

# MPQ

MUNCIE POWER QUARTERLY



## Direct vs. Remote

MARKET SPECIALIST  
JOSH REIMER  
PROVIDES TIPS ON  
DIFFERENT MOUNTING  
OPTIONS FOR  
HYDRAULIC PUMPS

### ALSO INSIDE:

**CEO'S CORNER:**  
LIVING THE MISSION

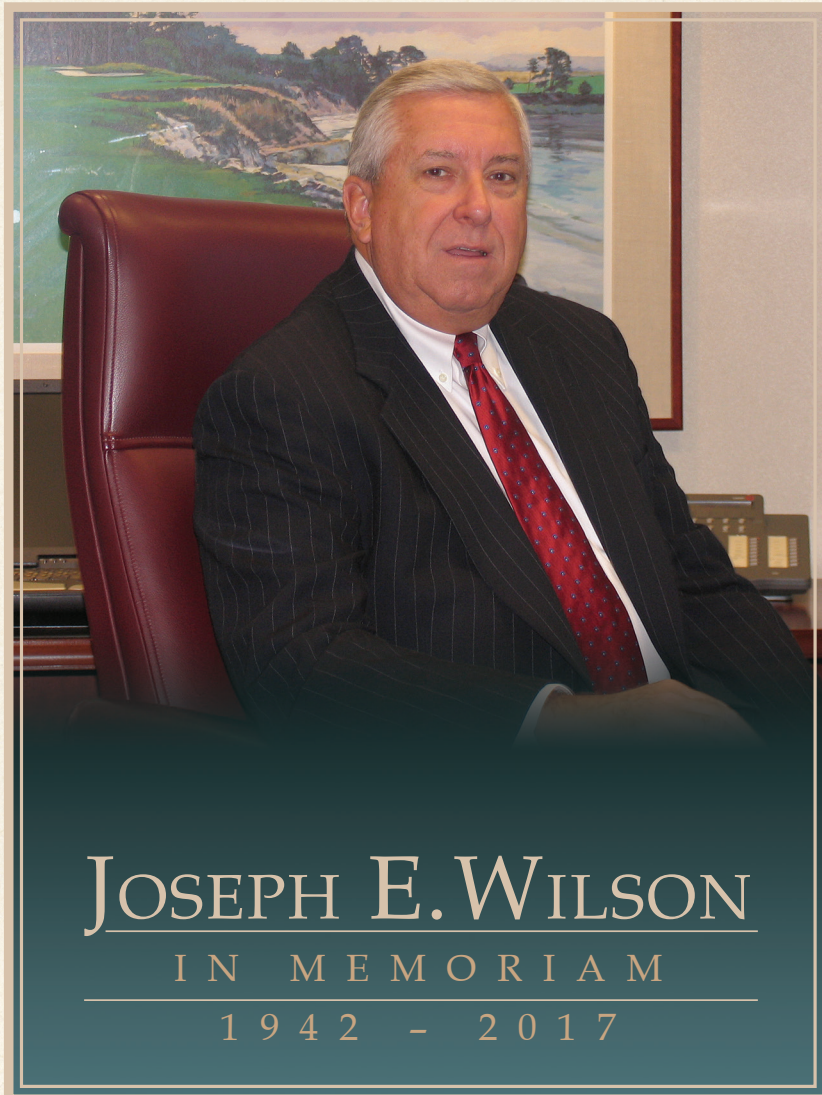
**PRODUCT SPOTLIGHT:**  
THE L125 SECTIONAL  
LOAD SENSE VALVE

**TECH REVIEW:**  
A PICTURE'S WORTH A  
THOUSAND WORDS

**BEST PRACTICE:**  
LIFT YOUR LEAN EFFORTS







JOSEPH E. WILSON

IN MEMORIAM

1942 - 2017



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**Chairman and CEO**  
**1997 - 2005**

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43 Years of Service

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**Ray L. Chambers**

Chairman, CEO & President

Ray Chambers joined Muncie Power Products as Vice President of the Tulsa (Oklahoma) Division in 2004. He became President of the company in 2009, and was named to his current position in January 2012. He holds a bachelor's degree from Oklahoma Wesleyan University and a master's degree from Southern Nazarene University in Bethany, Oklahoma. He is a thought leader and visionary within the industry.

# Living the Mission

Experts often say that 55 percent of communication is body language, 38 percent is tone of voice and 7 percent is the words you use to communicate. This in itself tells most of us that we are not always cognizant of how real communication takes place. Even more daunting is something I have learned over the course of my career, which is that most of what we communicate to people actually comes from how we live our lives.

Communication is something we do every day, but it is so much more than verbal or physical expressions. A relationship has to develop and it relies on our willingness to put time and effort into another person, to care about them and have a desire to communicate with them in a way that fosters personal growth. This lends credence to the old truth that people don't really care about what you know until they know how much you care.

I remember a time in the 1990s when I was working as the manager of a large manufacturing plant. Change was needed – and coming fast. As the plant manager, it was up to me to communicate this to our employees in a way that would help them understand what these changes would ultimately mean for them.

I arranged for a series of meetings with all of our employees. Thinking I would be creative, I decided to use the rate of change that was taking place with computers as a mirror of the rate of change to come within

our workplace. Instead of making that correlation, our employees interpreted that they needed to learn more about computers – and fast.

I had missed the mark. My words were clear, but everything else about my communication led them to interpret differently than what I had intended. The people didn't know me yet and they hadn't seen me vulnerable. They didn't know that I genuinely cared for them and wanted to help them on their journey. Regardless of my intent, I left them with a cold directive to get "up to speed" on computers or get ready for tough times. Throughout my career I've learned many lessons in communication – discovering through my failures that communication is not easy; it takes hard work.

In our lives, we often have many things vying for our attention and demanding our time, which can make it challenging when it comes to investing in people the right way. To achieve real communication, it requires listening, patience and tolerance. But, most of all, people have to hear you through your actions.

Beyond body language, tone of voice or even the words we use – the consistency of our actions speaks volumes to those around us. After 30 years in leadership positions, I am still learning that my communication takes place most often without saying a word. ■



# You Don't Have to Sacrifice Efficiency for Complexity

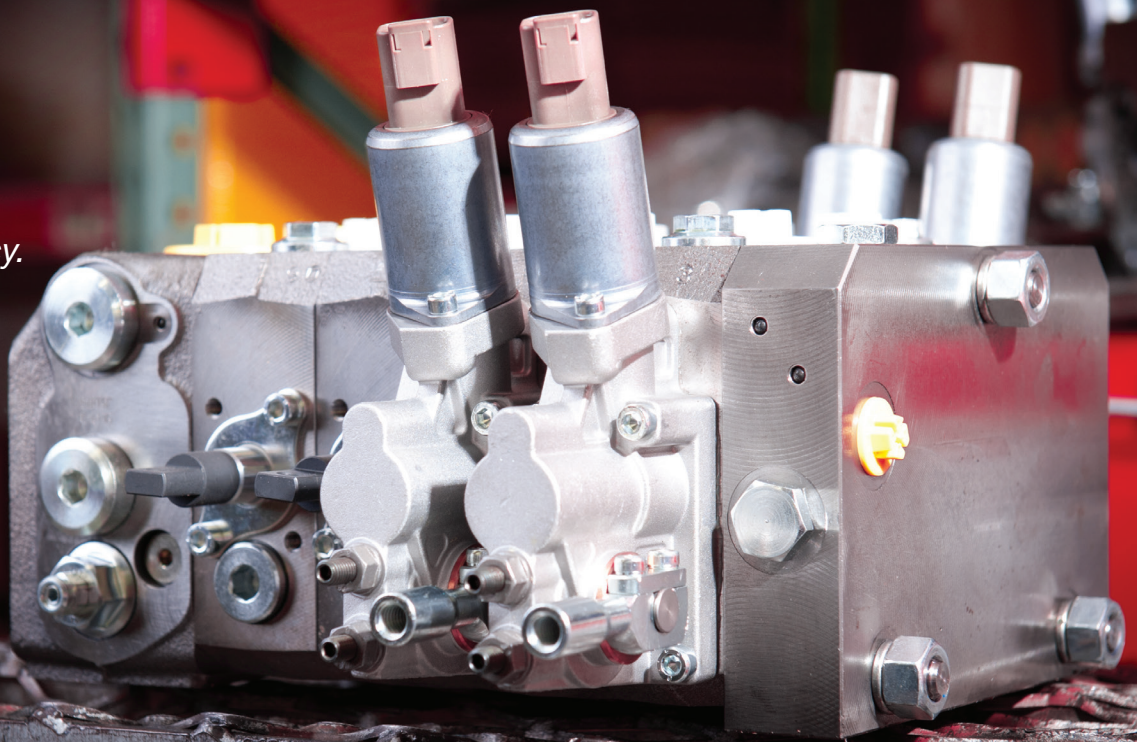
## New L125 Sectional Load Sense Valve

In markets like refuse or snow and ice, where applications can be complex and require multiple functions at one time, it can be difficult to balance system complexity with efficiency. With the release of Muncie Power Products' new L125 sectional, load-sense valve in the second quarter however, the company

now offers its own option so that efficiency nor complexity need be sacrificed.

As a member of the team working on bringing this product to market, Product and Applications Engineer Nick Schmidt sees the product as an opportunity for the company's customers to

*The new L125 – balancing system complexity with efficiency.*





achieve a more efficient, hydraulic system.

“It gives you the opportunity to have a more efficient system because when your valve is not stroked, as long as your system is set up right, the pump won’t be trying to send oil to the valve – which is inefficient,” he explained.

In order to create the L125 and provide this opportunity, the team had to reflect on previous load-sense products once distributed by the company and leverage its relationship with the Interpump Group to offer an Interpump load-sense product.

“To develop what we were going to offer we evaluated previous usage of load-sense products here at Muncie and built our product portfolio based off that,” said Schmidt.

Compared to Muncie Power Products other valves, the L125 is similar in that it is a valve but also very different from the V Series directional control valves. According to Schmidt, the L125 differs from the V Series as it is load sensing, has a closed center and features good flow sharing capabilities.

“Because it’s post-compensated, the flow sharing characteristics are quite good,” he said.

Post-compensated means that the valve can distribute flow to multiple work sections at the same time. Additionally, the system communicates hydraulically by sending a pressure signal back to

the pump to adjust the pump’s flow so that the multiple functions operate efficiently. As Schmidt shared, with a standard, open-center valve there is typically no compensation – which means that it cannot operate multiple functions simultaneously and it does not tell the pump how much flow it needs.

Well suited for applications within the agriculture, utility, snow and ice and refuse markets where multiple functions are more likely required, the L125 ultimately meets two main needs identified within these markets.

“Two main reasons would be operating multiple functions at the same time or wanting a more efficient system,” he said.

The L125 has a 33 GPM nominal flow rate with an inlet capable of a maximum of 40 GPM and its work sections a maximum of 26.4 GPM. Beyond its good flow sharing capabilities mentioned, the L125 also has multiple spool flow options and both electro-hydraulic and manual shift versions available.

Muncie Power’s L125 covers lower flow rates, which is why the company has plans to – as Schmidt said – soon “offer its big brother, the L275.” This larger valve will have higher flow rates, so that the entire flow range from low to high is covered.

For customers, the L125 means Muncie Power Products offers an option, and the opportunity, to capitalize on efficiency while operating multiple functions. ■



## **Nick Schmidt**

Product and Applications Engineer

Nick Schmidt joined the company in 2012 with a bachelor’s degree in mechanical engineering technology from Purdue University. He recently completed his MBA at Ball State University and with his MBA complete, is looking forward to more free time to enjoy some of his hobbies including golfing, fishing and playing guitar. Having always been interested in other languages, he also has plans to begin learning Italian.



# Direct vs. Remote

## Mounting for Hydraulic Pumps

**P**owering a hydraulic pump to a power take-off is a common practice. In mobile applications this typically consists of a gear, piston or vane pump, which is then direct mounted to the PTO or remote mounted using a driveline.

While both are viable options for mounting a hydraulic pump, there are circumstances and conditions which may make one mount type more applicable. As a result, selecting whether to direct or remote mount a hydraulic pump will take understanding and careful consideration.

### Josh Reimer

Market Specialist

Josh Reimer has been with Muncie Power Products for 22 years. During his career with the company he has served in various capacities from shipping and receiving clerk to customer service manager to his current position as a market specialist and more. He holds four different certificates including those for lean implementer training and advanced facilitation training. When he's not at work, Josh enjoys walking or hiking with his wife, Chasta.





## DIRECT MOUNT

In a direct mount the hydraulic pump is mounted directly to the PTO's output flange. When direct mounting a pump it is necessary to:

- 1) Specify a PTO output shaft and mounting flange to match those of the pump.
- 2) Select a pump rotation to match the PTO output rotation or a bi-rotational pump, which tends to have equally sized ports and can serve as the inlet or outlet.
- 3) Provide a rear pump bracket to support the pump's weight.

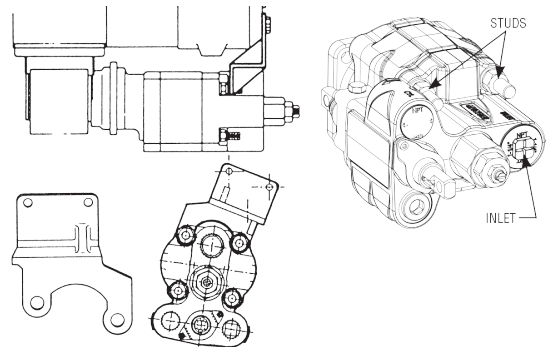
Anytime the combined weight of the pump, hose and fittings exceeds 25 lbs., and/or the pump's length is greater than 12 inches, a bracket at the back of the pump is necessary. The bracket should mount to two points on the pump and two points on the transmission case. Failing to install a properly designed support bracket will result in damage to the PTO housing and possible transmission failure.

Another concern to be wary of when direct mounting a pump is a condition called *shaft fretting*. This rapid spline wear of the PTO and pump shafts is evident where the two metal surfaces come into contact.

Shaft  
Spline  
Fretting



## Bracket Construction



### Advantages

- Quicker, easier and more cost effective installations
- Less parts to repair and/or maintain
- No physical exposure to rotating components

### Disadvantages

- Concealed maintenance points, which include periodic removal and replacement of grease at the pump to PTO connection
- Space limitations
- Fretting or spline wear of the pump and PTO shafts
- Space limitations are a concern

## REMOTE MOUNT

Sometimes it's not possible to direct mount a hydraulic pump, requiring the pump to be remote mounted and powered from the PTO by a driveline assembly. The correct type and series of driveline must be selected. Solid shafting is not recommended as it cannot be balanced and can vibrate, damaging the PTO and pump shaft seals – causing leaks. The better choice is a balanced, tubular assembly

designed to meet the application's speed, torque and horsepower requirements.

When using a driveline, it is important that it be *in phase* and incorporates a slip yoke at one end. An *out of phase* shaft will vibrate – damaging the PTO and pump shaft seals – while a functioning slip yoke will allow the shaft to adjust for flexing of the truck chassis.

### Advantages

- Space limitations are not a concern
- Exposed maintenance points make it easy to apply grease

### Disadvantages

- Additional cost to fabricate a driveline and remote mount a pump bracket
- Exposure to rotating components, which can result in injury up to and including death



# A Picture's Worth a Thousand Words

**W**ork instructions at Muncie Power Products were once simply text. But today, new work instructions are being created with visuals. Thanks in large part to Industrial Engineer Melissa Rucker, these visual work instructions have made power take-off assemblies more efficient.

"My goal is to have anyone be able to put a PTO together," said Rucker.

According to Rucker, many people learn by tactile and so, for this reason, visual work instructions are the closest that can be provided to tangible instructions.

"You can't argue with a picture, but you can have different interpretations with wording," she said. "With a

picture, there's no question what's the top of a clutch hub."

## **PROCESS TO CREATE**

When creating these instructions, Rucker has to ensure the right orientation is captured and the suggested build order included. But to really understand this, the creator has to know the product and its assembly first.

To do this, Rucker suggests first building the product as she has done to gain the right perspective. Moving forward, she then uses the solid models created by the design engineers in SOLIDWORKS® to create these instructions.

"Design engineers design the assembly and then what I do is color code," explained Rucker.



**Melissa Rucker**  
Industrial Engineer

Melissa Rucker holds both a bachelor's degree in systems engineering and an MBA from the University of Arkansas at Little Rock. She has been a member of the Muncie Power Products team for three years and has a Six Sigma Green Belt from Caterpillar. When she's not at work, Melissa enjoys cycling, weight lifting, fishing and woodworking. She is married to her husband, Daniel, and they have one son named Max.

“I color code every piece for that particular step.”

As Rucker described, the first step is color coded blue, then yellow – second, then bright teal and so forth in contrasting colors until the assembly is complete; in which case, all items will be grayed out. Regardless of the assembly, the steps will be the same, consistent colors.

Getting input from and verifying with those who assemble these products throughout this color-coding process is critical to capturing the most beneficial and efficient build order.

## VALUE

While visual work instructions create consistency, they also help ensure quality, promote efficiency and serve as a great reminder on products assembled less often.

“We just want to optimize time and the number of touches,” she said.

Visual work instructions allow the assembler to see what the first piece is and so forth along with how all the pieces fit together. And by working with assemblers, the visual work instructions reflect the most efficient build order – reducing time spent and the number of touches to help ensure quality.

“Doesn’t prevent it [mistakes], but more likely to see oh this highlighted blue is the first piece,” Rucker said. “I’m also not doing it in a vacuum, I involve the assemblers working on it.”

## CHALLENGES

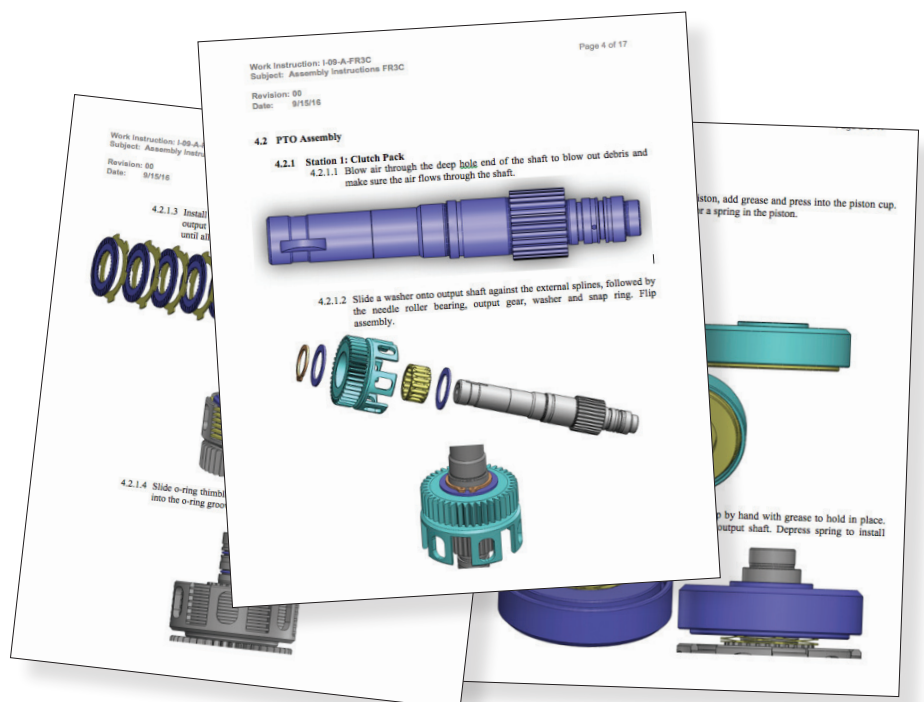
Creating visual work instructions can be time consuming as the color must be changed for every part, constructing exploded views of the assembly – while preferred – is time intensive and parts must be turned off and on throughout the process to show each step in the assembly. Configurations can also be infinite, which can make selecting one to cover all the basics difficult.

All in all, visual work instructions are just another way in which the company is carrying out its efforts of continuous improvement of lean, taking something already in use and making it better – according to Rucker.

“People don’t know what industrial engineers do, but I’m really part of making a better process,” she said. ■



*You can't argue with a picture, but you can have different interpretations with wording.”*





# Lift Your Lean Efforts

**E**nacting new processes or updating old ones to become a more efficient organization, business or department is not always easy. It takes a conscious effort on behalf of all of those involved to make the necessary changes to become more efficient.

One of the ways truck equipment industry veteran Muncie Power Products has achieved greater efficiency at its warehouse distribution center in Muncie, Indiana, has been with the addition of two lean-lifts, completed in August of 2015. Primary operator, Bench Assembler Joe Huff has seen firsthand how these lifts have made processes more efficient.

According to Huff, the lean-lifts are smart, storage units that have the ability to store products, parts or

whatever might need to be stored in a vertical position. And while an applicable tool for companies like Muncie Power, the possibilities for a lean-lift are fairly endless.

“It houses several trays and each holds ‘x’ number of parts depending on how you divide those up. Each one [lean-lift] right now currently holds about 44 trays,” said Huff. “The max number is 75, but because of the way we store our materials we had to remove some trays. There’s a little over 2,000 parts combined in those two lifts.”

Before purchasing a lean-lift it is important to consider what will be put in the lift and its purpose to determine what options work best. For example, each tray within Muncie Power’s lean-lifts can hold 1,100 pounds, as Huff noted, but another company may

## Joe Huff

Bench Assembler

Since beginning his career at Muncie Power Products 15 years ago, Joe Huff has served in various capacities. Starting in receiving, Joe moved to the bench and then CS cell before entering his current position, which includes operating the lean-lifts and overseeing the kitting cell. He is married to his wife, Becky, of 18 years and they have one daughter named Alexis – a junior at Cowan High School. Joe enjoys attending his daughter’s volleyball games.



require more weight. And although each has its own controls, the lifts communicate so that if a part is housed in another lift the user is notified.

Beyond being a “space-saver,” as Huff says, due to the lifts’ abilities to store what once took up a whole portion of the warehouse within the two towers – the lean-lifts have freed up space for new assembly cell configurations and also resulted in increased productivity.

“It’s somewhere in the neighborhood of 15 to 20 percent more efficient in pulling those parts than someone walking around the shop,” Huff said.

This allows employees to work on more orders because the parts are pulled from the lean-lift by one person and then dispersed. In addition, the lean-lifts have also contributed to greater inventory accuracy, as the operator can print lists directly from the units to ensure inventory records match.

Some tips to keep in mind, as Huff shared, include paying attention to material packaging, keeping like items together, being aware of safety features and doing tray inspections. If a bag is flipped up, it will require more space. Similarly, group like items as the tray’s space will be based on the tallest item. Also, make sure to do a tray inspection each time for packaging issues.

As Huff says, lean is about being more efficient and doing things smarter, not harder. The lean-lifts have done just that.

“I think with saving space and time it aligns directly with what we’ve set out to do,” he said, noting inventory accuracy as well. ■







*Member of the Interpump Group*