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B59000A Pro Level Oil Gauge Part No. HD01289 Rim Protectors 2003 Buell XB9R Appendix A.  
HD9950080 Wheel Truing and Balancing Stand Part No. HD33418 Universal Puller Forcing Screw  
Part No. HD9563746A Wedge Attachment for Claw Puller. Use with HD9563546. 2003 Buell XB9R  
Appendix A. HD39964 Reamer Lubricant Cool Tool 2003 Buell XB9R Appendix A. B45525 Valve  
Guide Hone Part No. HD34736B Valve Spring Compressor Part No. HD34751 Nylon Valve Guide  
Brush Part No. B45524 Valve Guide Installer Part No. HD9480457 Rocker Arm Bushing Reamer  
2003 Buell XB9R Appendix A. HD9480026A Connecting Rod Bushing Part No. HD42322 Piston  
Support Plate Reamers and Pilots Part No. HD9633351C Piston Ring Compressor Part No. HD35102  
Wrist Pin Bushing Hone 20 mm 2003 Buell XB9R Appendix A. HD9729261 Two Claw Puller Part No.  
Set includes items 17. Items 8 HD9576969, 9 HD 9577069 and 10 HD9577169 are optional. 2003  
Buell XB9R Appendix A. Insert the socket housing plug into the pin housing receptacle until it snaps  
in place. Install connector on retaining device, either attachment or rosebud clip. 2003 Buell XB9R  
Appendix B. Raise locking bar and remove contact. Wire seal Internal seal 11. Pin terminal Locking  
wedge Figure B13. 2Pin, 3pin and 4pin Deutsch Connectors 2003 Buell XB9R Appendix B. Push on  
wire end of lead to remove terminal. Pivot end of pin to depress tang. Raise tang and reinstall  
terminal. Figure B14. Packard Connectors B10 2003 Buell XB9R Appendix B. If new terminals must  
be installed, see Crimping Instructions. 2003 Buell XB9R Appendix B B11. NOTE A series of Packard  
Electrical Terminal Crimp Tools are available to install Packard pin and socket terminals on wires. If  
new terminals must be installed, see Crimping Instructions. B12 2003 Buell XB9R Appendix B.  
Distortion should be minimal. Insulation Insulation crimp Core crimp Figure B16. Oil Lines, Bottom  
View. Clutch and Throttle Cables, Right Side View. Clutch, Throttle and Seat Release Cables, Left  
Side View. <http://www.homesinpakistan.co.uk/magazine/uploadfiles/dd602-service-manual.xml>

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## BUELL FIREBOLT XB9R 2003 SERVICE MANUAL



PICTURE FOR ILLUSTRATION

Clutch, Throttle and Seat Release Cables, Top View. At the the metric system equivalents. Should you need to convert from U.S. L Lubricate with specified lubricant. T Tighten to proper torque. X Perform. 2003 Buell XB9R Maintenance. Applying Harley Gloss or Har color body panels that are standard on your Buell XB9R ley Glaze Polish and Sealant to molded in color surfaces will motorcycle. The batteries are shipped precharged and ready to of battery condition. Check the voltage of the battery to verify be put into service. Install seat. See 2.38 SEAT. 2003 Buell XB9R Maintenance. Traction will be adversely affected which may lead to loss of control which could result in death or serious injury. 2003 Buell XB9R Maintenance. To prevent death or serious ter. Every 2 years. Turn rod adjuster to set pedal height. NOTE Brake pedal has no free play adjustment. 2003 Buell XB9R Maintenance 115. Check rotor surface. Replace if warped or badly scored. 2.5 FRONT WHEEL 2.6 REAR WHEEL for proce dure. 116 2003 Buell XB9R Maintenance. Tighten plug to 1825 inlbs 2 3 Nm. Figure 115. Rear Brake Pad Spring 118 2003 Buell XB9R Maintenance. At every 10000 mile 16000 km service interval. Check wheel bearings for wear and corrosion. Excessive play or roughness indicates worn bearings. Replace bearings in sets only. 2003 Buell XB9R Maintenance 119. Figure 117. Install clutch inspection cover tighten ing three fasteners and washers to 79 ftlbs 1012 Nm. Figure 119. Fluid Level 120 2003 Buell XB9R Maintenance. NOTE 8405 Spring installs on outboard side of hex lockplate. Diaphragm spring Lockplate Adjusting screw Figure 121. Clutch Adjustment 2003 Buell XB9R Maintenance 121. Figure 122. Adjusting Clutch Free Play Check clutch cable free play. See Step 6 above. 122 2003 Buell XB9R Maintenance. A knife point will not penetrate the chrome plating. Replace rear sprocket if major tooth damage or loss of chrome exists. 2003 Buell XB9R Maintenance 123. Axle Figure 124. <http://www.takitech.hu/userfiles/dd602-fisher-paykel-manual.xml>

**Adjusting Suspension Damping**

See Table 1-11. The recommended rebound and compression damping settings for various road and riding conditions are given in the table.

**NOTE**

All "turn settings" in Table 1-10 are "turns out from maximum". That is, first gently turn adjustment screws fully clockwise (until they stop), then turn adjustment screws counterclockwise the amount specified in Table 1-10.

**Setting Front Fork Rebound Damping**

1. See Figure 1-32. Using a screwdriver, turn the slotted dial (1) clockwise until it stops. This is the maximum rebound damping setting.

2. Then turn the dial counterclockwise the recommended amount specified in Table 1-11.

**Setting Front Fork Compression Damping**

1. See Figure 1-33. Using a screwdriver, turn the slotted dial clockwise until it stops. This is the maximum compression damping setting.

2. Then turn the dial counterclockwise the recommended amount specified in Table 1-11.

**Setting Rear Shock Rebound Damping**

1. See Figure 1-34. Using a screwdriver, turn the slotted dial clockwise until it stops. This is the maximum rebound damping setting.

2. Then turn the dial counterclockwise the recommended amount specified in Table 1-11.

**Setting Rear Shock Compression Damping**

1. See Figure 1-35. Using a screwdriver, turn the slotted dial clockwise until it stops. This is the maximum compression damping setting.

2. Then turn the dial counterclockwise the recommended amount specified in Table 1-11.



Figure 1-33. Front Fork Compression Damping Adjuster



Figure 1-34. Rear Shock Rebound Adjustment



Figure 1-35. Rear Shock Compression Adjustment



Figure 1-36. Accessing Rear Shock Compression Adjuster

Install upper belt guard 10 to swing Pinch bolt fastener arm brace tightening fasteners 9 to 1236 inlbs 1 4 Nm. Figure 123. Rear Wheel Mounting, Right Side 124 2003 Buell XB9R Maintenance. Upper belt guard Figure 124. Belt Guard Assembly 2003 Buell XB9R Maintenance 125. Rear Wheel Mounting, Right Side Wheel nut Stud Idler pulley bracket Idler pulley bracket nut and washer Wheel fastener Figure 126. Idler Pulley Assembly 126 2003 Buell XB9R Maintenance. Tighten fasteners to 4060 inlbs 5 7 Nm. 2003 Buell XB9R Maintenance 129. Counterclockwise outward to increase free play. Locknut Tighten locknut 1 to 2025 ftlbs 2734 Nm. Adjusting screw Figure 130. Chain Tension Adjusting Fastener 130 2003 Buell XB9R Maintenance. Uneven adjustment between left and right forks may lead to a loss of control which could result in death or serious injury. 2003 Buell XB9R Maintenance 131. Front Fork Preload And Rebound Adjuster 132 2003 Buell XB9R Maintenance. Then turn the dial counterclockwise the recommended amount specified in Table 111. Figure 135. Rear Shock Compression Adjustment 8415 Figure 136. Accessing Rear Shock Compression Adjuster 2003 Buell XB9R Maintenance 133. Fork Cap Assembly Figure 140. Holding Damper Rod Assembly 2003 Buell XB9R Maintenance 135. Measuring Fork Oil Level Figure 242. Install spring 16, and spring collar 15. Move fork assembly from holding tool to the FORK SPRING COMPRESSION TOOL. 136 2003 Buell XB9R Maintenance. Spring joint 26. Dust seal Rebound adjuster assembly 18. Outer tube 27. Slide pipe Figure 242. Front Fork Assembly 2003 Buell XB9R Maintenance 137. A plug with a white, yellow, tan or rusty brown pow dery deposit indicates balanced combustion. Clean off spark plug deposits at regular intervals. 2003 Buell XB9R Maintenance 139. Figure 148. Make sure two crankcase breather hoses 1 and intake air sensor 3 are captured in base plate behind velocity stack 2. 2003 Buell XB9R Maintenance 141. Install seat. See 2.38 SEAT. 142 2003 Buell XB9R Maintenance.

Recheck operation of throttle control. Recheck engine slow idle speed; adjust if required. 10. Install airbox, baseplate and intake cover assembly. See 4.43 AIRBOX. 2003 Buell XB9R Maintenance 143. Recheck timing. Figure 153. Timer Cover 8391 Figure 154. Cam Position Sensor b0964x1x Figure 155. Advanced Timing b0963x1x Figure 156. Retard Timing 2003 Buell XB9R Maintenance 145. Headlamp Switch pattern and is centered on the horizontal line as shown in Figure 157. Adjust headlamp alignment. See ADJUSTMENT section. 146 2003 Buell XB9R Maintenance. To raise beam, turn adjuster counterclockwise. High beam adjuster left Low beam adjuster right Figure 159.

Headlamp Height Adjustment 2003 Buell XB9R Maintenance 147. Select calibrations screen. Select the Buell calibrations tab. Select Zero TPS function. If motorcycle is to be covered, use a material that will breathe, such as light canvas. Plastic materials that do not breathe promote the formation of condensation. 2003 Buell XB9R Maintenance 149. Poor Fuel Economy Internal engine problem. O2 sensor damaged or malfunctioning bike running rich. See dealer. 2003 Buell XB9R Maintenance 151. Nonstandard equipment on the front end such as heavy radio receivers, extra lighting equipment or luggage tends to cause unstable handling. 152 2003 Buell XB9R Maintenance. A good suspension is a balance between damping and track condition. Finding this balance requires exploring all possible compression settings. Lack of tire feedback. Increase compression damping. Tire slides. Decrease compression damping. 2003 Buell XB9R Maintenance 153. NOTE Figure 23. Always give the V.I.N. or abbreviated V.I.N. when ordering parts or making inquiries about your Buell motorcycle. Figure 22. Abbreviated V.I.N. Location Manufacturer Buell Motorcycle Company Type Designation Firebolt XB9R. At the same time, inspect tire tread for punctures, cuts, breaks and other damage. Repeat the inspection before long trips.



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2003 Buell XB9R Chassis. Speed should not exceed 50 mph 80 tire failure. Place the bridge 1 against the wheel hub. Hold the forcing screw 2, and turn the nut 3 clockwise until the bearing is free of the hub. 210 2003 Buell XB9R Chassis. Never replace just one brake pad. Failure to install brake pads as a set could result in death or serious injury. Inspect brake rotor and pads. See 1.6 BRAKE SYSTEM MAINTENANCE. 2003 Buell XB9R Chassis 211. Sparingly apply Extreme Pressure Lubricant J23444A to the threads of the long forcing screw 1 to prolong service life and ensure smooth operation. 212 2003 Buell XB9R Chassis. Front Wheel Assembly 214 2003 Buell XB9R Chassis. Axle Pinch bolt fastener Figure 220. Rear Wheel Mounting, Right Side Figure 220. Remove rear axle 1. Remove rear wheel. 2003 Buell XB9R Chassis 215. To prevent death or serious injury, Buell recommends that all brakes repairs be per the same as front wheel bearing installation. Rear Wheel Assembly 2003 Buell XB9R Chassis 217. Checking Cast Rim Radial Runout 218 2003 Buell XB9R Chassis. Dunlop front and rear tires for Buell motorcycles are not the same. They are not interchangeable. Use Figure 226. Loosening Beads from Rim Flange front tire ONLY for a front tire. It may be necessary to use a TIRE BEAD EXPANDER Part No. HD 28700 on the tire until beads seal on rim. 220 2003 Buell XB9R Chassis. Allow eight hours for adhesive to cure completely before using wheel. 2003 Buell XB9R Chassis 221.

Install clevis pin 2. Install new cotter pin 7. Rear master cylinder body Clevis pin Pedal bushings 2 Shift brake pedal sleeve Brake pedal fastener Brake pedal Cotter pin Figure 232. Brake Pedal Assembly 222 2003 Buell XB9R Chassis. Figure 233. Depress piston assembly 1 and remove internal snap ring 2 and discard. Figure 235. Remove piston assembly 6 from front master cylinder reservoir 4 and discard. 2003 Buell XB9R Chassis 223. Brake switch 11.

<http://clinicamaxclin.com/images/bose-lifestyle-50-user-manual.pdf>



Brake switch terminal 12. Banjo bolt metric 13. Brake line 14. Copper washers 15. Pivot bolt Figure 235. Front Brake Hand Lever Assembly 224 2003 Buell XB9R Chassis. Failure to comply may adversely affect braking ability and lead to brake failure which could result in death or serious injury. Figure 238. Front Brake Line 226 2003 Buell XB9R Chassis. Install bleeder valve if removed. Pad Spring Typical 6495 Figure 239. Removing Pistons B42887 Remove and discard top and bottom seal. 228 2003 Buell XB9R Chassis. Install pistons 5 in each piston bore. Install new orings 8 between caliper halves. Clamp caliper together with caliper fasteners 11 and tighten to 1519 ftlbs 2026 Nm. 2003 Buell XB9R Chassis 229. Brake pads 11. Caliper fasteners Figure 242. Front Caliper Assembly 230 2003 Buell XB9R Chassis. Discard copper crush washers. Remote reservoir hose Clamp Figure 244. Remove fasteners 3 metric to detach master cylinder 4 from rider footpeg mount. Figure 245. Remote Reservoir 2003 Buell XB9R Chassis 231. If the snap ring is not properly installed, improper brake operation could result in death or serious injury. Tuck rubber boot on rod assembly 3 into master cylinder body 1. 232 2003 Buell XB9R Chassis. Discard copper Figure 249. Rear Brake Line washers. Discard copper washer. 8439 Remove brake line from motorcycle. Install seat. See 2.38 SEAT. 2003 Buell XB9R Chassis 235. B42887 with adaptor 2. Remove two orings from groove in caliper bore and discard. Clip Rear caliper mount Figure 252. Caliper Mount Clip 236 2003 Buell XB9R Chassis. Tighten to 1114 ft lbs 1519 Nm. Install pin plug. Tighten to 2226 inlbs 23 Nm. Install a new bleeder valve metric if necessary and tighten to 3660 inlbs 47 Nm. 2003 Buell XB9R Chassis 237. Turn ignition key switch to ON. Apply brake pedal to test brake lamp operation. Figure 269. Remove fork from lower fork clamp 8. Repeat 4 through 6 on opposite side. 2003 Buell XB9R Chassis 239.

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## 2003 BUELL XB9R FIREBOLT™ SERVICE MANUAL



# BUELL

SERVICE MANUAL - #99493-03Y



Install the oil seal stopper ring 25 and a new dust seal Adjust rebound assembly for proper range of motion. 26. 2003 Buell XB9R Chassis 241. Apply fork oil or light grease to orings on preload adjuster and install preload adjuster 3. 23. Install snap ring 2. 242 2003 Buell XB9R Chassis. Spring joint 26. Dust seal Rebound adjuster assembly 18. Outer tube 27. Slide pipe Figure 267. Front Fork Assembly 244 2003 Buell XB9R Chassis. Install cable strap to the left of ignition switch securing left hand switch and clutch cable wires to upper fork clamp. 2003 Buell XB9R Chassis 245. Steering Stem Assembly 246 2003 Buell XB9R Chassis. Visually check to make sure the bearings are completely seated against the shoulders in the steering head. 248 2003 Buell XB9R Chassis. The swingarm also serves as the oil tank on the Buell XB9R. For information on the swingarm function as the oil tank, see Figure 278. The complete bearing assembly must be replaced as a unit when replacement is necessary. Do not intermix bearing components. 250 2003 Buell XB9R Chassis. Check rear brake operation. 2003 Buell XB9R Chassis 251. Rear axle pinch fastener Figure 278. Swingarm Assembly Table 212. Figure 279. Install clutch cable pclamp. Tighten 3.4 STRIPPING MOTORCYCLE FOR ENGINE SER fastener to 1236 inlbs 14 Nm. VICE to access the rear isolator. 2003 Buell XB9R Chassis 253. Install tail frame. See 2.36 TAIL FRAME AND BODY WORK. Install exhaust header. See 2.28 EXHAUST SYSTEM. Rotate engine. See 3.3 ENGINE ROTATION FOR SERVICE. 254 2003 Buell XB9R Chassis. Loosely install reservoir in clamp. See Figure 283. Temporarily place upper body work onto tail section and adjust reservoir placement so dial aligns with bodywork. 2003 Buell XB9R Chassis 255. Shock spring retainer kit Upper shock mount fastener 11. Rear shock spring Lower shock mount nut and washer Figure 285. Rear Shock Absorber Assembly 256 2003 Buell XB9R Chassis. Tighten to 2533 inlbs 34 Nm. Adjust cables. See 1.

16 THROTTLE CABLE AND IDLE SPEED ADJUSTMENT. Install airbox assembly. See 4.43 AIRBOX. 2003 Buell XB9R Chassis 257. Figure 290. Cable Straps On Upper Fork Clamp D.1 HOSE AND WIRE ROUTING for clutch cable routing. 10. With clutch cable lower section connected to primary cover, adjust clutch. See CLUTCH. 258 2003 Buell XB9R Chassis. Rotate headlight bracket 2 down. Figure 292. Disconnect headlight connection. Disconnect and remove electronic control module. See 4.29 ELECTRONIC CONTROL MODULE. Figure 293. Remove headlight support bracket 2. Figure 292. Headlight Connector 2003 Buell XB9R Chassis 259. Bank angle sensor fastener Figure 293. Headlight Support Bracket Assembly 260 2003 Buell XB9R Chassis. Install front fairing. See 2.37 FRONT FAIRING, WIND SHIELD, AND MIRRORS. 2003 Buell XB9R Chassis 261. Fairing Support Bracket Assembly 2003 Buell XB9R Chassis 263. Handlebar Clipon Assembly left clipon shown 2003 Buell XB9R Chassis 265. Exhaust Header replaced each time they are removed. Tighten to 72 96 inlbs 811 Nm. Install Mount Figure 2100. Position footpeg mount 1. Install footpeg mount with fasteners 2. Tighten to 108 132 inlbs 1215 Nm. 268 2003 Buell XB9R Chassis. Position footpeg

mount 3 onto tail Figure 2101. Passenger Footpeg, Mount and Heel Guard frame. Assembly Install footpeg mount 3. Using LOCTITE 272 tighten, fasteners 10 to 2528 ftlbs 3438 Nm. 2003 Buell XB9R Chassis 269. Install chin fairing. See 2.33 CHIN FAIRING. Sprocket cover fastener and washers Sprocket cover Front belt guard Figure 2103. Sprocket Cover 270 2003 Buell XB9R Chassis. Install rear fender 3 with fasteners and washers 4, Tighten to 1215 inlbs 11.7 Nm. Front fender Front fender fastener Rear fender Rear fender fastener Figure 2104. Front and Rear Fender 2003 Buell XB9R Chassis 271. The rear wheel does not have to be removed to remove inner belt guard. 17. Remove scissor jack from motorcycle. 272 2003 Buell XB9R Chassis. Upper belt guard Figure 2105.

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Belt Guard Assembly 2003 Buell XB9R Chassis 273. Left section fastener and washer Install sprocket cover. See 2.30 SPROCKET COVER. Right section Right section fastener and washer Figure 2106. Chin Fairing Assembly 274 2003 Buell XB9R Chassis. NOTE Front screws go in at a slight angle. Intake cover assembly Intake cover fasteners Install seat. See 2.38 SEAT. Figure 2107. Intake Cover Assembly 2003 Buell XB9R Chassis 275. RAM Air Scoop, Engine Shroud, Oil Cooler 276 2003 Buell XB9R Chassis. Do not tighten. See 20. Install passenger seat latch 14 from rear of tail frame 2.22 REAR SHOCK ABSORBER. Trunk Passenger seat lock retainer 12. License plate fastener Passenger seat lock cable 13. License plate bracket Tail frame fasteners 14. Passenger seat latch Figure 2112. Tail Frame and Body Work Assembly 2003 Buell XB9R Chassis 279. Front Fairing and Windscreen 280 2003 Buell XB9R Chassis. Press down firmly on rear of pillion seat to engage seat latch. Pull up on rear of pillion seat to make sure latch is engaged. Turn ignition key counterclockwise and remove from seat lock. 2003 Buell XB9R Chassis 281. See SIDESTAND SWITCH REMOVAL in this section. Remove fasteners 2 securing sidestand bracket 3 to frame. Figure 2119. Sidestand Switch 2003 Buell XB9R Chassis 283. Install sidestand to frame tightening the sidestand bracket fasteners to 2527 ftlbs 3437 Nm. Valve guide to valve stem clearance. The following are some general instructions that apply to Buell motorcycle engines Gasket surface of both head and cylinder. 2003 Buell XB9R Engine. See Figure 35. Disconnect clutch cable. Remove retaining clamps. Pull clutch cable down. 2003 Buell XB9R Engine 311. Mount, center tie bar 21. Tie bar assembly, rear 11. Fasteners for center tie bar mount 2 22. Fasteners for rear tie bar assembly 2 Figure 36. Engine Mounting System 312 2003 Buell XB9R Engine. Remove front isolator mount from engine. 21. See Figure 37. Remove rear tie bar from frame. 25. Rotate engine down. 22.

Loosen rear isolator bolt. DO NOT REMOVE. 2003 Buell XB9R Engine 313. Remove scissors jack. 314 2003 Buell XB9R Engine. Figure 312. Oil Cooler Feed and Return Oil Line Orientation and Clearances 2003 Buell XB9R Engine 315. Fuel Line and DDFI Electrical Connections 2003 Buell XB9R Engine 319. Alternately loosen rear strap fasteners 12 and 15. Oil Lines and Connections 17. Remove sidestand assembly. 21. See Figure 320. Disconnect clutch cable from handle bars. Pull clutch cable down. 2003 Buell XB9R Engine 323. Mount, center tie bar 21. Fasteners for rear tie bar assembly 2 Figure 323. Engine Mounting System 324 2003 Buell XB9R Engine. Electrical Connections 2003 Buell XB9R Engine 325. Swingarm pivot shaft pinch bolt threaded insert. Figure 331. Aluminum bushings from front exhaust mount. Figure 331. Front Exhaust Mount Bushings 2 piece Timer cover. 8724 8729 Figure 330. Removing Threaded Insert 2003 Buell XB9R Engine 327. Front Exhaust Mount Bushings 2 piece 33.936.6 Nm. Figure 337. Swingarm pivot shaft pinch bolt threaded insert. Figure 338. Aluminum bushings from front exhaust mount. 2003 Buell XB9R Engine 329. Inspect vent line frame to the rear isolator, install rear isolator bolt and to verify space between vent line and rear exhaust. Mount, center tie bar 21. Fasteners for rear tie bar assembly 2 Figure 344. Engine Mounting System 2003 Buell XB9R Engine 331. Oil cooler Feed oil line from oil cooler to crankcase Figure 348. Oil Lines and Connections 334 2003 Buell XB9R Engine. Not between the crankcase and the clamp. 2003 Buell XB9R Engine 337. Orientation of return line should be



approximately 4 o'clock Figure 354. Oil Cooler Feed and Return Oil Lines Location and Orientation 2003 Buell XB9R Engine 339. Positive battery cable at starter. Figure 356. Correct Routing of Wiring Harnesses 340 2003 Buell XB9R Engine. Figure 358. Clutch Cable Retaining Clamps 38. See Figure 358. Pull clutch cable back up into the proper position. Install retaining clamps.

2003 Buell XB9R Engine 341. Tighten ignition coil fasteners to 120144 inlbs 13.616.3 Nm. 2003 Buell XB9R Engine 343. Install sprocket cover and tighten fasteners and washers to 1236 inlbs 14 Nm. Pushrod cover 22. Screw 4 23. Oring push rod cover 2 24. Push rod 25. Washer 4 26. Bolt 4 b0960x3x Figure 362. Rocker Arm and Pushrod Cover Assemblies 2003 Buell XB9R Engine 345. Remove push rods. Figure 364. Removing Rocker Arm Shafts 346 2003 Buell XB9R Engine. Valve Spring Compressor Part No. HD34736B 2003 Buell XB9R Engine 347. Cylinder base gasket 15. Cylinder base stud 16. Exhaust valve 17. Exhaust valve seat Figure 367. Cylinder Head, Cylinder and Piston Assembly 348 2003 Buell XB9R Engine. HD9480457. Repeat for other end of rocker arm. 8733 8734 Figure 375. Replacing Rocker Arm Bushings 352 2003 Buell XB9R Engine. HD39786 Figure 377. Cleaning Valve Guides Figure 377. Thoroughly clean valve guide bores using VALVE GUIDE BRUSH Part No. HD34751 and hot soapy water. 2003 Buell XB9R Engine 353. Valve and Seat Dimensions 2003 Buell XB9R Engine 355. Cylinder base gasket 15. Exhaust valve 17. Exhaust valve seat Figure 380. Cylinder Head, Cylinder and Piston Assembly 356 2003 Buell XB9R Engine. The keeper gaps should be equal. 11. Release and remove from VALVE SPRING COMPRES SOR. 12. Repeat Steps 411 for the remaining valve. 358 2003 Buell XB9R Engine. Other wise, damage to push rods or rocker arms may result. 2003 Buell XB9R Engine 359. Figure 388. Tightening Head Screws Figure 388. Push Rod cover 22. Screw 4 23. Oring push rod cover 2 24. Push Rod 25. Washer 4 26. Bolt 4 b0960x3x Figure 389. Rocker Arm and Pushrod Cover Assemblies 2003 Buell XB9R Engine 361. Place a new lower gaskets on lower rocker cover. Tighten screws to 1014 ftlbs 13.619 Nm. 362 2003 Buell XB9R Engine. Piston pin Retaining ring 2 Dowel and oring Cylinder Base gasket Cylinder stud 4 Connecting rod 10. Piston pin bushing Figure 391. Cylinder and Piston 2003 Buell XB9R Engine 363. Figure 394.

To remove piston rings spread outward Remove circlip from claw and discard. Try to insert a feeler gauge between the straight edge and the gasket surface. See If piston clearance exceeds service wear limit, cylinders and SPECIFICATIONS. See SPECIFICATIONS. 366 2003 Buell XB9R Engine. Ring Type Ring End Gap inches Top compression ring 0.010 0.020 0.25 0.51 2nd compression ring 0.014 0.024 0.36 0.61 Oil control ring rails 0.010 0.050 0.25 1.27 2003 Buell XB9R Engine 367. Use care to prevent foreign material from falling into the crankcase. 2003 Buell XB9R Engine 369. Make sure the ring groove is clean. Ring must be fully seated in the groove with the gap away from the slot at the bottom. 370 2003 Buell XB9R Engine. Remove protective sleeves from cylinder studs. Install a new cylinder base gasket. Make sure the piston does not bump the studs or crankcase. 2003 Buell XB9R Engine 371. Oil cooler Return oil line from oil cooler to crankcase Figure 3112. Oil Lines and Connections 374 2003 Buell XB9R Engine. At idle speed 9501050 RPM, oil pres sure will vary from 68 psi 4255 KPa. 2003 Buell XB9R Engine 375. Grommet Rocker cover, top 2 Figure 3115. Crankcase Breathing System, 376 2003 Buell XB9R Engine. See Figure 3116. 2003 Buell XB9R Engine 377. Oil is forced through the crank pin to properly lubricate the rod bearing assembly. 378 2003 Buell XB9R Engine. Oil Pump 2003 Buell XB9R Engine 379. Remove and discard retaining ring. Remove thrust Detach return line connection 3. Carefully remove mounting screws 5 and washers only. Pump will drop with screws removed. Discard mounting gasket. 380 2003 Buell XB9R Engine. Screw adapter into threaded hole. Tighten to 812 ft lbs 1116 Nm. Keep covered until assembly. 2003 Buell XB9R Engine 383. Place new orings on top of push rod cover. Install push rods, cylinder head, lower and upper rocker covers. See 3.6 CYLINDER HEAD. Repeat process for remaining cylinder head. 384 2003 Buell XB9R Engine.

Oil pump drive gear Bushing, outer, intake camshaft gear 14. Pinion gear "E" Cam gear set 15. Nut

Right crankcase half 16. Record readings. 8662a Front exhaust cam gear Rear exhaust cam gear Front intake cam gear Pinion gear Rear intake cam gear Pinion nut Figure 3127. Cam and Pinion Gear Location and Timing Mark Indexing 386 2003 Buell XB9R Engine. Worn bushings can cause excessive backlash. 2003 Buell XB9R Engine 387. Figure 3130. Crankshaft Locking Tool Part No. HD43984 388 2003 Buell XB9R Engine. See CAM POSITION SENSOR AND ROTOR section. Install any components removed to gain access to gear case i.e. exhaust system components, air cleaner, etc.. Figure 3132. Checking Cam Gear End Play 2003 Buell XB9R Engine 389. Remove two TORX screws from each piston jet assembly to free piston jets from right crank case. Remove piston jet gaskets from right crankcase. 2003 Buell XB9R Engine 391. Gear shaft bearing Bearing 12. Retaining ring Retaining ring 13. Outer bearing race Inner race, left main bearing 14. Crankshaft case Figure 3137. Crankcase and Flywheel Assembly 392 2003 Buell XB9R Engine. NOTE The bearing presses to the inside. There is a shoulder incorporated into the left crankcase half which allows the bearing to be removed in one direction only. 2003 Buell XB9R Engine 393. Dimensions are shown for fabrication of tools used in pressing the outer race into or out of crankcase. Service wear limit, 0.036 in. 0.8 mm Figure 3148. Checking Connecting Rod Side Play 2003 Buell XB9R Engine 399. Left Main Bearing Assembly 3100 2003 Buell XB9R Engine. Install bearing retaining ring in left crankcase half. Install transmission. See 6.12 TRANSMISSION INSTALLATION. 2003 Buell XB9R Engine 3101. Slide outer race in right crankcase over pinion shaft and bearing assembly. Tighten fasteners to 1519 ftlbs 2026 Nm. NOTE According to manufacturing, there is no torque sequence to follow when tightening crankcase fasteners. 3102 2003 Buell XB9R Engine. Install handle on top of sleeve.

Rotate handle clockwise until tool bottoms on crank case lip. Remove tool from sprocket shaft. HD42579 and B45676 2003 Buell XB9R Engine 3103. Use an air gun to drive the stud until the shoulder reaches the crankcase. Remove air gun. Use a torque wrench to tighten stud to 1020 ftlbs 1427 Nm. 3104 2003 Buell XB9R Engine. The DDFI system has conditions. Buell Dynamic Digital Fuel Injection 2003 Buell XB9R Fuel System. After repairs are performed, the work must be validated. Check Engine Lamp Operation 2003 Buell XB9R Fuel System. The most sophisticated mode employs using a computer based diagnostic package called DIGITAL TECHNICIAN Part No. HD44750. The other mode requires using the check engine lamp. 4.5 CHECK ENGINE LAMP DIAGNOSTICS more information. 2003 Buell XB9R Fuel System. When you have recorded the same trouble code twice, it is an indication that the transmission has been restarted and that all trouble codes have been retrieved. 2003 Buell XB9R Fuel System. To execute one run cycle Remove diagnostic test wire and install protective cover Start the vehicle. Return data link to original position. Let it run for at least 30 seconds. Turn the engine off. 2003 Buell XB9R Fuel System. Detach Breakout Box connectors from ECM connectors. Detach Breakout Box connectors from wiring harness. Breakout Box Install ECM. See 4.29 ELECTRONIC CONTROL MODULE. Figure 4121. Installed Breakout Box 410 2003 Buell XB9R Fuel System. Start motorcycle engine and run at idle. Shake or wiggle harness to detect intermittents. If intermittents are present, radical voltage changes will register on the DVOM. 2003 Buell XB9R Fuel System 411. See Table 429. 412 2003 Buell XB9R Fuel System. Start with lowest trouble code. All diagnostic Refer to diagnostic codes are listed on page 713 Table 431. Inspect terminals for damage or repair Replace ECM. See opens as necessary. 4.29 ELECTRONIC CONTROL MODULE. 7120 416 2003 Buell XB9R Fuel System.

Electronic Control Module 2003 Buell XB9R Fuel System 417. Check Engine Lamp Circuit Table 433. Wire Harness Connectors in Figure 4126. Headlights Figure 4128. Electronic Control Module 420 2003 Buell XB9R Fuel System. Check Engine Lamp Circuit Table 434. Wire Harness Connectors in Figure 4129. Ignition Circuit 424 2003 Buell XB9R Fuel System. Adequate pressure Go to Test 4.11 STOP Incorrect pressure. See 4.13 Part 2 of 3. FUEL PRESSURE TEST. 7195 2003 Buell XB9R Fuel System 425. Continuity present Repair open circuit. 7240 Repair short Replace ECM. See to ground. 4.29 ELECTRONIC CONTROL MODULE. 7241 7250 426 2003 Buell XB9R Fuel System.

SOR AND ROTOR. sheared pinion 7265 gear key. 7265 7255 2003 Buell XB9R Fuel System 427. HD42682 to ECM. 4.6 BREAKOUT BOX. 8748a Figure 4135. Clutch Switch viewed from underneath fair ing Transmission sprocket Neutral switch Figure 4133. Neutral Switch 428 2003 Buell XB9R Fuel System. NOTE Figure 4140. Verify that fuel valve 2 and air bleed pet cock 5 on the gauge are closed. Attach FUEL PRESSURE GAUGE Part No. HD41182 4 to fuel pressure gauge adapter 1. 2003 Buell XB9R Fuel System 431. Fuel pressure gauge HD41182 Air bleed petcock Connect BREAKOUT BOX Part No. HD42682 to ECM. 4.6 BREAKOUT BOX. Figure 4140. Fuel Pressure Gauge Part No. HD41182 432 2003 Buell XB9R Fuel System. Locate and repair poor Replace ignition relay. See Ignition Relay connection between bat under 7.5 STARTER INTERLOCK. tery and ignition relay. 7458 7456 434 2003 Buell XB9R Fuel System. An idle speed too high can cause a slow return to idle. 1.16 THROTTLE CABLE AND IDLE SPEED ADJUST MENT for more information on idle speed adjustment. 436 2003 Buell XB9R Fuel System. Compare resistance values to Table 439. Reinstall and repeat procedure on other spark plug cable. 2003 Buell XB9R Fuel System 437. Original ignition coil Go to Test 4.15 is faulty. Replace. STOP Part 2 of 2. 7535 2003 Buell XB9R Fuel System 439.

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