

Operating and Maintenance Manual

Wheelchair Lift for Disabled Passengers



Adaptive Engineering Inc.



Table of Contents

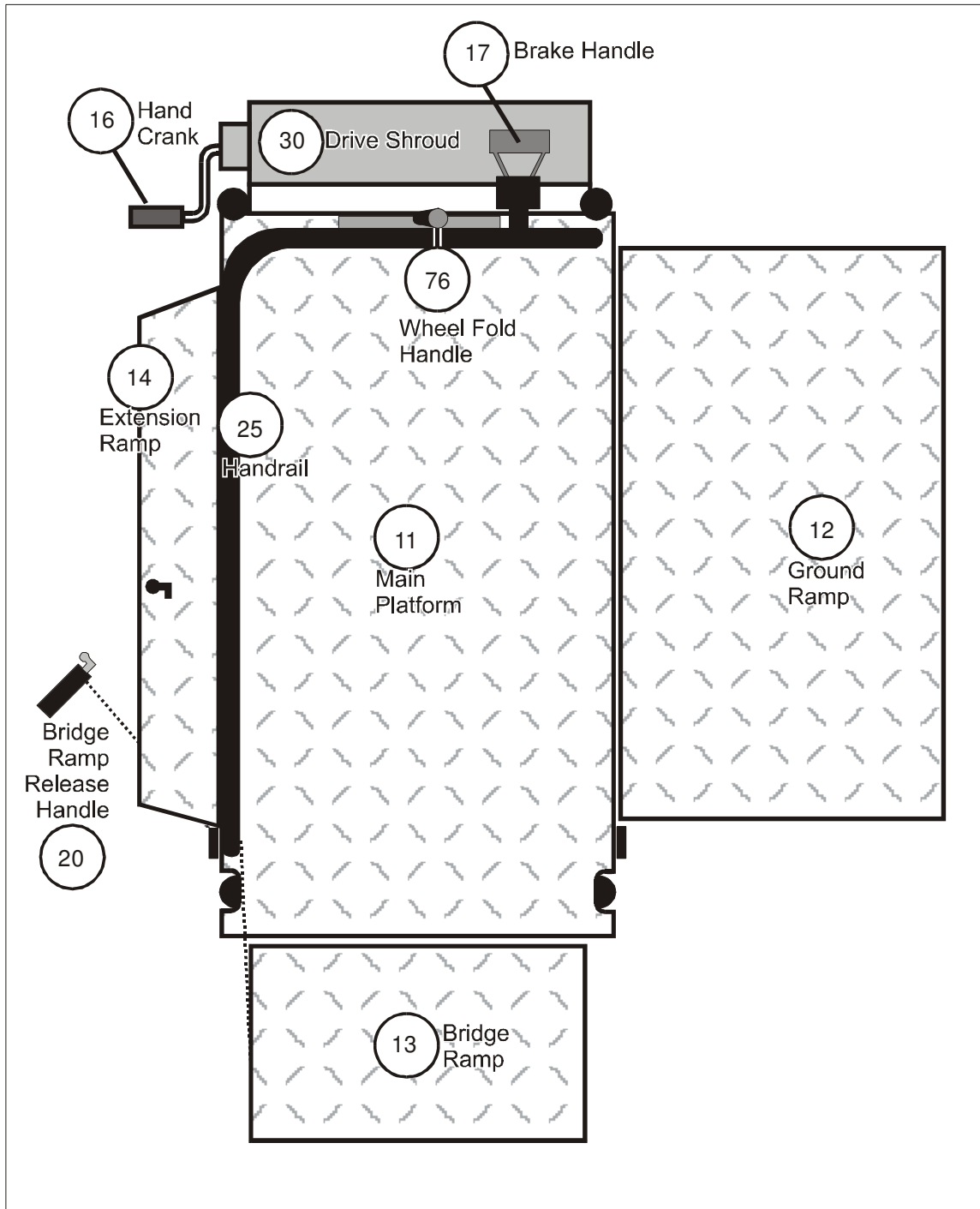
Major Components – Top View.....	2
Major Components.....	3
Specifications.....	3
Features.....	4
Options.....	4
Materials.....	4
Warranty.....	5
Feedback.....	5
Warnings!.....	5
General Operating Notes.....	6
Operation.....	7
Moving the Mobilift TX.....	7
Loading and Lifting.....	7
Lowering and Unloading.....	8
Moving Through Narrow Door.....	9
Maintenance.....	11
Adjustments.....	12
Cables.....	12
Parking Brakes.....	14
Springs.....	15
Major Components – Top View.....	16
Drive Assembly Diagram.....	17
Rear Platform Assembly.....	18
Underside Assembly.....	19
Parts List.....	20
Inspection Report.....	21

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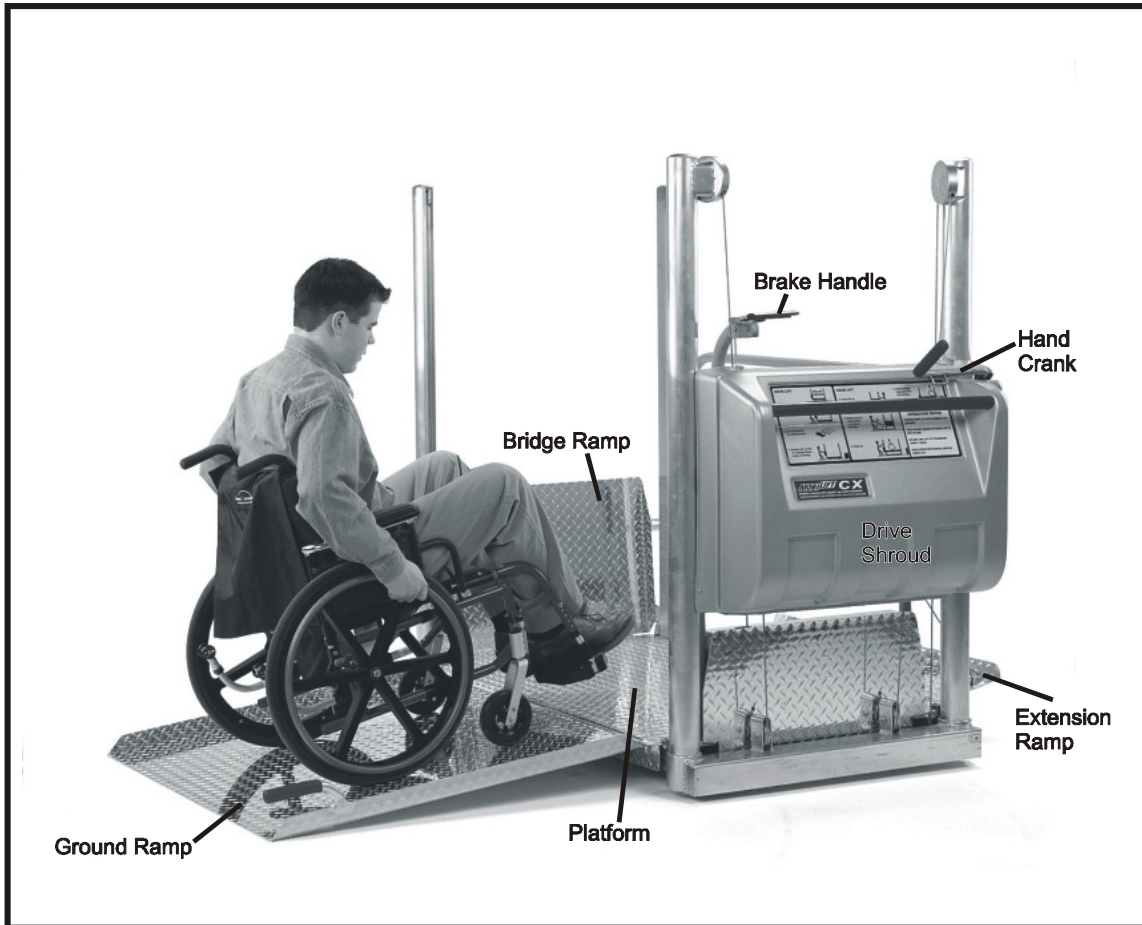
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MAJOR COMPONENTS – TOP VIEW



MAJOR COMPONENTS



SPECIFICATIONS

Weight:..... 298 lb. (122 kg)	Max. Lifting Height:..60" (1.52 m)
Overall Length:.....72" (1.83 m)	Minimum
Overall Width:..... 37.5" (0.95 m)	Safety Factors:..... Cables 7.0
Overall Height:..... 65" (1.67 m)	Structure 5.0
Capacity:..... 600 lbs (273 kg)	Patents:..... 5,040,638
Platform Size:.....34" x 56" (0.86 m x 1.42 m)	All rights reserved.

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FEATURES

- Fully A.D.A. compliant under 38.83, 38.95, 38.125
- Large wheels negotiate rough terrain (train tracks)
- Single operator set-up and use
- Silent, manual operation
- Floating bridge ramp for easy alignment
- Pictogram instruction decals
- Locking cable included
- Auto fail-safe crank with load activated drum brakes
- 20" (.51 m) bridge ramp
- Automatic "fail-safe" parking brakes prevent rolling
- Minimal service requirements

OPTIONS

Various options are available to increase the utility of your Mobilift TX

- Weather protection:
 - Enclosed shed
 - Open mesh shed
 - Tarp cover
- Choice of ramp lengths:
 - 30" (.76 m)
 - 40" (1 m)
 - 50" (1.27 m)

Contact **Adaptive Engineering Inc.** for more information.

Phone: 1 (800) 448-4652 or (403) 243-9400

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MATERIALS

- 6061 T-6 Aluminum
- Stainless Steel Fittings and Fasteners
- Industrial duty rubber & neoprene wheels
- ABS – Hair cell plastic

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COMPREHENSIVE TWO YEAR WARRANTY

- Adaptive Engineering Inc. warrants the Mobilift TX to be free from manufacturing or material defects for two years from the date the product is put into service.
- Damage caused by vandalism or abuse is not covered by this warranty.

FEEDBACK

At Adaptive Engineering Inc. we wish to provide safe, high quality, and easy to use products. Customer satisfaction is of great importance to us. To continue our tradition of quality and response to customer needs, we welcome any comments or suggestions. Call toll free **1 (800) 448-4652** or call **(403) 243-9455** or email at **info@adpaptivelifts.com**

WARNINGS!

- Operating staff must ensure the train does not move while the wheelchair lift is in use.
- Always park lift with wheels off the ground unless being parked in a locked enclosure.
- Use cable and lock to secure lift when not being used. The lift is light enough to be moved by vandals even with the wheels raised.
- Fold the hand crank in when not in use. This provides a mechanical lock for the drive system and prevents damage to the handle.
- Lift is not to be used to transport heavy loads. Use as designed, for wheelchair access only.
- Do not operate lift or perform maintenance on lift unless familiar with operating manual. Consult with Adaptive Engineering Inc., before performing any mechanical repairs.
- Make sure the bridge ramp overlaps the doorsill by at least 3".

If you have any questions about the operation or maintenance of this product, please contact Adaptive Engineering Inc.

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GENERAL OPERATING NOTES

- When turning the hand crank, maintain a slight outward pull to prevent the hand crank from folding and catching.
- The load on the platform affects the force required to raise or lower with the hand crank. This is due to the patented “load activated” braking system, which is an essential safety feature of the drive system.
- The drive’s braking system is very reliable. Additional safety is gained by folding the hand crank in the vertical position. This acts as a secondary mechanical lock for the drive system and is the reason why the hand crank must always be folded in the vertical position when not in use.
- Persons in wheelchairs must feel safe when being lifted. The Mobilift TX lift has established a reputation for reliability and safety. If the person being lifted expresses any uncertainty about the lift, assure the person:
 - Each and every lift is load tested to over 3,000 lbs before being placed in service. (About the weight of a mid-sized car)
 - There is no single component in the lift that can allow the platform to drop in the event of failure.
 - Critical components have been tested successfully for extreme weather performance from –50 degrees to +130 degrees Fahrenheit.
 - Over 900 Mobilifts are in use around the world with no safety related incidents.
- LOCKING. The loop on the arm of the hand crank is designed for the locking cable (provided at no charge with every lift). The short section of the cable is placed around the lift post or shroud handle and through the loop on the hand crank, while the long section is placed around any available column or post. This arrangement prevents the lift from being moved or raised.

ALWAYS:

- Park the lift in an enclosure or with the wheels off the ground.
- Return the hand crank to the vertical, folded position when not being used.

OPERATION

Moving the Mobilift TX

1. Fold the wheel fold handle left to the “Wheels Travel” position.
2. Lower the lift platform until the wheels contact the ground and the lift frame rises off the ground. Fold the hand crank in the vertical position.
3. Pull the blue brake handle down to the push handle with the left hand to release the automatic parking brake.
4. Move the lift to the desired location. The brake handle must be held on the push handle to prevent the brakes from engaging.
5. Position the lift so the front (bridge ramp end) is about 12” from the stage or platform requiring wheelchair access.

Loading and Lifting a Wheelchair

1. Raise the platform to lift wheels off the ground (4 turns of the hand crank). Return the hand crank to folded position.
2. Push the wheel fold handle to the right “Wheels Fold” position. If the Wheel Fold Handle will not move, check that the platform is raised clear of the ground.
3. Lower the platform until it touches the ground. Return the hand crank to the folded position.
4. Release the ground ramp (large ramp on the left side) by pushing on the ground ramp while releasing the blue handgrip from the keyhole.
5. Lower the ground ramp to the ground. Notice that the extension ramp on the right side of the platform has lowered to create extra room to maneuver the wheelchair.

6. Push the wheelchair up the ground ramp and turn so the passenger is facing forward (toward the bridge ramp).
 - Many people in wheelchairs, particularly electric chairs, may prefer to maneuver themselves without assistance. They may wish to back onto the lift, particularly if they are using a large scooter.
 - People with crutches or canes can also use the lift. They should position themselves in the right, rear corner of the lift so there is a handrail on both sides.
7. Once the wheelchair is in place, and the wheelchair brakes applied, the ground ramp can be raised and re-latched.
8. The wheelchair is ready to be lifted to doorsill height.
9. Swing the hand crank out and turn it clockwise until the platform is level or slightly higher than the train's floor.
10. Once the lift is raised to the correct height, the bridge ramp is lowered onto the doorsill. The bridge ramp handle is on the front, right side of the lift and must be released by the operator, from ground level. Make sure at the bridge ramp has at least a 3" overlap onto the doorsill!
11. The wheelchair can move forward onto the train.

NOTE:

The bridge ramp is designed with 4 inches of side-to-side float. Hold the bridge ramp while lowering so it can be aligned with the door.

Lowering and Unloading a Wheelchair

When moving a wheelchair from a train down to ground level, reverse the "Loading and Lifting a wheelchair" instructions. However, the wheelchair must be facing forward when it comes off the train and should move forward down the ground ramp once it reaches ground level.

Moving through Narrow Doorways*

*If not equipped with Narrow Door Option.

To maneuver the Mobilift TX through a narrow door it is necessary to remove the handrail and ground ramp, and to tip the lift sideways. The steps are:

1. Remove the five bolts securing the handrail using a 7/16" socket wrench and a Phillips screwdriver. Labeled 1 on Figure 1.
2. Remove the two bolts securing the two brake handle pulleys (Part 17 on Rear Assembly diagram) Use two 7/16" wrenches. Strap the cable to the lift so the cable doesn't drag on the ground. Labeled 2 on Figure 1.
3. Remove the bolt securing the bridge ramp latch using two 7/16" wrenches. Labeled 3 on Figure 1.
4. Remove the ground ramp hinge bolt then remove the hinge pin to remove the ground ramp. Use a 7/16" wrench and a Phillips screwdriver. Labeled 4 on Figure 1.
5. Remove the nut and bolt securing the ground ramp release handle to the handrail. Use two 7/16" wrenches, (See part 19 on Rear Assembly Diagram). Labeled 5 on Figure 1.
6. Tip the lift on its side as shown in Figure 2 and carefully slide and rotate it through the door.
7. Reinstall the handrail, ground ramp and accessory pieces, ensuring that they are secure and tightened in place.

Note: After re-assembly, all pulleys should spin freely (Items 2 & 5)

Maneuvering Through Narrow Doorway

Figure 1

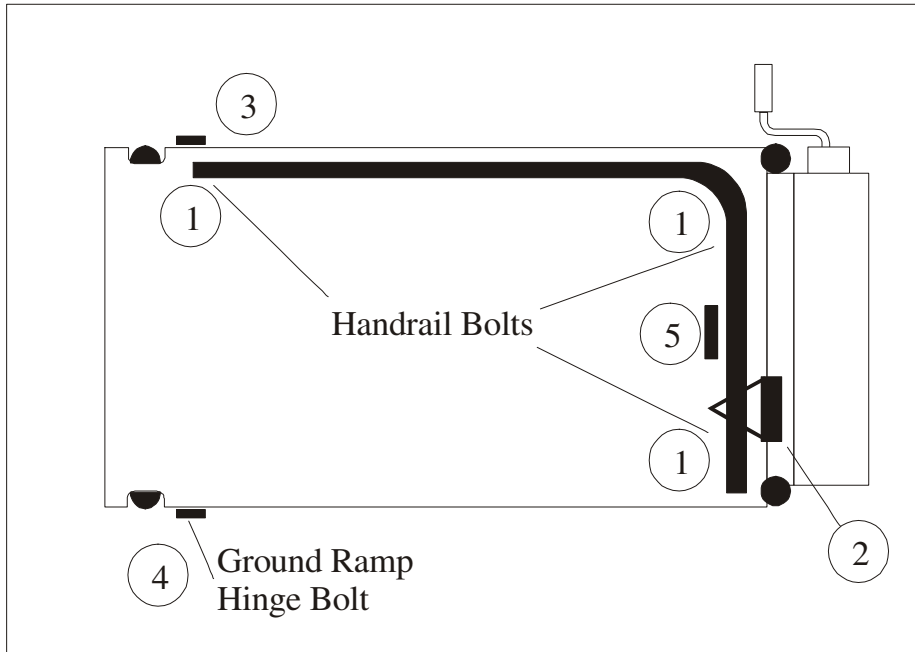
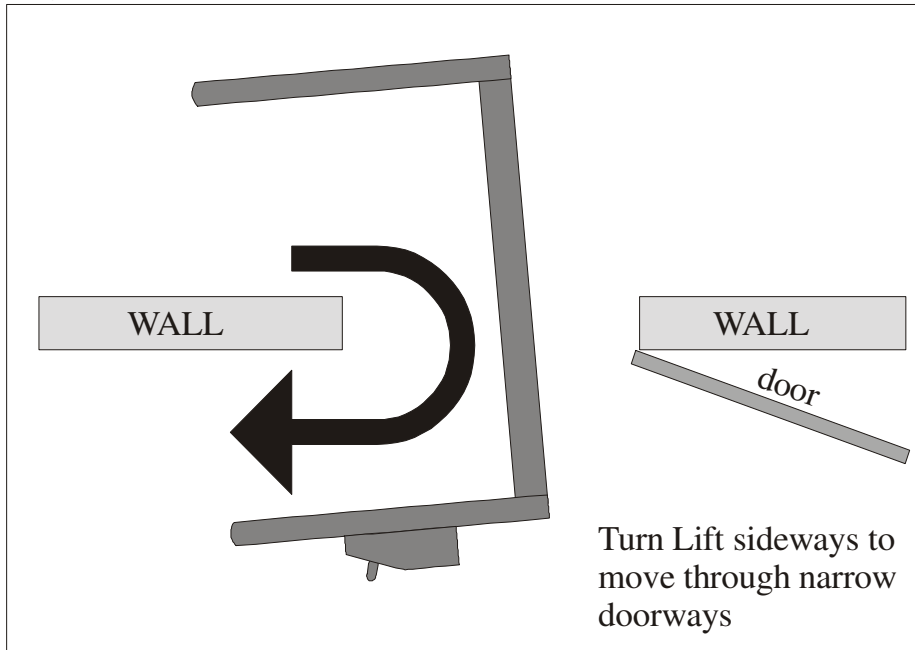


Figure 2



MAINTENANCE

The Mobilift TX must be inspected officially at least once a year, or in high use areas, after every 500 uses.

Operators of the Mobilift TX should perform a quick inspection of the lift before operating. All visible cables and components should be checked for any signs of wear or vandalism. **Contact Adaptive Engineering Inc., if any problems arise.**
Phone: 1 (800) 448-4652 or (403) 243-9400
Email: info@adaptivelifts.com

Parts used for the purpose of repair and maintenance must be authorized by Adaptive Engineering Inc. Adaptive Engineering Inc. accepts no liability for any failures, damages or injuries to or from the equipment as a result of substituting parts other than those authorized.

As with any piece of safety equipment, the TX mobile wheelchair lift must be on a documented preventive maintenance program. A suggested inspection report form is included at the end of this manual. Users with an established preventive maintenance system can incorporate these requirements as necessary.

The lift is designed and manufactured to minimize maintenance work. All exposed materials are aluminum, stainless steel, polymers, or electroplated steel. **THERE ARE NO PARTS ON THE LIFT THAT REQUIRE LUBRICATION.** The brakes may squeal as the lift is being cranked, in the same way that automobile brakes squeal. This is normal, and under no circumstances should these brakes be cleaned with solvents nor should they be sprayed with aerosol lubricants such as WD40, LPS or silicon.

The serial numbers for the lifts are on the top of the frame at the rear of the lift. This serial number should be used in recording all maintenance inspection and work. It must also be given when ordering parts.

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ADJUSTMENTS

The adjustments covered in this section refer only to those items where parts are not required. All parts supplied by the manufacturer include detailed instructions on installation and adjustment.

If the lift has been vandalized or damaged such that welding or machining is required, it must be carried out by qualified trades people. The people performing the repairs should refer to the manufacturer's literature and discuss the repairs with the manufacturer if necessary.

Lifting, Return, and Paralleling Cables

It is important to understand that adjustments involving the lifting, return or paralleling cables will affect both the tension of the cable and the angle of the platform. The cables should be adjusted for correct tension and to set the wheelchair platform angle (horizontal). This is for both the users' safety and for proper lift operation.

As illustrated, the lifting cables (part 23) go from the main winding drum up through the top of the drive shroud over the upper idler pulley, then down under the platform. These two cables are critical because each supports half the load on the lift.

Notes for Cable Adjustment

- a. Tightening the lifting cable also tightens the return cable (part 22) because they act as one continuous loop.
- b. It is important, when performing cable adjustments, to prevent the adjusters from turning when the nuts are being turned. A pair of needle-nose vice grips clamped on the end of the adjusters works quite well.

Lifting Cable Adjustment

1. Raise the platform up about two feet and measure the distance from the right rear corner of the platform to the top of frame and from the left rear corner of the platform to the top of frame. The right and left measurement should be the same to within 1/4 inch.
2. If the platform is not level from side to side, adjust the lifting cable anchors underneath the rear of the platform to make the platform level. Increasing the tension in one of the lifting cables will cause the platform to rise on that side.
3. If a lifting cable is already tight, and more adjustment is needed, first loosen the return cable anchor on that side to prevent over-tensioning. The return cable anchors are inside the shroud at the rear of the platform.
4. Once the platform leveling adjustment is completed, adjust the lifting cable anchors to set the cable tension. The cable deflection specifications are listed under the inspection section at the end of this manual.
5. Following adjustments: CHECK THAT ALL LOCKING NUTS ON THE CABLE ANCHORS HAVE BEEN TIGHTENED AND LOCKED.
6. Following adjustment: Crank the lift to full height and back down to ensure full range operation.

Paralleling Cable Adjustment

The paralleling cables can only be adjusted once the lifting cables are adjusted to set the angle of the back end of the platform to level.

If the inspection indicates that the platform is not level from front to back, or that the paralleling cables (part 60) require adjustment, proceed as follows:

1. Crank the platform up off the ground approximately two feet and measure the height from the top of the frame to the platform at the right rear corner and at the right front corner – these dimensions should be the same to within 1/2 inch.
2. If the platform is not level, from front to back, the paralleling cables will need adjustment. Note: the height of the rear end of the platform (drive end) is

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controlled by the lifting cables and that paralleling cable adjustment affects only the front of the platform.

To raise the front of the platform, tighten the paralleling cable adjuster (63) underneath the rear end of the frame. To lower the front of the platform, the paralleling cable adjuster under the front of the frame is tightened. If the cable tension is getting too high when tightening the adjusters, use a combination of tightening the adjuster at one end and loosening the adjuster at the other end.

3. Be sure to relock all cable anchor nuts and run the lift through one full cycle after any adjustments to check function.

Parking Brakes

The parking brake is an important safety feature of the lift. It is held in the “off” position when moving the lift and automatically activates when the brake handle is released.

If adjustment is indicated by the inspection, proceed as follows:

1. Check that both brake springs (part 65) are attached and not broken (the easiest way to do this is to turn the lift on its side because the springs are under the platform just ahead of the two main wheels).
2. If the springs appear to be in good condition, with the lift on its side, attempt to rotate the main wheels (part 56). It should be very difficult to move either of these wheels by hand.
3. If either of the wheels can be moved easily, it indicates a weak brake spring or a fault in the activating system.
4. Check that the cables attached to the brake levers opposite the springs are slack.
5. If the cables are slack and a brake is still slipping, this indicates a weak spring or an adjuster that needs attention. To test if the spring is weak, unlock and tighten the nuts on the adjuster (part 68) until the brakes hold. If the brakes still don't hold, call the factory for a replacement spring.
6. If the cables are not slack, remove the shroud at the rear of the platform, and check the cable and lever mechanisms that activate the brakes. Loosen the wheel brake cable adjuster (part 66) until slack is felt in the cable. Repeat step 5 if necessary.

NOTE: Be sure to relock all adjusters and recheck the brakes before putting the lift back into service.

Springs

A large spring is used to counterbalance loads on the platform. It is designed to provide trouble-free operation and long life. Should the spring or the attaching cable break, the cranking loads will increase, but the lift does not have to be taken out of service. Since the spring can store large amounts of energy, improper servicing can result in serious bodily injury. In all cases, contact Adaptive Engineering for replacement parts and procedures.

WARNING!

- **Improper service of steel springs can result in serious bodily injury!**

Gas Springs

Gas Springs are used to counterbalance loads for the platform. They are designed to provide trouble-free operation and long life. Should the cranking loads increase with time, one or more of the gas cylinders may have lost their performance. Since these systems can store large amounts of energy, improper servicing can result in serious bodily injury. In all cases contact Adaptive Engineering Inc. for replacement parts and procedures. To identify a lift with gas springs, look at the rear posts. If the rear posts have post caps, which are 2-1/2" high, then the lift is counterbalanced with gas cylinders.

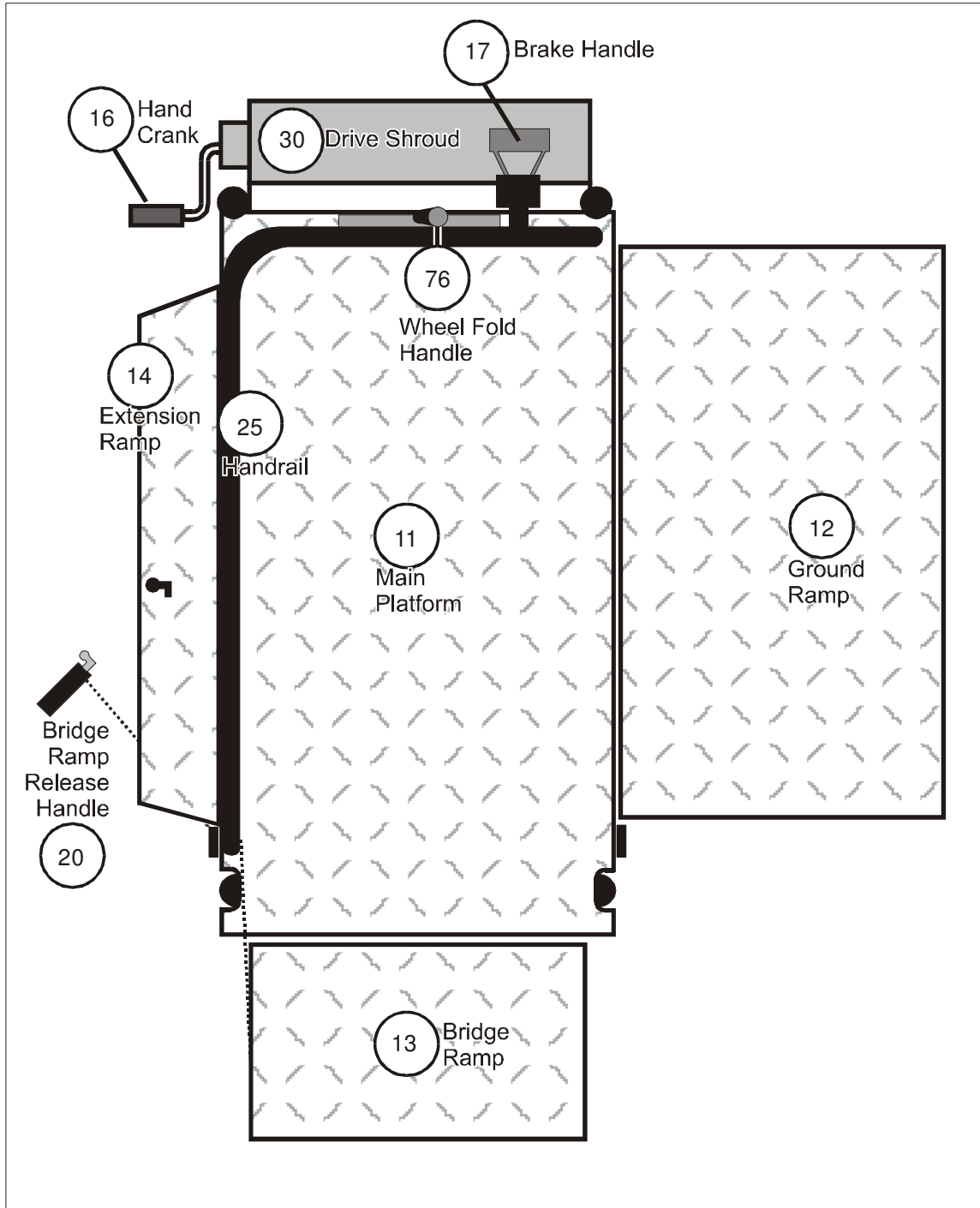
Important:

Never undo gas cylinder mounts while there is load on the cylinder – these cylinders have a spring force of 200 lbs. And extreme caution must be exercised when working with them.

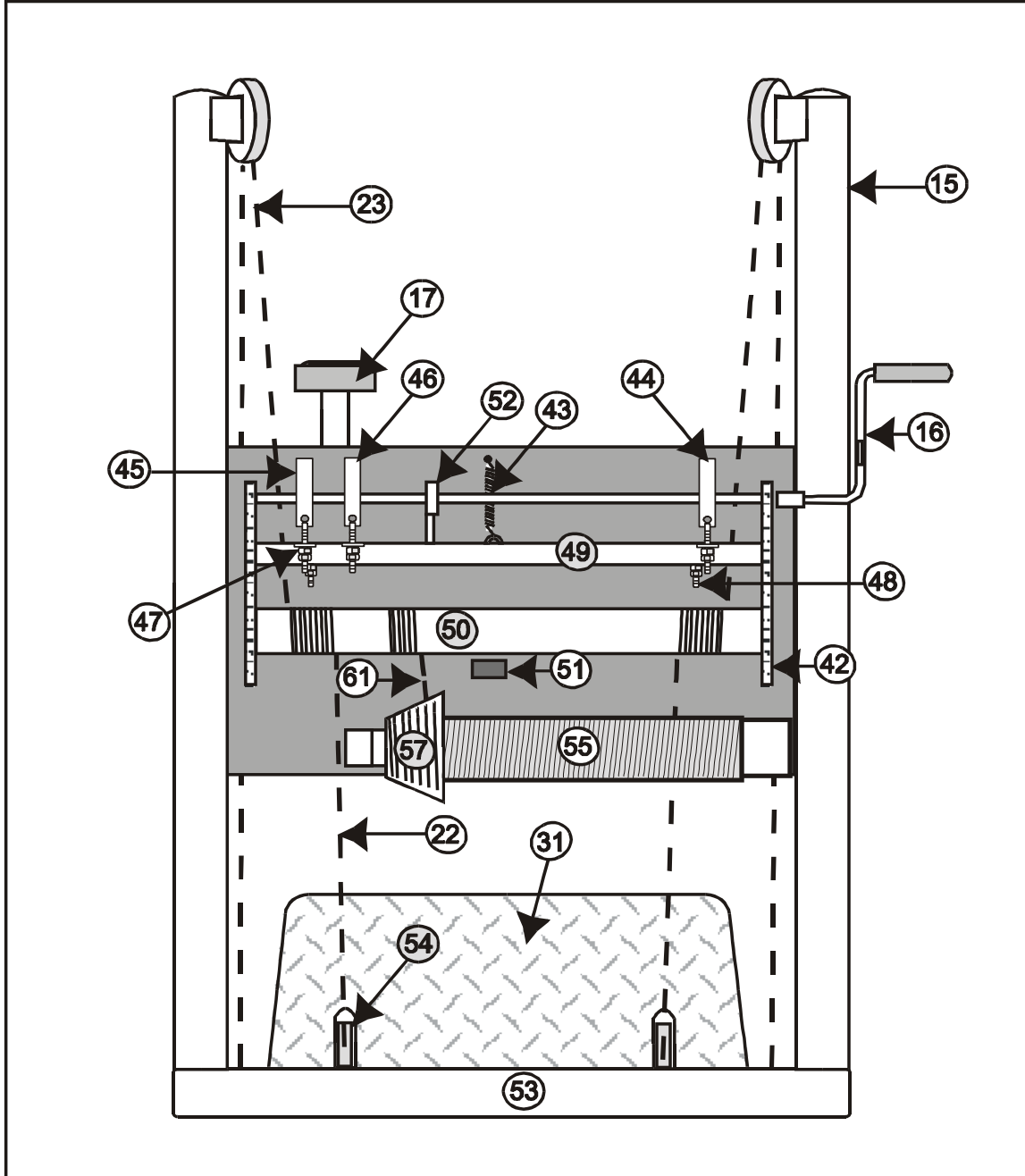
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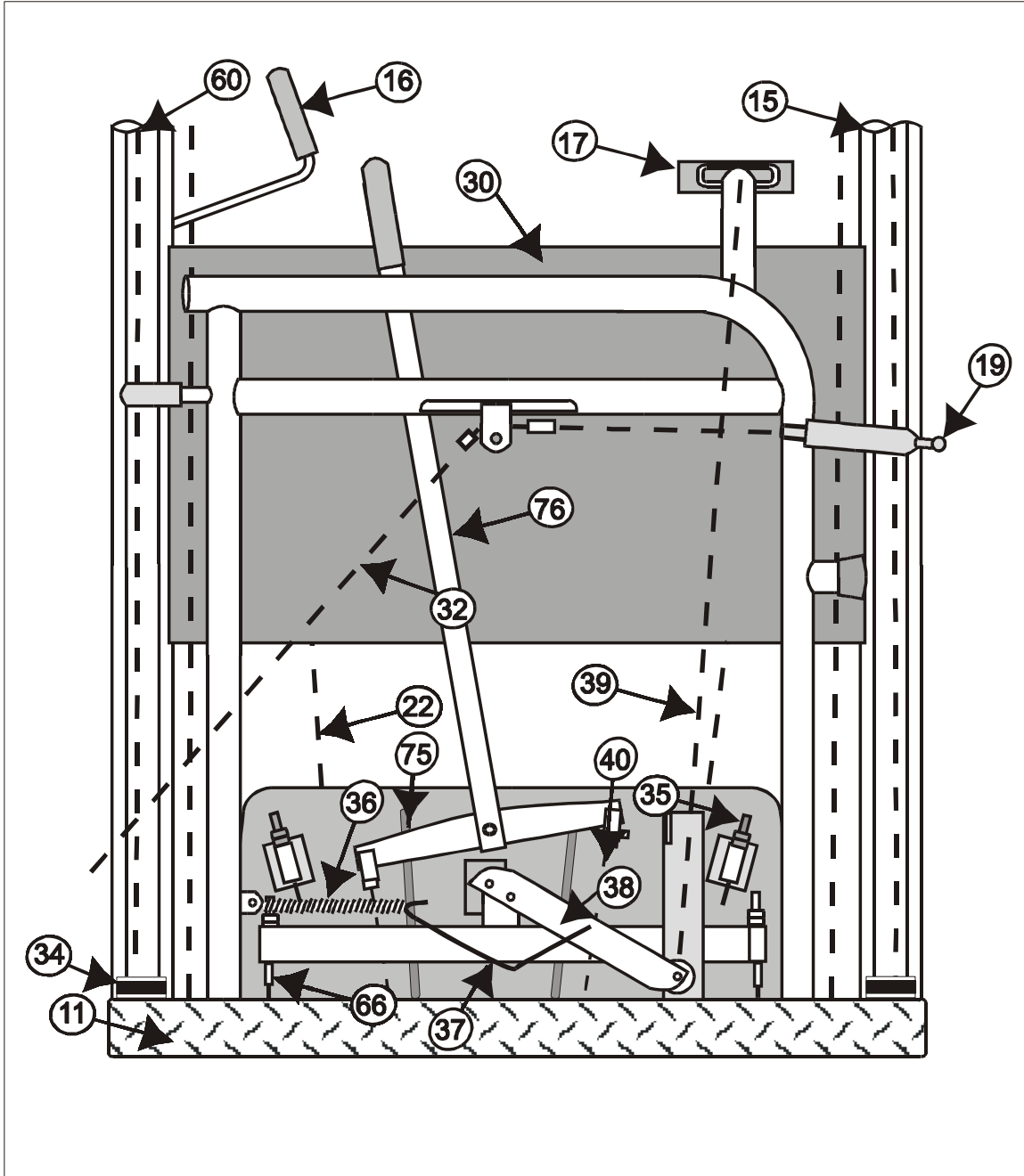
MAJOR COMPONENTS – TOP VIEW



DRIVE ASSEMBLY DIAGRAM



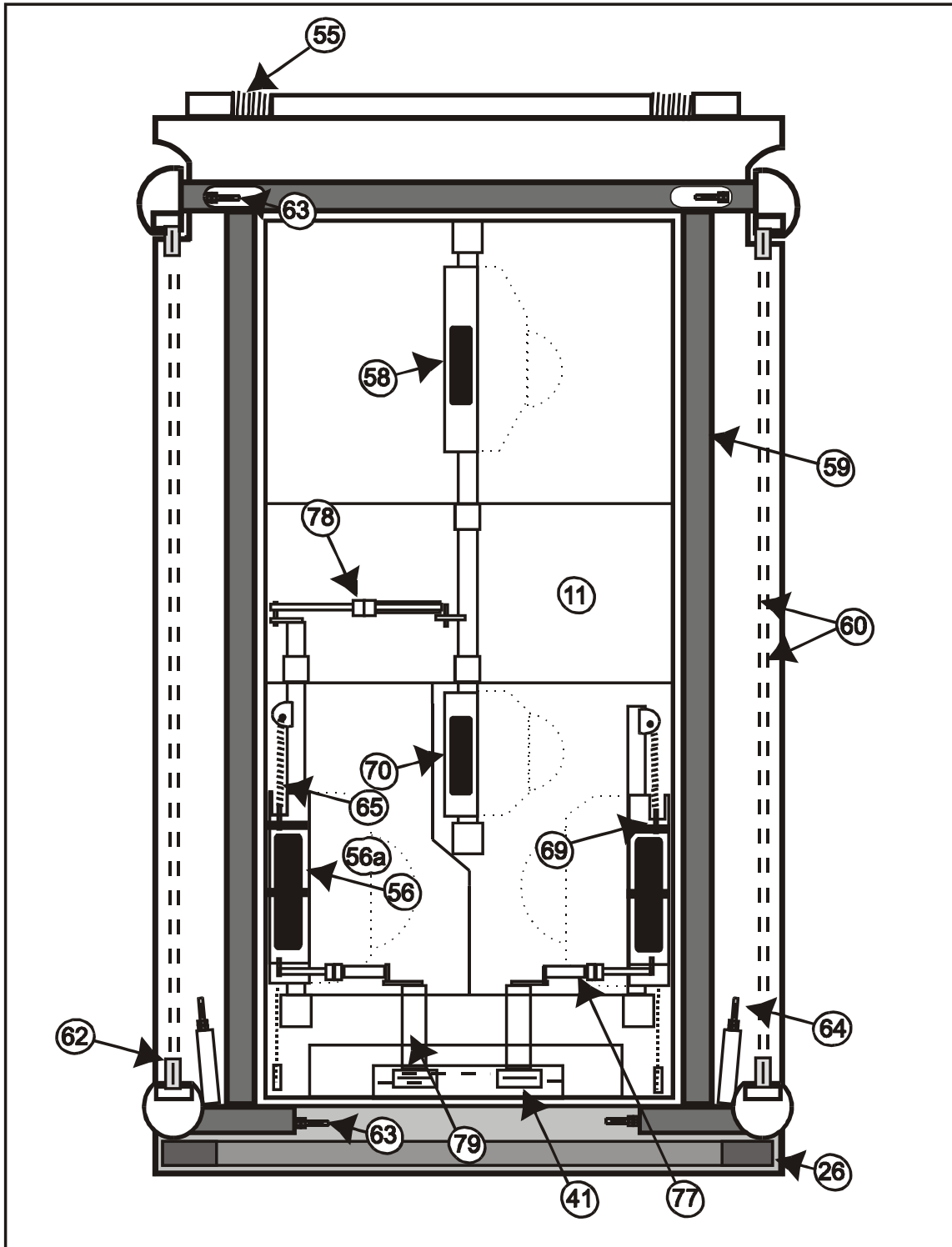
REAR PLATFORM ASSEMBLY



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UNDERSIDE ASSEMBLY



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PARTS LIST

11	Main Platform	50	Main Cable Drum
12	Ground Ramp	51	Discontinued
13	Bridge Ramp	52	Steady Bearing
14	Extension Ramp	53	Automatic Leveler Shroud
15	Corner Post	54	Return Pulley
16	Hand Crank	55	Platform Counter Balance Spring
17	Brake Handle	56	Main Travel Wheels
19	Ground Ramp Release Handle	56a	Folded wheels position
20	Bridge Ramp Release Handle	57	Counter Balance Cable Cone
22	Return Cable	58	Idler Wheel (Same as #70)
23	Lifting Cable	59	Frame
25	Handrail	60	Paralleling Cables
26	Automatic Leveler	61	Counter Balance Cable
30	Drive Shroud	62	Paralleling Cable Pulley
31	Platform Rear Shroud	63	Paralleling Cable Adjuster
32	Ground Ramp Cable	64	Lift Cable Adjuster
34	Post Guide Assembly	65	Brake Activation Spring
35	Return Cable Adjuster	66	Wheel Brake Cable Adjuster
36	Brake Return Spring	68	Brake Spring Adjuster
37	Brake Return Spring Arm	69	Brake Activator
38	Brake Lever	70	Front Wheel
39	Brake Pull Cable	75	Wheel Fold Return Spring
40	Wheel Fold Cable Adjuster	76	Wheel Fold Handle
41	Wheel Fold Pulley	77	Wheel fold tie-rod short
42	Drive Chain	78	Wheel fold tie-rod long
43	Drive Frame Counterbalance Spring	79	Wheel fold connecting tube
44	Right Lift Brake		
45	Left Lift Brake		
46	Return Brake		
47	Brake Adjuster		
48	Frame Adjuster		
49	Drive Frame		

INSPECTION REPORT

1. Crank the lift to full height and back down with 300 to 350 lbs (2 people) on the platform (a full cycle up-down cycle should take no more than one minute)
2. With the above weight on the platform and the lift approximately 12" off the ground, using a spring scale or weight, check the force on the hand crank. The force should be 10 – 20 lbs for cranking up, and 3 – 15 lbs for cranking down.
3. Did the lift crank up and down smoothly? (On the down movement it is normal to have a slight squeal or chatter from the brakes as with automobile brakes).
4. Remove the drive shroud to check that the cables are in their grooves on the winding drum. Crank the lift to full height with no platform load and recheck the cables on the winding drum.
5. With the lift in the "travel" mode, check that the lift rolls easily with the parking brake in the "off" position and that it stops immediately when the brake handle is released.
6. Crank lift about half way up with no load and measure the distance from the platform to the top of the main frame at each corner. These measurements should be within 3/4 of an inch of each other.
7. Tilt the lift back, visually inspect all of the cable anchors (six) to see that they are secure and the double nuts are locked against each other (some rust and corrosion on the anchors and nuts in severe conditions is normal and not a safety concern).
8. With the lift tilted back, check that the paralleling cables are on their pulleys at both ends and are not frayed. Check that a pull of fifteen lbs. at the middle of each paralleling cable deflects it between 3/4 of an inch and 2 inches.
9. Return the lift to upright position. Check that the crank handle swings in automatically when it is released.
10. Check ramp securing cables for operation and fraying.
11. With the wheels just clear of the ground release both the ground ramp and the bridge ramp so that they are resting on the ground. Apply a load to the upper corners of both ramps by standing on the corner and bouncing up and down.
12. Check all fasteners to make sure that the bolts engage the nylon of the locking nuts. Check with wrenches that the nuts on all visible cable adjusters are locked.
13. Check all visible welds for signs of cracking.
14. Check the full visible length of each lifting cable with the lift at ground level and at two feet from ground level for corrosion or fraying, with particular attention to the point at which the lifting cable turns in under the platform.
15. With the platform just off the wheels, pull on each lifting cable just above the main shroud. A twenty-lb. pull should deflect this cable between 1/2 an inch to 1-1/2 inches.
16. With the lift at ground level, release the ground ramp and the extension ramp, and stand on the middle of the outside of the extension ramp. It will deflect but should return to approximately level position.
17. With the lift at ground level, inspect the paralleling cables inside each corner post for fraying, particularly at the top of each post.
18. Check the folding action of the wheel fold system by folding the handle from park to travel. Check that the 6 tie-rods under the platform are tight.

LOAD TEST

The lift must be re-load tested to 1800 lbs (3 times the design load) following this inspection or any repairs or adjustments. If formal testing equipment is not available, proceed as follows:

- 1 Position the lift under a beam or overhead doorway that will take a 2000lb upward load.
- 2 Place a wooden 4" x 4" (or two 2" x 4" nailed together), from the middle of the platform up to the overhead beam.
- 3 Stand well to the side of the lift in case a cable slips. Crank the lift up against the 4" x 4" with a 50lb pull on the hand crank (use a spring scale or weight). This puts a load of 1800lbs on the platform.
- 4 After testing, remove the 4" x 4" and check that the lift cranks up and down normally for the full height of the lift.

Lift Serial Number: _____

Date of Inspection: _____

Inspected By: _____

Inspector's Signature: _____

Inspector Employed by (company name): _____

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