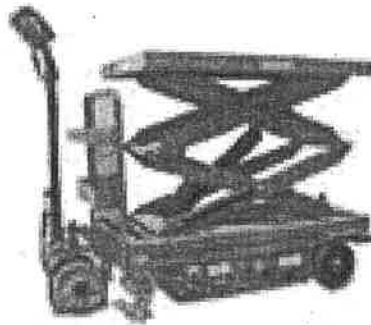


Instruction Manual

SELF-PROPELLED ELECTRIC LIFT TABLE

Model: ESF&ESM Series



ESM



ESF

Note: Owner/Operator must read and understand this instruction manual before using the lift table.

SELF-PROPELLED ELECTRIC LIFT TABLE

Model **ESF50,ESF50D,ESM50,ESM50D,EDM80,ESM80D**

Instruction Manual

READ THIS OPERATION MANUAL COMPLETELY BEFORE USING.THOROUGHLY UNDERSTAND AND FOLLOW ALL SAFETY INSTRUCTIONS.IF THIS IS LOST, PLEASE CONTACT YOUR LOCAL SUPPLIER FOR A NEW COPY.IF THE WARNING/CAUTION DECAL ON THE UNIT IS LOST, PLEASE CONTACT YOUR LOCAL SUPPLIER FOR A NEW COPY.

Note: On this manual, WARNING means the danger which can lead death or serious injury. CAUTION means the danger which can lead slight injury or property damage.



- Never LIFT & LOWER the self-propelled electric lift table when Driving
- Only be driven when lift table platform at the lowest position.

1. Operation Safety Regulations

1.1 The Operator Requirements

This self-propelled lift table must be operated by a trained person who can demonstrate moving and operating the lift table to the user and can instruct vividly the user how to operate.

1.2 Rights, Obligations and Responsibilities of the Operator

The operator must fully understand his rights and obligations and has received the training of the self-propelled electric lift table operation. At the same time, the operator must master the related descriptions in the Instructions Manual. In the operation of walking control truck, the operator should wear safety boots.

1.3 Forbidden use by unauthorized persons

During operation, the operator must be responsible for the truck and prevent unauthorized persons in driving or operating the truck. The self-propelled electric lift table is strictly forbidden to lift or carry persons.

1.4 Failure and fault

In case of any failure or fault, please notify the administrator immediately. In case that the self-propelled electric lift table cannot work safely (such as wheel worn-out or brake fault), please stop using the lift table until they are properly repaired.

1.5 Repair

Without professional training and specific authorization, the operator is forbidden to repair or change any part of the truck. Any change of installation position of switches and safety devices is strictly forbidden by the operator to avoid efficiency decrease of the lift table.



All spare parts from original manufacturer are qualified by Quality Assurance Authorities. To ensure the safety and reliability of product operation, only spare parts from manufacturer can be applied. The parts replaced, including oils and fuels, must be disposed according to related environmental protection regulations.

1.6 Danger area

Danger area refers to the area where the lift table or its lifting device (such as fork or attachment) is working or lifting, which brings potential dangerous factors to persons or the area for load transportation. Generally, the range of danger area extends to the point of load lowering or truck attachment lowering.

Unauthorized persons must be kept away from danger area.

1.7 Working in hazardous environments

A self-propelled electric lift table operating in an area where there is a risk, or in any other high-risk area, should be specially equipped for the purpose.

1.8 Safety devices and warning signs

Enough importance should be attached to safety devices, warning signs and warning notices introduced above in Instructions Manual.

1.9 Driving in public areas

The electric lift table should not be driven on public roads outside a specific area.

1.10 Distance between vehicles

Remember that the lift table in front of you may brake suddenly therefore keep a reasonable distance.

1.11 Operation management

Driving speed must be applicable for local conditions. Low speed is requested for curve driving, narrow aisle passing, swing door passing or driving in blocked field. The operator must be capable to measure the braking distance to front area by sight and control the lift table continuously. Sudden brake (except in emergency), quick U-turn and overtaking in a blocked field are prohibited.

1.12 Visibility

The operator must focus on the driving direction to ensure clear sight for the road conditions ahead. In case the carried cargo interrupts the sight, reverse driving is requested. If it doesn't help in this way, there must be another person walking ahead of lift table to give guidance and warning.

1.13 Passing a slope

The permitted slope in a narrow aisle for lift table passing must be clean and anti-slip. Driving on slopes stipulated in technical specifications (instructions manual) is permitted. The carried cargo must face to upward direction of slope. U-turning or parking this lift table on a slope is prohibited. On passing a slope, driving is requested at low speed. At the same time, the operator must be always prepared to brake and stop.

1.14 Floor Load

It is advisable to carefully check notices and directions about the maximum floor load or maximum wheel pressure to ensure that this is not exceeded.

1.15 Transports

The self-propelled electric lift table will only be driven with the height of lift table platform to the lowest position except when placing or removing a load.

1.16 Load characteristics

The cargo should be carried correctly, safely and reliably. Carrying a cargo with stacking-height exceeding top of platform or protection shield is strictly forbidden.

2. DAILY INSPECTION

Daily inspection is effective to find the malfunction or faulty on the lifter. Check the lifter on the following points before the operation.

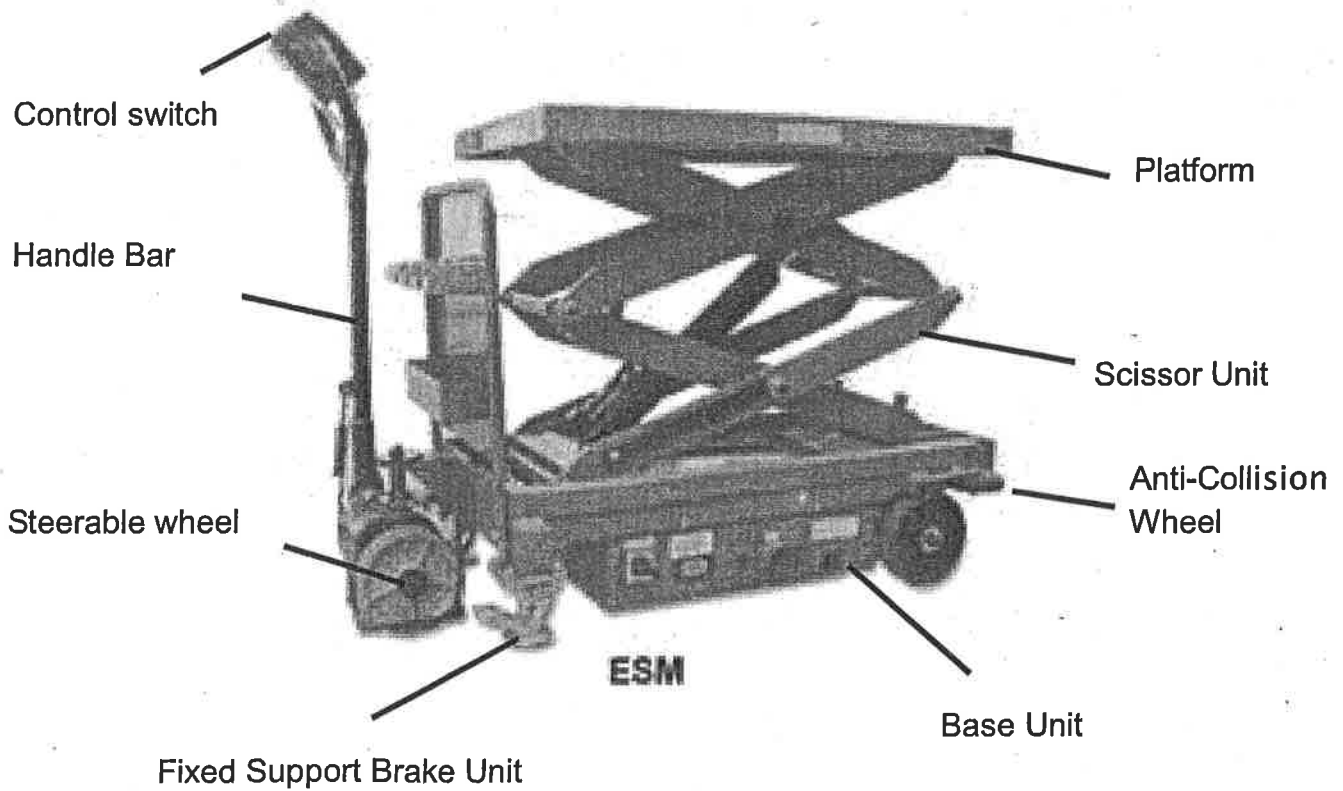
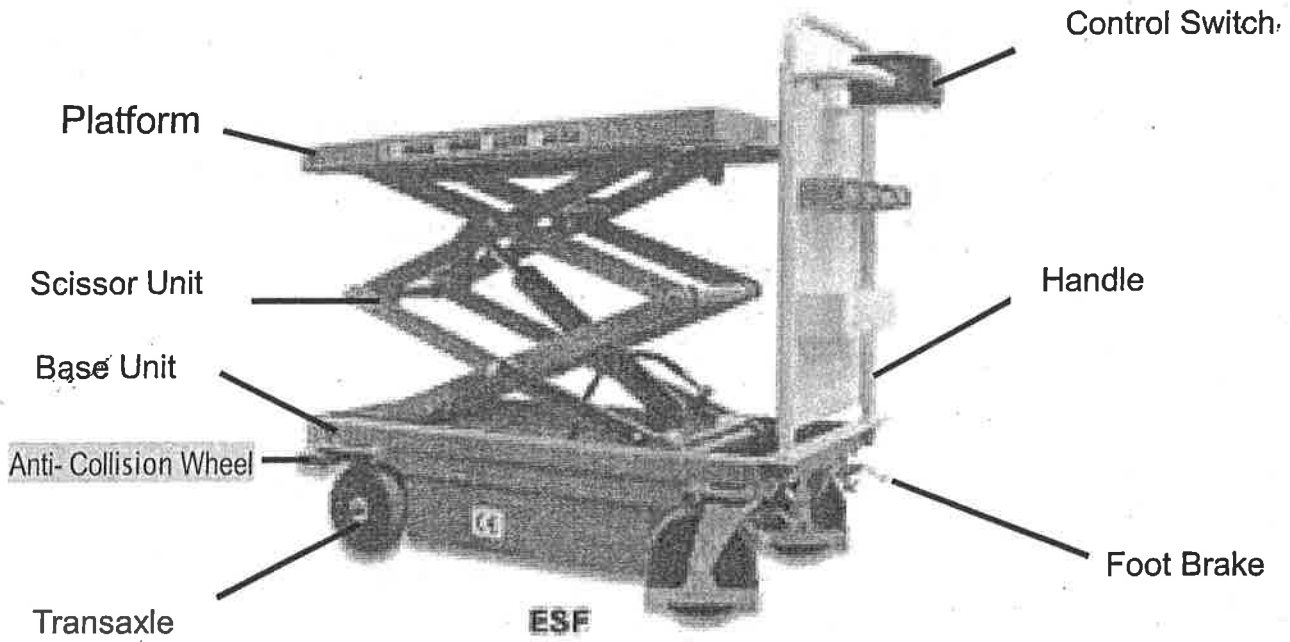
CAUTION

DO NOT use lifter if any malfunction or faulty is found.
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- (1) Check scratch, bending or crack on the lifter.
- (2) Check smooth movement of the wheels.
- (3) Check if there is oil leakage.
- (4) Check vertical creep of table.
- (5) Check the function of brake.
- (6) Check if all the bolts and nuts are tightened firmly.
- (7) Check all the electric elements-battery indicator, horn, brake system whether to work normally

3.NAME OF PARTS

ESF Series



4. OPERATING LIFT TABLE

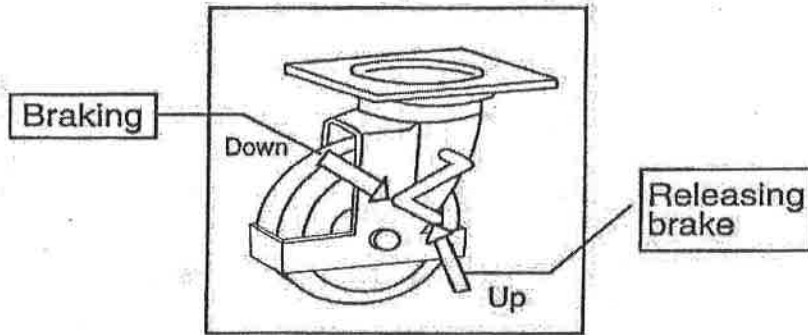
How to use the brake.

CAUTION

Brake lift table when not moving it in order to prevent sudden movement.

The brake is equipped with the swivel caster on the right side. (Only for ESF model), ESM model is equipped with fixed Support Brake unit.

- (1) Braking the wheel, press the brake pedal.
- (2). Releasing the brake, lift up the brake pedal.

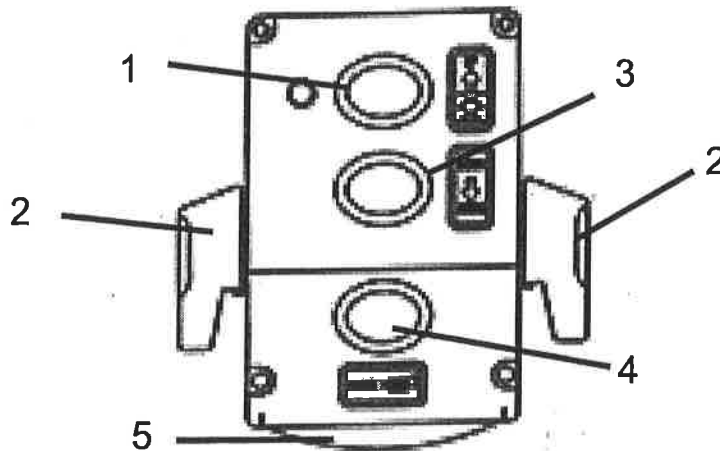


5. LIFTING UP FORKS

CAUTION

1. DO NOT overload lifter. Stay within its rated capacity.
2. Prolonged continuous working might cause damage of hydraulic power pack.
3. Stop operation if temperature of hydraulic oil is too high.

Push the button "UP" and the table lift up.



1-Switch for lifting

2-FWD/BWD Turning Button

3-Switch for lowering

4-Horn

5-Reverse Button

6. LOWERING TABLE

CAUTION

DO NOT lower table with load too fast and stop suddenly. Impact load could be created and lifter could be damaged.

Push the button DOWN.

7.MOVING THE LIFTER

WARNING

DO NOT move lifter on slope or inclined surface, otherwise lifter become uncontrollable and create danger.

- (1) Make the load stable to prevent it to fall.
- (2) Lower the table down.
- (3) Release the brake and drive the lifter.

CAUTION

KEEP watching the condition of load. Stop operating lifter if load become unstable.

8.CHARGING THE BATTERY

- (1) Check the quantity of Battery fluid. If it is insufficient, add the battery solution according to battery operation manual.
- (2) Disconnect the battery socket.
- (3) Connect the charging port of battery socket to the battery charger.

9.REGULAR INSPECTION

Perform the regular inspection for the safety operation.

- (1) Check the items expressed in daily inspection (daily).
- (2) Lubricate with grease the guides where roller moves. Also, lubricate the grease nipples. (Every month)
- (3) Lubricate all the pivoting points and axles. (Every 6 months)
- (4) Replace the hydraulic oil for the first time: Accumulated working ten hours'
- (5) Replace the hydraulic oil. (Every 12 months)

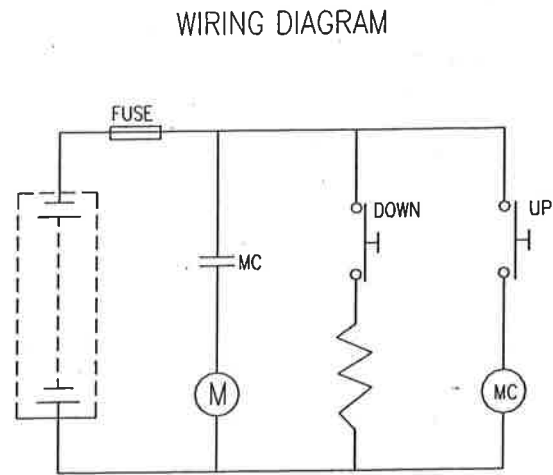
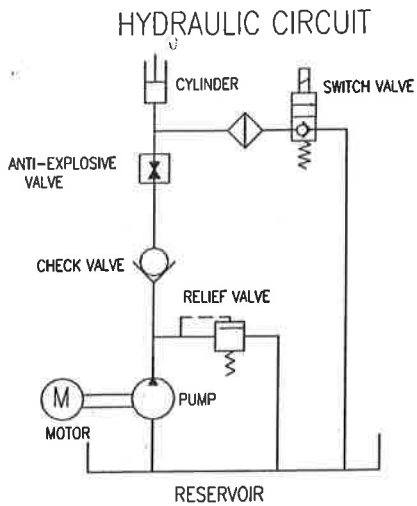
10.TROUBLE SHOOTING

TROUBLE	CAUSE	REPAIR
Platform do not rise while motor does not run.	1.Faulty wiring.	1.Check the wiring referring to the actual wiring diagram.
	2.Battery socket is disconnected	2.Connect the battery socket.
	3.Battery charge is insufficient.	3.Charge the battery.
Platform do not rise while motor runs.	1.Faulty adjustment of relief valve.	1.Adjust relief valve again.
	2.Faulty hydraulic pump.	2.Replace power pack.
	3.Shortage of hydraulic oil.	3.Add oil.
Vertical creep of table.	1.Oil leakage in power pack.	1.Replace lowering valve.
	2.Oil leakage form hydraulic circuit.	2.Check hydraulic circuit and repair.
Oil leakage from cylinder.	Faulty sealing.	Replace sealing.
Oil leakage from piping or joint.	Insufficient tightening or seal in valid.	Tighten joint again or Replace seal.
Oil leakage from air breather.	Excessive quantity of oil.	Reduce oil quantity.

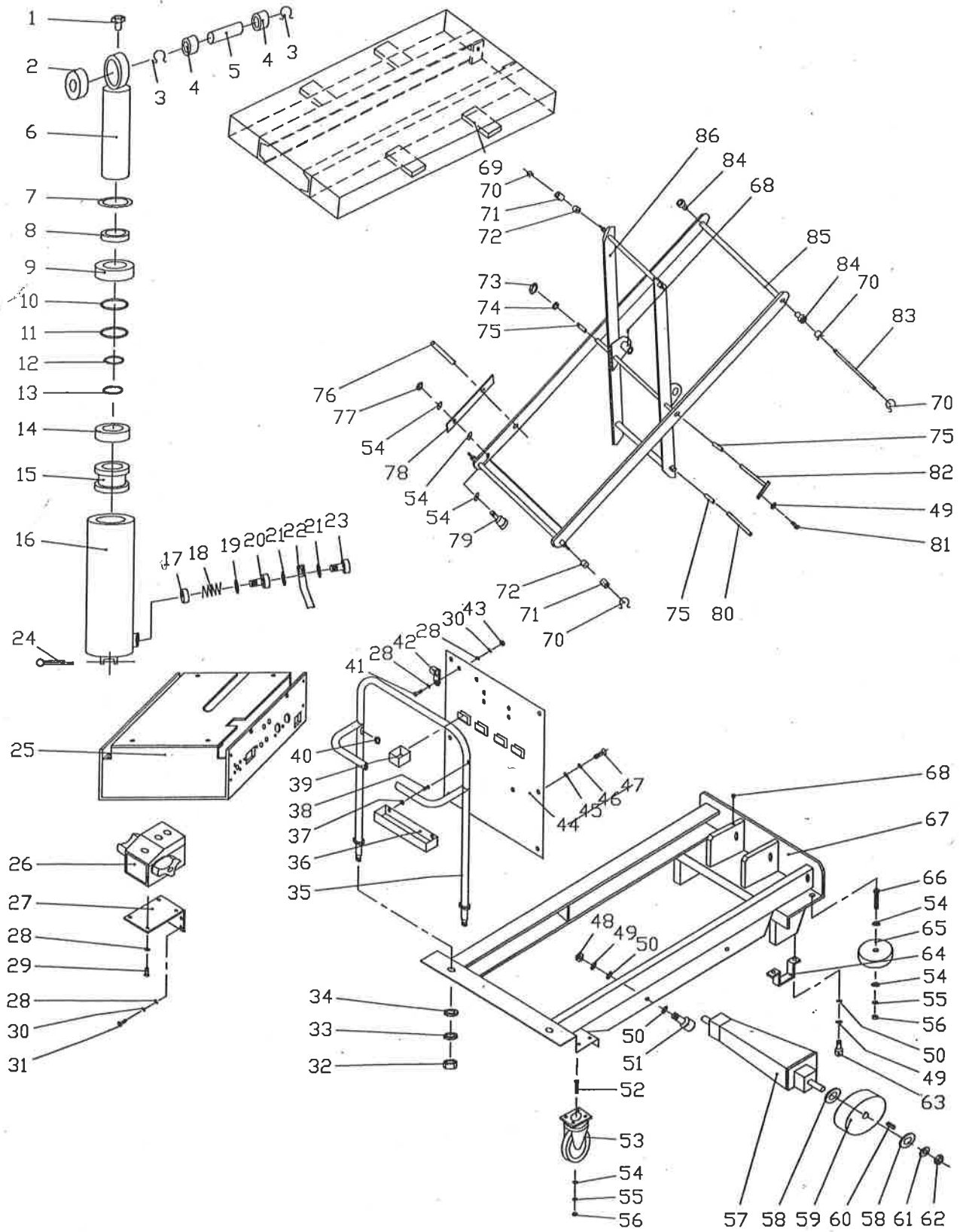
11. SPECIFICATIONS

Model	ESF50	ESF50D	ESM50	ESM50D	ESM80	ESM80D
Capacity (kg)	500	500	500	500	800	800
Table Size (LxW) mm	1020X610	1020X610	1020X610	1020X610	1020X610	1020X610
Platform Height (Max/Min) mm	1000/460	1720/460	1000/460	1720/470	1075X460	1850/520
Lifting Cycle	55	40	55	40	45	40
Time(Max. Lifting/Lowering) sec	15/15	15/15	15/15	15/15	15/15	15/15
Wheel (mm, dia.)	200	200	200	200	200	200
Overall Size(LxWxH) mm	1200X670X1030			1400X670X1170		
Net weight kg	194	241	203	250	241	293

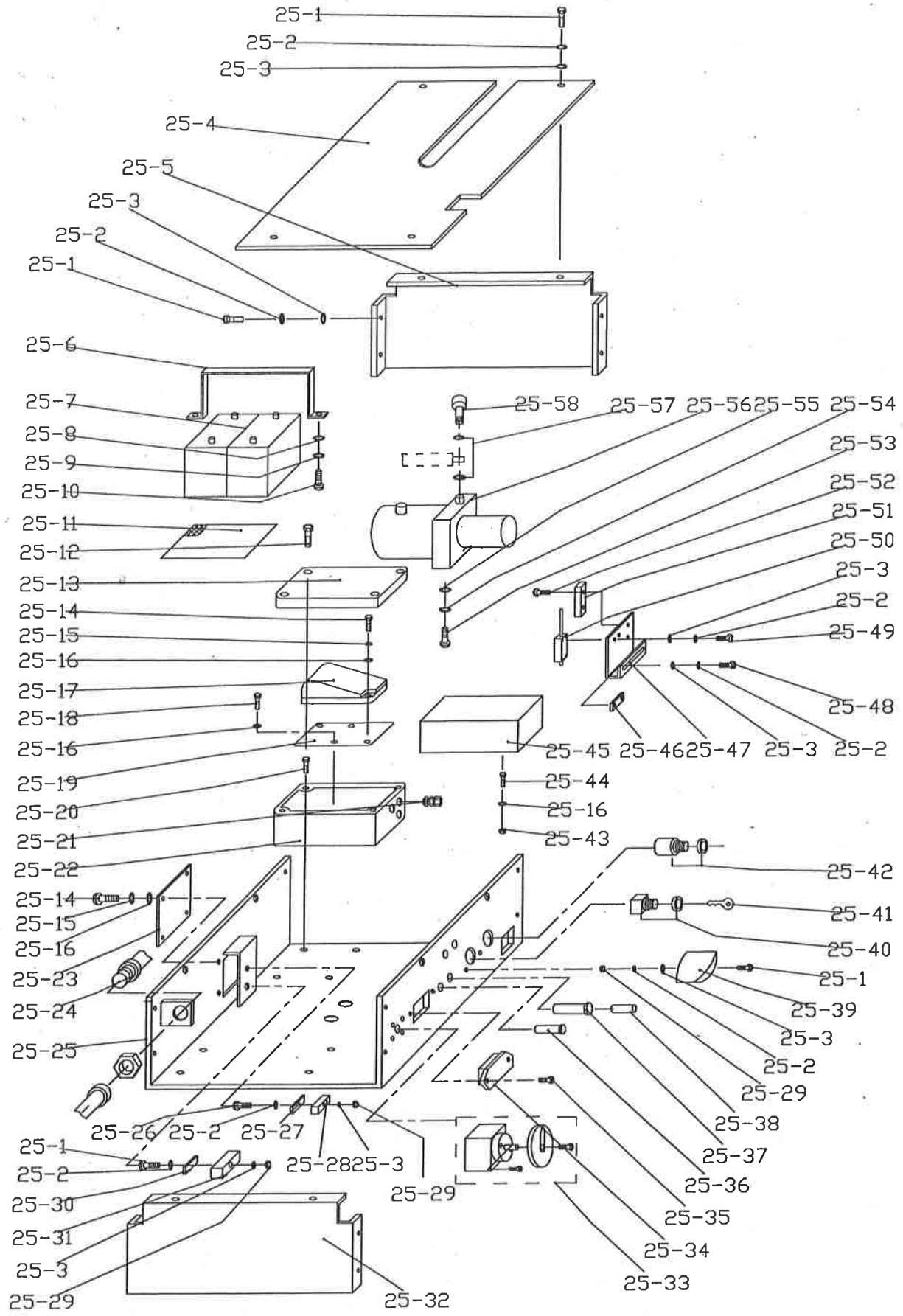
12. HYDRAULIC CIRCUIT/WIRING DIAGRAM/ACTUAL WIRING DIAGRAM



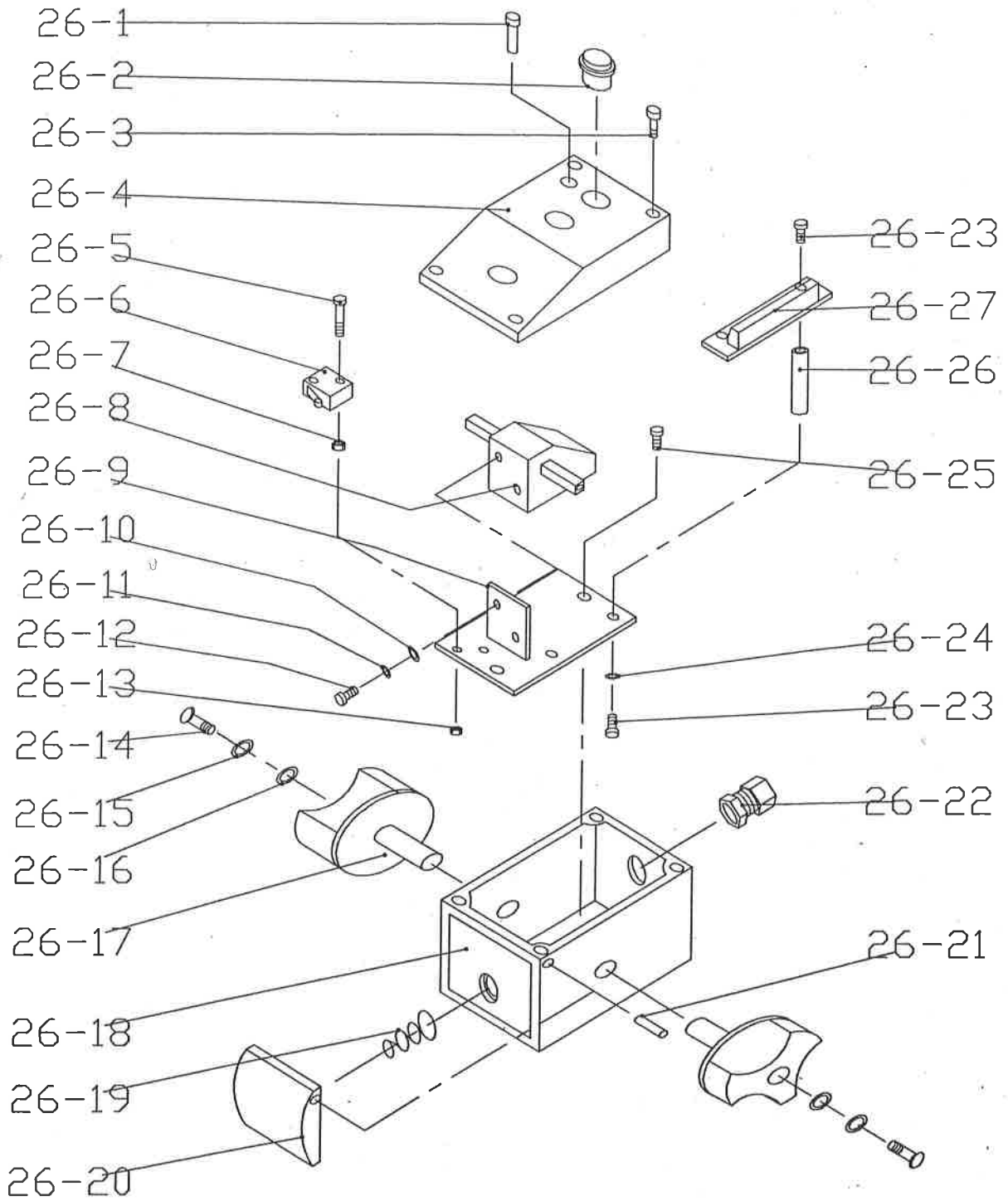
1.1-1 ESF50 EXPLODED FIGURE



1.1-2 HYDRAULIC POWER PACK (25) EXPLODED FIGURE



1.1-3 CONTROL BOX (26) EXPLODED FIGURE



1.1-4 ESF50 PARTS LIST

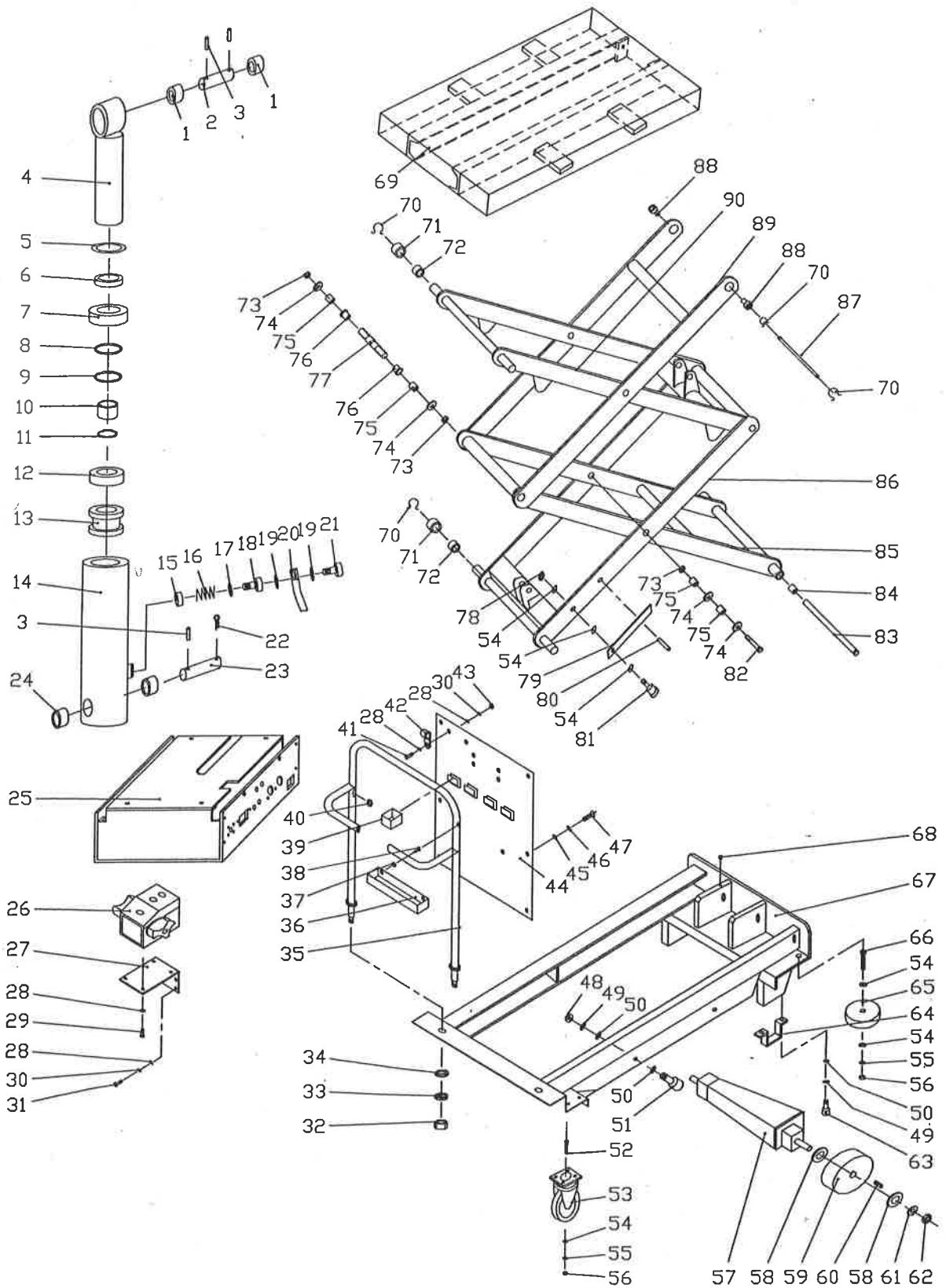
NO.	DESCRIPTION	QTY
1	Grease cup M6	1
2	Bearing GE30ZS	1
3	Retaining ring Φ 30	2
4	Bushing	2
5	Pin	1
6	Piston rod	1
7	Retaining ring Φ 55	1
8	Seal cover	1
9	Cylinder cover	1
10	Snap ring Φ 60	1
11	O-ring Φ 75 \times 2.65	1
12	O-ring Φ 31.5 \times 2.65	1
13	Snap ring Φ 32	1
14	Seal ring 60 \times 44 \times 18.4	1
15	Piston	1
16	Cylinder	1
17	Prevent burst valve	1
18	Spring	1
19	Seal ring 18	1
20	Prevent burst joint	1
21	Seal ring 14	2
22	High pressure hose	1
23	Joint	1
24	Split pin 5 \times 35	1
25	Hydraulic power pack	1
25-1	Bolt M5 \times 14	15
25-2	Spring washer 5	20
25-3	Washer 5	20
25-4	Top Cover plate	1
25-5	Endplate "I"	1
25-6	Battery Securing Tag	1
25-7	Battery	2
25-8	Washer 8	4
25-9	Spring washer 8	4
25-10	Bolt M8 \times 16	4
25-11	Insulated pad	1
25-12	Bolt	4
25-13	Cover	1
25-14	Bolt M4 \times 16	2
25-15	Spring washer 4	10
25-16	Washer 4	16

25-17	Controller	1
25-18	Bolt M4×8	2
25-19	Motherboard	1
25-20	Bolt M4×10	12
25-21	Plastic joint	3
25-22	Box	1
25-23	Fuse Box Covering plate	1
25-24	Control cable	1
25-25	Lower Tray	1
25-26	Bolt M5×16	1
25-27	Fuse (4A)	1
25-28	Fuse bracket (4A)	1
25-29	Nut M5	4
25-30	Fuse (100A)	1
25-31	Fuse bracket (100A)	1
25-32	Endplate "II"	1
25-33	Switch	1
25-34	Battery indicator	1
25-35	Bolt M3×10	2
25-36	Pilot lamp	1
25-37	Fuse bracket (2A)	1
25-38	Fuse (2A)	1
25-39	Protective Shroud	1
25-40	Lock Out Switch	1
25-41	Key	1
25-42	Buzzer	1
25-43	Nut M4	4
25-44	Bolt M4×10	4
25-45	Charger	1
25-46	Fixing Plate	1
25-47	Bracket for limit switch	1
25-48	Bolt M5×16	2
25-49	Bolt M5×10	2
25-50	Scissor Travel Limit Switch	1
25-51	Connector block	1
25-52	Bolt M3×8	2
25-53	Bolt M10×20	2
25-54	Spring washer 10	2
25-55	Washer 10	2
25-56	Hydraulic Power Pack	1
25-57	Seal ring 14	2
25-58	Joint	1
26	Control box	1
26-1	Pilot lamp	1

26-2	Button	3
26-3	Bolt ST4.8×16	4
26-4	Cover	1
26-5	Bolt M3×20	2
26-6	Switch	1
26-7	Nut M4	2
26-8	Accelerator	1
26-9	Motherboard	1
26-10	Washer 5	2
26-11	Spring washer 5	2
26-12	Bolt M5×6	2
26-13	Nut M3	2
26-14	Bolt M3×30	2
26-15	Spring washer 3	2
26-16	Washer 3	2
26-17	Handwheel	2
26-18	Box	1
26-19	Spring	1
26-20	Cover board	1
26-21	Spring pin 3×22	2
26-22	Plastic joint	1
26-23	Bolt M4×8	4
26-24	Spring washer 4	2
26-25	Bolt ST4.8×9.5	2
26-26	Pillar	2
26-27	Connector block	1
27	Motherboard	1
28	Washer 5	12
29	Bolt ST4.8×16	4
30	Spring washer 5	6
31	Bolt M5×10	4
32	Nut M27×2	2
33	Spring washer 27	2
34	Washer 27	2
35	Handle	1
36	Box	1
37	Nut M4	2
38	Bolt M4×8	2
39	Plastic box	4
40	Rubber bush	1
41	Bolt M5×12	2
42	Clip	2
43	Nut M5	2
44	Protect casing	1

45	Washer 6	6
46	Spring washer 6	6
47	Bolt M6×10	6
48	Nut M8	4
49	Spring washer 8	8
50	Washer 8	12
51	Bolt M8×25	4
52	Bolt M10×40	8
53	Rear wheel	2
54	Washer 10	18
55	Spring washer 10	10
56	Nut M10	10
57	Drive unit	1
58	Washer	4
59	Wheel	2
60	Key	2
61	Washer 14	2
62	Locknut M14	2
63	Bolt M8×20	4
64	Securing tag	2
65	Wheel	2
66	Bolt M10×65	2
67	Chassis	1
68	Screw M6x8	3
69	Table	1
70	Retaining ring Φ 20	4
71	Roller	4
72	Bushing Φ 20× Φ 23×20	4
73	Locknut M20	1
74	Washer	1
75	Bushing	4
76	Spring pin 8×30	2
77	Locknut M10	2
78	Prop	2
79	Bolt M10×45	2
80	Pin	1
81	Bolt M8×16	1
82	Pin	1
83	Pin	1
84	Bushing Φ 20× Φ 23×16.5	2
85	External scissors	1
86	Internal scissors	1

1.2-1 ESF50D EXPLODED FIGURE



1.2-2 ESF50D PARTS LIST

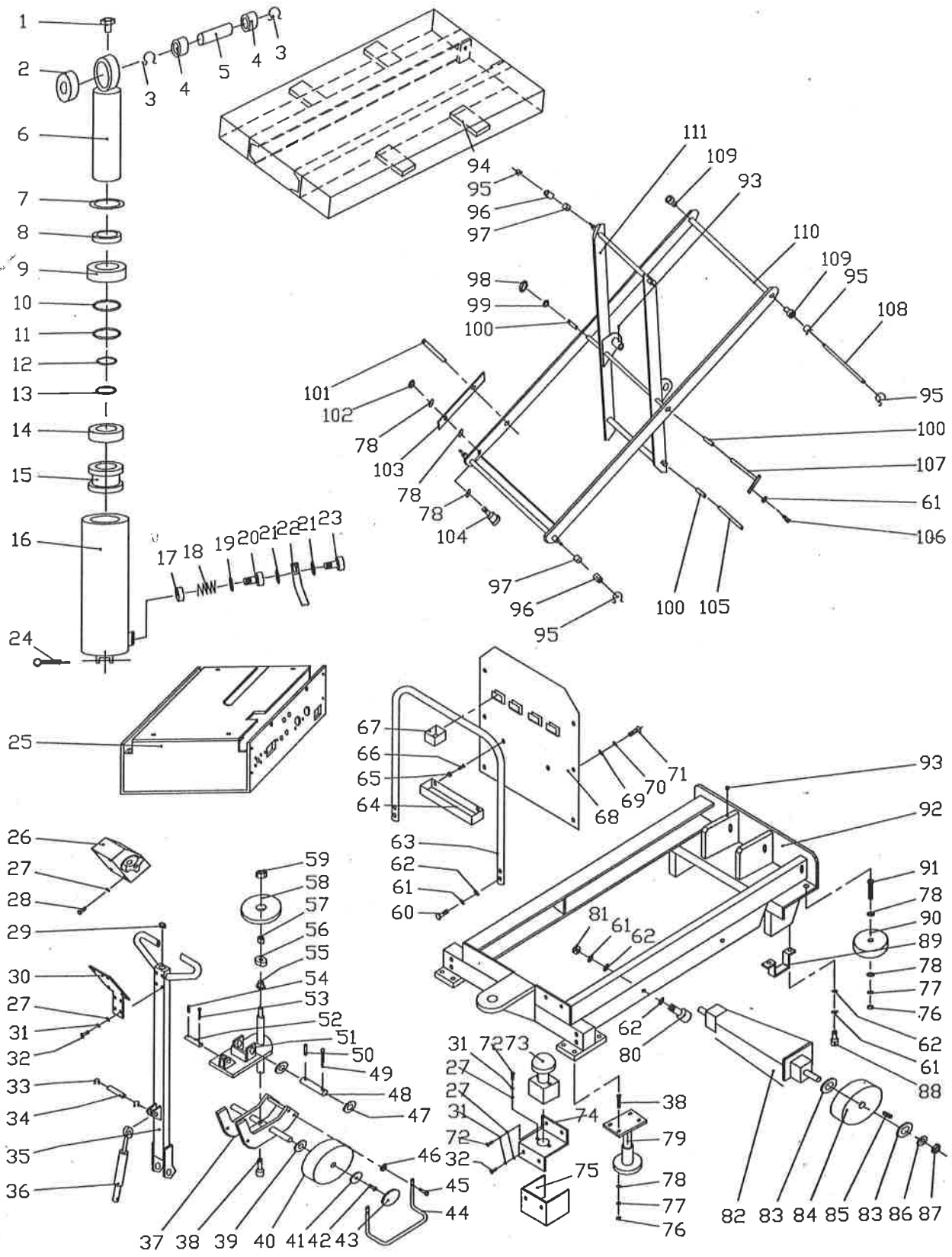
	DESCRIPTION	QTY
1	Bushing $\Phi 20 \times \Phi 23 \times 20$	2
2	Pin	1
3	Spring pin 5x30	3
4	Piston rod	1
5	Retaining ring $\Phi 50$	1
6	Seal cover $\Phi 32 \times \Phi 40 \times 6.5$	1
7	Cylinder cover	1
8	Snap ring $\Phi 55$	1
9	O-ring $\Phi 50 \times 2.65$	1
10	Guide ring	1
11	Snap ring $\Phi 25$	1
12	Seal ring $\Phi 55 \times \Phi 39 \times 18.4$	1
13	Piston	1
14	Cylinder	1
15	Prevent burst valve	1
16	Spring	1
17	Seal ring 18	1
18	Prevent burst joint	1
19	Seal ring 14	2
20	High pressure hose	1
21	Joint	1
22	Split pin	1
23	Pin	1
24	Bushing $\Phi 16 \times \Phi 18 \times 25$	2
25	Hydraulic power pack	1
25-1	Bolt M5x14	15
25-2	Spring washer 5	20
25-3	Washer 5	20
25-4	Top Cover plate	1
25-5	Endplate "I"	1
25-6	Battery Securing Tag	1
25-7	Battery	2
25-8	Washer 8	4
25-9	Spring washer 8	4
25-10	Bolt M8x16	4
25-11	Insulated pad	1
25-12	Bolt	4
25-13	Cover	1
25-14	Bolt M4x16	2
25-15	Spring washer 4	10
25-16	Washer 4	16

25-17	Controller	1
25-18	Bolt M4×8	2
25-19	Motherboard	1
25-20	Bolt M4×10	12
25-21	Plastic joint	3
25-22	Box	1
25-23	Fuse Box Covering plate	1
25-24	Control cable	1
25-25	Lower Tray	1
25-26	Bolt M5×16	1
25-27	Fuse (4A)	1
25-28	Fuse bracket (4A)	1
25-29	Nut M5	4
25-30	Fuse (100A)	1
25-31	Fuse bracket (100A)	1
25-32	Endplate "II"	1
25-33	Switch	1
25-34	Battery indicator	1
25-35	Bolt M3×10	2
25-36	Pilot lamp	1
25-37	Fuse bracket (2A)	1
25-38	Fuse (2A)	1
25-39	Protective Shroud	1
25-40	Lock Out Switch	1
25-41	Key	1
25-42	Buzzer	1
25-43	Nut M4	4
25-44	Bolt M4×10	4
25-45	Charger	1
25-46	Fixing Plate	1
25-47	Bracket for limit switch	1
25-48	Bolt M5×16	2
25-49	Bolt M5×10	2
25-50	Scissor Travel Limit Switch	1
25-51	Connector block	1
25-52	Bolt M3×8	2
25-53	Bolt M10×20	2
25-54	Spring washer 10	2
25-55	Washer 10	2
25-56	Hydraulic Power Pack	1
25-57	Seal ring 14	2
25-58	Joint	1
26	Control box	1
26-1	Pilot lamp	1
26-2	Button	3

26-3	Bolt ST4.8×16	4
26-4	Cover	1
26-5	Bolt M3×20	2
26-6	Switch	1
26-7	Nut M4	2
26-8	Accelerator	1
26-9	Motherboard	1
26-10	Washer 5	2
26-11	Spring washer 5	2
26-12	Bolt M5×6	2
26-13	Nut M3	2
26-14	Bolt M3×30	2
26-15	Spring washer 3	2
26-16	Washer 3	2
26-17	Hand wheel	2
26-18	Box	1
26-19	Spring	1
26-20	Cover board	1
26-21	Spring pin 3×22	2
26-22	Plastic joint	1
26-23	Bolt M4×8	4
26-24	Spring washer 4	2
26-25	Bolt ST4.8×9.5	2
26-26	Pillar	2
26-27	Connector block	1
27	Motherboard	1
28	Washer 5	12
29	Bolt ST4.8×16	4
30	Spring washer 5	6
31	Bolt M5×10	4
32	Nut M27×2	2
33	Spring washer 27	2
34	Washer 27	2
35	Handle	1
36	Box	1
37	Nut M4	2
38	Bolt M4×8	2
39	Plastic box	4
40	Rubber bush	1
41	Bolt M5×12	2
42	Clip	2
43	Nut M5	2
44	Protect casing	1
45	Washer 6	6
46	Spring washer 6	6

47	Bolt M6×10	6
48	Nut M8	4
49	Spring washer 8	8
50	Washer 8	12
51	Bolt M8×25	4
52	Bolt M10×40	8
53	Rear wheel	2
54	Washer 10	18
55	Spring washer 10	10
56	Nut M10	10
57	Drive unit	1
58	Washer	4
59	Wheel	2
60	Key	2
61	Washer 14	2
62	Locknut M14	2
63	Bolt M8×20	4
64	Securing tag	2
65	Wheel	2
66	Bolt M10×65	2
67	Chassis	1
68	Screw M6x8	3
69	Table	1
70	Retaining ring Φ20	4
71	Roller	4
72	Bushing Φ 20× Φ 23×20	4
73	Locknut M16	8
74	Nylon washer	16
75	Nylon bushing I	12
76	Nylon bushing	4
77	Pin	2
78	Locknut M10	2
79	Prop	2
80	Spring pin 8×30	2
81	Bolt M10×45	2
82	Bolt M16×85	4
83	Pin	1
84	Bushing	2
85	Internal scissors for chassis	1
86	External scissors for chassis	1
87	Pin	1
88	Bushing Φ 20× Φ 23×16.5	2
89	External scissors for table	1
90	Internal scissors for table	1

2.1-1 ESM50 EXPLODED FIGURE



2.1-2 ESM50 PARTS LIST

NO.	DESCRIPTION	QTY
1	Grease cup M6	1
2	Bearing GE30ZS	1
3	Retaining ring Φ 30	2
4	Bushing	2
5	Pin	1
6	Piston rod	1
7	Retaining ring Φ 55	1
8	Seal cover	1
9	Cylinder cover	1
10	Snap ring Φ 60	1
11	O-ring Φ 75 \times 2.65	1
12	O-ring Φ 31.5 \times 2.65	1
13	Snap ring Φ 32	1
14	Seal ring 60 \times 44 \times 18.4	1
15	Piston	1
16	Cylinder	1
17	Prevent burst valve	1
18	Spring	1
19	Seal ring 18	1
20	Prevent burst joint	1
21	Seal ring 14	2
22	High pressure hose	1
23	Joint	1
24	Split pin 5 \times 35	1
25	Hydraulic power pack	1
25-1	Bolt M5 \times 14	15
25-2	Spring washer 5	20
25-3	Washer 5	20
25-4	Top Cover plate	1
25-5	Endplate "I"	1
25-6	Battery Securing Tag	1
25-7	Battery	2
25-8	Washer 8	4
25-9	Spring washer 8	4
25-10	Bolt M8 \times 16	4
25-11	Insulated pad	1
25-12	Bolt	4
25-13	Cover	1
25-14	Bolt M4 \times 16	2

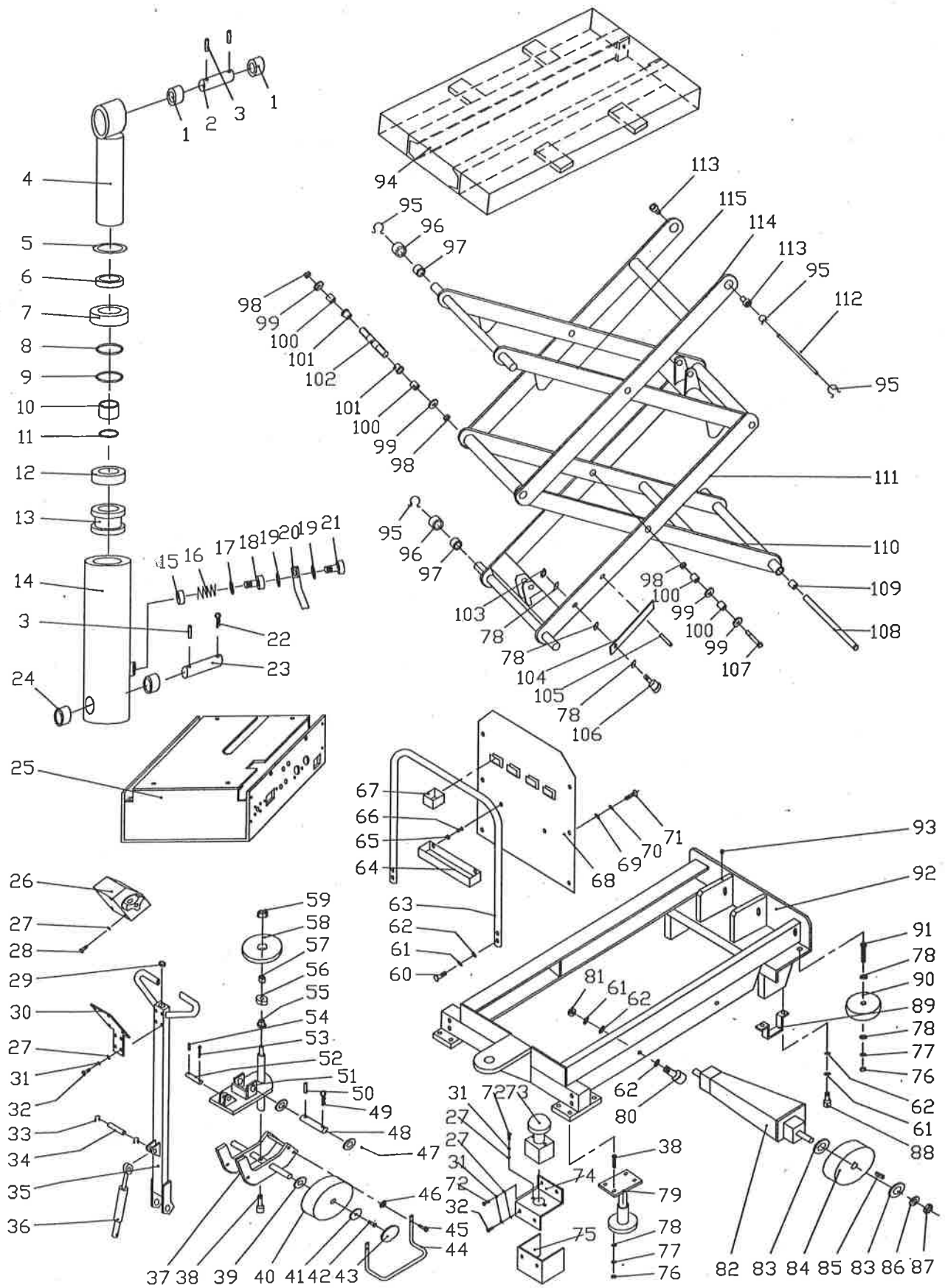
25-15	Spring washer 4	10
25-16	Washer 4	16
25-17	Controller	1
25-18	Bolt M4×8	2
25-19	Motherboard	1
25-20	Bolt M4×10	12
25-21	Plastic joint	3
25-22	Box	1
25-23	Fuse Box Covering plate	1
25-24	Control cable	1
25-25	Lower Tray	1
25-26	Bolt M5×16	1
25-27	Fuse (4A)	1
25-28	Fuse bracket (4A)	1
25-29	Nut M5	4
25-30	Fuse (100A)	1
25-31	Fuse bracket (100A)	1
25-32	Endplate "II"	1
25-33	Switch	1
25-34	Battery indicator	1
25-35	Bolt M3×10	2
25-36	Pilot lamp	1
25-37	Fuse bracket (2A)	1
25-38	Fuse (2A)	1
25-39	Protective Shroud	1
25-40	Lock Out Switch	1
25-41	Key	1
25-42	Buzzer	1
25-43	Nut M4	4
25-44	Bolt M4×10	4
25-45	Charger	1
25-46	Fixing Plate	1
25-47	Bracket for limit switch	1
25-48	Bolt M5×16	2
25-49	Bolt M5×10	2
25-50	Scissor Travel Limit Switch	1
25-51	Connector block	1
25-52	Bolt M3×8	2
25-53	Bolt M10×20	2
25-54	Spring washer 10	2
25-55	Washer 10	2
25-56	Hydraulic Power Pack	1

25-57	Seal ring 14	2
25-58	Joint	1
26	Control box	1
26-1	Pilot lamp	1
26-2	Button	3
26-3	Bolt ST4.8×16	4
26-4	Cover	1
26-5	Bolt M3×20	2
26-6	Switch	1
26-7	Nut M4	2
26-8	Accelerator	1
26-9	Motherboard	1
26-10	Washer 5	2
26-11	Spring washer 5	2
26-12	Bolt M5×6	2
26-13	Nut M3	2
26-14	Bolt M3×30	2
26-15	Spring washer 3	2
26-16	Washer 3	2
26-17	Handwheel	2
26-18	Box	1
26-19	Spring	1
26-20	Cover board	1
26-21	Spring pin 3×22	2
26-22	Plastic joint	1
26-23	Bolt M4×8	4
26-24	Spring washer 4	2
26-25	Bolt ST4.8×9.5	2
26-26	Pillar	2
26-27	Connector block	1
27	Washer 5	14
28	Bolt ST4.8×16	4
29	Rubber bush	1
30	Motherboard	1
31	Spring washer 5	10
32	Bolt M5×10	6
33	Retaining ring Φ10	2
34	Pin	1
35	Handle	1
36	Air spring	1
37	Support saddle	1
38	Bolt M10×40	9

39	Nylon washer	2
40	Wheel	2
41	Washer	2
42	Bolt M8×16	2
43	Cover	2
44	Guardrail	2
45	Bolt M6×25	4
46	Locknut M6	4
47	Washer 18	2
48	Pin	1
49	Split pin	1
50	Spring pin 4×28	1
51	Foundation bed	1
52	Pin	1
53	Split pin	1
54	Spring pin 3×25	1
55	Nylon bushing	1
56	Bearing	1
57	Bushing $\Phi 20 \times \Phi 23 \times 10$	1
58	Washer	1
59	Nut M16	1
60	Bolt M8×35	4
61	Spring washer 8	13
62	Washer 8	14
63	Guardrail	1
64	Box	1
65	Nut M4	2
66	Bolt M4×8	2
67	Plastic box	4
68	Protect casing	1
69	Washer 6	6
70	Spring washer 6	6
71	Bolt M6×10	6
72	Bolt M5×14	4
73	Switch	1
74	Board	1
75	Cover board	1
76	Nut M10	10
77	Spring washer 10	10
78	Washer 10	18
79	Brake	1
80	Bolt M8×25	4

81	Nut M8	4
82	Drive unit	1
83	Washer	4
84	Wheel	2
85	Key	2
86	Washer 14	2
87	Locknut M14	2
88	Bolt M8×20	4
89	Securing tag	2
90	Wheel	2
91	Bolt M10×65	2
92	Chassis	1
93	Screw M6x8	3
94	Table	1
95	Retaining ring $\Phi 20$	4
96	Roller	4
97	Bushing $\Phi 20 \times \Phi 23 \times 20$	4
98	Locknut M20	1
99	Washer	1
100	Bushing	4
101	Spring pin 8×30	2
102	Locknut M10	2
103	Prop	2
104	Bolt M10×45	2
105	Pin	1
106	Bolt M8×16	1
107	Pin	1
108	Pin	1
109	Bushing $\Phi 20 \times \Phi 23 \times 16.5$	2
110	External scissors	1
111	Internal scissors	1

2.2-1 ESM50D EXPLODED FIGURE



2.2-2 ESM50D PARTS LIST

NO.	DESCRIPTION	QTY
1	Bushing $\Phi 20 \times \Phi 23 \times 20$	2
2	Pin	1
3	Spring pin 5×30	3
4	Piston rod	1
5	Retaining ring $\Phi 50$	1
6	Seal cover $\Phi 32 \times \Phi 40 \times 6.5$	1
7	Cylinder cover	1
8	Snap ring $\Phi 55$	1
9	O-ring $\Phi 50 \times 2.65$	1
10	Guide ring	1
11	Snap ring $\Phi 25$	1
12	Seal ring $\Phi 55 \times \Phi 39 \times 18.4$	1
13	Piston	1
14	Cylinder	1
15	Prevent burst valve	1
16	Spring	1
17	Seal ring 18	1
18	Prevent burst joint	1
19	Seal ring 14	2
20	High pressure hose	1
21	Joint	1
22	Split pin	1
23	Pin	1
24	Bushing $\Phi 16 \times \Phi 18 \times 25$	2
25	Hydraulic power pack	1
25-1	Bolt M5×14	15
25-2	Spring washer 5	20
25-3	Washer 5	20
25-4	Top Cover plate	1
25-5	Endplate "I"	1
25-6	Battery Securing Tag	1
25-7	Battery	2
25-8	Washer 8	4
25-9	Spring washer 8	4
25-10	Bolt M8×16	4
25-11	Insulated pad	1
25-12	Bolt	4
25-13	Cover	1
25-14	Bolt M4×16	2
25-15	Spring washer 4	10

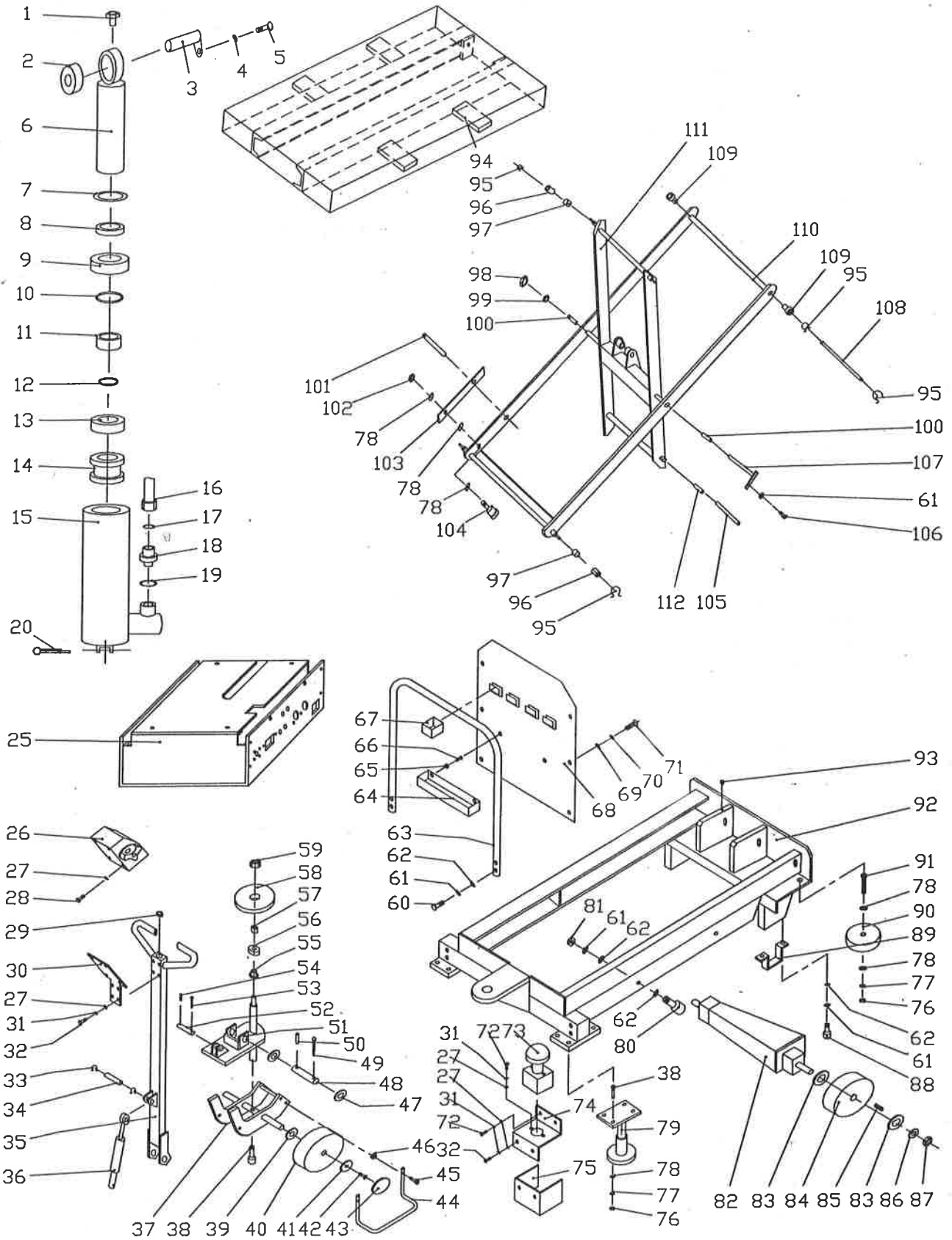
25-16	Washer 4	16
25-17	Controller	1
25-18	Bolt M4×8	2
25-19	Motherboard	1
25-20	Bolt M4×10	12
25-21	Plastic joint	3
25-22	Box	1
25-23	Fuse Box Covering plate	1
25-24	Control cable	1
25-25	Lower Tray	1
25-26	Bolt M5×16	1
25-27	Fuse (4A)	1
25-28	Fuse bracket (4A)	1
25-29	Nut M5	4
25-30	Fuse (100A)	1
25-31	Fuse bracket (100A)	1
25-32	Endplate "II"	1
25-33	Switch	1
25-34	Battery indicator	1
25-35	Bolt M3×10	2
25-36	Pilot lamp	1
25-37	Fuse bracket (2A)	1
25-38	Fuse (2A)	1
25-39	Protective Shroud	1
25-40	Lock Out Switch	1
25-41	Key	1
25-42	Buzzer	1
25-43	Nut M4	4
25-44	Bolt M4×10	4
25-45	Charger	1
25-46	Fixing Plate	1
25-47	Bracket for limit switch	1
25-48	Bolt M5×16	2
25-49	Bolt M5×10	2
25-50	Scissor Travel Limit Switch	1
25-51	Connector block	1
25-52	Bolt M3×8	2
25-53	Bolt M10×20	2
25-54	Spring washer 10	2
25-55	Washer 10	2
25-56	Hydraulic Power Pack	1
25-57	Seal ring 14	2
25-58	Joint	1
26	Control box	1

26-1	Pilot lamp	1
26-2	Button	3
26-3	Bolt ST4.8×16	4
26-4	Cover	1
26-5	Bolt M3×20	2
26-6	Switch	1
26-7	Nut M4	2
26-8	Accelerator	1
26-9	Motherboard	1
26-10	Washer 5	2
26-11	Spring washer 5	2
26-12	Bolt M5×6	2
26-13	Nut M3	2
26-14	Bolt M3×30	2
26-15	Spring washer 3	2
26-16	Washer 3	2
26-17	Handwheel	2
26-18	Box	1
26-19	Spring	1
26-20	Cover board	1
26-21	Spring pin 3×22	2
26-22	Plastic joint	1
26-23	Bolt M4×8	4
26-24	Spring washer 4	2
26-25	Bolt ST4.8×9.5	2
26-26	Pillar	2
26-27	Connector block	1
27	Washer 5	14
28	Bolt ST4.8×16	4
29	Rubber bush	1
30	Motherboard	1
31	Spring washer 5	10
32	Bolt M5×10	6
33	Retaining ring Φ10	2
34	Pin	1
35	Handle	1
36	Air spring	1
37	Support saddle	1
38	Bolt M10×40	9
39	Nylon washer	2
40	Wheel	2
41	Washer	2
42	Bolt M8×16	2
43	Cover	2

44	Guardrail	2
45	Bolt M6×25	4
46	Locknut M6	4
47	Washer 18	2
48	Pin	1
49	Split pin	1
50	Spring pin 4×28	1
51	Foundation bed	1
52	Pin	1
53	Split pin	1
54	Spring pin 3×25	1
55	Nylon bushing	1
56	Bearing	1
57	Bushing $\Phi 20 \times \Phi 23 \times 10$	1
58	Washer	1
59	Nut M16	1
60	Bolt M8×35	4
61	Spring washer 8	13
62	Washer 8	14
63	Guardrail	1
64	Box	1
65	Nut M4	2
66	Bolt M4×8	2
67	Plastic box	4
68	Protect casing	1
69	Washer 6	6
70	Spring washer 6	6
71	Bolt M6×10	6
72	Bolt M5×14	4
73	Switch	1
74	Board	1
75	Cover board	1
76	Nut M10	10
77	Spring washer 10	10
78	Washer 10	18
79	Brake	1
80	Bolt M8×25	4
81	Nut M8	4
82	Drive unit	1
83	Washer	4
84	Wheel	2
85	Key	2
86	Washer 14	2
87	Locknut M14	2

88	Bolt M8×20	4
89	Securing tag	2
90	Wheel	2
91	Bolt M10×65	2
92	Chassis	1
93	Screw M6x8	2
94	Table	1
95	Retaining ring Φ 20	4
96	Roller	4
97	Bushing Φ 20× Φ 23×20	4
98	Locknut M16	8
99	Nylon washer	16
100	Nylon bushing I	12
101	Nylon bushing	4
102	Pin	2
103	Locknut M10	2
104	Prop	2
105	Spring pin 8×30	2
106	Bolt M10×45	2
107	Bolt M16×85	4
108	Pin	1
109	Bushing	2
110	Internal scissors for chassis	1
111	External scissors for chassis	1
112	Pin	1
113	Bushing Φ 20× Φ 23×16.5	2
114	External scissors for table	1
115	Internal scissors for table	1

3.1-1 ESM80 EXPLODED FIGURE



3.1-2 ESM80 PARTS LIST

NO.	DESCRIPTION	QTY
1	Grease cup M6	1
2	Bearing GE30ZS	1
3	Pin	1
4	Spring washer 8	1
5	Bolt M8×16	1
6	Piston rod	1
7	Retaining ring Φ60	1
8	Seal cover Φ40×Φ48×6.5	1
9	Cylinder cover	1
10	Snap ring Φ65	1
11	Guide ring	1
12	Snap ring Φ40	1
13	Seal ring Φ65×Φ50×18.4	1
14	Piston	1
15	Cylinder	1
16	High pressure hose	1
17	O-ring Φ9.5×1.8	1
18	Throttleer	1
19	Seal ring 16	1
20	Split pin 5×35	1
25	Hydraulic power pack	1
25-1	Bolt M5×14	15
25-2	Spring washer 5	20
25-3	Washer 5	20
25-4	Top Cover plate	1
25-5	Endplate "I"	1
25-6	Battery Securing Tag	1
25-7	Battery	2
25-8	Washer 8	4
25-9	Spring washer 8	4
25-10	Bolt M8×16	4
25-11	Insulated pad	1
25-12	Bolt	4
25-13	Cover	1
25-14	Bolt M4×16	2
25-15	Spring washer 4	10
25-16	Washer 4	16
25-17	Controller	1
25-18	Bolt M4×8	2
25-19	Motherboard	1

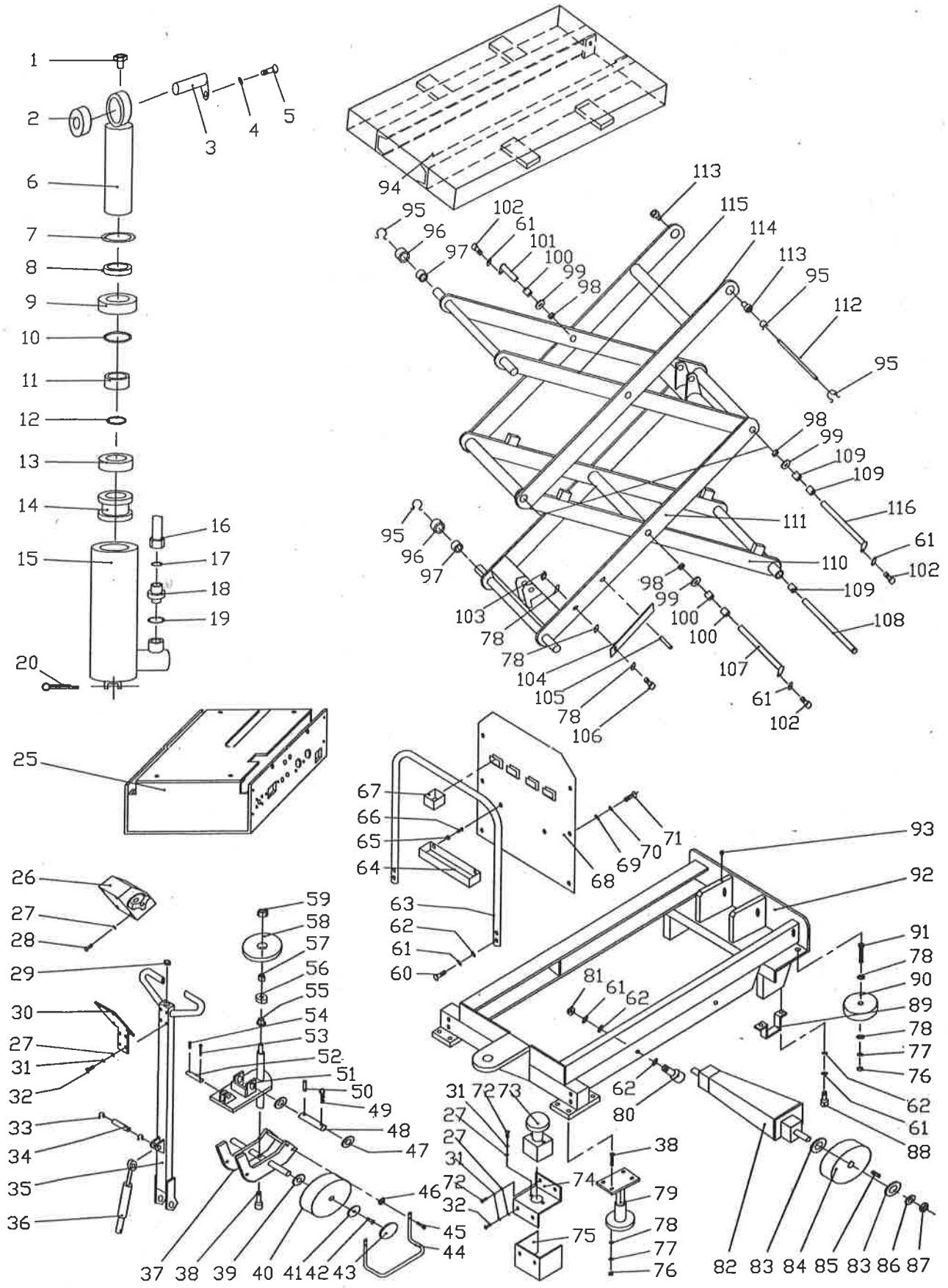
25-20	Bolt M4×10	12
25-21	Plastic joint	3
25-22	Box	1
25-23	Fuse Box Covering plate	1
25-24	Control cable	1
25-25	Lower Tray	1
25-26	Bolt M5×16	1
25-27	Fuse (4A)	1
25-28	Fuse bracket (4A)	1
25-29	Nut M5	4
25-30	Fuse (100A)	1
25-31	Fuse bracket (100A)	1
25-32	Endplate "II"	1
25-33	Switch	1
25-34	Battery indicator	1
25-35	Bolt M3×10	2
25-36	Pilot lamp	1
25-37	Fuse bracket (2A)	1
25-38	Fuse (2A)	1
25-39	Protective Shroud	1
25-40	Lock Out Switch	1
25-41	Key	1
25-42	Buzzer	1
25-43	Nut M4	4
25-44	Bolt M4×10	4
25-45	Charger	1
25-46	Fixing Plate	1
25-47	Bracket for limit switch	1
25-48	Bolt M5×16	2
25-49	Bolt M5×10	2
25-50	Scissor Travel Limit Switch	1
25-51	Connector block	1
25-52	Bolt M3×8	2
25-53	Bolt M10×20	2
25-54	Spring washer 10	2
25-55	Washer 10	2
25-56	Hydraulic Power Pack	1
25-57	Seal ring 14	2
25-58	Joint	1
26	Control box	1
26-1	Pilot lamp	1
26-2	Button	3
26-3	Bolt ST4.8×16	4
26-4	Cover	1

26-5	Bolt M3×20	2
26-6	Switch	1
26-7	Nut M4	2
26-8	Accelerator	1
26-9	Motherboard	1
26-10	Washer 5	2
26-11	Spring washer 5	2
26-12	Bolt M5×6	2
26-13	Nut M3	2
26-14	Bolt M3×30	2
26-15	Spring washer 3	2
26-16	Washer 3	2
26-17	Handwheel	2
26-18	Box	1
26-19	Spring	1
26-20	Cover board	1
26-21	Spring pin 3×22	2
26-22	Plastic joint	1
26-23	Bolt M4×8	4
26-24	Spring washer 4	2
26-25	Bolt ST4.8×9.5	2
26-26	Pillar	2
26-27	Connector block	1
27	Washer 5	14
28	Bolt ST4.8×16	4
29	Rubber bush	1
30	Motherboard	1
31	Spring washer 5	10
32	Bolt M5×10	6
33	Retaining ring Φ10	2
34	Pin	1
35	Handle	1
36	Air spring	1
37	Support saddle	1
38	Bolt M10×40	9
39	Nylon washer	2
40	Wheel	2
41	Washer	2
42	Bolt M8×16	2
43	Cover	2
44	Guardrail	2
45	Bolt M6×25	4
46	Locknut M6	4
47	Washer 18	2

48	Pin	1
49	Split pin	1
50	Spring pin 4×28	1
51	Foundation bed	1
52	Pin	1
53	Split pin	1
54	Spring pin 3×25	1
55	Nylon bushing	1
56	Bearing	1
57	Bushing $\Phi 20 \times \Phi 23 \times 10$	1
58	Washer	1
59	Nut M16	1
60	Bolt M8×35	4
61	Spring washer 8	13
62	Washer 8	14
63	Guardrail	1
64	Box	1
65	Nut M4	2
66	Bolt M4×8	2
67	Plastic box	4
68	Protect casing	1
69	Washer 6	6
70	Spring washer 6	6
71	Bolt M6×10	6
72	Bolt M5×14	4
73	Switch	1
74	Board	1
75	Cover board	1
76	Nut M10	10
77	Spring washer 10	10
78	Washer 10	18
79	Brake	1
80	Bolt M8×25	4
81	Nut M8	4
82	Drive unit	1
83	Washer	4
84	Wheel	2
85	Key	2
86	Washer 14	2
87	Locknut M14	2
88	Bolt M8×20	4
89	Securing tag	2
90	Wheel	2
91	Bolt M10×65	2

92	Chassis	1
93	Screw M6x8	1
94	Table	1
95	Retaining ring $\Phi 20$	4
96	Roller	4
97	Bushing $\Phi 20 \times \Phi 23 \times 20$	4
98	Locknut M20	1
99	Washer	1
100	Bushing	2
101	Spring pin 8x30	2
102	Locknut M10	2
103	Prop	2
104	Bolt M10x45	2
105	Pin	1
106	Bolt M8x16	1
107	Pin	1
108	Pin	1
109	Bushing $\Phi 20 \times \Phi 23 \times 16.5$	2
110	External scissors	1
111	Internal scissors	1
112	Bushing	2

3.2-1 ESM80D EXPLODED FIGURE



3.2-2 ESM80D PARTS LIST

NO.	DESCRIPTION	QTY
1	Grease cup M6	1
2	Bearing GE30ZS	1
3	Pin	1
4	Spring washer 8	1
5	Bolt M8×16	1
6	Piston rod	1
7	Retaining ring Φ65	1
8	Seal cover Φ40×Φ48×6.5	1
9	Cylinder cover	1
10	Snap ring Φ70	1
11	Guide ring	1
12	Snap ring Φ40	1
13	Seal ring Φ70×Φ50×22.4	1
14	Piston	1
15	Cylinder	1
16	High pressure hose	1
17	O-ring Φ9.5×1.8	1
18	Throttleer	1
19	Seal ring 16	1
20	Split pin 5×35	1
25	Hydraulic power pack	1
25-1	Bolt M5×14	15
25-2	Spring washer 5	20
25-3	Washer 5	20
25-4	Top Cover plate	1
25-5	Endplate "I"	1
25-6	Battery Securing Tag	1
25-7	Battery	2
25-8	Washer 8	4
25-9	Spring washer 8	4
25-10	Bolt M8×16	4
25-11	Insulated pad	1
25-12	Bolt	4
25-13	Cover	1
25-14	Bolt M4×16	2
25-15	Spring washer 4	10
25-16	Washer 4	16
25-17	Controller	1
25-18	Bolt M4×8	2
25-19	Motherboard	1
25-20	Bolt M4×10	12

25-21	Plastic joint	3
25-22	Box	1
25-23	Fuse Box Covering plate	1
25-24	Control cable	1
25-25	Lower Tray	1
25-26	Bolt M5×16	1
25-27	Fuse (4A)	1
25-28	Fuse bracket (4A)	1
25-29	Nut M5	4
25-30	Fuse (100A)	1
25-31	Fuse bracket (100A)	1
25-32	Endplate "II"	1
25-33	Switch	1
25-34	Battery indicator	1
25-35	Bolt M3×10	2
25-36	Pilot lamp	1
25-37	Fuse bracket (2A)	1
25-38	Fuse (2A)	1
25-39	Protective Shroud	1
25-40	Lock Out Switch	1
25-41	Key ₁	1
25-42	Buzzer	1
25-43	Nut M4	4
25-44	Bolt M4×10	4
25-45	Charger	1
25-46	Fixing Plate	1
25-47	Bracket for limit switch	1
25-48	Bolt M5×16	2
25-49	Bolt M5×10	2
25-50	Scissor Travel Limit Switch	1
25-51	Connector block	1
25-52	Bolt M3×8	2
25-53	Bolt M10×20	2
25-54	Spring washer 10	2
25-55	Washer 10	2
25-56	Hydraulic Power Pack	1
25-57	Seal ring 14	2
25-58	Joint	1
26	Control box	1
26-1	Pilot lamp	1
26-2	Button	3
26-3	Bolt ST4.8×16	4
26-4	Cover	1
26-5	Bolt M3×20	2

26-6	Switch	1
26-7	Nut M4	2
26-8	Accelerator	1
26-9	Motherboard	1
26-10	Washer 5	2
26-11	Spring washer 5	2
26-12	Bolt M5×6	2
26-13	Nut M3	2
26-14	Bolt M3×30	2
26-15	Spring washer 3	2
26-16	Washer 3	2
26-17	Handwheel	2
26-18	Box	1
26-19	Spring	1
26-20	Cover board	1
26-21	Spring pin 3×22	2
26-22	Plastic joint	1
26-23	Bolt M4×8	4
26-24	Spring washer 4	2
26-25	Bolt ST4.8×9.5	2
26-26	Pillar	2
26-27	Connector block	1
27	Washer 5	14
28	Bolt ST4.8×16	4
29	Rubber bush	1
30	Motherboard	1
31	Spring washer 5	10
32	Bolt M5×10	6
33	Retaining ring Φ10	2
34	Pin	1
35	Handle	1
36	Air spring	1
37	Support saddle	1
38	Bolt M10×40	9
39	Nylon washer	2
40	Wheel	2
41	Washer	2
42	Bolt M8×16	2
43	Cover	2
44	Guardrail	2
45	Bolt M6×25	4
46	Locknut M6	4
47	Washer 18	2
48	Pin	1

49	Split pin	1
50	Spring pin 4×28	1
51	Foundation bed	1
52	Pin	1
53	Split pin	1
54	Spring pin 3×25	1
55	Nylon bushing	1
56	Bearing	1
57	Bushing $\Phi 20 \times \Phi 23 \times 10$	1
58	Washer	1
59	Nut M16	1
60	Bolt M8×35	4
61	Spring washer 8	18
62	Washer 8	14
63	Guardrail	1
64	Box	1
65	Nut M4	2
66	Bolt M4×8	2
67	Plastic box	4
68	Protect casing	1
69	Washer 6	6
70	Spring washer 6	6
71	Bolt M6×10	6
72	Bolt M5×14	4
73	Switch	1
74	Board	1
75	Cover board	1
76	Nut M10	10
77	Spring washer 10	10
78	Washer 10	18
79	Brake	1
80	Bolt M8×25	4
81	Nut M8	4
82	Drive unit	1
83	Washer	4
84	Wheel	2
85	Key	2
86	Washer 14	2
87	Locknut M14	2
88	Bolt M8×20	4
89	Securing tag	2
90	Wheel	2
91	Bolt M10×65	2
92	Chassis	1

93	Screw M6x8	2
94	Table	1
95	Retaining ring $\Phi 20$	4
96	Roller	4
97	Bushing $\Phi 20 \times \Phi 23 \times 20$	4
98	Locknut M20	5
99	Washer	5
100	Bushing	4
101	Pin	2
102	Bolt M8x16	5
103	Locknut M10	2
104	Prop	2
105	Spring pin 8x30	2
106	Bolt M10x45	2
107	Pin	1
108	Pin	1
109	Bushing	6
110	Internal scissors for chassis	1
111	External scissors for chassis	1
112	Pin	1
113	Bushing $\Phi 20 \times \Phi 23 \times 16.5$	2
114	External scissors for table	1
115	Internal scissors for table	1
116	Pin	2