



MARK V LIFT ASSIST 555975

INTRODUCTION

The Shopsmith MARK V 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 MARK V Lift Assist.**
- ✓ **Make sure the Mark V is turned off and unplugged before assembling and adjusting the Lift Assist.**
- ✓ **Always use proper Safety Equipment and Procedures when operating machines.**
- ✓ **Be sure to tighten all hardware securely before using.**

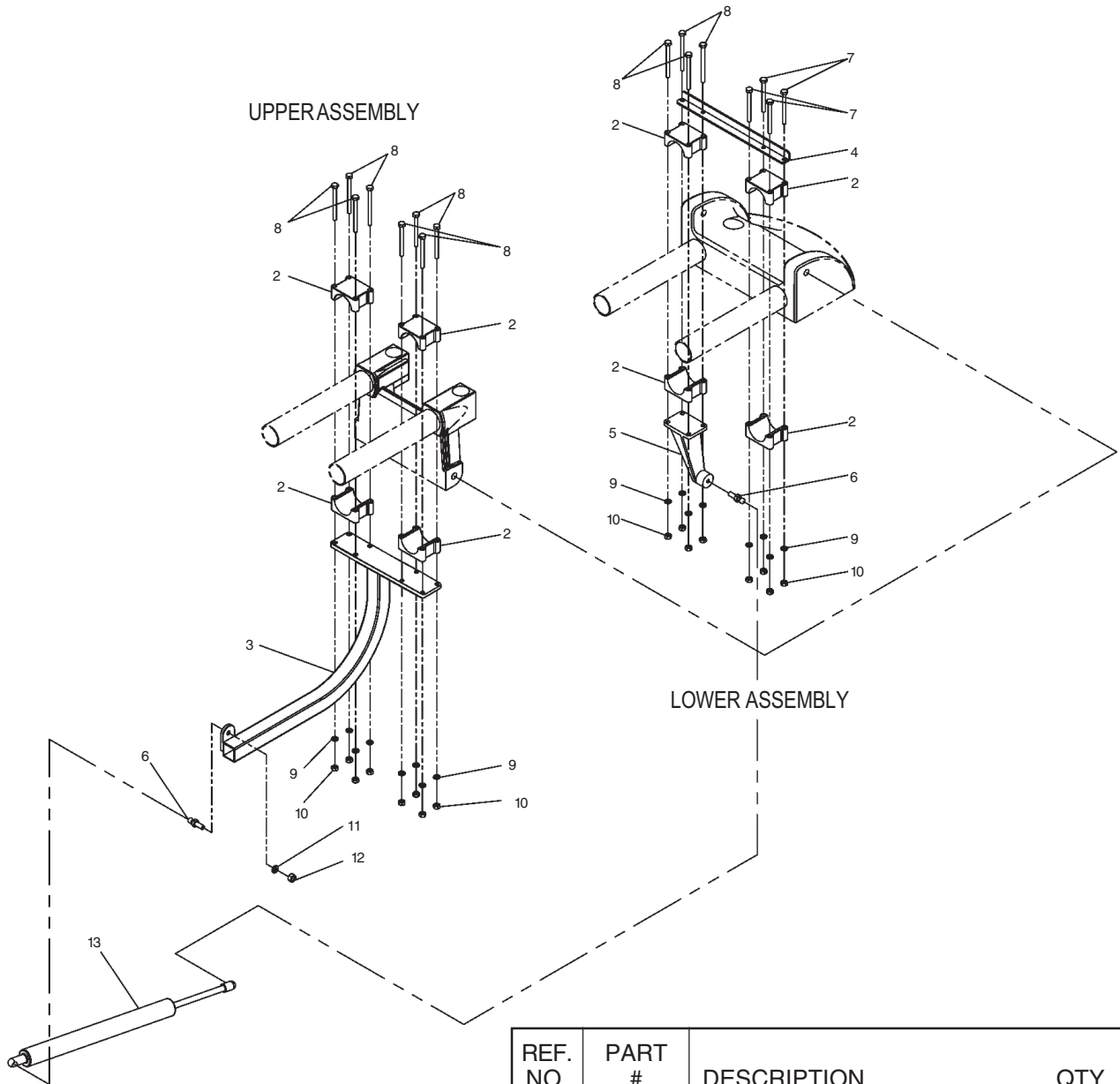


Figure 1

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

1. First, remove the MARK V 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 V up into vertical (Drill Press) position and tighten the MARK V 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 V. (See Figure 2) They should be positioned all the way to the right, solidly against the MARK V Base.

Lay the Lower Tie (4) across the tops of the two Caps...with its vertical surface

projecting upwards, and against the MARK V Base. See Figure 1 for proper orientation.

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 V, 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 2



Figure 3

Mounting Upper Assembly to the MKV Way Tubes

8. Install four 3-1/4" LONG Bolts (8) through the Upper Tie (1) & Cap (2) holes that mount to the back Way (upper) Tube of the MARK V.
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 V 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)

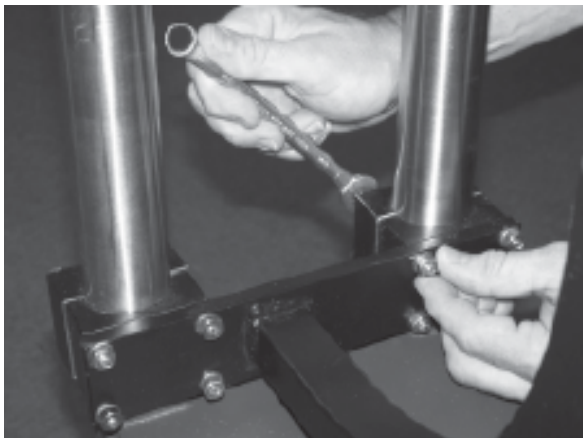


Figure 4

10. Install four 3-14" LONG Bolts (8) through the Upper Tie & 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.
11. Install the second Threaded Ball Stud onto the arm of the Upper Mount, as shown in Figure 5.

NOTE:

Be sure the Ball is protruding toward the back of the MARK V. 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

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 V 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 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 merely positioning the Cylinder receptors over the appropriate Ball Studs, grasping firmly and squeezing to snap the Cylinder into place. (See Figure 6)



Figure 6

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 V's Base Arm.
 - The Lower Lift Assist Assembly is against the MARK V'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 V should be in vertical position) you should loosen and raise the Upper Assembly toward the Headrest or left end of the MARK V.

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 V.

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, just slip a small, straight-bladed screwdriver behind the retainer clip and pry it off. (See Figure 7)

NOTE:

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



Figure 7

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 V 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 V Owner's Manual.

WARNING

Always remove the Gas Cylinder from the Lift Assist before removing the headstock from the way tubes of the Mark V. 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 V in the vertical position, it should still, always be secured in that position by tightening your MARK V's Arm Lock Knob. Refer to your Mark V 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 unit 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.

NOTE:

If you have any questions about your Shopsmith MARK V Lift Assist, please call our Customer Service Department at (937) 890-5197, send us an e-mail at customerservice@shopsmith.com, or visit our website at www.shopsmith.com.

