



Muncie®
Power
Products

SERIES 5 SINGLE ACTING PIN-PIN TELESCOPIC CYLINDERS

ASSEMBLY AND REASSEMBLY
INSTRUCTIONS





SERIES 5 SINGLE ACTING PIN-PIN TELESCOPIC CYLINDERS

ASSEMBLY AND REASSEMBLY INSTRUCTIONS

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WARNING & SAFETY RECOMMENDATIONS

When conducting the disassembly and reassembly of a cylinder it is your responsibility to ensure that you use the proper tools for the job and conduct the job in a safe manner. It is highly recommended that you use safety glasses and wear non-slip steel toed shoes. Because of the weight of most cylinders, it is highly recommended that you use lifting equipment to move the complete cylinder and its individual stages in order to prevent injury. Please exercise extreme caution during the disassembly/assembly process to ensure your safety and prevent damage to the stages.

PRELIMINARY INSTRUCTIONS

Prior to disassembly, the cylinder must be removed from the truck, drained and cleaned. Use water and a nonflammable cleaning agent to clean the cylinder.

Use a table/bench that is strong enough to hold the weight of a cylinder. The table must be clean and free of debris that may cause damage to the stages or internal components of the cylinder. Any scoring, pitting, or scratches sustained to the stages during a disassembly and reassembly of a cylinder are the sole responsibility of the individual(s) involved in the rebuild process. Damage to the stages can result in damage to internal components, thus causing leaks.

REBUILD RECOMMENDATIONS

It is highly recommended that you conduct a complete rebuild if disassembling a cylinder for any reason. A complete rebuild includes replacement seals, wiper, and wear rings because these are the components that are subject to wear. The seal kit includes only the seals and wipers needed for a cylinder.

It is also recommended that if disassembling due to a leak in one stage, it would be best to replace all internal components instead of just the ones that have failed.

It is also highly recommended that you use only genuine Muncie parts and do not tamper with or modify them. Failure to do so will result in a voided warranty. When ordering rebuild kits, always mention the part number and serial number of the cylinder. These can be found on the tag that is spot welded to the housing.

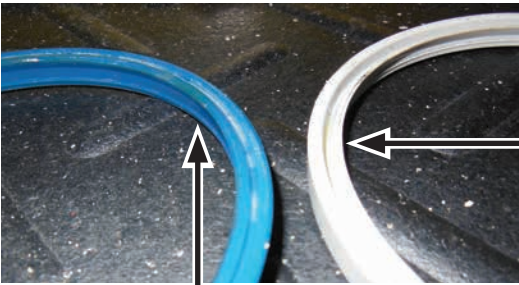
A30 Muncie Repair Kits

Cylinder Size and Series	Complete Rebuild Kit #	Seal Kit Only #
5-3-***-A30	RBK-53-30	GSK-53-30
6-3-***-A30	RBK-5.53-30	GSK-5.53-30
7-4-***-A30	RBK-6.54-30	GSK-6.54-30
8-4-***-A30	RBK-7.54-30	GSK-7.54-30
8-5-***-A30	RBK-85-30	GSK-85-30

Recommended kit is the “Complete Rebuild Kit”

A30 Muncie Repair Kit

Component		RBK-53-30	GSK-53-30	RBK-5.53-30	GSK-5.53-30	RBK-6.54-30	GSK-6.54-30	RBK-7.54-30	GSK-7.54-30	RBK-85-00	GSK-85-00
		Kit Quantity(s)									
High Pressure Seals	3.11"Ø High Pressure Seal	1	1	--	--	--	--	--	--	--	--
	3.86"Ø High Pressure Seal	1	1	1	1	1	1	--	--	1	1
	4.57"Ø High Pressure Seal	1	1	1	1	1	1	1	1	1	1
	5.31"Ø High Pressure Seal	--	--	1	1	1	1	1	1	1	1
	6.06"Ø High Pressure Seal	--	--	--	--	1	1	1	1	1	1
	6.85"Ø High Pressure Seal	--	--	--	--	--	--	1	1	1	1
Wipers	3.11"Ø Wiper	1	1	--	--	--	--	--	--	--	--
	3.86"Ø Wiper	1	1	1	1	1	1	--	--	1	1
	4.57"Ø Wiper	1	1	1	1	1	1	1	1	1	1
	5.31"Ø Wiper	--	--	1	1	1	1	1	1	1	1
	6.06 Ø Wiper	--	--	--	--	1	1	1	1	1	1
	6.85"Ø Wiper	--	--	--	--	--	--	1	1	1	1
Top Eye Seals	3.11"Ø Top Eye Seal	1	1	--	--	--	--	--	--	--	--
	3.86"Ø Top Eye Seal	--	--	1	1	1	1	--	--	1	1
	4.57"Ø Top Eye Seal							1	1		
Head Nut Seals	4.57"Ø Head Nut Seal	1	1	--	--	--	--	--	--	--	--
	5.31"Ø Head Nut Seal	--	--	1	1	--	--	--	--	--	--
	6.06"Ø Head Nut Seal	--	--	--	--	1	1	--	--	--	--
	6.85"Ø Head Nut Seal	--	--	--	--	--	--	1	1	1	1
Lower Guide Rings	3.11"Ø Lower Guide	2	--	--	--	--	--	--	--	--	--
	3.86"Ø Lower Guide	2	--	2	--	2	--	--	--	2	
	4.57"Ø Lower Guide	2	--	2	--	2	--	2	--	2	--
	5.31"Ø Lower Guide	2	--	2	--	2	--	2	--	2	--
	6.06"Ø Lower Guide	--	--	--	--	2	--	2	--	2	--
	6.85"Ø Lower Guide	--	--	--	--	--	--	2	--	2	--
Upper Guide Rings	3.11"Ø Upper Guide	2	--	--	--	--	--	--	--	--	--
	3.86"Ø Upper Guide	2	--	2	--	2	--	--	--	2	--
	4.57"Ø Upper Guide	2	--	2	--	2	--	2	--	2	--
	5.31"Ø Upper Guide	--	--	2	--	2	--	2	--	2	--
	6.06"Ø Upper Guide	--	--	--	--	2	--	2	--	2	--
	6.85"Ø Upper Guide	--	--	--	--	--	--	2	--	2	--
TOTAL No. of Components		22	8	20	8	26	10	26	10	32	12



Wiper, Typically Grey but may be Blue, Has “Deep” Groove

High Pressure Seal, Always Blue, Has “Shallow” Groove

Lower Guide

Upper Guide



TOOLS USED

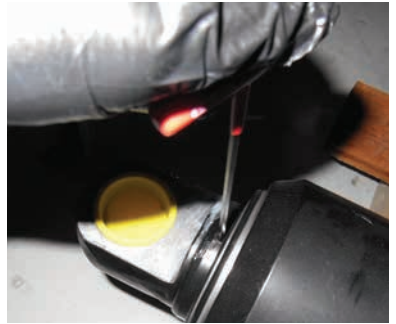
Below are the tools commonly used to disassemble and reassemble a Muncie cylinder. It should be noted that a vice and some form of locking mechanism should be used to hold/block various components. Additionally proper lifting equipment should also be used to lift and move heavy objects. Safety glasses and nonslip steel toed shoes are also recommended.



List of Tools Used
Hard Plastic Driver
3 lbs. Sledge Hammer
Small, Medium, and Large Straight Blade Screw Drivers
Standard Hammer
90° Pick
8mm Allen Head Screw Driver
10mm Allen Head Screw Diver
Spanner Wrench
Vice
Hoist
Hydraulic Press (To hold cylinder to table)

DISASSEMBLY

1. Remove the set screws that are located in the head nut and the top eye. (The set screw in the top eye ONLY needs removed if the top eye of the cylinder is to be removed. The top eye MUST be removed if disassembling a 5" cylinder. The top eye MUST also be removed if replacing the top eye back-up thread seal.)



2. Secure the cylinder so that it will not rotate.

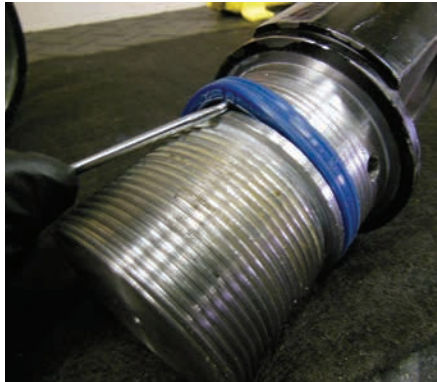


DISASSEMBLY

3. With the cylinder secure, begin removing the top eye (If needed). Use a bar for leverage; the eye is threaded into the final stage via right-hand thread.



4. If you have removed the top eye, you will need to replace the seal. Remove and discard the old seal and replace with a new one. You may need to secure the top eye in a vice for removal and installation of the seal. Do not slide the seal along the threads; instead screw the seal onto the threads so that the internal lip of the seal remains intact without becoming damaged.

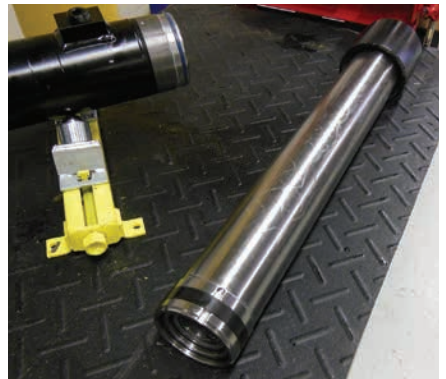


DISASSEMBLY

5. Remove the head nut by using a spanner wrench and the two construction holes on the head nut. The head nut is attached to the housing via right-hand thread. Place a pan below the head nut to catch any residual oil. (Note the head nut may grip the stages tight enough to cause all stages to rotate.)

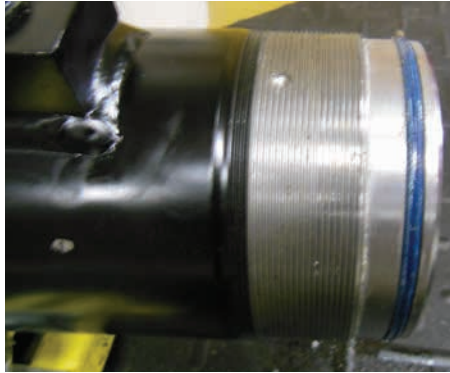


6. Once the head nut is no longer engaged in the threads pull the head nut off of the housing. All of the stages will pull out of the housing as one unit at this time. Use caution as the “nest” of tubes will be heavy. (Note the thread seal may cause the head nut to hang up while attempting to remove it from the housing.)



DISASSEMBLY

7. Remove and replace the head nut thread seal. Be sure to clean the seal seat, and apply white lithium grease prior to installing the new seal.



8. Secure the “nest” of tubes so that you can remove the head nut from the tube “nest”.

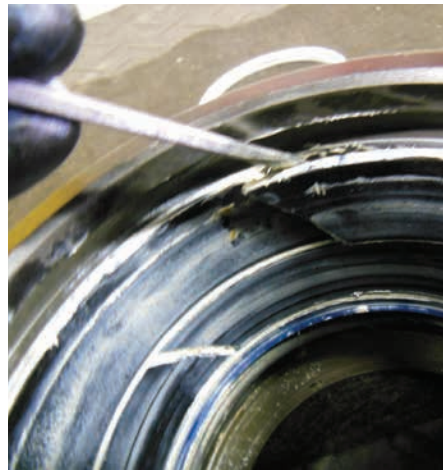


9. Using a hard plastic driver and a sledge hammer, drive the head nut until it is removed from the “nest” of tubes.



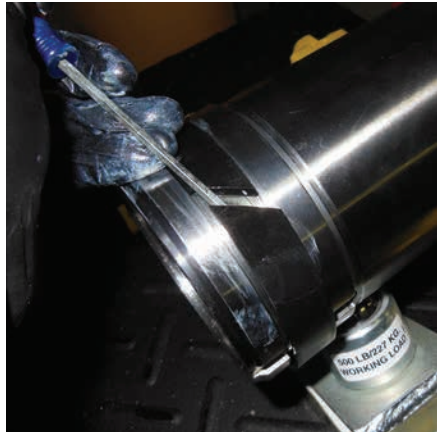
DISASSEMBLY

- 10.** With the head nut now off, remove the (1) wiper, (2) wear rings and (1) high pressure seal.

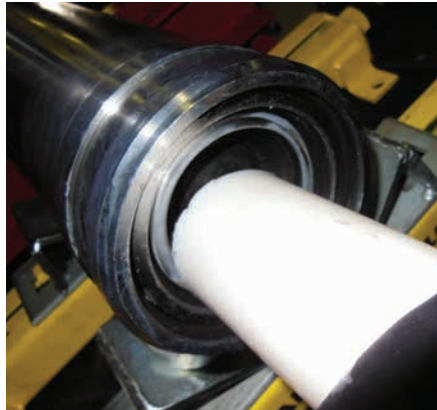


DISASSEMBLY

11. Remove (2) wear rings from the piston end of the stage. The 5" cylinder of the A00 Series is the only Muncie Power cylinder series that has only one wear ring at the base/piston side of the stage.



12. Using the stiff/elastic material and the sledge hammer, hammer the smallest stage so that the snap rest ring is fully exposed.



DISASSEMBLY

13. Remove the snap rest ring by means of a straight blade screw driver. Use extreme caution as the ring may shoot out while attempting to remove it from its seat.



14. Using the stiff/elastic material and the sledge hammer, drive the small stage back towards the piston side of the tube "nest". Once it has made it past the seal, the stage can be pulled out by hand. (Use caution as the weight of the various stages may require the use of a lifting device.)



DISASSEMBLY

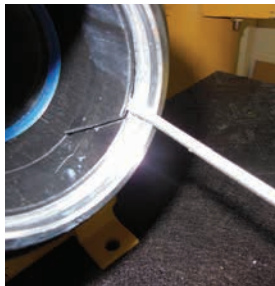
- 15.** With the stage removed from the nest of tubes, remove the wear ring(s) that is located at the piston end of the stage.



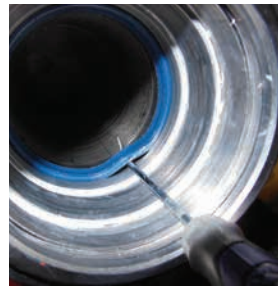
- 16.** Remove the (1) wiper, (2) wear rings and (1) high pressure seal from the “top” end of the stage in the tube “nest”.



Wiper



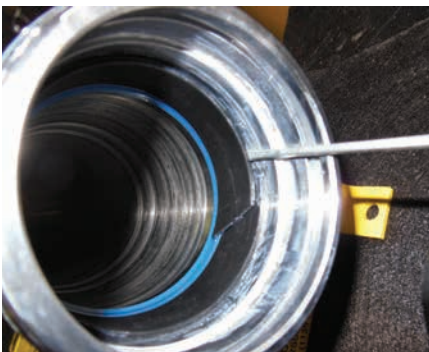
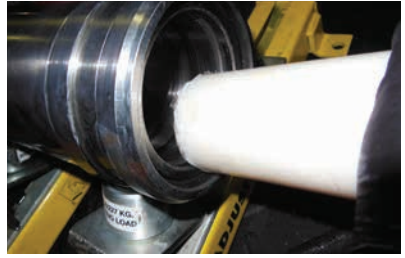
Wear Rings



High Pressure Seal

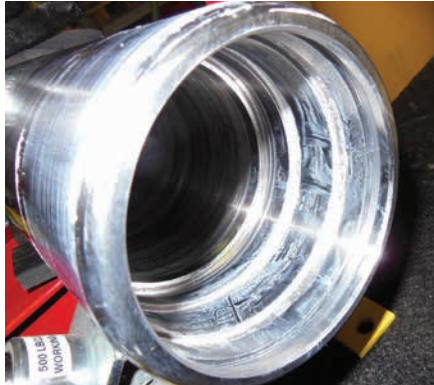
DISASSEMBLY

17. Repeat steps 12. – 16. until all stages have been removed from the “nest” of tubes. Always work from the smallest diameter out to the largest diameter stage during disassembly.



REASSEMBLY

18. After having disassembled the various components of the cylinder, it is very important to clean the stages with water and a nonflammable cleanser. Be sure to check for any defects in the stages. Any scratches, distortions or dents may cause leaks.
19. With the stages and housing now clean, begin reassembly of the cylinder. Start with the largest stage and work toward the smallest.
20. Secure the largest stage to a table so that it will not roll around while reassembling the tube “nest”.
21. Start by applying white lithium grease to the internal surface where the high pressure seal, wear rings and wiper will be installed.



22. Begin with the upper wear rings for the stage. Note the upper wear rings shape at right. It is best to “expand/stretch” the upper wear rings slightly so that they will “spring” into their machined seats. Also, note the shape of the cut in the wear ring, this is a beveled cut that will only allow the wear ring to be assembled one way. If the wear ring is installed incorrectly the next stage will not fit. Install both wear rings only; do not install the seal or wiper at this time. The wear rings will only fit in the “second” and “third” machined seats.



REASSEMBLY

- 23.** Now attach the lower guide ring(s) to the next smallest stage (the stage that fits into the stage where the upper guides were just installed). You will need to “compress” the guide ring slightly so that when attached to the stage it will grip tightly.



- 24.** Now slide the smaller stage into the stage with the upper guides installed to make sure that the wear rings have been installed properly. Slide the smaller stage all the way through the larger stage until the stops of the two stages hit. At this time examine the smaller stage to ensure that there are no defects in the stage that would cause damage to the seal or wiper.



- 25.** After examining the smaller stage, slide it back far enough into the larger stage so that you can see the locations for installing the high pressure seal and the wiper.



REASSEMBLY

- 26.** Install the high pressure seal and the wiper into the “larger” stage. Note the difference between the seal and the wiper. Typically the seal is blue in color and the wiper is gray. However this is not always the case. To identify the difference look at the “groove” of each. The “shallow” groove is in the seal and the “deeper” groove is in the wiper.



- 27.** Install the high pressure seal into the seat that is on the other side of the wear rings. Be sure to install the seal so that the “groove” is facing the piston end of the stage.

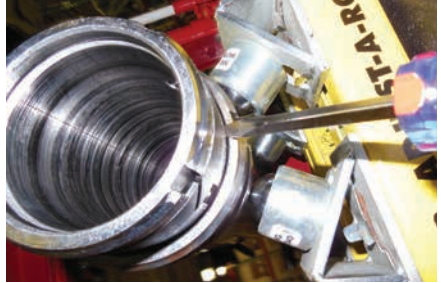


- 28.** Install the wiper into the upper seat in the stage. Be sure to install the wiper so that the “groove” is facing away from the wear rings.



REASSEMBLY

- 29.** Now that the high pressure seal and wiper are installed. Drive the “smaller” stage back through the “larger” stage so that you can install the snap rest ring into the “larger” stage. Moving the smaller stage will require the use of the stiff/elastic material and a sledge hammer. Note that the solid machined stop of the “smaller” stage may get hung up on the lip of the “larger” stage. You will need to lift the “smaller” stage so that the stop clears and does not cause damage to either stage.



- 30.** With the “smaller” stage moved out of the way, install the snap ring into the seat located internally on the piston end of the “larger” stage.



- 31.** Drive the “smaller” stage back into the “larger” stage so that the “smaller” stage will be in contact with the snap ring that was just installed in the previous step. This will require the use of the stiff/elastic material and the sledge hammer.



REASSEMBLY

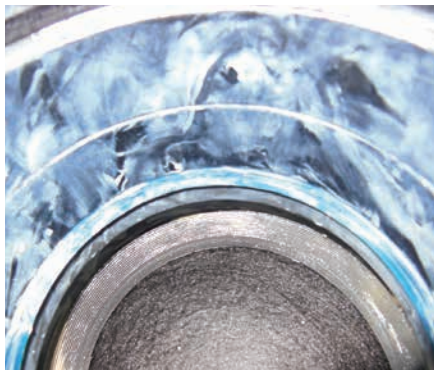
- 32.** Repeat steps 21. – 22. until all stages have been reinstalled into the tube “nest”. Make sure that all high pressure seals, wear rings, and wipers have been properly installed.



- 33.** Once all stages have been reinstalled, begin installation of the new components into the head nut. Begin by applying white lithium grease to the surfaces where the high pressure seal, wear rings and wiper will sit.

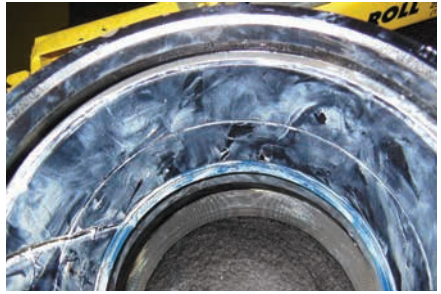


- 34.** Install the (2) wear rings into the head nut. Note the wear rings shape at right. It is best to “expand/stretch” the upper wear rings slightly so that they will “spring” into their machined seats. Also, note the shape of the cut in the wear ring, this is a beveled cut that will only allow the wear ring to be assembled one way. If the wear ring is installed incorrectly the head nut will not fit onto the tube “nest”. The wear rings will only fit in the “second” and “third” machined seats.

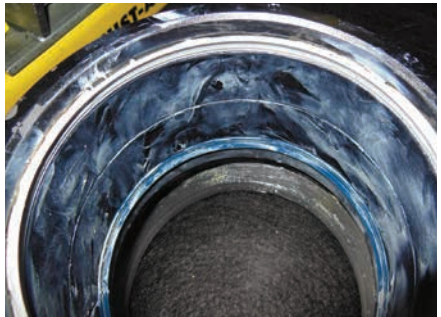


REASSEMBLY

- 35.** Install the high pressure seal into the head nut. The seal will be blue in color and will have a “shallow” groove compared to the groove in the wiper. The seal must be placed in the seat closest to the threads and the groove in the seal must face the threads.



- 36.** Install the wiper into the head nut. The wiper should be gray or may be blue in color and will have a “deep” groove compared to the groove in the seal. The wiper must be placed in the seat closest to the top/ farthest from the threads, and the groove in the wiper must face away from the wear rings.

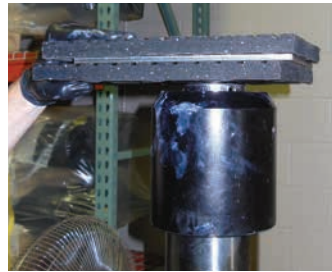


- 37.** Carefully position the tube “nest” so that you will be able to attach the head nut. This may require that you stand the tube nest up, if so use extreme caution as the tube “nest” may not be stable in an upright position.



REASSEMBLY

- 38.** Now carefully place the head nut onto the tube nest. Using a material that will protect the head nut and tube “nest”, use a sledge hammer to drive the head nut onto the tube “nest”.



- 39.** Now using the stiff/elastic material and the sledge hammer, drive the head nut down enough so that 1” of the largest stage is showing.



- 40.** Carefully move the housing into a location so that you can install the tube “nest”. You may need to use a lift to move the housing. Once positioned lock in place. If the thread seal on the housing has not yet been replaced, do so now.



REASSEMBLY

- 41.** Install the tube “nest” into the housing. Be careful not to damage the thread seal or any of the stages. Installing the tube nest may require the use of a hoist.



- 42.** Tighten the head nut with a spanner wrench. Use the construction holes in the head nut to grip with the spanner wrench. Tighten the head nut as tight as possible.



- 43.** Install the top eye if it was removed. Be sure to replace the thread seal if not done already. (Screw the seal onto the threads of the top eye so that the internal lip of the seal remains intact without damages. Do not slide the seal along the threads.) Place a bar through the eye and tighten as tight as possible.



REASSEMBLY

- 44.** Once the head nut and top eye have been tightened, install the set screws. The original holes may no longer line up, so it may be necessary to drill and tap new holes for the set screws. Use extreme care as you drill new holes so you do not drill through the final stage wall, or the cylinder housing. Be sure to clean and degrease the screws and apply Loctite 263 prior to installation.



- 45.** If you have the capability to test the cylinder, do so now. Fully cycle the cylinder several times checking for leaks. If a test stand is not available, install into a truck and cycle the cylinder several times. Because this cylinder is of a self bleeding design, it may take 8 – 10 cycles before all of the air has bled out.

— ADDITIONAL INFORMATION —

DESCRIPTION	MUNCIE PART NUMBER
Metric M10 x 1 45°	43M43032








— TROUBLESHOOTING INFORMATION —



This symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Condition	Likely Cause	Correction
Cylinder does not extend.	No oil in reservoir.	Fill reservoir with approved fluid.
	Closed shut-off valve.	Open valve.
	Air trapped in pump.	Purge air from pump.
	Pump rotation incorrect.	Replace or re-configure pump to correct rotation.
	Hoses plumbed incorrectly.	Correct the plumbing.
	PTO not engaged.	See "PTO Troubleshooting"
	Pump worn or damaged.	Repair or replace pump.
	Load is causing system pressure to exceed relief pressure setting.	Check relief setting and adjust accordingly. Do not exceed cylinder maximum pressure. Remove excess load.
	Cylinder diameter too small for the application.	Consult body builder manufacturer to determine the proper cylinder for the application.
	Air trapped in pump.	Adjust relief valve to manufacturer's specification.
	Relief valve stuck open.	Remove, clean, and re-set to specification.

TROUBLESHOOTING CONTINUED

Condition	Likely Cause	Correction
 Cylinder does not extend.	Dump angle too great resulting in not enough body weight to collapse cylinder. (Cylinder too long).	Remove cylinder, stroke too long.
	Valve and/or hoses too small causing excessive pressure differential.	Replace with larger valve and/or hoses. Or, disengage PTO for lower function.
	Cylinder has become bent due to improper dump procedure.	Replace cylinder.
	Valve not shifted properly.	Repair or replace valve.
Cylinder Operates but with a "jerky" motion.	Air trapped in cylinder.	Cycle cylinder 8 - 10 times. Muncie cylinders will self bleed.
 Cylinder does not retract initially when the valve is engaged, but suddenly drops after a few seconds.	Air trapped in cylinder.	Cycle cylinder 8 - 10 times. Muncie cylinders will self bleed.
An "oil" like substance is dripping from the cylinder.	During construction, white lithium grease is used to lubricate internal components that will not be exposed to oil. As it heats up it may drain down the side of the cylinder.	Wipe away the grease, over time this will subside. If not oil may be leaking past the seal, at which point the cylinder will need repaired or replaced.
Leakage from port(s). (DO NOT use Teflon pipe tape on fittings)	Loose or damaged fitting.	Tighten or replace fitting.
Cylinder too slow while extending.	Pump sized too small for application.	Change pump or PTO for proper application.
	PTO speed too slow for application.	Change pump or PTO for proper application.
	Low engine RPM.	Raise engine RPM.
	Relief valve improperly set.	Adjust relief valve to manufacturer's specification.
	Relief valve stuck open.	Remove, clean, and re-set to specification.
Cylinder too slow while retracting	Valve and/or hoses too small causing excessive pressure differential.	Replace with larger valve and/or hoses. Or, disengage PTO for lower function.
 Cylinder too fast while extending.	Pump sized too large for application.	Change pump or PTO for proper application.
	PTO speed too fast for application.	Change pump or PTO for proper application.
 Cylinder too fast while retracting.	Material stuck in dump body/trailer.	Make sure all material has emptied from dump body/ trailer.
 Material remains stuck in bed.	Dump angle not great enough/steep enough to allow material to fall out of the bed.	Consult body/trailer builder manufacturer to determine the proper cylinder for the application. The stroke may need to be increased.
Final stage(s) will not extend.	Relief valve improperly set.	Adjust relief valve to manufacturer's specification.
	Cylinder diameter too small for the application.	Consult body builder manufacturer to determine the proper cylinder for the application.



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**Muncie®
Power
Products**

A Member of the Interpump Group

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