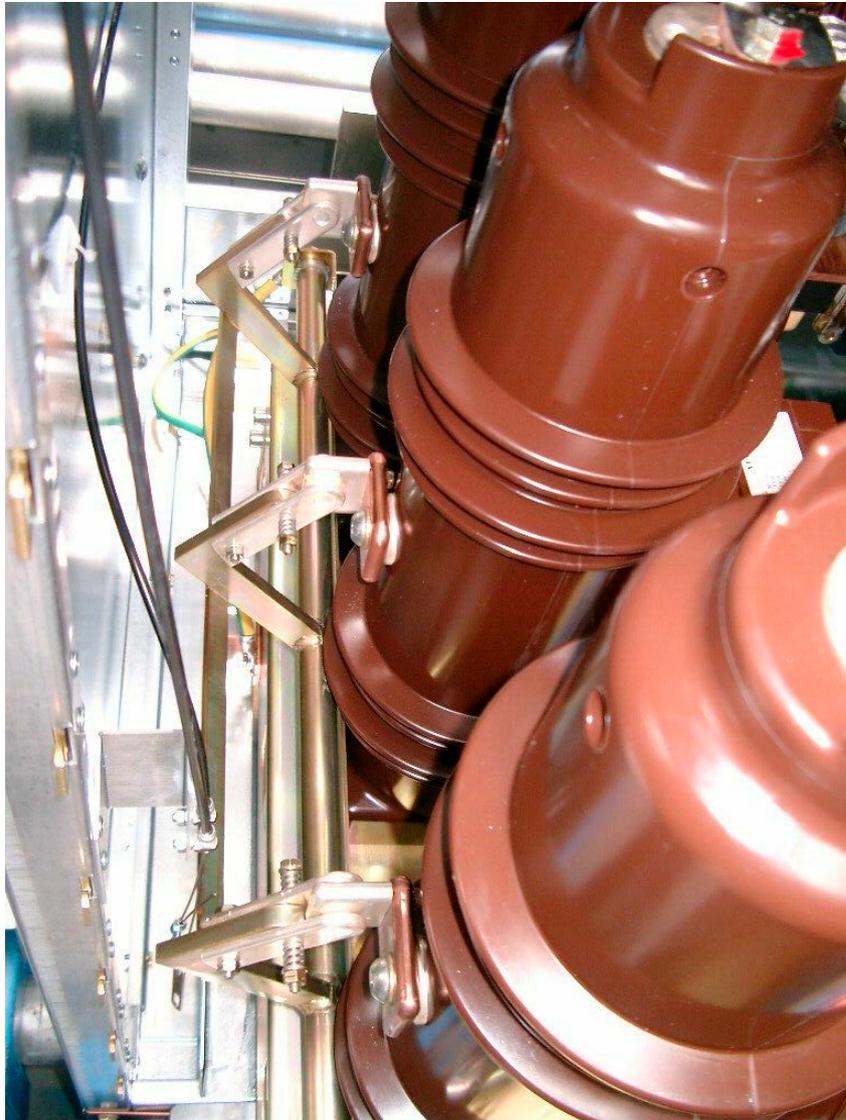


USER MANUAL ARC-KILLER SV-25



SV250001 ARC-KILLER FOR DF-D



READ THIS DOCUMENT BEFORE OPERATION





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2. PREFACE

This document is intended as a reference for qualified and trained operators to transport, operate and maintain the arc-killer in a safe and economical way.

In the documentation the words “left”, “right”, “front” and “behind” are used to indicate a specific part of the arc-killer. The starting point is always the position of the operator, standing in front of the arc-killer, facing the arc-killer.

2.1. Related documentation

The following technical documentation is available about the DF-2 medium-voltage switchgear:

- User Manual AG602601
- Spare Parts List AG608101
- Technical Brochure AG601103 (NL) or AG601204 (FR)
- Coupling Arc-Killer
SV-25 to VA-2 cubicle AG647107 (NL) or AG647207 (FR)

2.2. General safety directions and instructions

The general applicable safety guidelines are included in full in the user manual AG602601, pages xi and xii.

2.3. Intended Use

The arc-killer is designed exclusively to offer protection against the negative consequences of an internal arc in medium-voltage switchgear. Both in the cable and bus bar compartment.

3. TECHNICAL SPECIFICATION

KEMA type tested according to IEC 60298 appendix AA all 6 criteria: arc extinguishing in less than 50ms.

4. TRANSPORT AND STORAGE

The general applicable safety guidelines are included in full in the user manual AG602601, page 3-1.

We reiterate that:

Cubicles that fell over or have otherwise been damaged always **HAVE TO BE RETURNED** to DEBA nv for a checkup.

5. OPERATIONAL PROCEDURE SV-25

5.1. Operational procedure during first operation

After the installation and before the actual start-up of the medium-voltage cubicle:

- Observe whether the overpressure flaps at the rear of the cubicle are absolutely free of damage or distortion.

DF-D type cubicles are by default delivered as follows:

1. Load break switch OPEN – earthing switch closed. In this position, the door is always removable.
2. Arc-killer CLOSED – connected to the earth and coupled to arc-killer SV-25 on VA-2 cubicle (see AG647107)

If the load break switch is removed from the cubicle first, the connection between the pulling cable (cubicle) with the SV-25 arc-killer on the circuit breaker VA-2 HAS TO BE interrupted (please refer to AG647107: coupling arc-killer SV-25 to VA-2 with cubicle).

Arming Arc-Killer VA-2 before start-up of the cubicle:

After withdrawing the circuit breaker into place, the coupling Arc-Killer SV-25 to VA-2 has to be made (see AG647107) and the arc-killer needs to be armed.

Always check whether the coupling has been made correctly before arming the Arc-Killer SV-25 (see AG647107: coupling Arc-Killer SV-25 to VA-2 with cubicle).

During the arming, the included Arc-Killer switch lever is placed in the drilling space of the main axis of the Arc-Killer (see photos 1 and 2).



photo 1

Main axis Arc-Killer

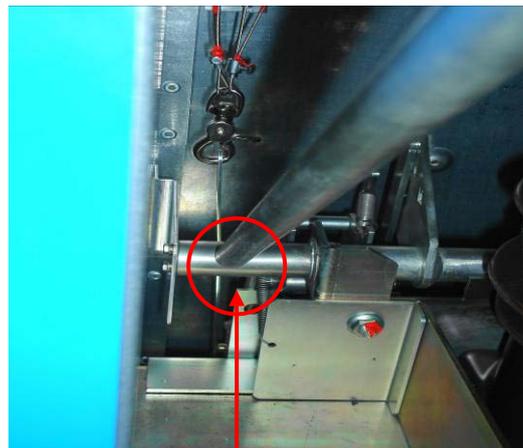


photo 2

Move lever into drilling hole

Simultaneously, with the left hand, the plate lever with a large horizontal springbar (back plate lever) is pulled left towards the frame, and with the right hand, the switch lever is also pulled left (photos 3 and 4).

The earthing knife is removed from the earthing blocks (Photo 5).

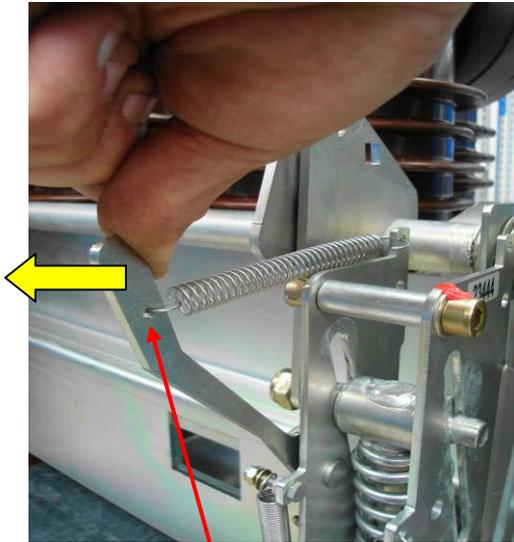


photo 3

Push rear plate lever with large horizontal spring left

Once earthing knife is removed from blocks, the plate lever can be released.

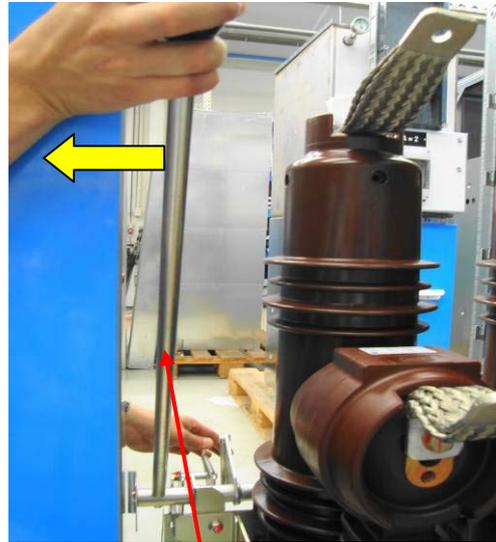


photo 4

Move lever left.

Once earthing knife is removed from blocks, hold lever in this position.

Now release the plate lever, BUT continue holding the switch lever (photo 4).

Earthing knife removed from blocks



photo 5

Pull the front-most plate lever (with a small horizontal spring) (photos 6 and 7) left until it almost touches the frame, ONLY THEN push the switch lever in the vertical position (photo 8).

Front-most plate lever

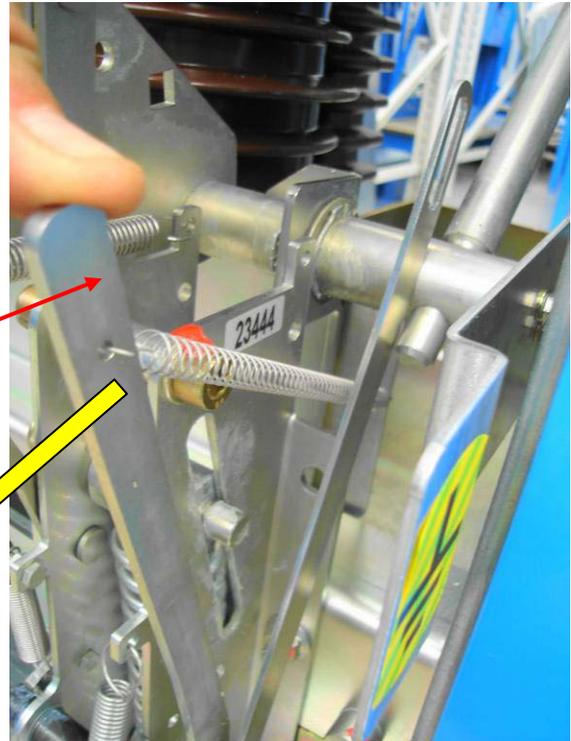


photo 6

Move left until it almost touches the frame

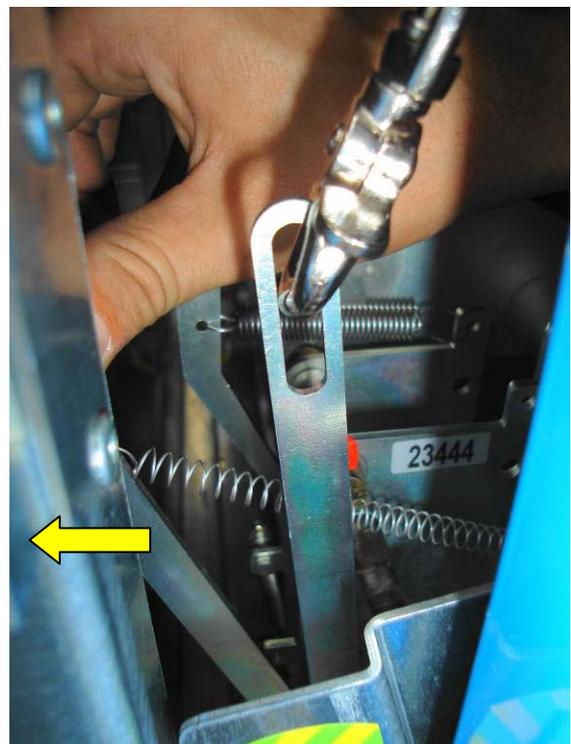


photo 7

Push switch lever further towards left side wall of cubicle.

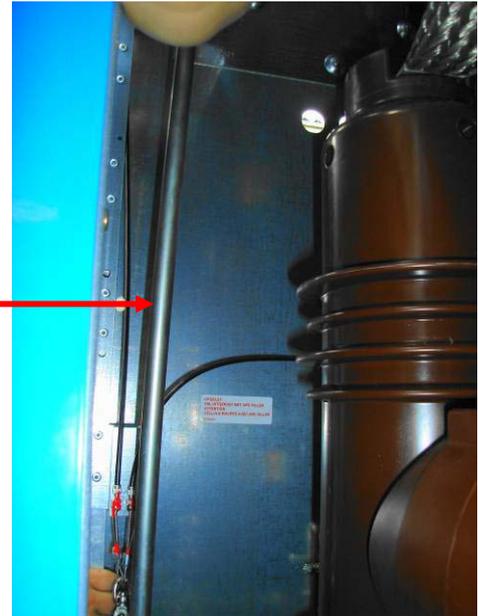


photo 8

Release the front-most plate lever and if no counterforce is felt on the switch lever, the switch lever can be released and removed from the cubicle.
The Arc-Killer is armed and in the OUT-position



If after releasing the front-most plate lever there is still counterforce on the switch lever, it signifies that the interaction between the plate lever and the switching bar was executed incorrectly. If this is the case, the final operation needs to be executed again until the arc-killer is fixed into place.



Only if the arc-killer is in the position “open and not in” can the cubicle be put into operation according to the safety guidelines 5.1 on page 5.1 and the operational procedure 5.2.1.2 “Opening the earthing switch and closing the load break switch” on page 5-3 of the user manual AG602601.



Before releasing the switch lever, make sure your hands are away from the plate lever to ensure that the plate “position indicator arc-killer” cannot slam into your hands if the arc-killer is not wound correctly (see photos 12 and 13).

5.2. User procedure after an internal arc is interrupted by the arc-killer

The voltageless cubicle is now taken out of service according to procedure 5.2.1.1 “Opening the load break switch and closing the earthing switch” on page 5-2 of the user manual AG602101. The door can now be opened.

The arc-killer rests on earthing blocks (earthed) (see photo 9).

The arc-killer is resting on top of earthing knife blocks.



photo 9



Depending on the cause of the internal arc, the circuit breaker will or will not be withdrawn from the cubicle (see AG647107).

- If possible, remedy the cause of the internal arc.
If the circuit breaker is withdrawn, follow the entire procedure 5.1. If not, follow the entire procedure starting from arming the arc-killer VA-2 before taking the cubicle into service.
- Check the condition of the arc-killer contacts and earthing knife blocks. They cannot be burned in severely.
- If necessary, remove the carbon black on the isolators and the poles.
- Clean the arc killer’s earthing knife spoons and earthing blocks, and regrease these components with a 0.5 mm, evenly applied layer of DEBA grease (order number GR002002).
- It is recommended to perform a 1 min. 38 kV «power frequency withstand test» to evaluate the status of the entire medium-voltage switchgear.

After solving the cause and after testing, the medium-voltage switchgear is ready for service, provided that the overpressure flaps at the rear are back to their original position and the cable connections are still intact (see photo 10).

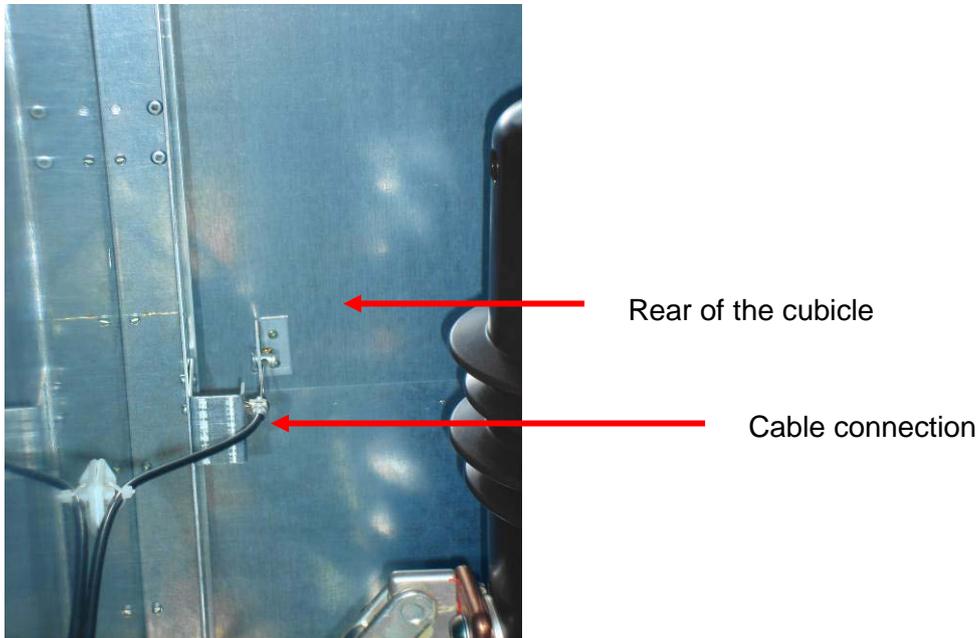


photo 10

5.3. Withdrawing circuit breaker with an armed arc-killer

Due to maintenance reasons, or changes on the grid, the medium-voltage switchgear might need to be taken out of service and the circuit breaker might need to be withdrawn.

An armed arc-killer will prevent the circuit breaker from being withdrawn. Because the earthing knife cannot protrude beyond the plating of the frame. The coupling between the arc-killer SV-25 and VA-2 with the cubicle needs to be interrupted (see AG647107).



To withdraw the circuit breaker from a cubicle no longer in service, the arc-killer **HAS TO BE** activated.

The activation needs to happen with the utmost care. The optimal method is to push the front-most plate lever (photo 11) with the small horizontal spring, completely left until the arc-killer activates. As a result, the activation of the arc-killer will prevent the hands from being injured by the tipping of the arc-killer position indicator (see photos 12 & 13).

The arc-killer will activate **IMMEDIATELY**. Ensure that no one is in direct vicinity of the arc-killer knives during the action.



Photo 11



Photo 12



Photo 13



Important: In order to prevent hand injuries when activating the arc-killer due to the switching of the arc-killer position indicator, the arc-killer always needs to be activated with the use of a switch lever from the right side behind the circuit breaker against the front-most plate lever.

If the circuit breaker is withdrawn, follow the entire procedure 5.1

If not, follow the entire procedure 5.1 starting from arming the arc-killer VA-2 before taken the cubicle into service.

6. MAINTENANCE

The general maintenance guidelines and maintenance procedures that apply here are fully included in user manual AG602601, pages 6-1 & 6-2.

The procedure 6.2.3 “greasing the earthing knife spoons and earthing blocks” on page 6-5 applies to the arc-killer as well as the standard earthing knife.



During the maintenance work, and when the doors are open, or when the arc-killer is armed, never touch the plate levers, nor the rear flaps.