SIECOR

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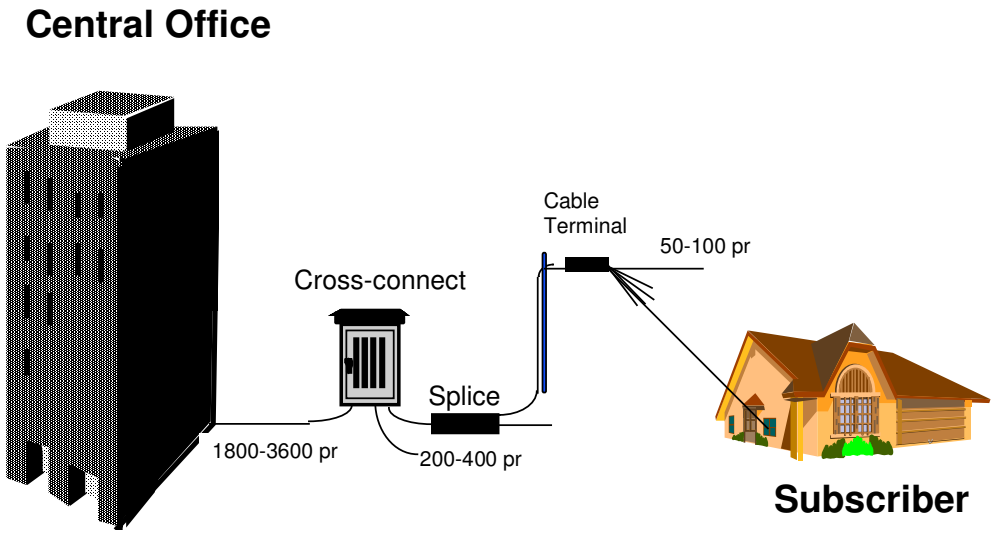
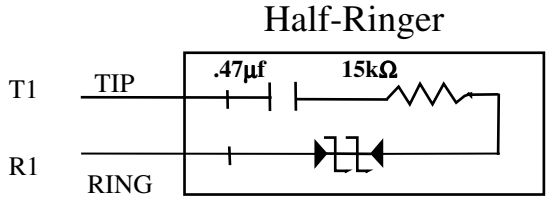


Test Electronics for Network Interface Devices

General Information

A half-ringer unit is a device that is placed by the Telco on subscriber premises at the demarcation point (network interface) between the network and subscriber wiring to the terminal equipment. With this known termination, also called a signature, automatic or manual testing can be performed at the central office to determine the quality of the subscriber loop and determine the location - “Network” or “Subscriber” - of a resistance (short) or open circuit fault.



The half-ringer unit is essentially a two-connection device with terminals T1 and R1 connected to subscriber terminal wiring. The half-ringer is transparent to normal voice conversations and is not affected by the central office battery voltage. Once the half-ringer is activated, it will function as termination by permitting current to flow through it, but only when an alternating voltage of nominal 5.4 volts is present at the termination.

Fault Isolation Test Modes

Fault 1 Premises wiring is open, telco loop is O.K.

In this condition, the half-ringer will be the only termination seen from the central office and, predictable results (a.c. current drain, impedance, etc.) will be obtained. This test is similar to the type of test used to determine number of telephones the subscriber has connected to the line. This condition produces the same results regardless of where the subscriber fault is: subscriber has disconnected the network interface device (NID), the house has not been wired, all phones are unplugged, house wiring has an open wire on tip or ring, etc.

Fault 2 Subscriber loop is open on the telco side.

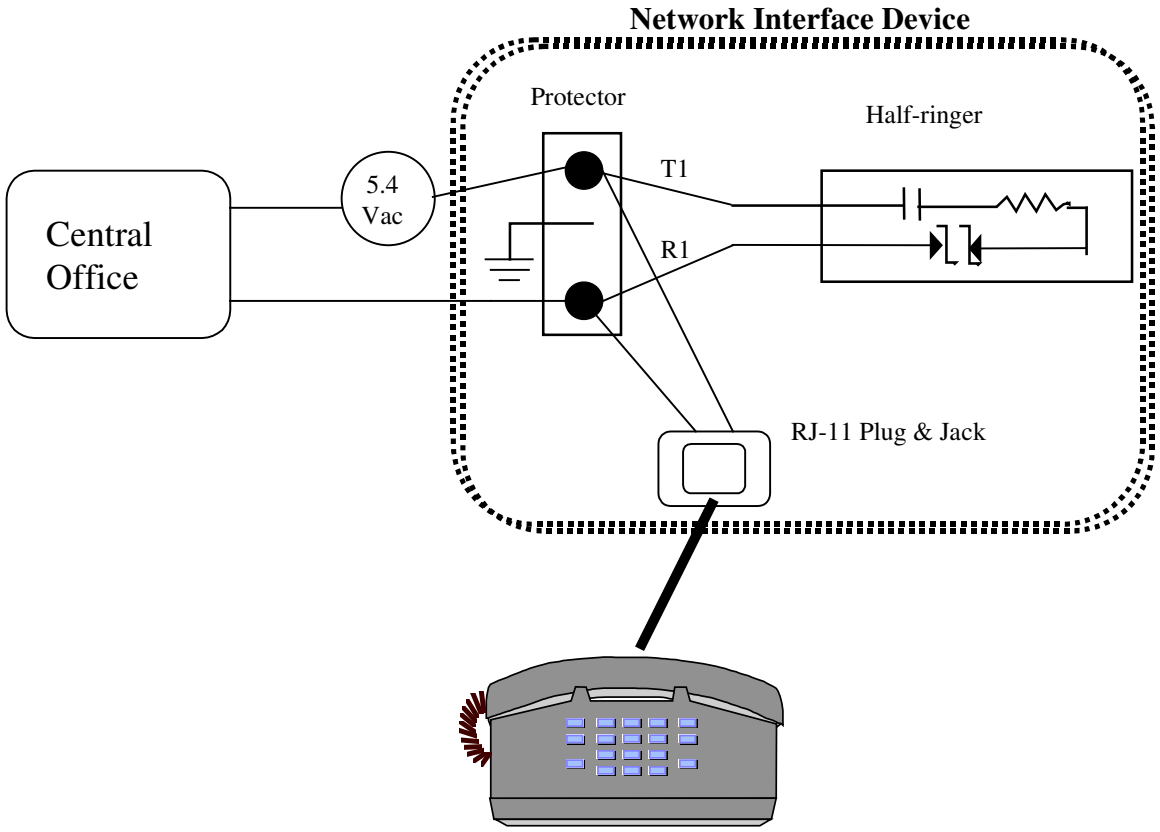
Test results which indicate an open circuit show the problem to be located on the central office side of the demarcation point since a known termination is located at the demarcation. An open circuit on the subscriber side cannot produce this indication unless *both* the subscriber wiring has an open fault *and* the half-ringer is faulty (open). In this rare case, the telco still has a fault and when corrected will indicate **Fault 1**.

Fault 3 There is a short between tip and ring or between ground and/or tip and ring at any location.

It will be impossible in this condition to determine where the fault is, but the fault will definitely show up as some type of shorted condition. Although the half-ringer termination is no help in locating a shorted condition (subscriber or telco side of the demarcation), an open condition can definitely be properly identified as to which side of the demarcation point it exists.

Note: Although the half-ringer testing technique can not exactly determine where a problem exists, or what this problem may be, it can at least sectionalize the problem - Subscriber or Telco loop - and allow corrective action to begin.

Wiring Schematic



HALF- RINGER TEST ALGORYTHM