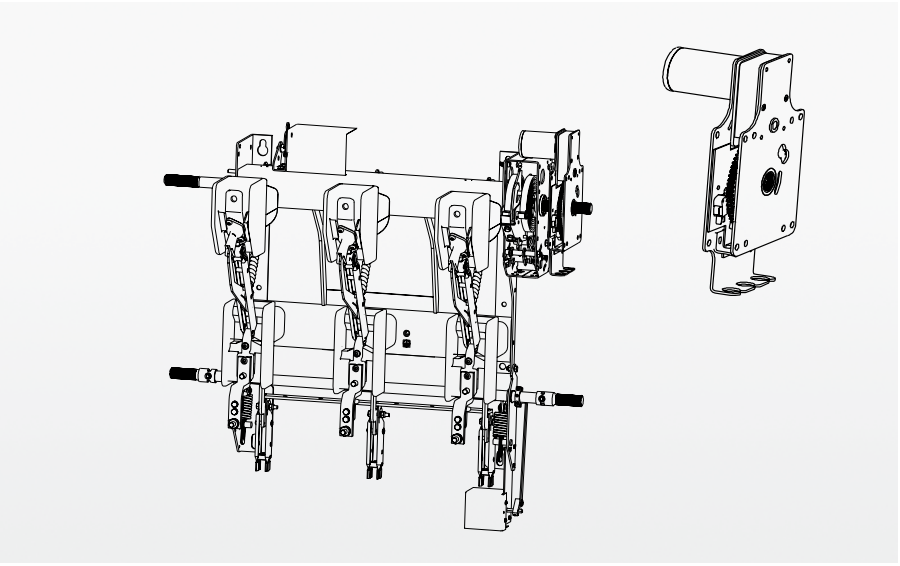
DISTRIBUTION SOLUTIONS

NM 24...220
Operating instruction



Motor operation device for
NAL and NALF
Operating voltage
24 ...220 VAC/VDC

—
01 NM mounted on NAL 12

1. General

The motor operating device is mounted directly on the switch disconnector shaft. The device operates either K or A mechanism. After each motor operation the device is mechanically disconnected and makes it possible to manually operate the disconnector.

2. Function

The electric motor drives a gearbox that transfers power to the operating gearwheel.
The gearwheel tensions, through the disconnector shaft, the spring in the mechanism on the disconnector with a rotating angle of 150. The gearwheel starts from position S1 and moves to the end position S2 or end position S3 for charging the spring respectively way and then goes back to position S1.

3. Technical data

Type		NM 24	NM 48	NM 60	NM 110/125	NM 220
Ordering number		**5DLN 527601-A**	**5DLN 527601-B**	**5DLN 527601-C**	**5DLN 527601-E**	**5DLN 527601-F**
Power consumption	W	70	70	70	70	70
Operating voltage, AC	V	17-26	34-52	42-66	77-137	154-242
Operating voltage, DC	V	22-28	43-57	54-72	99-150	198-264
Nominal current during operation	A	3	3	0.8	0.8	0.4
Maximum current during operation	A	6	6	4	4	1.2
Operating time	sec	~4	~4	~8	~8	~4
Signalling time	sec	0.5 - 2.0	0.5 - 2.0	1.0 - 4.0	0.5 - 2.0	0.5 - 2.0

Operating temperature	°C	- 40 ... + 55
Weight:		
Control board for standard NAL/F drive		1.3 kg
Motor of NAL/F drive		5 kg
ABB S201-K3		0.13 kg

— 02 Alternative B

— 03 Alternative A

— 04 Spacer bracket

— 05 Spacer bracket to be used with A-mech

— 06 Operating box

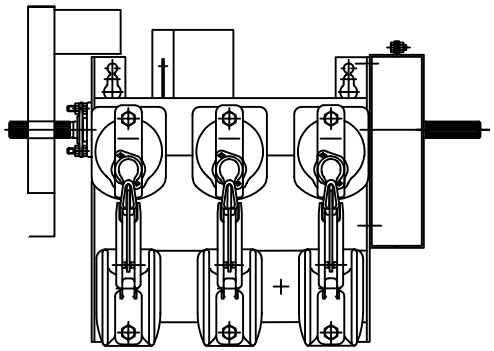
Please note!!
Be careful when mounting the device to avoid any injury from sudden movement of the switch disconnector or from the rotating gearwheel of the device.

4. Mounting

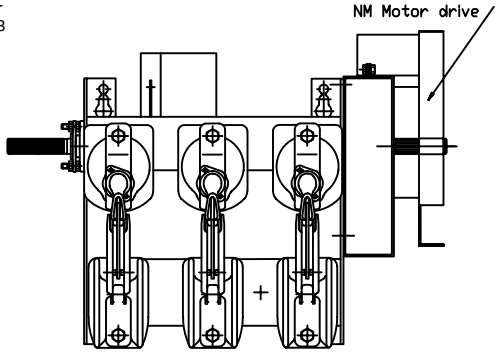
The motor operating device is mounted on the left or right-hand side of the disconnector with a spacer bracket that must be ordered separately. The device is bolted on with two pieces. In case of using space bracket four pieces of M8 bolts is used.

Example of mounting alternatives

— 02



— 03



5. Operation

A. Manual operation

The motor operating device is mechanically disconnected in both open and closed positions. It is manually operated by using an operating handle to rotate the disconnector's shaft or its shaft extension, or else by using some other special type of manual operating device.
If a manual operating device is used, it must be of a type that does not automatically lock the switch in its end position. See, position 6 in part number list 9.

Note

When mounting with mechanical interlocking between NAL and earthing switch, electrical interlocking is also to be carried out.

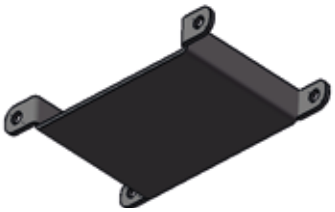
B. Motor operation

The motor operating device is operated electrically with ON and OFF pushbuttons or by remote control. The motor operating device is ready for operation in all positions

6. Additional equipment

Spacer bracket
There are four sizes of bracket, for distances 39, 55 and 105 mm.

— 04



K - mechanism

39 mm	1YMX000044M0001

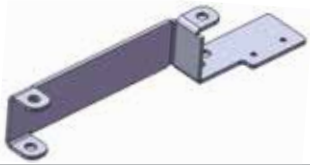
For A and K mechanism

55 mm	1YMX000044M0002
105 mm	1YMX000044M0004

For A mechanism

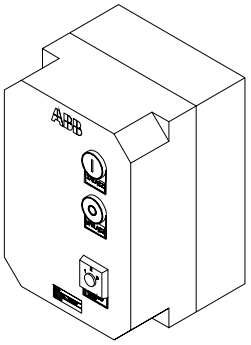
39 mm	1YMX000044M0005

— 05



Operating box
Enclosure of polycarbonate.
For mounting of control unit. Light grey cover (RAL 7035). For flange openings, see dimensions on last page. Control unit fits directly in the operating box.

— 06



Ordering number
Basic version:
1YMX888624M0001 - Control box without key
1YMX888624M0002 - Control box with key
Extended with lamps:
1YMX888624M0003 - Control box without key
1YMX888624M0004 - Control box with key

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07 Alternative A - A-mech

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08 Alternative B - A-mech.

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09 Alternative A K-mek.

—
10 Alternative B K-mek.

Index	Description	A-mech							
		NAL/F 12		NAL/F 17.5		NAL/F 24		NAL/F 36	
		L	R	L	R	L	R	L	R
1YMX000044M0002	Space bracket 55 mm	X		X					
1YMX000044M0004	Space bracket 105 mm					X			
1YMX000044M0005	Space bracket 39 mm		X		X		X		X
1YMX000044M0001+ 1YMX000044M0004	Space bracket 39+105 mm							X	

Index	Description	K-mech							
		NAL/F 12		NAL/F 17.5		NAL/F 24		NAL/F 36	
		L	R	L	R	L	R	L	R
1YMX000044M0001	Space bracket 39 mm		X		X		X		
1YMX000044M0002	Space bracket 55 mm	X		X					
1YMX000044M0004	Space bracket 105 mm					X			X
1YMX000044M0001+ 1YMX000044M0004	Space bracket 39+105 mm							X	

7. Setting of shaft and drive coupling

Alternative A - A-mech

Both springs uncharged.
Turn the operating shaft of the disconnector anti- clockwise to set the tolerance to zero before mounting the motor device.
Distance X adjusted to ~7 mm (5-10 mm) before mounting to the shaft.

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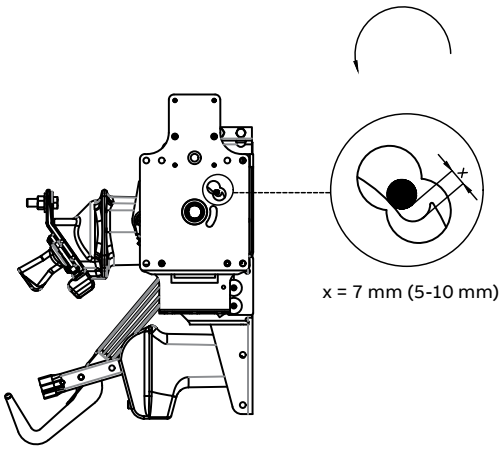
07



Alternative B - A-mech.

Both springs uncharged.
Turn the operating shaft of the disconnector clockwise to set the tolerance to zero before mounting the motor device.
Distance X adjusted to ~7 mm (5-10 mm) before mounting to the shaft.

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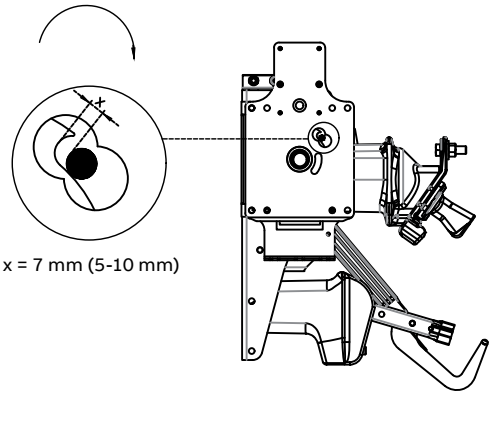
08



Alternative A K-mek.

The disconnector in open position
Turn the operating shaft of the disconnector anti - clockwise to set the tolerance to zero before mounting the motor device.
Distance X adjusted to ~4 mm (2-8 mm) before mounting to the shaft.

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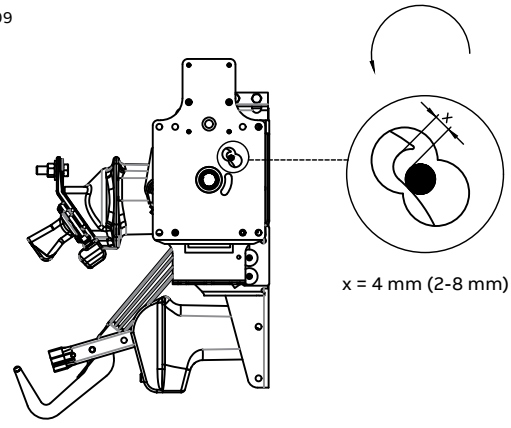
09



Alternative B K-mek.

The disconnector in open position
Turn the operating shaft of the disconnector clockwise to set the tolerance to zero before mounting the motor device.
Distance X adjusted to ~4 mm (2-8 mm) before mounting to the shaft.

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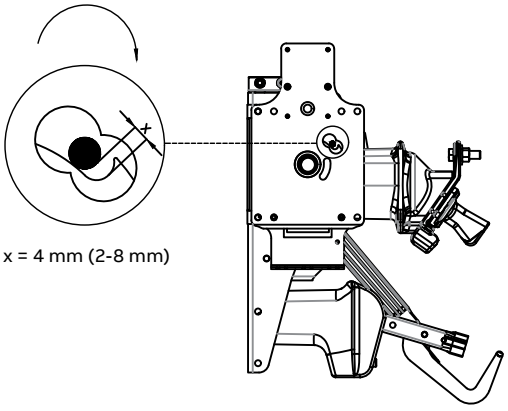
10



8. Dimensions

Dimensions in mm, the right is reserved to alter design, technical data and dimensions without previous notice.

— 11 Motor operating device dimmensions

— 12 NM borad dimmensions

— 13 Operating box dimmensions

Motor operating device

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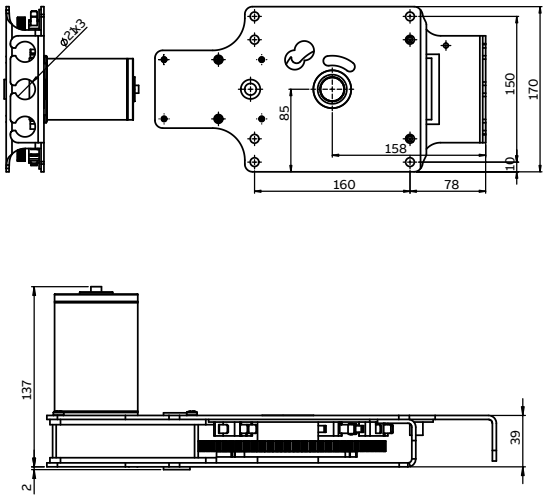
11



NM board

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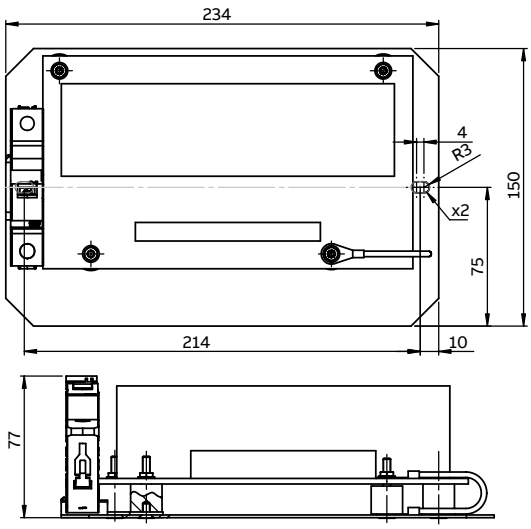
12



Operating box

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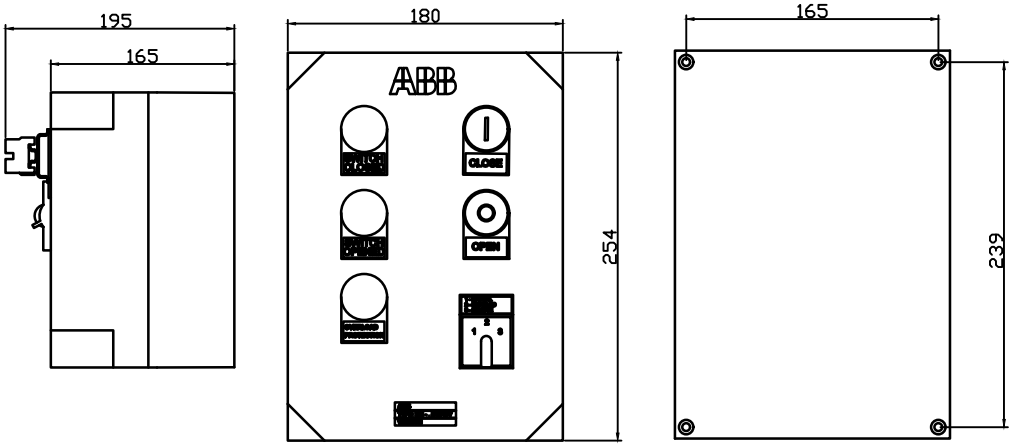
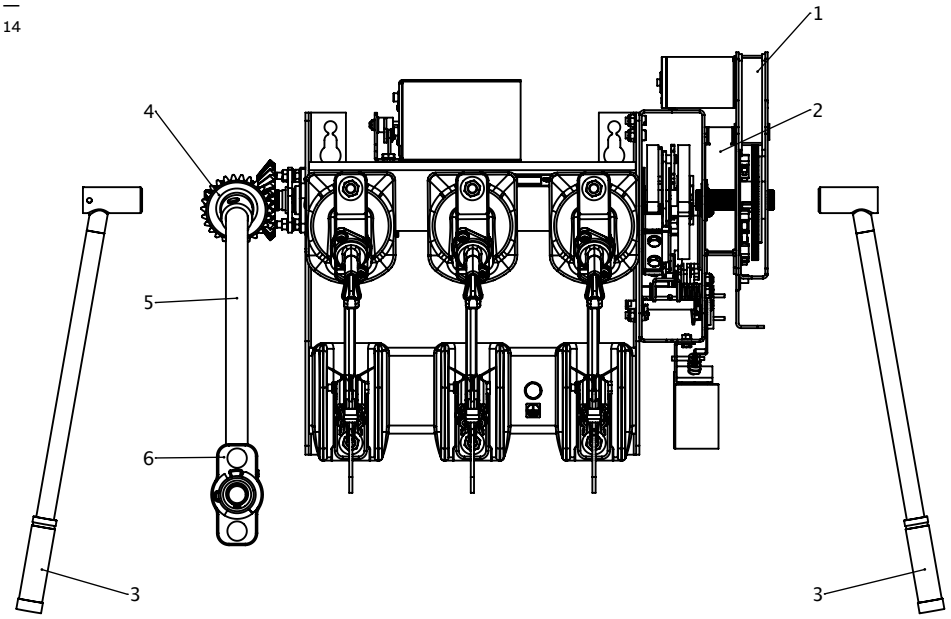
13



9. Parts numbers

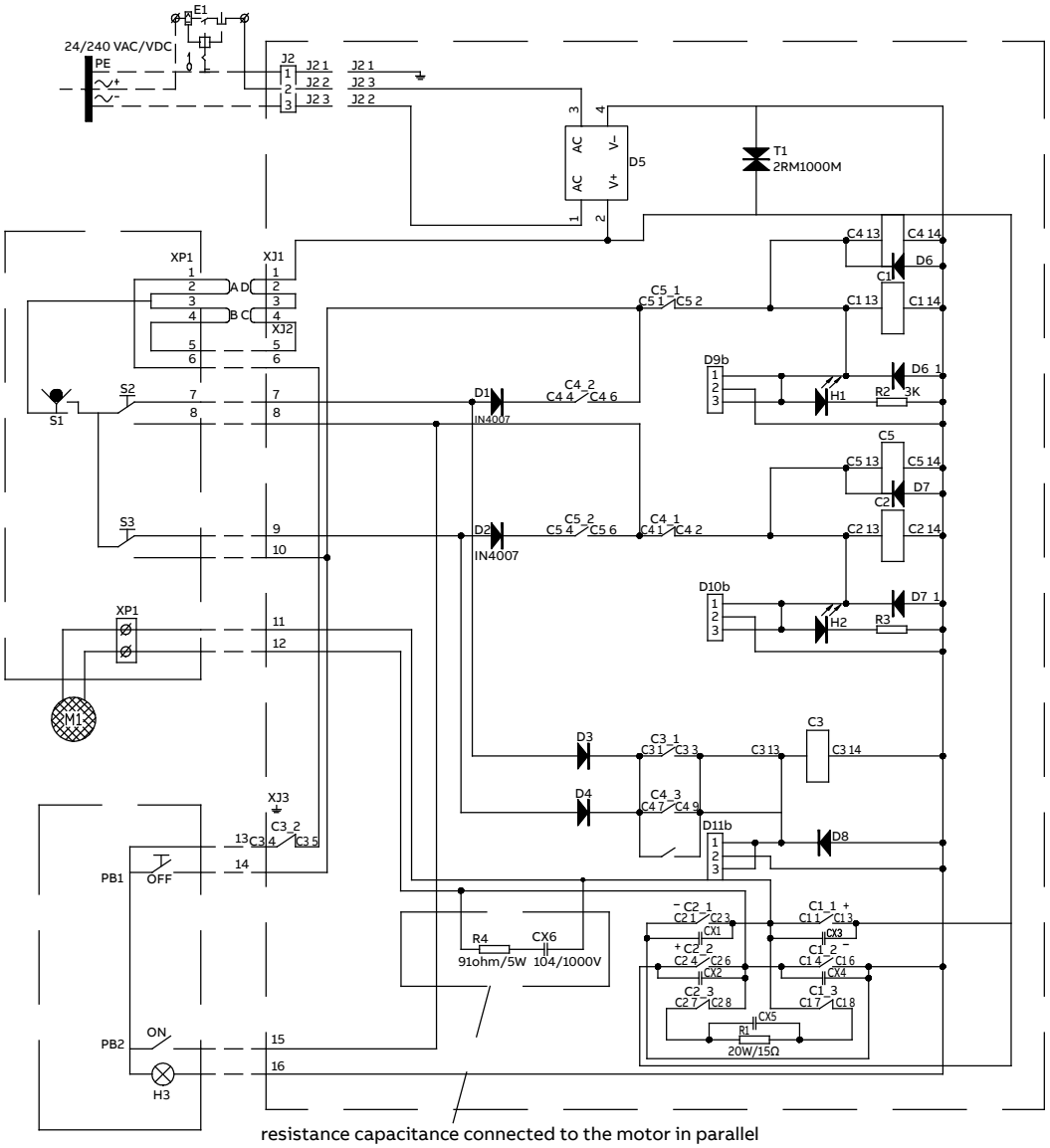
14 Parts available with NAL

14

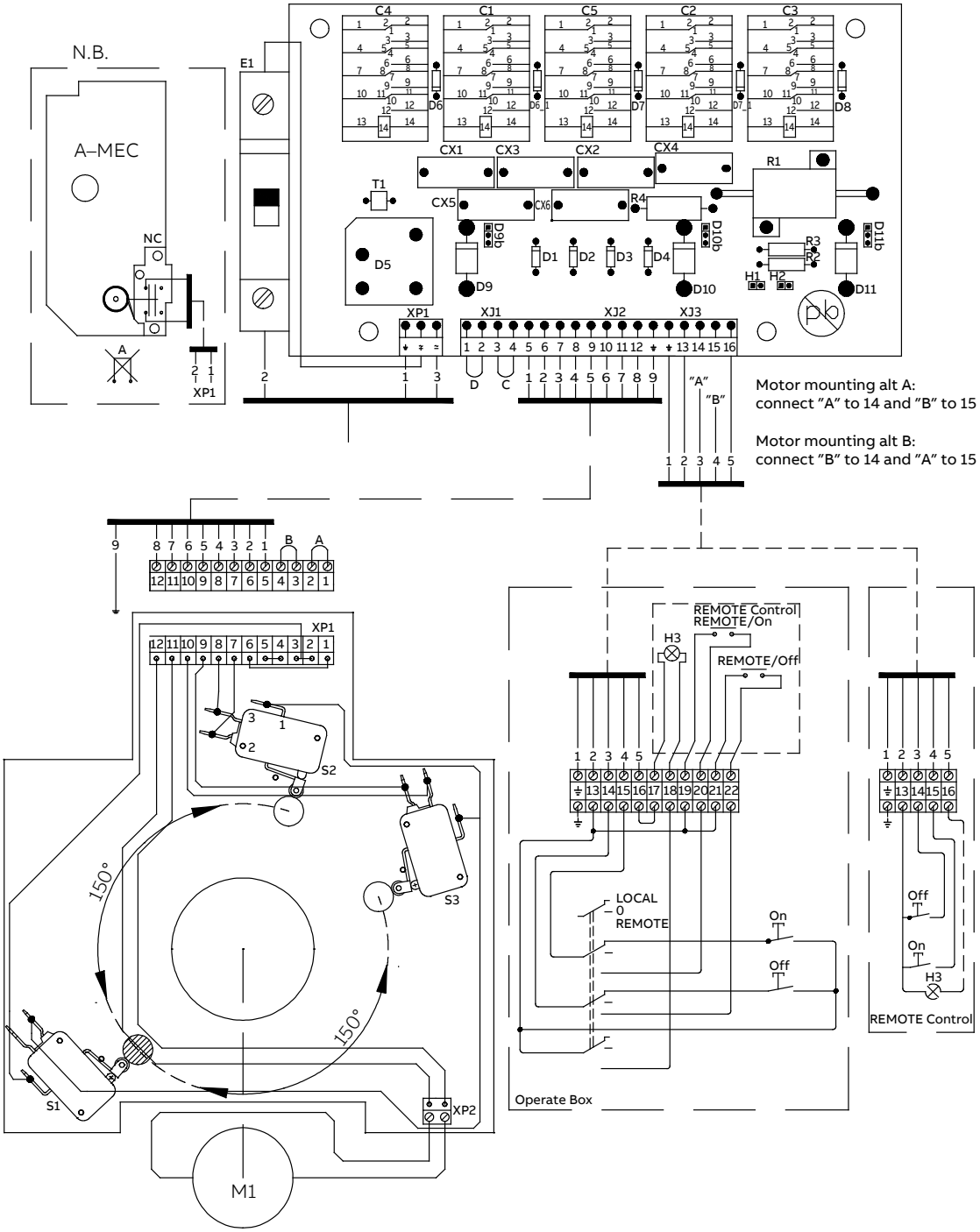


Pos no.	Part no.	Description	Notes
1	1YMX000042M0001	Motor operating device NM24	Complete with contactor unit.
	1YMX000042M0001	Motor operating device NM48	Complete with contactor unit.
	1YMX000042M0004	Motor operating device NM110	Complete with contactor unit.
	1YMX000042M0005	Motor operating device NM220	Complete with contactor unit.
2	1YMX000044M0001	Spacer bracket 39 mm	Right hand side, 12, 17.5, 24kV with K-mech
	1YMX000044M0002	Spacer bracket 55 mm	Left hand side, 12 and 17.5 kV
	1YMX000044M0004	Spacer bracket 105 mm	Left hand side 24 kV and right hand side 36kV with K-mech
	1YMX000044M0005	Spacer bracket 39 mm	Right hand side with A-mech
	1YMX000044M0004-01	Spacer bracket 105+39 mm	Left hand side 36 kV
3	1YMX053235M0001	Operating handle	Ordered with the NAL/NALF
4	1YMX053362M0002	Bevel gear	Ordered with the NAL/NALF
5	1YMX053346M0002	Connection rod	Ordered with the NAL/NALF
6	1YMX053233M0001	Front bearing	Ordered with the NAL/NALF
7	1YMX000111M0001	Operating box with lock	
	1YMX000045M0005	Operating box without lock	

10. Circuit and connection diagrams



C1–C5	CONTACTOR	S1	MICRO SWITCH, START POSITION
R1	POWER RESISTOR	S2–S3	MICRO SWITCH, END POSITION
R2–R3	RESISTOR	PB1	PUSHBUTTON ON/OFF
R4	RESISTOR	PB2	PUSHBUTTON ON/OFF
D1–D4	DIODE	E1	MINI CIRCUIT BREAKER
D5	DIODE BRIDGE (not for 24 V)	H1/H2	LIGHT DIODS
D6–D8	DIODE	H3	CONTROL LAMP “DEVICE OK”
XP1/XP2	TERMINATIONS FOR MOTOR	A	CONNECTION FOR AUXITIAR SWITCH FOR FUSEINTERRUPTION
XJ1–XJ3	TERMINATIONS FOR CONTACTOR UNIT	T1	DISCHARGE TUBE
M1	MOTOR		


N.B.
A–MEC
NC
A
2 1
XP1
E1
C4
C1
C5
C2
C3
D6
D6_1
D7
D7_1
D8
CX1
CX3
CX2
CX4
T1
CX5
CX6
R4
R1
D5
D9b
D1
D2
D3
D4
D10b
D11b
R3
R2
H1
H2
D9
D10
D11
XP1
XJ1
XJ2
XJ3
2
1 3
D C
1 2 3 4 5 6 7 8 9
"A"
"B"
Motor mounting alt A:
connect "A" to 14 and "B" to 15
Motor mounting alt B:
connect "B" to 14 and "A" to 15
1 2 3 4 5
9 8 7 6 5 4 3 2 1 B A
12 11 10 9 8 7 6 5 4 3 2 1
XP1
12 11 10 9 8 7 6 5 4 3 2 1
3
1
2
S2
150°
S3
150°
S1
XP2
M1
REMOTE Control
REMOTE/On
H3
REMOTE/Off
1 2 3 4 5
13 14 15 16 17 18 19 20 21 22
LOCAL
0
REMOTE
On
Off
Operate Box
1 2 3 4 5
13 14 15 16
Off
On
H3
REMOTE Control

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