YAMAHA

YFM80WP

4EM-AE1

SUPPLEMENTARY SERVICE MANUAL

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the YFM80WP. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with the following manual.

YFM80(D) SERVICE MANUAL: 4EM-28197-20

YFM80WP
SUPPLEMENTARY
SERVICE MANUAL

First Edition, September 2001

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 machine has a basic understanding of the mechanical ideas and the procedures of machine repair. Repairs attempted by anyone without this knowledge are likely to render the machine 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 machine operator, a bystander or a person inspecting or repairing the machine.

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

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

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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.

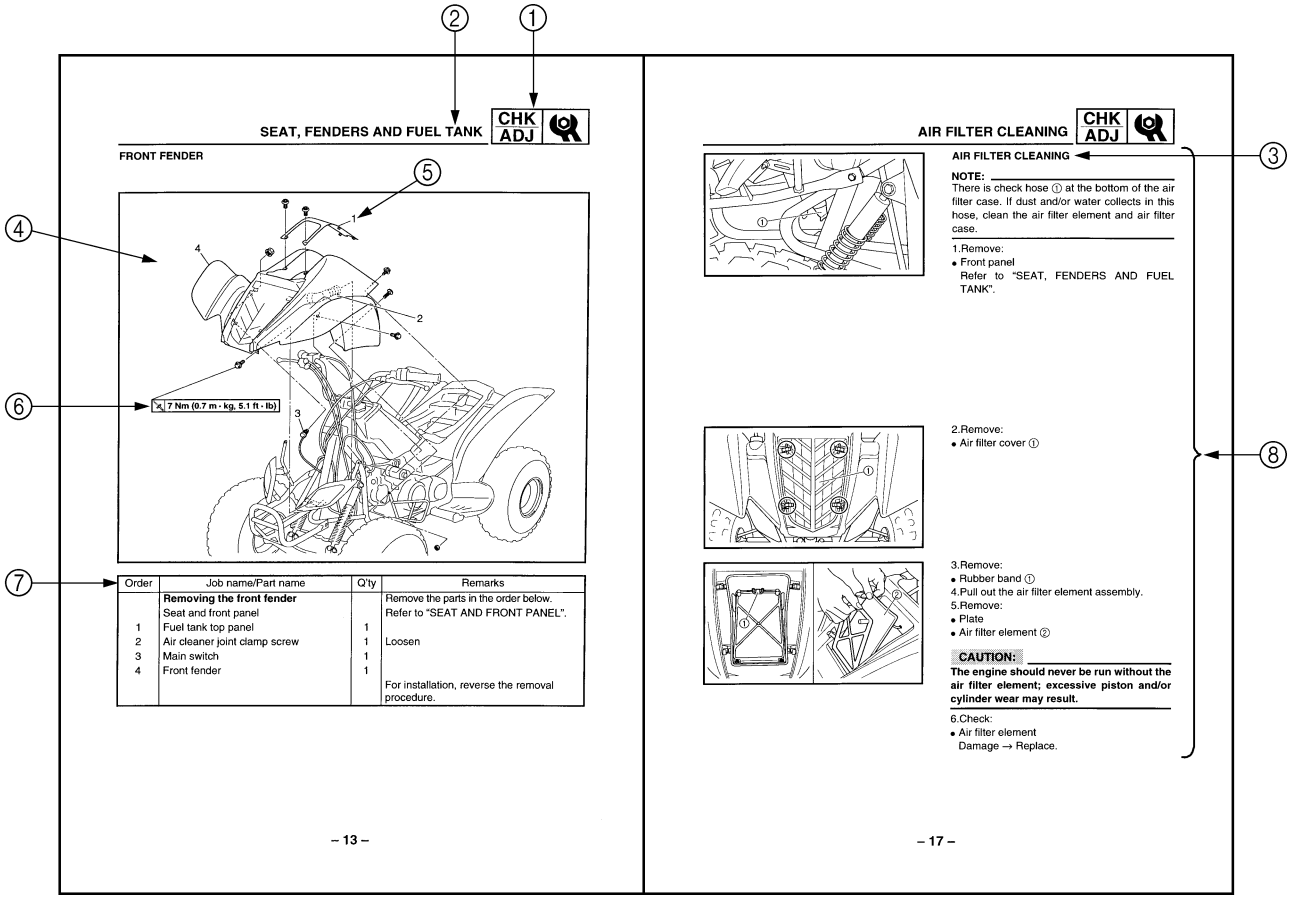
2nd title ②: This title indicates the section of the chapter and only appears on the first page of each section. It is located in the upper left corner of the page.

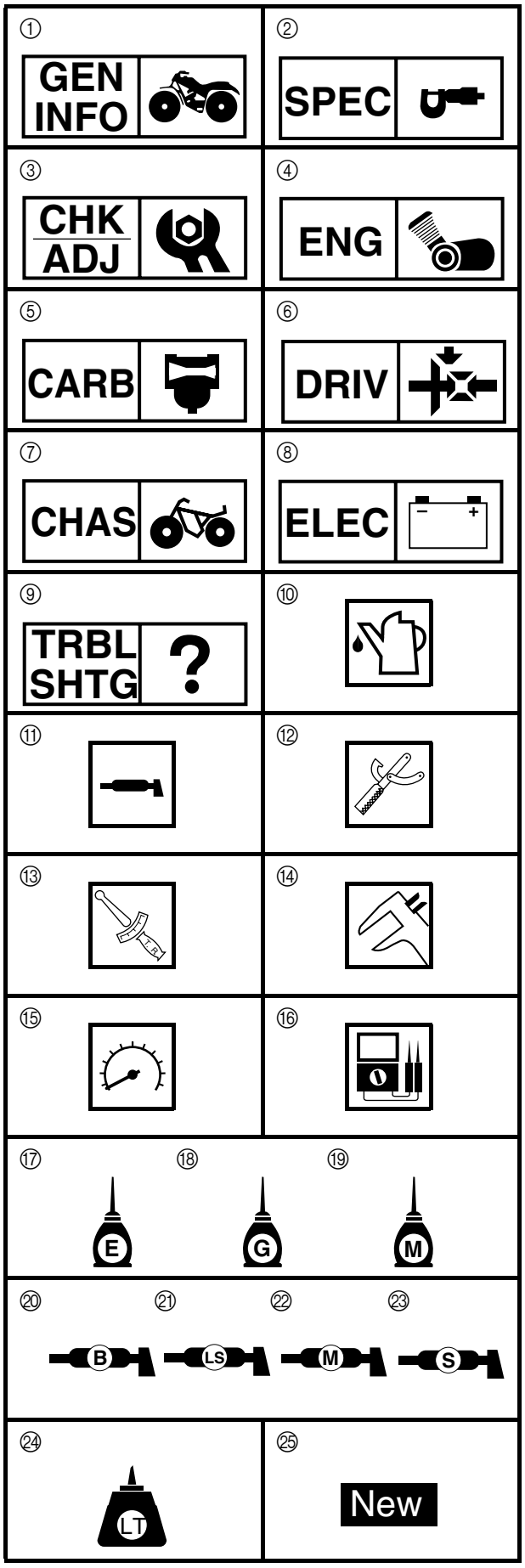
3rd title ③: This title indicates a sub-section that is followed by step-by-step procedures accompanied by corresponding illustrations.

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 checks and adjustments
④ Engine
⑤ Carburetion
⑥ Drive train
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 Torque
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

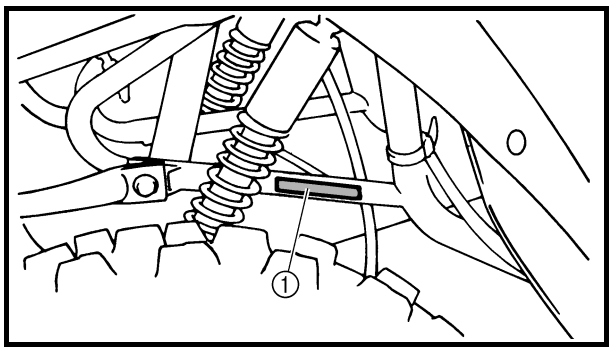
Illustrated symbols ⑰ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

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 silicon grease

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

㉔ Apply the locking agent (LOCTITE®)
㉕ Replace

CONTENTS

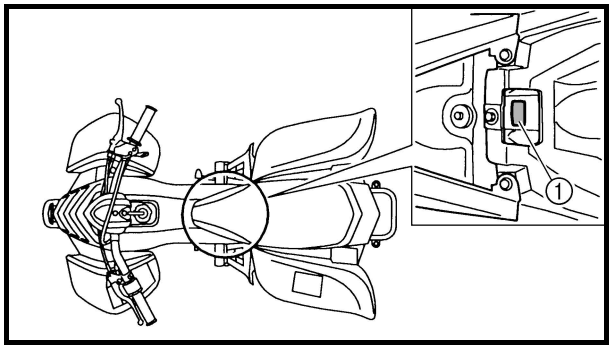


GENERAL INFORMATION

MACHINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

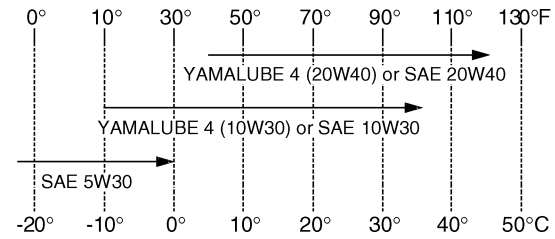


MODEL LABEL

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

SPECIFICATIONS

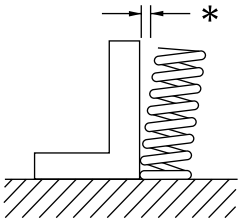
GENERAL SPECIFICATIONS

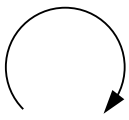
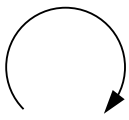
Model	YFM80WP	
Model code number:	5TH1 (For Oceania) 5TH2 (For CDN) 5TH3 (For Europe)	
Dimensions:		
Overall length	1,537 mm (60.5 in)	
Overall width	841 mm (33.1 in)	
Overall height	940 mm (37 in)	
Seat height	669 mm (26.3 in)	
Wheelbase	1,030 mm (40.6 in)	
Minimum ground clearance	100 mm (3.9 in)	
Minimum turning radius:	2,400 mm (94.5 in)	
Oil type or grade:		
Engine oil		API service SE type or higher
Final gear oil		SAE 80API “GL-4” Hypoid gear oil
Fuel:		
Type		Unleaded gasoline (For Oceania) Regular unleaded gasoline (For CDN and Europe)
Tank capacity		6.8 L (1.5 Imp gal, 1.8 US gal)
Reserve amount		0.9 L (0.2 Imp gal, 0.2 US gal)
Spark plug:		
Type/Manufacturer		CR7HS (NGK)
Gap		0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Tire:	Front	Rear
Type	Tubeless	Tubeless
Size	AT18 × 7-7	AT18 × 8-7
Manufacturer (type)	DUNLOP KT586	DUNLOP KT587
<Wear limit>	<3 mm (0.12 in)>	<3 mm (0.12 in)>
Indicator light wattage × quantity:		
“NEUTRAL”		12 V 1.7 W × 1

MAINTENANCE SPECIFICATIONS

ENGINE

Model		YFM80WP
Camshaft:		
Drive method		Chain drive (Left)
Cam dimensions:		
Intake:	"A"	25.30 ~ 25.31 mm (0.996 ~ 0.997 in)
	"B"	20.994 ~ 21.094 mm (0.827 ~ 0.831 in)
Exhaust:	"A"	25.301 ~ 25.311 mm (0.996 ~ 0.997 in)
	"B"	21.021 ~ 21.121 mm (0.828 ~ 0.832 in)
Camshaft runout limit		<0.03 mm (0.0012 in)>
Cam chain type/number of links		BUSH CHAIN/82 links
Cam chain adjustment method		Manual
Rocker arm/rocker arm shaft:		
Bearing inside diameter		10.000 ~ 10.015 mm (0.3937 ~ 0.3943 in)
Shaft outside diameter		9.981 ~ 9.991 mm (0.3930 ~ 0.3934 in)
Arm-to-shaft clearance		0.009 ~ 0.034 mm (0.0004 ~ 0.0013 in)
<Limit>		<0.08 mm (0.0032 in)>
Valve spring:		
Free length:	IN	28.63 mm (1.13 in)
	EX.	28.63 mm (1.13 in)
<Limit>	IN	<25.4 mm (1.00 in)>
	EX.	<25.4 mm (1.00 in)>
Compressed length (valve closed):		
	IN	24.9 mm (0.980 in)
	EX.	24.9 mm (0.980 in)
Compressed spring force (installed):		
	IN	86.3 ~ 105.9 N (8.8 ~10.8 kgf)
	EX.	86.3 ~ 105.9 N (8.8 ~10.8 kgf)
<Tilt Limit> *	IN & EX.	<2.5° or 1.2 mm (0.047 in)>



Direction of winding (top view):	IN	EX
		

Model		YFM80WP
Piston:		
Piston size “D”		46.960 ~ 46.975 mm (1.8488 ~ 1.8494 in)
Measuring point “H”		6.5 mm (0.256 in) (From bottom line of piston skirt)
Piston over size: 2nd		47.50 mm (1.870 in)
4th		48.00 mm (1.890 in)
Offset		0.75 mm
Offset direction		Intake side
Piston clearance		0.025 ~ 0.045 mm (0.0010 ~ 0.0018 in)
<Limit>		<0.15 mm (0.006 in)>
Piston pin bore inside diameter		13.002 ~ 13.013 mm (0.5119 ~ 0.5123 in)
Piston pin outside diameter		12.996 ~ 13.000 mm (0.5117 ~ 0.5118 in)
Clutch:		
Friction plate:		
Thickness × Quantity		2.92 ~ 3.08 mm (0.115 ~ 0.121 in) × 6
<Wear limit>		<2.9 mm (0.114 in)>
Clutch plate:		
Thickness × Quantity		1.2 ~ 1.6 mm (0.047 ~ 0.063 in) × 5
<Warp limit>		<0.06 mm (0.0024 in)>
Clutch spring:		
Free length × Quantity		28.3 mm (1.11 in) × 8
Clutch release method		Inner push, cam push
Clutch-in revolution		2,100 ~ 2,300 r/min
Clutch-stall revolution		2,800 ~ 3,000 r/min
Carburetor:		
Type/manufacturer/quantity		VM16SH/MIKUNI/1
I. D. mark		5TH1 00
Main jet	(M.J.)	#76.3
Main air jet	(M.A.J.)	ø1.2
Jet needle-clip position	(J.N.)	3PZ 13-2
Needle jet	(N.J.)	D-8M
Cutaway	(C.A.)	3.5
Pilot jet	(P.J.)	#12.5
Pilot outlet	(P.O.)	ø0.7
Pilot screw	(P.S.)	1-1/8
Valve seat	(V.S.)	ø1.2
Fuel level	(F.L.)	2.5 ~ 4.5 mm (0.10 ~ 0.18 in) Below carburetor body edge
Float height	(F.H.)	20.0 ~ 22.0 mm (0.79 ~ 0.87 in)
Engine idling speed		1,750 ~ 1,850 r/min
Intake vacuum		36 kPa (270 mmHg)

CHASSIS

Model	YFM80WP
Wheel:	
Front wheel type	Panel wheel
Rear wheel type	Panel wheel
Front rim size/material	7 × 5.5 AT/steel
Rear rim size/material	7 × 6.5 AT/steel
Rim runout limit:	
Vertical	<2.0 mm (0.08 in)>
Lateral	<2.0 mm (0.08 in)>
Brake lever & brake pedal:	
Brake lever free play (front brake)	10 ~ 12 mm (0.4 ~ 0.5 in) at lever pivot
Brake lever free play (rear brake)	5 ~ 8 mm (0.20 ~ 0.31 in) at lever pivot
Brake pedal free play	20 ~ 30 mm (0.8 ~ 1.2 in)

ELECTRICAL

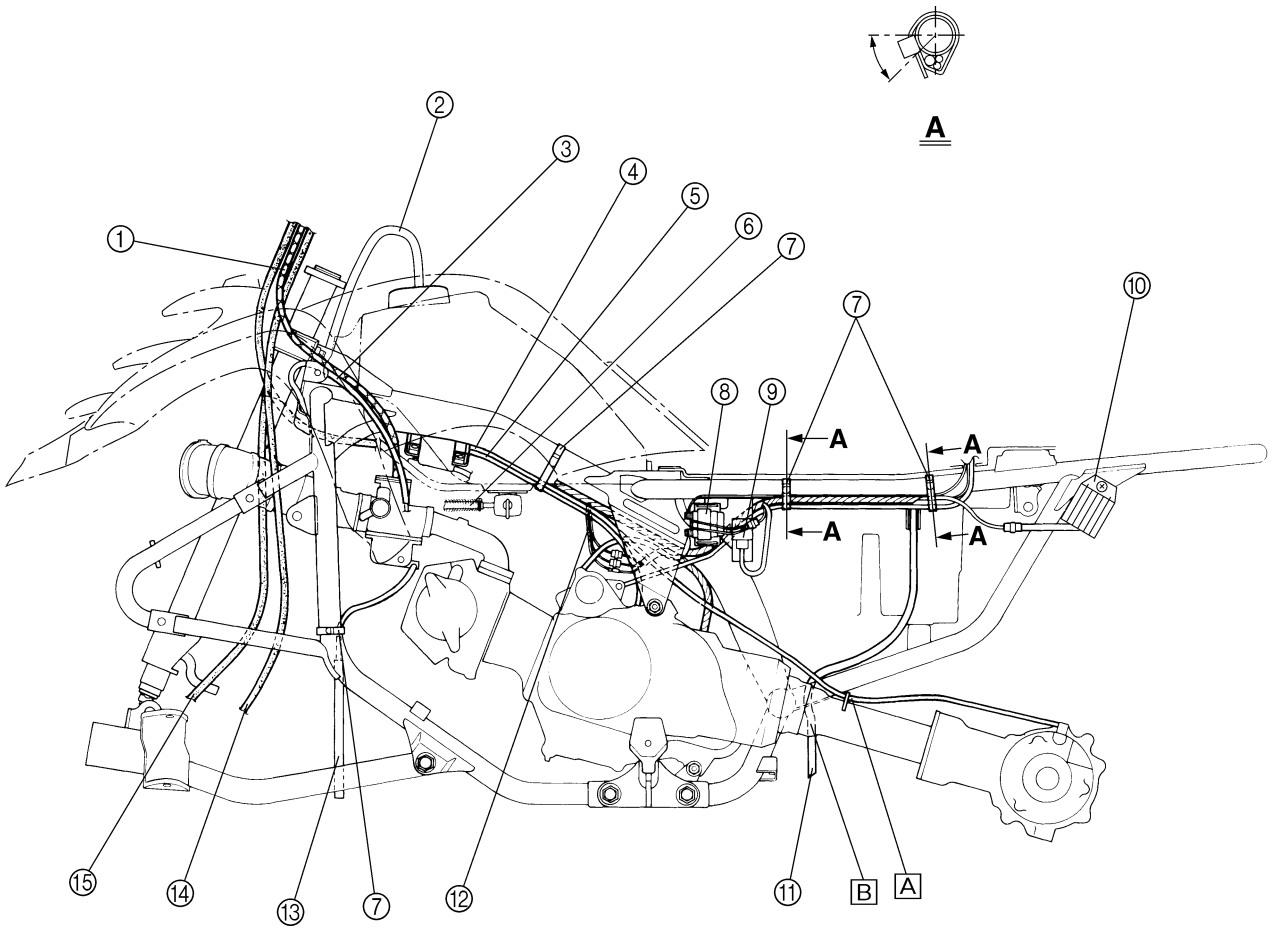
Model		YFM80WP
CDI:		
Magneto model/manufacturer		F2FM/MORIC
Pickup coil resistance (color)		264 ~ 396 Ω at 20°C (68°F) (W/L–W/R)
Source coil resistance (color)		304 ~ 456 Ω at 20°C (68°F) (G/W–B/R)
Lighting coil resistance (color)		0.72 ~ 1.08 Ω B–W 0.32 ~ 0.48 Ω B–Y/R
CDI unit model/manufacturer		4EM/MORIC
Ignition coil:		
Model/manufacturer		2JN/MORIC
Minimum spark gap		6 mm (0.24 in)
Primary winding resistance		0.184 ~ 0.276 Ω at 20°C (68°F)
Secondary winding resistance		6.32 ~ 9.48 Ω at 20°C (68°F)
Rectifier/regulator:		
Type		Semi conductor-short circuit
Model/manufacturer		SH704-12/SHINDENGEN
No load regulated voltage	(DC)	14 ~ 15 V
	(AC)	13 ~ 14 V
Capacity	(DC)	5 A
	(AC)	8 A
Withstand voltage		200 V

Model		YFM80WP
Electric starter system:		
Type		Constant mesh type
Starter motor:	Model/manufacturer	ADB4A5/DENSO
	Out put	0.2 kW
Armature coil resistance		0.0288 ~ 0.0352 Ω at 20°C (68°F)
Brush:	Overall length	6 mm (0.24 in)
	<Limit>	<3.5 mm (0.14 in)>
	Spring pressure	3.24 ~ 4.22 N (330 ~ 430 gf)
Commutator:	Diameter	16.5 mm (0.65 in)
	<Wear limit>	<15.5 mm (0.61 in)>
	Mica undercut	1.0 mm (0.04 in)
Starter relay:	Model/manufacturer	MS5D-611/JIDECO
	Amperage rating	100A
	Coil winding resistance	3.87 ~ 4.73 Ω at 20°C (68°F)
Starting circuit cut-off relay:		
Model/manufacturer		ACA12115-3/MATSUSHITA
Coil winding resistance		72 ~ 88 Ω at 20°C (68°F)
Diode		Yes
Circuit breaker:		
Type		Fuse
Amperage for individual circuit/quantity:		
Main		5 A × 1
Reserve		5 A × 1

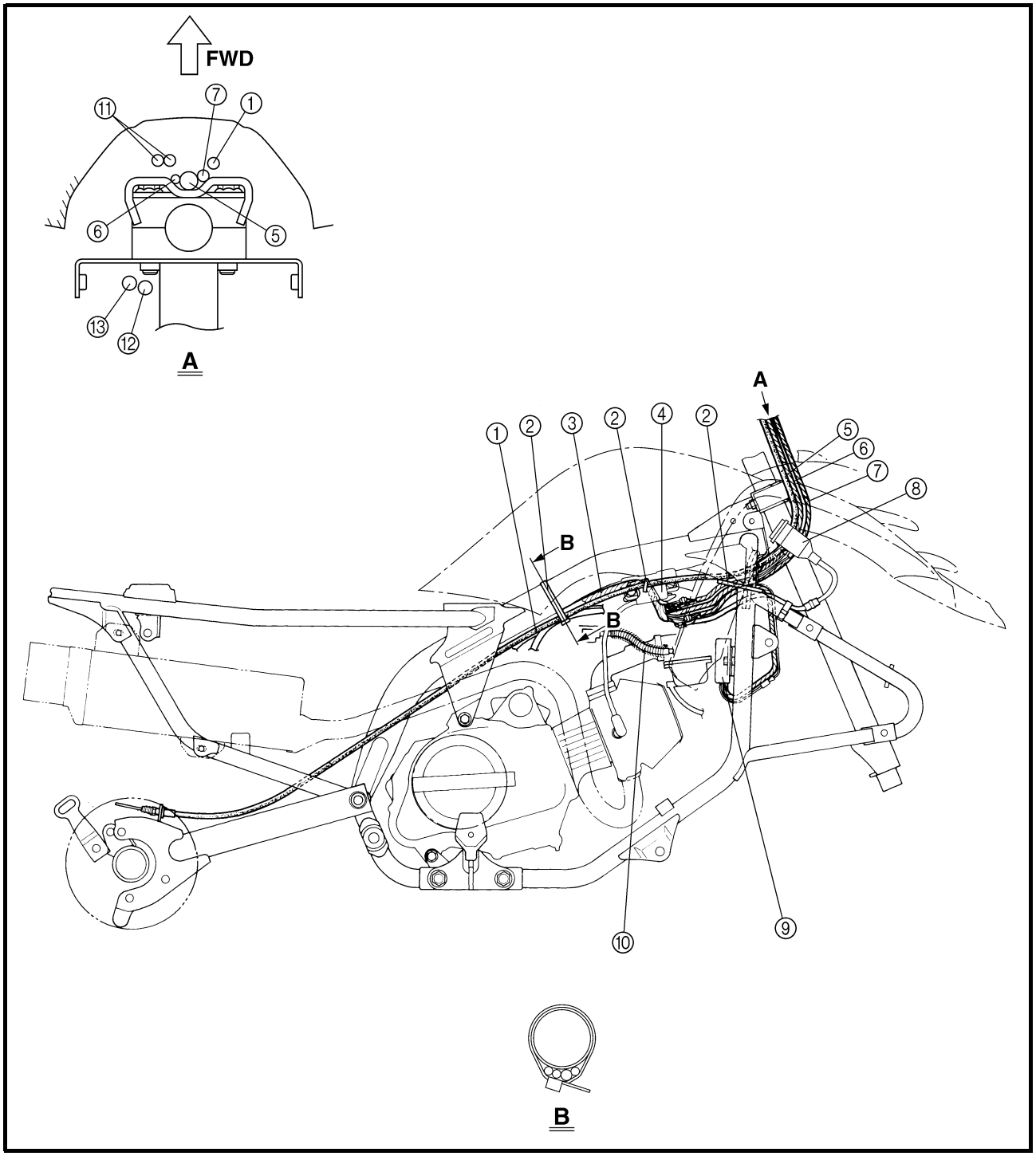
CABLE ROUTING

① Throttle cable
② Fuel tank breather hose
③ Carburetor ventilation hose
④ Final gear case breather hose
⑤ Crankcase breather hose
⑥ Fuel hose
⑦ Band
⑧ Starter relay
⑨ Starting circuit cut-off relay
⑩ Rectifier/regulator
⑪ Battery breather hose
⑫ CDI magneto lead
⑬ Carburetor overflow hose
⑭ Front brake cable (right)
⑮ Front brake cable (left)

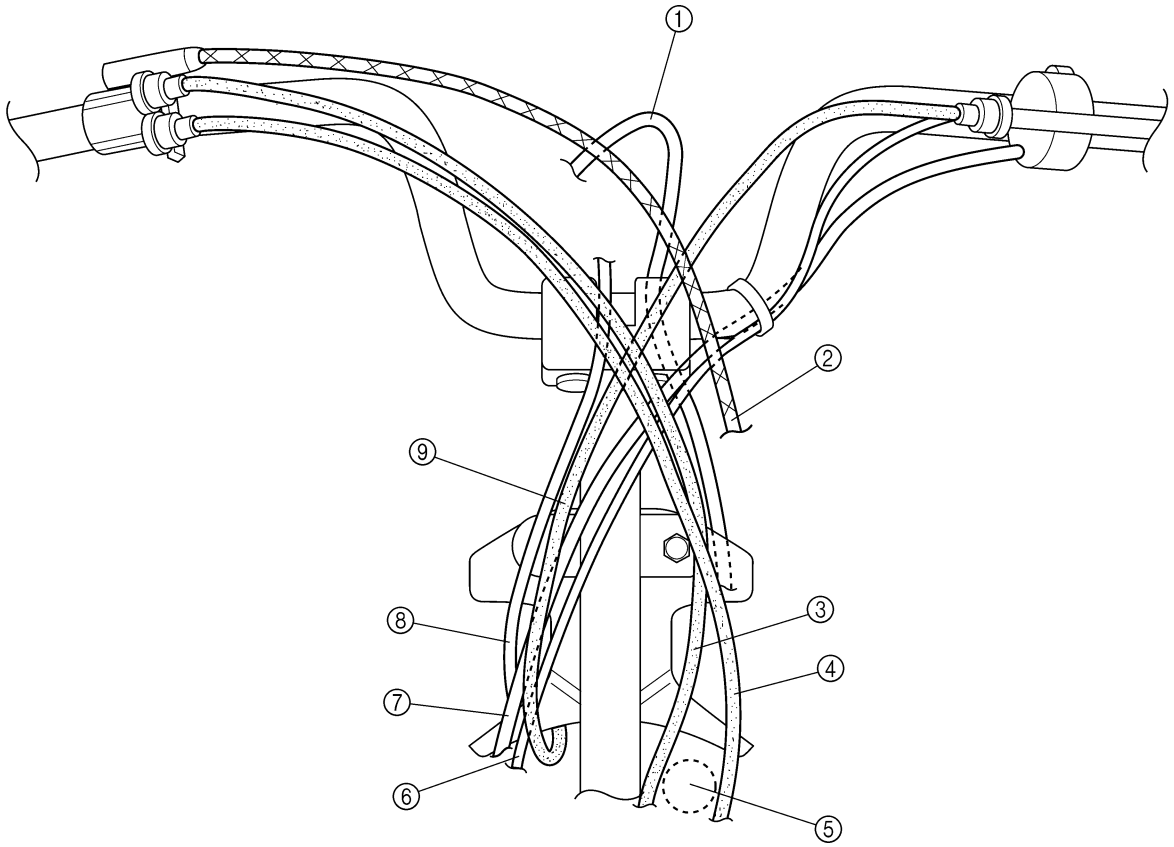
A Pass the final gear case breather hose through the guide.
B Pass the battery breather hose through the hole.



① Rear brake cable
② Band
③ Wireharness
④ Ignition coil
⑤ Handlebar switch lead
⑥ Rear brake switch lead
⑦ “NEUTRAL” indicator light lead
⑧ Main switch
⑨ CDI unit
⑩ Fuel hose
⑪ Front brake cable
⑫ Fuel tank breather hose
⑬ Throttle cable

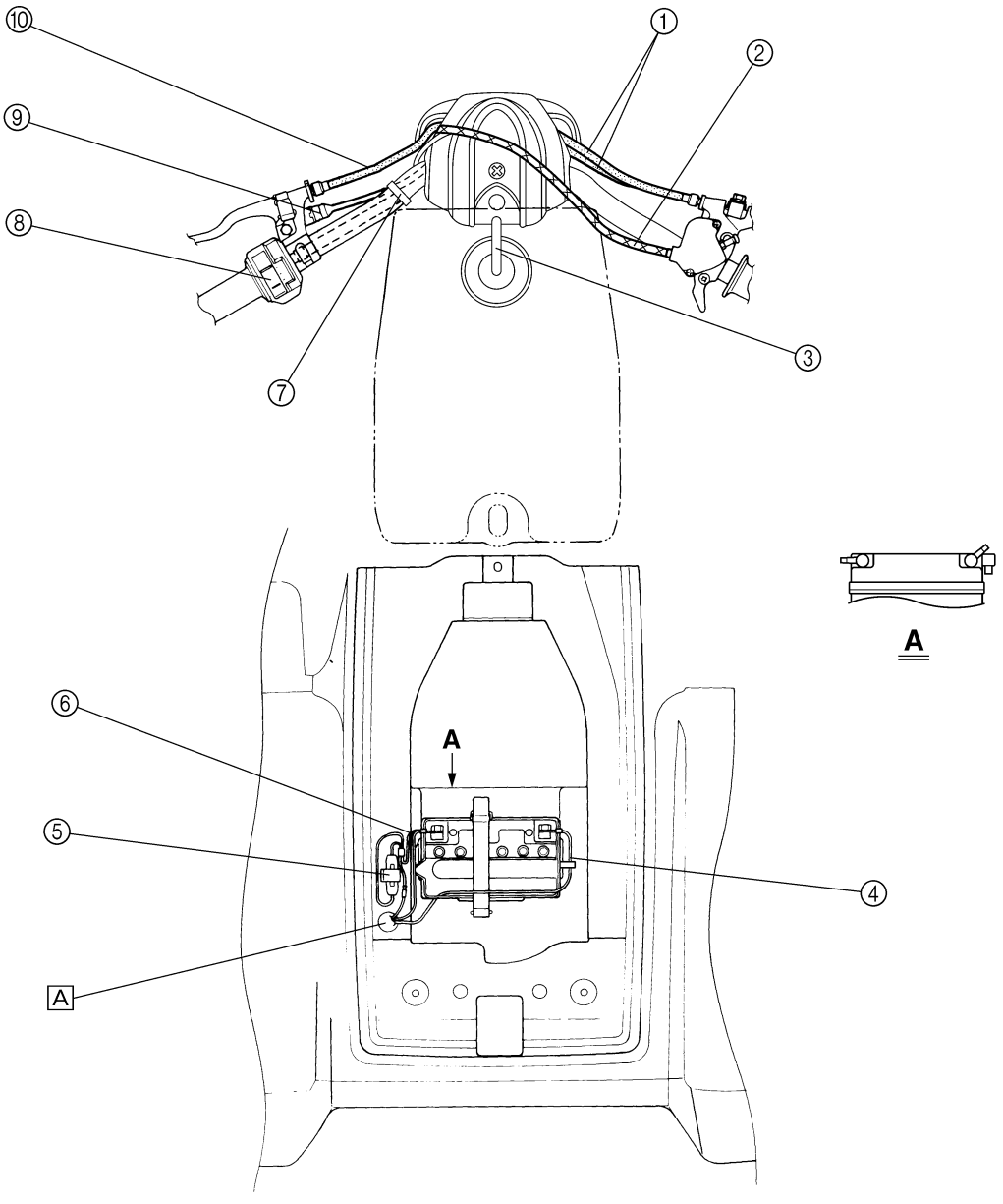


① Fuel tank breather hose
② Throttle cable
③ Front brake cable (left)
④ Front brake cable (right)
⑤ Air filter joint
⑥ Rear brake switch lead
⑦ Handlebar switch lead
⑧ “NEUTRAL” indicator light lead
⑨ Rear brake cable



① Front brake cable
② Throttle cable
③ Fuel tank breather hose
④ Battery negative lead
⑤ Fuse
⑥ Battery positive lead
⑦ Band
⑧ Handlebar switch
⑨ Rear brake switch
⑩ Rear brake cable

[A] Pass the leads through the hole.



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PERIODIC CHECKS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. 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/LUBRICATION INTERVALS

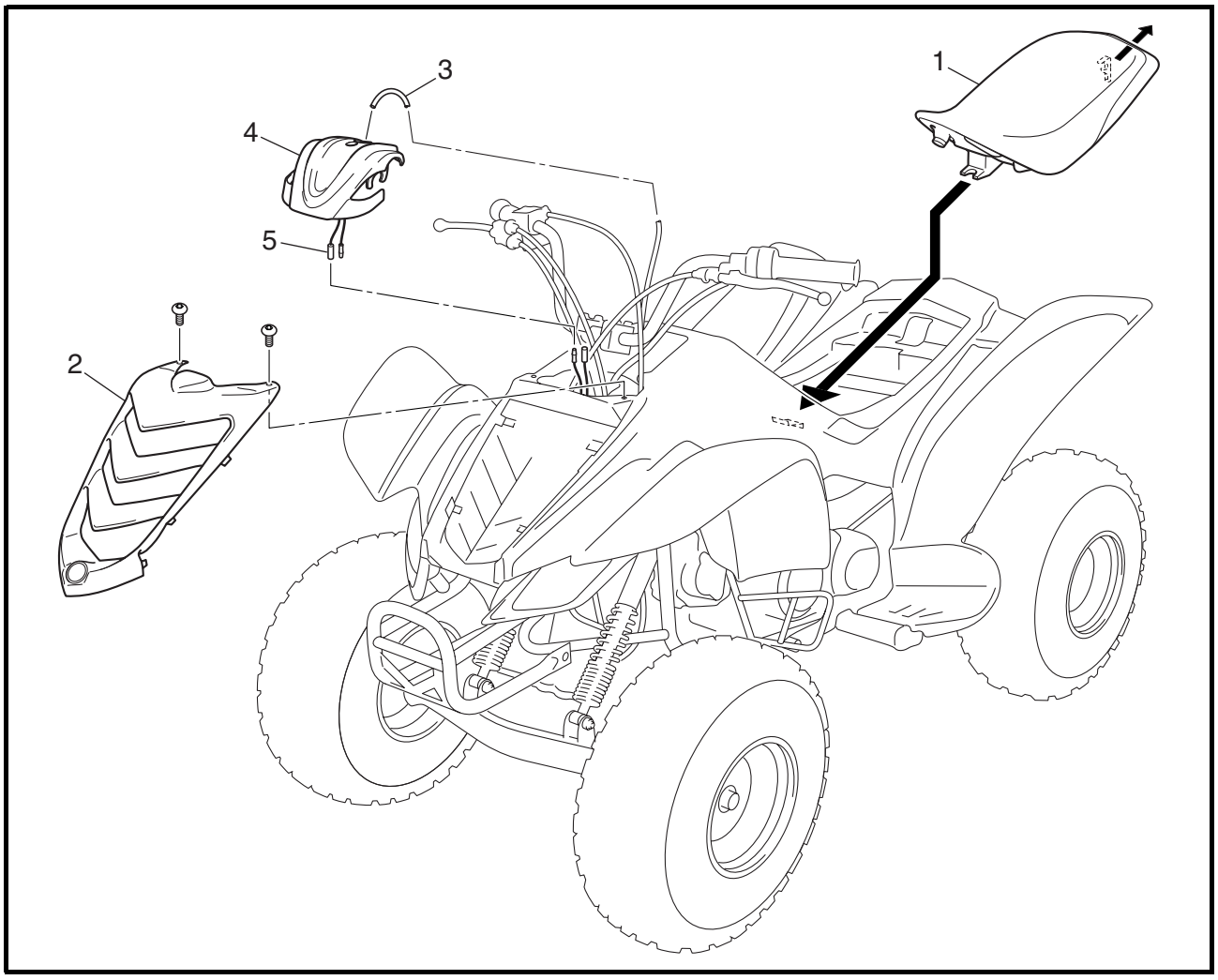
ITEM	ROUTINE	INITIAL			EVERY	
		1 month	3 months	6 months	6 months	1 year
Valves*	• Check valve clearance. • Adjust if necessary.	○		○	○	○
Cam chain*	• Check chain tension. • Adjust if necessary.	○		○	○	○
Spark plug	• Check condition. • Adjust gap and clean. • Replace if necessary.	○	○	○	○	○
Air filter element	• Clean. • Replace if necessary.	Every 20 ~ 40 hours (more often in wet or dusty areas.)				
Carburetor*	• Check idle speed/choke lever operation. • Adjust if necessary.		○	○	○	○
Crankcase breather system*	• Check breather hose for cracks or damage. • Replace if necessary.			○	○	○
Exhaust system*	• Check for leakage. • Retighten if necessary. • Replace gasket if necessary.			○	○	○
Fuel line*	• Check fuel hose for cracks or damage. • Replace if necessary.			○	○	○
Engine oil	• Replace (warm engine before draining).	○		○	○	○
Final gear oil	• Check oil level/oil leakage. • Replace every 12 months.	○				○
Brakes*	• Check operation. • Adjust if necessary.	○	○	○	○	○
Clutch*	• Check operation. • Adjust if necessary.	○		○	○	○
Wheels*	• Check balance/damage/runout. • Replace if necessary.	○		○	○	○
Wheel bearings*	• Check bearing assemblies for looseness/damage. • Replace if damaged.	○		○	○	○
Steering system*	• Check operation. • Repair if damaged. • Check toe-in. • Adjust if necessary.	○	○	○	○	○
Knuckle shafts/ steering shaft*	• Lubricate every 6 months.**			○	○	○
Fittings and fasteners*	• Check all chassis fittings and fasteners. • Correct if necessary.	○	○	○	○	○
Battery*	• Check specific gravity. • Check breather hose for correct routing. • Correct if necessary.	○	○	○	○	○

* It is recommended that these items be serviced by a Yamaha dealer.

** Lithium-soap-based grease.

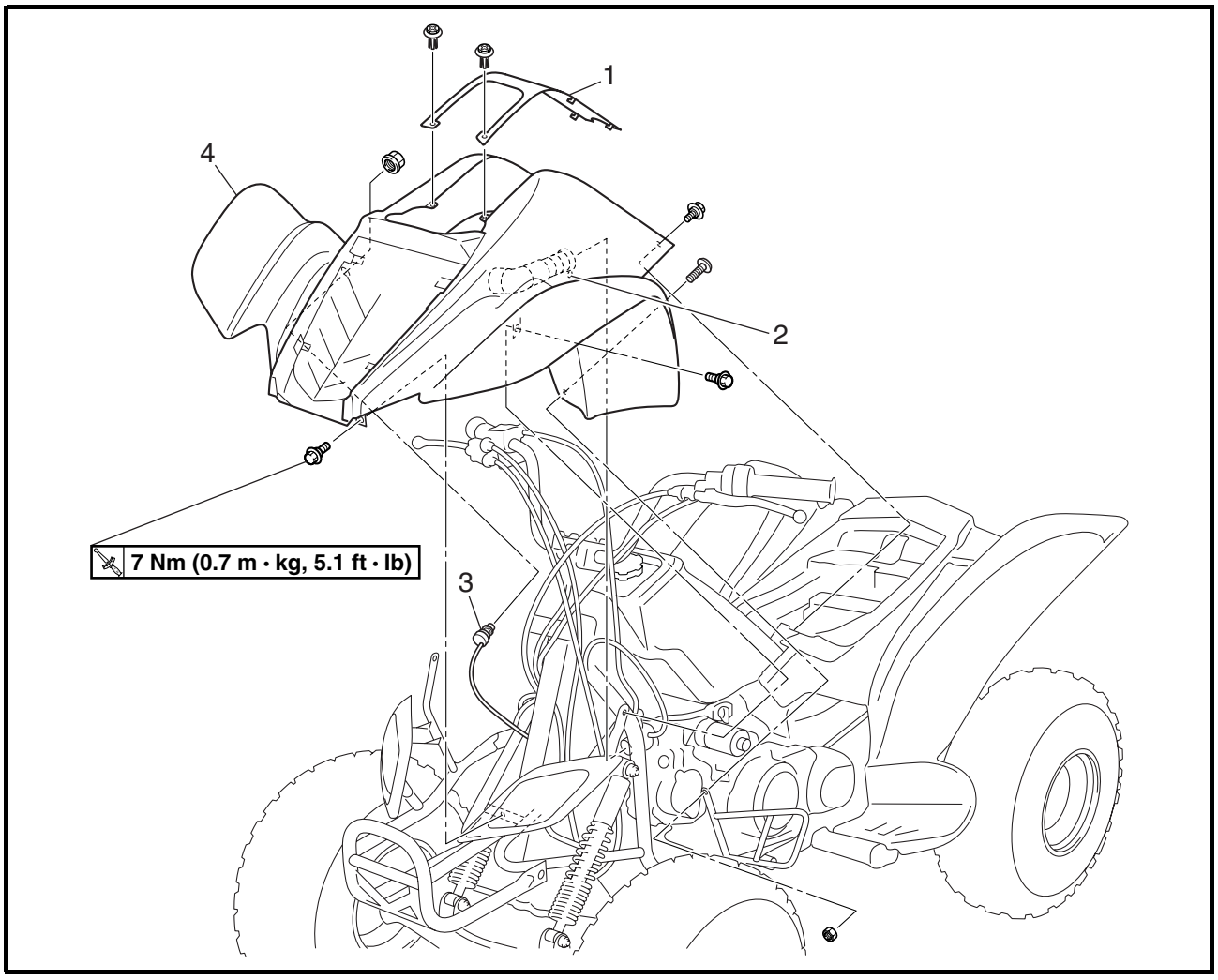
SEAT, FENDERS AND FUEL TANK

SEAT AND FRONT PANEL



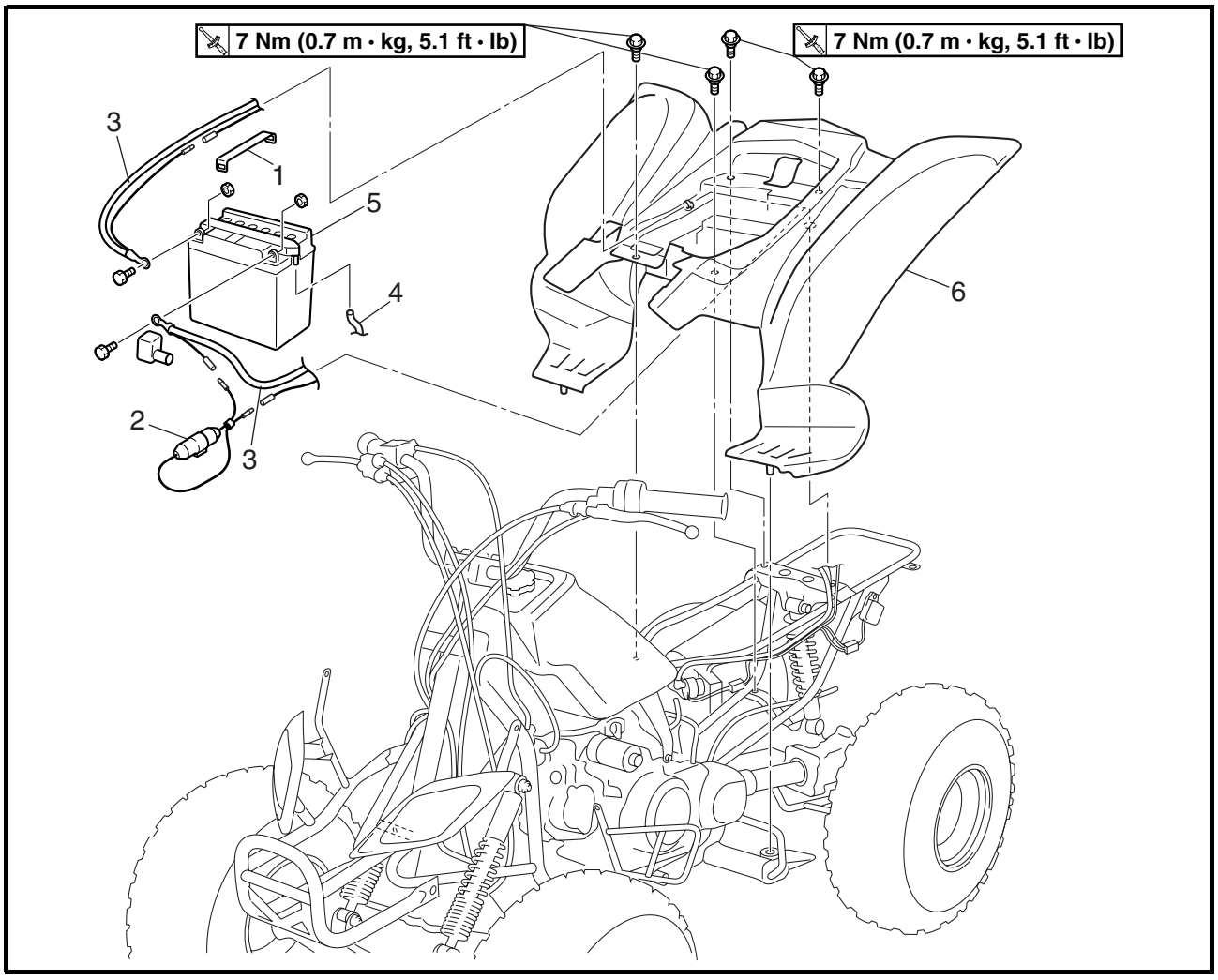
Order	Job name/Part name	Q'ty	Remarks
	Removing the seat and front panel		Remove the parts in the order below.
1	Seat	1	**NOTE:** Pull back the seat lock lever, than pull up on the rear of the seat.
2	Front panel	1	
3	Fuel tank breather hose	1	
4	Handlebar cover	1	
5	Neutral indicator light leads	2	Disconnect For installation, reverse the removal procedure.

FRONT FENDER



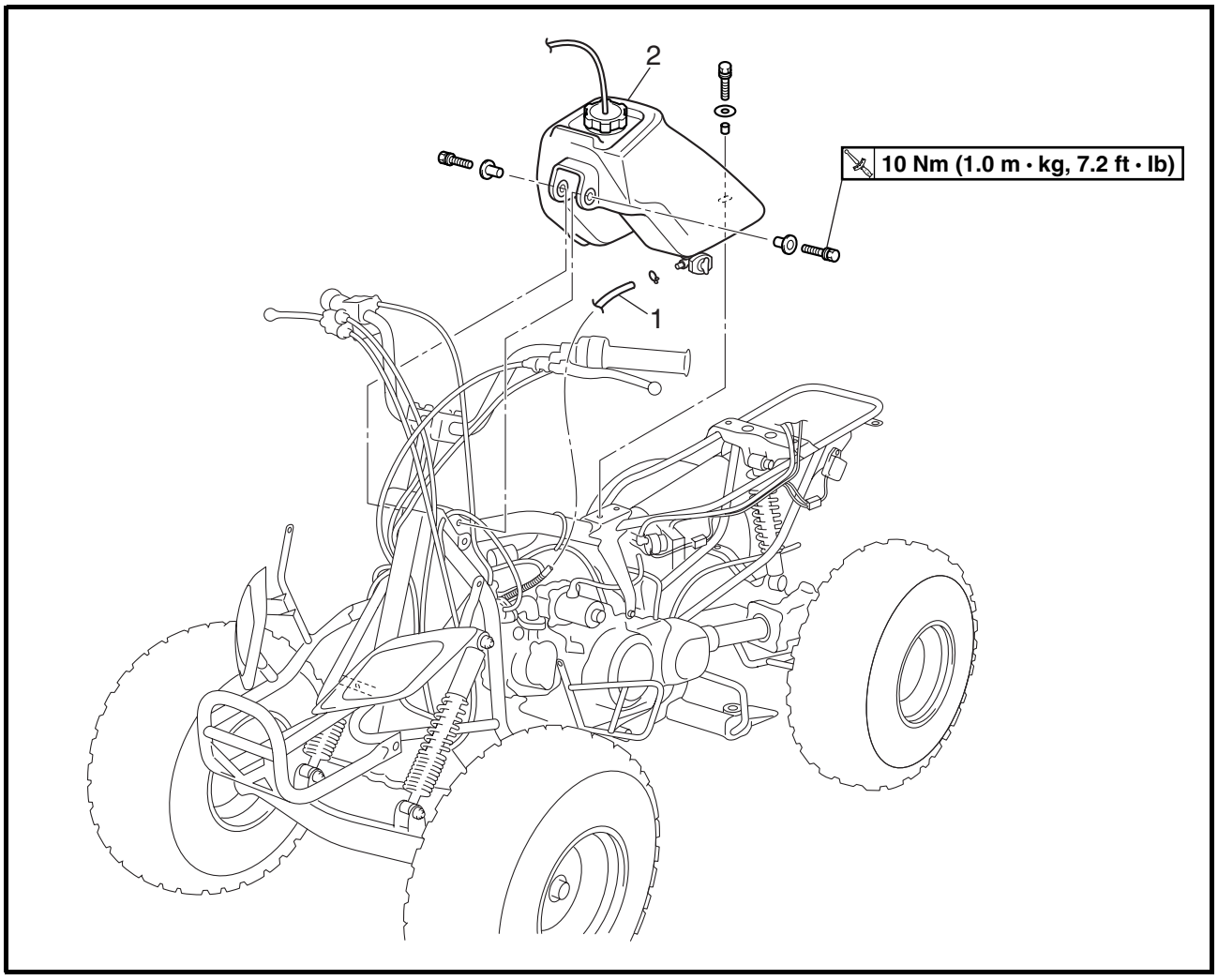
Order	Job name/Part name	Q'ty	Remarks
	Removing the front fender		Remove the parts in the order below.
	Seat and front panel		Refer to "SEAT AND FRONT PANEL".
1	Fuel tank top panel	1	
2	Air cleaner joint clamp screw	1	Loosen
3	Main switch	1	
4	Front fender	1	
			For installation, reverse the removal procedure.

REAR FENDER



Order	Job name/Part name	Q'ty	Remarks
	Removing the rear fender		Remove the parts in the order below.
	Seat		Refer to "SEAT AND FRONT PANEL".
	Front fender		Refer to "FRONT FENDER".
1	Battery band	1	
2	Main fuse	1	
3	Battery lead	2	Disconnect. **CAUTION:** **First disconnect the negative lead, then disconnect the positive lead.**
4	Battery breather hose	1	
5	Battery	1	
6	Rear fender	1	
			For installation, reverse the removal procedure.

FUEL TANK

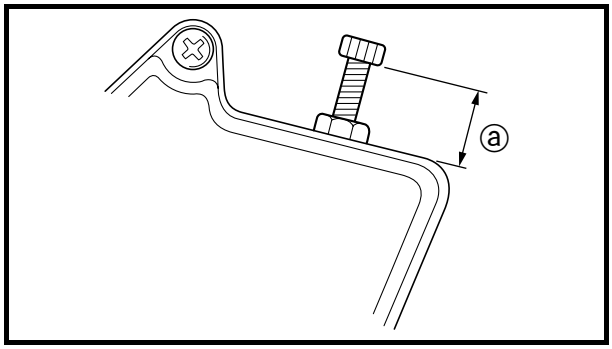


Order	Job name/Part name	Q'ty	Remarks
	Removing the fuel tank		Remove the parts in the order below.
	Seat and front panel		Refer to "SEAT AND FRONT PANEL".
	Front fender		Refer to "FRONT FENDER".
1	Fuel hose	1	**NOTE:** Before disconnecting the fuel hose, turn the fuel cock to "OFF".
2	Fuel tank	1	For installation, reverse the removal procedure.

ENGINE

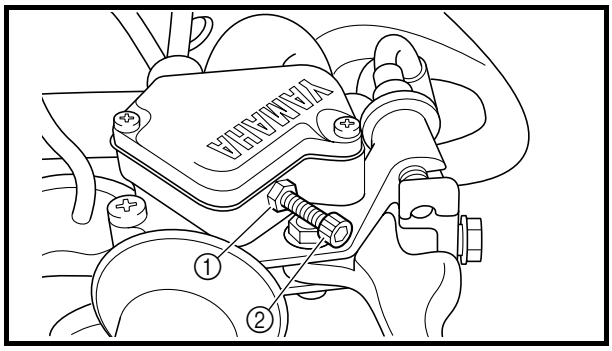
SPEED LIMITER ADJUSTMENT

The speed limiter keeps the carburetor throttle from becoming fully-opened even when the throttle lever is applied to the maximum position. Screwing in the adjuster stops the engine speed from increasing.



1.Check:
- Speed limiter length ⓐ
  Out of specification → Adjust.

	Speed limiter length: **Less than 20 mm (0.8 in)**



2.Adjust:
- Speed limiter length

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Speed limiter length adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② in or out until the specified speed limiter length is obtained.

Turning in	**Speed limiter length is decreased.**
Turning out	**Speed limiter length is increased.**

- Tighten the locknut.

⚠ WARNING

- **Particularly for a beginner rider, the speed limiter should be screwed in completely. Screw it out little by little as their riding technique improves. Never remove the speed limiter for a beginning rider.**
- **For proper throttle lever operation do not turn out the adjuster more than 20 mm (0.8 in). Also, always adjust the throttle lever free play to 3 ~ 5 mm (0.12 ~ 0.20 in).**

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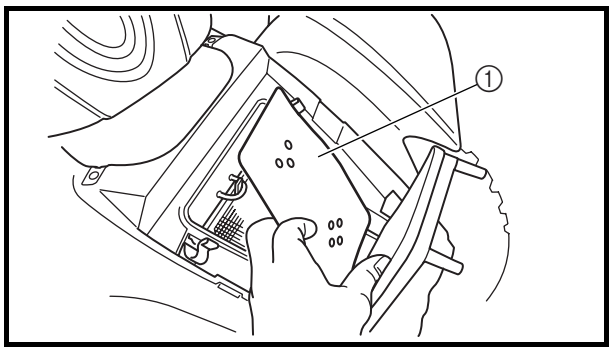
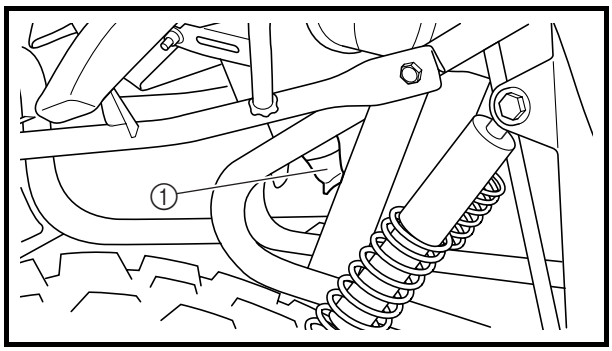


- Air intake restrictor plate removal
  Refer to “AIR FILTER CLEANING”.

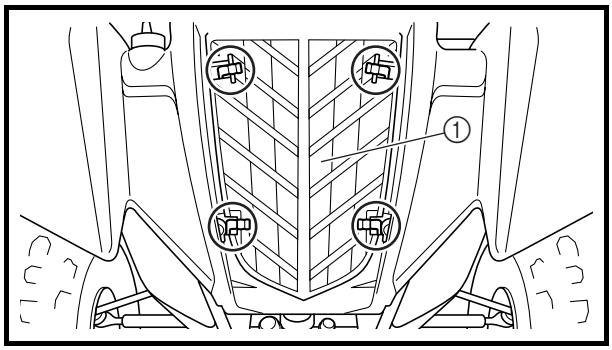
NOTE:
To obtain full engine performance capability, removing the air intake restrictor plate ① is required. Since removal of this plate will result in a significant increase in power, turn the speed limiter completely back in again.



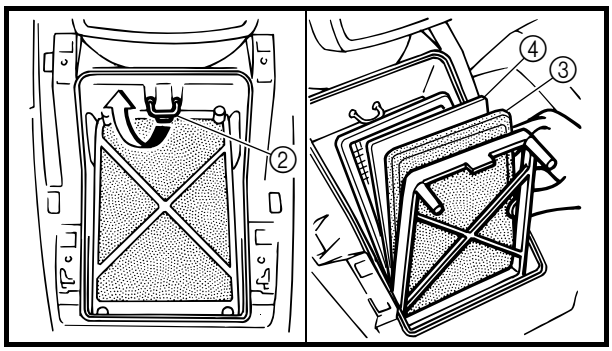
AIR FILTER CLEANING

NOTE:
There is check hose ① at the bottom of the air filter case. If dust and/or water collects in this hose, clean the air filter element and air filter case.

1.Remove:
- Front panel
  Refer to “SEAT, FENDERS AND FUEL TANK”.



2.Remove:
- Air filter cover ①



3.Remove:
- Rubber band ②

4.Pull out the air filter element assembly.

5.Remove:
- Guide
- Air filter element ③
- Air intake restrictor plate ④

CAUTION:
The engine should never be run without the air filter element; excessive piston and/or cylinder wear may result.

6.Check:
• Air filter element
Damage → Replace.

7.Clean:
• Air filter element

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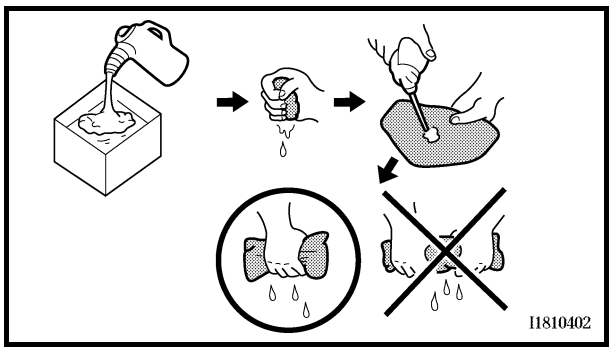
Cleaning steps:

● Wash the element gently, but thoroughly in solvent.

⚠ WARNING

Never use low flash point solvents such as gasoline to clean the air filter element. Such solvent may lead to a fire or explosion.



● Squeeze the excess solvent out of the element and let dry.

CAUTION:

Do not twist the filter element when squeezing the filter element.

● Apply the engine oil.
● Squeeze out the excess oil.

NOTE:

The element should be wet but not dripping.

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8.Install:
• Air filter element

NOTE:

Make sure its sealing surface matches the sealing surface of the case so there is no air leak.