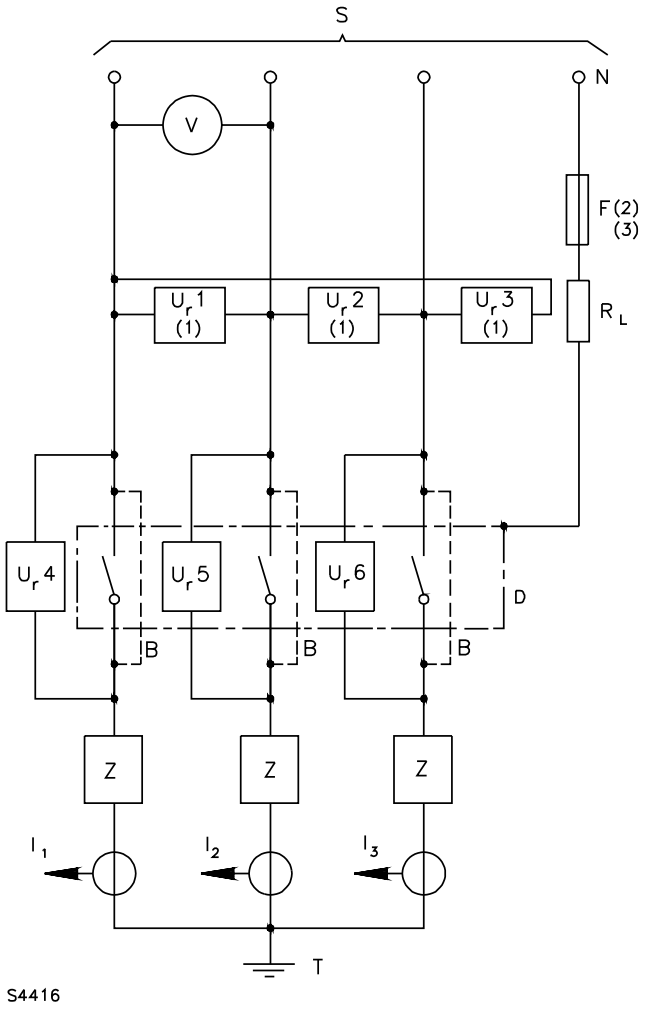
Figure 5 – Diagram of the test circuit for the verification of making and breaking capacities of a three-pole equipment

(see 8.3.3.5.2)



S	=	Supply
U_r1, U_r2, U_r3, U_r4, U_r5, U_r6	=	Voltage sensors
V	=	Voltage measuring device
N	=	Neutral of supply (or artificial neutral)
F	=	Fusible element (8.3.3.5.2, item g))
Z	=	Load circuit (see figure 8)
R_L	=	Fault current limiting resistor
D	=	Equipment under test (including connecting cables) NOTE – Outline includes metallic screen or enclosure.
B	=	Temporary connections for calibration
I_1, I_2, I_3,	=	Current sensors
T	=	Earth – One earthing point only (load side or supply side)

NOTE 1 – U_r1, U_r2 and U_r3 may, alternatively, be connected between phase and neutral.

NOTE 2 – In the case of equipment intended for use in phase-earthed systems or if this diagram is used for the test of the neutral and adjacent poles of a 4-pole equipment, F shall be connected to one phase of the supply.

In the case of d.c., F shall be connected to the negative of the supply.

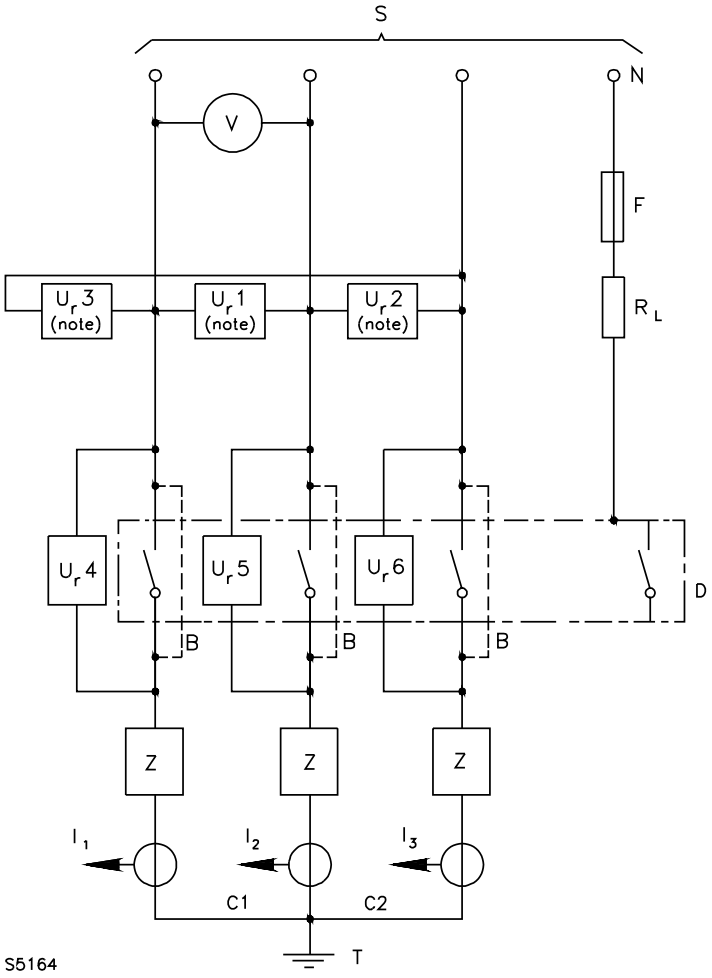
NOTE 3 – In the USA and Canada, F shall be connected

– to one phase of the supply for equipment marked with a single value of U_e;

– to the neutral for equipment marked with a twin voltage (see note to 5.2).

Figure 6 – Diagram of the test circuit for the verification of making and breaking capacities of a four-pole equipment

(see 8.3.3.5.2)



S	=	Supply
U_r1, U_r2, U_r3, U_r4, U_r5, U_r6	=	Voltage sensors
V	=	Voltage measuring device
N	=	Neutral of supply (or artificial neutral)
F	=	Fusible element (8.3.3.5.2, item g)
Z	=	Load circuit (see figure 8)
R_L	=	Fault current limiting resistor
D	=	Equipment under test (including connecting cables) NOTE – Outline includes metallic screen or enclosure.
B	=	Temporary connections for calibration
I_1, I_2, I_3	=	Current sensors
T	=	Earth – One earthing point only (load side or supply side)

NOTE – U_r1, U_r2 and U_r3 may, alternatively, be connected between phase and neutral.

Figure 7 – Schematic illustration of the recovery voltage across contacts of the first phase to clear under ideal conditions

(see 8.3.3.5.2, item e))

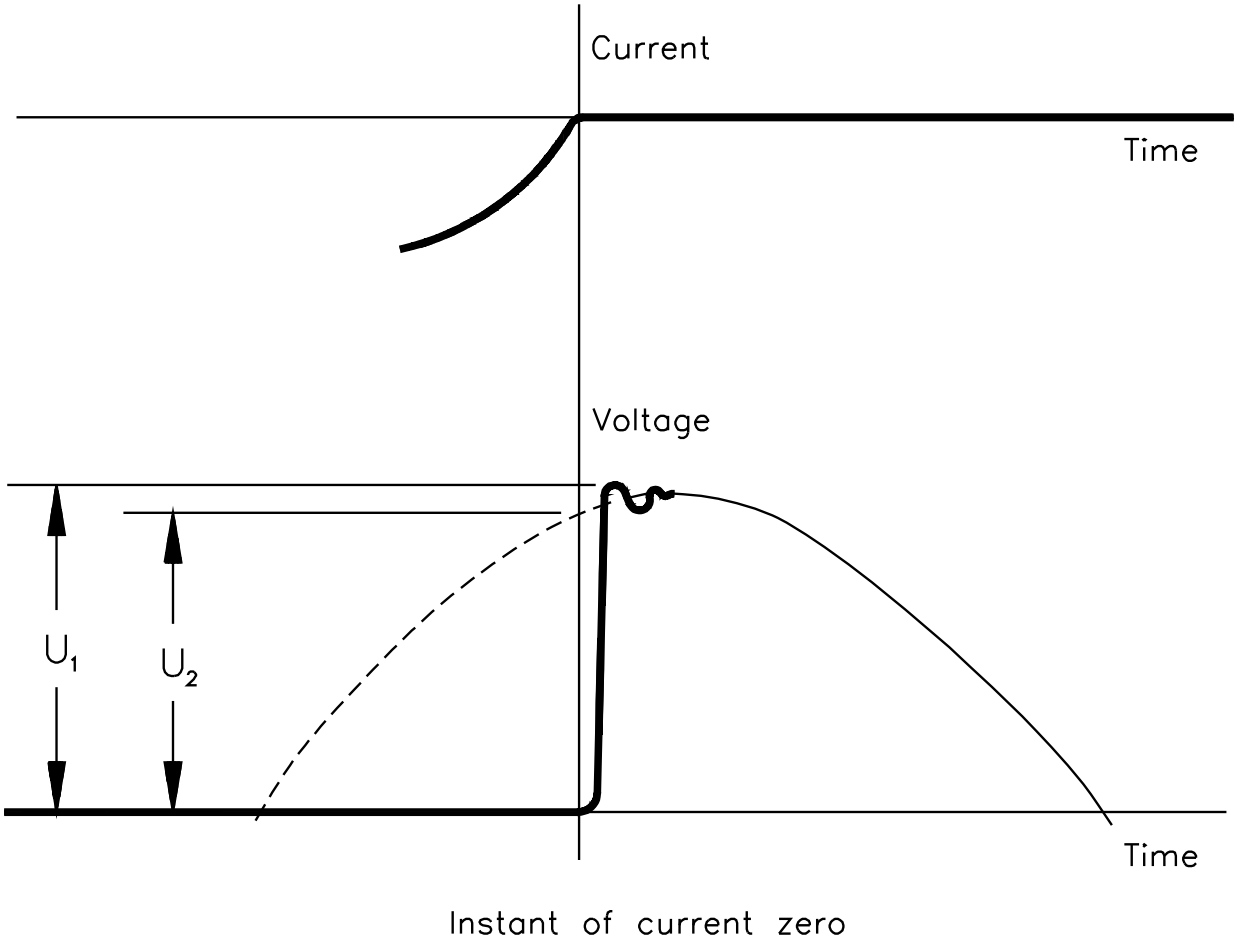
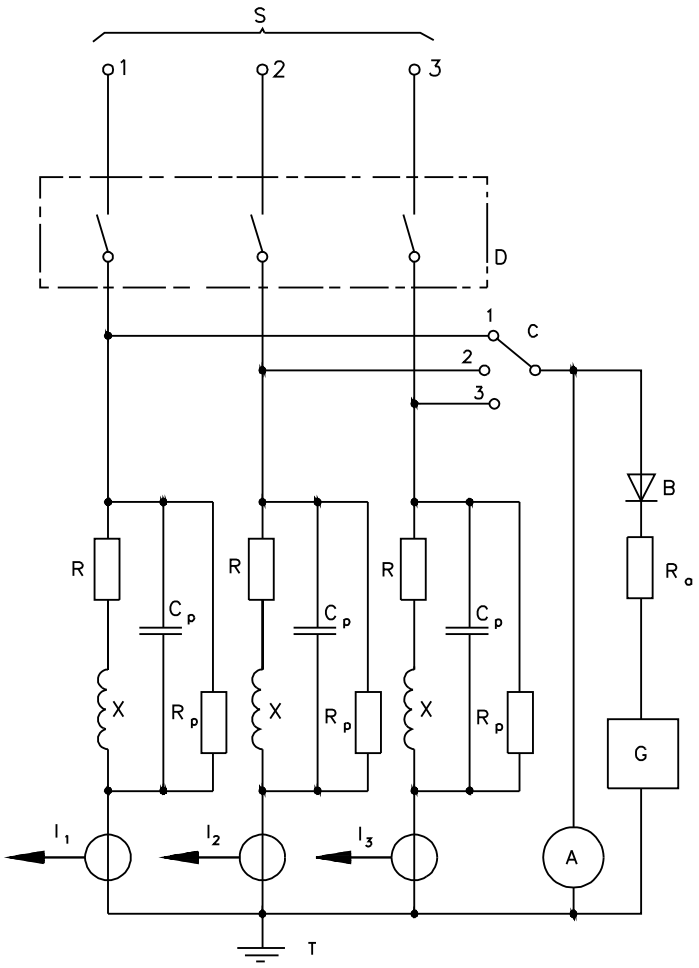


Figure 8a – Diagram of a load circuit adjustment method: load star-point earthed



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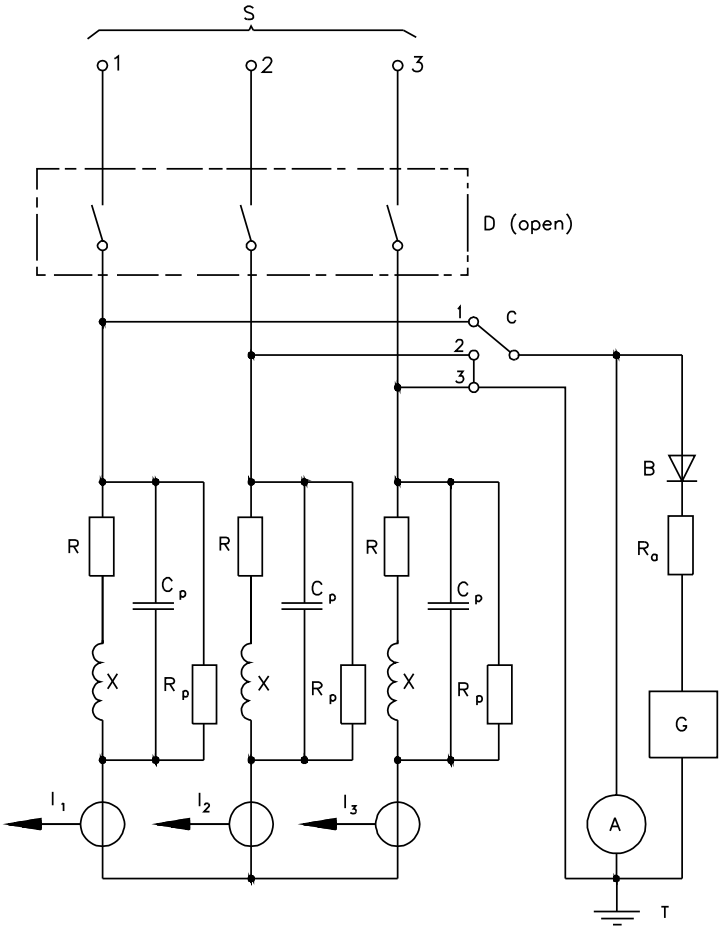
S	=	Supply
D	=	Equipment under test
C	=	Phase adjustment selector switch
B	=	Diode
A	=	Recorder
R_a	=	Resistor
G	=	High–frequency generator
R	=	Load circuit resistor
X	=	Load circuit reactor (8.3.3.5.2, item d))
R_p	=	Resistor in parallel
C_p	=	Capacitor in parallel
I_1, I_2, I_3	=	Current sensors

The relative positions of the high-frequency generator G and the diode shall be as shown. No other point of the circuit than the one indicated on the figure shall be earthed.

Figure 8b – Diagram of a load circuit adjustment method: supply star-point earthed



S4417

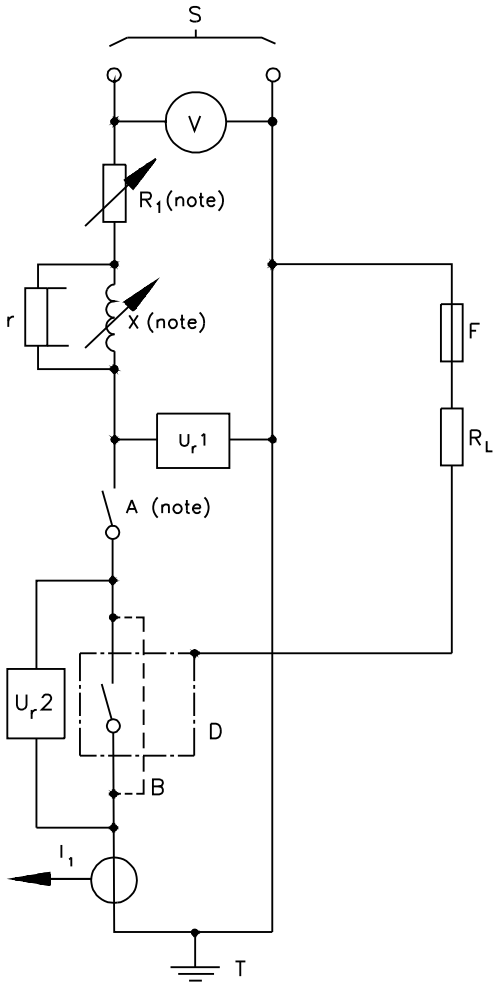
S = Supply
D = Equipment under test
C = Phase adjustment selector switch
B = Diode
A = Recorder
R_a = Resistor
G = High–frequency generator
R = Load circuit resistor
X = Load circuit reactor (8.3.3.5.2d))
R_p = Resistor in parallel
C_p = Capacitor in parallel
I_1, I_2, I_3 = Current sensors

The relative positions of the high-frequency generator G and the diode shall be as shown. No other point of the circuit than the one indicated on the figure shall be earthed.

In this figure, as an example 1, 2 and 3 are represented in the position corresponding to the adjustment of phase 1 (the first phase to clear) in series with phases 2 and 3 connected in parallel.

Figure 9 – Diagram of the test circuit for the verification of short-circuit making and breaking capacities of a single-pole equipment on single-phase a.c. or on d.c.

(see 8.3.4.1.2)

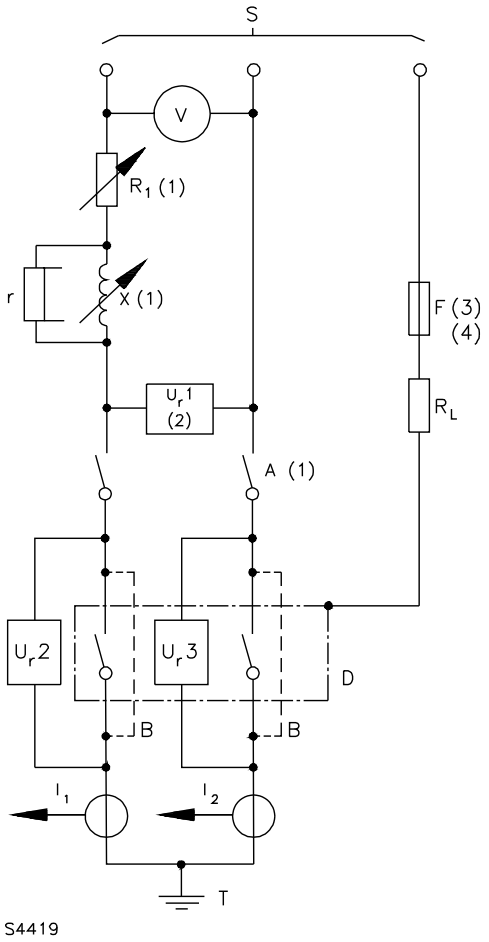


S	=	Supply
U_r1, U_r2	=	Voltage sensors
V	=	Voltage measuring device
A	=	Closing device
R_1	=	Adjustable resistor
F	=	Fusible element (8.3.4.1.2, item d))
X	=	Adjustable reactor
R_L	=	Fault current limiting resistor
D	=	Equipment under test (including connecting cables) NOTE – Outline includes metallic screen or enclosure.
B	=	Temporary connections for calibration
I_1	=	Current sensor
T	=	Earth – One earthing point only (load side or supply side)
r	=	Shunt resistor (8.3.4.1.2, item b))

NOTE – Adjustable loads X and R_1 may be located either on the high-voltage side or on the low-voltage side of the supply circuit, the closing device A being located on the low-voltage side.

Figure 10 – Diagram of the test circuit for the verification of short-circuit making and breaking capacities of a two-pole equipment on single-phase a.c. or on d.c.

(see 8.3.4.1.2)



S	=	Supply
U_r1, U_r2, U_r3	=	Voltage sensors
V	=	Voltage measuring device
A	=	Closing device
R_1	=	Adjustable resistor
N	=	Neutral of supply (or artificial neutral)
F	=	Fusible element (8.3.4.1.2, item d))
X	=	Adjustable reactor
R_L	=	Fault current limiting resistor
D	=	Equipment under test (including connecting cables) NOTE – Outline includes metallic screen or enclosure.
B	=	Temporary connections for calibration
I_1, I_2	=	Current sensors
T	=	Earth – One earthing point only (load side or supply side)
r	=	Shunt resistor (8.3.4.1.2, item b))

NOTE 1 – Adjustable loads X and R_1 may be located either on the high-voltage side or on the low-voltage side of the supply circuit, the closing device A being located on the low-voltage side.

NOTE 2 – U_r1 may, alternatively, be connected between phase and neutral.

NOTE 3 – In the case of equipment intended for use in phase-earthed systems or if this diagram is used for the test of the neutral and adjacent pole of a four-pole equipment, F shall be connected to one phase of the supply.

In the case of d.c., F shall be connected to the negative of the supply.

NOTE 4 – In the USA and Canada, F shall be connected

– to one phase of the supply for equipment marked with a single value of U_e;

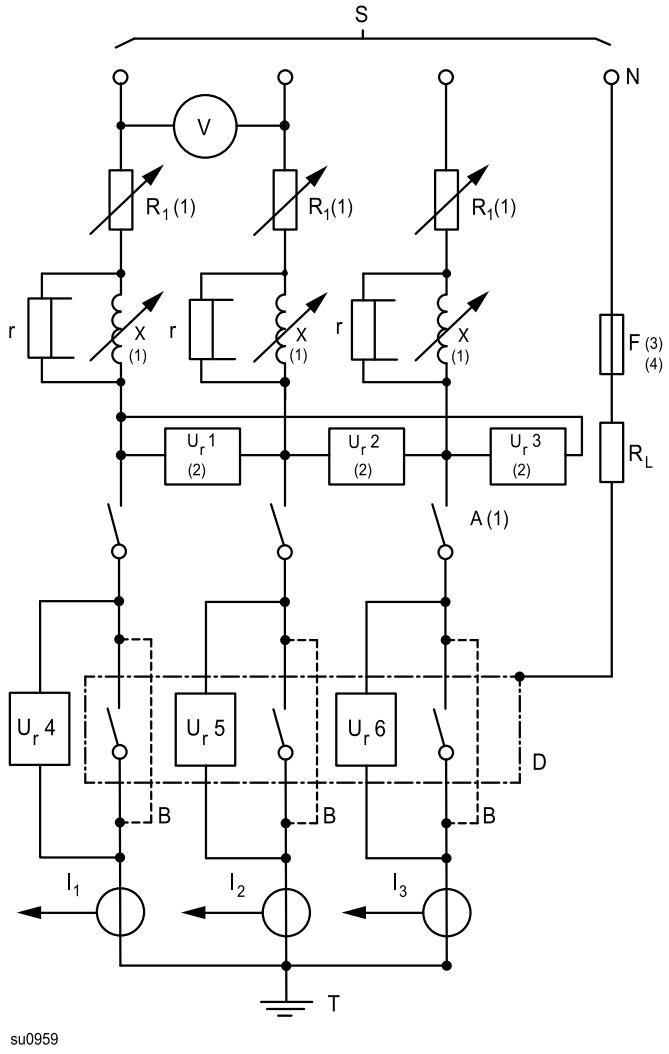
– to the neutral for equipment marked with a twin voltage of U_e (see note to 5.2).

Figure 10DV D2 *Modification of Note in Figure 10:*

For devices not marked "break all lines" only a single pole of "D" is to be connected between the supply and the load. The other pole of the test device is to be connected to neutral.

Figure 11 – Diagram of the test circuit for the verification of short-circuit making and breaking capacities of a three-pole equipment

(see 8.3.4.1.2)



S	=	Supply
U_r1, U_r2, U_r3, U_r4, U_r5, U_r6	=	Voltage sensors
V	=	Voltage measuring device
A	=	Closing Device
R_1	=	Adjustable resistor
N	=	Neutral of supply (or artificial neutral)
F	=	Fusible element (8.3.4.1.2, item d))
X	=	Adjustable reactors
R_L	=	Fault current limiting resistor
D	=	Equipment under test (including connecting cables) NOTE - Outline includes metalic screen or enclosure.
B	=	Temporary connections for calibration
I_1, I_2, I_3	=	Current sensors
T	=	Earth - One earthing point only (load side or supply side)
r	=	Shunt resistor (8.3.4.1.2, item b))

NOTE 1 – Adjustable loads X and R_1 may be located either on the high-voltage side or on the low-voltage side of the supply circuit, the closing device A being located on the low-voltage side.

NOTE 2 – U_r1, U_r2, U_r3 may, alternatively, be connected between phase and neutral.

NOTE 3 – In the case of equipment intended for use in phase-earthed systems or if this diagram is used for the test of the neutral and adjacent pole of a four-pole equipment F, shall be connected to one phase of the supply.

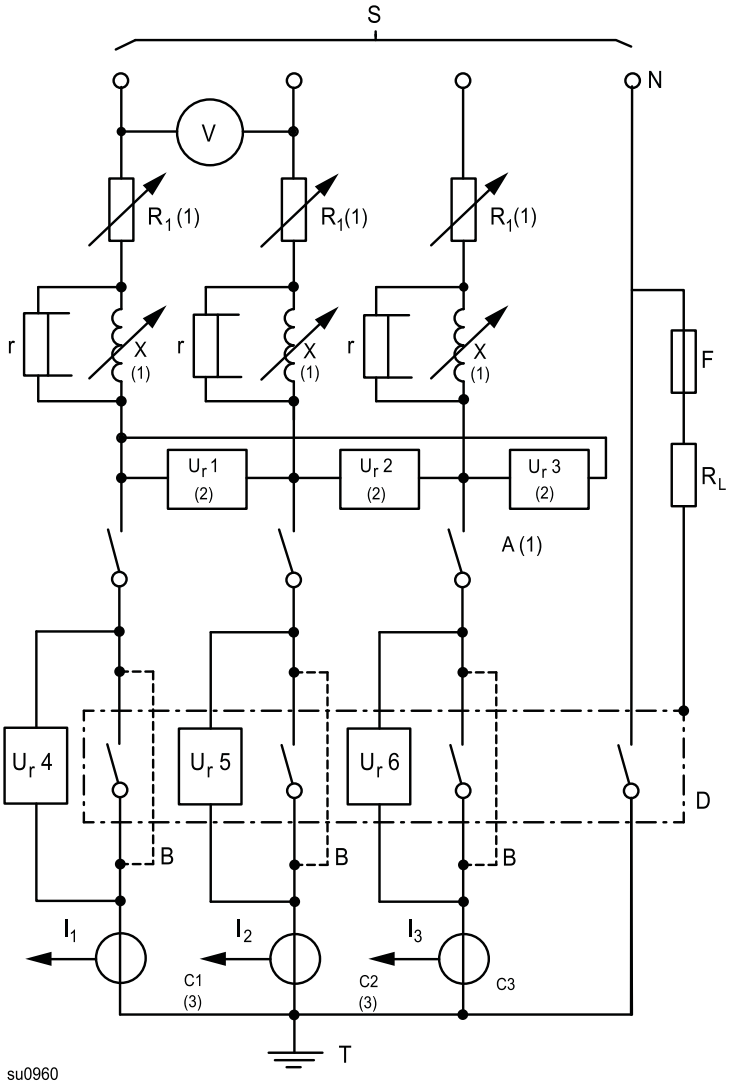
NOTE 4 – In the USA and Canada, F shall be connected

– to one phase of the supply for equipment marked with a single value of U_e;

– to the neutral for equipment marked with a twin voltage of U_e (see note to 5.2).

Figure 12 – Diagram of the test circuit for the verification of short-circuit making and breaking capacities of a four-pole equipment

(see 8.3.4.1.2)



S	=	Supply
$U_r 1$, $U_r 2$, $U_r 3$, $U_r 4$, $U_r 5$, $U_r 6$	=	Voltage sensors
V	=	Voltage measuring device
R_1	=	Adjustable resistor
N	=	Neutral of supply
F	=	Fusible element (8.3.4.1.2, item d))
X	=	Adjustable reactors
R_L	=	Fault current limiting resistor
A	=	Closing device
D	=	Equipment under test (including connecting cables) NOTE - Outline includes metallic screen or enclosure.
B	=	Temporary connections for calibration
I_1, I_2, I_3	=	Current sensors
T	=	Earth - One earthing point only (load side or supply side)
r	=	Shunt resistor (8.3.4.1.2, item b))

NOTE 1 – Adjustable loads X and R_1 may be located either on the high-voltage side or on the low-voltage side of the supply circuit, the closing device A being located on the low-voltage side.

NOTE 2 – U_r1, U_r2, U_r3 may, alternatively, be connected between phase and neutral.

NOTE 3 – If an additional test is required between the neutral and the adjacent pole, the connections C1 and C2 are omitted.