

# Cable Specifications

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This appendix provides the following pinout information:

- Console and Auxiliary Port Signals and Pinouts
- Ethernet Cable Assembly and Pinouts
- Synchronous Serial Cable Assemblies and Pinouts

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**Note** All pins not listed in the tables in this appendix are not connected.

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To order cables, see the section “Obtaining Service and Support” in the “Overview of the Router” chapter.

## Console and Auxiliary Port Signals and Pinouts

Your router comes with a console and auxiliary cable kit, which contains the cable and adapters you need to connect a console terminal (an ASCII terminal or PC running terminal emulation software) or modem to your access server. The console and auxiliary cable kit includes the following items:

- RJ-45-to-RJ-45 roll-over cable. (See the next section, “Identifying a Roll-Over Cable,” for more information.)
- RJ-45-to-DB-9 female DTE adapter (labeled “TERMINAL”).
- RJ-45-to-DB-25 female DTE adapter (labeled “TERMINAL”).
- RJ-45-to-DB-25 male DCE adapter (labeled “MODEM”).

## Console and Auxiliary Port Signals and Pinouts

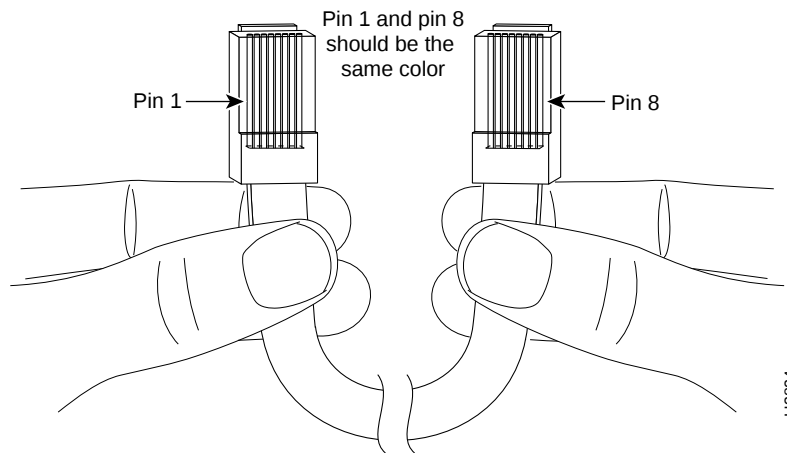
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For console connections, proceed to the section “Console Port Signals and Pinouts” later in this appendix; for modem connections, proceed to the section “Auxiliary Port Signals and Pinouts” later in this appendix.

### Identifying a Roll-Over Cable

You can identify a roll-over cable by comparing the two modular ends of the cable. Holding the cables side-by-side, with the tab at the back, the wire connected to the pin on the outside of the left plug should be the same color as the wire connected to the pin on the outside of the right plug. (See Figure C-1.) If your cable came from Cisco Systems, pin 1 will be white on one connector, and pin 8 will be white on the other (a roll-over cable reverses pins 1 and 8, 2 and 7, 3 and 6, and 4 and 5).

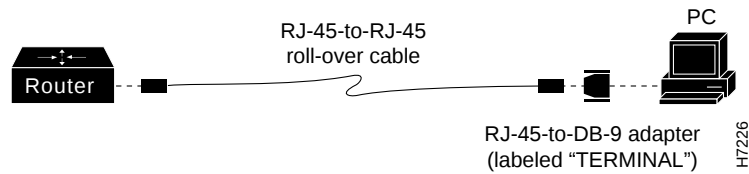
**Figure C-1** Identifying a Roll-Over Cable



## Console Port Signals and Pinouts

Use the thin, flat, RJ-45-to-RJ-45 roll-over cable and RJ-45-to-DB-9 female DTE adapter (labeled “TERMINAL”) to connect the console port to a PC running terminal emulation software. Figure C-2 shows how to connect the console port to a PC. Table C-1 lists the pinouts for the asynchronous serial console port, the RJ-45-to-RJ-45 roll-over cable, and the RJ-45-to-DB-9 female DTE adapter (labeled “TERMINAL”).

**Figure C-2 Connecting the Console Port to a PC**



**Table C-1 Console Port Signaling and Cabling Using a DB-9 Adapter**

| Console Port (DTE) | RJ-45-to-RJ-45 Roll-Over Cable |           | RJ-45-to-DB-9 Terminal Adapter | Console Device |
|--------------------|--------------------------------|-----------|--------------------------------|----------------|
| Signal             | RJ-45 Pin                      | RJ-45 Pin | DB-9 Pin                       | Signal         |
| RTS                | 1 <sup>1</sup>                 | 8         | 8                              | CTS            |
| DTR                | 2                              | 7         | 6                              | DSR            |
| TxD                | 3                              | 6         | 2                              | RxD            |
| GND                | 4                              | 5         | 5                              | GND            |
| GND                | 5                              | 4         | 5                              | GND            |
| RxD                | 6                              | 3         | 3                              | TxD            |
| DSR                | 7                              | 2         | 4                              | DTR            |
| CTS                | 8 <sup>1</sup>                 | 1         | 7                              | RTS            |

1. Pin 1 is connected internally to Pin 8.

Console and Auxiliary Port Signals and Pinouts

Use the thin, flat, RJ-45-to-RJ-45 roll-over cable and RJ-45-to-DB-25 female DTE adapter (labeled “TERMINAL”) to connect the console port to a terminal. Figure C-3 shows how to connect the console port to a terminal. Table C-2 lists the pinouts for the asynchronous serial console port, the RJ-45-to-RJ-45 roll-over cable, and the RJ-45-to-DB-25 female DTE adapter (labeled “TERMINAL”).

Figure C-3 Connecting the Console Port to a Terminal

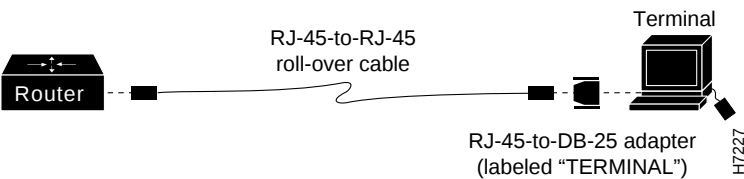


Table C-2 Console Port Signaling and Cabling Using a DB-25 Adapter

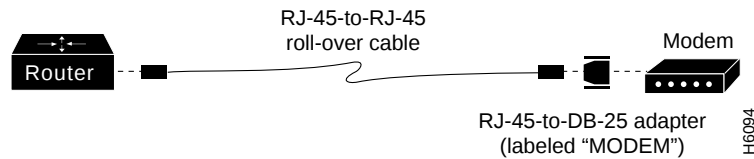
| Console Port (DTE) <sup>1</sup> | RJ-45-to-RJ-45 Roll-Over Cable |           | RJ-45-to-DB-25 Terminal Adapter | Console Device |
|---------------------------------|--------------------------------|-----------|---------------------------------|----------------|
| Signal                          | RJ-45 Pin                      | RJ-45 Pin | DB-25 Pin                       | Signal         |
| RTS                             | 1 <sup>2</sup>                 | 8         | 5                               | CTS            |
| DTR                             | 2                              | 7         | 6                               | DSR            |
| TxD                             | 3                              | 6         | 3                               | RxD            |
| GND                             | 4                              | 5         | 7                               | GND            |
| GND                             | 5                              | 4         | 7                               | GND            |
| RxD                             | 6                              | 3         | 2                               | TxD            |
| DSR                             | 7                              | 2         | 20                              | DTR            |
| CTS                             | 8 <sup>1</sup>                 | 1         | 4                               | RTS            |

1. You can use the same cabling to connect a console to the auxiliary port.  
2. Pin 1 is connected internally to Pin 8.

## Auxiliary Port Signals and Pinouts

Use the thin, flat, RJ-45-to-RJ-45 roll-over cable and RJ-45-to-DB-25 male DCE adapter (labeled “MODEM”) to connect the auxiliary port to a modem. Figure C-4 shows how to connect the auxiliary port to a modem. Table C-3 lists the pinouts for the asynchronous serial auxiliary port, the RJ-45-to-RJ-45 roll-over cable, and the RJ-45-to-DB-25 male DCE adapter (labeled “MODEM”).

**Figure C-4 Connecting the Auxiliary Port to a Modem**



**Table C-3 Auxiliary Port Signaling and Cabling Using a DB-25 Adapter**

| Auxiliary Port (DTE) | RJ-45-to-RJ-45 Roll-Over Cable |           | RJ-45-to-DB-25 Modem Adapter | Modem  |
|----------------------|--------------------------------|-----------|------------------------------|--------|
| Signal               | RJ-45 Pin                      | RJ-45 Pin | DB-25 Pin                    | Signal |
| RTS                  | 1 <sup>1</sup>                 | 8         | 4                            | RTS    |
| DTR                  | 2                              | 7         | 20                           | DTR    |
| TxD                  | 3                              | 6         | 3                            | TxD    |
| GND                  | 4                              | 5         | 7                            | GND    |
| GND                  | 5                              | 4         | 7                            | GND    |
| RxD                  | 6                              | 3         | 2                            | RxD    |
| DSR                  | 7                              | 2         | 8                            | DCD    |
| CTS                  | 8 <sup>1</sup>                 | 1         | 5                            | CTS    |

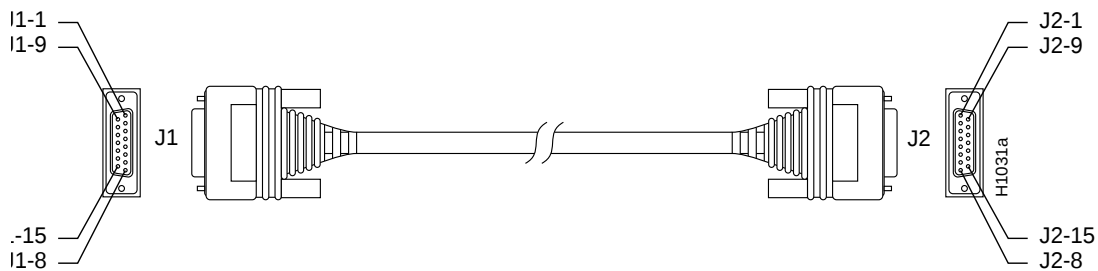
1. Pin 1 is connected internally to Pin 8.

## Ethernet Cable Assembly and Pinouts

This section describes the pinouts for an Ethernet AUI cable.

Figure C-5 shows an Ethernet AUI cable assembly, and Table C-4 lists the cable pinouts.

**Figure C-5 Ethernet AUI Cable Assembly**



**Table C-4 Ethernet AUI Cable Pinouts (DB-15)**

| Pin | Ethernet Circuit | Signal                    |
|-----|------------------|---------------------------|
| 3   | DO-A             | Data Out Circuit A        |
| 10  | DO-B             | Data Out Circuit B        |
| 11  | DO-S             | Data Out Circuit Shield   |
| 5   | DI-A             | Data In Circuit A         |
| 12  | DI-B             | Data In Circuit B         |
| 4   | DI-S             | Data In Circuit Shield    |
| 2   | CI-A             | Control In Circuit A      |
| 9   | CI-B             | Control In Circuit B      |
| 1   | CI-S             | Control In Circuit Shield |
| 6   | VC               | Voltage Common            |
| 13  | VP               | Voltage Plus              |

**Table C-4 Ethernet AUI Cable Pinouts (DB-15) (Continued)**

| Pin   | Ethernet Circuit | Signal                       |
|-------|------------------|------------------------------|
| 14    | VS               | Voltage Shield (L25 and M25) |
| Shell | PG               | Protective Ground            |

## Token Ring Pinout

Table C-5 lists the pinout for the Token Ring interface port.

**Table C-5 Token Ring Port Pinout (DB-9)**

| 9 Pin | Signal           |
|-------|------------------|
| 1     | Receive          |
| 3     | +5V <sup>1</sup> |
| 5     | Transmit         |
| 6     | Receive          |
| 9     | Transmit         |

1. 600 mA maximum.

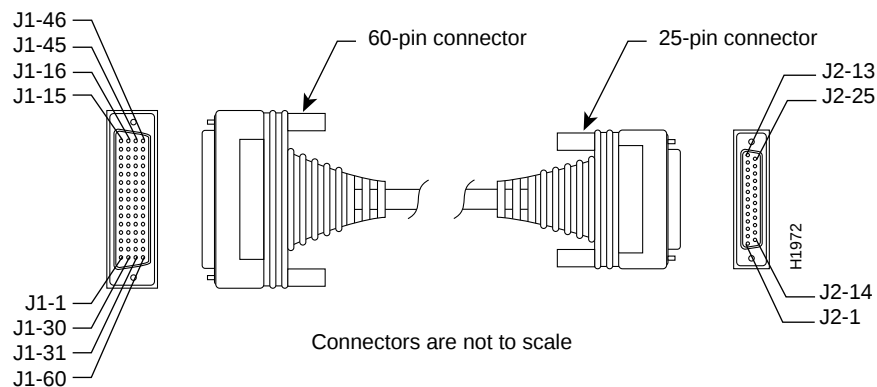
## Synchronous Serial Cable Assemblies and Pinouts

The illustrations and tables in this section provide assembly drawings and pinouts for the EIA-530 DCE, EIA/TIA-232, EIA/TIA-449, V.35, and X.21 DTE and DCE cables, which are used with the synchronous serial WAN port (labeled “SERIAL”).

### EIA-530

Figure C-6 shows the EIA-530 serial cable assembly, and Table C-6 lists the pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

**Figure C-6** EIA-530 Serial Cable Assembly



**Table C-6 EIA-530 DTE Cable Pinouts (DB-60 to DB-25)**

| 60 Pin | Signal      | 25 Pin | Signal      | Direction |                  |
|--------|-------------|--------|-------------|-----------|------------------|
|        |             |        |             | DTE       | DCE <sup>1</sup> |
| J1-11  | TxD/RxD+    | J2-2   | BA(A), TxD+ | —>        |                  |
| J1-12  | TxD/RxD–    | J2-14  | BA(B), TxD– | —>        |                  |
| J1-28  | RxD/TxD+    | J2-3   | BB(A), RxD+ | <—        |                  |
| J1-27  | RxD/TxD–    | J2-16  | BB(B), RxD– | <—        |                  |
| J1-9   | RTS/CTS+    | J2-4   | CA(A), RTS+ | —>        |                  |
| J1-10  | RTS/CTS–    | J2-19  | CA(B), RTS– | —>        |                  |
| J1-1   | CTS/RTS+    | J2-5   | CB(A), CTS+ | <—        |                  |
| J1-2   | CTS/RTS–    | J2-13  | CB(B), CTS– | <—        |                  |
| J1-3   | DSR/DTR+    | J2-6   | CC(A), DSR+ | <—        |                  |
| J1-4   | DSR/DTR–    | J2-22  | CC(B), DSR– | <—        |                  |
| J1-46  | Shield_GND  | J2-1   | Shield      | Shorted   |                  |
| J1-47  | MODE_2      | –      | –           |           |                  |
| J1-48  | GND         | –      | –           | Shorted   |                  |
| J1-49  | MODE_1      | –      | –           |           |                  |
| J1-5   | DCD/DCD+    | J2-8   | CF(A), DCD+ | <—        |                  |
| J1-6   | DCD/DCD–    | J2-10  | CF(B), DCD– | <—        |                  |
| J1-24  | TxC/RxC+    | J2-15  | DB(A), TxC+ | <—        |                  |
| J1-23  | TxC/RxC–    | J2-12  | DB(B), TxC– | <—        |                  |
| J1-26  | RxC/TxCE+   | J2-17  | DD(A), RxC+ | <—        |                  |
| J1-25  | RxC/TxCE–   | J2-9   | DD(B), RxC– | <—        |                  |
| J1-44  | LL/DCD      | J2-18  | LL          | —>        |                  |
| J1-45  | Circuit_GND | J2-7   | Circuit_GND | –         |                  |

Table C-6 EIA-530 DTE Cable Pinouts (DB-60 to DB-25) (Continued)

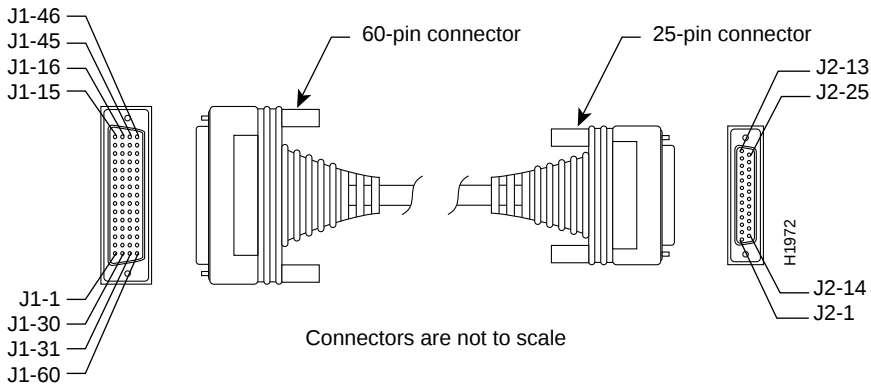
| 60 Pin | Signal    | 25 Pin | Signal       | Direction |                  |
|--------|-----------|--------|--------------|-----------|------------------|
|        |           |        |              | DTE       | DCE <sup>1</sup> |
| J1-7   | DTR/DSR+  | J2-20  | CD(A), DTR+  | —>        |                  |
| J1-8   | DTR/DSR–  | J2-23  | CD(B), DTR–  | —>        |                  |
| J1-13  | TxCE/TxC+ | J2-24  | DA(A), TxCE+ | —>        |                  |
| J1-14  | TxCE/TxC– | J2-11  | DA(B), TxCE– | —>        |                  |
| J1-51  | GND       | —      | —            | Shorted   |                  |
| J1-52  | MODE_DCE  | —      | —            |           |                  |

1. The EIA-530 interface operates in DTE mode only. A DCE cable is not available for the EIA-530 interface.

EIA/TIA-232

Figure C-7 shows the EIA/TIA-232 cable assembly. Table C-7 lists the DTE pinouts. Table C-8 lists the DCE pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

Figure C-7 EIA/TIA-232 Cable Assembly



**Table C-7 EIA/TIA-232 DTE Cable Pinouts (DB-60 to DB-25)**

| 60 Pin | Signal      | Description         | Direction | 25 Pin | Signal      |
|--------|-------------|---------------------|-----------|--------|-------------|
| J1-50  | MODE_0      | Shorting group      | —         | —      | —           |
| J1-51  | GND         |                     |           |        |             |
| J1-52  | MODE_DCE    |                     |           |        |             |
| J1-46  | Shield GND  | Single              | —         | J2-1   | Shield GND  |
| J1-41  | TxD/RxD     | Twisted pair no. 5  | —>        | J2-2   | TxD         |
| Shield | —           |                     | —         | Shield | —           |
| J1-36  | RxD/TxD     | Twisted pair no. 9  | <—        | J2-3   | RxD         |
| Shield | —           |                     | —         | Shield | —           |
| J1-42  | RTS/CTS     | Twisted pair no. 4  | —>        | J2-4   | RTS         |
| Shield | —           |                     | —         | Shield | —           |
| J1-35  | CTS/RTS     | Twisted pair no. 10 | <—        | J2-5   | CTS         |
| Shield | —           |                     | —         | Shield | —           |
| J1-34  | DSR/DTR     | Twisted pair no. 11 | <—        | J2-6   | DSR         |
| Shield | —           |                     | —         | Shield | —           |
| J1-45  | Circuit GND | Twisted pair no. 1  | —         | J2-7   | Circuit GND |
| Shield | —           |                     | —         | Shield | —           |
| J1-33  | DCD/LL      | Twisted pair no. 12 | <—        | J2-8   | DCD         |
| Shield | —           |                     | —         | Shield | —           |
| J1-37  | TxC/NIL     | Twisted pair no. 8  | <—        | J2-15  | TxC         |
| Shield | —           |                     | —         | Shield | —           |

## Synchronous Serial Cable Assemblies and Pinouts

**Table C-7 EIA/TIA-232 DTE Cable Pinouts (DB-60 to DB-25) (Continued)**

| 60 Pin | Signal   | Description        | Direction | 25 Pin | Signal |
|--------|----------|--------------------|-----------|--------|--------|
| J1-38  | RxC/TxCE | Twisted pair no. 7 | <—        | J2-17  | RxC    |
| Shield | —        |                    | —         | Shield | —      |
| J1-44  | LL/DCD   | Twisted pair no. 2 | —>        | J2-18  | LTST   |
| Shield | —        |                    | —         | Shield | —      |
| J1-43  | DTR/DSR  | Twisted pair no. 3 | —>        | J2-20  | DTR    |
| Shield | —        |                    | —         | Shield | —      |
| J1-39  | TxCE/TxC | Twisted pair no. 6 | —>        | J2-24  | TxCE   |
| Shield | —        |                    | —         | Shield | —      |

**Table C-8 EIA/TIA-232 DCE Cable Pinouts (DB-60 to DB-25)**

| 60 Pin | Signal     | Description         | Direction | 25 Pin | Signal     |
|--------|------------|---------------------|-----------|--------|------------|
| J1-50  | MODE_0     | Shorting group      | —         | —      | —          |
| J1-51  | GND        |                     |           |        |            |
| J1-46  | Shield GND | Single              | —         | J2-1   | Shield GND |
| J1-36  | RxD/TxD    | Twisted pair no. 9  | <—        | J2-2   | TxD        |
| Shield | —          |                     | —         | Shield | —          |
| J1-41  | TxD/RxD    | Twisted pair no. 5  | —>        | J2-3   | RxD        |
| Shield | —          |                     | —         | Shield | —          |
| J1-35  | CTS/RTS    | Twisted pair no. 10 | <—        | J2-4   | RTS        |
| Shield | —          |                     | —         | Shield | —          |
| J1-42  | RTS/CTS    | Twisted pair no. 4  | —>        | J2-5   | CTS        |
| Shield | —          |                     | —         | Shield | —          |

## Synchronous Serial Cable Assemblies and Pinouts

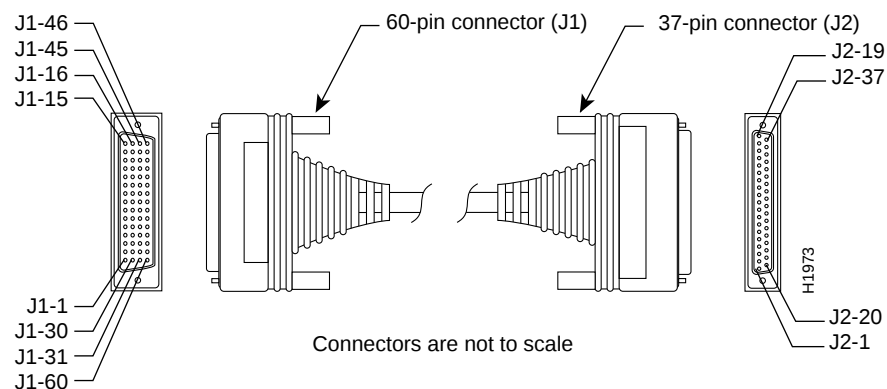
**Table C-8 EIA/TIA-232 DCE Cable Pinouts (DB-60 to DB-25) (Continued)**

| 60 Pin | Signal      | Description         | Direction | 25 Pin | Signal      |
|--------|-------------|---------------------|-----------|--------|-------------|
| J1-43  | DTR/DSR     | Twisted pair no. 3  | —>        | J2-6   | DSR         |
| Shield | —           |                     | —         | Shield | —           |
| J1-45  | Circuit GND | Twisted pair no. 1  | —         | J2-7   | Circuit GND |
| Shield | —           |                     | —         | Shield |             |
| J1-44  | LL/DCD      | Twisted pair no. 2  | —>        | J2-8   | DCD         |
| Shield | —           |                     | —         | Shield | —           |
| J1-39  | TxCE/TxC    | Twisted pair no. 7  | —>        | J2-15  | TxC         |
| Shield | —           |                     | —         | Shield | —           |
| J1-40  | NIL/RxC     | Twisted pair no. 6  | —>        | J2-17  | RxC         |
| Shield | —           |                     | —         | Shield | —           |
| J1-33  | DCD/LL      | Twisted pair no. 12 | <—        | J2-18  | LTST        |
| Shield | —           |                     | —         | Shield | —           |
| J1-34  | DSR/DTR     | Twisted pair no. 11 | <—        | J2-20  | DTR         |
| Shield | —           |                     | —         | Shield | —           |
| J1-38  | RxC/TxCE    | Twisted pair no. 8  | <—        | J2-24  | TxCE        |
| Shield | —           |                     | —         | Shield | —           |

### EIA/TIA-449

Figure C-8 shows the EIA/TIA-449 cable assembly. Table C-9 lists the DTE pinouts. Table C-10 lists the DCE pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

**Figure C-8 EIA/TIA-449 Cable Assembly**



**Table C-9 EIA/TIA-449 DTE Cable Pinouts (DB-60 to DB-37)**

| 60 Pin | Signal     | Description        | Direction | 37 Pin | Signal     |
|--------|------------|--------------------|-----------|--------|------------|
| J1-49  | MODE_1     | Shorting group     | —         | —      | —          |
| J1-48  | GND        |                    |           |        |            |
| J1-51  | GND        | Shorting group     | —         | —      | —          |
| J1-52  | MODE_DCE   |                    |           |        |            |
| J1-46  | Shield_GND | Single             | —         | J2-1   | Shield GND |
| J1-11  | TxD/RxD+   | Twisted pair no. 6 | —>        | J2-4   | SD+        |
| J1-12  | TxD/RxD-   |                    | —>        | J2-22  | SD-        |
| J1-24  | TxC/RxC+   | Twisted pair no. 9 | <—        | J2-5   | ST+        |
| J1-23  | TxC/RxC-   |                    | <—        | J2-23  | ST-        |

## Synchronous Serial Cable Assemblies and Pinouts

**Table C-9 EIA/TIA-449 DTE Cable Pinouts (DB-60 to DB-37) (Continued)**

| 60 Pin | Signal      | Description         | Direction | 37 Pin | Signal |
|--------|-------------|---------------------|-----------|--------|--------|
| J1-28  | RxD/TxD+    | Twisted pair no. 11 | <—        | J2-6   | RD+    |
| J1-27  | RxD/TxD—    |                     | <—        | J2-24  | RD—    |
| J1-9   | RTS/CTS+    | Twisted pair no. 5  | —>        | J2-7   | RS+    |
| J1-10  | RTS/CTS—    |                     | —>        | J2-25  | RS—    |
| J1-26  | RxC/TxC+    | Twisted pair no. 10 | <—        | J2-8   | RT+    |
| J1-25  | RxC/TxC—    |                     | <—        | J2-26  | RT—    |
| J1-1   | CTS/RTS+    | Twisted pair no. 1  | <—        | J2-9   | CS+    |
| J1-2   | CTS/RTS—    |                     | <—        | J2-27  | CS—    |
| J1-44  | LL/DCD      | Twisted pair no. 12 | —>        | J2-10  | LL     |
| J1-45  | Circuit_GND |                     | —         | J2-37  | SC     |
| J1-3   | DSR/DTR+    | Twisted pair no. 2  | <—        | J2-11  | DM+    |
| J1-4   | DSR/DTR—    |                     | <—        | J2-29  | DM—    |
| J1-7   | DTR/DSR+    | Twisted pair no. 4  | —>        | J2-12  | TR+    |
| J1-8   | DTR/DSR—    |                     | —>        | J2-30  | TR—    |
| J1-5   | DCD/DCD+    | Twisted pair no. 3  | <—        | J2-13  | RR+    |
| J1-6   | DCD/DCD—    |                     | <—        | J2-31  | RR—    |
| J1-13  | TxCE/TxC+   | Twisted pair no. 7  | —>        | J2-17  | TT+    |
| J1-14  | TxCE/TxC—   |                     | —>        | J2-35  | TT—    |
| J1-15  | Circuit_GND | Twisted pair no. 9  | —         | J2-19  | SG     |
| J1-16  | Circuit_GND |                     | —         | J2-20  | RC     |

**Table C-10 EIA/TIA-449 DCE Cable Pinouts (DB-60 to DB-37)**

| 60 Pin | Signal | Description    | Direction | 37 Pin | Signal |
|--------|--------|----------------|-----------|--------|--------|
| J1-49  | MODE_1 | Shorting group | —         | —      | —      |
| J1-48  | GND    |                |           |        |        |

## Synchronous Serial Cable Assemblies and Pinouts

**Table C-10 EIA/TIA-449 DCE Cable Pinouts (DB-60 to DB-37) (Continued)**

| 60 Pin | Signal      | Description         | Direction | 37 Pin | Signal     |
|--------|-------------|---------------------|-----------|--------|------------|
| J1-46  | Shield_GND  | Single              | –         | J2-1   | Shield GND |
| J1-28  | RxD/TxD+    | Twisted pair no. 11 | <—        | J2-4   | SD+        |
| J1-27  | RxD/TxD–    |                     | <—        | J2-22  | SD–        |
| J1-13  | TxCE/TxC+   | Twisted pair no. 7  | —>        | J2-5   | ST+        |
| J1-14  | TxCE/TxC–   |                     | —>        | J2-23  | ST–        |
| J1-11  | TxD/RxD+    | Twisted pair no. 6  | —>        | J2-6   | RD+        |
| J1-12  | TxD/RxD–    |                     | —>        | J2-24  | RD–        |
| J1-1   | CTS/RTS+    | Twisted pair no. 1  | <—        | J2-7   | RS+        |
| J1-2   | CTS/RTS–    |                     | <—        | J2-25  | RS–        |
| J1-24  | TxC/RxC+    | Twisted pair no. 9  | —>        | J2-8   | RT+        |
| J1-23  | TxC/RxC–    |                     | —>        | J2-26  | RT–        |
| J1-9   | RTS/CTS+    | Twisted pair no. 5  | —>        | J2-9   | CS+        |
| J1-10  | RTS/CTS–    |                     | —>        | J2-27  | CS–        |
| J1-29  | NIL/LL      | Twisted pair no. 12 | —>        | J2-10  | LL         |
| J1-30  | Circuit_GND |                     | –         | J2-37  | SC         |
| J1-7   | DTR/DSR+    | Twisted pair no. 4  | —>        | J2-11  | DM+        |
| J1-8   | DTR/DSR–    |                     | —>        | J2-29  | DM–        |
| J1-3   | DSR/DTR+    | Twisted pair no. 2  | <—        | J2-12  | TR+        |
| J1-4   | DSR/DTR–    |                     | <—        | J2-30  | TR–        |
| J1-5   | DCD/DCD+    | Twisted pair no. 3  | —>        | J2-13  | RR+        |
| J1-6   | DCD/DCD–    |                     | —>        | J2-31  | RR–        |
| J1-26  | RxC/TxCE+   | Twisted pair no. 10 | <—        | J2-17  | TT+        |
| J1-25  | RxC/TxCE–   |                     | <—        | J2-35  | TT–        |
| J1-15  | Circuit_GND | Twisted pair no. 8  | –         | J2-19  | SG         |
| J1-16  | Circuit_GND |                     | –         | J2-20  | RC         |

V.35

Figure C-9 shows the V.35 cable assembly. Table C-11 lists the DTE pinouts. Table C-12 lists the DCE pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

Figure C-9 V.35 Cable Assembly

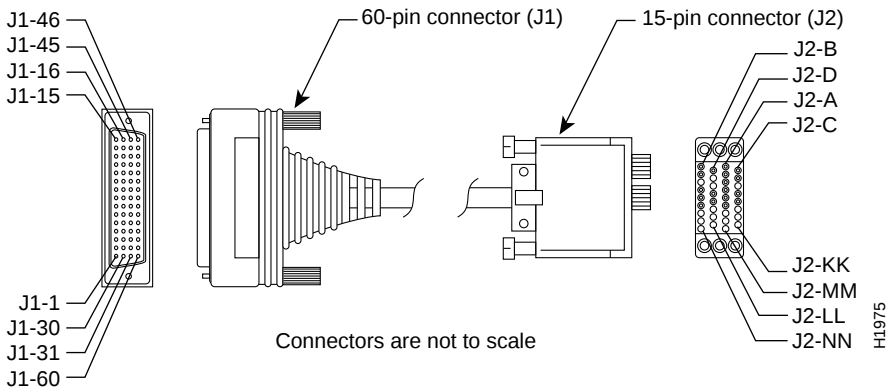


Table C-11 V.35 DTE Cable Pinouts (DB-60 to 34-Pin)

| 60 Pin | Signal   | Description    | Direction | 34 Pin | Signal |
|--------|----------|----------------|-----------|--------|--------|
| J1-49  | MODE_1   | Shorting group | —         | —      | —      |
| J1-48  | GND      |                |           |        |        |
| J1-50  | MODE_0   | Shorting group | —         | —      | —      |
| J1-51  | GND      |                |           |        |        |
| J1-52  | MODE_DCE |                |           |        |        |
| J1-53  | TxC/NIL  | Shorting group | —         | —      | —      |
| J1-54  | RxC_TxCE |                |           |        |        |
| J1-55  | RxD/TxD  |                |           |        |        |
| J1-56  | GND      |                |           |        |        |

## Synchronous Serial Cable Assemblies and Pinouts

**Table C-11 V.35 DTE Cable Pinouts (DB-60 to 34-Pin) (Continued)**

| 60 Pin | Signal      | Description         | Direction | 34 Pin | Signal      |
|--------|-------------|---------------------|-----------|--------|-------------|
| J1-46  | Shield_GND  | Single              | —         | J2-A   | Frame GND   |
| J1-45  | Circuit_GND | Twisted pair no. 12 | —         | J2-B   | Circuit GND |
| Shield | —           |                     | —         | Shield | —           |
| J1-42  | RTS/CTS     | Twisted pair no. 9  | —>        | J2-C   | RTS         |
| Shield | —           |                     | —         | Shield | —           |
| J1-35  | CTS/RTS     | Twisted pair no. 8  | <—        | J2-D   | CTS         |
| Shield | —           |                     | —         | Shield | —           |
| J1-34  | DSR/DTR     | Twisted pair no. 7  | <—        | J2-E   | DSR         |
| Shield | —           |                     | —         | Shield | —           |
| J1-33  | DCD/LL      | Twisted pair no. 6  | <—        | J2-F   | RLSD        |
| Shield | —           |                     | —         | Shield | —           |
| J1-43  | DTR/DSR     | Twisted pair no. 10 | —>        | J2-H   | DTR         |
| Shield | —           |                     | —         | Shield | —           |
| J1-44  | LL/DCD      | Twisted pair no. 11 | —>        | J2-K   | LT          |
| Shield | —           |                     | —         | Shield | —           |
| J1-18  | TxD/RxD+    | Twisted pair no. 1  | —>        | J2-P   | SD+         |
| J1-17  | TxD/RxD—    |                     | —>        | J2-S   | SD—         |
| J1-28  | RxD/TxD+    | Twisted pair no. 5  | <—        | J2-R   | RD+         |
| J1-27  | RxD/TxD—    |                     | <—        | J2-T   | RD—         |
| J1-20  | TxCE/TxC+   | Twisted pair no. 2  | —>        | J2-U   | SCTE+       |
| J1-19  | TxCE/TxC—   |                     | —>        | J2-W   | SCTE—       |
| J1-26  | RxC/TxCE+   | Twisted pair no. 4  | <—        | J2-V   | SCR+        |
| J1-25  | RxC/TxCE—   |                     | <—        | J2-X   | SCR—        |
| J1-24  | TxC/RxC+    | Twisted pair no. 3  | <—        | J2-Y   | SCT+        |
| J1-23  | TxC/RxC—    |                     | <—        | J2-AA  | SCT—        |

**Table C-12 V.35 DCE Cable Pinouts (DB-60 to 34-Pin)**

| 60 Pin | Signal      | Description         | Direction | 34 Pin | Signal      |
|--------|-------------|---------------------|-----------|--------|-------------|
| J1-49  | MODE_1      | Shorting group      | —         | —      | —           |
| J1-48  | GND         |                     |           |        |             |
| J1-50  | MODE_0      | Shorting group      | —         | —      | —           |
| J1-51  | GND         |                     |           |        |             |
| J1-53  | TxC/NIL     | Shorting group      | —         | —      | —           |
| J1-54  | RxC_TxCE    |                     |           |        |             |
| J1-55  | RxD/TxD     |                     |           |        |             |
| J1-56  | GND         |                     |           |        |             |
| J1-46  | Shield_GND  | Single              | —         | J2-A   | Frame GND   |
| J1-45  | Circuit_GND | Twisted pair no. 12 | —         | J2-B   | Circuit GND |
| Shield | —           |                     | —         | Shield | —           |
| J1-35  | CTS/RTS     | Twisted pair no. 8  | <—        | J2-C   | RTS         |
| Shield | —           |                     | —         | Shield | —           |
| J1-42  | RTS/CTS     | Twisted pair no. 9  | —>        | J2-D   | CTS         |
| Shield | —           |                     | —         | Shield | —           |
| J1-43  | DTR/DSR     | Twisted pair no. 10 | —>        | J2-E   | DSR         |
| Shield | —           |                     | —         | Shield | —           |
| J1-44  | LL/DCD      | Twisted pair no. 11 | —>        | J2-F   | RLSD        |
| Shield | —           |                     | —         | Shield | —           |
| J1-34  | DSR/DTR     | Twisted pair no. 7  | <—        | J2-H   | DTR         |
| Shield | —           |                     | —         | Shield | —           |
| J1-33  | DCD/LL      | Twisted pair no. 6  | <—        | J2-K   | LT          |
| Shield | —           |                     | —         | Shield | —           |
| J1-28  | RxD/TxD+    | Twisted pair no. 5  | <—        | J2-P   | SD+         |
| J1-27  | RxD/TxD—    |                     | <—        | J2-S   | SD—         |

## Synchronous Serial Cable Assemblies and Pinouts

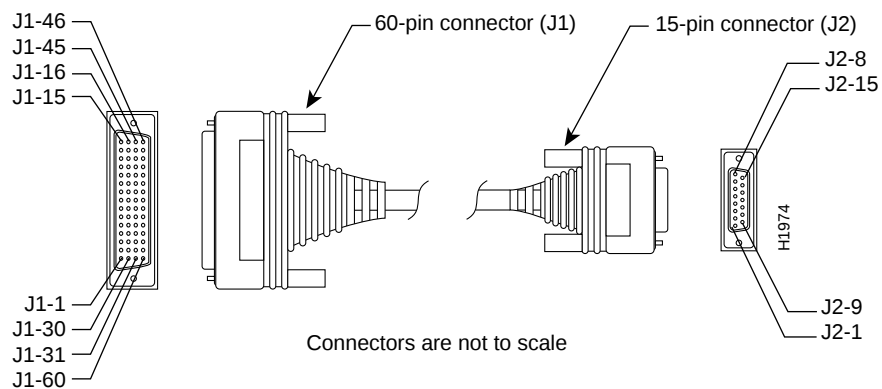
**Table C-12 V.35 DCE Cable Pinouts (DB-60 to 34-Pin) (Continued)**

| 60 Pin | Signal    | Description        | Direction | 34 Pin | Signal |
|--------|-----------|--------------------|-----------|--------|--------|
| J1-18  | TxD/RxD+  | Twisted pair no. 1 | —>        | J2-R   | RD+    |
| J1-17  | TxD/RxD-  |                    | —>        | J2-T   | RD-    |
| J1-26  | RxC/TxCE+ | Twisted pair no. 4 | <—        | J2-U   | SCTE+  |
| J1-25  | RxC/TxCE- |                    | <—        | J2-W   | SCTE-  |
| J1-22  | NIL/RxC+  | Twisted pair no. 3 | —>        | J2-V   | SCR+   |
| J1-21  | NIL/RxC-  |                    | —>        | J2-X   | SCR-   |
| J1-20  | TxCE/TxC+ | Twisted pair no. 2 | —>        | J2-Y   | SCT+   |
| J1-19  | TxCE/TxC- |                    | —>        | J2-AA  | SCT-   |

## X.21

Figure C-10 shows the X.21 cable assembly. Table C-13 lists the DTE pinouts. Table C-14 lists the DCE pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

**Figure C-10 X.21 Cable Assembly**



**Table C-13 X.21 DTE Cable Pinouts (DB-60 to DB-15)**

| 60 Pin | Signal      | Description        | Direction | 15 Pin | Signal      |
|--------|-------------|--------------------|-----------|--------|-------------|
| J1-48  | GND         | Shorting group     | —         | —      | —           |
| J1-47  | MODE_2      |                    |           |        |             |
| J1-51  | GND         | Shorting group     | —         | —      | —           |
| J1-52  | MODE_DCE    |                    |           |        |             |
| J1-46  | Shield_GND  | Single             | —         | J2-1   | Shield GND  |
| J1-11  | TxD/RxD+    | Twisted pair no. 3 | —>        | J2-2   | Transmit+   |
| J1-12  | TxD/RxD—    |                    | —>        | J2-9   | Transmit—   |
| J1-9   | RTS/CTS+    | Twisted pair no. 2 | —>        | J2-3   | Control+    |
| J1-10  | RTS/CTS—    |                    | —>        | J2-10  | Control—    |
| J1-28  | RxD/TxD+    | Twisted pair no. 6 | <—        | J2-4   | Receive+    |
| J1-27  | RxD/TxD—    |                    | <—        | J2-11  | Receive—    |
| J1-1   | CTS/RTS+    | Twisted pair no. 1 | <—        | J2-5   | Indication+ |
| J1-2   | CTS/RTS—    |                    | <—        | J2-12  | Indication— |
| J1-26  | RxC/TxCE+   | Twisted pair no. 5 | <—        | J2-6   | Timing+     |
| J1-25  | RxC/TxCE—   |                    | <—        | J2-13  | Timing—     |
| J1-15  | Control_GND | Twisted pair no. 4 | —         | J2-8   | Control GND |
| Shield | —           |                    | —         | Shield | —           |

## Synchronous Serial Cable Assemblies and Pinouts

**Table C-14 X.21 DCE Cable Pinouts (DB-60 to DB-15)**

| 60 Pin | Signal      | Description        | Direction | 15 Pin | Signal      |
|--------|-------------|--------------------|-----------|--------|-------------|
| J1-48  | GND         | Shorting group     | —         | —      | —           |
| J1-47  | MODE_2      |                    |           |        |             |
| J1-46  | Shield_GND  | Single             | —         | J2-1   | Shield GND  |
| J1-28  | RxD/TxD+    | Twisted pair no. 6 | <—        | J2-2   | Transmit+   |
| J1-27  | RxD/TxD—    |                    | <—        | J2-9   | Transmit—   |
| J1-1   | CTS/RTS+    | Twisted pair no. 1 | <—        | J2-3   | Control+    |
| J1-2   | CTS/RTS—    |                    | <—        | J2-10  | Control—    |
| J1-11  | TxD/RxD+    | Twisted pair no. 3 | —>        | J2-4   | Receive+    |
| J1-12  | TxD/RxD—    |                    | —>        | J2-11  | Receive—    |
| J1-9   | RTS/CTS+    | Twisted pair no. 2 | —>        | J2-5   | Indication+ |
| J1-10  | RTS/CTS—    |                    | —>        | J2-12  | Indication— |
| J1-24  | TxC/RxC+    | Twisted pair no. 4 | —>        | J2-6   | Timing+     |
| J1-23  | TxC/RxC—    |                    | —>        | J2-13  | Timing—     |
| J1-15  | Control_GND | Twisted pair no. 5 | —         | J2-8   | Control GND |
| Shield | —           |                    | —         | Shield | —           |