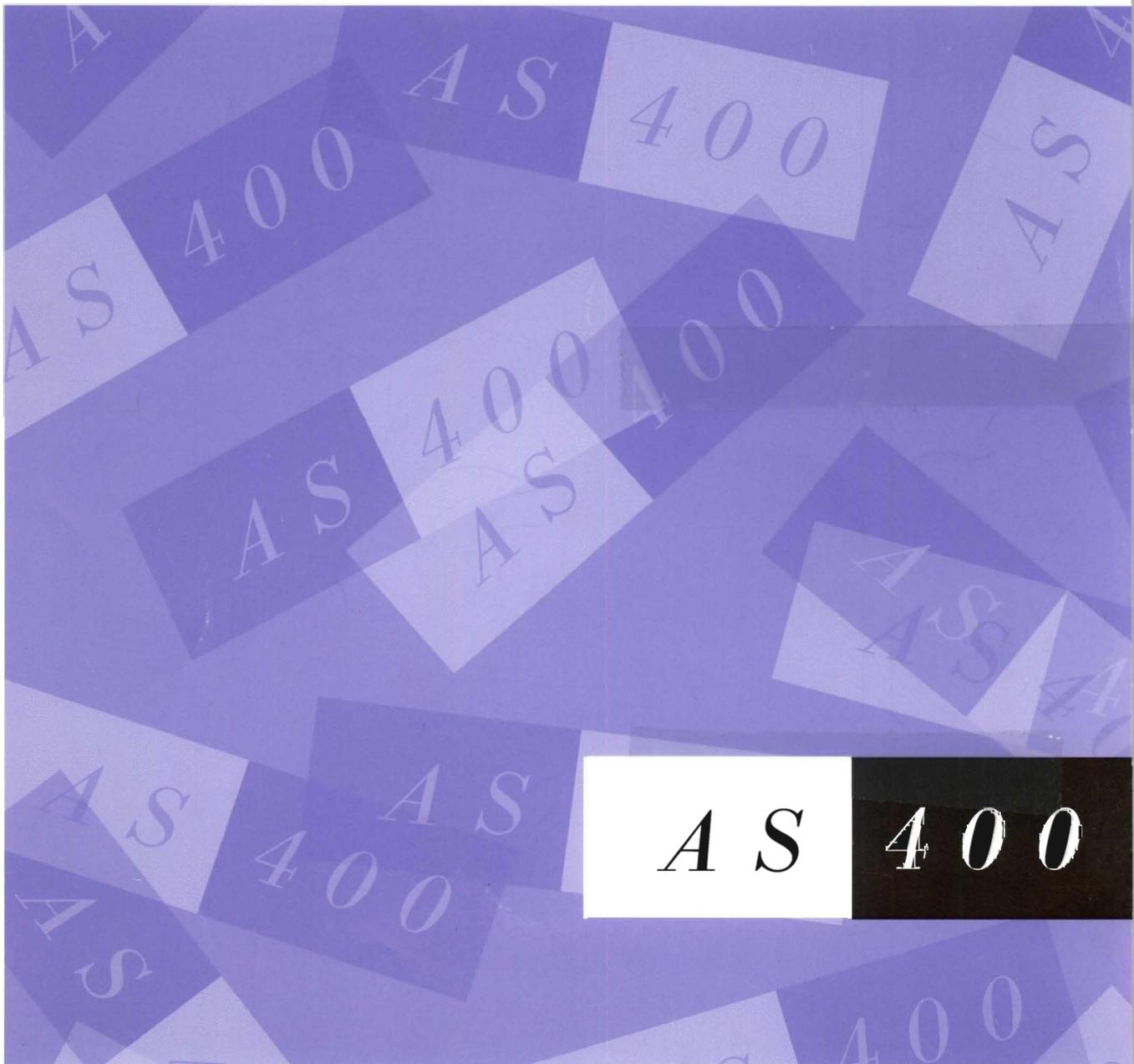


**Transition Data Link User's Guide
9402 Model 236**







AS/400 Advanced 36

SC21-8372-00

**Transition Data Link User's Guide
9402 Model 236**

Take Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page v.

First Edition (October 1994)

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Each safety notice contains a reference number (RSFTxxxx). To see if the safety notice is available in your language, refer to the reference number in the *Safety Information*, SA41-3139.



Safety Notices in this Guide: Appendix B, "Safety Inspection Guide for IBM Service Representatives" on page B-1 contains a safety inspection procedure.

Danger Notices

A danger notice calls attention to a situation that is potentially lethal or extremely hazardous to people.

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

(RSFTD201)

DANGER

To prevent a possible electrical shock when installing the device, ensure that the power cord for that device is unplugged before installing signal cables. *(RSFTD204)*

DANGER

To prevent a possible electrical shock when adding the device to a system, disconnect all power cords, if possible, from the existing system before connecting the signal cable to that device. *(RSFTD205)*

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. *(RSFTD003)*

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. *(RSFTD004)*

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Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications Compliance Statement

This equipment does not exceed Class A limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications.

Avis de conformité aux normes du ministère des Communications du Canada

Cet équipement ne dépasse pas les limites de Classe A d'émission de bruits radioélectriques pour les appareils numériques, telles que prescrites par le Règlement sur le brouillage radioélectrique établi par le ministère des Communications du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

Germany Only: This product is in conformity with the EN55022 class A emission limits. Products in this class are not allowed to be operated within a residential area without a special permit of local PTT authority (ref. GERMAN EMV Law, Nov.92 and regulation 177/93).

Japanese Voluntary Control Council for Interference (VCCI) Statement

This equipment is Class 1 Equipment (information equipment to be used in commercial and industrial districts) which is in conformance with the standard set by Voluntary Control for Interference by Data Processing Equipment and Electronic Office Machines (VCCI) with an aim to prevent radio interference in commercial and industrial districts.

This equipment could cause interference to radio and television receivers when used in and around residential districts.

Please handle the equipment properly according to the instruction manual.

Korean Government Ministry of Communication (MOC) Statement

Please note that this device has been approved for business purpose with regard to electromagnetic interference. If you find this is not suitable for your use, you may exchange it for a non-business purpose one.

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AS/400
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Operating System/400
System/36
System/38

About This Book

Who Should Use This Book

This book was written for anyone planning to purchase, set up, and use a Transition Data Link (TDL). It contains planning information, operational procedures, and problem analysis procedures. The expectation is that experienced Business Partners or trained IBM service representative will be using the TDL.

Related Printed Information

Additional information can be found in the following manuals:

- *Operating Your Computer—9402 Model 236, SC21-8297*, for information about the Transition Aid Feature.
- *Migration Data Link User's Guide, SA21-9551*, describes how to use the 5259 Migration Data Link.
- *5250 Information Display System and Site Preparation Guide, GA21-9337*, contains technical information about twinaxial cables and

information about how to set up 5250 display stations.

- *Information Directory—9402 Model 236, SC21-8292*, is a directory of books relating to the Advanced 36 and supported software.
- *System/36-to-AS/400 Migration Aid User's Guide and Reference, SC09-1166*, for information on transferring data from a System/36 using the Migration Aid programs.

For your information, the following migration aid programs are supported by the TDL.

The following migration aid programs are supported:

IBM* Operating System/400*
(OS/400*) (5728-SS1)

IBM AS/400* System/36* Migration Aid
(5727-MG1 at release 5.2)

IBM AS/400 System/38* Migration Aid
(5714-MG1 at release 8.1)

The TDL provides functions similar to those provided by the 5259 Migration Data Link, but is intended primarily for systems transitions.



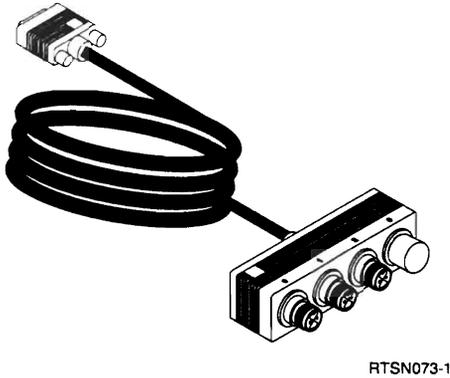


Figure 1-2. Twinaxial Attachment

TDL. This is called the *dual session* capability. This feature does not apply to printers.

This summary of the TDL capabilities covers the tasks involving the normal operation of your system. Chapter 3, "Set Up, Configuration, and Operation" on page 3-1 and "How the Transition Data Link Operates" on page 3-7 describe basic configuration and daily operations in more detail.

Supported Display Stations

Displays supported by TDL are:

- 5251-011
- 5291-001 and 002
- 5292-001 and 002¹
- 3179-002
- 3180-002
- 3196-Axx and Bxx
- 3197-Cxx, Dxx, and Wxx
- 3476
- 3477
- 3486
- 3487
- 3488

Note: Personal computers with 5250 emulator cards are only supported running nonprogrammable work station emulation programs. These NPT emulation programs must completely emulate one of the displays listed above.

¹ When using the 5292-2 display station as the console for two systems (the dual session capability), you should clear any graphics from the display before switching sessions.

Chapter 2. Planning

This summary will help you make the preparations needed to set up your Transition Data Link (TDL). For your convenience, the following planning checklist is provided. This checklist will help you ensure you have everything in place before you set up the TDL.

Planning Checklist

The planning activities listed below cover the preparations required for most setups, but probably not for special cases. Change this checklist to meet your needs.

√	Activity	Your Comments
	Select a place for the TDL. Decide which devices and lines will be attached to it (see "Specifications and Requirements").	
	Decide if you need extra cables. Order cables and any other parts needed (see "Cables").	
	Ensure that the place chosen meets minimum temperature, humidity, and air flow requirements (see "Specifications and Requirements").	
	Ensure that the Transition Aid Feature, the System/36 Migration Aid Program or the System/38 Migration Aid Program is available.	
	Schedule a setup date.	
	Select employees to set up and perform the migration.	
	Prepare the place chosen for the TDL.	

Specifications and Requirements

Host Systems: The TDL has two twinaxial ports for attaching to host systems. The TDL can be attached directly to System/36, System/38, and AS/400 systems.

Cables: No cables for the host system or display station attachment are shipped with the TDL. You can order them from IBM or from another source.

The TDL requires one twinaxial-type cable connection for each host system. If you are going to use a single display as the console for two systems, another twinaxial-type cable connection is needed to attach the display to the TDL.

The IBM Cabling System, including the twinaxial telephone twisted pair, may be used instead of the twinaxial cables.

Note: An impedance-matching device is required if the IBM Cabling System is used.

Air Space: The top, sides, front, and back of the TDL should have a clearance of 50 mm (2 inches).

Lightning Protection

- Power Lines

You should install lightning protection on your secondary power source when:

- The utility company installs lightning protectors on the primary power source.
- The area is subject to electrical storms or equivalent power surges.

- Signal Lines

You are responsible for selecting and installing lightning protection, if required, see the *5250 Information Display System and Site Preparation Guide, GA21-9337* book.

Magnetic Compatibility: In some instances, the site chosen for the setup of the TDL may have surrounding magnetic fields. These fields can result from nearby radio-frequency sources, such as transmitting antennas (AM radio, FM radio, television, and two-way radios), radar, and industrial equipment (radio-frequency induction heaters, arc welders, and insulation testers). Power distribution lines can create magnetic fields that may cause display problems. As a precautionary measure, keep displays at least 1 meter (3.3 feet) from sources of magnetic interference, such as power distribution lines.

Other sources of interference are transformers (including those within other units), distribution displays, rotating machinery, fluorescent light fixtures, and electric floor heating. To identify the location of such sources of interference, check with your building engineer.

Before positioning control units or cabling, a setup planning review may be appropriate to evaluate the environment and to determine whether any special setup or product considerations are required to ensure normal system operation and maintenance. Consult your IBM representative.

Static Discharge: Static charges can build up on people and furniture. Discharge of these static charges to the metal parts of the TDL or to the furniture on which it is situated may cause interference with the operation of electronic equipment. These discharges may also cause discomfort.

Major factors that contribute to this problem include:

- High-resistance floor surface material
- Carpeting without antistatic properties
- Plastic seat covering
- Very low humidity (usually less than 20%)
- Metal frame furniture

If any of the factors listed above are present at your site, review the building with your IBM representative.

Noise Levels: You can install the TDL in a quiet office environment. The TDL makes no audible noise.

Operating Environment: The TDL is designed to operate reliably in normal business environments. It does not have special cooling requirements. However, in very hot, cold, or humid climates, you should check the temperature and humidity ranges listed below:

Type of Environment Temperature

Operating	10° to 40.6° C -- (50° to 105° F)
Not operating	10° to 51.7° C -- (50° to 125° F)
Storage	0.6° to 60° C -- (33° to 140° F)
Shipment	-40° to 60° C -- (-40° to 140° F)
Relative Humidity	Maximum Wet Bulb Thermometer Reading
8% to 80%	26.7° C -- (80° F)
8% to 80%	26.7° C -- (80° F)
5% to 80%	0.6° to 29.4° C -- (33° to 85° F)
5% to 100%	0.6° to 29.4° C -- (33° to 85° F)

Electrical Wiring, Power, and Power Plug

Requirements: The power source (outlet) at the place you have chosen for the TDL must meet the following electrical specifications to ensure that the TDL is not damaged:

Phase	Single phase
Power	0.015 kVA (maximum operational)
Frequency	50/60 Hz ± 2%
Voltage range	100 – 240 V ac
Power cord length	3.0 meters (9 feet), shipped with TDL 1.8 meters (6 feet), shipped with TDL (in U.S.A.)

Electrical Wiring: For safe operation of the TDL, IBM recommends using a 15-ampere electrical wire (branch circuit) to supply power to the TDL. This circuit must be grounded to a safety ground,

not to a neutral ground that carries current back to the transformer.

Do not use conduit as the only means of grounding.

Power Plugs and Receptacles: Different countries use different power plugs and receptacles. The plug and receptacle numbers shown in the following charts are National Electrical Manufacturers' Association (NEMA) configuration numbers and Russel and Stoll (R and S) numbers.

Plug Type	Voltage Rating	Amp Rating	Plug Configuration	Specify Plug Code	Plug Type	Voltage Rating	Amp Rating	Plug Configuration	Specify Plug Code
4	125 V	15 A		—	23	250 V	13 A		—
5	250 V	15 A		—	24	250 V	10 A		—
6	250 V	10 A		—	25	250 V	16 A		—
18	250 V	16 A		—	32	250 V	16 A		—
19	250 V	10 A		—					
22	250 V	16 A		—					

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Plug Type Chart: The following chart should help you decide what plug type you need. It is not all-inclusive. If your country is not listed here, then use the specifications for a country that uses the same standards as yours for electrical voltage and outlets.

Country or Region	Plug Type		Country or Region	Plug Type	
	125 Volts	250 Volts		125 Volts	250 Volts
Afghanistan		18	Bermuda	4	23
Algeria		18	Bolivia	4	5
Andorra		18	Brazil	4	6
Angola		18	Brunei		23
Antigua		23	Bulgaria		18
Argentina		6	Burma		22
Aruba		6	Cameroon		18
Australia		6	Canada	4	5
Austria		18	Cayman Islands	4	
Bahamas	4	5	Central Africa Republic		18
Bahrain		23	Chad		18
Bangladesh		22	Channel Islands		23
Barbados	4	5	Chile		25
Belgium	18		China (People's Republic of China)		6
Benin Republic	18		Colombia	4	6

Country or Region	Plug Type		Country or Region	Plug Type	
	125 Volts	250 Volts		125 Volts	250 Volts
Congo		18	Niger		18
Costa Rica	4	5	Nigeria		18
Curacao	4	5	Norway		18
Cyprus		23	Oman		23
Czechoslovakia		18	Pakistan		22
Denmark		19	Panama	4	5
Dominican Republic	4	5	Papua New Guinea		6
Ecuador	4	5	Paraguay		18
Egypt		18	Peru	4	5
El Salvador	4	5	Philippines	4	5
Ethiopia		25	Poland		18
Fiji		23	Polynesia		23
Finland		18	Portugal		18
France		18	Qatar		23
Germany		18	Republic of China		6
Ghana		23	Rumania		18
Greece		18	Saudi Arabia	4	
Guatemala	4	5	Senegal		18
Guinea		18	Sierra Leone		23
Guyana	4	5	Singapore		23
Haiti	4	5	Somalia		23
Honduras	4	5	South Africa		22
Hong Kong		23	Southeast Asia Region		18
Hungary		18	Spain		18
Iceland		18	Sri Lanka		22
India		23	Sudan		18
Indonesia		18	Suriname		18
Iran		18	Sweden		18
Iraq		23	Switzerland		24
Ireland		23	Syria Arab Republic		18
Israel		32	Taiwan	4	5
Italy		25	Tanzania		23
Ivory Coast		18	Thailand	4	5
Jamaica	4	5	Togo		18
Japan	4	5	Trinidad	4	5
Jordan		23	Tunisia		18
Kenya		23	Turkey		18
Korea	4	5	Uganda		23
Kuwait		23	United Arab Emirates		23
Lebanon		18	United Kingdom		23
Liberia	4		United States	4	5
Libya		25	Upper Volta		18
Liechtenstein		24	Uruguay		18
Luxembourg		18	Countries of the former U.S.S.R.		18
Macao		18	Venezuela	4	5
Malagasy		18	Western Samoa		6
Malawi		23	Yemen		23
Malaysia		23	Countries of the former Yugoslavia		18
Mali		18	Zaire		18
Maliuras		18	Zambia		23
Malta		23	Zimbabwe		18
Martinique		18			
Mauritania		18			
Mauritius		18			
Mexico	4	11			
Monaco		18			
Monala		18			
Morocco		18			
Mozambique		18			
Nepal		23			
Netherlands		18			
Netherlands Antilles	4	5			
New Caledonia		18			
New Zealand		6			
Nicaragua	4	5			

Chapter 3. Set Up, Configuration, and Operation

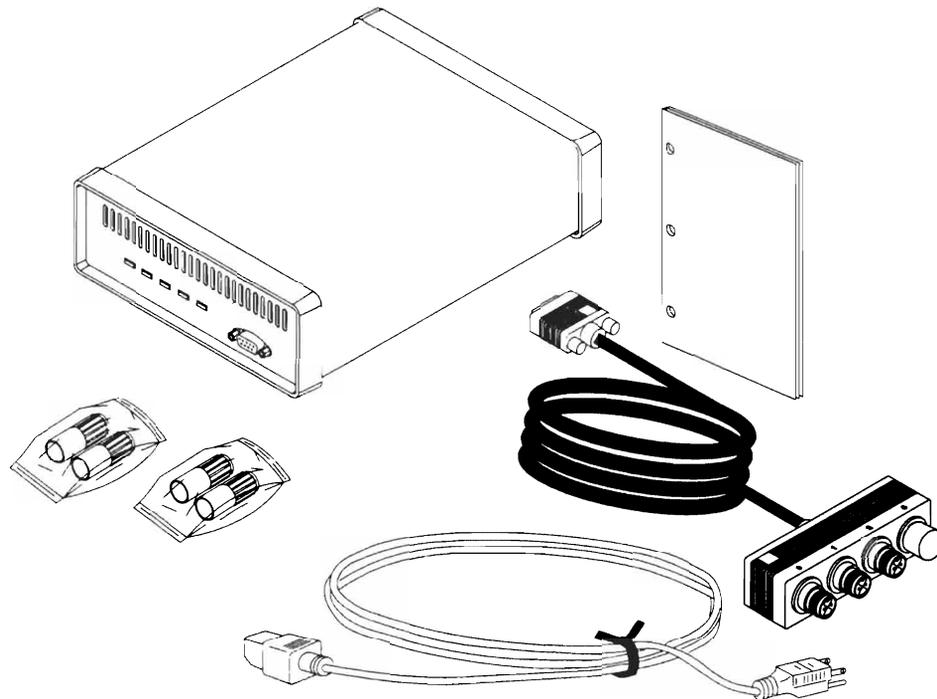
Setting up the Transition Data Link (TDL) is a two-part process. First set up the unit, where you want it, by following the steps in the next section.

Then determine if you want to configure the TDL. You do not have to configure the TDL if you plan to use it only for data migration, and if the factory default configuration is set. The configuration process, called **basic configuration**, consists of defining the function you want the TDL to perform for each address on port 2. To do basic configuration, see "Configuration" on page 3-3.

Setting Up the Transition Data Link

The steps listed below guide you to set up the TDL correctly.

- ___ **Step 1.** Unpack the TDL and inspect it for shipping damage. Report any damage to the person or IBM representative from whom you received the package.
- ___ **Step 2.** Make sure you have all of the parts shown in Figure 3-1. If any parts are missing, contact the person or IBM marketing representative from whom you received the TDL.

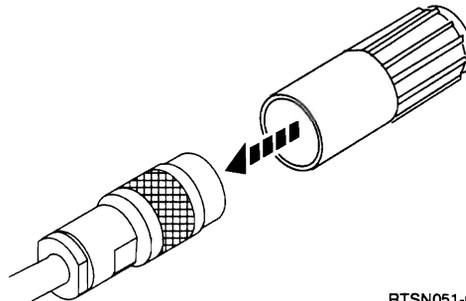


RTSN057-2

Figure 3-1. TDL Package

- ___ **Step 3.** Make sure you have cables to attach the host systems and display stations.
- ___ **Step 4.** Verify that the power cord is not connected to the TDL.

- ___ **Step 5.** Place a twinaxial connector shield around each twinaxial cable connector as shown. (You need only three of the four shields you received.)



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- ___ **Step 6.** Connect the 3-Port TDL Attachment to the TDL.
- ___ **Step 7.** Connect the 3-Port TDL Attachment to each host system by plugging the twinaxial cable from each host system to a twinaxial port, labeled 0 or 1, on the 3-Port TDL Attachment.

- ___ Do not connect display stations between either host system and the TDL.

- ___ It does not matter which host you connect to port 0 or 1.

- ___ Data transfer can be performed without connecting any displays, provided the factory defaults are set. If you do not want to connect a display, omit step 8.

If you do want to connect a display, continue with the next step.

- ___ **Step 8.** To connect twinaxial devices, attach a twinaxial cable to port 2 on the TDL. Attach the other end to the device.

- ___ Ensure that no two devices attached to port 2 are set to the same address.

- ___ Ensure that any cable-through device is not set to end (terminate) the connection. Ensure that the last device is terminated. If you are not sure, see the manual for the device you are using.

- ___ **Step 9.** You have successfully set up the TDL. Now:
 - a. Turn on the power to any twinaxial device attached to the TDL.
 - b. Connect the power cord to the TDL and into an electrical outlet.

- ___ **Step 10.** Do the lights on the front panel complete the sequence as for the initialization test as described?

The $\text{\textcircled{P}}$ (power), $\text{\textcircled{O}}$ (ready), 0 and 1 for each host, and 2 for any attached device that is powered on and communicating with a host.

Yes Continue with "Configuration" on page 3-3.

No If only the $\text{\textcircled{P}}$ (power) and $\text{\textcircled{O}}$ (ready) lights are on, continue with "Configuration" on page 3-3 to add the hosts and attached devices.

Else go to Chapter 4, "Problem Analysis" on page 4-1.

Configuration

The TDL is shipped with a preset configuration to provide data migration for all addresses. If you are satisfied with this configuration, it is not necessary to attach any display stations or to perform configuration. You can go now to "Configure Host Systems" on page 3-7.

You should configure the TDL (if needed) before you configure the host systems. Basic configuration involves using a series of online displays. These displays allow you to specify which function the TDL will perform for each twinaxial address. Each configuration step has a help display associated with it that explains what you have to do or defines the available options.

Help Displays: The help displays are an online supplement to this guide. All display screens have help information associated with them. Press the Help key on an attached display station to show the help information for a given screen. To return to the original screen, press F3 (Exit).

Configuring Attached Devices

The steps you should follow to configure attached devices are described below. Omit any steps that do not apply to your situation.

Before you begin

- Before you begin, make sure you have turned on the power to the display station you are going to use for basic configuration.
- Be sure to use one of the display stations identified on page 1-2.
- Also make sure the  (ready light) on the front of the TDL is on. If the light is not on, go to Chapter 4, "Problem Analysis" on page 4-1.

Step-by-step Configuration

- **Step 1.** Take your display station and the TDL off line

Press and hold the Shift key and then press the Error Reset key. The following display is shown.

```
M100                               Select TDL Option
Select one of the following:
    1.
    2. Configure TDL

Selection
    -
F3=Exit  F12=Previous

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```

When display M100 is shown, the TDL has control of your display station until you exit. Since the TDL is controlling the display, there

are a limited number of keys that will work on the keyboard. The keys that work are shown in the following list:

- 0 through 9
- A through Z
- Space and Backspace
- Cursor Left, Right, Up, and Down
- Tab Forward and Tab Backward
- Page Down (Roll Up) and Page Up (Roll Down)
- Shift and Numeric Shift
- Left and Right Alt
- Field Exit
- Cmd keys or Function keys
- Help
- Reset
- Enter

If you press keys other than those listed above, the system displays an error message.

Step 2. Enter Configuration Mode

Select option 2 (Configure TDL) and then press the Enter key to enter configuration mode. The following is shown (M101):

```
M101          Confirm Selection to Configure TDL

Note: If you continue, the sessions for all printers and displays
attached to the TDL will be interrupted.

Press Enter to confirm your choice to configure TDL.
Press F12=Previous to return to change your choice.

F12=Previous
```

The Confirm Selection to Configure TDL display gives you the opportunity to change your mind should you decide not to proceed with configuration. Press the Enter key to continue.

When you press the Enter key, the system takes all other devices attached to the TDL off line. Any current session connected to the TDL with either host system is interrupted. All devices attached to the TDL appear to both host systems as having the power turned off.

Step 3. Select Operational Mode

After you press the Enter key from the Confirm Selection to Configure TDL display, the following display is shown. Select option 1 (Assign operational modes).

```

M200                                Configure TDL

Select one of the following:

    1. Assign operational modes
    2. Define jump key sequence
    3. Assign host labels
    4. Run display exerciser

Selection
-
F3=Exit

```

The following display results:

```

C100                                Assign Operational Modes

Type information to assign the operational modes, press Enter.
Mode: 1=Dual session for displays
      2=Printer assigned to host A
      3=Printer assigned to host B
      4=Data transfer (5292-2 Emulation)

Address      Mode      Description      Device
Station 0   -         _____
Station 1   -         _____
Station 2   -         _____
Station 3   -         _____
Station 4   -         _____
Station 5   -         _____
Station 6   -         _____

F3=Exit  F5=Refresh user values  F6=Refresh IBM defaults
F9=Select AZERTY keyboard  F12=Previous

```

To process entries on this display, the TDL needs to know the alphabetic layout of your keyboard. For most countries, the QWERTY layout is correct (the top row of alphabetic keys starts with Q W E R T Y) and this is the layout that the TDL is initialized to when it is shipped from the factory.

Some countries use the AZERTY layout (the top row of alphabetic keys starts with A Z E R T Y). If you are using a keyboard with this layout, press F9 (select AZERTY keyboard) before typing any information on this display.

The lower part of this display is where you actually perform the basic configuration. The fields are defined as follows:

Address: This column cannot be changed. The device must be set to the address listed (0 through 6).

Mode: Choose whether an address is to be used for dual session (1) or data transfer (4).

If a printer is being configured, you can choose the default host (2 or 3). The default host you select has access to the printer until you change this setting.

Type a 1, 2, 3, or 4 in the *Mode* column.

When your TDL arrives, all addresses are configured with IBM defaults set for data transfer (4).

Description: This column is for your reference only. You can name each display station by using up to 10 characters. This is not required.

Device Type: This column is for your reference, and it shows whether a display station or printer is connected to each address. If *****active** appears in this column, then either: the TDL cannot recognize the display station, or the power to the display station is not turned on.

When you have finished entering your choices, press the Enter key to store the choices. A message is displayed to indicate that the configuration has been updated.

When you have completed this display, you are ready to leave basic configuration.

___ **Step 4.** Leaving Basic Configuration

If you are satisfied with the configuration you have created, save it by pressing the Enter key and then press F3 (Exit). The following Exit Configure TDL (M300) display is shown.

```
M300                               Exit Configure TDL

Select one of the following:

    1. Exit configure TDL
    2. Resume configure TDL

Selection
-
F12=Previous
```

Select option 1 (Exit configure TDL) to return to operational mode.

Remember that if you have questions about a display, press the Help key to see a Help display (see "Help Displays" on page 3-3).

Configure Host Systems

After the TDL is installed, configure your host systems for:

- The devices attached to the TDL, if any
- Addresses configured for migration

If you have an AS/400 system, an 9402 Model 236, or a System/36, you may use automatic configuration on your system. If you have a System/38, you must do manual configuration.

Procedures for configuring your system are as follows:

Automatic Configuration

- ___ **Step 1.** Perform basic configuration, if you have not already done so (“Configuration” on page 3-3).
- ___ **Step 2.** Turn on the power to any devices attached to the TDL.
- ___ **Step 3.** Switch any printers on the TDL to be active with the system you are configuring (see “Changing to a Different Host Session” on page 3-8).
- ___ **Step 4.** Start an IPL of the system. This allows the system to recognize the devices attached to TDL and the addresses configured for migration.

Note that the system must be configured for automatic configuration. See the systems documentation if you are not sure.

AS/400 system: If you have automatic configuration enabled on your AS/400 system, the system recognizes the devices attached to the TDL and the addresses configured for data migration. If automatic configuration is not enabled, you must configure your devices manually as described for the System/38.

Manual Configuration

For each device attached to the TDL, and each address configured for migration, you must configure a local display station or printer on your system.

Devices attached to the TDL on addresses configured for dual session are configured in your system as if they were directly attached to the system. For example, if the TDL is attached to port 3 of your System/38, and a 3196 is attached to port 2 of the TDL at address 4, you would configure a 3196 at port 3, address 4 in the system.

For addresses configured in the TDL for data transfer, configure the corresponding address in both systems as a 5292 Model 2.

Note: The TDL itself is not configured on the system, only the devices attached to it.

How the Transition Data Link Operates

When you connect the TDL to your electrical power outlet, the TDL automatically performs a diagnostic test called the initialization test. If the test shows no problems, the ready light (○) located on the TDL front panel turns on.

Next, the TDL checks all of the display stations or printers attached to port 2 and automatically configures itself to recognize all devices that are turned on. If a

device is turned on later, the TDL will configure itself again during a periodic check, and the device is then available to the system.

Changing to a Different Host Session

When a TDL is connected to two host systems, and you are at an attached display station configured for dual sessions, you can switch between sessions with each host system. You switch sessions by using the change key sequence. While you are in one session, the TDL saves and maintains the other session. It stores the information shown on the last display you were using before the switch occurred, answers polls and commands from the host system, and updates the stored display data with any changes received from the host system. When you return, the TDL presents an up-to-date display.

For best results when using the 5292-2 display stations attached to the TDL, clear all graphic data before switching to the other session. The default change key sequence consists of holding one Shift key down and pressing the other.

Session Labels

When you are using the change key function, the TDL shows a label in the lower right corner of the display to indicate which session you are in. This is a convenient way to tell where you are when you have changed between two host systems.

The default values for these labels are **A** and **B** for the host systems connected to ports 0 and 1 respectively. You can switch from one session to the other if the target session is active (connected to a host system and being polled by that system). If the session is not active, the display alarm sounds and the change is not performed. The session label is displayed in reverse image and covers any data that may be in the location where the label is displayed. The label remains until you press a key. Then the label disappears and the data that may be covered is shown.

Chapter 4. Problem Analysis

The Transition Data Link (TDL) is a non-serviceable unit. If the unit is defective according to the diagnostic procedures, the entire unit is to be replaced. The only parts that can be exchanged are the TDL itself, the 3-Port TDL Attachment, and the power cord.

Basic Inspection Procedure

Follow these basic steps to inspect the TDL for proper operation.

- ___ **Step 1.** Inspect the unit for any external damage or defects.
Replace the unit, if necessary.
- ___ **Step 2.** Test the unit by performing the initialization test described in "Initialization Test."
- ___ **Step 3.** Exchange the unit if failed.
- ___ **Step 4.** Test the new unit by performing the initialization test. ("Initialization Test").

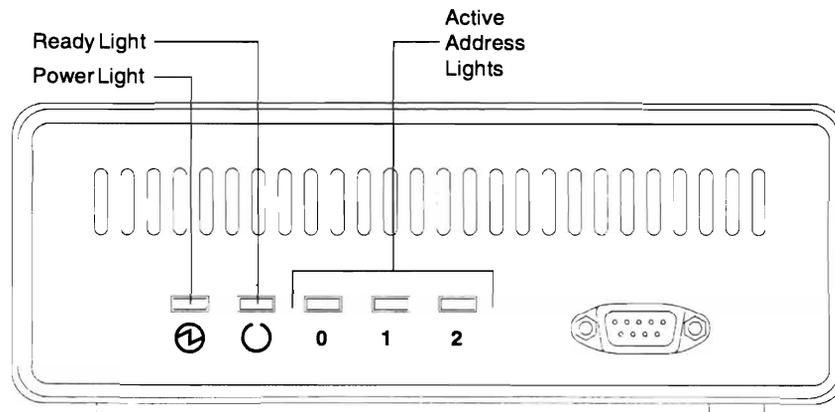
Problem Analysis Procedures

This section contains procedures for identifying and handling problems that might occur with the TDL. Perform the initialization test first, before doing any other problem solving step.

Initialization Test

The initialization test is performed automatically each time you connect the TDL to your electrical outlet. The initialization test will ensure that the TDL is operating properly.

- ___ **Step 1.** Connect the power cord into the rear of the TDL and into an AC outlet.
- ___ **Step 2.** Look at the lights on the front panel. If the unit is operating correctly, you will see the following sequence of lights:



- ___ **Step a.** The Ⓟ (power) light turns on. The Ⓞ (ready), 0, 1, and 2 lights turn on and off quickly. Light 2 may remain on.

- ___ **Step b.** Lights 2, 1, 0, and ○ (ready) turn on sequentially.
 - ___ **Step c.** All lights except ⊕ (power) and ○ (ready) turn off.
 - ___ **Step d.** The lights for 0, 1, and 2 turn on for any attached, active, and configured devices.
- ___ **Step 3.** Did the lights complete the sequence as described in step 2 on page 4-1?
- Yes** See “Operational Problem” on page 4-3, if the TDL is still not operating as expected.
- No** If this is the first time through this step, disconnect the power cord, wait 10 seconds and repeat steps 1 and 2. If this is not the first time through this step, and the ⊕ (power) light is off, go to “Power Light Is Off.” If the ○ (ready) light is off, go to “Ready Light Is Off.”

Power Light Is Off

Begin here if you found a power-related problem after completing the “Initialization Test” on page 4-1. If you have not run the initialization test, go to “Initialization Test” on page 4-1.

- ___ **Step 1.** During the initialization test, did other lights on the front panel of the TDL turn on?
- Yes** The ⊕ (power) light is burned out. Have the TDL replaced.
- No** Check that power is supplied to the TDL.
- ___ **Step 2.** If the power cord is secure and the Power light on the TDL is still off, plug a lamp or a display station into the outlet that the TDL is plugged into to ensure that it has electrical power. If the outlet is bad, call building maintenance or use another outlet.
- ___ **Step 3.** If the outlet has power and the ⊕ (power) light on the TDL is still off, have the TDL replaced.

Ready Light Is Off

Begin here if you found the ○ (ready) light to be off upon completing the “Initialization Test” on page 4-1. If you did not run the initialization test, go to “Initialization Test” on page 4-1.

- ___ **Step 1.** Is the ⊕ (power) light on the front panel of the TDL on?
- Yes** Continue with 2.
- No** Go to “Power Light Is Off.”
- ___ **Step 2.** While watching the lights on the front of the TDL, disconnect, then reconnect the power cord. Did you see all the lights flash on for a second? Repeat the test if you are not sure.
- Yes** Continue with 3.
- No** A light is burned out or not functioning. Have the TDL replaced.
- ___ **Step 3.** Disconnect the power cable. Remove the cables from the 0, 1, and 2 ports.
- ___ **Step 4.** Connect the power cable.

Does the (ready) light turn on when the initialization test is complete?

Yes The problem is in the cabling or with an attached device. This procedure is complete.

No The TDL is not functioning. Have it replaced.

Operational Problem

Begin here if you found an operational problem after completing the "Initialization Test" on page 4-1. If you have not run the initialization test, go to "Initialization Test" on page 4-1.

Working through this procedure, you should find operational problems with the TDL. If you still have a problem after completing each step in order, contact your hardware service representative, or have the TDL replaced.

___ **Step 1.** Ensure that the cable connections to all devices connected to the TDL are securely attached. You may want to ensure that the cables are good by removing them from the TDL and connecting them to some other device that you know is good.

___ **Step 2.** If no other 5250 devices are connected using cable-through to the TDL, which is connected to the hosts, go to step 5.

Note: It is not recommended that you attach devices by cable-through between a host and the TDL.

___ **Step 3.** Ensure that none of the other devices on the host system have the same address as a device attached to or used by the TDL. The devices attached to the TDL will use the same address on both hosts (ports 0 and 1) of the TDL.

___ **Step 4.** Ensure that none of those devices have the terminating switch set to end (terminate) the connection.

___ **Step 5.** Ensure that the configuration for the attached devices is as you had planned; for example, keyboard style, emulated device (if any), and other items. Refer to the user's guide for the attached device.

___ **Step 6.** If the TDL is connected to a remote controller, ensure that the communication link between the controller and the host is working properly.

Note: It is not recommended that you connect the TDL through a remote controller.

___ **Step 7.** Ensure that the TDL is configured properly on the hosts, (see "Configure Host Systems" on page 3-7).

___ **Step 8.** If the (power) and (ready) lights are on, do the host lights (0 or 1) turn on for the hosts that are attached and configured?

Yes Continue with step 14.

No Continue with the next step.

___ **Step 9.** Disconnect the power cable from the TDL. Remove the cables from the 0, 1, and 2 ports.

___ **Step 10.** Connect a known good cable between ports 0 and 2. Connect the power cable to the TDL. This completes a port wrap test on the TDL.

- ___ **Step 11.** The lights on the front panel should complete the sequence as for the initialization test, except that the 0 and 2 lights should stay on and the ○ (ready) light will not turn on. Did the 0 and 2 lights stay on?
- Yes** Continue with the next step.
- No** Ensure that the cable between port 0 and 2 is good. To do this, use the cable to connect a device to a host and check that the device works. If the cable is good, and the 0 and 2 lights do not stay on, record the problem and have the TDL and the Twinaxial Attachment cable replaced.
- ___ **Step 12.** Disconnect the power cable from the TDL. Move the cable from port 0 to port 1. Reconnect the power cable to the TDL and reconnect the power cable to the electrical outlet.
- ___ **Step 13.** The lights on the front panel should complete the sequence as for the initialization test, except that the 1 and 0 lights should stay on and the ○ (ready) light will not turn on. Did the 1 and 0 lights stay on?
- Yes** Check the host connections, cables and configuration again. There is probably not a problem with the TDL that caused the host lights (1 or 2) to not turn on in step 8. The problem may be with the hosts, attached devices, or the cabling. You may want to run the procedure that caused the problem or the TDL initialization test again to ensure the problem. If you want to check the devices attached to the TDL, continue with the next step.
- No** Ensure that the cable between port 1 and 2 is good. To do this, use the cable to connect a device to a host and check that the device works. If the cable is good and the 1 and 2 lights do not stay on, record the problem and have the TDL and the Twinaxial Attachment cable replaced.
- ___ **Step 14.** Is a known good display station, (listed on 1-2), attached to TDL.
- Yes** Go to step 17.
- No** Continue with the next step
- ___ **Step 15.** Disconnect the power cable from the TDL. Connect a display station that you know works to port 2. Use a known good cable to make this connection.
- ___ **Step 16.** Connect the power cable to the TDL.
- ___ **Step 17.** Connect the power cable to the TDL. The TDL should be on and the ⊕ (power) ○ (ready) lights should be on. If they are not, perform the "Initialization Test" on page 4-1 and return to this step.
- ___ **Step 18.** Using the display station attached in step 14 above, press and hold the Shift key and then press the Error Reset key. Does the Select TDL Option (M100) display appear?
- Yes** Continue with the next step.
- No** Check the display and the twinaxial cable connecting the display. Go to 9 on page 4-3. If the wrap steps have already been completed and the display has been verified to be good, record the problem and have the TDL and the Twinaxial Attachment cable replaced.

```
M100                               Select TDL Option
Select one of the following:
    1.
    2. Configure TDL

Selection
-
F3=Exit  F12=Previous

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```

___ **Step 19.** Select option 2 (Configure TDL) and then press the Enter key twice to get the Configure TDL (M200) display.

Note: Pressing the Enter key automatically takes all other display stations and printers attached to the TDL off line. Any current session with either host system will be interrupted. All devices attached to the TDL will appear to both host systems as having the power turned off.

```
M200                               Configure TDL
Select one of the following:
    1. Assign operational modes
    2. Define change key sequence
    3. Assign host labels
    4. Run display exerciser

Selection
-
F3=Exit
```

___ **Step 20.** Did you start this problem analysis procedure because a change key sequence was not working?

Yes Continue with the next step.

No Go to step 23.

___ **Step 21.** Select option 2 (Configure TDL) and then press the Enter key on the Configure TDL display. The Define Change Key Sequence (C200) display appears.

```

C200                      Define Change Key Sequence

Type choices, press Enter.
Press F10 to record change key sequence for 102-key keyboards.

For 102-key keyboards:
Scan codes for
change key sequence . . . . . _ _
Pass-through last
scan code . . . . . _ _      Y=Yes, N=No

For other keyboards:
Scan codes for
change key sequence . . . . . _ _
Pass-through last
scan code . . . . . _ _      Y=Yes, N=No

F3=Exit          F5=Refresh user values      F6=Refresh IBM defaults
F9=Use AZERTY keyboard  F10=Record change key sequence  F12=Previous

```

- Press F6 (Refresh IBM defaults).
- Press F3 (Exit).
- Enter option 1 (Exit configure TDL) to return to normal operation.
- Press the change key sequence.

Does the change key work now? (Two hosts must be attached and configured for the display, and the TDL must be configured for dual session.)

- Yes** Go to step 32.
- No** Do steps 14 through 20 again, and then continue to step 22.

___ **Step 22.** Select option 1 (Assign printer to alternative host) and press the Enter key on the Configure TDL (M100) display. The Assign Operational Modes (C100) display appears. Ensure that the addresses are configured as you planned.

Was the configuration as you planned?

- Yes** Press F12 (Previous) to return to the Configure TDL display and continue with the next step.
- No** Change the configuration of the TDL. You may want to return to normal operation to ensure that the problem still exists. To return to normal operation, press F3 (Exit) and select option 1 (Exit configure TDL).

___ **Step 23.** Make sure all display stations attached to the TDL have the power turned on and are ready. Select option 4 (Run display exerciser). Press the Enter key to start the exerciser. The Display Exerciser Test Patterns (C400) display is shown.

```
C400                Display Exerciser Test Patterns

Number of operations . . . . . :
Devices in error . . . . . :

Press F12=Previous to return and cancel the display exerciser.

F3=Exit  F12=Previous
```

___ **Step 24.** While the tests are running, check the displays of the display stations connected to port 2 on the TDL. Patterns of characters should move across the displays.

Does a test pattern appear on all displays?

Yes Go to step 31.

No Continue with the next step.

___ **Step 25.** See the message

Devices in error ...:

on the display. Numbers appearing on the Devices in error line indicate the addresses of devices not properly communicating with the TDL. For example,

Devices in error: 3

means the TDL cannot communicate with the device using address 3.

If the Devices in error message appears, continue to the next step.

If no Devices in error message appears, go to step 30.

___ **Step 26.** Press F3 (Exit) to stop the exerciser, and select option 1 (Exit configure TDL) to return to normal operation.

Have you exchanged the devices attached to the addresses identified by the Devices in error message?

Yes Continue with the next step.

No Go to step 28.

___ **Step 27.** Do you have an error after exchanging the devices attached to the addresses identified by the Devices in error message?

Yes Ensure that the attached devices are good. This can be done by attaching them to a system and checking their operation. If they are good, record the error messages shown and call your hardware service representative for help.

No The original display station or printer is not working.
Exchange it with a working device. Go to step 31.

- ___ **Step 28.** Disconnect the power cable from the TDL. Exchange the displays or printers identified in the `Devices` in error message with devices that you know work. Ensure that the device address is set correctly. A known good cable should be used. If you have only one printer, you can substitute a working display station for this test.
- ___ **Step 29.** Reconnect the power cable to the TDL.
Go to step 17 on page 4-4 and continue.
- ___ **Step 30.** If the test pattern did not appear on a particular display or printer, and that device address did not appear in the `Devices` in error message, the device is not communicating with the TDL. Check the device for correct cabling and operation.
- ___ **Step 31.** Press F3 (Exit) to stop the exerciser. Select option 1 (Exit configure TDL) to return to online operation.
- ___ **Step 32.** By using these procedures, you have checked the TDL operation and verified the operation of the devices connected to the TDL. Make sure that the cables connecting the host systems and attached devices are securely attached to the proper ports (0, 1, and 2) on the rear panel of the TDL. Make a final verification that all devices are properly connected and configured.

If a problem still exists, call your hardware service representative.

Appendix A. Error Messages

Error messages can occur when you type an entry that the TDL does not recognize as valid for a display or when the TDL itself is not working correctly. When an error occurs, the display station will display an error message in the lower left corner of the display. All the error messages that could occur during basic configuration are shown here in alphabetical order and defined.

Already at bottom of area.

You pressed the Roll Up or Page Down key when you are already at the bottom of the online help information.

Already at top of area.

You pressed the Roll Down or Page Up key when you are already at the top of the online help information.

Configuration storage error. Call your hardware service representative.

This message appears when the TDL cannot store configuration options correctly. Record the message and call your hardware service representative.

Cursor in protected area of display.

You have pressed a data key when the cursor is not in an input area. Press →| to position the cursor in an input area.

Error in the requested entry.

This message appears when the value entered in an option field is not allowed. Select a value from the range of choices indicated for that field.

Function key not allowed.

The function keys allowed for a display are listed at the bottom of the display. Pressing an unlisted function key results in this message.

Key not allowed now.

This message appears when the key you pressed is an entry that is not valid for the display. Valid keys are listed on page 3-3.

No additional help available.

You have pressed the Help key when online help information was already displayed. There is no further information available.

Printing in progress. Press Enter to continue. Press F3 to abort change.

You have attempted to assign a printer to the alternate host when printing was in progress on that printer. Press the Enter key to confirm the change. Press F3 (Exit) to cancel the request.

Selected station is not a printer.

The station you selected for host reassignment is not a printer.

Specified menu option is not correct.

You have selected an option that is not available on the current display.

Type option number.

A menu option is required on this display. Type one of the options listed to continue.



Appendix B. Safety Inspection Guide for IBM Service Representatives

Before performing the inspection procedures contained in this guide, ensure that present conditions are safe, and the power cord is disconnected.

Safety Conditions

If the present conditions are not safe, you must determine if the condition is serious. For example, the following conditions are not safe:

- **Electrical:** In the primary power area, a frame that is not grounded
- **Mechanical:** Missing, damaged, or changed covers or parts
- **Other:** Leaking capacitors or a damaged terminal

You must determine if the problem should be repaired before you can continue with this inspection.

Safety Education

Before performing the inspection procedures contained in this guide, you must have completed the *General Safety Training Course* (latest level).

Chemicals

Do not use solvents, cleaners, or other chemicals not approved by IBM.

Performing the Inspection

The design and assembly of IBM machines includes safety items installed to protect operators and service representatives from injury. This inspection guide identifies areas of the machine to check for safety. Use good judgement to identify

other safety conditions not covered by this inspection guide.

Reference Information

Ensure that the following reference information is available:

- *Service Memorandums (SMS)*, including *Engineering Change Announcements (ECAs)* and *Service Aids (SAs)* for this machine type
- *Electrical Safety for IBM Service Representatives*

Power Cord

Check	Step
<input type="checkbox"/>	Disconnect the power cord at the customer power outlet.
<input type="checkbox"/>	Check the power cord for visible cracks, wear, or damage.
<input type="checkbox"/>	Ensure that the power cord has the correct plug. See "Power Plugs and Receptacles" on page 2-3.
<input type="checkbox"/>	Check for 0.2 ohm or less resistance between the ground pins on the power cord.

Labels

Check	Step
<input type="checkbox"/>	Ensure that the TDL has the labels listed below.

1. Indicator label (on front)
2. Product label (on rear)

System Covers

- | Check | Step |
|--------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> | Disconnect the power cord from the customer power outlet. |
| <input type="checkbox"/> | Ensure that the product covers are not loose or broken. |
| <input type="checkbox"/> | Ensure that the covers have no sharp edges. |
| <input type="checkbox"/> | Connect the power cord to the customer power outlet. |

Power

- | Check | Step |
|--------------------------|---------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Connect the power cord to the customer power outlet. Verify that the Ⓟ (power) light is on. |

Return the TDL to operation.

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Reader Comments—We'd Like to Hear from You!

AS/400 Advanced 36
 Transition Data Link User's Guide
 9402 Model 236

Publication No. SC21-8372-00

Overall, how would you rate this manual?

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
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How satisfied are you that the information in this manual is:

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Complete				
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Easy to understand				
Well organized				
Applicable to your tasks				

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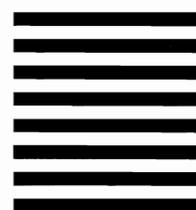
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ROCHESTER MN 55901-9986



Fold and Tape

Please do not staple

Fold and Tape

Cut or Fold
Along Line





Part Number: 87G3301
Program Number: 5727-SSP

Printed in U.S.A.



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