# SB, 2-20DT and 2-30DS Lenze I550 VFD + Brake Resistor, 2024-02

## SYMPTOM/DESCRIPTION

After replacing the 50Hz drive motor with the 120Hz drive motor, at specific circumstances e.g. while the Shot blasting machine is driving down ramps or working downwards, it may stop working and the VFD (Variable Frequency Drive) displays error codes.

When the 120Hz drive motor is forced to turn due to a downward inclination it turns into a generator and starts feeding energy back to the VFD. The VFD cannot handle the entire generated energy going back and as a result of self-protection it switches off.

## AFFECTED UNITS

Note: Only the old **Blue** Blastrac products are affected.
For the serial number range of the **E-box**, refer to the table in *Appendix A*.

## CORRECTIVE ACTION

Replacing the VFD from I510 to I550 with brake resister solves this.

## PROCEDURE

Refer to *Appendix B*.

## PARTS INFORMATION

What parts to order and how? *Order from EPC:*

1. Check the serial number range in the table to see which part(s) you actually need to order.
2. Scrap parts in local stock? - *No*
3. The I510 is not eliminated, kept as *Orderable.*
4. 50Hz drive motor is eliminated, *Not able to order, replacement is 120Hz.*
5. Update products in local stock? – *No*
6. Recall products from customers and update? – *No*
7. Update sold products during next service only if part has caused a problem or anyway? – *No, replace only if I510 VFD fails or if the customer complains about the aforementioned symptoms.*

## WARRANTY INFORMATION

Normal warranty policy applies.

***Revision History***

| *Rev.* | *Date* | *Order id.* | *Description* |
|---|---|---|---|
| *A* | *2024-02* | *00039815* | *Created* |

# Appendix A

## Parts to order:

| Product | Blue | Affected serial range E-Box | Programmed VFD i550 | Brake Resistor (120Hz) | Wiring diagram I510 120Hz |
|---|---|---|---|---|---|
| 2-20DT (US) | 970554601 | From 20211906 Up to + 20212203 | 536978602 | 536978501 | PJ20.1368 |
| 2-20DT | 970554602 | From 20211686 Up to + 20211724 | 536978602 | 536978501 | PJ20.1367.02 |
| 2-30DS | 970554901 | From 20211811 Up to + 20212318 | 536978602 | 536978501 | PJ20.1369.03 |

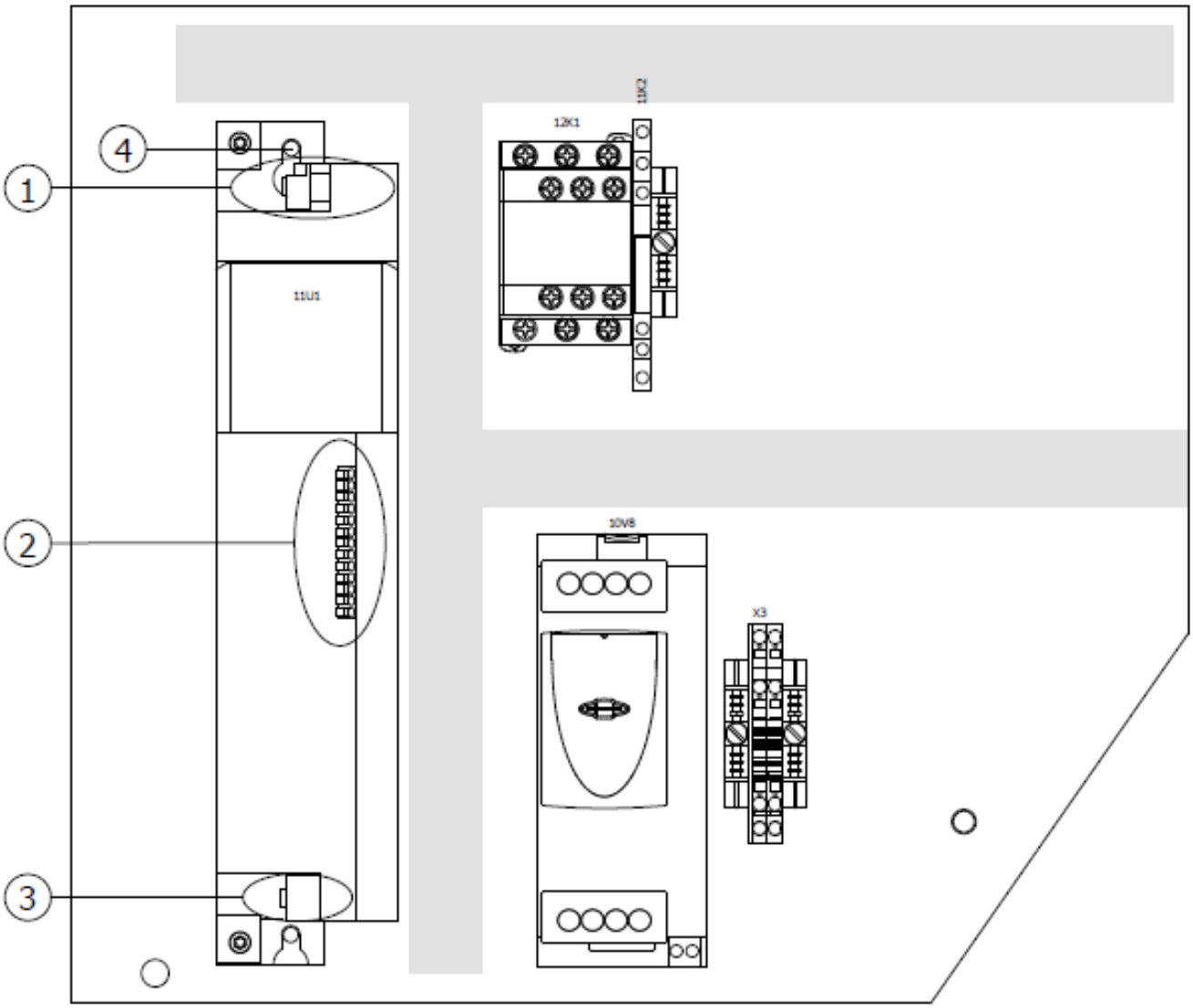
Old, Eliminated 50Hz drive motor

New, Active 120Hz drive motor

# Appendix B

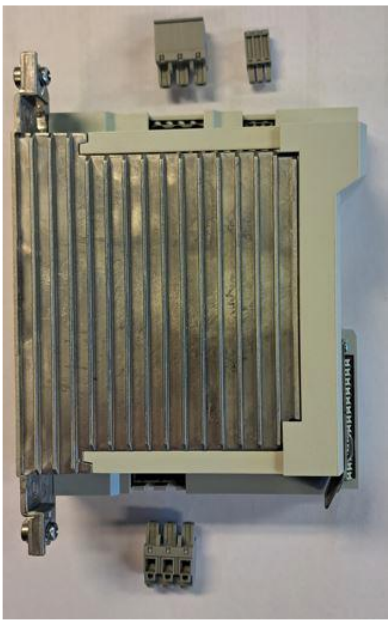
## How to replace the I510 with an I550 + Brake Resistor.

### 2-20DT *(PJ20.1367.REFIT)*

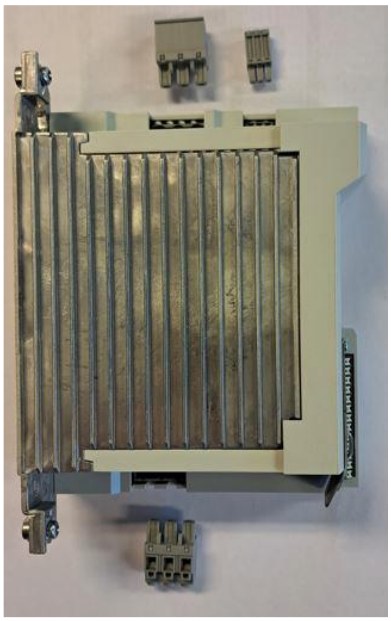



**1. Take off the connectors with the power supply wires and motor brake wires.**
**2. Take off the control wires that are connected to the I/O block.**
**3. Take off the connectors with the motor wires.**
**4. Unscrew the VFD (drive) from the backplane.**

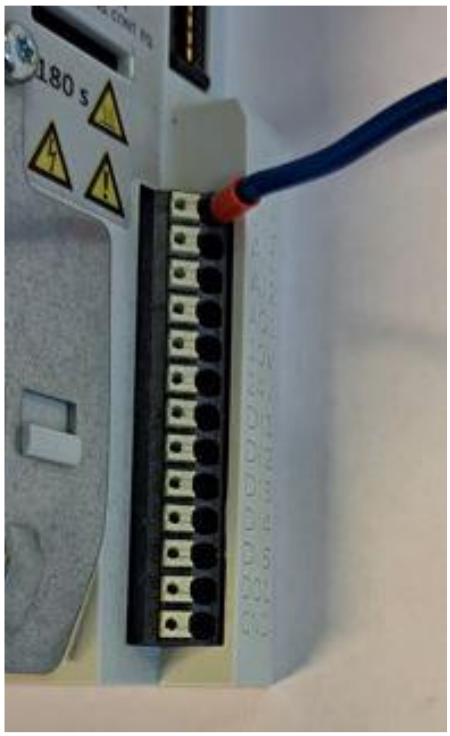
Connectors attached



Connectors detached

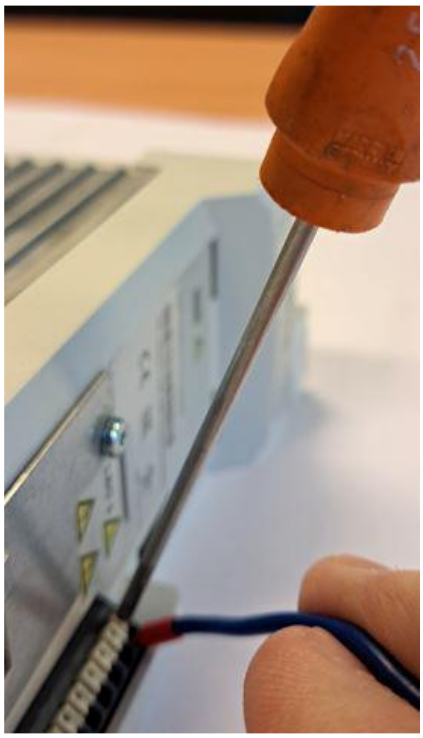


Connected control wire



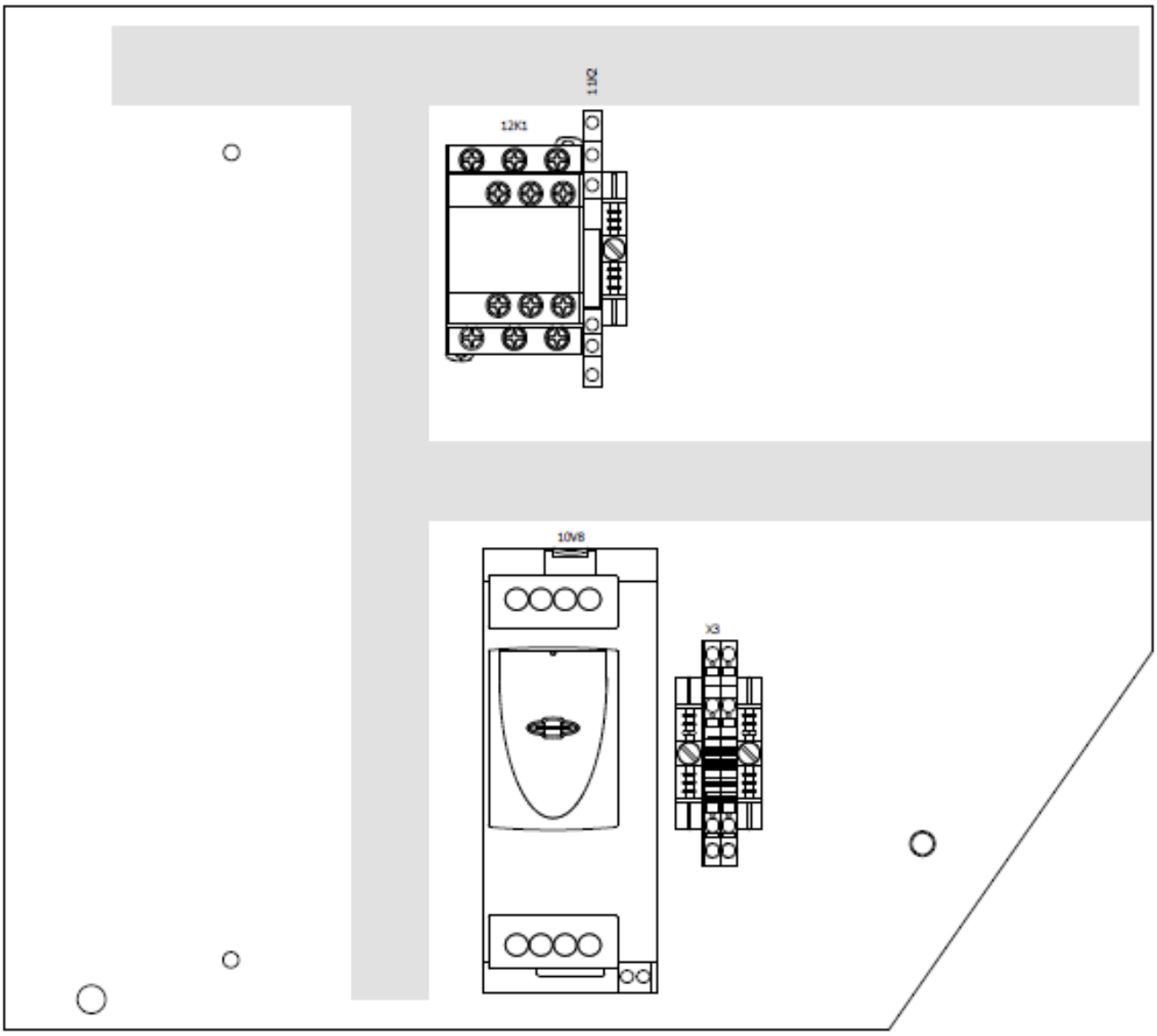

Connected control wire

Push in connector with a screwdriver



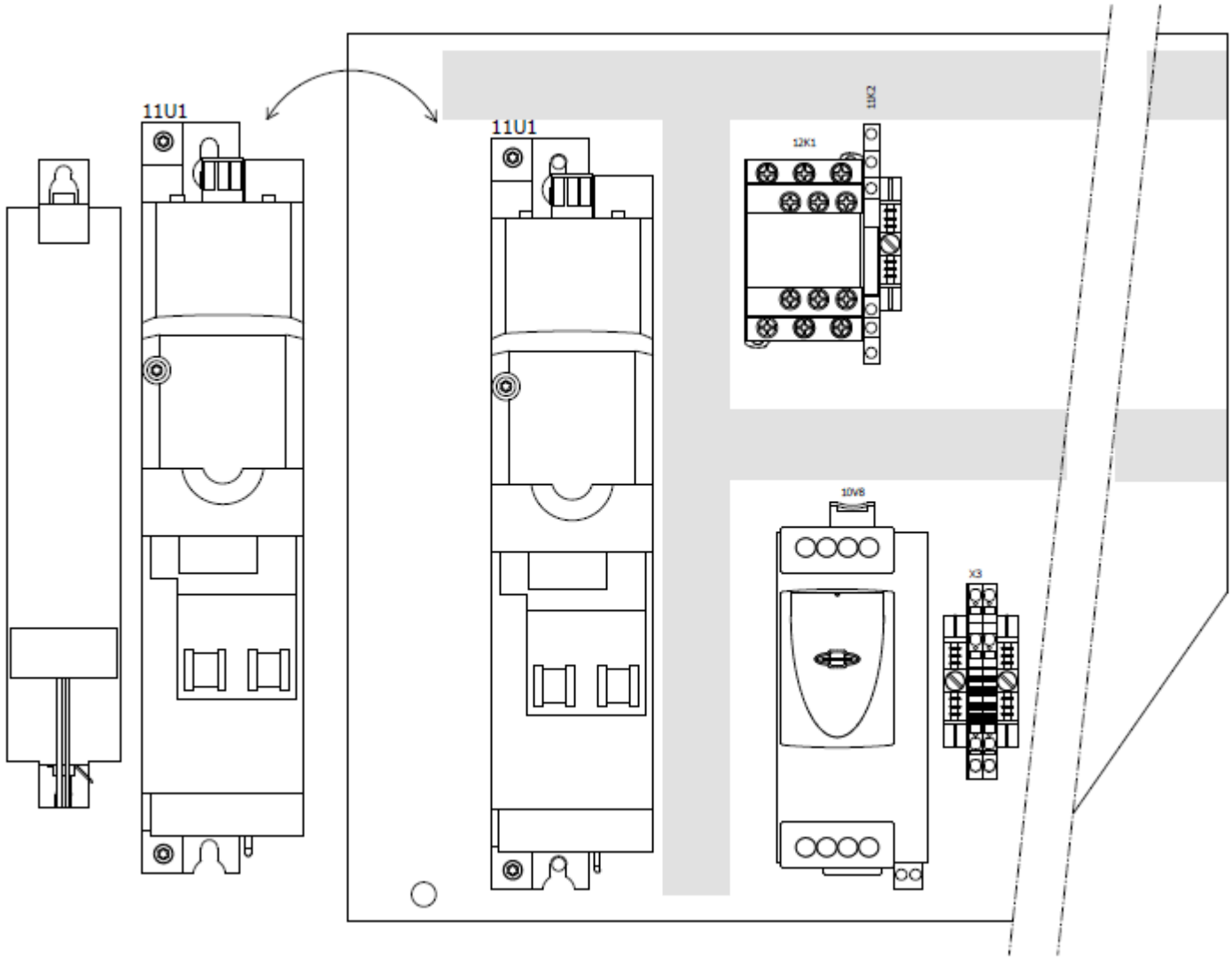
Pull out wire while pushing

**After removing the I510 VFD.**



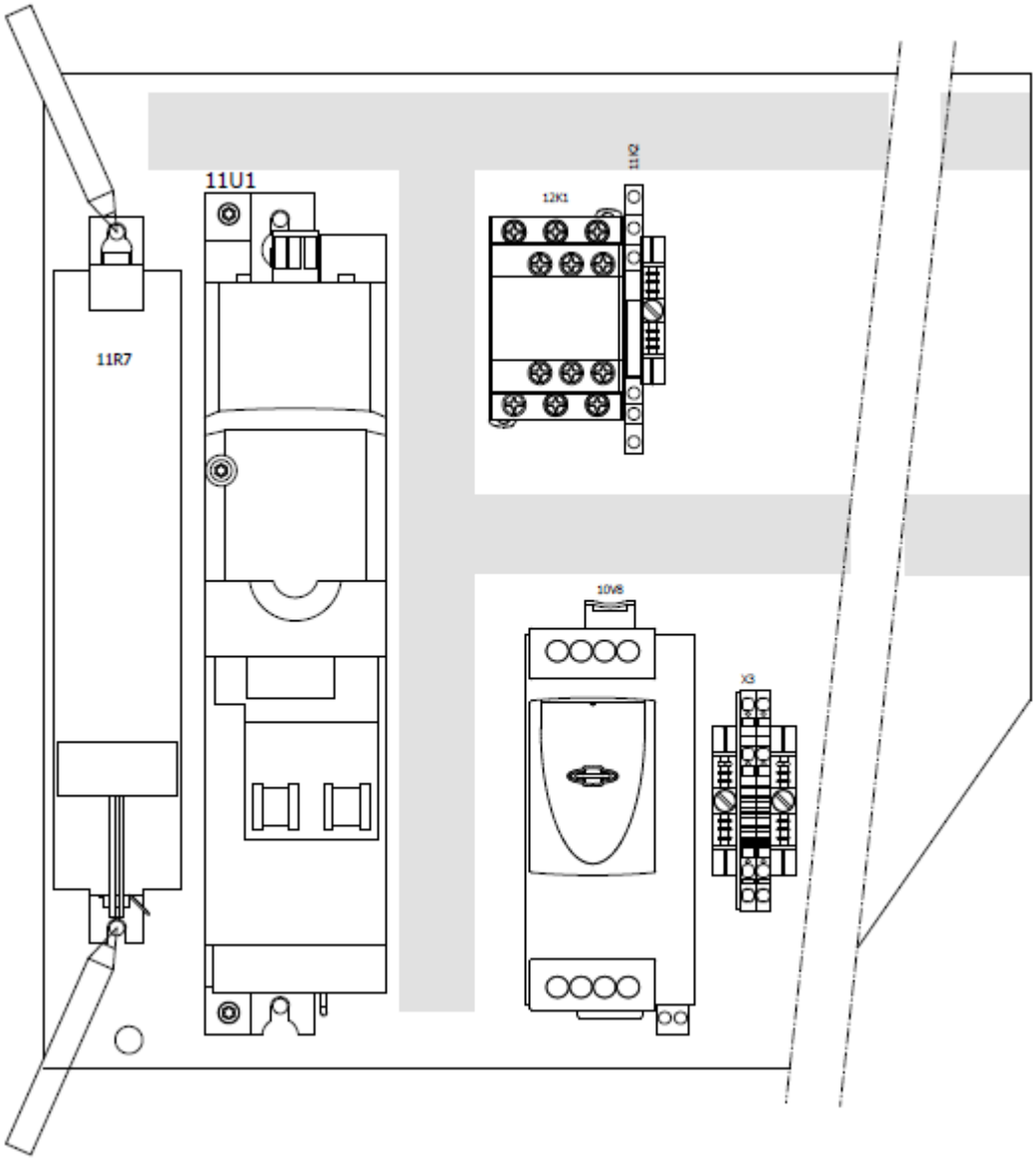
**Mount the I550 drive with the screws in the same place where the I510 drive was mounted. The I550 has the same mounting dimensions as the I510.**

*** Do not tighten the screws too much because later the VFD will be taken out when drilling holes for the brake resistor.**



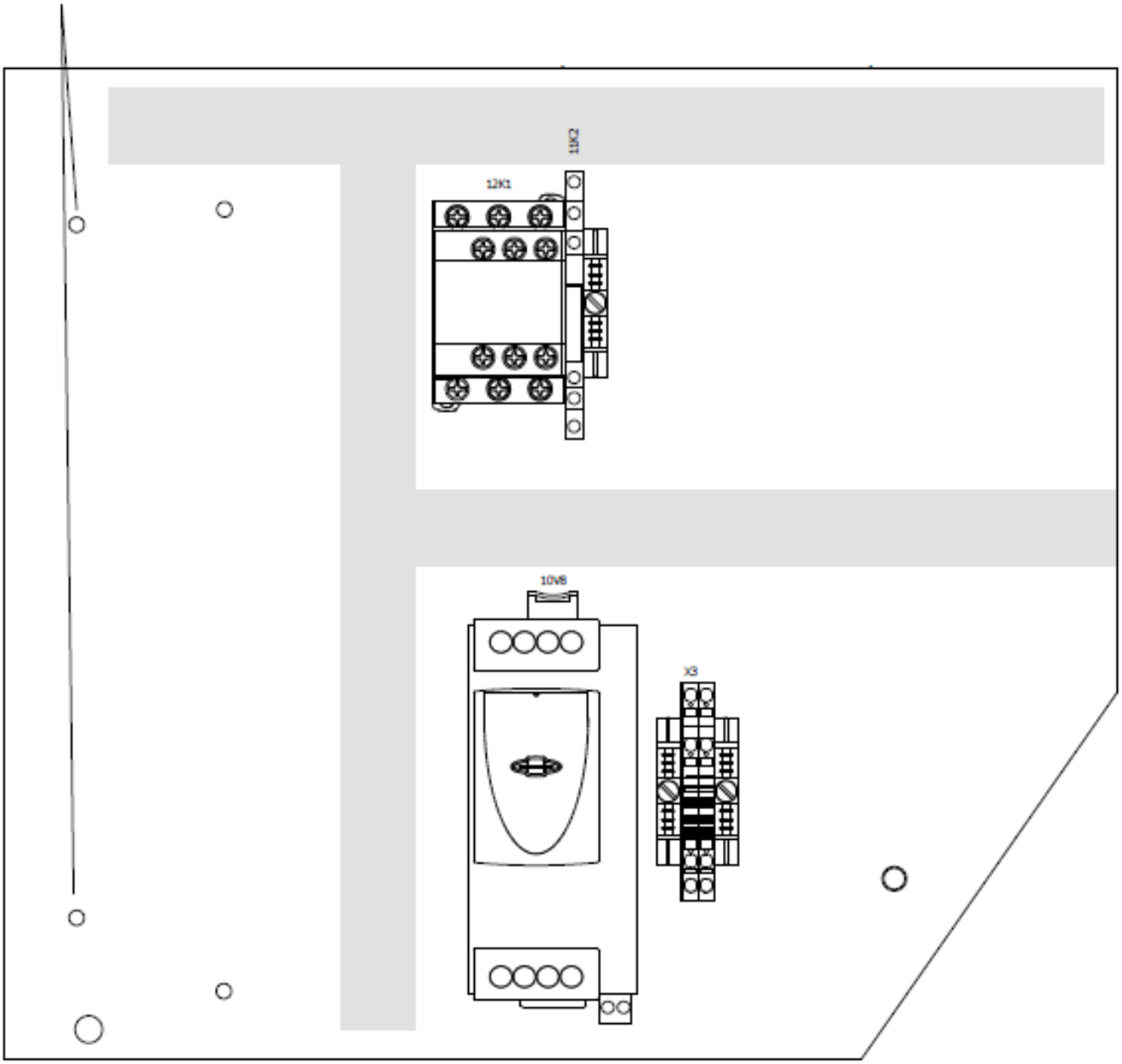
**Place the brake resistor next to the I550 drive.**
**Make sure you have some space between the drive and brake resistor.**

**With a marker you can now mark the place where you need to drill the holes for the M5 screws.**

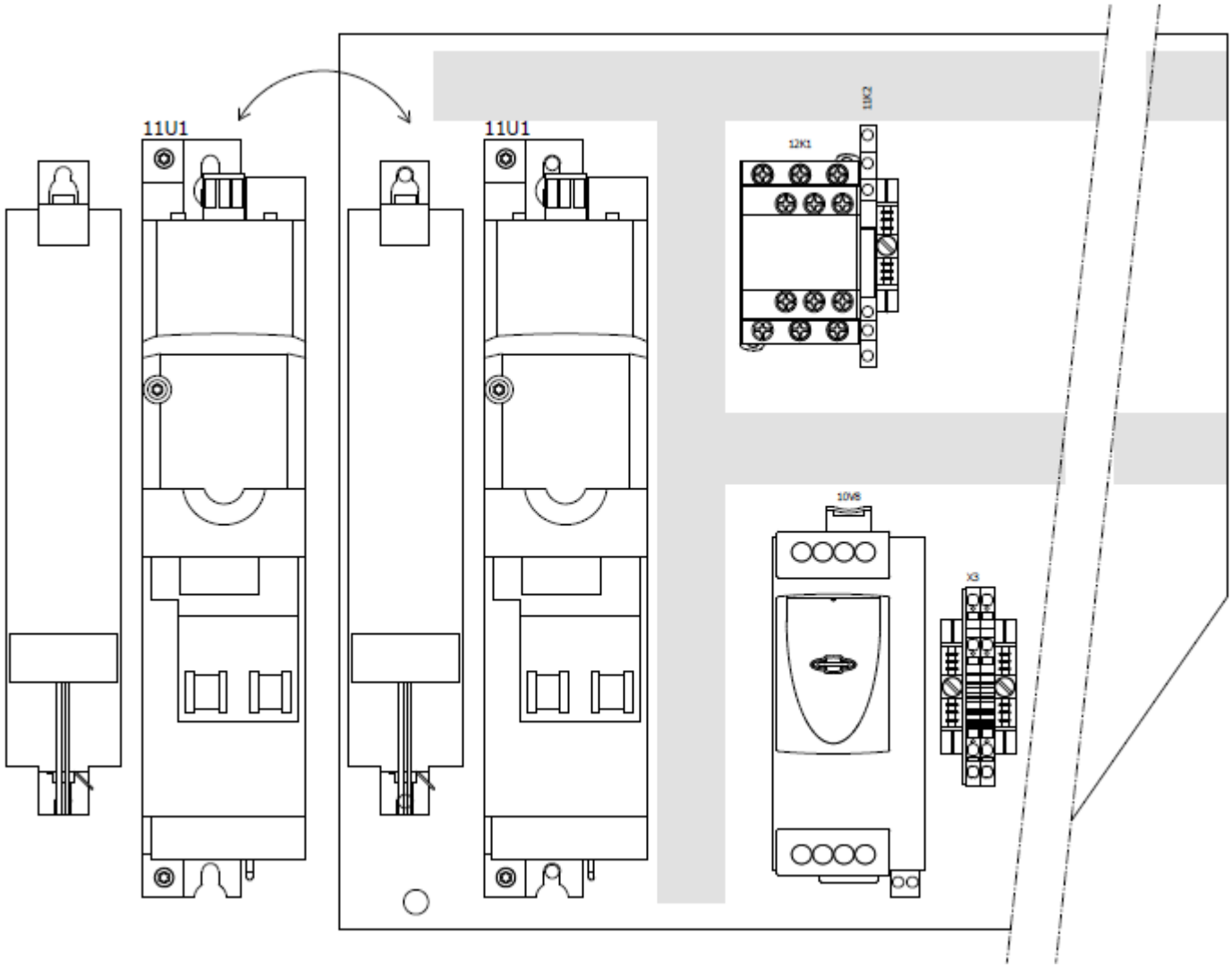


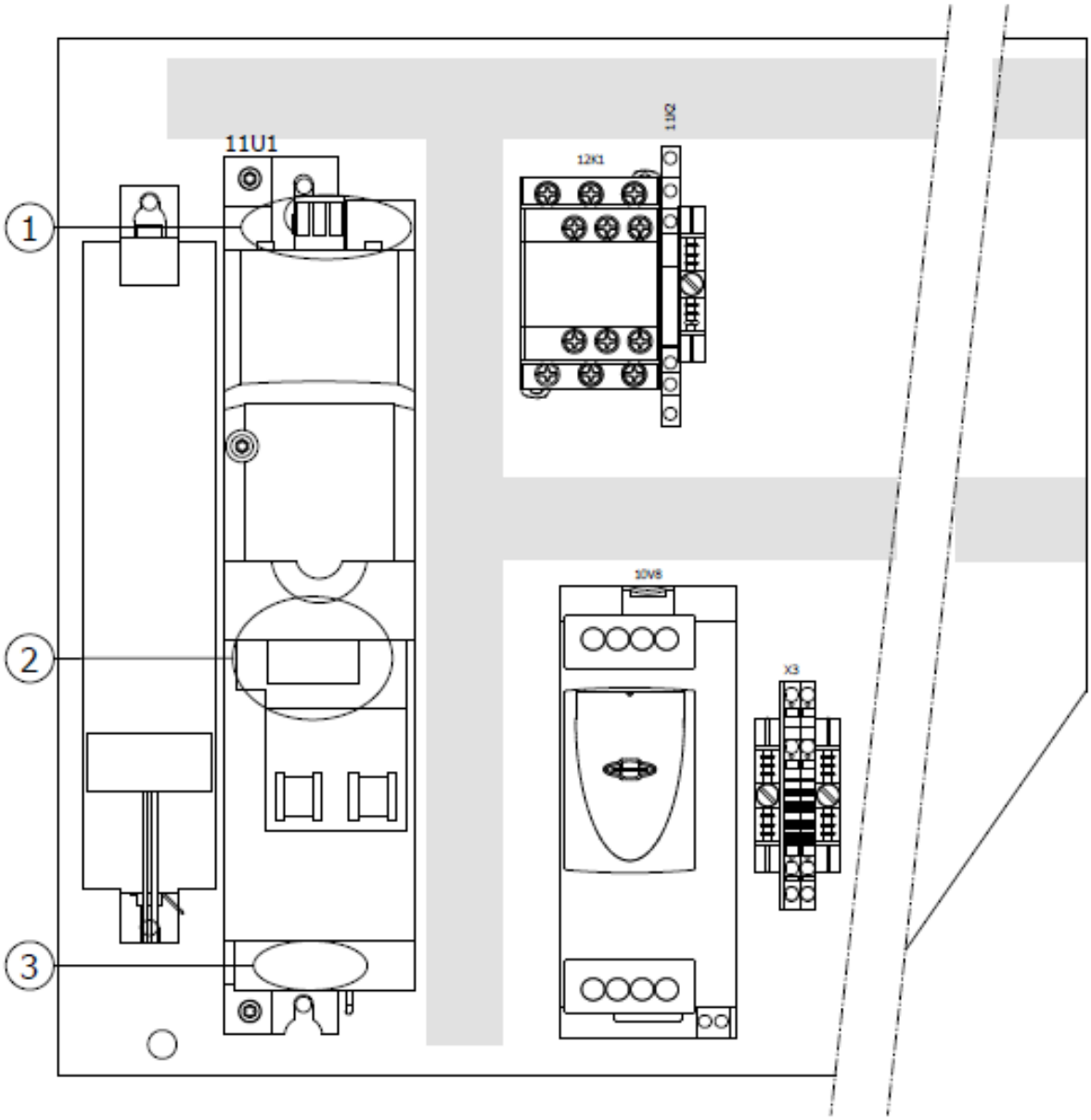
**BE CAREFUL WHILE DRILLING THE HOLES, THERE ARE OTHER PARTS MOUNTED ON THE BACKSIDE OF THE PANEL !!**

**Now you drill two holes of 4,2mm and then tap them with M5 thread.**



**Mount the I550 drive with the M5 screws in the same place where the I510 drive was mounted.**
**Mount the brake resistor at the newly drilled holes with M5 screws and tighten the M5 screws for drive and brake resistor.**






1. Place the connectors with the power supply wires and motor brake wires.
2. Install the control wires that are connected to the I/O block.
3. Place the connectors with the motor wires.

## Supply connectors and relay contact connectors

I510

I550

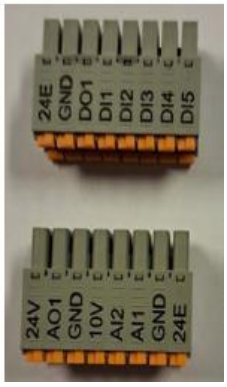
## Motor cable connectors and Brake resistor connection

I510 *(no brake resistor connection)*

I550 *(with brake resistor connection)*

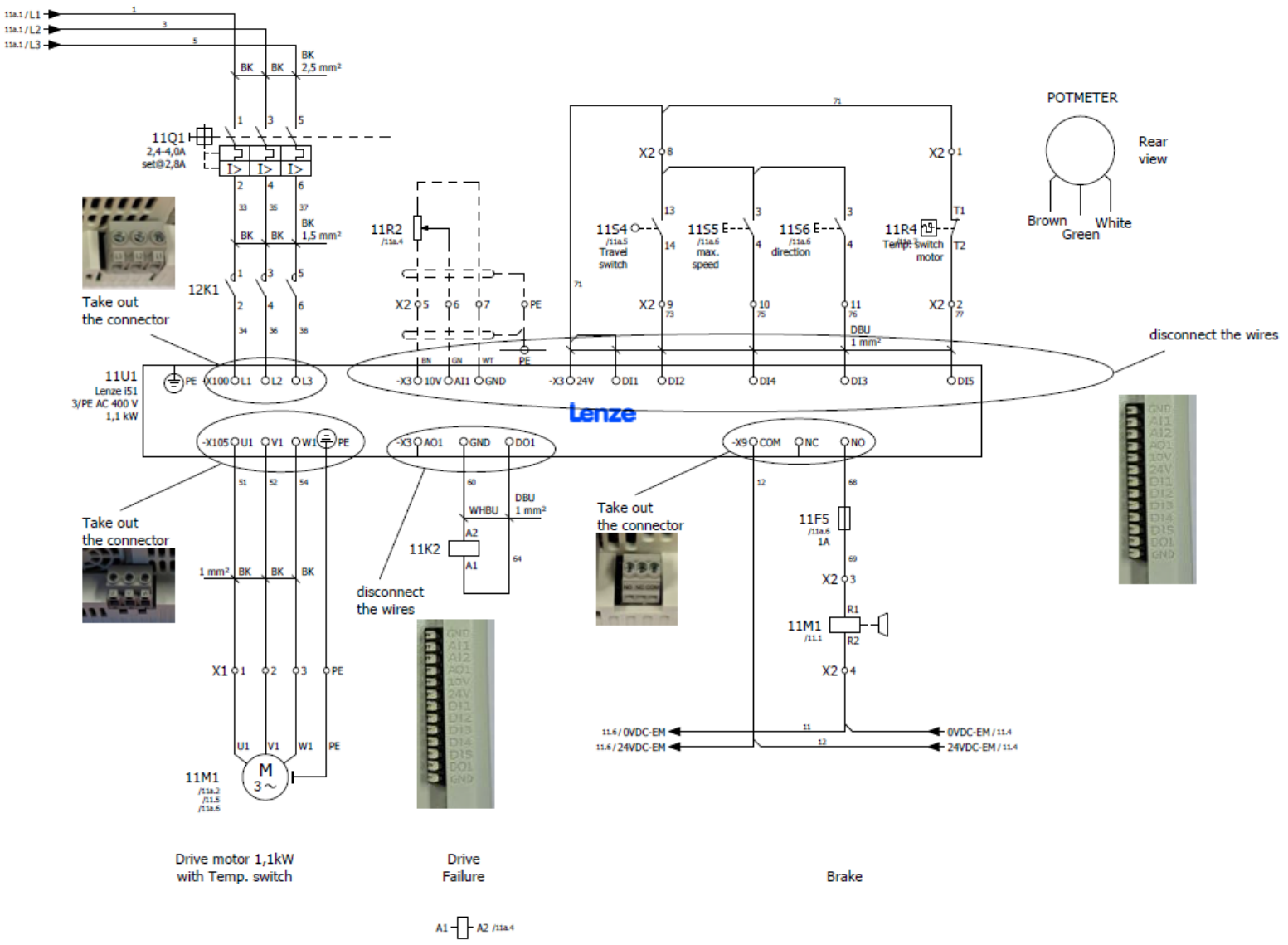
## Control connections

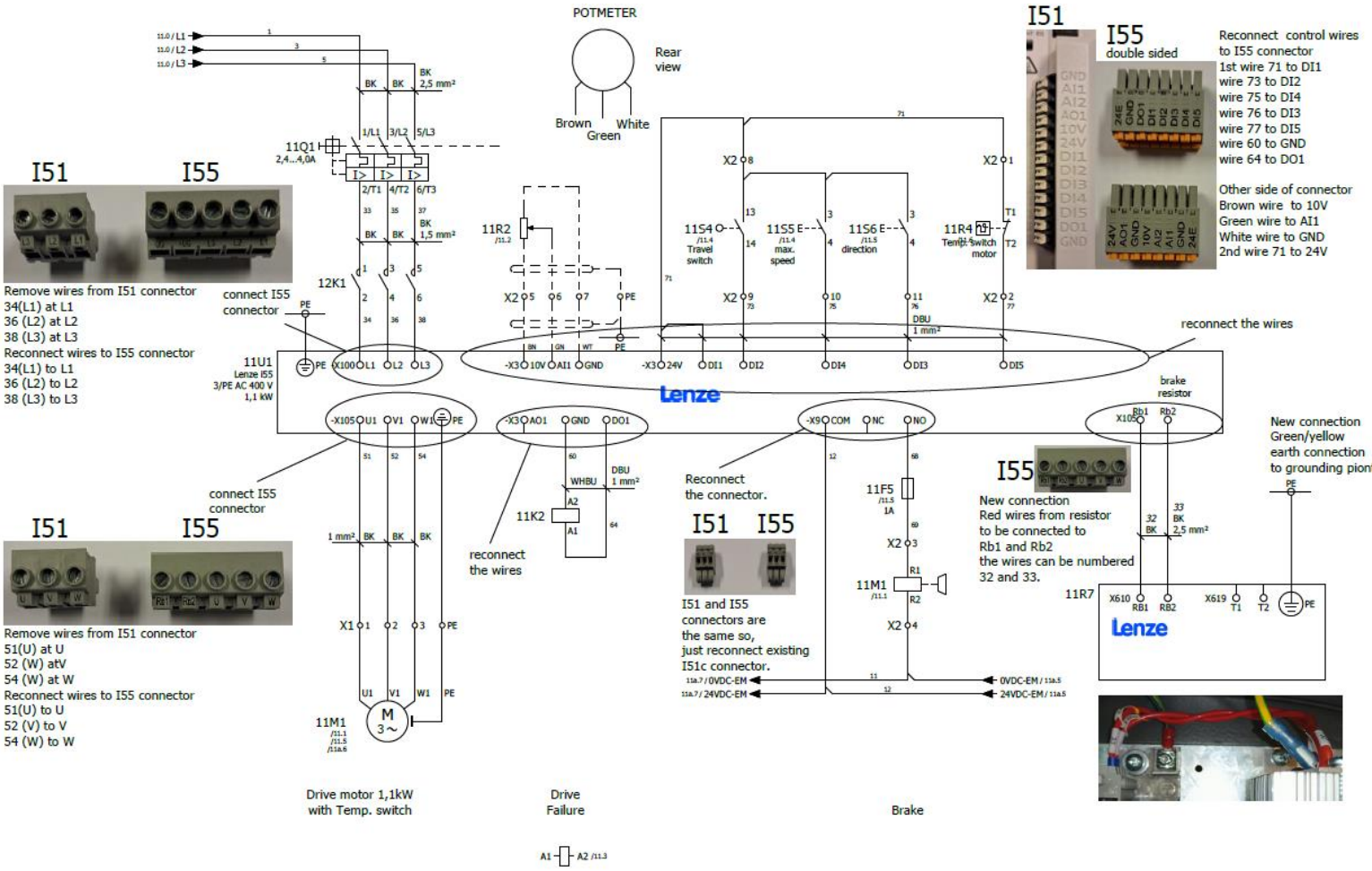
I510 has a fixed terminal




I550 has a detachable connector with connections at both side

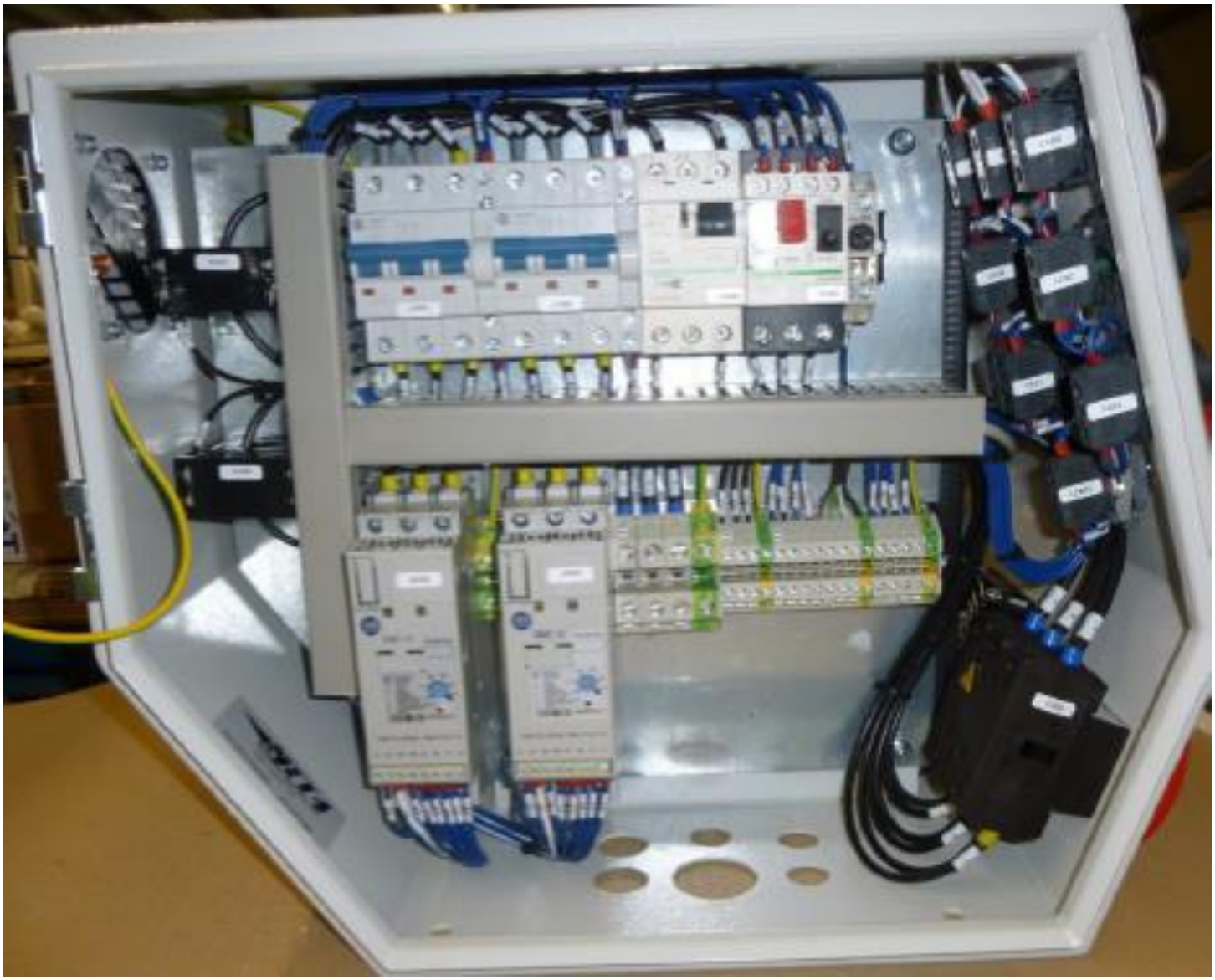
**Reconnecting the wires to the newly installed VFD and BR.**
**Refer to wiring diagram 'PJ20.1367.REFIT'' on page 11 and 11a.**




POTMETER
Rear view
Brown
White
Green
I51
I55
Remove wires from I51 connector
34(L1) at L1
36 (L2) at L2
38 (L3) at L3
Reconnect wires to I55 connector
34(L1) to L1
36 (L2) to L2
38 (L3) to L3
connect I55 connector
11Q1
12K1
11U1
Lenze I55
3/PE AC 400 V
1,1 kW
11R2
11S4 Travel switch
11S5 max. speed
11S6 direction
11R4 Temp. switch motor
reconnect the wires
brake resistor
I55 double sided
Reconnect control wires to I55 connector
1st wire 71 to DI1
wire 73 to DI2
wire 75 to DI4
wire 76 to DI3
wire 77 to DI5
wire 60 to GND
wire 64 to DO1
Other side of connector
Brown wire to 10V
Green wire to AI1
White wire to GND
2nd wire 71 to 24V
New connection
Green/yellow
earth connection
to grounding pionts.
Reconnect
the connector.
11K2
reconnect
the wires
11F5
I51 and I55
connectors are
the same so,
just reconnect existing
I51c connector.
New connection
Red wires from resistor
to be connected to
Rb1 and Rb2
the wires can be numbered
32 and 33.
11R7
11M1
Drive motor 1,1kW
with Temp. switch
Drive
Failure
Brake
0VDC-EM
24VDC-EM
Lenze

## 2-20DT - Overview E-Box, I510 without Brake Resistor.

**Left side:**



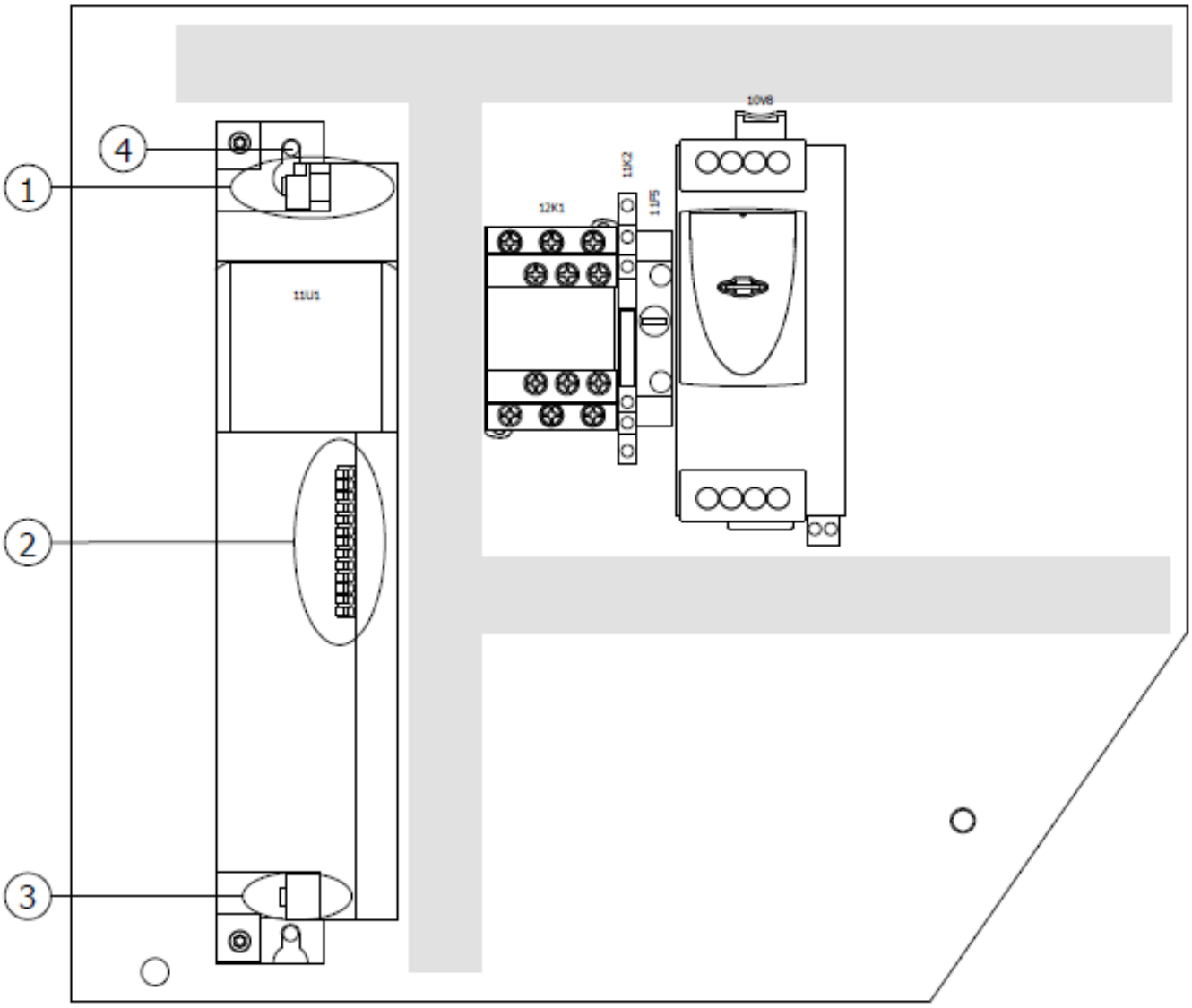
**Right side:**

## 2-20DT - Overview E-Box, I550 with Brake Resistor.

**Left side:**

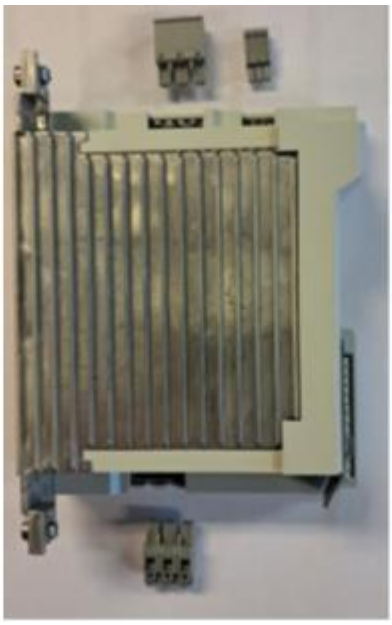
**Right side:**

## 2-30DS Global *(PJ20.1366.REFIT)*

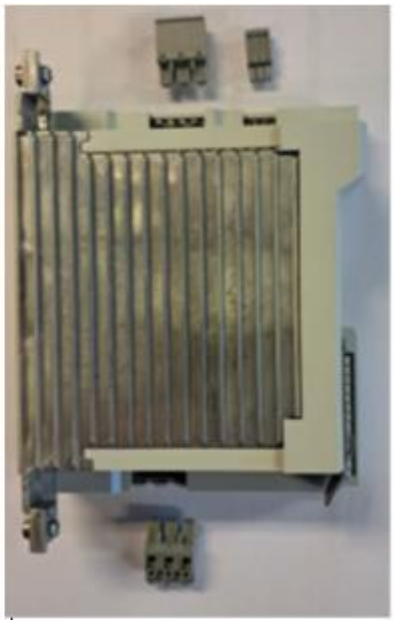



**1. Take off the connectors with the power supply wires and motor brake wires.**
**2. Take off the control wires that are connected to the I/O block.**
**3. Take off the connectors with the motor wires.**
**4. Unscrew the VFD (drive) from the backplane.**

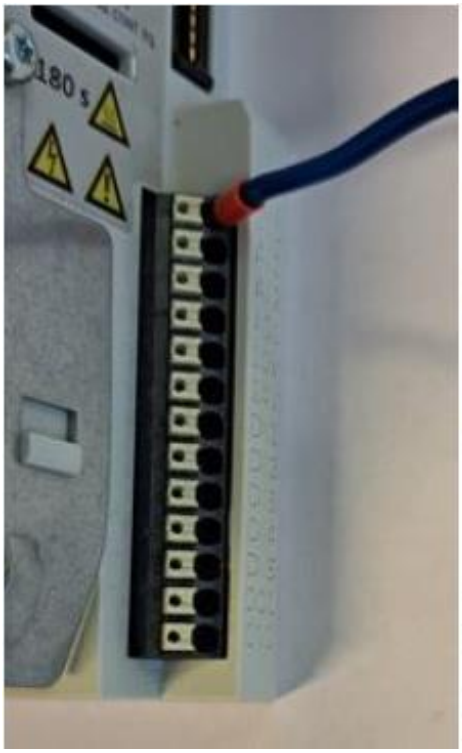
Connectors attached



Connectors detached



Connected control wire

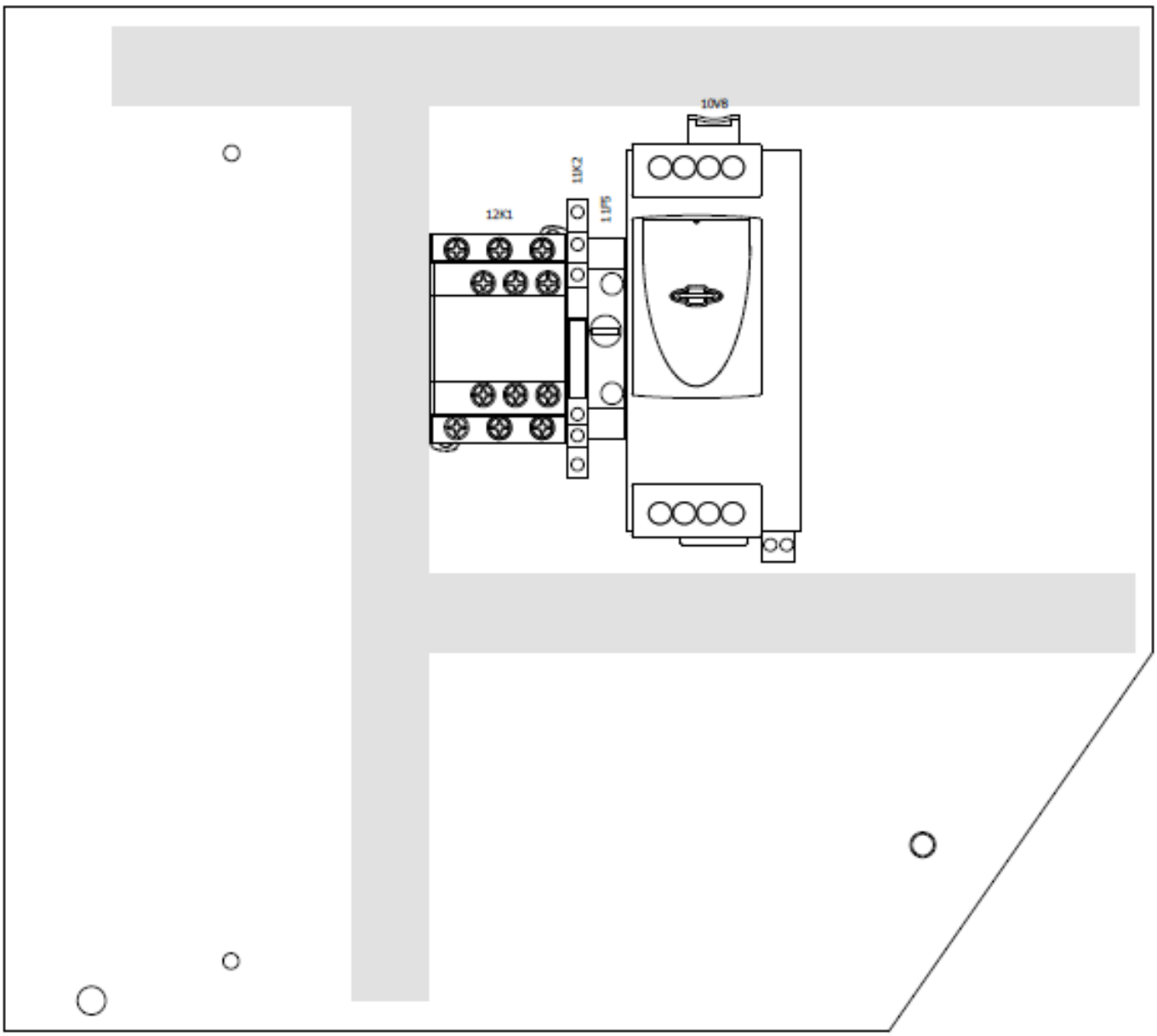


Connected control wire

Push in connector with a screwdriver

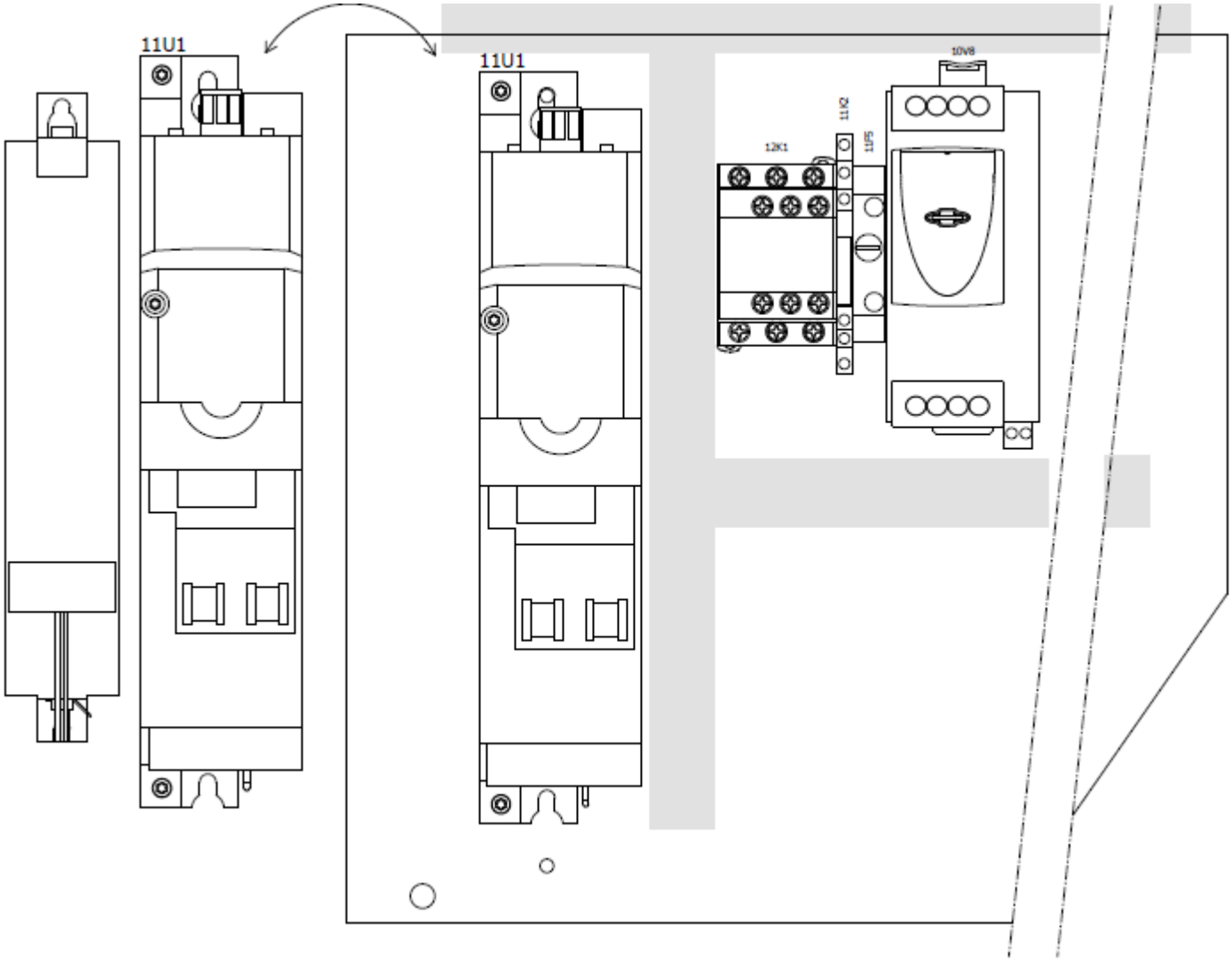
Pull out wire while pushing

**After removing the I510 VFD.**



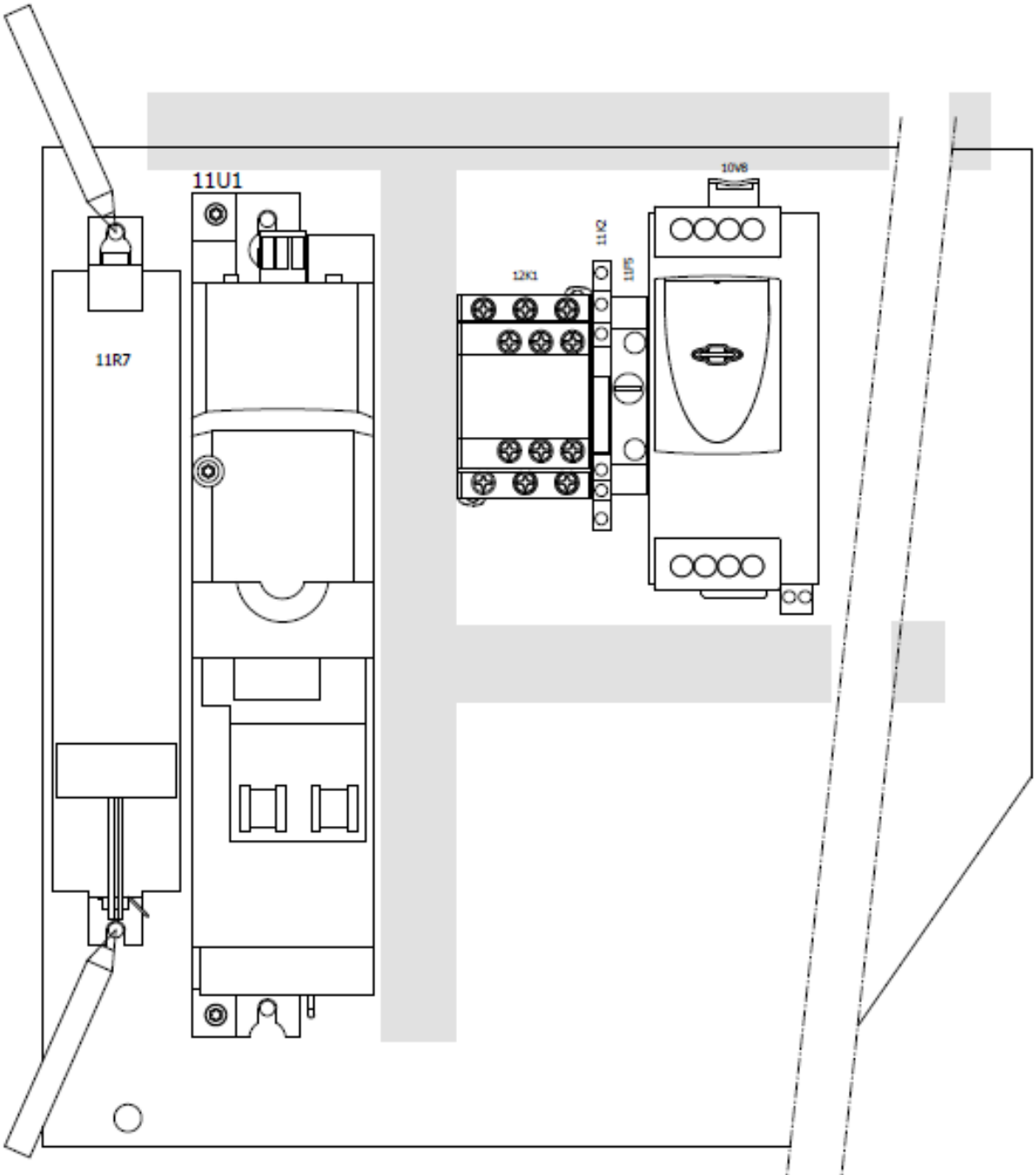
**Mount the I550 drive with the screws on the same place where the I510 drive was mounted. The I550 has the same mounting dimensions as the I510.**

*** Do not tighten the screws too much because later the VFD will be taken out when drilling holes for the brake resistor.**



**Place the brake resistor next to the I550 drive.**
**Make sure you have some space between the drive and brake resistor.**

**With a marker you can now mark the place where you need to drill the holes for the M5 screws.**



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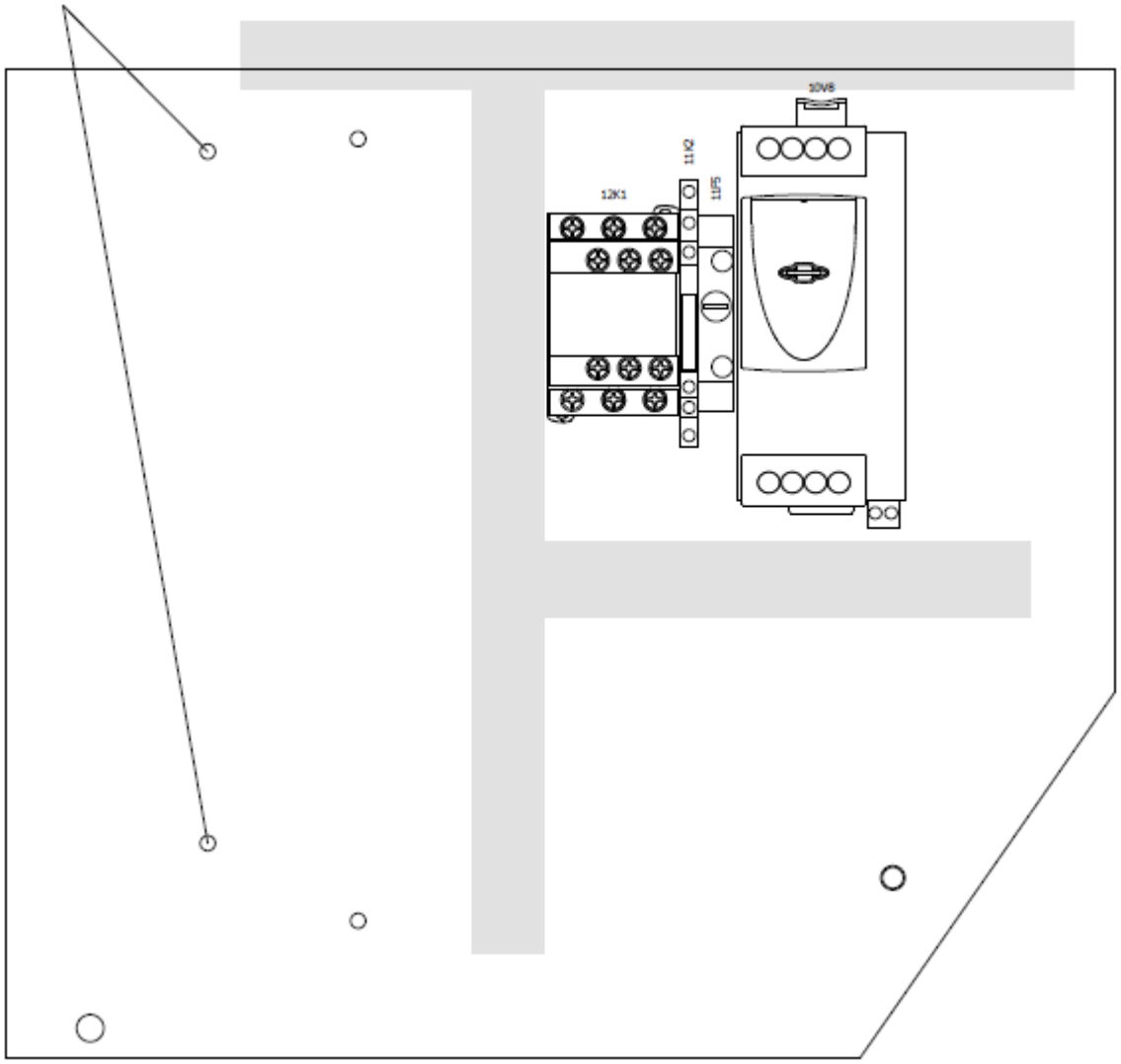
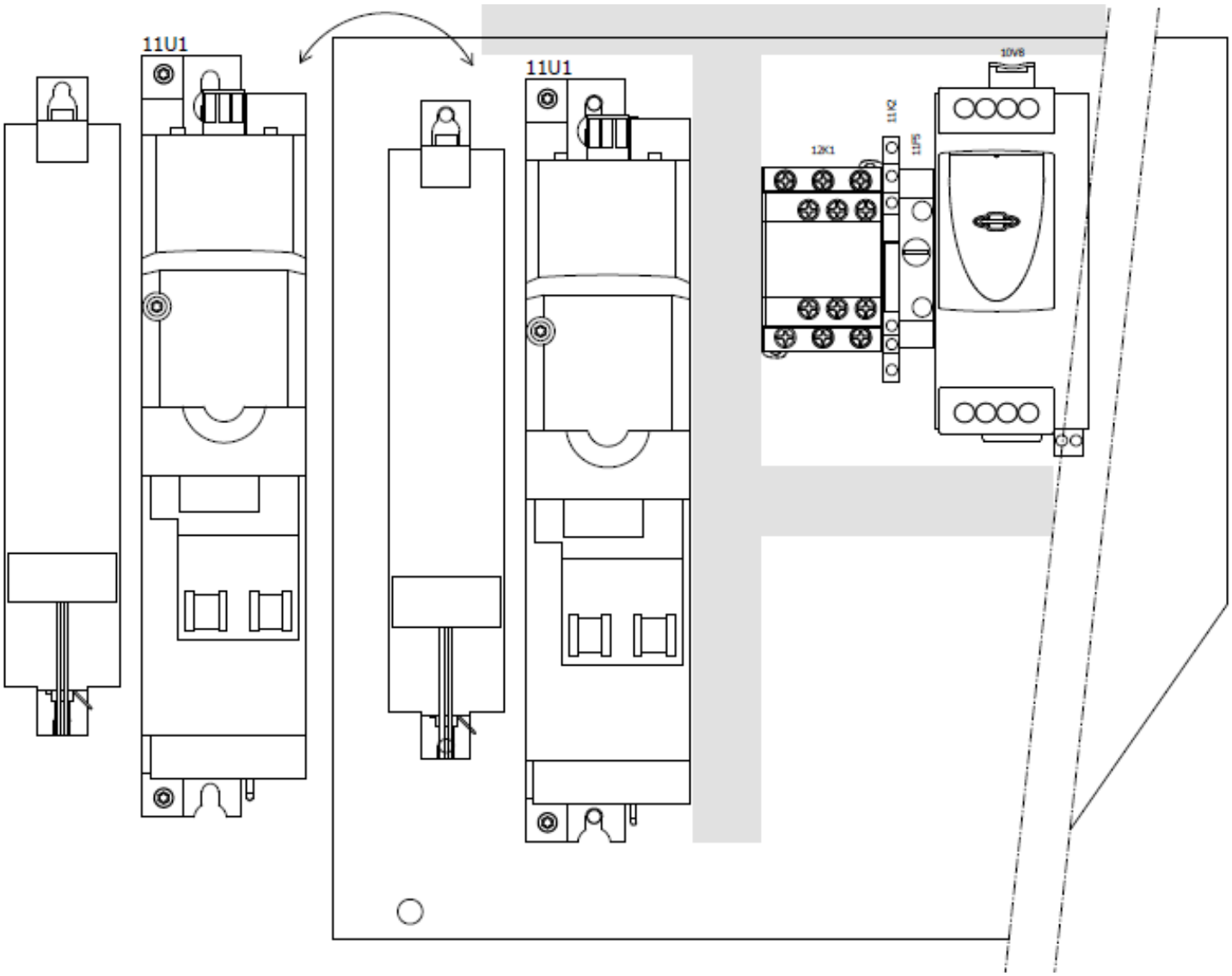
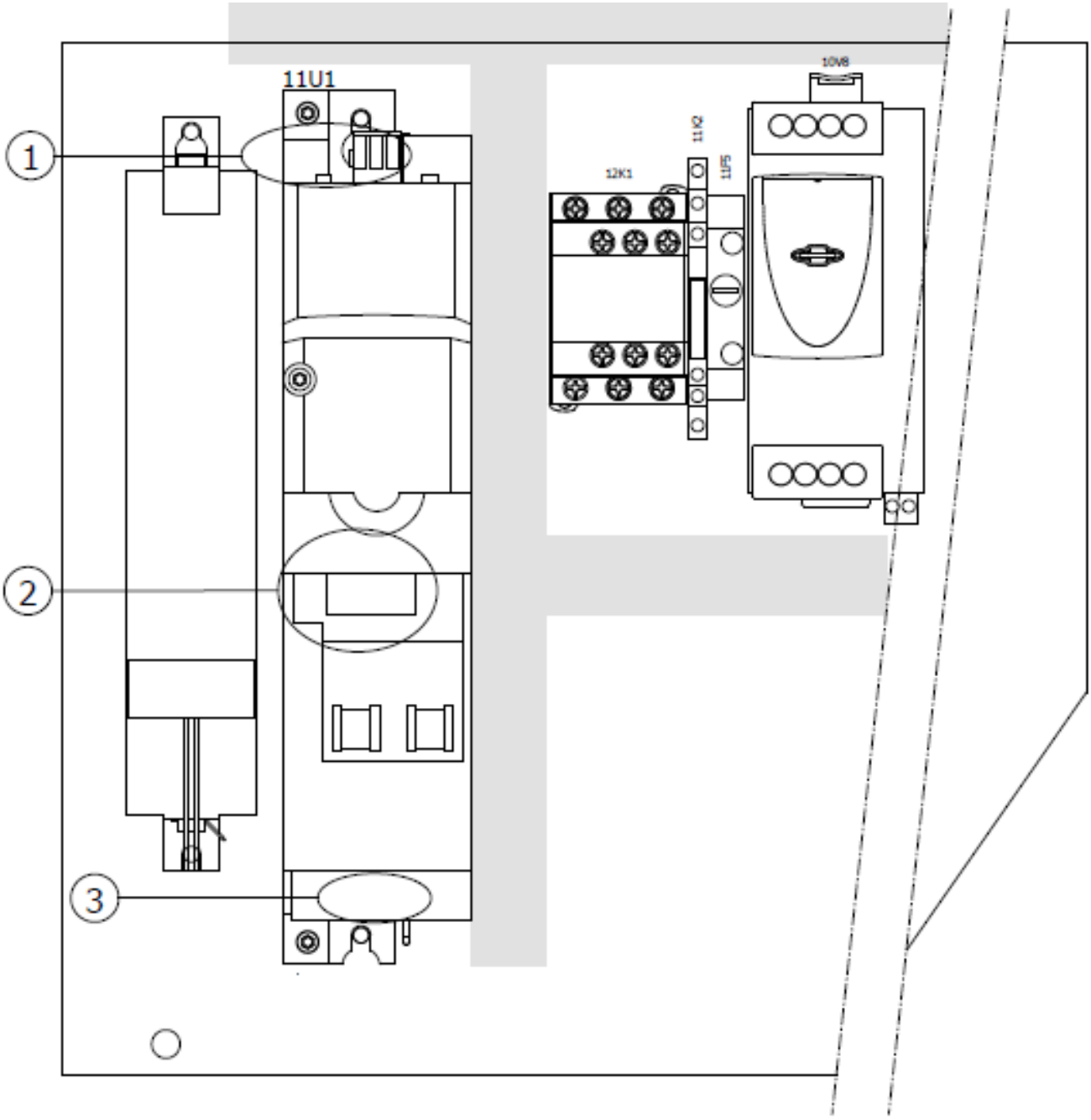
**Now you drill two holes of 4,2mm and then tap them with M5 thread.**



**Mount the I550 drive with the M5 screws in the same place where the I510 drive was mounted.**
**Mount the brake resistor at the newly drilled holes with M5 and M4 screws and tighten the M5 screws for the drive and brake resistor.**






1. Place the connectors with the power supply wires and motor brake wires.
2. Install the control wires that are connected to the I/O block.
3. Place the connectors with the motor wires.

## Supply connectors and relay contact connectors

I510

I550

## Motor cable connectors and Brake resistor connection

I510 *(no brake resistor connection)*

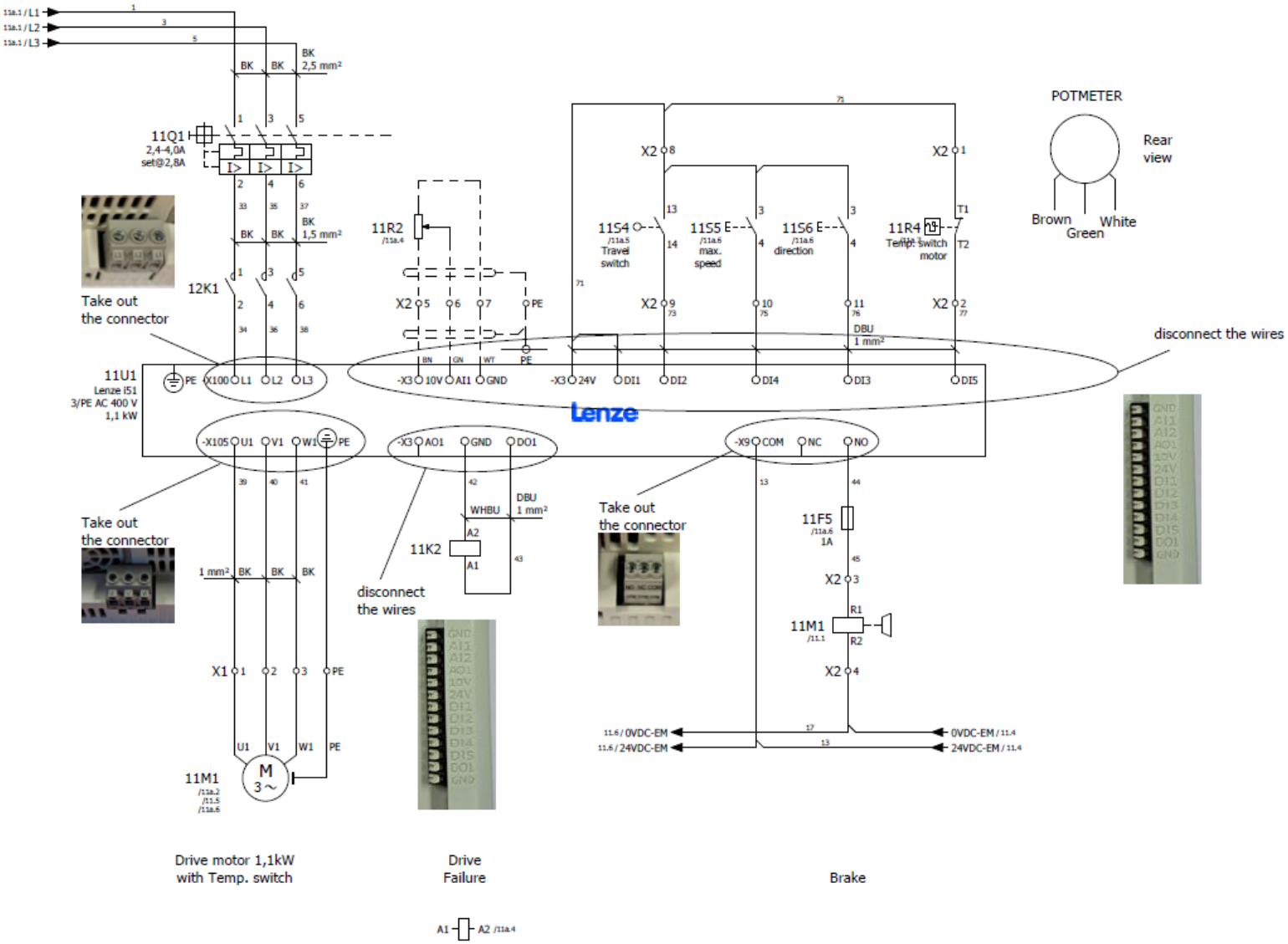
I550 *(with brake resistor connection)*

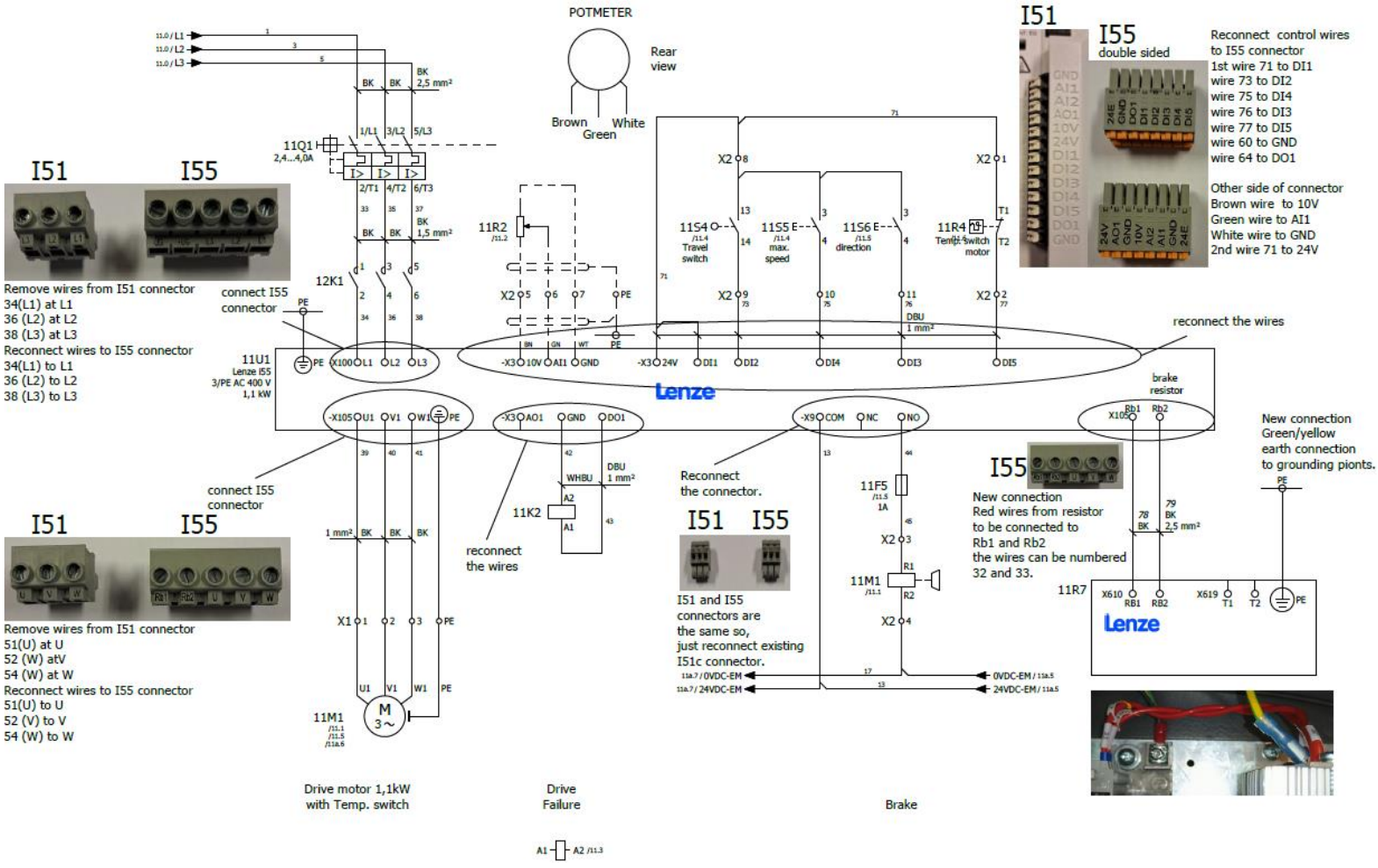
## Control connections

I510 has a fixed terminal

I550 has a detachable connector with connections at both sides

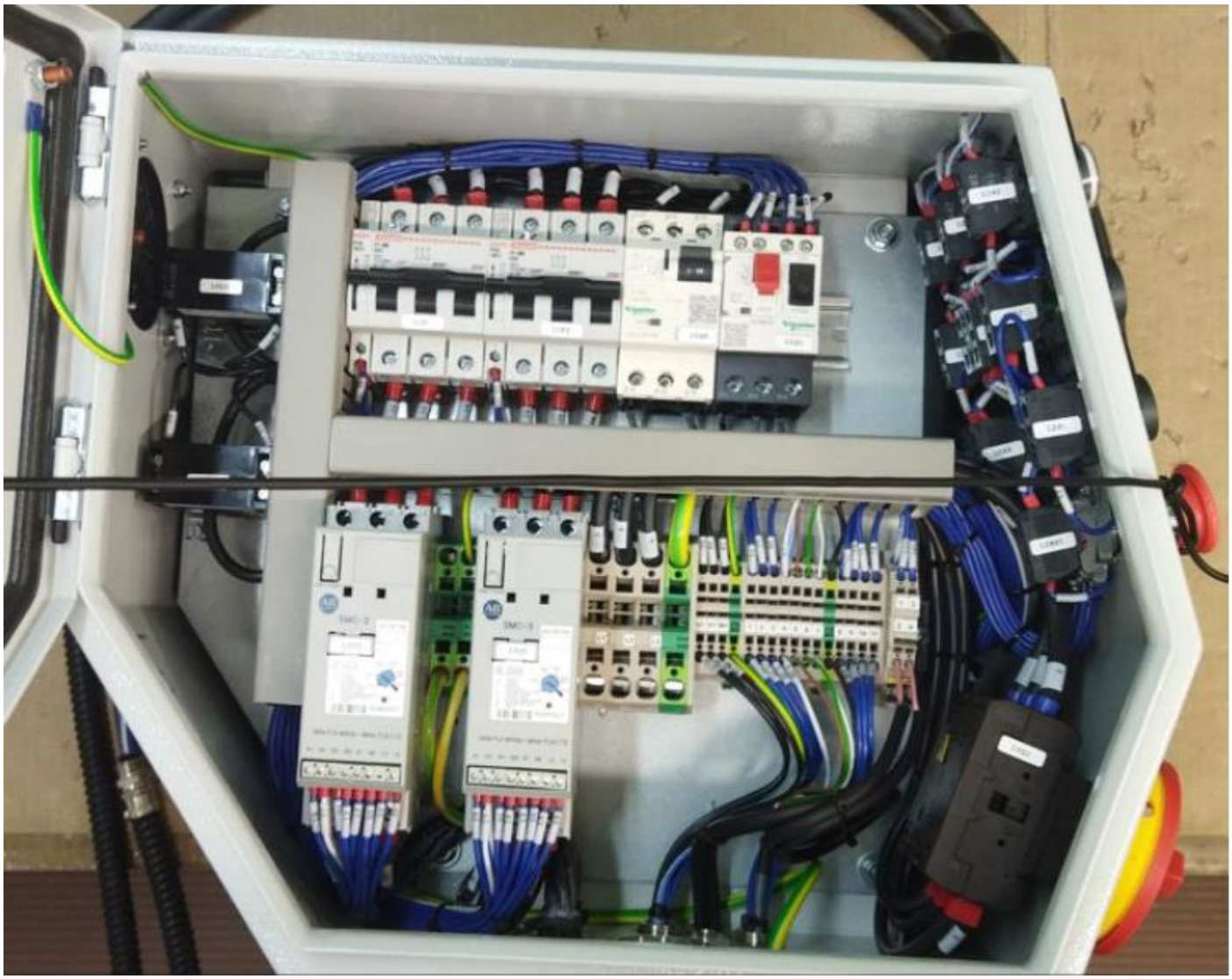
**Reconnecting the wires to the newly installed VFD and BR.**
**Refer to wiring diagram ''PJ20.1366.REFIT'' on page 11 and 11a.**



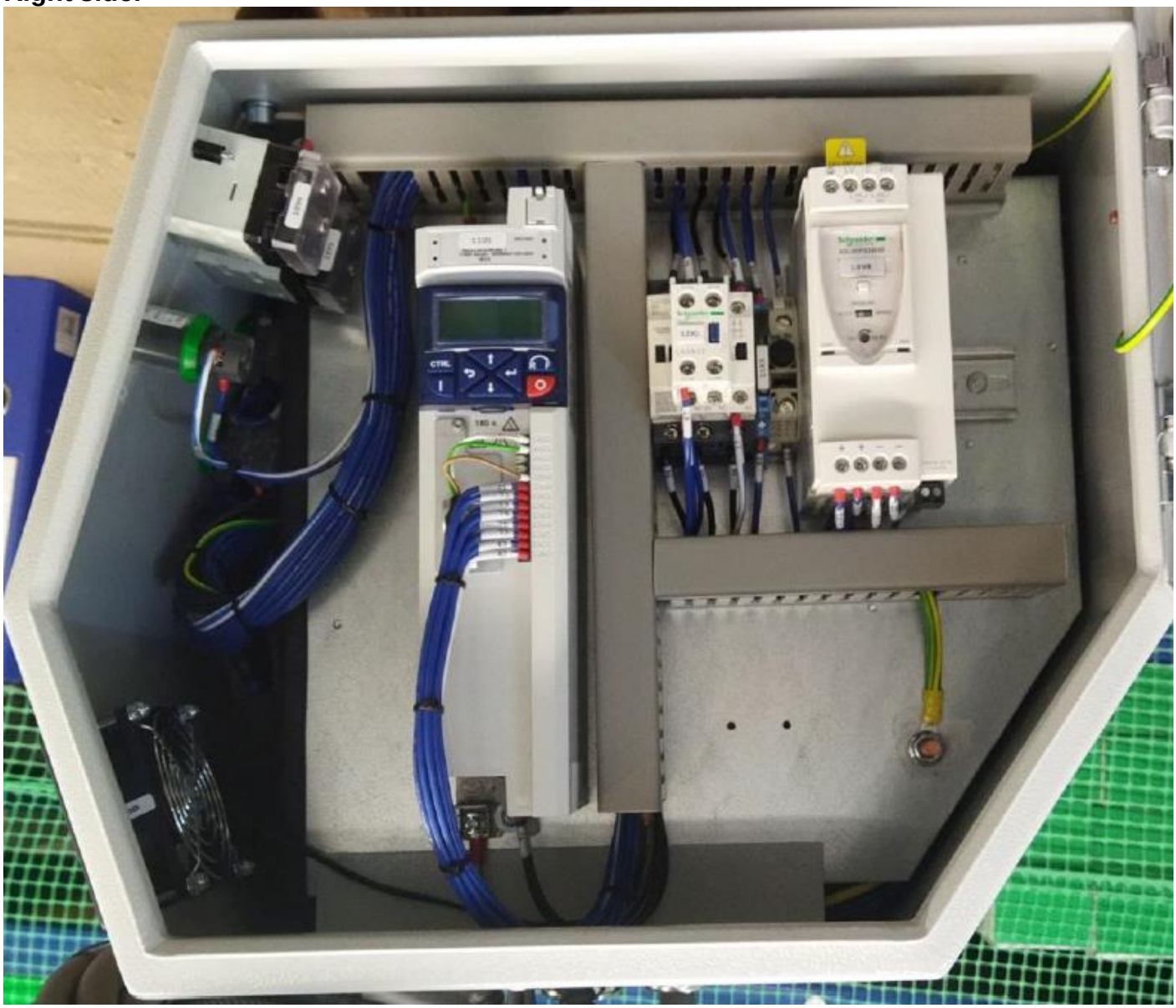

POTMETER
Rear view
Brown
White
Green
I51
I55
double sided
Reconnect control wires to I55 connector
1st wire 71 to DI1
wire 73 to DI2
wire 75 to DI4
wire 76 to DI3
wire 77 to DI5
wire 60 to GND
wire 64 to DO1
Other side of connector
Brown wire to 10V
Green wire to AI1
White wire to GND
2nd wire 71 to 24V
Remove wires from I51 connector
34(L1) at L1
36 (L2) at L2
38 (L3) at L3
Reconnect wires to I55 connector
34(L1) to L1
36 (L2) to L2
38 (L3) to L3
connect I55 connector
reconnect the wires
Travel switch
max. speed
direction
motor
brake resistor
Reconnect the connector.
New connection
Red wires from resistor to be connected to Rb1 and Rb2
the wires can be numbered 32 and 33.
New connection
Green/yellow earth connection to grounding pionts.
I51 and I55 connectors are the same so, just reconnect existing I51c connector.
Remove wires from I51 connector
51(U) at U
52 (W) atV
54 (W) at W
Reconnect wires to I55 connector
51(U) to U
52 (V) to V
54 (W) to W
Drive motor 1,1kW with Temp. switch
Drive Failure
Brake
Lenze

## 2-30DS Global - Overview E-Box, I510 without Brake Resistor.

**Left side:**

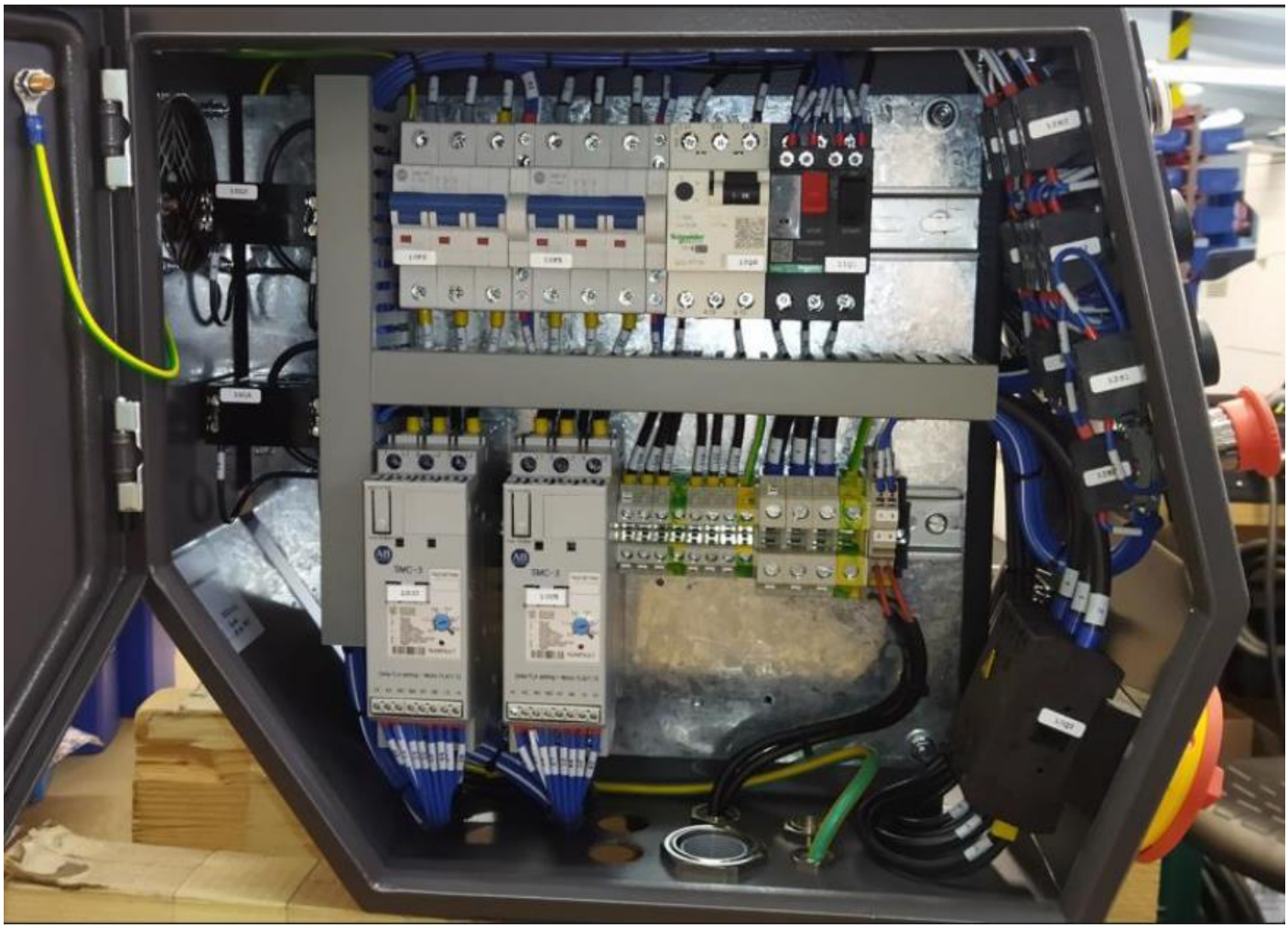


**Right side:**



## 2-30DS Global - Overview E-Box, I550 with Brake Resistor.

**Left side:**



**Right side:**