POWERCON HANDLING SYSTEMS (PTY) LTD.
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MATERIAL HANDLING SYSTEMS - MONORAIL - BELT - ROLLER - CHAIN - CONVEYORS
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General Conveyor Maintenance

Maintenance and adjustment of components used throughout the system on different types of equipment.

a. Belt Tracking:

Belt tracking need not be mysterious or difficult. The most important tool in belt tracking is patience. A slow speed conveyor takes much longer to track than a faster running conveyor. There are a few simple rules, however, which if followed makes the job much easier.

i. Do not use major pulleys (tail, drive, take-up, etc.) to track the belt. These pulleys normally have belt wrap of 180 or more degrees. For this reason, they are the system which holds the belt in proper tension. Moving the pulley out square (with respect to the bed section) only results in stretching one side of the belt with respect to the other. Today's belts have little or no tolerance for this. The result is a permanently stretched belt which will no longer track. Unusually one side of belt becomes longer than the other.

ii. Always track to a major pulley using snub or return rollers. For belt conveyors start at the tail end of the conveyor and work toward the head end of the unit. For belt driven live roller conveyor start at the head end of the conveyor and work toward the tail end of the unit.

iii. Conveyor belting will track in the direction which is perpendicular to the axle of the tracking roller. Snub rollers are installed for this purpose. Because the belt wrap on these is between 10 to 90 degrees they have considerable effect on tracking but do not cause stretch. Return rollers also provide a means of tracking but because the belt wrap on them is less than 10 degrees there effect is minimal.

iv. The squareness of bed section having rollers as the belt carrying surface is also important. If the bed sections are racked, the belt will tend to track to one side of conveyor. Check for racking by removing some bed rollers and place a carpenter square against the inside of the bed frame and the face of a bed roller. If section is not square, it can be squared using squaring rods and turn buckles. See Section D.1.b. for more information.

Before attempting to track a belt, check to see that all pulleys and rollers are square with respect to conveyor frame. The belt splice should be square with respect to the center line of the belt. The belt tension should be enough that the belt is driven by the drive pulley and bends slightly over the crowns of end and drive pulleys.

Turn the conveyor on and move the end of the conveyor to which the return side of the belt is traveling. That is the tail end for belt conveyors and head end for belt driven live roller conveyor. Observe direction of belt as it leaves end pulley/roller.

If the belt moves toward one side of conveyor, adjust the snub roller just prior to the end unit by moving the end of the snub roller, on the side to which the belt is moving, toward the end unit.

…2

Adjustments should be made in small increments. 3mm to 10mm at a time. Adjustments should be made until belt moves back to center of end unit and holds its place.

If all adjustment in the snub roller is used and belt is still not tracked, move to the snub roller feeding the drive. Adjustment is made in similar fashion. Note: If all adjustment in the first snub roller is used and belt is only slightly off center, adjustment of return idlers could provide the fine tuning necessary. Move to the first return roller back from the snub roller and adjust it as you did the snub roller.

b. Bed Squaring:

As noted above a square bed section is important for tracking of belts or roller type conveyors. This is especially true on conveyors 40 feet and longer.

It is possible for a belt to be properly tracking over both end units, but tracking to one side of conveyor at intermediate points along its length. This condition usually indicates that a bed section or sections are racked, carrying rollers not square to bed side frames. To correct this condition the following steps should be taken:

- **Identify which sections are racked by placing a square against the side frame and the face of a carrying roller. Note which way the rollers are skewed.**
- **Install squaring rods as necessary. Loosen the bolts securing the conveyor frames together. Loosen the bolts holding the frame to their supports.**
- **Place square against side frame and roller, then tighten nuts on end of threaded rod until frame is square.**
- **Tighten all coupling bolts and support belt.**
- **Retrack belt.**

c. Chains:

Besides lubrication see B.4.b, chain tension and alignment are important. The alignment of the chain also included the alignment of the sprockets it is wrapped around.

For roller chain drives with chain spans sloping less than 45^{o} from horizontal, the total possible mid-span movement of the slack span should be around 25mm.

Chain wear takes place between hardened pin and bushing surfaces in load bearing area, resulting in elongation. This is sometimes referred to incorrectly stretch. Note: worn and elongated chain should not be used with new sprockets. No roller chain should be used when the wear or elongation is more than 3%. Some drives tolerate even less elongation.

d. Wear Pattern:

Wear grooves appear on the friction surfaces. This is a normal wear condition, and does not impair functioning of the unit. Never machine the friction surface to remove grooves or score marks resulting from normal wear.

…3

- **Heat: Excessive heat and high operating temperatures are causes of rapid wear. Units, therefore, should be ventilated as efficiently as possible, especially if the application requires fast, repetitive cycle operation.**
- **Foreign Materials: Oil and grease accidentally reaching the friction surfaces may be removed by wiping with a rag dampened with trichlorethylene. In performing this operation, do not drench the friction material.**
- **If the friction material has been saturated with oil or grease, no amount of cleaning will be completely effective. Once such a unit has been placed back in service, heat will cause the oil to boil to the surface, resulting in further torque loss.**

Motors and Gearboxes (Reducers): Except for keeping the units clean and checking the level of oil in the gearboxes maintenance of these units is minimal. Oil levels in gearboxes should be checked when unit is warm, but not runnning.

If either unit fails, replace it with the same unit. Send the failed unit to the nearest service representative for repairs.

e. **Sprockets: Sprockets should be checked for proper alignment, that they are securely fastened to shafts and that they are wearing in a normal fashion. If sprockets show signs of wearing on the sides of their teeth this is an indication of miss-alignment. If the tips of their teeth are wearing off this is a sign of an elongated chain or a loose chain. Note: When replacing sprocket, or chain it is advisable that they both be changed.**

f. **Taper Lock Hubs/Bushings: The proper installation of taper lock bushing is critical. If not installed properly the bushings can break loose, with the potential of damage to equipment and a safety hazard for personnel. Please follow the following instructions for installation of taper lock bushings:**

- **Clean all oil, dirt and paint from shafts, bushing bore, outside of bushing and component bore (sprocket, sheave or pulley).**
- **Insert bushing into component. Match the hole pattern, not the threaded holes (each hole will be threaded on one side only).**
- **Oil set screws and thread into those holes which have threads in hub. For sprockets and sheaves do this prior to mounting on shafts.**
- **Alternately torque set screws to recommended torque setting in chart below. If two bushings are used on same component and shaft, i.e. Pulleys, fully tighten one bushing before working on the other.**
- **Use a block, sleeve or drift, and hammer to tap in bushing after each time set screws are torqued down.**
- **Re-torque until torque wrench reading after tapping is the same as before tapping.**

…4

BUSHING NO.	SET SCREW	TORQUE (INCH/LBS.)
1008, 1108	1/4-20 Socket Set Screw	55
1210, 1215, 1310	3/8-16 Socket Set Screw	175
1610, 1615	3/8-16 Socket Set Screw	175
2012	7/16-14 Socket Set Screw	280
2517, 2525	1/2-13 Socket Set Screw	430
3020, 3030	5/8-11 Socket Set Screw	800