Application System/400

SA41-3136-00

Port Tester Use

Version 3

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Take Note!

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

First Edition (May 1994)

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Contents

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Danger Notices

A danger notice indicates a hazard that could possibly cause death or serious personal injury.

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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A caution notice indicates a hazard that could possibly cause minor personal injury.

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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 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.

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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

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Chapter 1. Introducing Your Port Tester

This guide is for customers and service representatives who are using the IBM* Twinaxial Workstation Controller Port Tester (IBM Part Number 93X2040 or 59X4262) to help isolate twinaxial cabling and port problems. This hand-held, battery-powered tool attaches directly to a twinaxial or twisted-pair workstation controller port or cable, or to the twinaxial adapter on IBM cabling systems. You can do a port tester self test, a twinaxial test, or a twisted-pair test with your port tester.

The port tester detects and analyzes a signal that is sent out approximately every 10 seconds from the twinaxial workstation controller. The port tester detects most twinaxial cable problems. However, a test may indicate a good condition even though there is a problem because of the following:

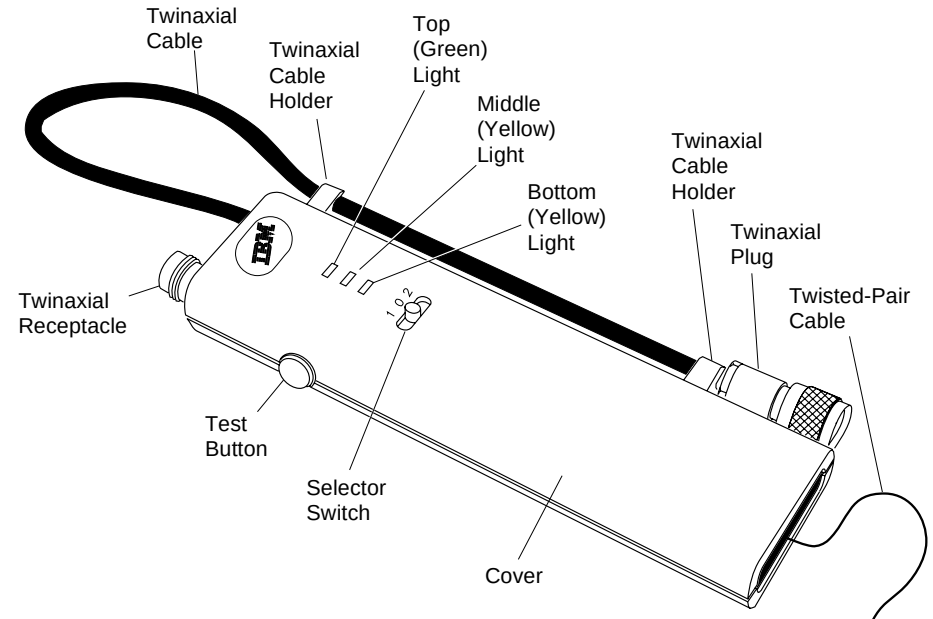
- The port tester with two lights (IBM part number 93X2040) cannot detect cable impedance problems, open shield problems, or intermittent problems.
- The port tester with three lights (IBM part number 59X4262) cannot detect intermittent problems. However, it can detect cable impedance problems (low signal strength) and twinaxial open shield problems.

Note: If you are a service representative, see the “Twinaxial Cabling Troubleshooting Guide, SY31-0703,” for more information on solving cable problems.

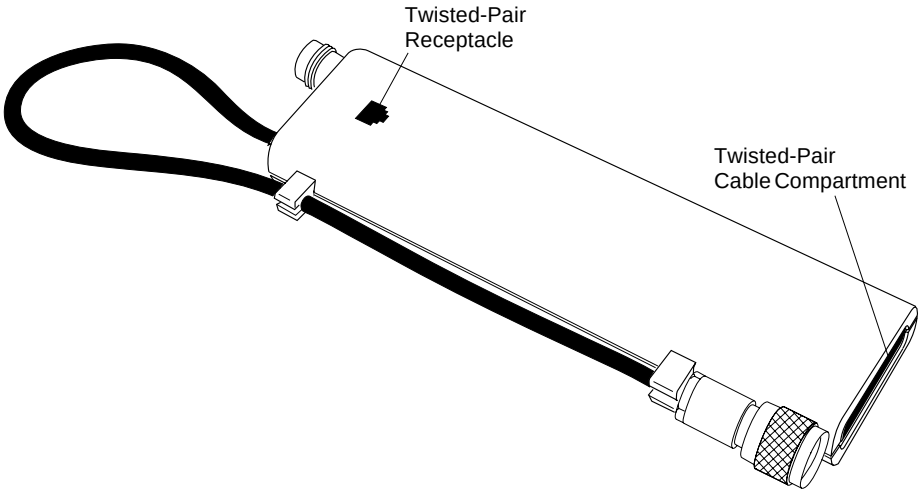
The following diagrams show the port tester.

Note: The middle (yellow) light is only on the IBM part number 59X4262 port tester.

Front View



Back View



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Chapter 2. Port Tester Operation

DANGER

To prevent a possible electrical shock, do not use the port tester during electrical storms. *(RSFTD006)*

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)*

Self Test

A self test of the port tester can be made at any time, even when it is attached to a port or cable. The self test tells you if the port tester is ready to be used.

1. Move the selector switch to the center (0) position.
2. Push and hold the test button until all lights come on. The yellow light(s) should come on immediately and the green light should come on about 5 seconds later. The port tester is ready for use if all lights come on.

   Note: If all lights do not come on, either the battery needs exchanging or the port tester is defective. Exchange the battery (see Chapter 3, “Servicing Your Port Tester” on page 9) and repeat the self test. If all lights still do not come on, call your IBM representative for information on how to exchange your port tester.

Twinaxial Test

Note: If you were referred to this guide from another procedure, use this guide for reference but continue with that procedure to isolate the problem. Otherwise, use this procedure to isolate the problem.

The system power must be on, an IPL (initial program load) of the system must be completed, and the cable you are testing must be connected to the system before doing the twinaxial test.

Warning: Remove and connect cables carefully. You may damage the connectors if you use too much force.

1. Do the self test to make sure your port tester is working correctly.
2. Move the selector switch to the left (1) position.

3. Attach the correct port tester twinaxial connector to the port or cable to be tested, or to a twinaxial adapter attached to the cable to be tested.

   Do not connect the port tester to more than one port or cable. The port tester does not have cable-through capability.

   Note: If the twinaxial plug is needed, remove the twinaxial cable from the twinaxial cable holders located on the side of the port tester.

4. If your port tester has three lights (IBM part number 59X4262), go to step 8 of this procedure.

   If your port tester has two lights (IBM part number 93X2040), continue with the next step.

5. Push and hold the test button for 15 seconds or until one of the following occurs:

   a. Only the top (green) light comes on. This indicates that the port or cable is good between the port tester and the workstation controller.

   b. Only the bottom (yellow) light comes on. This indicates that the wires in the cable are reversed somewhere between the port tester and the workstation controller.

   c. None of the lights come on. This indicates that there is no signal detected on the cable between the port tester and the workstation controller, or your port tester is not working correctly.

      This can also indicate that:

      - The selector switch is in the wrong position.
      - The port tester is attached to a cable that is not connected to the system.
      - The attachment to the port or cable is not secure.

      If this is a valid indication, or your port tester is not working correctly, call your service representative.

   d. All of the lights come on. This indicates that either the selector switch is in the self test position or the port tester is not working correctly. If the port tester is not working correctly, call your service representative.

6. Remove the port tester connector from the cable or port you tested.

7. If the twinaxial plug was used, put the twinaxial cable back into the twinaxial cable holders.

   This ends the procedure.

8. Push and hold the test button for 15 seconds or until one of the following occurs:

   a. Only the top (green) light comes on. This indicates that the port or cable is good and there is no open shield problem on the port or cable you are testing.

      Note: There may still be open shield problems somewhere on the port you are testing. To ensure there are no open shield problems, you must test the end of every cable at the input to each device that is attached to the port you are testing.

b. Only the top (green) and the middle (yellow) lights come on. This indicates that there is an open shield between the port tester and the device or workstation controller that the cable is attached to.

   Note: The following open shield indications are not considered problems:

   - The twinaxial test may detect an open shield problem if testing a fiber optic to twinaxial adapter.
   - The twinaxial test will indicate an open shield problem if testing a telephone-twisted pair to twinaxial adapter.
   - The twinaxial test may indicate an open shield problem if testing a twinaxial cable with an inline station protector. If the test indicates an open shield problem, you must temporarily exchange the station protector with a cable to cable twinaxial adapter to get a valid test.

c. Only the bottom (yellow) light comes on. This indicates that the wires in the cable are reversed somewhere between the port tester and the workstation controller. After solving this problem, you should test the cable again for open shield problems.

d. None of the lights come on. This indicates that either there is an open circuit or short circuit in the wires, a cable impedance problem caused by low signal strength, or the port tester is not working correctly.

   This can also indicate that:

   - The selector switch is in the wrong position.
   - The port tester is attached to a cable that is not connected to the system.
   - The attachment to the port or cable is not secure.

   If this is a valid indication, or your port tester is not working correctly, call your service representative.

e. All of the lights come on. This indicates that either the selector switch is in the self test position or the port tester is not working correctly. If the port tester is not working correctly, call your service representative.

f. Any other combination of lights not covered previously. This indication is not valid. Perform the test again. If you get another indication that is not valid, call your service representative.

9. Remove the port tester connector from the cable or port you tested.
10. If the twinaxial plug was used, put the twinaxial cable back into the twinaxial cable holders.

Note: The “Quick Reference Tables” on page 8 can be copied and kept with your port tester. It describes the port tester light combinations.

Twisted-Pair Test

Note: If you were referred to this guide from another procedure, use this guide for reference but continue with that procedure to isolate the problem. Otherwise, use this procedure to isolate the problem.

The system power must be on, an IPL (initial program load) of the system must be completed, and the cable you are testing must be connected to the system before doing the twisted-pair test.

Warning: Remove and connect cables carefully. You may damage the connectors if you use too much force.

1. Do the self test to make sure your port tester is working correctly.
2. Move the selector switch to the right (2) position.
3. Attach the correct port tester twisted-pair connector to the port or cable to be tested.

   Do not connect the port tester to more than one port or cable. The port tester does not have cable-through capability.

   Note: If the twisted-pair plug is needed, remove it from the twisted-pair cable compartment located at the bottom of the port tester.
4. If your port tester has three lights (IBM part number 59X4262), go to step 8 of this procedure.

   If your port tester has two lights (IBM part number 93X2040), continue with the next step.
5. Push and hold the test button for 15 seconds or until one of the following occurs:
   a. Only the top (green) light comes on. This indicates that the port or cable is good between the port tester and the workstation controller.
   b. Only the bottom (yellow) light comes on. This indicates that the wires in the cable are reversed somewhere between the port tester and the workstation controller.
   c. None of the lights come on. This indicates that there is no signal detected on the cable between the port tester and the workstation controller, or the port tester is not working correctly.

      This can also indicate that:

      - The selector switch is in the wrong position.
      - The port tester is attached to a cable that is not connected to the system.
      - The attachment to the port or cable is not secure.
      - The twisted-pair cable that you are testing is using pins 3 and 4 instead of pins 2 and 5. The port tester only checks pins 2 and 5.

      If this is a valid indication, or your port tester is not working correctly, call your service representative.
   d. All of the lights come on. This indicates that the selector switch is in the self test position or the port tester is not working correctly. If the port tester is not working correctly, call your service representative.

6. Remove the port tester connector from the cable or port you tested.
7. If the twisted-pair plug was used, put the twisted-pair cable back into the twisted-pair cable compartment.

   This ends the procedure.
8. Push and hold the test button for 15 seconds or until one of the following occurs:
   a. Only the top (green) and the middle (yellow) lights come on. This indicates that the port or cable is good between the port tester and the workstation controller.

      Note: Twisted-pair wiring is not shielded. Therefore, there is no open-shield problem.

   b. Only the bottom (yellow) light comes on. This indicates that the wires in the cable are reversed somewhere between the port tester and the workstation controller.

   c. None of the lights come on. This indicates that either there is an open circuit or short circuit in the wires, a cable impedance problem caused by low signal strength, or the port tester is not working correctly.

      This can also indicate that:

      - The selector switch is in the wrong position.
      - The port tester is attached to a cable that is not connected to the system.
      - The attachment to the port or cable is not secure.
      - The twisted-pair cable that you are testing is using pins 3 and 4 instead of pins 2 and 5. The port tester only checks pins 2 and 5.

      If this is a valid indication, or your port tester is not working correctly, call your service representative.

   d. All of the lights come on. This indicates that the selector switch is in the self test position or the port tester is not working correctly. If the port tester is not working correctly, call your service representative.

   e. Any other combination of lights not covered previously. This indication is not valid. Perform the test again. If you get another indication that is not valid, call your service representative.
9. Remove the port tester connector from the cable or port you tested.
10. If the twisted-pair plug was used, put the twisted-pair cable back into the twisted-pair compartment.

Note: The “Quick Reference Tables” on page 8 can be copied and kept with your port tester. It describes the port tester light combinations.

Quick Reference Tables

These tables describe the port tester light combinations. You can copy the appropriate table and keep it with your port tester for quick reference.

Table 1. Port Tester with Three Lights (P/N 59X4262)

Top (Green)	Middle (Yellow)	Bottom (Yellow)	Selector Switch	Test Result	Description
On	Off	Off	1	Good (Twinaxial)	Cable tested is good
Off	Off	On	1 or 2	Bad	Wires reversed
Off	Off	Off	1 or 2	Bad	No signal detected
On	On	On	0	Good (Self-Test)	Selector switch in self-test (0) position
On	On	Off	1 2	Bad (Twinaxial) Good (Twisted-Pair)	Twinaxial cable has an open shield Twisted-pair cable tested is good
On	Off	On		Not Valid	Not valid
Off	On	Off		Not Valid	Not valid
Off	On	On		Not Valid	Not valid

Table 2. Port Tester with Two Lights (P/N 93X2040)

Top (Green)	Bottom (Yellow)	Test Result	Description
On	Off	Good	Cable tested is good
Off	On	Bad	Wires reversed
Off	Off	Bad	No signal detected
On	On	Good	Selector switch in self-test (0) position

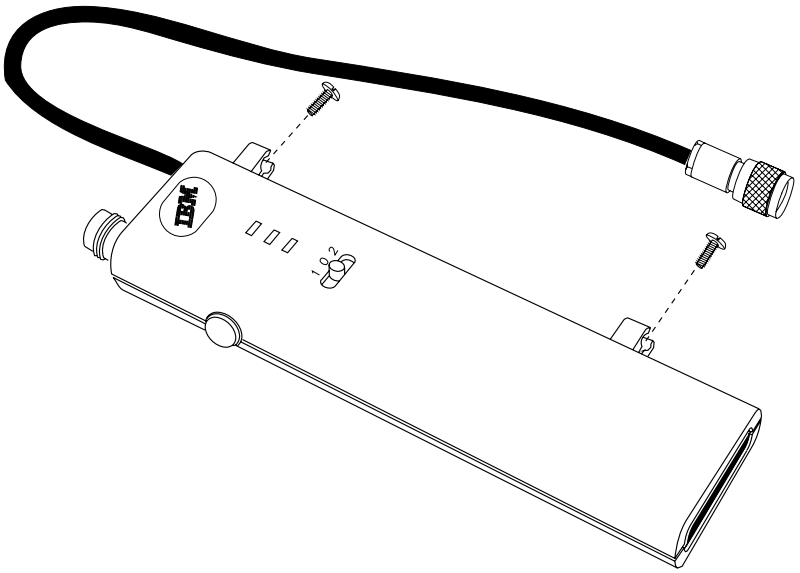
Chapter 3. Servicing Your Port Tester

If your port tester is not working correctly, or the port tester is giving indications that are not valid, exchange the battery by doing the battery exchanging procedure below.

Exchanging the Battery

CAUTION:
Do not charge the battery again, open the battery pack, or put the battery in a place hotter than 100 degrees Celsius (212 degrees Fahrenheit). *(RSFTC062)*

1. Remove the twinaxial cable from the twinaxial cable holders.
2. Remove the port tester cover by doing the following:
   a. Insert a screwdriver into the opening between the two halves of the port tester cover at a cable holder location and remove the screw (see diagram below).
   b. Repeat the above step at the other cable holder location.
   c. Carefully open the port tester cover, making sure not to loosen any wire connections.



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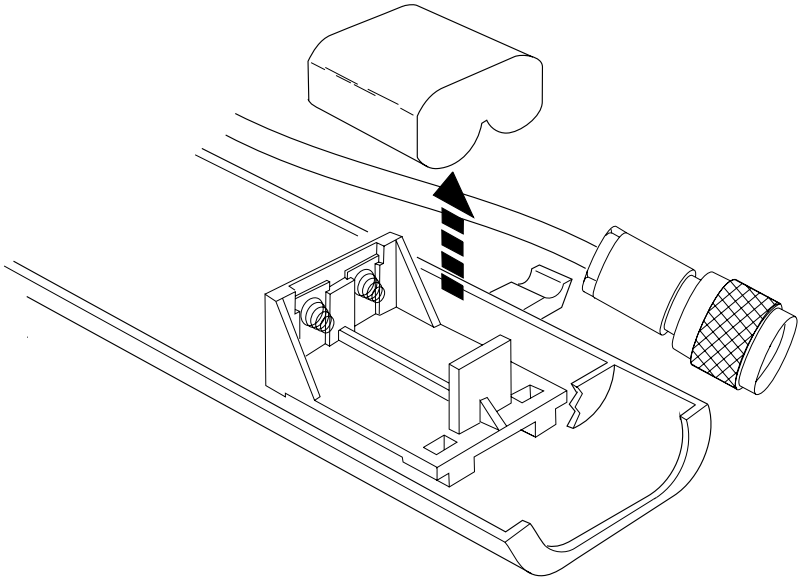
3. Remove the lithium battery from the battery compartment.

   CAUTION:
   This product contains a lithium battery. Do not burn, exchange, or charge the battery. Discard the product as instructed by local regulations for lithium batteries. *(RSFTC232)*



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4. Put a new battery (IBM Part Number 72X8498) into the battery compartment.
5. Carefully snap the port tester cover back into place and replace the screws.
6. Put the twinaxial cable back into the twinaxial cable holders.
7. Do the “Self Test” on page 3 to make sure your port tester is working correctly.
8. If exchanging the battery does not correct the problem, call your IBM representative for information on how to exchange your port tester.

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

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Port Tester Use
Version 3

Publication No. SA41-3136-00

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	Very Satisfied	Satisfied	Dissatis-fied	Very Dissatis-fied
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