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Power Cord & Strain Relief

Hayco Strain Relief on Power Cord Assembly

End users of Yokes are familiar with Hayco® Strain Relief's used on Power Cords for Economical Yokes. These inexpensive Strain Reliefs are designed for static use, as opposed to that of a portable power tool. The Strain Relief is fitted into a flat sided hole and require a special Insertion Tool, however many technicians try otherwise, with varying success. It is essential that the power cord is the correct diameter for the Strain Relief. This low quality Strain Relief also yields and damages the Power Cord Jacket, while the loose fitting Pig Tail Spring provides marginal strain relief to the cord.

Competitive Yokes also use a low quality Power Cord and Inspectors who use a Yoke for 3 or more hours per day, can expect to rebuild the Power Cord/Strain Relief in less than 6 weeks. This low quality solution is further aggravated by the electrical connection to the Yoke's internal electrical coil. Within the Junction Cavity on competitive Yokes, only wires protrude from the cast housing. When a new internal cord connection is to be made, the old crimp connectors are cut off and the newly prepared wires need to be re-crimped together. Thus after a few power cord replacements, the Coil Wires are to short for acceptable connections.

This rebuild entails removal of the Yoke's Cover Plate (2 to 4 fasteners), and cutting the power cord to remove the damaged portion. The new (or shortened) Power Cord, of the correct diameter, can then be prepared by stripping the Jacket, preparing the 3 wires, and installing new Crimp Connector receptacles. A new Strain Relief must be procured, and the entire assembly can be reinstalled onto the Cover Plate of the Yoke. With the Power Cord Assembly now rebuilt, it can be reinstalled onto the Yoke by connecting the 3 Crimp Connectors to the proper receptacles, and reattaching the End Cap to the Yoke Body. Time study has found that a Journeyman Electrician, with the proper tools and parts on hand, can perform this task in less than 30 minutes. Let's not consider an Inspection Lab's Field Inspector, at a customer's site performing MPI.

All Electrical connections, within the Junction Cavity, on all WE-Series Yokes utilize cast in threaded terminals. The 3 wires on the power cord are fitted with eyelet type crimp connectors, which in turn are fastened into the cast Brass terminals. A WE-Series Yoke is illustrated on the right, while a Plug in WC-Series Module is shown on the left.

When entering the Portable MPI Equipment market Western Instruments set out to develop; safer, more compact, rugged, and reliable Yokes. End Users pleaded for drastic improvements to the Strain Relief of Power Cords, not only to make them last longer, but to decrease the time to repair them. To start, a Rubber Strain Relief similar to those used in the Electrical Power Tool Industry, was used to bring those used on Yokes up to par.

In over 20 years of Servicing Yokes, we often saw the power cords tapped onto the cast housing, in an attempt to improve strain relief, and to direct the Power Cord for operator convenience. However, every operator had their own way of directing the cord when tapping it to the housing. The result of ergonomic investigation was the development of the unique End Cap used on all of Western's Yokes, with the exception of the WE-3 and WE-7. This End Cap incorporates the Rubber Strain Relief, and allows the Power Cord entry point to be at virtually any position through its 360° of rotation. These improvements, to the Strain Relief and Cord Positioning system, results in typically 10 times greater life for the Power Cord – from an average of 6 weeks to around 18 months! While this versatility and longevity may not mean much to an end user that only uses a Yoke a few times a week, it just illustrates the quality built into every W-Series Product. Procedures for repositioning the entry point for the Power Cord are outlined in the Operator's Manual for every W-Series Yoke.

We didn't stop with the Strain Relief or positioning the entry point of the cord. Just because a Power Cord has the CSA or UL logo on it, doesn't mean the entire assembly meets a high standard. Competitive Yokes, like our economical WE-3, use the cheapest quality Power Cord available, SJO (*J* = Junior), with a cast Plug. The jacket of these cords is made of low cost Vinyl, which has poor performance characteristics. In cold weather vinyl gets hard and easily cracks, in hot weather it softens and is easily damaged, and when oily, it swells and weakens. W-Series Power Cords use the highest quality Rubber jacket and it's Water, Oil, and UV resistant (SOOW). It has a

serviceable temperature range of -40° to +90°C, and is not weakened by the extremes of the operational environment.

All W-Series Yoke use a high quality Plug, because we know operators pull on the cord to unplug them. Our standard requires a 40 pound load, on the cord against the plug body, over a 24 hour period. However, if the cord is pulled from the plug it can be quickly repaired. Competitive Yokes use a molded vinyl receptacle that bonds to the vinyl cord, but once damaged the repair is not so quick. Some might believe a molded cord is somehow safer, but review our *Yoke Switches* write up and you will learn how standard Yokes are poorly grounded.

The extra effort that went into the design of the W-Series Product Line, continues through with the components we use on the Production Floor. If a customer wants cheap….he can have it in the WE-3 or Competitive Yokes. However, if the customer is concerned about operating and maintenance costs…he can pay you now or pay you later.