PREVENTATIVE MAINTINENCE:
SYNCHRONOUS BELTS

888-291-5450 | salesteam@VBeltSupply.com

PROBLEMS WITH SYNCHRONOUS BELTS

SYMPTOMS	PROBABLE CAUSE	SOLUTION
Unusual noise	1. Misaligned drive 2. Too low or high tension 3. Back idler 4. Worn pulley 5. Bent guide flange 6. Belt speed too high 7. Incorrect belt profile for pulley (i.e. HTD®, GT, etc) 8. Subminimal diameter 9. Excess load	1. Correct alignment. 2. Adjust to recommended value. 3. Use inside idler. 4. Replace pulley. 5. Replace guide flange. 6. Redesign drive. 7. Use proper belt/pulley combination. 8. Redesign drive using larger diameters. 9. Redesign drive for increased capacity.
Tension loss	1. Weak support structure 2. Excessive pulley wear 3. Fixed (non-adjustable) centres 4. Excessive debris 5. Excessive load 6. Subminimal diameter 7. Belt, pulley or shafts running too hot 8. Unusual belt degradation	1. Reinforce structure. 2. Use other pulley material. 3. Use inside idler for belt adjustment. 4. Remove debris, check guard. 5. Redesign drive for increased capacity. 6. Redesign drive using larger diameters. 7. Check for conductive heat transfer from prime mover. 8. Reduce ambient drive temperature to +85°C (185°F) maximum.
Tooth shear 	1. Excessive shock loads 2. Less than 6 teeth in mesh 3. Extreme pulley run-out 4. Worn pulley 5. Back idler 6. Incorrect belt profile for pulley (i.e. HTD®, GT, etc) 7. Misaligned drive 8. Belt undertensioned	1. Redesign drive for increased capacity. 2. Redesign drive. 3. Replace pulley. 4. Replace pulley. 5. Use inside idler. 6. Use proper belt/pulley combination. 7. Correct alignment. 8. Adjust tension to recommended value.

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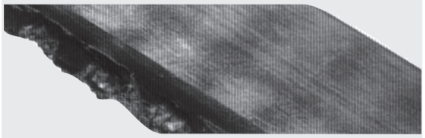
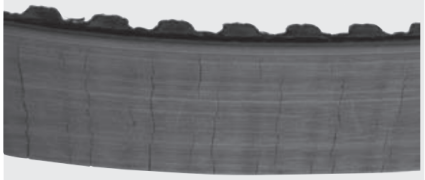
Excessive belt edge wear 	1. Damage due to handling 2. Flange damage 3. Belt too wide 4. Belt tension too low 5. Rough flange surface finish 6. Improper tracking 7. Belt hitting drive guard or bracketry	1. Follow proper handling instructions. 2. Repair flange or replace pulley. 3. Use proper width pulley. 4. Adjust tension to recommended value. 5. Replace or repair flange (to eliminate abrasive surface). 6. Correct alignment. 7. Remove obstruction or use inside idler.
Tensile break 	1. Excessive shock load 2. Subminimal diameter 3. Improper belt handling and storage prior to installation 4. Debris or foreign object in drive 5. Extreme pulley run-out	1. Redesign drive for increased capacity. 2. Redesign drive using larger diameters. 3. Follow proper handling and storage procedures. 4. Remove object and check guard. 5. Replace pulley.
Belt cracking 	1. Subminimal diameter 2. Back idler 3. Extreme low temperature at start-up 4. Extended exposure to harsh chemicals 5. Cocked bushing/pulley assembly	1. Redesign drive using larger diameter. 2. Use inside idler or increase diameter of back idler. 3. Pre-heat drive environment. 4. Protect drive. 5. Install bushing as per instructions.
Premature tooth wear 	1. Too low or too high belt tension 2. Belt running partly off unflanged pulley 3. Misaligned drive 4. Incorrect belt profile for pulley (i.e. HTD®, GT, etc) 5. Worn pulley 6. Rough pulley teeth 7. Damaged pulley 8. Pulley not to dimensional specification 9. Belt hitting drive bracketry or other structure 10. Excessive load 11. Insufficient hardness of pulley material 12. Excessive debris 13. Cocked bushing/pulley assembly	1. Adjust to recommended value. 2. Correct alignment. 3. Correct alignment. 4. Use proper belt/pulley combination. 5. Replace pulley. 6. Replace pulley. 7. Replace pulley. 8. Replace pulley. 9. Remove obstruction or use idler. 10. Redesign drive for increased capacity. 11. Use a more wear-resistant pulley. 12. Remove debris, check guard. 13. Install bushings as per instructions.

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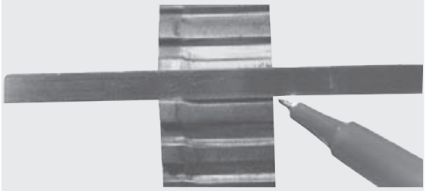
	SYMPTOMS	PROBABLE CAUSE	SOLUTION
PULLEY PROBLEMS	Flange failure	1. Belt forcing flange off	1. Correct alignment or properly secure flange to pulley.
	Unusual pulley wear 	1. Pulley has too little wear resistance (e.g. plastic, soft metals, aluminium) 2. Misaligned drive 3. Excessive debris 4. Excessive load 5. Too low or too high belt tension 6. Incorrect belt profile for pulley (i.e. HTD®, GT, etc)	1. Use alternative pulley material. 2. Correct alignment. 3. Remove debris, check guard. 4. Redesign drive for increased capacity. 5. Adjust tension to recommended value. 6. Use proper belt/pulley combination.
PERFORMANCE PROBLEMS	Belt tracking problems	1. Belt running partly off unflanged pulley 2. Centres exceed 8 times small pulley diameter and both pulleys are flanged 3. Excessive belt edge wear	1. Correct alignment. 2. Correct parallel alignment to set belt to track on both pulleys. 3. Correct alignment.
	Excessive temperature: belt, bearings, housings or shafts, etc.	1. Misaligned drive 2. Too low or too high belt tension 3. Incorrect belt profile for pulley (i.e. HTD®, GT, etc)	1. Correct alignment. 2. Adjust tension to recommended value. 3. Use proper belt/pulley combination.
	Shafts out of synchronisation	1. Design error 2. Incorrect belt	1. Use correct pulley sizes. 2. Use correct belt with correct tooth profile for grooves.
	Vibration	1. Incorrect belt profile for pulley combination (i.e. HTD®, GT, etc) 2. Too low or too high belt tension 3. Bushing or key loose	1. Use proper belt/pulley. 2. Adjust tension to recommended value. 3. Check and reinstall as per instructions.
	Incorrect driveN speeds	1. Design error	1. Redesign drive.