



# PowerPro Lift Assist 556191

## INTRODUCTION

The Shopsmith Powerpro Lift Assist is a great accessory that will significantly reduce the amount of effort required to raise the Machine into full vertical (Drill Press) position. The table below compares pounds of lifting effort required with and without the Lift Assist.

Headstock distance from left side of MARK V	Pounds of effort required w/o Lift Assist	Pounds of effort required WITH Lift Assist
0"	65#	25#
8"	57#	20#
12"	50#	12#
20"	35#	SELF-LIFT

## Tools Needed

- 7/16" Open End Wrench
- 1/2" Open End Wrench
- Adjustable Wrench
- Small, Straight-Bladed Screwdriver

## SAFETY

### WARNING

Please read, understand and follow:

- √ ALL of the assembly and alignment procedures covered in this instruction sheet prior to installing your PowerPro Lift Assist.
- √ Make sure the Mark is turned off and unplugged before assembling and adjusting the Lift Assist.

### WARNING

- √ Always use proper Safety Equipment and Procedures when operating machines.
- √ Be sure to tighten all hardware securely before using.
- √ To avoid damage to your machine and possible personal injury:
  - ◆ During assembly and installation of the Lift Assist, both the Arm Lock Knob and the Pivot Lock Knob must be secured on the right end of the machine. The Lift Assist is installed in the vertical drill press mode of your machine and if both of these locks are not secured the force of the gas cylinder will cause parts of the machine to slip out of position.
  - ◆ Make sure that both pivot lock knobs are secured for ALL horizontal machine operations. If they are not secured during all horizontal operations the force of the gas cylinder will push parts of the machine out of position.
  - ◆ Before lifting the right end of the machine, for under-table operations, be sure to pivot the machine up to the standard vertical drill press position, lock the machine in this position and use the Quick Disconnect to remove one end of the Gas Cylinder from the Upper Mount of the Lift Assist. Only at that time, can the machine be lowered and then pivoted up to the left for under table operations. Failure to disconnect the Gas Cylinder from the Upper Mount will result in the force of the gas cylinder pushing parts of the machine out of position.

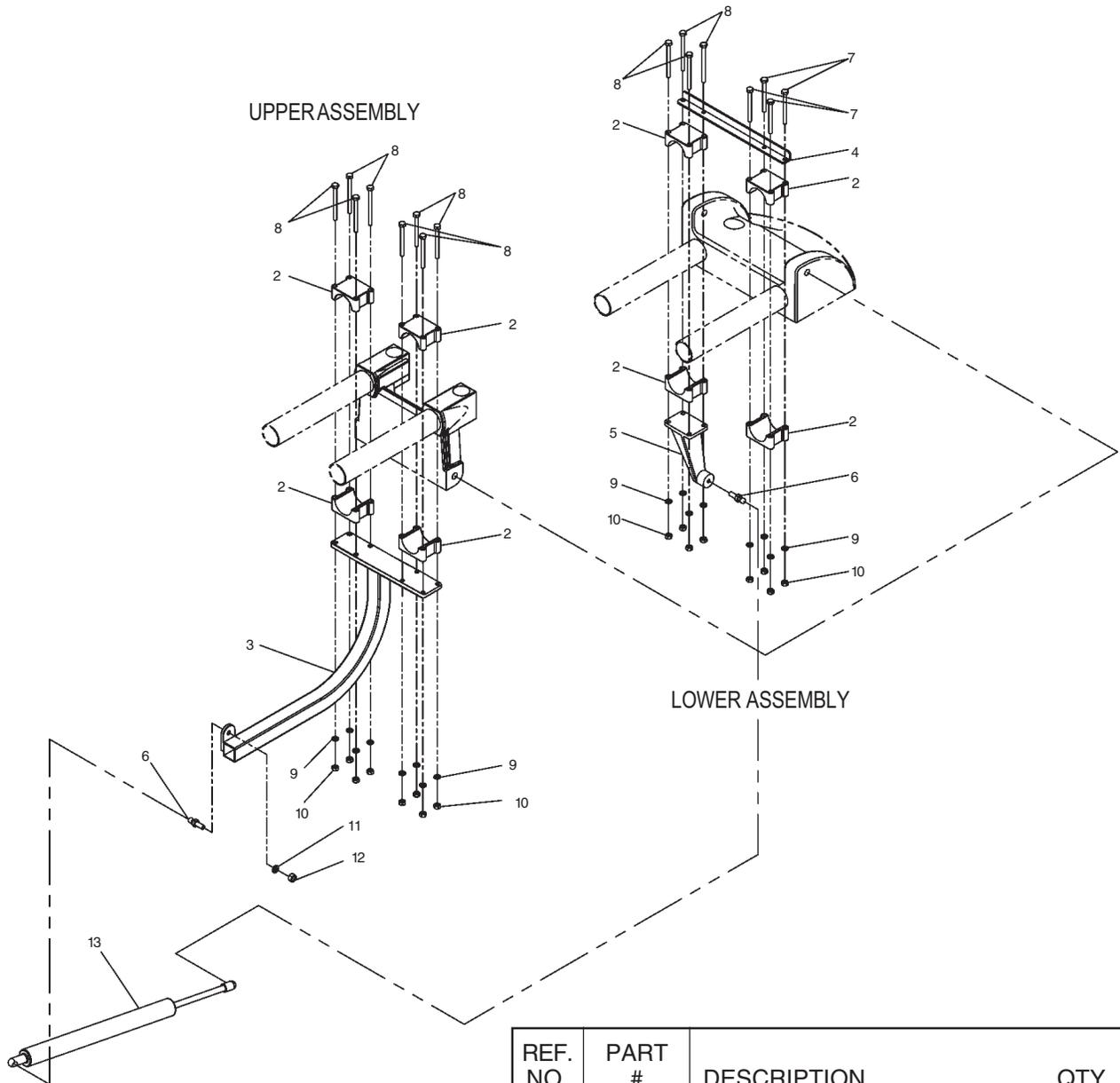


Figure 1

REF. NO.	PART #	DESCRIPTION	QTY
1	Not Used		
2	522332	. Cap .....	8
3	522334	. Upper Mount .....	1
4	522336	. Long Lower Tie .....	1
5	522333	. Lower Mount .....	1
—	522439	. Hardware Pack (Includes 6-12)	
6	522338	. . Threaded Ball Stud .....	2
7	522339	. . 1/4"-20 x 2-3/4" Hex Head Bolt ....	4
8	522343	. . 1/4"-20 x 3-1/4" Hex Head Bolt ...	12
9	120380	. . 1/4" Split Washer .....	16
10	120375	. . 1/4"-20 Hex Nut .....	16
11	120214	. . 5/16" Split Washer .....	1
12	102634	. . 5/16" Hex Nut .....	1
13	522809	. Gas Cylinder (PowerPro) .....	1

## INSTALLATION

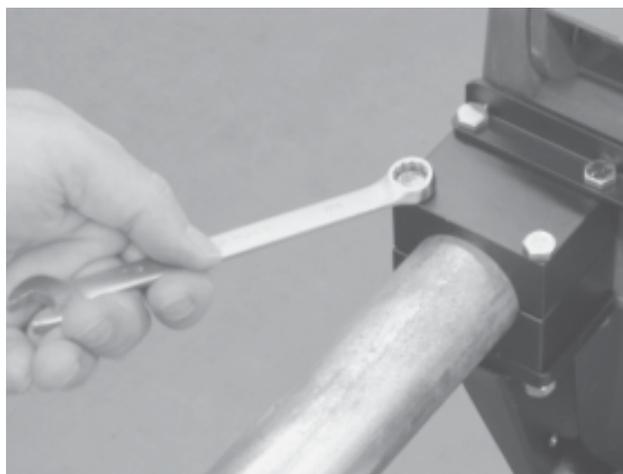
Your PowerPro Lift Assist comes disassembled and must be mounted to your MARK correctly to ensure proper operation.

1. First, remove the Worktable from the Carriage and slide the Headstock to within about 12" of the left side (top) of the machine. Slide the Carriage to the left until it touches the Headstock and tighten the Headstock & Carriage Locks securely.
2. Stand the MARK up into vertical (Drill Press) position and tighten the Arm Lock Knob.

### **Mounting Lower Assembly to the Bench Tubes**

3. Begin laying a Cap (2) across the top of each Bench (lower) Tube, at the Base & Base Arm (right) end of the MARK. (See Figure 2) They should be positioned all the way to the right, solidly against the Base.

Lay the Lower Tie (4) across the tops of the two Caps...with its vertical surface projecting upwards, and against the MARK Base. See Figure 1 for proper orientation.



**Figure 2**

4. Drop four 3-1/4" LONG Bolts (8) down through the Lower Tie & Cap holes that mount to the back Bench (lower) Tube.
5. Install a Cap (2), followed by the Lower Mount (5) over the bolts protruding under the back Bench Tube...so the threaded hole for mounting the Threaded Ball Stud (6) is facing towards the front of the MARK, as shown in Figure 1.

Install four 1/4" Split Washers and 1/4"-20 Hex Nuts over the Bolts and finger tighten.

6. Drop four 2-3/4" SHORT Bolts (7) down through the Lower Tie & Cap holes that mount to the front Bench Tube. Install a Cap (2) followed by four 1/4" Split Washers and 1/4"-20 Hex Nuts over the Bolts and finger tighten.
7. Install a Threaded Ball Stud (6) onto the Arm of the Lower Mount, as shown in Figure 3 and tighten with a wrench. See Figure 1 for proper orientation.



**Figure 3**

## **Mounting Upper Assembly to the MKV Way Tubes**

8. Install four 3-1/4" LONG Bolts (8) through the Cap (2) holes that mount to the back Way (upper) Tube of the MARK.
9. Next, install a Cap (2), followed by the base of the Upper Mount (3) to the back Way Tube, so that the Mount is sweeping downward (when the MARK is in horizontal position) and toward the left of the machine, as shown in Figure 1.

Install four 1/4" Split Washers (9) and 1/4"-20 Hex Nuts (10) over the Bolts and finger tighten. (See Figure 4)

10. Install four 3-1/4" LONG Bolts (8) through the Cap holes that mount to the front Way Tube. Install a Cap (2) followed by four 1/4" Split Washers and 1/4"-20 Hex Nuts over the Bolts and finger tighten.

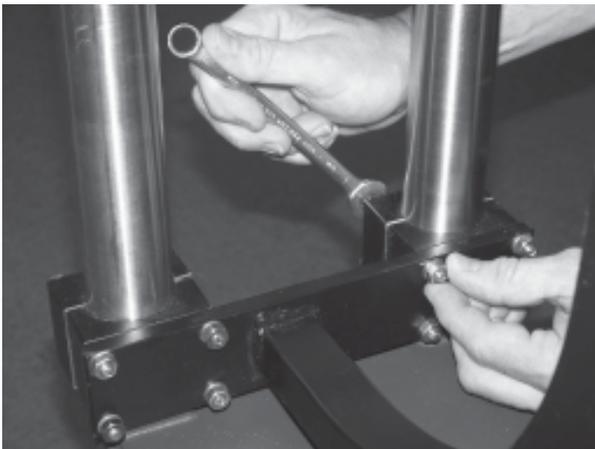


Figure 4

### **NOTE:**

**Be sure the Ball is protruding toward the back of the MARK. See Figure 1 for proper orientation.**

Install the 5/16" Split Washer (11) and 5/16" Nut (12) onto the end of the Threaded Ball Stud and tighten.



Figure 5

11. Install the second Threaded Ball Stud onto the arm of the Upper Mount, as shown in Figure 5.

## **CYLINDER INSTALLATION AND ADJUSTMENT**

12. The next step is to install and adjust the Gas Cylinder (13). This Cylinder was shipped in the full extended position and needs to be mounted while in this position.

### **TRIAL ASSEMBLY**

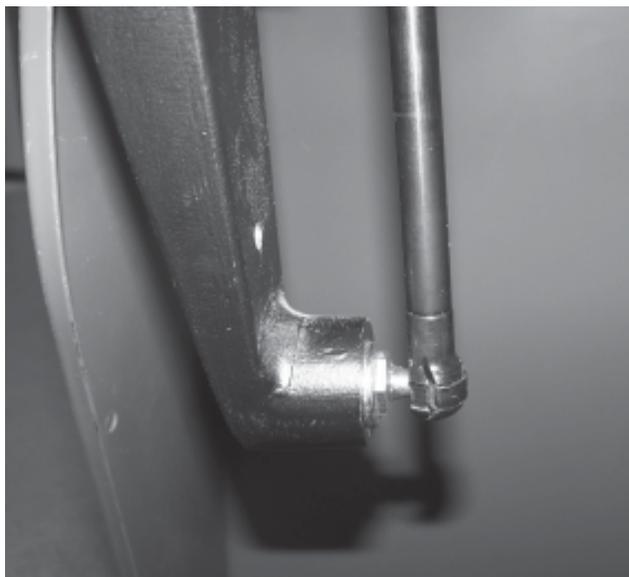
It is important to note that virtually all installations will require the adjustment of either the Upper or the Lower Mount Assembly.

With the MARK still in vertical position, hold the Gas Cylinder against the Ball Studs on the Upper and Lower Mounts and note the proper orientation of these Studs relative to the receptors on the ends of the Cylinder. When assembled, the Cylinder must be positioned with its larger diameter with quick release

end connected to the Ball Stud on the Upper Mount – and its smaller diameter end connected to the Ball Stud on the Lower Mount. For proper orientation, see Figure 1.

Once the adjustment is finalized (in Steps #13-15), the Cylinder is mounted by:

- I. Snap the Ball Receptor on the small end of the cylinder on the Ball Stud in the Lower Mount, see figure 6.



**Figure 6**

- II. The quick-release end of the Gas Cylinder is cylindrical with a knurled surface and a round notch. Follow steps II-a, II-b, & II-c below to install this end of the gas cylinder.
  - a. Be sure the round notch aligns with the Ball Recess inside the receptor. To align this notch with the ball recess, rotate the outer sleeve until the round notch aligns with the receptor inside.
  - b. Firmly grasp the knurled surface of the outer sleeve and pull it toward the opposite end of the cylinder. You will see the ball receptor open up, as shown in Figure 7.



**Figure 7**

- c. Slip the open receptor over the ball end of the Threaded Ball Stud on the Upper Mount and release the outer sleeve on the Gas Cylinder

- III. To remove this end of the Gas Cylinder, reverse the order of steps “II-c” and “II-b”.

## **ADJUSTMENT**

Since the Balls seldom align directly with the Cylinder receptors, some adjustment will normally be required to either the Upper or Lower Lift Assist Assembly.

13. Before making any adjustments, be certain:
  - The Upper Lift Assist Assembly is against the MARK’s Base Arm.
  - The Lower Lift Assist Assembly is against the MARK’s Base Casting.
  - All Assembly nuts are finger-tight.

When the Cylinder is properly installed and the Upper and Lower Lift Assist. Assemblies positioned correctly – the Cylinder receptors should rotate freely and pop easily onto and

off the Ball Studs without compressing or extending the Cylinder.

14. Begin by using a 7/16" wrench to tighten all nuts on the upper and Lower Assemblies. Not to final tightness, but more than finger-tight.
15. If the distance from Ball Stud-to-Ball Stud seems too short for the Cylinder to fit properly, (since your MARK should be in vertical position) you should loosen and raise the Upper Assembly toward the Headrest or left end of the MARK.

If the distance from Ball Stud-to-Ball Stud seems too long for the Cylinder to fit properly, you should loosen and move the Lower Assembly to the left, toward the Headrest or left end of the MARK.

Once both Ball Studs are positioned so they align with the Cylinder receptors, tighten all Nuts to final tightness.



Tighten nuts gradually, 1/4 turn at a time. This will provide equal force on each cap and avoid warping or damaging the way tubes.

## CYLINDER REMOVAL

In the event you find it necessary to remove the Cylinder from the installed Lift Assist, for the Lower Mount end just slip a small, straight-bladed screwdriver behind the retainer clip and pry it off. For the Upper Mount quick release end simply reverse the order of steps "II-c" and "II-b".

### NOTE:

**Position your free hand behind the Clip to avoid losing it in the event it pops off the Cylinder receptor during removal.**

### WARNING

This Ball Stud Retaining Clip must be popped back into position in its groove on the end of the Cylinder before re-installation on the Ball Stud. Failure to do so will cause the Cylinder to pop off the Ball Stud when compressed . . . potentially flying off and causing injury.

### WARNING

If the MKV Headrest Lock is not properly adjusted - and the Work Table and Headstock are at the far right of the Way Tubes, the MARK will raise itself into vertical position, possibly causing personal injury. You may have to make an adjustment to your Headrest Lock to prevent this from occurring. Refer to you Mark Owner's Manual.

### WARNING

Always remove the Gas Cylinder from the Lift Assist before removing the headstock from the way tubes of the Mark. Failure to do so will result in the Lift Assist suddenly raising the way tubes into the vertical position, possibly causing personal injury as the way tubes swing upward.

**WARNING**

Even though the Lift Assist will help to hold your MARK in the vertical position, it should still, always be secured in that position by tightening your MARK's Arm Lock Knob. Refer to your Mark Owner's Manual.

**MAINTENANCE**

The Shopsmith MKV Lift Assist requires no maintenance other than an occasional cleaning with a clean, dry cloth. The Cylinder is a sealed Mark with no serviceable parts inside.

**NOTE:**

**Because the caps (2) occupy space on the way tubes, the drive center and tailstock center are 2" farther apart. To overcome this increased distance an extension (part # 514704) for the live center is required for short-spindle turning.**

**NOTES**

**If you have any questions about your Shopsmith PowerPro Lift Assist, please call our Customer Service Department at (937) 890-5197, send us an email at [customerservice@shopsmith.com](mailto:customerservice@shopsmith.com), visit our website at [www.shopsmith.com](http://www.shopsmith.com), or write to us at: Shopsmith, Inc., Attn: Customer Service, 6530 Poe Avenue, Dayton, Ohio 45414.**

---

## NOTES

