Click to prove you're human

Steering Over Current Shut DownCurrent Above Normal or5202216GroundedSteering Excessive Current ErrorCurrent Above Normal or5202226GroundedSteering Torque Sensor T1 PartialT1 Shorted to Ground5202234FailureT1 Shorted to Bus5202233Steering Torque Sensor T2 PartialT2 Shorted to Ground5202244FailureT2 Shorted to Bus5202243Steering Torque Sensor Full FailureT1 and T2 Shorted to Ground5202254T1 and T2 Shorted to Bus5202253T1 Shorted to Ground & T252022516Shorted to BusT2 Shorted to Ground & T152022517Shorted to BusT1 and T2 are Shorted5202252Steering Position Sensor P1 PartialP1 Shorted to Ground5202264FailureP1 Shorted to Bus5202263Steering Position Sensor P2 PartialP2 Shorted to Ground5202274FailureP2 Shorted to Bus5202273Steering Position Sensor Full FailureP1 and P2 Shorted to Ground5202284P1 and P2 Shorted to bus5202283EPAS Inverter TemperatureGreater than 110 Degrees C52022916Greater than 120 Degrees C5202290EPAS CAN CommunicationsNo RX Message for 2 Seconds5202309Receive ErrorEPAS CAN CommunicationsNo TX Message for 2 Seconds5202319Transmit ErrorPage 2ComponentConditionThrottle Position SensorVoltage Too High513Voltage Too Low514Engine Temperature SensorVoltage Too High1103Voltage Too Low1104Temperature Too High11016Engine Overheat Shutdown1100Intake Air Temperature SensorVoltage Too High1053Voltage Too Low1054Manifold Absolute Pressure SensorVoltage Too High1023Voltage Too Low1024Crankshaft Position SensorCircuit Fault6368Gear Sensor SignalVoltage Too Low (to Calibrate)5234Voltage Too High5233Signal Fault5232Injector 1 (MAG)Driver Circuit Open/Grounded6515Driver Circuit Short to B+6513Ignition Coil Primary Driver 1 (MAG)Driver Open/Grounded12685Driver Circuit Short to B+12683Fuel Pump Driver CircuitDriver Circuit Open/Grounded13475Driver Circuit Short to B+13473Fan Relay Driver CircuitDriver Circuit Open/Grounded10715Driver Circuit Short to B+10713Idle Air ControlDriver Circuit Grounded5201935Shorted Load*52019311Starter Enable CircuitDriver Circuit Short to B+13213All Wheel Drive ControlDriver Circuit Short to B+5202073System PowerVoltage Too High1683Voltage Too low1684Throttle Safety SignalVoltage Too High5201943Voltage Too Low5201944Signal Out of Range5201942Throttle Stuck5201947*Assumes unipolar configuration of stepper motorPage 3Open Load: There is a break in the wires that lead to the item listed in the chart (injector, fuel pump, etc.), or the item has failed.Short-to-Ground: The wire is shorted to ground between the electronic control unit and the item listed in the chart.Shorted Load: The wires leading to the item listed in the chart are shorted together, or the item has shorted internally.Short-to-Battery: The wire leading from the item listed in the chart to the electronic control unit is shorted to a wire at battery voltage. 49 FEATURES AND CONTROLS Instrument Cluster Rider Information Center Information Display AreaDiagnostic Display ModeThe EFI diagnostic display mode is for informational purposes only. Please see your Polaris dealer for all major repairs. The diagnostic mode is accessible only when the check engine warning indicator activates after the key has been turned on. Leave the key on if you want to view the active code (failure code).The diagnostic mode becomes inaccessible if the key is turned off and on and the warning indicator is no longer active. This allows the deter- mination of persistent as well as intermittent faults.Inactive codes are stored in the history of the unit. Please see your Polaris dealer to retrieve inactive codes.Use the following procedure to view active codes that occur when the key is on.1. Place the transmission in PARK.2. Press and release the SELECT button until the flashing check Page 2 50 FEATURES AND CONTROLS Instrument Cluster Rider Information Center Diagnostic Display Code DefinitionsOpen Load: There is a break in the wires that lead to the item listed in the chart (injector, fuel pump, etc.), or the item has failed.Short-to-Ground: The wire is shorted to ground between the electronic control unit and the item listed in the chart. Shorted Load: The wires leading to the item listed in the chart are shorted together, or the item has shorted internally. Short-to-Battery: The wire leading from the item listed in the chart to the electronic control unit is shorted to a wire at battery voltage. Page 3 51 FEATURES AND CONTROLS Instrument Cluster Rider Information Center *Assumes unipolar configuration of stepper motor Sportsman X2 550 EFI Diagnostic Codes Component Condition SPN FMI Throttle Position Sensor Voltage Too High 51 3 Voltage Too Low 51 4 Engine Temperature Sensor Voltage Too High 110 3 Voltage Too Low 110 4 Temperature Too High 110 16 Engine Overheat Shutdown 110 0 Intake Air Temperature Sensor Voltage Too High 105 3 Voltage Too Low 105 4 Manifold Absolute Pressure Sensor Voltage Too High 102 3 Voltage Too Low 102 4 Crankshaft Position Sensor Circuit Fault 636 8 Gear Sensor Signal Voltage Too Low (to Calibrate) 523 4 Voltage Too High 523 3 Signal Fault 523 2 Injector 1 (MAG) Driver Circuit Open/Grounded 651 5 Driver Circuit Short to B+ 651 3 Ignition Coil Primary Driver 1 (MAG) Driver Open/Grounded 1268 5 Driver Circuit Short to B+ 1268 3 Fuel Pump Driver Circuit Driver Circuit Open/Grounded 1347 5 Driver Circuit Short to B+ 1347 3 Fan Relay Driver Circuit Driver Circuit Open/Grounded 1071 5 Driver Circuit Short to B+ 1071 3 Idle Air Control Driver Circuit Grounded 520193 5 Shorted Load* 520193 11 Starter Enable Circuit Driver Circuit Short to B+ 1321 3 All Wheel Drive Control Driver Circuit Short to B+ 520207 3 System Power Voltage Too High 168 3 Voltage Too low 168 4 Throttle Safety Signal Voltage Too High 520194 3 Voltage Too Low 520194 4 Signal Out of Range 520194 2 Throttle Stuck 520194 7 Active Descent Control System Driver Circuit Open/Grounded 520203 5 Driver Circuit Short to B+ 520203 3 Driver Circuit Grounded 520203 4 Idle Speed Speed Too High 520211 3 Speed Too Low 520211 4 Diagnostic Codes Component Condition SPN FMI EPS Models Only Vehicle Speed Sensor Received Network Data In Error 84 19 System Power Voltage Above Normal, Or Shorted To High Source 168 3 Voltage Below Normal, Or Shorted To Low Source 168 4 Engine Speed Received Network Data In Error 190 19 ECU Memory Bad Intelligent Device Or Component 628 12 Calibration Out Of Calibration 630 13 Steering Over Current Shut Down Current Above Normal Or Grounded Circuit 520221 6 Steering Excessive Current Error Current Above Normal Or Grounded Circuit 520222 6 Steering Torque Full Failure Condition Exists 520224 31 EPAS Inverter Temperature Data Valid But Above Normal Operational Range - Most Severe Level 520225 0 Data Valid But Above Normal Operating Range - Moderately Severe Level 520225 16 EPAS Communications Receive Data Error Data Erratic, Intermittent Or Incorrect 520226 2 Position Encoder Error Root Cause Not Known 520228 11 EPAS Software Error Bad Intelligent Device Or Component 520229 12 EPAS Power Save Condition Condition Exists 520231 31 EPS CAN Communications Transmit Error Data Erratic, Intermittent Or Incorrect 520227 2 Polaris industries all-terrain vehicles owner's manual Manual is suitable for 6 more products: 2009 Sportsman 550 XP2009 Sportsman 550 XP EPSSportsman 850 XPSportsman 99219732009 Sportsman 850 XP2009 Sportsman 850 XP EPS Page 1 PMS 419 Sportsman 550 Sportsman 550 EPS Sportsman 850 XP Sportsman 850 XP EPS Owner's Manual for Maintenance and Safety Read this manual carefully. It contains important safety information. This is an adult vehicle only. Operation is prohibited for those under 16 years of age. Page 2 WARNING The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. A card containing important ATV safety information should be attached to the owner's manual on the next page. If you cannot locate this card, or if it has been removed, please call 1-800- 342-3764 for assistance. Page 3 The text is printed on 100% recycled with 40% post-consumer waste (PCW). Page 4 S avoid paved surfaces - pavement may seriously affect handling and control. READ OWNER'S MANUAL. FOLLOW ALL INSTRUCTIONS AND WARNINGS. For your nearest Polaris dealer, call 1-800-POLARIS or visit www.polarisindustries.com Polaris Sales Inc., 2100 Hwy. 55, Medina, MN 55340 Phone 1-888-704-5290 Part No. Page 5 • Victory Motorcycles ® • Low emission vehicles (LEVs) We believe POLARIS sets a standard of excellence for all utility and recreational vehicles manufactured in the world today. Many years of experience have gone into the engineering, design, and development of your POLARIS vehicle. Page 6 The original instructions for this vehicle are in English. Other languages are provided as translations of the original instructions. Printed in U.S.A. 2011 SPORTSMAN 550/550 EPS / SPORTSMAN 850 XP/XP EPS Owner’s Manual P/N 9922732... Troubleshooting .... 121 POLARIS Products..... 125 Specifications . INTRODUCTION The following signal words and symbols appear throughout this manual and on your vehicle. Your safety is involved when these words and sym- bols are used. Become familiar with their meanings before reading the manual. The safety alert symbol indicates a potential personal injury hazard. WARNING A WARNING indicates a hazardous situation which, if not avoided, may result in death or serious injury. Page 9 Failure to heed the warnings and safety precautions contained in this manual can result in severe injury or death. A POLARIS ATV is not a toy and can be hazardous to operate. This vehicle handles differently than other vehicles, such as motorcycles and cars. Record your vehicle's identification numbers and key number in the spaces provided. Remove the spare key and store it in a safe place. An ignition key can be duplicated only by ordering a POLARIS key blank (using your key number) and mating it with one of your existing keys. ATV safety training is a top priority for POLARIS. POLARIS strongly encourages you and any family members who will be riding the ATV to take a training course. If you purchased a new POLARIS ATV in the United States, your dealer provided information about the authorized ATV RiderCourse that is available to you and your eligible family members. Boots Helmet Wearing a helmet can prevent a severe head injury. Whenever riding a POLARIS vehicle, always wear a helmet that meets or exceeds estab- lished safety standards. Approved helmets in the USA and Canada bear a U.S. Department of Transportation (DOT) label. Riding pants with kneepads and a jersey with shoulder pads provide the best protection. Equipment Modifications We strongly recommend that consumers do not install on a POLARIS ATV any equipment that may increase the speed or power of the vehicle, or make any other modifications to the vehicle for these purposes. SAFETY Safety Warnings WARNING Failure to operate the ATV properly can result in a collision, loss of control, accident or overturn, which may result in serious injury or death. Heed all safety warnings outlined in this section of the owner’s manual. See the OPERATION section of the owner’s manual for proper operating procedures. SAFETY Safety Warnings Handling Gasoline Gasoline is highly flammable and explosive under certain conditions. • Always exercise extreme caution whenever handling gasoline. • Always refuel with the engine stopped, and outdoors or in a well ventilated area. • Do not smoke or allow open flames or sparks in or near the area where refu- eling is performed or where gasoline is stored. SAFETY Safety Warnings Carrying a Passenger Carrying a passenger greatly reduces the operator's ability to balance and control the ATV, which may result in an accident or overturn. Never carry a passenger on this ATV. Operating on Pavement Operating an ATV on paved surfaces (including sidewalks, paths, parking lots and driveways) may adversely affect the handling of the ATV and could result in loss... SAFETY Safety Warnings Physical Control of the ATV Removing a hand from the handlebars or feet from the footrests during operation can reduce your ability to control the vehicle or cause loss of balance and ejection from the ATV. If the operator's foot is not firmly planted on the footrest, it could also contact the rear wheels. SAFETY Safety Warnings Descending Hills Improperly Improperly descending a hill could cause loss of control or overturn. • Always follow proper procedures for travel- ing down hills as described in the owner's manual. NOTE: A special technique is required when braking while traveling down- hill. SAFETY Safety Warnings Stalling While Climbing a Hill Stalling, rolling backwards or improperly dismounting while climbing a hill could cause an overturn. • Always maintain a steady speed when climbing a hill. • Always move the 4X4 switch to ADC 4X4 before ascending or descending a hill. SAFETY Safety Warnings Operating in Unfamiliar Terrain Failure to use extra caution when operating on unfamiliar terrain could result in an accident or overturn. Unfamiliar terrain may contain hidden rocks, bumps, or holes that could cause loss of control or overturn. SAFETY Safety Warnings Operating Over Obstacles Improperly operating over obstacles could cause loss of control or overturn. Before operating in a new area, check for obstacles. Avoid operating over large obstacles such as rocks and fallen trees. If unavoidable, use extreme caution and always follow proper operating procedures as outlined in this manual. SAFETY Safety Warnings Improper Cargo Loading Overloading the ATV or carrying/towing cargo improperly may cause changes in handling, which could cause loss of control or an accident. • Never exceed the stated load capacity for this ATV. • Cargo should be properly distributed and securely attached. •... SAFETY Safety Warnings Operating a Damaged ATV Operating a damaged ATV can result in an accident. After any overturn or accident, have a qualified service dealer inspect the entire machine for possible damage, including (but not limited to) brakes, throttle and steering systems. Physical Skills Safe operation of this rider-active vehicle requires good judgement and physical skills. If an informational or graphic label becomes illegible or comes off, con- tact your POLARIS dealer to purchase a replacement. Replacement safety labels are provided by POLARIS at no charge. The part number is printed on the label. General Warning... SAFETY Safety Labels and Locations General Warning Discretionary Warning Age 16 Warning Reverse Override Warning 4X4 Caution Discretionary Warning WARNING • Never operate this ATV on HILLS steeper than 25 degrees 25°. To pre- vent overturn on hilly terrain, use throttle and brakes gradually, and shift weight uphill. SAFETY Safety Labels and Locations “No Passenger” Warning Tire Pressure/Load Warning “No Passenger” Warning WARNING NEVER ride as a passenger. Passengers can cause a loss of control, resulting in SEVERE INJURY or DEATH. 7175378 Tire Pressure/Load Warning WARNING Improper tire pressure or overloading can cause loss of control. Loss of control can result in severe injury or death. SAFETY Safety Labels and Locations Rack Rack Warning Warning Clutch Cover Warning Hitch Capacity (under seat) Label Clutch Cover Warning WARNING • Moving parts hazard under belt-clutch guard. To prevent serious injury, do not operate vehicle with guard removed. • Do not modify engine or clutch. Doing so can cause part failure, possible imbalance, and excessive engine RPM, which can result in serious injury or death. FEATURES AND CONTROLS Switches Headlight Switch 4X4 Switch Mode/Reverse Override Button Engine Main Key Stop Switch Switch Mode/Reverse Override Switch This vehicle is equipped with a reverse speed limiter system. To gain additional wheel speed while backing, release the throttle and depress the override button. FEATURES AND CONTROLS Switches Engine Stop Switch Move the stop switch either left or right to the OFF position to stop the engine quickly. Move the stop switch to the RUN position before attempt- ing to start the engine. The engine will not start or run when the switch is off. Engine speed returns to idle when the lever is released. This ATV is equipped with POLARIS Electronic Throttle Control (ETC), which is designed to reduce the risk of a frozen or stuck throttle. If the... FEATURES AND CONTROLS Brake Lever WARNING Operating the ATV with a spongy brake lever can result in loss of braking, which could cause an accident. Never operate the ATV with a spongy-feeling brake lever. Always contact your dealer for service before operating the vehicle. Squeeze the brake lever toward the handlebar to apply the front and rear brakes. Page 32 FEATURES AND CONTROLS Master Cylinder/Brake Fluid WARNING An over-full master cylinder may cause brake drag or brake lock-up, which could result in an accident. Maintain brake fluid at the recommended level. Do not overfill. Never store or use a partial bottle of brake fluid. Brake fluid is hygroscopic, meaning it rapidly absorbs moisture from the air. FEATURES AND CONTROLS Parking Brake Locking the Parking Brake 1. Place the transmission in PARK. 2. Squeeze and release the brake lever two or three times, then squeeze and hold. 3. Push the parking brake lock forward to engage the lock. 4. Page 34 FEATURES AND CONTROLS Auxiliary Foot Brake WARNING Never back down a hill. Applying the auxiliary brake when backing down a hill may cause rear tipover, which could result in serious injury or death. Use caution when applying the auxiliary brake. Do not aggressively apply the auxiliary brake when going forward. FEATURES AND CONTROLS Electronic Power Steering (EPS) Electronic power steering (EPS) engages when the ignition key is turned to the ON position. EPS remains engaged whether the vehicle is moving or idle. See page 35 for EPS Warning Indicator information. Fuel Tank Always refuel with the engine Fuel Tank... FEATURES AND CONTROLS All Wheel Drive System The All Wheel Drive system is ADC 4X4 controlled by the 4X4 switch. ADC 4X4 Mode When the switch is on ADC 4X4, the ADC system allows engine braking to all four wheels when the vehicle descends a hill or incline. FEATURES AND CONTROLS All Wheel Drive System Engaging 4X4 The 4X4 switch may be turned on or off while the vehicle is moving. Initially, the vehicle's electronic system will not enable 4X4 until the engine RPM is below 3100. Once enabled, 4X4 remains enabled until the 4X4 switch is turned off. FEATURES AND CONTROLS Instrument Cluster NOTICE: High water pressure may damage ATV components. Wash the ATV by hand or with a garden hose using mild soap. Certain products, including insect repellents and chemicals, will damage the speedometer lens and other plastic surfaces. Do not use alcohol to clean the instrument cluster. ON position and goes off when the engine is started. If the light remains on after starting the engine, the EPS system is inoperative. See your authorized POLARIS dealer for service. Neutral This lamp illuminates when the transmission is in neutral and the ignition key is in the ON position. Page 40 If this occurs, take the ATV to your POLARIS dealer for proper diagnosis. The information center is set to display standard units of measurement and a 12-hour clock at the factory. Page 41 FEATURES AND CONTROLS Instrument Cluster Digital/Analog Gauge Rider Information Center 1. Gear Display - This area displays gear shifter position. H = High Gear L = Low Gear N = Neutral R = Reverse Gear P = Park -- = Gear Signal Error (or shifter between gears) 2. Page 42 FEATURES AND CONTROLS Instrument Cluster Digital/Analog Gauge Rider Information Center The reverse override button acts as the MODE button when pressed and released quickly. The transmission cannot be in reverse when using the override button as a MODE button. This feature does not contain a vehi- cle speed lockout function and can be used at any operating speed. FEATURES AND CONTROLS Instrument Cluster Digital/Analog Gauge Rider Information Center Clock Mode Tip: The clock must be reset any time the battery has been disconnected or dis- charged. 1. Turn the key to the ON position. Use the MODE button to toggle to the odometer display. Page 44 Diagnostic Display Mode The EFI diagnostic display mode is for informational purposes only. Please see your POLARIS dealer for all major repairs. The diagnostic mode is accessible only when the check engine warning indicator activates after the key has been turned on. Leave the key on if you want to view the active code (failure code). Page 45 4. Press the MODE button to advance to the next error code. 5. Press and hold the MODE button to exit the diagnostics code menu. 6. See pages 48-51 for code definitions and failure descriptions. Please see your Polaris dealer for all major repairs. Page 46 If this occurs, take the ATV to your Polaris dealer for proper diagnosis. The information center is set to display standard units of measurement and a 12-hour clock at the factory. To change to metric and/or a 24-hour clock, see page 45. Page 47 13. EPS Warning Indicator - If this indicator light remains on after starting the engine, the EPS system is inoperative. See your autho- rized Polaris dealer for service. Page 48 FEATURES AND CONTROLS Instrument Cluster Multi-Function Display (MFD) Gauge (EPS Models) Use the MODE button to toggle through the speed display options. Use the SELECT button (SEL) to toggle through the information area options. MODE and SELECT button opera- tion is locked out at speeds above approximately 15 MPH (25 km/h). Page 49 FEATURES AND CONTROLS Instrument Cluster Multi-Function Display (MFD) Gauge (EPS Models) Display Units (Standard/Metric) The display can be viewed in either standard or metric units of measure- ment. To change units: 1. Press and hold the MODE button until vehicle speed is displayed. 2. Page 50 FEATURES AND CONTROLS Instrument Cluster Multi-Function Display (MFD) Gauge (EPS Models) Programmable Service Interval When the hours of engine operation equal the programmed service interval setting, the wrench icon will flash for 5 seconds each time the engine is started. When this feature is enabled, it provides a convenient reminder to perform routine maintenance. Page 51 Diagnostic Display Mode The EFI diagnostic display mode is for informational purposes only. Please see your Polaris dealer for all major repairs. The diagnostic mode is accessible only when the check engine warning indicator activates after the key has been turned on. Leave the key on if you want to view the active code (failure code). Page 52 Short-to-Battery: The wire leading from the item listed in the chart to the electronic control unit is shorted to a wire at battery voltage. SPORTSMAN 550/550EPS Diagnostic Codes Component Condition Throttle Position Sensor... Page 53 FEATURES AND CONTROLS Instrument Cluster Diagnostic Display Code Definitions SPORTSMAN 550/550 EPS Diagnostic Codes Component Condition Idle Air Control Driver Circuit Grounded 520193 Shorted Load* 520193 Starter Enable Circuit Driver Circuit Short to B+ 1321 All Wheel Drive Control Driver Circuit Short to B+... Page 54 FEATURES AND CONTROLS Instrument Cluster Diagnostic Display Code Definitions SPORTSMAN 850 XP/850 XP EPS Diagnostic Codes Component Condition Throttle Position Sensor Voltage Too High Voltage Too Low Engine Temperature Sensor Voltage Too High Voltage Too Low Temperature Too High Engine Overheat Shutdown Intake Air Temperature Sensor Voltage Too High Voltage Too Low... Page 55 FEATURES AND CONTROLS Instrument Cluster Diagnostic Display Code Definitions SPORTSMAN 850 XP/850 XP EPS Diagnostic Codes Component Condition Chassis Relay Driver Circuit Open/Grounded 520208 Driver Circuit Short to B+ 520208 Driver Circuit Grounded 520208 All Wheel Drive Control Driver Circuit Open/Grounded 520207 Driver Circuit Short to B+ 520207... Page 56 FEATURES AND CONTROLS Front Rack/Compartment Release the front rack latches Latches and remove the rack to gain access to the front compart- ment. To reinstall the rack, hold the rack as shown in the illustration. Position the front edge in the tabs, then push the rack downward and secure the latches. Break-In Period The break-in period for your new POLARIS ATV is the first ten hours of operation, or the time it takes to use the first two full tanks of gaso- line. No single action on your part is as important as following the pro- cedures for a proper break-in. OPERATION Pre-Ride Checklist Failure to inspect and verify that the ATV is in safe operating condition before operating increases the risk of an accident. Always inspect the ATV before each use to make sure it's in safe operating condition. Item Remarks Page Brake system/lever travel... OPERATION Safe Operation Practices 1. Complete the recommended safety training before operating this vehicle. See page 7. 2. Do not allow anyone under 16 years of age to operate this vehicle. Do not allow anyone with cognitive or physical disabilities to oper- ate this vehicle. Respect the environment in which you ride. Find out where the designated riding areas are by con- tacting your POLARIS dealer, a local riding club or local officials. Help keep our trails open for recreational vehicle use. As an off-road enthusiast, you represent the sport and can set a good example (or a poor example) for others to follow. OPERATION Starting the Engine 1. Position the vehicle on a level surface outdoors or in a well-venti- lated area. 2. Place the transmission in PARK. 3. Lock the parking brake. Tip: The starter interlock will prevent the engine from starting if the transmission is in gear and the brake is not engaged. OPERATION Driving Procedures 1. Wear a helmet and eye protection. 2. Sit upright with both feet on the footrests and both hands on the handlebars. 3. Start the engine and allow it to warm up. 4. Shift the transmission into gear. 5. OPERATION Turning the Vehicle Your ATV is equipped with a solid rear axle, which drives both rear wheels equally at all times. This means that the wheel on the outside of the turn must travel a greater distance than the inside wheel when turning and the inside tire must slip traction slightly. OPERATION Driving on Slippery Surfaces Turn in Sideways direction of Skid skid Whenever riding on slippery surfaces such as wet trails or loose gravel, or during freezing weather, follow these precautions: 1. Do not operate on excessively rough, slippery or loose terrain. 2. OPERATION Driving Uphill 25° Maximum Braking and handling are greatly affected when operating in hilly ter- rain. Improper procedure could cause loss of control or overturn. When- ever traveling uphill, follow these precautions: 1. Always move the 4X4 switch to ADC 4X4 before ascending or descending a hill. Page 66 OPERATION Driving on a Sidehill (Sidehilling) Driving on a sidehill is not recommended. Improper procedure could cause loss of control or overturn. Avoid crossing the side of any hill unless absolutely necessary. If crossing a sidehill is unavoidable, follow these precautions: 1. OPERATION Driving Downhill When driving downhill, follow these precautions: 1. Always move the 4X4 switch to ADC 4X4 before ascending or descending a hill. See page 33. 2. Avoid steep hills (25° maximum). 3. Shift body weight uphill. 4. Drive straight downhill. 5. Page 68 OPERATION Turning Around on a Hill (K-Turn) If the vehicle stalls while climbing a hill, never back it down the hill! Use the K-turn to turn around. 8 ft. (2.4 m) 1. Stop and lock the parking brake while keeping body weight uphill. 2. OPERATION Driving Through Water Your ATV can operate through water with a maximum recom- mended depth equal to the bot- tom of the footrests. Follow these precautions when operat- ing through water: 1. Determine water depths and current before entering water. OPERATION Driving Over Obstacles Follow these precautions when operating over obstacles: 1. Always check for obstacles before operating in a new area. 2. Look ahead and learn to read the terrain. Be constantly alert for haz- ards such as logs, rocks and low hanging branches. 3. OPERATION Driving in Reverse Follow these precautions when operating in reverse: 1. Always check for obstacles or people behind the vehicle. 2. Always avoid backing downhill. 3. Back slowly. 4. Apply the brakes lightly for stopping. 5. Avoid turning at sharp angles. 6. OPERATION Hauling Cargo WARNING Overloading the vehicle or carrying or towing cargo improperly can alter vehicle handling and may cause loss of control or brake instability, which can result in serious injury or death. Always follow these precautions when hauling cargo: REDUCE SPEED AND ALLOW GREATER DISTANCES FOR BRAKING WHEN HAULING CARGO. ATV warranty. Never install a hitch longer than 4" (10 cm). Never install automotive accessories on your POLARIS ATV. Always install POLARIS-approved (or equivalent) accessories designed for ATV use. Maximum Towing Capacities Do not exceed the following maximum capacities when towing. Avoid towing on inclines. OPERATION Parking on an Incline Avoid parking on an incline if possible. If it's unavoidable, follow these precautions: 1. Stop the engine. 2. Place the transmission in PARK. 3. Lock the parking brake. 4. Always block the rear wheels on the downhill side. CFR 205) and local noise level requirements. Operation on Public Lands in the U.S.A. Your POLARIS vehicle has a spark arrestor that was tested and quali- fied to be in accordance with the USFS standard 5100-1c. Federal law requires that this spark arrestor be installed and functional when the vehicle is operated on public lands. Inspect, clean, lubricate, adjust and replace parts as nec- essary. When inspection reveals the need for replacement parts, use genuine POLARIS parts available from your POLARIS dealer. Record maintenance and service in the Maintenance Log beginning on page 139. Improperly performing the procedures marked with a could result in component failure and cause an accident, which may result in serious injury or death. Always have an authorized POLARIS dealer perform these services. Maintenance Chart Key Perform these operations more often for vehicles subjected to severe use. Page 78 100 H 12 M 1000 (1600) Change fluid Transmission oil 100 H 12 M 1000 (1600) Change fluid Perform these procedures more often for vehicles subjected to severe use. E Emission-Related Service Have an authorized POLARIS dealer perform these services. Page 79 MAINTENANCE Periodic Maintenance Chart Item Maintenance Interval Remarks (whichever comes first) Hours Calendar Miles (Km) Fuel system 100 H 12 M 1000 (1600) Check for leaks at tank cap, lines, filter, pump; replace lines every two years Engine mounts 100 H 12 M 1000 (1600) Inspect Exhaust muffler/... Capacity Fill Plug Drain Plug Inspection Lubricant at Fluid Torque Torque Procedure Change 550 Engine Oil PS-4 PLUS 2 qt. 15-17 ft. lbs. Page 77. Performance (1.9 l) (20-23 Nm) Synthetic 2W-50 850 Engine Oil PS-4 PLUS 2 qt. 12 ft. lbs. Synthetic 2W-50 4-cycle oil or a similar oil for this engine. See the table on page 76 for fluid recommendations, capacities and plug torques. Oil may need to be changed more frequently if POLARIS oil is not used. Always use 2W-50 oil. Follow the manufacturer's recommenda- tions for ambient temperature operation. MAINTENANCE Engine Oil Oil and Filter Change See the table on page 76 for fluid recommendations, capacities and plug torques. Always change the oil and filter at the intervals outlined in the Periodic Maintenance Chart beginning on page 73. Always change the oil filter whenever changing oil. Page 83 Engine Oil Oil and Filter Change 9. Place shop towels beneath the oil filter. Using an oil filter wrench (available from your POLARIS dealer), turn the filter counter- clockwise to remove it. 10. Using a clean dry cloth, clean the filter sealing surface on the crankcase. MAINTENANCE Transmission Oil POLARIS recommends the use of POLARIS AGL PLUS Transmission Fluid for this transmission. See the table on page 76 for fluid recom- mendations, capacities and plug torques. Always check and change the transmission oil at the intervals outlined in the Periodic Maintenance Chart beginning on page 73. Page 85 Always check and change the demand drive fluid at the inter- vals outlined in the Periodic Maintenance Chart beginning on page 73. See page 125 for the part numbers of POLARIS products. Change the front gearcase fluid every 25 hours if the ADC unit is exposed to extreme use. Page 86 We recommend the use of POLARIS Demand Drive Plus Fluid for the ADC unit. Maintain the fluid level between the minimum and maximum marks on the reservoir. See page 125 for the part numbers of POLARIS products. NOTICE: Do not use brake fluid. Brake fluid will damage rubber components in the hydraulic system. MAINTENANCE Active Descent Control (ADC) Fluid Fluid Change 1. Position the vehicle on a level Bleeder surface. Before performing the Screw fluid change, allow the vehicle to sit for at least 30 minutes. Bleeder 2. Thoroughly clean the areas Valve Screw around and on the ADC reservoir and bleeder valves... Always check and change the rear gearcase oil at the intervals outlined in the Periodic Maintenance Chart beginning on page 73. See page 125 for the part numbers of POLARIS products. The fill plug is located on the rear of the gearcase. The drain plug is located on the bottom of the gearcase. MAINTENANCE Rear Gearcase Oil Oil Change 1. Position the vehicle on a level surface. 2. Place a drain pan under the drain hole. 3. Remove the drain plug. Allow the oil to drain completely. 4. Clean and reinstall the drain plug with a new sealing washer. Torque to specification. Check the coolant level and maintain as recommended by adding coolant to the recovery bottle. POLARIS recommends the use of POLARIS Premium 60/40 anti- freeze/coolant or a 50/50 mixture of high quality aluminum compatible anti-freeze/coolant and distilled water. POLARIS Premium 60/40 is already premixed and ready to use. Page 91 MAINTENANCE Cooling System Recovery Bottle Coolant The recovery bottle fluid level can be viewed from inside the front right wheel well. Access the recovery bottle cap under the front storage com- partment. 1. View the fluid level in the bottle. 2. Radiator Coolant To ensure that the coolant maintains its ability to protect the engine, POLARIS recommends that you drain the system completely every two years and add a fresh mixture of antifreeze and water. Replace the coolant any time the cooling system has been drained for maintenance or repair. MAINTENANCE Brakes Hand Brake The front and rear brakes are hydraulic disc brakes, activated by moving the single brake lever toward the handlebar. These brakes are self- adjusting. Under normal operation, the diaphragm extends into the reservoir as fluid level drops. If the fluid level is low and the diaphragm is not extended, a leak is likely and the diaphragm should be replaced. 0" to 1/8" (0-3 mm) toe out alignment. 5. Repeat the measurement procedure on the other side of the vehicle. 6. If you discover improper alignment, see your POLARIS dealer for service. Steering Assembly The steering assembly of the ATV should be checked periodically for loose nuts and bolts. MAINTENANCE Seat Removal 1. Grasp one side of the seat near the rear edge. 2. Pull upward abruptly to disengage the under-seat fasteners. 3. Remove the seat. Side Panel/Footwell Removal Remove the seat before removing a side panel. To remove a side panel or footwell, remove the fasteners securing it to the frame. MAINTENANCE Tires WARNING Operating your ATV with worn tires, improperly inflated tires, non-standard tires or improperly installed tires will affect vehicle handling and could cause an accident resulting in serious injury or death. Always follow all tire maintenance procedures as outlined in this manual and on the labels on the vehicle. Always use original equipment size and type when replacing tires. Tires Front Wheel Hub Tightening Front wheel bearing tightness and spindle nut retention are critical com- ponent operations. All service must be performed by your authorized POLARIS dealer. Wheel Removal 1. Stop the engine. 2. Place the transmission in PARK. MAINTENANCE Tires Wheel Installation 1. Place the transmission in PARK. 2. Lock the parking brake. 3. Place the wheel on the hub with the valve stem toward the outside and rotation arrows on the tire pointing toward forward rotation (if equipped). MAINTENANCE Air Filter 1. Remove the seat. Screws 2. Remove the air box cover screws, and remove the air box cover. 3. Remove the filter. 4. Remove the fabric type pre- filter from the main filter. Wash the pre-filter in soapy water, then rinse and let dry. 3. Remove the suspect fuse from the fuse panel. If the fuse is blown, install a new fuse with the same amperage rating. 4. Reinstall the fuse box cover. 5. Reinstall the front rack. Fuse Box SPORTSMAN 550 SPORTSMAN 850 XP SPORTSMAN 550 EPS SPORTSMAN 850 XP EPS... MAINTENANCE Lights Poor lighting can result in reduced visibility when driving. Headlight and taillight lenses become dirty during normal operation. Clean lights frequently and replace burned out lamps promptly. Always make sure lights are adjusted properly for best visibility. Headlight Lamp Replacement When servicing a halogen lamp, avoid touching the lamp with bare fin- gers. MAINTENANCE Lights High Beam Adjustment The headlight beam can be adjusted slightly upward or downward. Use the following procedure to make the adjustment. 1. Position the vehicle on a level surface with the headlight approxi- mately 25 ft. (7.6 m) from a wall. Place the transmission in PARK. 25 ft. MAINTENANCE Lights Low Beam Adjustment Phillips Screw The low beam can be adjusted slightly upward or downward. 1. Loosen the phillips screw located at the rear of the headlamp. 2. Tilt the headlamp upward or downward. 3. Tighten the screw. MAINTENANCE Lights Headlight Housing Replacement 1. Remove the five (5) headlight pod screws. 2. Lift the pod cover and disconnect the speedometer harnesses from the speedometer. 3. Unplug the headlamp from the wiring harness. 4. Use a small screwdriver to remove the o-rings from the headlight mounting tabs. MAINTENANCE Lights Lower Headlamp Replacement 1. Turn the back of the headlight harness counterclockwise and pull the harness assembly away from the headlight assembly. 2. Remove the headlamp and install the new headlamp. 3. Reinstall the harness assembly into the headlight assembly. Harness 4. Refer to the specifications section beginning on page 126 for the recom- mended spark plug type and gap for your vehicle. Torque spark plugs to specification. NOTICE: Using non-recommended spark plugs can result in serious engine damage. Always use POLARIS-recommended spark plugs. Torque Specification Plug Condition New Spark Plug 9-11 ft. Page 107 MAINTENANCE Spark Plugs Spark Plug Inspection Normal Spark Plug The normal insulator tip is gray, tan or light brown. There will be few combustion deposits. The electrodes are not burned or eroded. This indi- cates the proper type and heat range for the engine and the service. The tip should not be flaky and white. MAINTENANCE Vehicle Immersion If your vehicle becomes immersed, major engine damage can result if the machine is not thoroughly inspected. Take the vehicle to your dealer before starting the engine. If it's impossible to take your ATV to a dealer before starting it, follow the steps outlined below. MAINTENANCE Spark Arrestor WARNING Failure to heed the following warnings while servicing the spark arrestor could result in serious injury or death. Never run the engine in an enclosed area. Remove any combustible materials from the area. Wear eye protection and leather work gloves. • Always follow all recommended maintenance procedures. See your dealer as outlined in the owner's manual. • This PVT system is intended for use on POLARIS products only. Do not install it in any other product. • Always make sure the PVT housing is securely in place during operation. Page 111 MAINTENANCE PVT System The basic operation of the POLARIS PVT system is dependent on engine speed and vehicle torque requirements. As engine speed increases, the force exerted on the movable drive sheave by the fly- weights also increases. This, in turn, increases the amount of pinch applied to the drive belt. MAINTENANCE PVT System When To Use Low Range and High Range Condition Range to Use Operating at speeds less than 7 MPH (11 km/h) Towing heavy loads Operating in rough terrain (swamps, mountains, etc.) Operating at speeds greater than 7 MPH (11 km/h) High PVT Drying There may be some instances when water is accidently ingested into the... Follow the adjustment procedures exactly, or see your POLARIS dealer for service. 1. Remove the upper headlight pod. MAINTENANCE Throttle Body/Idle RPM Idle RPM is preset by the manufacturer. If the engine idle speed is not satisfactory, please see your POLARIS dealer for adjustment. Throttle Cable Freeplay 1. Remove the four cover screws from the right han- dlebar control and remove the cover. Page 115 6. If idle speed remains above or below the recommended setting (see specification pages), verify the correct gap. If gap is correct and idle speed is still not satisfactory, please see your POLARIS dealer for service. 7. With the engine running, turn the handlebars fully to the left and right. (black) cable last. Your ATV is equipped with a sealed battery, which requires little main- tenance. POLARIS does not recommend using a conventional battery in this vehicle. The orientation of the battery could result in electrolyte leakage, which would shorten the life of the battery considerably. POLARIS recommends maintaining battery charge by using a POLARIS Battery Tender charger or by charging about once a month to make up for normal self-discharge. Battery Tender can be left connected during the storage period, and will automatically charge

MAINTENANCE Battery Battery Charging The following battery charging instructions apply only to the installa- tion of a sealed battery. Read all instructions before proceeding with the installation of this battery. The sealed battery is already filled with electrolyte and has been sealed and fully charged at the factory. Page 119 MAINTENANCE Battery Battery Charging Always verify battery condition before and 1-2 hours after the end of charging. Charge Time State of Voltage Action (Using constant current Charge charger @ standard amps specified on top of battery) 100% 12.8-13.0 volts None, check at 3 None required mos. Do not allow these types of products to contact the vehicle. The best and safest way to clean your POLARIS vehicle is with a gar- den hose and a pail of mild soap and water. 1. Use a professional-type washing cloth, cleaning the upper body first and the lower parts last. Polishing the Vehicle POLARIS recommends the use of common household aerosol furniture polish for polishing the finish on your POLARIS vehicle. Follow the instructions on the container. Polishing Tips • Avoid the use of automotive products, some of which can scratch the finish of your vehicle. • Coolant (test strength) Stabilize the Fuel 1. Fill the fuel tank. 2. Add POLARIS Carbon Clean Fuel Treatment or POLARIS Fuel Stabilizer. Follow the instructions on the container for the recom- mended amount. Carbon Clean removes water from fuel systems, stabilizes fuel and removes carbon deposits from pistons, rings, valves and exhaust systems. Page 123 5. If POLARIS fuel system additive is not used, the fuel tank, fuel lines, and injectors should be completely drained of gasoline. Accessories Auxiliary power outlets provide 12-volt power for operating accesso- ries. Accessory outlets are available for all models. POLARIS also has a wide range of additional accessories available for your ATV. Always install accessories that are approved for ATV use. Please see your... PVT system Clutch malfunction See your POLARIS dealer. Poor engine performance Check for fouled plugs or foreign material in gas tank or fuel lines. See your dealer. Slippage from failure to... Page 126 Inspect plugs and replace if necessary No spark to spark plug Inspect plugs, verify stop switch is on Water or fuel in crankcase Immediately see your POLARIS dealer Low battery voltage Recharge the battery to 12.8 VDC Mechanical failure See your dealer... Page 127 TROUBLESHOOTING Engine Pings or Knocks Possible Cause Solution Poor quality or low octane fuel Replace with recommended fuel Incorrect ignition timing See your dealer Incorrect spark plug gap or heat range Set gap to specs or replace plugs Engine Runs Irregularly, Stalls or Misfires Possible Cause Solution Fouled or defective spark plugs... TROUBLESHOOTING Engine Stops or Loses Power Possible Cause Solution Out of fuel Refuel, cycle key to ON position three times for 5 seconds each, then start Kinked or plugged fuel vent line Inspect and replace Water is present in fuel Replace with new fuel Fouled or defective spark plugs Inspect, clean and/or replace spark plug... Premium U-Joint Lube (3 oz./89 ml cartridge) 2871551 Premium U-Joint Lube (14 oz./414 ml cartridge) 2871329 Dielectric Grease (Nyogel Additives / Miscellaneous 2871326 Carbon Clean Plus 2870652 Fuel Stabilizer 2872189 DOT 4 Brake Fluid 2871956 Loctite 565 Thread Sealant 2859044 POLARIS Battery Tender Charger... SPECIFICATIONS SPORTSMAN 550 / 550 EPS Maximum Weight Capacity 575 lbs. (261 kg) Dry Weight 718 lbs. (325.7 kg) 724 lbs. (328.4 kg) (EPS) Fuel Capacity 5.25 gal. (20 l) Engine Oil Capacity 2 qts. (1.9 l) Coolant Capacity 2 qts. (1.9 l) Rear Gearcase Oil Capacity 7.1 oz. Page 131 SPECIFICATIONS SPORTSMAN 550 / 550 EPS Transmission H/L/N/R/P Gear Reduction, Low 5.034:1 Gear Reduction, Reverse 4.508:1 Gear Reduction, High 2.693:1 Drive Ratio, Front 3.818:1 Drive Ratio, Rear 3.7:1 Tires/Pressure, Front MAXXIS AT 26x8-14 / 7 psi (48.3 kPa) Tires/Pressure, Rear MAXXIS AT 26x10-14 AT / 5 psi (34.5 kPa) Page 132 Spark Plug Type / Gap Champion REA8MCX / .035 in. (0.9 mm) Lubrication System Wet Sump Driving System Type Automatic PVT (POLARIS Variable Transmis- sion) Front Suspension Dual a-arm with 9.2" (23 cm) travel Rear Suspension Progressive rate with 10.2" (26 cm) travel... Page 133 SPECIFICATIONS SPORTSMAN 850 XP / 850 XP EPS Transmission H/L/N/R/P Gear Reduction, Low 5.034:1 Gear Reduction, Reverse 4.508:1 Gear Reduction, High 2.367:1 Drive Ratio, Front 3.818:1 Drive Ratio, Rear 3.7:1 Tires/Pressure, Front MAXXIS AT 26x8-14 / 7 psi (48.3 kPa) Tires/Pressure, Rear MAXXIS AT 26x10-14 / 5 psi (34.5 kPa) Brakes, Front/Rear... 2100 Hwy 55, Medina, MN 55340 U.S.A. Telephone 763-542-0500 April 22, 2010 We, Polaris Industries Inc., declare that the vehicles listed below conform to the essential health and safety requirements applicable to off-road all-terrain vehicles. APPLICABLE EUROPEAN DIRECTIVES TEST / EVALUATION METHODS... WARRANTY LIMITED WARRANTY POLARIS Sales Inc., 2100 Highway 55, Medina, MN 55340, gives a SIX MONTH LIMITED WARRANTY on all components of the POLARIS All Terrain Vehicle (ATV) against defects in material or workmanship. POLARIS also gives a one year limited warranty on the final drive chain (if equipped) for failure due to defects. Page 136 WARRANTY COVERAGE AND EXCLUSIONS: LIMITATIONS OF WARRANTIES AND REMEDIES The POLARIS limited warranty excludes any failures that are not caused by a defect in material or workmanship. This warranty does not cover accidental damage, normal wear and tear, abuse or improper handling. This warranty also does not cover any ATV that... Page 137 This warranty does not cover the use of unauthorized lubricants, chemicals, or fuels that are not compatible with the ATV. The exclusive remedy for breach of this warranty shall be, at POLARIS' exclusive option, repair or replacement of any defective materials, or components or products. THE REMEDIES SET FORTH IN THIS WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON FOR BREACH OF THIS WARRANTY. Page 138 WARRANTY HOW TO OBTAIN WARRANTY SERVICE If your ATV requires warranty service, you must take it to a POLARIS dealer authorized to repair POLARIS ATVs. When requesting warranty service you must present your copy of the Warranty Registration form to the dealer. (THE COST OF TRANSPORTA- TION TO AND FROM THE DEALER IS YOUR RESPONSIBILITY). Page 139 You should warranty register your vehicle at a local POLARIS dealer in your new country immediately after you move to continue your warranty coverage and to ensure that you receive safety information and... Page 140 How to Get Service If Purchased From A Private Party: If you purchase a POLARIS product from a private citizen, to be kept and used outside of the country in which the vehicle was originally purchased, all warranty coverage will be denied. Page 141 This emissions limited warranty is in addition to the POLARIS standard limited war- ranty for your vehicle. POLARIS Industries Inc. warrants that at the time it is first pur- chased, this emissions-certified vehicle is designed, built and equipped so it conforms with applicable U.S. Page 142 POLARIS dealer to perform any service that may be necessary for your vehi- cle. POLARIS also recommends that you use only Pure POLARIS parts. It is a potential violation of the Clean Air Act if a part supplied by an aftermarket parts manufacturer reduces the effectiveness of the vehicle's emission controls. MAINTENANCE LOG Present this section of your manual to your dealer each time your vehicle is serviced. This will provide you and future owners with an accurate log of maintenance and ser- vices performed. DATE MILES (KM) TECHNICIAN SERVICE PERFORMED / COMMENTS OR HOURS... Page 144 MAINTENANCE LOG DATE MILES (KM) TECHNICIAN SERVICE PERFORMED / COMMENTS OR HOURS... Page 145 MAINTENANCE LOG DATE MILES (KM) TECHNICIAN SERVICE PERFORMED / COMMENTS OR HOURS... Demand Drive ....81 Clutching, 550 ....127 Engine Oil ....77-79 Clutching, 850 XP . INDEX Fluid Change Key Switch ....25 ADC ..... 83 K-Turn . Page 148 Periodic Maintenance Chart ..72-75 Storage Tips....118-119 Polaris Product List ... . 125 Switches Polishing the Vehicle. Throttle Position Sensor 1 Voltage High 51 3 P0123 This Trouble Code sets if the Throttle Position Sensor Signal is above 4.61 Volts. Can be caused by Damaged Wiring, a faulty Throttle Position Sensor or ECU / Connections. Throttle Position Sensor 1 Voltage Low 51 4 P0122 This Trouble Code sets if the Throttle Position Sensor Signal is below 0.7 Volts. Can be caused by Damaged Wiring, a faulty Throttle Position Sensor or ECU / Connections. TPS Unrealistic Transition 51 10 P0120 This Trouble Code sets when the Throttle Position Sensor Signal changes too rapidly to be correct. The condition can be caused by intermittent connections causing the TPS voltage to jump around between readings. Check for damaged connectors or wiring. Vehicle Speed Sensor Signal Fault 84 2 P0503 This Trouble Code Sets if the Vehicle Speed Signal is intermittent or missing. Can be caused by Damaged Wiring/Connections or a Faulty/Loose Vehicle Speed Sensor. Intake Air Temp Sensor Circuit Voltage High 105 3 P0113 This Trouble Code sets if the Intake Air Temperature Sensor Signal is above 4.9 Volts. Can be caused by Damaged Wiring, a faulty Intake Air Temperature Sensor or ECU / Connections. Intake Air Temp Sensor Circuit Voltage Low 105 4 P0112 This Trouble Code sets if the Intake Air Temperature Sensor Signal is below 0.19 Volts. Can be caused by Damaged Wiring, a faulty Intake Air Temperature Sensor or ECU / Connections. IAT Sensor Abnormal Rate of Change 105 10 P0114 This Trouble Code sets if the Intake Air Temperature Sensor Signal indicates an Unrealistic Rate of Change. Can be caused by Damaged Wiring, a faulty Intake Air Temperature Sensor or ECU / Connections. Barometric Sensor Circuit Voltage High 108 3 P2229 This Trouble Code Sets if the Barometric Pressure Sensor Signal Circuit is Open or Shorted to Battery Voltage. Can be caused by Damaged Wiring/Connections, a Faulty Ambient Pressure Sensor or ECU. Barometric Sensor Circuit Voltage Low 108 4 P2228 This Trouble Code Sets if the Barometric Pressure Sensor Signal Circuit is Shorted to Ground. Can be caused by Damaged Wiring/Connections, a Faulty Ambient Pressure Sensor or ECU. Engine Temperature Over-Temp Shutdown 110 0 P1217 This Trouble Code sets if the Engine Temperature indicates a Critical Over Temperature Condition and the engine is running in a limp-home mode to prevent damage. Can be caused by any failure that would cause the engine to overheat. Engine Temperature Sensor Circuit Voltage High 110 3 P0118 This Trouble Code sets if the Engine Coolant Temperature Sensor Signal is above 4.8 Volts. Can be caused by Damaged Wiring, a faulty Coolant Temperature Sensor or ECU / Connections. Engine Temperature Sensor Circuit Voltage Low 110 4 P0117 This Trouble Code sets if the Engine Coolant Temperature Sensor Signal is below 0.1 Volts. Can be caused by Damaged Wiring, a faulty Coolant Temperature Sensor or ECU / Connections. Engine Temperature Abnormal Rate of Change 110 10 P0119 This Trouble Code sets if the Engine Coolant Temperature Sensor Signal is erratic. Can be caused by Damaged Wiring, a faulty Coolant Temperature Sensor or ECU / Connections. Engine Over-temperature Fault 110 16 P0217 This Trouble Code sets if the Engine Temperature indicates a Severe Over Temperature Condition. Can be caused by any failure that would cause the engine to overheat. This Trouble Code Does Not indicate a problem with the Engine Temperature Sensor. Fuel Rail Pressure Sensor Voltage High 157 3 P0193 This trouble code sets if the Fuel Pressure Sensor Voltage is above 4.85V. Can be caused by Damaged Wiring, a faulty Fuel Pressure Sensor or ECU / Connections. Fuel Rail Pressure Sensor Voltage Low 157 4 P0192 This Trouble Code Sets if the Fuel Pressure Sensor Circuit is below 0.1V. Can be caused by Damaged Wiring, a faulty Fuel Pressure Sensor or ECU / Connections. Fuel Rail Pressure Below Power Limit 157 18 P0196 This Trouble Code Sets if the Fuel Pressure drops below 3Bar (43.5PSI) for 10 seconds. Can be caused by a faulty Pump Flange Assembly (PFA). Battery Voltage High 158 3 P1567 This Trouble Code Sets if the if the Battery Voltage is above 15.0V. Can be caused by Damaged Wiring, a faulty Battery or ECU / Connections. Battery Voltage Low 158 4 P1566 This Trouble Code Sets if the if the Battery Voltage is below 10.0V. Can be caused by Damaged Wiring, a faulty Battery or ECU / Connections. Exhaust Over-Temperature Shutdown 173 0 P1517 This Trouble Code Sets if the engine was shut down due to High Exhaust Temperature. Can be caused by a Faulty Exhaust Temperature Sensor/Connections or Lean Air/Fuel Ratio causing high exhaust temperature. Exhaust Temp Sensor Signal High 173 3 P0546 This Trouble Code sets if the engine has been running above 3000 RPM for more than 2 minutes and the Exhaust Temperature Sensor Signal is above 4.90 Volts. Can be caused by Damaged Wiring, a faulty Engine Temperature Sensor or ECU / Connections. Exhaust Temp Sensor Signal Low 173 4 P0545 This Trouble Code sets if the engine has been running above 3000 RPM for more than 2 minutes and the Exhaust Temperature Sensor Signal is below 0.06 Volts. Can be caused by Damaged Wiring, a faulty Engine Temperature Sensor or ECU / Connections. Exhaust Temp Sensor Unrealistic Transition 173 10 P1546 This Trouble Code sets if the Exhaust Temperature Sensor Signal changes too quickly to be considered a Realistic Value. Can be caused by Damaged Wiring, a faulty Exhaust Temperature Sensor or ECU / Connections. Fuel Temperature Sensor Voltage High 174 3 P1322 This trouble code sets if the Fuel Temperature Sensor Voltage is above 4.81V. Can be caused by Damaged Wiring, a faulty Fuel Pressure Sensor or ECU / Connections. Fuel Temperature Sensor Voltage Low 174 4 P1323 This trouble code sets if the Fuel Temperature Sensor Voltage is Below 0.01V. Can be caused by Damaged Wiring, a faulty Fuel Pressure Sensor or ECU / Connections. ECU Memory Checksum Error 628 13 P0601 This Trouble Code Sets if an Internal Memory Fault is detected in the Engine Controller. Can only be caused by a defective ECU. Crankshaft Sensor Signal Fault 636 2 P0335 This Trouble Code sets if the Engine is Running and No Signal is Detected from the 5X Crankshaft Sensor. Can be caused by Damaged Wiring, a faulty Crankshaft Sensor or ECU / Connections. Crankshaft Position Sensor Circuit Fault 636 8 P0336 This Trouble Code sets if the Engine is Running and the number of pulses from the 5X Crankshaft Sensor is not correct. Can be caused by Damaged Wiring, a faulty Crankshaft Sensor or ECU / Connections. MAG Cylinder Port Injector Short to B+ 651 3 P0262 This Trouble Code sets if a Short to Voltage is detected in the MAG Cylinder Port Injector Control Circuit. Can be caused by Damaged Wiring, a faulty Fuel Injector or ECU / Connections. MAG Cylinder Port Injector Open Circuit 651 5 P0261 This Trouble Code sets if an Open Circuit Condition is detected in the MAG Cylinder Port Injector Control Circuit. Can be caused by Damaged Wiring, a faulty Fuel Injector or ECU / Connections. PTO Cylinder Port Injector Short to B+ 652 3 P0265 This Trouble Code sets if a short to Voltage is detected in the PTO Cylinder Port Injector Control Circuit. Can be caused by Damaged Wiring, a faulty Fuel Injector or ECU / Connections. PTO Cylinder Port Injector Open Circuit 652 5 P0264 This Trouble Code sets if an Open Circuit Condition is detected in the PTO Cylinder Port Injector Control Circuit. Can be caused by Damaged Wiring, a faulty Fuel Injector or ECU / Connections. Ignition Coil 1 (MAG) Driver Circuit Open 1268 5 P1351 This Trouble Code Sets if Ignition Coil 1 (MAG) Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Faulty MAG Ignition Coil or ECU. Ignition Coil 2 (PTO) Driver Circuit Open 1269 5 P1352 This Trouble Code Sets if Ignition Coil 2 (PTO) Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Faulty PTO Ignition Coil or ECU. Max. Detonation Correction Limit Reached, MAG Cylinder 1352 0 P1336 This Trouble Code Sets if the Engine Controller Reaches the Maximum Detonation Control Limit by Fuel Correction on the Mag Cylinder Can be caused by Incorrect Fuel (low octane or Ethanol content) or Low Fuel Pressure. Cylinder 1 (MAG) Knock Level Critical 1352 16 P2336 This Trouble Code Sets if Cylinder 1 (MAG) Knock Sensor reaches a Critical Level. Can be caused by Excessive Knock (Fuel Problems), a Lean Running Condition or Engine Mechanical Problems. Max. Detonation Correction Limit Reached, PTO Cylinder 1353 0 P1337 This Trouble Code Sets if the Engine Controller Reaches the Maximum Detonation Control Limit by Fuel Correction on the PTO Cylinder. Can be caused by Incorrect Fuel (low octane or Ethanol content) or Low Fuel Pressure. Cylinder 2 (PTO) Knock Level Critical 1353 16 P2337 This Trouble Code Sets if Cylinder 2 (PTO) Knock Sensor reaches a Critical Level. Can be caused by Excessive Knock (Fuel Problems), a Lean Running Condition or Engine Mechanical Problems. Sensor Supply Voltage 1 Low 3509 4 P06B1 This Trouble Code sets if the Sensor Supply 1 Voltage is below an acceptable limit (approx. 4.50 Volts). Can be caused by Damaged Wiring or Faulty/Shorted Sensors. Vehicle Speed Sensor Supply Voltage Low 3511 4 P16B6 This Trouble Code sets if the Sensor Supply 3 Voltage is below an acceptable limit (approx. 4.5 Volts). Can be caused by Damaged Wiring or Faulty Sensor/shorted to ground. Oil Pump Driver Circuit Open 3589 5 P16BA This Trouble Code Sets if the Oil Pump Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Faulty Oil Pump/Connections or Faulty ECU/Connections. Oil Pump Driver Circuit Fault 3589 12 P16BC This Trouble Code Sets if a Failure is Detected in the Oil Pump Driver Circuit. Can be caused by Damaged Wiring/Connections, a Faulty Oil Pump/Connections or Faulty ECU/Connections. Injector Output Supply 2 Voltage High 3598 3 P16A9 This Trouble Code sets if the Injector Output Supply 2 Voltage is above an acceptable limit. Can be caused by Damaged Wiring or Faulty/Shorted Connectors. Injector Output Supply 2 Voltage Low 3598 4 P16A8 This Trouble Code sets if the Injector Output Supply 2 Voltage is below an acceptable limit. Can be caused by Damaged Wiring or Faulty/Shorted Connectors. Regulator: Critical Voltage Too Low 32523 4 P1609 This Trouble Code Sets if the Regulator has detected Low Voltage in the Critical Circuit. Can be caused by damaged Regulator wiring or connections, electrical modifications or faulty Regulator. Regulator: Critical Open Circuit 32523 5 P160B This Trouble Code Sets if the Regulator has detected an Open Circuit in the Critical Circuit. Can be caused by damaged wiring, faulty headlight, Fuel Pump or Regulator connections. Regulator: Critical Short Circuit 32523 6 P160C This Trouble Code Sets if the Regulator has detected Excessive Current in the Critical Circuit. Can be caused by damaged wiring, faulty headlight, Fuel Pump or Regulator connections. Regulator: Critical Voltage Too High 32523 15 P160D This Trouble Code Sets if the Regulator has detected Excessive Voltage in the Critical Circuit. Can be caused by damaged wiring, faulty headlight, Fuel Pump or Regulator connections. Regulator: Chassis Voltage Too Low 32523 20 P160E This Trouble Code Sets if the Regulator has detected Low Voltage in the Chassis Circuit. Can be caused by damaged wiring or faulty grip heaters. Regulator: Chassis Short Circuit 32523 22 P160F This Trouble Code Sets if the Regulator has detected Excessive Current Draw in the Chassis Circuit. Can be caused by damaged wiring or faulty grip heaters. Regulator: Chassis Voltage Too High 32523 31 P1610 This Trouble Code Sets if the Regulator has detected Excessive Voltage in the Chassis Circuit. Can be caused by damaged wiring, Regulator connections or Regulator. Regulator: Stator Output Low 32531 36 P1510 This Trouble Code Sets if the Regulator has detected a Low Voltage condition in the Stator. Can be caused by a Short to ground in the Stator or damaged Stator wiring. Regulator: Stator Open Circuit 32531 37 P1511 This Trouble Code Sets if the Regulator has detected an Open Circuit condition in the Stator. Can be caused by an Open Circuit in the Stator or damaged Stator wiring. Exhaust Temperature Sensor 2 - Temperature Too High 520173 0 P1487 This Trouble Code sets if the Exhaust Temperature 2 Signal is greater than 750C. Can be caused by a Faulty Exhaust Temperature Sensor/Connections or Lean Air/Fuel Ratio causing high exhaust temperature. Exhaust Temperature Sensor 2 Voltage High 520173 3 P1484 This Trouble Code Sets if the if the Exhaust Temp Sensor 2 Voltage is above 4.96V. Can be caused by Damaged Wiring, a faulty Exhaust Temp Sensor or ECU / Connections. Exhaust Temperature Sensor 2 Voltage Low 520173 4 P1485 This Trouble Code Sets if the if the Exhaust Temp Sensor 2 Voltage is Below 0.06V. Can be caused by Damaged Wiring, a faulty Exhaust Temp Sensor or ECU / Connections. Exhaust Temperature Sensor 2 Abnormal Rate of Change 520173 10 P1486 This Trouble Code sets if the Exhaust Temperature Sensor Signal changes too quickly to be considered a Realistic Value. Can be caused by Damaged Wiring, a faulty Exhaust Temperature Sensor or ECU / Connections. Exhaust Temperature Sensor 2 Mismatch with Sensor 1 520173 14 P1488 This Trouble Code Sets when Exhaust Temperature Sensor 2 signal is 250C greater than Exhaust Temp Sensor 1 signal. The condition can be caused by Damaged Wiring, faulty Exhaust Temperature Sensor or ECU / Connections. ECU Supply Voltage High 520174 3 P1341 This Trouble Code sets if the ECU Supply Voltage is above 17.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections ECU Supply Voltage Low 520174 4 P1342 This Trouble Code sets if the ECU Supply Voltage is below 10.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections. Critical Supply Voltage High 520175 3 P1343 This Trouble Code sets if the Critical Supply Voltage is above 17.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections. Critical Supply Voltage Low 520175 4 P1344 This Trouble Code sets if the Critical Supply Voltage is below 10.00V. Can be cbased by faulty wiring, faulty regulator or ECU / Connections. Chassis Supply Voltage High 520176 3 P1345 This Trouble Code sets if the Chassis Supply Voltage is above 18.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections. Chassis Supply Voltage Low 520176 4 P1346 This Trouble Code sets if the Chasssis Supply Voltage is below 14.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections. Peak Injector Voltage High 520177 3 P1347 This Trouble Code sets if the Peak Injector Supply Voltage is above 24.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections. Peak Injector Voltage Low 520177 4 P1348 This Trouble Code sets if the Peak Injector Supply Voltage is below 20.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections. EV Actuator Position High in Open Position 520178 16 P2627 This Trouble Code sets if the Exhaust Valve Actuator Position is greater than 80.0% when trying to achieve Open position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly. EV Actuator Position Low in Open Position 520178 18 P2628 This Trouble Code sets if the Exhaust Valve Actuator Position is less than 70.0% when trying to achieve Open position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly. EV Actuator Position High in Mid Position 520179 16 P2629 This Trouble Code sets if the Exhaust Valve Actuator Position is greater than 55.0% when trying to achieve Mid position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly. EV Actuator Position Low in Mid Position 520179 18 P2630 This Trouble Code sets if the Exhaust Valve Actuator Position is less than 45.0% when trying to achieve Mid position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly. EV Actuator Position High in Closed Position 520180 16 P2631 This Trouble Code sets if the Exhaust Valve Actuator Position is greater than 30.0% when trying to achieve Closed position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly. EV Actuator Position Low in Closed Position 520180 18 P2632 This Trouble Code sets if the Exhaust Valve Actuator Position is less than 20.2% when trying to achieve Closed position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly. Throttle Release Switch Signal Circuit Short to Voltage 520194 3 P1555 This Trouble Code Sets if the Throttle Release Switch Signal is Open Circuit or Shorted to Battery Voltage. Can be caused by Damaged Wiring/Connections, a Faulty Throttle Safety Switch or ECU. Throttle Release Switch Signal Circuit Short to Ground 520194 4 P1554 This Trouble Code Sets if the Throttle Safety Switch Signal is Shorted to Ground. Can be caused by Damaged Wiring/Connections, a Faulty Throttle Safety Switch or ECU. Throttle Stuck Error 520194 7 P1552 This Trouble Code Sets if the Throttle Release Switch Signal Indicates a Throttle Stuck Open. Can be caused by a Stuck Throttle or Misadjusted/Stuck Throttle Linkage. Accessory Relay Driver Circuit Short to B+ 520219 3 P1647 This Trouble Code Sets if the Accessory Relay Driver Circuit is Shorted to Voltage. Can be caused by Damaged Wiring/Connections, a Faulty Accessory Relay or ECU. Accessory Relay Driver Circuit Open 520219 5 P1646 This Trouble Code Sets if the Accessory Relay Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Accessory Ignition Relay or ECU. Charge Relay Driver Circuit Short to B+ 520220 3 P163D This Trouble Code Sets if the Charge Relay Driver Circuit is Shorted to Voltage. Can be caused by Damaged Wiring/Connections, a Faulty Charge Relay or ECU. Charge Relay Driver Circuit Open 520220 5 P163C This Trouble Code Sets if the Charge Relay Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Charge Relay or ECU. Oil Pump or Fuel Injector Offset not Programmed 520241 13 P1278 This Trouble Code Sets if Either the Fuel Injector or Oil Injection Pump Calibration has Not Been Programmed. Update the Injector/Oil Pump Settings. WARNING: Do Not Operate the Vehicle with This Trouble Code Set! Ground Speed Pulses Per Mile not Programmed 520242 13 P1279 This Trouble Code Sets if the Vehicle Speed Sensor Setting is Not Properly Programmed in the ECU. Reset the ECU Offset Values to Resolve this Fault Condition. Exhaust Valve Position Out of Range (Open) 520325 31 P140A This Trouble Code sets if: Valve UP position voltage out of range. Check the following: (1) Measure cable travel length, (2) Verify smooth valve operation by operating the cable by hand through its full travel, (3) Relearn EVIf no problem. Exhaust Valve Position Out of Range (Mid) 520326 31 P140B This Trouble Code sets if: Valve MID position voltage out of range. Check the following: (1) Measure cable travel length, (2) Verify smooth valve operation by operating the cable by hand through its full travel, (3) Relearn EVIf no problem. Exhaust Valve Position Out of Range (Closed) 520327 31 P140C This Trouble Code sets if: Valve DOWN position voltage out of range. Check the following: If occasional, this fault is nothing to be concerned about If persistent: Measure cable travel length and Verify smooth valve operation. Riding With Brakes On Moderately Severe 520555 31 C2418 This Trouble Code Sets if the Sled has been driven with the brakes applied continuously for 10 seconds, 4500 RPM. Riding With Brakes On Most Severe 520556 31 C2419 This Trouble Code Sets if the Sled has been driven with the brakes applied continuously for 20 seconds , 4500 RPM. Regulator Near Thermal Shutdown 520660 31 P161B This Trouble Code Sets if the Regulator is near the thermal shutdown point. Can be caused by excessive power consumption or insufficient cooling air flow. Batch Fire Detection 523959 31 P3022 This Trouble Code Sets if the engine is in "Batch Fire Mode". Can be caused by Damaged Wiring, a faulty Crankshaft Sensor or ECU / Connections. Exhaust Valve Actuator Short Circuit 523958 3 P3023 This trouble code sets if the ECU detects a short in the EV Actuator Drive circuit. Can be caused by Damaged Wiring, Faulty EV Actuator, or ECU / Connections. Inspect EV Actuator Drive wires. (White/Green & White/Blue). Exhaust Valve Actuator Open Circuit 523958 5 P3024 This trouble code sets if the ECU detects low current or an open EV Actuator Drive circuit. Can be caused by Damaged Wiring, Faulty EV Actuator, or ECU / Connections. Inspect EV Actuator Drive wires. (White/Green & White/Blue). Exhaust Valve Actuator Open Circuit 523958 4 P3025 This trouble code sets if the ECU detects low current or an open EV Actuator Drive circuit. Can be caused by Damaged Wiring, Faulty EV Actuator, or ECU / Connections. Inspect EV Actuator Drive wires. (White/Green & White/Blue). Exhaust Valve Actuator Over Current 523958 6 P3026 This trouble code sets if the ECU detects high current on the EV Actuator Drive circuit. Can be caused by Damaged Wiring, Faulty EV Actuator, or ECU / Connections. Inspect EV Actuator Drive wires. (White/Green & White/Blue). Exhaust Valve Actuator Internal IC Voltage High 523957 3 P3027 This trouble code sets if the ECU has detected a Exhaust Valve Actuator internal IC voltage above 6V. Can be caused by a faulty ECU. Exhaust Valve Actuator Internal IC Voltage Low 523957 4 P3028 This trouble code sets if the ECU has detected a Exhaust Valve Actuator internal IC voltage Below 4V. Can be caused by a faulty ECU. Exhaust Valve Actuator Internal IC Over Current / Over Temp 523957 6 P3029 This trouble code sets if the ECU has detected a Exhaust Valve Actuator internal IC current above 2A or 200C. Can be caused by a faulty ECU. Exhaust Valve Actuator Internal IC Communication Loss 523957 19 P3032 This trouble code sets if the ECU loses communication with the Exhaust Valve Actuator IC. Can be cause by a faulty ECU. Exhaust Valve Actuator Position Sensor Voltage High 523956 3 P3033 This trouble code sets if the Exhaust Valve Actuator Position Sensor voltage is greater than 4.5V for 1 sec. Can be caused by Damaged wiring, Faulty EV actuator, or ECU / Connections. Inspect EV Actuator Position Sensor wires. Power: Red/White. Ground: Brown/White. Feedback: Dark Green/Orange. Exhaust Valve Actuator Position Sensor Voltage Low 523956 4 P3034 This trouble code sets if the Exhaust Valve Actuator Position Sensor voltage is Less than 0.4V for 1 sec. Can be caused by Damaged wiring, Faulty EV actuator, or ECU / Connections. Inspect EV Actuator Position Sensor wires. Power: Red/White. Ground: Brown/White. Feedback: Dark Green/Orange. Exhaust Valve Actuator Abnomral Rate of Change 523956 10 P3035 This trouble code sets if the Exhaust Valve Actuator Position Sensor voltage is Less than 0.4V for 1 sec. Can be caused by Damaged wiring, Faulty EV actuator, or ECU / Connections. Inspect EV Actuator Position Sensor wires. Power: Red/White. Ground: Brown/White. Feedback: Dark Green/Orange. Exhaust Valve Learning Default Position 520337 7 P3036 This trouble code sets if the Exhaust Valve Learn values are different from the Exhaust Valve Check Values. Can be caused by an obstruction in the Exhaust Valves, Broken Cable, or broken Exhaust Valve. Water Temperature Unrealistic Transition 110 10 P0119 This trouble code sets if the water temperature changes by 20C in 1 sec 3 times. Can be caused by Faulty Wiring, Faulty Water Temperature Sensor, or Faulty ECU.