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XVZ13TF(L) '99

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SERVICE MANUAL

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**XVZ13TF (L)
SERVICE MANUAL**

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First edition, January 1999

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permission of Yamaha Motor Co., Ltd
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NOTICE

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 with federal environmental quality objectives.

Yamaha Motor Company, Ltd. is continually striving to improve all its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha dealers and will appear in future editions of this manual where applicable.

NOTE:

- 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 INFORMATION

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



The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander or a person inspecting or repairing the motorcycle.

CAUTION:

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

NOTE:

A NOTE 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 inspection procedures are laid out with the individual steps in sequential order.

- ① The manual is divided into chapters. An abbreviation and symbol in the upper right corner of each page indicate the current chapter. Refer to "SYMBOLS" on the following page.
- ② Each chapter is divided into sections. The current section title is shown at the top of each page, except in Chapter 3 ("Periodic Inspections and Adjustments"), where the sub-section title(s) appear. (In Chapter 3, "Periodic Inspection and Adjustments", the sub-section title appears at the top of each page, instead of the section title.)
- ③ Sub-section titles appear in smaller print than the section title.
- ④ To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.
- ⑤ Numbers are given in the order of the jobs in the exploded diagram. A circled number indicates a disassembly step.
- ⑥ Symbols indicate parts to be lubricated or replaced (see "SYMBOLS").
- ⑦ A job instruction chart accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.
- ⑧ Jobs requiring more information (such as special tools and technical data) are described sequentially.

②

①

④

CLUTCH

ENG

CLUTCH

⑤

⑥

CLUTCH

ENG

③

REMOVING THE CLUTCH

1. Straighten the lock washer tab.
2. Loosen.
 - clutch boss nut ①

NOTE:

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

Universal clutch holder
 YM-91042, 90890-04086

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.

NOTE:

Measure the friction plate at four places.

Friction plate thickness
 2.9 – 3.1 mm
 <Limit>: 2.8 mm

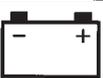
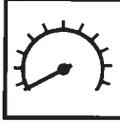
⑧

⑦

| Order | Job/Part | Qty | Remarks |
|-------|----------------------------|-----|--|
| 1 | Removing the clutch | | Remove the parts in the order listed. |
| 1 | Clutch spring plate | 1 | |
| 2 | Clutch spring | 1 | |
| 3 | Clutch spring seat | 1 | |
| 4 | Pressure plate | 1 | |
| 5 | Push rod #2 | 1 | Refer to "INSTALLING THE CLUTCH". |
| 6 | O-ring | 1 | |
| 7 | Ball | 1 | |
| 8 | Friction plates | 7 | |
| 9 | Clutch plates | 6 | |
| 10 | Nut | 1 | Refer to "REMOVING/INSTALLING THE CLUTCH". |
| 11 | Lock washer | 1 | |
| 12 | Clutch boss | 1 | |
| 13 | Retaining wire | 1 | Refer to "INSTALLING THE CLUTCH". |
| 14 | Clutch plate | 1 | |

4-47

4-49

| | | |
|--|---|---|
| ① GEN INFO  | ② SPEC  | |
| ③ CHK ADJ  | ④ ENG  | |
| ⑤ COOL  | ⑥ CARB  | |
| ⑦ CHAS  | ⑧ ELEC  | |
| ⑨ TRBL SHTG ?  | ⑩  | |
| ⑪  | ⑫  | |
| ⑬  | ⑭  | |
| ⑮  | ⑯  | ⑰  |
| ⑱  | ⑲  | ⑳  |
| ㉑  | ㉒  | ㉓  |
| ㉔  | ㉕ New | |

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SYMBOLS

The following symbols are not relevant to every vehicle.

Symbols ① to ⑨ indicate the subject of each chapter.

- ① General information
- ② Specifications
- ③ Periodic inspections and adjustments
- ④ Engine
- ⑤ Cooling system
- ⑥ Carburetor(-s)
- ⑦ Chassis
- ⑧ Electrical system
- ⑨ Troubleshooting

Symbols ⑩ to ⑰ indicate the following.

- ⑩ Serviceable with engine mounted
- ⑪ Filling fluid
- ⑫ Lubricant
- ⑬ Special tool
- ⑭ Tightening torque
- ⑮ Wear limit, clearance
- ⑯ Engine speed
- ⑰ Electrical data

Symbols ⑱ to ㉓ in the exploded diagrams indicate the types of lubricants and lubrication points.

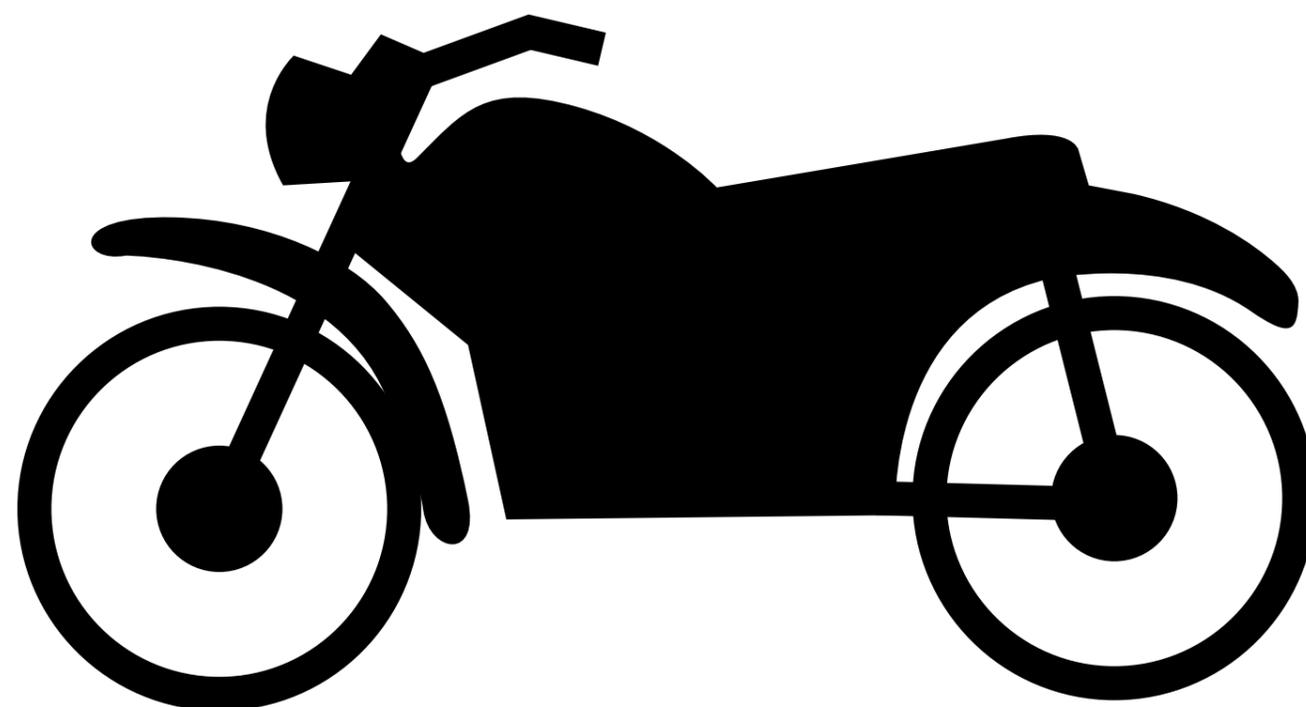
- ⑱ Engine oil
- ⑲ Gear oil
- ⑳ Molybdenum disulfide oil
- ㉑ Wheel bearing grease
- ㉒ Lithium soap base grease
- ㉓ Molybdenum disulfide grease

Symbols ㉔ to ㉕ in the exploded diagrams indicate the following:

- ㉔ Apply locking agent (LOCTITE®)
- ㉕ Replace the part

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**GEN
INFO**

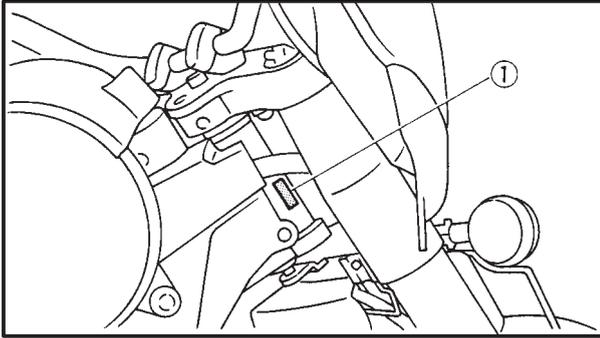
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MOTORCYCLE IDENTIFICATION

GEN
INFO



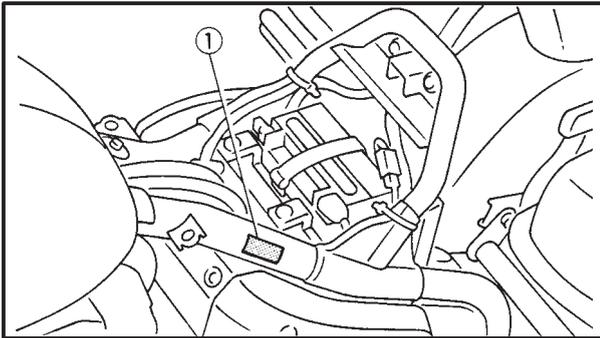
EAS00014

GENERAL INFORMATION MOTORCYCLE IDENTIFICATION

EAS00017

VEHICLE IDENTIFICATION NUMBER

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



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MODEL CODE

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

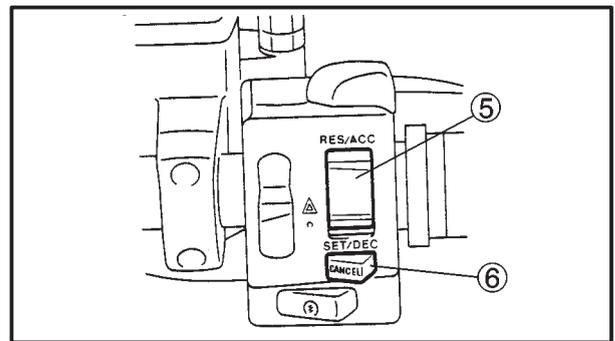
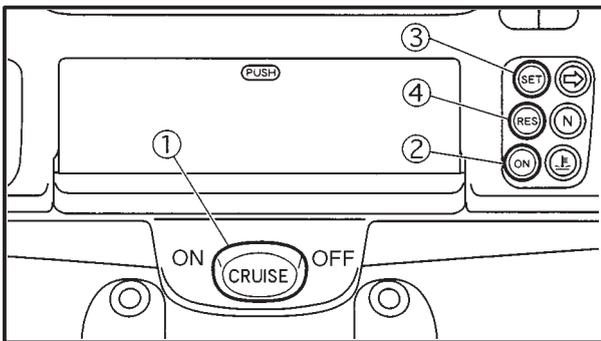
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FEATURES
CRUISE CONTROL

This motorcycle is equipped with cruise control which designed to maintain a set speed.

CAUTION:

- Giving a severe load like using as a trailer/tractor or driving on a steep slope could remove the cruise control.
- Do not set the cruise control while idling the rear tires for the preparation.
- Do not disassemble the vacuum pump.
- Never remove the cruise control actuator rubber cover. When putting it back, bolts or other parts will be caught and the cruise control wire can be locked.
- Do not remove the air cleaner cover of the vacuum pump in order not to cause a malfunction in cancellation of the cruise control by dirt, trash etc.
- Do not drive without holding the steering wheel whether the cruise control is ON or OFF.



- ① "CRUISE" switch ③ "SET" indicator light
- ② "ON" indicator light ④ "RES" indicator light

- ⑤ Cruise control switch
- ⑥ "CANCEL" switch

Cruise control switch functions

① "CRUISE" switch

Push this switch to "ON" when the cruise control system is preset. The "ON" indicator light will come on. Once the switch is released it will return to the center (Hold) position.

To cancel the cruise control system, push the switch to "OFF" or main switch to the "OFF" position.

② "ON" indicator light

This indicator light comes on when the cruise control systems preset (when "ON" is selected by the "CRUISE" switch).

③ "SET" indicator light

This indicator light comes on when the motorcycle is operating at a set speed.

④ "RES" indicator light

This light comes on when the set speed, which is cancelled by any steps, is memorized and when the operating speed is in the range of approx. 50-130 km/h.

If the resume system is operated while this light is on, it continues flashing until the speed returns to that memorized.

⑤ Cruise control switch

This switch is capable of the following controls.

Refer to the "Operation chart" for details.

Set speed ride

Minute adjustment of set speed

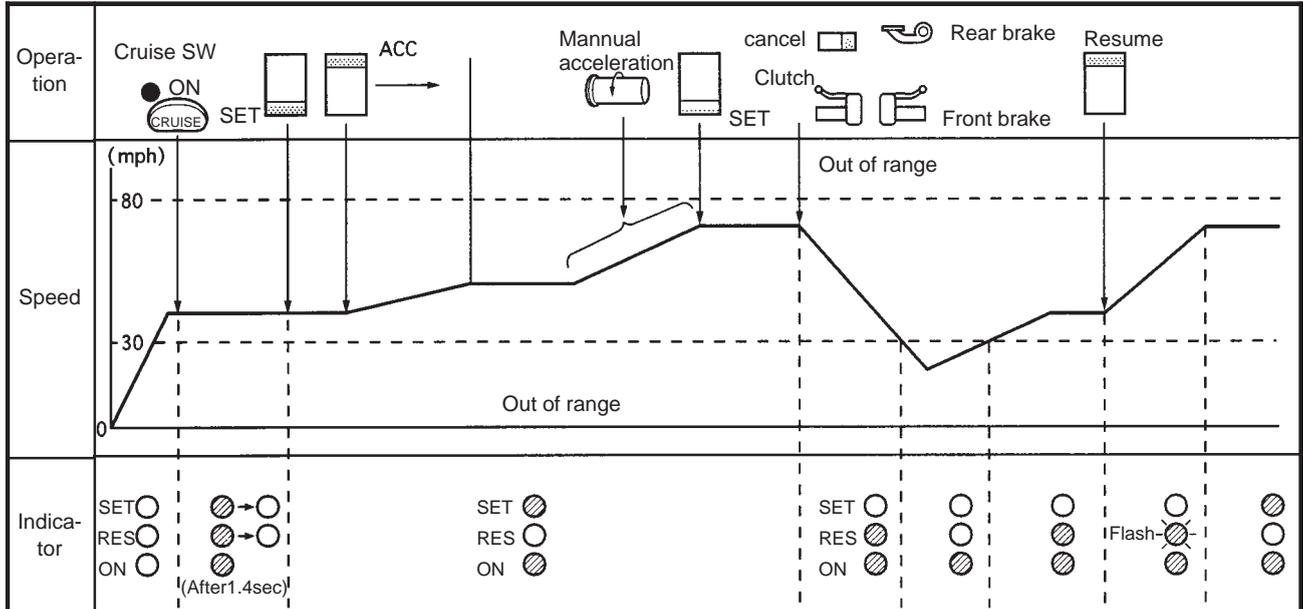
Consecutive adjustment of set speed

"RESUME" system

⑥ "CANCEL" switch

Push this switch to cancel the set speed ride in the cruise control system.

Operation chart



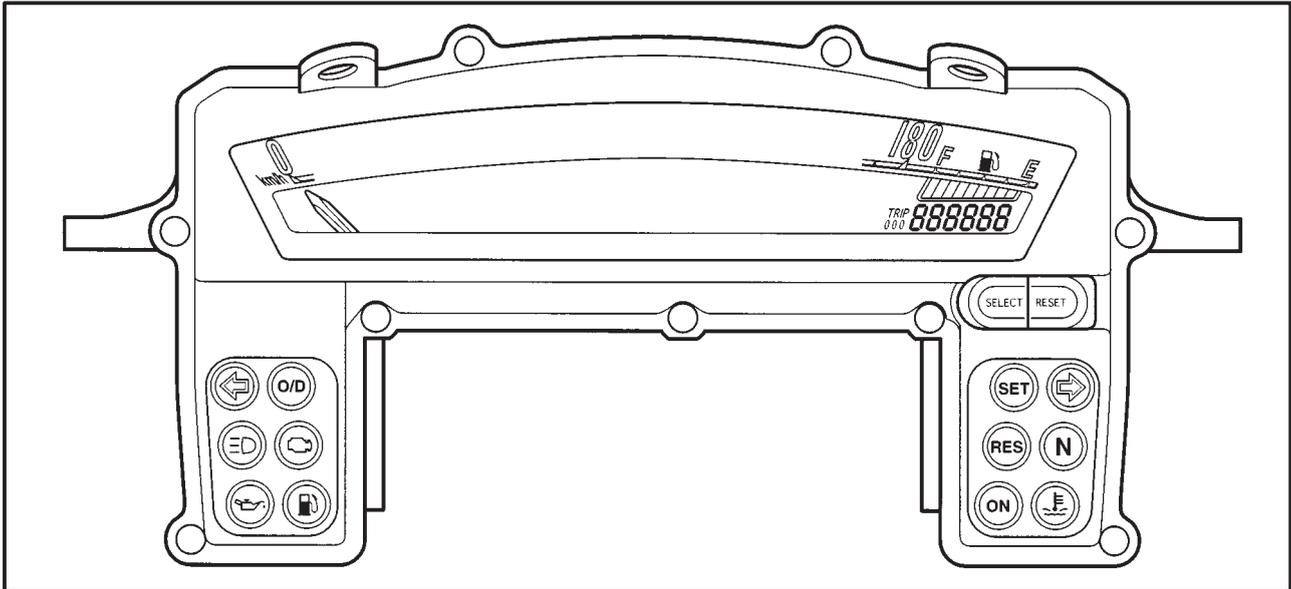
Cruise control function

- 1) The cruise control can only be activated when riding in 4th, 5th gear and traveling between the speed of 50 and 130 km/h.
- 2) To operate the system, the “CRUISE” switch should be turned “ON”.
- 3) When push the cruise control switch to “SET”, the cruise control system will be set the set speed.
- 4) By pushing (in shorter than 0.5 seconds), the control switch in the direction of either “ACC” or “DEC”, the set speed can be changed in increments or decrements of approximately 1.6 km/h.
- 5) If the control switch is held in the “ACC” or “DEC” position (longer than 0.5 seconds), the speed can be successively increased or decreased slowly.
- 6) The cruise control will be deactivated if the front or rear brake is applied or if the clutch is disengaged or if the “CANCEL” switch is pushed.
- 7) After canceling, the speed is returned to the one set before the cancellation by pushing the control switch once in the “RES” direction.
- 8) Auto cruise function is canceled;
 - a. In case of current speed drops 8 km/h less than the originally set speed.
 - b. In case of gear position is moved to gears other than of 4th, 5th.
 - c. In case of systems fines any faulty signal in the following systems.
 - Control unit
 - Actuator cable
 - Logical error in cut off signal
 - Error signal in speed sensor signal
 - Error signal in engine revolution
 - Cruise control switch lead (“SET”/“RES”)
- 9) When main switch is cut off once, “resume” is canceled.

DIGITAL SPEEDOMETER

This speedometer is equipped with:

- An odometer
- Two trip odometers
- A fuel reserve trip meter
- A clock



Odometer and trip meter modes

1) Selecting a mode

Push the “SELECT” button to change between the odometer mode “ODO” and the trip odometer modes “TRIP 1” and “TRIP 2” in the following order.

“ODO” → “TRIP 1” → “TRIP 2” → “ODO”

If the fuel level indicator light comes on, the odometer display will automatically change to the fuel reserve trip meter mode “TRIP F” and start counting the distance traveled from that point.

Push the “SELECT” button to change between the fuel reserve trip meter, trip odometer and odometer modes in the following order:

“TRIP F” → “TRIP 1” → “TRIP 2” → “ODO” → “TRIP F”

2) Resetting a meter

To reset a trip odometer to 0.0, select it by pushing the “SELECT” button and push the “RESET” button.

To reset the fuel reserve trip meter, select it by pushing the “SELECT” button and push the “RESET” button. The display will return to prior mode (“ODO”, “TRIP 1” or “TRIP 2”).

If you do not reset the fuel reserve trip meter manually, it will automatically reset and return to “TRIP 1” after refueling and the motorcycle has traveled both 5km.

NOTE:

- If the fuel reserve trip meter appears, and a different mode was NOT selected prior to resetting the fuel reserve trip meter, the display always returns to the “TRIP 1” mode.
- If the fuel reserve trip meter appears, and a different mode was selected prior to resetting the fuel reserve trip meter, the display automatically returns to the prior mode.

**Clock mode**

To change the display to the clock mode, push both the “SELECT” and “RESET” buttons.

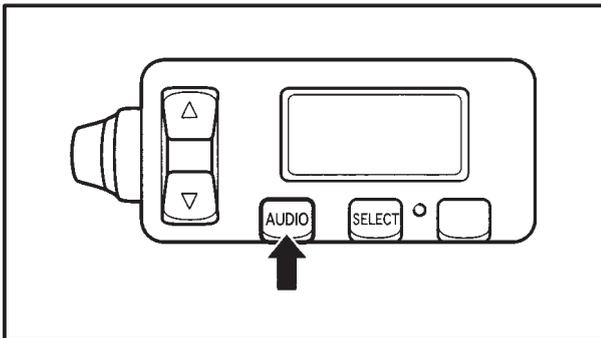
To change the display back to odometer mode, push the “RESET” button.

1) To set the clock

- a. Push both the “SELECT” and “RESET” buttons for at least two seconds.
- b. When the hour digits start flashing, push the “RESET” button to set the hours.
- c. Push the “SELECT” button and the minute digits will start flashing.
- d. Push the “RESET” button to set the minutes.
- e. Push the “SELECT” button to start the clock.

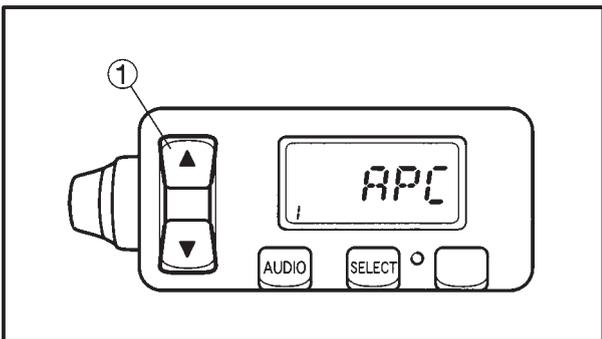
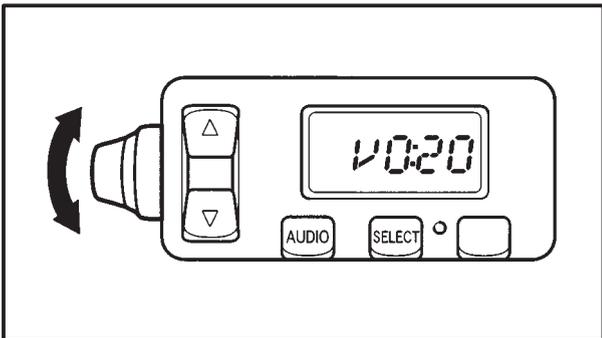
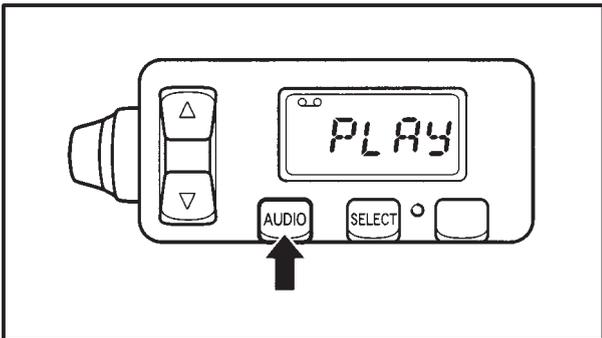
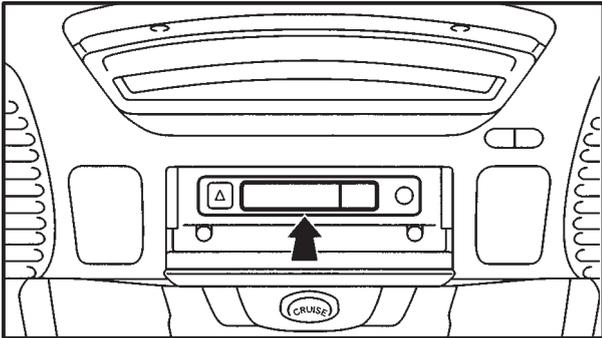
NOTE:

After setting the clock, be sure to push the “SELECT” button before turning the main switch to “OFF”, otherwise the clock will not be set.

**AUDIO SYSTEM****1. POWERING ON/OFF THE AUDIO SYSTEM****Turning on/off the audio system**

Turn the main switch to the “ACC” or “ON” position.

- To turn on the power for the audio system, push the audio button “AUDIO”.
- To turn off the audio system, push the audio button “AUDIO” continuously for 1 second or more.



2. CASSETTE DESK OPERATION

The cassette tape deck has the following functions.

- Song search
 - Change tape play direction
 - Dolby noise reduction
 - Blank tape skip
- a. Turn the main switch to the “ACC” or “ON” position and push the “AUDIO” button to turn on the power.
 - b. Insert a cassette tape into the cassette deck.
 - c. If a tape is already loaded in the cassette deck, push the “AUDIO” button until “PLAY” appears. The tape will start playing.
 - d. Turn the volume control knob to set the volume level. The volume level can be set from 0 to 30.

Track searching

To search for a song on the tape, push the up-down switch ① for less than one second. The “APC” (auto program control) indicator will appear in the display.

Push the witch once for each song to be skipped. Pushing the switch in direction “Δ” will search in the forward direction.

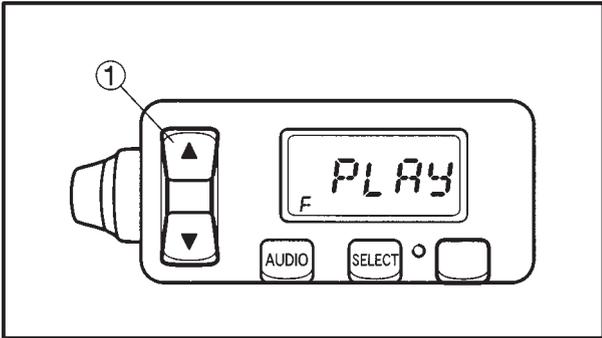
Pushing the switch in direction “∇” will search in the reserve direction.

When searching in the forward direction, the number of song that are being skipped will appear. (i.e., “1”, meaning one track is being skipped)

When searching the reverse direction, the number of song that are being skipped will appear along with a minus sign before the number. (i.e., “-1”, meaning one song is being skipped)

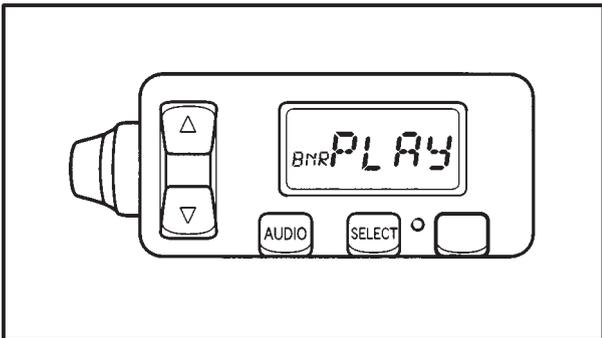
The maxmum number of songs that can be skipped in either direction is 9.

To stop a searching operation, push the up-down button in the opposite direction that it was originally pushed.



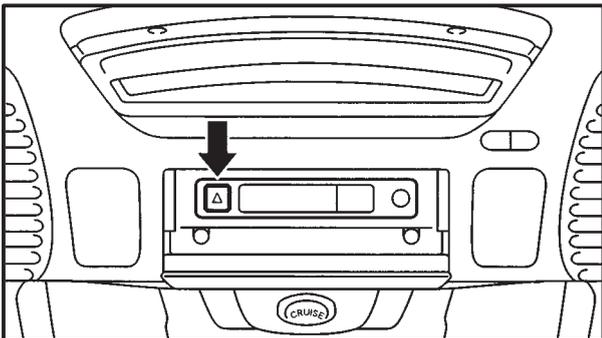
Reserving tape play direction

Push the up-down button ① in either direction for more than one second to reverse tape play. When the tape is playing the forward direction, the “F” indicator will appear. When the tape is playing in the reverse direction, the “R” indicator will appear.



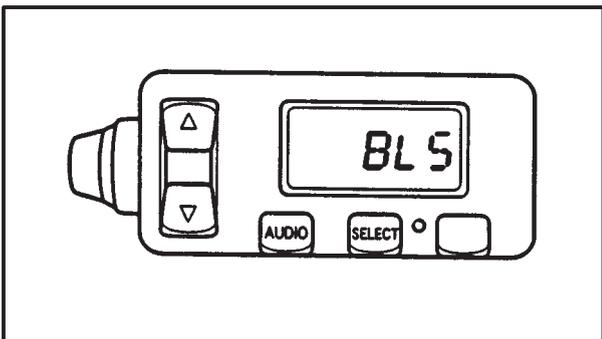
Dolby noise reduction

The Dolby noise reduction can be turned on or off by pushing the “EJECT” button for at least two seconds. When the noise reduction is on, the “BNR” indicator appears in the display.



Ejecting the cassette tape

Push the “EJECT” button to eject the tape from the cassette deck.



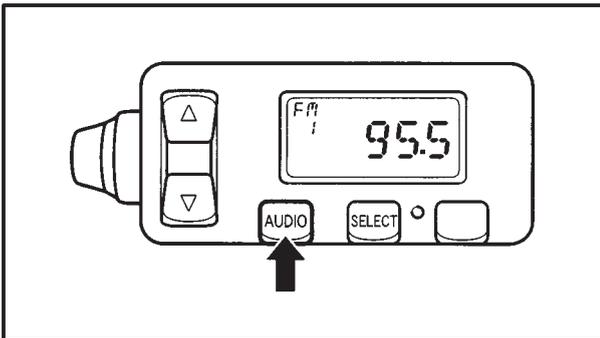
Blank skipping

When there is a blank portion on the cassette tape the “BLS” indicator light will come on and the cassette deck automatically fast forwards the tape to the next track.

3. RADIO OPERATION

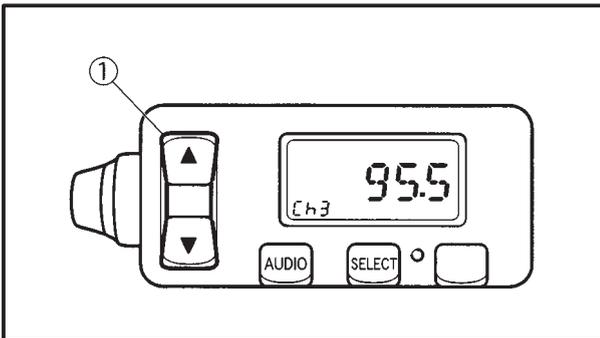
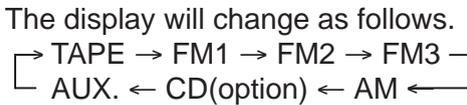
The radio has the following functions.

- Switching the receiving band
- Switching the receiving station
- Automatic tuning (Seek)
- Manual tuning
- Programing preset stations in memory
- Automatic writing of stations in memory (Auto store operation)



Switching the receiving bands

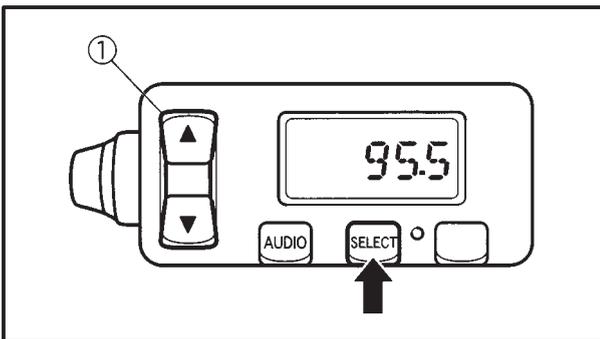
This radio system has 3 bands for FM and 1 band for AM. Select a band by pushing the “AUDIO” button for less than 1 second. The display will change as follows.



Automatic tuning (Seek operation)

Push the up-down switch ① in either direction and hold it for as least 1 second.

The tuner will automatically stop at the first station that has a strong enough radio wave.

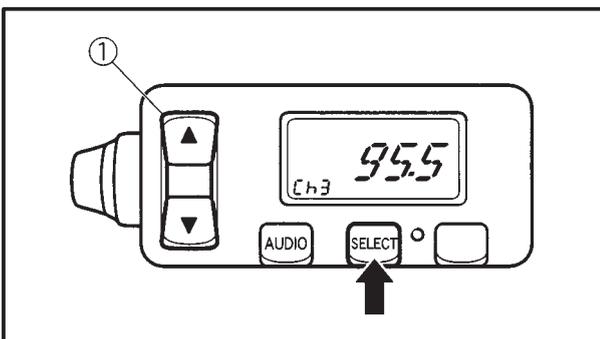


Manually turning

When a radio wave is too weak to be picked up automatically, it can be selected manually as follows.

Push the “SELECT” button until “RADIO” station appears.

Push the up-down switch ① for less than 1 second in either direction and the ferequency will change in 0.1 MHz steps for FM and in 9 kHz for AM.



Presetting station in memory

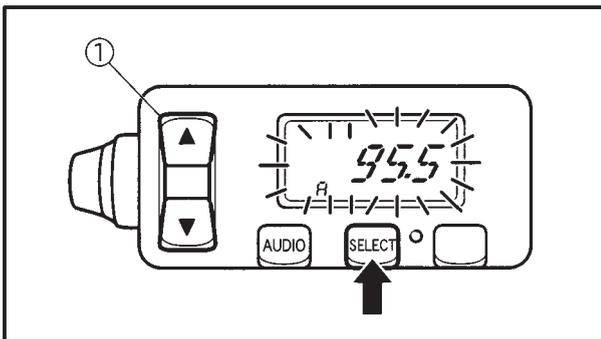
Station can be preset either automatically or manually. 6 stations can be set for each band. Preset station either manually or automatically by the following procedure.

- Select the station desired to be preset.
- Push the “SELECT” button for as least 2 seconds untl the radio frequency and the channel “Ch” start flashing.

- c. Push the up-down switch ① in either direction to select the channel number to be set for the current station. (Ch1, Ch2, Ch3, Ch4, Ch5 and Ch6)
- d. Press the “SELECT” button to programing the channel in memory.

Repeat this procedure for the remaining stations desired to be preset in the memory. Stations can be also be automatically preset by the following procedure.

- a. Push the “SELECT” button until the radio frequency and the channel “Ch” start flashing.
- b. Push the up-down button in either direction for at least 1 second to automatically tune in a station.
- c. When the desired station is found, push the up-down switch for less than one second to select the channel number to be set for that station.
- d. Push the “SELECT” button to programing the channels in memory.
- e. Repeat this procedure for the remaining stations desired to be preset in memory.



Programing preset stations in memory automatically

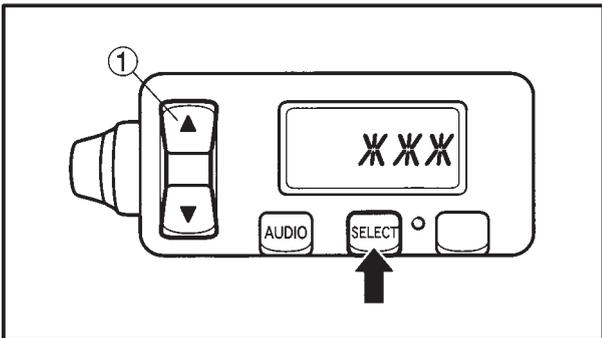
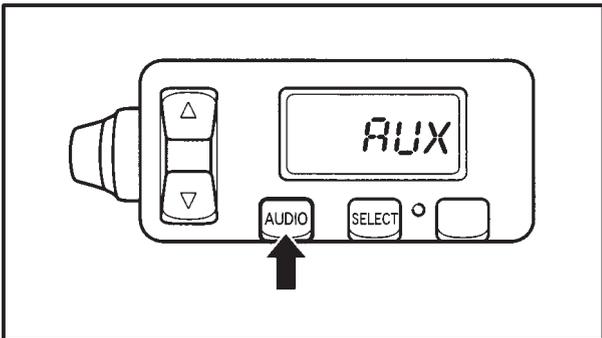
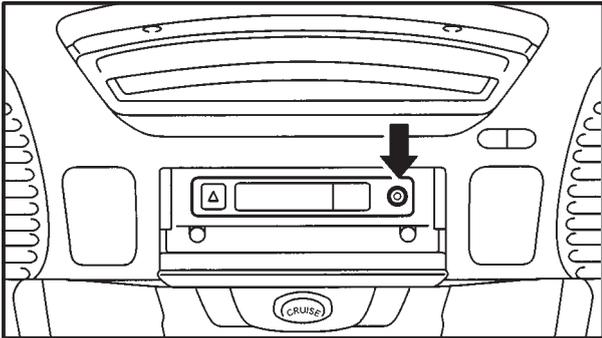
Setting up to 6 channels can be made by the following procedure.

NOTE: _____

Stations will be starting from the station preset at chanel 6.

It is recommended to use this function only in areas with strong radio frequencies.

- a. Push the “SELECT” button until the radio frequency and the channel “Ch” start flashing.
- b. Push the up-down switch ① in either direction to select channel “A”.
- c. Press the “SELECT” button to start the random channel selection and the tuner will automatically write the channels in memory.



“AUX” (Auxiliary) operation

Auxiliary audio equipment can be used to play through the audio system.

- a. Insert the output plug of the auxiliary equipment into the jack located at the right side of the cassette deck.
- b. Push the “AUDIO” button until “AUX” appears and the auxiliary equipment can be used to play through the audio system.

TAPE → FM1 → FM2 → FM3
 AUX. ← CD(option) ← AM ←

5. BASIC SETTINGS

AUDIO system

The following settings can be made in the audio system.

Selecting output between speakers and a head-set assembly

Controlling bass level

Controlling treble level

Controlling fader (balance between the front and the rear speakers)

Controlling intercom volume level

Changing auto volume level

Setting procedure

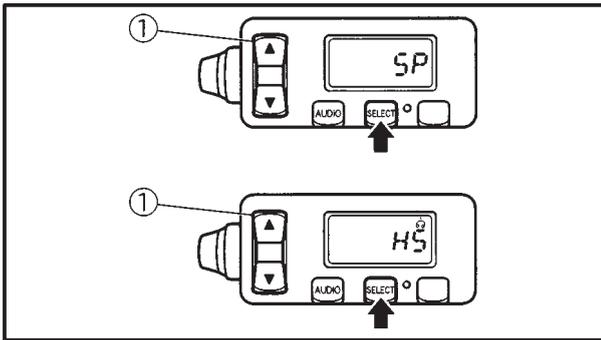
The following setting procedures apply to the audio system, auxiliary mode and CD Changer.

- a. Select the desired setting mode by pushing the “SELECT” button. On each press of the button, the mode changes as follows.

Audio system

OUTPUT → BASS → TREB → FADE
 RADIO station → AVC → INT.VOL ←

- b. Push the up-down switch ① in either direction to change the setting for any mode.

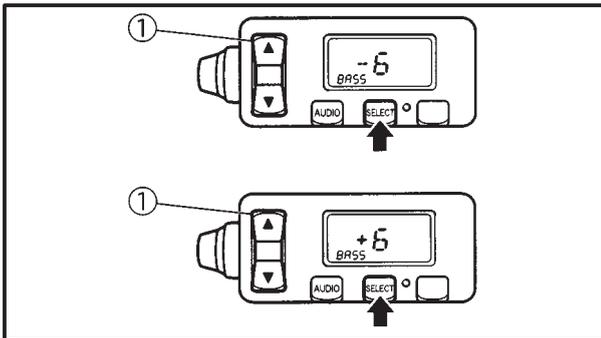


Selecting the output for speaker or headset (optional)

To select the output for speaker or headset, push the “SELECT” button and the “SP” (speaker) or “HS” (headset) indicator will appear. To change between speaker and headset, push the up-down switch ① in either direction.

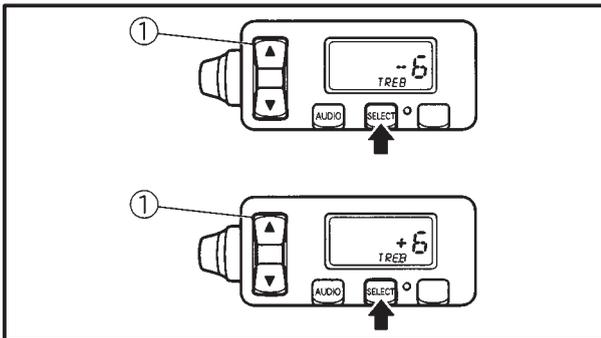
NOTE:

The speaker and headset cannot be used the same time.



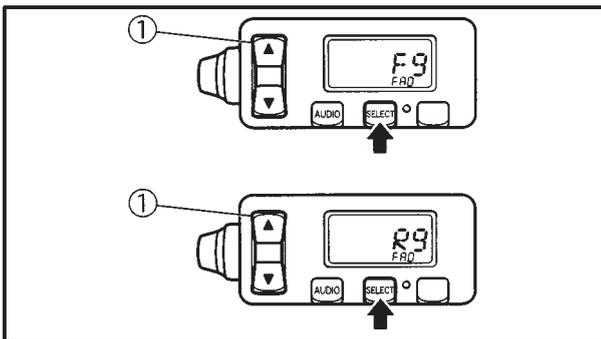
Controlling the bass level

- To control the bass level, push the “SELECT” button until the “BASS” indicator appears.
- Push the up-down switch ① in either direction to change the level.



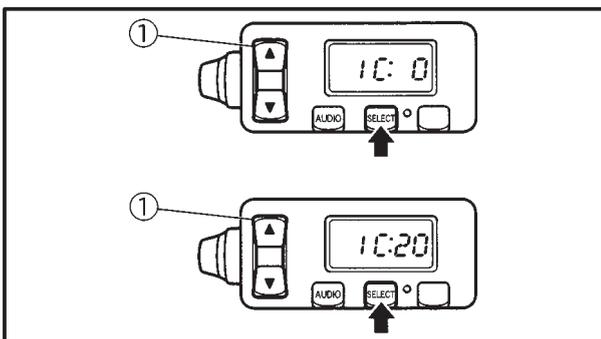
Controlling the treble level

- To control the treble level, push the “SELECT” button until the “TREB” indicator appears.
- Push the up-down switch ① in either direction to change the level.
The treble level can be set from -6 to +6.



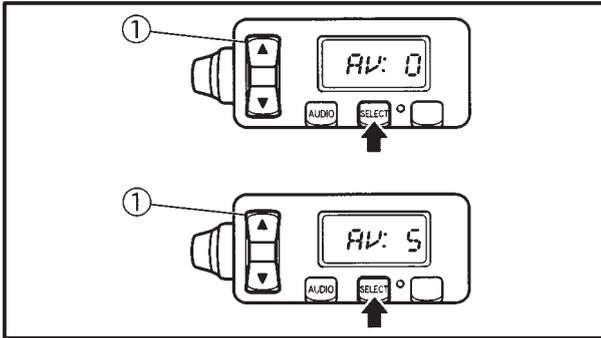
Controlling the fader (balance between front and rear speakers)

- To control the fader, push the “SELECT” button until the “FAD” indicator appears.
- Push the up-down switch ① in either direction to change the balance.
The fader level can be adjusted from F9 to R9.



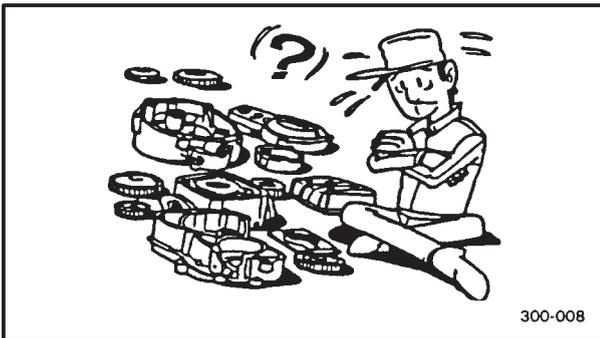
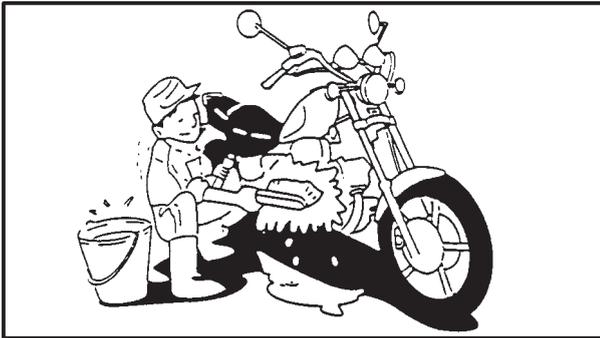
Controlling the intercom volume level

- To control the intercom volume level, push the “SELECT” button until the “IC:” indicator appears.
- Push the up-down switch ① in either direction to change the volume level.
The intercom volume level can be set from 0 to 20.



Changing the level for auto volume control system

- a. To control the level for the auto volume control system, push the "SELECT" button until the "AV:" indicator appears.
- b. Push the up-down switch ① in either direction to change the volume level.
The auto volume control rate of compensation can be adjusted from 0 to 5.



EAS00020

IMPORTANT INFORMATION PREPARATION FOR REMOVAL AND DIS- ASSEMBLY

1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.
2. Use only the proper tools and cleaning equipment.
Refer to the "SPECIAL TOOLS" section.
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.

EAS00021

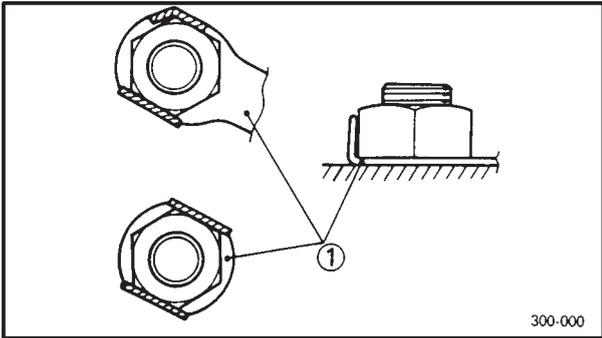
REPLACEMENT PARTS

1. 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.

EAS00022

GASKETS, OIL SEALS AND O-RINGS

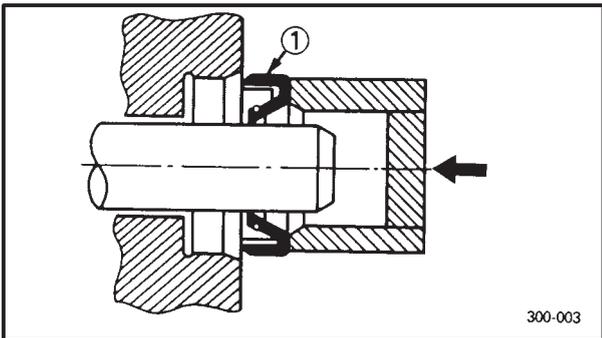
1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and apply grease onto the oil seal lips.



EAS00023

LOCK WASHERS/PLATES AND COTTER PINS

1. 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.



EAS00024

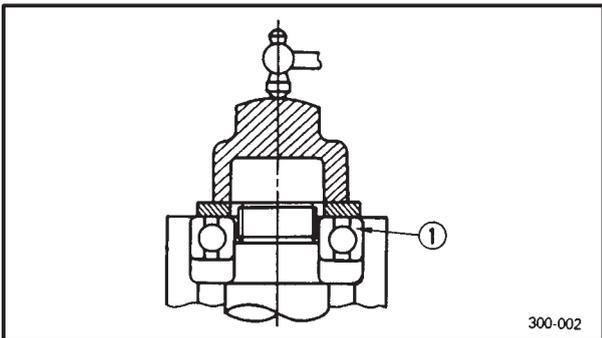
BEARINGS AND OIL SEALS

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

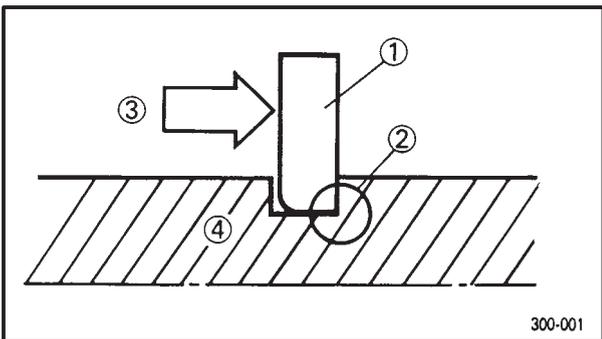
- ① Oil seal

CAUTION:

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



- ① Bearing



EAS00025

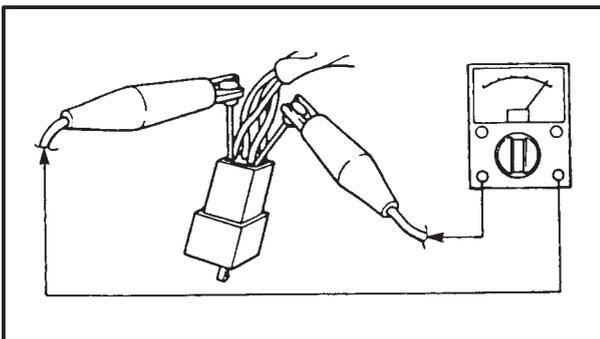
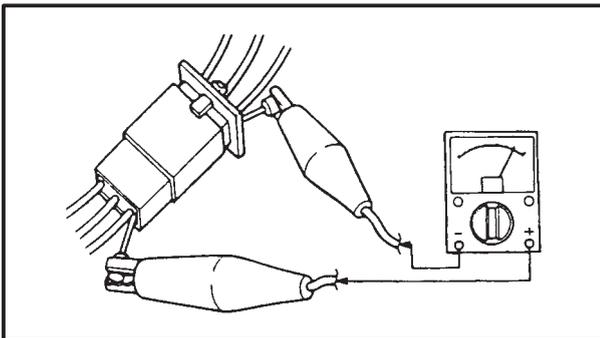
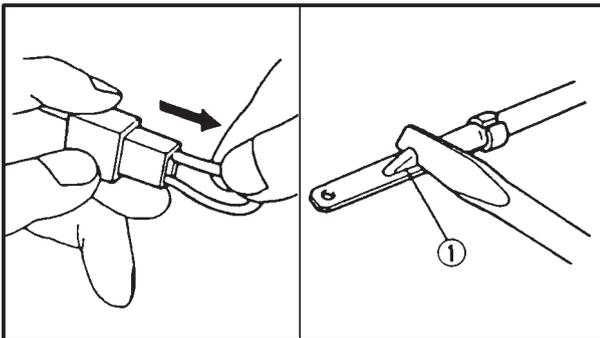
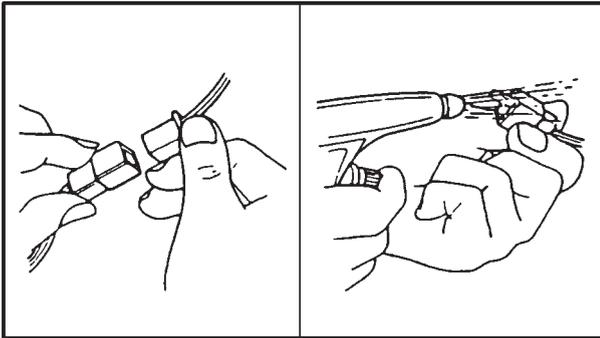
CIRCLIPS

1. 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 that the sharp-edged corner ② is positioned opposite the thrust ③ that the circlip receives.

- ④ Shaft

CHECKING THE CONNECTIONS

GEN
INFO



EAS00026

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.

NOTE: _____

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

4. Connect:

- lead
- coupler
- connector

NOTE: _____

Make sure that all connections are tight.

5. Check:

- continuity
(with a pocket tester)



Pocket tester

YU-03112,90890-03112

NOTE: _____

- 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.

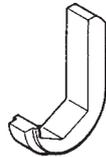
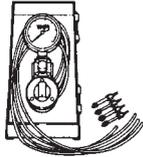
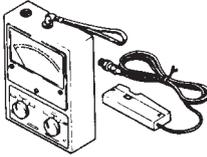
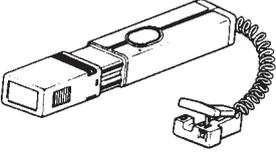
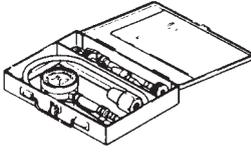
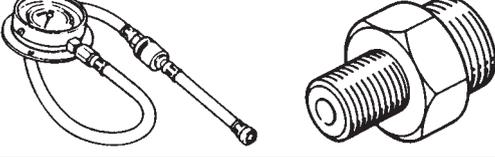


EAS00027

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.

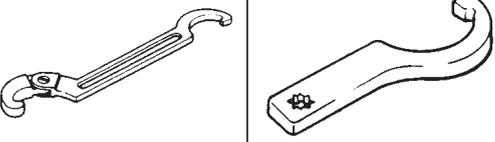
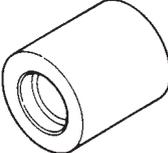
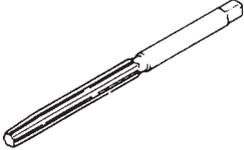
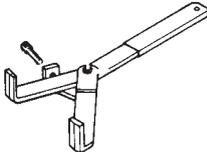
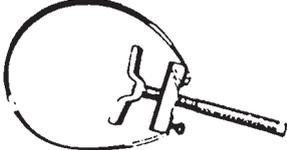
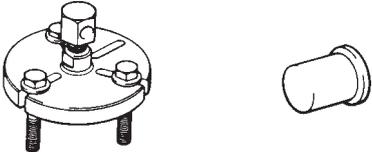
P/N.YM-, YU-
For US, CDN
YS-, YK- ACC-
P/N.90890-
Except for US, CDN

| Tool No. | Tool name/Usage | Illustration |
|--|--|---|
| YM-33961 90890-04105 | Tappet adjusting tool This tool is needed to rotate the camshaft for access to the valve lifter and valve pad |  |
| YU-08030-A 90890-03094 | Vacuum gauge This gauge is needed for carburetor synchronization. |  |
| YU-08036-A 90890-03113 | Engine tachometer This tool is needed for observing engine rpm. |  |
| YU-33277-A 90890-03141 | Timing light This tool is necessary for checking ignition timing. |  |
| YU-33223 90890-03081 | Compression gauge/Set These tools are needed to measure engine compression. |  |
| YU-38411 90890-01426 | Oil filter wrench This tool is needed to remove and install the oil filter. |  |
| Gauge 90890-03153 Adapter 90890-03124 | Pressure gauge/adapter These tools are needed to measure engine oil pressure. |  |

SPECIAL TOOLS

**GEN
INFO**

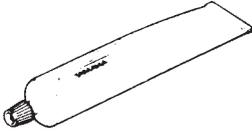
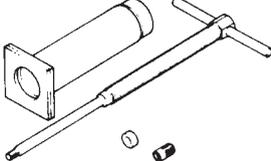
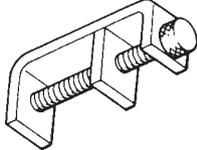
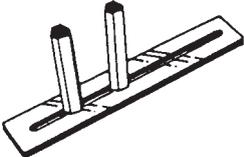
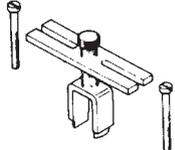
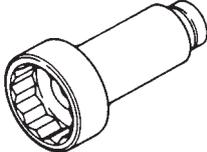
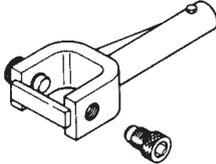
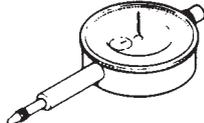


| Tool No. | Tool name/Usage | Illustration | |
|---|--|---|--|
| YU-01268 90890-01268 YU-33975 90890-01403 | Ring nut wrench This tool is needed to loosen and tighten the steering stem ring nut. |  | |
| YU-03112 90890-03112 | Pocket tester This instrument is needed for checking the electrical system. |  | |
| Compressor YM-04019 90890-04019 Adapter YM-01253-1 90890-04114 | Valve spring compressor/adapter These tools are needed to remove and install the valve assemblies. |  | |
| YM-4064-A 90890-04064 | Valve guide remover (6.0 mm) This tool is needed to remove and install the valve guide. |  | |
| YM-04065-A 90890-04065 | Valve guide installer (6.0 mm) This tool is needed to install the valve guide. |  | |
| YM-04066 90890-04066 | Valve guide reamer (6.0 mm) This tool is needed to rebore the new valve guide. |  | |
| YM-91042 90890-04085 | Universal clutch holder This tool is needed to hold the clutch when removing or installing the clutch boss nut. |  | |
| YS-01880 90890-01701 | Sheave holder This tool is needed to hold the rotor when removing or installing the rotor bolt. |  | |
| Puller YU-33270 90890-01362 Adapter YM-33282 90890-04089 | Flywheel puller/adapter These tools are needed to remove the rotor. |  | |

SPECIAL TOOLS

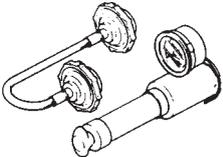
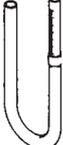
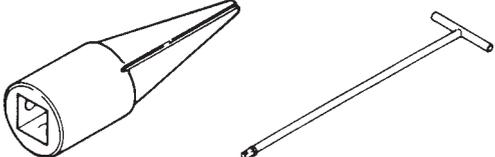
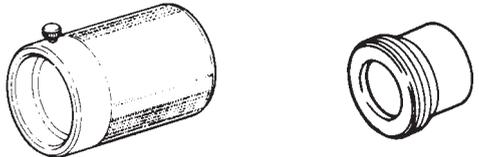
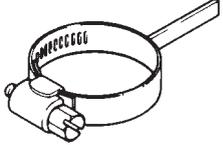
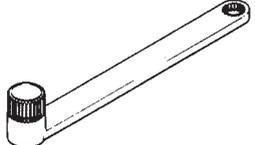
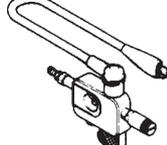
**GEN
INFO**



| Tool No. | Tool name/Usage | Illustration |
|-------------------------------|--|---|
| ACC-1100-15-01 90890-85505 | Quick gasket® Yamaha Bond No.1215 This sealant (bond) is used on crankcase mating surfaces, etc. |  |
| YU-01304 90890-01304 | Piston pin puller This tool is used to remove the piston pin. |  |
| YM-8037 90890-05158 | Piston ring compressor This tool is used to compress the piston rings when installing the piston into the cylinder. |  |
| YM-33286 90890-04090 | Damper spring compressor This tool is needed when removing or installing the damper spring. |  |
| YM-33222 | Middle drive gear holder This tool is needed to remove and install the middle drive pinion gear. This tool is also used for the gear backlash adjustment. |  |
| 90890-04080 | Middle drive gear holder This tool is needed for the gear backlash adjustment. |  |
| YM-04054 90890-04054 | Offset wrench (55 mm) This tool is needed when removing or installing the middle drive gear nut. |  |
| YM-04062 90890-04062 | Universal joint holder This tool is needed when removing or installing the driven pinion gear nut. |  |
| YU-03097 90890-03097 | Dial gauge This tool is used to measure the middle gear backlash. |  |

SPECIAL TOOLS



| Tool No. | Tool name/Usage | Illustration |
|--|--|---|
| Tester YU-24460-01 90890-01325 Adapter YU-33984 | Radiator cap tester/adaptor This tester and its adapter are needed for checking the cooling system. |  |
| YM-01312-A 90890-01312 | Fuel level gauge This gauge is used to measure the fuel level in the float chamber. |  |
| Rod holder YM-01300-1 90890-01294 T-handle YM-01326 90890-01326 | Damper rod holder/T-handle These tools are needed to loosen and tighten the damper rod holding bolt. |  |
| Weight YM-33963 90890-01367 Adapter YM-8020 90890-01374 | Fork seal driver weight/adaptor These tools are needed when installing the slide metal, oil seal and dust seal into the fork. |  |
| YM-01230 90890-01230 | Final gear backlash band This tool is needed when measuring final gear backlash. |  |
| YM-01229 90890-01229 | Coupling gear/middle shaft tool This tool is needed when removing or installing the coupling gear nut. |  |
| YM-04050 90890-04050 | Bearing retainer wrench This tool is needed when removing or installing the final drive shaft bearing. |  |
| YM-34487 90890-06754 | Dynamic spark tester Ignition checker |  |