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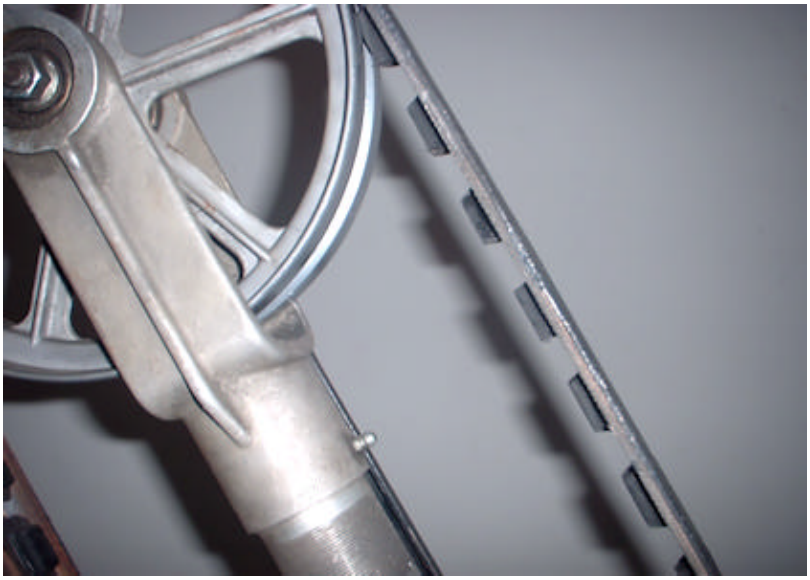


Introducing…
The “Duro-Belt”

FORGET EVERYTHING YOU EVER KNEW ABOUT BALL LIFT BELTS AND READ THIS

We have recently designed a new type of ball lift belt called the “Duro-Belt.” It is made specifically for us – and it is a very specialized belt in many ways because it compensates for all the mismatched pulleys and any other issues in the field. This belt replaces all PBL - Humpback and Kicker System belts and works on any size pulley.

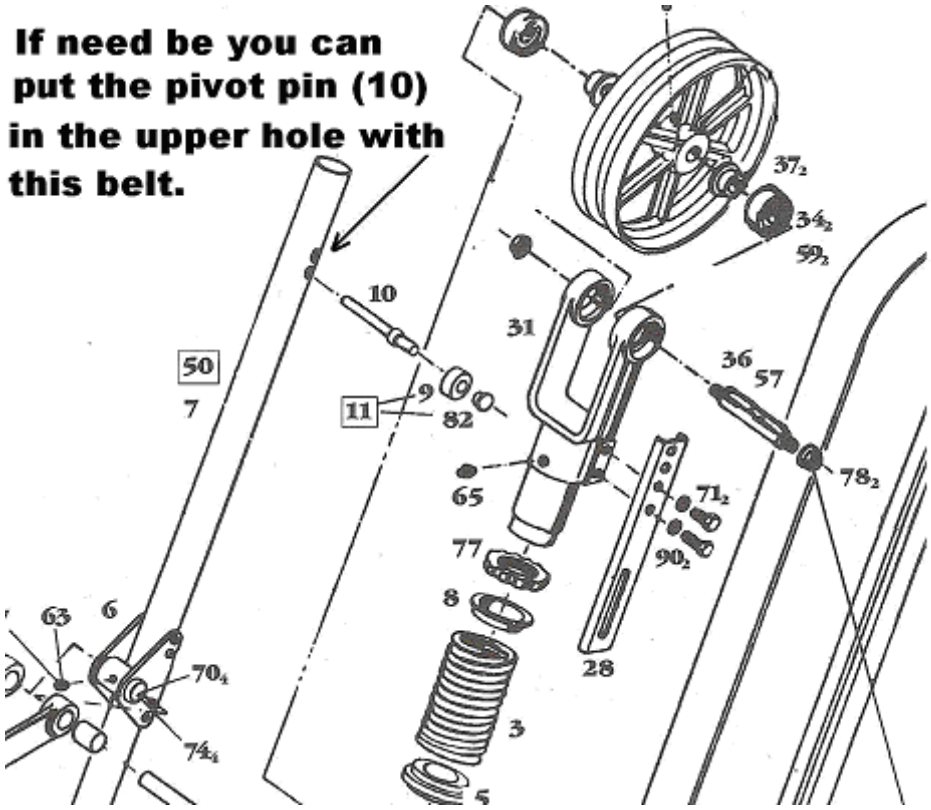
We designed the "Duro-Belt" because there is no ball lift belt currently manufactured by anyone in this Country (or overseas) that meets our high standards. Presently there is a nationwide shortage of belts here in the U.S. because all the companies that made decent quality belts either closed down or simply stopped making them because it wasn't cost effective. Other manufacturers demanded a belt to stay within certain price ranges so they could receive a greater profit margin. So, the belting companies had to cheapen the product to be within guidelines. As a result, tons of low grade belts were sold that pushed good belting companies out of the market place. The belting companies won't warrantee the belts knowing they are made poorly and don't match the pulleys. And the manufacturers of the bowling machine parts can't warrantee items they don't make. In the meantime everyone knows the current belts are of such poor quality and they need a "real" belt again. There are no other manufacturers left that make a high-grade belt – until now.

Our new "Duro-Belt" is even better than the original ones made from the past. Here is how we did it:

The flat part of the belt is a very thick four-ply fabric (compared to one ply like others) that is extremely strong. So strong, the belt will not stretch like others and is not reliant on the "V" section at all for strength. And because of all the wrong and different sized pulleys in the field we designed a special "V" section for the belt. The "V" is not glued or laminated to the belt or held on by cheap canvas. The "V" is molded directly to the belt and cured right onto it making it in essence part of the belt. The "V" is made to a specific hardness of urethane that won't wear itself or the pulley. The belt is flexible because the "V" is molded in sections as individual cogs. Each cog is wide enough for the deep, wide pulleys yet pliable enough to form to the shallow, narrow pulleys. The "V" sections are used simply as guides and not for integrity of the belt itself. Being made of urethane they are slippery enough to help prevent walking out of the pulley and will shape to any mismatched pulley. The wide pulley is less than 1/8" wider than the narrow pulley, leaving slightly less than a 1/16" on each side of the belt if a narrow "V" is placed in it. We have all seen the washer impression on the ears of paddles as an example when we remove them. The cogs on our new belt is sized to fit the wide pulley with very little side play – not enough to make a difference and when put in a shallow pulley the cogs form themselves for a perfect fit – even on wrong sized pulleys.

We can't control all the mistakes other manufacturers have done when cutting the "V" sections of their pulleys. But, we can now compensate for all those mistakes without the need for you to replace pulleys - or to continue purchasing new belts when they get damaged due to those mistakes.

Our "Duro-Belt" really is a super belt that is so strong we can tighten up the tension spring even tighter than normal – further helping prevent the belt from popping off while keeping it straight and in line. The new belt may cost approximately 30% more, but the savings in pulleys, belt replacements and labor makes it the most cost effective belt on the market by far.



The “Duro-Belt” comes in a length of 144”. We have measured as many ball lift belts on the market that we could get our hands on including AMF’s original Gates Belts. The differences in length can vary as much as 4”. We decided to keep our standard at 144” for a specific reason. Uprails from center to center vary in relationship height to the ball return itself. We see issues in some centers that don’t occur in others. As an example, some centers have an issue with balls reaching the top of the lift and not going over the rails at times – hovering there. Other centers throw the ball off of the rails smashing into the cameras. The speed of the return clearly has a lot to do with that – but so does the height in relation to the rails.

Our belt at 144” (2 in” longer than rubber cog belts) and can be adjusted so that the top pulley spring support can be positioned lower or higher on the ball lift by inserting the pivot pin into one or the other existing holes as shown on the drawing. That call is up to you as the head mechanic in your center by being aware of your specific situations. Even though it doesn’t change the overall length of the belt it does effect the deployment speed the ball travels over the uprails to some degree. By positioning the pin in the upper hole, spring tensions can be varied more, affecting the deployment speed of the ball due to pressure on the ball as well as ball lift height with tighter spring tension and a slightly longer belt. Moving the pin up and tightening the spring more will give the ball a boost at the end while still giving you travel room for the adjusting nut.

“Duro-Belt”
INSTALLATION INSTRUCTIONS

1. Installing the “Duro-Belt” is no different than installing any other belt. Just keep the following information in mind while doing so:

2. When walking the belt on the pulley make sure the tension spring isn’t so tight whereas it will chip or damage the molded cogs on the backside flat of the belt.

3. The “Duro Belt” is much stronger than anything you’ve ever worked with in the past. So take the time to re-tighten the tension spring enough once the belt is on the lift. **Also - read the “Anatomy of a ball lift belt.”** It has many helpful tips in it that will prevent future issues and make the installation of the ball return much easier and better operating.

4. Most belts should be tightened to between 4” and 4-1/4” on the spring length. The “Duro-Belt” can be tightened even more than that without it stretching (there are advantages to that). We have been tightening our belts to less than 4” (i.e., 3-7/8” or less). By doing so you can get a lot more pressure between the ball and the uprails thus preventing slippage. Also, with more spring tension the belt rides much flatter against the ball and can’t walk up and out of the pulley easily – greatly reducing the chances of it popping off the pulley (be sure to check the travel distance of your shock). The ball lift needs to be able to raise enough without the shock bottoming out (adjust shock threads if needed). With the ball lift raising higher it will also give more distance between the balls while traveling under ground to the front**. While aligning the lift, place a ball under it and rotate the belt by hand moving the ball to the top before powering it up. Slide the lift one-way or the other until all twisting of the belt is eliminated before turning power on.** Once the power is turned on make final adjustments if need be. Be sure the spring tension is tight enough so the cogs don’t hit the spring. You can almost completely compress the spring with this belt.

5. If by some chance you get a ball part way up but it’s slipping from the oil, typically any belt will start to flip to the side of the ball, increasing the chance of it popping off. By tightening the spring more (as you can now do with the “Duro-Belt”) you will decrease the chances of it popping off dramatically. However, if it does pop off and gets tangled in the pulleys (something that would ruin an ordinary “V”) this belt can probably be repaired even if a cog gets damaged because each cog is individually molded on (our objective was to make as close to a lifelong belt as possible).

6. Since each cog is individually molded on we do not dye, paint, or resurface the backing with anything to make it look pretty. Doing so would hamper any repairs that may be needed in future years.

Bearing Information and Failure

With the "Duro-Belt," putting extra tension on the spring will not cause bearing failures. The bearings for these lifts are far overrated for the amount of pressure placed on them. But, bearings do fail as you know and there is a reason for it – manufacturer's design. Let me explain:

If you take a brand new ball lift bearing and pop the seal off (*Caution:* it is not made to be able to get back on) you'll be surprised at what you'll find. There are several round little balls held in place and spaced a certain distance apart by a retainer. Each ball has a little dab (literally) of grease on it. In fact, there is so little grease that in a year the ball is running dry and wearing itself away. This has always been the case for the most part – but with imports of these items some manufacturers really over do it – or more precisely, ***under*** do it. I was taught by an AMF service rep 25 years ago to lubricate "ALL" new bearings before installation and why. In return I have never needed to replace bearings once I rebuilt a lift.

At Lifelong we ran our machines while testing our rollers, belts and other things 24-7 for 10 years and we have never needed to replace a ball lift bearing to this day! We are coming out soon with a special lubricant and method of packing the bearings easily with a special grease we designed – so, stay in contact. Being able to "pack" the bearing with grease and the special additives we developed will allow your bearings to last pretty much indefinitely so we designed a belt to keep up with the longevity. Packing a bearing with grease is difficult without special tooling because the bearing seals get damaged and you need to keep dirt out. We are coming out with a grease-packing tool very soon, and grease will not drip out over time. But here is a "trick" in the meantime: Get an oil syringe at an auto store. "Drill" a very small hole in the upper section of the seal just below the steel retainer so the syringe won't damage the seal. Then inject STP thinned with 30-weight oil into the bearing. That will give you extra life on the bearing, but be sure not to get drill bit shavings inside the bearing.

We have taken micrometer readings on failed bearings and every time it has been the retainer surrounding the ball bearings that wears and fails – not the ball bearing itself. Failed retainers allow the balls to free float within the housing and that is what happens when you get a bearing failure. What that means is precisely what was mentioned. It's not the pressure on the bearing – but lack of lubrication.

JR Lanzetta
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