YAMAHA

XJ900S(H)'96

4KM-AE2

SUPPLEMENTARY SERVICE MANUAL

HOW TO USE THIS MANUAL

CONSTRUCTION OF THIS MANUAL

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

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

2nd title ②: This title appears on the upper of each page on the left of the chapter symbol. (For the chapter "Periodic inspection and adjustment" the 3rd title appears.)

3rd title ③: This is a final title.

MANUAL FORMAT

All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspections.

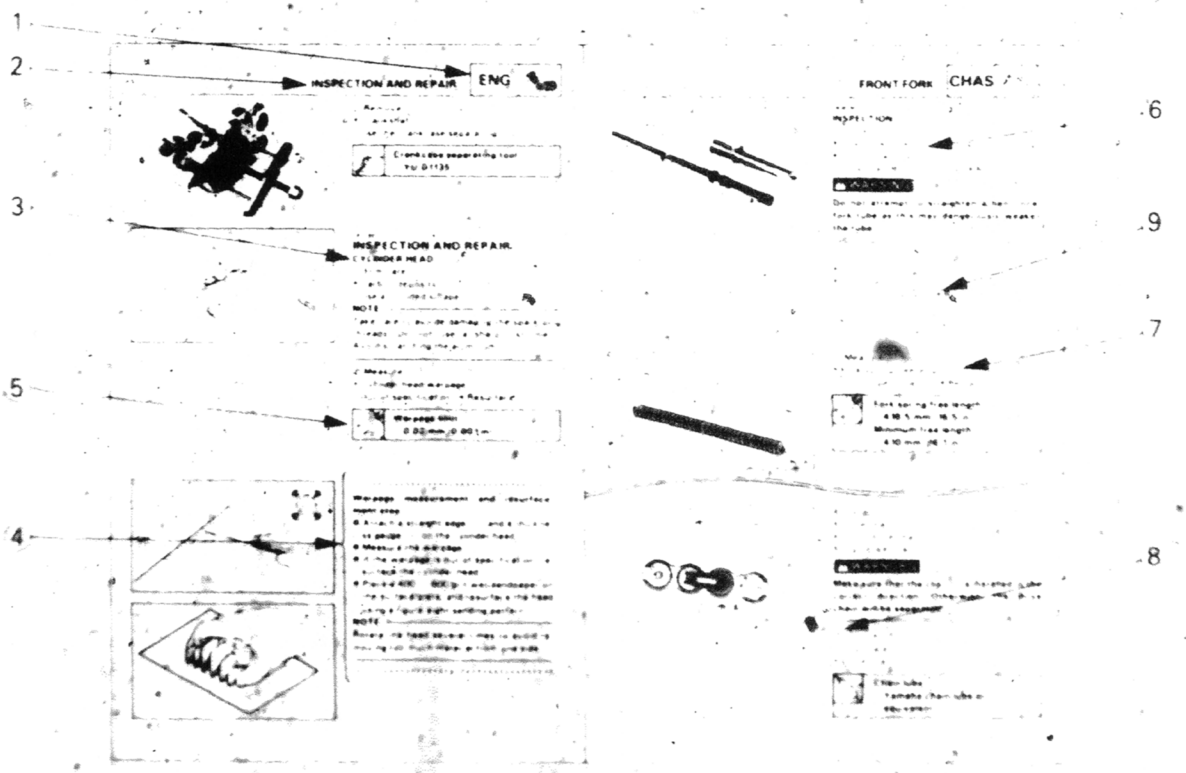
A set of particularly important procedures ④ is placed between a line of asterisks "✱"with each procedure preceded by "●".

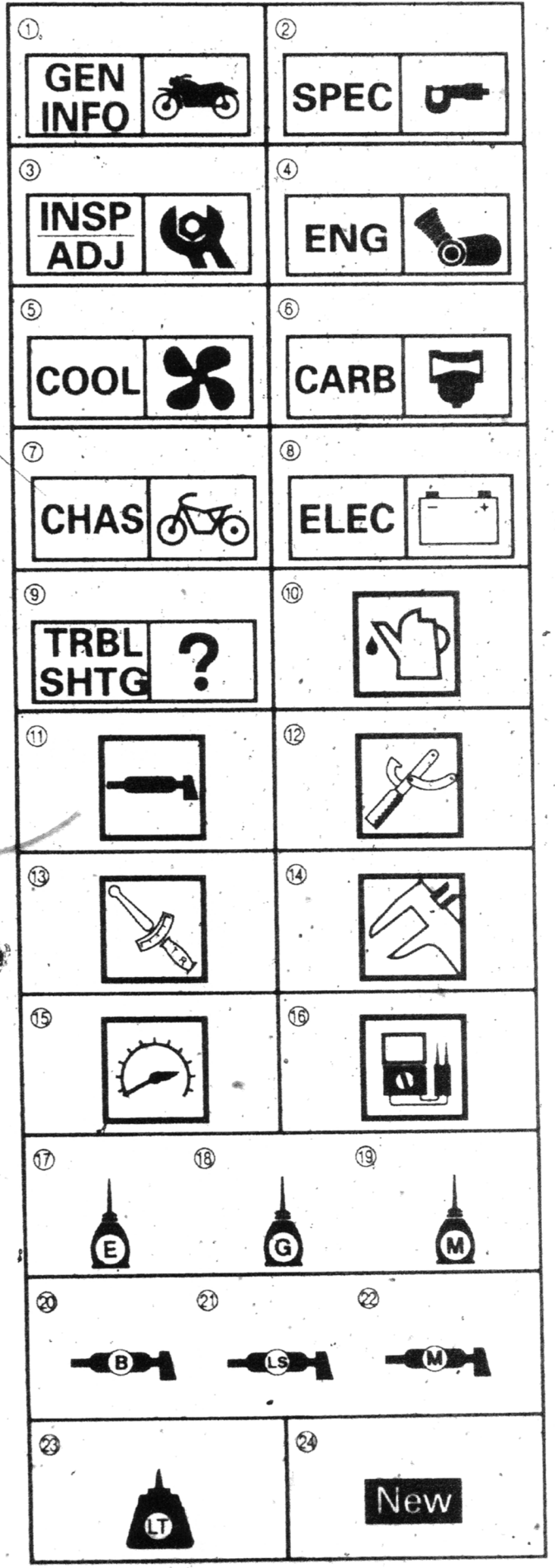
IMPORTANT FEATURES

- Data and a special tool are framed in a box preceded by a relevant symbol ⑤.
- An encircled numeral ⑥ indicates a part name, and an encircled alphabetical letter data or an alignment mark ⑦, the others being indicated by an alphabetical letter in a box ⑧.
- A condition of a faulty component will precede an arrow symbol and the course of action required the symbol ⑨.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.





ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

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

Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

Illustrated symbols ⑰ to ㉔ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease
㉓ Apply locking agent (LOCTITE®)
㉔ Use new one

GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

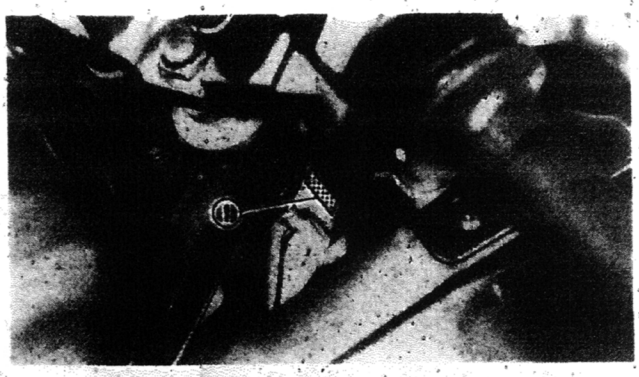
(For E and AUS)

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

Starting serial number:
JYA4KMS0*TA047101 (E)
JYA4PST0*TA002101 (AUS)

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.



FRAME SERIAL NUMBER

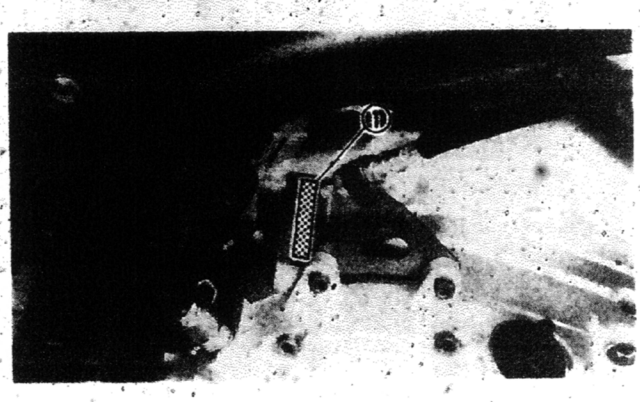
(Except for E and AUS)

The frame serial number ① is stamped into the right side of the steering head.

Starting serial number:
4KM-025101
4PR-003101 (CH, A)

NOTE:

The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into crankcase.

Starting serial number:
4KM-025101
4KM-047101 (E)
4PR-003101 (CH, A)
4PS-002101 (AUS)

NOTE:

- The first three digits of these numbers are for model identification; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	XJ900S
Model code:	4KM3 4KM4 (E) 4PR2 (CH, A) 4PS2 (AUS)
Engine starting number:	4KM-025101 4KM-047101 (E) 4PR-003101 (CH, A) 4PS-002101 (AUS)
Vehicle identification number:	JYA4KMS0*TA047101 (E) JYA4PST0*TA002101 (AUS)
Frame starting number:	4KM-025101 4PR-003101 (CH, A)
Dimensions:	
Overall length	2,230 mm
Overall width	750 mm
Overall height	1,300 mm
Seat height	795 mm
Wheelbase	1,505 mm
Minimum ground clearance	130 mm
Minimum turning radius	3,000 mm

MAINTENANCE SPECIFICATIONS

ENGINE

Model		XJ900S
Carburetor:		
I. D. mark		4KM 01 (Except for CH, A) 4PR 01 (for CH, A)
Main jet	(M.J)	#100
Main air jet	(M.A.J)	#72.5
Jet needle	(J.N)	5DT3-2
Needle jet	(N.J)	0-2
Pilot air jet	(P.A.J.1)	#120
Pilot outlet	(P.O)	1.0
Pilot jet	(P.J)	#12.5
Bypass 1	(B.P.1)	0.9
Bypass 2	(B.P.2)	0.8
Bypass 3	(B.P.3)	0.9
Pilot screw	(P.S)	1-1/2
Valve seat size	(V.S)	1.5
Starter jet	(G.S.1)	#30
Throttle valve size	(Th.V)	#125
Fuel level	(F.L)	6 ~ 7 mm
Engine idle speed		950 ~ 1,050 r/min
Intake vacuum		30.7 ~ 33.3 kPa (230 ~ 250 mmHg)

CHASSIS

Model		XJ900S
Front suspension:		
Front fork travel		140 mm
Fork spring free length		399.5 mm
Spring rate	(K1)	4.5 N/mm (0.45 kg/mm)
	(K2)	7.0 N/mm (0.70 kg/mm)
Stroke	(K1)	0 ~ 100 mm
	(K2)	100 ~ 140 mm
Optional spring		No
Oil capacity		444 cm^3
Oil level		113 mm
Oil grade		Fork oil 10 W or equivalent
Rear suspension:		
Shock absorber travel		50 mm
Spring free length		180 mm
Fitting length		163 mm
Spring rate	(K1)	139.7 N/mm (13.97 kg/mm)
Stroke	(K1)	0 ~ 50 mm
Optional spring		No

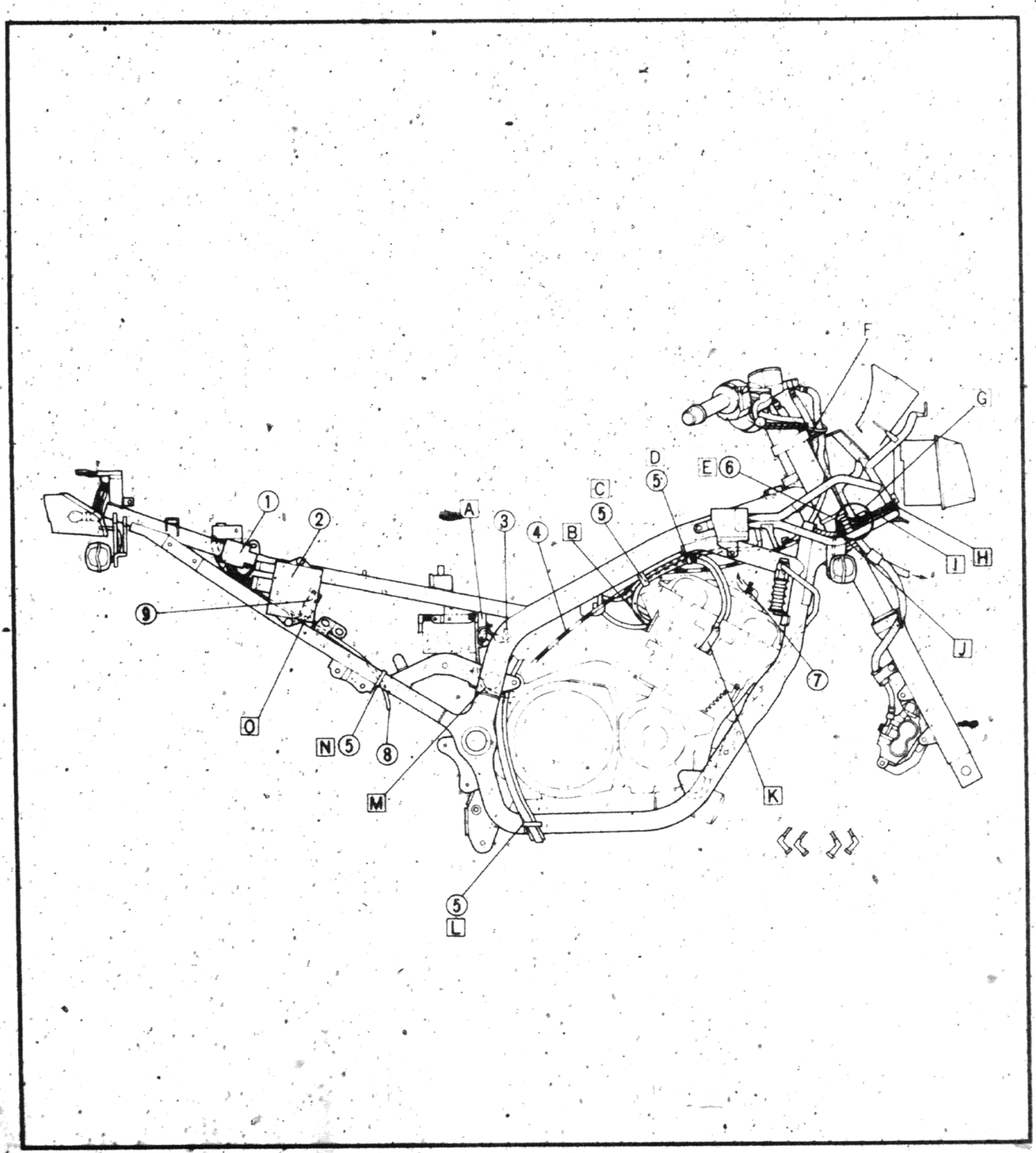
ELECTRICAL

Model	XJ900S
Starter motor:	
Model / manufacturer	DB4DT/NIPPONDENSO
Output	0.6 kW
Armature coil resistance	0.013 ~ 0.015 Ω at 20°C
Brush overall length	12 mm
<Limit>	<8.5 mm>
Spring force	653 ~ 948 g
Commutator diameter	28 mm
<Wear limit>	<27 mm>
Mica undercut	0.6 mm

CABLE ROUTING

① Fuse box
② Ignitor unit
③ Fuel sender lead
④ Clutch cable
⑤ Clamp
⑥ Band
⑦ Clip
⑧ Rear brake switch lead
⑨ Main fuse

[A] Clamp the fuel sender wire harness to the side cover stay.
[B] Clamp the high tension cord #4 to the upper part, and the #2 cord to the lower part at the marked position.
[C] Clamp the high tension cords and clutch cable and sensing hose.
[D] Clamp the high tension cords #1, #2, #3 and #4 to the clamp on the frame at the marked positions accordingly.
[E] Clamp the brake hoses to the inner tube.
[F] Clamp the brake hoses to the guide wire.



[G] After connecting the left and right flasher leads, clamp them to the cowling stay. Connect the thermo switch lead to the plug with white tape affixed to it.

[H] Pass the auxiliary light lead outside the cowling stay and clamp it onto it.

[I] Clamp the auxiliary light lead and wire harness to the cowling stay.

[J] Clamp the flasher lead and thermo switch lead to the cowling stay.

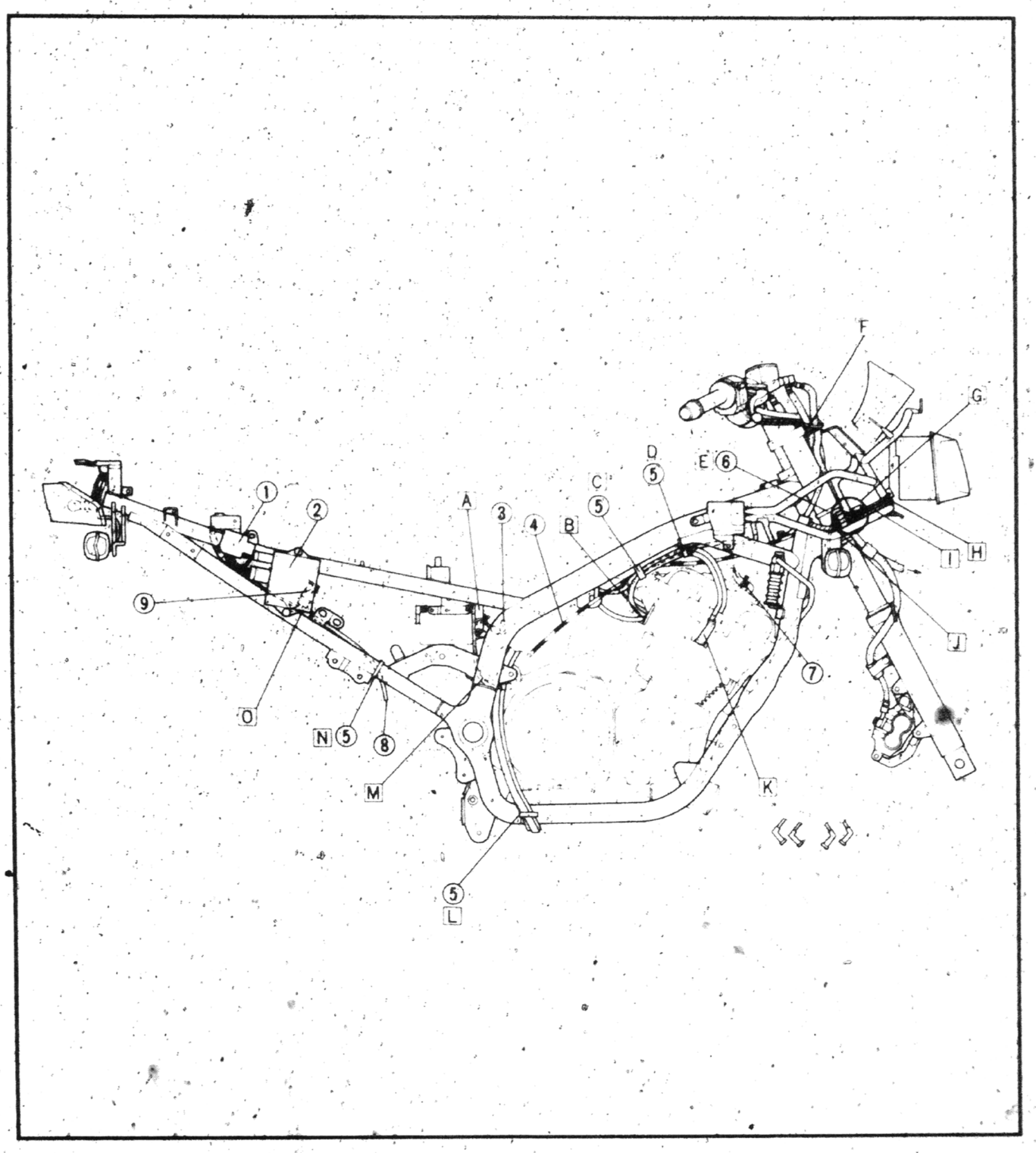
[K] Position the spark plug cap so that it is facing inwards.

[L] Pass the drain hoses for the tank and the drain hose for the air filter case through the clamp.

[M] Pass the battery ⊖ lead under the cross pipe and secure it to the side of the battery ⊖ terminal.

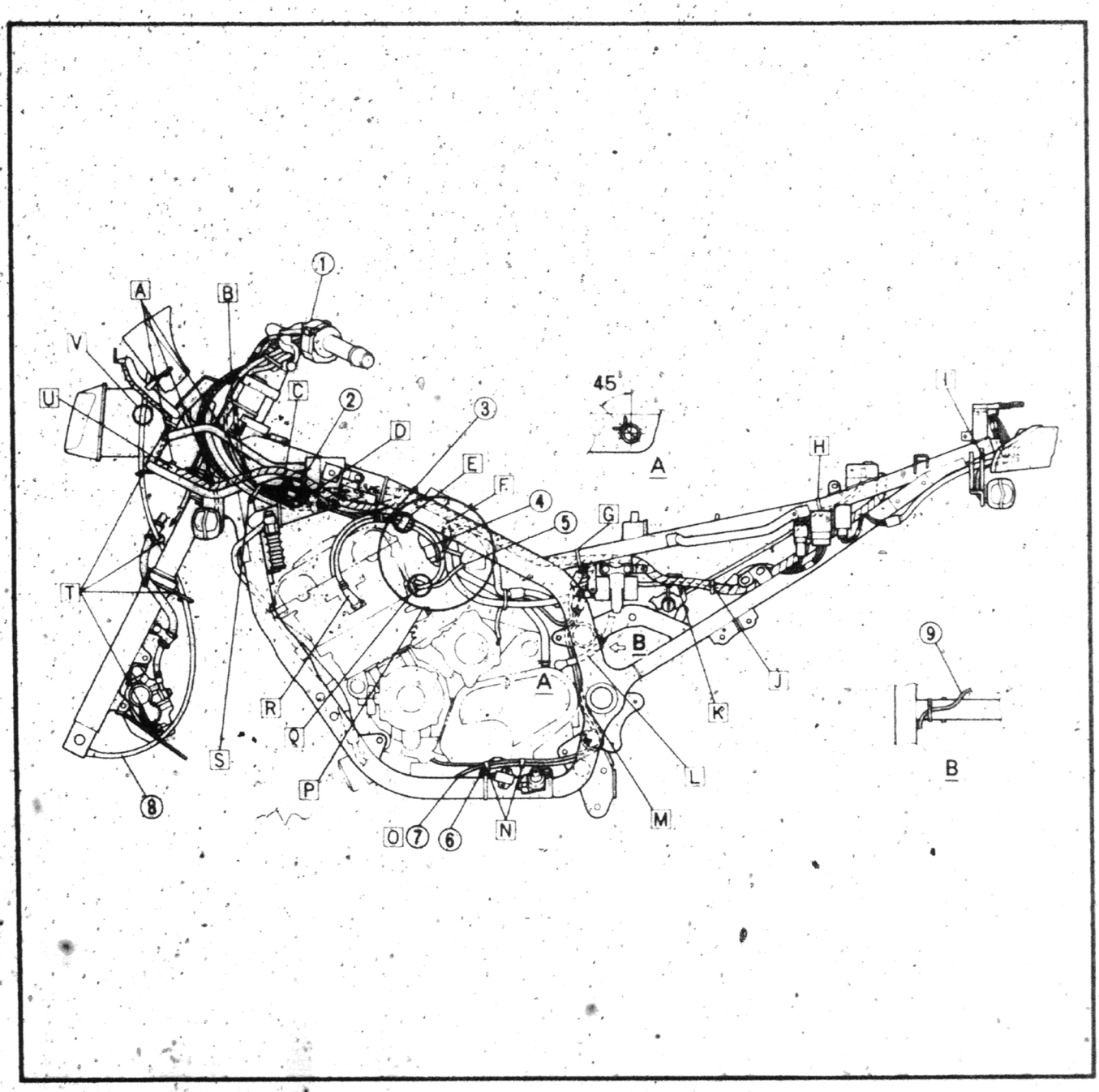
[N] Clamp the rear brake switch lead to the back stay.

[O] Pass the rear brake light switch lead coupler behind the main fuse bracket.

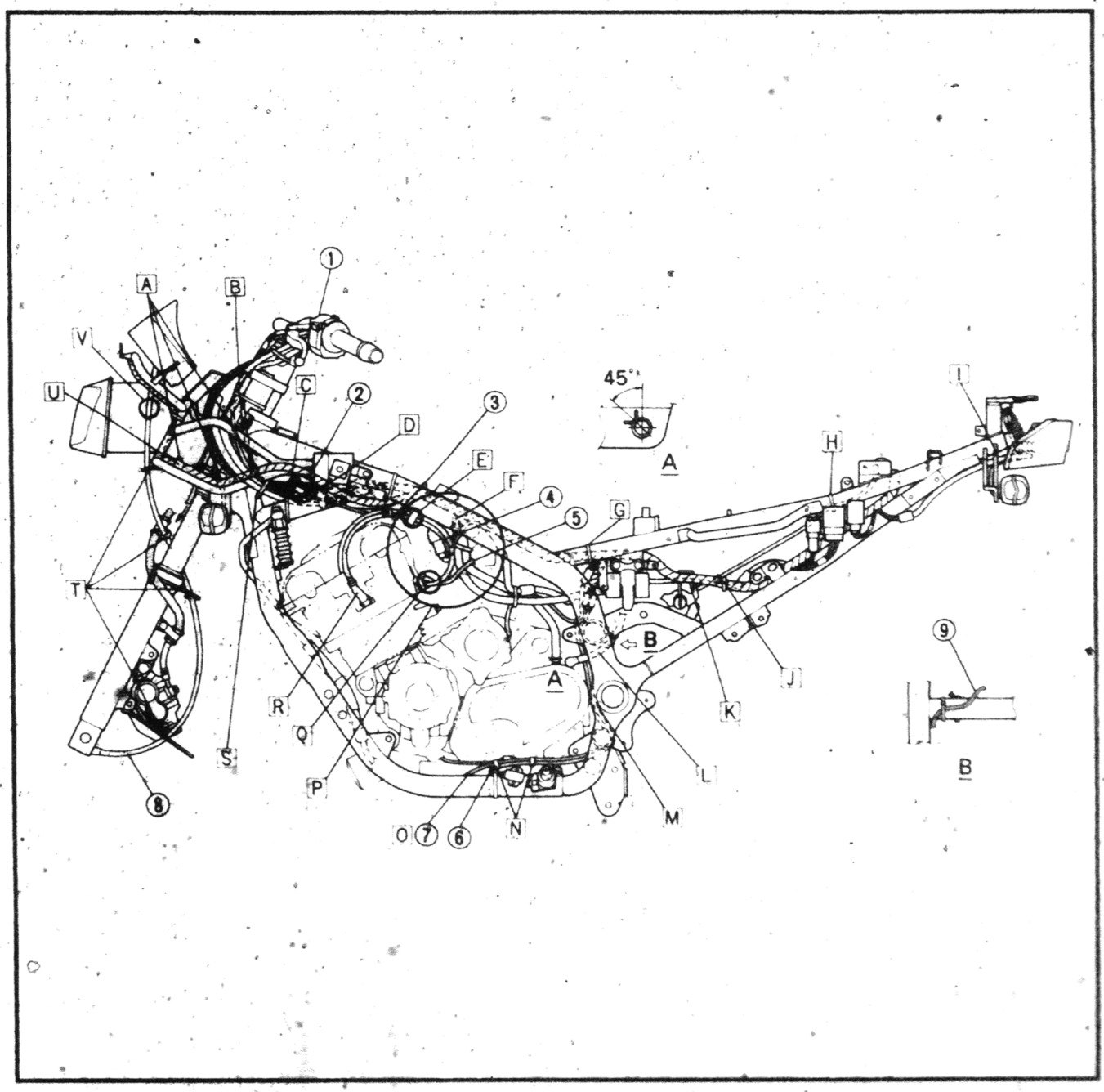


① Handlebar switch (left)
② Main switch coupler
③ High tension cord (#1)
④ High tension cord (#2)
⑤ High tension cord (#4)
⑥ Sidestand switch lead
⑦ Oil level switch lead
⑧ Speedometer cable
⑨ Starter motor lead
⑩ Starter cable

Ⓐ Clamp the wire harness to the cowling stay.
Ⓑ Clamp the left handlebar switch lead to the inner tube.
Ⓒ Clamp the left handlebar switch lead, the main switch lead and the starter cable to the tension pipe.
Ⓓ Clamp the wire harness at the point where the white tape is affixed to it.
Ⓔ Clamp the high tension cords (#1 and #2).
Ⓕ Clip both ends of the fuel hose.
Ⓖ Clamp the wire harness inside the seat rail.
Ⓗ Point the clamp end so that it is facing downwards.
Ⓘ Pass the flasher lead inside the protruding tab on the rear fender.
Ⓙ Clamp the wire harness and the fuel pump lead. Position the fuel pump lead behind the wire harness.
Ⓚ Pass the wire harness and the fuel pump lead through the guide wire on the stay lock. Position the fuel pump lead behind the wire harness.
Ⓛ Pass the starter motor lead under the cross pipe, then clamp it to the cross pipe. Pass the starter motor lead inside the tab on the rear fender and then inside the bracket on the rear shock absorber.

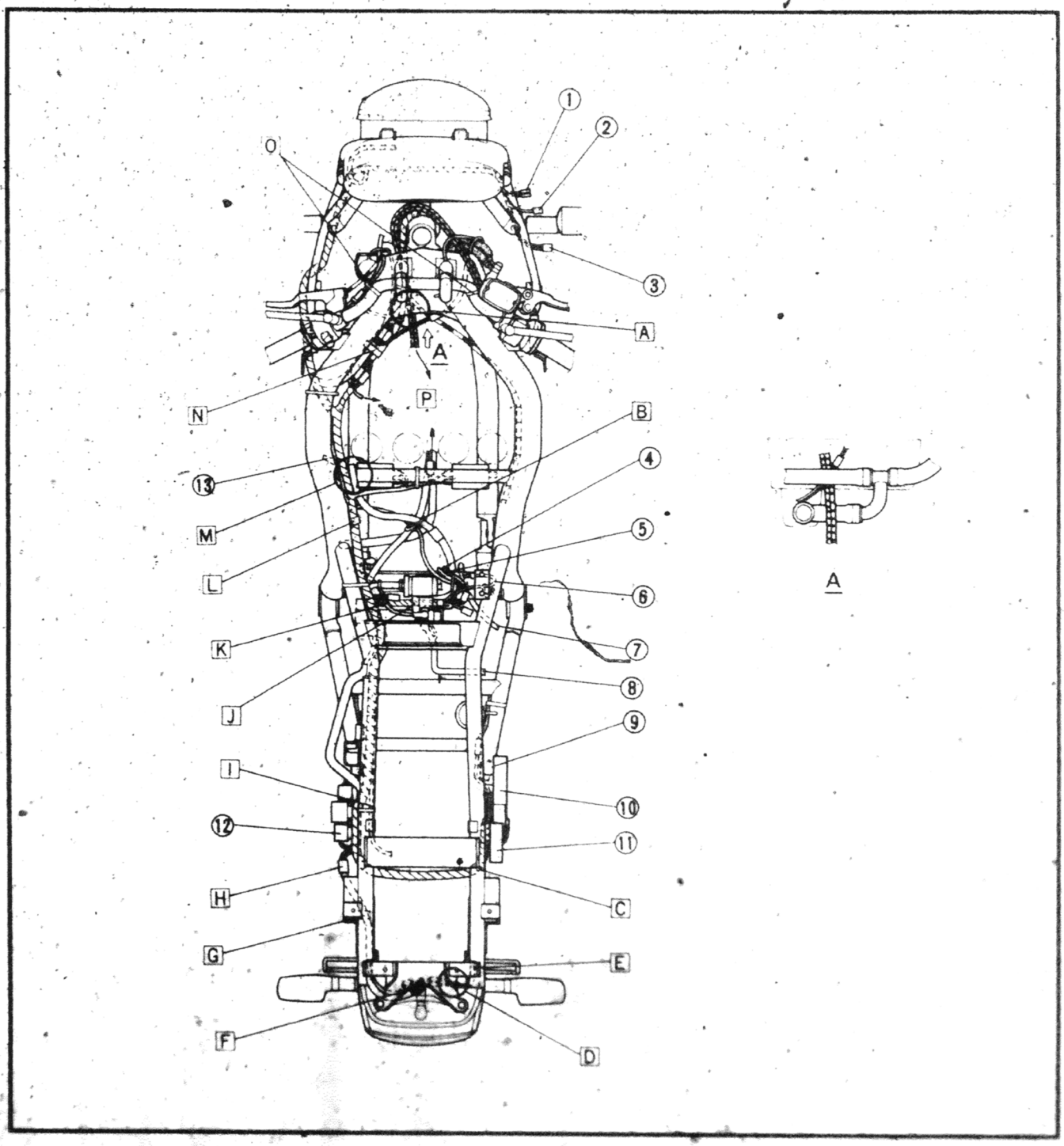


M Pass the sidestand switch lead through the inner part of the rear arm.
N Clamp the sidestand switch lead and the oil level switch lead with the engine clamp.
O Pull the oil level switch lead backwards slightly so that it is not slack.
P • Pass the throttle position sensor lead inside the high tension cords (#1 and #2).
• Either one of the high tension cords (#1) and (#2) can be uppermost.
• Pass the cord (#4) outside the fuel hose and breather hose.
• Pass the cord (#1) outside the fuel hose, breather hose and throttle position sensor lead.
Q Clamp the high tension cord #4 to the upper part at the marked position, and the high tension cord #2 to the lower part.
R Position the spark plug cap so that it is facing inwards.
S Clamp the left handlebar switch lead, main switch lead, starter cable and throttle cables.
T Pass the speedometer cable to the left of the headlight and pass it through the guide wire which secures the cowling stay guide wire, brake hose holder, fender bracket guide wire and caliper.
U Clamp the part of the wire harness which has white tape affixed to it onto the cowling stay.
V When installing the cowling, make sure that the speedometer cable is not pinched between the headlight and the cowling.

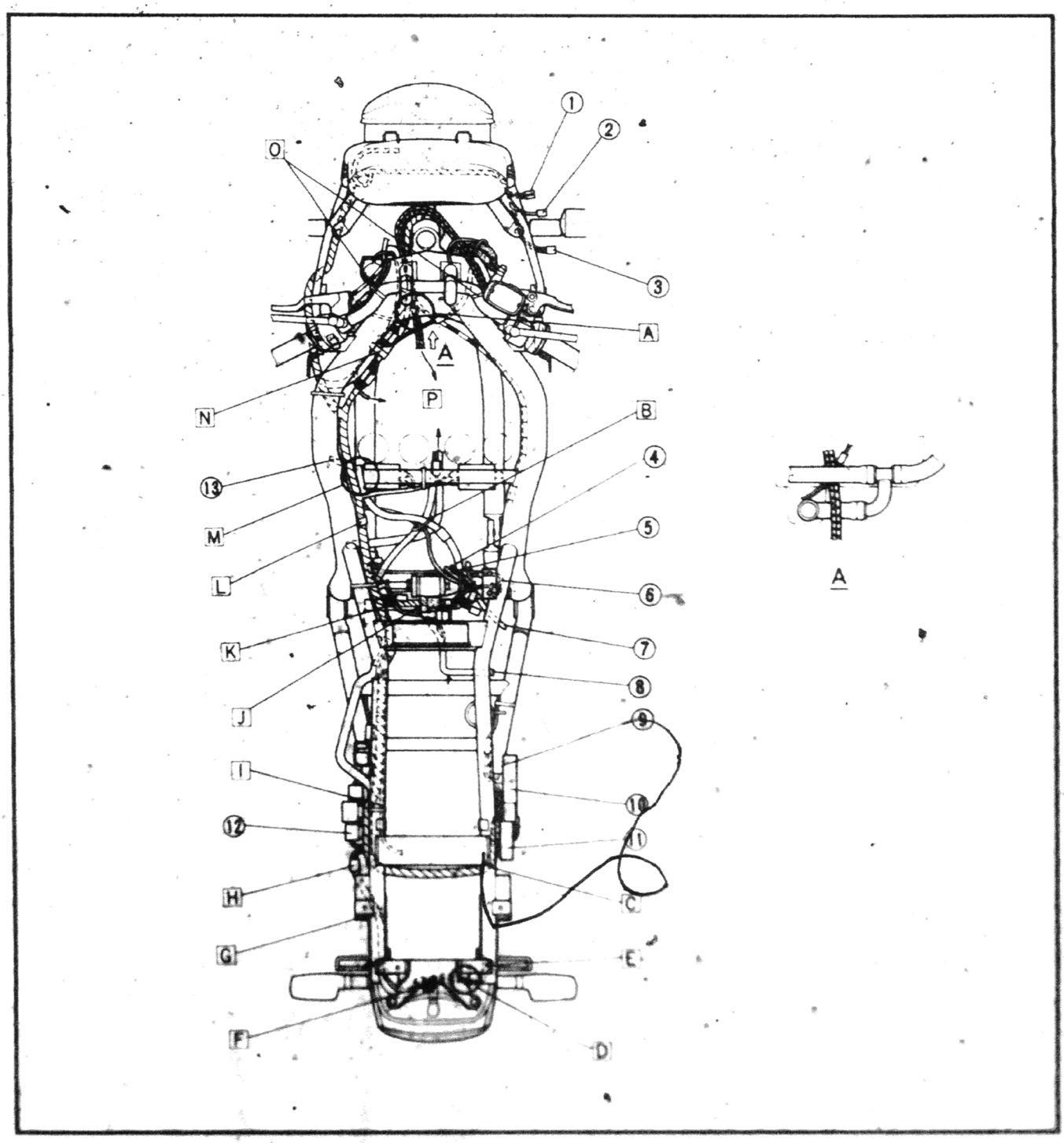


① Front flasher light (right) lead
② Auxiliary light lead
③ Thermo switch lead
④ Oil level switch lead
⑤ Sidestand switch lead
⑥ Fuel sender lead
⑦ Battery ⊖ lead
⑧ Battery ⊕ lead
⑨ Main fuse
⑩ Ignitor unit
⑪ Fuse box
⑫ Flasher relay
⑬ Throttle position sensor lead

[A] The wire harness must be uppermost, followed by the clutch wire, with the throttle wire underneath.
[B] Clamp the AC generator lead, fuel hose and air filter case drain hose.
[C] Pass the wire harness through the guide on the rear fender, then pass it around to the left side of the motorcycle.
[D] Pass the rear flasher leads underneath the point where the tail-light is installed.
[E] Pass the left and right rear flasher leads through the guide hole in the rear fender.
[F] Connect the leads and clamp them to the frame at the guide hole.



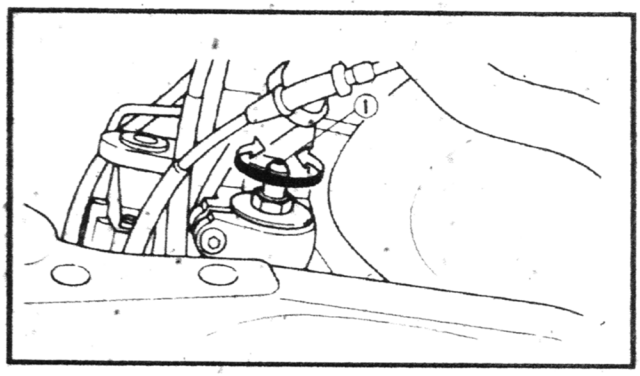
[G] Clamp the wire harness to the rear fender at the tab.
[H] Pass the coupler for the wire harness outside the rear fender.
[I] Pass the seat lock wire outside the rear fender.
[J] Pass the wire harness underneath the point where the rear fender and fuel filter are installed, then pass it above the frame and the bracket of the rear shock absorber.
[K] Pass the starter motor lead under the wire harness and fuel hose.
[L] Clamp the portion of the wire harness marked with white tape.
[M] Fasten the ground terminal and the ignition coil together.
[N] Clamp the wire harness and main switch lead. Do not clamp the starter cable.
[O] Clamp the handlebar switch lead to the handlebar. The cables and leads should not obstruct the front fork spring preload adjusters.
[P] To carburetor

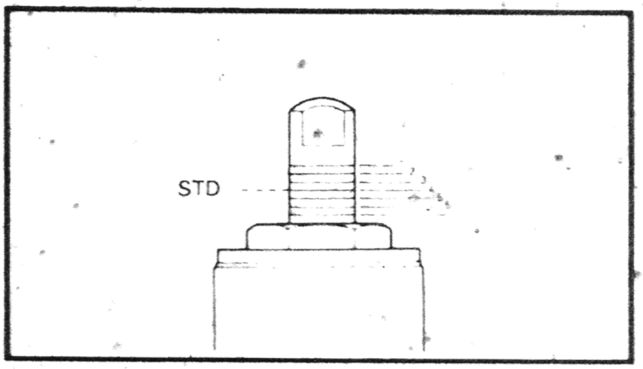


PERIODIC INSPECTION AND ADJUSTMENT

CHASSIS

FRONT FORK ADJUSTMENT





⚠ WARNING

- **Always adjust each fork to the same setting. Uneven adjustment can cause poor handling and loss of stability.**
- **Securely support the motorcycle so there is no danger of it falling over.**

Spring preload

1. Adjust:
- Spring preload

Turn the adjuster ① in or out.

Turn in → Spring preload is increased.
Turn out → Spring preload is decreased.

Adjuster position:
Standard: 4
Minimum: 7
Maximum: 1

NOTICE

- **Grooves are provided to show the adjusting level.**
- **Always keep the adjustment level equal on both forks.**
- **Never turn the adjuster beyond the maximum or minimum setting.**

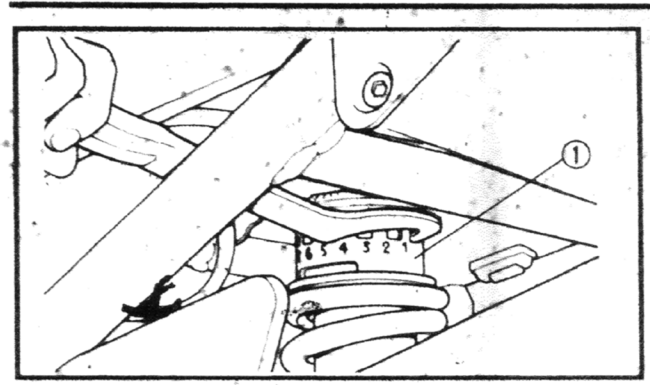
REAR SHOCK ABSORBER ADJUSTMENT

⚠ WARNING

Securely support the motorcycle so there is no danger of it falling over.

Spring preload

1. Adjust:
- Spring preload



NOTE:
Use the special wrench and extension bar included in the owner's tool kit to adjust.

****

Adjustment steps:

- Turn the adjuster ① in or out.

Select a lower number → **Spring preload is decreased.**
Select a higher number → **Spring preload is increased.**

Adjuster position: **Standard: 3** **Minimum: 1** **Maximum: 7**

CAUTION:
Never turn the adjuster beyond the maximum or minimum setting.

****

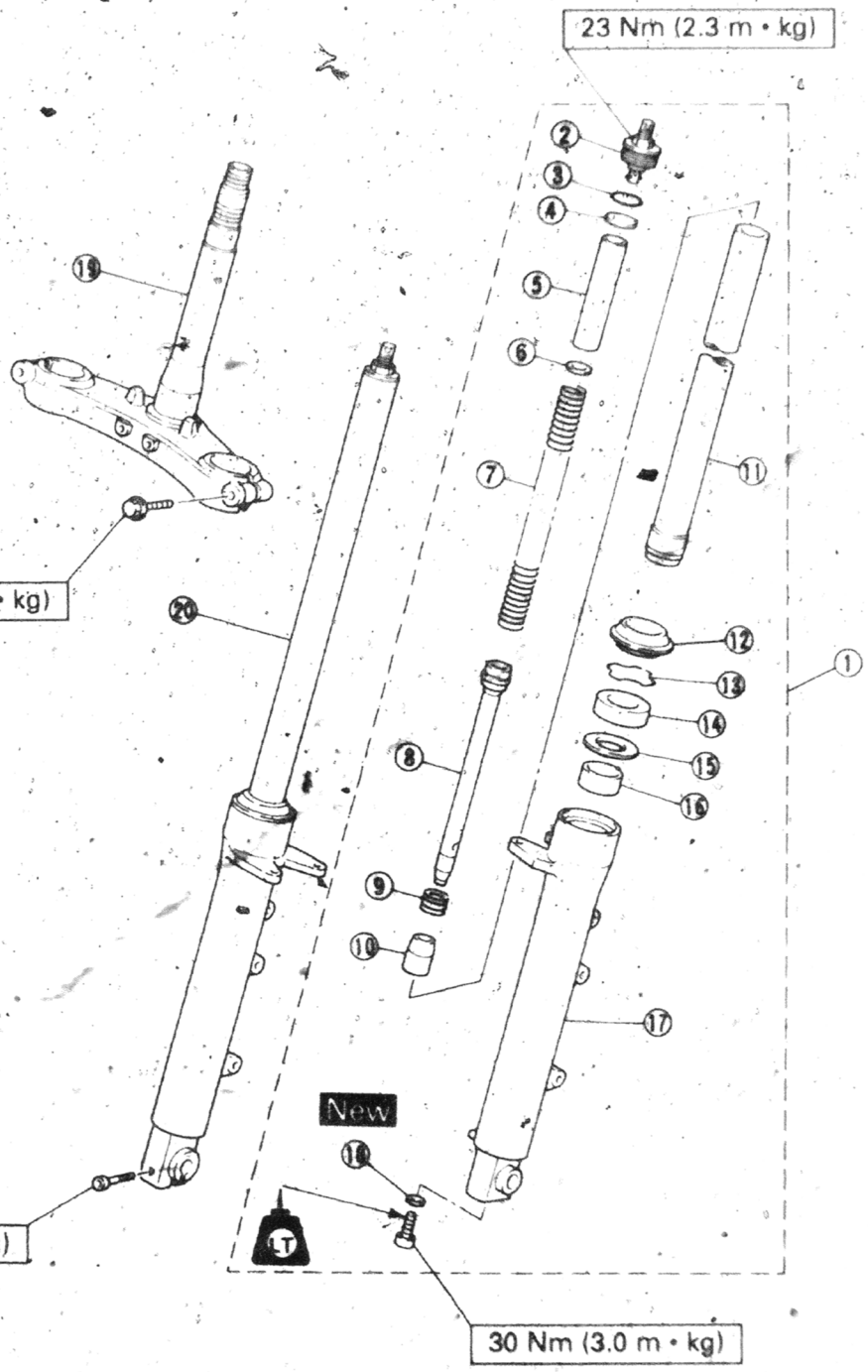
CHASSIS

FRONT FORK

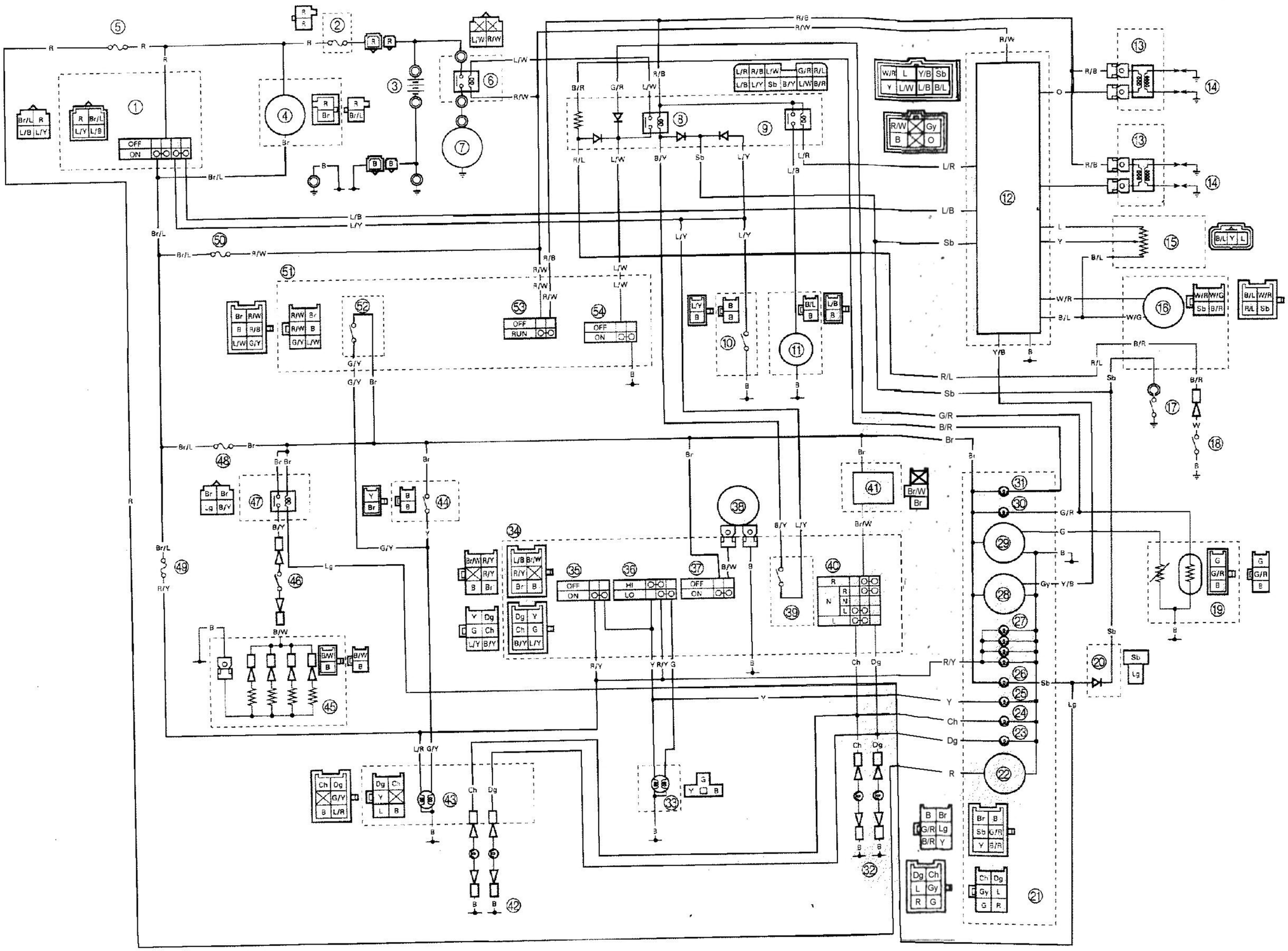
① Front fork assembly (left)
② Cap bolt
③ O-ring
④ Washer
⑤ Spacer
⑥ Spring seat
⑦ Fork spring
⑧ Damper rod
⑨ Damper rod spring
⑩ Oil lock piece
⑪ Inner tube
⑫ Dust seal
⑬ Retaining clip
⑭ Oil seal
⑮ Seal spacer
⑯ Slide metal
⑰ Outer tube
⑱ Copper washer
⑲ Under bracket
⑳ Front fork assembly (right)

A	FORK OIL (EACH):
B	CAPACITY: 444 cm³
C	OIL LEVEL: 113 mm (from the top of inner fork tube fully compressed without spring)
D	GRADE: Fork oil "10W", or equivalent

E	FORK SPRING FREE LENGTH: <LIMIT>: 395.5 mm



XJ900S H WIRING DIAGRAM (For AUS)

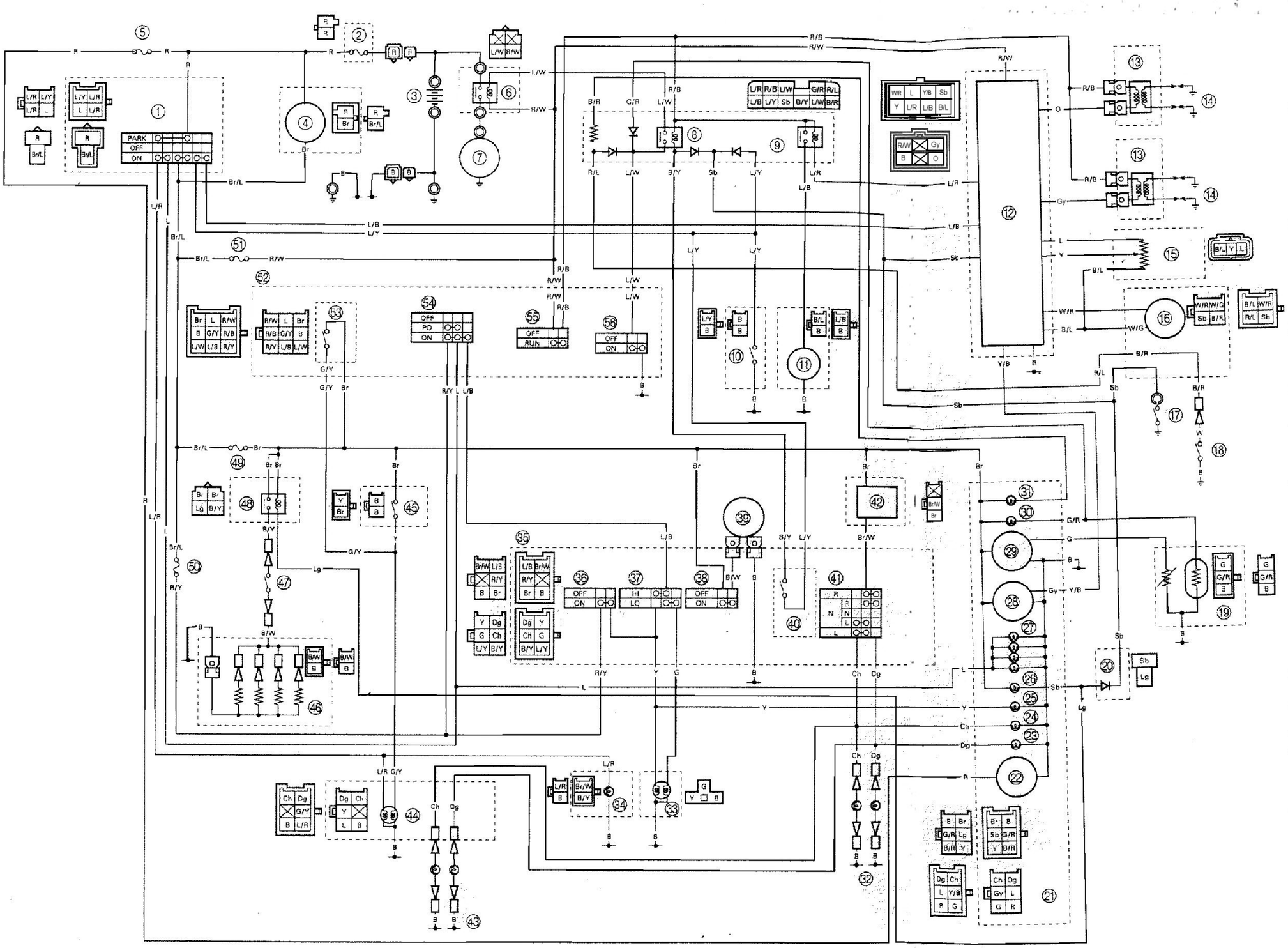


1. Main switch
2. Fuse (main)
3. Battery
4. A.C. generator
5. Fuse (clock)
6. Starter relay
7. Starter motor
8. Starter circuit cut-off relay
9. Fuel pump relay
10. Sidestand switch
11. Fuel pump
12. Ignitor unit
13. Ignition coil
14. Spark plug
15. Throttle sensor
16. Pickup coil
17. Neutral switch
18. Oil level switch
19. Fuel sensor
20. Diode
21. Meter assembly
22. Clock
23. "TURN" indicator light (rig
24. "TURN" indicator light (lef
25. "HIGH BEAM" indicator lig
26. "NEUTRAL" indicator light
27. Meter light
28. Tachometer
29. Fuel meter
30. "FUEL LEVEL" indicator lig
31. "OIL LEVEL" indicator ligh
32. Front flasher light
33. Headlight
34. Handlebar switch (left)
35. "PASS" switch
36. "LIGHTS" (dimmer) switch
37. "HORN" switch
38. Horn
39. Clutch switch
40. "TURN" signal switch
41. Flasher relay
42. Rear flasher light
43. Tail/brake light
44. Rear brake switch
45. Heater
46. Thermo switch
47. Heater relay
48. Fuse (signal)
49. Fuse (head)
50. Fuse (ignition)
51. Handlebar switch (right)
52. Front brake switch
53. "ENGINE STOP" switch
54. "START" switch

COLOR CODE

B ..... Black	O ..... Orange	Br/L ..... Brown/Blue	R/B ..... Red/Black
Br ..... Brown	R ..... Red	Br/W ..... Brown/White	R/L ..... Red/Blue
Ch ..... Chocolate	Sb ..... Sky blue	G/R ..... Green/Red	R/W ..... Red/White
Dg ..... Dark green	Y ..... Yellow	G/Y ..... Green/Yellow	R/Y ..... Red/Yellow
G ..... Green	B/L ..... Black/Blue	L/B ..... Blue/Black	Y/R ..... Yellow/Red
Gy ..... Gray	B/R ..... Black/Red	L/R ..... Blue/Red	W/G ..... White/Green
L ..... Blue	B/W ..... Black/White	L/W ..... Blue/White	W/R ..... White/Red
Lg ..... Light green	B/Y ..... Black/Yellow	L/Y ..... Blue/Yellow	Y/B ..... Yellow/Black

XJ900S '96 WIRING DIAGRAM (For Europe)



1. Main switch
2. Fuse (main)
3. Battery
4. A.C. generator
5. Fuse (clock)
6. Starter relay
7. Starter motor
8. Starter circuit cut-off relay
9. Fuel pump relay
10. Sidestand switch
11. Fuel pump
12. Ignitor unit
13. Ignition coil
14. Spark plug
15. Throttle sensor
16. Pickup coil
17. Neutral switch
18. Oil level switch
19. Fuel sensor
20. Diode
21. Meter assembly
22. Clock
23. "TURN" indicator light (right)
24. "TURN" indicator light (left)
25. "HIGH BEAM" indicator light
26. "NEUTRAL" indicator light
27. Meter light
28. Tachometer
29. Fuel meter
30. "FUEL LEVEL" indicator light
31. "OIL LEVEL" indicator light
32. Front flasher light
33. Headlight
34. Auxiliary light
35. Handlebar switch (left)
36. "PASS" switch
37. "LIGHTS" (dimmer) switch
38. "HORN" switch
39. Horn
40. Clutch switch
41. "TURN" signal switch
42. Flasher relay
43. Rear flasher light
44. Tail/brake light
45. Rear brake switch
46. Heater
47. Thermo switch
48. Heater relay
49. Fuse (signal)
50. Fuse (head)
51. Fuse (ignition)
52. Handlebar switch (right)
53. Front brake switch
54. "LIGHTS" switch
55. "ENGINE STOP" switch
56. "START" switch

COLOR CODE

B ..... Black	O ..... Orange	Br/L ..... Brown/Blue	R/B ..... Red/Black
Br ..... Brown	R ..... Red	Br/W ..... Brown/White	R/L ..... Red/Blue
Ch ..... Chocolate	Sb ..... Sky blue	G/R ..... Green/Red	R/W ..... Red/White
Dg ..... Dark green	Y ..... Yellow	G/Y ..... Green/Yellow	R/Y ..... Red/Yellow
G ..... Green	B/L ..... Black/Blue	L/B ..... Blue/Black	Y/R ..... Yellow/Red
Gy ..... Gray	B/R ..... Black/Red	L/R ..... Blue/Red	W/G ..... White/Green
L ..... Blue	B/W ..... Black/White	L/W ..... Blue/White	W/R ..... White/Red
Lg ..... Light green	B/Y ..... Black/Yellow	L/Y ..... Blue/Yellow	Y/B ..... Yellow/Black