Worldwide Response Center

HP 3000 APPLICATION NOTE #70

MODEM LINKS FOR REMOTE CONSOLE

AND

STANDARD DTC CONNECTIONS

ON

COMMERCIAL XL HPPA SYSTEMS

HEWLETT PACKARD

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RESPONSE CENTER APPLICATION NOTES

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NOTICE

MODEM LINKS for REMOTE CONSOLE and STANDARD DTC CONNECTIONS on COMMERCIAL XL HPPA SYSTEMS

Introduction

The Response Centers receive many questions about the physical hookup and configuration of the various supported Hewlett-Packard modems on the Commercial XL HPPA systems. The first section of this Application Note will deal with the physical cabling requirements. There are two diagrams. Figure 1 outlines the cabling requirements for the REMOTE CONSOLE feature. Figure 2 diagrams the STANDARD DTC modem connection.

The second section deals with modem configuration parameters. These configurations are valid for both the REMOTE CONSOLE feature and the STANDARD DTC connection.

The configurations supplied in this Application Note are for the following modems:

HP35141A (Support Link)   HP35031A (Support Link II)

HP37212A   HP37212B   HP50759A

NOTE

This information will assist with the proper modem installation and configuration for the REMOTE CONSOLE and DTC MODEM connections on the COMMERCIAL XL HPPA systems. The information given IS NOT intended for PREDICTIVE SUPPORT modems on the COMMERCIAL XL HPPA systems. The PREDICTIVE SUPPORT modem configuration guidelines are different from those included in the modem configuration section of this document.

SECTION 1. CABLING CONSIDERATIONS

The first issue to address is the connection of the telephone line to the modems. There are two RJ11 modular telephone jacks on the back of each modem. One jack is for the *TELEPHONE LINE* connection while the other is for a *STANDARD TELEPHONE*. The following is a matrix showing the connections for the different modems as they appear on the backpanel of the modems

	TELEPHONE LINE connection	STANDARD TELEPHONE connection
Support Link	TELCO	TELSET
Support Link II	TEL LINE	TEL SET
37212A / 37212B	TELCO	HANDSET
50759A	LINE JACK	PHONE JACK

Cabling Requirements for the Remote Console Modem
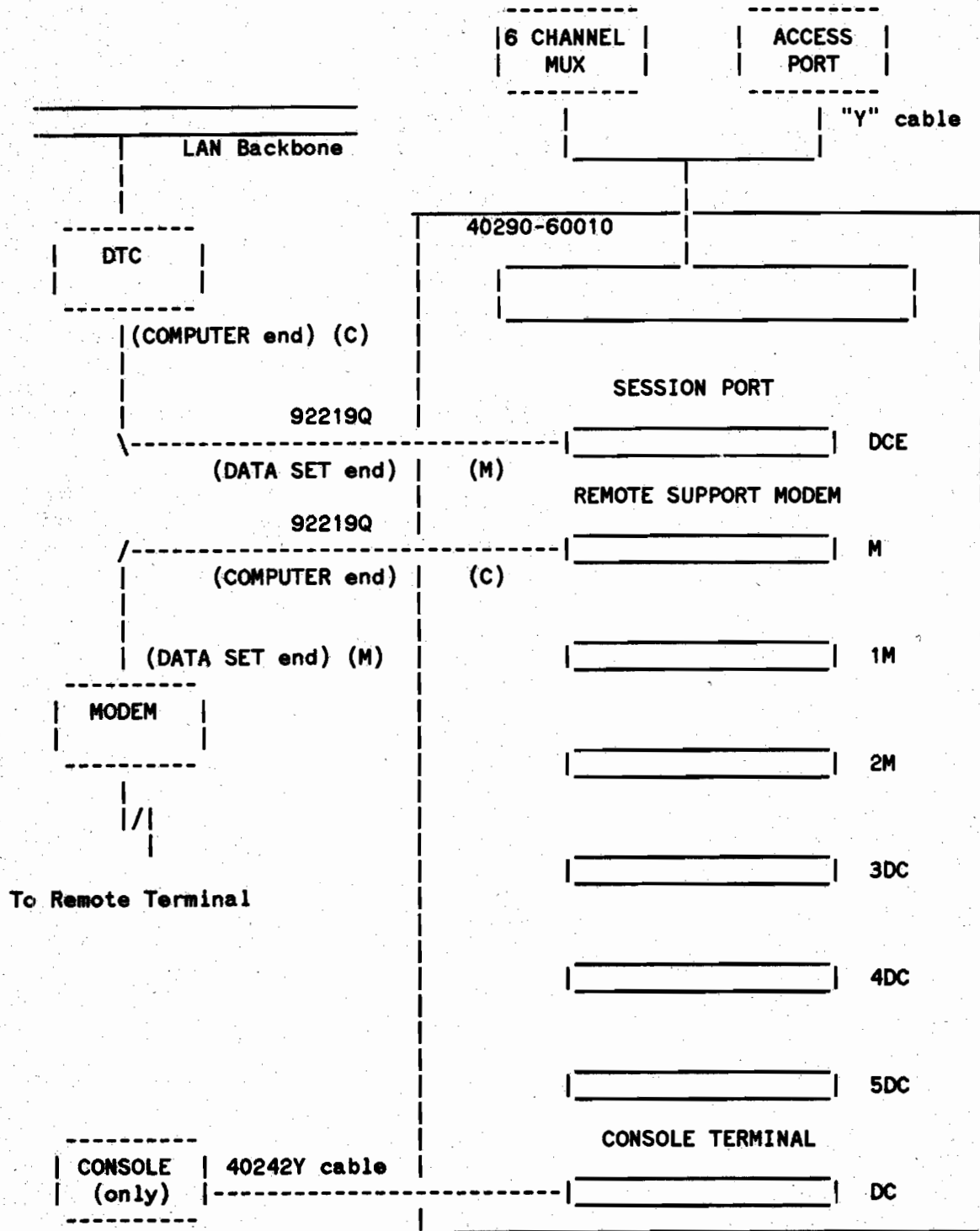
Figure 1.   Remote Console Modem Cabling

Cabling Printouts

92219Q

```
COMPUTER (C)                        DATA SET (M)
25 PIN MALE                         25 PIN MALE

        1  ----------------------- 1
        2  <--------------------- 3
        3  ---------------------> 2
        4  <--------------------- 8
        6  ---------------------> 20
        7  <---------------------> 7
        8  ---------------------> 4
        9  <--------------------- 22
       20  <--------------------- 6
       22  <--------------------- 5
       23  ---------------------> 23
```

This is not a symmetrical cable. Therefore it is important the cable be install in the proper direction. The cable connectors are labeled. One connector has "DATA SET" on it and the other has "COMPUTER" on it. Attach the cable to match Figure 1 so the "COMPUTER" and "DATA SET" cable ends are connected to the proper devices.

40242Y

```
25 PIN MALE                          25 PIN MALE

        1  ----------------------- 1
        2  ----------------------- 2
        3  ----------------------- 3
        7  ----------------------- 7
```

This is a symmetrical cable. Therefore the cable direction is not important.

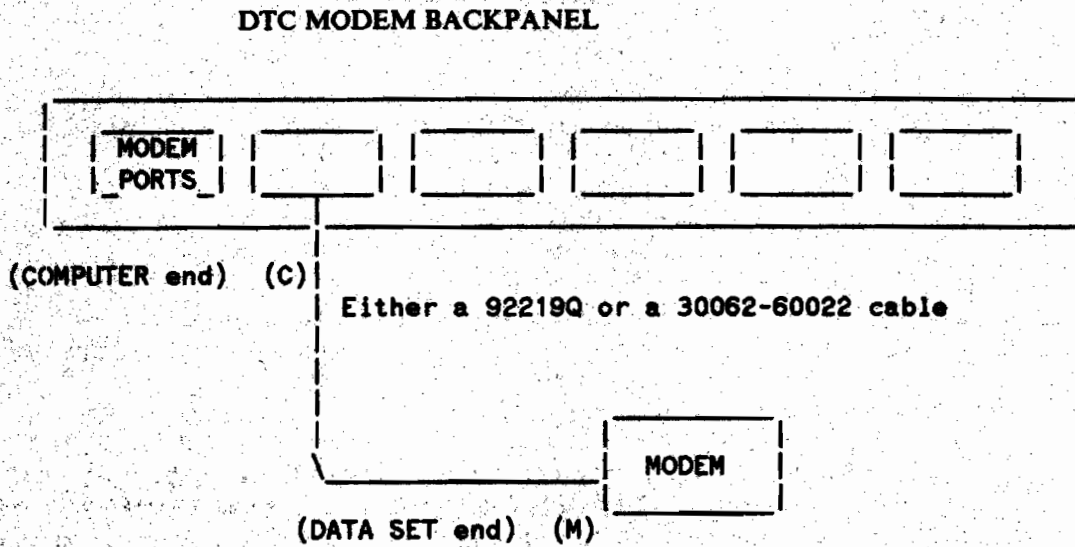# Cabling Requirements for a Standard Modem Connection to a DTC

DTC MODEM BACKPANEL

```
         _____
        |  _____                                                          |
        | | MODEM |   | |‾‾‾| | |‾‾‾| | |‾‾‾| | |‾‾‾| | |‾‾‾|                 |
        | |_PORTS_|   | |___| | |___| | |___| | |___| | |___|                |
        |_____|_____|
                         |
 (COMPUTER end)   (C)|
                         |   Either a 92219Q or a 30062-60022 cable
                         |
                         |
                         |
                         |                              _____
                          \                            |                   |
                           _____|     MODEM         |
                           /                            |                   |
 (DATA SET end)   (M)                             |_____|
```

Figure 2.   Standard Modem to DTC connection

Cabling Printouts

30062-60022

COMPUTER (C)   **DATA SET (M)**
25 PIN MALE   **25 PIN MALE**

```
    1 ------------------------- 1
    2 <----------------------- 3
    3 -----------------------> 2
    4 <----------------------- 8
    6 -----------------------> 20
    7 <----------------------> 7
    8 -----------------------> 4
   11 <----------------------> 12
   12 ----------------------> 19
   20 <----------------------- 6
   22 <----------------------> 5
   23 <----------------------> 23
```

This is not a symmetrical cable. Therefore it is important the cable be installs in the proper direction. The cable connectors are labeled. One connector has "DATA SET" on it and the other has "COMPUTER" on it. Attach the cable to match Figure 2 so the "COMPUTER" and "DATA SET" cable ends are connected to the proper devices.

SECTION 2 MODEM CONFIGURATION PARAMETERS

Support Link I

The following steps are to configure the Support Link I modem for use with the COMMERCIAL XL HPPA computer family.

1. Press OPTION..........OPTION will be displayed on the LCD display.

2. Press 1 then ENTER....OP 1* ? will be displayed on the LCD display.
                         "?" means we do not know what number will be displayed

3. Press 3 then ENTER....OPTION will be displayed on the LCD display. This
                         INITIALIZES the modem to the STANDARD DEFAULT SETTINGS.

4. Press 1 then ENTER....OP 1* 3 will be displayed on the LCD display.

5. Press 2 then ENTER....OPTION will be displayed on the LCD display. This sets
                         OPTION 1 to 2 and DISABLES STANDARD DEFAULT SETTINGS.

6. Press 15 then ENTER...OP 15* 3 will be displayed on the LCD display.

7. Press 2 then ENTER....OPTION will be displayed on the LCD display.
                         This sets OPTION 15 to 2 which is DATA SET READY off
                         in test.

8. Press RESET...........IDLE is displayed on the LCD display. The modem is
                         now ready for operation.

```
NOTE
```

Before continuing with the following steps, please power off the modem by unplugging the power cord from the power socket. Also unplug the data cable from the DTC / MUX panel.

9. This step requires the disassembling of the modem. Inside the modem is a jumper labeled "W1" or "J8". This jumper controls how CTS and RTS interact with each other. The jumper has the following two positions:

   Position "AA"....CTS (Clear To Send) is controlled by CXR (Carrier detect)

   Position "BB"....Connects RTS (Request To Send) to CTS (Clear To Send)

   For the XL HPPA family, the jumper MUST be in the "AA" position.

Support Link II

The following steps are required to properly configure the Support Link II modem for use with the COMMERCIAL XL HPPA computer family.

1. To configure the Support Link II modem attach a Hewlett-Packard 2621/2624/2628, 2392/2394 or a 700 series 92/94 terminal to the modem with an RS-232 25 pin straight through cable. Configure the terminal as follows:

```
        Baud Rate...........1200 bps    ** all other options set to  **
        Parity/Data Bits....0's/7       ** power on default settings **
        Check Parity........NO


        For the 262X terminals with the 50 pin connectors use a 13222 M/N cable.
        For the 262X terminals with the 25 pin connectors use a 13242 M/N cable.
        For the 239X and 700/9X terminals use the 13242M/N cable.
```

2. Make sure the "HS" High Speed (1200 bps) LED is lit on the modem. If it is not, press the button labeled "SPEED". The "HS" LED should now be lit.

3. Press the Carriage Return key on the terminal. This will signal the modem to answer. The modem will respond with an "*" prompt. At the "*" prompt type "HELP" to obtain a list of modem commands.

4. At the "*" prompt type in "T". This will give you the table showing the modem's present option settings. The OPTIONs need to be set as follows:

OPTION	SETTING		OPTION	SETTING		OPTION	SETTING
1	- 2		11	- 2		20	- 1
2	- 1		12	- 2		21	- 1
3	- 2		13	- 1		22	- 1
4	- 2		14	- 1		23	- 9
5	- 3		15	- 2		24	- 1
6	- 2		16	- 1		25	- 2
7	- 2		17	- 1		26	- 1
8	- 2		18	- 5		27	- 2
9	- 2		19	- 1		28	- 2
10	- 1						

5. If any of the OPTIONS on the modem are different from the above settings then type "O" for OPTION at the "*" prompt. The modem will ask for the OPTION NUMBER. When the OPTION NUMBER is entered the modem will give a list of the possible SETTINGS. Enter the desired SETTING and press carriage return.

6. When all of the OPTIONS have the correct SETTINGS, type in the "IDLE" command at the "*" prompt. This places the modem in the proper operational state. Disconnect the terminal from the modem and connect the modem to the system.

$$\boxed{\text{NOTE}}$$

Before continuing with the following steps, please power off the modem by unplugging the power cord from the power socket. Also unplug the data cable from the DTC / MUX panel.

7. This step requires the disassembly of the modem. Inside the modem is a jumper labeled "W1" or "J8".

This jumper controls how CTS and RTS interact with each other. The jumper has the following two positions:

Position "AA".....CTS (Clear To Send) is controlled by CXR (Carrier detect)

Position "BB".....Connects RTS (Request To Send) to CTS (Clear To Send)

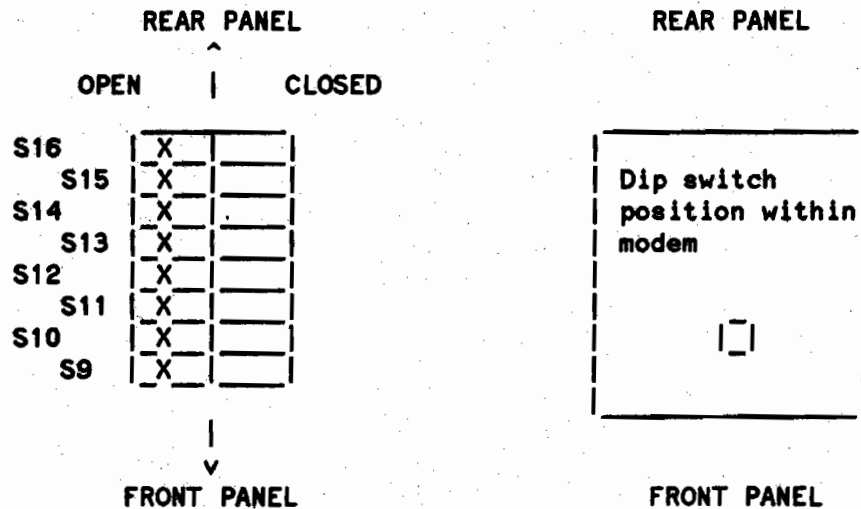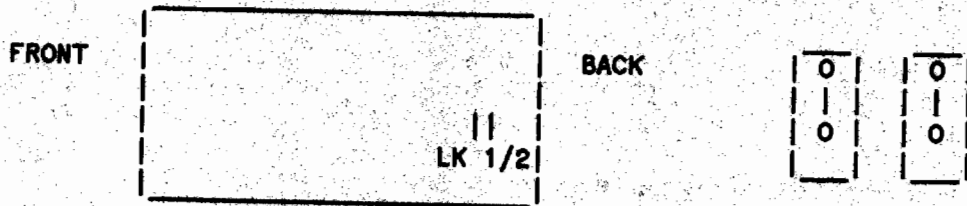For the XL HPPA family, this jumper MUST be in the "AA" position.

HP 37212A

The following steps are required to configure the 37212A modem for use with the COMMERCIAL XL HPPA computer family :

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

Before continuing with the following steps, please power off the modem by unplugging the power cord from the power socket. Also unplug the data cable from the DTC / MUX panel.

1. There are 8 DIP switches and three jumpers internal to the modem. The first step required is the disassembly of the modem. Remove the plastic trim on the front and back of the modem. Looking at the side of the trim you will notice there are three sections. Push outward on the middle section and slide the trim forward until it comes off.

2. Once both plastic trim sections are removed 8 screw positions will be exposed. There are 2 screws at each end of the top and 2 screws on each side to be removed. Once all 8 screws are out, the top cover may be removed.

3. Inside the modem there is an 8 position DIP switch. All of the switches should be set OPEN.

```
          REAR PANEL                          REAR  PANEL
               ^
     OPEN      |     CLOSED
                                          ┌───────────────────┐
   S16   | X |_____|                      |                   |
     S15 | X |_____|                      | Dip switch        |
   S14   | X |  .  |                      | position within|
     S13 | X |_____|                      | modem             |
   S12   | X |_____|                      |                   |
     S11 | X |_____|                      |                   |
   S10   | X |_____|                      |         ┌─┐       |
     S9  | X |_____|                      |        |_|       |
                                          |                   |
               |                          └───────────────────┘
               v
         FRONT PANEL                          FRONT  PANEL
```
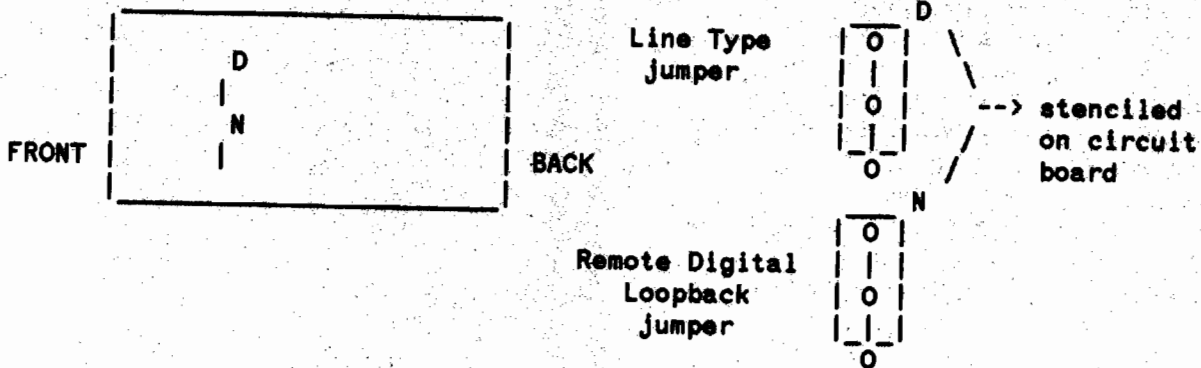
4. There is a 2 jumper set that controls the SPEED INDICATE and SPEED SELECT pins. This 2 jumper set can be found near the backpanel close to the RS-232 connector. The jumpers are labeled as LK 1/2 and are configured as follows:

```
                ┌──────────────────────┐
   FRONT        │                      │        BACK      ┌─────┐  ┌─────┐
                │                      │                  │  O  │  │  O  │
                │                      │                  │  |  │  │  |  │
                │              | |     │                  │  O  │  │  O  │
                │          LK 1/2│     │                  └─────┘  └─────┘
                └──────────────────────┘
```

                          The jumpers should be oriented
                in a side to side configuration not front to back.

5. There are two jumpers in the middle of the modem. The first jumper controls the line type LEASED or DIAL UP. The second jumper controls whether the modem can be put in Remote Digital Loopback under command mode. The jumpers should be configured as follows:

```
                                                        D
              ┌──────────────────────┐   Line Type    ┌───┐   \
              │          D           │   Jumper       │ O │    \
              │          |           │                │ | │     \
   FRONT      │          N           │                │ O │      --> stenciled
              │          |           │   BACK         │_|_│     /    on circuit
              │                      │                  O     /      board
              └──────────────────────┘                      /
                                                        N

                                          Remote Digital   ┌───┐
                                          Loopback         │ O │
                                          jumper           │ | │
                                                           │ O │
                                                           │_|_│
                                                             O
```

6. Register 3, which is an internal software register in the 37212A must be set to 0 to allow the modem to power on with the STANDARD DEFAULT SETTINGS active.
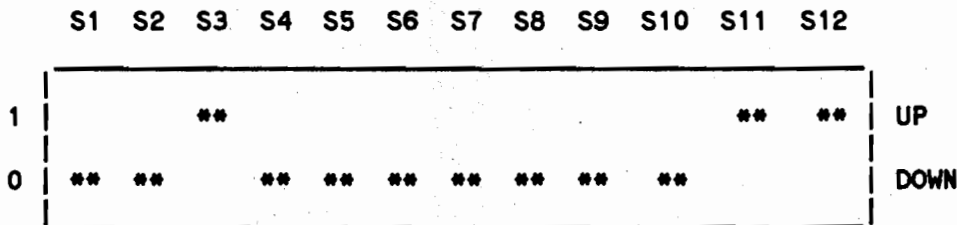
To accomplish this perform the following:

A. Connect a 2621/2624/2628, 2392/2392 or a 700 series 92/94 terminal to the modem. Attach the terminal to the modem with an RS-232 25 pin straight through cable. Configure the terminal as follows:

```
        Baud Rate...........1200

        Parity / Data Bits..NONE/8

        Check parity........NO

          ** All other OPTIONs set to power on default settings **

        For the 262X terminals with 50 pin connectors use a 13222 M/N cable.
        For the 262X terminals with 25 pin connectors use a 13242 M/N cable.
        For the 239X and 700/9X terminals use a 13242 M/N cable.
```

B. Cycle power on the modem. Once the modem has powered up, press the Carriage Return until you receive the ">" prompt.

C. At the ">" prompt type "R3=0". This will allow the modem to power up with all of the internal registers set to their STANDARD DEFAULT SETTINGS.

D. Power off the modem. Detach the terminal cable from the modem. Connect the modem to the system and power on the modem.

HP 37212B

There are three items to check concerning the operation of the 37212B modem.

1. The AUTO ANS button should be pressed in to enable the modem's AUTO ANSWER feature.

2. Register 3, which is an internal software register in the 37212B must be set to 0 to allow the modem to power on with the STANDARD DEFAULT SETTINGS active.

   To accomplish this:

   A. Connect a 2621/2624/2628, 2392/2394 or a 700 series 92/94 terminal to the modem. Attach the terminal to the modem with an RS-232 25 pin straight through cable. Configure the terminal as follows:

   ```
   Baud Rate............1200 or 2400   (for 2400 make sure the 2400 LED is
                                         lit. If not press the SPEED button)
   Parity / Data Bits..NONE/8

   Check Parity........NO

      ** All other OPTIONs set to power on default settings **

   For the 262X terminals with 50 pin connectors use a 13222 M/N cable.
   For the 262X terminals with 25 pin connectors use a 13242 M/N cable.
   For the 239X and 700/9X terminals use the 13242 M/N cable.
   ```

   B. Set all of the DIP switches on the modem's backpanel in the down position.

   C. Cycle power on the modem. Once the modem has powered up, Press the Carriage Return until you receive the ">" prompt.

   D. At the ">" prompt type in "R3=0". This will allow the modem to power up with all of its internal registers set to their STANDARD DEFAULT SETTINGS.

   E. Power off the modem. Detach the terminal cable from the modem and connect the modem to the system.

3. On the BACK of the 37212B there is a 12 position DIP switch. The DIP switches must be set as follows:

```
        S1   S2   S3   S4   S5   S6   S7   S8   S9   S10  S11  S12
      |                                                              |
    1 |           **                                **    **         |  UP
      |                                                              |
    0 |  **   **       **   **   **   **   **   **   **               |  DOWN
      |                                                              |
```

Once the modem switches are configured correctly and the modem is connected to the system, power on the modem.

HP 50759A

The HP 50759A is configured by setting two banks of DIP switches located on the bottom of the modem. The DIP switches consist of a set of 8 (S1 to S8) and a set of 4 (X1 to X4).

The switches should be configured as follows:

        S1 through S8 .... all UP

        X1, X2, X4 .... DOWN

        X3 .... UP

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┌─────────┐
│ NOTE   │
└─────────┘

</div>

The physical SWITCHES and the SWITCH DESCRIPTION are REVERSED
on the bottom of the modem.

```
SWITCHES        SWITCH
                DESCRIPTION
S1-S8
┌─────────┐
│   8   _ │       1......
│   7   _ │       2......
│   6   _ │       3......
│   5   _ │       4......
│   4   _ │       5......
│   3   _ │       6......
│   2   _ │       7......
│___1___│        8......
└─────────┘

X1-X4
┌─────────┐
│   4   _ │       1......
│   3_  │         2......
│   2_  │         3......
│___1___│         4......
└─────────┘
```

<div style="text-align:center">

┌─────────┐
│ NOTE   │
└─────────┘

</div>

Before continuing with the following steps, please power off the modem by unplugging the power cord from the power socket. Also unplug the data cable from the DTC / MUX panel.

There are three jumpers inside the modem that need to be checked. The modem's plastic case is a snap together design, which can be opened without tools. Grasp the modem firmly in both hands and press the bottom half of the case inward at the middle of the right side (as the case faces you). Doing this will push the bottom half's plastic tab out of the top half's slot, which will enable you to lift the top cover away from the rest of the modem.

The jumpers should be set as follows:

1. Request To Send jumper   "RTS"

       (stenciled on printed circuit board) -------->   RTS   O
                                                                   |
                                                                 _ O _
                                                                | | |
                          jumper should be in   --------> | | |
                                   this position | O |
                                                            |_____|
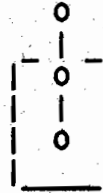
2. Clear To Send / Request To Send jumper   "CTS / RTS"

       (stenciled on printed circuit board) -------> CTS / RTS

                                                         _____
                          jumper should be in ------->| 0---0- |-0
                                   this position |_____|
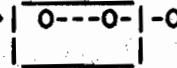
3. Data Set Ready jumper   "DSR"

                            O
                            |
                          _ O _
                         | | | <------------ jumper should be in this position
                         | | |
                         | O |
                         |_____| DSR <------- (stenciled on printed circuit board)

Once the jumpers are installed reassemble the modem. Connect the modem to the XL HPPA system and power the modem on.

Although all of the previously mentioned configurations have been tested, this is only a guideline. It is possible that other configurations might work. If you use these guidelines and problems still exist, contact your local Hewlett-Packard field representative or the Response Center.

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NOTES

NOTES

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HP 3000 Application Note 70: MODEM LINKS for Remote CONSOLE & STANDARD DTC CONNECT

(August 01, 1990)

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Is this Application Note technically accurate? ☐ Yes ☐ No

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