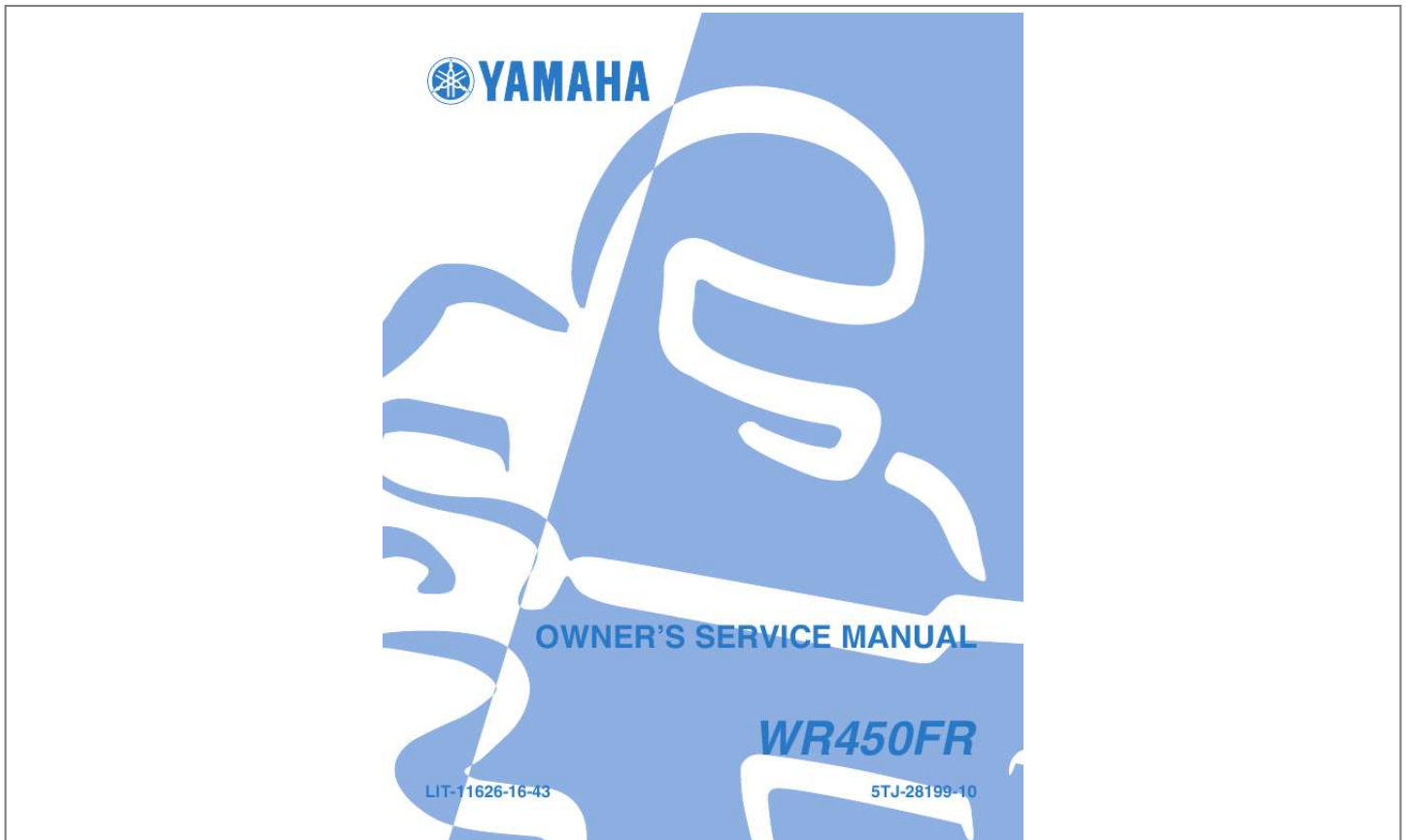




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User manual YAMAHA WR450  
User guide YAMAHA WR450  
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Instructions for use YAMAHA WR450  
Instruction manual YAMAHA WR450



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**Manual abstract:**

@@@ is expressly prohibited. Printed in Japan P/N. @@@@ It represents the highest grade of craftsmanship and reliability that have made Yamaha a leader. This manual explains operation, inspection, basic maintenance and tuning of your machine. If you have any questions about this manual or your machine, please contact your Yamaha dealer. NOTE: As improvements are made on this model, some data in this manual may become outdated. @@@@ Off-road use on public lands may also be illegal. Please check local regulations before riding. SAFETY INFORMATION 1. THIS MACHINE IS TO BE OPERATED BY AN EXPERIENCED RIDER ONLY.

Do not attempt to operate this machine at maximum power until you are totally familiar with its characteristics. 2. THIS MACHINE IS DESIGNED TO BE RIDEN BY THE OPERATOR ONLY. Do not carry passengers on this machine. 3.

ALWAYS WEAR PROTECTIVE APPAREL. When operating this machine, always wear an approved helmet with goggles or a face shield. Also wear heavy boots, gloves, and protective clothing. Always wear proper fitting clothing that will not be caught in any of the moving parts or controls of the machine. 4.

ALWAYS MAINTAIN YOUR MACHINE IN PROPER WORKING ORDER. For safety and reliability, the machine must be properly maintained. Always perform the pre-operation checks indicated in this manual. Correcting a mechanical problem before you ride may prevent an accident. 5. GASOLINE IS HIGHLY FLAMMABLE. Always turn off the engine while refueling. Take care to not spill any gasoline on the engine or exhaust system. Never refuel in the vicinity of an open flame, or while smoking. 6.

GASOLINE CAN CAUSE INJURY. If you should swallow some gasoline, inhale excess gasoline vapors, or allow any gasoline to get into your eyes, contact a doctor immediately. If any gasoline spills onto your skin or clothing, immediately wash skin areas with soap and water, and change your clothes. 7. ONLY OPERATE THE MACHINE IN AN AREA WITH ADEQUATE VENTILATION. Never start the engine or let it run for any length of time in an enclosed area. Exhaust fumes are poisonous. These fumes contain carbon monoxide, which by itself is odorless and colorless. Carbon monoxide is a dangerous gas which can cause unconsciousness or can be lethal. 8.

PARK THE MACHINE CAREFULLY; TURN OFF THE ENGINE. Always turn off the engine if you are going to leave the machine. Do not park the machine on a slope or soft ground as it may fall over. 9. THE ENGINE, EXHAUST PIPE, MUFFLER, AND OIL TANK WILL BE VERY HOT AFTER THE ENGINE HAS BEEN RUN.

Be careful not to touch them or to allow any clothing item to contact them during inspection or repair. 10. PROPERLY SECURE THE MACHINE BEFORE TRANSPORTING IT. When transporting the machine in another vehicle, always be sure it is properly secured and in an upright position and that the fuel cock is in the "OFF" position. Otherwise, fuel may leak out of the carburetor or fuel tank.

EC050000 TO THE NEW OWNER This manual will provide you with a good basic understanding of features, operation, and basic maintenance and inspection items of this machine. Please read this manual carefully and completely before operating your new machine. If you have any questions regarding the operation or maintenance of your machine, please consult your Yamaha dealer. NOTE: This manual should be considered a permanent part of this machine and should remain with it even if the machine is subsequently sold. EC060000 NOTICE Some data in this manual may become outdated due to improvements made to this model in the future. If there is any question you have regarding this manual or your machine, please consult your Yamaha dealer.

EC070001 F.I.M. MACHINE WEIGHTS: Weights of machines without fuel The minimum weights for motocross machines are: for the class 125 cc .

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.. minimum 88 kg (194 lb) for the class 250 cc .....

.....

.....

minimum 98 kg (216 lb) for the class 500 cc .....

.....

..... minimum 102 kg (225 lb) In modifying your machine (e.g.

, for weight reduction), take note of the above limits of weight. EC080000 HOW TO USE THIS MANUAL EC081000 PARTICULARLY IMPORTANT INFORMATION The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! WARNING Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the machine. CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the machine. NOTE: A NOTE provides key information to make procedures easier or clearer. EC082000 FINDING THE REQUIRED PAGE 1.

This manual consists of seven chapters; "General Information", "Specifications", "Regular inspection and adjustments", "Engine", "Chassis", "Electrical" and "Tuning". 2. The table of contents is at the beginning of the manual. Look over the general layout of the book before finding then required chapter and item. Bend the book at its edge, as shown, to find the required fore edge symbol mark and go to a page for required item and description.

EC083000 MANUAL FORMAT All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations. In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g., G Bearings Pitting/damage Replace. EC084002 HOW TO READ DESCRIPTIONS To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section. 1. An easy-to-see exploded diagram 1 is provided for removal and disassembly jobs. 2.

Numbers 2 are given in the order of the jobs in the exploded diagram.

A number that is enclosed by a circle indicates a disassembly step. 3. An explanation of jobs and notes is presented in an easy-to-read way by the use of symbol marks 3. The meanings of the symbol marks are given on the next page. 4. A job instruction chart 4 accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc. 5. Extent of removal 5 is provided in the job instruction chart to save the trouble of an unnecessary removal job. 6. For jobs requiring more information, the step-by-step format supplements 6 are given in addition to the exploded diagram and job instruction chart.

1 2 GEN INFO 3 ILLUSTRATED SYMBOLS (Refer to the illustration) Illustrated symbols 1 to 7 are designed as thumb tabs to indicate the chapter's number and content. 1 General information 2 Specifications 3 Regular inspection and adjustments 4 Engine 5 Chassis 6 Electrical 7 Tuning SPEC 4 INSP ADJ 5 6 ENG CHAS 7 ELEC 8 + Illustrated symbols 8 to D are used to identify the specifications appearing in the text. 8 With engine mounted 9 Special tool 0



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..... 5-40 STEERING ...  
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... 5-46 SWINGARM .....

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..... 5-52 REAR SHOCK ABSORBER ...

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..... 5-60 CHAPTER 6 ELECTRICAL ELECTRICAL COMPONENTS AND WIRING DIAGRAM ....

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... 6-1 MAP-CONTROLLED CDI UNIT .....

..... 6-2 IGNITION SYSTEM .  
.....  
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.... 6-3 ELECTRIC STARTING SYSTEM .

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..... 6-7 CHARGING SYSTEM ..

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..... 6-17 TPS (THROTTLE POSITION SENSOR) SYSTEM ...

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.. 6-19 LIGHTING SYSTEM ...

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.... 6-24 CHAPTER 7 TUNING ENGINE .

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.. 7-1 CHASSIS ...

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. 7-10 DESCRIPTION EC100000 GEN INFO GENERAL INFORMATION EC110000 DESCRIPTION 1 2 3 4 5 6 7 8 9 0 A B C D E F G H I J K L M N O P  
Clutch lever Hot starter lever "ENGINE STOP" button Trip meter Main switch Lights switch Start switch Front brake lever Throttle grip Radiator cap Fuel  
tank cap Taillight Kickstarter Fuel tank Headlight Radiator Coolant drain bolt Rear brake pedal Valve joint Fuel cock Cold starter knob Air cleaner Drive  
chain Shift pedal Oil dipstick Front fork G NOTE: The machine you have purchased may diffnd reinsert the terminal into the connector. 6. Connect: G  
Connector NOTE: The two connectors "click" together. 7. Check for continuity with a tester. NOTE: G If there in no continuity, clean the terminals. G Be sure  
to perform the steps 1 to 7 listed above when checking the wireharness. G For a field remedy, use a contact revitalizer available on the market. G Use the  
tester on the connector as shown.

1-6 SPECIAL TOOLS EC140001 GEN INFO SPECIAAin switch indicator light The main switch 1 is equipped with an indicator light 2 to avoid forgetting to  
turn it off. This light functions as follows. G It lights up with the main switch "ON". G It goes out when the engine increases its speed after being started. G It  
lights up again when the engine is stopped.

NOTE: If the indicator light will not light up with the main switch "ON", it shows a lack of the battery voltage. Recharge the battery. If the engine is kick  
started, turn off the light switch. EC151000 "ENGINE STOP" BUTTON The "ENGINE STOP" button 1 is located on the left handlebar. Continue pushing the  
"ENGINE STOP" button till the engine comes to a stop.

START SWITCH The start switch 1 is located on the right handlebar. Push this switch to crank the engine with the starter. 1 - 10 CONTROL FUNCTIONS  
EC152000 GEN INFO CLUTCH LEVER The clutch lever 1 is located on the left handlebar; it disengages or engages the clutch. Pull the clutch lever to the  
handlebar to disengage the clutch, and release the lever to engage the clutch. The lever should be pulled rapidly and released slowly for smooth starts.  
EC153000 SHIFT PEDAL The gear ratios of the constant-mesh 5 speed transmission are ideally spaced. The gears can be shifted by using the shift pedal 1 on  
the left side of the engine. EC154000 1 KICKSTARTER Rotate the kickstarter 1 away from the engine. Push the starter down lightly with your foot until the  
gears engage, then kick smoothly and forcefully to start the engine. This model has a primary kickstarter so the engine can be started in any gear if the clutch  
is disengaged.

In normal practices, however, shift to neutral before starting. EC155001 THROTTLE GRIP The throttle grip 1 is located on the right handlebar; it  
accelerates or decelerates the engine. For acceleration, turn the grip toward you; for deceleration, turn it away from you. EC156000 FRONT BRAKE LEVER  
The front brake lever 1 is located on the right handlebar. Pull it toward the handlebar to activate the front brake. 1 - 11 CONTROL FUNCTIONS EC157000

GEN INFO REAR BRAKE PEDAL The rear brake pedal 1 is located on the right side of the machine. Press down on the brake pedal to activate the rear  
brake. FUEL COCK The fuel cock supplies fuel from the tank to carburetor and also filters the fuel. The fuel cock has three positions: OFF:With the lever in  
this position fuel will not flow. Always return the lever to this position when the engine is not running.

ON: With the lever in this position fuel flows to the carburetor. Normal riding is done with the lever in this position. RES:With the lever in this position fuel  
flows to the carburetor from the reserve section of the fuel tank after the main supply of the fuel has been depleted. Normal riding is possible with the lever is  
in this position, but it is recommended to add fuel as soon as possible. COLD STARTER KNOB When cold, the engine requires a richer air-fuel mixture for  
starting.

A separate starter circuit, which is controlled by the cold starter knob 1, supplies this mixture. Pull the cold starter knob out to open the circuit for starting.  
When the engine has warmed up, push it in to close the circuit. HOT STARTER LEVER The hot starter lever 1 is used when starting a warm engine. Use the  
hot starter lever when starting the engine again immediately after it was stopped (the engine is still warm).

Pulling the hot starter lever injects secondary air to thin the air-fuel mixture temporarily, allowing the engine to be started more easily. 1 - 12 CONTROL  
FUNCTIONS GEN INFO LIGHTS SWITCH The lights switch 1 is located on the handlebar.



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**EC15F000 VALVE JOINT** This valve joint 1 prevents fuel from flowing out and is installed to the fuel tank breather hose. **CAUTION:** In this installation, make sure the arrow faces the fuel tank and also downward. **1 SPARK PLUG WRENCH** This spark plug wrench 1 is used to remove and install the spark plug. **1 NIPPLE WRENCH** This nipple wrench 1 is used to tighten the spoke. **1 - 13 FUEL FUEL GEN INFO** Always use the recommended fuel as stated below. Also, be sure to use new gasoline the day of a race. Recommended fuel: Except for ZA: Premium unleaded gasoline only with a research octane number of 95 or higher. For ZA: Premium gasoline **CAUTION:** Use only unleaded gasoline.

The use of leaded gasoline will cause severe damage to the engine internal parts such as valves, piston rings, and exhaust system, etc. **NOTE:** If knocking or pinging occurs, use a different brand of gasoline or higher octane grade. **G G WARNING** For refueling, be sure to stop the engine and use enough care not to spill any fuel. Also be sure to avoid refueling close to a fire. Refuel after the engine, exhaust pipe, etc. have cooled off. **1 - 14 STARTING AND BREAK-IN GEN INFO STARTING AND BREAK-IN WARNING** Never start or run the engine in a closed area. The exhaust fumes are poisonous; they can cause loss of consciousness and death in a very short time. Always operate the machine in a well-ventilated area. **CAUTION:** G G G The carburetor on this machine has a built-in accelerator pump.

Therefore, when starting the engine, do not operate the throttle or the spark plug will foul. Unlike a two-stroke engine, this engine cannot be kick started when the throttle is open because the kickstarter may kick back. Also, if the throttle is open the air/fuel mixture may be too lean for the engine to start. Before starting the machine, perform the checks in the pre-operation check list. **AIR FILTER MAINTENANCE** According to "AIR FILTER CLEANING" section in the CHAPTER 3, apply the foam-air-filter oil or its equivalent to the element.

(Excess oil in the element may adversely affect engine starting.) **STARTING A COLD ENGINE NOTE:** This model is equipped with an ignition circuit cut-off system. The engine can be started under the following conditions. G When the transmission is in neutral. G When the clutch is disengaged with the transmission in any position.

However, it is recommended to shift into neutral before starting the engine. 1. 2. 3. 4. 5. 6. Inspect the coolant level. Turn the fuel cock to "ON". Push the main switch to "ON".

Shift the transmission into neutral. Fully open the cold starter knob 1. Start the engine by pushing the start switch or by kicking the kickstarter. **1 - 15 STARTING AND BREAK-IN GEN INFO NOTE:** If the engine fails to start by pushing the start switch, release the switch, wait a few seconds, and then try again. Each starting attempt should be as short as possible to preserve the battery. Do not crank the engine more than 10 seconds on any one attempt. If the engine does not start with the starter motor, try using the kickstarter. **G G WARNING** If the starter motor will not turn when pushing the start switch, stop pushing it immediately and kick start the engine in order to avoid the load on the motor. Do not open the throttle while kicking the kickstarter. Otherwise, the kickstarter may kick back.

7. Return the cold starter knob to its original position and run the engine at 3,000 ~ 5,000 r/min for 1 or 2 minutes. **NOTE:** Since this model is equipped with an accelerator pump, if the engine is raced (the throttle opened and closed), the air/fuel mixture will be too rich and the engine may stall. Also unlike a two-stroke engine, this model can idle. **CAUTION:** Do not warm up the engine for extended periods of time.

**1 - 16 STARTING AND BREAK-IN GEN INFO STARTING A WARM ENGINE** Do not operate the cold starter knob and throttle. Pull the hot starter lever 1 and start the engine by pushing the start switch or by kicking the kickstarter forcefully with a firm stroke. As soon as the engine starts, release the hot starter lever to close the air passage. Restarting an engine after a fall Pull the hot starter lever and start the engine. As soon as the engine starts, release the hot starter lever to close the air passage.

The engine fails to start Pull the hot starter lever all the way out and while holding the lever, kick the kickstarter 10 to 20 times to clear the engine. Then, restart the engine. Refer to "Restarting an engine after a fall". Throttle grip operation\* Starting a cold engine Cold starter knob Hot starter lever OFF OFF Air temperature = less than Open 3 ON or 4 times 5 °C (41 °F) Air temperature = more None ON than 5 °C (41 °F) Air temperature (normal temperature) = between 5 °C None ON/OFF (41 °F) and 25 °C (77 °F) Air temperature = more None OFF than 25 °C (77 °F) Starting an engine after a long None ON period of time Restarting a warm engine None OFF Restarting an engine after a fall None OFF OFF OFF OFF ON ON \* Operate the throttle grip before kick starting. **CAUTION:** Observe the following break-in procedures during initial operation to ensure optimum performance and avoid engine damage. **1 - 17 STARTING AND BREAK-IN GEN INFO BREAK-IN PROCEDURES** 1. Before starting the engine, fill the fuel tank with the fuel. 2. Perform the pre-operation checks on the machine. 3.

Start and warm up the engine. Check the idle speed, and check the operation of the controls and the "ENGINE STOP" button. Then, restart the engine and check its operation within no more than 5 minutes after it is restarted. 4. Operate the machine in the lower gears at moderate throttle openings for five to eight minutes. 5. Check how the engine runs when the machine is ridden with the throttle 1/4 to 1/2 open (low to medium speed) for about one hour. 6. Restart the engine and check the operation of the machine throughout its entire operating range. Restart the machine and operate it for about 10 to 15 more minutes.

The machine will now be ready to race. **CAUTION:** G G After the break-in or before each race, you must check the entire machine for loose fittings and fasteners as per "TORQUE-CHECK POINTS". Tighten all such fasteners as required. When any of the following parts have been replaced, they must be broken in. **CYLINDER AND CRANKSHAFT:** About one hour of break-in operation is necessary.

**PISTON, RING, VALVES, CAMSHAFTS AND GEARS:** These parts require about 30 minutes of break-in operation at half-throttle or less. Observe the condition of the engine carefully during operation. **1 - 18 TORQUE-CHECK POINTS TORQUE-CHECK POINTS** Frame construction Combined seat and tank Exhaust system GEN INFO Frame to rear frame Fuel tank to frame Silencer to rear frame Engine mounting Frame to engine Engine bracket to engine Engine bracket to frame Steering shaft to handlebar Steering shaft to frame Steering shaft to handle crown Handle crown to handlebar Front fork to handle crown Front fork to under bracket Assembly of links Link to frame Link to shock absorber Link to swingarm Shock absorber to frame Steering Suspension Front Steering shaft to front fork For link type Rear Rear Installation of shock absorber Installation of swingarm Front Rear Rear Tightening of pivot shaft Wheel Installation of wheel Tightening of front axle Tightening of axle holder Tightening of rear axle Wheel to sprocket Caliper to front fork Brake disc to wheel Tightening of union bolt Master cylinder to handlebar Tightening of air bleeder Brake pedal to frame Brake disc to wheel Tightening of union bolt Master cylinder to frame Tightening of air bleeder Fuel tank to fuel cock Tightening of oil hose clamp Brake Front Rear Fuel system Lubrication system

**NOTE:** Concerning the tightening torque, refer to "MAINTENANCE SPECIFICATIONS" section in the CHAPTER 2.



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1 - 19 CLEANING AND STORAGE EC1B0000 GEN INFO CLEANING AND STORAGE EC1B1000 CLEANING Frequent cleaning of your machine will enhance its appearance, maintain good overall performance, and extend the life of many components. 1.

Before washing the machine, block off the end of the exhaust pipe to prevent water from entering. A plastic bag secured with a rubber band may be used for this purpose. 2. If the engine is excessively greasy, apply some degreaser to it with a paint brush. Do not apply degreaser to the chain, sprockets, or wheel axles. 3. Rinse the dirt and degreaser off with a garden hose; use only enough pressure to do the job. CAUTION: Excessive hose pressure may cause water seepage and contamination of wheel bearings, front forks, brakes and transmission seals. Many expensive repair bills have resulted from improper high pressure detergent applications such as those available in coin-operated car washers. 4.

After the majority of the dirt has been hosed off, wash all surfaces with warm water and a mild detergent. Use an old toothbrush to clean hard-to-reach places. 5. Rinse the machine off immediately with clean water, and dry all surfaces with a soft towel or cloth. 6. Immediately after washing, remove excess water from the chain with a paper towel and lubricate the chain to prevent rust. 7. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy. 1 - 20 CLEANING AND STORAGE GEN INFO 8. Automotive wax may be applied to all painted or chromed surfaces.

Avoid combination cleaner-waxes, as they may contain abrasives. 9. After completing the above, start the engine and allow it to idle for several minutes. EC1B2001 STORAGE If your machine is to be stored for 60 days or more, some preventive measures must be taken to avoid deterioration. After cleaning the machine thoroughly, prepare it for storage as follows: 1.

Drain the fuel tank, fuel lines, and the carburetor float bowl. 2. Remove the spark plug, pour a tablespoon of SAE 10W-30 motor oil in the spark plug hole, and reinstall the plug. With the engine stop switch pushed in, kick the engine over several times to coat the cylinder walls with oil. 3.

Remove the drive chain, clean it thoroughly with solvent, and lubricate it. Reinstall the chain or store it in a plastic bag tied to the frame. 4. Lubricate all control cables. 5. Block the frame up to raise the wheels off the ground. 6. Tie a plastic bag over the exhaust pipe outlet to prevent moisture from entering. 7. If the machine is to be stored in a humid or salt-air environment, coat all exposed metal surfaces with a film of light oil.

Do not apply oil to rubber parts or the seat cover. NOTE: Make any necessary repairs before the machine is stored. 1 - 21 GENERAL SPECIFICATIONS EC200000 SPEC SPECIFICATIONS EC211000 GENERAL SPECIFICATIONS Model name: WR450FR (USA) WR450F (EUROPE) WR450F(R) (CDN, AUS, NZ, ZA) 5TJ1 (USA) 5TJ2 (EUROPE) 5TJ4 (CDN, AUS, NZ, ZA) 2,171 mm (85.5 in) 827 mm (32.6 in) 1,303 mm (51.3 in) 998 mm (39.3 in) 1,485 mm (58.5 in) 371 mm (14.6 in) 122 kg (269 lb) Liquid cooled 4-stroke, DOHC Single cylinder, forward inclined 449 cm<sup>3</sup> (15.8 Imp oz, 15.

2 US oz) 95.0 × 63.4 mm (3.74 × 2.50 in) 12.

5 : 1 Kick and electric starter Dry sump (For USA and CDN) At 5 °C (40 °F) or higher Yamalube 4 (20W-40) or SAE 20W-40 type SG motor oil (Non-Friction modified) At 15 °C (60 °F) or lower i Yamalube 4 (10W-30) or SAE 10W-30 type SG motor oil (Non-Friction modified) and/or Yamalube 4-R (15W-50) (Non-Friction modified) °C 20 30 40 50 Model code number: Dimensions: Overall length Overall width Overall height Seat height Wheelbase Minimum ground clearance Basic weight: With oil and full fuel tank Engine: Engine type Cylinder arrangement Displacement Bore × stroke Compression ratio Starting system Lubrication system: Oil type or grade: Engine oil -20 -10 Temp. 0 10 (Except for USA and CDN) API "SG" or higher grade 10W-30 10W-40 15W-40 20W-40 20W-50 -4 14 30 50 68 86 104 122 °F 2-1 GENERAL SPECIFICATIONS Oil capacity: Engine oil Periodic oil change With oil filter replacement Total amount Coolant capacity (including all routes): Air filter: Fuel: Type SPEC 1.0 L (0.88 Imp qt, 1.06 US qt) 1.

1 L (0.97 Imp qt, 1.16 US qt) 1.2 L (1.06 Imp qt, 1.27 US qt) 1.6 L (1.41 Imp qt, 1.69 US qt) Wet type element Premium unleaded gasoline only with a research octane number of 95 or higher. (Except for ZA) Premium gasoline (For ZA) 10 L (2.

2 Imp gal, 2.64 US gal) 1.2 L (0.26 Imp gal, 0.32 US gal) FCR MX39 KEIHIN CR8E/NGK (resistance type) 0.7 ~ 0.8 mm (0.028 ~ 0.031 in) Wet, multiple-disc Gear 62/22 (2.818) Chain drive 50/14 (3.

571) Constant mesh, 5-speed Left foot operation 29/12 (2.416) 26/15 (1.733) 21/16 (1.312) 21/20 (1.050) 21/25 (0.

840) Semi double cradle 27.2° 118 mm (4.65 in) With tube 80/100-21 51M (USA, CDN, ZA) 90/90-21 54R (EUROPE, AUS, NZ) 110/100-18 64M (USA, CDN, ZA) 130/90-18 69R (EUROPE, AUS, NZ) 100 kPa (1.0 kgf/cm<sup>2</sup>, 15 psi) Tank capacity Reserve Carburetor: Type Manufacturer Spark plug:

Type/manufacturer Gap Clutch type: Transmission: Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Transmission type Operation Gear ratio: 1st 2nd 3rd 4th 5th Chassis: Frame type Caster angle Trail Tire: Type Size (front) Size (rear) Tire pressure (front and rear) 2-2 GENERAL SPECIFICATIONS Brake: Front brake type Operation Rear brake type Operation Suspension: Front suspension Rear suspension Shock absorber: Front shock absorber Rear shock absorber Wheel travel: Front wheel travel Rear wheel travel Electrical: Ignition system Generator system Battery type Battery voltage/capacity Specific gravity Headlight type: Bulb wattage × quantity: Headlight Taillight Single disc brake Right hand operation Single disc brake Right foot operation SPEC Telescopic fork Swingarm (link type monocross suspension) Coil spring/oil damper Coil spring/gas, oil damper 300 mm (11.8 in) 315 mm (12.

4 in) CDI AC magneto YTZ7S 12 V/6 AH 1.310 Quartz bulb (halogen) 12 V 60/55 W × 1 12 V 21/5 W × 1 2-3 MAINTENANCE SPECIFICATIONS MAINTENANCE SPECIFICATIONS ENGINE Item Cylinder head: Warp limit ---Standard SPEC Limit 0.05 mm (0.002 in) Cylinder: Bore size Out of round limit Camshaft: Drive method Camshaft cap inside diameter Camshaft journal diameter Shaft-to-cap clearance Cam dimensions 95.00 ~ 95.01 mm (3.7402 ~ 3.7406 in) ---- -0.05 mm (0.002 in) -----0.

08 mm (0.003 in) Chain drive (Left) 22.000 ~ 22.021 mm (0.8661 ~ 0.8670 in) 21.967 ~ 21.980 mm (0.8648 ~ 0.8654 in) 0.

020 ~ 0.054 mm (0.0008 ~ 0.0021 in) A B Intake "A" "B" Exhaust "A" "B" Camshaft runout limit 31.200 ~ 31.

300 mm (1.2283 ~ 1.2323 in) 22.550 ~ 22.650 mm (0.

8878 ~ 0.8917 in) 30.950 ~ 31.050 mm (1.2185 ~ 1.2224 in) 22.494 ~ 22.594 mm (0.8856 ~ 0.8895 in) ---- 31.

100 mm (1.2244 in) 22.450 mm (0.8839 in) 30.850 mm (1.



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2146 in) 22.394 mm (0.8817 in) 0.03 mm (0.0012 in) 2-4 MAINTENANCE SPECIFICATIONS Item Cam chain: Cam chain type/No. of links Cam chain adjustment method Valve, valve seat, valve guide: Valve clearance (cold) Standard 98XRH2010-118M/118 Automatic IN EX Valve dimensions: 0.10 ~ 0.15 mm (0.0039 ~ 0.0059 in) 0.

20 ~ 0.25 mm (0.0079 ~ 0.0098 in) SPEC Limit ----- B A Head Diameter Face Width Seat Width C D Margin Thickness "A" head diameter IN EX "B" face width "C" seat width IN EX IN EX "D" margin thickness IN EX 26.9 ~ 27.  
1 mm (1.0591 ~ 1.0669 in) 27.9 ~ 28.1 mm (1.0984 ~ 1.1063 in) 2.26 mm (0.089 in) 2.26 mm (0.

089 in) 0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in) 0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in) 1 mm (0.0394 in) 1 mm (0.  
0394 in) 4.475 ~ 4.490 mm (0.1762 ~ 0.1768 in) 4.  
965 ~ 4.980 mm (0.1955 ~ 0.1961 in) 4.500 ~ 4.  
512 mm (0.1772 ~ 0.1776 in) 5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in) 0.010 ~ 0.037 mm (0.0004 ~ 0.

0015 in) 0.020 ~ 0.047 mm (0.0008 ~ 0.0019 in) -----1.6 mm (0.0630 in) 1.6 mm (0.0630 in) 0.85 mm (0.  
033 in) 0.85 mm (0.033 in) 4.445 mm (0.1750 in) 4.  
935 mm (0.1943 in) 4.550 mm (0.1791 in) 5.050 mm (0.

1988 in) 0.08 mm (0.003 in) 0.10 mm (0.004 in) 0.01 mm (0.0004 in) Stem outside diameter IN EX Guide inside diameter IN EX Stem-to-guide clearance IN EX Stem runout limit 2-5 MAINTENANCE SPECIFICATIONS Item Valve spring: Free length IN EX Set length (valve closed) Compressed force (installed) IN EX IN Standard 37.03 mm (1.46 in) 37.68 mm (1.

48 in) 27.87 mm (1.10 in) 27.38 mm (1.08 in) SPEC Limit 35.17 mm (1.38 in) 35.79 mm (1.41 in) ----- EX Tilt limit \* IN EX 111.3 ~ 127.  
9 N at 27.87 mm (11.3 ~ 13.0 kg at 27.87 mm, 24.  
91 ~ 28.66 lb at 1.10 in) 127.4 ~ 146.4 N at 27.  
38 mm (13.0 ~ 14.9 kg at 27.38 mm, 28.66 ~ 32.85 lb at 1.08 in) ----- 2.5°/1.61 mm (2.5°/0.

063 in) 2.5°/1.65 mm (2.5°/0.065 in) Direction of winding (top view) Piston: Piston to cylinder clearance Piston size "D" IN EX Clockwise Clockwise 0.040 ~ 0.065 mm (0.0016 ~ 0.0026 in) 94.945 ~ 94.  
960 mm (3.738 ~ 3.739 in) -----0.1 mm (0.004 in) --- H D Measuring point "H" Piston off-set Piston pin bore inside diameter Piston pin outside diameter 8 mm (0.  
315 in) 1 mm (0.0394 in) 18.004 ~ 18.015 mm (0.7088 ~ 0.

7093 in) 17.991 ~ 18.000 mm (0.7083 ~ 0.7087 in) -----18.045 mm (0.7104 in) 17.971 mm (0.7075 in) 2-6 MAINTENANCE SPECIFICATIONS Item Piston rings: Top ring: B T SPEC Limit Standard Type Dimensions (B × T) End gap (installed) Side clearance (installed) 2nd ring: B T Barrel 1.2 × 3.  
5 mm (0.05 × 0.14 in) 0.20 ~ 0.30 mm (0.008 ~ 0.012 in) 0.030 ~ 0.065 mm (0.0012 ~ 0.  
0026 in) -----0.55 mm (0.022 in) 0.12 mm (0.005 in) Type Dimensions (B × T) End gap (installed) Side clearance Oil ring: B T Taper 1.  
00 × 3.35 mm (0.04 × 0.13 in) 0.35 ~ 0.  
50 mm (0.014 ~ 0.020 in) 0.020 ~ 0.055 mm (0.0008 ~ 0.0022 in) -----0.85 mm (0.033 in) 0.12 mm (0.

005 in) Dimensions (B × T) End gap (installed) Crankshaft: Crank width "A" Runout limit "C" Big end side clearance "D" Small end free play "F" Balancer: Balancer drive method Air filter oil grade: 2.0 × 2.9 mm (0.08 × 0.11 in) 0.2 ~ 0.5 mm (0.01 ~ 0.02 in) 61.95 ~ 62.  
00 mm (2.439 ~ 2.441 in) 0.03 mm (0.0012 in) 0.  
15 ~ 0.45 mm (0.0059 ~ 0.0177 in) 0.4 ~ 1.  
0 mm (0.02 ~ 0.04 in) -----0.05 mm (0.002 in) 0.50 mm (0.02 in) 2.0 mm (0.08 in) ----- Gear Foam-air-filter oil or equivalent oil 2-7 MAINTENANCE SPECIFICATIONS Item Clutch: Friction plate thickness Quantity Clutch plate thickness Quantity Warp limit Clutch spring free length Quantity Clutch housing thrust clearance Clutch housing radial clearance Clutch release method Shifter: Shifter type Guide bar bending limit Kickstarter: Type Carburetor: Standard SPEC Limit 2.8 mm (0.

110 in) -----0.1 mm (0.004 in) 47.4 mm (1.87 in) -----0.05 mm (0.002 in) ---- 2.92 ~ 3.08 mm (0.115 ~ 0.  
121 in) 9 1.1 ~ 1.3 mm (0.043 ~ 0.051 in) 8 ---48.  
4 mm (1.91 in) 6 0.10 ~ 0.35 mm (0.0039 ~ 0.

0138 in) 0.010 ~ 0.044 mm (0.0004 ~ 0.0017 in) Inner push, cam push Cam drum and guide bar --- Ratchet type USA EUROPE, CDN, AUS, NZ, ZA 5TJ2 10 #160 OBDUQ-4 #48 #80 1-1/2 #50 I. D. mark Main jet Main air jet Jet needle - clip position Cutaway Pilot jet Pilot air jet Pilot outlet Pilot screw (example) Bypass Valve seat size Starter jet Leak jet Float height Engine idle speed Intake vacuum (M.J) (M.A.J) (J.  
N) (C.A) (P.J) (P.A.J) (P.O) (P.S) (B.P) (V.S) (G.S) (Acc.  
P) (F.H) 5TJ1 00 #150 φ2.0 OBDUT-4 1.5 #45 #70 φ0.9 1-3/4 φ1.  
0 φ3.8 #65 #70 8 mm (0.31 in) 1,700 ~ 1,900 r/min 33.3 ~ 38.7 kPa (250 ~ 290 mmHg, 9.  
84 ~ 11.42 inHg) ----- Hot starter lever free play 3 ~ 6 mm (0.12 ~ 0.24 in) ---- 2-8 MAINTENANCE SPECIFICATIONS Item Lubrication system: Oil filter type Oil pump type Tip clearance "A" Tip clearance "B" Side clearance Bypass valve setting pressure Cooling: Radiator core size Width Height Thickness Radiator cap opening pressure Radiator capacity (total) Water pump Type Standard SPEC Limit -----0.20 mm (0.008 in) 0.24 mm (0.009 in) 0.17 mm (0.007 in) ---- Paper type Trochoid type 0.

12 mm or less (0.0047 in or less) 0.09 ~ 0.17 mm (0.0035 ~ 0.0067 in) 0.03 ~ 0.10 mm (0.0012 ~ 0.0039 in) 40 ~ 80 kPa (0.  
4 ~ 0.8 kg/cm<sup>2</sup>, 5.69 ~ 11.38 psi) 127.8 mm (5.  
0 in) 260 mm (10.2 in) 32 mm (1.26 in) 110 kPa (1.1 kg/cm<sup>2</sup>, 15.6 psi) 0.

78 L (0.69 Imp qt, 0.82 US qt) Single-suction centrifugal pump ----- 2-9 MAINTENANCE SPECIFICATIONS Item Lubrication chart: Pressure feed Splashed scavenge SPEC Standard Oil tank Camshaft Cylinder head Valve lifter Piston Transmission gears Piston pin Main axle Oil filter Drive axle Check ball Oil pump rotor 1 Oil pump rotor 2 Crank pin Oil strainer Oil pan 2 - 10 MAINTENANCE SPECIFICATIONS Part to be tightened Spark plug

Camshaft cap Cylinder head blind plug screw Cylinder head (stud bolt) (bolt) (nut) Cylinder head cover Cylinder Timing chain tensioner Tensioner cap bolt  
Timing chain guide (rear) Exhaust pipe (nut) (bolt) Silencer Silencer clamp Exhaust pipe protector Spark arrester (for USA) Silencer end pipe (for USA)  
Carburetor joint clamp (cylinder head side) Carburetor joint clamp (carburetor side) Air filter case Air filter joint clamp Air filter joint and air filter case  
Throttle cable (pull) Throttle cable (return) Throttle cable cover Hot starter plunger Radiator panel (upper) Radiator Radiator hose clamp Radiator pipe 1, 2  
Impeller Water pump housing cover Coolant drain bolt Oil pump cover Oil pump Engine oil drain bolt (oil filter) Oil filter cover Oil delivery pipe 1 Oil  
delivery pipe 2 Oil hose Thread size M10S × 1.0 M6 × 1.0 M12 × 1.0 M6 × 1.0 M8 × 1.25 M10 × 1.25 M6 × 1.0 M6 × 1.

0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M8 × 1.25 M8 × 1.25 M8 × 1.25 M8 × 1.25 M6 × 1.



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0 M6 × 1.

0 M6 × 1.0 M5 × 0.8 M4 × 0.7 M6 × 1.0 M6 × 1.

0 M5 × 0.8 M6 × 1.0 M12 × 1.0 M5 × 0.8 M12 × 1.

0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M10 × 1.0 M8 × 1.25 M6 × 1.0 M6 × 1.0 M4 × 0.7 M6 × 1.0 M6 × 1.

0 M6 × 1.0 M10 × 1.25 M8 × 1.25 M6 × 1.0 M6 × 1.0 2 - 11 SPEC Tightening torque m·kg ft·lb Q'ty 1 10 1 2 1 4 2 2 1 2 1 2 1 1 2 1 3 3 1 1 1 2 1 1 1 2 1 2 6

8 2 1 3 1 1 3 1 2 1 2 1 2 Nm 13 1.3 9.4 10 1.0 7.2 37 3.

7 27 7 0.7 5.1 15 1.5 11 Refer to NOTE.\*1 10 1.

0 7.2 10 1.0 7.2 10 1.0 7.

2 10 1.0 7.2 7 0.7 5.1 10 1.0 7.2 13 1.3 9.4 24 2.4 17 35 3.

5 25 20 2.0 14 10 1.0 7.2 10 1.0 7.2 10 1.0 7.2 3 0.3 2.2 3 0.

3 2.2 8 0.8 5.8 3 0.3 2.

2 4 0.4 2.9 4 0.4 2.9 11 1.

1 8.0 4 0.4 2.9 2 0.2 1.4 10 1.0 7.2 10 1.0 7.2 2 0.

2 1.4 10 1.0 7.2 14 1.4 10 10 1.0 7.2 10 1.0 7.2 2 0.2 1.

4 10 1.0 7.2 10 1.0 7.2 10 1.

0 7.2 20 2.0 14 18 1.8 13 10 1.0 7.

2 10 1.0 7.2 MAINTENANCE SPECIFICATIONS Part to be tightened Oil check bolt Oil hose clamp Clutch cover Crankcase cover (right) Crankcase cover (left) Idle gear cover (starter motor) Crankcase Clutch cable holder Oil drain bolt (crankcase rear) (crankcase left) Oil drain bolt (frame) Oil strainer (frame) Crankcase bearing stopper Drive axle oil seal stopper Ratchet wheel guide Stopper plate Kickstarter Screw (kickstarter) Starter clutch Primary drive gear Clutch boss Push lever Clutch spring Balancer driven gear Balancer weight plate Drive sprocket Drive sprocket cover Shift pedal Shift guide Stopper lever Segment Thread size M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M10 × 1.

25 M6 × 1.0 M8 × 1.25 M18 × 1.5 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M8 × 1.25 M6 × 1.0 M6 × 1.

0 M20 × 1.0 M20 × 1.0 M6 × 1.0 M6 × 1.0 M14 × 1.

0 M6 × 1.0 M20 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.

0 M6 × 1.0 M8 × 1.25 Q'ty 1 2 7 10 9 2 12 1 1 1 1 15 2 2 2 1 1 6 1 1 1 6 1 3 1 2 1 2 1 1 SPEC Tightening torque m·kg 1.0 0.2 1.0 1.0 1.0 1.0 1.2 1.

0 2.0 1.0 2.3 9.0 1.0 1.0 1.2 1.2 3.3 0.

7 1.6 7.5 7.5 1.0 0.

8 5.0 1.0 7.5 0.8 1.

2 1.0 1.0 3.0 ft·lb 7.2 1.4 7.2 7.2 7.2 7.2 8.

7 7.2 14 7.2 17 65 7.2 7.2 8.7 8.7 24 5.1 11 54 54 7.2 5.8 36 7.

2 54 5.8 8.7 7.2 7.2 22 Nm 10 2 10 10 10 10 12 10 20 10 23 90 10 10 12 12 33 7 16 75 75 10 8 50 10 75 8 12 10 10 30 NOTE: - marked portion shall be checked for torque tightening after break-in or before each race.

NOTE: \*1: Tighten the cylinder head bolts to 30 Nm (3.0 m · kg, 22 ft · lb) in the proper tightening sequence, remove and retighten the cylinder head bolts to 20 Nm (2.0 m · kg, 14 ft · lb) in the proper tightening sequence, and then tighten the cylinder head bolts further to reach the specified angle 180° in the proper tightening sequence. 2 - 12 MAINTENANCE SPECIFICATIONS EC212201 SPEC Limit ---AUS, NZ, ZA K = 4.31 N/mm (0.

44 kg/mm, 24.6 lb/in) CHASSIS Item Steering system: Steering bearing type Front suspension: Front fork travel Fork spring free length Spring rate, STD Standard Taper roller bearing USA, CDN EUROPE 300 mm (11.8 in) 460 mm (18.1 in) K = 4.12 N/mm K = 4.51 N/mm (0.46 kg/mm, (0.42 kg/mm, 25.8 lb/in) 23.5 lb/in) Yes 573 cm<sup>3</sup> (20.

2 Imp oz., 19.4 US oz) 130 mm (5.12 in) 80 ~ 150 mm (3.15 ~ 5.91 in) EUROPE 246.5 mm (9.70 in) K = 48.0 N/mm (4.90 kg/mm, 274.4 lb/in) Optional spring/spacer Oil capacity Oil level <Min.

~Max.> (From top of outer tube with inner tube and damper rod fully compressed without spring.) Oil grade Inner tube outer diameter Front fork top end Rear suspension: Shock absorber travel Spring free length Fitting length <Min.~Max.> Spring rate, STD Optional spring Enclosed gas pressure Swingarm: Swingarm free play limit End Suspension oil "01" 46 mm (1.

81 in) Zero mm (Zero in) USA, CDN 132 mm (5.20 in) 260 mm (10.24 in) 246 mm (9.69 in) 240.5 ~ 258.

5 mm (9.47 ~ 10.18 in) K = 51.0 N/mm (5.20 kg/mm, 291.2 lb/in) Yes 1,000 kPa (10 kg/cm<sup>2</sup>, 142 psi) AUS, NZ, ZA K = 52.0 N/mm (5.30 kg/mm, 296.8 lb/in) ---- 1.0 mm (0.

04 in) 2 - 13 MAINTENANCE SPECIFICATIONS Item Wheel: Front wheel type Rear wheel type Front rim size/material Rear rim size/material Rim runout limit: Radial Lateral Drive chain: Type/manufacturer Number of links Chain slack Chain length (10 links) Front disc brake: Disc outside dia. × Thickness Pad thickness Master cylinder inside dia. Caliper cylinder inside dia. Brake fluid type Rear disc brake: Disc outside dia. × Thickness Deflection limit Pad thickness Master cylinder inside dia. Caliper cylinder inside dia. Brake fluid type Brake lever and brake pedal: Brake lever position Brake pedal height (vertical height above footrest top) Clutch lever free play (lever end) Throttle grip free play Standard Spoke wheel Spoke wheel 21 × 1.60/Aluminum 18 × 2.15/Aluminum ----- SPEC Limit -----2.0 mm (0.

08 in) 2.0 mm (0.08 in) -----150.1 mm (5.91 in) 250 × 2.

5 mm (9.84 × 0.10 in) DID520VM/DAIDO 113 links + joint 40 ~ 50 mm (1.6 ~ 2.0 in) ---- 250 × 3.

0 mm (9.84 × 0.12 in) 4.4 mm (0.17 in) 11.0 mm (0.433 in) 27.0 mm (1.063 in) × 2 DOT #4 245 × 4.0 mm (9.

65 × 0.16 in) ---6.4 mm (0.25 in) 11.0 mm (0.433 in) 25.4 mm (1.000 in) × 1 DOT #4 95 mm (3.74 in) 5 mm (0.20 in) 8 ~ 13 mm (0.

31 ~ 0.51 in) 3 ~ 5 mm (0.12 ~ 0.20 in) 1.0 mm (0.

04 in) -----245 × 3.5 mm 0.15 mm (0.006 in) 1.0 mm (0.

04 in) ----- (9.65 × 0.14 in) 2 - 14 MAINTENANCE SPECIFICATIONS Part to be tightened Handle crown and outer tube Under bracket and outer tube Handle crown and steering shaft Handlebar holder (upper) Steering ring nut Front fork and cap bolt Front fork and base valve Cap bolt and damper rod (front fork) Bleed screw (front fork) and cap bolt Front fork and protector Front fork and brake hose holder Front fork and hose cover Front fork and hose cover Throttle cable cap Clutch lever holder mounting Hot starter lever holder mounting Hot starter lever mounting Lights switch Front brake master cylinder and bracket Front brake master cylinder cap Brake lever mounting (bolt) Brake lever mounting (nut) Brake lever position locknut Hose guide (front brake hose) Front brake hose union bolt (master cylinder) Front brake hose union bolt (caliper) Front brake caliper and front fork Brake caliper (front and rear) and pad pin plug Brake caliper (front and rear) and pad pin Brake caliper (front and rear) and bleed screw Front wheel axle and nut Front wheel axle holder Front brake disc and wheel hub Rear brake disc and wheel hub Brake pedal mounting Rear brake master cylinder and frame Rear brake master cylinder cap Rear brake hose union bolt (caliper) Rear brake hose union bolt (master cylinder) Thread size M8 × 1.25 M8 × 1.25 M24 × 1.0 M8 × 1.25 M28 × 1.0 M48 × 1.0 M30 × 1.0 M12 × 1.

25 M5 × 0.8 M6 × 1.0 M6 × 1.0 M8 × 1.



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25 M6 × 1.0 M5 × 0.8 M5 × 0.8 M5 × 0.8 M5 × 0.8 M4 × 0.  
7 M6 × 1.0 M4 × 0.7 M6 × 1.0 M6 × 1.0 M6 × 1.  
0 M5 × 0.8 M10 × 1.25 M10 × 1.25 M8 × 1.25 M10 × 1.  
0 M10 × 1.0 M8 × 1.25 M16 × 1.5 M8 × 1.25 M6 × 1.0 M6 × 1.0 M8 × 1.25 M6 × 1.0 M4 × 0.7 M10 × 1.

25 M10 × 1.25 Q'ty 4 4 1 4 1 4 1 2 2 2 2 2 6 2 1 1 2 2 2 1 2 2 2 1 1 1 2 1 1 2 2 2 2 1 4 6 6 1 2 2 1 1 SPEC m·kg ft·lb Tightening torque Nm 23 20 145 28 2.3 17 2.0  
14 14.5 105 2.8 20 Refer to NOTE. 30 3.0 22 55 5.5 40 29 2.9 21 1 0.  
1 0.7 10 1.0 7.2 10 1.0 7.  
2 16 1.6 11 7 0.7 5.1 4 0.4 2.  
9 4 0.4 2.9 4 0.4 2.9 2 0.2 1.4 2 0.2 1.4 9 0.9 6.  
5 2 0.2 1.4 6 0.6 4.3 6 0.6 4.3 5 0.5 3.6 4 0.4 2.  
9 30 3.0 22 30 3.0 22 23 2.3 17 3 0.3 2.  
2 18 1.8 13 6 0.6 4.3 105 10.5 75 23 2.  
3 17 12 1.2 8.7 14 1.4 10 26 2.6 19 11 1.1 8.0 2 0.2 1.4 30 3.0 22 30 3.

0 22 NOTE: 1. First, tighten the ring nut approximately 38 Nm (3.8 m·kg, 27 ft·lb) by using the ring nut wrench, then loosen the ring nut one turn. 2. Retighten the ring nut 7 Nm (0.7 m·kg, 5.1 ft·lb). 2 - 15 MAINTENANCE SPECIFICATIONS Part to be tightened Rear wheel axle and nut Driven sprocket and wheel hub Nipple (spoke) Disc cover and rear brake caliper Protector and rear brake caliper Chain puller adjust bolt and locknut Engine mounting: Engine upper bracket and frame Engine lower bracket and frame Engine and frame (front) Engine and frame (upper) Engine and frame (lower) Engine guard (left and right) Engine skid plate mounting Regulator bracket mounting Regulator mounting Pivot shaft and nut Relay arm and swingarm Relay arm and connecting rod Connecting rod and frame Rear shock absorber and frame Rear shock absorber and relay arm Rear frame and frame (upper) Rear frame and frame (lower) Swingarm and brake hose holder Swingarm and patch Drive chain tensioner mounting (upper) Drive chain tensioner mounting (lower) Chain support and swingarm Seal guard and swingarm Fuel tank mounting Fuel tank and fuel cock Fuel tank and seat set bracket Fuel tank and hooking screw (fitting band) Fuel tank and fuel tank bracket Seat mounting Side cover mounting Air scoop and fuel tank Air scoop and radiator panel (lower) Front fender mounting Rear fender mounting (front) Rear fender mounting (rear) Trip meter mounting Thread size M20 × 1.5 M8 × 1.25 M6 × 1.

0 M6 × 1.0 M8 × 1.25 M10 × 1.25 M8 × 1.25 M10 × 1.  
25 M10 × 1.25 M10 × 1.25 M8 × 1.25 M6 × 1.0 M6 × 1.  
0 M6 × 1.0 M16 × 1.5 M14 × 1.5 M14 × 1.5 M14 × 1.5 M10 × 1.25 M10 × 1.25 M8 × 1.25 M8 × 1.25 M5 × 0.

8 M4 × 0.7 M8 × 1.25 M8 × 1.25 M6 × 1.0 M5 × 0.8 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.  
0 M8 × 1.25 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.  
0 M6 × 1.0 M6 × 1.0 M6 × 1.0 2 - 16 SPEC m·kg 12.5 5.  
0 0.3 0.7 0.7 1.6 5.5 3.4 6.9 5.5 6.9 2.

3 1.0 0.7 0.7 8.5 8.0 8.0 8.0 5.6 5.3 3.  
2 2.9 0.1 0.2 1.9 2.  
0 0.7 0.6 1.0 0.7 0.  
7 0.7 0.7 2.3 0.7 0.4 0.4 0.7 0.7 1.0 0.

7 ft·lb 90 36 2.2 5.1 5.1 11 40 24 50 40 50 17 7.2 5.1 5.1 61 58 58 58 40 38 23 21 0.7 1.4 13 14 5.1 4.  
3 7.2 5.1 5.1 5.1 5.  
1 17 5.1 2.9 2.9 5.1 5.

1 7.2 5.1 Q'ty 1 6 72 2 2 2 2 4 1 1 1 2 6 2 2 1 1 1 1 1 1 1 2 4 4 1 1 3 4 2 2 1 1 4 2 2 6 2 4 2 2 2 Tightening torque Nm 125 50 3 7 7 16 55 34 69 55 69 23 10 7 7  
85 80 80 80 56 53 32 29 1 2 19 20 7 6 10 7 7 7 7 23 7 4 4 7 7 10 7 MAINTENANCE SPECIFICATIONS Part to be tightened Meter cable holder and protector  
Headlight stay (lower) and under bracket Headlight body and headlight unit Headlight mounting (left and right) Headlight mounting (lower) Taillight  
mounting Taillight lead clamp and rear fender Coolant reservoir tank mounting Sidestand bracket mounting Sidestand mounting Thread size M5 × 0.8 M8 ×  
1.25 M6 × 1.0 M6 × 1.0 M6 × 1.0 M6 × 1.0 M4 × 1.59 M6 × 1.

0 M10 × 1.25 M10 × 1.25 Q'ty 2 2 2 2 1 3 2 2 2 1 SPEC m·kg 0.4 0.7 0.7 1.0 0.7 0.4 0.05 0.  
7 6.6 6.4 ft·lb 2.9 5.1 5.  
1 7.2 5.1 2.9 0.36 5.

1 48 46 Tightening torque Nm 4 7 7 10 7 4 0.5 7 66 64 NOTE: - marked portion shall be checked for torque tightening after break-in or before each race. 2 -  
17 MAINTENANCE SPECIFICATIONS EC212300 SPEC Limit ----- ELECTRICAL Item Ignition system: Advancer type C.D.I.: Pickup coil resistance  
(color) CDI unit-model/manufacture Electrical 248 ~ 372 at 20 °C (68 °F) (White Red) 5TJ-00/YAMAHA (For USA) 5TJ-10/YAMAHA (Except for USA)  
5TA-00/DENSO 6 mm (0.24 in) 0.08 ~ 0.10 at 20 °C (68 °F) 4.6 ~ 6.

8 k at 20 °C (68 °F) AC magneto 5TJ-00/YAMAHA 14 V/120 W at 5,000 r/min 0.288 ~ 0.432 at 20 °C (68 °F) (White Ground) 0.224 ~ 0.336 at 20 °C (68 °F)  
(Yellow Ground) Semiconductor short circuit SH712AA/SHINDENGEN 13.0 ~ 14.0 V 14.1 ~ 14.9 V 12 A 8A Constant mesh 5TJ00/YAMAHA 12 V 0.48 kW  
0.  
0117 ~ 0.0143 at 20 °C (68 °F) 7 mm (0.28 in) 2 pcs. 3.92 ~ 5.  
88 N (400 ~ 600 g, 14.1 ~ 21.2 oz) 17.6 mm (0.69 in) 1.

5 mm (0.06 in) 2 - 18 Standard Ignition coil: Model/manufacture Minimum spark gap Primary winding resistance Secondary winding resistance Charging  
system: System type Model/manufacture Normal output Charging coil resistance (color) Lighting coil resistance (color) Rectifier/regulator: Regulator type  
Model/manufacture Regulated voltage (AC) Regulated voltage (DC) Rectifier capacity (AC) Rectifier capacity (DC) Electric starting system: Type Starter  
motor: Model/manufacture Operation voltage Output Armature coil resistance Brush overall length Brush quantity Spring force Commutator diameter Mica  
undercut (depth) -----3.5 mm (0.14 in) -----16.6 mm (0.65 in) ---- MAINTENANCE SPECIFICATIONS Item

Starter relay: Model/manufacture Amperage rating Coil winding resistance Starting circuit cut-off relay: Model/manufacture Coil winding resistance Fuse (amperage × quantity): Main fuse Reserve fuse Standard 2768090-A/JIDECO 180 A 4.2 ~ 4.6 at 20 °C (68 °F) SPEC Limit ----- ACM33221 M06/MATSUSHITA 75.69 ~ 92.51 at 20 °C (68 °F) 10 A × 1 10 A × 1 Part to be tightened Stator Holder (AC magneto lead) Rotor Neutral switch Starter motor Starter relay terminal Thread size M5 × 0.

8 M5 × 0.8 M12 × 1.25 M5 × 0.8 M6 × 1.0 M6 × 1.0 Q'ty 2 2 1 2 2 2 Tightening torque Nm 7 7 m·kg ft·lb 0.7 5.1 0.7 5.1 Refer to NOTE.  
4 0.4 2.9 10 1.0 7.2 4 0.

4 2.9 NOTE: Tighten the rotor nut to 65 Nm (6.5 m·kg, 47 ft·lb), loosen and retighten the rotor nut to 65 Nm (6.5 m·kg, 47 ft·lb). 2 - 19 GENERAL TORQUE SPECIFICATIONS/ DEFINITION OF UNITS EC220001 SPEC GENERAL TORQUE SPECIFICATIONS This chart specifies torque for standard fasteners with standard I.

S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book.



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To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature. A (Nut) 10 mm 12 mm 14 mm 17 mm 19 mm 22 mm EC230000 B (Bolt) 6 mm 8 mm 10 mm 12 mm 14 mm 16 mm TORQUE SPECIFICATION Nm 6 15 30 55 85 130 m·kg 0.6 1.5 3.

0 5.5 8.5 13 ft·lb 4.3 11 22 40 61 94 A: Distance between flats B: Outside thread diameter DEFINITION OF UNITS Unit mm cm kg N Nm m · kg Pa N/mm L cm<sup>3</sup> r/min Read millimeter centimeter kilogram Newton Newton meter Meter kilogram Pascal Newton per millimeter Liter Cubic centimeter Revolution per minute Definition 10-3 meter 10-2 meter 10<sup>3</sup> gram 1 kg × m/sec<sup>2</sup> N×m m × kg N/m<sup>2</sup> N/mm -- -- -- Length Length Weight Force Torque Torque Pressure Spring rate Volume or capacity Volume or capacity Engine speed Measure 2 - 20 LUBRICATION DIAGRAMS LUBRICATION DIAGRAMS 1 Oil delivery pipe 2 Intake camshaft 3 Exhaust camshaft 4 Oil cleaner element 5 Oil pump 6 Main axle 7 Drive axle SPEC 2 3 G 4 1 4 G D-D 5 D A D 7 6 5 A A-A 2 - 21 LUBRICATION DIAGRAMS 1 Camshaft 2 Connecting rod 3 Oil cleaner element 4 Crankshaft 5 Main axle 6 Drive axle 7 Oil delivery pipe SPEC 1 2 3 4 7 5 6 2 - 22 CABLE ROUTING DIAGRAM EC240000 SPEC CABLE ROUTING DIAGRAM 1 Fuel tank breather hose 2 Clamp 3 Diode 4 Wire harness 5 Hot starter cable 6 Negative battery lead 7 Starter motor lead 8 TPS (throttle position sensor) lead 9 Neutral switch lead 0 Oil hose A Hose holder B Radiator hose 4 C Cylinder head breather hose D AC magneto lead E Radiator hose 1 F Oil tank breather hose G Lights switch lead H Brake hose I Hose guide J Carburetor breather hose K Overflow hose L Coolant reservoir tank breather hose Æ Insert the fuel tank breather hose into the hole in the steering shaft cap. i Fasten the diode of the wire harness and rectifier/regulator lead (at its protecting tube) to the frame at the white tape for the diode with a plastic locking tie and cut off the tie end. Ç Fasten the wire harness, rectifier/regulator lead, coolant reservoir hose and hot starter cable to the frame with a plastic locking tie and cut off the tie end. Î Fasten the wire harness, rectifier/regulator lead and coolant reservoir hose to the frame with a plastic locking tie and cut off the tie end. Fasten the wire harness to the frame at its white tape with a plastic locking tie and cut off the tie end. 2 - 23 CABLE ROUTING DIAGRAM Î Fasten the wire harness, TPS lead (in the wire harness), starter motor lead and negative battery lead to the frame with a plastic locking tie and cut off the tie end. Î Make sure that the TPS coupler does not go out the chassis.

Ó Fasten the TPS lead to the frame with a plastic band. È Fasten the neutral switch lead and oil hose together with the plastic locking ties and cut off the tie ends. Ô Pass the cylinder head breather hose through the hose holder. Fasten the neutral switch lead to the frame with a plastic band ends outward. Ô Fasten the neutral switch lead and AC magneto lead to the frame with a plastic band.

~ Pass the cylinder head breather hose on the outside of the radiator hose 1 and on the inside of the radiator pipe (radiator hose 4). ^ Pass the oil tank breather hose on the outside of the AC magneto lead, neutral switch lead, lights switch lead, wire harness and cylinder head breather hose. SPEC Ø Pass the wire harness on the outside of the neutral switch lead and AC magneto lead. Fit the brake hose into the guides on the protector. OE Pass the wire harness through the cable guide.

Â Fasten the AC magneto lead, neutral switch lead and lights switch lead to the cable guide at their protecting tube with a plastic locking tie and cut off the tie end. Í Pass the carburetor breather hoses, overflow hose and coolant reservoir tank breather hose so that the hoses do not contact the rear shock absorber. 2 - 24 CABLE ROUTING DIAGRAM 1 Hot starter cable 2 Clutch cable 3 Throttle cable (return) 4 Throttle cable (pull) 5 Ignition coil 6 Negative battery lead 7 Starter motor lead 8 Coolant reservoir tank breather hose 9 Rectifier/regulator 0 Cable holder A Coolant reservoir hose B Rectifier/regulator lead C Clamp D CDI unit lead E CDI unit F CDI unit band G CDI unit stay (frame) H Cable bracket I Rectifier/regulator bracket Æ Pass the throttle cables, clutch cable and hot starter cable through the cable guides. i Pass the throttle cables, clutch cable and hot starter cable between the radiator and frame, then over the middle radiator mounting boss. Ç Pass the throttle cables and clutch cable on the outside of the ignition coil. Î Pass the carburetor breather hose (throttle cable cover) through the hose holder. Fasten the coolant reservoir tank breather hose and carburetor breather hoses together with a plastic locking tie. SPEC Î Fasten the grommet of the clutch cable with the cable holder. Î Fasten the CDI unit lead to the frame with a plastic locking tie ends at the lower of the frame and cut off the tie end. Ó Insert the CDI unit band over the CDI unit stay (frame) as far as possible.

È Fasten the starter motor lead and negative battery lead to the cable bracket in its slot with a plastic locking tie and cut off the tie end. Ô Fasten the rectifier/regulator lead to the rectifier/regulator bracket with a plastic locking tie and cut off the tie end. 2 - 25 CABLE ROUTING DIAGRAM 1 Master cylinder 2 Brake hose holder 3 Brake hose Æ Install the brake hose so that its pipe portion directs as shown and lightly touches the projection on the caliper. i Pass the brake hose into the brake hose holders. Ç If the brake hose contacts the spring (rear shock absorber), correct its twist. Î Install the brake hose so that its pipe portion directs as shown and lightly touches the projection on the master cylinder. SPEC 2 - 26 CABLE ROUTING DIAGRAM 1 Starter motor lead 2 Negative battery lead 3 Wire harness 4 Clamp 5 Taillight lead 6 Coolant reservoir tank breather hose 7 Coolant reservoir hose 8 Positive battery lead 9 Starting circuit cut-off relay 0 Battery Æ Position the starter motor lead, negative battery lead and wire harness in the tank damper slit. i Fasten the wire harness to the frame with a plastic locking tie and cut off the tie end. Ç Do not allow the taillight lead to slacken. Î Pass the starter motor lead and negative battery lead over the carburetor.

Fasten the coolant reservoir tank breather hose, coolant reservoir hose and rectifier/regulator lead to the frame with a plastic band. SPEC Î Fasten the coolant reservoir tank breather hose and coolant reservoir hose to the frame with a plastic band. Î Pass the coolant reservoir hose on the outside of the coolant reservoir tank breather hose.



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2 - 27 CABLE ROUTING DIAGRAM 1 Throttle cable 2 Brake hose 3 Clamp 4 Lights switch lead 5 Hot starter cable 6 Clutch cable 7 Hose guide 8 Clutch switch lead 9 "ENGINE STOP" button lead 0 Trip meter cable A Main switch lead B Trip meter C Main switch D Lights switch E Start switch lead Â Fasten the start switch lead and lights switch lead to the handlebar with a plastic band. i Fasten the "ENGINE STOP" button lead and clutch switch lead to the handlebar with the plastic bands.

Ç Pass the brake hose through the hose guide. Î Pass the start switch lead in front of the main switch lead. Fasten the start switch lead to the handlebar with a plastic band. Ĩ Pass the hot starter cable and lights switch lead between the handle crown and coupler bracket. SPEC Ĩ Pass the throttle cables and clutch cable between the handle crown and trip meter.

2 - 28 MAINTENANCE INTERVALS EC300000 INSP ADJ REGULAR INSPECTION AND ADJUSTMENTS MAINTENANCE INTERVALS The following schedule is intended as a general guide to maintenance and lubrication. Bear in mind that such factors as weather, terrain, geographical location, and individual usage will alter the required maintenance and lubrication intervals. If you are a doubt as to what intervals to follow in maintaining and lubricating your machine, consult your Yamaha dealer. Item ENGINE OIL Replace VALVES Check the valve clearances Inspect Replace VALVE SPRINGS Inspect Replace VALVE LIFTERS Inspect Replace CAMSHAFTS Inspect Replace CAMSHAFT SPROCKETS Inspect Replace PISTON Inspect Clean Replace PISTON RING Inspect Replace PISTON PIN Inspect Replace CYLINDER HEAD Inspect and clean CYLINDER Inspect and clean Replace CLUTCH Inspect and adjust Replace TRANSMISSION Inspect Replace bearing After Every break-in race Every Every third fifth (or (or 500 km) 1,000 km) As required Remarks The engine must be cold. Check the valve seats and valve stems for wear. Check the free length and the tilt. Check for scratches and wear. Inspect the camshaft surface. Inspect the decompression system Check for wear on the teeth and for damage. Inspect crack Inspect carbon deposits and eliminate them.

Check ring end gap Inspect carbon deposits and eliminate them. Change gasket Inspect score marks Inspect wear Inspect housing, friction plate, clutch plate and spring 3-1 MAINTENANCE INTERVALS Item SHIFT FORK, SHIFT CAM, GUIDE BAR Inspect ROTOR NUT Retighten MUFFLER Inspect and retighten Clean Replace \*SPARK ARRESTER Clean CRANK Inspect and clean CARBURETOR Inspect, adjust and clean SPARK PLUG Inspect and clean Replace DRIVE CHAIN Lubricate, slack, alignment Replace COOLING SYSTEM Check coolant level and leakage Check radiator cap operation Replace coolant Inspect hoses OUTSIDE NUTS AND BOLTS Retighten AIR FILTER Clean and lubricate Replace OIL FILTER Replace OIL STRAINER (frame) Clean FRAME Clean and inspect FUEL TANK, COCK Clean and inspect BRAKES Adjust lever position and pedal height Lubricate pivot point Check brake disc surface Check fluid level and leakage Retighten brake disc bolts, caliper bolts, master cylinder bolts and union bolts Replace pads Replace brake fluid After Every break-in race Every Every third fifth (or (or 500 km) 1,000 km) INSP ADJ Remarks As required Inspect wear (Every six months) \* Whichever comes first 3 Use chain lube Chain slack: 40 ~ 50 mm (1.57 ~ 1.97 in) Every two years Refer to "STARTING AND BREAK-IN" section in the CHAPTER 1. Use foam air-filter oil or equivalent oil Every one year 3-2 MAINTENANCE INTERVALS Item FRONT FORKS Inspect and adjust Replace oil Replace oil seal FRONT FORK OIL SEAL AND DUST SEAL Clean and lube REAR SHOCK ABSORBER Inspect and adjust Lube Retighten CHAIN GUARD AND ROLLERS Inspect SWINGARM Inspect, lube and retighten RELAY ARM, CONNECTING ROD Inspect, lube and retighten STEERING HEAD Inspect free play and retighten Clean and lube Replace bearing TIRE, WHEELS Inspect air pressure, wheel run-out, tire wear and spoke looseness Retighten sprocket bolt Inspect bearings Replace bearings Lubricate THROTTLE, CONTROL CABLE Check routing and connection Lubricate HOT STARTER, CLUTCH LEVER Inspect free play BATTERY Check terminal for looseness and corrosion After Every break-in race Every Every third fifth (or (or 500 km) 1,000 km) INSP ADJ Remarks As required Suspension oil "01" (After rain ride) Lithium base grease Molybdenum disulfide grease Molybdenum disulfide grease Molybdenum disulfide grease Lithium base grease Lithium base grease Yamaha cable lube or SAE 10W-30 motor oil \* marked: For USA 3-3 PRE-OPERATION INSPECTION AND MAINTENANCE EC320000 INSP ADJ PRE-OPERATION INSPECTION AND MAINTENANCE Before riding for break-in operation, practice or a race, make sure the machine is in good operating condition. Before using this machine, check the following points. GENERAL INSPECTION AND MAINTENANCE Item Coolant Fuel Engine oil Gear shifter and clutch Throttle grip/Housing Brakes Chain Wheels Steering Front forks and rear shock absorber Cables (wires) Muffler Sprocket Lubrication Bolts and nuts Lead connectors Routine Check that coolant is filled up to the radiator filler cap. Check the cooling system for leakage. Check that a fresh gasoline is filled in the fuel tank. Check the fuel line for leakage. Check that the oil level is correct. Check the crankcase and frame oil line for leakage. Check that gears can be shifted correctly in order and that the clutch operates smoothly. Check that the throttle grip operation and free play are correctly adjusted. Lubricate the throttle grip and housing, if necessary. Check the play of front brake and effect of front and rear brake. Check chain slack and alignment. Check that the chain is lubricated properly. Check for excessive wear and tire pressure. Check for loose spokes and have no excessive play. Check that the handlebar can be turned smoothly and have no excessive play. Check that they operate smoothly and there is no oil leakage. Check that the clutch and throttle cables move smoothly. Check that they are not caught when the handlebars are turned or when the front forks travel up and down. Check that the muffler is tightly mounted and has no cracks. Check that the driven sprocket tightening bolt is not loose. Check for smooth operation. Lubricate if necessary. Check the chassis and engine for loose bolts and nuts. Check that the AC magneto, CDI unit, and ignition coil are connected tightly.

Is the machine set suitably for the condition of the racing course and weather or by taking into account the results of test runs before racing? Are inspection and maintenance completely done? Page P.3-5 ~ 9 P.1-14 P.3-14 ~ 18 P.3-10 P.3-10 ~ 11 P.3-26 ~ 32 P.



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