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Macintosh-to-AT&T 3B2 Cable Pinout (9/94)

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TOPIC ---

A company needs a cable to connect a Macintosh SE, Macintosh II, Macintosh IIx, or Macintosh IIcx to its AT&T 3B2. They want to go directly from the Macintosh (mini DIN-8) to an RJ45 female on the 3B2. This is not a dial-in situation. The 3B2 will be in close proximity to the Macintoshes.

DISCUSSION -----------------------------------

Currently, AT&T terminals direct-connect asynchronously through twisted-pair cabling with RJ45 plugs on each end. On the terminal side, the RJ45 plugs into a hardware flow control plug that snaps onto the back of the terminal. On the 3B2 side, the RJ45 plugs directly into one of the ports on the back of the 3B2. AT&T indicates that the pin configurations on the 3B2 are:

```
Pin #    Transmission Type
-----    -----------------
1        SG lead
2        CTS (?) lead
3        TxD lead
4        DTR lead
5        RXD lead
6        DCD lead
7        PG lead
8        RTS (?) lead
```

The Macintosh Mini DIN-8 port pins have the following correspondent functions required to use them for RS-232:

```
Mini DIN-8
  Pin#           Function                            RS-232   Pin#
  -------------------------------------------------------------------
    1   HSKo (Handshake input)                       DTR       20
```

```
     2   HSKi (Handshake output)                          DCD      8
     3   TxD- (Transmit data, negative going component)   TXD      3
     4   GND  (Chassis/Signal ground)                     GND      7
     5   RxD- (Receive data, negative going component)    RXD      2
     6   TxD+ (Transmit data, positive going component)   GND      7
     7   GPi  (General-Purpose input)                     NC
     8   RxD+ (Receive data, positive going component)    GND      7
```

According to AT&T 3B2 pin configurations with RJ45 plugs described above, you
can make a cable with the following pinouts and signals for the direct
connection between an AT&T 3B2 and a Macintosh SE, Macintosh II, Macintosh IIx,
or Macintosh IIcx:

```
                        Macintosh        AT&T 3B2
                        Mini DIN-8       RJ45
      Signal (in/out)   Pin#             Pin#         Signal (in/out)
      ---------------   ----------       --------     ---------------
         HSKo (out)        1        <----->   4       DTR lead (in)
         HSKi (in)         2        <----->   2       CTS lead (out)
         TxD- (in)         3        <----->   3       TxD lead (out)
         GND              *4        <----->   1       SG lead
         RxD- (out)        5        <----->   5       RXD lead (in)
         TxD+             *6        <----->
         GPi               7        <----->   No Connection
         RxD+             *8        <----->
```

*There are many variations for connecting pins 4, 6, and 8, but the
 basic intent is to bring all three of these pins to ground on the
 Macintosh side. Connect Signal Ground to Chassis Ground if you want
 a slightly better noise margin.

If the above configuration doesn't work, try the following cable connection:

```
         HSKo (out)         1               8       RTS lead (in)
```

Currently, Tech Comm does not know of an Apple cable product that has been made
for this particular configuration (Circular Mini DIN-8 <-> RJ45 plug).

However, if the standard RS-232 DB-25 connectors are directly used in AT&T 3B2,
the Apple cable finished product number A2C0311, same as Part Number 590-0331
(beige color), or A2C0312, same as Part Number 590-0555 (smoke color), a
circular Mini DIN-8-to-DB-25 cable, can be used for the connection between the
3B2 and the Macintosh.

Because the AT&T 3B2 is a UNIX-based system, any Macintosh under Macintosh OS
can be connected via:

1) A direct serial line or a modem, and use MacTerminal as a VT100 terminal
   emulator to access the AT&T 3B2.

2) An Ethernet with EtherTalk card (for Macintosh II, Macintosh IIx, or
   Macintosh IIcx) or EtherPort SE card (for Macintosh SE), and use NCSA
   Telnet or MacTCP software to connect to the 3B2 machine. Of course, the

3B2 must have Ethernet TCP/IP capability.

A Macintosh II, Macintosh IIx, or Macintosh IIcx, running A/UX, also can be connected to a 3B2 machine via:

1) A direct serial line or a modem by using any UNIX communication software program, such as "cu", "tip", "uucp", or "kermit", to connect to the remote 3B2 machine.

2) An Ethernet with EtherTalk card (for Macintosh II, Macintosh IIx, or Macintosh IIcx) by using Internet protocols software, like "telnet", "rlogin", or "ftp". Of course, the 3B2 machine needs to have Ethernet TCP/IP capability.

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Support Information Services

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