
**Installation and Maintenance Manual
for KITO Crane Control Box
M9 Type**

ALWAYS SAVE THIS BOOK FOR FURE REFERENCE.

Thank you for purchasing the KITO M9 type Crane Control Box.

This control box consists of highly reliable parts.

Owing to thorough quality controls, this control box has been manufactured to satisfy requirements for durability.

Description of Signal Words

DANGER

Imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

1. General Matters on Handling and Control

DANGER



- Read carefully and fully understand this manual, instruction manuals and the instruction described in the warning labels affixed to each part of the product, and operate the product.



- Carry out daily inspection before use and periodic inspection.

2. Preparation and Checking Before Use

DANGER




- Installation (removal) of the control box must be carried out by special installer or by personnel with expertise.
- Do not install the control box at a place exposed to rain or water always or the place different from the working environment.




- Carry out the work for grounding (earthing) and installation of earth leakage breaker.


3. Operation

⚠ DANGER

-  • Carry out inspection before use, and do not use the product if it has any problem with the operation.
- Do not use the product if it moves oppositely to the direction indicated on push button switch.
- If the control box is damaged or abnormal noise or vibration occurs, stop the operation immediately.


⚠ CAUTION


-  • Do not use the control box by the voltage other than the rated voltage.
- Do not carry out plucking or excessive inching.
- Do not use warning labels and caution label peeled off.

-  • Clean the control box always not to allow the dust and sand attach.

4. Maintenance and Inspection

⚠ DANGER

-  • Do not modify the product and its accessories.
- Do not use any parts other than KITO brand parts.

-  • Be sure to turn off the power before performing inspection or repair.
- Perform the inspection or repair by an assigned personnel with expertise.
- Do not use the product if any failure of the control box is detected by inspection, and repair immediately.

⚠ CAUTION

-  • Indicate “CHECKING” when performing the inspection or repair.

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1.Features

1.1 Control box for electric chain hoists

The control box has a built-in electromagnetic contactor for traveling and a 24V transformer needed for control voltage.

1.2 Specification

Speed	Type	Code	Geared motor output	Power supply		Pendant control voltage	Rated current		Outline	Mass (Net weight) (kg)
				Rated Voltage	Working voltage range		Control box	Traveling		
Single	SBE015SNH	M9NH010M	~0.75kW×2	200V 50Hz	±10%	24~26.4V	40A	11A	Fig.A	7
				200-220V 60Hz						
				380-415V 50Hz						
	440V 60Hz									
	220-230V 50/60Hz									
	380-400V 50/60Hz									
	SBE015SNX	M9NX010M	~1.5kW×2	200V 50Hz	±10%	24~26.4V	40A	7.5A	Fig.A	7
				200-220V 60Hz						
				380-415V 50Hz						
	440V 60Hz									
	220-230V 50/60Hz									
	380-400V 50/60Hz									
SBE015SNS	M9NS010M	~1.5kW×4	200V 50Hz	±10%	24~26.4V	70A	16A	Fig.B	9	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE030SNH	M9NH011M	~1.5kW×2	200V 50Hz	±10%	24~26.4V	40A	7.5A	Fig.A	7	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE030SNX	M9NX011M	~1.5kW×4	200V 50Hz	±10%	24~26.4V	70A	16A	Fig.B	9	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE030SNS	M9NS011M	~1.5kW×2	200V 50Hz	±10%	24~26.4V	40A	32A	Fig.C	11	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE060SNH	M9NH012M	~1.5kW×4	200V 50Hz	±10%	24~26.4V	70A	17A	Fig.C	9	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE060SNX	M9NX012M	~1.5kW×2	200V 50Hz	±10%	24~26.4V	40A	11A	Fig.D	11	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE060SNS	M9NS012M	~1.5kW×4	200V 50Hz	±10%	24~26.4V	70A	32A	Fig.B	11	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
Dual	SBE015SDNH	M9HH010M	~0.75kW×2	200V 50Hz	±10%	24~26.4V	40A	11A	Fig.D	11
				200-220V 60Hz						
				380-415V 50Hz						
	440V 60Hz									
	220-230V 50/60Hz									
	380-400V 50/60Hz									
	SBE015SDNX	M9HX010M	~1.5kW×2	200V 50Hz	±10%	24~26.4V	40A	7.5A	Fig.D	11
				200-220V 60Hz						
				380-415V 50Hz						
	440V 60Hz									
	220-230V 50/60Hz									
	380-400V 50/60Hz									
SBE015SDNS	M9HS010M	~1.5kW×4	200V 50Hz	±10%	24~26.4V	70A	16A	Fig.D	11	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE030SDNH	M9HH011M	~1.5kW×2	200V 50Hz	±10%	24~26.4V	40A	7.5A	Fig.D	11	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE030SDNX	M9HX011M	~1.5kW×4	200V 50Hz	±10%	24~26.4V	70A	16A	Fig.D	11	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE030SDNS	M9HS011M	~1.5kW×2	200V 50Hz	±10%	24~26.4V	40A	30A	Fig.E	27	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE060SDNH	M9HH012M	~1.5kW×4	200V 50Hz	±10%	24~26.4V	70A	17A	Fig.E	27	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE060SDNX	M9HX012M	~1.5kW×2	200V 50Hz	±10%	24~26.4V	40A	30A	Fig.E	27	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										
SBE060SDNS	M9HS012M	~1.5kW×4	200V 50Hz	±10%	24~26.4V	70A	30A	Fig.E	27	
			200-220V 60Hz							
			380-415V 50Hz							
440V 60Hz										
220-230V 50/60Hz										
380-400V 50/60Hz										

- Available on your request.
- Environment : Ambient temperature : -20 to 40°C (No freezing).
Installation site : Indoor, free of dust and corrosive gases.
- Protection class : IP20
- Color : KITO Yellow (Equivalent to Munsell 7.2YR6.5/14.5)

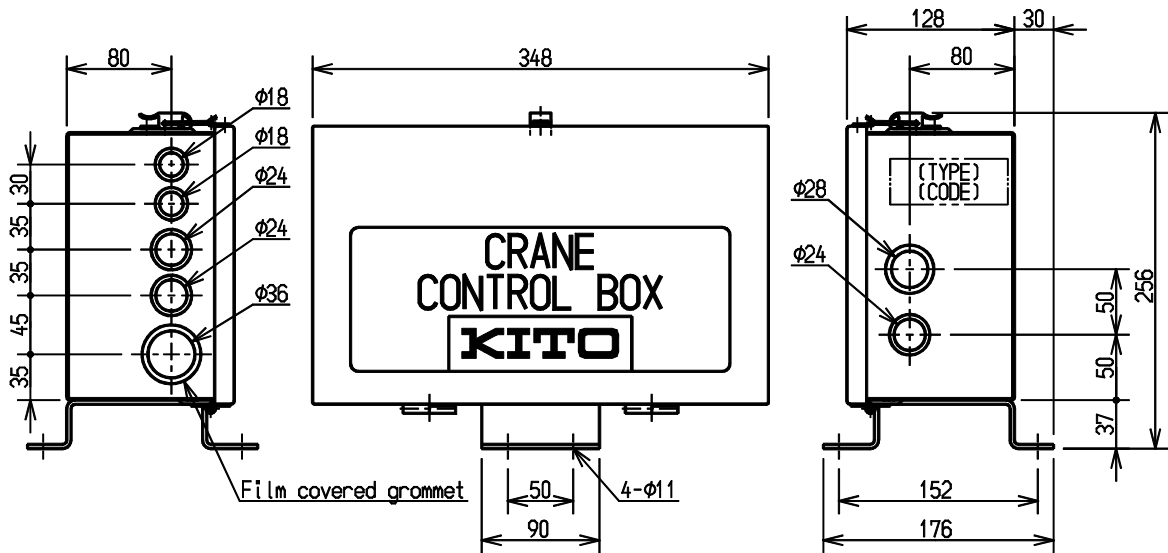


Fig. A SBE015SNH, SBE015SNX, SBE015SNS, SBE030SNX

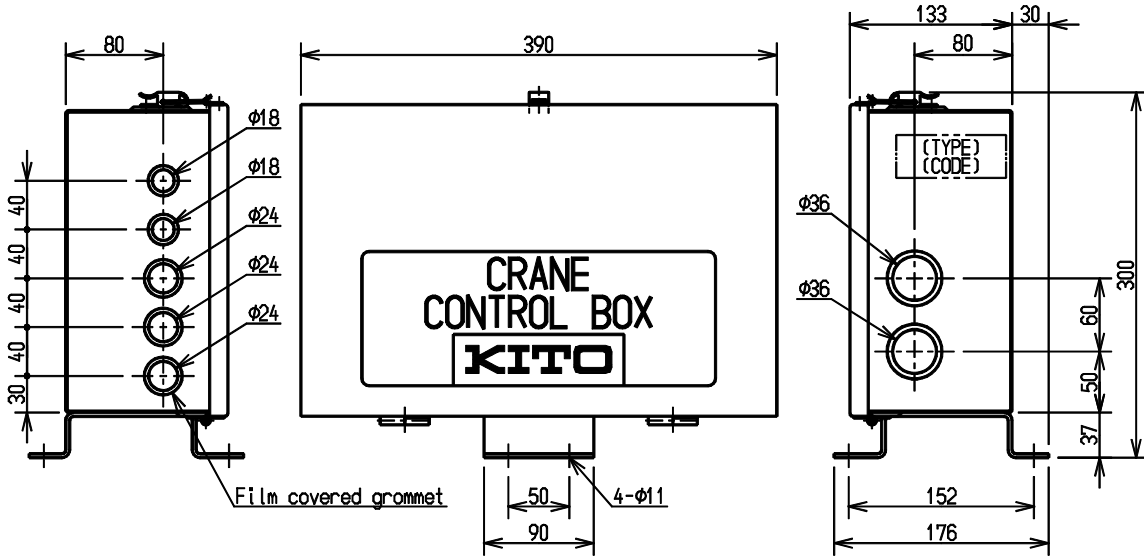


Fig. B SBE030SNH, SBE030SNS

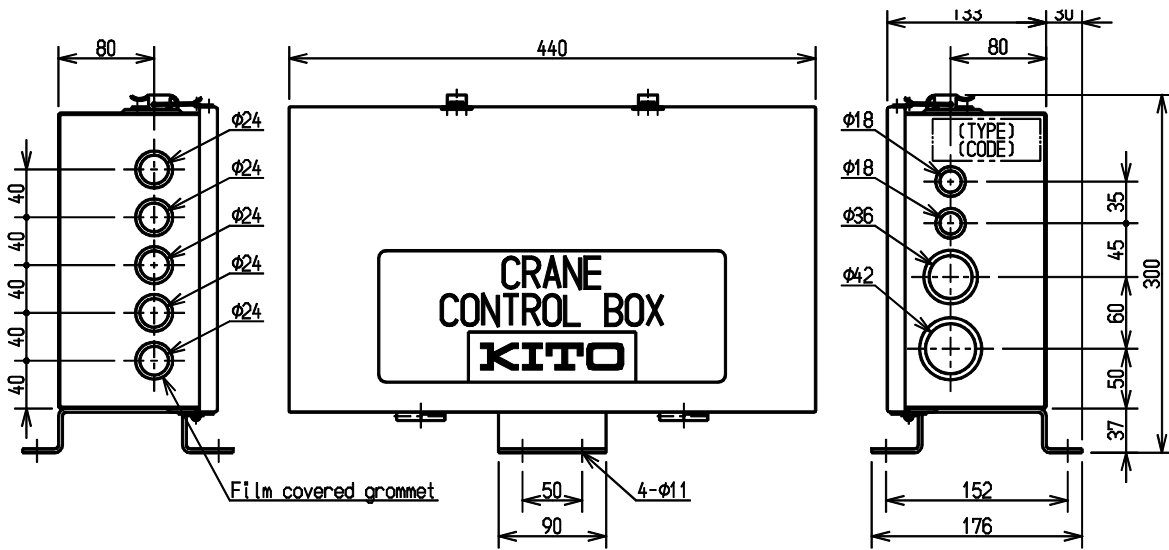


Fig. C SBE060SNH, SBE060SNX, SBE060SNS

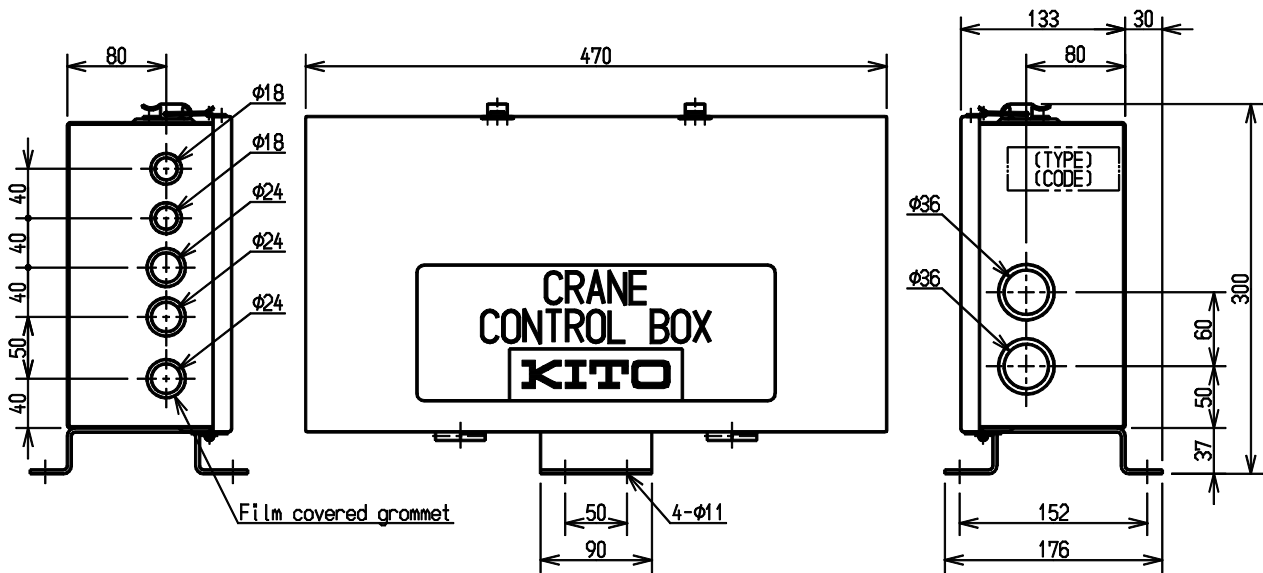


Fig. D SBE015SDNH, SBE015SDNX, SBE015SDNS, SBE030SDNH, SBE030SDNX, SBE030SDNS

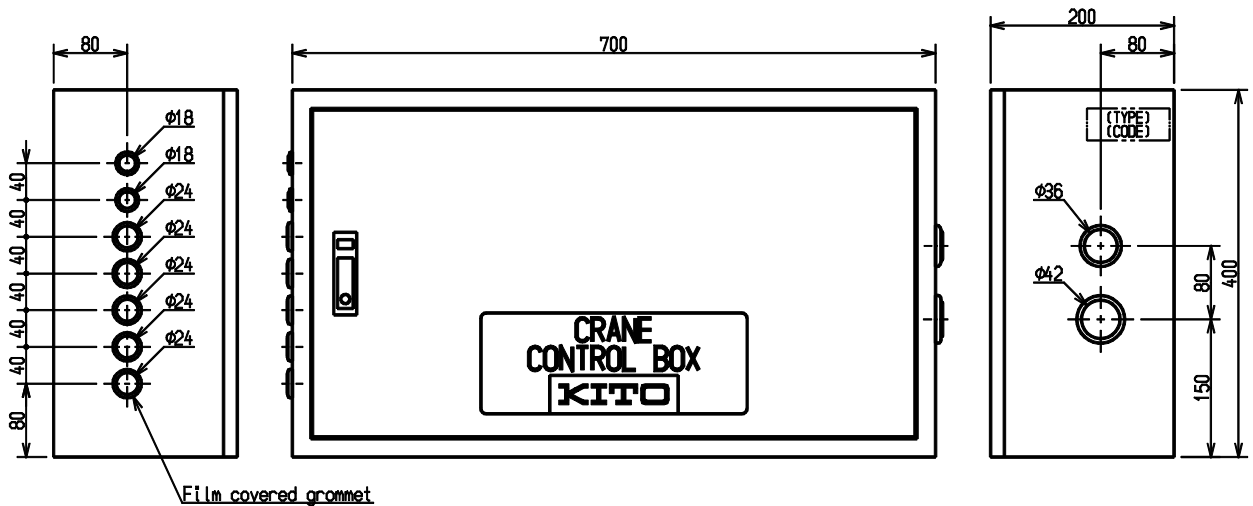


Fig. E SBE060SDNH, SBE060SDNX, SBE060SDNS

1.3 Working environment

The working environment of this control box is described below. Take protective measures if using the control box where subjected to vibrations, corrosive gases or dust.

Temperature	-20°C to 40°C
Humidity	85% RH or less

2. Installation and wiring

2.1 Installation

In general, the control box is installed on the end carriage or girder. Pay attention to the following points when installing the box.

- (a) Avoid interference with the building.
- (b) Install the box vertically.

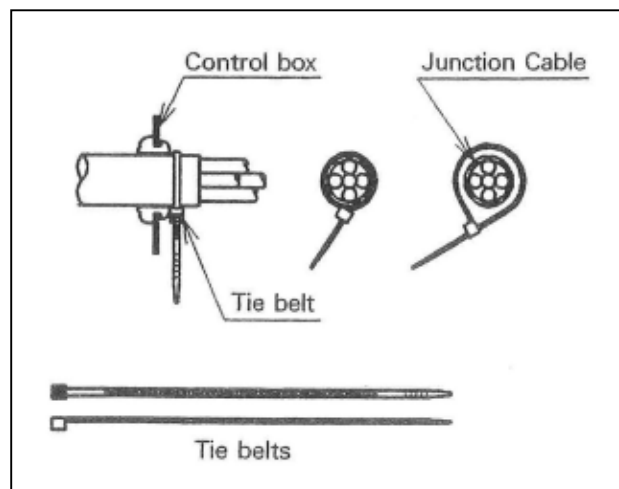
2.2 Wiring

The control box is easily wired by connecting the cables from main power supply line, geared motors and hoist to the terminals inside the box.

Refer to the proper wiring diagram before wiring. For your reference, some typical wiring schemes are provided in Figs. 1 through 6.

<Precautions>

- (a) Be sure to ground the control box at the proper terminal on the terminal board.
- (b) Check wiring is correct before attempting to operate the crane.
- (c) Attach a tie belt to junction cables inside the control box.



2.3 Wiring diagram

Electric chain hoist with motorized trolley, single speed with emergency stop device

Power supply 200V 50Hz, 200-220V 60H

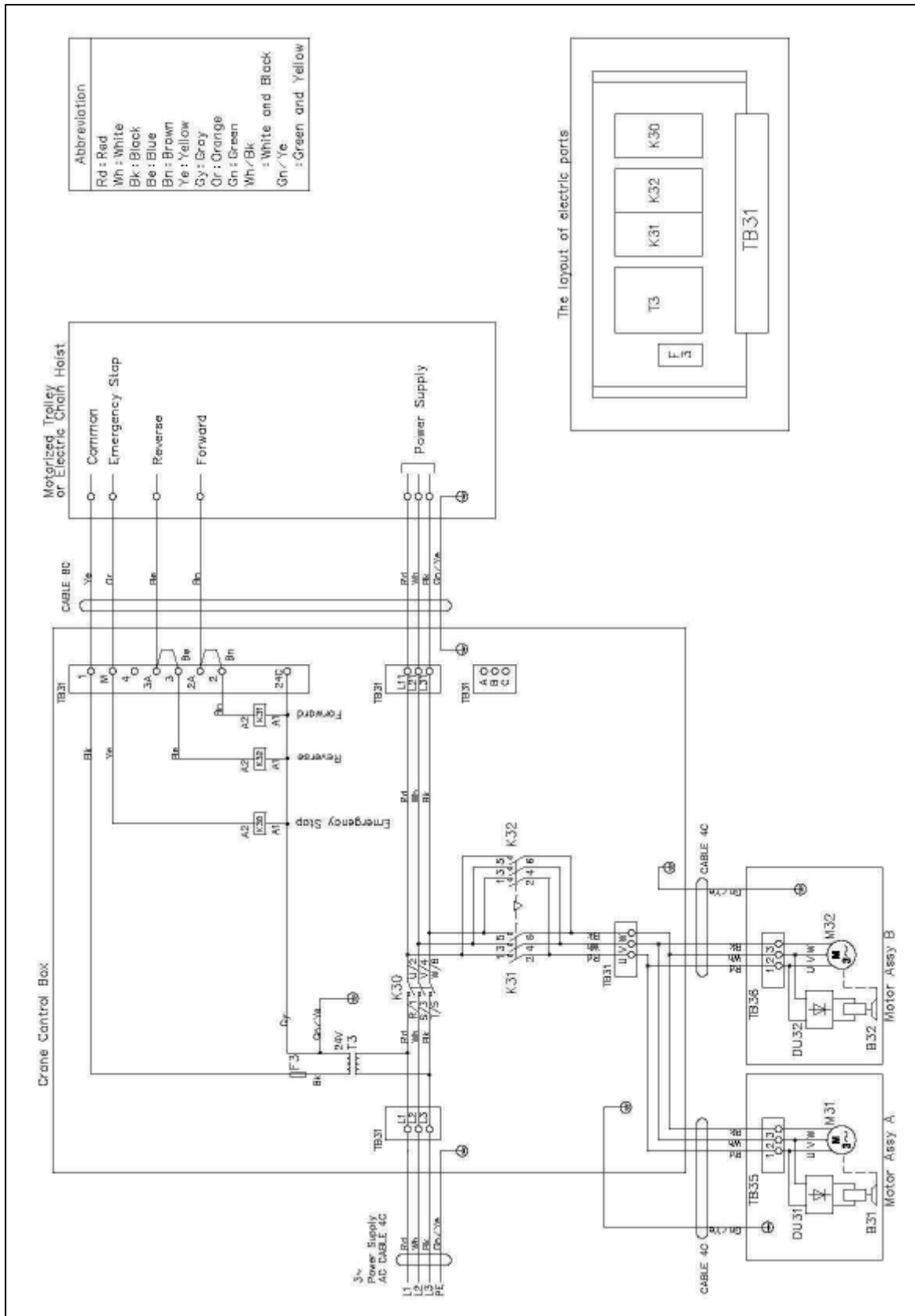


Fig.1

Electric chain hoist with motorized trolley, dual speed with emergency stop device

Power supply 200V 50Hz, 200-220V 60Hz

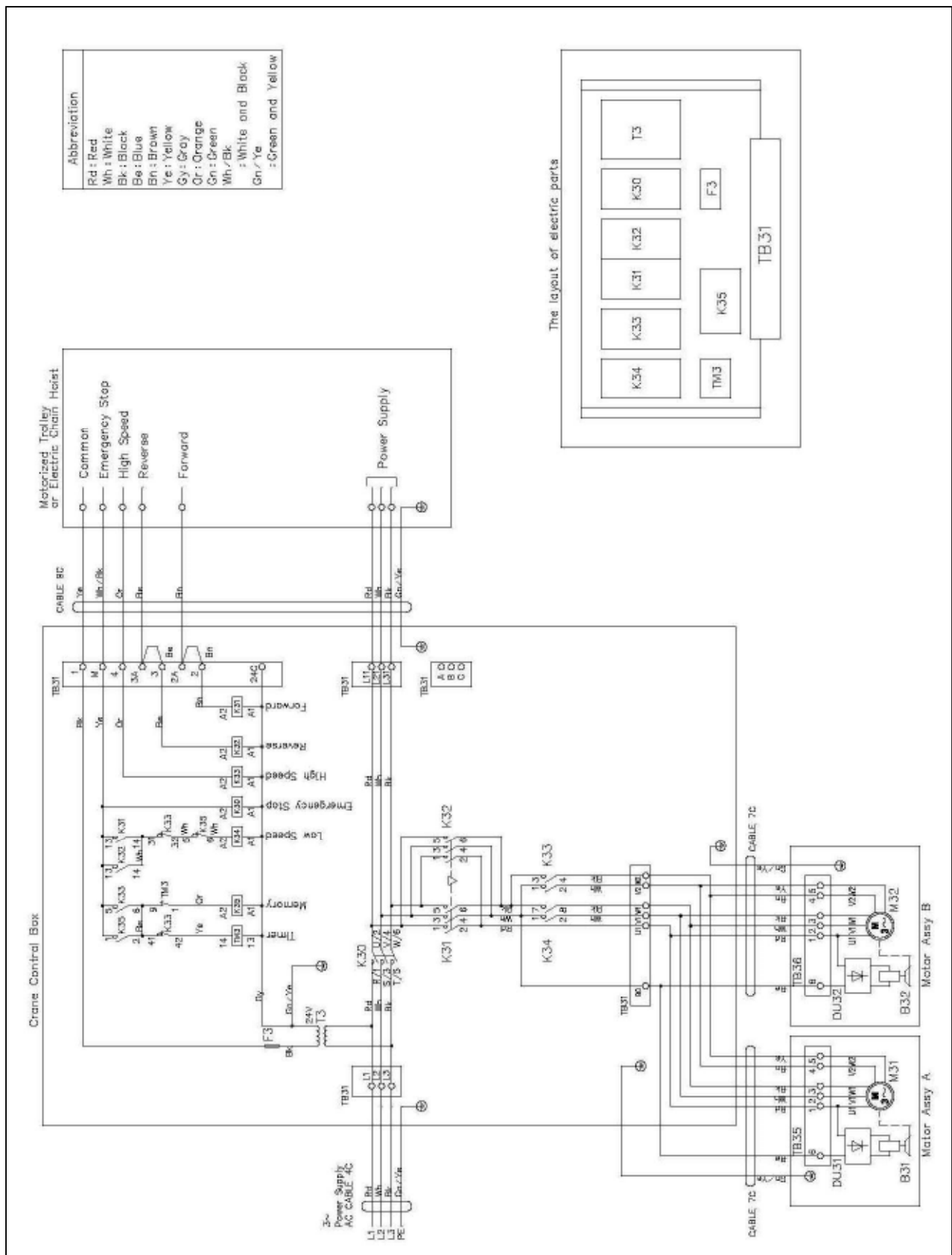


Fig.2

Electric chain hoist with motorized trolley, single speed with emergency stop device
 Power supply 380-415V 50Hz, 440V 60H

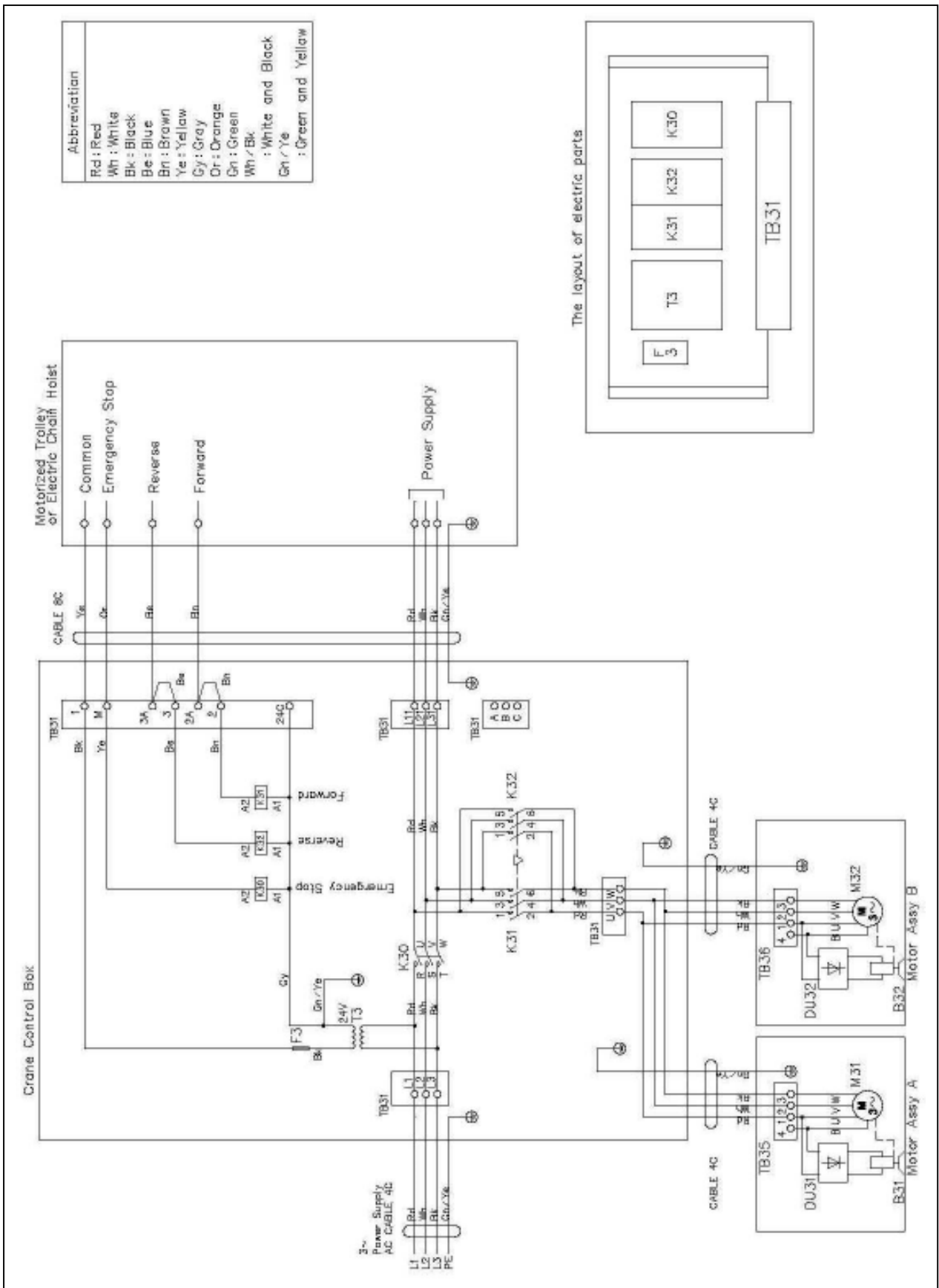


Fig.3

Electric chain hoist with motorized trolley, dual speed with emergency stop device
 Power supply 380-415V 50Hz, 440V 60H

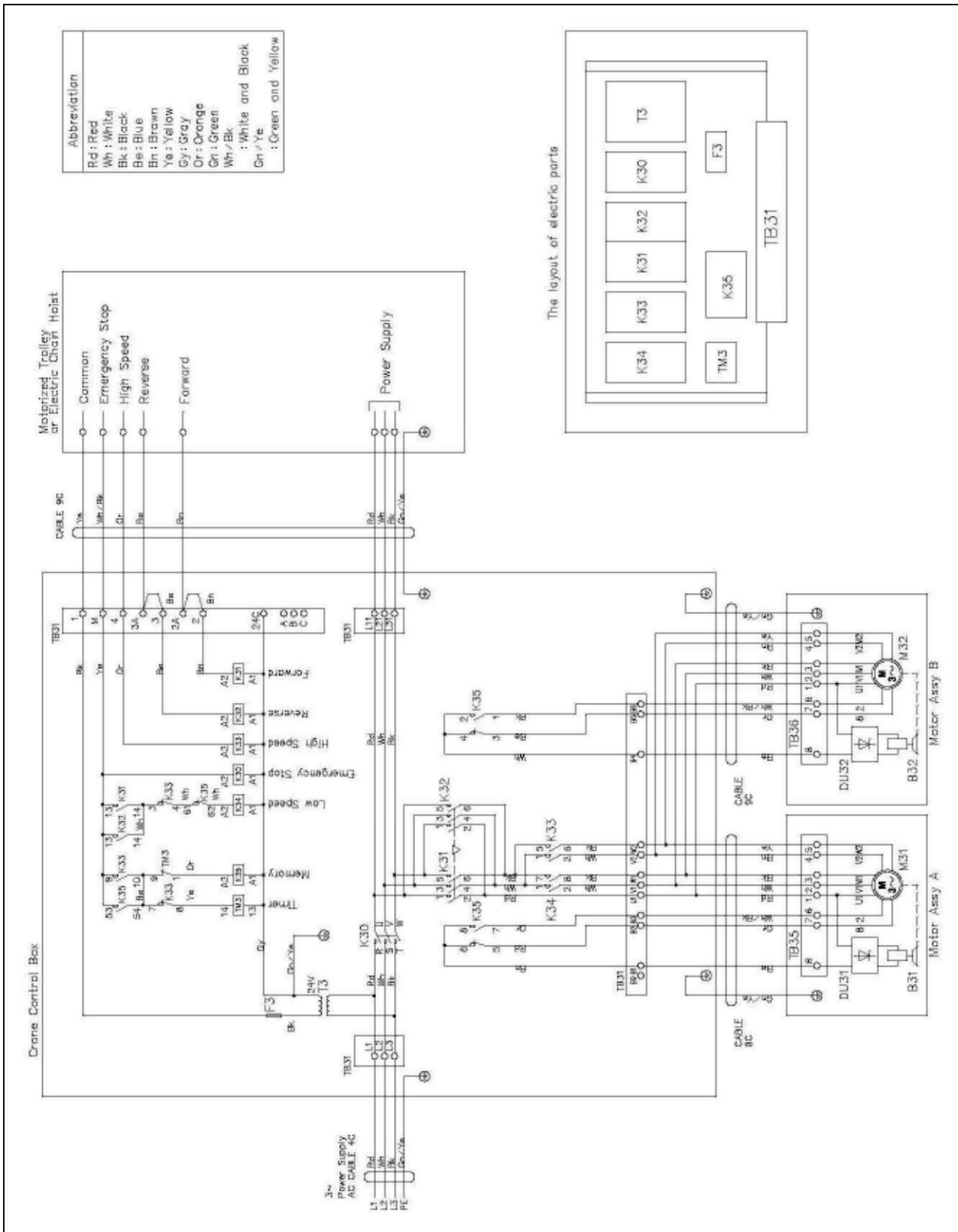


Fig.4

Electric chain hoist with motorized trolley, single speed with emergency stop device

Power supply 220-230V 50/60Hz, 380V-400V 50/60H

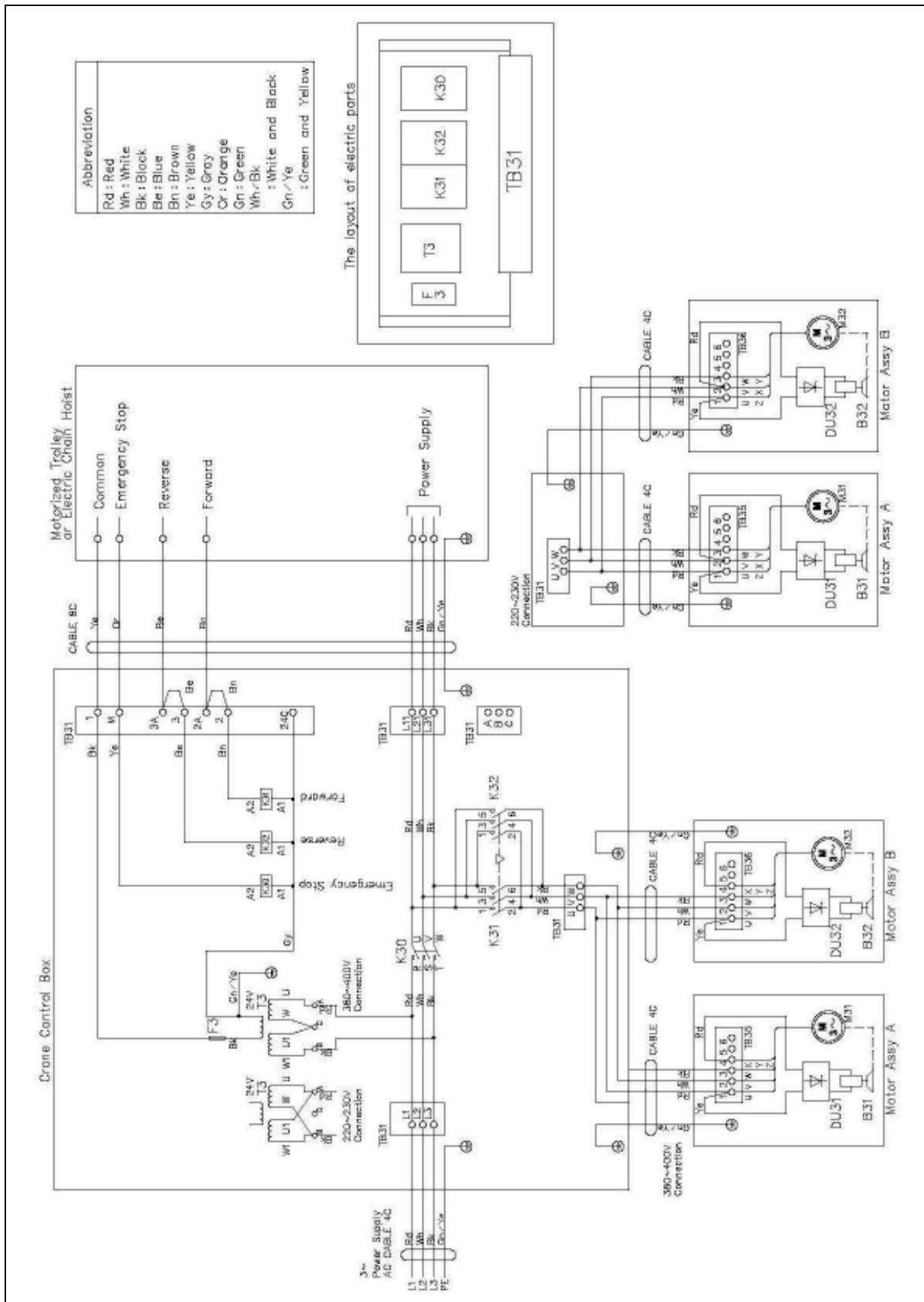


Fig.5

Electric chain hoist with motorized trolley, dual speed with emergency stop device

Power supply 220-230V 50/60Hz, 380V-400V 50/60H

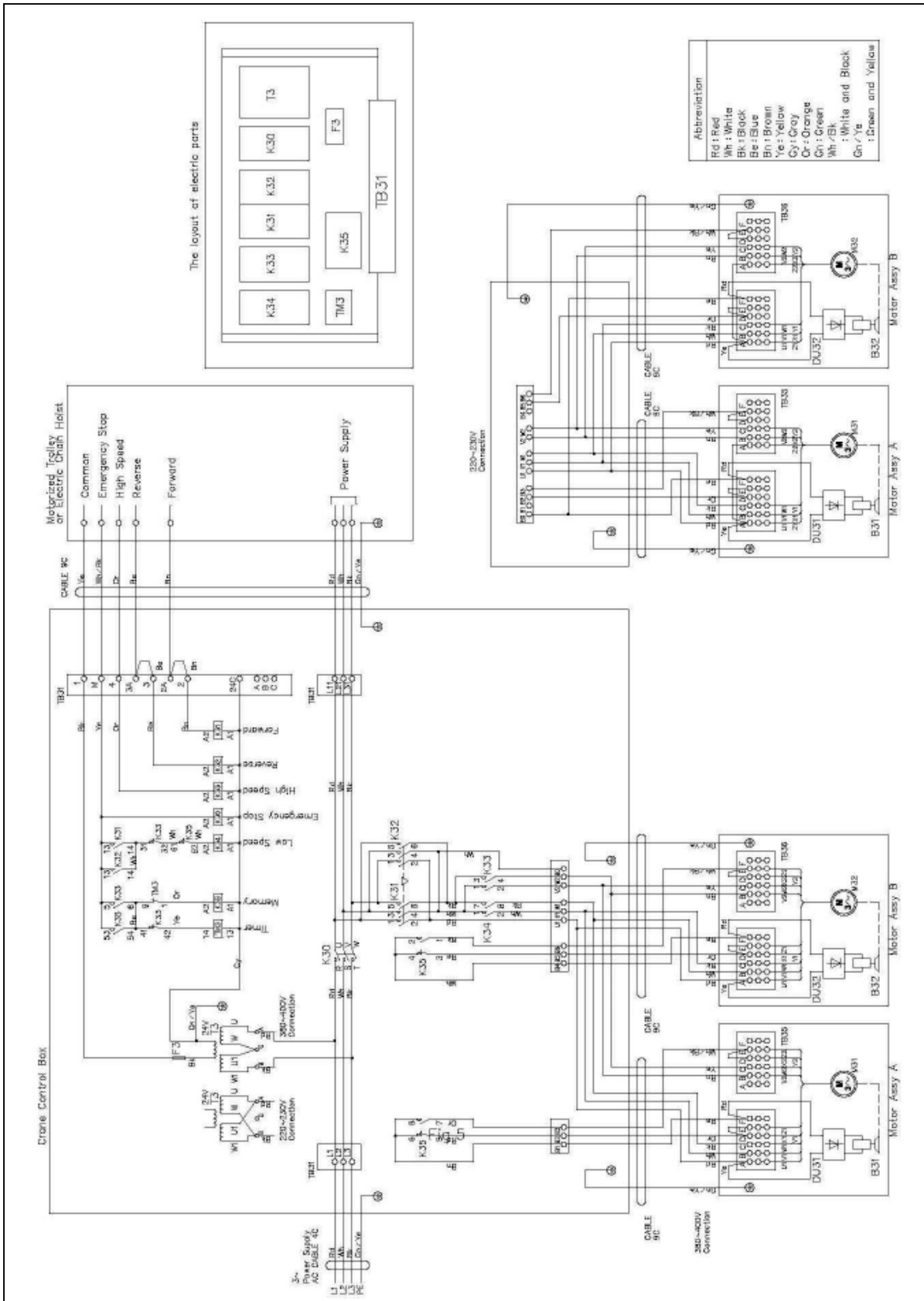


Fig.6

3. Inspection and Maintenance

3.1 Daily inspection before use

Check the following items with no load.

- The product moves to the direction indicated on push button switch.
- No abnormal sound is made during operation.
- Warning labels are clearly indicated and not peeled off.

3.2 Periodic inspection

Item	Check method	Criteria	When failed
Attaching condition of control box	Check visually	No looseness in the attaching part.	Fasten the attaching part securely.
Cleanliness of control box	Check visually	No dust in the control box.	Clean up the control box.
Contactor	Check visually Operate the contactor manually to check the conduction.	No discoloration or wear at the contact part. The contactor must operate correctly.	Replace the contactor.
Wiring, loosened screw	Check by touching	No loosened screw	Fasten screws securely.

4. Troubleshooting

Be sure to turn off the power before performing inspection or repair.

Perform the inspection or repair by an assigned personnel with expertise.

Symptom	Cause	Countermeasure
Releasing the push button does not stop the end carriage.	Adhesion of the contact part	Replace the contactor.
The end carriage does not move.	Wear at the contact part The screw of wiring in the control box is loosened.	Replace the contactor. Fasten screw securely.
The geared motor of the end carriage is burned out.	Single phase operation by wear of contact part. The screw of wiring in the control box is loosened.	Replace the contactor. Fasten screws securely.

5. Parts list

Parts lists are provided on the following pages for each type of control box.

5.1 Control Box for single speed crane

SBE015SNH/SBE015SNX/SBE015SNS

SBE030SNH/SBE030SNX/SBE030SNS

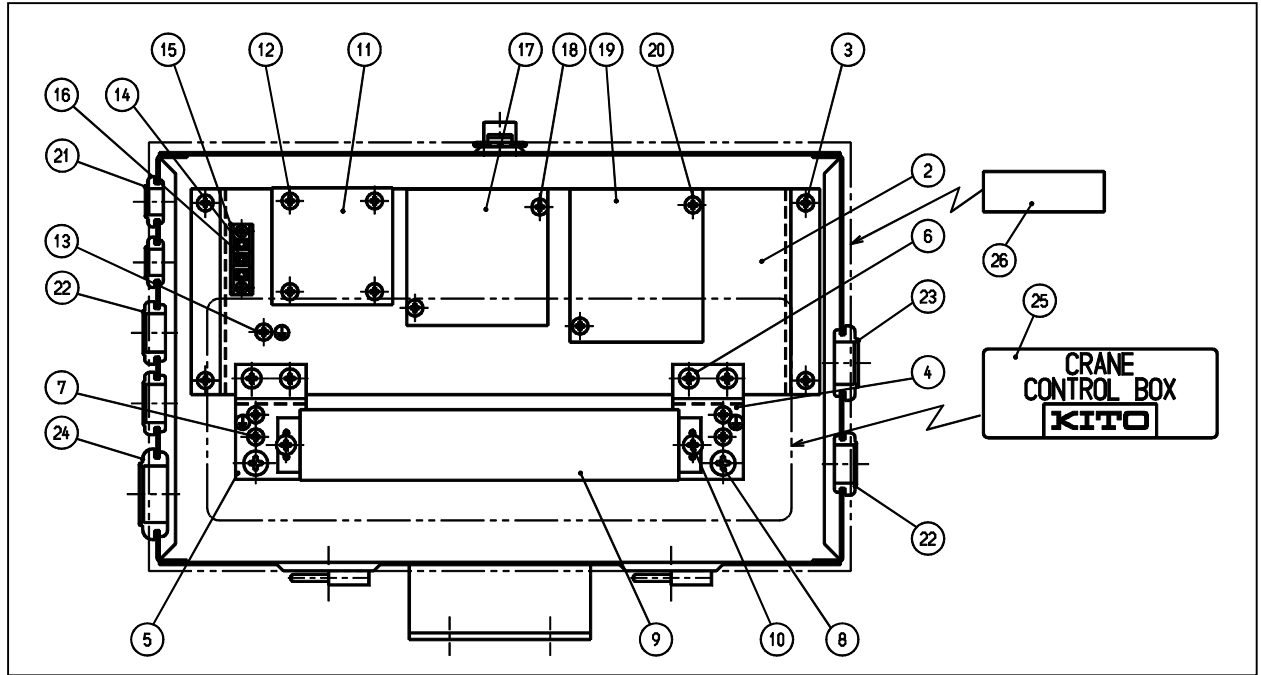


Fig No.	Parts No.	Parts Name	※	SBE015SNH	SBE015SNS	SBE015SNX	SBE030SNH	SBE030SNS	SBE030SNX	Note
1	1511	Control box set	1							
2	514	Panel plate	1							
3	568	Round head screw	4			(M4X8)				
4	515	Terminal plate holder A	1							
5	516	Terminal plate holder B	1							
6	570	Round head screw	4			(M5X10)				
7	569	Round head screw	4			(M4X8)				For ground wire
8	593	Round head screw	2			(M6X10)				For ground wire
9	519	Terminal plate	1							
10	573	Round head screw	2			(M5X14)				
11	517	Transformer	1	(30VA)		(20VA)		(30VA)		
12	571	Round head screw	4			(M4X8)				
13	594	Round head screw	1			(M4X8)				For ground wire
14	528	Fuse	1	(3.15A)		(2A)		(3.15A)		
15	529	Fuse holder	1							
16	595	Round head screw	1			(M3X8)				
17	518	Contactor	1		(HMU1218KI)		(RSK-20JK)		(RSK-11J)	
18	572	Round head screw	2		(M4X16)		-		(M4X16)	
		Round head screw	4		-		(M4X16)		-	
19	554	Contactor	1		(CLK-35J)		(S-N48)		(CLK-50J)	
20	587	Round head screw	2		(M4X20)		(M4X14)		(M4X20)	
21	537	Film covered grommet 18	2							
22	539	Film covered grommet 24	3							
23	540	Film covered grommet 28	1				-			
24	542	Film covered grommet 36	1				-			
		Film covered grommet 36	2		-				-	
25	208	Name plate S	1							
26	802	Name plate B	1							

※ Number per unit

SBE060SNH/SBE060SNX/SBE060SNS

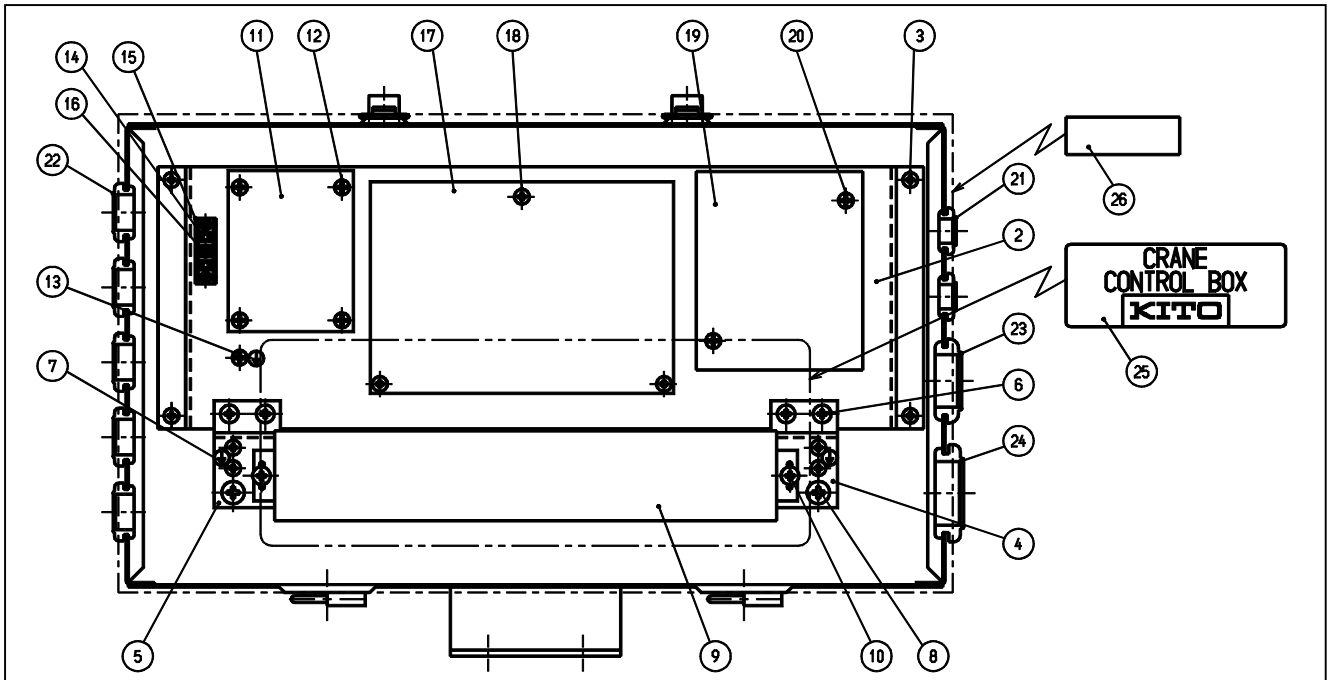


Fig No.	Parts No.	Parts Name	※	SBE060SNH	SBE060SNS	SBE060SNX	Note
1	1511	Control box set	1				
2	514	Panel plate	1				
3	568	Round head screw	4		(M4X8)		
4	515	Terminal plate holder A	1				
5	516	Terminal plate holder B	1				
6	570	Round head screw	4		(M5X10)		
7	569	Round head screw	4		(M4X8)		For ground wire
8	593	Round head screw	2		(M6X10)		For ground wire
9	519	Terminal plate	1				
10	573	Round head screw	2		(M5X14)		
11	517	Transformer	1	(50VA)		(30VA)	
12	571	Round head screw	4	(M5X10)		(M4X8)	
13	594	Round head screw	1		(M4X8)		For ground wire
14	528	Fuse	1	(5A)		(3.15A)	
15	529	Fuse holder	1				
16	595	Round head screw	1		(M3X8)		
17	518	Contactors	1	(S-2×N35)		(RSK-20JK)	
18	572	Round head screw	3	(M4X8)		-	
		Round head screw	4	-	-	(M4X16)	
19	554	Contactors	1	(S-N65)		(CLK-50J)	
20	587	Round head screw	2	(M4X16)		(M4X20)	
21	537	Film covered grommet 18	2				
22	539	Film covered grommet 24	5				
23	542	Film covered grommet 36	1				
24	543	Film covered grommet 42	1				
25	208	Name plate S	1				
26	802	Name plate B	1				

※ Number per unit

5.2 Control Box for dual speed crane

SBE015SDNH/SBE015SDNX/SBE015SDNS

SBE030SDNH/SBE030SDNX/SBE030SDNS

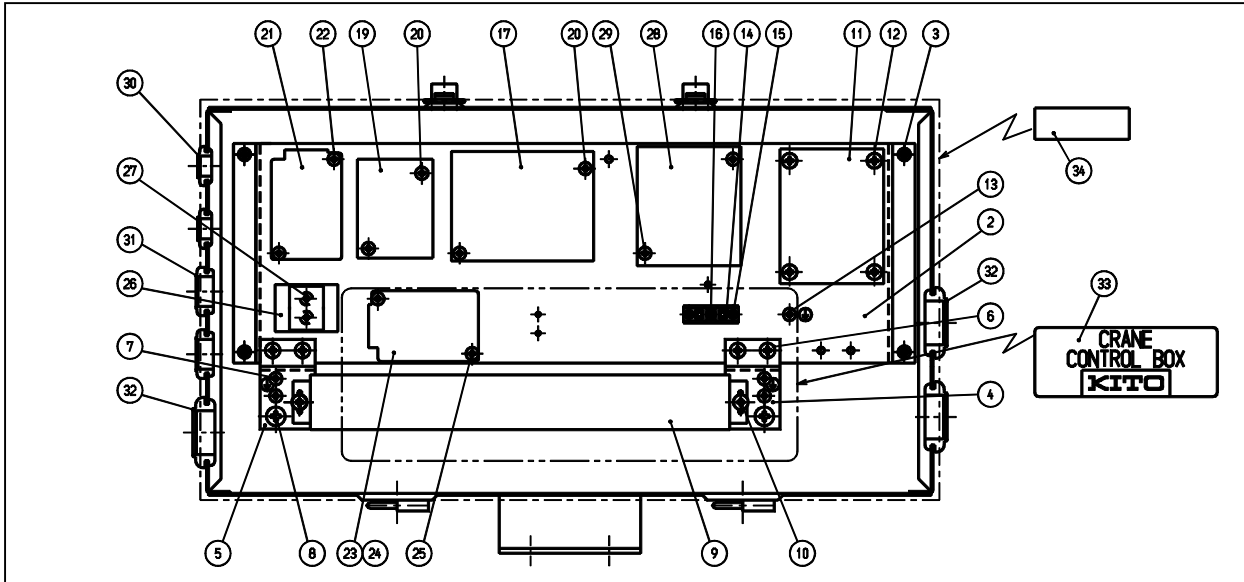


Fig No.	Parts No.	Parts Name	※	SBE015SDNH	SBE015SDNS	SBE015SDNX	SBE030SDNH	SBE030SDNS	SBE030SDNX	Note
1	1511	Control box set	1							
2	514	Panel plate	1							
3	568	Round head screw	4			(M4X8)				
4	515	Terminal plate holder A	1							
5	516	Terminal plate holder B	1							
6	570	Round head screw	4			(M5X10)				
7	569	Round head screw	4			(M4X8)				For ground wire
8	593	Round head screw	2			(M6X10)				For ground wire
9	519	Terminal plate	1							
10	573	Round head screw	2			(M5X14)				
11	517	Transformer	1			(50VA)				
12	571	Round head screw	4			(M5X10)				
13	594	Round head screw	1			(M4X8)				For ground wire
14	528	Fuse	1			(5A)				
15	529	Fuse holder	1							
16	595	Round head screw	1			(M3X8)				
17	518	Contact	1		(RSK-11JK)		(RSK-20JK)		(RSK-11J)	
18	572	Round head screw	2		(M4X16)		-		(M4X16)	
		Round head screw	4		-		(M4X16)		-	
19	520	Contact	1			(CLK-20J02)				
20	576	Round head screw	2			(M4X16)				
21	551	Contact	1			(PAK-11J22)				
22	584	Round head screw	2			(M4X16)				
23	552	Contact	1			(PAK-11J22)				
24	556	Aux contact unit	1	-	(HAU-2-11)		-		(HAU-2-11)	
25	585	Round head screw	2			(M4X16)				
26	553	Timer	1			(S1DX-AC23S-AC24V)				
27	586	Round head screw	2			(M3.5X10)				
28	554	Contact	1		(CLK-35J)		(S-N48)		(CLK-50J)	
29	587	Round head screw	2		(M4X20)		(M4X14)		(M4X20)	
30	537	Film covered grommet 18	2							
31	539	Film covered grommet 24	2							
32	542	Film covered grommet 36	3							
33	208	Name plate S	1							
34	802	Name plate B	1							

※ Number per unit

SBE60SDNH

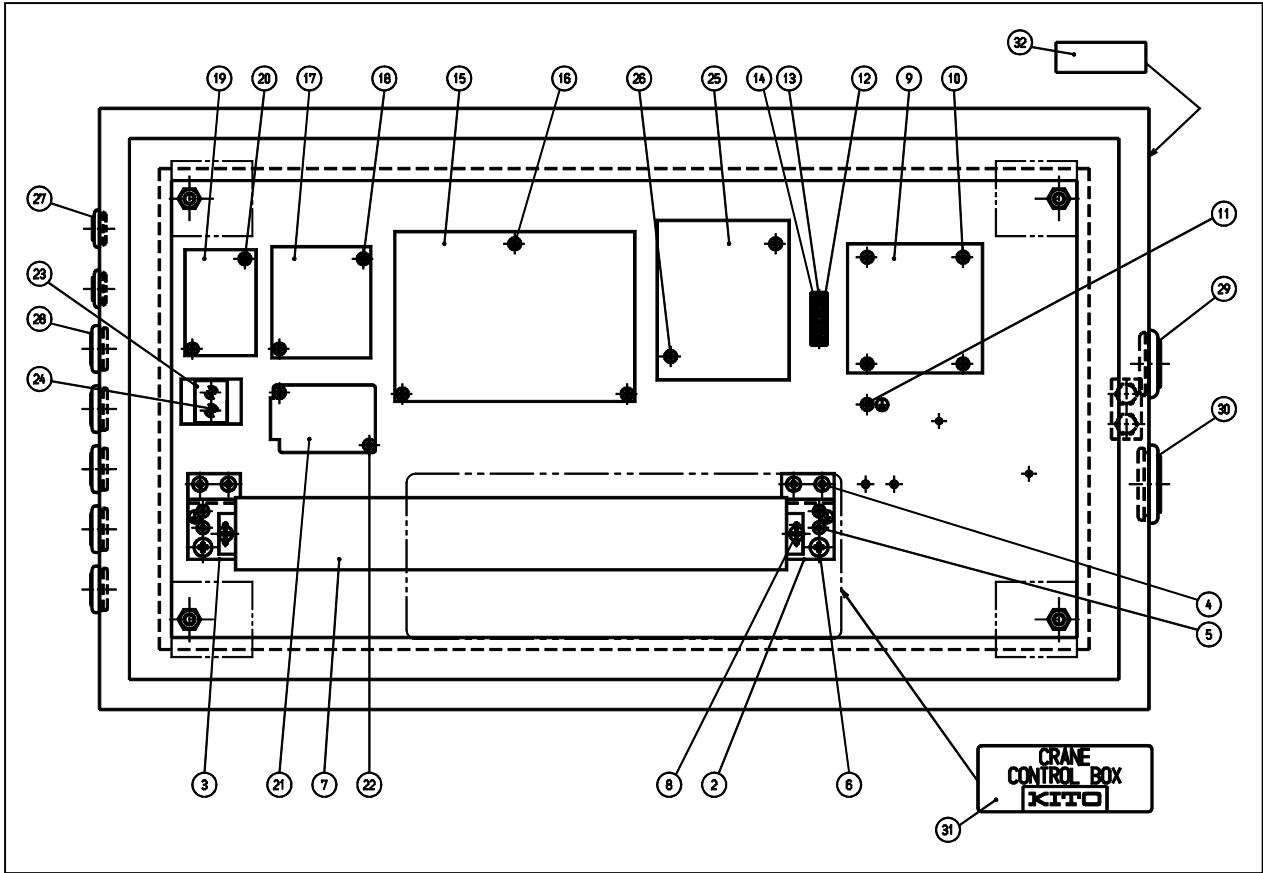


Fig No.	Parts No.	Parts Name	※	SBE060SDNH	Note
1	1511	Control box set	1		
2	515	Terminal plate holder A	1		
3	516	Terminal plate holder B	1		
4	570	Round head screw	4	(M5X10)	
5	569	Round head screw	4	(M4X8)	For ground wire
6	583	Round head screw	2	(M6X10)	For ground wire
7	519	Terminal plate	1		
8	573	Round head screw	2	(M5X14)	
9	517	Transformer	1	(75VA)	
10	571	Round head screw	4	(M5X10)	
11	594	Round head screw	1	(M4X8)	For ground wire
12	528	Fuse	1	(8A)	
13	529	Fuse holder	1		
14	595	Round head screw	1	(M3X8)	
15	518	Contactor	1	(S-2×N35)	
16	572	Round head screw	3	(M4X8)	
17	520	Contactor	1	(CLK-35J22)	
18	576	Round head screw	2	(M4X20)	
19	551	Contactor	1	(PAK-20JK22)	
20	584	Round head screw	2	(M4X16)	
21	552	Contactor	1	(PAK-11J22)	
22	585	Round head screw	2	(M4X16)	
23	553	Timer	1	(S1DX-AC2 3S-AC24V)	
24	586	Round head screw	2	(M3.5X10)	
25	554	Contactor	1	(S-N65)	
26	587	Round head screw	2	(M4X16)	
27	537	Film covered grommet 18	2		
28	539	Film covered grommet 24	5		
29	542	Film covered grommet 36	1		
30	543	Film covered grommet 42	1		
31	208	Name plate S	1		
32	802	Name plate B	1		

※ Number per unit

SBE60SDNS

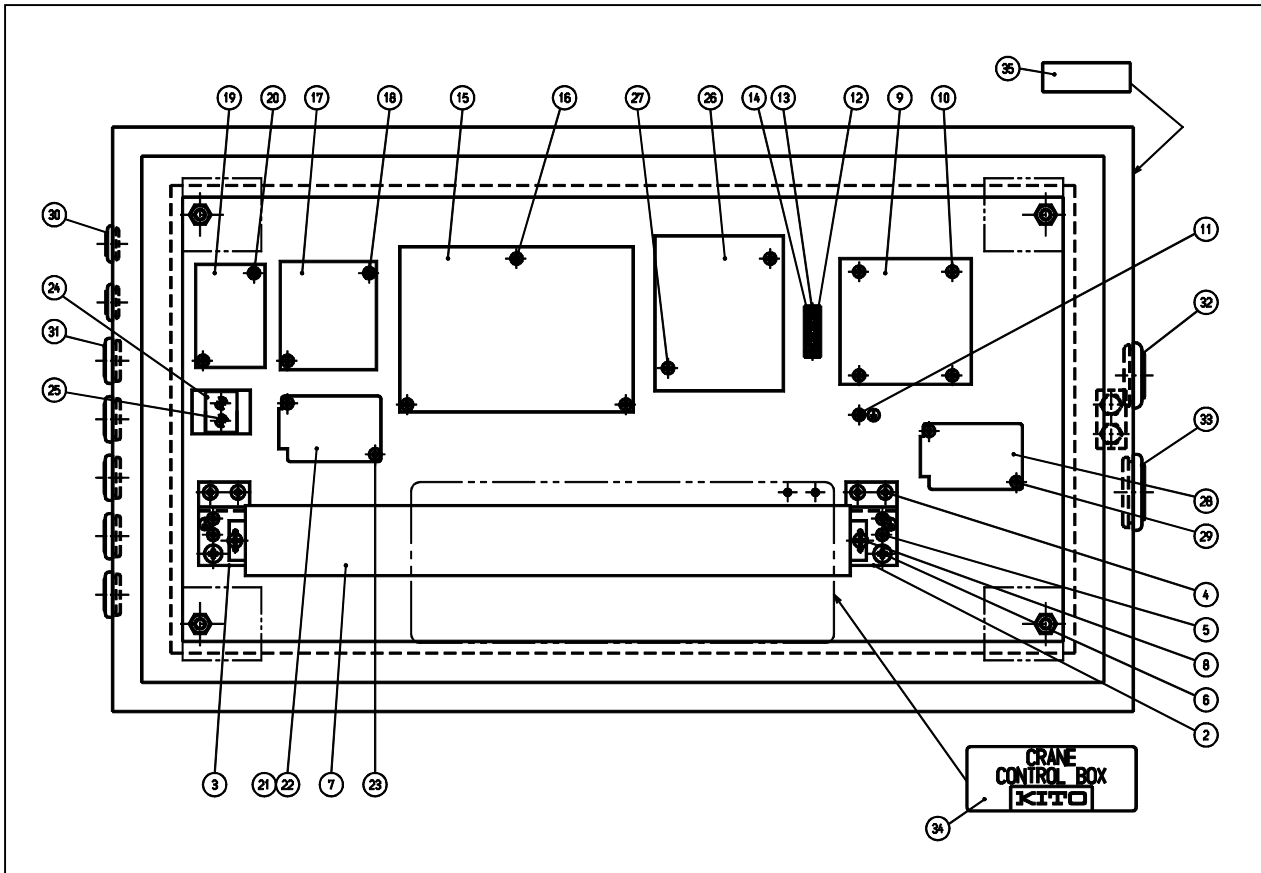


Fig No.	Parts No.	Parts Name	※	SBE060SDNS	Note
1	1511	Control box set	1		
2	515	Terminal plate holder A	1		
3	516	Terminal plate holder B	1		
4	570	Round head screw	4	(M5X10)	
5	569	Round head screw	4	(M4X8)	For ground wire
6	593	Round head screw	2	(M6X10)	For ground wire
7	519	Terminal plate	1		
8	573	Round head screw	2	(M5X14)	
9	517	Transformer	1	(75VA)	
10	571	Round head screw	4	(M5X10)	
11	594	Round head screw	1	(M4X8)	For ground wire
12	528	Fuse	1	(8A)	
13	529	Fuse holder	1		
14	595	Round head screw	1	(M3X8)	
15	518	Contactora	1	(S-2×N35)	
16	572	Round head screw	3	(M4X8)	
17	520	Contactora	1	(CLK-35J22)	
18	576	Round head screw	2	(M4X20)	
19	551	Contactora	1	(PAK-20JK22)	
20	584	Round head screw	2	(M4X16)	
21	552	Contactora	1	(PAK-11J22)	
22	556	Aux contact unit	1	(HAU-2-11)	
23	585	Round head screw	2	(M4X16)	
24	553	Timer	1	(S1DX-AC2 3S-AC24V)	
25	586	Round head screw	2	(M3 5X10)	
26	554	Contactora	1	(S-N65)	
27	587	Round head screw	2	(M4X16)	
28	555	Contactora	1	(PAK-11J22)	
29	588	Round head screw	2	(M4X16)	
30	537	Film covered grommet 18	2		
31	539	Film covered grommet 24	5		
32	542	Film covered grommet 36	1		
33	543	Film covered grommet 42	1		
34	209	Name plate S	1		
35	802	Name plate B	1		

※ Number per unit

SBE60SDNX

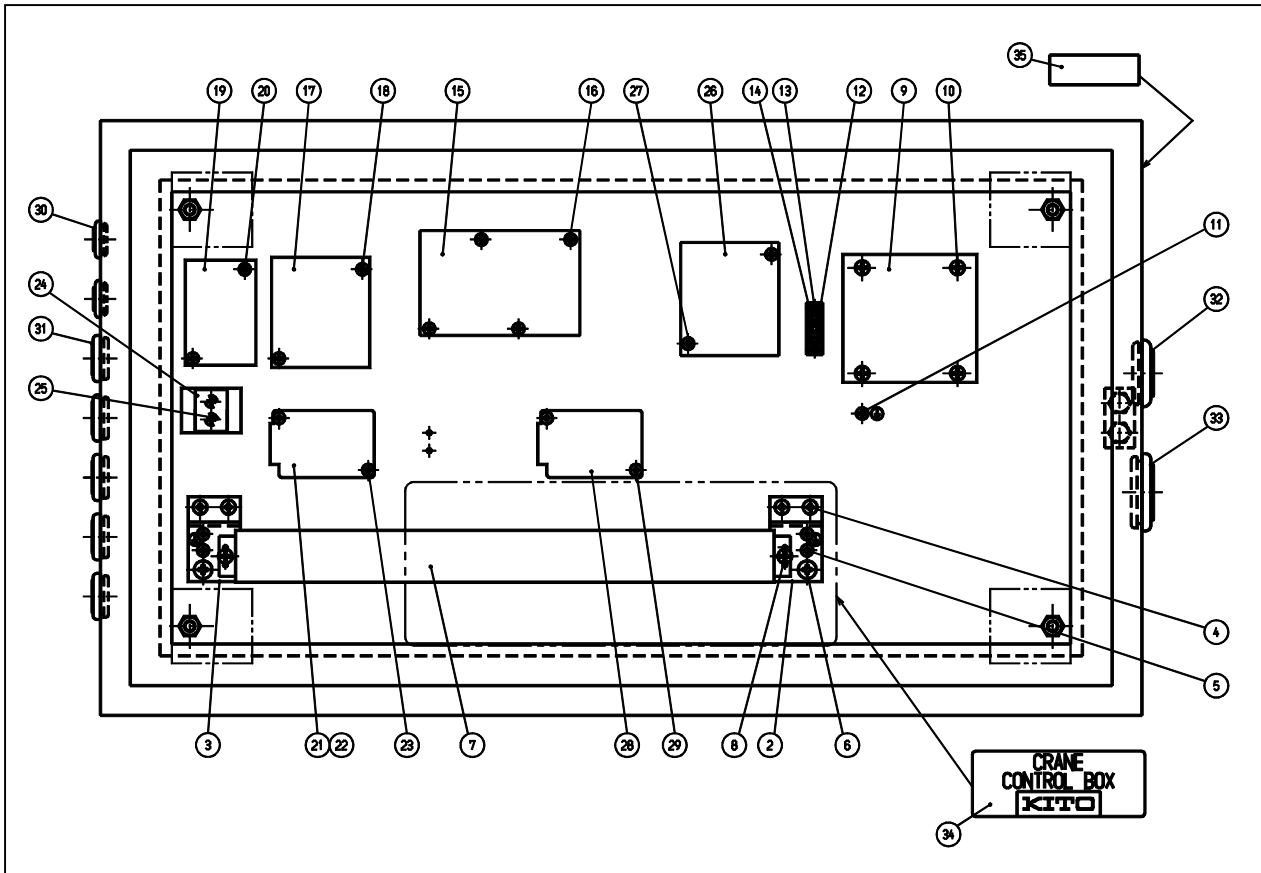


Fig No.	Parts No.	Parts Name	※	SBE060SDNX	Note
1	1511	Control box set	1		
2	515	Terminal plate holder A	1		
3	516	Terminal plate holder B	1		
4	570	Round head screw	4	(M5X10)	
5	569	Round head screw	4	(M4X8)	For ground wire
6	593	Round head screw	2	(M6X10)	For ground wire
7	519	Terminal plate	1		
8	573	Round head screw	2	(M5X14)	
9	517	Transformer	1	(75VA)	
10	571	Round head screw	4	(M5X10)	
11	594	Round head screw	1	(M4X8)	For ground wire
12	528	Fuse	1	(8A)	
13	529	Fuse holder	1		
14	595	Round head screw	1	(M3X8)	
15	518	Contact	1	(RSK-20J)	
16	572	Round head screw	4	(M4X16)	
17	520	Contact	1	(CLK-35J22)	
18	576	Round head screw	2	(M4X20)	
19	551	Contact	1	(PAK-20JK22)	
20	584	Round head screw	2	(M4X16)	
21	552	Contact	1	(PAK-11J22)	
22	556	Aux contact unit	1	(HAU-2-11)	
23	585	Round head screw	2	(M4X16)	
24	553	Timer	1	(S1DX-AC2 3S-AC24V)	
25	596	Round head screw	2	(M3.5X10)	
26	554	Contact	1	(CLK-50J)	
27	587	Round head screw	2	(M4X20)	
28	555	Contact	1	(PAK-11J22)	
29	588	Round head screw	2	(M4X16)	
30	537	Film covered grommet 18	2		
31	539	Film covered grommet 24	5		
32	542	Film covered grommet 36	1		
33	543	Film covered grommet 42	1		
34	208	Name plate S	1		
35	802	Name plate B	1		

※ Number per unit

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