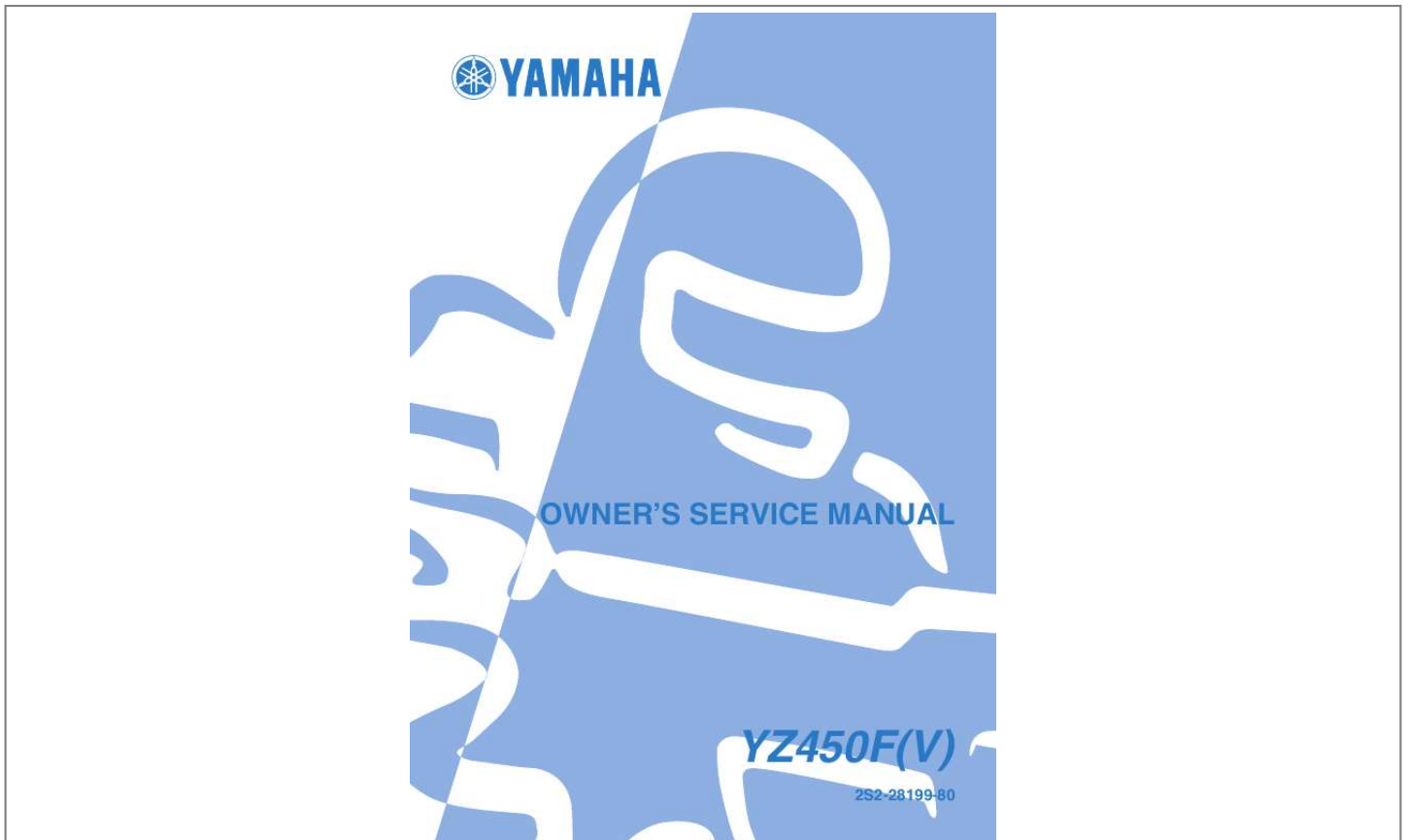




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You can read the recommendations in the user guide, the technical guide or the installation guide for YAMAHA YZ450F. You'll find the answers to all your questions on the YAMAHA YZ450F in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual YAMAHA YZ450F  
User guide YAMAHA YZ450F  
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**Manual abstract:**

@@@ is expressly prohibited. @@@@ 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: Yamaha continually seeks advancements in product design and quality. @@@@ REGULAR INSPECTIONS AND CAREFUL MAINTENANCE, ALONG WITH GOOD RIDING SKILLS, WILL ENSURE THAT YOU SAFELY ENJOY THE CAPABILITIES AND THE RELIABILITY OF THIS MACHINE. IMPORTANT NOTICE THIS MACHINE IS DESIGNED STRICTLY FOR COMPETITION USE, ONLY ON A CLOSED COURSE. It is illegal for this machine to be operated on any public street, road, or highway. 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 RIDDEN 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 .....

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

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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., 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 SPEC 4 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 INSP ADJ 5 6  
ENG CHAS 7 ELEC 8 + Illustrated symbols 8 to D are used to identify the specifications appearing in the text.



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8 With engine mounted 9 Special tool 0 Filling fluid A Lubricant B Tightening C Specified value, Service limit D Resistance ( ), Voltage (V), Electric current (A) TUN 9 0 A B T.

R. C D E F Illustrated symbols E to H in the exploded diagrams indicate grade of lubricant and location of lubrication point. M E Apply engine oil F Apply molybdenum disulfide oil G Apply lightweight lithium-soap base grease H Apply molybdenum disulfide grease E G B H M I J New Illustrated symbols I to J in the exploded diagrams indicate where to apply a locking agent and where to install new parts. I Apply locking agent (LOCTITE) J Use new one EC090000

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.....7-11 DESCRIPTION EC100000 GEN INFO GENERAL INFORMATION EC110000 DESCRIPTION 1 Clutch lever 2 Hot starter lever 3 Front brake lever 4 Throttle grip 5 Radiator cap 6 Fuel tank cap 7 "ENGINE STOP" button 8 Kick starter 9 Fuel tank 0 Radiator A Coolant drain bolt B Rear brake pedal C Valve joint D Fuel cock E Cold starter knob F Drive chain G Air cleaner H Shift pedal I Oil dipstick J Front fork NOTE: The machine you have purchased may differ slightly from those shown in the following. Designs and specifications are subject to change without notice. 1-1 MACHINE IDENTIFICATION EC120001 GEN INFO MACHINE IDENTIFICATION contact revitalizer available on the market. Use the tester on the connector as shown. 1-6 SPECIAL TOOLS EC140001 GEN INFO SPECIAL TOOLS The proper special tools are necessary for complete and accurate tune-up and assembly.

Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques. The shape and part number used for the special tool differ by country, so two types. 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 KICK STARTER Rotate the kick starter 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 kick starter 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.

1 - 10 CONTROL FUNCTIONS EC156000 GEN INFO FRONT BRAKE LEVER The front brake lever 1 is located on the right handlebar. Pull it toward the handlebar to activate the front brake. EC157000 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. EC158001 1 FUEL COCK The fuel cock supplies fuel from the tank to carburetor while filtering the fuel.

The fuel cock has the two 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. 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 - 11 CONTROL FUNCTIONS EC15R001 GEN INFO DETACHABLE SIDESTAND This sidestand 1 is used to support only the machine when standing or transporting it. WARNING Never apply additional force to the sidestand. Remove this sidestand before starting out. 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 JET NEEDLE PULL-UP TOOL The jet needle pull-up tool 1 is used to pull the jet needle out of the carburetor. 1 - 12 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: Premium unleaded gasoline only with a research octane number of 95 or higher. 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.

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 - 13 STARTING AND BREAK-IN GEN INFO STARTING AND BREAK-IN WARNING Never start or run the engine in a closed area.



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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: 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 kick starter 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. STARTING A COLD ENGINE 1. Inspect the coolant level. 2. Turn the fuel cock to "ON". 3. Shift the transmission into neutral. 4. Fully open the cold starter knob 1.

5. Kick the kick starter. 1 WARNING Do not open the throttle while kicking the kick starter. Otherwise, the kick starter may kick back. 1 - 14 STARTING AND BREAK-IN GEN INFO 6. 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 - 15 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 kicking the kick starter 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 kick starter 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 Air temperature = less than 5 C (41 F) Air temperature = more than 5 C (41 F) Air temperature (normal temperature) = between 5 C (41 F) and 25 C (77 F) Air temperature = more than 25 C (77 F) None Cold starter knob ON ON Hot starter lever OFF OFF None ON/OFF OFF None None None None OFF ON OFF OFF OFF OFF ON ON Starting an engine after a long period of time Restarting a warm engine Restarting an engine after a fall \* 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 - 16 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: 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 - 17 TORQUE-CHECK POINTS TORQUE-CHECK POINTS Frame construction Combined seat and tank Exhaust system Engine mounting GEN INFO Frame to rear frame Fuel tank to frame Silencer to rear frame Frame to engine Engine bracket to engine Engine bracket to frame Steering 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 Suspension Front Steering shaft to front fork For link type Rear Rear Installation of shock absorber Installation of swingarm Front 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 Tightening of brake hose holder Brake pedal to frame Brake disc to wheel Tightening of union bolt Master cylinder to frame Tightening of air bleeder Tightening of brake hose holder Fuel tank to fuel cock Tightening of oil hose clamp Rear Brake Front Rear Fuel system Lubrication system NOTE: Concerning the tightening torque, refer to "MAINTENANCE SPECIFICATIONS" section in the CHAPTER 2. 1 - 18 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 - 19 CLEANING AND STORAGE GEN INFO 8.



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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 - 20 GENERAL SPECIFICATIONS EC200000 SPEC SPECIFICATIONS EC211000 GENERAL SPECIFICATIONS Model name: Model code number: YZ450FV (USA, CDN, AUS, NZ) YZ450F (EUROPE, ZA) 2S21, 2S25 (USA, CDN) 2S22 (EUROPE) 2S24, 2S26 (AUS, NZ, ZA) USA, CDN, EUR F ZA, AUS, NZ (Except for F) 2,192 mm 2,197 mm (86.30 in) (86.50 in) 815 mm (32.09 in) 1,298 mm 1,300 mm 1,301 mm (51.

10 in) (51.18 in) (51.22 in) 986 mm 998 mm (38.82 in) (39.29 in) 1,494 mm 1,495 mm (58.82 in) (58.86 in) 370 mm 373 mm 374 mm (14.57 in) (14.69 in) (14.72 in) 99.

8 kg (220 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) 12.3 : 1 Kick starter Dry sump Dimensions: Overall length Overall width Overall height Seat height Wheelbase Minimum ground clearance Dry weight: Without oil and fuel Engine: Engine type Cylinder arrangement Displacement Bore stroke Compression ratio Starting system Lubrication system: 2-1 GENERAL SPECIFICATIONS Oil type or grade: Engine oil SPEC (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 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) (Except for USA and CDN) API "SG" or higher grade -20 -10 Temp. 0 10 C 20 30 40 50 2 10W-30 10W-40 15W-40 20W-40 20W-50 -4 14 30 50 68 86 104 122 F Oil capacity: Engine oil Periodic oil change With oil filter replacement Total amount Coolant capacity (including all routes): Air filter: Fuel: Type Tank capacity Carburetor: Type Manufacturer Spark plug: Type/manufacturer Gap Clutch type: 0.95 L (0. 84 Imp qt, 1.00 US qt) 1.0 L (0.88 Imp qt, 1.06 US qt) 1.2 L (1.06 Imp qt, 1.27 US qt) 0.99 L (0.87 Imp qt, 1.

05 US qt) Wet type element Premium unleaded gasoline only with a research octane number of 95 or higher. 7.0 L (1.54 Imp gal, 1.85 US gal) FCR MX39 KEIHIN CR8E/NGK (resistance type) 0.7 ~ 0.8 mm (0.028 ~ 0.031 in) Wet, multiple-disc 2-2 GENERAL SPECIFICATIONS 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) SPEC Gear 61/23 (2.652) Chain drive 49/13 (3.

769) Constant mesh, 5-speed Left foot operation 27/14 (1.929) 23/15 (1.533) 23/18 (1.278) 24/22 (1.091) 20/21 (0.

952) USA, CDN, EUR ZA, AUS, NZ (Except for F) Semi double cradle 27.0 27.0 115.6 mm 117.0 mm (4.

55 in) (4.61 in) F 27.1 117.8 mm (4.64 in) Size (rear) Tire pressure (front and rear) 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 With tube 80/100-21 51M (For USA, CDN, ZA, AUS, NZ and F) 80/100-21 51R (For EUROPE except F) 110/90-19 62M (For USA, CDN, ZA, AUS, NZ and F) 110/90-19 NHS (For EUROPE except F) 100 kPa (1.0 kgf/cm<sup>2</sup>, 15 psi) Single disc brake Right hand operation Single disc brake Right foot operation Telescopic fork Swingarm (link type monocross suspension) Coil spring/oil damper Coil spring/gas, oil damper 300 mm (11.8 in) 310 mm (12.2 in) CDI magneto 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) 21.959 ~ 21.972 mm (0.8645 ~ 0.

8650 in) 0.028 ~ 0.062 mm (0.0011 ~ 0.0024 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 (1.2146 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) SPEC Limit 36.

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4 24 2.4 17 35 3.5 25 16 1.6 11 10 1.0 7.2 10 1.0 7.2 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 4 0.4 2.9 11 1.  
1 8.0 4 0.4 2.9 2 0.2 1.4 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 10 1.0 7.2 2 0.2 1.4 10 1.0 7.2 2 - 11 MAINTENANCE SPECIFICATIONS Part to be tightened Crankcase cover (right) Crankcase cover (left) Crankcase  
Clutch cable holder Oil drain bolt (crankcase right) (crankcase left) Oil check bolt (crankcase) Oil strainer Crankcase bearing stopper Crankcase bearing  
stopper Drive axle oil seal stopper Ratchet wheel guide Kick starter Screw (kick starter) Primary drive gear Clutch boss Clutch cable adjust bolt and locknut  
Clutch spring Balancer 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 M10 1.25 M8 1.25 M6 1.0 M6 1.0 M6 1.0 M6 1.0 M6 1.0 M6 1.0 M8 1.  
25 M6 1.0 M20 1.0 M20 1.0 M6 0.75 M6 1.  
0 M10 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 Qty 8 2 8 12 2 1 1 1 1 4 8 2 2 1 1 1 1 6 1 1 3 1 2 1 2 1 1 SPEC Tightening torque mkg 1.0 1.2 1.0 1.2 1.0 2.

0 2.0 1.0 1.0 1.4 1.0 1.0 1.2 3.3 0.7 11.  
0 7.5 0.4 1.0 4.5 5.  
0 1.0 7.5 0.8 1.2 1.  
0 1.0 3.0 flb 7.2 8.7 7.2 8.7 7.2 14 14 7.2 7.2 10 7.

2 7.2 8.7 24 5.1 80 54 2.9 7.2 32 36 7.2 54 5.8 8.7 7.2 7.

2 22 Nm 10 12 10 12 10 20 20 10 10 14 10 10 12 33 7 110 75 4 10 45 50 10 75 8 12 10 10 30 NOTE: - marked portion shall be checked for torque tightening  
after break-in or before each race.



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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 ---- 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 AUS, NZ, ZA 300 mm (11.8 in) 454 mm (17.9 in) K = 4.6 N/mm K = 4.5 N/mm (0.469 kg/mm, (0.459 kg/mm, 26.3 lb/in) 25.7 lb/in) Yes 3 542 cm 532 cm3 (19.1 Imp oz, (18.7 Imp oz, 18.3 US oz) 18.0 US oz) Suspension oil "S1" 48 mm (1.89 in) Zero mm (Zero in) USA, CDN, EUROPE AUS, NZ, ZA 131.5 mm (5.18 in) Approx.

275 mm (10.83 in) One I.D. mark One I.D. mark 264 mm (10.39 in) 262 mm (10.31 in) Two I.D. marks Two I.D. marks 270 mm (10.63 in) 268 mm (10.55 in) Three I.D. marks Three I.D. marks 261.5 mm 259.5 mm (10.30 in) (10.22 in) One I.D. mark 255.5 ~ 273.5 mm (10.06 ~ 10.77 in) Two I.D. marks 261.

5 ~ 279.5 mm (10.30 ~ 11.00 in) Three I.D. marks 253.0 ~ 271.0 mm (9.96 ~ 10.67 in) K = 54.

0 N/mm (5.50 kg/mm, 308.0 lb/in) Yes 1,000 kPa (10 kg/cm<sup>2</sup>, 142 psi) ---449 mm (17.7 in) --- Optional spring Oil capacity ----- 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 ----- 2 - 13 MAINTENANCE SPECIFICATIONS Item Swingarm: Swingarm free play limit End 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 (15 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 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 SPEC Limit ---Spoke wheel Spoke wheel 21 1.60/Aluminum 19 2.15/Aluminum -----DID520DMA2 SDH/DAIDO 113 links + joint 48 ~ 58 mm (1.9 ~ 2.3 in) --- 1.0 mm (0.04 in) -----2.0 mm (0.08 in) 2.

0 mm (0.08 in) -----242.9 mm (9.563 in) 250 2.5 mm (9.84 0.10 in) 1.0 mm (0.04 in) -----245 3.5 mm (9.65 0.14 in) 0.15 mm (0.006 in) 1.0 mm (0.04 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) 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) Handlebar holder (lower) Steering ring nut Front fork and damper assembly Front fork and adjuster Damper assembly and base valve Adjuster and damper assembly Bleed screw (front fork) and base valve Front fork and protector Protector and brake hose holder Throttle cable cap Clutch lever holder mounting Clutch lever mounting (nut) Hot starter lever holder mounting Front brake master cylinder and bracket Front brake master cylinder cap Brake lever mounting (bolt) Brake lever mounting (nut) Brake lever position locknut Cable guide (front brake hose) and under bracket Front brake hose union bolt (master cylinder) Front brake hose union bolt (caliper) Front brake caliper and front fork Front brake caliper and brake hose holder 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 Footrest bracket and frame 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 M12 1.25 M28 1.  
0 M51 1.5 M22 1.25 M42 1.5 M12 1.25 M5 0.  
8 M6 1.0 M6 1.0 M5 0.8 M5 0.8 M6 1.0 M5 0.8 M6 1.0 M4 0.7 M6 1.0 M6 1.

0 M6 1.0 M6 1.0 M10 1.25 M10 1.25 M8 1.25 M6 1.0 M10 1.0 M10 1.0 M8 1.25 M16 1.  
5 M8 1.25 M6 1.0 M6 1.0 M10 1.25 M8 1.

25 M6 1.0 M4 0.7 M10 1.25 M10 1.25 Q'ty 4 4 1 4 2 1 2 2 2 2 2 6 2 2 2 1 2 2 2 1 1 1 1 1 2 1 2 2 2 1 4 6 6 4 1 2 2 1 1 SPEC mkg filb Tightening torque Nm  
23 20 145 28 40 2.

3 17 2.0 14 14.5 105 2.8 20 4.0 29 Refer to NOTE. 30 3.0 22 55 5.5 40 29 2.9 21 29 2.9 21 1 0.

1 0.7 7 0.7 5.1 7 0.7 5.1 4 0.4 2.9 4 0.4 2.9 4 0.  
4 2.9 4 0.4 2.9 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 10 1.0 7.

2 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 55 5.5 40 26 2.6 19 10 1.0 7.2 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 engine bracket (front) Engine and engine bracket (upper) Engine and frame (lower) Engine guard Engine skid plate mounting CDI unit bracket mounting Cable guide and CDI unit bracket Cable guide and frame 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 boss and frame Fuel tank mounting Fuel tank and fuel cock Fuel tank and seat set bracket 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) Number plate 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 M6 1.0 M6 1.0 M6 1.0 M5 0.8 M5 0.  
8 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 M10 1.25 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 Q'ty 1 6 7 2 2 2 4 4 1 1 1 1 3 2 2 1 1 1 1 1 1 1 2 4 4 1 1 3 4 1 2 2 1 4 2 2 6 2 4 2 2 1 SPEC mkg 12.



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5 4.2 0.  
 3 1.0 0.7 1.6 5.5 3.  
 4 5.3 5.5 5.3 1.0 1.  
 0 0.7 0.4 0.5 8.5 7.0 8.0 8.0 5.6 5.3 3.  
 2 3.2 0.2 0.2 1.6 1.6 0.7 0.6 2.0 1.0 0.  
 6 0.7 0.7 2.3 0.7 0.  
 7 0.7 0.7 0.7 1.6 0.  
 7 ftlb 90 30 2.2 7.2 5.1 11 40 24 38 40 38 7.2 7.2 5.1 2.9 3.6 61 50 58 58 40 38 23 23 1.4 1.

4 11 11 5.1 4.3 14 7.2 4.3 5.1 5.1 17 5.1 5.1 5.1 5.

1 5.1 11 5.1 Tightening torque Nm 125 42 3 10 7 16 55 34 53 55 53 10 10 7 4 5 85 70 80 80 56 53 32 32 2 2 16 16 7 6 20 10 6 7 7 23 7 7 7 7 16 7 NOTE: - marked portion shall be checked for torque tightening after break-in or before each race. 2 - 16 MAINTENANCE SPECIFICATIONS EC212300 SPEC Limit

----- ELECTRICAL Item Ignition system: Advancer type C.D.

1.: Magneto-model (stator)/manufacturer Source coil 1 resistance (color) Source coil 2 resistance (color) Pickup coil resistance (color) CDI unit-model/manufacturer Electrical 2S200/YAMAHA 720 ~ 1,080 at 20 C (68 F) (Green Brown) 44 ~ 66 at 20 C (68 F) (Black Pink) 248 ~ 372 at 20 C (68 F) (White Red) 2S2-00/YAMAHA (For USA and CDN) 2S2-10/YAMAHA (Except for USA and CDN) 5TA-10/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) Standard Ignition coil: Model/manufacturer Minimum spark gap Primary winding resistance Secondary winding resistance ----- Part to be tightened Stator Rotor Neutral switch Thread size M6 1.0 M12 1.25 M5 0.8 Q'ty 3 1 2 Tightening torque Nm 10 56 4 mkg 1.0 5.6 0.4 ftlb 7.2 40 2.9 2 - 17 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. 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 mkg 0.6 1.5 3.

0 5.5 8.5 13 ftlb 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 10-3 Definition meter 10-2 meter Length Length Weight Force Torque Torque Pressure Spring rate --- -- Volume or capacity Volume or capacity Engine speed Measure 103 gram 1 kg m/sec<sup>2</sup> Nm m kg N/m<sup>2</sup> N/mm<sup>2</sup> - 18 LUBRICATION DIAGRAMS LUBRICATION DIAGRAMS 1 Oil filter element 2 Oil pump 3 Drive axle 4 Main axle 5 Crankshaft 6 Connecting rod From cylinder To oil tank SPEC 2 - 19 LUBRICATION DIAGRAMS 1 Intake camshaft 2 Exhaust camshaft To main axle From oil pump SPEC 2 - 20 CABLE ROUTING DIAGRAM EC240000 SPEC CABLE ROUTING DIAGRAM 1 Fuel tank breather hose 2 Radiator hose 1 3 Cylinder head breather hose 4 Hose holder 5 Radiator hose 4 6 Clutch cable 7 Connector cover 8 Fuel hose 9 TPS (throttle position sensor) lead 0 Hot starter cable A Carburetor breather hose B Carburetor overflow hose Insert the end of the fuel tank breather hose into the hole in the steering shaft. Pass the cylinder head breather hose on the outside of the radiator hose 1 and between the radiator hose 4 and frame.

Align the paint on the cylinder head breather hose with the front edge of the hose holder. Pass the clutch cable through the cable guide. Pass the clutch cable in front of the radiator mounting boss. Install the connector cover so that it does not come in between the radiator hose 1 and radiator. Pass the fuel hose between the hot starter cable and TPS lead.

Pass the carburetor breather hoses and overflow hose so that all these hoses do not contact the rear shock absorber. 8 0 9 1 A B A A 2 3 A B 7 6 5 B 2 - 21 4 CABLE ROUTING DIAGRAM 1 Hot starter cable 2 Clamp 3 TPS (throttle position sensor) lead 4 Hump (frame) 5 Neutral switch lead 6 Engine bracket 7 Engine skid plate stay 8 CDI magneto lead 9 Clutch cable 0 Radiator breather hose A Radiator hose 2 B "ENGINE STOP" button lead C Sub wire harness D Ground lead E CDI unit bracket F CDI unit G Cable guide H Ignition coil lead I Throttle cable SPEC Fasten the hot starter cable, throttle cables, TPS lead and ignition coil lead to the frame. Fasten the TPS lead to the frame behind its hump. Pass the TPS lead over the hot starter cable. Pass the neutral switch lead on the inside of the engine bracket. Fasten the hot starter cable and throttle cables onto the frame. Pass the neutral switch lead over the engine skid plate stay. Locate the clamp ends under the hot starter cable. 0 1 8 5 9 F-F F E D 2 58 G-G 0 C G 1 2 2 3H A-A I A B A 3 3 B-B 0 8 5 G G 2 4 B 0 2 F A F B E E 2 4 0 8 5 D-D 9 2 D C 8 C D 0 5 2 7 C-C 2 - 22 65 CABLE ROUTING DIAGRAM SPEC Fasten the neutral switch lead Pass the radiator breather hose Fasten the ground lead and cable guide together to the CDI in front of the radiator hose 2, on and radiator breather hose to unit bracket. the left of the chassis, and then the frame.

between the frame and radiator Locate the clamp ends in the Fasten the neutral switch lead, arrowed range. hose 4. CDI magneto lead and radiator breather hose to the frame. Fasten the sub wire harness and Fasten the neutral switch lead and CDI magneto lead to the "ENGINE STOP" button lead to Fasten the neutral switch lead, frame over its hump. the CDI unit bracket with the CDI magneto lead, radiator clamp ends facing downward breather hose and clutch cable behind the location where the to the frame over the radiator ground lead branches out from mounting boss. the sub wire harness. 0 1 8 5 9 F-F F E D 2

58 G-G 0 C G 1 2 2 3H A-A I A B A 3 3 B-B 0 8 5 G G 2 4 B 0 2 F A F B E E 2 4 0 8 5 D-D 9 2 D C 8 C D 0 5 2 7 C-C 2 - 23 65 CABLE ROUTING DIAGRAM 1 Throttle cable (pull) 2 Throttle cable (return) 3 Radiator hose 2 4 Ignition coil 5 Rear arm bracket 6 Cylinder head breather hose SPEC Pass the throttle cables over the radiator hose 2. Pass the throttle cables on the outside of the ignition coil. Fasten the throttle cables with the clamp so that the cables are not bent, and pass them under the rear arm bracket. Pass the cylinder head breather hose so that it does not contact the ignition coil.

6 B 1 2 6 5 A A 3 B 4 2 - 24 CABLE ROUTING DIAGRAM 1 Master cylinder 2 Brake hose holder 3 Brake hose Install the brake hose so that its pipe portion directs as shown and lightly touches the projection on the caliper. Pass the brake hose into the brake hose holders. If the brake hose contacts the spring (rear shock absorber), correct its twist.



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Install the brake hose so that its pipe portion directs as shown and lightly touches the projection on the master cylinder. SPEC 2 3 A 1 A 1 2 - 25 CABLE ROUTING DIAGRAM 1 Throttle cable 2 Clamp 3 Hot starter cable 4 Clutch cable 5 "ENGINE STOP" button lead 6 Cable guide 7 Brake hose 8 Hose guide SPEC Fasten the "ENGINE STOP" button lead to the handlebar.

Pass the clutch cable and hot starter cable through the cable guide. Pass the brake hose in front of the number plate. Pass the throttle cables through the cable guide. Pass the clutch cable and hot starter cable through the cable guide on the number plate. 1 2 3 A B C 4 5 5 A 6 3 40 10 2 6 7 4 B 8 40 10 2 C 5 2 - 26 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 fifth third (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 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 hoses OUTSIDE NUTS AND BOLTS Retighten AIR FILTER Clean and lubricate Replace OIL FILTER Replace 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 FRONT FORKS Inspect and adjust Replace oil Replace oil seal After Every break-in race Every fifth third (or (or 500 km) 1,000 km) INSP ADJ Remarks As required Inspect wear \* Whichever comes first Use chain lube Chain slack: 48 ~ 58 mm (1.9 ~ 2.3 in) 3 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 Suspension oil "S1" 3-2 MAINTENANCE INTERVALS Item FRONT FORK OIL SEAL AND DUST SEAL Clean and lube PROTECTOR GUIDE Replace REAR SHOCK ABSORBER Inspect and adjust Lube Replace spring seat 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 After Every break-in race Every fifth third (or (or 500 km) 1,000 km) INSP ADJ Remarks As required Lithium base grease (After rain ride) Molybdenum disulfide grease Every one year Molybdenum disulfide grease Molybdenum disulfide grease Lithium base grease Lithium base grease Yamaha cable lube or SAE 10W-30 motor oil 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 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 CDI 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.1-13 P.3-13 ~ 17 P.3-9 ~ 10 P.3-10 ~ 11 P.3-24 ~ 30 P.3-31 ~ 33 P.3-41 ~ 42 P.3-42 ~ 44 P.3-33 ~ 40 -- P.

3-31 P.3-45 P.1-18 P.1-6 Settings P.7-1 ~ 21 3-4 ENGINE/COOLANT LEVEL INSPECTION EC350000 INSP ADJ ENGINE EC351011 COOLANT LEVEL INSPECTION WARNING Do not remove the radiator cap 1, drain bolt and hoses when the engine and radiator are hot.

Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, place a thick towel over the radiator cap, slowly rotate the cap counterclockwise to the detent.



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*This procedure allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning counterclockwise and remove it. CAUTION: Hard water or salt water is harmful to the engine parts.*

*You may use distilled water, if you can't get soft water. 1. Place the machine on a level place, and hold it in an upright position. 2. Remove: Radiator cap 3. Check: Coolant level a Coolant level low Add coolant. 1 Radiator 3-5 COOLANT REPLACEMENT EC353011 INSP ADJ COOLANT REPLACEMENT WARNING Do not remove the radiator cap when the engine is hot. CAUTION: Take care so that coolant does not splash on painted surfaces. If it splashes, wash it away with water. 1.*

*Place a container under the engine. 2. Remove: Engine guard 1 Coolant drain bolt 2 3. Remove: Radiator cap Drain the coolant completely. 4. Clean: Cooling system Thoroughly flush the cooling system with clean tap water. 5. Install: Plain washer New Coolant drain bolt 10 Nm (1.0 m kg, 7.2 ft lb) Engine guard Bolt (engine guard) 10 Nm (1.*

*0 m kg, 7.2 ft lb) 6. Fill: Radiator Engine To specified level. Recommended coolant: High quality ethylene glycol anti-freeze containing anticorrosion for aluminum engine Coolant 1 and water (soft water) 2 mixing ratio: 50 %/50 % Coolant capacity: 0.99 L (0.*

*87 Imp qt, 1.05 US qt) T. R. T. R.*

*3-6 RADIATOR CAP INSPECTION INSP ADJ CAUTION: Do not mix more than one type of ethylene glycol antifreeze containing corrosion inhibitors for aluminum engine. Do not use water containing impurities or oil. Handling notes of coolant: The coolant is harmful so it should be handled with special care.*

*WARNING When coolant splashes to your eye. Thoroughly wash your eye with water and see your doctor. When coolant splashes to your clothes. Quickly wash it away with water and then with soap. When coolant is swallowed. Quickly make him vomit and take him to a doctor. 7.*

*Install: Radiator cap Start the engine and warm it up for a several minutes. 8. Check: Coolant level Coolant level low Add coolant. EC355000 RADIATOR CAP INSPECTION 1. Inspect: Seal (radiator cap) 1 Valve and valve seat 2 Crack/damage Replace. Exist fur deposits 3 Clean or replace. 3-7 RADIATOR CAP OPENING PRESSURE INSPECTION/ COOLING SYSTEM INSPECTION EC356001 INSP ADJ RADIATOR CAP OPENING PRESSURE INSPECTION 1. Attach: Radiator cap tester 1 and adapter 2 Radiator cap tester: YU-24460-01/90890-01325 Adapter: YU-33984/90890-01352 NOTE: Apply water on the radiator cap seal. 3 Radiator cap 2. Apply the specified pressure.*

*Radiator cap opening pressure: 110 kPa (1.1 kg/cm<sup>2</sup>, 15.6 psi) 3. Inspect: Pressure Impossible to maintain the specified pressure for 10 seconds Replace. EC357002 COOLING SYSTEM INSPECTION 1.*

*Inspect: Coolant level 2. Attach: Radiator cap tester 1 and adapter 2 Radiator cap tester: YU-24460-01/90890-01325 Adapter: YU-33984/90890-01352 3. Apply the specified pressure. Standard pressure: 180 kPa (1.8 kg/cm<sup>2</sup>, 25.*

*6 psi) 3-8 CLUTCH ADJUSTMENT INSP ADJ NOTE: Do not apply pressure more than specified pressure. Radiator should be filled fully. 4. Inspect: Pressure Impossible to maintain the specified pressure for 10 seconds Repair. Radiator Radiator hose joint Coolant leakage Repair or replace. Radiator hose Swelling Replace. EC359020 CLUTCH ADJUSTMENT 1. Check: Clutch lever free play a Out of specification Adjust. Clutch lever free play a: 8 ~ 13 mm (0.31 ~ 0.*

*51 in) 2. Adjust: Clutch lever free play Clutch lever free play adjustment steps: Loosen the locknut 1. Turn the adjuster 2 until free play a is within the specified limits. Tighten the locknut. Locknut: 4 Nm (0.4 m kg, 2.9 ft lb) NOTE: Before adjustment, expose the adjuster by moving the boot 3 and cap 4 away.*

*Make minute adjustment on the lever side using the adjuster 5. After adjustment, check proper operation of clutch lever. T.*

*R. 3-9 THROTTLE CABLE ADJUSTMENT/ THROTTLE LUBRICATION 3. Install: Cap 1 Boot 2 INSP ADJ NOTE: Place the tip a of the cap in the boot.*

*EC35A001 THROTTLE CABLE ADJUSTMENT 1. Check: Throttle grip free play a Out of specification Adjust.*

*Throttle grip free play a: 3 ~ 5 mm (0.12 ~ 0.20 in) 2. Adjust: Throttle grip free play 2 1 Throttle grip free play adjustment steps: Slide the adjuster cover. Loosen the locknut 1.*

*Turn the adjuster 2 until the specified free play is obtained. Tighten the locknut. Locknut: 4 Nm (0.4 m kg, 2.9 ft lb) NOTE: Before adjusting the throttle cable free play, the engine idle speed should be adjusted. WARNING After adjusting, turn the handlebar to right and left and make sure that the engine idling does not run faster. THROTTLE LUBRICATION 1. Remove: Cover (throttle cable cap) 1 Cover (grip cap) 2 Throttle cable cap 3 T. R. 3 - 10 HOT STARTER LEVER ADJUSTMENT/ AIR FILTER CLEANING INSP ADJ 2.*

*Apply: Lithium soap base grease On the throttle cable end a. 3. Install: Throttle cable cap Screw (throttle cable cap) 4 Nm (0.4 m kg, 2.9 ft lb) Cover (grip cap) Cover (throttle cable cap) HOT STARTER LEVER ADJUSTMENT 1. Check: Hot starter lever free play a Out of specification Adjust. Hot starter lever free play a: 3 ~ 6 mm (0.12 ~ 0.24 in) 2. Adjust: Hot starter lever free play Hot starter lever free play adjustment steps: Loosen the locknut 1.*

*Turn the adjuster 2 until free play a is within the specified limits. Tighten the locknut. Locknut: 4 Nm (0.4 m kg, 2.9 ft lb) T.*

*R. NOTE: After adjustment, check proper operation of hot starter. EC35G040 AIR FILTER CLEANING NOTE: Proper air filter maintenance is the biggest key to preventing premature engine wear and damage. CAUTION: Never run the engine without the air filter element in place; this would allow dirt and dust to enter the engine and cause rapid wear and possible engine damage. 1.*

*Remove: Seat Fitting bolt 1 Washer 2 Air filter element 3 Filter guide 4 3 - 11 T. R. AIR FILTER CLEANING INSP ADJ 2. Clean: Air filter element Clean them with solvent. NOTE: After cleaning, remove the remaining solvent by squeezing the element. CAUTION: Do not twist the element when squeezing the element. Leaving too much of solvent in the element may result in poor starting. 3. Inspect: Air filter element Damage Replace. 4.*

*Apply: Foam-air-filter oil or equivalent oil to the element. NOTE: Squeeze out the excess oil. Element should be wet but not dripping. 5. Install: Filter guide 1 NOTE: Align the projection a on filter guide with the hole b in air filter element. 6. Apply: Lithium soap base grease On the matching surface a on air filter element. 3 - 12 ENGINE OIL LEVEL INSPECTION INSP ADJ 7. Install: Air filter element 1 Washer 2 Nm (0.2 m kg, 1.*

*4 ft lb) Fitting bolt NOTE: Align the projection a on filter guide with the hole b in air filter case. T. ENGINE OIL LEVEL INSPECTION 1. Stand the machine on a level surface. NOTE: When checking the oil level make sure that the machine is upright.*

*Place the machine on a suitable stand.*



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