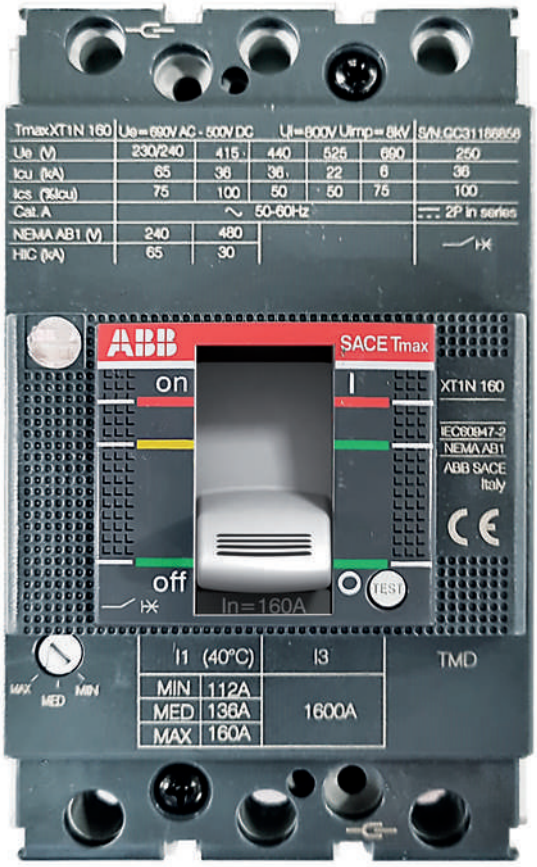
INSTRUCTION HANDBOOK

1SDH002291A1001 - ECN000285442

Tmax XT XT1

Disassembly instructions



1. SCOPE

Scope of this document is to illustrate the step-by-step disassembly process of ABB SACE Tmax XT XT1 moulded case circuit breaker.
Document is focused on Tmax XT XT1 3p IEC version, anyway it allows to cover other versions of Tmax XT XT1 circuit breaker with just few slight differences to be taken into account.

2. SAFETY NOTES

Before proceeding with any disassembly operation, it's mandatory to put the circuit breaker in open position.
Disassembly operations of circuit breakers must be performed by qualified and skilled personnel in the electrical field (IEV 195-04-01: person with relevant education and experience to enable him or her to perceive risks and to avoid hazards which electricity can create) and having a detailed knowledge of circuit breakers.
Disassembly activites must be performed in an ergonomic workspace able to ensure protection of persons demanded to perform disassembly activities.
Applicable national legislation and international standards in force at the time of disassembly of circuit breakers must be taken into account in addition to prescriptions illustrated in this document.
ABB declines any responsibility for injury to people or damage to property resulting from a failure to comply with the instructions set out in this document and with any applicable safety standard.

3. PERSONAL PROTECTIVE EQUIMENT (PPE)

When performing disassembly, following safety Personal Protective Equipment (PPE) must be worn:

Gloves



Glasses



Safety shoes



Protective clothes



4. TOOLS

Disassembly operations require the use of tools (e.g. screwdriver, torx key, pliers, …); tools to be used are specified inside each phase of the disassembly process (see Chapter 6).

5. SEPARATE TREATMENT

Table below lists parts requiring a separate treatment adding information about part location inside circuit breakers and related quantity.

Description	Position inside circuit breaker	Quantity
Cap kits	In correspondence of circuit breaker connection terminals	6
Plug in the left hole	In the left hole of the circuit breaker	1
Sides of the operating mechanism	Parts constituting the operating mechanism	2
Tripping shaft	Between the operating mechanism and the tripping groups	1
Trimmer	Mounted on the circuit breaker cover	1

If disassembled parts require a separate treatment a specific indication is provided inside each phase with reason why for the separate treatment (see Chapter 6).

6. DISASSEMBLY PROCESS

Circuit breakers disassembly process is constituted by a sequence of operations to be performed on products after their dismounting from original installation. For each phase following information is provided:

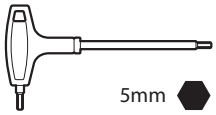
- Part/parts to be disassembled (title of the phase)
- Tools to be used
- Description of actions to be performed
- Pictures showing actions to be performed
- List, quantity and picture of disassembled parts with an indication about separate treatment (when applicable)
- In case of potential hazards signal below is reported



6.1 PHASE 1 – CAP KITS

Tools

Allen key



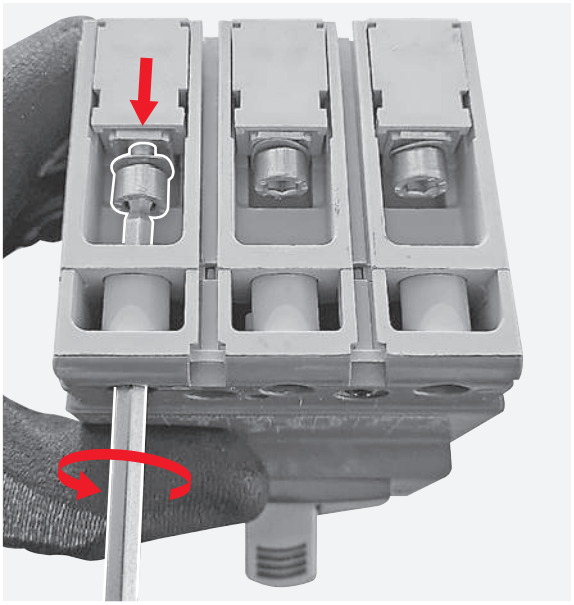
Flat screwdriver



Actions to be performed

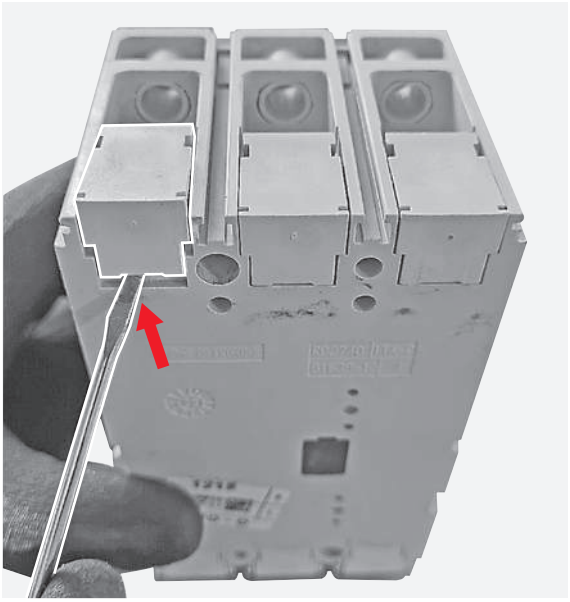
1

By means of the allen key remove the screws and the related washers connected with the cap kits.

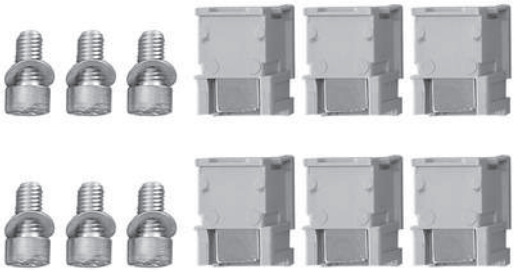


2

Insert the flat screwdriver as shown in the picture and push it up in order to remove the cap kits.



Disassembled parts



- 6 screws and related washers (Metal)
- 6 cap kits (Plastic and Metal) SEPARATE TREATMENT (Thermoplastics containing brominated flame retardants)

6.2 PHASE 2 – FRONTAL

Tools

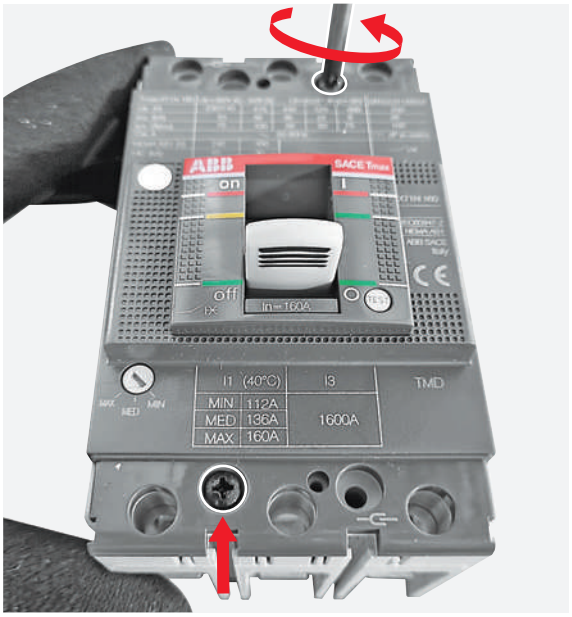
Cross screwdriver



Actions to be performed

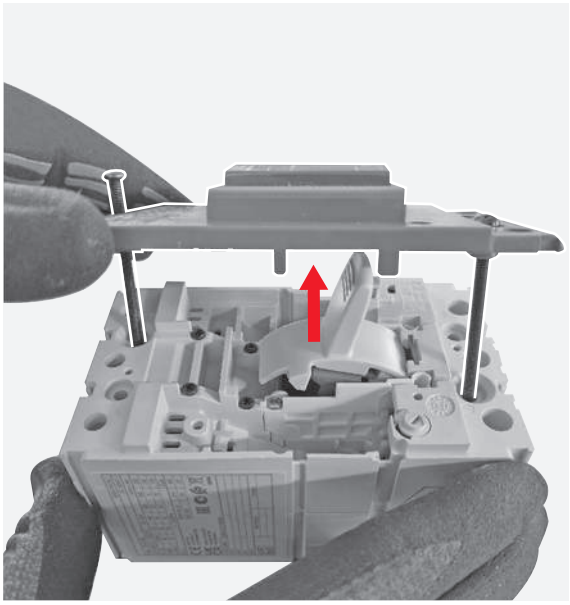
3

By means of the cross screwdriver unscrew the 2 screws fixing the frontal to the circuit breaker main structure.

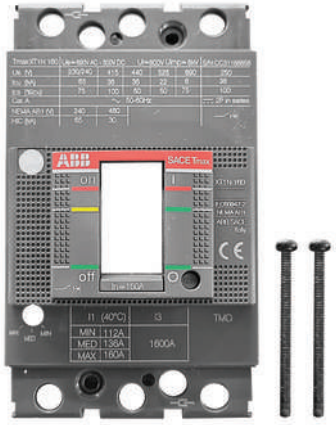


4

Remove the frontal together with the 2 fixing screws.



Disassembled parts



- 1 frontal (Plastic)
- 2 screws (Metal)

6.3 PHASE 3 – PLUG IN THE LEFT HOLE *

Tools

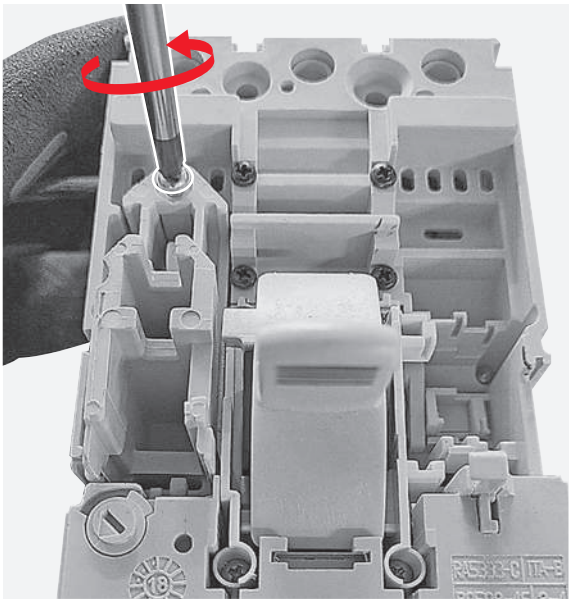
Cross screwdriver



Actions to be performed

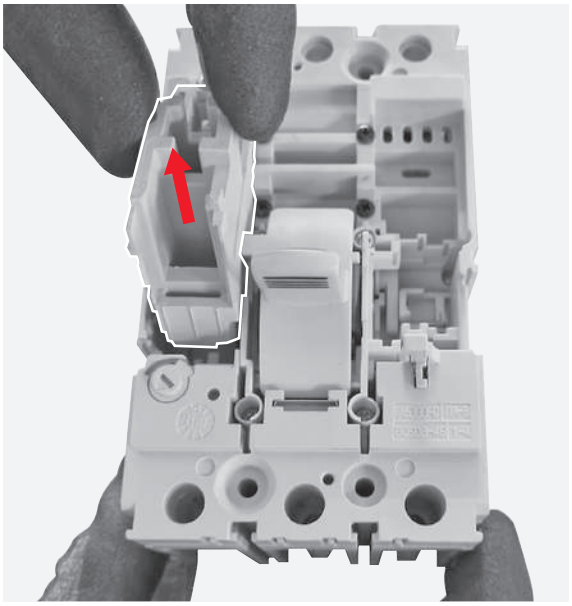
5

By means of the cross screwdriver unscrew the screw fixing the plug located in the left hole of the circuit breaker main structure.

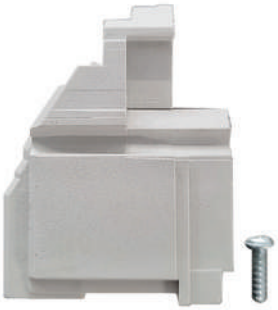


6

Manually remove the plug together with the fixing screw.



Disassembled parts



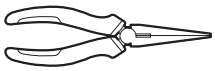
- 1 screw (Metal)
- 1 plug (Plastic) SEPARATE TREATMENT (Thermoplastics containing brominated flame retardants)

*Applicable to circuit breakers with S and H breaking capacities only.

6.4 PHASE 4 – TOGGLE

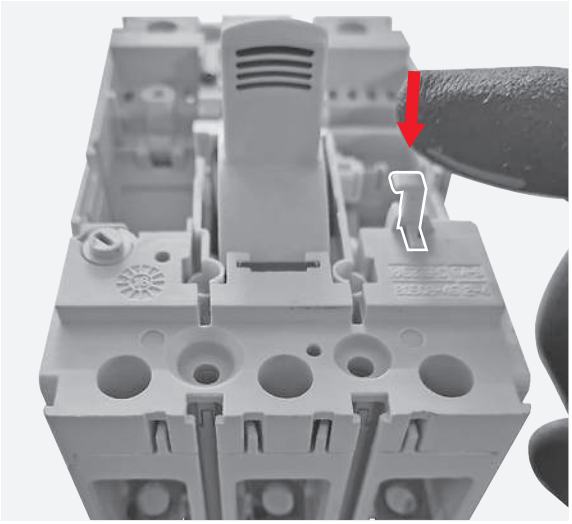
Tools

Pliers

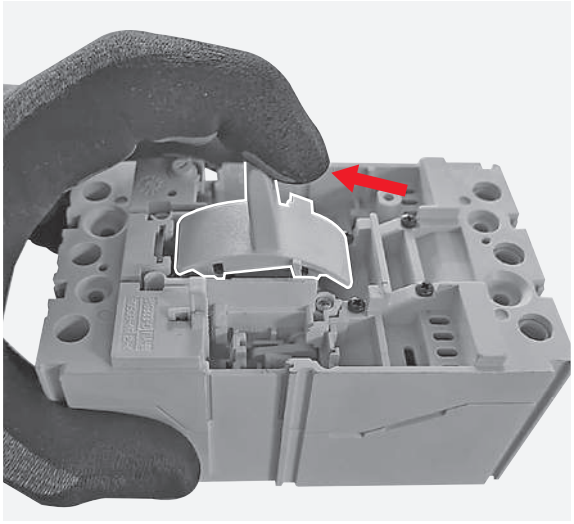


Actions to be performed

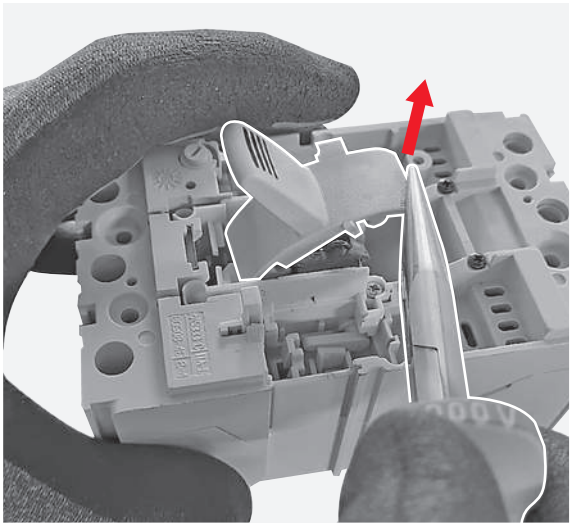
7
Push the trip test button.



8
Slightly push the toggle towards the bottom part of the circuit breaker.



9
By means of the pliers take the upper part of the toggle and remove it.



Disassembled part



- 1 toggle (Plastic)

6.5 PHASE 5 – OPERATING MECHANISM

Tools

Flat screwdriver

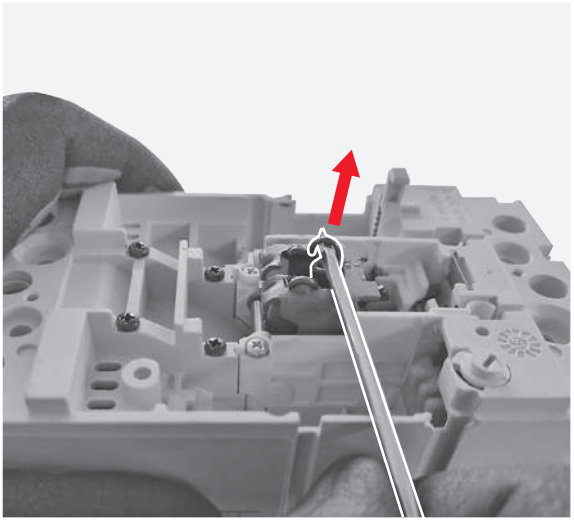


Cross screwdriver

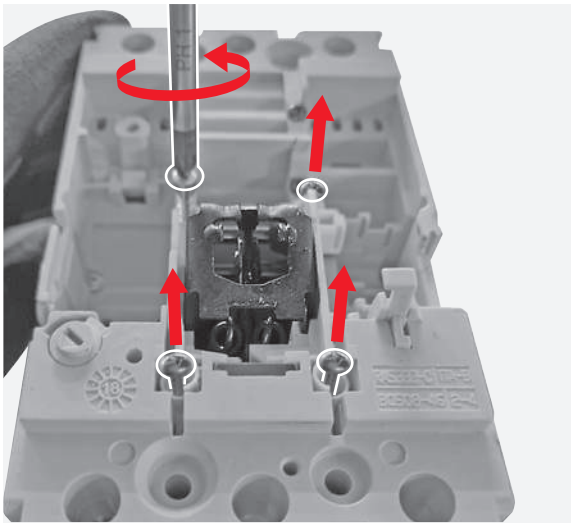


Actions to be performed

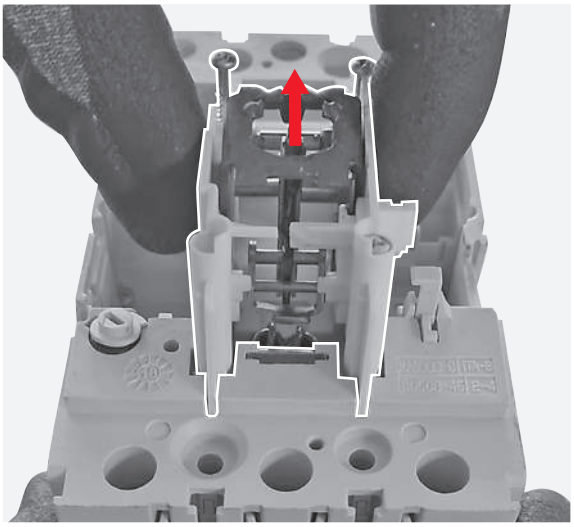
10
By means of the flat screwdriver unhook the 2 springs mounted on the operating mechanism.



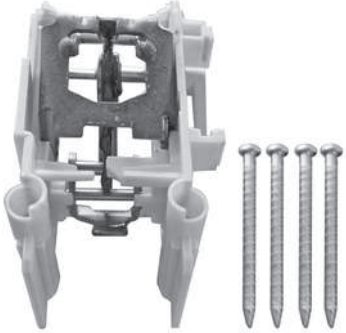
11
By means of the cross screwdriver unscrew the 4 screws fixing the operating mechanism to the circuit breaker main structure.



12
Manually remove the operating mechanism.



Disassembled parts



- 4 screws (Metal)
- 1 operating mechanism (Plastic and Metal) SEPARATE TREATMENT (Thermoplastics containing brominated flame retardants)

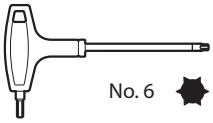
6.6 PHASE 6 – CIRCUIT BREAKER COVER AND TRIPPING SHAFT

Tools

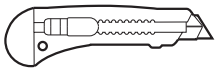
Cross screwdriver



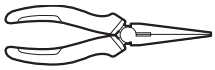
Torx key



Cutter



Pliers

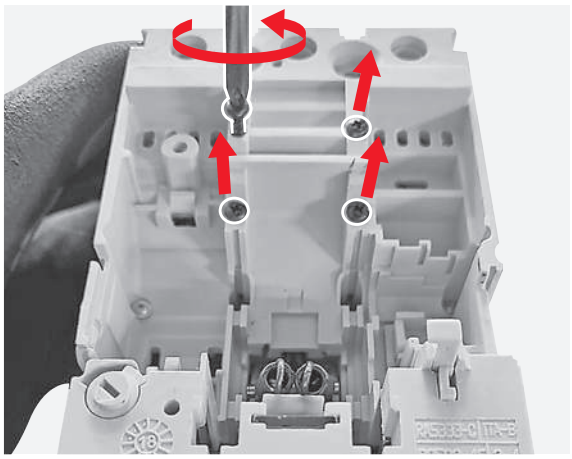


Flat screwdriver

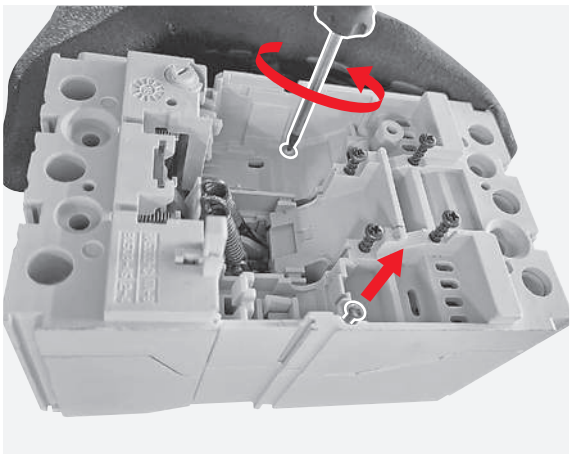


Actions to be performed

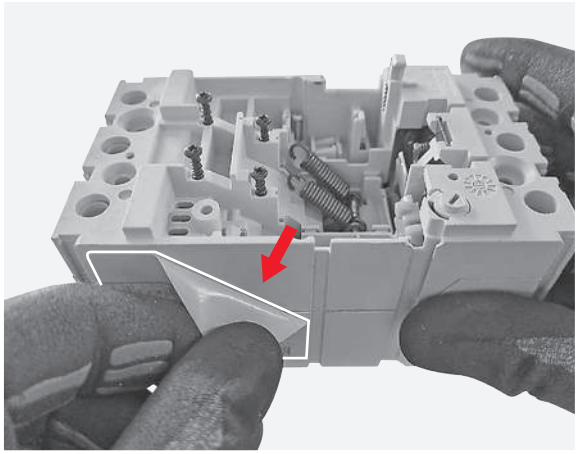
13
By means of the cross screwdriver unscrew the 4 screws located in correspondence of the removed operating mechanism fixing the circuit breaker cover to the circuit breaker base.



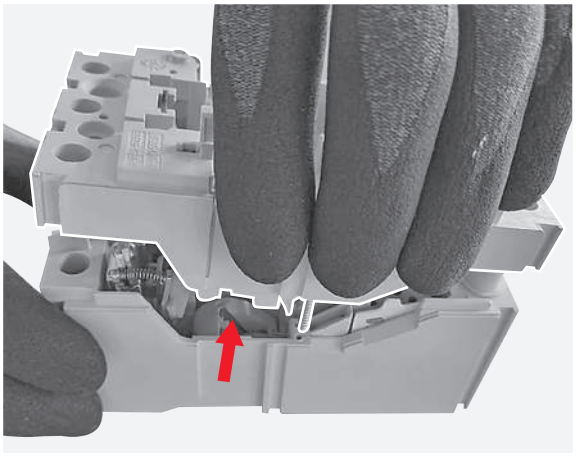
14
By means of the torx key unscrew the 2 screws located on the circuit breaker sides fixing the circuit breaker cover to the circuit breaker base.*



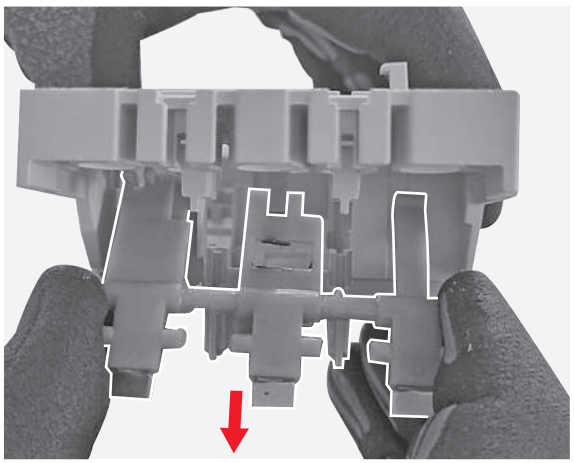
15
By means of the cutter start removing the label located on the left side of the circuit breaker and manually complete the operation.



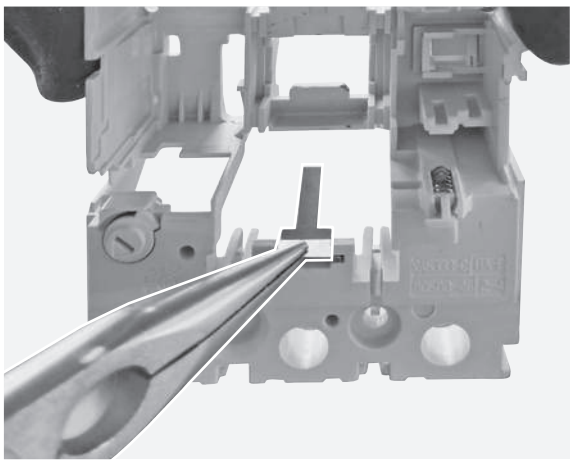
16
Manually lift the circuit breaker cover.



17
Manually remove the tripping shaft from the circuit breaker cover.

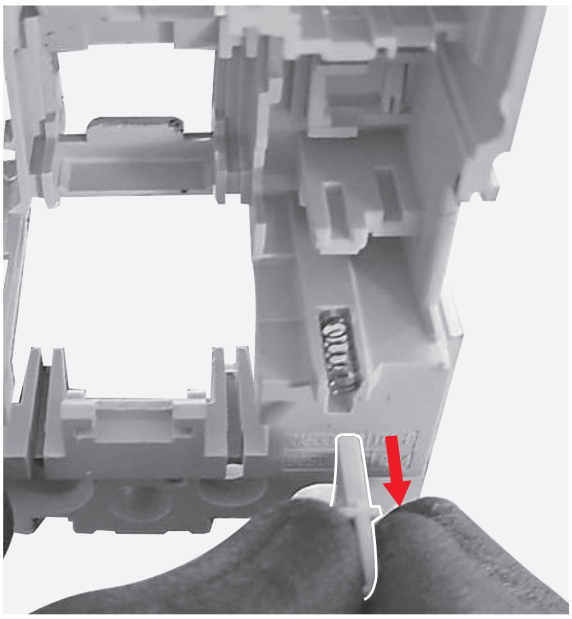


18
By means of the pliers remove the lever located in the bottom part of the circuit breaker cover.

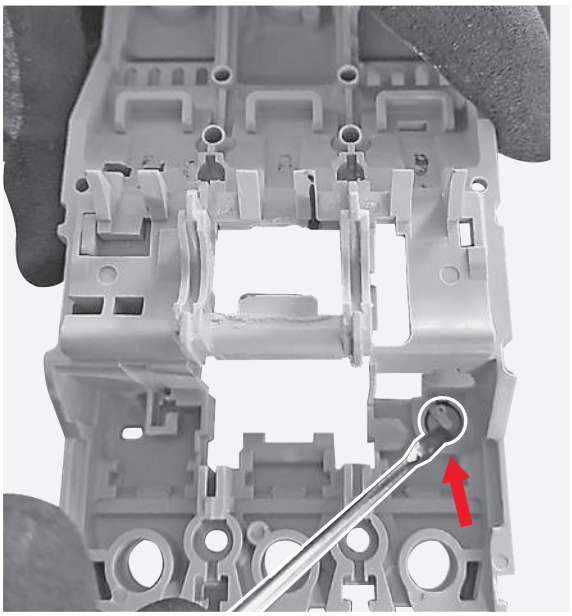


*The 2 screws are present on circuit breakers with S and H breaking capacities only.

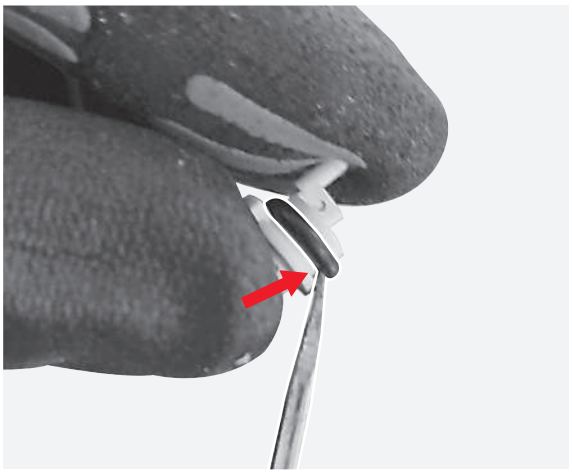
19
Manually remove the trip test button and after remove the spring behind it.



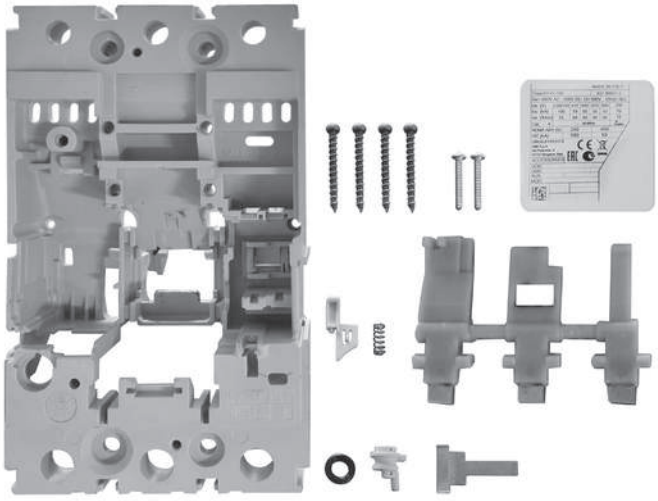
20
By means of the flat screwdriver push out from the circuit breaker cover the trimmer.



21
By means of the flat screw driver remove the gasket from the trimmer.



Disassembled parts



- 4+2 screws (Metal)
- 1 label (Adhesive paper)
- 1 circuit breaker cover (Plastic)
- 1 tripping shaft (Plastic and Metal) SEPARATE TREATMENT (Thermoplastics containing brominated flame retardants)
- 1 lever (Metal)
- 1 trip test button (Plastic)
- 1 spring (Metal)
- 1 trimmer (Plastic) SEPARATE TREATMENT (Thermoplastics containing brominated flame retardants)
- 1 gasket (Rubber)

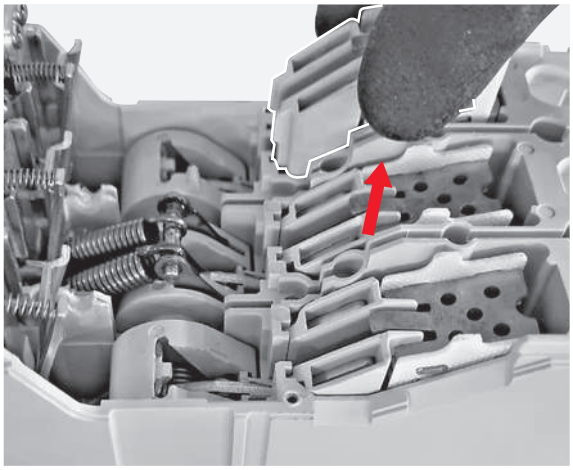
6.7 PHASE 7 – ARCHING CHAMBERS

Tools

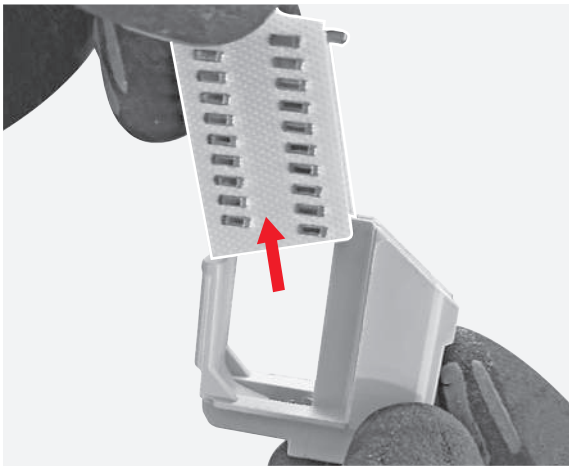
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Actions to be performed

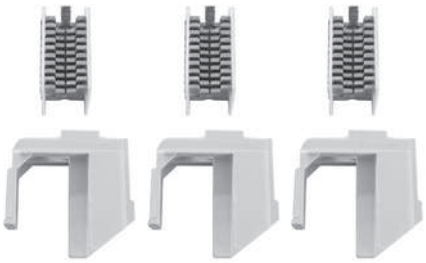
22
Manually remove arching chambers and their supports.



23
Manually separate the arching chambers from their supports.



Disassembled parts



- 6 arching chambers (Plastic or GPO-3 and Metal) *
- 6 arching chambers supports (Plastic and Metal)

*Arching chambers sides of circuit breakers with B, C and N breaking capacities are made of GPO-3 while arching chambers sides of circuit breakers with S and H breaking capacities are made of plastic.

6.8 PHASE 8 – MAIN CONTACTS ASSEMBLY AND UPPER TERMINALS

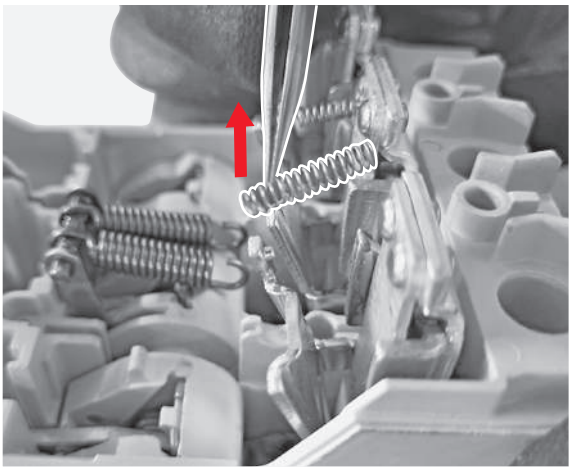
Tools

Pliers

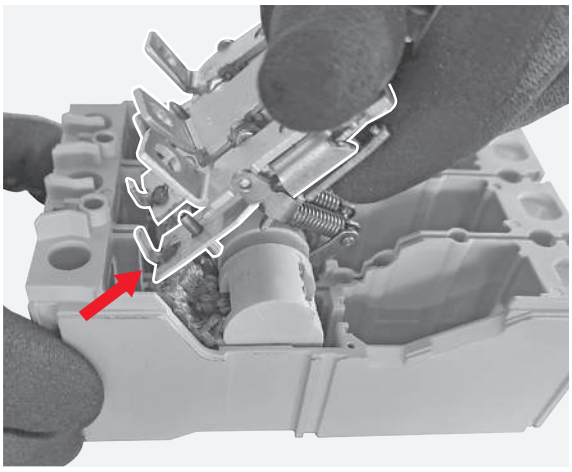


Actions to be performed

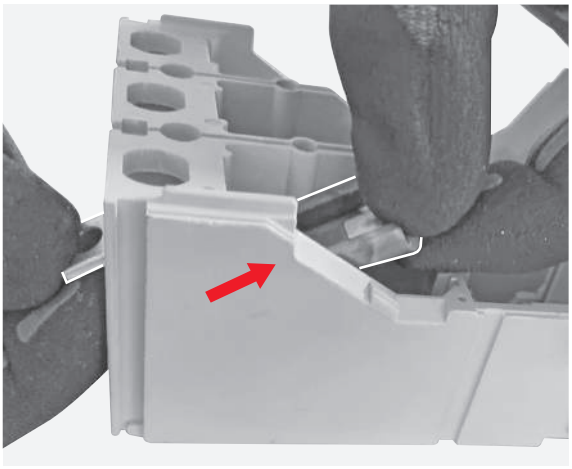
24
By means of the pliers remove the springs from thermal/magnetic tripping groups.



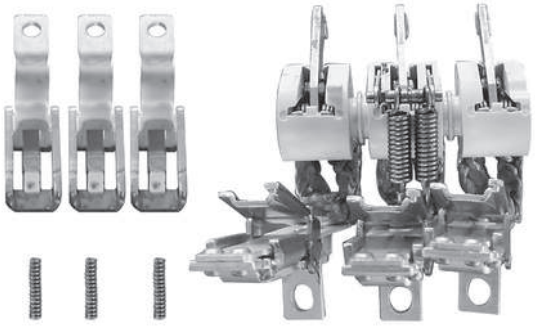
25
Manually push the lower terminals of the circuit breaker as indicated by the arrow and remove the main contacts assembly.



26
Manually push the upper terminals as indicated by the arrow and after remove them.



Disassembled parts



- 3 springs (Metal)
- 1 main contacts assembly (Plastic and Metal)
- 3 upper terminals (Metal)

6.9 PHASE 9 – CIRCUIT BREAKER BASE

Tools

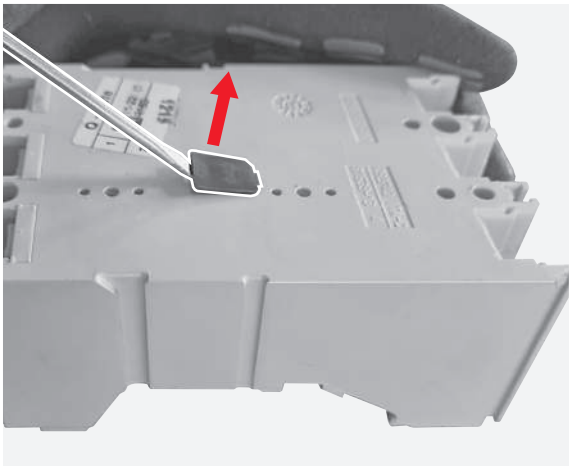
Flat screwdriver



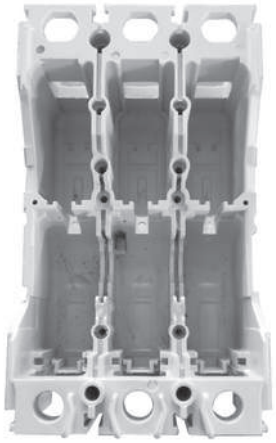
Actions to be performed

27

By means of the flat screwdriver remove the plug located in the back part of the circuit breaker base.



Disassembled parts





- 1 circuit breaker base (Plastic)
- 1 plug (Rubber)

7. ENERGY CONSUMPTION FOR CIRCUIT BREAKERS DISASSEMBLY

Since all disassembly operations illustrated in this document are manual, the CO_2 equivalent emissions can be considered null/negligible.

—
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