YAMAHA

YFM660FS

5KM2-AE3

SUPPLEMENTARY SERVICE MANUAL

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and data for the YFM660FS. For complete service information procedures it is necessary to use this Supplementary Service Manual together with the following manual.

YFM660F(P) 2002 SERVICE MANUAL: 5KM2-AE1
YFM660FR SUPPLEMENTARY SERVICE MANUAL: 5KM2-AE2

YFM660FS
SUPPLEMENTARY
SERVICE MANUAL

First edition, April 2003

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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.

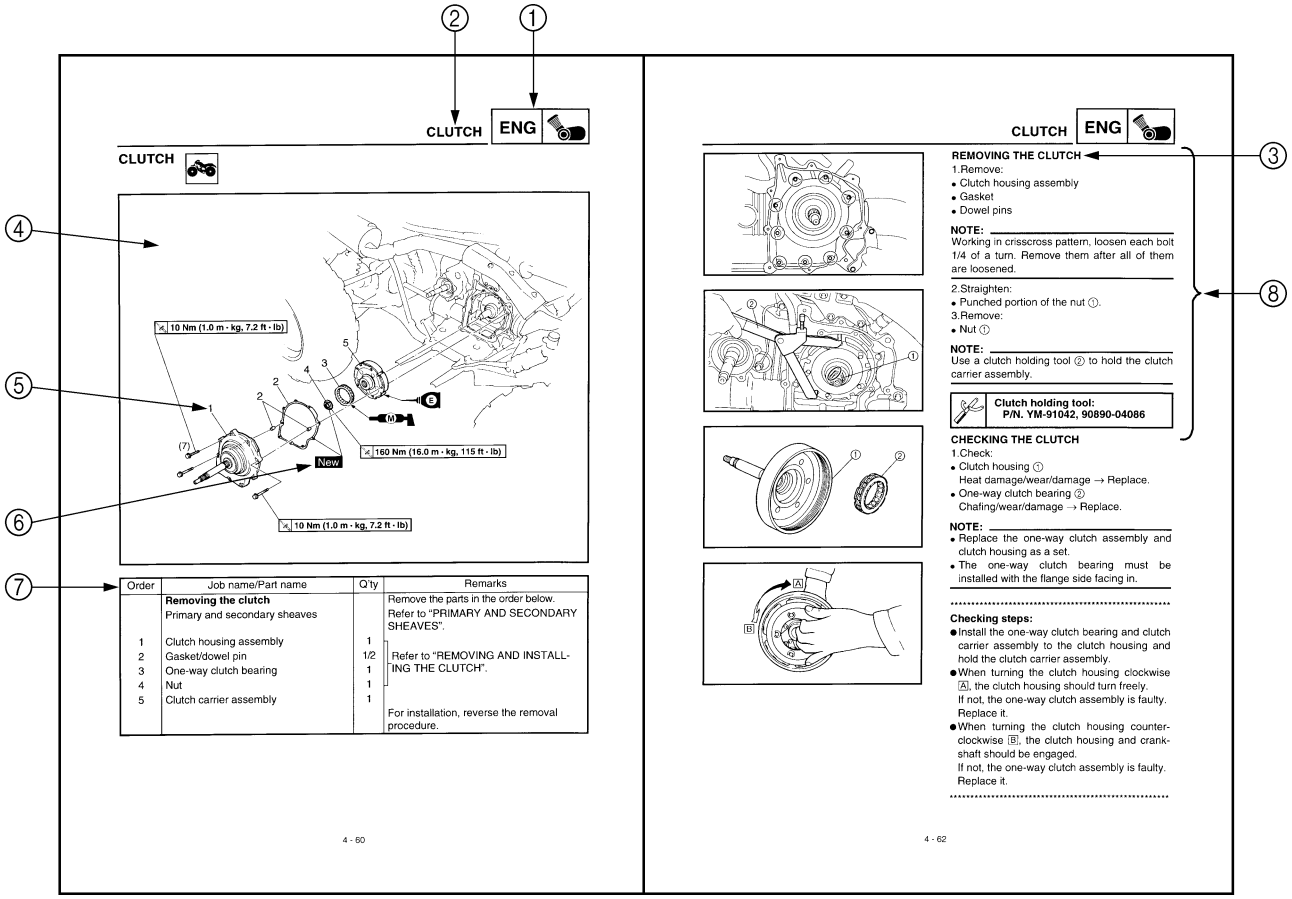
2nd title ②: This title indicates the section of the chapter and only appears on the first page of each section. It is located in the upper left corner of the page.

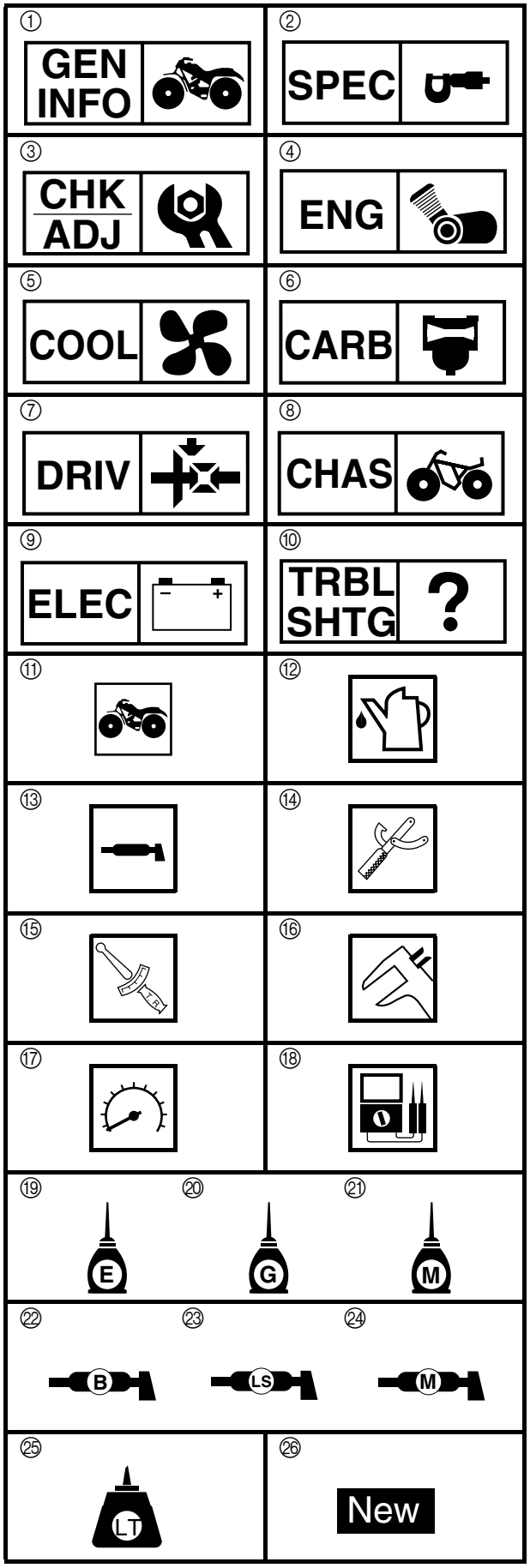
3rd title ③: This title indicates a sub-section that is followed by step-by-step procedures accompanied by corresponding illustrations.

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 ⑩ 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 Cooling system
⑥ Carburetion
⑦ Drive train
⑧ Chassis
⑨ Electrical
⑩ Troubleshooting

Illustrated symbols ⑪ to ⑱ are used to identify the specifications appearing in the text.

⑪ Can be serviced with engine mounted
⑫ Filling fluid
⑬ Lubricant
⑭ Special tool
⑮ Torque
⑯ Wear limit, clearance
⑰ Engine speed
⑱ Ω, V, A

Illustrated symbols ⑲ to ㉔ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑲ Apply engine oil
⑳ Apply gear oil
㉑ Apply molybdenum disulfide oil
㉒ Apply wheel bearing grease
㉓ Apply lightweight lithium-soap-based grease
㉔ Apply molybdenum disulfide grease

Illustrated symbols ㉕ to ㉖ in the exploded diagrams indicate where to apply a locking agent ㉕ and when to install a new part ㉖.

㉕ Apply the locking agent (LOCTITE®)
㉖ Replace

CONTENTS

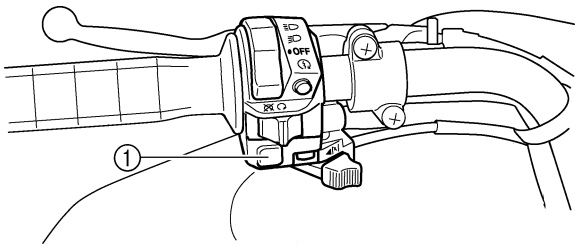
GENERAL INFORMATION

FEATURES

OVERRIDE SWITCH
(DEACTIVATING THE SPEED LIMITER WHEN THE DIFFERENTIAL IS LOCKED)

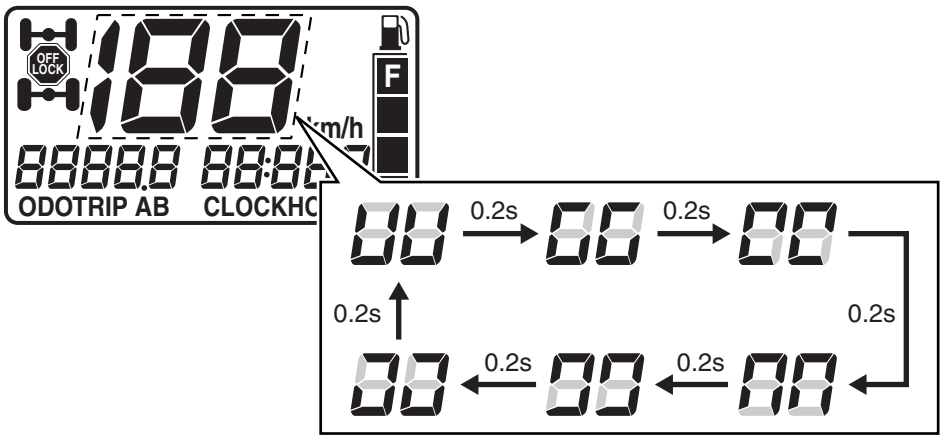
This model is equipped with a speed limiter system (35 km/h [22 mph]) that operates when the differential is locked and the ATV is traveling forward. If additional engine power is required (e.g., to free the ATV from mud) when the ATV is traveling forward and the differential is locked, the speed limiter can be temporarily deactivated by pressing the override switch.

NOTE:
The speed limiter is deactivated only while the override switch is being pressed.



① Override switch

When the override switch is pressed, the segments of the speedometer digits are displayed as follows.



NOTE:
- When the front differential gear is locked and the drive select lever is in the “L”, “H”, “N”, or “P” position, the display changes when the override switch is pressed. (The speedometer display is not displayed at this time.)
- When the front differential gear is not locked or the drive select lever is in the “R” position, the display does not change even if the override switch is pressed.

CAUTION:

If the segments of the speedometer digits show the override display when the override switch is not pressed, the speed limiter system is malfunctioning. Check the override switch and ignition system, and then repair if necessary.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item		Standard
Model code:		5KMJ/5KMR (for CDN) 5KMK/5KMS (for Europe) 5KML (for Oceania)
Transmission:		
Primary reduction system		V-belt
Secondary reduction system		Shaft drive
Secondary reduction ratio		41/21 × 24/18 × 33/9 (9.544)
Transmission type		V-belt automatic
Operation		Left hand operation
Single speed automatic		2.45 ~ 0.70 : 1
Sub transmission ratio	low	35/17 (2.058)
	high	26/21 (1.238)
Reverse gear		25/17 (1.471)

MAINTENANCE SPECIFICATIONS

ENGINE

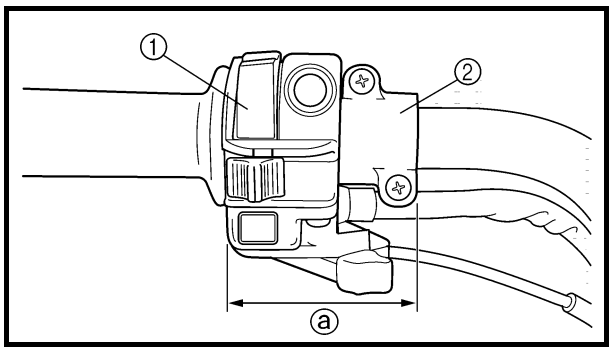
Item		Standard	Limit
Carburetor:			
I. D. mark		5KMA 10	----
Main jet	(M.J)	#153.8	----
Main air jet	(M.A.J)	#70	----
Jet needle	(J.N)	6JPH9-53-2	----
Needle jet	(N.J)	O-0M	----
Pilot air jet	(P.A.J.1)	#60	----
Pilot air jet	(P.A.J.2)	1.5	----
Pilot outlet	(P.O)	1.1	----
Pilot jet	(P.J)	#40	----
Pilot screw	(P.S)	3 turns out	----
Bypass 1	(B.P.1)	0.8	----
Bypass 2	(B.P.2)	0.8	----
Bypass 3	(B.P.3)	0.8	----
Valve seat size	(V.S)	3.0	----
Starter jet	(G.S.1)	#55	----
Starter jet	(G.S.2)	0.8	----
Throttle valve size	(Th.V)	#105	----
Float height	(F.H)	13 mm (0.51 in)	----
Fuel level	(F.L)	4.5 mm (0.18 in)	----
Engine idle speed		1,450 ~ 1,550 r/min	----
Intake vacuum		30.7 ~ 33.3 kPa (230 ~ 250 mmHg, 9.07 ~ 9.83 inHg)	----

CHASSIS

Item		Standard	Limit
Front suspension:			
Shock absorber travel		86 mm (3.39 in)	----
Fork spring free length		296.5 mm (11.67 in) (for CDN)	290.6 mm (11.44 in)
		307.0 mm (12.09 in) (for Europe and Oceania)	300.9 mm (11.85 in)
Spring fitting length		237 mm (9.33 in)	----
Spring rate	(K1)	20 N/mm (2.04 kg/mm, 114.2 lb/in)	----
Stroke	(K1)	0 ~ 86 mm (0 ~ 3.39 in)	----
Optional spring		No	----
Rear suspension:			
Shock absorber travel		95 mm (3.74 in)	----
Spring free length		278.5 mm (10.96 in) (for CDN)	----
		285.5 mm (11.24 in) (for Europe and Oceania)	----
Spring fitting length		237 mm (9.33 in)	----
Spring rate	(K1)	36.4 N/mm (3.71 kg/mm, 207.84 lb/in)	----
Stroke	(K1)	0 ~ 95 mm (0 ~ 3.74 in)	----
Optional spring		No	----

ELECTRICAL

Item	Standard	Limit
C.D.I.:		
Magneto model/manufacturer	F4T469/MITSUBISHI	----
Pickup coil resistance/color	459 ~ 561 Ω at 20 °C (68 °F)/ White/Red – White/Green	----
Rotor rotation direction sensing coil resistance/color	0.063 ~ 0.077 Ω at 20 °C (68 °F)/ Red – White/Blue	----
C.D.I. unit model/manufacturer	F8T40372/MITSUBISHI	----
Charging system:		
Type	A.C. magneto generator	----
Model/manufacturer	F4T469/MITSUBISHI	----
Nominal output	14 V 21 A at 5,000 r/min	----
Charging coil resistance/color	0.32 ~ 0.43 Ω at 20 °C (68 °F)/ White – White	----



CHASSIS

STEERING SYSTEM

INSTALLING THE REAR BRAKE LEVER

1.Install:
- Handlebar switch ①
- Rear brake lever
- Lever bracket ②

NOTE:
Install the lever bracket as shown.

ⓐ 74.5 mm (2.9 in)

ELECTRICAL

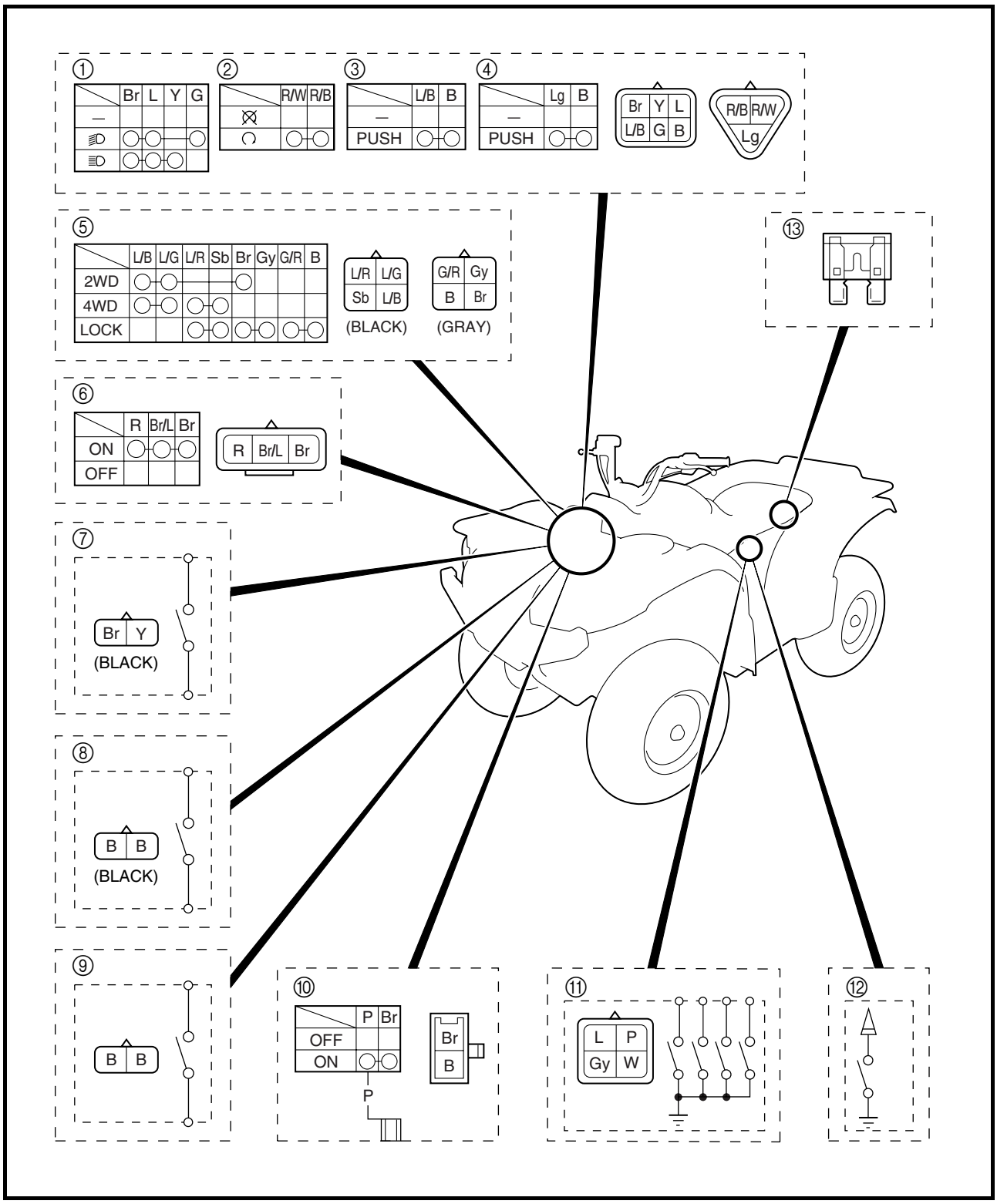
CHECKING THE SWITCH

CHECKING THE SWITCH CONTINUITY

Refer to “CHECKING THE SWITCH” in CHAPTER 9 (Manual No.: 5KM2-AE1) and check for continuity between lead terminals.

Poor connection, no continuity → Correct or replace.

* The coupler locations are circled.



① Light switch
② Engine stop switch
③ Start switch
④ Override switch
⑤ On-command four-wheel drive switch and differential gear lock switch
⑥ Main switch
⑦ Rear brake light switch
⑧ Front brake light switch
⑨ Rear brake switch
⑩ Horn switch (for Europe and Oceania)
⑪ Gear position switch
⑫ Reverse switch
⑬ Fuse

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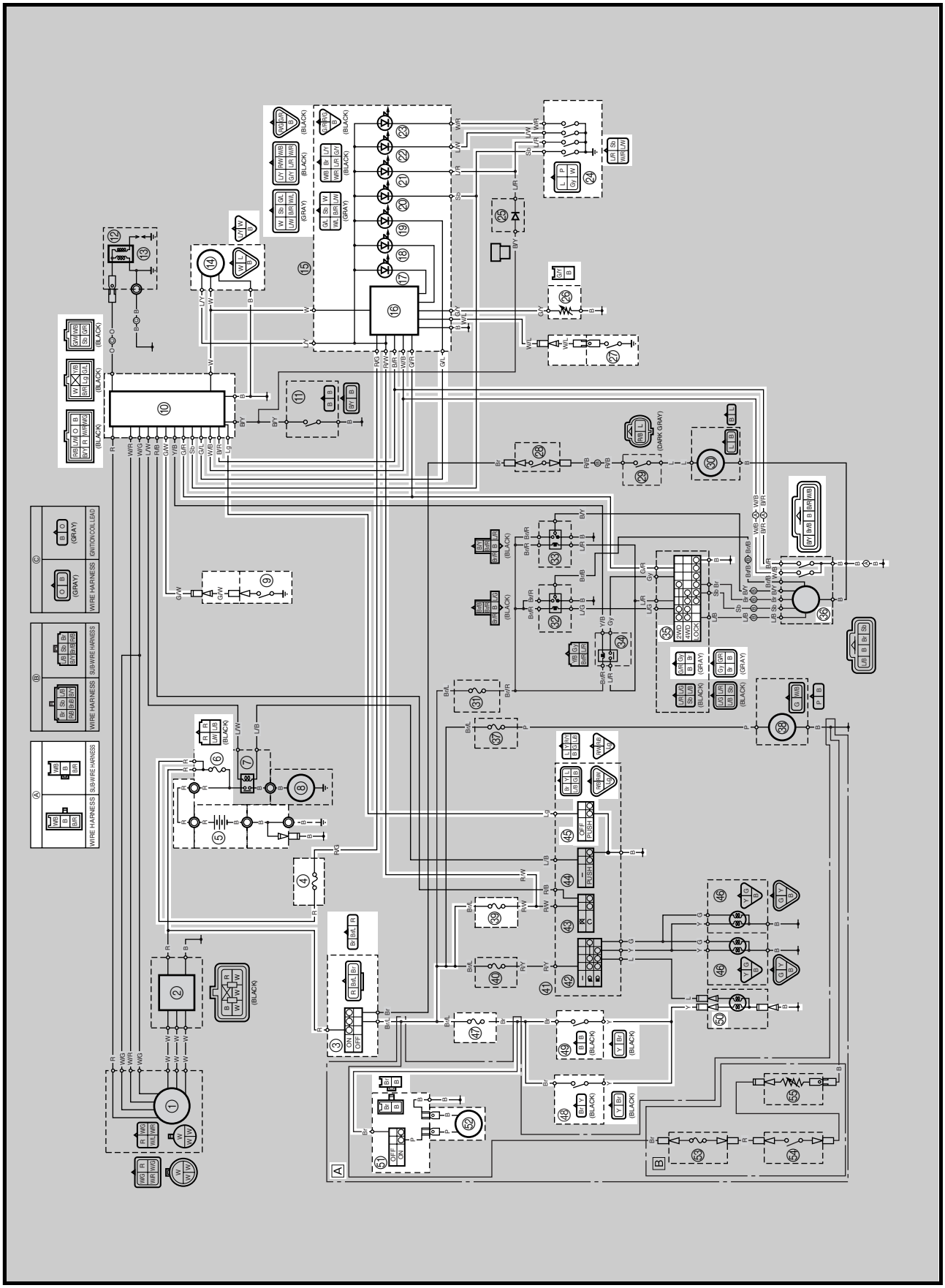
SIGNAL SYSTEM

CIRCUIT DIAGRAM



③ Main switch
④ Backup fuse
⑤ Battery
⑥ Main fuse
⑨ Reverse switch
⑩ CDI unit
⑭ Speed sensor
⑯ Multi-function meter
⑰ Differential gear lock indicator light
⑱ Coolant temperature indicator light
⑲ Reverse indicator light
⑳ Neutral indicator light
㉑ Park indicator light
㉒ High-range indicator light
㉓ Low-range indicator light
㉔ Gear position switch
㉖ Fuel sender
㉗ Thermo switch 1
㉟ On-command four-wheel drive switch and differential gear lock switch
㊱ Gear motor
㊴ Ignition fuse
㊺ Override switch
㊼ Signaling system fuse
㊽ Rear brake light switch
㊾ Front brake light switch
㊿ Tail/brake light
(51) Horn switch
(52) Horn

[A] For Europe and Oceania

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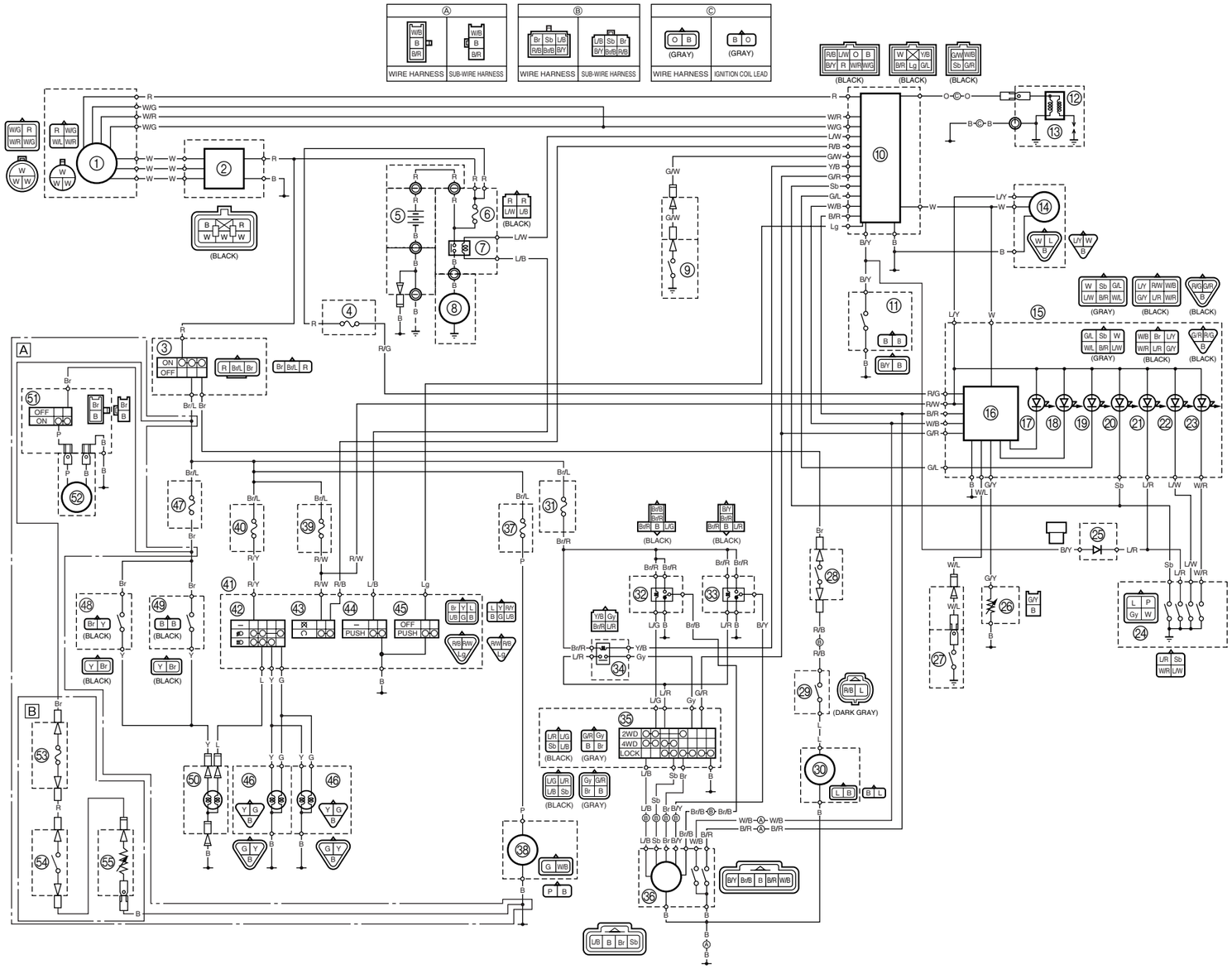
YFM660FS WIRING DIAGRAM



① AC magneto
② Rectifier/regulator
③ Main switch
④ Backup fuse
⑤ Battery
⑥ Main fuse
⑦ Starter relay
⑧ Starter motor
⑨ Reverse switch
⑩ CDI unit
⑪ Rear brake switch
⑫ Ignition coil
⑬ Spark plug
⑭ Speed sensor
⑮ Meter assembly
⑯ Multi-function meter
⑰ Differential gear lock indicator light
⑱ Coolant temperature indicator light
⑲ Reverse indicator light
⑳ Neutral indicator light
㉑ Park indicator light
㉒ High-range indicator light
㉓ Low-range indicator light
㉔ Gear position switch
㉕ Diode
㉖ Fuel sender
㉗ Thermo switch 1
㉘ Circuit breaker (fan motor)
㉙ Thermo switch 2
㉚ Fan motor
㉛ Four-wheel drive fuse
㉜ Four-wheel drive relay 1
㉝ Four-wheel drive relay 2
㉞ Four-wheel drive relay 3
㉟ On-command four-wheel drive switch and differential gear lock switch
㊱ Gear motor
㊲ Auxiliary DC jack fuse
㊳ Auxiliary DC jack
㊴ Ignition fuse
㊵ Headlight fuse
㊶ Handlebar switch (left)
㊷ Light switch
㊸ Engine stop switch
㊹ Start switch
㊺ Override switch
㊻ Headlight
㊼ Signaling system fuse
㊽ Rear brake light switch
㊾ Front brake light switch
㊿ Tail/brake light
(51) Horn switch
(52) Horn
(53) Carburetor heater fuse
(54) Thermoswitch
(55) Carburetor heater

[A] For Europe and Oceania
[B] Option

COLOR CODE

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