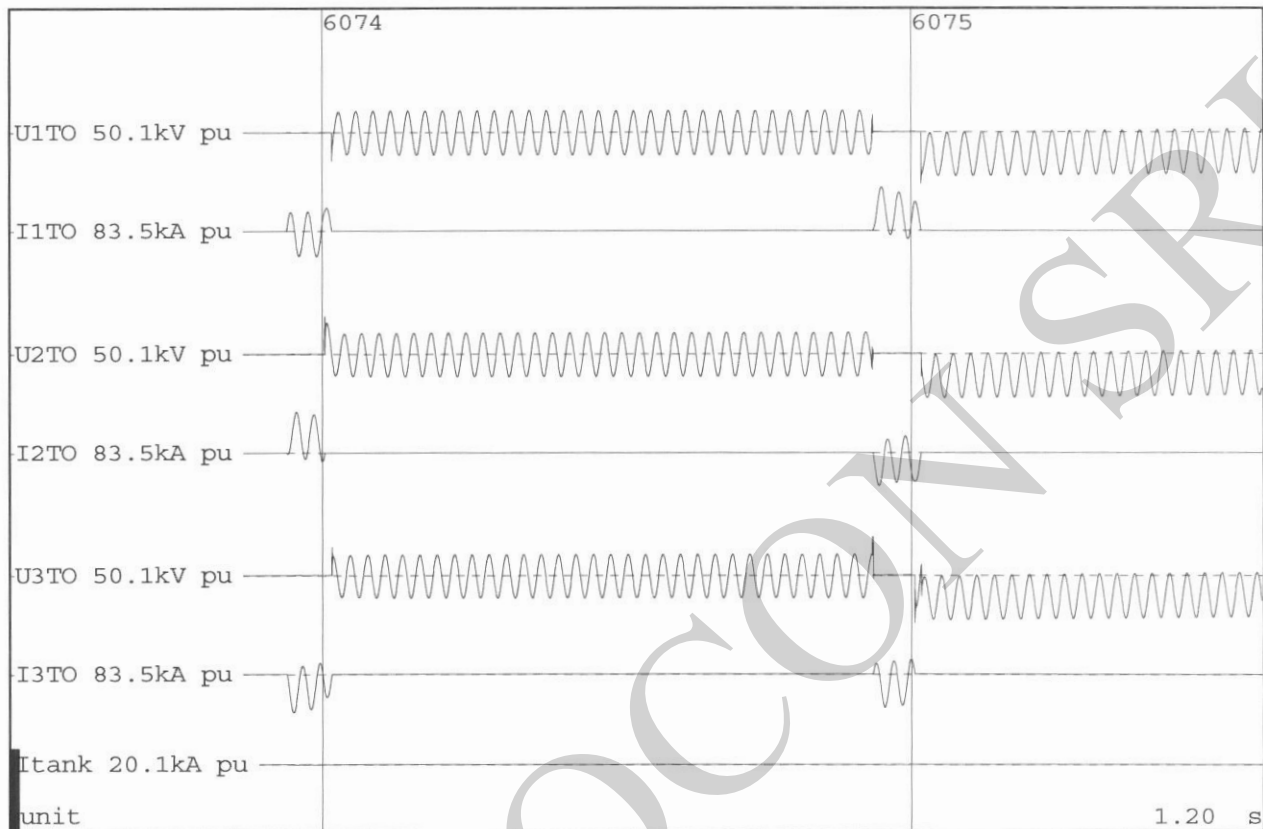




TDT 2108-10

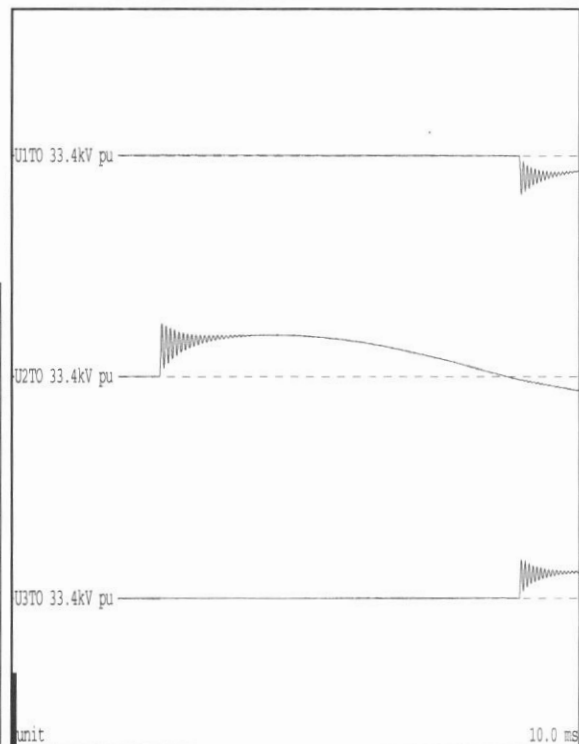
T100

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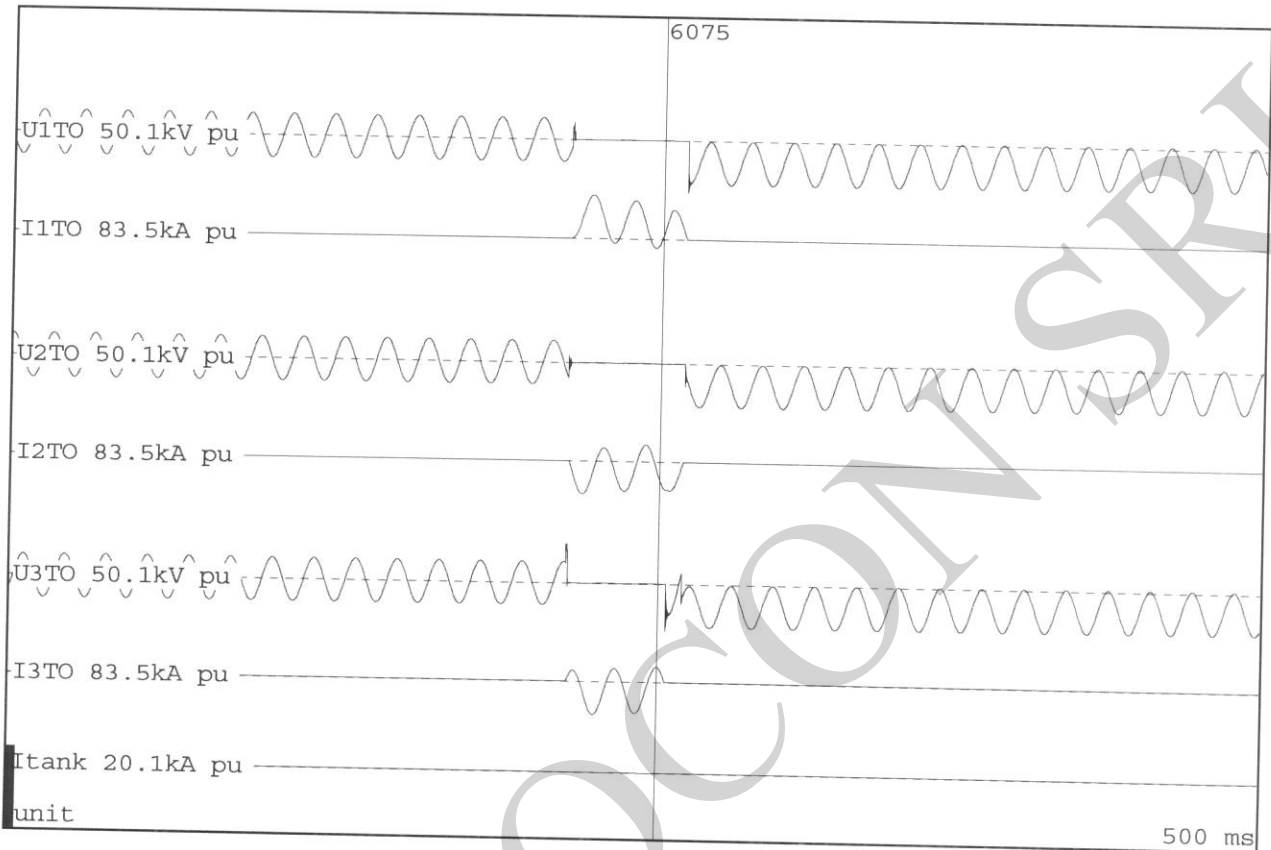
TEST NUMBER: 100527-6074

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 16,2  | 16,5 | 16,2 |
| Average current, three phase      | kA  | 16,3  |      |      |
| Breaking current, DC-component    | %   | 15    | 61   | 50   |
| Recovery voltage, phase value     | kV  | 9,18  | 9,13 | 9,15 |
| Recovery voltage, between phases  | kV  | 15,9  |      |      |
| TRV, peak                         | kV  | -17,4 | 23,8 | 17,2 |
| Arc duration                      | ms  | 9,0   | 0,7  | 9,0  |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |



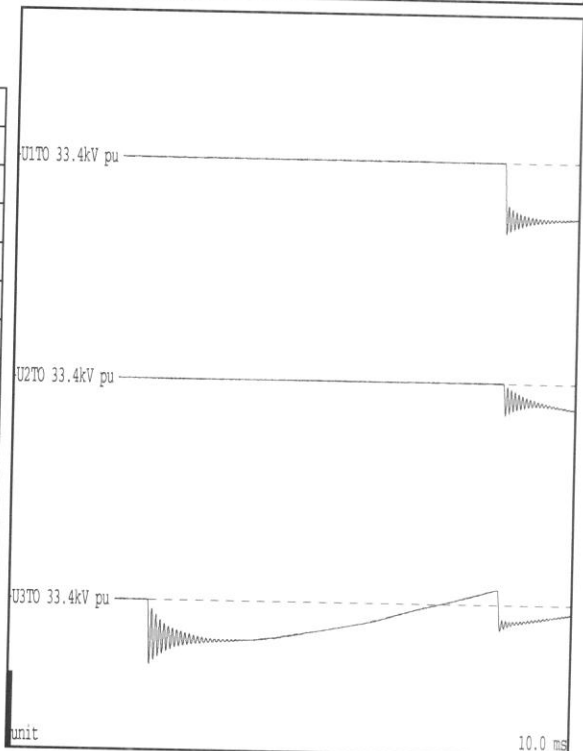
|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage opening coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
|                      |         | Operating pressure    | MPa   |

Remarks: Recloser cleared.



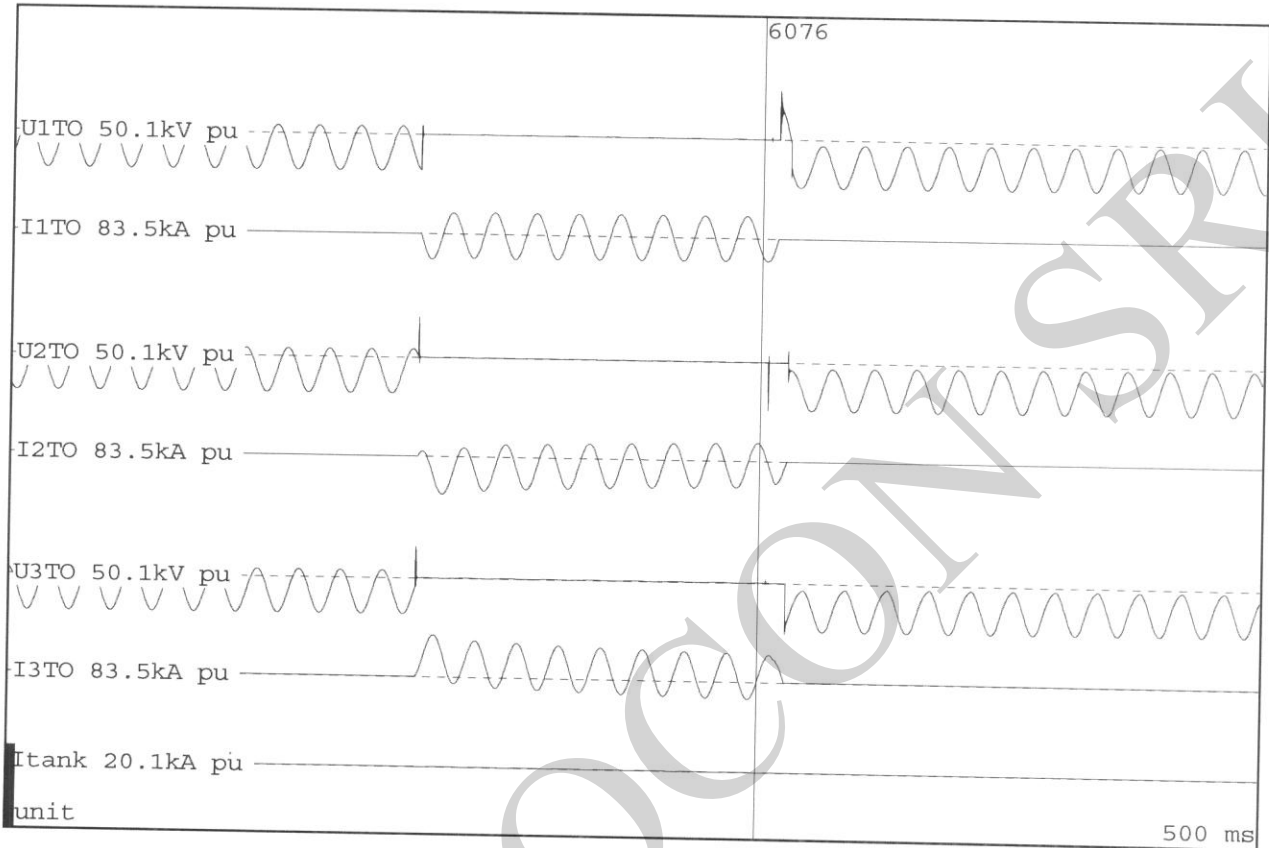
**TEST NUMBER: 100527-6075**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 0,519    |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,46     | 9,46     | 9,39     |
| Applied voltage, between phases   | kV  | 16,3     |          |          |
| Making current, peak              | kA  | 45,7     | -34,8    | -34,9    |
| Breaking current, phase value     | kA  | 16,1     | 16,3     | 16,3     |
| Average current, three phase      | kA  | 16,2     |          |          |
| Breaking current, DC-component    | %   | 56       | 21       | 34       |
| Recovery voltage, phase value     | kV  | 9,05     | 9,07     | 9,04     |
| Recovery voltage, between phases  | kV  | 15,7     |          |          |
| TRV, peak                         | kV  | -32,1    | -18,3    | -28,9    |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 9,4      | 9,4      | 3,2      |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |



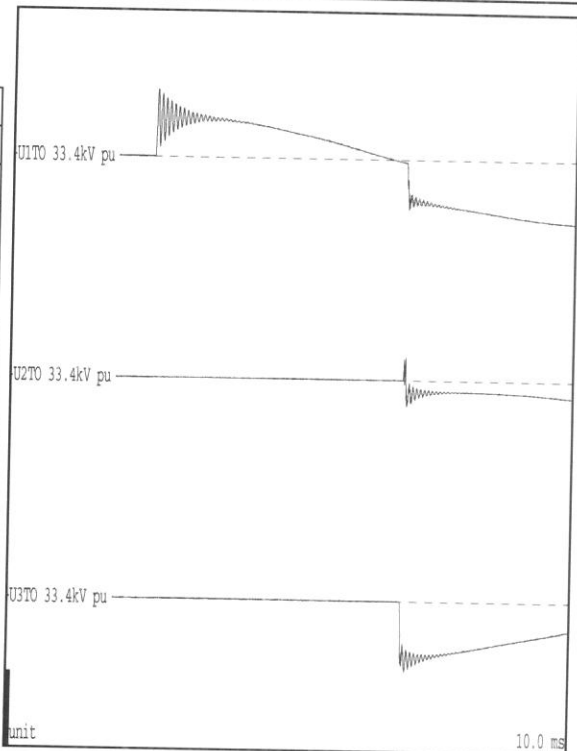
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



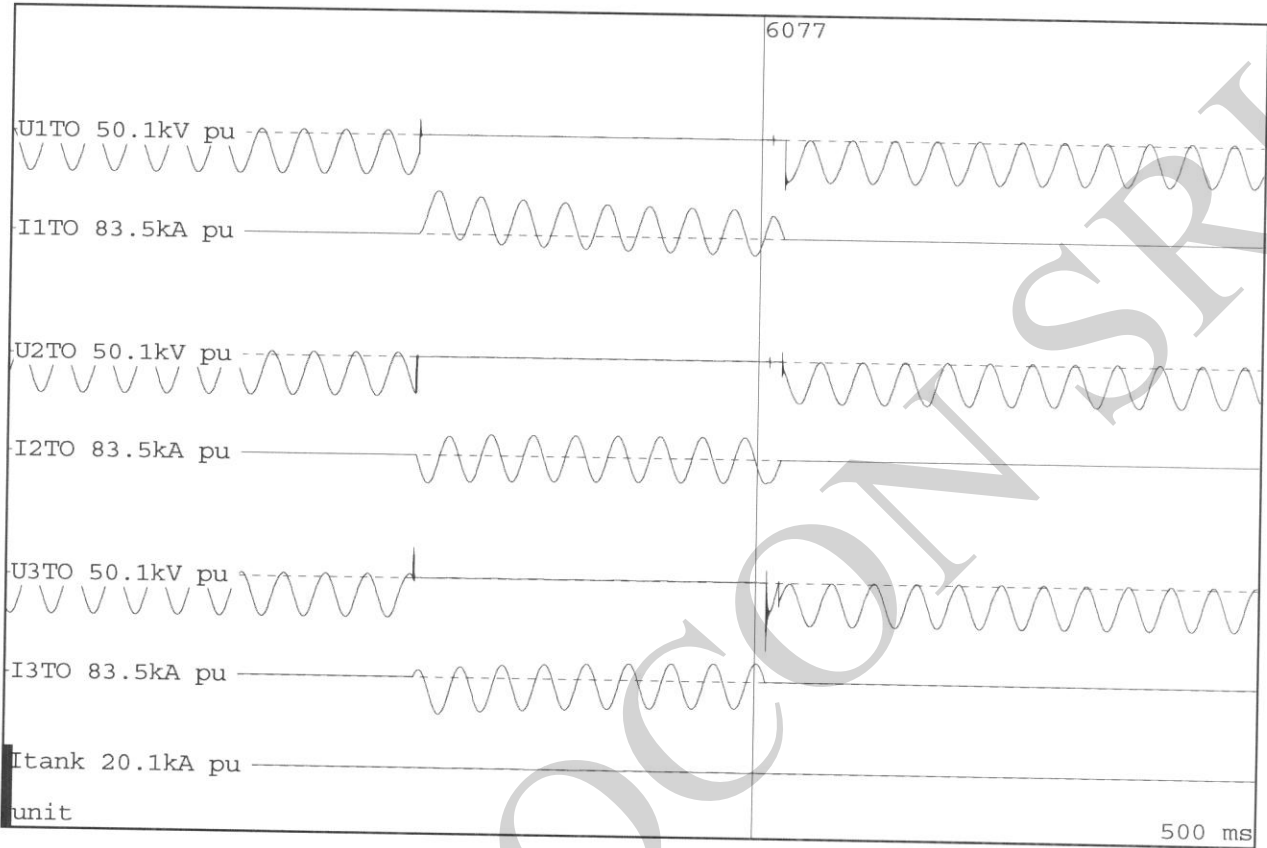
**TEST NUMBER: 100527-6076**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,03  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,49  | 9,53  | 9,45  |
| Applied voltage, between phases   | kV  | 16,4  |       |       |
| Making current, peak              | kA  | -26,7 | -40,7 | 43,8  |
| Breaking current, phase value     | kA  | 16,3  | 16,3  | 16,3  |
| Average current, three phase      | kA  | 16,3  |       |       |
| Breaking current, DC-component    | %   | 3     | 20    | 23    |
| Recovery voltage, phase value     | kV  | 5,19  | 5,21  | 5,19  |
| Recovery voltage, between phases  | kV  | 9,00  |       |       |
| TRV, peak                         | kV  | 30,5  | -11,2 | -31,1 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 6,4   | 10,9  | 10,9  |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |

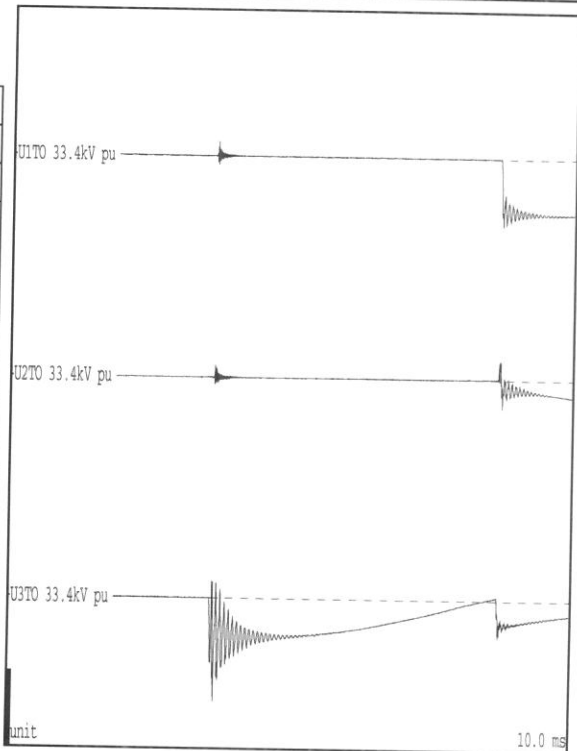


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.


**TEST NUMBER: 100527-6077**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,02  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,48  | 9,45  | 9,40  |
| Applied voltage, between phases   | kV  | 16,4  |       |       |
| Making current, peak              | kA  | 44,8  | -29,6 | -39,2 |
| Breaking current, phase value     | kA  | 16,3  | 16,3  | 16,3  |
| Average current, three phase      | kA  | 16,3  |       |       |
| Breaking current, DC-component    | %   | 24    | 5     | 19    |
| Recovery voltage, phase value     | kV  | 9,48  | 9,35  | 9,34  |
| Recovery voltage, between phases  | kV  | 16,3  |       |       |
| TRV, peak                         | kV  | -30,9 | -15,6 | -46,2 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 9,4   | 9,5   | 4,4   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



**TEST NUMBERS**

|             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|
| 100527-6084 | 100527-6096 | 100527-6108 | 100527-6120 | 100527-6136 |
| 100527-6085 | 100527-6097 | 100527-6109 | 100527-6121 | 100527-6137 |
| 100527-6086 | 100527-6098 | 100527-6110 | 100527-6122 | 100527-6138 |
| 100527-6087 | 100527-6099 | 100527-6111 | 100527-6123 | 100527-6139 |
| 100527-6088 | 100527-6100 | 100527-6112 | 100527-6128 | 100527-6140 |
| 100527-6089 | 100527-6101 | 100527-6113 | 100527-6129 | 100527-6141 |
| 100527-6090 | 100527-6102 | 100527-6114 | 100527-6130 | 100527-6142 |
| 100527-6091 | 100527-6103 | 100527-6115 | 100527-6131 | 100527-6143 |
| 100527-6092 | 100527-6104 | 100527-6116 | 100527-6132 |             |
| 100527-6093 | 100527-6105 | 100527-6117 | 100527-6133 |             |
| 100527-6094 | 100527-6106 | 100527-6118 | 100527-6134 |             |
| 100527-6095 | 100527-6107 | 100527-6119 | 100527-6135 |             |

**CONDITION BEFORE TESTS**

Recloser in same condition.

Supply and load side connections interchanged.

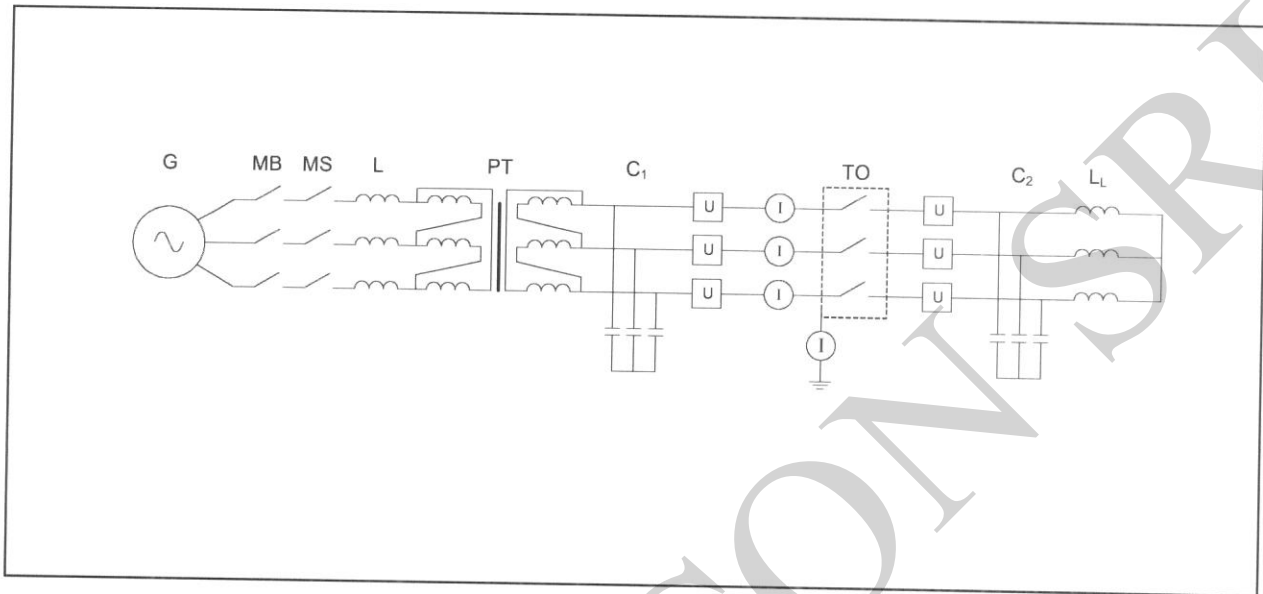
Supply to fixed contacts.

Load on moving contacts.

Frame earthed via an earth fault current indicating CT.

Recovery voltage maintained for 1 sec after the final interruption.

## TEST-CIRCUIT S08



|    |                     |    |               |   |                                |
|----|---------------------|----|---------------|---|--------------------------------|
| G  | = Generator         | TO | = Test Object | U | = Voltage Measurement to earth |
| MB | = Master Breaker    | L  | = Reactor     | I | = Current Measurement          |
| MS | = Make Switch       | R  | = Resistor    |   |                                |
| PT | = Power Transformer | C  | = Capacitor   |   |                                |

| Supply       |          |             |
|--------------|----------|-------------|
| Power        | MVA      | 752         |
| Frequency    | Hz       | 60          |
| Phase(s)     |          | 3           |
| Voltage      | kV       | 15,5        |
| Current      | kA       | 28          |
| Impedance    | $\Omega$ | 0,32        |
| Power factor |          | < 0,1       |
| Neutral      |          | not earthed |

| TRV control elements added (supply) |          |             |
|-------------------------------------|----------|-------------|
| C <sub>1</sub>                      | $\mu F$  | 0,008       |
| R <sub>1</sub> (in parallel)        | $\Omega$ | -           |
| R <sub>1</sub> (in series)          | $\Omega$ | -           |
| L <sub>1</sub>                      | mH       | -           |
| C <sub>d</sub>                      | nF       | -           |
| Neutral                             |          | not earthed |

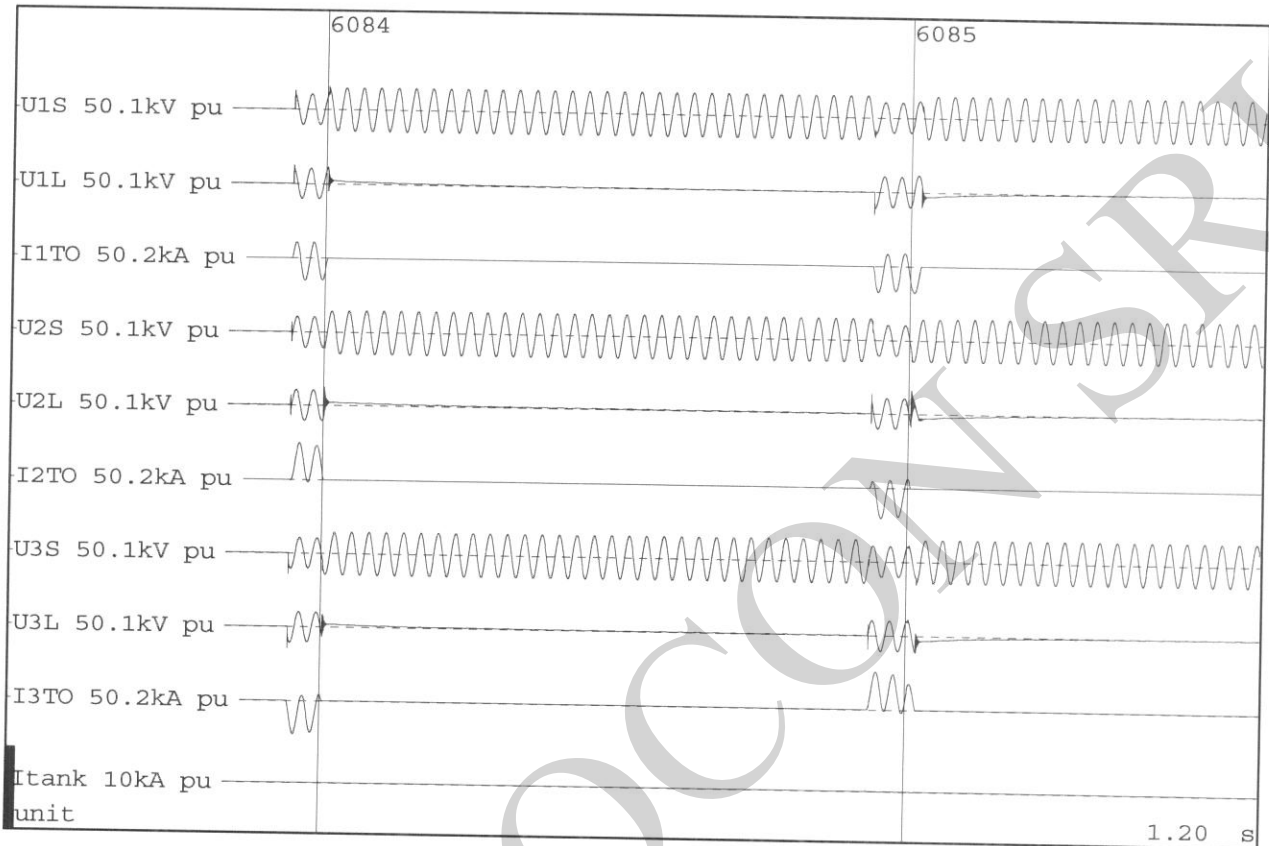
| Load      |          |             |
|-----------|----------|-------------|
| Impedance | $\Omega$ | 0,8         |
| X/R       |          | 4           |
| Neutral   |          | not earthed |

| TRV control elements added (load) |          |             |
|-----------------------------------|----------|-------------|
| C <sub>2</sub>                    | nF       | 15          |
| R <sub>2</sub> (in parallel)      | $\Omega$ | -           |
| Neutral                           |          | not earthed |

| Prospective TRV across TO |             |      |
|---------------------------|-------------|------|
| E <sub>2</sub>            | kV          | 31,9 |
| T <sub>2</sub>            | $\mu s$     | 22,4 |
| t <sub>d</sub>            | $\mu s$     | < 4  |
| Rate of rise              | kV/ $\mu s$ | 1,68 |

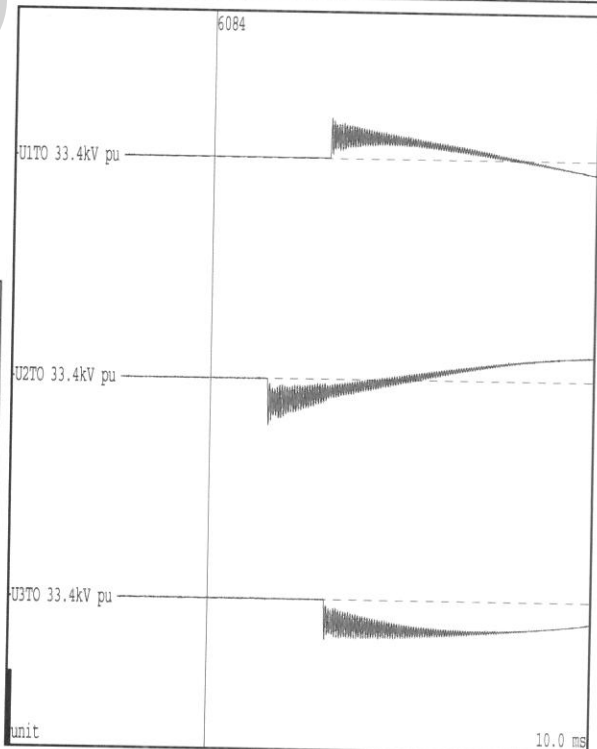
| Inductive load element           |          |       |
|----------------------------------|----------|-------|
| X <sub>L</sub> (L <sub>L</sub> ) | $\Omega$ | 0,784 |

Remarks: -



TEST NUMBER: 100527-6084

|                                   |     |      |       |       |
|-----------------------------------|-----|------|-------|-------|
| Time interval since previous test | min | -    |       |       |
| Operation                         |     | O    |       |       |
| Phase                             |     | C    | B     | A     |
| Breaking current, phase value     | kA  | 8,14 | 8,12  | 8,17  |
| Average current, three phase      | kA  | 8,14 |       |       |
| Breaking current, DC-component    | %   | 14   | 100   | 61    |
| Recovery voltage, phase value     | kV  | 9,34 | 9,30  | 9,20  |
| Recovery voltage, between phases  | kV  | 16,1 |       |       |
| TRV, peak                         | kV  | 18,6 | -21,1 | -18,0 |
| Arc duration                      | ms  | 2,1  | 1,0   | 0,5   |
| Opening time                      | ms  | -    |       |       |
| Break time                        | ms  | -    | -     | -     |

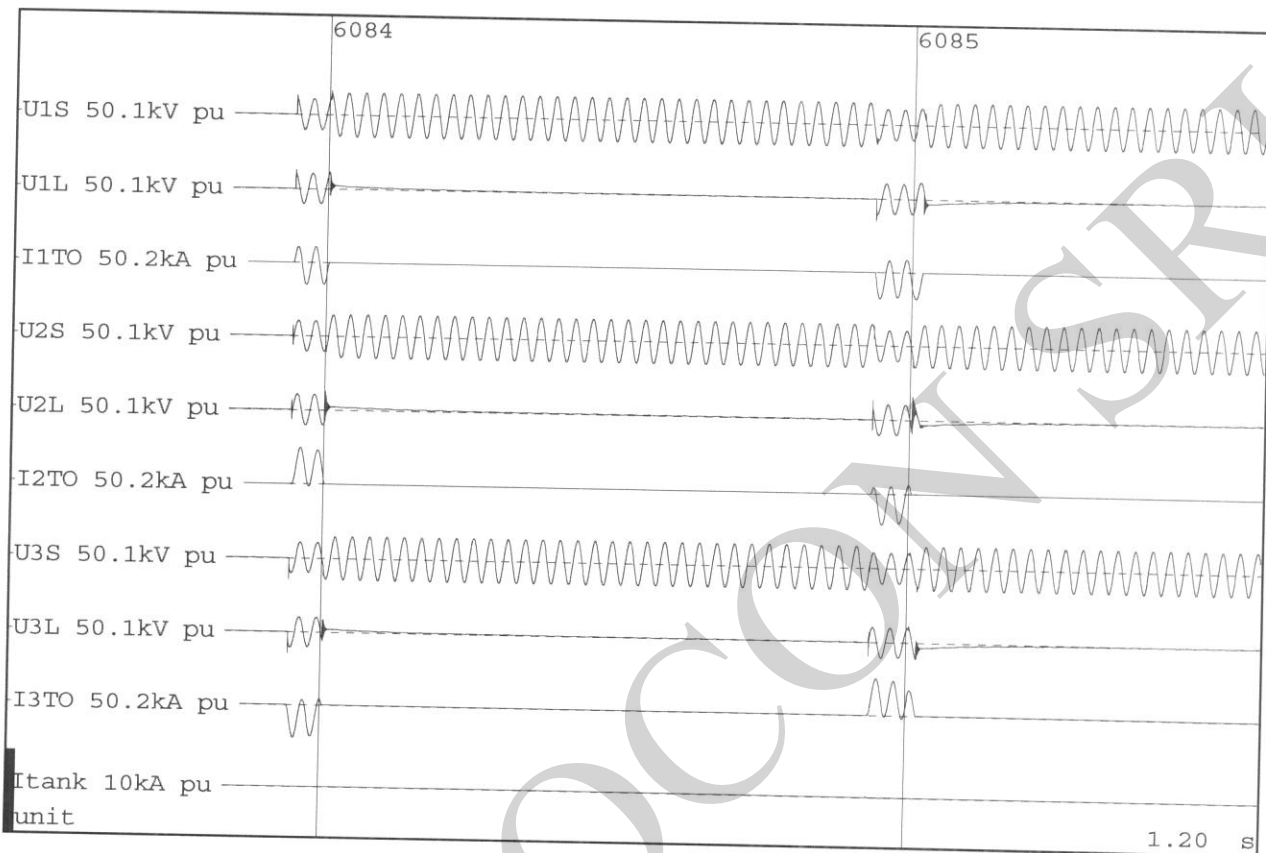


Voltage opening coil - Vd.c.

Gas pressure at 20 °C  
Operating pressure

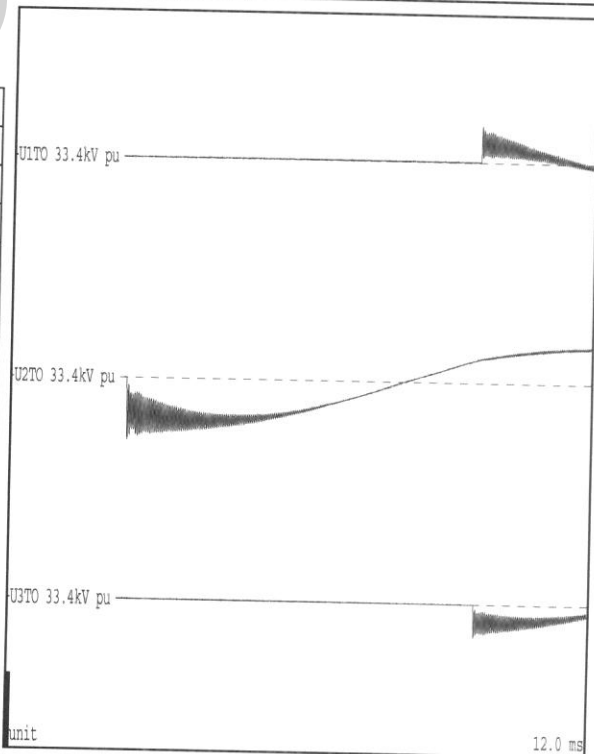
- MPa

Remarks: Recloser cleared.



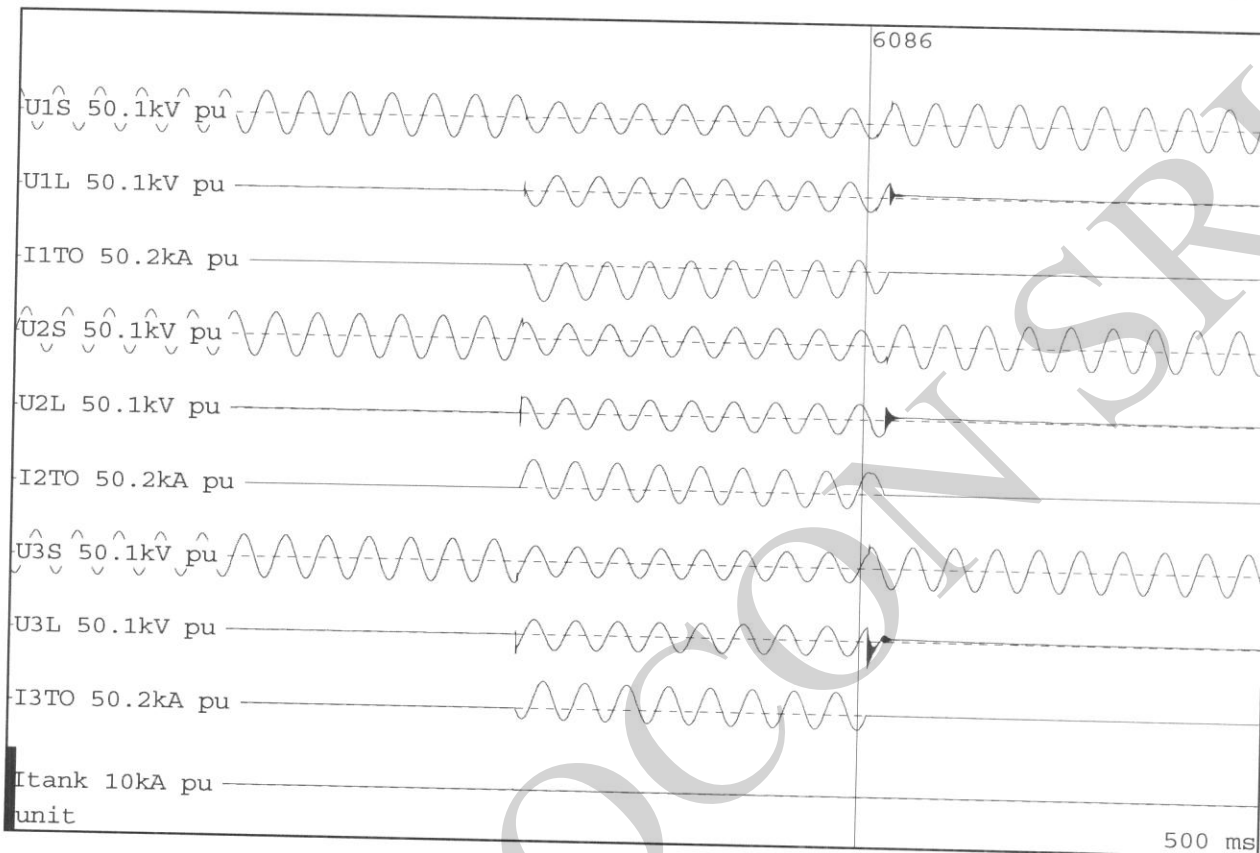
**TEST NUMBER: 100527-6085**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 0,525 |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,44  | 9,41  | 9,33  |
| Applied voltage, between phases   | kV  | 16,3  |       |       |
| Making current, peak              | kA  | -16,4 | -19,6 | 23,8  |
| Breaking current, phase value     | kA  | 8,15  | 8,16  | 8,13  |
| Average current, three phase      | kA  | 8,15  |       |       |
| Breaking current, DC-component    | %   | 30    | 51    | 40    |
| Recovery voltage, phase value     | kV  | 9,36  | 9,24  | 9,24  |
| Recovery voltage, between phases  | kV  | 16,1  |       |       |
| TRV, peak                         | kV  | 16,4  | -28,4 | -15,4 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 10,0  | 0,2   | 10,0  |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



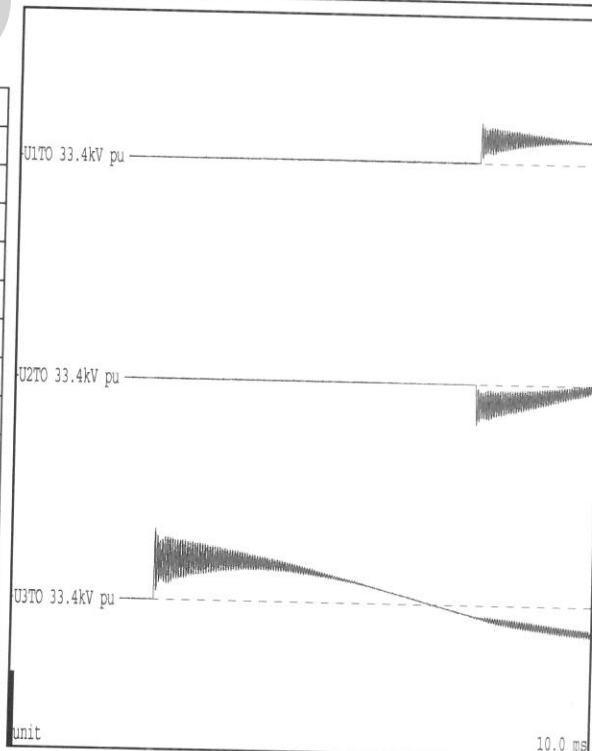
|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.



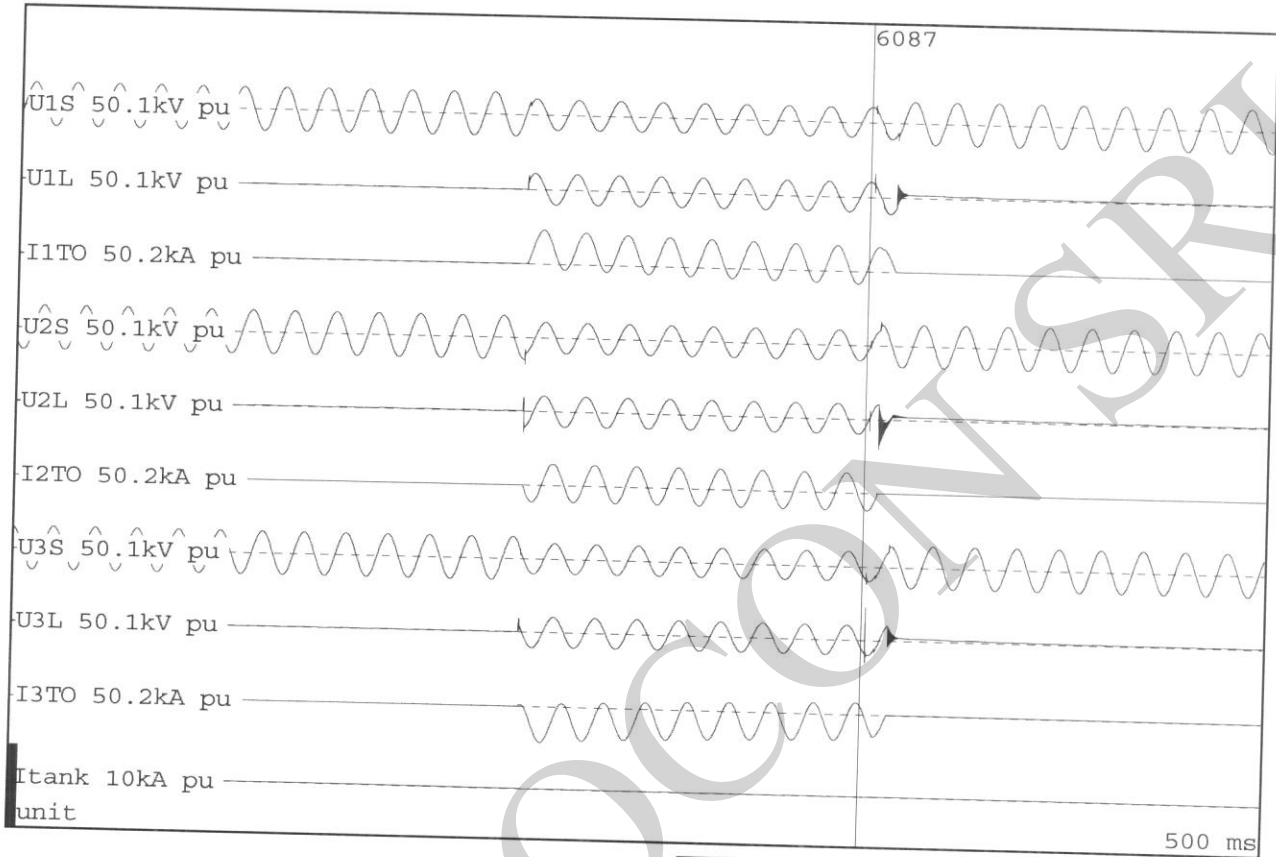
## TEST NUMBER: 100527-6086

|                                   |     |       |       |      |
|-----------------------------------|-----|-------|-------|------|
| Time interval since previous test | min | -     | -     | -    |
| Time interval between operations  | s   | 1,02  | -     | -    |
| Operation                         |     | CO    | -     | -    |
| Phase                             |     | C     | B     | A    |
| Applied voltage, phase value      | kV  | 9,42  | 9,39  | 9,30 |
| Applied voltage, between phases   | kV  | 16,2  | -     | -    |
| Making current, peak              | kA  | -23,0 | 17,8  | 17,3 |
| Breaking current, phase value     | kA  | 8,04  | 8,04  | 8,03 |
| Average current, three phase      | kA  | 8,04  | -     | -    |
| Breaking current, DC-component    | %   | 39    | 20    | 19   |
| Recovery voltage, phase value     | kV  | 9,34  | 9,29  | 9,18 |
| Recovery voltage, between phases  | kV  | 16,1  | -     | -    |
| TRV, peak                         | kV  | 18,2  | -18,6 | 32,0 |
| Make time                         | ms  | -     | -     | -    |
| Arc duration                      | ms  | 9,0   | 9,0   | 3,5  |
| Opening time                      | ms  | -     | -     | -    |
| Break time                        | ms  | -     | -     | -    |



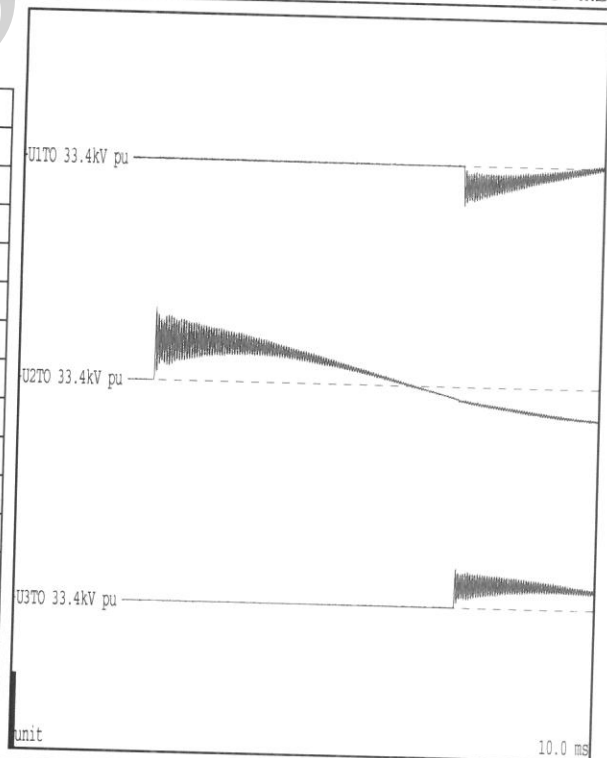
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



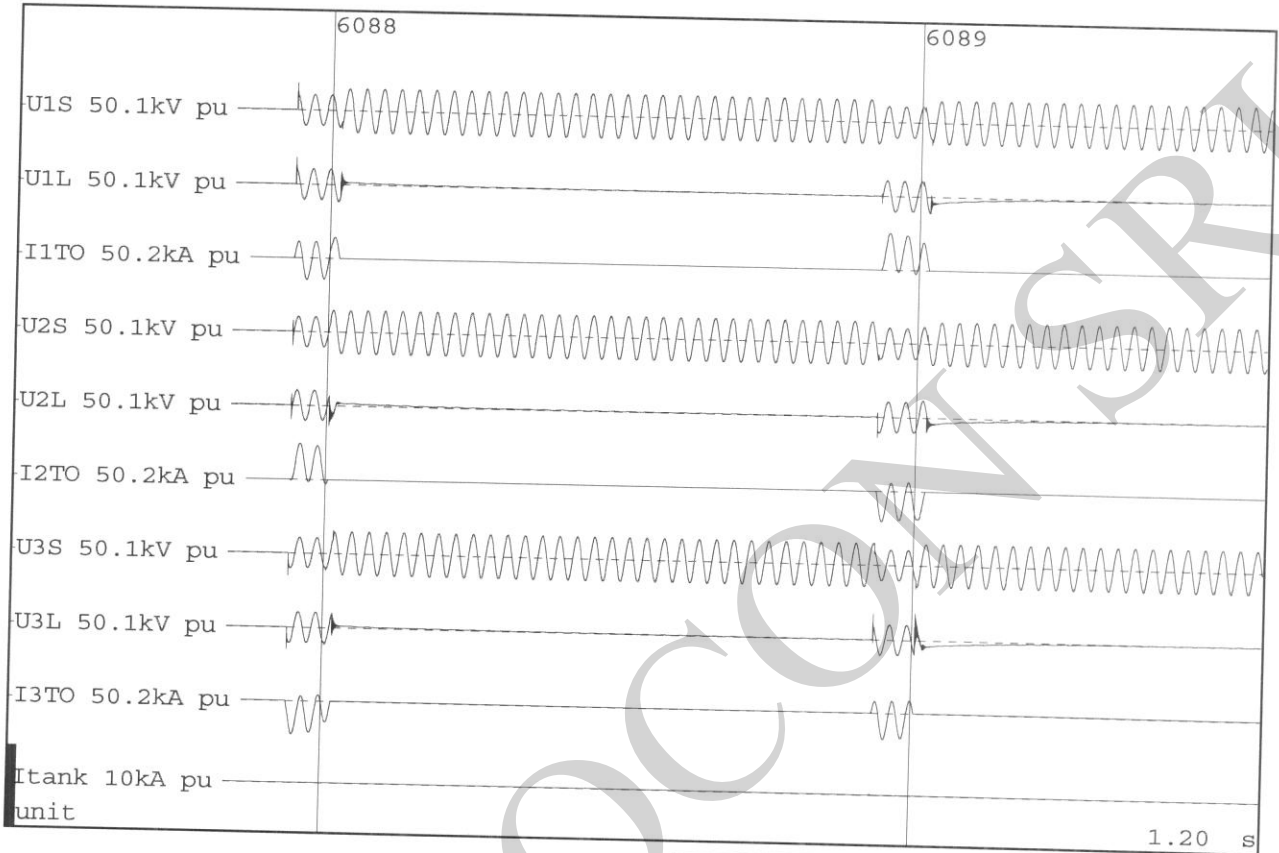
**TEST NUMBER: 100527-6087**

|                                   |     |       |      |       |
|-----------------------------------|-----|-------|------|-------|
| Time interval since previous test | min | -     |      |       |
| Time interval between operations  | s   | 1,03  |      |       |
| Operation                         |     | CO    |      |       |
| Phase                             |     | C     | B    | A     |
| Applied voltage, phase value      | kV  | 9,43  | 9,41 | 9,32  |
| Applied voltage, between phases   | kV  | 16,3  |      |       |
| Making current, peak              | kA  | 21,3  | 13,8 | -22,5 |
| Breaking current, phase value     | kA  | 8,06  | 8,06 | 8,05  |
| Average current, three phase      | kA  | 8,06  |      |       |
| Breaking current, DC-component    | %   | 32    | 5    | 38    |
| Recovery voltage, phase value     | kV  | 9,33  | 9,28 | 9,23  |
| Recovery voltage, between phases  | kV  | 16,1  |      |       |
| TRV, peak                         | kV  | -18,4 | 33,0 | 17,4  |
| Make time                         | ms  | -     | -    | -     |
| Arc duration                      | ms  | 10,7  | 5,4  | 10,7  |
| Opening time                      | ms  | -     |      |       |
| Break time                        | ms  | -     | -    | -     |



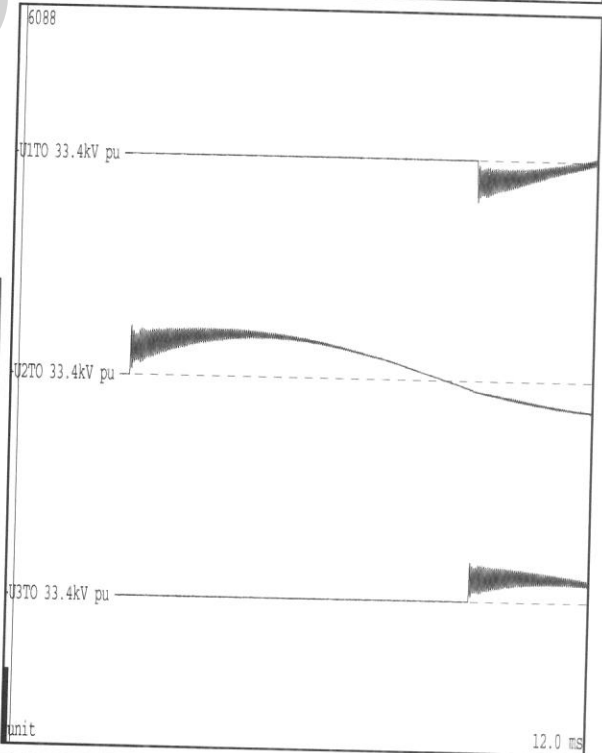
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



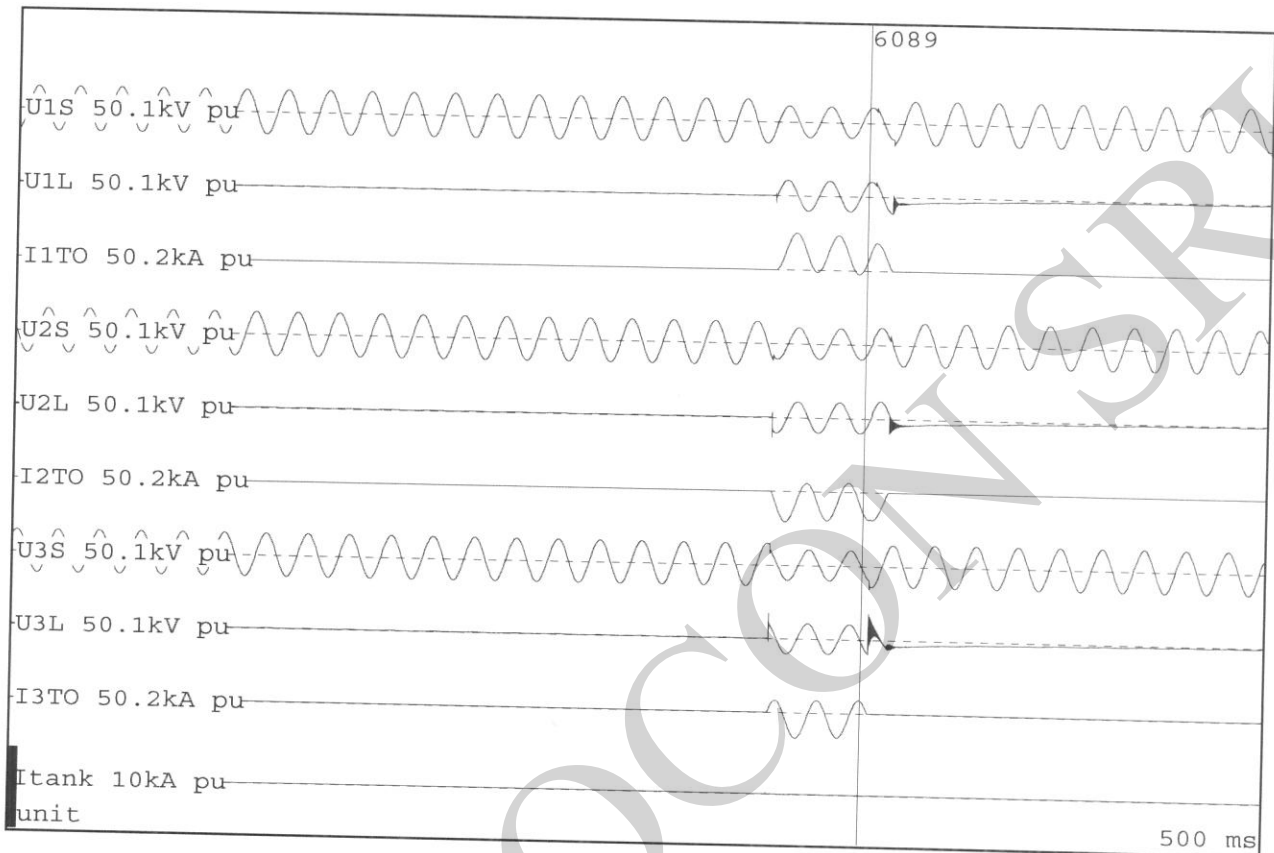
TEST NUMBER: 100527-6088

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,14  | 8,17 | 8,11 |
| Average current, three phase      | kA  | 8,14  |      |      |
| Breaking current, DC-component    | %   | 10    | 73   | 65   |
| Recovery voltage, phase value     | kV  | 9,35  | 9,23 | 9,23 |
| Recovery voltage, between phases  | kV  | 16,1  |      |      |
| TRV, peak                         | kV  | -19,1 | 21,7 | 17,9 |
| Arc duration                      | ms  | 9,5   | 1,3  | 9,5  |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |

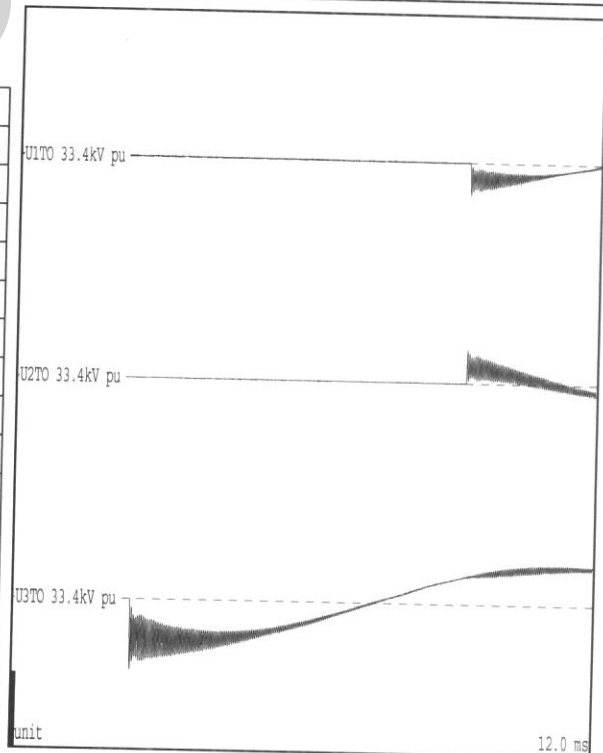


Voltage opening coil - Vd.c. Gas pressure at 20 °C - MPa  
Operating pressure

Remarks: Recloser cleared.


**TEST NUMBER: 100527-6089**

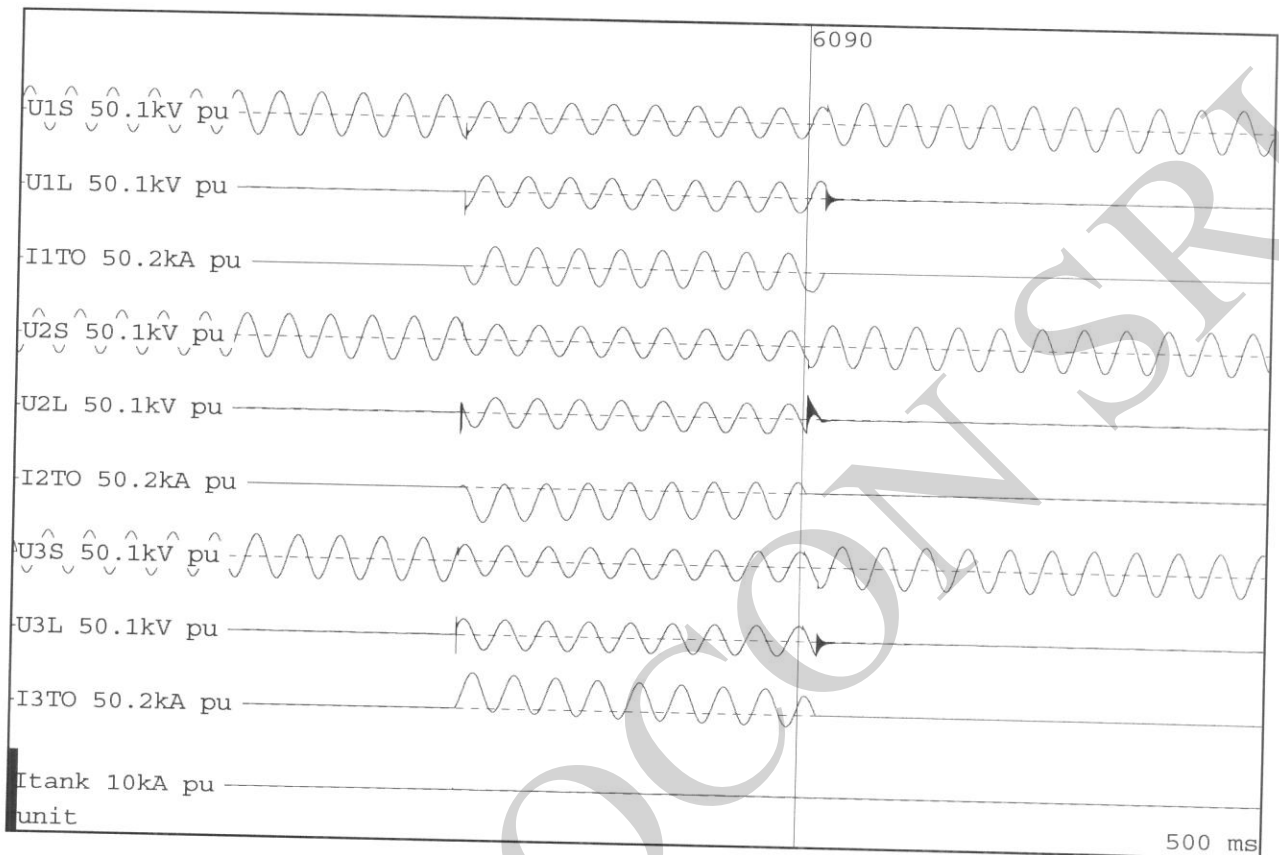
|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 0,520 |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,42  | 9,39  | 9,31  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | 23,2  | -19,1 | -16,3 |
| Breaking current, phase value     | kA  | 5,37  | 8,14  | 8,15  |
| Average current, three phase      | kA  | 7,22  |       |       |
| Breaking current, DC-component    | %   | 27    | 49    | 27    |
| Recovery voltage, phase value     | kV  | 9,35  | 9,31  | 9,21  |
| Recovery voltage, between phases  | kV  | 16,1  |       |       |
| TRV, peak                         | kV  | -14,5 | 14,7  | -31,6 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 9,9   | 9,9   | 3,0   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

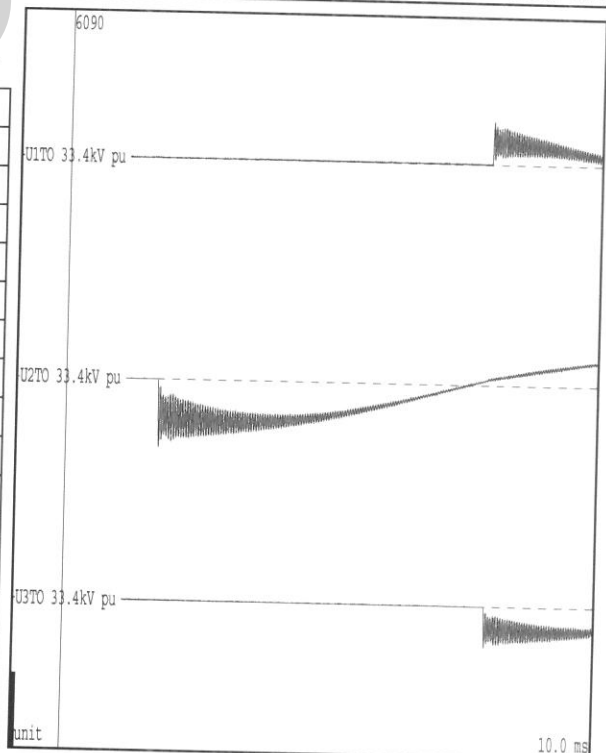
Remarks: Recloser closed and cleared.





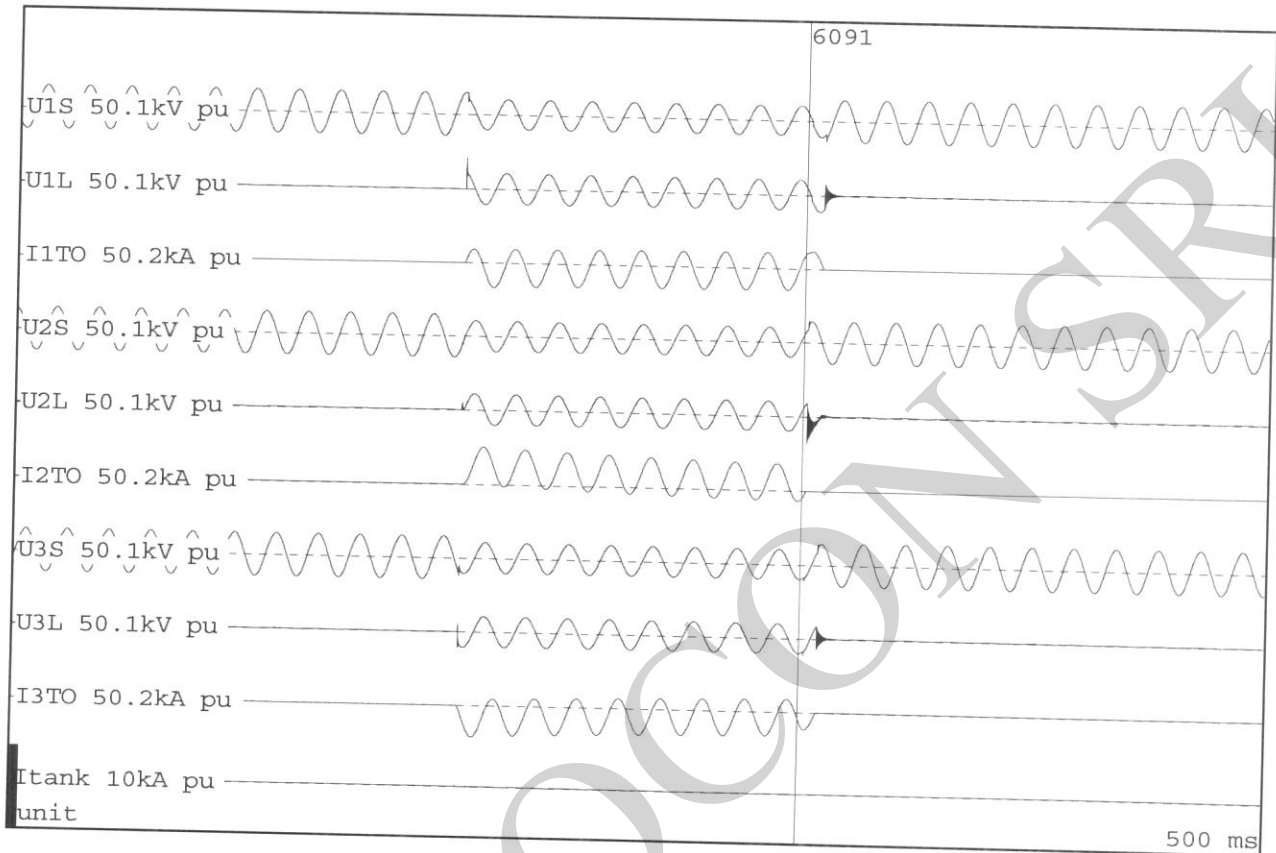
## TEST NUMBER: 100527-6090

|                                   |     |      |       |       |
|-----------------------------------|-----|------|-------|-------|
| Time interval since previous test | min | -    |       |       |
| Time interval between operations  | s   | 1,03 |       |       |
| Operation                         | CO  |      |       |       |
| Phase                             |     | C    | B     | A     |
| Applied voltage, phase value      | kV  | 9,41 | 9,37  | 9,29  |
| Applied voltage, between phases   | kV  | 16,2 |       |       |
| Making current, peak              | kA  | 12,6 | -22,6 | 22,5  |
| Breaking current, phase value     | kA  | 8,04 | 8,00  | 8,00  |
| Average current, three phase      | kA  | 8,01 |       |       |
| Breaking current, DC-component    | %   | 2    | 39    | 37    |
| Recovery voltage, phase value     | kV  | 9,31 | 9,15  | 9,17  |
| Recovery voltage, between phases  | kV  | 16,0 |       |       |
| TRV, peak                         | kV  | 19,3 | -30,3 | -18,3 |
| Make time                         | ms  | -    | -     | -     |
| Arc duration                      | ms  | 7,4  | 1,8   | 7,3   |
| Opening time                      | ms  | -    |       |       |
| Break time                        | ms  | -    | -     | -     |



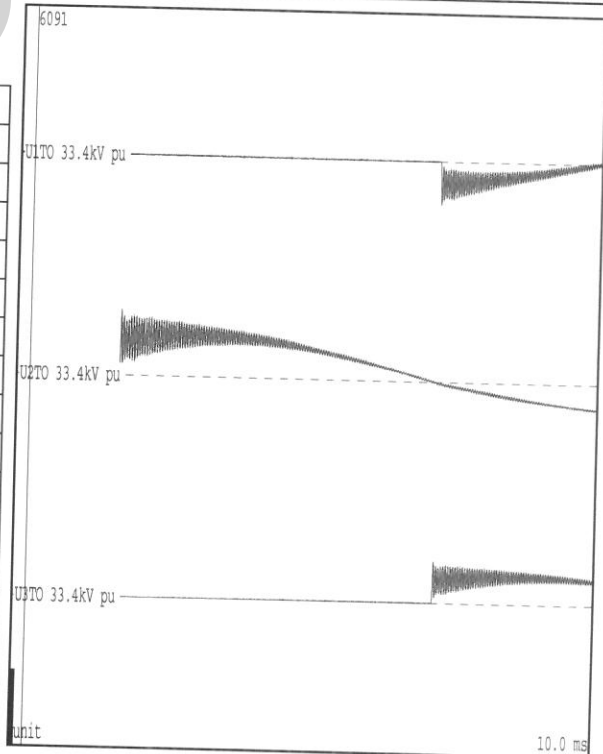
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



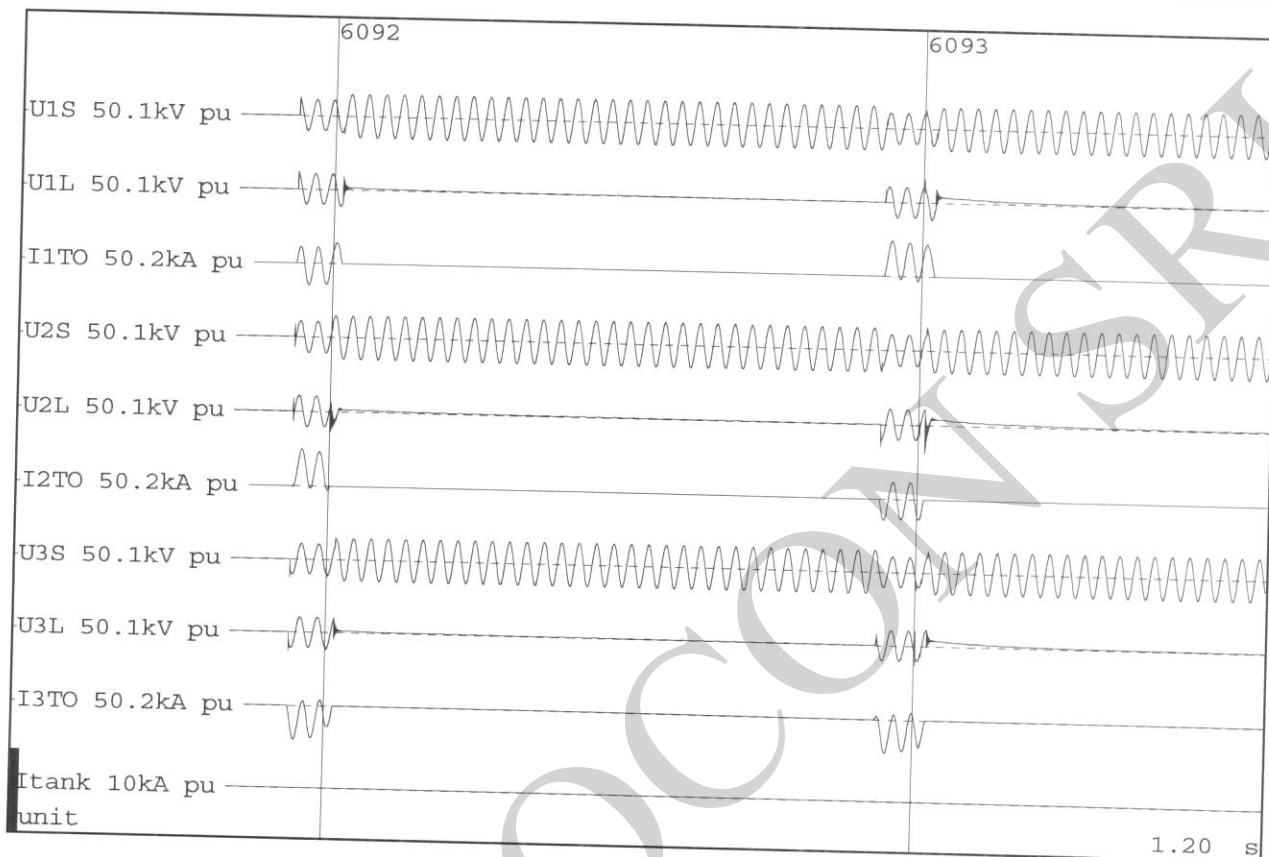
### TEST NUMBER: 100527-6091

|                                   |     |       |       |      |
|-----------------------------------|-----|-------|-------|------|
| Time interval since previous test | min | -     | -     | -    |
| Time interval between operations  | s   | 1,02  | -     | -    |
| Operation                         |     | CO    | -     | -    |
| Phase                             |     | C     | B     | A    |
| Applied voltage, phase value      | kV  | 9,39  | 9,33  | 9,27 |
| Applied voltage, between phases   | kV  | 16,2  | -     | -    |
| Making current, peak              | kA  | -15,7 | -     | -    |
| Breaking current, phase value     | kA  | 8,04  | 8,02  | 8,02 |
| Average current, three phase      | kA  | 8,03  | -     | -    |
| Breaking current, DC-component    | %   | 13    | 41    | 28   |
| Recovery voltage, phase value     | kV  | 9,30  | 9,18  | 9,16 |
| Recovery voltage, between phases  | kV  | 16,0  | -     | -    |
| TRV, peak                         | kV  | -19,5 | -29,9 | 18,4 |
| Make time                         | ms  | -     | -     | -    |
| Arc duration                      | ms  | 7,1   | 1,7   | 7,1  |
| Opening time                      | ms  | -     | -     | -    |
| Break time                        | ms  | -     | -     | -    |



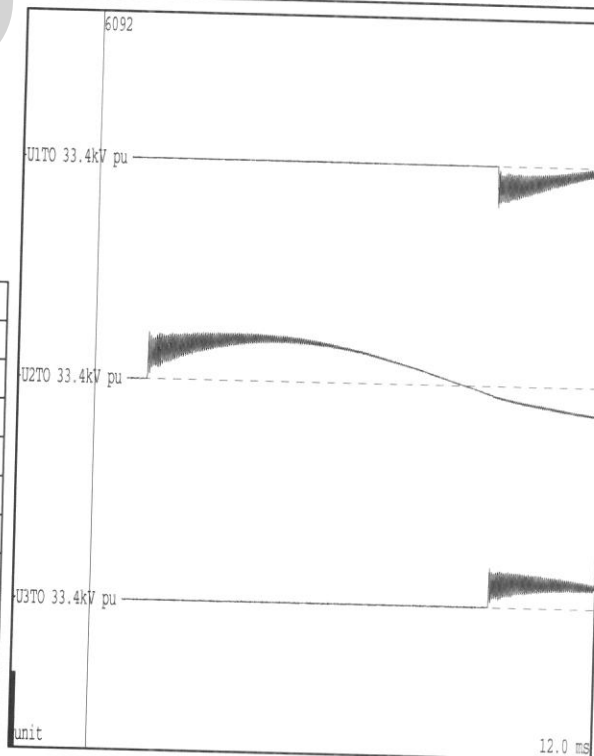
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



TEST NUMBER: 100527-6092

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,14  | 8,17 | 8,11 |
| Average current, three phase      | kA  | 8,14  |      |      |
| Breaking current, DC-component    | %   | 11    | 74   | 65   |
| Recovery voltage, phase value     | kV  | 9,34  | 9,24 | 9,25 |
| Recovery voltage, between phases  | kV  | 16,1  |      |      |
| TRV, peak                         | kV  | -19,2 | 21,3 | 18,1 |
| Arc duration                      | ms  | 8,3   | 0,2  | 8,3  |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |

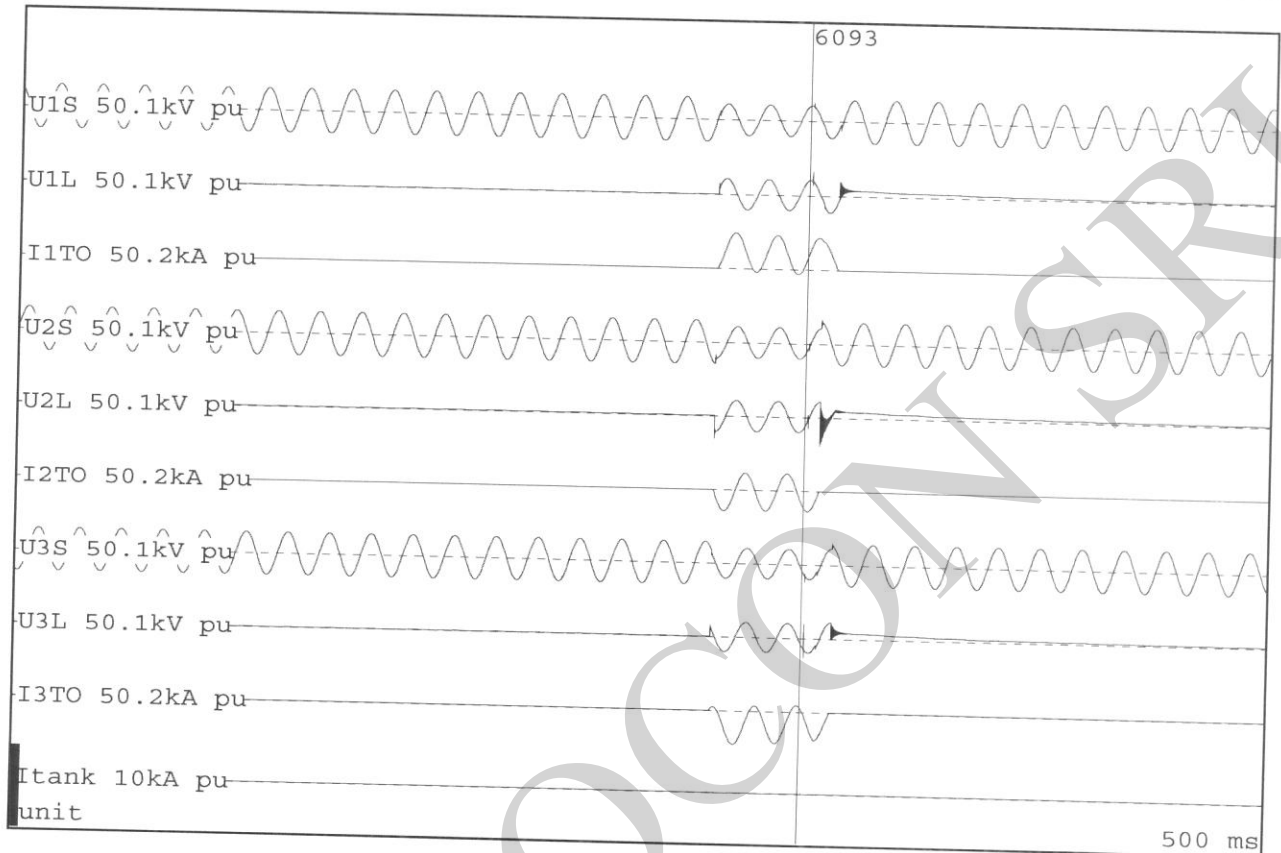


Voltage opening coil - Vd.c.

Gas pressure at 20 °C  
Operating pressure

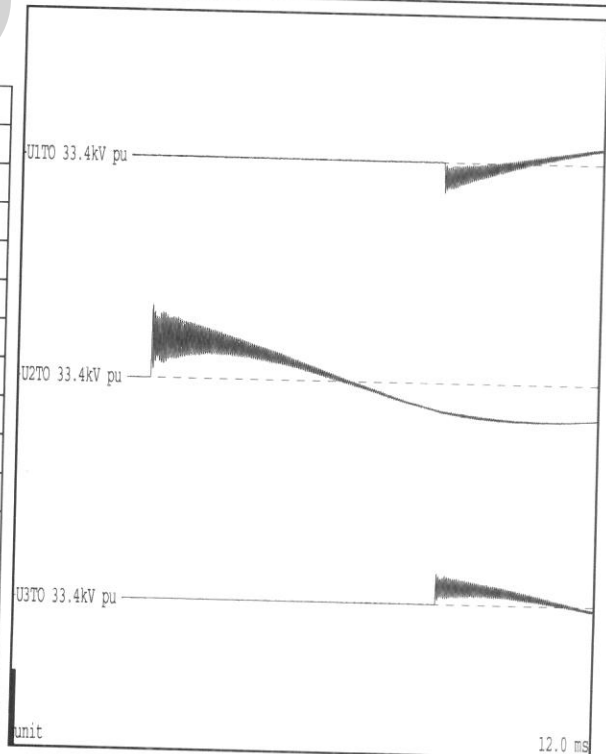
- MPa

Remarks: Recloser cleared.



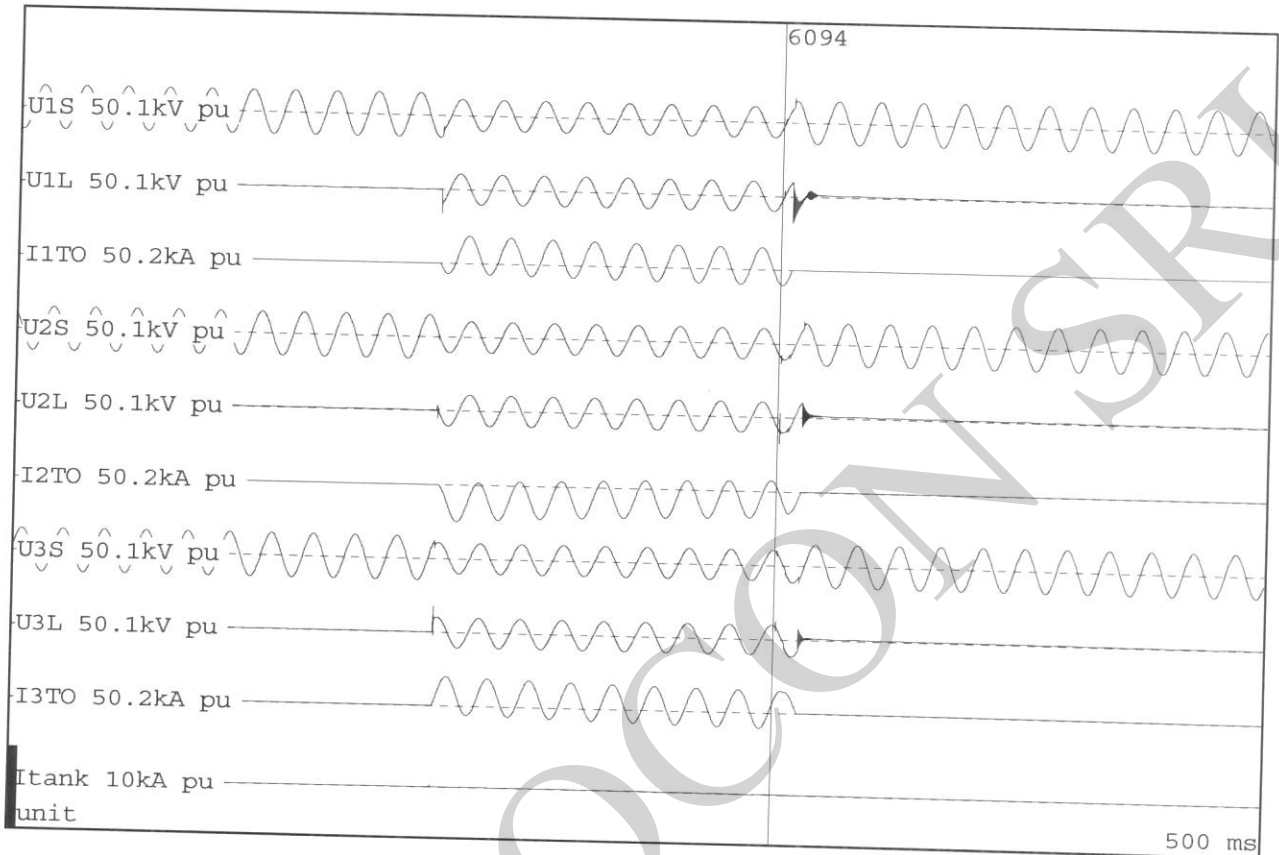
## TEST NUMBER: 100527-6093

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     | -     | -     |
| Time interval between operations  | s   | 0,521 | -     | -     |
| Operation                         |     | CO    | -     | -     |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,26  | 9,41  | 9,33  |
| Applied voltage, between phases   | kV  | 16,2  | -     | -     |
| Making current, peak              | kA  | 22,6  | -13,5 | -21,1 |
| Breaking current, phase value     | kA  | 8,15  | 8,16  | 8,13  |
| Average current, three phase      | kA  | 8,15  | -     | -     |
| Breaking current, DC-component    | %   | 72    | 10    | 64    |
| Recovery voltage, phase value     | kV  | 9,34  | 9,30  | 9,25  |
| Recovery voltage, between phases  | kV  | 16,1  | -     | -     |
| TRV, peak                         | kV  | -14,0 | 33,2  | 13,6  |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 12,0  | 6,1   | 12,0  |
| Opening time                      | ms  | -     | -     | -     |
| Break time                        | ms  | -     | -     | -     |



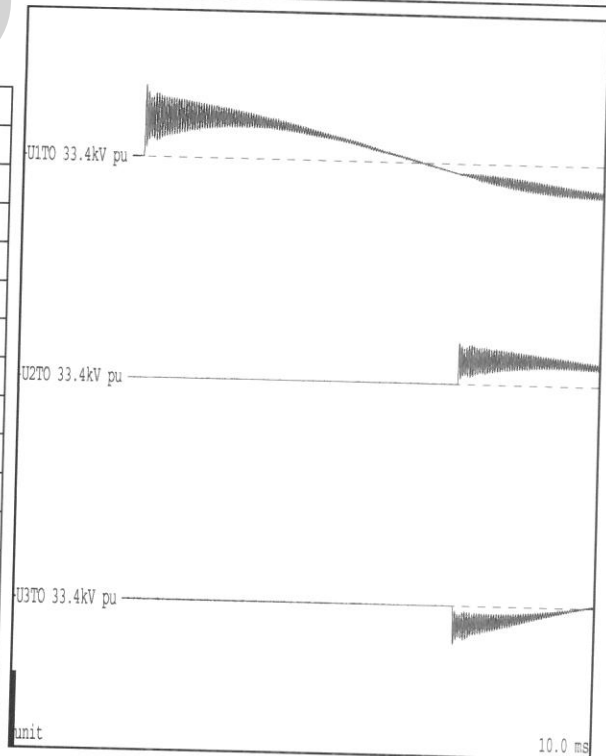
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



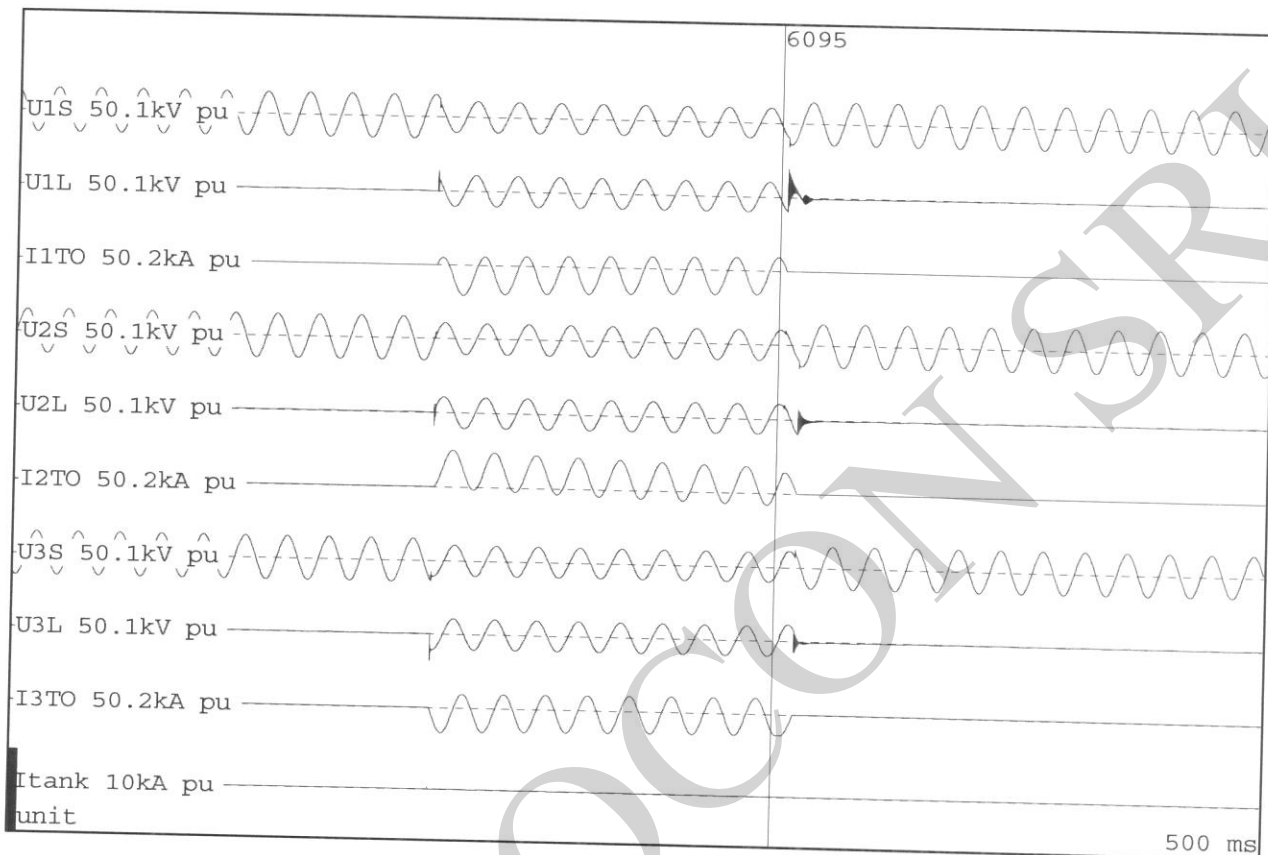
## TEST NUMBER: 100527-6094

|                                   |     |      |       |       |
|-----------------------------------|-----|------|-------|-------|
| Time interval since previous test | min | -    |       |       |
| Time interval between operations  | s   | 1,02 |       |       |
| Operation                         |     | CO   |       |       |
| Phase                             |     | C    | B     | A     |
| Applied voltage, phase value      | kV  | 9,45 | 9,42  | 9,34  |
| Applied voltage, between phases   | kV  | 16,3 |       |       |
| Making current, peak              | kA  | 17,2 | -23,3 | 18,3  |
| Breaking current, phase value     | kA  | 8,07 | 8,05  | 8,05  |
| Average current, three phase      | kA  | 8,06 |       |       |
| Breaking current, DC-component    | %   | 19   | 41    | 22    |
| Recovery voltage, phase value     | kV  | 9,31 | 9,32  | 9,22  |
| Recovery voltage, between phases  | kV  | 16,1 |       |       |
| TRV, peak                         | kV  | 32,4 | 19,1  | -17,4 |
| Make time                         | ms  | -    | -     | -     |
| Arc duration                      | ms  | 4,4  | 9,9   | 9,9   |
| Opening time                      | ms  | -    |       |       |
| Break time                        | ms  | -    | -     | -     |

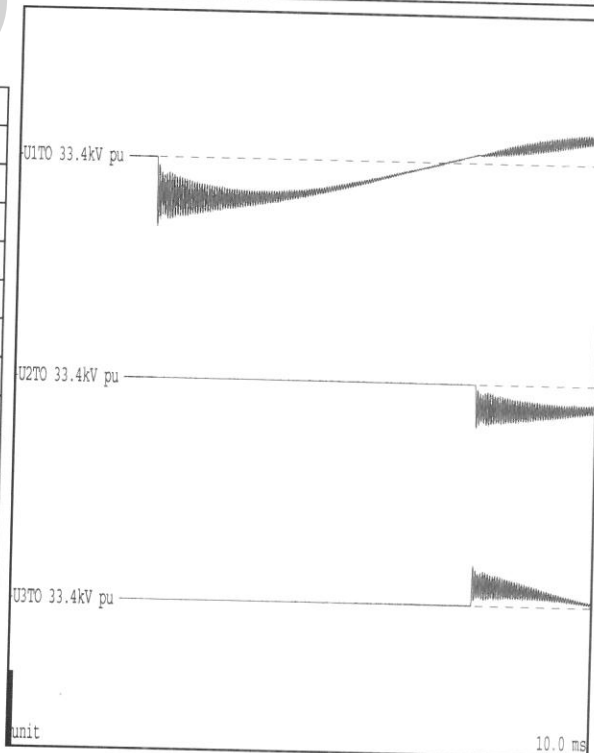


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.

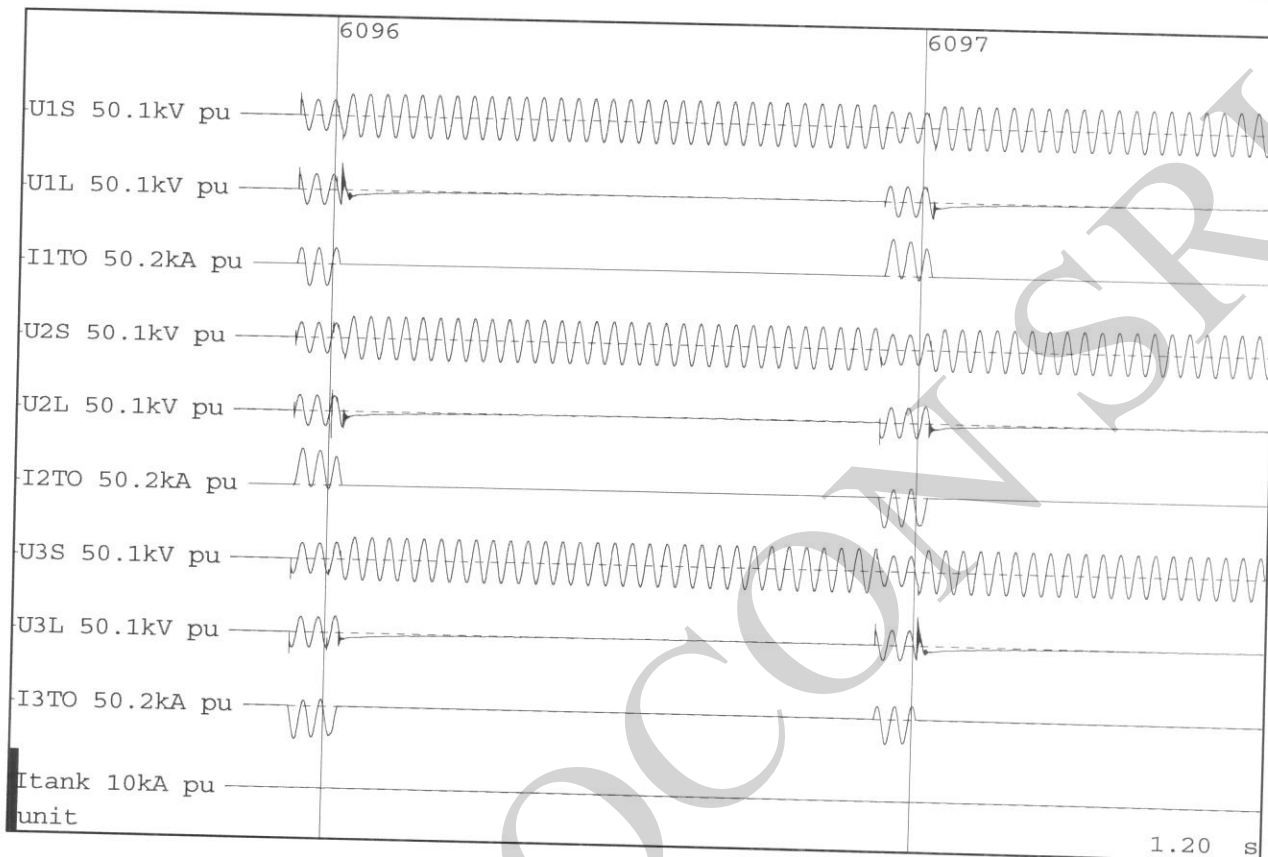

**TEST NUMBER: 100527-6095**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     | -     | -     |
| Time interval between operations  | s   | 1,02  | -     | -     |
| Operation                         |     | CO    | -     | -     |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,45  | 9,41  | 9,34  |
| Applied voltage, between phases   | kV  | 16,3  | -     | -     |
| Making current, peak              | kA  | -19,3 | 23,0  | -15,8 |
| Breaking current, phase value     | kA  | 8,09  | 8,09  | 8,08  |
| Average current, three phase      | kA  | 8,09  | -     | -     |
| Breaking current, DC-component    | %   | 26    | 38    | 12    |
| Recovery voltage, phase value     | kV  | 9,33  | 9,35  | 9,25  |
| Recovery voltage, between phases  | kV  | 16,1  | -     | -     |
| TRV, peak                         | kV  | -31,8 | -19,7 | 17,5  |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 2,8   | 8,4   | 8,4   |
| Opening time                      | ms  | -     | -     | -     |
| Break time                        | ms  | -     | -     | -     |



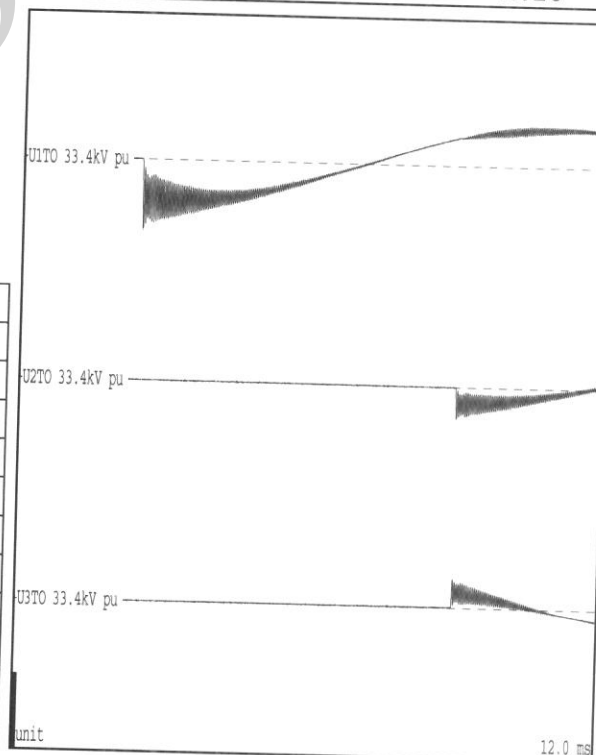
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



TEST NUMBER: 100527-6096

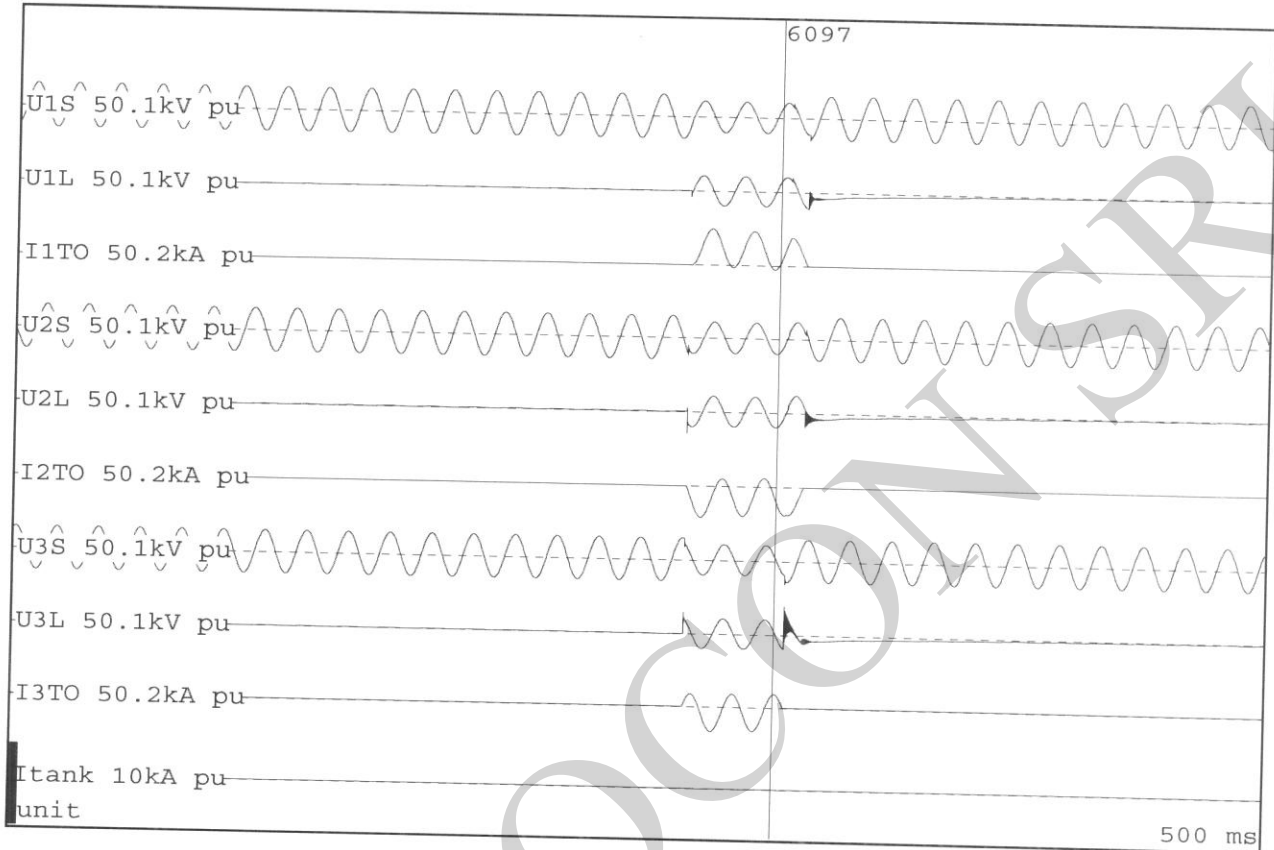
|                                   |     |       |       |      |
|-----------------------------------|-----|-------|-------|------|
| Time interval since previous test | min | -     |       |      |
| Operation                         |     | O     |       |      |
| Phase                             |     | C     | B     | A    |
| Breaking current, phase value     | kA  | 8,13  | 8,17  | 8,10 |
| Average current, three phase      | kA  | 8,13  |       |      |
| Breaking current, DC-component    | %   | 13    | 75    | 63   |
| Recovery voltage, phase value     | kV  | 9,30  | 9,29  | 9,21 |
| Recovery voltage, between phases  | kV  | 16,1  |       |      |
| TRV, peak                         | kV  | -32,7 | -14,6 | 13,1 |
| Arc duration                      | ms  | 7,1   | 13,7  | 13,7 |
| Opening time                      | ms  | -     |       |      |
| Break time                        | ms  | -     | -     | -    |



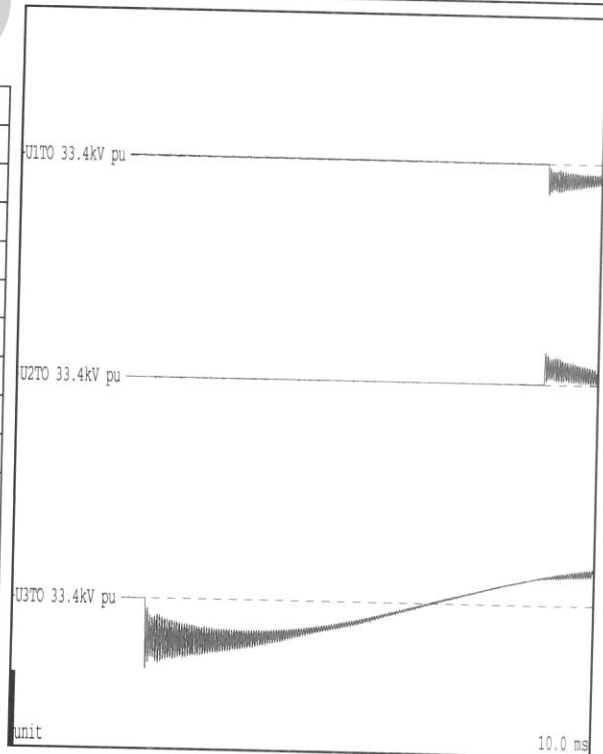
Voltage opening coil - Vd.c. Gas pressure at 20 °C - MPa  
Operating pressure

Remarks: Recloser cleared.




**TEST NUMBER: 100527-6097**

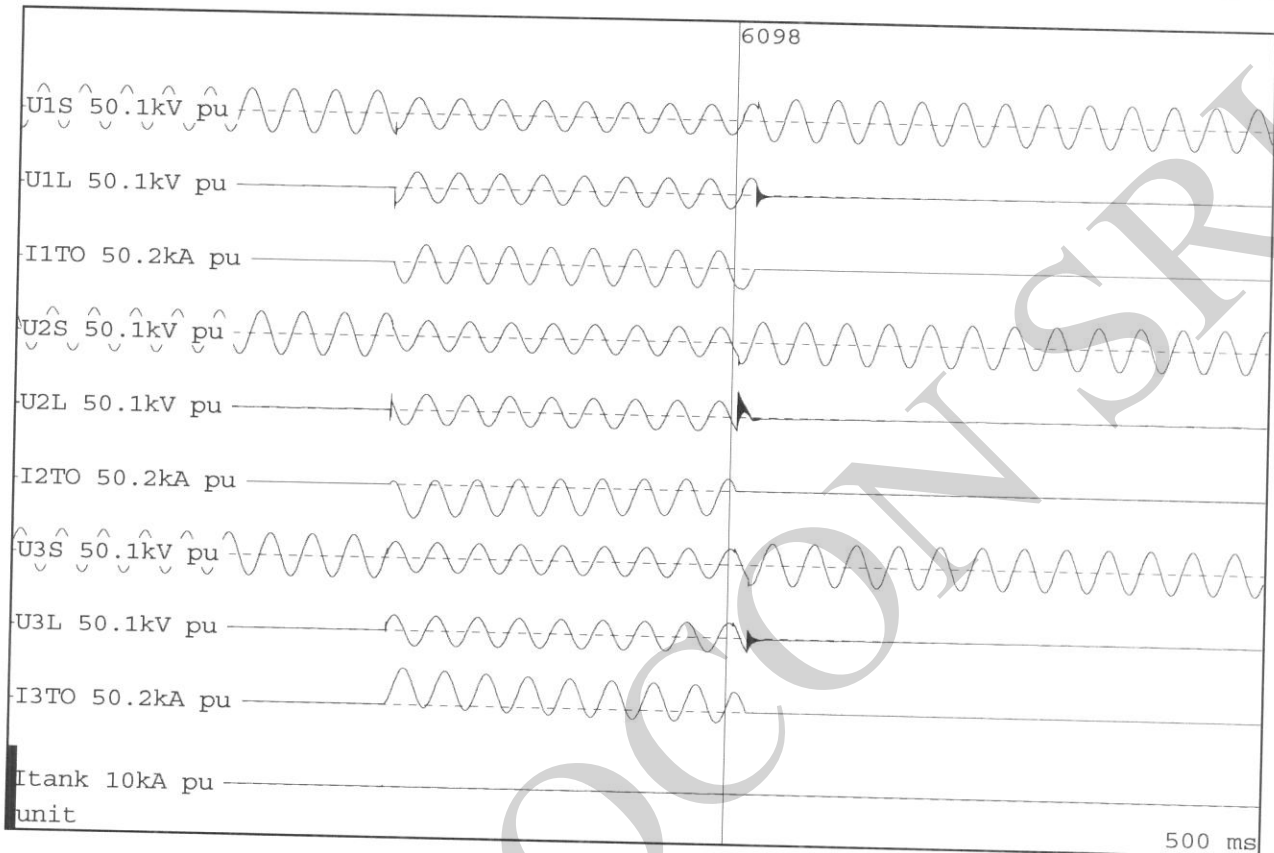
|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 0,516 |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,41  | 9,37  | 9,29  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | 23,1  | -19,7 | -15,7 |
| Breaking current, phase value     | kA  | 5,35  | 8,12  | 8,14  |
| Average current, three phase      | kA  | 7,2   |       |       |
| Breaking current, DC-component    | %   | 39    | 52    | 24    |
| Recovery voltage, phase value     | kV  | 9,34  | 9,30  | 9,19  |
| Recovery voltage, between phases  | kV  | 16,1  |       |       |
| TRV, peak                         | kV  | -14,4 | 14,7  | -31,7 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 10,9  | 11,0  | 4,1   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

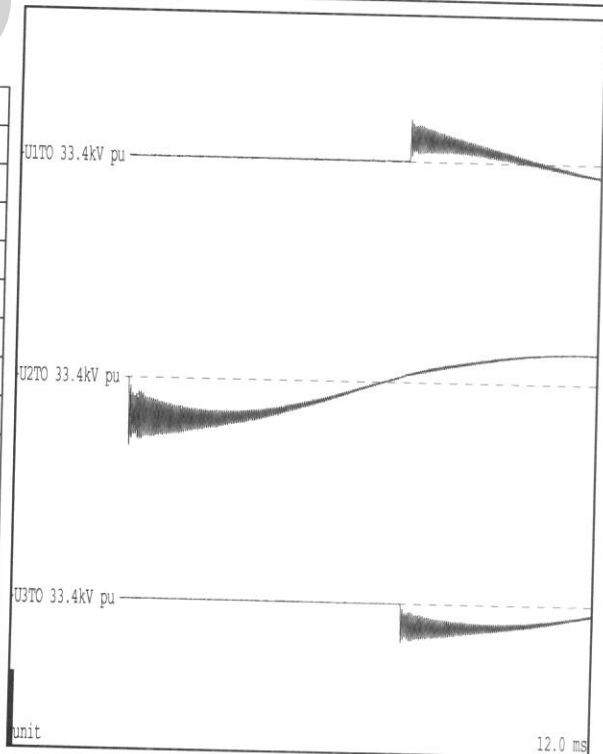
Remarks: Recloser closed and cleared.





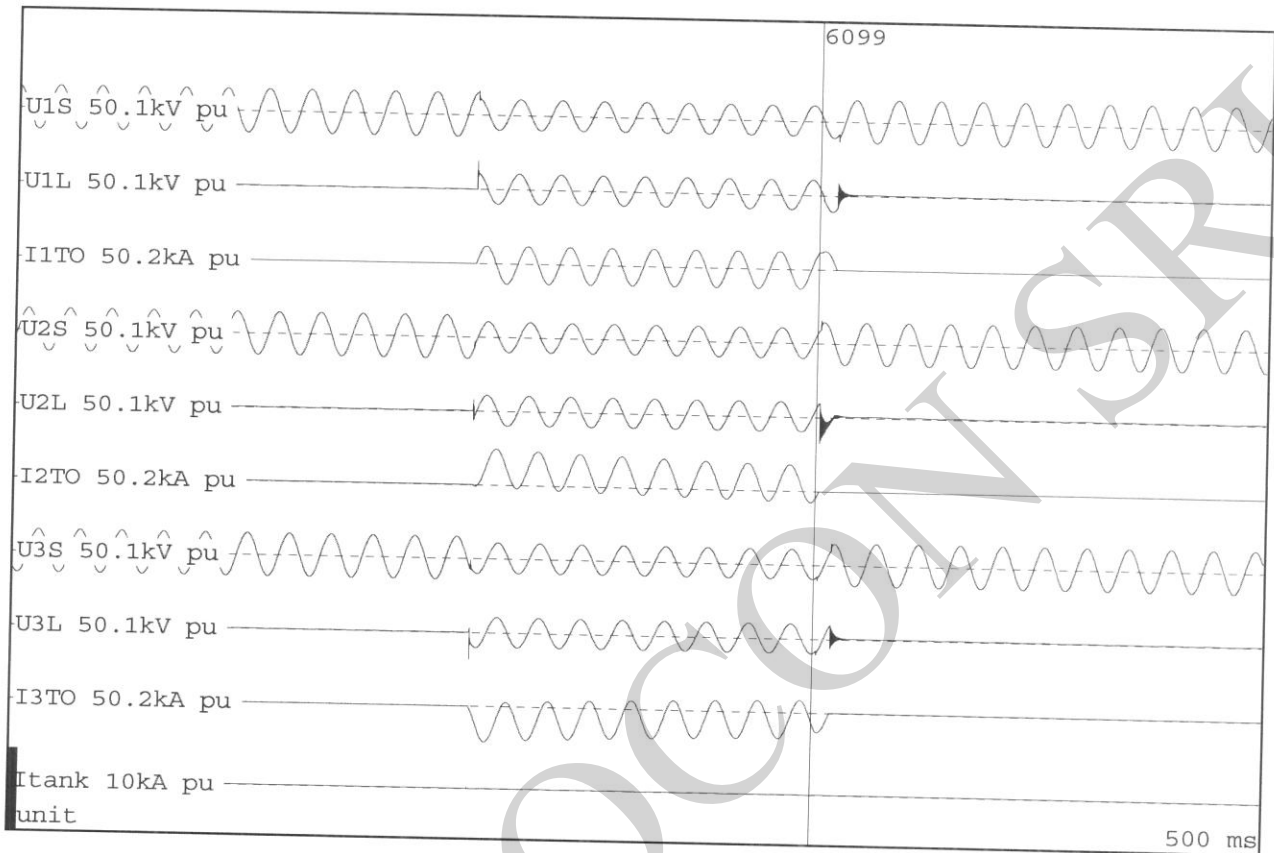
TEST NUMBER: 100527-6098

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,03  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,40  | 9,36  | 9,29  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | -13,4 | -21,6 | 23,0  |
| Breaking current, phase value     | kA  | 8,02  | 8,00  | 7,99  |
| Average current, three phase      | kA  | 8,00  |       |       |
| Breaking current, DC-component    | %   | 4     | 35    | 39    |
| Recovery voltage, phase value     | kV  | 9,29  | 9,21  | 9,18  |
| Recovery voltage, between phases  | kV  | 16,0  |       |       |
| TRV, peak                         | kV  | 19,2  | -30,8 | -18,0 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 8,3   | 2,6   | 8,2   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



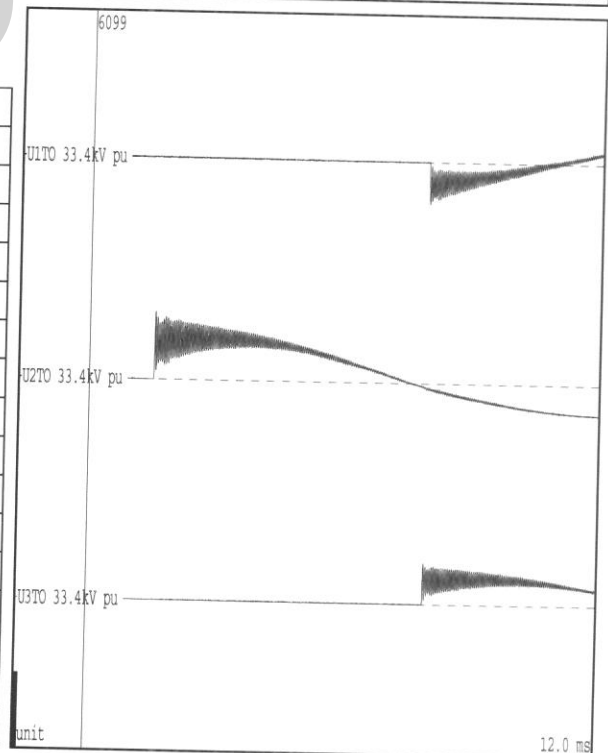
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



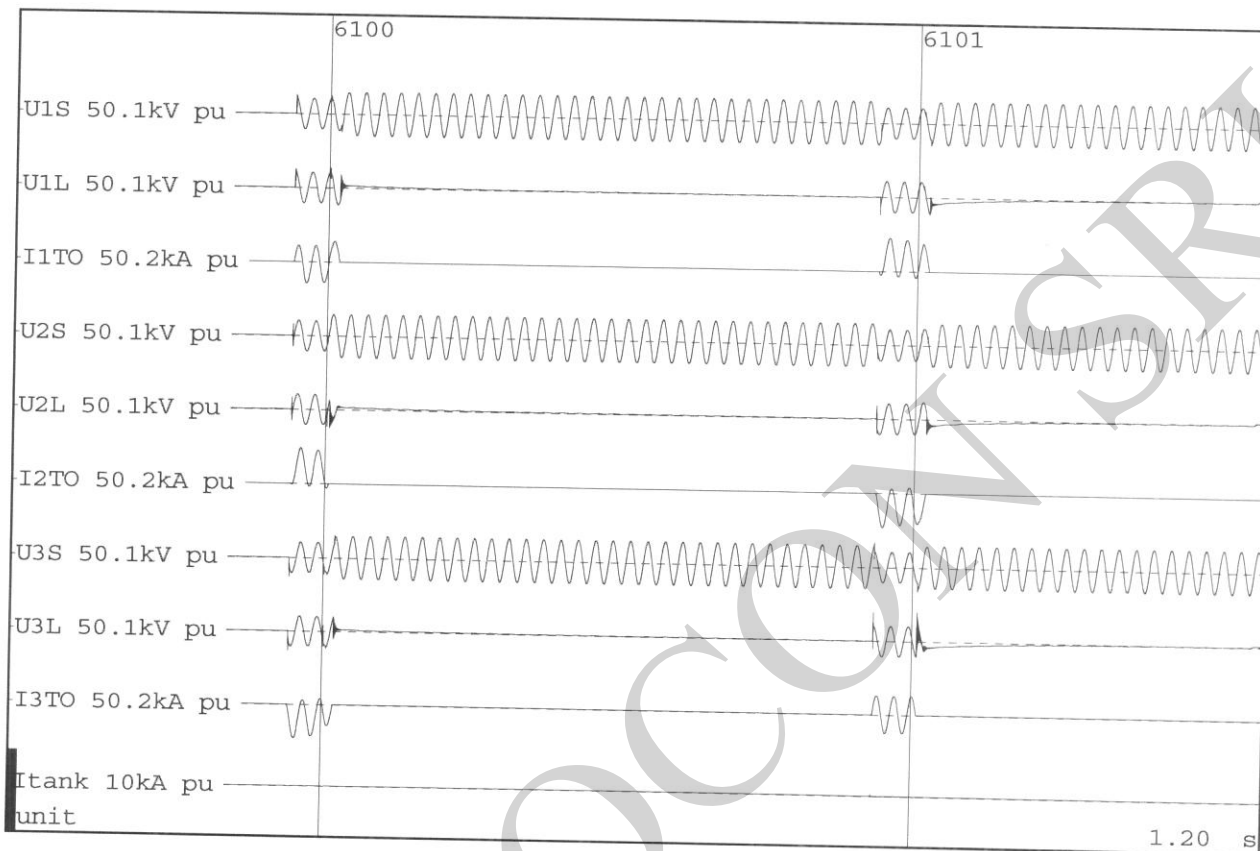
**TEST NUMBER: 100527-6099**

|                                   |     |       |      |       |
|-----------------------------------|-----|-------|------|-------|
| Time interval since previous test | min | -     | -    | -     |
| Time interval between operations  | s   | 1,02  | -    | -     |
| Operation                         |     | CO    | -    | -     |
| Phase                             |     | C     | B    | A     |
| Applied voltage, phase value      | kV  | 9,38  | 9,33 | 9,25  |
| Applied voltage, between phases   | kV  | 16,1  | -    | -     |
| Making current, peak              | kA  | -13,1 | 22,6 | -22,1 |
| Breaking current, phase value     | kA  | 8,03  | 8,03 | 8,02  |
| Average current, three phase      | kA  | 8,03  | -    | -     |
| Breaking current, DC-component    | %   | 3     | 38   | 35    |
| Recovery voltage, phase value     | kV  | 9,29  | 9,17 | 8,98  |
| Recovery voltage, between phases  | kV  | 15,8  | -    | -     |
| TRV, peak                         | kV  | -19,2 | 30,1 | 18,5  |
| Make time                         | ms  | -     | -    | -     |
| Arc duration                      | ms  | 7,0   | -2,1 | 7,0   |
| Opening time                      | ms  | -     | -    | -     |
| Break time                        | ms  | -     | -    | -     |



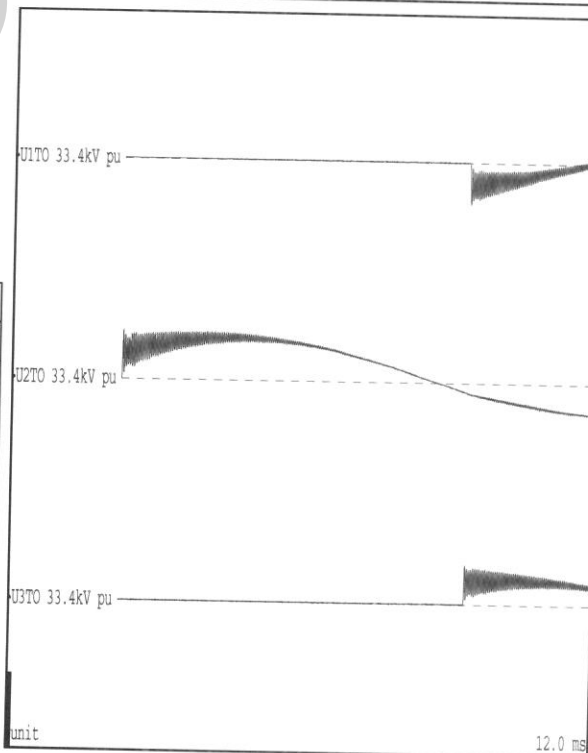
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



TEST NUMBER: 100527-6100

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,11  | 8,14 | 8,08 |
| Average current, three phase      | kA  | 8,11  |      |      |
| Breaking current, DC-component    | %   | 10    | 74   | 66   |
| Recovery voltage, phase value     | kV  | 9,32  | 9,22 | 9,21 |
| Recovery voltage, between phases  | kV  | 16,0  |      |      |
| TRV, peak                         | kV  | -19,1 | 21,6 | 18,1 |
| Arc duration                      | ms  | 10,8  | 2,6  | 10,8 |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |



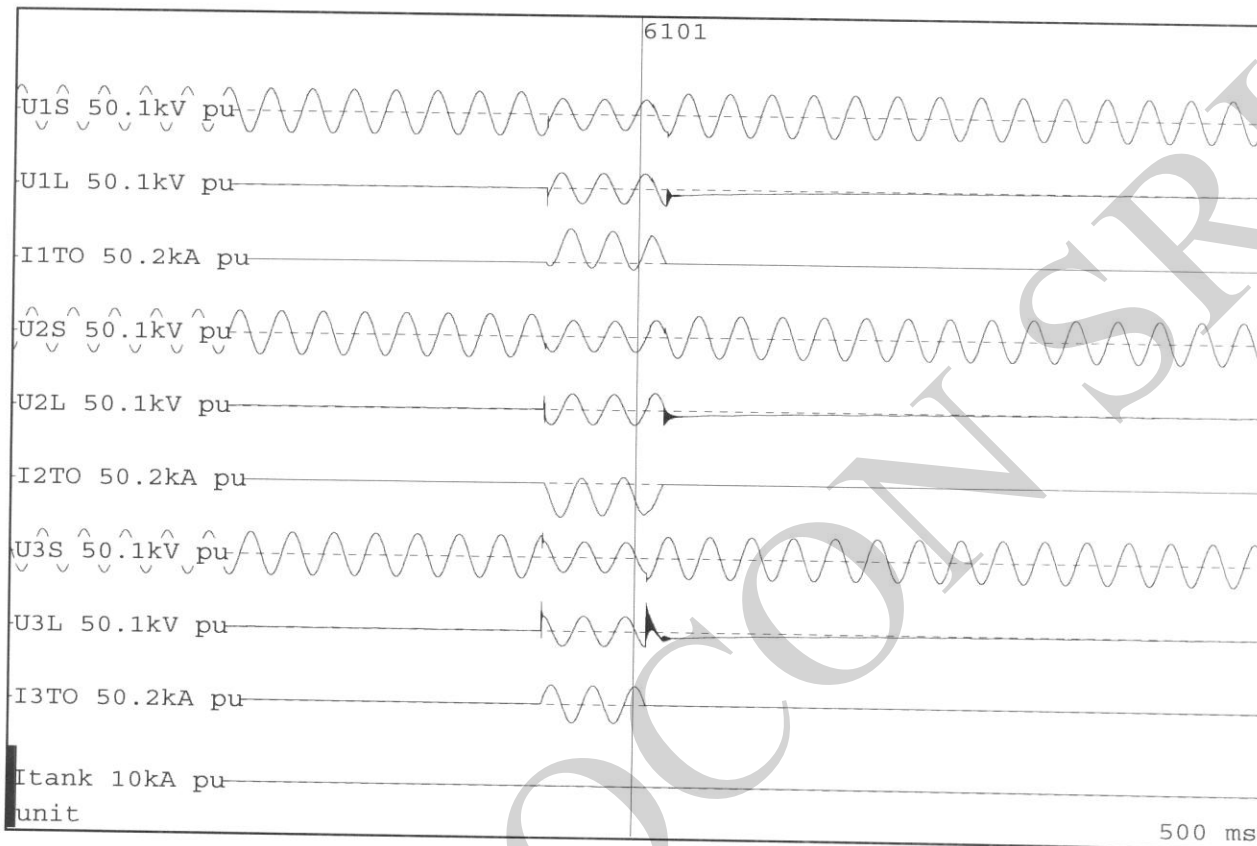
Voltage opening coil - Vd.c.

Gas pressure at 20 °C

- MPa

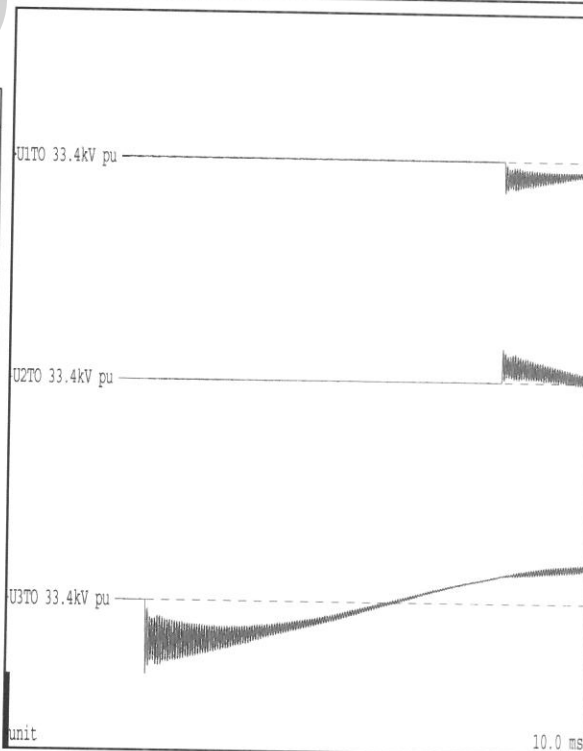
Operating pressure

Remarks: Recloser cleared.



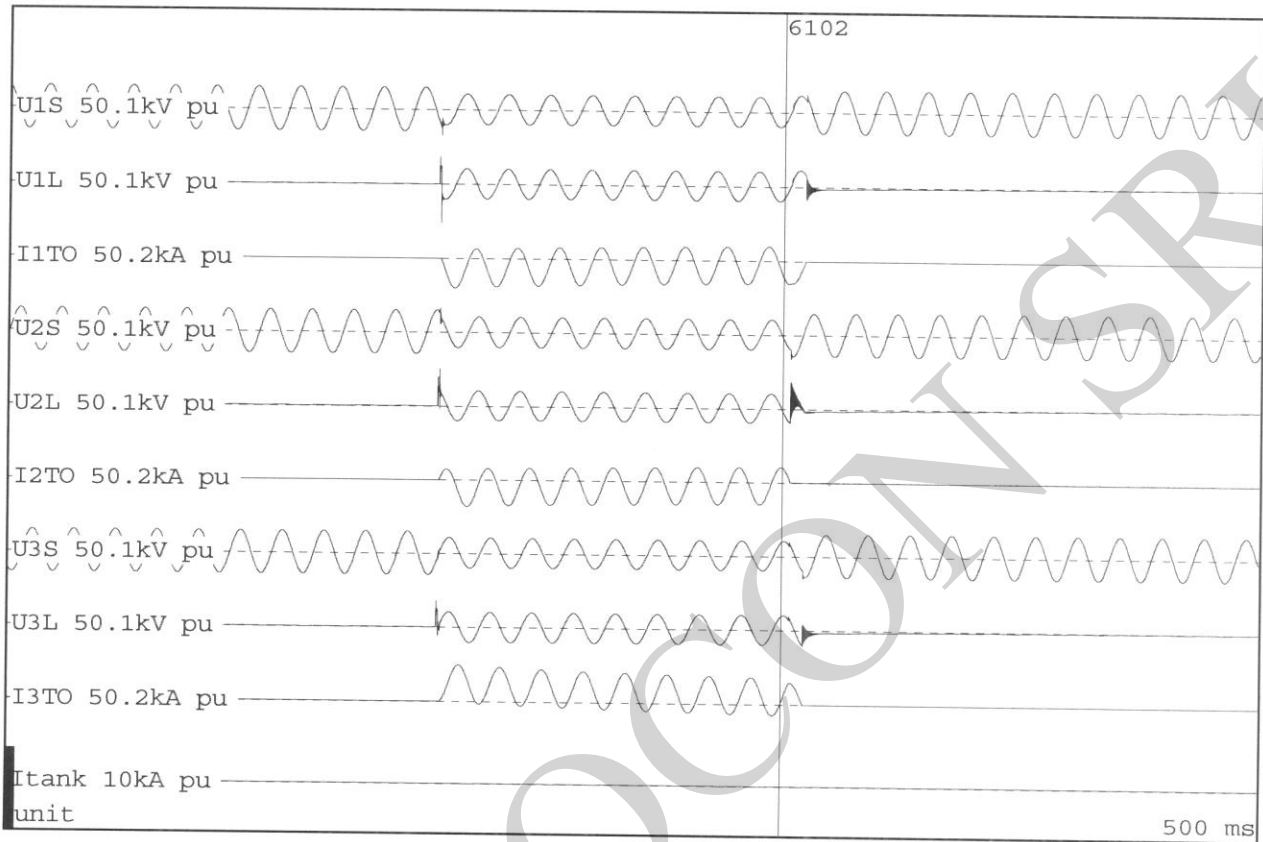
**TEST NUMBER: 100527-6101**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 0,519    |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,40     | 9,39     | 9,31     |
| Applied voltage, between phases   | kV  | 16,2     |          |          |
| Making current, peak              | kA  | 21,1     | -21,6    | 12,4     |
| Breaking current, phase value     | kA  | 8,12     | 8,11     | 8,12     |
| Average current, three phase      | kA  | 8,12     |          |          |
| Breaking current, DC-component    | %   | 64       | 65       | 3        |
| Recovery voltage, phase value     | kV  | 9,33     | 9,30     | 9,30     |
| Recovery voltage, between phases  | kV  | 16,1     |          |          |
| TRV, peak                         | kV  | -14,2    | 14,8     | -32,8    |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 11,0     | 11,0     | 4,9      |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |

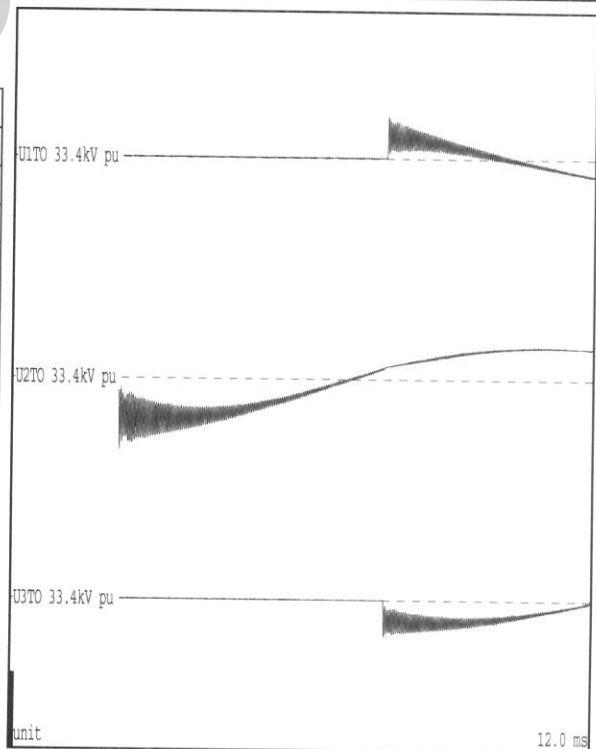


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.

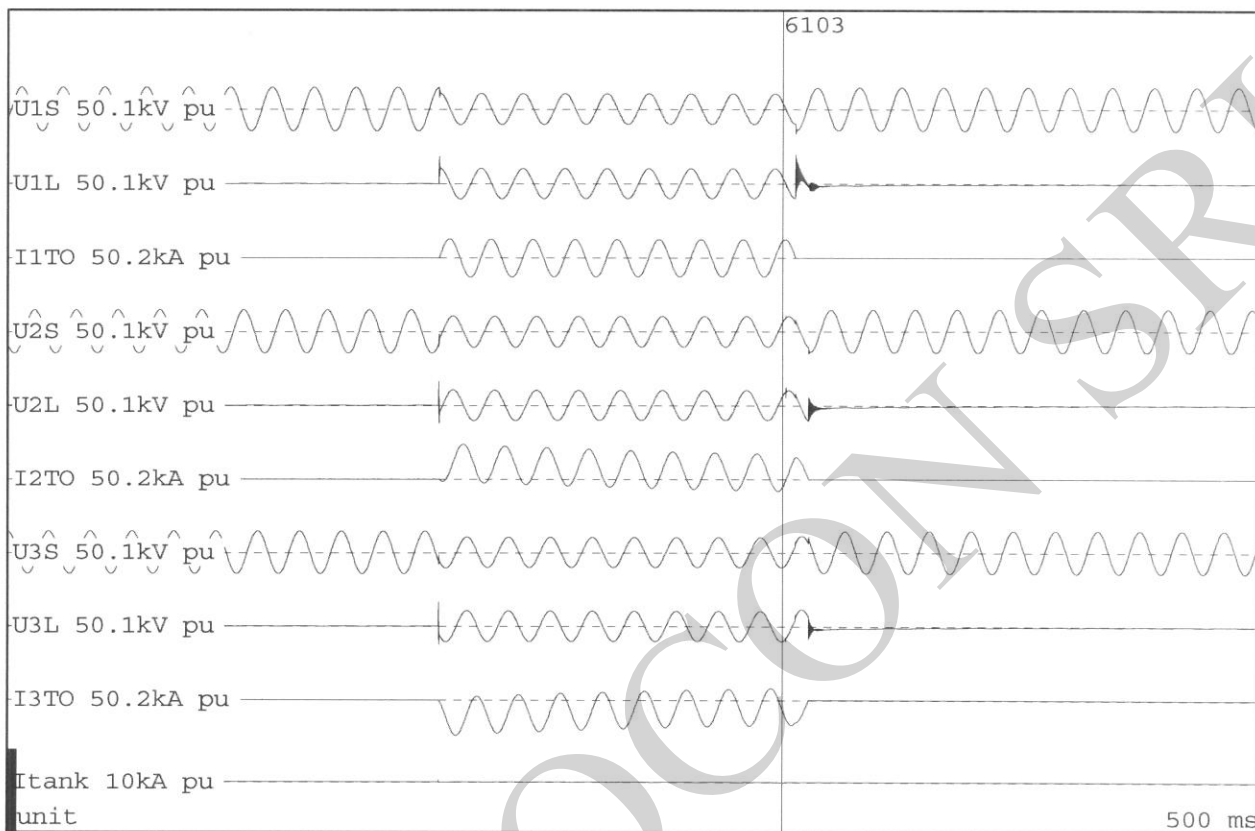

**TEST NUMBER: 100527-6102**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,02  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,41  | 9,38  | 9,30  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | -17,7 | 6,67  | 22,3  |
| Breaking current, phase value     | kA  | 8,02  | 8,04  | 7,99  |
| Average current, three phase      | kA  | 8,02  |       |       |
| Breaking current, DC-component    | %   | 21    | 18    | 40    |
| Recovery voltage, phase value     | kV  | 9,30  | 9,24  | 9,19  |
| Recovery voltage, between phases  | kV  | 16,0  |       |       |
| TRV, peak                         | kV  | 19,0  | -32,2 | -17,3 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 8,7   | 3,2   | 8,7   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



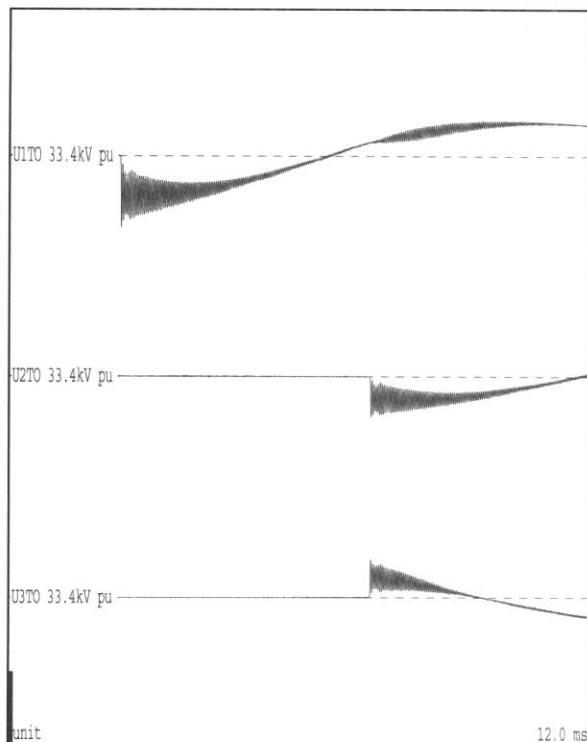
Voltage closing coil - V.d.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - V.d.c. Operating pressure

Remarks: Recloser closed and cleared.



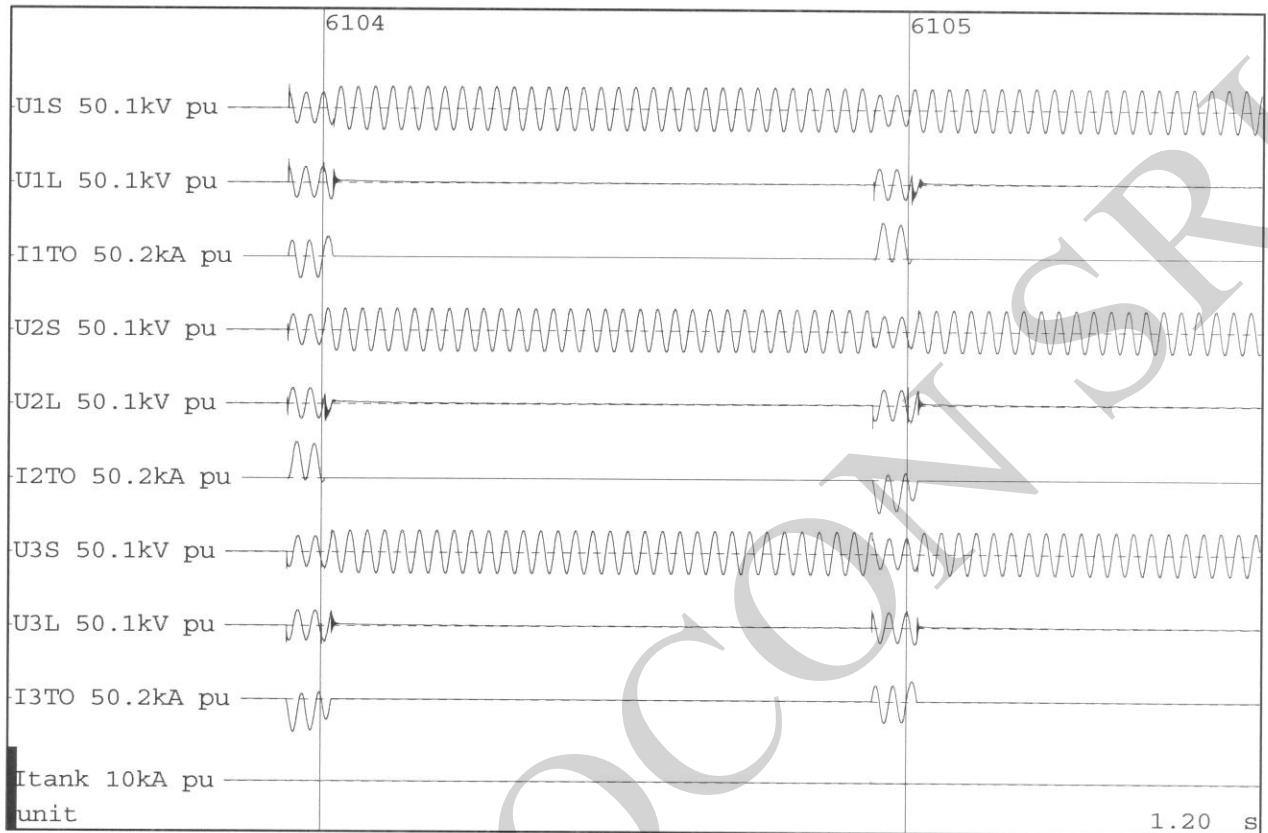
## TEST NUMBER: 100527-6103

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,02  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,42  | 9,39  | 9,31  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | 11,7  | 21,3  | -21,5 |
| Breaking current, phase value     | kA  | 8,06  | 8,04  | 8,03  |
| Average current, three phase      | kA  | 8,04  |       |       |
| Breaking current, DC-component    | %   | 1     | 36    | 35    |
| Recovery voltage, phase value     | kV  | 9,28  | 9,30  | 9,20  |
| Recovery voltage, between phases  | kV  | 16,0  |       |       |
| TRV, peak                         | kV  | -32,9 | -18,6 | 17,2  |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 5,2   | 10,4  | 10,4  |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



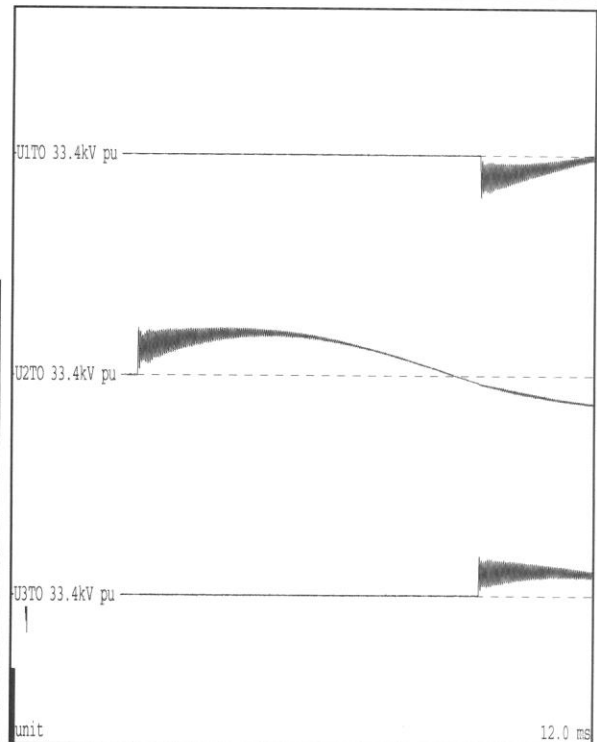
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



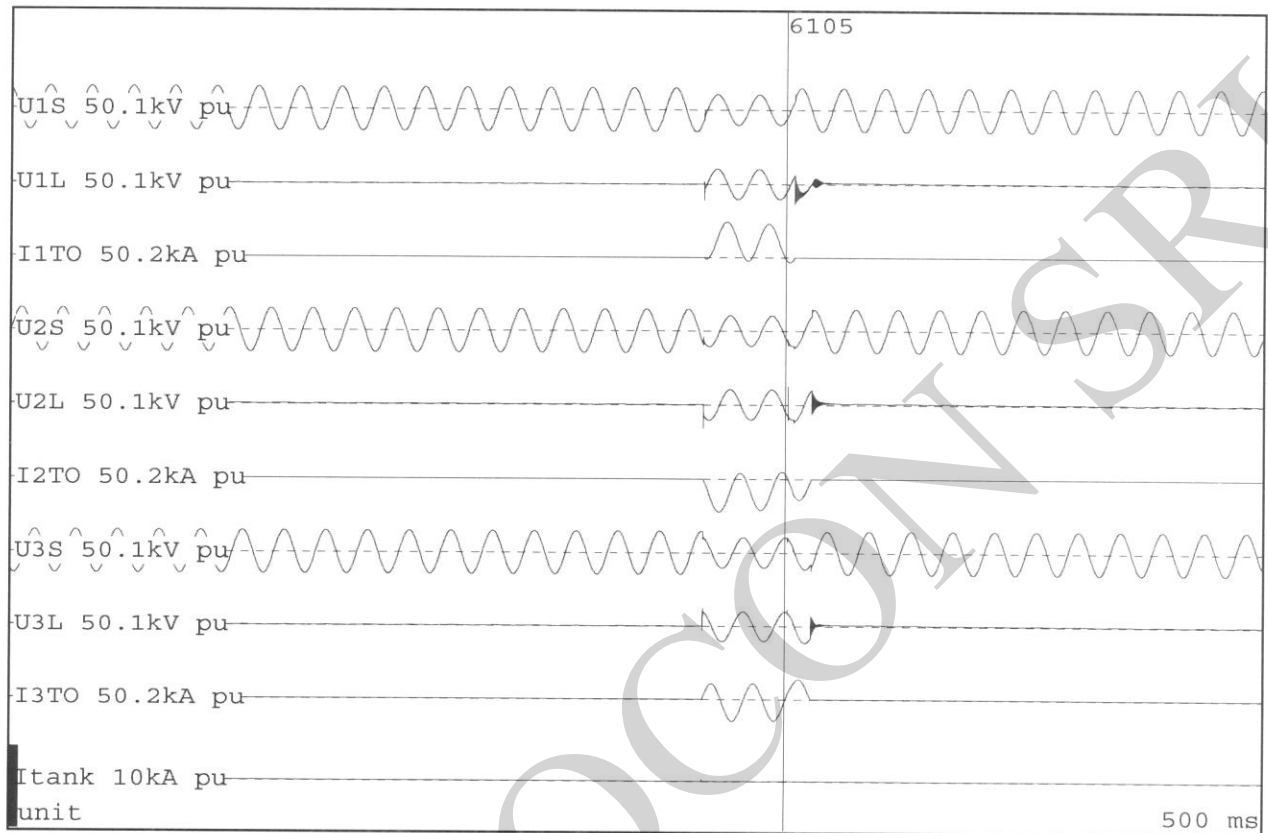
**TEST NUMBER: 100527-6104**

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,12  | 8,15 | 8,08 |
| Average current, three phase      | kA  | 8,12  |      |      |
| Breaking current, DC-component    | %   | 14    | 75   | 63   |
| Recovery voltage, phase value     | kV  | 9,32  | 9,21 | 9,21 |
| Recovery voltage, between phases  | kV  | 16,0  |      |      |
| TRV, peak                         | kV  | -19,3 | 21,3 | 17,9 |
| Arc duration                      | ms  | 10,3  | 2,2  | 10,3 |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |

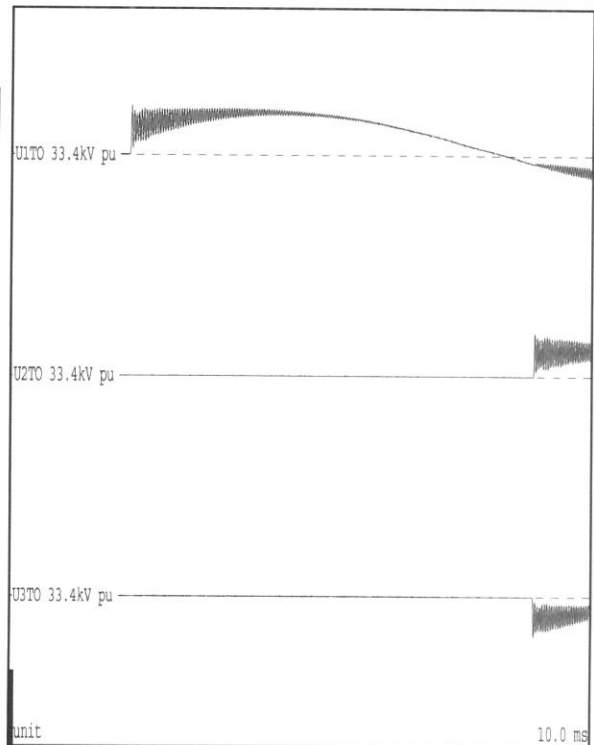


|                      |          |                       |       |
|----------------------|----------|-----------------------|-------|
| Voltage opening coil | - V.d.c. | Gas pressure at 20 °C | - MPa |
|                      |          | Operating pressure    |       |

Remarks: Recloser cleared.


**TEST NUMBER: 100527-6105**

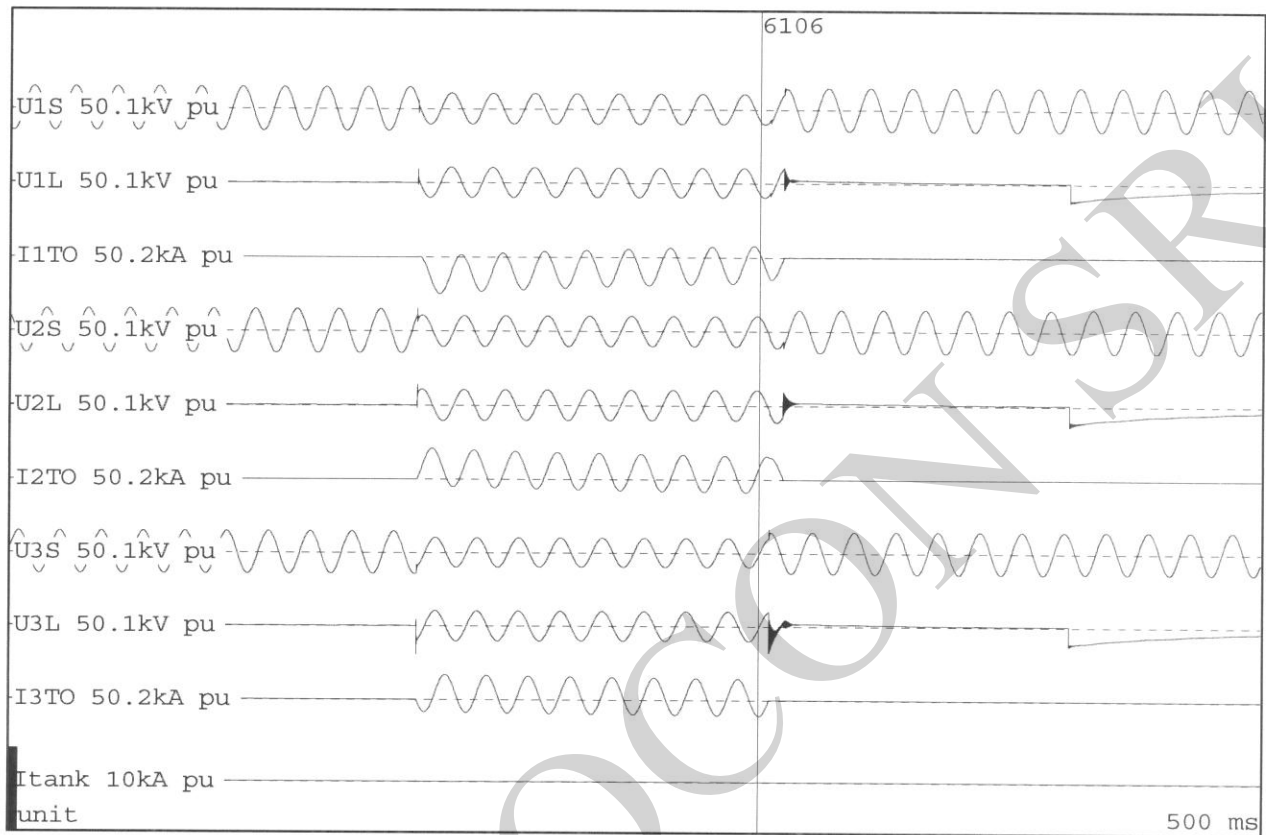
|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 0,519 |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,40  | 9,37  | 9,29  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | 22,5  | -21,0 | -14,0 |
| Breaking current, phase value     | kA  | 8,18  | 8,11  | 8,12  |
| Average current, three phase      | kA  | 8,14  |       |       |
| Breaking current, DC-component    | %   | 73    | 63    | 12    |
| Recovery voltage, phase value     | kV  | 9,26  | 9,32  | 9,24  |
| Recovery voltage, between phases  | kV  | 16,1  |       |       |
| TRV, peak                         | kV  | 22,2  | 19,7  | -17,9 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 2,3   | 10,5  | 10,5  |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



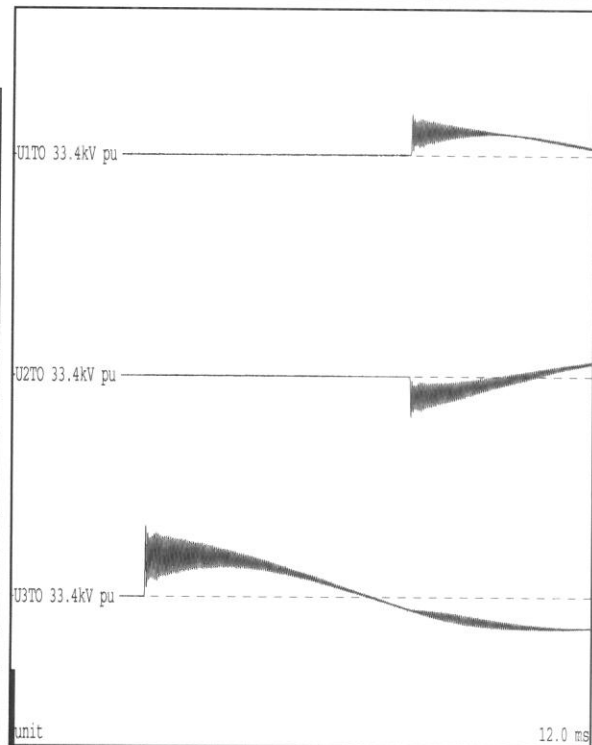
|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.



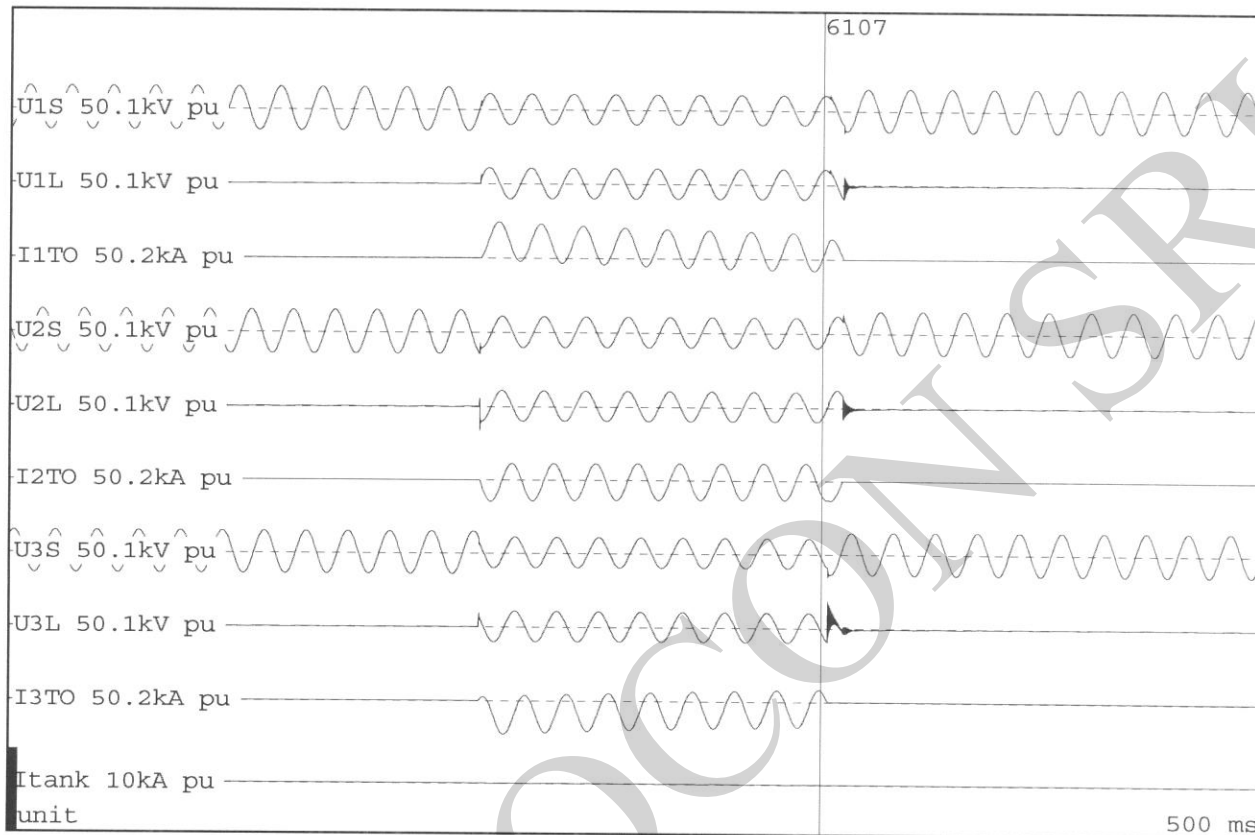

**TEST NUMBER: 100527-6106**

|                                   |     |       |       |      |
|-----------------------------------|-----|-------|-------|------|
| Time interval since previous test | min | -     |       |      |
| Time interval between operations  | s   | 1,02  |       |      |
| Operation                         |     | CO    |       |      |
| Phase                             |     | C     | B     | A    |
| Applied voltage, phase value      | kV  | 9,41  | 9,38  | 9,29 |
| Applied voltage, between phases   | kV  | 16,2  |       |      |
| Making current, peak              | kA  | -23,2 | 19,6  | 16,0 |
| Breaking current, phase value     | kA  | 8,03  | 8,03  | 8,02 |
| Average current, three phase      | kA  | 8,03  |       |      |
| Breaking current, DC-component    | %   | 40    | 26    | 14   |
| Recovery voltage, phase value     | kV  | 9,32  | 9,28  | 9,17 |
| Recovery voltage, between phases  | kV  | 16,0  |       |      |
| TRV, peak                         | kV  | 18,1  | -18,1 | 32,1 |
| Make time                         | ms  | -     | -     | -    |
| Arc duration                      | ms  | 9,6   | 9,6   | 4,1  |
| Opening time                      | ms  | -     |       |      |
| Break time                        | ms  | -     | -     | -    |

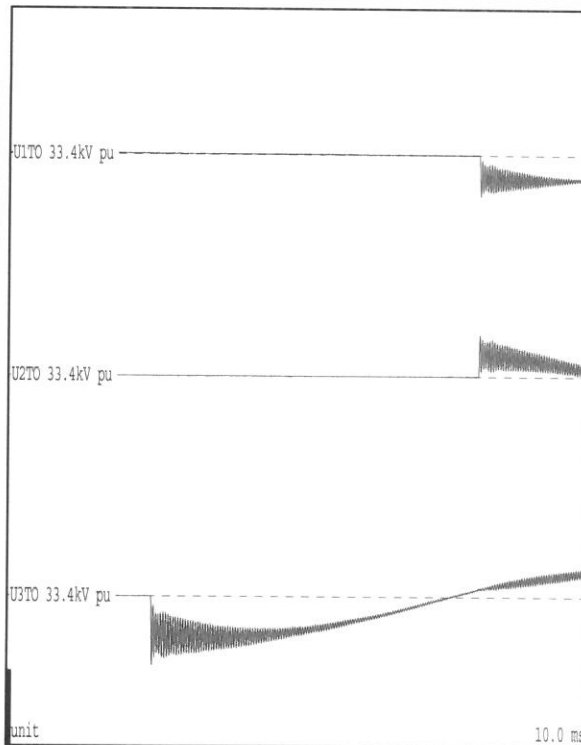


|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared. NSDD in the S-fase after 115 ms.

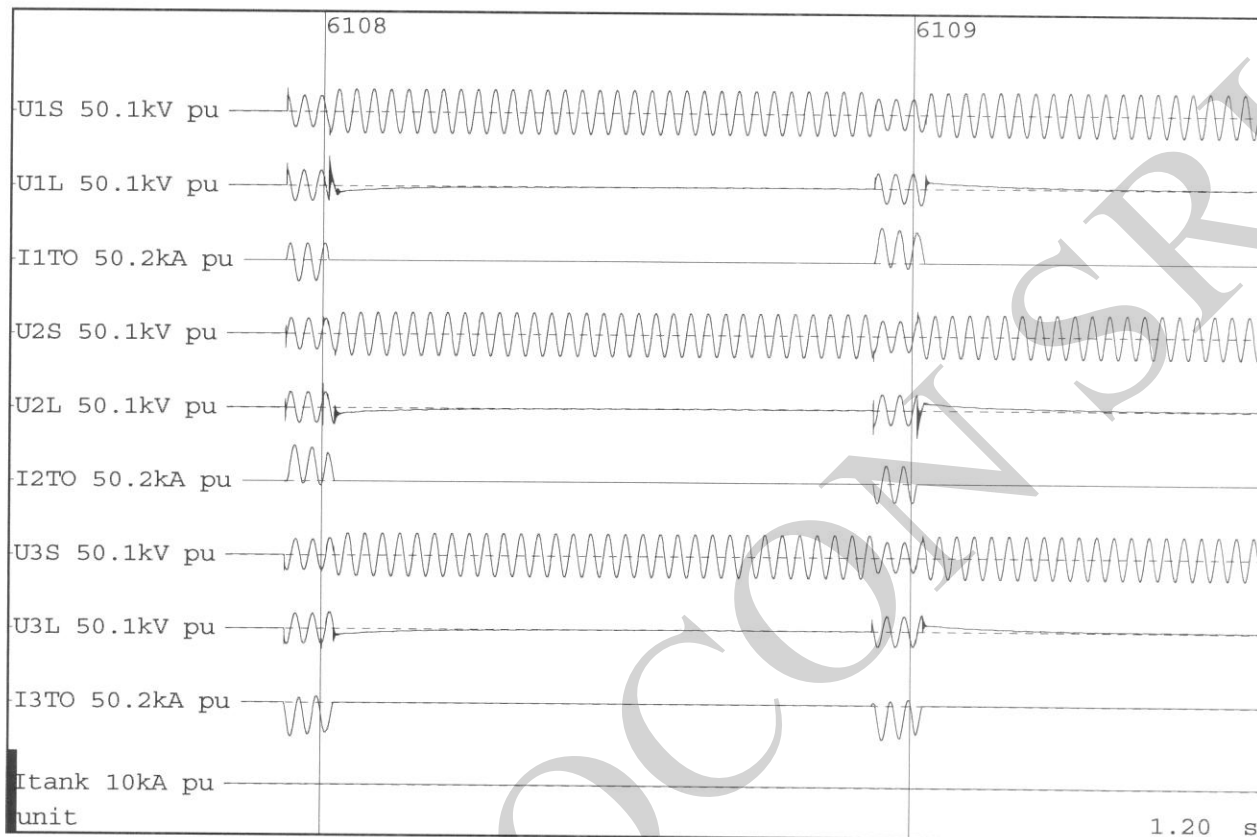

**TEST NUMBER: 100527-6107**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,02  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,44  | 9,42  | 9,33  |
| Applied voltage, between phases   | kV  | 16,3  |       |       |
| Making current, peak              | kA  | 22,8  | -13,9 | -20,9 |
| Breaking current, phase value     | kA  | 8,07  | 8,06  | 8,06  |
| Average current, three phase      | kA  | 8,06  |       |       |
| Breaking current, DC-component    | %   | 37    | 6     | 31    |
| Recovery voltage, phase value     | kV  | 9,34  | 9,31  | 9,21  |
| Recovery voltage, between phases  | kV  | 16,1  |       |       |
| TRV, peak                         | kV  | -18,7 | 18,8  | -31,1 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 8,2   | 8,3   | 2,6   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



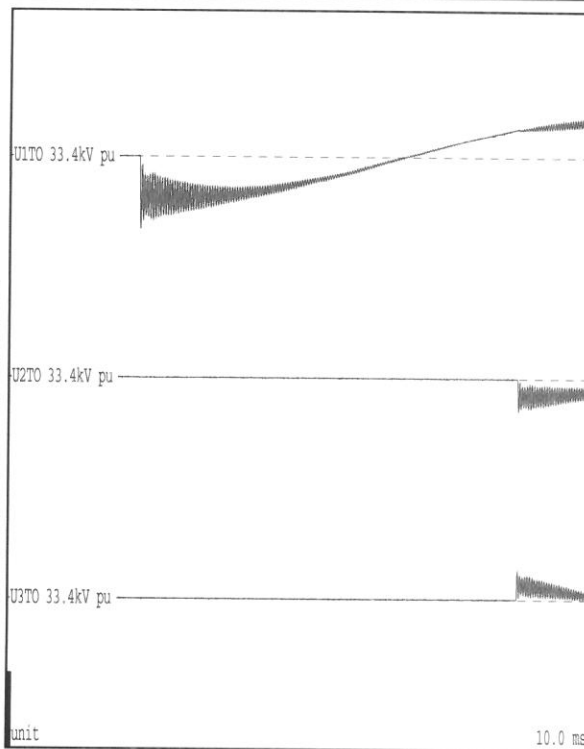
Voltage closing coil - Vd.c.      Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c.      Operating pressure

Remarks: Recloser closed and cleared.



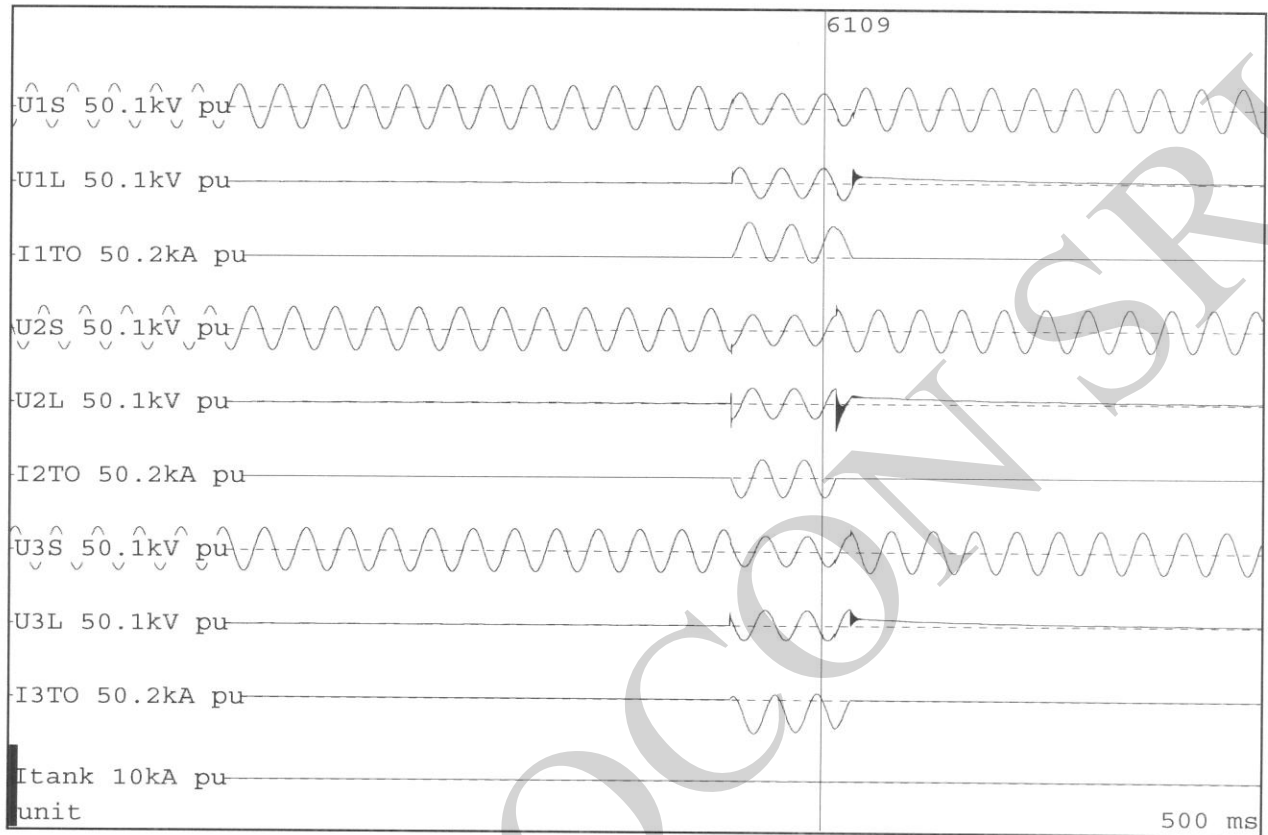
## TEST NUMBER: 100527-6108

|                                   |     |       |       |      |
|-----------------------------------|-----|-------|-------|------|
| Time interval since previous test | min | -     |       |      |
| Operation                         |     | O     |       |      |
| Phase                             |     | C     | B     | A    |
| Breaking current, phase value     | kA  | 8,12  | 8,09  | 8,09 |
| Average current, three phase      | kA  | 8,1   |       |      |
| Breaking current, DC-component    | %   | 10    | 75    | 64   |
| Recovery voltage, phase value     | kV  | 9,29  | 9,30  | 9,21 |
| Recovery voltage, between phases  | kV  | 16,1  |       |      |
| TRV, peak                         | kV  | -32,8 | -14,5 | 12,8 |
| Arc duration                      | ms  | 5,5   | 12,1  | 12,1 |
| Opening time                      | ms  | -     |       |      |
| Break time                        | ms  | -     | -     | -    |

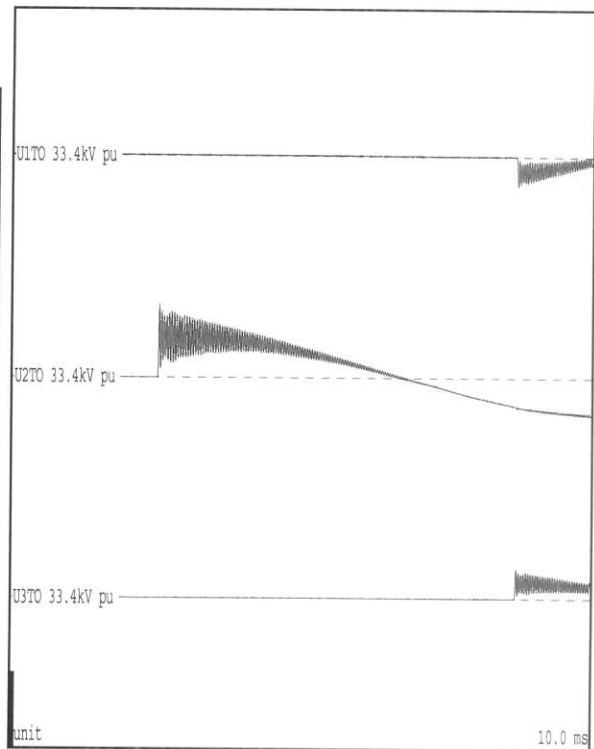


Voltage opening coil - Vd.c.      Gas pressure at 20 °C - MPa  
 Operating pressure

Remarks: Recloser cleared.

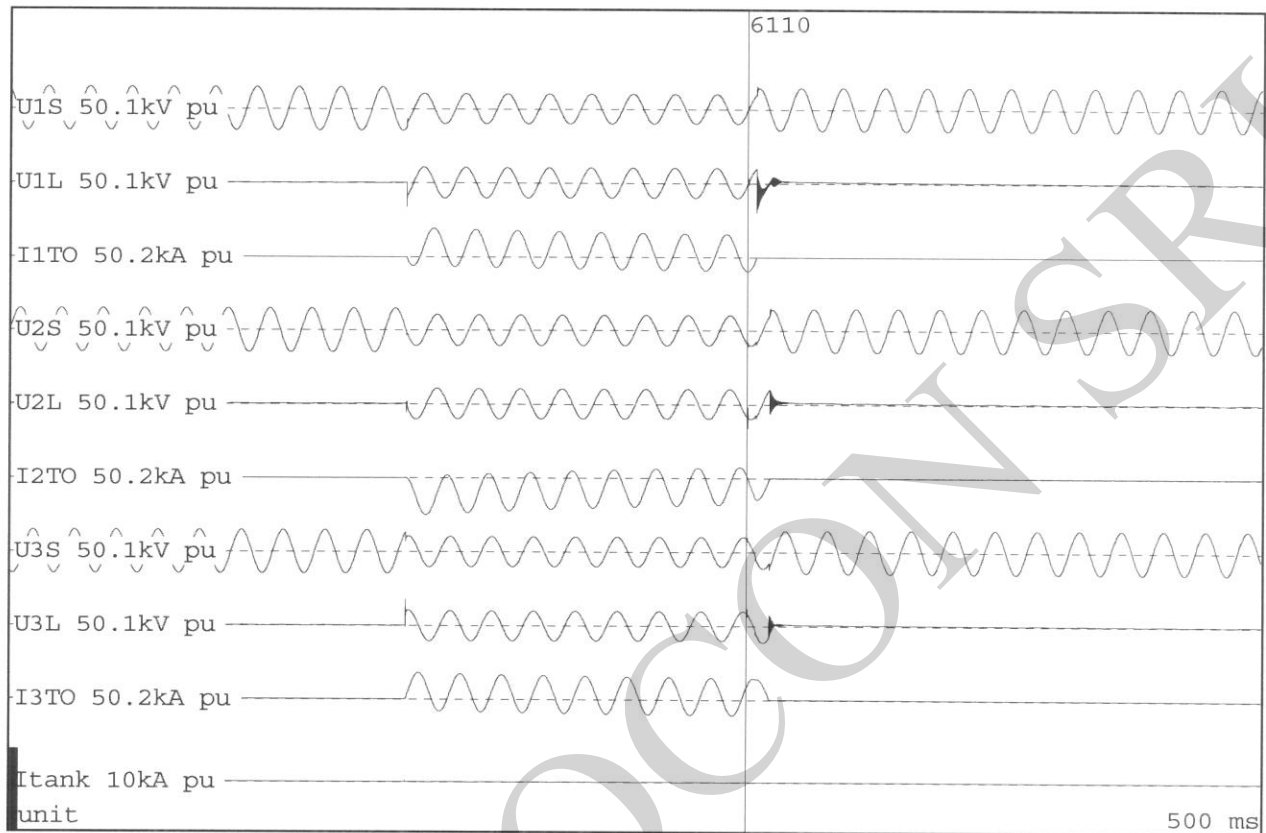

**TEST NUMBER: 100527-6109**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 0,517    |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,42     | 9,40     | 9,32     |
| Applied voltage, between phases   | kV  | 16,2     |          |          |
| Making current, peak              | kA  | 22,2     | -12,6    | -21,5    |
| Breaking current, phase value     | kA  | 8,13     | 8,15     | 8,12     |
| Average current, three phase      | kA  | 8,13     |          |          |
| Breaking current, DC-component    | %   | 69       | 4        | 66       |
| Recovery voltage, phase value     | kV  | 9,33     | 9,28     | 9,24     |
| Recovery voltage, between phases  | kV  | 16,1     |          |          |
| TRV, peak                         | kV  | -14,1    | 33,2     | 13,3     |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 11,5     | 5,4      | 11,5     |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |

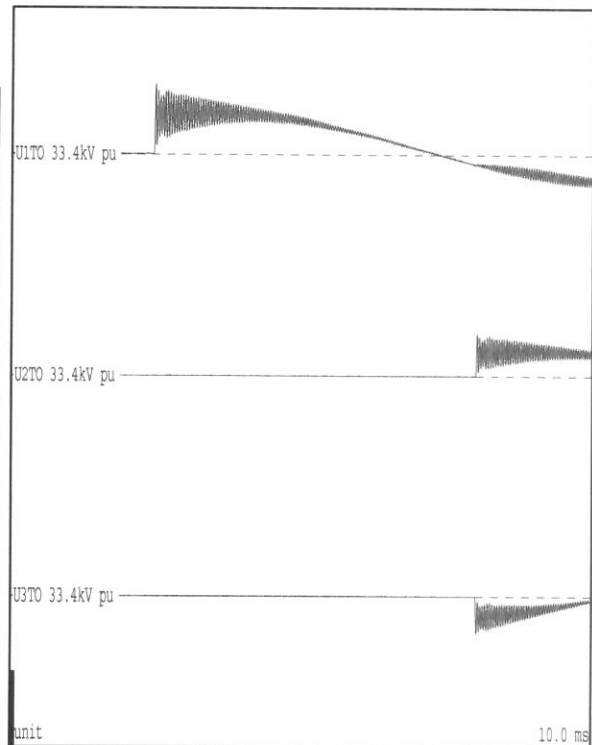


|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.

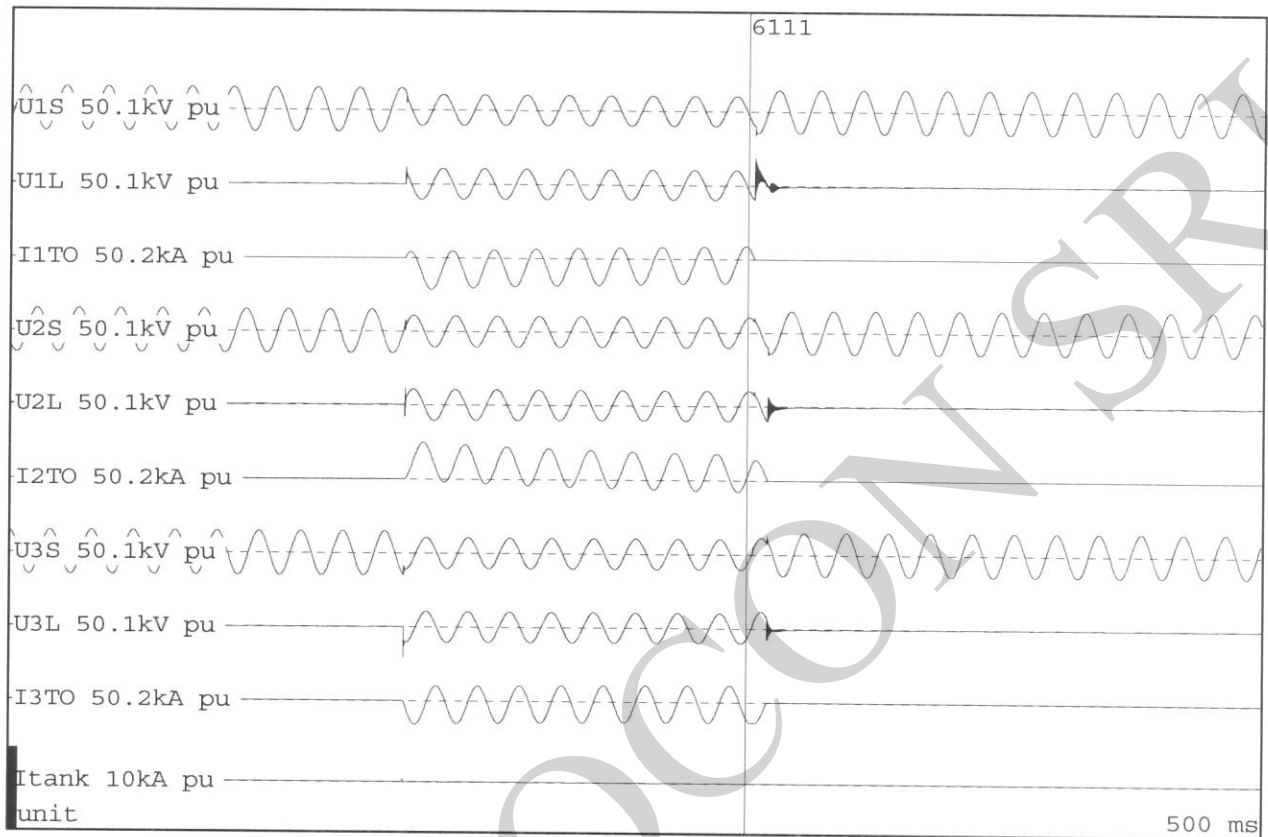

**TEST NUMBER: 100527-6110**

|                                   |     |      |       |       |
|-----------------------------------|-----|------|-------|-------|
| Time interval since previous test | min | -    |       |       |
| Time interval between operations  | s   | 1,02 |       |       |
| Operation                         |     | CO   |       |       |
| Phase                             |     | C    | B     | A     |
| Applied voltage, phase value      | kV  | 9,45 | 9,42  | 9,34  |
| Applied voltage, between phases   | kV  | 16,3 |       |       |
| Making current, peak              | kA  | 18,4 | -23,3 | 17,0  |
| Breaking current, phase value     | kA  | 8,07 | 8,06  | 8,05  |
| Average current, three phase      | kA  | 8,06 |       |       |
| Breaking current, DC-component    | %   | 23   | 40    | 17    |
| Recovery voltage, phase value     | kV  | 9,33 | 9,33  | 9,23  |
| Recovery voltage, between phases  | kV  | 16,1 |       |       |
| TRV, peak                         | kV  | 32,0 | 19,3  | -17,5 |
| Make time                         | ms  | -    | -     | -     |
| Arc duration                      | ms  | 3,7  | 9,2   | 9,2   |
| Opening time                      | ms  | -    |       |       |
| Break time                        | ms  | -    | -     | -     |

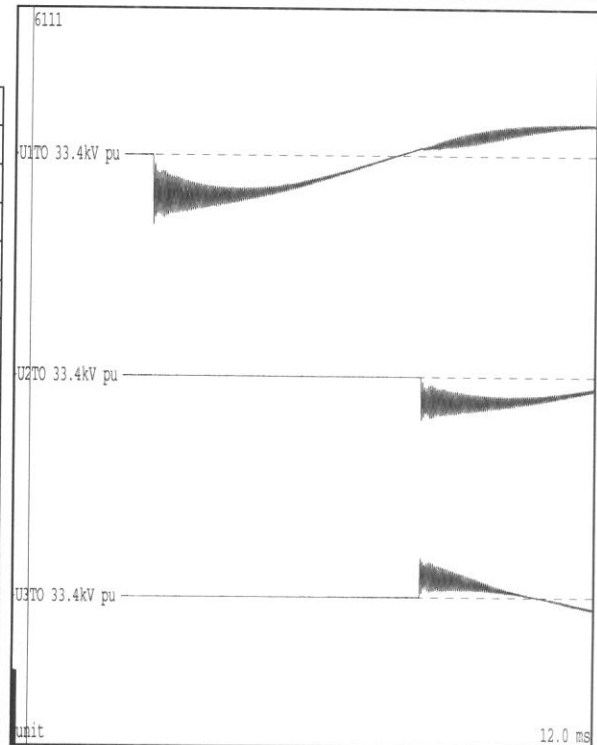


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.

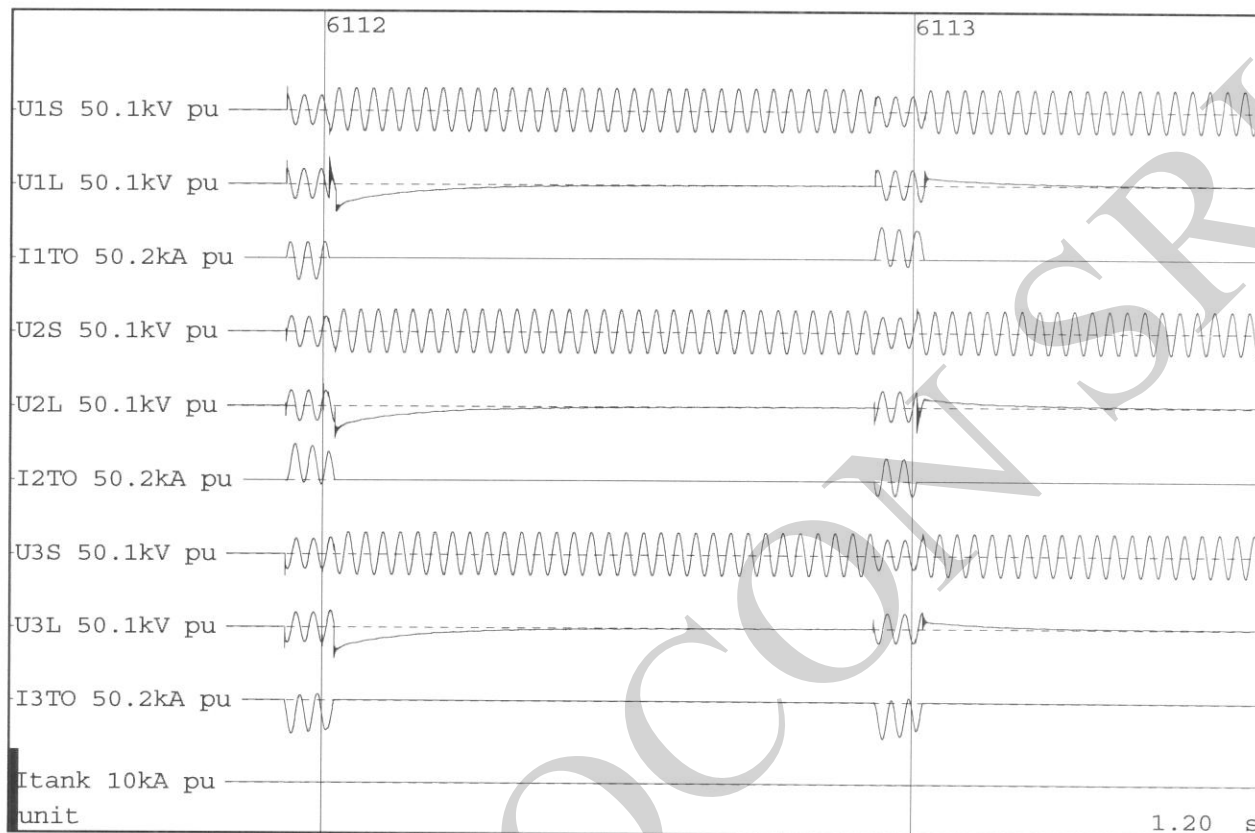

**TEST NUMBER: 100527-6111**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,02  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,47  | 9,29  | 9,37  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | -20,2 | 22,9  | -14,9 |
| Breaking current, phase value     | kA  | 8,11  | 8,11  | 8,10  |
| Average current, three phase      | kA  | 8,11  |       |       |
| Breaking current, DC-component    | %   | 28    | 37    | 9     |
| Recovery voltage, phase value     | kV  | 9,35  | 9,37  | 9,27  |
| Recovery voltage, between phases  | kV  | 16,2  |       |       |
| TRV, peak                         | kV  | -31,6 | -19,8 | 17,8  |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 2,6   | 8,2   | 8,2   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



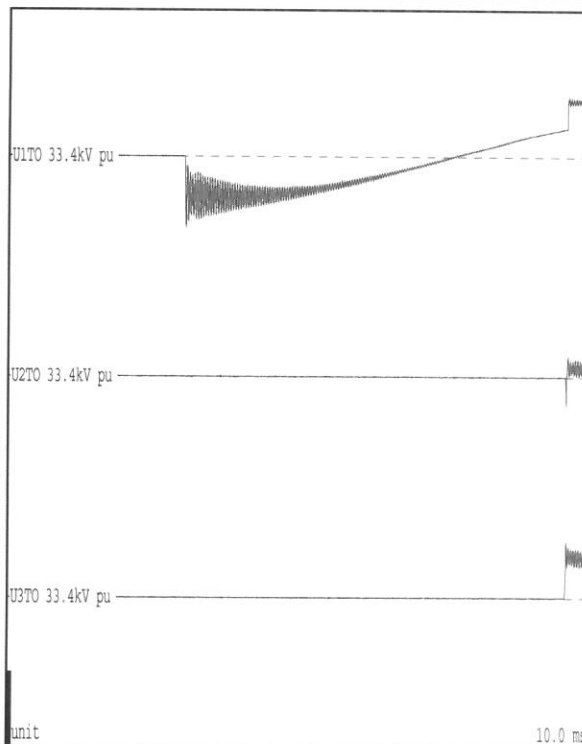
Voltage closing coil - V.d.c.      Gas pressure at 20 °C - MPa  
 Voltage opening coil - V.d.c.      Operating pressure

Remarks: Recloser closed and cleared.



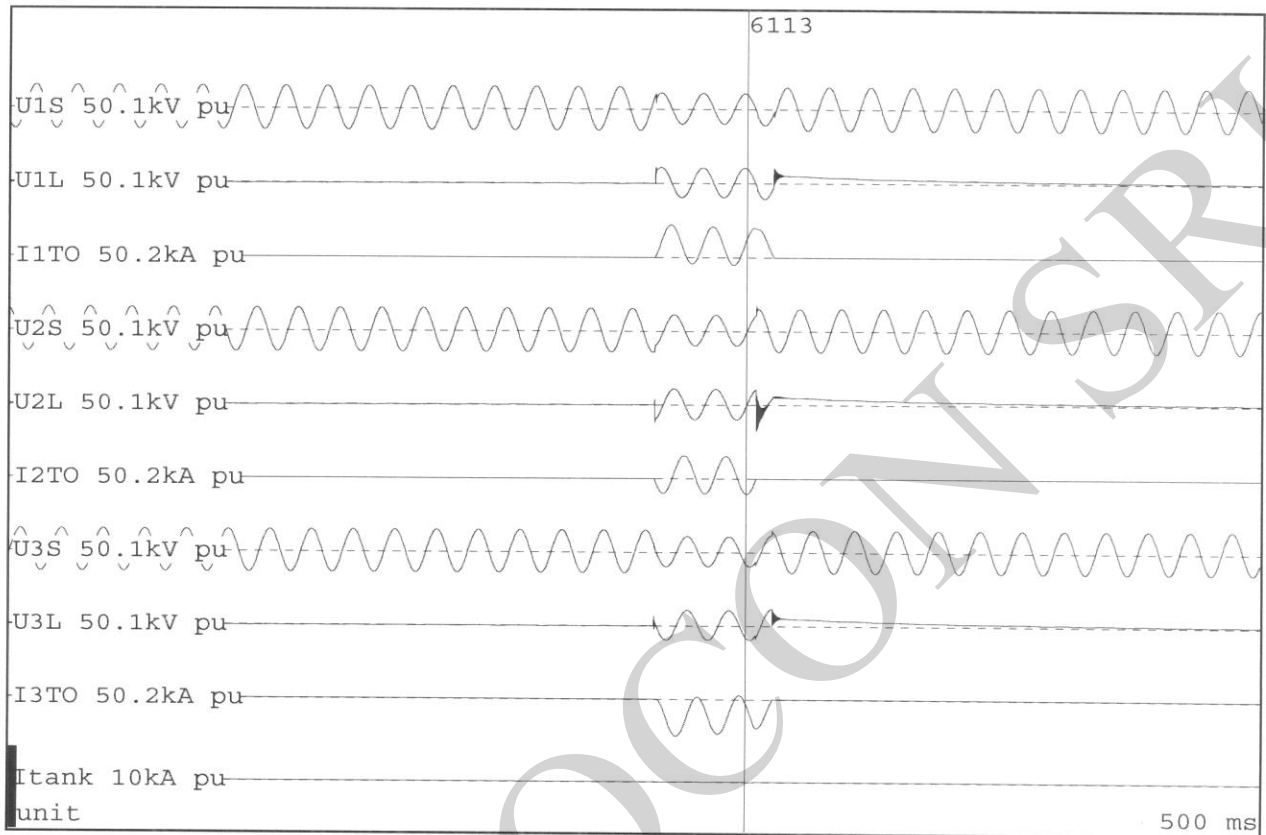
## TEST NUMBER: 100527-6112

|                                   |     |       |       |      |
|-----------------------------------|-----|-------|-------|------|
| Time interval since previous test | min | -     |       |      |
| Operation                         |     | O     |       |      |
| Phase                             |     | C     | B     | A    |
| Breaking current, phase value     | kA  | 8,11  | 8,08  | 8,08 |
| Average current, three phase      | kA  | 8,09  |       |      |
| Breaking current, DC-component    | %   | 12    | 76    | 63   |
| Recovery voltage, phase value     | kV  | 9,26  | 9,26  | 9,20 |
| Recovery voltage, between phases  | kV  | 16,0  |       |      |
| TRV, peak                         | kV  | -32,7 | -12,4 | 25,8 |
| Arc duration                      | ms  | 5,3   | 11,9  | 11,9 |
| Opening time                      | ms  | -     |       |      |
| Break time                        | ms  | -     | -     | -    |

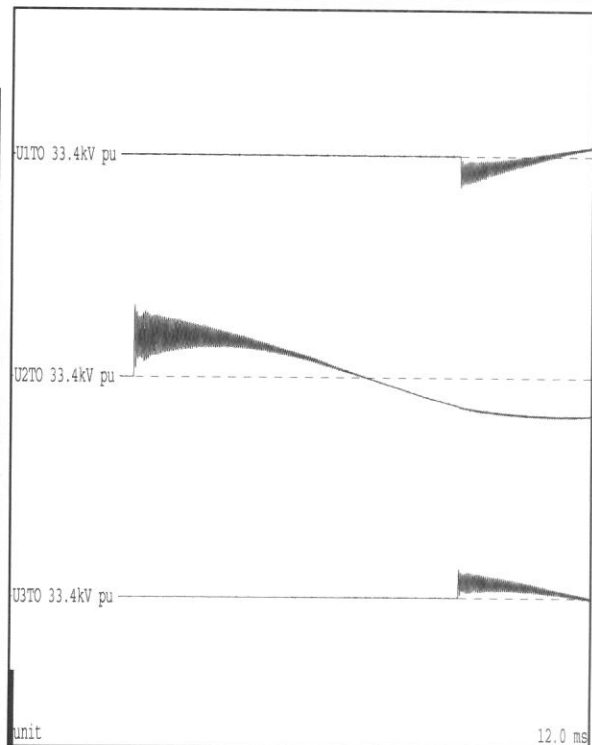


Voltage opening coil - V.d.c. Gas pressure at 20 °C - MPa  
Operating pressure

Remarks: Recloser cleared.


**TEST NUMBER: 100527-6113**

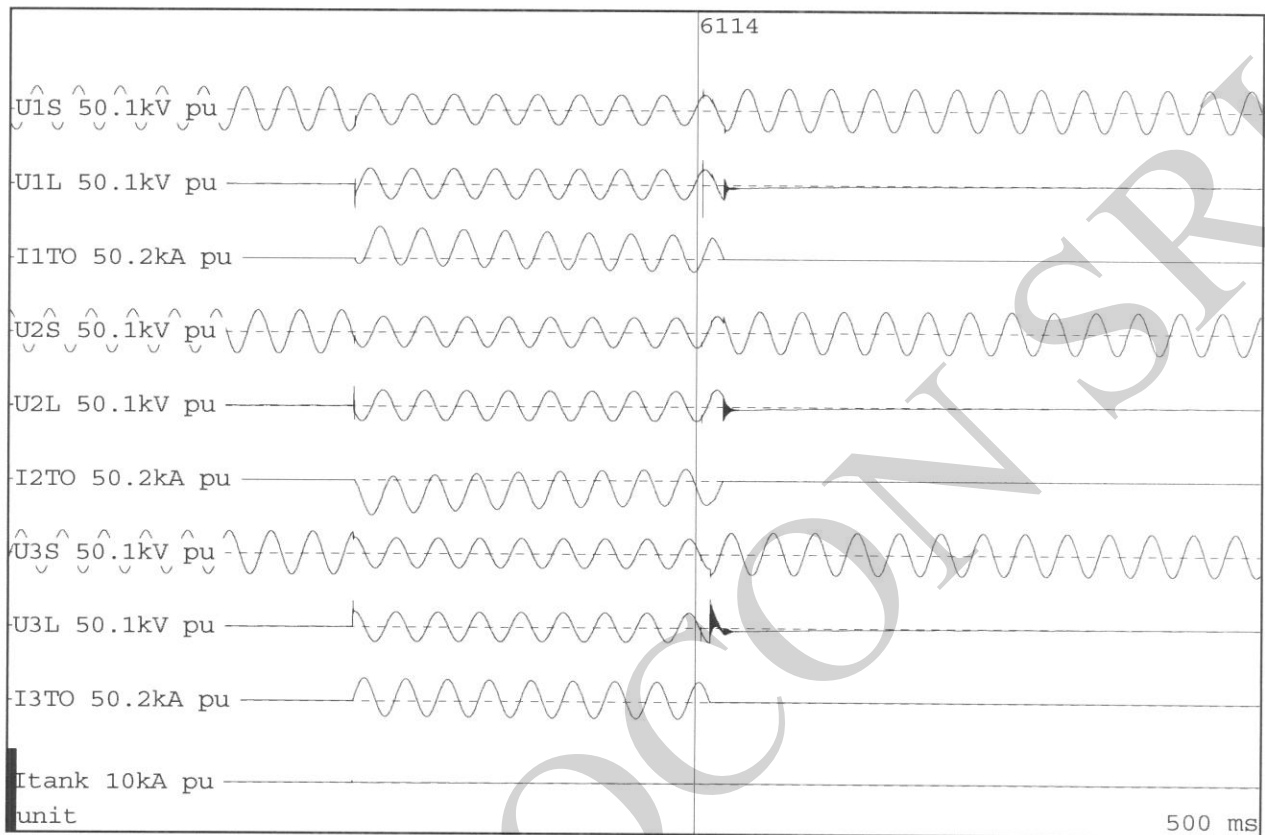
|                                   |     |       |      |       |
|-----------------------------------|-----|-------|------|-------|
| Time interval since previous test | min | -     |      |       |
| Time interval between operations  | s   | 0,518 |      |       |
| Operation                         |     | CO    |      |       |
| Phase                             |     | C     | B    | A     |
| Applied voltage, phase value      | kV  | 9,39  | 9,35 | 9,27  |
| Applied voltage, between phases   | kV  | 16,2  |      |       |
| Making current, peak              | kA  | 20,5  | 14,8 | -22,9 |
| Breaking current, phase value     | kA  | 8,11  | 8,12 | 8,13  |
| Average current, three phase      | kA  | 8,12  |      |       |
| Breaking current, DC-component    | %   | 58    | 18   | 34    |
| Recovery voltage, phase value     | kV  | 9,31  | 9,25 | 9,20  |
| Recovery voltage, between phases  | kV  | 16,0  |      |       |
| TRV, peak                         | kV  | -14,3 | 32,5 | 13,3  |
| Make time                         | ms  | -     | -    | -     |
| Arc duration                      | ms  | 10,7  | 4,0  | 10,7  |
| Opening time                      | ms  | -     |      |       |
| Break time                        | ms  | -     | -    | -     |



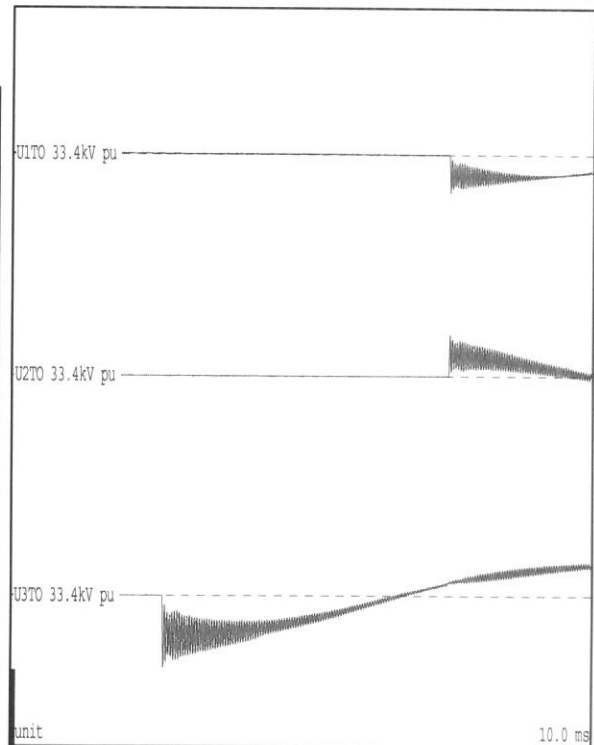
|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.



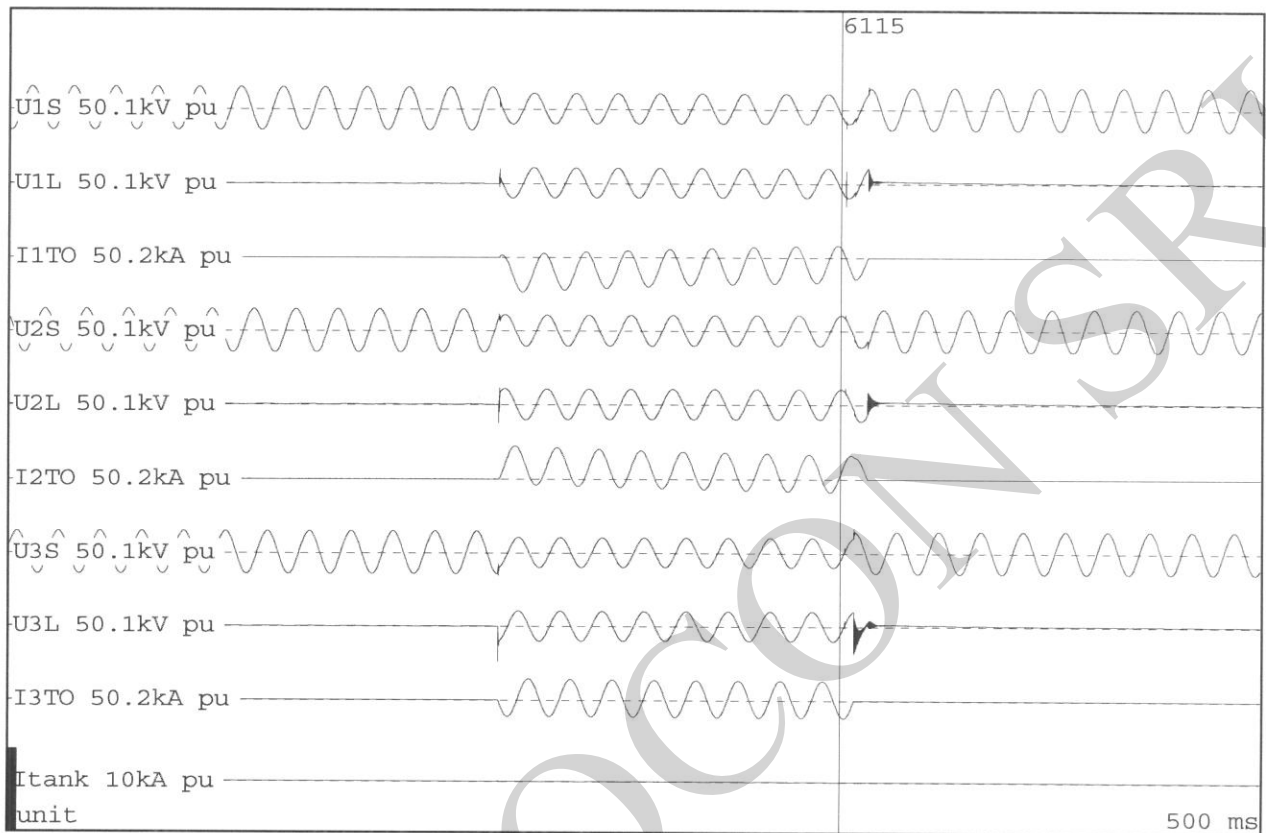

**TEST NUMBER: 100527-6114**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,02  |       |       |
| Operation                         | CO  |       |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,38  | 9,36  | 9,27  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | 20,2  | -22,5 | 14,2  |
| Breaking current, phase value     | kA  | 8,01  | 8,00  | 7,99  |
| Average current, three phase      | kA  | 8,00  |       |       |
| Breaking current, DC-component    | %   | 30    | 37    | 8     |
| Recovery voltage, phase value     | kV  | 9,28  | 9,22  | 9,13  |
| Recovery voltage, between phases  | kV  | 16,0  |       |       |
| TRV, peak                         | kV  | -17,2 | 18,5  | -32,6 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 10,8  | 10,9  | 5,9   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |

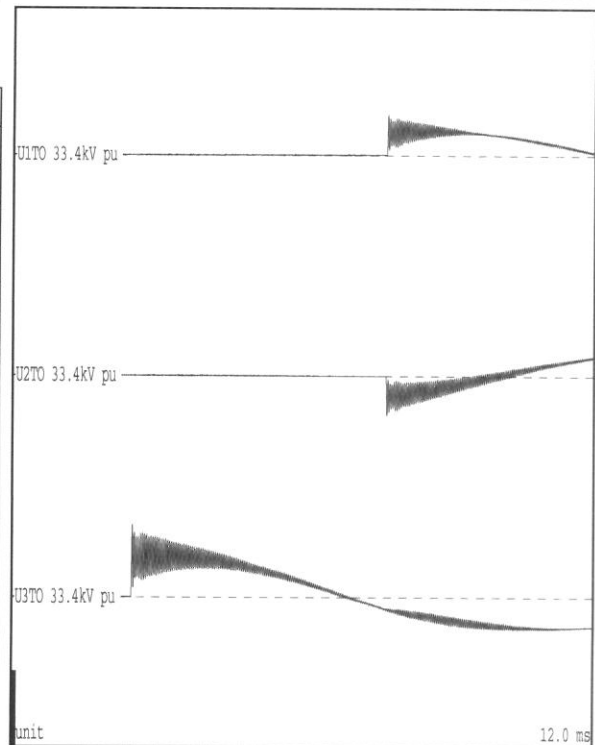


|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.

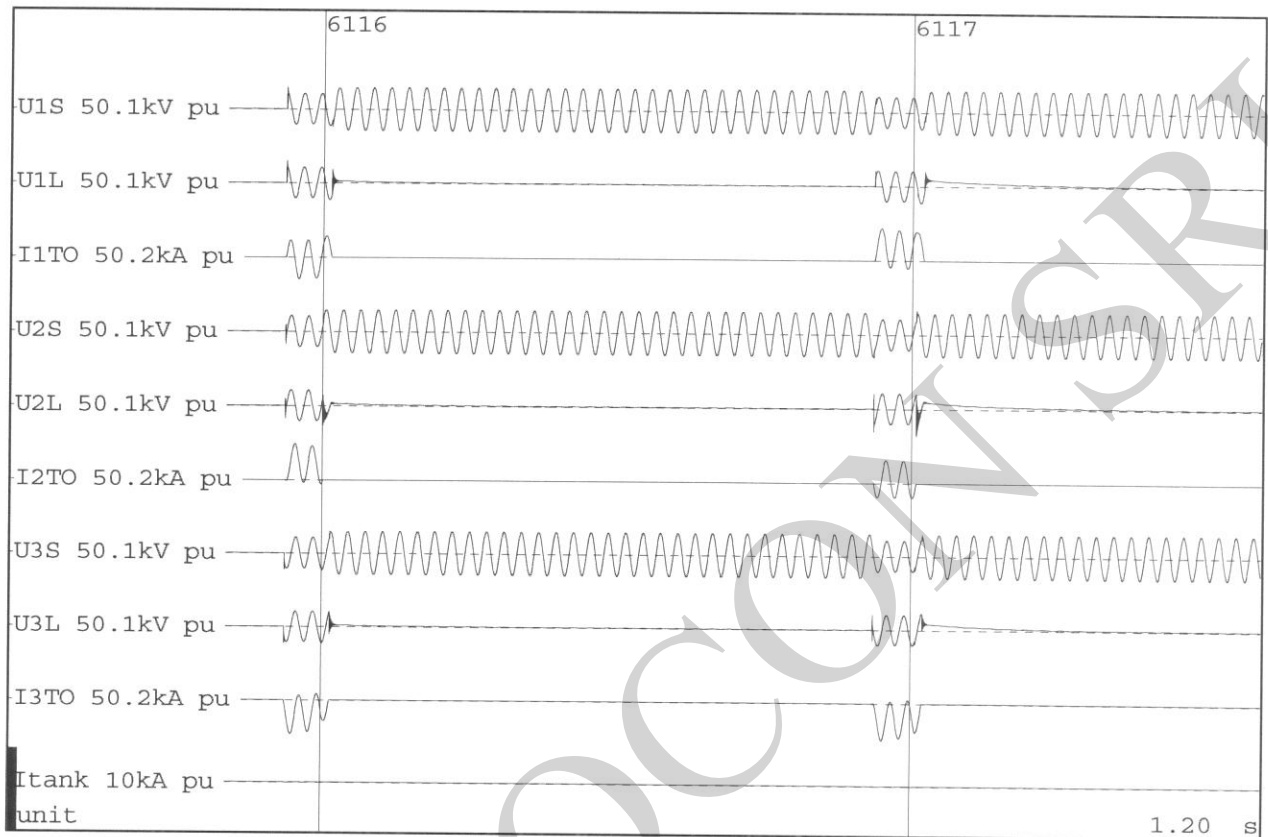

**TEST NUMBER: 100527-6115**

|                                   |     |       |       |      |
|-----------------------------------|-----|-------|-------|------|
| Time interval since previous test | min | -     |       |      |
| Time interval between operations  | s   | 1,02  |       |      |
| Operation                         | CO  |       |       |      |
| Phase                             |     | C     | B     | A    |
| Applied voltage, phase value      | kV  | 9,36  | 9,32  | 9,25 |
| Applied voltage, between phases   | kV  | 16,1  |       |      |
| Making current, peak              | kA  | -22,0 | 20,6  | 13,9 |
| Breaking current, phase value     | kA  | 8,01  | 8,01  | 8,00 |
| Average current, three phase      | kA  | 8,01  |       |      |
| Breaking current, DC-component    | %   | 36    | 30    | 6    |
| Recovery voltage, phase value     | kV  | 9,27  | 9,23  | 9,13 |
| Recovery voltage, between phases  | kV  | 16,0  |       |      |
| TRV, peak                         | kV  | 18,1  | -17,9 | 32,3 |
| Make time                         | ms  | -     | -     | -    |
| Arc duration                      | ms  | 10,8  | 10,7  | 5,5  |
| Opening time                      | ms  | -     |       |      |
| Break time                        | ms  | -     | -     | -    |



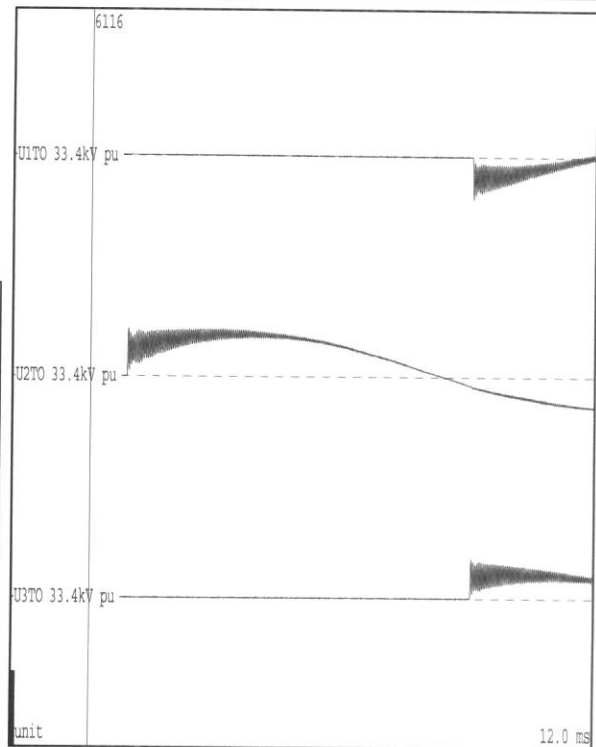
|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.



## TEST NUMBER: 100527-6116

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,11  | 8,09 | 8,08 |
| Average current, three phase      | kA  | 8,09  |      |      |
| Breaking current, DC-component    | %   | 11    | 75   | 64   |
| Recovery voltage, phase value     | kV  | 9,33  | 9,21 | 9,21 |
| Recovery voltage, between phases  | kV  | 16,0  |      |      |
| TRV, peak                         | kV  | -19,0 | 21,7 | 18,0 |
| Arc duration                      | ms  | 7,9   | -0,3 | 7,9  |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |



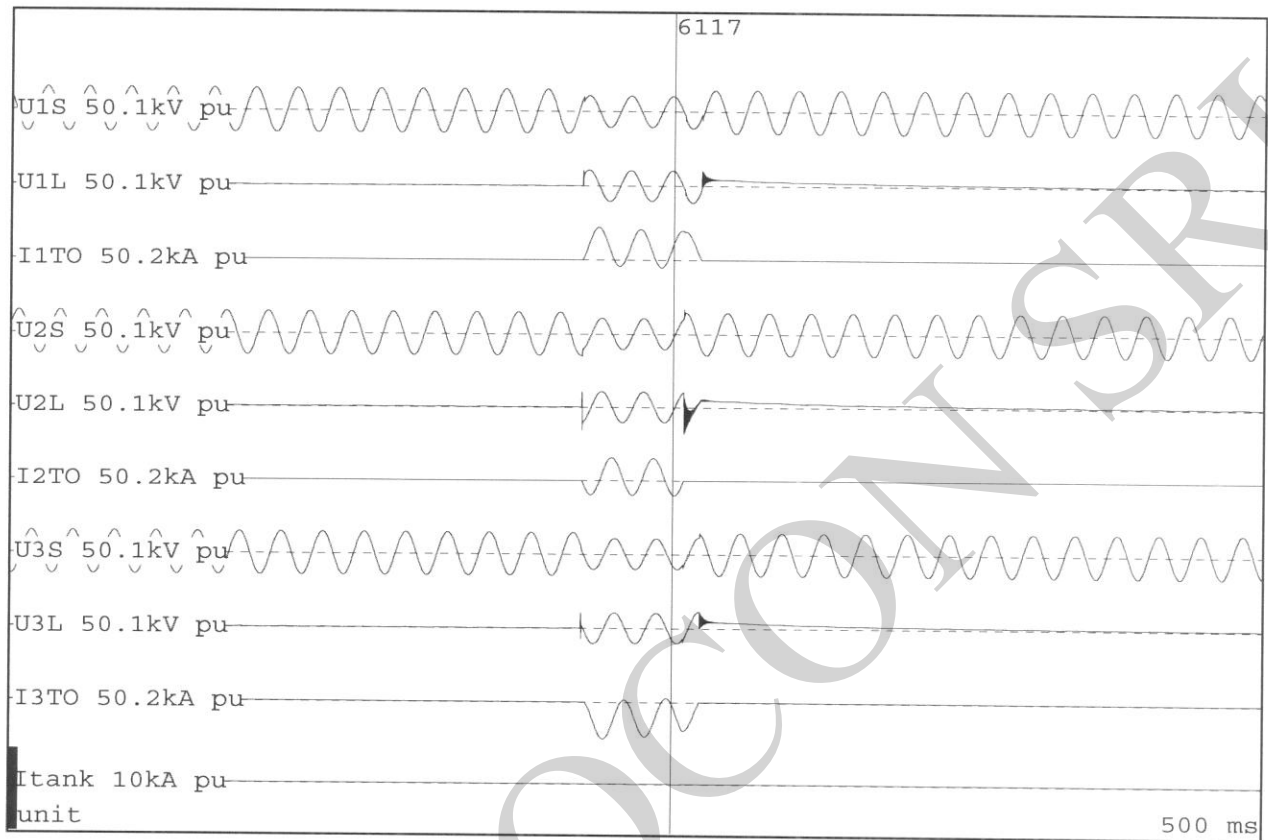
Voltage opening coil - V.d.c.

Gas pressure at 20 °C

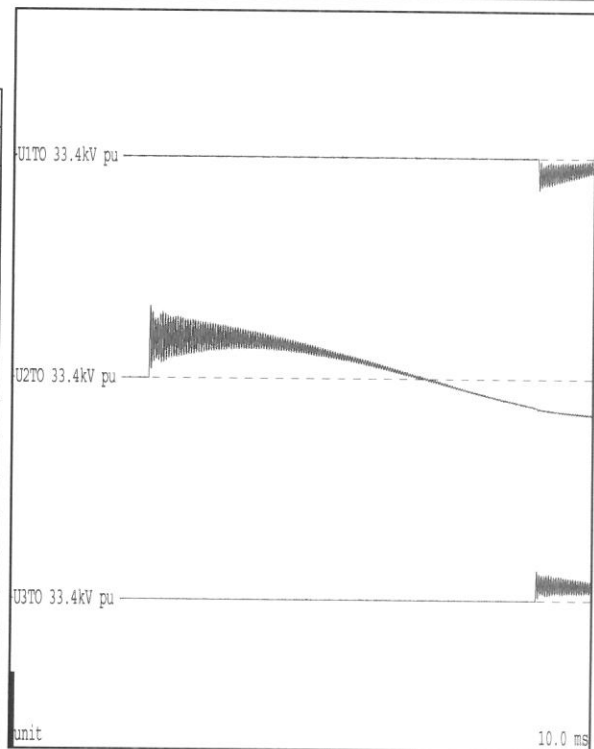
- MPa

Operating pressure

Remarks: Recloser cleared.

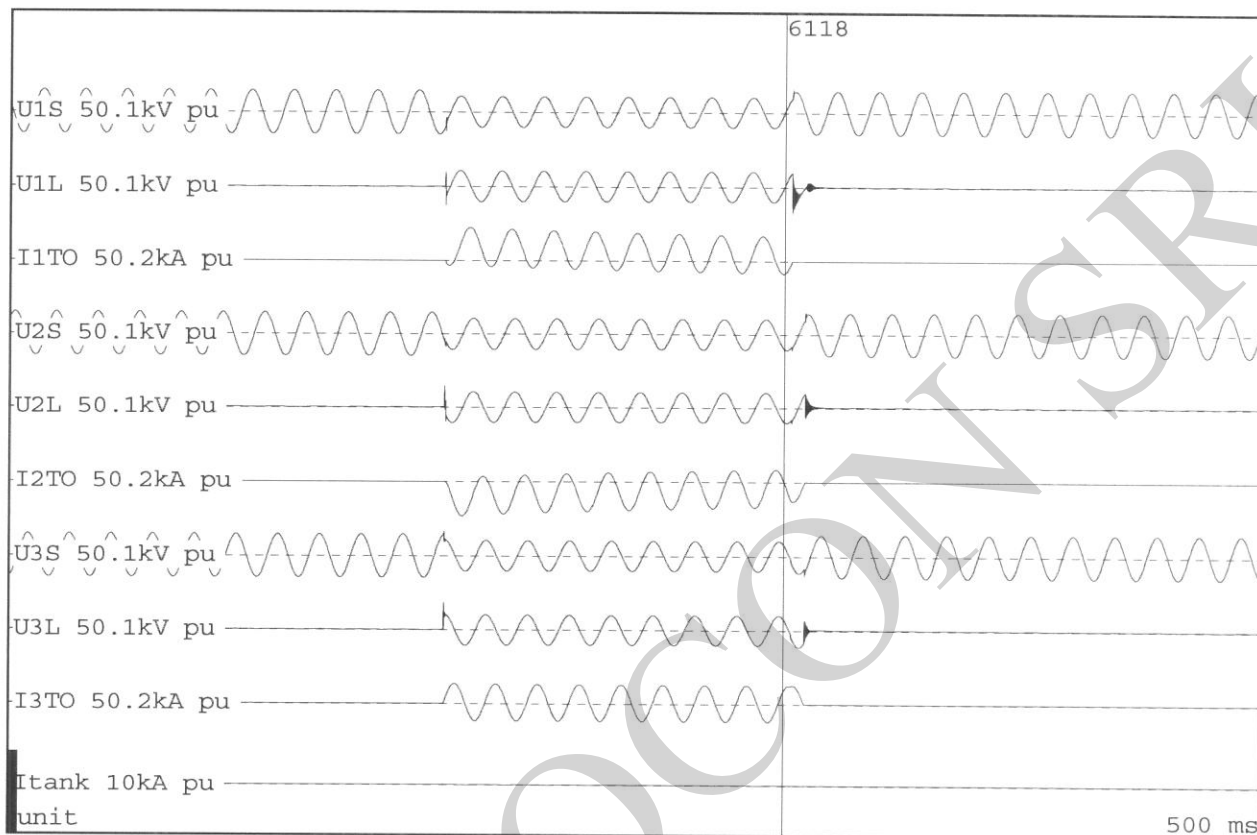

**TEST NUMBER: 100527-6117**

|                                   |     |       |      |       |
|-----------------------------------|-----|-------|------|-------|
| Time interval since previous test | min | -     |      |       |
| Time interval between operations  | s   | 0,521 |      |       |
| Operation                         |     | CO    |      |       |
| Phase                             |     | C     | B    | A     |
| Applied voltage, phase value      | kV  | 9,42  | 9,38 | 9,30  |
| Applied voltage, between phases   | kV  | 16,2  |      |       |
| Making current, peak              | kA  | 20,6  | 14,9 | -23,0 |
| Breaking current, phase value     | kA  | 8,13  | 8,15 | 8,16  |
| Average current, three phase      | kA  | 8,15  |      |       |
| Breaking current, DC-component    | %   | 58    | 18   | 39    |
| Recovery voltage, phase value     | kV  | 9,33  | 9,28 | 9,24  |
| Recovery voltage, between phases  | kV  | 16,1  |      |       |
| TRV, peak                         | kV  | -14,5 | 32,6 | 13,5  |
| Make time                         | ms  | -     | -    | -     |
| Arc duration                      | ms  | 11,0  | 4,4  | 11,0  |
| Opening time                      | ms  | -     |      |       |
| Break time                        | ms  | -     | -    | -     |

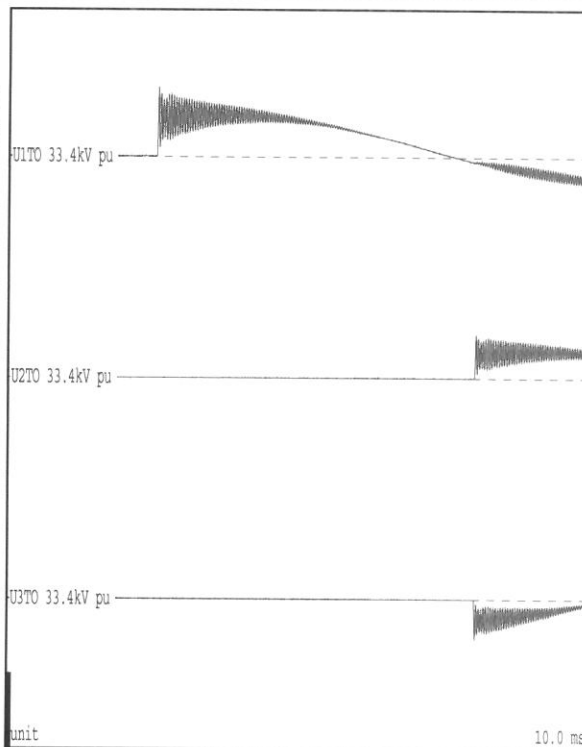


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.

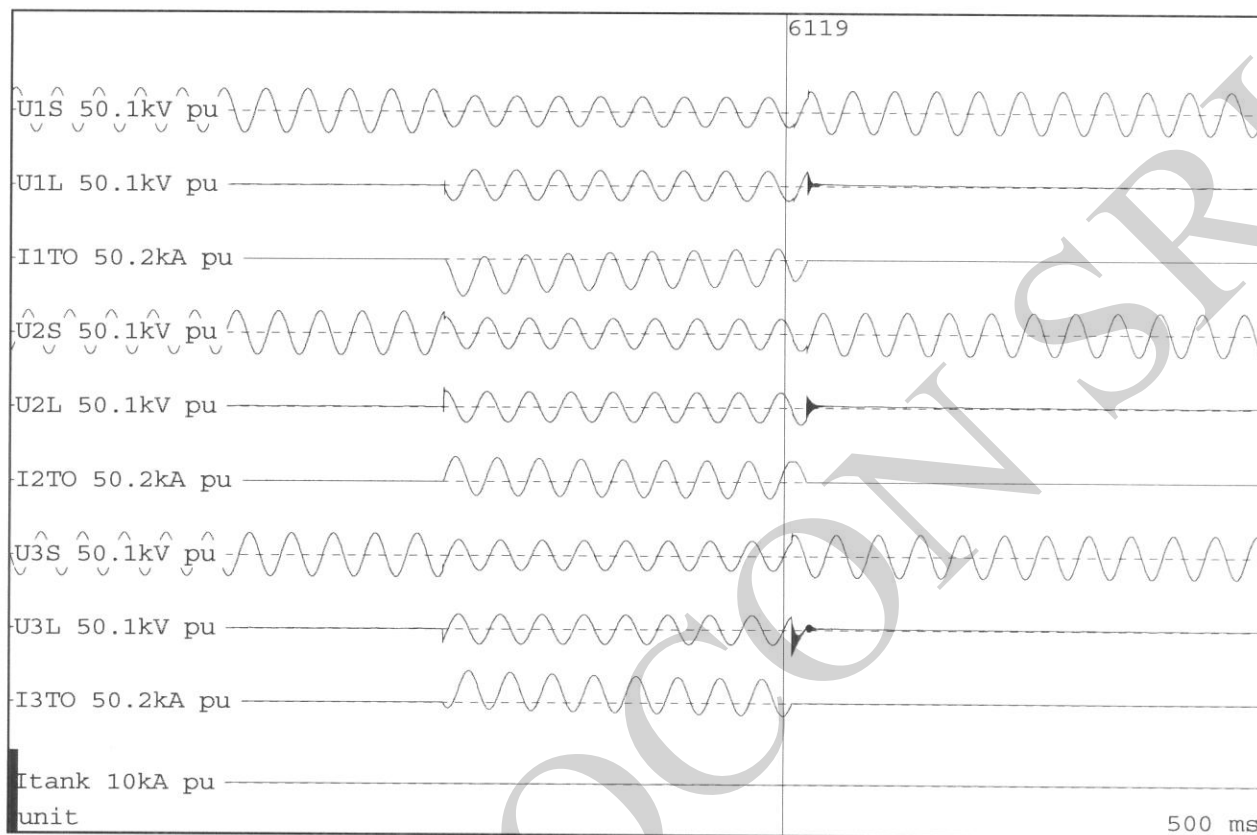

**TEST NUMBER: 100527-6118**

|                                   |     |      |       |       |
|-----------------------------------|-----|------|-------|-------|
| Time interval since previous test | min | -    |       |       |
| Time interval between operations  | s   | 1,02 |       |       |
| Operation                         |     | CO   |       |       |
| Phase                             |     | C    | B     | A     |
| Applied voltage, phase value      | kV  | 9,43 | 9,41  | 9,32  |
| Applied voltage, between phases   | kV  | 16,3 |       |       |
| Making current, peak              | kA  | 20,6 | -21,6 | 13,0  |
| Breaking current, phase value     | kA  | 8,06 | 8,04  | 8,04  |
| Average current, three phase      | kA  | 8,05 |       |       |
| Breaking current, DC-component    | %   | 31   | 34    | 3     |
| Recovery voltage, phase value     | kV  | 9,32 | 9,32  | 9,21  |
| Recovery voltage, between phases  | kV  | 16,1 |       |       |
| TRV, peak                         | kV  | 31,4 | 19,9  | -17,9 |
| Make time                         | ms  | -    | -     | -     |
| Arc duration                      | ms  | 2,9  | 8,4   | 8,4   |
| Opening time                      | ms  | -    |       |       |
| Break time                        | ms  | -    | -     | -     |

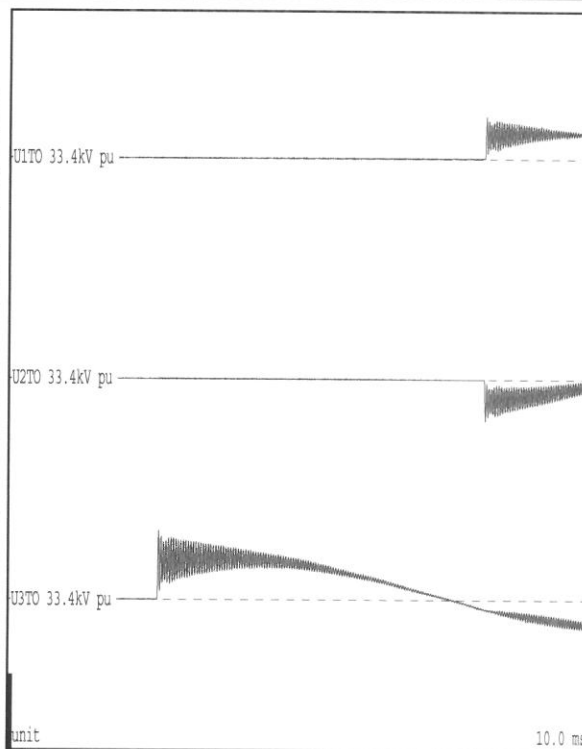


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.

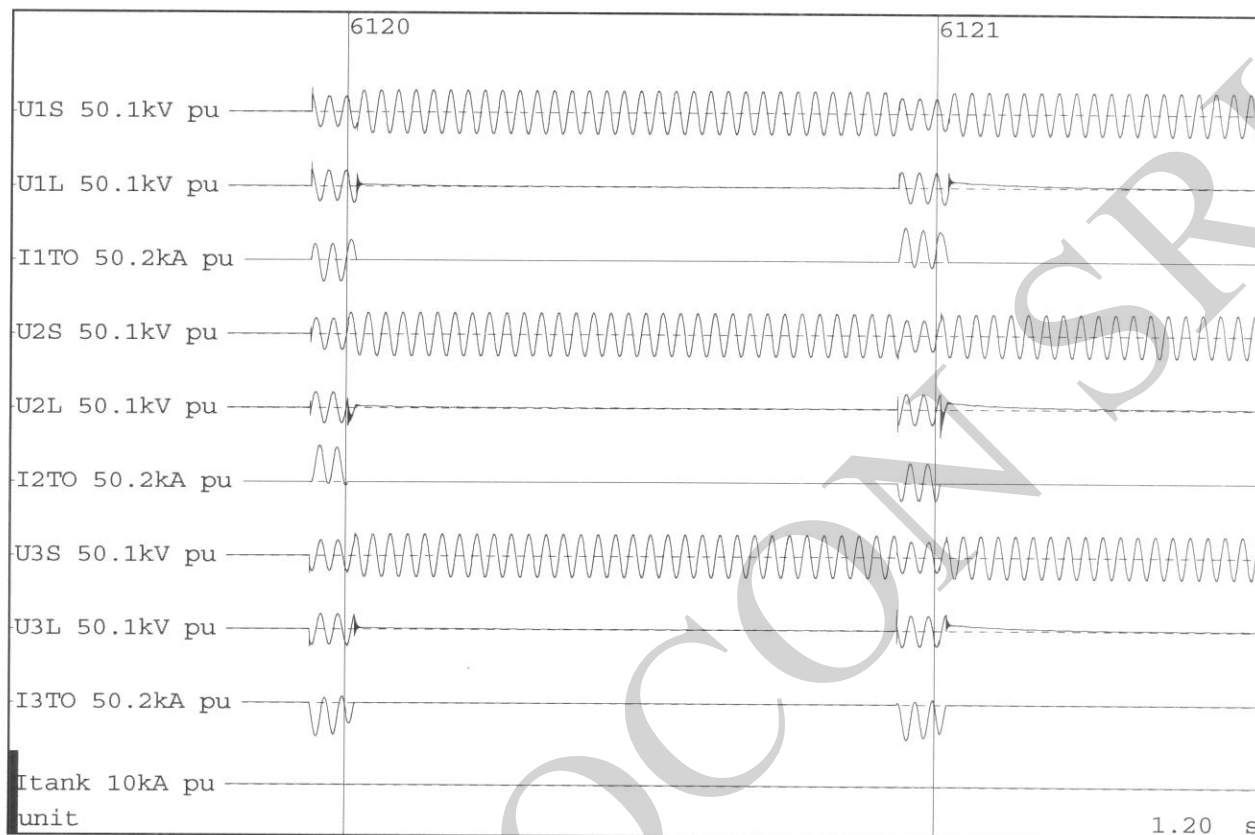

**TEST NUMBER: 100527-6119**

|                                   |     |       |       |      |
|-----------------------------------|-----|-------|-------|------|
| Time interval since previous test | min | -     |       |      |
| Time interval between operations  | s   | 1,02  |       |      |
| Operation                         |     | CO    |       |      |
| Phase                             |     | C     | B     | A    |
| Applied voltage, phase value      | kV  | 9,45  | 9,43  | 9,36 |
| Applied voltage, between phases   | kV  | 16,3  |       |      |
| Making current, peak              | kA  | -23,3 | 15,2  | 20,2 |
| Breaking current, phase value     | kA  | 8,09  | 8,08  | 8,08 |
| Average current, three phase      | kA  | 8,08  |       |      |
| Breaking current, DC-component    | %   | 39    | 10    | 29   |
| Recovery voltage, phase value     | kV  | 9,36  | 9,32  | 9,21 |
| Recovery voltage, between phases  | kV  | 16,1  |       |      |
| TRV, peak                         | kV  | 18,6  | -18,8 | 31,4 |
| Make time                         | ms  | -     | -     | -    |
| Arc duration                      | ms  | 8,9   | 8,9   | 3,2  |
| Opening time                      | ms  | -     |       |      |
| Break time                        | ms  | -     | -     | -    |



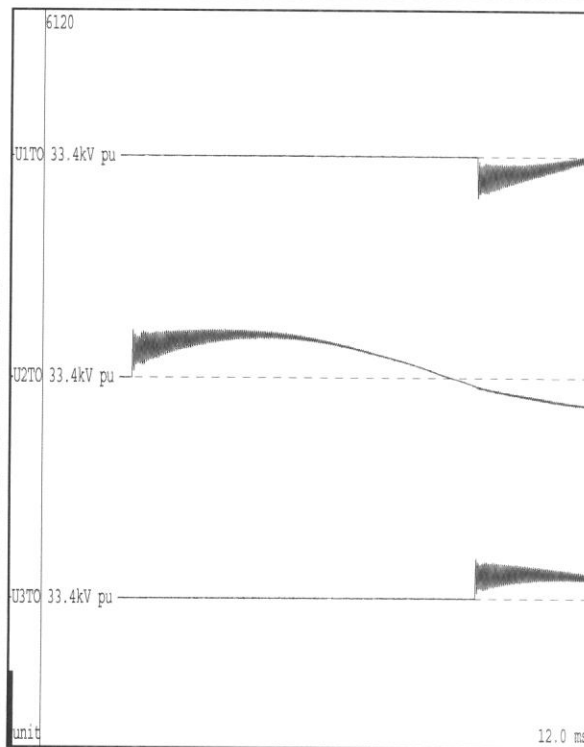
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



## TEST NUMBER: 100527-6120

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,10  | 8,08 | 8,07 |
| Average current, three phase      | kA  | 8,08  |      |      |
| Breaking current, DC-component    | %   | 13    | 100  | 63   |
| Recovery voltage, phase value     | kV  | 9,32  | 9,21 | 9,22 |
| Recovery voltage, between phases  | kV  | 16,0  |      |      |
| TRV, peak                         | kV  | -19,1 | 21,9 | 18,0 |
| Arc duration                      | ms  | 9,0   | 1,0  | 9,0  |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |



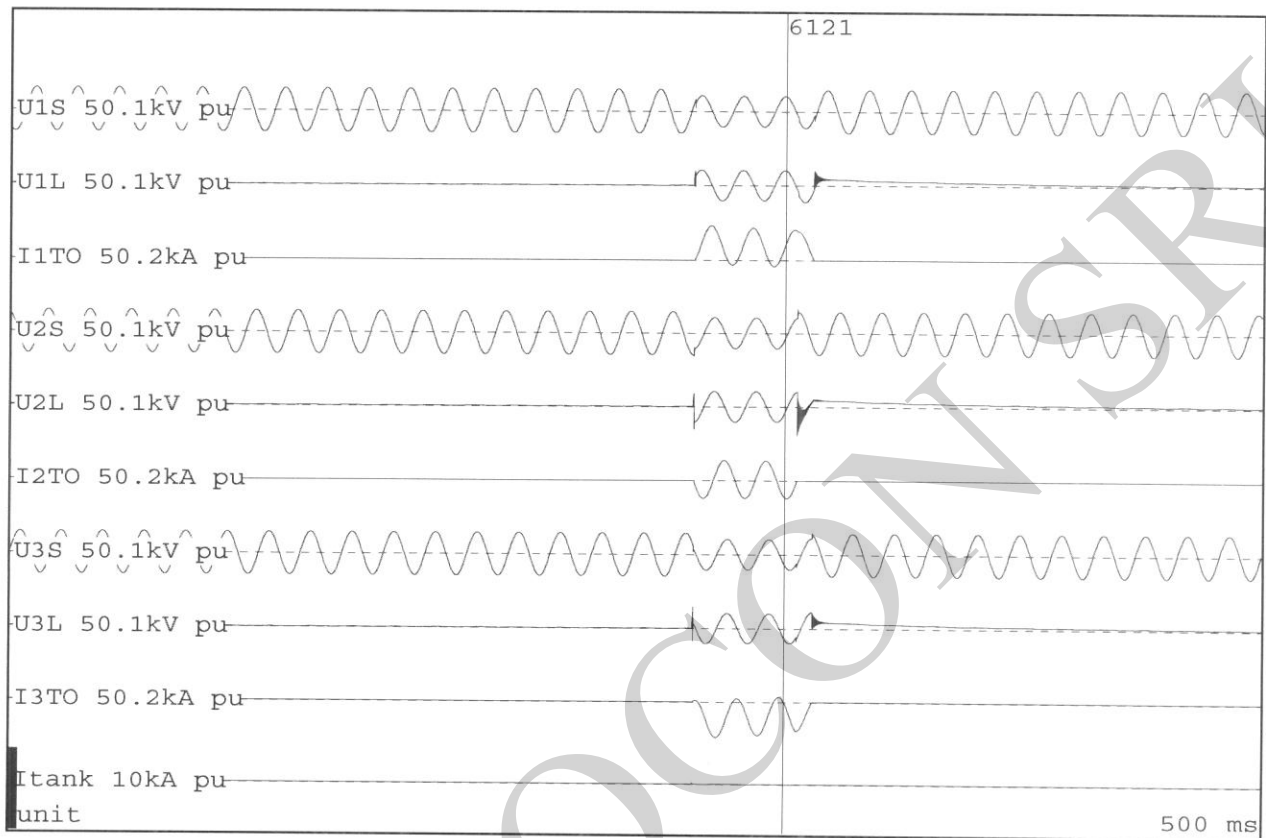
Voltage opening coil - Vd.c.

Gas pressure at 20 °C

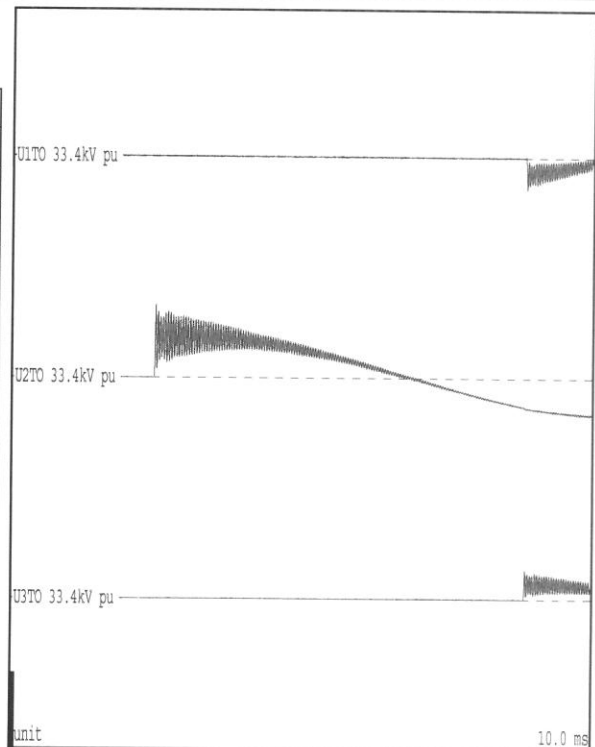
- MPa

Operating pressure

Remarks: Recloser cleared.


**TEST NUMBER: 100527-6121**

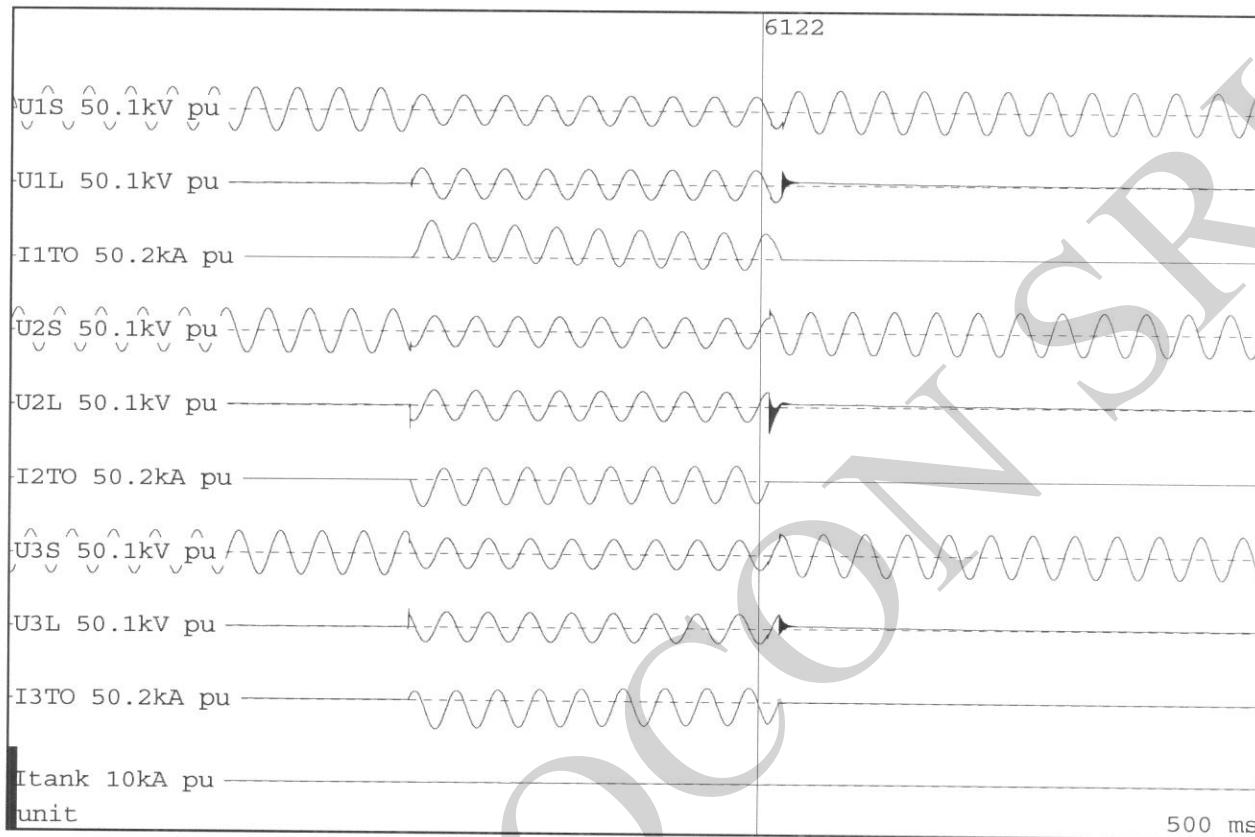
|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 0,520    |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,41     | 9,37     | 9,30     |
| Applied voltage, between phases   | kV  | 16,2     |          |          |
| Making current, peak              | kA  | 21,4     | 13,2     | -22,2    |
| Breaking current, phase value     | kA  | 8,12     | 8,13     | 8,10     |
| Average current, three phase      | kA  | 8,12     |          |          |
| Breaking current, DC-component    | %   | 64       | 6        | 71       |
| Recovery voltage, phase value     | kV  | 9,33     | 9,28     | 9,23     |
| Recovery voltage, between phases  | kV  | 16,1     |          |          |
| TRV, peak                         | kV  | -14,4    | 33,0     | 13,3     |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 11,2     | 4,9      | 11,2     |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |



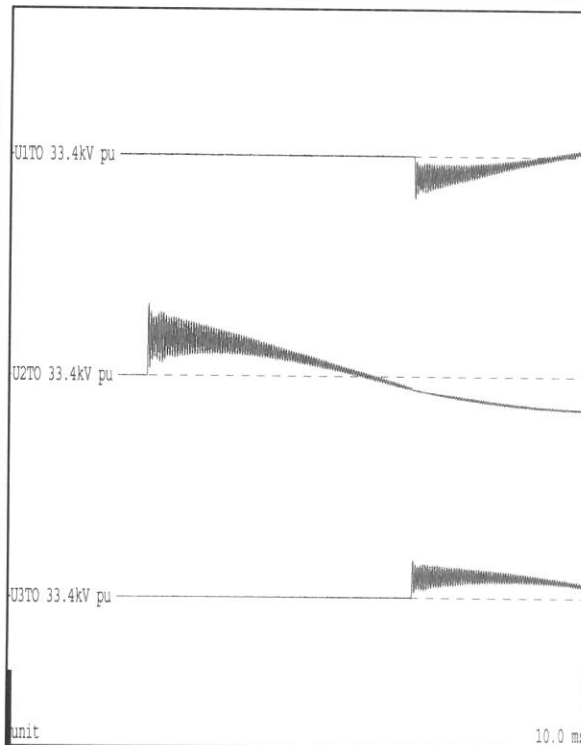
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



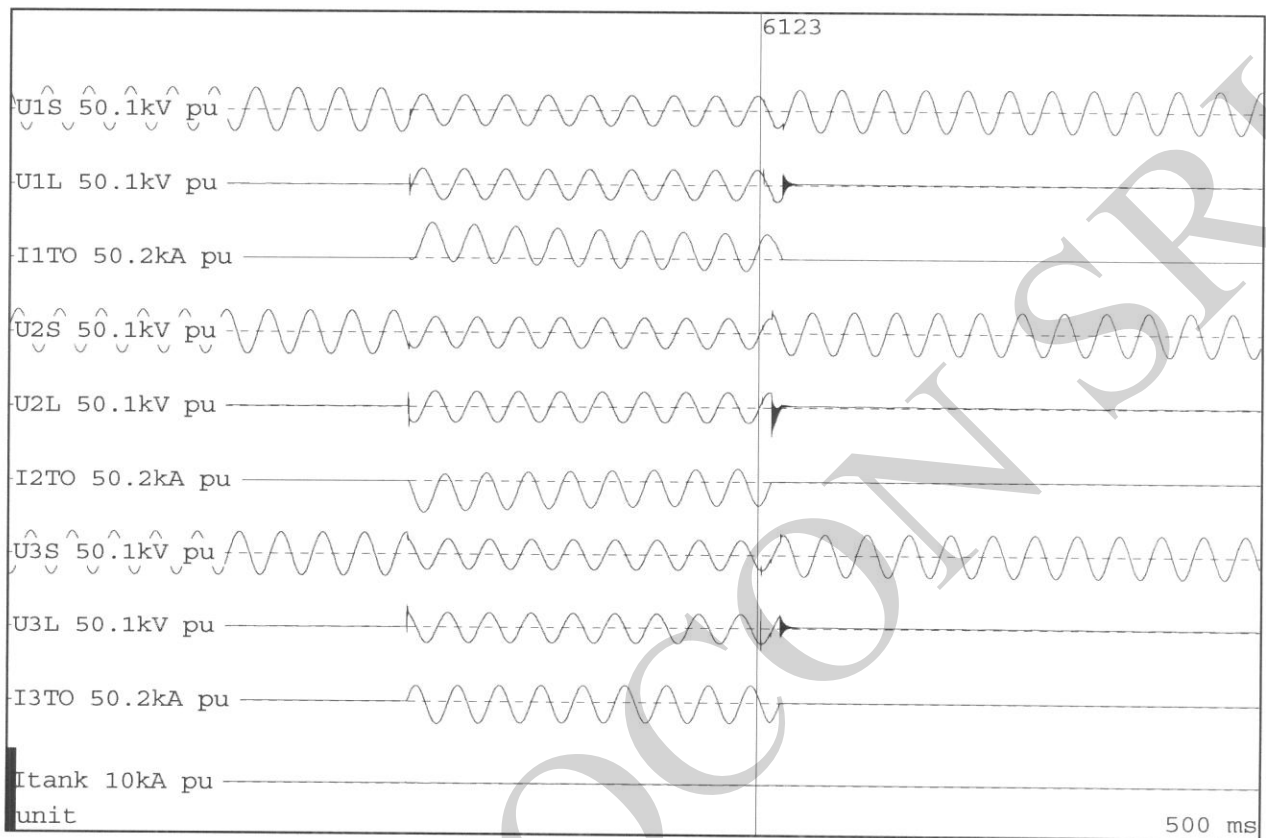

**TEST NUMBER: 100527-6122**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 1,02     |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,42     | 9,40     | 9,31     |
| Applied voltage, between phases   | kV  | 16,2     |          |          |
| Making current, peak              | kA  | 23,3     | -17,2    | -18,3    |
| Breaking current, phase value     | kA  | 8,03     | 8,03     | 8,02     |
| Average current, three phase      | kA  | 8,03     |          |          |
| Breaking current, DC-component    | %   | 39       | 18       | 22       |
| Recovery voltage, phase value     | kV  | 9,32     | 9,27     | 9,22     |
| Recovery voltage, between phases  | kV  | 16,1     |          |          |
| TRV, peak                         | kV  | -18,9    | 32,4     | 17,0     |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 8,3      | 3,7      | 8,3      |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |

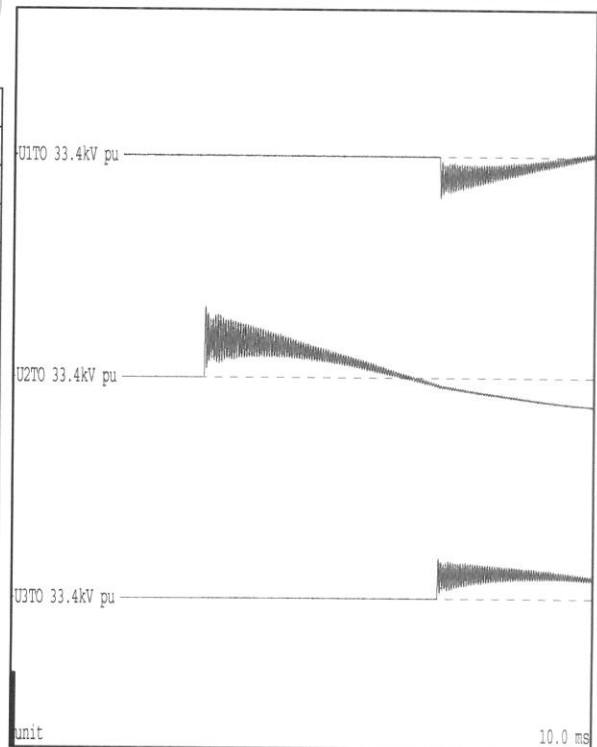


|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.

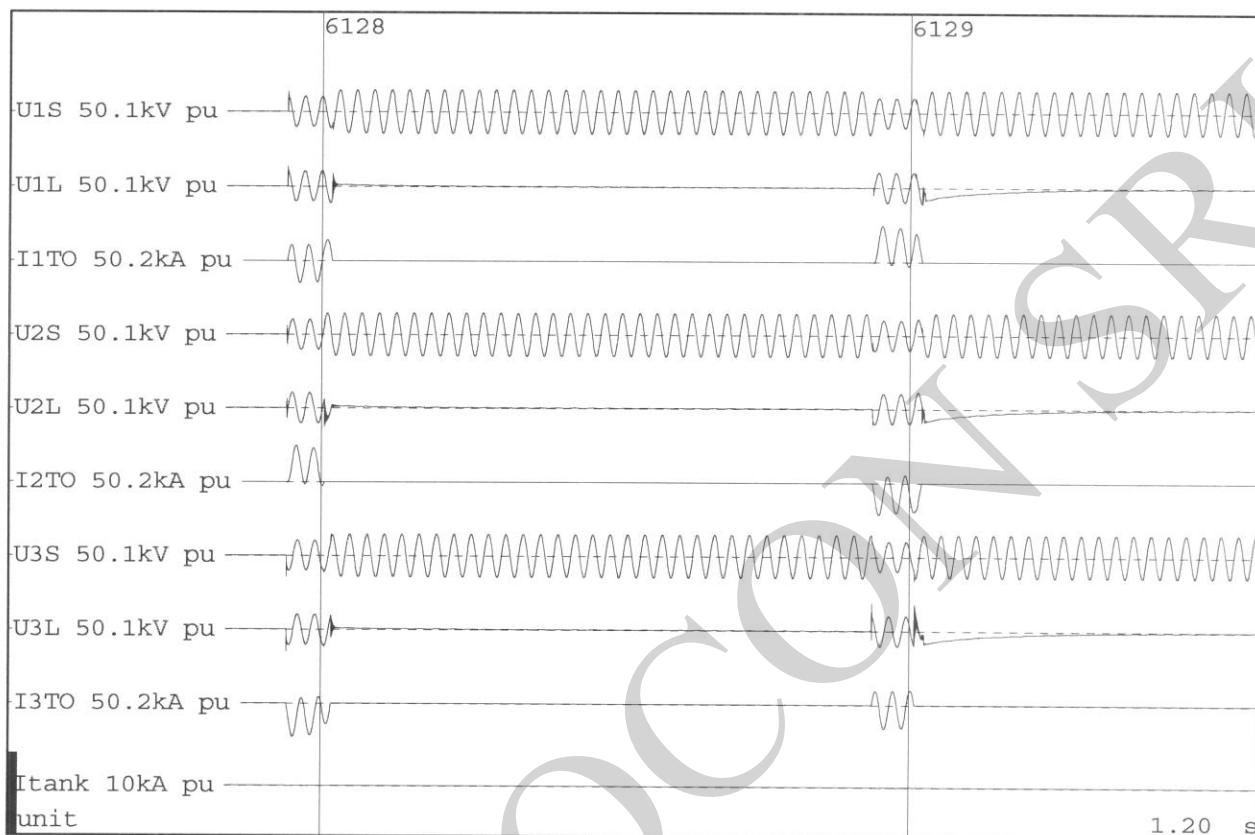

**TEST NUMBER: 100527-6123**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 1,02     |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,44     | 9,43     | 9,35     |
| Applied voltage, between phases   | kV  | 16,3     |          |          |
| Making current, peak              | kA  | 22,3     | -20,4    | -14,5    |
| Breaking current, phase value     | kA  | 8,07     | 8,06     | 8,06     |
| Average current, three phase      | kA  | 8,06     |          |          |
| Breaking current, DC-component    | %   | 36       | 28       | 8        |
| Recovery voltage, phase value     | kV  | 9,31     | 9,26     | 9,23     |
| Recovery voltage, between phases  | kV  | 16,1     |          |          |
| TRV, peak                         | kV  | -18,8    | 32,0     | 18,2     |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 9,2      | 5,2      | 9,2      |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |



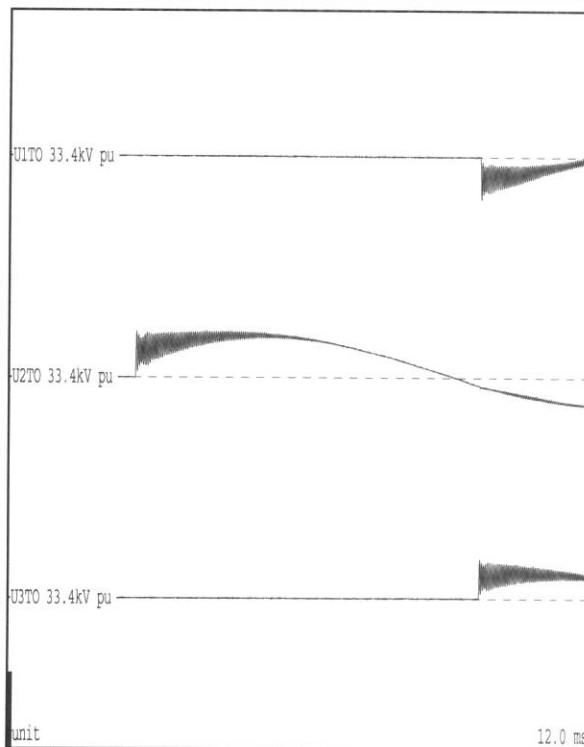
|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.



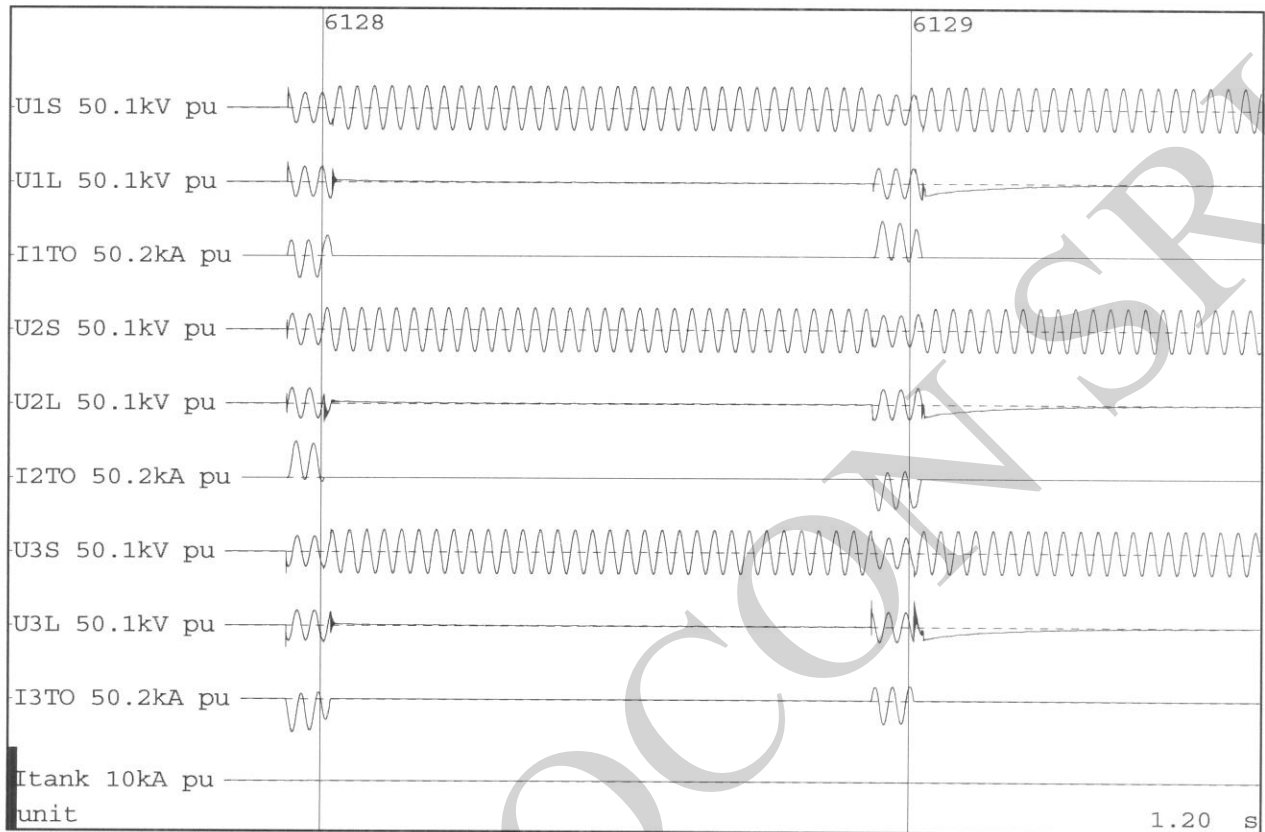
## TEST NUMBER: 100527-6128

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,12  | 8,14 | 8,08 |
| Average current, three phase      | kA  | 8,11  |      |      |
| Breaking current, DC-component    | %   | 13    | 75   | 64   |
| Recovery voltage, phase value     | kV  | 9,31  | 9,18 | 9,19 |
| Recovery voltage, between phases  | kV  | 16,0  |      |      |
| TRV, peak                         | kV  | -19,0 | 21,2 | 17,9 |
| Arc duration                      | ms  | 10,0  | 2,0  | 10,0 |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |

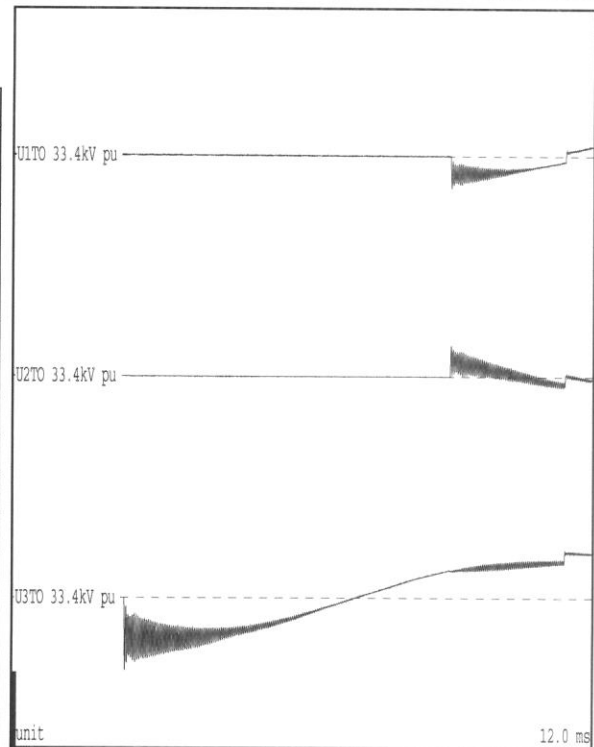


|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage opening coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
|                      |         | Operating pressure    |       |

Remarks: Recloser cleared.

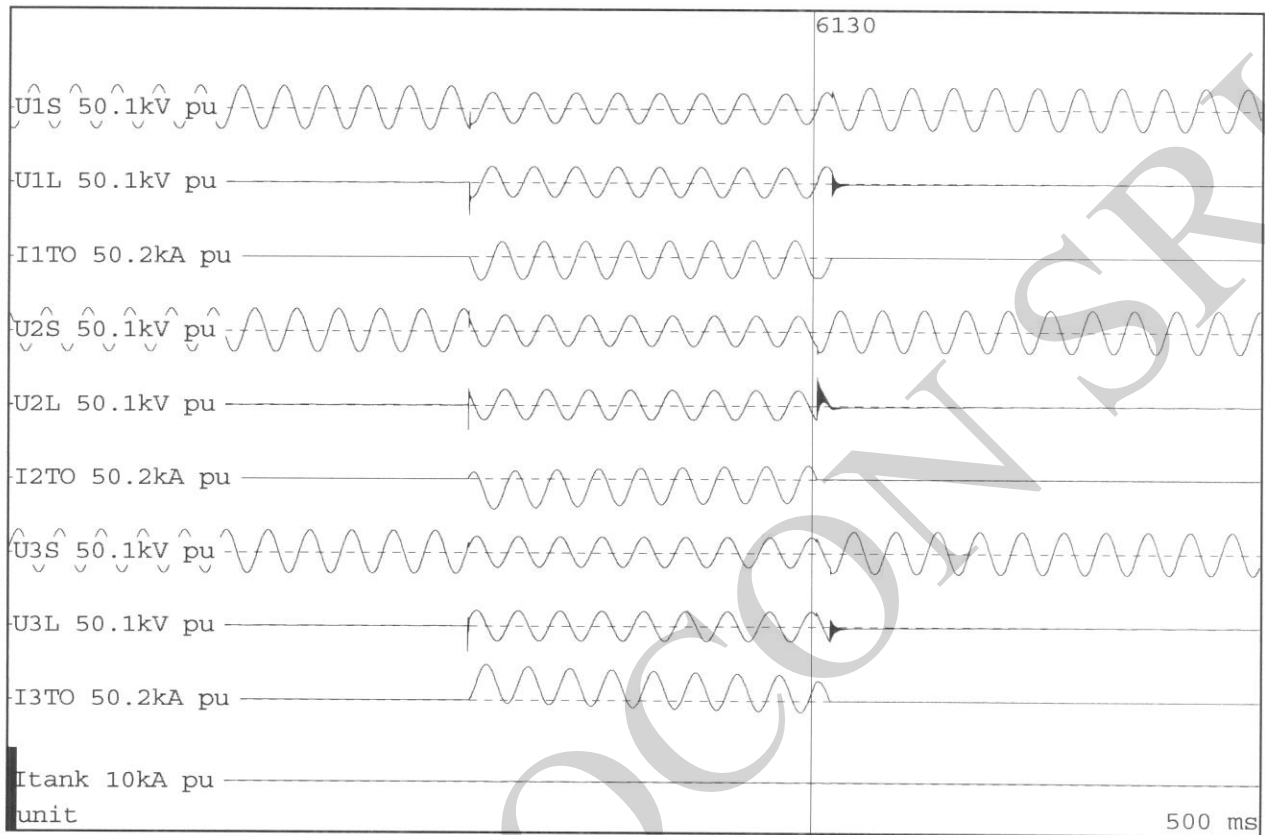

**TEST NUMBER: 100527-6129**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 0,521 |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,40  | 9,35  | 9,26  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | 22,9  | -20,2 | -15,0 |
| Breaking current, phase value     | kA  | 8,11  | 8,10  | 8,12  |
| Average current, three phase      | kA  | 8,11  |       |       |
| Breaking current, DC-component    | %   | 46    | 57    | 19    |
| Recovery voltage, phase value     | kV  | 9,33  | 9,27  | 9,16  |
| Recovery voltage, between phases  | kV  | 16,0  |       |       |
| TRV, peak                         | kV  | -14,6 | 13,8  | -32,1 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 11,6  | 11,7  | 4,9   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |

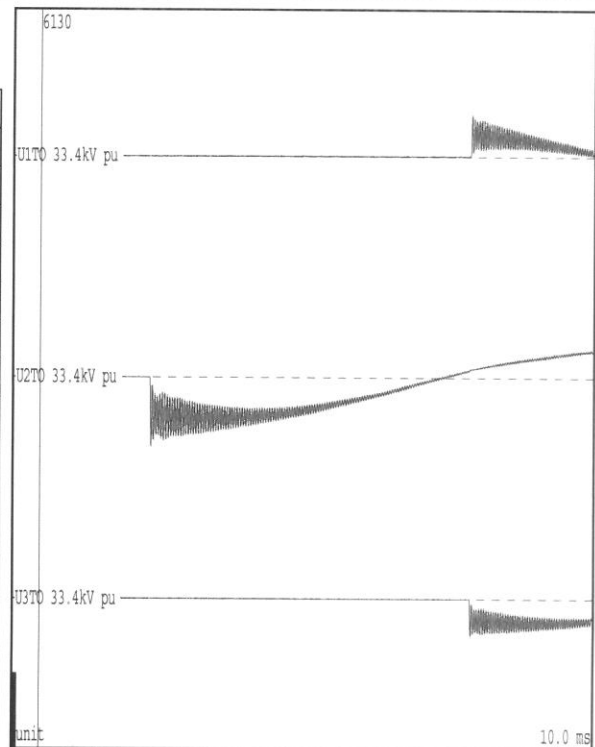


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.

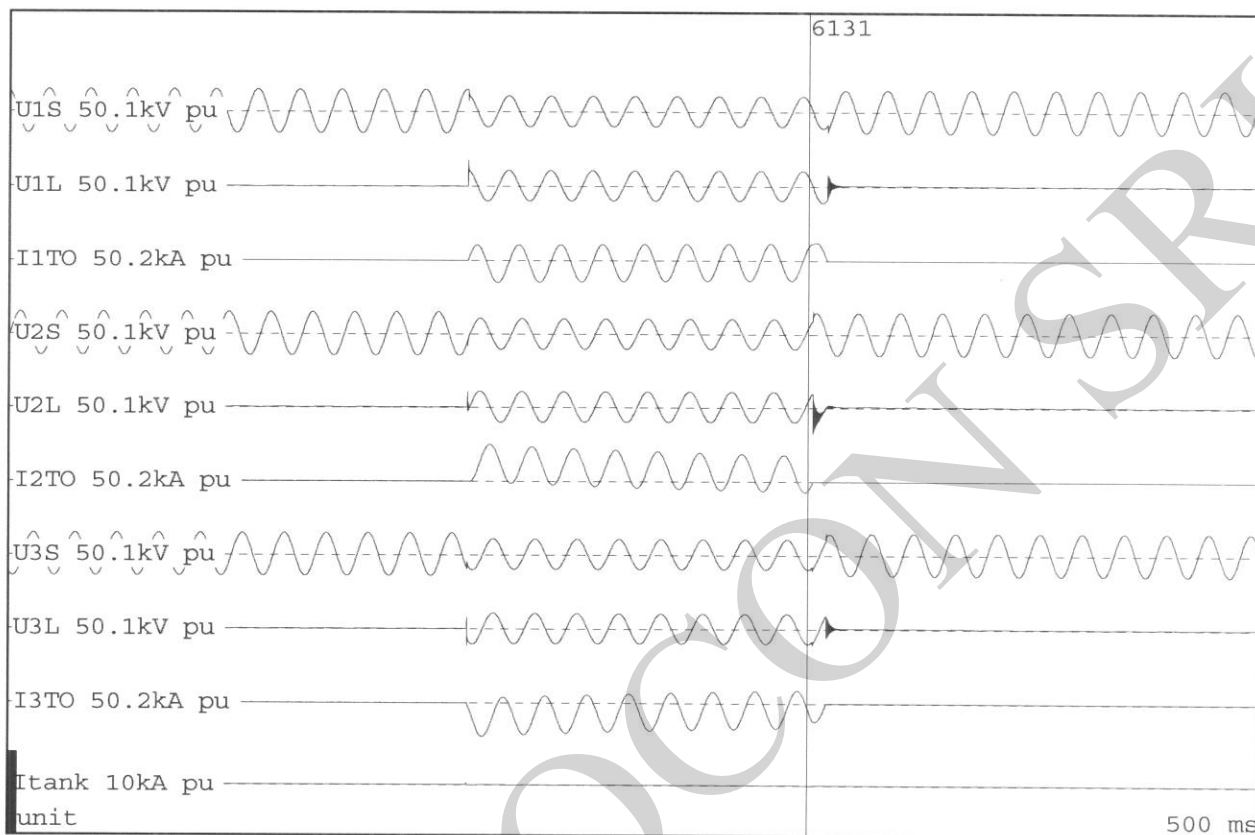

**TEST NUMBER: 100527-6130**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,03  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,38  | 9,33  | 9,26  |
| Applied voltage, between phases   | kV  | 16,1  |       |       |
| Making current, peak              | kA  | -14,8 | -19,6 | 22,4  |
| Breaking current, phase value     | kA  | 8,01  | 7,97  | 7,97  |
| Average current, three phase      | kA  | 7,98  |       |       |
| Breaking current, DC-component    | %   | 9     | 28    | 37    |
| Recovery voltage, phase value     | kV  | 9,28  | 9,18  | 9,14  |
| Recovery voltage, between phases  | kV  | 15,9  |       |       |
| TRV, peak                         | kV  | 19,3  | -31,3 | -17,8 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 7,5   | 2,0   | 7,5   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |

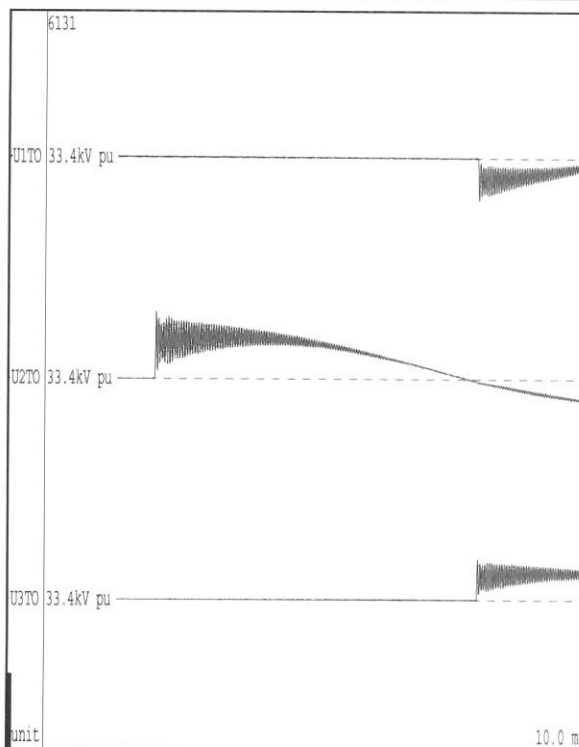


Voltage closing coil - V.d.c.      Gas pressure at 20 °C - MPa  
 Voltage opening coil - V.d.c.      Operating pressure

Remarks: Recloser closed and cleared.

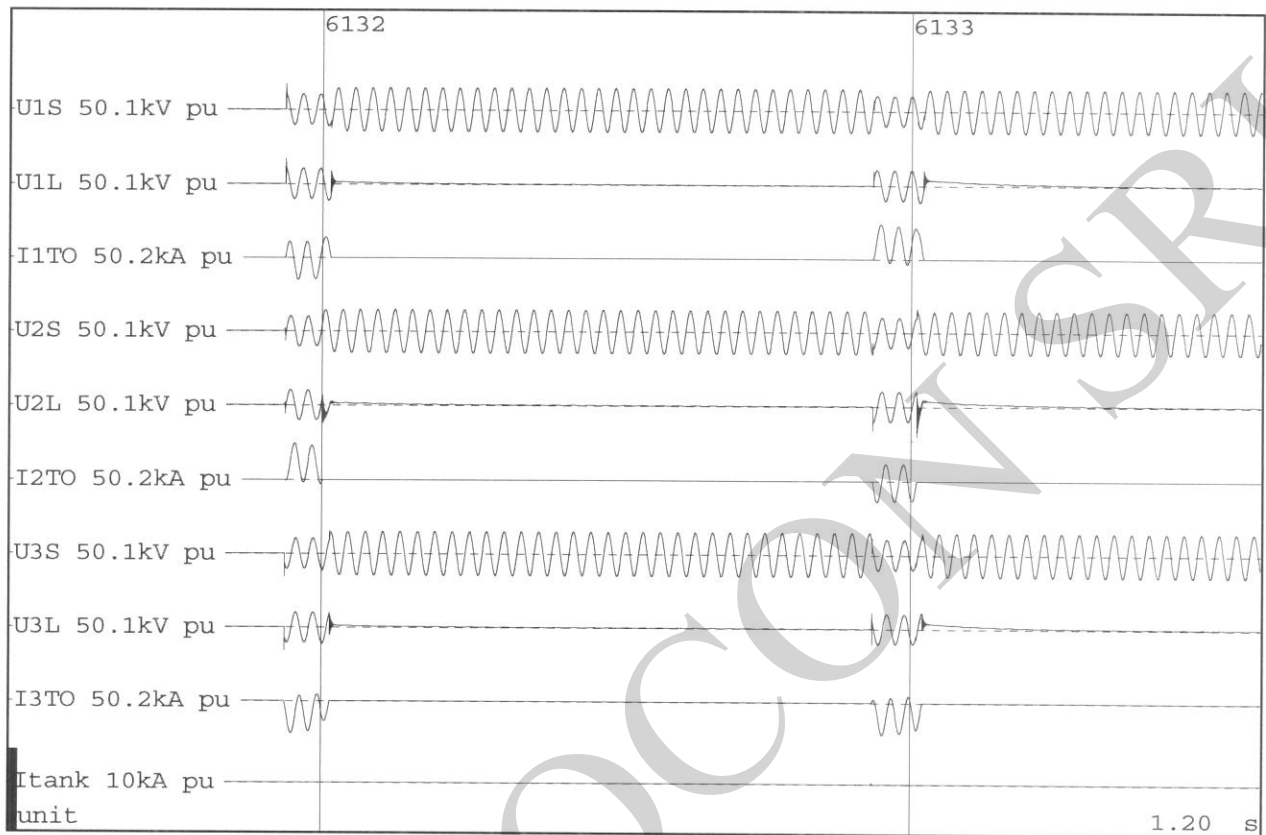

**TEST NUMBER: 100527-6131**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 1,02     |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,38     | 9,31     | 9,25     |
| Applied voltage, between phases   | kV  | 16,1     |          |          |
| Making current, peak              | kA  | -14,5    | 23,1     | -21,2    |
| Breaking current, phase value     | kA  | 8,02     | 8,02     | 8,01     |
| Average current, three phase      | kA  | 8,02     |          |          |
| Breaking current, DC-component    | %   | 9        | 40       | 31       |
| Recovery voltage, phase value     | kV  | 9,28     | 9,16     | 9,14     |
| Recovery voltage, between phases  | kV  | 15,9     |          |          |
| TRV, peak                         | kV  | -19,4    | 30,0     | 18,4     |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 7,5      | 1,4      | 7,5      |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |



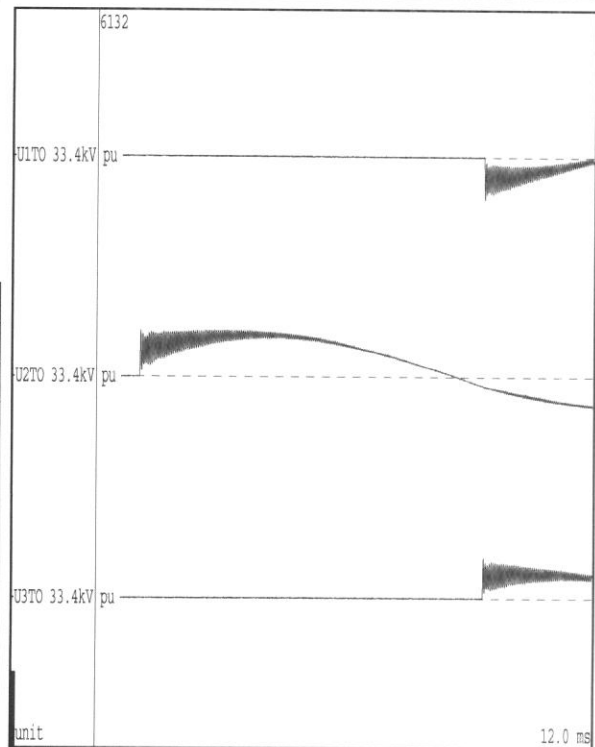
Voltage closing coil - V.d.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - V.d.c. Operating pressure

Remarks: Recloser closed and cleared.



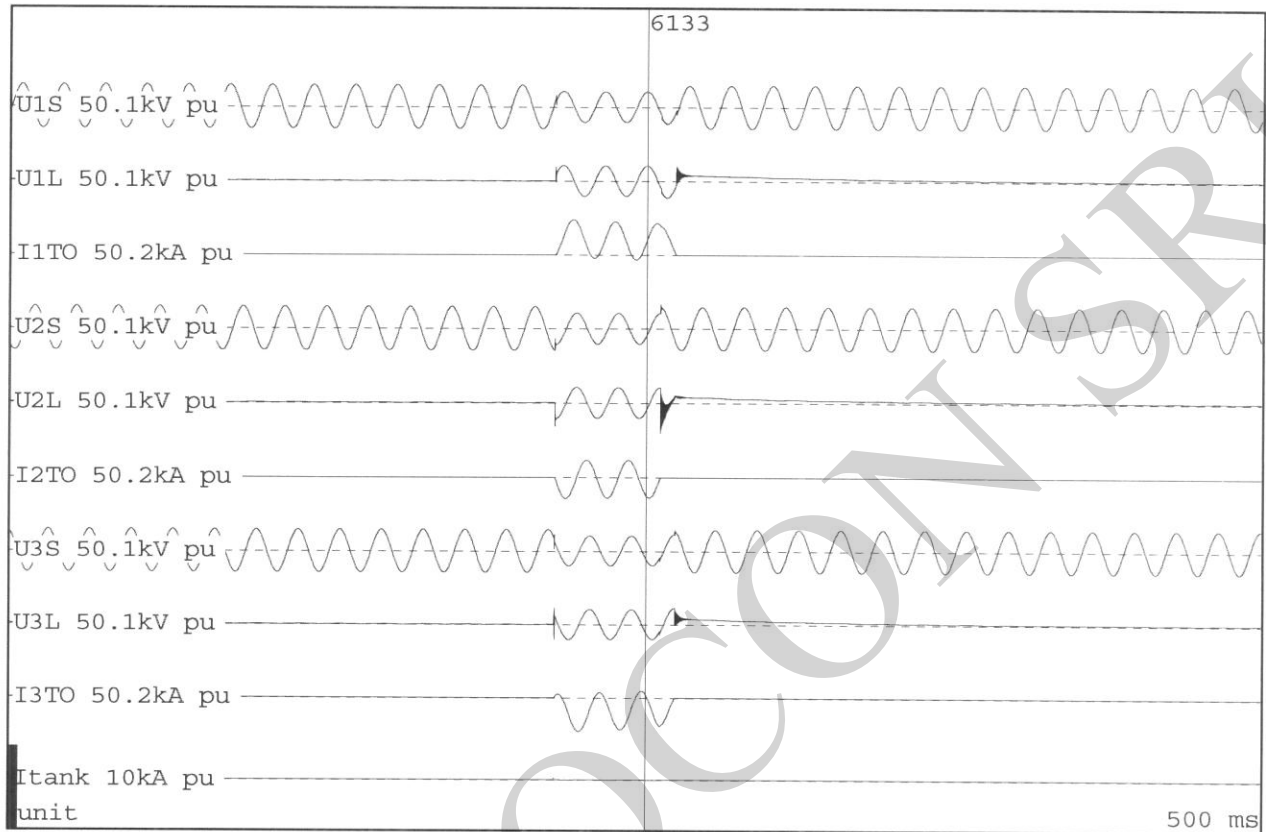
## TEST NUMBER: 100527-6132

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,11  | 8,14 | 8,08 |
| Average current, three phase      | kA  | 8,11  |      |      |
| Breaking current, DC-component    | %   | 12    | 73   | 63   |
| Recovery voltage, phase value     | kV  | 9,31  | 9,20 | 9,21 |
| Recovery voltage, between phases  | kV  | 16,0  |      |      |
| TRV, peak                         | kV  | -19,1 | 21,3 | 18,0 |
| Arc duration                      | ms  | 8,0   | 0,8  | 8,0  |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |

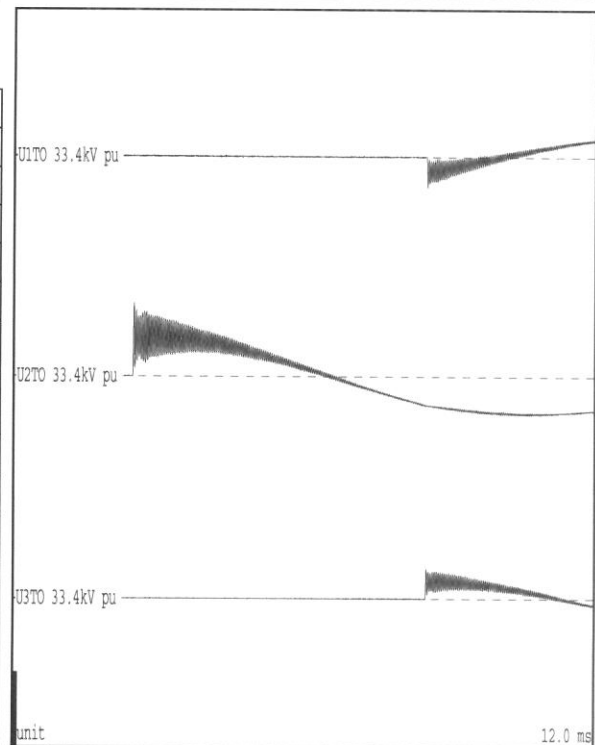


|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage opening coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
|                      |         | Operating pressure    |       |

Remarks: Recloser cleared.


**TEST NUMBER: 100527-6133**

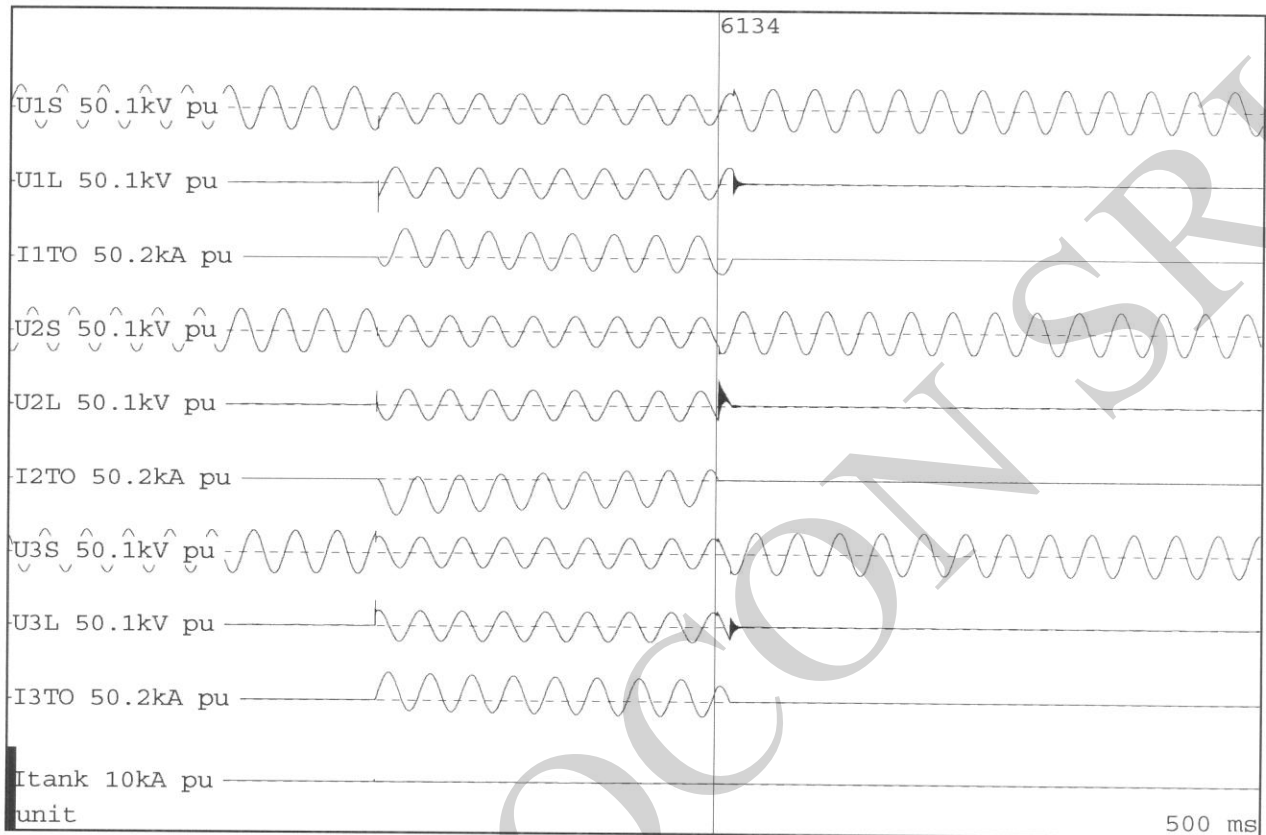
|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 0,521    |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,42     | 9,37     | 9,27     |
| Applied voltage, between phases   | kV  | 16,2     |          |          |
| Making current, peak              | kA  | 22,4     | -13,2    | -20,4    |
| Breaking current, phase value     | kA  | 8,12     | 8,12     | 8,13     |
| Average current, three phase      | kA  | 8,12     |          |          |
| Breaking current, DC-component    | %   | 72       | 9        | 64       |
| Recovery voltage, phase value     | kV  | 9,31     | 9,25     | 9,20     |
| Recovery voltage, between phases  | kV  | 16,0     |          |          |
| TRV, peak                         | kV  | -13,9    | 33,0     | 13,4     |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 11,6     | 5,6      | 11,6     |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |



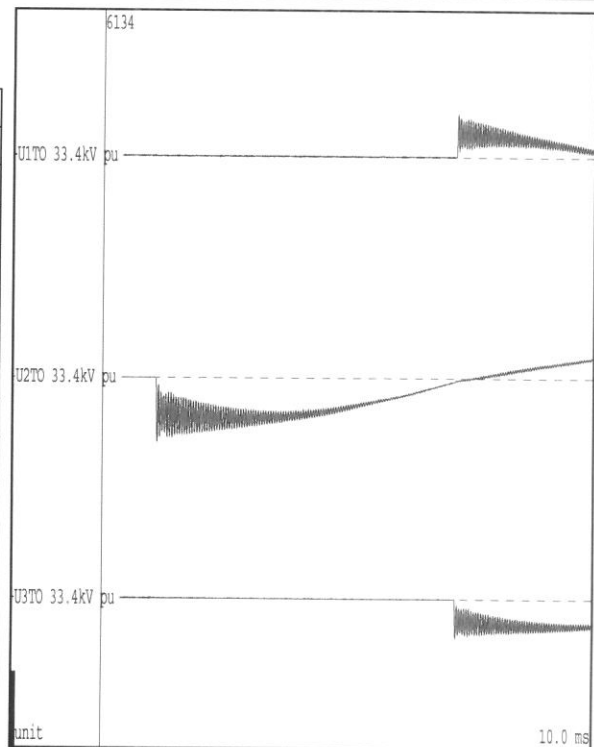
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



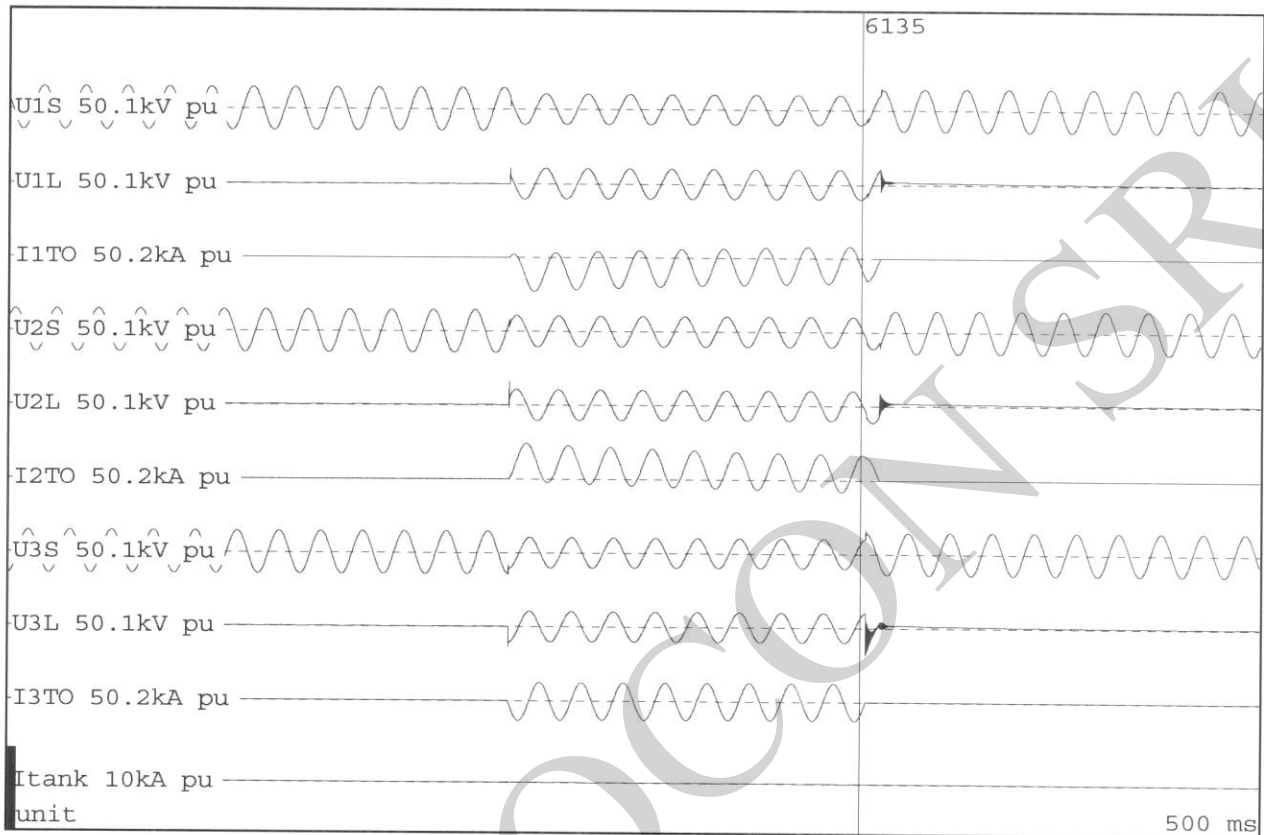

**TEST NUMBER: 100527-6134**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 1,02     |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,37     | 9,35     | 9,27     |
| Applied voltage, between phases   | kV  | 16,2     |          |          |
| Making current, peak              | kA  | -5,58    | -9,46    | 16,7     |
| Breaking current, phase value     | kA  | 8,03     | 7,97     | 7,98     |
| Average current, three phase      | kA  | 7,99     |          |          |
| Breaking current, DC-component    | %   | 22       | 40       | 18       |
| Recovery voltage, phase value     | kV  | 9,28     | 9,15     | 9,12     |
| Recovery voltage, between phases  | kV  | 15,9     |          |          |
| TRV, peak                         | kV  | 19,6     | -29,9    | -18,4    |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 6,2      | 2,4      | 6,2      |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |

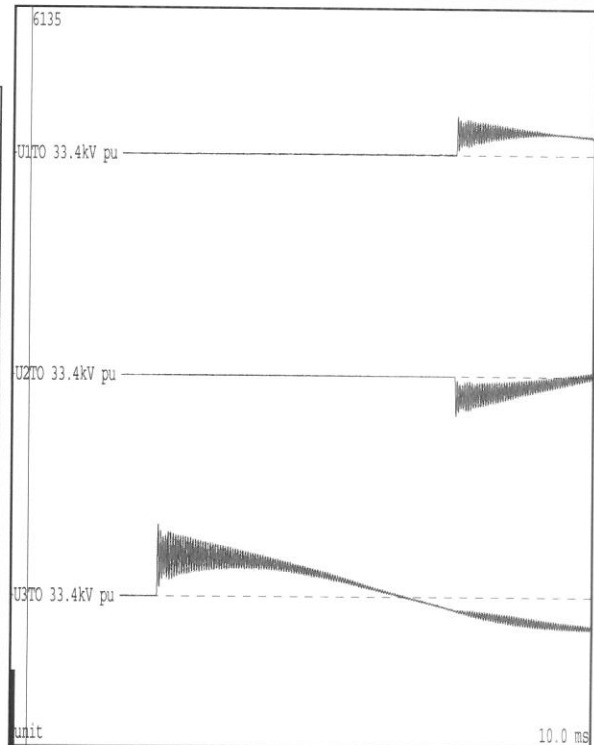


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.

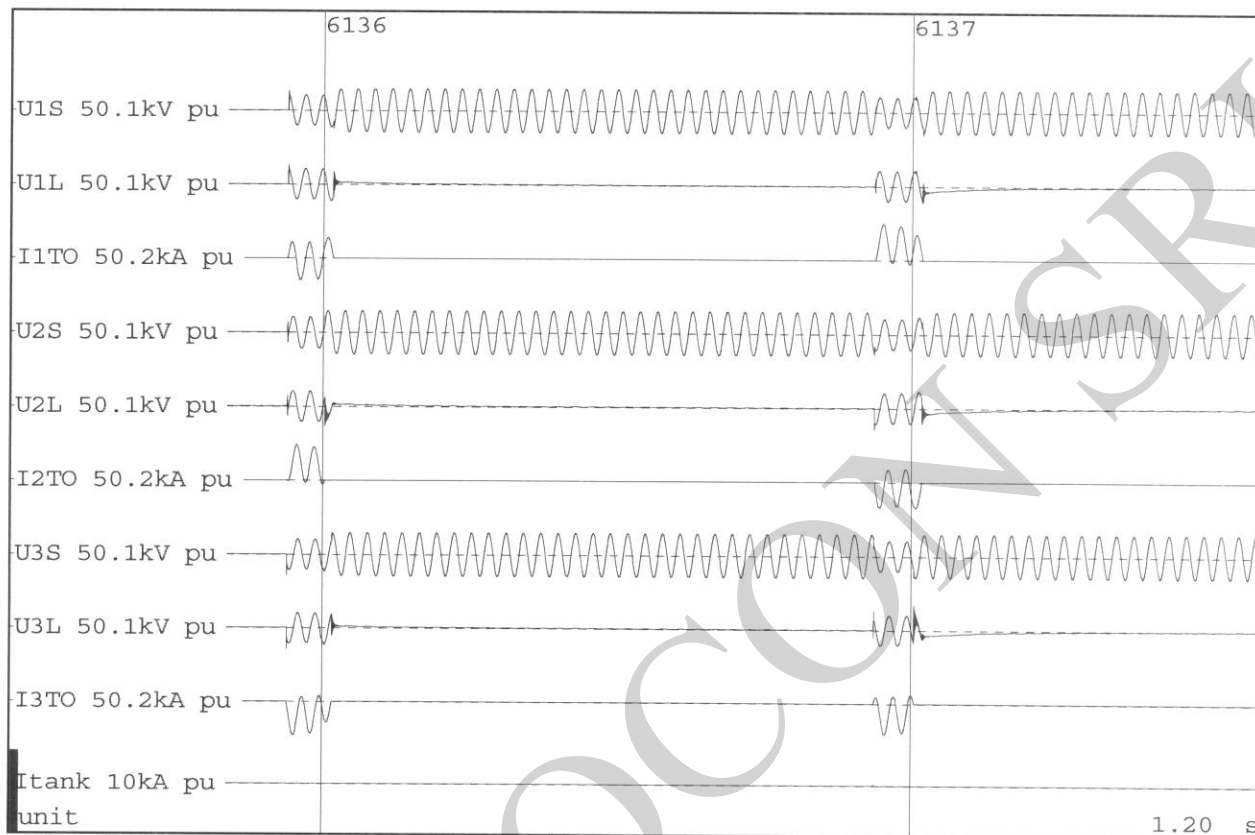

**TEST NUMBER: 100527-6135**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 1,02     |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,38     | 9,34     | 9,26     |
| Applied voltage, between phases   | kV  | 16,2     |          |          |
| Making current, peak              | kA  | -20,7    | 21,4     | -12,3    |
| Breaking current, phase value     | kA  | 8,00     | 8,00     | 8,01     |
| Average current, three phase      | kA  | 8,00     |          |          |
| Breaking current, DC-component    | %   | 33       | 35       | 2        |
| Recovery voltage, phase value     | kV  | 9,28     | 9,25     | 9,35     |
| Recovery voltage, between phases  | kV  | 16,1     |          |          |
| TRV, peak                         | kV  | 17,6     | -18,0    | 32,4     |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 7,5      | 7,4      | 2,3      |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |



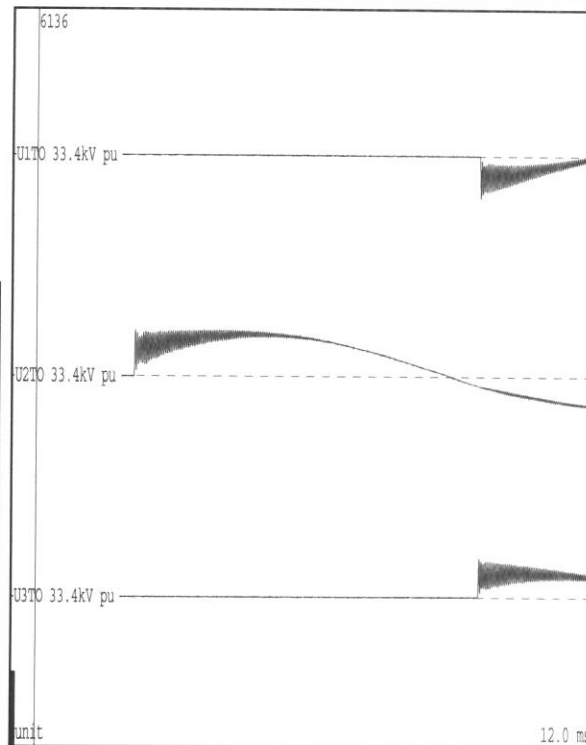
|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.



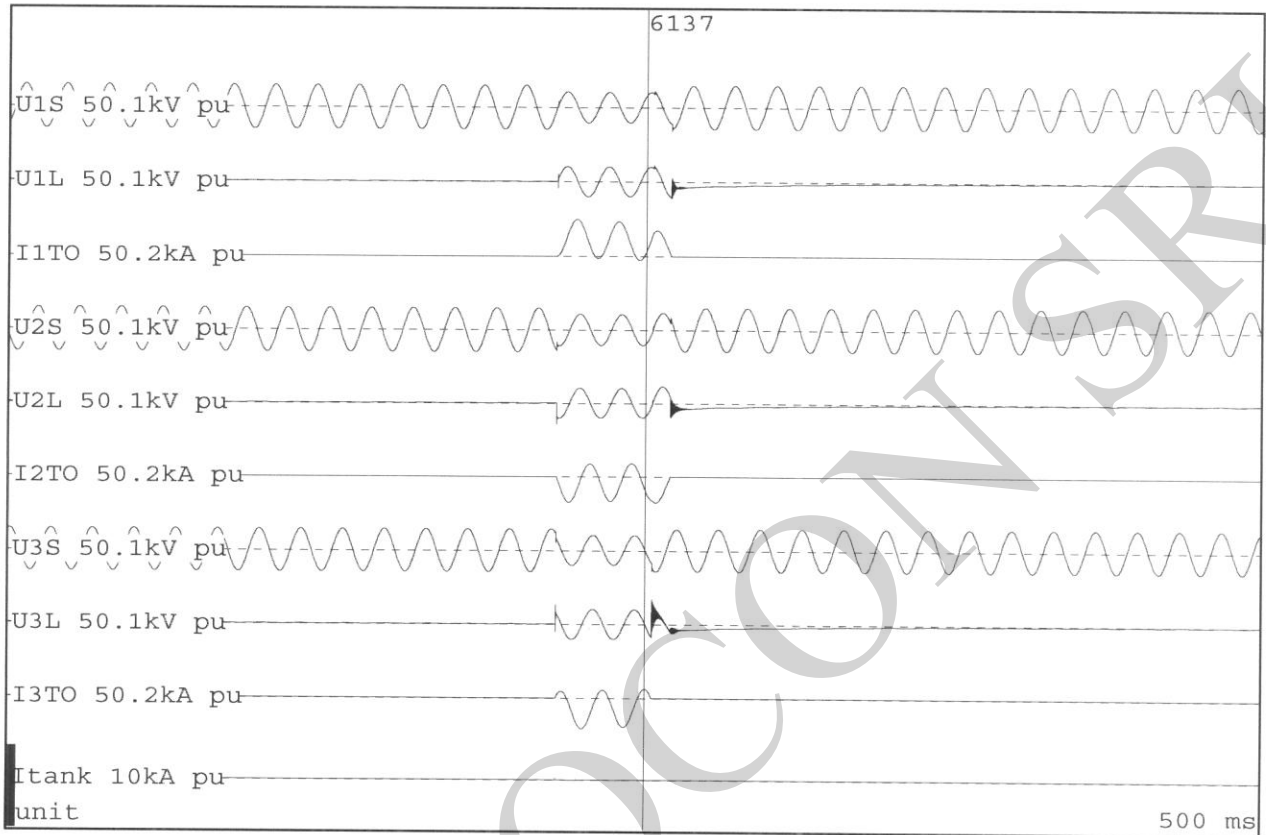
## TEST NUMBER: 100527-6136

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,11  | 8,14 | 8,08 |
| Average current, three phase      | kA  | 8,11  |      |      |
| Breaking current, DC-component    | %   | 12    | 74   | 65   |
| Recovery voltage, phase value     | kV  | 9,31  | 9,21 | 9,22 |
| Recovery voltage, between phases  | kV  | 16,0  |      |      |
| TRV, peak                         | kV  | -19,0 | 21,3 | 18,0 |
| Arc duration                      | ms  | 9,2   | 1,1  | 9,2  |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |

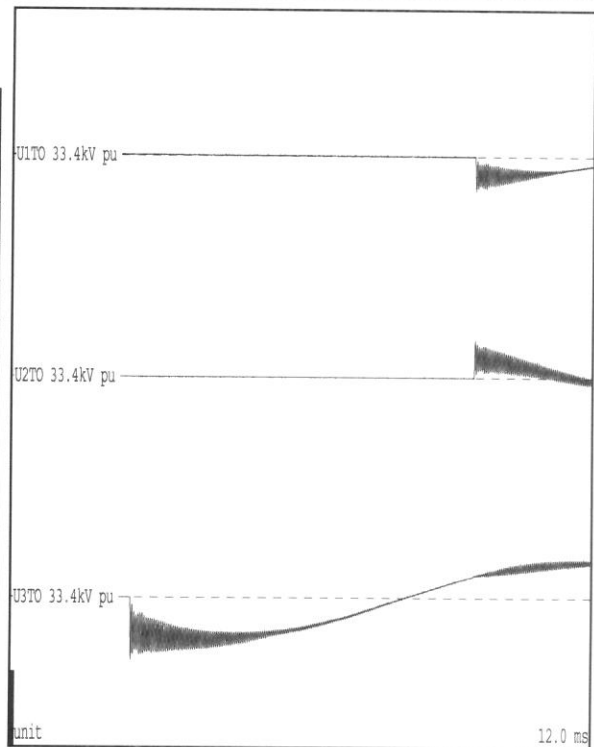


Voltage opening coil - Vd.c.      Gas pressure at 20 °C - MPa  
 Operating pressure

Remarks: Recloser cleared.

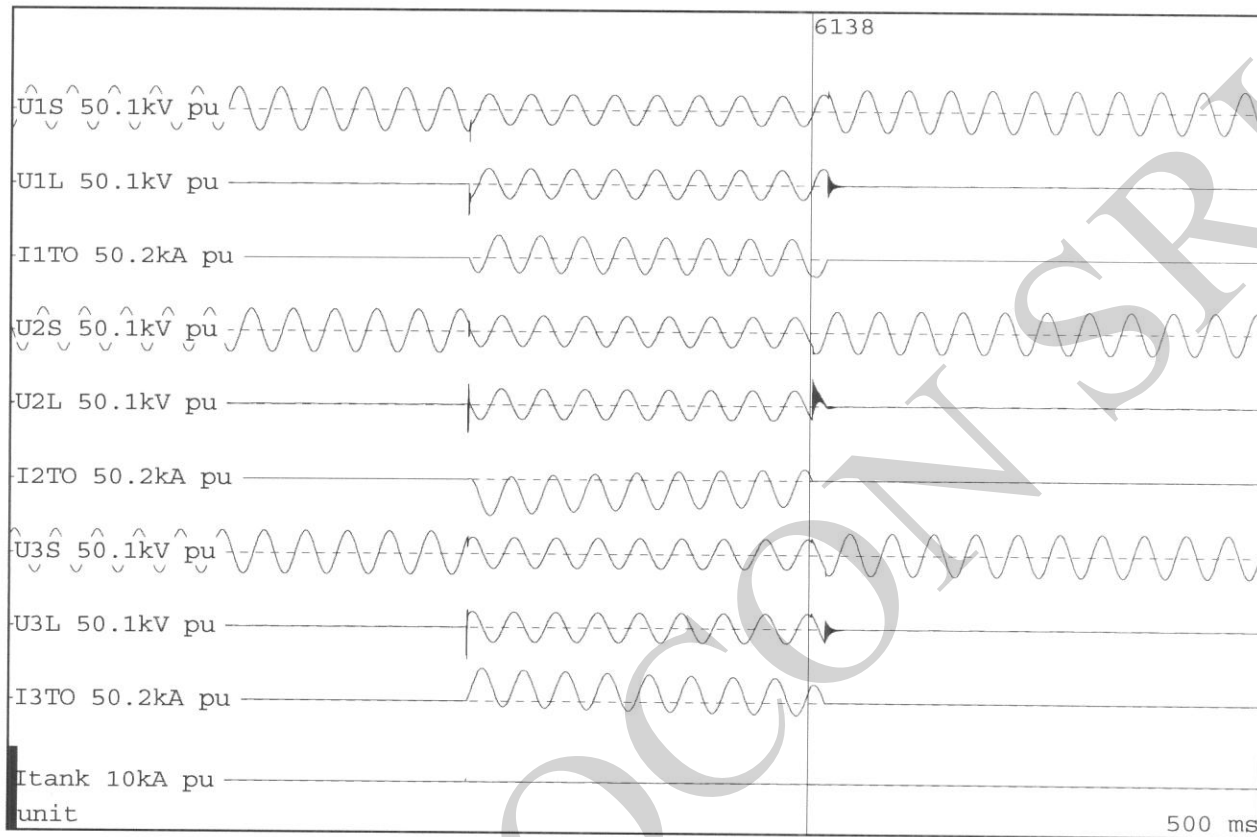

**TEST NUMBER: 100527-6137**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 0,520 |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,39  | 9,37  | 9,29  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | 23,2  | -15,5 | 4,21  |
| Breaking current, phase value     | kA  | 8,01  | 7,97  | 8,00  |
| Average current, three phase      | kA  | 7,99  |       |       |
| Breaking current, DC-component    | %   | 33    | 28    | 49    |
| Recovery voltage, phase value     | kV  | 9,25  | 9,30  | 9,14  |
| Recovery voltage, between phases  | kV  | 16,0  |       |       |
| TRV, peak                         | kV  | -16,0 | 16,8  | -28,3 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 9,9   | 10,0  | 0,1   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |

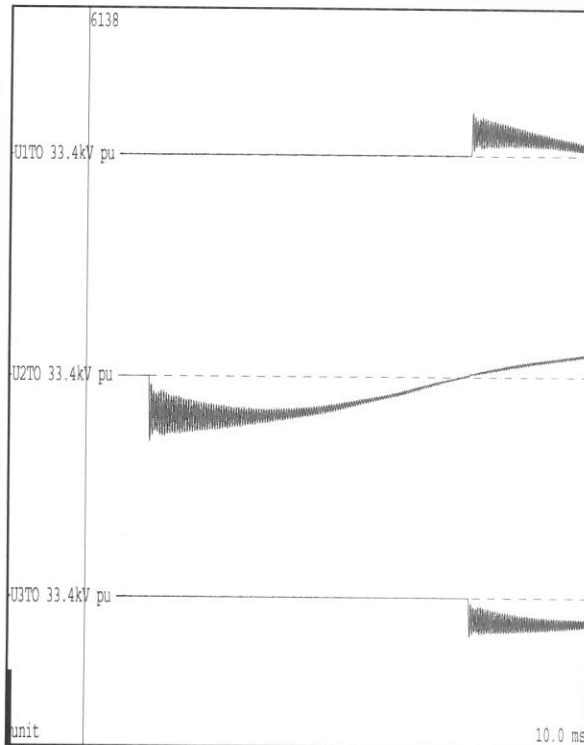


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.

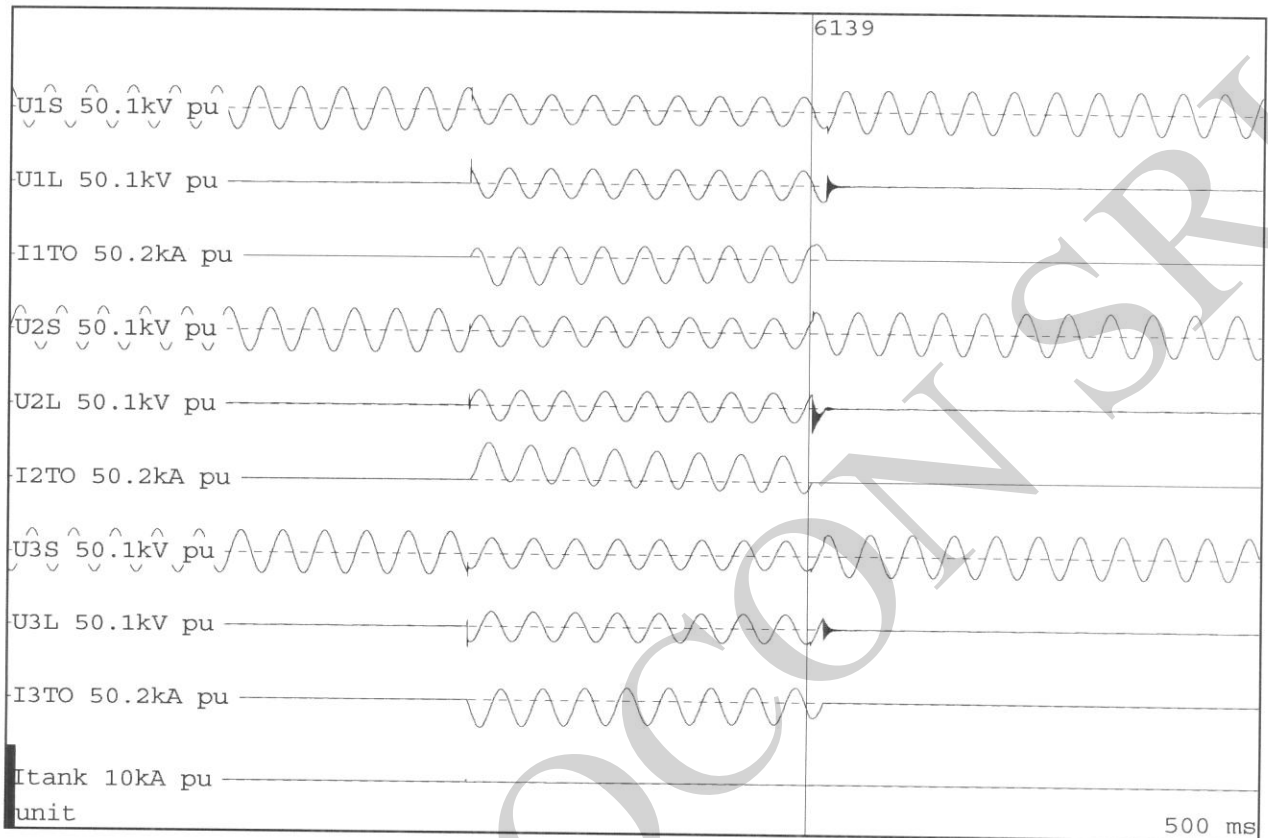

**TEST NUMBER: 100527-6138**

|                                   |     |          |          |          |
|-----------------------------------|-----|----------|----------|----------|
| Time interval since previous test | min | -        |          |          |
| Time interval between operations  | s   | 1,03     |          |          |
| Operation                         |     | CO       |          |          |
| Phase                             |     | <b>C</b> | <b>B</b> | <b>A</b> |
| Applied voltage, phase value      | kV  | 9,38     | 9,36     | 9,29     |
| Applied voltage, between phases   | kV  | 16,2     |          |          |
| Making current, peak              | kA  | -9,07    | -22,4    | 20,1     |
| Breaking current, phase value     | kA  | 8,02     | 7,98     | 7,98     |
| Average current, three phase      | kA  | 7,99     |          |          |
| Breaking current, DC-component    | %   | 10       | 41       | 31       |
| Recovery voltage, phase value     | kV  | 9,28     | 9,14     | 9,14     |
| Recovery voltage, between phases  | kV  | 15,9     |          |          |
| TRV, peak                         | kV  | 19,7     | -30,0    | -18,3    |
| Make time                         | ms  | -        | -        | -        |
| Arc duration                      | ms  | 6,7      | 2,2      | 6,7      |
| Opening time                      | ms  | -        |          |          |
| Break time                        | ms  | -        | -        | -        |

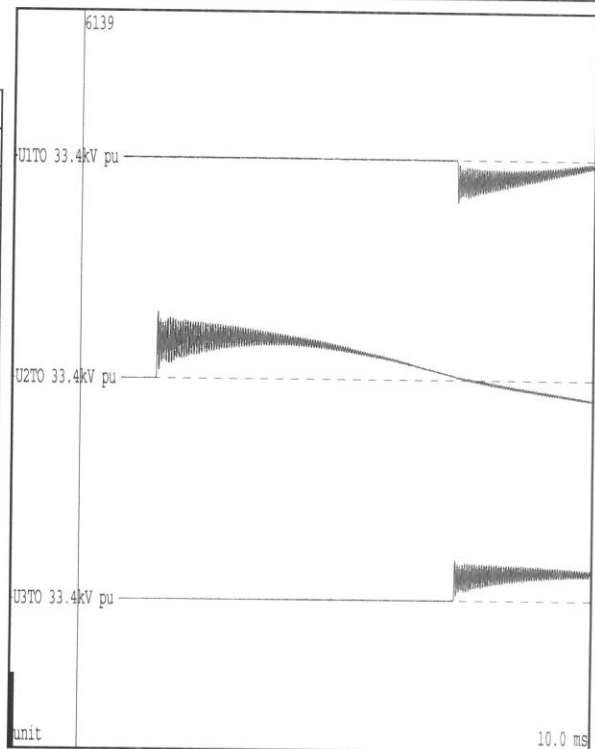


|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.

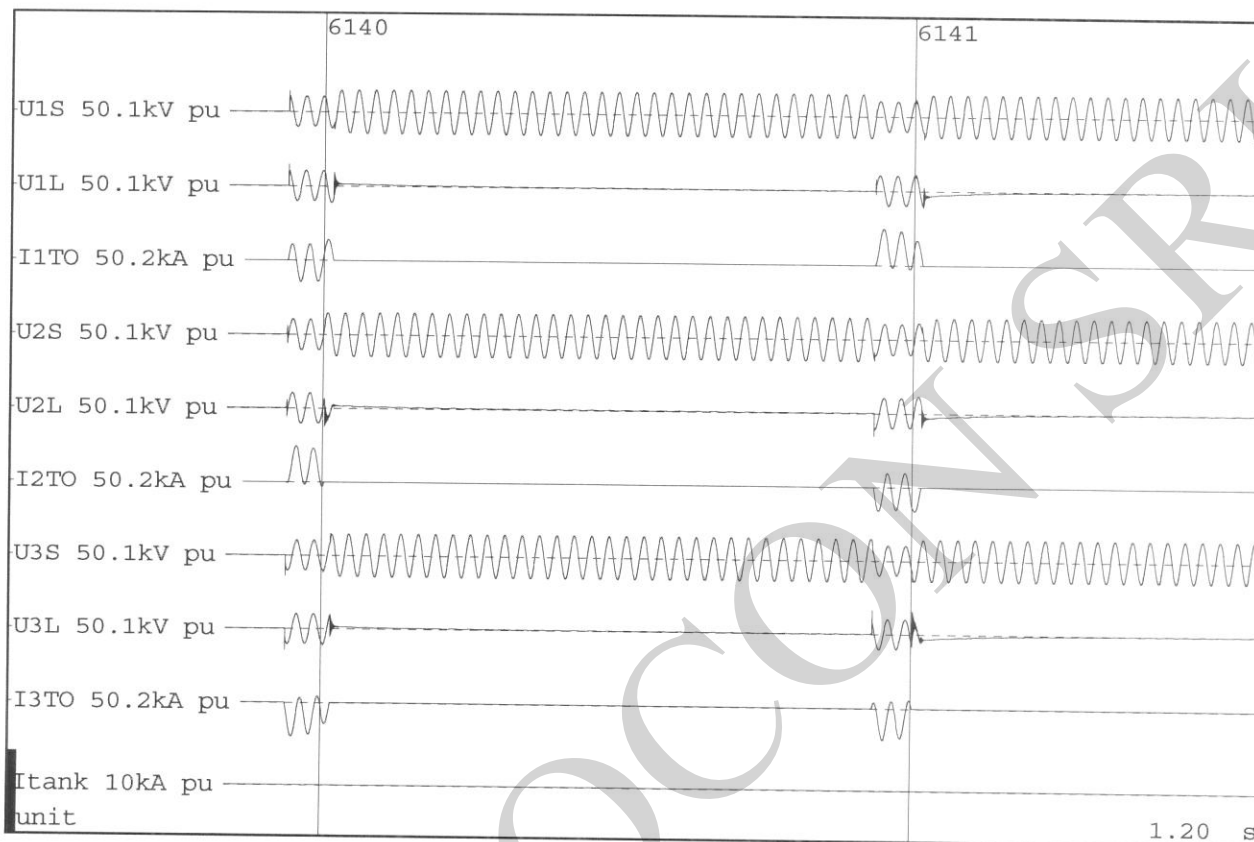

**TEST NUMBER: 100527-6139**

|                                   |     |       |      |       |
|-----------------------------------|-----|-------|------|-------|
| Time interval since previous test | min | -     |      |       |
| Time interval between operations  | s   | 1,02  |      |       |
| Operation                         | CO  |       |      |       |
| Phase                             |     | C     | B    | A     |
| Applied voltage, phase value      | kV  | 9,36  | 9,32 | 9,24  |
| Applied voltage, between phases   | kV  | 16,1  |      |       |
| Making current, peak              | kA  | 5,52  | 22,4 | -16,6 |
| Breaking current, phase value     | kA  | 8,04  | 7,99 | 8,00  |
| Average current, three phase      | kA  | 8,01  |      |       |
| Breaking current, DC-component    | %   | 22    | 40   | 18    |
| Recovery voltage, phase value     | kV  | 9,28  | 9,16 | 9,14  |
| Recovery voltage, between phases  | kV  | 15,9  |      |       |
| TRV, peak                         | kV  | -19,5 | 30,0 | 18,3  |
| Make time                         | ms  | -     | -    | -     |
| Arc duration                      | ms  | 6,5   | 2,0  | 6,5   |
| Opening time                      | ms  | -     |      |       |
| Break time                        | ms  | -     | -    | -     |



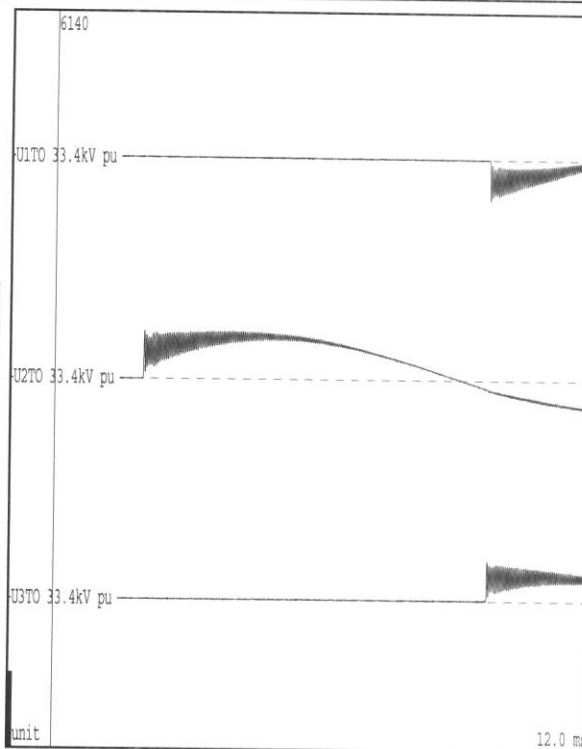
Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.



## TEST NUMBER: 100527-6140

|                                   |     |       |      |      |
|-----------------------------------|-----|-------|------|------|
| Time interval since previous test | min | -     |      |      |
| Operation                         |     | O     |      |      |
| Phase                             |     | C     | B    | A    |
| Breaking current, phase value     | kA  | 8,11  | 8,14 | 8,07 |
| Average current, three phase      | kA  | 8,11  |      |      |
| Breaking current, DC-component    | %   | 11    | 73   | 64   |
| Recovery voltage, phase value     | kV  | 9,31  | 9,20 | 9,21 |
| Recovery voltage, between phases  | kV  | 16,0  |      |      |
| TRV, peak                         | kV  | -19,1 | 21,3 | 18,0 |
| Arc duration                      | ms  | 9,0   | 0,8  | 9,0  |
| Opening time                      | ms  | -     |      |      |
| Break time                        | ms  | -     | -    | -    |



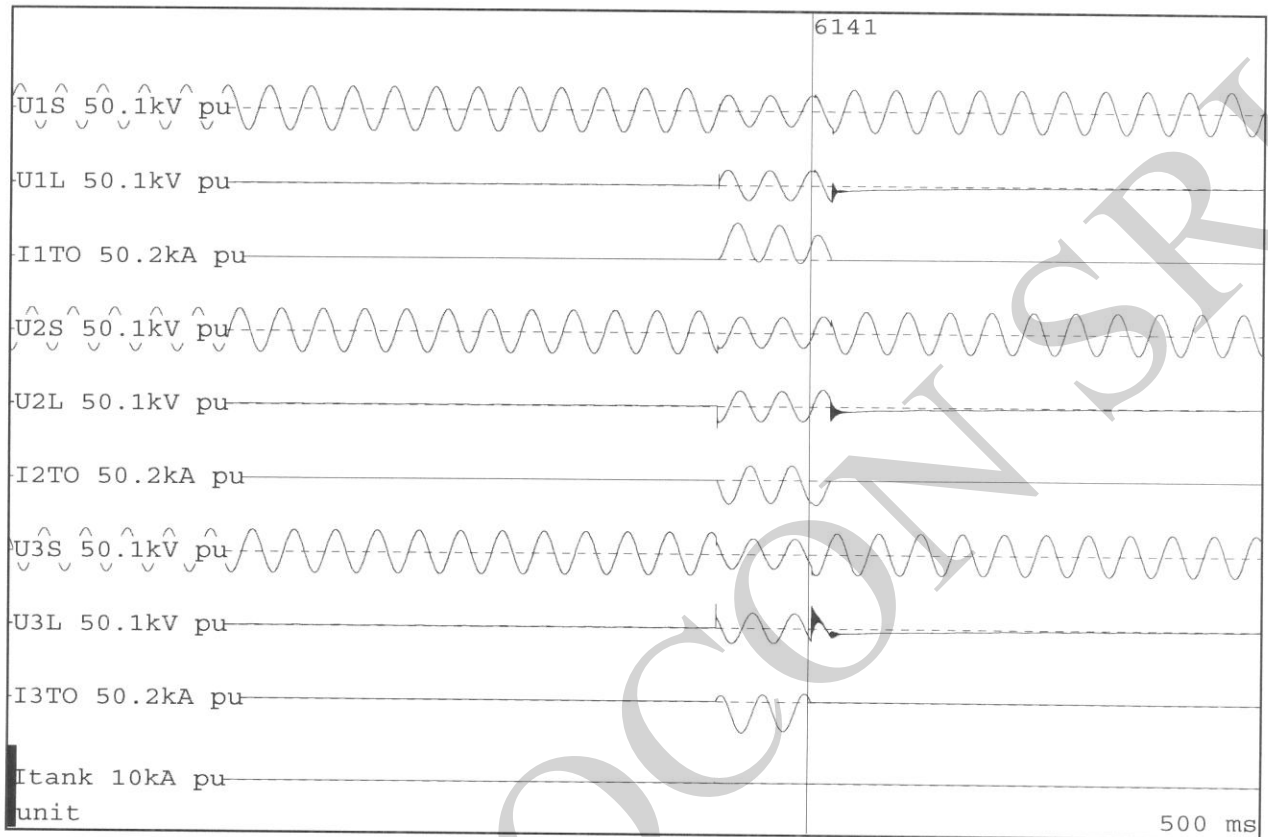
Voltage opening coil - Vd.c.

Gas pressure at 20 °C

- MPa

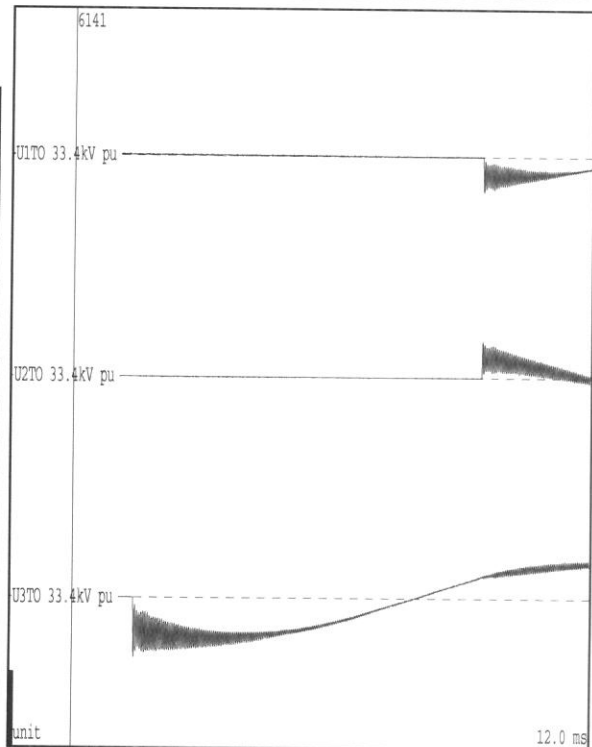
Operating pressure

Remarks: Recloser cleared.



**TEST NUMBER: 100527-6141**

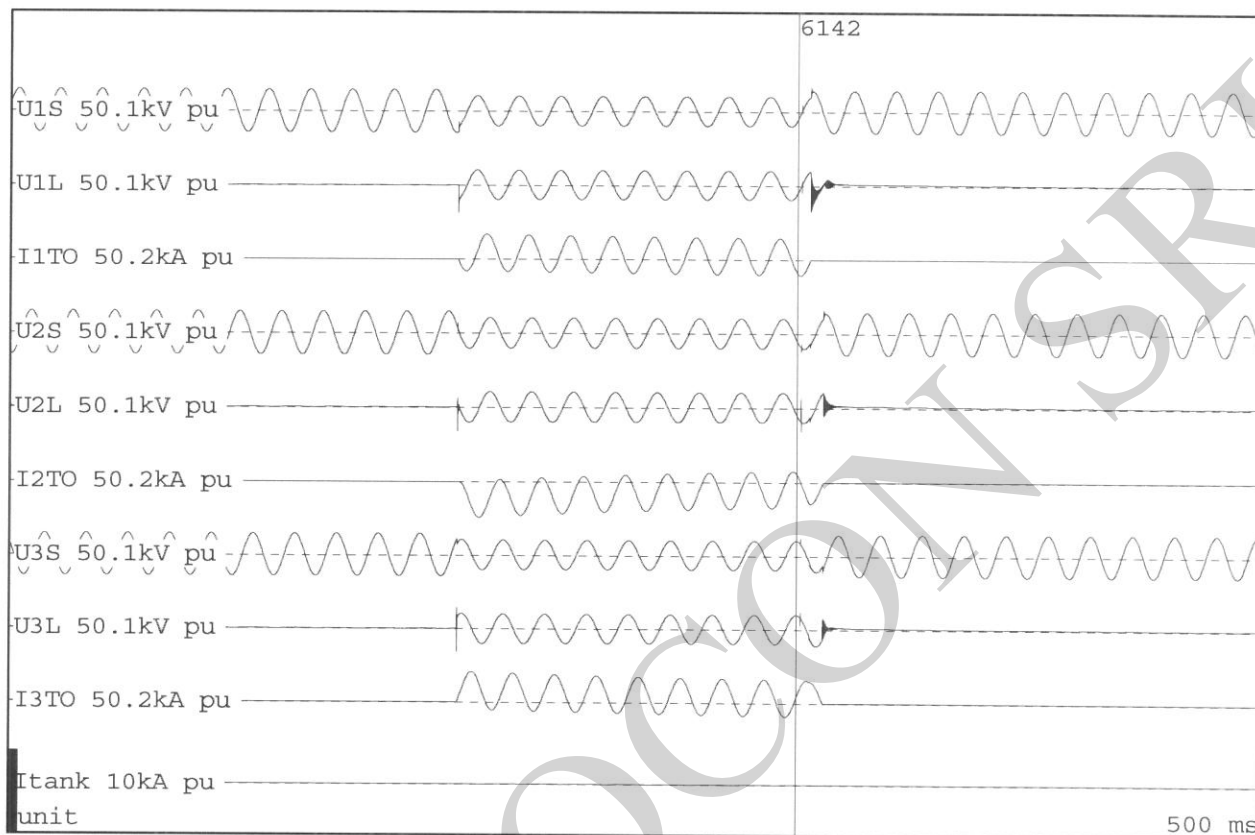
|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 0,520 |       |       |
| Operation                         | CO  |       |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,39  | 9,36  | 9,28  |
| Applied voltage, between phases   | kV  | 16,2  |       |       |
| Making current, peak              | kA  | 23,0  | -15,2 | -19,7 |
| Breaking current, phase value     | kA  | 5,31  | 8,07  | 8,03  |
| Average current, three phase      | kA  | 7,14  |       |       |
| Breaking current, DC-component    | %   | 14    | 23    | 55    |
| Recovery voltage, phase value     | kV  | 9,18  | 9,15  | 9,02  |
| Recovery voltage, between phases  | kV  | 15,8  |       |       |
| TRV, peak                         | kV  | -16,1 | 16,6  | -27,2 |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 8,4   | 8,5   | 1,2   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
 Voltage opening coil - Vd.c. Operating pressure

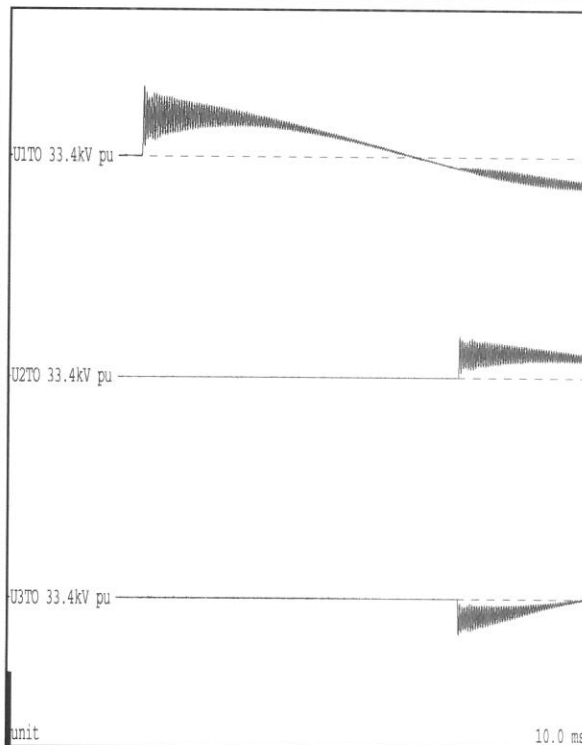
Remarks: Recloser closed and cleared.





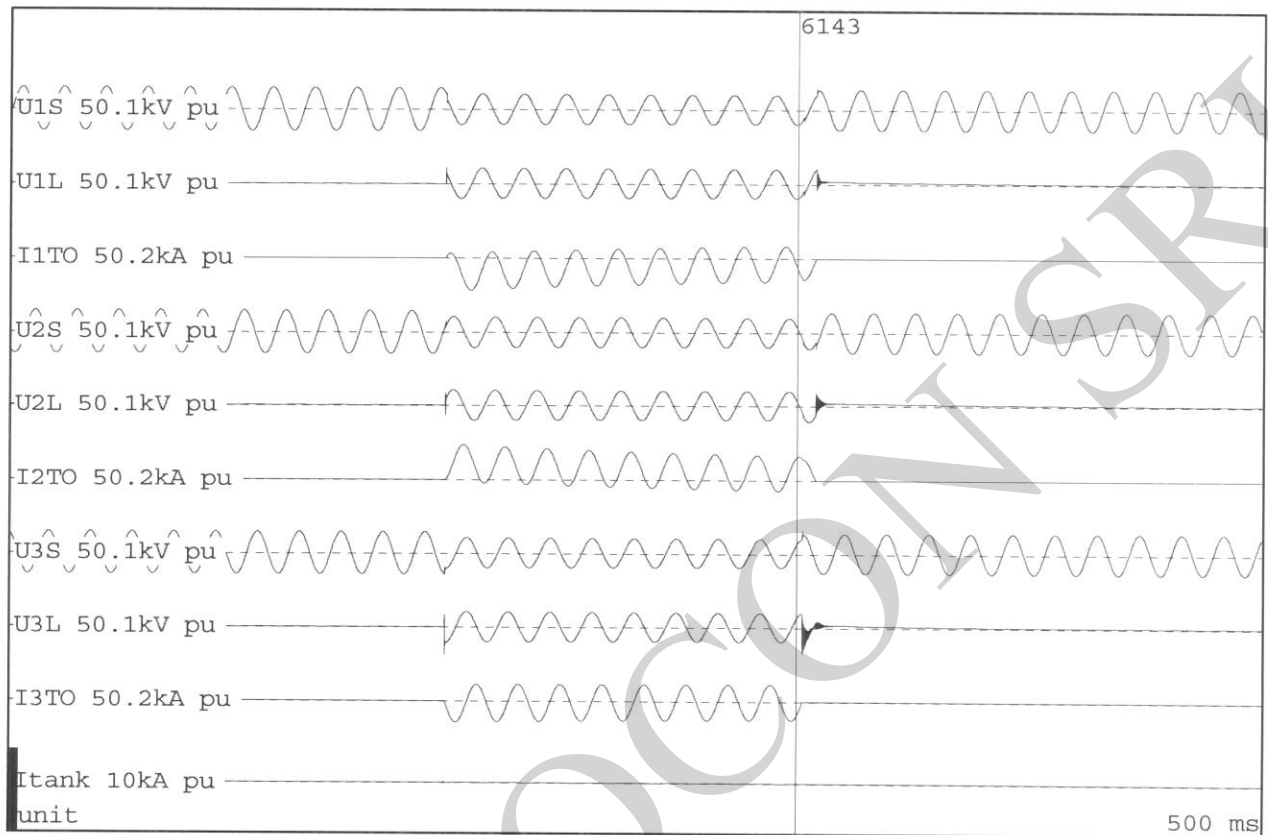
## TEST NUMBER: 100527-6142

|                                   |     |      |       |       |
|-----------------------------------|-----|------|-------|-------|
| Time interval since previous test | min | -    |       |       |
| Time interval between operations  | s   | 1,03 |       |       |
| Operation                         |     | CO   |       |       |
| Phase                             |     | C    | B     | A     |
| Applied voltage, phase value      | kV  | 9,27 | 9,24  | 9,16  |
| Applied voltage, between phases   | kV  | 16,0 |       |       |
| Making current, peak              | kA  | 15,9 | -23,0 | 19,4  |
| Breaking current, phase value     | kA  | 7,92 | 7,90  | 7,90  |
| Average current, three phase      | kA  | 7,91 |       |       |
| Breaking current, DC-component    | %   | 14   | 41    | 27    |
| Recovery voltage, phase value     | kV  | 9,16 | 9,14  | 9,05  |
| Recovery voltage, between phases  | kV  | 15,8 |       |       |
| TRV, peak                         | kV  | 31,9 | 18,7  | -16,8 |
| Make time                         | ms  | -    | -     | -     |
| Arc duration                      | ms  | 5,1  | 10,5  | 10,6  |
| Opening time                      | ms  | -    |       |       |
| Break time                        | ms  | -    | -     | -     |

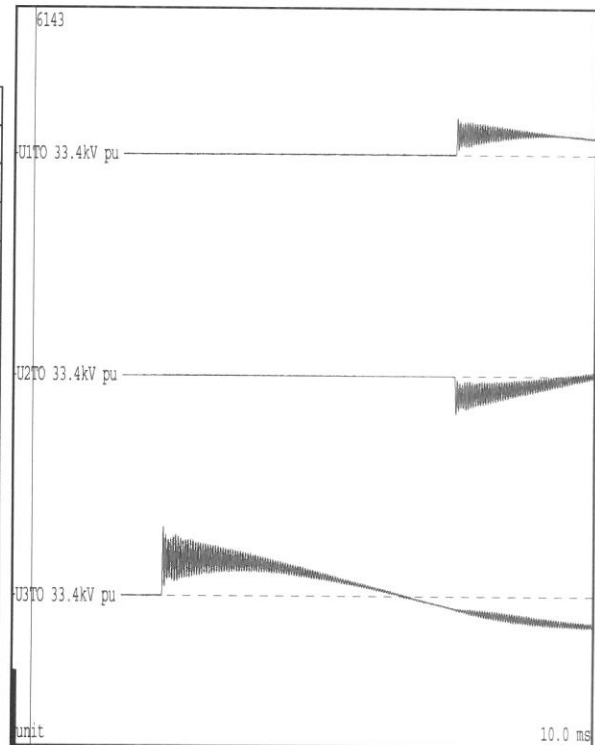


Voltage closing coil - Vd.c. Gas pressure at 20 °C - MPa  
Voltage opening coil - Vd.c. Operating pressure

Remarks: Recloser closed and cleared.


**TEST NUMBER: 100527-6143**

|                                   |     |       |       |       |
|-----------------------------------|-----|-------|-------|-------|
| Time interval since previous test | min | -     |       |       |
| Time interval between operations  | s   | 1,02  |       |       |
| Operation                         |     | CO    |       |       |
| Phase                             |     | C     | B     | A     |
| Applied voltage, phase value      | kV  | 9,30  | 9,25  | 9,17  |
| Applied voltage, between phases   | kV  | 16,0  |       |       |
| Making current, peak              | kA  | -20,4 | 22,0  | -13,4 |
| Breaking current, phase value     | kA  | 7,67  | 7,67  | 7,65  |
| Average current, three phase      | kA  | 7,66  |       |       |
| Breaking current, DC-component    | %   | 32    | 36    | 4     |
| Recovery voltage, phase value     | kV  | 8,78  | 8,75  | 8,74  |
| Recovery voltage, between phases  | kV  | 15,2  |       |       |
| TRV, peak                         | kV  | 16,7  | -17,1 | 30,9  |
| Make time                         | ms  | -     | -     | -     |
| Arc duration                      | ms  | 7,4   | 7,3   | 2,3   |
| Opening time                      | ms  | -     |       |       |
| Break time                        | ms  | -     | -     | -     |



|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: Recloser closed and cleared.

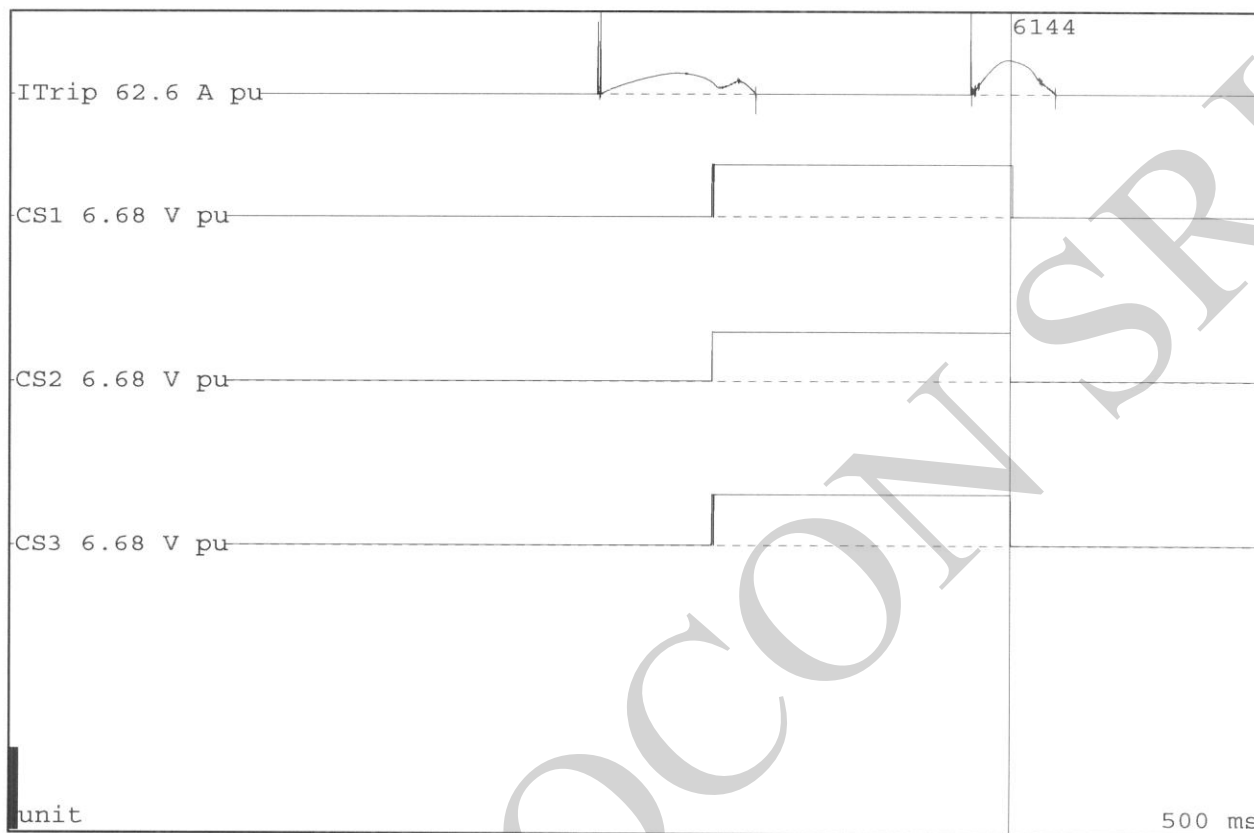
**TEST NUMBER**

100527-6144

**CONDITION BEFORE TEST**

Recloser in same condition.

ELECTROCON SRL



TEST NUMBER: 100527-6144

| Operation            |    | CO |   |   |
|----------------------|----|----|---|---|
| Phase                |    | C  | B | A |
| Current closing coil | A  | -  |   |   |
| Closing time         | ms | -  | - | - |
| Current opening coil | A  | -  |   |   |
| Opening time         | ms | -  | - | - |

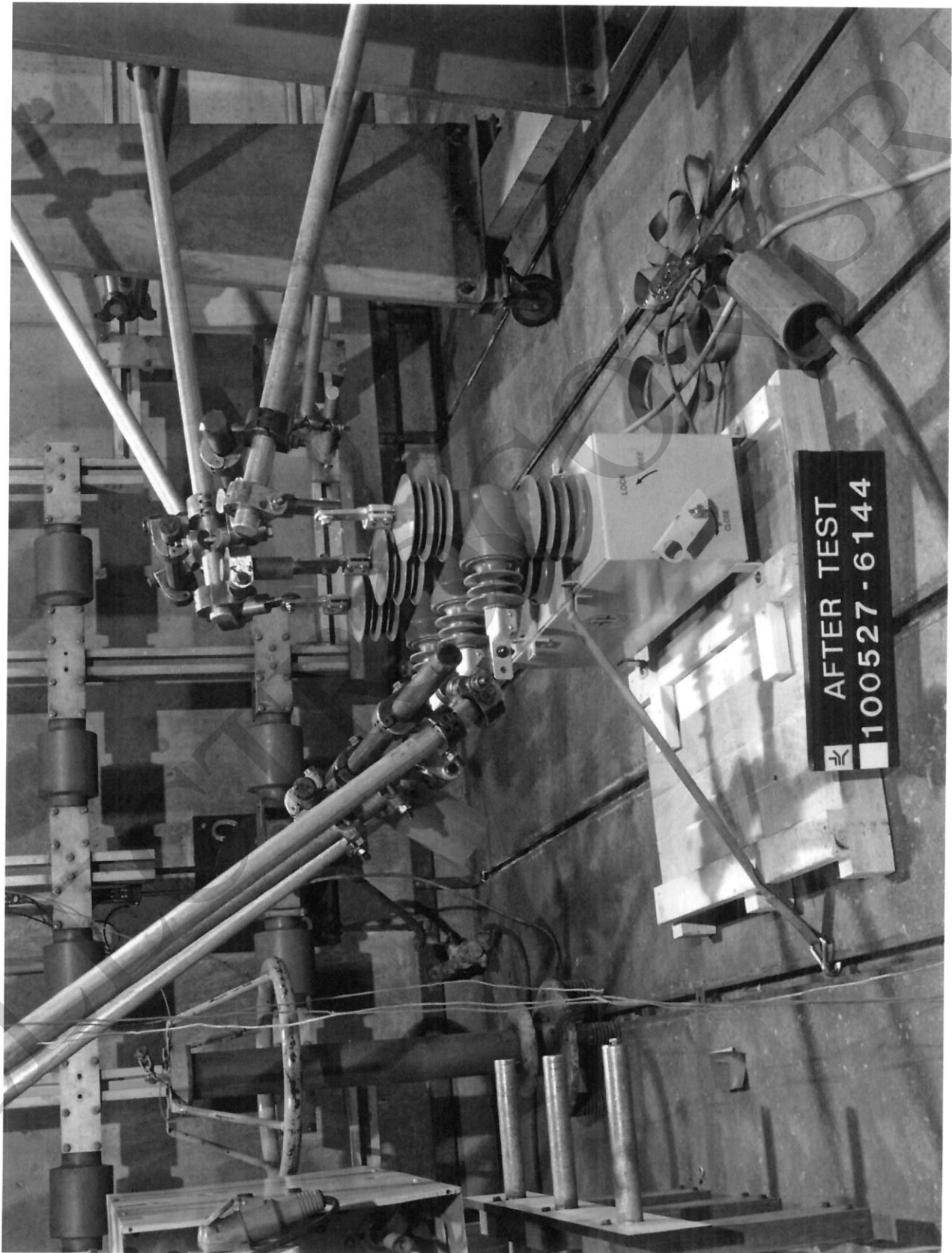
|                      |         |                       |       |
|----------------------|---------|-----------------------|-------|
| Voltage closing coil | - Vd.c. | Gas pressure at 20 °C | - MPa |
| Voltage opening coil | - Vd.c. | Operating pressure    |       |

Remarks: -

**CONDITION AFTER TEST**

Externally no visible change.

ELECTROCON SRL



## DIELECTRIC VERIFICATION AND CONTACT RESISTANCE MEASUREMENT

Vacuum interrupter type: VG5

Manufactured by: ABB AG,  
Ratingen, Germany

*Dielectric test (state of vacuum) and measurement of contact resistance:*

Recloser withstood a 1 min power-frequency voltage across open vacuum interrupters.

| POLE         | INTERRUPTER<br>SERIAL No. | Contact resistance<br>(measured with 100 A d.c.) |                  |
|--------------|---------------------------|--------------------------------------------------|------------------|
|              |                           | 100526-6001                                      | 100527-6144      |
|              |                           | Before                                           | After            |
| A            | 786015                    | 58,8 $\mu\Omega$                                 | 57,6 $\mu\Omega$ |
| B            | 785993                    | 56,1 $\mu\Omega$                                 | 58,2 $\mu\Omega$ |
| C            | 786004                    | 45,4 $\mu\Omega$                                 | 52,4 $\mu\Omega$ |
| Test voltage |                           | 50 kV                                            | 40 kV            |

The results of the contact resistance measurements indicate that the interrupters are capable of carrying the rated normal current without exceeding the prescribed temperature-rise limits.

|                                                   |            |            |            |               |            |
|---------------------------------------------------|------------|------------|------------|---------------|------------|
| <b>제 도</b>                                        | <b>심 의</b> | <b>결 과</b> | <b>검 사</b> | <b>일 일</b>    | <b>내 역</b> |
| DRAWING                                           | CHECKED    | SIGNED     | REVIEWER   | DATE          | SHEET      |
|                                                   |            |            | ±0%        | 2007<br>09 07 | N / S      |
| <b>도 명</b> LAY-OUT                                |            |            |            |               |            |
| <b>도 번호</b> EPRH-KR001                            |            |            |            |               |            |
| <b>판권사명</b> 엔테크전자(주)                              |            |            |            |               |            |
| <b>판권사명</b> ENTEC ELECTRIC & ELECTRONIC CO., LTD. |            |            |            |               |            |
| <b>개 권</b> Rev. No. 0                             |            |            |            |               |            |



Fingerprint measurement of the electronic control circuit was performed at KEMA High-Voltage Laboratory.  
See enclosed record of tests on the following pages.

**RECORD OF TESTS****TDT 1486-10**

**OBJECT** Electronic control circuit for control of a three -phase solid insulated metal-enclosed automatic vacuum circuit recloser

**TYPE** Recloser: EPR-1 **SERIAL No.** 1002 0001  
Controller: EVRC2A 0906 0001  
Fn = 50/60 Hz; Vaux = 220 VAC / 24 VDC  
Recloser: Ur = 15,5 kV, Ir = 630 A

**MANUFACTURER** ENTEC Eelectric & Electronic Co., Ltd.  
Gyeongki-Do, Korea-South

**CLIENT** ENTEC Eelectric & Electronic Co., Ltd.  
Gyeongki-Do, Korea-South

**TESTED BY** KEMA HIGH-VOLTAGE LABORATORY  
Utrechtseweg 310 - 6812 AR Arnhem - the Netherlands

**DATE OF TESTS** 31 May 2010

**TEST PROGRAMME** Fingerprint measurement of electronic control circuit.

**SUMMARY AND CONCLUSION** As far as specified by the manufacturer, the measuring results are conforming the specifications.

This Record of Tests applies only to the object tested. The responsibility for conformity of any object having the same designations with that tested rests with the Manufacturer.

This report consists of 14 pages in total.

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KEMA Nederland B.V.

  
P.G.A. Bus  
KEMA T&D Testing Services  
Managing Director

Arnhem, 16 August 2010

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## 1 IDENTIFICATION OF THE TEST OBJECT

### 1.1 Ratings assigned by the manufacturer

#### Vacuum recloser

|                                  |          |
|----------------------------------|----------|
| Serial number                    | 10020001 |
| Number of phases                 | 3        |
| Insulation material              | Solid    |
| Rated maximum voltage            | 15,5 kV  |
| Rated current                    | 630 A    |
| Rated lightning impulse voltage  | 110 kV   |
| Power frequency insulation level | 50 kV    |
| Short-circuit current            | 16 kA    |

#### Recloser-M Controller

|                               |                                     |
|-------------------------------|-------------------------------------|
| Serial number                 | 09060001                            |
| Software revision             | V5.09                               |
| Power supply                  | 220 / 24 VAC / VDC                  |
| Rated frequency               | 50 / 60 Hz                          |
| Rated voltage measuring input | 4 V                                 |
| Rated current measuring input | 1 A                                 |
| Main capacitor                | close coil 2 x 22000 $\mu$ F        |
|                               | open coil 1 x 22000 $\mu$ F         |
|                               | 160 V                               |
| Voltage level main capacitor  | 125 VDC                             |
| Power supply charging circuit | 220 VAC                             |
| Battery voltage               | 24 VDC                              |
| Closing coil                  |                                     |
| resistance (20°C)             | 4 $\Omega$                          |
| number of turns               | 720                                 |
| wire material                 | coated copper, 1,2 mm $\varnothing$ |
| Opening coil                  |                                     |
| resistance (20°C)             | 2 $\Omega$                          |
| number of turns               | 400                                 |
| wire material                 | coated copper, 1,3 mm $\varnothing$ |

### 1.2 Description of the test object

|                     |                                        |
|---------------------|----------------------------------------|
| Manufacturer        | ENTEC Eelectric & Electronic Co., Ltd. |
| Type                | Recloser: EPR-1                        |
|                     | Controller: EVCR2A-n                   |
| Year of manufacture | 2009/2010                              |

## **2 GENERAL INFORMATION**

### **2.1 The tests were partly witnessed by**

| <b>Name</b> | <b>Company</b>                         |
|-------------|----------------------------------------|
| Kim, Y.     | ENTEC Eelectric & Electronic Co., Ltd. |
| Choi, M.    | Gyungki-Do, Korea-South                |

### **2.2 The tests were carried out by**

| <b>Name</b>    | <b>Company</b>                                  |
|----------------|-------------------------------------------------|
| Achterkamp, M. | KEMA Nederland B.V.,<br>Arnhem, the Netherlands |

### **2.3 Purpose of the test**

Purpose of the test was to verify whether the material complies with the manufacturer specifications.

### **2.4 Applicable standards**

When reference is made to a standard and the date of issue is not stated, this applies to the latest issue, including amendments, which have been officially published prior to the date of the tests.

### 3 CORRECT OPERATION AND CHARGING OF MAIN CAPACITOR

#### Standard and date

Standard -  
Test dates 31 May 2010

#### Environmental conditions

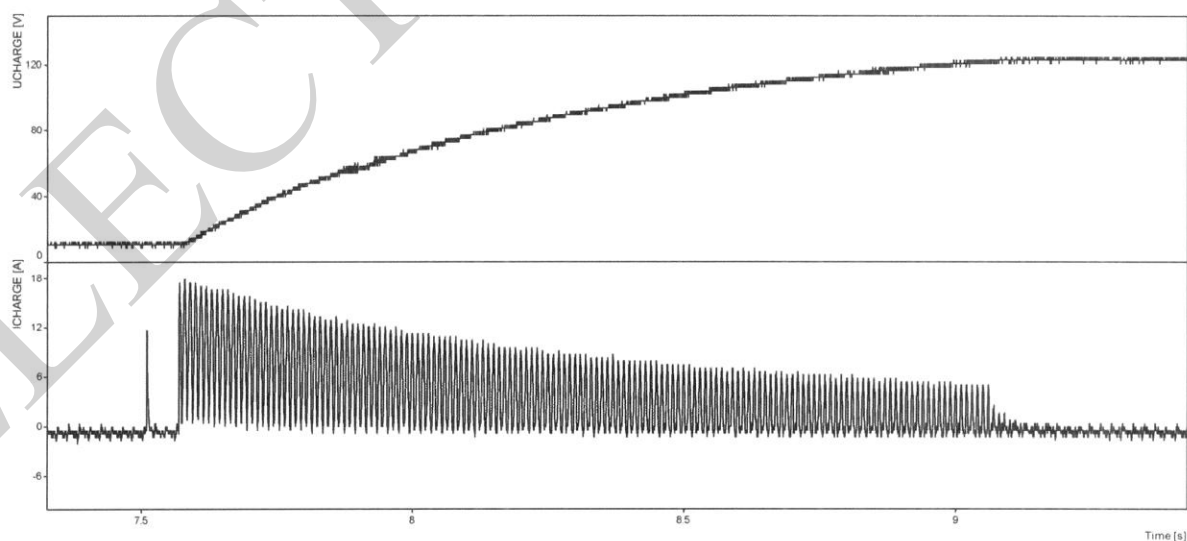
Ambient temperature 22 °C Ambient air pressure 1016 hPa  
Temperature of test object 22 °C Humidity 35 %

#### Characteristic test data

Power supply charging circuit 187...242 VAC  
Frequency 50 Hz  
Capacitor supervision level 113 VDC  
Battery voltage 24 VDC

The correct operation of the magnetic actuator and the charging of the main capacitor is measured for different values of the auxiliary power supply voltage.

| power supply voltage<br>(VAC) | battery voltage<br>(VDC) | charge main capacitor      |             |
|-------------------------------|--------------------------|----------------------------|-------------|
|                               |                          | current<br>(ADC)           | time<br>(s) |
| 220                           | 24                       | 18 Apeak<br>see plot below | 1,49        |



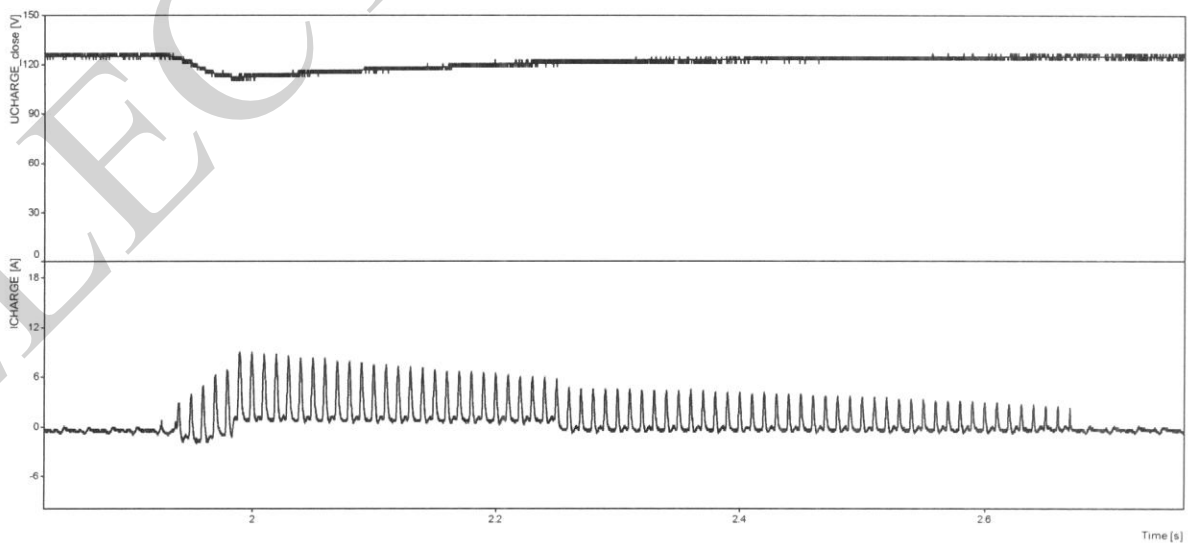
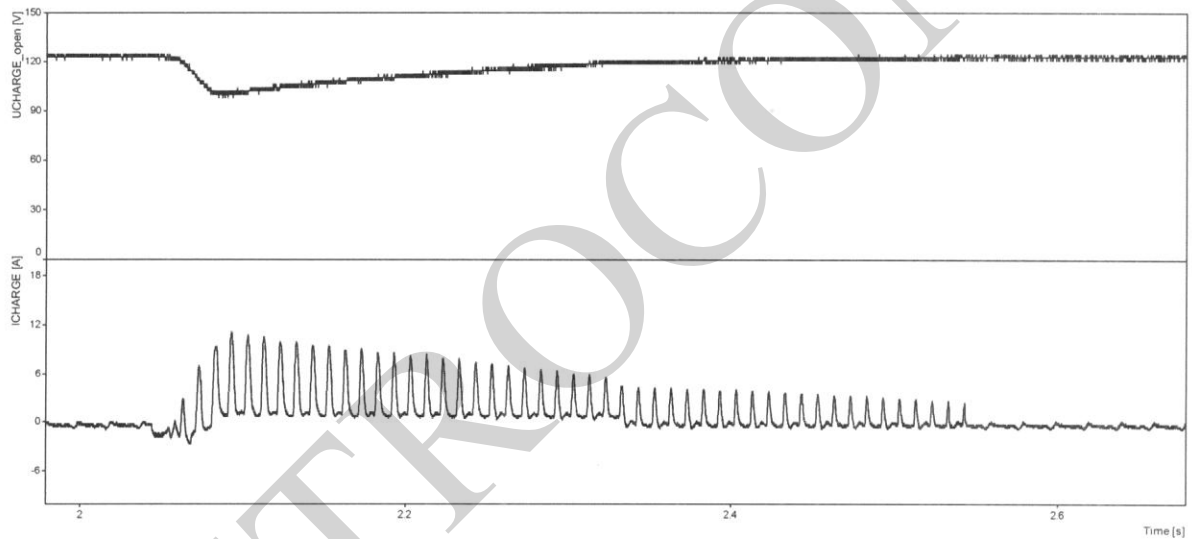
Charging main capacitor with battery voltage

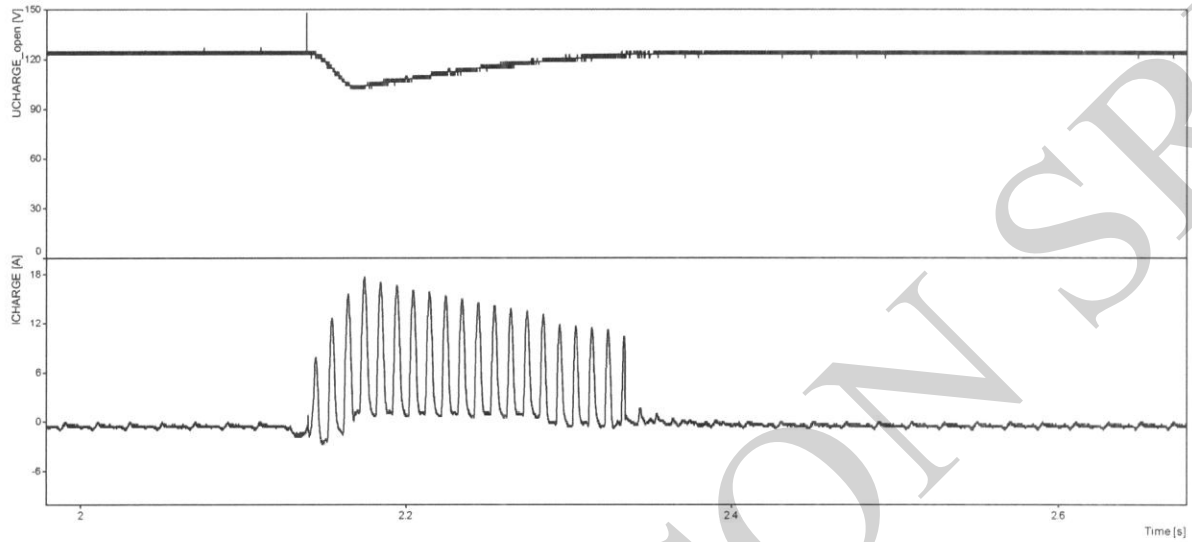
The recloser can be operated local by means of push buttons. The push buttons are connect to binary inputs of the recloser controller.

Remote operation is only possible with communication interface.

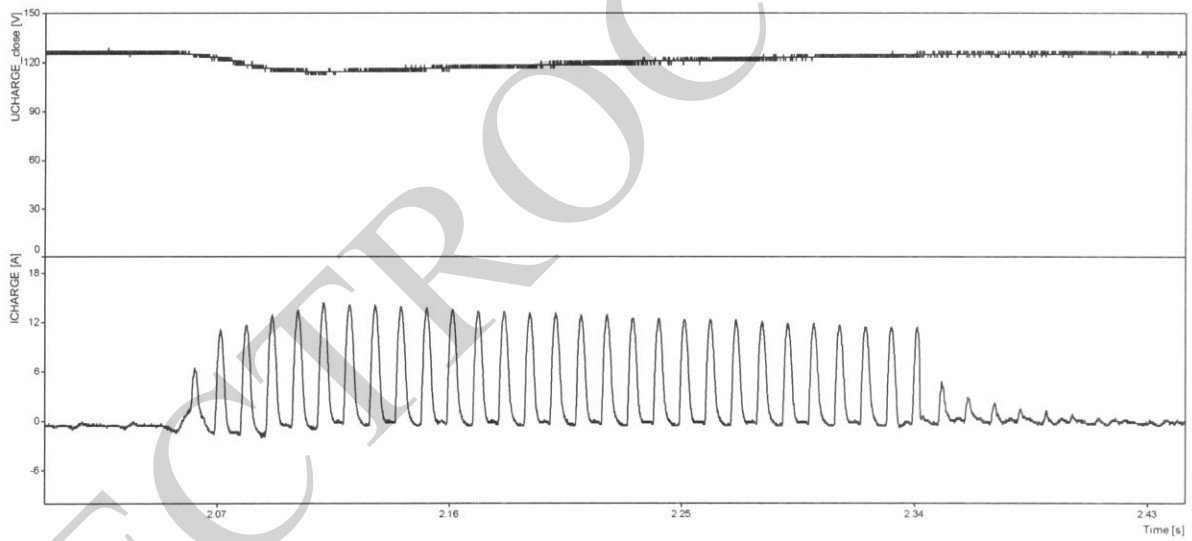
| Uaux  | close operation |      |       |      | open operation |      |       |      | Uc    |
|-------|-----------------|------|-------|------|----------------|------|-------|------|-------|
|       | td              | Id   | tr    | Ir   | td             | Id   | tr    | Ir   |       |
| (VAC) | (ms)            | (Ap) | (s)   | (Ap) | (ms)           | (Ap) | (ms)  | (Ap) | (VDC) |
| 187   | 57,3            | 6,5  | 671,8 | 8,4  | 19,8           | 6,9  | 465,2 | 11,0 | 125,0 |
| 220   | 47,3            | 13,5 | 286,8 | 14,2 | 27,4           | 15,4 | 164,3 | 17,5 | 125,0 |
| 242   | 52,0            | 7,1  | 178,5 | 7,5  | 21,9           | 6,7  | 123,1 | 8,3  | 125,0 |

td = discharge time; Id = discharge current, tr = recharge time; Ir = recharge current



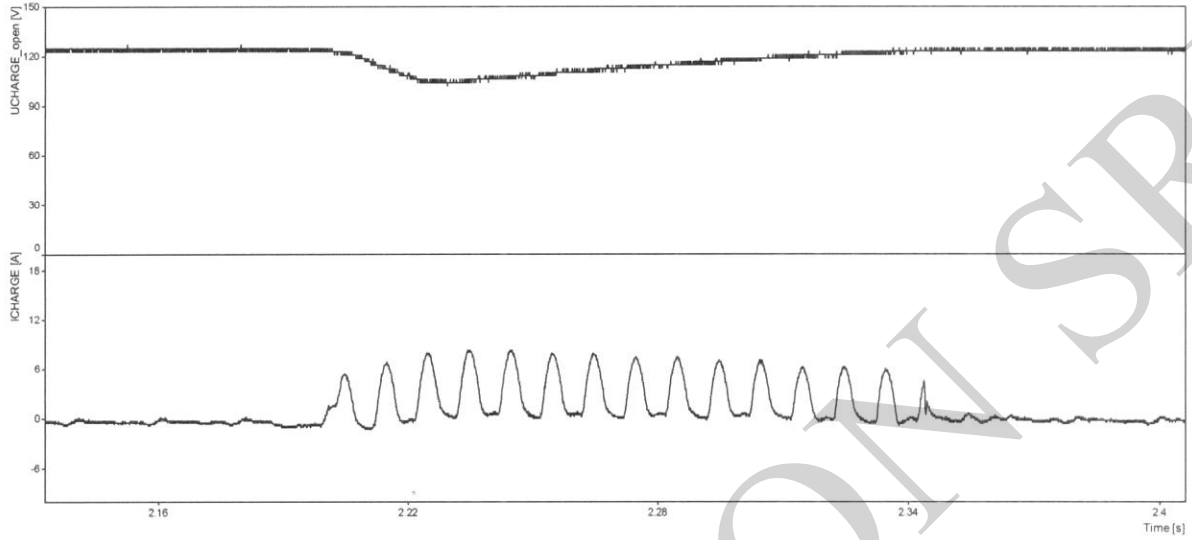


Open operation at  $U_{aux} = 220 \text{ VAC}$

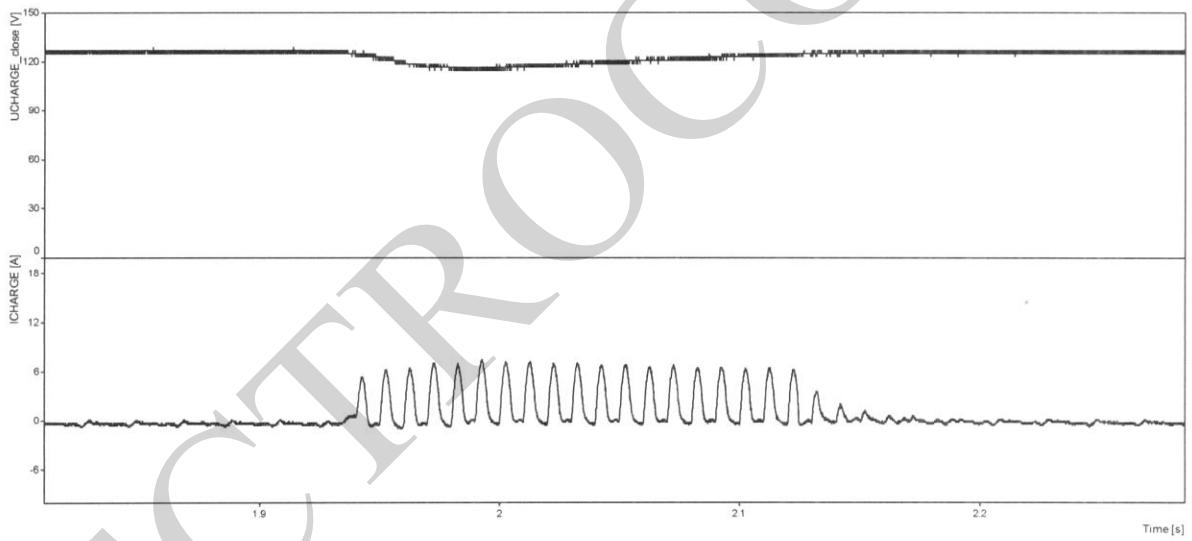


Close operation at  $U_{aux} = 220 \text{ VAC}$





Open operation at  $U_{aux} = 242$  VAC



Close operation at  $U_{aux} = 242$  VAC

## 4 CORRECT OPERATION AT POWER SUPPLY INTERRUPTION

### Standard and date

Standard -  
Test dates 31 May 2010

### Environmental conditions

|                            |       |                      |          |
|----------------------------|-------|----------------------|----------|
| Ambient temperature        | 22 °C | Ambient air pressure | 1016 hPa |
| Temperature of test object | 22 °C | Humidity             | 35 %     |

### Characteristic test data

|                               |               |
|-------------------------------|---------------|
| Power supply charging circuit | 187...242 VAC |
| Frequency                     | 50 Hz         |
| Capacitor supervision level   | 113 VDC       |
| Battery voltage               | 24 VDC        |

The correct operation of the magnetic actuator is measured during an interruption of the power supply voltage. Because the main capacitor is charged by the 24 VDC battery the test is performed without 220 VAC power supply voltage.

| test description                                                          | observation       |
|---------------------------------------------------------------------------|-------------------|
| manual close / open / close operation without 220 VAC power supply after: |                   |
| 1 minute                                                                  | correct operation |
| 5 minutes                                                                 | correct operation |

## 5 POWER CONSUMPTION

### Standard and date

Standard -  
Test dates 31 May 2010

### Environmental conditions

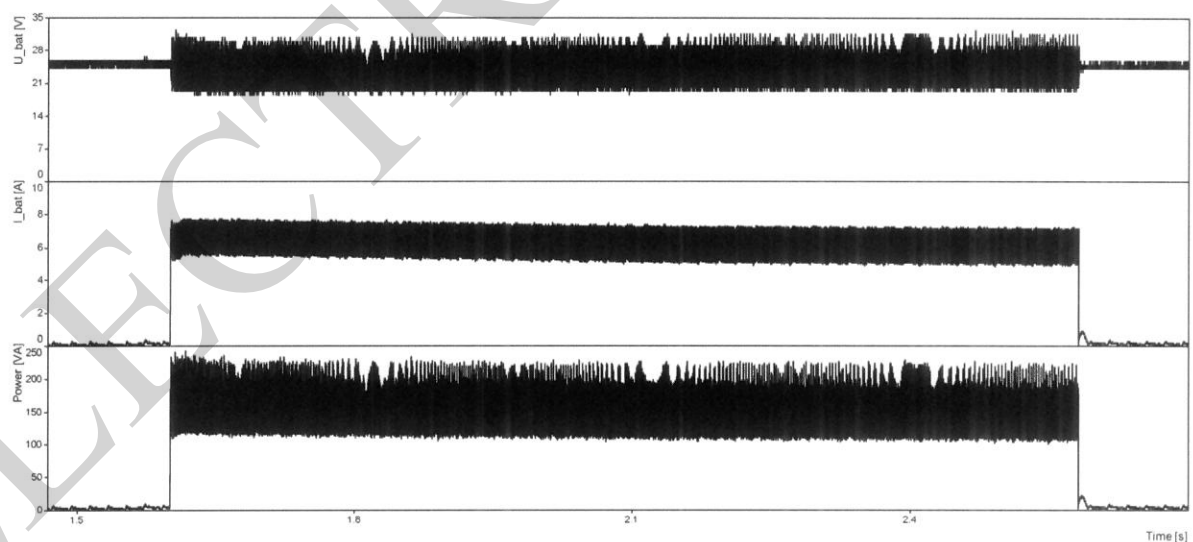
Ambient temperature 22 °C Ambient air pressure 1016 hPa  
Temperature of test object 22 °C Humidity 35 %

### Characteristic test data

Power supply charging circuit 187...242 VAC  
Frequency 50 Hz  
Capacitor supervision level 113 VDC  
Battery voltage 24 VDC

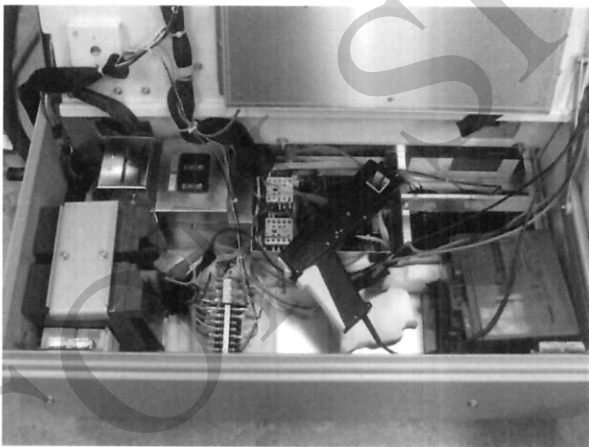
The power consumption of the control circuit at a close and open operation is measured.

| test description                             | observation / value     |
|----------------------------------------------|-------------------------|
| recloser in closed position, quiescent state | 28 VA                   |
| open operation                               | 125 VA (see plot below) |
| close operation                              | 100 VAp                 |



Battery voltage, current and power consumption during open operation

APPENDIX A PHOTOGRAPHS OF THE TEST OBJECT





## APPENDIX B LIST OF INSTRUMENTS USED

| no | description             | manufacturer    | type   | KEMA ID |
|----|-------------------------|-----------------|--------|---------|
| 1  | Oscilloscope            | Yokogawa        | DL1640 | 105217  |
| 2  | Current probe           | Tektronix       | A6303  | 105335  |
| 3  | Current probe amplifier | Tektronix       | AM503  | 67241   |
| 4  | Digital Multi Meter     | Hewlett Packard | 34401A | 105257  |
| 5  | 100:1 resistive divider | KEMA            | 100:1  | no.1    |

