NORME INTERNATIONALE
INTERNATIONAL STANDARD

CEI
IEC
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1987

AMENDEMENT 2
AMENDMENT 2

1995-03

Amendement 2

Disjoncteurs à courant alternatif à haute tension

Amendment 2

High-voltage alternating-current circuit-breakers

Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembé Genève, Suisse

IEC

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE E

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FOREWORD

This amendment has been prepared by sub-committee 17A: High-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

The text of this amendment is based on the following documents:

DIS	Report on voting
17A(CO)249	17A/441/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

Page 5

Add the new appendix JJ to the contents as follows:

Appendix JJ: Some remarks regarding multipliers for TRV values for second and third clearing poles, of Table IIF

Page 51

Introduce a new table IIF as follows:

Table IIF – Multipliers for transient recovery voltage values for second and third clearing poles for rated voltages above 72,5 kV, to be applied at three-phase testing

First-pole-to-clear factor	Multipliers			
	2nd clearing pole		3rd clearing pole	
	RRRV	u_c	RRRV	u_c
1,5	0,70	0,58	0,70	0,58
1,3	0,95	0,98	0,70	0,77
RRRV: Rate-of-rise of recovery voltage.				

In order to obtain the values of RRRV and u_c for the second and third clearing poles, the multiplier shall be applied to the values of RRRV and u_c of the first clearing pole at the relevant first-pole-to-clear factor.

The RRRV-multipliers are related to u_1/t_1; the times t_1 and t_2 are the same for the first, second and last clearing poles.

NOTES

1 For rated voltage for 72,5 kV and below, the values are under consideration.

2 See also appendix JJ.

3 This table is valid for test duty 1, 2, 3, 4 and 5. For test duty 5 the same reduction method shall be applied as indicated in IEC 427 for the first clearing pole. The figures are an approximation for test duties 1, 2 and 3 and are subject to further consideration.

4 The values are rounded values, depending on Z_0/Z_1 of the TRV-circuits, the time constant of the system and the rated voltages.

5 Values of table IIF for 1,5 first-pole-to-clear factor are only valid to breakers having less than one-quarter of a cycle difference in pole simultaneity.

Page 133

6.102.2 *Arrangement of circuit-breaker for tests*

Replace the text of 6.102.2 a) by:

a) *Single-enclosure type*

A three-pole circuit-breaker having all its arcing contacts supported within a common enclosure shall be tested in line with IEC 1633.

Page 135

6.102.2 b) *Multi-enclosure type*

Add after "rigidity of structure" *a new paragraph as follows:*

Metal enclosed and dead tank circuit-breakers shall be tested in accordance with IEC 1633.

Pages 236 and 237

Figures 19 and 20

Change figures 19 and 20 by removing the squares representing TRV-networks by combinations of capacitances and resistances.

Page 331

Add a new appendix JJ as follows:

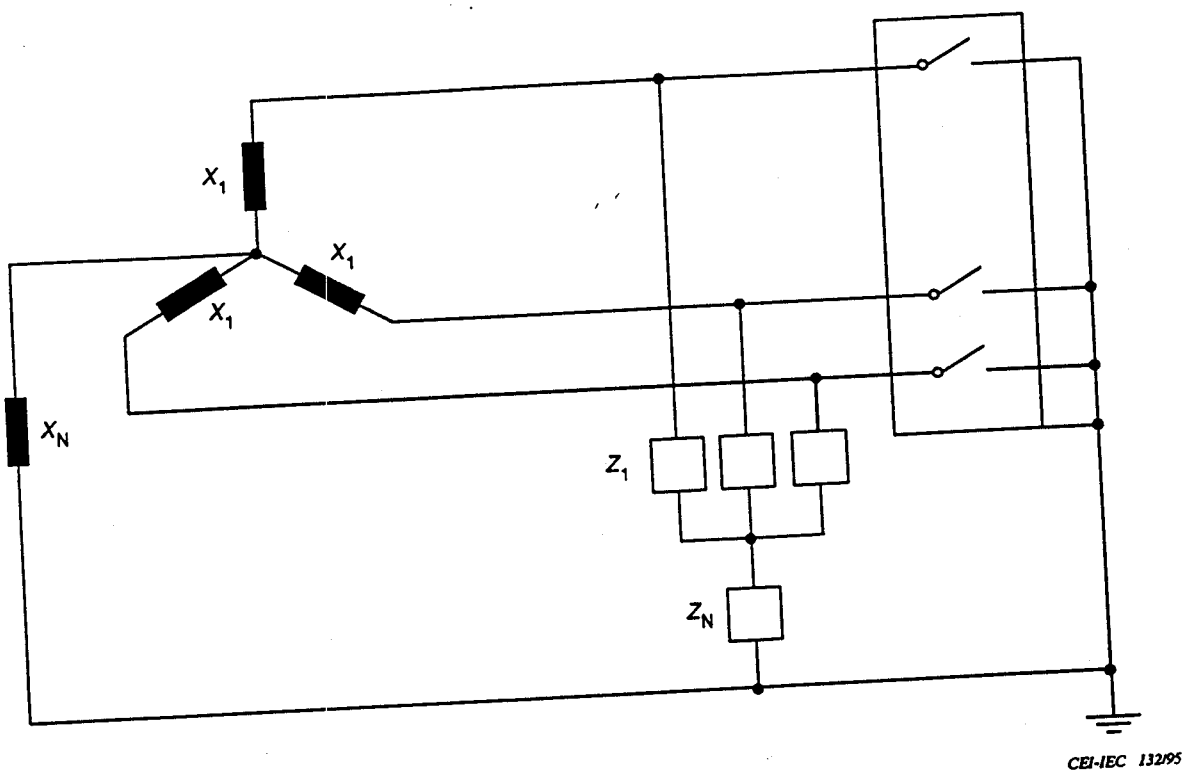
Appendix JJ

Some remarks regarding multipliers for TRV values for second and third clearing poles, of table IIF

The TRV values for the 2nd and 3rd clearing poles are given in table IIF, for the first-pole-to-clear factor 1,3 and 1,5, by multipliers related to the TRV values of the first clearing poles. The multipliers for rated voltage of 72,5 kV and below are under consideration. The following conditions were assumed.

- Only three-phase earthed faults are considered.
- The rate of rise of recovery voltage (RRRV) at 100 % short-circuit currents is mainly determined by overhead lines and can be calculated as the product of d*i*/d*t* at current zero and the equivalent surge impedance.
- The equivalent surge impedance is calculated from the zero (Z_0) and positive sequence (Z_1) surge impedances seen from the terminals of the circuit-breaker. For the relation of Z_0/Z_1 a value of approximately 2,0 has been chosen.
- The peak value of TRV (u_c) is proportional to the instantaneous value of power-frequency recovery voltage at interruption.

See also figures JJ1 and JJ2.



pour $Z_0 / Z_1 = 2$:
$Z_N = 1/3\ Z_1$

for $Z_0 / Z_1 = 2$:
$Z_N = 1/3\ Z_1$

Figure JJ2 – Représentation équivalente à la figure JJ1
Alternative representation of figure JJ1