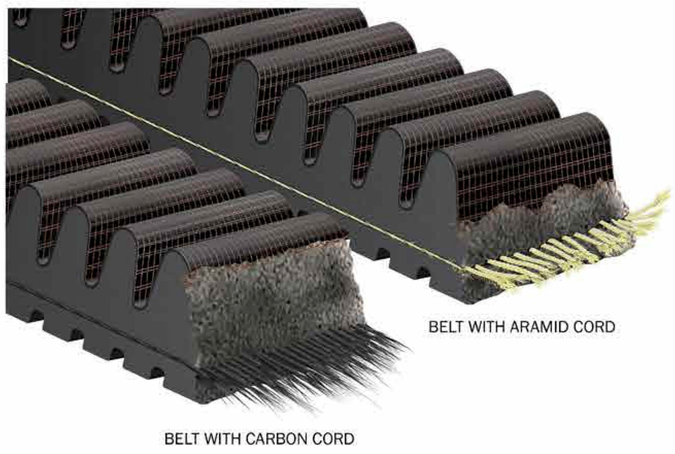
WARRANTY KILLER PERFORMANCE

POWERSPORT BELT FAILURE ANALYSIS

IDENTIFY AND TROUBLESHOOT CVT DRIVE ISSUES

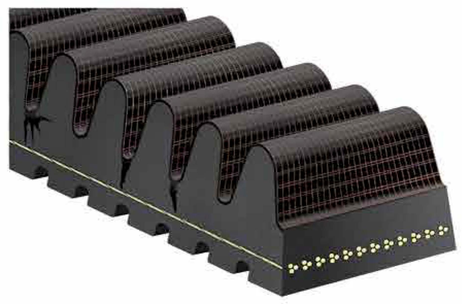
1. TENSILE CORD BREAK



2. CHUNK-OUT

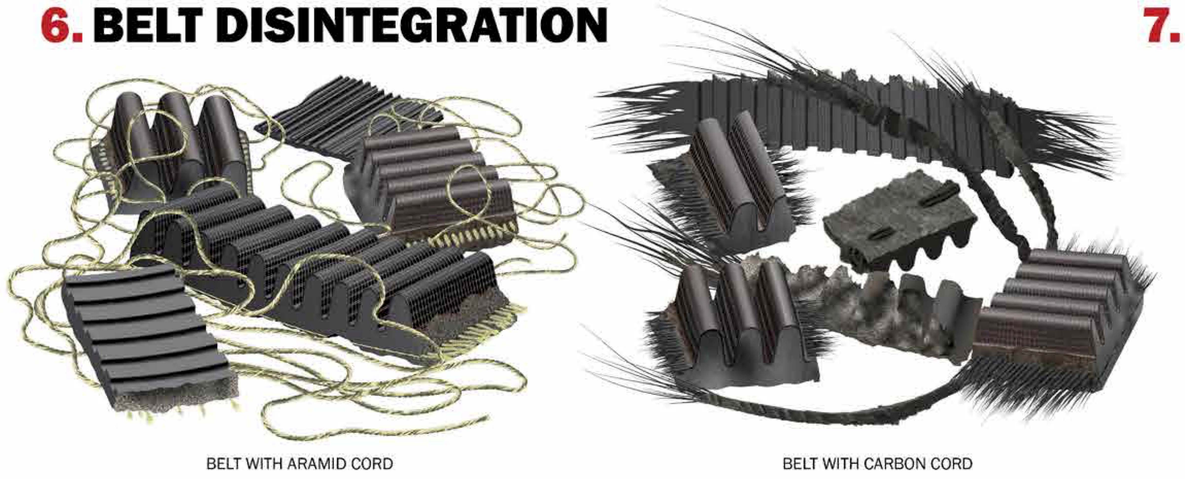
3. EDGE CORD PULLOUT

4. CRACKS BETWEEN COGS



5. HOUR-GLASSING, UNEVEN BELT WEAR, SPIN BURNS

6. BELT DISINTEGRATION



7. GLAZING

SYMPTOM	POTENTIAL CAUSES	RECOMMENDATIONS
1. TENSILE CORD BREAK: Complete belt break through the tensile cord	• Belt subjected to shock-loading from sudden excessive engagement RPM, repeated aggressive hard acceleration and braking (especially with heavy weight on vehicle) • Back-bending, crimping, or prying on belt during installation compromised tensile cord integrity and irreversibly damaged belt • Improper gear ratio, clutch center-to-center distance too long, or jammed/locked drive train	• Drive using smooth acceleration taking into account vehicle load; avoid repetitive hard braking and immediate acceleration • Follow proper storage and handling procedures (do not back-bend, crimp, or invert the belt) • Verify the correct belt is being used • Ensure engagement RPM is appropriate, clutch center-to-center spacing is correct, and proper gear is utilized for terrain • While in park or neutral at idle, the secondary clutch should be stationary
2. CHUNK-OUT: Sheared cogs, compression section (undercord) fractured/torn (chunk-out)	• Improper belt installation; belt was back-bent, crimped, or pried on during installation • Belt worn past its service limits from high mileage, evidenced by cracks between cogs and eventual cog shearing • Belt hit or rubbed against a stationary object	• Replace belt and perform proper new belt break-in procedure, allowing extra time when performing heat cycles in very cold conditions • Never back-bend or crimp a CVT belt; never turn a CVT belt inside out; do not pry on belt during installation • Always check drive components to confirm clear belt travel path
3. EDGE CORD PULLOUT: Tensile cord is frayed or separating/unraveling from belt body	• Clutch misalignment or incorrect belt-pulley angle prevented the belt from riding fully on the sidewalls; resulting extreme friction, heat, and belt material loss led to cord exposure • Improper or insufficient belt break-in	• Replace belt; further use will cause belt disintegration • Inspect primary and secondary clutches for any defects and ensure proper alignment; always prep clutches prior to belt installation • On snowmobiles, always verify the integrity of the motor mounts and torque stop when replacing a drive belt; adjust clutches to proper offset and center-to-center distance • Always perform proper new belt break-in procedure after installation
4. CRACKS FORMING IN BETWEEN COGS: Flex fatigue; worn belt	• Belt is worn past its service limit due to considerable use • New belt was flexed/bent in extremely cold weather, or turned inside out at any time	• Replace belt and perform proper new belt break-in procedure, allowing extra time when performing heat cycles in very cold conditions • Never back-bend or crimp a CVT belt; never turn a CVT belt inside out
5. HOUR-GLASSING, UNEVEN BELT WEAR, SPIN BURNS: A belt that is worn unevenly in one section, forming a groove (hour-glassing)	• Belt was not moving while drive clutch was spinning at full speed; this generated extreme heat and burned the belt • Vehicle idled in gear for extended period of time; high belt engagement RPM settings • Drive system was locked or jammed, possibly due to improper gear ratio selection • Opening the throttle to get a vehicle unstuck • Belt-to-sheave clearance was incorrect or, on snowmobiles, belt deflection was set improperly	• Verify the correct belt and gear ratio are being used; confirm proper belt engagement RPM • Ensure the belt-to-sheave clearance (gaps between belt side wall and sheave on both sides) is within optimal range. On snowmobiles, check and adjust belt deflection to vehicle specifications • Verify clutches are properly tuned for vehicle modifications, added weight, tire size/style, terrain, and riding style
6. BELT DISINTEGRATION: Belt has broken apart into many pieces	• Repeated shock-loading, excessive belt speed, or excessive operation in low gear (high torque loads beyond what is intended for the stock vehicle) • Intense heat build up caused by extreme drive conditions (stuck in deep sand, gravel, or mud; spinning at full throttle) • Misaligned or improperly tuned clutches (not tuned to match vehicle modifications) • Excessive heat conditions led to glazing and hardening, increased slip, and rapid wear • Back-bending, crimping, or prying on belt during installation compromised tensile cord integrity and irreversibly damaged belt	• Verify correct belt for the application, clutches aligned and properly tuned for any vehicle modifications beyond stock (especially tire size) and added vehicle weight • Ensure the proper gear ratio is used for the terrain and riding conditions • Ensure the belt-to-sheave clearance (gaps between belt side wall and sheave on both sides) is within optimal range • On snowmobiles, always verify the integrity of the motor mounts and torque stop when replacing a drive belt; adjust belt deflection to vehicle specifications, and ensure correct center-to-center distance • Inspect primary and secondary clutches for any defects and ensure proper alignment; always prep clutches prior to belt installation and follow proper belt break-in procedure • Never back-bend or crimp a CVT belt; never turn a CVT belt inside out; do not pry on belt during installation • In extremely cold conditions, warm the belt to room temperature prior to open-throttle riding
7. GLAZING: Belt looks melted and shiny, or has baked appearance due to overheating	Intense heat from repeated and excessive belt slippage due to: • Improperly tuned clutches for any vehicle modifications beyond stock (added weight, tire size/style) or terrain (sand, rock crawling, mud) • Insufficient pressure on belt sides due to worn or stuck rollers, worn helix or clutch bushings • Excessive horsepower for belt; inappropriate torque loads beyond stated capability of stock vehicle • Improper gear ratio for the application (use of high gear range while towing, climbing steep hills, or riding in deep snow/mud) • Excessive operation in low gear for extended periods of time • Dirty clutches; oil, dirt, or belt residue	• Verify correct belt for the application, clutches aligned and properly tuned for any vehicle modifications beyond stock (especially tire size) and added vehicle weight • Always perform proper new belt break-in procedure after installation to seat the belt • Verify clutch sheaves and belt are clean and free of contaminants; examine rollers, helix and bushings for signs or wear and replace if necessary • Always drive in appropriate gear range for terrain and conditions

BELT FAILURE ANALYSIS PDF

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