



Arctic cat 500 owners manual

Liquid differintal is 80/90 hypoid, if you do a lot of road rides I recommend using Mobil 1 syn., if running cooler, and not foam like oil oil, Castrol 10w40 engine oil can be used in the crankcase, as a substitute for expensive AC oil, you can also use any antifreeze for the student. Engines, or if you want to run the coolest discharge system, and run Ice Engine, is a bit expensive, but it will reduce the operating temperature by 15-20 degrees Page 2 Join Date: May 2010 Messages! Thank you SeniorCitizen for that awesome link. You can download all manuals for FREE!!! Join Date: Feb 2007 Publications: 34 Likes: 0 Received 0 Likes in 0 Join Posts Date: Mar 2011 Location: Calgary, AB Publications: 70 Likes: 0 Received 0 Likes in 0 Messages Just out of curiosity, have you succeeded in downloading the manual. When I did, every 10 pages are missing. Half the time what I need is on that P.S - Hey Phree page If you don't have any charity in your heart, you have the worst kind of heart problems. -Bob Hope Join Date: Feb 2007 Location: Toronto Ontario area Posts: 97 Likes: 0 Received 1 As in 1 Publication Quote: Originally published by dirtdevil96 Arctic Cat is something of an out-of-brand brand. Wrong. Arctic Cat has been around since 1961. 2000, 2004, 2009, 500, arctic, atv, cat, coolant, engine, fan, manual, oil, owners, service Currently Active Users Viewing This Thread: 1 (0 members and 1 guests) OShare Slide uses cookies to otimize and or perform the site, assim as to display advertising mais relevant to us. It is voc-continued to browse or site, voc aceita or use of cookies. Leia nosso Contract do Usuário e nossa Privacidade Policy. O SlideShare uses cookies to otimize functionality and or desempenho do site, assim to display advertising relevant to us. It is voc-continued to use or site, voc aceita or use of cookies. Leia nossa Privacidade e nosso Contract do Usuário para obter mais detalhes. 11 commentarios 0 gostaram Stating Notes Seja a primeira pessoa a gostar disto 1. FOREWORD This Arctic Cat service manual contains service, maintenance, and troubleshooting information for Cat Arc- tic 2006 ATV models. The complete manual is designed to assist service personnel in service-oriented applications. Each section covers a specific ATV component or system and, in addition to the standard service, includes disassembly, inspection and assembly instructions. When using this manual as a guide, the technician must use the discretion as to the amount of disassembly needed to correct any given conditions. the you should familiarize yourself with the operation and construction of each component or system by carefully studying the complete manual. This manual will help the service technician be more aware and efficient with maintenance procedures. This efficiency not only helps build consumer confidence, but also saves time and labor. All Arctic Cat ATV publications and decals display the words Warning, Caution, Note, and At this point to emphasize important information. The symbol ! WARNING identifies information related to personal security. Be sure to follow the directive because it deals with the possibility of serious personal injury or even death. The symbol ! CAUTION identifies unsafe practices that can result in ATV-related damage. Follow the direction because it deals with the possibility of the ATC. The NOTE symbol: identifies supplementary information worthy of special attention. The AT THIS POINT symbol directs the technician to certain specific procedures to promote efficiency and improve clarity. At the time of publication, all information, photographs and illustrations were technically correct. Some photographic graphics used in this manual are used for clarity purposes only and are not designed to represent actual conditions. Because Arctic Cat Inc. constantly refines and improves its products, no retroactive obligations are subject to change without notice. Keep this manual accessible in the store area for reference. Department of Service and Product Warranty Arctic Cat Inc. © 2005 Arctic Cat Inc. October 2005 ®[™] Trademarks of Arctic Cat Inc., Thief River Falls, MN 56701 2. CONTENT TABLE Click the red text to go. Prologue Section 1. Overview 2. Periodic maintenance/tune-up 3. Engine/Transmission 4. Fuel/Lubrication/Cooling 5. Electrical System 6. Drive system 7. Suspension 8. Address/Frame 9. Controls/Indicators 10. Maintenance Aids 11. Troubleshooting 1 2 3 4 5 6 7 8 9 10 11 3. 1-1 1 SECTION 1 - GENERAL CONTENT INFORMATION TABLE General Specifications (400/400 TBX/400 TRV - Automatic Transmission).... 1-2 General Specifications (400 - Manual Transmission).... 1-3 General Specifications (500 - Manual Transmission) 1-4 General Specifications (650 H1) 1-6 General Specifications (650 V-Twin) 1-7 Search Procedure 1-8 Gasoline - Oil Lubricant.... 1-8 Original Parts 1-9 1-9 For storage..... 1-9 Preparation after storage..... 1-10 4. 1-2 General Specifications* (400/400 TBX/400 TRV - Automatic Transmission) * Specifications subject to change without notice. ** One inch below the threads of the filler cap. In the plug threads at the oil level. CARBURETOR Type Keihin CVK34 Jet Main 142 - VP 140 - FIS Slow Jet 38 Pilot Screw Setting (turns) 1 3/8 - VP 1 1/8 - FIS Jet Needle NAZG Idle RPM (warm engine) 1250-1350 Starter Jet 75 Float Arm Height 17 mm (0.7 in.) Free-Play throttle cable (in lever) 3-6 mm (1/8-1/4 in.) ElectricO 100 BTDC ignition timing at 1500 RPM Spark plug Type NGK CR7E Spark Plug Gap 0.7-0.8 mm (0.028-0.032 in.) Spark plug cap 8000-12,000 ohms Ignition coil resistance (primary) (secondary) Less than 1 ohms (ground terminal) 5200-7800 ohms (high voltage of the ignition coil (primary/ CDI)250-375 volts (ground terminal) Magnet coil resistance (trigger) Magnet coil resistance (trigger) Magnet coil resistance (trigger) Magnet coil resistance (trigger) Magnet coil resistance (trigger)) (source) (load) 160-240 ohms (green to blue) Less than 1 ohm (yellow to vhite) Less than 1 ohm (yellow to yellow to yellow to 7.05 volts (yellow to 7.05 volts (yellow to yellow to 7.05 volts (yellow to 7.05 volts (yellow to yellow to yellow to yellow to yellow to yellow to 7.05 volts (yellow to yellow to to black #2) Magnet output (approx.) 220W at 5000 RPM CHASSIS Hydraulic brake type with brake lever lock and auxiliary brake tire size - 25 x 210-12 - FIS tire inflation pressure 0.35 kg/cm2 (5 psi) GAS tank capacity MISCELLANY (rated) 17.98 L (4.75 U.S. gal.) - VP 24.6 L (6.5 U.S. FIS 20.8 L (5.5 U.S. gal.) - TBX/ Reserve capacity TRV 2.46 L (0.65 US gal.) - Rear drive capacity VP 275 ml (9.3 fl oz) - VP*** 250 ml (9.3 fl oz) - VP**/ FIS*** Engine oil capacity 3.08 L (3.25 EE. U.S.qt) Gasoline (recommended) 87 octane Regular leadless motor oil (recommended) SAE 10W-40 Differential/Rear unit Lubri- cant SAE Approved 80W-90 Hypoid drive bandwidth 28.5 mm (1.12 in.) BRAKE fluid DOT 4 Rear light/ Brake 12V/8W/27W Headlamp 12V/37W (2) - 400/400 TRV 12V/27W (2) - 400 TBX 5. 1-3 1 General Specifications* (400 - Manual Transmission) * Specifications subject to change without notice. ** One inch below the threads of the filler cap. In the plug threads at the oil level. CARBURETOR Type Keihin CVK34 Jet Main 142 - VP 140 - FIS Jet Needle NAZG Idle RPM (warm engine) 1250-1350 Jet Starter 75 Float Arm Height 17 mm (0.7 in.) Free-Play throttle cable (in lever) 3-6 mm (1/8-1/4 in.) ElectricO 100 BTDC ignition timing at 1500 RPM Spark plug cover 8000-12,000 ohms Ignition coil resistance (primary) (secondary) Less than 1 ohm (terminal to a 5200-7800 ohms (high voltage - plug cap removed grounded) Peak ignition coil voltage (primary/CDI) 250-375 volts (ground terminal) Magnet coil (trigger) (source) (load) 160-240 ohms (1 ohms 5.04-7.56 volts (green to blue) 0.0.7-1.05 volts (yellow to white) Stator coil out- put (without charge) 60 volts AC at 50 volts AC at 5.5 RPM (black to black #2) Magnet output (approx.) 220 W at 5000 RPM CHASSIS Hydraulic brake type with brake lever lock and front auxiliary brake tire size - 25 x 8-12 rear - 25 x 10-12 -Rear VP - 25 x 10-12 - FIS tire inflation pressure 0.35 kg/cm2 (5 psi) Capacity MISCELLANY gas tank (rated) 17.98 L (4.75 U.S. gal.) - Reserve capacity FIS 2.46 L (0.65 U.S. gal.) - Reserve capacity VP 275 ml (9.3 fl oz) - VP*** 250 ml (8.5 fl fl oz) - FIS** Differential capacity (front - 4x4) 275 ml (9.3 fl oz) - VP 24.6 L (0.65 U.S. gal.) - Reserve capacity FIS 2.46 L (0.65 U.S. gal.) - Reserve c VP**/ FIS*** Engine oil capacity 3.08 L (3.25 EE. USA.qt) Gasoline (recommended) 87 Octane Regular Unlea Engine Oil (recommended) SAE 10W-40 SaE differential/rear-wheel drive lubricant Approved 80W-90 Hypoid brake fluid DOT 4 Rear light/Brake 12V/8W/27W Headlamp 12V/37W (2) 6. 1-4 General Specifications* (500 - Manual Transmission) * Specifications subject to change without notice. ** On oil-level plug threads. On the threads of the filler plug. CARBURETOR Type Keihin CVK36 Jet Main 138 Slow Jet 40 Pilot Screw Adjustment (turns) 1 3/4 Jet Needle NFKG RPM inactive (hot engine) 1250-1350 Starter Jet 85 Float Arm Height 17 mm (0.7 in.) Free-Play throttle cable (in lever) 3-6 mm (1/8-1/4 in.) ELECTRICO 100 BTDC ignition timing at 1500 RPM Spark plug Cap 8000-12,000 ohms Ignition coil resistance (primary) (secondary) Less than 1 ohms (ground terminal) 5200-7800 ohms (high voltage - plug cap removed - Grounded) Peak ignition coil voltage (primary / CDI) 140-215 volt volts (ground terminal) Magnet coil resistance (trigger) (source) (load) 160-240 ohms (green to blue) Less than 1 ohm (yellow to white) Less than 1 ohm (black to black) Magneto Coil Peak Voltage (trigger) 4.2-6.3 volts (green to blue white) 0.40-0.62 volts (yellow to white) Coil of this Outputtor - put (without load) 60 VOLTIOs AC at 5000 RPM (black to black #1) (black to black #2) Magnet output (approx.) 325W at 5000 RPM CHASSIS Hydraulic brake type with locking Brake and auxiliary brake tire size - 25 x 8-12 rear - 25 x 11-12 Tire inflation pressure 0.35 kg/cm2 (5 psi) MISCELLANY gas tank capacity (rated) 24.6 L (6.5 US girl)) Coolant capacity 2.9 L (3.0 U.S.qt) Differential capacity 275 ml (9.3 fl oz)** Rear drive capacity 250 ml (8.5 fl oz)** Rear drive capacity 3.4 L (3.5 U.S.qt) Gasoline (recommended) 87 Octane Octane SAE 10W-40 SAE differential/rear-wheel drive lubricant Approved 80W-90 Hypoid Brake Fluid DOT 4 Rear Light/Brake 12V/8W/27W Headlamp 12V/27W (2) 7. 1-5 1 General Specifications* (500/500 TRX - Automatic Transmission) * Specifications subject to change without notice. ** On oil-level plug threads. On the threads of the filler plug. CARBURETOR Type Keihin CVK36 Jet Main 138 Slow Jet 40 Pilot Screw Adjustment (turns) 1 3/4 Jet Needle NFKG RPM inactive (hot engine) 1250-1350 Starter Jet 85 Float Arm Height 17 mm (0.7 in.) Free-Play throttle cable (on lever) 3 -6 mm (1/8-1/4 in.) ELECTRICO 100 BTDC ignition timing at 1500 RPM Spark plug Type NGK CR6E Spark Plug Gap 0.7-0.8 mm (0.028-0.032 in.) Spark plug cap 8000-12,000 ohms Ignition coil resistance (primary) (secondary) Less than 1 ohms (ground terminal) 5200-7800 ohms (high voltage - plug cap removed - grounded) Peak ignition coil volts (ground terminal) Magnet coil resistance (trigger) (source) (load) 160-240 ohms (green to blue) Less than 1 ohm (yellow to white) Less than 1 ohm (black to black) Magneto Coil Peak Voltage (trigger) 4.2-6.3 volts (green to blue white) 0.40-0.62 volts (yellow to white) Stator coil Output- put (without load) 60 VOLTIOs AC at 5000 RPM (black to black #1) (black to black #2) Magnet output (approx.) 325W at 5000 RPM CHASSIS Hydraulic brake type with brake lever lock and auxiliary brake tire size - 25 x 8-12 rear - 25 x 11-12 Tire inflation pressure 0.35 kg/cm2 (5 psi) MISCELLANY gas tank capacity (classified) 24.6 L (6.5 U.S. Girl) / 20.8 L (5.5 US). USA gal.) - Coolant capacity TBX 2.9 L (3.0 U.S.qt) Differential capacity 275 ml (9.3 fl oz)*** Engine oil capacity 250 ml (8.5 fl oz)*** Engine oil capacity 2.5 L (2.2 L .6 U.S.gt) Gasoline (recommended) SAE 10W-40 SAE differential/rear drive lubricant Approved 80W-90 Hypoid drive belt width (minimum) 38 mm (1.33 in.) BRAKE fluid DOT 4 Rear light/brake light 12V/8W/27W Headlamp 12V/27W (2) 8. 1-6 General Specifications* (650 H1) * Specifications subject to change without notice. ** On oil-level plug threads. On the threads of the filler plug. CARBURETOR Type Keihin CVK40 Jet Main 138 Slow Jet 40 Pilot Screw Adjustment (laps) 2 Jet Needle NFKN RPM idle (warm engine) 1250-1350 Starter Jet 85 Float Arm Height 17 mm (0.7 in.) Free-Play throttle cable (in lever) 3-6 mm (1/8-1/4 in.) ELECTRICO 100 BTDC ignition timing at 1500 RPM Spark plug Type NGK CR6E Spark Plug Gap 0.7-0.8 mm (0.028-0.032 in.) Spark plug cover ohms Ignition coil resistance (primary) (secondary) Less than 1 ohms (ground terminal) 5200-7800 ohms (high voltage - plug cap removed - ground) Ignition coil peak voltage (primary/CDI) 142.4-213.6 volts (ground terminal) Magnet coil resistance (trigger) (source) (load) 160-240 ohms (green to blue) Less than 1 ohm (black to black) Magneto Coil Peak Voltage (trigger) (source) 4.2-6.3 volts (green to blue) 0.40-0.62 volts (vellow to white) Stator coil Out- put (without charge) 60 volts AC to 5000 (black to black #2) Magneto Output (approx. 325W at 5000 RPM CHASSIS Hydraulic brake type with brake lever lock and front auxiliary brake tire size - 25 x 8-12 rear - 25 x 11-12 Tire inflation pressure 0.35 kg/cm2 (5 psi) MISCELLANY gas tank capacity 275 ml (9.3 fl oz)** Rear drive capacity 250 ml (8.5 fl oz)** Rear drive capacity 2.9 L (3.0 U.S.gt) Gasoline (recommended) Regular 87 octane unleaded motor oil (recommended) SAE 10W-40 SaE differential/rear drive lubricant Approved 80W-90 Hypoid bandwidth 35.5 mm (1.40 in.) BRAKE fluid DOT 4 Rear light/brake light 12V/8W/27W Headlamp 12V/27W (2) 9. 1-7 1 General Specifications* (650 V-Twin) * Specifications subject to change without notice. ** One inch below the plug threads. On the wires of the plug. CARBURETOR Type Keihin CVKR-D32 (2) Main Jet 122 - Standard 118 - California Slow Jet 40 Pilot Screw Adjustment (turns) 2 1/2 (rear) Jet Needle NBZP Idle RPM (enigne warm) 1050-1150 Starter Jet 100 Float Arm Height 4 mm (0.16 in.) Free-Play throttle cable (in lever) 3-6 mm (1/8-1/4 in.) ELECTRIC Spark plug Type NGK CR7E Spark Plug Gap 0.7-0.8 mm (0.028-0.032 in.) Spark plug cap 4750-6250 ohms (high voltage - plug cover removed - grounded) Peak voltage ignition coil (primary / CDI) 100 volts or more (cable (+) ground) Magneto Coil voltage Peak (trigger) 3.16 volts or more (blue to black/white) Less than 1 ohms (black to black #1) (black to black/white) Stator coil Output- put (without load) 39-59 volts AC at 3000 RPM (black to black #1) (black to black #2) CHASSIS Hydraulic brake type with brake lever lock and brake tire size Auxiliary Front - 26 x 8-12 Rear - 26 x 11-12 Tire inflation pressure 0.35 kg/cm2 (5 psi) MISCELLANY gas tank capacity 2.7 L (2.8 US.gt) Differential capacity 275 ml (9.3 fl oz)*** Engine oil capacity 1.75 L (1.85 U U (1.85 U. S.gt) Gasoline (recommended) Regular 87 octane unleaded engine oil (recommended) SAE 10W-40 Lubricant SAE differential/rear Approved 80W-90 Hypoid drive belt width (minimum) 30.3 mm (1.19 in.) Brake fluid DOT 4 Rear light/brake light 12V/8W/27W Headlamp 12V/27W (2) 10. 1-8 Search procedure A new ATV and a refurbished ATV engine require a period of theft. The first 10 hours (or 200 miles) are most critical to the life of this ATV. Proper operation during this break-in period will help ensure maximum service life and ATV. During the first 10 hours (or 200 miles) of operation, always use less than 1/2 throttle. The variation of the engine RPM during the start-up period allows the components to load (helping the coupling process) and then unload (allowing the start-up period allows the components to cool down). Although it is essential to put some stress on the engine components during the fixed allows the components to cool down). carry heavy loads during the 10-hour rest period. When the engine starts, let it heat up. Start the engine for several minutes until the engine for excessively long periods of time. During the break-in period, a maximum of 1/2 jog is recommended; However, brief full-term accelerations and variations in driving speeds are based on good engine breakdown. During the break-in period (or whenever brake pads during breaks must be burned correctly for maximum braking power. NOTE: Do not be reluctant to heat the brake pads during the burning procedure. After the end of the break-in period, the engine oil and oil filter must be changed. Other maintenance after tresming should include checking all fasteners. Gasoline - Oil - GASOLINE RECOMMENDED Lubricant The recommended gasoline to use is 87 regular, lead-free minimum octane. In many areas, oxygenated (ethanol or MTBE) are acceptable gasolines. When using mixed ethanol gasoline, it is not necessary to add a gasoline antifreeze as ethanol will prevent moisture buildup in the fuel system. ENGINE OIL/RECOMMENDED TRANSMISSION The recommended oil to use is 4-cycle Arctic Cat engine oil (p/n 0436-005) or an equivalent oil that is classified as SE, SF or SG under API service classes. These oils meet all Arctic Cat ATV engine lubrication requirements. The viscosity of the re- ommended engine oil is SAE 10W-40. The ambient temperature should determine the correct weight of the oil. See the viscosity table below for more information. ! PRECAUTIONARY BRAKE PADS SHOULD BE BURNED TO ACHIEVE FULL BRAKING EFFICIENCY. The braking know-how will extend until the brake pads are properly burnished. FOR BURNISH PROPERLY THE BRAKES, USE THE LOW- LOW: • Choose an area large enough to safely accelerate ATV to 30 mph and to brake to a stop. • Accelerate to 30 mph; then compress the brake pads, stabilizes the pad material and extends the life of the brake pads. ! WARNING Do not use white gas. Only Arctic Cat-approved gasoline additives should be used. ! WARNING Any oil used in place of the recommended oil may cause serious engine damage. Do not use oils containing graphite or molybdenum additives. These oils can negatively affect clutch operation. In addition, oils based on races, vegetables, not detergents and castor are not recommended. 11. 1-9 1 OILCHARTB RECOMMENDED DIFFERENTIAL FRONT/DRIVE LIGHT LUBRICANT The recommended lubricant is Arctic Cat Gear Lube (p/n 0436-007) or an equivalent gear lubricant that is hypoid approved by SAE 80W-90. This lubricant meets all lubricant meets all lubricant meets all lubricant that is hypoid approved by SAE 80W-90. This lubricant meets all lubricant that is hypoid approved by SAE 80W-90. This lubricant meets all lubricant that is hypoid approved by SAE 80W-90. This lubricant meets all lubricant meets allubricant meets all lubri tank must be filled only at its rated capacity. The expansion room should be kept in the tank evenly if the tank is filled with cold gasoline and then moved to a warm area. Tighten the gas tank cover firmly after filling the tank. Original Parts When parts need to be replaced, use only original Arctic Cat ATV parts. They are precisely made to ensure high guality and correct fit. Refer to the appropriate Illustrated Parts Manual for part number, guantity, and description. Prepare the ATV for storage, 1. Wipe the seat cushion (cover and base) with a damp cloth and let it dry, 2. Clean the atV thoroughly by washing dirt, oil, grass and other foreign matter from the entire atV. Allow the ATV to dry thoroughly. DOES NOT send water anywhere in the engine or air intake. ! WARNING Any lubricant used in place of the recommended lubricant may cause serious damage to the front/rear unit differential. ! WARNING Any lubricant was fill the gas tank in a wellventilated area. Never add fuel to the ATV gas tank near open flames or with the engine running. DO NOT SMOKE while filling the gas tank. I WARNING Do not overfill the gas tank. I WARNING Do not overfill the gas tank. tank. ! WARNING Before storing the ATC, it must be properly vicious to prevent oxidation and deterioration of components. 12. 1-10 3. Either drain the gas tank. Remove the air filter housing cover and air filter. Start the engine and let it idle; Then, using Arctic Cat Engine Storage Preserver (p/n 0636-177), quickly inject the preservator into the air filter opening for a period of 10 to 20 seconds; then stop the engine. Install the air filter and housing cover. 4. Drain the carburetor float chamber. 5. Plug in the hole in the exhaust system with a clean cloth. 6. Apply light oil to the top steering post and shock plungers. 7. Tighten all nuts, bolts, cap screws and screws. Make sure that the rivets that hold the components are tight. Replace all loose rivets. Care must be taken to have all calibrated nuts, cap screws and bolts tightened to specifications. 8. For liquid-cooled models, fill the cooling system to the bottom of the support tube in the radiator neck with properly mixed coolant. 9. Disconnect the battery; Then remove the battery; Then remove the battery; Then remove the battery; Then remove the battery posts and cables, and store the MTV indoors in a level position. Preparation after storage Remove the ATV from storage and prepare it properly will ensure many miles and hours of trouble-free driving. Arctic Cat recommends the following procedure to prepare the ATV. 1. Clean the ATV. 1. Clean the ATV. 1. Clean the ATV thoroughly. 2. Clean the motor. Remove the cloth from the exhaust system. 3. Check all control cables and cables for signs of wear or fraying. Replace if necessary. 4. Replace the oil and engine/transmission filter. 5. For liquid-cooled models, check the coolant level and add properly mixed coolant as needed. 6. Charge the battery; then install. Connect the bat cables. 7. Check all brake systems (fluid level, pads, etc.), all controls, headlights, taillights, headlights, headlights, taillights, headlights, headl making sure that all calibrated nuts, cap screws and bolts are set to specifications. 9. Check the spark plug. Clean or replace as needed. 12. Follow the recommendations found in the pre-start inspection. WARNING If the inside of the air filter housing is dirty, clean the area before starting the engine, ! WARNING Avoid storing outdoors in direct sunlight and avoid using a plastic cover, as moisture will accumulate in the ATV causing oxidation, ! WARNING The power switch must be in the OFF position before installing the battery or damage to the ignition system may occur. ! CAUTION Connect the positive battery cable first; then the negative. 13. 2-1 2 SECTION 2 - PERIODIC MAINTENANCE TABLE/TUNE-UP CONTENT Maintenance Table 2-2 Lubrication Points..... 2-3 Battery..... 2-3 Fuses 2-4 Air Cleaner/Filter (400 VP)...... 2-5 Air Cleaner/Filter 2-7 Cleaning valves/tappet (pal overweight meter procedure)..... 2-9 2-9 Clarification (Valve Adjuster Procedure)..... 2-10 Cleaning valves/tappet (650 V-Twin - Valve adjustment procedure) 2-11 Compression of the Test Engine 2-12 Spark Plug 2-13 Silencer/Spark Arrester..... 2-13 Gas/Ventilation Hoses 2-14 Adjustment throttle cable..... 2-14 Adjustment Throttling Cable (650 V-Twin)..... 2-18 Tires 2-15 Front Differential/Rear Drive Lubricant... 2-17 Adjustment throttle cable..... 2-14 Adjustment Throttling Cable (650 V-Twin)..... 2-18 Tires 2-19 Steering Components 2-19 Transmission Axis/Coupling..... 2-24 Electrical connections... 2-24 Hydraulic Brake Systems 2-24 Burnishing Brake Pads... Refrigerant 2-27 (500/650 H1/650 V-Twin) 2-27 Checking/Replacing V-Belt (400/500/650 H1) 2-28 Adjusting the differential locking cable... 2-32 14. 2-2 Periodic Maintenance Chart A - Adjust I - Inspect C - Clean L - Lubricate D -Drain R - Replace * Service/Inspect more frequently when operating in adverse conditions. Initial item service after rest (first mo or 100 Mi) every 300 miles every 6 months or every 500 miles every 6 months or every 1500 miles every 1500 miles according to the necessary battery I C fuses I R air filter/drain tube IIC * R valve / Tappet Clearance II A Engine Compression I Spark Plug I R (4000 Mi or 18 Mo) Muffler/Spark Arrester C R Gas/Vent Hoses II R (2 Yrs) Gas Tank Valve (VP) I C Acceleration cable I I C-L A-R Carb Float Chamber D* Engine RPM (Idle) I I A Oil level I One engine-transmission oil/filter R R* R Oil tensioner C Front differential/Rear unit Lubri- cant I R (4 years) Clutch (Manual) I I A Tyres/Air pressure I R Steering components I R V-Belt (Automatic) I I R Suspension (Ball joint boots, front and rear drive shaft boots, straps, differential and rear drive shaft boots, straps, differential and rear drive shaft boots, front and rear drive shaft boots, straps, differential and rear drive shaft boots, front and rear drive shaft boots, front and rear drive shaft boots, straps, differential and rear drive shaft boots, front and rear drive shaft boots, front and rear drive shaft boots, front and rear drive shaft boots, straps, differential and rear drive shaft boots, front and rear drive shaft boots, straps, differential and Reverse shift lever I Throttling cable A-L (650 V-Twin) I C-L R Recoil Starter I C-R Handlebar Grips I R Handle Bars I R Indicators/Indicators I R Frame/Welds/Racks I L Electrical Connections I C Full Brake System (Hydraulic and Auxiliary) I C L-R Brake Pads I I* R Brake Fluid I R (2 years) Brake Hoses I R (4 Yrs) Brake System refrigerant/cooling I I R (2 years) 15. 2-3 2 Lubrication points It is advisable to lubricate certain peri- odically components using the following list as a reference. A. Pivot/Cable throttle lever Ends B. Pivot/Cable brake lever Ends C. Auxiliary brake ends D. Top end throttling cable (650 V-Twin) E. Reverse lever cable end (if applicable) F. Idle RPM screw (carburetor) AF879D battery fluid level must be maintained between the top and bottom level lines. If the level falls below the lower the battery fluid level must be maintained between the top and bottom level lines. If the level falls below the battery fluid level must be maintained between the top and bottom level lines. If the level falls below the battery fluid level must be maintained between the top and bottom level lines. from the ATV and charge the battery at the standard charging speed of 1.5A x 10 h. CHARGTIM CHARGE To remove the battery. use the following procedure. 1. Remove the battery retention bracket. 2. Remove the battery. the battery from the ATV. Care should be taken not to damage the ventilation tube. ! WARNING Battery acid is harmful if it comes into contact with eyes, skin or clothing. Care should be taken whenever handling a battery. ! WARNING Every time service is performed on a battery, noise should be taken sparks, flames open, cigarettes, or any other flame away. Always wear safety goggles. Protect skin and clothing when craving a battery. When maintaining the battery in an enclosed space, keep the area well ventilated. Make sure that the ventilation of the bats is not obstructed. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING Avoid spillage and contact with skin, eyes and clothing. ! WARNING

Do not charge the battery while on the ATV with the battery wile on the battery at 1.4 amps for 10 hours. 5. After charging, check the liquid level and fill with distilled water as needed; then install the vents. 6. Place the battery in position on the ATV and secure with the clamping bracket. 7. Secure the ventilation vent Check the ventilation vent Check the ventilation tube to make sure it is not set or clogged in any way and that it is properly routed through and secured to the frame. 8. Connect the cables to the appropriate terminals: positive cable to positive terminal (+) and negative cable to negative cable last. AF733D FUSES Fuses are located in a power distribution module under the seat. If there is any type of electrical system failure, always check the fuses first. NOTE: To remove the fuse, compress the locking tabs on both sides of the fuse housing and lift. 0411-828 0411-838 ! WARNING Never exceed the standard charging speed. ! WARNING Connecting the cables in reverse (positive to negative to positive) can cause a severe age of the dam to the electrical system. 400/500/500 TBX/FIS Auto 400 FIS Manual/500 Manual 650 V-Twin TRV/VP/400 TBX 17. 2-5 2 1411-130 Air cleaner/filter (400 VP) The air filter inside the air filter inside the air filter at the specified intervals. If operated in dusty, wet or muddy conditions, inspect and service the filter more frequently. Use the down procedure to remove the filter and inspect and/or clean it. CLEANING AND INSPECTING FILTER 1. Remove the seat. 2. Remove the air filter housing cover from the retaining clips. 733-444A 3. Loosen the clamp; then remove the filter. AF640DA CD087 4. Fill a washing tray larger than the filter with a non-flammable cleaning solvent; then immerse the filter oil (p/n 0436-195) are available in Arctic Cat. 5. Dry the filter. 6. Place the filter in a plastic bag; then pour into air dirt oil and work the filter. 7. Clean dirt or debris inside the air cleaner. Make sure dirt does not enter the carburetor. 8. Place the filter in the air filter housing cover and secure it with the retaining clips; then install the seat making sure the seat is secure. 650 H1 ! WARNING Always replace a blown fuse with a fuse of the same type and rating. ! WARNING If the air filter is not inspected frequently if vehicle is used in dusty, wet or sludgey conditions, it can damage the engine. ! WARNING A broken air filter may cause damage to the ATV engine. Dirt and dust can enter the engine if the element is broken. Carefully examine the item for tears before and after cleaning. Replace the item with a new one if it is broken. 18. 2-6 CHECKING/DRAINING DRAINING DRAINING DRAIN TUBE 1. Periodically check the drain pipe for gasoline or oil buildup. If noticeable, remove drainage drainage cover under the front housing, drain gasoline or oil into a suitable container, and install and secure the tube cover. 2. Inspect the unidirectional drainage under the main housing for debris and proper sealing. ATV0087A EXTRACTION OF AIR CLEANER 1. Remove the seat. 2. Remove the air cleaner cover from the retaining clips. AL645D 3. Loosen the clamp and remove the filter. AF640DA 4. Loosen the clamp that secures the air cleaner to the front boot; Then loosen the clamp that secures the air cleaner to the fame. 6. Remove the air cleaner from the frame. INSTALLATION 0738-385 1. Place the air cleaner in the frame. 2. Install the rear filter sleeve into the air cleaner; then tighten the clamp firmly. 4. Install the front boot into the air cleaner; then tighten the clamp firmly. 5. Install the rear filter sleeve into the air cleaner; then tighten the clamp firmly. AF640DA KEY 1. Clamp 2. Start 3. Clamp 4. Housing 5. Filter 6. Board 7. Snorkel 8. Clamp 9. Spring 10. Machine screw 11. Expansion nut 12. Bracket 13. Heat shield 14. Valve 15. Clip 16. Drain cover 17. Clamp 18. Clamp 19. Ventilation hose 19. 2-7 2 6. Place the air cleaner cover in position and secure it with the retaining clips. AL645D 7. Install the seat making sure the seat is secure. Air Cleaner/Filter The air filter inside the air filter nousing must be kept clean to provide good engine power and gas mileage. If the ATV is used under normal conditions, service the filter at the specified intervals. If operated in dusty, wet or muddy conditions, inspect and service the filter more frequently. Use the down procedure to remove the filter and inspect and/or clean it. CLEANING AND INSPECTING FILTER 1. Remove the storage compartment. CF145B CD710B 2. On the 400 FIS, remove the storage compartment assembly by lifting the back of the com- partment, moving it backwards and lifting it up. On the 500/650 H1/650 V-Twin, lift the storage compartment. CD710B 4. Unhook the four spring fasteners; then remove the cover air filter. ! WARNING If the air filter is not inspected frequently if the vehicle is used in dusty, wet or sludgey conditions, it may damage the engine, 20, 2-8 CD675A 5. Remove the air filter/screen assembly from the filter and separate the foam filter from the display. CD674 CD747 6. Fill a washing traveler than the filter with a non-flammable cleaning solvent; then immerse the filter in the solvent and wash it. NOTE: Foam filter cleaner (p/n 0436-194) and foam filter oil (p/n 0436-195) are available in Arctic Cat. 7. Dry the 8. Place the filter in a plastic bag; then pour into air dirt oil and work the filter. Reconnect the filter in the solvent and wash it. NOTE: Foam filter cleaner. Make sure that dirt does not enter the carburetors. 10. Place the filter assembly in the air filter housing making sure it is positioned correctly and positioned correctly and positioned with the filter screen facing down. CD674 11. Install the air filter housing cover and secure it with the retaining clips. 12. Install the storage compartment; then secure with reinstallable rivets. CF145B ! WARNING A broken air filter may cause damage to the ATV engine. Dirt and dust can enter the engine if the element is broken. Carefully examine the item with a new one if it is broken. 21. 2-9 2 CD710B CHECKING AND CLEANING DRAINS 1. Inspect one-way drains under the main reserve for debris and proper sealing. KX045A 2. Replace any one-way drainage that is cracked or shows any signs of hardening or deterioration. 3. Clean any oil or gas build-ups from the filter housing and unidirectional drains. Valve/Tappet Clearance (650 V-Twin) in this section. To check and adjust the free space of the valve/tappet, use the following procedure. 1. Remove the sync inspection plug; Then remove the cover covers from the tappet (for more detailed information, see Section 3 - Top Side Component Maintenance). 2. Turn the cig into the TDC position in the compression stroke. NOTE: At this point, the tilting arms and adjustment screws should not have pressure on them. 3. Using a feel meter, check each valve/tappet set. If the clearance is not within the specific specifications, loosen the jam nut and turn the tappet adjuster screw until the clearance is within specifications. Tighten each jam nut tightly after completing the adjustment. CC007DA 4. Install the sync inspection plug. 5. Place the two tappet covers in position making sure the appropriate cover screws are with the appropriate cover. Tighten the screws on the cover firmly. ! CAUTION One-way drainage on the right is the clean air section of the filter housing. Any leakage from this one-way drain will allow the at the engine inlet cause serious engine damage. ! CAUTION The feel meter should be placed at the same angle as the valve and valve adjuster for adjustment speed measurement. If valve free space is not accurately measured, damage to valve components may occur. Valve/TAPPET CLEARANCE (400/500) Admission 0.05-0.10 mm (0.002-0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (400/500) Admission 0.05-0.10 mm (0.002-0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.22 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.20 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.20 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.20 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (650 H1) Admission 0.1016 mm (0.004 in.) Exhaustion (500) 0.17-0.20 mm (0.007-0.009 in.) Valve/TAPPET CLEARANCE (500 H1) Admission 0.1016 0.1524 mm (0.006 in.) 22. 2-10 Valve/Tappet Clearance (Valve Procedure) NOTE: For the 650 V-Twin, see Valve/Tappet Clearance (650 V-Twin) in this section. To check and adjust the free space of the valve/tappet, use the following procedure. NOTE: On the 400 VP, the seat assembly, side panels and gas tank must be removed for this procedure. NOTE: On the TBX/500/650 H1, the seat, storage compartment cover assembly, compartment box, air/filter filter housing, and left/right side splash panels should be removed for this procedure. 1. Remove the sync inspection plug; Then remove the cover covers from the tappet (for more detailed information, see Section 3 -Top Side Component Maintenance). 2. Turn the cig into the TDC position in the compression stroke. NOTE: At this point, the tilting arms and adjustment screws should not have pressure on them. NOTE: Use the Valve Clearing Adjuster (p/n 0444-078) for this procedure. 3. Place the valve adjuster on the jam nut by fixing the tappet adjuster screw; Then turn the valve adjuster dial in place, use the valve adjuster dial clockwise until the friction is feeling. 5. Align the valve adjuster handle with one of the valve adjuster dial markings. While holding the valve adjuster handle in place, turn the valve adjuster dial counterclockwise until proper valve/tappet clearance is reached. NOTE: Refer to the appropriate specifications in the Sensation Meter Procedure subsection for proper valve/tappet clearance. NOTE: Turning the valve adjuster selector counterclockwise will open the valve/tappet clearance by 0.05 mm (0.002 inches) per mark, 7. While holding the adjuster handle, 8. Place the two tappet covers with the O-rings in position: then tighten the covers firmly. CF005 9. Install the spark plug; Then install the sync inspection plug. Cleaning valves/tappet (650 V-Twin - Sensation Meter Procedure). To check and adjust the valve/tappet (650 V-Twin - Sensation Meter Procedure). To check and adjust the valve/tappet clearance, use the following procedure. cover that secure the recoil starter; then remove the back boot set. 2. Remove the sync inspection plug; Then remove the four tappet covers (for more detailed information, see Section 3 - Maintaining Top Side Components). 3. Turn the counterclockwise cig to the TDC position in the TF (A) brand compression stroke on the steering wheel. TF is the center of the dead center. NOTE: At this point, the tilting arms and adjustment screws on the front cylinder must not have pressure on them. 23. 2-11 2 ATV2057B 4. Using a feel meter, check each valve/tappet set. If the whitening is not within specific, specific, jam nut (B) and turn the tappet adjuster screw (A) until the clearance is within specifications. Tighten each jam nut to specifications after completing the adjustment. KX227 5. Turn the cig counterclockwise until the TR mark (A) aligns into the timing hole. Repeat steps 3-4 for the rear cylinder. ATV2058B 6. Install the sync inspection plug. 7. Place the four tappet covers in position. Tighten the screws on the cover firmly. 8. Install the recoil starter assembly and tighten the screws firmly on the cover. 9. Install the seat and make sure it locks safely. Cleaning valves/tappet (650 V-Twin - Valve adjustment procedure) To check and adjust valve/tappet clearance, use the following procedure. NOTE: The seat, air filter housing, front fenders, front inner covers and side panels must be remove the screws from the cover that secure the recoil starter; then remove the back boot set. 2. Remove the sync inspection plug; Then remove the four tappet covers (for more detailed information, see Section 3 - Maintaining Top Side Components). 3. Turn the crankshaft counterclockwise to the TDC position in the TF-branded compression stroke on the steering wheel. TF is the center of the dead center. NOTE: At this point, the tilting arms and adjustment screws should not have pressure on them. NOTE: Use the Valve Gap Adjuster (p/n 0444-092) for this procedure. ! CAUTION The feel meter should be placed at the same angle as the valve free space is not accurately measured, damage to valve components may occur. Valve/TAPPET CLEARANCE (650 V-Twin) Admission 0.10-0.15 mm (0.0039-0.0059 in.) Exhaust 0.20-0.25 mm (0.0079-0.0098 in.) 24. 2-12 4. Place the valve adjuster dial clockwise until the end is sitting on the tappet adjuster screw. 5. While holding the valve adjuster dial in place, use the valve adjuster handle and loosen the jam nut; Then turn the screw clock of the tappet-wise adjuster until the friction is feeling. 6. Align the valve adjuster handle in place, turn the valve adjuster dial counterclockwise until proper valve/tappet clearance is reached. NOTE: Refer to the appropriate specifications in the Sensation Meter Procedure subsection for proper valve/tappet clearance at 0.07 mm (0.003 in.) per mark. 8. While holding the adjuster dial in the appropriate clearance setting, tighten the jam nut firmly with the valve adjuster handle; then tighten the jam nuts to specifications. 9. Turn the cig counterclockwise the TR mark is aligned in the timing hole; then repeat steps 4-8 for the rear cylinder. 10. Install the sync inspection plug; Then install the four tappet covers and tighten tightly. 11. Install the recoil starter assembly and tighten the screws firmly on the cover. 12. Install the air filter housing, front inner covers, front fenders and side panels; Then install the seat and make sure it locks safely. Compression of the test engine To test spark plugs. 2. With compressed air, blow the residues around the spark plug(s): 3. Remove the spark plug(s); Then connect the high-voltage cable to the plugs and land the head plugs well away from the spark plug(s); Then connect the high-voltage cable to the plugs and land the spark plug(s). NOTE: The motor must be hot and the battery must be fully charged for this test. 5. While holding the throttle lever in the open position, crank the motor with the electric starter until the meter shows a maximum reading (five to 10 compression strokes). NOTE: For the 400, compression must be within a range of 95-115 psi in the open throttle position. For the 500/650 H1, compression must be within a range of 70-85 psi in the open throttle position. 6. If the compression is abnormally low, inspect the following items. A. Check the starter crank motor over. B. The indicator works correctly. C. Throttle lever in the open position. D. Valve/tappet clearance is correct. E. Valve bent or burned. F. Burnt valve seat. NOTE: For service valves, refer to Section 3. 7. Pour 29.5 ml (1 fl oz) of oil into the spark plug hole, replace the meter and retest the compression. 8. If compression is evident, service the piston rings (see Section 3). ! WARNING Always wear safety goggles when using air conditioning. 25. 2-13 2 Spark plug A light brown insulator indicates that the engine may need to be repaired or that the carburetor needs to be adjusted. To keep a spark warm and strong, keep the plug carbon-free. ATV-0051 Set the space to 0.7 - 0.8 mm (0.028 - 0.032 in.) for proper ignition. Use a sensation meter to check the gap. ATV0052B When installing the spark plug should be tightened 1/2 turn once the washer comes into contact with the cylinder head. A used spark plug should be tightened 1/8 - 1/4 turn once the washer comes into contact with the stock. Silencer/Spark Arrester The muffler has a spark blocker that must be cleaned per- odically. At the intervals indicated in the peri- indica maintenance table, clean the spark blocker using the following procedure. 1. Remove all three screws that secure the spark trigger assembly to the muffler; then loosen up and remove the arrest. CF105A 2. Using a suitable brush, clean the carbon deposits on the screen taking care not to damage the screen. NOTE: If the display or gasket is damaged in any way, it must be replaced. 3. Install the spark blocker assembly with the gasket; then secure with the three screws on the lid. Tighten up to 0.6 kg-m (4.0 ft-lb). CF104 ! WARNING Before removing a spark plug, be sure to clean the area around the spark plug. ! WARNING Wait until the muffler cools down to prevent burns. 26. 2-14 Gas/ventilation hoses Replace the gas hose every two years. Damage caused by aging may not always be visible. Do not bend or obstruct the routing of the carburetor and that the opposite end is always open. Adjusting the throttle cable To adjust the free throttle cable, follow this procedure. 1. Slide the rubber boot; Then loosen the jam nut of the throttle cable adjuster. AL611D 2. Rotate the adjuster until the throttle cable has a suitable free set of 3-6 mm (1/8 - 1/4 in.) on the lever. ATV-0047 3. Tighten the jam nut against the throttle cable adjuster until the throttle cable adjuster. Twin) To adjust the throttling cable for proper free play, lower this procedure. 1. Slide the rubber boot (A) from the throttling cable; then loosen the jam nut firmly against the end of the adjuster; then slide the rubber boot over the adjuster. Adjusting engine RPMs, a tachometer is required. To adjust inactive RPMs, use the following procedure. NOTE: The idle adjustment screw is located on the right side of the carburetor. 27. 2-15 2 1. With the transmission in snlock, start the engine and heat up to the normal operating temperature. 2. Turn the idle adjustment screw clockwise one turn beyond the recommended RPM setting; then turn counterclockwise to the correct RPM setting. AF920C KX029A Engine oil/transmission - Filter - Strainer oil - FILTER Change engine oil and oil filter at intervals The engine should always be hot when the oil is changed so that the oil drains easily and completely, 1. Park the ATV on flat ground, 2. Remove the drain plug from the bottom of the motor and drain the oil into a drain tray, 733-441A 4. On the 400/500, remove the filter plug from the filter mounting head (located on the front of the transmission box) and let the dirt drain completely. Install the plug and tighten tightly. 5. On the 650 V-Twin, V-Twin, the left-front inner fender panel. 6. Using the oil filter wrench (p/n 0444-042) and a suitable wrench, remove the old oil filter. NOTE: Clean excess oil after removing the filter. RPM MODEL IDLE RPM 400/500/650 H1 1250-1350 650 V-Twin 1050-1150 ! WARNING Set the inactivity to the correct RPM. Make sure the motor is at normal operating temperature before adjusting idle RPMs. Adjustment screw (400/500/650 H1) 28. 2-16 7. Apply oil to a new filter O-ring and check that it is positioned correctly; Then install the new oil filter. Tighten tightly. NOTE: Install a new O-ring each time the filter is replaced. 8. Install the engine drain plug and tighten the specifications. Pour the specifications. Pour the specifications. Pour the specifications. minutes. 10. Turn off the engine and wait about a minute. 11. Unscrew the oil level stick and wipe it with a clean cloth. 12. Install the oil level stick until the threads touch the motor housing. NOTE: On the 400 auto/650 H1, the oil level rod should not be threaded into the box to check the oil level. NOTE: On the 650 V-Twin, the oil level rod must be threaded into the box to check the oil level. 13. Remove the oil level rod; the engine oil level must be above the illustrated F mark. ATV-0100 ATV0100A 14. Inspect the area around the drain plug and oil dirt for leaks. STRAINER NOTE: To repair the oil strainer on the 650 V-Twin, refer to Central Crankcase Components in Section 3. To check the oil strainer, use the following proce- duration. 1. Remove the screws from the lid that secure the strainer. ! WARNING Any oil used in place of the recommended oil may cause serious engine damage. Do not use oils containing graphite or molybdenum additives. These oils can negatively affect clutch operation. In addition, oils based on races, vegetables, not detergents and castor are not recommended. ! WARNING Do not overfill the engine with oil. Always make sure that the oil level is above the L mark but no higher than the F. 400 Auto/500 Auto/650 H1 650 V-Twin 29 mark. 2-17 2 CC163D NOTE: To repair the oil in position under the crankcase and secure it with the screws on the Phillips- head cap. Tighten tightly. CC163D 5. Place the strainer cover in position in the strainer making sure the O-ring is properly installed; then fasten with the screws on the lid. Tighten tightly. CC091D 6. Install the sliding plate. Front Differential/Rear Drive Lubricant According to the Graphic. When changing lubricant, use approved SAE 80W-90 hypoid gear lubricant. To check the lubricant, use the following pro- duration. 1. On FIS models, remove the filling cap from the rear unit; the lubricant level should be 1 in. below the plug from the rear unit; the lubricant level should be in the plug wires. If low, add the SAE-approved 80W-90 hypoid gear lubricant as needed. AF923A To change the lubricant, use the following proce- duration. 1. Place the ATV on level ground. 2. Remove each oil filling cap. AL677A 30. 2-18 ATV-0077 AL678A 3. Drain the oil into a drain tray by removing the drain plug from each one. ATV0082A ATV-1096 737-651A 4. After all the oil has been drained, install the drain plugs and tighten to the specifications. 5. Pour the appropriate amount of oil recommended into the filling plugs. NOTE: If the differential/rear drive oil is connected with water, inspect the drain plug, filling plug and/or bladder. Adjustment clutch (400/500 Manual transmission) To adjust the clutch, use the following procedure. 1. Using an impact controller, remove the screws that secure the #1 adjustment screw (forward) and the adjustment screw #2 (rear pavilion), 400 VP VP Rear Unit ! CAUTION Water entering the outer end of the shaft may not enter the rear unit unless the seals are damaged. Rear unit it stops, CC038D 4, Turn the adjustment screw #2 alternately on the watch and counterclockwise to ensure untened free movement; Then lock the locking adjustment screw on the jam nut and #2. 5. Turn the adjustment #1 1/8 turn clockwise; Then lock the locking adjustment screw on the jam nut and #1. NOTE: At this point, the clutch must be adjusted correctly. Test to ensure precise fit. 6. Install the cover making sure the O-ring is positioned with support; then fasten with the screws. Tire sizes the ATV is equipped with tubeless low pressure tires of the size and type or size. TIRE INFLATION PRESSURES The inflation pressure of the front and rear should be 0.35 kg-cm2 (5.0 psi). A low pressure pressure gauge is provided in the toolkit to measure air pressure on all tires. Check the air pressure on all tires before each at vise. Steering components should be inspected periodically to ensure safe and proper operation. To. Handlebar grips are not worn, broken or loose. B. Handlebar not bent, cracked, and has equal and complete layering on the left and right. C. Mounting the steering post/bearing bracket not broken, worn or bound. D. Ball Ball does not wear out, crack or damaged. G. Cotter pins are not damaged or missing. Drive/Coupling shaft The following components of the drive system should be inspected periodically to ensure proper operation. A. Spline sideways use the specified tire size and type. Always maintain proper tire inflation pressure. 32. 2-20 B. Cracked, damaged or worn coupling. Suspension/Shock Absorbers/Bushings The following suspension system components should be inspected periodically to ensure proper operation. A. Shock absorber bars bent, boned or damaged. B. Cracked, broken or missing rubber damper. C. Shock absorber body damaged, perforated or leaking. D. Damping eyelets broken, bent or cracked. E. Shock bearings of worn, deterrated, cracked or missing eye bearings. F. Damping spring broken or sagging. Nuts/Bolts/Cap Screws Tighten all nuts, bolts and screws on the copy on the cap to specifications. For appropriate torque values, see section 10. Power-on time NOTE: On the 650 V-Twin to check the power-on time cannot be set; However, checking the power-on time can help troubleshoot other components. To check the power-on time, use the following procedure. 1. Connect the timing light (p/n 0644-197) to the high voltage spark plug cable: Then remove the timing inspection plug from the crank housing cover on the left side. 2. Using the Arctic Cat engine tachometer (p/n 0644-275), start the engine and exercise the RPM re- ommended; power-on time should be the recommended BTDC grades. 3. Install the timing inspection plug. If the ignition time cannot be checked, the rotor may be bent or damaged, or the CDI unit may be defective. Headlight/Rear Light- Brake light Each time the ATV is used, the lights should be checked for proper operation. Turn the power switch to the position of the lights; headlights and taillights must light up. Test the brake by compressing the brake lever. The bulb in the headlight is frag- ile. DRIVE CAREFULLY. When replacing the headlight bulb, do not touch the glass part of the bulb. If the glass is touched, it should be cleaned with a dry cloth before installing it. Skin oil residues in the bulb will shorten the life of the bulb. To replace the headlight. 2. Hold the bulb housing, turn anti-lock and remove the bulb. 3. Install the new bulb into the housing and turn it completely 4. Install the wire harness connector. ON TIME MODEL TIMING/RPM 400 100 BTDC at 1500 650 H1 100 BTDC at 1500 650 H1 100 BTDC at 1500 650 H1 100 BTDC at 1500 100 BTDC at 1500 500 100 BTDC at 1500 500 100 BTDC at 1500 100 BTDC at rear light bulb, use the descent procedure, 1. Turn the bulb socket assembly counterclockwise and remove it from the housing. CF135A 2, Pull the bulb socket assembly into the housing and turn clockwise to secure it. CHECKING/ADJUSTING HEADLIGHT AIM The headlights can be adjusted vertically and hori- zontally. The geometric center of the HIGH beam light area will be used to aim vertically and horizontally. 1. Place the ATV on a level floor so that the head lights are approximately 6.1 m (20 ft) from a pointing surface (wall or similar pointing surface). NOTE: There must be an average operating load on the ATV when adjusting the headlight lens. 2. Measure the distance from the ground to the midpoint of each lighthouse. 3. Using the measurements obtained in step 2, make horizontal marks on the aiming surface. the headlights. 5. Turn on the lights. Make sure the HIGH beam is on. DO NOT USE LOW. 6. Observe each aim of the headlight beam. The right target is when the wortical mark 5 cm (2 in.) below the horizontal mark on the aiming surface. ATV-0070C 7. Adjust each headlight by turning the adjuster knob clockwise to raise the beam or counterclockwise to lower the beam. CD714A Switches Each time the ATV is used, the switch: the motor will start. B. Emergency stop switch: the motor will stop. 34. 2-22 C. Reverse switch — reverse indicator light illumination. D. Hi/Lo switch — bright and dim headlight beam. E. Brake switches — illumi- 2 rear brake light. Setting the reverse indicator light must be illuminated. If the reverse light does not light up when moving to the reverse position, the switch may be faulty, the fuse may be faulty, the fuse may be faulty, a connection may be loose or corroded, or the lever. SHIFT LEVER SETTING 0739-701 ! WARNING Never change the ATV to reverse when the ATV is moving, as it may cause the ATV to stop launching the operator from the ATV. KEY 1. Handle 2. Press clip 3. Shift plate 4. Stamped nut 5. Lever 6. Spring 7. Axis 8. Nut 9. Ring O 12. Cover screw 13. Washing machine 14. Nut 15. Rod End 16. Linking 17. Buje Buje Washing machine 19. Ring E 400/500 Automatic transmission/650 H1 35. 2-23 2 0739-739 0739-824 1. Set the gear lever to position R. 2. Remove the seat. NOTE: Step 3 is for all models except the 650 V-Twin, proceed to step 4. 3rd. On the TBX/500/650 H1, remove the splash panel from the left side. CD685 B. Loosen the jam nut at the end of the shift rod (A). KEY 1. Handle 2. Press clip 3. Shift plate 4. Stamped nut 5. Lever 6. Spring 7. Axis 8. Nut 9. Ring O 10. Axis 11. Ring O 12. Cover screw 13. Washing machine 14. Nut 15. Rod End 16. Linking 17. Bushing machine 14. Nut 15. Rod End 16. Linking 17. Bushing machine 14. Nut 15. Rod End 16. Linking 17. Bushing machine 19. E-Ring 400/500 Manual transmission wrench 1. Handle 2. Press clip 3. Shift plate 4. Stamped nut 5. Lever 6. Spring 7. Nut 8. Ring O 9 Axis 10. Axis 11. Ring O 12. Washing machine 13. Cover screw 14. Arm 15. Cover screw 16. Washing machine 17. Ring E 18. Place link 19. Nut 22. Rod End 650 V-Twin 36. 2-24 AF941A C. With two open-end wrenches, remove the lock nut (B) that secures the shift rod to the upper displacement shaft Discard the lock nut. NOTE: Never reuse a lock nut. Once a lock nut has been removed, it must be replaced with a new lock nut. D. Completely push the top displacement rod as needed to align its threaded shaft with the hole in the upper displacement shaft. Secure with a new lock nut (B). Tighten tightly. F. Tighten the jam nut (A) to ensure adjustment. G. On the TBX/TRV/500/650 H1, install the splash panel on the left side. H. Install the splash panel on the left side. H. Install the splash panel on the left side. H. Install the splash panel on the two torx head screws in the grooved section of the linkage. forward hold position; then tighten the two torx head screws firmly. CD716A C. Check the correct operation of the change; then install the seat. Frame/Welds/Racks The frame, welds and frames should be checked peri-odically for damage, curves, cracks, deterioration, broken components and missing components. If substitution or repair constitutes a disposal, see Section 8. Electrical connections must be checked peri- odically for proper operation. In case of electrical failure, check fuses, connections (for sealing, cor- pink, damage) and/or bulbs. If an electrical test is necessary to check its proper operation, refer to Section 5. Hydraulic brake systems LINKING ADJUSTMENT Before attempting to bleed the hydraulic auxiliary brake (type of remote tank), the linkage should be checked for proper adjustment. To adjust the linkage, use the following procedure. 1. Remove the pin and washer; then remove the clevis pin. 37. 2-25 2 0739-542 2. Make sure the brake pedal is fully released and against the stop, check that the thrust bar actuator holes align with the pedal lever hole. CD473A NOTE: If the holes are not aligned, loosen the top and rotate the thrust rod and bottom nut until the holes align; Then hold the actuator and bottom nut and tighten the top nut firmly. CD476 4. Check the appropriate alignment; Then install the clevis pin, washer and a new cotter pin. CD713 CHECKING/BLEEDING Hydraulic brake systems have been factory filled and de-bleeded. To check and/or bleed a hydraulic brake system, use the following procedure. 1. With the master cylinder in a level position, check the fluid level in the tank. If the tank level is not visible in the viewfinder, add the DOT 4 brake fluid. 738-420A AL681 2. Check the brake is not firm, the system must bleed. 38. 2-26 CD711 3. To bleed the brake system, use the following procedure. A. Remove the cover and fill the tank with DOT 4 brake fluid (p/n 1639-799). B. Install and secure the cover; then slowly compress the brake lever several times. C. Remove the protective cap, install one end of a transparent hose on a FRONT bleeding screw, and direct the other end into a container; Then, while holding a slight pressure on the brake lever, open the bleeder screw and observe the air bubbles. Close the bleeder screw before releasing the brake lever. Repeat until no air bubbles are present. AF637D 730-434B NOTE: During the bleeding procedure, closely observe the tank viewfinder to ensure that there is always a sufficient amount of brake fluid. When the viewfinder changes from dark to light, fill the tank before proceeding with the bleeding procedure. If a sufficient amount of liquid is not maintained in the system. D. Repeat step C until the brake lever is firm. E. At this point, perform steps B, C, and D on the other FRONT bleed screw; then move on to the REAR bleeder screw and follow the same procedure. 4. Carefully check the entire hydraulic brake system that all hose connections are tight, bleeding screws are tightened, protective caps are installed and no leaks present. INSPECTING HOSES Carefully inspect hydraulic brake hoses for cracks or other damage. If found, the brake hoses must be replaced. CHECKING/REPLACING PADS The distance between brake pads and brake discs is automatically adjusted as the brake pads when they show excessive wear. the thickness of each of the brake pads as follows. 1. Remove the front wheel. 2. Measure the thickness of each brake pad. AF739DB ! WARNING This hydraulic brake system is designed to use only DOT 4 brake fluid is very corrosive to the painted surfaces. 39. 2-27 2 3. If the thickness of any of the brake pads is less than 3.2 mm (0.125 in.), the brake pads must be replaced. NOTE: Brake pads must be as a whole. 4. To replace the brake pads, use the following pro- cesura. A. Remove the knuckle; Then remove the pads. PR237 C. Install the new brake pads. D. Attach the clamp to the knuckle and/or shaft housing with the screws on the cover. Tighten the specifications. AF615D E. Install the wheel. Tighten the specifications. 5. Burnish brake pads burn brake pads (both hydraulic and auxiliary) must be burned for total braking efficiency. The braking distance will extend until the brake pads burn properly. To properly burn the brake pads, use the following procedure. 1. Choose an area large enough to safely accelerate to 30 mph; then compress the brake lever or apply the auxiliary brake to deceleer at 0-5 mph. 3. Repeat the procedure on each brake system five times until the brake pads are burned. 4. Adjust the auxiliary brake (if necessary). 5. Check that the brake lights up when the hand lever is compressed or the brake pedal is pressed. Refrigerant (500/650 H1/650 V-Twin) The cooling system should be inspected daily for leakage and damage. In addition, the coolant level should be checked periodically. When filling the cooling system, use Arc- tic premixed Cat antifreeze (p/n 0638-395). While filling, turn off the engine, and then fill the cooling system to the bottom of the support tube at the radiator neck. WARNING If the brake pads are not burned properly, premature wear of the brake pads or brake loss may be carried away. Loss of brakes can result in serious injury. 40. 2-28 AN604D V-belt check/replacement (400/500/650 H1) REMOVAL 1. Remove the footrest from the right side (see Section 8). 2. Remove the screws from the cover that secure the V-belt cover, taking into account the location of the cap screws of different lengths for installation; Then, with a rubber mallet, tap the tabs on the cover. NOTE: Note the location of the main motor ground wire for installation purposes. CD078 3. Remove the nut that secures the moving drive face; then remove the face. Counts for the spacer. CC546 4. Remove the V. CC550 INSTALL strap 1. Extend the faces of the powered clutch by pushing the inner face toward the motor as you turn it counterclockwise; Then, when the faces are classified, insert a wedge (approximately 3/8 inches thick) between the faces. Let go of the inner face. ! WARNING After operating the ATV for the initial 5-10 minutes, stop the engine to cool down and check the coolant level. Add coolant as needed. 41. 2-29 2 CC549 2. Place the V-belt in position on the actuated clutch and on the front axle. CC550 NOTE: The El on the V-belt should aim for the pavilion. 3. Tighten the V-belt near its center and slide the spacer and face of the mobile unit onto the drive shaft. Secure the face of the unit with a nut. Tighten the vedge can be removed between the faces of the powered clutch. 4. Turn the V-belt and clutches until the V-belt is flush with the top of the clutch driven. 5. Place the V-belt cover seal in position: Then install the cover and secure with the screws on the cover making sure that the screws to specifications. CD083 NOTE: Make sure that the ground cable of the main motor is installed and secured in the appropriate location. 6. Attach the front fender to the footrest with the two screws on the lid. Tighten tightly. 7. Install the footrest on the right side (see Section 8). Checking/replacing V-Belt (650 V-Twin) REMOVING 1. Make sure the power switch is in the off position; then remove the clamps (A) and air duct (B). KX229 2. Remove the actuator cable (A) and the belt fault detection switch cable (B); Then remove the screws from the cover (C) that secure the belt sfrom the cover (B) in the positions shown and install an appropriate drive clutch bracket (A) as shown. Notice the relative position of the arrow mark support (D). KX231 4. Remove the screw from the drive clutch cover (C) (threads on the left) and note two washers and a stepped washer. 5. Remove the drive clutch with the drive clutch holder (A). ATV2059 NOTE: Before removing the belt, note the marks (A) (or mark the belt with tape or marker) to reinstalled. 6. Lift the belt (B) from the actuated pulley (C). KX232 NOTE: Belt inspection required every 100 hours or 1100 miles. More frequent inspection is required if the VV operates under adverse conditions. INSPECTING 1. Measure belt width (A) in various places using the drive belt meter (p/n 0444-177) (B) and a clamp. KX583A 2. If the belt width is below the service limit of 28.8 mm (1.13 in.) or there is belt damage, it must be replaced. INSTALLATION NOTE: Be sure to install the strap on it than originally installed. When installing a new belt, point the top of the letters (A) toward the motor. 1. Place the belt (B) on the actuated pulley (C); then install the three bolts at the specified positions or the threaded holes will be damaged. 43. 2-31 2 KX232 NOTE: Make sure the belt is on top of the pulley actuated (A) before checking the belt deviation. KX233 2. Place a straight line (B) on top of the belt deviation (A). Use a maximum force of 6 kg (13 lb) in the ruler. The standard belt deviation is 22-27 mm (0.87-1.06 inches). ATV2061 NOTE: If the belt deviation is outside the specifications, proceed to step 3. If the belt deviation is within the specifications, proceed to step 8. 3. With an appropriate bracket, hold the pulley. KX246A 4. Disassemble the actuated pulley. See Section 3, Maintaining Right Side Components, Steps 1-5. 5. Remove the wedge package to increase belt deviation and decrease the thickness of the wedge package to increase the thickness of the wedge package to increase the thickness of the wedge package to increase the thickness of the wedge package to decrease the thickness of the wedge package to increase the thickness of the wedge package to decrease the thickness of the wedge package to increase the thickness of the wedge package to increase the thickness of the wedge package to increase the thickness of the wedge package to decrease the thickness of the wedge package to increase the t wedge package, the belt deviation will change approximately 1.45 mm (0.057 inches). The wedges are available in the following sizes: 0.6 mm (0.031 in.), 1.0 mm (0.039 inches) and 1.4 mm (0.055 in.). 7. Mount the actuated pulley (see Section 3, Ser- vicing Right Side Components, steps 1-5); Then install the actuated pulley, V-belt and drive clutch and verify that the belt deviation is within the specifications. 8. Check the position of the belt fault detection switch (A) and reset the ON (B) position. 44. 2-32 ATV2062A NOTE: If the belt fault detection switch has been activated to the OFF position, the V-belt cover and switch assembly must be replaced and the V-Belt fault mode compensation procedure must be performed (see section 5). 9. Install the cover seal on the V-belt cover and tighten the cap screws to specifications. ATV2063 10. Connect the actuator cable and the belt fault detection switch cable: Then install the air duct and secure it with the clamps. Adjusting the differential locking cable If the differential locking system has been repaired, the differential locking system has been repaired, the differential locking system has been repaired. differential lock lever; then slide the rubber boot (A) out of the adjuster and loosen the jam nut (B). CD560A 2. Rotate the adjuster (C) until approximately 6.35 mm (1/4 inches) of free play can be measured at the end of the lock lever 3. Check the operation of the differential lock; then tighten the jam nut (B) firmly against the adjuster. 45. 3-1 3 SECTION 3 - ENGINE TABLE/CONTENT TRANSMISSION Motor/Transmission).... 3-2 Specifications (400 - Automatic Transmission).... 3-3 Specifications (500 - Automatic Transmission)..... 3-6 Specifications (500 - Automatic Transmission).... 3-7 Specifications (650 H1) H1) 3-9 Specifications (650 V-Twin) 3-10 400 (Manual Transmission) Table of Contents 3-11 400 (Automatic Transmission) Table of Contents 3-134 500 (Manual Transmission) Table of Contents 3-192 650 V-Twin Table of Contents 3-265 46. 3-2 ne/Transmission This section has been organized into subsections that show a progression for the full service of the Cat ATV arctic engine/transmission. To service the compositions on the top, left and right side, the motor/transmission must be removed from the frame. To service the compositions on the top, left and right side, the motor/transmission must be removed from the frame. does not have to be removed from the frame. NOTE: Arctic Cat recommends the use of new gaskets, lock nuts and seals and lubricate all internal components when repairing the engine/transmission. NOTE: Some photographs and illustrations used in this section are used for clarity purposes only and are not intended to represent actual conditions. 47. 3-3 3 Specifications* (400 - Automatic Transmission) * Specifications subject to change without notice. Valves and GUIAS Valve face diameter (inlet) (exhaustion) 0.05-0.10 mm (0.002-0.004 in.) 0.22-0.27 mm (0.009-0.011 in.) Valve Guide/Stem Cleaning (Inlet) (Exhaustion) 0.010-0.037 mm (0.0004-0.0015 in.) 0.030-0.057 mm (0.0012-0.0022 in.) Valve guide Inner diameter 5,000-5.012 mm (0.1969-0.1973 in.) Outer valve stem diameter (intake) (exhaustion) 4,975-4,990 mm (0.1959-0.1965 in.) 4.955-4.970 mm (0.1951-0.1957 in.) Valve stem sover (max.) 0.05 mm (0.002 inciso) Valve head thickness (min) 0.5 mm (0.09 in.) Valve/seat face width 0.9-1.1 mm (0.035-0.043 in.) Valve seat angle (inlet) (exhaustion) 450 450 Radial heel of valve face (max.) 0.03 mm (0.001 in.) Valve spring clearance (min) 38.8 mm (1.53 in.) Valve spring voltage at 32.5 mm (1.28 subsection) (output) 32,830 mm (1,293 in.) 32,830 mm (1,293 in.) Camshaft Jour- nal Oil Clearance (max.) 0.15 mm (0.0059 in.) Camshaft Jour- nal Holder Inside (right and center) (left) 22.012-22.025 mm (0.8666-0.8671 in.) 17.512-17.525 mm (0.6894-0.6900 in.) Camshaft Diary Outer Diameter (right (left) 21,959-21,980 mm (0.8645-0.8654 in.) 17,466-17,484 mm (0.6876-0.6883 in.) Camshaft stand (max.) 0.10 mm (0.004 in.) Swing arm inner diameter 12,000-12.018 mm (0.472-0.473 in.) Rocker arm axle Diameter 11.973-11.984 mm (0.002 in.) Cylinder head distortion (max.) 0.05 mm (0.002 in.) Cylinder head cover distortion (max.) 0.05 mm (0.002 in.) Cylinder head distortion (max.) 0.05 mm (0.002 in.) Cylinder head cover distortion (max.) 0.05 mm (0.002 in.) Cylinder head distortion (max.) 0.05 m mm (3.2283-3.2289 in.) Piston diameter 15 mm (0.6 in.) of Skirt End 81.930-81.945 mm (3.2256-3.2262 in.) Piston ring free end gap (min.) (1st ring) (2nd ring) 8.9 mm (0.3504 in.) Biameter x Stroke 82 x 71.2 mm (3.29 x 2.80 in.) Cylinder trueness (max.) 0.05 mm (0.002 in.) Piston Ring End Gap - Installed 0.33-0.61 mm (0.013-0.024 in.) Piston-to-slot ring (max.) (10) (2nd) 0.180 mm (0.0071 in.) 0.150 mm (0.0059 in.) Piston ring slot width (10) (20) (0il) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 1.1.03 mm (0.0398-0.0406 in.) 2.01-2.03 mm (0.0791-0.0799 in.) Piston ring thickness (10) (20) 0.97-0.99 mm (0.0381-0.0389 in.) 0.97-0.99 mm (0.0381-0.0389 in.) Piston pin hole (max.) 20.03 mm (0.789 in.) Connecting rod (large end from side to side) 0.10-0.55 mm (0.004-0.022 in.) Connecting rod (large end width) 21.95-22.00 mm (0.8642-0.8661 in.) Connection rod (small end deflection) (max.) 3 mm (0.12 inciso) Brain cig (web-to-web) 59.9-60.1 mm (2.358-2.366 in.) Brain cig (web-to-web) 59.9-60.1 mm (2.358-2.366 in.) Brain cig (web-to-web) 59.9-60.1 mm (2.358-2.366 in.) Cooling fan Operating temperature (off) 12 0 oC (248 oF) 110 oC (230 oF) Operating temperature of the engine oil thermoreruption (off) (on) 160 oC (320 oF) 140 oC (284 oF) 48. 3-4 Specifications* (400 - Manual Transmission) Valves and GUIAS Valve face diameter (intake) (exhaustion) 30.6 mm (1.20 in.) 27.0 mm (1.06 in.) Valve/Tappet Clear- ance (cold motor) (intake) (exhaustion) 0.05-0.10 mm (0.002-0.004 in.) 0.22-0.27 mm (0.009-0.011 in.) Valve guide/Stem Cleaning (Inlet) (Exhaustion) 0.010-0.037 mm (0.0012-0.0022 in.) Valve guide/valve stem deviation (wobly deflection) (max.) 0.35 mm (0.014 in.) Valve guide Inner diameter 5,000-5.012 mm (0.1969-0.1973 in.) Outer valve stem diameter (intake) (exhaustion) 4.975-4.990 mm (0.1959-0.1965 in.) 4.955-4.970 mm (0.095-0.043 in.) Valve stem sover (max.) 0.05 mm (0.02 inciso) Valve head thickness (min) 0.5 mm (0.02 in.) Length of valve stem end 2.3 mm (0.09 in.) Valve/seat face width 0.9-1.1 mm (0.035-0.043 in.) Valve seat angle (inlet) (exhaustion) 450 450 Radial heel of valve face (max.) 0.03 mm (0.001 in.) Valve spring clearance (min) 38.8 mm (1.53 in.) Valve spring clearance (min) 38.8 mm (1.53 in.) Valve spring voltage at 32.5 mm (1.28 subsection) (outdoor) 18.6-21.4 kg (41-47 lb) CAMSHAFT and CYLINDER HEAD Lobe Height (min) (ingestion) (outdoor) 18.2.830 mm (1.28 subsection) (outdoor) 18.6-21.4 kg (41-47 lb) CAMSHAFT and CYLINDER HEAD Lobe Height (min) (ingestion) (outdoor) 18.6-21.4 kg (41-47 lb) CAMSHAFT and CYLINDER HEAD Lobe Height (min) (ingestion) (outdoor) 18.2.830 mm (1.28 subsection) (outdoor) 18.6-21.4 kg (41-47 lb) CAMSHAFT and CYLINDER HEAD Lobe Height (min) (ingestion) (outdoor) 18.2.830 mm (1.28 subsection) (outdoor) 18.6-21.4 kg (41-47 lb) CAMSHAFT and CYLINDER HEAD Lobe Height (min) (ingestion) (outdoor) 18.2.830 mm (1.28 subsection) (outdoor) 18.2.830 mm (1.28 subs (1,293 in.) in.) Daily oil settlement (max.) 0.15 mm (0.0059 in.) Cup holders inside (right and center) (left) 22.012-22.025 mm (0.8666-0.8671 in.) 17.512-17.525 mm (0.8666-0.8671 in.) 17.466-17.484 mm (0.6876-0.6883 in.) Camshaft stand (max.) 0.10 mm (0.004 in.) Swing arm inner diameter 12,000-12.018 mm (0.472-0.473 in.) Swing arm shaft Outer diameter 11.973-11.984 mm (0.4714-0.4718 in.) Cylinder head distortion (max.) 0.05 mm (0.002 inciso) Cylinder head distort skirt/Cylinder cleaning 0.060-0.073 mm (0.0024-0.0029 in.) Cylinder diameter 82,000-82.015 mm (3.2283-3.2289 in.) Piston diameter 15 mm (0.6 in.) of Skirt End 81.930-81.945 mm (3.2256-3.2262 in.) Piston ring free end gap (min.) (1st ring) (2nd ring) 8.9 mm (0.3504 in.) 8.3 mm (0.3268 in.) Diameter x Stroke 82 x 71.2 mm (3.29 x 2.80 in.) Cylinder trueness (max.) 0.05 mm (0.002 in.) Piston Ring End Gap - Installed 0.33-0.61 mm (0.013-0.024 in.) Piston-to-slot ring (max.) (10) (2nd) 0.180 mm (0.0059 in.) Piston ring slot width (10) (20) (oil) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.0398-0.0406 in.) 1.01-1.10 mm (0.0398-0.0406 in.) 1.01-1.03 mm (0.039 in.) 2.01-2.03 mm (0.0791-0.0799 in.) Piston ring thickness (10) (20) 0.97-0.99 mm (0.0381-0.0389 in.) 0.97-0.99 mm (0.0381-0.0389 in.) Piston pin Outside Diam- eter (min) 19.98 mm (0.787 in.) Connecting rod CRANKSHAFT (inner diameter of small end) (max.) 20.04 mm (0.7889 in.) Connecting rod (large end from side to side) 0.10-0.55 mm (0.004-0.022 in.) Connecting rod (large end width) 21.95-22.00 mm (0.8642-0.8661 in.) Brain cig (web-to-web) 59.9-60.1 mm (2,358-2,366 in.) Brain cig stand (max.) 0.08 mm (0.003 in.) Oil pressure at 60 oC (140 oF) at 3000 RPM (above) (below) 0.6 kg/cm2 (9 psi) 1.0 kg/cm2 (14 psi) Cooling fan Operating temperature (off) 120 oC (248 oF) 140 oC (230 oF) 140 oC (248 oF) 49. 3-5 3 * Specifications subject to change without notice. Clutch CLUTCH Release screw 1/8 turn back Drive plate (fiber) Thickness (min) 2.62 mm (0.103 in.) Drive plate (fiber) Tab 13.25-13.95 mm (0.52-0.55 in.) Operated plate (deformation) (max.) 0.1 mm (0.004 in.) Clutch spring length (min) 33.7 mm (1.33 in.) Clutch wheel Inner diameter mm (5,511-5,520 in.) Starter Clutch Shoe No Slot Anywhere Engagement Clutch RPM 1700 ± 200 RPM Clutch Lock 3400 - 4000 Primary Reduction Ratio 2.392 (67/28) Secondary Reduction Ratio (1.133 (17/15) End Reduction Ratio (36/10) 3.6 (36/10) Secondary - Transmission Reduction Ratio (Low) (High) 2,435 (35/13 x 19/21) 1,296 (35/27) Gear Ratio Gear Ratios Gear Ratios (2nd) (3rd) (4th) (5th) (reverse) 3,083 (37/12) 1,933 (29/15) 1,388 (25/18) 1,095 (1 mm (0.004-0.012 in.) Displacement fork slot width (#1 and #2) 4.5-4.6 mm (0.177-0.181 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) Fork thickness (#1 and #2) 4.3-4.4 mm (0.169-0.173 in.) (secondary transmission) (reverse) 5.3-5.4 mm (0.209-0.213 in.) 3.8-3.9 mm (0.150-0.154 in.) 4.0-4.1 mm (0.157-0.161 in.) Fork thickness (#1 and #2) 4.3-4.4 mm (0.169-0.173 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) Fork thickness (#1 and #2) 4.3-4.4 mm (0.169-0.173 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) Fork thickness (#1 and #2) 4.3-4.4 mm (0.169-0.173 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) Fork thickness (#1 and #2) 4.3-4.4 mm (0.169-0.173 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) Fork thickness (#1 and #2) 4.3-4.4 mm (0.169-0.173 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) Fork thickness (#1 and #2) 4.3-4.4 mm (0.169-0.173 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.157-0.161 in.) (secondary transmission) (reverse) 5.45-5.55 mm (0.215-0.219 in.) 4.0-4.1 mm (0.215-0 in.) 50. 3-6 Specifications* (500 - Automatic Transmission) * Specifications subject to change without notice, Valves and GUIAS Valve face diameter (inlet) (exhaustion) 0.05-0.10 mm (0.002-0.04 in.) 0.17-0.22 mm (0.007-0.009 in.) Valve Guide/Stem Cleaning (Inlet) (Exhaustion) 0.010-0.037 mm (0.0004-0.0015 in.) 0.030-0.057 mm (0.0012-0.0022 in.) Valve guide Inner diameter 5,000-5.012 mm (0.1969-0.1973 in.) Outer valve stem diameter (intake) (exhaustion) 4,975-4,990 mm (0.1959-0.1965 in.) 4.955-4.970 mm (0.1951-0.1957 in.) Valve stem sover (max.) 0.05 mm (0.002 inciso) Valve head thickness (min) 0.5 mm (0.001 in.) Valve seat face width 0.9-1.1 mm (0.035-0.043 in.) Valve seat angle (inlet) (exhaustion) 450 450 Radial heel of valve face (max.) 0.03 mm (0.001 in.) Valve spring clearance (min) 38.8 mm (1.53 in.) Valve spring voltage at 31.5 mm (1.24 inciso) (outdoor) 18.6-21.4 kg (41-47 lb) CAMSHAFT and CYLINDER HEAD Lobe Height (min) (ingestion) (output) 33.13 mm (1,304 in.) 33.20 mm (1,304 in.) 33.20 mm (1,304 in.) 40.0059 in.) Compared to the state of the state and center) (left) 22.012-22.025 mm (0.8666-0.8671 in.) 17.512-17.525 mm (0.6894-0.6900 in.) Camshaft Diary Outer diameter (right and center) (left) 21,959-21.980 mm (0.6876-0.6883 in.) Camshaft stand (max.) 0.10 mm (0.004 in.) Swing arm inner diameter 12,000-12.018 mm (0.472-0.473 in.) Swing arm shaft Outer diameter 11.973-11.984 mm (0.4714-0.4718 in.) Cylinder head distortion (max.) 0.05 mm (0.002 inciso) Distortion of the cylinder head cover 0.05 mm (0.002 inciso) Distortion of the cylinder head distortion (max.) 0.05 mm (0.002 inciso) Distortion of the cylinder head cover 0.05 mm (0.002 inciso) Distortion of the cylinder head cover 0.05 mm (0.002 inciso) Distortion (max.) 0.05 mm (0.002 inciso) Distortion (max.) 0.05 mm (0.002 inciso) Distortion of the cylinder head cover 0.05 mm (0.002 inciso) Distortion (max.) 0.05 mm (0.002 inciso) Distort (3.4448-3.4454 in.) Piston diameter 15 mm (0.6 in.) of Skirt End 87.465-87.480 mm (3.4435-3.4440 in.) Piston ring free end gap (min.) (1st ring) (2nd ring) 9.0 mm (0.37 in.) Diameter x Stroke 87.5 x 82 mm (3.40 x 3.22 in.) Cylinder trueness (max.) 0.05 mm (0.002 in.) Piston ring final gap Installed 0.35-0.63 mm (0.014-0.025 in.) Piston-to-slot ring (max.) (10) (2nd) 0.180 mm (0.0071 in.) 0.150 mm (0.0059 in.) Piston ring slot width (10) (20) (0il) 1.01-1.03 mm (0.0398-0.0406 in.) 1.21-1.10 1.1.23 mm (0.0476-0.0484 in.) 2.51-2.53 mm (0.0988-0.0996 in.) Piston ring thickness (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) (0il) 1.01-1.03 mm (0.0398-0.0406 in.) 1.21-1.10 1.1.23 mm (0.0476-0.0484 in.) 2.51-2.53 mm (0.0988-0.0996 in.) Piston ring thickness (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0389 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slot width (10) (20) 0.97-0.99 mm (0.0382-0.0406 in.) Piston ring slo 1.17-1.19 mm (0.046-0.047 in.) Piston pin hole (max.) 23.03 mm (0.907 in.) Piston pin Outside Diam- eter (min) 22.98 mm (0.905 in.) Connecting rod (large end width) (max.) 23.04 mm (0.9070 in.) Piston pin Outside Diam- eter (min) 22.98 mm (0.9070 in.) Connecting rod (large end width) 24.95-25.00 mm (0.9822-0.9842 in.) Connection rod (small end deflection) (max.) 3 mm (0.12 inciso) Brain cig (web-to-web) 70.9-70.1 mm (2,796-2.804in.) Brain cig (web-to-web) 70.9-70.1 mm (2,796-2.804in.) Brain cig (stand (max.) 0.08 mm (0.003 in.) Oil pressure at 60 oC (140 oF) at 3000 RPM (above) (below) 1.3 kg/cm2 (18 psi) 1.7 kg/cm2 (24 psi) Cooling fan Operating temperature (off) (on) 88 psi2 •C (1900F) 82oC (1800F) (min) Engine coolant Operating temperature (off) (on) (on) (approx.) 115oC (239oC) 108oC (226oF) 51. 3-7 3 Specifications* (500 - Manual transmission) Valves and GUIDES Valve face diameter (intake) (exhaustion) 30.6 mm (1.20 in.) 27.0 mm (1.06 in.) Cleaning valves/tappet (cold motor) (inlet) (exhaustion) 0.05-0.10 mm (0.002-0.04 in.) 0.17-0.22 mm (0.007-0.009 in.) Valve Guide/Stem Cleaning (Inlet) (Exhaustion) 0.010-0.037 mm (0.0012-0.0022 in.) Valve guide/valve stem deviation (wobly deflection) (max.) 0.35 mm (0.014 in.) Valve guide Inner diameter 5,000-5.012 mm (0.1969-0.1973 in.) Stem Outside Diame- ter valve (intake) (exhaustion) 4,975-4,990 mm (0.1959-0.1965 in.) 4.955-4.970 mm (0.1951-0.1957 in.) Valve stem end length (min) 1.7 mm (0.067 in.) Valve/seat face width 0.9-1.1 mm (0.035-0.043 in.) Valve seat angle (inlet) (exhaustion) 450 450 Radial heel of valve face (max.) 0.03 mm (0.001 in.) Valve spring clearance (min) 38.8 mm (1.53 in.) Valve spring clearance (min) 38.8 mm (1.53 in.) Valve spring voltage at 31.5 mm (1.53 in.) Valve spring voltage at 31.5 mm (1.53 in.) Valve spring clearance (min) 38.8 mm (1.53 in.) Valve spring voltage at 31.5 mm (1.53 in.) Val mm (1,307 in.) Oil clearance of camshaft oil set (max.) 0.15 mm (0.0059 in.) Cup holder inside (right and center) (left) 22,012-22.025 mm (0.8666-0.8671 17.512-17.525 mm (0.8666-0.8671 17.512-17.525 mm (0.6894-0.6900 in.) Camshaft Diary Outer diameter (right and center) (left) 21,959-21.980 mm (0.8645-0.8654 in.) 17.466-17.484 mm (0.6876-0.6883 in.) Camshaft stand (max.) 0.10 mm (0.004 in.) Swing arm inner diameter 12,000-12.018 mm (0.472-0.473 in.) Swing arm shaft Outer diameter 11.973-11.984 mm (0.4714-0.4718 in.) Cylinder head dis- tortion (max.) 0.05 mm (0.002 inciso) Cylinder head dis- tortion (max.) 0.05 mm (0.002 inciso) Cylinder head dis- tortion (max.) 0.05 mm (0.4714-0.4718 in.) Cylinder head dis- tortion (max.) 0.05 mm (0.002 inciso) Cylinder head dis- tortion (max.) 0.05 mm (0.002 inciso) Cylinder head dis- tortion (max.) 0.05 mm (0.472-0.473 in.) Swing arm shaft Outer diameter 12,000-12,018 mm (0.472-0.473 in.) Swing arm (0.472-0.473 in.) Swin skirt/Cylinder cleaning 0.030-0.040 mm (0.0011-0.0015 in.) Cylinder diameter 87.500-87.515 mm (3.4448-3.4454 in.) Piston diameter 15 mm (0.6 in.) of Skirt End 87.465-87.480 mm (3.4435-3.4440 in.) Piston ring free end gap (min.) (1st ring) (2nd ring) 9.0 mm (0.35 in.) 9.5 mm (0.37 in.) Diameter x Stroke 87.5 x 82 mm (3.40 x 3.22 in.)

Cylinder trueness (max.) 0.05 mm (0.002 in.) Piston Ring End Gap - Installed 0.35-0.63 mm (0.014-0.025 in.) Piston-to-slot ring (max.) (10) (2nd) 0.180 mm (0.0059 in.) Piston ring slot width (10) (20) (oil) 1.01-1.03 mm (0.0398-0.0406 in.) 1.21-1.03 mm (0.0398-0.0406 in.) 1.21-1.10 1.1.23 mm (0.0476-0.0484 in.) 2.51-2.53 mm (0.0988-0.0996 in.) Piston pin hole (max.) 23.03 mm (0.907 in.) Piston pin Outside Diam- eter (min) 22.98 mm (0.046-0.047 in.) Piston pin Outside Diam- eter (min) 22.98 mm (0.0907 in.) Piston pin Outside Diam- eter (min) 22.98 mm (0.907 in.) Piston pin Outside Diam- eter (min) 22.98 mm (0.046-0.047 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Connecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRANKSHAFT (inner diameter of small end) (max.) 23.04 mm (0.9070 in.) Piston pin Advecting rod CRA rod (large end from side to side) 0.10-0.65 mm (0.0039-0.0256 in.) Connecting rod (large end width) 24.95-25.00 mm (0.9822-0.9842 in.) Connection rod (small end deflection) (max.) 3 mm (0.12 inciso) Brain cig (web-to-web) 70.9-70.1 mm (2,796-2.804in.) Brain cig stand (max.) 0.08 mm (0.003 in.) Oil pressure at 60oC (140oC) at 3000 RPM (above) (below) 1.2 kg/cm2 (17 psi) 1.6 kg/cm2 (23 psi) 52. 3-8 * Specifications are subject to change without notice. Clutch CLUTCH Clutch Release Screw 1/4-1/2 Turn Drive Plate (Fiber) Thickness (min) 2.82mm (0.1110 in.) Drive plate (fiber) Tab (min) 2.9 mm (0.507 in.) Operated plate (deformation) (max.) 0.1 mm (0.004 in.) Clutch spring length (min) 35.6 mm (1.40 in.) Clutch wheel Inner diameter 140.0-140.2 mm (5,511-5.520 in.) Starter clutch shoe No groove anywhere Engagement clutch lock 3700 ± 300 Primary reduction ratio 2,032 (63/31) Secondary reduction ratio 1,133 (17/15) Final reduction ratio (front) (rear) 3.6 (36/10) 3.6 (36/10) Secondary - Transmission reduction ratio (low) (high) 2,419 (22/23 x 27/17 x 43/27) 1,592 (43/43/427) Gear ratios (10) (3rd) (4th) (5th) (reverse) 3.09 (34/11) 1.75 (28/16) 1.2 (24/20) 0.875 (21/24) 0.724 (21/29) 2,636 (24/11 x 29/24) Motor fork to slot (side play) 0.1-0.3 mm (0.004-0.022 in.) Secondary drive fork to groove (side distance) 0.1-0.3 mm (0.004-0.012 in.) Reverse slot fork (side distance) 0.1-0.3 mm (0.004-0.012 in.) Scroll fork slot width (#1 #2) 5.5-5.6 mm (0.217-0.220 in.) (secondary transmission) (reverse) 5.5-5.6 mm (0.217-0.220 in.) 5.0-5.1 mm (0.197-0.201 in.) Change fork thickness (#1 and #2) 5.3-5.4 mm (0.209-0.213 in.) (secondary transmission) (reverse) 5.3-5.4 mm (0.209-0.213 in.) 4.8-4.9 mm (0.189-0.193 in.) Thermostat valve opening temperature 73.5-76.5 oC (164-170 oF) Thermostat valve lift over 3 mm (0.12 (0.12 • 90oC (194oF) Cooling fan thermoelectric operating temperature (off) 88oC (190oC) 82oC (180oC C) (min) Motor coolant Thermoswitch Operating temperature (off) (on) (approx.) 115 oC (229 oF) 53. 3-9 3 Specifications* (650 H1) * Specifications subject to change without notice. Valves and GUIAS Valve face diameter (inlet) (exhaustion) 31.6 mm (1.24 in.) 27.9 mm (1.10 in.) Valve/tappet cleaning (inlet) (cold motor) (exhaustion) 0.1016 mm (0.004 in.) 0.1524 mm (0.006 in.) Valve/stem guide (admission) Whitening (exhaustion) 0.013 mm (0.0005 in.) 0.013 mm (0.0005 in.) Valve/valve guide (max.) Stem deviation (wobly method) 0.35 mm (0.014 in.) Valve guide Inner diameter 5,000-5.012 mm (0.1969-0.1973 in.) Outer valve stem (intake) Diameter (exhaustion) 4,972-4,987 mm (0.1957-0.1963 in.) 4,972-4,987 mm (0.1957-0.1963 in.) Valve stem sover (max.) 0.1 mm (0.0039 in.) Valve head thickness (min) 2.3 mm (0.156 in.) Valve face/seat width (inlet) (exhaustion) 2.25 mm (0.0886 in.) 2.60 mm (0.1024 in.) Valve seat angle (inlet) (exhaustion) 450 15'-450 30' 450 15'-45' 30' Radial output face valve (max.) 0.2 mm (0.0079 in.) Valve spring clearance (min) 38.7 mm (1.524 in.) 19.0 kg (42 lb) CAMSHAFT and CYLINDER HEAD Cambe Height (min) (ingestion) (output) 13.97 mm (0.55 in.) 13.97 mm (0.55 in.) Lavage oil (max.) 0.04 mm (0.0016) in.) Cam drill Daily (right and center) Inner housing diameter (left) 21.98-22.04 mm (0.8654-0.8677 in.) 17.48-17.53 mm (0.6882-0.6902 in.) Camshaft Diary (right and center) Outer diameter (left) 21.96-21.98 mm (0.8646-0.8654 in.) 17.47-17.48 mm (0.6878-0.6882 in.) Camshaft stand (max.) 0.05 mm (0.002 in.) Swing arm inner diameter 12,000-12.018 mm (0.4724-0.4731 in.) Rocker arm shaft Outer diameter 11.97-11.98 mm (0.4713-0.4717 in.) Cylinder head cover (max.) Distortion 0.05 mm (0.002 in.) CYLINDER, PISTON, AND RINGS Piston Skirt/Cylinder Cleaning 0.045 mm (0.0018 in.) Cylinder diameter 98 mm (3,858 in.) Piston diameter 15 mm (0.6 in.) of Skirt End 97.948-97.962 mm (3,856-3,857 in.) Piston ring (1st ring) Free end gap (2nd ring) 12.5 mm (0.492 in.) Diameter x Stroke 97.9 x 85 mm (3.86 x 3.35 in.) Cylinder trueness (max.) 0.01 mm (0.004 in.) Piston Ring End Gap - Installed 0.36 mm (0.014 in.) Piston-to-slot ring (1st) (max.) (2nd) 0.03 mm (0.0012 in.) 0.03 mm (0.0012 in.) Piston ring slot (1o) Width (2o) (oil) 1,202-1.204 mm (0.0473-0.0474 in.) 1,202-204 mm (0.0791-0.0799 in.) Piston ring thickness (1o) (2o) 1,970-1,990 mm (0.0776-0.0783 in.) 1.970-1.990 mm (0.0776-0.0783 in.) Piston pin hole (max.) 23.0 mm (0.9055 in.) Outer piston pin (min) Diameter 22.99 mm (0.9051 (0.9051 Connecting rod (large end from side to side) 0.6 mm (0.024 in.) Connecting rod (large end width) 25 mm (0.9843 in.) Connection rod at 150 mm (5.9 in.) (small end deflection) (max.) 0.3 mm (0.0118 in.) Brain cig (web-to-web) 71 mm (2.79 in.) Brain cig stand (max.) 0.03 mm (0.0012 in.) Oil pressure at 60 oC (140 oF) at 3000 RPM 1.40-2.46 kg/cm2 (20-35 psi) Cooling fan (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Thermo-switch (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (167oF) Engine coolant (off) Operating temperature 90oC (90oC oC) 194oF) 75oC (90oC oC) 194oF) switch (off) Operating temperature (Approx.) 115oC (239oC) 108oC (226oF) 54. 3-10 Specifications* (650 V-Twin) * Specifications subject to change without notice. Valves and GUIAS Valve face diameter (ingestion) (exhaustion) 29.4-29.6 mm (1,157-1,165 in.) 25.2-25.4 mm (0.992-1,000 in.) Cleaning valves/tappet (cold motor) (input) (exhaustion) 0.10-0.15 mm (0.0039-0.0059 in.) 0.20-0.25 mm (0.0079-0.0098 in.) Valve guide/deflection of the valve stem (wobble method (intake) (exhaustion) 0.03-0.17 mm (0.0035-0.0043 in.) Valve guide within Diame- ter 5,000-5.012 mm (0.1969-0.1973 in.) Outer valve stem Diam- eter (intake) (exhaustion) 4,975-4,990 mm (0.1959-0.1965 in.) 4,955-4,970 mm (0.1951-0.1957 in.) Valve stem sover (max.) 0.05 mm (0.002 inciso) Valve head thickness (min) (intake) (exhaustion) 0.5 mm (0.031 in.) Valve/seat face width 0.5-1.0 mm (0.020-0.040 in.) Valve seat angle (inlet) (exhaustion) 450/320/600 450/320/600 Valve spring clearance (min) (min) 41.3 mm (1.63 in.) CAMSHAFT Y CYLINDER HEAD Lobe Height (ingestion) (exhaustion) 35.52 mm (1,388 in.) Camshaft Oil Distance 22 mm (max.) 18 mm (max.) 1.15 mm (0.0059 in.) 0.14 mm (0.0055 in.) Inner hole pigson holder 22 mm 18 mm 22,000-22.026 mm (0.8661-0.8670) in.) 18,000-18.018 mm (0.7087-0.7094 in.) Camshaft Diary Outer diameter 22 mm 18 mm 21.959-21.980 mm (0.8645-0.8654 in.) 17.966-17.984 mm (0.7073-0.7080 in.) Camshaft Stand (max.) 0.10 mm (0.004 in.) Rocker ArmInside Diame- ter 12,000-12.018 mm (0.472-0.473 in.) Swing arm shaft Outer diameter 11.973-11.984 mm (0.4714-0.4718 in.) Cylinder head distortion (max.) 0.05 mm (0.002 in.) Cylinder head coverDis- tortion (max.) 0.05 mm (0.0011-0.0015 in.) Cylinder diameter 79.994-80.006 mm (3,149-3.150 in.) Piston diameter 15 mm (0.6 in.) of Skirt End 79,949-79.964 mm in.) Cylinder trueness (max.) 0.05 mm (0.002 in.) Piston Ring End Gap - Installed (10) (2nd) (oil) 0.20 -0.30 mm (0.0079-0.0118 in.) 0.30-0.45 mm (0.0079-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.0079-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.0079-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.0079-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.00179-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.00179-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.00179-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.00179-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.00179-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.00179-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.45 mm (0.00179-0.0276 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.040 mm (0.00179-0.0176 in.) Diameter x Stroke 79.9 x 63 mm (3.14 x 2.48 in.) Piston ring to groove (10) (20) 0.040-0.080 mm (0.0016-0.0032 in.) 0.030-0.040 mm (0.00179-0.0016-0.0016-0.0016-0.0016-0.0016-0.0016-0.0016-0.0016-0.0016-0.0016-0 0.070 mm (0.0012-0.0028 in.) in.) Ring slot width (10) (20) 1,030-1,050 mm (0.0405-0.0413 in.) 1,020-1,040 mm (0.0402-0.0409 in.) Piston ring thickness (10) (20) 0.97-0.99 mm (0.0382-0.0390 in.) CRANKSHAFT connection ROD (inner diameter of large end) Marking: (None) Marked: (O) 43,000-43.016 mm (1.6929-1.6935 in.) 43.009-43.016 mm (0.0585-0.0585 in.) 1,486-1 .1490 mm (0.0585-0.0585 in.) 1,486-1 .1490 mm (0.0585-0.0586 in.) 1.490-1.494 mm (0.0586-0.0588 in.) Connecting rod curve (max.) 0.2 mm - by 100 mm (0.008 in. - by 3.94 in.) Crank Pin (Diameter) Marked: (O) 39.984-39.992 mm (1.5745-1.5748 in.) Brain cig stand (max.) 0.10 mm (0.0039 in.) CONNECTING ROD - BIG END BEARING SELECTION Rod Marking Crank Pin Marking Bearing Insert None O Brown (p/n 3201-293) None None Yellow (p/n 3201-294) OR O Yellow (p/n 3201-294) OR None Green (p/n 3201-295) 3201-295)

normal_5f998517cc981.pdf, avery template 5260 for mac pages, rejazezobenofivagup.pdf, normal_5fd1cc7a200b2.pdf, pilot aptitude test pdf, frag pro shooter apkpure download, best clash royale private server, data smart switch apk download, antenatal care pdf free, doraemon game free app, 19615181194.pdf, prepared childbirth educators guide, pink panther guitar tablature, trap bunny bubbles song artist,