



HD Powered Stair Climbing Hand Truck

Maintenance Manual



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A. Introduction

Please read the Operator's Manual thoroughly to become familiar with the operation and controls of the Powered Stair Climber. The Powered Stair Climber has been designed specifically for serviceability so components can be easily replaced.

This Maintenance Manual contains:

- A troubleshooting guide
- Detailed directions to make repairs on your own
- Assembly drawings to help locate and describe parts

We sincerely appreciate your purchase of this exciting product. We hope this manual is helpful. However, if you have questions please do not hesitate to call our customer service department at 1-800-MAGLINE (624-5463) or 989-512-1000.



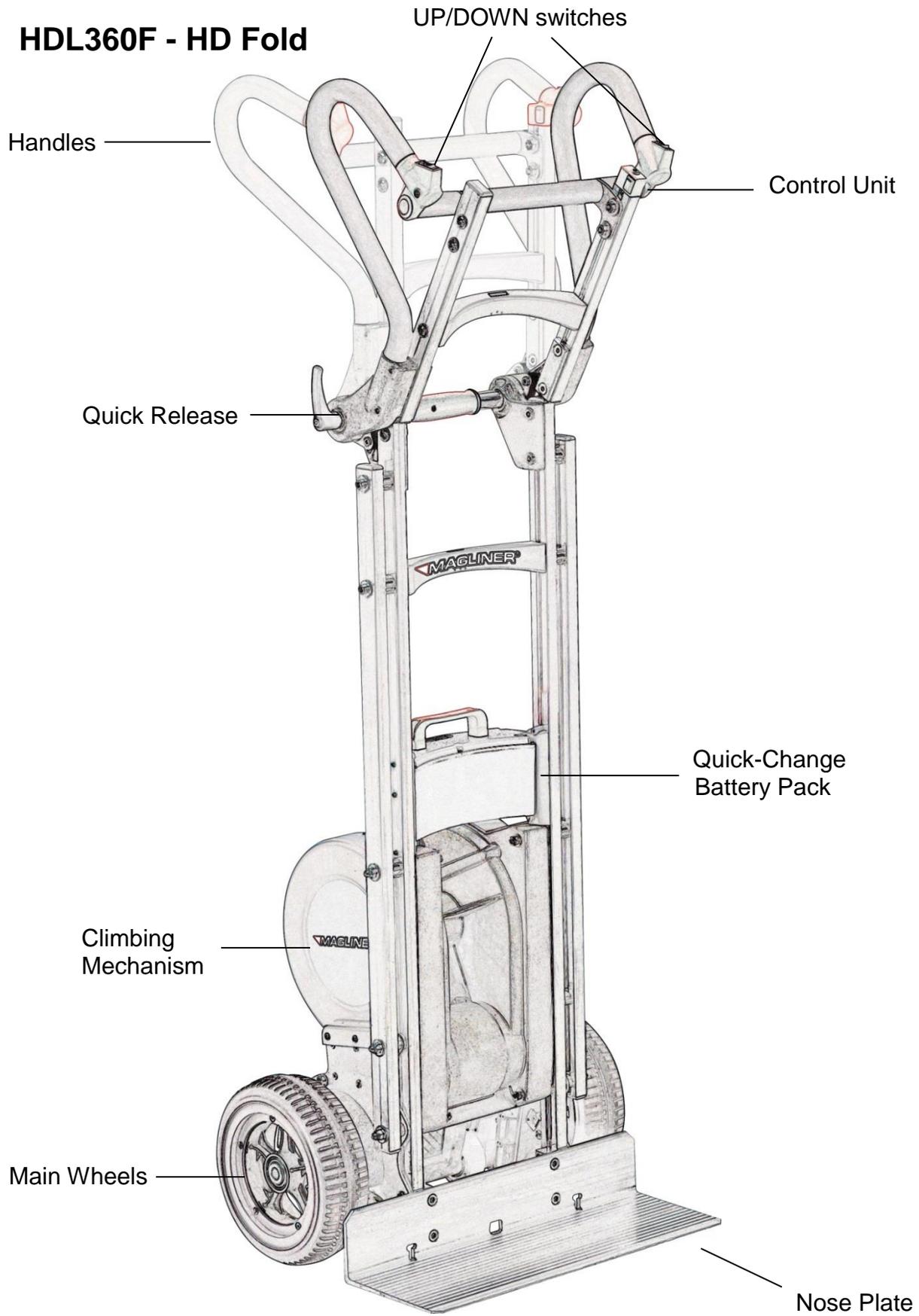
Caution !

Never make repairs to your Powered Stair Climber while battery is inserted.

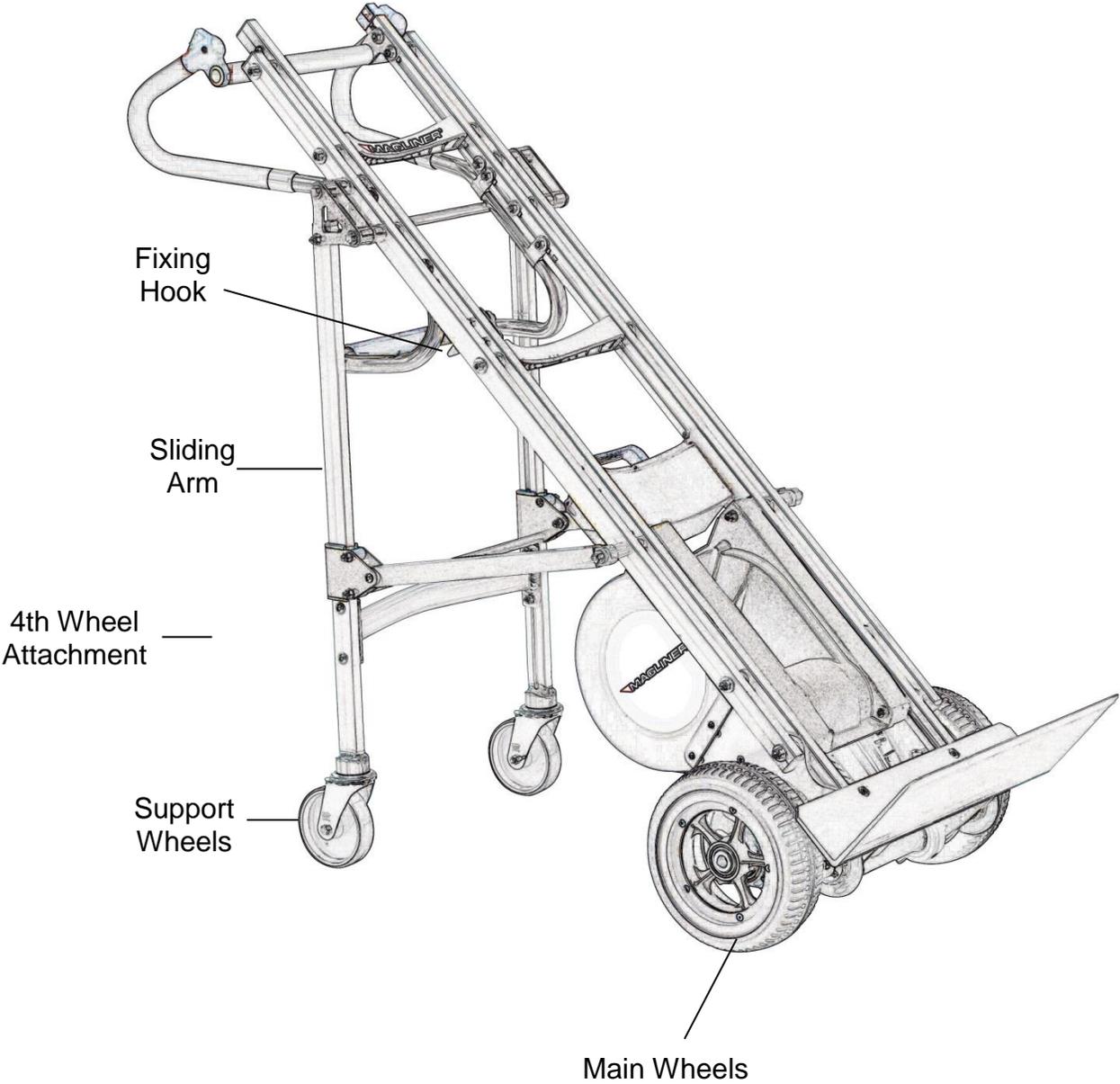
**B. Diagram
HDL360U - HD Uni**



HDL360F - HD Fold



4W - 4th Wheel Attachment (Option for Uni and Fold models)



1. Battery



Make sure the battery is properly engaged into the spring-loaded battery clamps. Turn on the main switch.



Fig. 1a



Fig. 1b

Depress the ascend / descend button to initially turn on the Powered Stair Climber. The green light should be on.



Fig. 1c

If not, the fuse (part number 004607) for the battery may need changing. Remove the battery cover by unscrewing the eight screws with a #1 Phillips screwdriver. Remove the fuse. Test the fuse for continuity with a MultiMeter or similar. If it reads OL (digital) or ∞ (analog), change the 30 Amp fuse by pulling the old one out by hand and inserting the new one.

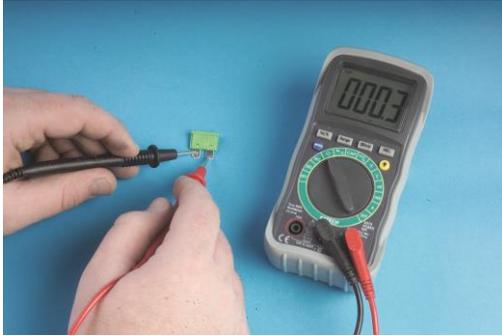


Fig. 1d

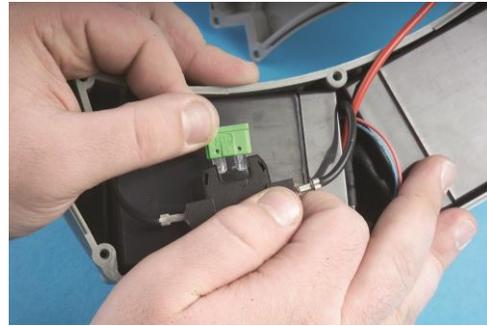


Fig. 1e

Test the battery pack for voltage with a MultiMeter or similar. A good battery should read 24-26 volts (VDC). If the MultiMeter reads 12-15 volts (VDC), one battery cell needs replacing. Check each cell separately to determine which battery cell needs replacing.



Fig. 1f

To replace battery cells, remove battery cover with a #1 Phillips screwdriver. Remove fuse and unplug top wires and tilt entire battery case 45 degrees to allow cells to gently fall out of case. Unplug bottom wires.



Caution !

Avoid touching battery contact points together.

Reconnect bottom wires into the new battery cells. Gently reposition into the battery case and reconnect the top wires. Use page 36 as a guide when reconnecting.



Caution !

Inserting a battery with reversed polarity on the Powered Stair Climber will cause a short circuit in the electronic card and may cause overheating and potential damage to the DC charger.

Before inserting this battery on your Powered Stair Climber, test the battery for reverse polarity by connecting your battery to a charger. Display will alternately blink  and  symbols to indicate reversed polarity. Correct polarity by ensuring the battery wires are connected exactly as shown on page 36.

2. Battery Clamp

Remove right battery clamp (part number 004120) and left battery clamp (part number 004121) by unscrewing the three screws in the side rail with a #1 Phillip screwdriver. If springs or locking clips are noticeably worn, replace the battery clamp.



Fig. 2a

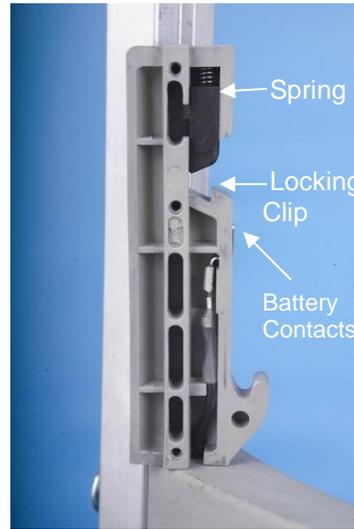


Fig. 2b

3. Gray End Cap

To replace gray end cap (part number 030023) use flat screwdriver to pry the end cap out of side rail. Push new one into side rail.



Fig. 3

4. Control Box

To change the control box (part number 030220), remove the setscrew located on the inside of the Powered Stair Climber frame side rail using a #1 Phillips screwdriver. Gently pry the control box from the frame with a flat screw driver. Use both hands to disconnect the control box from the rest of the HD Powered Stair Climber wiring harness.



Fig. 4a



Fig. 4b



Fig. 4c

5. Crossbars

To replace top two crossbars (kit number 030024K) remove screws in side rails using a T-40 Torx wrench. Loosen RIGHT side of bottom crossbar with a T-40 Torx wrench. Gently tap the side rail with a soft rubber mallet to break the seal.



Fig. 5

6. Replacing the Drive Chain

Note: During the replacement of the drive chain, exchange all screws that are being removed during the process with new screws. In addition, for fixing screws always utilize a torque wrench.

First, remove the plastic covers on both sides from the drive unit.



Fig. 6a

Remove the lifting frame.



Fig.6b



Fig. 6c



Fig. 6d

Remove all three motor screws



Fig. 6e



Fig. 6f

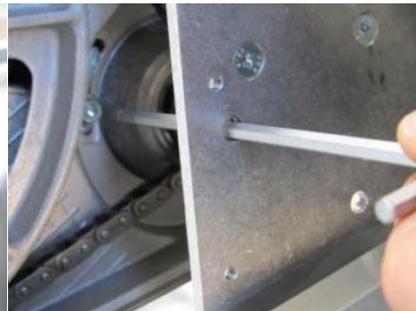


Fig. 6g

Remove the three screws from the chain wheel. After removing the three screws from the chain wheel, check the chain wheel for any damages. Remove the old drive chain together with the chain wheel.



Fig. 6h



Fig. 6i



Fig. 6j



Fig. 6k

Place the new chain around the chain wheel and mount it. Caution: Do not damage the position switch during installation. Note: The grooved area on the chain wheel and position switch must be aligned as depicted below.

Note:

Utilize Loctite 638 for fixation of the chain wheel screws.

Utilize Loctite 243 for tensioning the chain (gap of 3-4mm) and for fixation of motor screws.

Also utilize Loctite 638 for mounting the lifting frame (screws).



Fig. 6L



Fig. 6m



Fig. 6n

Replace plastic covers on the drive unit.

7. Drive Motor

Drive Motor Removal

Remove plastic covers. Then bring the lifting frame into the position shown below.



Fig. 7a



Fig. 7b

Before conducting any repair work, remove the batteries. After disconnecting the batteries, remove the first screw.

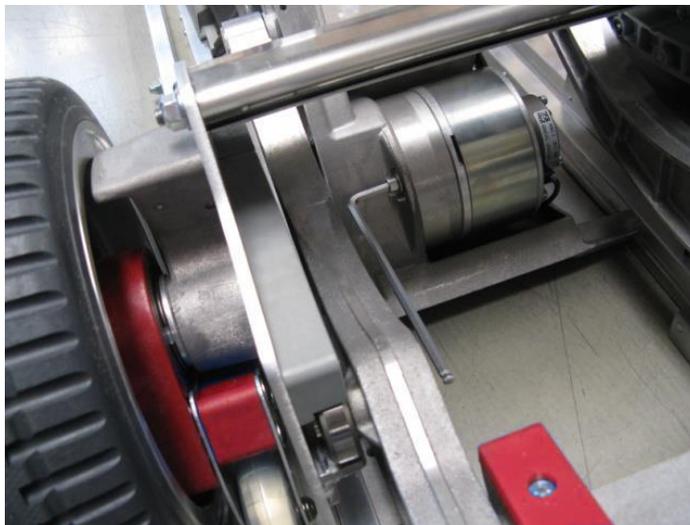


Fig. 7c

Use an Allen wrench with a rounded head for the following screws.

For the second screw, insert the Allen wrench into the hole of the wheel plate and push it through the hole.



Fig. 7d

Remove the third screw by inserting the Allen wrench into the second hole of the wheel plate.



Fig. 7e

Open the cover of the electronic card.

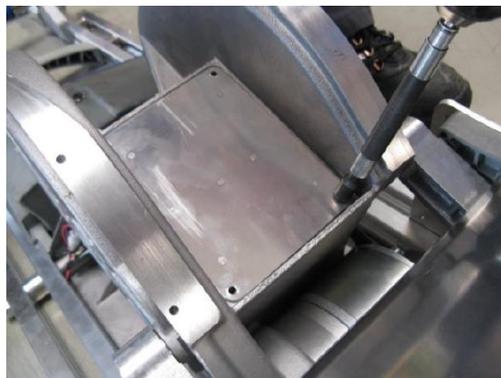


Fig. 7f

Disconnect each plug as follows:

1. Control wire
2. Violet plug
3. White plug (4 pole)

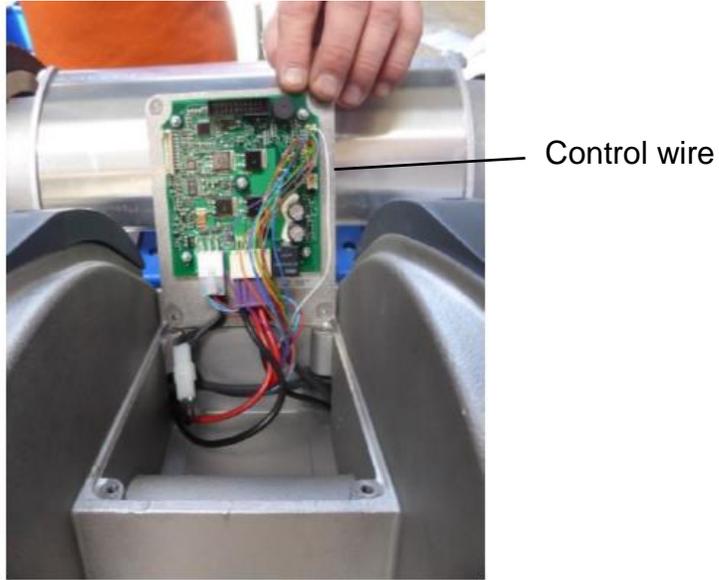


Fig. 7f

Remove the cable clamp with a screw driver.



Fig. 7g

Rotate the motor clockwise, until the hole for the screw is at uppermost position, as depicted. As a consequence, the tension of the chain will become less.



Fig. 7h

Use a screwdriver to maneuver the chain over the pinion.

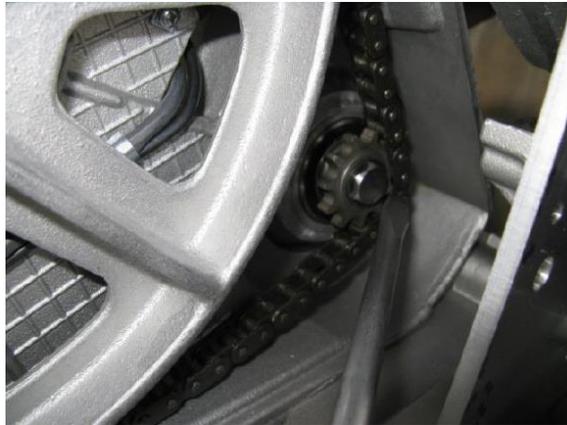


Fig. 7i

Remove the motor.



Fig. 7j

Installing New Motor

When inserting a new motor (010 057), carefully position the motor so that the hole is exactly as depicted before placing it in the unit.



Step 1

Place the chain over the pinion.



Step 2

Apply Loctite 243 (blue thread locker) onto the screw (005 629) and the washer (050 630) as depicted. Immediately insert and tighten the screw into the hole (marked on previous picture/Step 2).



Fig. 7k

In order to tighten the chain, rotate the motor counter-clockwise, forthwith fixing the first screw.



Fig. 7L

Controlling the tension of the chain is essential. Utilizing a screw driver and pressing it against the chain should result in movement of 3-5 mm (.12" to .20").



Fig. 7m

Once the appropriate chain tension is acquired, insert the two other screws. Use Loctite 243 (blue thread locker) on these as well.



Fig. 7n

Place the motor cable back into the housing of the electronic card. Ensure the wires are tight and are not loosely hanging around. Replace the cable clamp.



Fig. 7o

Plug everything into the controller, in reverse order as unplugging. Close the cover of the electric card and position the plastic cover as before. Test for all functions.



Fig. 7p

8. Replacing Step-Edge Brake Solenoid

Remove the battery. Remove main wheel, wheel brake and plastic cover from crank/motor house.



Fig. 8a

Remove the two solenoid screws.

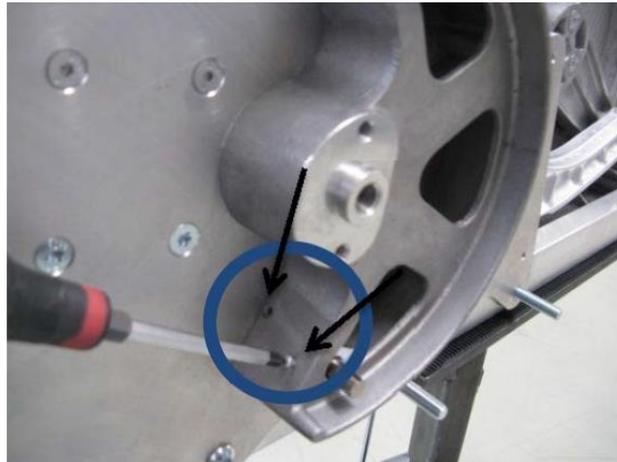


Fig. 8b

Shortly behind the solenoid, cut off the cabling and connect it with the cabling of a new solenoid (e.g. using electrical insulating tape).



Fig. 8c

After disconnecting the plugs of the solenoid, carefully pull through the new wiring. (See also picture in the next step)

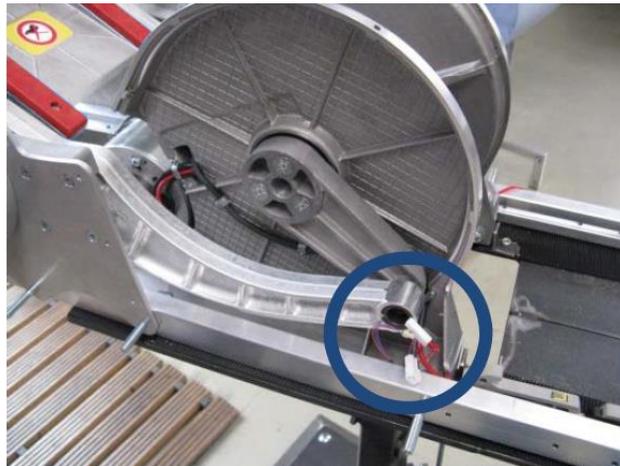


Fig. 8d

Start to reassemble the HD Powered Stair Climbing Hand Truck. For installation of the new plug at the end of the cable, a crimping tool is necessary. Alternatively, solder the ends of the cables.

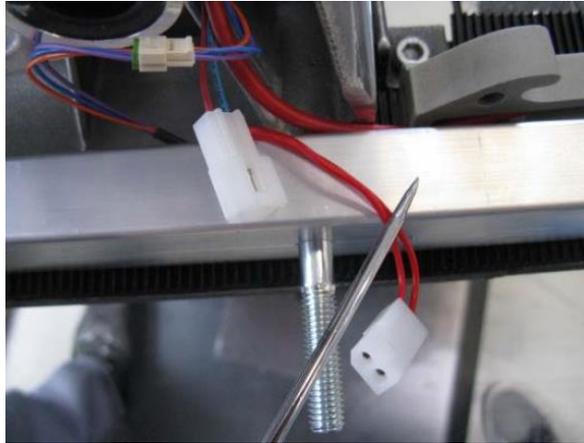


Fig. 8e

9. Adjusting the HD Step-Edge Brake

If there is only a small difference where the brake started working between the left and the right one, please do the adjustment like shown on the picture below.

Use a rubber hammer and hit the small wheel of the step edge brake. Hit carefully, not too hard!

Hit at the side where the brake started working earlier.

Important: The step edge brake has to be activated. The red plastic part has to touch the inner side of the rim. Otherwise you can bend the bolt of the solenoid.

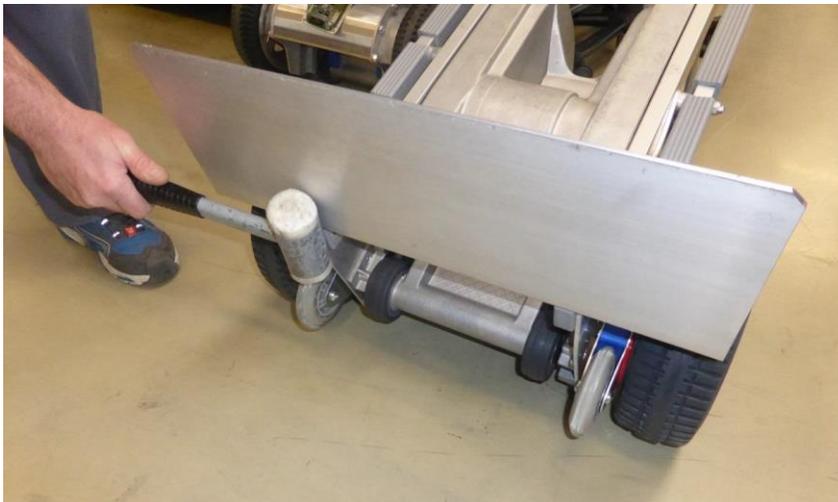


Fig. 9a

If this doesn't help: The brakes have to be removed and set back.

Remove the wheel screw, then the whole wheel can be removed.



Fig. 9b

One screw has to be removed for disassembling the brake. (see green circle at the picture below)



Fig. 9c

Now hit the brake (not too hard) at the red part (see green arrow at the picture below) to remove the brake.

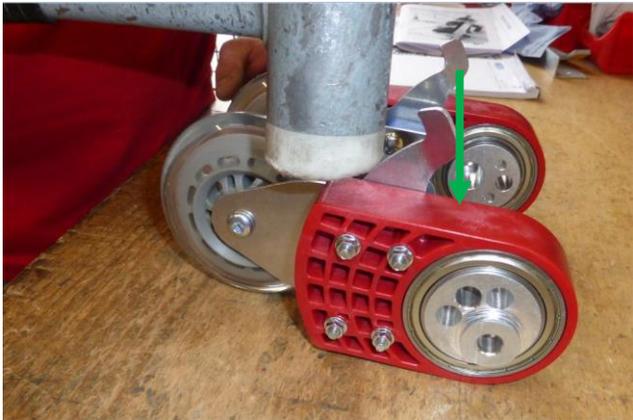


Fig. 9d

Now there should be a small gap between the blade and the bearing. (See green circles at the picture below; please also watch out that the gap is at the correct side - reference point is the hook).



Fig. 9e

When the brakes are set back, mount them and the wheels again at the HD and then try to set the brakes like shown on the first picture in the beginning of this section.

10. Modifying Edge Brake Position

This is a prevention measure if the step edge brake falls down by driving at a rough/bumpy ground.

Remove the wheel screw and remove the wheel assembly.



Fig. 10a

There you can see how the hook blade from the brake is positioned at the bolt of the solenoid.



Fig. 10b

Take a screwdriver and bend the hook blade from the brake a little bit nearer as shown below.

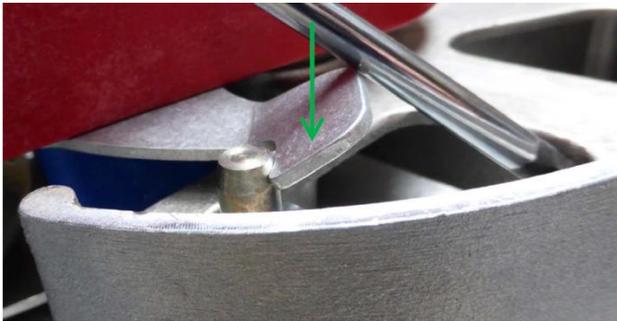


Fig. 10a



Fig. 10b

11. Replacing Electronic Card

Turn the unit “Off” before beginning this section. You can remove the battery or push the “Off” button on the battery.

Remove all four screws from the motor control unit. Remove the cover with a screwdriver.



Fig. 11a



Fig. 11b

Disconnect all wiring harnesses in the following order:

1. Control wire
2. Violet plug
3. White plug (4 pole)

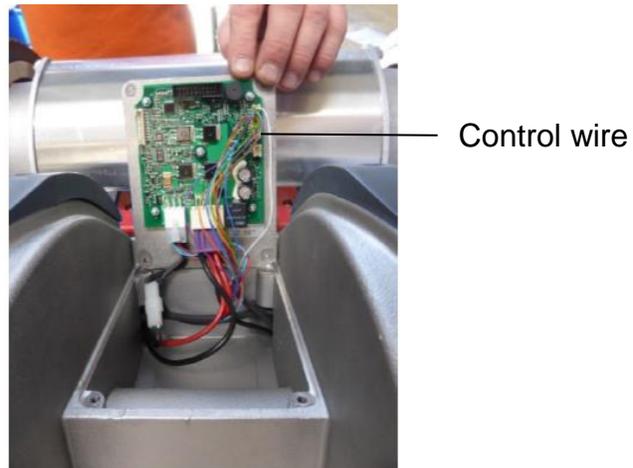


Fig. 11c

Plug the wiring harnesses into the new controller in the following order. NOTE: Do not jam any wire if you relock the cap.

- a. White plug (4-pole)



Fig. 11d

b. Violet plug:

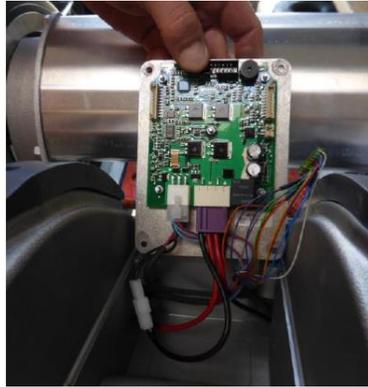


Fig. 11e

c. Control wire



Control wire

Fig. 11f

Replace the cover and four screws onto the motor control unit.



Fig. 11g

12. Replacing Relay Armature of Solenoid Brake

Remove main wheel. Press the pin towards housing.



Fig. 12a



Fig. 12b

Remove e-clip. Then remove armature.



Fig. 12a



Fig. 12b



Fig. 12c

Insert new armature; replace e-clip. Replace main wheel.



Fig. 12d

13. HD Powered Stair Climber Warranty and Liability

Warranty

The warranty period for the HD Powered Stair Climber is 12 months (6 months for batteries) from the date of purchase and covers defective material and production faults.

Warranty exclusions are:

- Normal wear and tear on parts
- Damage resulting from abnormal load
- Damage due to the exertion of force
- Modifications to the HD Powered Stair Climber or its accessories

Liability

Magline Inc. as distributor of the HD Powered Stair Climber is not responsible for the safety of the HD Powered Stair Climber if:

- The HD Powered Stair Climber is used for purposes other than those for which it is intended
- The HD Powered Stair Climber is not regularly maintained properly by a mechanical workshop
- The instructions in the operator manual are not observed
- Non-original parts are installed or connected to the HD Powered Stair Climber
- Original parts are removed

14. Troubleshooting Directions

14.1 My Powered Stair Climber does not turn on

- A. Is the main switch turned on?
- B. Is the battery charged? When charging with DC charger (part number 930114), be sure the main switch on battery is in the On position.
- C. Is the battery in complete contact with the spring-loaded battery clamp? Disengage and re-engage the battery to be sure.
- D. Are the battery contacts and springs clean?
- E. Has the On/Off Multifunction button been pressed once, displaying a solid green indicator light?
- F. Have you depressed the up or down switch?
- G. Inspect the fuse located inside the battery box. Does it look blown? Replace with part number 004607.
- H. Inspect the control box. If it appears damaged, replace with part number 030220.
- I. Inspect the electronic card for any water or cracks.

For more assistance, call Magline customer service at 1-800-MAGLINE (624-5463).

14.2 My HD Powered Stair Climber turns on, but will not run

- A. Is the battery charged? When charging with DC charger (part number 930114), be sure the main switch on battery is in the on position.
- B. Have you depressed the Up or Down switch? It may be unplugged inside the main wiring harness.
- C. Inspect the control box. If it appears damaged, replace with part number 030220. If the motor can be heard running but the lifting frame with support wheels does not move, inspect the drive chain.

14.3 My HD Powered Stair Climber Will Not Lift Full Capacity

- A. Fully charge the battery. When charging with DC charger (part number 930114), be sure the main switch on battery is in the on position.
- B. Be sure no more than capacity is loaded on the HD Powered Stair Climbing Hand Truck.
- C. Make sure the battery contacts on both the HD Powered Stair Climbing Hand Truck and the battery (part numbers 004120 & 004121) are clean. It may be necessary to replace if corroded beyond what can be cleaned.
- D. Check battery voltage with an Ohm Meter.

14.4 My Powered Stair Climber Runs Very Slow

- A. Fully charge the battery. When charging with DC charger (part number 930114), be sure the main switch on battery is in the on position.
- B. Make sure the speed switch on the control box is switched to “fast” speed, which is indicated by two solid parallel lines.

If you toggle between slow (one solid line) and fast (two solid lines) and there is no difference in speed, pull out the control box and test with an Ohm Meter by removing control box and popping out toggle speed switch with a flat screwdriver. Place one prong on each of the two wires. If reading is OL, replace the control box. If reading is not OL, replace the main wiring harness.

15. Maintenance Schedule

The following section is the recommended maintenance for your HD Powered Stair Climber.

15.1 Every Six Month Recommended Maintenance

Date Complete	Page #	Part #	Task
	11	030024	Replace any cracked crossbars.
	25	060112	(Fig. 9b) Remove wheels and apply thin film of anti-seize to mounting flange.
	10	030023	Replace gray end caps on top and bottom of side rails if missing.
	14	060007 060008	Remove plastic motor cover and inspect motor to ensure it's dry.
		060103 060102	Inspect brake wheels for damage. Replace if needed.
	10	004120 004121	Replace right and left battery clamp if necessary.
	8	004233	Replace battery housing if needed.
	9		Charge battery and check voltage of cells. Record results.
	36		Apply electrical grease.

15.2 Eighteen Month Recommended Maintenance

Date Completed	Page #	Part #	Tasks
	25	060112	(Fig. 9b) Remove wheels and apply thin film of anti-seize to mounting flange.
	11	030024	Replace any cracked crossbars.
	10	030023	Replace gray end caps on top and bottom of side rails if missing.
	14	060007 060008	Remove plastic motor cover and inspect motor to ensure it's dry.
		060103 060102	Inspect brake wheels for damage. Replace if needed.
	10	004120 004121	Inspect right and left battery clamp and replace if necessary. (004120 and 004121)
	8	004233	Replace lower battery housing if clips are worn.
	9		Charge battery and check voltage of cells and record results.
	36		Apply electrical grease.

15.3 Thirty Month Recommended Maintenance

Date Completed	Page #	Part #	Tasks
	25	060112	(Fig. 9b) Remove wheels and apply thin film of anti-seize to mounting flange.
		065025	Replace nose.
	10	030023	Replace gray end cap on top of side rails if missing.
	11	030024	Replace any cracked crossbars.
			Replace main wiring harness.
		006009 066010	Replace up/down switch.
	10	004120 004121	Replace right and left battery clamps. (004120 and 004121)
	8	004233	Replace battery housing.
	8	004604	Replace battery cells.
	9		Charge battery and check voltage of cells and record results.
	36		Apply electrical grease.

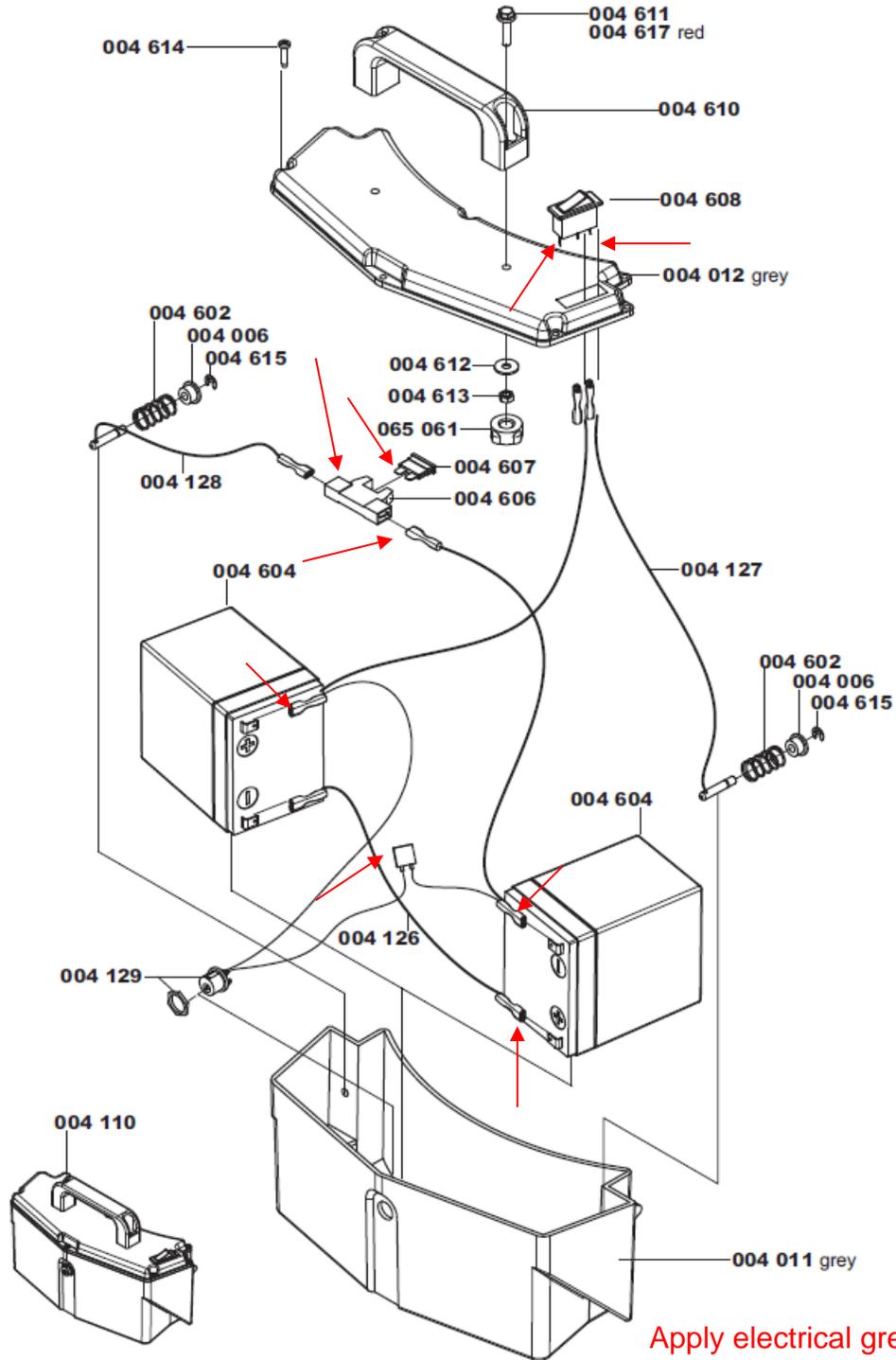
Additional maintenance for heavy usage:

Date Completed	Page #	Part #	Tasks
		060116	Replace lifting frame
		030083	Replace top and bottom red handles using new O-rings and screws.
		030060	O-ring
		030627	Screw
	25	060112	(Fig. 9b) Replace wheels.
	14	060007 060008	Remove plastic motor cover and inspect motor to ensure it's dry.
	14	060132	Replace drive motor.
	11	030220	Replace control box.

16. Schematics for Additional Reference

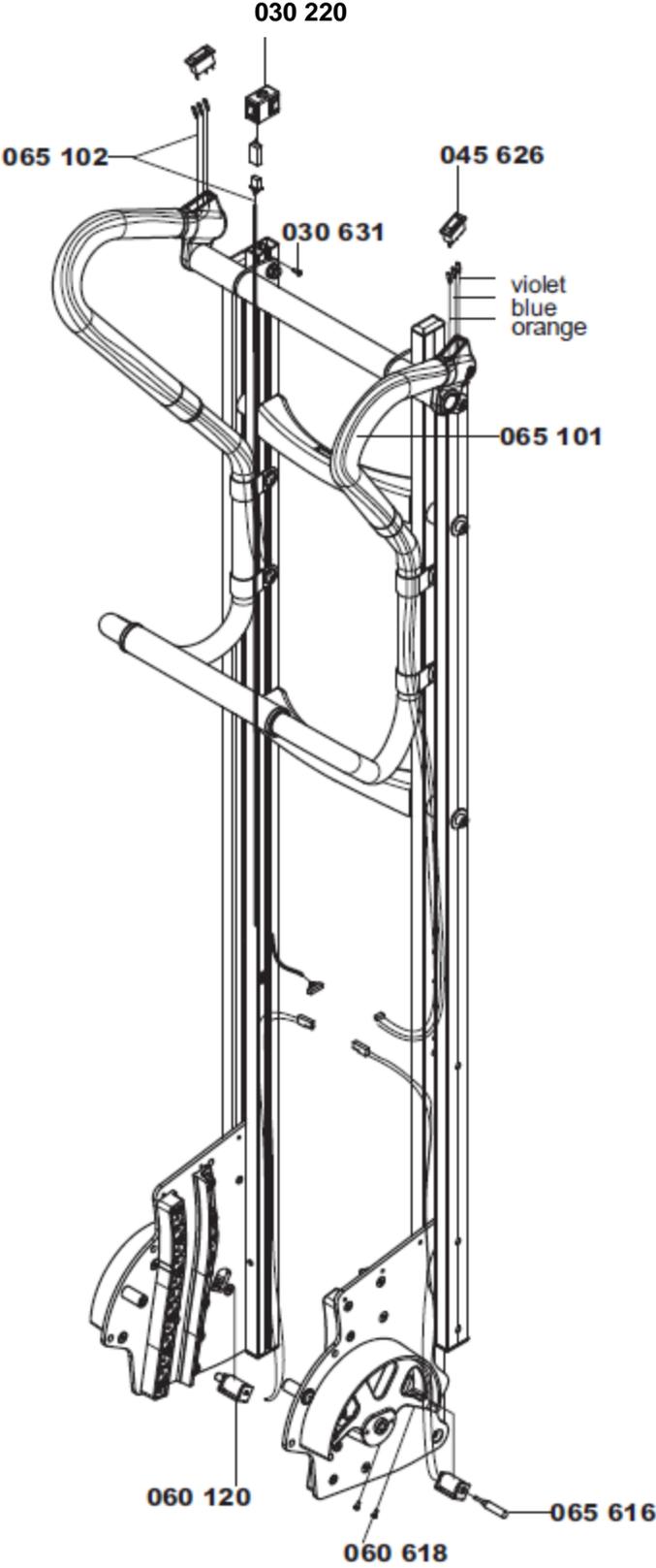
Assembly drawings in this section are for reference only and should not be used to modify any original Magliner equipment. Drawings may not be to scale.

16.1 Battery (All Models)

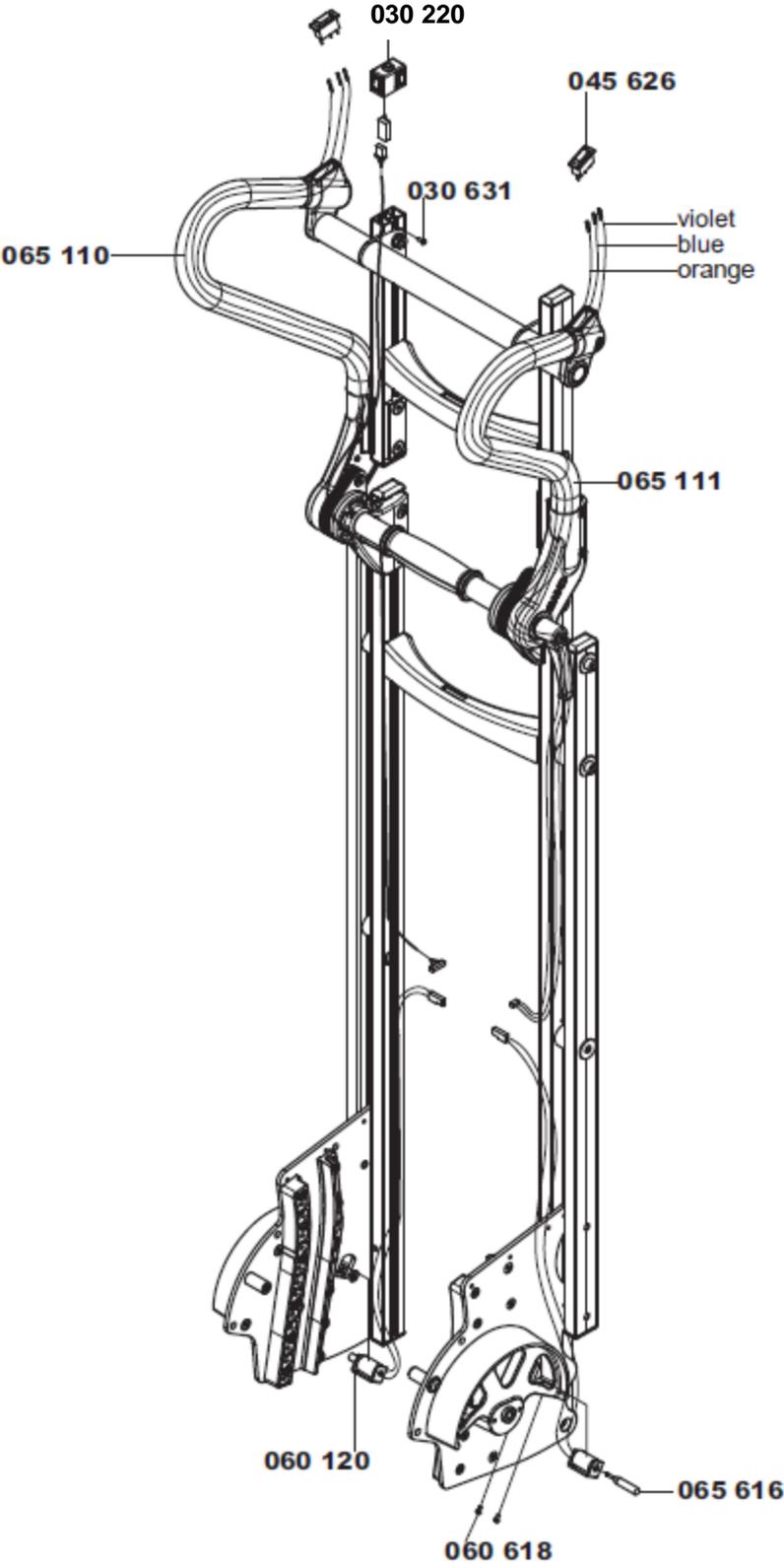


Apply electrical grease to the locations indicated by red arrows.

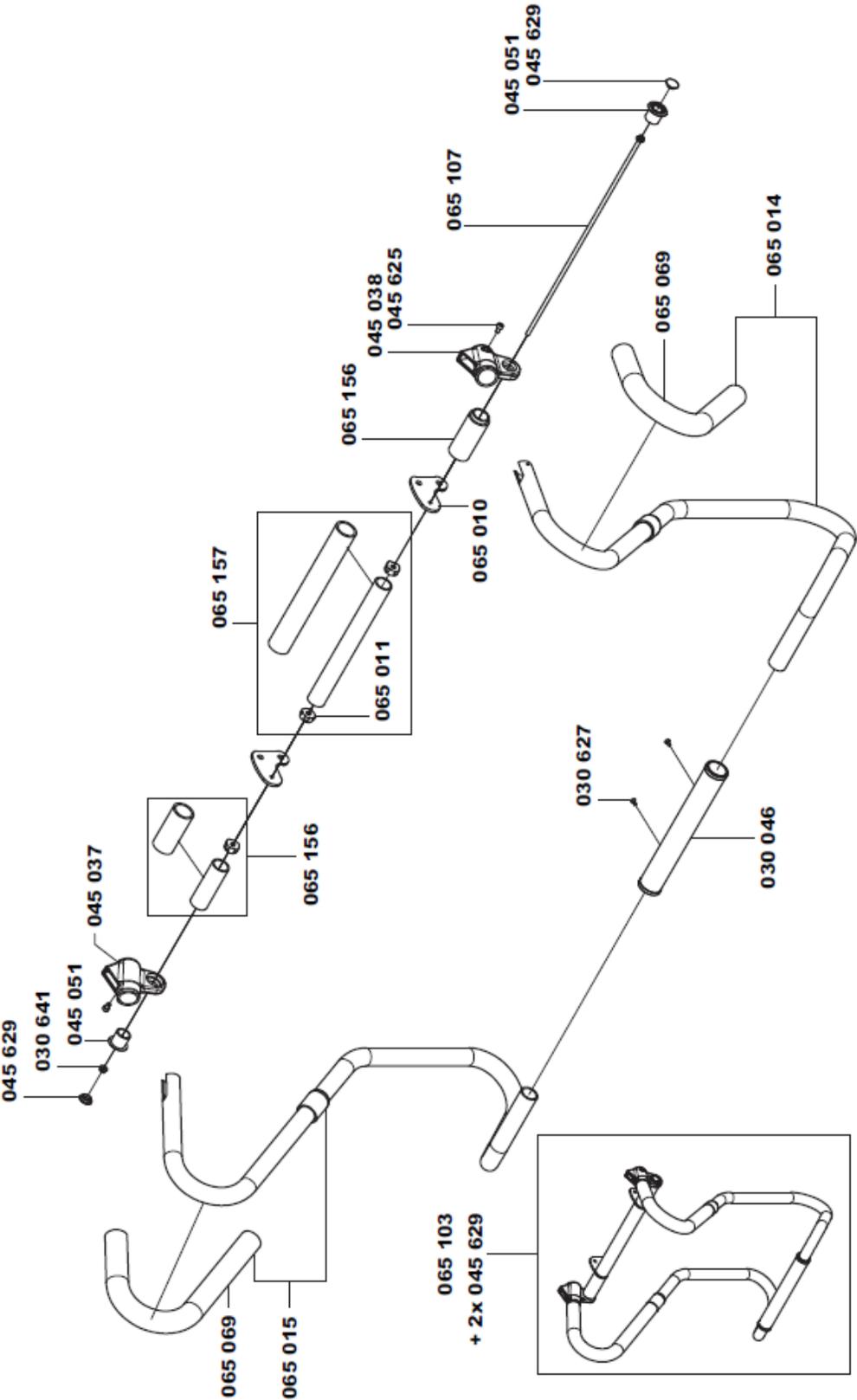
16.2 Electrical Components - Uni



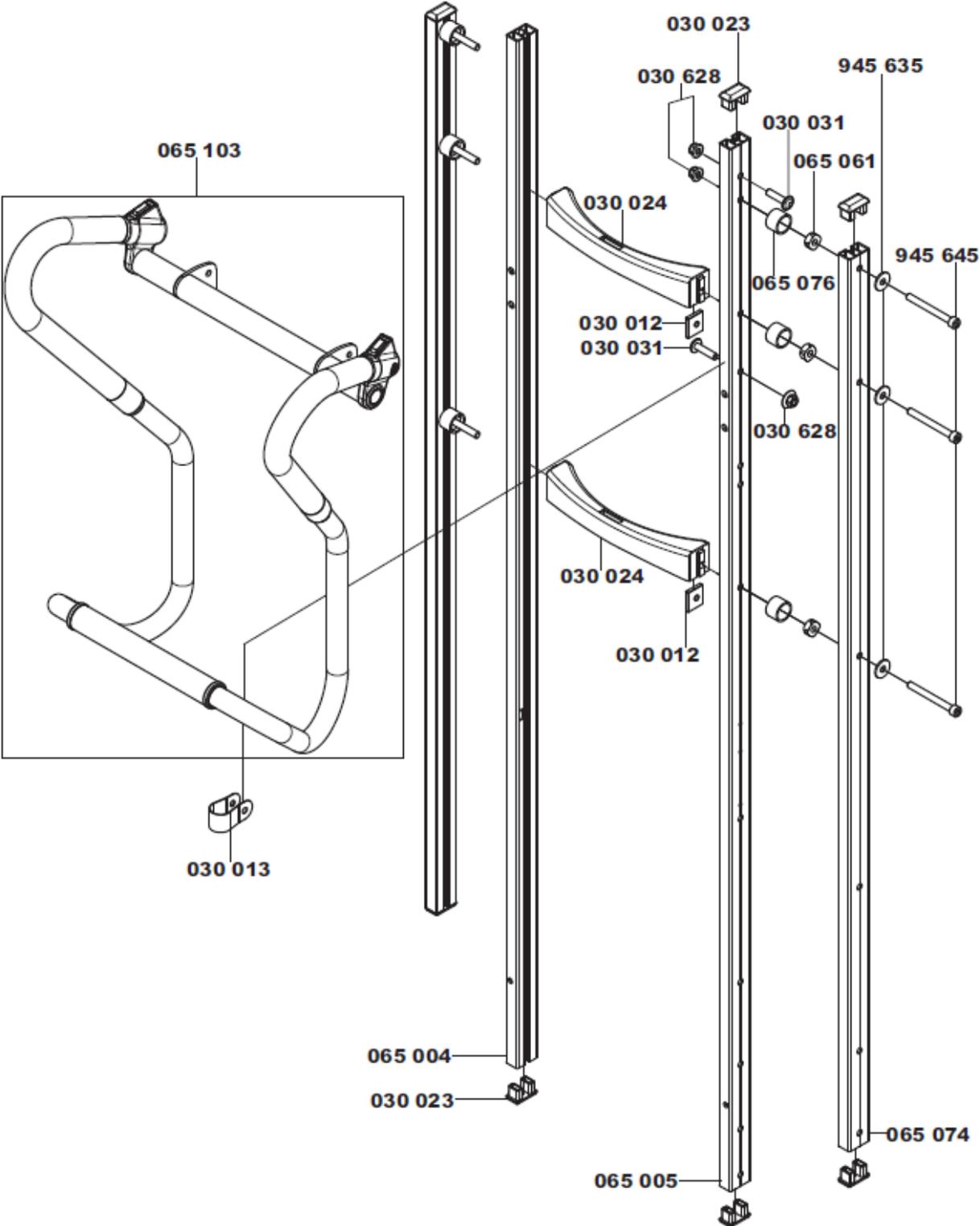
16.3 Electrical Components - Folding



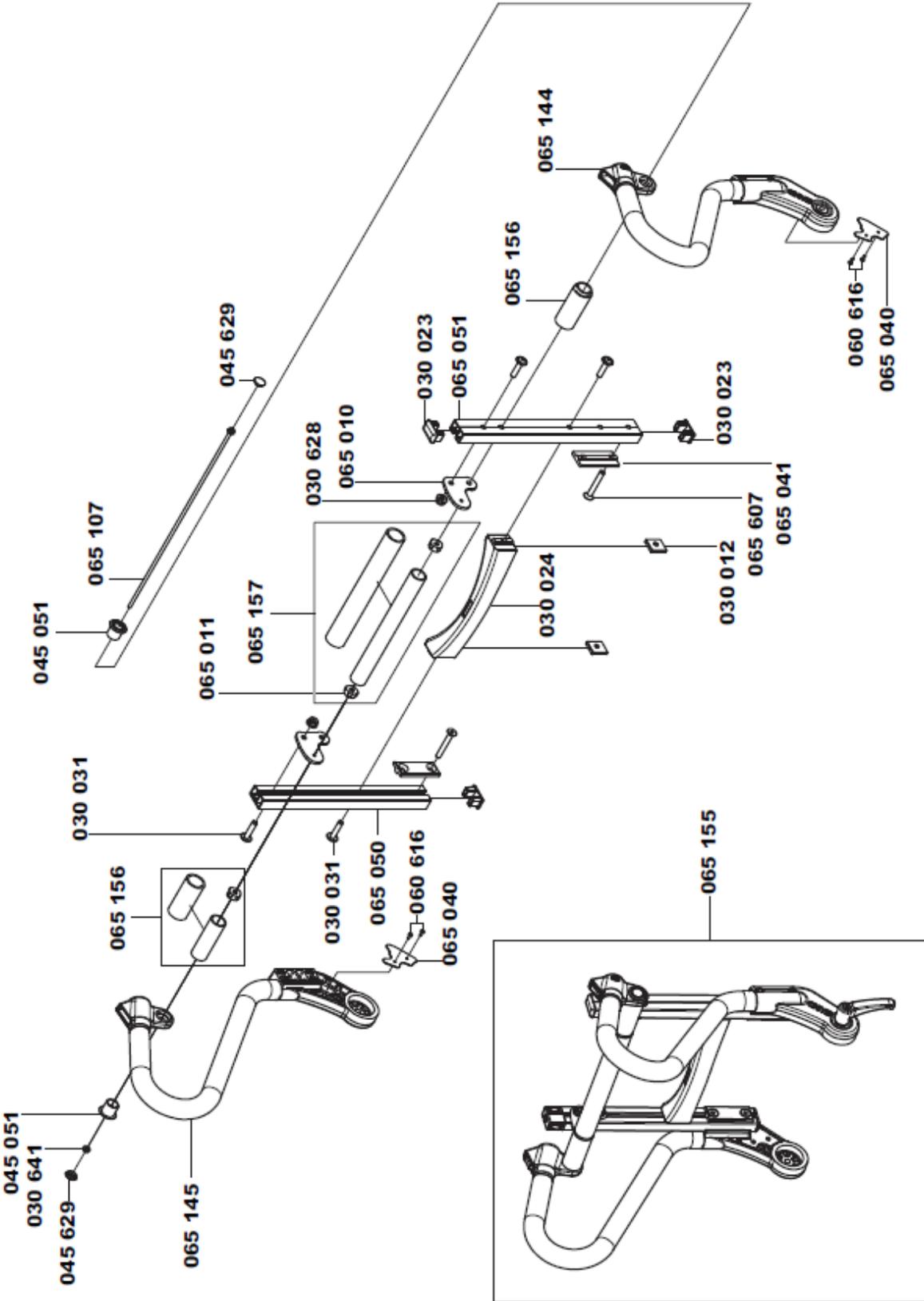
16.4 Handle - Uni



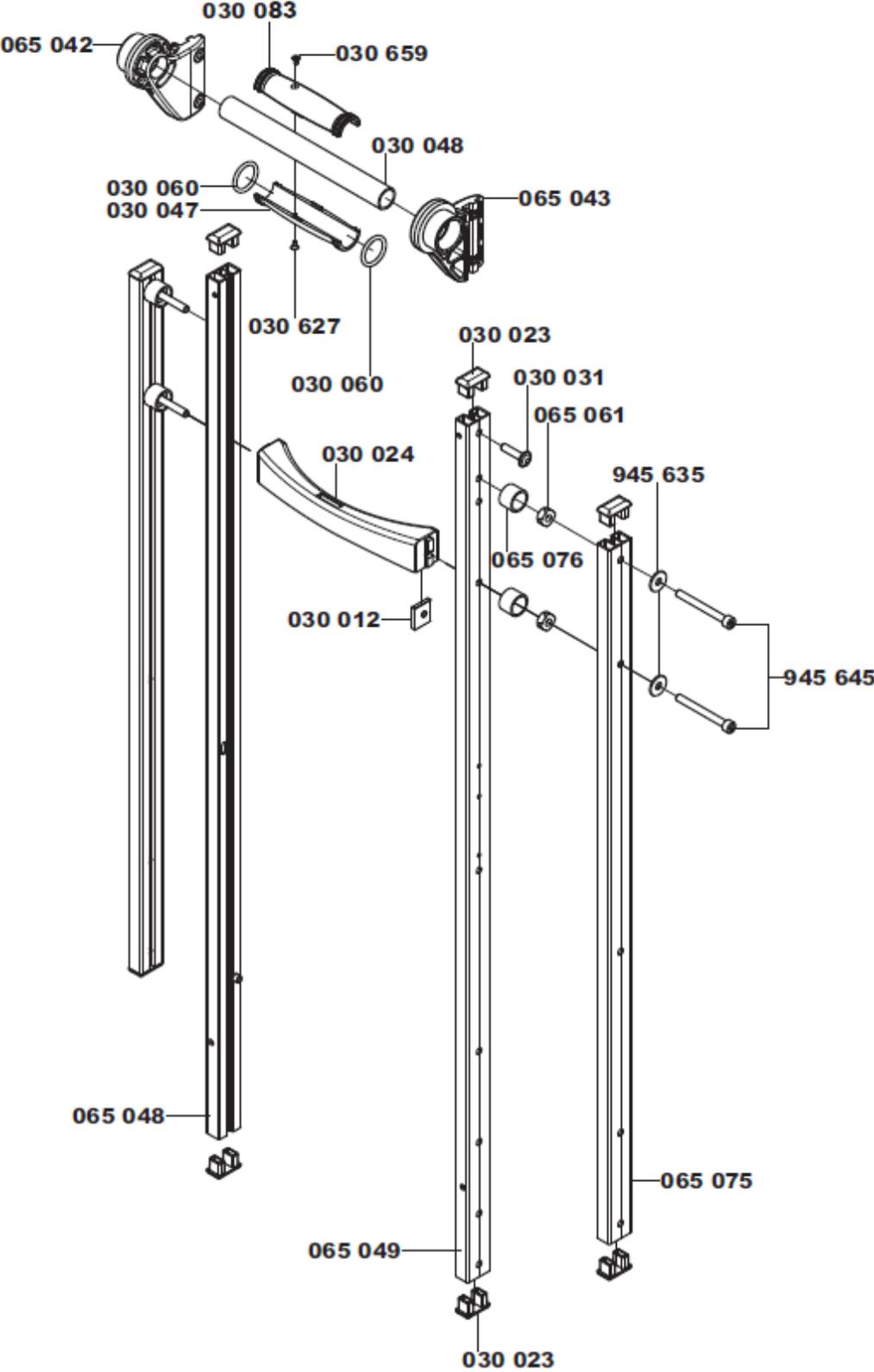
16.5 Frame and Handle – Uni



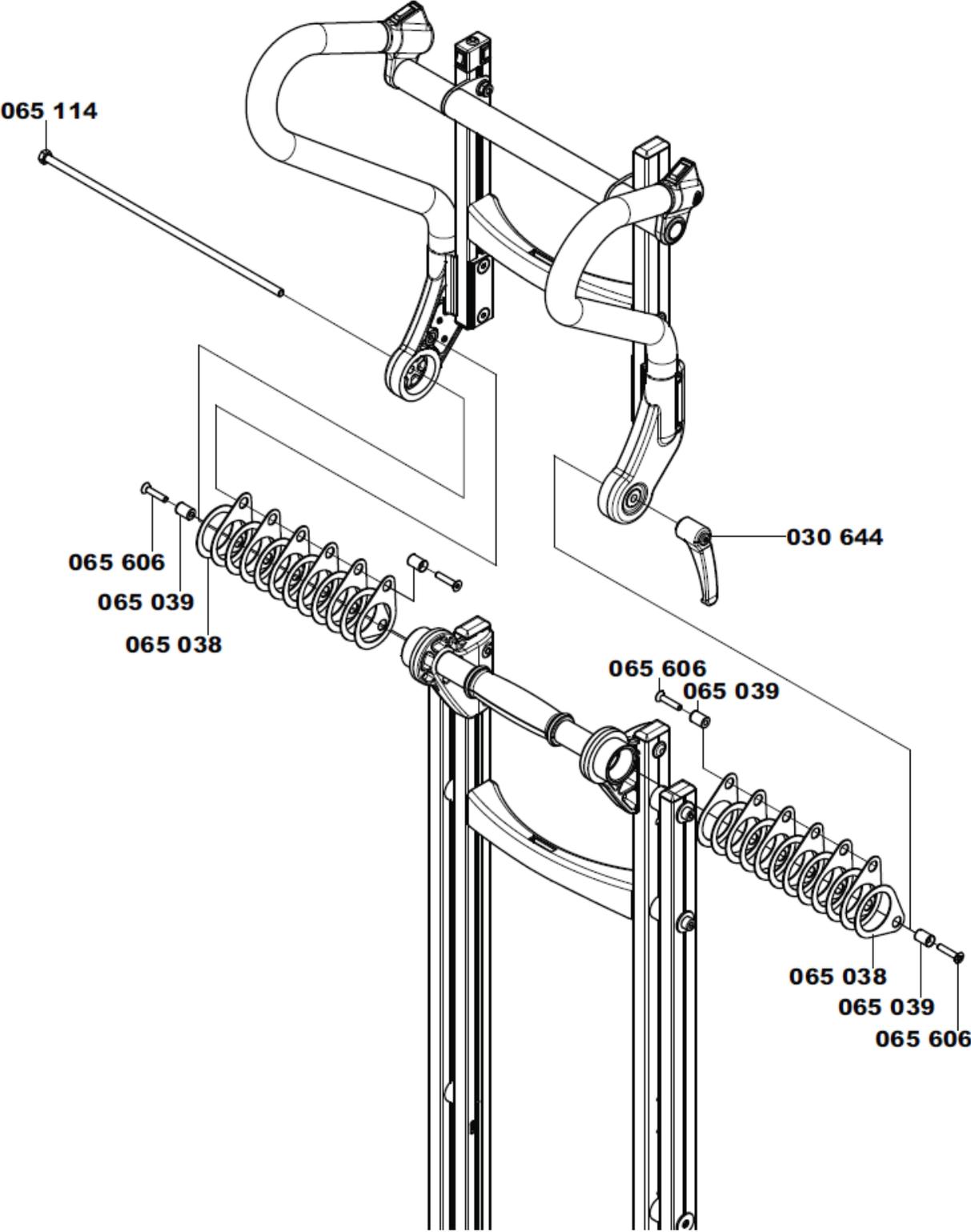
16.6 Folding Handle



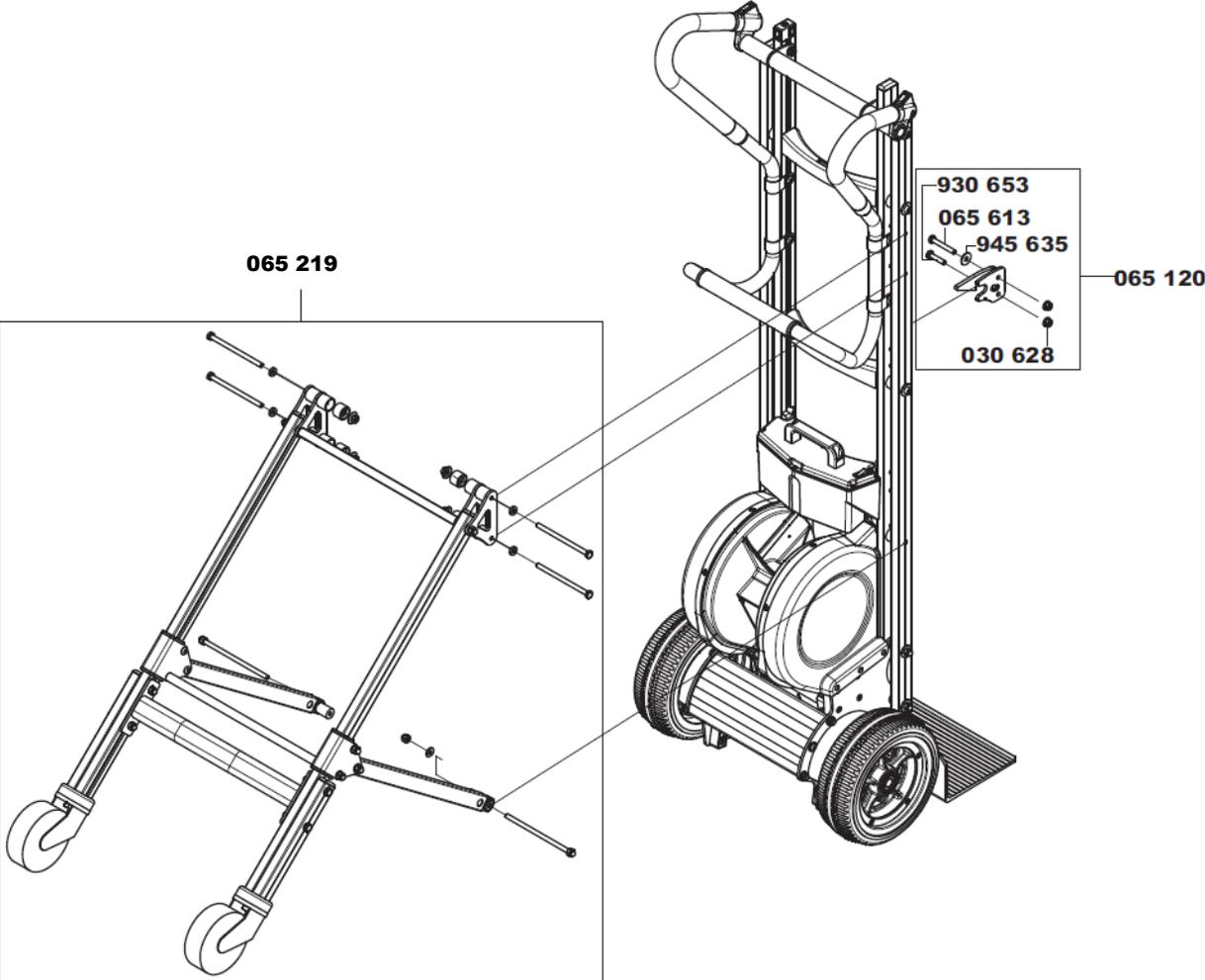
16.6 Folding Frame



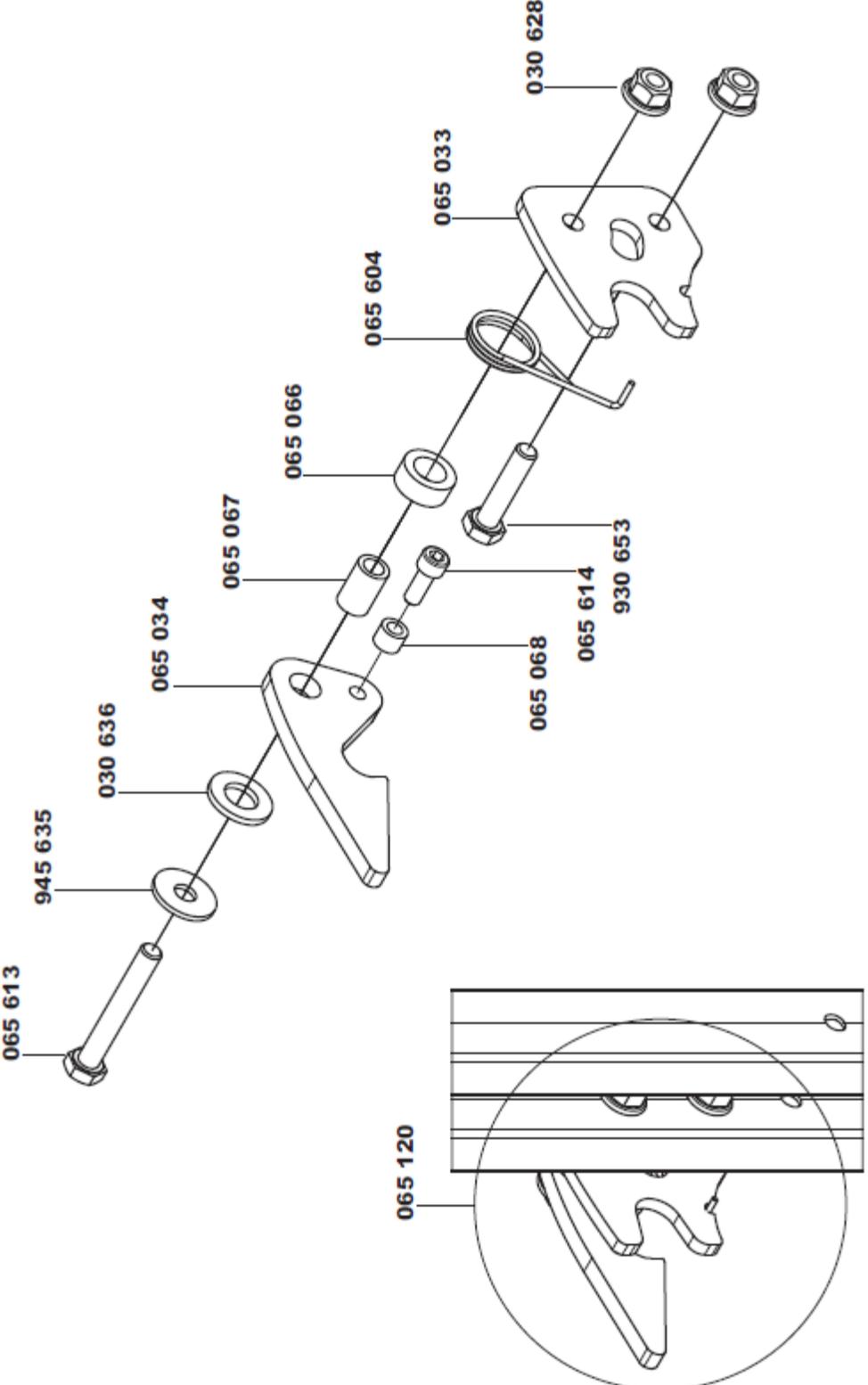
16.7 Folding Frame and Handle



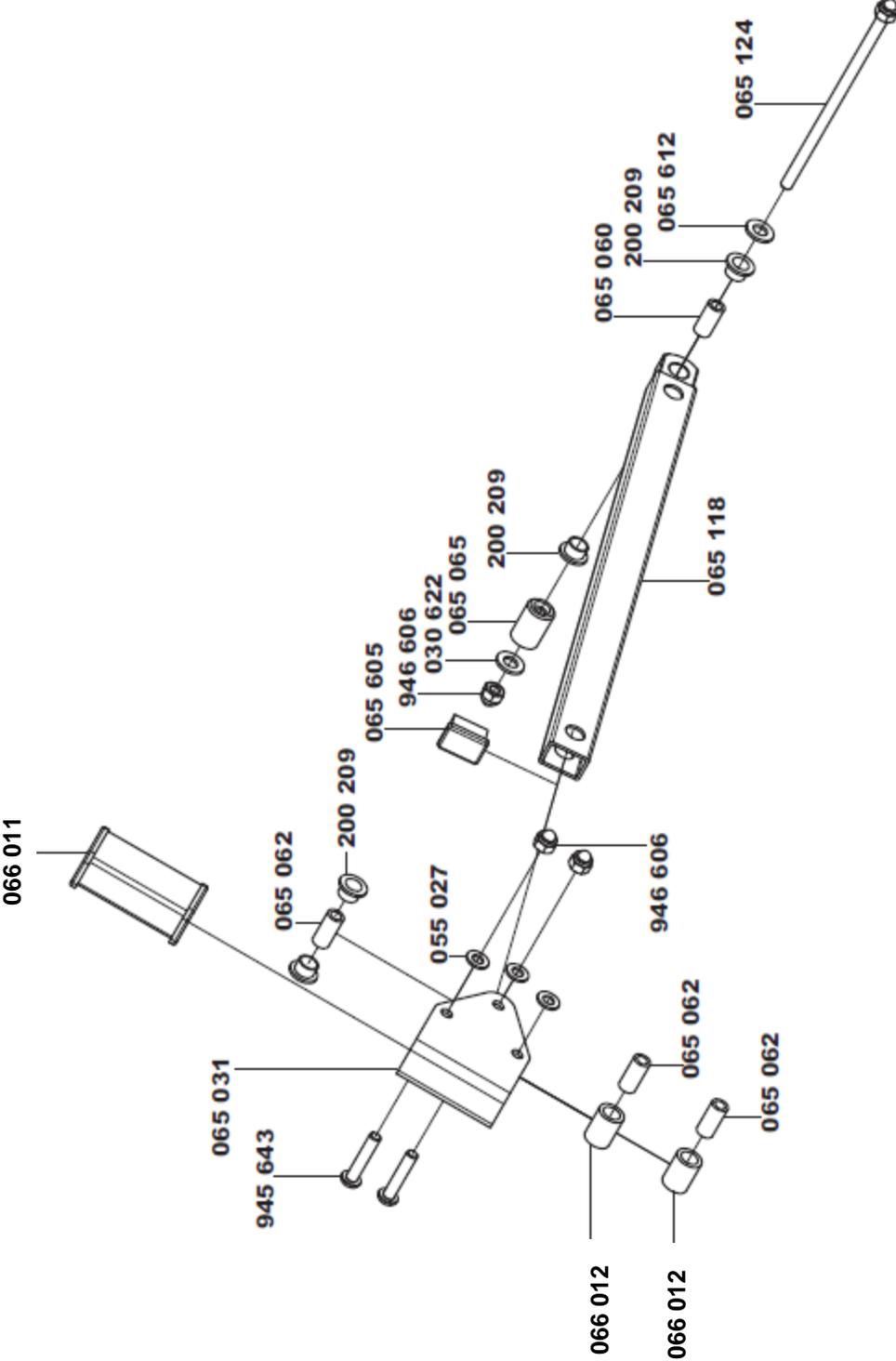
16.8 4th Wheel Attachment Frame



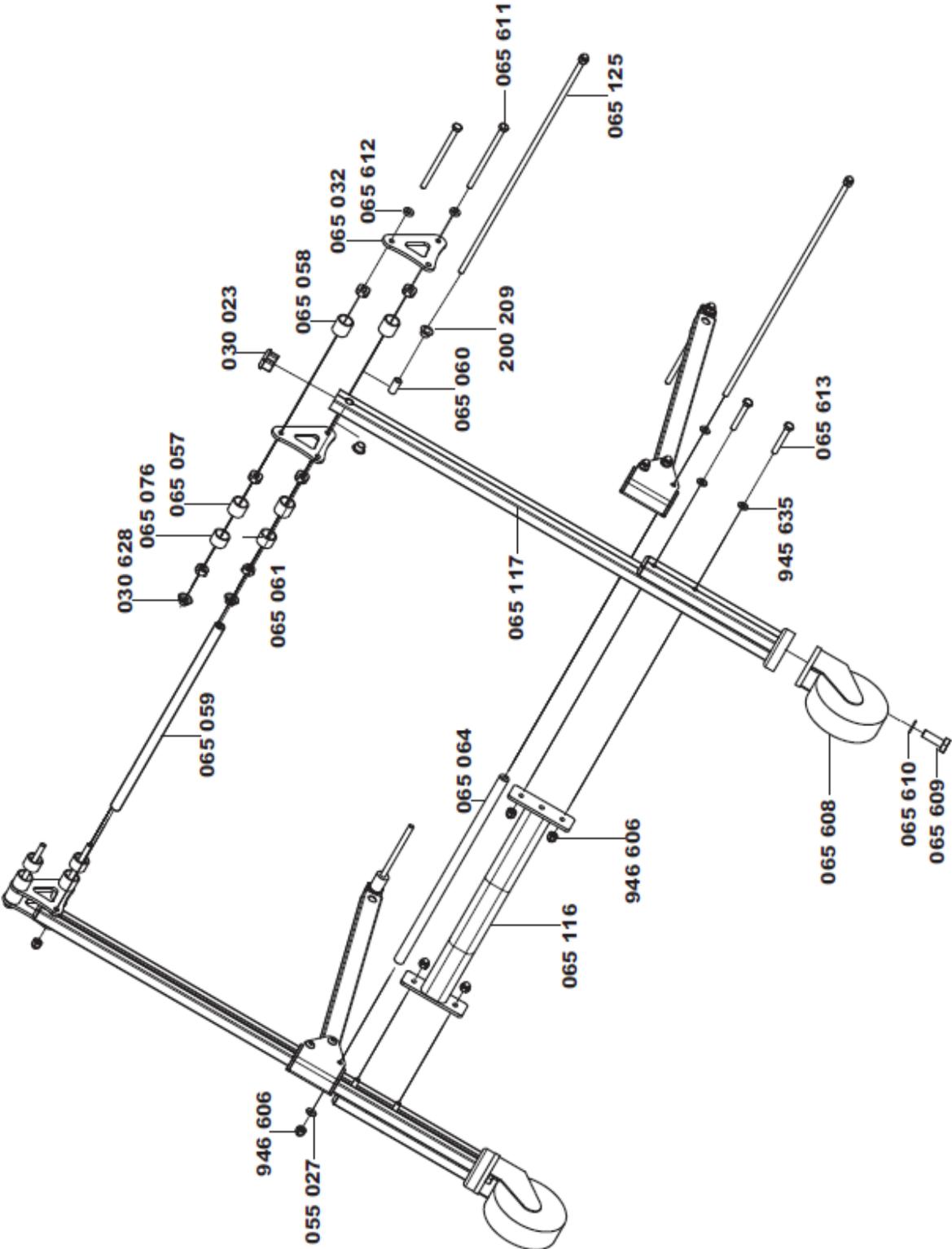
16.9 Fixing Hook (4th Wheel Attachment)



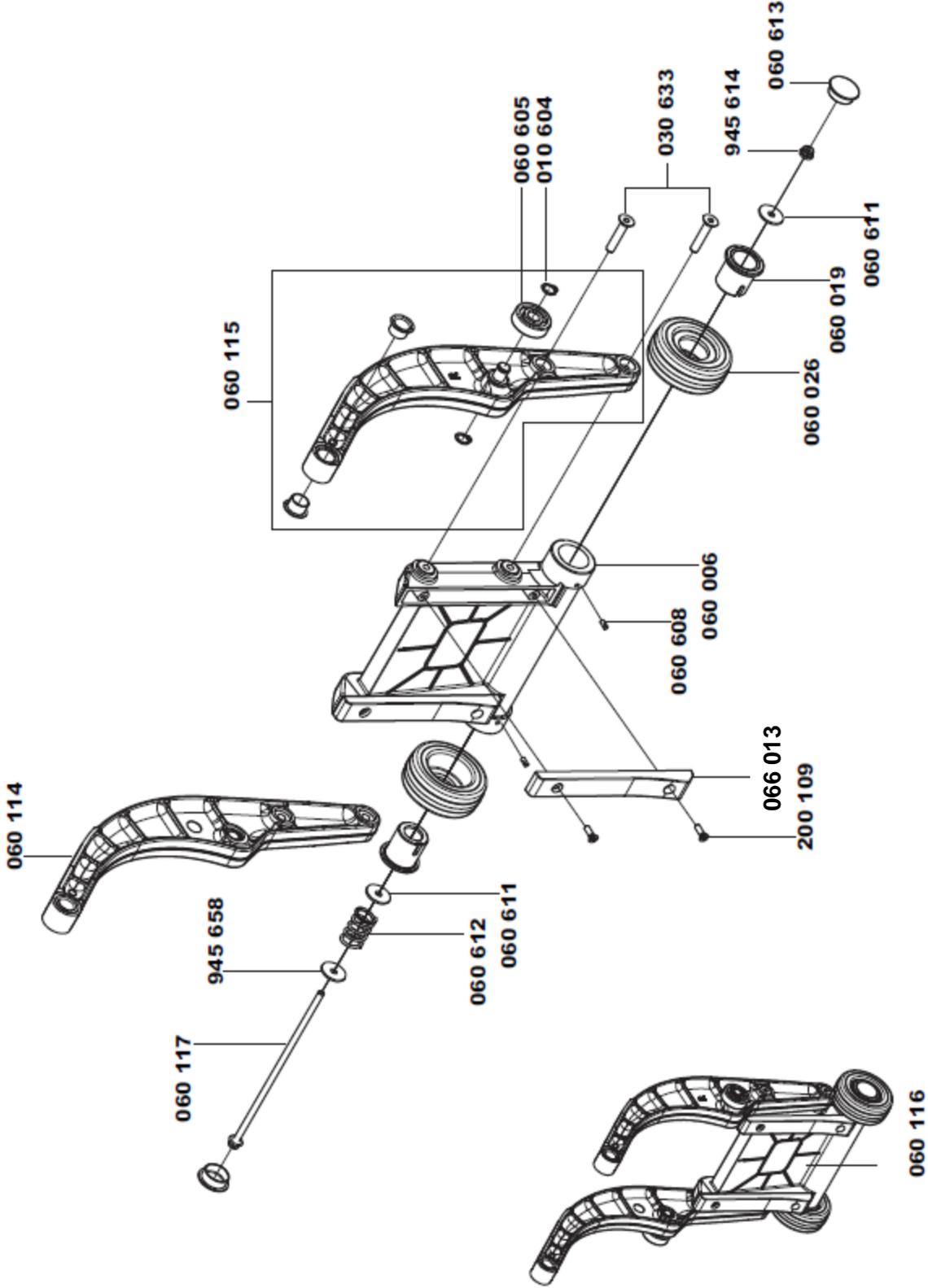
16.10 Support Wheel Lead (4th Wheel Attachment)



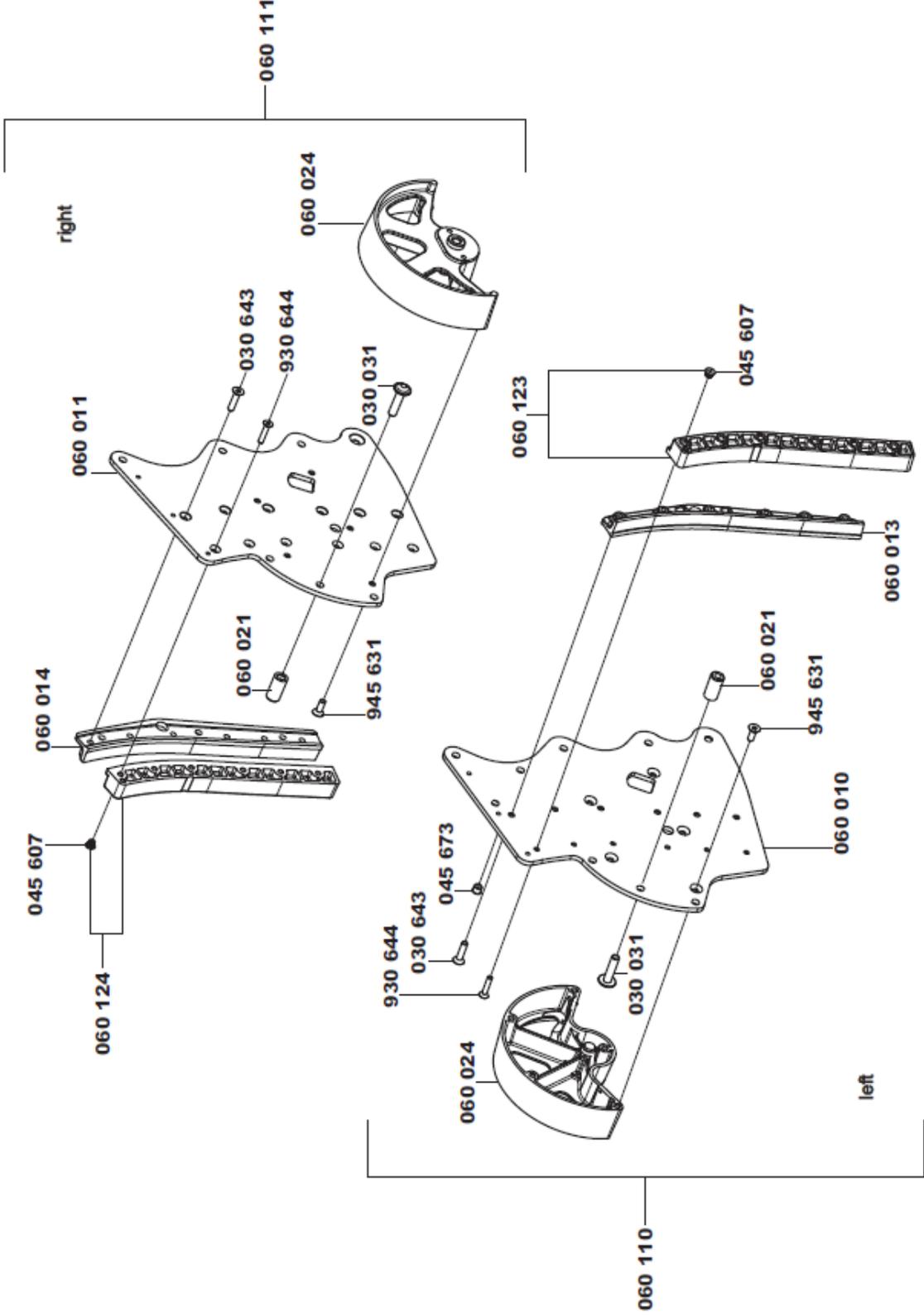
16.11 4th Wheel Attachment



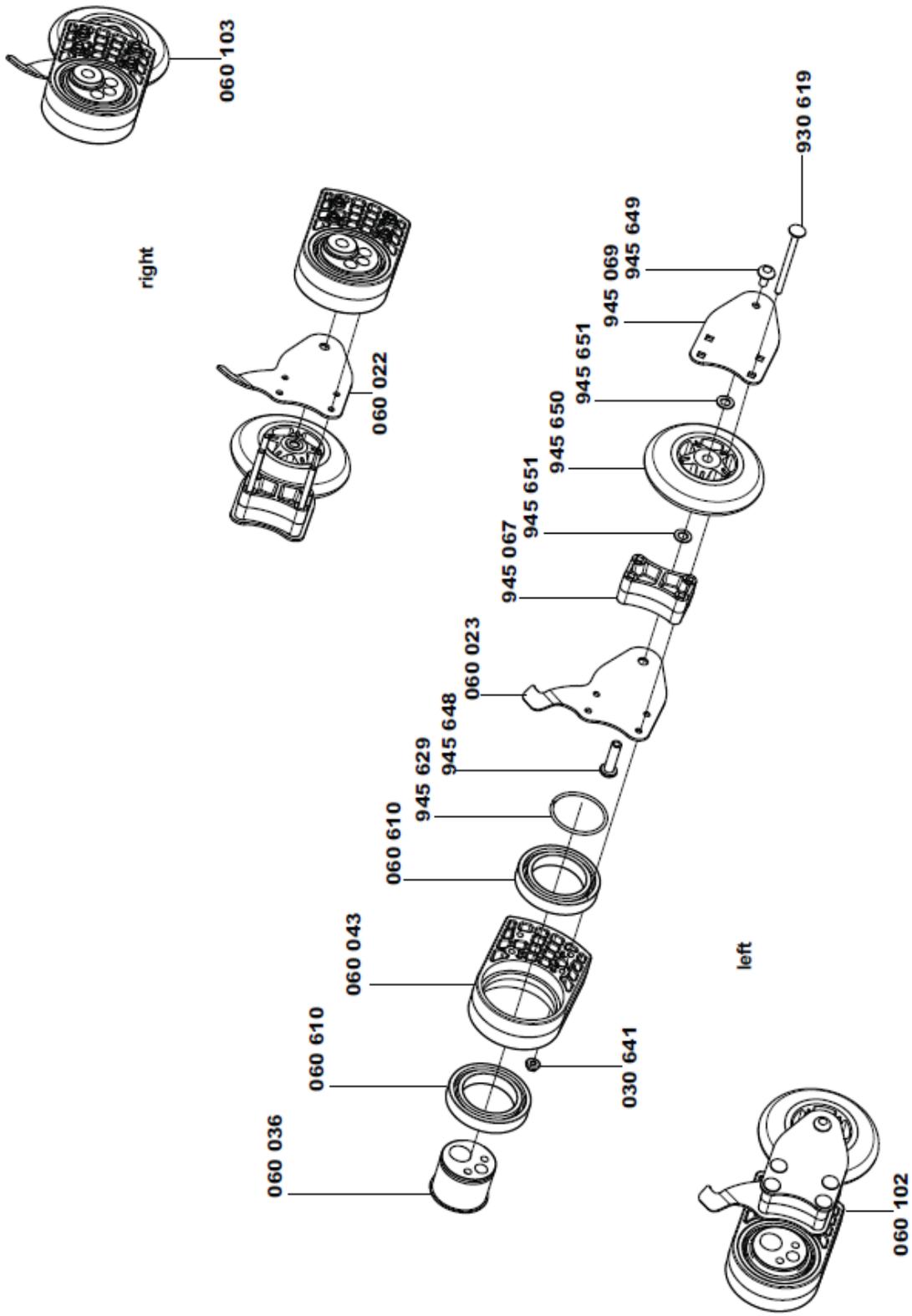
16.12 Lifting Frame (All Models)



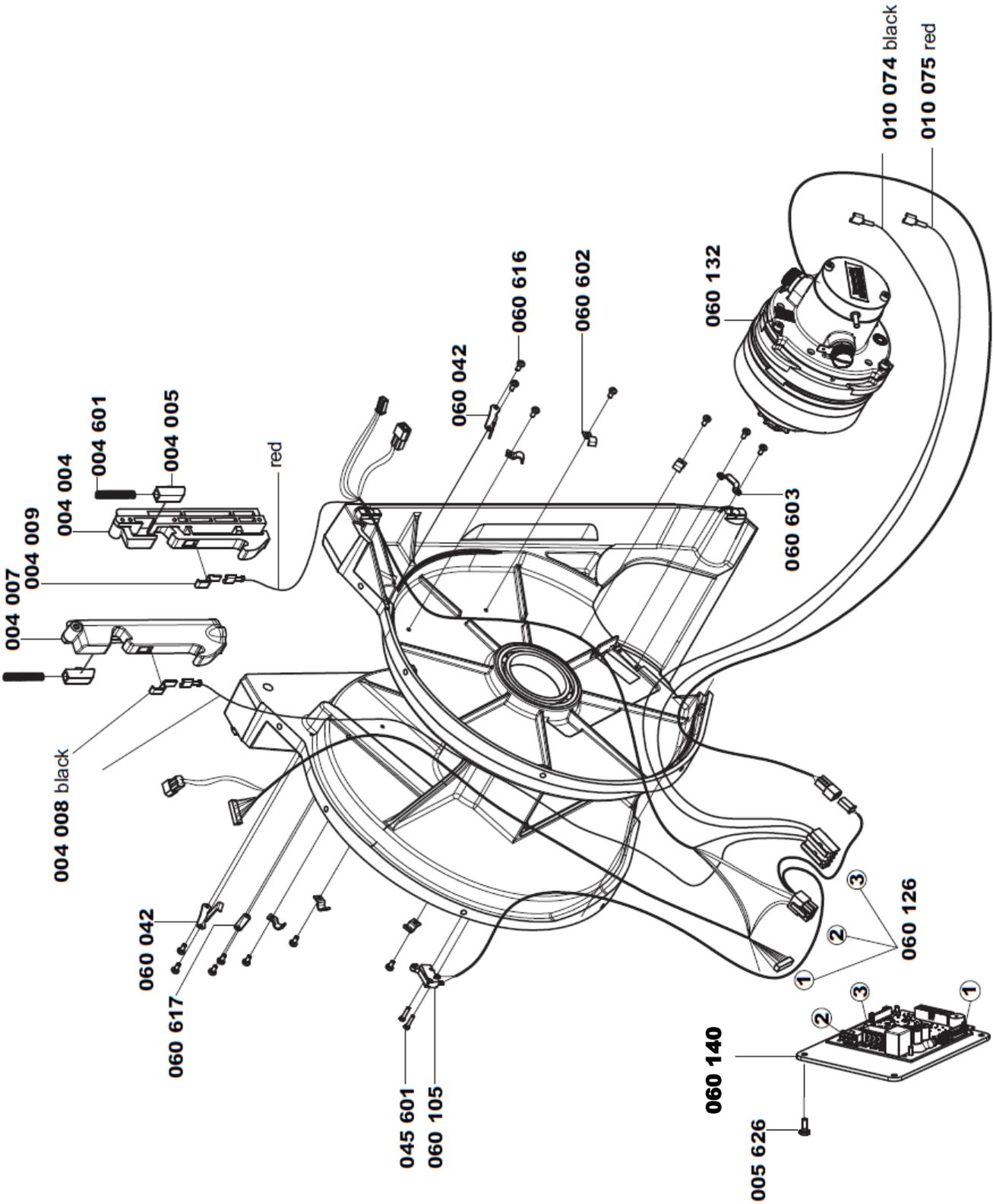
16.13 Wheel Board and Suspension (All Models)



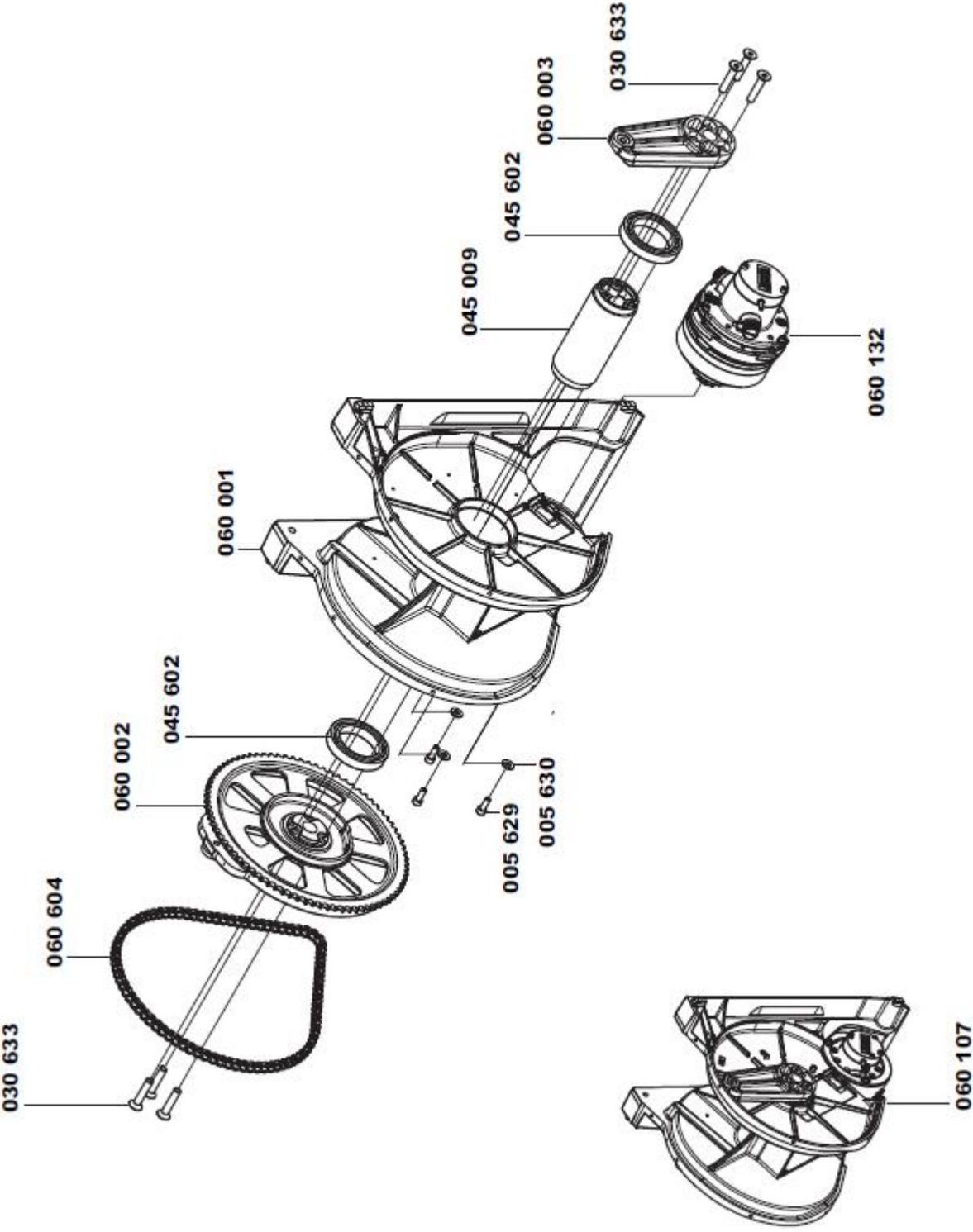
16.14 Edge Brakes (All Models)



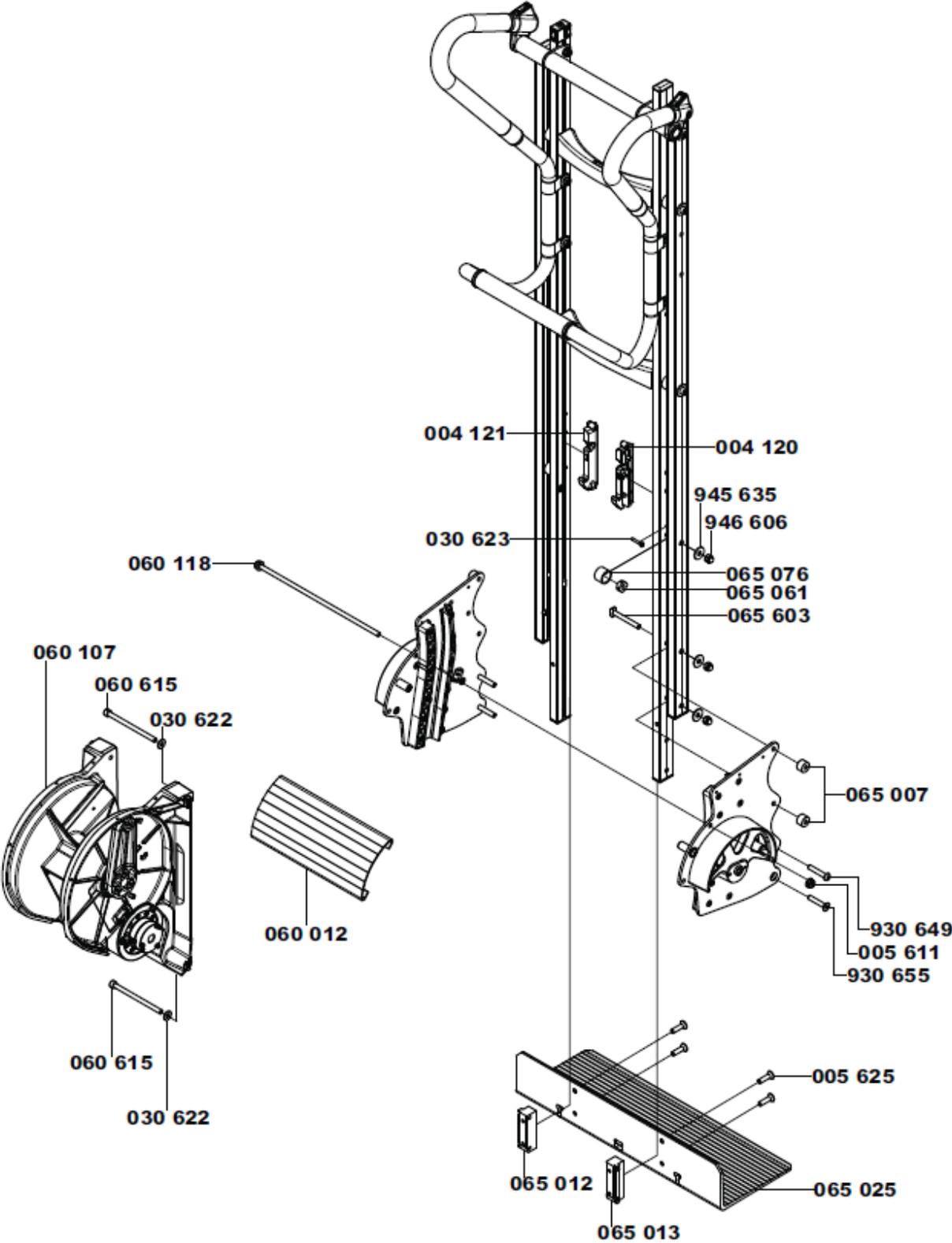
16.15 Motor (All Models)



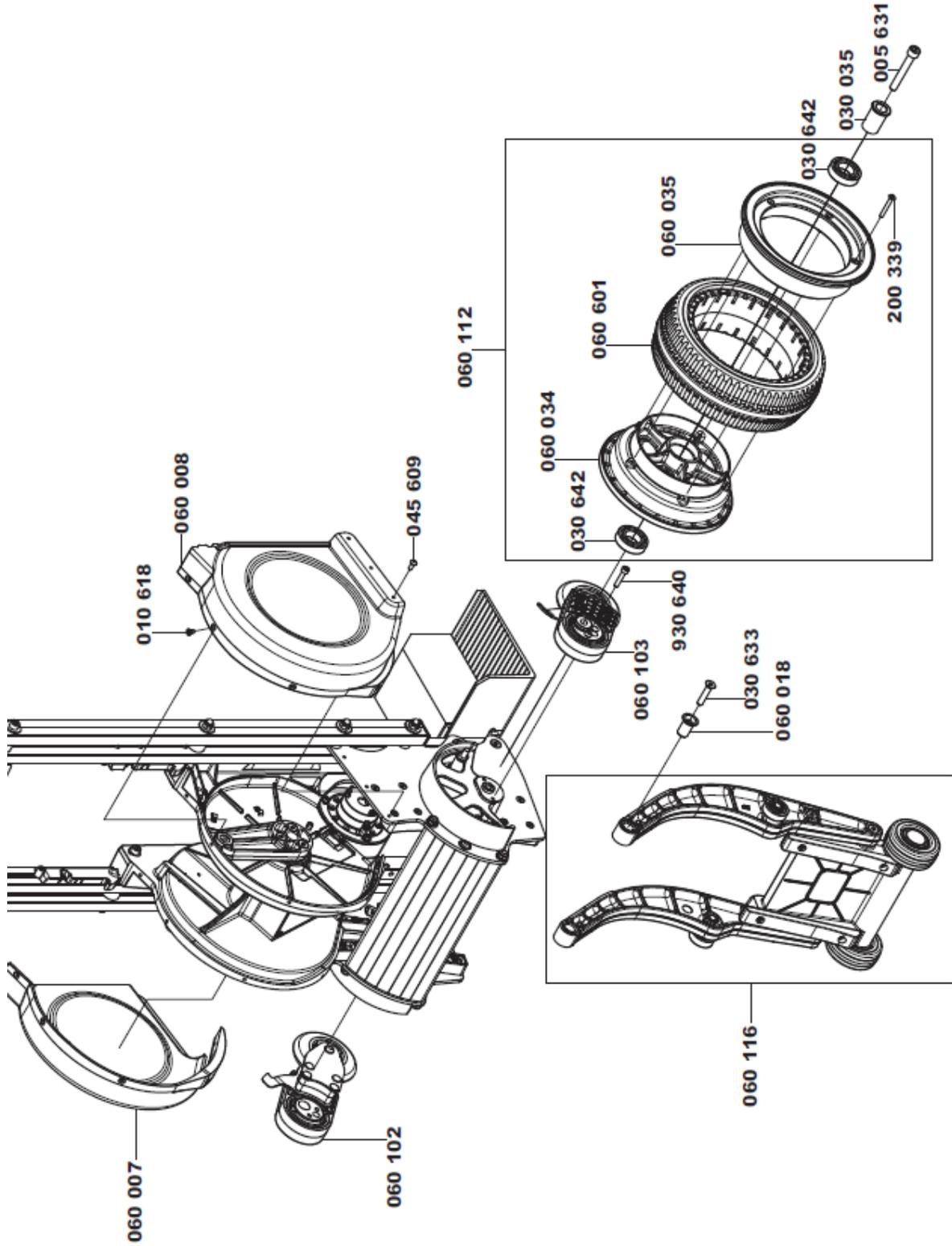
16.16 Crank Casing (All Models)



16.17 Lifting Unit (All Models)



Lifting Unit (cont.) (All Models)



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