

U.S.P. 1913
G. S. & R.



384.314 — 363.914 — 359.274 — 353.514 — 352.274 — 348.914 — 346.274 — 342.914 — 340.274 — 336.914 — 333.274 — 329.914 — 326.274 — 322.914 — 319.274

357

356

355

354

353

352

351

350

349

348

347

346

345

344

343

342

341

340

339

338

337

336

335

334

333

332

331

330

329

328

327

326

325

324

323

322

321

320

319

318

317

316

315

314

313

312

311

310

309

308

307

306

305

304

303

302

301

300

299

298

297

296

295

294

293

292

291

290

289

288

287

286

285

284

283

282

281

280

279

278

277

276

275

274

273

272

271

270

269

268

267

266

265

264

263

262

261

260

259

258

257

256

255

254

253

252

251

250

249

248

247

246

245

244

243

242

241

240

239

238

237

236

235

234

233

232

231

230

229

228

227

226

225

224

223

222

221

220

219

218

217

216

215

214

213

212

211

210

209

208

207

206

205

204

203

202

201

200

199

198

197

196

195

194

193

192

191

190

189

188

187

186

185

184

183

182

181

180

179

178

177

176

175

174

173

172

171

170

169

168

167

166

165

164

163

162

161

160

159

158

157

156

155

154

153

152

151

150

149

148

147

146

145

144

143

142

141

140

139

138

137

136

135

134

133

132

131

130

129

128

127

126

125

124

123

122

121

120

119

118

117

116

115

114

113

112

111

110

109

108

107

106

105

104

103

102

101

100

99

98

97

96

95

94

93

92

91

90

89

88

87

86

85

84

83

82

81

80

79

78

</div

1995-
1996-
1997-
1998-
1999-

32

11

三

٢٧

5

13

20
二

二三

1

104

1

三

卷之三

卷之三

卷之三

Period	Mean	SD	Range	Min	Max
Pre-treatment	1.00	0.00	1.00	1.00	1.00
Post-treatment	1.00	0.00	1.00	1.00	1.00
Follow-up	1.00	0.00	1.00	1.00	1.00
Post-treatment	1.00	0.00	1.00	1.00	1.00
Follow-up	1.00	0.00	1.00	1.00	1.00

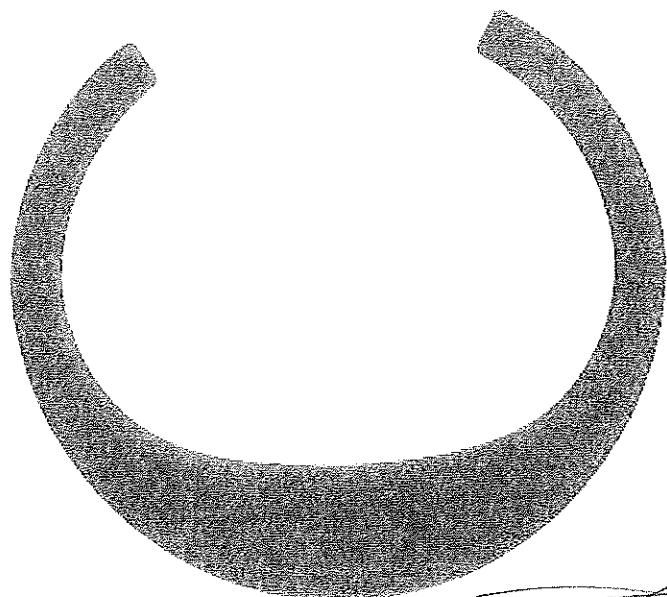
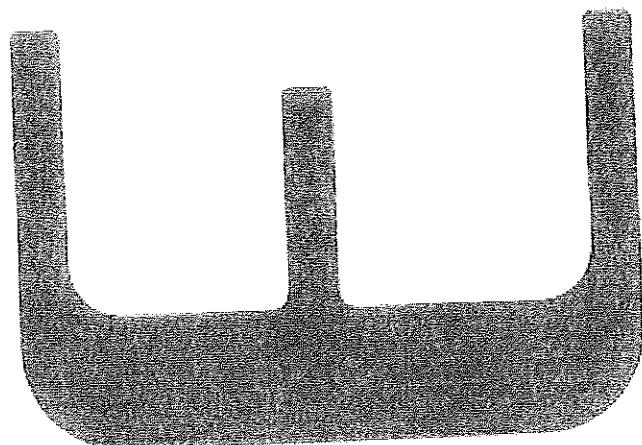
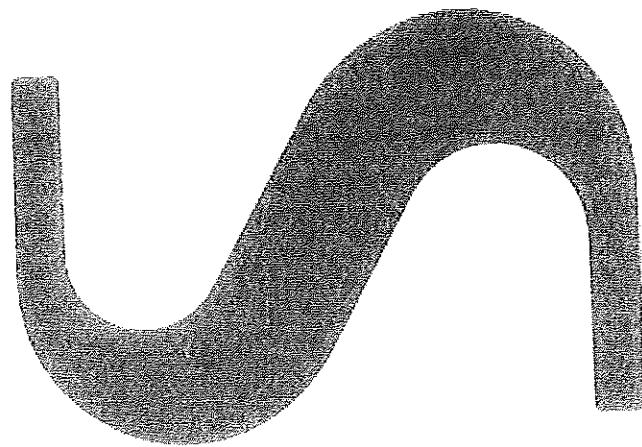
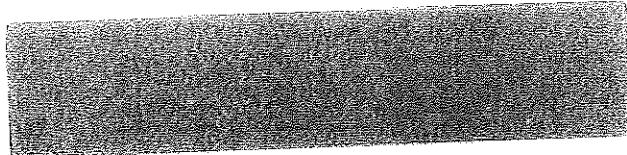
1

1914

2

51249279XA

GPS91/15222



6

1915

CESI

H
test report

GPS-91/01/222

client MERLIN GERIN S.A. - Grenoble (France)

object Three phase metal enclosed air insulated switchgear SME system type QM.
Fitted with an increased operating frequency SF6 gas insulated switch
type IO SME.

(characteristics of the tested object assigned by the Client

rated voltage 17.5/24 kv rated current 200 A rated frequency 50 Hz
other characteristics listed on page 2

the tests have been made in accordance with client's instructions
based on IEC 420 (1990)

test date June 20th, 1991

The performance of the apparatus tested and the observations made during the
tests have been recorded in the table with the test results and oscillograms

This document is composed by 7 pages, 5 oscillograms

Paris, August 25th, 1991 test engineer

D. Bergeron
D. Bergeron
Paris Monaco

Keywords : 91/312285
120100 234308 360200 490707 530010

This test report is not a certificate of conformity, nor do the results given necessarily conform to voltage supplied by the manufacturer.
This document may not be reproduced otherwise than in its entirety without CESI's authorization.

1916

CESI

H
test report

GFS-91/015162 Page 2

rated characteristics of the tested object assigned by the client

voltage	17.5/24	kV
frequency	50	Hz
normal current	200	A
short-circuit making current	40	ka
short-time withstand current	15	ka
short-circuit duration	1	s

(gas pressure for interruption) 1.4 bar abs

identification of the object effected.

The tested object truly conforms to the drawings of its type supplied by the Client. These drawings identified by CESI with embossing prints and numbered GFS- 91/015162 1 to 13 are assembled in a folder.

CEST

test report

GPS-91/015222 Page 3

Table of tests performed

date	Type of test	see page
June 28th 1991	THREE PHASE SHORT CIRCUIT MAKING TESTS WITH FUSES No.3 tests with a prospective current of 53.6 kA (peak) at 24 kV	5

tests witnessed by

Mr. Leurons - MERLIN GERIN S.A.
Mr. Dubois - MERLIN GERIN S.A.

[Signature]

[Signature]

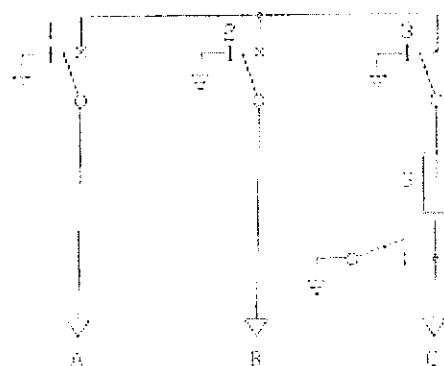
This test report is not a certificate of conformity, nor do the results given necessarily confirm the ratings supplied by the manufacturer.
This document may not be reproduced otherwise than in its entirety without CESt's authorisation.

[Signature]

1998

arrangement of the object for the tests

The tested apparatus was assembled with two other apparatus of SME system (see photo on page 7).
The figure below shows the electric diagram of the complete setting (single phase diagram of a three phase circuit) :



3 : switch-fuse combination under test

1-2 : auxiliary switches

A-B-C : cables

During the tests the cables B were connected to the supply, the switch 2 was in closed position and the cables C were short-circuited at the bottom. The earthing switch downstream the fuse and the switch 1 were in open position.

The metal enclosure was insulated from earth but connected thereto by a copper wire 0.1 mm in diameter and 30 mm long to indicate any significant leakage current to earth.

test report

088-91/016222 Page 5

three phase short circuit making tests with fuses

test duty

with 20 kA at 24.0 kV

test circuit conditions

circuit diagram see page 6 power factor < 0.15 frequency 50 Hz

	U _c kV	t ₃ μs	t _d μs	U ₁ kV	t ₁ μs	U _c kV	t ₂ μs	t _d μs
transient recovery voltage (TRV)	42	89						

conditions of the apparatus before the tests: new

symmetrical impedance	kΩ	20.0	
peak current	kA	53.5	
oscillogram no.		603	
test no.		1	2
oscillogram no.		290	291
operating duty		C	C
applied voltage (phase value)	kV	13.9	13.9
		13.9	13.9
		13.9	13.9
recovery voltage (phase value)	kV	13.9	13.9
		13.9	13.9
		13.9	13.9
phase-to-phase voltage	kV	24.0	24.0
maximum overvoltage	kV	44.0	42.0
breaking current (fuse) phase	kA	12.1	12.2
		T	T
fuse link current rating	A	100	100
striker operation	yes/no	yes	yes
duration of interruption	ms	0	0

conditions of the apparatus after the tests: external parts as before the tests,
internal parts not inspected.note after the tests : the performance of the apparatus is considered
satisfactory for the tests performed.

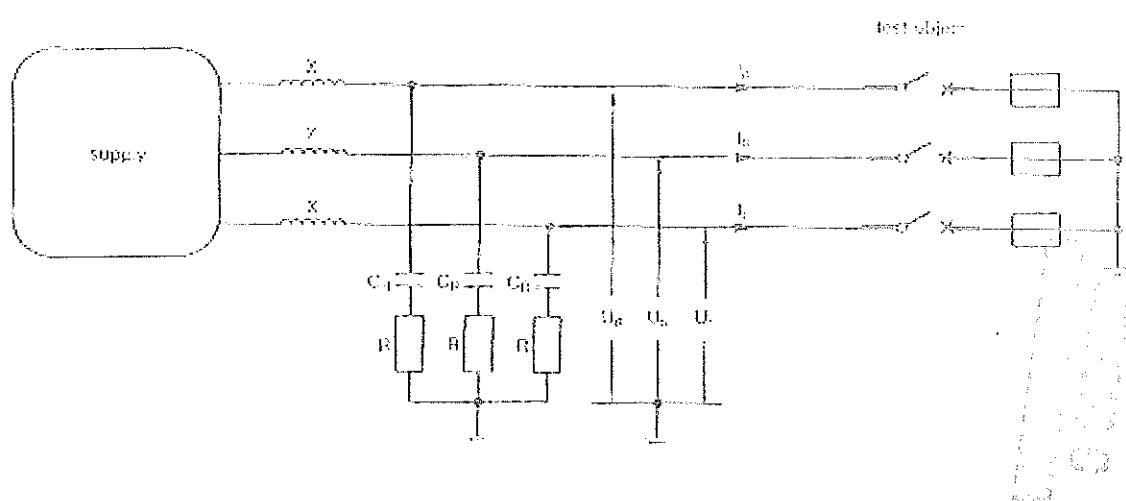
Z

CESI

test report

CPS-91/015222 Page 6

circuit diagram



Current values in the test report are the same as for the circuit diagram.

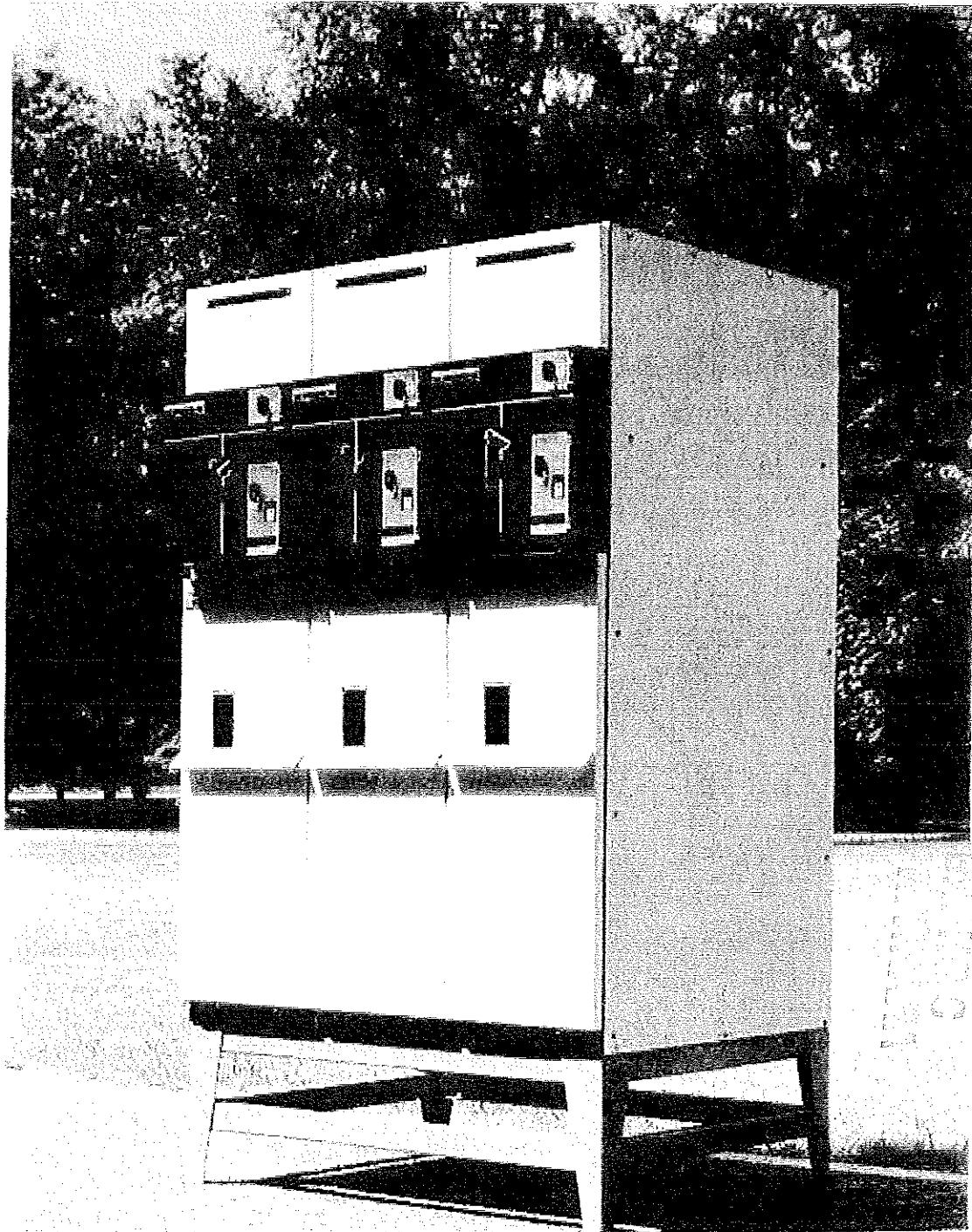
This test report is not a certificate of conformity, nor do the results given necessarily confirm the claims supplied by the manufacturer.
This document may not be reproduced other than in its entirety without CESI's authorization.

1921

J
CESI

test report

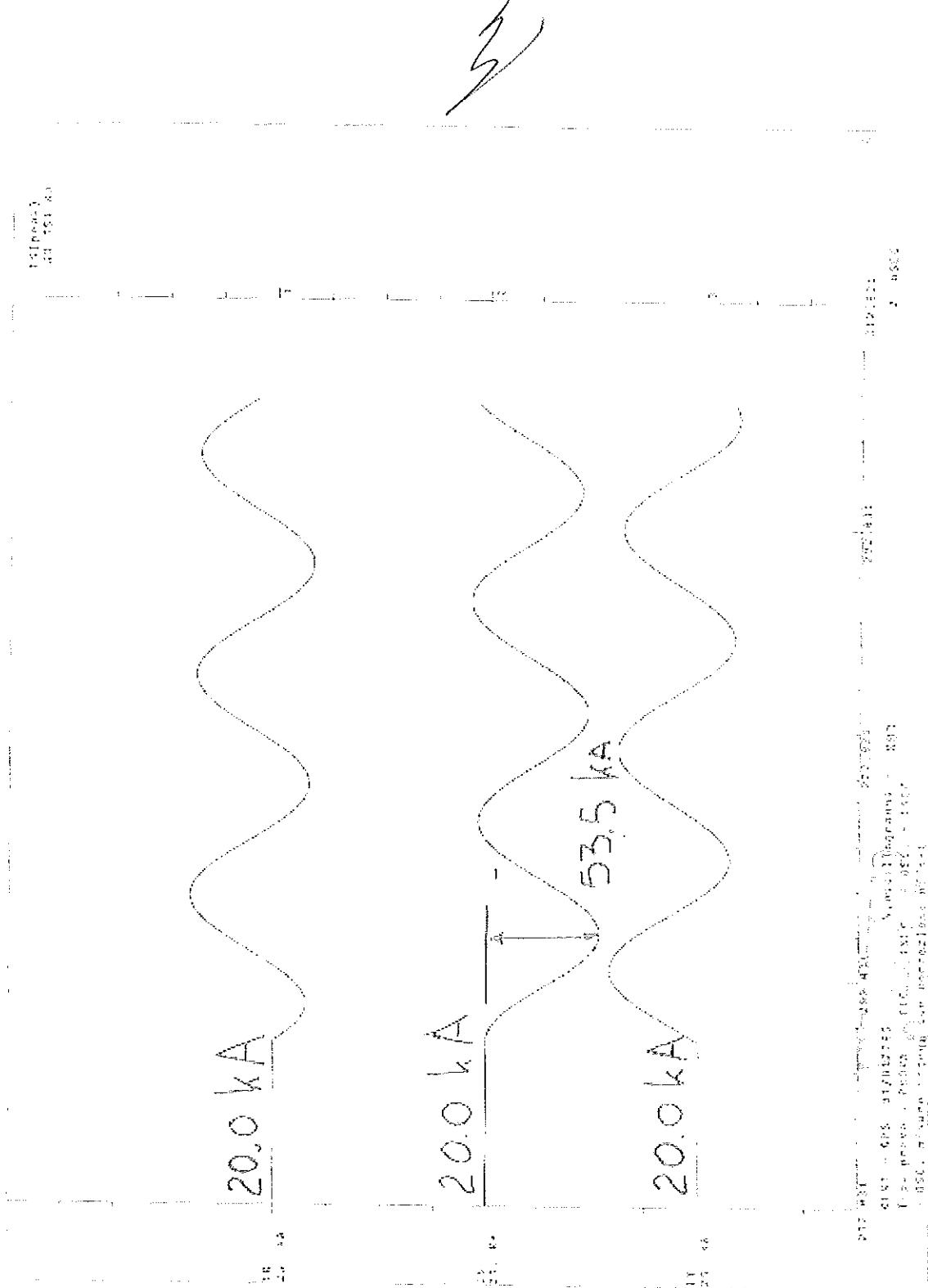
GPE-91/015232 Page



This test report is not a certificate of conformity, nor do the results given necessarily confirm the ratings supplied by the manufacturer.
This document may not be reproduced otherwise than in its entirety without CESI's authorization.

J

1922



99
1923

H_2O_2 H_2O H_2 H_2S H_2S_2 H_2S_3 H_2S_4 H_2S_5

卷之三

卷之三

卷之三

3

1324

A large grid of handwritten numbers from 1 to 100 arranged in a 10x10 pattern. The grid is divided into four quadrants by thick vertical and horizontal lines. The numbers are written in a cursive style. The entire grid is rotated 90 degrees clockwise relative to the page's orientation.

A handwritten signature in black ink, appearing to read "James R. Thompson", is positioned above a large, stylized, italicized signature of the same name. Below the signatures, the year "1976" is written in a cursive script.

42.0 kg

42.9 kg

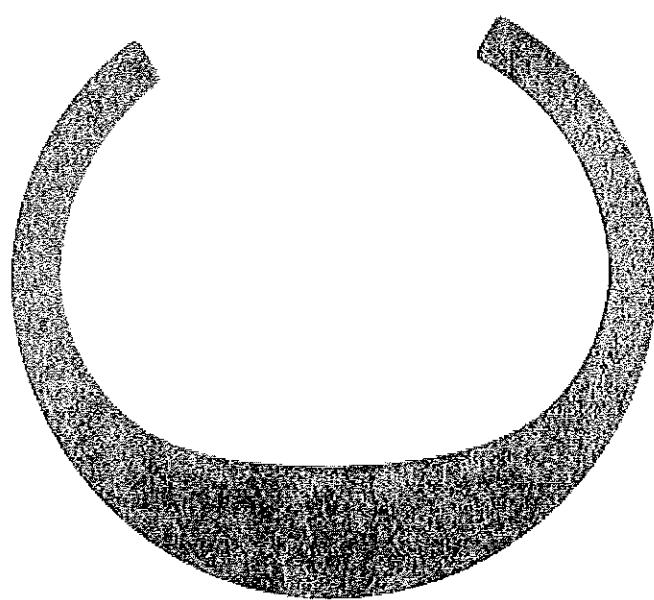
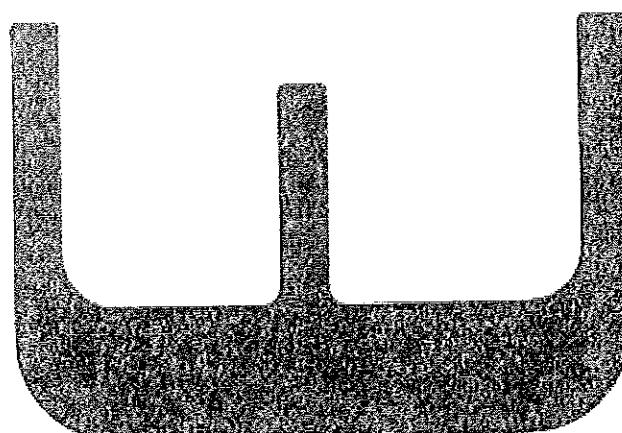
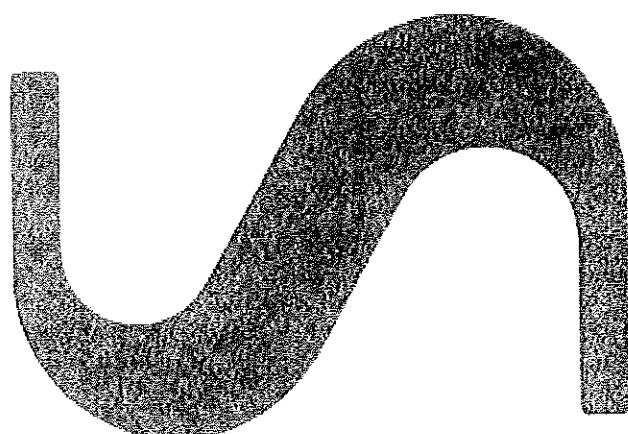
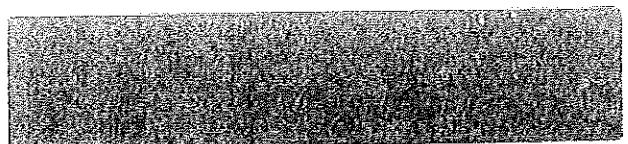
8 lbs

11

1927

51249281XA

GPS91/15223



51249281
XA

YY

1928

Z

GESI

test report

CPS-91/015223

client MERLIN GERIN S.A. - Grenoble (France)

object Three-pole metal enclosed air insulated switchgear SMS system type QM.
Fitted with an increased operating frequency SF₆ gas insulated switch
type IQ SMS.

characteristics of the tested object assigned by the Client

rated voltage 17.5/24 kV rated current 900 A rated frequency 50 Hz

other characteristics listed on page 2

The tests have been made in accordance with client's instructions
based on IEC 420 (1990)

Test date June 28th, 1991

The performance of the apparatus tested and the observations made during the
tests have been recorded in the table with the test results and oscillogram

This document is composed by 7 pages, 5 oscillograms

Uj, August 27th, 1991 Test engineer

F. Schmitt

P. L. Montage

91/512265
Keywords : 120100 234300 360200 450300 530010

This test report is not a certificate of conformity, nor do the results given necessarily confirm the ratings submitted by the manufacturer.
This document may not be reproduced otherwise than in its entirety with our GESI's authorization.

1929

H
CES

test report

GPG-91/015223 Page 2

rated characteristics of the tested object assigned by the client.

voltage	11.5/24	kV
frequency	50	Hz
normal current	200	A
short-circuit making current	50	KA
short-time withstand current	20	KA
short-circuit duration	1	s

gas pressure for interruption 1.4 bar abs

identification of the object effected.

The tested object truly conforms to the drawing/s of its type supplied by the client. These drawings identified by CESI with embossing press and numbered GPG- 91/015162 1 to 11 are assembled in a folder.

3/
GESI

test report

GPS-91/015223 Page 3

table of tests performed

date	type of test	note page
June 28th 1961	THREE PHASE SHORT CIRCUIT MAKING TESTS WITH FUSES No. 3 tests with a prospective current of 53.5 kA (peak) at 24 KV	5

tests witnessed by

Mr. Lautens - MERLIN GERIN S.A.
Mr. Dubroqua - MERLIN GERIN S.A.

This test report is not a certificate of conformance, nor do the results given necessarily confirm the ratings supplied by the manufacturer.
This document may not be reproduced otherwise than in its entirety without GESI's authorization.

[Signature]

[Signature]

[Signature]

1931

GES

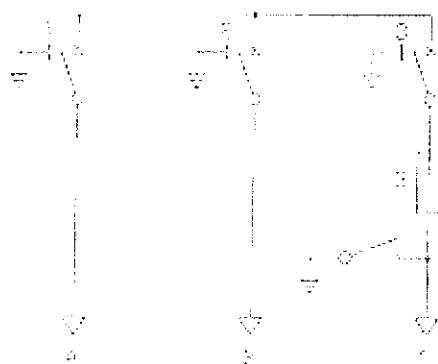
test report

GPS-91/015223 Page 3

arrangement of the object for the tests

The tinted apparatus was assembled with two other apparatus of GMG system (see photo on page 7).

The figure below shows the electric diagram of the complete setting (single phase diagram of a three phase circuit) :



3.1 zwisch-fuse combinations under test

1-2 : auxiliary switches

$\Delta = \Pi - G$: solution

During the tests the cables B were connected to the supply, the switch 2 was in closed position and the cables C were short-circuited at the bottom. The earthing switch downstream the fuse and the switch 1 were in open position.

The metal enclosure was insulated from earth but connected thereto by a copper wire 0.1 mm in diameter and 30 mm long to indicate any significant leakage current to earth.

This test report is not a certificate of conformity, nor do the test results necessarily confirm the ratings supplied by the manufacturer. This document may not be reproduced otherwise than in its entirety without CTS's authorization.

1932


CES

test report

GFS-91/016723 Page 5

three phase short circuit making tests with fuses

test duty

with 20 kA at 24.0 kV

test circuit conditions

circuit diagram see page 6 power factor < 0.15 frequency 50 Hz

	Ue kV	L3 μs	L6 μs	D1 kV	t1 μs	Ue kV	t2 μs	td μs
transient recovery voltage (TRV)	42	89						

conditions of the apparatus before the tests: new

prospective current	symmetrical	kA	20.0					
	peak	kA		53.5				
	oscillogram no.			803				
test	no.	1		2				
oscillogram	no.	290		291				
operating duty		C		C				
applied voltage (phase value)	kV	13.9 13.9 13.9		13.9 13.9 13.9				
recovery voltage (phase value)	kV	13.9 13.9 13.9		13.9 13.9 13.9				
phase-to-phase voltage	kV	24.0		24.0				
maximum overvoltage	kV	44.0		42.0				
breaking cut-off (max.) current (fuse)	kA	12.1		12.2				
phase		T		T				
fuse link current rating	A	100		100				
striker operation	yes/no	yes		yes				
duration of interruption	ms	8		8				

conditions of the apparatus after the tests: external parts as before the tests, internal parts not inspected.

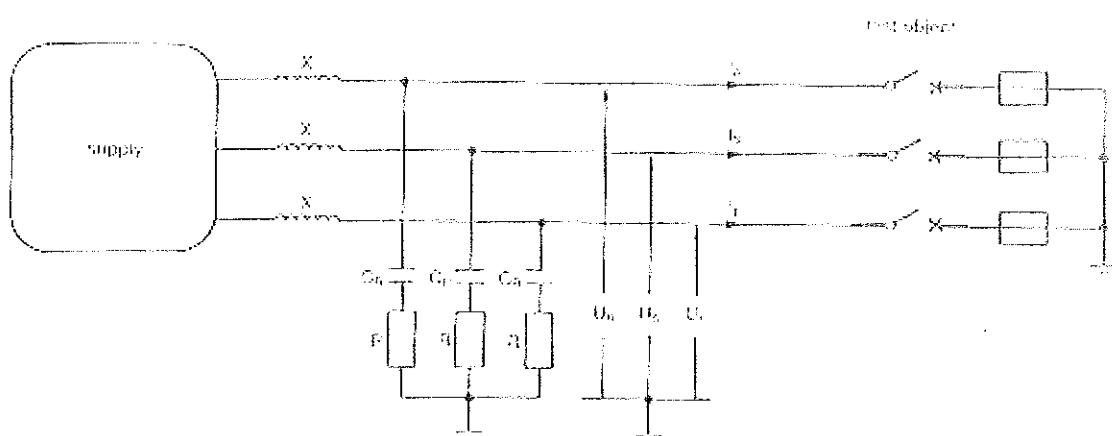
note after the tests: the performance of the apparatus is considered satisfactory for the tests performed.

GESI

test report

GPS-91/015223 Page 6

circuit-diagram



Technical drawing. Please draw all data on the circuit diagram.

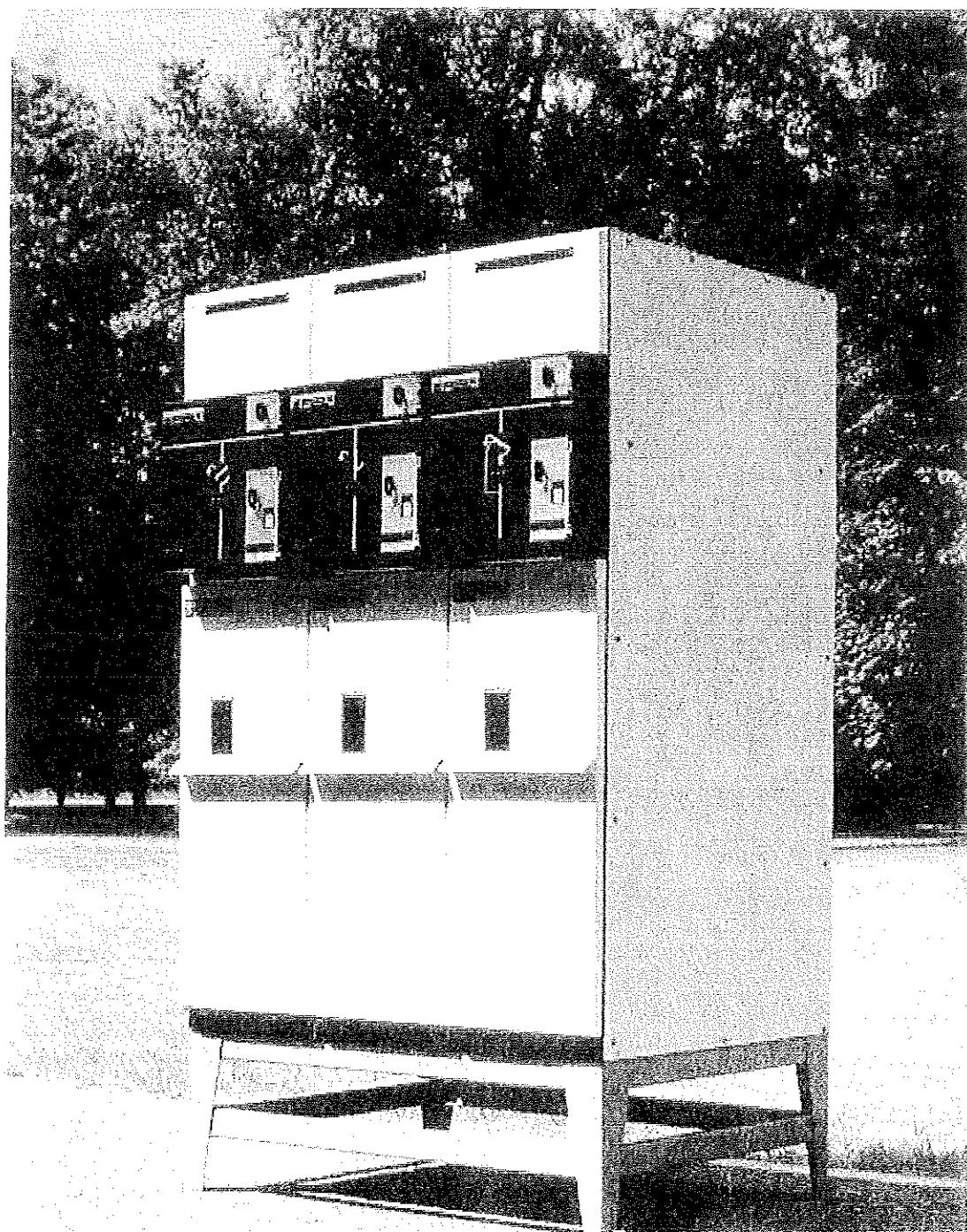
This test report is not a certificate of conformity, nor do the results given necessarily confirm the ratings supplied by the manufacturer.
This document may not be reproduced or revised, in its entirety without GESI's authorization.

1934

CESI

test report

DPS-91/015223 Page 2



This test report is not a certificate of conformity, nor do the results given necessarily confirm the rated values given by the manufacturer.
This document may not be reproduced otherwise than in its entirety without CESI's authorization.

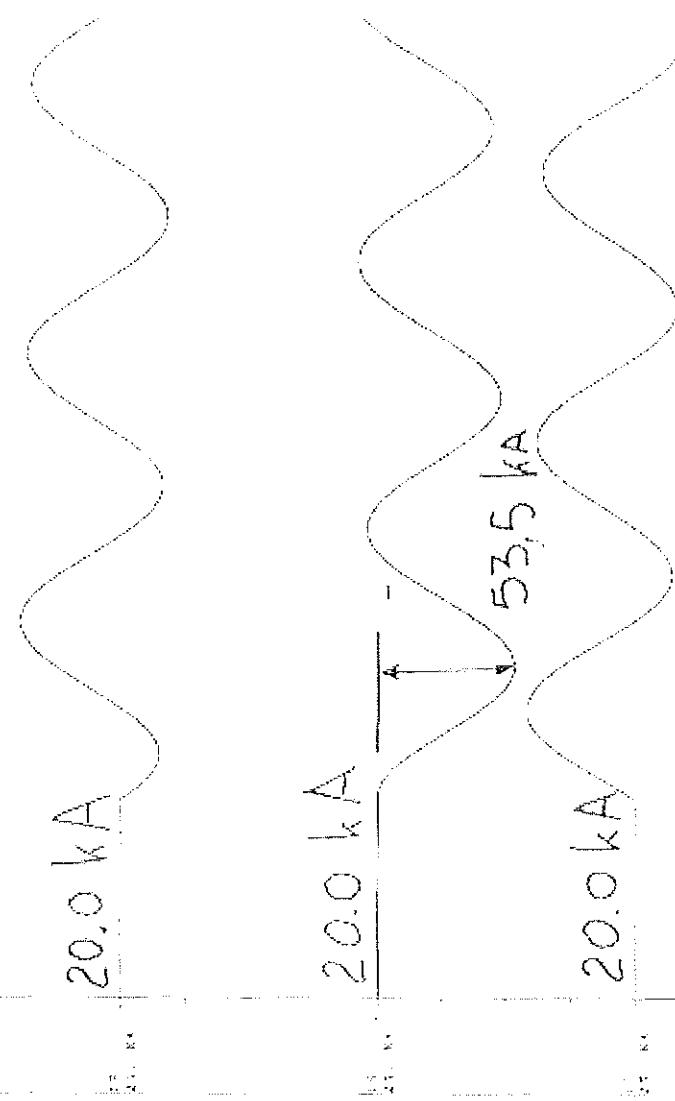
[Handwritten signature]

[Handwritten signature]

1935

1500 kA

52.5 kA



1500 kA

52.5 kA

20.0 kA

20.0 kA

53.5 kA

This image shows a blank ledger page from an old account book. The page is divided into four main columns: 'Debit' (top), 'Credit' (bottom), 'Bal.' (top), and 'Bal.' (bottom). A vertical line runs down the center of the page, creating two identical halves. There are also faint horizontal lines across the page, which are likely the boundaries of individual ledger entries.

Three handwritten signatures are displayed side-by-side. The first signature on the left is a stylized 'J'. The middle signature is a cursive 'M'. The third signature on the right is a stylized 'G'.

1937

The image shows a large-scale document with a grid of handwritten names. The grid is approximately 10 columns wide and 20 rows high. Each entry consists of a first name (likely 'John') and a last name. The handwriting is cursive and somewhat uniform across the entries. The grid is defined by thick black lines on a white background.

[Handwritten signature]

1

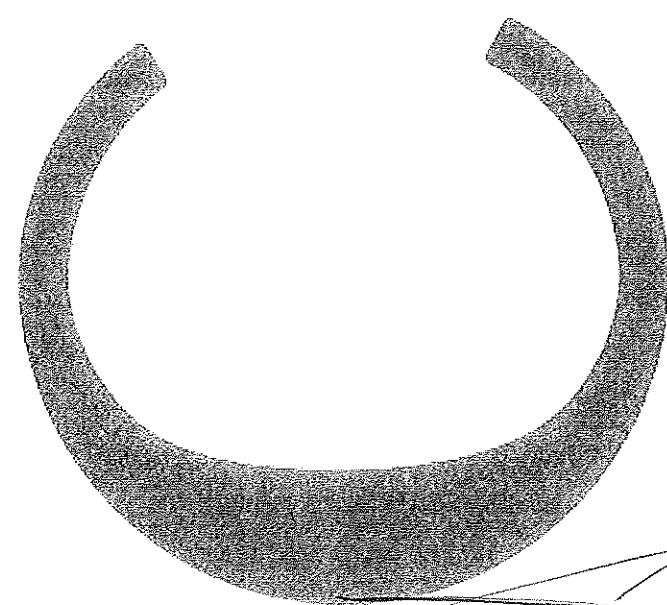
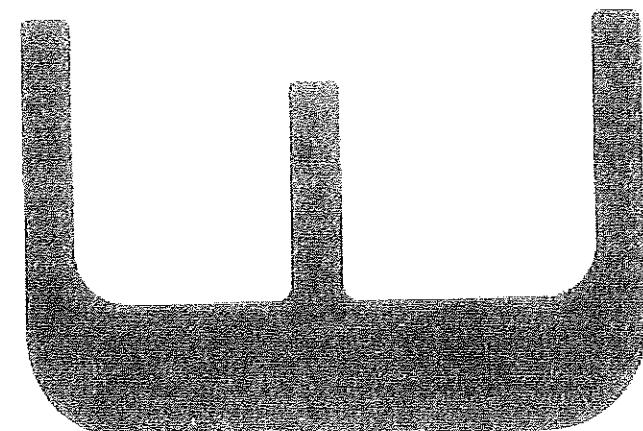
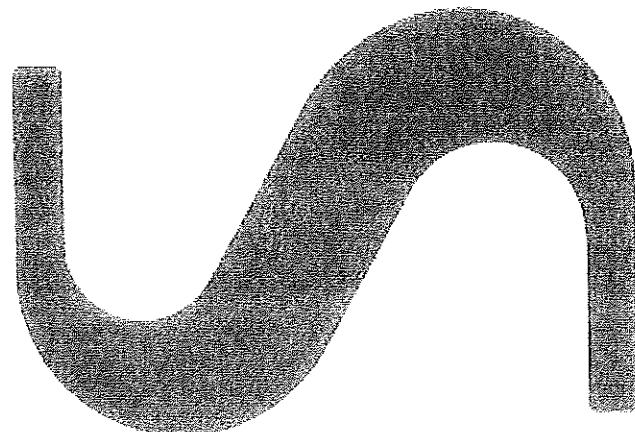
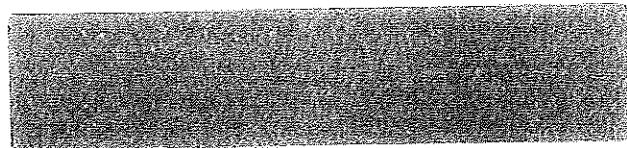


1938

1940

51249283XA

GPS91/15224



故人不以爲子也。子之不孝，則無子矣。故曰：「子不孝，無子也。」



99

1941

3
CESI

test report

CPS-91/015224

client MERLIN GERIN S.A. - Grenoble (France)

object Three pole metal enclosed air insulated switchgear SM6 system type QM.
Filled with an increased operating frequency SF₆ gas insulated switch
type IQ SMA.

characteristics of the tested object assigned by the Client

rated voltage 12 kV rated current 200 A rated frequency 50 Hz

other characteristics listed on page 2

the tests have been made in accordance with client's instructions
based on IEC 420 (1990)

Test date June 28th, 1991

The performance of the apparatus tested and the observations made during the
tests have been recorded in the table with the test results and oscillograms

This document is composed by 7 pages, 5 oscillograms

Milan, August 27th, 1991 test engineer

F. L. Scattolon
F. L. Scattolon
P. I. o. Monaco

91/012205
Keywords : 120100 234303 360201 450700 510010

This test report is not a certificate of conformity nor do the results given necessarily confirm the ratings supplied by the manufacturer.
This document may not be reproduced otherwise than in its entirety without CESI's authorization.

J. M. Martin

J. M. Martin

1992

rated characteristics of the tested object assigned by the client

voltage 12 kV

frequency 50 Hz

normal current 200 A

short-circuit making current 50 kA

short-time withstand current 20 kA

short-circuit duration 1 s

gas pressure for interruption 1.4 bar abs

Identification of the object affected.

The tested object truly conforms to the drawings of its type supplied by the Client. These drawings identified by CESI with embossing press and numbered GFS- 91/015162 1 to 13 are assembled in a folder.

1
2
3
4
5
6
7
8
9
10
11
12
13

E

CEST

test report

GFS-91/015224 Page 3

Table of tests performed

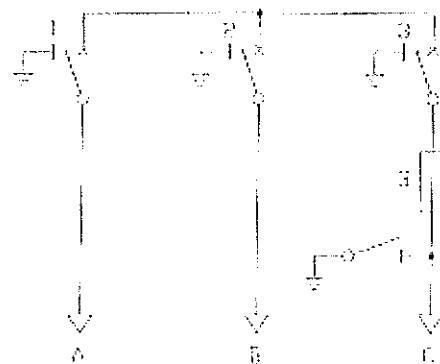
date	type of test	page
June 28th 1991	THREE PHASE SHORT CIRCUIT MAKING TESTS WITH FUSES No. 3 contacts with a prospective current of 65 kA (peak) at 12 kV	5

tests witnessed by

Mr. Laurendeau - MERLIN GERIN S.A.
Mr. Embroqua - MERLIN GERIN S.A.

arrangement of the object for the tests

The tested apparatus was assembled with two other apparatus of SBS system (see photo on page 7).
The figure below shows the electric diagram of the complete setting (single phase diagram of a three phase circuit) :



3 : switch-fuse combination under test

1-2 : auxiliary switches

A-B-C : cables

During the tests the cables B were connected to the supply, the switch 2 was in closed position and the cables C were short-circuited at the bottom. The earthing switch downstream the fuse and the switch 1 were in open position.

The metal enclosure was insulated from earth but connected thereto by a copper wire 0.1 mm in diameter and 30 mm long to indicate any significant leakage current to earth.

99

1945

CEC

test report

ces-91/019224 Page 5

three phase short circuit making tests with fuses

Cont. duty with 25 kA at 12.0 kV

test circuit conditions

circuit diagram see page 6 power factor < 0.15 frequency 50 Hz

	Ue kV	t3 μs	td μs	U1 kV	t1 μs	Ue kV	t2 μs	td μs
transient recovery voltage (TRV)	21	60						

conditions of the apparatus before the tests: new

prospective current	symmetrical	kA	25.0					
	peak	kA	65.0					
	oscillogram	no.	602					
test	no.		1	2				
oscillograms	no.		288	289				
operating duty			C	C				
applied voltage (phase value)	kV		6.90	6.90				
			6.90	6.90				
			6.90	6.90				
recovery voltage (phase value)	kV		6.90	6.90				
			6.90	6.90				
phase-to-phase voltage	kV		12.0	12.0				
maximum overvoltage	kV		23.0	21.0				
breaking current (max)	cut-off (max)	kA	19.0	18.0				
(time)	phase		T	T				
fuse link current rating	A		200	200				
striker operation	yes/no		yes	yes				
duration of interruption	ms		6	7				

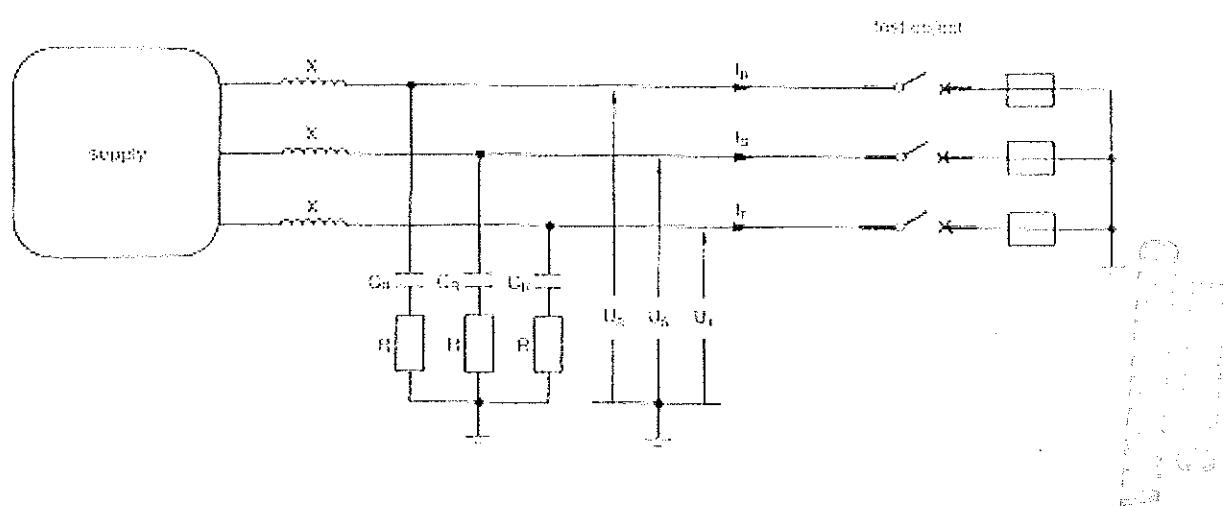
conditions of the apparatus after the tests: external parts as before the tests,
internal parts not inspected.

note after the tests : the performance of the apparatus is considered
unsatisfactory for the tests performed.

99

1946

circuit-diagram

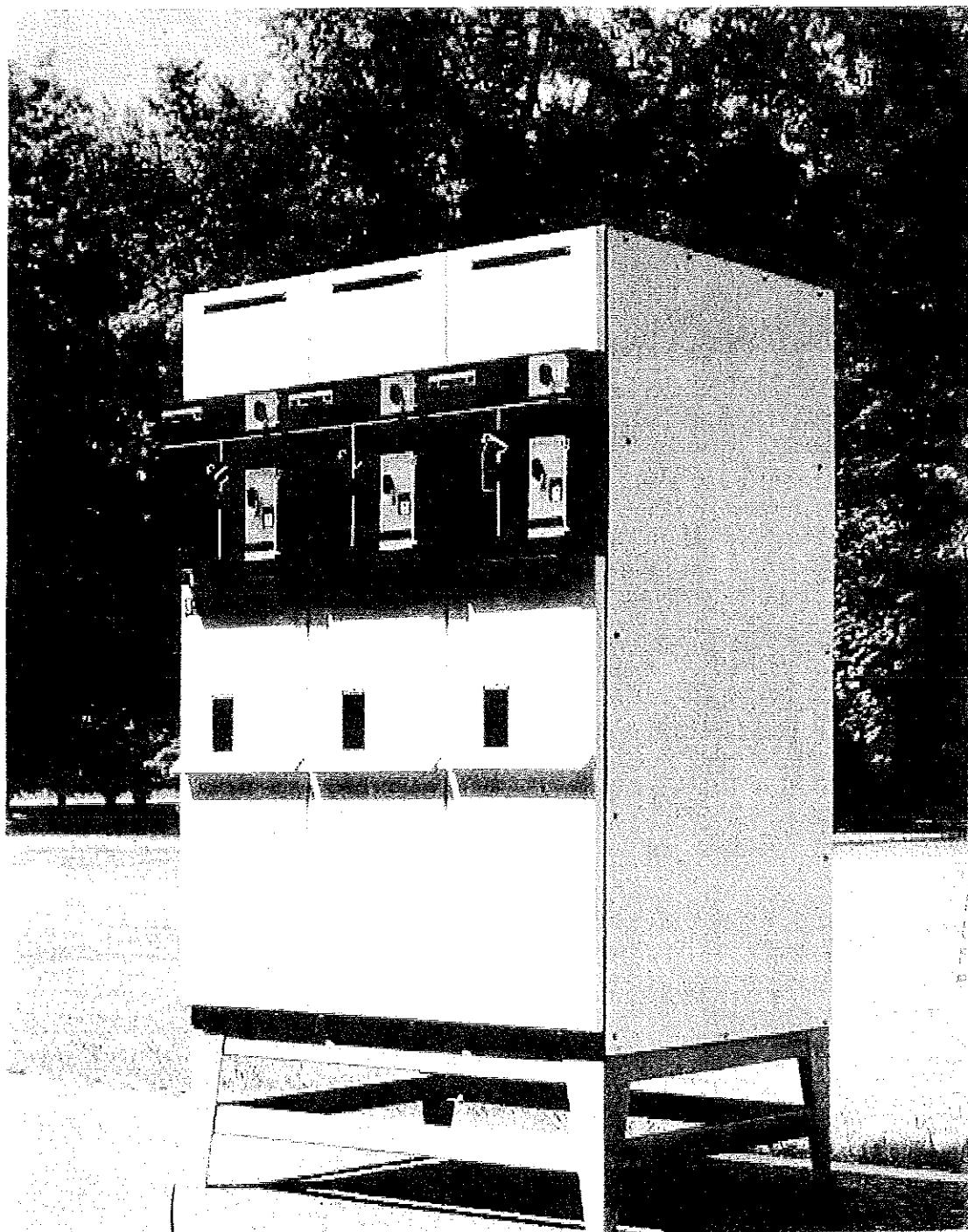


Currents listed in this diagram are the same as on the circuit diagram.

3
CESI

test report

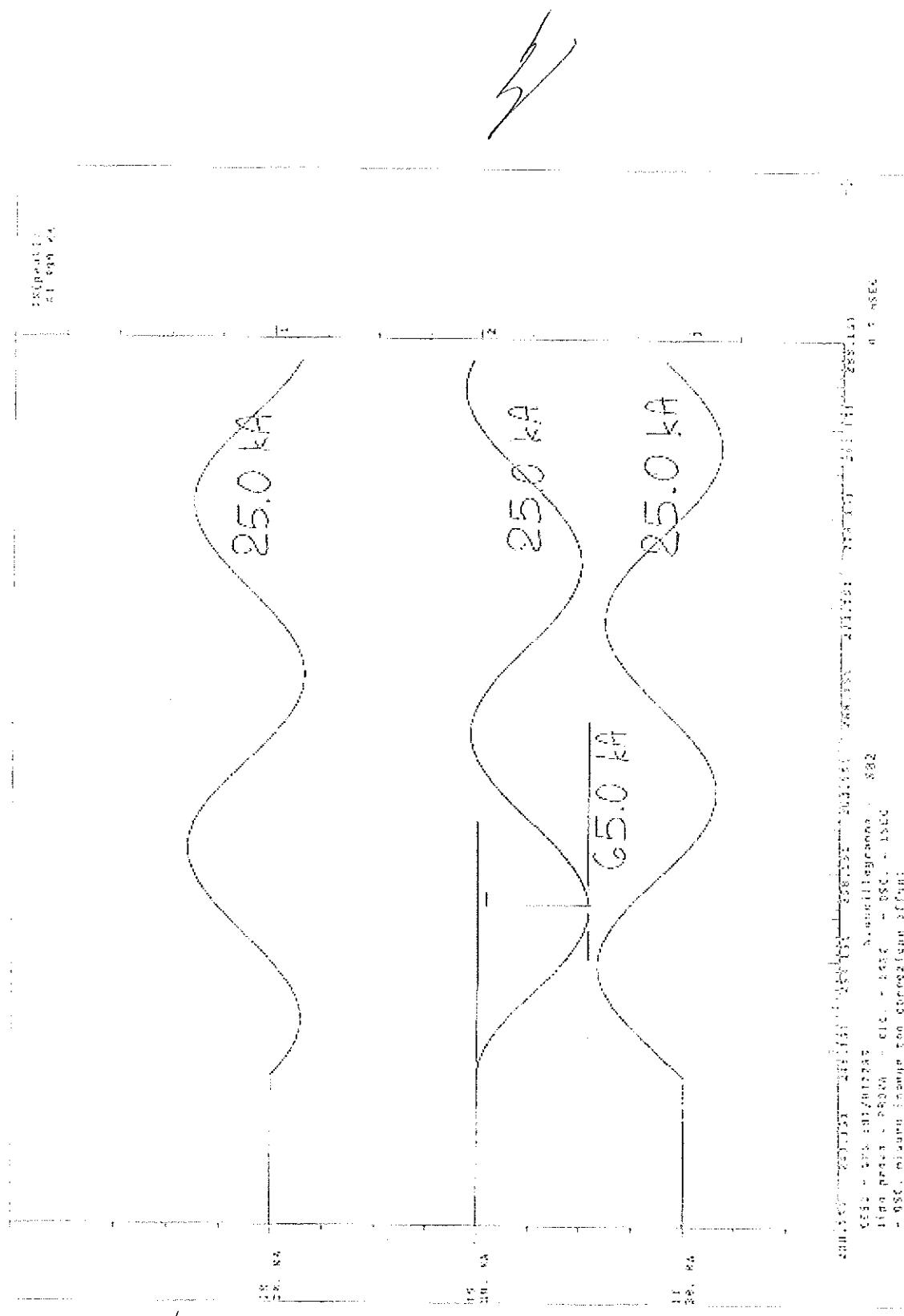
GPS-91/015224 Page 7



3
This test report is not a certificate of conformity, nor do the results given necessarily confirm the ratings supplied by the manufacturer.
This document may not be reproduced otherwise than in its entirety without CESI's authorization.

JJ

1948



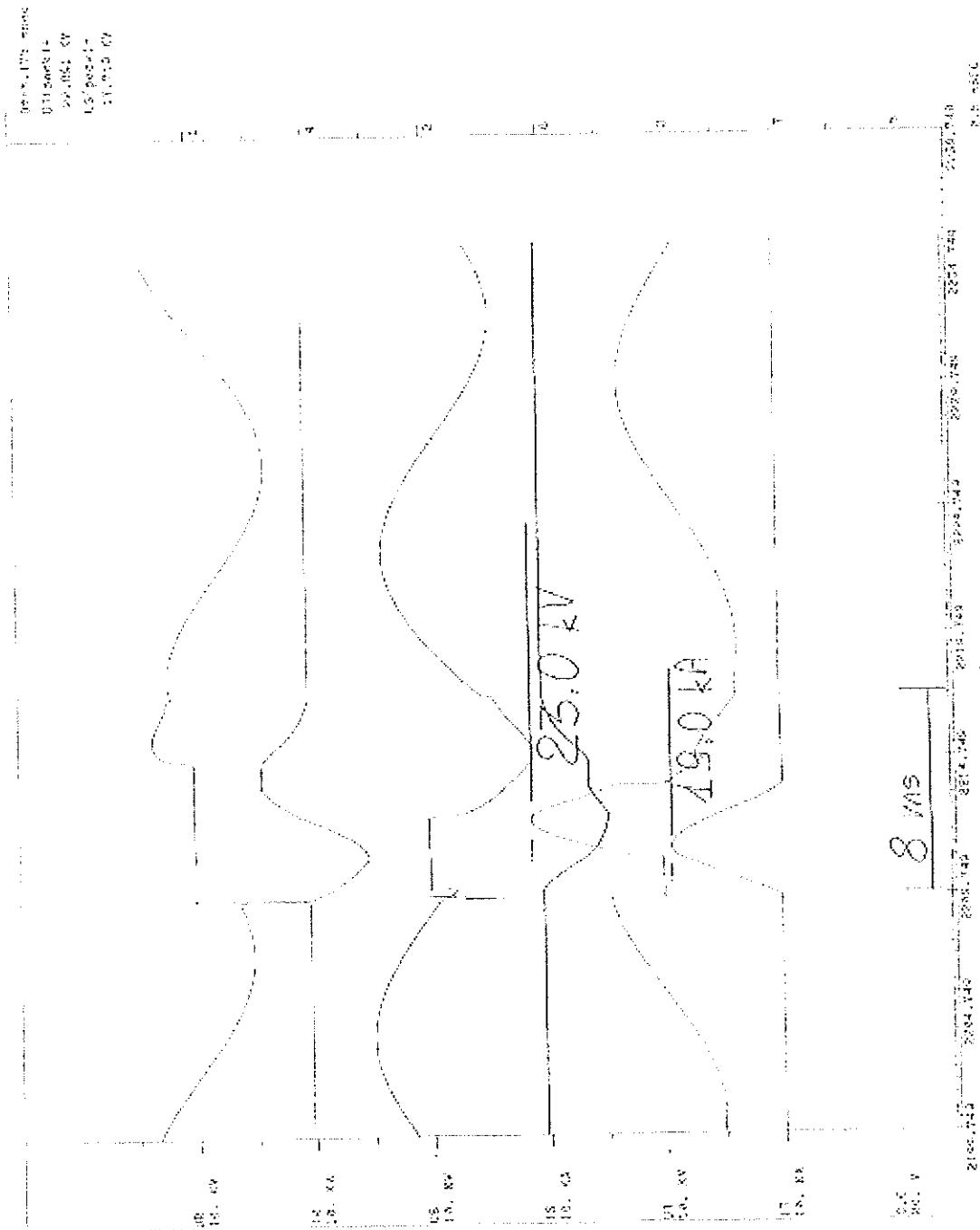
(949)

The image consists of a grid of 12 black and white photographs arranged in three columns and four rows. Each photograph shows a different stage of a hatching process. The first column shows the initial stages, with the egg appearing as a small, dark, oval shape. The second column shows the egg beginning to split open, with a visible crack or tear. The third column shows the final stages where the larva is almost completely free from the egg shell. The background of each photograph is a light, textured surface.

$\Omega = \{0^\circ, 45^\circ, 90^\circ, 135^\circ, 180^\circ\}$

1992 = 6.000000000000000E+000
1993 = 6.000000000000000E+000
1994 = 6.000000000000000E+000
1995 = 6.000000000000000E+000
1996 = 6.000000000000000E+000
1997 = 6.000000000000000E+000
1998 = 6.000000000000000E+000
1999 = 6.000000000000000E+000
2000 = 6.000000000000000E+000

99
1950



293.0

293.0

49.0

49.0

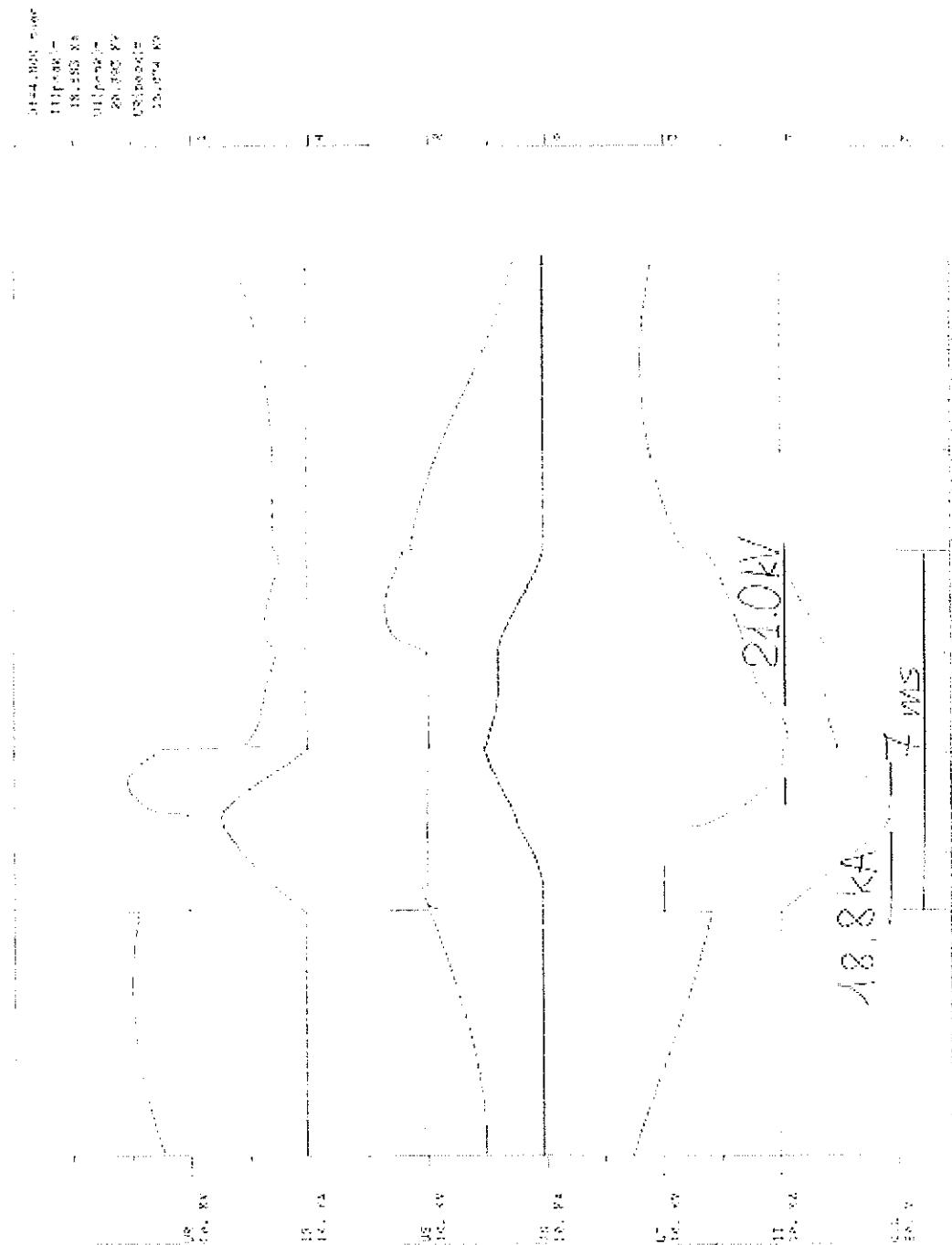
1951

12	13	14	15	16
17	18	19	20	21
22	23	24	25	26
27	28	29	30	31

✓

✓

9
1952



110

110

50

200

300

400

500

600

700

800

900

1000

1100

1200

1300

1400

1500

1600

1700

1800

1900

2000

2100

2200

2300

2400

2500

2600

2700

2800

2900

3000

3100

3200

3300

3400

3500

3600

3700

3800

3900

4000

4100

4200

4300

4400

4500

4600

4700

4800

4900

5000

5100

5200

5300

5400

5500

5600

5700

5800

5900

6000

6100

6200

6300

6400

6500

6600

6700

6800

6900

7000

7100

7200

7300

7400

7500

7600

7700

7800

7900

8000

8100

8200

8300

8400

8500

8600

8700

8800

8900

9000

9100

9200

9300

9400

9500

9600

9700

9800

9900

10000

10100

10200

10300

10400

10500

10600

10700

10800

10900

11000

11100

11200

11300

11400

11500

11600

11700

11800

11900

12000

12100

12200

12300

12400

12500

12600

12700

12800

12900

13000

13100

13200

13300

13400

13500

13600

13700

13800

13900

14000

14100

14200

14300

14400

14500

14600

14700

14800

14900

15000

15100

15200

15300

15400

15500

15600

15700

15800

15900

16000

16100

16200

16300

16400

16500

16600

16700

16800

16900

17000

17100

17200

17300

17400

17500

17600

17700

17800

17900

18000

18100

18200

18300

18400

18500

18600

18700

18800

18900

19000

19100

19200

19300

19400

19500

19600

19700

19800

19900

20000

20100

20200

20300

20400

20500

20600

20700

20800

20900

21000

21100

21200

21300

21400

21500

21600

21700

21800

21900

22000

22100

22200

22300

22400

22500

22600

22700

22800

22900

23000

23100

23200

23300

23400

23500

23600

23700

23800

23900

24000

24100

24200

24300

24400

24500

24600

24700

24800

24900

25000

25100

25200

25300

25400

25500

25600

25700

25800

25900

26000

26100

26200

26300

26400

26500

26600

26700

LEMIT

COFRAC Testing Section
10 rue de la Marne
92100 Boulogne-Billancourt
Tél. : 01 46 76 30 24 90
Fax : 01 46 76 30 14 07



TEST REPORT n°51249432EA

Apparatus : A.C. metal-enclosed switchgear and controlgear

Designation : MERLIN GERIN SM6 type IMC

Rated voltage : 24 kV Rated current : 630 A

Manufacturer : Schneider Electric Industries SA - Rueil-Malmaison - FRANCE

Object : Dielectric tests
- Lightning impulse voltage tests
- Power-frequency voltage tests

Tested for : Schneider Electric Industries SA

Date(s) of tests : 6, 8, 9 March 2000

These tests were carried out in accordance with : Customer request based on IEC 60298 (1990)
IEC 60694 (1996)

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.

This document relate only to the items presented for testing.

The documents forming part of this test report are :

Apparatus ratings	page(s) 2
Test records	page(s) 3
Test conditions	page(s) 4 and 5
Test results	page(s) 6 and 7
Photographs / Drawings	page(s) 8
The test report comprises :	8 pages

*This test report can only be copied as a photographic facsimile in its entirety.
COFRAC Testing Section accreditation is only to certify that the laboratory complies with the technical competence required to carry out test on the product types covered by the accreditation.*

Varces, 4 April 2000

Technical manager

L. MANNONE

Testing laboratory manager

R. ANTOINE

1954

APPARATUS RATINGS

Manufacturer : Schneider Electric Industries SA
Designation : MERLIN GERIN SMB
type IMC-2 CT

Number of poles : 3

Voltage kV : 24
Lightning impulse withstand voltage kV : 125
Power frequency withstand voltage kV : 50

Frequency Hz : 50 / 60

Normal current A : 630

Short time withstand current kA : 16 s : 1
Peak withstand current kA : 40

Short circuit breaking current kA : 16

Short circuit making current kA : 40

Interrupting medium : SF₆
Relative pressure at 20°C bar(s) : 0.4

Degree of protection : IP2XC

Drawing n° : 3731372 ind. R

The metal-enclosed switchgear and controlgear is fitted out with :

- 2 CT ARM 2 / N2F Nuova Magnini Galliléo
- ph 1 (n° 9843510)
- ph 3 (n° 9843513)

1955

1955

(TEST RECORDS)

Test type	Page
Lightning impulse voltage tests	6
Power-frequency voltage tests (50Hz)	7

Manufacturer's representative : J. GUADAGNINO DI-PMT / 38V

Test manager : J. GALAN L.E.M.T / 38V

TEST CONDITIONSCondition before tests

- Relative test pressure at 20 °C : 0.4 bar
- The power supply is carried out with 1 cable 240 mm² Alu per phase

Ambient air conditions during the tests

Date		03/06/00	03/08/00	03/09/00
Pressure	MmHg	750	753	748
Dry temperature	°C	20.0	18.0	20.0
Correction factor	K	0.9868	0.9976	0.9842

For a test, the test voltage is equal to the specified voltage multiplied by K.

Mesuring uncertainty

Mesuring uncertainty	Date					
	03/06/00		03/08/00		03/09/00	
$U_0 = k \times U_{\text{spec}}$	AU ₀ (kV)	%	AU ₀ (kV)	%	AU ₀ (kV)	%
Lightning impulse	2.1	1.7	2.1	1.7	2.1	1.7
Power-frequency	1.1	2.1	1.1	2.1	1.1	2.1

1957

TEST CONDITIONS

Tests and measurements facilities

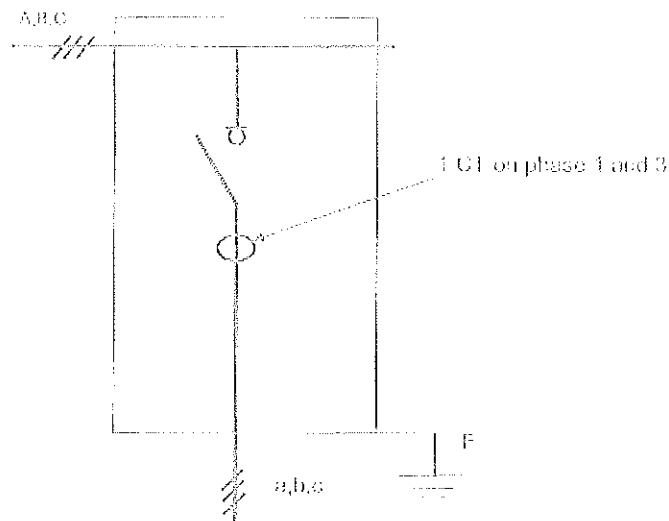
- Lightning impulse :

	Platform B
Haeften generator 400kV, coupling 200kV - 4kJ	DGE4
Haeften damped capacitive divider 400kV - 2nF	DDC2
Haeften peak voltmeter 64M	DVO5
Oscilloscope Tektronix 2235	DOS2
390 AD programmable digitizer Tektronix	DAN1

- Power frequency:

Transformer American Test System 150kV - 0.4A	DGE5
Resistive divider American Test System 10 MΩ - 2,4kΩ	DGE5
Voltmeter American Test System 600	DPU2

RESULTS OF THE LIGHTNING IMPULSE VOLTAGE TESTS



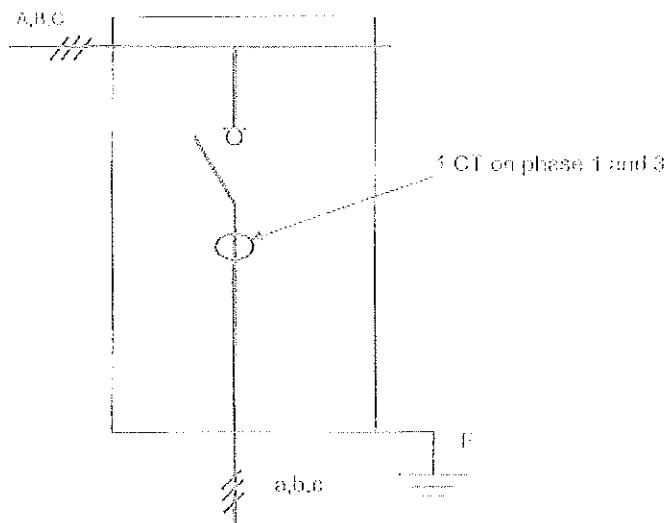
Test voltage (kV) : 126 x K

Wave shape (μ s) : 1.2 / 50 μ s

Fifteen consecutive lightning impulses at the rated withstand voltage are applied for each test condition and each polarity, preceded of 2 conditioning shocks to 80 % and 100 % of the test voltage.

Test n°	Switching device	Voltage applied to	Earth connected to	Disruptive discharge	
				polarity +	polarity -
1	Closed	aA	bcBCF	0	0
2	Closed	bB	acACF	0	0
3	Closed	cC	abABF	0	0
4	Open	A	BCabcF	0	0
5	Open	B	ACabcF	0	0
6	Open	C	ABabcf	0	0
7	Open	a	bcABCf	0	0
8	Open	b	acABCf	0	0
9	Open	c	abABCf	0	0

99
1959

RESULTS OF THE POWER FREQUENCY VOLTAGE TESTS

Test voltage (kV) : 50 x K

The test voltage is raised for each test condition to the rated withstand voltage and is maintained for one minute.

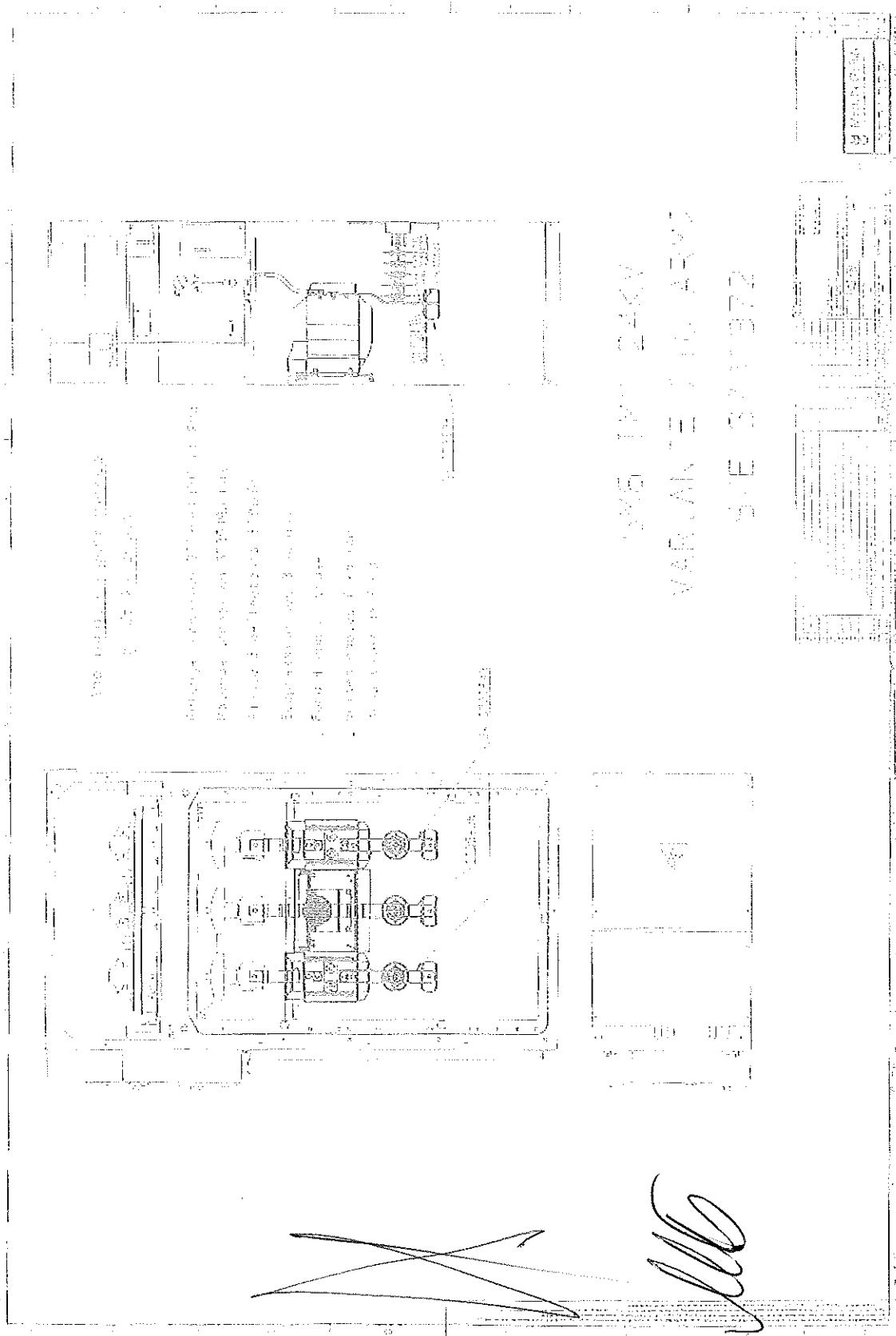
Test n°	Switching device	Voltage applied to	Earth connected to	Disruptive discharge
1	Closed	aA	bCbcF	0
2	Closed	bB	acAcF	0
3	Closed	cC	abAbF	0
4	Open	A	BCabcF	0
5	Open	B	ACabcF	0
6	Open	C	ABabcF	0
7	Open	a	bcABCf	0
8	Open	b	acABCf	0
9	Open	c	abABCf	0

1960

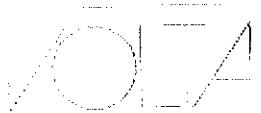
REPORT n°51249432EA

Page 15

DREAMING



1961



centre d'essais
station d'essais à grande puissance
MUSON - Charente - Cedex 9 - France

51249695XB

COFRAC
Centre d'essais
à grande puissance



ESSAI

TEST REPORT No. AC 2499 b

Apparatus : Metal-enclosed switchgear

Designation : MERLIN GERIN 5146 type M

Rated voltage: 12 kV - Rated normal current 630 A - Rated frequency 50/60 Hz

Manufacturer : SCHNEIDER ELECTRIC - Boulogne Billancourt - FRANCE

Object : Tests of the short-circuit making capacity of switch and earthing switch rated at:
25 kA- 82.5 kA peak - 12 kV

Tested for : SCHNEIDER ELECTRIC

Date(s) of tests : 19/09/1996

These tests were carried out in accordance with: On standards IEC 60298 (1996) and CEI 129 (1984) § 6.101

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms & photographs enclosed.

The responsibility for conformity of any apparatus having the same designation with that tested rests with the Manufacturer.

The documents forming part of this report are:

Ratings of the apparatus	3 pages
Record of proving tests	1 page
Conditions of proving tests	2 pages
Test result tables	4 pages
Photographs	0 pages
Oscilograms	10 pages
Drawings of the apparatus	1 page
The test report comprises	22 pages

This record of proving test shall only be reproduced in the form of a complete photographic facsimile.

The accreditation by the COFRAC Testing section attests only of the laboratory technical competence in tests covered by the accreditation. The French version is legally acceptable.

Grenoble 01/05/1996

Technical Manager

Test Manager

P. JACQUET

D. FERNANDEZ

1962

Centre d'essais
station d'essais à grande puissance
12800 Grenoble Cedex 9

N° AII 2469 b

page 2

RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ACCORDING TO IEC 298

Manufacturer	SCHNEIDER ELECTRIC
Designator	MERLIN GERIN 5MG type BM
Number of phases	3
Voltage	kV : 12
Power frequency withstand voltage (1 min)	
- to earth and between poles	kV : 23
- across the isolating distance	kV : 32
Lightning impulse withstand voltage	
- to earth and between poles	kV peak : 75
- across the isolating distance	kV peak : 85
Frequency	Hz : 50/60
Normal current	A : 630
Peak withstand current	kA : 62.5
Short-time withstand current (duration)	
- main circuit	kA : 25 (1 s)
- earthing switch	kA : 25 (1 s)
- earth bar	kA : 25 (1 s)
Arcing withstand due to an internal fault	
- duration	kA : 1
- type of accessibility (A, C, E)	s : 1
Degree of protection	IP6XG
Dimensions (H x W x D)	mm : 1
Weight	kg : 1
Drawing(s) No	3730 457 - 0 page 1/17
Metal-enclosed switchgear equipped with	- 1 switch * earthing switch

~~1967~~

W.H.

B

1967

RATINGS OF THE HV SWITCH

ACCORDING TO IEC 265

Manufacturer	SCHNEIDER ELECTRIC	
Designation	MERLIN GERIN SMS	
Increased operating frequency switch	other	是
Installation	outdoor	是
Interrupting medium	gas SF ₆ other	是
Absolute pressure at 20 °C	bar	0.4
Number of poles	3	
Voltage	kV	12
Power frequency withstand voltage (1 min)	kV	28
Lightning impulse withstand voltage	kV peak	75
Frequency	Hz	50/60
Normal current	A	630
Peak withstand current	kA	62.5
Short-time withstand current - duration	kA	25
Breaking capacity	A	620
- mainly active load	A	15
- no-load transformer	A	630
- closed loop	A	31.5
- cable-charging	A	7
- line-charging	A	95
- earth-fault	A	56
- cable-charging under earth-fault conditions	kA peak	62.5
Short-circuit making current	kA peak	120
Number of operations with mainly active load	operating cycles	1000
Mechanical endurance	minimum °C	-15
Operating temperature	maximum °C	+55
Degree of protection	IP2XC	
Drawing(s) No	3 730 457 - D page 1/17	

Degree of protection

IP2XC

Drawing(s) No

3 730 457 - D page 1/17

1964

SET
Centre d'essais

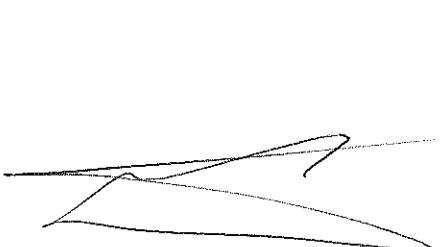
station d'essais à grande puissance
à Haute Tension en test 9

No. AG 2439-D

PAGE 4

RATINGS OF THE EARTHING SWITCH ACCORDING TO IEC 129

Manufacturer	SCHNEIDER ELECTRIC		
Designator	MERLIN GERIN SME		
Installation	indoor	<input checked="" type="checkbox"/>	outdoor
Method of closing	manual	<input checked="" type="checkbox"/>	electrical
Method of opening	manual	<input checked="" type="checkbox"/>	electrical
Number of poles	3		
Voltage	RV = 12		
Power frequency withstand voltage			
- to earth and between poles	.1 min	kV = 28	
	.1 min wet	kV = 7	
Lightning impulse withstand voltage			
- to earth and between poles		kV peak = 75	
Switching impulse withstand voltage			
- class for U > 300 kV (A or B)			
- to earth		kV peak = 7	
Frequency	Hz = 50/60		
Peak withstand current	KA = 62.5		
Short-time withstand current:	KA = 75		
duration	s = 1		
Short circuit making current	2A peak = 62.5		
Supply voltage			
- control motor	Vac = 7		
- closing mechanism	Vac = 7		
- opening mechanism	Vac = 7		
Operating mechanism supply pressure	bar gauge = 7		
Contact zone	m = 1 mm / 15 = 1 mm = 1		
Mechanical terminal load	N = 7		
- straight load	N = 7		
- cross-load			
Control mechanism type	: CI2		
Drawing(s) No.	:		






1965

station d'essais à grande puissance
GRCN Génie à celex 3

No. AD 24000

12206 3

RECORD OF PROVING TESTS

Appendix No 1

Test type and test-duty	Page
- 5 short-circuit making tests of earthing switch at 25.2726 G. kA - 65.4/52.0 kA peak - 12.1/12.2 kV	8 - 9
- 5 short-circuit making tests of switch at 25.4795 G. kA - 65.0/52.1 kA peak - 12.1/12.2 kV	10 - 11

Manufacturer
(Representative(s))

M. MESTRAULT

SPINDLER ELECTRIC

9
1966

J.W.A.

service d'essais

station d'essais à grande puissance
pour les transformateurs de courant

J.W.

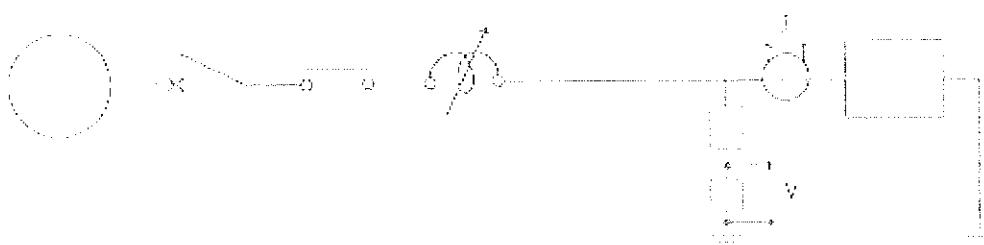
No. AC 2426-1

page 6

1967

TEST CIRCUIT

station d'essai alternante	132 KV AC transformer current meter	transformer current meter	transformer current meter	transformer power transformer	control device transformer



CONDITIONS OF PROVING TESTS

- Supply by cables 150 mm²
- The apparatus is supplied with control device (130 Vdc)

J.W.

1967

J.W.

J.W.
1967

Centre d'essais
 station d'essais à grande puissance
 E. L. G. E. C. énergie électrique

No. AC 2493 b

page 7

UNCERTAINTIES OF MEASURING CHAINS

Type of measurement	Range	Type of calibration	Uncertainty in %	Uncertainty in %
Current from CD	0 to 1 A	Pulse train value	1.7	
Current from MCD	0 to 1 A	Peak value	3.7	
Current from ammeter	0 to 5 A	Inductance value	5.6	
Current from shunt	0 to 5 A	Faraday law	4.7	
Current from ammeter	0 to 50 A	Inductance value	5.6	
Current from shunt	0 to 50 A	Faraday law	4.7	
Voltage from CD	> 100 V	Peak value	1.32	
Voltage from MCD	> 100 V	Peak value (peak to peak) / √2	1.67	0.83
Voltage from ammeter	> 100 V	Peak value	5.6	0.83
Voltage from ammeter	> 100 V	Peak value	2.56	
Voltage from MCD	> 100 V	Peak value (peak to peak) / √2	3.04	
Power factor	> 100 W	Peak value	0.93	
Voltage from CD or MCD	< 1000 V	Inductance value	1.73	
Voltage from CD or MCD	> 1000 V	Peak value (peak to peak) / √2	1.42	
Voltage from CD or MCD	> 1000 V	Peak value	1.03	
Voltage from CD or MCD	> 1000 V	Inductance value	0.20317	0.01
Voltage from CD or MCD	> 1000 V	Inductance value	0.20317	0.42
Voltage from CD or MCD	> 1000 V	Peak value	0.20317	0.93
Voltage from CD or MCD	> 1000 V	Peak value (peak to peak) / √2	0.20317	0.79
Voltage from ammeter	> 1000 V	Peak value	0.20317	0.36
Voltage from MCD	> 1000 V	Peak value	0.20317	0.36
Voltage from CD or MCD	> 1000 V	Peak value	0.20317	0.61
Voltage from CD or MCD	> 1000 V	Peak value	0.20317	0.66
Voltage from CD or MCD	> 10 kV	Peak value	0.20317	1.93
Voltage from CD or MCD	> 10 kV	Peak value (peak to peak) / √2	0.20317	1.17
Voltage from CD or MCD	> 10 kV	Peak value	0.20317	1.17
Voltage from CD or MCD	> 10 kV	Peak value	0.20317	1.17
Voltage from CD or MCD	< 1000 V	Peak value	1.83	
Acoustic energy measured from CD or MCD	0 to 10 kW	Inductance value	2.82	
Pressure	0.5 to 1 bar 1 to 2 bars 2 to 5 bars 5 to 10 bars	Peak value	4.18 3.76 3.40 3.73	
Time	10 to 200 ms		1.3	
Time	200 ms to 1 s		1.3	

CD : capacitive divider MCD : mixed capacitive divider

Y
1968

station d'essais à grande puissance
à l'île de la Réunion

No. AC 2499 n page 3

RESULTS OF THE SHORT-CIRCUIT MAKING TESTS

Accordance with test 1: Earthling switch of the article SME type M

Operating conditions
of the apparatus. See page 6

See pages 6 and 7

Apparatus condition before tests now having performed the previous tests

Accordus condition after tests: No deterioration was noted.

A diagram consisting of two thin black lines that intersect at their midpoints. The lines extend from the bottom-left towards the top-right and from the top-left towards the bottom-right, creating a symmetrical 'X' or intersection pattern.

1

1969

EDIA

électricité

station d'essais à grande puissance
à Courbevoie dans le cadre de

J

No. AC 2400 E

page 3

RESULTS OF THE SHORT-CIRCUIT MAKING TESTS

Apparatus under test

Earthing switch of the switchboard SMG type lid

Operating conditions
of the apparatus

See page 6

Test conditions

: See pages 6 and 7

Apparatus condition before tests

NEW
having performed the previous tests

Test report	No.	C 0479-82-09-13					
		056	1	2	3	4	5
Operating temperature		0	-4.0	12.1	12	12	12
Apparatus voltage	mA	12.1					
Current	mA	51.3					
Current	A	54.5					
Current	A	49.0					
Opening	A	45	10.6		27.5		
Opening	A	65	16.1		30.4		
Opening	A	65	22.6		26.6		
Current	mA	29.8			21.5		
WIPER	position	W1	/	/	/		
WIPER	position	W2	/	/	/		
WIPER	position	W3	123		21		
TEST							
Remarks							

Apparatus condition after tests

No deterioration was noted


J. L. G.


J. L. G.
1970

device d'essai

station d'essai à grande puissance
E-33 1000 Kwattale voltage 9

No. A.C. 3492 b

page 10

RESULTS OF THE SHORT-CIRCUIT MAKING TESTS

Apparatus under test

: Switch of the switch 3M6 type M

Operating conditions
of the apparatus

: See page 6

Test conditions

: See pages 6 and 7

Apparatus condition before tests

: new 
having performed the previous tests 

Test number	Date	Test 3492 b				new  having performed the previous tests 
		0%	50%	221	350	
Current at 90% voltage	KV	12.4	12.2	12.2	12.2	
Current at 11	A	64.0	51.1	51.1	51.1	
Current at 12	A	55.5	46.7	46.7	46.7	
Current at 13	A	46.7	38.6	38.6	38.6	
Current at 14	A	38.6	30.0	30.0	30.0	
Current at 15	A	30.0	23.1	23.1	23.1	
Current at 16	A	23.1	18.4	18.4	18.4	
Current at 17	A	18.4	14.0	14.0	14.0	
Current at 18	A	14.0	10.6	10.6	10.6	
Current at 19	A	10.6	8.0	8.0	8.0	
Current at 20	A	8.0	6.0	6.0	6.0	
Current at 21	A	6.0	4.0	4.0	4.0	
Current at 22	A	4.0	2.7	2.7	2.7	
Current at 23	A	2.7	1.8	1.8	1.8	
Current at 24	A	1.8	1.2	1.2	1.2	
Current at 25	A	1.2	0.8	0.8	0.8	
Current at 26	A	0.8	0.5	0.5	0.5	
Current at 27	A	0.5	0.3	0.3	0.3	
Current at 28	A	0.3	0.2	0.2	0.2	
Current at 29	A	0.2	0.1	0.1	0.1	
Current at 30	A	0.1	0.05	0.05	0.05	
Current at 31	A	0.05	0.02	0.02	0.02	
Current at 32	A	0.02	0.01	0.01	0.01	
Current at 33	A	0.01	0.005	0.005	0.005	
Current at 34	A	0.005	0.002	0.002	0.002	
Current at 35	A	0.002	0.001	0.001	0.001	
Current at 36	A	0.001	0.0005	0.0005	0.0005	
Current at 37	A	0.0005	0.0002	0.0002	0.0002	
Current at 38	A	0.0002	0.0001	0.0001	0.0001	
Current at 39	A	0.0001	0.00005	0.00005	0.00005	
Current at 40	A	0.00005	0.00002	0.00002	0.00002	
Current at 41	A	0.00002	0.00001	0.00001	0.00001	
Current at 42	A	0.00001	0.000005	0.000005	0.000005	
Current at 43	A	0.000005	0.000002	0.000002	0.000002	
Current at 44	A	0.000002	0.000001	0.000001	0.000001	
Current at 45	A	0.000001	0.0000005	0.0000005	0.0000005	
Current at 46	A	0.0000005	0.0000002	0.0000002	0.0000002	
Current at 47	A	0.0000002	0.0000001	0.0000001	0.0000001	
Current at 48	A	0.0000001	0.00000005	0.00000005	0.00000005	
Current at 49	A	0.00000005	0.00000002	0.00000002	0.00000002	
Current at 50	A	0.00000002	0.00000001	0.00000001	0.00000001	
Current at 51	A	0.00000001	0.000000005	0.000000005	0.000000005	
Current at 52	A	0.000000005	0.000000002	0.000000002	0.000000002	
Current at 53	A	0.000000002	0.000000001	0.000000001	0.000000001	
Current at 54	A	0.000000001	0.0000000005	0.0000000005	0.0000000005	
Current at 55	A	0.0000000005	0.0000000002	0.0000000002	0.0000000002	
Current at 56	A	0.0000000002	0.0000000001	0.0000000001	0.0000000001	
Current at 57	A	0.0000000001	0.00000000005	0.00000000005	0.00000000005	
Current at 58	A	0.00000000005	0.00000000002	0.00000000002	0.00000000002	
Current at 59	A	0.00000000002	0.00000000001	0.00000000001	0.00000000001	
Current at 60	A	0.00000000001	0.000000000005	0.000000000005	0.000000000005	
Current at 61	A	0.000000000005	0.000000000002	0.000000000002	0.000000000002	
Current at 62	A	0.000000000002	0.000000000001	0.000000000001	0.000000000001	
Current at 63	A	0.000000000001	0.0000000000005	0.0000000000005	0.0000000000005	
Current at 64	A	0.0000000000005	0.0000000000002	0.0000000000002	0.0000000000002	
Current at 65	A	0.0000000000002	0.0000000000001	0.0000000000001	0.0000000000001	
Current at 66	A	0.0000000000001	0.00000000000005	0.00000000000005	0.00000000000005	
Current at 67	A	0.00000000000005	0.00000000000002	0.00000000000002	0.00000000000002	
Current at 68	A	0.00000000000002	0.00000000000001	0.00000000000001	0.00000000000001	
Current at 69	A	0.00000000000001	0.000000000000005	0.000000000000005	0.000000000000005	
Current at 70	A	0.000000000000005	0.000000000000002	0.000000000000002	0.000000000000002	
Current at 71	A	0.000000000000002	0.000000000000001	0.000000000000001	0.000000000000001	
Current at 72	A	0.000000000000001	0.0000000000000005	0.0000000000000005	0.0000000000000005	
Current at 73	A	0.0000000000000005	0.0000000000000002	0.0000000000000002	0.0000000000000002	
Current at 74	A	0.0000000000000002	0.0000000000000001	0.0000000000000001	0.0000000000000001	
Current at 75	A	0.0000000000000001	0.00000000000000005	0.00000000000000005	0.00000000000000005	
Current at 76	A	0.00000000000000005	0.00000000000000002	0.00000000000000002	0.00000000000000002	
Current at 77	A	0.00000000000000002	0.00000000000000001	0.00000000000000001	0.00000000000000001	
Current at 78	A	0.00000000000000001	0.000000000000000005	0.000000000000000005	0.000000000000000005	
Current at 79	A	0.000000000000000005	0.000000000000000002	0.000000000000000002	0.000000000000000002	
Current at 80	A	0.000000000000000002	0.000000000000000001	0.000000000000000001	0.000000000000000001	
Current at 81	A	0.000000000000000001	0.0000000000000000005	0.0000000000000000005	0.0000000000000000005	
Current at 82	A	0.0000000000000000005	0.0000000000000000002	0.0000000000000000002	0.0000000000000000002	
Current at 83	A	0.0000000000000000002	0.0000000000000000001	0.0000000000000000001	0.0000000000000000001	
Current at 84	A	0.0000000000000000001	0.00000000000000000005	0.00000000000000000005	0.00000000000000000005	
Current at 85	A	0.00000000000000000005	0.00000000000000000002	0.00000000000000000002	0.00000000000000000002	
Current at 86	A	0.00000000000000000002	0.00000000000000000001	0.00000000000000000001	0.00000000000000000001	
Current at 87	A	0.00000000000000000001	0.000000000000000000005	0.000000000000000000005	0.000000000000000000005	
Current at 88	A	0.000000000000000000005	0.000000000000000000002	0.000000000000000000002	0.000000000000000000002	
Current at 89	A	0.000000000000000000002	0.000000000000000000001	0.000000000000000000001	0.000000000000000000001	
Current at 90	A	0.000000000000000000001	0.0000000000000000000005	0.0000000000000000000005	0.0000000000000000000005	
Current at 91	A	0.0000000000000000000005	0.0000000000000000000002	0.0000000000000000000002	0.0000000000000000000002	
Current at 92	A	0.0000000000000000000002	0.0000000000000000000001	0.0000000000000000000001	0.0000000000000000000001	
Current at 93	A	0.0000000000000000000001	0.00000000000000000000005	0.00000000000000000000005	0.00000000000000000000005	
Current at 94	A	0.00000000000000000000005	0.00000000000000000000002	0.00000000000000000000002	0.00000000000000000000002	
Current at 95	A	0.00000000000000000000002	0.00000000000000000000001	0.00000000000000000000001	0.00000000000000000000001	
Current at 96	A	0.00000000000000000000001	0.000000000000000000000005	0.000000000000000000000005	0.000000000000000000000005	
Current at 97	A	0.000000000000000000000005	0.000000000000000000000002	0.000000000000000000000002	0.000000000000000000000002	
Current at 98	A	0.000000000000000000000002	0.000000000000000000000001	0.000000000000000000000001	0.000000000000000000000001	
Current at 99	A	0.000000000000000000000001	0.0000000000000000000000005	0.0000000000000000000000005	0.0000000000000000000000005	
Current at 100	A	0.0000000000000000000000005	0.0000000000000000000000002	0.0000000000000000000000002	0.0000000000000000000000002	
Current at 101	A	0.0000000000000000000000002	0.0000000000000000000000001	0.0000000000000000000000001	0.0000000000000000000000001	
Current at 102	A	0.0000000000000000000000001	0.00000000000000000000000005	0.00000000000000000000000005	0.00000000000000000000000005	
Current at 103	A	0.00000000000000000000000005	0.00000000000000000000000002	0.00000000000000000000000002	0.00000000000000000000000002	
Current at 104	A	0.00000000000000000000000002	0.00000000000000000000000001	0.00000000000000000000000001	0.00000000000000000000000001	
Current at 105	A	0.00000000000000000000000001	0.000000000000000000000000005	0.000000000000000000000000005	0.000000000000000000000000005	
Current at 106	A	0.000000000000000000000000005	0.000000000000000000000000002	0.000000000000000000000000002	0.000000000000000000000000002	
Current at 107	A	0.000000000000000000000000002	0.000000000000000000000000001	0.000000000000000000000000001	0.000000000000000000000000001	
Current at 108	A	0.000000000000000000000000001	0.0000000000000000000000000005	0.0000000000000000000000000005	0.0000000000000000000000000005	
Current at 109	A	0.0000000000000000000000000005	0.0000000000000000000000000002	0.0000000000000000000000000002	0.0000000000000000000000000002	
Current at 110	A	0.0000000000000000000000000002	0.000000			

CETRA

Centre d'essais

station d'essais à grande puissance
courant continu type 3

25

No. AC 2499 b

page 11

RESULTS OF THE SHORT-CIRCUIT MAKING TESTS

Apparatus under test:

: Sketch of the cubicle SMG type M

Operating conditions
of the apparatus

: See page 6

Test conditions

: See pages 5 and 7

Apparatus condition before tests

: ^{new}
having performed the previous tests : ^{used}

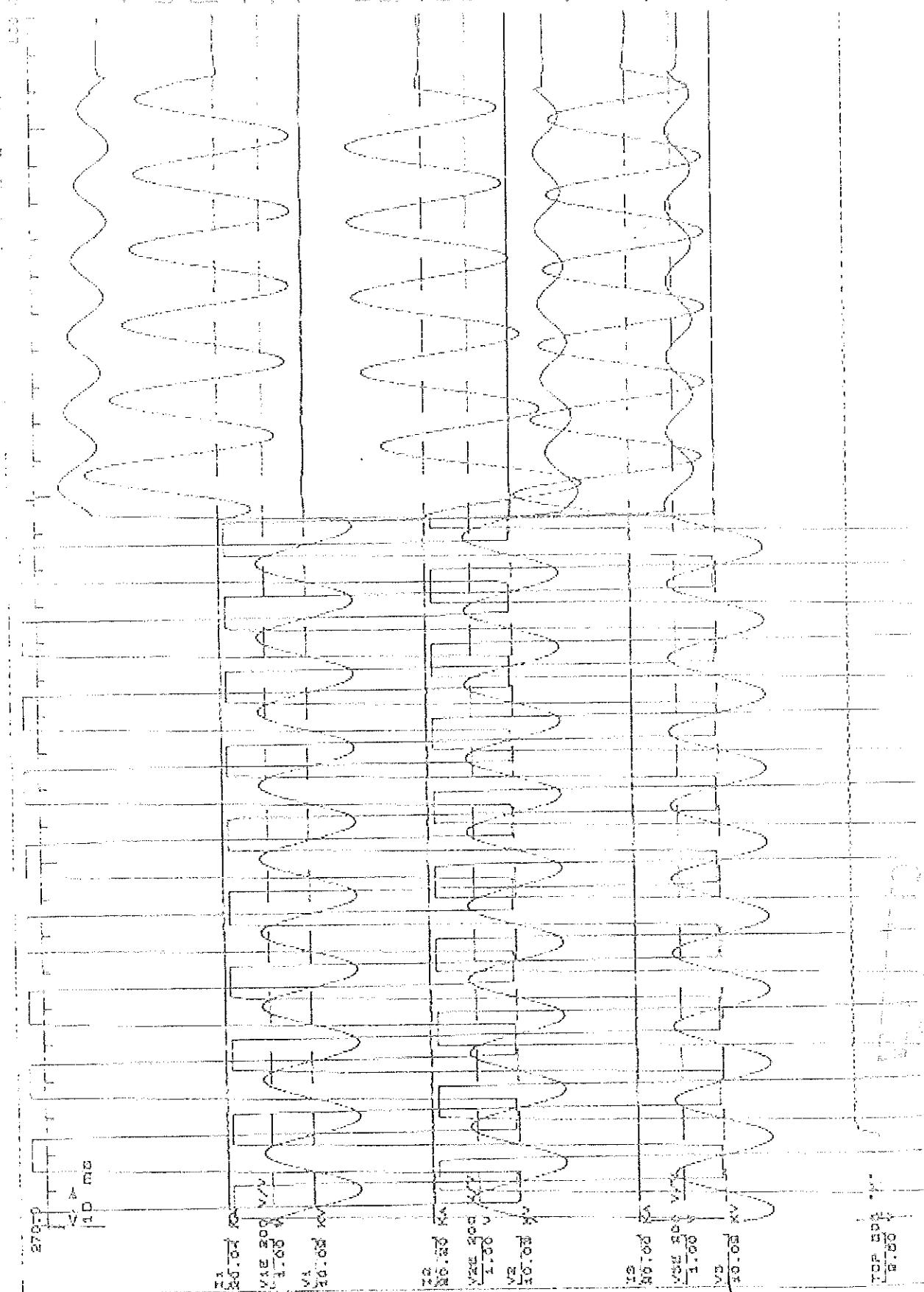
Characteristic	No.	C 2499/36 09 15			Date
		053	054	055	
Rated voltage	11	12.1	12.1	12.1	
Current	II	3A	32.7	45.0	
Current	II	3A	64.2	83.7	
Current	Ia	3A	53.2	43.6	
Voltage	II	3A	25.6	18.0	
Voltage	II	3A	26.0	21.7	
Voltage	II	3A	25.7	25.6	
Current	II	3A	25.8	25.8	
Time	time to 30% of short-circuit current	ms	7	7	
Remarks		ms	7	7	
		ms	152	149	
Date					
Remarks					

Apparatus condition after tests

No deterioration was noted.

1972

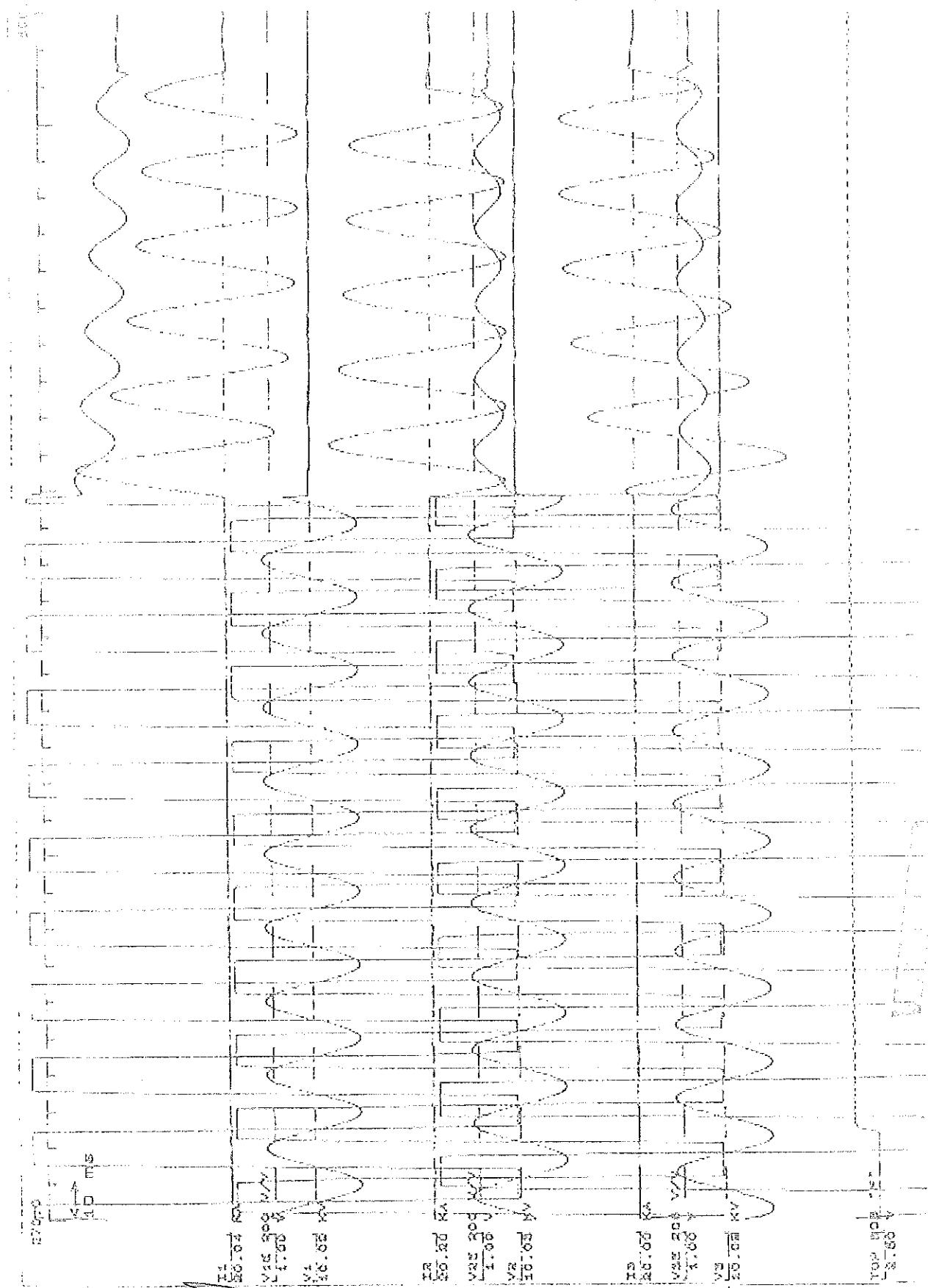
VOLTA C2499 98/09/15/048



JG
TOP SIDE
100

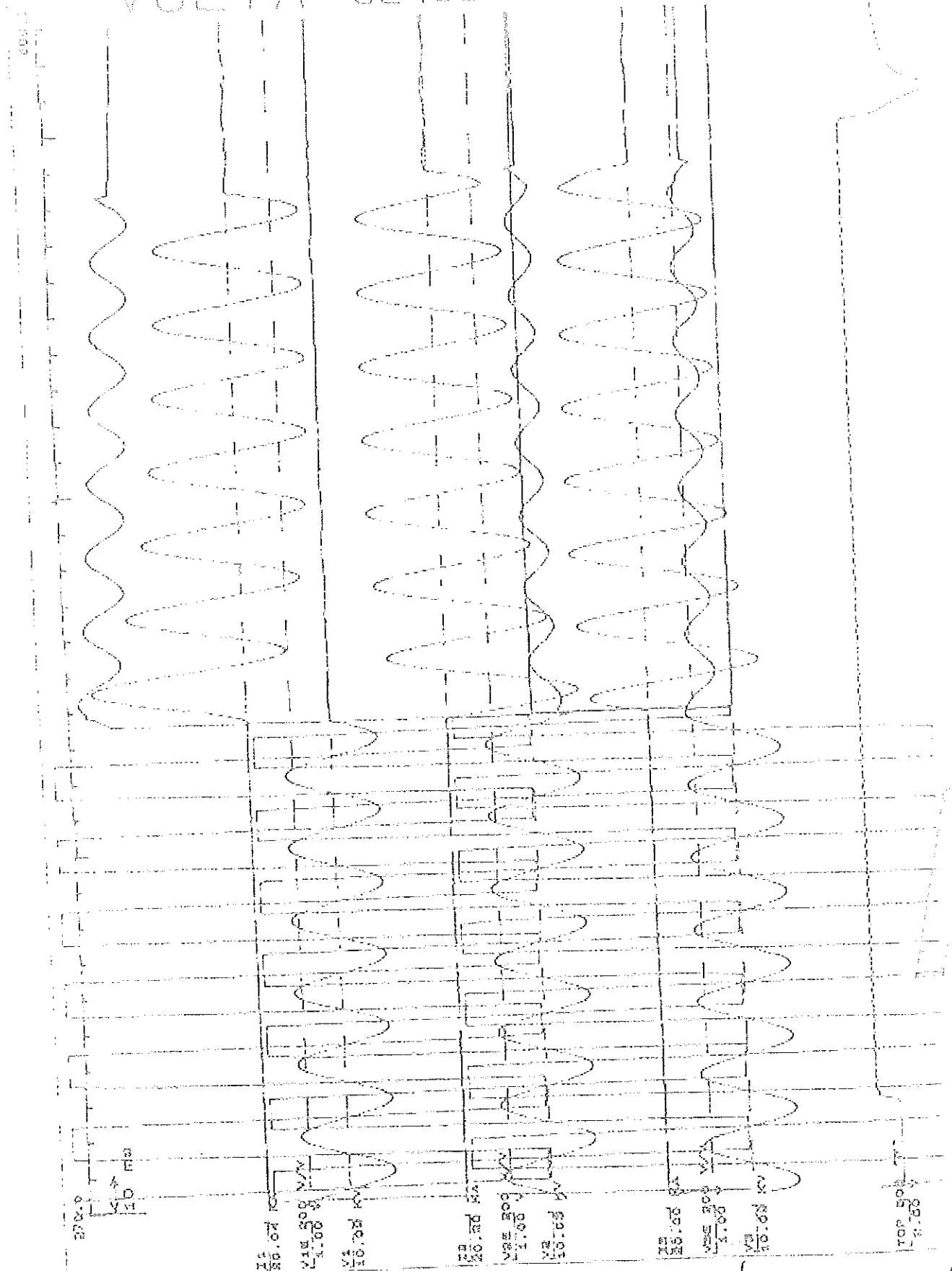
JG
1973

VOLTA C2499 98/09/15/049

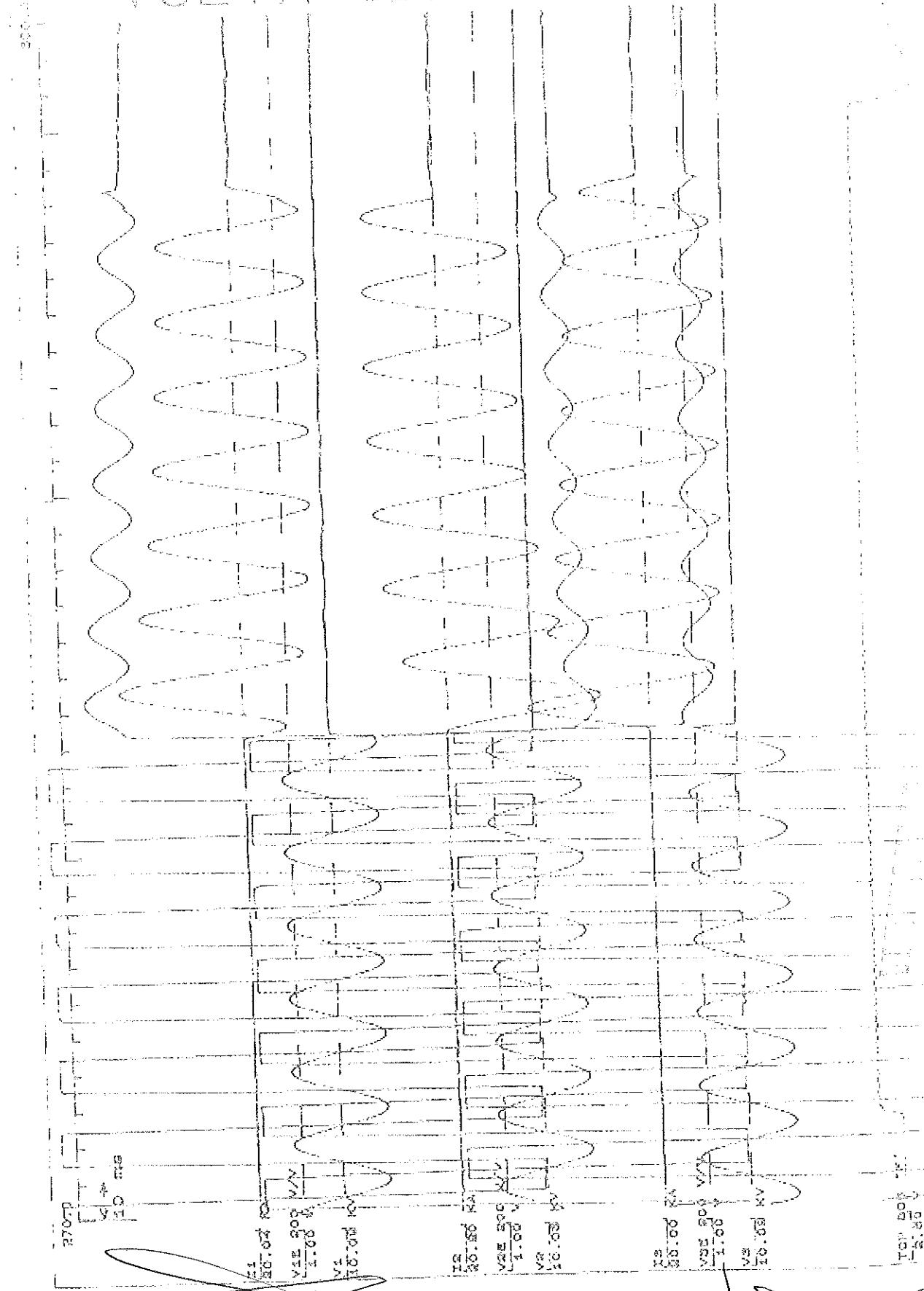


JG
1974

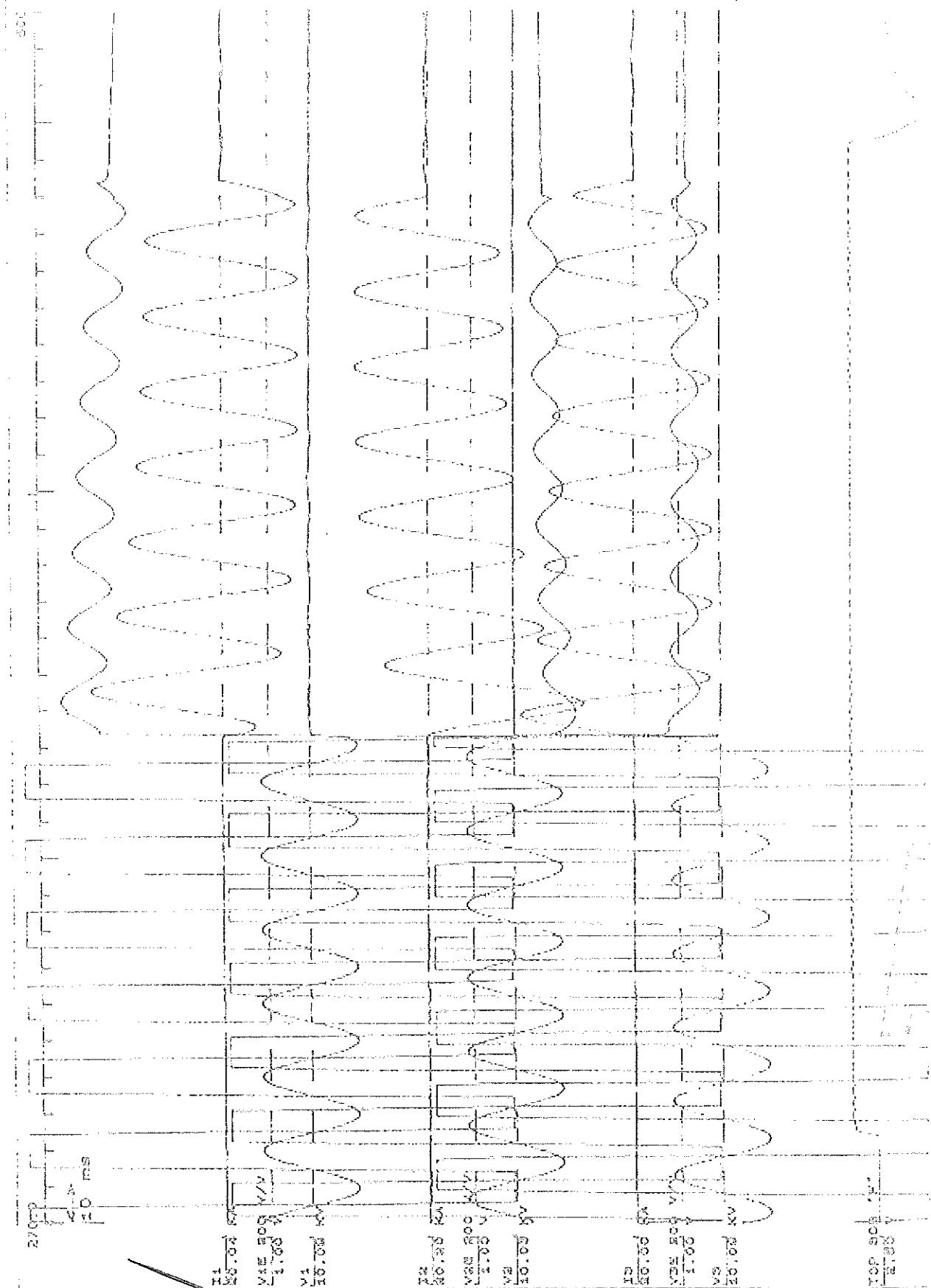
VOLTA C2499 98/09/15/050



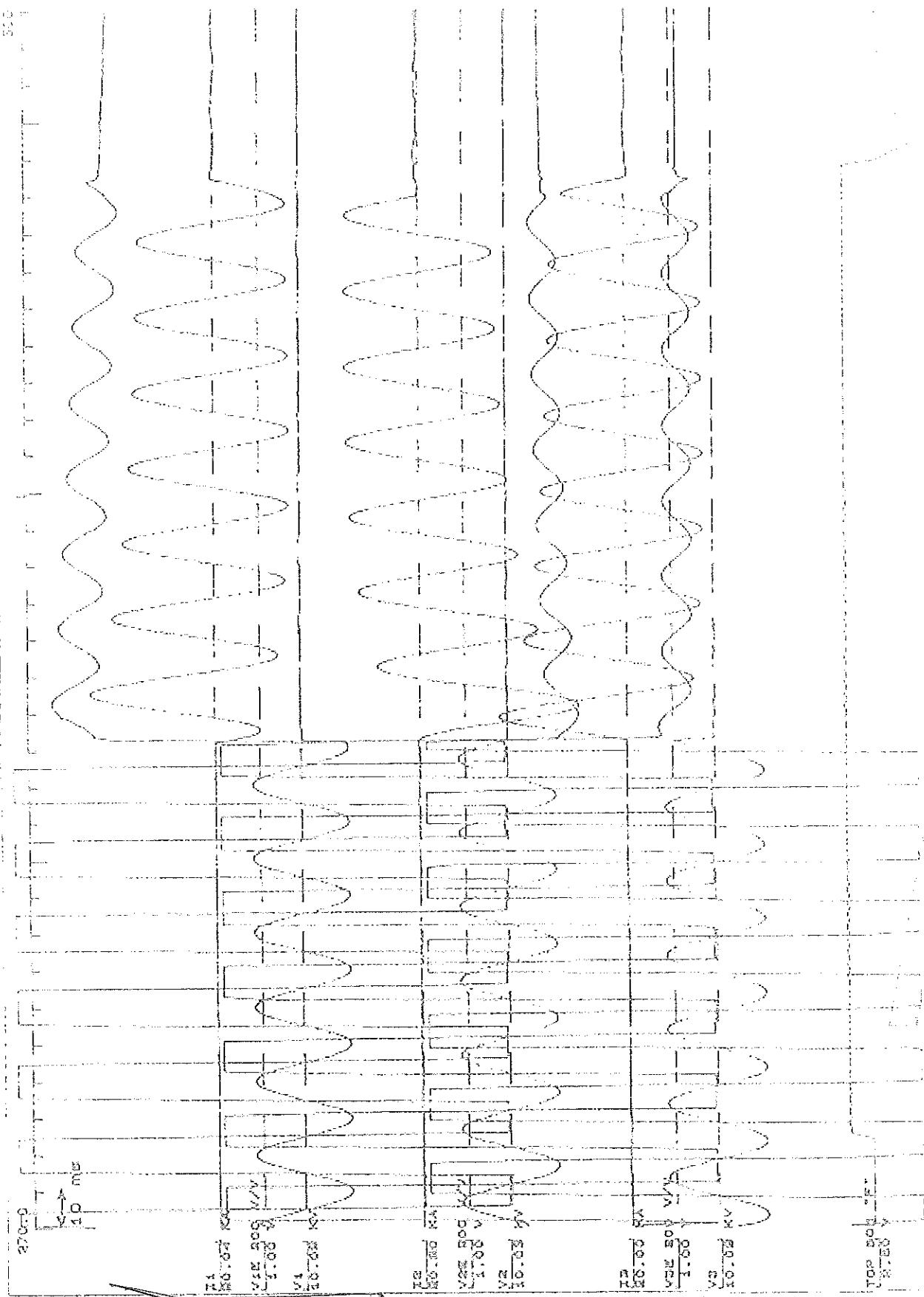
VOLTA C2499 98/09/15/051



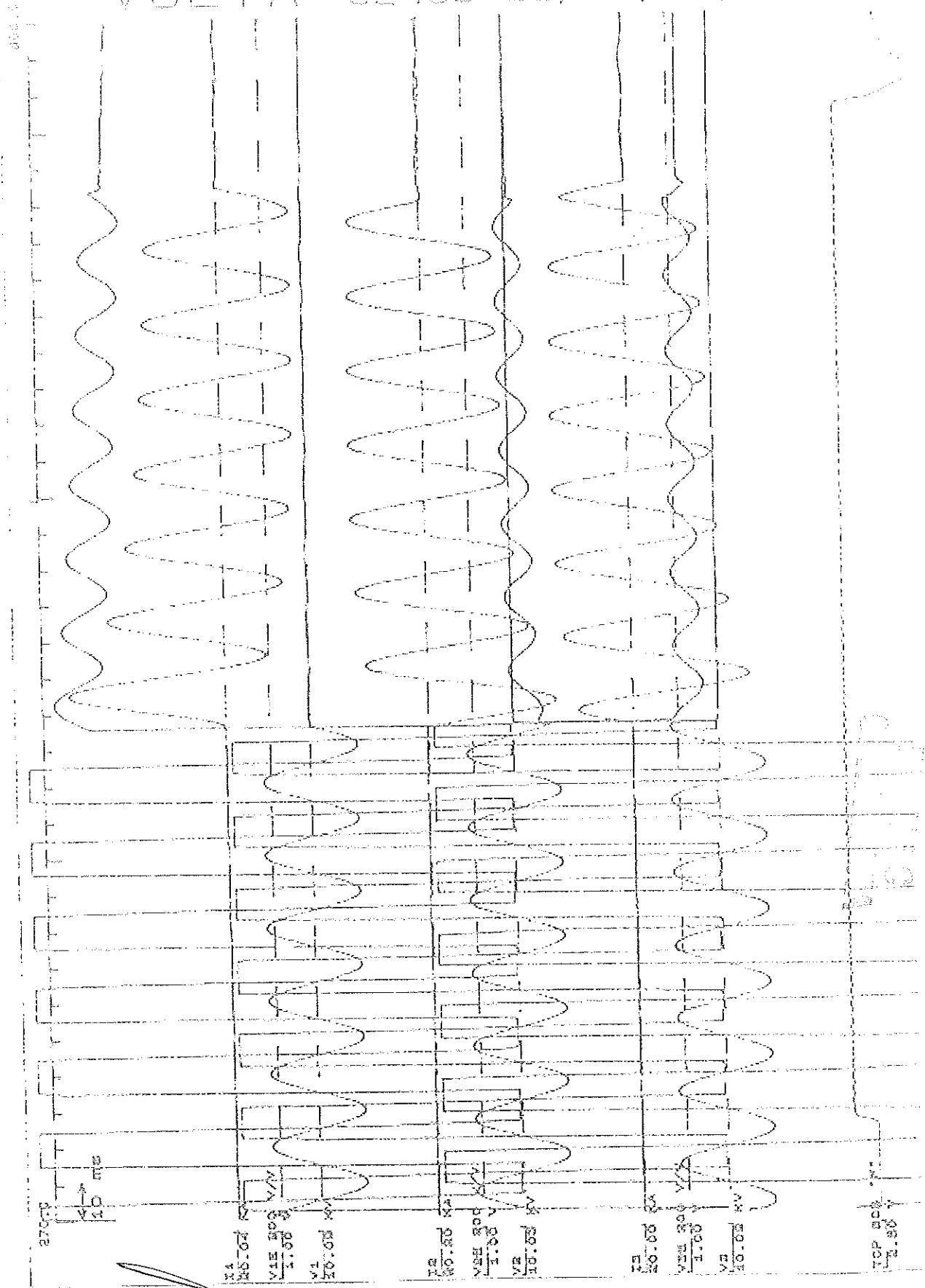
VOLTA c2499 98/09/15/052



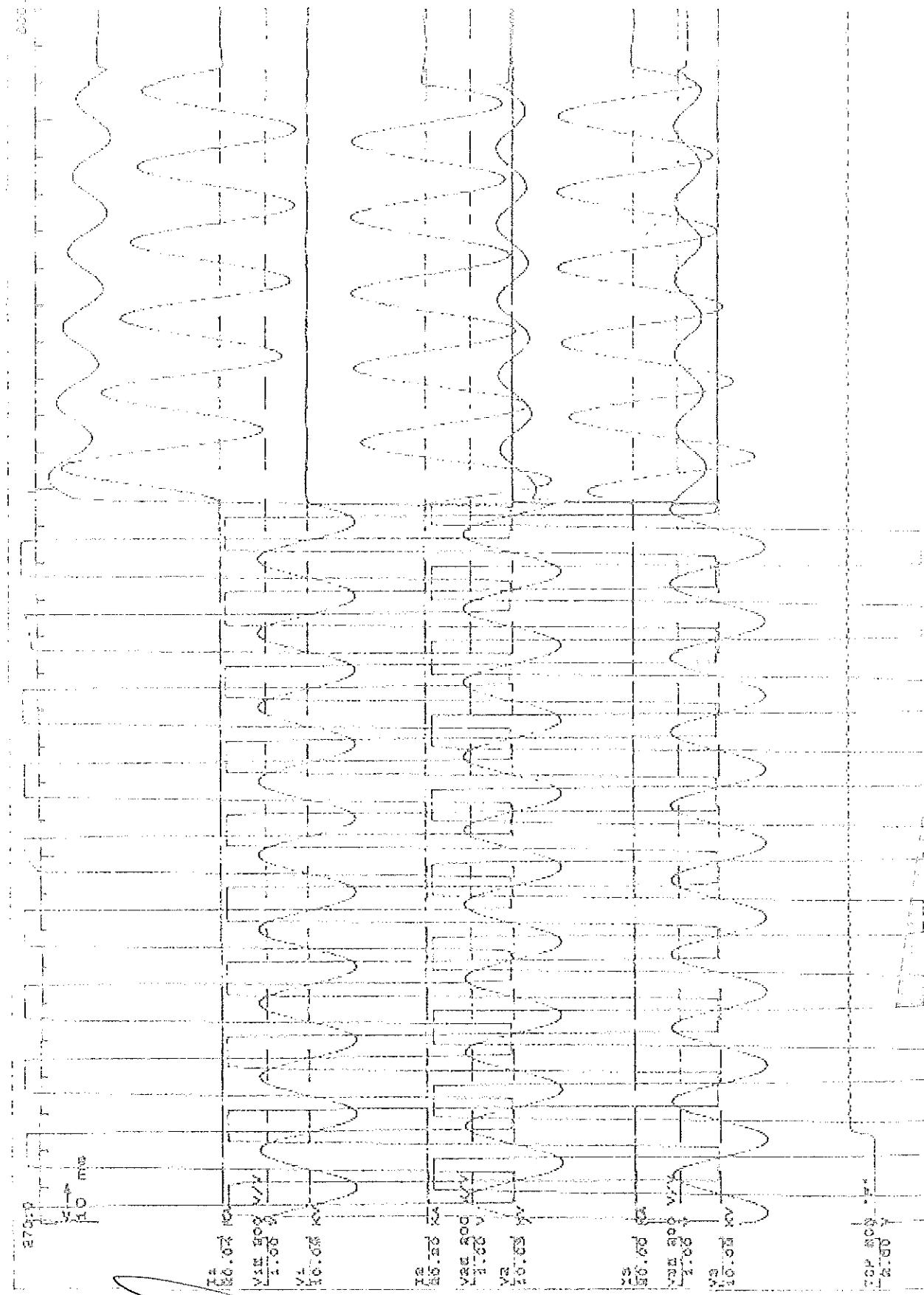
VOLTA C2499 98/09/15/053



VOLTA C2499 98/09/15/054

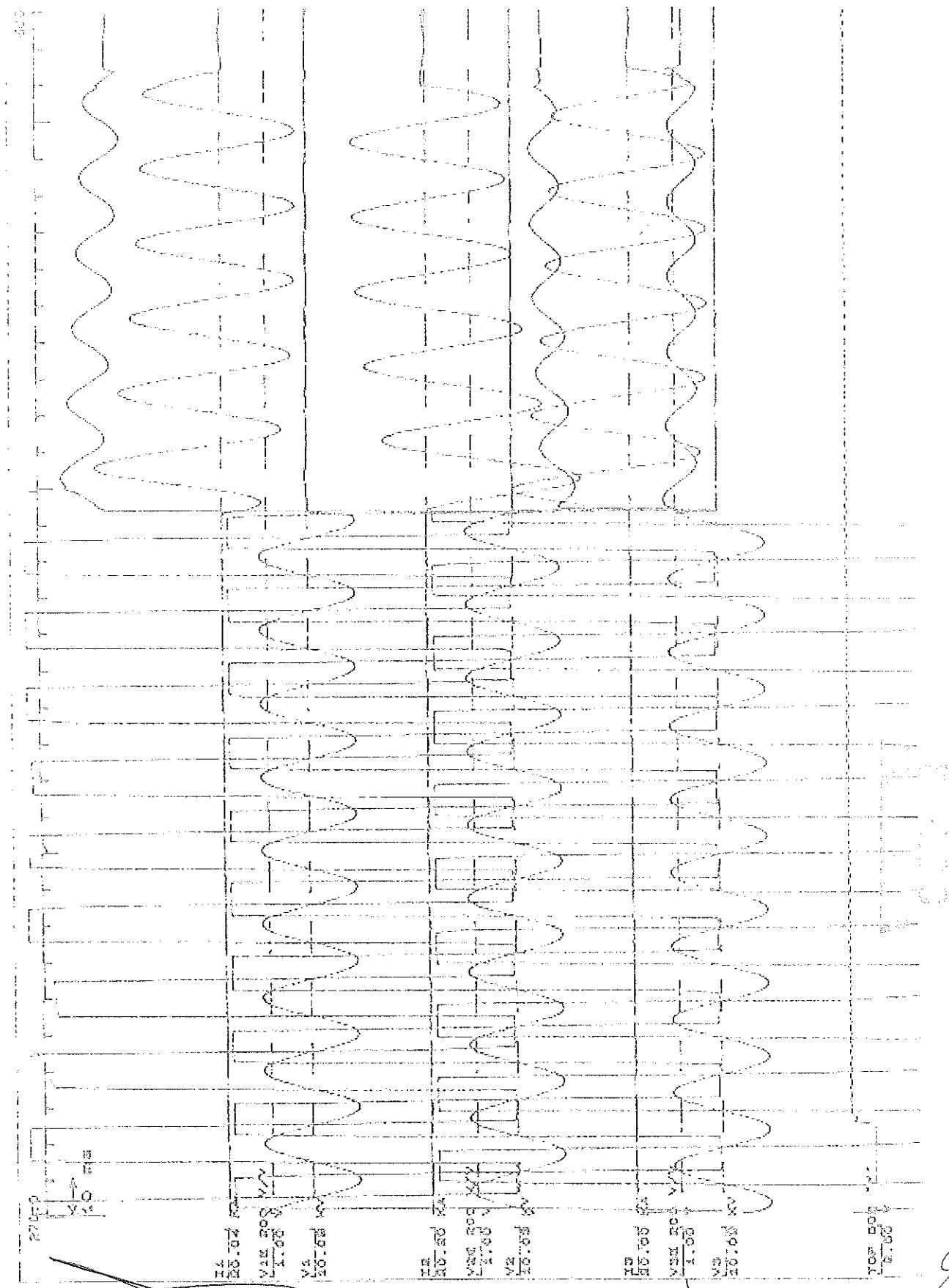


3
VOLTA C2499 98/09/15/055



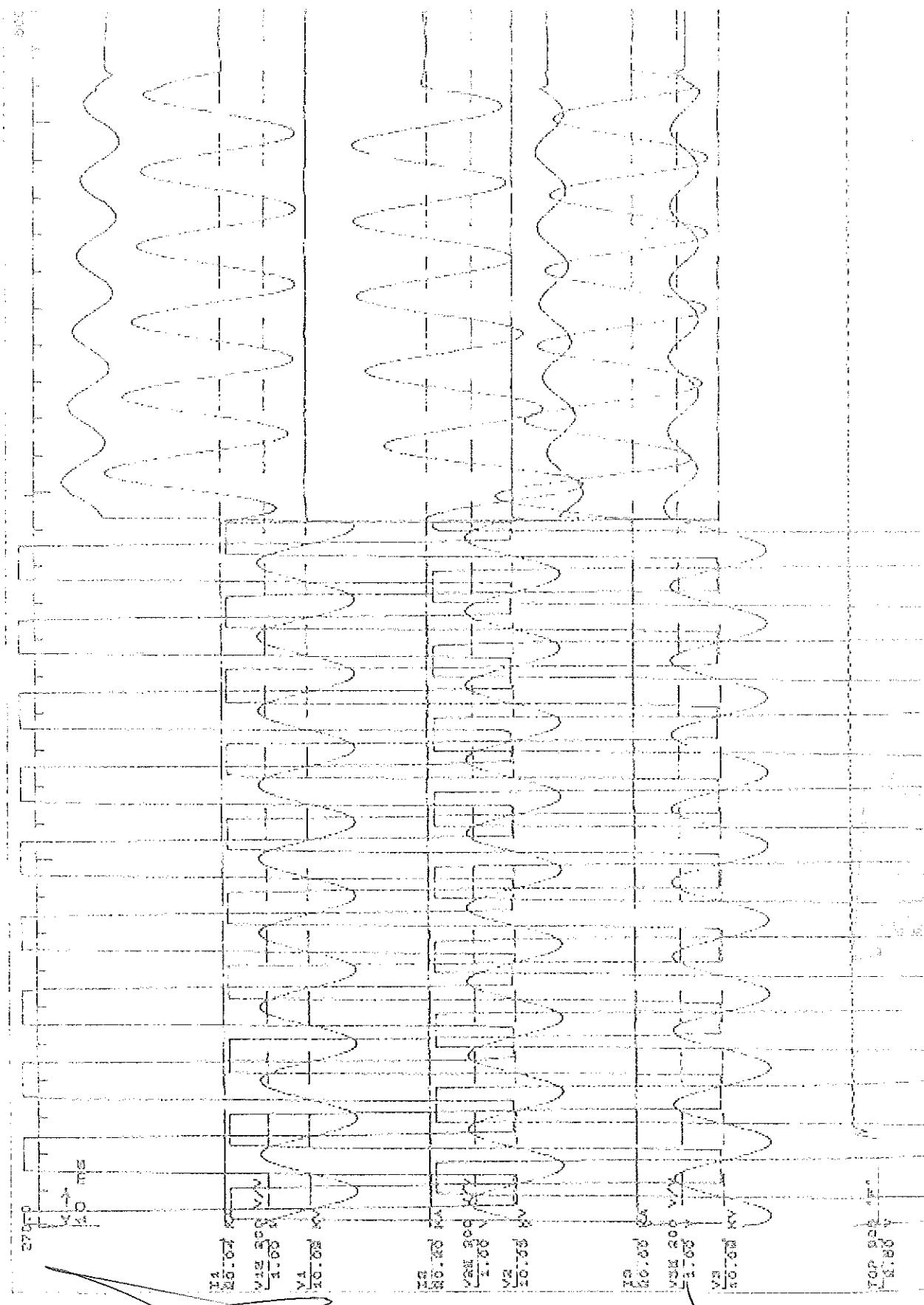
9
1980

~~2~~ VOLTA C2499 98/09/15/056

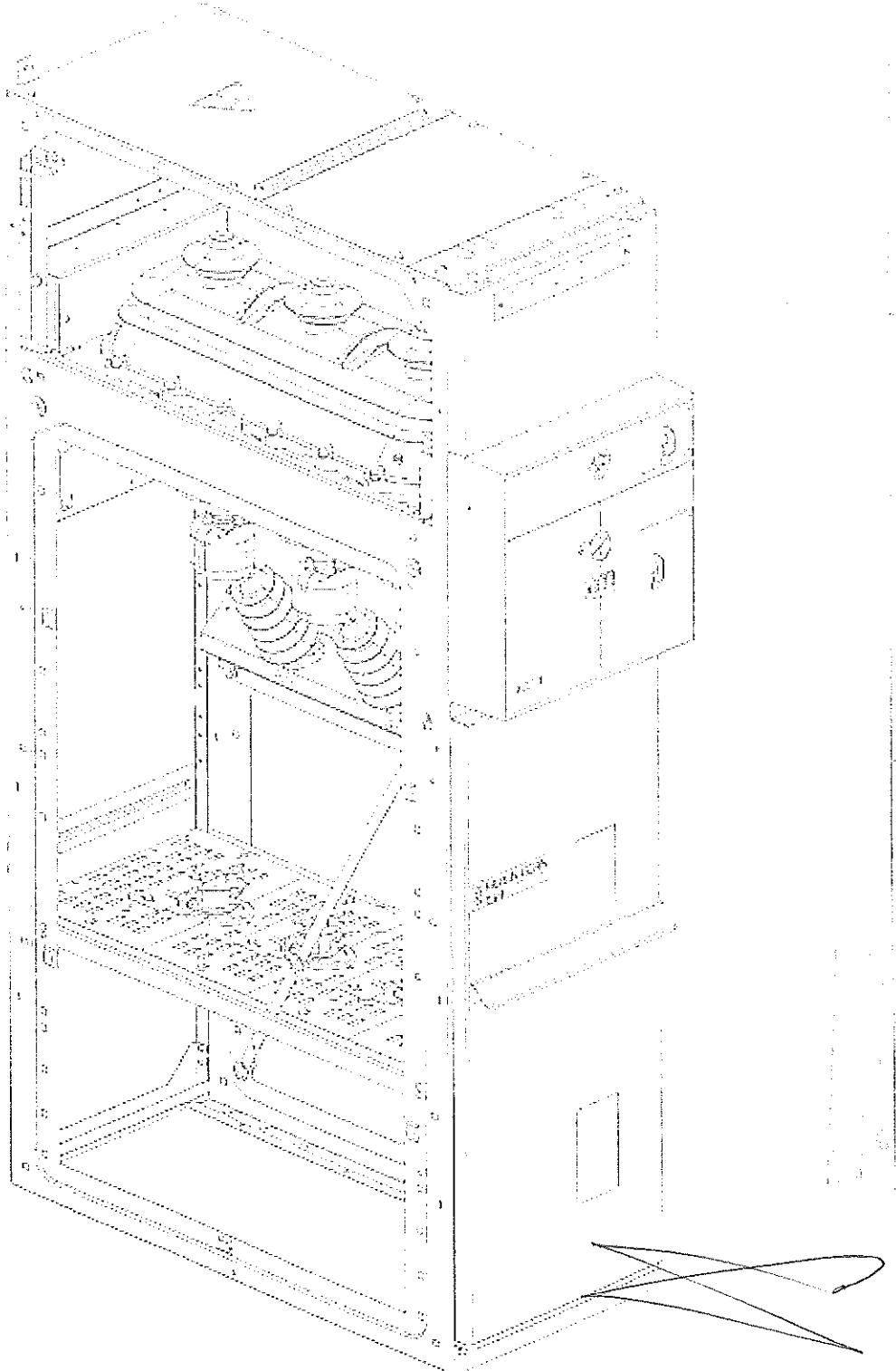


99
1981

✓
VOLTA C2499 98/09/15/057



✓
1962

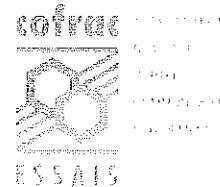


SCIAESTA	EMB	MERLIN GERIN	
ST-DMT	CHICAGO IL		
300 E. 3rd Street	CELLULOID EMB	3730457	1983

9
1983

L.E.M.T.

Laboratoire d'essais moyenne tension
Usine 38V
Z.A.C Champ saint-ange
38760 Varces
tél. : 04 76 39 62.01
fax : 04 76 39 13 01



TEST REPORT n°51252688EA

Apparatus : Metal-enclosed switchgear and controlgear
Designation : MERLIN GERIN SM6 type IM 500
Rated voltage : 24 kV Rated current : 630 A
Manufacturer : Schneider Electric Industries SAS - Rueil-Malmaison - FRANCE

Object : Temperature-rise tests at rated current 630 A

Tested for : Schneider Electric Industries SAS

Date(s) of tests : 01 April 2004

These tests were carried out in accordance with : Customer request based on IEC 62271-200(2003)

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.

This document relate only to the items presented for testing.

The documents forming part of this test report are :

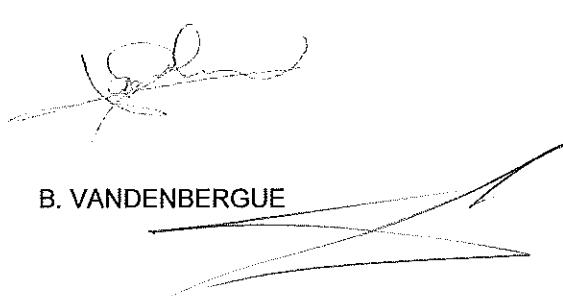
Apparatus ratings	page(s) 2
Test records	page(s) 3
Test conditions	page(s) 4 and 5
Test results	page(s) 6 and 7
Oscillograms	page(s) 8 to 10
Drawings	page(s) 11
The test report comprises :	11 pages

This test report can only be copied as a photographic facsimile in its entirety.

COFRAC Testing Section accreditation is only to certify that the laboratory complies with the technical competence required to carry out test on the product types covered by the accreditation.

Varces, 08 April 2004

Technical manager


B. VANDENBERGUE

Testing laboratory manager


JM ANSELMETTI
1984

APPARATUS RATINGS

Manufacturer	:	Schneider Electric Industries SAS	
Designation	:	MERLIN GERIN SM6 type IM 500	
Number of poles	:	3	
Voltage	kV	: 24	
Lightning impulse withstand voltage	kV	: 125	
Power frequency withstand voltage	kV	: 50	
Frequency	Hz	: 50 / 60	
Normal current	A	: 630	
Short time withstand current	kA	: 20	
Peak withstand current	kA	: 50 s : 1	
Short circuit breaking current	kA	: 20	
Short circuit making current	kA	: 50	
Interrupting medium	Disconnecter	: SF ₆	
Relative pressure at 20°C	bar(s)	: 0.4	
Control mechanism type	:		CIT
Degree of protection	:		IP2XC
Drawing n°	:		3730457 ind. H

1985