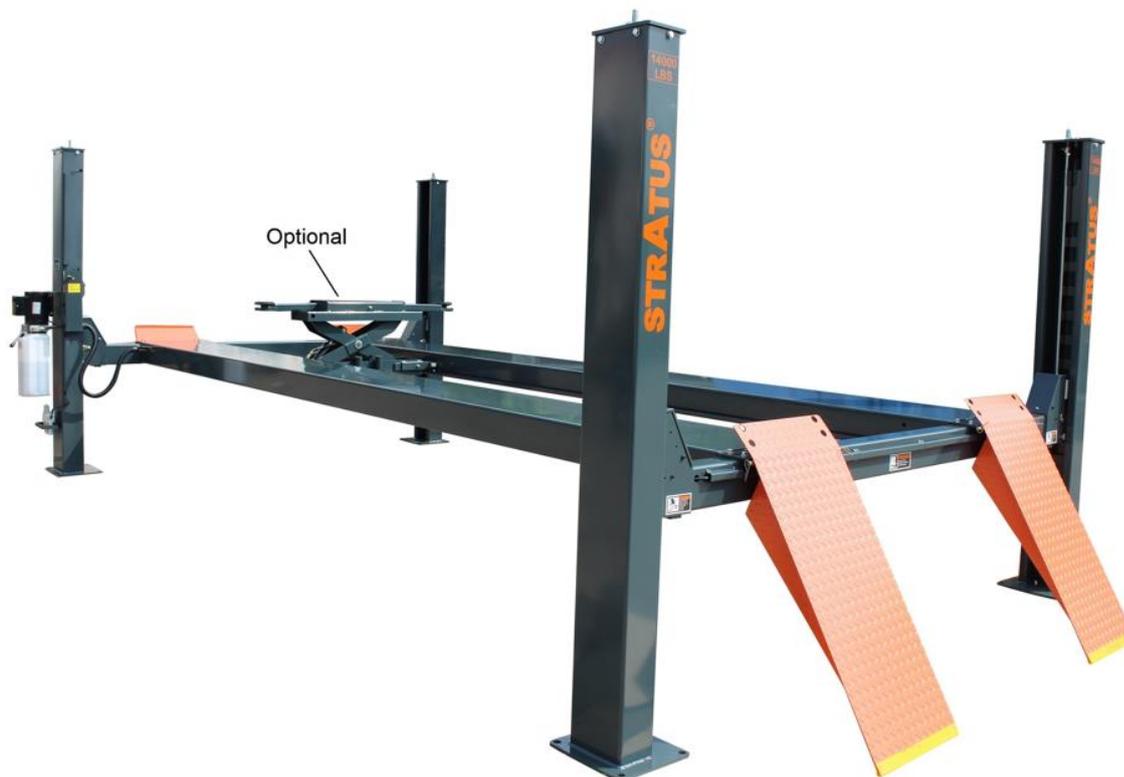


## Model No. SAE-414

**4 post non-alignment Lift**  
**Single Point Pneumatic Release**  
**Lifting Capacity 14,000 lbs**

## Installation & Operation & Maintenance Instructions



### Important Note

1. This equipment can not be installed, operated or repaired without reading instructions.
2. Electricity must be hooked up by certified electrician.
3. Do not use this equipment beyond its rated capacity.

# Special Instructions

▲ Any damage to the equipment caused in the process of shipment shall be claimed by the buyer to the carrier.

▲ Safety has been designed and manufactured with safety in mind. However, proper training and careful operation can also increase safety. Do not operate or repair the equipment without reading the instructions.

▲ Check the requirements of power supply and current state on the motor nameplate, and have a professional qualified electrician connect the power.

▲ To ensure personal safety and avoid electric shock accidents, ensure that all ground points are reliably grounded.

▲ The company does not inform the partial structural improvement of the product. There is no obligation to update previously sold products.

▲ Do not lift more than the rated lifting weight of the equipment (14,000lbs) load.

▲ Read the warning signs on your device carefully.

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# 1. Main Features

- Inspection, maintenance, alignment function, beautiful appearance.
- Hydraulic cylinder drive, steel cable drive, quiet working environment.
- Pneumatic mechanical safety lock, can be arbitrarily at the top of the required height for operation, safe and reliable.
- The levelness of the deck in the lock position can be adjusted to meet the needs of accurate alignment.

# 2. Specifications

1. Lifting capacity:	14,000lbs (6,500kg)
2. Lifting height:	75 3/8" (1915mm)
3. Min. height:	9 1/2" (241mm)
4. Overall height:	91 1/2" (2324mm)
5. Overall width:	144 9/16" (3672mm)
6. Platform length:	227 3/16" (5770mm)
7. Overall length:	237 3/8" (6030mm)
8. Lifting time:	≤50s
9. Lowering time:	≥35s
10. Noise level:	<85 dB(A)/1m
11. Working temperature:	41°F - 104°F
12. Voltage:	220V/60Hz/1PH
13. Power:	3.0KW /4HP
14. Breaker:	32A

# 3. Overall Size

Reference Fig.1

# 4. Step of Installation

Step 1: Choose the venue

Before installing a new lift, note the following:

- 1). The position of the lift should be in accordance with the requirements of the design and plan of the whole field, and enough space should be considered as far as possible.
- 2). According to the size of the foundation drawing in FIG. 1, determine the installation position and draw the line.

3). Ensure that the ground is free of any defects and that the base concrete strength reaches 3000psi (2.1kg/mm<sup>2</sup>)

4). Unpack and inspect for missing parts and damage in transit. According to the packing List.

Step 2: Install the column and cross beam (Z-1,Z-2), install the safety plate and slider. Z - (Z - 3-1, 3-2).

Step 3: install cross beam and runway, steel cable, wheel stop plate and guard. (Z - 3).

Step 4: Install power unit, hydraulic hose and pneumatic parts (Z-4).

Step 5: Install the ramps and rubber brake pad. (Z - 5).

Step 6: According to the requirements on the motor nameplate, connect the power supply and add hydraulic oil.

Step 7: point up, pay attention to observe whether the position of the wire rope is correct. The electromagnet unlocks the safety down the runway to the lowest point and adjusts the tension of the wire rope so that the four roots are consistent. According to the requirements on the motor nameplate, connect the power supply and add hydraulic oil.

Step 8: Fixed safety tablet (ZPT-3-1).

Step 9: Adjust the position between column components and beam. Limit block is required to be close to the column. Adjust the vertical of the column to the ground plane with iron inserts. Drill anchor bolt holes and tighten bolts.

Step 10: Adjust the level of the runway. Lift a certain height to lock. Measure the levelness. If necessary, adjust the nut to the required position and lock it.

Step 11: Label and organize everything.

## 5. Equipment Operation

☞ Fill the power unit tank with pressure oil (hydraulic oil grade: N32 or N46).

☞ Move the lift start button to lift the runway frame and remove the support frame. Pay special attention to the first move to observe whether the rope is pulling

Inside the wheel, position it correctly.

☞ Press the down button to make the lift in the locking state, and observe whether the locking block can effectively enter the square hole of the lifting strip.

☞ Lower the runway to the lowest position and adjust the nuts on the four steel ropes so that the tension is the same.

☞ No-load test up and down twice to check whether each part works normally. Runway lock reliability check, repeat several times to remount the car to check whether the hydraulic system

works normally.

## **Special Attention**

▲ Vehicles parked on the runway brake and use wedges.

▲ When lifting or lowering the vehicle, keep people and objects close to the lift.

▲ Before maintenance workers enter the work area, check that the runway is properly locked on the column lifting strip.

▲ The four columns should be vertical to the ground plane after installation, otherwise there will be danger in use!

▲ Before descending operation, it is necessary to move up a little to make the lock block leave the square hole of the lifting bar before descending. Otherwise it will cause damage to the control mechanism.

# **6. Maintenance and Inspection**

## **Daily maintenance and inspection**

1. Check the working position of the safety lock during operation.
2. Check the unlocking and padlock of safety lock and column safety plate.
3. Check whether the hydraulic joint, gas pipe joint and hose leak.
4. Check the connection of the wire rope -- whether it is bent, broken or loose.
5. Check the wear and tear of the wire rope during lifting and lowering.
6. Check all spring connections and be sure to connect reliably.
7. Check the connection of all bolts, nuts and screws -- tighten them immediately if they are loose
8. Check whether the wires and switches are damaged.
9. Check foundation strength around expansion bolts.
10. After the lift is put into use, lubricate the cable wheel shaft with an oil finger gun at least once a year or regularly

## **Weekly Maintenance and Inspection**

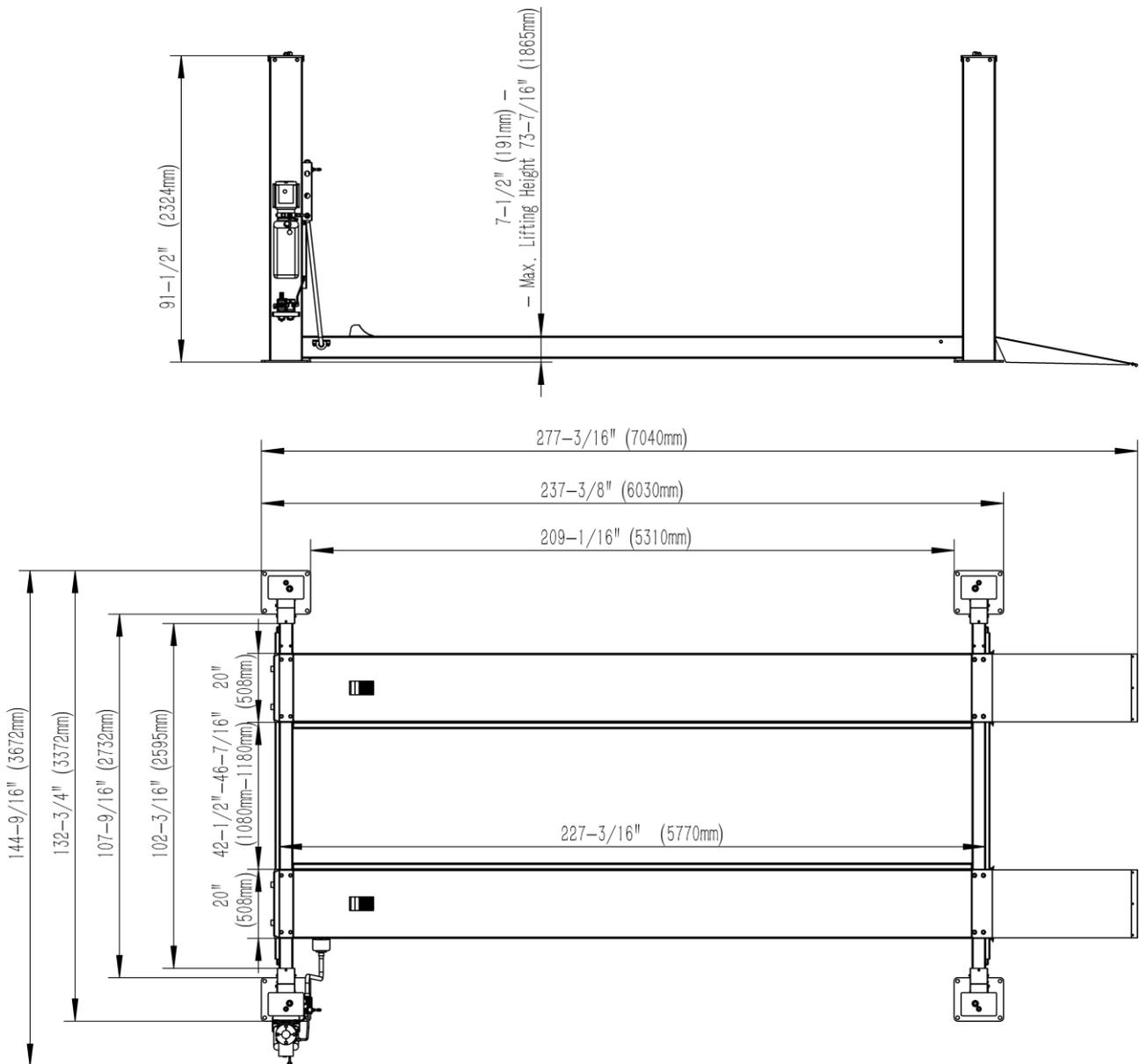
1. Check the strength and connection of the expansion bolt. Tighten the expansion bolt immediately if it is loose.
2. Check the foundation strength around the expansion bolt.
3. Check the hydraulic oil level.
4. Check and tighten loose bolts, nuts, and screws.
5. Check the fit of all gear and gear shaft.

## Monthly Maintenance and Inspection

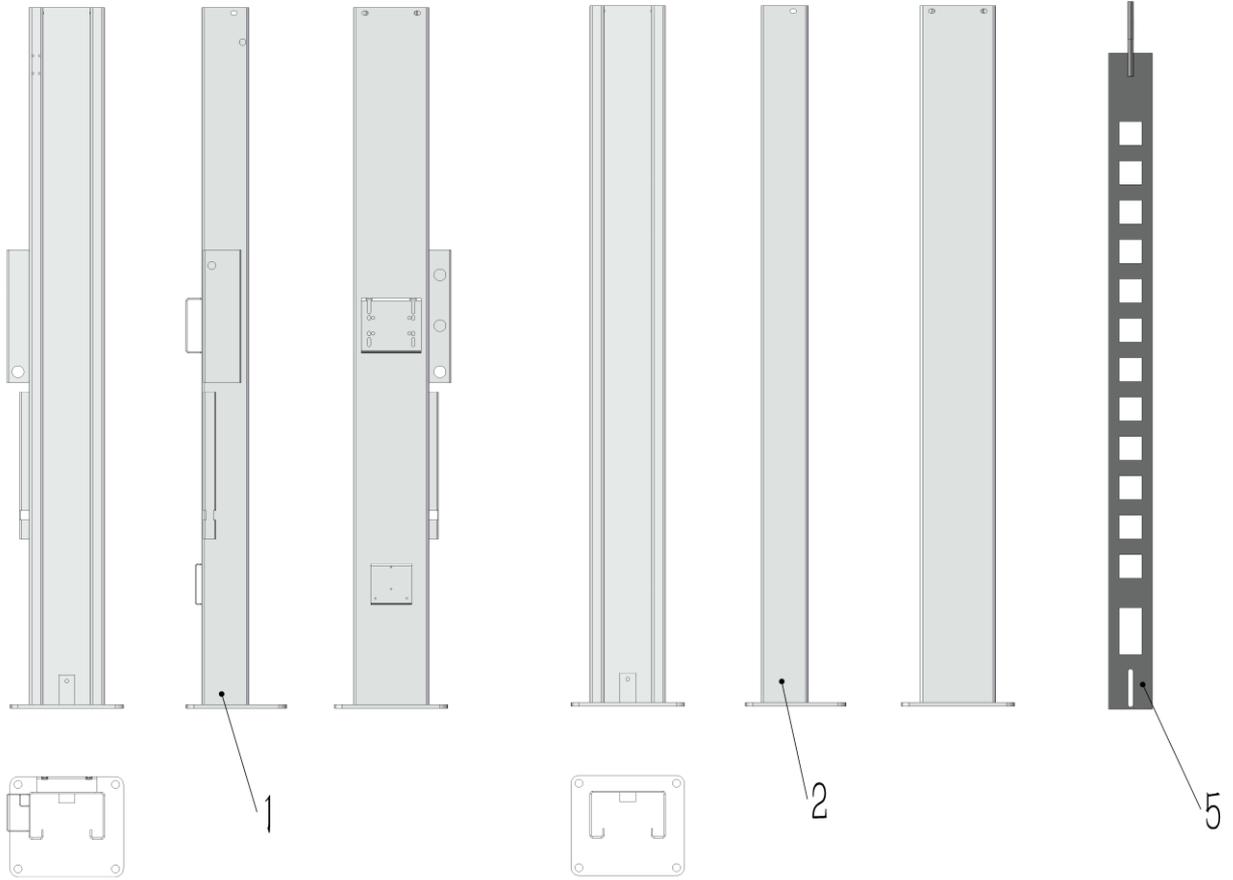
- 1). Lubricate cable wheel and cable wheel shaft.
- 2). Check the wear of the wire rope. If the wear is serious, replace it immediately.
- 3). Replace the hydraulic oil.

## 7. Parts Diagram and List.

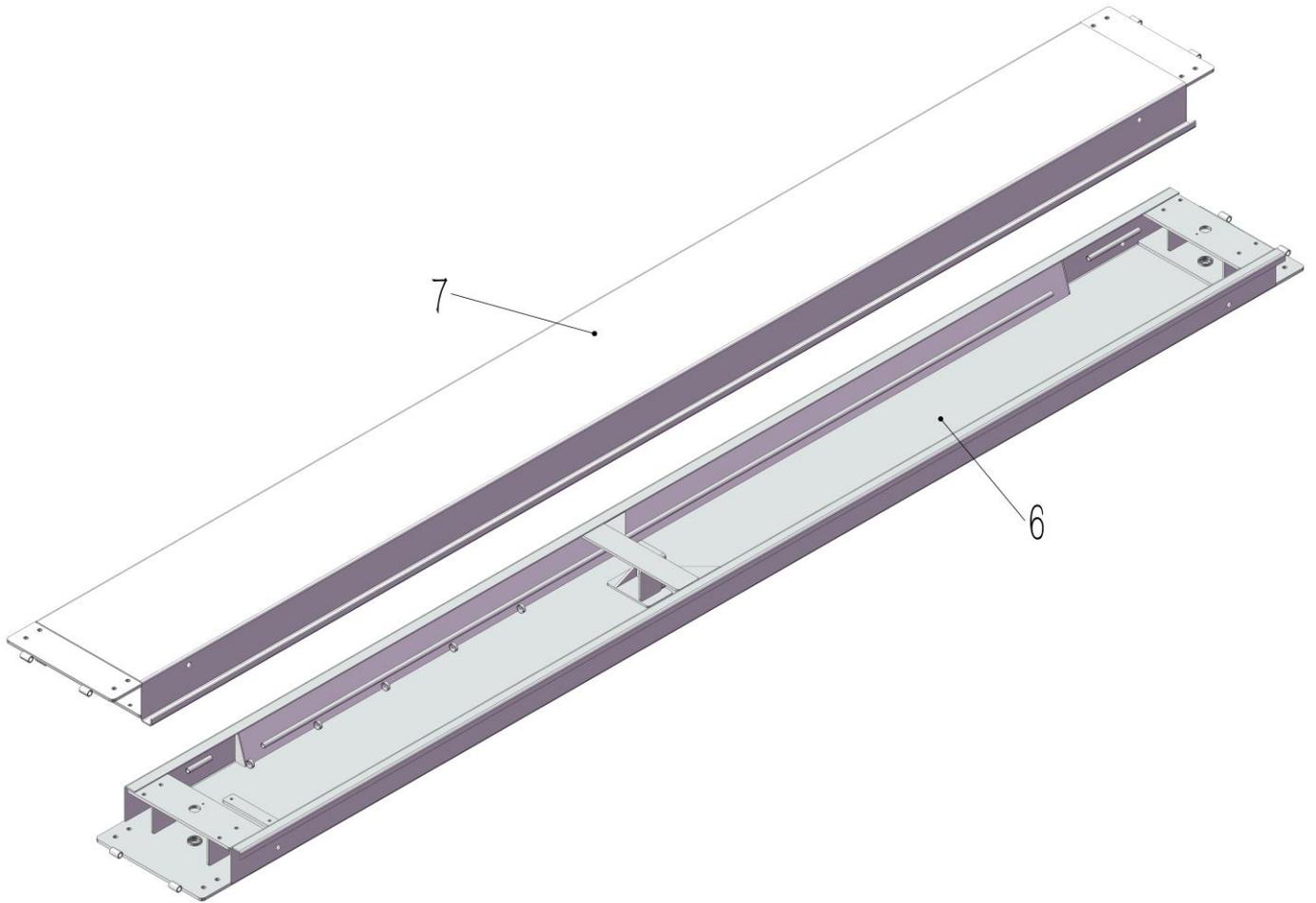
FIG. 1



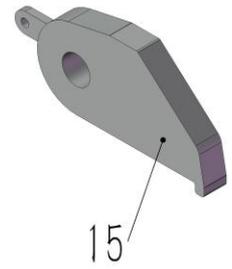
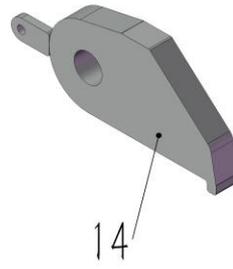
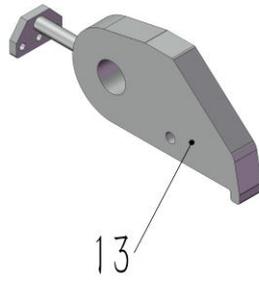
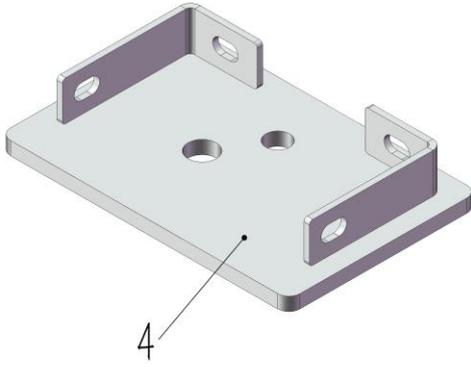
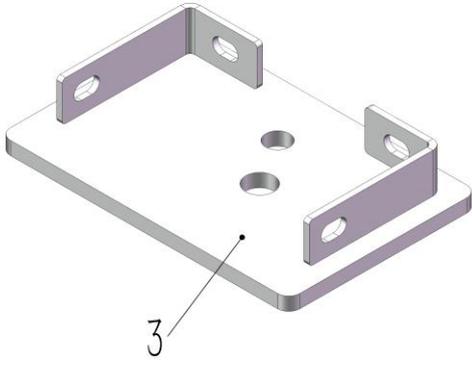
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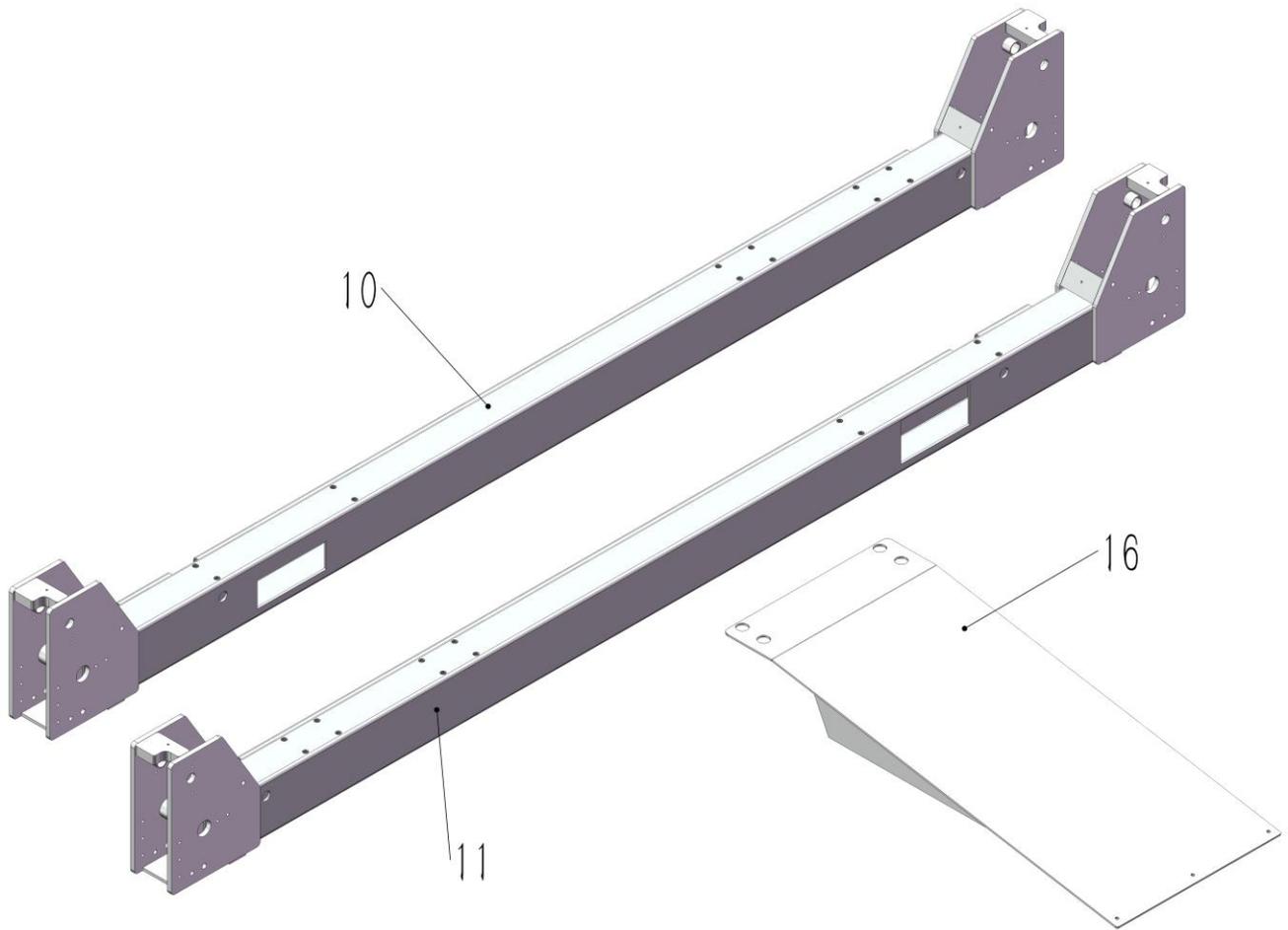
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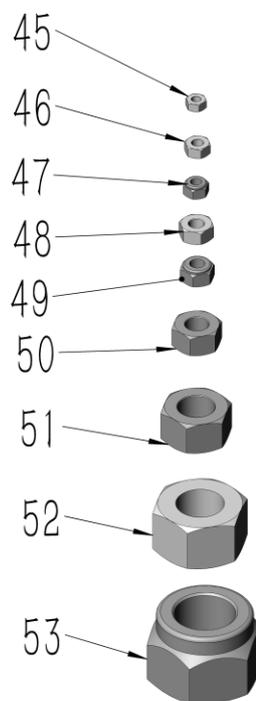
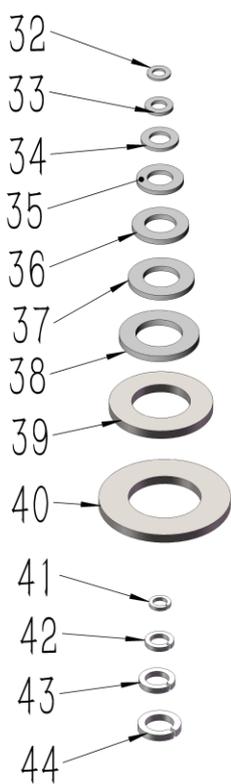
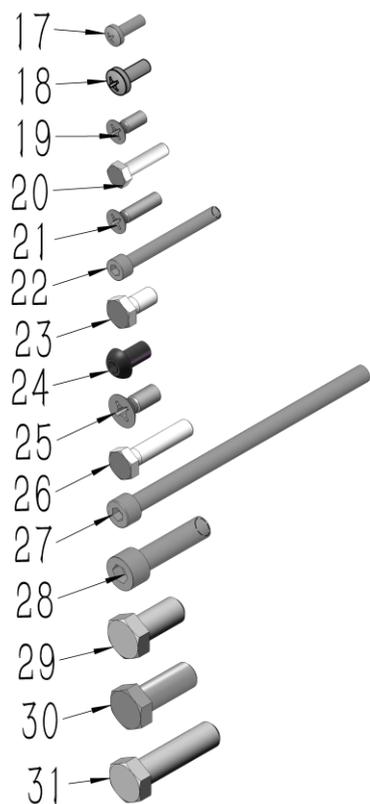


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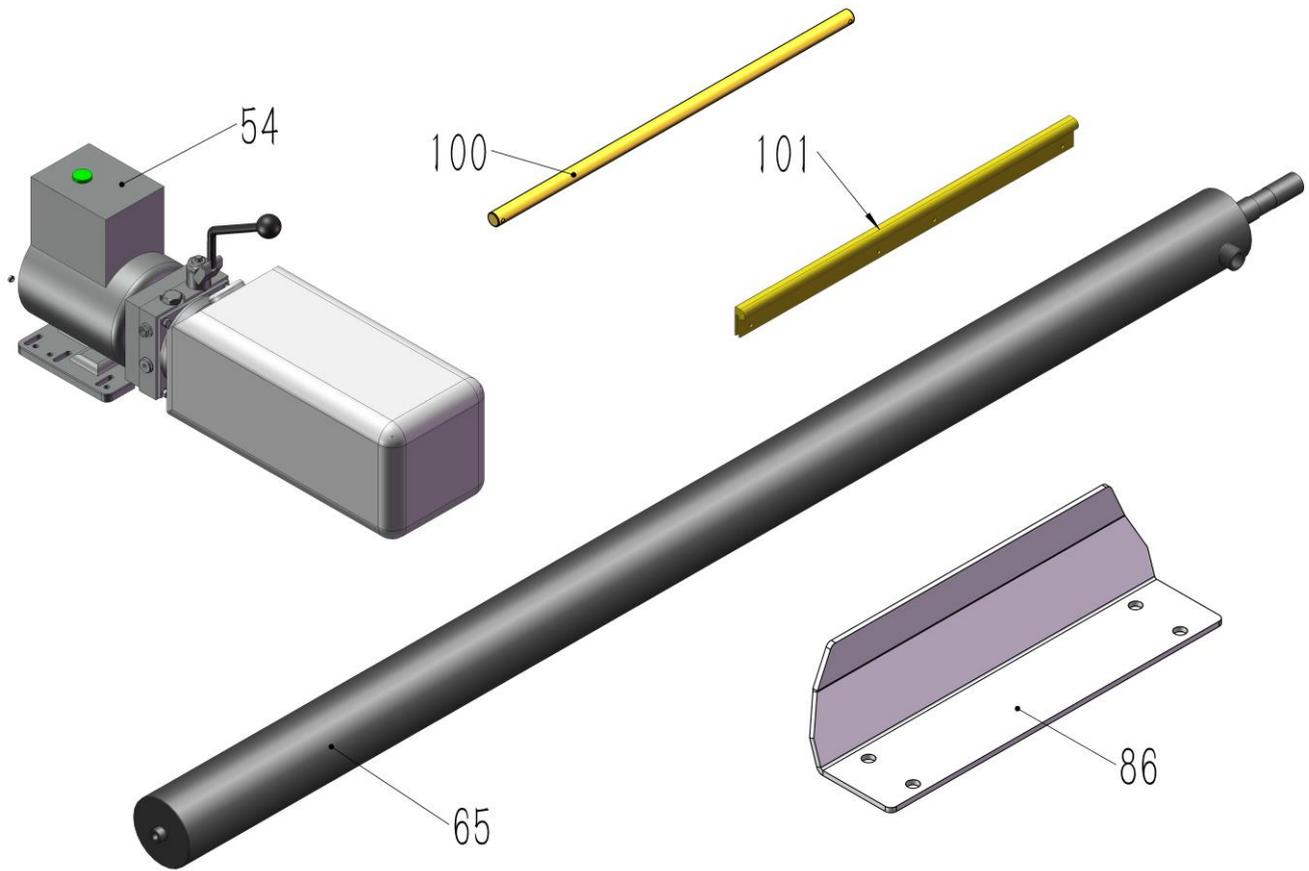


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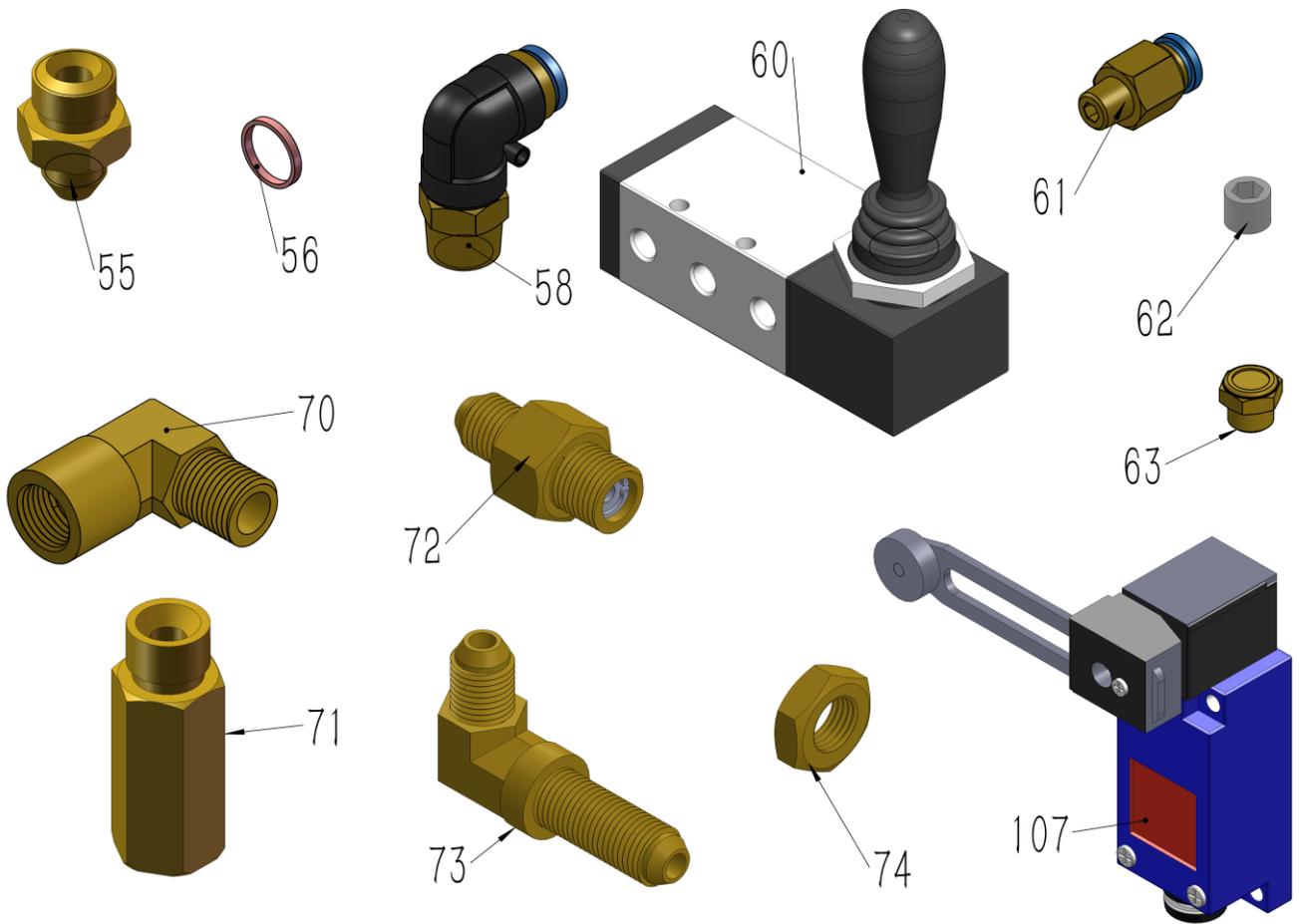
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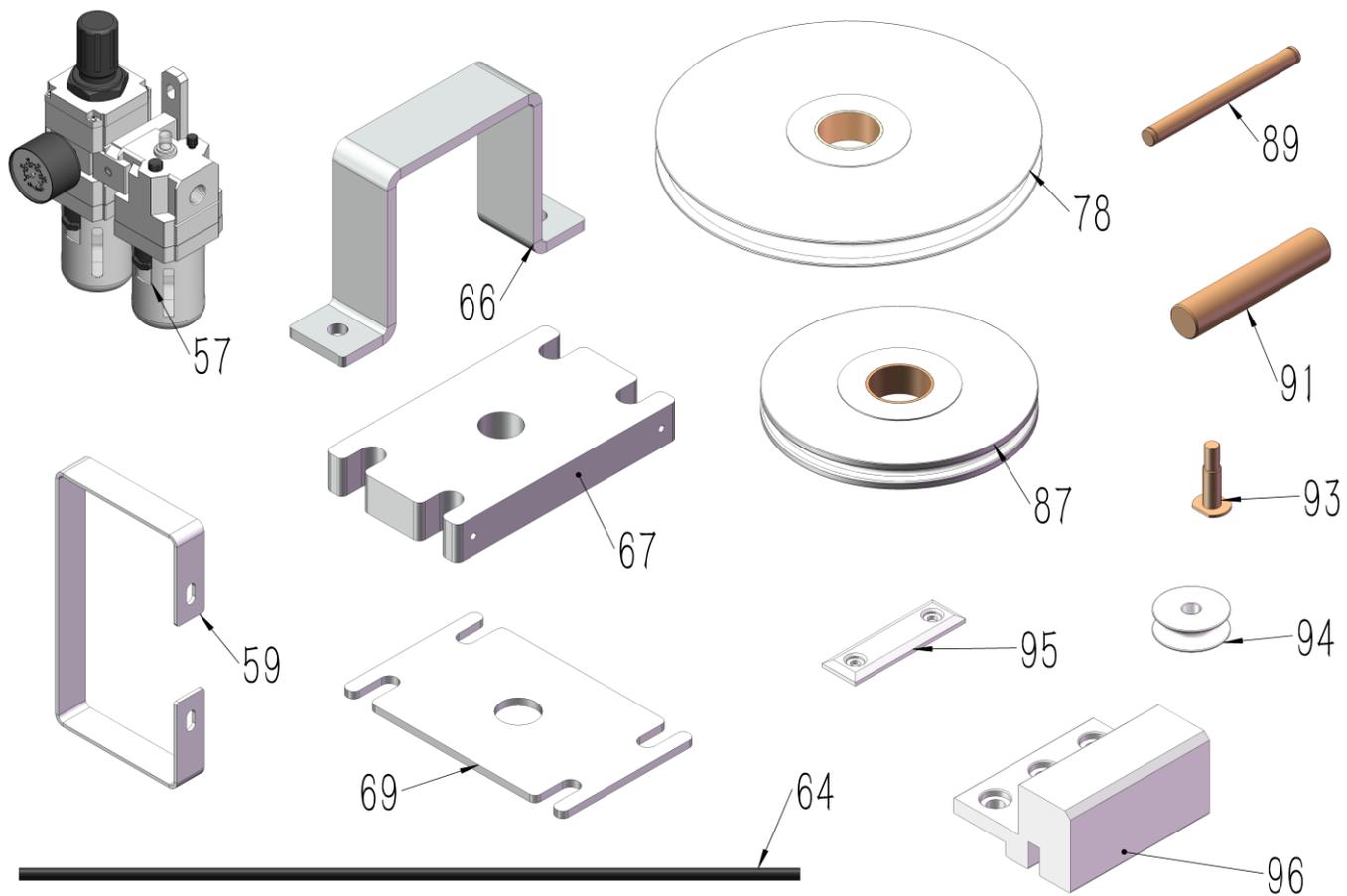
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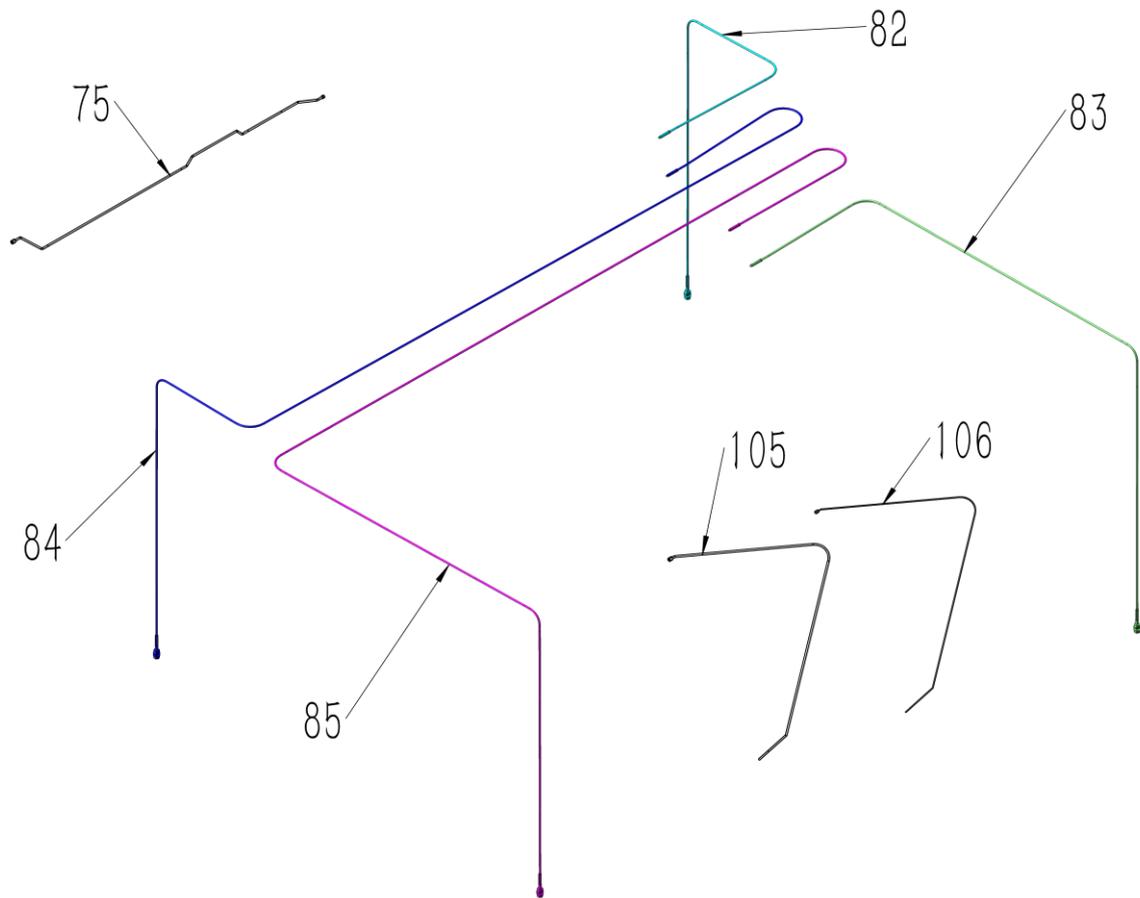
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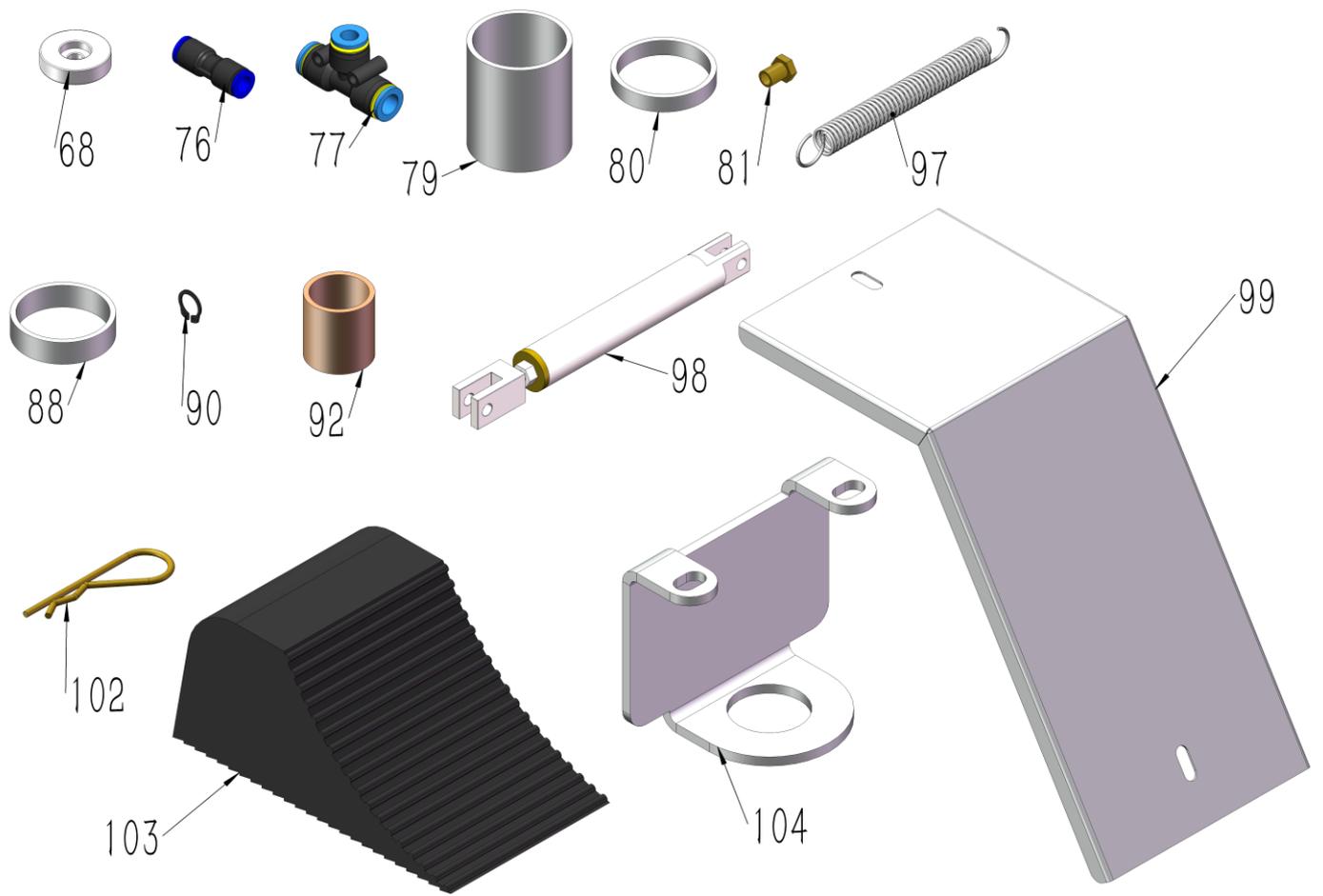
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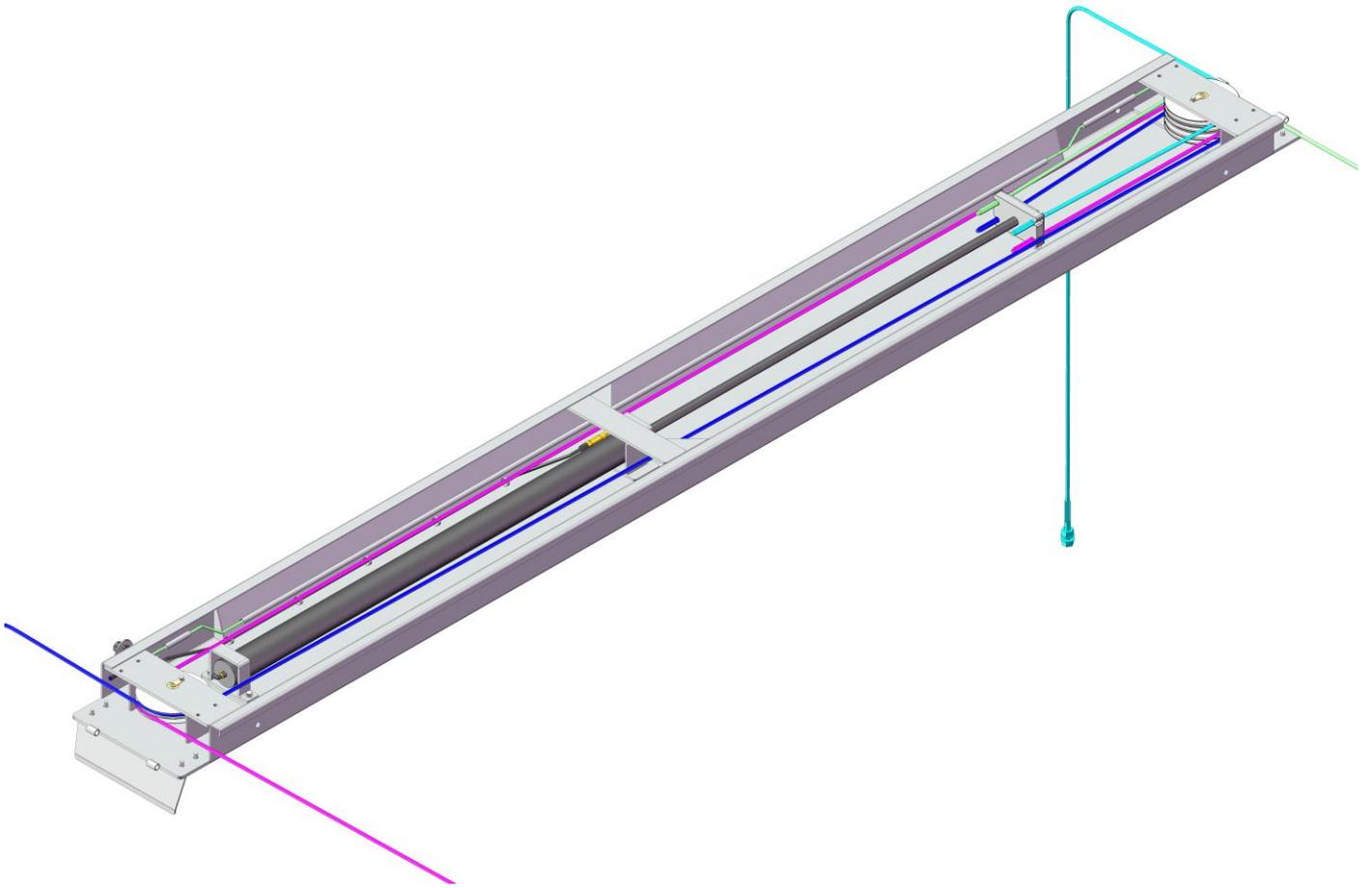
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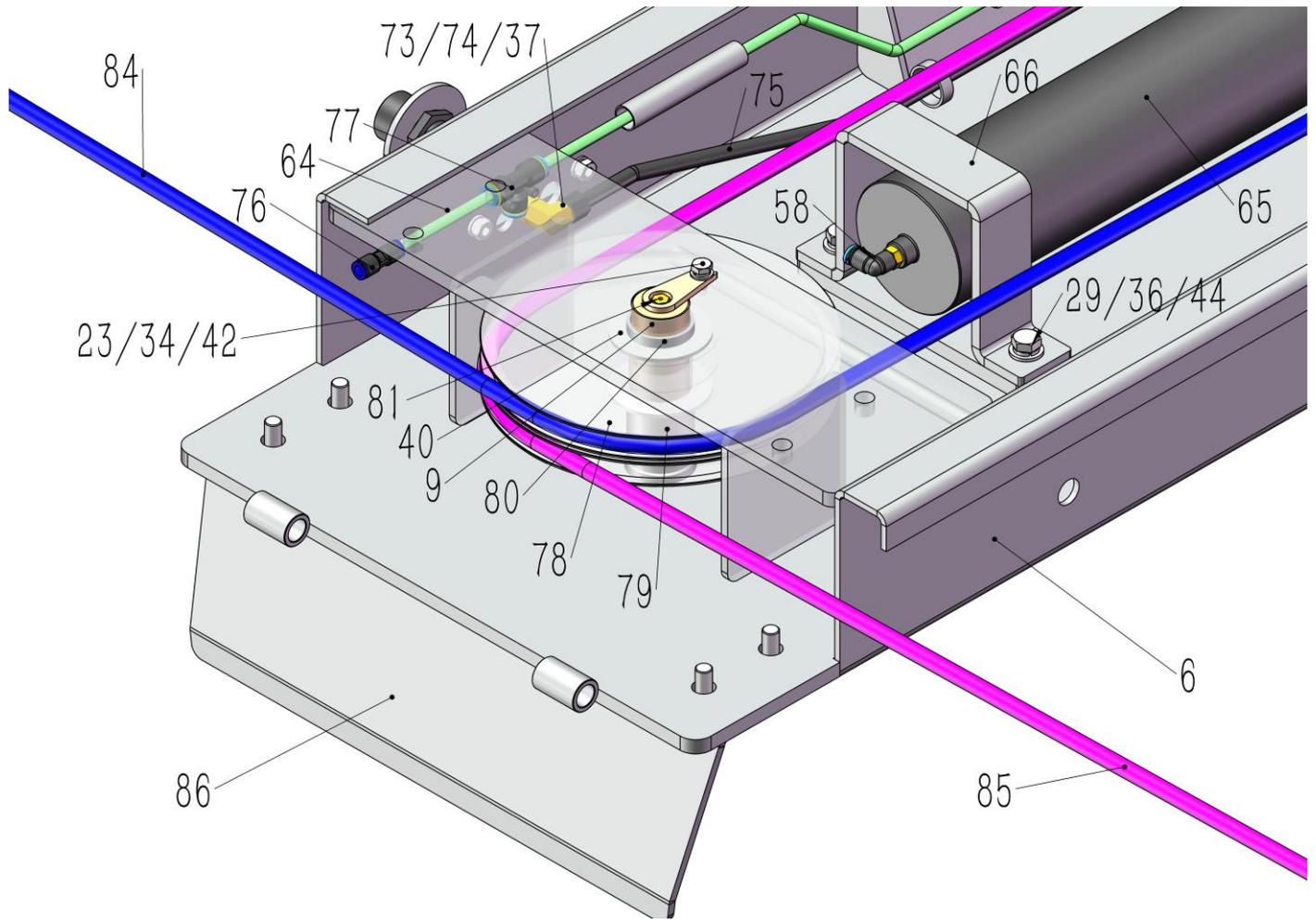


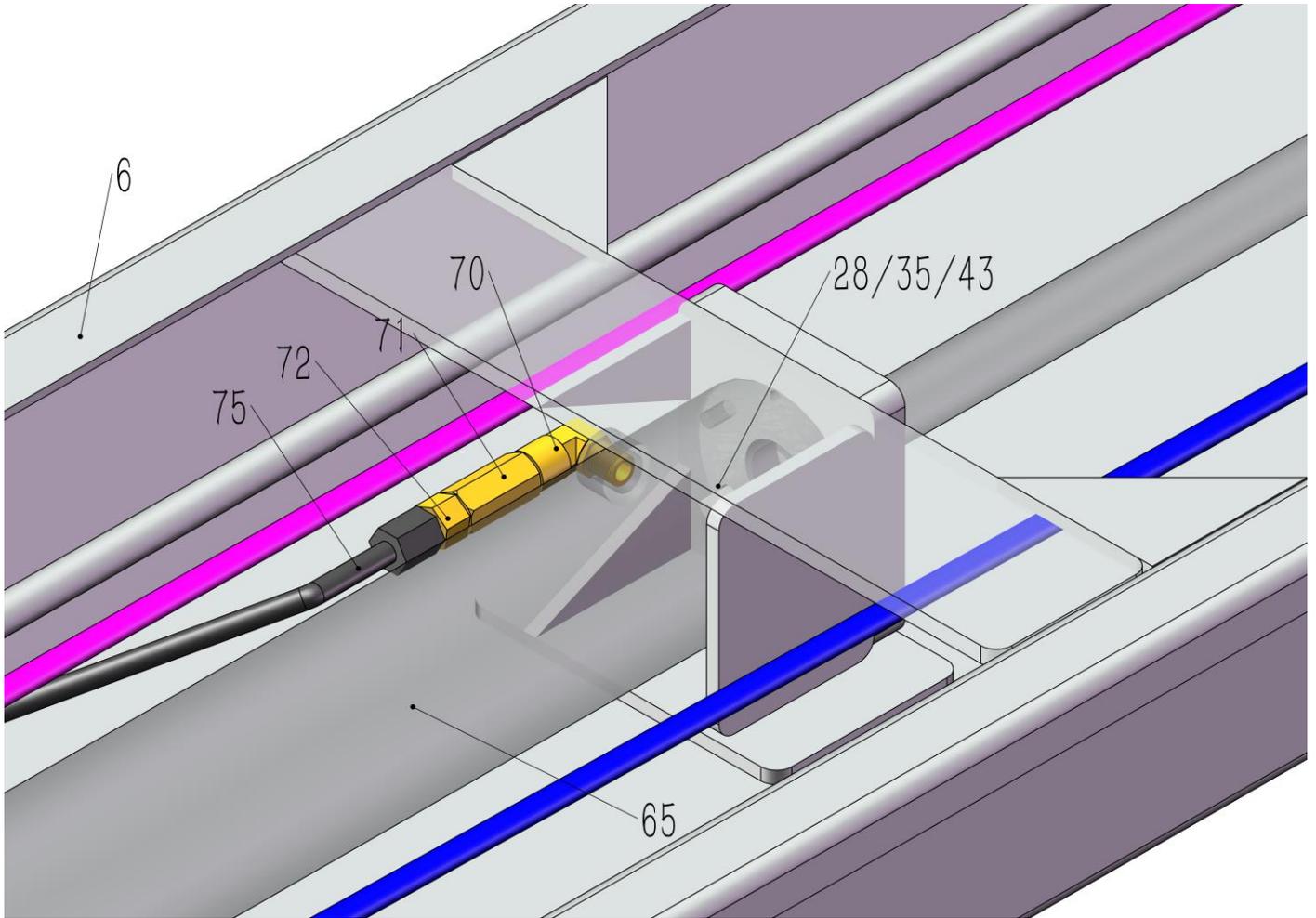
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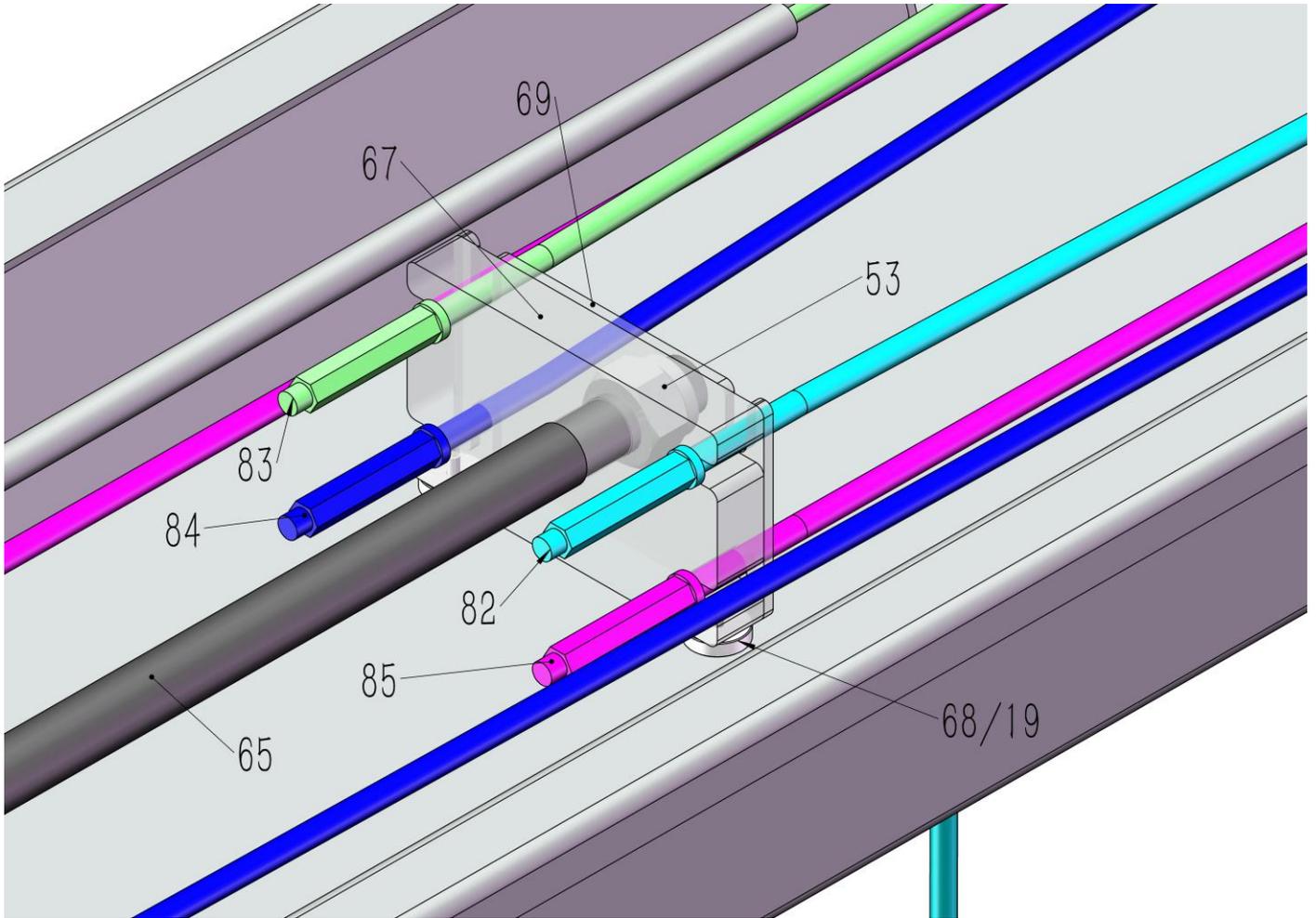


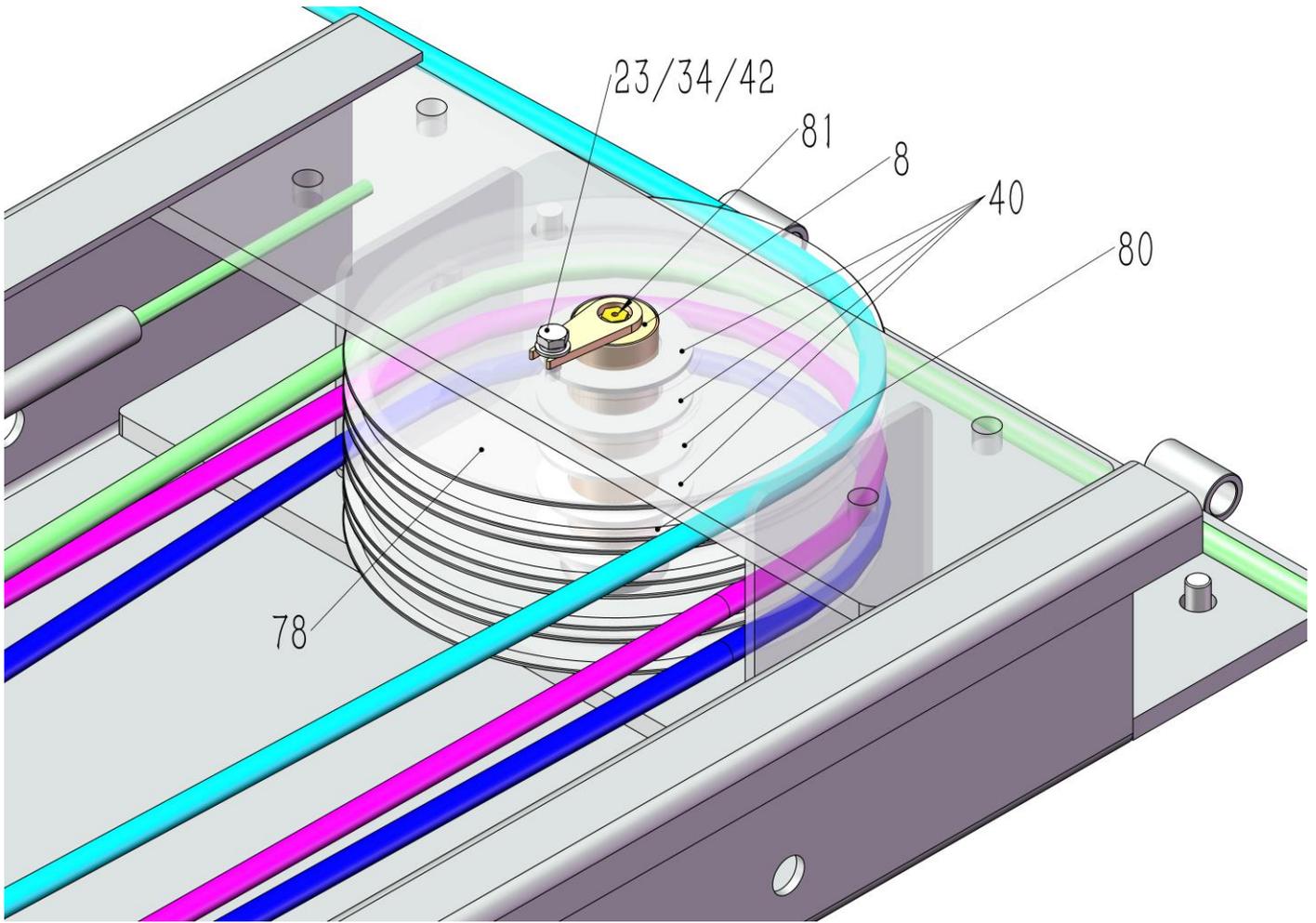
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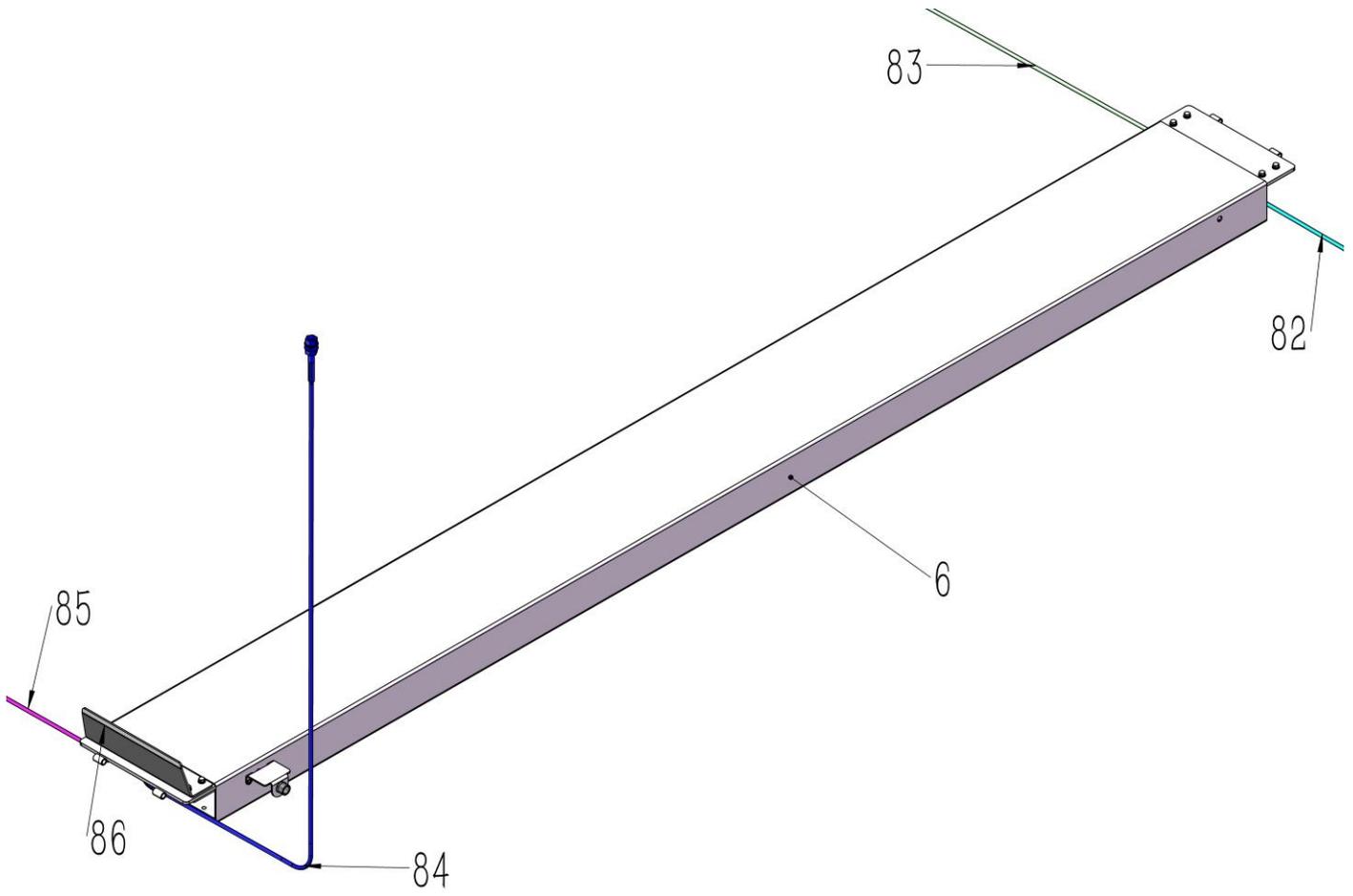


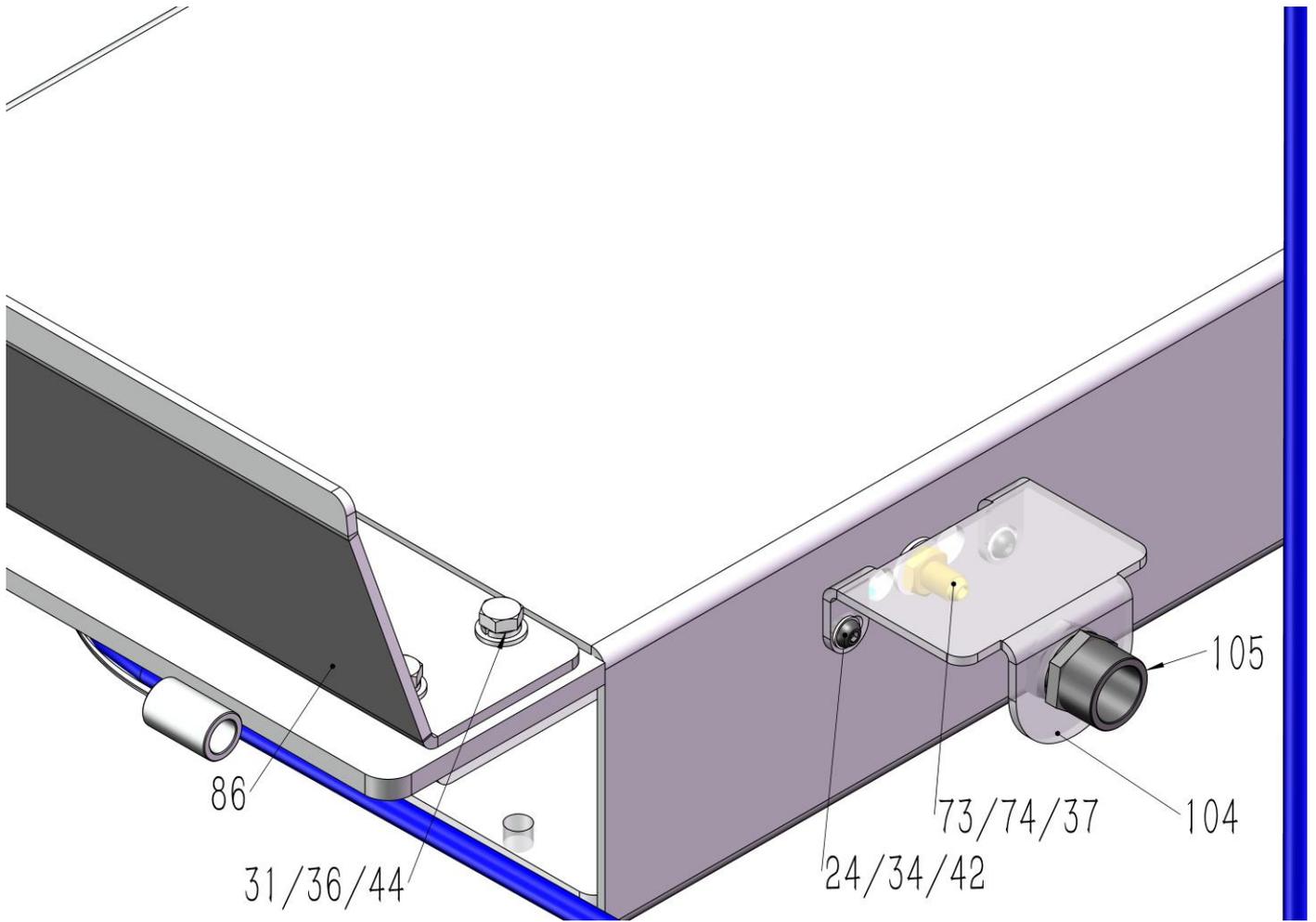




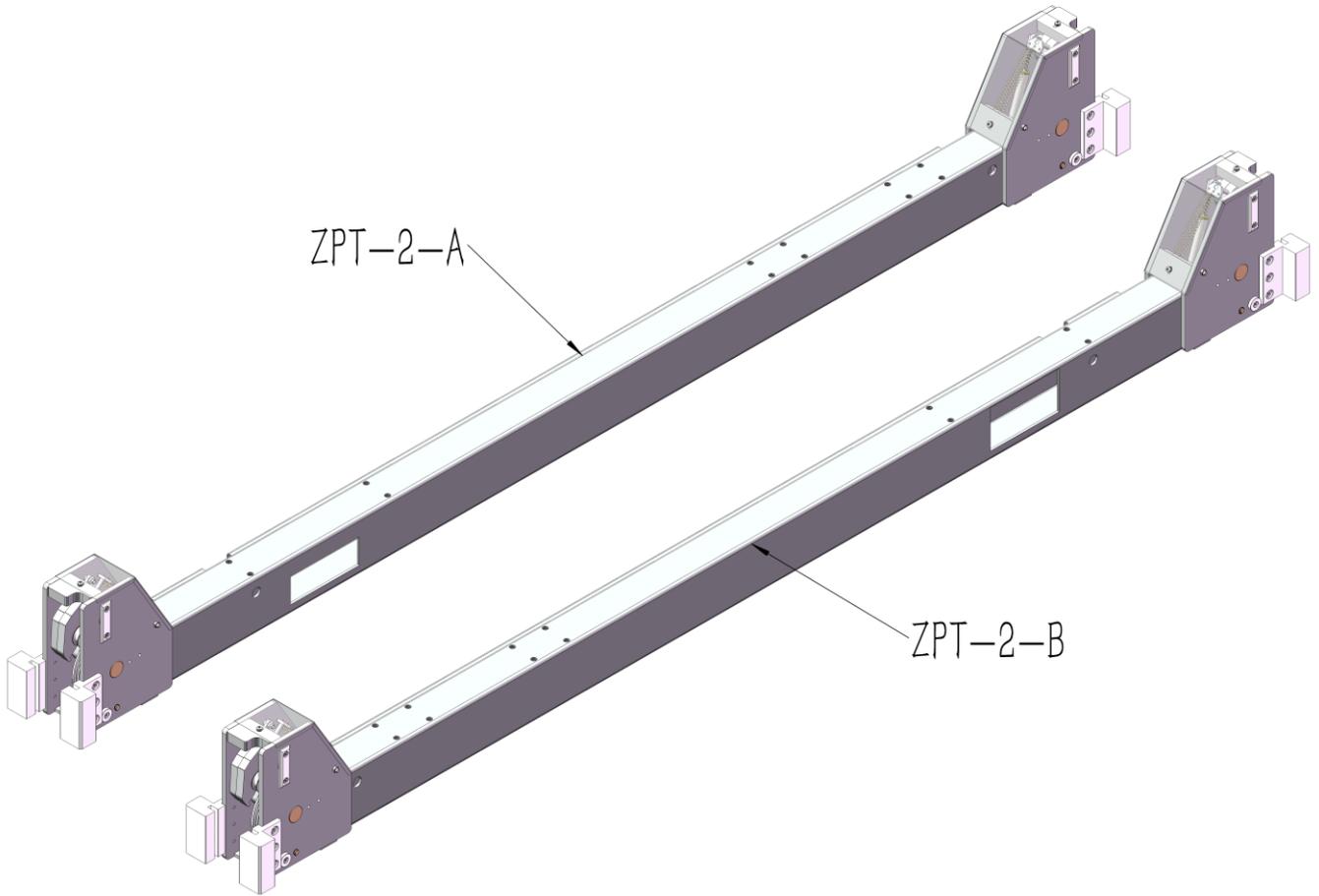


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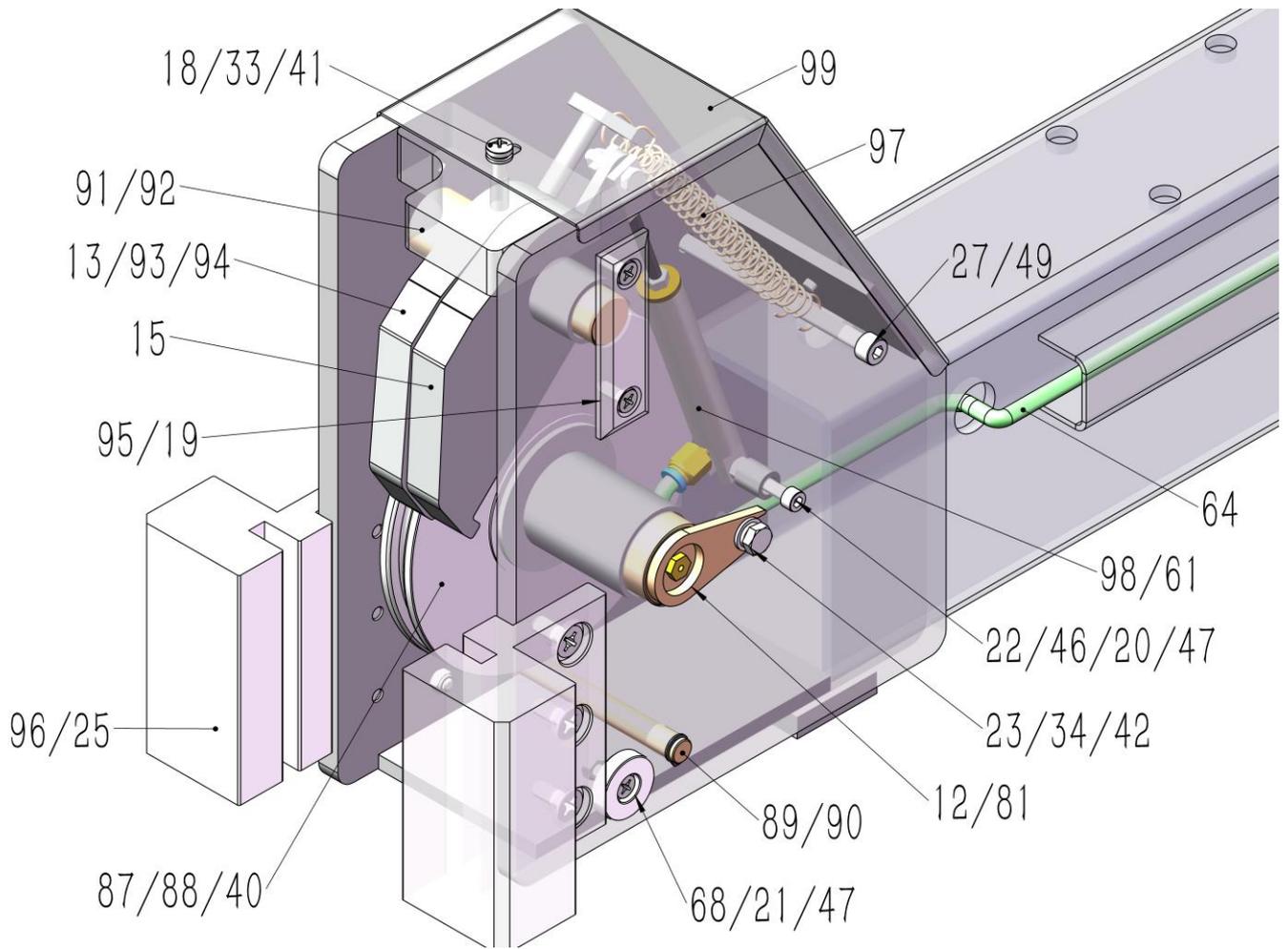




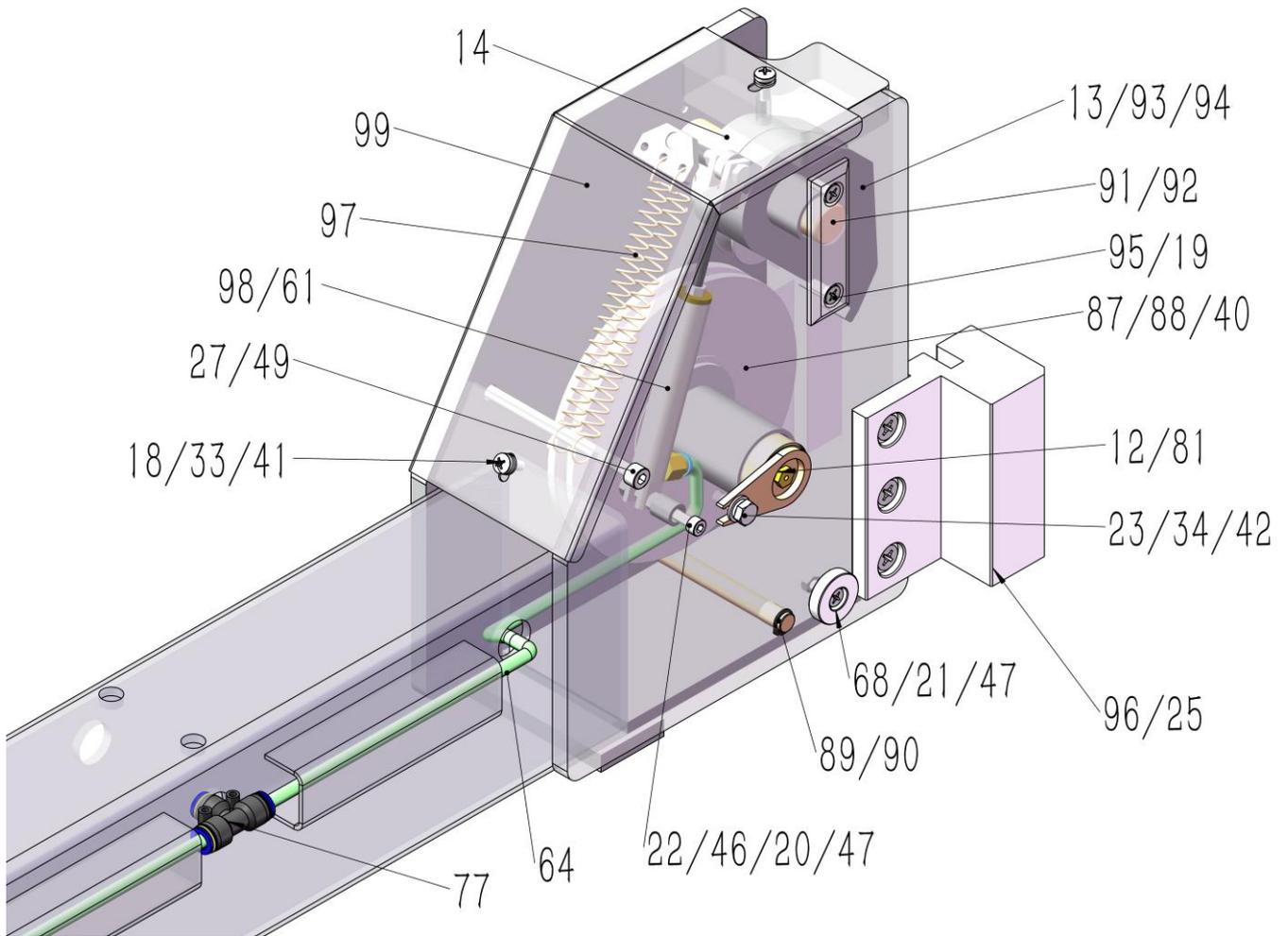
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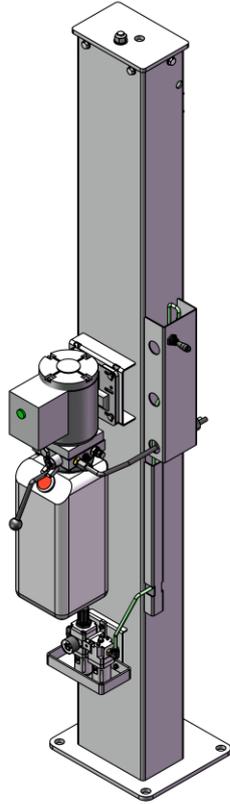
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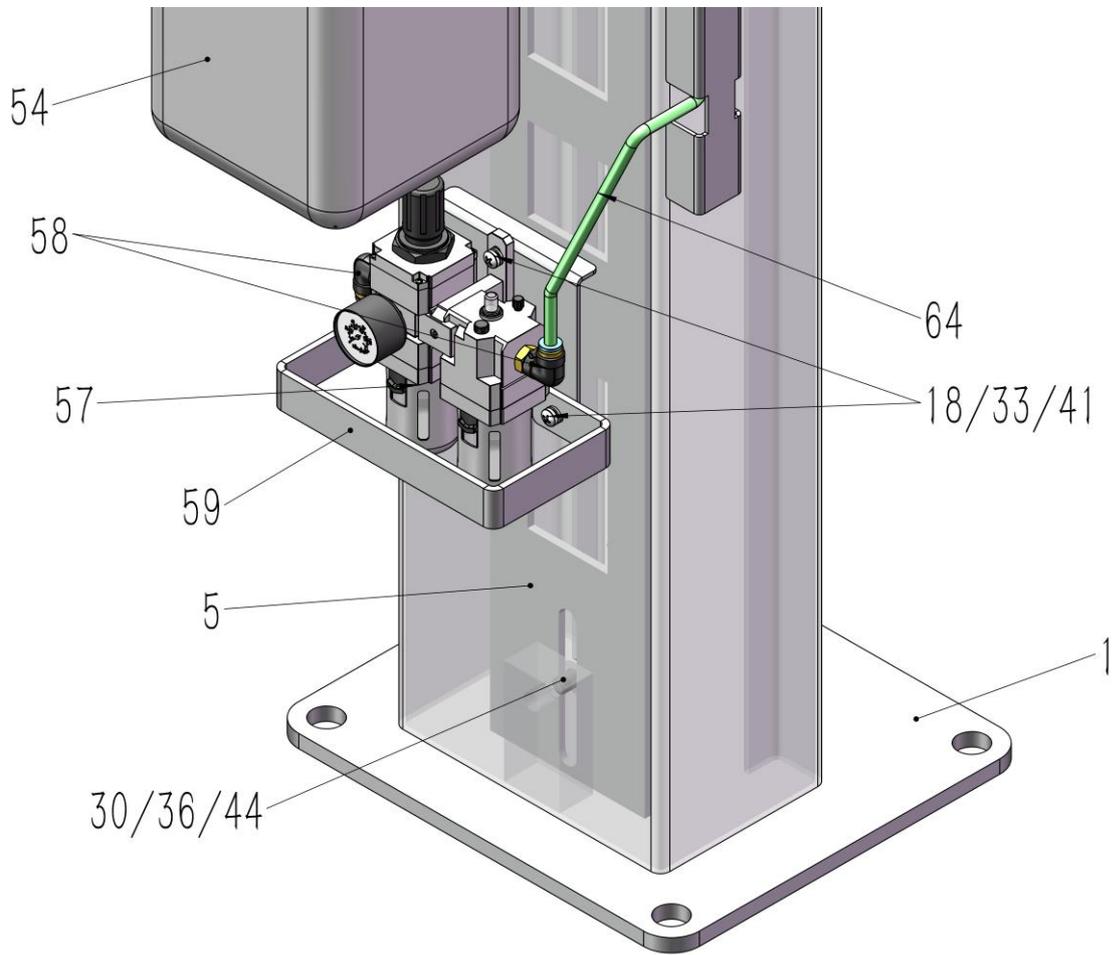
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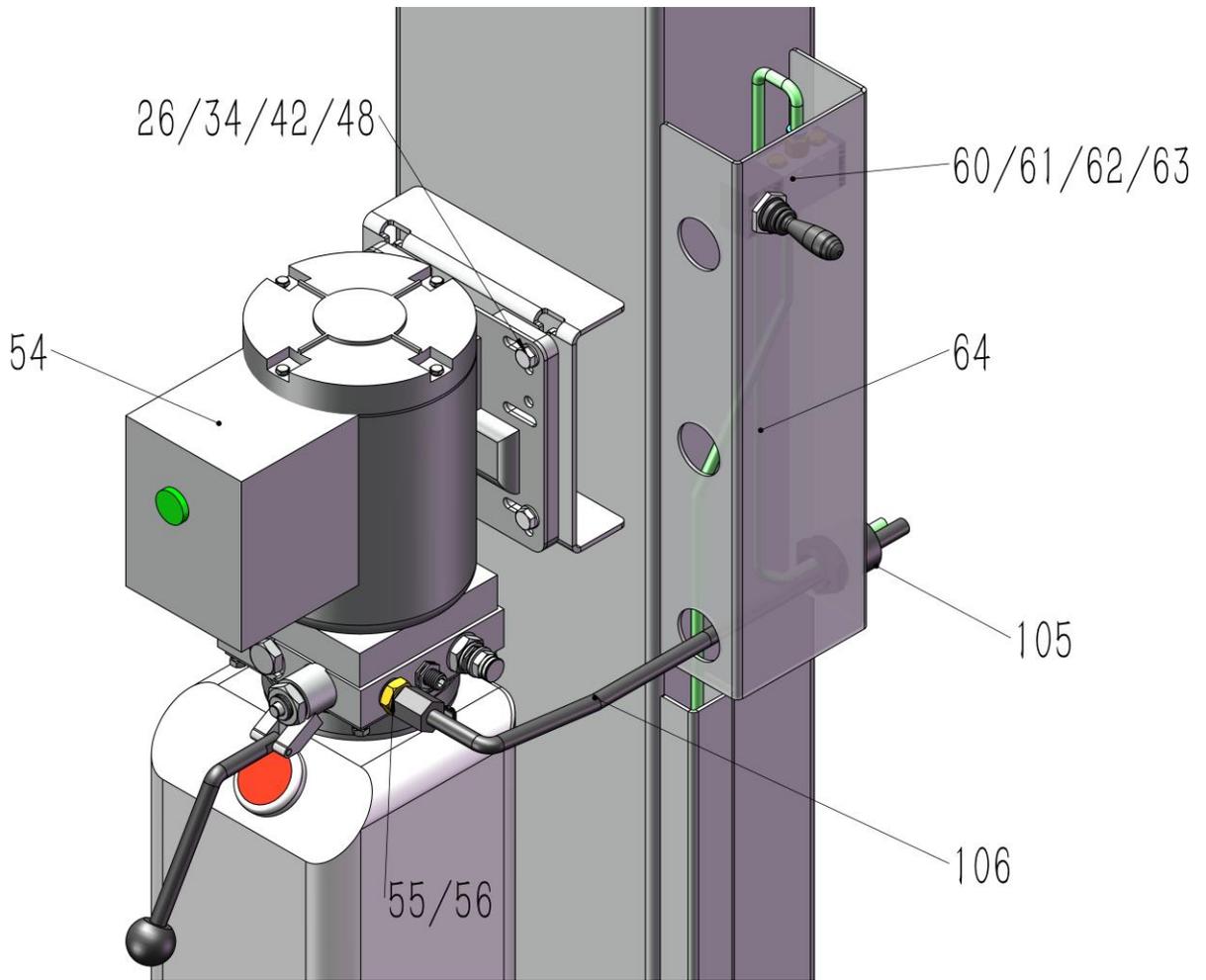


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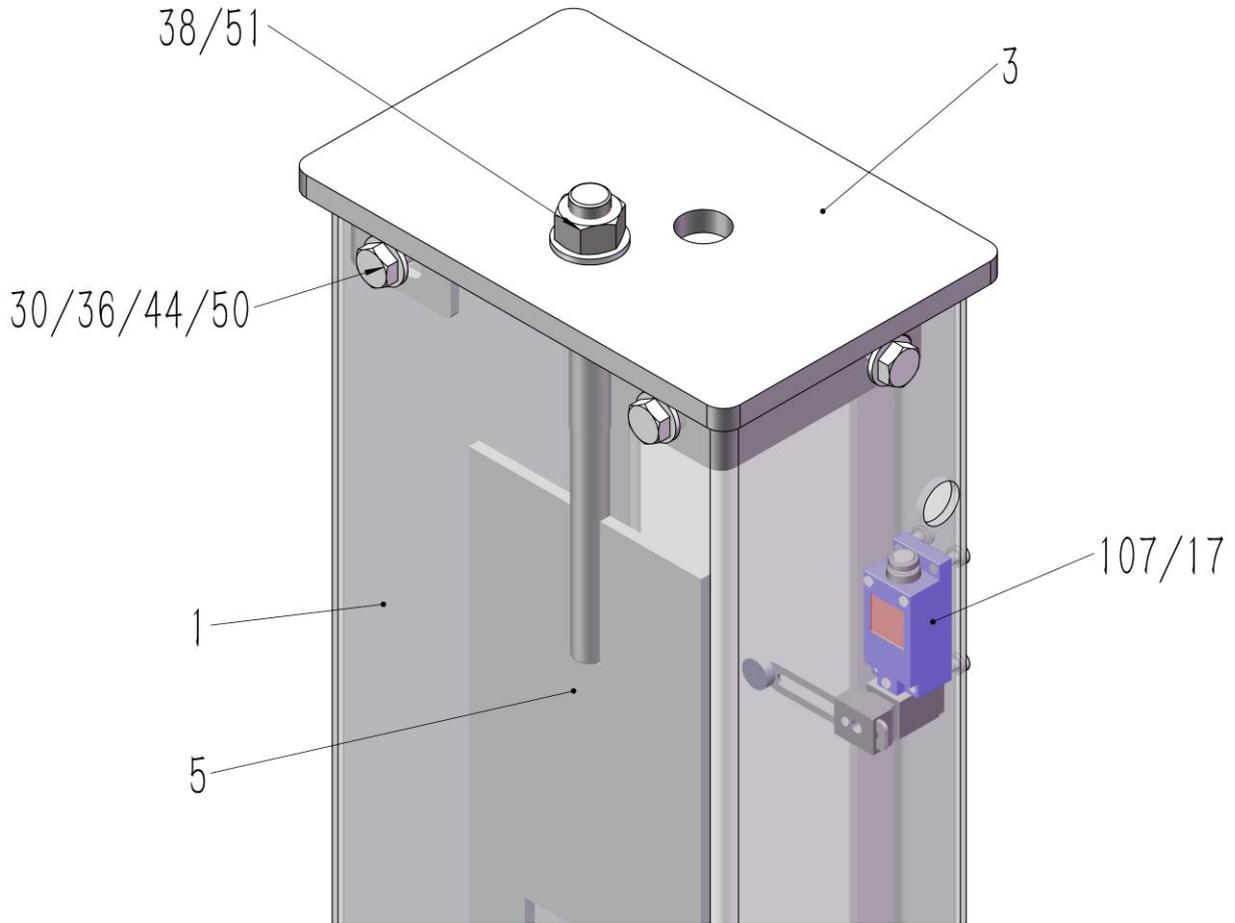


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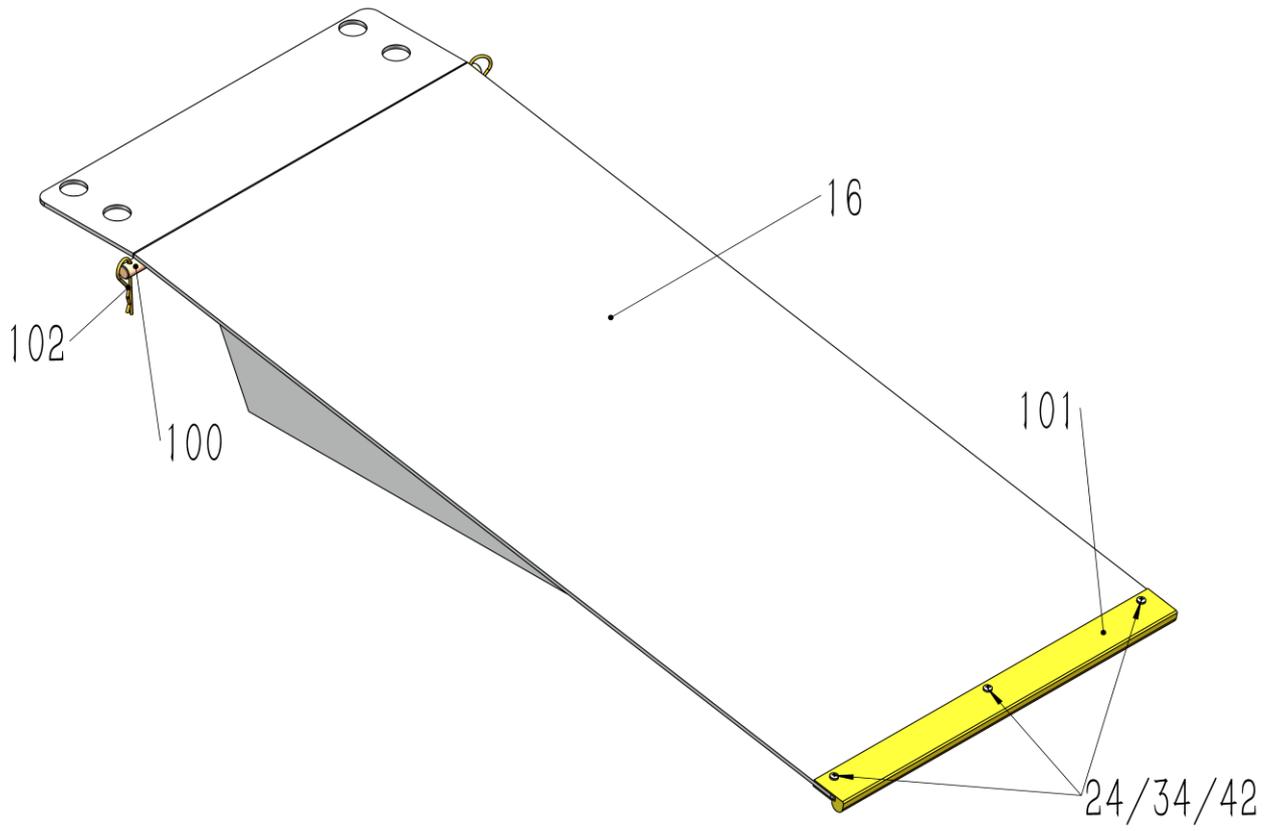




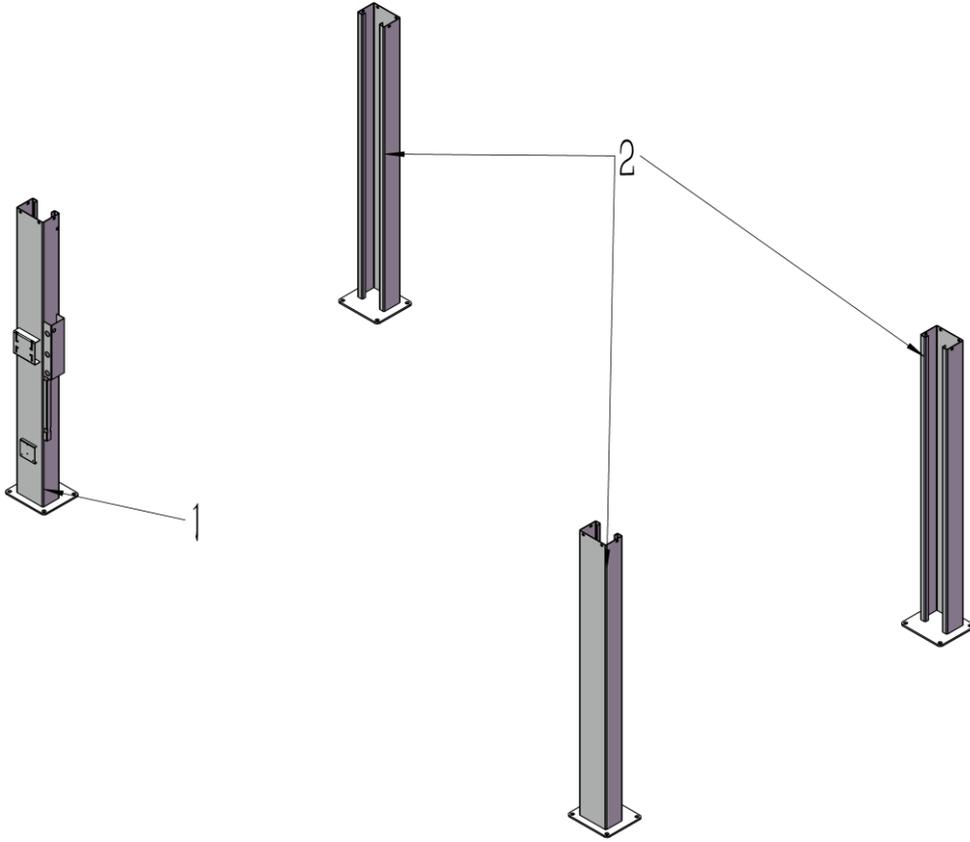
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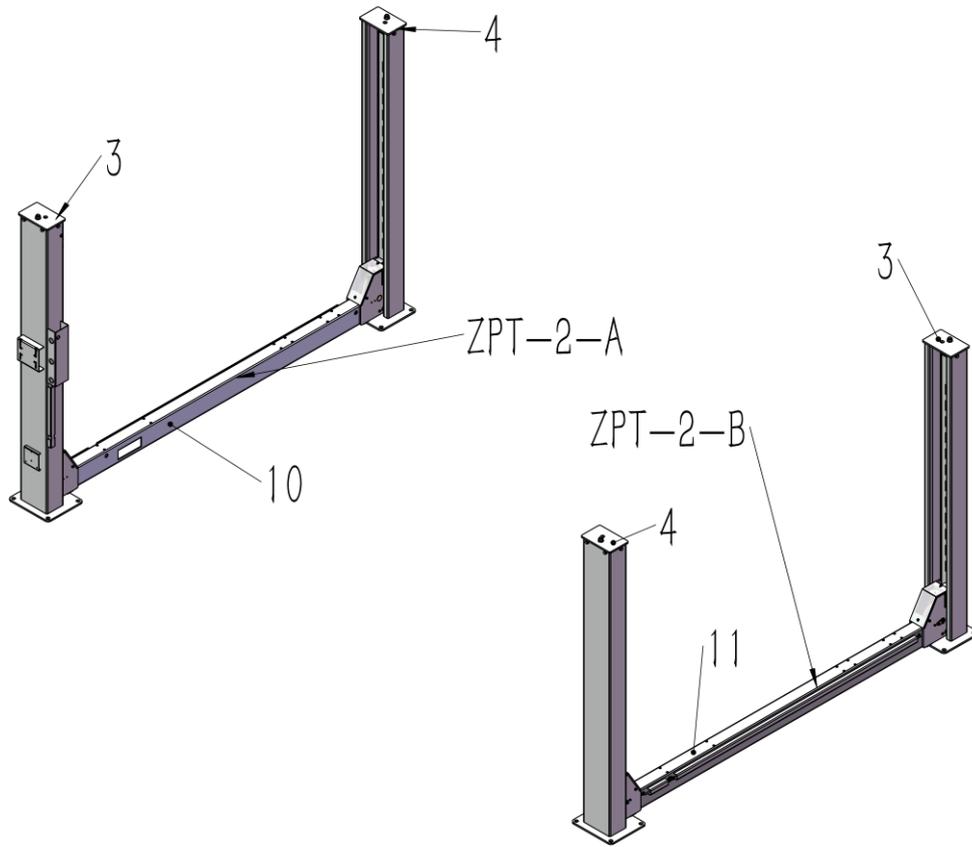


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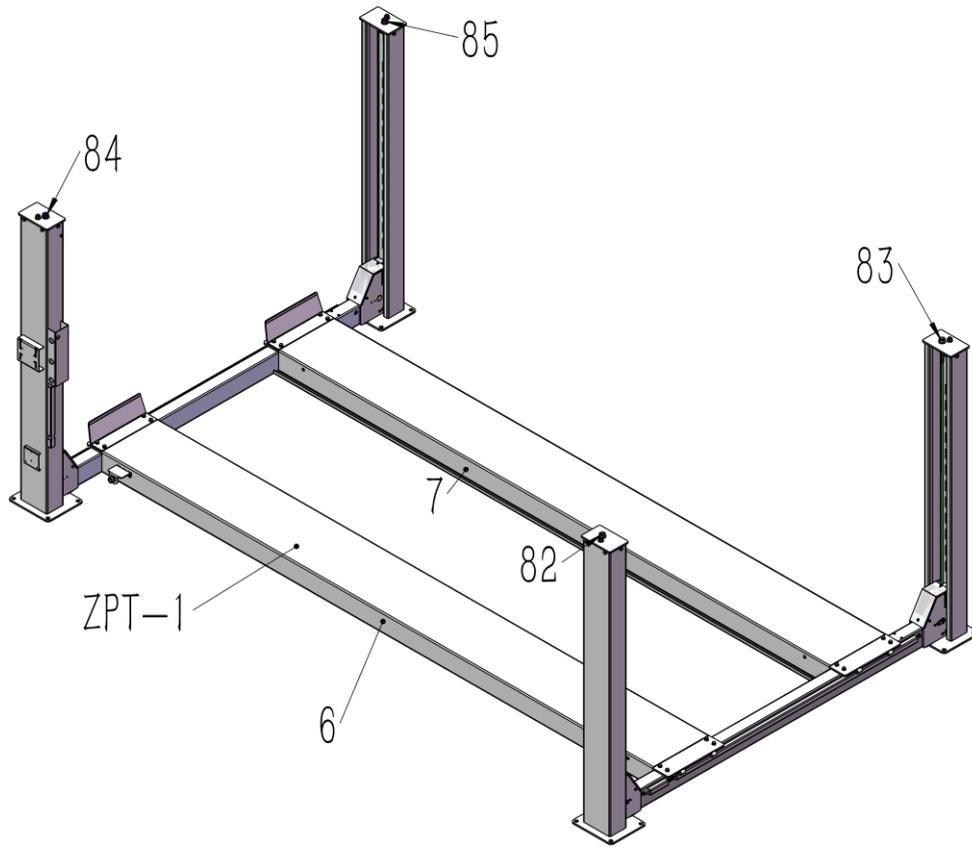


Z-1

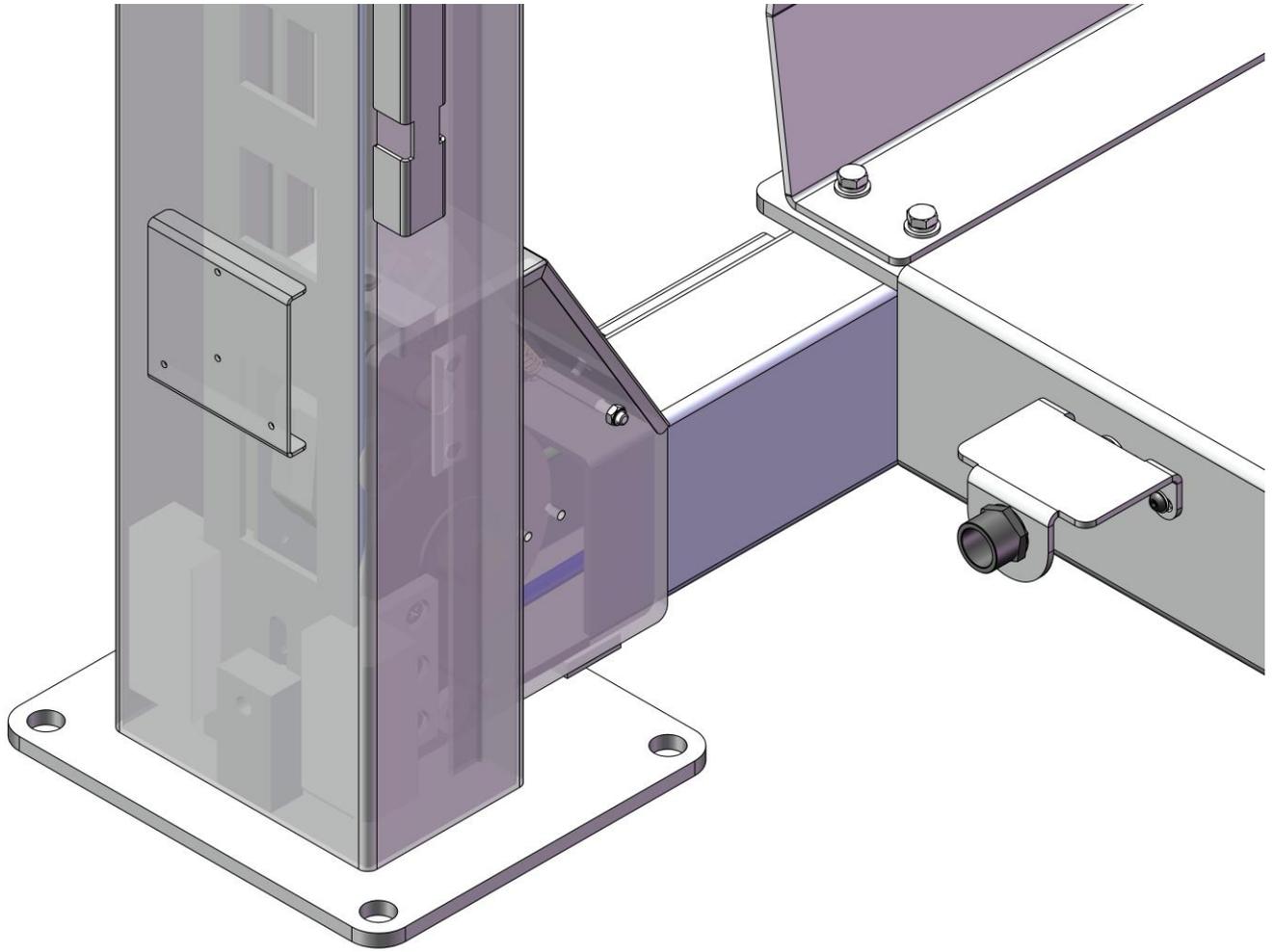




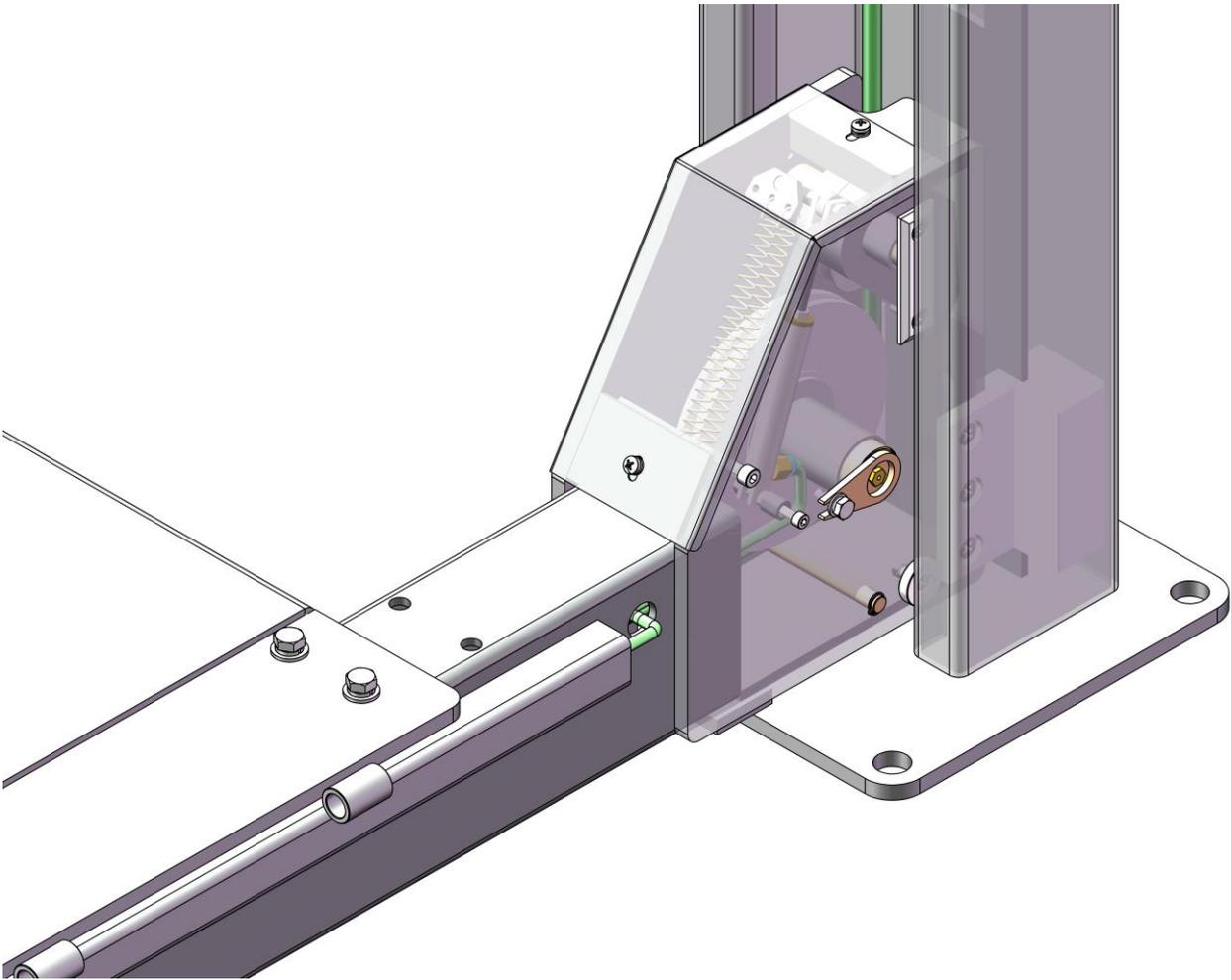
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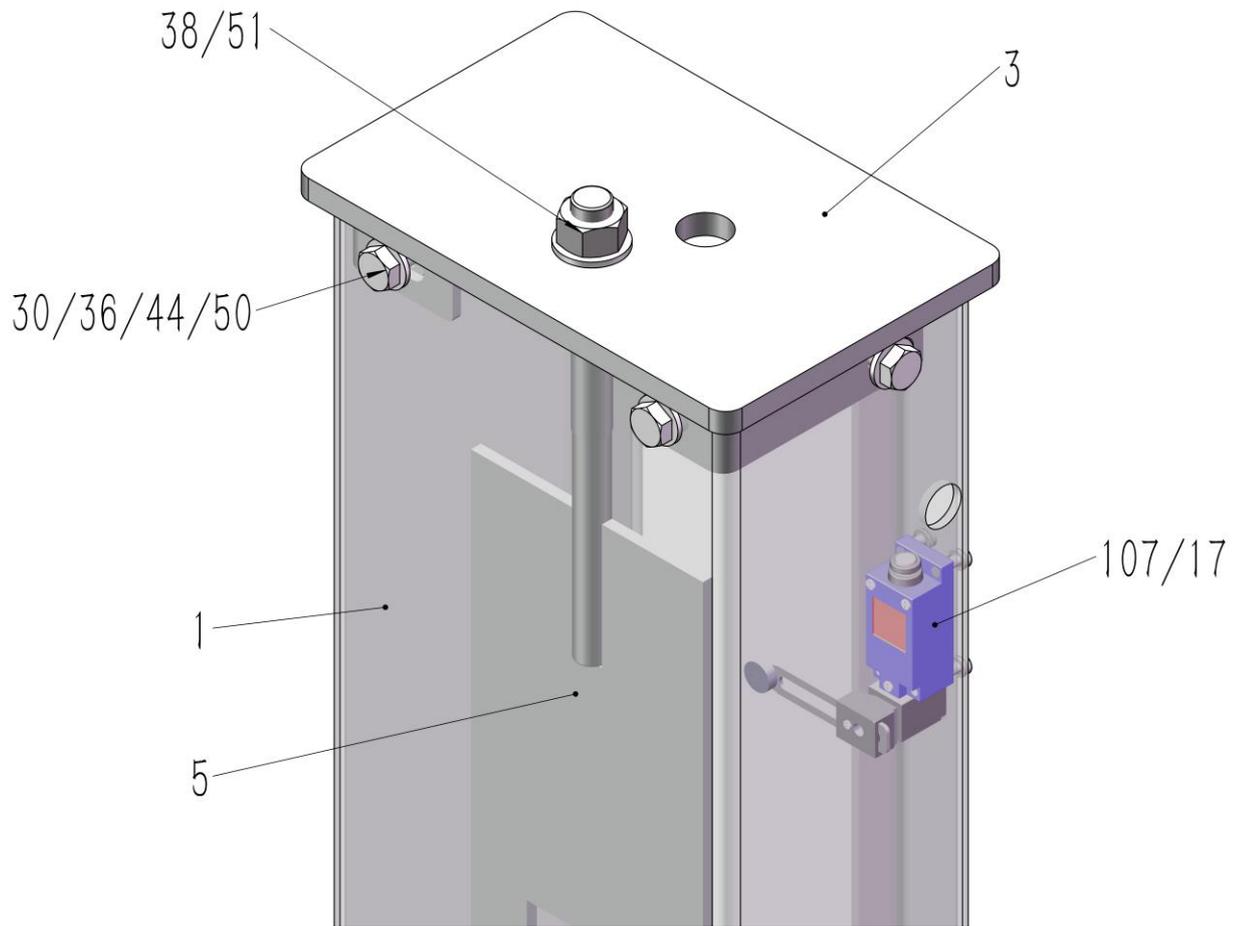
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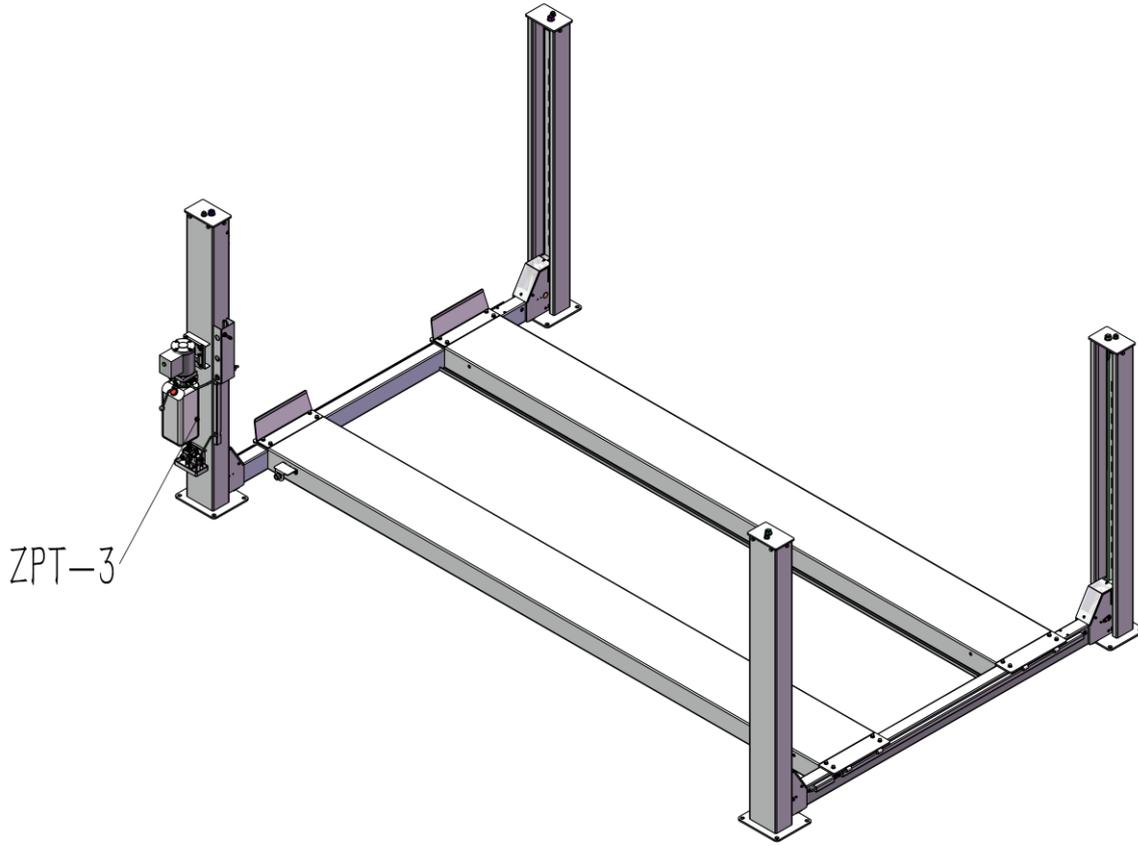
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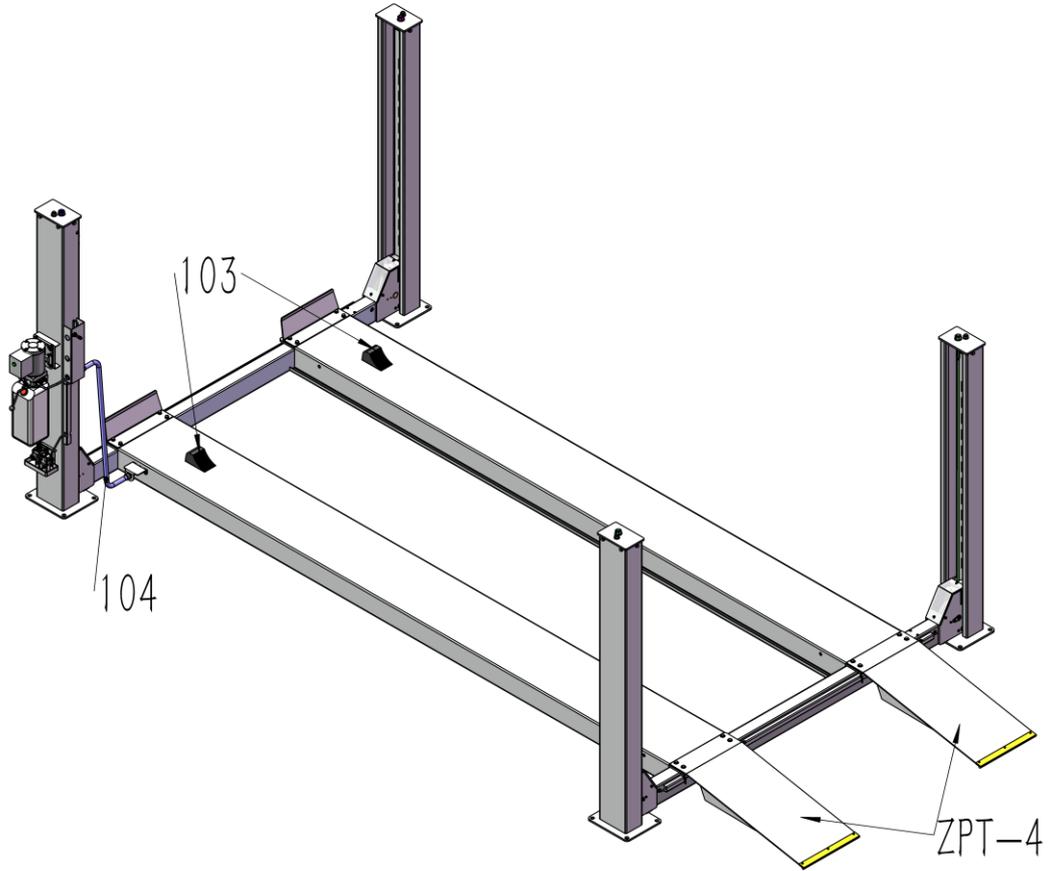


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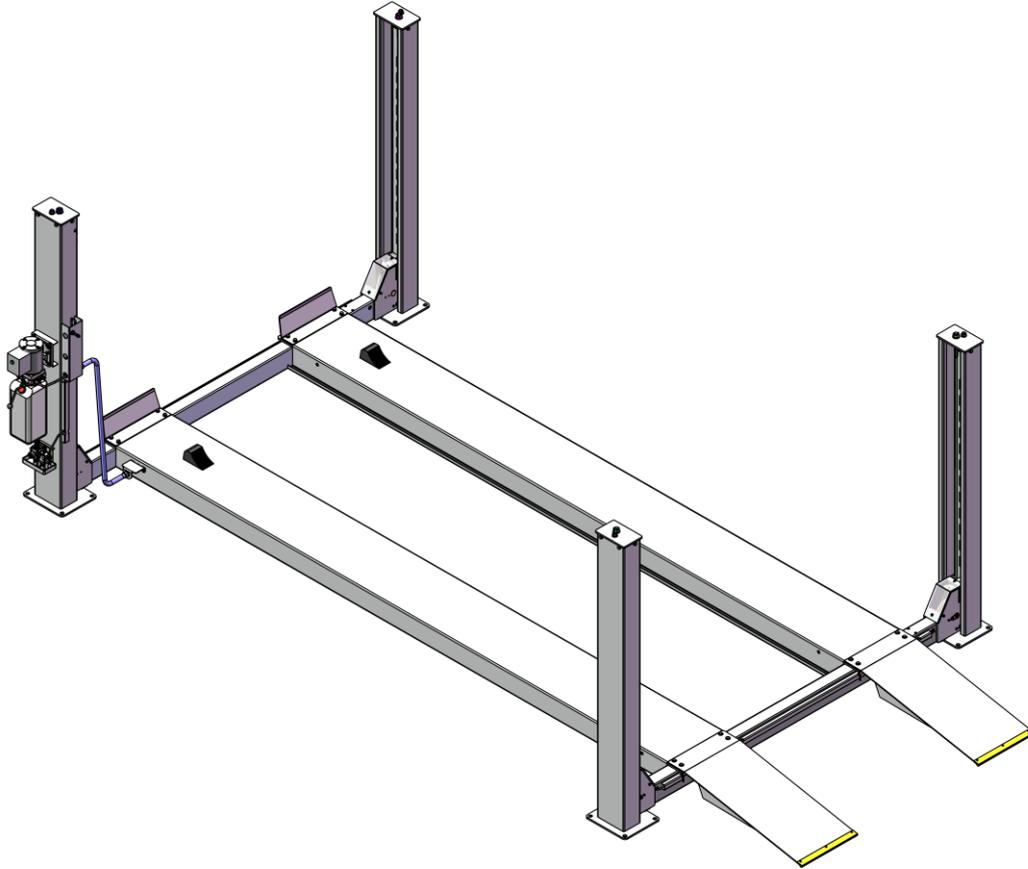


Z-4





Z-6



## Parts List

Main No.	Vice No.	Part Name	Quantity
<b>Welding part</b>			
1		Main column	1
2		Vice column	3
3		Column top plate-A	2
4		Column top plate-B	2
5		Safety lock plate	4
6		Main runway	1
7		Vice runway	3
8		Runway steel cable shaft- $\varnothing$ 40x149-4 hole	1
9		Runway steel cable shaft- $\varnothing$ 40x149-2 hole	1
10		Rear cross beam of cylinder	1
11		Front cross beam of cylinder	1
12		Cross beam steel cable $\varnothing$ 40x125-single hole	4
13		Cross beam mechanical safety hook	4
14		Cross beam pneumatic safety hook-A	2
15		Cross beam pneumatic safety hook-B	2
16		Ramps	2
<b>Standard Part</b>			
17		M5X15 Round head bolt	10
18		M6X15 Round head bolt	12
19		M6x15 Flat head screw	18
20		M6x25 Hex head bolt	8
21		M6x25 Flat head bolt	8
22		M6x55 Hexagon bolt	4
23		M8x15 Hex head bolt	6
24		M8x15 Hexagon round head bolt	2
25		M8x20 Flat head bolt	24
26		M8X35 Hex head bolt	4
27		M8x140 Hexagon bolt	4
28		M10x30 Hex head bolt	3
29		M10x40 Hexagon bolt	2
30		M12x20 Hex head bolt	20

31		M12x40 Hex head bolt	16
32		∅ 5 Flat washer	6
33		∅ 6 Flat washer	12
34		∅ 8 Flat washer	16
35		∅ 10 Flat washer	3
36		∅ 12 Flat washer	54
37		∅ 14 Flat washer	1
38		∅ 18 Flat washer	8
39		∅ 20 Flat washer	8
40		∅ 40 Flat washer	15
41		∅ 6 Spring washer	12
42		∅ 8 Spring washer	12
43		∅ 10 Spring washer	3
44		∅ 12 Spring washer	38
45		M5 Nut	6
46		M6 Nut	12
47		M6 Self-lock nut	16
48		M8 Nut	4
49		M8 Self-lock nut	4
50		M10 Nut	16
51		M12 Nut	8
52		M18 Nut	8
53		M20 Nut	1
<b>Column Part</b>			
	1	Main column	1
	2	Vice column	3
54		Power unit	1
55		Power unit fitting M14x1.5-9/16	1
56		∅ 14 Copper sealing washer	1
	26	M8X35 Hex head bolt	4
	34	∅ 8 Flat washer	8
	42	∅ 8 Spring washer	4
	48	M8 Nut	4
57		AL-3000-03 Large oil-water separator	1
58		∅ 8 Right Angle gas fitting (SPL-8-03)	2

	18	M6X15 Round head bolt	2
	33	∅ 6 Flat washer	2
	41	∅ 6 Spring washer	2
59		Oil-water separator protection bracket	1
	18	M6X15 Round head bolt	2
	33	∅ 6 Flat washer	2
	41	∅ 6 Spring washer	2
60		TSV86522-S Pneumatic unlock hand valve fitting	1
61		∅ 8 Right Angle gas fitting(SPL-8-02)	2
62		Plug (BD-02)	2
63		Miniature silencer (PSV-02)	1
64		∅ 8 Air hose	1
	5	Column safety plate	4
	38	∅ 18 Flat washer	8
	51	M18 Nut	8
	3	Column top plate-A	2
	4	Column top plate-B	2
	30	M12x30 Hex head bolt	20
	36	∅ 12 Flat washer	36
	44	∅ 12 Spring washer	20
	50	M12 Nut	16
<b>Runway part</b>			
	6	Main runway	1
	7	Vice runway	1
65		∅ 120x∅ 100-1760mm Stroke - cylinder	1
	58	∅ 8 Angle gas fitting (SPL-8-02)	1
	64	∅ 8 Air hose-4700mm-Oil return	1
	28	M10x40 Hexagon bolt	3
	35	∅ 10 Flat washer	3
	43	∅ 10 Spring washer	3
66		Cylinder limit seat	1
	29	M12x20 Hex head bolt	2
	36	∅ 12 Flat washer	2
	44	∅ 12 Spring washer	2
67		Steel cable pull plate	1

68		Limit slider- $\phi$ 32-8	2
	19	M6 $\times$ 15 Flat head bolt	2
69		Steel cable lock plate	1
	53	M30 Self-lock nut	1
70		90 $^{\circ}$ ZG3/8 Extension fitting	1
71		ZG3/8 Tooth anti-valve	1
72		Fitting ZG3/8-9/16	1
73		ZG9/16 Small Angle bending (for runway)	1
	37	$\phi$ 14 Flat washer	1
74		Small Angle bending nut (for runway)	1
75		Double straight 9/16 hydraulic hose-1760mm	1
	64	$\phi$ 8 Air hose	3
76		$\phi$ 8 Straight air fitting	2
77		$\phi$ 8 Air T fitting	1
78		$\phi$ 248 $\times$ $\phi$ 80-30 Steel cable pulley (for runway)	6
	8	Runway steel cable shaft- $\phi$ 40 $\times$ 149-4 hole	1
	9	Runway steel cable shaft- $\phi$ 40 $\times$ 149-2 hole	1
79		$\phi$ 47 $\times$ $\phi$ 43-56 Galvanized tube	1
80		$\phi$ 47 $\times$ $\phi$ 43-8 Galvanized tube	2
	40	$\phi$ 40 Flat washer	7
81		M10 Grease fitting	2
	23	M8 $\times$ 15 Hex head bolt	2
	34	$\phi$ 8 Flat washer	2
	42	$\phi$ 8 Spring washer	2
82		Steel cable $\phi$ 12.5, L1	1
83		Steel cable $\phi$ 12.5, L2	1
84		Steel cable $\phi$ 12.5, L3	1
85		Steel cable $\phi$ 12.5, L4	1
	52	M20 Nut	8
	39	$\phi$ 20 Flat washer	8
86		Wheel guard plate	2
	31	M12 $\times$ 40 Hex head bolt	16
	36	$\phi$ 12 Flat washer	16
	44	$\phi$ 12 Spring washer	16

Cross beam part			
	10	Rear cross beam of cylinder	1
	11	Front cross beam of cylinder	1
87		∅ 178x∅ 40-22 Steel cable pulley (for cross beam)	4
	12	Cross beam steel cable pulley ∅ 40x125-single hole	4
88		∅ 47x∅ 42-11 Galvanized tube	4
	40	∅ 40 Flat washer	8
	23	M8x15 Hex head bolt	4
	34	∅ 8 Flat washer	4
	42	∅ 8 Spring washer	4
	81	M10 Grease fitting	4
89		Cross beam steel cable limit pin ∅ 12-127-135	4
90		∅ 12 Out snap ring	8
91		Cross beam safety shaft ∅ 30-124	4
92		∅ 32x∅ 27-34 Galvanized tube	4
	13	Cross beam mechanical safety hook	4
	14	Cross beam pneumatic safety hook-A	2
	15	Cross beam pneumatic safety hook-B	2
93		Cross beam mechanical safety limit pin	4
94		Cross beam mechanical safety limit pulley	4
	68	Limit slider-∅ 32-8	8
	21	M6x25 Flat bolt	8
	47	M6 Self-lock nut	8
95		Cross beam slider-100x30-6	8
	19	M6x15 Flat bolt	16
96		Cross beam slider -127x106-63	8
	25	M8x20 Flat bolt	24
97		Pull spring (∅ 12-100)	8
	27	M8x140 Hexagon bolt	4
	49	M8 Self-lock nut	4
98		LMSAL16x45-Y Safety air cylinder with Y fitting	4
	61	∅ 8 Straight air fitting (air cylinder type)	4
	22	M6x55 Hexagon bolt	4
	46	M6 Nut	12
	20	M6x25 Hex head bolt	8

	47	M6 Self-lock nut	8
	77	∅ 8 Air T fitting	2
	64	∅ 8 Air hose	4
99		Cross beam protect cover	4
	18	M6X15 Round head bolt	8
	33	∅ 6 Flat washer	8
	41	∅ 6 Spring washer	8
Complete lift assembly parts			
	16	Ramps	2
100		Ramp pin	2
101		Ramp nylon slider	2
	17	M5X15 Round head bolt	6
	32	∅ 5 Flat washer	6
	45	M5 Nut	6
102		R Type pin	4
103		Rubber brake pad	2
104		Runway bellows support	1
	24	M8x15 Hexagon bolt	2
	34	∅ 8 Flat washer	2
	42	∅ 8 Spring washer	2
105		∅ 38 Bellows - with 2 fittings-L=1350mm	1
106		Straight & bent 9/16 hydraulic hose-L=1600mm	1
107		Limit switch	1
	17	M5X15 Round head bolt	4

# 8. Hydraulic System and Electrical Components

1. Explosion diagram of power unit

2. Hydraulic system

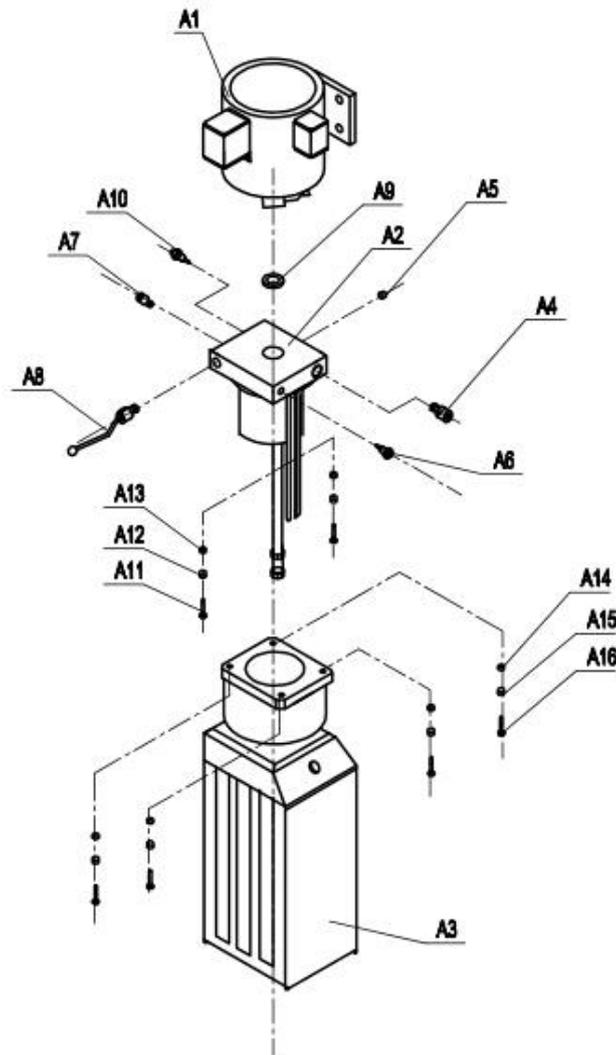
a. Hydraulic schematic diagram

b. List of hydraulic components

c. Working principle of hydraulic system

d. Electrical schematic diagram

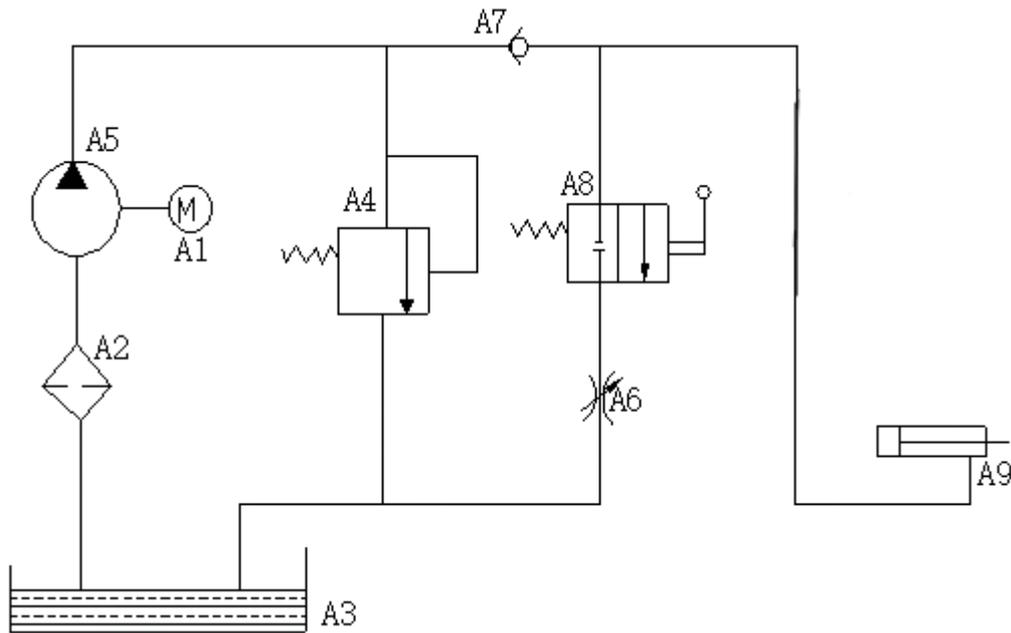
## 1) Explosion diagram of power unit



No.	Part Name	Q'ty	No.	Part Name	Q'ty
A1	Motor	1	A9	Seal spacer	1
A2	Valve element	1	A10	Manifold block	1
A3	Oil tank	1	A11	M5X40 Hex screw	4
A4	Flow valve	1	A12	Φ5 Flat washer	4
A5	Manifold block	1	A13	Φ5 Spring washer	4
A6	Outlet	1	A14	M6X20 Hex screw	4
A7	Inlet	1	A15	Φ6 Flat washer	4
A8	Handle valve	1	A16	Φ6 Spring washer	4

## 2) Hydraulic System

### a. Hydraulic schematic diagram



### b. List of hydraulic components

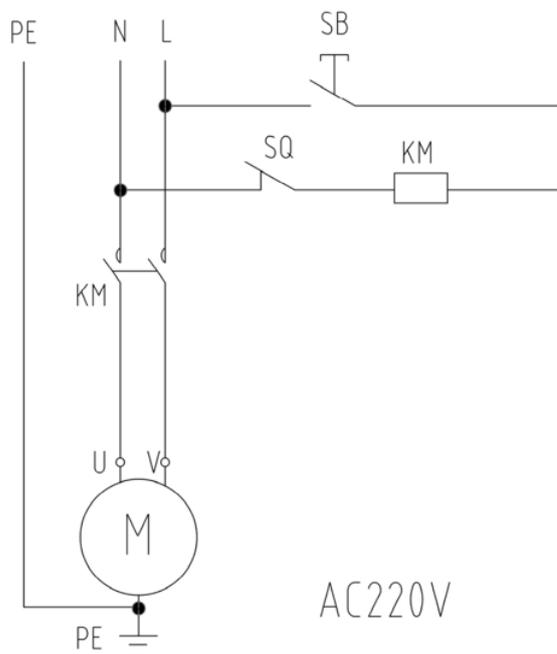
No.	Part Name	Quantity	Remark
A9	Hydraulic cylinder	1	
A8	Hand valve	1	
A7	Check valve	1	
A6	Flow valve	1	
A5	Power Unit	1	
A4	Relief valve	1	
A3	Oil tank	1	
A2	Oil filter	1	
A1	Motor	1	

### c. Working principle of hydraulic system

When pressing the start button on the power unit, the motor starts, drives the oil pump, and sucks the pressure oil from the tank to the no. A9 cylinder to make the piston rod move. At this time, the A4 relief valve closes (the pressure of the relief valve has been adjusted before leaving the factory to ensure the rated load requirements of the garage). If the pressure in the system exceeds the pressure set by the relief valve, the relief valve will discharge oil automatically. Release the start button to stop the oil supply, the lifting is finished, and the operation can start. If you want to go down, first click the start button, rise a little, then open the manual safety hook, press the manual valve A8, the cylinder unloading oil, the vehicle began to descend.

### d. Electrical schematic diagram

(\* Wiring must be done according to the schematic diagram during installation to ensure reliable grounding of each grounding point, and the input power must be equipped with leakage and overcurrent protection switches)



Code	Name	Model	Quantity
SB	inching button	LXW5-11M/L	1
KM	AC Contactor	CJX1-6.3/01-380V	1
SQ	Limit switch	LXME-8108	1

## 9. Trouble shooting

No.	Problem	Solution
1	Motor does not run	<ul style="list-style-type: none"> <li>● Check whether the power supply is powered on</li> <li>● Check whether the wiring in the motor junction box is loose</li> </ul>
2	Motor run pressure free oil	<ul style="list-style-type: none"> <li>● If the direction of single-phase electric rotation is not correct, change the position of two incoming lines.</li> <li>● Check if suction pipe in tank falls off.</li> </ul>
3	Hydraulic pressure drops slowly after lifting (Bad pressure holding)	<ul style="list-style-type: none"> <li>● Clean the power unit check valve and reversing valve.</li> </ul>
4	The safety lock won't hold	<ul style="list-style-type: none"> <li>● Observe whether the position of locking hook is normal.</li> <li>● Observe whether the position of the column is correct.</li> <li>● Check the return spring action of the safety hook.</li> </ul>
5	Motor and electrical failure	<ul style="list-style-type: none"> <li>● Cut off the power supply in time, check, repair and replace by a professional electrician.</li> </ul>
6	Others	<ul style="list-style-type: none"> <li>● Other discovery work is not normal, can telephone consultation.</li> </ul>

# 10. Packing list

No.	Part Name	Quantity
1	Power unit	1
2	Power unit fitting M14x1.5-9/16	1
3	∅ 14 Copper sealing washer	1
4	M8X35 Hex bolt	4
5	∅ 8 Flat washer	8
6	∅ 8 Spring washer	4
7	M8 Nut	4
8	AL-3000-03 Large oil-water separator	1
9	∅ 8 Right Angle air fitting (SPL-8-03)	2
10	M6X15 Round head bolt	2
11	∅ 6 Flat washer	2
12	∅ 6 Spring washer	2
13	oil-water separator protect bracket	1
14	M6X15 Round head bolt	2
15	∅ 6 Flat washer	2
16	∅ 6 Spring washer	2
17	TSV86522-S Pneumatic unlock hand valve fittings	1
18	∅ 8 Straight air fitting(SPL-8-02)	2
19	Plug (BD-02)	2
20	Miniature silencer (PSV-02)	1
21	∅ 8 Air hose	1
22	∅ 38 Bellows - with 2 fittings-L=1350mm	1
23	Straight & bent 9/16 hydraulic hose-L=1600mm	1
24	Runway bellows support	1
25	M8x15 Hexagon head bolt	2
26	∅ 8 Flat washer	2
27	∅ 8 Spring washer	2
28	M20X150 Anchor bolt	16
29	Circular notched flat pad	20
30	Ties	10
31	Limit switch	1
32	M5X15 Round head bolt	4

## 11. List of Spare Parts

No.	Part Name
1	AL-3000-03 Large oil-water separator
2	TSV86522-S Pneumatic unlock hand valve
3	∅ 248x∅ 80-30 Steel cable pulley
4	∅ 178x∅ 40-22 Steel cable pulley
5	Steel cable Ø12.5, L1
6	Steel cable Ø12.5, L2
7	Steel cable Ø12.5, L3
8	Steel cable Ø12.5, L4
9	Cross beam mechanical safety limit pulley
10	Cross beam slider-100x30-6
11	Cross beam slider-127x106-63
12	Limit slider-∅ 32-8
13	Rubber brake pad