OPERATOR'S MANUAL

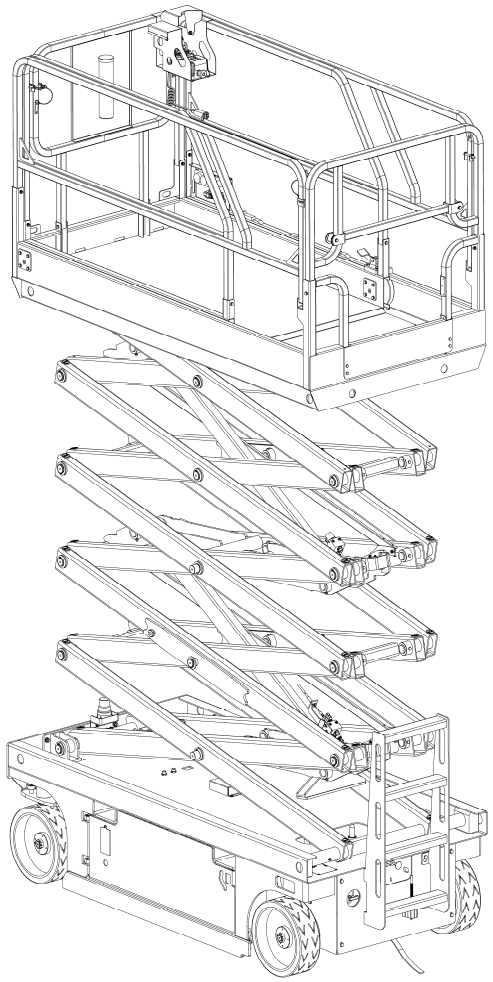
with Maintenance Information

EL Series

EL6-S - EL8-S

EL8-T - EL10-T

EL10 - EL12 - EL14



ELS LIFT

CE

OUTPOWER
THE GRAVITY.

Version of the Revision

Version Number	Updated Feature	Create Date
	Electrical Schematic, Hydraulic Schematic, Specifications	07.10.2022
	General Safety, Location of Safety Indicators	10.10.2022
	Periodic Maintenance Schedule	31.10.2022

Important

Please read carefully and understand the safety principles and operating instructions before using this machine, and observe them.

Only trained and authorized persons are allowed to operate this machine.

This guide should be considered as an integral reference and should always accompany the machine.

Please contact us if you have any questions.

Contact Details:

URL: info@elslift.com

aftersales@elslift.com

CONTENTS

INTRODUCTION

Owners, Users and Operators:

You have purchased an Access Lift. Thank you for preferring our machines.

If you exactly observe the maintenance and use instructions, you will definitely get the best performance.

The purpose of the guide is to help you achieve this.

Please note the following critical points:

- You must comply with the safety instructions relating to the machine itself, its operation and the surrounding area.
- You must use the machine within prescribed performance limits.
- Proper periodic maintenance is essential for maximum lifetime.

During and after the warranty period, ELS after-sales service is always at your disposal.

In case of an inquiry or claim, please contact our after-sales department and indicate the machine type, serial number and operating time.

When ordering consumables or spare parts, please additionally use the "Spare Parts" catalogue to obtain replacement parts secured by excellent performance guarantee. This guide is delivered with your machine.

Danger

Failure to observe the instructions and safety rules in this manual will result in death and serious injury.

Do not operate this machine unless the following conditions are met:

- ✓ Get familiar with and implement the safe operation principles illustrated in this manual.
- ✓ **Avoid dangerous conditions.**

Get familiar with and understand the safety rules before proceeding with the next section.

1. Always perform a pre-operation inspection.
2. Always perform function tests before operation.
3. Examine the service area.
4. Use this machine appropriately and only for its intended purpose.

- ✓ Read and understand the manufacturer's instructions and safety rules, safety and operating manuals, and machine labels.
- ✓ Read, understand and observe the employer's safety rules and workplace regulations.
- ✓ Read, understand and comply with all applicable legal regulations.
- ✓ Make sure that you are appropriately trained to safely operate this machine.

Classification of Hazards

The labels on this machine contain various symbols, colour codes and warning statements as follows:

Safety warning symbols warns you of potential personal injuries.

Observe all safety statements in this symbol to avoid potential injury or death.

DANGER Otherwise, hazards would occur, resulting in death or severe injury.

WARNING Indicates a hazardous condition that, in case of failure to observe the warning statement, may result in mild to moderate injuries.

NOTICE Indicates a property damage. For information purposes.

Authorized persons should take the necessary measures to keep these labels in good and legible condition. Upon demand, additional labels should be procured from ELS LIFT.

The Relevant Conditions of Using the Equipment

The surface of work ground should be flat and hard with no obstacles in air and the safety distance between the equipment and high-tension line is adequate.

The environment temperature should be within -20℃~40℃; Height above sea level ≤1000m. The environment humidity ≤ 90%.

Electrical power: AC 110~230V±10%, 50~60Hz.

Intended Use

This machine is designed to lift workers together with the accompanying tools and materials to access an aerial area.

Maintenance of Safety Signs

Replace all defective or damaged safety signs. Always prioritize the operator safety. Use mild soap and water to clean the safety signs. Do not use solvent-based cleaning agents as they may damage the material used to manufacture the safety sign.

Description of Symbols and Hazard Legends

①

Code : 413000023
Quantity : 4

②-1

Code : 413000013
Quantity : 2

②-2

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Quantity : 2

②-3

Code : 413002013
Quantity : 2

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Quantity : 2

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Quantity : 2

③-2

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Quantity : 2

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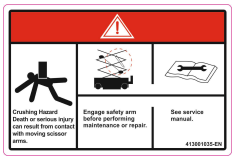

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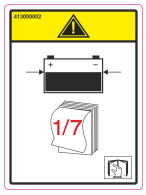

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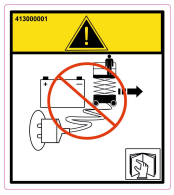

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Code : 413000010
Quantity :

⑯

Maintenance Bar

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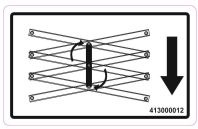

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ELS LIFT

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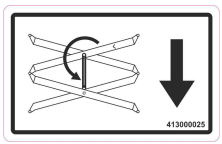

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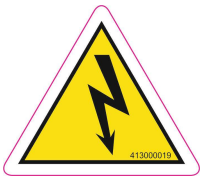

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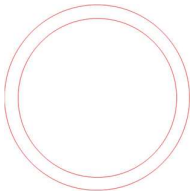

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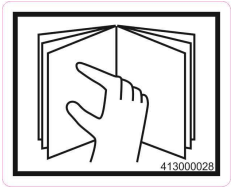

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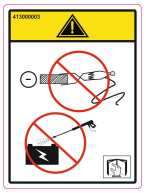

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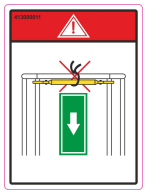

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	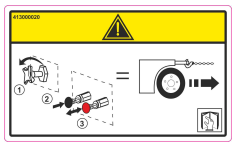	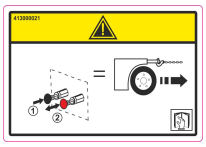	
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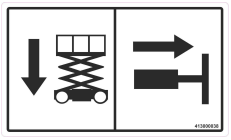

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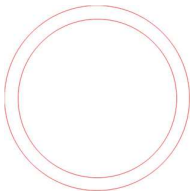

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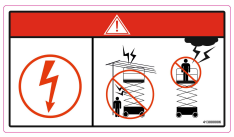

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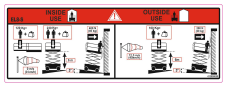

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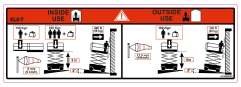

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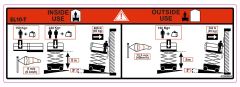

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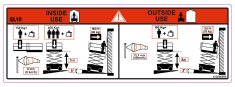

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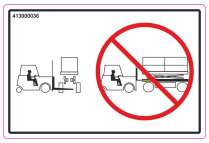

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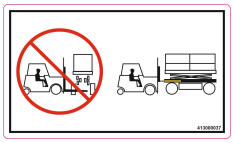

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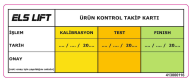

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			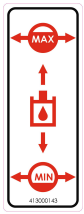
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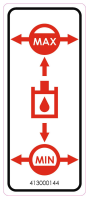			
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Inspection of Symbols and Hazard Legends

Use the pictures on the next page to verify that all decals are legible and in place.

Below is a numerical list with quantities and descriptions.

EL6-S and EL8-S

ITEM	PART NO	DESCRIPTION	QTY.
①	413000023	Decal, Lifting Eye	4
②–1	413000013	Decal, Do not stand under raised platform TR	2
②–2	413001013	Decal, Do not stand under raised platform EN	2
②–3	413002013	Decal, Do not stand under raised platform DE	2
②–4	413003013	Decal, Do not stand under raised platform FR	2
③–1	413010502	Decal, Label "EL6-S"	2
③–2	413010602	Decal, Label "EL8-S"	2
④	413000026	Decal, Label "KEEP"	2
⑤	413000027	Decal, Label "CLEAR"	2
⑥–1	413000035	Decal, Usage and Maintenance Warning TR	2
⑥–2	413001035	Decal, Usage and Maintenance Warning EN	2
⑥–3	413002035	Decal, Usage and Maintenance Warning DE	2
⑥–4	413003035	Decal, Usage and Maintenance Warning FR	2
⑦	413000008	Decal, Crush Hazard	4
⑨–1	413000049	Decal, Wheel Load EL6-S	4
⑨–2	413000051	Decal, Wheel Load EL8-S	4
⑩	413000018	Decal, Power to Platform Information	1
⑪	413000007	Decal, General Warnings	1
⑫	413000002	Decal, Battery Recharge Period	1
⑬	413000001	Decal, Charging Warning	1
⑭	413000031	Decal, Crush Hazard	2
⑮	413000010	Decal, Lifting Point	2
⑱	413000122	Decal, Label "ELS LIFT"	2

ITEM	PART NO	DESCRIPTION	QTY.
⑲	413000025	Decal, Maintenance Bar Warning	2
⑳	413000015	Decal, Transport Point	2
㉑	413000017	Decal, Plug Power Information	1
㉒	413000019	Decal, Power	1
㉔–1	413200002	Decal, Ground Control Panel TR (EL6-S and EL8-S)	1
㉔–2	413201002	Decal, Ground Control Panel DE (EL6-S and EL8-S)	1
㉔–3	413202002	Decal, Ground Control Panel FR (EL6-S and EL8-S)	1
㉖–1	413000029	Decal, Check If the Manuals Are In Place TR	1
㉖–2	413001029	Decal, Check If the Manuals Are In Place EN	1
㉖–3	413002029	Decal, Check If the Manuals Are In Place DE	1
㉖–4	413003029	Decal, Check If the Manuals Are In Place FR	1
㉗	413000028	Decal, Read the Operators Manual	1
㉘	413000003	Decal, Improper Use Warning	1
㉙	413000011	Decal, Entry Gate Warning	1
㉚	413000105	Decal, Label "YERLİ ÜRETİM"	1
㉛	413000020	Decal, Brake Release Safety and Operating Instructions	1
㉜	413000021	Decal, Brake Release Safety and Operating Instructions	1
㉝–1	413100005	Product Plate, EL6-S TR-EN	1
㉝–1. 1	413101005	Product Plate, EL6-S DE-EN	1
㉝–1. 2	413102005	Product Plate, EL6-S FR-EN	1
㉝–2	413100007	Product Plate, EL8-S TR-EN	1
㉝–2. 1	413101007	Product Plate, EL8-S DE-EN	1
㉝–2. 2	413102007	Product Plate, EL8-S FR-EN	1
㉞	413000038	Decal, Emergency Lowering	1
㊱	413000006	Decal, Electrocution Hazard	1
㊲–1	413000048	Decal, Indoor & Outdoor Usage EL6S	1
㊲–2	413000050	Decal, Indoor & Outdoor Usage EL8S	1
㊳	413000033	Decal, Fall Hazard	1
㊴–1	413000004	Decal, Usage Advices TR	1

ITEM	PART NO	DESCRIPTION	QTY.
㊴–2	413001004	Decal, Usage Advices EN	1
㊴–3	413002004	Decal, Usage Advices DE	1
㊴–4	413003004	Decal, Usage Advices FR	1
㊴–5	413005004	Decal, Usage Advices RU	1
㊵	413000034	Decal, No Smoking	1
㊶–1	413100006	Serial Number Plate, EL6-S	1
㊶–2	413100008	Serial Number Plate, EL8-S	1
㊸	413000037	Decal, Forklift Point	1
㊹	413000116	Decal, Product Control Card	1
㊺	413000121	Decal, Label "ELS"	1
㊻	413000113	Decal, Reflector	3,89 m
㊼	413000115	Decal, Anti Slip Tape	2,9 m

EL8-T and EL10-T

ITEM	PART NO	DESCRIPTION	QTY.
①	413000023	Decal, Lifting Eye	4
②–1	413000013	Decal, Do not stand under raised platform TR	2
②–2	413001013	Decal, Do not stand under raised platform EN	2
②–3	413002013	Decal, Do not stand under raised platform DE	2
②–4	413003013	Decal, Do not stand under raised platform FR	2
③–3	413011002	Decal, Label "EL8-T"	2
③–4	413011102	Decal, Label "EL10-T"	2
④	413000026	Decal, Label "KEEP"	2
⑤	413000027	Decal, Label "CLEAR"	2
⑥–1	413000035	Decal, Usage and Maintenance Warning TR	2
⑥–2	413001035	Decal, Usage and Maintenance Warning EN	2
⑥–3	413002035	Decal, Usage and Maintenance Warning DE	2
⑥–4	413003035	Decal, Usage and Maintenance Warning FR	2
⑦	413000008	Decal, Crush Hazard	4
⑧	413000009	Decal, Lanyard Attachment Point	4
⑨–3	413000053	Decal, Wheel Load EL8-T	4
⑨–4	413000055	Decal, Wheel Load EL10-T	4
⑩	413000018	Decal, Power to Platform Information	1
⑪	413000007	Decal, General Warnings	1
⑫	413000002	Decal, Battery Recharge Period	1
⑬	413000001	Decal, Charging Warning	1
⑭	413000031	Decal, Crush Hazard	2
⑮	413000010	Decal, Lifting Point	4
⑯	413000120	Decal, Label "MAINTENANCE BAR" (EL10-T)	2
⑰	413000012	Decal, Maintenance Bar Warning (EL10-T)	2
⑱	413000122	Decal, Label "ELS LIFT"	2
⑲	413000025	Decal, Maintenance Bar Warning (EL8-T)	2

ITEM	PART NO	DESCRIPTION	QTY.
㉑	413000017	Decal, Plug Power Information	1
㉒	413000019	Decal, Power	1
㉓	413200001	Decal, Ground Control Panel	1
㉕	413000124	Decal, Label White Circle (Ø11-Ø13)	1
㉖-1	413000029	Decal, Check If the Manuals Are In Place TR	1
㉖-2	413001029	Decal, Check If the Manuals Are In Place EN	1
㉖-3	413002029	Decal, Check If the Manuals Are In Place DE	1
㉖-4	413003029	Decal, Check If the Manuals Are In Place FR	1
㉗	413000028	Decal, Read the Operators Manual	1
㉘	413000003	Decal, Improper Use Warning	2
㉙	413000011	Decal, Entry Gate Warning	1
㉚	413000105	Decal, Label "YERLİ ÜRETİM"	1
㉛	413000020	Decal, Brake Release Safety and Operating Instructions	2
㉝-3	413100009	Product Plate, EL8-T TR-EN	1
㉝-3. 1	413101009	Product Plate, EL8-T DE-EN	1
㉝-3. 2	413102009	Product Plate, EL8-T FR-EN	1
㉝-4	413100011	Product Plate, EL10-T TR-EN	1
㉝-4. 1	413101011	Product Plate, EL10-T DE-EN	1
㉝-4. 2	413102011	Product Plate, EL10-T FR-EN	1
㉞	413000038	Decal, Emergency Lowering	1
㉟	413000123	Decal, Label White Circle (Ø10-Ø12)	1
㊱	413000006	Decal, Electrocution Hazard	1
㊲-3	413000052	Decal, Indoor & Outdoor Usage EL8-T	1
㊲-4	413000054	Decal, Indoor & Outdoor Usage EL10-T	1
㊳	413000033	Decal, Fall Hazard	1
㊴-1	413000004	Decal, Usage Advices TR	1
㊴-2	413001004	Decal, Usage Advices EN	1
㊴-3	413002004	Decal, Usage Advices DE	1
㊴-4	413003004	Decal, Usage Advices FR	1

ITEM	PART NO	DESCRIPTION	QTY.
㊴–5	413005004	Decal, Usage Advices RU	1
㊵	413000034	Decal, No Smoking	1
㊶–3	413100010	Serial Number Plate, EL8-T	1
㊶–4	413100012	Serial Number Plate, EL10-T	1
㊷	413000036	Decal, Forklift Handling Point	2
㊹	413000116	Decal, Product Control Card	1
㊺	413000121	Decal, Label "ELS"	1
㊻	413000113	Decal, Reflector	5,31 m
㊼	413000115	Decal, Anti Slip Tape	4,2 m
㊽	413000069	Decal, Crush Hazard (Small Label 50X50)	1
㊿	413000144	Decal, Oil Level 'MIN' – 'MAX'	1

EL10, EL12 and EL14

ITEM	PART NO	DESCRIPTION	QTY.
①	413000023	Decal, Lifting Eye	4
②–1	413000013	Decal, Do not stand under raised platform TR	2
②–2	413001013	Decal, Do not stand under raised platform EN	2
②–3	413002013	Decal, Do not stand under raised platform DE	2
②–4	413003013	Decal, Do not stand under raised platform FR	2
③–5	413011502	Decal, Label "EL10"	2
③–6	413011602	Decal, Label "EL12"	2
③–7	413011702	Decal, Label "EL14"	2
④	413000026	Decal, Label "KEEP"	2
⑤	413000027	Decal, Label "CLEAR"	2
⑥–1	413000035	Decal, Usage and Maintenance Warning TR	2
⑥–2	413001035	Decal, Usage and Maintenance Warning EN	2
⑥–3	413002035	Decal, Usage and Maintenance Warning DE	2
⑥–4	413003035	Decal, Usage and Maintenance Warning FR	2
⑦	413000008	Decal, Crush Hazard	4
⑧	413000009	Decal, Lanyard Attachment Point	4
⑨–5	413000057	Decal, Wheel Load EL10	4
⑨–6	413000059	Decal, Wheel Load EL12	4
⑨–7	413000061	Decal, Wheel Load EL14	4
⑩	413000018	Decal, Power to Platform Information	1
⑪	413000007	Decal, General Warnings	1
⑫	413000002	Decal, Battery Recharge Period	1
⑬	413000001	Decal, Charging Warning	1
⑭	413000031	Decal, Crush Hazard	2
⑮	413000010	Decal, Lifting Point	4
⑯	413000120	Decal, Label "MAINTENANCE BAR"	2
⑰	413000012	Decal, Maintenance Bar Warning	2

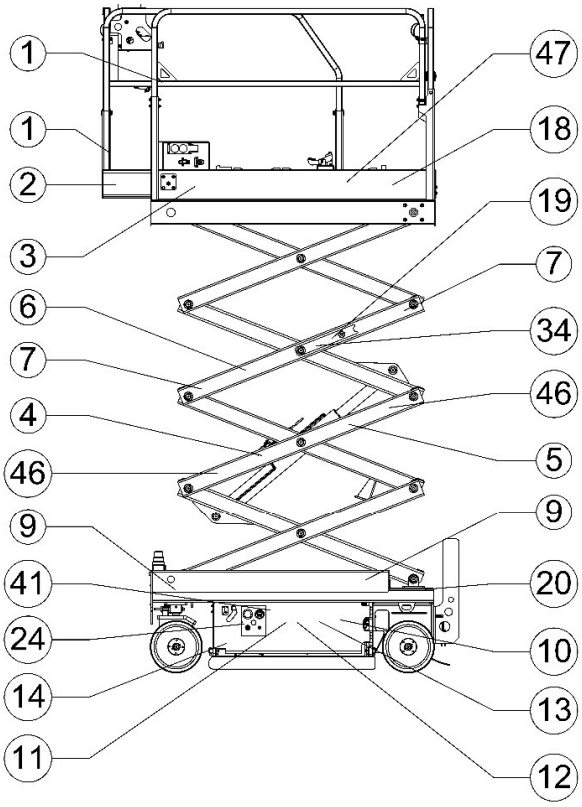
ITEM	PART NO	DESCRIPTION	QTY.
⑱	413000122	Decal, Label "ELS LIFT"	2
㉑	413000017	Decal, Plug Power Information	1
㉒	413000019	Decal, Power	1
㉓	413200001	Decal, Ground Control Panel	1
㉕	413000124	Decal, Label White Circle (Ø11-Ø13)	1
㉖–1	413000029	Decal, Check If the Manuals Are In Place TR	1
㉖–2	413001029	Decal, Check If the Manuals Are In Place EN	1
㉖–3	413002029	Decal, Check If the Manuals Are In Place DE	1
㉖–4	413003029	Decal, Check If the Manuals Are In Place FR	1
㉗	413000028	Decal, Read the Operators Manual	1
㉘	413000003	Decal, Improper Use Warning	2
㉙	413000011	Decal, Entry Gate Warning	1
㉚	413000105	Decal, Label "YERLİ ÜRETİM"	1
㉛	413000020	Decal, Brake Release Safety and Operating Instructions	2
㉝–5	413100013	Product Plate, EL10 TR-EN	1
㉝–5. 1	413101013	Product Plate, EL10 DE-EN	1
㉝–5. 2	413102013	Product Plate, EL10 FR-EN	1
㉝–6	413100015	Product Plate, EL12 TR-EN	1
㉝–6. 1	413101015	Product Plate, EL12 DE-EN	1
㉝–6. 2	413102015	Product Plate, EL12 FR-EN	1
㉝–7	413100017	Product Plate, EL14 TR-EN	1
㉝–7. 1	413101017	Product Plate, EL14 DE-EN	1
㉝–7. 2	413102017	Product Plate, EL14 FR-EN	1
㉞	413000038	Decal, Emergency Lowering	1
㉟	413000123	Decal, Label White Circle (Ø10-Ø12)	1
㊱	413000006	Decal, Electrocution Hazard	1
㊲–5	413000056	Decal, Indoor & Outdoor Usage EL10	1
㊲–6	413000058	Decal, Indoor & Outdoor Usage EL12	1
㊲–7	413000060	Decal, Indoor & Outdoor Usage EL14	1

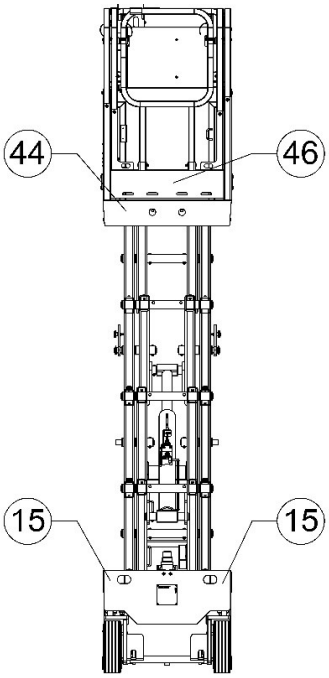
ITEM	PART NO	DESCRIPTION	QTY.
㊳	413000033	Decal, Fall Hazard	1
㊴–1	413000004	Decal, Usage Advices TR	1
㊴–2	413001004	Decal, Usage Advices EN	1
㊴–3	413002004	Decal, Usage Advices DE	1
㊴–4	413003004	Decal, Usage Advices FR	1
㊴–5	413005004	Decal, Usage Advices RU	1
㊵	413000034	Decal, No Smoking	1
㊶–5	413100014	Serial Number Plate, EL10	1
㊶–6	413100016	Serial Number Plate, EL12	1
㊶–7	413100018	Serial Number Plate, EL14	1
㊷	413000036	Decal, Forklift Handling Point	2
㊹	413000116	Decal, Product Control Card	1
㊺	413000121	Decal, Label "ELS"	1
㊻	413000113	Decal, Reflector	5,9 m
㊼	413000115	Decal, Anti Slip Tape	5,6 m
㊾	413000143	Decal, Oil Level 'MIN' - 'MAX' (EL12 – EL14)	1
㊿	413000144	Decal, Oil Level 'MIN' – 'MAX' (EL10)	1

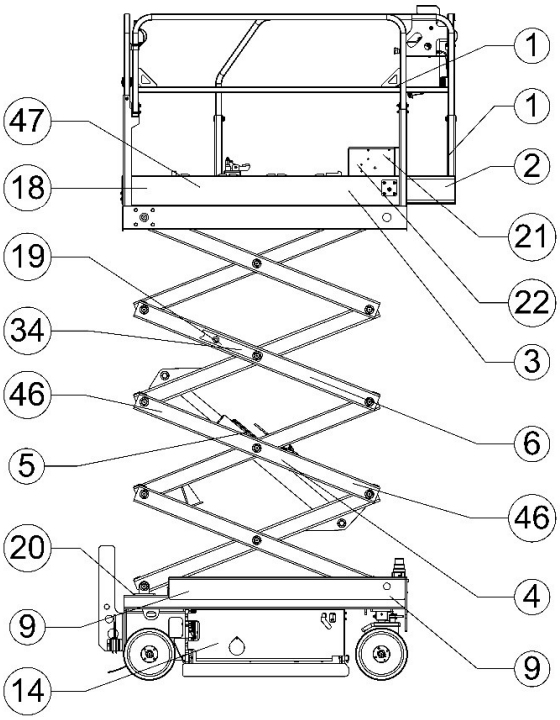
General Safety

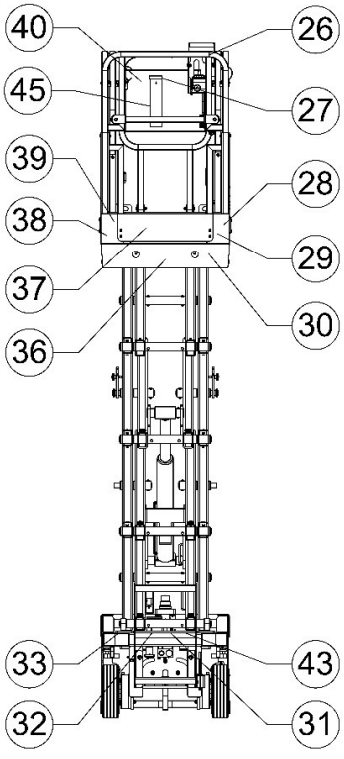
Location of Safety Indicators

EL6-S / EL8-S









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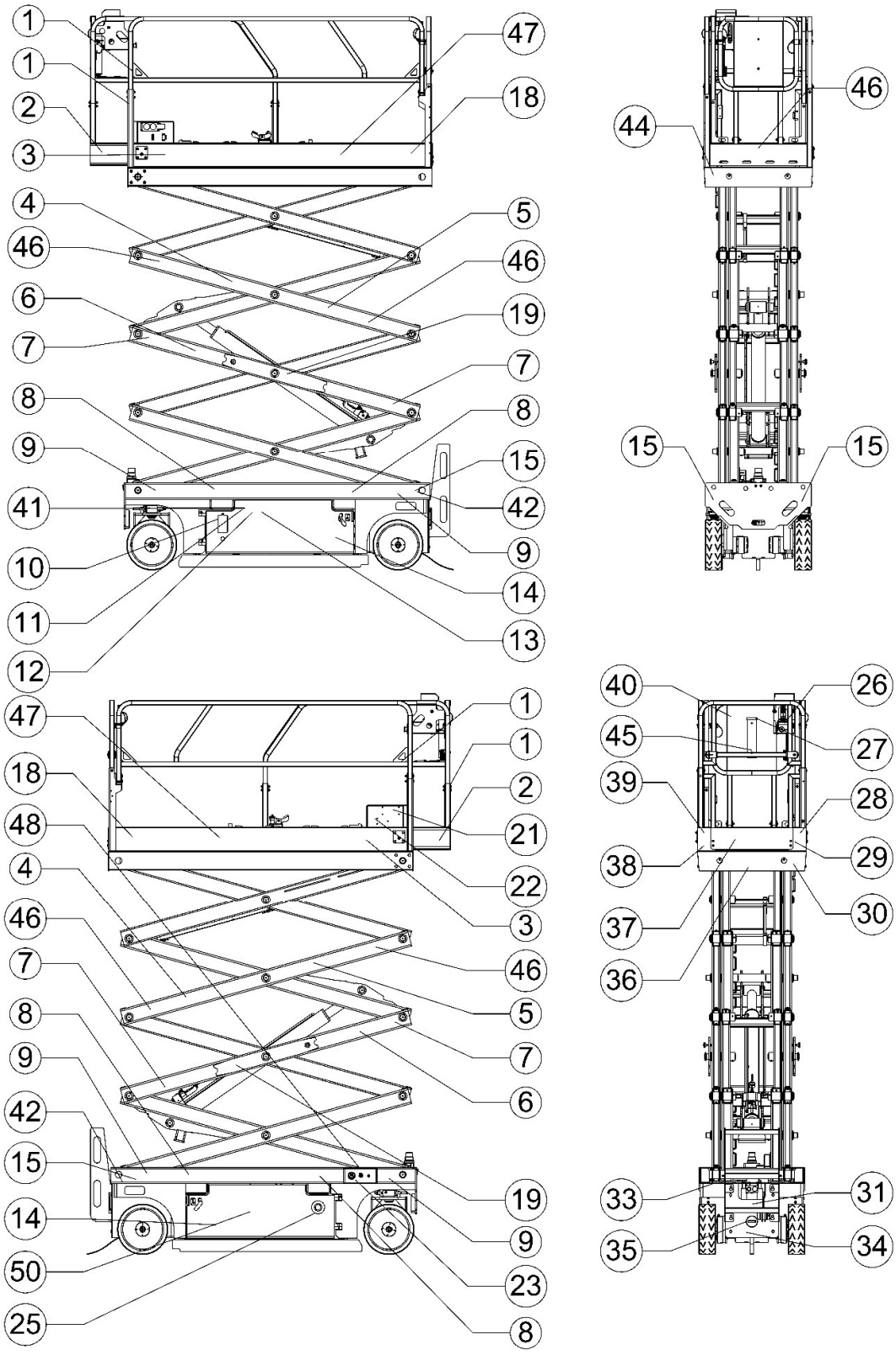
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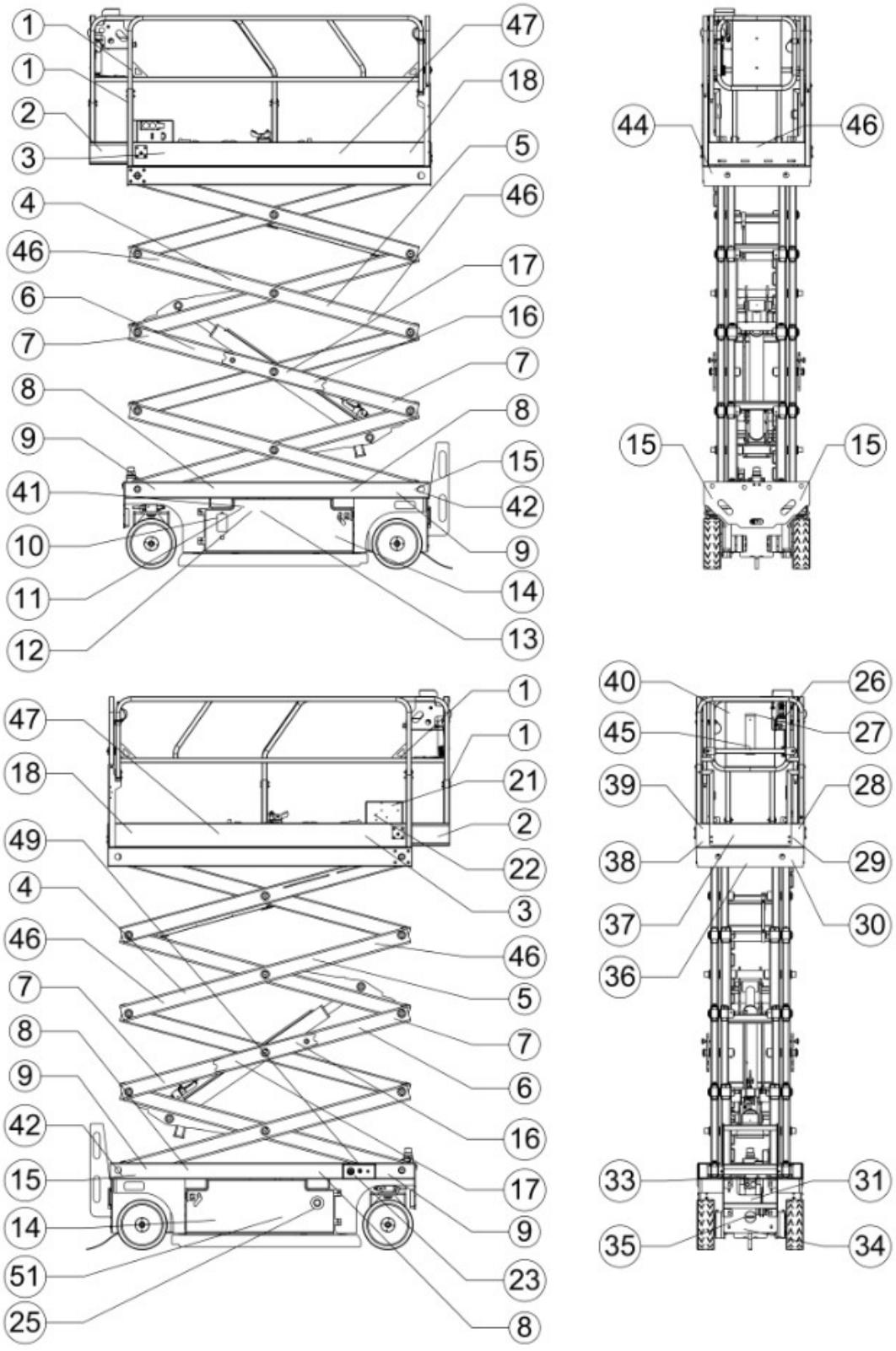
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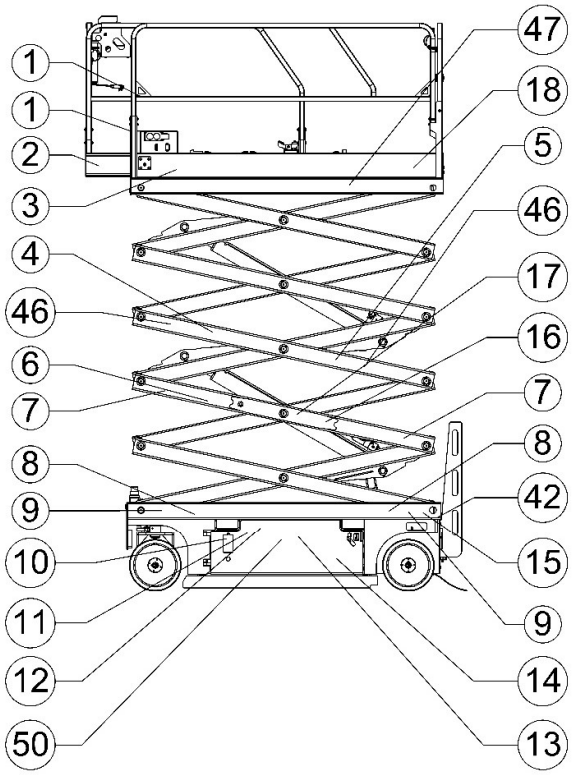
EL10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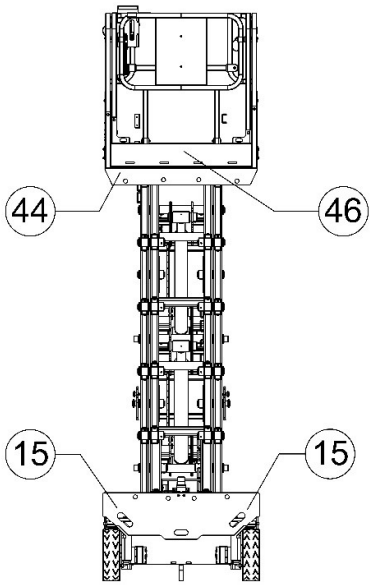
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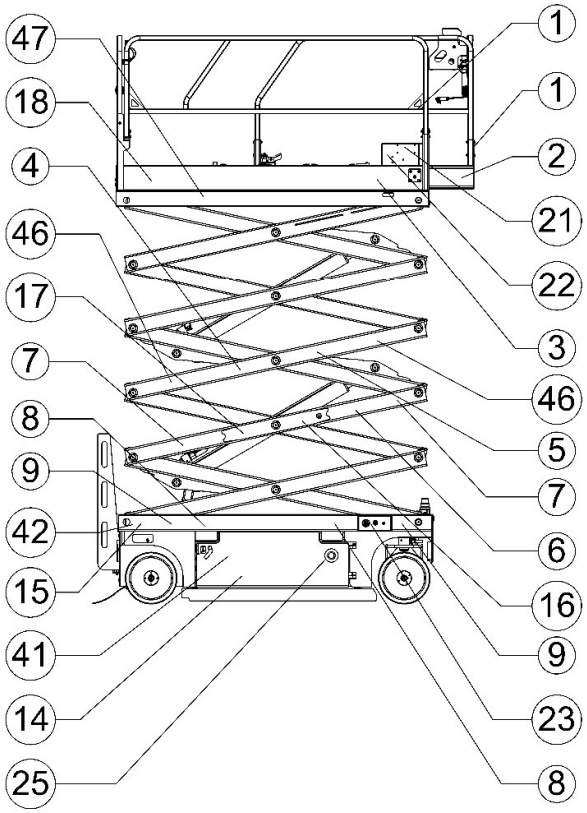
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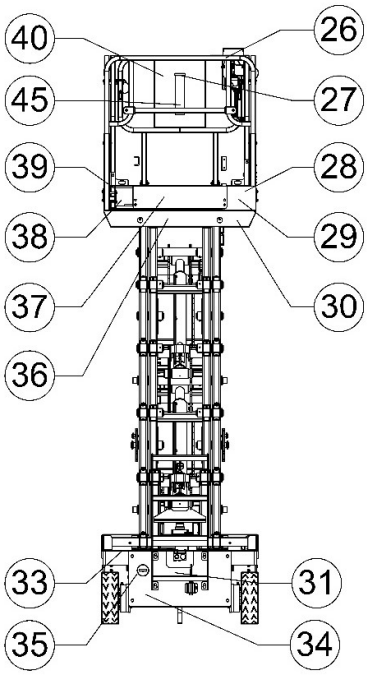
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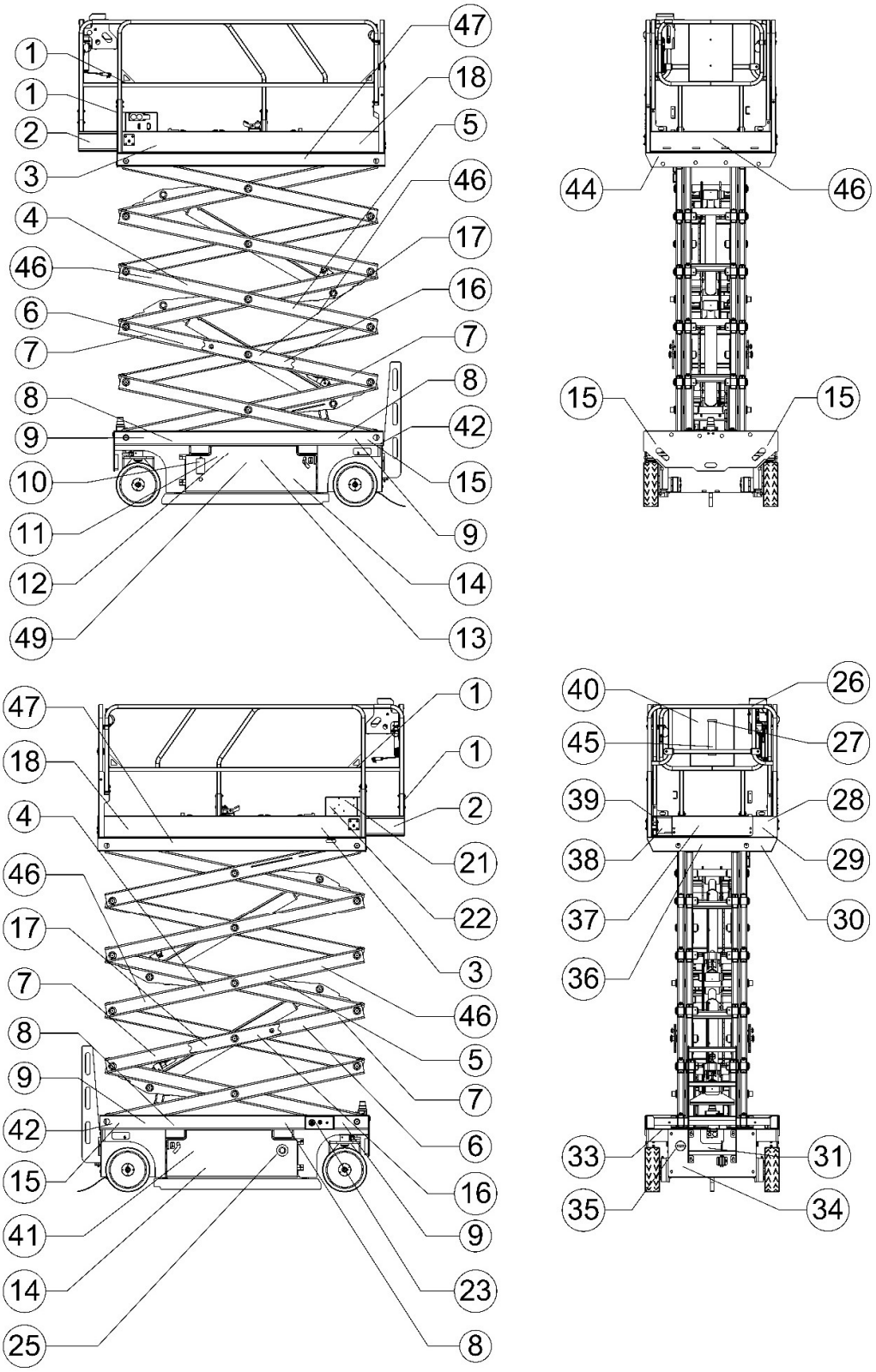
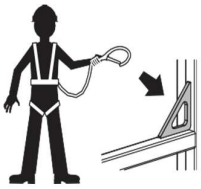
EL12 and EL14



Personal Safety

Anti-Fall Protection



When operating the machine, the personnel lift fall protection equipment is required.

Users in the vehicle must wear a safety belt or safety strap in accordance with the legal regulations. Hook the seat belt to the binding on the platform.

Operators must comply with employer, job site and governmental rules regarding the use of personal protective equipment.

All anti-fall protection equipment must comply with applicable legal regulations and must be inspected and used as per the manufacturer's instructions.

Safety of the Work Area

Electrocution Hazards

This machine is not electrically insulated and will not provide protection from contact with or proximity to electrical current.

Maintain safe distances from electrical power lines and apparatus in accordance with applicable governmental regulations and the following chart.

Line Voltage	Minimum Safe Approach Distance
0 – 50 KV	3.0 m
50 – 200 KV	4.6 m
200 – 350 KV	6.1 m
350 – 500 KV	7.6 m
500 – 750 KV	10.6 m
750 – 1000 KV	13.7 m

Allow for platform movement, electrical line sway or sag and beware of strong or gusty winds.

Keep away from the machine if it contacts energized power lines. Personnel on the ground or in the platform must not touch or operate the machine until the power lines are de-energized.

Do not operate the machine during lightning or storms.

Do not use the machine as a ground for welding.

Tip-over Hazards

Occupants, equipment and materials must not exceed the maximum platform capacity.

Weight of optional parts and accessories such as pipe skids and panel skids reduce the nominal platform capacity and therefore should be taken into account when calculating the total platform load. Refer to the labels delivered with the optional parts and accessories.

If you are using accessories, read, understand, and observe the accompanying labels and instructions.

Do not alter or disable the limit switches.

Do not raise the platform unless the machine is on a firm, level surface.

Do not depend on the tilt alarm as a level indicator. The tilt alarm sounds on the chassis only when the machine is on a slope.

If the tilt alarm sounds: Lower the platform carefully. Move the machine to a firm, level surface.

When raising the platform, observe the permissible manual force values and number of persons specified below.

Do not operate the machine in strong or gusty winds. Do not increase the surface area of the platform or the load. Increasing the area exposed to the wind will decrease machine stability.

Use extreme care and slow speeds while driving the machine in a stowed position across uneven terrain, debris, unstable or slippery surfaces and near holes and drop-offs.

Do not drive the machine on or near uneven terrain, unstable surfaces or other hazardous conditions with the platform raised.

Do not push off or pull toward any object outside of the platform.

- For EL6-S - EL8-S - EL10-T - EL12 - EL14 Machines:

Maximum Manual Force	Maximum Number of Persons
400 N indoor use only	2
200 N outdoor use	1

- For EL8-T and EL10 Machines:

Maximum Manual Force	Maximum Number of Persons
600 N indoor use only	3
200 N outdoor use	1

Do not alter or disable machine components that in any way affect safety and stability.

Do not replace items critical to machine stability with items of different weight or specification.

Do not place loads outside the platform perimeter.

Do not modify or alter an aerial work platform without prior written permission from the manufacturer.

Mounting attachments for holding tools or other materials on to the platform, toe boards or guardrail system can increase the weight in the platform and the surface area of the platform or the load.

Do not place or attach fixed or overhanging loads to any part of this machine.

Do not place ladders or scaffolds in the platform or against any part of this machine.

Do not transport tools and materials unless they are evenly distributed and can be safely handled by person(s) in the platform.

Do not use the machine on a moving or mobile surface or vehicle.

Be sure all tires are in good condition and castle nuts are properly tightened.

Do not use the platform controls to free a platform that is caught, snagged or otherwise prevented from normal motion by an adjacent structure. All personnel must be removed from the platform before attempting to free the platform using the ground controls.

Batteries are used as counterweight and are critical to machine stability. Do not replace the battery box without the manufacturer's permission. Do not use batteries that weigh less than the original equipment.

Do not use the machine as a crane.

Do not tie the platform to adjacent structures.

Hazards Associated with Slopes

Do not drive the machine on a slope that exceeds the slope and side slope rating of the machine Slope rating applies to machines in the stowed position.

Maximum slope rating, stowed	25% (14°)
Maximum side slope rating stacked	15% (9°)

Note: Slope rating is subject to ground conditions and adequate traction. See "Driving on a Slope" in the Operating Instructions section.

⚠ Fall Hazards

Users in the vehicle must wear a safety belt or safety strap in accordance with the legal regulations. Hook the pull cord to the bolt on the platform.

Do not sit, stand or climb on the platform guardrails.

Maintain a firm footing on the platform floor at all times.

Do not climb down from the platform when raised.

Keep the platform floor clear of debris.

Attach the platform entry chain or close the entry gate before operating.

Do not enter in or exit the platform if the machine is in stowed position and platform is not at ground level.

Collision Hazards

Be aware of limited sight distance and blind spots when driving or operating.

Be aware of extended platform position when moving the machine.

Check the work area for overhead obstructions or other possible hazards.

Be aware of crushing hazards when grasping the platform guard rail.

Operators must comply with employer, job site and governmental rules regarding the use of personal protective equipment.

Observe and use colour-coded direction arrows on the platform controls and platform decal plate for drive and steer functions.

Do not lower the platform unless the area below is clear of personnel and obstructions.

Limit travel speed according to the condition of the ground surface, congestion, slope, location of personnel, and any other factors which may cause collision.

Do not operate a machine in the path of any crane unless the controls of the crane have been locked out and/or precautions have been taken to prevent any potential collision.

No stunt driving or horseplay while operating a machine. The machine must be on a level surface or secured before releasing the brakes.

Explosion and Fire Hazards

Charge the battery only in a well-ventilated area cleared of sparks, flames and lighted tobacco.

Do not operate the machine or charge the battery in hazardous locations or locations where potentially flammable or explosive gases or particles may be present.

Bodily Injury Hazard

Do not operate the machine with a hydraulic oil or air leak. An air leak or hydraulic leak can penetrate and/or burn skin.

Improper contact with components under any cover will cause serious injury.

Only trained maintenance personnel must access compartments. Access by the operator is only advised when performing a pre-operation inspection. All compartments must remain closed and secured during operation.

Damaged Machine Hazards

Do not use a damaged or malfunctioning machine.

Conduct a thorough pre-operation inspection of the machine and test all functions before each work shift. Immediately tag and remove from service a damaged or malfunctioning machine.

Be sure all maintenance has been performed as specified in this manual and the appropriate service manual.

Be sure all decals are in place and legible.

Be sure the operator's, safety, and responsibilities manuals are complete, legible and in the storage container located on the platform.

Component Damage Hazard

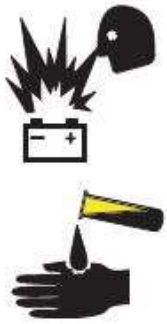
⚠ WARNING

Do not use the machine as a ground for welding. Do not use any battery charger greater than 24V to charge the batteries. Only use the chargers recommended by ELS.

Battery Safety

Burn Hazards

⚠ WARNING



Batteries contain acid. Always wear protective clothing and eyewear when working with batteries. Avoid spilling or contacting battery acid.

Neutralize battery acid spills with baking soda and water.

The battery pack should be in upright position.

Do not expose the batteries or the charger to water or rain during charging.

Explosion Hazards

Keep sparks, flames and lighted tobacco away from batteries.

Batteries emit an explosive gas.

The battery tray should remain open during the entire charging cycle.

Do not contact the battery terminals or the cable clamps with tools that may cause sparks.

Electrocution Hazards

Connect the battery charger to a grounded, AC 3-wire electrical outlet only.

Inspect daily for damaged twines, cables and wires.

Replace damaged items before operating.

Avoid electrical shock from contact with battery terminals. Remove all rings, watches and other jewellery during the operation.

Tip-Over Hazard

Do not use batteries that weigh less than the original equipment. Batteries are used as counterweight and are critical to machine stability. Do not replace the battery box without the manufacturer's permission.

Lifting Hazard

Use appropriate lifting means and proper lifting techniques when lifting batteries.

Lockout after Each Use

1. Select a safe parking location (firm level surface, clear of obstruction and away from the crowded or/and traffic).

2. Lower the platform.

3. Shut down the main power.

4. Push in the Emergency Stop buttons.

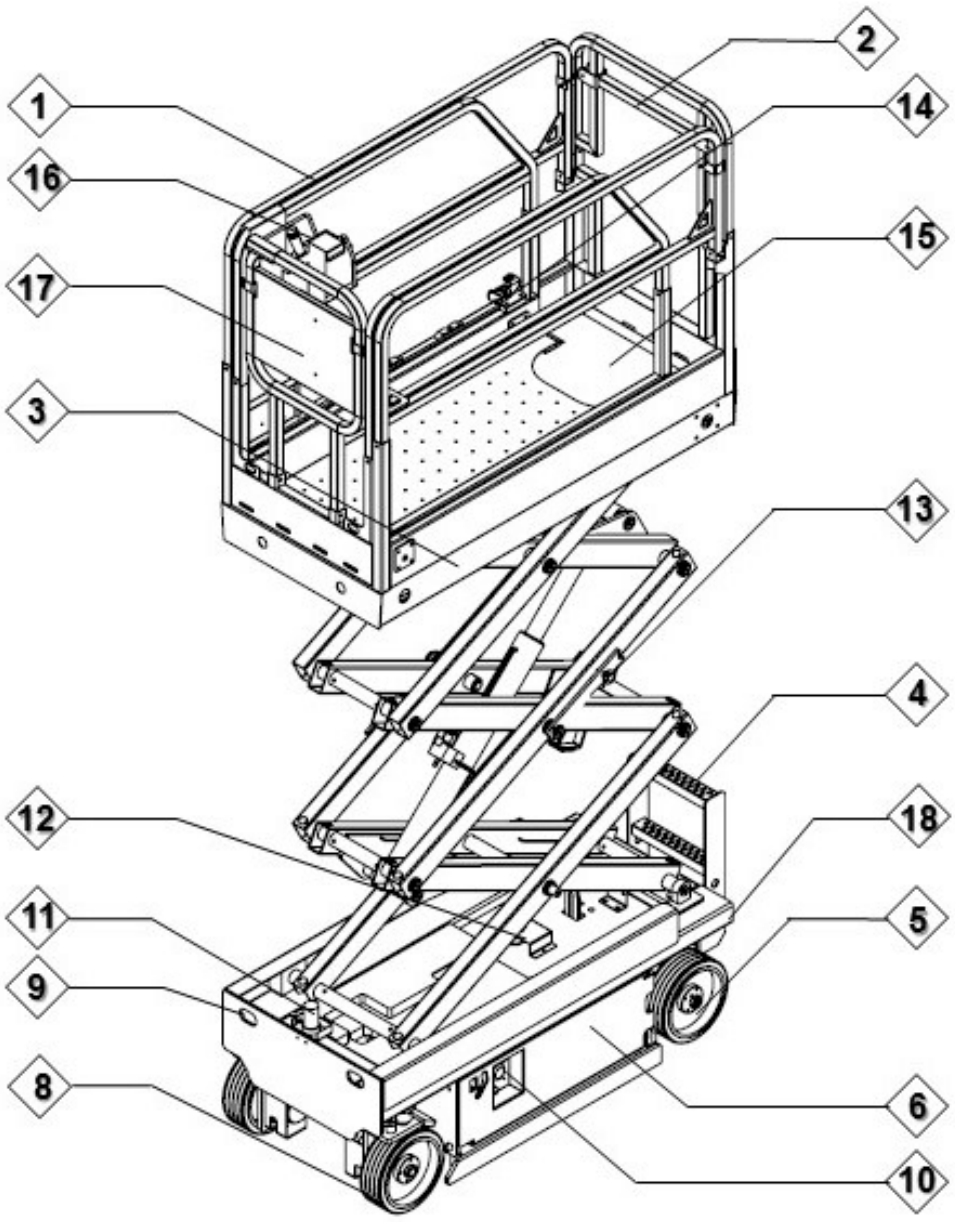
5. Turn the key switch to the off position and remove the key to secure from unauthorized use.

6. Chock the wheels.

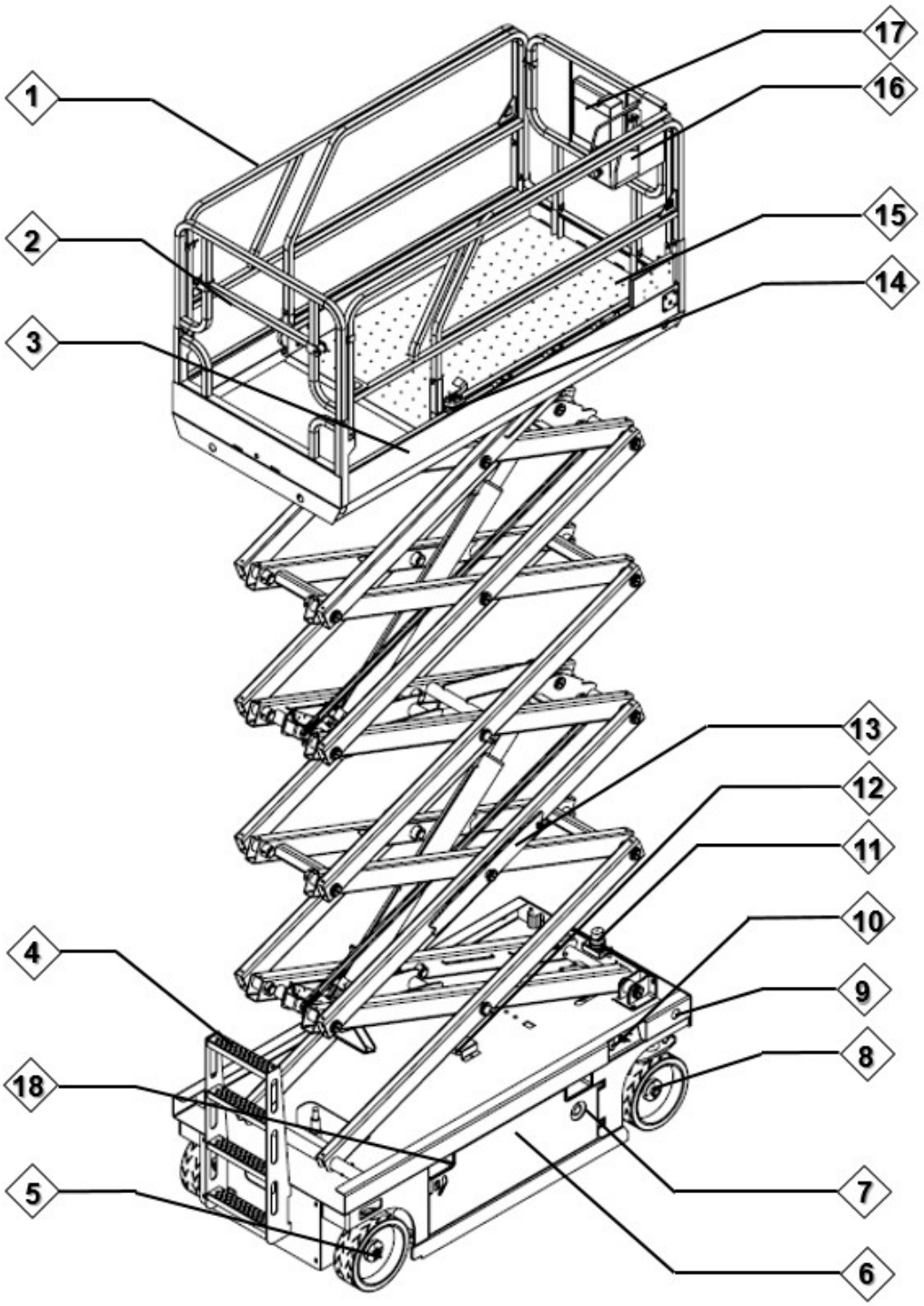
7. Charge the batteries.

Description

EL6-S EL8-S



EL8-T EL10-T EL10 EL12 EL14



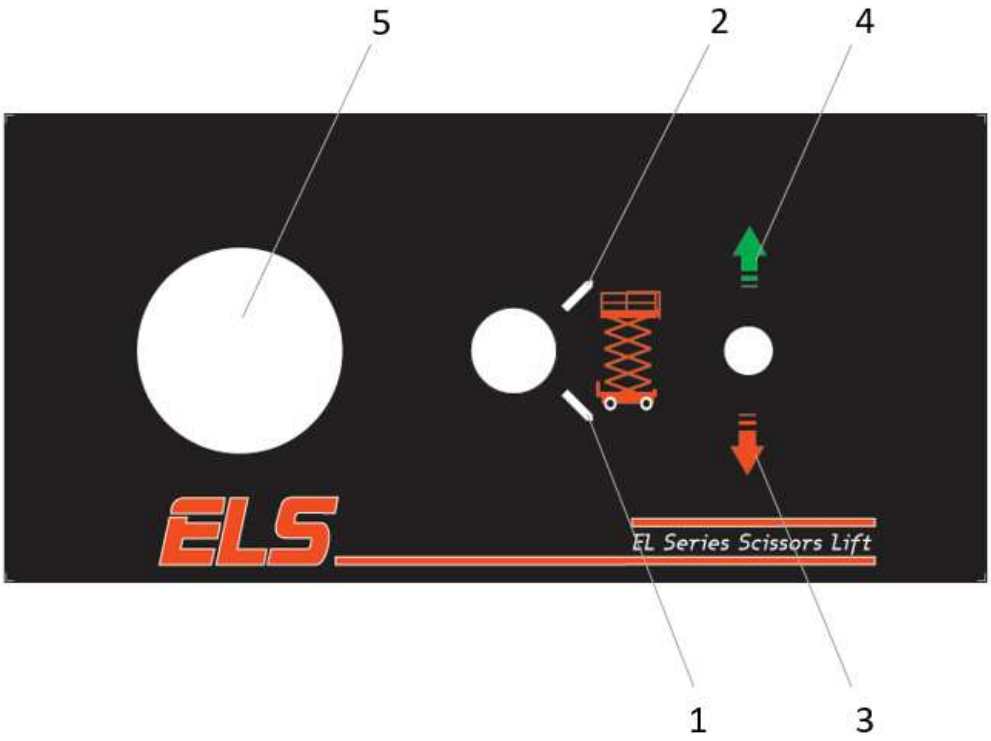
1. Platform Guide Rails
2. Platform Entry Gate
3. Platform
4. Platform Access Ladder
5. Front Wheels
6. Batteries
7. Platform Emergency Stop Button
8. Steer Tires
9. Transport and Fixing Point
10. Ground Control Panel
11. Flashlight
12. Tilt Sensor
13. Maintenance Rod
14. Platform Extension Lock
15. Platform Extension
16. Platform Control Panel
17. Guide Storage Container
18. Forklift Pocket

Control Panels

Platform Control Panel

1. Emergency Stop button
   - Pull out to activate the Emergency Stop button to enable all functions. Push the Emergency Stop button to off position to shut all functions.
2. Right Turn Key
   - When the right turn key is pressed when holding the function enable switch, tires are steered rightward
3. Left Turn Key
   - When the left turn key is pressed when holding the function enable switch, tires are steered leftward.
4. Function Enable Switch
   - To enable the functions, press and hold the function enable switch in the control handle.
5. Platform Up/Down Enable Switch
   - To enable the platform up/down function, press the platform up/down switch on the platform control panel.
6. Horn Button
7. Slow Drive Enable Switch
   - To enable the slow drive function, press the slow drive switch on the platform control panel.
8. Drive Function Enable Switch
   - To enable the drive function, press the drive switch on the platform control panel.
9. Fault Display

Ground Control Panel



1. Ground Control Key Switch
   - Turn the ground control select switch. The ground control panel functions will be enabled.
2. Platform Key Switch
   - Turn the platform control select switch. The platform control panel functions will be enabled.
3. Platform Down Switch
   - Press and hold the platform down switch. The platform will lower.
4. Platform Up Switch
   - Press and hold the platform up switch. Platform will raise.
5. Hourmeter

Inspection

Do not operate this machine unless the following conditions are met:

- ✓ Get familiar with and implement the safe operation principles illustrated in this manual.
1. Avoid dangerous conditions.
2. Always perform a pre-operation inspection.

Get familiar with and understand the pre-operation inspection before proceeding with the next section.

1. Always perform function tests before operation.
2. Examine the service area.
3. Use this machine appropriately and only for its intended purpose.

Pre-operation Inspection Fundamentals

It is the responsibility of the operator to perform a pre-operation inspection and routine maintenance.

The pre-operation inspection is a visual inspection performed by the operator prior to each work shift.

The inspection is designed to discover if anything is apparently wrong with a machine before the operator performs the function tests.

The pre-operation inspection also serves to determine if routine maintenance procedures are required. Only the routine maintenance items specified in this manual may be performed by the operator.

Refer to the list on the next page and check each of the items.

If damage or any unauthorized variation from factory delivered condition is discovered, the machine must be tagged and removed from service.

Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications. After repairs are completed, the operator must perform a pre-operation inspection again before proceeding with the function tests.

Scheduled maintenance inspections shall be performed only by qualified service technicians, according to the manufacturer's specifications and the requirements listed in the responsibilities manual.

Pre-operation Inspection

- ✓ Be sure the operator's, safety, and responsibilities manuals are complete, legible and in the storage container located on the platform.
- ✓ Be sure that all decals are legible and in place. See the Inspections section.
- ✓ Check for hydraulic oil leaks and proper oil level. Add oil if needed. See the Maintenance section.
- ✓ Check for battery fluid leaks and proper fluid level. Add distilled water if needed. See the Maintenance section.

Check the following components or areas for damage, improperly installed or missing parts and unauthorized modifications:

- ✓ Electrical components, wiring and electrical cables
- ✓ Hydraulic hoses, fittings, cylinders and manifolds
- ✓ Hydraulic tank
- ✓ Motors
- ✓ Wear pads
- ✓ Tires and wheels
- ✓ Limit switches and horn
- ✓ Beacon and alarms (if equipped)
- ✓ Nuts, bolts and other fasteners
- ✓ Scissor pins and retaining fasteners
- ✓ Maintenance rod
- ✓ Platform extension
- ✓ Earth wire
- ✓ Battery pack and connections
- ✓ Platform control joystick
- ✓ Platform entry gate
- ✓ Brake release components
- ✓ Pothole guards

Check entire machine for:

- ✓ Cracks in welds or structural components
- ✓ Dents or damage to machine
- ✓ Excessive rust, corrosion or oxidation
- ✓ Be sure that all structural and other critical components are present, all associated fasteners, and pins are in place and properly tightened.
- ✓ Make sure that batteries are in place and properly connected.
- ✓ After the inspection is complete, be sure that all component covers are in place and latched.

Inspection at the Ground Control Panel

Emergency Stop Test

Switch the Emergency Stop button on the ground to off position. After this procedure, no function should be active.

Testing the Up/Down Function

- Switch the Emergency Stop button to on position.
- Do not turn the switch to the ground or platform control position.
- Move up or down the toggle switch.
- The platform should not move up or down.
- Switch the Emergency Stop button to on position.
- Turn the switch to the ground control position.
- Do not move up or down the toggle switch.
- The platform should not move up or down.
- Switch the Emergency Stop button to on position.
- Turn the switch to the ground control position.
- Move up or down the toggle switch.
- The platform should move up or down.

Testing the Emergency Lowering Cable

The emergency lowering cable provides safe descending if the platform cannot be moved down due to machine malfunction.

Inspection at the Platform Control Panel

Emergency Stop Test

Switch the Emergency Stop button on the platform to off position. After this procedure, no function should be active.

Testing the Horn

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Push the horn button.
- The horn should sound.

Testing the Up/Down Function

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Do not press the platform up/down toggle switch.
- Press and hold the function enable switch on the control handle.
- Move up or down the control handle.
- The platform should not move up or down.

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Press the platform up/down toggle switch.
- Do not press the function enable switch in the control handle.
- Move up or down the control handle.

- The platform should not move up or down.

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Press the platform up/down toggle switch.
- Press and hold the function enable switch on the control handle.
- Move up or down the control handle.
- The platform should move up or down.

Testing the Drive Function

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Do not press the drive toggle switch.
- Press and hold the function enable switch on the control handle.
- Move forward or backward the control handle.
- Machine should not move forward or backward.

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Press the drive toggle switch.
- Do not press the function enable switch in the control handle.
- Move forward or backward the control handle.
- Machine should not move forward or backward.

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Press the drive toggle switch.
- Press and hold the function enable switch on the control handle.
- Move forward or backward the control handle.
- Machine should move forward or backward.

Testing the Steer Function

When performing the steer function test, stand in the platform facing the steer end of the machine.

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Press the drive toggle switch.
- Press and hold the function enable switch on the control handle.
- Press one of the right/left direction keys on the control handle.
- The steer wheels should turn in the direction indicated by the key pressed.

Testing the Braking System

- Switch the Emergency Stop button to on position.
- Turn the switch to the platform control position.
- Press the drive toggle switch.
- Press and hold the function enable switch on the control handle.
- Slowly move the control handle away from the centre position according to the arrows on the control panel.

Slowly return the control handle to the centre position.

- The machine should move forward or backward according to the user's command and then come to stop when the handle is returned to centre position.

Testing the Pothole Guard

- Raise the platform.
- The pothole guards should deploy.
- Lower the platform.
- The pothole guards should return to the retracted position.

Instructions for Use

Do Not Operate Unless:

You learn and practice the principles of safe machine operation contained in this operator's manual.

1. Avoid hazardous situations.
2. Always perform a pre-operation inspection.
3. Inspect the workplace.
4. Always perform function tests before operation.

Know and understand the function tests before going on to the next section.

5. Use this machine appropriately and only for its intended purpose.

Fundamentals

This machine is a self-propelled hydraulic lift equipped with a work platform on the scissor mechanism. Vibrations emitted by these machines are not hazardous to an operator in the work platform. The machine can be used to position personnel with their tools and supplies at position above ground level and can be used to reach work areas located above and over machinery or equipment.

The Operating Instructions section provides instructions for each aspect of machine operation.

It is the operator's responsibility to follow all the safety rules and instructions in the operator's manual.

Using the machine for anything other than lifting personnel, along with their tools and materials, to an aerial work site is unsafe and dangerous.

Only trained and authorized personnel should be permitted to operate a machine. If more than one operator is expected to use a machine at different times in the same work shift, they must all be qualified operators and are all expected to follow all safety rules and instructions in the operator's manual. That means every new operator should perform a pre-operation inspection, function tests, and a workplace inspection before using the machine.

Operation from the Ground Control Panel

1. Turn the key switch to the ground control position.
2. Switch both the platform and ground Emergency Stop buttons to the on position.

To Position the Platform

1. Press the lift function key from the ground control panel to enable the lift position.
2. Move the platform using the platform up/down keys.

Drive and steer commands are not present on the ground control panel.

Operation from the Platform Control Panel

1. Turn the key switch to the platform control position.
2. Switch both the platform and ground Emergency Stop buttons to the on position.

To Position the Platform

1. Press the lift function key from the platform control panel to enable the lift function.
2. Press and hold the function enable switch on the control handle.
3. Move the control handle according to the markings on the control panel.

Steer Function

1. Press the drive function key on the platform control panel.
2. Press and hold the function enable switch on the control handle.
3. Press the keys on the control handle to steer the tires.

Drive Function

1. Press the drive function key on the platform control panel.
2. Press and hold the function enable switch on the control handle.
3. Move the control handle according to the markings on the control panel.
4. Slowly move the control handle away from the centre position to accelerate.
5. Slowly move the control handle to the centre position to decelerate.
6. Return the control handle to the centre position or release the function enable switch to stop.

To define the motion direction of the machine, act according to the markings on the control panel.

Machine motion speed is limited when the platform is raised.

Battery level affects the machine performance. If the battery level is low, machine functions slow down.

Battery and Charger Instructions

Observe and Obey:

- Do not use an external charger or booster battery.
- Charge the battery in a well-ventilated area.
- Use proper AC input voltage for chargingas indicated on the charger.
- Use only an ELS LIFT authorized battery andcharger.
- Charge the battery as soon as receive the machine or after long distance transportation.
- When the battery is stored for a long time, itneeds to be charged regularly. Failure to charge in time may permanently damage the battery.

Charging the Battery

Be sure the batteries are connected before charging the batteries.

1. Open the battery compartment. The compartment should remain open for the entire charging cycle.

Maintenance - Free Batteries

1. Connect the battery charger to a grounded AC circuit.
2. The charger will indicate when the battery is fully charged.

Standard Batteries

1. Open the rotary plate covers. Covers should remain open for the entire charging cycle.
2. Switch the Emergency Stop button on the rotary plate to on position.
3. Remove the battery vent caps and check the battery electrolyte level. If necessary, add distilled water in an amount such that water level exceeds the plate in each battery cell by 1 cm. Do not overfill.
4. Do not charge the battery if battery electrolyte temperature is above 40°C. Allow the electrolyte to cool down before charging the batteries.
5. Clean and re-place the battery vent caps.
6. Connect the battery charger to a grounded AC circuit. Do not interrupt the charging cycle on it has started. A typical charging cycle lasts almost 10 hours and requires that batteries are depleted by 70% to 80%.
7. The charger will indicate when the battery is fully charged.
8. Once charging cycle is complete, remove the battery vent caps and check the battery electrolyte level. Replenish with distilled water in an amount such that water level exceeds the plate in each battery cell by 1 cm. Do not overfill.
9. Re-place the battery vent caps.
10. Unplug the charger from the AC power supply.
11. Close and lock the battery vent caps.
12. Pull the Emergency Stop button to on position.

Dry Battery Filling and Charging Instructions

1. Open the rotary plate covers. Covers should remain open for the entire charging cycle.
2. Remove the battery vent caps and permanently remove the plastic seal from the battery vent openings.
3. Fill each cell with battery electrolyte until the level is sufficient to cover the plates. Do not fill to maximum level until the battery charge cycle is complete. Overfilling can cause the battery acid to overflow during charging. Neutralize battery acid spills with baking soda and water.
4. Re-place the battery vent caps.
5. Press the Emergency Stop button.
6. Connect the battery charger to a grounded AC circuit. Do not interrupt the charging cycle on it has started.
7. The charger will indicate when the battery is fully charged.
8. Once charging cycle is complete, remove the battery vent caps and check the battery electrolyte level. Replenish with distilled water in an amount such that water level exceeds the plate in each battery cell by 1 cm. Do not overfill.

Checking the Batteries

Proper battery condition is essential to good machine performance and operational safety. Improper fluid levels or damaged cables and connections can result in component damage and hazardous conditions.

Note: This procedure does not need to be performed on machines with sealed or maintenance-free batteries.

Electrocution hazard. Contact with hot or live circuits may result in death or serious injury. Remove all rings, watches and other jewellery.

Batteries contain acid. Avoid spilling or contacting battery acid.

Neutralize battery acid spills with baking soda and water.

Perform this test after fully charging the batteries.

1. Put on protective clothing and eye wear.
2. Check battery connections. Be sure that they are tight and free of corrosion.

Be sure that the battery hold-down brackets are in place and secure.

Transport and Lifting Instructions

- ✓ Only qualified aerial lifting operators should load or unload the machine on/from a truck.
- ✓ The transport vehicle must be parked on a level surface.
- ✓ The transport vehicle must be secured to prevent rolling while the machine is being loaded.
- ✓ Be sure the vehicle capacity, loading surfaces and chains or straps are sufficient to withstand the machine weight. See the serial plate for the machine weight.
- ✓ Do not drive the machine on a slope that exceeds the slope or side slope rating. See "Driving on a Slope" in the Operating Instructions.
- ✓ If the slope of the transport vehicle bed exceeds the maximum slope rating, the machine must be loaded and unloaded using a winch as described. See "Specifications" for slope ratings.

Brake Release Operation

For the Hydraulic Motor Drive Model

1. Chock the wheels to prevent the machine from rolling.
2. Be sure the winch line is properly secured to the drive chassis tie points and the path is clear of all obstructions.
3. Push in the black brake release knob to open the brake valve.
4. Pump the red brake release pump knob.
5. If you want to close the brake release, just pull out the black brake release knob.

Securing to Truck or Trailer for Transit

Turn the key switch to the off position and remove the key before transporting.

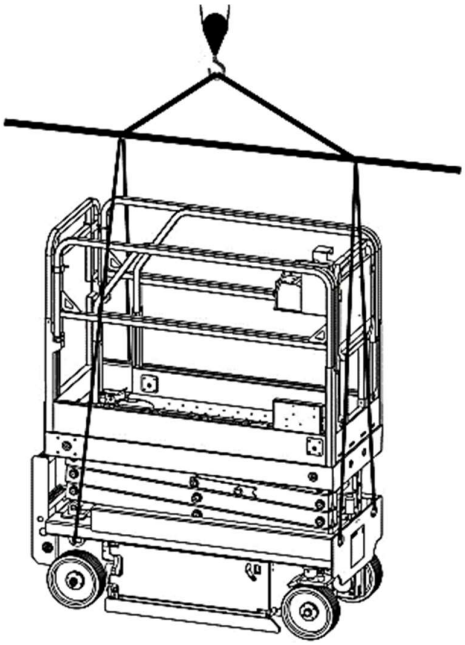
Inspect the entire machine for loose or unsecured items.

Use chains in case load volume is high.

Make sure that chains or straps are of ample load capacity.

Use a minimum of 2 chains or straps.

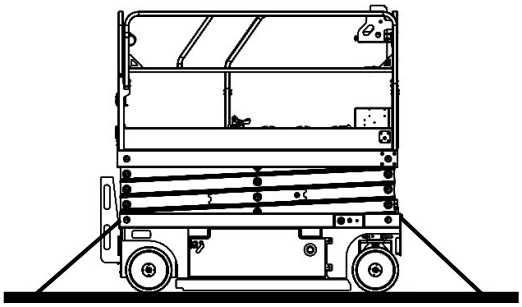
Adjust the rigging to prevent damage to the chains.

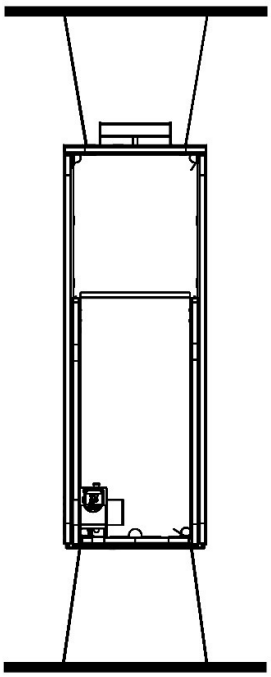


EL6-S / EL8-S

After loading the machine:

1. Chock the wheels to prevent the machine from rolling.
2. Switch the Emergency Stop buttons on the ground and platform control panels to off position.





EL8-T / EL10-T / EL10 / EL12 / EL14

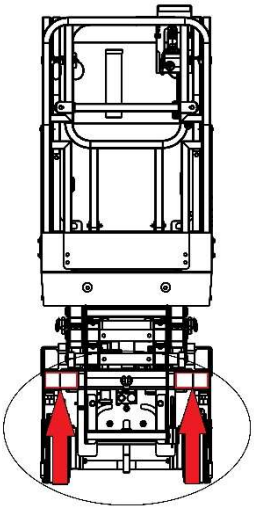
Observe and Obey:

- ✓ Only qualified crane operators should prepare and lift the machine.
- ✓ Be sure the crane capacity, loading surfaces and straps or lines are sufficient to withstand the machine weight. See the serial plate for the machine weight.

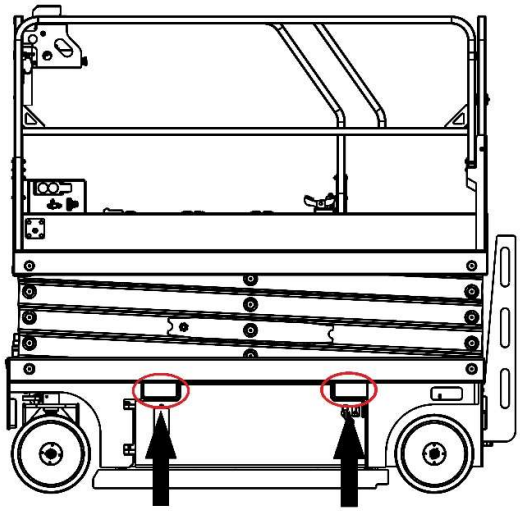
Lifting the Machine with a Forklift

1. Turn the key switch to the off position and remove the key before transporting.
2. Inspect the entire machine for loose or unsecured items.
3. Make sure to fully lower the platform.
4. Use the forklift pockets located on both sides of the ladder.
5. Position the forklift forks in position with the forklift pockets.
6. Drive forward to the full extent of the forks.
7. Raise the machine by 0.5 m and then tilt the forks back slightly to keep the machine secure.
8. Be sure the machine is level when lowering the forks.

- ❖ Never lift the machine from the sides.



EL6-S / EL8-S



EL8-T / EL10-T / EL10 / EL12 / EL14

Storage

Observe and Obey:

The storage of the machine shall be as follows, incorrect storage may affect the performance and service life of the machine

1- The machine should be stored indoor co-editor and the ground should be firm and level. If be stored in outdoor condition the machine should be covered to prevent the water and dust.
2- Ensure the machine have been cleaned and the functional before stop to the storage. Repair and maintain it if necessary.
3- Stop the machine in suitable position so as the drive or move the machines conveniently.

Rust Protection

Inspecting the paint before the machine is stored into the storage repaint the machine partly all completely against the damage.

For moving parts, grease can be applied to prevent rust, such as bearings, joints and sliding rails.

⚠ **WARNING** The machine be stored long time cannot be used to service until it has been inspected and maintained according to the daily check procedure.

How to Store the Batteries

1- When storing the machine for a long time (one month to six months) be sure to turn off the main power switch, key switch and emergency stop switch, fully charge. In order to ensure that these batteries stay ready for operation, the following charging procedures must be applied:
   The machine or check the voltage of each battery on the machine once a month to ensure that the voltage of battery is not lower than 25.2V, otherwise please charge the machine immediately.
2- When storing the machine for a long time (half a year or more), should be fully charged state. The batteries should be removed from the machine. Keep the batteries being clean and ensure nothing being placed on the top of batteries. The batteries connection should be shut down as bellow. Shut down the wire from the negative pole first the shut down the wires from the positive pole. The batteries should be connected as bellow: First connect the positive power wires with the positive pole then connect the negative cable line to the negative pole finally. In order to ensure that these batteries stay ready for operation, the batteries should be charged one time in every quarter.

Maintenance Instructions

Only the operator may perform the routine maintenance items specified in this manual.

Only qualified service technicians may carry out periodic and scheduled maintenance procedures.

Use only ELS Lift - approved replacement parts.

Maintenance Symbols Legend

NOTICE *The following symbols have been used in this manual to help communicatethe intent of the instructions. When one or more of the symbols appear at the beginning of a maintenance procedure, it conveys the meaning below.*

Indicates that tools will be required to perform this procedure.

Indicates that new parts will be required to perform this procedure.

Indicates that dealer service will be required to perform this procedure.

Pre-delivery Preparation Report

The pre-delivery preparation report contains checklists for each type of scheduled inspection.

Make copies of the Pre-delivery Preparation report to use for each inspection. Store completed forms as required.

Maintenance Schedule

There are five types of maintenance inspections that must be performed according to a schedule— daily, quarterly, semi-annually, annually, and two years. The Scheduled Maintenance Procedures Section and the Maintenance Inspection Report have been divided into five subsections — "A, B, C, D, and E". Use the following chart to determine which group(s) of procedures are required to performa scheduled inspection.

Inspection	Checklist
Daily or every 8 hours	A
Quarterly or every 250 hours	A+B
Semi-annually or every 500 hours	A+B+C
Annually or every 1000 hours	A+B+C+D
Two years or every 2000 hours	A+B+C+D+E

Maintenance Inspection Report

The maintenance inspection report contains checklists for each type of scheduled inspection.

Make copies of the Maintenance Inspection Report to use for each inspection. Maintain completed forms for a minimum of 4 years or in compliance with your employer, jobsite and governmental regulations and requirements.

Pre-delivery Preparation Report

Fundamentals

It is the responsibility of the dealer to perform the Pre-delivery Preparation.

The Pre-delivery Preparation is performed prior to each delivery. The inspection is designed to discover if anything is apparently wrong with a machine before it is put into service.

A damaged or modified machine must never be used. If damage or any variation from factory delivered condition is discovered, the machine must be tagged and removed from service.

A qualified service technician, according to the manufacturer's specifications, may only make repairs to the machine.

Qualified service technicians, according to the manufacturer's specifications, shall perform scheduled maintenance inspections and the requirements listed in this manual

Instructions

Use the operator's manual on your machine.

The Pre-delivery Preparation consists of completing the Pre-operation Inspection, the Maintenance items and the Function Tests.

Use this form to record the results. Place a check in the appropriate box after each part is completed. Follow the instructions in the operator's manual.

If any inspection receives an N, remove the machine from service, repair and re-inspect it. After repair, place a check in the R box.

Legend

Y = yes, completed

N = no, unable to complete

R = repaired

Comments

Pre-Delivery Preparation	Y	N	R
Pre-operation Inspection Completed			
Maintenance items Completed			
Function Tests Completed			

Model	
Serial Number	
Date	
Machine Owner	
Inspector Company	

Maintenance Inspection Report

Model	
Serial Number	
Date	
Hourmeter	
Machine Owner	
Inspector	
Inspector signature	
Inspector title	
Inspector Company	

Instructions

- Make copies of this report to use for each inspection.
- Select the appropriate checklist(s) for the type of inspection to be performed.

□	Daily or every 8 hours	A
□	Quarterly or every 250 hours	A+B
□	Semi-annually or every 500 hours	A+B+C
□	Annually or every 1000 hours	A+B+C+D
□	Two years or every 2000 hours	A+B+C+D+E

•Place a check in the appropriate box after each inspection procedure is completed.

•Use the step-by-step procedures in this section to learn how to perform these inspections.

•If any inspection receives an "N", tag and remove the machine from service, repair and re-inspect it. After repair, place a check in the "R' box.

Legend

Y = yes, completed

N = no, unable to complete

R = repaired

CHECKLIST A	Y	N	R
A-1 Inspect the manuals and decals			
A-2 Pre-operation inspection			
A-3 Check the Batteries			
A-4 Check the Hydraulic Oil Level			
A-5 Function tests			
Perform after 40 hours:			
A-6 30 day service			
CHECKLIST B	**Y**	**N**	**R**
B-1 Batteries			
B-2 Electrical wiring			
B-3 Tires and wheels			
B-4 Emergency stop			
B-5 Key switch			
B-6 Horn (if equipped)			
B-7 Drive brakes			
B-8 Drive speed - stowed			
B-9 Drive speed - raised			
B-10 Drive speed - slow			
B-11 Hydraulic oil analysis			
B-12 Tank venting system			
B-13 Latch components			
B-14 Test the pothole limit switches and the level sensor			
CHECKLIST C	**Y**	**N**	**R**
C-1 Platform overload (if equipped)			
C-2 Breather cap - models withoptional oil			
CHECKLIST D	**Y**	**N**	**R**
D-1 Scissor arm wear pads			
D-2 Hydraulic filter			
CHECKLIST E	**Y**	**N**	**R**
E-1 Hydraulic oil			

Checklist A Procedures

A-1

Inspect the Manuals and Decals

Maintaining the operator's manual in good condition is essential to safe machine operation. Manuals are included with each machine and should be stored in the container provided in the platform. An illegible or missing manual will not provide safety and operational information necessary for a safe operating condition.

In addition, maintaining all of the safety and instructional decals in good condition is mandatory for safe machine operation. Decals alert operators and personnel to the many possible hazards associated with using this machine. They also provide users with operation and maintenance information. An illegible decal will fail to alert personnel of a procedure or hazard and could result in unsafe operating conditions.

- Check to make sure that the operator's manual is present and complete in the storage container on the platform.
- Examine the pages of manual to be sure that they are legible and in good condition.

Result: The operator's manual is appropriate for the machine and the manual are legible and in good condition.

Result: The operator's manual is not appropriate for the machine or the manual is not in good condition or is illegible.

Result: Remove the machine from service until themanual is replaced.

Open the operator's manual to the decals inspection section. Carefully and thoroughly inspect all decals on the machine for legibility and damage.

Result: The machine is equipped with all required decals, and all decals are legible and in good condition.

Result: The machine is not equipped with all required decals, or one or more decals are illegible or in poor condition. Remove the machine from service until the decals are replaced.

- Always return the manual to the storage container after use.

Note: Contact your authorized **ELS LIFT** distributor or **ELS LIFT** if replacement manuals or decals are needed.

A-2

Perform Pre-operation Inspection

Completing a Pre-operation Inspection is essential to safe machine operation. The Pre-operation Inspection is a visual inspection performed by the operator prior to each work shift. The inspection is designed to discover if anything is apparently wrong with a machine before the operator performs the function tests.The Pre-operation Inspection also serves to determine if routine maintenance procedures are required.

Complete information to perform this procedure is available in the appropriate operator's manual. Refer to the Operator's Manual on your machine.

A-3

Check the Batteries

Proper battery condition is essential to good machine performance and operational safety. Improper fluid levels or damaged cables and connections can result in component damage and hazardous conditions.

Note: This check is not required for machines with lithium batteries, sealed batteries, or Maintenance - free batteries.

⚠ **WARNING** Electrocution hazard. Contact with hot or live circuits may result indeath or serious injury. Remove all rings, watches and other jewellery.

⚠ **WARNING** Bodily injury hazard.

Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

1. Put on protective clothing and eyewear.
2. Be sure that the battery cable connections are tight and free of corrosion.
3. Be sure that the battery hold-down bars are secure.
4. Remove the battery vent caps.
5. Check the battery acid level. If needed, replenish with distilled water to the bottom of the battery fill tube. Do not overfill.
6. Install the vent caps.

A-4

Check the Hydraulic Oil Level

Maintaining the hydraulic oil at the proper level is essential to machine operation. Improper hydraulic oil levels can damage hydraulic components. Daily checks allow the inspector to identify changes in oil level that might indicate the presence of hydraulic system problems.

NOTICE *Perform this procedure with the platform in the stowed position.*

1- Visually inspect the sight of hydraulic oil level from the side of the hydraulic oil tank.

Result: The hydraulic oil level should be at the mark of the fuel tank.

2- Add oil if necessary. Do not overfill.

NOTICE *Original Hydraulic oil specifications：**Shell Tellus S2 M 46***

Customers shall choose the appropriate hydraulic oil according to the ambient temperature used.

A-5

Perform Function Tests

Completing the function tests is essential to safe machine operation. Function tests are designed to discover any malfunctions before the machine is put into service. A malfunctioning machine must never be used. If malfunctions are discovered, the machine must be tagged and removed from service.

Complete information to perform this procedure is available in the appropriate operator's manual. Refer to the Operator's Manual on your machine.

A-6

Perform 30 Day Service

The 30-day maintenance procedure is a onetime procedure to be performed after the first 30 days or 40 hours of usage. After this interval, refer to the maintenance tables for continued scheduled maintenance.

Perform the following maintenance procedures:

- B-3 Inspect the Tires, Wheels and Castle Nut Torque
- D-2 Replace the Hydraulic Tank Return Filter Element

Checklist B Procedures

B-1

Inspect the Batteries

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper battery condition is essential to good machine performance and operational safety. Improper fluid levels or damaged cables and connections can result in component damage and hazardous conditions.

⚠ **WARNING** Electrocution / burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewellery.

⚠ **WARNING** Bodily injury hazard. Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

1- Put on protective clothing and eyewear.
2- Release the battery pack latch and rotate the battery pack out and away from the chassis.
3- Be sure that the battery cable connections are free of corrosion.

Note: Adding terminal protectors and a corrosion preventative sealant will help eliminate corrosion on the battery terminals and cables.

4- Be sure that the battery retainers and cable connections are tight.
5- Fully charge the batteries. Allow the batteries to rest 24 hours before performing this procedure to allow the battery cells to equalize.

Models without maintenance-free or sealed batteries:

6- Remove the battery vent caps and check the specific gravity of each battery cell with a hydrometer. Note the results.
7- Check the ambient air temperature and adjust the specific gravity reading for each cell as follows:
   - Add 0.004 to the reading of each cell for every 5.5° C above 26.7° C.
   - Subtract 0.004 from the reading of each cell for every 5.5° C below 26.7° C.

Result: All battery cells display an adjusted specific gravity of 1.277 or higher. The battery is fully charged. Proceed to step 11.

Result: One or more battery cells display a specific gravity of 1.217 or below. Proceed to step 8.

8- Perform an equalizing charge OR fully charge the batteries and allow the batteries to rest at least 6 hours.
9- Remove the battery vent caps and check the specific gravity of each battery cell with a hydrometer. Note the results.

Result: All battery cells display a specific gravity of 1 .277 or greater. The battery is fully charged. Proceed to step 11.

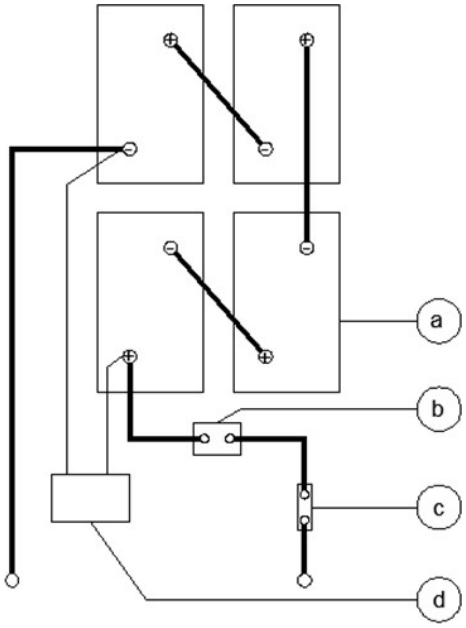
Result: The difference in specific gravity readings between cells is greater than 0.1 OR the specific gravity of one or more cells is less than 1.177. Replace the battery.

10- Check the ambient air temperature and adjust the specific gravity reading for each cell as follows:

- Add 0.004 to the reading of each cell for every 5.5° C above 26.7° C.
- Subtract 0.004 from the reading of each cell for every 5.5° C below 26.7° C.

11- Check the battery acid level. If needed, replenish with distilled water to 3 mm below the bottom of the battery fill tube. Do not overfill.

12- Install the vent caps and neutralize any electrolyte that may have spilled.



a) 6V batteries
b) power switch
c) fuse
d) battery charger

13- Check each battery pack and verify that the batteries are wired correctly.

14- Inspect the battery charger plug and pigtail for damage or excessive insulation wear. Replace as required.

15- Connect the battery charger to a properly grounded 100 - 240V / 30 – 60 Hz single phase AC power supply.

Result: The charger should operate and begin charging the batteries.

Result: If, simultaneously, the charger alarm sounds and the LEDs blink, correct the charger connections at the fuse and battery. The charger will then operate correctly and begin charging the batteries.

Note: For best results, use an extension of adequate size with a length no longer than 15m.

The following must be measured and recorded once the battery has been fully charged, after a waiting time of at least 12 hours:

-Total voltage

-Individual voltage of the block battery If significant changes to previous

Measurements or differences between the block batteries are identified, and then customer service must be contacted for further testing or repairs.

Note: If you have any further questions regarding the battery charger operation, please contact the ELS LIFT After Selling Department.

B-2

Inspect the Electrical Wiring

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining electrical wiring in good condition is essential to safe operation and good machine performance. Failure to find and replace burnt, chafed, corroded or pinched wires could result in unsafe operating conditions and may cause component damage.

⚠ **WARNING** Electrocution / burn hazard: Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewellery.

1- Inspect the underside of the chassis for damaged or missing ground strap(s).
2- Inspect the following areas for burnt, chafed, corroded and loose wires:
   - Ground control panel
   - Hydraulic power unit module tray
   - Battery pack module tray
   - Platform controls
3- Turn the key switch to ground control. Turn the ground Emergency Stop button clockwise to the on position. Pull out the platform Emergency Stop button to the on position.
4- Raise the platform until the distance of the two sets of scissor at least 0.5m.
5- Lift the maintenance bar, move it to the center of the scissor arm and rotate up to a vertical position.
6- Lift the upper maintenance bar, move it to the center of the scissor arm and rotate down to a vertical position.
7- Lower the platform until the maintenance bar rests securely on the link. Keep clear of the maintenance bar when lowering the platform.

⚠ **WARNING** Crushing hazard: Keep hands clear of the maintenance bar when lowering the platform.

8- Inspect the centre chassis area and scissor arms for burnt, chafed and pinched cables.
9- Inspect the following areas for burnt, chafed, corroded, pinched and loose wires:
   - Scissor arms
   - ECU to platform controls
   - Power to platform wiring
10- Inspect for a liberal coating of dielectric grease in the following locations:
   - Between the ECU and platform controls
   - All wire harness connectors Level sensor
11- Raise the platform and return the maintenance bar to the stowed position.
12- Lower the platform to the stowed position and turn the machine off.

B-3

Inspect the Tires and Wheels (including castle nut torque)

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the tires and wheels in good condition is essential to safe operation and good performance. Tire and/or wheel failure could result in a machine tip-over. Component damage may also result if problems are not discovered and repaired in a timely fashion.

1- Check the tire surface and sidewalls for cuts, cracks, punctures and unusual wear.
2- Check each wheel for damage, bends and cracks.
3- Remove the cotter pin and check each castle nut for proper torque.

Note: Always replace the cotter pin with a new one when removing the castle nut or when checking the torque of the castle nut.

Install a new cotter pin. Bend the cotter pinto lock it in place.

Castle nut torque, dry	406.7 Nm
Castle nut torque, lubricated	305 Nm

B-4

Test the Emergency Stop

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

A properly functioning Emergency Stop is essential for safe machine operation. An improperly operating Emergency Stop button will fail to shut off power and stop all machine functions, resulting in a hazardous situation.

As a safety feature, selecting and operating the ground controls will override the platform controls, except the platform Emergency Stop button.

1- Turn the key switch to ground control. Pull out the platform and ground Emergency Stop button to the on position.
2- Push in the Emergency Stop button at the ground controls to the off position.

Result: No machine functions should operate.

3- Turn the key switch to platform control. Pull out the platform and ground Emergency Stop button to the on position.
4- Push in the Emergency Stop button at the platform controls to the off position.

Result: No machine functions should operate.

Note: The Emergency Stop button at the ground controls will stop all machine operation, even if the key switch is switched to platform control.

B-5

Test the Key Switch

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper key switch action and response is essential to safe machine operation. The machine can be operated from the ground or platform controls and the activation of one or the other is accomplished with the key switch. Failure of the key switch to activate the appropriate control panel could cause a hazardous operating situation.

Perform this procedure from the ground using the platform controls. Do not stand in the platform.

1- Pull out the platform and ground Emergency Stop button to the on position.
2- Turn the key switch to platform control.
3- Check the platform up/down function from the ground controls.

Result: The machine functions should not operate.

4- Turn the key switch to ground control.
5- Check the machine functions from the platform controls.

Result: The machine functions should not operate.

6- Turn the key switch to the off position.

Result: No function should operate.

B-6

Test the Automotive-style Horn (if equipped)

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

The horn is activated at the platform controls and sounds at the ground as a warning to ground personnel. An improperly functioning horn will prevent the operator from alerting ground personnel of hazards or unsafe conditions.

1- Turn the key switch to platform control. Pull out the platform and ground Emergency Stop button to the on position.
2- Push down the horn button at the platform controls.

Result: The horn should sound.

B-7

Test the Drive Brakes

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper brake action is essential to safe machine operation. The drive brake function should operate smoothly, free of hesitation, jerking and unusual noise.

Hydraulically released individual wheel brakes can appear to operate normally when not operational.

Perform this procedure with the machine on a firm level surface that is free of obstructions, with the platform extension deck fully retracted and the platform in the stowed position.

1- Mark a test line on the ground for reference.
2- Turn the key switch to platform control. Pull out the platform and ground Emergency Stop button to the on position.
3- Lower the platform to the stowed position.
4- Press the drive function select button.
5- Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the test line.
6- Bring the machine to top drive speed before reaching the test line. Release the function enable switch or the joystick when your reference point on the machine crosses the test line.
7- Measure the distance between the test line and your machine reference point.

Result: The machine stops within the specified braking distance. No action required.

Result: The machine does not stop within the specified braking distance.

Note: The brakes must be able to hold the machine on any slope it is able to climb.

8- Replace the brakes and repeat this procedure beginning with step 1.

Braking distance, maximum	
High range on paved surface	61cm±30cm

B-8

Test the Drive Speed – Stowed Position

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper drive functions are essential to safe machine operation. The drive function should respond quickly and smoothly to operator control. Drive performance should also be free of hesitation, jerking and unusual noise over the entire proportionally controlled speed range.

Perform this procedure with the machine on a firm, level surface that is free of obstructions.

1- Create start and finish lines by marking two lines on the ground 12.2 m apart.
2- Turn the key switch to platform control. Pull out the platform and ground Emergency Stop button to the on position.
3- Lower the platform to the stowed position.
4- Press the drive function select button.
5- Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the start and finish lines.
6- Bring the machine to top drive speed before reaching the start line. Begin timing when your reference point on the machine crosses the start line.
7- Continue at full speed and note the time when your reference point on the machine passes over the finish line. Refer to specifications

B-9

Test the Drive Speed - Raised Position

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper drive functions are essential to safe machine operation. The drive function should respond quickly and smoothly to operator control. Drive performance should also be free of hesitation, jerking and unusual noise over the entire proportionally controlled speed range.

Perform this procedure with the machine on a firm, level surface that is free of obstructions.

1- Create start and finish lines by marking two lines on the ground 12.2 m apart.
2- Turn the key switch to platform control. Pull out the platform and ground Emergency Stop button to the on position.
3- Press the lift function select button.
4- Press and hold the function enable switch on the joystick.
5- Raise the platform approximately 2 m from the ground.
6- Press the drive function select button.
7- Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the start and finish lines.
8- Bring the machine to top drive speed before reaching the start line. Begin timing when your reference point on the machine crosses the start line.
9- Continue at full speed and note the time when your reference point on the machine passes over the finish line. Refer to specifications.

B-10

Test the Slow Drive Speed

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Proper drive functions are essential to safe machine operation. The drive function should respond quickly and smoothly to operator control. Drive performance should also be free of hesitation, jerking and unusual noise over the entire proportionally controlled speed range.

Perform this procedure with the machine on a firm, level surface that is free of obstructions.

1- Create start and finish lines by marking two lines on the ground 12.2 m apart.
2- Turn the key switch to platform control. Pull out the platform and ground Emergency Stop button to the on position.
3- Lower the platform to the stowed position.
4- Press the slow speed select button.
5- Choose a point on the machine; i.e., contact patch of a tire, as a visual reference for use when crossing the start and finish lines.
6- Bring the machine to top drive speed before reaching the start line. Begin timing when your reference point on the machine crosses the start line.
7- Continue at full speed and note the time when your reference point on the machine passes over the finish line.

B-11

Perform Hydraulic Oil Analysis

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Replacement or testing of the hydraulic oil is essential for good machine performance and service life. Dirty oil may cause the machine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require oil changes to be performed more often.

Note: Before replacing the hydraulic oil, the oil may be tested by an oil distributor for specific levels of contamination to verify that changing the oil is necessary.

If the hydraulic oil is not replaced at the two-years inspection, test the oil quarterly. Replace the oil when it fails the test. See E-1, Test or Replace the Hydraulic Oil.

Checking the Hydraulic Oil Level

Improper hydraulic oil levels can damage hydraulic components. Maintaining the hydraulic oil at the proper level is essential to machine operation.

1. Make sure that the scissors of the machine is closed and o firm, level surface level surface.
2. Visually inspect the oil level in the hydraulic oil tank.
3. The hydraulic oil level should be as marked on the tank. Add if necessary.
4. Do not overfill.

*ELS recommends **Shell Tellus S2 M 46** as the hydraulic oil.*

B-12

Inspect the Hydraulic Tank Cap Venting System

ELS LIFT requires that this procedure be performed quarterly or every 250 hours, whichever comes first. Perform this procedure more often if dusty conditions exist.

A free-breathing hydraulic tank cap is essential for good machine performance and service life. A dirty or clogged cap may cause the machine to perform poorly. Extremely dirty conditions may require that the cap be inspected more often.

1- Remove the breather cap from the hydraulic tank.
2- Check for proper venting.

Result: Air passes through the breather cap.

Result: If air does not pass through the cap, clean or replace the cap. Proceed to step three.

Note: When checking for positive tank cap venting, air should pass freely through the cap.

3- Using a mild solvent, carefully wash the cap venting system. Dry using low-pressure compressed air. Repeat step 2.
4- Install the breather cap on to the hydraulic tank.

B-13

Check the Module Tray Latch Components

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the module tray latch components in good condition is essential to good performance and service life. Failure to detect worn out latch components may result in module trays opening unexpectedly, creating an unsafe operating condition.

1- Inspect each module tray rotary latch and related components for wear. Tighten any loose fasteners.
2- Lubricate each module tray rotary latch. Using light oil, apply a few drops to each of the springs and to the sides of the rotary latch mechanism.

B 14

Test the Pothole Limit Switches and the Level Sensor

ELS LIFT requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the limit switches is essential to safe operation and good machine performance. Operating the machine with a faulty limit switch could result in reduced machine performance and a potentially unsafe operating condition.

Perform these procedures with the machine on a firm, level surface that is free of obstructions.

Level Sensor

1- Remove the platform controls from the platform.
2- Turn the key switch to platform control. Pull out the platform and ground Emergency Stop button to the on position.
3- Press the drive function select button
4- Move the machine on to a grade, which exceeds the rating of the level sensor. Refer to the serial label on the machine.
5- Press the lift function select button. Standing on the up-hill side of the machine, attempt to raise the platform to approximately 2.4 m.

Result: The LED readout screen shows code LL, an alarm sounds, and the machine stops lifting after the pothole guards are deployed. The machine is functioning properly

Result: The LED readout screen does not show code LL, the alarm does not sound and the machine will continue to lift the platform after the pothole guards are deployed. Adjust or replace the level sensor.

6- Press the drive function select button. Standing on the up-hill side of the machine, attempt to steer and drive the machine.

Result: The LED readout screen shows code LL, an alarm sounds, and the machine will not steer or drive. The machine is functioning properly.

Result: The LED readout screen does not show code LL, the alarm does not sound and the steer and drive functions operate. Adjust or replace the level sensor.

Pothole Limit Switches

7- Lower the platform to the stowed position. Move the machine on to a firm, level surface.
8- Place a wooden block approximately 5 cm tall under the right pothole guard.
9- Press the lift function select button. Attempt to raise the platform approximately 2.4m.

Result: The pothole guard contacts the block and does not fully deploy, the LED readout screen shows code 18, an alarm sounds and the platform will lift to 2.4m or beyond. The machine is functioning properly.

Result: The pothole guard contacts the block and does not fully deploy, the LED readout screen does not show code 18, the alarm does not sound and the machine will continue to lift the platform after the pothole guards are deployed. Adjust or replace the pothole limit switch.

10- Press the drive function select button. Attempt to steer or drive the machine.

Result: The LED readout screen shows code 18, an alarm sounds, and the machine will not steer or drive. The machine is functioning properly.

Result: The LED readout screen does not show code 18, the alarm does not sound and the steer and drive functions operate. Adjust or replace the down limit switch.

11- Lower the platform to the stowed position and remove the block under the right pothole guard.
12- Repeat this procedure beginning with step 10 for the left pothole guard.
13- Lower the platform to the stowed position; remove the block under the left pothole guard.
14- Turn off the machine.

Checklist C Procedures

C-1

Test the Platform Overload System (if equipped)

ELS LIFT requires that this procedure be performed every 500 hours or six months, whichever comes first or when the machine fails to lift the maximum rated load.

Testing the platform overload system regularly is essential to safe machine operation.

Continued use of an improperly operating platform overload system could result in the system not sensing an overloaded platform condition. Machine stability could be compromised resulting in the machine tipping over.

The platform overload system is designed to prevent machine operation in the event the platform is overloaded. Models equipped with the platform overload option are provided with two additional machine control components: the overload pressure sensor and the platform height sensor.

The overload pressure transducer, located at the valve of the lift cylinder, is used to determine the pressure inside the lift cylinder.

The platform height sensor, located at the steer end of the chassis, battery side, is used to determine the height of the platform.

The overload pressure transducer and the platform height sensor provide necessary information to determine the load in the platform.

Note: The overload system will not measure loads at or below the height of the Down Limit.

Note: Perform this test from the ground with the platform controller. Do not stand in the platform.

⚠ **WARNING** Perform this procedure with the machine on a firm, level surface.

1- Turn the key switch to platform controls. Pull out the platform and ground Emergency Stop button to the on position.
2- Determine the maximum platform capacity.
3- Using a suitable lifting device, place an appropriate test weight equal to the maximum platform capacity in the center of the platform floor. Raise the platform.

Result: The overload alarm not sounds during the whole trip, indicating a normal condition.

Result: The overload alarm sounds during the whole trip. Calibrate the platform overload system.

4- The platform should lower to the stowed position
5- Add an additional weight to the platform not to exceed 20% of the maximum rated load. Raise the platform.

Result: The overload alarm at the platform controls sound, indicating a normal condition.

Result: The overload alarm at the platform controls does not sound. Calibrate the platform overload system.

6- Test all machine functions from the platform controls.

Result: All platform control functions should not operate.

7- Turn the key switch to ground control.
8- Test all machine functions from the ground controls

Result: All ground control functions should not operate.

9- Lift the test weight off the platform floor using a suitable lifting device.

Result: The overload alarm at the platform controls should not sound, indicating a normal condition.

Result: The overload alarm at the platform controls sounds. Calibrate the platform overload system.

10- Test all machine functions from the ground controls.

Result: All ground control functions should operate.

11- Turn the key switch to platform control.
12- Test all machine functions from the platform controls.

Result: All platform control functions should operate.

C-2

Replace the Hydraulic Tank Breather Cap

ELS LIFT requires that this procedure be performed every 500 hours or semi-annually, whichever comes first.

The hydraulic tank is a vented-type tank. The breather cap has an internal air filter that can become clogged or, over time, can deteriorate. If the breather cap is faulty or improperly installed, impurities can enter the hydraulic system which may cause component damage. Extremely dirty conditions may require that the cap be inspected more often.

1- Remove and discard the hydraulic tank breather cap.
2- Install a new cap on to the tank.

Checklist D Procedures

D-1

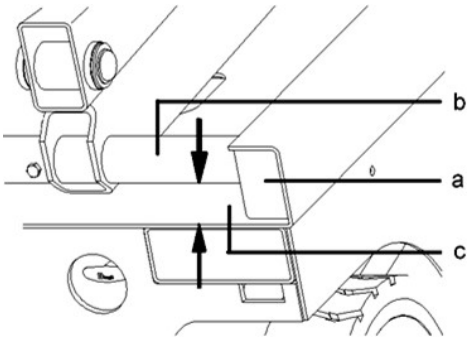
Check the Scissor Arm Wear Pads

ELS LIFT requires that this procedure be performed every 1000 hours or annually, whichever comes first.

Maintaining the condition of wear pads of the scissor arm is essential to safe machine operation. Continued use of worn out wear pads may result in component damage and unsafe operating conditions.

Perform this procedure with the platform in the stowed position.

1- Measure the distance between the number one arm cross tube and the chassis deck at the ground controls side of the non-steer end of the machine.



a) wear pad
b) arm cross tube
c) chassis deck

2- Measure the distance between the number one arm cross tube and the chassis deck at the battery pack side of the non-steer end of the machine.

For EL6-S / EL8-S:

Result: The measurement is 27 mm or more.

Proceed to step two.

Result: The measurement is less than 27 mm. Replace both wear pads.

For EL8-T / EL10-T:

Result: The measurement is 30 mm or more.

Proceed to step two.

Result: The measurement is less than 30 mm. Replace both wear pads.

For EL10 / EL12 / EL14:

Result: The measurement is 30 mm or more.

Proceed to step two.

Result: The measurement is less than 30 mm. Replace both wear pads.

D-2

Replace the Hydraulic Tank Return Filter Element

ELS LIFT requires that this procedure be performed every 1000 hours or annually, whichever comes first.

Replacement of the hydraulic tank return filter is essential for good machine performance and service life. A dirty or clogged filter may cause the machine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require that the filter be replaced more often.

⚠ WARNING Beware of hot oil. Contact with hot oil may cause severe burns.

NOTICE *The hydraulic tank return filter is mounted on the bracket between the function manifold and the hydraulic power unit.*

1- Clean the area around the oil filter. Remove the filter with an oil filter wrench.
2- Apply a thin layer of oil to the new oil filter gasket.
3- Install the new filter and tighten it securely by hand.
4- Use a permanent ink marker to write the date and number of hours from the hour meter on to the filter.
5- Turn the key switch to ground control. Pull out the platform and ground Emergency Stop button to the on position.
6- Activate and hold the platform up toggle switch.
7- Inspect the filter and related components to be sure that there are no leaks.
8- Clean up any oil that may have spilled.

Checklist E Procedures

E-1

Test or Replace the Hydraulic Oil

ELS LIFT requires that this procedure be performed every 2000 hours or every two years, whichever comes first.

Replacement or testing of the hydraulic oil is essential for good machine performance and service life. Dirty oil may cause the machine to perform poorly and continued use may cause component damage. Extremely dirty conditions may require oil changes to be performed more often.

NOTICE *Before replacing the hydraulic oil, the oil may be tested by an oil distributor for specific levels of contamination to verify that changing the oil is necessary.*

If the hydraulic oil is not replaced at the two-years inspection, test the oil quarterly. Replace the oil when it fails the test.

Note: Perform this procedure with the platform in the stowed position.

1- Shut down the battery pack from the machine.

⚠ WARNING Electrocution / burn hazard: Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewellery.

2- Open the power unit module tray.
3- Remove the oil drain plug at bottom.
4- Drain all of the oil into a suitable container.
5- Tag and shut down the hydraulic tank return line from the hydraulic filter head and remove the line from the tank. Cap the fitting on the filter head.
6- Tag and shut down the hydraulic pump inlet line and remove the line from the tank.Cap the fitting on the pump.
7- Remove the hydraulic tank retaining fasteners and remove the hydraulic tank from the machine.

⚠ WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

8- Clean up any oil that may have spilled. Properly discard the used oil.
9- Clean the inside of the hydraulic tank using a mild solvent. Allow the tank to dry completely.
10- Install a new filter on to the tank.
11- Tighten the drain plug. Torque to specification.

Torque specifications

- Hydraulic tank drain plug, dry 4.5 Nm
- Hydraulic tank drain plug, lubricated 3.4 Nm

12- Install the hydraulic tank, install, andtighten the hydraulic tank retaining fasteners. Torque to specification.

Torque specifications

- Hydraulic tank retaining fasteners, dry 4 Nm
- Hydraulic tank drain plug, lubricated 2.9 Nm

13- Install the hydraulic pump inlet line into the tank. Install the fitting on to the pump and torque.
14- Install the hydraulic pump return line into the tank. Install the fitting on to the hydraulic filter head and torque.
15- Fill the tank with hydraulic oil until the fluid is full in the hydraulic tank. Do not overfill.
16- Activate the pump to fill the hydraulic system with oil and bleed the system of air.

⚠ **WARNING** Component damage hazard: The pump can be damaged if operated without oil. Be careful not to empty the hydraulic tank while in the process of filling the hydraulic system. Do not allow the pump to cavitate.

Periodic Maintenance Schedule

Periodic Maintenance and Inspection	Daily	Every 50 hours	Every 250 hours	Every 500 hours	Every 1000 hours	Every 2000 hours
Hydraulic oil	•					
Batteries	•					
Battery Charge Level	•					
Sealing of Connectors and Batteries	•					
Hydraulic Oil Filter	•					
Clogged Cartridge of the Hydraulic Oil Filter		•				
Battery Cable Condition		•				
Screws and Bolts		•				
Motor Mounting Screw		•				
Tire Mounting Screw		•				
Hydraulic Oil Filter Cartridge			•			
Battery Charger Connection			•			
Battery Water Levels			•			
Electrical Wiring			•			
Tires and Wheels			•			
Emergency Stop			•			
Key Switch			•			
Horn			•			
Drive Brakes			•			
Drive Speed – Stowed Position			•			
Drive Speed – Raised Position			•			
Slow Drive Speed			•			
Hydraulic Oil Analysis			•			

Hydraulic Tank Cap Venting System			•			
Module Tray Latch Components			•			
Pothole Limit Switches and the Level Sensor			•			
Platform Overload System				•		
Hydraulic Tank Breather Cap				•		
Scissors Arm Wear Pads					•	
Draining the Hydraulic Oil Tank					•	
Cleaning the Carbon Brush of the Hydraulic Unit Motor					•	
Replacement of Electrical Cables and Hydraulic Hoses						•

Fault Codes and Troubleshooting

Fault Codes

Display	Description	Machine Behaviour
01	System Start-up Failure	All Functions are Disabled
02	System Communication Error	All Functions are Disabled
03	Invalid Mode Fault	All Functions are Disabled
12	Toggle Key Open at Start-up Fault	All Functions are Disabled
18	Pothole Guard Fault	Lift and Drive Disabled
31	Pressure Sensor Fault	All Functions are Disabled
32	Angle Sensor Fault	All Functions are Disabled
35	Invalid Data Stored in ECU Even After Calibration	Warning Only
38	No or Partial Calibration When Load Detection Function is Enabled	Warning Only
42	Left Turn Switch Pressed at Start-up Fault	Functions are Enabled
43	Right Turn Switch Pressed at Start-up Fault	Functions are Enabled
46	Joystick Trigger Pressed at Start-up Fault	All Functions are Disabled
47	Joystick not in Normal Position at Start-up Fault	When the Platform is raised, Walking Speed is Lower
52	Forward Drive Coil Fault	Lift and Drive Disabled
53	Reverse Drive Coil Fault	Lift and Drive Disabled
54	Platform Up Coil Fault	Lift and Drive Disabled
55	Platform Down Coil Fault	Lift and Drive Disabled

56	Right Turn Coil Fault	Lift and Drive Disabled
57	Left Turn Coil Fault	Lift and Drive Disabled
68	Low Voltage Fault	All Functions are Disabled
80	80% of Lifting Capacity is Loaded	Warning Only
90	90% of Lifting Capacity is Loaded	Warning Only
99	99% of Lifting Capacity is Loaded	Warning Only
OL	Platform Overload Fault	All Functions are Disabled
LL	Predefined Slope Limits Exceeded	Lift and Drive Disabled

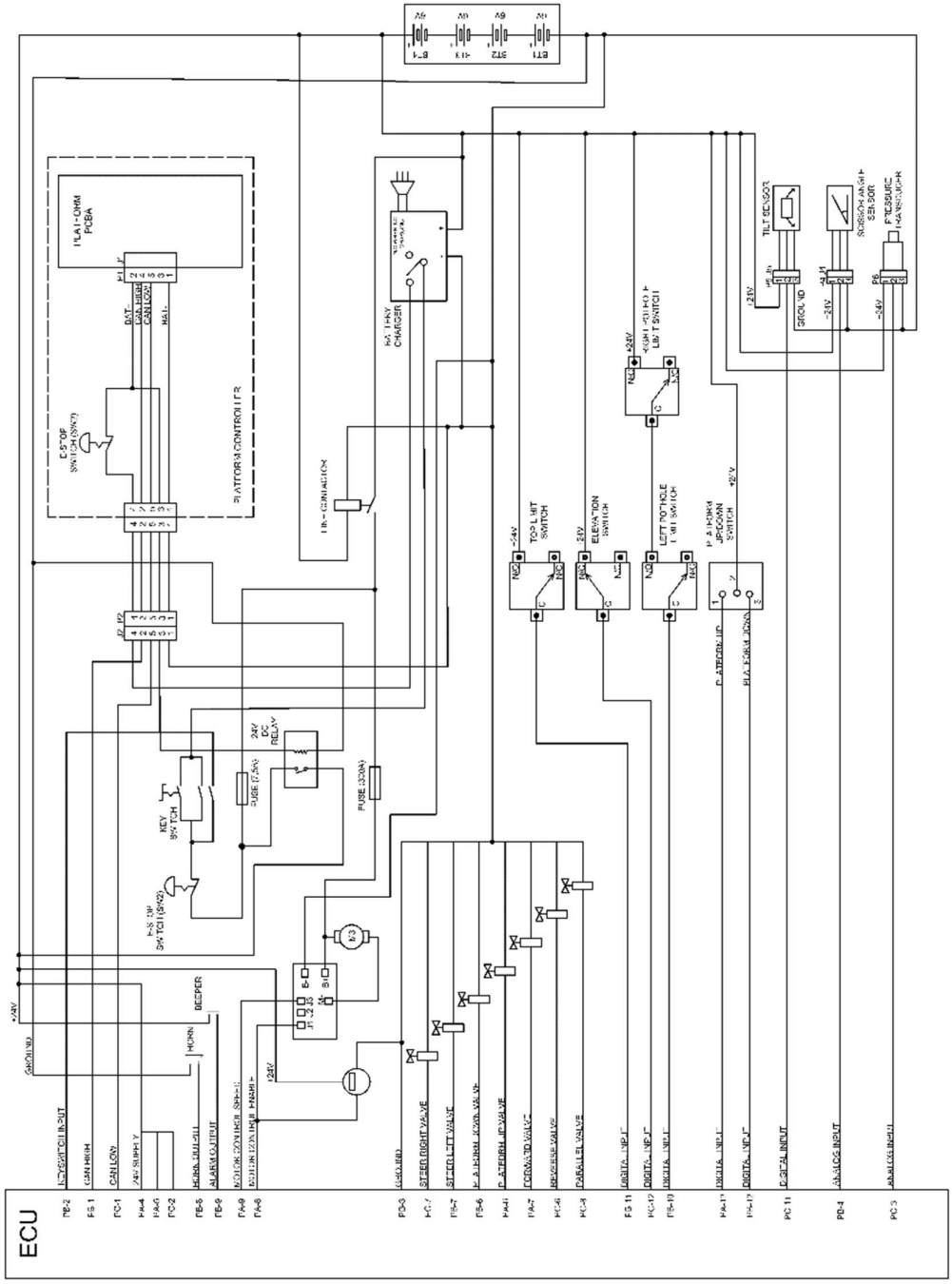
Fault Descriptions and Troubleshooting

Display	Description
01	**System Start-up Failure:** Main control card may be defective, replace.
02	**System Communication Error:** Check the communication cables and other cable connections. If problem persists, replace the control box or the main control card.
03	**Invalid Operating Mode Fault:** Set the proper operating mode for this machine.
12	**Toggle Key Open at Start-up Fault:** Check the toggle switch cables, check if toggle switch is stuck.
18	**Pothole Guard Fault:** Check if pothole guard skirts are deployed. Check the pothole limit switches and cables. Check the lower limit switches and cables.
31	**Pressure Sensor Fault:** Check the sensor and its connections. In addition, make sure that the correct mode for load detection is selected.
32	**Angle Sensor Fault:** Check the sensor and its connections. In addition, make sure that the correct mode for load detection is selected.
35	**Invalid Data Stored in ECU Even After Calibration:** Repeat the calibration procedure properly.
38	**No or Partial Calibration When Load Detection Function is Enabled:** Be sure that sensors are functional and repeat the calibration procedure.
42	**Left Turn Switch Pressed at Start-up Fault:** Be sure that the left turn switch on the joystick is not depressed externally. If not depressed, consider replacing the joystick or the control box.
43	**Right Turn Switch Pressed at Start-up Fault:** Be sure that the right turn switch on the joystick is not depressed externally. If not depressed, consider replacing the joystick or the control box.
46	**Joystick Trigger Pressed at Start-up Fault:** Be sure that the right turn switch on the joystick is not depressed externally. If not depressed, consider replacing the joystick or the control box.
47	**Joystick not in Normal Position at Start-up Fault:** Be sure that the joystick is at neutral (upright) axis. Check the neutral area parameter settings in the LabVIEW software. If parameter settings are correct, replace the joystick or the control box.
52	**Forward Drive Coil Fault:** Check coil cable and terminal connections, make sure that they are tight. If there is no problem, check if the coil is in open- or short-circuit condition.

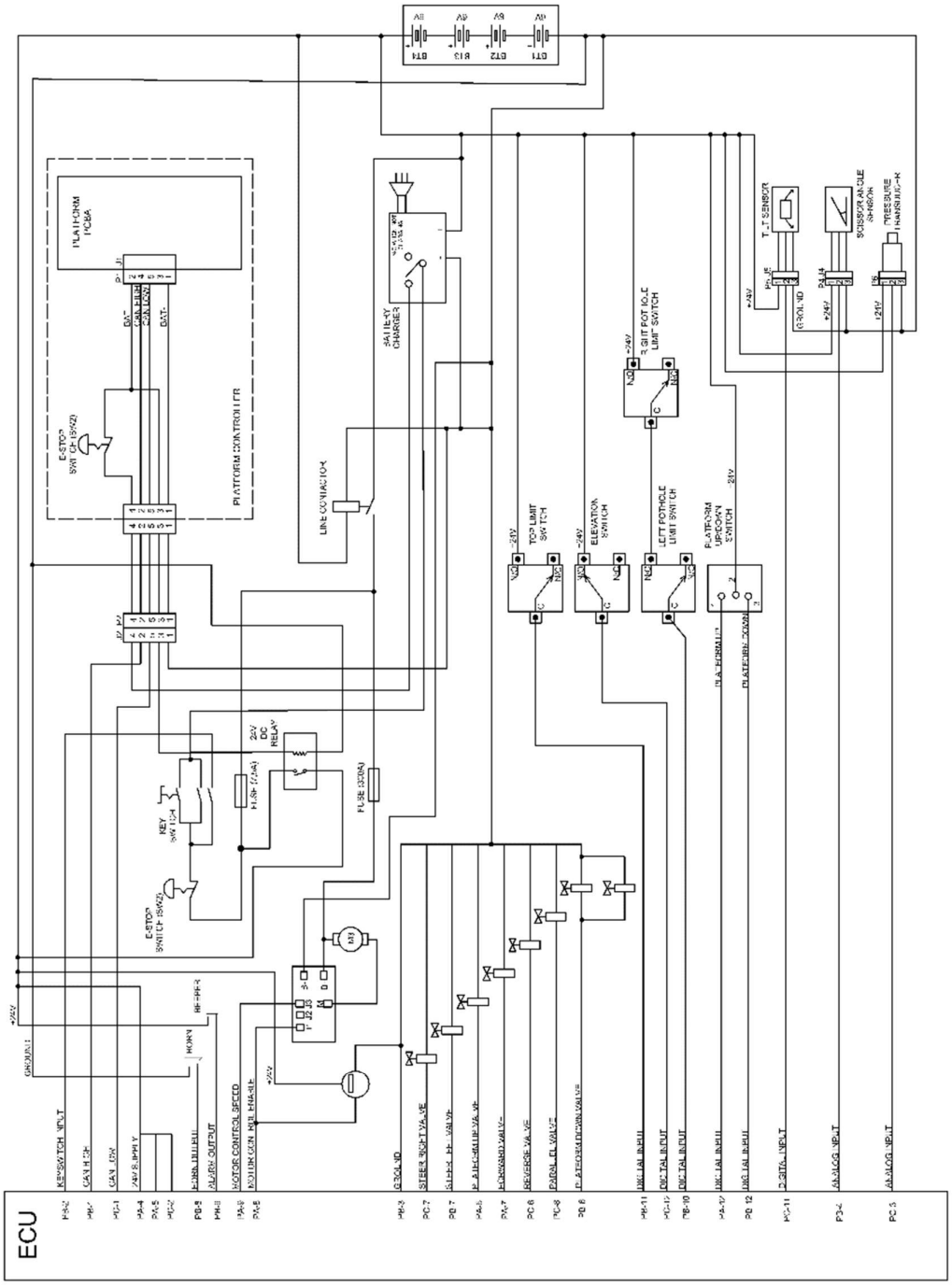
53	**Reverse Drive Coil Fault:** Check coil cable and terminal connections, make sure that they are tight. If there is no problem, check if the coil is in open- or short-circuit condition.
54	**Platform Up Coil Fault:** Check coil cable and terminal connections, make sure that they are tight. If there is no problem, check if the coil is in open- or short-circuit condition.
55	**Platform Down Coil Fault:** Check coil cable and terminal connections, make sure that they are tight. If there is no problem, check if the coil is in open- or short-circuit condition.
56	**Right Turn Coil Fault:** Check coil cable and terminal connections, make sure that they are tight. If there is no problem, check if the coil is in open- or short-circuit condition.
57	**Left Turn Coil Fault:** Check coil cable and terminal connections, make sure that they are tight. If there is no problem, check if the coil is in open- or short-circuit condition.
58	**General Brake Coil Fault:** Check coil cable and terminal connections, make sure that they are tight. If there is no problem, check if the coil is in open- or short-circuit condition.
68	**Low Voltage Fault:** Check the battery voltage, charge the batteries if necessary. Check battery connections, make sure that terminals are tight. Check the voltage supplied to the main control card and control box.
80	**80% of Lifting Capacity is Loaded:** Weight on the platform is near the maximum load capacity. Do not load extra weight.
90	**90% of Lifting Capacity is Loaded:** Weight on the platform is near the maximum load capacity. Do not load extra weight.
99	**99% of Lifting Capacity is Loaded:** Weight on the platform is near the load limit. Do not load extra weight.
OL	**Platform Overload Fault:** Remove the excessive load from the platform.
LL	**Predefined Slope Limits Exceeded:** If the machine is on a slope, move it to a level surface. If the machine is on a level surface, check the tilt sensor and its connections.

Electrical Schematic

For EL6-S / EL8-S / EL8-T / EL10-T / EL10 Series

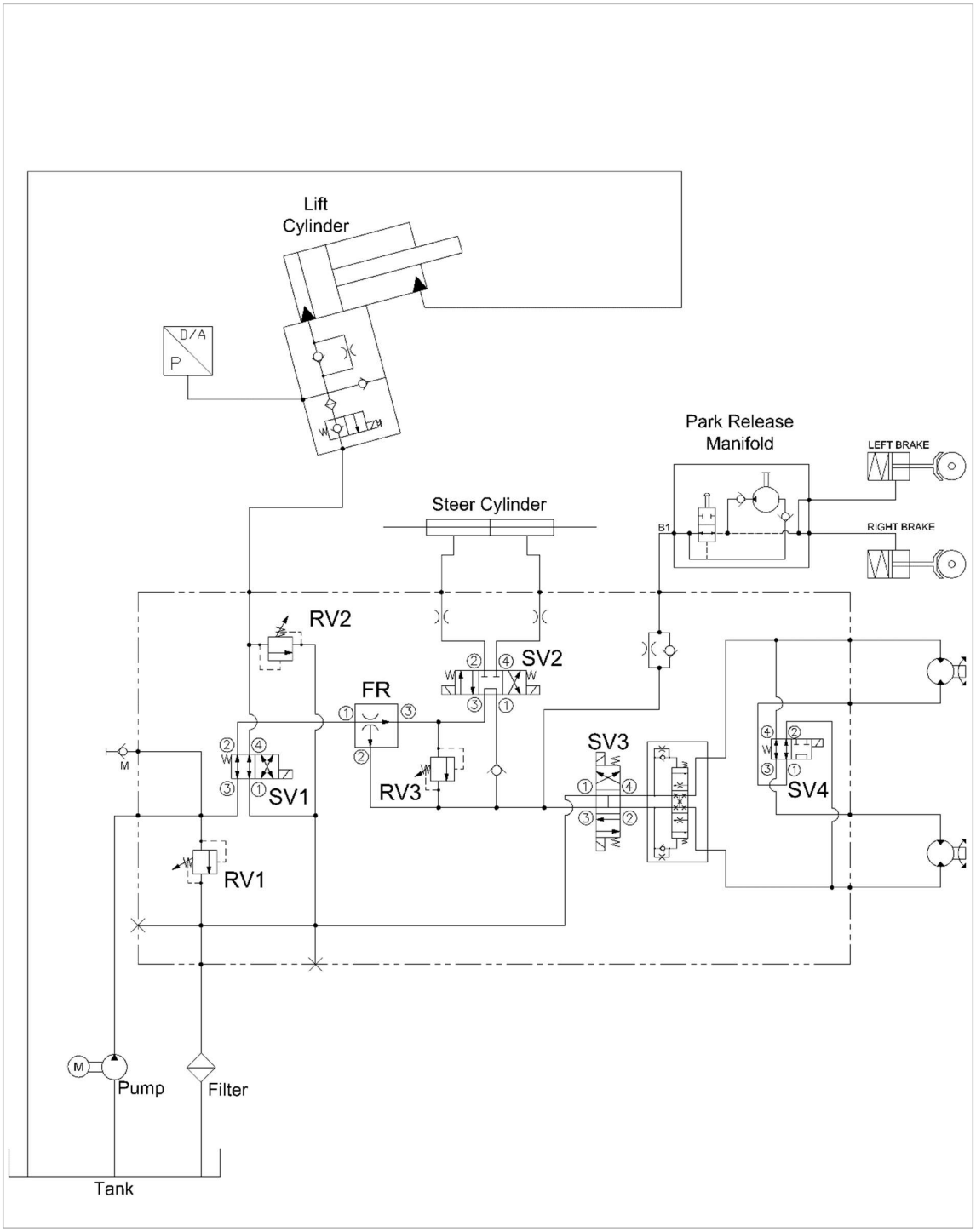


For EL12 / EL14 Series

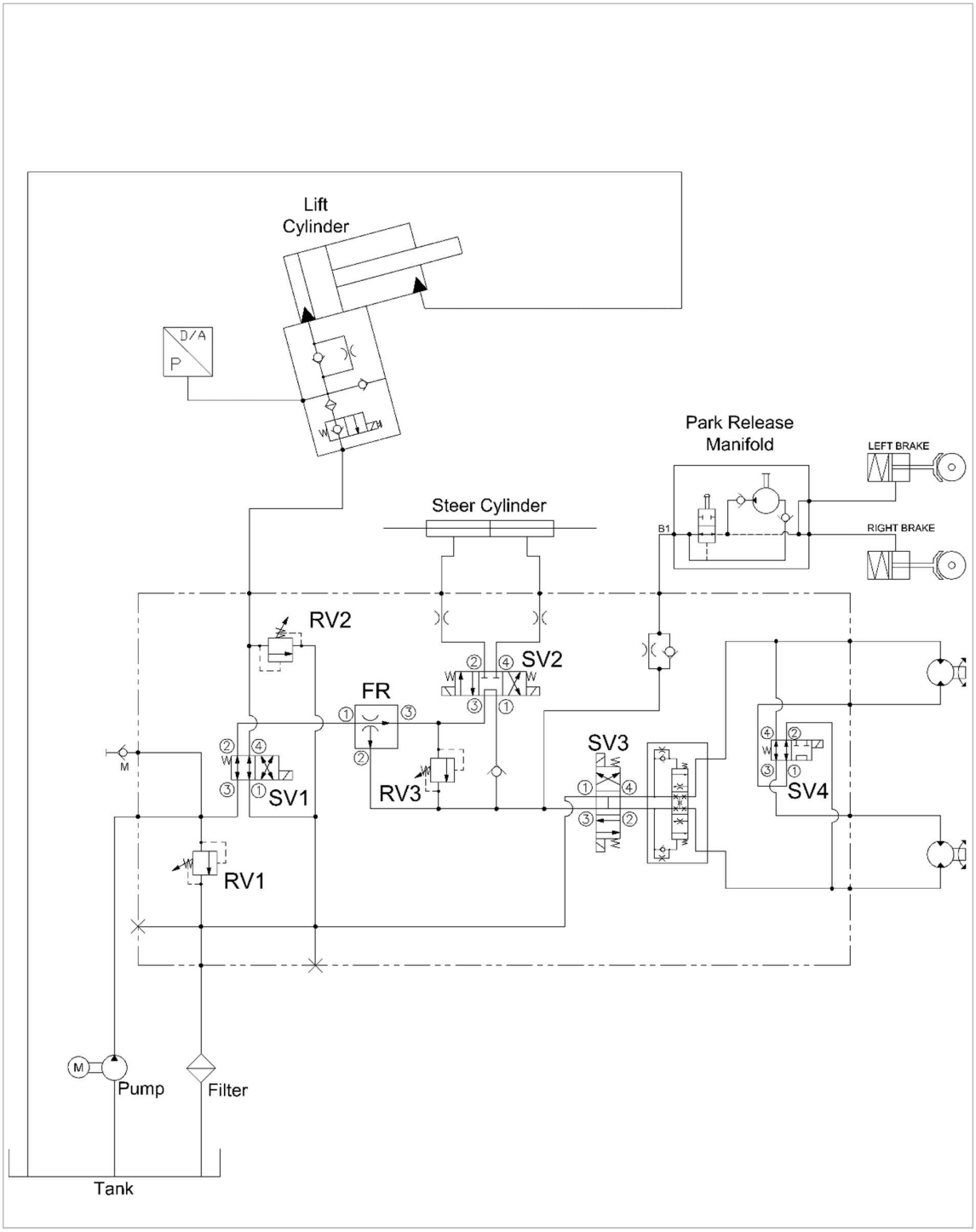


Hydraulic Schematic

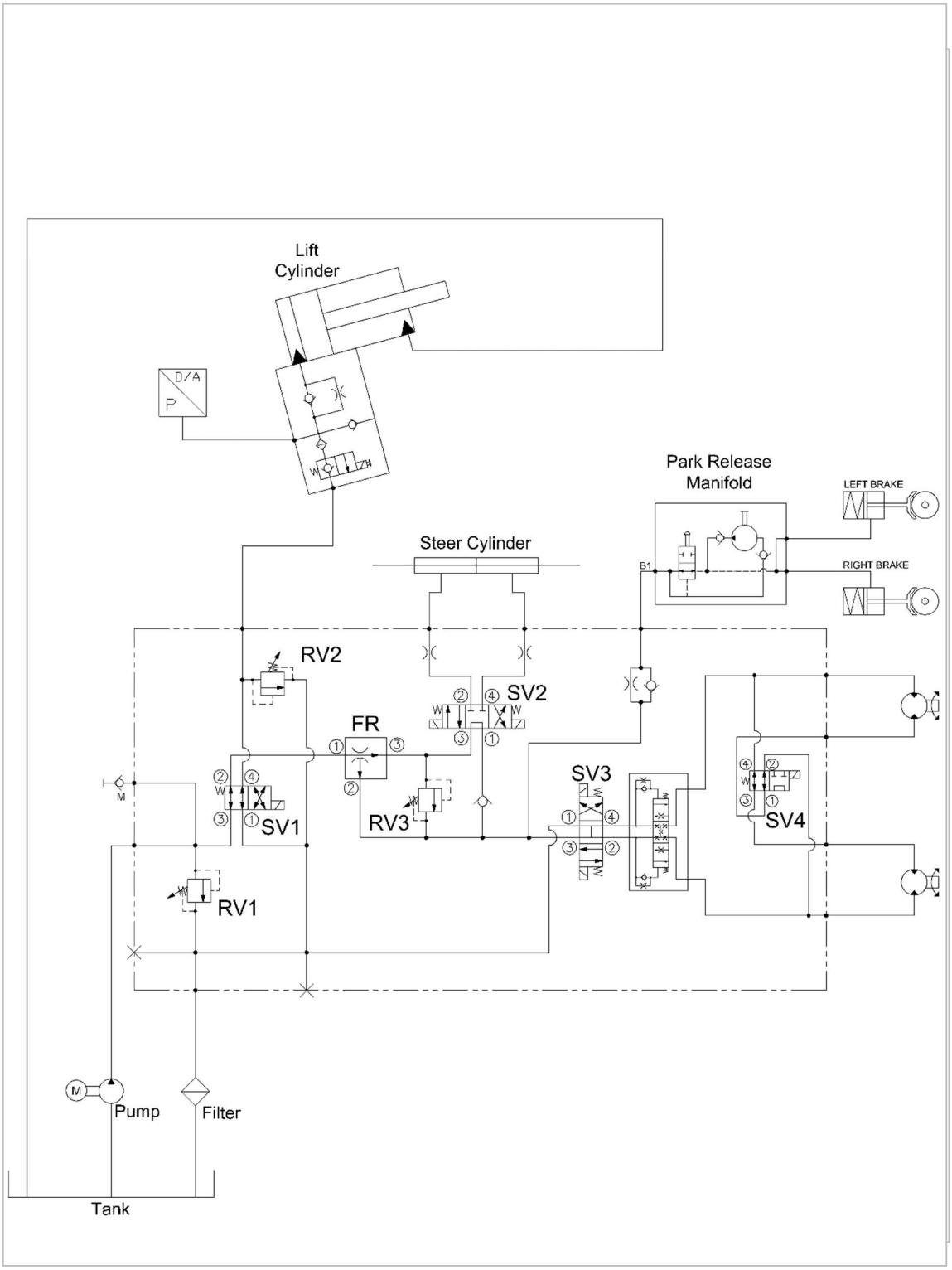
For EL6-S / EL8-S Series



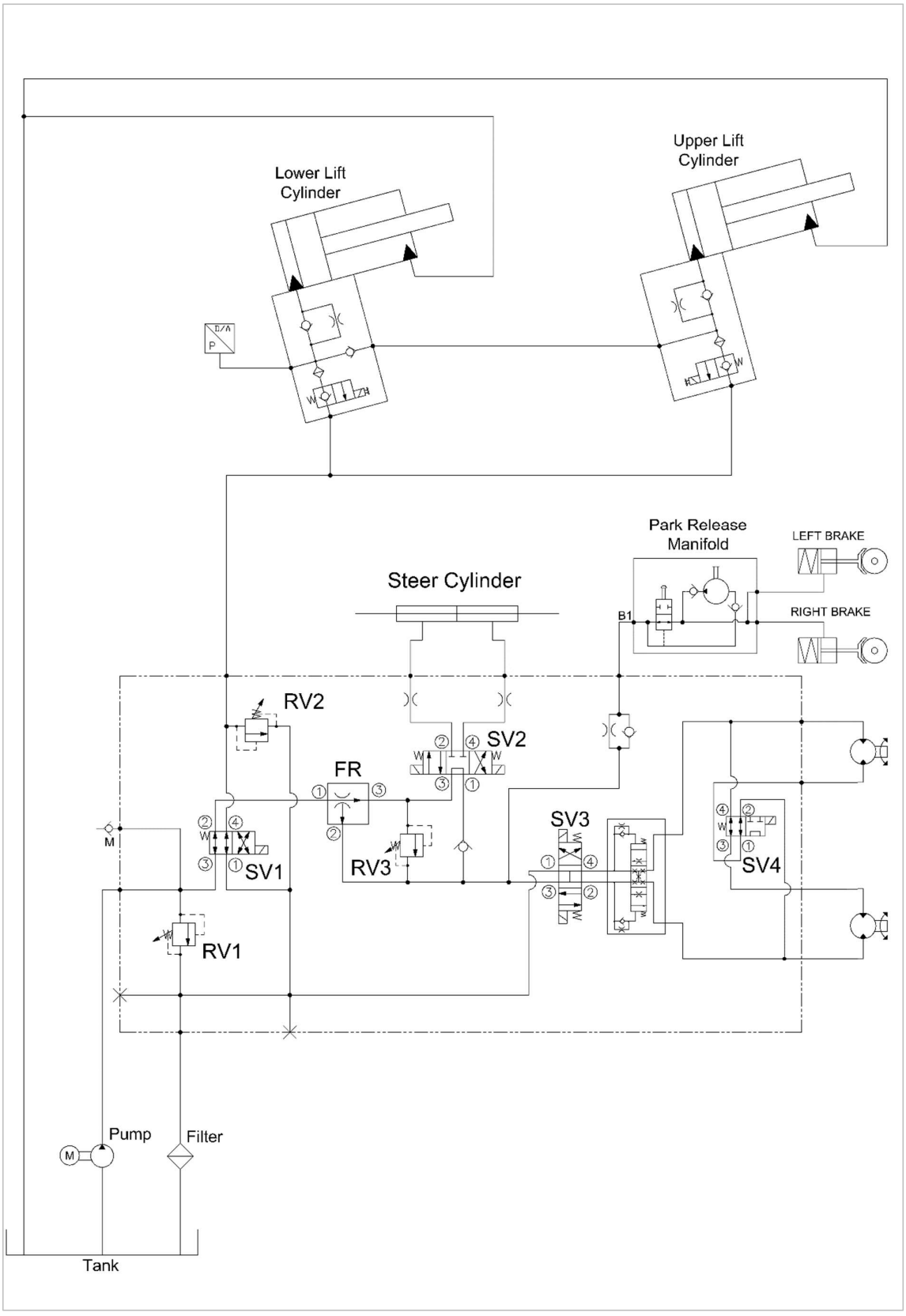
For EL8-T / EL10-T Series



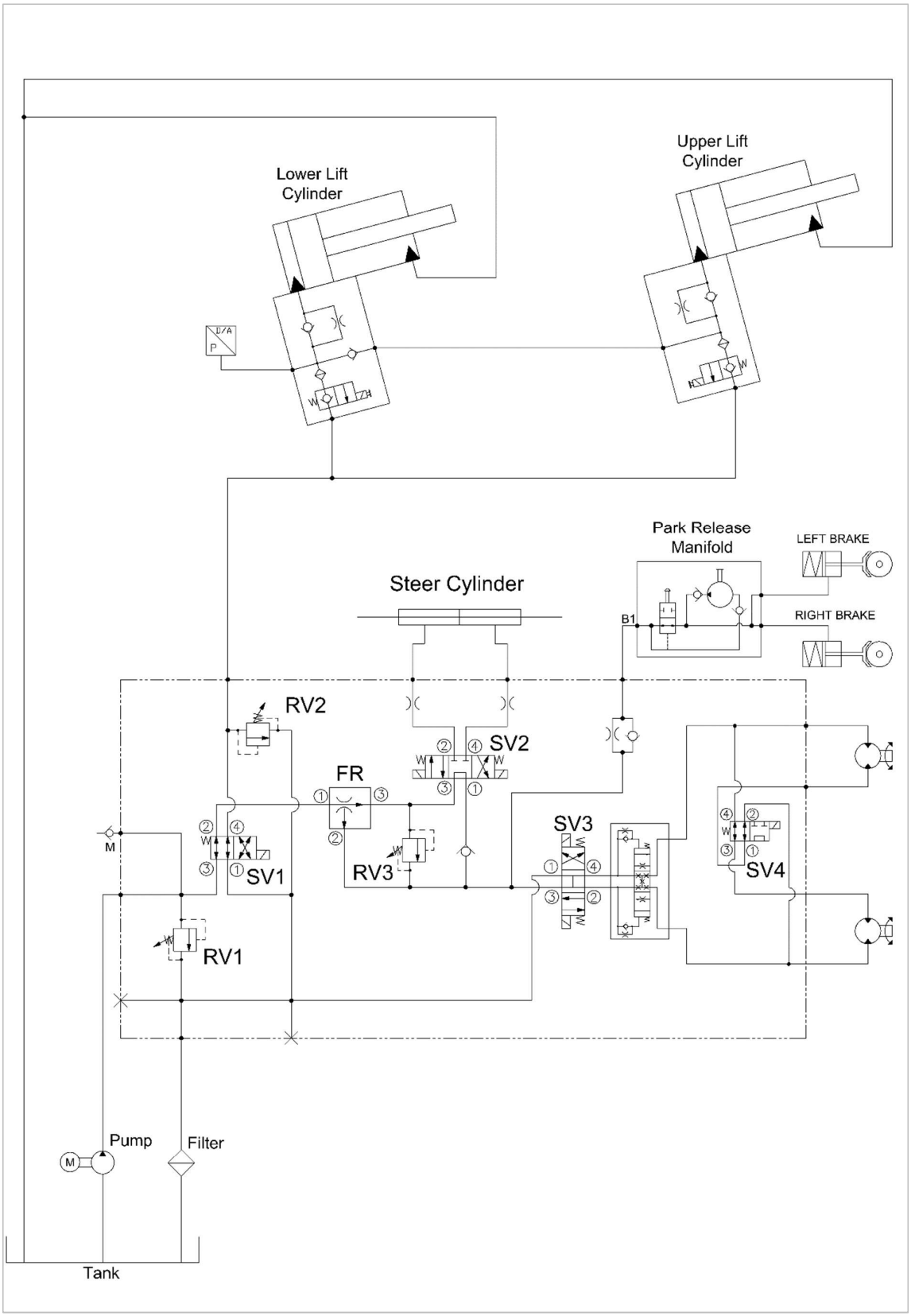
For EL10 Series



For EL12 Series



For EL14 Series



Specifications

MODEL		UNITS	EL6-S	EL8-S
WORKING HEIGHT		m	6,0	7,6
PLATFORM FLOOR HEIGHT	*Elevated*	m	4,0	5,6
TOP GUARDRAIL HEIGHT	*Stowed*	m	2,08	2,19
HORIZONTAL REACH	*max*	m	0,87	0,87
WIDTH - OVERALL		m	0,76	0,76
LENGTH - OVERALL	*Stowed*	m	1,83	1,83
MAXIMUM LIFT CAPACITY		kg	250	230
MAXIMUM OPERATING WIND SPEED		km / h	45	45
WHEEL BASE		m	1,37	1,37
BATTERIES		V / A/h	4 x 6 / 225	4 x 6 / 225
DRIVE SPEED	*Stowed*	km / h	4,5	4,5
DRIVE SPEED	*Elevated*	km / h	0,6	0,6
MAXIMUM VIBRATION		m/s^2	2,5	2,5
TOEBOARD HEIGHT		m	0,02	0,02
MACHINE WEIGHT	*Unloaded*	kg	1480	1620
NOISE PRESSURE	*Ground*	dBA	<70	<70
NOISE PRESSURE	*Platform*	dBA	<70	<70
PLATFORM LENGTH		m	1,70	1,70
PLATFORM WIDTH		m	0,78	0,78
CONTROLS		V DC	24, Proportional	24, Proportional
BATTERY CHARGER		V AC / A	100 - 240 / 30	100 - 240 / 30
TIRE SIZE		mm	Solid 318 x 108	Solid 318 x 108
GRADEABİLİTY X,	*Stowed*	°	14	14
	Elevated	°	2	2
GRADEABİLİTY Y,	*Stowed*	°	9	9
	Elevated	°	3	3

MODEL		UNITS	EL8-T	EL10-T
Working Height		m	8,0	10,0
Platform Floor Height	*Elevated*	m	6,0	8,0
Top Guardrail Height	*Stowed*	m	2,11	2,31
Horizontal Reach	*max*	m	0,86	0,86
Width - Overall		m	0,80	0,80
Length - Overall	*Stowed*	m	2,47	2,47
Maximum Lift Capacity		kg	350	240
Maximum Operating Wind Speed		km / h	45	45
Wheel Base		m	1,86	1,86
Batteries		V / A/h	4 x 6 / 225	4 x 6 / 225
Drive Speed	*Stowed*	km / h	4,5	4,5
Drive Speed	*Elevated*	km / h	0,6	0,6
Maximum Vibration		m/s^2	2,5	2,5
Toeboard Height		m	0,02	0,02
Machine Weight	*Unloaded*	kg	1780	2000
Noise Pressure	*Ground*	dBA	<70	<70
Noise Pressure	*Platform*	dBA	<70	<70
Platform Length		m	2,32	2,32
Platform Width		m	0,85	0,85
Controls		V DC	24, Proportional	24, Proportional
Battery Charger		V AC / A	100 - 240 / 30	100 - 240 / 30
Tire Size		mm	Solid 381 x 127	Solid 381 x 127
Gradability X,	*Stowed*	°	14	14
	Elevated	°	2	2
Gradability Y,	*Stowed*	°	9	9
	Elevated	°	3	3

MODEL		UNITS	EL10	EL12	EL14
WORKING HEIGHT		m	10,0	12,0	13,95
PLATFORM FLOOR HEIGHT	*Elevated*	m	8,0	10,0	11,95
TOP GUARDRAIL HEIGHT	*Stowed*	m	2,31	2,44	2,57
HORIZONTAL REACH	*max*	m	1,0	1,0	1,0
WIDTH - OVERALL		m	1,15	1,15	1,15
LENGTH - OVERALL	*Stowed*	m	2,47	2,47	2,47
MAXIMUM LIFT CAPACITY		kg	450	300	300
MAXIMUM OPERATING WIND SPEED		km / h	45	45	45
WHEEL BASE		m	1,86	1,86 m	1,86 m
BATTERIES		V / A/h	4x6 / 315	4x6 / 315	4x6 / 315
DRIVE SPEED	*Stowed*	km / h	4,5	4,5	4,5
DRIVE SPEED	*Elevated*	km / h	0,6	0,6	0,6
MAXIMUM VIBRATION		m/s^2	2,5	2,5	2,5
TOEBOARD HEIGHT		m	0,02	0,02	0,02
MACHINE WEIGHT	*Unloaded*	kg	2545	2855	3425
NOISE PRESSURE	*Ground*	dBA	<70	<70	<70
NOISE PRESSURE	*Platform*	dBA	<70	<70	<70
PLATFORM LENGTH		m	2,31	2,31	2,31
PLATFORM WIDTH		m	1,14	1,14	1,14
CONTROLS		V DC	24, Proportional	24, Proportional	24, Proportional
BATTERY CHARGER		V AC / A	100 - 240 / 30	100 - 240 / 30	100 - 240 / 30
TIRE SIZE		mm	Solid 381 x 127	Solid 381 x 127	Solid 381 x 127
GRADEABİLİTY X,	*Stowed*	°	14	14	14
	Elevated	°	2	2	2
GRADEABİLİTY Y,	*Stowed*	°	9	9	9
	Elevated	°	3	3	3

Inspection and Repair Notes

Date	Comments