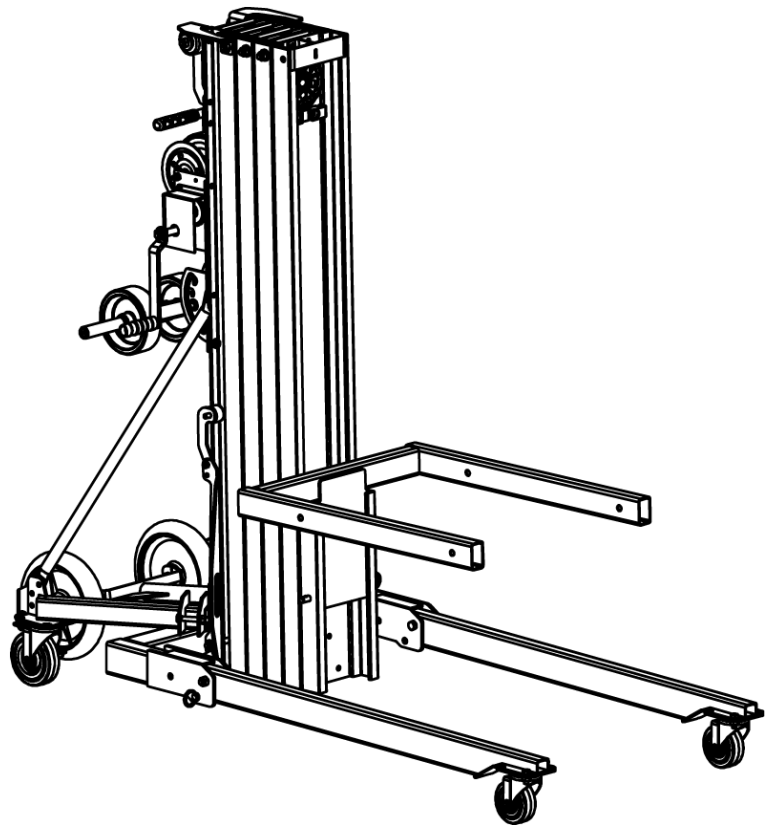


LIFTSMART

ELEVATING INNOVATION

MLM PARTS & SERVICE MANUAL



Part No. M00973C
Printed in the USA

MLM MINI PRO SERIES MATERIAL LIFT

It is the responsibility of the user to read, understand and obey all safety rules before attempting to perform maintenance on this equipment. This includes all rules and instructions set forth by the manufacturer, as well as any local laws and regulations governing the safe use of this equipment.

It is strongly recommended that only trained and authorized personnel perform maintenance on this material lift.

This manual is intended to be used in conjunction with the *MLM Mini Pro Series Operator's Manual*. Failure to read, understand, and obey all safety rules in both manuals, and all safety decals/placards attached to the material lift, may result in serious injury or death.

LiftSmart is dedicated to the continuous improvement of this and all LiftSmart products. Therefore, technical information contained in this manual is subject to change without notice. Direct any questions regarding errors or discrepancies in this manual to LiftSmart.

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LiftSmart products are protected by US Patent No. 9,388,028 and other patents pending.



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1. SAFETY

Failure to follow all safety rules in this manual, in addition to the *MLM Mini Pro Series Operator's Manual*, and all safety decals/placards attached to the material lift may result in serious injury or death.

Proper training is strongly recommended before attempting to perform maintenance on any mechanical device.

Before performing maintenance:

- ☐ Read, understand, and obey all safety rules and instructions in this manual, in addition to the *MLM Mini Pro Series Operator's Manual*, and all safety decals/placards attached to the material lift.
- ☐ Read and understand warning symbols found in this manual and in the workplace.
- ☐ Obtain, read, and obey all applicable government regulations.
- ☐ Become familiar with the proper operation of the material lift.
- ☐ Technicians should receive instruction before performing maintenance on the material lift.

PERSONAL SAFETY

Safety and continued safe operation of the material lift should be your highest priority.

Follow these safety rules while operating or performing maintenance on the material lift:

ALWAYS:

- ☐ Wear personal protective equipment (PPE), including protective eyewear, gloves, and steel-toed shoes.



- ☐ Be aware of potential hazards created by removing components from the material lift or by lifting or placing loads.
- ☐ Understand and obey all the safety rules and warnings found in the workplace.

Decal/Placard Symbol Legend



Safety alert symbol – used to alert personnel to potential injury hazards. Obey all safety messages that follow this symbol to avoid possible death or serious injury.



Indicates an imminent hazardous situation which, if not avoided, will result in serious injury or death.



Indicates a potentially hazardous situation which, if not avoided, will result in serious injury or death.



Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.



Indicates a potentially hazardous situation which, if not avoided, will result in machine or property damage.

MAINTENANCE SAFETY

Follow these safety rules while performing maintenance on the material lift:

ALWAYS:

- ☐ Read each procedure carefully before beginning maintenance on the material lift.
- ☐ Read, understand, and obey the safety rules described in the *MLM Mini Pro Operator's Manual*.
- ☐ Choose a work area that is clean, well-lit, and properly ventilated.
- ☐ Keep sparks and open flames away from flammable materials such as grease or oil.
- ☐ Tag a damaged material lift and immediately remove it from service until repairs are completed according to the manufacturer's specifications.
- ☐ Be aware of potential hazards created by removing components of the material lift while performing maintenance.
- ☐ Use only the correct tools for the maintenance procedure.
- ☐ Ensure tools required to perform needed maintenance are in good working condition.

2. INSPECTIONS

Regular inspection of the material lift will ensure that the equipment is operating safely and effectively. Performing all preventive/predictive maintenance procedures according to the manufacturer's recommendations will extend the life of the material lift and help to ensure safe operation for machine operators.

While inspecting the equipment:

- Perform all daily, quarterly and/or annual inspections according to the manufacturer's recommendations.
- Perform all quarterly and/or annual preventive/predictive maintenance procedures according to the manufacturer's recommendations.
- Create a record of all inspections and/or maintenance performed using the Scheduled Maintenance and Inspection Checklist provided in the back of this manual.

DAILY INSPECTIONS

Perform each of the following inspections daily or before each use of the material lift:

- ☐ Verify that the *MLM Mini Pro Series Operator's Manual* is in the storage container attached to the material lift. The pages must be legible and in good condition.
- ☐ Perform a visual inspection of the material lift for wear or damage.
- ☐ Perform a function test on the material lift to verify winch is operating correctly, holds a load, and that the Fork Carriage and masts raise and lower in the correct sequence.

VISUAL INSPECTION

Perform the following inspections daily or before each use:

- ☐ Inspect the wheels and casters for excessive wear or damage.
- ☐ Inspect the material lift for loose, damaged, or missing fasteners.
- ☐ Inspect the base, legs, stabilizers, masts, pulleys, and forks for damage and improperly installed or missing components.
- ☐ Inspect the cable for wear, frays, kinks, or damage.
- ☐ Verify that the cable is wrapped around the winch drum at least four times when the Fork Carriage is fully lowered.
- ☐ Inspect the entire material lift for dents, damage, excessive rust or corrosion, and cracks in welds or on structurally critical components, such as the aluminum masts.
- ☐ Verify that all decals are legible and correctly attached to the material lift.

WARNING

If any worn or damaged components are observed or suspected, remove the material lift from service immediately. Repairs to the material lift should only be performed by authorized personnel according to the manufacturer's specifications.

FUNCTION TEST

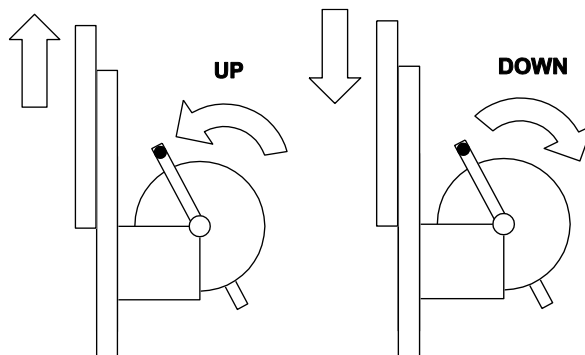
(2-Speed Winch Models)

Perform the following test daily or before each use to verify that the equipment is not malfunctioning:

- ☐ Shift the winch to the low speed.
- ☐ Firmly grasp both winch handles.
- ☐ Rotate the winch handles toward the mast to raise the Fork Carriage to its full height.

The winch should operate smoothly without hesitation or binding. The motion should raise the Fork Carriage to the top of the Front Mast followed in order by each adjacent mast.

- ☐ Rotate the winch handles away from the mast to completely lower the telescopic mast assembly.
- ☐ Rotate the winch handles one quarter-turn toward the mast - as if raising the Fork Carriage - to set the brake



The winch should operate smoothly without hesitation or binding. Shift the winch to the high speed and repeat steps above to complete test.

Notice: The handle rotations listed above are opposite for models equipped with the 1-Speed Winch.

WARNING

If the equipment malfunctions, remove the material lift from service immediately. Repairs to the material lift should only be performed by authorized personnel according to the manufacturer's specifications.

QUARTERLY INSPECTIONS

Perform the following inspections quarterly or after every 100 hours of operation. Perform these inspections in addition to all daily inspections:

NOTE: *It is important to perform all the inspections listed to ensure the material lift can be used correctly and safely. Failure to perform the inspections listed may result in injury or death.*

- ☐ Visually inspect the welds for cracks, excessive wear, or corrosion.
- ☐ Inspect the welds on:
 - Fork and other load lifting attachment(s)
 - Base
 - Legs
 - Stabilizers
 - Transport Wheel Option (if equipped)
 - Winch mounting plate
 - Smart-Set adjustment system
- ☐ Clean the masts.
- ☐ Inspect the winch.
- ☐ Lubricate the winch.



CLEANING THE MASTS

LiftSmart requires that this procedure be performed every 200 hours or quarterly, whichever comes first.

Perform the following steps to clean the masts:

- ☐ Raise the material lift to its maximum height.
- ☐ Visually inspect the inner and outer roller wheel channels of each mast for foreign material or debris.
- ☐ As needed, clean the channels of each mast using a mild cleansing agent.

⚠ WARNING

Injury hazard. This procedure may require the use of additional access equipment. Do not place ladders or scaffolding against the machine. Performing this procedure without the proper skills and tools may result in serious injury or death. Dealer service is recommended.

When cleaning the masts, **NEVER**:

- ☐ Lubricate the masts.
- ☐ Apply an additional side load or horizontal force to a material lift that is loaded and/or raised.
- ☐ Place ladders or scaffold against the material lift.

INSPECTING THE WINCH

(Refer to winch diagram in Section 5 - Parts)

- ☐ Raise the Fork Carriage halfway to ensure the winch is operating correctly.

Result: The winch should operate smoothly.

- ☐ Lower the Fork Carriage.

Result: The winch should operate smoothly.

If winch is not operating properly, perform the following inspections on the winch:

- ☐ Inspect the brake lining plates for excessive wear.

- Replace the brake lining plate if it is less than 1/16 inch (1.5 mm) thick.
- ☐ Inspect the reamed bushings on the shaft for excessive wear.
 - Replace the reamed bushing if the wall thickness is less than 1/8 inch (3.1 mm).
- ☐ Inspect the winch assembly for loose, damaged, or missing fasteners.
 - Tighten or replace fasteners as needed.
 - Tighten the 3/8-16 lock nut that attaches the reel assembly to 20 ft-lb (27 N*m).
 - Do not over tighten fasteners.

LUBRICATING THE WINCH

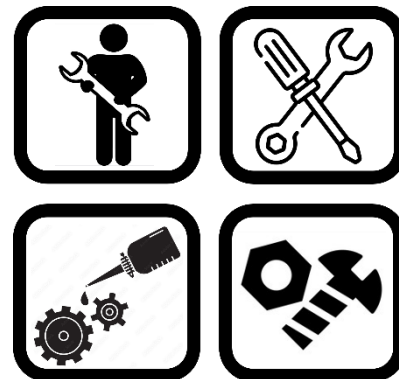
Lubricate the gears on the following components of the winch using automotive grease:

- ☐ The reel assembly.
- ☐ The ratchet wheel.
- ☐ The primary shaft assembly.
- ☐ The intermediate shaft assembly (2-speed winch models).

ADDITIONAL WINCH LUBRICATION

Lubricate the following winch components with the lubricant listed:

- ☐ Lubricate the ratchet pawls with 30W oil.
- ☐ Lubricate the reel spacer with automotive grease.



ANNUAL INSPECTIONS

Lubricate the Casters and Wheels.

Perform the following inspections annually. Perform these inspections in addition to all daily and quarterly inspections.

It is important to lubricate casters and/or wheels for a proper use of the product and to extend its service life.

- ☐ Inspect the wheels and casters for cracks or cuts and excessive wear.
- ☐ Lubricate the casters and wheels:
 - Using the Zerk fittings, add lithium-based grease into the bearings of the wheels and casters until it becomes visible at the bearing gap.
- ☐ On a level surface, push and steer the material lift to make sure casters and wheels roll effortlessly.

Inspect the Painted Surfaces

A visual inspection of the painted areas will assist in recognizing potentially damaged areas of the material lift, which will need to be corrected for the continued safe use of the machine.

- ☐ Visually inspect the painted surfaces of the material lift for blisters, peeling, rust, fading or corrosion.

Inspect the Hold Down Bar

Unsafe work areas occur when damage to the MLM Mini Pro Series is not discovered.

- ☐ Visually inspect the Fork Carriage and Hold Down Bar.
- ☐ Check if the Hold Down Bar is operating correctly.

NOTE: *The Hold Down Bar is operating correctly when it does NOT overstroke the top of the Fork Carriage and when it prevents the telescopic mast assembly from extending when the mast is parallel to the ground.*

Inspect the Pulleys, and Cable

This inspection should happen at least annually. Failure to check the sub-components of the material lift can lead to serious injuries or even death.

NOTE: *Due to visual obstructions the mast must be disassembled to properly and fully inspect the mast rollers, pulleys, and cable.*

1. Disassemble the Mast (*refer to related information in Section 4 of this manual*).
 2. Inspect the Cable, Pulleys, and related sub-components and look for the following issues:
 - Kink(s) in the cable.
 - Broken wires.
 - Corrosion.
 - Cracks in the swaged cable end.
 - Damaged pulleys and pulley mounts.
 - Mounting plates are firmly secured.
 3. Inspect Mast Rollers (*refer to related information in Section 4 of this manual*).
- NOTE:** *If something abnormal or damage is located during the inspection, remove the Material Lift from the workplace immediately.*
4. Re-assemble the Mast (*refer to related information in Section 4 of this manual*).

INSPECTING THE MAST ASSEMBLY

Perform the following steps to inspect the mast assembly for wear:

- ☐ Engage hold-down bar and then tilt the material lift back and lower it onto a support so that the masts are parallel to the ground and the Fork Carriage is facing up.



- ☐ At the top of the material lift, measure the clearance between each roller wheel on each mast and the surface of the adjacent mast with a feeler gauge.
 - If the clearance between the roller wheel(s) and the adjacent mast is greater than 0.062 inches (1.57 mm), then replace the roller wheel(s).
 - Refer to *Section 4 - Repair* for instructions to disassemble the mast assembly.
- ☐ At the base of the material lift, measure the clearance between each roller wheel on each mast and surface of the adjacent mast with a feeler gauge.
 - If the clearance between the roller wheel(s) and the adjacent mast is greater than 0.062 inches (1.57 mm), then replace the roller wheel(s).
 - Refer to *Section 4 - Repair* for instructions to disassemble the mast assembly.



Above is a feeler gauge, also known as a thickness gauge.

Inspecting The CE Mast Brake System (When equipped)

Material lifts exported outside of the Americas are typically equipped with a mast braking system to comply with local regulations (regulations may vary depending on the geographic area).

⚠ WARNING *Injury hazard. Failure to recognize a damaged mast with mast brake may result in serious injury or death.*

NOTES:

- *If the mast does not sequence properly, the mast brake may be activated.*
- *To disengage the mast brake, raise the mast using the winch approximately 6 - 8 inches (15.2 - 20.3 cm) until it disengages.*
- *This process needs to be performed by two (2) or more technicians.*

1. Using the winch, raise the Fork and Carriage to the halfway point of the mast.
2. Using a wooden plank such as a 2 x 4 or 4 x 4 stud, with one person holding each end, place the plank under the Fork Carriage and lift it approximately 6 - 8 inches (15.2 - 20.3 cm), then quickly release the plank out from under the Fork Carriage.

RESULT: The Fork Carriage should stop within 5 inches (12.7 cm) and the mast brake should be engaged.

3. Using the winch, disengage the mast brake by raising the Fork Carriage approximately 6 - 8 inches (15.2 - 20.3 cm).
4. Raise the Fork Carriage to full height and then the Front Mast halfway up the adjacent Center or First Mast (depending on model).
5. Place the plank under the Front Mast and lift it approximately 6 - 8 inches (15.2 - 20.3 cm), then quickly release the plank out from under the Front Mast.

RESULT: The mast should stop within 5 inches (12.7 cm) and the mast brake should be engaged.

6. Using the winch, raise the Front Mast approximately 6 - 8 inches (15.2 - 20.3 cm) and the mast brake will disengage.
 7. Lower the Front Mast all the way down.
 8. ***For models consisting of 3 or more telescopic stages:*** At the top of the material lift, use a jaw locking plier (commonly referred to under the trade name Vice-Grip®) to pinch the Front Mast and adjacent Center Mast tightly together.
 9. Raise the Fork Carriage to full height and then raise the combined Front Mast and adjacent Center Mast halfway up the next adjacent Center Mast (or First Mast depending on machine model).
 10. Place the plank under the combined Front and Center Mast and lift it approximately 6 - 8 inches (15.2 - 20.3 cm), then quickly release the plank out from under the Fork Carriage.
- RESULT:** The combined mast should stop within 5 inches (12.7 cm) and the mast brake should be engaged.
11. Using the winch, raise the mast approximately 6 - 8 inches (15.2 - 20.3 cm) and the mast brake will disengage.
 12. Fully lower the combined Front and Center Mast.

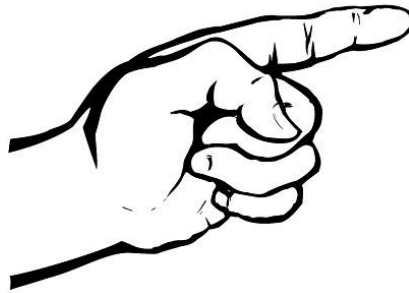
NOTES: *The procedure above uses jaw-locking pliers to isolate the individual mast brake being tested. Therefore, jaw locking pliers should remain attached and a new one added for each successive center mast being tested, this will require multiple jaw-locking pliers for mast assemblies consisting of 4 or more telescopic stages.*

Sometimes, to disengage the mast brake, additional jaw locking pliers will be needed to grab the column behind that of the one being tested.

The First Mast (sometimes referred to as Mast A), attached to the base, does not need to be tested because it does not contain a mast brake and does not elevate.

** Please check our website (liftsmart.NET) for upcoming videos that will demonstrate this testing procedure.*

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3. TROUBLESHOOTING

When the material lift malfunctions, use the chart on the following page to help determine the root cause and to correct the issue.

To use the troubleshooting table, locate the specific symptom in the first column. Possible causes of the malfunction are listed in the second column in descending order beginning with the most probable issue first. To correct the issue(s), perform the procedure listed in the third column, using the information provided in *Section 4 - Repair* and *Section 5 - Parts* as needed.

DISCLAIMER

The troubleshooting table in this manual provides a list of the most probable malfunction that may occur before, during, or after operating the material lift, however, additional issues not outlined in the troubleshooting table may arise before, during, or after operating the material lift. Contact LiftSmart for additional assistance as needed.

When troubleshooting the material lift:

- ☐ Follow all the safety rules provided in previous sections of this manual and in the *MLM Mini Pro Series Operator's Manual* and all safety decals/placards attached to the material lift.
- ☐ Use the table on the following page to determine the cause of the malfunction and the solution to correct the issue(s).
- ☐ Use Sections 4 & 5 of this manual, as needed, to repair the issue to correct the malfunction.

COMPLAINT	Possible CAUSE	CORRECTION
Mast does not sequence properly.	The material lift is at or above maximum capacity.	Remove excess weight from the load.
	A pulley-mount is broken.	Inspect and replace all broken pulley mounts.
	The load is not properly centered.	Center the load.
	Excessive debris in the masts or pulleys.	Clean the masts and pulleys.
	The cable is binding on the pulleys.	Inspect the pulleys and cable; replace as needed.
	The roller wheels are damaged. Or The roller wheels are not properly lubricated.	Inspect the roller wheels; replace or lubricate roller wheel bolts as needed with multi-purpose grease.
	One or more masts are damaged.	Inspect the masts; replace as needed.
Winch operates, but the Fork Carriage will not raise.	The winch drum is not rotating inside the winch.	Inspect the winch; repair or replace as needed.
	The cable is damaged or broken.	Inspect the cable for frays, kinks, or other damage; replace as needed.
	One or more pulleys are damaged.	Inspect the pulleys; repair or replace as needed.
	The cable is not correctly routed through the pulleys.	Remove the cable; install the cable, carefully route it correctly through the pulleys.
Winch will not operate.	The material lift is at or above maximum capacity.	Remove excess weight from the load.
	Cable is not wound onto the winch drum properly.	Lower and remove any load then re-spool cable onto winch drum.
	The load is not properly centered.	Center the load.
	The load is obstructed.	Clear the obstruction or reposition the material lift.
	The cable is binding at the winch or inside the material lift.	Remove the cable. Inspect the cable for frays, kinks, or other damage; replace as needed.
	The winch is damaged.	Inspect the winch; repair or replace the damaged component(s) or entire winch as needed.
	One or more masts are damaged.	Inspect the masts; repair or replace as needed.

4. REPAIR

The following section provides instructions for the safe and proper repair of the material lift. It is the responsibility of only a trained and authorized technician(s) to follow these instructions. Failure to follow these instructions, as well as all safety rules in this manual, and all decals/placards attached to the material lift, may result in serious injury or death.

Procedures in this section for disassembling components should be performed only until the necessary repairs can be completed. Follow the steps of the disassembly procedure in reverse order to re-assemble the material lift.

While performing repairs:

- ☐ Follow all the safety rules provided in previous sections of this manual and in the *MLM Mini Pro Series Operator's Manual*, and all safety decals/placards attached to the material lift.
- ☐ Follow all instructions provided in this section.
- ☐ Ensure only the proper tools and parts are used to perform and make the necessary repairs on the material lift.
- ☐ For safety, before making any repair, the machine should be on a level surface, Fork Carriage down, Hold Down Bar engaged, and Casters locked.

REMOVING THE BASE

Follow this procedure to remove the base from the material lift and refer to the related parts diagrams in *Section 5* for replacement parts.

NOTE: *If removing the base to replace the First Mast (M00437), follow the procedures below to remove the cable from the winch drum prior to tilting the lift back, to allow the mast to be fully disassembled.*

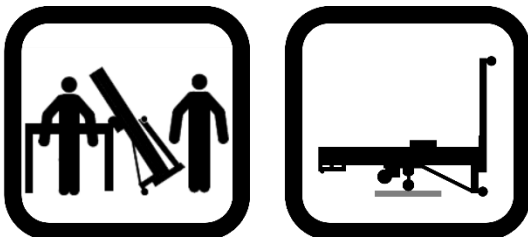
- ☐ Loosen the hex nut on the Fork Carriage bolt that attaches the cable clamp (M00834) to the reel (drum) on the winch assembly.
- ☐ Remove the cable from the reel (drum) on the winch assembly.

Follow this procedure if only removing the base from the material lift (and not servicing the mast assembly):

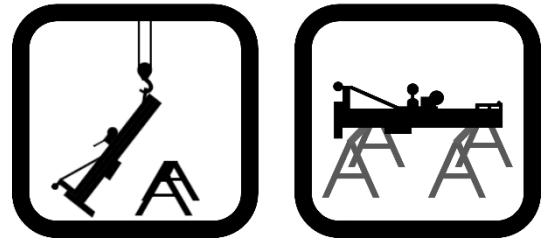
- ☐ Fully lower the Fork Carriage.
- ☐ Remove the load lifting attachment from the material lift and engage the hold down bar.

If the lift is equipped with stabilizers (M00070):

- ☐ Remove the cap screws from the Stabilizer Latch Mounting Bracket (M00075) on the First Mast.
- ☐ Remove the cap screw that attaches each Stabilizer Weldment (M00071) to the base.
- ☐ Remove the Stabilizer Assembly.
- ☐ Leave the Push Tube Weldment (M00106) in the 90-degree position, relative to the First Mast.
- ☐ Tilt the material lift back and lower it onto a support so that the leg casters are not touching the ground.



- ☐ Remove the ball detent pin (M00088) and guide each leg to its storage position.
- ☐ Remove the cap screw that attaches each leg to the base.
- ☐ Remove the legs.
- ☐ Tilt the material lift forward to an upright position.
- ☐ Using a shop crane to assist and/or between two to three (2 - 3) technicians, firmly grasp the material lift and place it parallel to the ground on a firm structure such as a set of metal sawhorses, positioning the material lift with the Fork Carriage facing down.



WARNING: Failure to ensure the material lift is placed parallel to the ground on a firm structure may result in serious injury or death.

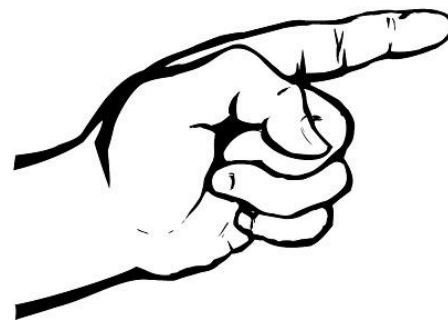
- ☐ Remove the cap screws that attach the Left and Right Struts (M00024 & M00025) to the base.
- ☐ If replacing a Strut, remove the cap screw connecting the Strut to the Winch Mount Weldment (M00101) and replace.
- ☐ If the Base Weldment is being removed to allow access to replace the First Mast then fully remove both Struts.
- ☐ While removing the Base Weldment, note if there are spacer washers compressed in between the First Mast and the Base Weldment (M00014) and reuse them in the same position when re-assembling.

NOTE: *When re-assembling or replacing the Base Weldment (M00014) to the First Mast follow the*

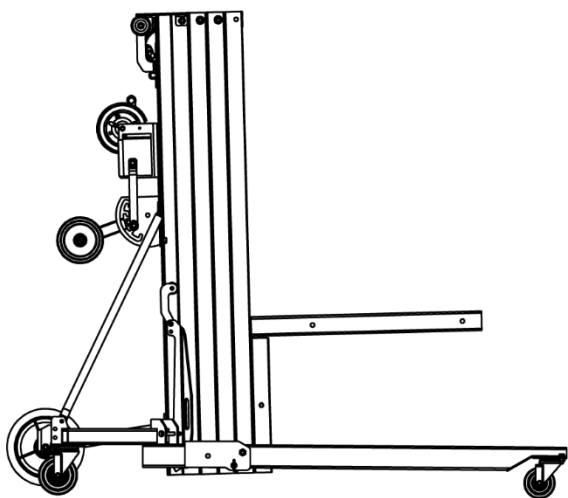
procedure above in the reverse sequence with the added steps below:

Prior to tightening the cap screws to the Base Weldment and Struts ensure the right and left side of the Base Weldment is square (set to 90-degrees) with the First Mast (use a square). Also note that each model of material lift has a slight rearward tilt back angle built in to ensure the telescopic mast is perpendicular when elevated to full height at full rated load. Refer to specifications table below for the acceptable tilt-back range for each model. On a known level surface, use a digital inclinometer to verify that the tilt-back of the mast is within the recommended range listed below:

Model	Tilt Back Range
MLM-12	1.5° to 2°
MLM-16	1.8° to 2.25°
MLM-20	1.8° to 2.25°



This column left intentionally blank.



DISASSEMBLING THE MAST

Follow this procedure to disassemble the mast (refer to prior section if base is also to be removed):

NOTE: Removal of the Base Weldment is only necessary when the First Mast is to be repaired.

The material lift should be placed on a firm structure with the Fork Carriage facing up.

NOTE: Any material lift equipped with a mast brake needs to be disassembled slowly to prevent the brake from engaging.

- ☐ Completely unspool, but do not remove, the cable from the reel (drum) on the winch assembly.
- ☐ Fold the stabilizers (if equipped) into their stowed positions.
- ☐ Remove Fork and engage Hold Down Bar.
- ☐ Using a shop crane to assist and/or between two to three (2 - 3) technicians, tilt the material lift backwards and place it parallel to the ground on a firm structure (such as metal sawhorses) so the Leg Assemblies are not touching the ground.

Note: If there is no firm structure or metal sawhorses available, the machine can be positioned on its back with the Push Tube Weldment placed in the second highest position, so that the machine is resting on the rear of the base (or transport wheels if equipped) and the wheels on the Push Tube Weldment (M00106). In this case, the Push Tube Wheels should be placed on a pallet or two stacked pallets (or other similar firm structure acting as a spacer) to ensure the mast is parallel to the ground. **THE MAST MUST BE PARRALLEL TO GROUND.** Removal of the Left and Right Struts will be necessary if using sawhorse.



- ☐ If desired, for easier access, the Leg Assemblies can be folded into their stowed position by a.) removing the Ball Detent Pin from each Leg Assembly and b.) fully folding the Legs Assemblies and inserting the Ball Detent Pin into the leg stowage position.

- ☐ Disengage Hold Down Bar.

Note: Prior to disengaging the Hold Down Bar ensure the mast is parallel to the ground to avoid a potential safety hazard and to prevent the mast from inadvertently spreading apart.

- ☐ Slide the Fork Carriage forward along the mast to expose the Down Stop (M00062).
- ☐ Remove the flat head screw that attaches the Down Stop to the mast.
- ☐ Remove the Fork Carriage from the mast.
- ☐ After removing the Fork Carriage, repeat this procedure to remove each mast:
 - Slide the mast forward to expose the Down Stop on the adjacent mast.
 - Remove the cap screw that attaches the Down Stop to the adjacent mast.
 - Remove the Down Stop.
 - Slide the mast back and out of the bottom of the adjacent mast.

Note: For convenience and efficiency (if not replacing the entire cable), the procedure above allows the Mast to be disassembled with the cable still attached throughout each telescopic mast stage. If desired the cable can be removed prior to disassembling the mast by disconnecting it from the winch reel (drum) in step one and then pulling it out of the mast assembly from the Cable End Weldment (M00065).

ASSEMBLING THE MAST

Follow this procedure to assemble a mast that has been disassembled:

If the Base Weldment has not been removed the Left and Right Struts must be removed to allow the machine to be safely positioned on a set of metal sawhorse or other firm structure.

NOTE: *Blue Loctite® (or equivalent) MUST be applied on Down Stop (M00062) fasteners.*

NOTE: *Ensure the mast brake is installed (if the material lift does not have a mast brake, omit this step).*

NOTE: *Masts with a braking system should be assembled slowly to prevent the brake from engaging.*

- ☐ Inspect the masts including all components, fasteners, and cable for wear or damage. Replace as needed.
- ☐ Clean the masts, rollers, and all roller channels using a mild cleansing agent.

NOTE: *Do NOT use wet lubricants in the mast. A dry wax-type lubricant such as Boelube® can be applied inside the roller channels, but not required.*

- ☐ If the First Mast or Base Weldment has been replaced, position it with open side up on a firm structure (such as metal sawhorses) so that it is parallel to the ground. Secure the First Mast onto the firm structure with channel locks or other locking devices or methods.
- ☐ If the First Mast or Base Weldment has not been replaced, the machine should already be in the parallel position and ready for re-assembly following the completion of the prior disassembly procedure.
- ☐ Attach all components, including the rollers, to the First Mast, Center Masts, and Front Mast (as needed). At this time, it is recommended that all pulley bolts are sealed with red *Loctite®* and torqued to specifications (refer to torque chart contained in this manual) and *all Pulley Mount (M00054) mounting bolts have been*

securely tightened and that Blue Loctite® has been applied to the bolt threads.

- ☐ Slide the Center or Front Mast (depending on model) into the First Mast from the bottom until the mast up stop on the second mast is even with the bottom of the First Mast.
- ☐ Repeat the previous step for each mast that was included in the telescopic mast assembly. Each mast should be sticking out slightly from the adjacent mast below. Do not attach the Fork Carriage.
- ☐ If previously removed or replaced, attach the swaged end of the cable to the Cable End Weldment anchor (M00065) at the top of the Front Mast.
- ☐ Feed the other end of the cable through the box section of the Fork Carriage (M00040 or M00240) and into the pulley.
- ☐ Push the cable through the pulley until it comes back out of the Fork Carriage.
- ☐ Slide the Fork Carriage into the bottom of the Front Mast.
- ☐ Hold the Fork Carriage in place and pull the cable along the length of the Front Mast to the top, leaving enough slack to feed the cable into the pulleys.
- ☐ Feed the cable into the exposed pulley at the top of the Front Mast until it reaches the pulley at the bottom of the Front Mast.
- ☐ Use needle nose pliers to route the cable into the pulley at the bottom of the Front Mast until it reaches the top of the mast.
- ☐ Route the cable into the pulley at the top of the next adjacent mast until it reaches the pulley at the bottom of that mast.
- ☐ Repeat this process to feed the cable through the pulleys at the top and bottom of each mast until the cable is threaded out of the top of the First Mast.

- ☐ Slide each mast forward and attach the mast Down Stop.

NOTE: *Before sliding each mast forward, pull the winch end of the cable to remove excess slack so it does not get pinched between the masts when nesting the mast together.*

NOTE: *Make sure all components have been securely tightened and that Blue Loctite® has also been applied to all Down Stops (M00062).*

- ☐ If the Base Weldment has not yet been assembled to the mast use 2 or more technicians to slowly flip the mast assembly so that the First Mast is facing up and the Fork Carriage is facing downward. Re-install the Base Weldment and Struts following the procedure in this manual.
- ☐ If the Base Weldment is still assembled to the First Mast use 2 or more technicians to slowly flip the mast assembly so that the First Mast is facing up and the Fork Carriage is facing

downward. Replace or re-install the Struts (M00024 & M00025) following the procedure in this manual.

- ☐ Using a shop crane to assist and/or between two to three (2 - 3) technicians, tilt the material lift to an upright position.
- ☐ Make sure the Fork Carriage is all the way down.
- ☐ Attach the cable to the winch reel (drum) by tightening the cable clamp fasteners to the winch reel (drum).

NOTE: *Make sure the cable wraps at least four times over the reel (drum) assembly when the Fork Carriage is in the fully lowered position.*

- ☐ After re-assembling the Legs and Stabilizers and deploying them in the operational position, use the winch to raise the material lift to full height, then fully lower, to verify that the lift is operating correctly.

REPLACING A PULLEY

Follow this procedure to replace a pulley without having to fully disassemble the mast.

Refer to related parts diagrams in Section 5.

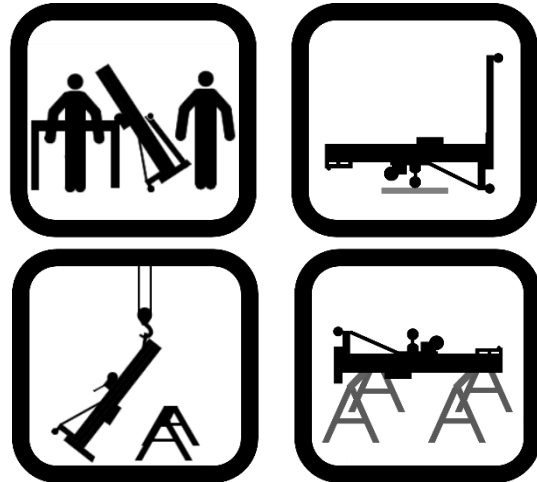
NOTE: Fully lower the Fork Carriage.

- ☐ Unwind one to two feet (about 30 to 61 cm) of cable from the winch reel.
- ☐ Using a crane and/or two or more technicians, the machine is positioned on its back with the Push Tube Weldment placed in the second highest position, so that the machine is resting on the rear of the base (or transport wheels if equipped) and the wheels on the Push Tube Weldment. In this case, the Push Tube Wheels should be placed on a pallet or two stacked pallets (or other similar firm structure acting as a spacer) to ensure the mast is parallel to the ground.
- ☐ If replacing the upper pulley on a mast, slide the mast in front of the pulley to be replaced. If replacing the lower pulley on a mast, slide the mast containing the pulley to be replaced.
- ☐ Slide the appropriate mast forward to expose the Mast Down Stop (M00062).
- ☐ Remove the flat head screw that attaches the mast Down Stop (M00062) to the mast.
- ☐ Remove the Down Stop. Slide out the appropriate mast backward until the pulley to be replaced is exposed.
- ☐ Remove the cap screw that attaches the pulley to the pulley assembly on the mast being repaired.
- ☐ Replace the pulley using the same fastener hardware (screws and washers) used to mount the original pulley. Install the cable into the new pulley during the replacement process and ensure Pulley Guard index hole is aligned to the index point on the Pulley Mount. Use *Red Loc-Tite®* on the Pulley cap screw and torque to specification.

Note: *The fasteners (screws and washers) used to mount the pulleys vary by mast and/or position. Reference parts diagrams in Section 5 for the appropriate cap screw length and the amount and type of nuts and washers.*

- ☐ Slide the mast forward (back into the mast assembly).
- ☐ Attach the Down Stop and install the flat head screws.
- ☐ Repeat this procedure as needed for each pulley to be replaced.

NOTE: *Make sure that each Down Stop mounting screw is tightened and that Blue Loctite®, or equivalent, has been applied to the screw's threads.*



REPLACING A PULLEY MOUNT

Follow this procedure to replace a pulley mount or any component on it without having to fully disassemble the mast.

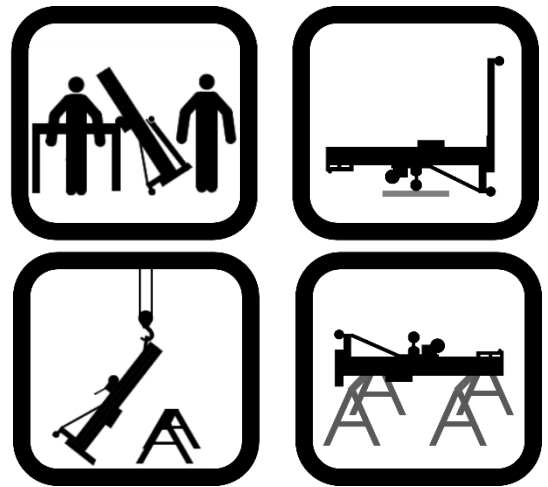
Refer to related parts diagrams in Section 5.

NOTE: The Pulley Mount on the First Mast is p/n M00045 & the Pulley Mount on the Center Mast, Front Mast, and Fork Carriage is p/n M00054.

NOTE: Two or more technicians are needed to place the material lift parallel to the ground.

- ☐ Fully lower the Fork Carriage.
- ☐ Unwind one to two feet (about 30 to 61 cm) of cable from the winch reel.
- ☐ Tilt the material lift back and lower it onto a support so that the mast is parallel to the ground and the Fork Carriage is facing up.
- ☐ If replacing the upper pulley mount on a mast, slide the mast above the pulley mount to be replaced. If replacing the lower pulley mount on a mast, slide the mast containing the pulley mount to be replaced.
- ☐ Slide out the appropriate mast forward to expose the mast Down Stop (M00062).
- ☐ Remove the cap screw that attaches the mast Down Stop to the mast.
- ☐ Remove the Down Stop. Slide out the appropriate mast until the pulley to be replaced is exposed.
- ☐ Loosen the two cap screws that attach the pulley mount to mast.
- ☐ Remove the cap screws and the reinforcement plate attached to it (First Mast reinforcement plate is p/n M00046 and p/n M00446 is the reinforcement plate used on the Center Mast, Front Mast, and Fork Carriage). Remove the pulley mount assembly.
- ☐ Remove the cap screw that attaches the pulley to the pulley assembly.

- ☐ Replace the pulley mount and any additional component that needs to be replaced.
- ☐ Thread the cap screw of the pulley into the new pulley mount (apply red Loctite® to threads and torque to specifications).
- ☐ Place the pulley mount assembly in the correct mast.
- ☐ Attach the Mast Reinforcement Plate with the applicable cap screws (apply blue Loctite® to threads prior to tightening).



REPLACING THE CABLE

Follow this procedure to replace the cable without disassembling the mast.

NOTE: *Two or more technicians are needed to place the material lift parallel to the ground.*

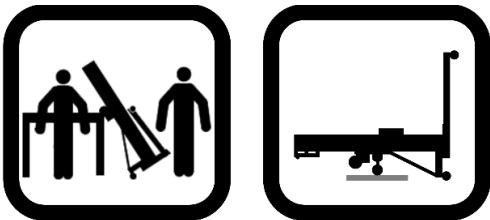
NOTE: *If the cable is completely broken, the mast needs to be disassembled to identify where the break is located.*

NOTE: *Masts with a braking system should be moved slowly to prevent the brake from engaging.*

- ☐ Fully lower the Fork Carriage.
- ☐ Remove the carriage bolt that attaches the cable clamp to the reel (drum) on the winch assembly.
- ☐ Remove the rope clamp from the Winch Reel (M00800).
- ☐ Remove the cable from the reel (drum) on the winch assembly.
- ☐ Remove the load lifting attachment from the material lift.

FOR LIFTS WITH STABILIZERS:

- ☐ Remove the cap screws from the stabilizer mounting bracket on the back of the mast.
- ☐ Remove the cap screw that attaches each stabilizer to the base.
- ☐ Remove the stabilizers.
- ☐ Leave the push tube at the 90-degree position.
- ☐ Tilt the material lift back and lower it onto a support so that the legs are not touching the ground.



WARNING: Failure to ensure the material lift is placed parallel to the ground on a firm structure may result in serious injury or death.

- ☐ Remove the retaining pin (M00088) from each leg. **Caution:** The Leg Assemblies may abruptly fold down once retaining pins are removed and inadvertently strike technicians so always hold the leg to prevent movement when leg pin is removed and then gently guide the leg downward into the storage position.
 - ☐ Remove the cap screw that attaches each leg to the base.
 - ☐ Remove the legs (legs can also be simply folded into their storage position after the retaining pin is removed if desired. When doing so, place pins in the other set of holes to lock the legs into the storage position).
 - ☐ Move each mast forward to remove the mast Down Stops (M00062).
 - ☐ Slide each mast out to expose the pulleys.
 - ☐ Remove the cable by pulling the cable out of the mast assembly from where it is attached to the Front Mast.
 - ☐ Loosen the cap screw attached to the cable termination bracket (M00065) to replace the old cable.
 - ☐ Attach the swaged end of the replacement cable to the cable termination bracket at the top of the Front Mast.
- NOTE:** *Ensure cap screw that attaches to the swaged end (through the cable thimble) contains two washers (one on each side – see related parts diagrams in Section 5).*
- ☐ Feed the other end of the cable through the box section of the Fork Carriage and into the pulley.
 - ☐ Push the cable through the pulley until it comes out the back of the Fork Carriage.
 - ☐ Slide the Fork Carriage into the bottom of the Front Mast.
 - ☐ Refer to section *Assembling the Mast* if needed.

- ☐ Hold the Fork Carriage in place and pull the cable along the length of the Front Mast to the top, leaving enough slack to feed the cable into the pulleys.
- ☐ Feed the cable into the exposed pulley at the top of the Front Mast until it reaches the pulley at the bottom of the Front Mast.
- ☐ Use needle nose pliers to feed the cable into the pulley at the bottom of the Front Mast until it reaches the top of the mast.
- ☐ Feed the cable into the pulley at the top of the next adjacent mast until it reaches the pulley at the bottom of that adjacent mast.
- ☐ Repeat this process to feed the cable through the pulleys at the top and bottom of each mast.
- ☐ Slide each mast forward and attach the mast Down Stop (using blue thread sealant on the fasteners).

NOTE: *Make sure that the cable is routed through the pulley and out of the First Mast.*

- ☐ Deploy legs prior to standing machine up.
- ☐ Between two or more technicians, place the material lift perpendicular to the ground.
- ☐ Run the cable over the winch drum. Make sure the cable is wrapped four (4) times over the winch.

NOTE: *Fork Carriage should be all the way down prior to wrapping the cable over the winch drum 4 times.*

- ☐ Raise the Fork Carriage without any weight or attachment to inspect the assembly.
- ☐ Repeat the same process but with an attachment and weight added to the Fork Carriage.

Note: The cable can be replaced in a variety of ways depending on whether it is broken or just being replaced during routine machine maintenance. It is possible to thread a replacement cable through the mast without disassembling the mast by butt splicing the end of the old cable to the new cable with duct tape. This can save considerable time.



Please visit our web site at www.liftsmart.NET for available videos depicting various repair procedures including several ways to replace the cable.

REPLACING THE TRANSPORT WHEEL ASSEMBLY

Follow this procedure to add or replace the transport wheel option on an *MLM Material Lift*.

Disassembling the Transport Wheel Option:

- Remove the cap screw from where the transport wheel assembly is attached to the base.
- Take the transport wheel off the material lift.

Assembling the Transport Wheel:

NOTE: *Fastener M00727 should be slightly loose before attaching the transport wheel on to the base.*

- Place the transport wheel on the base.
- Tighten the cap screws that attach the transport wheel assembly to the base.
- Tighten cap screw (M00727) after the transport wheel assembly is attached to the base.
- Wheels should move freely without hesitation or binding.

NOTE: *Make sure to use washers (M00743) with both the cap screws (M00740) and nuts (M00706).*

REPLACING THE HOLD DOWN BAR

Follow this procedure to replace damaged components from the hold down bar.

NOTE: *There are three components that can be replaced in this section.*

Replacing the Hold Down Bar End Roller:

- Engage the hold down bar, keeping it above the Fork Carriage.
- Loosen the fastener (M00756) that attaches the roller to the bar.
- Replace the hold down end roller and tighten the fastener.

Replacing Other Parts on the Hold Down Bar:

- Leave the push tube at the 90-degree position.
- Tilt the material lift back onto a support as described in prior sections.
- Loosen the fastener (M00740) that is attached to the block (M00123).
- Loosen the fastener (M00717) that goes across the First Mast which contains the aluminum tube (M00125) and a spring (M00124).
- Take off the Hold Down Bar.

Replacing the End Hook on the Hold Down Bar

- Loosen the fasteners (M00723) that attach the hook to the hold down bar.
- Replace the End Hook and reassemble.

NOTE: *Make sure that all components are assembled back together.*

ASSEMBLING THE HOLD DOWN BAR

- Have the hold down bar as one component
- Place the M00717 fastener across Mast A.

NOTE: *Follow the diagram in Section 5.*

- Place the fastener M00740 onto the hold down bar without the block.
- Connect the hold down bar on the other end of the fastener and tighten it.
- Place the block M00123 and tighten it.

NOTES: *Ensure that the block is not too tight. Follow the diagram in Section 5 that shows the position of the block*

The white UHMW plastic block can be rotated to adjust the stroke of the Hold Down Bar to accommodate the various MLM Mast Assemblies.

- Engage the hold down bar to ensure it does not pass over the top of the Fork Carriage.

5. PARTS

The following section provides exploded view drawings of the major components of the material lift. These drawings are intended to assist maintenance personnel when performing maintenance or repairs on the material lift and when ordering replacement parts.

Only trained and authorized personnel should perform maintenance or repairs on the material lift.

When ordering replacement parts:

- ☐ Use the drawings on the following pages to identify the part number(s), description(s), and quantities of the replacement part(s).
- ☐ Contact LiftSmart, or an authorized LiftSmart dealer, to place an order. Be prepared to provide the model and serial number of the material lift as well as a shipping address.
- ☐ ALWAYS use replacement parts provided or authorized by the manufacturer.

NOTE: Slight variations may exist in the design of *the MLM Mini Pro Series*, contingent upon its date of manufacture. Whenever possible, these variations are noted in the diagrams, and footnotes under the part number tables, on the following pages. Contact LiftSmart, or an authorized LiftSmart dealer, for more information.

DECALS - ANSI

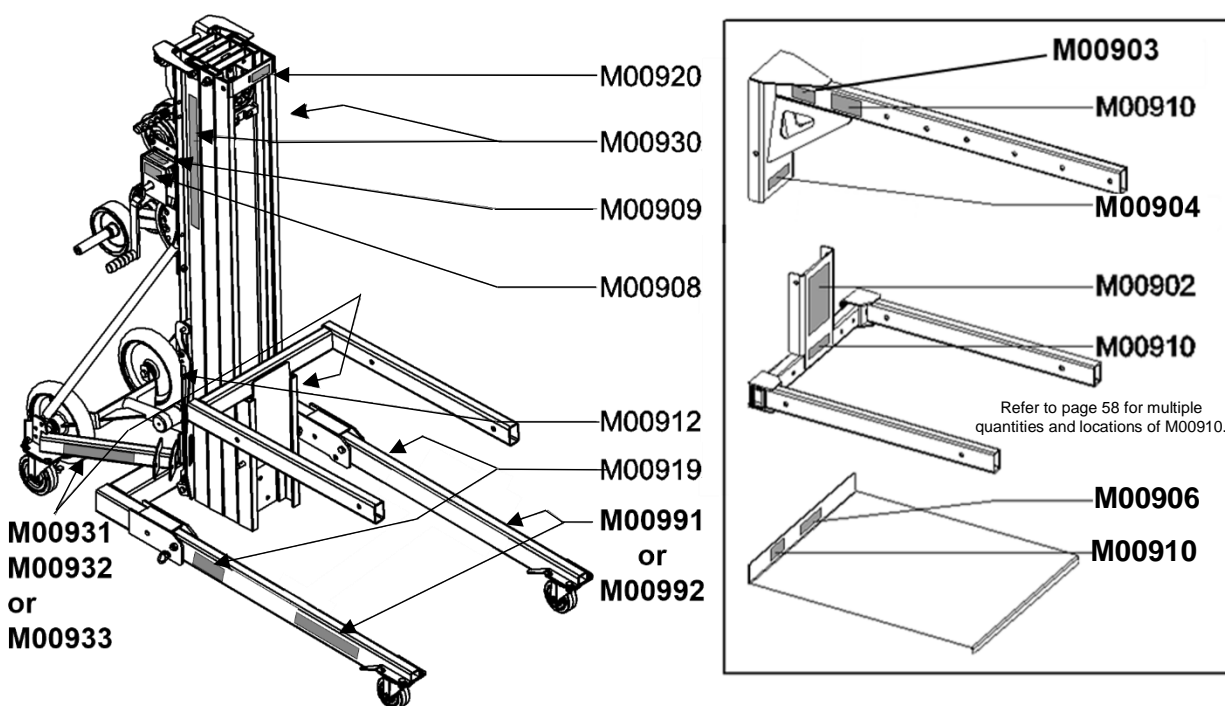
The table below provides descriptions, part numbers and quantities of English-based safety and cosmetic decals found on the material lift to comply with domestic (North American) and international standards. Refer to the diagram on the next page for decal locations on the material lift. **NEVER** deface, modify, or obscure any decals or markings on the material lift. Verify that all decals are legible and correctly attached to the material lift before operating the equipment.

Part Number	Description	Quantity		
		MLM-12	MLM-16	MLM-20
M00900	Operator's Manual Storage Container	1	1	1
M00901	WARNING - Hazards / NOTICE - Setup	1	1	1
M00905	NOTICE - Two-speed Shift	1	1	1
M00908	Use this Winch Only On The Following:	1	1	1
M00909	WARNING - Crushing Hazard	1	1	1
M00910	WARNING - No Riders	1	1	1
M00911	WARNING - Hazards	1	1	1
M00912	CAUTION - Damaged Machine Hazard	1	1	1
M00918	WARNING - Bodily Injury Hazard, Moving Parts	1	1	1
M00919	DANGER - Electrocution Hazard	2	2	2
M00920	Made in the U.S.A.	1	1	1

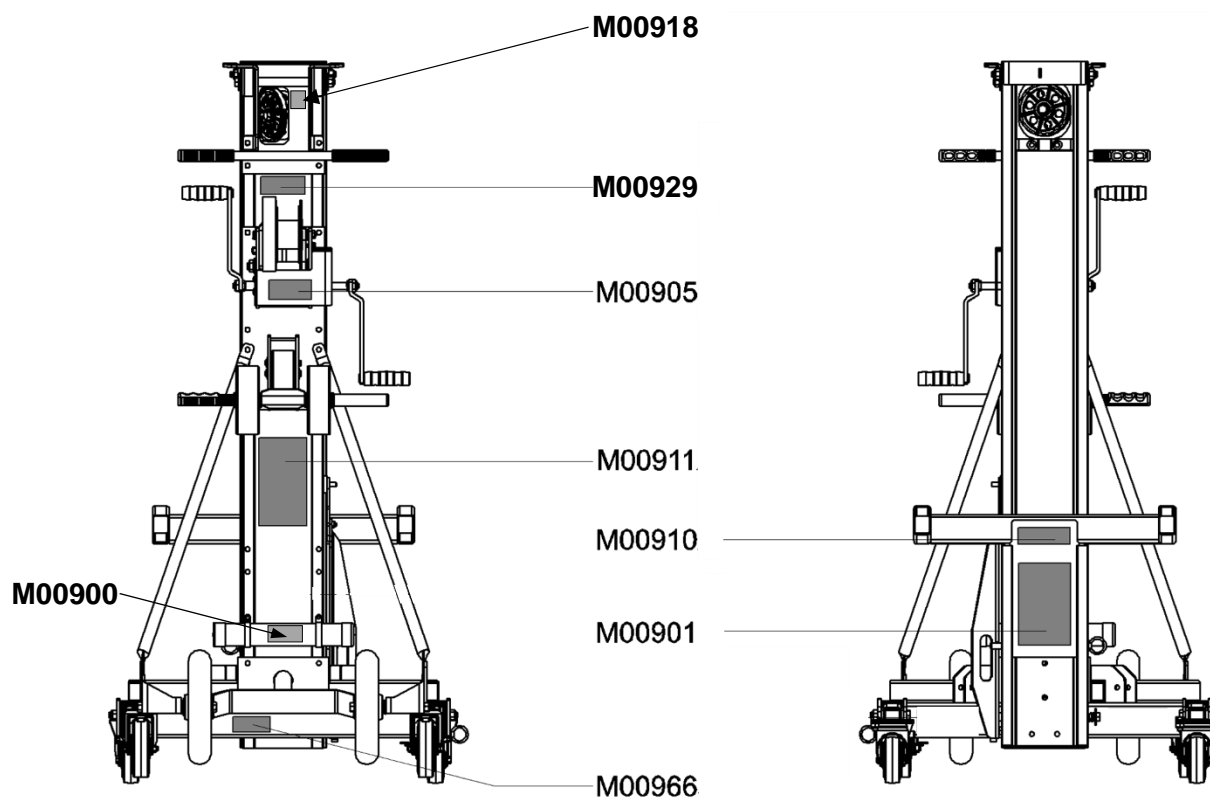
Part Number	Description	Quantity		
		MLM-12	MLM-16	MLM-20
M00930	LiftSmart Material Lift Mini Pro Series Decal (Cosmetic)	2	2	2
M00931	MLM-12 (Cosmetic)	2	0	0
M00932	MLM-16 (Cosmetic)	0	2	0
M00933	MLM-20 (Cosmetic)	0	0	2
M00929	NOTICE - Load Capacity, MLM	1	1	1
M00966	Serial Plate, Material Lifts	1	1	1
M00991	Cosmetic URL Decal, www.liftsmart.NET (black letters)	2	2	2
M00992	Cosmetic URL Decal, www.liftsmart.NET (white letters)	2	2	2

OPTIONAL EQUIPMENT

Part Number	Description
M00902	WARNING - Adjustable Fork Safety
M00903	NOTICE - Boom Setup (Boom only)
M00904	WARNING - Boom Safety (Boom only)
M00906	WARNING - Bodily Injury Hazard (material lifting platform only)



NOTE: The forks are shown in an up/inverted position.



DECALS - CE

The table below provides descriptions, part numbers and quantities of symbol-based safety and cosmetic decals found on the material lift to comply with international standards. Refer to the diagram on the next page for decal locations on the material lift. **NEVER** deface, modify, or obscure any decals or markings on the material lift. Verify that all decals are legible and correctly attached to the material lift before operating the equipment.

Part Number	Description	Quantity		
		MLM-12	MLM-16	MLM-20
M00930	LiftSmart Material Lift Mini Pro Series Decal	2	2	2
M00931	MLM-12 (Cosmetic)	2	0	0
M00932	MLM-16 (Cosmetic)	0	2	0
M00933	MLM-20 (Cosmetic)	0	0	2
M00900CE	Operator's Manual Storage Container, Symbolic	1	1	1
M00912CE	CAUTION - Damaged Machine Hazard, Symbolic	1	1	1
M00920	Made in the U.S.A.	1	1	1
M00950	SYMBOL - Read the Manual	2	2	2
M00951	WARNING - No Riders - SYMBOL	2	2	2
M00952	CAUTION - Moving Parts - SYMBOL	1	1	1
M00953	DANGER - Electrocuting Hazard - SYMBOL	2	2	2
M00954	Use The Winch Only On The Following: - SYMBOL	1	1	1
M00929CE	WARNING - Load Chart, MLM	1	1	1
M00956	WARNING - Brake Lock - SYMBOL	1	1	1
M00957	NOTICE - Two-speed Winch - SYMBOL	1	1	1
M00958	CE Mark	1	1	1
M00966	Serial Plate, Material Lifts	1	1	1
M00991	Cosmetic URL Decal, www.liftsmart.NET (black letters)	2	2	2
M00992	Cosmetic URL Decal, www.liftsmart.NET (white letters)			

OPTIONAL EQUIPMENT

Part Number	Description
M00902CE	WARNING - Adjustable Fork Safety, Symbolic

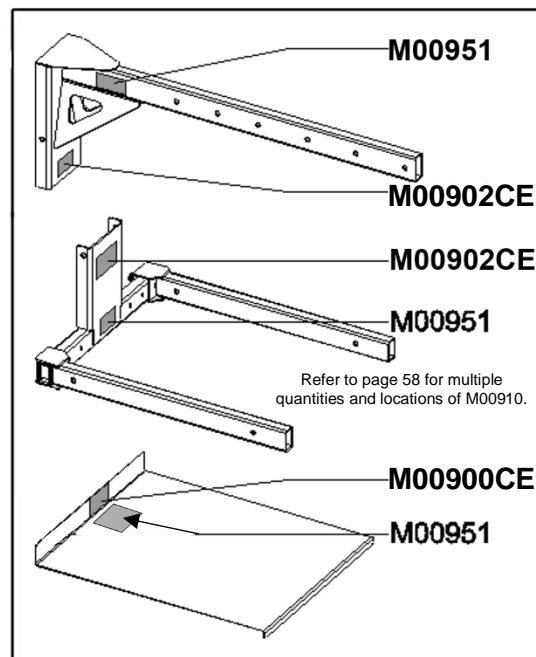
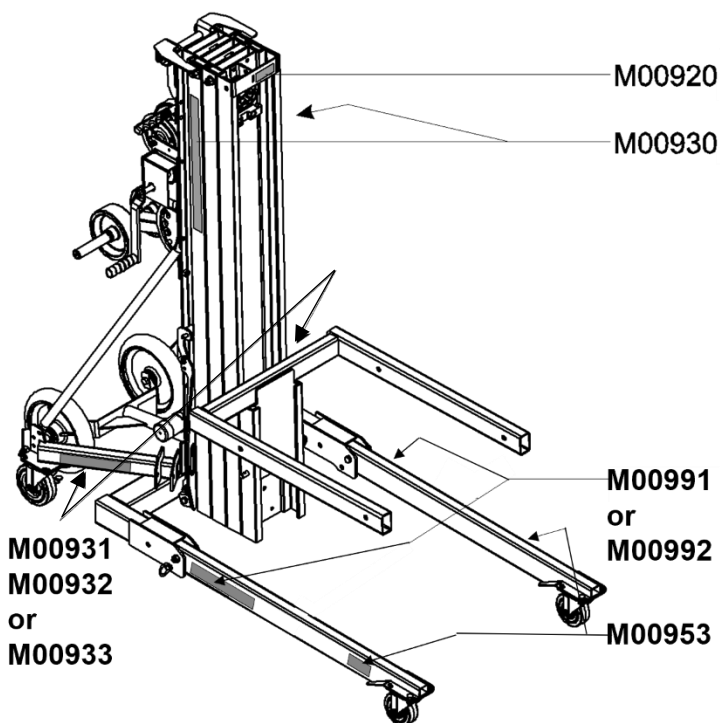
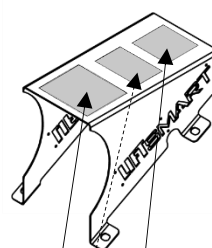
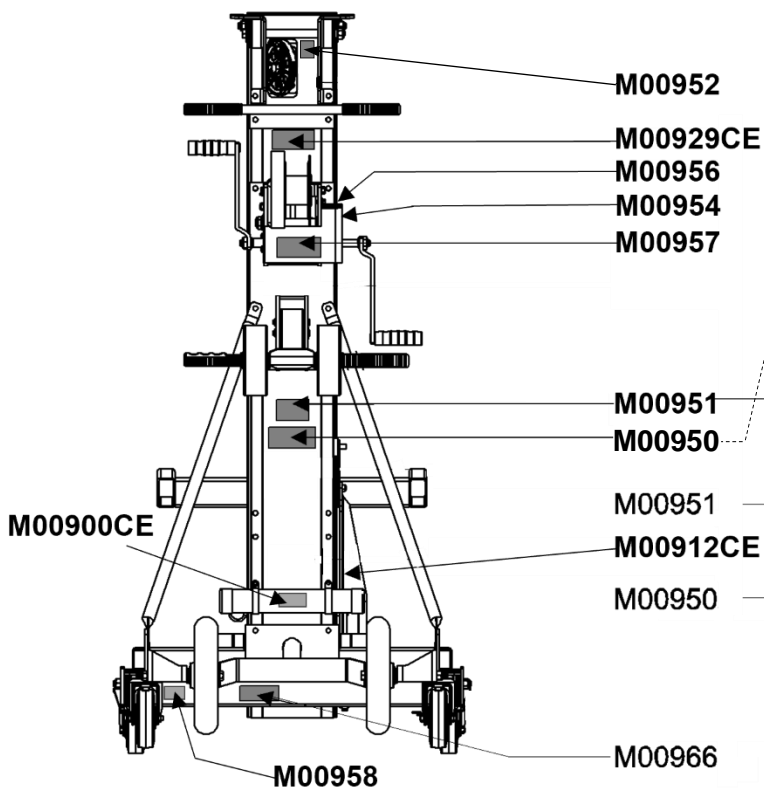
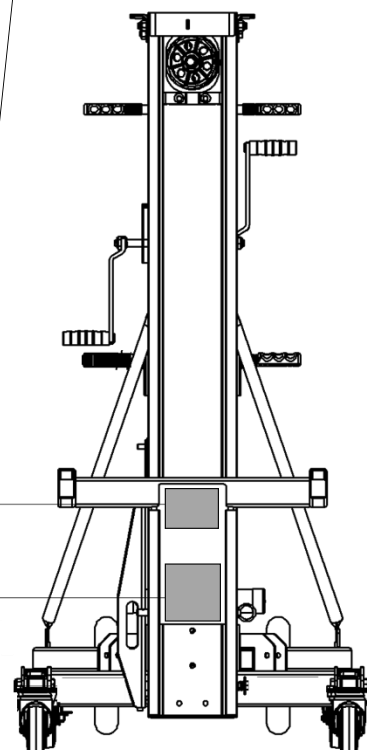


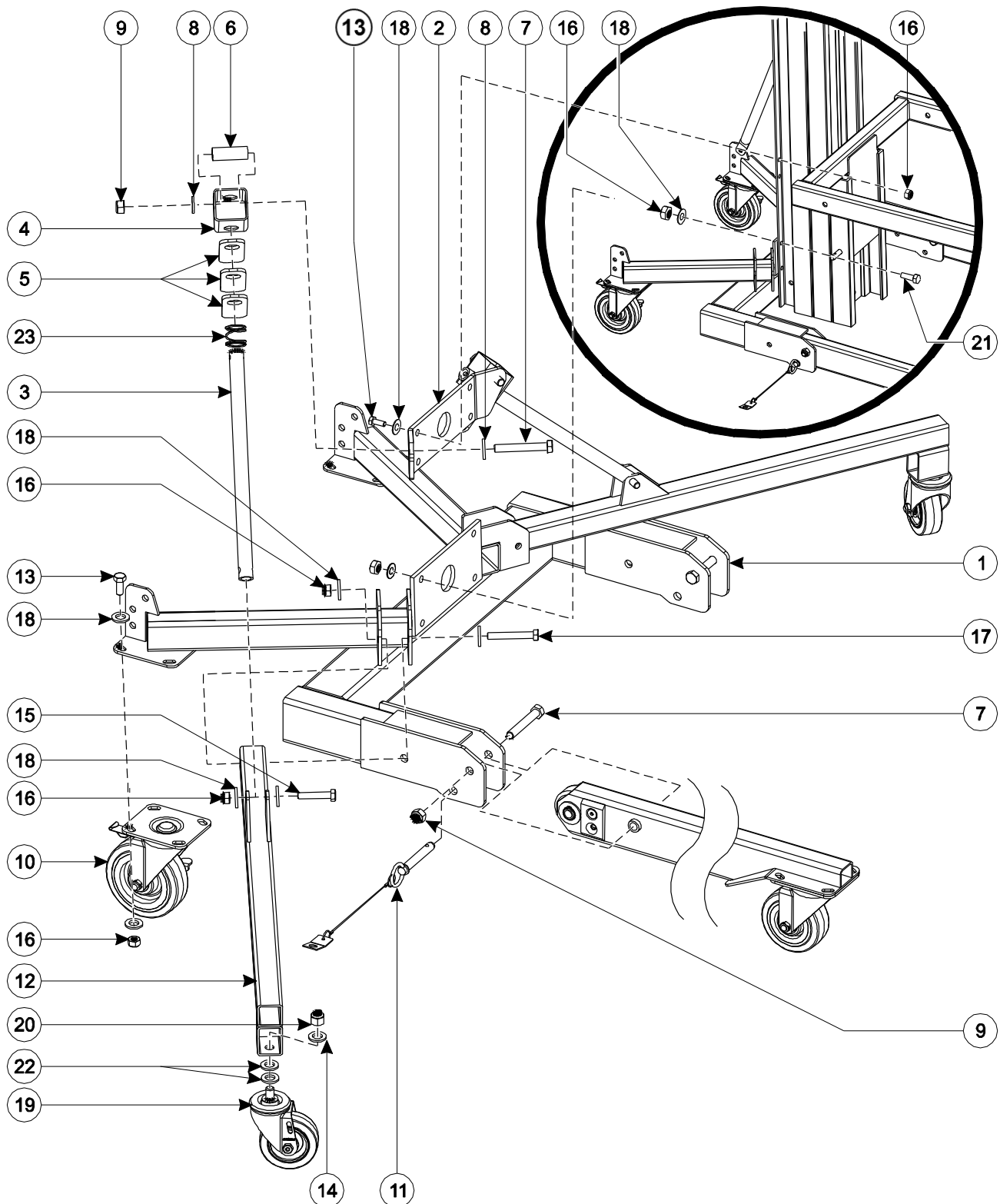
Diagram depicts basic CE configuration, but there are several variations depending on country and if machine is equipped with an optional Cable Guard. Please contact LiftSmart for additional assistance.



If equipped with optional cable guard.



Note: The forks are depicted in the inverted position.

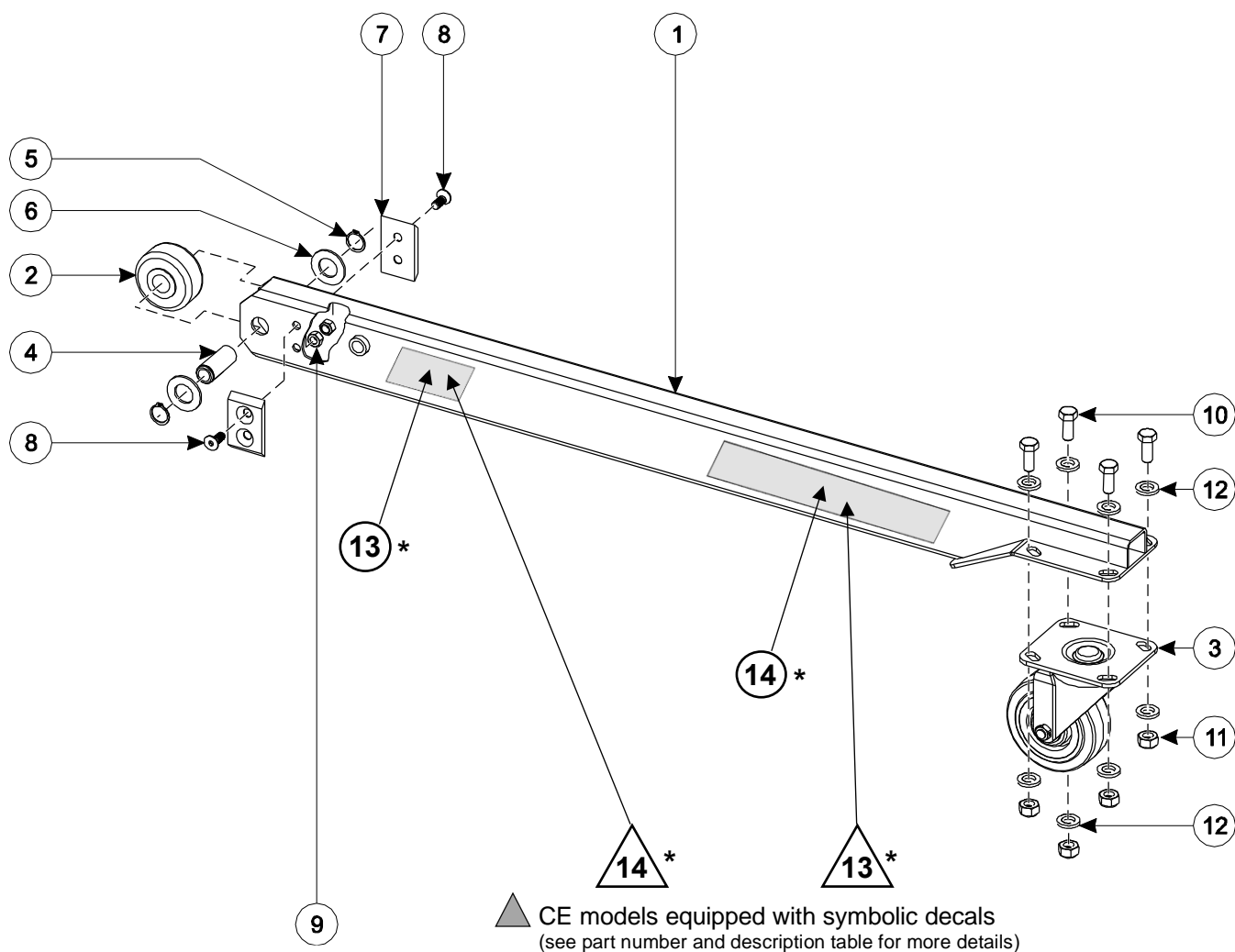
STANDARD BASE AND STABILIZERS

STANDARD BASE AND STABILIZERS

Item Number	Part Number	Description	Quantity
1	M00014	Base Weldment	1
---	M00070	Stabilizer Option* (includes 2 stabilizer assemblies and all mounting hardware)	
2	M00075	Stabilizer Latch Mounting Plate	1
3	M00079-ASSY	Stabilizer Brace Tube w/Roll Pin Assy	2*
4	M00078	Stabilizer Latch Tube	2*
5	M00077	Stabilizer Latch Plate	6*
6	M00131	Stabilizer Pivot Tube	2*
7	M00700	HHCS - M12 x 80	2 + 2*
8	M00707	Washer - M12	4*
9	M00701	Hex Nut - M12	2 + 2*
10	M00490	HD Caster - 5" x 2" w/Side Brake	2
11	M00088	Leg Locking Pin w/ Lanyard (ball detent pin)	2
12	M00071	Stabilizer Weldment	2*
13	M00740	HHCS - M10 x 30	10
14	M00750	Washer, Lock - 1/2"	2*
15	M00704	HHCS - M10 x 50	2*
16	M00706	Hex Nut - M10	14 + 4*
17	M00705	HHCS - M10 x 70	2*
18	M00743	Washer - M10	20 + 8*
19	M00076	Caster 1.5" x 3 1/2" - Stabilizer	2*
20	M00749	Jam Nut - 1/2-13	2*
21	M00740	HHCS - M10 x 30 ¹	4
	M00739	HHCS - M10 x 35 ¹	
22	M00711	Washer - M12 - Fender	4*
23	M00052	Stabilizer Latch Spring	2*

* **Notes:** Stabilizers and related components (quantities denoted above with *) are optional equipment on the MLM-12 and MLM-16 models. Verify whether the MLM Mini Pro model is equipped with stabilizers before beginning maintenance or ordering replacement parts.

¹ In most cases, the bolts used to attach the base to the mast mounting plate are M00740 but, in some cases, a quantity of two or four M00739's are used instead, if there are washer shims placed between the mast and the base plate to obtain the specified mast tilt-back required for the various MLM models produced (see page 16 for more information on tilt-back).

LEG ASSEMBLY (2 LEGS PER MATERIAL LIFT)

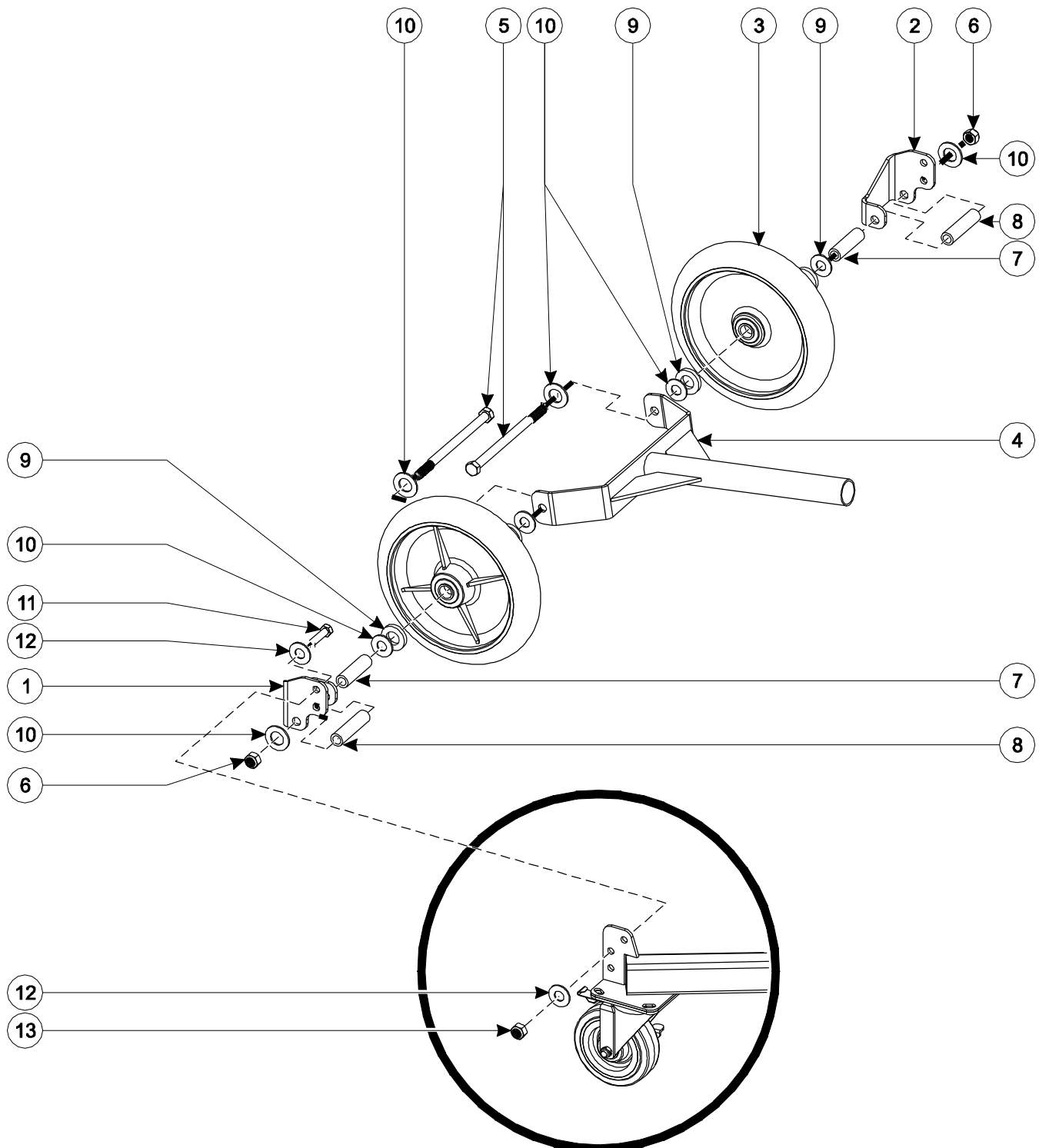
*** Note:** Items 13 and 14 are applied to the outside facing side of each leg so the decals are visible from the outside of the machine.

LEG ASSEMBLY

Item Number	Part Number	Description	Quantity Per Machine		
			MLM-12	MLM-16	MLM-20
---	M00283-ASSY	Leg Assembly w/Decals - Short ¹	2		
---	M00026-ASSY	Leg Assembly w/Decals - Medium ¹		2	
---	M00279-ASSY	Leg Assembly w/Decals - Long ¹			2

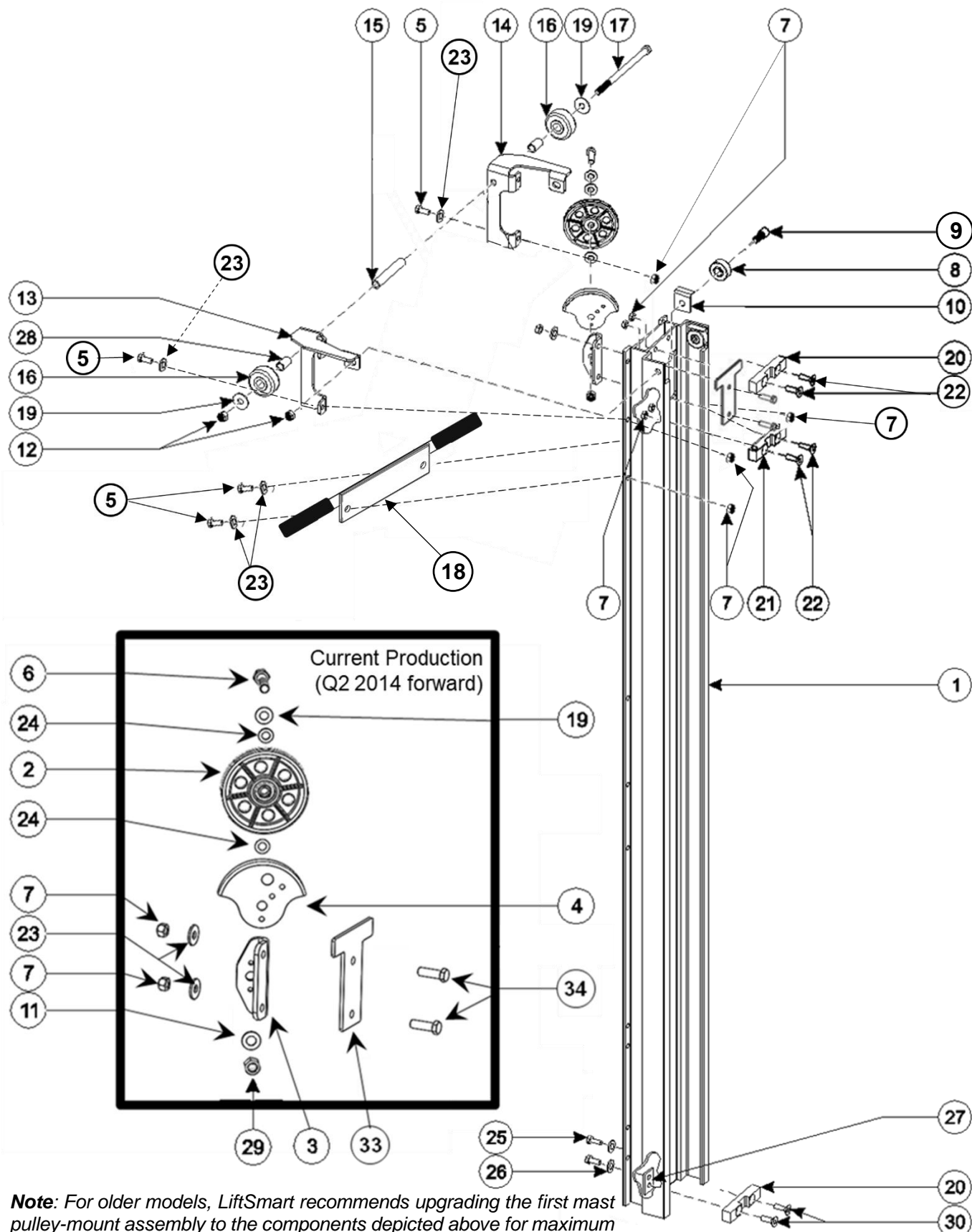
Item Number	Part Number	Description	Quantity per Leg Assembly		
			Short M00283	Medium M00026	Long M00279
1	M00284-ASSY	Leg Weldment w/Decals - Short	1	0	0
1	M00027-ASSY	Leg Weldment w/Decals - Medium	0	1	0
1	M00280-ASSY	Leg Weldment w/Decals - Long	0	0	1
2	M00031	Wheel - 2.5" OD x 0.75" ID	1	1	1
3	M00148	Heavy-Duty Caster - 4" x 2"	1	1	1
4	M00032	Leg Wheel Hub Bushing	1	1	1
5	M00086	Snap Ring - 0.75"	2	2	2
6	M00721	Washer - 0.76" ID x 1.25" OD	2	2	2
7	M00084	Leg Shim	2	2	2
8	M00723	FHCS - M8 x 20	4	4	4
9	M00703	Hex Nut - M8	4	4	4
10	M00740	HHCS - M10 x 30	4	4	4
11	M00706	Hex Nut - M10	4	4	4
12	M00743	Washer - M10	8	8	8
13	M00919	DANGER - Electrocution Hazard for Americas & English language models	1	1	1
	M00953	DANGER - Electrocution Hazard CE models (symbolic decal)			
14	M00991	Cosmetic URL Decal, <i>www.liftsmart.NET</i> (black letters)	1	1	1
	M00992	Cosmetic URL Decal, <i>www.liftsmart.NET</i> (white letters)			

¹ **Safety Notice:** Leg assemblies provide the necessary stability for material lifts and the appropriate and specified leg assemblies MUST always be used on the models listed to ensure safe machine operation.

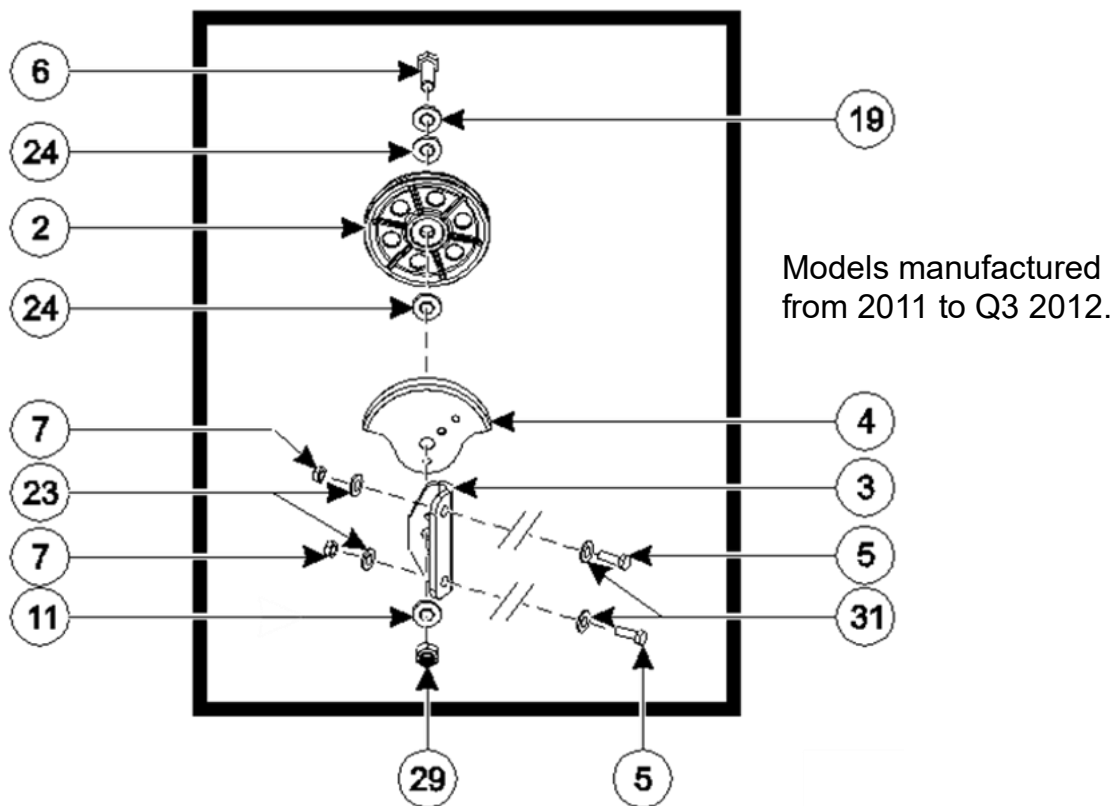
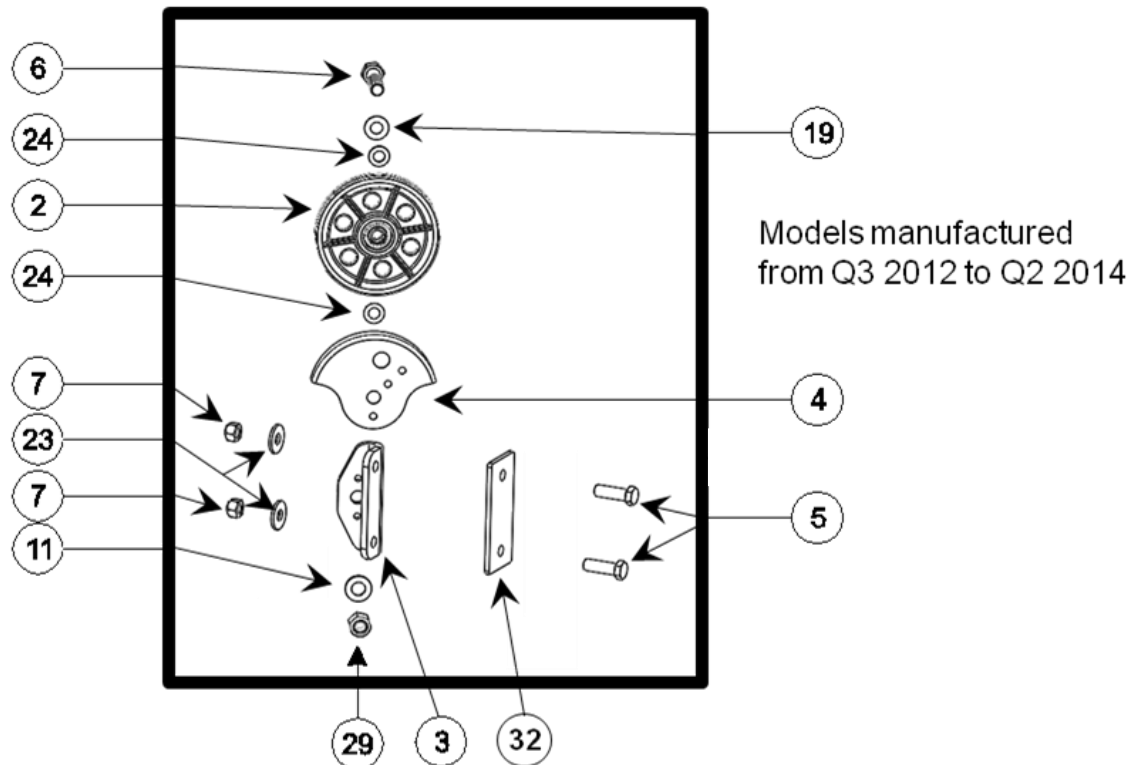
TRANSPORT WHEEL ASSEMBLY

TRANSPORT WHEEL ASSEMBLY

Item Number	Part Number	Description	Quantity per Assembly
---	M00090	Transport Wheel Assembly	
1	M00091	Transport Wheel Mounting Bracket - Right	1
2	M00092	Transport Wheel Mounting Bracket - Left	1
3	M00095-ASSY	Transport Wheel Assembly - 10" (w/bearings listed below)	2
'---	M00099	Wheel Bearing, 3/4-inch (for M00095 above - not depicted but 2 used per wheel)	4
4	M00096	Center Mounting Weldment	1
5	M00727	HHCS - M12 x 190	2
6	M00701	Hex Nut - M12	2
7	M99993	Bushing, Spanner (Wheel Axle)	2
8	M00094	Spacer, Tube, Mounting Bracket - .75 OD x .5 ID x 3.0	2
9	M00799	Washer, Thrust - 3/4" x 1-1/4"	4
10	M00707	Washer - M12	8
11	M00740	HHCS - M10 x 30	4
12	M00743	Washer - M10	8
13	M00706	Hex Nut - M10	4

MAST ASSEMBLY (I) - FIRST MAST ASSEMBLY

Note: For older models, LiftSmart recommends upgrading the first mast pulley-mount assembly to the components depicted above for maximum performance and durability.

**MAST ASSEMBLY (I) - FIRST MAST ASSEMBLY
HISTORICAL CHANGES**

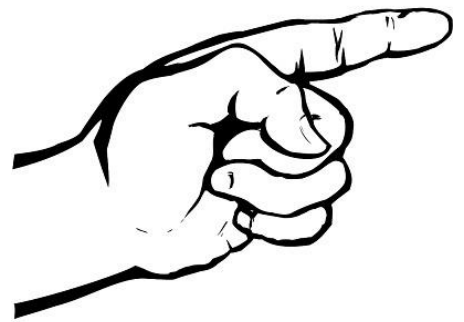
MAST ASSEMBLY (I) - FIRST MAST ASSEMBLY

Item Number	Part Number	Description	Quantity
1	M00337	MLM Mast A	1
2	M00060	Pulley w/ Bearing	1
3	M00045	Pulley Mount - Mast A	1
4	M00048	Pulley Guard	1
5	M00740	HHCS - M10 x 30	6 + 2*
6	M00755	HHCS - 1/2-13 x 2"	1
7	M00706	Hex Nut - M10	12
8	M00043	Roller	2
9	M00042	Roller Bolt - SHCS - M12 x 19	2
10	M00051	Roller Guard	2
11	M00707	Washer - M12 - Narrow	2
12	M00701	Hex Nut - M12	4
13	M00349	Mast Support Bracket - Right	1
14	M00350	Mast Support Bracket - Left	1
15	M00211	Aluminum Bushing - .75 OD x .5 ID x 4.45	2
16	M00031	Wheel - 2.5" OD x 0.75" ID	2
17	M00712	HHCS - M12 x 210	1
18	M00290	MLM Steering Handle Assembly (includes sub-components below)	1
---	M00291	MLM Handle Weldment	1
---	M00110	Rubber Grips	2
19	M00711	Washer - M12 - Fender	3
20	M00062	Down Stop	2
21	M00061	Up Stop	1
22	M00756	FHCS - M10 x 35	4
23	M00743	Washer - M10	8
24	M00754	Washer - 1/2" - Hardened	2
25	M00740	HHCS - M10 x 30	2
26	M00746	Lock Washer - M10	2
27	M00058	Reinforcement Block	2
28	M00210	Axle - For Colson Performa Leg Wheel	2
29	M00719	Hex Nut - 1/2-13	1
30	M00714	FHCS - M10 x 40 ¹	2
31	M00762	Washer - M10 - Fender (old style)	2
32	M00046-1	Mast Reinforcement Plate (old style)	1
33	M00046-2	Mast Reinforcement Plate	1
34	M00739	HHCS - M10 x 35	2*

* Older versions use a quantity of two M00740's (item 5) for the First Mast upper pulley assembly, but current production models use a quantity of two (2) M00739's instead of the two M00740's.

¹ Recommend using blue thread sealant for these fasteners.

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MAST ASSEMBLY (II) - CENTER MAST ASSEMBLY 2011 - 2012 MODELS

Item Number	Part Number	Description	Quantity		
			MLM-12	MLM-16	MLM-20
---	---	Center Mast Assembly	1	2	3

Item Number	Part Number	Description	Quantity per Assembly
1	M00338	MLM Mast B Standard and Mast Brake Models ¹	1
	M00236	MLM Mast B Mast Brake Models (pre-2019) ²	
2	M00060	Pulley w/ Bearing	2
3	M00054	Pulley Mount - 1/2-13	2
4	M00048	Pulley Guard	2
5	M00707	Washer - M12 - Narrow	4
6	M00752	HHCS - 1/2-13 x 1 1/4" ⁵	2
7	M00710	HHCS - M10 x 20 ³	4
8	M00706	Hex Nut - M10	6
9	M00061	Up Stop	2
10	M00062	Down Stop	3
11	M00714	FHCS - M10 x 40 ⁴	4
12	M00051	Roller Guard	4
13	M00042	Roller Bolt - SHCS - M12 x 19, 1/2" Shoulder	4
14	M00701	Hex Nut - M12	4
15	M00043	Roller	4
16	M00754	Washer - 1/2" - Hardened	2
17	M00746	Lock Washer - M10 ³	4
18	M00058	Reinforcement Block	2
19	M00756	FHCS - M10 x 35	6

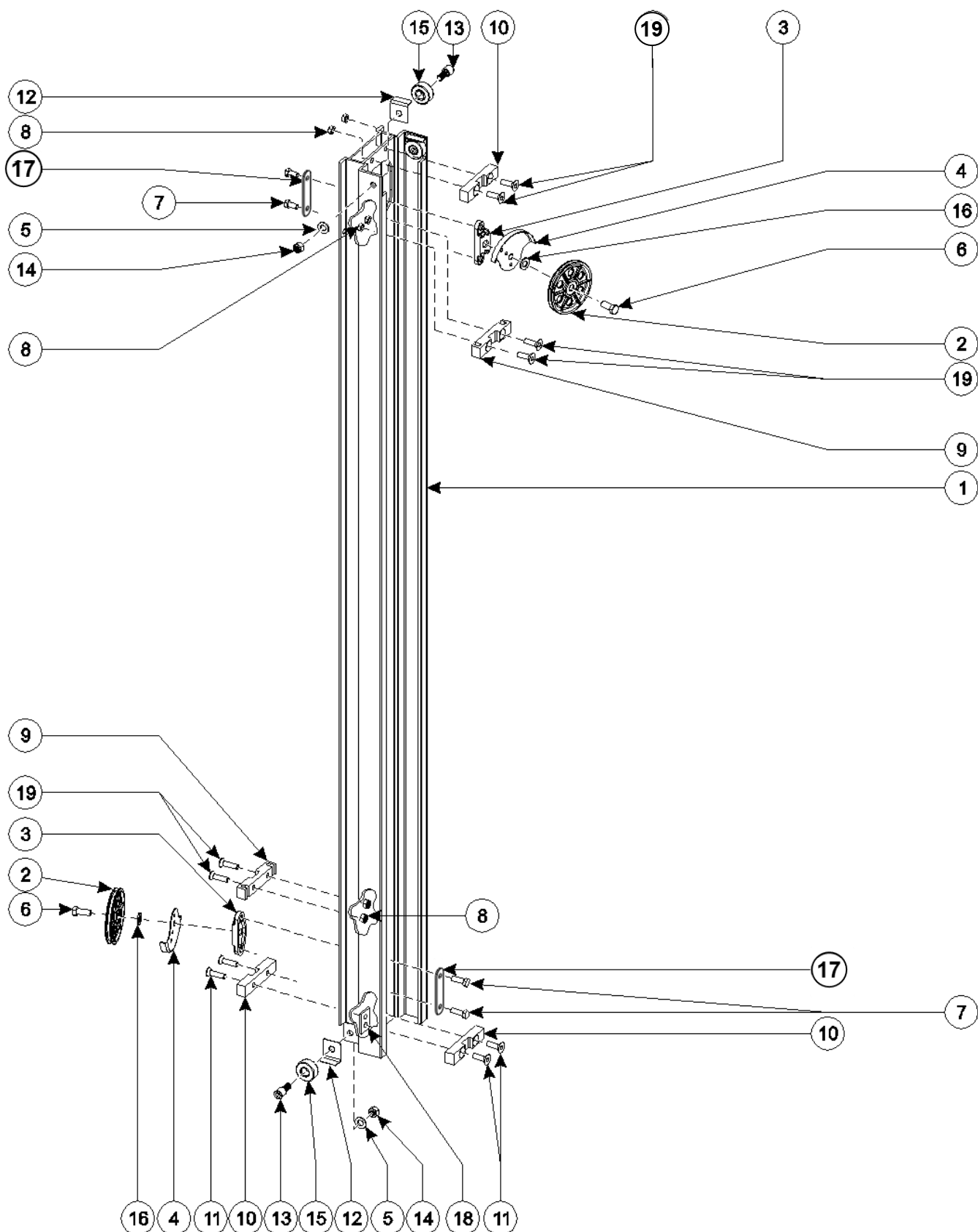
¹ Models produced in 2019 and later incorporate a common Mast B that can be used to produce telescopic mast assemblies that can be equipped with or without the current generation of mast braking system.

² Prior to 2019 there were two different MLM Mast B part numbers. M00338 was used for telescopic masts without a mast braking system and M00236 was used for telescopic masts that were equipped with the first generation of the mast braking system. The difference between the two mast part numbers are how they are machined, so they are not interchangeable.

³ Models produced in 2011 and 2012 used M00710 and M00746 because M00446 was not yet used in the mast design. The M00446 Mast Reinforcement plate was implemented in 2013 and required the longer M00713 bolt (see next table). The M00710 bolts and M00746 lock washers were discontinued.

⁴ Recommend using blue thread sealant for these fasteners.

⁵ Torque to specifications and use red thread sealant for these fasteners.

MAST ASSEMBLY (II) - CENTER MAST ASSEMBLY
2013 - CURRENT MODELS

MAST ASSEMBLY (II) - CENTER MAST ASSEMBLY 2013 - CURRENT MODELS

Item Number	Part Number	Description	Quantity		
			MLM-12	MLM-16	MLM-20
---	---	Center Mast Assembly	1	2	3

Item Number	Part Number	Description	Quantity per Assembly
1	M00338	MLM Mast B Standard and Mast Brake Models ¹	1
	M00236	MLM Mast B Mast Brake Models (pre-2019) ²	
2	M00060	Pulley w/ Bearing	2
3	M00054	Pulley Mount - 1/2-13	2
4	M00048	Pulley Guard	2
5	M00707	Washer - M12 - Narrow	4
6	M00752	HHCS - 1/2-13 x 1 1/4" ³	2
7	M00713	HHCS - M10 x 25	4
8	M00706	Hex Nut - M10	6
9	M00061	Up Stop	2
10	M00062	Down Stop	3
11	M00714	FHCS - M10 x 40	4
12	M00051	Roller Guard	4
13	M00042	Roller Bolt - SHCS - M12 x 19, 1/2" Shoulder	4
14	M00701	Hex Nut - M12	4
15	M00043	Roller	4
16	M00754	Washer - 1/2" - Hardened	2
17	M00446	Mast Reinforcement Plate	2
18	M00058	Reinforcement Block	2
19	M00756	FHCS - M10 x 35	6

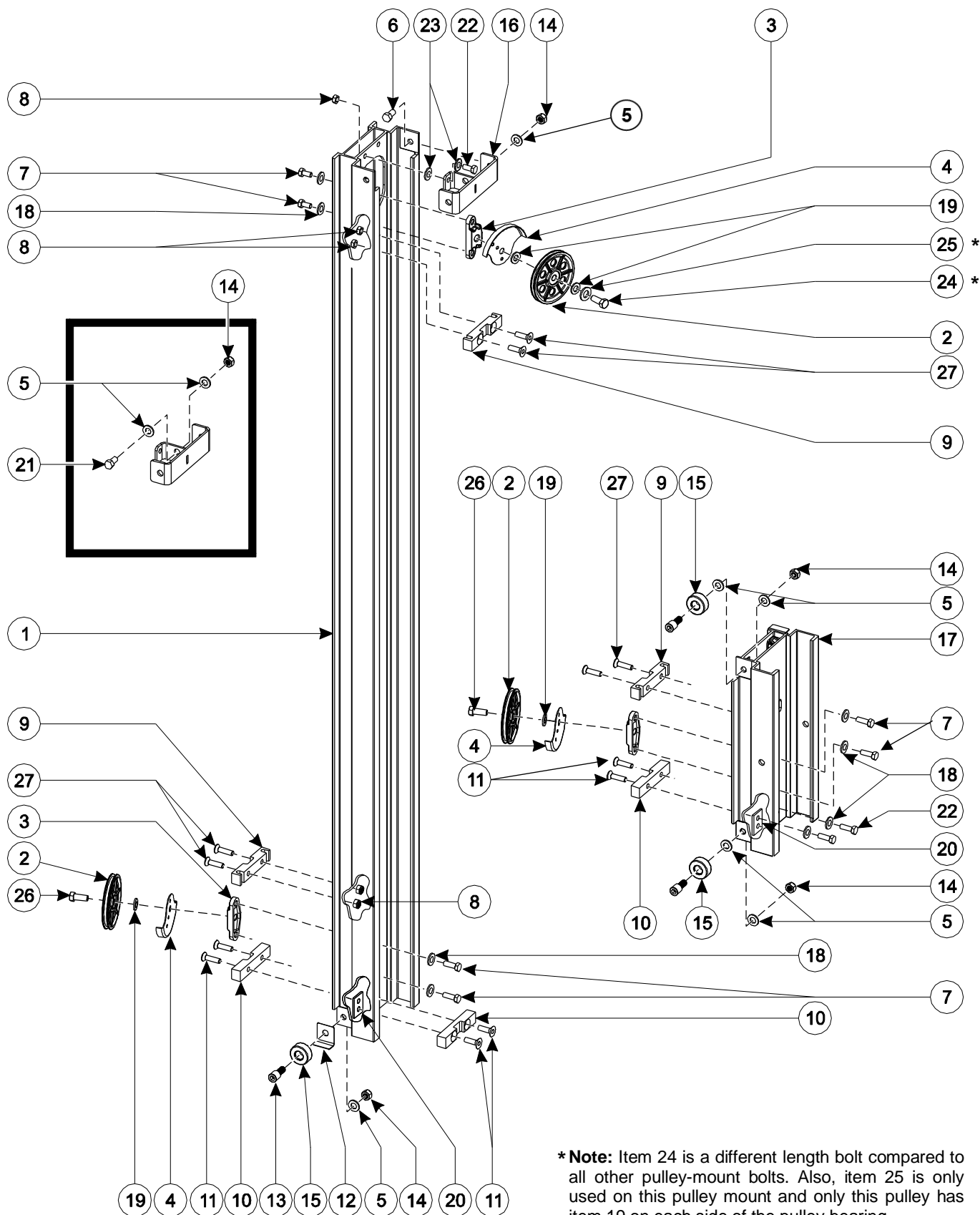
¹ Models produced in 2019 and later incorporate a common Mast B that can be used to produce telescopic mast assemblies that can be equipped with or without the current generation of mast braking system.

² Prior to 2019 there were two different MLM Mast B part numbers. M00338 was used for telescopic masts without a mast braking system and M00236 was used for telescopic masts that were equipped with the first generation of the mast braking system. The difference between the two mast part numbers are how they are machined, so they are not interchangeable.

³ Torque to specifications and use red thread sealant for these fasteners.

MAST ASSEMBLY (III) - FRONT MAST AND FORK CARRIAGE

2011 - 2012 MODELS



MAST ASSEMBLY (III) - FRONT MAST AND FORK CARRIAGE 2011 - 2012 MODELS

Item Number	Part Number	Description	Quantity
1	M00338	MLM Mast B Standard and Mast Brake Models ¹	1
2	M00060	Pulley w/Bearing	3
3	M00054	Pulley Mount - 1/2-13	3
4	M00048	Pulley Guard	3
5	M00707	Washer - M12 - Narrow	14
6	M00716	HHCS - M12 x 30	2
7	M00710	HHCS - M10 x 20 ²	6
8	M00706	Hex Nut - M10	7
9	M00061	Up Stop	3
10	M00062	Down Stop	3
11	M00714	FHCS - M10 x 40 ³	6
12	M00051	Roller Guard	2
13	M00042	Roller Bolt - SHCS - M12 x 19, 1/2" Shoulder	6
14	M00701	Hex Nut - M12	9
15	M00043	Roller	6
16	M00065	Cable End Weldment	1
17	M00040	Fork Carriage Standard ¹	1
18	M00746	Lock Washer - M10 ²	8
19	M00754	Washer - 1/2" - Hardened	4
20	M00058	Reinforcement Block	4
21	M00715	HHCS - M12 x 40	1
22	M00740	HHCS - M10 x 30	3
23	M00743	Washer - M10 - Flat	2
24	M00753	HHCS - 1/2-13 x 1 1/2" ⁴	1
25	M00711	Washer - M12 Fender	1
26	M00752	HHCS - 1/2-13 x 1 1/4" ⁴	2
27	M00756	FHCS - M10 x 35	6

¹ Mast Brake Models were not produced in 2011 - 2012. Please see next page for parts diagram and table for mast brake models.

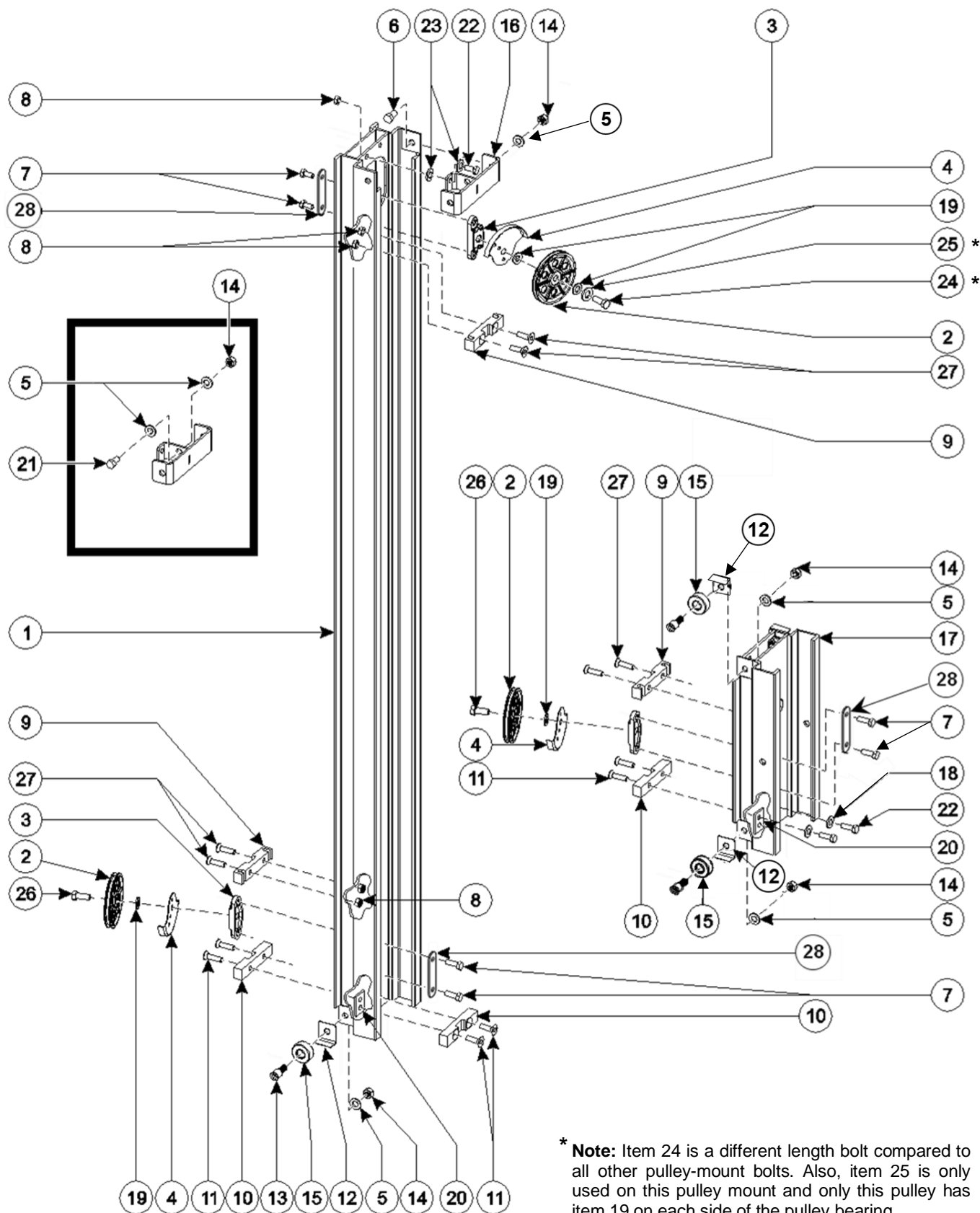
² Models produced in 2011 and 2012 used M00710 and M00746 because M00446 was not yet used in the mast design. The M00446 Mast Reinforcement plate was implemented in 2013 and required the longer M00713 bolt (see next table). The M00710 bolts and M00746 lock washers were discontinued.

³ Recommend using blue thread sealant for these fasteners.

⁴ Torque to specifications and use red thread sealant for these fasteners.

MAST ASSEMBLY (III) - FRONT MAST AND FORK CARRIAGE

2013 - CURRENT MODELS



MAST ASSEMBLY (III) - FRONT MAST AND FORK CARRIAGE 2013 - CURRENT MODELS

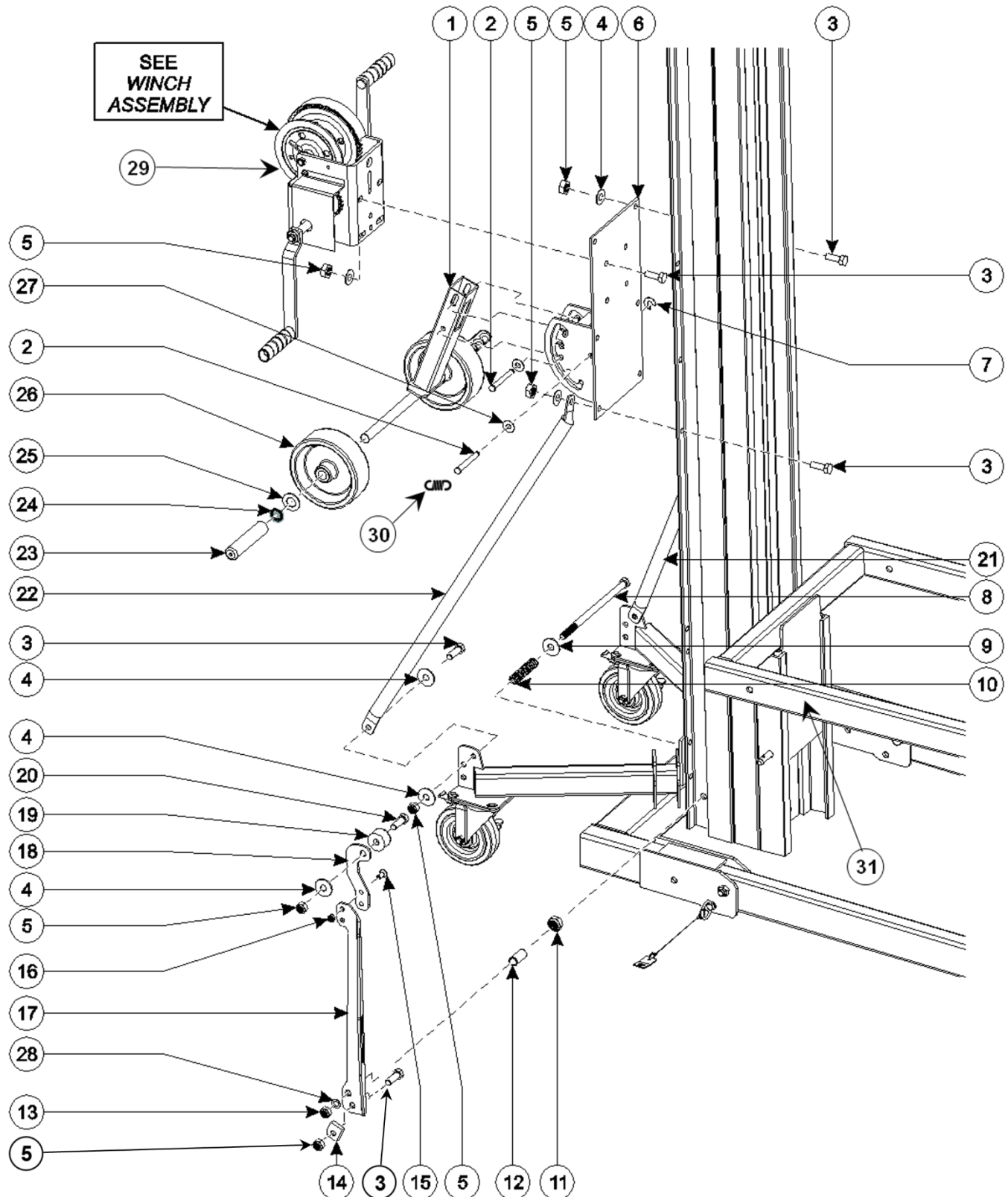
Item Number	Part Number	Description	Quantity
1	M00338	MLM Mast B Standard and Mast Brake Models ¹	1
	M00236	MLM Mast B Mast Brake Models (pre-2019) ²	
2	M00060	Pulley w/Bearing	3
3	M00054	Pulley Mount - 1/2-13	3
4	M00048	Pulley Guard	3
5	M00707	Washer - M12 - Narrow	10
6	M00716	HHCS - M12 x 30	2
7	M00713	HHCS - M10 x 25	6
8	M00706	Hex Nut - M10	7
9	M00061	Up Stop ¹	3
	M00061	Up Stop, White, Mast Brake Models (pre-2019) ²	2
	M00489	Up Stop, Black, Mast Brake Models (pre-2019) ²	1
10	M00062	Down Stop ¹	3
	M00062	Down Stop, White, Mast Brake Models (pre-2019) ²	2
	M00487	Down Stop, Black, Mast Brake Models (pre-2019) ²	1
11	M00714	FHCS - M10 x 40 (use blue thread sealant)	6
12	M00051	Roller Guard	6
13	M00042	Roller Bolt - SHCS - M12 x 19, 1/2" Shoulder	6
14	M00701	Hex Nut - M12	9
15	M00043	Roller	6
16	M00065	Cable End Weldment	1
17	M00040	Fork Carriage Standard and Mast Brake Models ¹	1
	M00240	Fork Carriage Mast Brake Models (pre-2019) ²	
18	M00746	Lock Washer - M10	2
19	M00754	Washer - 1/2" - Hardened	4
20	M00058	Reinforcement Block	4
21	M00715	HHCS - M12 x 40	1
22	M00740	HHCS - M10 x 30	3
23	M00743	Washer - M10 - Flat	2
24	M00753	HHCS - 1/2-13 x 1 1/2" (torque and use red thread sealant)	1
25	M00711	Washer - M12 Fender	1
26	M00752	HHCS - 1/2-13 x 1 1/4" (torque and use red thread sealant)	2
27	M00756	FHCS - M10 x 35	6
28	M00446	Mast Reinforcement Plate	3
29	M00491	Fork Carriage Counterweight CE / SB Models ³	1

¹ Models produced since 2019 use a common Mast B and Fork Carriage used to produce telescopic mast assemblies that can be equipped with or without the current generation of mast braking system. Standardized Up Stops and Down Stops are also part of the current mast braking design.

² Prior to 2019 there were two different MLM Mast B and Fork Carriage part numbers. M00338 and M00040 were used for telescopic masts without a mast braking system and M00236 and M00240 were used for telescopic masts equipped with the first generation of the mast braking system. The difference between these components are how they are machined, so they are not interchangeable. The older generation mast braking system also used a combination of white (standard) and black (for mast brake models) Up Stops and Down Stops.

³ M00491 is not depicted in the diagram but is only used on telescopic masts that are equipped with the first generation of mast braking systems.

BACK OF THE MAST ASSEMBLY

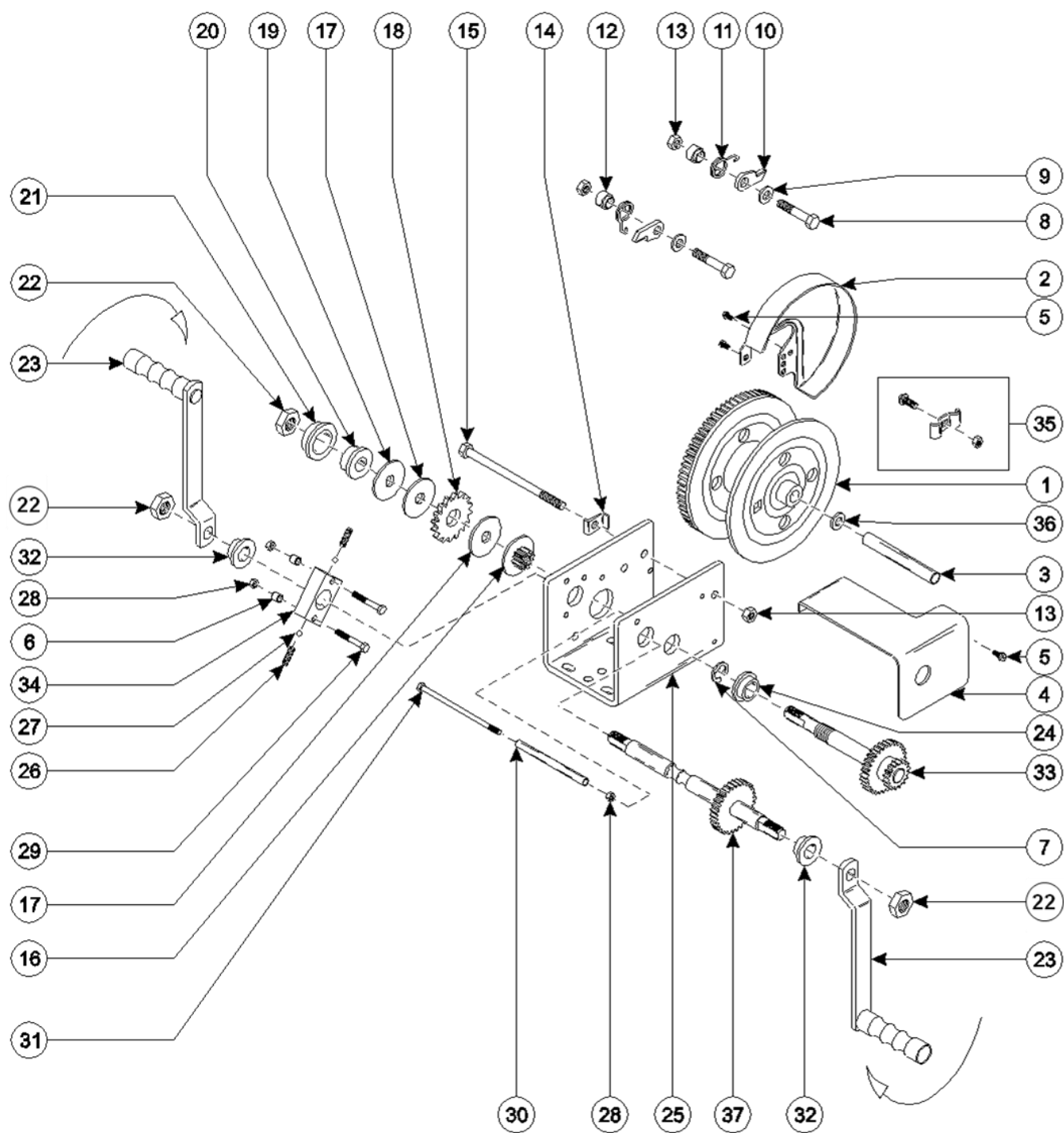


BACK OF THE MAST ASSEMBLY

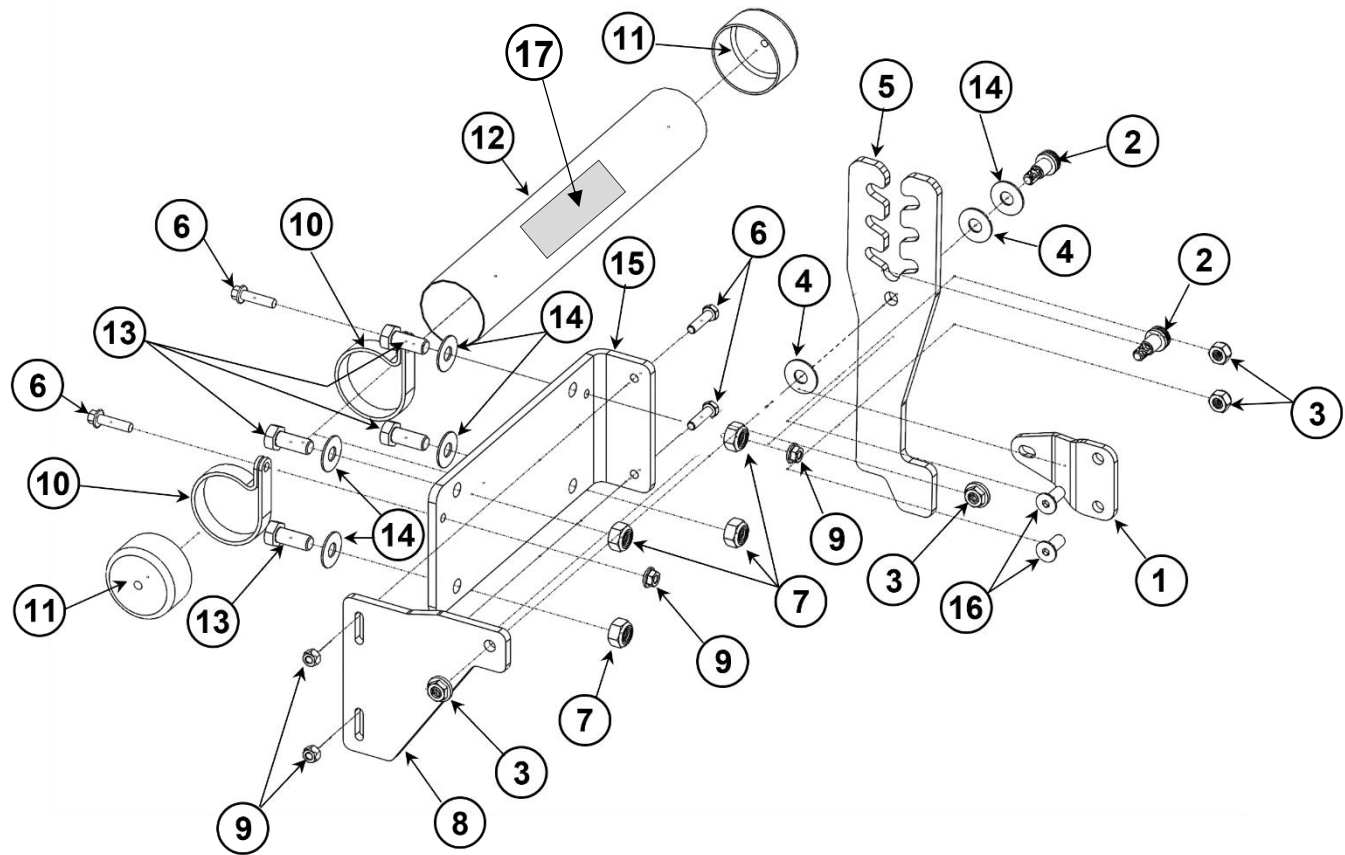
Item Number	Part Number	Description	Quantity
1	M00106	Push Tube Weldment	1
2	M00112	Pin - Clevis - 3/8" x 3"	2
3	M00740	HHCS - M10 x 30	13
4	M00743	Washer - M10	15
5	M00706	Hex Nut - M10	14
6	M00101	Winch Mount Weldment	1
7	M00118	E-Ring - 3/8"	2
8	M00717	HHCS - M12 x 240	1
9	M00711	Washer - M12 - Fender	1
10	M00124	Spring, Hold-Down	1
11	M00724	Jam Nut, Hexagonal - M12	1
12	M00125	Tube, Aluminum - 0.5" ID x 0.75" OD x 0.875"	1
13	M00701	Hex Nut - M12	1
14	M00123	Adjustable Hold Down Stop	1
15	M00723	FHCS - M8 x 20	2
16	M00703	Hex Nut - M8	2
17	M00121-ASSY	Hold Down Bar with Decal	1
18	M00126	Hold Down End Hook, Short, MLM-12	1
	M00133	Hold Down End Hook, Medium, MLM-16	
	M00132	Hold Down End Hook, Long, MLM-20	
19	M00122	Hold Down End	1
20	M00756	HHCS - M10 x 35	1
21	M00024	Strut - Left	1
22	M00025	Strut - Right	1
23	M00110	Grip Handle	2
24	M00119	Push Nut - 0.75"	2
25	M00744	Washer - 0.76" ID x 1.25" OD	4
26	M00111	Black Wheel - 6" x 2" x 0.75" (standard on vast majority of models)	2
	M00492	Grey Performa Wheel - 6" x 2" x 0.75" (Delron bearing/upgrade option)	
27	M00709	Washer - 0.4" ID x 1.0 OD x 0.05" - Nylon	6
28	M00707	Washer - M12 - Narrow	1
29	M00113-ASSY	2-Speed Winch Assy with Decals (no handles)	1
	M00014-ASSY	1-Speed Winch Assy with Decals (no handles) & interface mounting plate*	
30	M00115	Spring - Push Tube	1
31	M00080-ASSY	Standard Forks with Decals	1

* Please note that a 1-speed and 2-speed winch models use a different revision of the Mast A pulley-mount (M00045) so please contact us if you are converting a factory made 1-speed winch model to a 2-speed winch model or vice versa. If you are simply changing a 2-speed winch out on a factory-built 2-speed winch model (or changing a 1-speed winch out on a factory built 1-speed winch model) then there is no need to change the Mast A pulley mount as the correct one is already on the machine.

2-SPEED WINCH ASSEMBLY



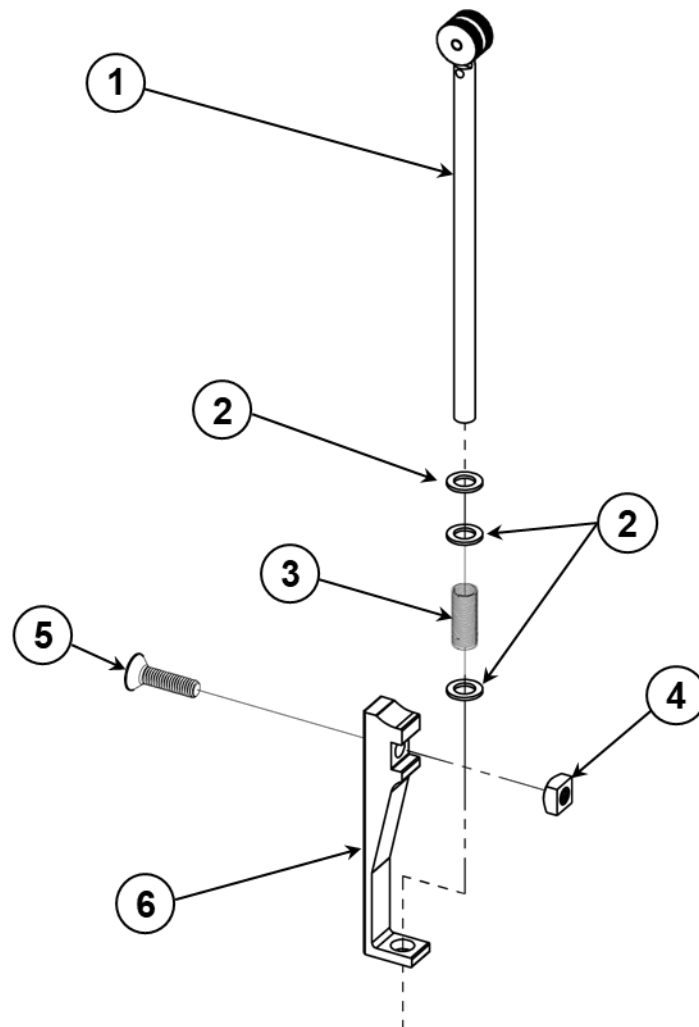
Item Number	Part Number	Description	Quantity Per Winch Assembly
---	M00113-ASSY	2-Speed Winch Assy w/Decals (NO HANDLES)	
1	M00800	Reel/Drum	1
2	M00801	Reel Cover	1
3	M00802	Reel Spacer	1
4	M00803	Gear Cover	1
5	M00804	Thread Forming Screw - 1/2"	2
6	M00805	Brake Spring Spacer	2
7	M00806	E-Ring - 3/4"	1
8	M00807	HHCS - 3/8-16 x 1 1/2	2
9	M00808	Washer - Flat - 3/8"	2
10	M00809	Ratchet Pawl Assembly	2
11	M00810	Ratchet Spring	2
12	M00811	Ratchet Spacer	2
13	M00812	Nut, Lock 3/8-16	3
14	M00813	Reel Bolt Lock	1
15	M00814	HHCS - 3/8-16 x 5 1/2	1
16	M00815	Brake Hub Assembly	1
17	M00816	Break Lining Plate	2
18	M00817	Ratchet Wheel	1
19	M00818	Washer - Double D	1
20	M00819	Spacer	1
21	M00820	Sintered Iron Bearing	1
22	M00821	Nut, Hex Lock - 5/8-11	3
23	M00822	8" Offset Handle Assembly	2
24	M00831	Reamed Bushing	1
25	M00824	Base	1
26	M00825	Detent Spring	2
27	M00826	Chrome Ball	2
28	M00827	Nut, Hex Lock - 1/4-20	3
29	M00840	HHCS - 1/4-20 x 1 1/2	2
30	M00829	Base Spacer 3/8 x 4 3/8	1
31	M00842	HHCS - 1/4-20, 5 3/16	1
32	M00831	Reamed Bushing	2
33	M00832	Intermediate Shaft Assembly	1
34	M00833	Detent Block	1
35	M00834	Rope Clamp Kit	1
36	M00835	Washer - Flat - 15/16	1
37	M00836	Primary Shaft Assembly	1
38	M00905	Decal, 2-Speed Winch (not depicted)	1
39	M00908	Decal, Winch Only Use For Specific Models (not depicted)	1
40	M00909	Decal, Crushing Hazard / Brake Lock (not depicted)	1

SMART-LATCH™ OPTION

SMART-LATCH™ OPTION

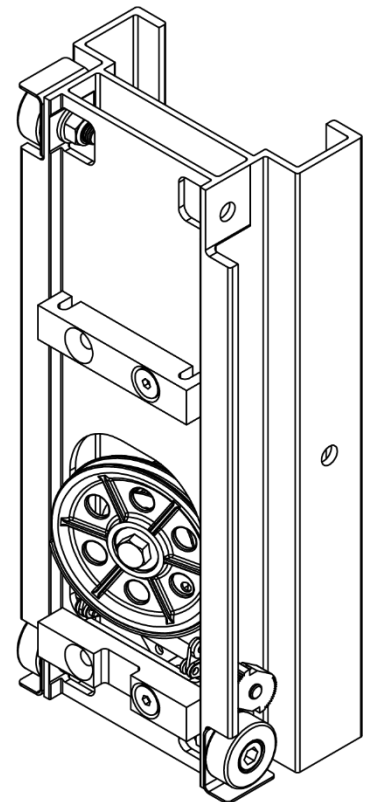
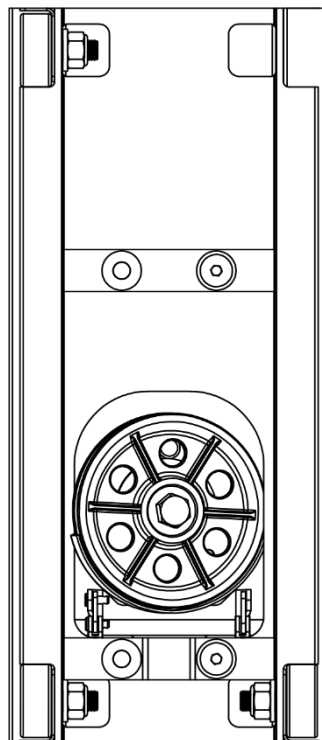
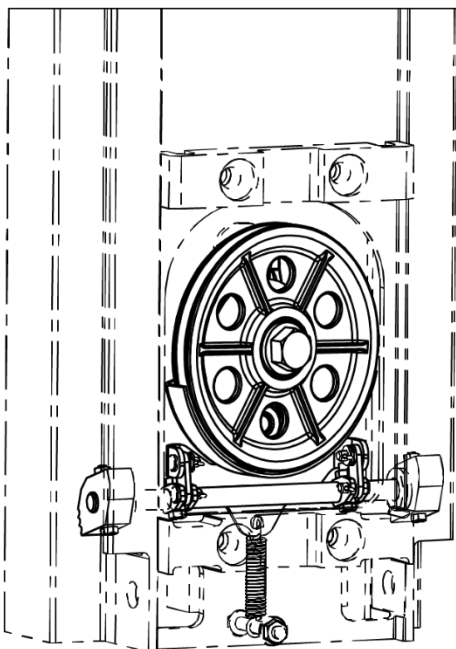
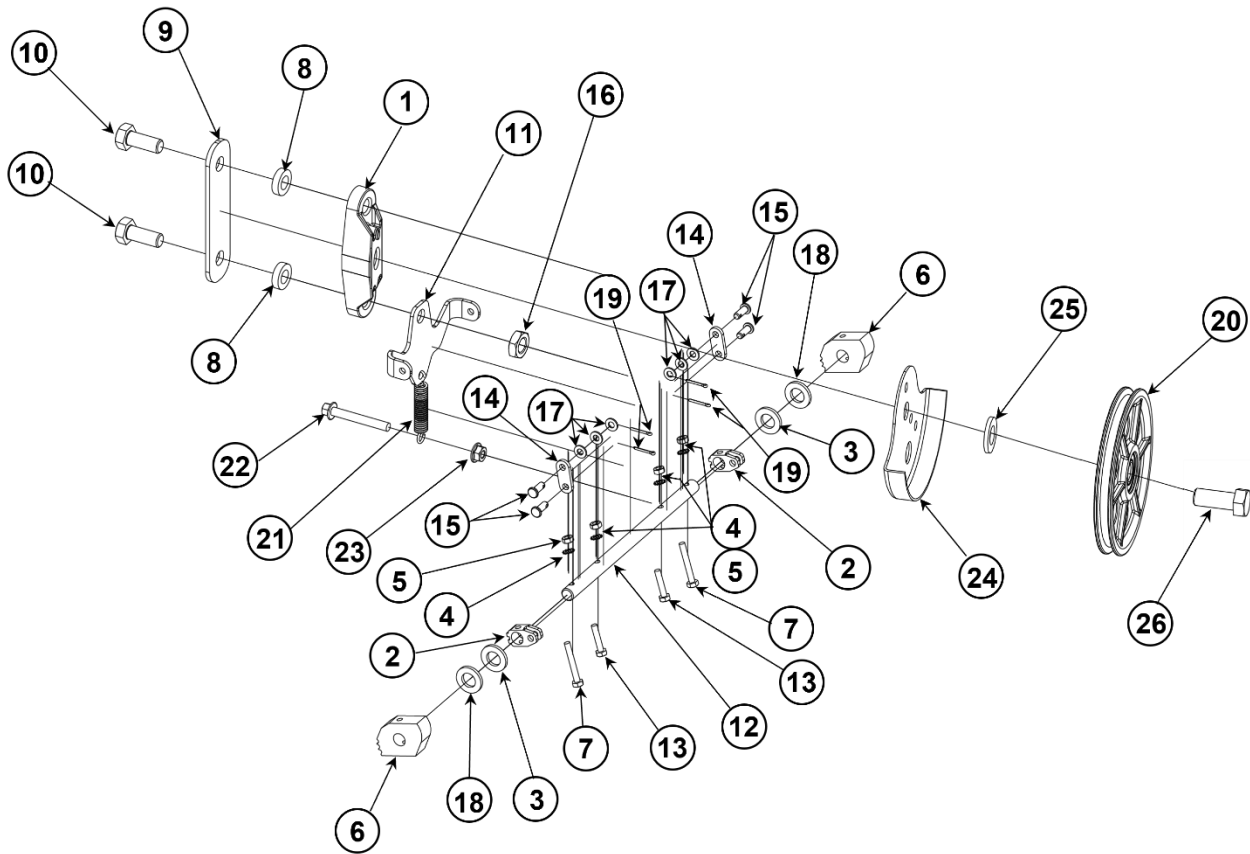
Item Number	Part Number	Description	Quantity Per Machine		
			MLM-12	MLM-16	MLM-20
---	M00181	Smart-Latch™ Assembly - 3 Stage Mast	1		
---	M00174	Smart-Latch™ Assembly - 4 Stage Mast		1	
---	M00208	Smart-Latch™ Assembly - 5 Stage Mast			1

Item Number	Part Number	Description	Quantity Per Assembly		
			3-stage M00181	4-stage M00174	5-stage M00208
1	M00178	Smart-Latch™ Catch	1	1	1
2	M00734	Bolt, SHS 10 x 12mm ZP	2	2	2
3	M00703	Hex Nut - M8	4	4	4
4	M00709	Washer - 0.4" ID x 1.0 OD x 0.05" - Nylon	1	1	1
5	M00177	Smart-Latch™	1	1	1
6	M00747	HHCS - M6 x 25	4	4	4
7	M00706	Hex Nut - M10	4	4	4
8	M06452	Smart-Latch™ Arm - 3 Column	0	1	0
	M06453	Smart-Latch™ Arm - 4 Column	0	0	1
	M06454	Smart-Latch™ Arm - 5 Column	0	0	0
9	M00748	Hex Nut - M6	4	4	4
---	M00185	Manual Storage Tube Assembly	1	1	1
10	M00188	Clamp - Manual Storage Tube	2	2	2
11	M00187	Manual Storage Tube Cap	2	2	2
12	M00186	Manual Storage Tube	1	1	1
13	M00740	HHCS - M10 x 30	4	4	4
14	M00743	Washer - M10 - Flat	7	7	7
15	M06450	Smart-Latch™ Bracket 2 - 5 Column	1	1	1
16	M00723	FHCS - M8 x 20	2	2	2
17	M00900	Decal, Manual Storage Tube	1	1	1
	M00900CE	Symbolic Decal, Manual Storage Tube (for international models)			

CE MAST BRAKING OPTION (CURRENT MODELS)

CE MAST BRAKING OPTION (CURRENT MODELS)

Item Number	Part Number	Description	Quantity Per Assembly
---	M35101-L	Mast Brake Assembly, LS (includes all components below)	
1	M00498	Plunger Assembly	1
2	M00769	Washer, Flat, AN960 C7/16 7/16-inch, Thick 18-8	3
3	M99998	Spring, Compression - SB	1
4	M00767	Nut, Square, 3/8-16 x 1/2-inch	1
5	M00768	FHCS, 3/8-16 FHCS x 1 1/2-inch Alloy	1
6	M06495	Extrusion, Machined, Mast Brake Ramp	1

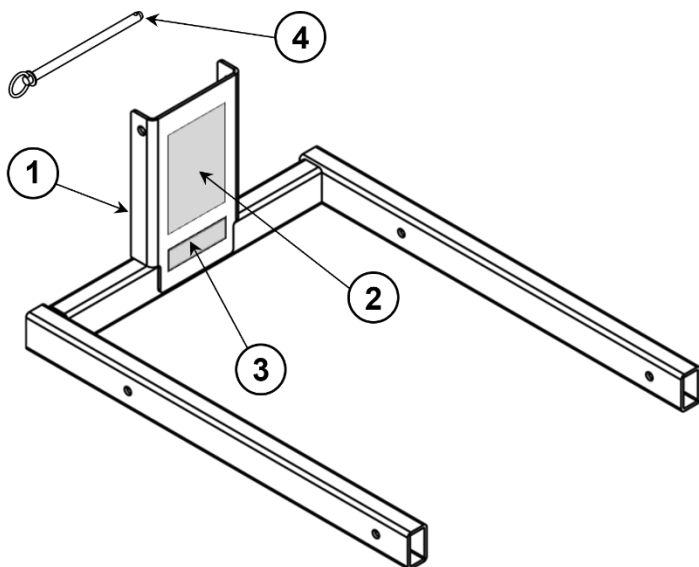
CE MAST BRAKING OPTION (FIRST GENERATION)

CE MAST BRAKING OPTION (FIRST GENERATION)

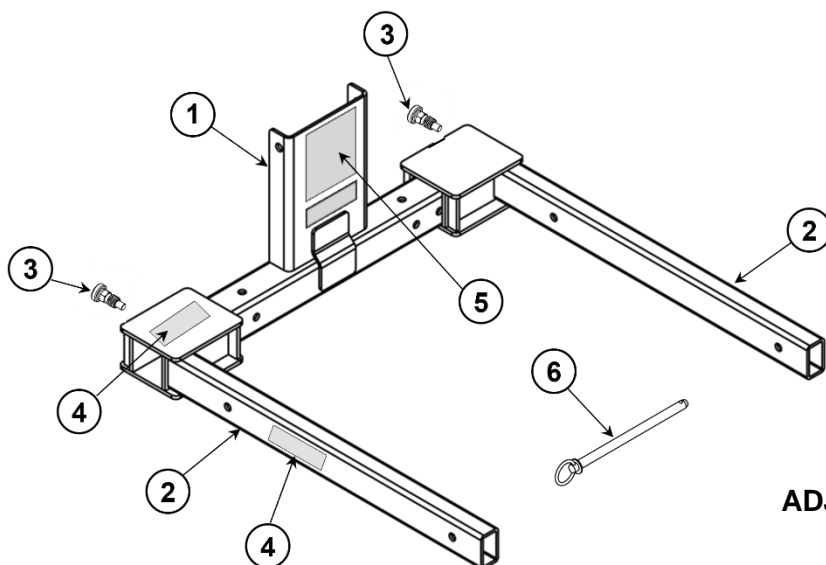
Item Number	Part Number	Description	Quantity		
			MLM-12	MLM-16	MLM-20
1	M00054	Pulley-Mount Mast B	3	4	5
2	M00229	Mast Brake Clevis	6	8	10
3	M00709	Washer - 0.4" ID x 1.0 OD x 0.05" - Nylon	6	8	10
4	M00762	Washer Lock M4	12	16	20
5	M00760	Nut Hex M4 X .7	12	16	20
6	M00226	Mast Brake Dog (Brake Cam)	6	8	10
7	M00759	Bolt M4 X.7 X 30MM LG	6	8	10
8	M00225	SB Spacer	6	8	10
9	M00446	Mast Reinforcement Plate	3	4	5
10	M00713	HHCS - M10 x 25	6	8	10
11	M00224	Mast Brake Actuator	3	4	5
12	M00227	Mast Brake Shaft	3	4	5
13	M00758	Bolt M4 X.7 X 18MM LG	6	8	10
14	M00230	SB Link	6	8	10
15	M00241	Clevis Pin 3/16 X 1/2 IN ZP	12	16	20
16	M00726	Nut Hex M10 X 1.5 Jam	3	4	5
17	M00761	Washer Flat .188	18	24	30
18	M00743	Washer – M10	6	8	10
19	M00242	Cotter Pin	12	16	20
20	M00060	Pulley w/Bearing	3	4	5
21	M00243	Spring SB Column	2	3	4
	M00244	Spring SB Fork Carriage	1	1	1
22	M00766	Bolt Hex M6 X 1.0 X 45 MM ZP	3	4	5
23	M00748	Nut Lock M6 X 1.0 ZP	3	4	5
24	M00048	Pulley Guard	3	4	5
25	M00754	Washer – 1/2" – Hardened	3	4	5
26	M00752	HHCS – 1/2-13 x 1 1/4"	3	4	5

Note: The quantities listed above only include what is used on the lower brake assemblies and does not include additional quantities used in the non-braking upper pulley assemblies of the mast. The mast braking systems are only located on the bottom pulleys of the mast, so the pulley mounts, pulleys, and other standard components used in the upper pulley assemblies are not included in the quantities list above.

STANDARD FORK ASSEMBLY ADJUSTABLE FORK ASSEMBLIES



STANDARD FORK ASSEMBLY



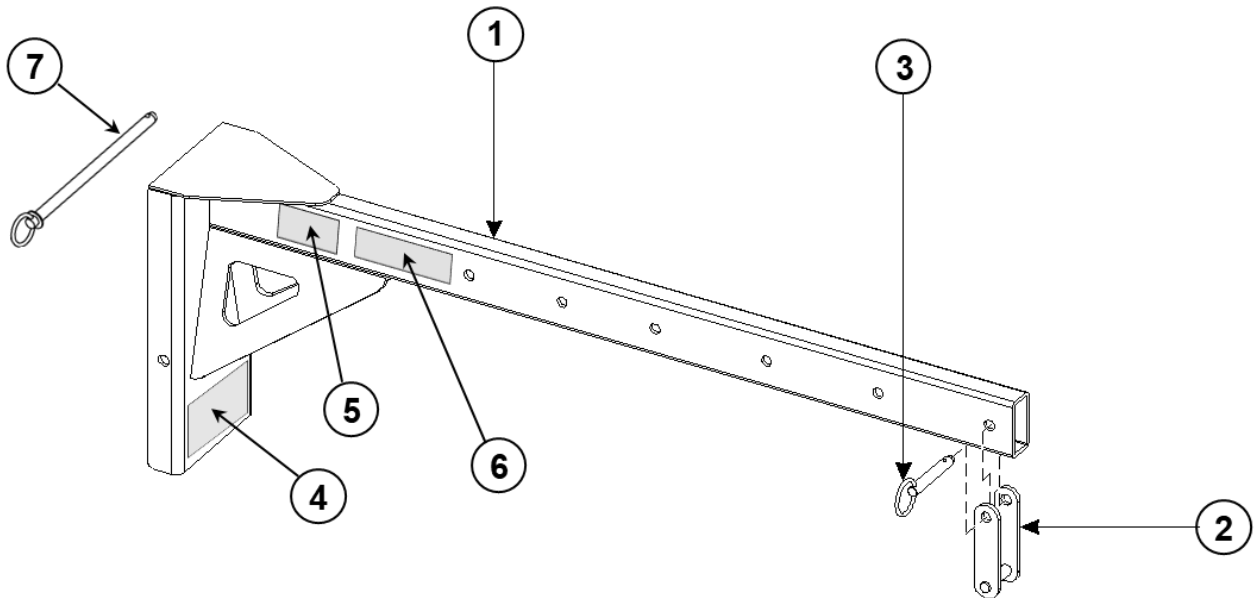
ADJUSTABLE FORK ASSEMBLY

STANDARD FORK ASSEMBLY

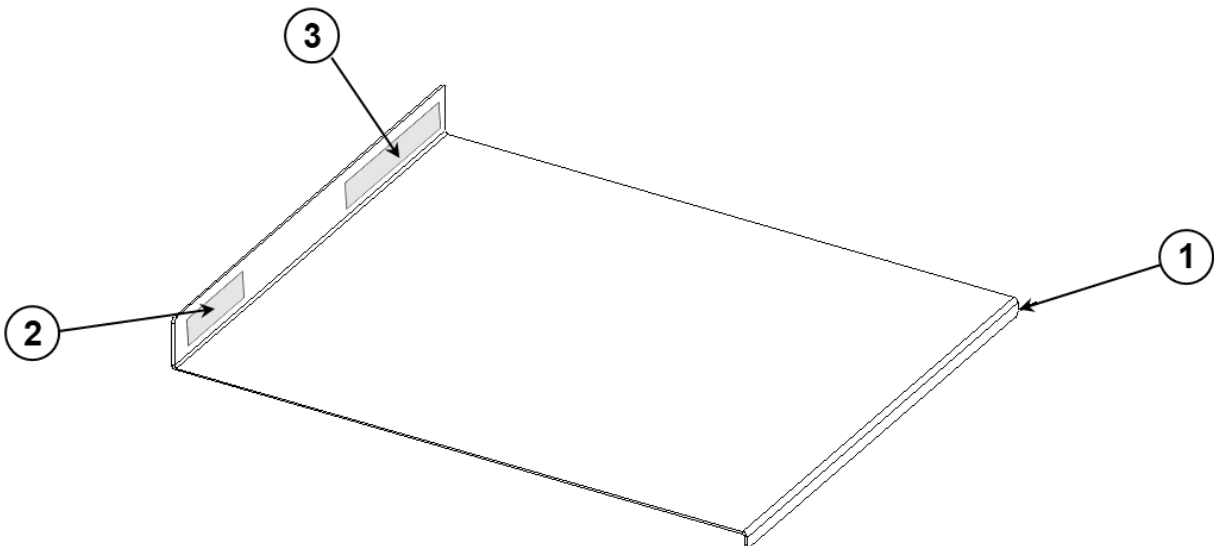
Item Number	Part Number	Description	Quantity per Assembly
1	M00080-ASSY	Standard Fork Assembly w/Decals (Excludes Fork Pin below)	
2	M00901	Decal, Warning Standard Fork Set-Up & Safety	1
	M00950	SYMBOL - Read the Manual (for international models)	
3	M00910	Decal, Warning No Riders	1
	M00951	Decal, Warning No Riders, Symbolic (for international models)	
4	M00068	Pin, Fork 8" (sold separately / not included in assembly above)	0

ADJUSTABLE FORK ASSEMBLY

Item Number	Part Number	Description	Quantity per Assembly
---	M00190	Adjustable Fork Assembly w/Decals (Excludes Fork Pin below)	
1	M00191-ASSY	Weldment, Adjustment Fork Carriage & Crossbar w/Decals	1
2	M00501-ASSY	Weldment, Adjustable Fork Tine w/Decals	2
3	M00261	Snap Pin	2
4	M00910	Decal, Warning No Riders	4
	M00951	Decal, Warning No Riders, Symbolic (for international models)	
5	M00902	Decal, Warning Adjustable Fork Set-Up & Safety	1
	M00902CE	WARNING - Adjustable Fork Safety, Symbolic (for international models)	
6	M00068	Pin, Fork 8" (sold separately / not included in assembly above)	0

BOOM ASSEMBLY / LOAD PLATFORM ACCESSORY**BOOM ASSEMBLY**

Note: Decals depicted in this section are for North American and English-language speaking countries. Please refer to earlier section covering decals used for international versions of the assembly above and accessory below.

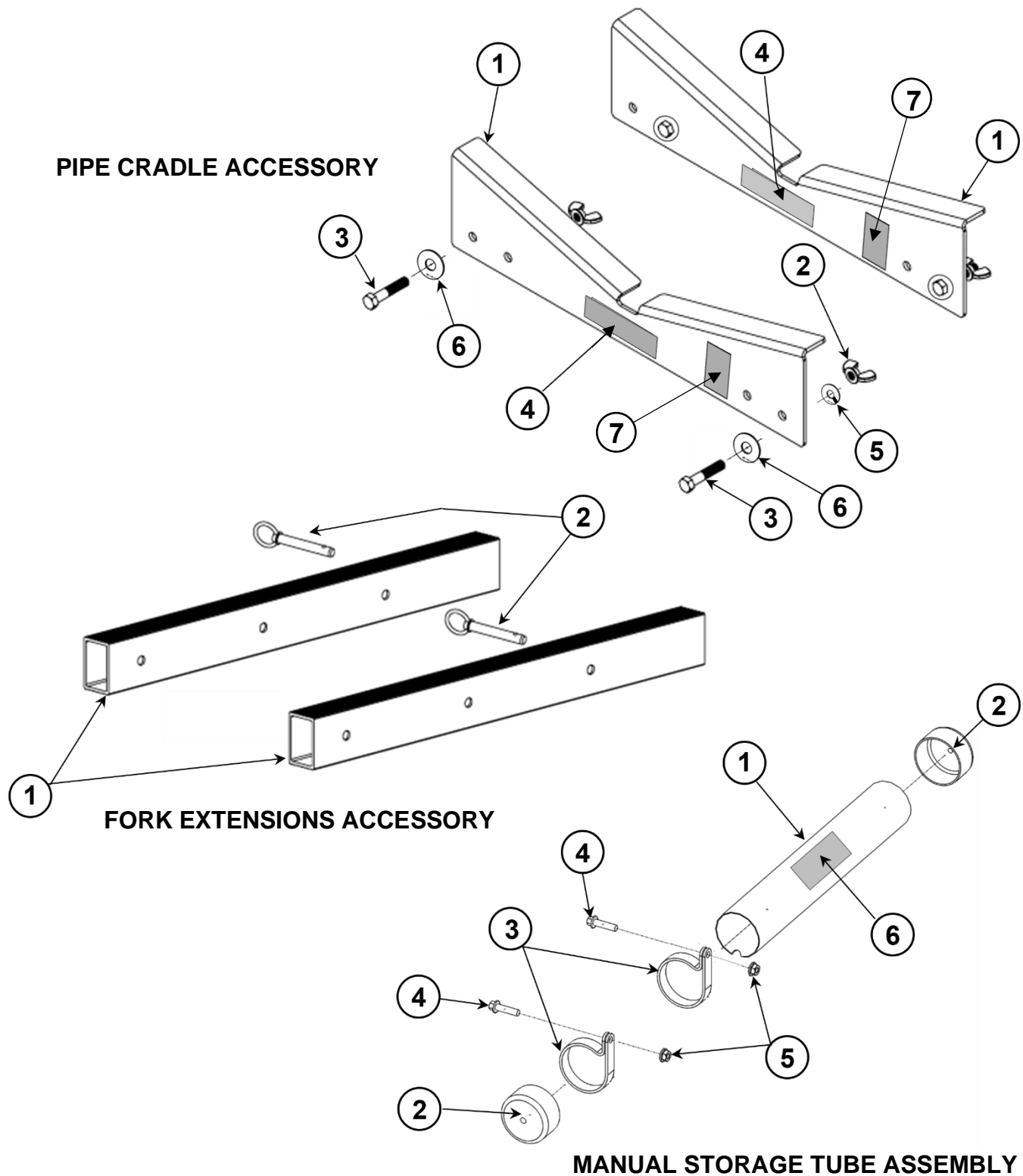
**LOAD PLATFORM ACCESSORY**

BOOM ASSEMBLY

Item Number	Part Number	Description	Quantity per Assembly
---	M00158	Boom Assembly Option w/Decals (Excludes Fork Pin)	
1	M00164-ASSY	Boom Weldment w/Decals	1
2	M00200	Clevis Weldment	1
3	M99988	Pin - Detent - 0.5" x 2.5", no lanyard	1
4	M00904	Decal, Warning Boom Safety	1
5	M00903	Decal, Notice Boom Set-up	2
6	M00910	Decal, Warning No Riders	2
7	M00068	Pin, Fork 8" (sold separately / not included in assembly above)	0

LOAD PLATFORM ASSEMBLY

Item Number	Part Number	Description	Quantity per Assembly
1	M00160-ASSY	Load Platform Assembly Option w/Decals	
2	M00910	Decal, Decal, Warning No Riders	1
3	M00906	Decal, Warning Fall Hazard	1

PIPE CRADLE ACCESSORY / FORK EXTENSION ACCESSORY / MANUAL STORAGE

PIPE CRADLE ACCESSORY

Item Number	Part Number	Description	Quantity Per Set
---	M00270	Pipe Cradle Accessory (includes all components below)	
1	M00271-ASSY	Pipe Cradle Forming w/Decals	2
2	M00730	Wing Nut - M12	4
3	M00731	HHCS - M12 x 60	4
4	M00910	Decal, Warning No Riders	2
	M00912CE	CAUTION – Read the Manual, Symbolic (for international models)	
5	M00750	Washer, Lock - 1/2"	4
6	M00707	Washer, Flat - M12	4
7	M00951	WARNING - No Riders – SYMBOL (for international models only)	

FORK EXTENSION ACCESSORY

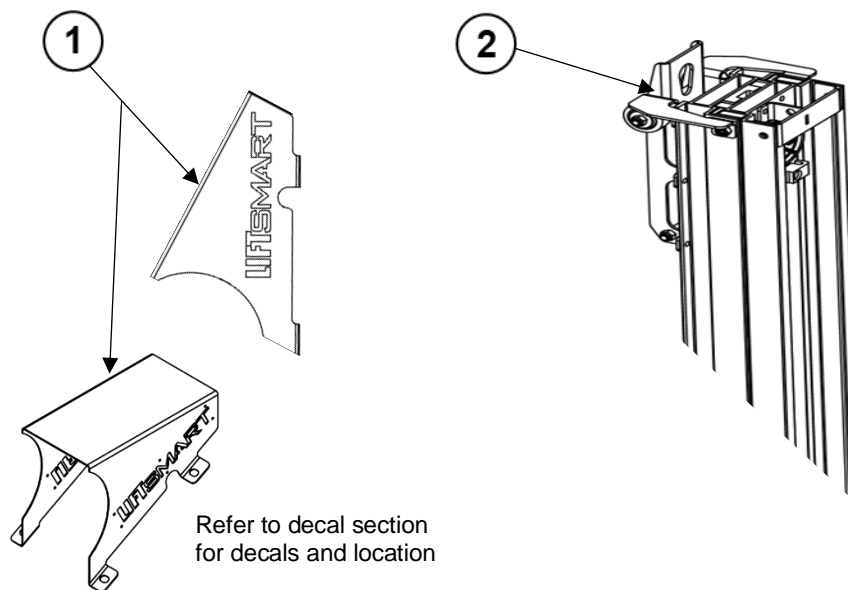
Item Number	Part Number	Description	Quantity Per Set
---	M00159	Fork Extensions Accessory (includes all components below)	
1	M00163	Fork Extension Tube	2
2	M99988	Pin - Detent - 0.5" x 2.5", no lanyard	2

MANUAL STORAGE TUBE ASSEMBLY

Item Number	Part Number	Description	Quantity Per Set
---	M00185	Manual Storage Tube Assembly (includes all components below)	
1	M00186-ASSY	Manual Storage Tube w/Decal	1
2	M00187	Manual Storage Tube Cap	2
3	M00188	Clamp - Manual Storage Tube	2
4	M00747	HHCS - M6 x 25	2
5	M00748	Hex Nut - M6	2
6	M00900	Decal, Manual Storage Tube (North American and English language models)	1
	M00900CE	Decal, Manual Storage Tube, Symbolic (for international models)	

CABLE ASSEMBLIES (NOT SHOWN IN DIAGRAMS)

			Quantity Per Machine		
			MLM-12	MLM-16	MLM-20
---	M00351	Cable Assembly, MLM-12	1	0	0
---	M00352	Cable Assembly, MLM-16	0	1	0
---	M00353	Cable Assembly, MLM-20	0	0	1

OTHER OPTIONS/ACCESSORIES

Item Number	Part Number	Description
1	M00334	MLM Cable Guard
2	M00488	Retractable Lifting Point Option

APPENDIX A: SPECIFICATIONS

SPECIFICATIONS

LiftSmart is dedicated to the continuous improvement of this and all LiftSmart products. Specifications are subject to change without notice.

	MLM-12	MLM-16	MLM-20
Lift Height			
Standard forks - up	12 ft 6 1/2 in 3.8 m	16 ft 1 3/8 in 4.9 m	19 ft 8 1/4 in 6 m
Standard forks - down	10 ft 10 in 3.3 m	14 ft 5 in 4.4 m	17 ft 11 7/8 in 5.5 m
Adjustable forks - up	12 ft 6 1/2 in 3.8 m	16 ft 1 3/8 in 4.9 m	19 ft 8 1/4 in 6 m
Adjustable forks - down	10 ft 10 in 3.3 m	14 ft 5 in 4.4 m	17 ft 11 7/8 in 5.5 m
Boom	12 ft 1 in 3.7 m	15 ft 8 in 4.8 m	19 ft 2 7/8 in 5.9 m
Height - stowed	5 ft 2 3/4 in 1.59 m		
Length - stowed	33 1/8 in 84 cm	34 1/2 in 88 cm	36 in 91 cm
Length - operating	5 ft 7 3/4 in 1.72 m	6 ft 3/4 in 1.85 m	6 ft 10 3/4 in 2.10 m
Width - stowed	30 1/2 in 77 cm		
Width - stabilizers deployed	5 ft 4 in 1.6 m		
Stabilizers	Optional		Standard
Forks - Length	30 in 76 cm		
Forks - Width - outside	23 in 58 cm		
Maximum load capacity			
14 in (36 cm) load center	700 lb 318 kg	650 lb 295 kg	600 lb 272 kg
24 in (61 cm) load center	440 lb 200 kg	430 lb 195 kg	400 lb 181 kg
42 in (107 cm) load center	185 lb 94 kg	175 lb 80 kg	200 lb 91 kg
Ground clearance	2.5 in 6 cm		
Load height - minimum	6 in 15 cm		
Weight	265 lb 120 kg	298 lb 135 kg	332 lb 151 kg
Winch cranks/distance			
High speed	4 cranks/ft 13.1 cranks/m		
Low speed	15 cranks/ft 49.2 cranks/m		

APPENDIX B:

TORQUE REQUIREMENTS

Bolt Size	Threads	Dry Torque - SAE Grade 5 Bolts			Dry Torque - SAE Grade 8 Bolts		
		in*lb	ft*lb	N*m	in*lb	ft*lb	N*m
10	24	43		5	60		7
1/4	20	96		11	144		16
5/16	18		17	23		25	34
3/8	16		30	41		45	61
7/16	14		50	68		70	95
1/2	13		75	102		110	149
9/16	12		110	149		150	204
5/8	11		150	204		220	298
3/4	10		260	353		380	515
7/8	9		430	583		600	814
1	8		640	868		900	1221

Bolt Size (Metric)	Recommended Torque (N*m)		Recommended Torque (in*lbs)		Recommended Torque (ft*lbs)	
	Class 8.8	Class 10.9	Class 8.8	Class 10.9	Class 8.8	Class 10.9
5	7	9	62	80	5	7
6	12	16	106	142	9	12
8	30	40	266	354	22	30
10	55	75	487	664	41	55
12	100	135	885	1195	74	100
14	160	215	1416	1903	118	159
16	245	335	2168	2965	181	247
20	480	650	4248	5753	354	479

NOTE: The specifications listed above are for general use only. Torque specifications on the material lift may vary. Specifications described for a specific procedure supersede the specifications listed above.

NOTE: The specifications listed above are for dry bolts. Torque specifications for a lubricated bolt are generally 25% less than the specification listed above.

APPENDIX C: INSPECTION CHECKLIST

Scheduled Maintenance and Inspection Checklist

Use the checklist on the following page to create a record of all scheduled inspections and/or maintenance that is performed on the material lift.

Make copies of the checklist as needed and keep a permanent record of all inspections and maintenance performed on the material lift.

Mark the appropriate box to indicate whether a daily, quarterly, or annual inspection is being performed.

When performing a quarterly inspection, also perform a daily inspection.

When performing an annual inspection, always perform a quarterly inspection and a daily inspection.

Mark the appropriate box beside each inspection procedure: A for acceptable or U for unacceptable.

If U (Unacceptable) is marked for any inspection procedure, tag the material lift, and remove it from service until repairs are completed according to manufacturer's specifications.

After making repairs to a damaged material lift, ALWAYS perform a new full inspection before returning the material lift to service.

Only authorized and trained personnel should perform maintenance on the material lift.

Scheduled Maintenance and Inspection Checklist

Model	
Serial Number	
Inspection Location	
Inspector Name (Print)	
Inspector Title	
Inspector Signature	
Date	

Mark the appropriate box to indicate whether a daily, quarterly, or annual inspection is being performed.

Daily Inspection	
Quarterly Inspection	
Annual Inspection	

When performing a quarterly inspection, also perform a daily inspection. When performing an annual inspection, always perform a quarterly inspection and a daily inspection.

Mark the appropriate box beside each inspection procedure: A for acceptable or U for unacceptable.

NOTES:

[illegible]

Daily Inspections	A	U
Operator's Manual		
Visual Inspection		
Function Test		

Quarterly Inspections	A	U
Inspect the Welds		
Clean the Masts		
Inspect the Winch		
Lubricate the Winch		

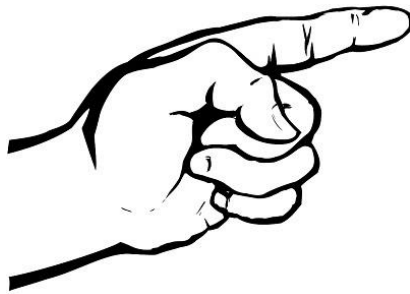
Annual Inspections	A	U
Lubricate Casters and Wheels		
Inspect the Mast Assembly for Wear		
Replace the Brake Lining Plates on the Winch		
Inspect the Paint on the Material Lift		

If U (Unacceptable) is marked for any inspection procedure, tag the material lift, and remove it from service until repairs are completed according to manufacturer's specifications.

After making repairs to a damaged material lift, ALWAYS perform a new full inspection before returning the material lift to service.

Only authorized and trained personnel should perform maintenance on the material lift.

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LIFT** is **MORE**
AMERICAN **MADE**

Period.



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