



YAMAHA

2019

SERVICE MANUAL

NIKEN GT

**MXT850D
MXT850DK**

B5B-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.

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 their 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

- * 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.
 WARNING	A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
NOTICE	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.

MXT850D/MXT850DK
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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

12 Nm (1.2 kgf-m, 8.9 lb-ft)

7 Nm (0.7 kgf-m, 5.2 lb-ft)

1.5 Nm (0.15 kgf-m, 1.1 lb-ft)

12 Nm (1.2 kgf-m, 8.9 lb-ft)

5 New

6

Order	Job/Parts to remove	Q'ty	Remarks
	Engine oil		Drain. Refer to "CHANGING THE ENGINE OIL" on page 9-35.
1	Clutch cable	1	Disconnect.
2	Cover	1	
3	O ₂ sensor coupler bracket	1	
4	Clutch cover	1	
5	Clutch cover gasket	1	
6	Dowel pin	2	
7	Oil filler cap	1	

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CLUTCH

12 Nm (1.2 kgf-m, 8.9 lb-ft)

7 Nm (0.7 kgf-m, 5.2 lb-ft)

1.5 Nm (0.15 kgf-m, 1.1 lb-ft)

5 New

6

8. Remove:

- Clutch boss nut
- Conical spring washer
- Washer
- Clutch boss
- Friction plate
- Clutch housing
- Oil pump drive chain

CHECKING THE FRICTION PLATES

The following procedure applies to all of the friction plates.

1. Check:

- Friction plate 1, 2

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

2. Measure:

- Friction plate 1, 2 thickness

Out of specification → Replace the friction plates as a set.

TIP

Measure the friction plate at four places.

Friction plate 1 thickness
2.92–3.08 mm (0.115–0.121 in)
Wear limit
2.82 mm (0.111 in)

Friction plate 2 thickness
2.92–3.08 mm (0.115–0.121 in)
Wear limit
2.82 mm (0.111 in)

A. Friction plate 1
B. Friction plate 2

CHECKING THE CLUTCH PLATES

The following procedure applies to all of the clutch plates.

1. Check:

- Clutch plate 1, 2

Damage → Replace the clutch plates as a set.

2. Measure:

- Clutch plate 1, 2 thickness

(with a surface plate and thickness gauge "1")

Out of specification → Replace the clutch plates as a set.

Thickness gauge
90890-03268
Feeler gauge set
YU-26900-9

Clutch plate 1 thickness
2.20–2.40 mm (0.087–0.094 in)
Warpage limit
0.10 mm (0.004 in)

Clutch plate 2 thickness
1.90–2.10 mm (0.075–0.083 in)
Warpage limit
0.10 mm (0.004 in)

TIP

The clutch plate thickness specification listed above is for the plates with the standard thickness only. If a clutch plate with one of the other two plate thicknesses is installed, use 1.50–1.70 mm (0.059–0.067 in) or 2.20–2.40 mm (0.086–0.094 in) for the specification according to the plate.

5-57

SYMBOLS

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

TIP

The following symbols are not relevant to every vehicle.





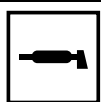









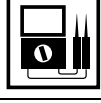



SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Serviceable with engine mounted		Gear oil
	Filling fluid		Molybdenum disulfide oil
	Lubricant		Brake fluid
	Special tool		Wheel bearing grease
	Tightening torque		Lithium-soap-based grease
	Wear limit, clearance		Molybdenum disulfide grease
	Engine speed		Silicone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

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GENERAL INFORMATION

IDENTIFICATION 1-1

 VEHICLE IDENTIFICATION NUMBER 1-1

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IDENTIFICATION

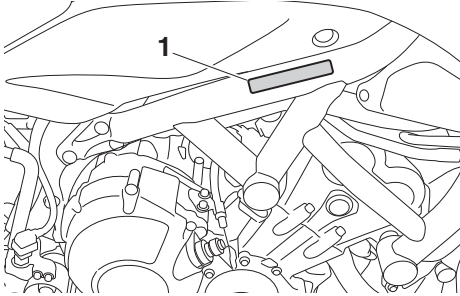
EAS20007

IDENTIFICATION

EAS30002

VEHICLE IDENTIFICATION NUMBER

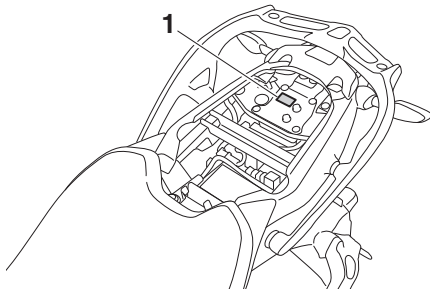
The vehicle identification number “1” is stamped into the frame.



EAS30003

MODEL LABEL

The model label “1” is affixed to the location shown. This information will be needed to order spare parts.



FEATURES

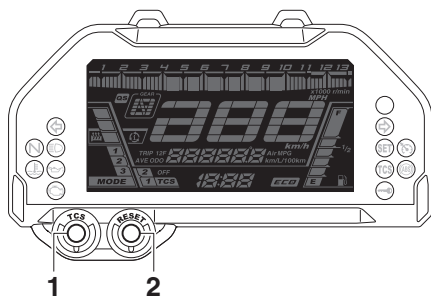
EAS20008

FEATURES

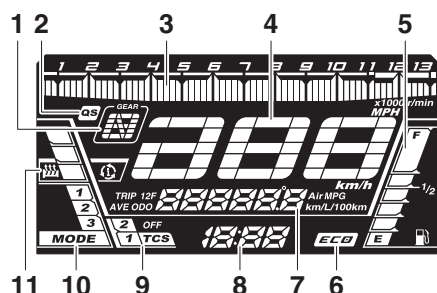
EAS30682

INSTRUMENT FUNCTIONS

Multi-function meter unit



1. "TCS" button
2. "RESET" button



1. Transmission gear display
2. QS indicator
3. Tachometer
4. Speedometer
5. Fuel meter
6. Eco indicator "ECO"
7. Multi-function display
8. Clock
9. TCS display
10. Drive mode display
11. Grip warmer display

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.

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

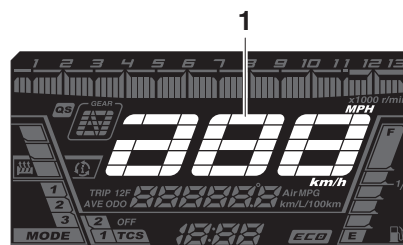
- speedometer
- tachometer
- clock

- fuel meter
- eco indicator
- transmission gear display
- drive mode display
- TCS display
- QS indicator
- grip warmer display
- multi-function display
- brightness and shift light control mode

TIP

The multi-function meter units can be set to kilometers or miles. To switch between kilometers and miles, set the multi-function display to the odometer, and then push the "RESET" button for one second.

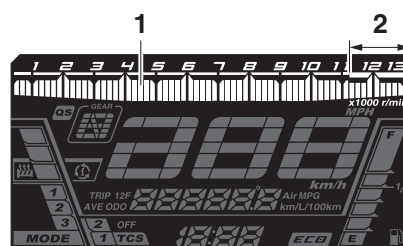
Speedometer



1. Speedometer

The speedometer shows your traveling speed.

Tachometer



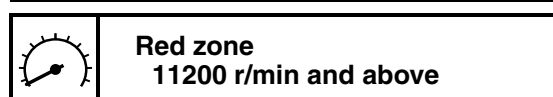
1. Tachometer
2. Tachometer red zone

The tachometer shows the engine speed.

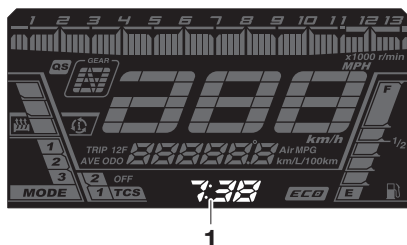
ECA19660

NOTICE

Do not operate the engine in the tachometer red zone.



Clock



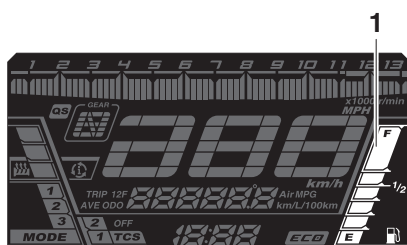
1. Clock

The clock uses a 12-hour time system.

To set the clock

1. Turn the vehicle on.
2. Push the “MENU” switch for one second, and the hour digits will start flashing.
3. Push the “SELECT” switch up or down to set the hours.
4. Push the “MENU” switch, and the minute digits will start flashing.
5. Push the “SELECT” switch up or down to set the minutes.
6. Push the “MENU” switch to start the clock.

Fuel meter



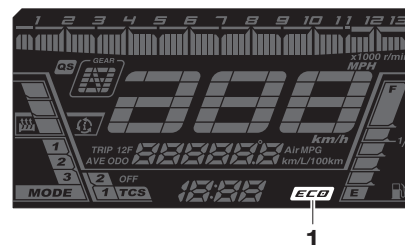
1. Fuel meter

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 the last segment starts flashing, approximately 4.0 L (1.06 US gal, 0.88 Imp.gal) of fuel remains. 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 8-19 and “CHECKING THE FUEL METER” on page 8-189.

Eco indicator



1. Eco indicator “ECO”

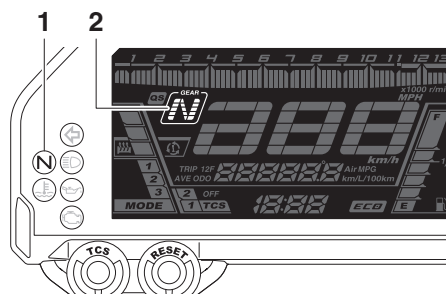
This indicator comes on when the vehicle is being operated in an environmentally friendly, fuel-efficient manner. The indicator goes off when the vehicle is stopped.

TIP

Consider the following tips to reduce fuel consumption:

- Avoid high engine speeds during acceleration.
- Travel at a constant speed.
- Select the transmission gear that is appropriate for the vehicle speed.

Transmission gear display

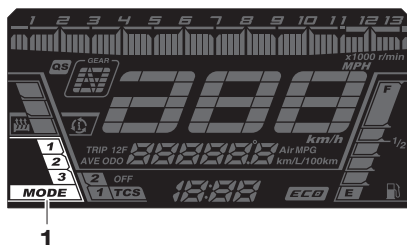


1. Neutral indicator light “N”
2. Transmission gear display

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

FEATURES

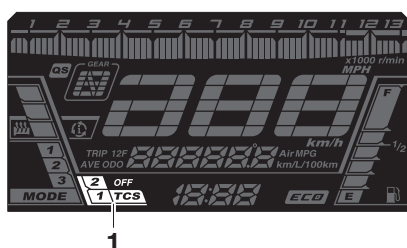
Drive mode display



1. Drive mode display

This display indicates which drive mode has been selected: “1”, “2” or “3”.

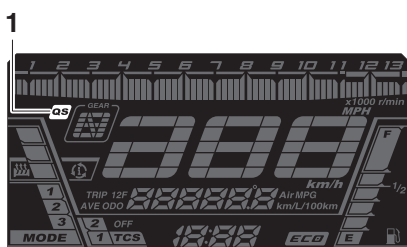
TCS display



1. TCS display

This display indicates which traction control system setting has been selected: “1”, “2”, or “OFF”.

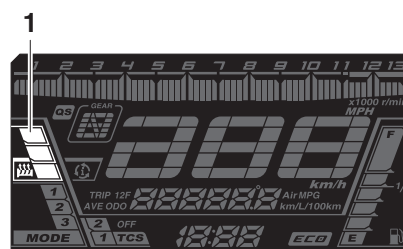
QS indicator



1. QS indicator

This indicator comes on when the quick shift system is turned on.

Grip warmer display



1. Grip warmer display

The grip warmers can be used when the engine is running. There are 4 grip warmer settings and 10 temperature levels.

Display	Setting
	Off
	Low
	Middle
	High

To change the grip warmer setting

1. Turn the vehicle on.
2. Push the “MENU” switch to select the grip warmer display, and will disappear.
3. Push the “SELECT” switch up or down to change the setting level.
4. Push the “MENU” switch.

TIP


The current grip warmer setting is saved when the vehicle is turned off.

ECA17932

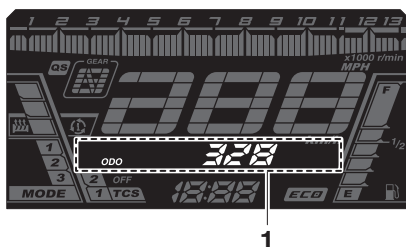
NOTICE

- Be sure to wear gloves when using the grip warmers.
- Do not use the grip warmers in warm weather.
- If the handlebar grip or throttle grip becomes worn or damaged, stop using the grip warmers and replace the grips.

To set the grip warmer temperature levels

1. Turn the vehicle on.
2. Push the “MENU” switch to select the grip warmer display, and  will disappear.
3. Push the “MENU” switch for one second, and the grip warmer display and multi-function display will start flashing.
4. Push the “MENU” switch to change the setting level.
5. Push the “SELECT” switch up or down to set the temperature level.
6. Push the “MENU” switch for one second.

Multi-function display



1. Multi-function display

The multi-function display can show the following:

- odometer (ODO)
- two tripmeters (TRIP 1 and TRIP 2)
- fuel reserve tripmeter (TRIP F)
- instantaneous fuel consumption
- average fuel consumption
- coolant temperature
- air temperature

TIP

- The odometer will lock at 999999.
- The tripmeters reset and continue counting after 9999.9 is reached.

Push the “SELECT” switch to change the display between the odometer “ODO”, the tripmeters “TRIP 1” and “TRIP 2”, instantaneous fuel consumption “km/L”, “L/100 km”, or “MPG”, average fuel consumption “AVE —.— km/L”, “AVE —.— L/100 km”, or “AVE —.— MPG”, coolant temperature “°C”, and air temperature “°C Air”. When pushing “^”, the display will change in the following order.

ODO → TRIP 1 → TRIP 2 → km/L, L/100 km, or MPG → AVE —.— km/L, or AVE —.— L/100 km, or AVE —.— MPG → °C (coolant) → °C Air → ODO

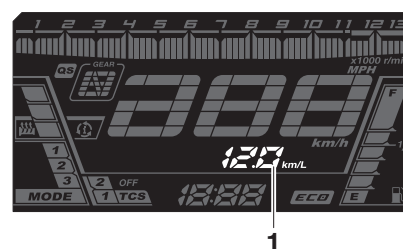
When the last segment of the fuel meter starts flashing, the display changes to fuel reserve tripmeter “TRIP F” and starts counting the distance traveled from that point. In this case, push “^” to change the display in the following order.

TRIP F → km/L, L/100 km, or MPG → AVE —.— km/L, AVE —.— L/100 km, or AVE —.— MPG → °C (coolant) → °C Air → ODO → TRIP 1 → TRIP 2 → TRIP F

TIP

- Push “v” to change the display in the opposite order.
- To reset a tripmeter, push the “RESET” button for one second.
- The fuel reserve tripmeter can be reset manually, or you can allow it to reset automatically after refueling and traveling about 5 km (3 mi).

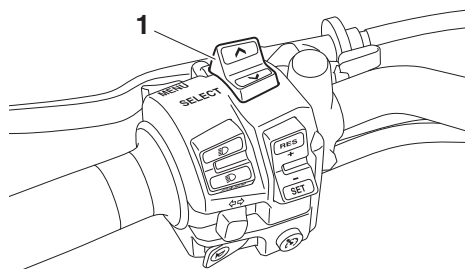
Instantaneous fuel consumption



1. Instantaneous fuel consumption display

Instantaneous fuel consumption can be set to “km/L”, “L/100 km”, or “MPG”.

- “km/L”: the distance that can be traveled on 1.0 L of fuel



1. “SELECT” switch

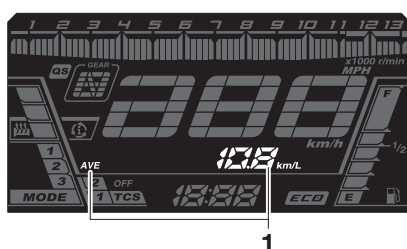
FEATURES

- “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

- To switch between “km/L”, “L/100 km”, and “MPG”, push the “RESET” button for one second.
- When traveling under 10 km/h (6 mi/h), “— —.” is displayed.

Average fuel consumption



1. Average fuel consumption display

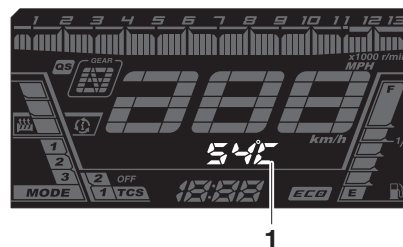
Average fuel consumption can be set to either “AVE — —. km/L”, “AVE — —. L/100 km”, or “AVE — —. MPG”.

- “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 average fuel consumption, push the “RESET” button for one second.
- After resetting, “— —.” will be shown until the vehicle has traveled a sufficient distance.
- The display units cannot be switched between “km/L”, “L/100 km”, and “MPG” in this mode, change to the instantaneous fuel consumption mode first.

Coolant temperature



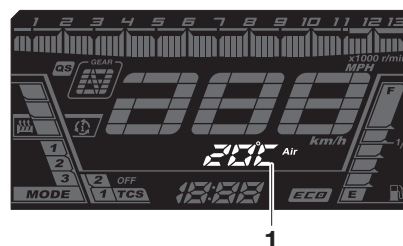
1. Coolant temperature display

The temperature of the engine coolant from 40 °C to 124 °C is shown 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



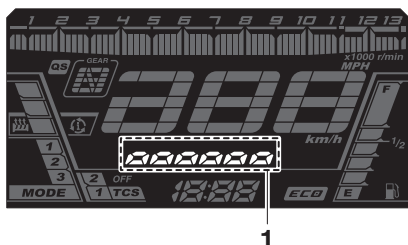
1. Air temperature display

The temperature of the air drawn into the intake system from –9 °C to 50 °C is shown in 1 °C increments.

TIP

- –9 °C will be displayed even if the air temperature falls below –9 °C.
- The temperature displayed may vary from the actual ambient temperature.

Brightness and shift light control mode



1. Brightness level display

This mode cycles through five control functions in the order listed below.

- Display brightness
- Shift light on / flash / off
- Shift light on r/min
- Shift light off r/min
- Shift light brightness

TIP

The brightness level display shows the selected brightness level.

To adjust display brightness

1. Turn the key to "OFF".
2. Push and hold the "MENU" switch.
3. Turn the key to "ON", and then release the "MENU" switch after five seconds.
4. Push the "SELECT" switch up or down to select the desired brightness level.
5. Push the "MENU" switch to confirm the selected brightness level. The control mode changes to the shift light on / flash / off setting function.

To set the shift light on / flash / off

1. Push the "SELECT" switch up or down to select one of the following style settings:
 - On setting: the shift light will come on when the set engine speed is reached. This setting is selected when the indicator light is lit continuously.
 - Flash setting: the shift light will flash when the set engine speed is reached. This setting is selected when the indicator light flashes four times per second.
 - Off setting: the shift light is deactivated. This setting is selected when the indicator light flashes once every two seconds.

2. Push the "MENU" switch to confirm the selection. The control mode changes to the shift light on r/min setting function.

To set the shift light on r/min

The shift light can be set between 6000 r/min and 12000 r/min in increments of 200 r/min.

1. Push the "SELECT" switch up or down to select the desired engine speed for activating the indicator light.
2. Push the "MENU" switch to confirm the selected engine speed. The control mode changes to the shift light off r/min setting function.

To set the shift light off r/min

The shift light can be set between 6000 r/min and 12000 r/min in increments of 200 r/min. Be sure to set the off r/min to a higher engine speed than the on r/min setting, otherwise the shift light will not come on.

1. Push the "SELECT" switch up or down to select the desired engine speed for deactivating the indicator light.
2. Push the "MENU" switch to confirm the selected engine speed. The control mode changes to the shift light brightness setting function.

To adjust the shift light brightness

1. Push the "SELECT" switch up or down to select the desired shift light brightness level.
2. Push the "MENU" switch to confirm the selected brightness level and exit the control mode.

SPECIAL TOOLS



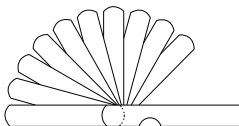

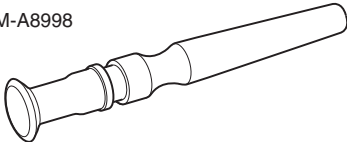
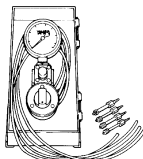

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SPECIAL TOOLS


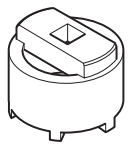
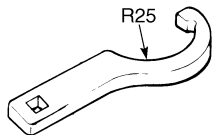
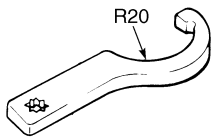
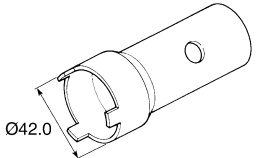
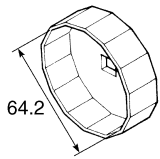
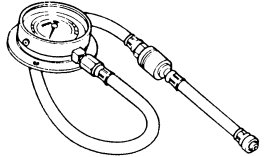
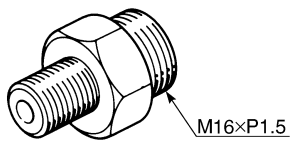
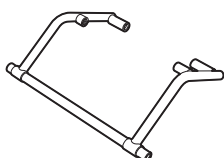
The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country. 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 number starting with “90890-”.

Tool name/Tool No.	Illustration	Reference pages
Yamaha diagnostic tool USB 90890-03256		3-4, 3-9, 3-11, 4-72, 4-73, 8-34, 8-145, 8-173
Yamaha diagnostic tool (A/I) 90890-03262		3-4, 3-9, 3-11, 4-72, 4-73, 8-34, 8-145, 8-173
Thickness gauge 90890-03268 Feeler gauge set YU-26900-9		3-6, 4-31, 4-41, 5-33, 5-57
Valve lapper (ø14) 90890-04101 Valve lapping tool (14mm) YM-A8998	<p>90890-04101</p>  <p>ø14</p> <p>YM-A8998</p> 	3-7
Vacuum gauge 90890-03094 Vacuummate YU-44456	<p>90890-03094</p>  <p>YU-44456</p> 	3-9

SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Yamaha grease N (Urea grease) 90793-40109		3-21, 3-27, 4-97
Steering nut wrench 48mm 90890-01598 Steering nut wrench 48mm YM-01598		3-21, 3-22, 4-97
Steering nut wrench 90890-01443 Spanner wrench YU-33975		3-22
Steering nut wrench 90890-01403 Exhaust flange nut wrench YU-A9472		3-24, 3-24, 3-25, 3-26, 4-108, 4-108, 4-108
Ring nut wrench 90890-01507 Ring nut wrench YM-01507		3-26, 4-108
Oil filter wrench 90890-01426 Oil filter wrench YU-38411		3-33
Pressure gauge 90890-03153 Pressure gauge YU-03153		3-34, 7-12, 7-12
Oil pressure adapter H 90890-03139		3-34
Jack stand 90890-01596 Jack stand YM-01596		4-27