YAMAHA

XVS65AWV
XVS65ATV

For California (04 Model)

XVS650ASC
XVS650ATSC

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-19-81 **5BN-28197-E2**

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and data for the XVS650A. For complete service information procedures it is necessary to use this Supplementary Service Manual together with the following manual.

XVS650AK(C) SERVICE MANUAL: LIT-11616-11-16 (5BN-28197-E0)
XVS650AN(C) SUPPLEMENTARY SERVICE MANUAL: LIT-11616-14-31 (5BN-28197-E1)

EAS00001

XVS65AWV/XVS65ATV
XVS650ASC/XVS650ATSC
SUPPLEMENTARY
SERVICE MANUAL

First Edition, October 2005

P/ N LIT-11616-19-81

EAS00003

NOTICE

This manual was produced by the Yamaha Motor Company, Ltd. 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. There fore, anyone who uses this book to perform maintenance and repairs on Yamaha Vehicles should have a basic understanding of mechanics and the techniques to repair these types of vehicles. Repair and maintenance work attempted by anyone without this knowledge is likely to render the vehicle unsafe and unfit for use.

This model has been designed and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the vehicle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his vehicle and to conform with federal environmental quality objectives.

Yamaha Motor Company, Ltd. is continually striving to improve all of 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.

This Service Manual contains information regarding periodic maintenance to the emission control system. Please read this material carefully.

NOTE:

Designs and specifications are subject to change without notice.

EAS00005

IMPORTANT MANUAL INFORMATION

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

⚠ 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 checking 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.

EAS00007

HOW TO USE THIS MANUAL

This manual is intended as a handy, easy-to-read reference book for the mechanic. Comprehensive explanations of all installation, removal, disassembly, assembly, repair and check procedures are laid out with the individual steps in sequential order.

① The manual is divided into chapters. An abbreviation and symbol in the upper right corner of each page indicate the current chapter.
Refer to "SYMBOLS".

② Each chapter is divided into sections. The current section title is shown at the top of each page, except in Chapter 3 ("PERIODIC CHECKS AND ADJUSTMENTS"), where the sub-section title(s) appears.

③ Sub-section titles appear in smaller print than the section title.

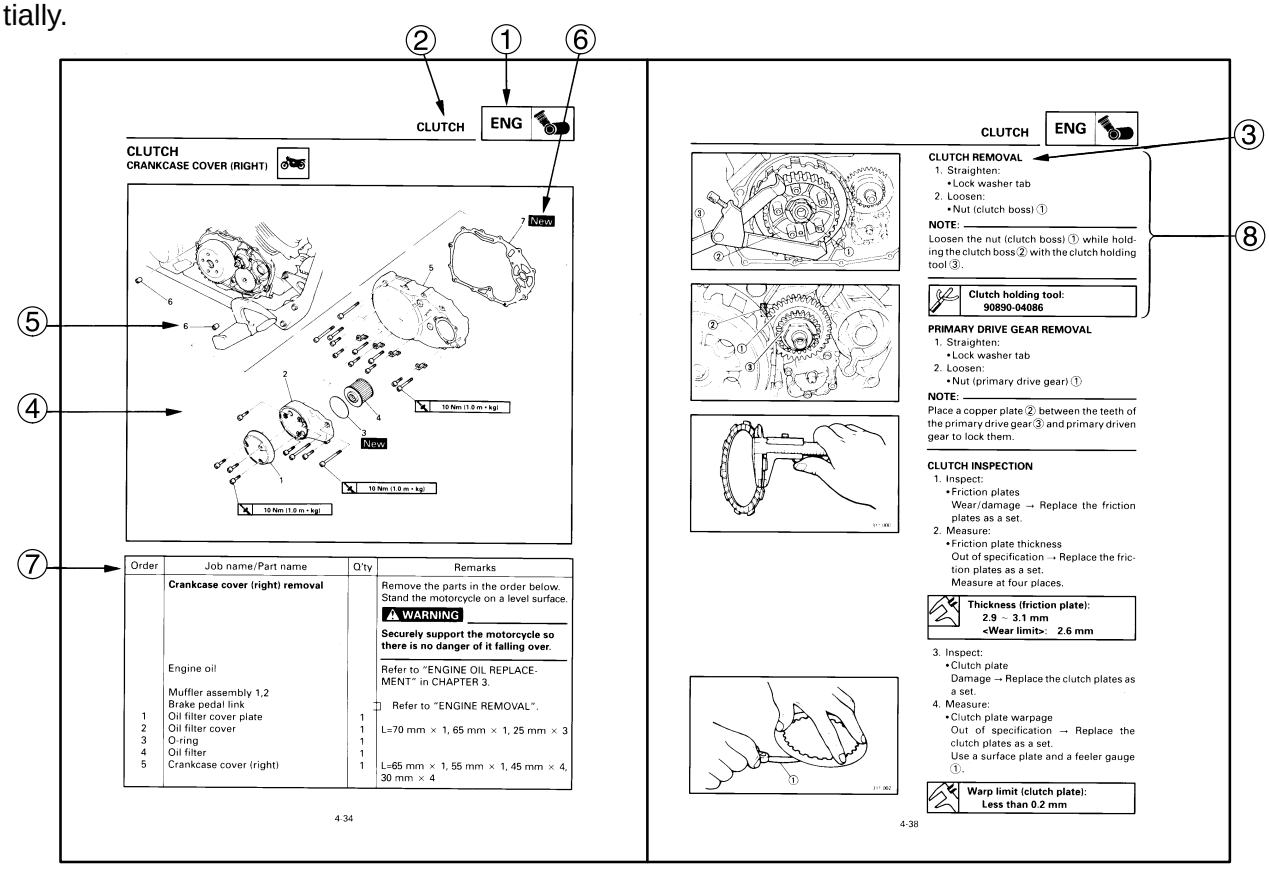
④ To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

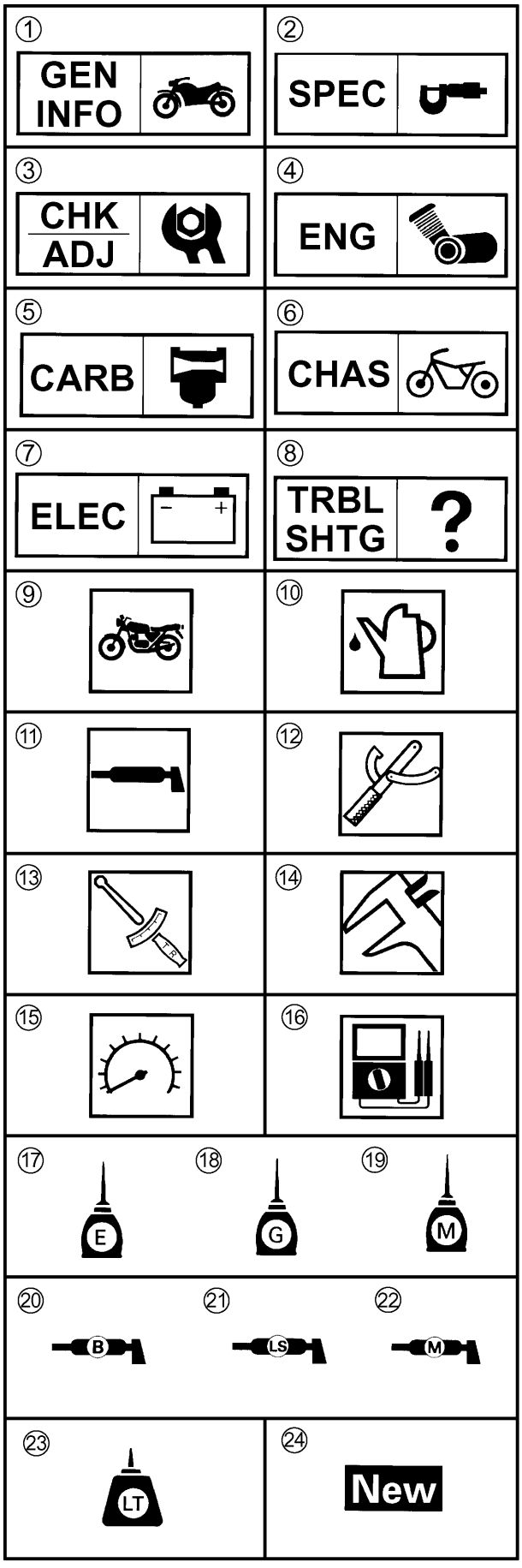
⑤ Numbers are given in the order of the jobs in the exploded diagram. A circled number indicates a disassembly step.

⑥ Symbols indicate parts to be lubricated or replaced.
Refer to "SYMBOLS".

⑦ A job instruction chart accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.

⑧ Jobs requiring more information (such as special tools and technical data) are described sequentially.





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ILLUSTRATED SYMBOLS

The following symbols are not relevant to every vehicle.

Symbols ① to ⑧ indicate the subject of each chapter.

① General information
② Specifications
③ Periodic checks and adjustments
④ Engine
⑤ Carburetor
⑥ Chassis
⑦ Electrical system
⑧ Troubleshooting

Symbols ⑨ to ⑯ indicate the following.

⑨ Serviceable with engine mounted
⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening torque
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Electrical data

Symbols ⑰ to ㉒ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑰ Engine oil
⑱ Gear oil
⑲ Molybdenum-disulfide oil
⑳ Wheel-bearing grease
㉑ Lithium-soap-based grease
㉒ Molybdenum-disulfide grease

Symbols ㉓ to ㉔ in the exploded diagrams indicate the following.

㉓ Apply locking agent (LOCTITE®)
㉔ Replace the part

CONTENTS

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	Standard
Model code:	XVS650ASC : 5SCL (For CAL) XVS650ATC : 5SCP (For CAL) XVS650ATSC : 5SCM (For CAL) XVS650ATTC : 5SCU (For CAL) XVS65AVC : 4CT5 (For CAL) XVS65ATV : 4C54 (For U.S.A.) XVS65ATVC : 4C55 (For CAL) XVS65AV : 5SCY (For U.S.A.)
Dimensions:	
Overall length	2450 mm (96.5 in)
Overall width	930 mm (36.6 in)
Overall height	1105 mm (43.5 in)
Seat height	710 mm (28.0 in)
Wheelbase	1625 mm (64.0 in)
Ground clearance	140 mm (5.51 in)
Minimum turning radius	3400 mm (133.9 in)
Basic weight:	
With oil and fuel	XVS650ASC/XVS650ATC/XVS650ATSC XVS650ATTC/XVS65AVC/XVS65ATVC : 249.0 kg (549 lb) XVS65ATV/XVS65AV : 247.0 kg (545 lb)
Maximum load	XVS650ASC/XVS650ATSC : 194 kg (428 lb) XVS650ATC/XVS650ATTC/XVS65AVC/ XVS65ATVC : 198 kg (437 lb) XVS65AVC/XVS65AV : 200 kg (441 lb)

MAINTENANCE SPECIFICATIONS
ENGINE

Item	Standard	Limit
Fuel pump:		
Pump type	Electrical	•••
Model/manufacturer	UC-Z61B/MITSUBISHI	•••
Maximum consumption amperage	0.8 A	•••
Output pressure	8.3–12.3 kPa (1.2–1.8 psi) (0.08–0.12 kgf/cm^2)	•••
Carburetor:		
Type × quantity	BDS28 × 2	•••
Manufacturer	MIKUNI	•••
ID mark	5SCL 20	•••
Main jet	#91.3	•••
Main air jet	#50	•••
Jet needle	4CT3-1	•••
Needle jet	O-4	•••
Pilot air jet 1	#100	•••
Pilot outlet	0.85	•••
Pilot jet	#20	•••
Bypass 1	0.8	•••
Bypass 2	0.8	•••
Bypass 3	0.8	•••
Valve seat size	1	•••
Starter jet 1	#17.5	•••
Starter jet 2	0.9	•••
Throttle valve size	#140	•••
Fuel level A (using fuel level gauge)	7.5–8.5 mm (0.30–0.33 in)	•••

CHASSIS

Item	Standard	Limit
Front wheel:		
Wheel type	Spoke wheel	•••
Rim size	16M/C × MT3.00	•••
Rim material	Steel	•••
Wheel travel	140.0 mm (5.51 in)	•••
Radial wheel runout limit	•••	1.0 mm (0.04 in)
Lateral wheel runout limit	•••	0.5 mm (0.02 in)
Front tire:		
Size	130/90-16M/C 67S	•••
Manufacturer/model	BRIDGESTONE/EXEDRA G703	•••
Manufacturer/model	DUNLOP/D404F	•••
Wear limit (front)	•••	0.8 mm (0.03 in)
Rear tire:		
Size	170/80-15M/C 77S	•••
Manufacturer/model	BRIDGESTONE/EXEDRA G702	•••
Manufacturer/model	DUNLOP/D404G	•••
Wear limit (rear)	•••	0.8 mm (0.03 in)

ELECTRICAL

Item	Standard	Limit
TCI:		
Pickup coil resistance	189–231 Ω Gray–Black	•••
TCI unit model/manufacturer	J4T153/MITSUBISHI	•••
Battery:		
Model	GT12B-4	•••
Voltage, capacity	12 V, 10.0 Ah	•••
Specific gravity	1.32	•••
Manufacturer	GS YUASA	•••
Ten hour rate amperage	1.00 A	•••
Bulb voltage, wattage × quantity:		
Headlight	12 V, 60 W/55.0 W × 1	•••
Tail/brake light	12 V, 8.0 W/27.0 W × 1	•••
Front turn signal/position light	XVS650ASC/XVS650ATSC :	
	12 V, 27 W/8.0 W × 2	•••
	XVS650ATC/XVS650ATTC/XVS65AV :	
	12 V, 23 W/8.0 W × 2	•••
Rear turn signal light	XVS650ASC/XVS650ATSC :	
	12 V, 27.0 W × 2	•••
	XVS650ATC/XVS650ATTC/XVS65AV :	
	12 V, 21.0 W × 2	•••
Meter lighting	12 V, 1.7 W × 1	•••
Turn signal relay:		
Relay type	Semi transistor	•••
Model/manufacturer	FB257H/DENSO	•••
Built-in, self-canceling device	Yes	•••
Turn signal blinking frequency	75.0–95.0 cycles/min	•••
Wattage	23(21) W × 2 + 3.4 W	•••
Starting circuit cut-off relay:		
Model/manufacturer	G8R-30Y-U0/OMRON	•••
Coil resistance	162–198 Ω	•••
Headlight relay:		
Model/manufacturer	ACA12115-1/MATSUSHITA	•••
Coil resistance	72–88 Ω	•••
Fuel pump relay:		
Model/manufacturer	G8R-30Y-U0/OMRON	•••
Coil resistance	162–198 Ω	•••
Thermostat switch:		
Model/manufacturer	5FU/NIPPON THERMOSTAT	•••

Item	Standard	Limit
Fuses:		
Main fuse	30.0 A	•••
Headlight fuse	15.0 A	•••
Signaling system fuse	10.0 A	•••
Ignition fuse	10.0 A	•••
Carburetor heater fuse	15.0 A	•••
Ignitor unit fuse	5.0 A	•••
Reserve fuse	30.0 A	•••
Reserve fuse	15.0 A	•••
Reserve fuse	10.0 A	•••
Reserve fuse	5.0 A	•••

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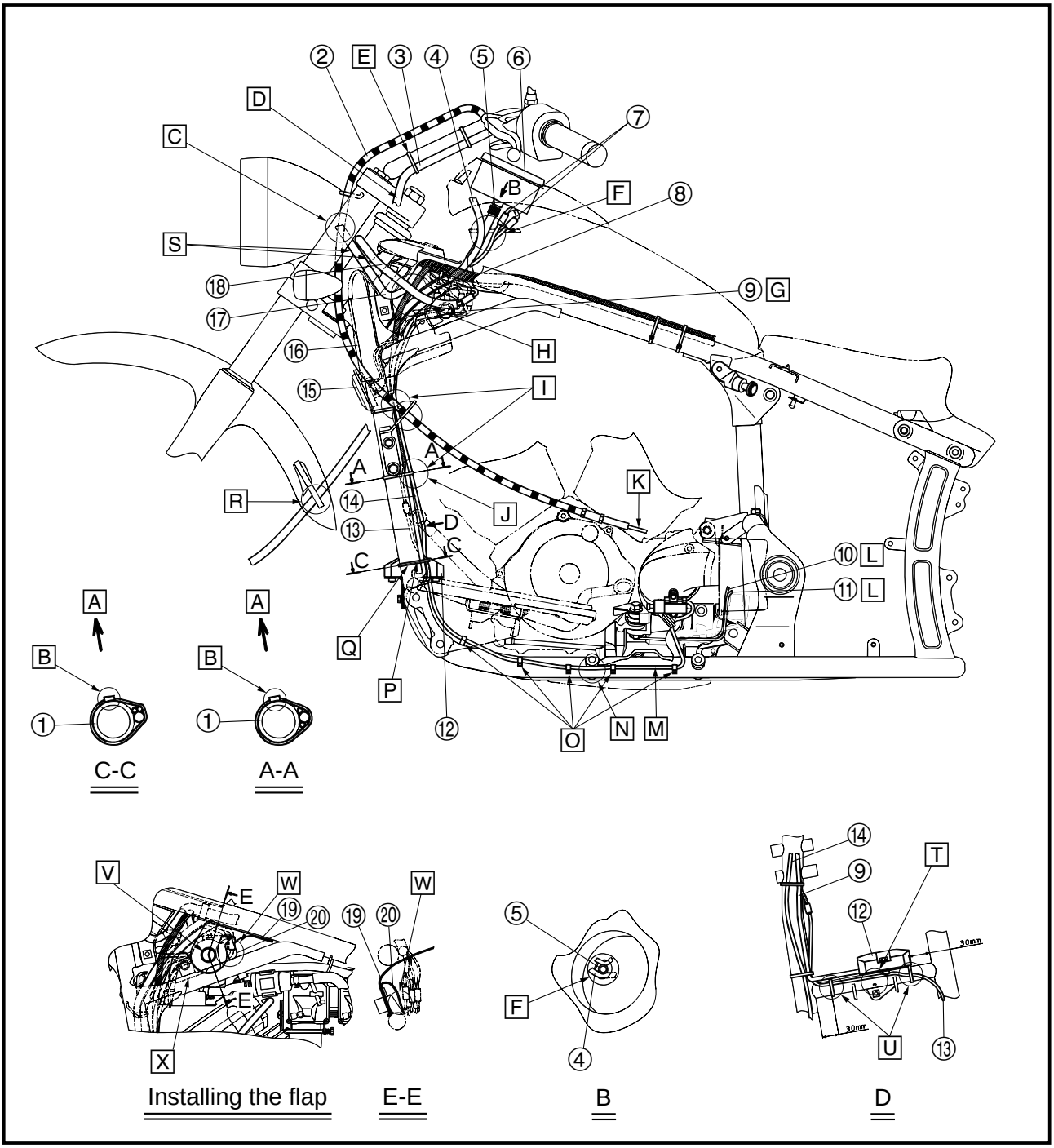
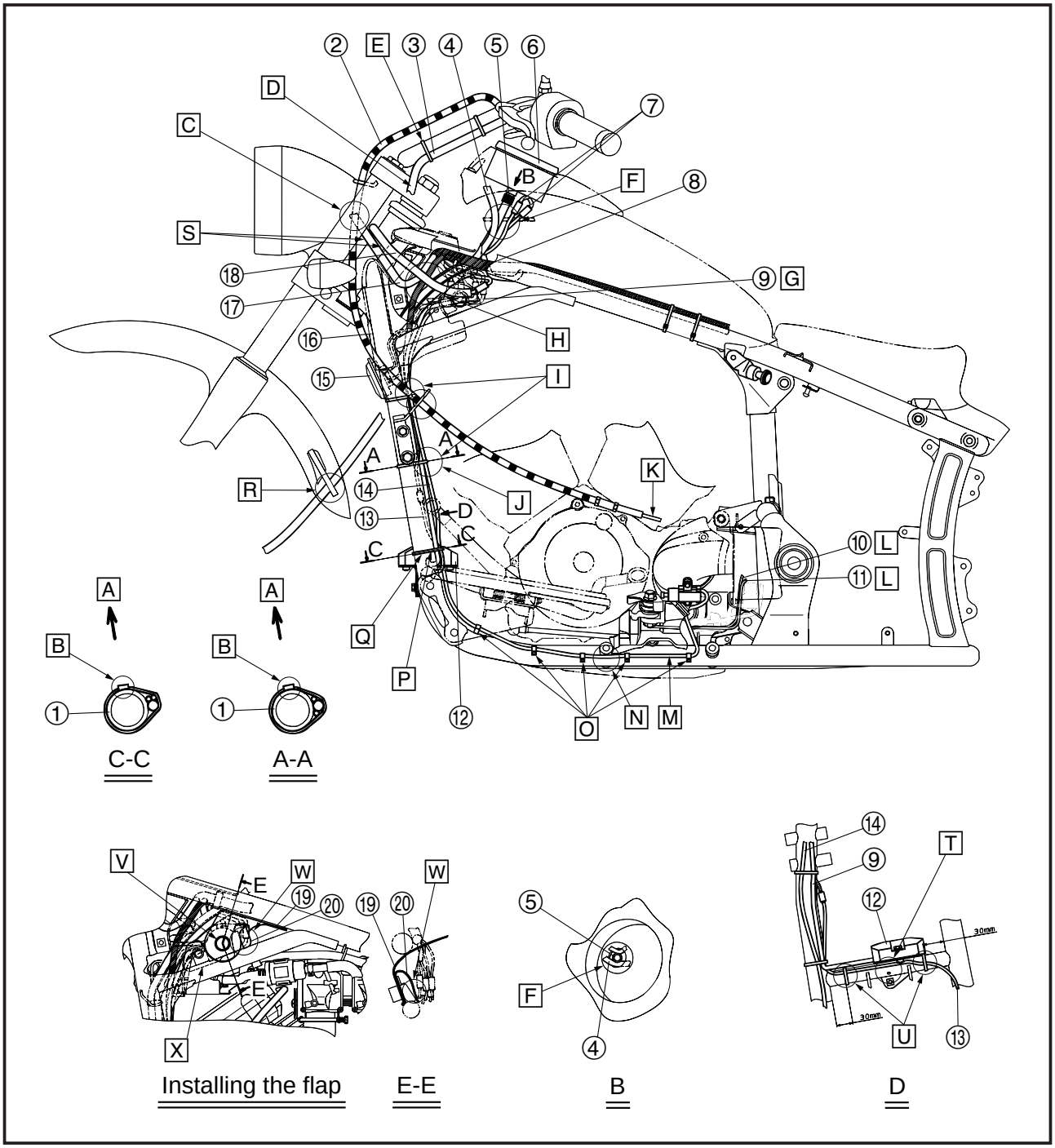
CABLE ROUTING

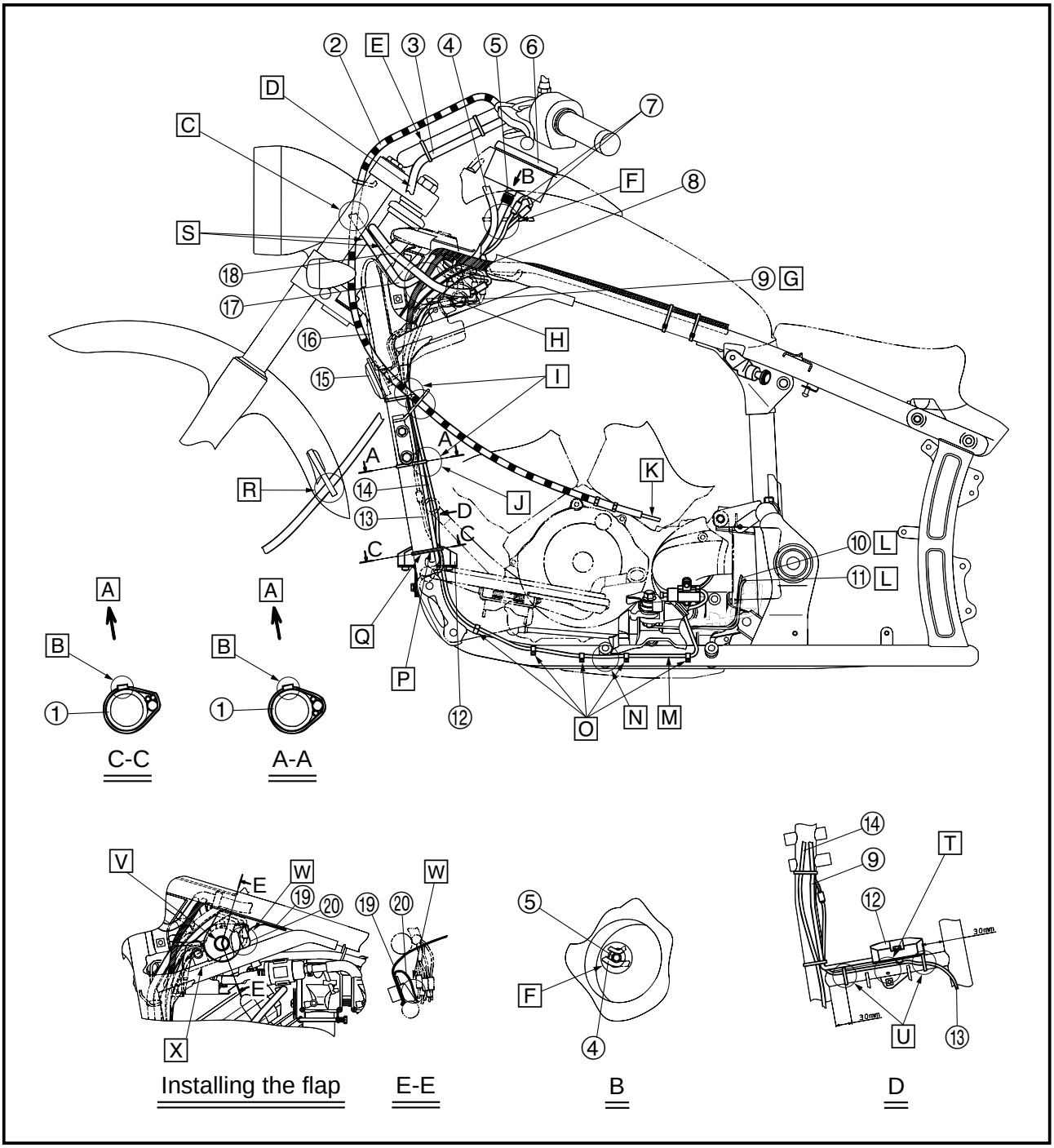
① Frame
② Clutch cable
③ Left handlebar switch lead
④ Fuel tank breather hose
⑤ Speedometer cable
⑥ Speedometer
⑦ Speedometer light leads
⑧ Vacuum chamber air vent hose
⑨ Rectifier/regulator lead
⑩ A.C. magneto lead
⑪ Pickup coil lead
⑫ Rectifier/regulator
⑬ Rear brake switch lead
⑭ Sidestand switch lead
⑮ Horn
⑯ Head pipe cover
⑰ Headlight lead
⑱ Right handlebar switch lead
⑲ Flap
⑳ Sheet1



[A] Inside the motorcycle.
[B] Place the end of the plastic locking tie as shown.
[C] Pass the front flasher light leads (left and right) and headlight lead through the headlight cover hole.
[D] Pass the left handlebar switch lead behind the upper bracket.
[E] Fasten the left handlebar switch lead with a plastic locking tie.
[F] Pass the speedometer cable, speedometer light leads and fuel tank breather hose through the fuel tank hole.
[G] Rectifier/regulator lead should not be out over the bracket.
[H] Pass the right handlebar switch lead and headlight lead over the other harness and leads. Especially, place the right handlebar switch lead at most out side.
[I] Fasten the sidestand switch lead and rectifier/regulator lead with a plastic locking tie (do not touch the engine head cover).
[J] Fasten the leads with a plastic locking tie at under the frame boss.
[K] To the engine.
[L] From the engine.
[M] Pass the sidestand switch lead through inside of the sidestand bracket. The lead should not slack.
[N] The sidestand switch lead should not touch the shift rod.
[O] Fasten the sidestand switch lead with a metal clamp.
[P] Fasten the rear brake switch lead, sidestand switch lead and rectifier/regurator lead with a plastic locking tie.

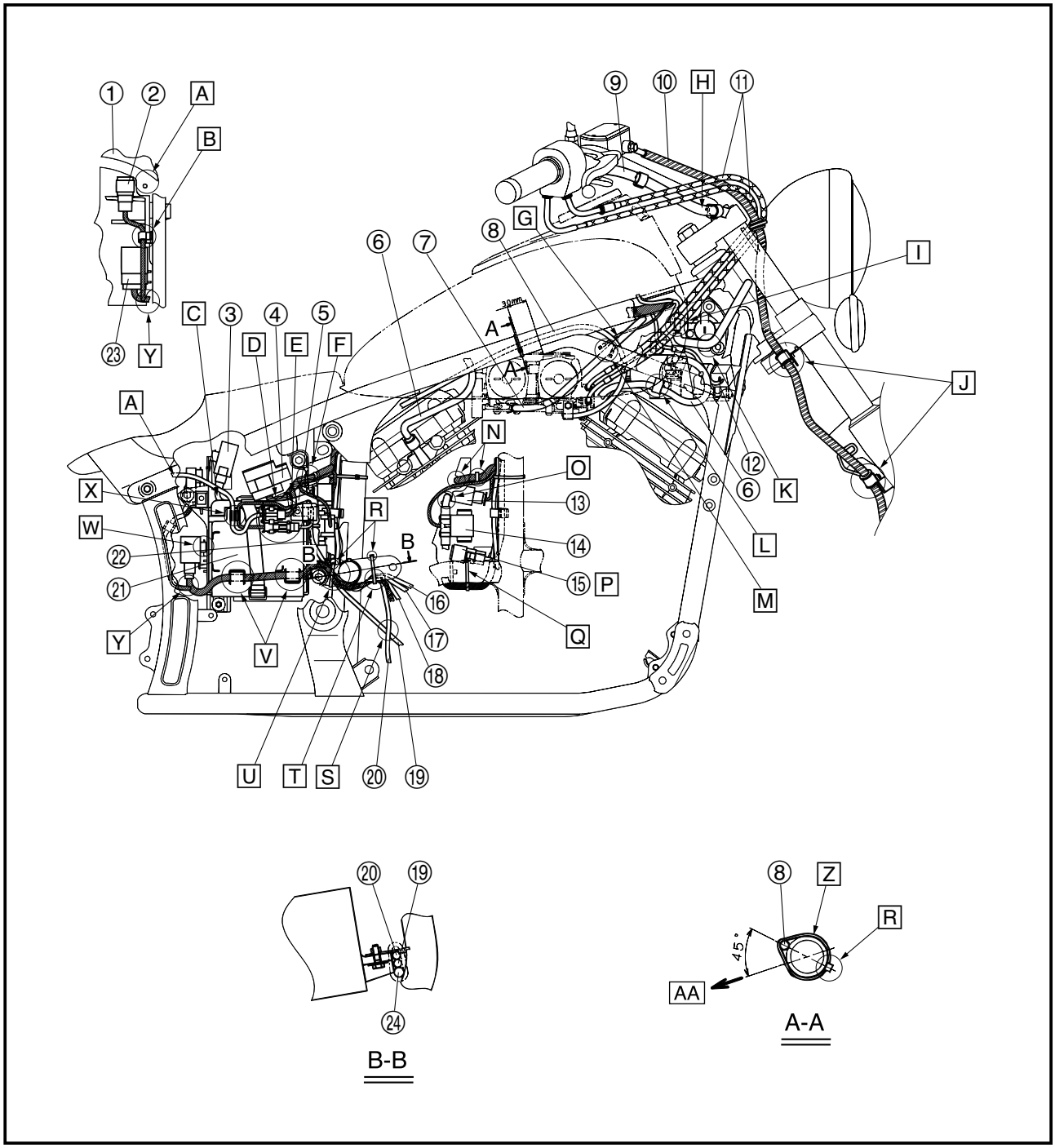


Q Fasten the leads with a plastic locking tie at bottom of the T stud.
R Pass the speedometer cable through the speedometer cable holder.
S Do not cross the handlebar switch lead and headlight lead in outside of the head pipe cover.
T Pass the rear brake switch lead between the frame and rectifier/regulator. Do not pinch the rear brake switch lead.
U Fasten the rear brake switch lead with a plastic locking tie.
V Pass the tank stay through the flap hole. (right side and left side) Also, place the all couplers in bottom of the flap.
W Place the sheet1 so that the edge of the frame should not expose.
X Install the sheet1 to hide the bottom of the sheet 1 in the frame.

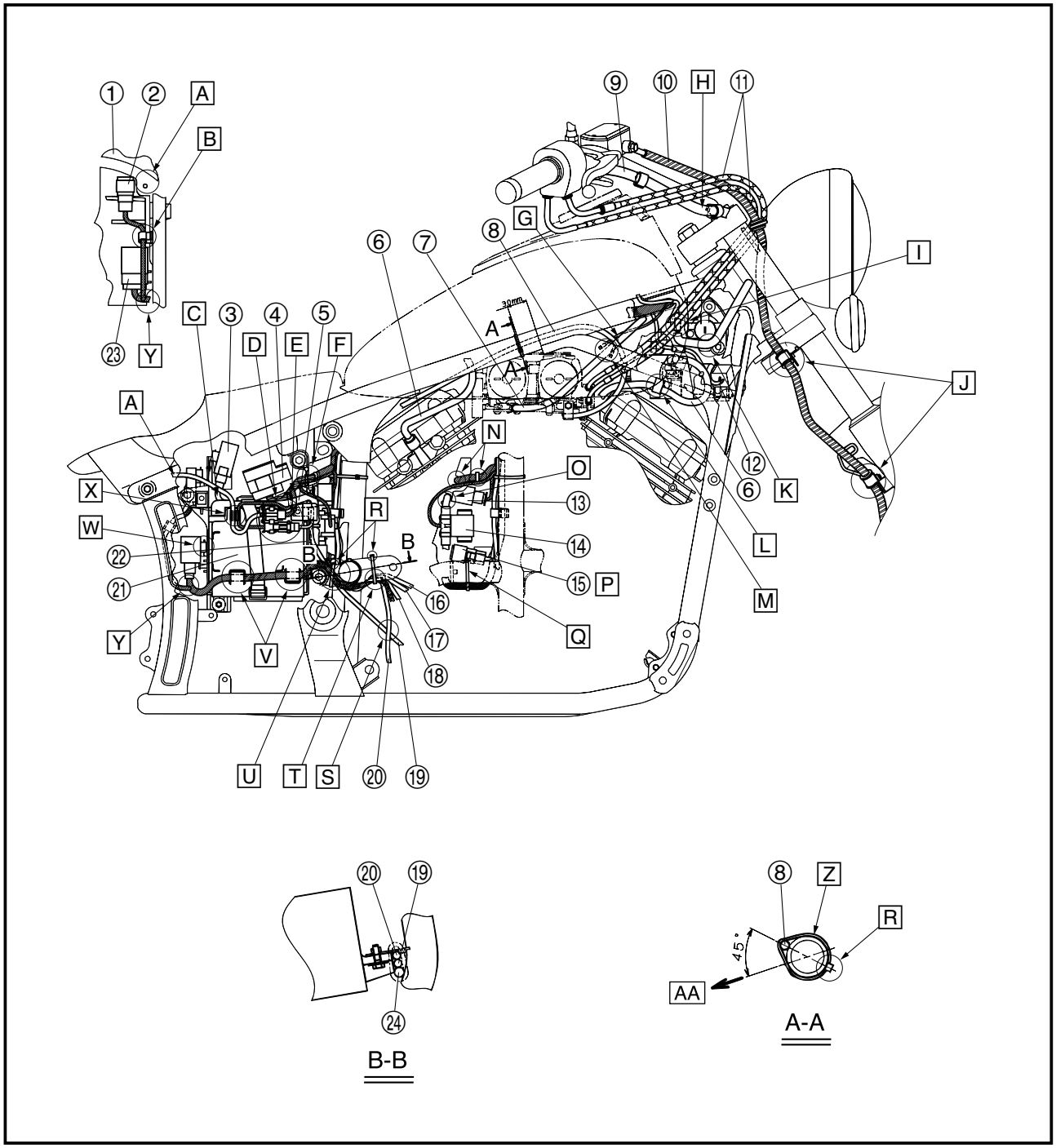


① Frame bracket
② Dimmer switch
③ Self-canceling turn signal relay
④ Fuse box
⑤ Battery positive lead
⑥ Spark plug lead
⑦ Vacuum chamber air bent hose
⑧ Starter cable
⑨ Right handlebar switch lead
⑩ Brake hose
⑪ Throttle cables
⑫ Thermo switch lead
⑬ Flasher light relay
⑭ Starter relay
⑮ Carburetor heater 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 Starting circuit cut-off relay
㉔ Wireharness

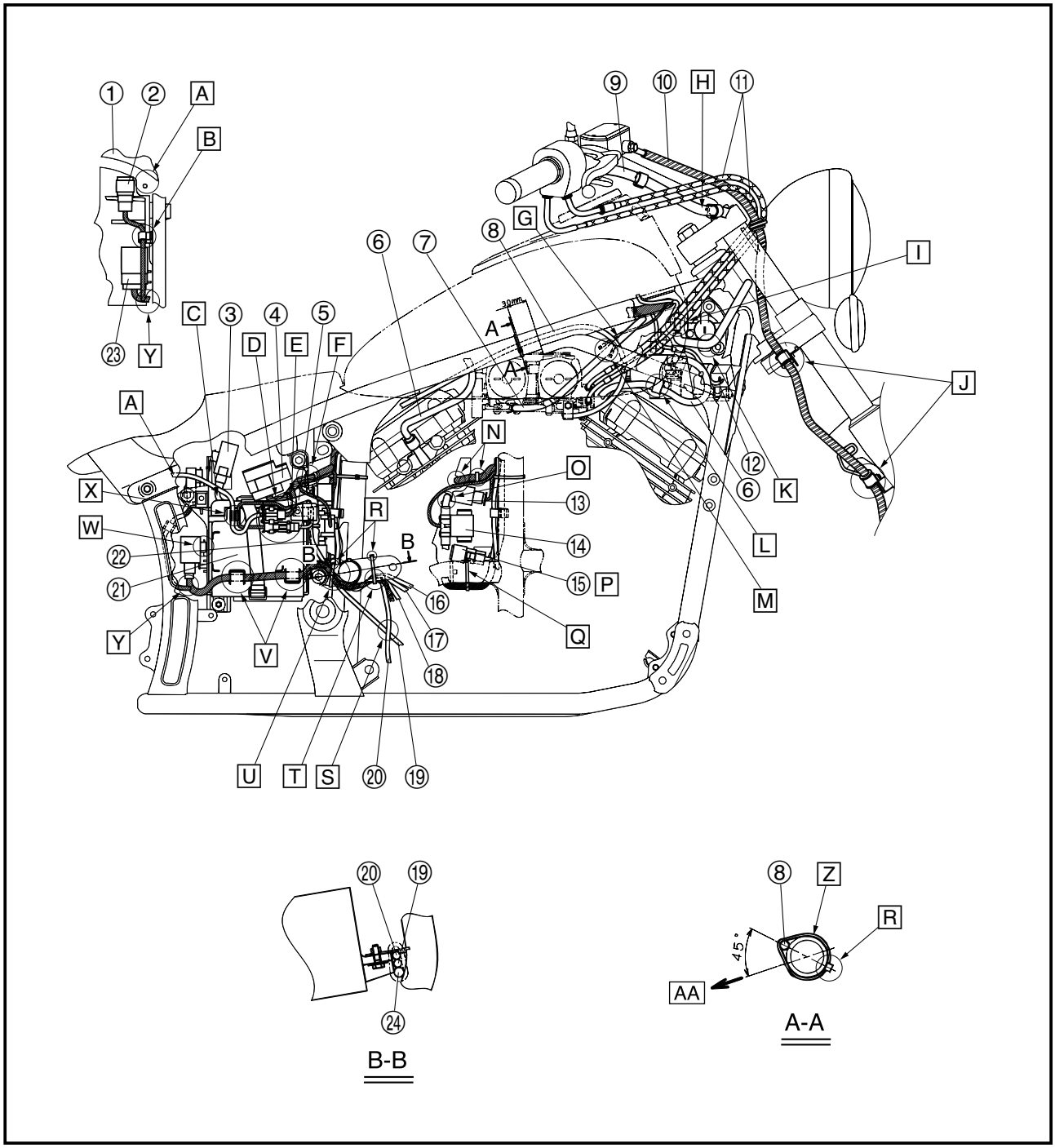
[A] Pass the tail/brake light lead between the frame bracket and battery box. Position the mud guard the between the edge of the frame bracket and the tail/brake light lead.
[B] Fasten the dimmer switch lead with a clamp.



[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] Pass the tail/brake light lead and harness (to the battery negative (–) lead) through under of the battery negative (–) lead.
[F] Fasten the starter relay lead and fuse box lead with a plastic locking tie.
[G] To the ignition coil.
[H] Pass the right handlebar switch lead behind the upper bracket.
[I] Place the left handlebar switch coupler on the side of the main switch.
[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 wireharness.
[Q] Fasten the wireharness with a plastic locking tie.
[R] Place the end of the plastic locking tie as shown.
[S] Pass the starter motor lead over the battery negative (–) lead.

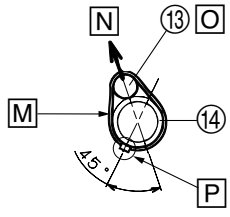


[T] Fasten the pickup coil lead, A.C. magneto lead, neutral switch lead and starter motor lead with a plastic locking tie. The leads should not touch the edge of the side cover.
[U] Fasten the battery negative (–) lead, starter motor positive (+) lead and wireharness with a plastic locking tie.
[V] Fasten the wireharness with a clamp.
[W] The starting safety relay must be fixed to the battery box after connecting the wireharness.
[X] Fasten the battery negative (–) lead and tail / brake light lead with a clamp.
[Y] Pass the wireharness between the frame and battery box.
[Z] Fasten the starter cable with a plastic locking tie.
[AA] Inside the motorcycle.

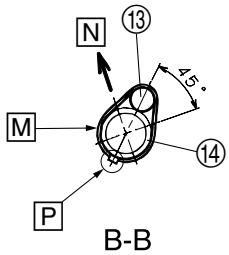


① Fuel tank breather hose
② Speedometer cable
③ Wireharness (to the speedometer lead)
④ Starter cable
⑤ Silencer
⑥ Spark plug lead
⑦ Fuel cut solenoid valve lead
⑧ Ignition coil
⑨ Neutral switch lead
⑩ Pickup coil lead
⑪ A.C. magneto lead
⑫ Thermo switch lead
⑬ Wireharness
⑭ Frame
⑮ Air filter case

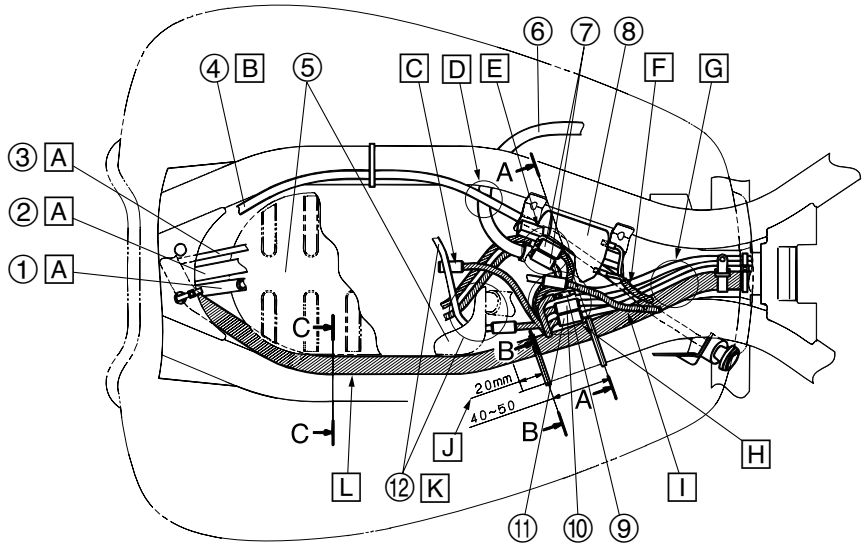
[A] To the fuel tank.
[B] To the carburetor.
[C] To the throttle position sensor (TPS).
[D] Pass the starter cable between the ignition coil and spark plug lead. (along the groove of the engine head cover)
[E] Place the solenoid valve leads between ignition coil and engine head cover heat protector.
[F] To the ignition coil.
[G] Make sure there is nothing under the wireharness.

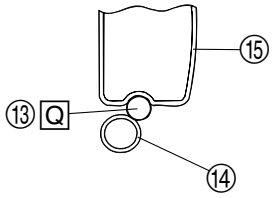


A-A



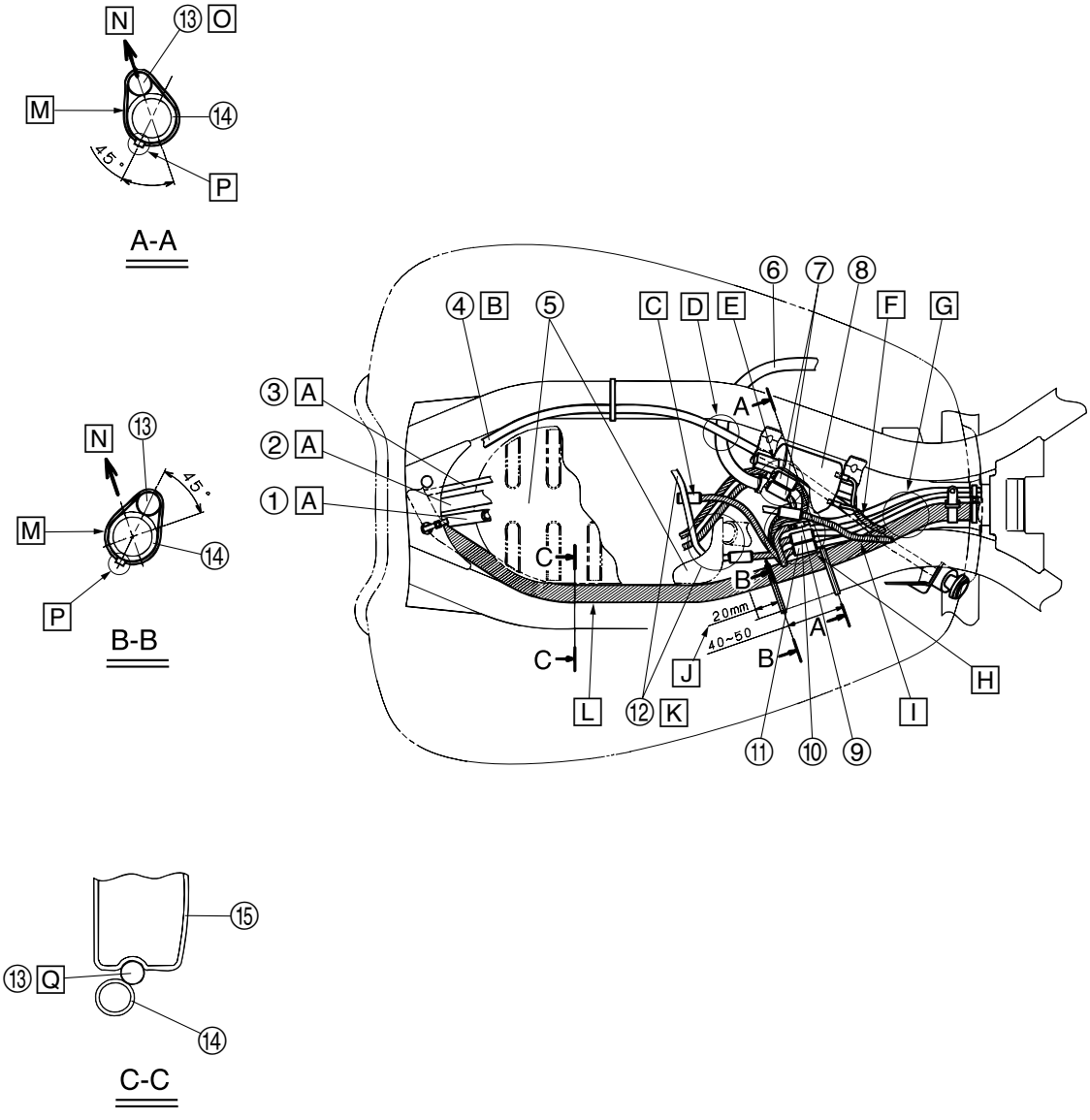
B-B





C-C

[H] Pass the neutral switch lead, pickup coil lead, fuel sender lead and A.C. magneto lead under the ignition coil lead, thermo switch lead and throttle position sensor (TPS) lead.
[I] To the fuel tank.
[J] 20 mm (0.79 in)
[K] Pass the thermo switch lead inside of the silencer breather hose.
[L] The harness should not slack.
[M] Fasten the wireharness to frame with a plastic locking tie.
[N] Inside the motorcycle.
[O] Route the wireharness so they run along the bottom of the frame tube.
[P] Place the end of the plastic locking tie as shown.
[Q] Pass the wireharness between the air filter case groove and frame.



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PERIODIC CHECKS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended checks and adjustments. If followed, these preventive maintenance procedures will ensure more reliable vehicle operation, a longer service life and reduce the need for costly overhaul work. This information applies to vehicles already in service as well as to new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

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PERIODIC MAINTENANCE CHART FOR EMISSION CONTROL SYSTEM

No.		ITEM	ROUTINE	INITIAL	ODOMETER READINGS				
				600 mi (1000 km) or 1 month	4000 mi (7000 km) or 6 months	8000 mi (13000 km) or 12 months	12000 mi (19000 km) or 18 months	16000 mi (25000 km) or 24 months	20000 mi (31000 km) or 30 months
1	*	Fuel line	• Check fuel hoses for cracks or damage. • Replace if necessary.		√	√	√	√	√
2	*	Fuel filter	• Replace.						Replace.
3		Spark plugs	• Check condition. • Adjust gap and clean. • Replace every 8000 mi (13000 km) or 12 months.		√	Replace.	√	Replace.	√
4	*	Valve clearance	• Check and adjust valve clearance when engine is cold.	√	√	√	√	√	√
5	*	Crankcase breather system	• Check breather hose for cracks or damage. • Replace if necessary.		√	√	√	√	√
6	*	Carburetor synchronization	• Adjust synchronization of carburetors.	√	√	√	√	√	√
7	*	Idle speed	• Check and adjust engine idle speed.		√	√	√	√	√
8	*	Exhaust system	• Check for leakage. • Tighten if necessary. • Replace gasket(s) if necessary.		√	√	√	√	√
9	*	Evaporative emission control system (For California only)	• Check control system for damage. • Replace if necessary.				√		√

* Since these items require special tools, data and technical skills, they should be serviced by a Yamaha dealer.

GENERAL MAINTENANCE AND LUBRICATION CHART

No.		ITEM	ROUTINE	INITIAL	ODOMETER READINGS				
				600 mi (1000 km) or 1 month	4000 mi (7000 km) or 6 months	8000 mi (13000 km) or 12 months	12000 mi (19000 km) or 18 months	16000 mi (25000 km) or 24 months	20000 mi (31000 km) or 30 months
1	*	Air filter element	• Clean with compressed air. • Replace if necessary.		√	√	√	√	√
2	*	Clutch	• Check operation. • Adjust or replace cable.	√	√	√	√	√	√
3	*	Front brake	• Check operation, fluid level, and for fluid leakage. • Replace brake pads if necessary.	√	√	√	√	√	√
4	*	Rear brake	• Check operation. • Adjust cable and replace brake shoes if necessary.	√	√	√	√	√	√

No.		ITEM	ROUTINE	INITIAL	ODOMETER READINGS				
				600 mi (1000 km) or 1 month	4000 mi (7000 km) or 6 months	8000 mi (13000 km) or 12 months	12000 mi (19000 km) or 18 months	16000 mi (25000 km) or 24 months	20000 mi (31000 km) or 30 months
5	*	Brake hose	• Check for cracks or damage.		√	√	√	√	√
			• Replace.	Every 4 years					
6	*	Wheels	• Check runout, spoke tightness and for damage. • Tighten spokes if necessary.		√	√	√	√	√
7	*	Tires	• Check tread depth and for damage. • Replace if necessary. • Check air pressure. • Correct if necessary.		√	√	√	√	√
8	*	Wheel bearings	• Check bearings for smooth operation. • Replace if necessary.		√	√	√	√	√
9	*	Swingarm pivot bearings	• Check bearing assemblies for looseness. • Moderately repack with lithium-soap-based grease.			√		Repack.	
10	*	Steering bearings	• Check bearing assemblies for looseness. • Moderately repack with lithium-soap-based grease every 16000 mi (25000 km) or 24 months.	√	√	√	√	Repack.	√
11	*	Chassis fasteners	• Check all chassis fitting and fasteners. • Correct if necessary.		√	√	√	√	√
12		Brake and clutch lever pivot shafts	• Apply lithium-soap-based grease (all-purpose grease) lightly.		√	√	√	√	√
13		Brake and shift pedal pivot shafts	• Apply lithium-soap-based grease (all-purpose grease) lightly.		√	√	√	√	√
14		Sidestand pivot	• Check operation. • Apply lithium-soap-based grease (all-purpose grease) lightly.		√	√	√	√	√
15	*	Sidestand switch	• Check operation and replace if necessary.	√	√	√	√	√	√
16	*	Front fork	• Check operation and for oil leakage. • Replace if necessary.		√	√	√	√	√
17	*	Shock absorber assembly	• Check operation and for oil leakage. • Replace if necessary.		√	√	√	√	√
18		Engine oil	• Change (warm engine before draining).	√	√	√	√	√	√
19		Engine oil filter element	• Replace.	√		√		√	
20		Final gear oil	• Check oil level and for oil leakage. • Change at initial 600 mi (1000 km) or 1 month, and thereafter every 16000 mi (25000 km) or 24 months.	Change.	√	√	√	Change.	√
21	*	Control and meter cables	• Apply Yamaha chain and cable lube or engine oil 10W-30 thoroughly.	√	√	√	√	√	√
22	*	Throttle grip housing and cable	• Check operation and free play. • Adjust the throttle cable free play if necessary. • Lubricate the throttle grip housing and cable.		√	√	√	√	√

* Since these items require special tools, data and technical skills, they should be serviced by a Yamaha dealer.

NOTE:

From 24000 mi (37000 km) or 36 months, repeat the maintenance intervals starting from 8000 mi (13000 km) or 12 months.

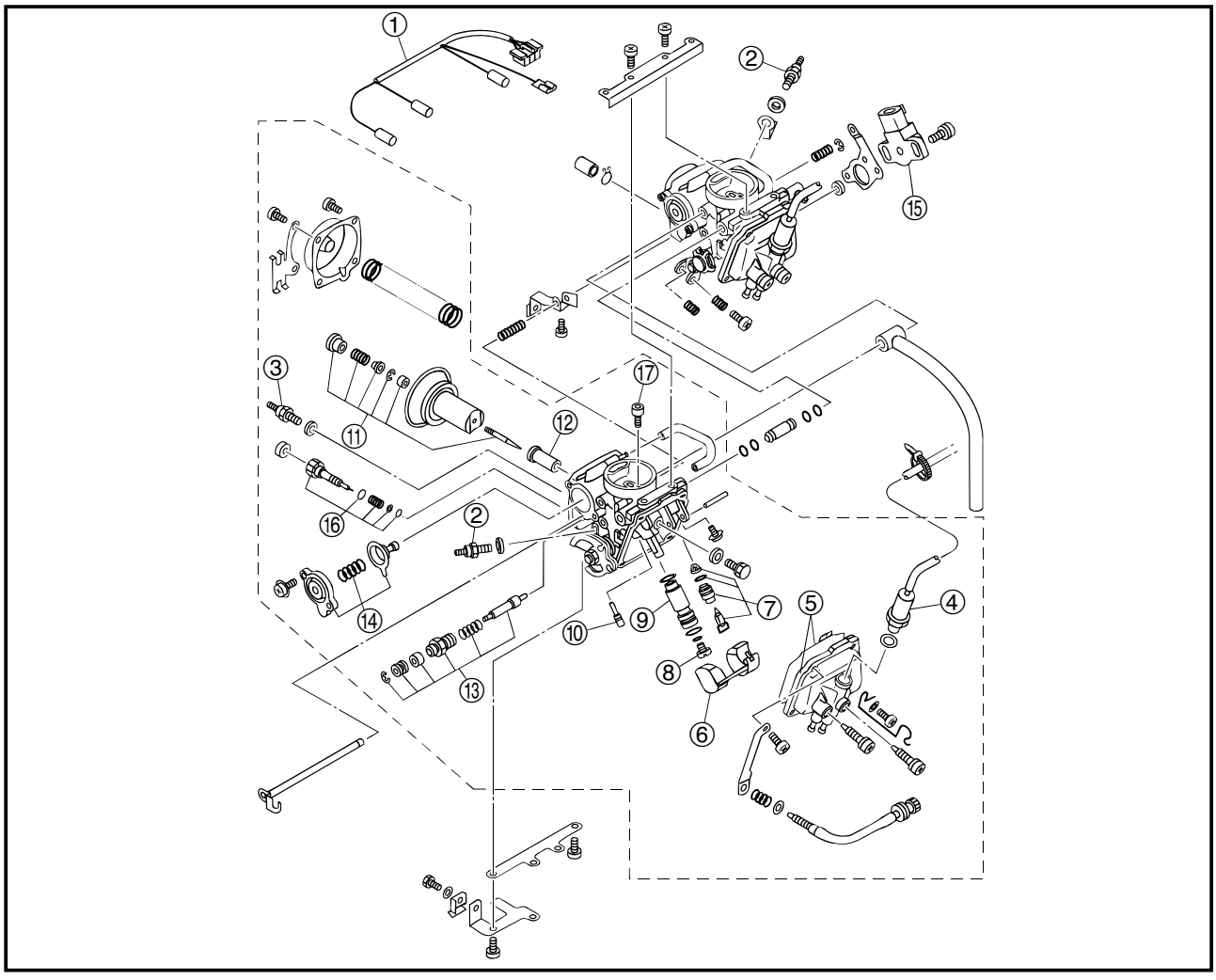
EAU00477

NOTE:

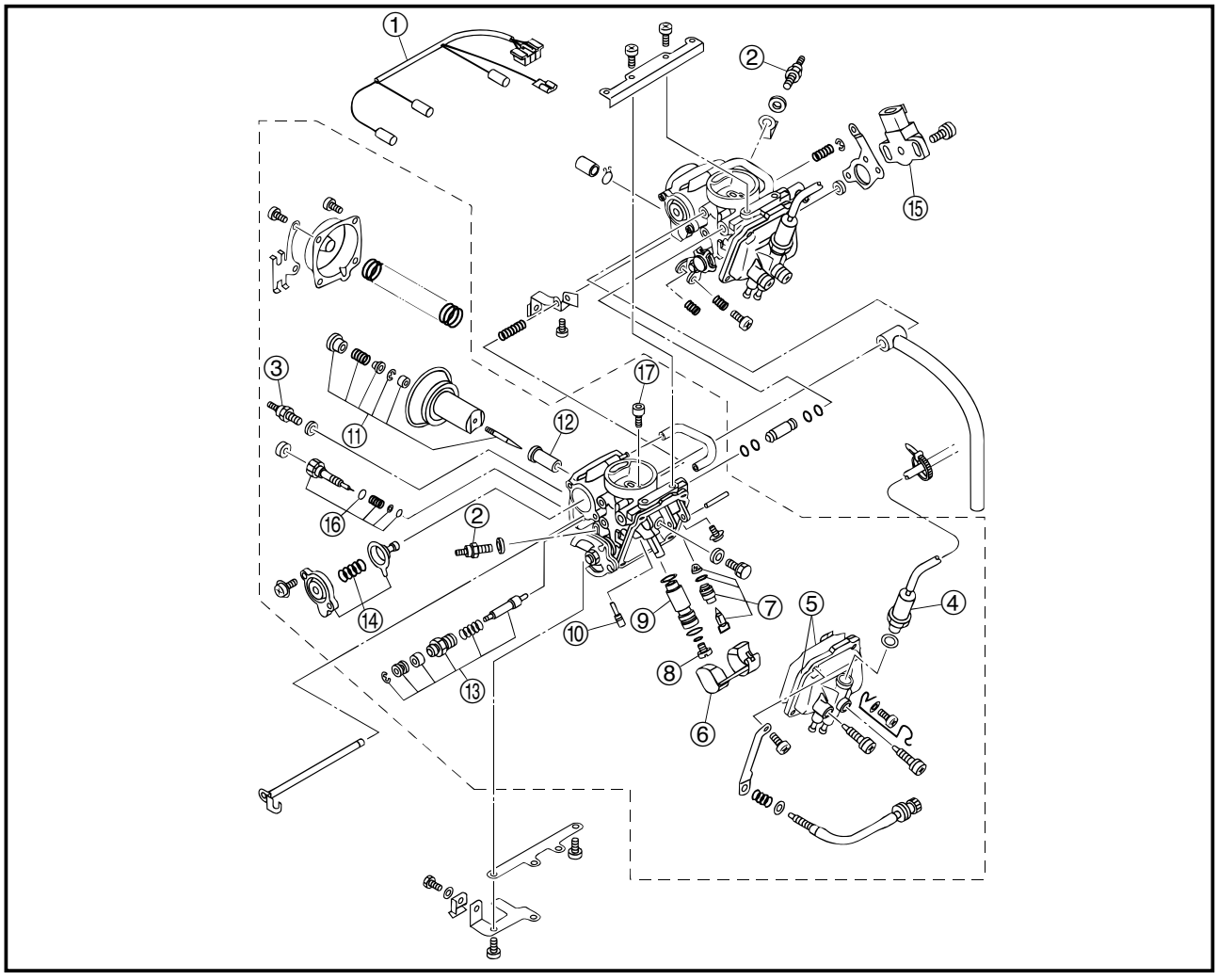
- The air filter needs more frequent service if you are riding in unusually wet or dusty areas.
- Hydraulic brake system
  - When disassembling the master cylinder or caliper cylinder, always replace the brake fluid. Check the brake fluid level regularly and fill as required.
  - Replace the oil seals on the inner parts of the master cylinder and caliper cylinder every two years.
  - Replace the brake hoses every four years or if cracked or damaged.

CARBURETOR

CARBURETOR



Order	Job name/Part name	Q´ty	Remarks
	Carburetor disassembly		Disassemble the parts in the order below.
①	Carburetor heater lead	1	
②	Carburetor heater 1	2	12V 20W
③	Carburetor heater 2	2	12V 15W
④	Fuel cut solenoid valve	1	
⑤	Float chamber/gasket	1/1	
⑥	Float	1	
⑦	Needle valve set	1	
⑧	Main jet	1	
⑨	Jet holder	1	
⑩	Pilot jet	1	Refer to “CARBURETOR ASSEMBLY” in 5BN-28197-E0 Chapter 5.
⑪	Jet needle set	1	
⑫	Needle jet	1	
⑬	Starter plunger set	1	



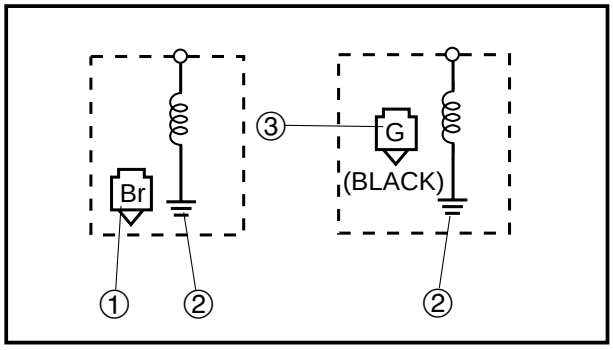
Order	Job name/Part name	Q´ty	Remarks
⑭	Diaphragm set	1	Refer to “CARBURETOR ASSEMBLY” in 5BN-28197-E0 Chapter 5.
⑮	Throttle position sensor	1	Refer to “THROTTLE POSITION SENSOR (TPS) INSPECTION AND ADJUSTMENT in 5BN-28197-E0 Chapter 5.
⑯	Pilot screw	1	Refer to “CARBURETOR ASSEMBLY” in 5BN-28197-E0 Chapter 5.
⑰	Main air jet	1	For assembly, reverse the disassembly procedure.

CHECKING THE FUEL CUT SOLENOID

1. Check:
   - fuel cut solenoid valve

▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼▼

a. Disconnect the fuel cut solenoid valve coupler from the wireharness.
b. Remove the fuel cut solenoid valve from the carburetor.
c. Connect the pocket tester (Ω × 1k) to the terminals of the fuel cut solenoid valve coupler and fuel cut solenoid body (ground).



Fuel cut solenoid valve #1
Positive (+) pocket tester probe → brown terminal ①
Negative (–) pocket tester probe → ground ②
Fuel cut solenoid valve #2
Positive (+) pocket tester probe → green terminal ③
Negative (–) pocket tester probe → ground ②

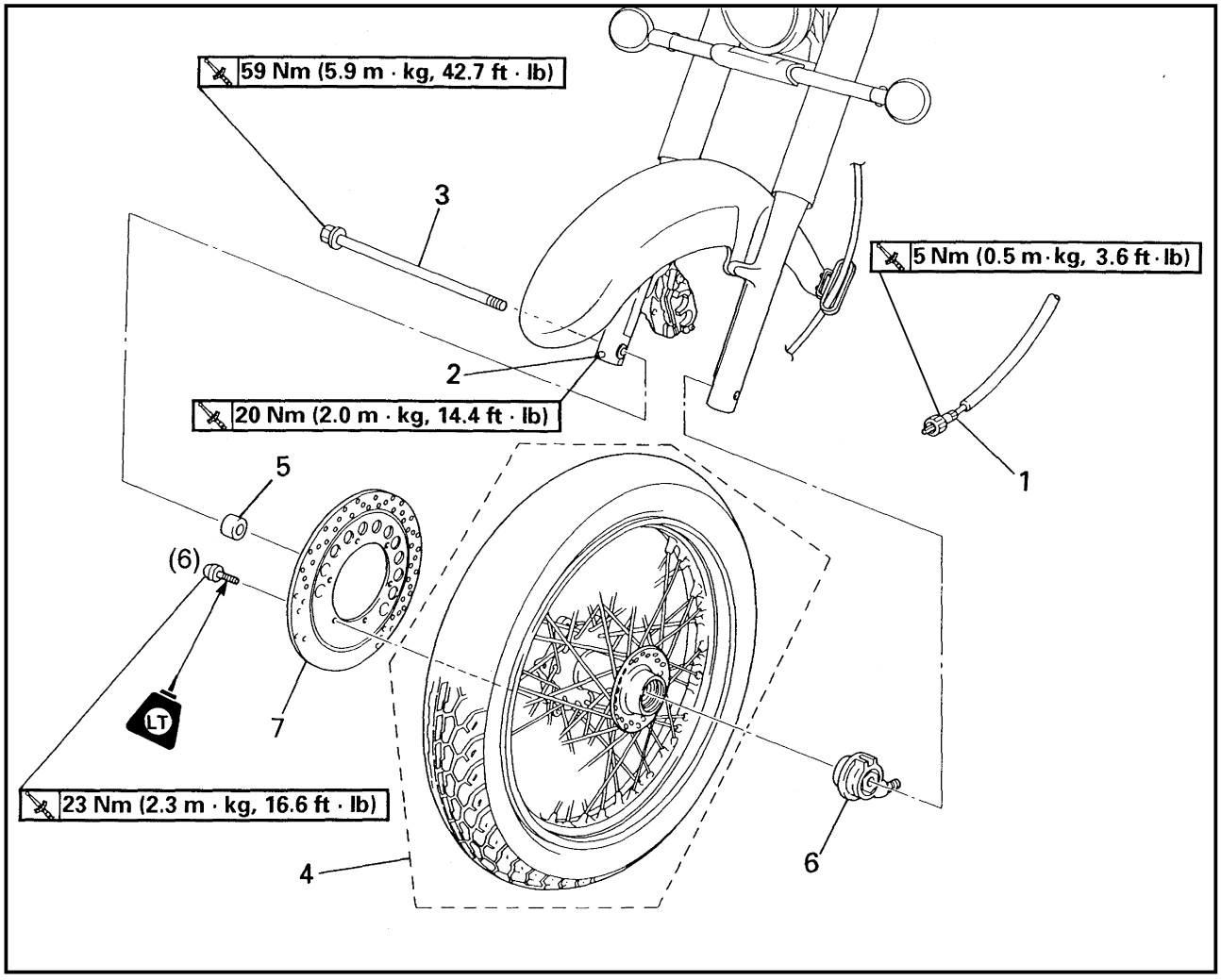
d. Measure the fuel cut solenoid valve resistance.
Out of specification → Replace the fuel cut solenoid valve.

Fuel cut solenoid valve resistance
12 Ω at 20°C (68°F)
(brown – ground)
(green – ground)

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

CHASSIS

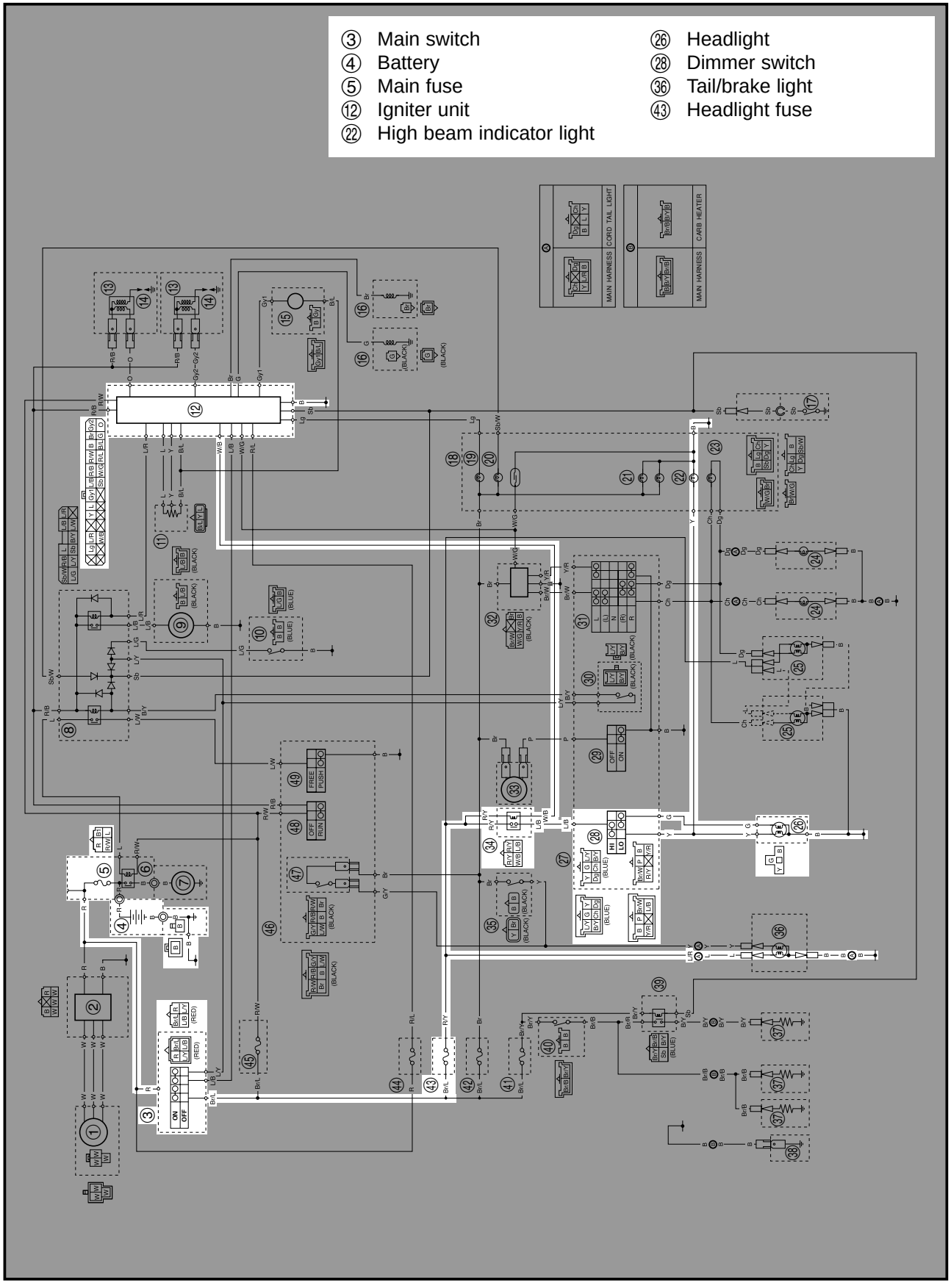
FRONT WHEEL AND BRAKE DISC



Order	Job name/Part name	Q´ty	Remarks
	Front wheel and brake disc removal		Remove the parts in the order below. Stand the motorcycle on a level surface. **⚠WARNING** **Securely support the motorcycle so there is no danger of it falling over.**
1	Speedometer cable	1	Disconnect.
2	Front wheel axle pinch bolt	1	Loosen.
3	Front wheel axle	1	Refer to “FRONT WHEEL INSTALLATION” in 5BN-28197-E0 chapter 6.
4	Front wheel assembly	1	
5	Collar	1	
6	Speedometer gear unit	1	
7	Brake disc	1	
			For installation, reverse the removal procedure.

ELECTRICAL

LIGHTING SYSTEM
CIRCUIT DIAGRAM



TROUBLESHOOTING

Any of the following fail to light: headlights, high beam indicator light and taillight .

Check:
1. main, headlight fuses.
2. battery
3. main switch
4. dimmer switch
5. headlight relay 1
6. wiring connections
   (of the entire lighting system)

NOTE:
- Before troubleshooting, remove the following part(s):
  1. Battery cover
  2. Rider's seat
  3. Fuel tank
  4. Steering head side cover
  5. Headlight lens unit
  6. Tail/brake light unit
- Troubleshoot with the following special tool(s).

Pocket tester:
90890-03112, YU-03112-C

EAS00738

1. Main, headlight fuses

- Check the main, headlight fuses for continuity.
  Refer to "CHECKING THE FUSES" in 5BN-28197-E0 chapter 3.
- Are the main, headlight fuses OK?

YES

NO → Replace the fuse(s).

EAS00739

2. Battery

- Check the condition of the battery.
  Refer to "CHECKING AND CHARGING THE BATTERY" in 5BN-28197-E0 chapter 3.

Minimum open-circuit voltage
12.8V or more 20 °C (68 °F)

- Is the battery OK?

YES

NO →
- Clean the battery terminals.
- Recharge or replace the battery.

EAS00749

3. Main switch

- Check the main switch for continuity.
  Refer to "CHECKING THE SWITCHES" in 5BN-28197-E0 chapter 7.
- Is the main switch OK?

YES

NO → Replace the main switch assembly.

EAS00784

4. Dimmer switch

- Check the dimmer switch for continuity.
  Refer to "CHECKING THE SWITCHES" in 5BN-28197-E0 chapter 7.
- Is the dimmer switch OK?

YES

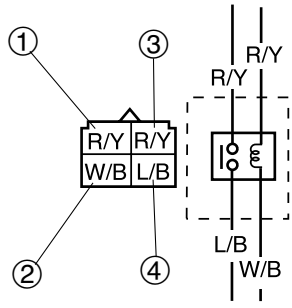
NO → The dimmer switch is faulty. Replace the left handlebar switch.

5. Headlight relay

- Remove the headlight relay.
- Connect the pocket tester (Ω × 1) and battery (12 V) to the headlight relay terminals as shown.
- Check the headlight relay for continuity.

Positive battery terminal → red/yellow ①
Negative battery terminal → white/black ②

Positive tester probe → red/yellow ③
Negative tester probe → blue/black ④



- Does the headlight relay have continuity between red/yellow and blue/black?

YES

NO → Replace the headlight relay.

EAS00787

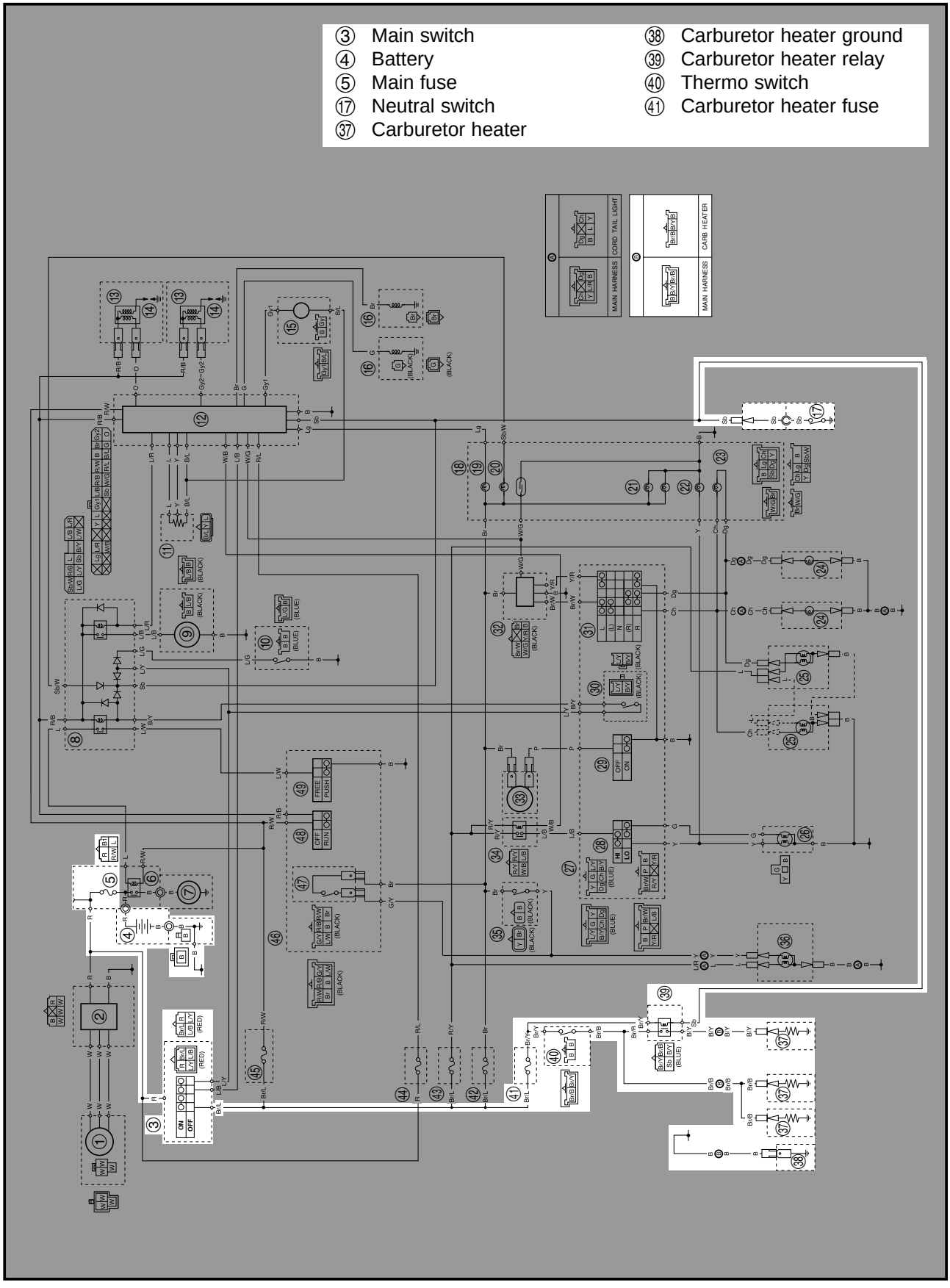
6. Wiring

- Check the entire lighting system's wiring. Refer to "CIRCUIT DIAGRAM".
- Is the lighting system's wiring properly connected and without defects?

YES → Check the condition of each of the lighting systems circuits. Refer to "CHECKING THE LIGHTING SYSTEM" in 5BN-28197-E0 chapter 7.

NO → Properly connect or repair the lighting system's wiring.

CARBURETOR HEATER SYSTEM
CIRCUIT DIAGRAM



EAS00781
TROUBLESHOOTING

The carburetor heater fails to operate.

Check:
1. main, and carburetor heater
2. battery
3. main switch
4. neutral switch
5. carburetor heater relay
6. thermo switch
7. carburetor heater
8. wiring
   (of the entire carburetor heater system)

NOTE:
- Before troubleshooting, remove the following part (-s):
  1. battery cover
  2. rider's seat
  3. fuel tank
  4. steering head side covers
  5. tool box cover
- Troubleshoot with the following special tool (-s).

Pocket tester:
90890-03112, YU-03112-C

EAS00738

1. Main, and carburetor heater fuses

- Check the main, and carburetor heater fuses for continuity.
  Refer to "CHECKING THE FUSES" in 5BN-28197-E0 chapter 3.
- Are the main, and carburetor heater fuses OK?

YES → NO

Replace the fuse(-s).

EAS00739

2. Battery

- Check the condition of the battery.
  Refer to "CHECKING AND CHARGING THE BATTERY" in 5BN-28197-E0 chapter 3.

Open-circuit voltage
12.8V or more at 20 °C (68 °F)

- Is the battery OK?

YES → NO

- Clean the battery terminals.
- Recharge or replace the battery.

EAS00749

3. Main switch

- Check the main switch for continuity.
  Refer to "CHECKING THE SWITCHES" in 5BN-28197-E0 chapter 7.
- Is the main switch OK?

YES → NO

Replace the main switch.

EAS00751

4. Neutral switch

- Check the neutral switch for continuity.
  Refer to "CHECKING THE SWITCHES" in 5BN-28197-E0 chapter 7.
- Is the neutral switch OK?

YES → NO

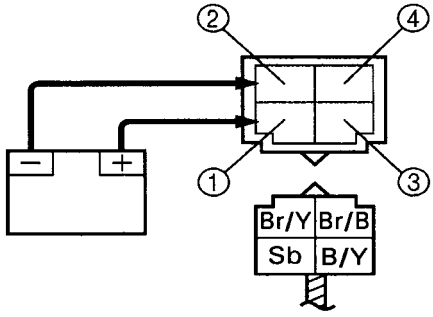
Replace the neutral switch.

5. Carburetor heater relay

- Remove the carburetor heater relay from the wireharness.
- Connect the pocket tester (Ω × 1) and battery (12 V) to the carburetor heater relay terminals.

Battery positive terminal → brown/yellow ①
Battery negative terminal → sky blue ②

Tester positive lead → brown/black ③
Tester negative lead → black/yellow ④



- Does the carburetor heater relay have continuity between brown/black and black/yellow?

YES ⇩

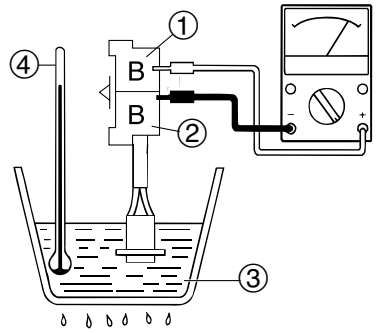
NO ⇩

Replace the carburetor heater relay.

6. Thermo switch

- Remove the thermo switch from the thermo switch plate.
- Connect the pocket tester to the thermo switch lead.

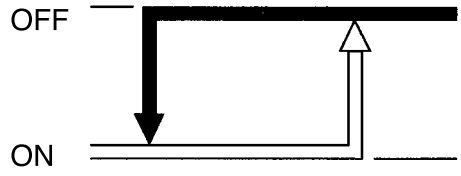
Tester positive lead → black ①
Tester negative lead → black ②



- Immerse the thermo switch in the water ③.
- Check the thermo switch for continuity.
  Note the temperatures while heating the water with the temperature gauge ④.

Test step	Water temperature	Good condition
1	Less than 16 ± 3°C (60.8 ± 5.4°F)	○
2	More than 16 ± 3°C (60.8 ± 5.4°F)	×
3	More than 11 ± 3°C (51.8 ± 5.4°F)	×
4	Less than 11 ± 3°C (51.8 ± 5.4°F)	○

Test 1 & 2 : Heat-up test
Test 3 & 4 : Cool-down test
○ : Continuity **× : No continuity**



Thermo switch
11 ± 3°C
(51.8 ± 5.4°F)

Thermo switch
16 ± 3°C
(60.8 ± 5.4°F)

- Is the thermo switch OK?

YES ⇩

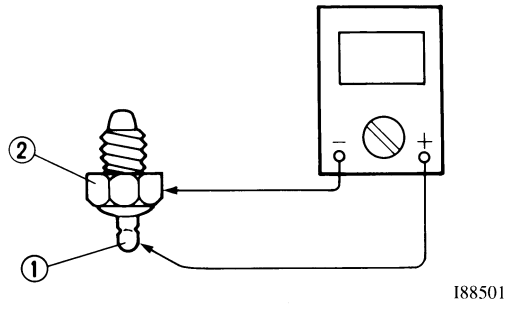
NO ⇩

Replace the thermo switch.

7. Carburetor heater

- Remove the carburetor heater from the carburetor body.
- Connect the pocket tester to the carburetor heater.

Tester (+) lead → Heater terminal ①
Tester (–) lead → Heater body ②



- Measure the heater resistance.

Carburetor heater 1:
12 V 20 W : 3.4–7.6 Ω
at 20°C (68°F)
Carburetor heater 2:
12 V 15 W : 4.8–14.5 Ω
at 20°C (68°F)

- Is the carburetor heater OK?

YES

NO → Replace the carburetor heater.

EAS00766

8. Wiring

- Check the entire carburetor heater system's wiring.
  Refer to "CIRCUIT DIAGRAM".
- Is the carburetor heater system's wiring properly connected and without defects?

NO → Properly connect or repair the carburetor system's wiring.

YES → The carburetor heater system circuit is OK.

SELF-DIAGNOSIS

The XVS65A features self-diagnosis.
When the main switch is turned to “ON”, the following items are monitored and the condition codes are displayed on the engine indicator light (irrespective of whether the engine is running or not).

NOTE:

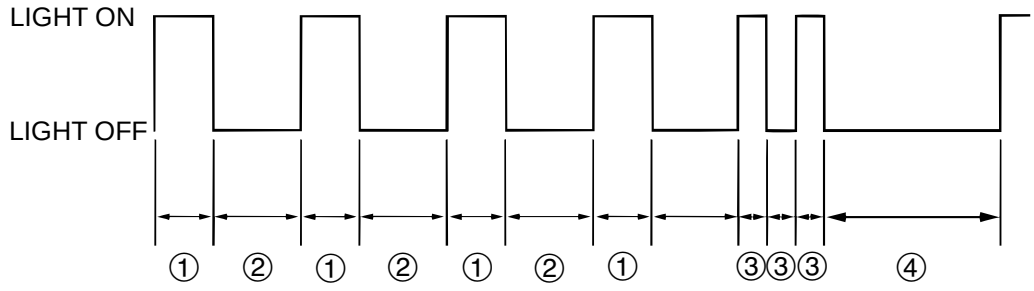
The XVS65A features a self-diagnosing system.
In the XVS65A, when the main switch is turned on the “Engine indicator light” in the speedometer comes on for 1.4 seconds then goes off. However, if there is a malfunction, it comes on for 1.4 seconds, goes off and then begins flashing. (However, it is on while the engine is running.)

Item	Condition	Fail-safe action	Display condition code	
			When engine is stationary	When engine is running
Throttle position sensor (TPS)	Disconnected or short-circuit	Fixes the throttle position sensor to fully open.	Blinks in Fault code: 15	Light on
	Locked		Blinks in Fault code: 16	Light on
	When the main switch is turned to ON, a stuck is detected.		—	Light on
Speed sensor	Defective speed sensor pulse	—	Blinks in Fault code: 42	Light on
Ignition coil #1	Primary coil lead is short-circuit	Fuel cut solenoid valve #1 on.	Blinks in Fault code: 33	Light on
Ignition coil #2	Primary coil lead is short-circuit	Fuel cut solenoid valve #2 on.	Blinks in Fault code: 34	Light on
Fuel cut solenoid valve #1	Disconnected or short-circuit	—	Blinks in Fault code: 57	Light on
Fuel cut solenoid valve #2	Disconnected or short-circuit	—	Blinks in Fault code: 58	Light on

Display order on the engine indicator light

<Example> 42

① Light on (second) .....1 second
② Light off (seconds) .....1.5 seconds
③ Light on (seconds) .....0.5 seconds
④ Light off (seconds) .....3 seconds



TROUBLESHOOTING

The engine trouble warning light starts to display the self-diagnosis sequence.

Check:
1. throttle position sensor
2. speed sensor
3. ignition coil
4. fuel cut solenoid

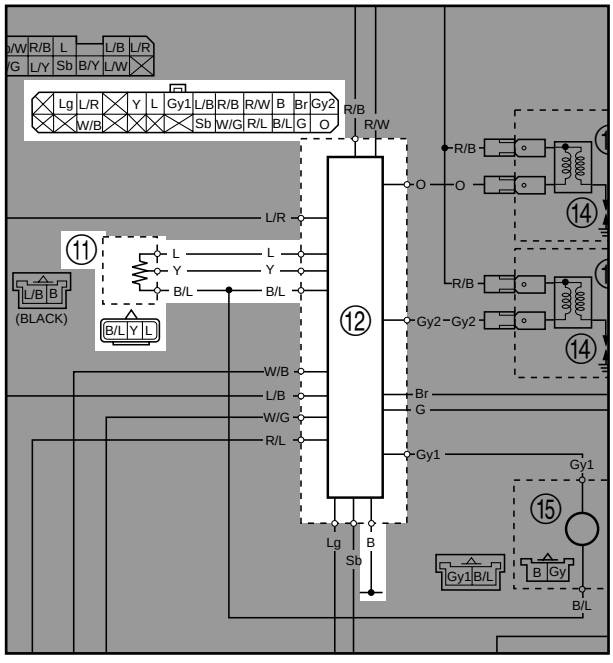
NOTE:
- Before troubleshooting, remove the following part(-s):
  1. rider seat
  2. fuel tank
  3. air filter case
  4. left side cover
- Troubleshoot with the following special tool(-s).

Pocket tester:
90890-03112, YU-03112-C

EAS00836

1. Throttle position sensor

CIRCUIT DIAGRAM



⑪ Throttle position sensor
⑫ Ignitor unit

1. Wireharness

- Check the wireharness for continuity. Refer to “CIRCUIT DIAGRAM”.
- Is the wireharness OK?

YES ⇩

NO ⇩

Repair or replace the wireharness.

EB812401

2. Throttle position sensor

- Check the throttle position sensor for continuity.
  Refer to “THROTTLE POSITION SENSOR (TPS) INSPECTION AND ADJUSTMENT” in 5BN-28197-E0 chapter 6.
- Is the throttle position sensor OK?

YES ⇩

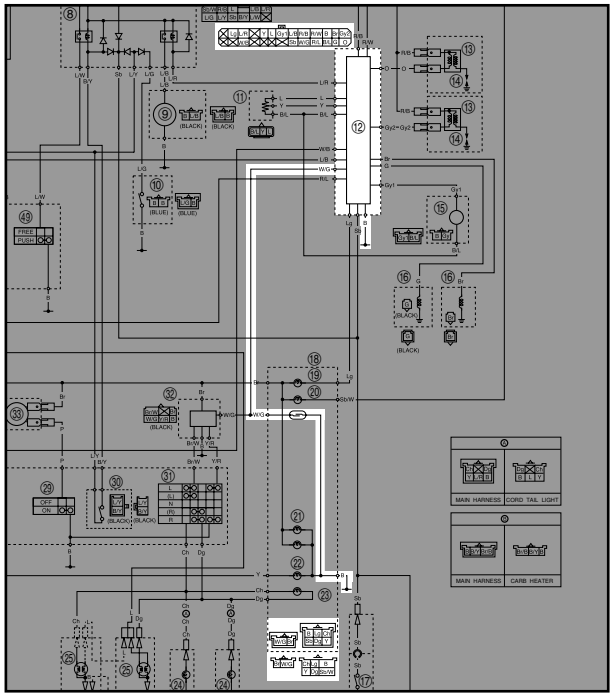
Replace the ignitor unit.

NO ⇩

Replace the throttle position sensor.

2. Speed meter

CIRCUIT DIAGRAM



⑫ Ignitor unit

1. Wireharness
•Check the wireharness for continuity. Refer to “CIRCUIT DIAGRAM”. •Is the wireharness OK?

⇩ YES

⇩ NO

Repair or replace the wireharness.

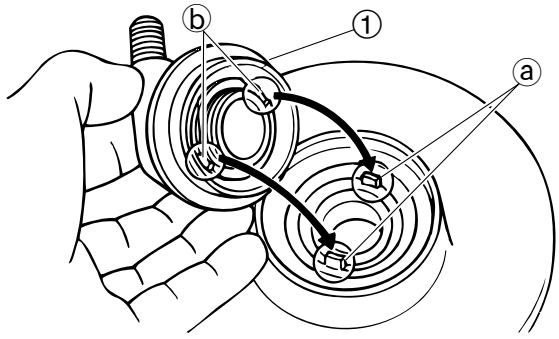
2. Speedometer cable
•Checking the speedometer cable breakage and loose connection. •Is the speedometer cable OK?

⇩ YES

⇩ NO

Replace the speedometer cable or install the speedometer cable.

3. Speedometer gear unit
•Checking the movement of the speedometer gear unit ①. •Checking the breakage of the speedometer clutch projections ⓐ and speedometer gear unit slots ⓑ.



•Are the speedometer gear unit and the speedometer clutch OK?

⇩ YES

Replace the ignitor unit.

⇩ NO

Replace the speedometer gear unit or the speedometer clutch.

3. Ignition coil

1. Wireharness

- Check the wireharness for continuity. Refer to "IGNITION SYSTEM" in 5BN-28197-E0 chapter 7.
- Is the wireharness OK?

YES

NO

Repair or replace the wireharness.

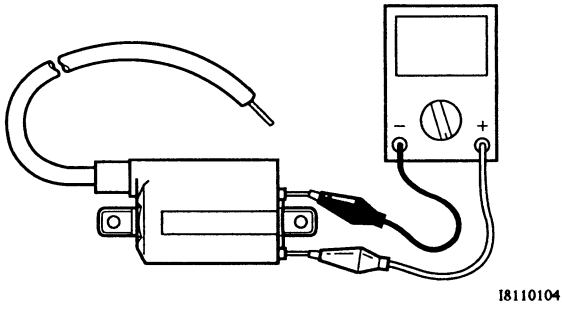
EAS00747

2. Ignition coil resistance

The following procedure applies to all of the ignition coils.

- Disconnect the ignition coil connectors from the ignition coil terminals.
- Connect the pocket tester (Ω × 1) to the ignition coil as shown.

Tester positive probe → red/black
Tester negative probe → orange (gray)

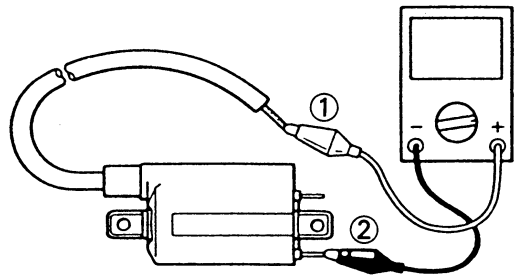


- Measure the primary coil resistance.

Primary coil resistance
3.57 ~ 4.83 Ω at 20°C (68°F)

- Connect the pocket tester (Ω × 1k) to the ignition coil as shown.
- Measure the secondary coil resistance.

Tester positive probe →
spark plug lead ①
Tester negative probe →
Orange (gray) lead ②



Secondary coil resistance
10.7 ~ 14.5 kΩ at 20°C (68°F)

- Is the ignition coil OK?

YES

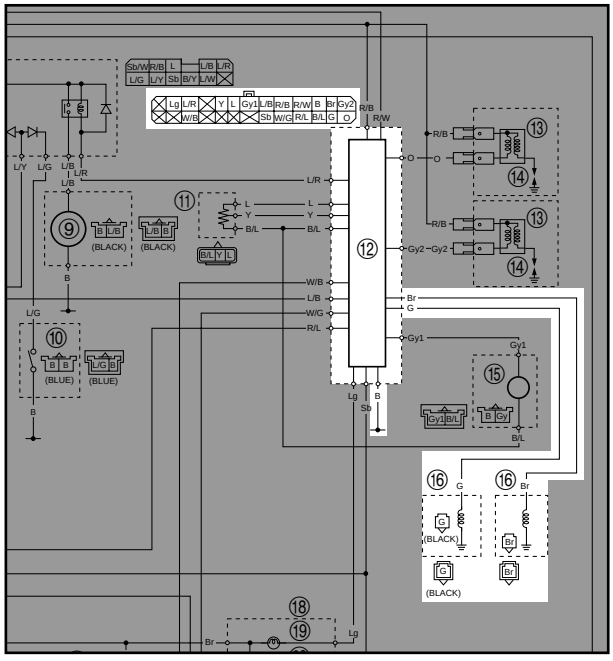
NO

Replace the ignitor unit.

Replace the ignition coil.

4. Fuel-cut solenoid

CIRCUIT DIAGRAM



⑫ Igniter unit
⑯ Fuel-cut solenoid 1 (#1 carburetor) (brown)
⑯ Fuel-cut solenoid 2 (#2 carburetor) (green)

1. Wireharness
•Check the wireharness for continuity. Refer to “CIRCUIT DIAGRAM”. •Is the wireharness OK?

YES	NO
Replace the fuel-cut solenoid 1 or 2.	Repair or replace the wireharness.

YAMAHA MOTOR CO., LTD.
2500 SHINGAI IWATA SHIZUOKA JAPAN

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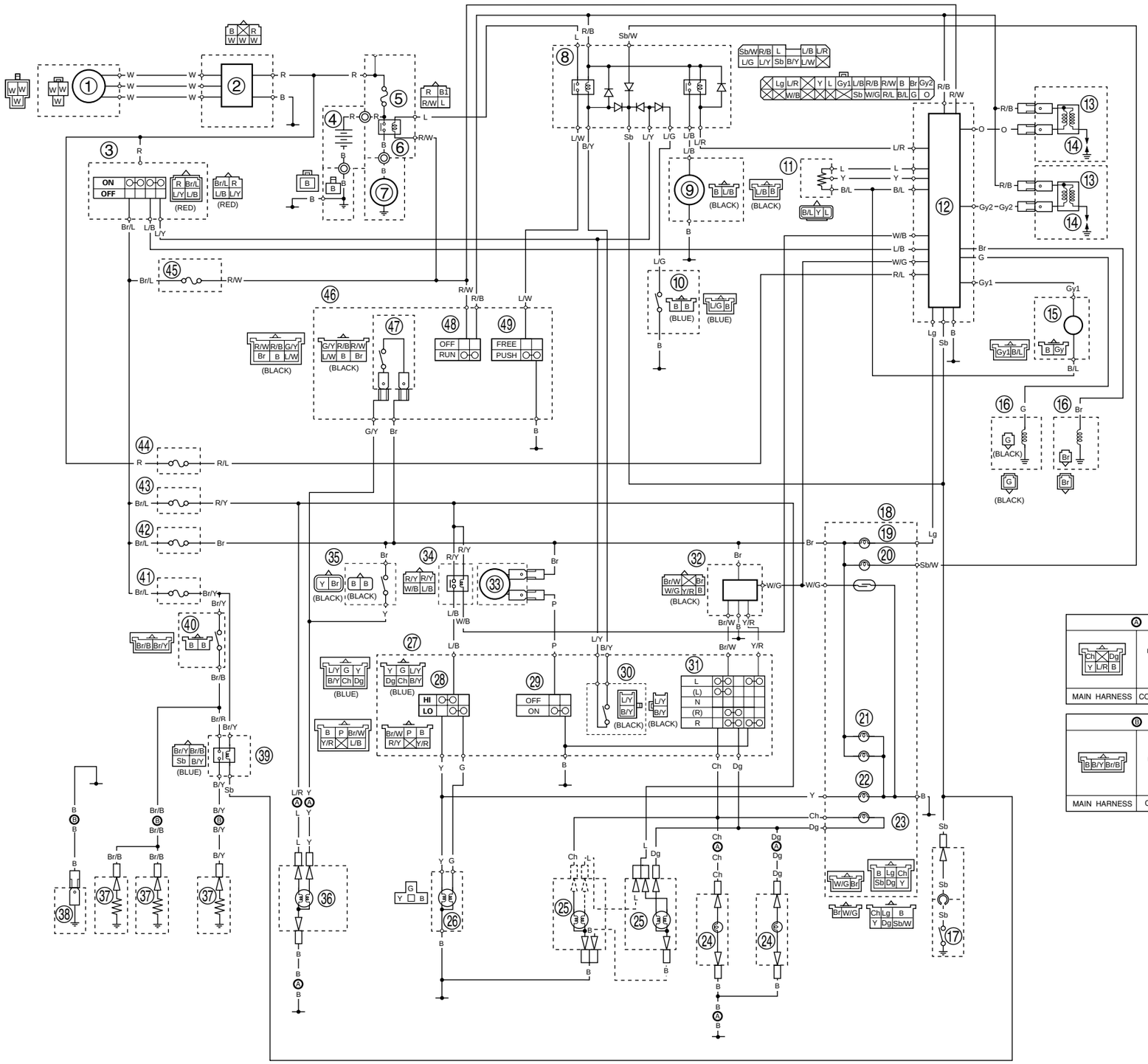
XVS65AWV/XVS65ATV/XVS650ASC/XVS650ATSC WIRING DIAGRAM (for US and CAL)



① A.C. magneto
② Rectifier/ regulator
③ Main switch
④ Battery
⑤ Main fuse
⑥ Starter relay
⑦ Starter motor
⑧ Relay unit
⑨ Fuel pump
⑩ Sidestand switch
⑪ Throttle position sensor (TPS)
⑫ Ignitor unit
⑬ Ignition coil
⑭ Spark plug
⑮ Pickup coil
⑯ Fuel cut solenoid valve
(#1: brown, #2: green)
⑰ Neutral switch
⑱ Meter assembly
⑲ Engine indicator light
⑳ Neutral indicator light
㉑ Meter light
㉒ High beam indicator light
㉓ Turn indicator light
㉔ Rear turn signal
㉕ Front turn signal
㉖ Headlight
㉗ Left handlebar switch
㉘ Dimmer switch
㉙ Horn switch
㉚ Clutch switch
㉛ Turn switch
㉜ Flasher relay
㉝ Horn
㉞ Headlight relay
㉟ Rear brake switch
㊱ Tail / brake light
㊲ Carburetor heater
㊳ Carburetor heater earth
㊴ Carburetor heater relay
㊵ Thermo switch
㊶ Carburetor heater fuse
㊷ Headlight fuse
㊸ Signal system fuse
㊹ Igniter fuse
㊺ Ignition fuse
㊻ Right handlebar switch
㊼ Front brake switch
㊽ Engine stop switch
㊾ Start switch

COLOR CORD

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