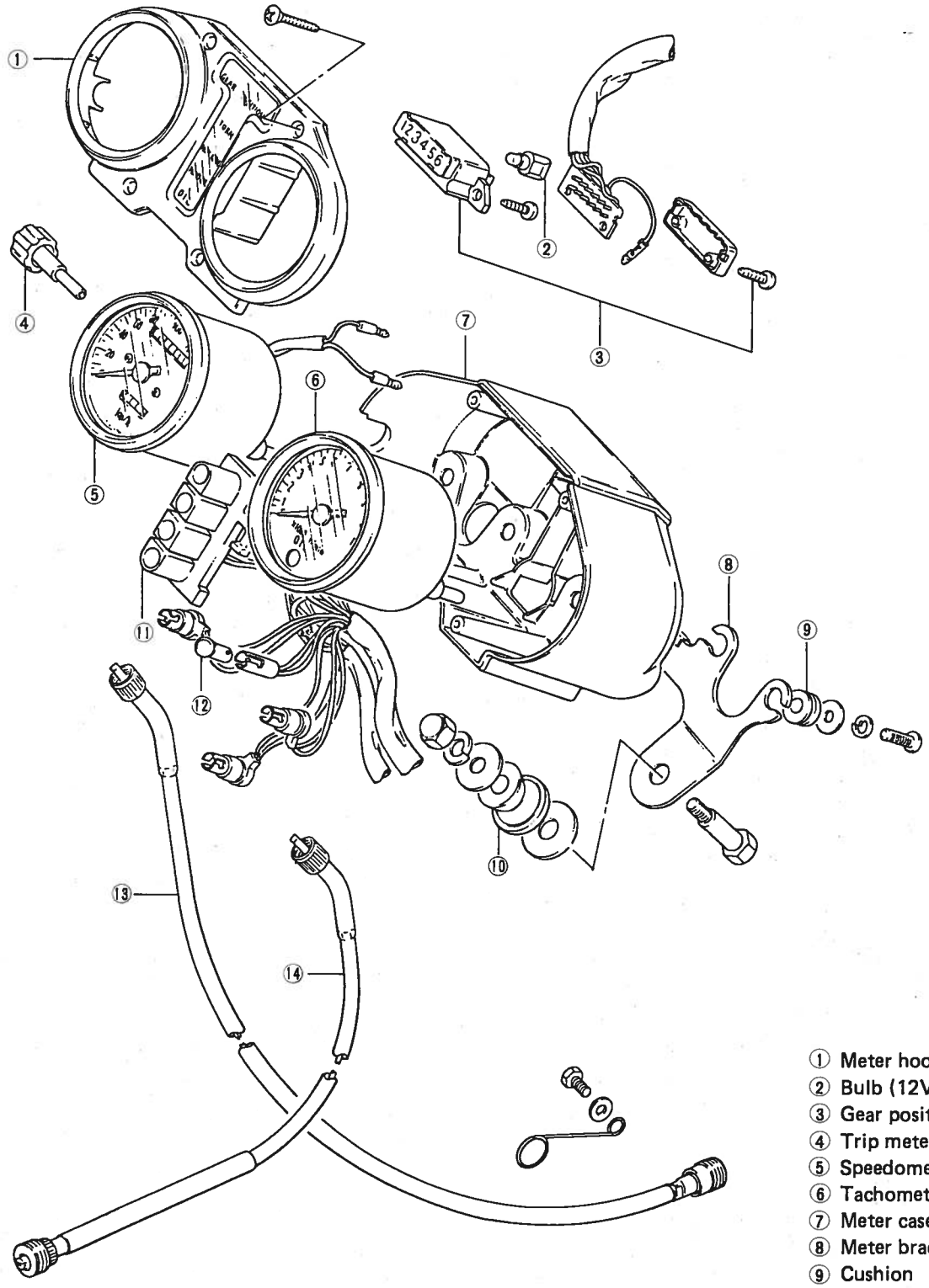


① Carburetor top cap
② Spring
③ Stopper plate
④ Spacer
⑤ E-ring
⑥ Washer
⑦ Spring
⑧ Jet needle
⑨ Diaphragm and piston
⑩ Throttle cable bracket
⑪ Fuel pipe joint
⑫ Choke shaft
⑬ Breather hose
⑭ Vaccum hose
⑮ Spring
⑯ Steel ball
⑰ Throttle valve shaft
⑱ Throttle valve shaft
⑲ Throttle valve
⑳ Idle adjuster
㉑ Pilot jet
㉒ Plug
㉓ Needle jet
㉔ Washer
㉕ Main jet
㉖ Filter
㉗ O-ring
㉘ Needle valve
㉙ Float
㉚ Gasket
㉛ Drain plug

LUBRICATION SYSTEM

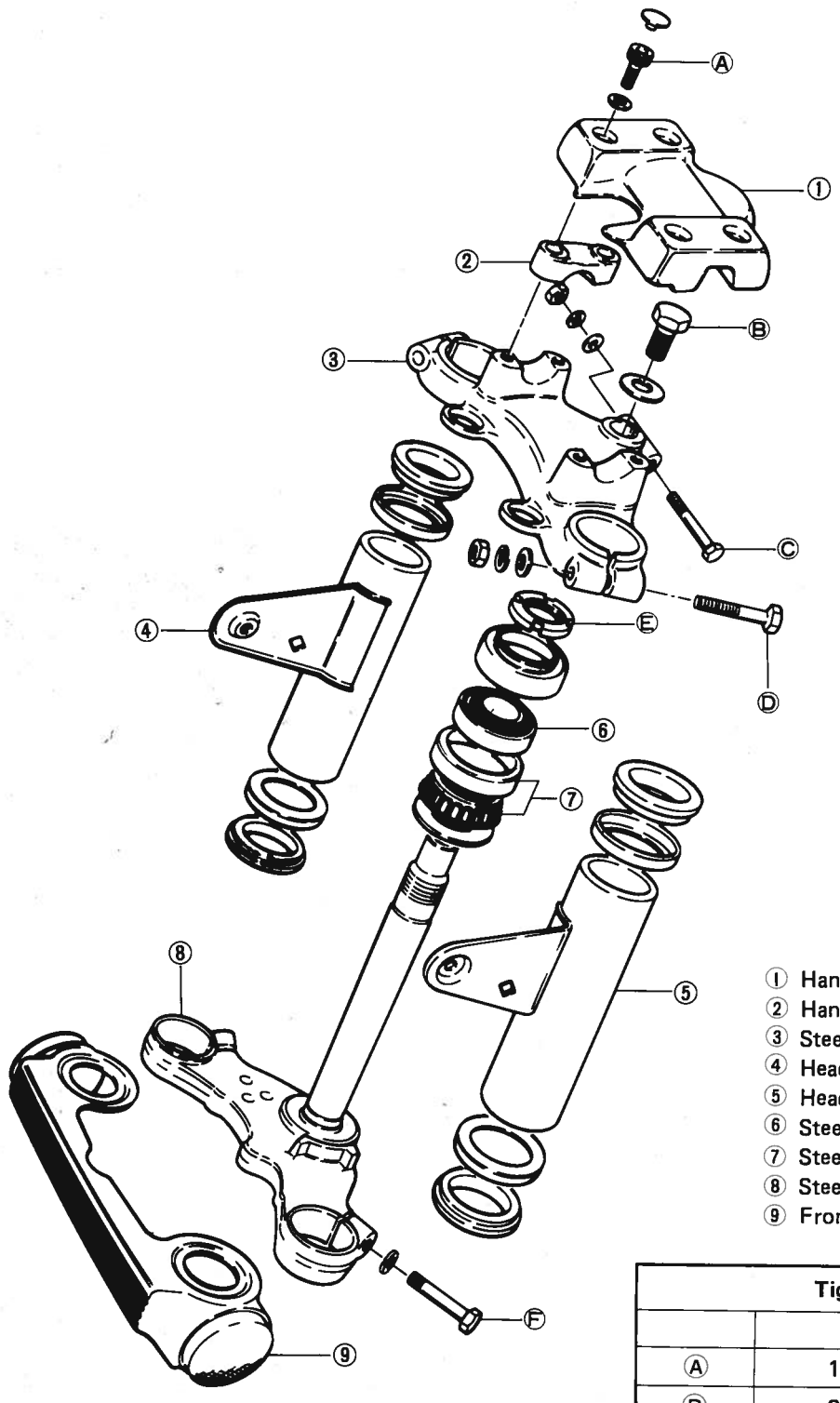


SPEEDOMETER AND TACHOMETER



① Meter hood
② Bulb (12V, 1.1W)
③ Gear position indicator
④ Trip meter knob
⑤ Speedometer
⑥ Tachometer
⑦ Meter case
⑧ Meter bracket
⑨ Cushion
⑩ Cushion
⑪ Socket
⑫ Bulb (12V, 3.4W)
⑬ Speedometer cable
⑭ Tachometer cable

STEERING STEM



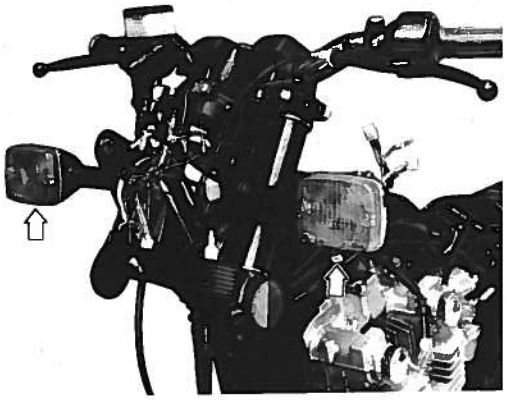
① Handlebar pad
② Handlebar clamp bracket
③ Steering stem upper bracket
④ Headlight bracket (R)
⑤ Headlight bracket (L)
⑥ Steering stem bearing (Upper)
⑦ Steering stem bearing (Lower)
⑧ Steering stem lower bracket
⑨ Front fork cover

	Tightening torque	
	N·m	kg-m
Ⓐ	12 – 20	1.2 – 2.0
Ⓑ	36 – 52	3.6 – 5.2
Ⓒ	15 – 25	1.5 – 2.5
Ⓓ	20 – 30	2.0 – 3.0
Ⓔ	40 – 50	4.0 – 5.0
Ⓕ	25 – 40	2.5 – 4.0

REMOVAL

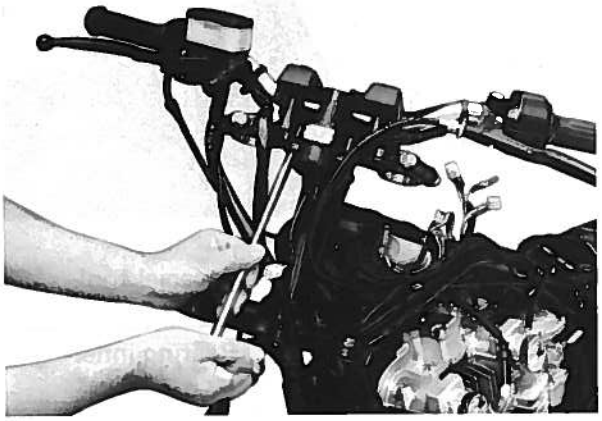
- Remove the following items.
* Seat
* Fuel tank
* Front wheel
* Front fork
* Speedometer and tachometer
* Headlight

- Take off turn signal light with headlight bracket and front fork cover.

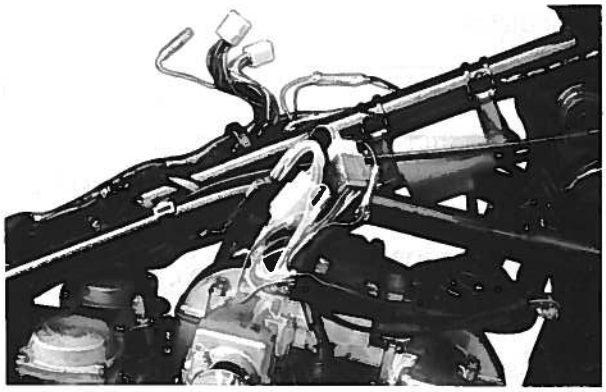


- Remove ignition switch by using special tool.

09911-73730	T type hexagon wrench

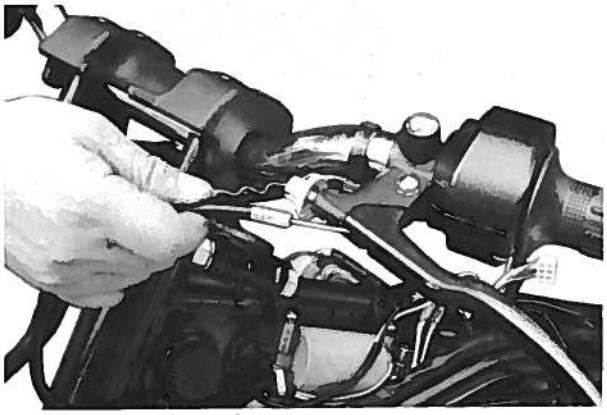


- Disconnect the right handlebar switch lead wires.



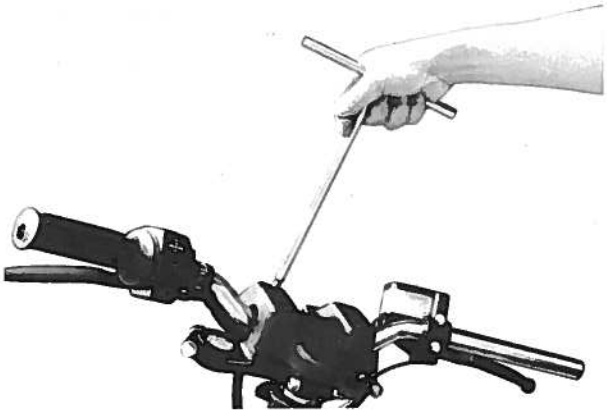
- Take off right handlebar switch.

- Disconnect clutch cable.



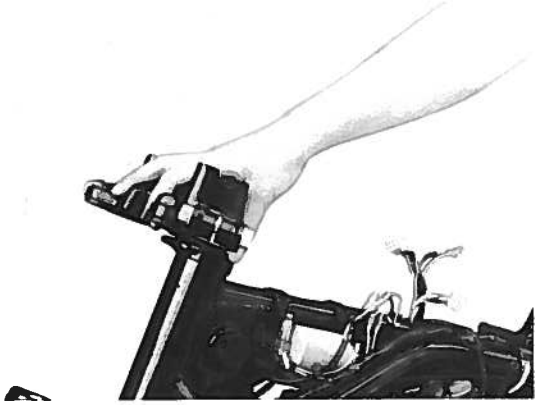
- Remove handlebar pad caps.
- Remove handlebar clamp bolts and take off handlebars.

09914-25811	"T" type hexagon wrench



- Remove steering stem head bolt and loosen clamp bolt.

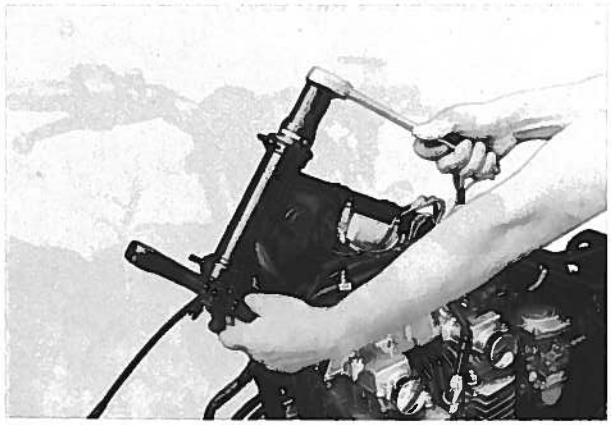
- Take off steering stem upper bracket.



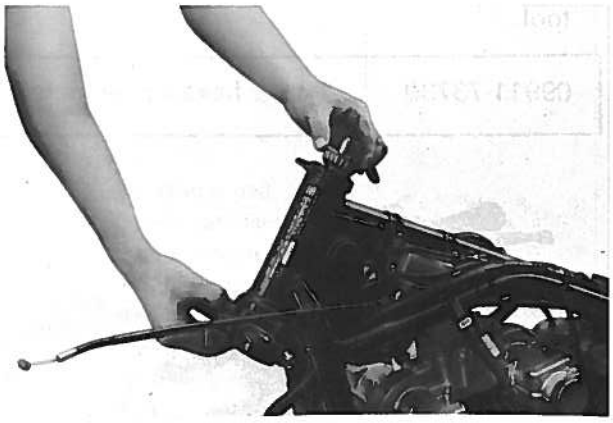
- Remove steering stem nut by using special tool.

NOTE:
Hold the steering stem lower bracket by hand to prevent dropping.

09940-14910	Steering nut socket wrench

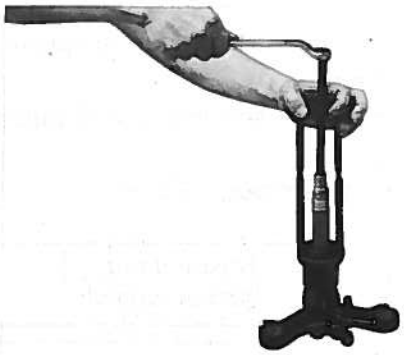


- Draw out bearing and steering stem lower bracket.



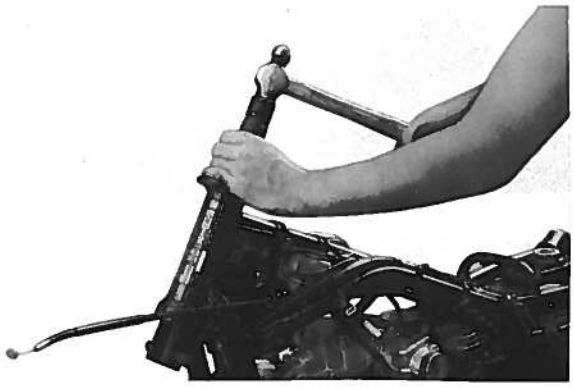
- Draw out bearing by using special tool.

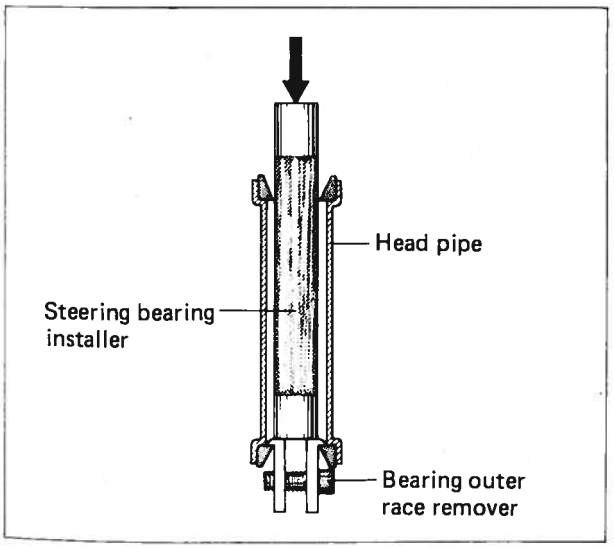
09941-84510	Bearing inner race remover



- Draw out bearing outer races upper and lower by using special tool.

09941-54910	Steering race remover
09941-74910	Steering bearing installer





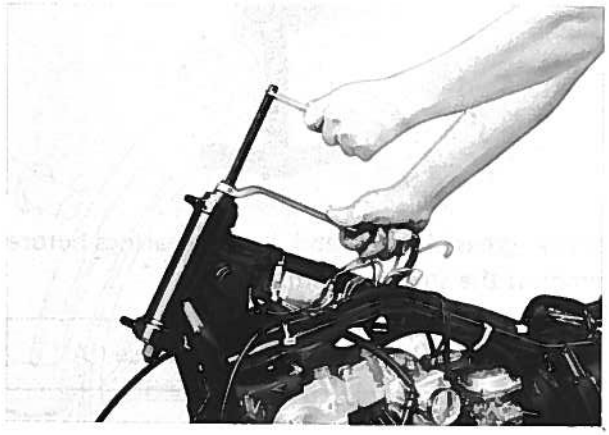
REASSEMBLY

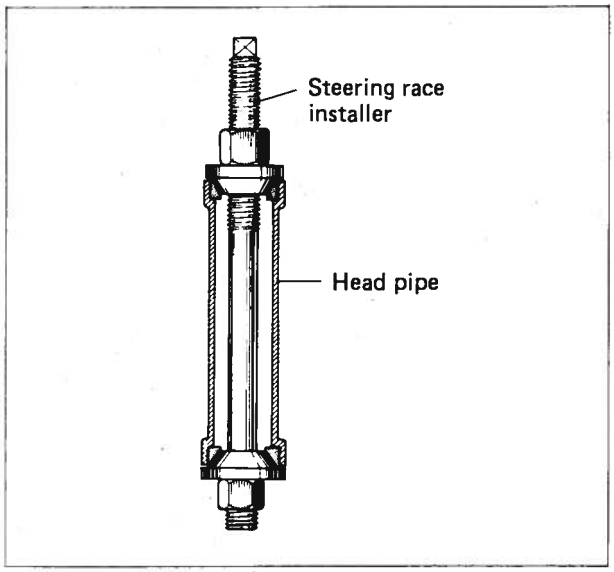
Reassemble and remount the steering stem in the reverse order of disassembly and removal and also carry the following steps.

OUTER RACES

Press in the upper and lower outer races using special tool.

09941-34511	Steering outer race installer

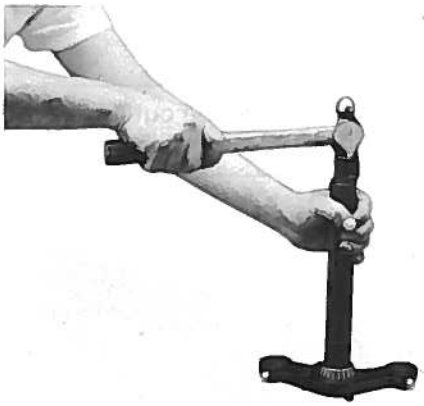




BEARINGS

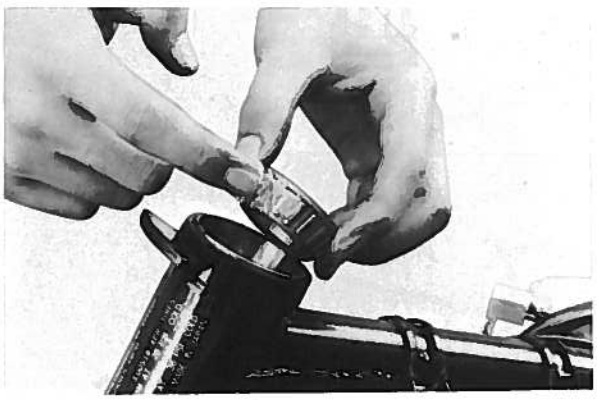
Press in the lower bearing by using special tool.

09941-74910	Steering bearing installer



Apply grease upper and lower bearings before remount the steering stem.

99000-25010	Suzuki super grease "A"



STEM NUT

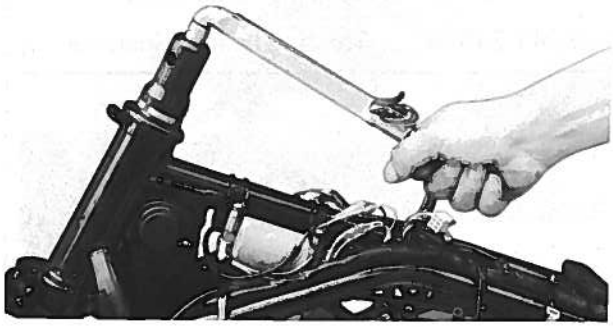
Tighten the steering stem nut by using special tool with specified torque.

Turn the front forks right and left 5 or 6 times to seat the bearings.

Turn out the steering stem out 1/2 turn.

09940-14910	Steering nut socket wrench

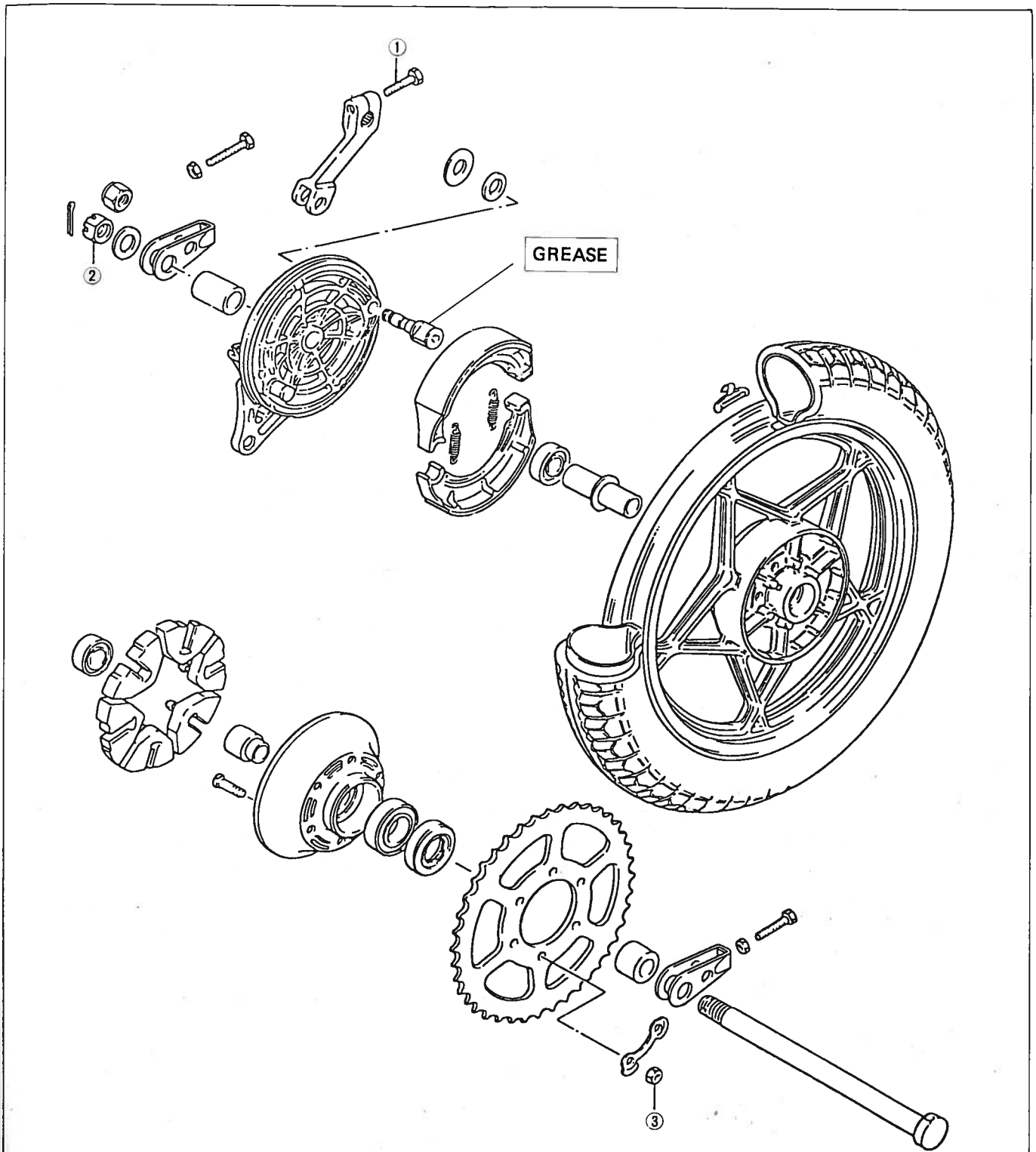
Tightening torque	40 – 50 N·m (4.0 – 5.0 kg-m)



HANDLEBARS

Set the handlebars to match its punched mark to the protrusion of the handlebar pad.

REAR WHEEL

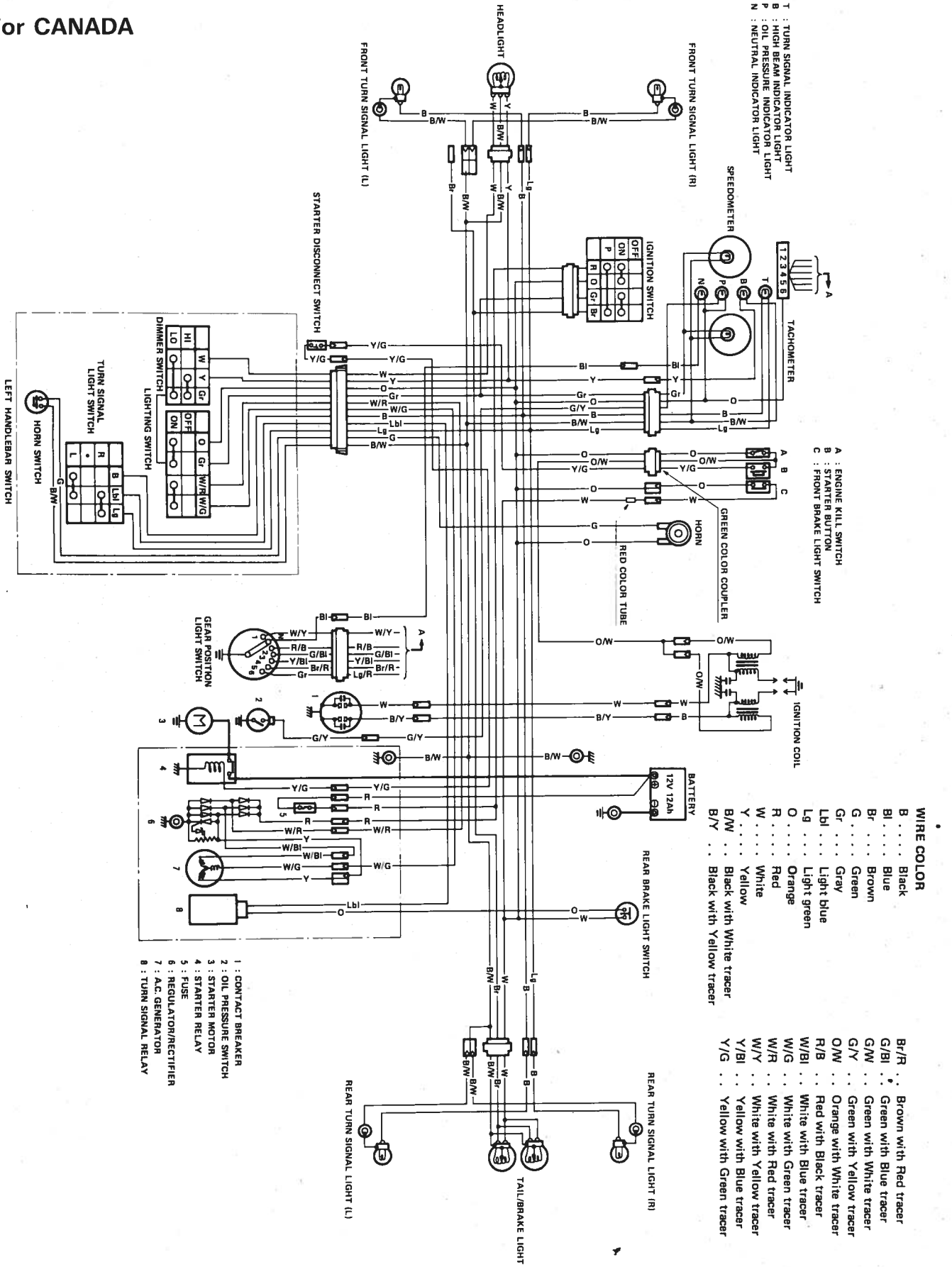


TIGHTENING TORQUE

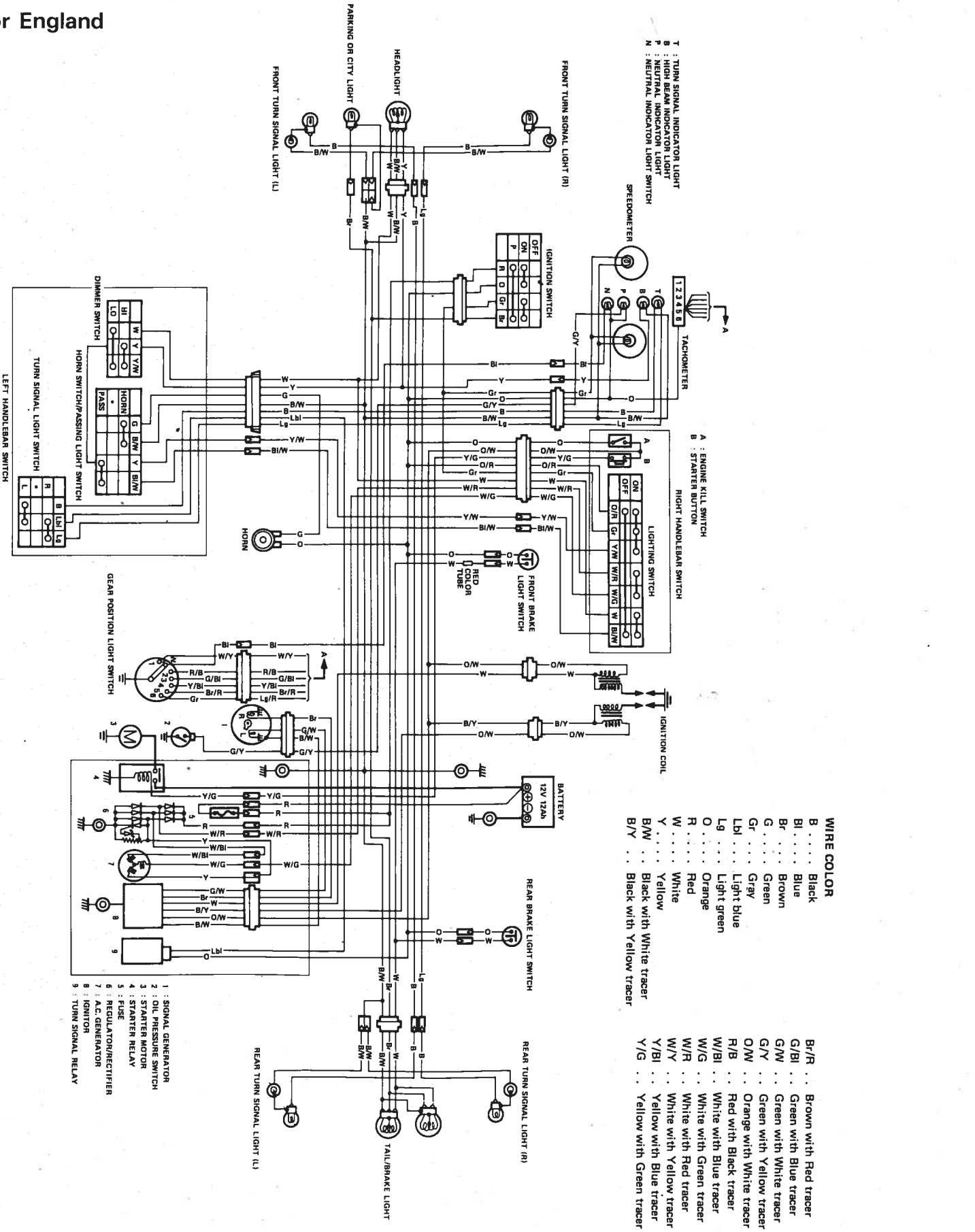
Item	N·m	kg-m
①	5 – 8	0.5 – 0.8
②	50 – 80	5.0 – 8.0
③	25 – 40	2.5 – 4.0

WIRING DIAGRAM

For CANADA



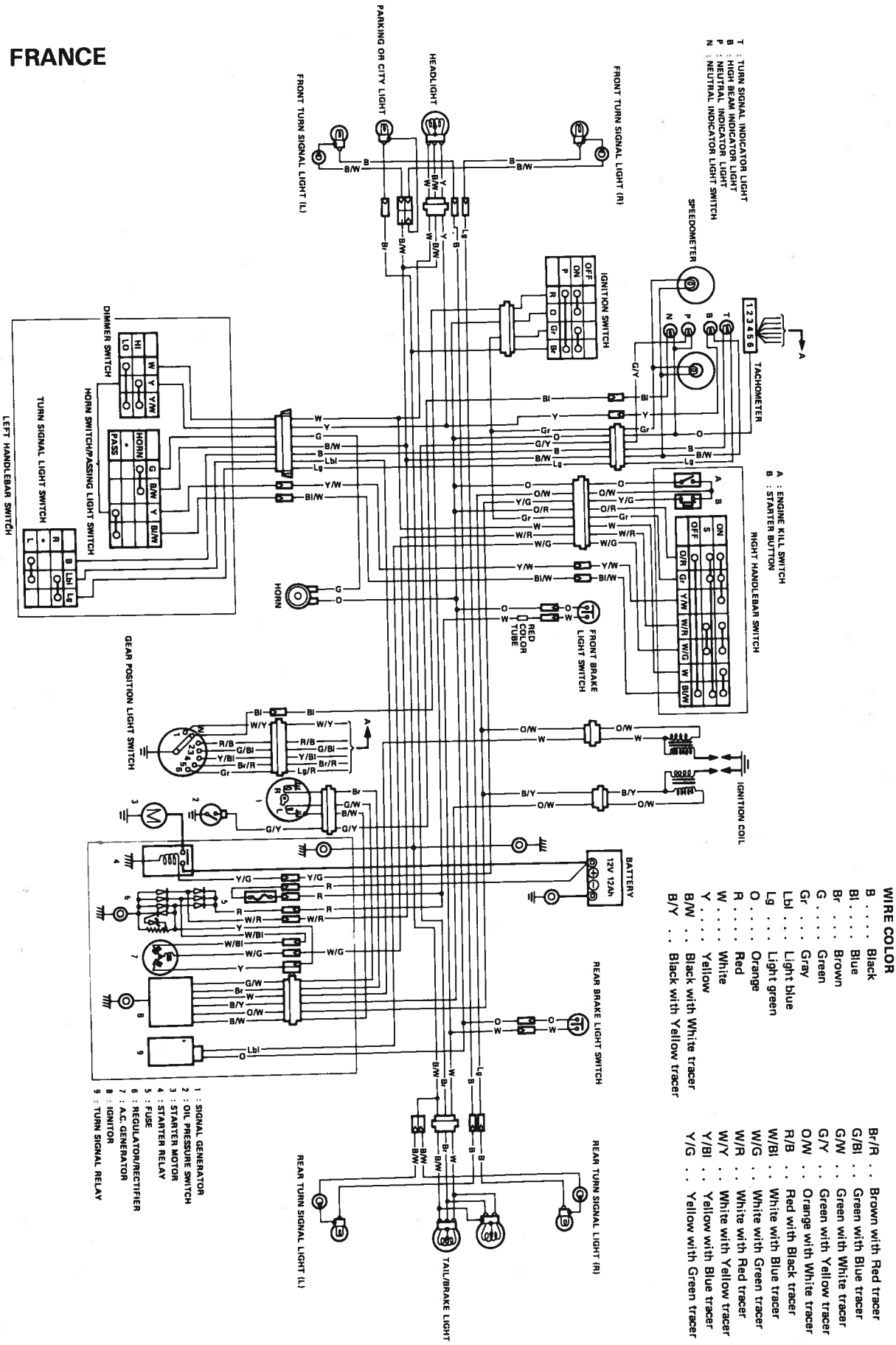
For England



WIRE COLOR

B	Black
Bl	Blue
Br	Brown
G	Green
Gr	Gray
Lbl . . .	Light blue
Lg . . .	Light green
O	Orange
R	Red
W	White
Y	Yellow
B/W . .	Black with White tracer
B/Y . .	Black with Yellow tracer
Br/R . .	Brown with Red tracer
G/Bl . .	Green with Blue tracer
G/W . .	Green with White tracer
G/Y . .	Green with Yellow tracer
O/W . .	Orange with White tracer
R/B . .	Red with Black tracer
W/Bl . .	White with Blue tracer
W/G . .	White with Green tracer
W/R . .	White with Red tracer
W/Y . .	White with Yellow tracer
Y/Bl . .	Yellow with Blue tracer
Y/G . .	Yellow with Green tracer

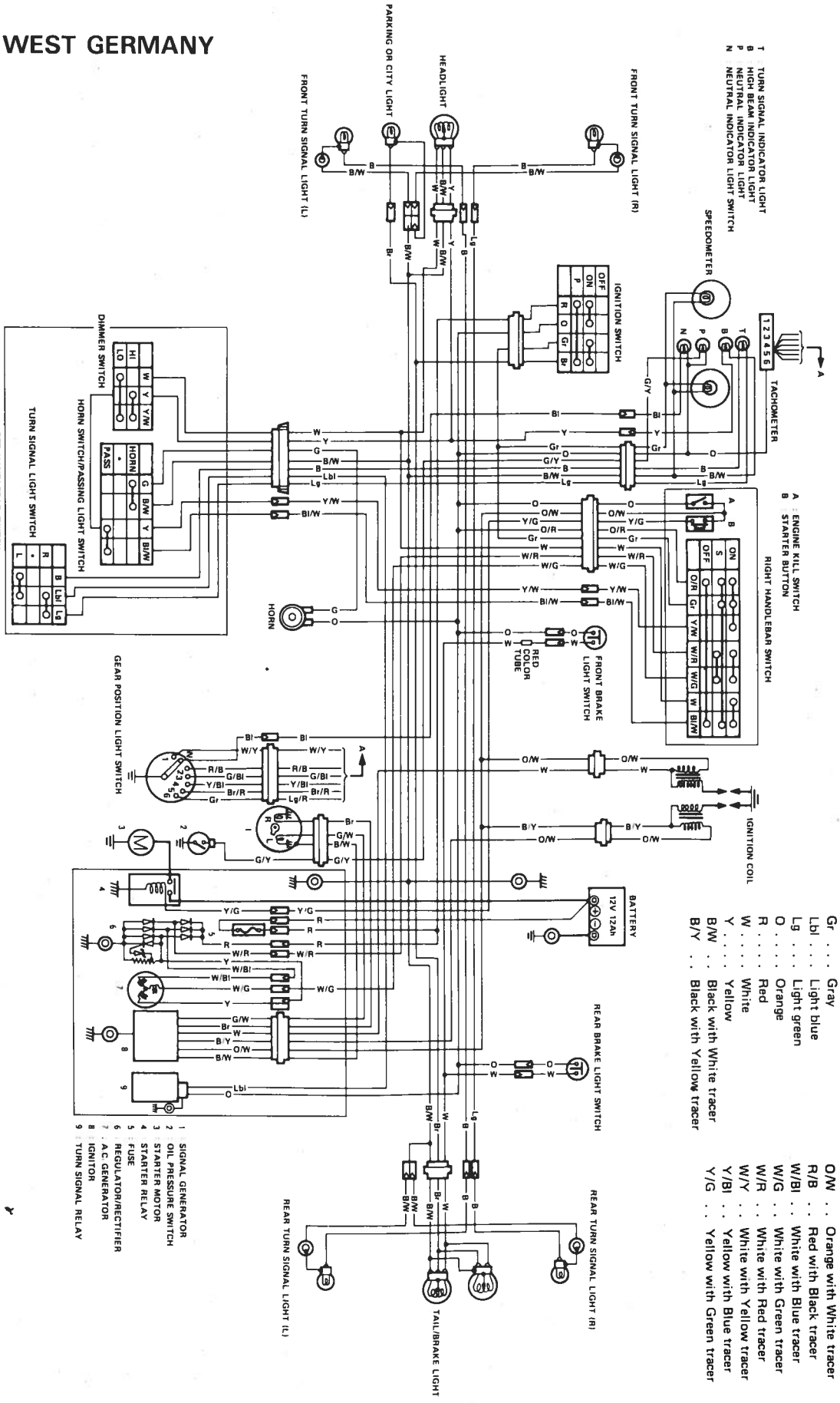
For FRANCE



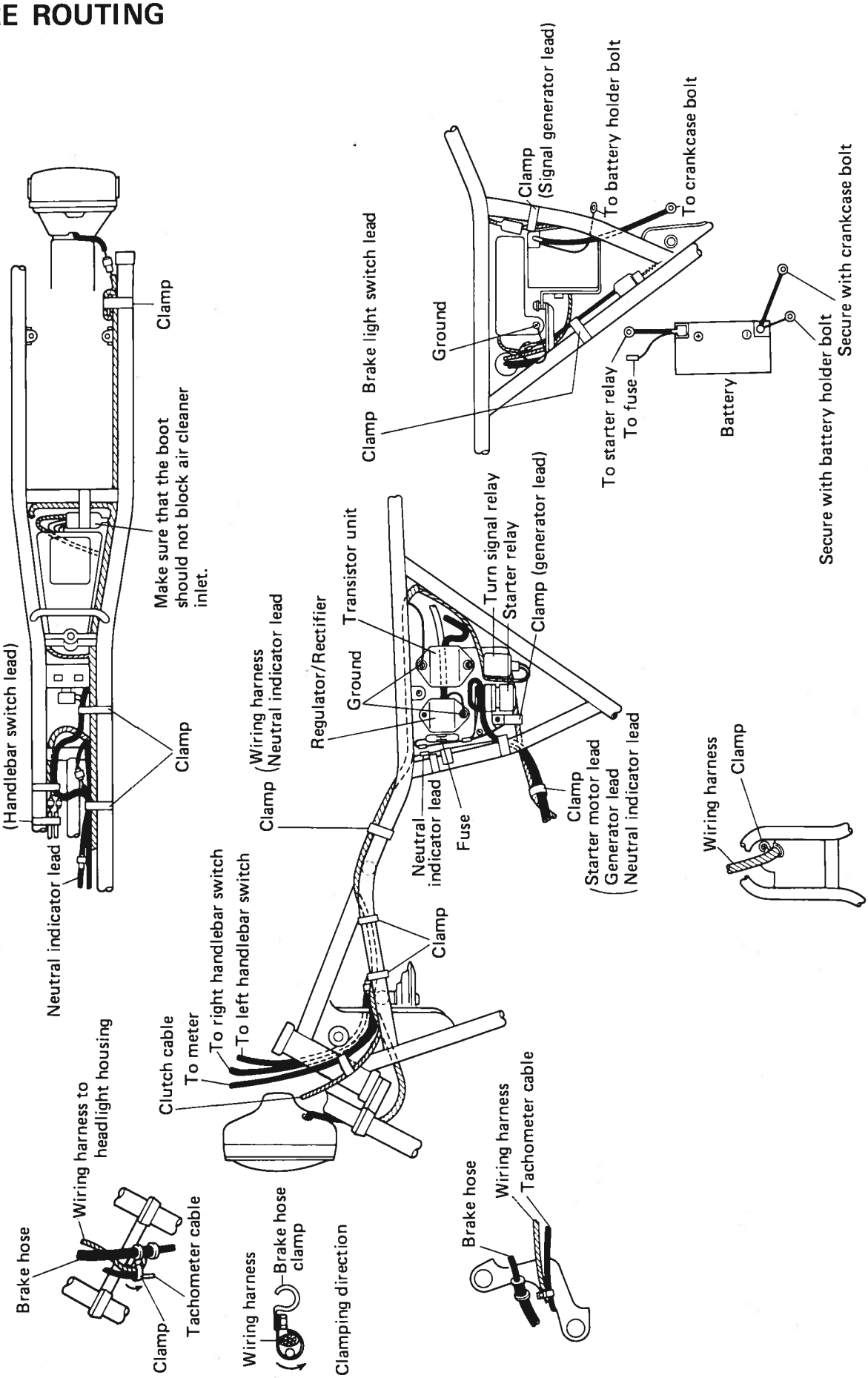
WIRE COLOR

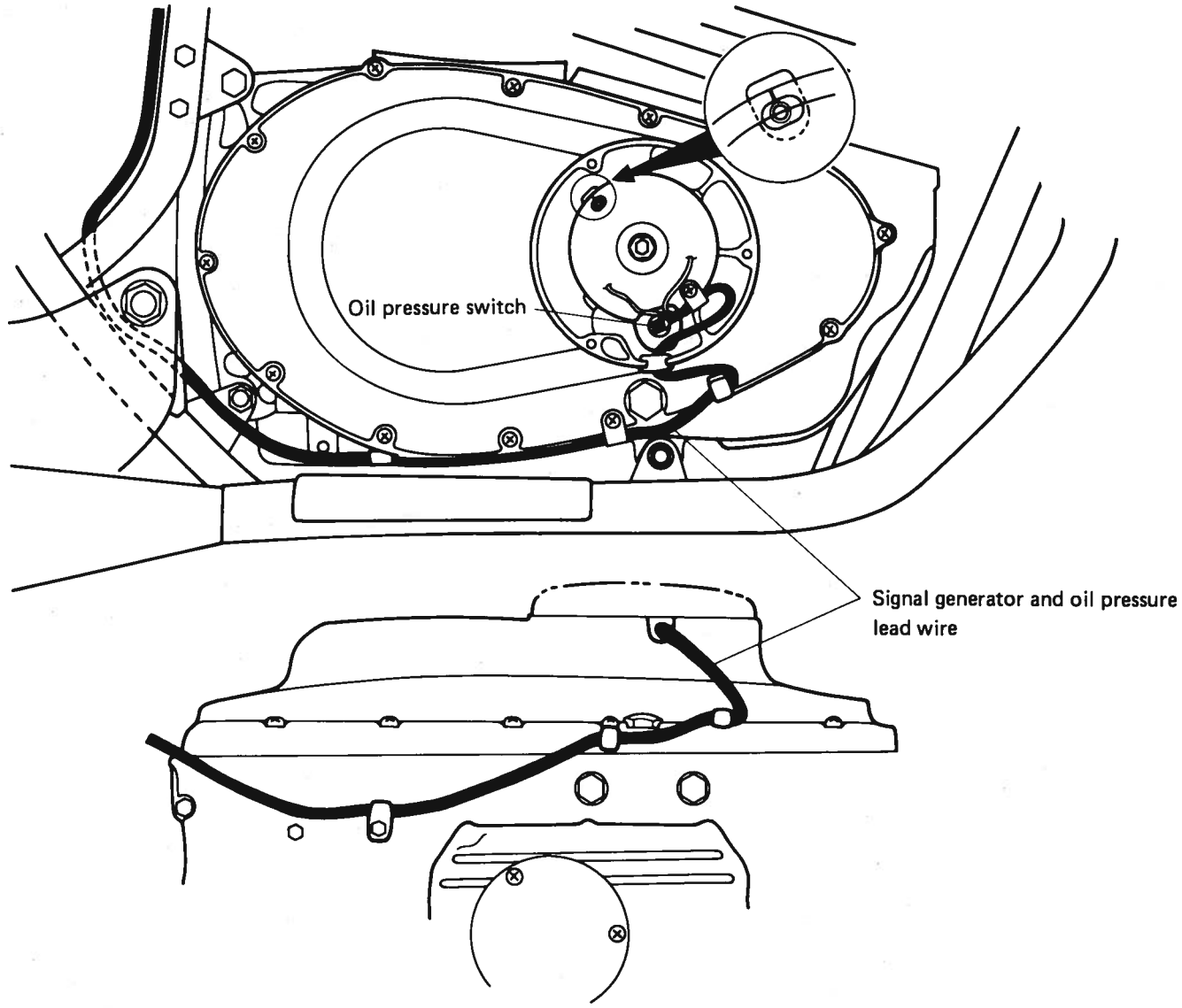
B	Black	Br/R	Brown with Red tracer
Bl	Blue	G/Bl	Green with Blue tracer
Br	Brown	G/W	Green with White tracer
G	Green	G/Y	Green with Yellow tracer
Gr	Gray	O/W	Orange with White tracer
Lbl	Light blue	R/B	Red with Black tracer
Lg	Light green	W/Bl	White with Blue tracer
O	Orange	W/G	White with Green tracer
R	Red	W/R	White with Red tracer
W	White	W/Y	White with Yellow tracer
Y	Yellow	Y/Bl	Yellow with Blue tracer
B/W	Black with White tracer	Y/G	Yellow with Green tracer
B/Y	Black with Yellow tracer		

For WEST GERMANY

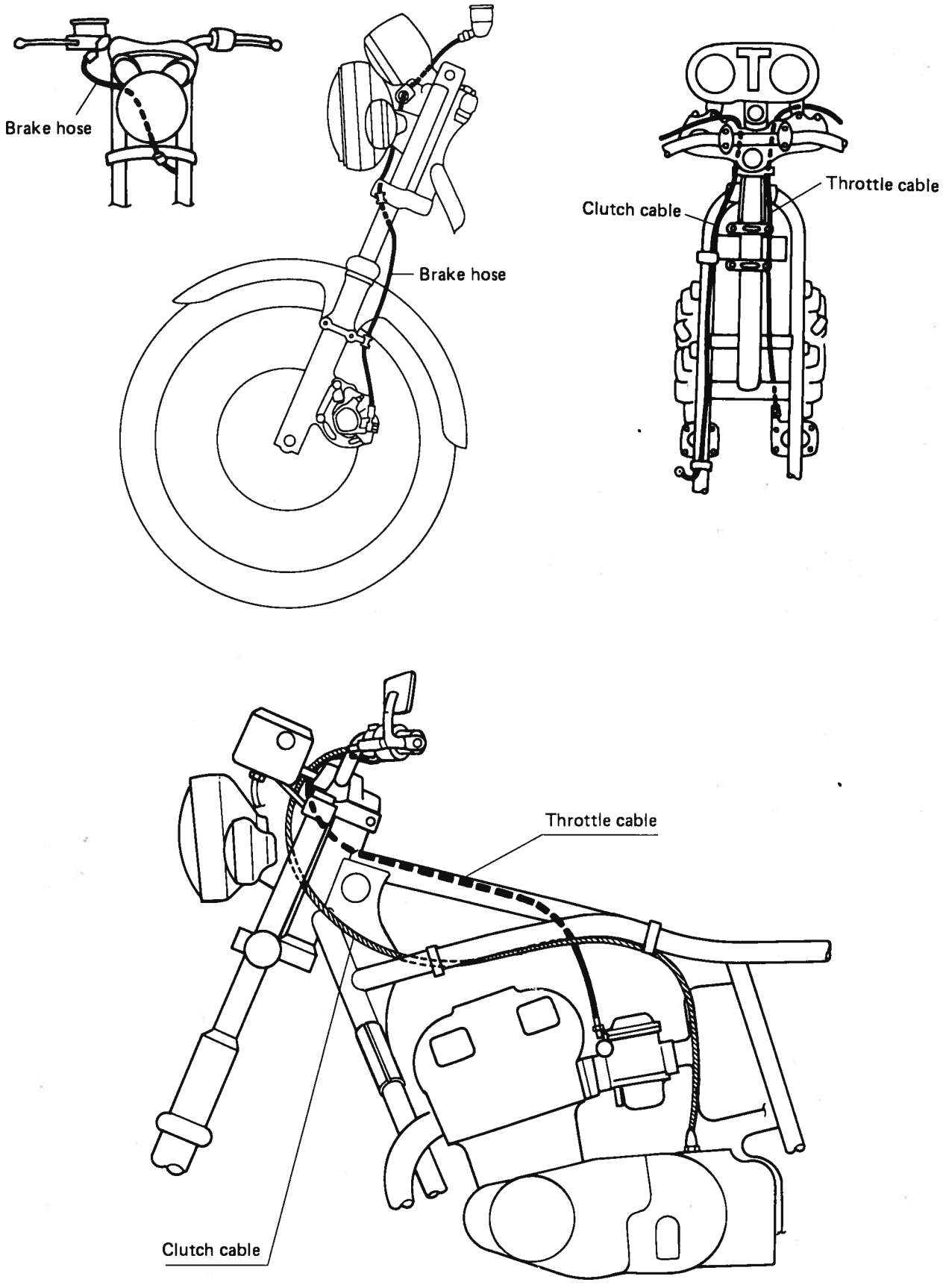


WIRE ROUTING




Oil pressure switch
Signal generator and oil pressure lead wire

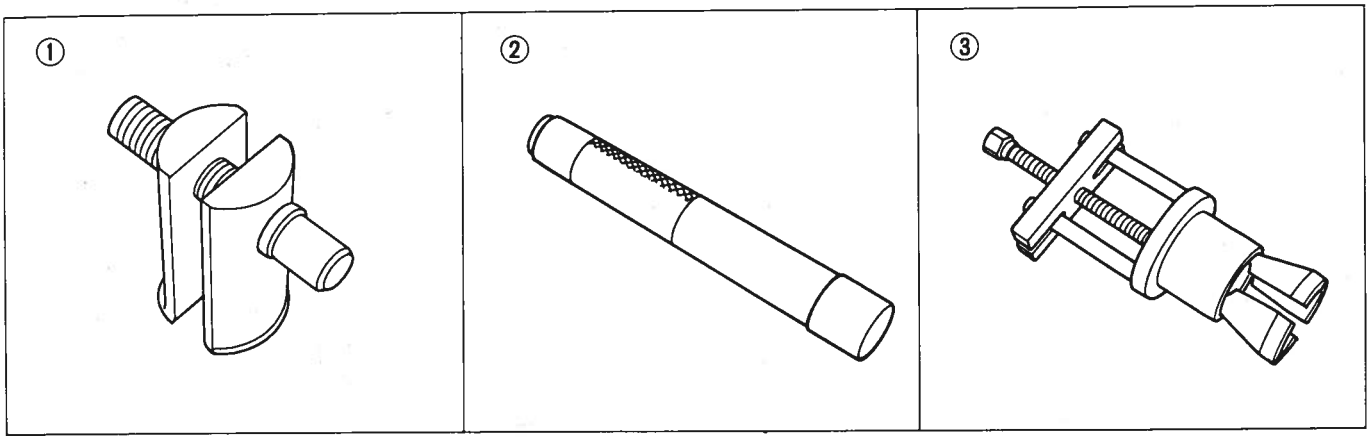
CABLE ROUTING



SPECIAL TOOLS

Following special tools are required for servicing the steering head items of the GSX400.

Item	Part No.	Part Name
①	09941-54911	Steering race remover
②	09941-74910	Steering bearing installer
③	09941-84510	Bearing inner race remover



TIGHTENING TORQUE

ENGINE

ITEM	N·m	kg-m
Cylinder head cover bolt	9 – 10	0.9 – 1.0
Cam shaft journal holder bolt	8 – 12	0.8 – 1.2
Cam shaft sprocket bolt	9 – 12	0.9 – 1.2
Rocker arm shaft stopper bolt	8 – 10	0.8 – 1.0
Valve clearance adjuster lock nut	9 – 11	0.9 – 1.1
Cylinder head bolt	7 – 11	0.7 – 1.1
Cylinder head nut	35 – 40	3.5 – 4.0
Cam chain tensioner adjuster fitting bolt	6 – 8	0.6 – 0.8
Cam chain tensioner shaft assy	31 – 35	3.1 – 3.5
Cam chain tensioner adjuster lock nut	9 – 14	0.9 – 1.4
Cam chain tensioner shaft lock nut	8 – 10	0.8 – 1.0
Starter motor bolt	4 – 7	0.4 – 0.7
Generator rotor bolt	90 – 100	9.0 – 10.0
Starter clutch allen bolt	15 – 20	1.5 – 2.0
Primary drive gear nut	90 – 110	9.0 – 11.0
Counter balancer center bolt	35 – 45	3.5 – 4.5
Con rod nut	30 – 34	3.0 – 3.4
Oil pressure regulator	17 – 20	1.7 – 2.0
Governor bolt	13 – 23	1.3 – 2.3
Pressure switch	13 – 17	1.3 – 1.7
Neutral stopper housing	18 – 28	1.8 – 2.8
Clutch spring bolt	4 – 6	0.4 – 0.6
Clutch sleeve hub nut	40 – 60	4.0 – 6.0
Gearshifting arm stopper	15 – 23	1.5 – 2.3
Oil pan bolt	10	1.0
Crankcase bolt ① – ⑧	20 – 24	2.0 – 2.4
⑨ – ⑫	9 – 13	0.9 – 1.3
6 mm bolt	10	1.0
8 mm bolt	20	2.0
Engine sprocket nut	90 – 110	9.0 – 11.0
Engine mounting bolt 8 mm	20 – 30	2.0 – 3.0
10 mm	30 – 37	3.0 – 3.7
Coupler tube bolt	9 – 14	0.9 – 1.4
Exhaust pipe clamp bolt	9 – 14	0.9 – 1.4

CHASSIS

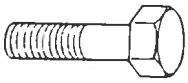
ITEM	N·m	kg-m
Front axle nut	36 – 52	3.6 – 5.2
Front axle holder nut	15 – 25	1.5 – 2.5
Front fork damper rod bolt	15 – 25	1.5 – 2.5
Disc plate bolt	15 – 25	1.5 – 2.5
Caliper bolt	25 – 40	2.5 – 4.0
Caliper axle bolt	15 – 20	1.5 – 2.0
Caliper bleeder	6 – 9	0.6 – 0.9
Front fork lower clamp bolt	25 – 40	2.5 – 4.0
Front fork upper clamp bolt	20 – 30	2.0 – 3.0
Front fork cap bolt	15 – 30	1.5 – 3.0
Steering stem nut	40 – 50	4.0 – 5.0
Steering stem clamp bolt	15 – 25	1.5 – 2.5
Steering stem head bolt	36 – 52	3.6 – 5.2
Handlebars clamp bolt	12 – 20	1.2 – 2.0
Brake hose union bolt	20 – 25	2.0 – 2.5
Master cylinder clamp bolt	5 – 8	0.5 – 0.8
Brake pedal arm bolt	10 – 15	1.0 – 1.5
Swinging arm pivot nut	50 – 58	5.0 – 5.8
Front footrest bolt 10 mm	27 – 43	2.7 – 4.3
8 mm	15 – 25	1.5 – 2.5
Muffler bracket mounting bolt	27 – 43	2.7 – 4.3
Rear footrest bolt	27 – 43	2.7 – 4.3
Muffler bracket bolt	20 – 30	2.0 – 3.0
Rear torque link nut	20 – 30	2.0 – 3.0
Rear shock absorber fitting nut	20 – 30	2.0 – 3.0
Rear axle nut	50 – 80	5.0 – 8.0
Rear sprocket nut	25 – 40	2.5 – 4.0
Rear brake cam lever bolt	5 – 8	0.5 – 0.8
Spoke nipple	4 – 5	0.4 – 0.5

TIGHTENING TORQUE CHART

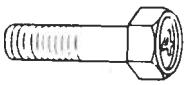
For other bolts and nuts not listed, refer to this chart:

Tightening torque

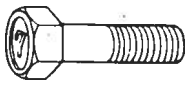
Bolt Diameter (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	kg-m	lb-ft	N·m	kg-m	lb-ft	N·m
4	0.1 – 0.2	0.7 – 1.5	1 – 2	0.15 – 0.3	1.0 – 2.0	1.5 – 3
5	0.2 – 0.4	1.5 – 3.0	2 – 4	0.3 – 0.6	2.0 – 4.5	3 – 6
6	0.4 – 0.7	3.0 – 5.0	4 – 7	0.8 – 1.2	6.0 – 8.5	8 – 12
8	1.0 – 1.6	7.0 – 11.5	10 – 16	1.8 – 2.8	13.0 – 20.0	18 – 28
10	2.2 – 3.5	16.0 – 25.5	22 – 35	4.0 – 6.0	29.0 – 43.5	40 – 60
12	3.5 – 5.5	25.5 – 40.0	35 – 55	7.0 – 10.0	50.5 – 72.5	70 – 100
14	5.0 – 8.0	36.0 – 58.0	50 – 80	11.0 – 16.0	79.5 – 115.5	110 – 160
16	8.0 – 13.0	58.0 – 94.0	80 – 130	17.0 – 25.0	123.0 – 181.0	170 – 250
18	13.0 – 19.0	94.0 – 137.5	130 – 190	20.0 – 28.0	144.5 – 202.5	200 – 280



Conventional Bolt



"4" Marked Bolt



"7" Marked Bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	23 (0.90)	———
	EX.	20 (0.78)	———
* Valve lift	IN.	7.0 (0.28)	———
	EX.	7.0 (0.28)	———
Valve clearance (when cold)	IN. & EX.	0.08 – 0.13 (0.003 – 0.005)	———
Valve guide to Valve stem clearance	IN.	0.025 – 0.052 (0.0010 – 0.0020)	0.090 (0.0035)
	EX.	0.040 – 0.067 (0.0016 – 0.0026)	0.100 (0.0039)
Valve guide I.D.	IN. & EX.	5.500 – 5.512 (0.2165 – 0.2170)	———
Valve stem O.D.	IN.	5.460 – 5.475 (0.2150 – 0.2156)	———
	EX.	5.445 – 5.460 (0.2144 – 0.2150)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	3.6 (0.14)
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	———	31.9 (1.26)
	OUTER	———	35.5 (1.40)
Valve spring tension (IN. & EX.)	INNER	4.4 – 6.4 kg (9.7 – 14.1 lbs) at length 28.5 mm (1.12 in)	———
	OUTER	6.5 – 8.9 kg (14.3 – 19.6 lbs) at length 32.0 mm (1.26 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
* Cam height	IN.	34.650 – 34.690 (1.3642 – 1.3657)	34.350 (1.3524)
	EX.	34.650 – 34.690 (1.3642 – 1.3657)	34.350 (1.3524)
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 20 pitch length		———	157.80 (6.213)
Cam chain pin (at arrow "3")		20th pin	———
Rocker arm I.D.	IN. & EX.	12.000 – 12.018 (0.4724 – 0.4731)	———
Rocker arm shaft O.D.	IN. & EX.	11.973 – 11.984 (0.4714 – 0.4718)	———
Cylinder head distortion		———	0.10 (0.004)

*** Only for E-22**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.350 – 33.390 (1.3130 – 1.3146)	33.050 (1.3012)
	EX.	33.350 – 33.390 (1.3130 – 1.3146)	33.050 (1.3012)
Valve lift	IN.	4.8 (0.19)	———
	EX.	4.8 (0.19)	———

PISTON + RING + CYLINDER

Unit: mm (in)

ITEM			STANDARD	LIMIT
Compression pressure			10 – 14 kg/cm² (142 – 199 psi)	8 kg/cm² (114 psi)
Compression pressure difference			———	2 kg/cm² (28.4 psi)
Piston to Cylinder clearance			0.050 – 0.060 (0.0020 – 0.0024)	0.120 (0.0047)
Cylinder bore			67.000 – 67.015 (2.6378 – 2.6384)	67.080 (2.6410)
Piston diam.			66.945 – 66.960 (2.6356 – 2.6362) Measure the 15.0 (0.59) from piston skirt end.	66.880 (2.6331)
Cylinder distortion			———	0.10 (0.004)
Piston ring free end gap	1st	N	Approx. 9.5 (0.37)	7.6 (0.30)
		R	Approx. 9.5 (0.37)	7.6 (0.30)
	2nd	N	Approx. 10.0 (0.39)	8.0 (0.31)
		R	Approx. 10.0 (0.39)	8.0 (0.31)
Piston ring end gap	1st		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
	2nd		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
Piston ring groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring groove width	1st		1.21 – 1.23 (0.047 – 0.048)	———
	2nd		1.21 – 1.23 (0.047 – 0.048)	———
	Oil		2.51 – 2.53 (0.099 – 0.100)	———
Piston ring thickness	1st		1.175 – 1.190 (0.0463 – 0.0469)	———
	2nd		1.170 – 1.190 (0.0461 – 0.0469)	———
Piston pin bore			18.002 – 18.008 (0.7087 – 0.7090)	18.030 (0.7098)
Piston pin O.D.			17.996 – 18.000 (0.7085 – 0.7087)	17.980 (0.7079)

CONROD + CRANKSHAFT + BALANCER

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	18.006 – 18.014 (0.7089 – 0.7092)	18.040 (0.7102)
Conrod big end thrust clearance	0.10 – 0.20 (0.004 – 0.008)	0.30 (0.012)
Conrod big end width	22.95 – 23.00 (0.904 – 0.906)	———
Crank pin width	23.10 – 23.15 (0.909 – 0.911)	———
Conrod big end oil clearance	0.024 – 0.048 (0.0009 – 0.0019)	0.080 (0.0031)
Crank pin O.D.	33.976 – 34.000 (1.3376 – 1.3386)	———
Crankshaft journal oil clearance	0.020 – 0.044 (0.0008 – 0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976 – 32.000 (1.2589 – 1.2598)	———
Crankshaft thrust bearing thickness	2.95 – 2.98 (0.116 – 0.117)	2.85 (0.112)
Crankshaft runout	———	0.05 (0.002)
Balancer journal oil clearance	0.020 – 0.044 (0.0008 – 0.0017)	0.080 (0.0031)
Balancer journal O.D.	31.984 – 32.000 (1.2592 – 1.2598)	———

OIL PUMP

Unit: mm (in)

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.071 (76 / 28 x 29 / 38)	———
Oil pressure (at 60°C, 140°F)	Above 3.0 kg/cm² (43 psi) Below 5.5 kg/cm² (78 psi) at 3000 r/min.	———
Tip clearance	———	0.20 (0.008)
Outer rotor clearance	———	0.25 (0.010)
Side clearance	———	0.15 (0.006)

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	4.0 (0.16)	———
Clutch release screw	¼ – ½ turn back	———
Drive plate thickness	2.9 – 3.1 (0.11 – 0.12)	2.6 (0.10)
Drive plate claw width	15.8 – 16.0 (0.62 – 0.63)	15.0 (0.59)
Driven plate thickness	1.60 ± 0.06 (0.063 ± 0.002)	———
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	38.4 (1.51)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in)

ITEM	STANDARD		LIMIT
Primary reduction ratio	2.714 (76 / 28)		———
Final reduction ratio	2.750 (44 / 16)		———
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	0.10 – 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)		———
Countershaft length (Low to 2nd)	$114.7 \pm {}^{0.1}_{0}$ ($4.52 \pm {}^{0.004}_{0}$)		———
Drive chain	Type	D.I.D.: 50 UB	———
	Links	104	———
	20 pitch length	———	324.3 (12.77)
Drive chain slack	20 – 30 (0.8 – 1.2)		———

CARBURETOR

Unit: mm (in)

ITEM	SPECIFICATION		
	E–02, and the others		Only for E-22
Carburetor type	MIKUNI BS34SS	←	←
Bore size	34 (1.34)	←	←
I.D. No.	44201	44202	44220
Idle r/min.	1100 ± 50 r/min.	←	←
Fuel level	5.0 ± 0.5 (0.20 ± 0.02)	←	←
Float height	22.4 ± 1.0 (0.88 ± 0.04)	←	←
Main jet (M.J.)	#117.5	←	←
Main air jet (M.A.J.)	0.6	←	←
Jet needle (J.N.)	5D69-4	←	←
Needle jet (N.J.)	O-9	P-1	P-2
Pilot jet (P.J.)	#42.5	←	←
By pass (B.P.)	0.9, 0.8, 0.8	←	←
Pilot outlet (P.O.)	0.8	←	←
Valve seat (V.S.)	2.0	←	←
Starter jet (G.S.)	#32.5	←	←
Pilot screw (P.S.)	1½	←	←
Pilot air jet (P.A.J.)	#125	←	←
Throttle calbe play	0.5 – 1.0 (0.02 – 0.04)	←	←

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION			
Ignition timing	20° B.T.D.C. Below 1650 ± 100 r/min and 35° B.T.D.C. Above 3500 ± 100 r/min.			Only for E-28
	20° B.T.D.C. Below 1650 ± 100 r/min and 40° B.T.D.C. Above 3500 ± 100 r/min.			Transistorized ignition type
Firing order	1, 2			
Spark plug	Type	NGK: D8EA N. D.: X24ES-U		
	Gap	0.6 – 0.7 (0.024 – 0.028)		
	Type	NGK: DR8ES-L N. D.: X24ESR-U		
	Gap	0.6 – 0.7 (0.024 – 0.028)		
Spark performance	Over 8 (0.3) at 1 atm			
Contact point gap	0.30 – 0.40 (0.012 – 0.016)			E-28
Dwell angle	KOKUSAN	190°		E-28
Condenser capacity	KOKUSAN	0.25 ± 0.03 μF		E-28
Signal coil resistance	Approx.	60 – 80 Ω		Br – B/W, G/W – B/W [Except for E-28]
Ignition coil resistance	Primary	O/W – W or B/Y Approx. 3.5 – 4.5 Ω		Except for E-28
	Secondary	Plug cap – W or B/Y Approx. 23 – 25 kΩ		Except for E-28
	Primary	O/W – W or B Approx. 3 – 5 Ω		E-28
	Secondary	Plug cap – W or B Approx. 21 – 25 kΩ		E-28
Generator No-Load voltage	More than 75V (AC) at 5000 r/min.			
Regulated voltage	14 – 15V at 5000 r/min.			
Starter motor	Brush length	N.D.	Limit: 9 (0.4)	
	Commutator under cut		Limit: 0.2 (0.008)	
Starter relay resistance	Approx. 3 – 4 Ω			
Battery	Type designation	YB10L-A2		
	Capacity	12V 43.2 kC (12 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
Fuse size	Main	15A		

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal free travel		20 – 30 (0.8 – 1.2)	———
Rear brake pedal height		20 (0.8)	———
Brake drum I.D.	Rear	———	160.7 (6.33)
Brake lining thickness		———	1.5 (0.06)
Brake disc thickness	Front	5.0 ± 0.1 (0.20 ± 0.004)	4.5 (0.18)
Brake disc runout		———	0.30 (0.012)
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	———
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	———
Brake caliper cylinder bore	Front	42.850 – 42.926 (1.6870 – 1.6900)	———
	Rear	42.770 – 42.820 (1.6839 – 1.6858)	———
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Tire size	Front	3.00S18 4PR	———
	Rear	3.50S18 4PR	———
		3.75S18 4PR [Only for E-22 and E-26]	———
Tire tread depth	Front	———	1.6 (0.06)
	Rear	———	2.0 (0.08)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	SPEC.
Front fork stroke	140 (5.5)	———	
Front fork spring free length	———	496 (19.5)	
Front fork oil level	197 (7.8)	———	E-22, 28
	186 (7.3)	———	E-02, 04
Rear wheel travel	100 (3.9)	———	
Swinging arm pivot shaft runout	———	0.3 (0.012)	

FUEL + OIL

ITEM	SPECIFICATION	SPEC.
Fuel type	Use gasoline with an octane number of 90 or higher (Research Method), preferably unleaded or low-lead.	
Fuel tank including reserve	14.5 L (3.8 / 3.2 US/Imp gal)	
reserve	3.0 L (3.2 / 2.6 US/Imp qt)	
Engine oil type	SAE 10W/40	
Engine oil capacity — Change	2600 ml (2.7 / 2.3 US/Imp qt)	
Engine oil capacity — Filter change	2900 ml (3.1 / 2.6 US/Imp qt)	
Engine oil capacity — Overhaul	3000 ml (3.2 / 2.6 US/Imp qt)	
Front fork oil type	Mixture ratio SAE 10W/30: A.T.F. = 1 : 1	
Front fork oil capacity (each leg)	145 ml (4.90 / 5.11 US/Imp oz)	E-22, 28
	150 ml (5.07 / 5.28 US/Imp oz)	E-02, 04
Brake fluid type	SAE J1703, DOT3 or DOT4	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING						CONTINUOUS HIGH SPEED RIDING					
	SOLO RIDING			DUAL RIDING			SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	175	1.75	25	175	1.75	25	200	2.00	28	200	2.00	28
REAR	200	2.00	28	225	2.25	32	225	2.25	32	250	2.50	36

WATTAGE

(W)

ITEM		SPECIFICATION								
		E-02	E-04	E-22	E-28	E-24	E-16	E-26		
Headlight	HI	35	36	45	50	45	←	←		
	LO	35	36	40	35	45	40	←		
Parking or city light		3.4	4	←			4	←		
Tail/Brake light		5/21	←	←	8/23	←	5/21	←		
Turn signal light		21	←	←	23	←	21	←		
Speedometer light		3.4	←	←	←	←	←	←		
Tachometer light		3.4	←	←	←	←	←	←		
Turn signal indicator light		3.4	←	←	←	←	←	←		
High beam indicator light		3.4	←	←	←	←	←	←		
Neutral indicator light		3.4	←	←	←	←	←	←		
Oil pressure indicator light		3.4	←	←	←	←	←	←		
Gear position indicator light		1.1	←	←	←	←	←	←		

NOTE:
E-02: England
E-04: France
E-16: Norway
E-22: W. Germany
E-24: Australia
E-26: Denmark
E-28: Canada

GSX400S

GSX400S is a variation model of GSX400E. The differences from GSX400E are equipped with sporty fairing and steel ball type steering.
Except for the items in this section, please refer to the section GSX400E for servicing.

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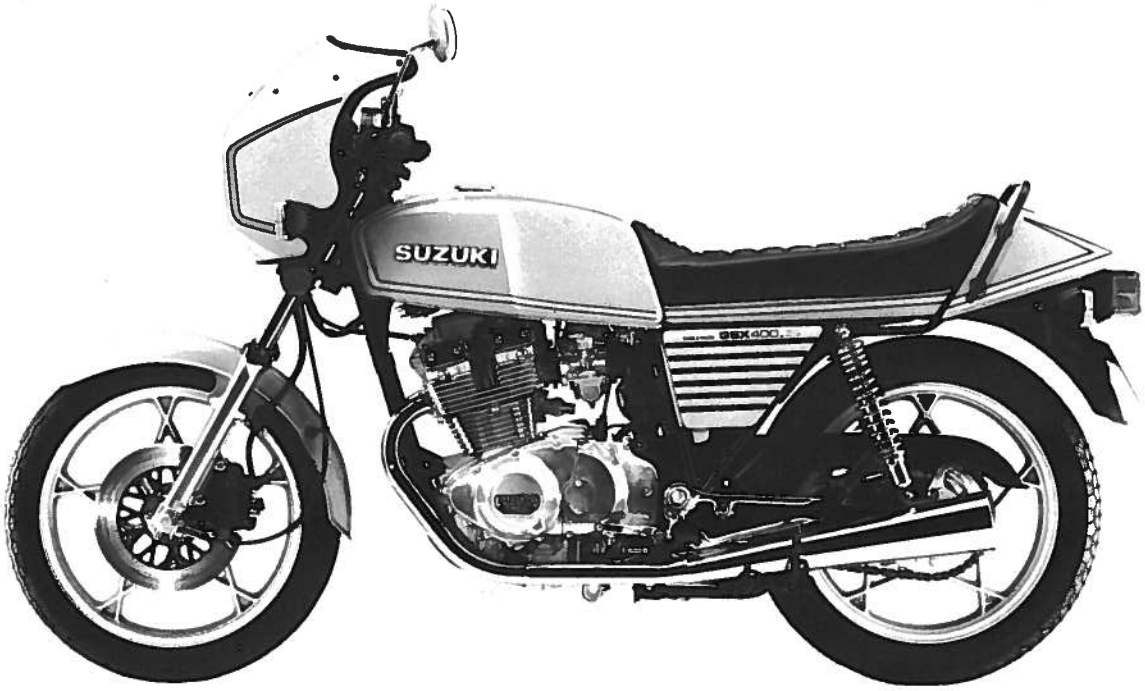
VIEW OF SUZUKI GSX400S

RIGHT SIDE



LEFT SIDE

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 065 mm
Overall width	710 mm
Overall height	1 230 mm
Wheelbase	1 385 mm
Ground clearance	155 mm
Dry mass	175 kg

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	2
Bore	67.0 mm
Stroke	56.6 mm
Piston displacement	399 cm^3
Compression ratio	10.0 : 1
Carburetor	MIKUNI BS34SS, twin
Air cleaner	Polyurethane foam 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	2.714 (76/28)
** Final reduction	2.750 (44/16)
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	DAIDO D.I.D. 50UB, 104 links

**Modification of Rear sprocket for manufactured on and after June, 1981. [2.812 (45/16)]

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swing arm, oil dampened, spring 5-way adjustable
Steering angle	42° (right & left)
Caster	62° 00'
Trail	105 mm
Turning radius	2.4 m
Front brake	Disc brake
Rear brake	Internal expanding
Front tire size	3.00S18 4PR
Rear tire size	3.50S18 4PR

ELECTRICAL

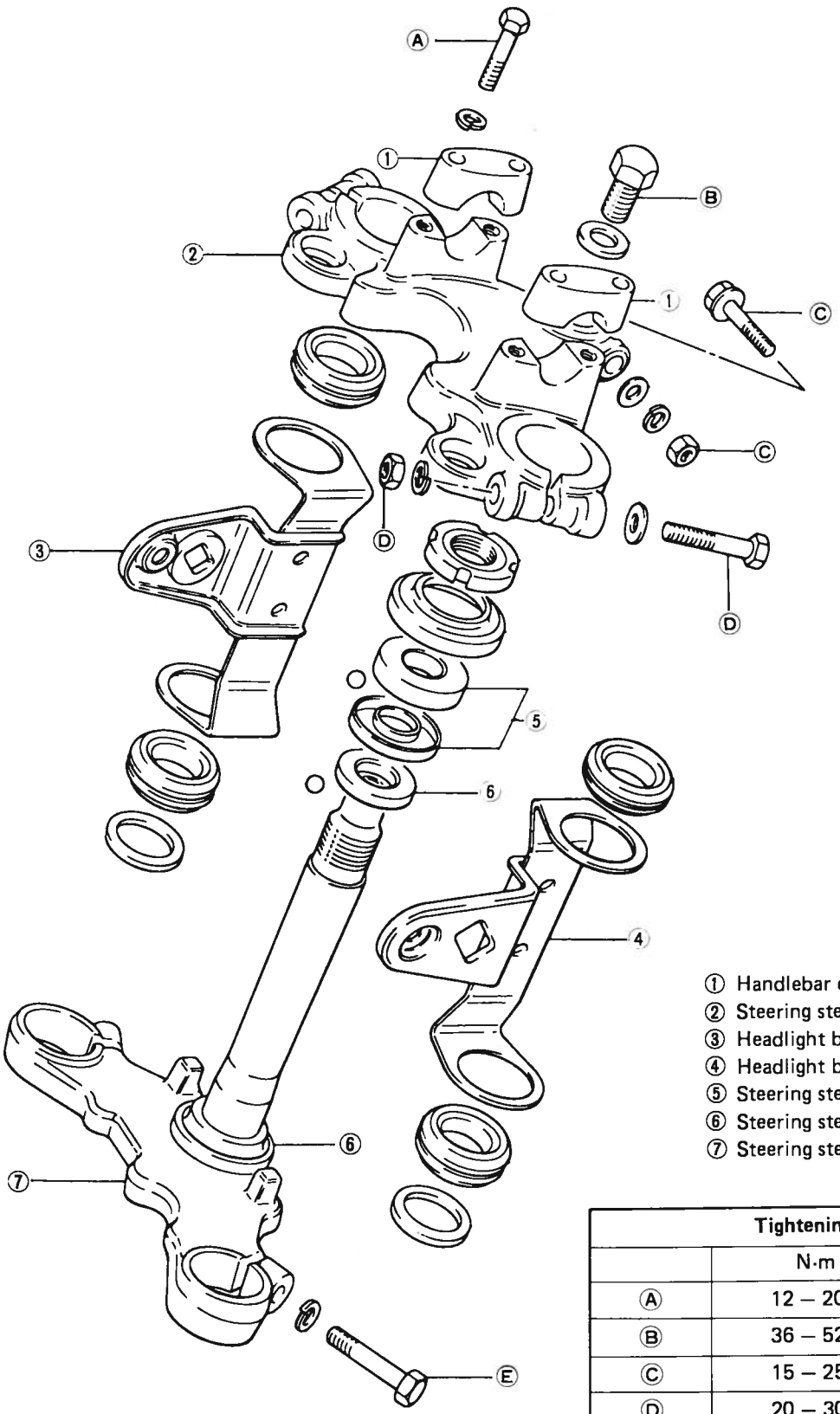
Ignition type	Transistorized
Ignition timing	20° B.T.D.C. below 1,650 r/min and 40° B.T.D.C. above 3,500 r/min
Spark plug	NGK DR8ES-L or NIPPON DENSO X24ESR-U
Battery	12V 12Ah (43.2 kC)/10 Hours
Generator	Three-phase A.C. generator
Fuse	15A

CAPACITIES

Fuel tank including reserve	14.5 L (3.2 Imp gal)
reserve	3.0 L (2.6 Imp qt)
Engine oil when changing	2.6 L (2.3 Imp qt)
Front fork oil	145 ml (5.11 Imp oz) in each leg

STEERING STEM

REMOVAL AND DISASSEMBLY



① Handlebar clamp
② Steering stem upper bracket
③ Headlight bracket (R)
④ Headlight bracket (L)
⑤ Steering stem bearing (Upper)
⑥ Steering stem bearing (Lower)
⑦ Steering stem lower bracket

Tightening torque		
	N·m	kg-m
Ⓐ	12 – 20	1.2 – 2.0
Ⓑ	36 – 52	3.6 – 5.2
Ⓒ	15 – 25	1.5 – 2.5
Ⓓ	20 – 30	2.0 – 3.0
Ⓔ	25 – 40	2.5 – 4.0

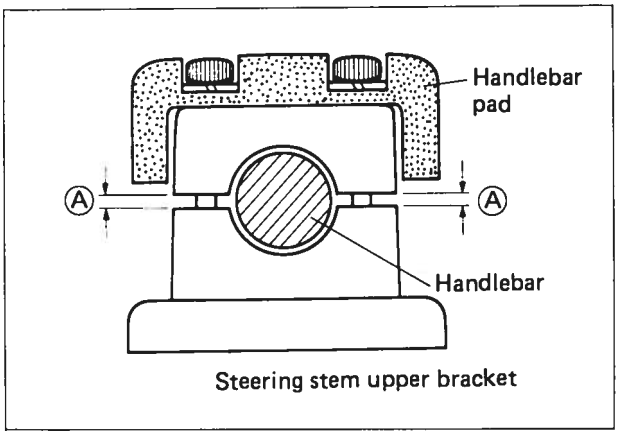
- For inspection and adjustment, please refer to the page 6-36 through 6-41 of GSX250 service manual.
- Take the following steps for mounting the handlebars on the steering stem upper bracket.

HANDLEBARS

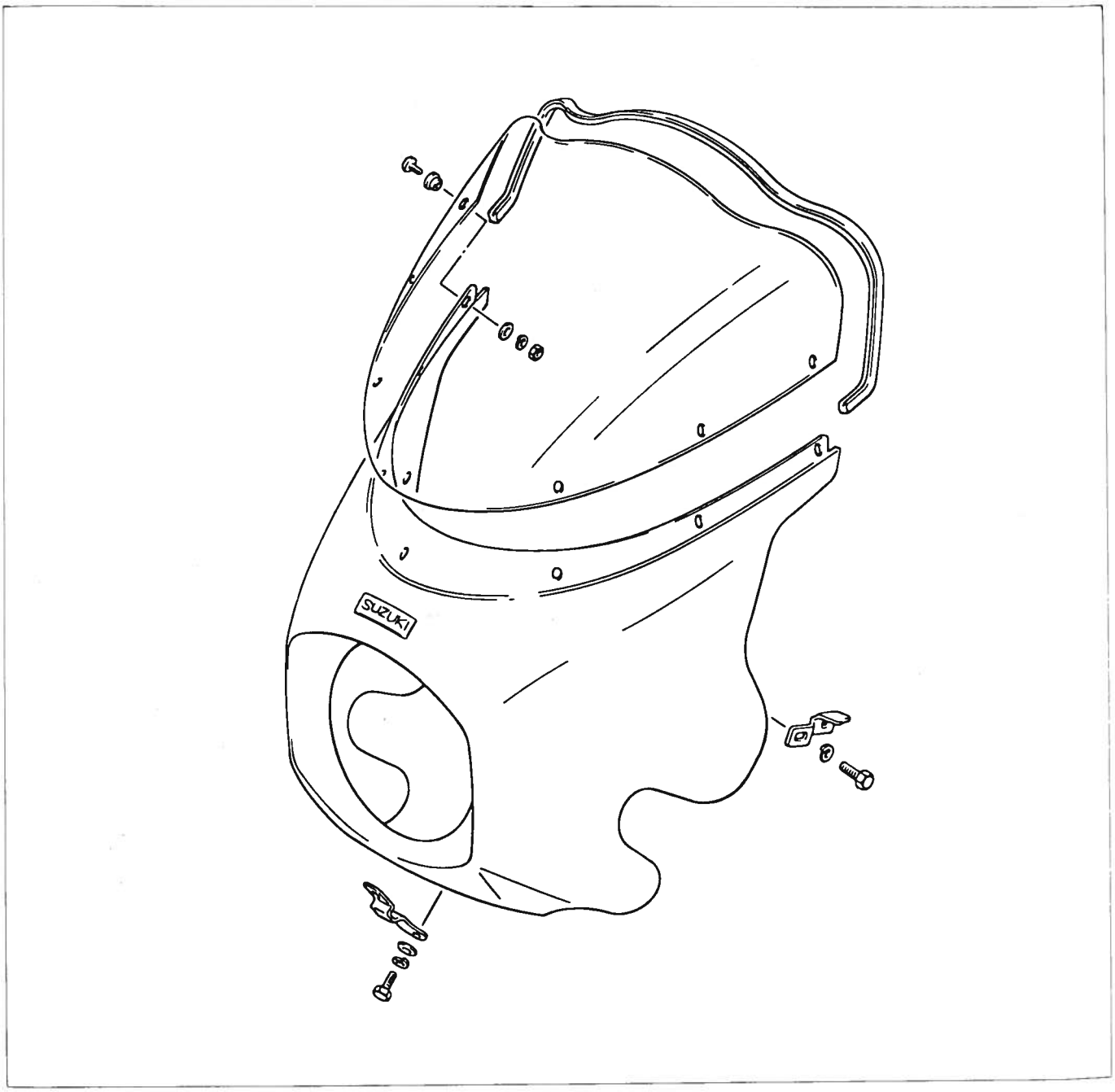
Set the handlebars to match its punched mark to the protrusion of the handlebar pad.

Secure the each handlebars clamp in such a way that the clearances Ⓐ ahead of and behind the handlebars are equalized.

Tightening torque	12 – 20 N·m (1.2 – 2.0 kg-m)

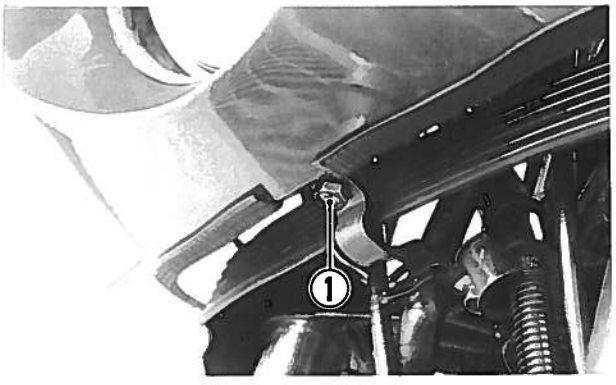


FAIRING

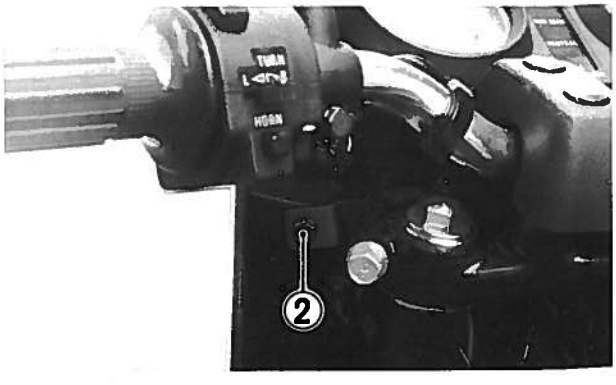


REMOVAL

- Loosen a bolt ① located under fairing.



- Loosen two bolts ② located right and left sides of fairing and remove fairing.



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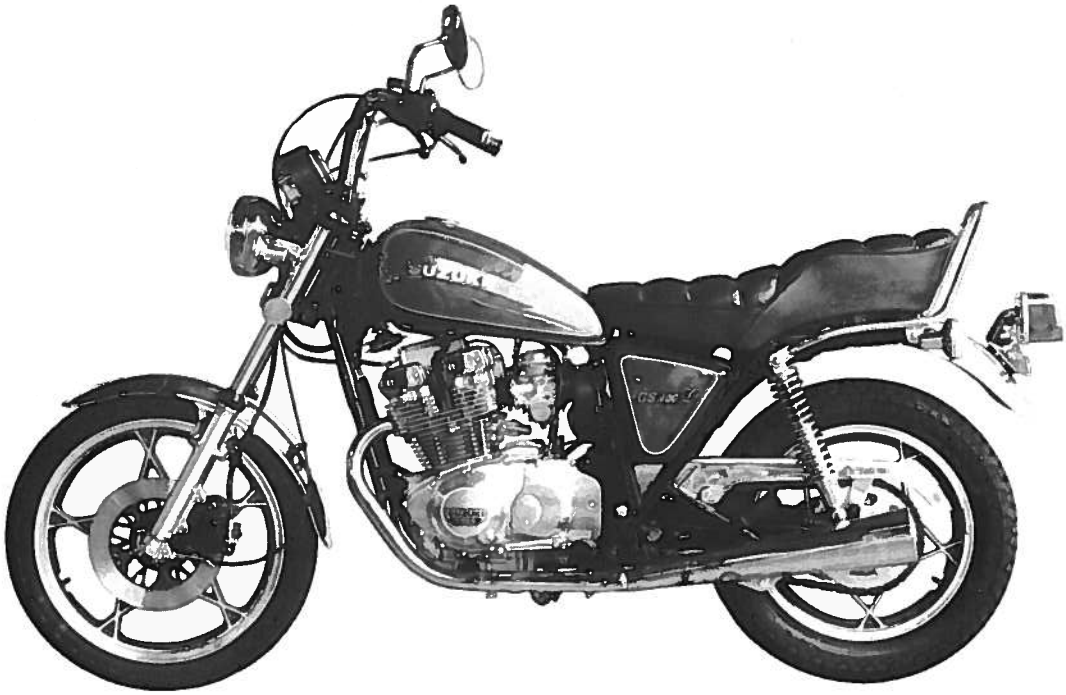
VIEW OF SUZUKI GSX400L

RIGHT SIDE



LEFT SIDE

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 090 mm
Overall width	850 mm
Overall height	1 245 mm
Wheelbase	1 385 mm
Ground clearance	145 mm
Dry mass	174 kg

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	2
Bore	67.0 mm
Stroke	56.6 mm
Piston displacement	399 cm^3
Compression ratio	10.0 : 1
Carburetor	MIKUNI BS34SS, twin
Air cleaner	Polyurethane foam 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	2.714 (76/28)
** Final reduction	2.687 (43/16)
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	DAIDO D.I.D. 50UB, 104 links

**Modifications of Rear sprocket and Drive chain for manufactured on and after June, 1981. ..... [2.562 (41/16), 102 links]

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swing arm, oil dampened, spring 5-way adjustable
Steering angle	42° (right & left)
Caster	60° 30'
Trail	123 mm
Turning radius	2.4 m
Front brake	Disc brake
Rear brake	Internal expanding
Front tire size	3.60S19 4PR
Rear tire size	4.60S16 4PR
Front tire presure	175 kPa (1.75 kg/cm^2)
Rear tire pressure	200 kPa (2.00 kg/cm^2)

ELECTRICAL

Ignition type	Transistorized
Ignition timing	20° B.T.D.C. below 1 650 r/min and 40° B.T.D.C. above 3 500 r/min
Spark plug	NGK DR8ES-L or NIPPON DENSO X24ESR-U
Battery	12V 43.2 kC (12Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	15A
Headlight	12V 45/40W . . . . . For France and West Germany 12V 45/45W . . . . . For England
Tail/Brake light	12V 5/21W
Turn signal light	12V 21W
Parking light	12V 3.4W . . . . . For England 12V 4W . . . . . For France and West Germany
Speedometer light	12V 3.4W
Tachometer light	12V 3.4W
Neutral indicator light	12V 3.4W
High beam indicator light	12V 3.4W
Turn signal indicator light	12V 3.4W
Oil pressure indicator light	12V 3.4W

CAPACITIES

Fuel tank including reserve	11 L (2.4 Imp gal)
reserve	2.0 L (1.8 Imp qt.)
Engine oil when changing	2.6 L (2.3 Imp qt.)
Front fork oil	145 ml (5.11 Imp oz.)

* These specifications are subject to change without notice.

FUEL SYSTEM

FUEL COCK

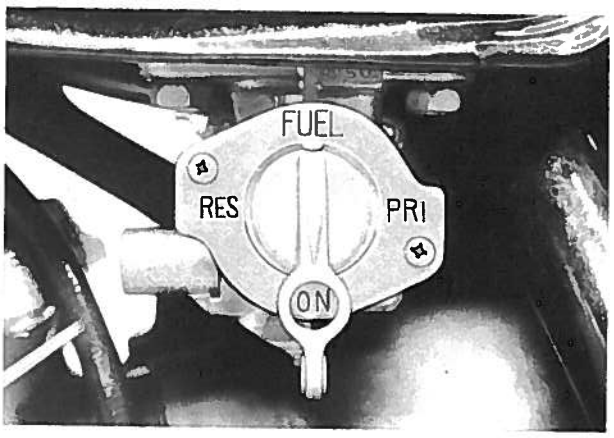
The construction of the diaphragm type auto cock is shown at right. When the engine is not running with the lever in the ON or RES position, the valve is kept in the closed position by applying pressure utilizing a spring so that no fuel will flow to the carburetors. When the engine is engaged, a negative pressure is generated in the diaphragm chamber through the vacuum (negative pessure) pipe which is connected to the carburetors, and builds up a negative pressure which is higher than the spring pressure so that the diaphragm is forced to open the valve and thus allow the fuel to flow to the carburetors. When the lever is set at the PRI (which stands for priming to supply the fuel to the carburetors) position, the fuel flows to the carburetors not via the diaphragm unit but directly through the RES (reserve) pipe.

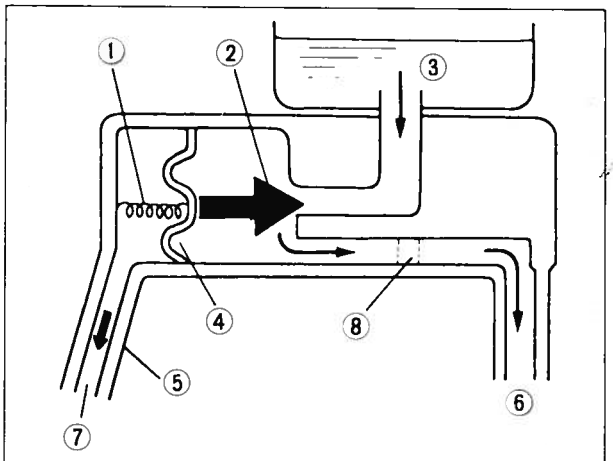
ON: Normally used. Functions as auto cock.

RES: Reserve fuel is used. Functions as auto cock.

PRI: Fuel is directly supplied. Does not function as auto cock.

The PRI position is used when the carburetors have little or no fuel, for example, when filling the fuel tank for the first time, or when the motorcycle has been left unused for a long time, or when the carburetors have been disassembled and repaired. Shift the lever to the ON position when the engine begins to run smoothly.



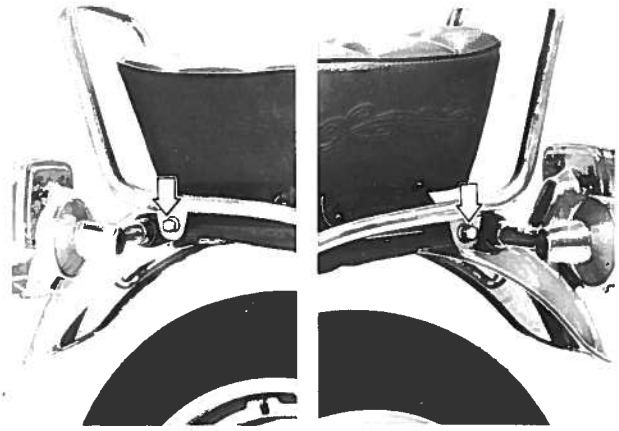


1. Spring
2. Valve
3. Fuel tank
4. Diaphragm
5. Vacuum pipe
6. To carburetor
7. Negative pressure from carburetor
8. Priming passage

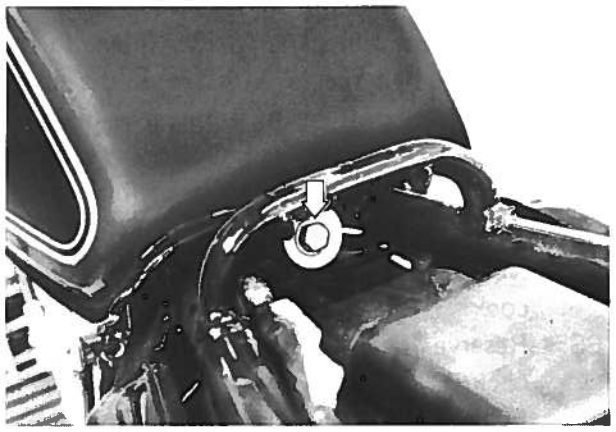
COMBINATION METER

REMOVAL

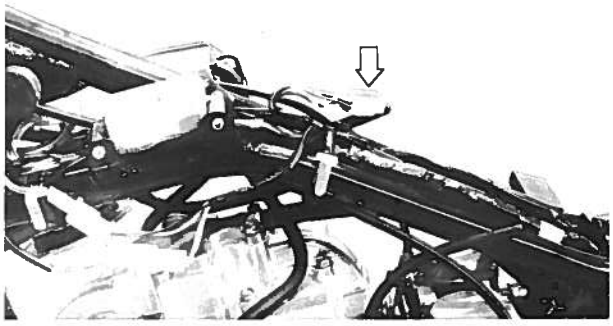
Remove seat.



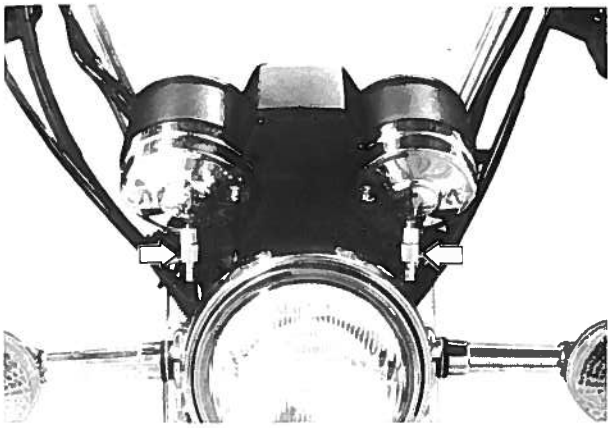
Set the fuel cock lever "ON" or "RES" position and remove fuel and vacuum hoses.
Take off fuel tank.



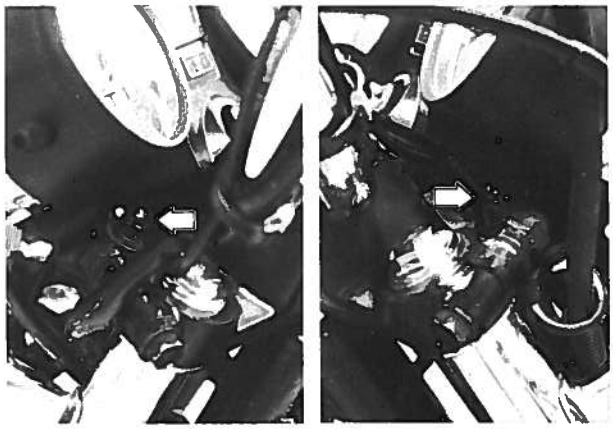
Disconnect combination meter lead wires from main wiring harness.



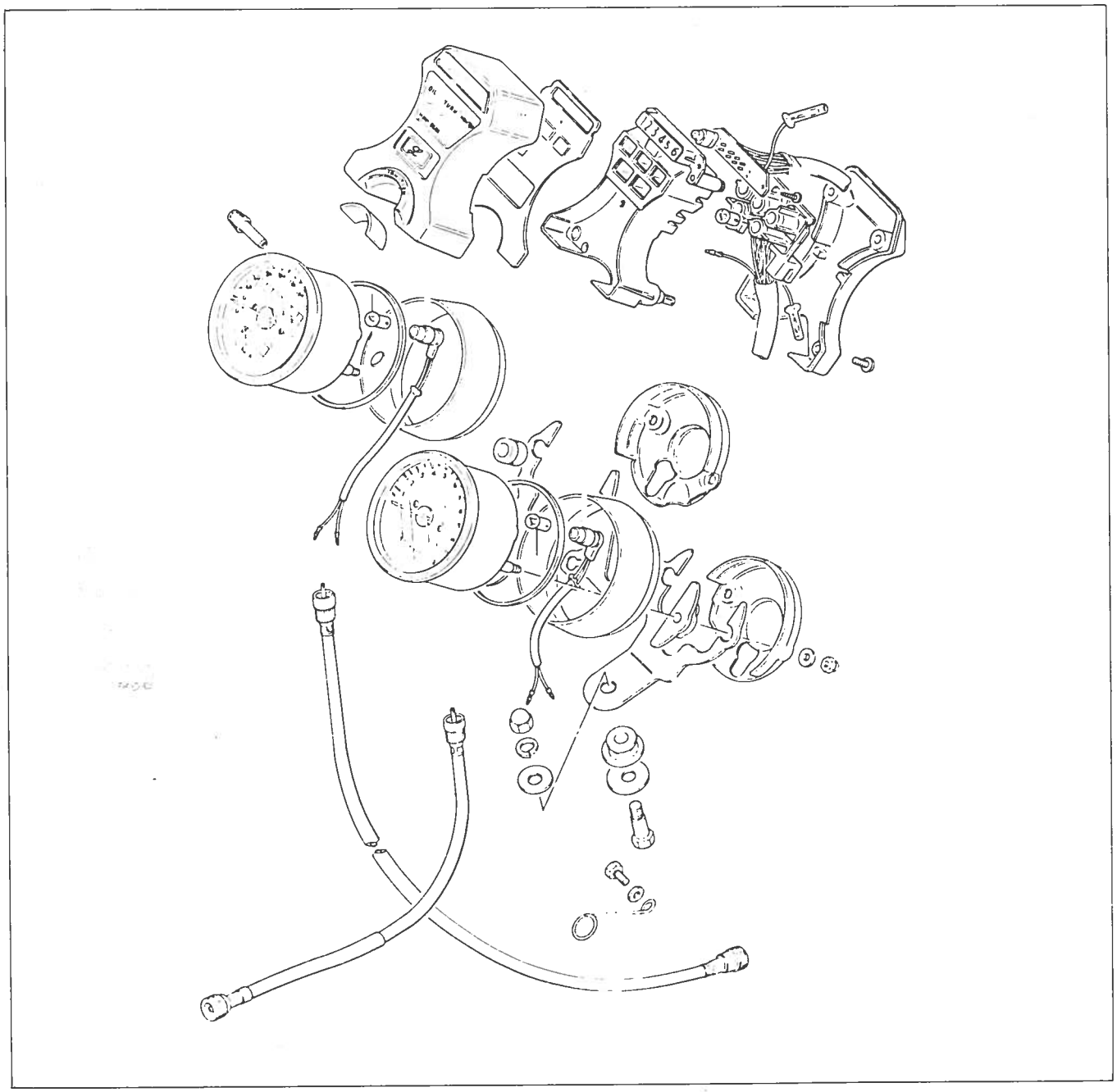
Disconnect speedometer cable and tachometer cable.



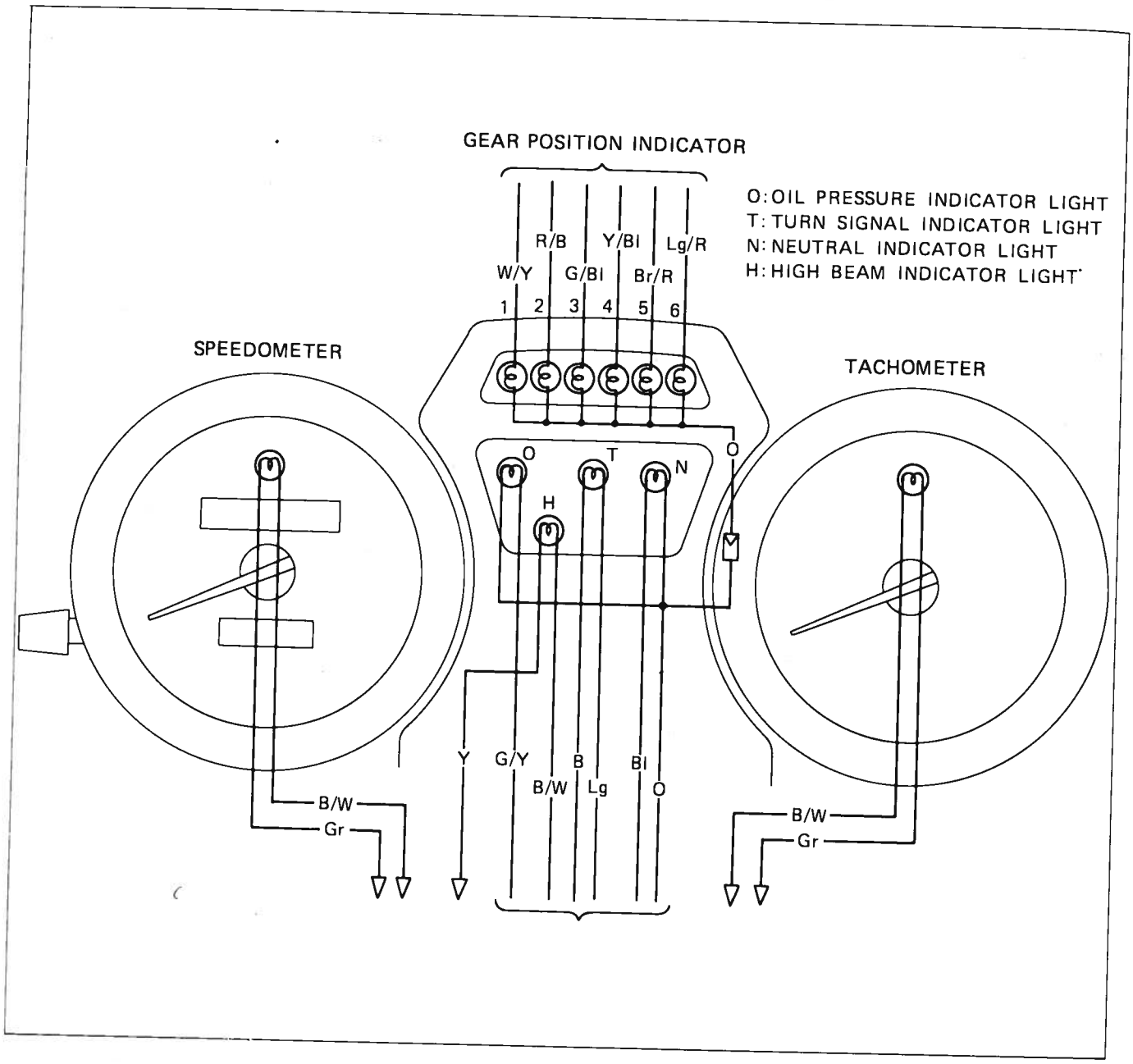
Remove mounting bolts and take off combination meter.



DISASSEMBLY



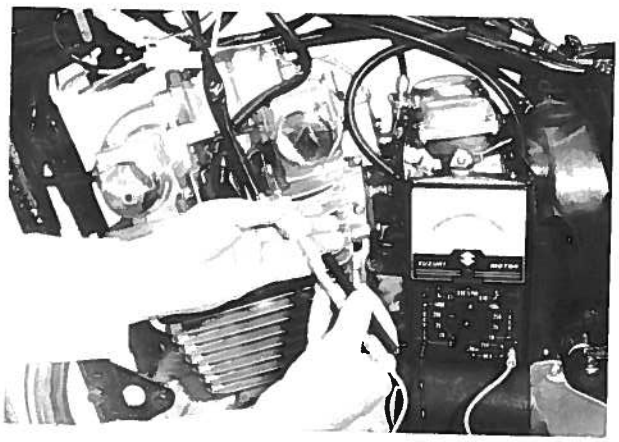
INSPECTION



Using pocket tester, check the continuity between lead wires in the above diagram.
If the continuity measured is incorrect, replace the respective part.

09900-25002	Pocket tester

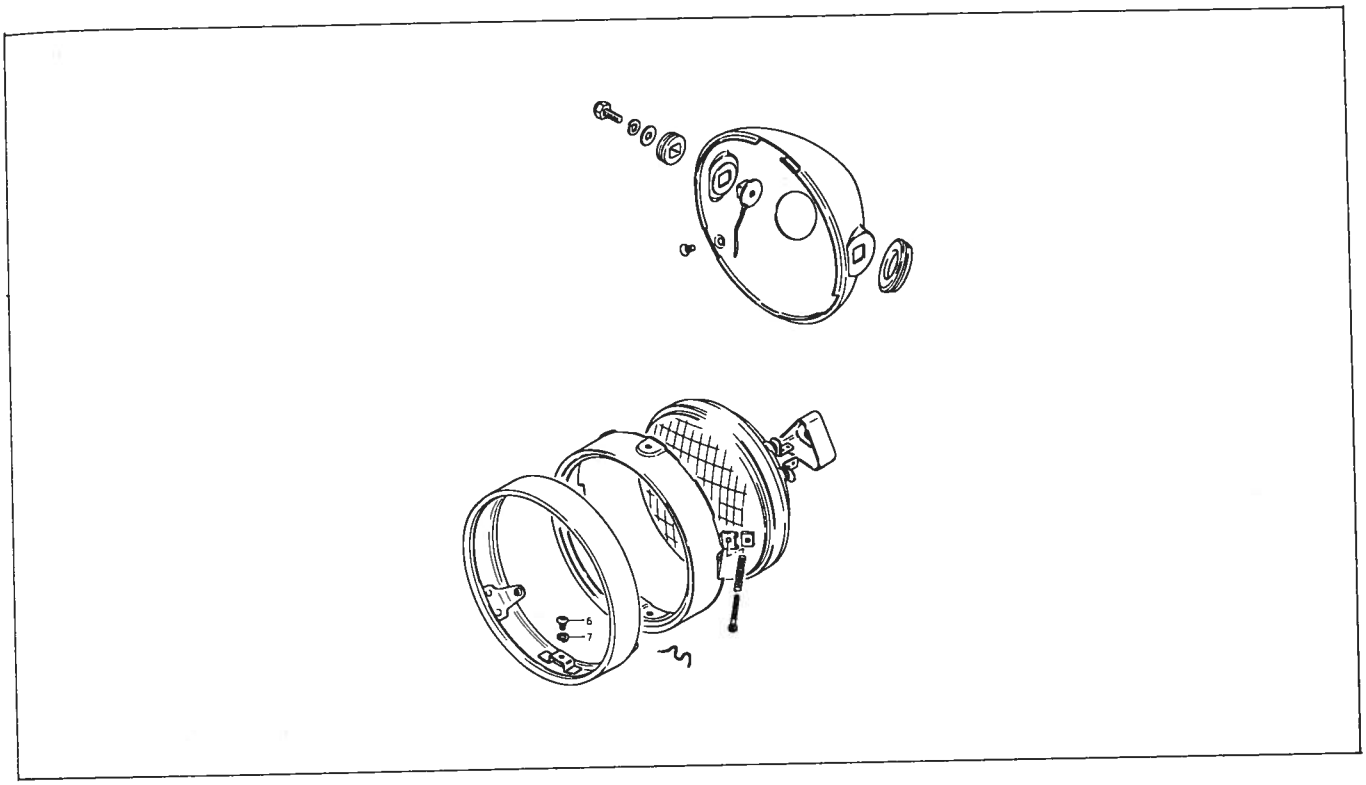
NOTE:
When making this test, it is not necessary to remove the combination meter.



LAMPS

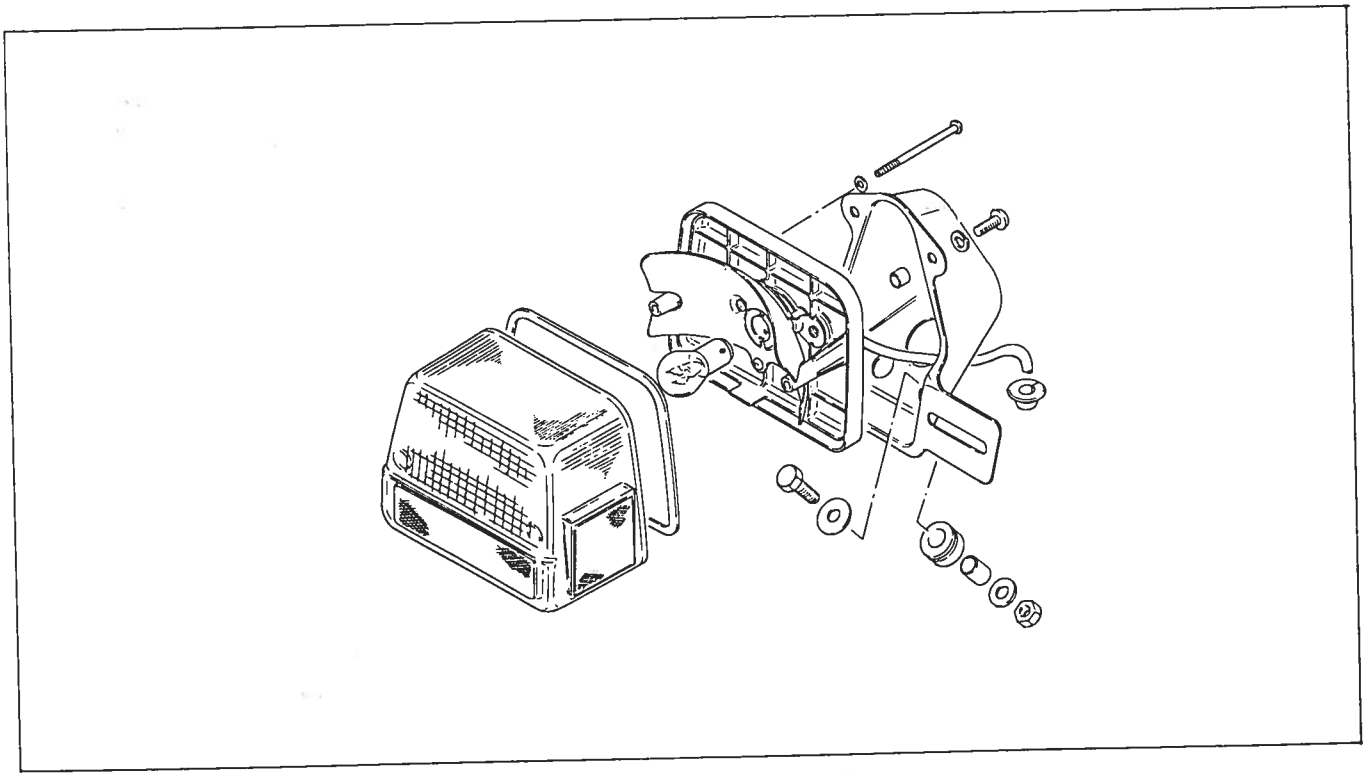
HEADLIGHT

NOTE: Adjust the headlight vertically after reassembling.



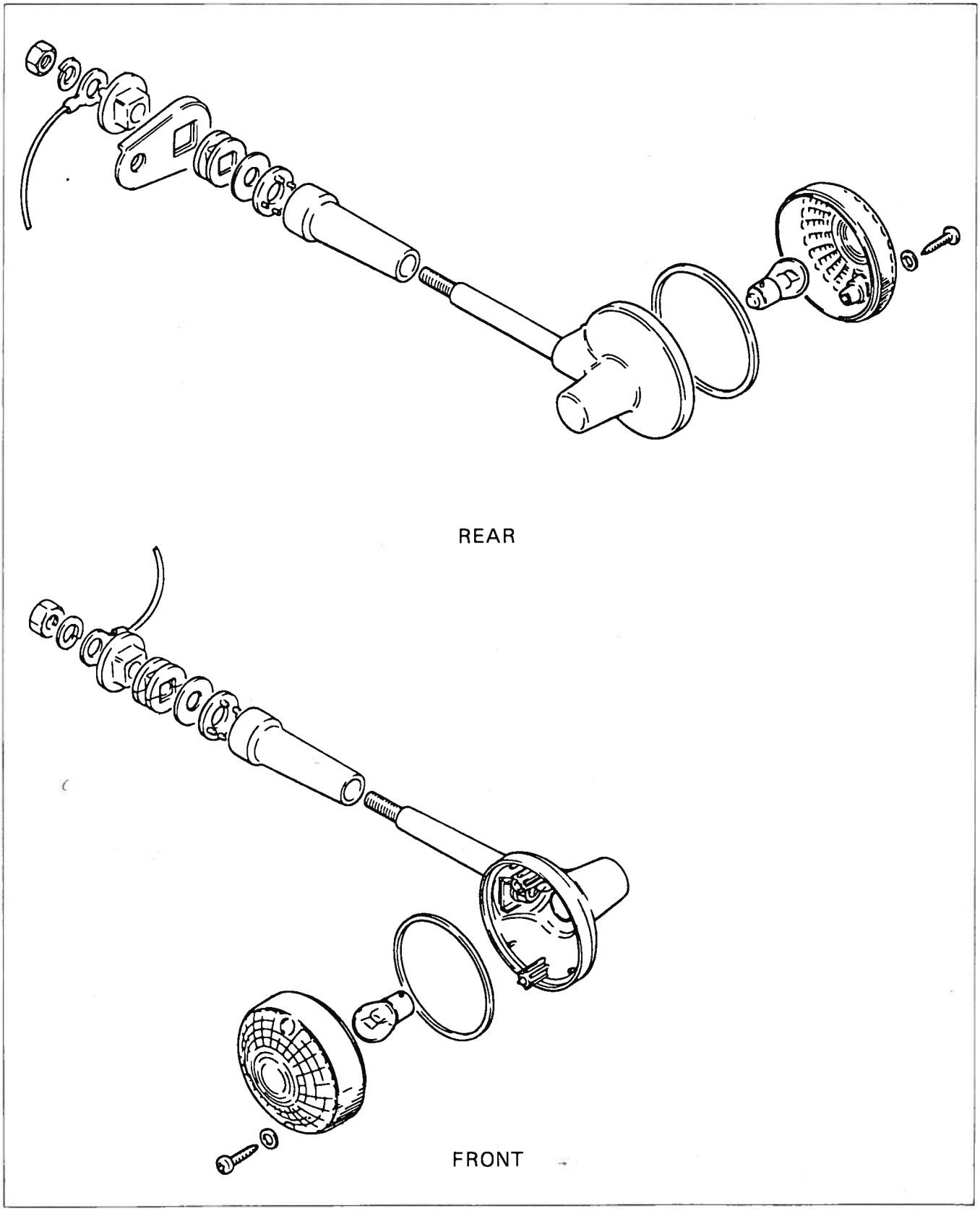
TAIL/BRAKE LIGHT

CAUTION: Do not overtighten the lens fitting screws.



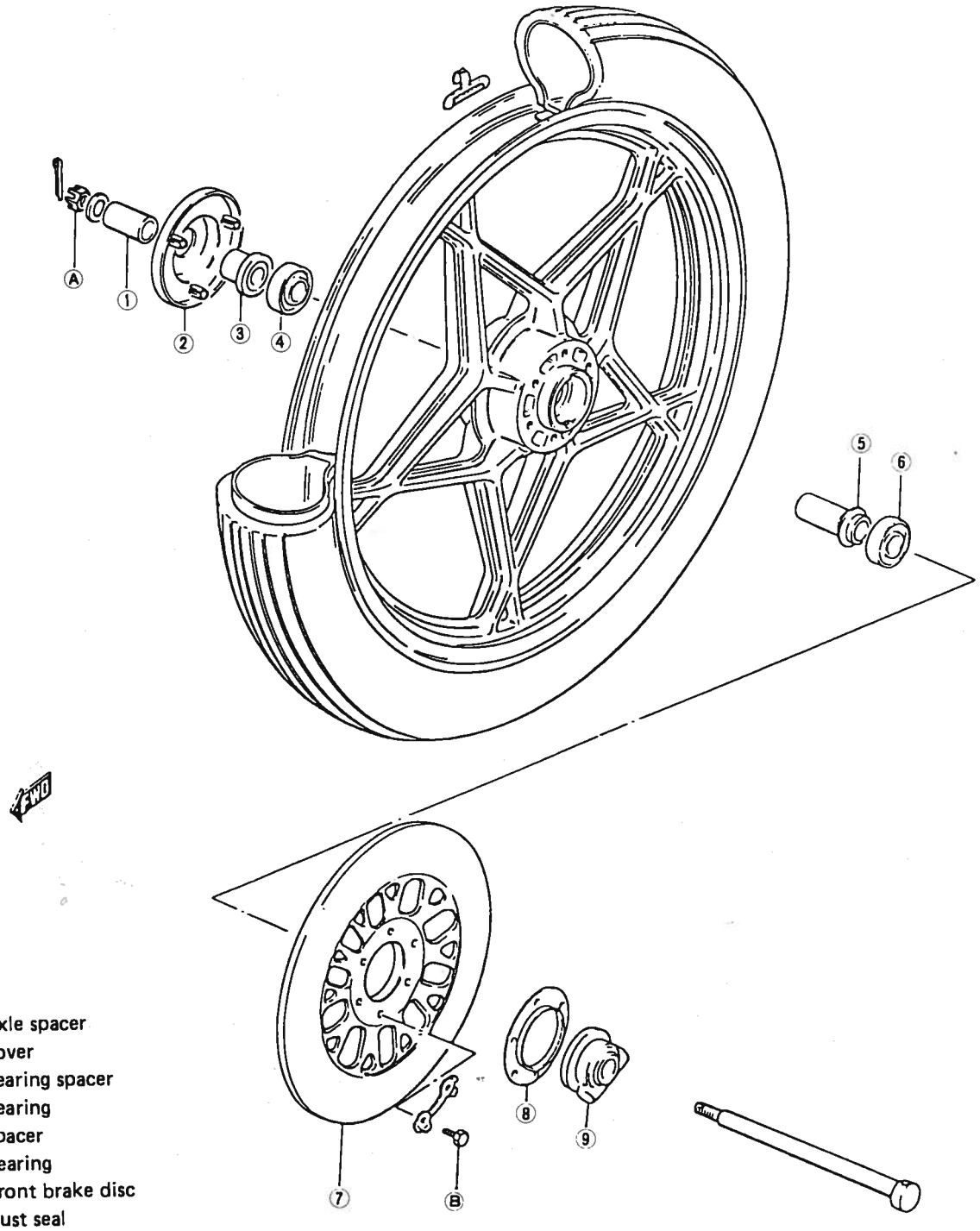
TURN SIGNAL LIGHT

CAUTION: Do not overtighten the lens fitting screws.



FRONT WHEEL

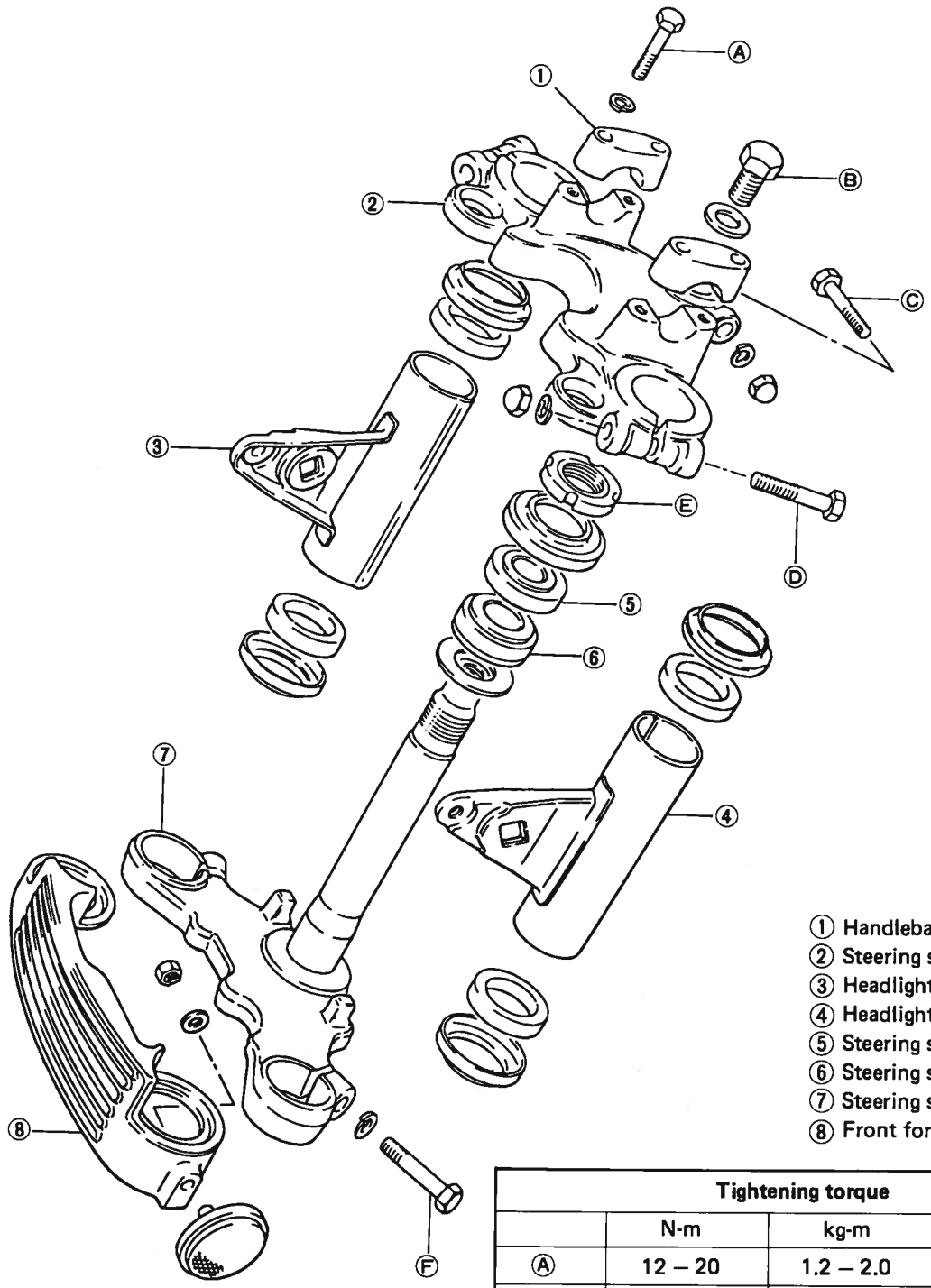
CONSTRUCTION



① Axle spacer
② Cover
③ Bearing spacer
④ Bearing
⑤ Spacer
⑥ Bearing
⑦ Front brake disc
⑧ Dust seal
⑨ Speedometer gear box

Tightening torque			
	N·m	kg-m	lb-ft
Ⓐ	36 – 52	3.6 – 5.2	26.0 – 37.5
Ⓑ	15 – 25	1.5 – 2.5	11.0 – 18.0

STEERING STEM

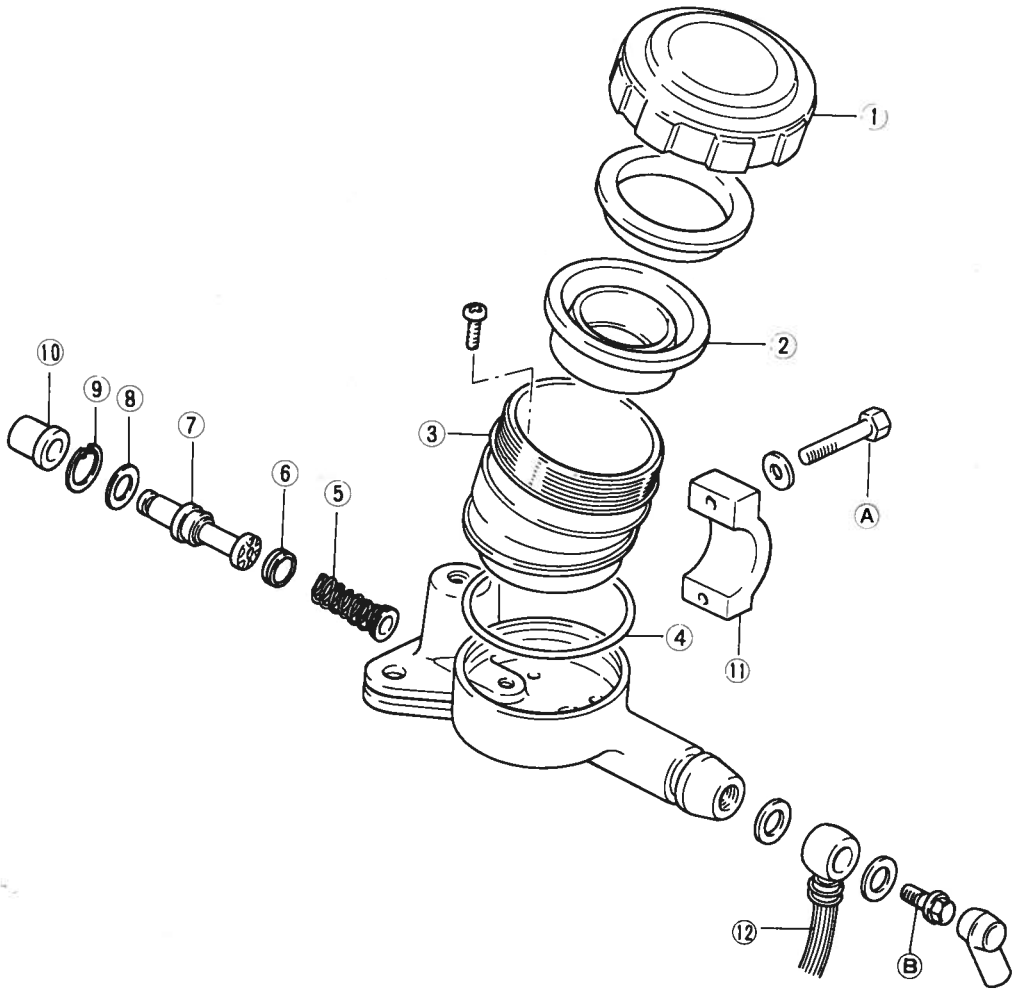


① Handlebar clamp
② Steering stem upper bracket
③ Headlight bracket (R)
④ Headlight bracket (L)
⑤ Steering stem bearing (Upper)
⑥ Steering stem bearing (Lower)
⑦ Steering stem lower bracket
⑧ Front fork cover

	Tightening torque		
	N-m	kg-m	lb-ft
Ⓐ	12 – 20	1.2 – 2.0	8.5 – 14.5
Ⓑ	36 – 52	3.6 – 5.2	26.0 – 37.5
Ⓒ	15 – 25	1.5 – 2.5	11.0 – 18.0
Ⓓ	20 – 30	2.0 – 3.0	14.5 – 21.5
Ⓔ	40 – 50	4.0 – 5.0	29.5 – 36.0
Ⓕ	25 – 40	2.5 – 4.0	18.0 – 29.0

FRONT BRAKE

MASTER CYLINDER

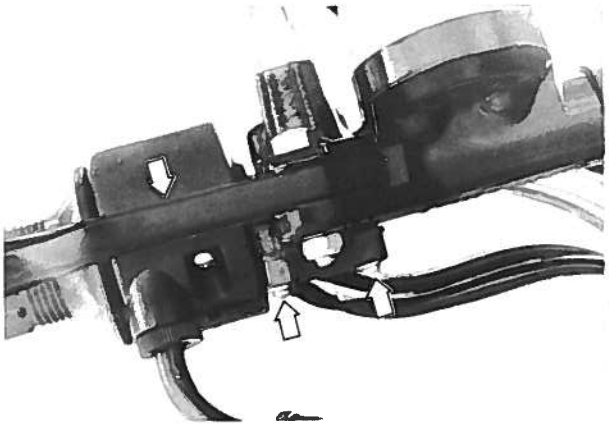


① Filler cap
② Diaphragm
③ Reservoir
④ O ring
⑤ Spring
⑥ Primary cup
⑦ Piston
⑧ Plate
⑨ Circlip
⑩ Dust seal boot
⑪ Holder
⑫ Brake hose

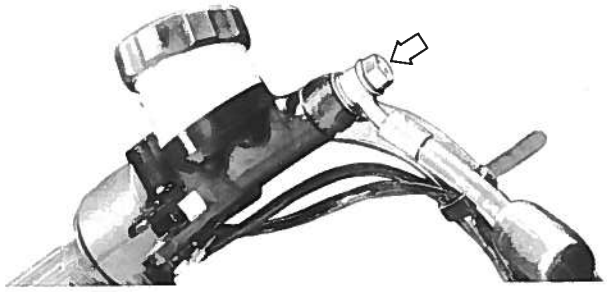
	Tightening torque		
	N·m	kg-m	lb-ft
Ⓐ	5 – 8	0.5 – 0.8	3.5 – 6.0
Ⓑ	20 – 25	2.0 – 2.5	14.5 – 18.5

MASTER CYLINDER REMOVAL AND DISASSEMBLY

Take off front brake light switch and remove front brake lever.

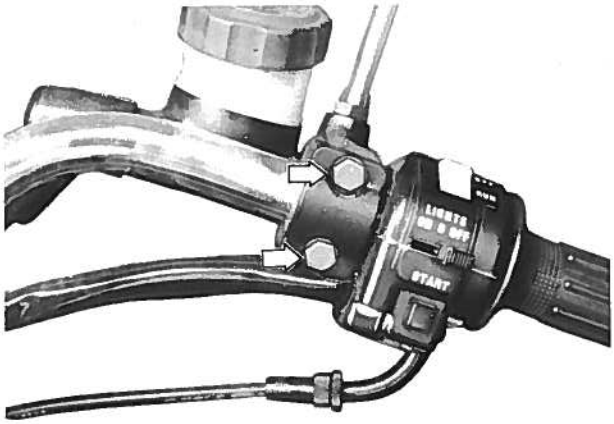


Place a rag underneath the union bolt on the master cylinder to catch spilled drops of brake fluid. Unscrew the union bolt and disconnect the brake hose/master cylinder joint.

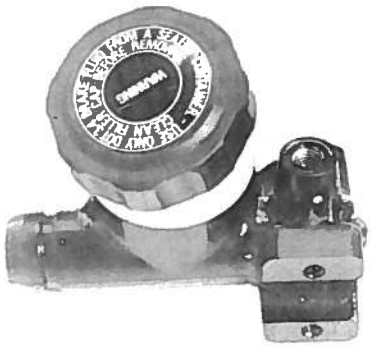


CAUTION:
Completely wipe off any brake fluid adhering to any part of motorcycle.
The fluid react chemically with paint, plastics, rubber matericals, etc.

Remove master cylinder assembly after removing two fitting bolts.



Remove filler cap and drain brake fluid.



Pull out the reservoir and O ring.

Draw out dust seal boot.

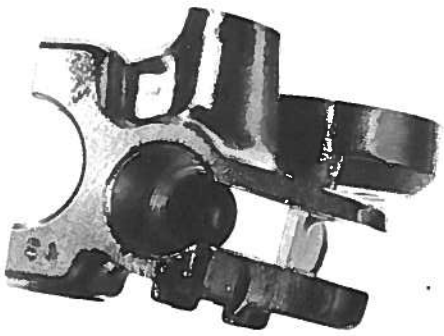
Remove circlip by using special tool.

09900-06108	Snap ring pliers

Pull out piston, primary cup and spring.

MASTER CYLINDER INSPECTION

Inspect the cylinder bore wall for any scratch or other damage.



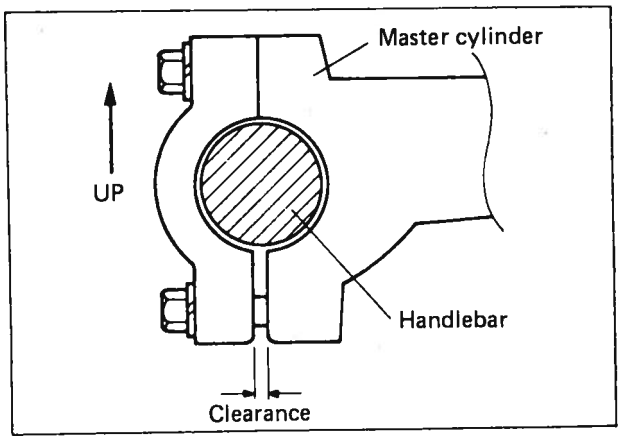
Inspect the piston surface for scratch or other damage.
Inspect the primary cup, secondary cup and dust seal boot for damage.

MASTER CYLINDER REASSEMBLY

Reassemble the master cylinder in the reverse orders of disassembly and by taking the following steps:

CAUTION:
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
Apply brake fluid to the cylinder bore and all the internals to be inserted into the bore.

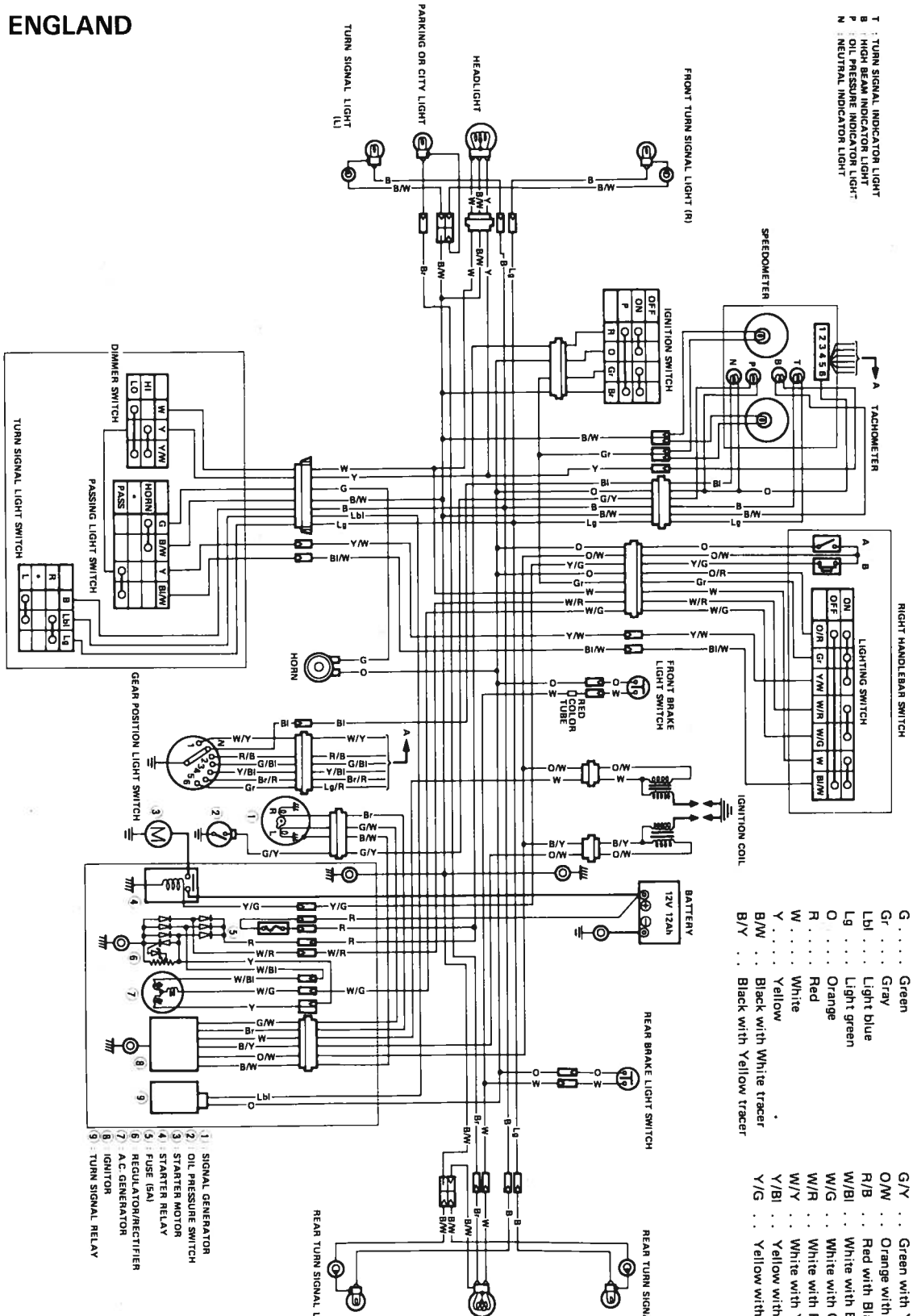
When remount the master cylinder to the handlebars, first tighten the clamp bolt for upside as shown.



CAUTION:
Adjust the front brake light switch after installation.
Bleeding the air after reassembling master cylinder.

WIRING DIAGRAM

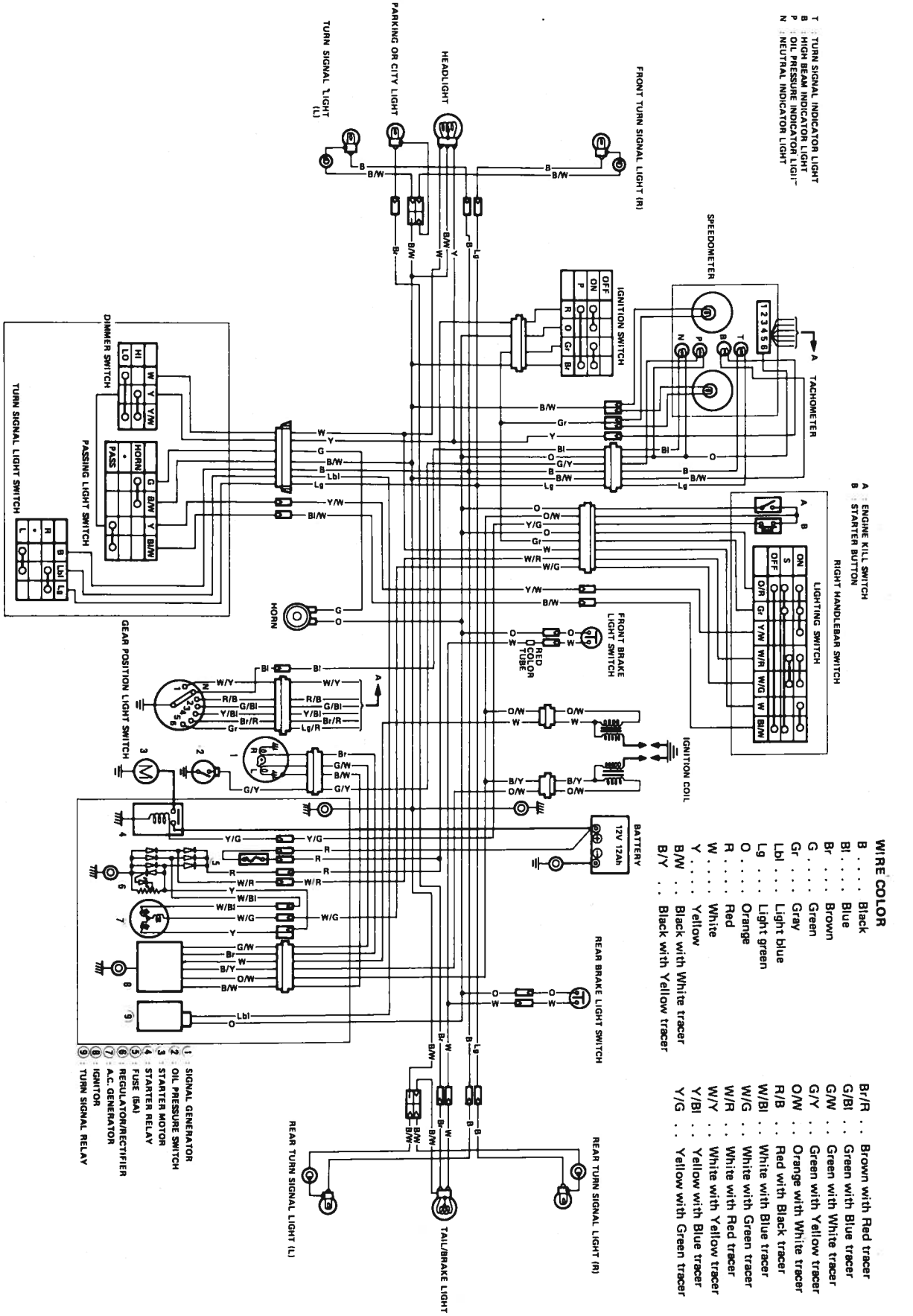
For ENGLAND



WIRE COLOR

B	Black	Br/R	Brown with Red tracer
Bl	Blue	G/Bl	Green with Blue tracer
Br	Brown	G/W	Green with White tracer
G	Green	G/Y	Green with Yellow tracer
Gr	Gray	O/W	Orange with White tracer
Lbl	Light blue	R/B	Red with Black tracer
Lg	Light green	W/Bl	White with Blue tracer
O	Orange	W/G	White with Green tracer
R	Red	W/R	White with Red tracer
W	White	W/Y	White with Yellow tracer
Y	Yellow	Y/Bl	Yellow with Blue tracer
B/W	Black with White tracer	Y/G	Yellow with Green tracer
B/Y	Black with Yellow tracer		

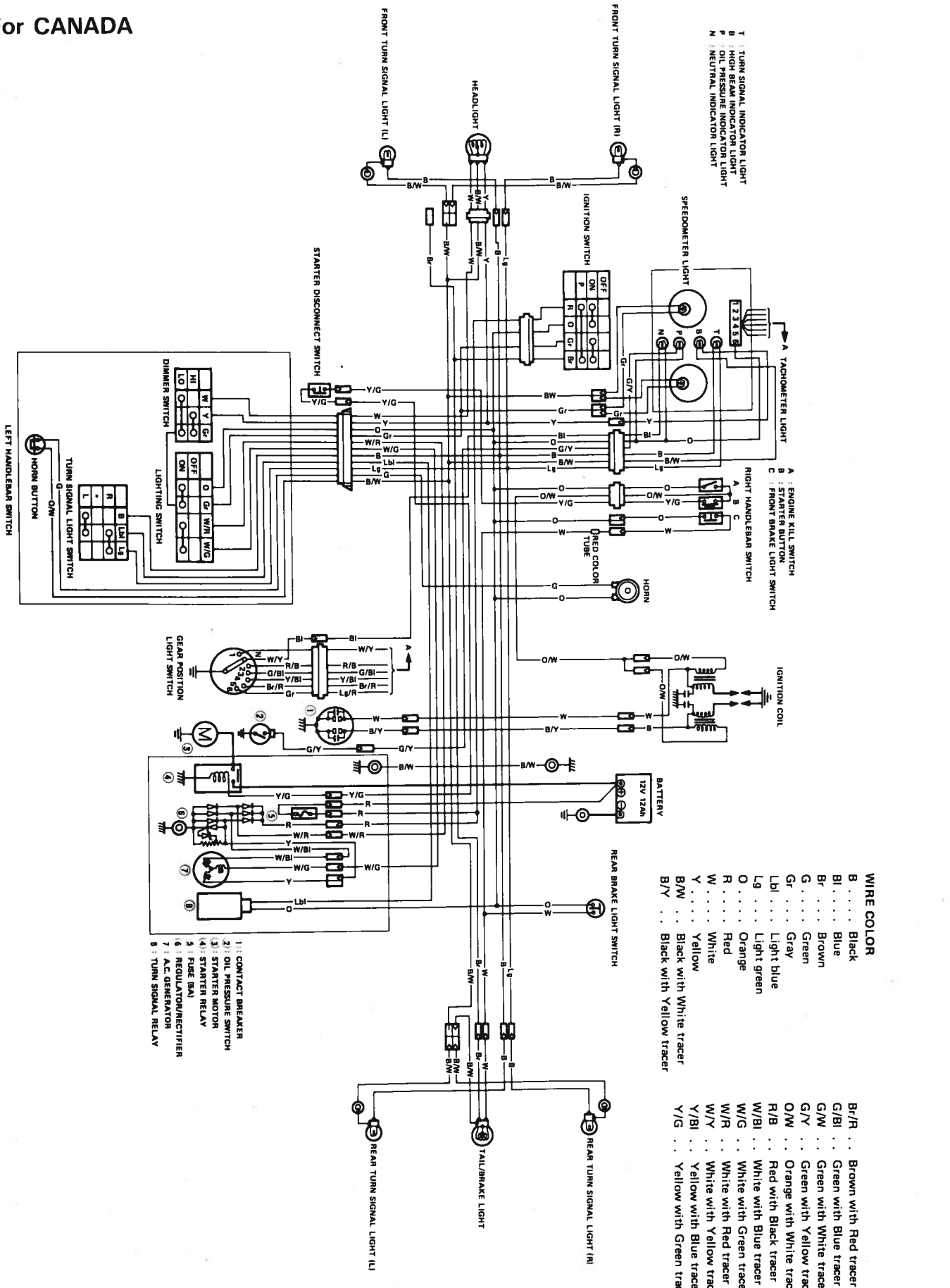
For FRANCE AND WEST GERMANY



WIRE COLOR

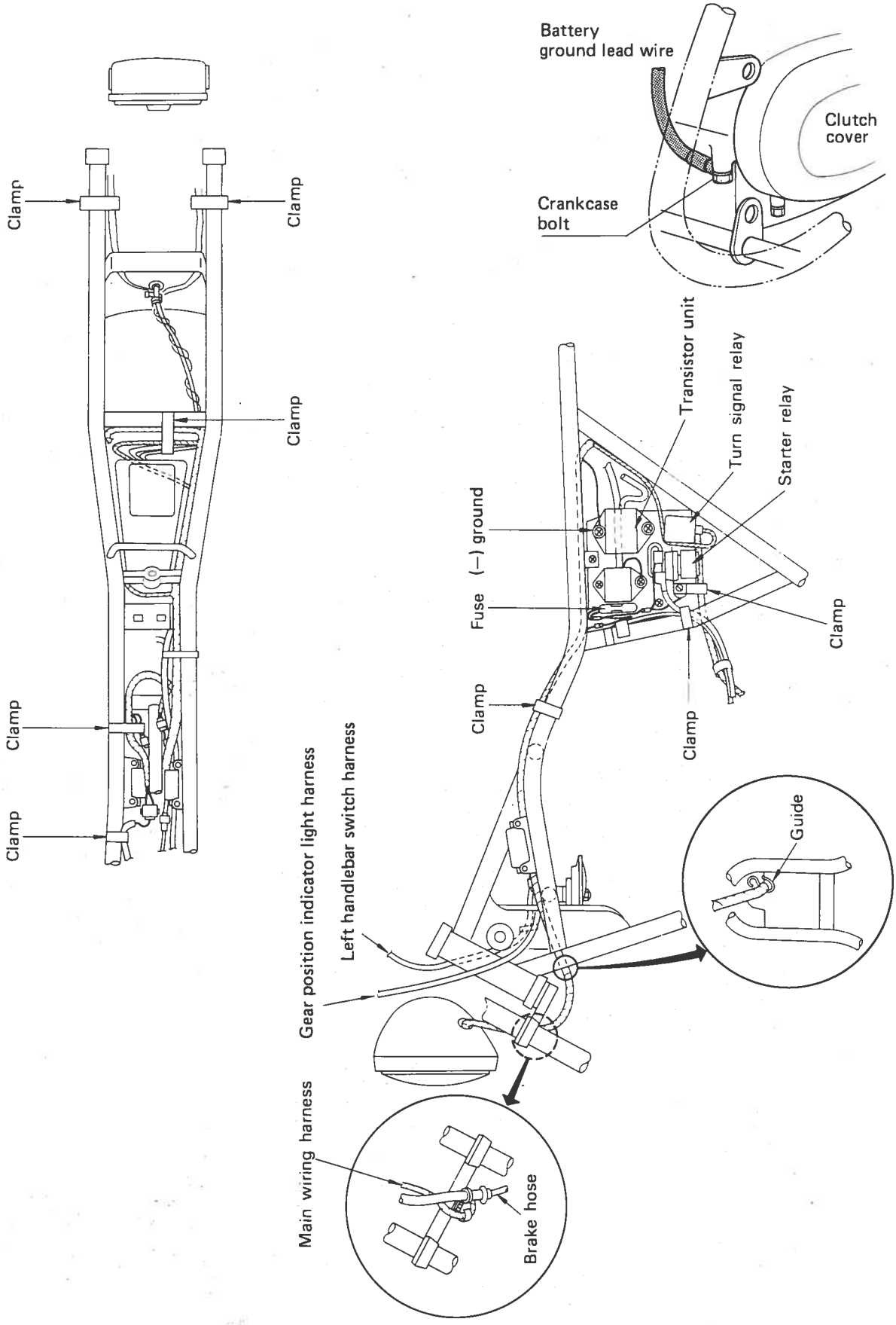
B	Black	Br/R	Brown with Red tracer
Bl	Blue	G/Bl	Green with Blue tracer
Br	Brown	G/W	Green with White tracer
G	Green	G/Y	Green with Yellow tracer
Gr	Gray	O/W	Orange with White tracer
Lbl	Light blue	R/B	Red with Black tracer
Lg	Light green	W/Bl	White with Blue tracer
O	Orange	W/G	White with Green tracer
R	Red	W/R	White with Red tracer
W	White	W/Y	White with Yellow tracer
Y	Yellow	Y/Bl	Yellow with Blue tracer
B/W	Black with White tracer	Y/G	Yellow with Green tracer
B/Y	Black with Yellow tracer		

For CANADA

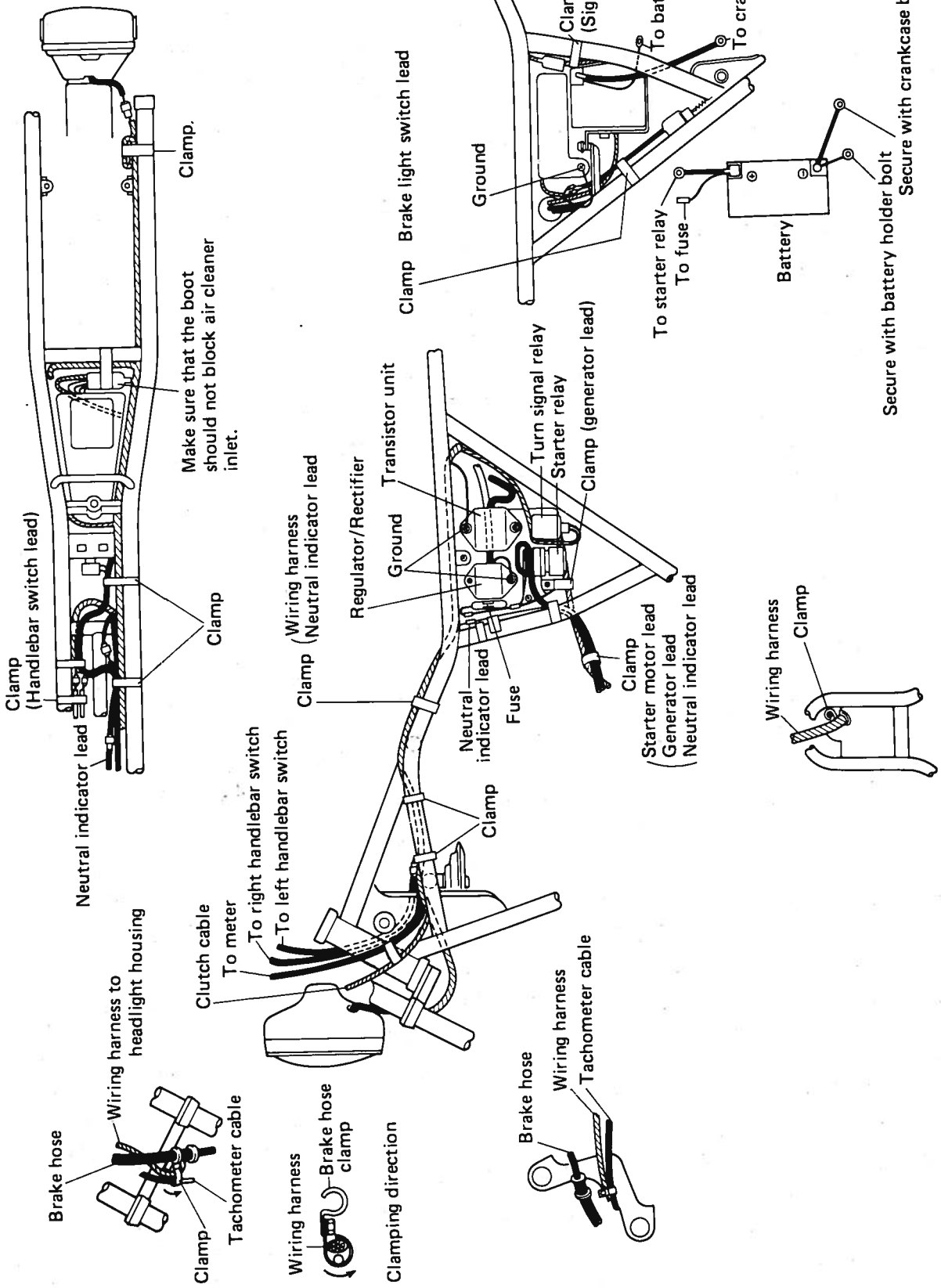

T : TURN SIGNAL INDICATOR LIGHT
B : HIGH BEAM INDICATOR LIGHT
P : OIL PRESSURE INDICATOR LIGHT
N : NEUTRAL INDICATOR LIGHT
A : ENGINE KILL SWITCH
B : STARTER BUTTON
C : FRONT BRAKE LIGHT SWITCH
WIRE COLOR
B . . . . Black
Bl . . . . Blue
Br . . . . Brown
G . . . . Green
Gr . . . . Gray
Lbl . . . Light blue
Lg . . . . Light green
O . . . . Orange
R . . . . Red
W . . . . White
Y . . . . Yellow
B/W . . Black with White tracer
B/Y . . Black with Yellow tracer
Br/R . . Brown with Red tracer
G/Bl . . Green with Blue tracer
G/W . . Green with White tracer
G/Y . . Green with Yellow tracer
O/W . . Orange with White tracer
R/B . . Red with Black tracer
W/Bl . . White with Blue tracer
W/G . . White with Green tracer
W/R . . White with Red tracer
W/Y . . White with Yellow tracer
Y/Bl . . Yellow with Blue tracer
Y/G . . Yellow with Green tracer
1 : CONTACT BREAKER
2 : OIL PRESSURE SWITCH
3 : STARTER MOTOR
4 : STARTER RELAY
5 : FUSE (5A)
6 : REGULATOR/RECTIFIER
7 : A.C. GENERATOR
8 : TURN SIGNAL RELAY
FRONT TURN SIGNAL LIGHT (L)
HEADLIGHT
FRONT TURN SIGNAL LIGHT (R)
SPEEDOMETER LIGHT
TACHOMETER LIGHT
IGNITION SWITCH
STARTER DISCONNECT SWITCH
DIMMER SWITCH
LIGHTING SWITCH
TURN SIGNAL LIGHT SWITCH
HORN BUTTON
LEFT HANDLEBAR SWITCH
RIGHT HANDLEBAR SWITCH
RED COLOR TUBE
HORN
GEAR POSITION LIGHT SWITCH
IGNITION COIL
BATTERY
12V 12Ah
REAR BRAKE LIGHT SWITCH
REAR TURN SIGNAL LIGHT (L)
TAIL/BRAKE LIGHT
REAR TURN SIGNAL LIGHT (R)

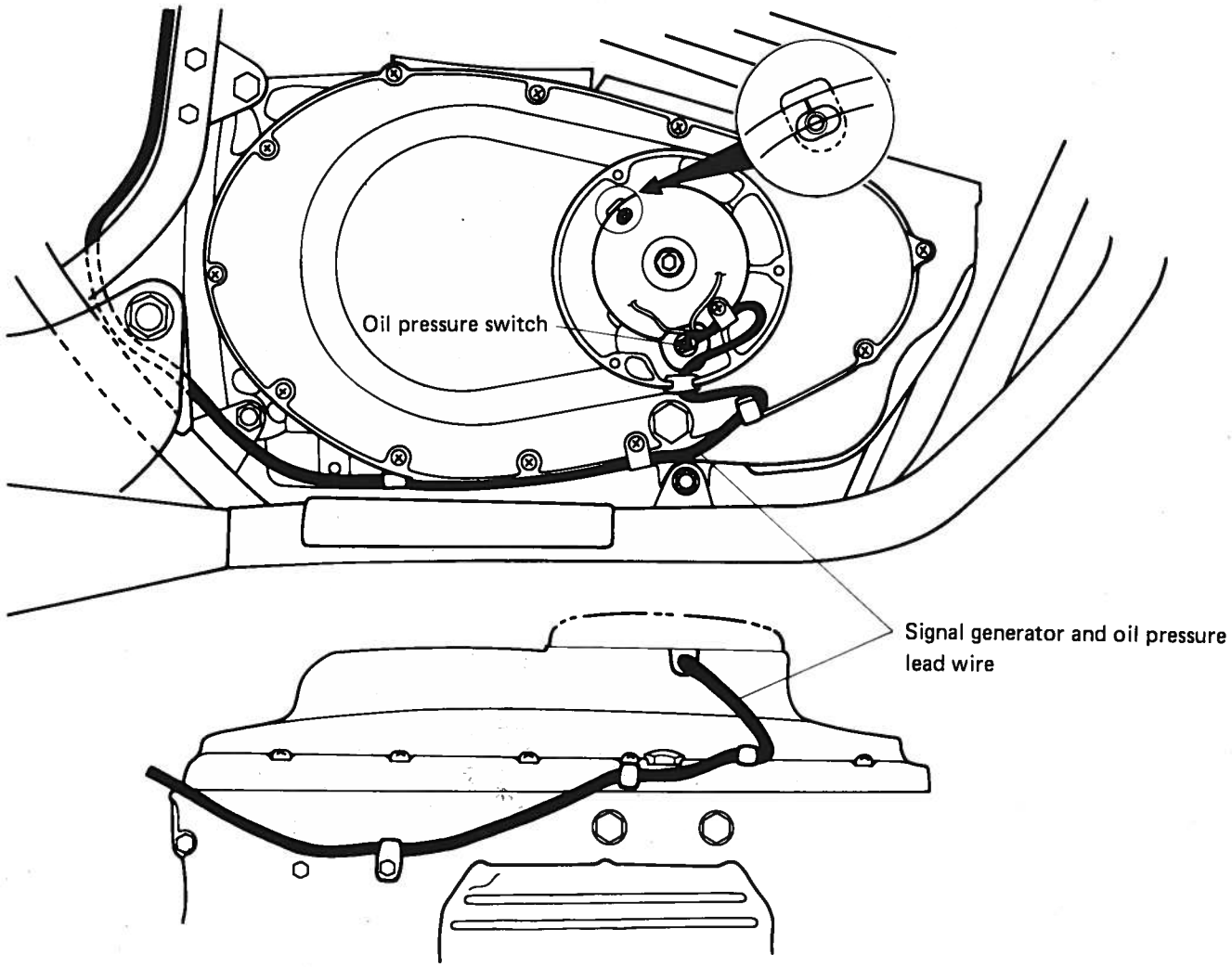
WIRE ROUTING

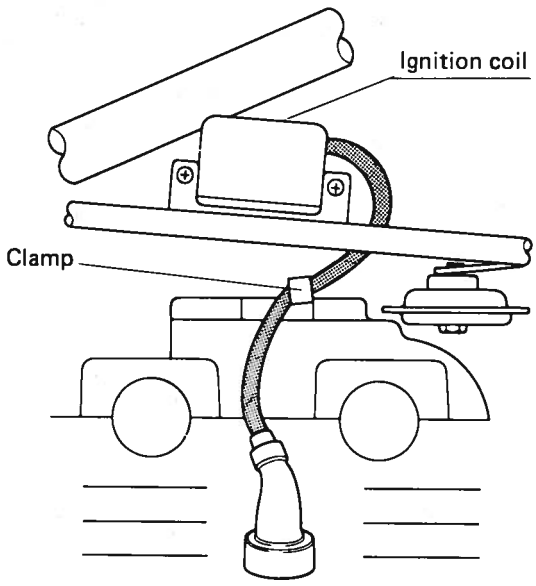
(Except for WEST GERMANY)



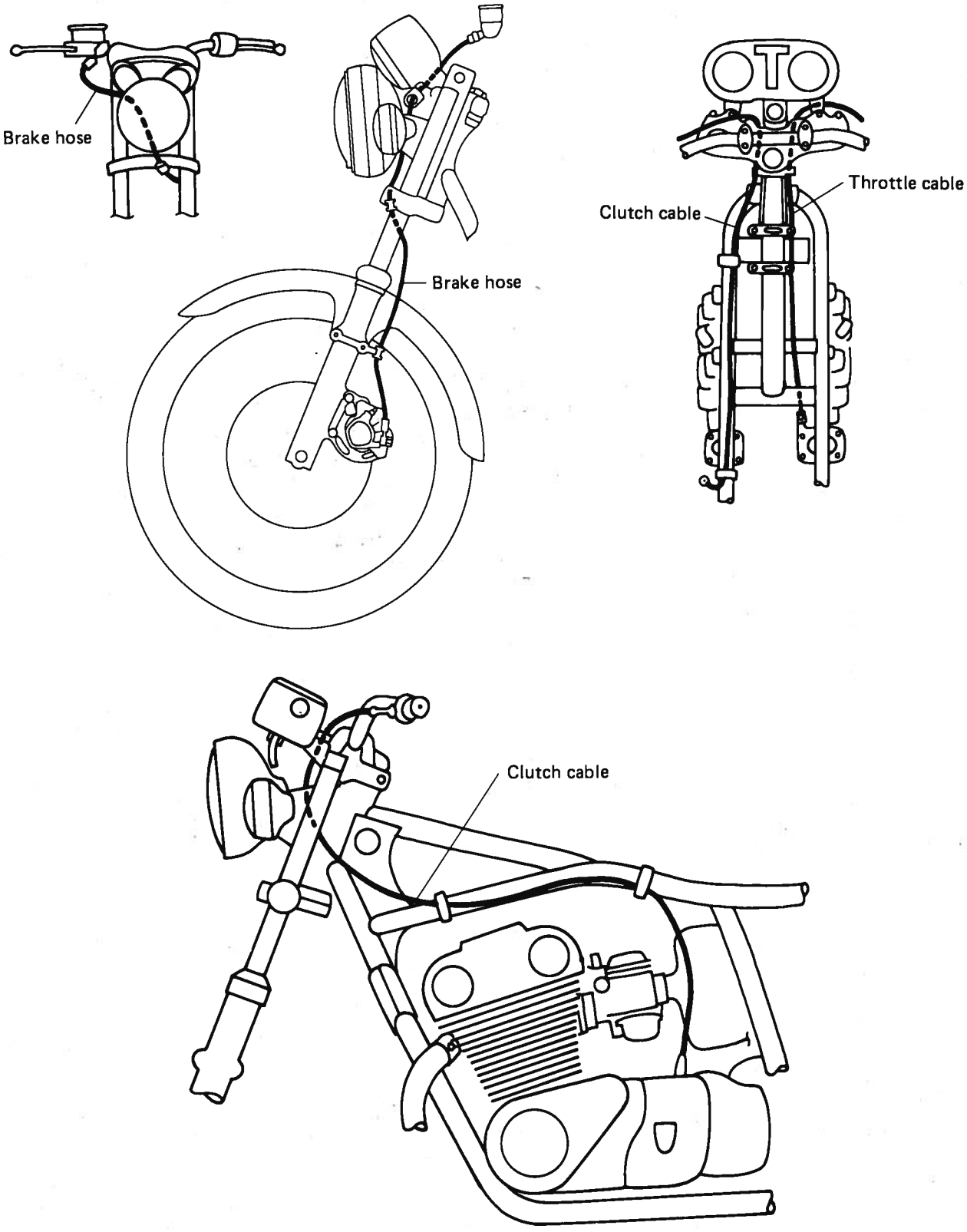
(only for WEST GERMANY)




Oil pressure switch
Signal generator and oil pressure lead wire


Ignition coil
Clamp

CABLE ROUTING



SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM		STANDARD	LIMIT
Valve diam.	IN.	23 (0.90)	———
	EX.	20 (0.78)	———
* Valve lift	IN.	7.0 (0.28)	———
	EX.	7.0 (0.28)	———
Valve clearance (when cold)	IN. & EX.	0.08 – 0.13 (0.003 – 0.005)	———
Valve guide to Valve stem clearance	IN.	0.025 – 0.052 (0.0010 – 0.0020)	0.090 (0.0035)
	EX.	0.040 – 0.067 (0.0016 – 0.0026)	0.100 (0.0039)
Valve guide I.D.	IN. & EX.	5.500 – 5.512 (0.2165 – 0.2170)	———
Valve stem O.D.	IN.	5.460 – 5.475 (0.2150 – 0.2156)	———
	EX.	5.445 – 5.460 (0.2144 – 0.2150)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	3.6 (0.14)
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	———	31.9 (1.26)
	OUTER	———	35.5 (1.40)
Valve spring tension (IN. & EX.)	INNER	4.4 – 6.4 kg (9.7 – 14.1 lbs) at length 28.5 mm (1.12 in)	———
	OUTER	6.5 – 8.9 kg (14.3 – 19.6 lbs) at length 32.0 mm (1.26 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM		STANDARD	LIMIT
* Cam height	IN.	34.650 – 34.690 (1.3642 – 1.3657)	34.350 (1.3524)
	EX.	34.650 – 34.690 (1.3642 – 1.3657)	34.350 (1.3524)
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 20 pitch length		———	157.80 (6.213)
Cam chain pin (at arrow "3")		20th pin	———
Rocker arm I.D.	IN. & EX.	12.000 – 12.018 (0.4724 – 0.4731)	———
Rocker arm shaft O.D.	IN. & EX.	11.973 – 11.984 (0.4714 – 0.4718)	———
Cylinder head distortion		———	0.10 (0.004)

*** Only for E-22**

Unit: mm (in)

ITEM		STANDARD	LIMIT
Cam height	IN.	33.350 – 33.390 (1.3130 – 1.3146)	33.050 (1.3012)
	EX.	33.350 – 33.390 (1.3130 – 1.3146)	33.050 (1.3012)
Valve lift	IN.	4.8 (0.19)	———
	EX.	4.8 (0.19)	———

PISTON + RING + CYLINDER

Unit: mm (in)

ITEM			STANDARD	LIMIT
Compression pressure			10 – 14 kg/cm² (142 – 199 psi)	8 kg/cm² (114 psi)
Compression pressure difference			———	2 kg/cm² (28.4 psi)
Piston to Cylinder clearance			0.050 – 0.060 (0.0020 – 0.0024)	0.120 (0.0047)
Cylinder bore			67.000 – 67.015 (2.6378 – 2.6384)	67.080 (2.6410)
Piston diam.			66.945 – 66.960 (2.6356 – 2.6362) Measure the 15.0 (0.59) from piston skirt end.	66.880 (2.6331)
Cylinder distortion			———	0.10 (0.004)
Piston ring free end gap	1st	N	Approx. 9.5 (0.37)	7.6 (0.30)
		R	Approx. 9.5 (0.37)	7.6 (0.30)
	2nd	N	Approx. 10.0 (0.39)	8.0 (0.31)
		R	Approx. 10.0 (0.39)	8.0 (0.31)
Piston ring end gap	1st		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
	2nd		0.10 – 0.30 (0.004 – 0.012)	0.7 (0.03)
Piston ring groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring groove width	1st		1.21 – 1.23 (0.047 – 0.048)	———
	2nd		1.21 – 1.23 (0.047 – 0.048)	———
	Oil		2.51 – 2.53 (0.099 – 0.100)	———
Piston ring thickness	1st		1.175 – 1.190 (0.0463 – 0.0469)	———
	2nd		1.170 – 1.190 (0.0461 – 0.0469)	———
Piston pin bore			18.002 – 18.008 (0.7087 – 0.7090)	18.030 (0.7098)
Piston pin O.D.			17.996 – 18.000 (0.7085 – 0.7087)	17.980 (0.7079)

CONROD + CRANKSHAFT + BALANCER

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	18.006 – 18.014 (0.7089 – 0.7092)	18.040 (0.7102)
Conrod big end thrust clearance	0.10 – 0.20 (0.004 – 0.008)	0.30 (0.012)
Conrod big end width	22.95 – 23.00 (0.904 – 0.906)	———
Crank pin width	23.10 – 23.15 (0.909 – 0.911)	———
Conrod big end oil clearance	0.024 – 0.048 (0.0009 – 0.0019)	0.080 (0.0031)
Crank pin O.D.	33.976 – 34.000 (1.3376 – 1.3386)	———
Crankshaft journal oil clearance	0.020 – 0.044 (0.0008 – 0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976 – 32.000 (1.2589 – 1.2598)	———
Crankshaft thrust bearing thickness	2.95 – 2.98 (0.116 – 0.117)	2.85 (0.112)
Crankshaft runout	———	0.05 (0.002)
Balancer journal oil clearance	0.020 – 0.044 (0.0008 – 0.0017)	0.080 (0.0031)
Balancer journal O.D.	31.984 – 32.000 (1.2592 – 1.2598)	———

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.071 (76 / 28 x 29 / 38)	———
Oil pressure (at 60°C, 140°F)	Above 3.0 kg/cm² (43 psi) Below 5.5 kg/cm² (78 psi) at 3000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	4.0 (0.16)	———
Clutch release screw	¼ – ½ turn back	———
Drive plate thickness	2.9 – 3.1 (0.11 – 0.12)	2.6 (0.10)
Drive plate claw width	15.8 – 16.0 (0.62 – 0.63)	15.0 (0.59)
Driven plate thickness	1.60 ± 0.06 (0.063 ± 0.002)	———
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	38.4 (1.51)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in)

ITEM	STANDARD		LIMIT
Primary reduction ratio	2.714 (76 / 28)		———
Final reduction ratio	2.687 (43 / 16)		———
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	0.10 – 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)		———
Countershaft length (Low to 2nd)	$114.7 \pm {}^{0.1}_{0}$ ($4.52 \pm {}^{0.004}_{0}$)		———
Drive chain	Type	D.I.D.: 50 UB	———
	Links	104	———
	20 pitch length	———	324.3 (12.77)
Drive chain slack	20 – 30 (0.8 – 1.2)		———

CARBURETOR

Unit: mm (in)

ITEM	SPECIFICATION		
	E—02, and the others		Only for E-22
Carburetor type	MIKUNI BS34SS	←	←
Bore size	34 (1.34)	←	←
I.D. No.	44201	44202	44220
Idle r/min.	1100 ± 50 r/min.	←	←
Fuel level	5.0 ± 0.5 (0.20 ± 0.02)	←	←
Float height	22.4 ± 1.0 (0.88 ± 0.04)	←	←
Main jet (M.J.)	#117.5	←	←
Main air jet (M.A.J.)	0.6	←	←
Jet needle (J.N.)	5D69-4	←	←
Needle jet (N.J.)	O-9	P-1	P-2
Pilot jet (P.J.)	#42.5	←	←
By pass (B.P.)	0.9, 0.8, 0.8	←	←
Pilot outlet (P.O.)	0.8	←	←
Valve seat (V.S.)	2.0	←	←
Starter jet (G.S.)	#32.5	←	←
Pilot screw (P.S.)	1½	←	←
Pilot air jet (P.A.J.)	#125	←	←
Throttle calbe play	0.5 – 1.0 (0.02 – 0.04)	←	←

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION			
Ignition timing	20° B.T.D.C. Below 1650 ± 100 r/min and 35° B.T.D.C. Above 3500 ± 100 r/min.			Only for E-28
	20° B.T.D.C. Below 1650 ± 100 r/min and 40° B.T.D.C. Above 3500 ± 100 r/min.			Transistorized ignition type
Firing order	1, 2			
Spark plug	Type	NGK: DR8ES-L N. D.: X24ESR-U		
	Gap	0.6 – 0.7 (0.024 – 0.028)		
Spark performance	Over 8 (0.3) at 1 atm			
Contact point gap	0.30 – 0.40 (0.012 – 0.016)			E-28
Dwell angle	KOKUSAN	190°		E-28
Condenser capacity	KOKUSAN	0.25 ± 0.03 μF		E-28
Signal coil resistance	Approx. 60 – 80 Ω			Br – B/W Except for G/W – B/W E-28
Ignition coil resistance	Primary	O/W – W or B/Y Approx. 3.5 – 4.5 Ω		Except for E-28
	Secondary	Plug cap – W or B/Y Approx. 23 – 25 kΩ		Except for E-28
	Primary	O/W – W or B Approx. 3 – 5 Ω		E-28
	Secondary	Plug cap – W or B Approx. 21 – 25 kΩ		E-28
Generator No-Load voltage	More than 75V (AC) at 5000 r/min.			
Regulated voltage	14 – 15V at 5000 r/min.			
Starter motor	Brush length	N.D.	Limit: 9 (0.4)	
	Commutator under cut		Limit: 0.2 (0.008)	
Starter relay resistance	Approx. 3 – 4 Ω			
Battery	Type designation	YB10L-A2		
	Capacity	12V 43.2 kC (12 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
Fuse size	Main	15A		

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal free travel		20 – 30 (0.8 – 1.2)	———
Rear brake pedal height		20 (0.8)	———
Brake drum I.D.	Rear	———	160.7 (6.33)
Brake lining thickness		———	1.5 (0.06)
Brake disc thickness	Front	5.0 ± 0.1 (0.20 ± 0.004)	4.5 (0.18)
Brake disc runout		———	0.30 (0.012)
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	———
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	———
Brake caliper cylinder bore	Front	42.850 – 42.926 (1.6870 – 1.6900)	———
	Rear	42.770 – 42.820 (1.6839 – 1.6858)	———
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Tire size	Front	3.60S19 4PR	———
	Rear	4.60S16 4PR	———
Tire tread depth	Front	———	1.6 (0.06)
	Rear	———	2.0 (0.08)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT
Front fork stroke	140 (5.5)	———
Front fork spring free length	———	506 (19.9)
Front fork oil level	207 (8.1)	———
Rear wheel travel	100 (3.9)	———
Swinging arm pivot shaft runout	———	0.3 (0.012)

FUEL + OIL

ITEM	SPECIFICATION
Fuel type	Use gasoline with an octane number of 90 or higher (Research Method), preferably unleaded or low-lead.
Fuel tank including reserve	11 L (2.9 / 2.4 US/Imp gal)
reserve	2.0 L (2.1 / 1.8 US/Imp gal)
Engine oil type	SAE 10W/40
Engine oil capacity — Change	2600 ml (2.7 / 2.3 US/Imp qt)
Engine oil capacity — Filter change	2900 ml (3.1 / 2.6 US/Imp qt)
Engine oil capacity — Overhaul	3000 ml (3.2 / 2.6 US/Imp qt)
Front fork oil type	Mixture ratio SAE 10W/30: A.T.F. = 1 : 1
Front fork oil capacity (each leg)	145 ml (4.90 / 5.11 US/Imp oz)
Brake fluid type	SAE J1703, DOT3 or DOT4

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING						CONTINUOUS HIGH SPEED RIDING					
	SOLO RIDING			DUAL RIDING			SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	175	1.75	25	175	1.75	25	200	2.00	28	200	2.00	28
REAR	200	2.00	28	225	2.25	32	225	2.25	32	250	2.50	36

WATTAGE

(W)

ITEM		SPECIFICATION								
		E-28	E-02	E-04	E-22					
Headlight	HI	45	←	←	←					
	LO	40	45	40	←					
Parking or city light			3.4	4	←					
Tail/Brake light		8/23	5/21	←	←					
Turn signal light		23	21	←	←					
Speedometer light		3.4	←	←	←					
Tachometer light		3.4	←	←	←					
Turn signal indicator light		3.4	←	←	←					
High beam indicator light		3.4	←	←	←					
Neutral indicator light		3.4	←	←	←					
Oil pressure indicator light		3.4	←	←	←					

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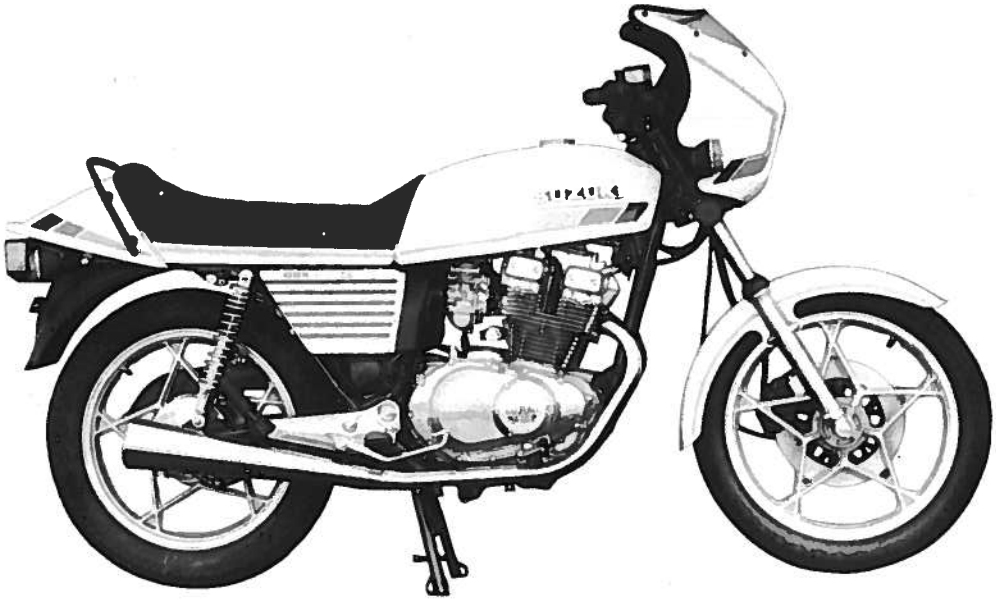
VIEW OF SUZUKI GSX400E/S

GSX400E



GSX400S

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 075 mm – E type Model
	2 065 mm – S type Model
Overall width	755 mm – E type Model
	710 mm – S type Model
Overall height	1 075 mm – E type Model
	1 230 mm – S type Model
Wheelbase	1 385 mm
Ground clearance	155 mm
Seat height	815 mm – E type Model
	805 mm – S type Model
Dry mass	175 kg

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	2
Bore	67.0 mm
Stroke	56.6 mm
Piston displacement	399 cm^3
Compression ratio	10.0 : 1
Carburetor	MIKUNI BS34SS, twin
Air cleaner	Polyurethane foam 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	2.714 (76/28)
Final reudction	2.812 (45/16)
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	DAIDO D.I.D. 50UB, 104 links

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swing arm, oil dampened, spring 5-way adjustable
Steering angle	42° (right & left)
Caster	62° 00'
Trail	105 mm
Turning radius	2.4 m
Front brake	Disc brake
Rear brake	Internal expanding
Front tire size	3.00S18 4PR
Rear tire size	3.50S18 4PR 3.75S18 4PR (for W. Germany)

ELECTRICAL

Ignition type	Transistorized
Ignition timing	20° B.T.D.C. below 1 650 r/min and 40° B.T.D.C. above 3 500 r/min
Spark plug	NGK DR8ES-L or NIPPON DENSO X24ESR-U
Battery	12V 43.2 kC (12Ah)/10 Hours
Generator	Three-phase A.C. generator
Fuse	15A
Headlight	12V 35/35W.....England 12V 36/36W.....France 12V 45/45W.....Australia 12V 45/40W.....The others
Tail /Brake light	12V 8/23W.....Australia 12V 5/21W.....The others
Turn signal light	12V 23W.....Australia 12V 21W.....The others
Parking light	12V 3.4W.....England 12V 4W.....The others
Speedometer light	12V 3.4W
Tachometer light	12V 3.4W
Neutral indicator light	12V 3.4W
High beam indicator light	12V 3.4W
Turn signal indicator light	12V 3.4W
Oil pressure indicator light	12V 3.4W

CAPACITIES

Fuel tank including reserve	14.5 L (3.2 Imp gal)
reserve	3.0 L (2.6 Imp qt)
Engine oil when changing	2.6 L (2.3 Imp qt)
Front fork oil	145 ml (5.11 Imp oz) – E-22, 26 E type Model 148 ml (5.21 Imp oz) – E-02, 04, 22 S type Model 150 ml (5.28 Imp oz) – E-02, 04, 16, 24 E type Model

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

	ITEM	STANDARD		LIMIT
	Valve diam.	IN.	23 (0.90)	———
		EX.	20 (0.78)	———
*	Valve lift	IN.	7.0 (0.28)	———
		EX.	7.0 (0.28)	———
	Valve clearance or tappet clearance (when cold)	IN. & EX.	0.08–0.13 (0.003–0.005)	———
	Valve guide to valve stem clearance	IN.	0.025–0.052 (0.0010–0.0020)	0.35 (0.014)
		EX.	0.040–0.067 (0.0016–0.0026)	0.35 (0.014)
	Valve guide I.D.	IN. & EX.	5.500–5.512 (0.2165–0.2170)	———
	Valve stem O.D.	IN.	5.460–5.475 (0.2150–0.2156)	———
		EX.	5.445–5.460 (0.2144–0.2150)	———
	Valve stem runout	IN. & EX.	———	0.05 (0.002)
	Valve head thickness	IN. & EX.	———	0.5 (0.02)
	Valve stem end length	IN. & EX.	———	3.6 (0.14)
	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	———	31.9 (1.26)
		OUTER	———	35.5 (1.40)
	Valve spring tension (IN. & EX.)	INNER	4.4–6.4 kg (9.7–14.1 lbs) at length28.5mm (1.12 in)	———
		OUTER	6.5–8.9 kg (14.3–19.6 lbs) at length32.0mm (1.26 in)	———

CRANKSHAFT + CYLINDER HEAD

Unit: mm (in)

	ITEM	STANDARD		LIMIT
*	Cam height	IN.	34.650—34.690 (1.3642—1.3657)	34.350 (1.3524)
		EX.	34.650—34.690 (1.3642—1.3657)	34.350 (1.3524)
	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 20 pitch length		———	157.80 (6.213)
	Cam chain pin (at arrow "3")		20 th pin	———
	Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	———
	Rocker arm shaft O.D.	IN. & EX.	11.973—11.984 (0.4714—0.4718)	———
	Cylinder head distortion		———	0.10 (0.004)

* Only for E-22

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.350—33.390 (1.3130—1.3146)	33.050 (1.3012)
	EX.	33.350—33.390 (1.3130—1.3146)	33.050 (1.3012)
Valve lift	IN.	4.8 (0.19)	———
	EX.	4.8 (0.19)	———

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	10 – 14 kg/cm² (142 – 199 psi)			8 kg/cm² (114 psi)
Compression pressure difference	———			2 kg/cm² (28.4 psi)
Piston to cylinder clearance	0.050–0.060 (0.0020–0.0024)			0.120 (0.0047)
Cylinder bore	67.000–67.015 (2.6378–2.6384)			67.080 (2.6410)
Piston diam.	66.945–66.960 (2.6356–2.6362) Measure at the15.0(0.59) from skirt end.			66.880 (2.6331)
Cylinder distortion	———			0.10 (0.004)
Piston ring free end gap	1st	N	Approx. 9.5 (0.37)	7.6 (0.30)
		R	Approx. 9.5 (0.37)	7.6 (0.30)
	2nd	N	Approx. 10.0 (0.39)	8.0 (0.31)
		R	Approx. 10.0 (0.39)	8.0 (0.31)
Piston ring end gap	1st		0.10–0.30 (0.004–0.012)	0.7 (0.03)
	2nd		0.10–0.30 (0.004–0.012)	0.7 (0.03)
Piston ring to groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring groove width	1st		1.21–1.23 (0.047–0.048)	———
	2nd		1.21–1.23 (0.047–0.048)	———
	Oil		2.51–2.53 (0.099–0.100)	———
Piston ring thickness	1st		1.175–1.190 (0.0463–0.0469)	———
	2nd		1.170–1.190 (0.0461–0.0469)	———
Piston pin bore	18.002–18.008 (0.7087–0.7090)			18.030 (0.7098)
Piston pin O.D.	17.996–18.000 (0.7085–0.7087)			17.980 (0.7079)

CONROD + CRANKSHAFT + BALANCER

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	18.006–18.014 (0.7089–0.7092)	18.040 (0.7102)
Conrod big end thrust clearance	0.10–0.20 (0.004–0.008)	0.30 (0.012)
Conrod big end width	22.95–23.00 (0.904–0.906)	———
Crank pin width	23.10–23.15 (0.909–0.911)	———
Conrod big end oil clearance	0.024–0.048 (0.0009–0.0019)	0.080 (0.0031)
Crank pin O.D.	33.976–34.000 (1.3376–1.3386)	———
Crankshaft journal oil clearance	0.020–0.044 (0.0008–0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976–32.000 (1.2589–1.2598)	———
Crankshaft thrust bearing thickness	2.95–2.98 (0.116–0.117)	2.85 (0.112)
Crankshaft runout	———	0.05 (0.002)
Balancer journal oil clearance	0.020–0.044 (0.0008–0.0017)	0.080 (0.0031)
Balancer journal O.D.	31.984–32.000 (1.2592–1.2598)	———

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.071 (76 / 28 x 29 / 38)	———
Oil pressure (at 60°C, 140°F)	Above 3.0 kg/cm² (43 psi) Below 5.5 kg/cm² (78 psi) at 3000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	4.0 (0.16)	———
Clutch release screw	$\frac{1}{4}-\frac{1}{2}$ Turn back	———
Drive plate thickness	2.9—3.1 (0.11—0.12)	2.6 (0.10)
Drive plate claw width	15.8—16.0 (0.62—0.63)	15.0 (0.59)
Driven plate thickness	1.60 ± 0.06 (0.063 ± 0.002)	———
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	38.4 (1.51)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in)

ITEM		STANDARD	LIMIT
Primary reduction ratio		2.714 (76 / 28)	———
Final reduction ratio		2.812 (45 / 16)	———
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		0.10 — 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)	———
Counter shaft length (Low to 2nd)		114.7 ± $^{0.1}_{0}$ (4.52 ± $^{0.004}_{0}$)	———
Drive chain	Type	D.I.D.: 50UB	———
	Links	104	———
	20 pitch length	———	324.3 (12.77)
Drive chain slack		20—30 (0.8—1.2)	———

CARBURETOR

Unit: mm (in)

ITEM	SPECIFICATION	
	E-02, and the others	Only for E-22
Carburetor type	MIKUNI BS34SS	←
Bore size	34	←
I. D. No.	44202	44220
Idle r/min.	1100 ± 50 r/min.	←
Fuel level	5.0 ± 0.5 (0.20 ± 0.02)	←
Float height	22.4 ± 1.0 (0.88 ± 0.04)	←
Main jet (M. J.)	# 117.5	←
Main air jet (M. A. J.)	0.6	←
Jet needle (J. N.)	5D 69-4	←
Needle jet (N. J.)	P—1	P-2
Pilot jet (P. J.)	# 42.5	←
By pass (B. P.)	0.9, 0.8, 0.8	←
Pilot outlet (P. O.)	0.8	←
Valve seat (V. S.)	2.0	←
Starter jet (G. S.)	# 32.5	←
Pilot screw (P. S.)	1 1/2 turn out	←
Pilot air jet (P. A. J.)	# 125	←
Throttle cable play	0.5 — 1.0 (0.02 — 0.04)	←

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION			NOTE
Ignition timing	20° B.T.D.C. Below 1650 ± 100 r/min and 40° B.T.D.C. Above3500 ± 100 r/min.			
Spark plug	Type	NGK D8EA NIPPON DENSO X24ES–U		Only for E-24
	Gap	0.6–0.7 (0.024–0.028)		
	Type	NGK DR8ES-L NIPPON DENSO X24ESR-U		The others
	Gap	0.6 – 0.7 (0.024 – 0.028)		
Spark performance	Over 8 (0.3) at 1 atm			
Signal coil resistance	Approx.	60 – 80 Ω		Br–B/W G/W–B/W
Ignition coil resistance	Primary	O/W – W or B Approx. 3 – 5 Ω		
	Secondary	Plug cap – O/W or W Approx. 21 – 25 kΩ		
Generator no-load voltage	More than 75 V (AC) at 5000 r/min.			
Regulated voltage	14 – 15 V at 5000 r/min.			
Starter motor	Brush length	N. D.	Limit: (9 / 0.4)	
	Commutator under cut		Limit: (0.2 / 0.008)	
Starter relay resistance	Approx.	3 – 4 Ω		
Battery	Type designation	YB10L-A2		
	Capacity	12V 43.2 kC (12Ah)/10HR		
	Standard electrolyte S. G.	1.28 at 20°C (68°F)		
Fuse size	Main	15 A		

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal free travel		20 – 30 (0.8 – 1.2)	———
Rear brake pedal height		20 (0.8)	———
Brake drum I.D.	Rear	———	160.7 (6.33)
Brake lining thickness		———	1.5 (0.06)
Brake disc thickness	Front	5.0 ± 0.1 (0.20 ± 0.004)	4.5 (0.18)
Brake disc runout		———	0.30 (0.012)
Master cylinder bore	Front	14.000–14.043 (0.5512–0.5529)	———
Master cylinder piston diam.	Front	13.957–13.984 (0.5495–0.5506)	———
Brake caliper cylinder bore	Front	42.850–42.926 (1.6870–1.6900)	———
Brake caliper piston diam.	Front	42.770–42.820 (1.6839–1.6858)	———
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.010)
	Rear	———	0.25 (0.010)
Tire size	Front	3.00S18 4PR	———
	Rear	3.50S18 4PR	———
Only for E-22	Rear	3.75S18 4PR	———
Tire tread depth	Front	———	1.6 (0.06)
	Rear	———	2.0 (0.08)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD		LIMIT	NOTE
Front fork stroke	140 (5.5)		———	
Front fork spring free length	———		496 (19.5)	E-02, 04, 16, 24 E type Model
	Upper	———	103 (4.1)	E-22,26 E type Model
	Lower	———	391 (15.4)	
	Upper	———	103 (4.1)	S type Model
	Lower	———	391 (15.4)	
Front fork oil level	197 (7.8)		———	S type Model
	186 (7.3)		———	E-02, 04, 16, 24 E type Model
	197 (7.8)		———	E-22,26 E type Model
Rear wheel travel	100 (3.9)		———	
Swing arm pivot shaft runout	———		0.3 (0.012)	

FUEL + OIL

ITEM	SPECIFICATION	NOTE
Fuel type	Use gasoline with an octane number of 85-90 or higher (Research Method), preferably unleaded or low-lead.	
Fuel tank including reserve	14.5 L (3.8 / 3.2 US/Imp gal)	
reserve	3.0 L (3.2 / 2.6 US/Imp qt)	
Engine oil type	SAE 10W/40	
Engine oil capacity — Change	2600 ml (2.7 / 2.3 US/Imp qt)	
Filter change	2900 ml (3.1 / 2.6 US/Imp qt)	
Overhaul	3000 ml (3.2 / 2.6 US/Imp qt)	

Unit: mm (in)

ITEM	SPECIFICATION	NOTE
Front fork oil type	Mixture ratio SAE 10W/30 : A.T.F = 1:1	
Front fork oil capacity (each leg)	145 ml (4.90 / 5.11 US/Imp oz)	E-22, 26 E type Model
	148 ml (5.00 / 5.21 US/Imp oz)	E-02, 04,22 S type Model
	150 ml (5.07 / 5.28 US/Imp oz	E-02, 04, 16,24 E type Model
Brake fluid type	SAE J1703, DOT3 or DOT4	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING						CONTINUOUS HIGH SPEED RIDING					
	SOLO RIDING			DUAL RIDING			SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	175	1.75	25	175	1.75	25	200	2.00	28	200	2.00	28
REAR	200	2.00	28	225	2.25	32	225	2.25	32	250	2.50	36

WATTAGE

(W)

ITEM		SPECIFICATION			
		E-02	E-04	E-16, 22,26	E-24
Headlight	HI	35	36	45	←
	LO	35	36	40	45
Parking or city light		3.4	4	←	
Tail/Brake light		5/21	←	←	8/23
Turn signal light		21	←	←	23
Speedometer light		3.4	←	←	←
Tachometer light		3.4	←	←	←
Turn signal indicator light		3.4	←	←	←
High beam indicator light		3.4	←	←	←
Neutral indicator light		3.4	←	←	←
Oil pressure indicator light		3.4	←	←	←
Gear position indicator light		1.1	←	←	←

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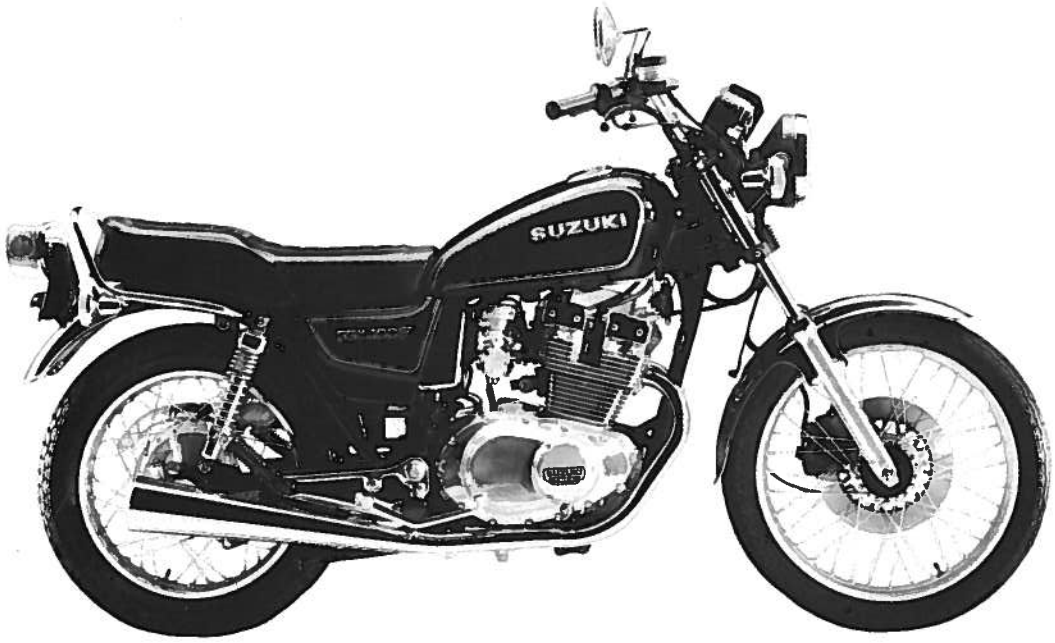
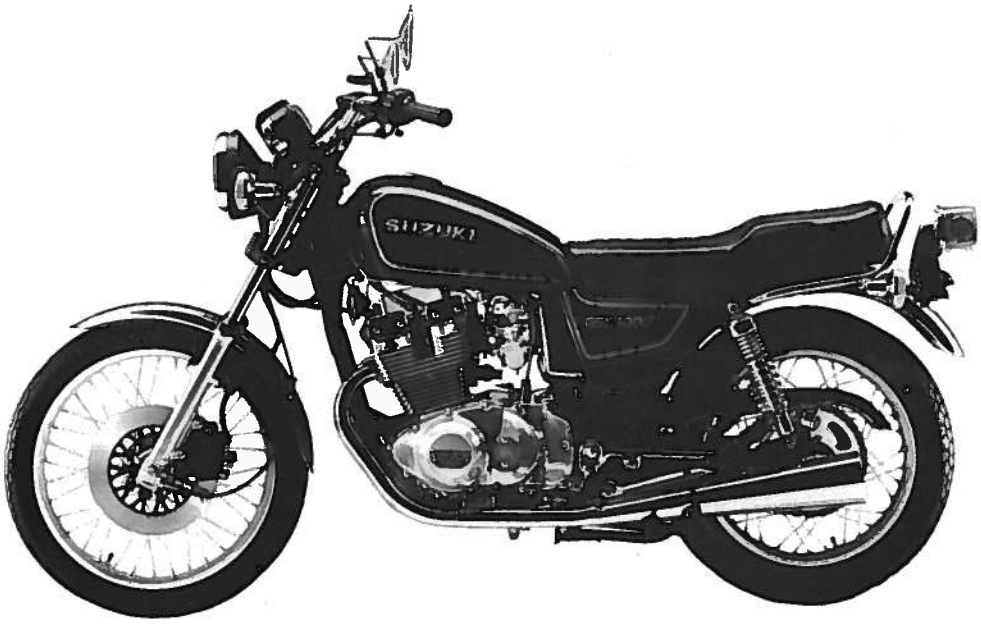
VIEW OF SUZUKI GSX400T



RIGHT SIDE



LEFT SIDE

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 100 mm
Overall width	845 mm
Overall height	1 145 mm
Wheelbase	1 375 mm
Ground clearance	140 mm
Dry mass	175 kg

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number-of cylinders	2
Bore	67.0 mm
Stroke	56.6 mm
Piston displacement	399 cm^3
Compression ratio	10.0 : 1
Carburetor	MIKUNI BS34SS, twin
Air cleaner	Polyurethane foam 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	2.714 (76/28)
Final reduction	2.687 (43/16)
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	DAIDO D.I.D. 50UB, 104 links

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swing arm, oil dampened, spring 5-way adjustable
Steering angle	42° (right &left)
Caster	61° 00′
Trail	120 mm
Turning radius	2.3 m
Front brake	Disc brake
Rear brake	Internal expanding
Front tire size	90/90-19 52S
Rear tire size	110/90-17 60S

ELECTRICAL

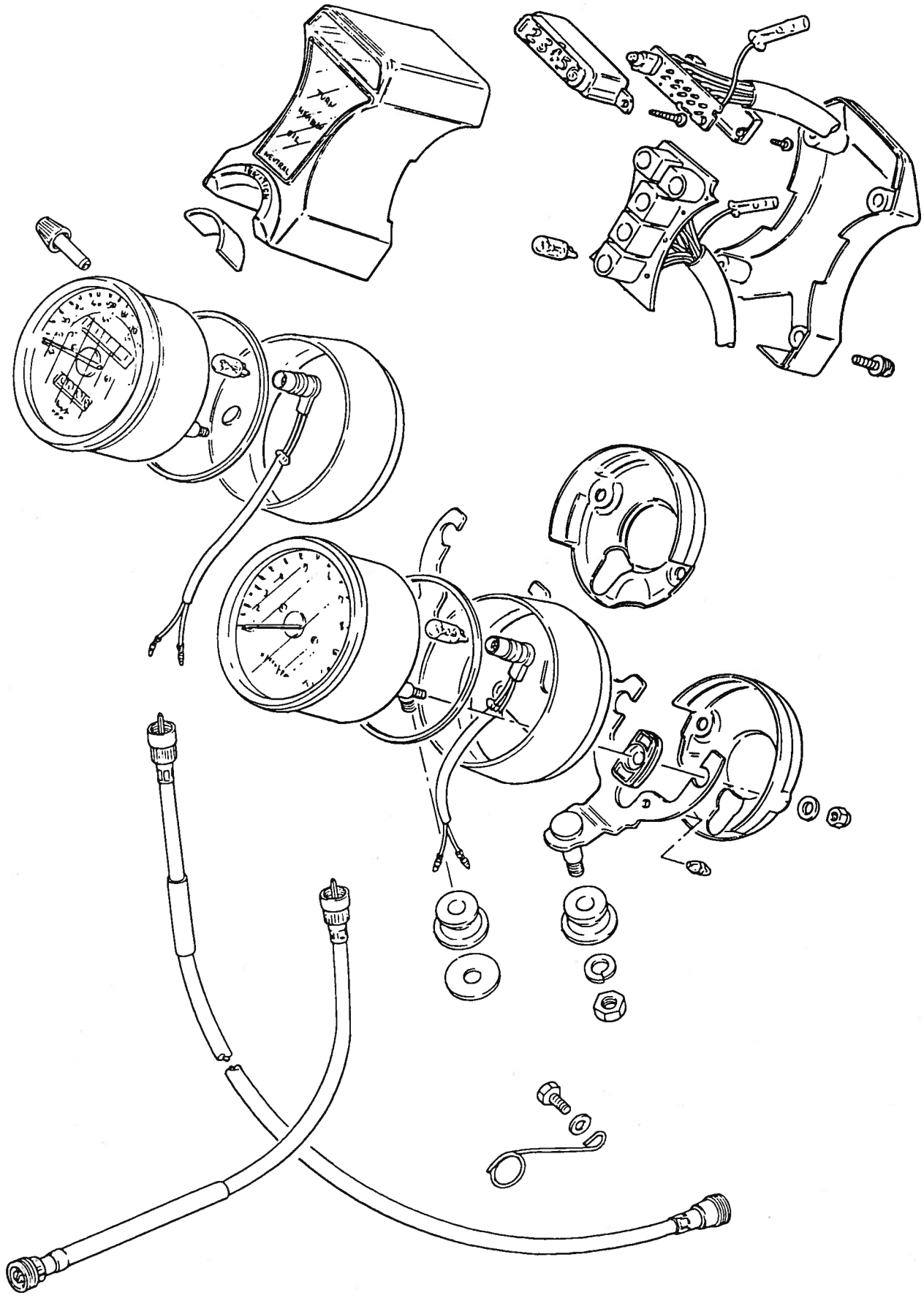
Ignition type	Transistorized
Ignition timing	20° B.T.D.C. below 1 650 r/min and 40° B.T.D.C. above 3 500 r/min
Spark plug	NGK D8EA or NIPPON DENSO X24ES-U.....General market NGK DR8ES-L or NIPPON DENSO X24ESR-U.....Other markets
Battery	12V 43.2 kC (12Ah)/10HR
Generator	Three-phase A.C. generator
Fuse	15A
Headlight	12V 45/45W.....General market 12V 35/35W.....England 12V 45/40W.....Other markets
Tail/Brake light	12V 5/21W.....England 8/23W.....General market
Turn signal light	12V 21W.....England 23W.....General market
Parking light	12V 3.4W.....England 12V 4W.....France and West Germany
Speedometer light	12V 3.4W
Tachometer light	12V 3.4W
Neutral indicator light	12V 3.4W
High beam indicator light	12V 3.4W
Turn signal indicator light	12V 3.4W
Oil pressure indicator light	12V 3.4W

CAPACITIES

Fuel tank including reserve	12 L (2.6 Imp gal)
reserve	4.0 L (3.5 Imp qt.)
Engine oil when changing	2.6 L (2.3 Imp qt.)
Front fork oil	148 ml (5.21 Imp oz.)

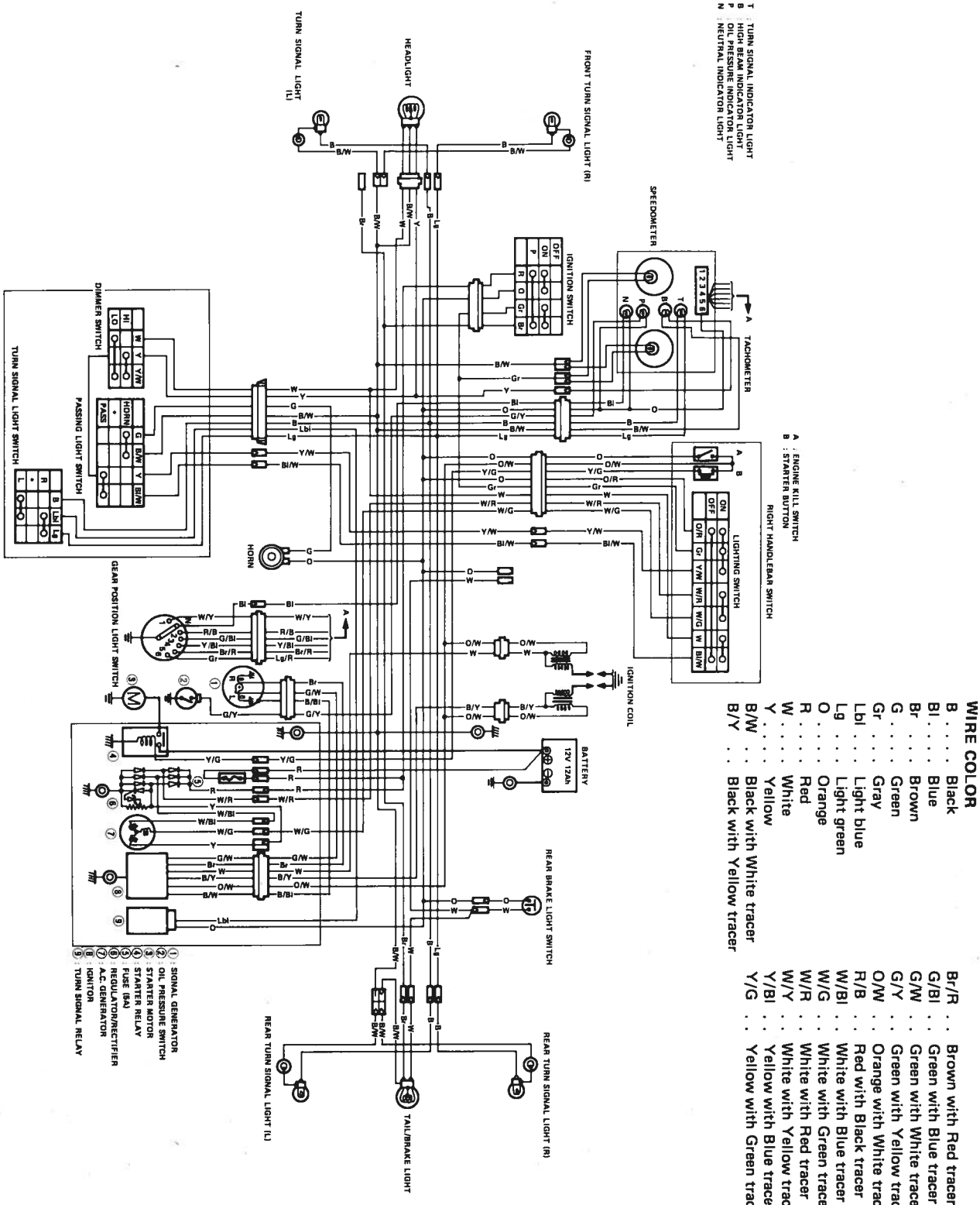
* These specifications are subject to change without notice.

COMBINATION METER



WIRING DIAGRAM

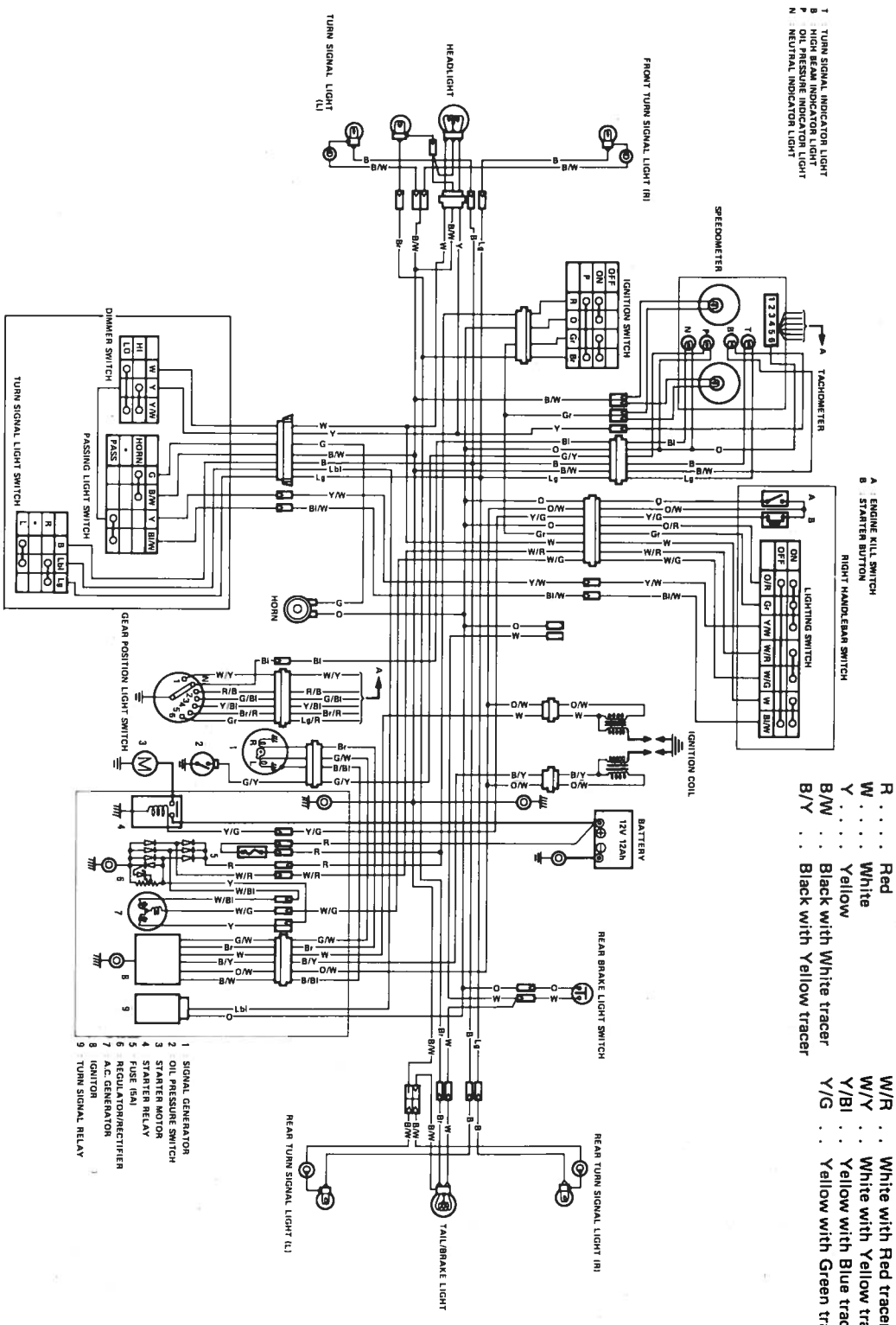
For GENERAL



WIRE COLOR

B	Black
Bl	Blue
Br	Brown
G	Green
Gr	Gray
Lbl	Light blue
Lg	Light green
O	Orange
R	Red
W	White
Y	Yellow
B/W	Black with White tracer
B/Y	Black with Yellow tracer
Br/R	Brown with Red tracer
G/Bl	Green with Blue tracer
G/W	Green with White tracer
G/Y	Green with Yellow tracer
O/W	Orange with White tracer
R/B	Red with Black tracer
W/Bl	White with Blue tracer
W/G	White with Green tracer
W/R	White with Red tracer
W/Y	White with Yellow tracer
Y/Bl	Yellow with Blue tracer
Y/G	Yellow with Green tracer

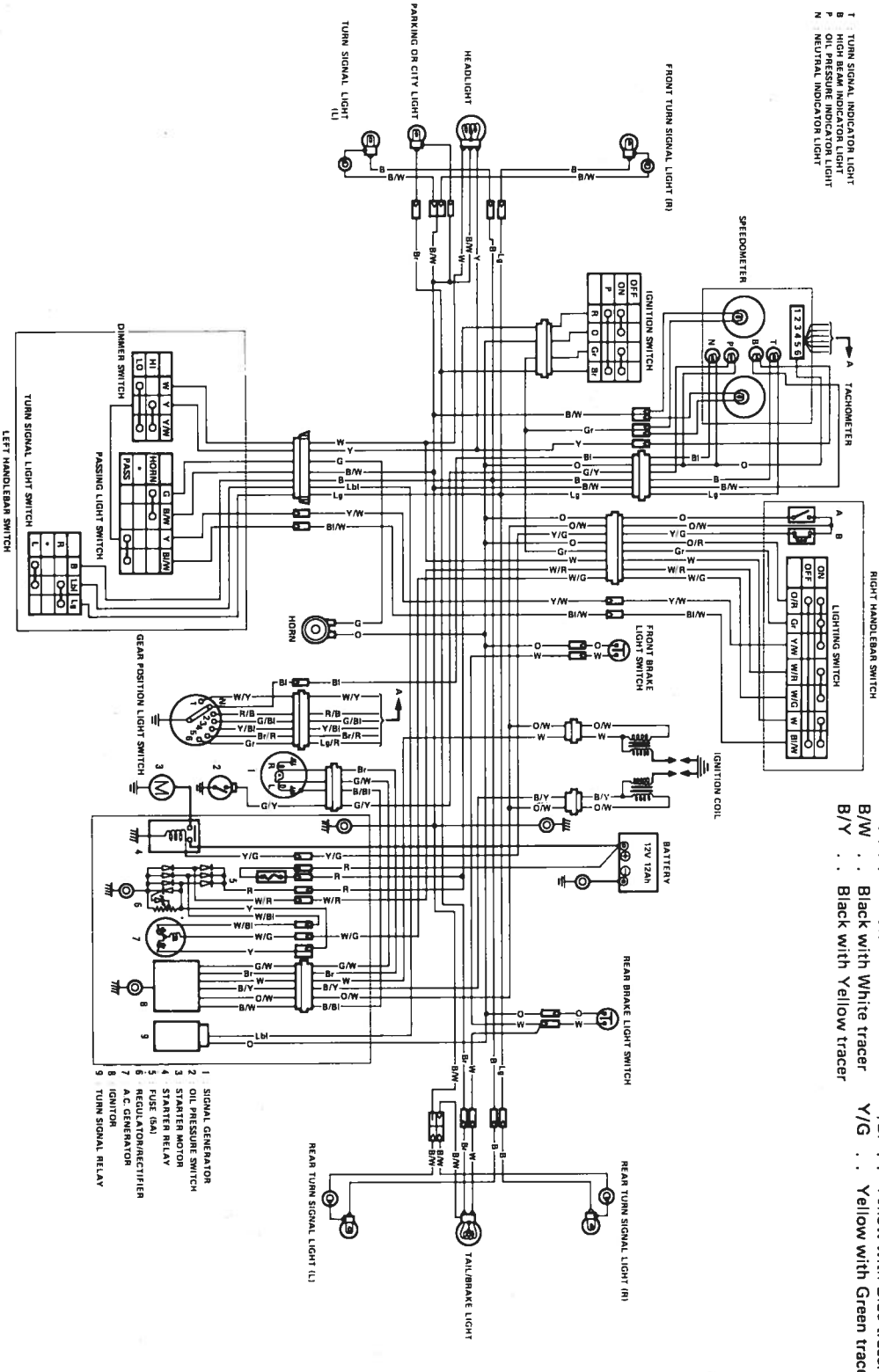
For ENGLAND



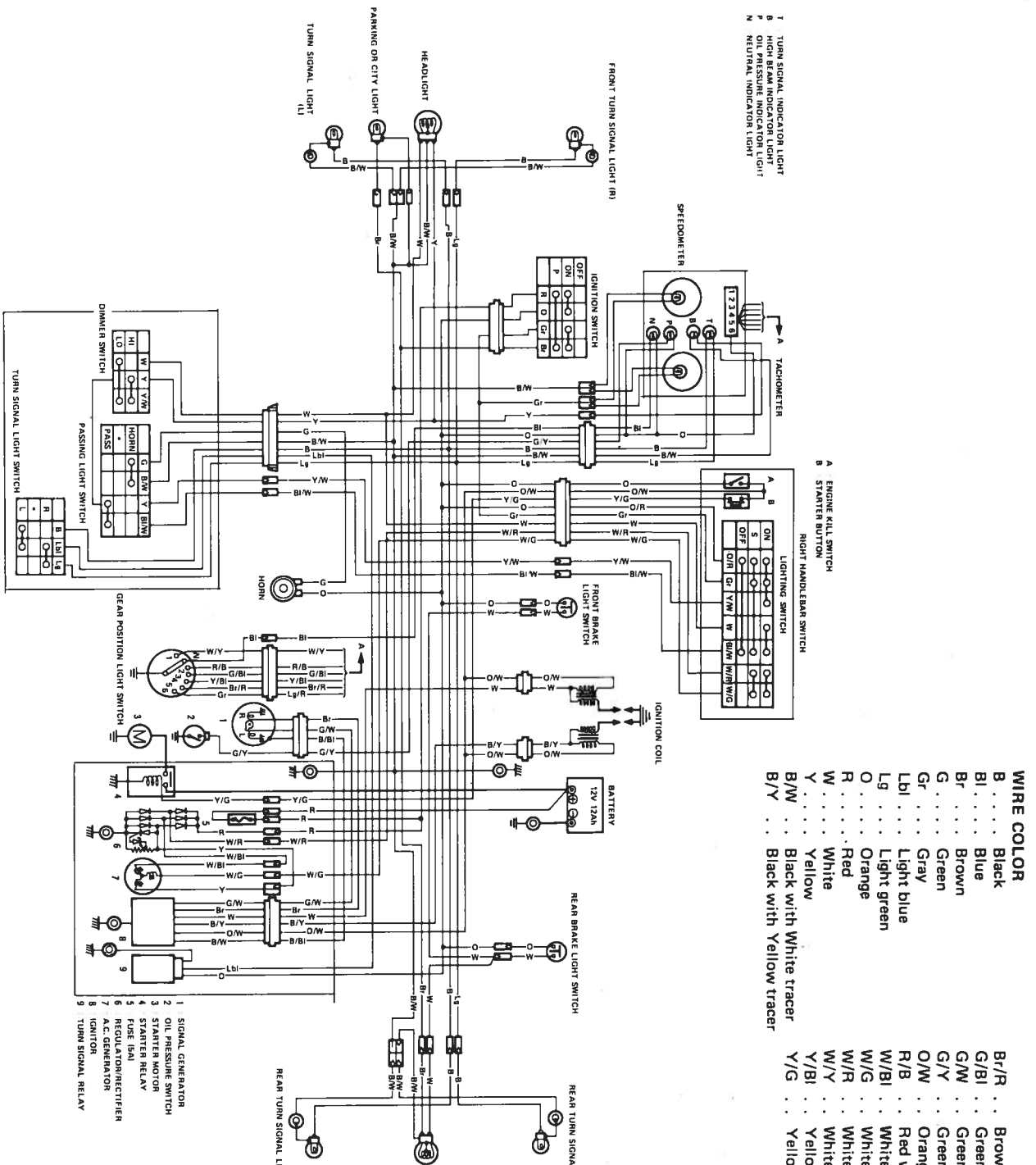
WIRE COLOR

B	Black	Br/R	Brown with Red tracer
Bl	Blue	G/Bl	Green with Blue tracer
Br	Brown	G/W	Green with White tracer
G	Green	G/Y	Green with Yellow tracer
Gr	Gray	O/W	Orange with White tracer
Lbl	Light blue	R/B	Red with Black tracer
Lg	Light green	W/Bl	White with Blue tracer
O	Orange	W/G	White with Green tracer
R	Red	W/R	White with Red tracer
W	White	W/Y	White with Yellow tracer
Y	Yellow	Y/Bl	Yellow with Blue tracer
B/W	Black with White tracer	Y/G	Yellow with Green tracer
B/Y	Black with Yellow tracer		

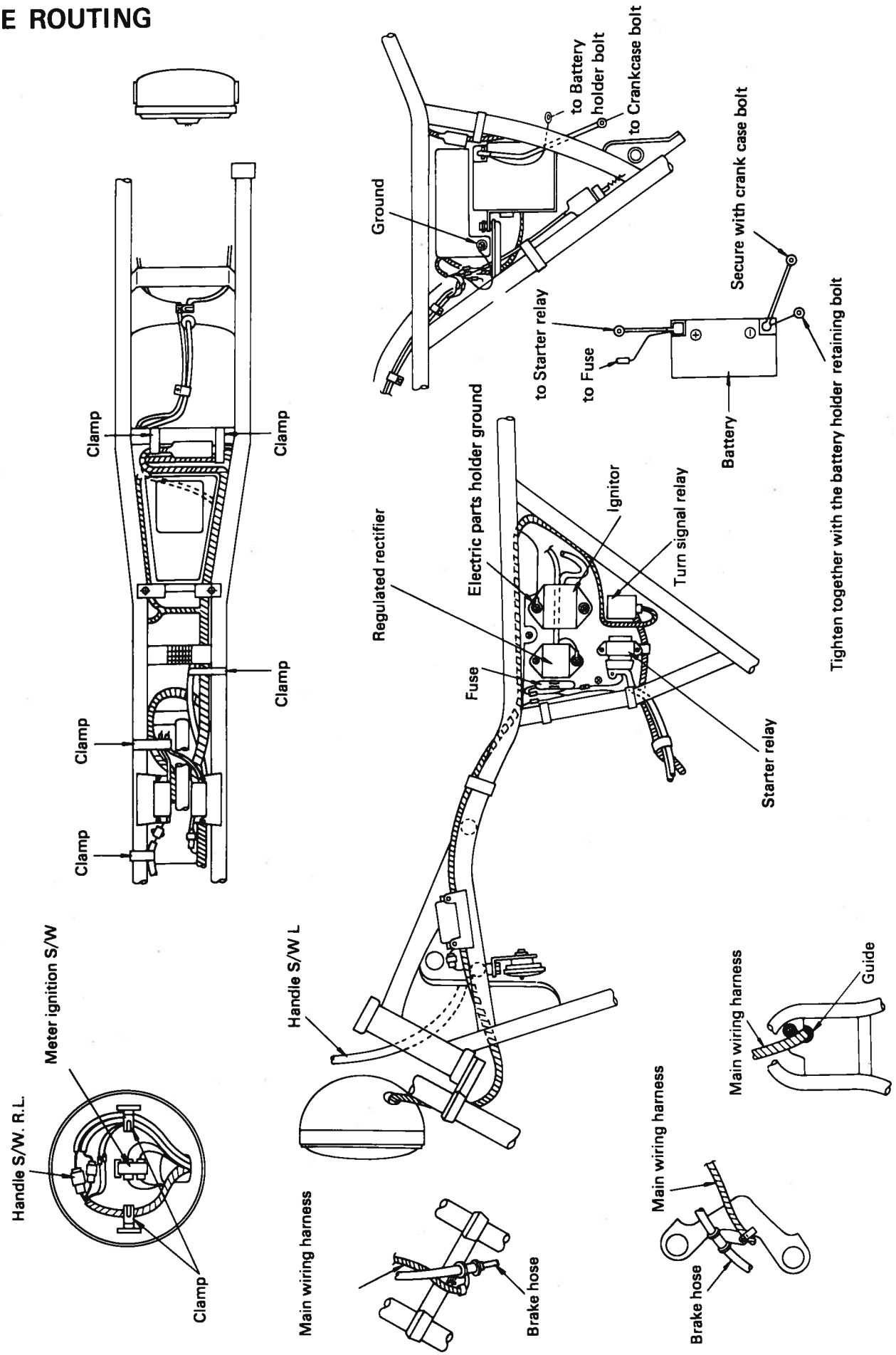
For BELGIUM


WIRE COLOR
B . . . . Black
Bl . . . . Blue
Br . . . . Brown
G . . . . Green
Gr . . . . Gray
Lbl . . . . Light blue
Lg . . . . Light green
O . . . . Orange
R . . . . Red
W . . . . White
Y . . . . Yellow
B/W . . Black with White tracer
B/Y . . Black with Yellow tracer
Br/R . . Brown with Red tracer
G/Bl . . Green with Blue tracer
G/W . . Green with White tracer
G/Y . . Green with Yellow tracer
O/W . . Orange with White tracer
R/B . . Red with Black tracer
W/Bl . . White with Blue tracer
W/G . . White with Green tracer
W/R . . White with Red tracer
W/Y . . White with Yellow tracer
Y/Bl . . Yellow with Blue tracer
Y/G . . Yellow with Green tracer
T . . TURN SIGNAL INDICATOR LIGHT
B . . HIGH BEAM INDICATOR LIGHT
P . . OIL PRESSURE INDICATOR LIGHT
N . . NEUTRAL INDICATOR LIGHT
A . . ENGINE KILL SWITCH
B . . STARTER BUTTON
RIGHT HANDLEBAR SWITCH
SPEEDOMETER
TACHOMETER
IGNITION SWITCH
FRONT TURN SIGNAL LIGHT (R)
HEADLIGHT
PARKING OR CITY LIGHT
TURN SIGNAL LIGHT (L)
DIMMER SWITCH
PASSING LIGHT SWITCH
TURN SIGNAL LIGHT SWITCH
LEFT HANDLEBAR SWITCH
HORN
LIGHTING SWITCH
FRONT BRAKE LIGHT SWITCH
GEAR POSITION LIGHT SWITCH
IGNITION COIL
BATTERY
12V 12Ah
REAR BRAKE LIGHT SWITCH
REAR TURN SIGNAL LIGHT (R)
REAR TURN SIGNAL LIGHT (L)
TAIL/BRAKE LIGHT
1 SIGNAL GENERATOR
2 OIL PRESSURE SWITCH
3 STARTER MOTOR
4 STARTER RELAY
5 FUSE (5A)
6 REGULATOR/RECTIFIER
7 A.C. GENERATOR
8 IGNITOR
9 TURN SIGNAL RELAY

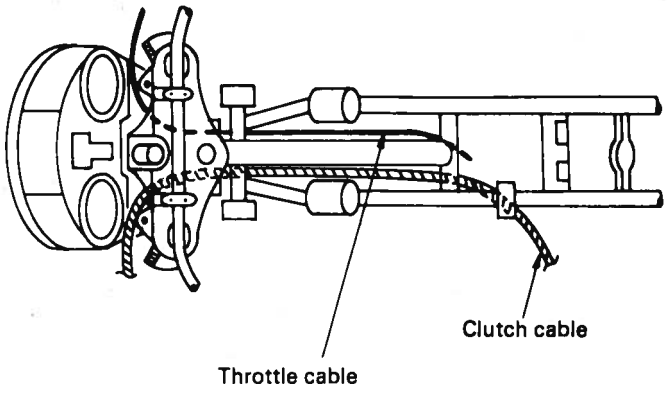
For W. GERMANY AND NETHERLANDS

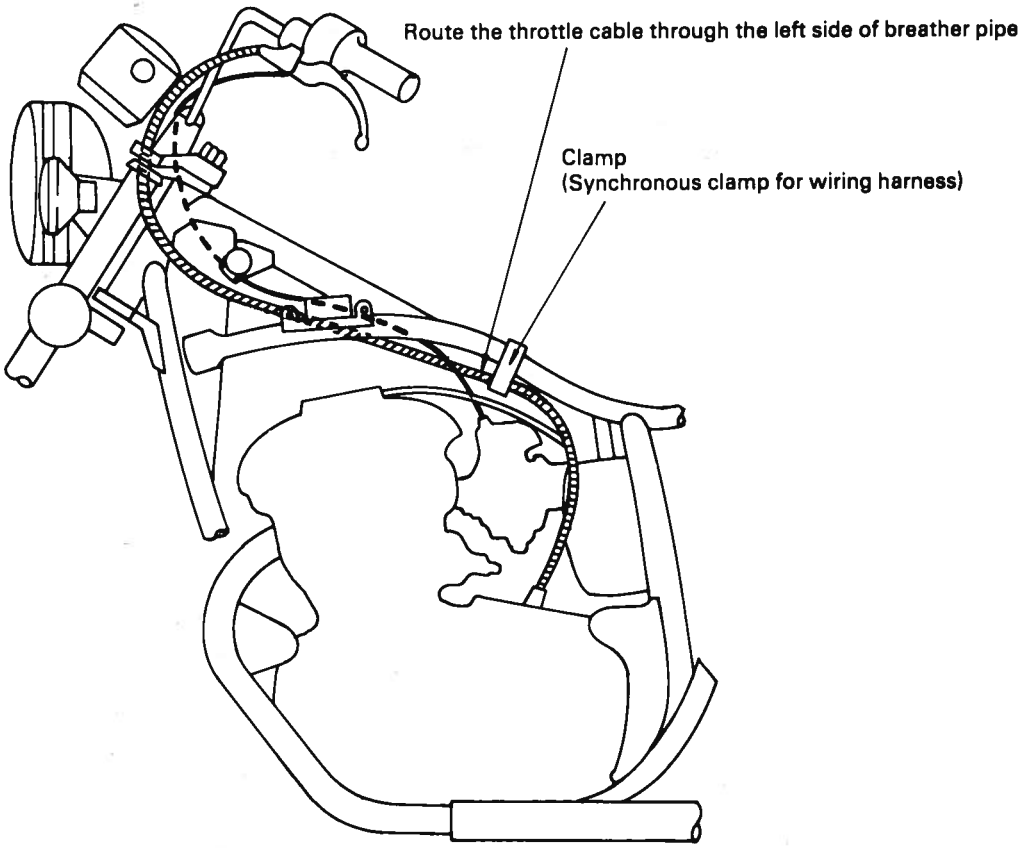


WIRE ROUTING



CABLE ROUTING





SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

	ITEM		STANDARD	LIMIT
	Valve diam.	IN.	23 (0.90)	———
		EX.	20 (0.78)	———
*	Valve lift	IN.	7.0 (0.28)	———
		EX.	7.0 (0.28)	———
	Valve clearance or tappet clearance (when cold)	IN. & EX.	0.08—0.13 (0.003—0.005)	———
	Valve guide to valve stem clearance	IN.	0.025—0.052 (0.0010—0.0020)	0.35 (0.014)
		EX.	0.040—0.067 (0.0016—0.0026)	0.35 (0.014)
	Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	———
	Valve stem O.D.	IN.	5.460—5.475 (0.2150—0.2156)	———
		EX.	5.445—5.460 (0.2144—0.2150)	———
	Valve stem runout	IN. & EX.	———	0.05 (0.002)
	Valve head thickness	IN. & EX.	———	0.5 (0.02)
	Valve stem end length	IN. & EX.	———	3.6 (0.14)
	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	———	31.9 (1.26)
		OUTER	———	35.5 (1.40)
	Valve spring tension (IN. & EX.)	INNER	4.4—6.4 kg (9.7—14.1 lbs) at length28.5mm (1.12 in)	———
		OUTER	6.5—8.9 kg (14.3—19.6 lbs) at length32.0mm (1.26 in)	———

CRANKSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
* Cam height	IN.	34.650—34.690 (1.3642—1.3657)	34.350 (1.3524)
	EX.	34.650—34.690 (1.3642—1.3657)	34.350 (1.3524)
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 20 pitch length		———	157.80 (6.213)
Cam chain pin (at arrow "3")		20 th pin	———
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	———
Rocker arm shaft O.D.	IN. & EX.	11.973—11.984 (0.4714—0.4718)	———
Cylinder head distortion		———	0.10 (0.004)

* Only for E-22

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.350—33.390 (1.3130—1.3146)	33.050 (1.3012)
	EX.	33.350—33.390 (1.3130—1.3146)	33.050 (1.3012)
Valve lift	IN.	4.8 (0.19)	———
	EX.	4.8 (0.19)	———

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM			STANDARD	LIMIT
Compression pressure			10 – 14 kg/cm² (142 – 199 psi)	8 kg/cm² (114 psi)
Compression pressure difference			———	2 kg/cm² (28.4 psi)
Piston to cylinder clearance			0.050–0.060 (0.0020–0.0024)	0.120 (0.0047)
Cylinder bore			67.000–67.015 (2.6378–2.6384)	67.080 (2.6410)
Piston diam.			66.945–66.960 (2.6356–2.6362) Measure at the15.0(0.59) from skirt end.	66.880 (2.6331)
Cylinder distortion			———	0.10 (0.004)
Piston ring free end gap	1st	N	Approx. 9.5 (0.37)	7.6 (0.30)
		R	Approx. 9.5 (0.37)	7.6 (0.30)
	2nd	N	Approx. 10.0 (0.39)	8.0 (0.31)
		R	Approx. 10.0 (0.39)	8.0 (0.31)
Piston ring end gap	1st		0.10–0.30 (0.004–0.012)	0.7 (0.03)
	2nd		0.10–0.30 (0.004–0.012)	0.7 (0.03)
Piston ring to groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring groove width	1st		1.21–1.23 (0.047–0.048)	———
	2nd		1.21–1.23 (0.047–0.048)	———
	Oil		2.51–2.53 (0.099–0.100)	———
Piston ring thickness	1st		1.175–1.190 (0.0463–0.0469)	———
	2nd		1.170–1.190 (0.0461–0.0469)	———
Piston pin bore			18.002–18.008 (0.7087–0.7090)	18.030 (0.7098)
Piston pin O.D.			17.996–18.000 (0.7085–0.7087)	17.980 (0.7079)

CONROD + CRANKSHAFT + BALANCER

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	18.006–18.014 (0.7089–0.7092)	18.040 (0.7102)
Conrod big end thrust clearance	0.10–0.20 (0.004–0.008)	0.30 (0.012)
Conrod big end width	22.95–23.00 (0.904–0.906)	———
Crank pin width	23.10–23.15 (0.909–0.911)	———
Conrod big end oil clearance	0.024–0.048 (0.0009–0.0019)	0.080 (0.0031)
Crank pin O.D.	33.976–34.000 (1.3376–1.3386)	———
Crankshaft journal oil clearance	0.020–0.044 (0.0008–0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976–32.000 (1.2589–1.2598)	———
Crankshaft thrust bearing thickness	2.95–2.98 (0.116–0.117)	2.85 (0.112)
Crankshaft runout	———	0.05 (0.002)
Balancer journal oil clearance	0.020–0.044 (0.0008–0.0017)	0.080 (0.0031)
Balancer journal O.D.	31.984–32.000 (1.2592–1.2598)	———

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.071 (76 / 28 x 29 / 38)	———
Oil pressure (at 60°C, 140°F)	Above 3.0 kg/cm² (43 psi) Below 5.5 kg/cm² (78 psi) at 3000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	4.0 (0.16)	———
Clutch release screw	1/4 – 1/2 Turn back	———
Drive plate thickness	2.9–3.1 (0.11–0.12)	2.6 (0.10)
Drive plate claw width	15.8–16.0 (0.62–0.63)	15.0 (0.59)
Driven plate thickness	1.60 ± 0.06 (0.063 ± 0.002)	———
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	38.4 (1.51)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in)

ITEM		STANDARD	LIMIT
Primary reduction ratio		2.714 (76 / 28)	———
Final reduction ratio		2.687 (43 / 16)	———
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		0.10–0.30 (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)	———
Counter shaft length (Low to 2nd)		114.7 ± 0.1 0 (4.52 ± 0.004 0)	———
Drive chain	Type	D.I.D.: 50UB	———
	Links	104	———
	20 pitch length	———	324.3 (12.77)
Drive chain slack		20–30 (0.8–1.2)	———

CARBURETOR

Unit: mm (in)

ITEM	SPECIFICATION	
	General and the others	Only for E-22
Carburetor type	MIKUNI BS34SS	←
Bore size	34	←
I. D. No.	44202	44220
Idle r/min.	1100 ± 50 r/min.	←
Fuel level	5.0 ± 0.5 (0.20 ± 0.02)	←
Float height	22.4 ± 1.0 (0.88 ± 0.04)	←
Main jet (M. J.)	# 117.5	←
Main air jet (M. A. J.)	0.6	←
Jet needle (J. N.)	5D69-4	←
Needle jet (N. J.)	P-1	P-2
Pilot jet (P. J.)	# 42.5	←
By pass (B. P.)	0.9, 0.8, 08	←
Pilot outlet (P. O.)	0.8	←
Valve seat (V. S.)	2.0	←
Starter jet (G. S.)	# 32.5	←
Pilot screw (P. S.)	1 1/2 turn out	←
Pilot air jet (P. A. J.)	# 125	←
Throttle cable play	0.5—1.0 (0.02—0.04)	←

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION			NOTE
Ignition timing	20° B.T.D.C. Below 1650 ± 100 r/min and 40° B.T.D.C. Above 3500 ± 100 r/min.			
Spark plug	Type	NGK D8EA NIPPON DENSO X24ES-U		General and E-25
	Gap	0.6 – 0.7 (0.024 – 0.028)		
	Type	NGK DR8ES-L NIPPON DENSO X24ESR-U		The others
	Gap	0.6 – 0.7 (0.024 – 0.028)		
Spark performance	Over 8 (0.3) at 1 atm			
Signal coil resistance	Approx.	60 – 80 Ω		Br – B/W G/W – B/W
Ignition coil resistance	Primary	O/W – W or B Approx. 3 – 5 Ω		
	Secondary	Plug cap – W or B Approx. 21 – 25 kΩ		
Generator no-load voltage	More than 75 V (AC) at 5000 r/min.			
Regulated voltage	14 – 15 V at 5000 r/min.			
Starter motor	Brush length	N. D.	Limit: (9 / 0.4)	
	Commutator under cut		Limit: (0.2 / 0.008)	
Starter relay resistance	Approx.	3 – 4 Ω		
Battery	Type designation	YB10L-A2		
	Capacity	12V 43.2 kC (12Ah)/10HR		
	Standard electrolyte S. G.	1.28 at 20°C (68°F)		
Fuse size	Main	15 A		

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD		LIMIT
Rear brake pedal free travel		20–30 (0.8–1.2)		———
Rear brake pedal height		15 (0.6)		———
Brake drum I.D.		Rear	———	160.7 (6.33)
	Only for E-02	Rear	———	180.7 (7.11)
Brake lining thickness		———		1.5 (0.06)
Brake disc thickness		Front	5.0 ± 0.1 (0.20 ± 0.004)	4.5 (0.18)
Brake disc runout		———		0.30 (0.012)
Master cylinder bore		Front	14.000–14.043 (0.5512–0.5529)	———
Master cylinder piston diam.		Front	13.957–13.984 (0.5495–0.5506)	———
Brake caliper cylinder bore		Front	42.850–42.926 (1.6870–1.6900)	———
Brake caliper piston diam.		Front	42.770–42.820 (1.6839–1.6858)	———
Wheel rim runout		Axial	———	2.0 (0.08)
		Radial	———	2.0 (0.08)
Wheel axle runout		Front	———	0.25 (0.010)
		Rear	———	0.25 (0.010)
Tire size		Front	90/90–19 52S	———
		Rear	110/90–17 60S	———
Tire tread depth		Front	———	1.6 (0.06)
		Rear	———	2.0 (0.08)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	140 (5.5)	———	
Front fork spring free length	———	496 (19.5)	
Front fork oil level	198 (7.8)	———	
Rear wheel travel	95 (3.7)	———	
Swing arm pivot shaft runout	———	0.3 (0.012)	

FUEL + OIL

ITEM		SPECIFICATION	NOTE
Fuel type		Use gasoline with an octane number of 85-90 or higher (Research Method), preferably unleaded or low-lead.	
Fuel tank including reserve		12 L (3.2 / 2.6 US/Imp gal)	
	reserve	4.0 L (4.2 / 3.5 US/Imp qt)	
Engine oil type		SAE 10W/40	
Engine oil capacity	Change	2600 ml (2.7 / 2.3 US/Imp qt)	
	Filter change	2900 ml (3.1 / 2.6 US/Imp qt)	
	Overhaul	3000 ml (3.2 / 2.6 US/Imp qt)	
Front fork oil type		Mixture ratio SAE 10W/30 : A.T.F = 1 : 1	
Front fork oil capacity (each leg)		148 ml (5.00 / 5.21 US/Imp oz)	
Brake fluid type		SAE J1703, DOT3 or DOT4	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING						CONTINUOUS HIGH SPEED RIDING					
	SOLO RIDING			DUAL RIDING			SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	150	1.50	21	175	1.75	25	175	1.75	25	200	2.00	28
REAR	175	1.75	25	225	2.25	32	175	1.75	25	250	2.50	36

WATTAGE

(W)

ITEM		SPECIFICATION		
		E-01	E-02	E21,22,25
Headlight	HI	45	35	45
	LO	45	35	40
Parking or city light			3.4	4
Tail/Brake light		8/23	5/21	←
Turn signal light		23	21	←
Speedometer light		3.4	←	←
Tachometer light		3.4	←	←
Turn signal indicator light		3.4	←	←
High beam indicator light		3.4	←	←
Neutral indicator light		3.4	←	←
Oil pressure indicator light		3.4	←	←
Gear position indicator light		1.1	←	←

Prepared by

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