



YAMAHA

1965

ATV

SERVICE MANUAL

Model : NO_MODEL

4B52819770E0 

Product: 2008 Yamaha XP500Y Motorcycle Service Repair Workshop Manual

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EAS20040

**XP500Y
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.

	<p>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.</p>
	<p>A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>A NOTICE indicates special precautions that must be taken to avoid damage to the vehicle or other property.</p>
<p>TIP</p>	<p>A TIP provides key information to make procedures easier or clearer.</p>

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
↓
CYLINDER AND PISTONS

REMOVAL
CYLINDER AND PISTONS

Removing the cylinder and pistons

10 Nm (1.0 m·kg, 7.2 ft·lb)

5 New

6

8 9 10

7 6

5 New

6

Order	Job/Parts to remove	Qty	Remarks
	Cylinder head		Refer to "CYLINDER HEAD" on page 5-15.
1	Timing chain guide (exhaust side)	1	
2	Cylinder	1	
3	Cylinder gasket	1	
4	Dowel pin	2	
5	Piston pin clip	4	
6	Piston pin	2	
7	Piston	2	
8	Piston ring set	2	
9	2nd ring	2	
10	Oil ring	2	

For installation, reverse the removal procedure.

CYLINDER AND PISTONS

REMOVAL
REMOVING THE PISTONS

The following procedure applies to all of the pistons.

1. Remove:

- Piston pin clips "1"
- Piston pin "2"
- Piston "3"

NOTICE

Do not use a hammer to drive the piston pin out.

TIP

- Before removing the piston pin clip, cover the crankcase opening with a clean rag to prevent the piston pin clip from falling into the crankcase.
- For reference during installation, put an identification mark on each piston crown.
- Before removing the piston pin, deburr the piston pin clip's groove and the piston's pin bore area. If both areas are deburred and the piston pin is still difficult to remove, remove it with the piston pin puller set "4".

4

Piston pin puller set
90990-01304
Piston pin puller
YU-01304

2. Remove:

- Top ring

- 2nd ring
- Oil ring

TIP

When removing a piston ring, open the end gap with your fingers and lift the other side of the ring over the piston crown.

REPAIR
CHECKING THE CYLINDERS AND PISTONS

The following procedure applies to all of the cylinders and pistons.

1. Check:

- Piston wall
- Cylinder wall

Vertical scratches → Rebore or replace the cylinder, and replace the piston and piston rings as a set.

2. Measure:

- Piston-to-cylinder clearance

Measure cylinder bore "C" with the cylinder bore gauge.

TIP

Measure cylinder bore "C" by taking side-to-side and front-to-back measurements of the cylinder. Then, find the average of the measurements.

MEASUREMENTS

Bore
66.000-66.010 mm (2.5984-2.5988 in)
Taper limit
0.050 mm (0.0020 in)
Out of round limit
0.050 mm (0.0020 in)

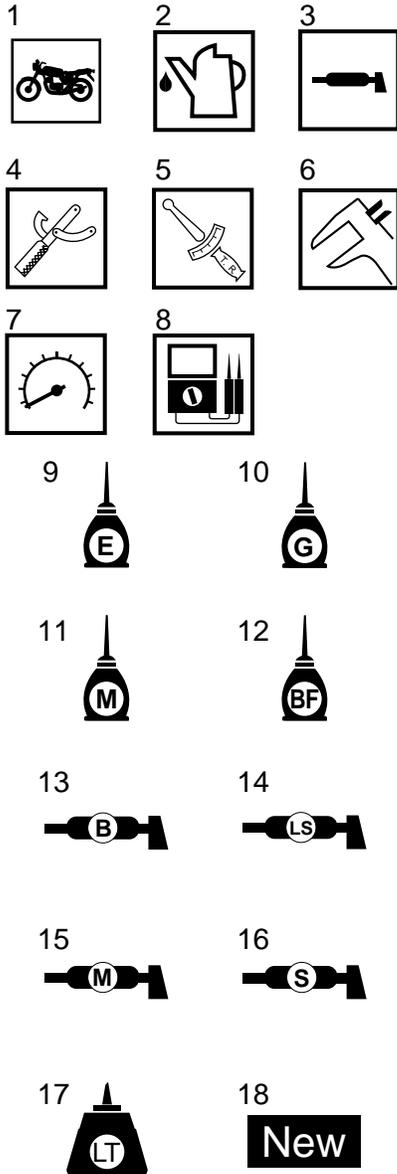
"C" = maximum of D₁-D₂
"T" = maximum of D₁ or D₂ - maximum of D₃ or D₄
"R" = maximum of D₁, D₂ or D₃ - minimum of D₂, D₄ or D₆

SYMBOLS

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

TIP

The following symbols are not relevant to every vehicle.



1. Serviceable with engine mounted
2. Filling fluid
3. Lubricant
4. Special tool
5. Tightening torque
6. Wear limit, clearance
7. Engine speed
8. Electrical data
9. Engine oil
10. Gear oil
11. Molybdenum disulfide oil
12. Brake fluid
13. Wheel bearing grease
14. Lithium-soap-based grease
15. Molybdenum disulfide grease
16. Silicone grease
17. Apply locking agent (LOCTITE®).
18. Replace the part with a new one.

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GENERAL INFORMATION

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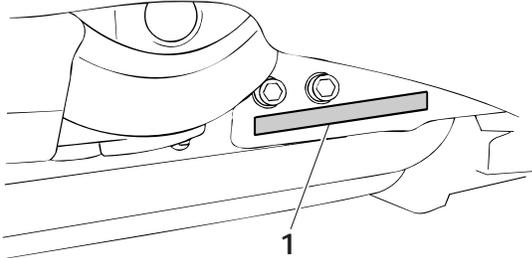
EAS20130

IDENTIFICATION

EAS20140

VEHICLE IDENTIFICATION NUMBER

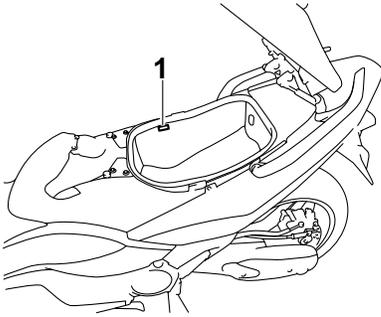
The vehicle identification number "1" is stamped into the right side of the frame.



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MODEL LABEL

The model label "1" is affixed to the storage box. This information will be needed to order spare parts.



EAS20170

FEATURES

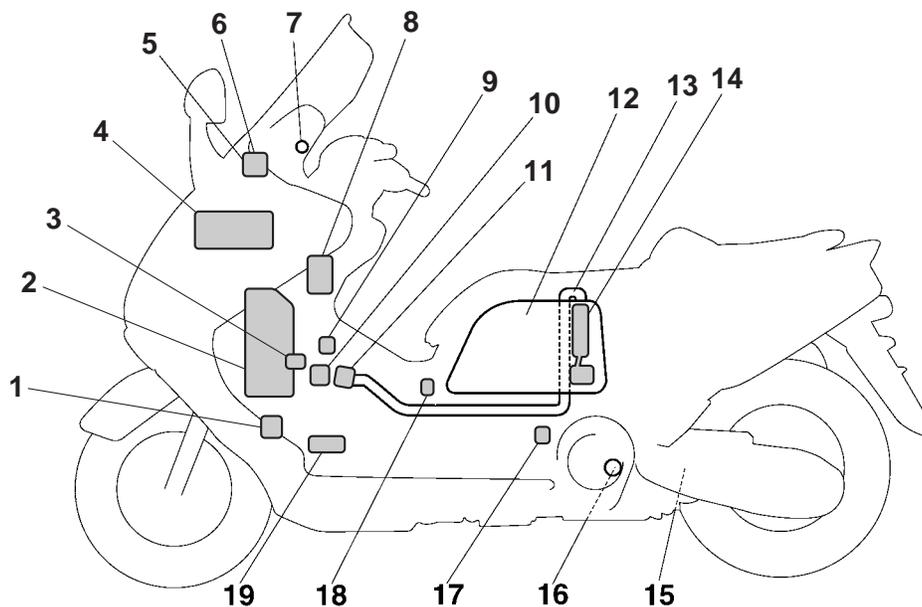
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OUTLINE OF FI SYSTEM

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. In a 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 chamber. Despite the same volume of intake air, the fuel volume requirement varies with the engine operating conditions, such as acceleration, deceleration, or operation 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 engines 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 a 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.

Adoption of the FI system has resulted in a highly precise fuel supply, improved engine response, better fuel economy, and reduced exhaust emissions.



- | | |
|----------------------------------|--------------------------------|
| 1. Ignition coil | 14. Fuel pump |
| 2. Air filter case | 15. Catalyst |
| 3. Intake air temperature sensor | 16. O ₂ sensor |
| 4. Battery | 17. Crankshaft position sensor |
| 5. Fuel injection system relay | 18. Coolant temperature sensor |
| 6. Lean angle sensor | 19. Spark plug |
| 7. Engine trouble warning light | |
| 8. ECU (engine control unit) | |
| 9. Intake air pressure sensor | |
| 10. Throttle position sensor | |
| 11. Fuel injector | |
| 12. Fuel tank | |
| 13. Fuel hose | |

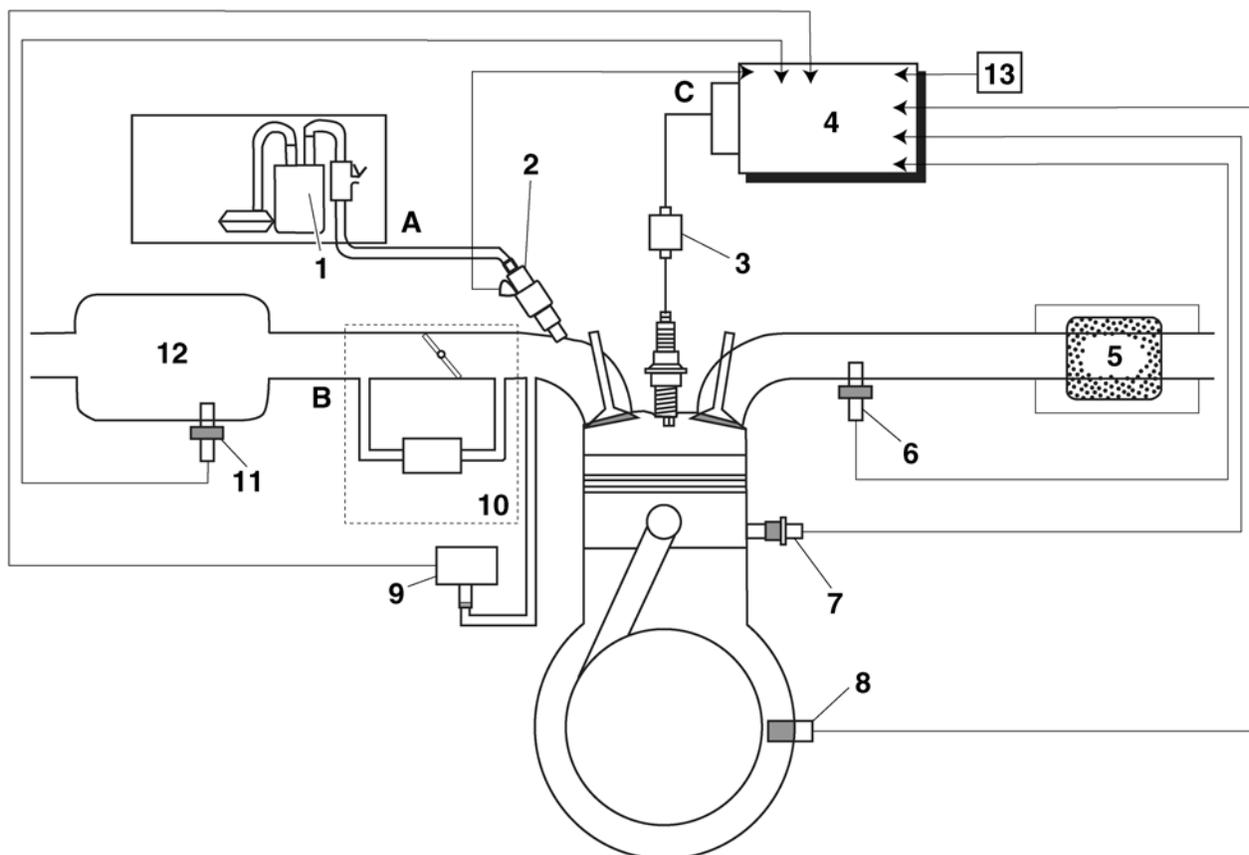
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FI SYSTEM

The fuel pump delivers fuel to the fuel injector via the fuel filter. The pressure regulator (in the fuel pump) maintains the fuel pressure that is applied to the fuel injector at 240–260 kPa (2.40–2.60 kg/cm², 34.1–37.0 psi) higher than the intake manifold pressure. Accordingly, when the energizing signal from the ECU (engine control unit) 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 (engine control unit). Signals that are input from the throttle position sensor, crankshaft position sensor, intake air pressure sensor, intake air temperature sensor, coolant temperature sensor, and O₂ sensor enable the ECU (engine control unit) 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.

Illustration is for reference only.



- | | |
|-------------------------------|-----------------------------------|
| 1. Fuel pump | 11. Intake air temperature sensor |
| 2. Fuel injector | 12. Air filter case |
| 3. Ignition coil | 13. Throttle position sensor |
| 4. ECU (engine control unit) | A. Fuel system |
| 5. Catalyst | B. Air system |
| 6. O ₂ sensor | C. Control system |
| 7. Coolant temperature sensor | |
| 8. Crankshaft position sensor | |
| 9. Intake air pressure sensor | |
| 10. Throttle body | |

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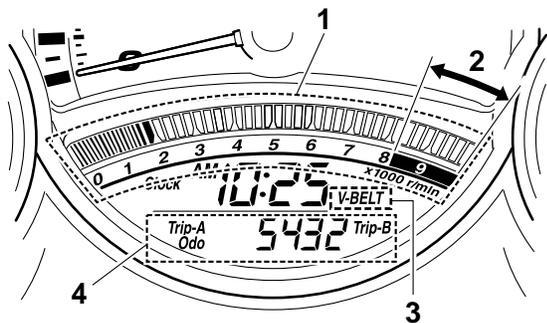
MULTI-FUNCTION DISPLAY

EWA4B54001

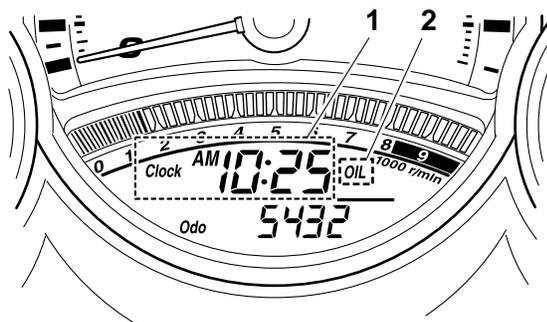


WARNING

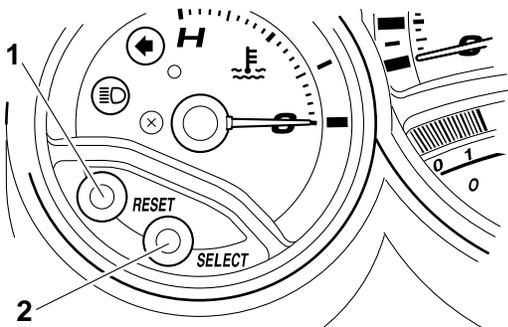
Be sure to stop the vehicle before making any setting changes to the multi-function display. Changing settings while riding can distract the operator and increase the risk of an accident.



1. Tachometer
2. Tachometer red zone
3. V-belt replacement indicator "V-BELT"
4. Odometer/tripmeters



1. Clock
2. Oil change indicator "OIL"



1. "RESET" button
2. "SELECT" button

The multi-function display is equipped with the following:

- a tachometer (which shows engine speed)

- an odometer (which shows the total distance traveled)
- two tripmeters (which show the distance traveled since they were last set to zero)
- a fuel reserve tripmeter (which shows the distance traveled when the remaining fuel in the fuel tank reaches approximately 3.0 L (0.79 US gal) (0.66 Imp.gal))
- a self-diagnosis device
- a clock
- an oil change tripmeter (which shows the distance traveled since the last engine oil change)
- a V-belt replacement tripmeter (which shows the distance traveled since the last V-belt replacement)

TIP

- Be sure to turn the key to "ON" before using the "SELECT" and "RESET" buttons.
- When the key is turned to "ON", all of the display segments of the multi-function display will appear one after the other and then disappear, in order to test the electrical circuits.

Tachometer

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

ECA4B51024

NOTICE

Do not operate the engine in the tachometer red zone.

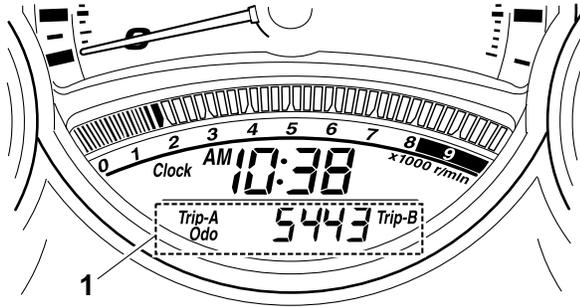
Red zone: 8250 r/min and above

Clock

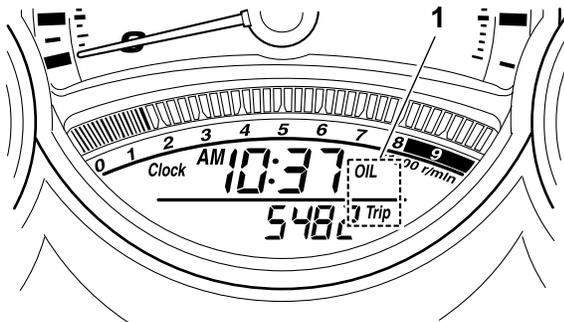
To set the clock:

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 will start flashing.
4. Push the "RESET" button to set the minutes.
5. Push the "SELECT" button and then release it to start the clock.

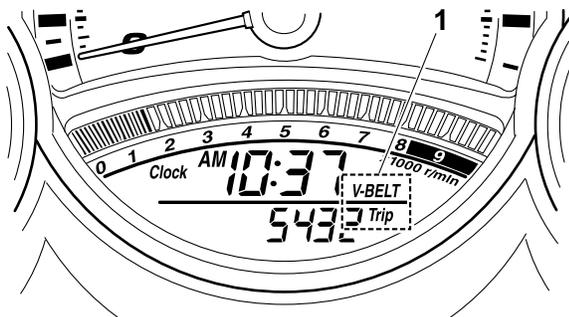
Odometer and tripmeter modes



1. Odometer/tripmeters



1. Oil change tripmeter



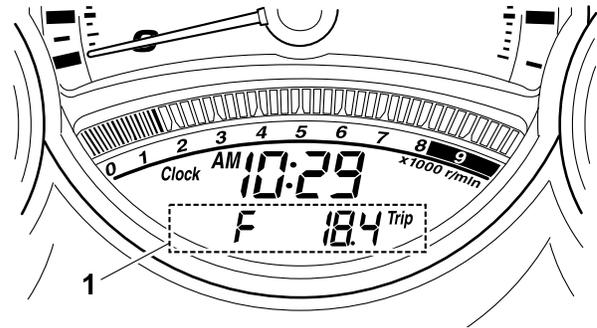
1. V-belt replacement tripmeter

Pushing the "SELECT" button switches the display between the odometer mode and the tripmeter modes in the following order:

Odo → Trip-A → Trip-B → OIL Trip → V-BELT Trip → Odo

When approximately 3.0 L (0.79 US gal) (0.66 Imp.gal) of fuel remains in the fuel tank, the display will automatically change to the fuel reserve tripmeter mode "F Trip" and start counting the distance traveled from that point. In that case, pushing the "SELECT" button switches the display between the various tripmeter and odometer modes in the following order:

Odo → F Trip → Trip-A → Trip-B → OIL Trip → V-BELT Trip → Odo



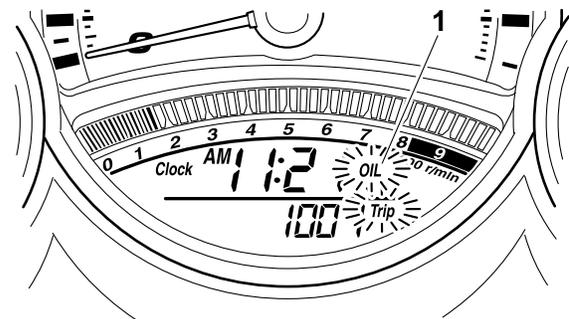
1. Fuel reserve tripmeter

To reset a tripmeter, select it by pushing the "SELECT" button until "F Trip", "Trip-A" or "Trip-B" is displayed. While "F Trip", "Trip-A" or "Trip-B" is displayed, push the "RESET" button for at least one second. If you do not reset the fuel reserve tripmeter manually, it will reset itself automatically and the display will return to the prior mode after refueling and traveling 5 km (3 mi).

TIP

The display cannot be changed back to "F Trip" after pushing the "RESET" button.

Oil change indicator "OIL"



1. Oil change indicator "OIL"

This indicator flashes at the initial 1000 km (600 mi), then at 5000 km (3125 mi) and every 5000 km (3125 mi) thereafter to indicate that the engine oil should be changed.

After changing the engine oil, reset the oil change indicator. To reset the oil change indicator, select it by pushing the "SELECT" button until "OIL Trip" is displayed, and then push the "RESET" button at least 1 second. When pushing the "RESET" button, "OIL Trip" starts flashing. While "OIL Trip" is flashing, push the "RESET" button for at least 3 seconds.

If the engine oil is changed before the oil change indicator "OIL" flashes (i.e. before the periodic oil change interval has been reached), the indicator

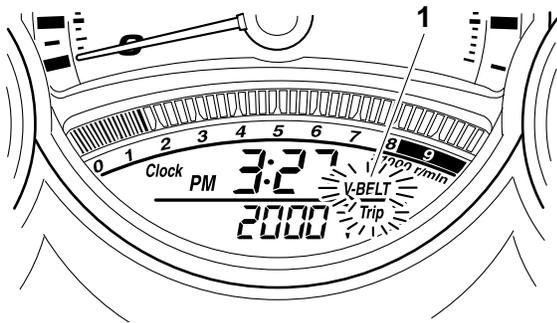
"OIL" must be reset after the oil change for the next periodic oil change to be indicated at the correct time.

The electrical circuit of the indicator can be checked according to the following procedure.

1. Set the engine stop switch to "○" and turn the key to "ON".
2. Check that the oil change indicator comes on for a few seconds and then goes off.
3. If the oil change indicator does not come on, check the electrical circuit.

Refer to "SIGNALING SYSTEM" on page 8-19.

V-belt replacement indicator "V-BELT"



1. V-belt replacement indicator "V-BELT"

This indicator flashes every 20000 km (12500 mi) when the V-belt needs to be replaced. After changing the V-belt, reset the V-belt replacement indicator. To reset the V-belt replacement indicator, select it by pushing the "SELECT" button until "V-BELT Trip" is displayed, and then push the "RESET" button at least 1 second. When pushing the "RESET" button, "V-BELT Trip" starts flashing. While "V-BELT Trip" is flashing, push the "RESET" button for at least 3 seconds.

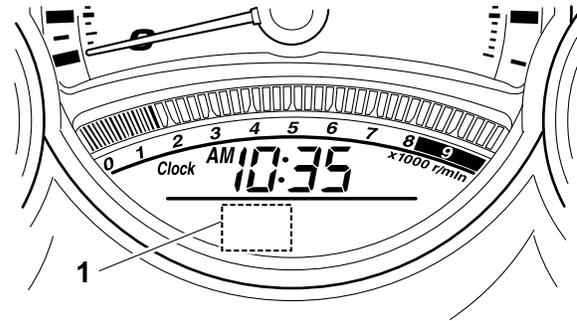
If the V-belt is changed before the V-belt replacement indicator "V-BELT" flashes (i.e. before the periodic V-belt change interval has been reached), the indicator "V-BELT" must be reset after the V-belt change for the next periodic V-belt change to be indicated at the correct time.

The electrical circuit of the indicator can be checked according to the following procedure.

1. Turn the key to "ON" and make sure that the engine stop switch is set to "○".
2. If the V-belt replacement indicator does not come on, check the electrical circuit.

Refer to "SIGNALING SYSTEM" on page 8-19.

Self-diagnosis device



1. Fault code display

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

If any of those circuits are not working correctly, the engine trouble warning light will come on, and then the display will indicate a two-digit fault code.

Refer to "FUEL INJECTION SYSTEM" on page 8-29.

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NOTICE

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

EAS20180

IMPORTANT INFORMATION

EAS20190

PREPARATION FOR REMOVAL AND DISASSEMBLY

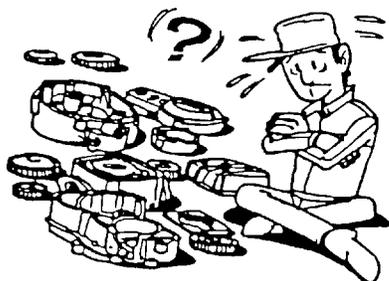
1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.



2. Use only the proper tools and cleaning equipment.

Refer to "SPECIAL TOOLS" on page 1-10.

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

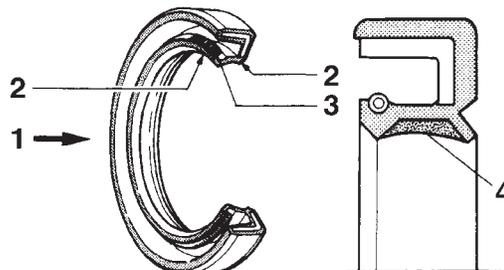
Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.



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.

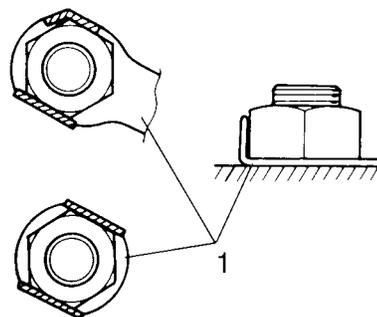


1. Oil
2. Lip
3. Spring
4. Grease

EAS20220

LOCK WASHERS/PLATES AND COTTER PINS

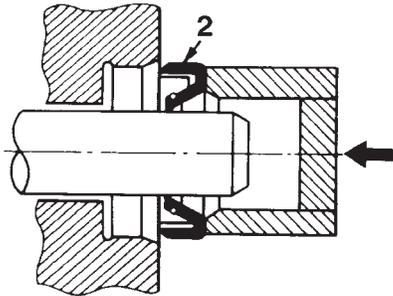
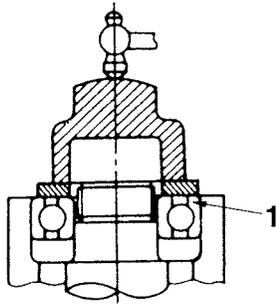
After removal, replace all lock washers/plates "1" and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EAS20230

BEARINGS AND OIL SEALS

Install bearings "1" and oil seals "2" so that the manufacturer's marks or numbers are visible. When installing oil seals, lubricate the oil seal lips with a light coat of lithium-soap-based grease. Oil bearings liberally when installing, if appropriate.



ECA13300

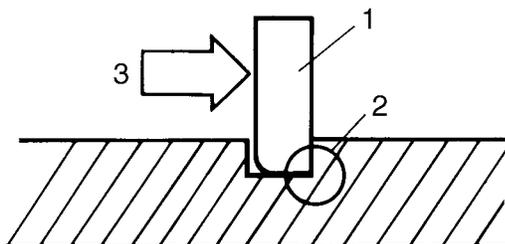
NOTICE

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.



EAS20250

CHECKING THE CONNECTIONS

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

1. Disconnect:

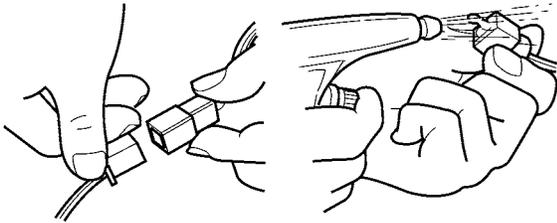
- Lead
- Coupler
- Connector

2. Check:

- Lead
- Coupler
- Connector

Moisture → Dry with an air blower.

Rust/stains → Connect and disconnect several times.



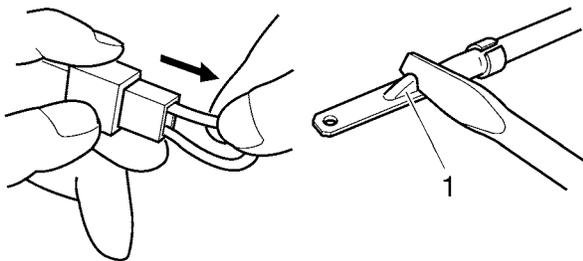
3. Check:

- 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:

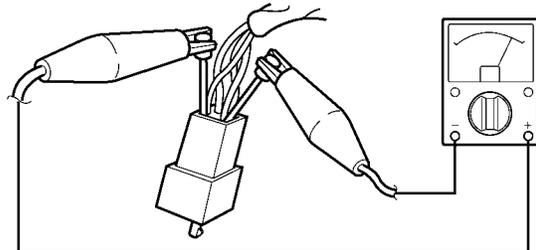
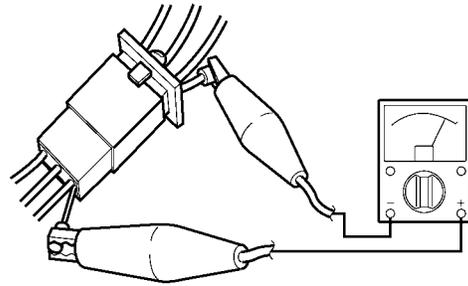
- Continuity
(with the pocket tester)



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.



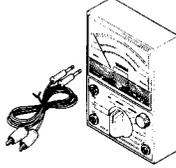
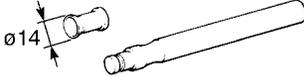
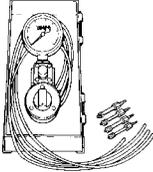
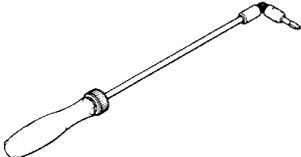
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SPECIAL TOOLS

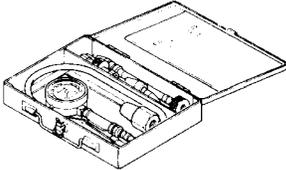
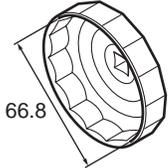
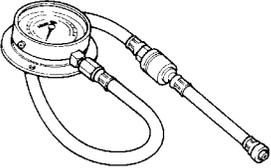
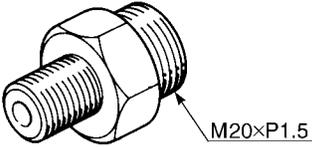
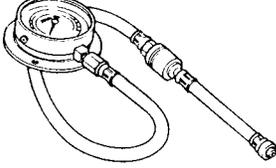
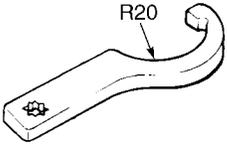
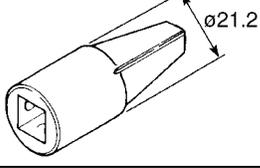
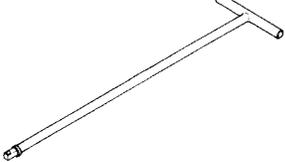
The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country.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

TIP

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

Tool name/Tool No.	Illustration	Reference pages
Pocket tester 90890-03112 Analog pocket tester YU-03112-C		1-9, 5-33, 7-8, 8-63, 8-64, 8-65, 8-69, 8-70, 8-71, 8-72, 8-73, 8-74, 8-75, 8-76, 8-77, 8-78
Valve lapper 90890-04101 Valve lapping tool YM-A8998		3-5
Vacuum gauge 90890-03094 Carburetor synchronizer YU-44456	90890-03094  YU-44456 	3-7
Digital tachometer 90890-06760 YU-39951-B		3-7, 3-8
Carburetor angle driver 90890-03158		3-8

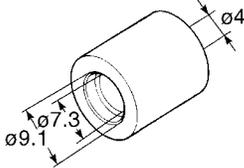
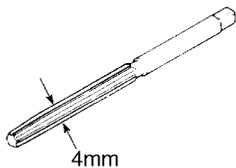
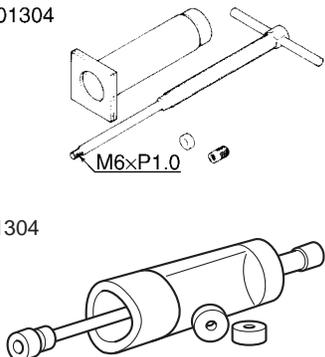
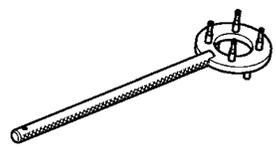
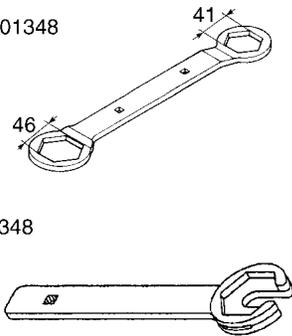
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Compression gauge 90890-03081 Engine compression tester YU-33223		3-10
Oil filter wrench 90890-01469 YM-01469		3-12, 6-6
Oil pressure gauge set 90890-03120		3-13
Oil pressure adapter B 90890-03124		3-13
Pressure gauge 90890-03153 YU-03153		3-13, 7-4
Steering nut wrench 90890-01403 Spanner wrench YU-33975		3-26, 4-60
Damper rod holder 90890-01460		4-53, 4-54
T-handle 90890-01326 T-handle 3/8" drive 60 cm long YM-01326		4-53, 4-54

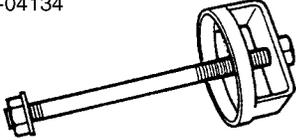
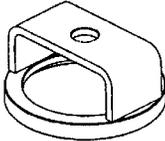
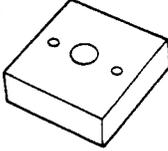
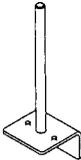
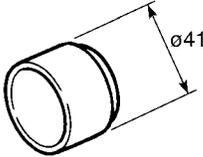
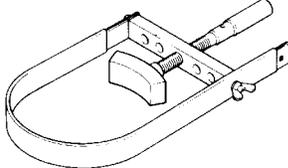
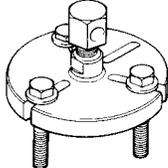
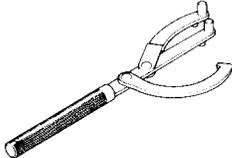
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Fork seal driver weight 90890-01367 Replacement hammer YM-A9409-7	<p>90890-01367</p> <p>YM-A9409-7/YM-A5142-4</p>	4-54, 4-55
Fork seal driver attachment (ø43) 90890-01374 Replacement 43 mm YM-A5142-3	<p>ø43</p> <p>ø54</p>	4-54
Yamaha bond No. 1215 90890-85505 (Three Bond No.1215®)		5-14, 5-44, 5-52, 5-69, 6-12
Valve spring compressor 90890-04019 YM-04019	<p>ø37</p> <p>M6xP1.0</p>	5-19, 5-24
Valve spring compressor attachment 90890-04114 Valve spring compressor adapter 19.5 mm YM-04114	<p>ø19</p> <p>YM-04114</p> <p>ø19.5</p>	5-19, 5-24
Valve guide remover (ø4) 90890-04111 Valve guide remover (4.0 mm) YM-04111	<p>ø4</p>	5-21

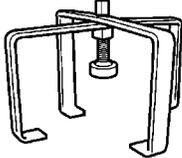
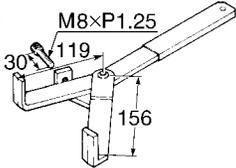
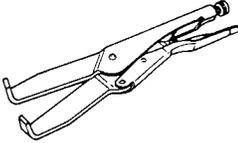
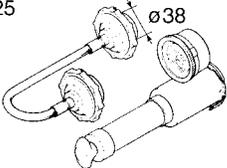
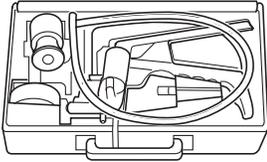
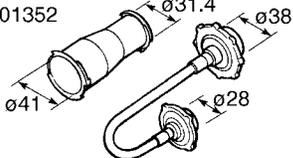
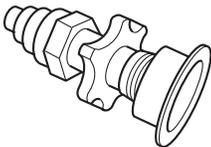
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Valve guide installer (ø4) 90890-04112 Valve guide installer (4.0 mm) YM-04112		5-21
Valve guide reamer (ø4) 90890-04113 Valve guide reamer (4.0 mm) YM-04113		5-21
Piston pin puller set 90890-01304 Piston pin puller YU-01304	90890-01304  YU-01304	5-27
Sheave holder 90890-01481		5-41, 5-44, 5-45
Locknut wrench 90890-01348 YM-01348	90890-01348  YM-01348	5-41, 5-44

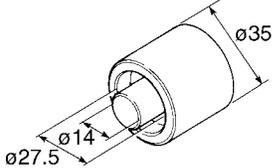
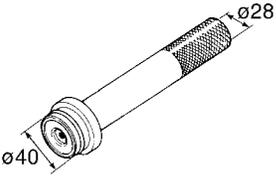
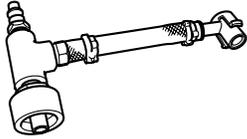
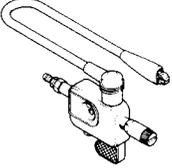
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Sheave spring compressor 90890-04134 YM-04134	90890-04134  YM-04134 	5-41, 5-44
Sheave fixed block 90890-04135 Sheave fixed bracket YM-04135	90890-04135  YM-04135 	5-41, 5-44
Oil seal guide (ø41) 90890-01396		5-43
Sheave holder 90890-01701 Primary clutch holder YS-01880-A		5-50, 5-51, 5-52
Flywheel puller 90890-01362 Heavy duty puller YU-33270-B		5-50
Rotor holding tool 90890-01235 Universal magneto & rotor holder YU-01235		5-57, 5-61

SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Clutch spring compressor 90890-01482		5-57, 5-60
Universal clutch holder 90890-04086 YM-91042	<p>90890-04086</p>  <p>YM-91042</p> 	5-57, 5-60
Plane bearing installer 90890-04139		5-73, 5-76
Radiator cap tester 90890-01325 Radiator pressure tester YU-24460-01	<p>90890-01325</p>  <p>YU-24460-01</p> 	6-3
Radiator cap tester adapter 90890-01352 Radiator pressure tester adapter YU-33984	<p>90890-01352</p>  <p>YU-33984</p> 	6-3

SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Mechanical seal installer 90890-04078 Water pump seal installer YM-33221-A		6-12
Middle driven shaft bearing driver 90890-04058 Bearing driver 40 mm YM-04058		6-12
Fuel pressure adapter 90890-03181		7-4
Ignition checker 90890-06754 Opama pet-4000 spark checker YM-34487		8-72

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GENERAL SPECIFICATIONS

EAS20280

GENERAL SPECIFICATIONS

Model

Model 4B55 (CAN)

Dimensions

Overall length	2195 mm (86.4 in)
Overall width	775 mm (30.5 in)
Overall height	1445 mm (56.9 in)
Seat height	800 mm (31.5 in)
Wheelbase	1580 mm (62.2 in)
Ground clearance	125 mm (4.92 in)
Minimum turning radius	2800 mm (110.2 in)

Weight

With oil and fuel	222.0 kg (489 lb)
Maximum load	193 kg (425 lb)

EAS20290

ENGINE SPECIFICATIONS

Engine

Engine type	Liquid cooled 4-stroke, DOHC
Displacement	499.0 cm ³
Cylinder arrangement	Forward-inclined parallel 2-cylinder
Bore × stroke	66.0 × 73.0 mm (2.60 × 2.87 in)
Compression ratio	11.00 :1
Standard compression pressure (at sea level)	1400 kPa/360 r/min (199.1 psi/360 r/min) (14.0 kgf/cm ² /360 r/min)
Minimum–maximum	1220–1570 kPa (173.5–223.3 psi) (12.2–15.7 kgf/cm ²)
Starting system	Electric starter

Fuel

Recommended fuel	Premium unleaded gasoline only
Fuel tank capacity	15.0 L (3.96 US gal) (3.30 Imp.gal)
Fuel reserve amount	3.0 L (0.79 US gal) (0.66 Imp.gal)

Engine oil

Lubrication system	Dry sump
Type	YAMALUBE 4 (10W-40) or SAE 10W-40, YAMALUBE 4 (20W-50) or SAE 20W-50
Recommended engine oil grade	API service SG type or higher, JASO standard MA
Engine oil quantity	
Total amount	3.60 L (3.81 US qt) (3.17 Imp.qt)
Without oil filter cartridge replacement	2.80 L (2.96 US qt) (2.46 Imp.qt)
With oil filter cartridge replacement	2.90 L (3.07 US qt) (2.55 Imp.qt)
Oil pressure (hot)	150.0 kPa/1200 r/min (21.8 psi/1200 r/min) (1.50 kgf/cm ² /1200 r/min)

Chain drive oil

Type	SAE 80 API GL-4 Hypoid gear oil
Quantity	0.70 L (0.74 US qt) (0.62 Imp.qt)

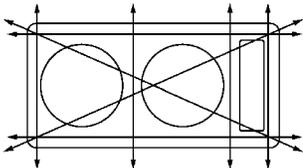
Oil filter

Oil filter type	Paper
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Oil pump

Oil pump type	Trochoid
Inner-rotor-to-outer-rotor-tip clearance	0.040–0.120 mm (0.0016–0.0047 in)
Limit	0.20 mm (0.0079 in)
Outer-rotor-to-oil-pump-housing clearance	0.045–0.085 mm (0.0018–0.0033 in)
Limit	0.155 mm (0.0061 in)
Oil-pump-housing-to-inner-and-outer-rotor clearance	0.11–0.23 mm (0.0043–0.0091 in)
Limit	0.30 mm (0.0118 in)
Bypass valve opening pressure	80.0–120.0 kPa (11.6–17.4 psi) (0.80–1.20 kgf/cm ²)
Relief valve operating pressure	450.0–550.0 kPa (65.3–79.8 psi) (4.50–5.50 kgf/cm ²)

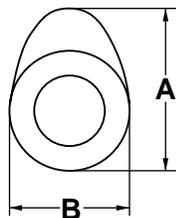
ENGINE SPECIFICATIONS

Pressure check location	MAIN GALLERY
Cooling system	
Radiator capacity (including all routes)	1.48 L (1.56 US qt) (1.30 Imp.qt)
Coolant reservoir capacity (up to the maximum level mark)	0.25 L (0.26 US qt) (0.22 Imp.qt)
Radiator cap opening pressure	107.9–137.3 kPa (15.6–19.9 psi) (1.08–1.37 kgf/cm ²)
Thermostat	
Model/manufacturer	4JH/NIPPON THERMOSTAT
Valve opening temperature	69.0–73.0 °C (156.20–163.40 °F)
Valve full open temperature	85.0 °C (185.00 °F)
Valve lift (full open)	8.0 mm (0.31 in)
Radiator core	
Width	329.0 mm (12.95 in)
Height	135.4 mm (5.33 in)
Depth	24.0 mm (0.94 in)
Water pump	
Water pump type	Single suction centrifugal pump
Reduction ratio	23/19 (1.210)
Impeller shaft tilt limit	0.15 mm (0.0059 in)
Spark plug (s)	
Manufacturer/model	NGK/CR7E
Spark plug gap	0.7–0.8 mm (0.028–0.031 in)
Cylinder head	
Volume	14.97–15.57 cm ³ (0.91–0.95 cu.in)
Warpage limit	0.03 mm (0.0012 in)
	
Camshaft	
Drive system	Chain drive (left)
Camshaft cap inside diameter	23.000–23.021 mm (0.9055–0.9063 in)
Camshaft journal diameter	22.967–22.980 mm (0.9042–0.9047 in)
Camshaft-journal-to-camshaft-cap clearance	0.020–0.054 mm (0.0008–0.0021 in)
Camshaft lobe dimensions	
Intake A	33.252–33.352 mm (1.3091–1.3131 in)
Limit	33.152 mm (1.3052 in)
Intake B	24.956–25.056 mm (0.9825–0.9865 in)
Limit	24.856 mm (0.9786 in)
Exhaust A	33.252–33.352 mm (1.3091–1.3131 in)
Limit	33.152 mm (1.3052 in)
Exhaust B	24.956–25.056 mm (0.9825–0.9865 in)

ENGINE SPECIFICATIONS

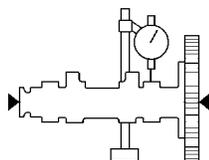
Limit

24.856 mm (0.9786 in)



Camshaft runout limit

0.030 mm (0.0012 in)



Timing chain

Model/number of links

SCR-0409 SV/132

Tensioning system

Automatic

Valve, valve seat, valve guide

Valve clearance (cold)

Intake

0.15–0.20 mm (0.0059–0.0079 in)

Exhaust

0.25–0.30 mm (0.0098–0.0118 in)

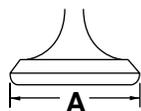
Valve dimensions

Valve head diameter A (intake)

24.90–25.10 mm (0.9803–0.9882 in)

Valve head diameter A (exhaust)

21.90–22.10 mm (0.8622–0.8701 in)

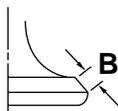


Valve face width B (intake)

1.140–1.980 mm (0.0449–0.0780 in)

Valve face width B (exhaust)

1.140–1.980 mm (0.0449–0.0780 in)



Valve seat width C (intake)

0.90–1.10 mm (0.0354–0.0433 in)

Limit

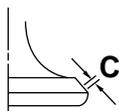
1.6 mm (0.06 in)

Valve seat width C (exhaust)

0.90–1.10 mm (0.0354–0.0433 in)

Limit

1.6 mm (0.06 in)



Valve margin thickness D (intake)

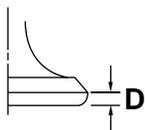
0.60–0.80 mm (0.0236–0.0315 in)

ENGINE SPECIFICATIONS

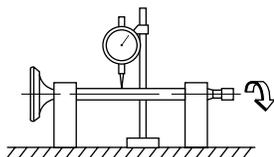
Product: 2008 Yamaha XP500Y Motorcycle Service Repair Workshop Manual

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Valve margin thickness D (exhaust) 0.60–0.80 mm (0.0236–0.0315 in)



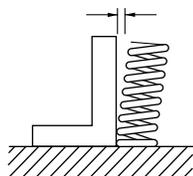
Valve stem diameter (intake)	3.975–3.990 mm (0.1565–0.1571 in)
Limit	3.945 mm (0.1553 in)
Valve stem diameter (exhaust)	3.960–3.975 mm (0.1559–0.1565 in)
Limit	3.930 mm (0.1547 in)
Valve guide inside diameter (intake)	4.000–4.012 mm (0.1575–0.1580 in)
Limit	4.050 mm (0.1594 in)
Valve guide inside diameter (exhaust)	4.000–4.012 mm (0.1575–0.1580 in)
Limit	4.050 mm (0.1594 in)
Valve-stem-to-valve-guide clearance (intake)	0.010–0.037 mm (0.0004–0.0015 in)
Limit	0.080 mm (0.0032 in)
Valve-stem-to-valve-guide clearance (exhaust)	0.025–0.052 mm (0.0010–0.0020 in)
Limit	0.100 mm (0.0039 in)
Valve stem runout	0.040 mm (0.0016 in)



Cylinder head valve seat width (intake)	0.90–1.10 mm (0.0354–0.0433 in)
Limit	1.6 mm (0.06 in)
Cylinder head valve seat width (exhaust)	0.90–1.10 mm (0.0354–0.0433 in)
Limit	1.6 mm (0.06 in)

Valve spring

Free length (intake)	35.59 mm (1.40 in)
Limit	33.81 mm (1.33 in)
Free length (exhaust)	35.59 mm (1.40 in)
Limit	33.81 mm (1.33 in)
Installed length (intake)	30.39 mm (1.20 in)
Installed length (exhaust)	30.39 mm (1.20 in)
Spring rate K1 (intake)	18.84 N/mm (107.60 lb/in) (1.92 kgf/mm)
Spring rate K2 (intake)	24.52 N/mm (140.01 lb/in) (2.50 kgf/mm)
Spring rate K1 (exhaust)	18.84 N/mm (107.60 lb/in) (1.92 kgf/mm)
Spring rate K2 (exhaust)	24.52 N/mm (140.01 lb/in) (2.50 kgf/mm)
Installed compression spring force (intake)	91.2–104.9 N (20.50–23.59 lbf) (9.3–10.7 kgf)
Installed compression spring force (exhaust)	91.2–104.9 N (20.50–23.59 lbf) (9.3–10.7 kgf)
Spring tilt (intake)	2.5°/1.6 mm
Spring tilt (exhaust)	2.5°/1.6 mm



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Winding direction (intake)

Clockwise