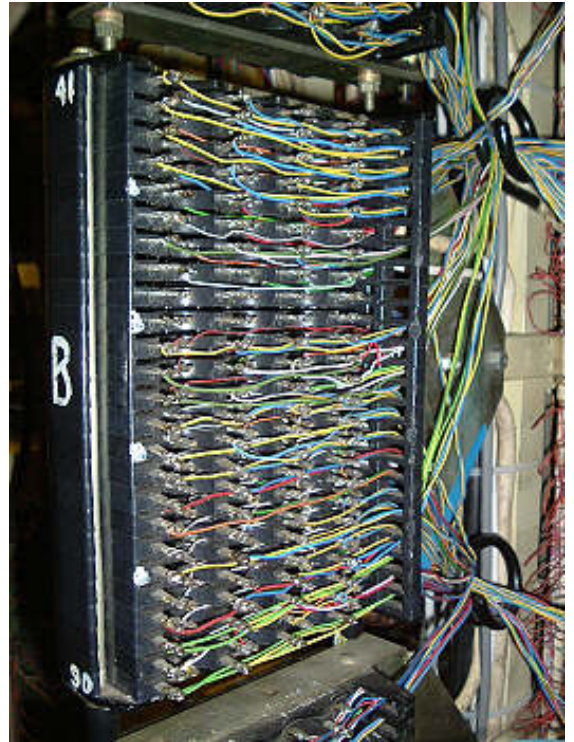


The MDF (Main Distribution Frame)

All cables coming into the exchange are terminated on fuse mountings on the “line” side of the MDF. The fuse mountings are of three sizes, the earliest mountings permitted 20 pairs to be terminated, a modern version permitted 40 pairs, later upgraded to 50 pairs, to be terminated.

The fuse mountings are mounted on lettered verticals starting at the top. When external cables are terminated on the mountings, the pairs “count down” the vertical. Individual pairs therefore have an identity such as B45.

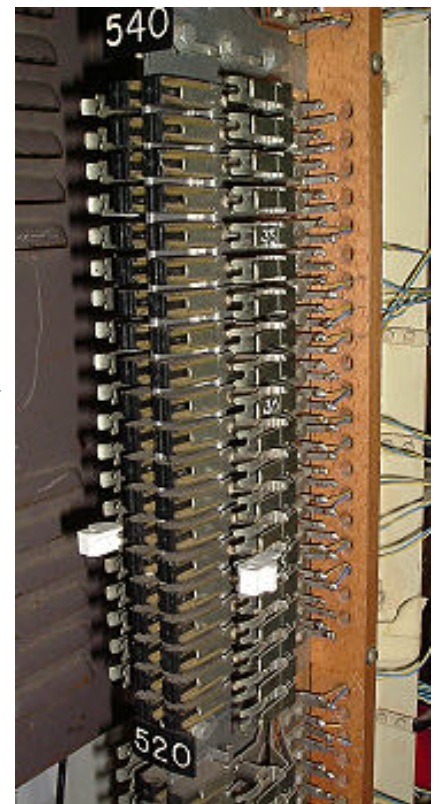


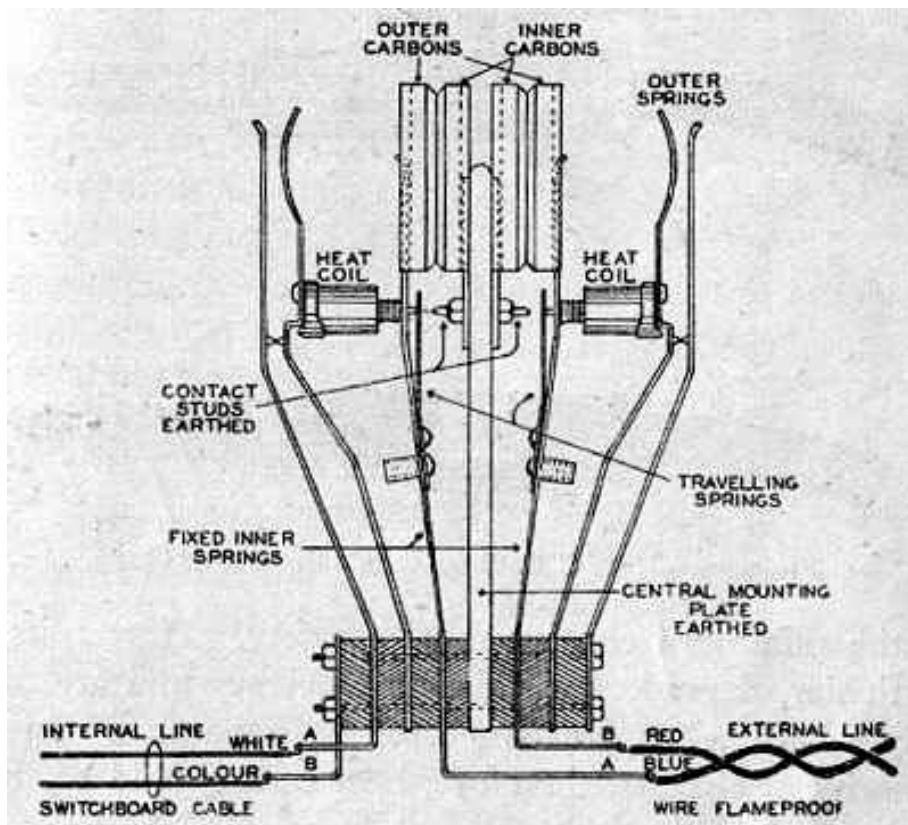
Nowadays it is likely that the external circuit will be completely routed via underground cables and in this case the circuit should be fitted with dummy fuses. The dummy fuses are useful as isolation links when fault finding.

Should a circuit be routed via some overhead cabling or wiring then line fuses should be provided. It is possible for such circuits to come into contact

with power supplies or be affected by lightning strikes in the vicinity. Normal line fuses will not rupture with currents up to 1.5 amps, but will blow immediately if the line current should rise to 3 amps.

The “exchange” side of the MDF is fitted with a combination of protectors, heat coils and test jacks. Modern test jacks serve groups of 50 exchange numbers, but older units consist of protectors, heat coil and test springs and come in arrays of twenty. They are mounted on MDF verticals starting at the bottom. They are wired in exchange numbering order (ie “mult” order) starting at the bottom and counting up. Note that this is the opposite way to those circuits on the “line” side of the MDF.





Note that the external line is connected via a jumper from the cable pair to the inner springs of the protector, heat coil and test. The outer springs are connected to the exchange apparatus. The exchange tester is connected to a line at this point and because the tester jacks break the inner and outer springs, the tester can be connected to test "out" to line or "in" to the exchange.

The heat coils in the circuit have a resistance of 4 ohms and if line current exceeds 500ma for more than 3.5 minutes, the heat produced melts solder within the body and the tension in the test springs pushes the central pin into contact with the earth. This earths the line and protects the exchange apparatus from excessive line current.

The protectors are mounted between each wire and earth and normally have high resistance and do not cause any leakage. Should the voltage on the line rise excessively, say to 500 volts or more perhaps due to a lightning strike near the line, then the protector is punctured by the voltage and a discharge across the air gap occurs. If the current then remains high the fuse will blow to disconnect the line. For most discharges the protector will reseal itself at the end of the discharge, but this cannot be guaranteed.

The diagram shows how the various MDF items are interconnected.

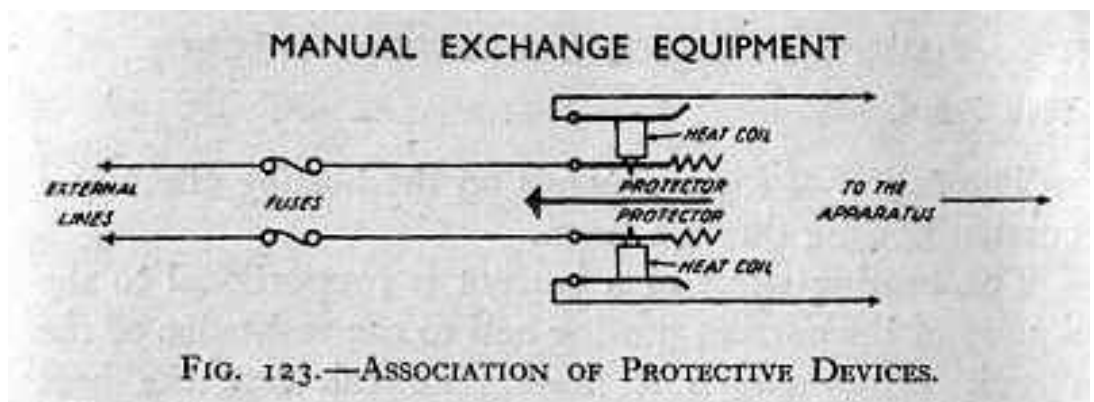


FIG. 123.—ASSOCIATION OF PROTECTIVE DEVICES.

It will be appreciated that the MDF beside providing protection and testing facilities also permits any exchange number to be connected to any cable pair by means of a flexible 2 wire jumper from the "mult" side of the frame to the "line" side.

Other circuits also leave the exchange via the cable pairs, eg junction circuits to other exchanges. To this end a UAX13 MDF also has 40 miscellaneous protector, heat coil and test facilities which are used for these circuits.