YAMAHA

XVS650A '98

5BN4-AE1

SUPPLEMENTARY SERVICE MANUAL

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and data for the XVS650 ’97. For complete service information procedures it is necessary to use this Supplementary Service Manual together with the followin manual.

XVS650 ’97 SERVICE MANUAL: 4VR-AE1

XVS650A ’98
SUPPLEMENTARY
SERVICE MANUAL

First Edition, Feburary 1998

EB001000

NOTICE

This manual was produced by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual, so it is assumed that anyone who uses this book to perform maintenance and repairs on Yamaha motorcycles has a basic understanding of the mehanical ideas and the procedures of motorcycle repair. Repairs attempted by anyone without this knowledge are likely to render the motorcycle unsafe and unfit for use.

Yamaha Motor Company, Ltd. is ontinually striving to improve all its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha dealers and will appear in future editions of this manual where applicable.

NOTE:

Designs and specifications are subject to change without notice.

IMPORTANT INFORMATION

Particularly important information is distinguished in this manual by the following notations.

The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠ WARNING Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander or a person inspecting or repairing the motorcycle.

CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.

NOTE: A NOTE provides key information to make procedures easier or clearer.

EB002000

HOW TO USE THIS MANUAL

MANUAL ORGANIZATION

This manual consists of chapters for the main categories of subjects.(See “Illustrated symbols”)

1st title ①: This is the title of the chapter with its symbol in the upper right corner of each page.

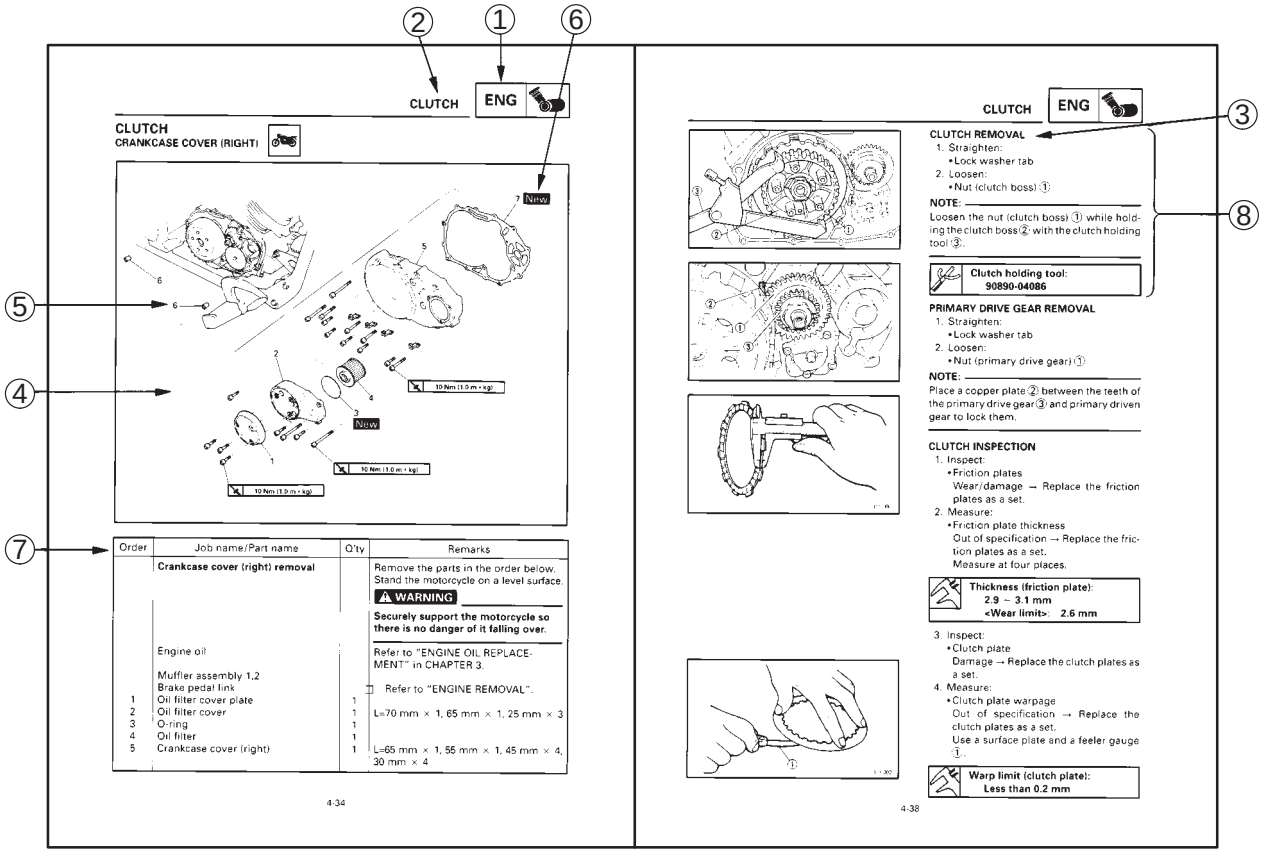
2nd title ②: This title indicates the section of the chapter and only appears on the first page of each section. It is located in the upper left corner of the page.

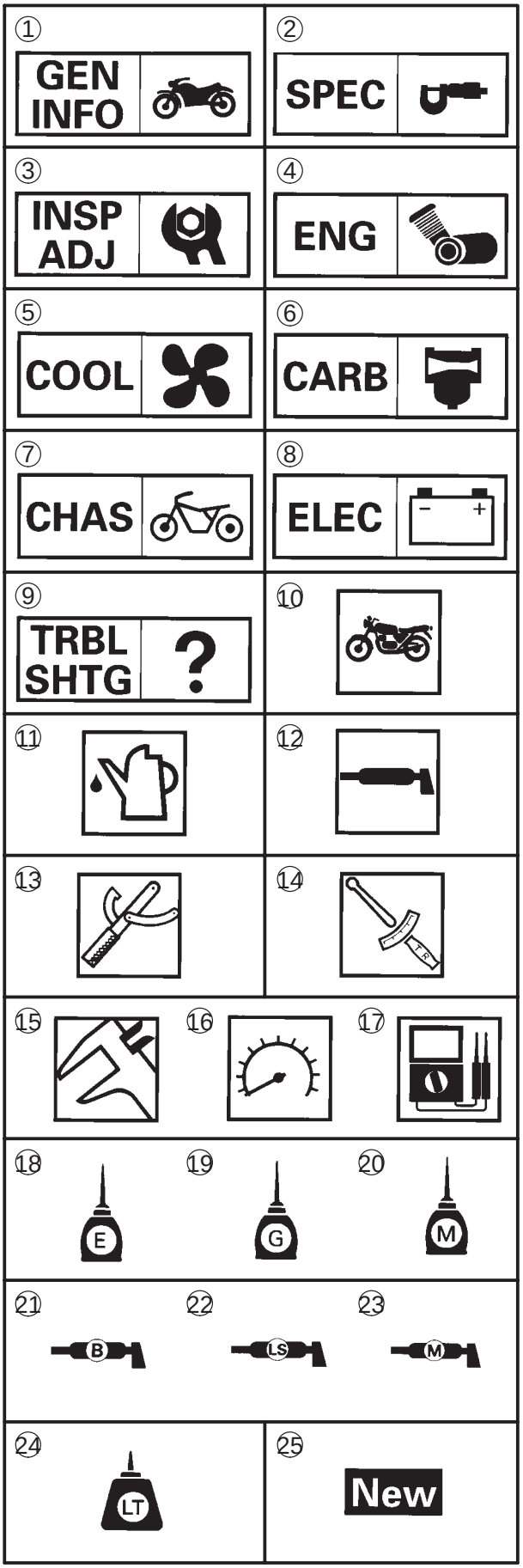
3rd title ③: This title indicates a sub-section that is followed by step-by-step procedures accompanied by corresponding illustrations.

EXPLODED DIAGRAMS

To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

1. An easy-to-see exploded diagram ④ is provided for removal and disassembly jobs.
2. Numbers ⑤ are given in the order of the jobs in the exploded diagram. A number that is enclosed by a circle indicates a disassembly step.
3. An explanation of jobs and notes is presented in an easy-to-read way by the use of symbol marks ⑥. The meanings of the symbol marks are given on the next page.
4. A job instruction chart ⑦ accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.
5. For jobs requiring more information, the step-by-step format supplements ⑧ are given in addition to the exploded diagram and the job instruction chart.





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ILLUSTRATED SYMBOLS

Illustrated symbols ① to ⑨ are printed on the top right of each page and indicate the subject of each chapter.

① General information
② Specifications
③ Periodic inspections and adjustments
④ Engine
⑤ Cooling system
⑥ Carburetion
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

Illustrated symbols ⑩ to ⑰ are use to identify the specifications appearing in the text.

⑩ Can be serviced with engine mounted
⑪ Filling fluid
⑫ Lubricant
⑬ Special tool
⑭ Torque
⑮ Wear limit, clearance
⑯ Engine speed
⑰ Ω, V, A

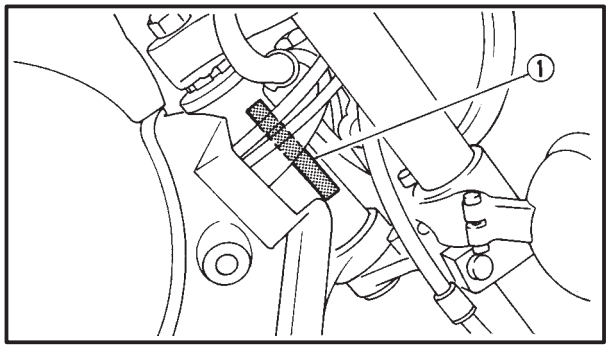
Illustrated symbols ⑱ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

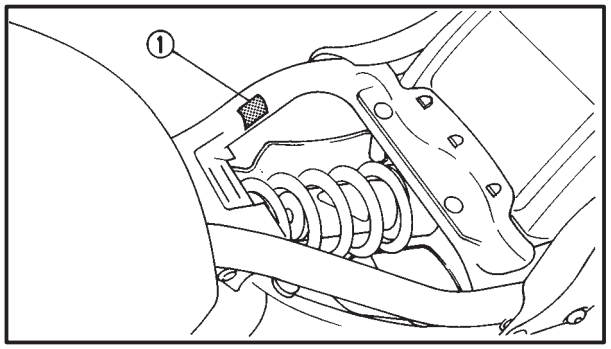
⑱ Apply engine oil
⑲ Apply gear oil
⑳ Apply molybdenum disulfide oil
㉑ Apply wheel bearing grease
㉒ Apply lightweight lithium-soap base grease
㉓ Apply molybdenum disulfide grease

Illustrated symbols ㉔ to ㉕ in the exploded diagrams indicate where to apply a locking agent ㉔ and when to install new parts ㉕.

㉔ Apply locking agent (LOCTITE®)
㉕ Replace

CONTENTS





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GENERAL INFORMATION
MOTORCYCLE IDENTIFICATION

EB100010

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the right side of the steering head.

MODEL LABEL

The model label ① is affixed to the frame. This information will be needed to order spare parts.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item		Standard
Model code:		5BN 4 (F, GB, B, DK, SF, NL, N, S, I, ES, GR) 5BN5 (D) 5BN8 (D, A) 5BN9 (F, GB, NL, ES)
Dimensions:		
Overall length		2,450 mm
Overall width		930 mm
Overall height		1,105 mm
Seat height		710 mm
Wheelbase		1,625 mm
Minimum ground clearance		145 mm
Minimum turning radius		3,400 mm
Basic weight:		
With oil and a full fuel tank		242 kg
Chassis:		
Frame type		Double cradle
Caster angle		35°
Trail		145 mm
Tire:		
Type		With tube
Size	front	130/90-16 67S
	rear	170/80-15M/C 77S
Manufacturer	front	BRIDGESTONE/DUNLOP
	rear	BRIDGESTONE/DUNLOP
Type	front	G703/D404F
	rear	G702/D404
Maximum load-except motorcycle:		180 kg
Tire pressure (cold tire):		
0 ~ 90 kg load *		
	front	225 kPa (2.25 kg/cm^2, 2.25 bar)
	rear	225 kPa (2.25 kg/cm^2, 2.25 bar)
90 kg ~ Maximum load *		
	front	225 kPa (2.25 kg/cm^2, 2.25 bar)
	rear	250 kPa (2.50 kg/cm^2, 2.50 bar)
		* Load is the total weight of the cargo, rider, passenger and accessories.
Wheel travel:		
Front wheel travel		140 mm
Rear wheel travel		98 mm

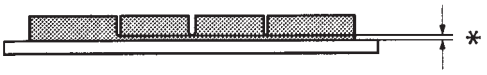
MAINTENANCE SPECIFICATIONS

ENGINE

Item		Standard	Limit
Carburetor:			
I. D. mark		4VR 00(5BN4), 4XR-00 (5BN9), 5BN5-20 (5BN5), 5BN8-30 (5BN8)	•••
Main jet	(M.J)	#90	•••
Main air jet	(M.A.J)	#50	•••
Jet needle	(J.N)	4CP10-3 (5BN4), 4CZ11-3 (5BN9), 4CT2-2 (5BN5/8)	•••
Needle jet	(N.J)	O-6 (5BN4/9) O-4 (5BN5/8)	•••
Pilot air jet	(P.A.J.1)	#100	•••
Pilot outlet	(P.O)	0.85	•••
Pilot jet	(P.J)	#20	•••
Bypass 1	(B.P.1)	0.8	•••
Bypass 2	(B.P.2)	0.8	•••
Bypass 3	(B.P.3)	0.8	•••
Pilot screw	(P.S)	2 (5BN4/9), 2-1/2 (5BN5/8)	•••
Valve seat size	(V.S)	1.0	•••
Starter jet	(G.S.1)	#17.5	•••
Starter jet	(G.S.2)	0.9	•••
Throttle valve size	(Th.V)	#140	•••
Fuel level	(F.L)	7.5 ~ 8.5 mm	•••
Engine idle speed		1,150 ~ 1,250 r/min	•••
Intake vacuum		29.0 kPa (0.29 kg/cm^2, 220 mmHg)	•••
CO %		3 ~ 4 %	•••
Engine oil temperature		80 ~ 90 °C	•••

CHASSIS

Item		Standard	Limit
Front suspension:			
Front fork travel		140 mm	•••
Fork spring free length		332.5 mm	325.9 mm
Fitting length		287.4 mm	•••
Spring rate	(K1)	3.5 N/mm (0.35 kg/mm)	•••
Stroke	(K1)	0 ~ 140 mm	•••
Optional spring		No	•••
Oil capacity		0.507 L	•••
Oil level		95 mm	•••
Oil grade		Fork oil 10W or equivalent	•••
Rear suspension:			
Shock absorber travel		42 mm	•••
Spring free length		179.5 mm	165 mm
Fitting length		165.5 mm	•••
Spring rate	(K1)	137 N/mm (13.7 kg/mm)	•••
Stroke	(K1)	0 ~ 42 mm	•••
Optional spring		No	•••

Item		Standard	Limit
Front wheel:			
Type		Spoke wheel	•••
Rim size		16 × MT3.00	•••
Rim material		Steel	•••
Rim runout limit	radial	1.0 mm	2 mm
	lateral	0.5 mm	2 mm
Front brake:			
Type		Single disk	•••
Disc outside diameter × thickness		298 × 5 mm	•••
Pad thickness	inner	6.0 mm	0.8 mm
Pad thickness	outer	6.0 mm	0.8 mm
			
Master cylinder inside diameter		14.0 mm	•••
Caliper cylinder inside diameter		30.2 mm	•••
Caliper cylinder inside diameter		33.3 mm	•••
Brake fluid type		DOT 4	•••

ELECTRICAL

Item	Standard	Limit
Rectifier regulator:		
Type	Semi-conductor, short-circuit type	•••
Model/manufacturer	SH650D-11/SHINDENGEN	•••
No load regulated voltage	14.1 ~ 14.9 V	•••
Capacity	18 A	
Withstand voltage	200 V	
Horn:		
Type	Plane type	•••
Quantity	1	•••
Model/manufacturer	YF-12/NIKKO	•••
Maximum amperage	3.0 A	•••

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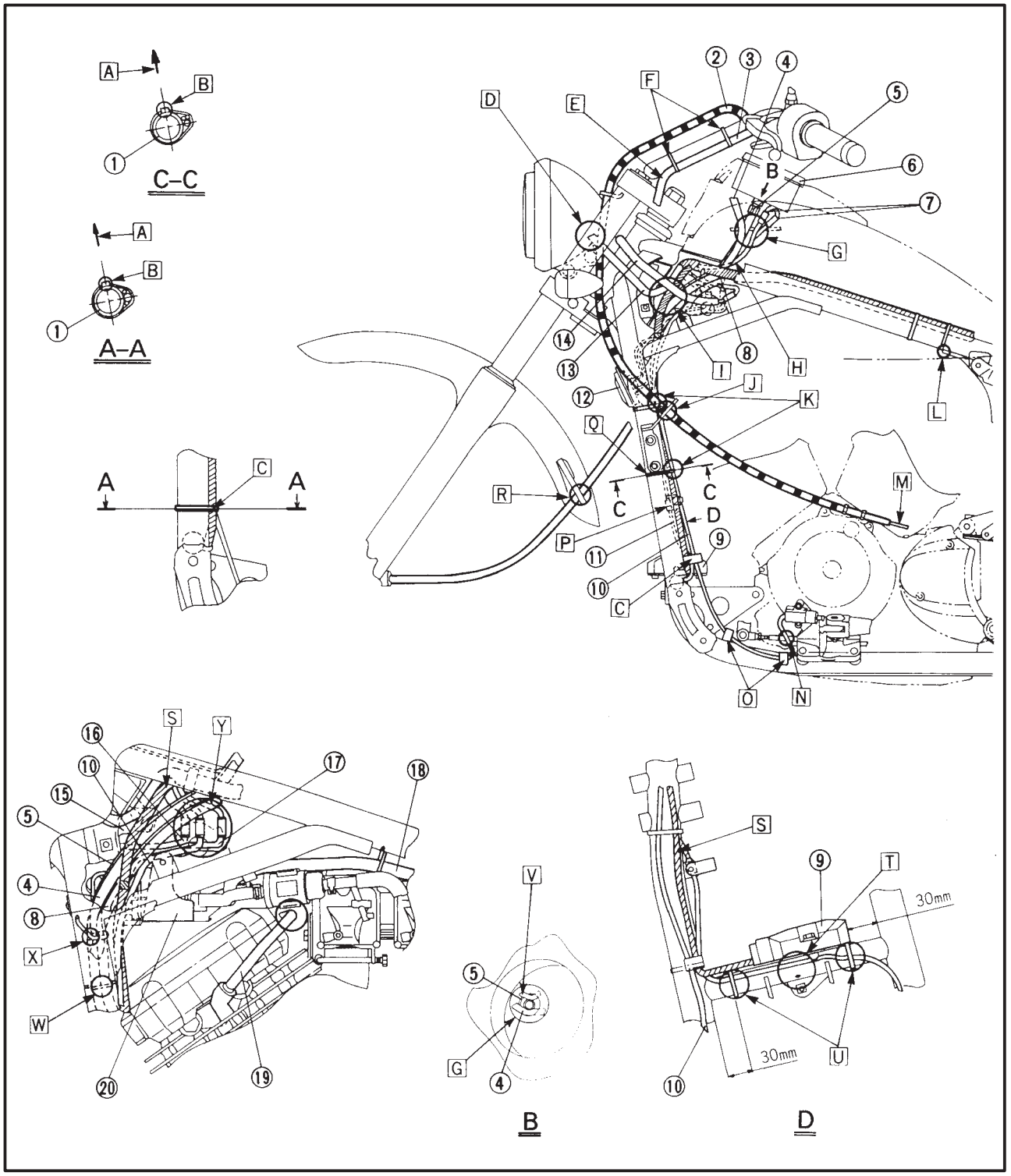
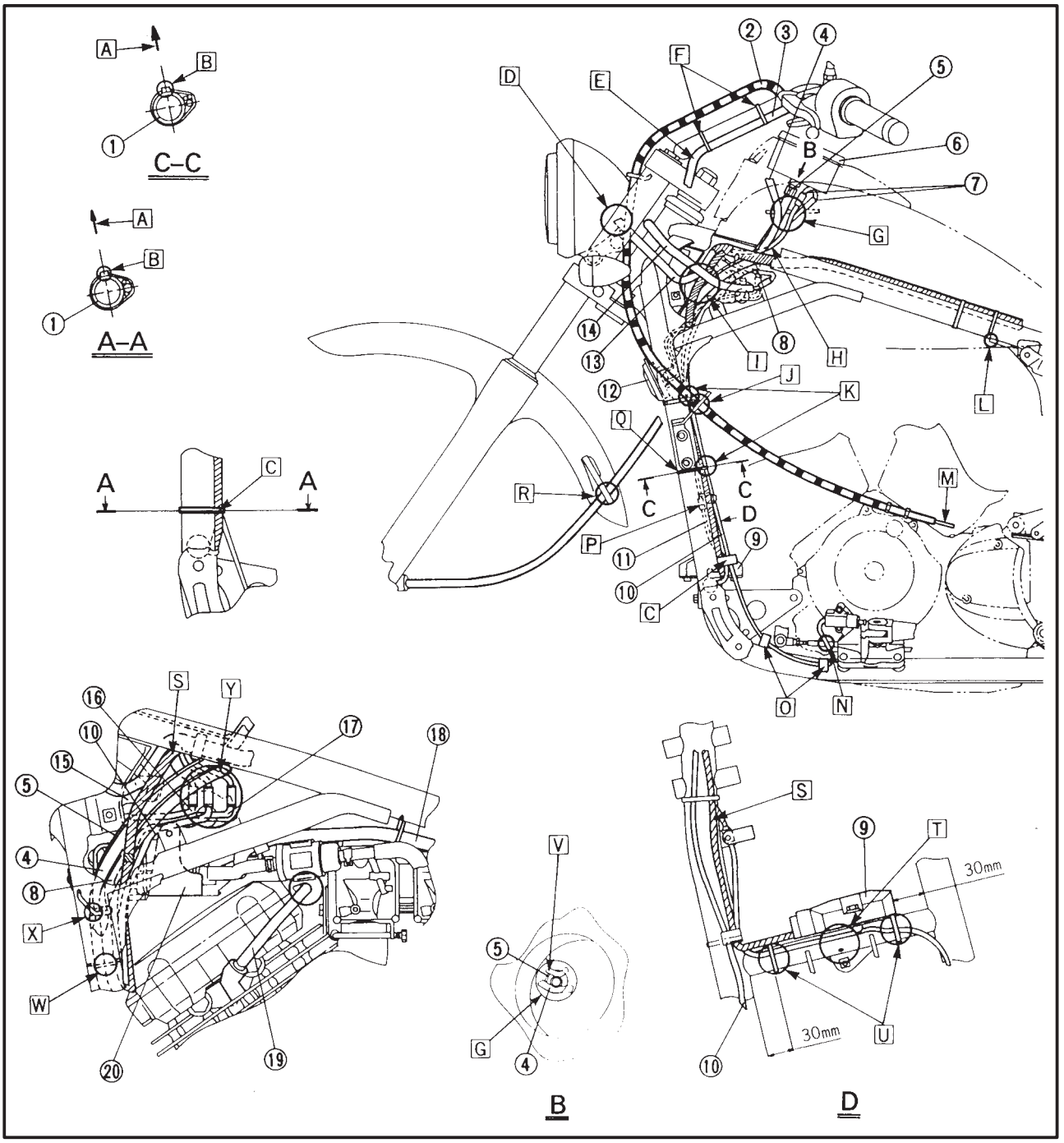
CABLE ROUTING

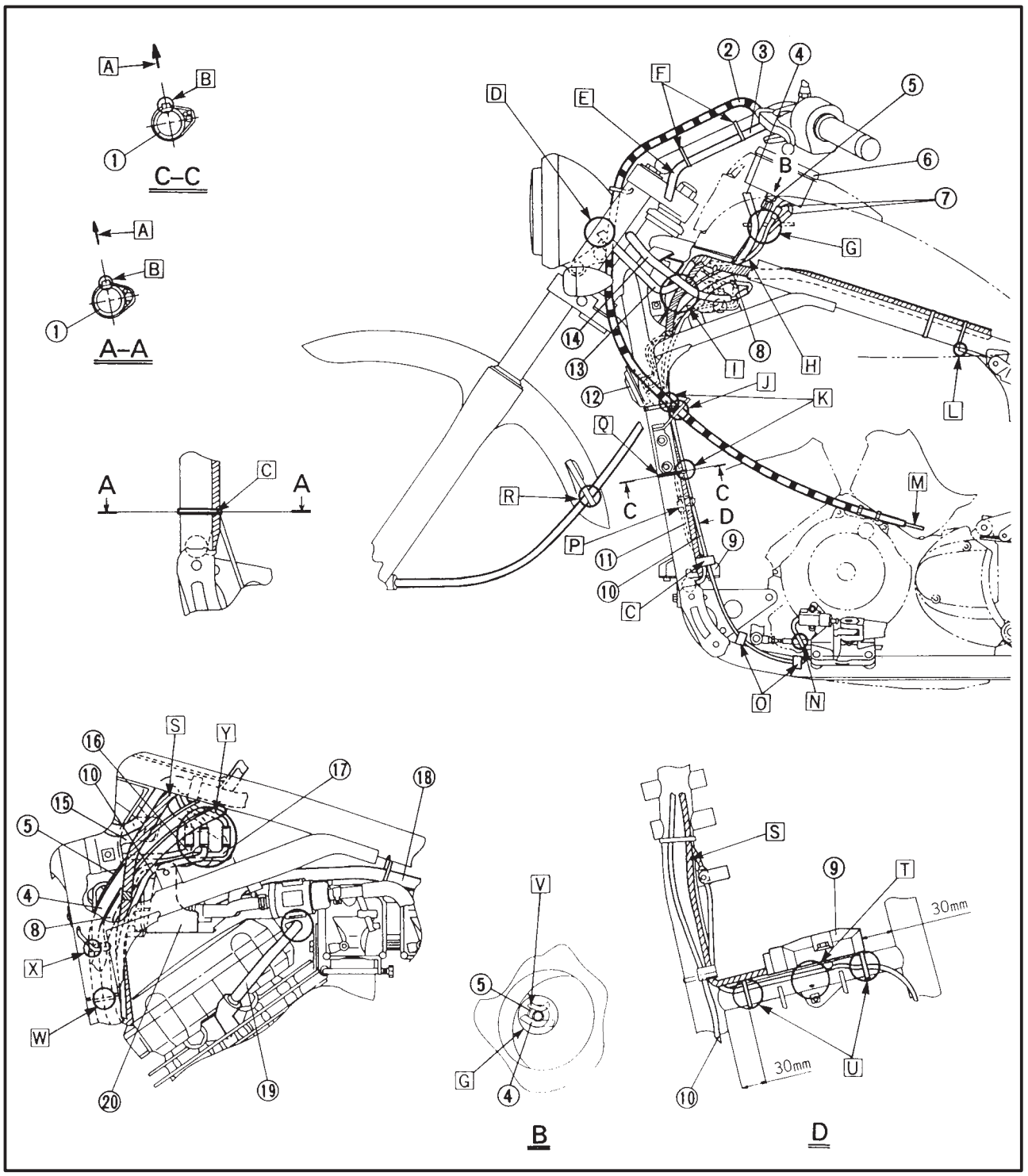
① Frame
② Clutch cable
③ Left handlebar switch lead
④ Fuel tank breather hose
⑤ Speedometer cable
⑥ Speedometer
⑦ Speedometer light leads
⑧ Vacuum chamber air vent hose
⑨ Rectifier/regulator
⑩ Sidestand switch lead
⑪ Rear brake switch lead
⑫ Horn
⑬ Headlinght lead
⑭ Right handlebar switch lead
⑮ Main switch
⑯ Main switch lead
⑰ Fuel pump lead
⑱ Fuel hose
⑲ Spark plug lead
⑳ Fuel pump



[A] Inside the motorcycle.
[B] Place the end of the plastic locking tie as shown.
[C] Fasten the rear brake switch lead, sidestand switch lead and rectifier/regulator lead with metal clamp or plastic locking tie.
[D] Pass the front flasher light leads (left and right) and headlight lead through the headlight cover hole.
[E] Pass the left handlebar switch lead behind the upper bracket.
[F] Fasten the left handlebar switch with a plastic locking tie.
[G] Pass the speedometer cable, speedometer light leads and fuel tank breather hose through the fuel tank hole.
[H] To the speedometer light leads.
[I] Pass the right handlebar switch lead and headlight lead over the other harness and leads.
[J] Pass the clutch cable through the cable guide.
[K] Fasten the sidestand switch lead and rectifier/regulator lead with a plastic locking tie.
[L] Install the plastic locking tie so that it is up against the frame projection.
[M] To the engine.
[N] The sidestand switch lead should not touch the shift rod.

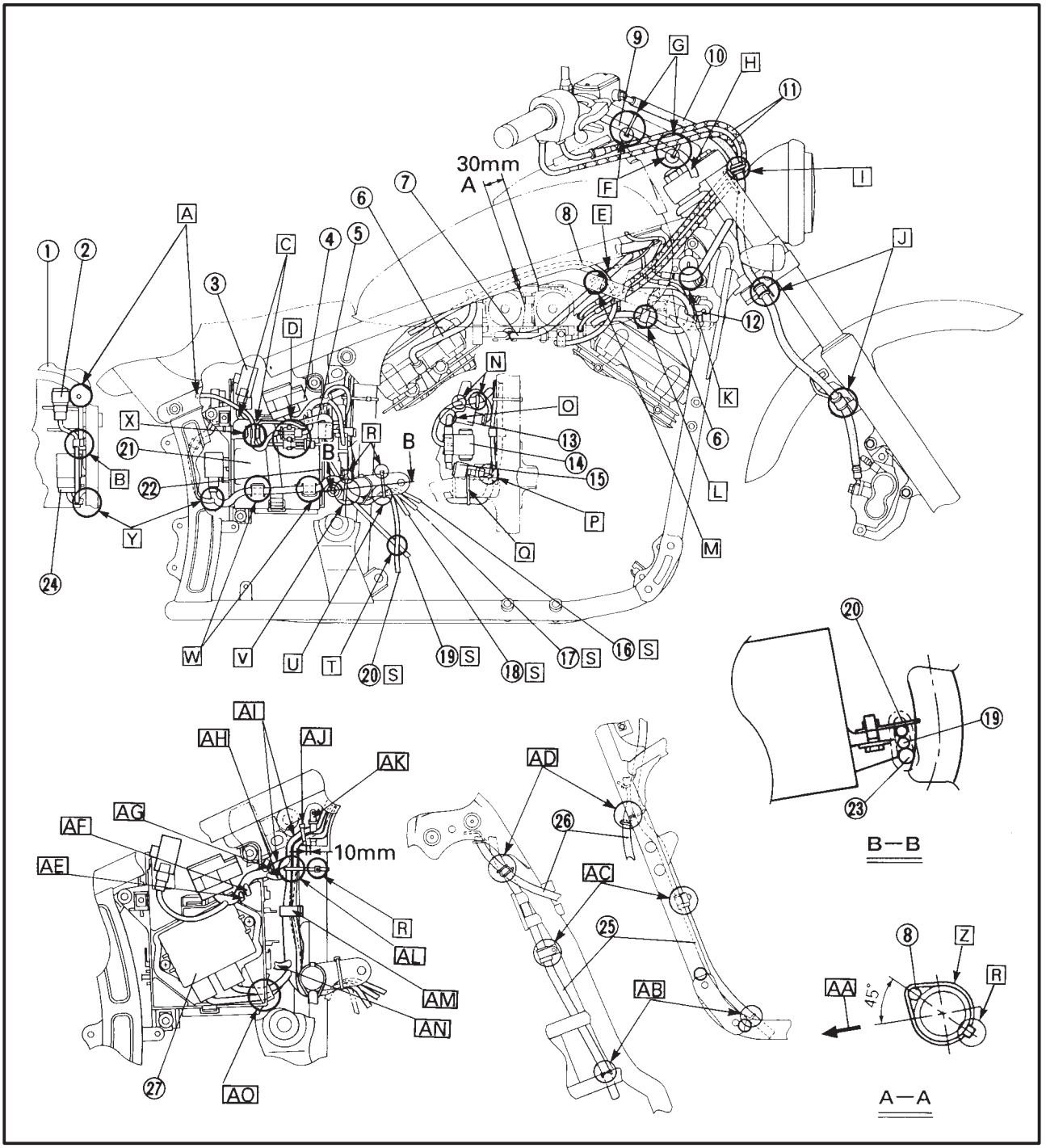


O Fasten the sidestand switch lead with a metal clamp.
P Connect the rear brake switch coupler in front of the roll over valve stay.
Q Install the plastic locking tie immediately bellow the cable guide bracket.
R Pass the speedometer cable through the speedometer cable holder.
S To the rectifier/regulator.
T Pass the rear brake switch lead between the frame and rectifier/regulator. Do not pinch the rear brake switch lead.
U Fasten the rear brake switch lead with a plastic locking tie.
V To the speedometer light leads.
W Pass the fuel tank breather hose and vacuum chamber air vent hose through the holder.
X Pass the speedometer cable through the holder.
Y Place the couplers behind the steering head.

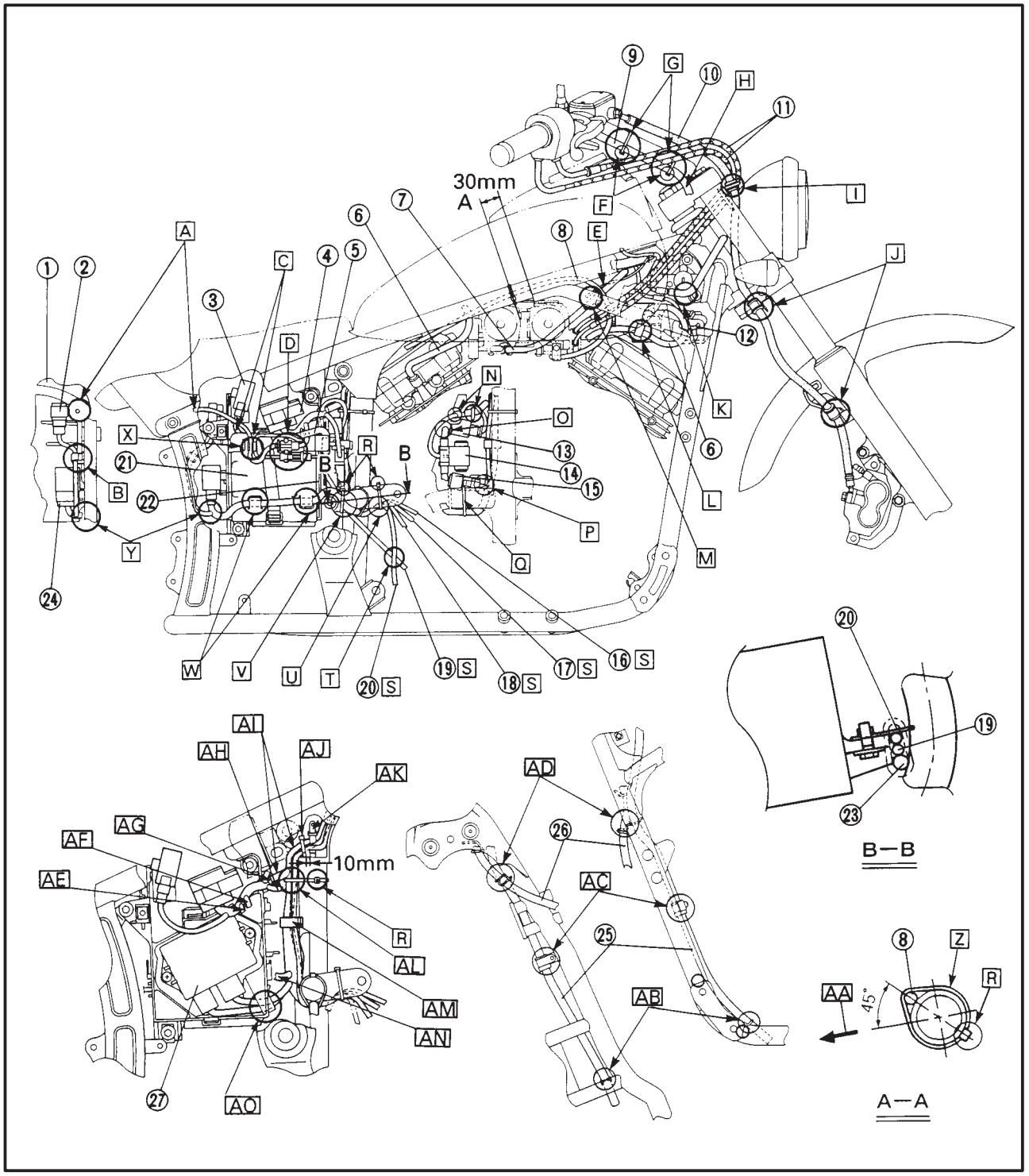


① Frame bracket
② Dimmer switch
③ Self-canceling turn signal relay
④ Fuse box
⑤ Battery positive (+) lead
⑥ Spark plug lead
⑦ Vacuum chamber air bent hose
⑧ Starter cable
⑨ Right handlebar switch lead
⑩ Brake hose
⑪ Throttle cables
⑫ Thermo switch lead
⑬ Flasher light relay
⑭ Starter relay
⑮ Carburetor heater relay
⑯ Neutral switch lead
⑰ Pickup coil lead
⑱ A.C. magneto lead
⑲ Battery negative (–) lead
⑳ Starter motor lead
㉑ Battery cover
㉒ Battery
㉓ Wire harness
㉔ Starting circuit cut-off relay
㉕ Fuel tank breather hose
㉖ Speedometer cable
㉗ Ignitor unit

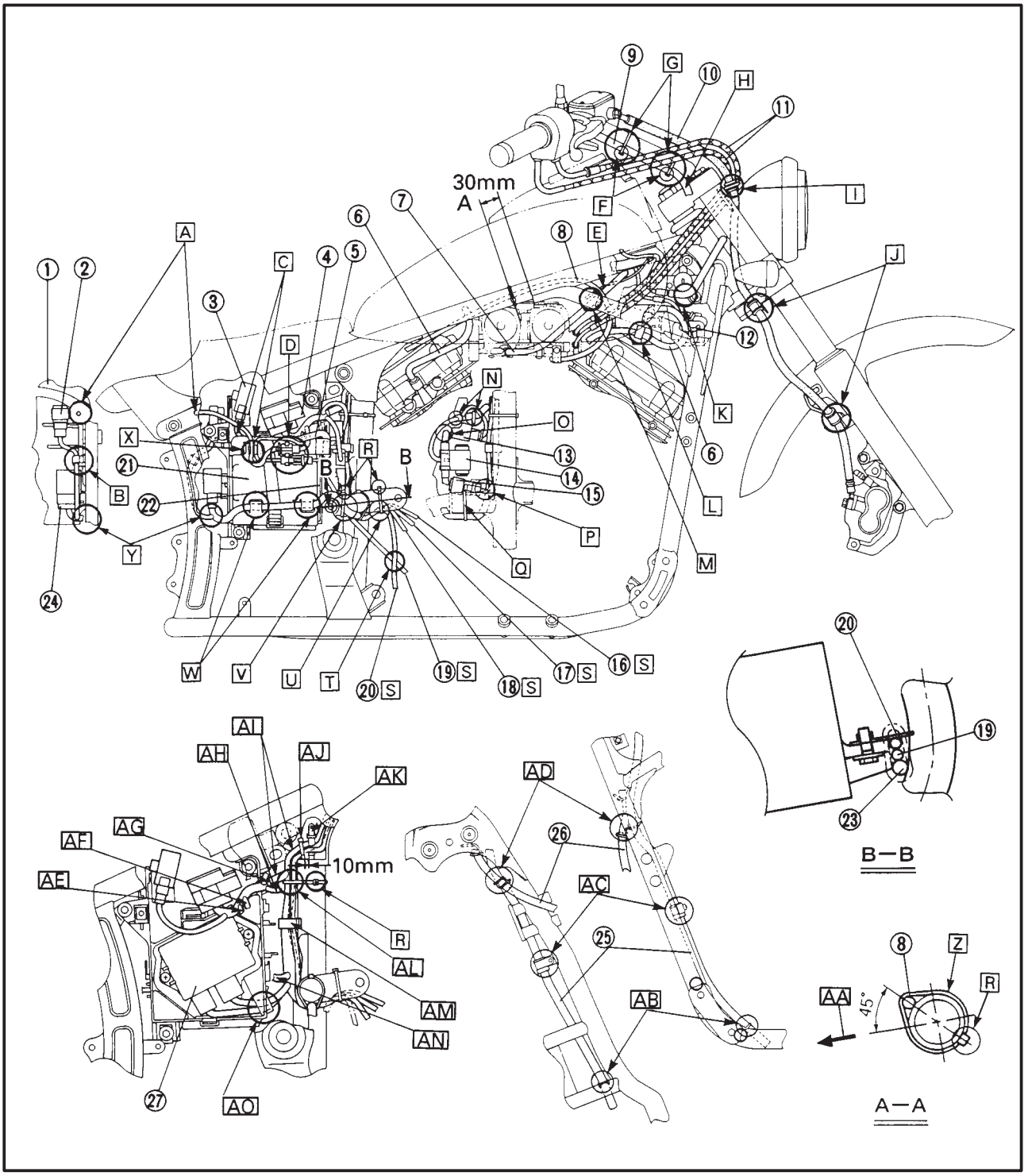
[A] Pass the tail/brake light lead between the frame bracket and battery box. Position the mud guard the between the edge of the frame bracket and the tail/brake light lead.
[B] Fasten the dimmer switch lead with a clamp.
[C] Fasten the self-canceling turn signal relay lead and battery positive (+) lead with a battery band.



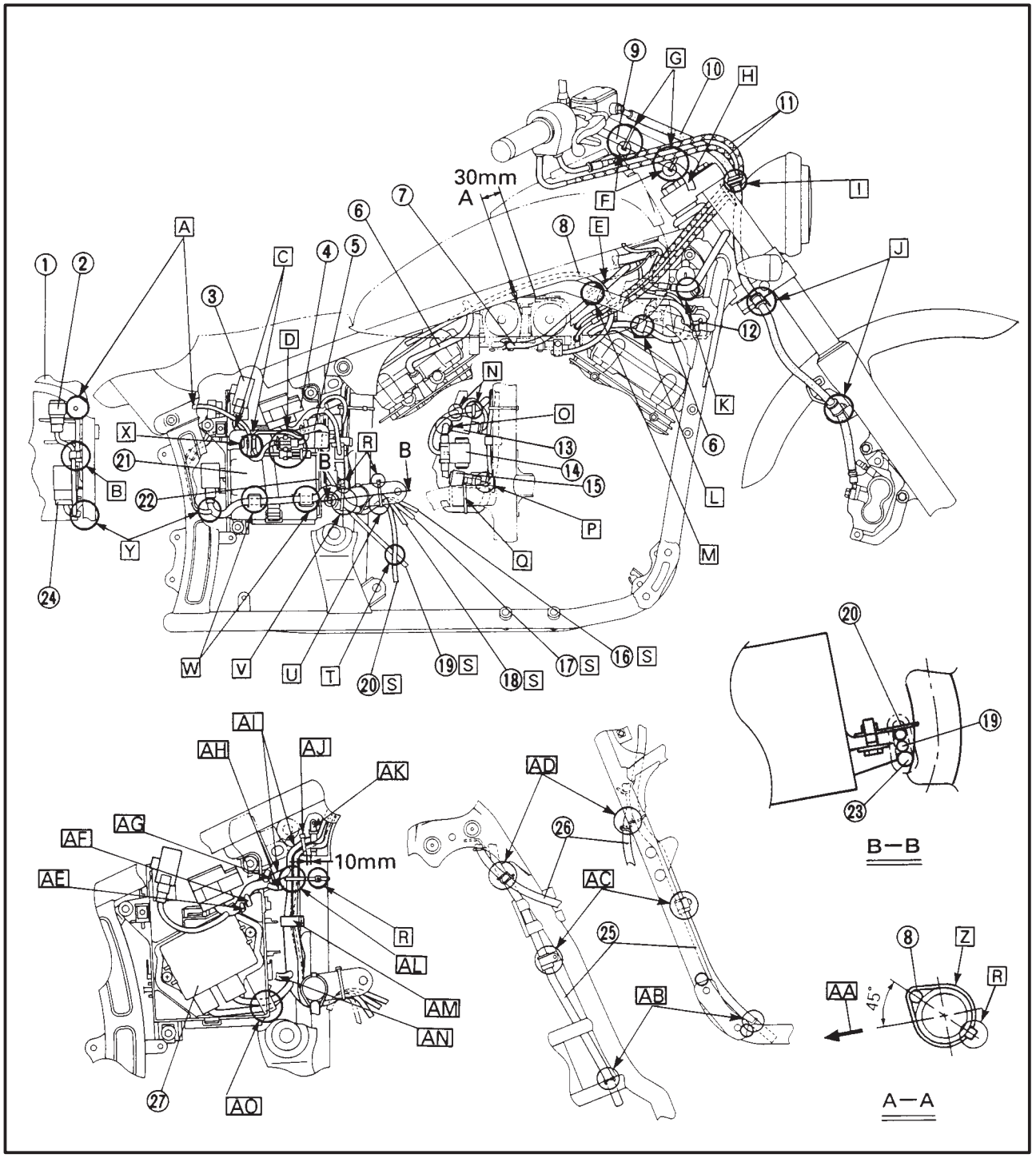
[D] Fasten the tail/brake light lead coupler and battery negative (–) lead coupler with a clamp.
[E] To the ignition coil.
[F] The end of the plastic locking tie should face towards the under the handlebar.
[G] Fasten the right handlebar switch lead with a plastic locking tie.
[H] Pass the right handlebar switch lead behind the upper bracket.
[I] Fasten the brake hose grommet with a brake hose holder. (depending on model type)
[J] Fasten the brake hose with a brake hose holder.
[K] Pass the left handlebar switch lead under the main switch.
[L] Fasten the spark plug lead with a metal clamp.
[M] Pass the ignition coil lead inside of the starter cable.
[N] Fasten the fuse box lead with a plastic locking tie.



[O] Fasten the battery positive (+) lead with a battery box clamp.
[P] The carburetor heater relay should not touch the wire harness.
[Q] Fasten the wire harness with a plastic locking tie.
[R] Place the end of the plastic locking tie as shown.
[S] From the engine.
[T] Pass the starter motor lead over the battery negative (–) lead.
[U] Fasten the pickup coil lead, A.C. magneto lead, neutral switch lead and starter motor lead with a plastic locking tie.
[V] Fasten the battery negative (–) lead, starter motor lead and wire harness with a plastic locking tie.
[W] Fasten the wire harness with a clamp.
[X] Fasten the battery negative (–) lead and tail/brake light lead with a clamp.
[Y] Pass the wire harness between the frame and battery box.
[Z] Fasten the starter cable with a plastic locking tie.

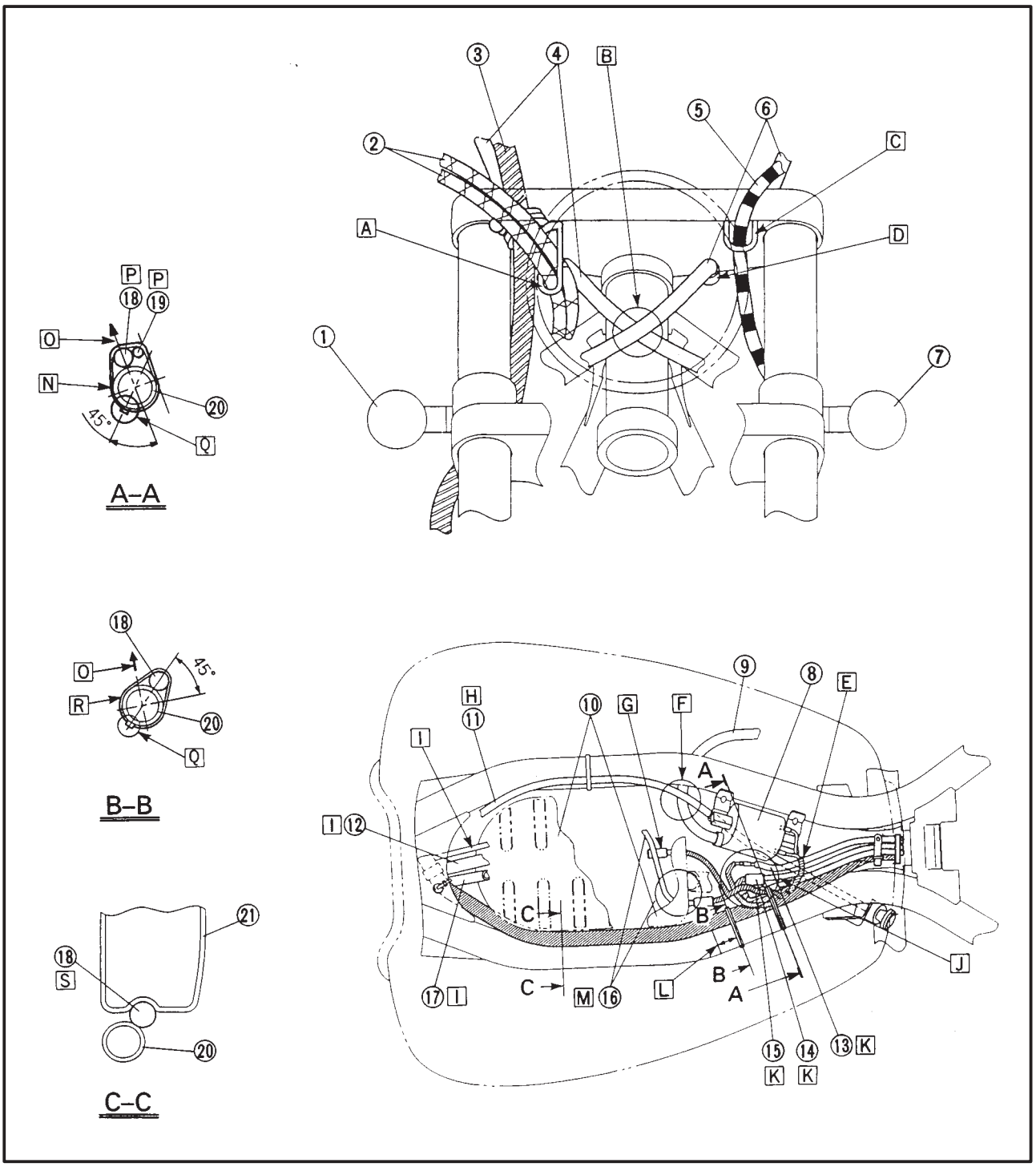


AA Inside the motorcycle.
AB Pass the fuel tank breather hose through the holder.
AC Fasten the fuel tank breather hose with a metal clamp.
AD Pass the speedometer cable through the front side guide.
AE To the battery negative (–) lead.
AF To the rear fender.
AG TO the flasher light relay.
AH To the starter relay.
AI The wire harness and leads should not touch the rear shock absorber.
AJ Fasten the wire harness and leads with a plastic locking tie.
AK Pass the plastic band through the frame hole. Fasten the wire harness with a plastic band at the point where the tape is located.
AL Fasten the wire harness and leads with a plastic locking tie.
AM Fasten the wire harness and leads with a metal clamp.
AN To the carburetor heater relay.
AO Pass the ignitor unit leads through the battery box hole.

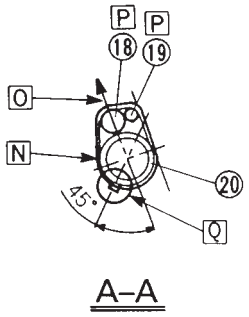


① Front flasher light (right)
② Throttle cables
③ Brake hose
④ Right handlebar switch lead
⑤ Clutch cable
⑥ Left handlebar switch lead
⑦ Front flasher light (left)
⑧ Ignition coil
⑨ Spark plug lead
⑩ Silencer
⑪ Starter cable
⑫ Speedometer cable
⑬ Neutral switch lead
⑭ Pickup coil lead
⑮ A.C. magneto lead
⑯ Thermo switch lead
⑰ Fuel tank breather hose
⑱ Wire harness
⑲ Throttle position sensor (TPS) lead
⑳ Frame
㉑ Air filter case

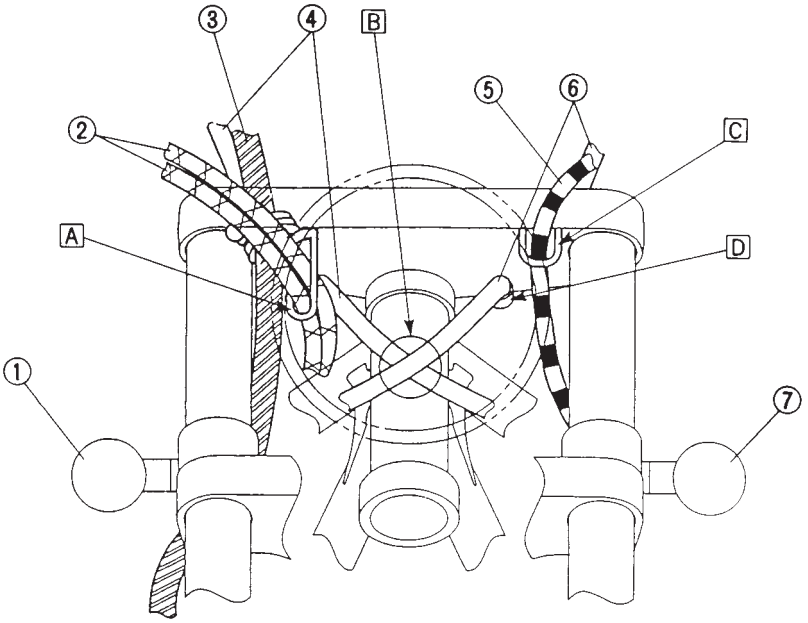
[A] Pass the throttle cables through the cable guide.
[B] Pass the left handlebar switch lead over the right handlebar switch lead.
[C] Pass the clutch cable through the cable guide.
[D] Fasten the handlebar switch leads with a plastic band.
[E] To the ignition coil.
[F] Pass the starter cable the ignition coil and spark plug lead.

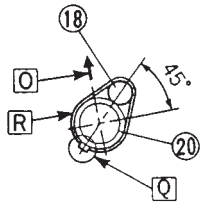


[G] To the throttle position sensor (TPS).
[H] To the carburetor.
[I] To the fuel tank.
[J] Pass the neutral switch lead, pickup coil lead and A.C. magneto lead under the ignition coil lead, thermo switch lead and throttle position sensor (TPS) lead.
[K] From the engine.
[L] 20 mm (0,79 in)
[M] Pass the thermo switch lead inside of the silencer breather hose.
[N] Fasten the wire harness and throttle position sensor (TPS) lead with a plastic locking tie.
[O] Inside the motorcycle.
[P] Route the wire harness and throttle position sensor (TPS) lead so they run along the bottom of the frame tube.
[Q] Place the end of the plastic locking tie as shown.
[R] Fasten the wire harness with a plastic locking tie.
[S] Pass the wire harness between the air filter case groove and frame.

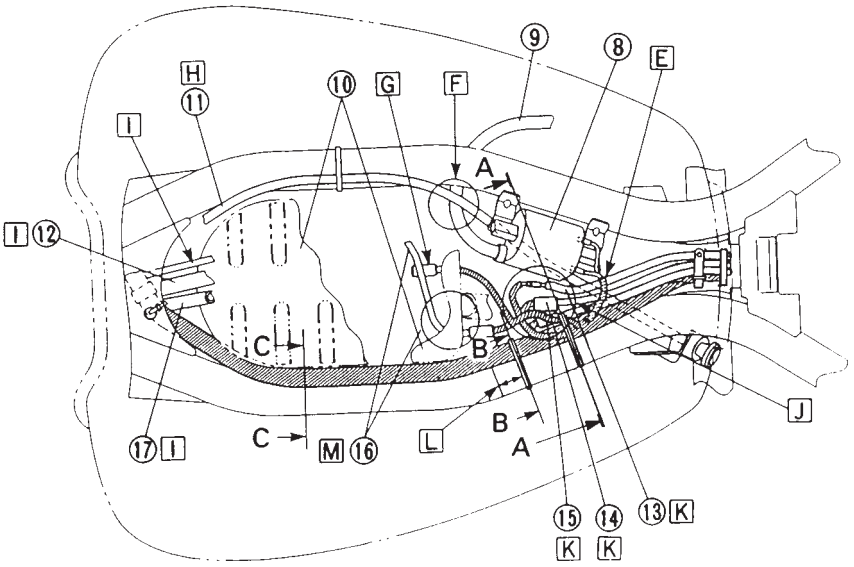


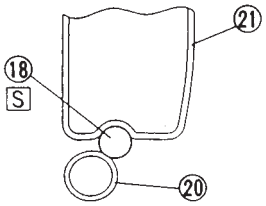
A–A





B–B

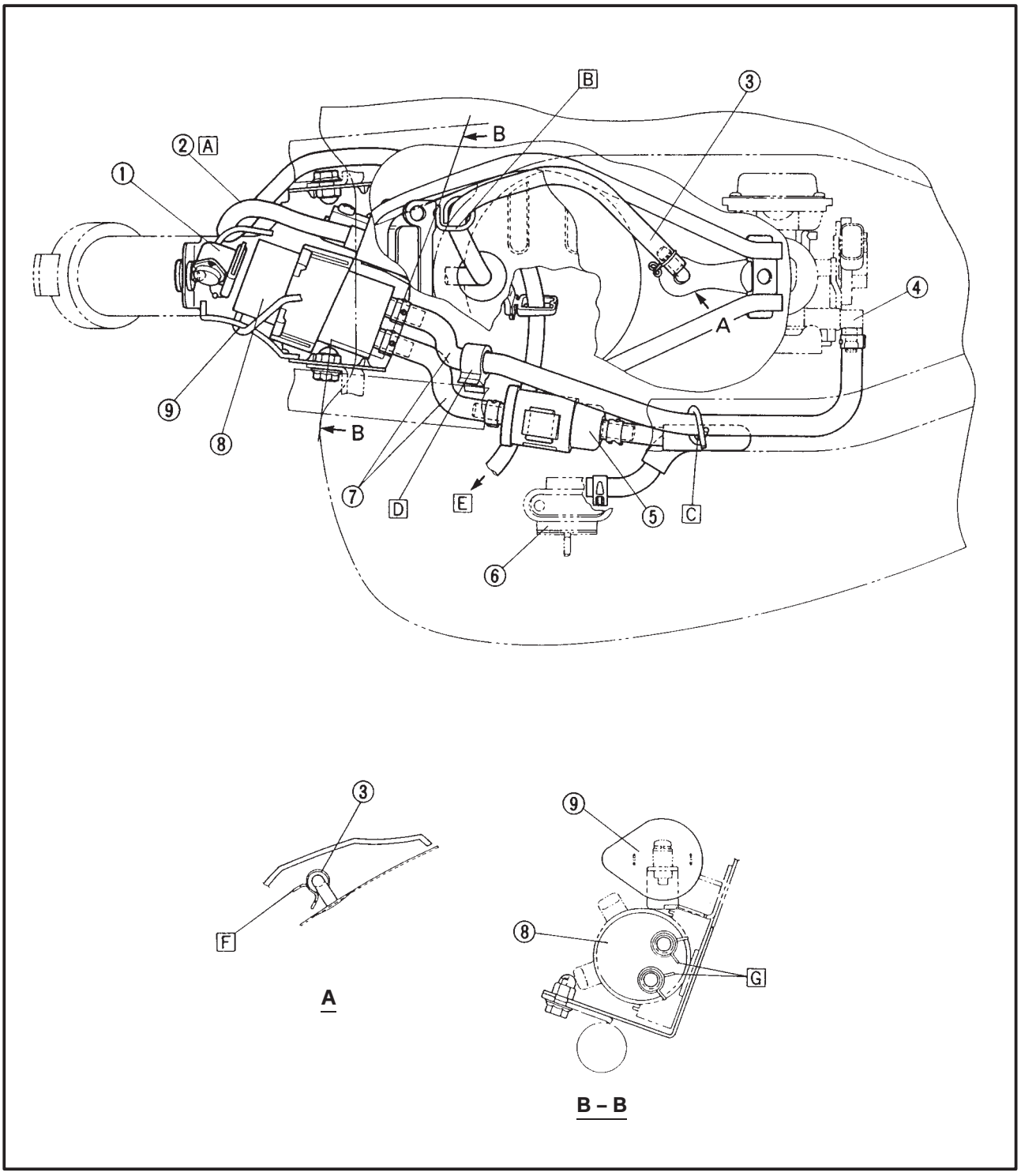




C–C

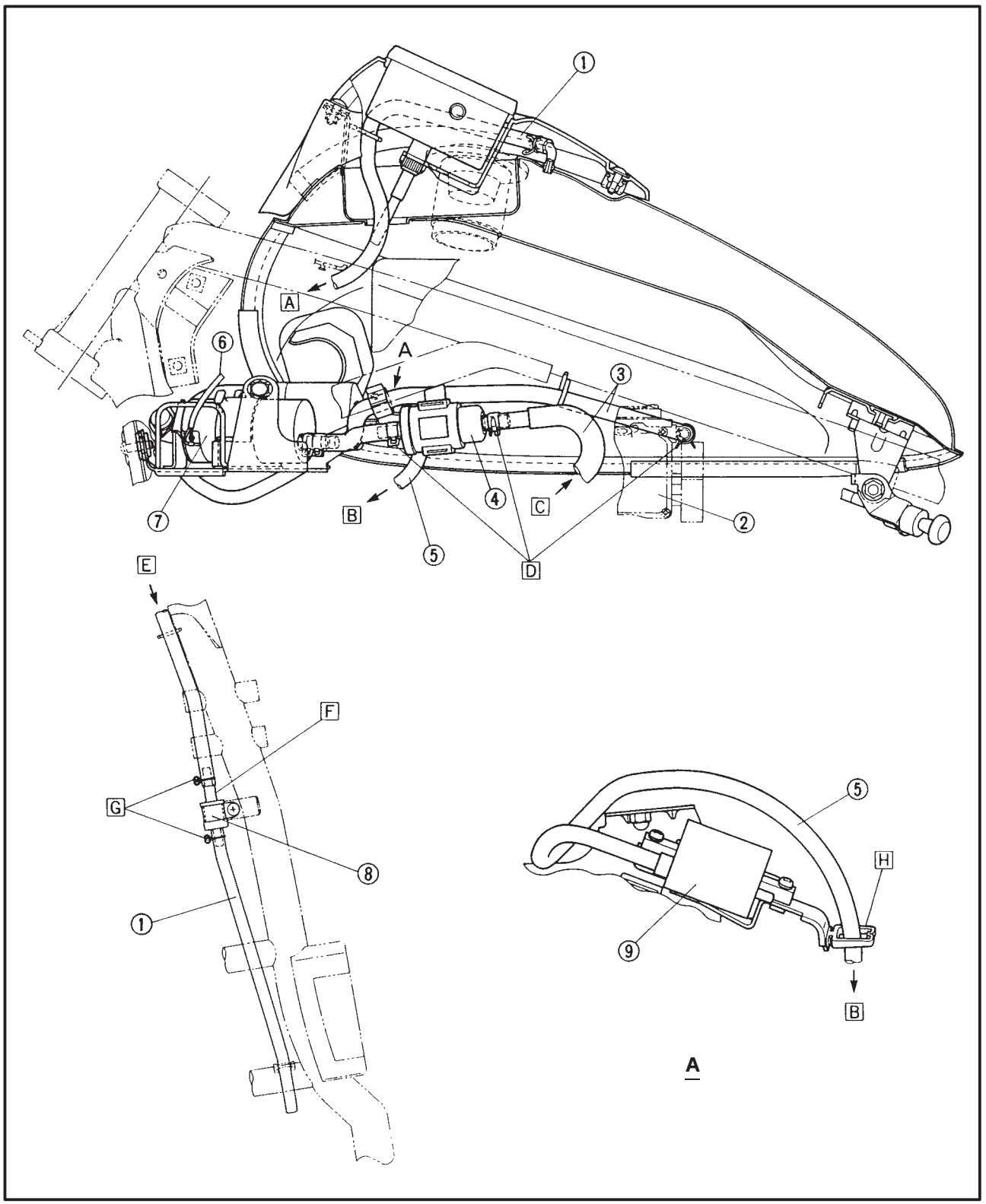
① Thermo switch
② Spark plug lead
③ Fuel tank breather hose
④ Carburetor
⑤ Fuel filter
⑥ Fuel cock
⑦ Fuel hose
⑧ Fuel pump
⑨ Ignition coil

[A] Position the spark plug lead in front of the fuel tank.
[B] Pass the fuel tank breather hose through the hose guide.
[C] Pass the hose through the hose guide.
[D] Fasten the fuel hose.
[E] To the engine
[F] Position the hose clip tabs inward.
[G] Position the hose clip tabs downward.



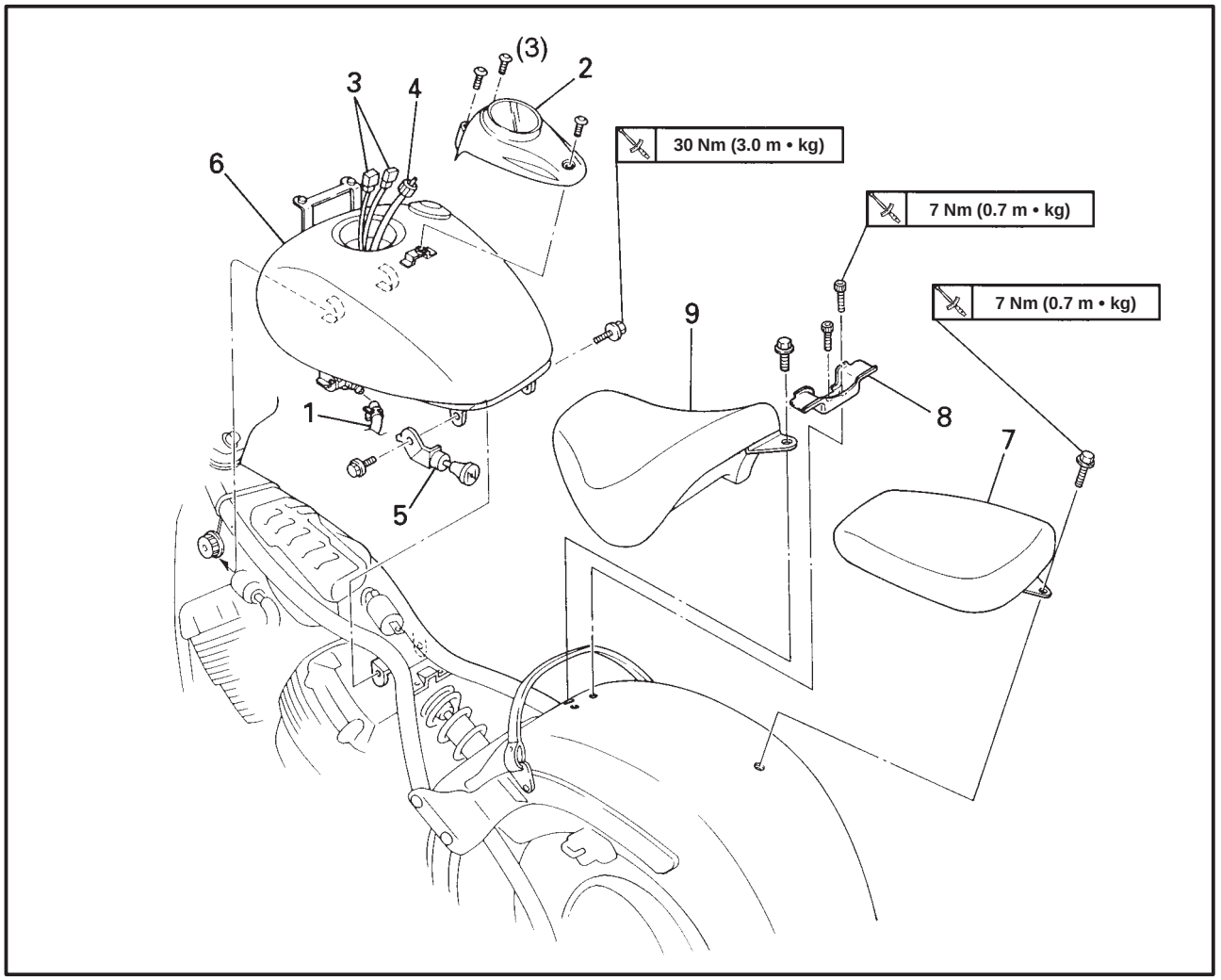
① Fuel tank breather hose
② Carburetor
③ Fuel hose
④ Fuel filter
⑤ Spark plug lead
⑥ Fuel pump lead
⑦ Fuel pump
⑧ Rollover valve
⑨ Ignition coil

A To the rollover valve
B To the engine
C From the fuel cock
D Position the hose clip tabs downward.
E From the fuel tank
F The longer stem on the rollover valve faces up.
G The tabs on both hose clips should face in the same direction.

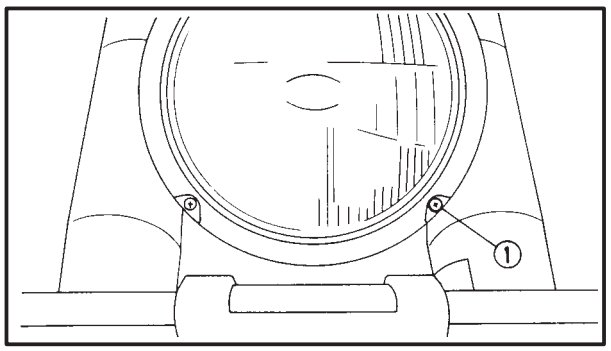


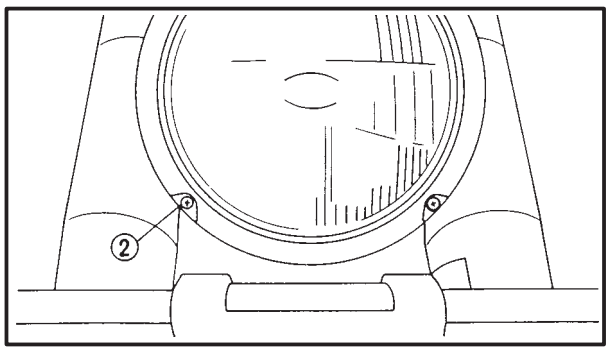
A

PERIODIC INSPECTION AND ADJUSTMENT
FUEL TANK AND SEATS



Order	Job name/Part name	Q'ty	Remarks
	Fuel tank and seats removal		Remove the parts in the order below.
1	Fuel hose	1	**NOTE:** Set the fuel cock to "OFF" before disconnecting the fuel hose.
2	Meter assembly	1	
3	Meter lead couper	2	
4	Speedometer cable	1	**NOTE:** Disconnect the speedometer cable from the front wheel side first.
5	Starter knob bracket	1	
6	Fuel tank assembly	1	
7	Passenger seat	1	
8	Seat bracket	1	
9	Rider's seat	1	
			For installation, reverse the removal procedure.





EB305020

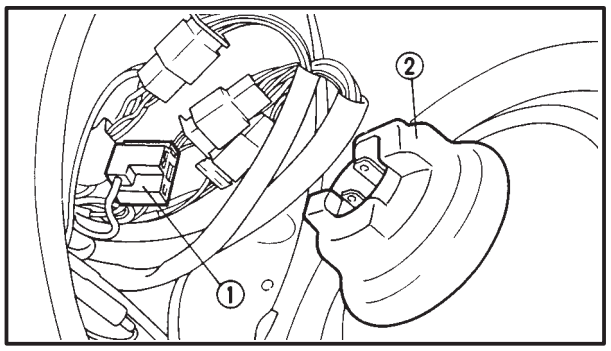
HEADLIGHT BEAM ADJUSTMENT

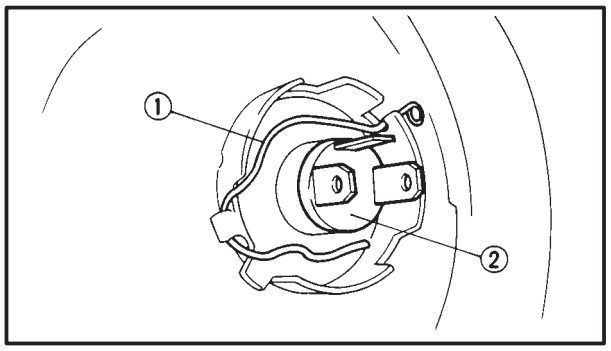
1. Adjust:
   • Headlight beam (vertically)
   Turn the adjuster ① in or out.

Turning in:	**headlight beam is raised.**
Turning out:	**headlight beam is lowered.**

2. Adjust:
   • Headlight beam (horizontally)
   Turn the adjuster ② in or out.

Turning in:	**headlight beam to the left.**
Turning out:	**headlight beam to the right.**





EB305030

HEADLIGHT BULB REPLACEMENT

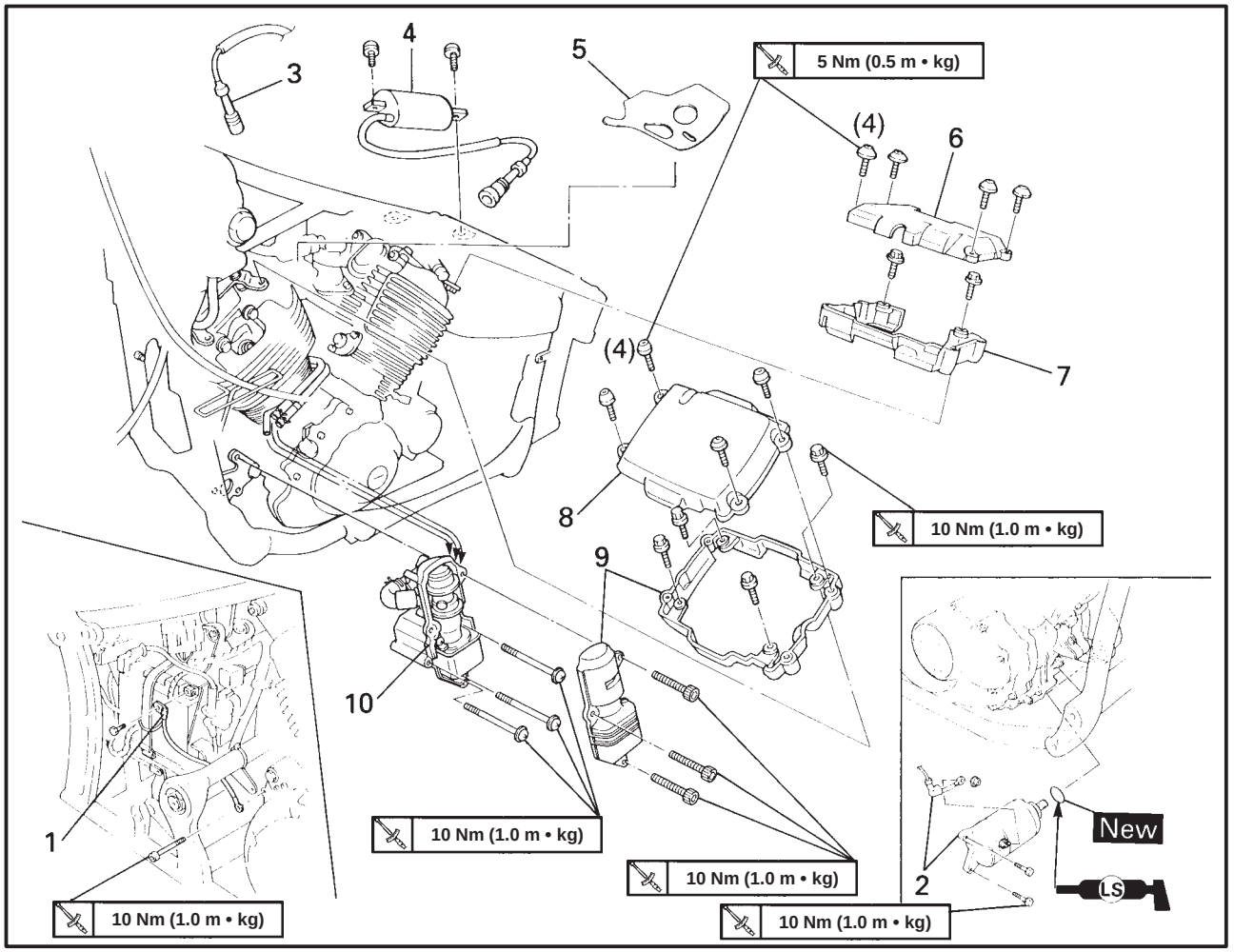
1. Remove:
   • Headlight lens unit
2. Disconnect:
   • Leads (in headlight body) ①
3. Remove:
   • Bulb cover ②
4. Unhook:
   • Bulb holder ①
5. Remove:
   • Bulb ②

⚠ WARNING

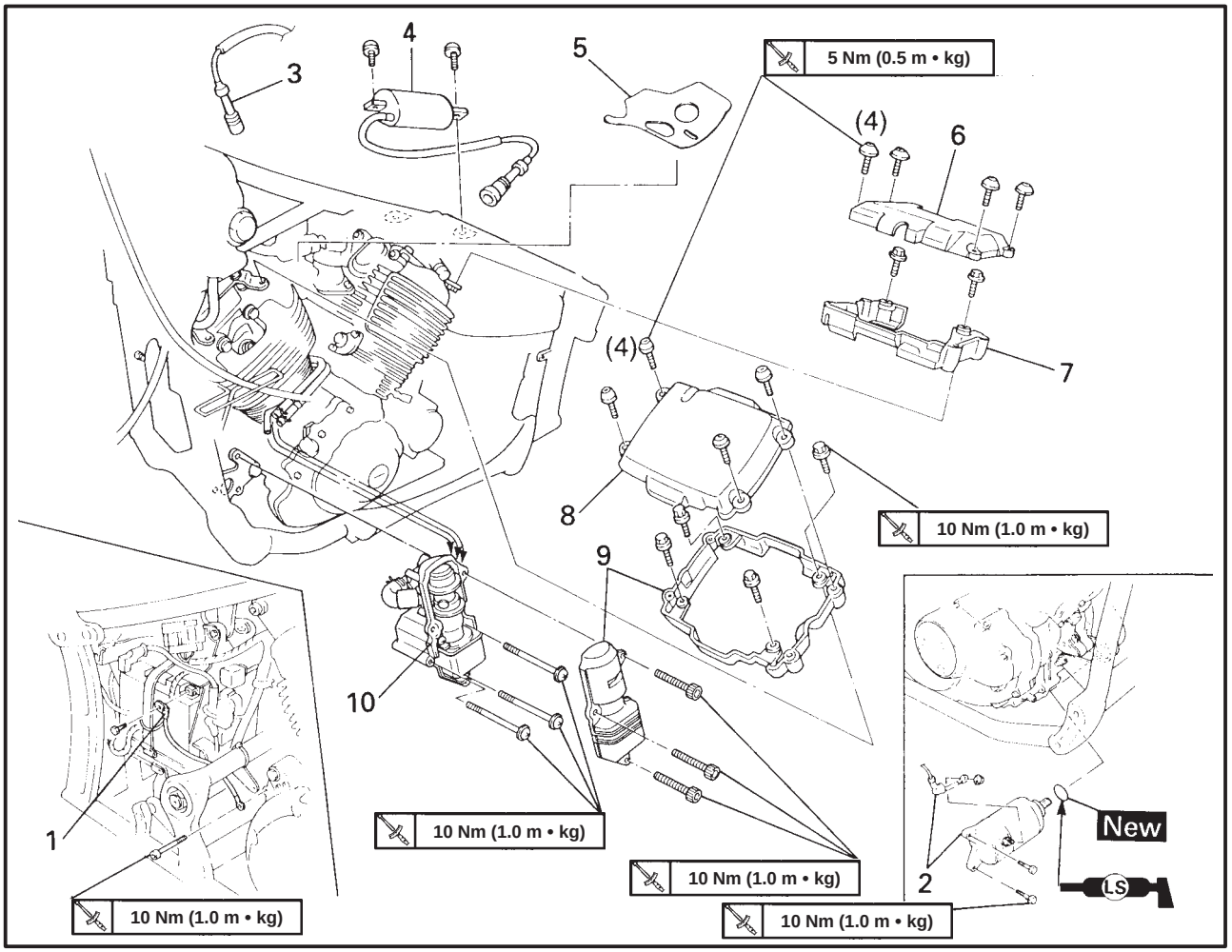
Since the bulb may be hot, keep flammable products and your hands away from it. Do not touch the bulb until it has cooled down.

6. Install:
   • Bulb (new)
   Secure the new bulb with the bulb holder.

ENGINE
ENGINE REMOVAL
CYLINDER HEAD COVERS



Order	Job name/Part name	Q'ty	Remarks
	Cylinder head covers removal		Remove the parts in the order below.
	Fuel tank		Refer to "FUEL TANK AND SEATS" in CHAPTER 3.
	Carburetor assembly		Refer to "CARBURETOR" in CHAPTER 5.
1	Battery leads	2	Disconnect **NOTE:** First, disconnect the negative lead, then disconnect the positive lead.
2	Starter motor assembly	1	
3	Spark plug cap	1	
4	Ignition coil (cylinder #1 side)	1	
5	Baffle cover	1	
6	Upper cylinder head cover (rear)	1	
7	Lower cylinder head cover (rear)	1	
8	Upper cylinder head cover (front)	1	



Order	Job name/Part name	Q'ty	Remarks
9	Lower cylinder head cover (front)	1	
10	Cover	1	
11	AIS ass'y	1	
			For installation reverse the removal procedure.

EB601000

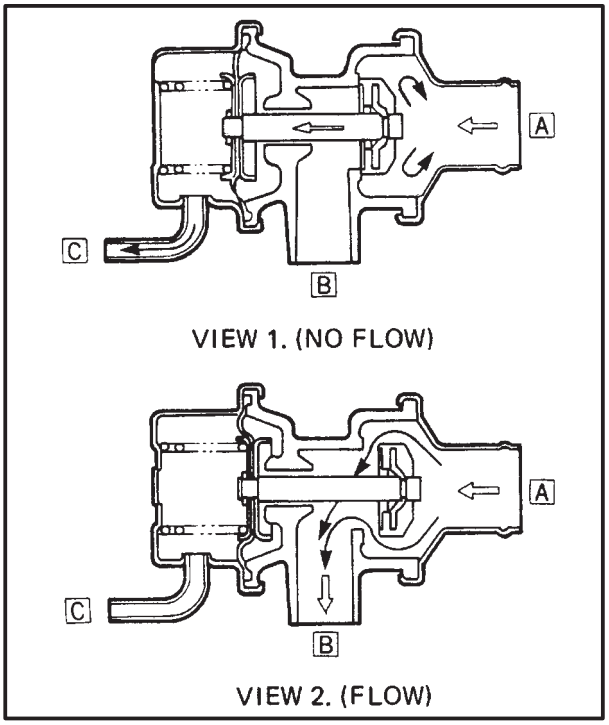
CARBURATION

AIR INDUCTION SYSTEM (AIS) <For D, A>

AIR INJECTION

This system burns the unburned exhaust gases by injecting fresh air (secondary air) at the exhaust port. This is to reduce the output of the hydrocarbons.

When there is negative pressure around the exhaust port, the reed valve opens and the secondary air flows into the exhaust port. The required temperature for burning the unburned exhaust gases is approximately 600° to 700° C.



AIR CUT-OFF VALVE

The air cut-off valve is operated by intake gas pressure through the diaphragm. Normally, this valve is opened in order to allow fresh air to flow into the exhaust port.

When the throttle is rapidly closed, negative pressure is generated and the valve closes in order to prevent after-burning.

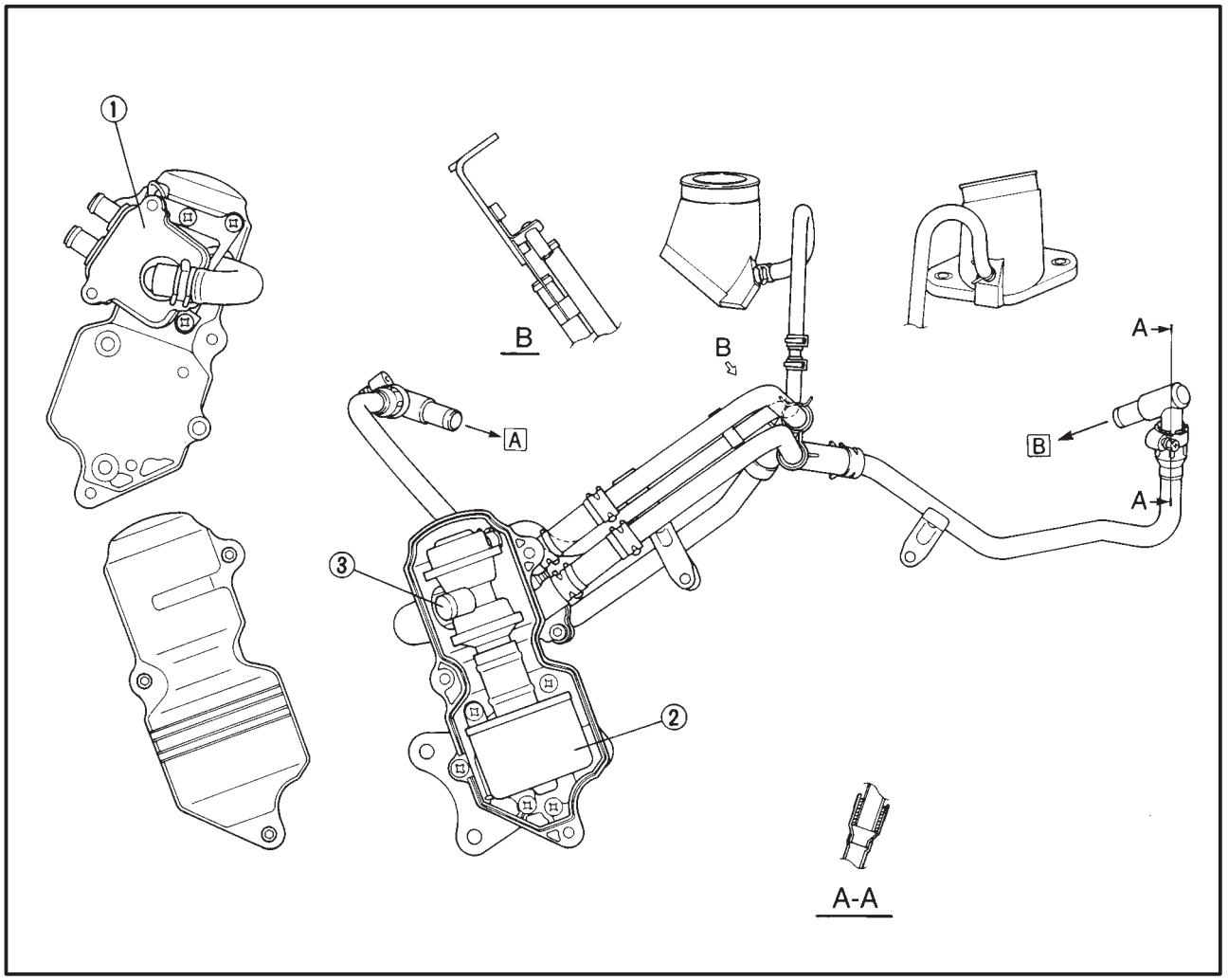
VIEW 1. (NO FLOW)

When decelerating (the throttle closes), the valve will close.

VIEW 2. (FLOW)

During normal operation the valve is open.

A From the air filter
B To the reed valve
C To the carburetor joint

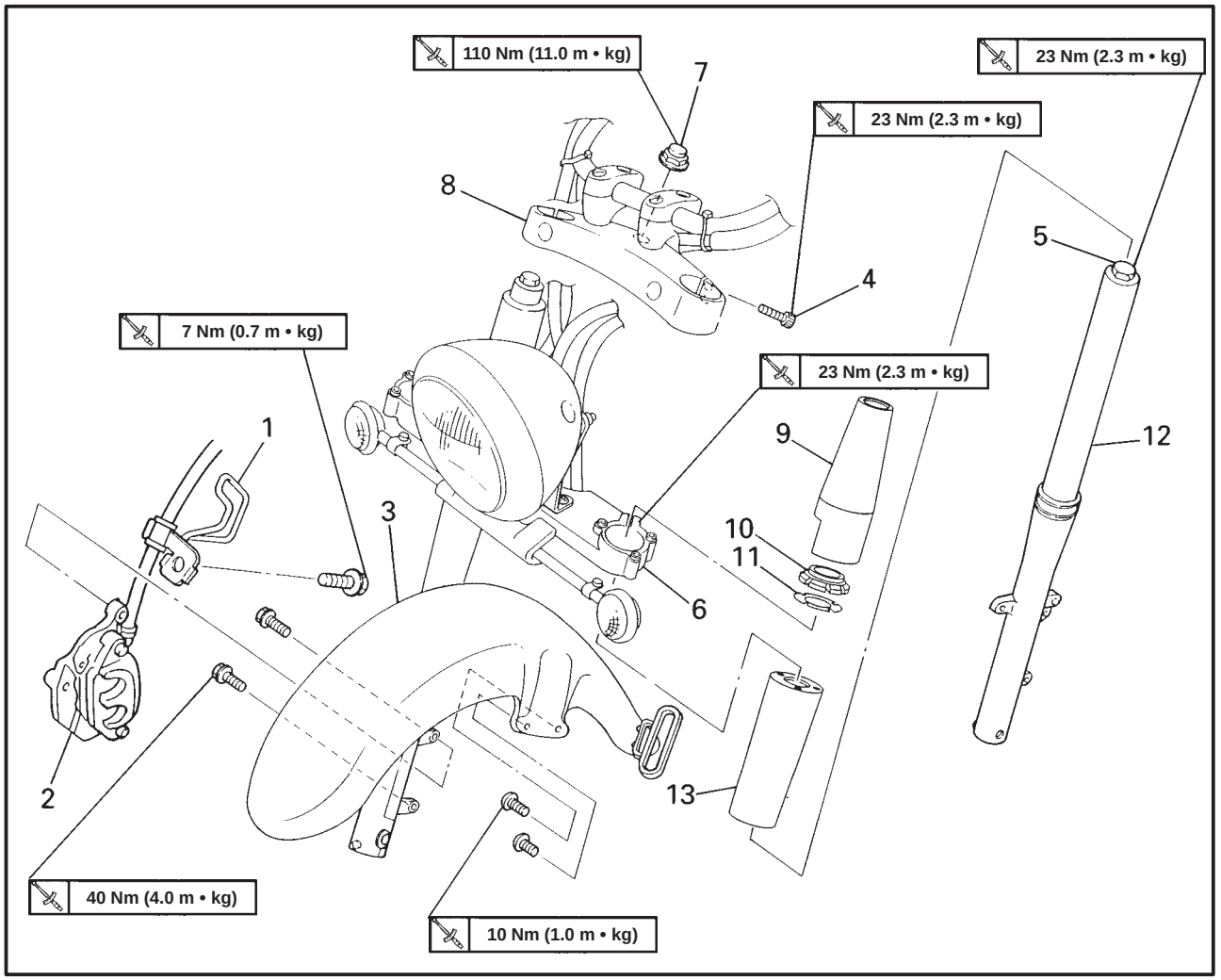


① Reed valve
② Air filter
③ Air cut-off valve
A To the front cylinder head
B To the rear cylinder head

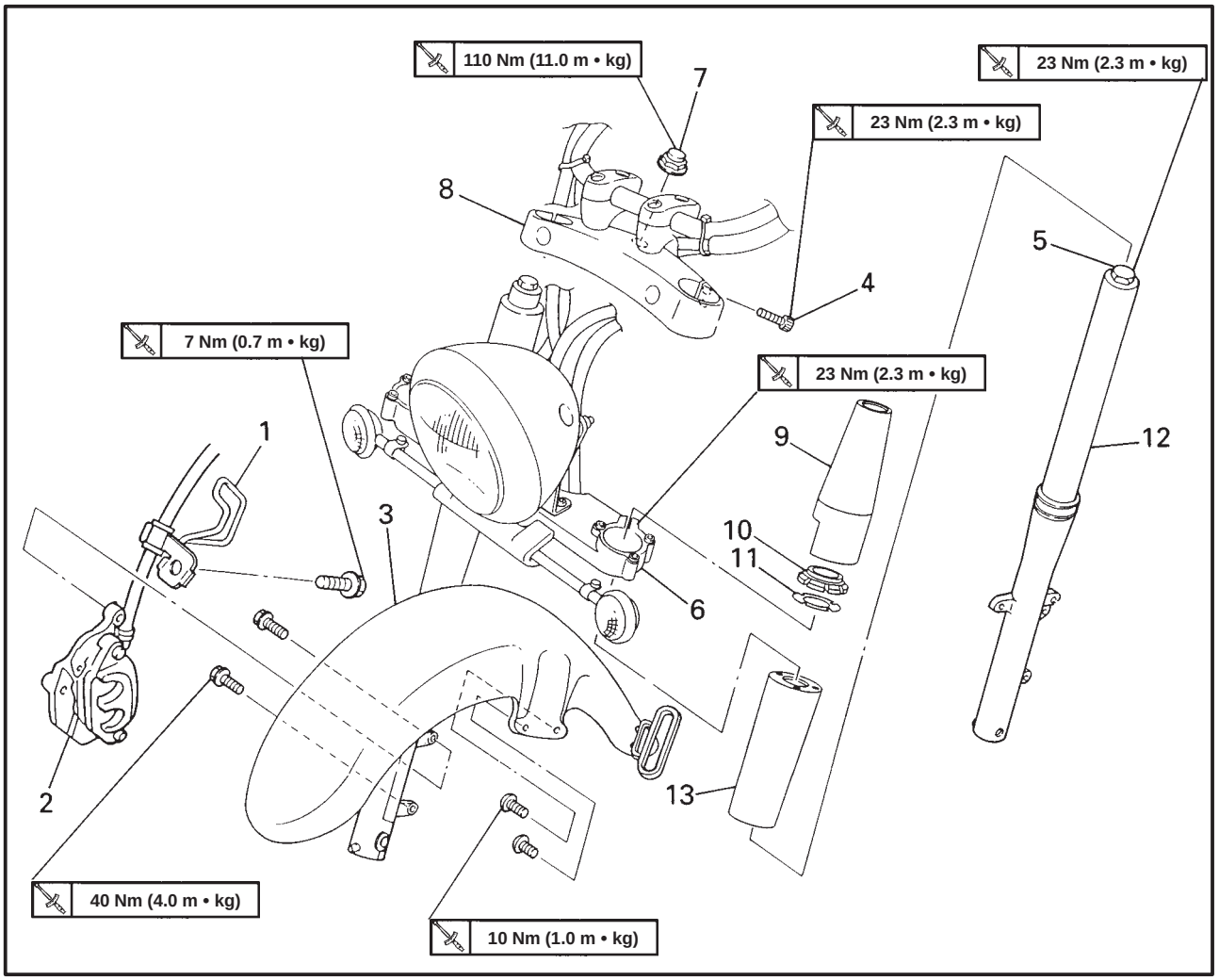
AIR INDUCTION SYSTEM INSPECTION

1. Inspect:
   - Hose connections
     Poor connections → Properly connect.
   - Hoses
   - Reed valves
   - Air cut-off valve
   - Air filter
     Cracks/damage → Replace
     Clogged → Clean.

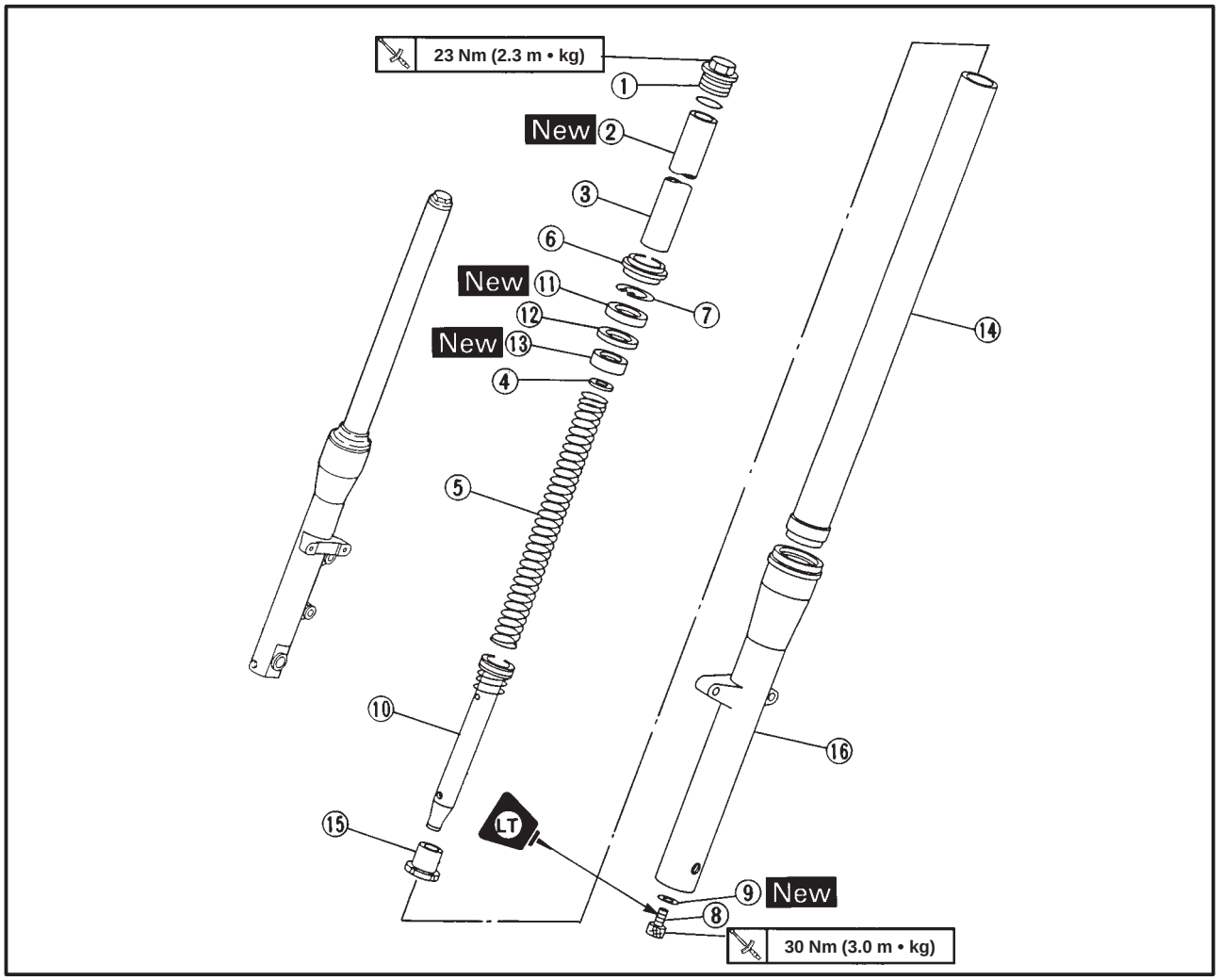
CHASSIS
FRONT FORK



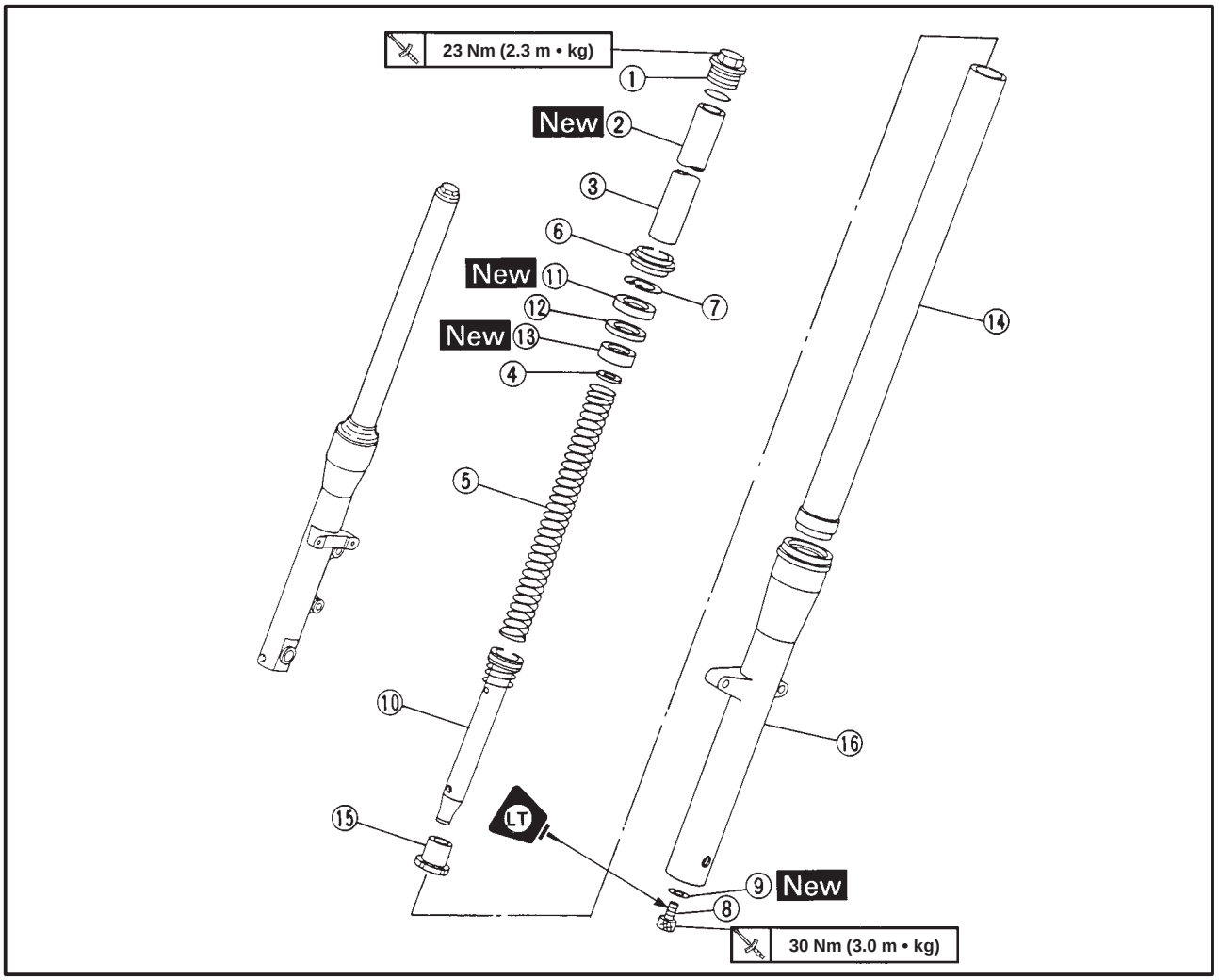
Order	Job name/Part name	Q'ty	Remarks
	Front fork removal		Remove the parts in the order below.
	Front wheel		Refer to "FRONT WHEEL"
1	Brake hose holder	1	
2	Brake caliper assembly	1	
3	Front fender	1	
4	Upper bracket bolts	2	Loosen
5	Cap bolts	2	Refer to "FRONT FORK INSTALLA-
6	Lower bracket bolts	2	TION".
7	Steering stem nut	1	
8	Upper bracket with handle	1	



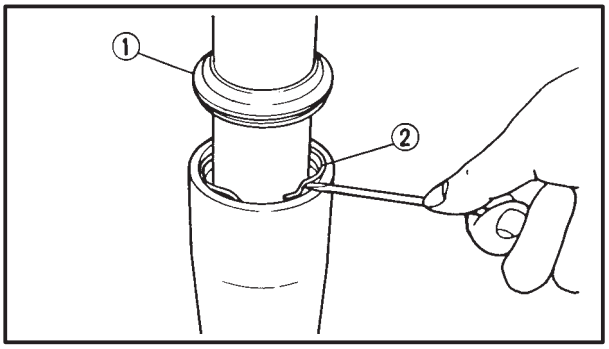
Order	Job name/Part name	Q'ty	Remarks
9	Upper fork covers	2	
10	Upper fork cover spacers	2	
11	Upper fork cover washers	2	
12	Front forks	2	
13	Lower fork covers	2	
			For installation, reverse the removal procedure.

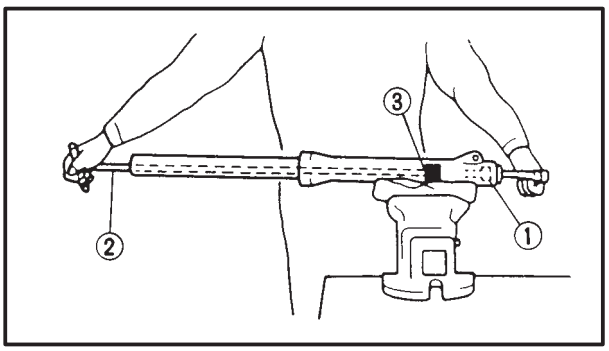


Order	Job name/Part name	Q'ty	Remarks
	Front fork disassembly		Disassemble the parts in the order below.
①	Cap bolt	1	Refer to "FRONT FORK ASSEMBLY"
②	O-ring	1	
③	Spacer collar	1	
④	Spring seat	1	
⑤	Fork spring	1	
⑥	Dust seal	1	Refer to "FRONT FORK DISASSEMBLY/ASSEMBLY".
⑦	Retaining clip	1	
⑧	Damper rod bolt	1	
⑨	Gasket	1	
⑩	Damper rod/rebound spring	1/1	
⑪	Oil seal	1	



Order	Job name/Part name	Q'ty	Remarks
⑫	Seal spacer	1	Refer to "FRONT FORK ASSEMBLY"
⑬	Slide metal	1	
⑭	Inner tube/piston metal	1/1	
⑮	Oil lock piece	1	
⑯	Outer tube	1	
			For assembly, reverse the disassembly procedure.





FRONT FORK DISASSEMBLY

1. Remove:
   - Dust seal ①
   - Retaining clip ②
     (use a slotted-head screwdriver)

CAUTION:

Take care not to scratch the inner tube.

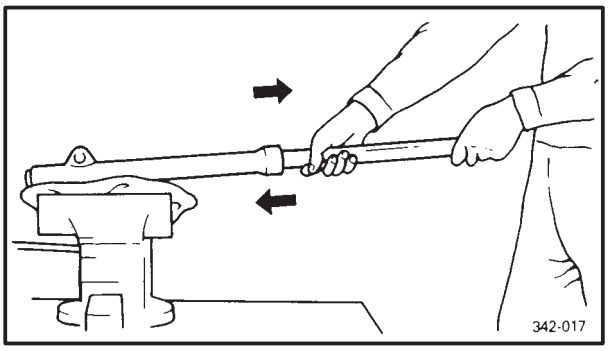
2. Remove:
   - Damper rod bolt ①

NOTE:

Loosen the damper rod bolt while holding the damper rod with the T-handle ② and the damper rod holder ③.

T-Handle:
90890-01326
Damper rod holder:
90890-01388

3. Remove:
   - Damper rod
   - Rebound spring



4. Remove
   - Inner tube

****

Removal steps:

- Hold the fork leg horizontally.
- Securely clamp the caliper mounting boss of the outer tube in a vise with soft jaws.
- Separate the inner tube from the outer tube by pulling forcefully but carefully on the inner tube.

CAUTION:

- **Excessive force will damage the oil seal and/or the slide metal. A damaged oil seal and metal must be replaced.**
- **Avoid bottoming the inner tube into the outer tube during the above procedure, as the oil lock piece will be damaged.**

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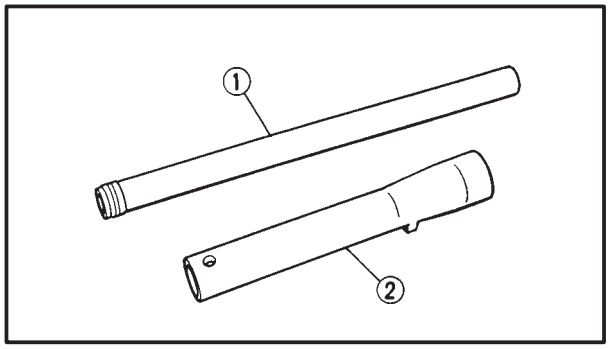
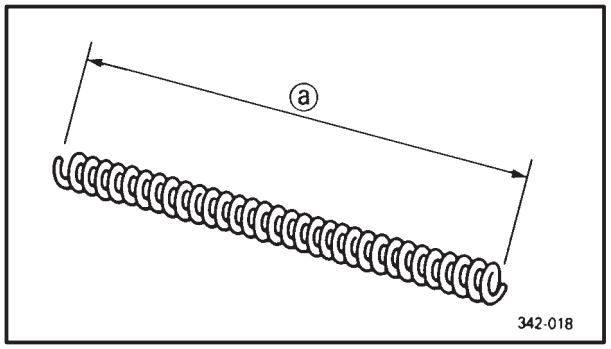
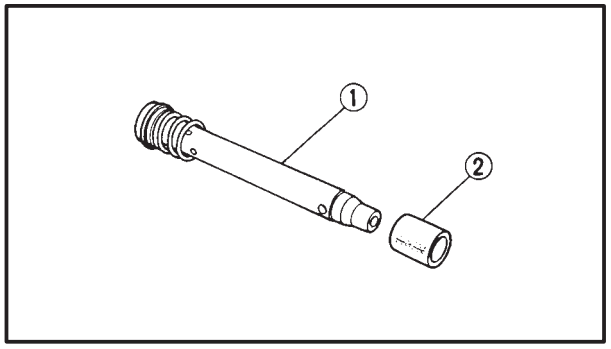
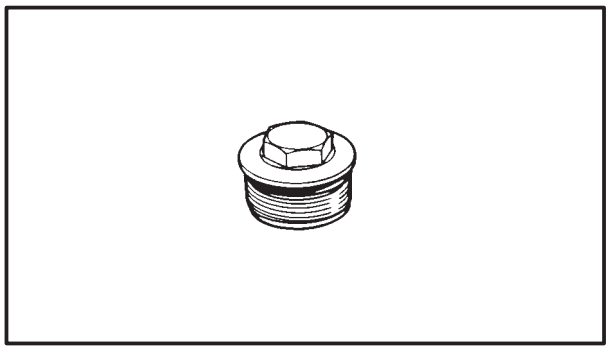








EB703030

FRONT FORK INSPECTION

1. Inspect:
   - Inner tube ①
   - Outer tube ②
   Scratches/bends/damage → Replace.

⚠ WARNING

Do not attempt to straighten a bent inner tube as this may dangerously weaken the tube.

2. Measure:
   - Fork spring length ⓐ
   Over the specified limit → Replace.

Fork spring free length (limit):
325.9 mm

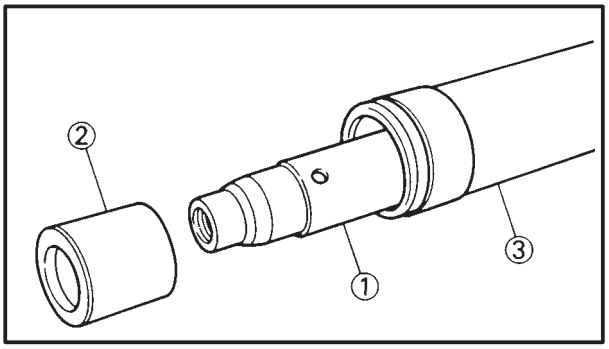
3. Inspect:
   - Damper rod ①
   Wear/damage → Replace.
   Contamination → Blow out all of the oil passages with compressed air.
   - Oil lock piece ②
   Damage → Replace.

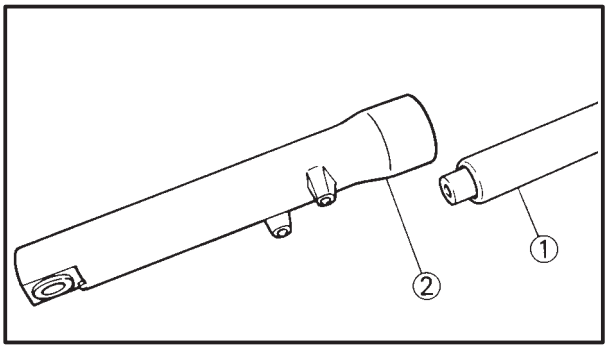
4. Inspect:
   - O-ring (cap bolt)
   Wear/damage → Replace.

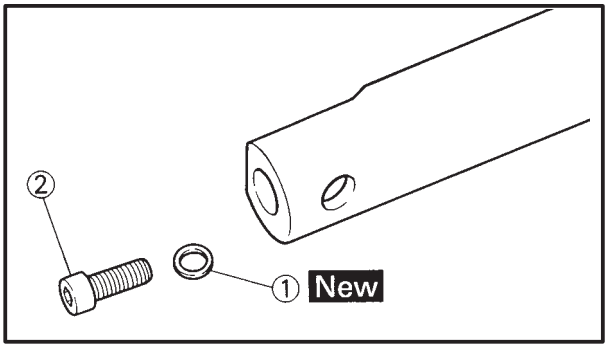
FRONT FORK ASSEMBLY

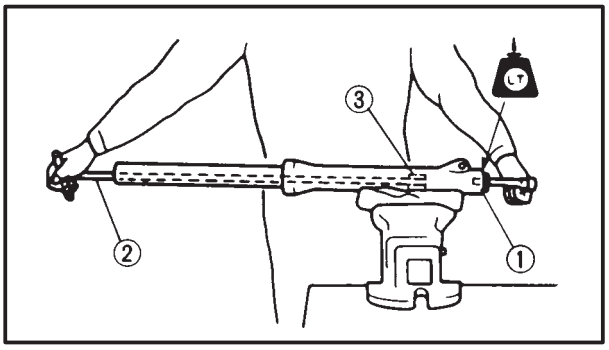
NOTE:

- When reassembling the front fork, replace the following parts.
  *Piston metal
  *Slide metal
  *Oil seal
  *Dust seal
- Before reassembly make sure that all the components are clean.









1. Install:
   - Damper rod ①
   - Rebound spring
   - Oil lock piece ②
   - Inner tube ③

CAUTION:

Allow the damper rod to slide slowly down the inner tube until it protrudes from the bottom, being careful not to damage the inner tube.

2. Lubricate:
   - Inner tube (outer surface)

Recommended lubricant:
Yamaha fork oil 10WT or equivalent

3. Install:
   - Inner tube ①
     (to outer tube ②)
4. Install:
   - Gasket ① **New**
   - Damper rod bolt ②

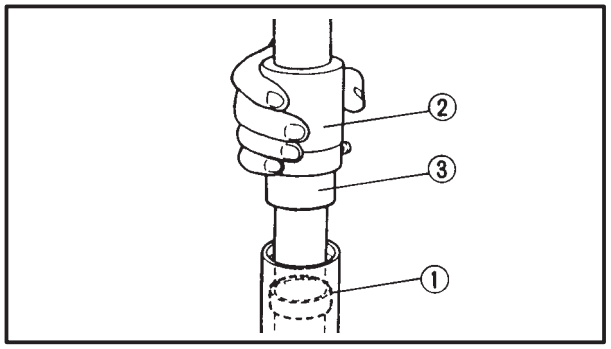
5. Tighten:
   - Damper rod bolt ①

30 Nm (3.0 m•kg)

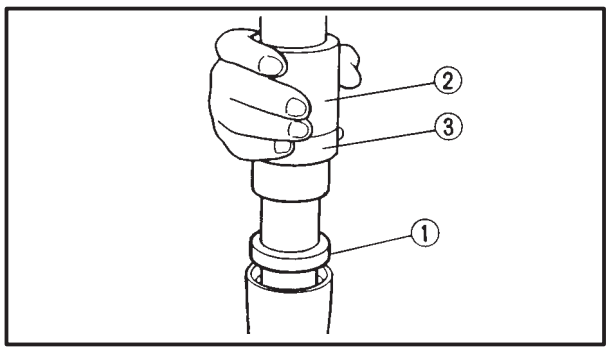
NOTE:

Apply LOCTITE) to the threads of the damper rod holder. Tighten the damper rod bolt while holding the damper rod with a T-handle ② and a damper rod holder ③.

T-handle:
90890-01326
Damper rod holder:
90890-01388



6. Install:
   • Slide metal ① **New**
   • Seal spacer
   Use the fork seal driver weight ② and the adapter ③.

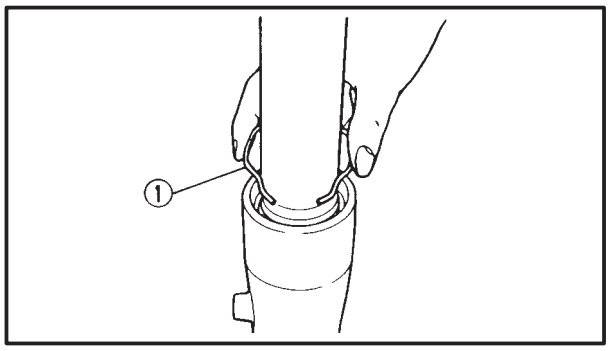


7. Install:
   • Oil seal ① **New**
   Use the fork seal driver weight ② and the adapter ③.

	Fork seal driver weight: **90890-01367** **Adapter:** **90890-01381**

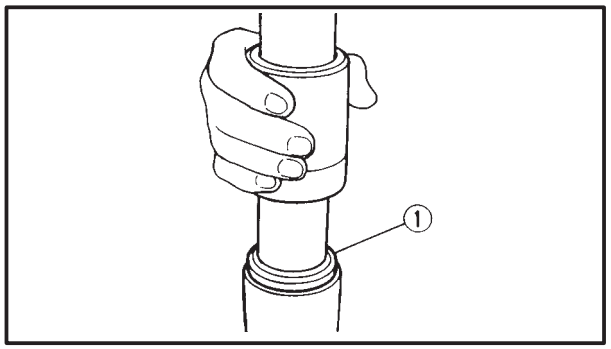
NOTE:
Before installing the oil seal, apply lithium soap base grease onto the oil seal lips.

CAUTION:
Make sure that the numbered side of the oil seal faces up.



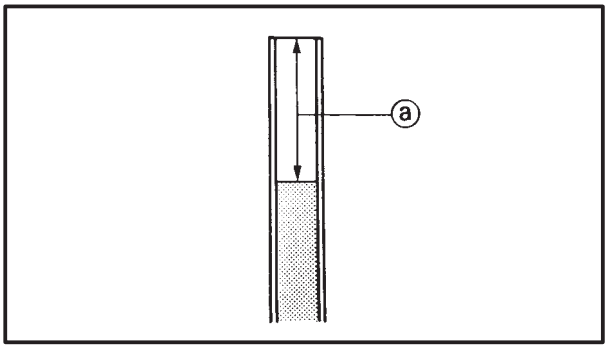
8. Install:
   • Retaining clip ①

NOTE:
Adjust the retaining clip so that it fits into the outer tube groove.



9. Install:
   • Dust seal ①
   Use the fork seal driver weight.

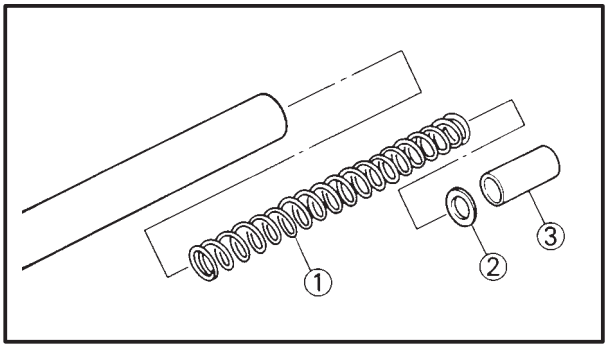
	Fork seal driver weight: **90890-01367**



10. Fill:
    • Fork oil

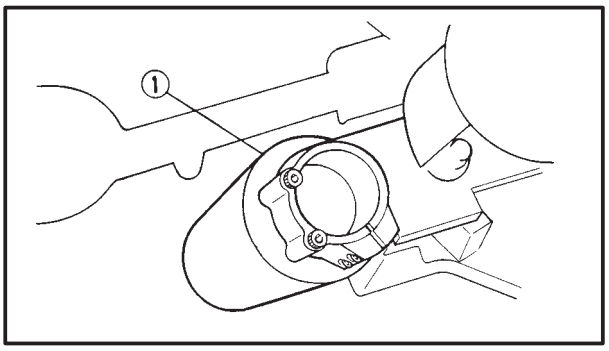
Each fork:
507 cm³ (17.8 Imp oz)
Yamaha fork oil 10WT or equivalent. After filling up, slowly pump the fork up and down to distribute the fork oil.
Oil level ⓐ:
95 mm
(from the top of the inner tube fully compressed and without the fork spring)

NOTE:
Hold the fork in an upright position.



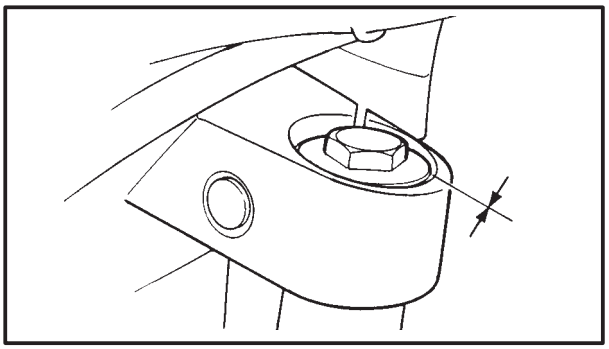
11. Install:
    • Fork spring ①
    • Spring seat ②
    • Spacer collar ③
    • O-ring
    • Cap bolt

NOTE:
- Before installing the cap bolt, apply grease to the O-ring.
- Temporarily tighten the cap bolt.



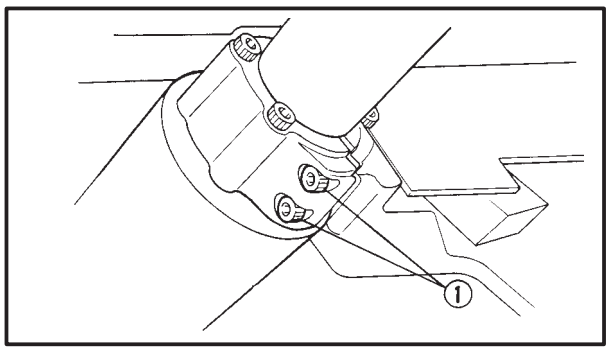
FRONT FORK INSTALLATION

1. Install:
   Lower fork covers ①
   • Front forks
   Temporarily tighten the lower bracket pinch bolts.



2. Tighten:
   • Upper bracket
   • Steering stem nut — 110 Nm (11.0 m•kg)

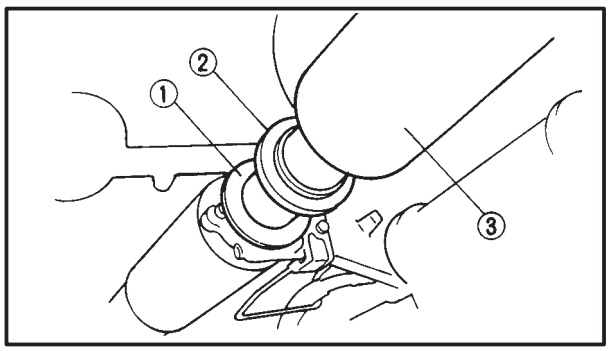
NOTE:
- When aligning the fork tubes do not install the upper fork covers.
- Make sure that the inner tube end is flush with the top of the handlebar crown.



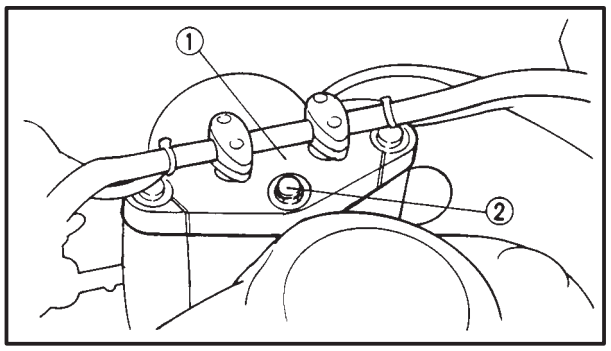
3. Tighten
   - Front fork pinch bolts (lower) ①

     23 Nm (2.3 m•kg)
   - Cap bolts

     23 Nm (2.3 m•kg)
4. Remove:
   - Steering stem nut
   - Upper bracket

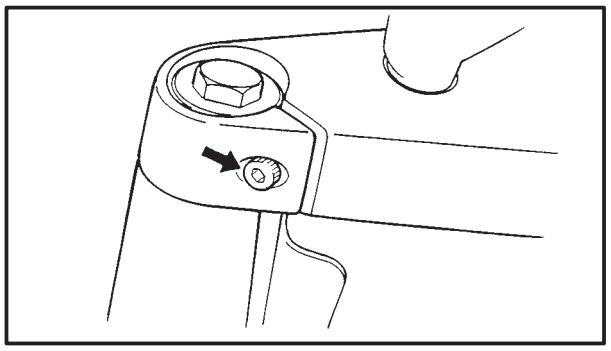


5. Install:
   - Upper fork cover washers ①
   - Upper fork cover spacers ②
   - Upper fork covers ③



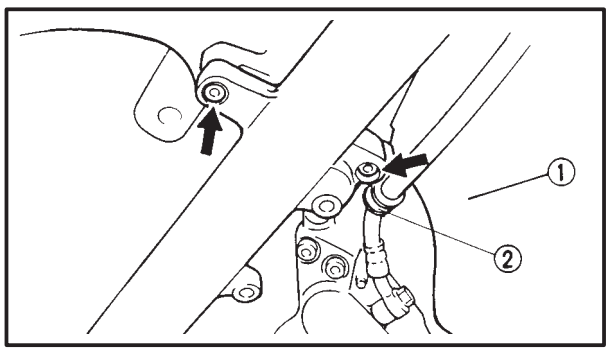
6. Instal:
   - Upper bracket ①
   - Steering stem nut ②

     110 Nm (11.0 m•kg)



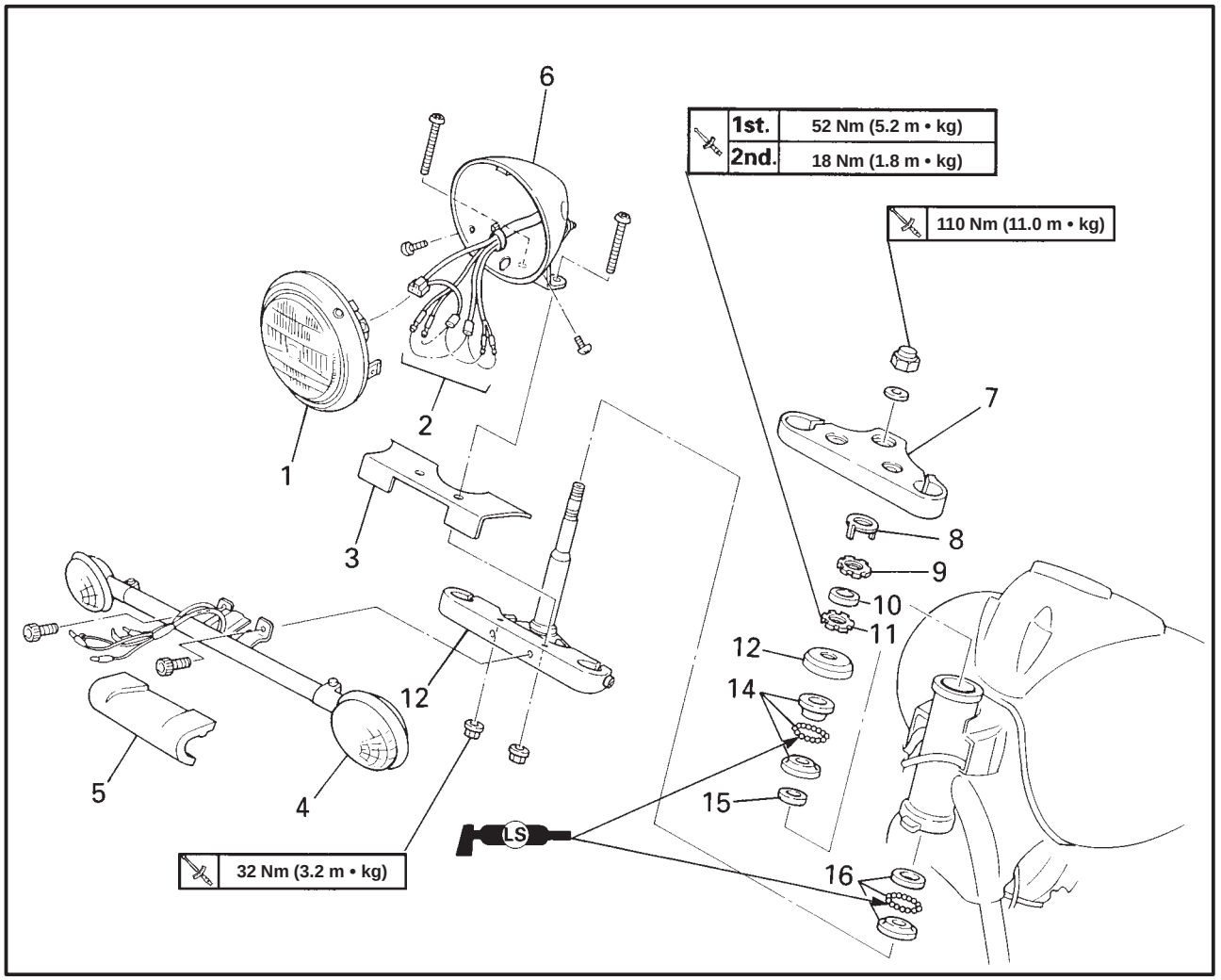
7. Tighten:
   - Fron fork pinch bolts (upper)

     23 Nm (2.3 m•kg)



8. Install:
   - Front fender ①
   - Brake hose holders ②

STEERING HEAD



Order	Job name/Part name	Q'ty	Remarks
	Steering head removal		Remove the parts in the order below. Stand the motorcycle on a level surface. **⚠ WARNING** **Securely support the motorcycle so that there is no danger of it falling over.**
	Front forks		Refer to "FRONT FORK".
	Handlebar		Refer to "HANDLEBAR".
1	Headlight lens unit	1	
2	Leads (in the headlight body)	–	Disconnect
3	Front flasher light (left/right)	1/1	
4	Headlight body	1	
5	Upper bracket	1	
6	Lock washer	1	
7	Upper ring nut	1	
8	Lock washer	1	For installation, reverse the removal
9	Upper ring nut	1	procedure.