



YAMAHA

2022

SERVICE MANUAL

R7

**YZF690
YZF690-U**

BEB-28197-E0

IMPORTANT

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. Therefore, 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. Please refer to "BASIC INFORMATION" (separate volume, Y0A-28197-E0*) for basic instructions that must be observed during servicing.

Repair and maintenance work attempted by anyone without this knowledge is likely to render the vehicle unsafe and unfit for use.




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.

TIP

- * If the contents of the manual are revised, the last digit of the manual number will be increased by one.
- This Service Manual contains information regarding periodic maintenance to the emission control system. Please read this material carefully.
- Designs and specifications are subject to change without notice.

IMPORTANT MANUAL INFORMATION

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

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	A NOTICE indicates special precautions that must be taken to avoid damage to the vehicle or other property.
TIP	A TIP provides key information to make procedures easier or clearer.

YZF690/YZF690-U
SERVICE MANUAL
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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.

- The manual is divided into chapters and each chapter is divided into sections. The current section title "1" is shown at the top of each page.
- Sub-section titles "2" appear in smaller print than the section title.
- To help identify parts and clarify procedure steps, there are exploded diagrams "3" at the start of each removal and disassembly section.
- Numbers "4" are given in the order of the jobs in the exploded diagram. A number indicates a disassembly step.
- Symbols "5" indicate parts to be lubricated or replaced. Refer to "SYMBOLS".
- A job instruction chart "6" accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc. This step explains removal and disassembly procedure only. For installation and assembly procedure, reverse the steps.
- Jobs "7" requiring more information (such as special tools and technical data) are described sequentially.

1
↓
CLUTCH

CLUTCH

Removing the clutch cover

3

4

5

6

Order	Job/Parts to remove	Q'ty	Remarks
	Front side cowling assembly/Bottom cowling		Refer to "GENERAL CHASSIS (5)" on page 4-8.
	Engine oil		Drain. Refer to "CHANGING THE ENGINE OIL" on page 3-25.
	Coolant		Drain. Refer to "CHANGING THE COOLANT" on page 3-29.
1	Water pump breather hose	1	Disconnect.
2	Clutch cable	1	Disconnect.
3	Pull lever	1	
4	Pull lever spring	1	
5	Clutch cover	1	
6	Clutch cover gasket	1	
7	Dowel pin	2	

5-46

CLUTCH

REMOVING THE CLUTCH

1. Remove:

- Oil strainer
- Water pump
- Friction plates
- Clutch plates

TIP

Be sure to mark the friction plates and clutch plates or note the position of each part so that they are installed in their original positions.

2. Straighten the clutch boss nut rib "a".

3. Loosen:

- Clutch boss nut "1"

TIP

While holding the clutch boss "2" with the universal clutch holder "3", loosen the clutch boss nut.

Universal clutch holder
90899-0A085

Universal clutch holder
YM-91042

4. Remove:

- Spacer "1"
- Bearing
- Clutch housing "2"
- Oil pump drive chain

TIP

Remove the spacer and bearing from the main axle, then remove the oil pump drive chain from the oil pump driven sprocket, and then remove the clutch housing and oil pump drive chain from the main axle.

CHECKING THE FRICTION PLATES

The following procedure applies to all of the friction plates.

1. Check:

- Friction plate
- Damage/wear → Replace the friction plates as a set.

2. Measure:

- Friction plate thickness
- Out of specification → Replace the friction plates as a set.

TIP

Measure the friction plate at four places.

Friction plate thickness
2.92-3.38 mm (0.115-0.121 in)

Wear limit
2.80 mm (0.110 in)

CHECKING THE CLUTCH PLATES

The following procedure applies to all of the clutch plates.

5-50

EAS20005

SYMBOLS

The following symbols are used in this manual for easier understanding.

TIP

The following symbols are not relevant to every vehicle.



















SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Serviceable with engine mounted		Gear oil
	Filling fluid		Molybdenum disulfide oil
	Lubricant		Brake fluid
	Special tool		Wheel bearing grease
	Tightening torque		Lithium-soap-based grease
	Wear limit, clearance		Molybdenum disulfide grease
	Engine speed		Silicone grease
	Electrical data		Apply locking agent (LOCTITE®).
	Engine oil		Replace the part with a new one.

TABLE OF CONTENTS

GENERAL INFORMATION	1
SPECIFICATIONS	2
PERIODIC CHECKS AND ADJUSTMENTS	3
CHASSIS	4
ENGINE	5
COOLING SYSTEM	6
FUEL SYSTEM	7
ELECTRICAL SYSTEM	8
SELF DIAGNOSTIC	9

GENERAL INFORMATION

IDENTIFICATION	1-1
VEHICLE IDENTIFICATION NUMBER	1-1
MODEL LABEL.....	1-1
 FEATURES	 1-2
MULTI-FUNCTION METER UNIT	1-2
 SPECIAL TOOLS	 1-7

IDENTIFICATION

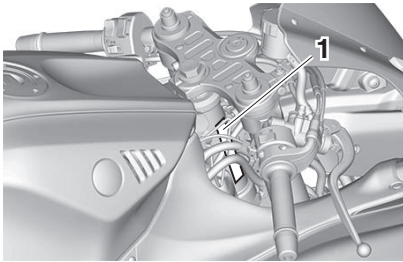
EAS20007

IDENTIFICATION

EAS30002

VEHICLE IDENTIFICATION NUMBER

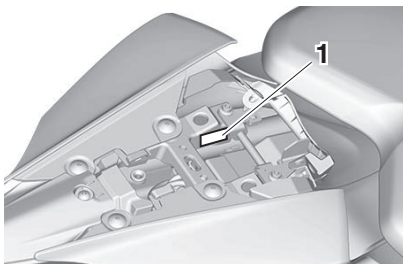
The vehicle identification number “1” is stamped into the right side of the steering head pipe.



EAS30003

MODEL LABEL

The model label “1” is affixed to the frame under the passenger seat. This information will be needed to order spare parts.



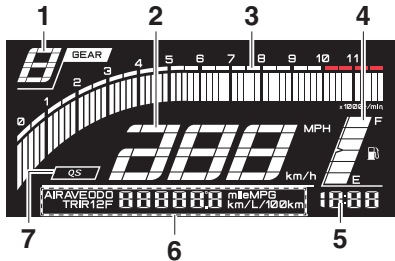
FEATURES

EAS20008

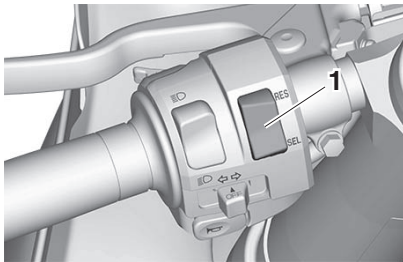
FEATURES

EAS30982

MULTI-FUNCTION METER UNIT



1. Transmission gear display
2. Speedometer
3. Tachometer
4. Fuel meter
5. Clock
6. Multi-function display
7. Quick shift indicator "QS" (if equipped)



1. "SEL/RES" switch

The multi-function meter unit is also equipped with a display brightness and shift timing indicator light settings mode.

EWA12423

WARNING

Be sure to stop the vehicle before making any setting changes to the multi-function meter unit. Changing settings while riding can distract the operator and increase the risk of an accident.

TIP

The multi-function meter is controlled using the "SEL/RES" switch.

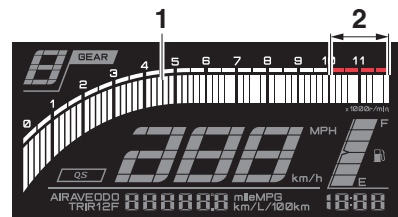
Switching the display units

The display units can be switched between kilometers and miles. To switch the display units, set the multi-function display to the odometer or a tripmeter, and then hold the "SEL" switch until the display units change.

Speedometer

The speedometer shows the vehicle's traveling speed.

Tachometer



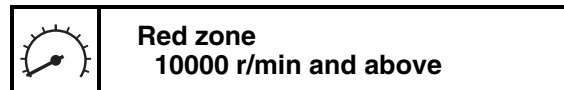
1. Tachometer
2. Tachometer red zone

The tachometer allows the rider to monitor the engine speed and keep it within the ideal power range.

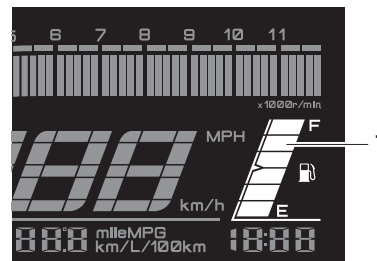
ECA19660

NOTICE

Do not operate the engine in the tachometer red zone.



Fuel meter



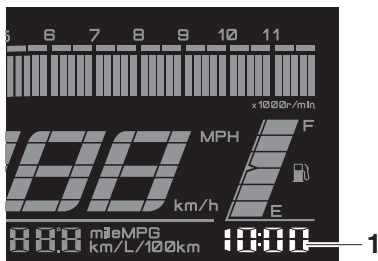
1. Fuel meter

The fuel meter indicates the amount of fuel in the fuel tank. The display segments of the fuel meter disappear from “F” (full) towards “E” (empty) as the fuel level decreases. When approximately 2.5 L (0.66 US gal, 0.55 Imp.gal) of fuel remains, the last segment starts flashing. Refuel as soon as possible.

TIP

If a problem is detected in the electrical circuit, the fuel level segments will flash repeatedly. Refer to “SIGNALING SYSTEM” on page 8-21.

Clock



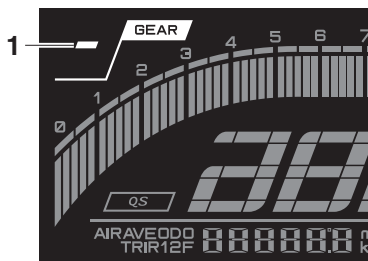
1. Clock

The clock uses a 12-hour time system.

To set the clock

1. Turn the vehicle off.
2. While holding the “RES” switch, turn the vehicle on. Continue holding the “RES” switch until the hour digits start flashing.
3. Use the “SEL” switch to set the hours.
4. Push the “RES” switch and the minute digits start flashing.
5. Use the “SEL” switch to set the minutes.
6. Push the “RES” switch to confirm the setting.

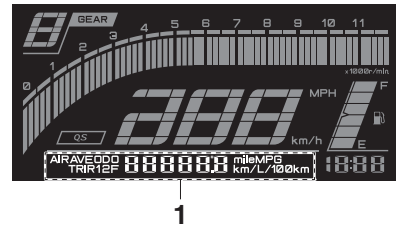
Transmission gear display



1. Transmission gear display

This display shows the selected gear. The neutral position is indicated by “-” and by the neutral indicator light.

Multi-function display



1. Multi-function display

The multi-function display is equipped with the following:

- an odometer (ODO)
- two tripmeters (TRIP 1 and TRIP 2)
- a fuel reserve tripmeter (TRIP F)
- an instantaneous fuel consumption display (km/L, L/100 km, or MPG)
- an average fuel consumption display (AVE_ _ _ km/L, AVE_ _ _ L/100 km, or AVE_ _ _ MPG)
- a coolant temperature display (_ _ °C)
- an air temperature display (Air_ _ °C)

Push the “SEL” switch to change the display in the following order:

ODO → TRIP 1 → TRIP 2 → TRIP F → km/L or L/100 km or MPG → AVE_ _ _ km/L or AVE_ _ _ L/100 km or AVE_ _ _ MPG → _ _ °C → Air_ _ °C → ODO

TIP

- The fuel reserve tripmeter appears only when you are low on fuel.
- Use the “RES” switch to change the display in the reverse order.

Odometer

The odometer shows the total distance traveled by the vehicle.

TIP

The odometer will lock at 999999 and cannot be reset.

Tripmeters

The tripmeters show the distance traveled since they were last reset.

To reset a tripmeter, change the display to the tripmeter you want to reset, and then hold the “RES” switch until it is reset.

FEATURES

TIP

The tripmeters will reset and continue counting after 9999.9 is reached.

Fuel reserve tripmeter

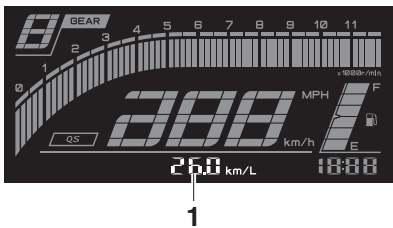
If the last segment of the fuel meter starts flashing, the display automatically changes to the fuel reserve tripmeter “TRIP F” and starts counting the distance traveled from that point.

To reset the fuel reserve tripmeter, change the display to the fuel reserve tripmeter, and then hold the “RES” switch until it is reset.

TIP

If you do not reset the fuel reserve tripmeter manually, it will reset automatically and disappear from the display after refueling and traveling 5 km (3 mi).

Instantaneous fuel consumption display



1. Instantaneous fuel consumption display

This display shows the fuel consumption under the current riding conditions. It can be set to either “km/L” or “L/100 km”, or “MPG” when using miles. To switch the fuel consumption measurement units, hold the “SEL” switch until the measurement units change.

- “km/L”: the distance that can be traveled on 1.0 L of fuel.
- “L/100 km”: the amount of fuel necessary to travel 100 km.
- “MPG”: the distance that can be traveled on 1.0 Imp.gal of fuel.

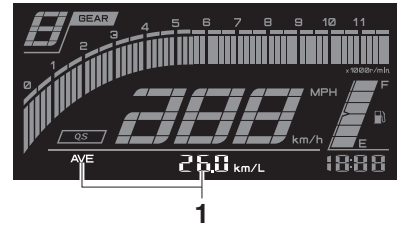
TIP

When traveling under 10 km/h (6 mi/h), “—.—” is displayed.

TIP

The instantaneous fuel consumption function should be used for general reference only. Do not use this figure to estimate the distance that can be traveled on the current tank of fuel.

Average fuel consumption display



1. Average fuel consumption display

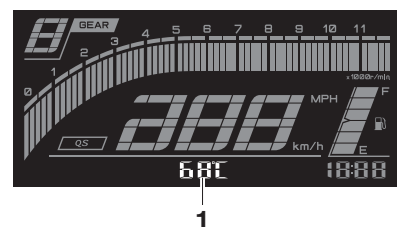
This display shows the average fuel consumption since it was last reset. The average fuel consumption display can be set to either “AVE_ _ _ km/L” or “AVE_ _ _ L/100 km”, or “AVE_ _ _ MPG” when using miles. To switch the fuel consumption measurement units, hold the “SEL” switch until the measurement units change.

- “AVE_ _ _ km/L”: the average distance that can be traveled on 1.0 L of fuel.
- “AVE_ _ _ L/100 km”: the average amount of fuel necessary to travel 100 km.
- “AVE_ _ _ MPG”: the average distance that can be traveled on 1.0 Imp.gal of fuel.

TIP

- To reset the display, change the display to the average fuel consumption display, and hold the “RES” switch until it is reset.
- After resetting, “—.—” is shown until the vehicle has traveled some distance.

Coolant temperature display



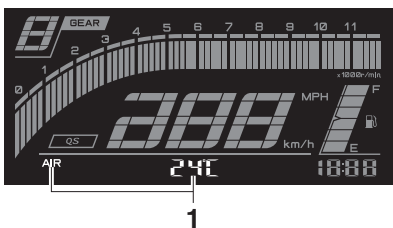
1. Coolant temperature display

This display shows the coolant temperature from 40 °C to 116 °C in 1 °C increments. If the message “HI” flashes, stop the vehicle, then stop the engine, and let it cool.

TIP

- When the coolant temperature is below 40 °C, “Lo” will be displayed.
- The coolant temperature varies with changes in the weather and engine load.

Air temperature display



1. Air temperature display

This display shows the air temperature from -9 °C to 50 °C in 1 °C increments. The temperature displayed may vary from the actual ambient temperature.

TIP

When the temperature is below -9 °C, “_ _” will be displayed.

Display brightness and shift timing indicator light settings mode

The following settings can be adjusted in order:

- Display brightness
- Shift timing indicator light ON / FLASH / OFF
- Shift timing indicator light ON r/min
- Shift timing indicator light OFF r/min
- Shift timing indicator light brightness

To access the settings mode

1. Turn the vehicle off.
2. Hold the “SEL” switch, turn the vehicle on and continue holding the “SEL” switch until the display changes to the display brightness control mode.
3. Use the “RES” switch to change the setting values.
4. Push the “SEL” switch to confirm the selected setting value and cycle to the next setting in the order listed above.

TIP

The settings mode will exit after all settings are confirmed.

Display brightness



1. Display brightness

A brightness level indicator bar will appear at the bottom of the display. Use the “RES” switch to select the desired brightness level and push the “SEL” to confirm it.

Shift timing indicator light

The shift timing indicator light has 3 settings:

- ON setting: the shift timing indicator light will come on when the set engine speed is reached. When this setting is selected, the indicator light will come on and stay on until the next setting is selected using the “RES” switch or confirmed with the “SEL” switch.
- FLASH setting: the shift timing indicator light will flash when the set engine speed is reached. When this setting is selected, the shift timing indicator light will flash 4 times per second until the next setting is selected using the “RES” switch or confirmed with the “SEL” switch.
- OFF setting: the shift timing indicator light is deactivated. When this setting is selected, the shift timing indicator light will flash once every 2 seconds until the next setting is selected using the “RES” switch or confirmed with the “SEL” switch.

Shift timing indicator light ON r/min

The shift timing indicator light can be set between 6000 r/min and 12000 r/min in increments of 200 r/min. While changing this setting, the shift timing indicator light will come on and stay on and the selected increment will be displayed on the tachometer. Use the “RES” switch to select the desired engine speed for activating the shift timing indicator light.

Shift timing indicator light OFF r/min

The shift timing indicator light can be set between 6000 r/min and 12000 r/min in increments of 200 r/min. While changing this setting, the shift timing indicator light will flash and the selected increment will be displayed on the tachometer. Use the “RES” switch to select the desired engine speed for deactivating the shift timing indicator light.

TIP

Be sure to set the OFF r/min to a higher engine speed than the ON r/min setting otherwise the shift timing indicator light will not come on while riding.

Shift timing indicator light brightness

The shift timing indicator light will come on and stay on until the setting is confirmed. The brightness level of the light will change as the level is adjusted. Use the “RES” switch to select the desired brightness level and push the “SEL” to confirm it.

SPECIAL TOOLS


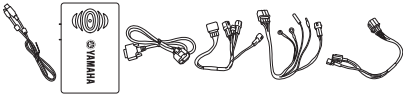
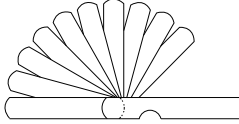

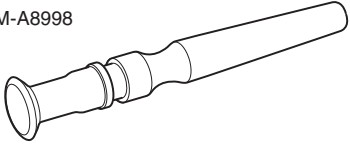
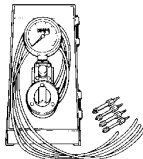

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SPECIAL TOOLS

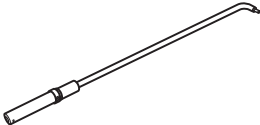
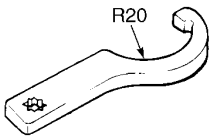
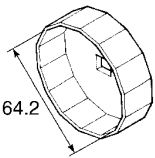
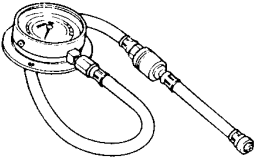
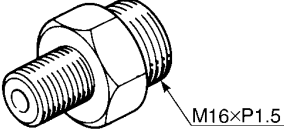
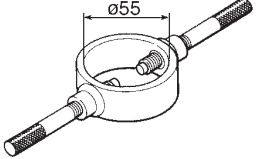
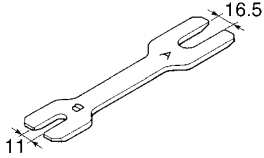
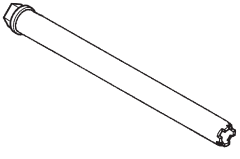
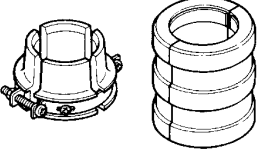
The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country. When placing an order, refer to the list provided below to avoid any mistakes.

TIP

- For U.S.A. and Canada, use part number starting with “YM-”, “YU-”, or “ACC-”.
- For others, use part numbers starting with “90890-”.

Tool name/Tool No.	Illustration	Reference pages
Yamaha diagnostic tool USB 90890-03267		3-4, 3-8, 4-67, 4-68, 7-15, 7-15, 7-15, 8-39, 9-3, 9-29, 9-30
Yamaha diagnostic tool (A/I) 90890-03264		3-4, 3-8, 4-67, 4-68, 7-15, 7-15, 7-15, 8-39, 9-3, 9-29, 9-30
Thickness gauge 90890-03268 Feeler gauge set YU-26900-9		3-6, 4-27, 4-37, 5-57
Valve lapper (ø14) 90890-04101 Valve lapper (ø14) YM-A8998	90890-04101  YM-A8998 	3-7
Vacuum gauge 90890-03094 Vacuummate YU-44456	90890-03094  YU-44456 	3-9

SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Carburetor angle driver 2 90890-03173		3-9
Steering nut wrench 90890-01403 Exhaust flange nut wrench YU-A9472		3-19, 4-88
Oil filter wrench 90890-01426 Oil filter wrench YU-38411		3-24
Pressure gauge 90890-03153 Pressure gauge YU-03153		3-25, 7-16, 7-17
Oil pressure adapter H 90890-03139		3-25
Fork spring compressor 90890-01441 Fork spring compressor YM-01441		4-78, 4-83
Rod holder 90890-01434 Damper rod holder double ended YM-01434		4-78, 4-83
Damper rod holder (ø27) 90890-01582 Damper rod holder YM-01582		4-79, 4-80
Fork seal driver 90890-01442 Adjustable fork seal driver (36–46 mm) YM-01442		4-81, 4-81, 4-82