


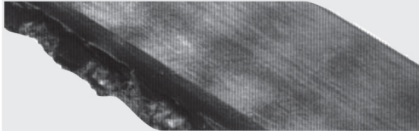

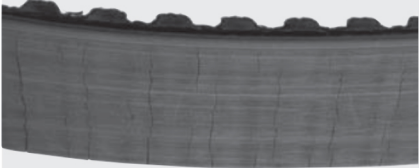

# SYNCHRONOUS BELTS

## Preventative Maintenance

	SYMPTOMS	PROBABLE CAUSE	SOLUTION
<b>PROBLEMS WITH SYNCHRONOUS BELTS</b>	Unusual noise	<ol style="list-style-type: none"> <li>Misaligned drive</li> <li>Too low or high tension</li> <li>Back idler</li> <li>Worn pulley</li> <li>Bent guide flange</li> <li>Belt speed too high</li> <li>Incorrect belt profile for pulley (i.e. HTD®, GT, etc)</li> <li>Subminimal diameter</li> <li>Excess load</li> </ol>	<ol style="list-style-type: none"> <li>Correct alignment.</li> <li>Adjust to recommended value.</li> <li>Use inside idler.</li> <li>Replace pulley.</li> <li>Replace guide flange.</li> <li>Redesign drive.</li> <li>Use proper belt/pulley combination.</li> <li>Redesign drive using larger diameters.</li> <li>Redesign drive for increased capacity.</li> </ol>
	Tension loss	<ol style="list-style-type: none"> <li>Weak support structure</li> <li>Excessive pulley wear</li> <li>Fixed (non-adjustable) centres</li> <li>Excessive debris</li> <li>Excessive load</li> <li>Subminimal diameter</li> <li>Belt, pulley or shafts running too hot</li> <li>Unusual belt degradation</li> </ol>	<ol style="list-style-type: none"> <li>Reinforce structure.</li> <li>Use other pulley material.</li> <li>Use inside idler for belt adjustment.</li> <li>Remove debris, check guard.</li> <li>Redesign drive for increased capacity.</li> <li>Redesign drive using larger diameters.</li> <li>Check for conductive heat transfer from prime mover.</li> <li>Reduce ambient drive temperature to +85°C (185°F) maximum.</li> </ol>
	Tooth shear 	<ol style="list-style-type: none"> <li>Excessive shock loads</li> <li>Less than 6 teeth in mesh</li> <li>Extreme pulley run-out</li> <li>Worn pulley</li> <li>Back idler</li> <li>Incorrect belt profile for pulley (i.e. HTD®, GT, etc)</li> <li>Misaligned drive</li> <li>Belt undertensioned</li> </ol>	<ol style="list-style-type: none"> <li>Redesign drive for increased capacity.</li> <li>Redesign drive.</li> <li>Replace pulley.</li> <li>Replace pulley.</li> <li>Use inside idler.</li> <li>Use proper belt/pulley combination.</li> <li>Correct alignment.</li> <li>Adjust tension to recommended value.</li> </ol>

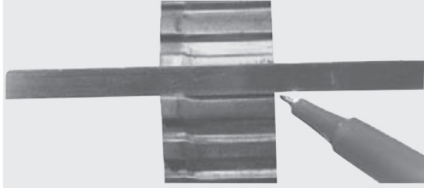
# SYNCHRONOUS BELTS

## Preventative Maintenance

	SYMPTOMS	PROBABLE CAUSE	SOLUTION
PROBLEMS WITH SYNCHRONOUS BELTS	Excessive belt edge wear 	<ol style="list-style-type: none"> <li>1. Damage due to handling</li> <li>2. Flange damage</li> <li>3. Belt too wide</li> <li>4. Belt tension too low</li> <li>5. Rough flange surface finish</li> <li>6. Improper tracking</li> <li>7. Belt hitting drive guard or bracketry</li> </ol>	<ol style="list-style-type: none"> <li>1. Follow proper handling instructions.</li> <li>2. Repair flange or replace pulley.</li> <li>3. Use proper width pulley.</li> <li>4. Adjust tension to recommended value.</li> <li>5. Replace or repair flange (to eliminate abrasive surface).</li> <li>6. Correct alignment.</li> <li>7. Remove obstruction or use inside idler.</li> </ol>
	Tensile break 	<ol style="list-style-type: none"> <li>1. Excessive shock load</li> <li>2. Subminimal diameter</li> <li>3. Improper belt handling and storage prior to installation</li> <li>4. Debris or foreign object in drive</li> <li>5. Extreme pulley run-out</li> </ol>	<ol style="list-style-type: none"> <li>1. Redesign drive for increased capacity.</li> <li>2. Redesign drive using larger diameters.</li> <li>3. Follow proper handling and storage procedures.</li> <li>4. Remove object and check guard.</li> <li>5. Replace pulley.</li> </ol>
	Belt cracking 	<ol style="list-style-type: none"> <li>1. Subminimal diameter</li> <li>2. Back idler</li> <li>3. Extreme low temperature at start-up</li> <li>4. Extended exposure to harsh chemicals</li> <li>5. Cocked bushing/pulley assembly</li> </ol>	<ol style="list-style-type: none"> <li>1. Redesign drive using larger diameter.</li> <li>2. Use inside idler or increase diameter of back idler.</li> <li>3. Pre-heat drive environment.</li> <li>4. Protect drive.</li> <li>5. Install bushing as per instructions.</li> </ol>
	Premature tooth wear 	<ol style="list-style-type: none"> <li>1. Too low or too high belt tension</li> <li>2. Belt running partly off unflanged pulley</li> <li>3. Misaligned drive</li> <li>4. Incorrect belt profile for pulley (i.e. HTD®, GT, etc)</li> <li>5. Worn pulley</li> <li>6. Rough pulley teeth</li> <li>7. Damaged pulley</li> <li>8. Pulley not to dimensional specification</li> <li>9. Belt hitting drive bracketry or other structure</li> <li>10. Excessive load</li> <li>11. Insufficient hardness of pulley material</li> <li>12. Excessive debris</li> <li>13. Cocked bushing/pulley assembly</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust to recommended value.</li> <li>2. Correct alignment.</li> <li>3. Correct alignment.</li> <li>4. Use proper belt/pulley combination.</li> <li>5. Replace pulley.</li> <li>6. Replace pulley.</li> <li>7. Replace pulley.</li> <li>8. Replace pulley.</li> <li>9. Remove obstruction or use idler.</li> <li>10. Redesign drive for increased capacity.</li> <li>11. Use a more wear-resistant pulley.</li> <li>12. Remove debris, check guard.</li> <li>13. Install bushings as per instructions.</li> </ol>

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## Preventative Maintenance

	SYMPTOMS	PROBABLE CAUSE	SOLUTION
<b>PULLEY PROBLEMS</b>	Flange failure	<ol style="list-style-type: none"> <li>1. Belt forcing flange off</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct alignment or properly secure flange to pulley.</li> </ol>
	Unusual pulley wear 	<ol style="list-style-type: none"> <li>1. Pulley has too little wear resistance (e.g. plastic, soft metals, aluminium)</li> <li>2. Misaligned drive</li> <li>3. Excessive debris</li> <li>4. Excessive load</li> <li>5. Too low or too high belt tension</li> <li>6. Incorrect belt profile for pulley (i.e. HTD®, GT, etc)</li> </ol>	<ol style="list-style-type: none"> <li>1. Use alternative pulley material.</li> <li>2. Correct alignment.</li> <li>3. Remove debris, check guard.</li> <li>4. Redesign drive for increased capacity.</li> <li>5. Adjust tension to recommended value.</li> <li>6. Use proper belt/pulley combination.</li> </ol>
<b>PERFORMANCE PROBLEMS</b>	Belt tracking problems	<ol style="list-style-type: none"> <li>1. Belt running partly off unflanged pulley</li> <li>2. Centres exceed 8 times small pulley diameter and both pulleys are flanged</li> <li>3. Excessive belt edge wear</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct alignment.</li> <li>2. Correct parallel alignment to set belt to track on both pulleys.</li> <li>3. Correct alignment.</li> </ol>
	Excessive temperature: belt, bearings, housings or shafts, etc.	<ol style="list-style-type: none"> <li>1. Misaligned drive</li> <li>2. Too low or too high belt tension</li> <li>3. Incorrect belt profile for pulley (i.e. HTD®, GT, etc)</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct alignment.</li> <li>2. Adjust tension to recommended value.</li> <li>3. Use proper belt/pulley combination.</li> </ol>
	Shafts out of synchronisation	<ol style="list-style-type: none"> <li>1. Design error</li> <li>2. Incorrect belt</li> </ol>	<ol style="list-style-type: none"> <li>1. Use correct pulley sizes.</li> <li>2. Use correct belt with correct tooth profile for grooves.</li> </ol>
	Vibration	<ol style="list-style-type: none"> <li>1. Incorrect belt profile for pulley combination (i.e. HTD®, GT, etc)</li> <li>2. Too low or too high belt tension</li> <li>3. Bushing or key loose</li> </ol>	<ol style="list-style-type: none"> <li>1. Use proper belt/pulley.</li> <li>2. Adjust tension to recommended value.</li> <li>3. Check and reinstall as per instructions.</li> </ol>
	Incorrect driveN speeds	<ol style="list-style-type: none"> <li>1. Design error</li> </ol>	<ol style="list-style-type: none"> <li>1. Redesign drive.</li> </ol>