SAFETY TESTING OF ELECTRICAL EQUIPMENTS

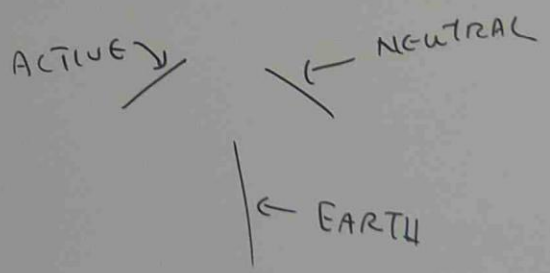
UEENEE E033 B + UEE NEEE034B

- THE SWITCHES MUST BE CONNECTED TO OPERATE IN THE ACTIVE CONDUCTORS
- SCREW LAMP HOLDER

ACTIVE FOR CENTRE TERMINAL

NEUTRAL FOR OUTER AND SCREW BASE

POLARITY of SOCKET OUTLET



TEST METHOD

(1) TEST LAMP CONNECTED BETWEEN ACTIVE AND EARTH, SWITCH OFF

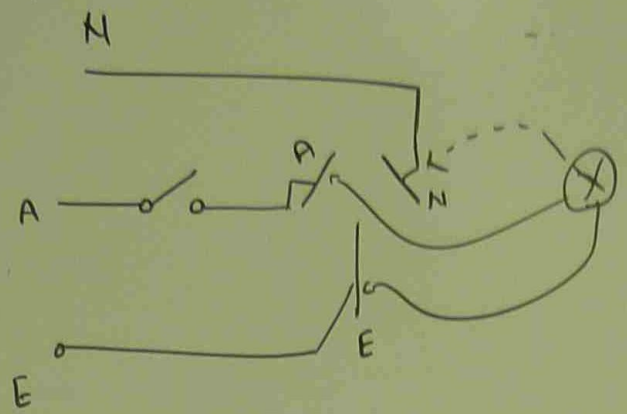
NO GLOW (OR) INDICATES INFINITY OHM

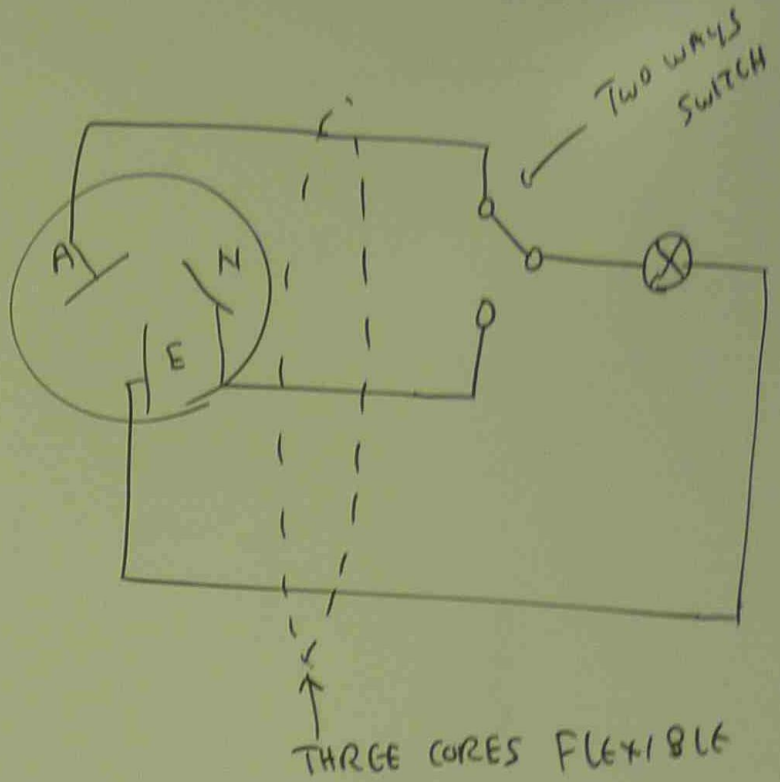
(2) TEST LAMP CONNECTED BETWEEN ACTIVE AND EARTH, SWITCH ON

LAMP GLOWS (OR) INDICATE ZERO OHM

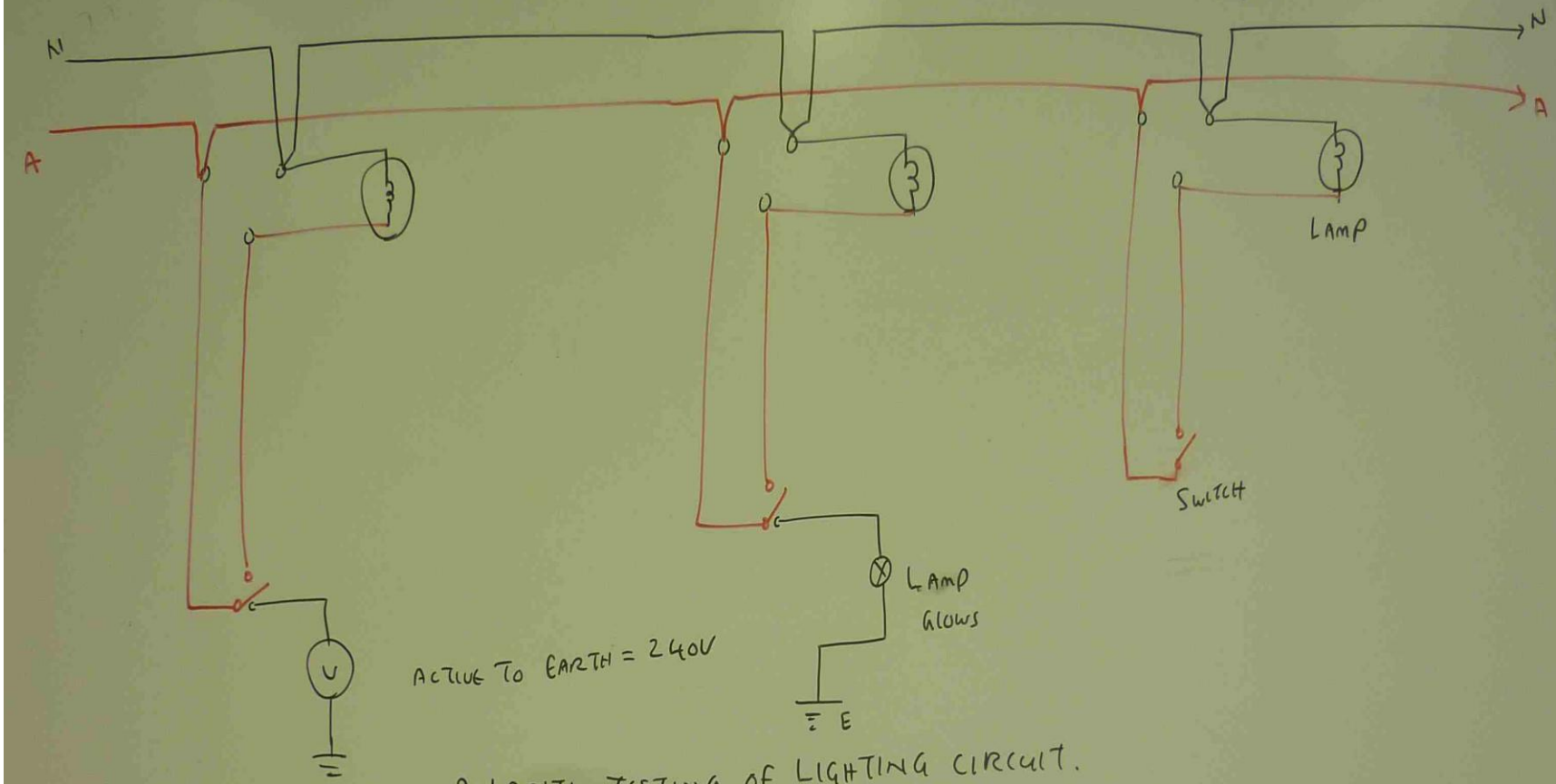
(3) TEST LAMP CONNECTED BETWEEN NEUTRAL AND EARTH

SWITCHED CLOSED – NO GLOW (OR) INDICATES INFINITY OHM.





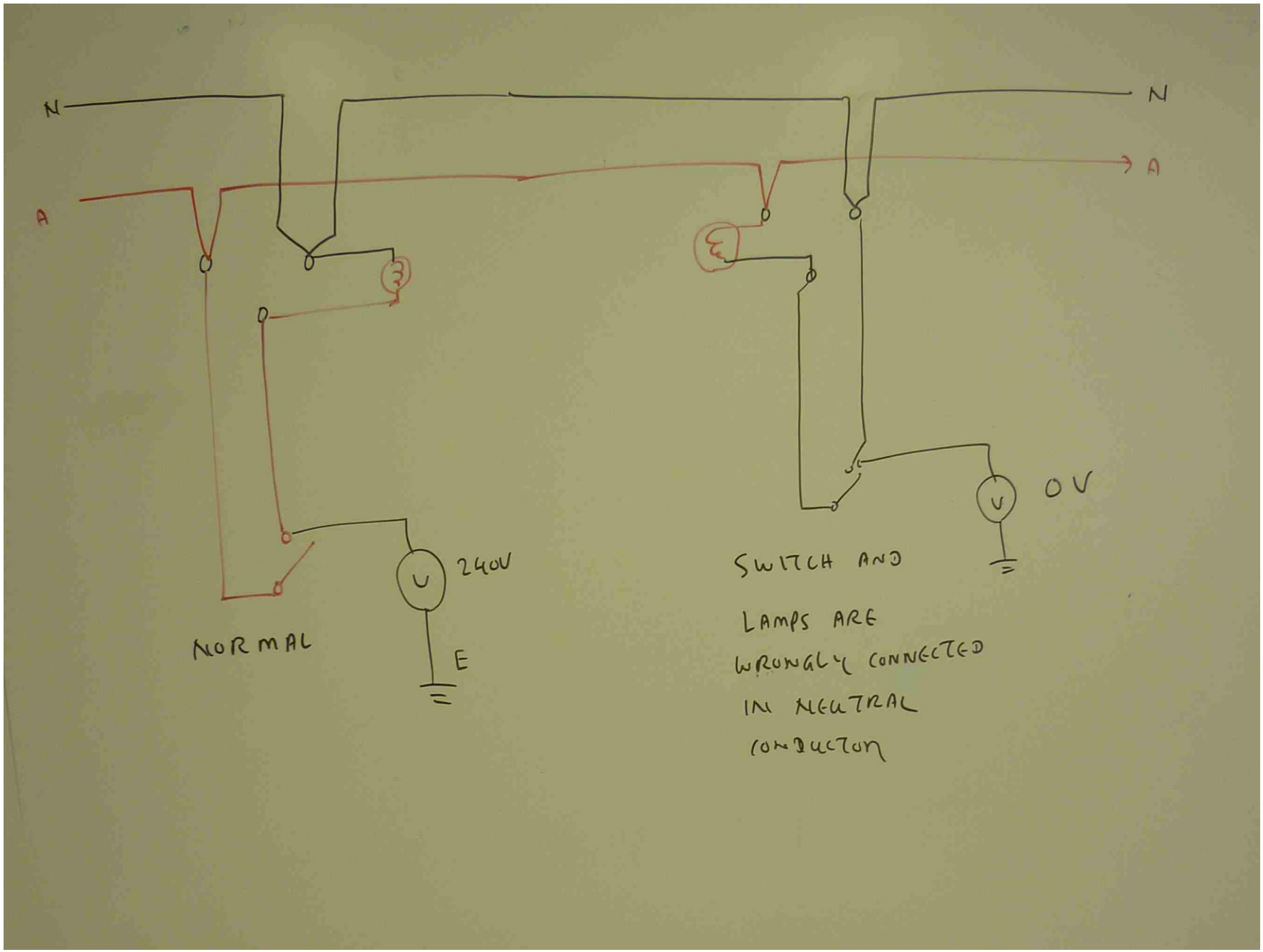
POLARITY TESTING OF POWER OUTLETS

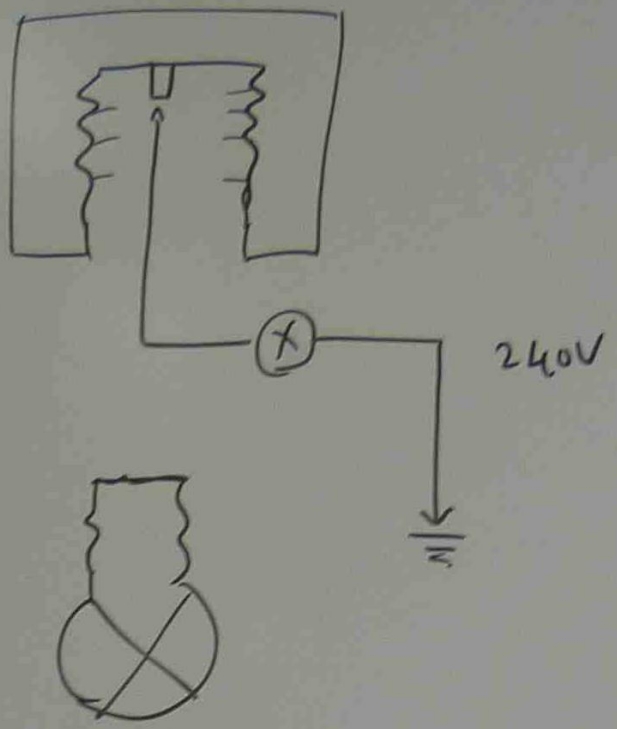


POLARITY TESTING OF LIGHTING CIRCUIT.

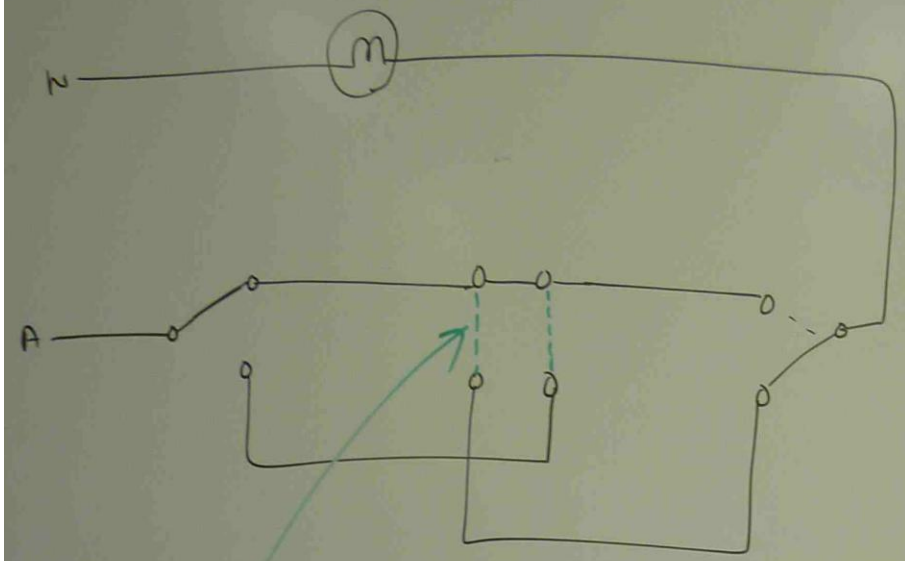
SIMPLE METHOD OF CHECKING THAT LIGHTS ARE IN ACTIVE CONDUCTORS.

IF LIGHT (OR) SWITCHES ARE CONNECTED IN NEUTRAL CONDUCTOR, ALTHOUGH THE LIGHT CAN BE SWITCHED ON / OFF, THE SWITCH CAN NOT BREAK THE CIRCUIT IN THE EVENT OF EMERGENCY.


N
A
240V
E
NORMAL
N
A
0V
SWITCH AND
LAMPS ARE
WRONGLY CONNECTED
IN NEUTRAL
CONDUCTOR

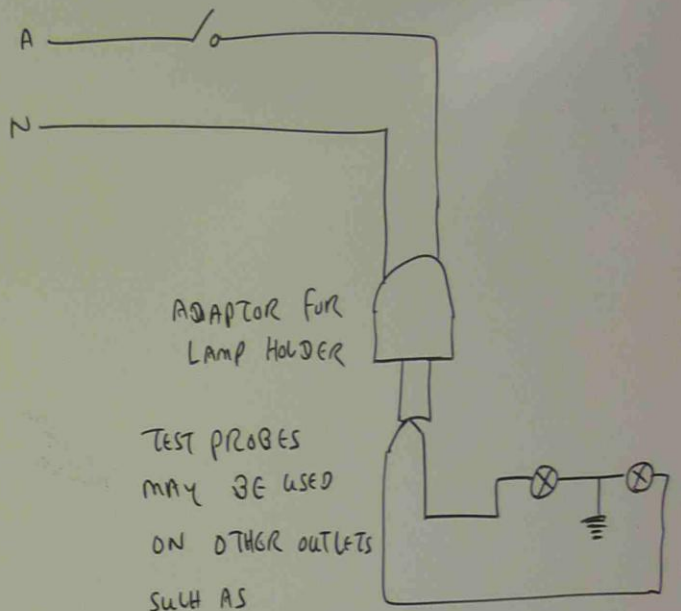


TESTING THE EDISON SCREW (ES) LAMP HOLDERS



TWO WAYS SWITCH

TEMPORARY BRIDGING CONNECTION FOR TESTING



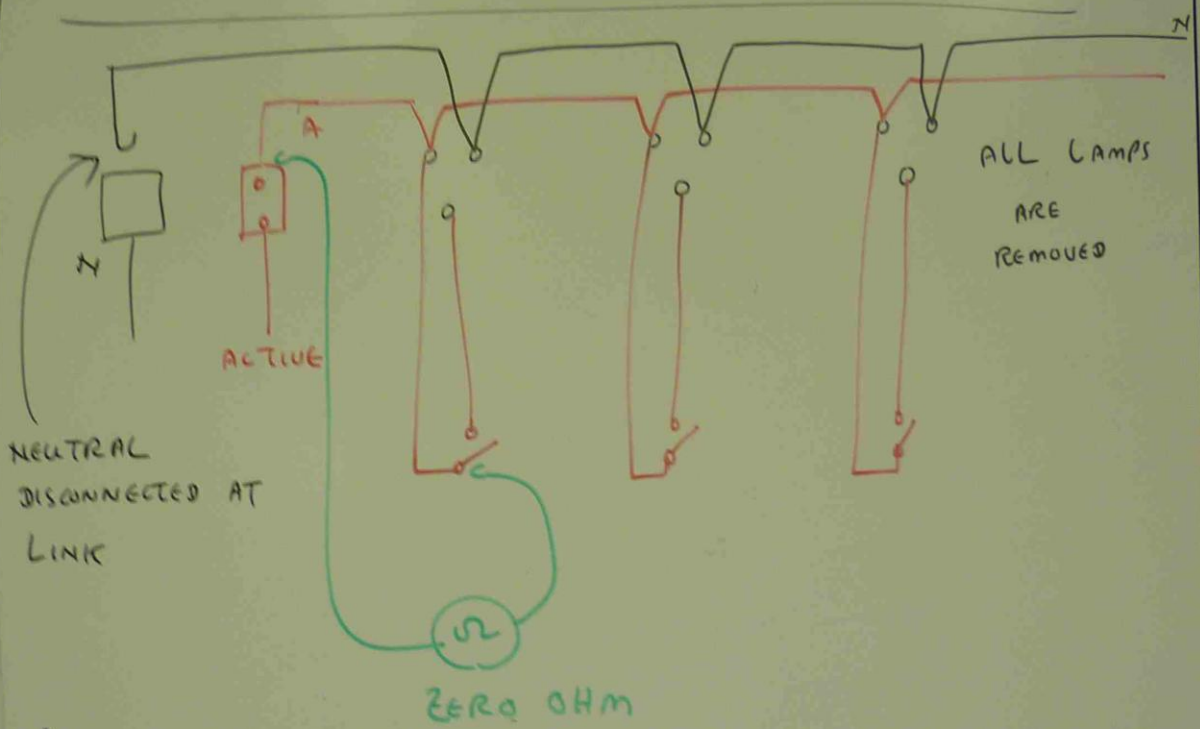
ADAPTOR FOR LAMP HOLDER

TEST PROBES MAY BE USED ON OTHER OUTLETS SUCH AS FLOURESCENT FITTINGS.

WHERE ACCESS TO SWITCH CONTACT IS DIFFICULT, SPECIAL TEST LAMP MAY BE USED.

POLARITY TESTING OF A NEW INSTALLATION (OR) INSTALLATION

ISOLATED FROM SUPPLY

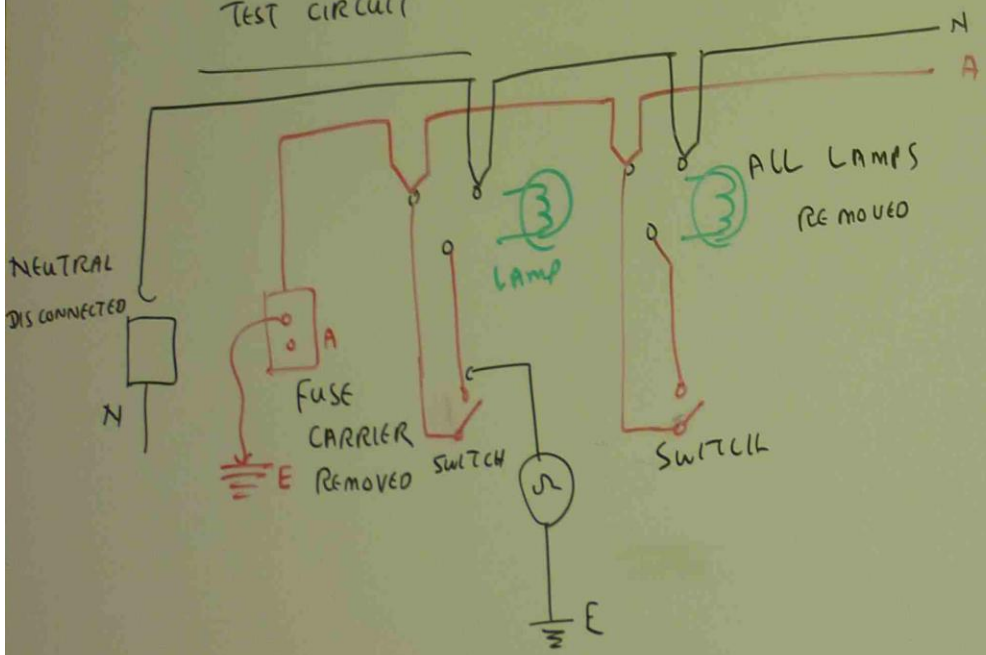


PROCEDURE

1. REMOVE FUSE CARRIER AND THEN CONNECT TESTING DEVICE BETWEEN LOAD ACTIVE AND EARTH AT THE SUBCIRCUIT FUSE
2. INSERT SHORTING PLUG IN SOCKET OUTLET. TESTING DEVICE SHOULD INDICATE OPEN CIRCUIT.

(3) CLOSE SWITCH - A SHORT CIRCUIT SHOULD BE INDICATED BY THE TESTING DEVICE.

METHOD FOR REDUCING EFFECTIVE LENGTH OF TEST CIRCUIT



SWITCH ON - 0 Ω

SWITCH OFF - ∝ Ω

PROCEDURE

(1) DIS CONNECT THE NEUTRAL LINK

(2) CONNACT MAIN ACTIVE TERMINAL TO EARTH, ALL LAMPS MUST BE REMOVED.

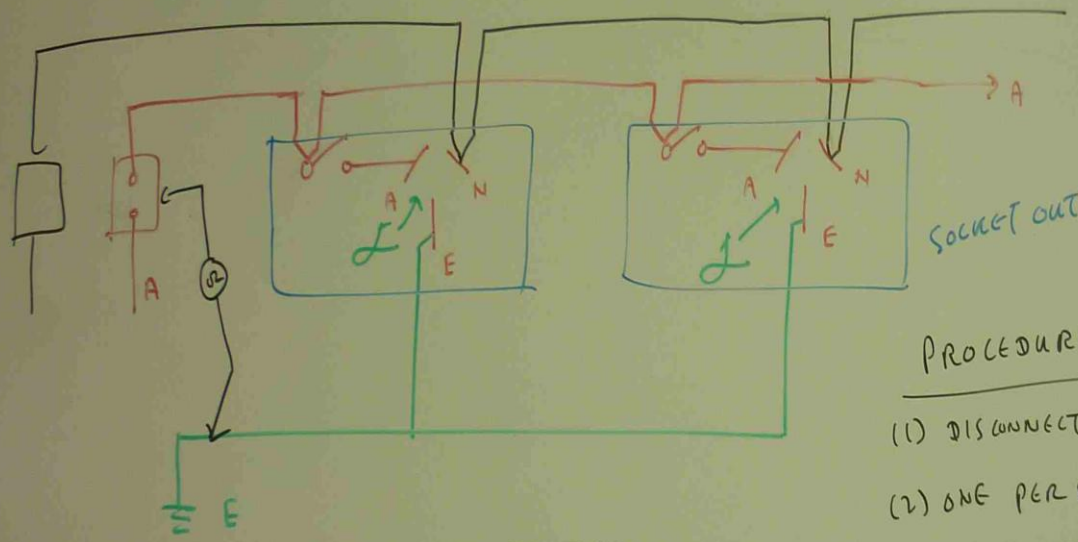
(3) TEST EACH SWITCH WITH OHM METER AS INDICATED IN CIRCUIT DIAGRAM

(4) SWITCH ON - OHM METER SHOWS '0' OHMS

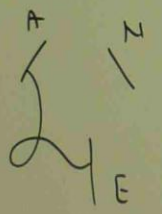
SWITCH OFF - OHM METER SHOWS ∝ OHM

IF IT HAPPENS, THE POLARITY IS CORRECT.

TESTING THE POLARITY of SOCKET OUTLET



A & E BRIDGED



TESTING WITH A SHORTING PLUG

TEST DEVICE INDICATES WHEN PLUG IS INSERTED AND SWITCH IS ON.

PROCEDURE

(1) DISCONNECT NEUTRAL LINK. REMOVE FUSES

(2) ONE PERSON HOLDS OHM METER WHICH TOUCHES MAIN ACTIVE AND EARTH

(3) ANOTHER PERSON INSERTS SHORTING PLUG IN TO ACTIVE AND EARTH TERMINALS HOLES OF EACH SOCKET OUT LET

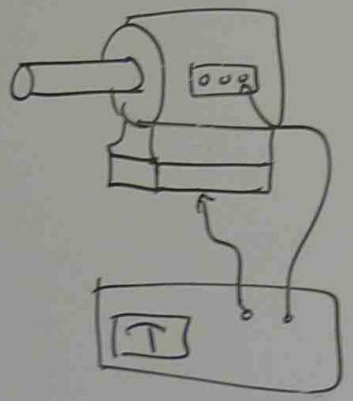
(4) SWITCH ON THE SOCKET OUTLET → OHM METER SHOWS '0' OHM

SWITCH OFF THE SOCKET OUTLET → OHM METER SHOWS '∞' OHM.

INSULATION RESISTANCE TEST

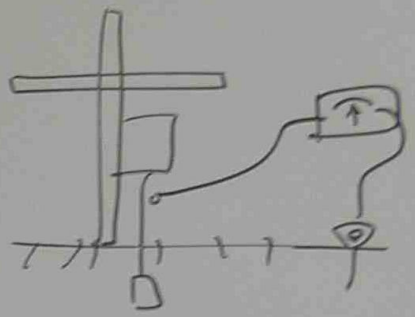
USE MEGGER TO TEST THE INSULATION RESISTANCE OF CIRCUIT WIRING, ELECTRICAL EQUIPMENTS AND MACHINES.

MEGGER MUST INDICATE INFINITY.



INSULATION RESISTANCE

$\simeq \infty \Omega$



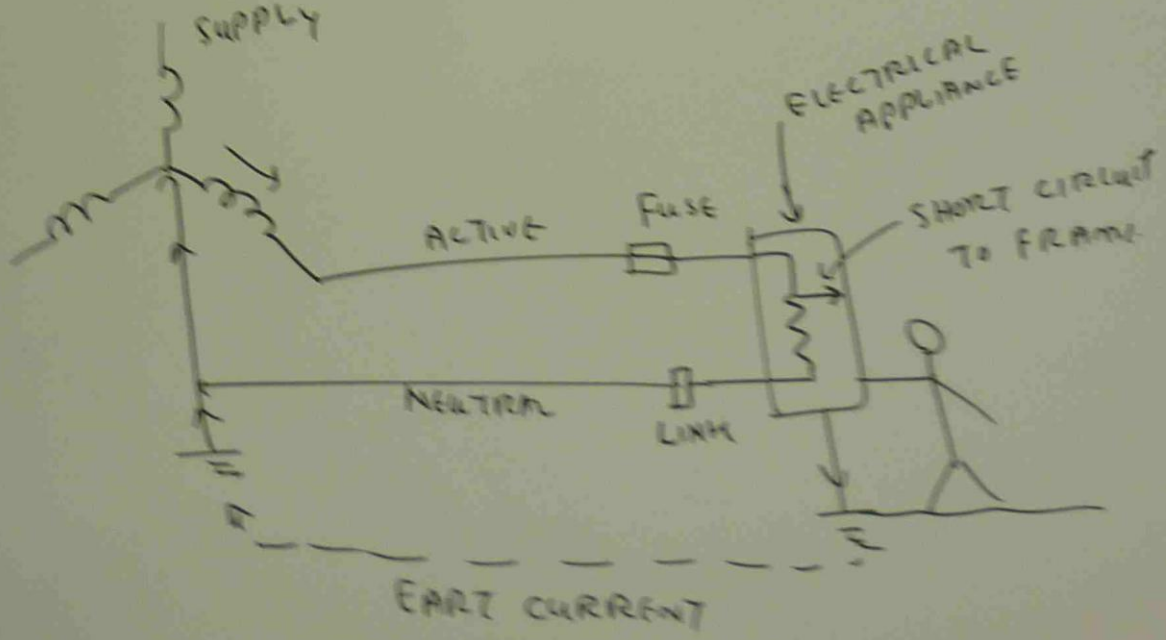
EARTH RESISTANCE $\simeq 5\Omega$

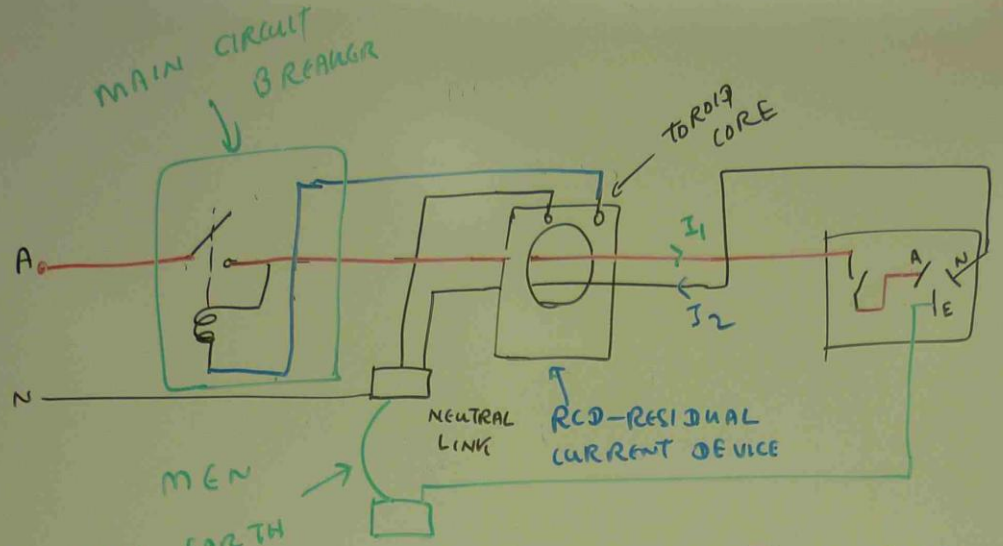
EARTHING SYSTEMS

REASON FOR EARTHING

THE FAILURE OF INSULATION IMMEDIATELY INTRODUCES HAZARDS TO LIFE OR EQUIPMENT BY ELECTRIC SHOCK (OR) UNSTABLE VOLTAGE CONDITIONS.

THE EARTH LEAKAGE CURRENT MUST BE TAKEN AWAY BY EARTH WIRE.





$I_1 = I_2$ GOOD CONDITION

$I_1 > I_2$ EARTH LEAKAGE

IF THERE IS NO EARTH LEAKAGE, $I_1 = I_2$

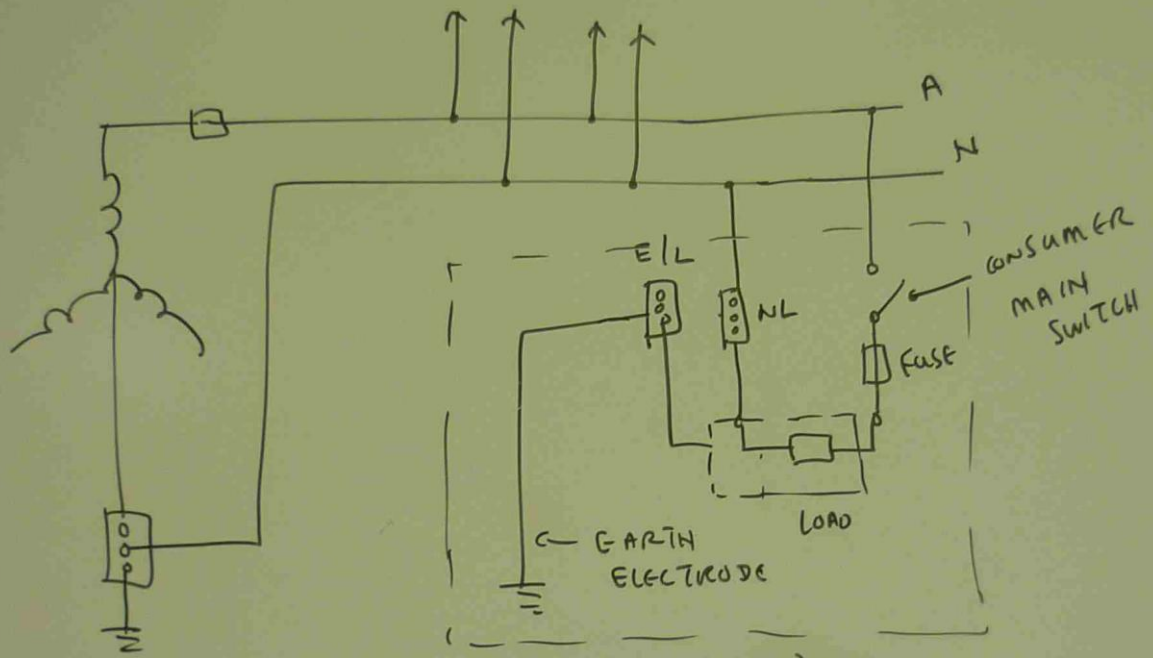
IF THERE IS EARTH LEAKAGE CURRENT, $I_1 > I_2$,

THE RCD TRIPS OFF MAIN CIRCUIT BREAKER TO PROTECT THE EARTH LEAKAGE CURRENT.

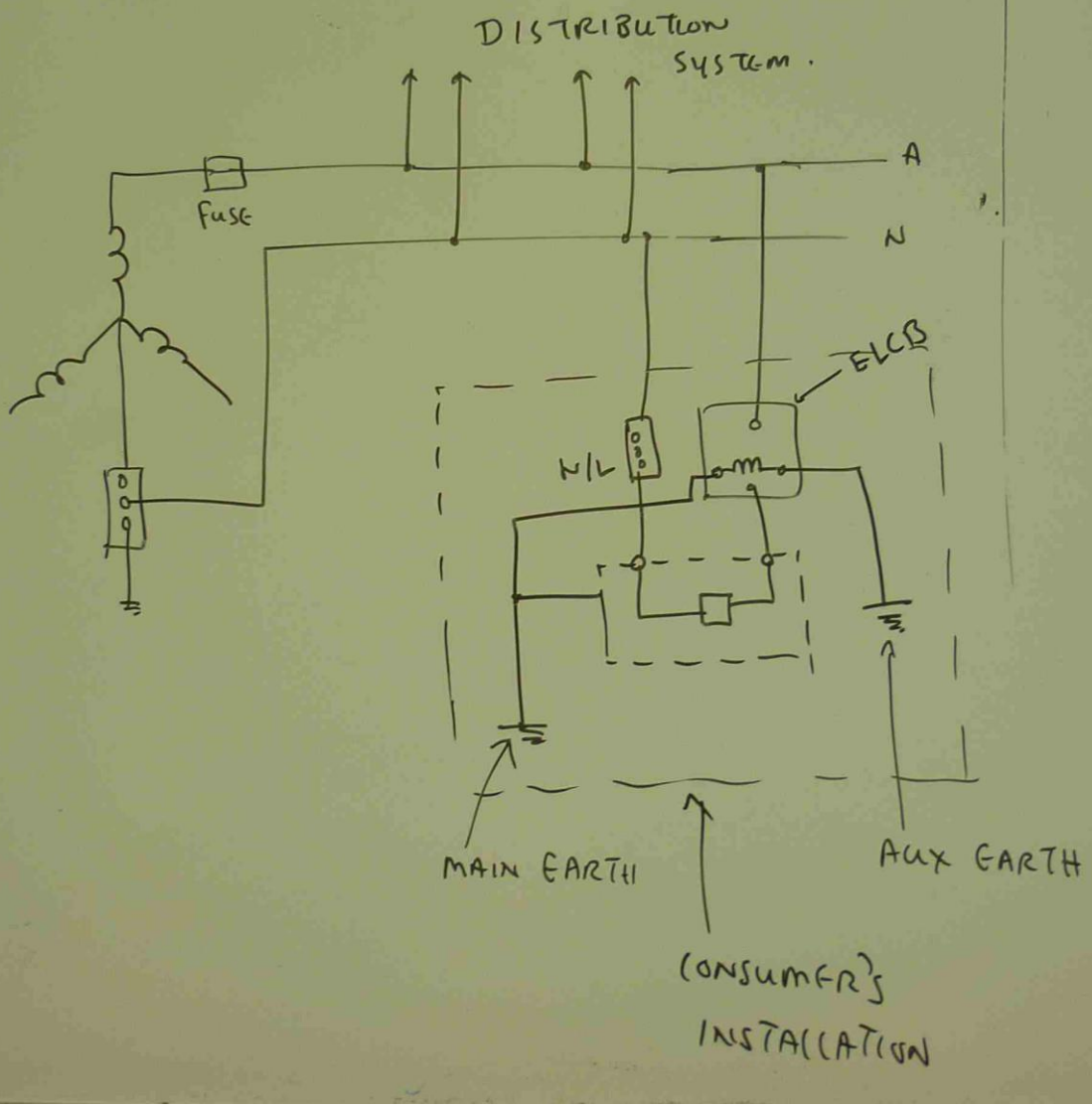
THE SUPPLY CURRENT OF 20mA UNIT WILL BE SUFFICIENT TO CAUSE AN OUT OF BALANCE CONDITION IF THIS SUPPLY CURRENT IS NOT RETURNED TO NEUTRAL LINK THROUGH TOROID CORE

DISTRIBUTION SYSTEM PROTECTED BY EARTH LEAKAGE CIRCUIT BREAKER (E L C B)

DIRECT EARTHING SYSTEM



EARTH LEAKAGE CIRCUIT BREAKER SYSTEM



SIMPLE TEST PANEL FOR METERING CURRENT AND VOLTAGE OF AN APPLIANCE