



YAMAHA

2009

SERVICE MANUAL

YZFR1Y(C)



EAS20050

**YZFR1Y(C)
SERVICE MANUAL**
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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. 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 to 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.

TIP

- 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.

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.
- Jobs "7" requiring more information (such as special tools and technical data) are described sequentially.

1
↓
CLUTCH

EAS20090
CLUTCH

Removing the clutch cover

12 Nm (1.2 m·kg, 8.7 ft·lb)

7 Nm (0.7 m·kg, 5.1 ft·lb)

12 Nm (1.2 m·kg, 8.7 ft·lb)

1.5 Nm (0.15 m·kgf, 1.1 ft·lb)

Order	Job/Parts to remove	Qty	Remarks
1	Engine oil		Drain.
1	Pull lever cover	1	
2	Clutch cable	1	Disconnect.
3	Clutch cover	1	
4	Clutch cover gasket	1	
5	Dowel pin	3	
6	Oil filler cap	1	

For installation, reverse the removal procedure.

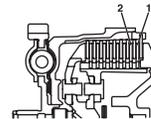
CLUTCH

- *****
- Assembly width adjusted by clutch plate "1" and "2".
 - Select the clutch plate from the following table.

Clutch plate "1"		
Part No.	Thickness	
4B1-16324-00	1.6 mm (0.063 in)	
5VY-16325-00	2.0 mm (0.079 in)	STD
4B1-16325-00	2.3 mm (0.091 in)	

Clutch plate "2"		
Part No.	Thickness	
5VY-16325-00	2.0 mm (0.079 in)	STD
4B1-16325-00	2.3 mm (0.091 in)	

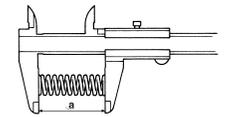
TIP
When adjusting the clutch assembly width (by replacing the clutch plate(s)), be sure to replace the clutch plate "1" first. After replacing the clutch plate "1", if specifications cannot be met, replace the clutch plate "2".



EAS20140
CHECKING THE CLUTCH SPRINGS

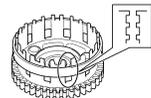
- The following procedure applies to all of the clutch springs.
- Check:
 - Clutch spring
 - Damage → Replace the clutch springs as a set.
 - Measure:
 - Clutch spring free length "a"
 - Out of specification → Replace the clutch springs as a set.

	Clutch spring free length 43.80 mm (1.72 in) Limit 41.61 mm (1.64 in)
--	--



EAS20150
CHECKING THE CLUTCH HOUSING

- Check:
 - Clutch housing dogs
 - Damage/pitting/wear → Deburr the clutch housing dogs or replace the clutch housing.
- TIP**
Pitting on the clutch housing dogs will cause erratic clutch operation.



- Check:
 - Bearing
 - Damage/wear → Replace the bearing and clutch housing.

EAS20160
CHECKING THE CLUTCH BOSS

- Check:
 - Clutch boss splines
 - Damage/pitting/wear → Replace the clutch boss.
- TIP**
Pitting on the clutch boss splines will cause erratic clutch operation.

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 (LOC-TITE®).
	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
TROUBLESHOOTING	9



GENERAL INFORMATION

IDENTIFICATION	1-1
VEHICLE IDENTIFICATION NUMBER.....	1-1
MODEL LABEL.....	1-1
FEATURES	1-2
OUTLINE OF THE FI SYSTEM	1-2
FI SYSTEM.....	1-3
YCC-T (Yamaha Chip Controlled Throttle)	
YCC-I (Yamaha Chip Controlled Intake)	1-4
INSTRUMENT FUNCTIONS	1-8
IMPORTANT INFORMATION	1-15
PREPARATION FOR REMOVAL AND DISASSEMBLY	1-15
REPLACEMENT PARTS.....	1-15
GASKETS, OIL SEALS AND O-RINGS.....	1-15
LOCK WASHERS/PLATES AND COTTER PINS	1-15
BEARINGS AND OIL SEALS	1-16
CIRCLIPS	1-16
CHECKING THE CONNECTIONS	1-17
HANDLING THE ELECTRONIC PARTS	1-18
SPECIAL TOOLS	1-19

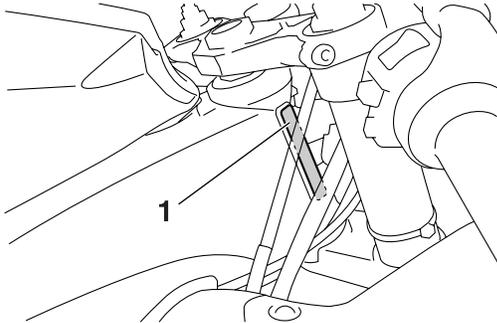
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IDENTIFICATION

EAS20140

VEHICLE IDENTIFICATION NUMBER

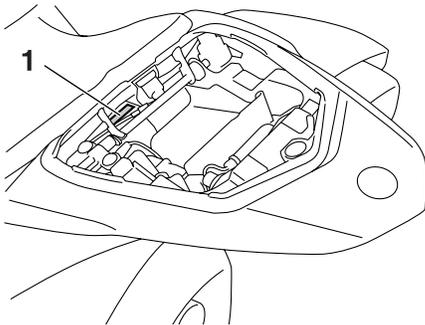
The vehicle identification number "1" is stamped into the right side of the steering head pipe.



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MODEL LABEL

The model label "1" is affixed to the seat rail reinforcement under the passenger seat. This information will be needed to order spare parts.



EAS20170

FEATURES

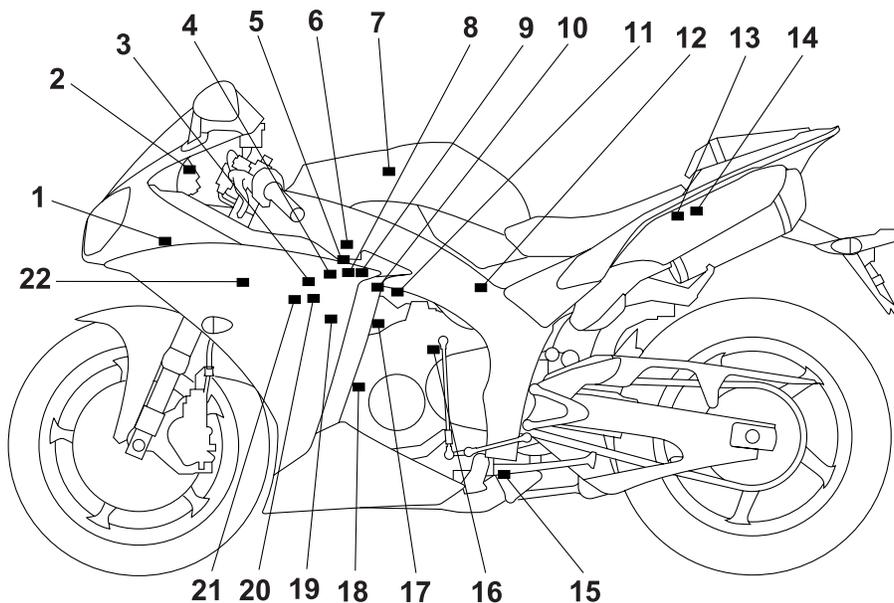
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OUTLINE OF THE FI SYSTEM

The main function of a fuel supply system is to provide fuel to the combustion chamber at the optimum air-fuel ratio in accordance with the engine operating conditions and the atmospheric temperature. In the conventional carburetor system, the air-fuel ratio of the mixture that is supplied to the combustion chamber is created by the volume of the intake air and the fuel that is metered by the jet used in the respective carburetor.

Despite the same volume of intake air, the fuel volume requirement varies by the engine operating conditions, such as acceleration, deceleration, or operating under a heavy load. Carburetors that meter the fuel through the use of jets have been provided with various auxiliary devices, so that an optimum air-fuel ratio can be achieved to accommodate the constant changes in the operating conditions of the engine.

As the requirements for the engine to deliver more performance and cleaner exhaust gases increase, it becomes necessary to control the air-fuel ratio in a more precise and finely tuned manner. To accommodate this need, this model has adopted an electronically controlled fuel injection (FI) system, in place of the conventional carburetor system. This system can achieve an optimum air-fuel ratio required by the engine at all times by using a microprocessor that regulates the fuel injection volume according to the engine operating conditions detected by various sensors. The adoption of the FI system has resulted in a highly precise fuel supply, improved engine response, better fuel economy, and reduced exhaust emissions.



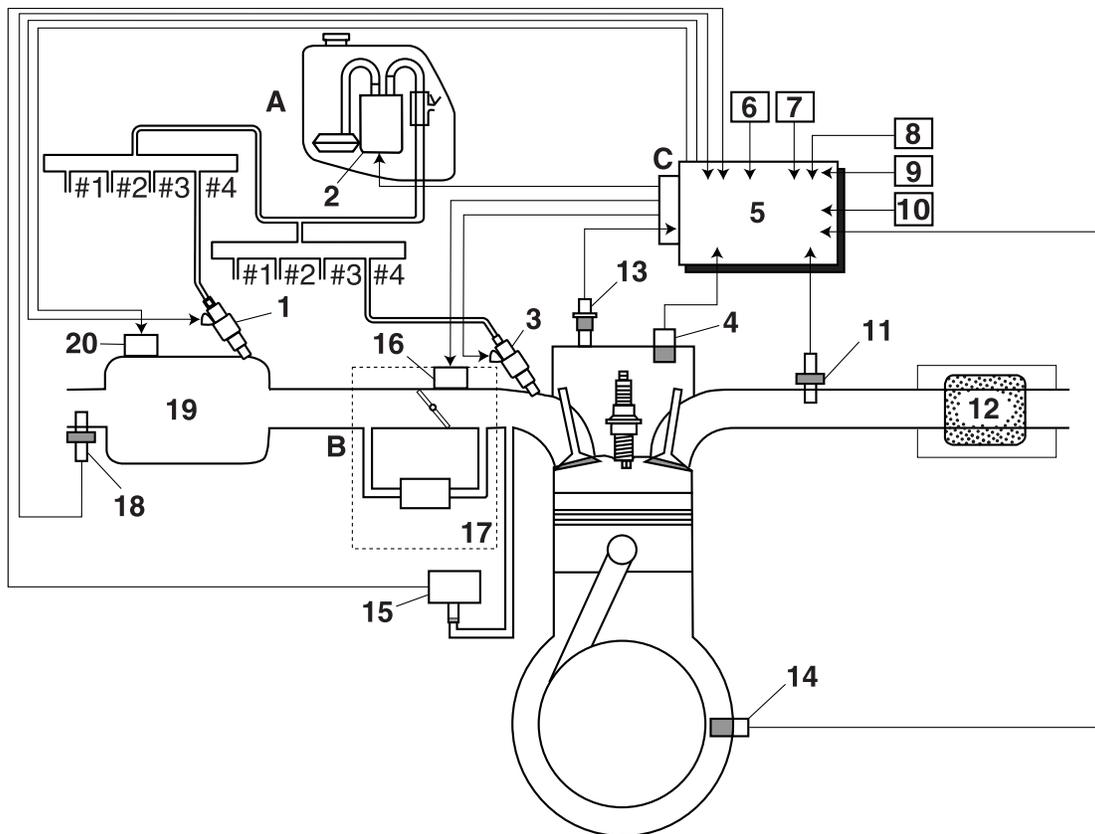
- | | |
|----------------------------------|------------------------------------|
| 1. Intake air temperature sensor | 13. Lean angle sensor |
| 2. Engine trouble warning light | 14. Relay unit (fuel pump relay) |
| 3. Air induction system solenoid | 15. O ₂ sensor |
| 4. Atmospheric pressure sensor | 16. Speed sensor |
| 5. Intake air pressure sensor | 17. Coolant temperature sensor |
| 6. Intake funnel servo motor | 18. Crankshaft position sensor |
| 7. Secondary injectors | 19. Spark plugs |
| 8. Throttle servo motor | 20. Ignition coils |
| 9. Throttle position sensor | 21. Cylinder identification sensor |
| 10. Accelerator position sensor | 22. ECU (engine control unit) |
| 11. Primary injectors | |
| 12. Fuel pump | |

EAS14B1017

FI SYSTEM

The fuel pump delivers fuel to the fuel injector via the fuel filter. The pressure regulator maintains the fuel pressure that is applied to the fuel injector at only 324 kPa (3.24 kgf/cm², 47.0 psi). Accordingly, when the energizing signal from the ECU energizes the fuel injector, the fuel passage opens, causing the fuel to be injected into the intake manifold only during the time the passage remains open. Therefore, the longer the length of time the fuel injector is energized (injection duration), the greater the volume of fuel that is supplied. Conversely, the shorter the length of time the fuel injector is energized (injection duration), the lesser the volume of fuel that is supplied.

The injection duration and the injection timing are controlled by the ECU. Signals that are input from the throttle position sensor, accelerator position sensor, coolant temperature sensor, atmospheric pressure sensor, cylinder identification sensor, lean angle sensor, crankshaft position sensor, intake air pressure sensor, air temperature sensor, speed sensor and O₂ sensor enable the ECU to determine the injection duration. The injection timing is determined through the signals from the crankshaft position sensor. As a result, the volume of fuel that is required by the engine can be supplied at all times in accordance with the driving conditions.



1. Secondary injector
2. Fuel pump
3. Primary injector
4. Cylinder identification sensor
5. ECU (engine control unit)
6. Throttle position sensor
7. Accelerator position sensor
8. Speed sensor
9. Intake air temperature sensor
10. Lean angle sensor
11. O₂ sensor
12. Catalytic converter

13. Coolant temperature sensor
14. Crankshaft position sensor
15. Intake air pressure sensor
16. Throttle servo motor
17. Throttle body
18. Atmospheric pressure sensor
19. Air filter case
20. Intake funnel servo motor

- A. Fuel system
 B. Air system
 C. Control system

EAS14B1076

YCC-T (Yamaha Chip Controlled Throttle) YCC-I (Yamaha Chip Controlled Intake)

Mechanism characteristics

Yamaha developed the YCC-T and YCC-I system employing the most advanced electronic control technologies. Electronic control throttle systems have been used on automobiles, but Yamaha has developed a faster, more compact system specifically for the needs of a sports motorcycle. The Yamaha-developed system has a high-speed calculating capacity that produces computations of running conditions every 1/1000th of a second.

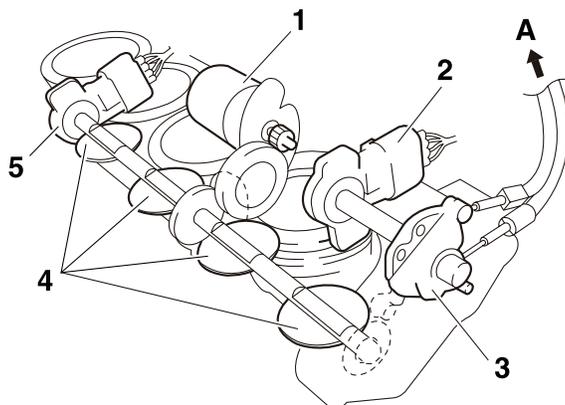
The YCC-T system is designed to respond to the throttle action of the rider by having the ECU instantaneously calculate the ideal throttle valve opening and generate signals to operate the motor-driven throttle valves and thus actively control the intake air volume.

The ECU contains three CPUs with a capacity about five times that of conventional units, making it possible for the system to respond extremely quickly to the slightest adjustments made by the rider. In particular, optimized control of the throttle valve opening provides the optimum volume of intake air for easy-to-use torque, even in a high-revving engine.

The YCC-I system calculates the value from the engine revolution number and throttle opening rate, activates the intake air funnel with the electronic control motor drive to control the intake pipe length in order to gain the high power output in all revolution ranges from low speeds to high speeds.

Aims and advantages of using YCC-T system

- Increased engine power
By shortening the air intake path, higher engine speed is possible → Increased engine power.
- Improved driveability
Air intake volume is controlled according to the operating conditions → Improved throttle response to meet engine requirement.
Driving force is controlled at the optimal level according to the transmission gear position and engine speed → Improved throttle control.
- Engine braking control
Due to the throttle control, optimal engine braking is made possible.
- Simplified idle speed control (ISC) mechanism
The bypass mechanism and ISC actuator are eliminated → A simple mechanism is used to maintain a steady idle speed.
- Reduced weight
Compared to using a sub-throttle mechanism, weight is reduced.



1. Throttle servo motor
2. Accelerator position sensor
3. Throttle cable pulley with linkage guard
4. Throttle valves
5. Throttle position sensor

A. To throttle grip

Aims and advantages of using YCC-I system

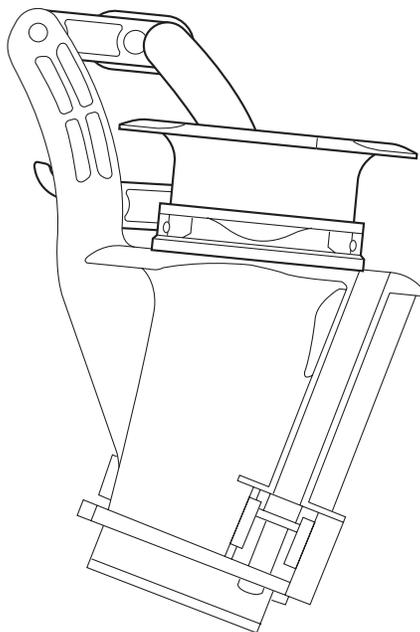
- Improvement of the engine power characteristics

The high power design in all ranges is now provided by having both two features of the short intake function to ensure the power at the high speed revolution of engine, and the long intake function to ensure the power in the practical use range.

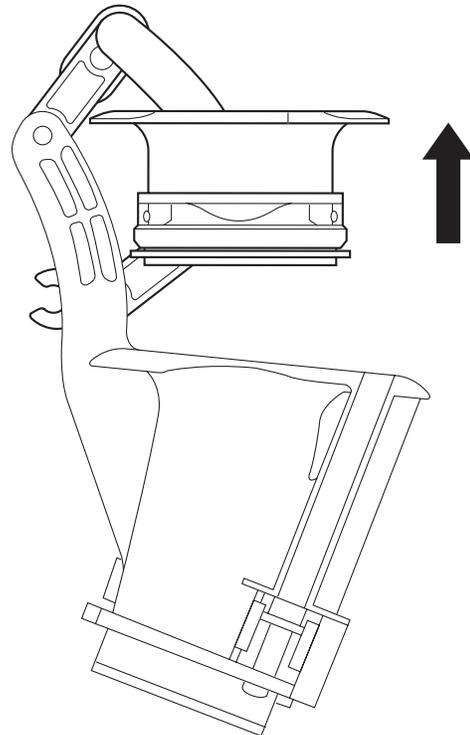
- Intake pipe length switching control using the motor

The intake pipe length switching operation in a minute time is now available by means of the motor drive using the electronic control. The smooth power characteristic is provided, which does not let an operator feel the switching action by the optimization of its switching revolution number and the most suitable application of engine at the time of changing the revolution.

A



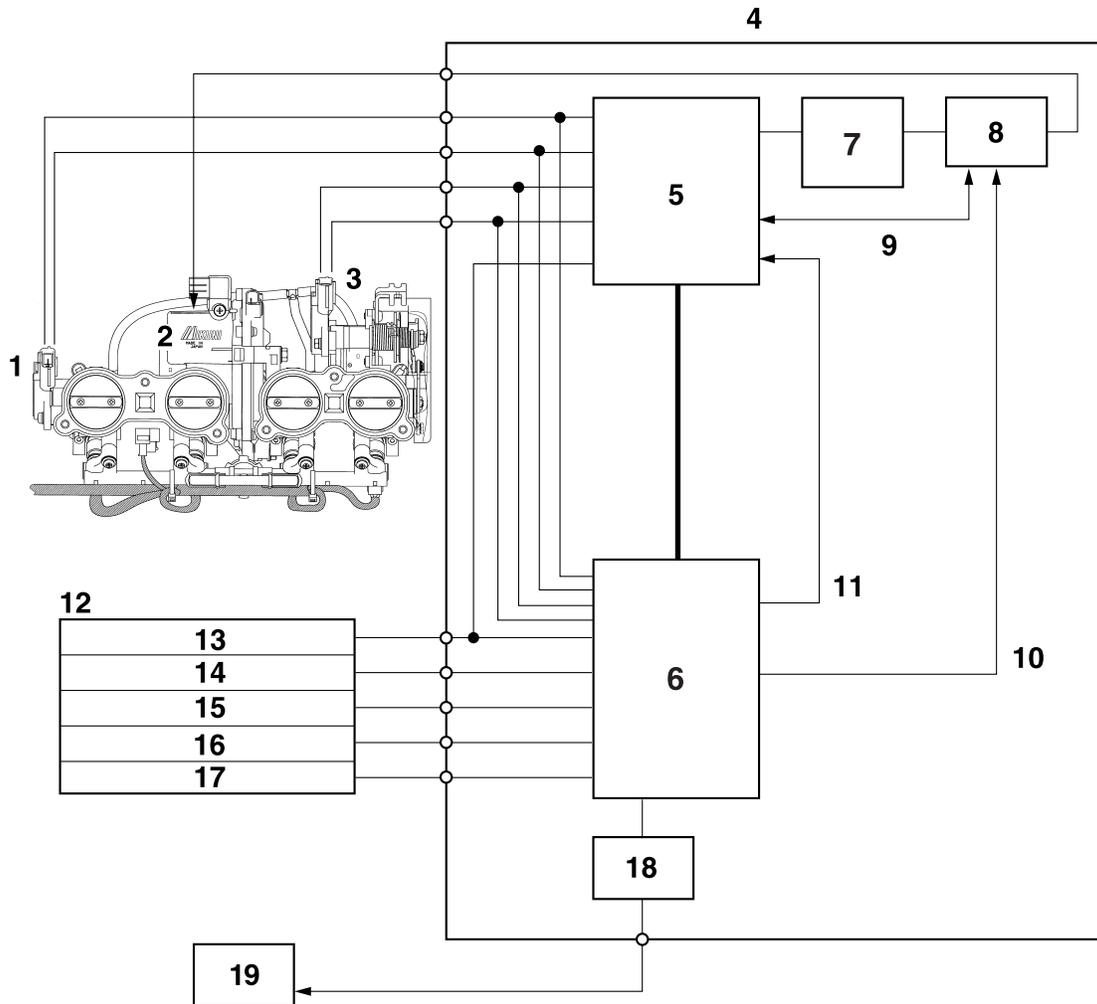
B



A. Down position (long intake)
(Low rpm to Mid rpm)

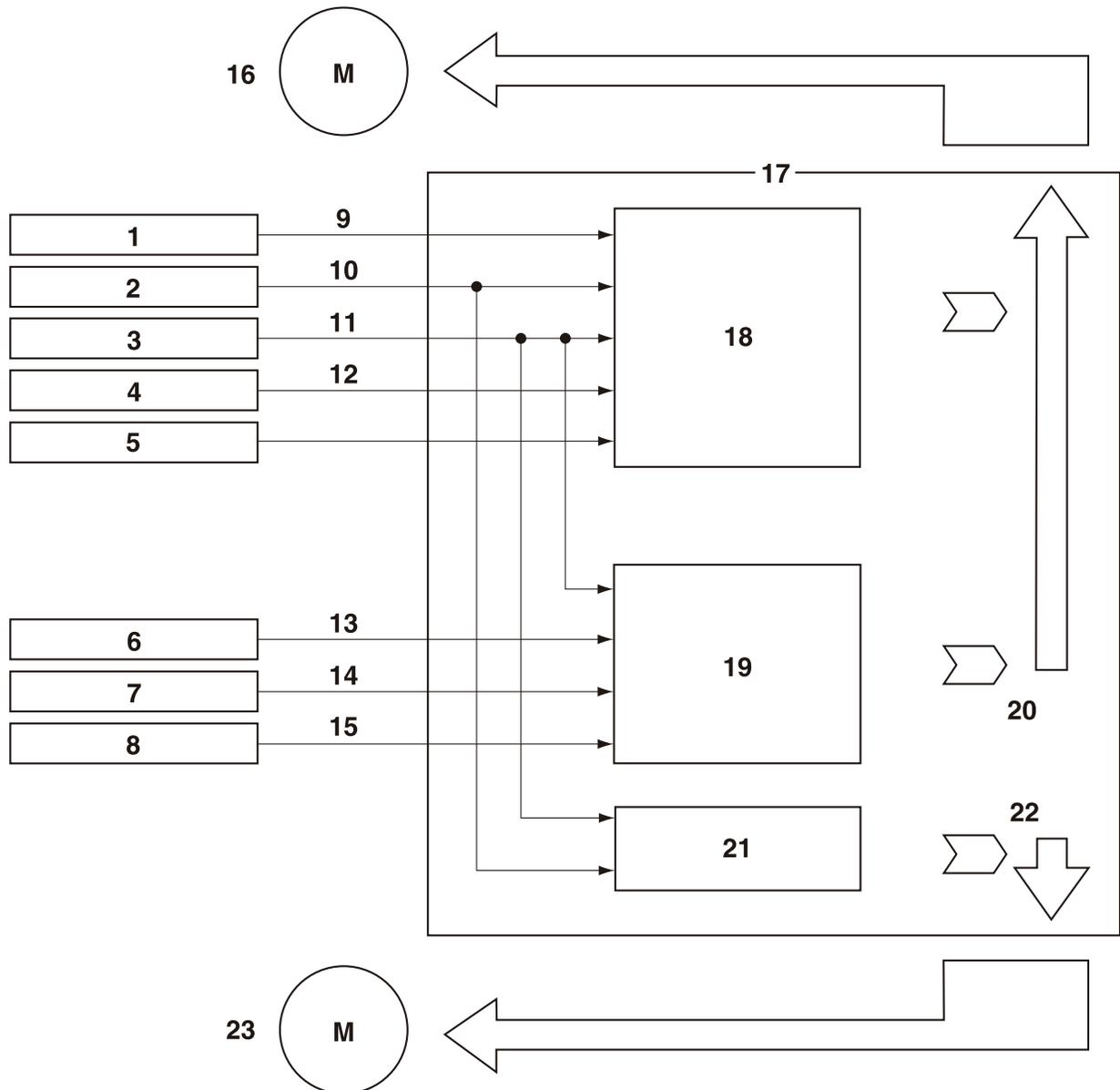
B. Up position (short intake)
(High rpm)

YCC-T/YCC-I system outline



1. Throttle position sensor
2. Throttle servo motor
3. Accelerator position sensor
4. ECU (engine control unit)
5. ETV main CPU (32 bit)
6. FI CPU (32 bit)
7. Throttle servo motor driver
8. Throttle servo motor driver operation sensing/shut off circuit
9. Throttle servo motor driver operation sensing feedback/emergency stop
10. Emergency stop
11. Engine revolution (pulse signal)
12. Sensor input
13. Neutral switch
14. Crankshaft position sensor
15. Speed sensor
16. Coolant temperature sensor
17. Atmospheric pressure sensor
18. Intake funnel servo motor driver
19. Intake funnel servo motor

YCC-T/YCC-I control outline



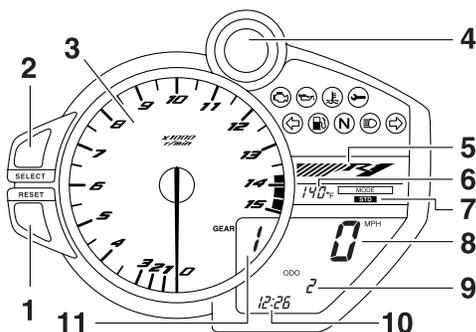
1. Accelerator position sensor
2. Throttle position sensor
3. Crankshaft position sensor
4. Speed sensor
5. D-mode switch
6. Coolant temperature sensor
7. Neutral switch
8. Atmospheric pressure sensor
9. Accelerator position (two signals)
10. Throttle position (two signals)
11. Engine revolution
12. Vehicle speed
13. Coolant temperature
14. Neutral/In gear
15. Atmospheric pressure
16. Throttle servo motor

17. ECU (engine control unit)
18. Base map
19. Idle speed control
20. Calculated throttle valve opening angle
21. Base map
22. Air funnel position (Calculation value)
23. Intake funnel servo motor

EAS14B4002

INSTRUMENT FUNCTIONS

Multi-function meter unit



1. "RESET" button
2. "SELECT" button
3. Tachometer
4. Shift timing indicator light
5. Throttle opening position display
6. Coolant temperature display/air intake temperature display
7. Drive mode display
8. Speedometer
9. Odometer/tripmeter/fuel reserve tripmeter/instantaneous fuel consumption/average fuel consumption
10. Clock/stopwatch
11. Transmission gear display

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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.

The multi-function meter unit is equipped with the following:

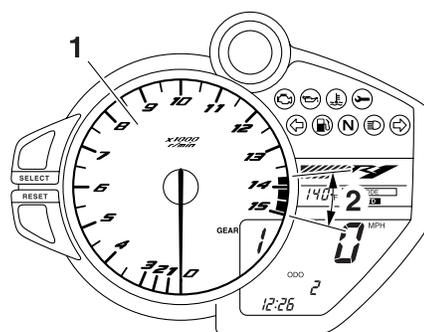
- A speedometer
- A tachometer
- An odometer
- Two tripmeters (which show the distance traveled since they were last set to zero)
- A fuel reserve tripmeter (which shows the distance traveled since the fuel level warning light came on)
- A stopwatch
- A clock
- A coolant temperature display
- An air intake temperature display
- A transmission gear display
- A drive mode display (which shows the selected drive mode)

- A throttle opening position display
- A fuel consumption display (instantaneous and average consumption functions)
- A self-diagnosis device
- A display brightness, shift timing indicator light and throttle opening position display control mode

TIP

- Be sure to turn the key to "ON" before using the "SELECT" and "RESET" buttons.
- To switch the speedometer and odometer/tripmeter/fuel consumption displays between kilometers and miles, press the "SELECT" button for at least one second.

Tachometer



1. Tachometer
2. Tachometer red zone

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

When the key is turned to "ON", the tachometer needle sweeps once across the r/min range and then returns to zero r/min in order to test the electrical circuit.

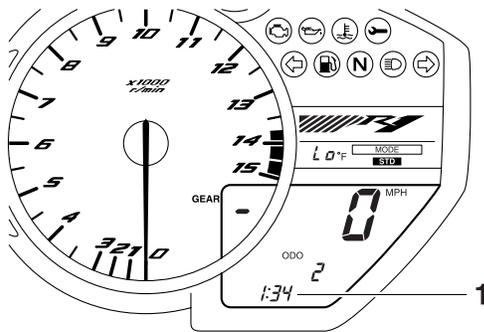
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NOTICE

Do not operate the engine in the tachometer red zone.

Red zone: 13750 r/min and above

Clock and stopwatch modes



1. Clock/stopwatch

To set the clock

1. Push the “SELECT” button and “RESET” button together for at least two seconds.
2. When the hour digits start flashing, push the “RESET” button to set the hours.
3. Push the “SELECT” button, and the minute digits start flashing.
4. Push the “RESET” button to set the minutes.
5. Push the “SELECT” button and then release it to start the clock.

To display the stopwatch

To change the display to the stopwatch mode, push the “SELECT” button and “RESET” button together. To change the display back to the clock mode at any time, except when the stopwatch is counting, push the “SELECT” button and “RESET” button together.

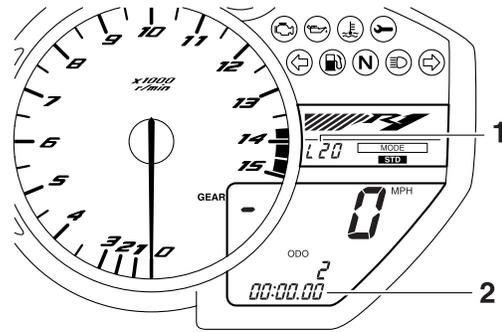
Standard measurement

1. Push the “RESET” button to start the stopwatch.
2. Push the “SELECT” button to stop the stopwatch.
3. Push the “SELECT” button again to reset the stopwatch.

Split-time measurement

1. Push the “RESET” button to start the stopwatch.
2. Push the “RESET” button or start switch “⊕” to measure split-times. Split-times are displayed on the odometer display for five seconds.
3. Push the “RESET” button or start switch “⊕” to display the final split-time or push the “SELECT” button to stop the stopwatch and display the total elapsed time.

Split-time history



1. Coolant temperature display/air intake temperature display
2. Stopwatch

The split-time history displays up to 20 stored split times. The split-time history can be displayed either in reverse chronological order or by speed.

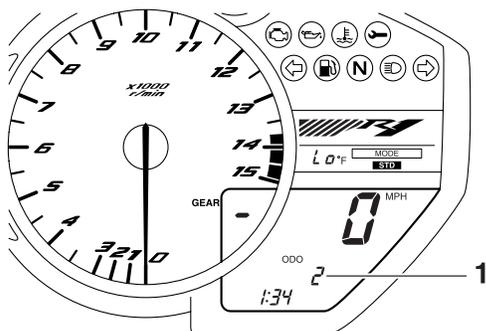
1. Push the “SELECT” button for at least one second to select the reverse chronological order mode; “L20” displays on the stopwatch. Push the “SELECT” button again to select the speed mode; “F20” displays on the stopwatch.
2. Push the “RESET” button. Depending on the selected split time, “L20” or “F20” displays on the coolant temperature display/air temperature display, and its corresponding stored split time displays on the stopwatch.
3. Push the “SELECT” button to move down, and the “RESET” button to move up through the list.

TIP

- When displaying in the reverse chronological order, the split times are shown from the latest to earliest (i.e., L20, L19, L18, L17). When displaying in the speed order, the split times are shown from the fastest to slowest (i.e., F01, F02, F03, F04).
- Push the “RESET” button for at least one second to reset all the recorded times for the selected split-time history.

4. Push the “SELECT” button for at least one second to cancel the split-time history and return to the time measurement.

Odometer, tripmeter, instantaneous fuel consumption and average fuel consumption modes



1. Odometer/tripmeter/fuel reserve tripmeter/instantaneous fuel consumption/average fuel consumption

Push the “SELECT” button to switch the display between the odometer mode “ODO”, the tripmeter modes “TRIP 1” and “TRIP 2”, the instantaneous fuel consumption mode “km/L”, “L/100 km” or “MPG”, and the average fuel consumption mode “AV_ _ _ km/L”, “AV_ _ _ L/100 km” or “AV_ _ _ MPG” in the following order:

ODO → TRIP 1 → TRIP 2 → km/L, L/100 km or MPG → AV_ _ _ km/L, AV_ _ _ L/100 km or AV_ _ _ MPG → ODO

If the fuel level warning light comes on, the display automatically changes to the fuel reserve tripmeter mode “TRIP F” and starts counting the distance traveled from that point. In that case, push the “SELECT” button to switch the display between the various tripmeter, odometer, instantaneous fuel consumption and average fuel consumption modes in the following order:

TRIP F → km/L, L/100 km or MPG → AV_ _ _ km/L, AV_ _ _ L/100 km or AV_ _ _ MPG → ODO → TRIP 1 → TRIP 2 → TRIP F

To reset a tripmeter, select it by pushing the “SELECT” button, and then push the “RESET” button for at least one second.

If you do not reset the fuel reserve tripmeter manually, it resets itself automatically and the display returns to the prior mode after refueling and traveling 5 km (3 mi).

Instantaneous fuel consumption mode



1. Instantaneous fuel consumption

The instantaneous fuel consumption display can be set to either “km/L”, “L/100 km” or “MPG”.

- When the display is set to “km/L”, the distance that can be traveled on 1.0 L of fuel under the current riding conditions is shown.
- When the display is set to “L/100 km”, the amount of fuel necessary to travel 100 km under the current riding conditions is shown.
- When the display is set to “MPG”, the distance that can be traveled on 1.0 Imp.gal of fuel under the current riding conditions is shown.

To switch between the instantaneous fuel consumption displays, push the “SELECT” button for one second when one of the displays is shown.

TIP

If traveling at speeds under 10 km/h (6.0 mi/h), “_ _ .” is displayed.

Average fuel consumption mode



1. Average fuel consumption

The average fuel consumption display can be set to either “AV_ _ _ km/L”, “AV_ _ _ L/100 km” or “AV_ _ _ MPG”.

This display shows the average fuel consumption since it was last reset.

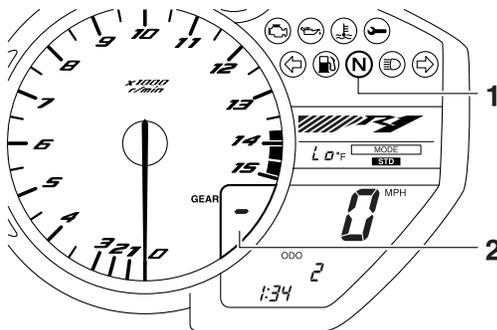
- When the display is set to “AV_ _ _ km/L”, the average distance that can be traveled on 1.0 L of fuel is shown.
- When the display is set to “AV_ _ _ L/100 km”, the average amount of fuel necessary to travel 100 km is shown.
- When the display is set to “AV_ _ _ MPG”, the average distance that can be traveled on 1.0 Imp.gal of fuel is shown.

To switch between the average fuel consumption displays, push the “SELECT” button for one second when one of the displays is shown. To reset the average fuel consumption display, select it by pushing the “SELECT” button, and then push the “RESET” button for at least one second.

TIP

After resetting an average fuel consumption display, “_ _ _” is shown for that display until the vehicle has traveled 1 km (0.6 mi).

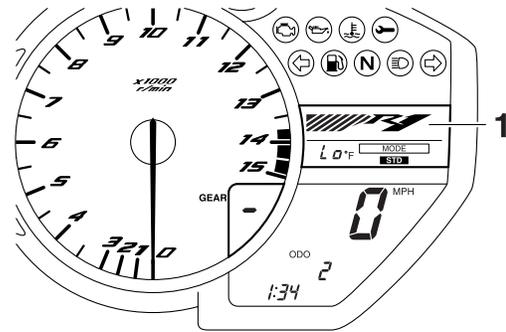
Transmission gear display



1. Neutral indicator light “N”
2. Transmission gear display

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

Throttle opening position display



1. Throttle opening position display

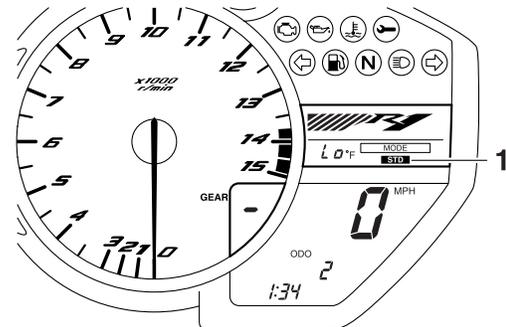
The throttle opening position display shows how much the throttle is being opened. The number of segments increases as the throttle is being opened.

Refer to “Display brightness and shift timing indicator light control mode”.

TIP

The segments are displayed when the engine is running.

Drive mode display

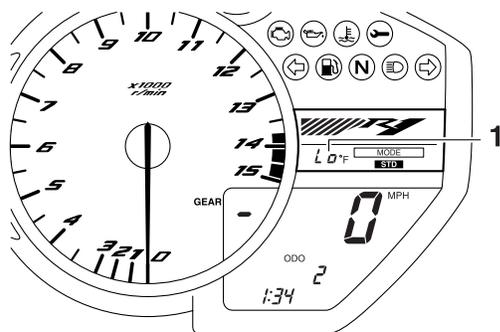


1. Drive mode display

This display indicates which drive mode has been selected: “STD”, “A” or “B”.

For more details on the modes and on how to select them, refer to “D-mode (drive mode)”.

Coolant temperature display



1. Coolant temperature display

The coolant temperature display indicates the temperature of the coolant.

TIP

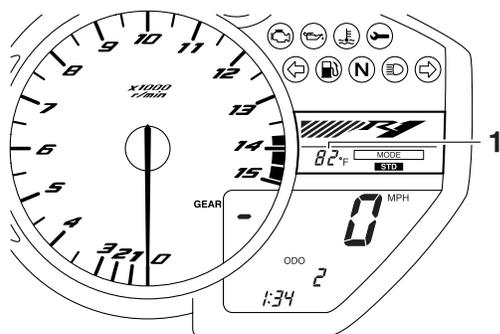
When the coolant temperature display is selected, “C” is displayed for one second, and then the coolant temperature is displayed.

ECA14B1016

NOTICE

Do not continue to operate the engine if it is overheating.

Air intake temperature display



1. Air intake temperature display

The air intake temperature display indicates the temperature of the air drawn into the air filter case. Turn the key to “ON”, and push the “RESET” button to switch the coolant temperature display to the air intake temperature display. Push the “RESET” button again to return to the coolant temperature display.

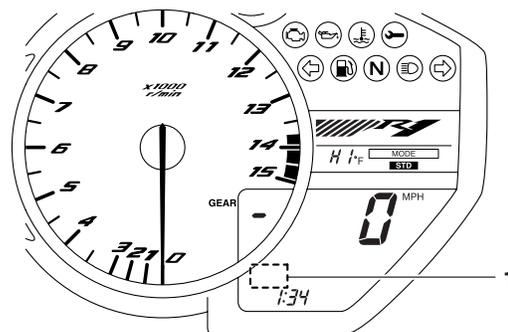
TIP

- Even if the air intake temperature is set to be displayed, the coolant temperature warning light comes on if the engine overheats.
- When the key is turned to “ON”, the coolant temperature is automatically displayed, even

if the air intake temperature was displayed prior to turning the key to “OFF”.

- When the air intake temperature display is selected, “A” is displayed before the temperature.

Self-diagnosis device



1. Error code display

This model is equipped with a self-diagnosis device for various electrical circuits.

If a problem is detected in any of those circuits, the engine trouble warning light comes on and the display indicates an error code.

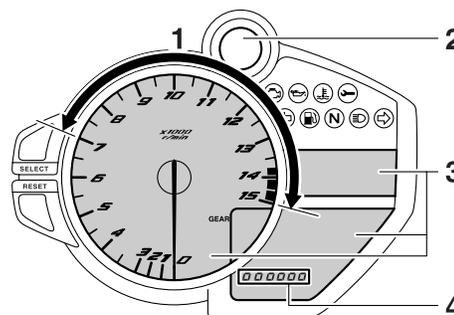
If the display indicates any error codes, note the code number, and then have a Yamaha dealer check the vehicle.

ECA14B1017

NOTICE

If the display indicates an error code, the vehicle should be checked as soon as possible in order to avoid engine damage.

Display brightness, shift timing indicator light and throttle opening position display control mode



1. Shift timing indicator light activation range
2. Shift timing indicator light
3. Brightness adjustable displays
4. Brightness level

This mode allows you to make changes to six settings by performing the following steps.

1. Turn the key to “OFF”.
2. Push and hold the “SELECT” button.
3. Turn the key to “ON”, and then release the “SELECT” button after five seconds. The display brightness function is selected.
4. Push the “SELECT” button to switch the functions in the order below.
 - a. Display brightness:
This function allows you to adjust the brightness of the displays and tachometer to suit the outside lighting conditions.
 - b. Shift timing indicator light activity:
This function allows you to choose whether or not the indicator light should be activated and whether it should flash or stay on when activated.
 - c. Shift timing indicator light activation:
This function allows you to select the engine speed at which the indicator light is activated.
 - d. Shift timing indicator light deactivation:
This function allows you to select the engine speed at which the indicator light is deactivated.
 - e. Shift timing indicator light brightness:
This function allows you to adjust the brightness of the indicator light to suit your preference.
 - f. Throttle opening position display:
This function allows you to choose whether or not to show the throttle opening position display.

TIP

The display shows the current setting for each function, except the shift timing indicator light activity function.

To adjust the brightness of the multifunction meter displays and tachometer

1. Turn the key to “OFF”.
2. Push and hold the “SELECT” button.
3. Turn the key to “ON”, and then release the “SELECT” button after five seconds.
4. Push the “RESET” button to select the desired brightness level.
5. Push the “SELECT” button to confirm the selected brightness level. The control mode changes to the shift timing indicator light activity function.

To set the shift timing indicator light activity function

1. Push the “RESET” button to select one of the following indicator light activity settings:
 - The indicator light stays on when activated. (This setting is selected when the indicator light stays on.)
 - The indicator light flashes when activated. (This setting is selected when the indicator light flashes four times per second.)
 - The indicator light is deactivated; in other words, it does not come on or flash. (This setting is selected when the indicator light flashes once every two seconds.)
2. Push the “SELECT” button to confirm the selected indicator light activity. The control mode changes to the shift timing indicator light activation function.

To set the shift timing indicator light activation function

TIP

The shift timing indicator light activation function can be set between 7000 r/min and 15000 r/min. From 7000 r/min to 12000 r/min, the indicator light can be set in increments of 500 r/min. From 12000 r/min to 15000 r/min, the indicator light can be set in increments of 200 r/min.

1. Push the “RESET” button to select the desired engine speed for activating the indicator light.
2. Push the “SELECT” button to confirm the selected engine speed. The control mode changes to the shift timing indicator light deactivation function.

To set the shift timing indicator light deactivation function

TIP

- The shift timing indicator light deactivation function can be set between 7000 r/min and 15000 r/min. From 7000 r/min to 12000 r/min, the indicator light can be set in increments of 500 r/min. From 12000 r/min to 15000 r/min, the indicator light can be set in increments of 200 r/min.
- Be sure to set the deactivation function to a higher engine speed than for the activation

function, otherwise the shift timing indicator light remains deactivated.

1. Push the “RESET” button to select the desired engine speed for deactivating the indicator light.
2. Push the “SELECT” button to confirm the selected engine speed. The control mode changes to the shift timing indicator light brightness function.

To adjust the shift timing indicator light brightness

1. Push the “RESET” button to select the desired indicator light brightness level.
2. Push the “SELECT” button to confirm the selected indicator light brightness level. The control mode changes to the throttle opening position display.

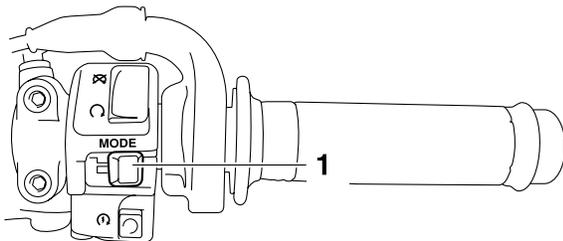
To set the throttle opening position display

1. Push the “RESET” button to select one of the following activity settings:
 - The throttle opening segments and “R1” are displayed.
 - “R1” is displayed only.
 - Neither throttle opening segments nor “R1” are displayed.
2. Push the “SELECT” button to confirm the selected throttle opening position display activity. The display returns to the odometer or tripmeter mode.

D-mode (drive mode)

D-mode is an electronically controlled engine performance system with three mode selections (“STD”, “A”, and “B”).

Push the drive mode switch “MODE” to switch between modes.



1. Drive mode switch “MODE”

TIP

Before using D-mode, make sure you understand its operation along with the operation of the drive mode switch “MODE”.

Mode “STD”

Mode “STD” is suitable for various riding conditions.

This mode allows the rider to enjoy smooth and sporty drivability from the low-speed range to the high-speed range.

Mode “A”

Mode “A” offers a sportier engine response in the low-to mid-speed range compared to mode “STD”.

Mode “B”

Mode “B” offers response that is somewhat less sharp compared to mode “STD” for riding situations that require especially sensitive throttle operation.

Drive mode switch “MODE”

EWA14B1025



Do not change the D-mode while the vehicle is moving.

Using this switch changes the drive mode to “STD”, “A”, or “B” in the following order:

STD → A → B → STD

The throttle grip must be completely closed in order to change the drive mode.

TIP

- The mode is set to “STD” by default. The “STD” mode resets when the key is turned to “OFF”.
- The selected mode is shown on the drive mode display.

EAS20180

IMPORTANT INFORMATION

EAS20190

PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.



2. Use only the proper tools and cleaning equipment. Refer to "SPECIAL TOOLS" on page 1-19.
3. When disassembling, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been "mated" through normal wear. Mated parts must always be reused or replaced as an assembly.

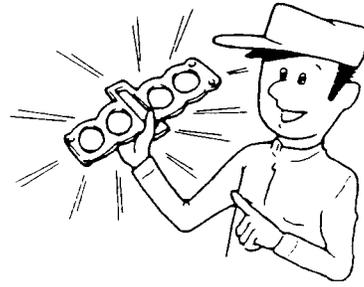


4. During disassembly, clean all of the parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.

EAS20200

REPLACEMENT PARTS

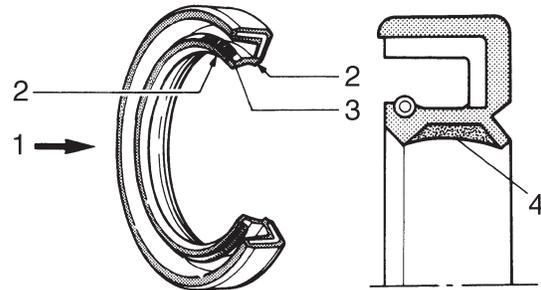
Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.



EAS20210

GASKETS, OIL SEALS AND O-RINGS

1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and lubricate the oil seal lips with grease.

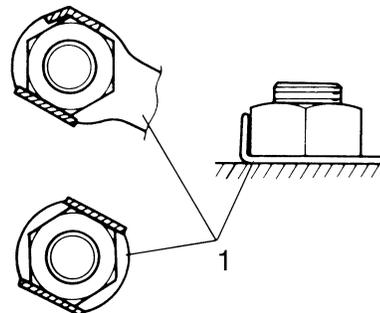


1. Oil
2. Lip
3. Spring
4. Grease

EAS20220

LOCK WASHERS/PLATES AND COTTER PINS

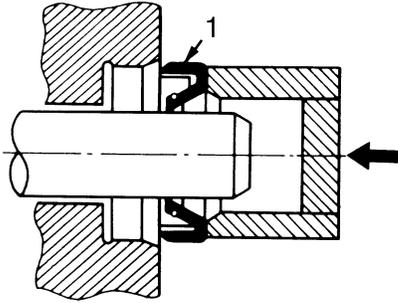
After removal, replace all lock washers/plates "1" and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EAS20230

BEARINGS AND OIL SEALS

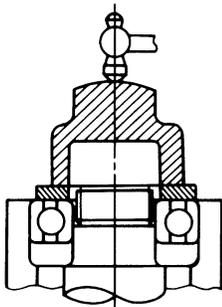
Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals "1", lubricate the oil seal lips with a light coat of lithium-soap-based grease. Oil bearings liberally when installing, if appropriate.



ECA13300

NOTICE

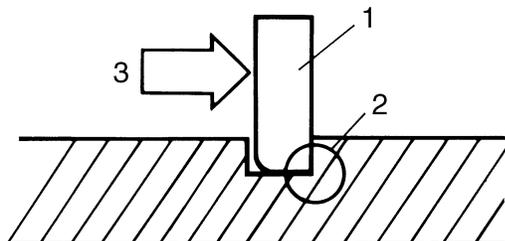
Do not spin the bearing with compressed air because this will damage the bearing surfaces.



EAS20240

CIRCLIPS

Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip "1", make sure the sharp-edged corner "2" is positioned opposite the thrust "3" that the circlip receives.



CHECKING THE CONNECTIONS

EAS20250

CHECKING THE CONNECTIONS

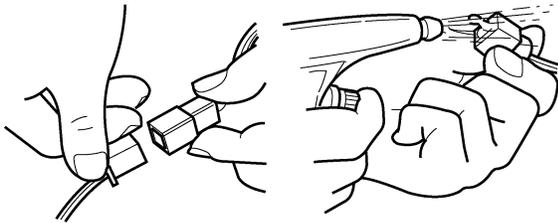
Check the leads, couplers, and connectors for stains, rust, moisture, etc.

1. Disconnect:
 - Lead
 - Coupler
 - Connector

2. Check:
 - Lead
 - Coupler
 - Connector

Moisture → Dry with an air blower.

Rust/stains → Connect and disconnect several times.

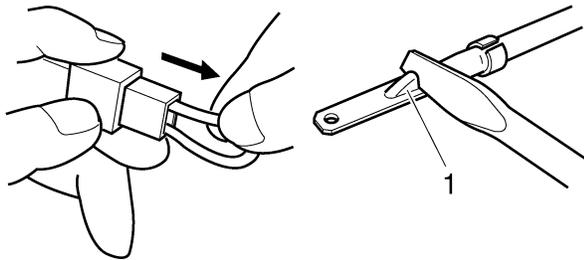


3. Check:
 - All connections

Loose connection → Connect properly.

TIP

If the pin "1" on the terminal is flattened, bend it up.



4. Connect:
 - Lead
 - Coupler
 - Connector

TIP

Make sure all connections are tight.

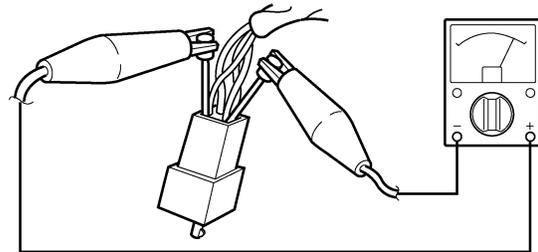
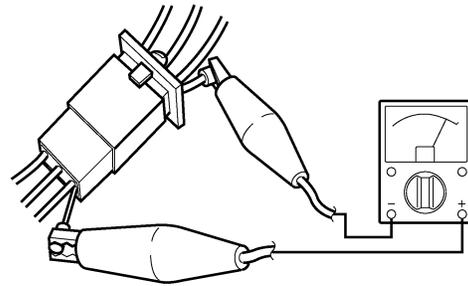
5. Check:
 - Continuity
(with the pocket tester)



Pocket tester
90890-03112
Analog pocket tester
YU-03112-C

TIP

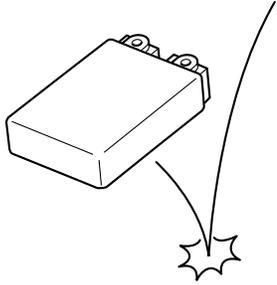
- If there is no continuity, clean the terminals.
- When checking the wire harness, perform steps (1) to (3).
- As a quick remedy, use a contact revitalizer available at most part stores.



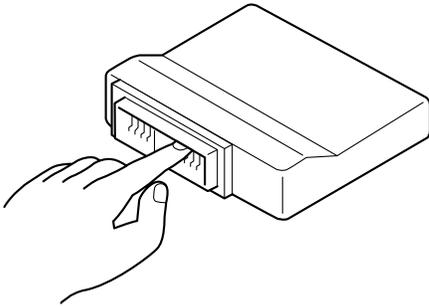
EAS14B1120

HANDLING THE ELECTRONIC PARTS

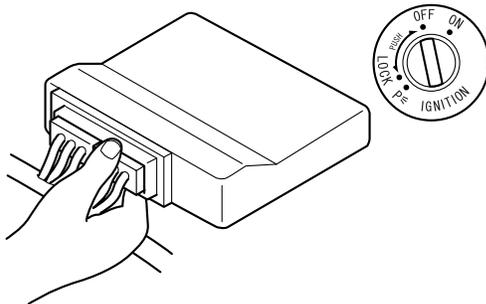
Electronic parts is very sensitive.
Handle with care and do not give impact.



Mankind has static electricity and it's voltage is very high and electronic parts is very sensitive. It has possibility that inside small parts of electronic parts is destroyed by static electricity. Do not touch and do not make it dirty.



When you disconnect electronic parts from wire harness, always turn off main switch. If you disconnect above condition, it may gives damages to electronic parts.



EAS20260

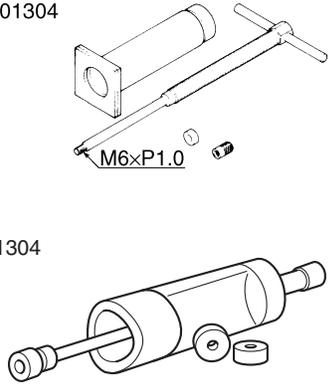
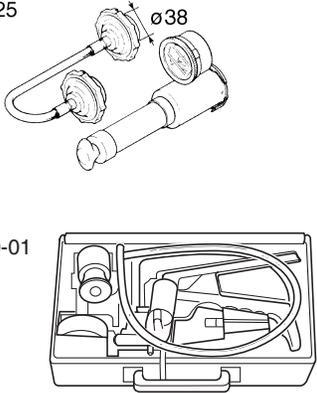
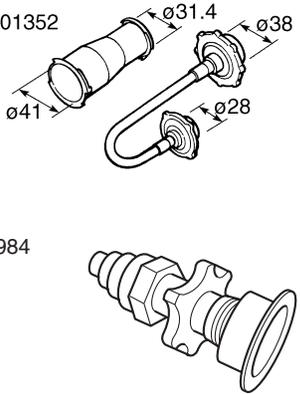
SPECIAL TOOLS

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.

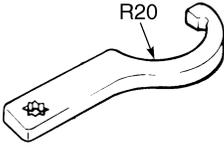
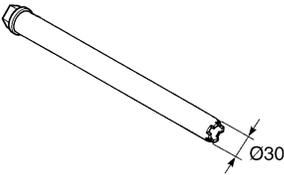
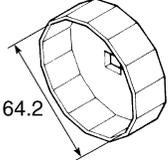
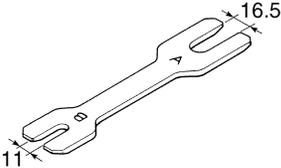
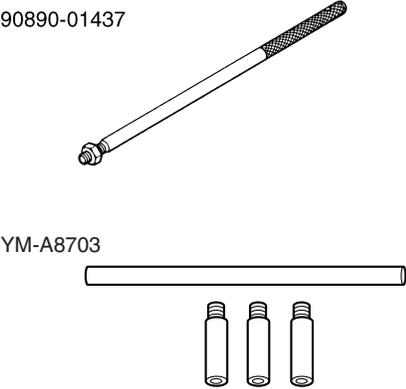
When placing an order, refer to the list provided below to avoid any mistakes.

TIP

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

Tool name/Tool No.	Illustration	Reference pages
Piston pin puller set 90890-01304 Piston pin puller YU-01304		5-76
Radiator cap tester 90890-01325 Radiator pressure tester YU-24460-01		6-3
Radiator cap tester adapter 90890-01352 Radiator pressure tester adapter YU-33984		6-3

SPECIAL TOOLS

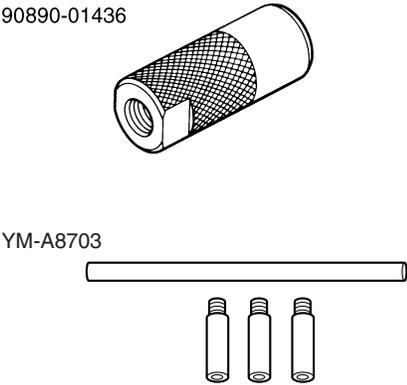
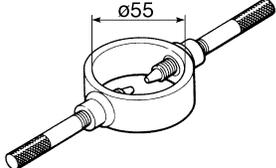
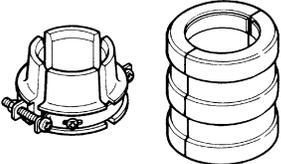
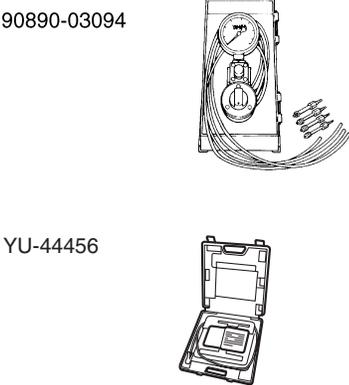
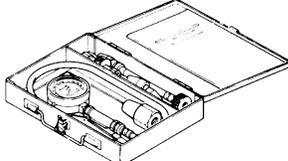
Tool name/Tool No.	Illustration	Reference pages
Steering nut wrench 90890-01403 Exhaust flange nut wrench YU-A9472		3-21, 4-73
Damper rod holder 90890-01506 YM-01506		4-64, 4-66
Oil filter wrench 90890-01426 YU-38411		3-27
Rod holder 90890-01434 Damper rod holder double ended YM-01434		4-63, 4-69
Rod puller 90890-01437 Universal damping rod bleeding tool set YM-A8703		4-67, 4-69

SPECIAL TOOLS

Product: 2009 Yamaha YZFR1Y(C) Motorcycle Service Repair Workshop Manual

Full Download: [https://www.aresairmanual.com/downloads/2009-yamaha-yzfr1yc-](https://www.aresairmanual.com/downloads/2009-yamaha-yzfr1yc-motorcycle-service-repair-workshop-manual/)

[motorcycle-service-repair-workshop-manual/](https://www.aresairmanual.com/downloads/2009-yamaha-yzfr1yc-motorcycle-service-repair-workshop-manual/)

Tool name/Tool No.	Illustration	Reference pages
Rod puller attachment (M10) 90890-01436 Universal damping rod bleeding tool set YM-A8703		4-67, 4-69
Fork spring compressor 90890-01441 YM-01441		4-63, 4-69
Fork seal driver 90890-01442 Adjustable fork seal driver (36–46 mm) YM-01442		4-66, 4-67
Vacuum gauge 90890-03094 Carburetor synchronizer YU-44456		3-9
Compression gauge 90890-03081 Engine compression tester YU-33223		5-1

Sample of manual. Download All 526 pages at:

<https://www.aresairmanual.com/downloads/2009-yamaha-yzfr1yc-motorcycle-service-repair-workshop-manual/>