

1. Kit for trasformation of an old Emax fixed part to a new one.

New Emax fixed part share the same dimensions, terminals and accessories with the old Emax fixed part.

The differences refer to electrical diagrams (and consequently to auxiliaries connections to sliding contacts and relevant label) and anti-racking bolts.

All new Emax moving parts can be inserted into equivalent (breaking capacity and number of poles) old Emax fixed parts according to the procedure described in the following document.

The present document describes how to transform an old Emax fixed part into a new one and points out the different auxiliary connections when a new Emax moving part is going to substitute an old Emax moving part.

In practice the transformation entiles the following steps:

- to put a new sliding contacts label on old fixed part;
- to change few auxiliary electrical connections to the sliding contacts, on the basis of the new Emax electrical diagrams (corresponding to the new label);
- to change the position of anti-racking bolts on the fixed part.

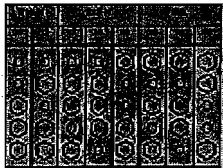
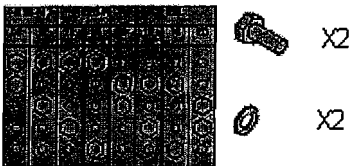
In order to realize this trasformation, ABB SACE provides the relevant kit that can be ordered with the following code **1SDA059645R1**.

The kit contains:

- the new label



- the kit of anti-racking bolts (2 hexagonal screws, 2 washers and 2 hexagonal bolts).



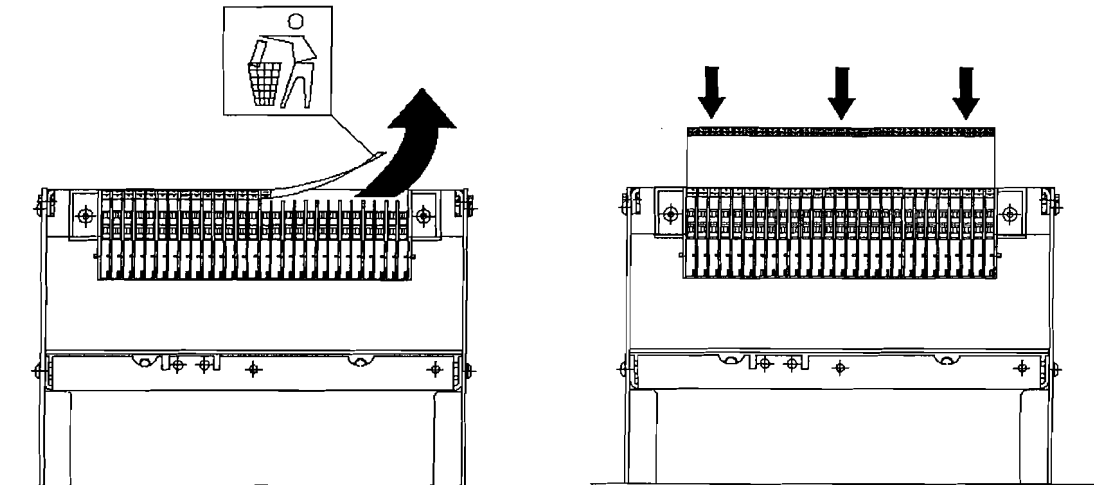
- the new anti-racking label to put on fixed part.

2. Allowed transformations

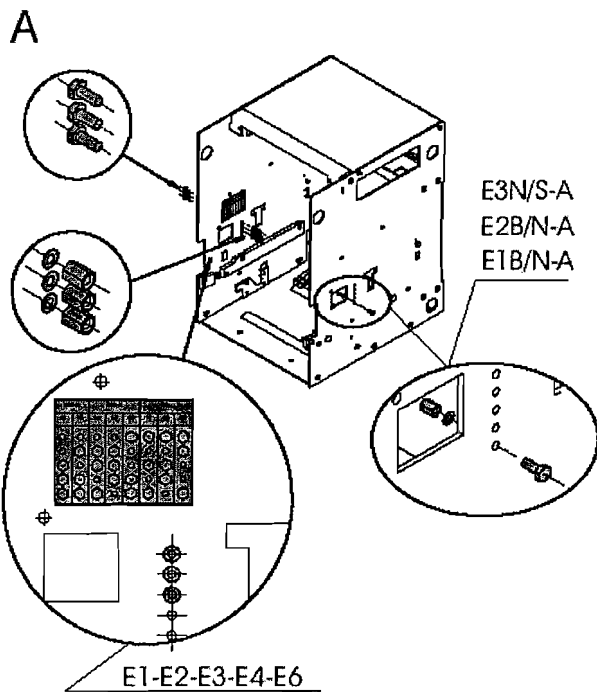
New Mobile Part	Old fixed part (Code)	Change of old fixed part in new FP	Old bolts position on FP	New bolts position on FP
E1 B-N	1SDA037821R1 (3P) 1SDA037821R1 (4P)	Possible, with transformation kit		
E2 B-N	1SDA037822R1 (3P) 1SDA037827R1 (4P)	Possible, with transformation kit		
E2S	1SDA037822R1 (3P) 1SDA037827R1 (4P)	Not possible		
E2L	1SDA037822R1 (3P) 1SDA037827R1 (4P)	Possible, with transformation kit		
E3N-S-H-V	1SDA037823R1 (3P) 1SDA037828R1 (4P)	Possible, with transformation kit		
E3L	1SDA037823R1 (3P) 1SDA037828R1 (4P)	Possible, with transformation kit		
E4S-H-V	1SDA037824R1 (3P) 1SDA037829R1 (4P)	Possible, with transformation kit		
E6H-V	1SDA037825R1 (3P) 1SDA037830R1 (4P)	Possible, with transformation kit		

3. Transformation procedure

1. Change of label



2. Change of anti-racking bolts position and anti-racking label on fixed parts





Change of connections on terminal box: PR122-PR112 (same colours for same connections)

PR 112/P		PR 112/P	
charge spring motor (-)	charge spring motor (-)	charge spring motor (-)	charge spring motor (-)
contact for spring charged	contact for spring charged	contact for spring charged	contact for spring charged
trip contact S51 (com)	trip contact S51 (NC)	trip contact S51 (com)	trip contact S51 (NC)
trip contact S51 (NA)	Trip reset	trip contact S51 (NA)	T10
Ne external (TA)	VT Ne	Ne external (TA)	Ne external (TA)
Ne external (CS)	VT L1	Ne external (CS)	Ne external (CS)
SGR	Ne external	SGR	SGR
K51/YO (PR112/DP)	SGR	K51/YO (PR112/DP)	K51/YC (PR112/DP)
COM System bus	Local bus (A)	COM System bus	COM Local bus
COM for PR112PD	Vaux (+)	COM for PR112PD	Aux spring charged (PR112PD)
Aux racked-in (PR112/DP)	K51/P4 (PR120K)	Aux racked-in (PR112/DP)	Aux NA (PR112PD)
Aux NC (PR112PD) - VT L1-Ne	K51 COM - K51/P3 - Aux Q/9	Aux NC (PR112PD) - VT L1-Ne	COM Zone selectivity
K51/Szout (Dfout)	K51/IN1 (-) - K51/P2 - Aux Q/10	K51/Szout (Dfout)	K51/Zin PR112P
Aux Q/9 - Contact release tripped K51/YO1	K51/IN1 (+) - K51/P1 - Aux Q/7	Aux Q/9 - Contact release tripped K51/YO1	Aux Q/9 - Contact release tripped K51/YO1
Aux Q/10 - Programmable contact K51/P1	K51 COM - Aux Q/8	Aux Q/10 - Programmable contact K51/P1	Aux Q/10 - Programmable contact K51/P1
Aux Q/7 - microP fault	K51/Gzin - Aux Q/5	Aux Q/7 - microP fault	Aux Q/7 - microP fault
Aux Q/8 - Vaux (-)	K51/Szin - Aux Q/6	Aux Q/8 - Vaux (-)	Aux Q/8 - Vaux (+)
Aux Q/5 - Local Bus (B)	Aux Q/3	Aux Q/5 - Local Bus (B)	Aux Q/5 - Local Bus (A)
Aux Q/6 - System Bus (B)	Aux Q/4	Aux Q/6 - System Bus (B)	Aux Q/6 - System Bus (A)
Aux Q/3	Aux Q/1	Aux Q/3	Aux Q/3
Aux Q/4	Aux Q/2	Aux Q/4	Aux Q/4
Aux Q/1	System Bus (A)	Aux Q/1	Aux Q/1
Aux Q/2	K51/YO (PR120/D-M)	Aux Q/2	Aux Q/2
System Bus (B)	Closing coil YC (-)	System Bus (B)	Closing coil YC (-)
K51/YC (PR120/D-M)	Opening coil YO (-)	K51/YO (PR120/D-M)	Opening coil YO (-)
Closing coil YC (+)	Undervoltage YU-sec. op. coil YO2 (+)	Closing coil YC (+)	Undervoltage YU-sec. op. coil YO2 (-)
Opening coil YO (+)	YU de-energized	Opening coil YO (+)	YU de-energized
Undervoltage YU-sec. op. coil YO2 (-)		Undervoltage YU-sec. op. coil YO2 (-)	
YU de-energized		YU de-energized	

charge spring motor (+)	charge spring motor (-)	charge spring motor (-)	charge spring motor (-)
contact for spring charged	contact for spring charged	contact for spring charged	contact for spring charged
trip contact S51 (com)	trip contact S51 (NC)	trip contact S51 (com)	trip contact S51 (NC)
trip contact S51 (NA)	Trip reset	trip contact S51 (NA)	Trip reset
Trip reset	VT Ne	Trip reset	VT Ne
VT L2	VT L1	VT L2	VT L1
VT L3	Ne external	VT L3	Ne external
Ne external	SGR	Ne external	SGR
SGR	Local bus (A)	SGR	Local bus (A)
Local bus (B)	Vaux (+)	Local bus (B)	Vaux (+)
Vaux (-)	K51/P4 (PR120K)	Vaux (-)	K51/P4 (PR120K)
Aux Q/9 - K51/P4	K51 COM - K51/P3 - Aux Q/9	Aux Q/9 - K51/P4	K51 COM - K51/P3 - Aux Q/9
Aux Q/10 - K51/P3	K51/IN1 (-) - K51/P2 - Aux Q/10	Aux Q/10 - K51/P3	K51/IN1 (-) - K51/P2 - Aux Q/10
Aux Q/7 - K51/P2	K51/IN1 (+) - K51/P1 - Aux Q/7	Aux Q/7 - K51/P2	K51/IN1 (+) - K51/P1 - Aux Q/7
Aux Q/8 - K51/P1	K51 COM - Aux Q/8	Aux Q/8 - K51/P1	K51 COM - Aux Q/8
Aux Q/5 - K51/Gzout	K51/Gzin - Aux Q/5	Aux Q/5 - K51/Gzout	K51/Gzin - Aux Q/5
Aux Q/6 - K51/Szout	K51/Szin - Aux Q/6	Aux Q/6 - K51/Szout	K51/Szin - Aux Q/6
Aux Q/3	Aux Q/3	Aux Q/3	Aux Q/3
Aux Q/4	Aux Q/4	Aux Q/4	Aux Q/4
Aux Q/1	Aux Q/1	Aux Q/1	Aux Q/1
Aux Q/2	Aux Q/2	Aux Q/2	Aux Q/2
System Bus (B)	System Bus (A)	System Bus (B)	System Bus (A)
K51/YC (PR120/D-M)	K51/YO (PR120/D-M)	K51/YC (PR120/D-M)	K51/YO (PR120/D-M)
Closing coil YC (+)	Closing coil YC (-)	Closing coil YC (+)	Closing coil YC (-)
Opening coil YO (+)	Opening coil YO (-)	Opening coil YO (+)	Opening coil YO (-)
Undervoltage YU-sec. op. coil YO2 (+)	Undervoltage YU-sec. op. coil YO2 (-)	Undervoltage YU-sec. op. coil YO2 (+)	Undervoltage YU-sec. op. coil YO2 (-)
YU de-energized	YU de-energized	YU de-energized	YU de-energized

Important: new Emax connections are reported on technical catalogues and installation manuals:

- Technical catalogues 1SDC200006D0202-203, pag 8/1...8/15
- Installation manuals 1SDH000460R0001-2, pag 146...155

4. Change of connections on terminal box: PR123-PR113 (same colours for same connections)

PR 113P

charge spring motor (-) contact for spring charged	charge spring motor (-) contact for spring charged	T10	T6	C3-K19	CC2	K15-T9	K13-T8	K11	K9	53-K7	51-K5	43-K3	41-K1	31-W1	23	21	13	11	C2	C12	D2	D14-K18
trip contact S51 (NC)	trip contact S51 (NC)																					
VT L3-Ne	VT L3-Ne																					
Ne external (TA)	Ne external (TA)																					
Ne external (CS)	Ne external (CS)																					
SGR	SGR																					
K51/NC - Programmable K51/P2	K51/NC - Programmable K51/P2																					
COM Local bus	COM Local bus																					
VT L3-Ne (PR113)	VT L3-Ne (PR113)																					
VT L2-Ne	VT L2-Ne																					
COM Zone selectivity PR113P	COM Zone selectivity PR113P																					
K51/SZin (DFin)	K51/SZin (DFin)																					
Aux Q/9 - Contact release tripped	Aux Q/9 - Contact release tripped																					
Aux Q/10 - Programmable contact K51/P1	Aux Q/10 - Programmable contact K51/P1																					
Aux Q/7 - microP fault	Aux Q/7 - microP fault																					
Aux Q/8 - Vaux (+)	Aux Q/8 - Vaux (+)																					
Aux Q/5 - Local Bus (A)	Aux Q/5 - Local Bus (A)																					
Aux Q/6 - System Bus (A)	Aux Q/6 - System Bus (A)																					
Aux Q/3	Aux Q/3																					
Aux Q/4	Aux Q/4																					
Aux Q/1	Aux Q/1																					
Aux Q/2	Aux Q/2																					
Closing coil YC (-)	Closing coil YC (-)																					
Opening coil YO (-)	Opening coil YO (-)																					
Undervoltage/U-sec. op. coil YO2 (-)	Undervoltage/U-sec. op. coil YO2 (-)																					
YU de-energized - K51/GZout(DBout)	YU de-energized - K51/GZout(DBout)																					

PR 123

charge spring motor (-) contact for spring charged	charge spring motor (-) contact for spring charged	R1	T1	T3	T7	K1	K3	53-K5	51-K7	43-K9	41-K11	33-K13	31-K15	23	21	13	11	W1	C13	C2	C12	D2	D14
trip contact S51 (NC)	trip contact S51 (NC)																						
Trip reset	Trip reset																						
VT Ne	VT Ne																						
VT L1	VT L1																						
Ne external	Ne external																						
SGR	SGR																						
Local bus (A)+	Local bus (A)+																						
Vaux (+)	Vaux (+)																						
K51/P4 - PR120K	K51/P4 - PR120K																						
K51 COM - K51/P3 - Aux Q/9	K51 COM - K51/P3 - Aux Q/9																						
K51/M1 (-) - K51/P2 - Aux Q/10	K51/M1 (-) - K51/P2 - Aux Q/10																						
K51/M1 (+) - K51/P1 - Aux Q/7	K51/M1 (+) - K51/P1 - Aux Q/7																						
K51 COM - Aux Q/8	K51 COM - Aux Q/8																						
K51/Gzin (DBin) - Aux Q/5	K51/Gzin (DBin) - Aux Q/5																						
K51/Szin (DFin) - Aux Q/6	K51/Szin (DFin) - Aux Q/6																						
Aux Q/3	Aux Q/3																						
Aux Q/4	Aux Q/4																						
Aux Q/1	Aux Q/1																						
Aux Q/2	Aux Q/2																						
System Bus (A)	System Bus (A)																						
K51/NC (PR120/D-M)	K51/NC (PR120/D-M)																						
Closing coil YC (+)	Closing coil YC (+)																						
Opening coil YO (+)	Opening coil YO (+)																						
YU-YO2 (+)	YU-YO2 (+)																						
YU de-energized	YU de-energized																						

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