YAMAHA

XVS650 '97

4VR-AE2

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 following manual.

XVS650 '97 SERVICE MANUAL: 4VR-AE1

XVS650 '97
SUPPLEMENTARY
SERVICE MANUAL

First Edition, January 1997

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 mechanical 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 continually 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.

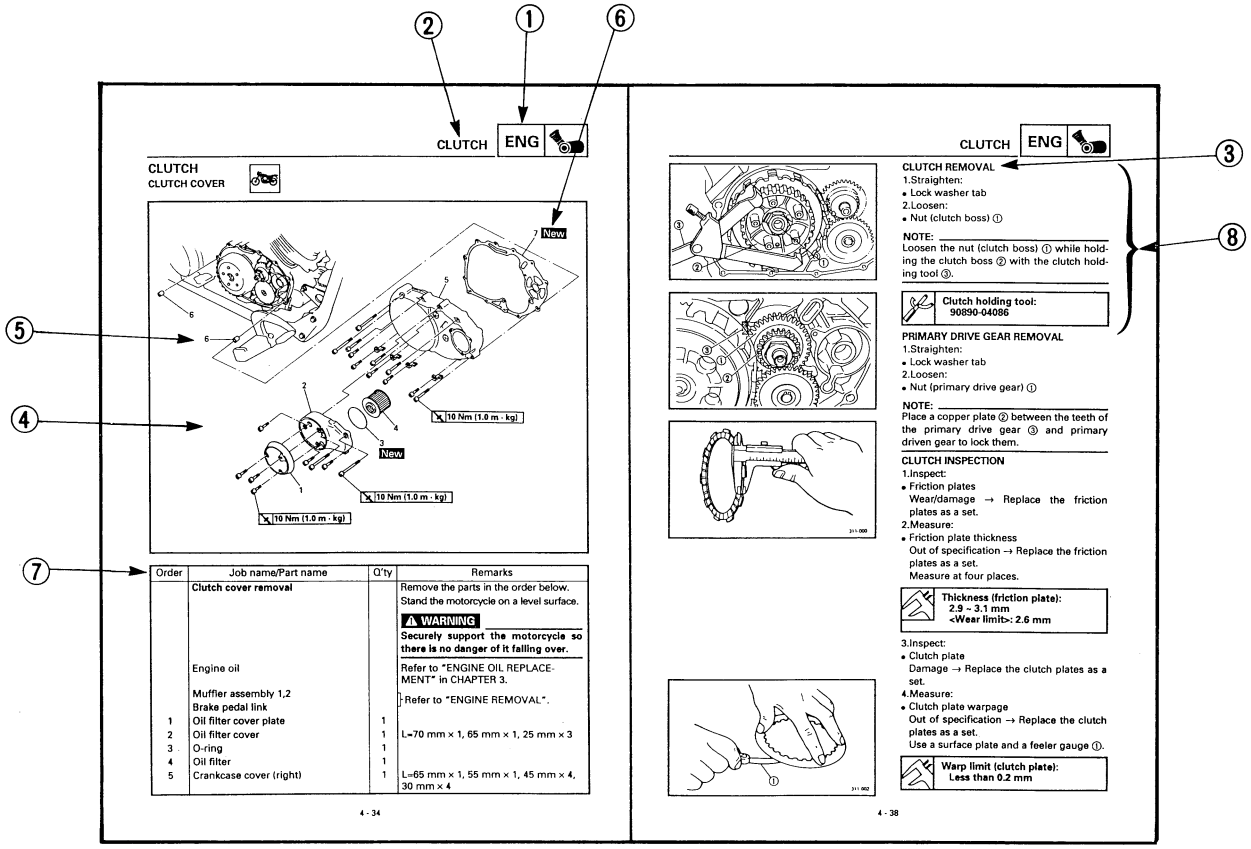
2nd title ②: This title indicates the section of the chapter and only appears on the first page of each section. It is located in the upper left corner of the page.

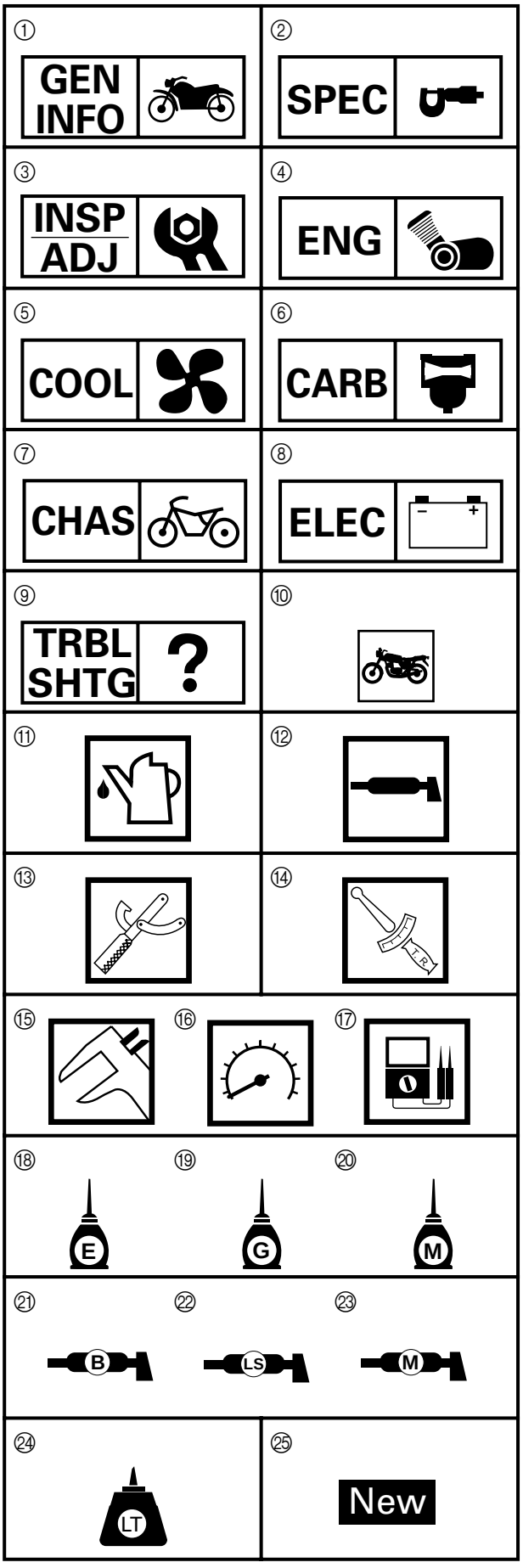
3rd title ③: This title indicates a sub-section that is followed by step-by-step procedures accompanied by corresponding illustrations.

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 used 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

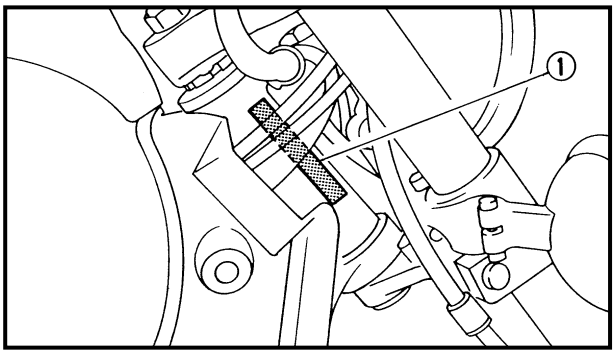
Illustrated symbols ⑱ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

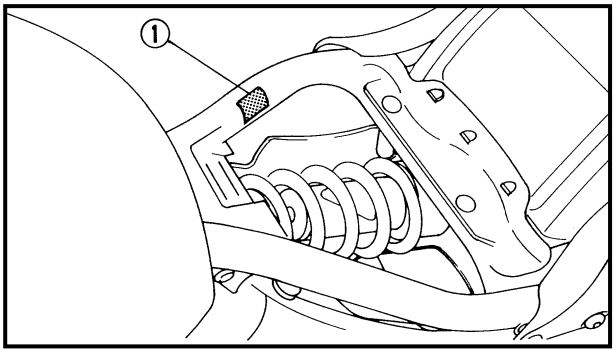
⑱ Apply engine oil
⑲ Apply gear oil
⑳ Apply molybdenum disulfide oil
㉑ Apply wheel bearing grease
㉒ Apply lightweight lithium-soap base grease
㉓ Apply molybdenum disulfide grease

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





EB100000
GENERAL INFORMATION
MOTORCYCLE IDENTIFICATION
VEHICLE IDENTIFICATION NUMBER

EB100010
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

Model	Standard
Model	XVS650
Model code:	4XP1/2 (CH, A) 4XR1/2 (D, F, NL, GB, E)
Basic weight (with oil and a full fuel tank):	227 kg (D, F, NL, GB, E) 229 kg (CH, A)

MAINTENANCE SPECIFICATIONS

ENGINE

Item		Standard		Limit
Carburetor:				
I. D. mark		4XR 00 (D, F, NL, GB, E)	4XP 00 (CH, A)	----
Main jet	(M.J)	#90	←	----
Main air jet	(M.A.J)	#50	←	----
Jet needle	(J.N)	4CZ11-3	4CT2-2	----
Needle jet	(N.J)	O-6	O-4	----
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	2-1/2	----
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		29.3 kPa (0.29 kg/cm^2, 220 mmHg)	←	----

ELECTRICAL

Item	Standard	Limit
T.C.I.:		
Pickup coil resistance / color	182 ~ 222 Ω at 20˚C / Gray – Black	----
T.C.I. unit model / manufacturer	J4T079 / MITSUBISHI (D, F, NL, GB, E)	----
	J4T082 / MITSUBISHI (CH, A)	----
Voltage regulator:		
Type	Semi-conductor, short-circuit type	----
Model / manufacturer	SH650D-11 / SHINDENGEN	----
No load regulated voltage	14.1 ~ 14.9 V	----
Rectifier:		
Model / manufacturer	SH650D-11 / SHINDENGEN	----
Capacity	25 A	----
Withstand voltage	240 V	----
Circuit breaker:		
Type	Fuse	----
Amperage for individual circuit		
MAIN	30 A × 1	----
HEAD LIGHT	15 A × 1	----
SIGNALS	10 A × 1	----
IGNITION	10 A × 1	----
CARBURETOR HEATER	15 A × 1	----

Item	Standard	Limit
Reserve	30 A × 1	----
Reserve	15 A × 1	----
Reserve	10 A × 1	----

CHASSIS

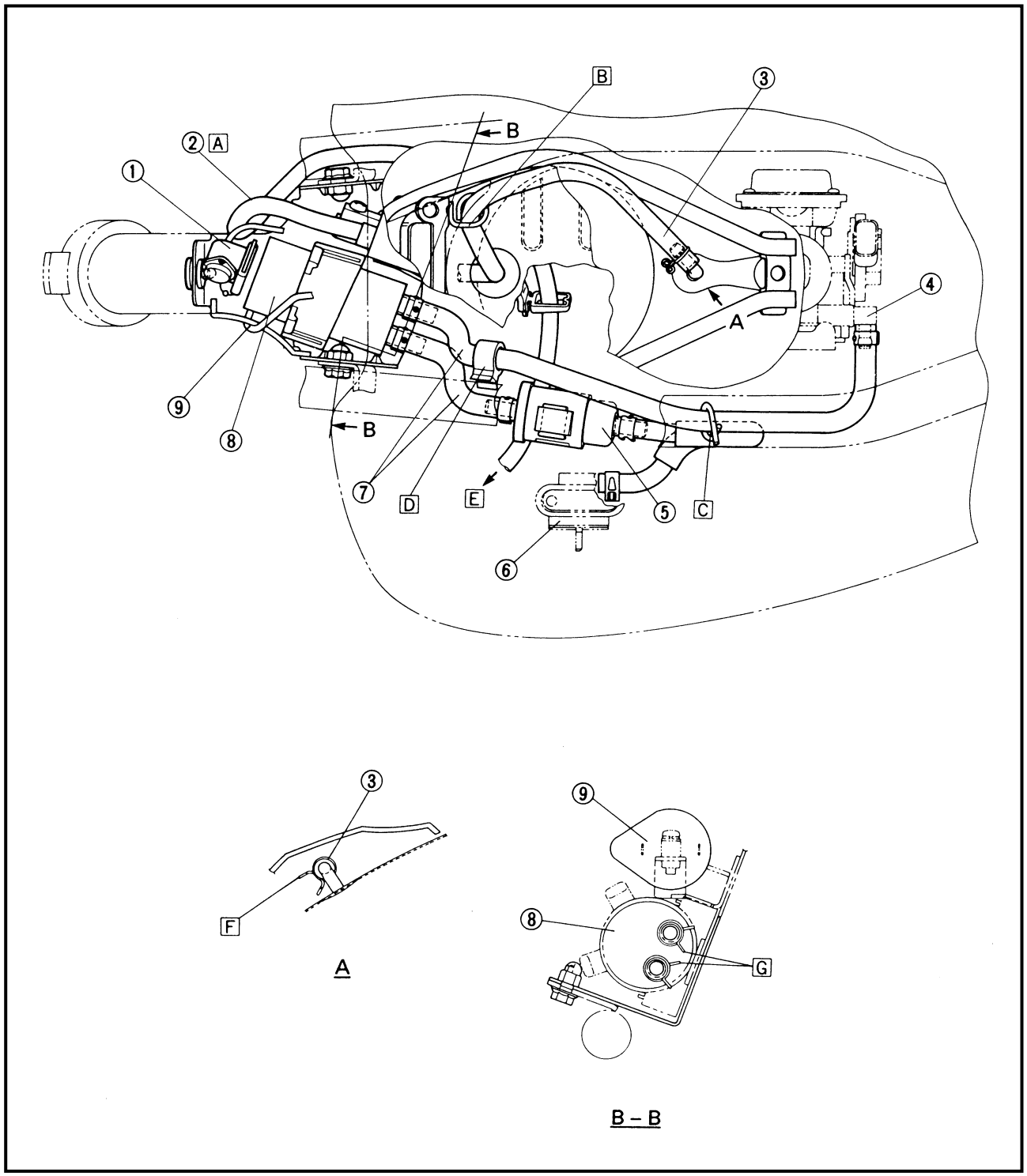
Tightening torques

Part to be tightened	Thread size	Tightening torque		Remarks
		Nm	m·kg	
Brake pedal	M6	8	0.8	

CABLE ROUTING

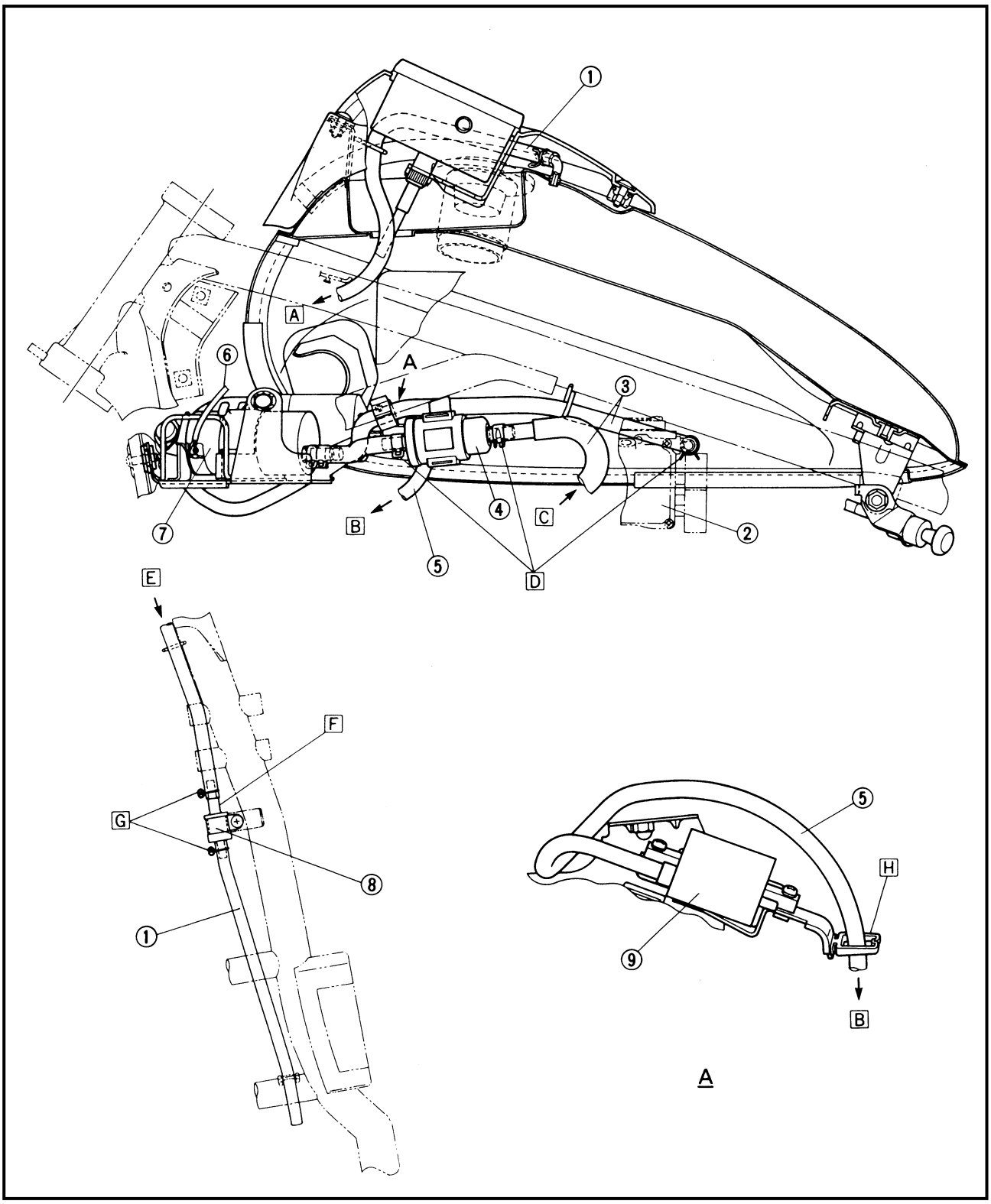
① Thermo switch
② Spark plug lead
③ Fuel tank breather hose
④ Carburetor
⑤ Fuel filter
⑥ Fuel cock
⑦ Fuel hose
⑧ Fuel pump
⑨ Ignition coil

[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 fuel 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.



CARBURETION

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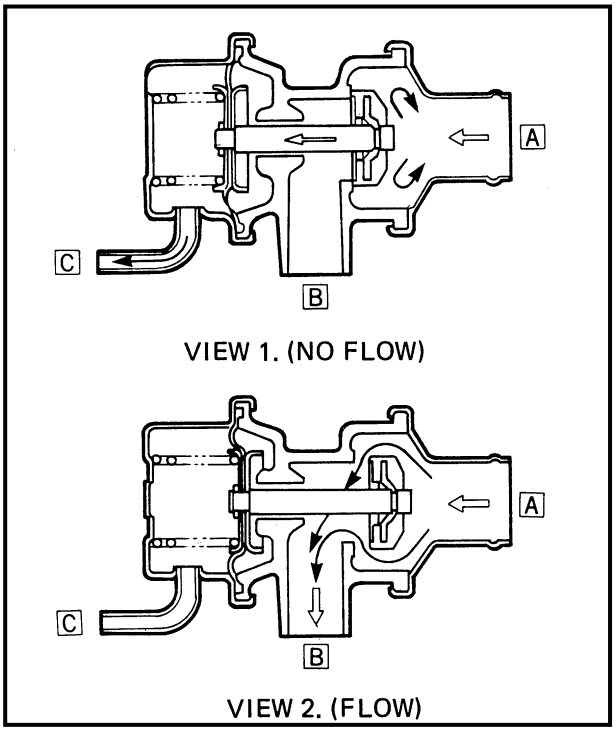
AIR INDUCTION SYSTEM (AIS) <For CH, A>

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.



VIEW 1. (NO FLOW)

VIEW 2. (FLOW)

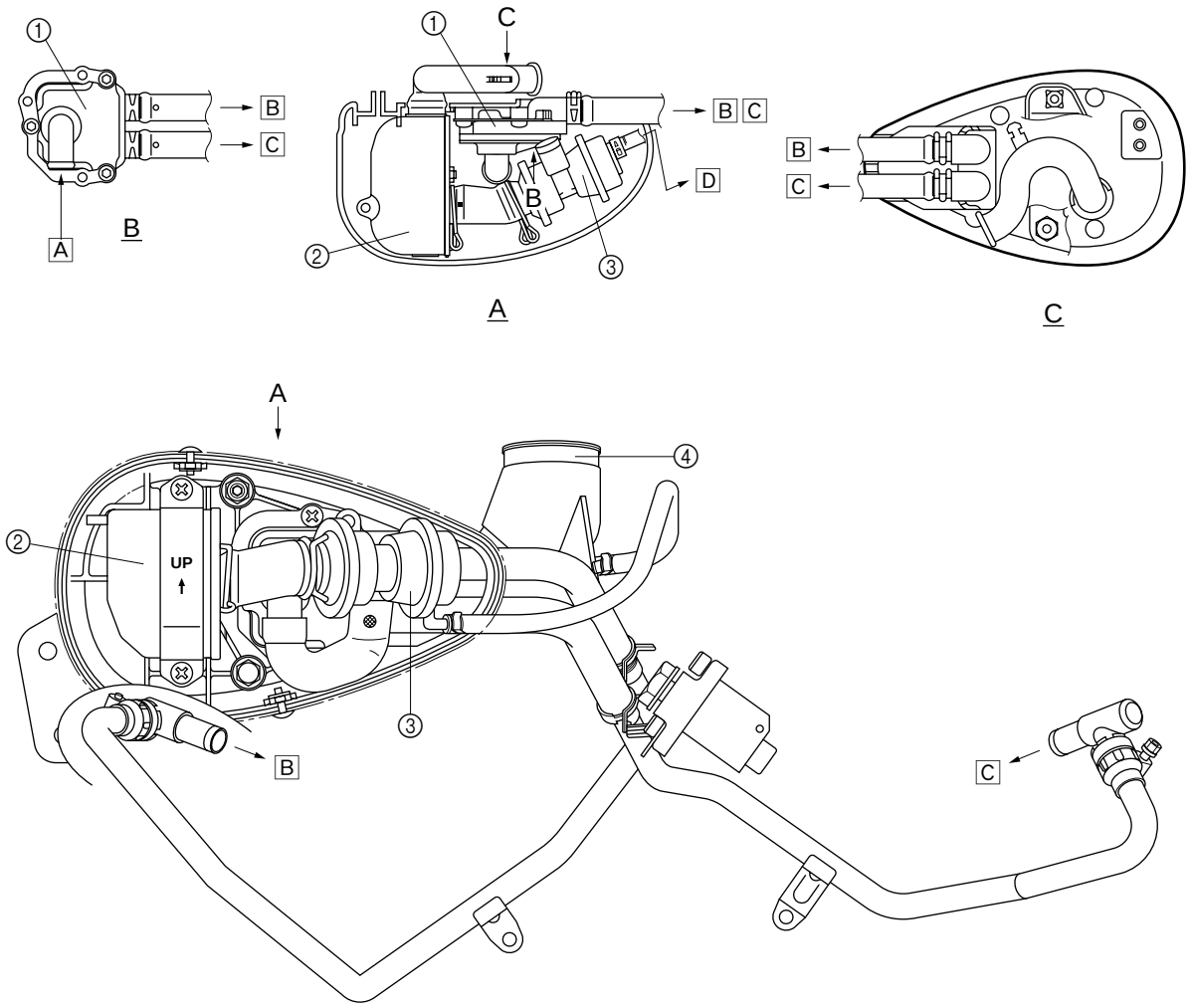
AIR CUT-OFF VALVE

The air cut-off valve is operated by intake gas pressure through the diaphram. 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
④ Carburetor joint (front cylinder)

A From the air cut-off valve
B To the front cylinder head
C To the rear cylinder head
D To the carburetor joint

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.