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## Apple TechStep: Troubleshooting SCSI or Serial Problem Report

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TOPIC -----

I have a Macintosh IIcx that appears functional, but Apple TechStep cannot enter Test Manager mode using the TstMd function. Apple TechStep displays a SCSI or Serial problem.

Is this an Apple TechStep or Macintosh IIcx problem?

DISCUSSION -----

The problem is in the Macintosh, not in Apple TechStep -- and the problem is subtle.

One line (RXD- or TXD-) on the serial modem port is bad. The defective or missing RXD or TXD line is probably caused by a blown filter on the Macintosh logic board. This won't affect the Macintosh in stand-alone use; however, if you attach a peripheral to the modem port, it may be unable to communicate with the Macintosh.

The bad line will cause communication failures with peripherals using the RS-232 protocol, but not necessarily with peripherals using the RS-422 protocol. The RS-422 protocol defines a "1" as a 2-volt differential between the "+" line and the "-" line; therefore, even if the "-" line is not working, the differential will be large enough to be read as a "1". The RS-232 protocol defines a "1" as -5 to -15 volts on the "-" line, so if the "-" line is not working, no communication will take place. Apple TechStep uses the RS-232C protocol, so it catches these types of problems.

The fix for this problem is to replace the Macintosh logic board, but the customer may choose instead to buy peripherals that use the RS-422 protocol.

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