



iSeries

# Safety Inspection

*Version 5*

SY44-5943-08







@server

iSeries

Safety Inspection

*Version 5*

SY44-5943-08

**Note**

Before using this information and the product it supports, be sure to read the information in "Notices" on page iii.

**Eighth Edition (February 2003)**

This edition replaces SY44-5943-07. This edition applies only to reduced instruction set computer (RISC) systems.

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# System Safety Inspection

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## Introduction

### Perform a safety inspection for the system:

- When inspected for an IBM maintenance agreement.
- When IBM service is requested, and IBM has recently performed no service.
- When an alteration and attachments review are performed.
- When changes have been made to the equipment that might affect its safety.

If the inspection indicates safety conditions that are not acceptable, the conditions must be corrected before IBM services the machine.

**Note:** The correction of any unsafe condition is the responsibility of the system owner.

### While performing this inspection, special attention must be given to these areas:

- Feature and model changes and engineering change (EC) upgrades
- Additions of non-IBM power supplies or attachments
- Missing safety covers
- Removed, faded, or painted-over safety labels
- Replacement requirements concerning parts for primary power
- Any other items related to the product's safety

**Before you start**, you must have completed the *Electrical Safety Education Course for IBM Service Representatives* (self-study course 77170 or equivalent).

### You will need these items:

- An IBM service representative tool kit (or equivalent)
- A copy of iSeries Service Memorandums (SMs), which include engineering change announcements (ECAs) and service aids (SAs) documents for the system
- Latest machine history, if possible
- *Electrical Safety for IBM Service Representatives*, S229-8124
- A Fluke\*\* 8060A digital voltmeter (part 8496278) or equivalent

Perform each safety check on the following pages and place a check mark in front of each item as you complete it.

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## Covers

### All Models

1. Check for damaged or missing covers.
2. Check covers for sharp edges.

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## AC Power Cords

### All Models

1. With the machine powered off, remove the power cord from the electrical outlet.
2. Check the power cord and power plug for visible cracks, wear, or damage.
3. Check for 0.1 ohm or less of resistance between the power cord ground and the power supply frame.
4. Ensure that the power cord is fully inserted and secured into position on the machine end.
5. Ensure that the power cord required for your country and system is installed.
6. Check the customer's wiring to ensure correct voltage and ground are present.
7. Verify that the correct power cord for Model 890 is used.

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## AC Safety Grounds

### **Models 150, 170, 250, 270, 2xx, 3xx, 4xx, 500, 510, 50S, 600, 620, 640, 650, 720, 730, 740, 810, 820, 825, 830, 840, 870, 890, S10, S20, S30, S40, SB1, SB2, and SB3, Expansion Units 506x, 507x, 508x, 7104, 5094, 5095, 0595, and I/O Expansion Units 650, 830, S40, and SB1**

1. If power supply is mounted with screws, ensure that all power supply mounting screws are tight and power supply is held securely in place.
2. For systems equipped with Uninterruptible Power Supply, ensure that the mounting screws of the internal Uninterruptible Power Supply are tight.
3. If power supply is secured with latches or locking handle, ensure power supply is fully seated and latches or handles hold supply securely in place.

### **Models 530 and 53S**

1. Ensure that the mounting screws at the back of the ac module by the earthing symbol are tight on the I/O and Processor sides.

### **Model 820 and 5075 Feature Expansion Units**

1. Ensure that the internal green and yellow grounding wire extending off of the input power coupler is securely fastened to the frame of the system and the input power coupler is securely fastened to the frame of the system. Also, visually inspect the insulation (heat-shrink tubing) placed over the internal cable connection leads on the back side of the input power coupler to ensure it is in place and in good repair (do not remove the cable to perform this inspection).

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## Safety Labels

Ensure that all the safety labels are visible and readable:

### **Model 150**

1. Main power rating on the frame under the left side cover below the power supply.

## **Models 170 and 250**

1. Information label that is attached to the outside back of the base frame in the PCI card cage recess.
2. Main power rating label that is attached to the outside back of the base unit and the expansion unit frames near the power-supply for input power connector.
3. (For system with expansion unit only.) Multiple line cord label that is attached to the outside back of the base expansion unit connector bracket near the input power connector.

## **Model 270, 810, 820, and 5075 Feature Expansion Units**

1. Main power rating that is attached to the outside back frame near the PCI card cage recess.

## **Model 270 with 7104 Feature Expansion Unit**

1. Multiple line cord label placed on the back of the 270 system unit chassis.

## **Model 810 with 7116 Feature Expansion Unit**

1. Multiple line cord label placed on the back of the 810 system unit chassis.

## **Models 870 and 890 with 5102 Feature Dual Line Cord**

1. Multiple line cord label placed on the back of the 870 or 890 system unit input power connector housing.

## **Models 2xx and 4xx**

1. Main power rating on the frame behind the front cover.

## **Models 3xx, 500, 510, 50S, Feature Expansion Units 506x, 507x, 508x, 5094, 7104, 7116, and I/O Expansion Units 650, S40, and SB1**

1. Main power rating attached to the right side frame at the back of the machine.
2. 240 V ac attached to each 23 pin connector (J2 and J3) on ac modules that have system power control network (SPCN) connectors (J15 and J16) (46G3576).
3. Danger up to 240 V ac attached to the bottom frame under the power supplies (46G3575).
4. Weight restriction label attached under the handle on the cover of the External Battery Backup Unit (74F9976).

## **Models 530 and 53S**

1. Two main power rating attached to the right side frame of the I/O side at the back of the machine; one for I/O side card and one for processor side card.
2. Two power cords on the back of the blower assembly on the processor side at the back of the machine (87G6349).
3. Two power cords on the top, right side on the fan assembly of the I/O side at the back of the machine (87G6350).
4. Two energy hazard alert #1 under removable media carriers in front on I/O side (87G6352).

5. Two energy hazard alert #1 on top of MCM blower hood on processor side (87G6352).
6. One energy hazard alert #1 attached to floor of processor side cage area under the bottom MCM blower hood (87G6352).
7. Energy hazard alert #2 on top of storage expansion unit backplate on I/O side (87G6353).
8. Energy hazard alert #2 on I/O side that is left side of frame next to bolt holes for processor side (87G6353).
9. Energy hazard alert #2 inside storage expansion unit front that folds down and back covers on I/O side (87G6353).
10. High voltage alert on AC box under feature bulk #1, and 2 on processor side (87G6352).
11. High voltage alert inside feature bulk slot #3, 4, 5, and 6 on processor side (87G6352).
12. High voltage alert on front of frame, across the bottom, below AC box assembly on I/O side (87G6355).
13. 240V AC alert on AC box next to feature bulk power supply connectors on processor side (46G3576).
14. Weight label that is attached to MCM duct seal on processor side (74F9976).
15. Weight label on side of internal processor side battery power unit (74F9976).
16. Battery disposal label on battery backup unit assembly on processor side (86G7886).

### **Models 600 and S10**

1. Main power rating attached to the inside of the right side flange on the rear of the frame under the rear cover.

### **Models 620, 720, and S20**

1. Main power rating attached to the rear of the internal Uninterruptible Power Supply under the output connector panel.
2. Caution Lead Acid Battery on side of Uninterruptible Power Supply battery trays (21H7089).
3. 240V ac near the connectors at the back of the Uninterruptible Power Supply transformer compartment (46G3576).

### **Expansion Unit 5095 and 0595**

1. Main Power rating attached top top of frame in front of system blowers (0595) or on right side of frame in front of system blowers (5095).
2. Weight label attached to both side of frames (0595).

### **Model 825**

1. Main power rating attached to front of frame on left side, below the lower fan.
2. Weight label attached to back of chassis near multiple-line cord label.

### **Models 640, 650, 730, 740, 840, 870, 890, S30, S40, SB1, and SB3**

1. Main power rating attached to the left side frame at the back of the machine.
2. Danger up to 240 V ac is attached to the bottom frame under each power supply (90H6275).

3. Caution Lead Acid Battery label attached to side of internal battery unit (21H7089).
4. Weight restriction label attached to top of internal battery (74F9976).
5. Weight restriction label attached to top of power sub-frame assembly (74F9976).
6. Model 640 and S30 only: Two weight restriction labels attached to SPD/DASD cage sub-frame assembly (74F9976).
7. Two weight restriction labels attached to active back plane assembly (74F9976).
8. Main power rating attached to back plate on external battery unit.
9. Caution lead Acid battery label attached to back plate on external battery unit (21H7089).
10. Weight restriction label attached to base at rear of external battery unit (74F9978).

### **Models 830, SB2, and Expansion Units 5065, 5066, 5074, 5079, 9079**

1. Main power rating attached to the inside front bottom flange of the frame inside the front cover.

### **Models 810, 820, 825, 830, 840, SB2, SB3 and Expansion units 5065, 5066, 5074, 5079, 9079, 5094, and 5095 with dual line cord option**

1. Multiple line cord label attached to back of system near main power input.

### **Models 870 and 890**

1. Multiple line cord label placed at the top of the frame above the bulk power assembly, front and back (11P3749).
2. Current leakage label placed at the top of the frame above the bulk power assembly. (11P3638).
3. Information rating label placed on the left vertical frame member, front and back.
4. Fan warning label placed near the fan (11P1786).
5. Hazardous voltage label on each bulk power assembly near test points (front 75F9525, back 75F9283).
6. Hazardous voltage label on each bulk power assembly (near integrated battery feature (IBF) port).
7. Hazardous Voltage label on each motor drive assembly (MDA) fan controller.
8. Hazardous Voltage label on each optional integrated battery feature (IBF), near the circuit breaker.
9. Weight label on each optional integrated battery feature (IBF) (5423462).

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## **Power Off and On (System Unit)**

### **All Models**

1. Ensure that the system powers off correctly.
2. Ensure that the system powers on correctly.

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## Internal Mechanical Inspection

### Models 170 and 250

1. Ensure that the finger guards are in place on the exhaust side of the base PCI card fan and CEC fan. (The CEC finger guards are located under the EMC shield.) Ensure that the finger guard is securely in place on the intake side of the expansion fan.

If no enclosure guard is present, ensure that the finger guard is securely in place on the intake side of the base CEC fan.

2. Ensure that the stabilizer feet on the base unit and the expansion unit are securely fastened to the frame.

### Models 270, 810, and 5075 Feature Expansion Units

1. Ensure that the fan guards are securely in place on the intake and exhaust sides of all fans installed in the system. (The power-supply enclosure provides guarding for power-supply fans).
2. Ensure that the stabilizer feet are securely fastened to the frame of the system.

### Models 3xx, 4xx, 500, 510, 50S, and 53x I/O Side, Feature Expansion Units, 507x and 508x, and I/O Expansion Units for 650, S40, and SB1

1. Ensure that fan shields are installed on the ac module fan assembly.
2. Ensure that the EMC shield is installed over the power supplies.
3. Ensure that the card retainers are installed on the front and back of the card enclosure.
4. Ensure that the latch to lock the bottom adapter card is installed on all Magnetic Storage IOP (2624) cards with part number 21F4863.
5. Ensure that the safety shield is installed over the left side of the expansion unit blower assembly.
6. Check the external battery backup power supply cable (if present) for visible cracks, wear, or damage.

### I/O Expansion Units 5065, 5066, 5074, 5079, 9079, 5094

1. Ensure that finger guards are in place on both sides of the fans in the PCI card area.
2. Check the jumper cord from the battery pack to the ac box for visible cracks, wear, or damage to the insulation.
3. Verify that the PCI board is covered by a clear insulating material (I/O Expansion Units 5065 and 5066 do not apply).

### Expansion Units 5095 and 0595

1. Ensure stabilizer feet are securely fastened to the frame.
2. Verify PCI backplane is cover by plastic insulator sheet.

### Models 53x Processor Side

1. Check the internal battery backup power supply cable for visible cracks, wear, or damage.
2. Check for sharp edges around the opening by battery cable.

3. Ensure that fan shields are installed on the ac module fan assembly (upper right-3 fans).
4. Ensure that the EMC shield is installed over the power supplies (front upper left).
5. Check the flat, wide copper cables (FDS cables) for damage to the clear insulation.

## **Models 600 and S10**

1. Ensure that finger guards are in place on both sides of all fans in the PCI card areas.
2. Ensure that finger guards are in place on both sides of the fan in the UPS compartment.
3. Ensure that finger guards are in place on both sides of the fan in the expansion pedestal.
4. Ensure that finger guards are in place on both sides of the fan under the SPD Book cage (if installed).

## **Models 620, 720, and S20**

1. Ensure that finger guards are in place on both sides of all fans in the PCI card areas.
2. Ensure that finger guards are in place on both sides of the fan in the UPS compartment.
3. Ensure that finger guards are in place on both sides of the fan in the expansion pedestal.
4. Ensure that finger guards are in place on both sides of the fan under the SPD Book cage (if installed).
5. Check the jumper cables between Uninterruptible Power Supply and system power supplies for visible cracks, wear, or damage to insulation.
6. Ensure that the jumper cables between the Uninterruptible Power Supply and the system power supplies are fully inserted in their connectors at each end.
7. Check that the cables attached to the battery packs show no visible sign of insulation damage, cracks, or wear.
8. Verify that only the following parts (and no others) are attached with slotted-head screws and that they are attached with only slotted-head screws. (To attach these part, do not use No non-slotted head screws.)
  - a. Plastic side covers, processor, and expansion sides.
  - b. Side EMC shields on both processor and expansion sides.
  - c. All PCI cards.
  - d. EMC screens on front of Disk Drive compartments.
  - e. Processor cage cover.

## **Models 640, 650, 730, 740, 840, S30, S40, SB1, and SB3**

1. Model 640 and S30 only: Ensure that the retainer that holds the vertical SPD card separators is in place.
2. Ensure that the vertical rods between DASD units are in place (model 64x only).
3. Ensure that the EMC shield is installed over the charger and internal battery unit.
4. Ensure that the EMC shields are installed over all cages.

## **Model 820 and 825**

1. Ensure that fan guards are securely in place on the intake and exhaust sides of all fans installed in the system (power supply enclosure provides guarding for power supply fans).

## **Model 825**

1. Verify PCI backplane is covered by a plastic insulator sheet.

## **Models 830 and SB2**

1. Ensure that the finger guards are in place on both sides of the fans in the PCI card area and in front of the processor area.
2. Check the jumper cord from the battery pack to the ac box for visible cracks, wear, or damage to the insulation.
3. Verify that the PCI board is covered by a clear insulating material (Expansion Units 5065 and 5066 do not apply).

## **Models 870 and 890**

1. Ensure that the security bars are in place over the memory books. One is placed over the left four memory books and one is placed over the right four memory books.
2. Ensure that the security bars are in place over the I/O books. One is placed over the left two I/O books and one is placed over the right two I/O books.

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Safety Inspection  
Version 5

Publication No. SY44-5943-08

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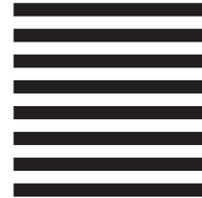
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