



Maintenance Library

3205

**Color Display Console
Maintenance Information**

Second Edition, (September, 1985)

This major revision obsoletes SY18-2121-0 and SN18-2262 (TNL). Changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

IBM has prepared this maintenance manual for the use of IBM customer engineers in the installation, maintenance, or repair of the specific machines indicated. IBM makes no representations that it is suitable for any other purpose.

It is possible that this material may contain reference to, or information about, IBM products (machines and programs), programming, or services that are not announced in your country. Such references or information must not be construed to mean that IBM intends to announce such IBM products, programming, or services in your country.

Publications are not stocked at the address given below; requests for IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for reader's comments is provided at the back of this publication; if the form has been removed, comments may be addressed to IBM Corporation, Department 6R1 J, 180 Kost Road, Mechanicsburg, PA 17055 U.S.A. IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

SAFETY NOTICE

CAUTION

- To avoid electrical shock, turn power off and disconnect the power plug before exchanging any FRU.
- CRTs are under vacuum. All persons working near an exposed CRT should wear safety glasses and long-sleeved clothing (or comparable protection).
- Do not power on without rear cover.
- Do not adjust inside of the video unit.
- The power attachment cable plug (when supplied) is approved for use with this console and meets the relevant testing laboratory, country, or test-house standards. For your safety, the plug must be connected to a properly wired and grounded receptacle. An improperly wired receptacle could place a hazardous voltage on accessible metal parts of the work station.

Rules for Safety

If (1) you know the safety rules for working with electrical and mechanical equipment and (2) you observe the rules, you can work safely with IBM equipment.

Do not fear electricity, but respect it.

While you are maintaining IBM equipment, (1) observe every safety precaution possible and (2) observe the following safety rules.

Work Environment

- Do not work alone in hazardous conditions or near equipment that has dangerous voltages. Always inform your manager if the conditions or voltages are a possible problem.
- Always look for possible hazards in your work environment. Examples of hazards are: moist floors, nongrounded extension cables, power surges, and missing safety grounds.
- Do not perform any action that makes the product unsafe or that causes hazards for the customer personnel.
- Before you start the equipment, ensure that other CSRs and customer personnel are not in a hazardous position.
- Do not wear loose clothing that can be trapped in the moving parts of a machine. Ensure that the sleeves of your clothing are fastened or are rolled above the elbow. If your hair is long, or if you wear a neck scarf, fasten it to make it safe.
- Insert your necktie into your clothing or fasten it with a clip (preferably nonconductive) at approximately 8 centimeters (3 inches) from its end.
- Lift the equipment or parts by standing or pushing up with your stronger leg muscles; this action removes the strain from the muscles in your back. Do not lift any equipment or parts that are too heavy for you.
- Put removed machine covers in a safe place while you are servicing the machine. Reinstall the covers before returning the machine to the customer.

- Always keep your CSR tool kit away from walk areas so that other persons cannot trip over it. For example, keep the kit under a desk or table.
- Observe good housekeeping practices in the area of the machines while you are performing maintenance and after completing it.
- After maintenance, reinstall all safety devices, such as guards, shields, labels, and ground wires. Exchange safety devices that are worn or defective. (**Remember:** the safety devices protect you from a hazard. You destroy their purpose if you do not reinstall them when you have completed the service call.)

Electrical Safety

- If possible, always unplug the power-supply cable before you work on a machine. When you switch off power at the wall box, lock the switch in the off position or attach a DO NOT OPERATE tag (Z229-0237) to the switch.

Note: A non-IBM attachment to an IBM machine may be powered from another source and may be controlled by a different switch or circuit breaker.
- Switch off all power before (1) removing or assembling the main units of the equipment, (2) working near power supplies, (3) inspecting power supplies, or (4) installing changes in machine circuits.
- Unless the maintenance documents specifically instruct you, do not service the following parts with power on if the part is removed from its installed position in the machine: power supplies, pumps, blowers, motor generators, and other units with voltages that are more than 30 V ac or 42.4 V dc. (This rule ensures that correct grounding is maintained.)
- If you really need to work on equipment that has exposed live electrical circuits, observe the following precautions:
 - Ensure that another person who is familiar with the power-off controls is near you. Another person must be there to switch off the power, if necessary.

- Do not wear jewelry, chains, metal-frame eyeglasses, or other personal metal objects. (**Remember:** if the metal touches the machine, the flow of current increases because the metal is a conductor.)
- Use only insulated probe tips or extenders. (**Remember:** worn or cracked insulation is unsafe.)
- Use only one hand while you are working on live equipment. Keep the other hand in your pocket or behind your back. (**Remember:** there must be a complete circuit for an electrical shock to occur. This precaution prevents your body from completing the circuit!)
- When you use a tester, set its controls correctly and use insulated probes that have the correct electrical specification.
- Do not touch objects that are grounded, such as metal floor strips, machine frames, or other conductors. Use suitable rubber mats obtained locally, if necessary.
- When you are working with machines having voltages more than 30 V ac or 42.4 V dc, observe the special safety instructions given in customer engineering memorandums (CEMs).
- Never assume: that power has been removed from a circuit. First, check that it has been removed.
- Do not touch live electrical circuits with the surface of a plastic dental mirror. (**Remember:** the surface of the dental mirror is conductive and can cause damage and personal injury.)
- If an electrical accident occurs:
 1. Use caution; do not be a victim yourself.
 2. Switch off the power.
 3. Instruct another person to get medical aid.
 4. If the victim is not breathing, perform mouth-to-mouth rescue breathing. See "Electrical Accidents-First Aid" (following).

Mechanical Safety

Do not touch mechanical parts when you are (1) lubricating a part, (2) checking for play, or (3) doing other similar work.

Safety Glasses

Wear safety glasses when:

- Using a hammer to drive pins or similar parts
- Using a power drill
- Using a spring hook to attach or remove a spring
- Soldering parts
- Cutting wire or removing steel bands
- Using solvents, chemicals, or cleaners to clean parts
- Working in any other conditions that could injure your eyes.

Tools, Testers, and Field-Use Materials

- Do not use tools and testers that have not been approved by IBM. Ensure that electrical hand tools, such as Wire-Wrap¹ tools and power drills, are inspected regularly.
- Exchange worn and broken tools and testers.
- Do not use solvents, cleaners, or oils that have not been approved by IBM.

¹Trademark of the Gardner-Denver Co.

Summary

Prevention is the main aid to electrical safety. Always think about electrical safety and use good practice, for example:

- Ensure that the customer's power receptacle matches the IBM equipment specifications.
- Inspect power cables and plugs; check for loose, damaged, or worn parts.
- Review the procedure in the maintenance documents before you remove a part that can hold an electrical charge from the machine. Carefully discharge the necessary parts exactly as instructed by the procedure.
- Do not use a normal light (for example, a table lamp) as an extension trouble light at a machine.

Never assume that a machine or a circuit is safe. No machine is always completely safe. You may not know the exact condition of a machine because, for example:

- The power receptacles could be defective.
- Safety devices or features could be missing or defective.
- The maintenance and/or EC changes could be wrong or not complete.
- The design could have a problem.
- The machine could have damage, caused when it was shipped.
- The machine could have an unsafe change or attachment.
- An engineering change or a sales change could be wrongly installed.
- The machine could be deteriorated (1) because it is old or (2) because it operates in an extreme environment.
- A part could be defective, therefore causing a hazard.
- A part could be wrongly assembled.

These are some of the ways that the condition of the machine could affect safety. Before you start a service call or procedure, use good judgment and use caution.

Electrical Accidents—First Aid

When performing rescue procedures for an electrical accident, do as follows:

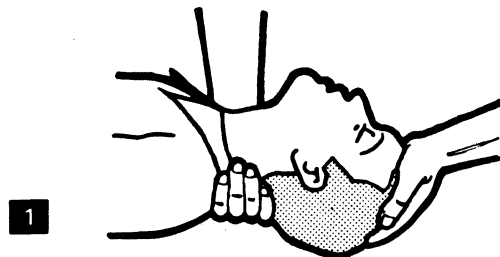
- **Use Caution:** If the victim is still in contact with the electrical-current source, remove the power; to do this, you may need to operate the room emergency power-off (EPO) switch or the disconnecting switch. If you cannot find the switch, use a dry wooden rod or other nonconductive object to pull or push the victim away from contact with the electrical-current source.
- **Work Quickly:** If the victim is unconscious, he/she may need (1) mouth-to-mouth rescue breathing and possibly (2) external cardiac compression if the heart is not beating.
- **Call for the Rescue Service:** such as the ambulance or the hospital. Instruct another person to call for medical aid.

Determine if the victim needs mouth-to-mouth rescue breathing. If he/she does, perform the following steps.

CAUTION

Use extreme care when you perform rescue breathing for a victim who may have breathed-in toxic fumes. Do not breathe-in air that the victim has breathed-out.

1. Prepare for rescue breathing:
 - a. Ensure that the victim's airway is open and that it is not obstructed; check the mouth for objects that may be obstructing the airway, such as chewing gum, food, dentures, or the tongue.
 - b. Place the victim on his/her back, put one hand behind the victim's neck, and put the other hand on his/her forehead.
 - c. Lift the neck with one hand, and tilt the head backward by pressing on the forehead with the other hand **1**.

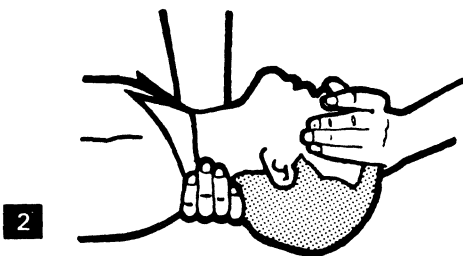


2. Look, listen, and feel to determine if the victim is breathing freely:

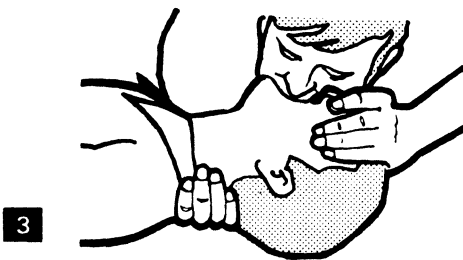
- a. Put your cheek near the victim's mouth and nose.
- b. Listen and feel for the breathing-out of air. At the same time, look at the victim's chest and upper abdomen to see if they move up and down.

3. If the victim is not breathing correctly:

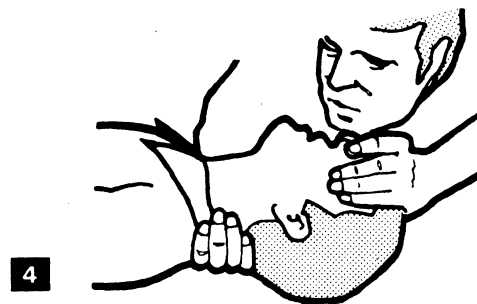
- a. Keep the victim's head tilted backward (see **1**). Continue to press on the forehead with your hand; at the same time, rotate this same hand so that you can pinch together the victim's nostrils with your thumb and finger **2**



- b. Open your mouth wide and take a deep breath. Make a tight seal with your mouth around the victim's mouth **3** and blow into the victim's mouth.



- c. Remove your mouth to let the victim breath-out, and check that the victim's chest moves down **4**



- d. Repeat steps b and c once every 5 seconds either until the victim breathes for himself/herself or until medical aid comes.

Reporting Accidents

Report, to your field manager, all electrical accidents, possible electrical hazards, and accidents that nearly occurred. (**Remember:** an accident that nearly occurs might be caused by a design problem; your immediate reporting ensures that the problem will be solved quickly.)

Report also all small electrical shocks. (**Remember:** a condition that causes a small shock need only differ slightly to cause serious injury.)

PREFACE

The IBM 3205 Color Display Console is a console terminal that consists of three units: the video unit, logic unit, and keyboard unit. If one of the units fails during operation, the customer should call IBM for console repair service. This document provides the information that the IBM customer engineer needs to analyze and repair units at the customer site. This manual assumes that the reader has a basic understanding of processors and display console and their relationship to one another.

This manual contains the following information:

Chapter 1, "Introduction" on page 1-1 gives a general description of the IBM 3205.

Chapter 2, "Problem Determination Guide" on page 2-1 contains procedures to follow when a problem occurs.

Chapter 3, "Removal and Replacement Procedures" on page 3-1 describes how to remove and replace field-replaceable units (FRUs).

Chapter 4, "3205 Part Numbers" on page 4-1 lists the part numbers of the IBM 3205.

Chapter 5, "IBM 3205 Safety Inspection Guide" on page 5-1 identifies potentially unsafe conditions on machines that are being inspected. Each machine, as it was designed and built, had required safety items installed to protect the owners, operators, and service personnel from injury. The checklist in this chapter addresses those items.

Appendix A, "IBM 3205 Installation Instructions" on page A-1 describes how to setup the IBM 3205 console and attach it to the processor.

Appendix B, "Packing Instructions" on page B-1 illustrates procedures to follow when packing is needed.

Related publications:

IBM 3179 Color Display Station Description, GA18-2177

IBM 3205 Color Display Console Operator Reference and Problem Determination Guide, GA18-2339

IBM 4361 Processor Operating Procedures, GA33-1570

IBM 4381 Operations Manual, GA24-3949

CONTENTS

Chapter 1. Introduction 1-1

- 1.1 Video Unit 1-1
- 1.2 Keyboard Unit 1-1
- 1.3 Logic Unit 1-1
- 1.4 Indicators, Switches, and Controls 1-4
 - 1.4.1 Indicators 1-4
 - 1.4.2 Switches and Controls 1-4
- 1.5 Operator Messages (LINE 25) 1-5
- 1.6 Offline Tests 1-6
- 1.7 Data Flow 1-7
- 1.8 122-key Keyboard (Keyboard-To-Display Test) 1-8
- 1.9 124-Key Keyboard (Keyboard-To-Display Test) 1-9

Chapter 2. Problem Determination Guide 2-1

- 2.1 Console Quick Check 2-2
- 2.2 Symptom Index 2-4
 - 2.2.1 Operator Messages 2-6
 - 2.2.2 Power-On Light or Status Light Problem 2-8
 - 2.2.3 Display Problem 2-11
 - 2.2.4 Keyboard Problem 2-21
 - 2.2.5 Audible Alarm Problem 2-24
 - 2.2.6 Monocase/Dualcase Switch Problem 2-26
 - 2.2.7 Color Switch Problem 2-27
 - 2.2.8 Pedestal or Power Cord Problem 2-28
 - 2.2.9 Security Key Problem 2-28
- 2.3 Offline Tests 2-29
 - 2.3.1 Offline Test Procedure 2-31

Chapter 3. Removal and Replacement Procedures 3-1

- 3.1 Keyboard Unit 3-1
- 3.2 Logic Unit 3-2
 - 3.2.1 Logic Unit Cover 3-2
 - 3.2.2 Logic Board Assembly 3-4
 - 3.2.3 Security Keylock Assembly 3-5
- 3.3 Video Unit 3-6

Chapter 4. 3205 Part Numbers 4-1

Chapter 5. IBM 3205 Safety Inspection Guide 5-1

- 5.1 Preparation 5-2
- 5.2 General Guidelines 5-2
- 5.3 General 5-3
- 5.4 Video Unit 5-4
- 5.5 Low Voltage 5-5
- 5.6 High Voltage 5-5
- 5.7 Keyboard Unit (Membrane type) 5-6
- 5.8 Keyboard Unit (Capacitance type) 5-7

Appendix A. IBM 3205 Installation Instructions A-1

- A.1 Set Switches On the Underside of the Keyboard A-2
- A.2 Attach Pedestal to Logic Unit A-3
- A.3 Attach Pedestal to Video Unit A-5
- A.4 Connect Cables to the Rear A-7
- A.5 Attach Cable Clamp A-8
- A.6 Set Power On A-9
- A.7 Adjust the Brightness of Your Display A-10
- A.8 Check Audible Alarm A-11
- A.9 Personalize the Console for the Operator A-12

Appendix B. Packing Instructions B-1

- B.1 Video Unit B-1
- B.2 Keyboard Unit B-1
- B.3 Logic Unit B-2
- B.4 Three Units In A Master Carton B-2

FIGURES

- 1-1. Console Units, Accessories and Parts 1-2
- 1-2. IBM 3205 1-3
- 1-3. Setup Switches 1-5
- 1-4. Offline Test Pattern 1-6
- 1-5. IBM 3205 Data Flow 1-7
- 1-6. Keyboard-to-display test (122-key keyboard) 1-8
- 1-7. Keyboard-to-display test (124-key Katakana keyboard) 1-9
- 2-1. Keyboard Cable 2-6
- 2-2. Keyboard Cable 2-7
- 2-3. Video Cable 2-8
- 2-4. Pin Voltages in Video Cable 2-10
- 2-5. Display A 2-11
- 2-6. Display B 2-11
- 2-7. Display C 2-12
- 2-8. Display D 2-12
- 2-9. Display E 2-12
- 2-10. Display F 2-13
- 2-11. Status Light 2-13
- 2-12. Status Light 2-14
- 2-13. Status Light 2-15
- 2-14. Test/Normal Switch 2-16
- 2-15. Video Cable 2-17
- 2-16. Status Light 2-17
- 2-17. Video Cable 2-18
- 2-18. Status Light 2-18
- 2-19. Test/Normal Switch 2-19
- 2-20. Without-Cursor Character 2-20
- 2-21. All Characters 2-21
- 2-22. Status Light 2-21
- 2-23. Some Characters 2-22
- 2-24. Automatic Characters 2-22
- 2-25. Double Characters 2-22
- 2-26. Different Characters 2-23
- 2-27. Setup Switches 2-23
- 2-28. Audible Alarm 2-24
- 2-29. No Alarm 2-24
- 2-30. Video Cable 2-25
- 2-31. Audible Alarm Control Knob 2-25
- 2-32. Monocase/Dualcase (A/A,a) Switch 2-26
- 2-33. Color (oo/oooo) Switch 2-27
- 2-34. Pedestal 2-28
- 2-35. Power Cord 2-28
- 2-36. Security Key Failure 2-28
- 2-37. Offline Test Pattern 2-30
- 2-38. Switches Setting 2-31
- 2-39. All-character Pattern in Dualcase (A,a) 2-32
- 2-40. All-character Pattern in Monocase (A) 2-33
- 2-41. 7-color Pattern 2-34
- 2-42. 4-color Pattern 2-34
- 2-43. 2-color Pattern 2-34
- 2-44. Setup Switches and Jumpers Status 2-35
- 2-45. Characters displayed in the Keyboard-to-display test 2-37
- 3-1. Logic Unit Cover 3-3
- 3-2. Logic Board Assembly 3-4
- 3-3. Security Keylock Assembly 3-5
- 4-1. IBM 3205 Final Assembly 4-1
- 4-2. Logic Unit 4-5
- 5-1. Video Unit 5-4
- 5-2. Grounding Pass Schematics 5-5
- 5-3. Grounding Pass Schematics 5-5
- 5-4. Keyboard Unit (Membrane type) 5-6
- 5-5. Keyboard Unit (Capacitance type) 5-7
- A-1. Console and Parts A-1
- A-2. Turn Keyboard A-2
- A-3. Setup Switches A-2
- A-4. Set Pedestal A-3
- A-5. Lock Gray Latches A-3
- A-6. Ensure Lock A-4

- A-7. Turn Video Unit A-5
- A-8. Hook Pedestal to Video Unit A-5
- A-9. Turn Video Unit A-6
- A-10. Connect Video Cable A-7
- A-11. Keyboard Cable A-7
- A-12. Connect Power Cord A-7
- A-13. Prepare Cable Clamp A-8
- A-14. Close Cable Clamp A-8
- A-15. Attach Cable Clamp A-8
- A-16. Unlock Security Key A-9
- A-17. Power off A-9
- A-18. Plug in Power Cord A-9
- A-19. Power on A-9
- A-20. Set Switches A-10
- A-21. Adjust Brightness Control A-10
- A-22. Color Test Pattern A-10
- A-23. Check Audible Alarm A-11
- A-24. Adjust Audible Alarm A-11
- A-25. Set Test/Normal Switch A-11
- A-26. Position the console A-12
- A-27. Adjust Keyboard Angle A-12
- A-28. Store Manual into Pocket A-13
- B-1. Packing Video Unit B-1
- B-2. Packing Keyboard Unit B-1
- B-3. Packing Logic Unit B-2
- B-4. Packing Three Units B-2

CHAPTER 1. INTRODUCTION

The IBM 3205 Color Display Console is a seven-color (using only four colors), display console that consists of three units: video unit, logic unit, and keyboard unit. Figure 1-1 on page 1-2 shows the individual console units, and Figure 1-2 on page 1-3 shows the IBM 3205 prepared for normal operation.

The IBM 3205 is available in one model and has a 122-key typewriter keyboard (or 124-key Japanese Katakana keyboard). No optional features exist.

1.1 VIDEO UNIT

The video unit, which connects to the logic unit by a cable, has an analog card, power-supply assembly, and a 14-inch, high-resolution, cathode ray tube (CRT) that can display up to 1920 characters (24 lines of 80 characters). Seven colors (blue, red, green, turquoise, pink, yellow, and white) can be obtained by combining the three primary colors. The display surface has an operator information area (line 25) that is separated from the remainder of the display image by a horizontal line.

The power supply in the video unit generates +12 V dc, +5 V dc, and +88 V dc, and supplies +5 V dc and +12 V dc to the logic unit via the video cable. The +12 V dc is used for the audible alarm on the logic card. The +88 V dc is used in the video unit.

The video unit has a brightness control knob, a power on-off (| 0) switch and a power-on indicator.

For operator convenience, a pedestal makes it possible to tilt and rotate the video unit.

1.2 KEYBOARD UNIT

The IBM 3205 keyboard unit has a 122-key typewriter keyboard (or 124-key Japanese Katakana keyboard). The keyboard contains other special-function keys. Some keys are typematic, that is, they will repeat their function for as long as they are held down.

There are two types of keyboards:

- Membrane type (new type)
- Capacitance type (old type)

Membrane-type keyboard has a plastic bottom-cover. Capacitance-type keyboard has a metallic bottom-cover. Both types are functionally the same and plug compatible.

The keyboard unit connects to the logic unit by a cable.

1.3 LOGIC UNIT

The logic unit provides controls for the other units. It has a logic board and a security key. It has cable connections for the video unit, keyboard unit, and a host processor.

The logic board contains the Test/Normal switch, Monocase/Dualcase switch, color switch, audible alarm, and status light.

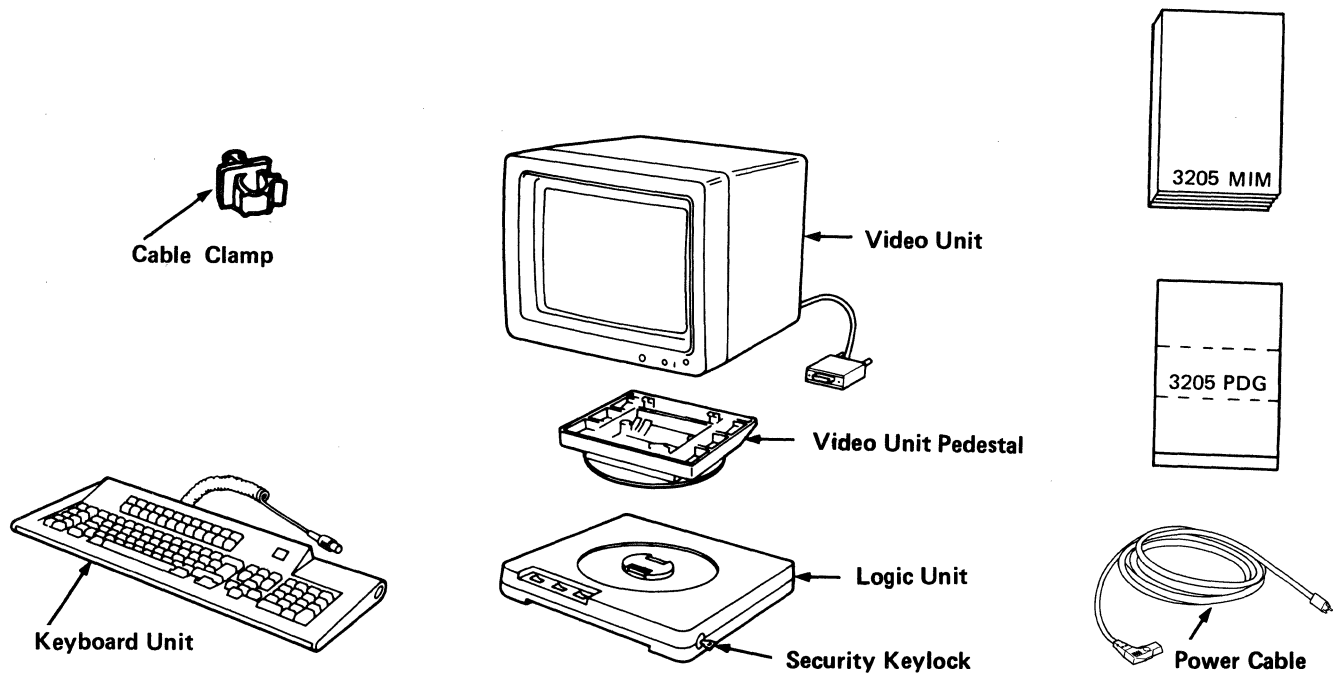
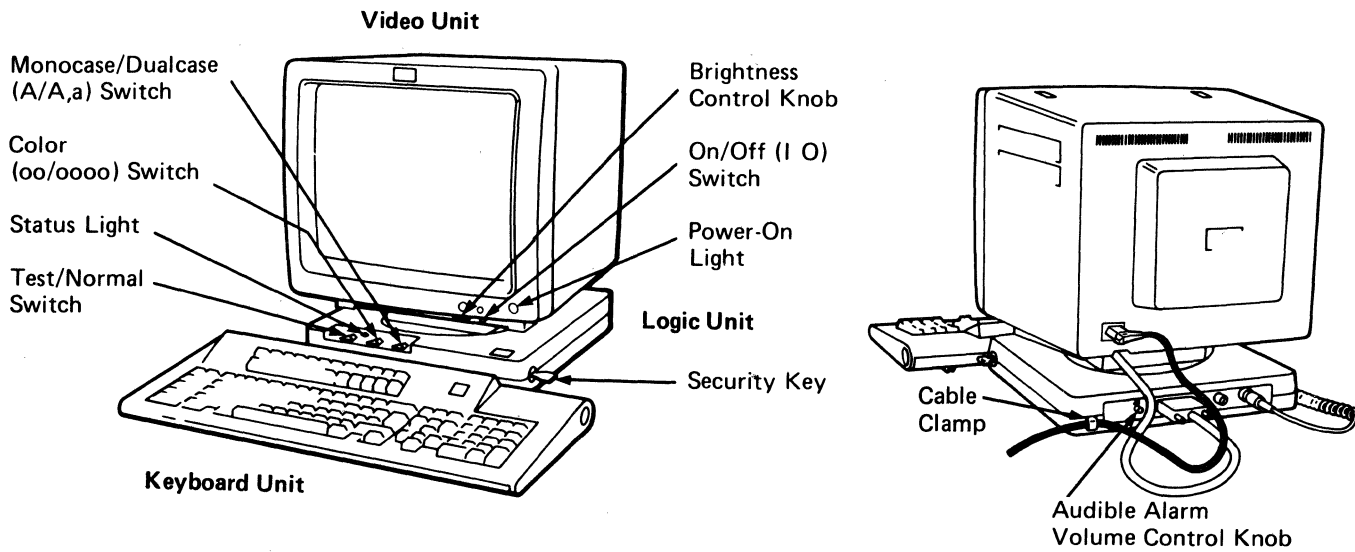


Figure 1-1. Console Units, Accessories and Parts

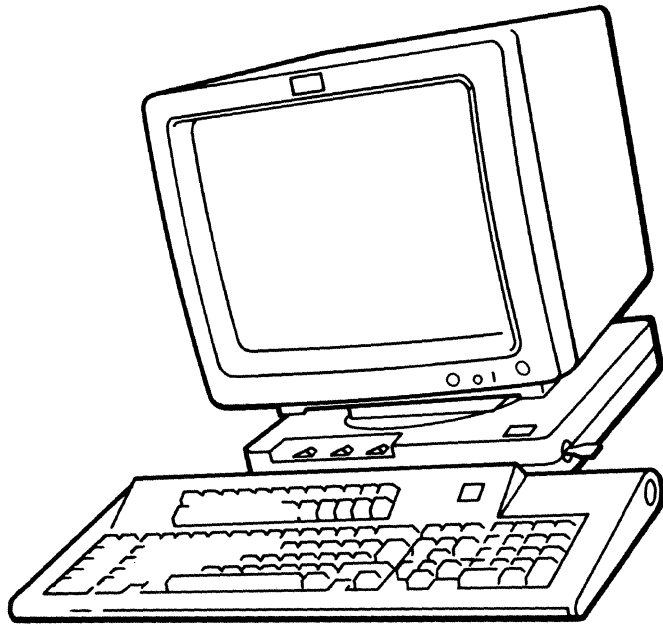


Figure 1-2. IBM 3205

1.4 INDICATORS, SWITCHES, AND CONTROLS

The IBM 3205 has both visual and audible indicators, as well as various switches and controls. This section describes the indicators, switches, and controls.

1.4.1 INDICATORS

The indicators provided are the status light on the logic unit and the power-on light on the video unit. The power-on light is on when ac power is applied and dc power is generated. When the Test/Normal switch is set to the Test position, the status light blinks after diagnostics verify the operation of the IBM 3205 hardware. When the Test/Normal switch is set to the Normal position, the status light stays on when the IBM 3205 receives data or commands through the coaxial interface.

The audible alarm sounds under various conditions to attract the operator's attention; it is also used to generate the keyboard click sound.

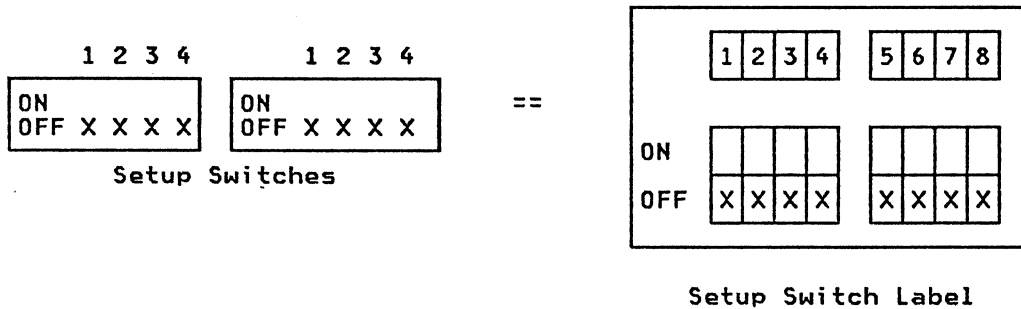
The bottom row on the display is used to indicate machine status and error conditions to the operator by special symbols or by printed messages. This line is also referred to frequently as line 25.

1.4.2 SWITCHES AND CONTROLS

The IBM 3205 has the following switches and controls:

- A Power I/O switch, which is on the video unit, controls the application of power to all console units.
- A Test/Normal switch on the logic unit sets the IBM 3205 to the normal mode of operation or places it in an offline-test mode.
- A status light blinks when the Test/Normal switch is set to Test and stays on when the switch is set to Normal and when the console receives a signal from the host processor.
- A Brightness control on the video unit allows for adjusting intensity of the screen image.
- An audible alarm knob at the rear of the logic unit allows for adjusting the volume of the alarm and click.
- A Monocase/Dualcase (A/A, a) switch, when set to Monocase (A), displays all characters in uppercase only. When set to Dualcase (A, a), the characters are displayed in uppercase and lowercase.
- A security keylock provides a key-controlled lock for the IBM 3205. When the key is in the off position, the screen changes to blanks (except for the cursor and operator information area, after which data cannot be entered, modified, or displayed at the console).
- A Color switch (oo/oooo) changes the base colors on the display to simulate a monochrome screen.
- Setup switches are located on the underside of the keyboard unit. Their settings define the keyboard language and are set by the CE during installation.

The Setup switches on the underside of the keyboard unit must be set when the host processor is installed.



Warning: Do not set switches 1, 2, and 3 to ON position.

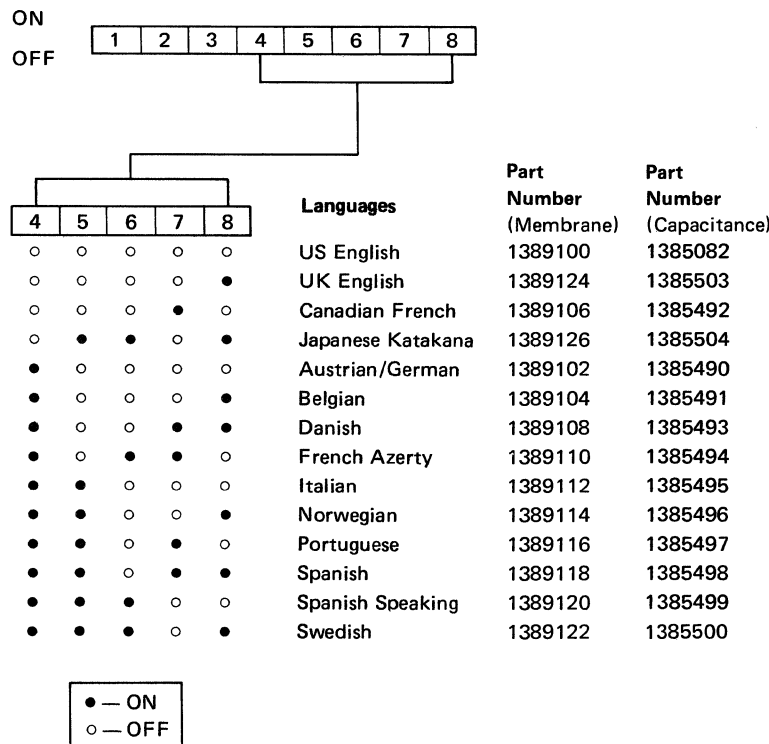


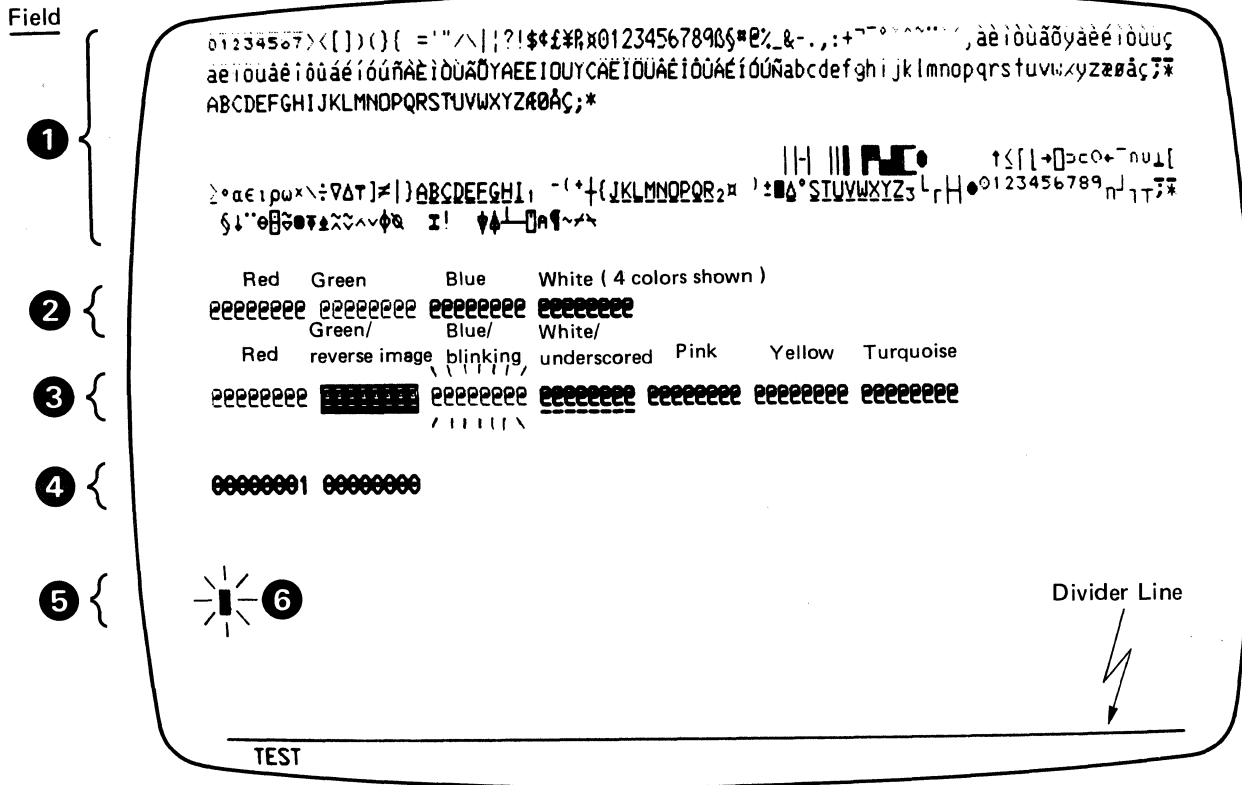
Figure 1-3. Setup Switches

1.5 OPERATOR MESSAGES (LINE 25)

For descriptions of the operator information area, refer to the host processor operator's guide.

1.6 OFFLINE TESTS

At the entry of the offline tests, the alarm sounds once. Several seconds later, the test pattern appears (shown in Figure 1-4) and the status light blinks. At the entry of the keyboard-to-display operation, the cursor is rectangular and blinking. When a key is pressed, the cursor becomes an underline.



- Field ① All-character pattern
- Field ② 2 or 4-Color pattern
- Field ③ 7-Color pattern
- Field ④ Setup switches
- Field ⑤ Flashing block cursor
- Field ⑥ Keyed-in characters are entered in this line.

Figure 1-4. Offline Test Pattern

Note: This keyboard unit is a UK-English keyboard. Bit 7 is off and bit 8 is on; all jumpers are off.

1.7 DATA FLOW

Figure 1-5 shows the IBM 3205 data flow.

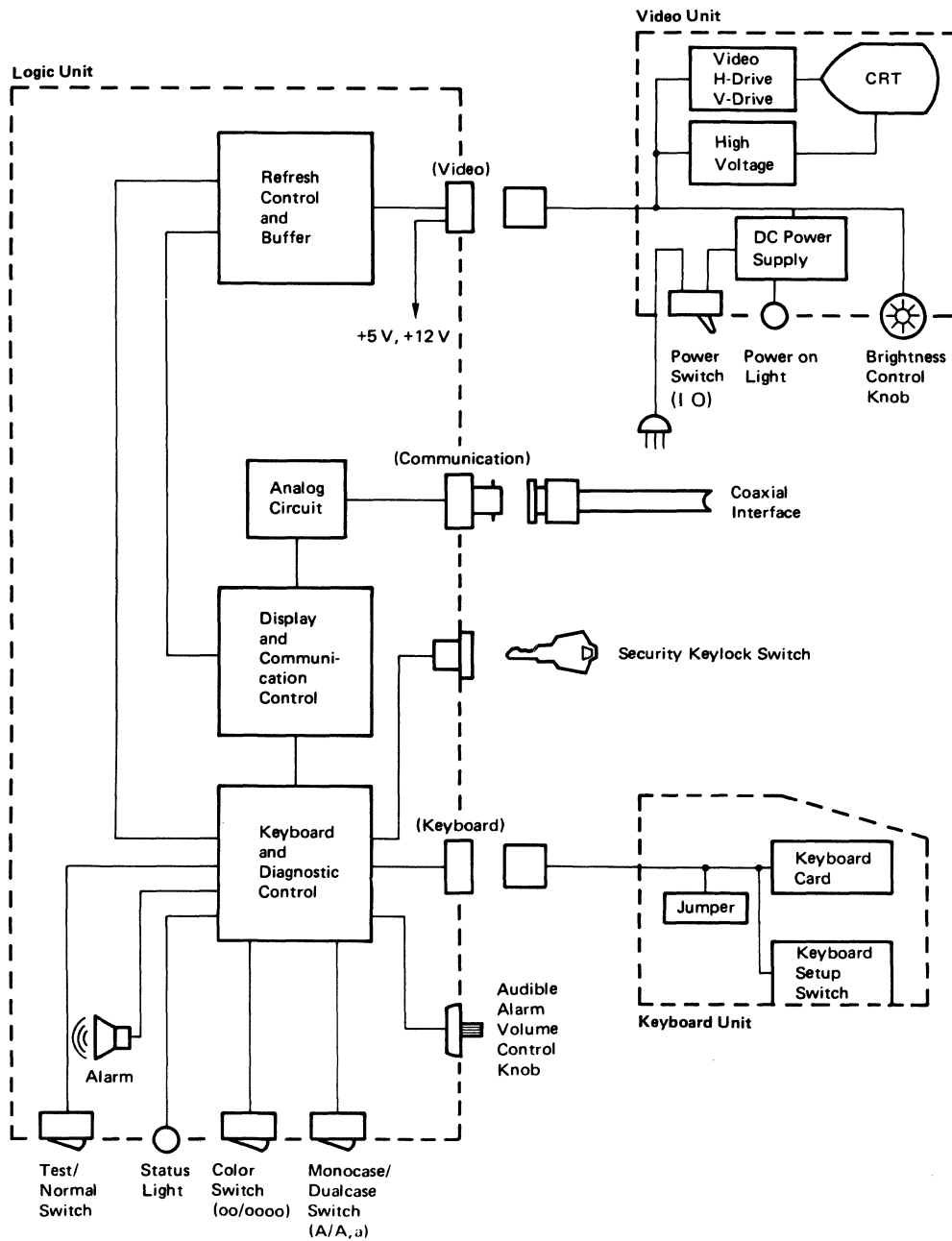


Figure 1-5. IBM 3205 Data Flow

1.8 122-KEY KEYBOARD (KEYBOARD-TO-DISPLAY TEST)

Notes:

1. Regardless of which characters appear on the keytops, in test mode the characters shown below are displayed.
2. When any key in the shaded area is pressed, the character without the underscore is displayed. When the key is released, the character with the underscore is displayed.
3. The characters shown in this figure will be displayed when the IBM 3205 is in test mode.

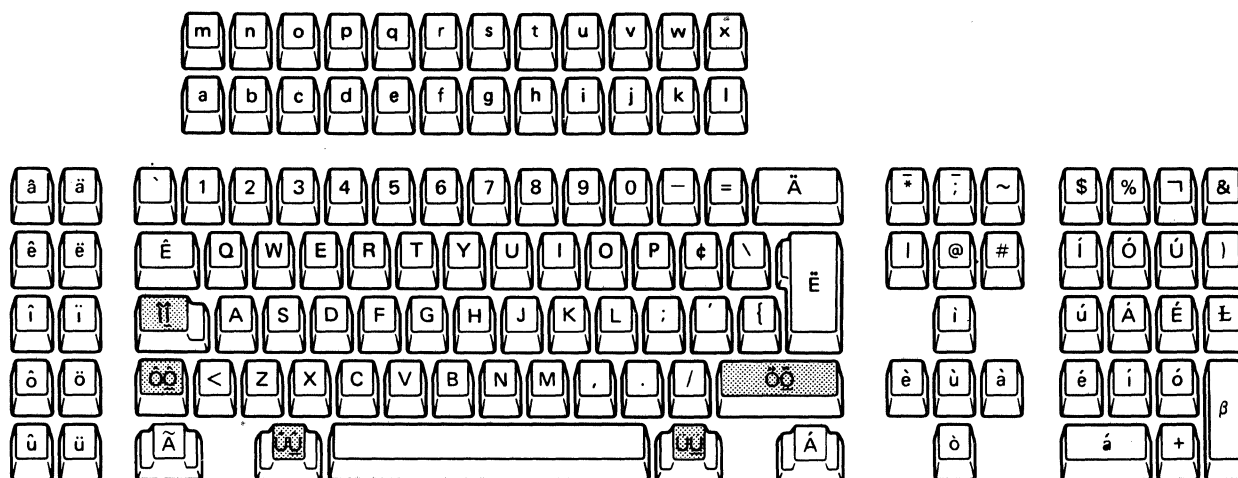


Figure 1-6. Keyboard-to-display test (122-key keyboard)

1.9 124-KEY KEYBOARD (KEYBOARD-TO-DISPLAY TEST)

Notes:

1. Regardless of which characters appear on the keytops, the characters displayed in test mode are those shown below.
2. When a key in the shaded area is pressed, the character without the underscore is displayed. When the key is released, the character with the underscore is displayed.
3. The characters shown in this figure will be displayed when the IBM 3205 is in test mode.

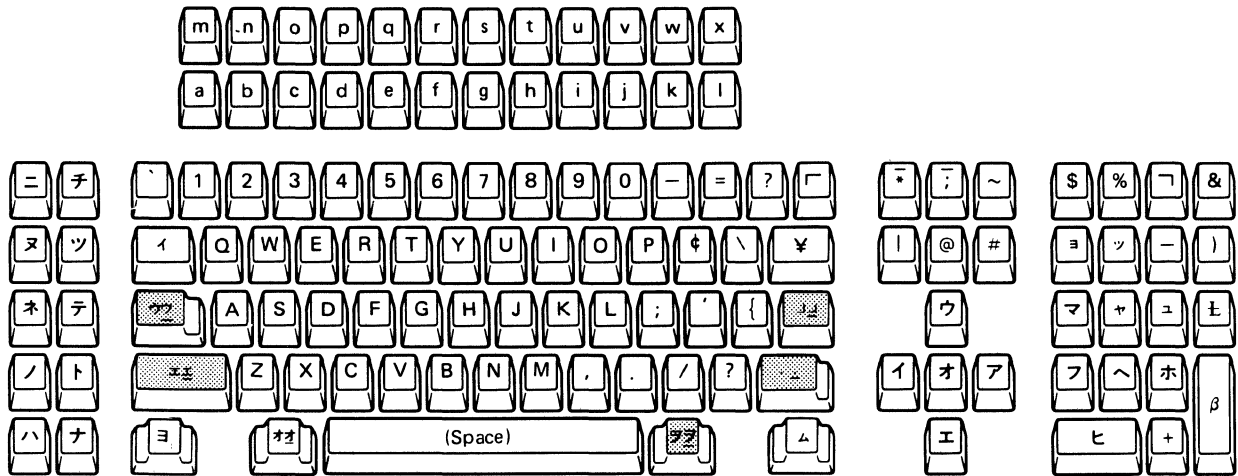


Figure 1-7. Keyboard-to-display test (124-key Katakana keyboard)

CHAPTER 2. PROBLEM DETERMINATION GUIDE

This chapter describes the procedures for analyzing and repairing problems in the processor console.

The chapter is arranged into 3 parts:

- Console Quick Check
- Symptom Index
- Individual Tests based on the symptom

When you suspect console problems, start with the Console Quick Check. This check, which subdivides the problem into categories (such as power, display, keyboard) directs you to a Symptom Index from which has you perform individual tests.

After replacing any field replaceable unit (FRU), perform the Console Quick Check. If no trouble is found, return to the processor problem analysis guide for further instructions.

2.1 CONSOLE QUICK CHECK

Before you start the Console Quick Check answer the following:

- Have you already performed the Console Quick Check for this problem?

Yes - Exchange the logic board and rerun the failing diagnostic or customer program. If you still have a failure, invoke your support structure for your host processor.

No - Continue with step 1.

STEPS SETUP

1. Record your original symptom.
2. Set the console switch and controls as follows:

<u>Switches and Controls</u>	<u>Position</u>
• Power On/Off (0)	Off(0)
• Test/Normal	Test
• Monocase/Dualcase (A/A,a)	A,a
• Color (oo/oooo)	oooo
• Security keylock	horizontal position (unlocked)
• Audible Alarm volume control	fully clockwise
• Brightness Control	fully clockwise

3. Set power On/Off (| 0) to | (on).

STEPS

CONDITIONS

INSTRUCTIONS

No Yes \longrightarrow



4. If the power-on light is off, Go to Symptom Index-Power on light or Status light problems.
5. If an operator error message (⏏1, ⏏2, or ⏏3) is displayed, Go to Symptom Index-Operator messages.
6. If the status light fails to blink, Go to Symptom Index-Power on light or Status light problems.
7. If the screen is blank, Go to Symptom Index-Display problems.
8. If you have an obvious display problem, (Refer to 2.2.3, "Display Problem" on page 2-11). Go to Symptom Index-Display problems.
9. If the block cursor is the only character displayed above the divider line, (see Figure 1-4) Go to Symptom Index-Display problems.
10. If the block cursor is missing in field 5, (see Figure 1-4) Go to Symptom Index-Keyboard problems.
11. If you suspect a broken key, Press the suspect key and go to Step 13.
12. If none of above conditions exists, Press any keyboard key and go to Step 13.

STEPS	CONDITIONS	INSTRUCTIONS
13.	If the block cursor is still displayed,	Go to Symptom Index-Keyboard Problems.
14.	If the normal cursor fail to display,	Go to Symptom Index-Keyboard problems.
15.	If all the characters in a line appear correct, (See Figure 2-45 on page 2-37).	Go to 2.3, "Offline Tests" on page 2-29.
16.	If incorrect characters appear,	Go to Symptom Index-Keyboard problems.
17.	If none of conditions 1 through 16 exist,	Go to Symptom Index on next page.

2.2 SYMPTOM INDEX

Select a category or a problem listed to the left of the charts. Then select a symptom that seems closest to yours; then, go to the symptom number and perform the action specified.

Category	If you have this symptom	Go To
OPERATOR MESSAGES	<ul style="list-style-type: none"> ☐ 1 ☐ 2 ☐ 3 Other messages. 	<ul style="list-style-type: none"> Symptom 1 Symptom 2 Symptom 3 Symptom 4
POWER-ON OR STATUS LIGHT PROBLEM	<ul style="list-style-type: none"> Power-on light is not on. Power-on light is on, status light is off. 	<ul style="list-style-type: none"> Symptom 5 Symptom 6
DISPLAY PROBLEM	<ul style="list-style-type: none"> The characters at the top are either larger or smaller than those at the bottom. The display is the correct width, but its height is reduced or increased. There is a bright horizontal or vertical line in the center. The display is out of focus. The display is reduced in size. The display is off center and the characters are overlapping. The characters are magnified. The display appears to be weaving. The display is tilted. The display appears to be rolling from left to right or from right to left. The display appears to be rolling from top to bottom or from bottom to top. The display has no picture and adjusting the brightness has no effect. Raster only. Characters are not displayed above the divider line. The red, green or blue color does not appear on the screen. (See Figure 1-4 on page 1-6) Some characters are missing on the display. Note: Missing one of the basic colors makes the display appear as missing characters on the screen. 	<ul style="list-style-type: none"> Symptom 7 Symptom 8 Symptom 9 Symptom 10 Symptom 11 Symptom 12 Symptom 13 Symptom 14 Symptom 15 Symptom 16 Symptom 17 Symptom 18 Symptom 18 Symptom 19 Symptom 20 Symptom 20

Category	If you have this symptom	Go To
DISPLAY PROBLEM (continued)	<p>A color is substituted by another color.</p> <p>Problems with highlighted characters (reversed, blinking, or underscore).</p> <p>Characters are deformed or parts are added or missing.</p> <p>Characters on the screen are replaced with other characters.</p> <p>Part of the screen becomes reddish, greenish, or bluish.</p> <p>Other display problems.</p> <p>The keyed-in characters appear, but not the cursor.</p> <p>Keyed-in characters in test mode is different from the keyboard-to-display reference chart (Figure 1-6 on page 1-8).</p>	<p>Symptom 21</p> <p>Symptom 22</p> <p>Symptom 23</p> <p>Symptom 24</p> <p>Symptom 25</p> <p>Symptom 26</p> <p>Symptom 27</p> <p>Symptom 32</p>
KEYBOARD PROBLEM	<p>You cannot type in any characters.</p> <p>You cannot type in some characters or some control keys are not functional.</p> <p>Characters appear automatically without typing them.</p> <p>Pressing a key once causes more than one character to appear.</p> <p>The keyed-in character appears, but not the cursor.</p> <p>The keyed-in character is different from the keyboard-to-display reference chart (Figure 1-6 on page 1-8).</p>	<p>Symptom 28</p> <p>Symptom 29</p> <p>Symptom 30</p> <p>Symptom 31</p> <p>Symptom 27</p> <p>Symptom 32</p>
AUDIBLE ALARM PROBLEM	<p>The Audible Alarm sounds continuously.</p> <p>The Audible Alarm does not sound.</p>	<p>Symptom 33</p> <p>Symptom 34</p>
Monocase/Dualcase switch Problem	<p>Monocase/Dualcase (A/A,a) switch does not work.</p>	<p>Symptom 35</p>
Color Switch Problem	<p>Color (oo/oooo) switch does not work.</p>	<p>Symptom 36</p>
Pedestal or the power cord Problem	<p>The pedestal or the power cord is broken or malfunctioning.</p>	<p>Symptom 37</p>
Security Key Problem	<p>The display fails to go blank when the security key is turned off.</p> <p>The security key message is displayed when the security key is turned on.</p>	<p>Symptom 38</p> <p>Symptom 38</p>

2.2.1 OPERATOR MESSAGES

SYMPTOM 1: □ 1 (Logic unit error)

ACTION: Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

SYMPTOM 2: □ 2 (keyboard or logic unit error)

ACTION:

1. Set the I/O switch to 0 (Off).
2. Make sure the keyboard cable is firmly connected to the logic unit.
3. Set the I/O switch to 1 (On).
4. Is the symptom corrected?
 YES — Resume normal operation.
 NO — Go to step 5.
5. Set the I/O switch to 0 (Off).
6. Remove the keyboard cable.

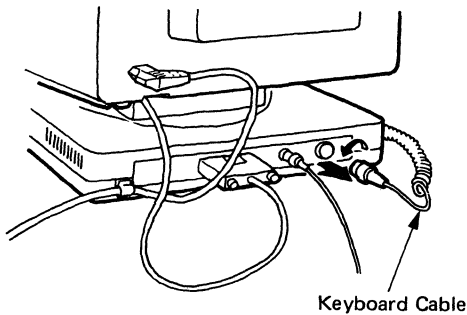


Figure 2-1. Keyboard Cable

7. Set the I/O switch to 1 (On).
8. Did □ 2 change to □ 3?
 YES — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.
 NO — Replace the keyboard. Go to 3.1, "Keyboard Unit" on page 3-1.

SYMPTOM 3: 3 (keyboard error)

ACTION:

1. Set the I/O switch to 0 (Off).
2. Make sure the keyboard cable is firmly connected to the logic unit.

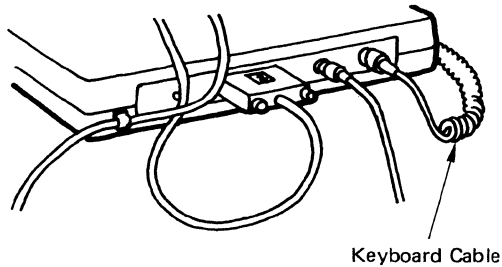


Figure 2-2. Keyboard Cable

3. Set the I/O switch to I (On).
4. Is 3 still displayed?

YES — Replace the keyboard. Go to 3.1, "Keyboard Unit" on page 3-1.

NO — Return to normal operation.

SYMPTOM 4: Other Messages

ACTION: For a description of other host processor's operator information areas, refer to the host processor operator's guide.

2.2.2 POWER-ON LIGHT OR STATUS LIGHT PROBLEM

SYMPTOM 5: Power-on light is not on.

ACTION:

1. Set the I/O switch to 0 (Off).
2. Make sure the voltage source is correct at the power outlet.
3. Reseat the power cord firmly in the video unit.
4. Set the I/O switch to 1 (on).
5. Does the Power-on light come on?
 - NO — Set the I/O switch to 0 (off) and go to step 6.
 - YES — Resume normal operation.
6. Unplug the keyboard cable.
7. Set the I/O switch to 1 (On).
8. Does the power-on light come on?
 - NO — Go to Step 9.
 - YES — Replace the keyboard.
9. Set the I/O switch to 0 (Off).
10. Unplug the video cable; wait 30 seconds.
11. Set the I/O switch to 1 (On).
12. Does the power-on light come on?
 - NO — Go to Step 13.
 - YES — Replace the logic board.
13. Disconnect the power cord from the video unit and check for proper voltage.

Is the voltage correct?

 - YES — Exchange the video unit. Go to 3.3, "Video Unit" on page 3-6.
 - NO — Exchange the power cord.

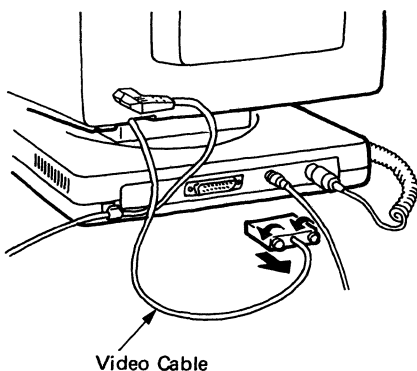


Figure 2-3. Video Cable

SYMPTOM 6: Power-on light is on, but Status light is off.

ACTION:

1. Set the I/O switch to 0 (Off).
2. Set the Test/Normal switch to Test.
3. Set the I/O switch to I (On).
4. Did the alarm sound?
 - YES — Go to Step 5.
 - NO — Go to Step 10.
5. Is the status light blinking?
 - YES — Go to Step 6.
 - NO — Make sure the video cable is firmly connected to the logic unit. If you still have a problem, replace the logic unit. Go to "Logic Unit" on page 3-2.
6. Set the I/O switch to 0 (Off).
7. Set the Test/Normal switch to Normal.
8. Set the I/O switch to I (On).
9. Is the status light still off?
 - YES — Perform coaxial cable check.

Test the coaxial cable from the 3205 to the host system as follows:

 - a. Ensure the coaxial cable is connected to the system.
 - b. Disconnect the coaxial cable from the 3205.
 - c. Measure the resistance from the center pin of the connector on the cable to the outer case of the connector. (Use the Rx10 range.)
 - d. Is the resistance between 1.8K ohms and 2.6K ohms?
 - Yes - The coaxial cable check is correct. Go to START for the host processor MI if you have not already done so. If you have already been to START, replace the logic board and rerun the failing operation. If the 3205 still fails, invoke your support structure.
 - No - Go to step e.
 - e. Check for one of the following problems:
 - Open or shorted coaxial cable or coaxial cable connector.
 - Open or shorted host system cabling.
 - Open or shorted host system driver card.

If you cannot find the problem, invoke the support structure for your host processor.
 - NO — Return to normal operation.
10. Set the I/O switch to 0 (Off).
11. Disconnect the video cable from the logic unit.

12. Set the I/O switch to I (On).

13. Measure the following voltages:

- Pin 5 (+5V) and pin 9 (ground)
- Pin 7 (+5V) and pin 9 (ground)
- Pin 12 (+12V) and pin 9 (ground)

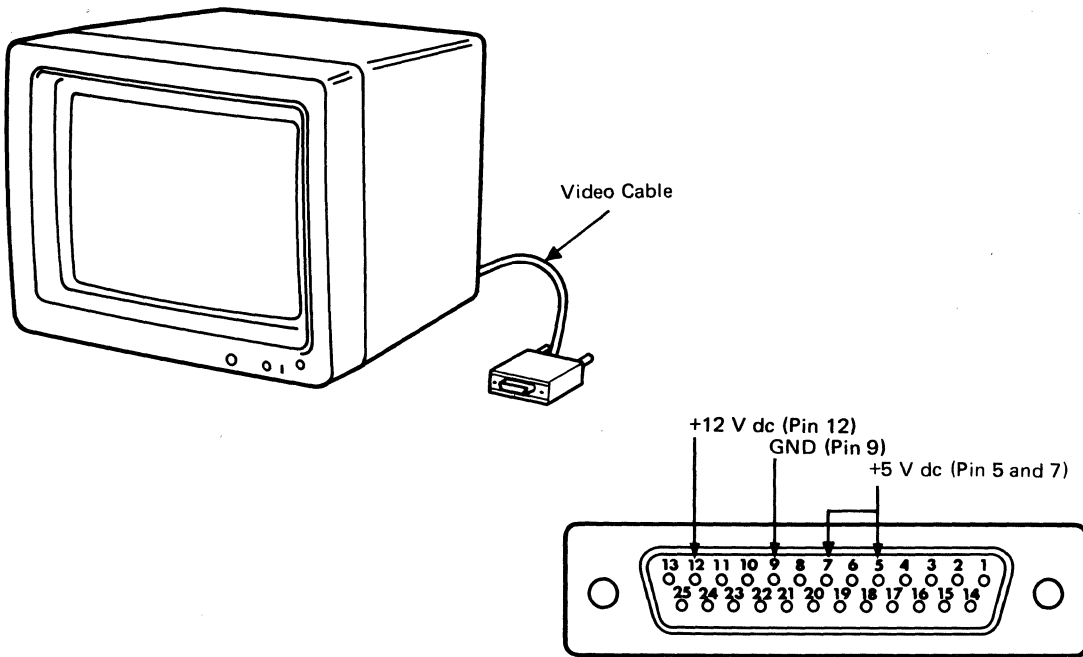


Figure 2-4. Pin Voltages in Video Cable

14. Are all voltages present?

- YES — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.
- NO — Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

2.2.3 DISPLAY PROBLEM

SYMPTOM 7: The characters at the top are either larger or smaller than those at the bottom.

```
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
```

Figure 2-5. Display A

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 8: The display is the correct width, but its height is not normal.

```
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
```

or

```
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
ABCDEFGHIJKLMNPOQRSTUVWXYZ123
```

Figure 2-6. Display B

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 9: There is a bright horizontal or vertical line in the center.

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 10: The display is out of focus.

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 11: The display is smaller than normal.

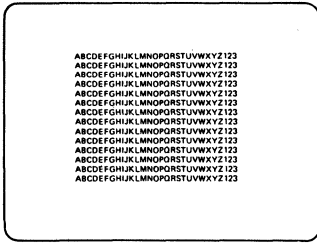


Figure 2-7. Display C

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 12: The display is off center and the characters are overlapping.

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 13: The characters are magnified.



Figure 2-8. Display D

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 14: The display appears to be weaving.



Figure 2-9. Display E

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 15: The display is tilted.

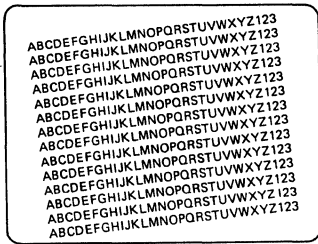


Figure 2-10. Display F

ACTION: Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 16: The display appears to be rolling from left to right or from right to left.

ACTION:

1. Set the |/0 switch to 0 (Off).
2. Make sure the video cable is firmly connected to the logic unit.
3. Set the |/0 switch back to | (On).
4. Turn the security key and the Brightness Control knob fully clockwise.
5. Make sure the Power-on light is on.
6. Set the Test/Normal switch to Test.
7. Does the symptom disappear?
 - NO — Go to step 8.
 - YES — Return to normal operation.
8. Is the status light continuously blinking?
 - NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.
 - YES — Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

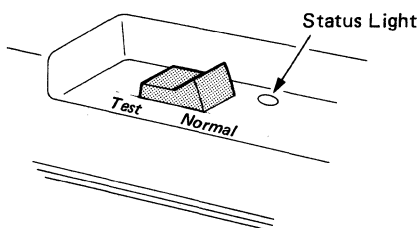


Figure 2-11. Status Light

SYMPTOM 17: The display appears to be rolling from top to bottom or from bottom to top.

ACTION:

1. Set the I/O switch to 0 (Off).
2. Make sure the video cable is firmly connected to the logic unit.
3. Set the I/O switch back to 1 (On).
4. Turn the security key and the Brightness Control knob fully clockwise.
5. Make sure the Power-on light is on.
6. Set the Test/Normal switch to Test.
7. Does the symptom disappear?
 - NO — Go to step 8.
 - YES — Return to normal operation.
8. Is the Status light continuously blinking?
 - NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.
 - YES — Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

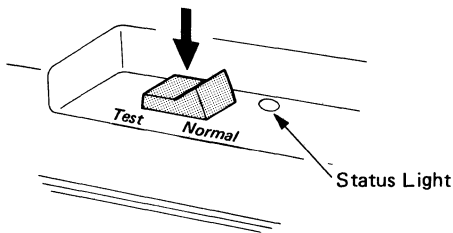


Figure 2-12. Status Light

SYMPTOM 18: The display has no picture and adjusting the brightness has no effect.

ACTION:

1. Set the I/O switch to 0 (Off).
2. Make sure the video cable is firmly connected to the logic unit.
3. Set the I/O switch back to 1 (On).
4. Turn the security key and the Brightness Control knob fully clockwise.
5. Make sure the Power-on light is on.
 - NO — Go to "Symptom 5" on page 2-8.
 - YES — Go to step 6.
6. Set the Test/Normal switch to Test.
7. Does the symptom disappear?
 - NO — Go to step 8.
 - YES — Return to normal operation.
8. Is the Status light continuously blinking?
 - YES — Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.
 - NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

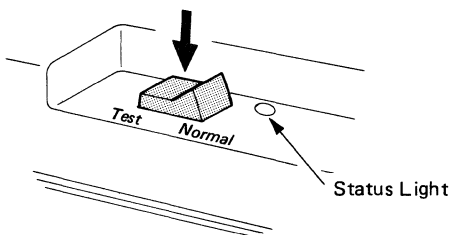


Figure 2-13. Status Light

SYMPTOM 19: Characters are not displayed above the divider line.

ACTION:

1. If $\square 1$, $\square 2$, or $\square 3$ is displayed, go to 2.2.1 Symptom 1, 2, or 3, respectively.
2. Turn the security key off and then on (fully clockwise).
3. Set the Test/Normal switch to Test.

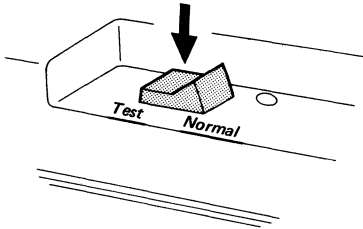


Figure 2-14. Test/Normal Switch

4. Are characters displayed above the divider line?
 - YES — Go to step 5.
 - NO — Exchange the logic board. Go to 3.2, "Logic Unit" on page 3-2.
5. Set the Test/Normal switch back to Normal.
6. If the symptom still continues, check that the coaxial cable is attached to the console.
7. Test the coaxial cable from the 3205 to the host system as follows:
 - a. Ensure the coaxial cable is connected to the system.
 - b. Disconnect the coaxial cable from the 3205.
 - c. Measure the resistance from the center pin of the connector on the cable to the outer case of the connector. (Use the Rx10 range.)
 - d. Is the resistance between 1.8K ohms and 2.6K ohms?
 - NO - Go to step e.
 - YES - The coaxial cable check is correct. Go to START for the host processor MI if you have not already done so. If you have already been to START, replace the logic board and rerun the failing operation. If the 3205 still fails, invoke your support structure for the host processor.
 - e. Check for one of the following problems:
 - Open or shorted coaxial cable or coaxial cable connector.
 - Open or shorted host system cabling.
 - Open or shorted host system driver card.

If you cannot find the problem, invoke your support structure for your host processor.

SYMPTOM 20: The red, green, or blue color does not appear on the screen, or some characters are missing on the display.

ACTION:

1. Change the setting of the color (oo/oooo) switch.
2. Does the missing color appear?
NO — Go to step 3.
YES — Return to normal operation.
3. Set the I/O switch to 0 (Off).
4. Make sure the video cable is firmly connected to the logic unit.
NO — Resume normal operation.
YES — Go to step 5.

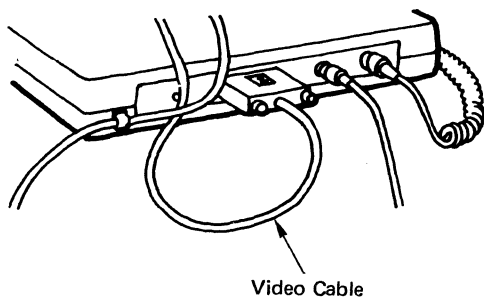


Figure 2-15. Video Cable

5. Set the I/O switch to I (On).
6. Turn the security key on (fully clockwise).
7. Set the Test/Normal switch to Test.
8. Is the Status light continuously blinking?
YES — Go to step 9.
NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

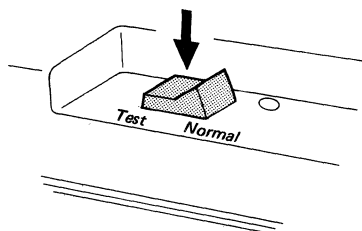


Figure 2-16. Status Light

9. Do red, green, and blue appear on the test pattern (see Figure 1-4 on page 1-6)?
YES — The problem is not in your IBM 3205. Set the Test/Normal switch back to Normal. Check host problem determination procedures. Invoke your support structure.
NO — Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 21: A color is substituted by another color.

ACTION:

1. Change the setting of the color (oo/oooo) switch.
2. Does the missing color appear?
NO — Go to step 3.
YES — Return to normal operation.
3. Set the I/O switch to 0 (Off).
4. Make sure the video cable is firmly connected to the logic unit.

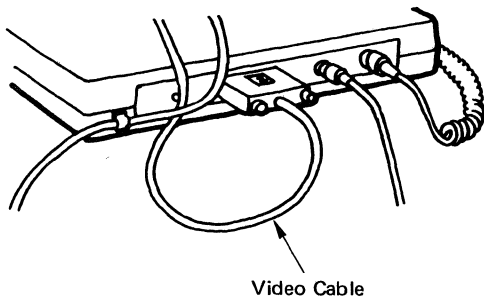


Figure 2-17. Video Cable

5. Set the I/O switch to I (On).
6. Turn the security key on (fully clockwise).
7. Set the Test/Normal switch to Test.
8. Is the Status light continuously blinking?
YES — Go to step 9.
NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

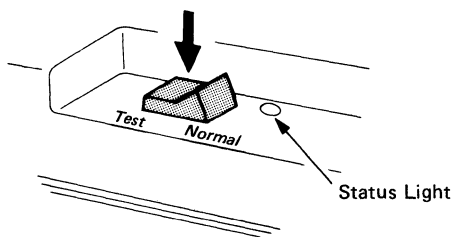


Figure 2-18. Status Light

9. Do red, green, and blue appear on the test pattern (see Figure 1-4 on page 1-6)?
YES — The problem is not in your IBM 3205. Set the Test/Normal switch back to Normal. Check host problem determination procedure. Invoke your support structure.
NO — Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 22: Problems with highlighted characters (reversed, blinking, or underscore).

ACTION:

1. Set the Test/Normal switch to Test.

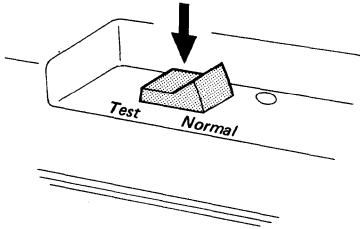


Figure 2-19. Test/Normal Switch

2. Are there highlighted characters in the test pattern?

YES — Invoke your support structure.

NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2

SYMPTOM 23: Characters are deformed or parts are added or missing.

ACTION: Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

SYMPTOM 24: Characters on the screen are replaced with other characters.

ACTION:: Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

SYMPTOM 25: Part of your screen becomes reddish, greenish, or bluish.

ACTION:

1. Set the I/O switch to 0 (Off).

2. Wait around 15 minutes.

3. Set the I/O switch to 1 (On).

4. Does your symptom remain?

YES — Repeat steps 1, 2, and 3; then go to step 5.

NO — Return to normal operation.

5. If your symptom remains, replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

SYMPTOM 26: Other display problems.

ACTION:

1. Replace the video unit. Go to 3.3, "Video Unit" on page 3-6.

2. If the symptom still continues, replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

SYMPTOM 27: Keyed-in character appears, but the cursor does not.

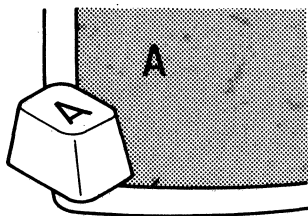


Figure 2-20. Without-Cursor Character

ACTION: Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

2.2.4 KEYBOARD PROBLEM

SYMPTOM 28: You cannot type in any characters.

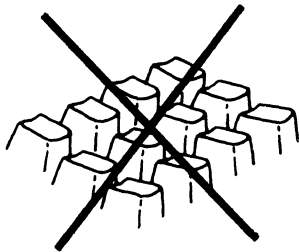


Figure 2-21. All Characters

ACTION:

1. Set the Test/Normal switch to Test.
2. Is the Status light continuously blinking?

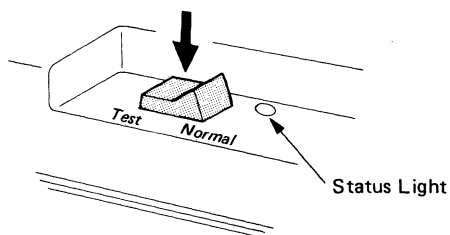


Figure 2-22. Status Light

YES — Go to step 3.

NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

3. If \square 1, \square 2, or \square 3 is displayed, go to 2.2.1 Symptom 1, 2, or 3, respectively.

4. Can you type in now?

YES — Return to normal operation.

NO — Replace the keyboard unit.

SYMPTOM 29: You cannot type in some characters or some control keys are not functional.

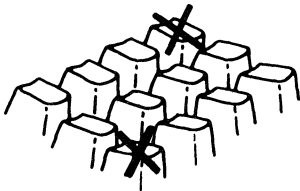


Figure 2-23. Some Characters

ACTION: Replace the keyboard. Go to 3.1, "Keyboard Unit" on page 3-1.

SYMPTOM 30: Characters appear automatically without typing them.

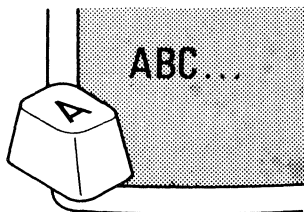


Figure 2-24. Automatic Characters

ACTION:: Replace the keyboard. Go to 3.1, "Keyboard Unit" on page 3-1.

SYMPTOM 31: Pressing a key once causes more than one character to appear.

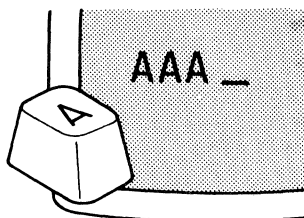


Figure 2-25. Double Characters

ACTION: Replace the keyboard. Go to 3.1, "Keyboard Unit" on page 3-1.

SYMPTOM 32: Keyed-in characters are different from the key caps.

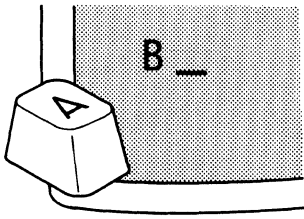


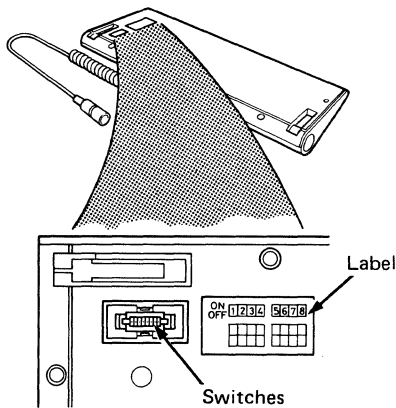
Figure 2-26. Different Characters

ACTION:

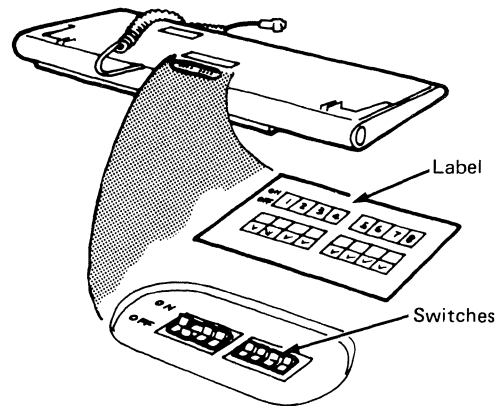
1. Set the I/O switch to 0 (Off).
2. Make sure the setup switches underside the keyboard are set as shown on your label.
3. Do the switches match the label?

YES — Go to step 4.

NO — Correct the setup switch setting.



Membrane Type



Capacitance Type

Figure 2-27. Setup Switches

4. Set the I/O switch back to I (On).
5. If the symptom remains, replace the logic board.

2.2.5 AUDIBLE ALARM PROBLEM

SYMPTOM 33: Audible Alarm sounds continuously.

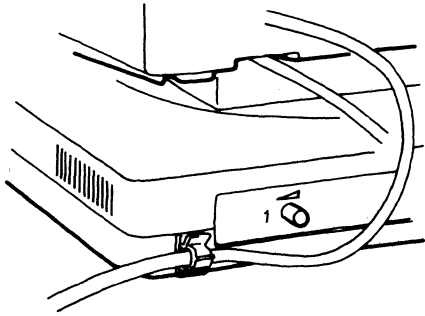


Figure 2-28. Audible Alarm

ACTION:

1. Set the I/O switch to 0 (Off).
2. Set it back to 1 (On).
3. Does the Audible Alarm still sound continuously?
 - YES — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.
 - NO — Return to normal operation.

SYMPTOM 34: Audible Alarm does not sound.

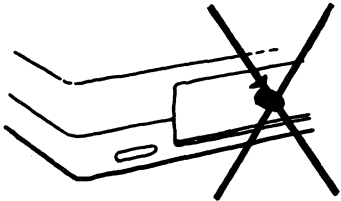


Figure 2-29. No Alarm

ACTION:

1. Set the I/O switch to 0 (Off).

2. Make sure the video cable is firmly connected to the logic unit.

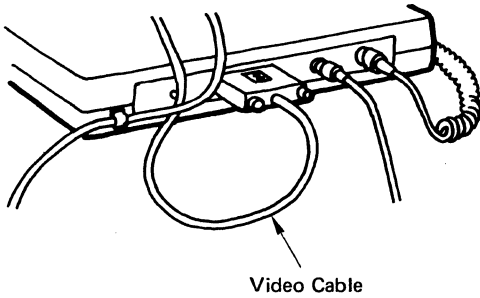


Figure 2-30. Video Cable

3. Set the I/O switch to I (On).
4. Turn the Audible Alarm Volume Control Knob at the back of the logic unit fully clockwise.

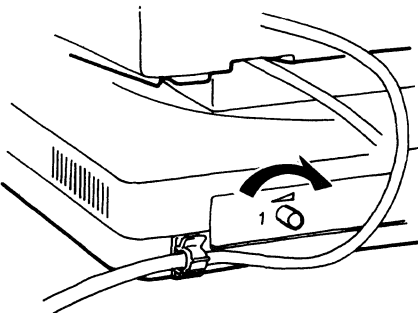


Figure 2-31. Audible Alarm Control Knob

5. Set the Test/Normal switch to Test.
6. Does the Audible Alarm sound?
 - YES — Return to normal operation.
 - NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

2.2.6 MONOCASE/DUALCASE SWITCH PROBLEM

SYMPTOM 35: Monocase/Dualcase (A/A,a) switch does not work.

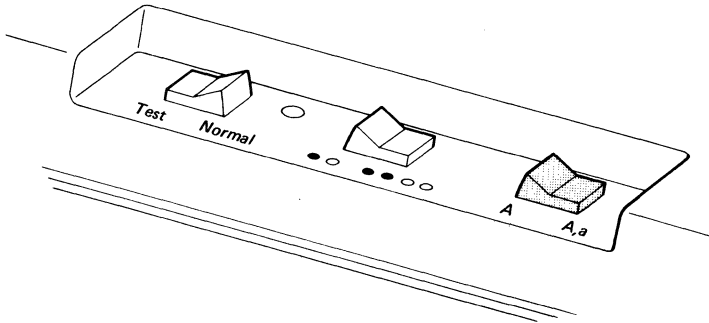


Figure 2-32. Monocase/Dualcase (A/A,a) Switch

ACTION:

1. Set the Test/Normal switch to Test.
2. While looking at the display, alternately switch between Monocase and Dualcase (A/A,a) several times.
3. Do the characters change from all uppercase to uppercase and lowercase?
YES — Invoke your support structure.
NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

2.2.7 COLOR SWITCH PROBLEM

SYMPTOM 36: Color (oo/oooo) switch does not work.

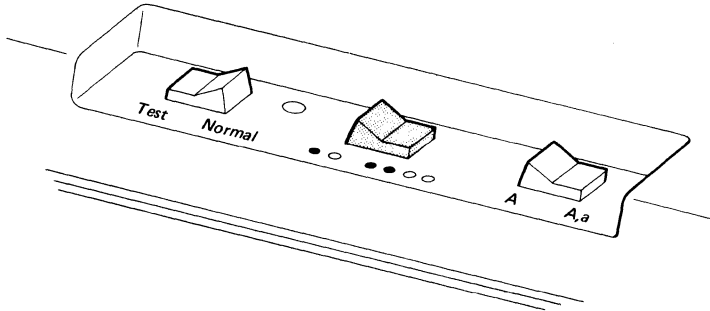


Figure 2-33. Color (oo/oooo) Switch

ACTION:

1. Set the Test/Normal switch to Test.
2. Look at the characters on the test pattern and set the color (oo/oooo) switch to the opposite position.
3. Do some of the characters change color?
YES — Invoke your support structure.
NO — Replace the logic board. Go to 3.2, "Logic Unit" on page 3-2.

2.2.8 PEDESTAL OR POWER CORD PROBLEM

SYMPTOM 37: The pedestal or the power cord is broken or malfunctioning.

Pedestal Problem

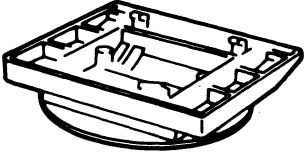


Figure 2-34. Pedestal

To remove the pedestal from the video and logic units, refer to 3.2, "Logic Unit" on page 3-2. Discard the broken pedestal.

Power Cord Problem

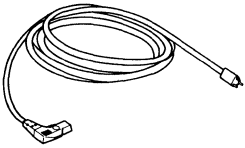


Figure 2-35. Power Cord

Set the I/O switch to 0 (Off) and unplug the power cord. Discard the broken power cord.

2.2.9 SECURITY KEY PROBLEM

SYMPTOM 38:

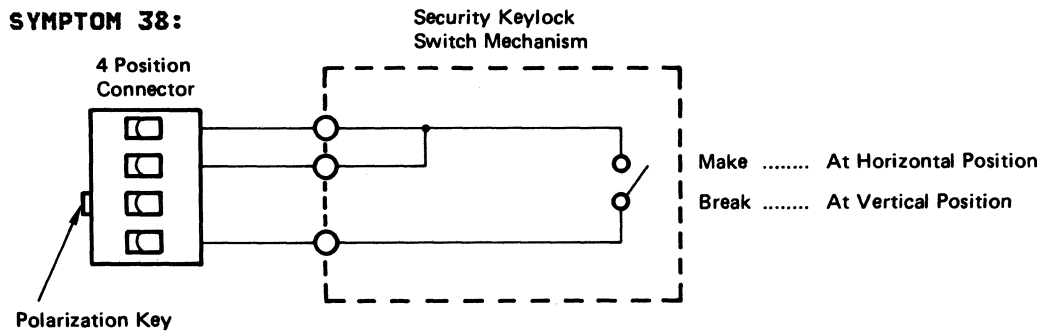


Figure 2-36. Security Key Failure

ACTION:

1. Disconnect the security key from the logic board. (See Section 3.2.1 for the removal procedures for the logic unit cover.)
2. Make the continuity tests shown for the security key.
3. Are the continuity checks for the security key assembly correct?
 - Yes - Replace the logic board.
 - No - Replace the security key assembly.

2.3 OFFLINE TESTS

The IBM 3205 offline tests are in the IBM 3205 logic. Activated when the Test/Normal switch is set to Test, the offline tests consist of the:

1. Basic Assurance Test (BAT)
2. Basic Logic Test: tests the functions of the logic unit.
3. Video Interface Test: tests the function of the video interface circuit in the logic unit.
 - a. Keyboard Interface Test: tests the function of the keyboard interface circuit in the logic unit.
 - b. Keyboard Test: tests the function of the keyboard.
4. All-character Display Test
5. Color Pattern Display (7 Color Pattern and 2/4 Color Pattern) Test
6. Setup Switches and Jumpers Status Display Test
7. Keyboard-to-display Operation Test.

At the entry of the offline tests, the alarm sounds once. Several seconds later, the test pattern appears and the status light blinks. The test pattern is shown in the Figure 2-37 on page 2-30. At the entry of the keyboard-to-display operation, the cursor is rectangular and blinking. When any key is pressed, the cursor becomes an underline.

2.3.1 OFFLINE TEST PROCEDURE

Preparation

1. Set the Test/Normal switch to Test, the Monocase/Dualcase switch (A/A,a) to Dualcase (A,a), and the Color switch (oo/oooo) to the oooo position.

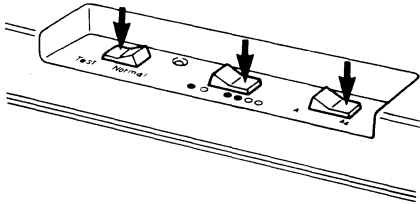


Figure 2-38. Switches Setting

2. Turn the Security Keylock clockwise (horizontal position).
3. Turn the Audible Alarm Volume Control Knob fully clockwise.

Logic Check:

Turn the IBM 3205 power on.

Does the alarm sound once?

Yes No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Does an error message (□1, □2, or □3) appear in the Operator Information Area?

No Yes

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Is the status light blinking?

Yes No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Does the test pattern appear?

Yes No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Go to the next page.

Monocase/Dualcase Switch Check:

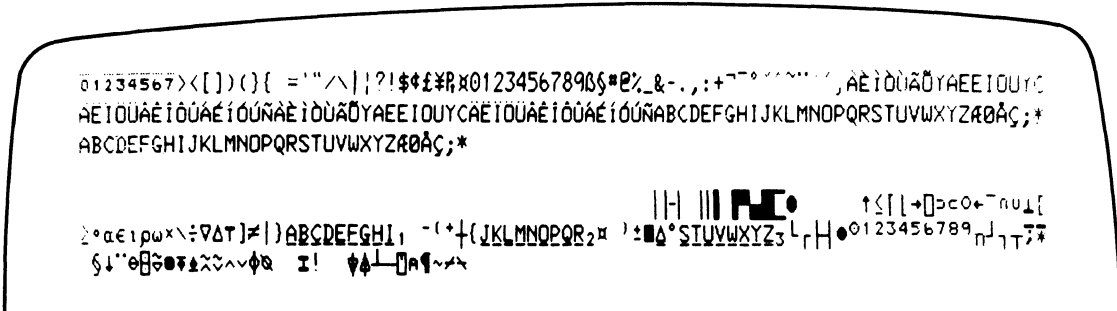
Set the Monocase/Dualcase switch (A/A,a) to the Monocase (A) position.

Is the all-character pattern changed to the monocase pattern?

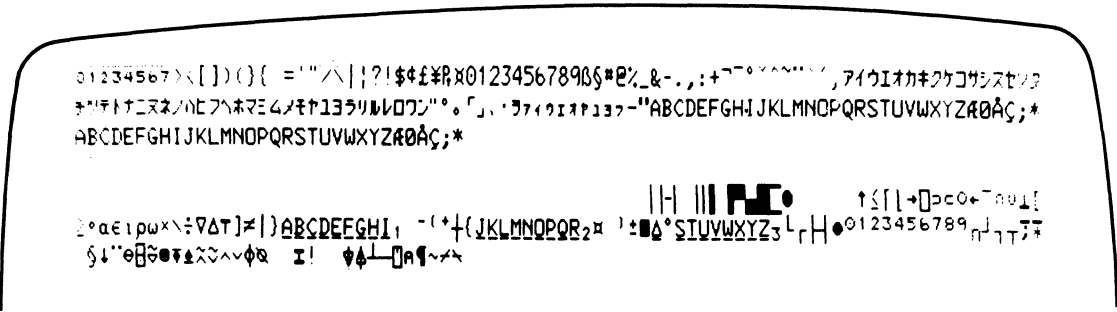
Yes No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Go to the next page.



Note: This pattern appears when the 122-key keyboard is attached.
Figure 2-40 (Part 1 of 2). All-character Pattern in Monocase (A)



Note: This pattern appears when the 124-key keyboard (Japanese Katakana) is attached.
Figure 2-40 (Part 2 of 2). All-character Pattern in Monocase (A)

Color Display Check:

Is the 7-color pattern displayed correctly?

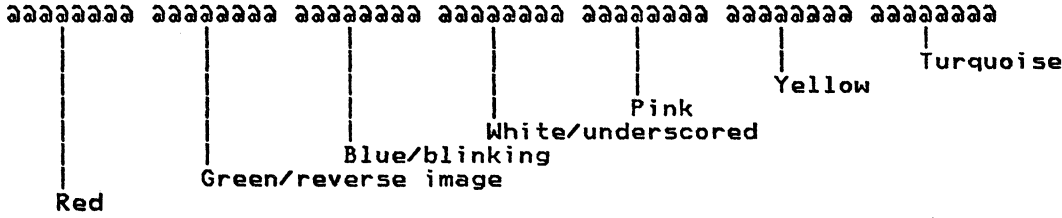


Figure 2-41. 7-color Pattern

Yes No
Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Is the 2/4-color pattern displayed correctly (4-color pattern) ?

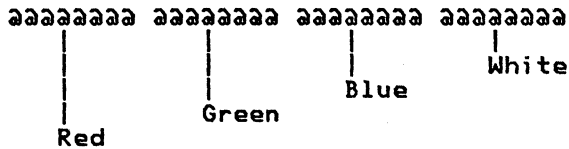


Figure 2-42. 4-color Pattern

Yes No
Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Set the Color switch (oo/oooo) to the oo position.
Is the 2/4-color pattern displayed correctly (2-color pattern) ?

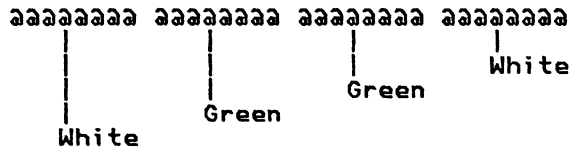


Figure 2-43. 2-color Pattern

Yes No
Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Go to the next page.

Setup Switches, Security Keylock, and Cursor Display Check:

Check the setup switches on the keyboard and the Katakana jumper (if applicable) inside the keyboard.

Note: The switch settings depend on language configuration. See A.1, "Set Switches On the Underside of the Keyboard" on page A-2.

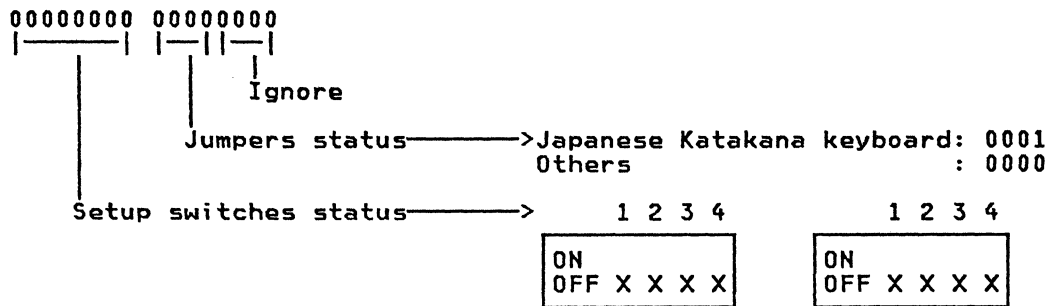


Figure 2-44. Setup Switches and Jumpers Status

Are the setup switches and jumpers correct (equal to setting) ?

Yes

No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Turn the security keylock counter-clockwise (vertical position).

Does the test pattern disappear?

Yes

No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Turn the security keylock clockwise (horizontal position).

Does the test pattern appear again?

Yes

No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Is the rectangular cursor displayed and blinking?

Yes

No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Press any key.

Does the cursor change to the underline cursor and stop blinking?

Yes

No

Note the error condition and return to 2.2, "Symptom Index" on page 2-4.

Go to the next page.

Notes:

1. Regardless of which characters appear on the keytops, the characters shown below are displayed in test mode.
2. When any key in the shaded area is pressed, the character without the underscore is displayed. When the key is released, the character with the underscore is displayed.
3. 122-key Keyboard.
4. The characters represented in this figure will be displayed when the 3205 is in test mode.

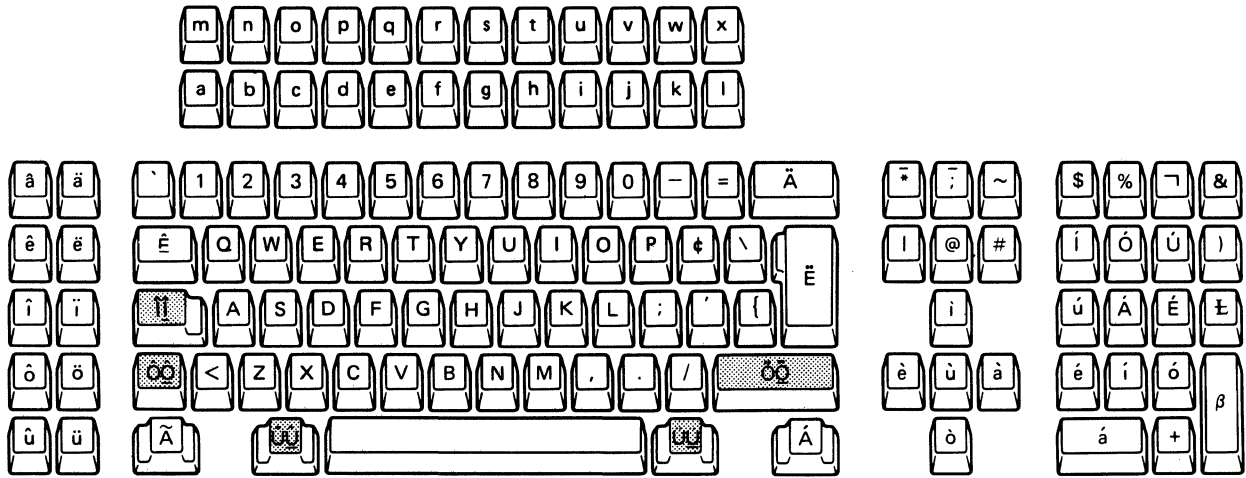


Figure 2-45 (Part 1 of 2). Characters displayed in the Keyboard-to-display test

Notes:

1. Regardless of which characters appear on the keytops, the characters displayed are those shown below in test mode.
2. When a key in the shaded area is pressed, the character without the underscore is displayed. When the key is released, the character with the underscore is displayed.
3. 124-key Keyboard (Japanese Katakana).
4. The characters represented in this figure will be displayed when the 3205 is in test mode.

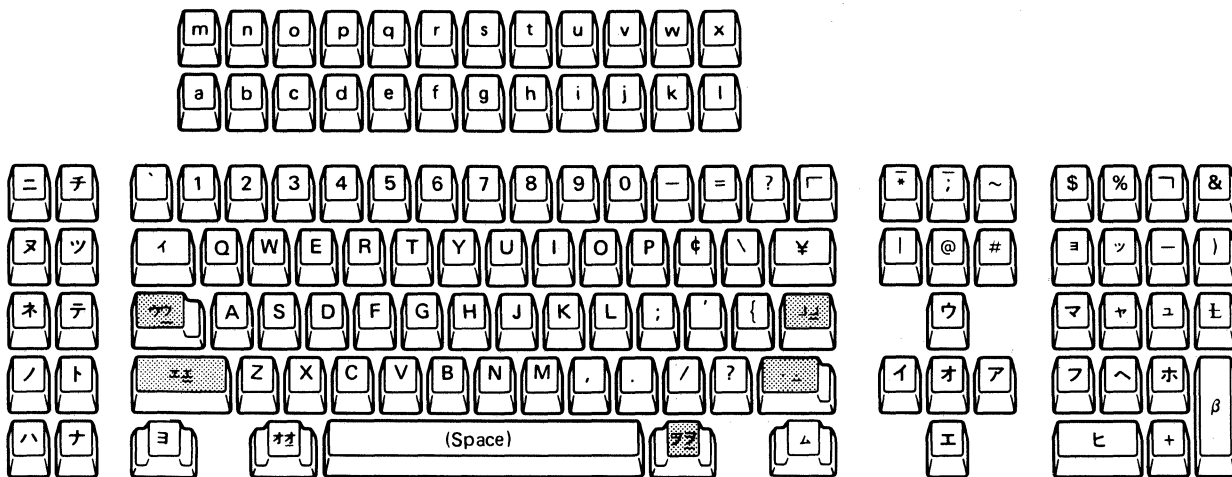


Figure 2-45 (Part 2 of 2). Characters displayed in the Keyboard-to-display test

CHAPTER 3. REMOVAL AND REPLACEMENT PROCEDURES

This chapter describes how to remove and replace the console FRUs.

3.1 KEYBOARD UNIT

1. Set the I/O switch to 0 (Off).
2. Unplug the power cord from the power outlet.
3. Disconnect the keyboard cable from the logic unit.
4. Turn the new keyboard over.
5. Set the setup switches on the new keyboard to match the old keyboard settings.
6. Record the switch setting on the label supplied with the new keyboard.
7. Reinstall in reverse order.

3.2 LOGIC UNIT

The logic unit consists of:

- Top and bottom covers which are not replaceable in the field
- A logic board assembly
- A security keylock assembly.

3.2.1 LOGIC UNIT COVER

(See Figure 3-1 on page 3-3)

1. Turn power off and disconnect the power cord plug from the power outlet.
2. Remove the power cable from the video unit and unclamp it from the cable clamp.
3. Disconnect the three connectors ① from the logic unit.
4. Hold the video unit in both hands and turn the video unit so that the screen is facing up.

CAUTION

Avoid damaging the units and the pedestal.

5. Pull the logic unit slightly towards you until the gray latch ⑤ in the pedestal is visible.
6. While pushing latch ⑤ to the right, pull down the logic unit. (See note when reinstalling.)
7. Pull the pedestal ③ towards you and remove it from the video unit ②.
8. Return the pedestal ③ and the logic unit ④ to their normal position.
9. Align the tab on the logic unit with the notch on the pedestal.
10. Squeeze the center gray latches ⑥ to the center, and remove the pedestal ③ from the logic unit ④.
11. Invert the logic unit ④, then remove the single screw ⑦.
12. Return the logic unit ④ to its normal position.
13. Press the right plastic tab ⑧ inward with a screwdriver and push upward on the top cover ⑨ far enough to release the tab.
14. Repeat step 13 for the left plastic tab ⑩. Then lift the top cover ⑨ from the base cover ⑪.
15. Reinstall in reverse sequence except for steps 5, 6, and 7.

Note: When reinstalling, instead of step 5 and 6, insert the hooks into the slots and lift the logic unit. Finally, ensure the pedestal has been locked onto the video unit ②.

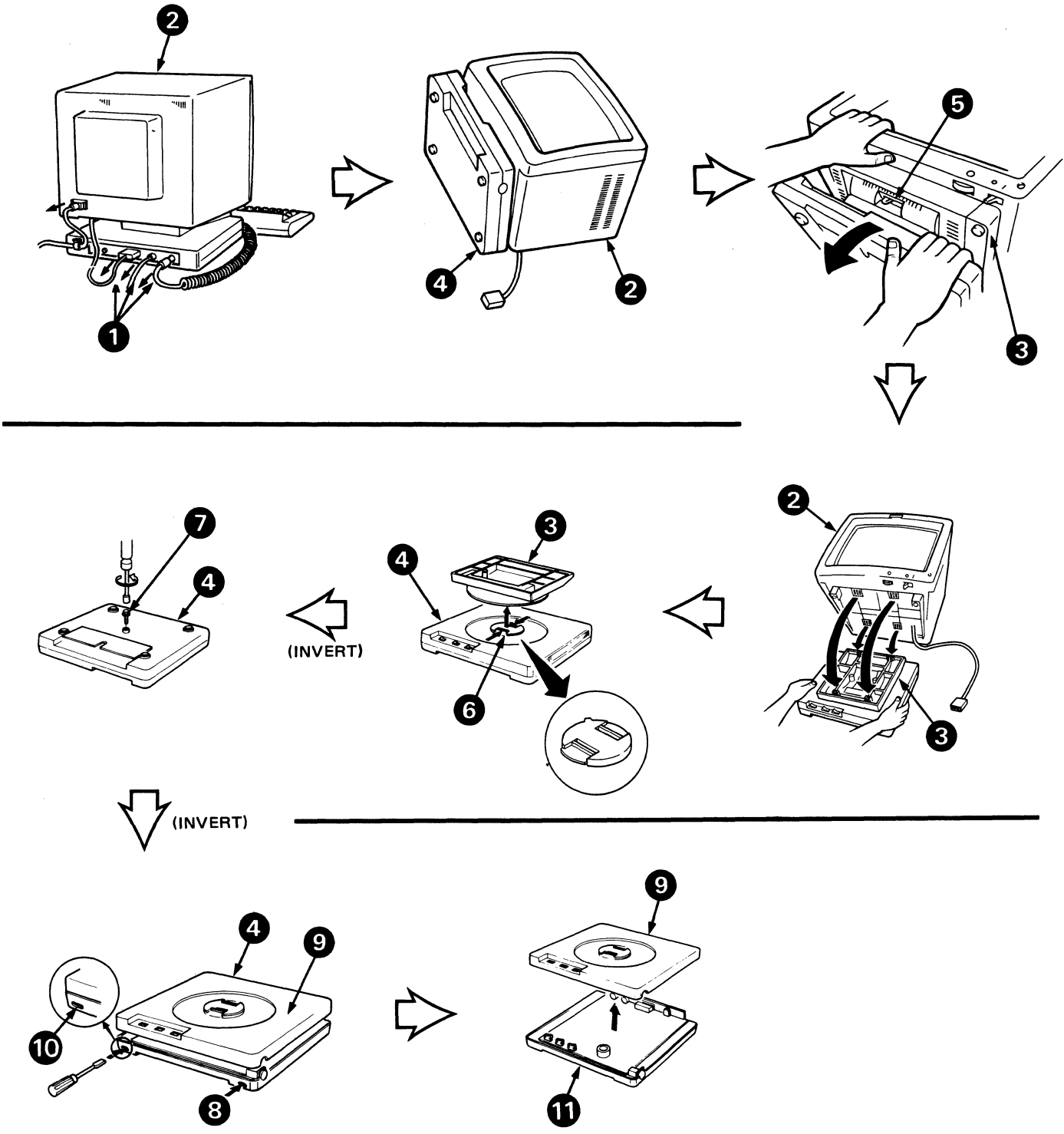


Figure 3-1. Logic Unit Cover

3.2.2 LOGIC BOARD ASSEMBLY

(See Figure 3-2)

1. Remove the logic unit cover ① as described under "Logic Unit Cover."
2. Unlatch the key lock connector ② and remove it (See Figure 3-3 Security Keylock assembly).
3. Remove logic board assembly ③ .
4. Reinstall in reverse sequence.

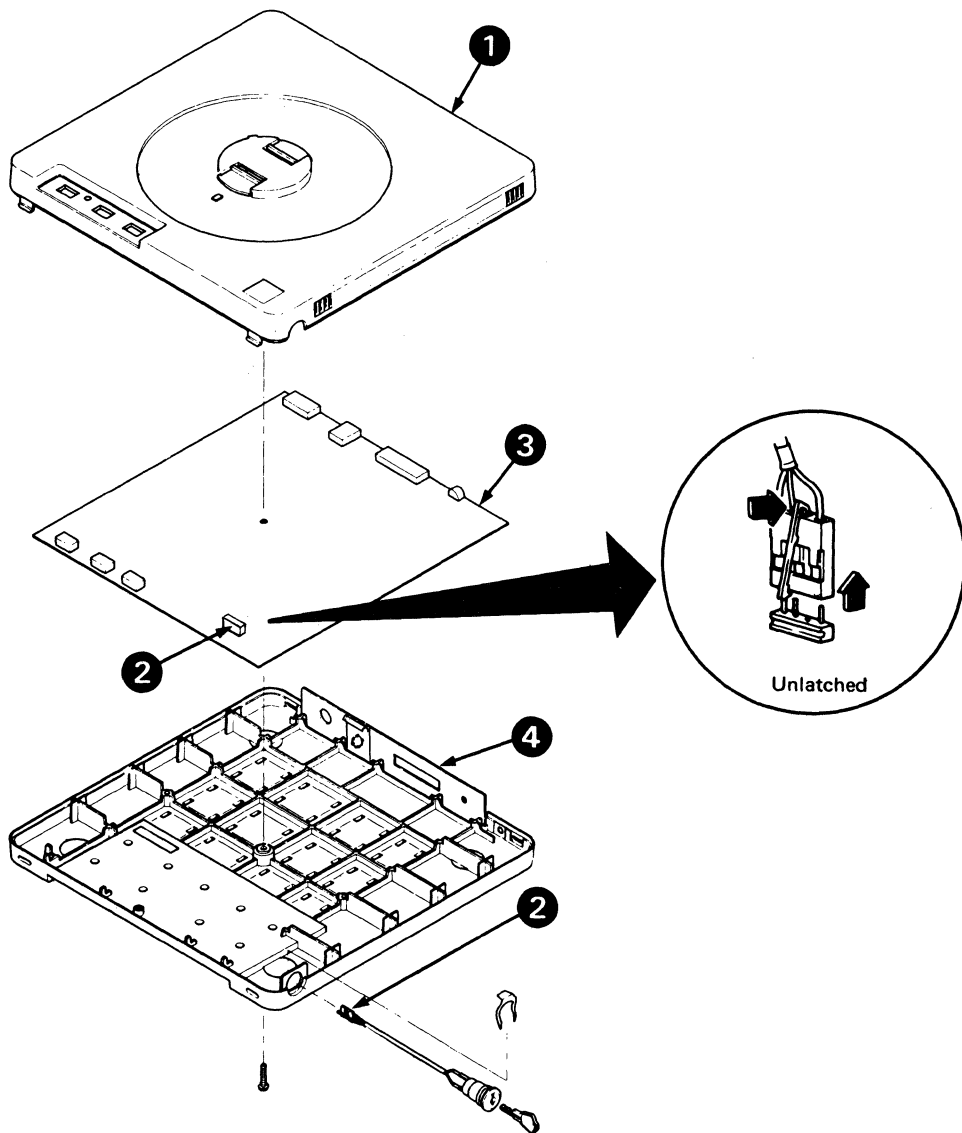


Figure 3-2. Logic Board Assembly

3.2.3 SECURITY KEYLOCK ASSEMBLY

(See Figure 3-3)

1. Remove the logic unit cover as described under "Logic Unit Cover."
2. Unlatch the key lock connector ① from the logic board.
3. Remove the clip ② from the keylock switch.
4. Remove the keylock switch ③ from the base cover.
5. Reinstall in reverse sequence.

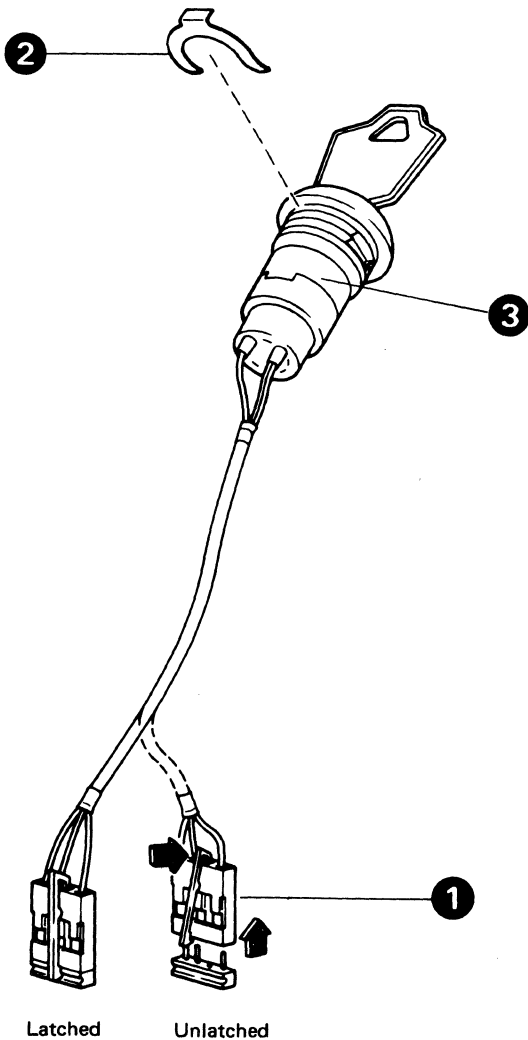


Figure 3-3. Security Keylock Assembly

3.3 VIDEO UNIT

1. Set the I/O switch to 0 (Off).
2. Unplug the power cord from the power outlet and the video unit. Push the tab to unlock the cable clamp.
3. Disconnect all cables from the logic unit.
4. Turn the video unit so that the screen faces up.
5. Pull the logic unit slightly towards you and locate the gray latch.
6. Push the latch to the right to unlock the pedestal from the video unit.
7. Turn the new video unit so that the screen faces up.
8. Attach the video pedestal to the new video unit by inserting the hooks into the slots and lifting the logic unit slightly.
9. Turn the unit right side up.
10. Connect all cables to the logic unit.
11. Connect the power cord to the video unit and to the power outlet. Lock the cable clamp.

CHAPTER 4. 3205 PART NUMBERS

Figure 4-1 through Figure 4-2 provide the part numbers for the IBM 3205.

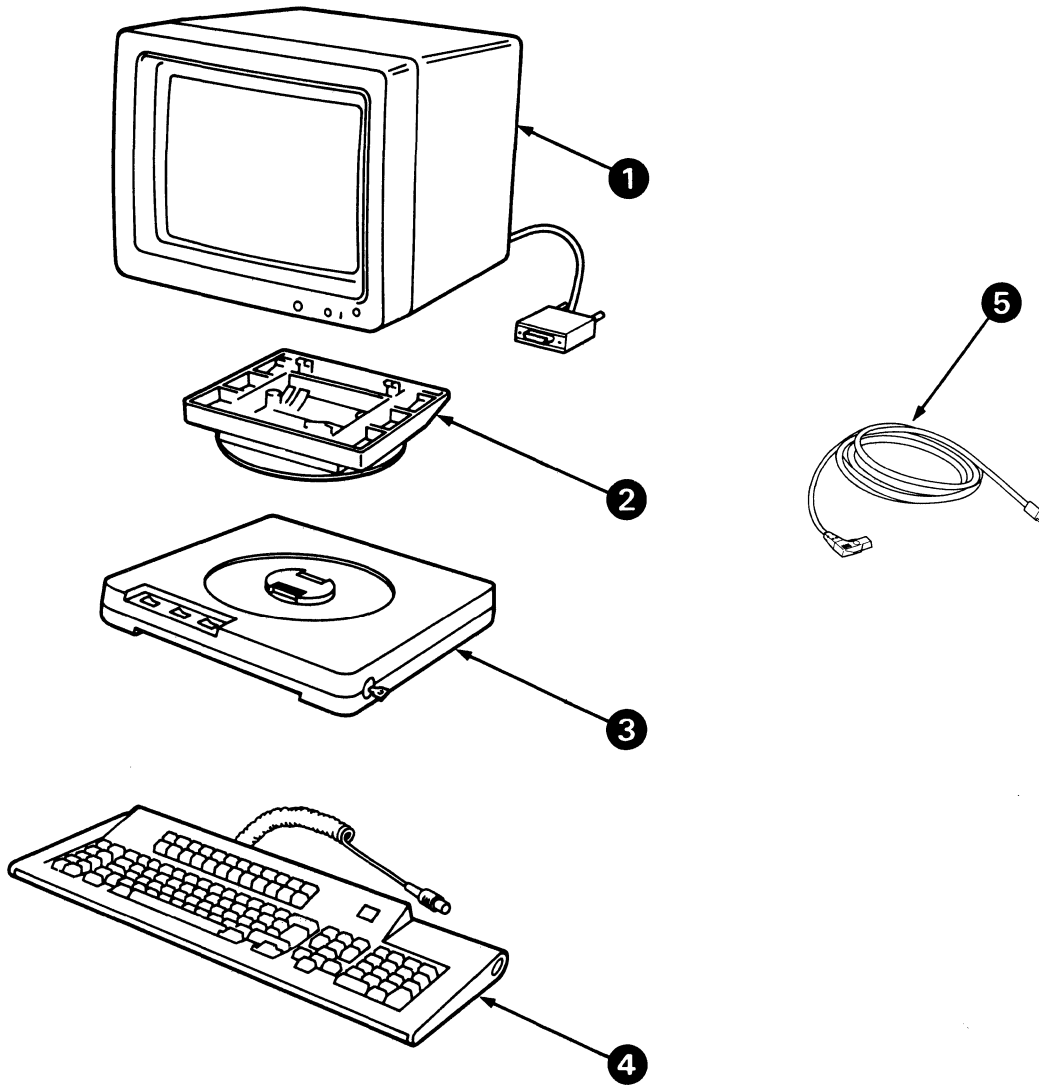


Figure 4-1 (Part 1 of 4). IBM 3205 Final Assembly

FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
1	6238411	REF	VIDEO UNIT, SUB SET 1 BERMUDA, CANADA, USA.			
1	6238412	REF	VIDEO UNIT, SUB SET 2 BAHAMAS, BARBADOS, COLUMBIA, COSTA RICA, DOMINICAN REPUBLIC, EL SALVADOR, GUATEMALA, GUYANA, HAITI, HONDURAS, JAMAICA, JAPAN, KOREA, MEXICO, NETHERLANDS ANTILLES, NICARAGUA, PANAMA, SAUDI ARABIA, TAIWAN, TRINIDAD, VENEZUELA.			
1	6238413	REF	VIDEO UNIT, SUB SET 3 BOLIVIA, ECUADOR, PHILIPPINES.			
1	6238414	REF	VIDEO UNIT, SUB SET 4 AUSTRIA, BAHRAIN, BELGIUM, BULGARIA, DENMARK, EGYPT, FINLAND, FRANCE, GERMANY, HUNGARY, ICELAND, IRELAND, ISRAEL, ITALY, JORDAN, KUWAIT, LEBANON, NETHERLANDS, NORWAY, POLAND, PORTUGAL, QATAR, ROMANIA, SPAIN, SWEDEN, SWITZERLAND, SYRIA, UK, YUGOSLAVIA.			
1	6238415	REF	VIDEO UNIT, SUB SET 5 AUSTRALIA, NEWZEALAND.			
1	6238416	REF	VIDEO UNIT, SUB SET 6 ARGENTINA, BRUNEI, CHILE, INDONESIA, MALAYSIA, PARAGUAY, SIERRA LEONE, SRI LANKA, SINGAPORE, SOUTH AFRICA, URUGUAY.			
1	6238417	REF	VIDEO UNIT, SUB SET 7 AFGHANISTAN, BANGLADESH, BURMA HONG KONG, PAKISTAN, PERU, SUDAN, THAILAND.			

Figure 4-1 (Part 2 of 4). IBM 3205 Final Assembly

FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
2	5954170	REF	VIDEO UNIT PEDESTAL			
3	6113430	REF	LOGIC UNIT (US AND A/FE)			
3	6113431	REF	LOGIC UNIT (E/ME/A, EXCEPT SPAIN)			
3	6238425	REF	LOGIC UNIT (SPAIN)			
4		REF	KEYBOARD UNIT, 122 OR 124 KEYS (MEMBRANE TYPE)			
4	1389106		CANADIAN FRENCH			
4	1389126		KATAKANA			
4	1389120		SPANISH SPEAKING			
4	1389108		DANISH			
4	1389112		ITALIAN			
4	1389114		NORWEGIAN			
4	1389116		PORTUGUESE			
4	1389124		U.K. ENGLISH			
4	1389122		SWEDISH, FINNISH AND SWEDISH			
4	1389102		AUSTRIA/GERMAN			
4	1389104		BELGIUM			
4	1389110		FRENCH-AZERTY			
4	1389118		SPANISH			
4	1389100		U.S. ENGLISH			
4		REF	KEYBOARD UNIT, 122 OR 124 KEYS (CAPACITANCE TYPE)			
4	1385492		CANADIAN FRENCH			
4	1385504		KATAKANA			
4	1385499		SPANISH SPEAKING			
4	1385493		DANISH			
4	1385495		ITALIAN			
4	1385496		NORWEGIAN			
4	1385497		PORTUGUESE			
4	1385503		U.K. ENGLISH			
4	1385500		SWEDISH, FINNISH AND SWEDISH			
4	1385490		AUSTRIA/GERMAN			
4	1385491		BELGIUM			
4	1385494		FRENCH-AZERTY			
4	1385498		SPANISH			
4	1385082		U.S. ENGLISH			

Note: If the Capacitance-type keyboard is not available, the Membrane-type keyboard can be used for replacement.

Figure 4-1 (Part 3 of 4). IBM 3205 Final Assembly

FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
5 5	6952317	REF 1	CORD ASM (POWER CABLES) CORD ASM, (E/ME/A), ARAB REPUBLIC OF EGYPT, AUSTRIA, BELGIUM, FRANCE, GERMANY, ICELAND, LEBANON, NETHERLANDS, NORWAY, PORTUGAL, ROECE, SPAIN, SUDAN, SWEDEN, SYRIA, YUGOSLAVIA, FINLAND.			
5	6952353	1	CORD ASM, (A/FE), BRUNEI, HONG KONG, MALAYSIA, SINGAPORE.			
5	6952353	1	CORD ASM, (E/ME/A), BAHRAIN, IRELAND, JORDAN, KUWAIT, QATAR, SAUDI ARABIA, SIERRA LEONE, U.K.			
5	6952317	1	CORD ASM, (A/FE), INDONESIA AFGHANISTAN			
5	6952308	1	CORD ASM, (A/FE), AUSTRALIA, NEW ZEALAND			
5	6952362	1	CORD ASM, (E/ME/A), SWITZERLAND			
5	6952344	1	CORD ASM, (E/ME/A), SOUTH AFRICA, PAKISTAN			
5	6952344	1	CORD ASM, (A/FE), BANGLADESH, BURMA SRI LANKA.			
5	6952326	1	CORD ASM, (E/ME/A), DENMARK			
5	6952371	1	CORD ASM, (E/ME/A), ITALY			
5	6952371	1	CORD ASM, (A/FE), CHILE			
5	6952298	1	CORD ASM, (US), 6 FEET			
5	6952297	1	CORD ASM, (US), 10 FEET			
5	6952297	1	CORD ASM, (A/FE), ANTILLES, BAHAMAS, BARBADOS, BERMUDA, BOLIVIA, CANADA, COLUMBIA, COSTA RICA, DOMINICAN REPUBLIC, ECUADOR, EL SALVADOR, GUATEMALA, GUYANA, HAITI, HONDURAS, JAMAICA, JAPAN, KOREA, MEXICO, NICARAGUA, PANAMA, PHILIPPINES, TAIWAN, TRINIDAD, VENEZUELA.			
5	6952380	1	CORD ASM, (E/ME/A), ISRAEL			
5	6952285	1	CORD ASM, (A/FE), URUGUAY, PARAGUAY ARGENTINA			
5	6952397	1	CORD ASM, (A/FE), PERU, THAILAND			

Figure 4-1 (Part 4 of 4). IBM 3205 Final Assembly

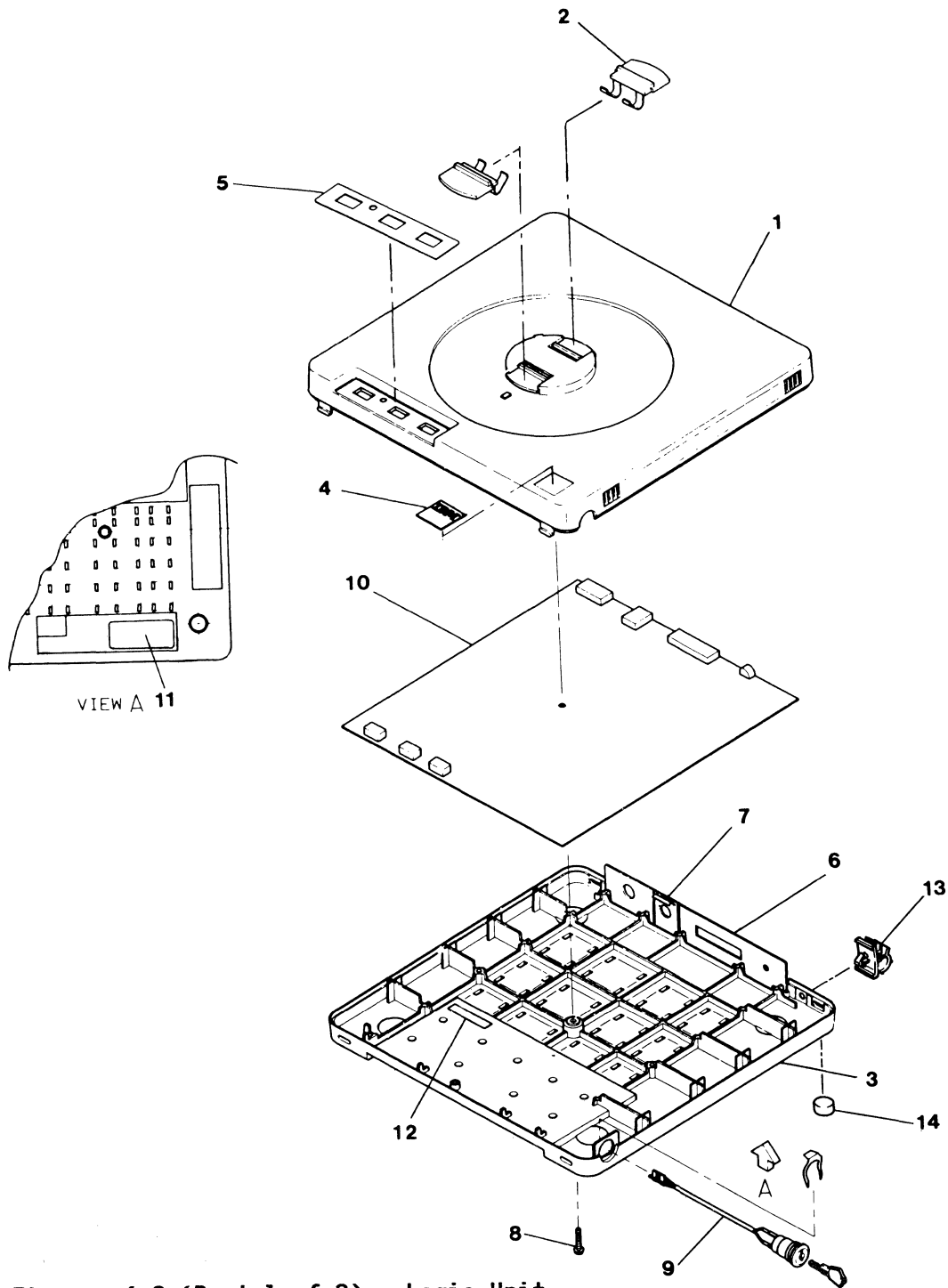


Figure 4-2 (Part 1 of 2). Logic Unit

FIGURE- INDEX NUMBER	PART NUMBER	UNITS PER ASM.	DESCRIPTION			
			1	2	3	4
1, 3	6113432	1	.			COVER GRP SEE NOTE
2	5954169	2	.	.	.	LATCH
4	6238420	1	.	.	.	PLATE NAME
5	5954192	1	.	.	.	LABEL OPERATOR SWITCH
6	5954166	1	.	.	.	I/O PLATE
7	6113429	1	.	.	.	SPRING CLIP
8	6052098	1	.	.	.	SCREW HEX
9	6112987	1	.	.	.	SECURITY KEY ASM
10	6342702	1	.	.	.	LOGIC BOARD (US)
10	6342703	1	.	.	.	LOGIC BOARD (E/ME/A, EXCEPT SPAIN)
10	6342704	1	.	.	.	LOGIC BOARD (A/FE)
10	6426644	1	.	.	.	LOGIC BOARD (SPAIN)
11, 12	5641661	1	.	.	.	LABEL CBM BASE S/N SEE NOTE
13	5954194	1	.	.	.	CABLE CLAMP (US AND A/FE)
13	5954164	1	.	.	.	CABLE CLAMP (E/ME/A)
14	5641811	4	.	.	.	FOOT

Note: This item cannot be ordered and is not recommended for field replacement.

Figure 4-2 (Part 2 of 2). Logic Unit

CHAPTER 5. IBM 3205 SAFETY INSPECTION GUIDE

Safety Inspection Guide

MACHINE TYPE IBM 3205

5.1 PREPARATION

Before starting this procedure, ensure that machine power is off and all electrical power has been removed from the machine.

Completion of "Electrical Safety Training Course for IBM Customer Engineers" (self study course 77170 or current level) is required.

Reference items:

- Current CEMs and ECAs
- Electrical Safety for IBM Customer Engineers (S229-8124).

Use the documents listed above as required to ensure that all safety requirements have been met.

5.2 GENERAL GUIDELINES

The purpose of this inspection guide is to assist you in identifying possibly unsafe conditions that may exist on machines that are being inspected. Each machine, as it was designed and built, had required safety items installed to protect the owners, operators, and service personnel from injury. This checklist addresses only those items. Good judgment should be used to identify potential safety conditions not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:

- **Electrical:**
The primary power or an electrically charged frame can cause serious or fatal electrical shock.
- **Wiring:**
Insulation should not be damaged. Cable ties and clamps should be installed where appropriate.
- **Explosive:**
A bulging capacitor can cause serious injury.
- **Chemical:**
Ensure that there is no use of chemicals, solvents etc., other than those specified by IBM.

CAUTION

Switch power off and disconnect the power plug from the power outlet.

5.3 GENERAL

CHECK:

- _____ Covers for sharp edges, burrs, and damage.
 - _____ Cables for incorrect routing, wear, pinched areas, or frays. Cable ties should be installed as necessary.
 - _____ The main power switch for proper mechanical and electrical operation.
 - _____ The power cord for:
 - _____ A factory-molded plug with no alterations.
 - _____ Adequate insulation.
 - _____ Being properly secured.
 - _____ Any non-IBM alterations that may expose a customer or servicing CE to safety hazards.
- If safety hazards are present, contact your manager.

5.4 VIDEO UNIT

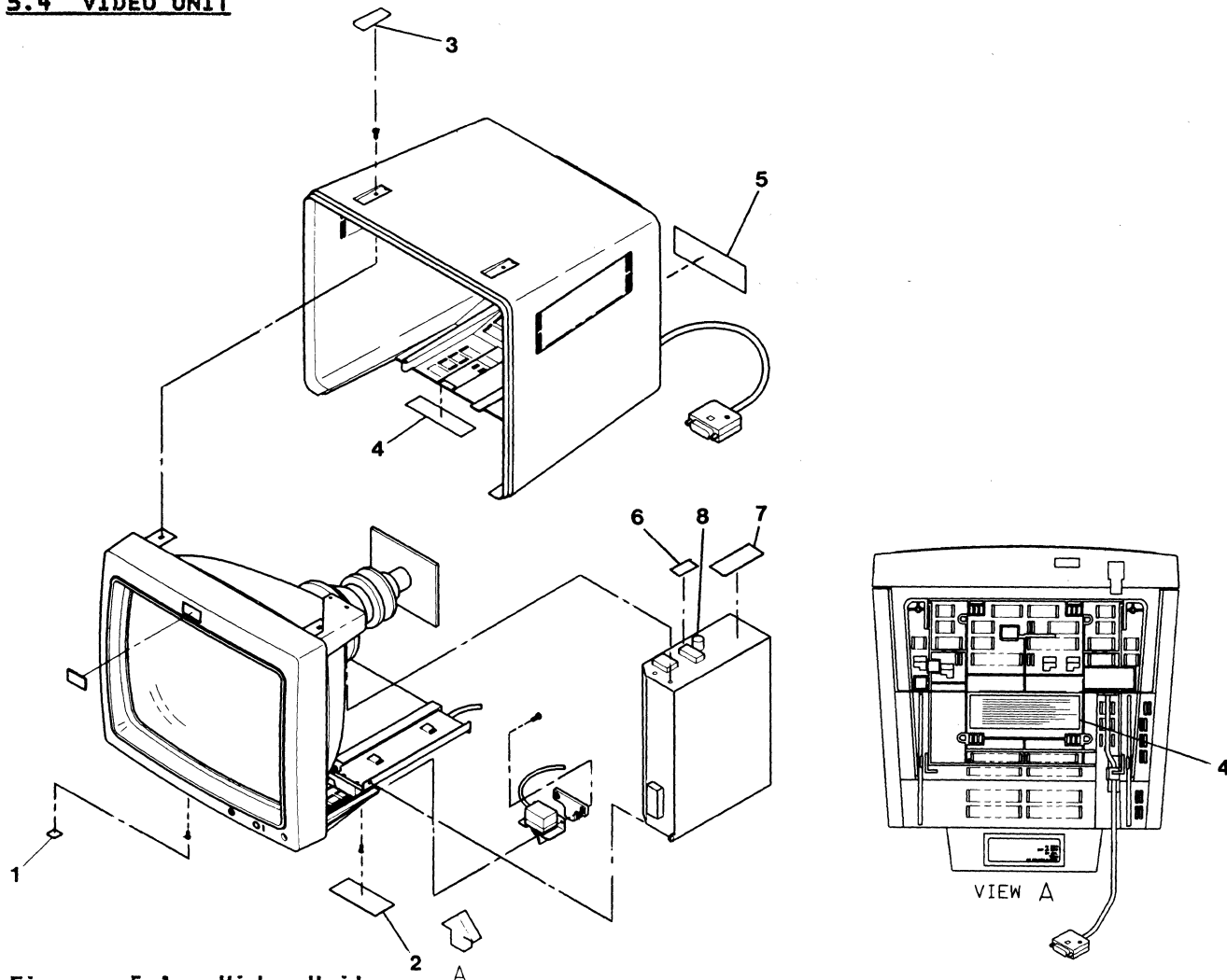


Figure 5-1. Video Unit

CHECK:

- _____ Ensure that the screw <10> is installed for proper grounding. (See Figure 5-2 on page 5-5, Figure 5-3 on page 5-5)
- _____ Ensure that the following plugs and labels are installed:

_____	Part 4761473	(2x)	Label - Bottom Small <1>
_____	Part 4761474		Label - Bottom Large <2>
_____	Part 5954187	(2x)	Plug <3>
_____	Part 5641228		Label Warning for E/ME/A <4>
_____	Part 5640888		Label Warning for US and A/FE <4>
_____	Part 6238405		Label Power Rating - Low Voltage <5>
_____	Part 6238406		Label Power Rating - High Voltage <5>
_____	Part 4761480		Label Fuse Rating - Low Voltage <6>
_____	Part 4761482		Label Fuse Rating - Low Voltage <6>
_____	Part 5640640		Label Warning <7>

- _____ Ensure that the proper fuse is installed <8>.

_____	Part 6112993	Fuse 4A 250V for Low Voltage (Label 4761480)
_____	Part 6112994	Fuse 3.15A 250V for High Voltage (Label 4761482)

5.5 LOW VOLTAGE

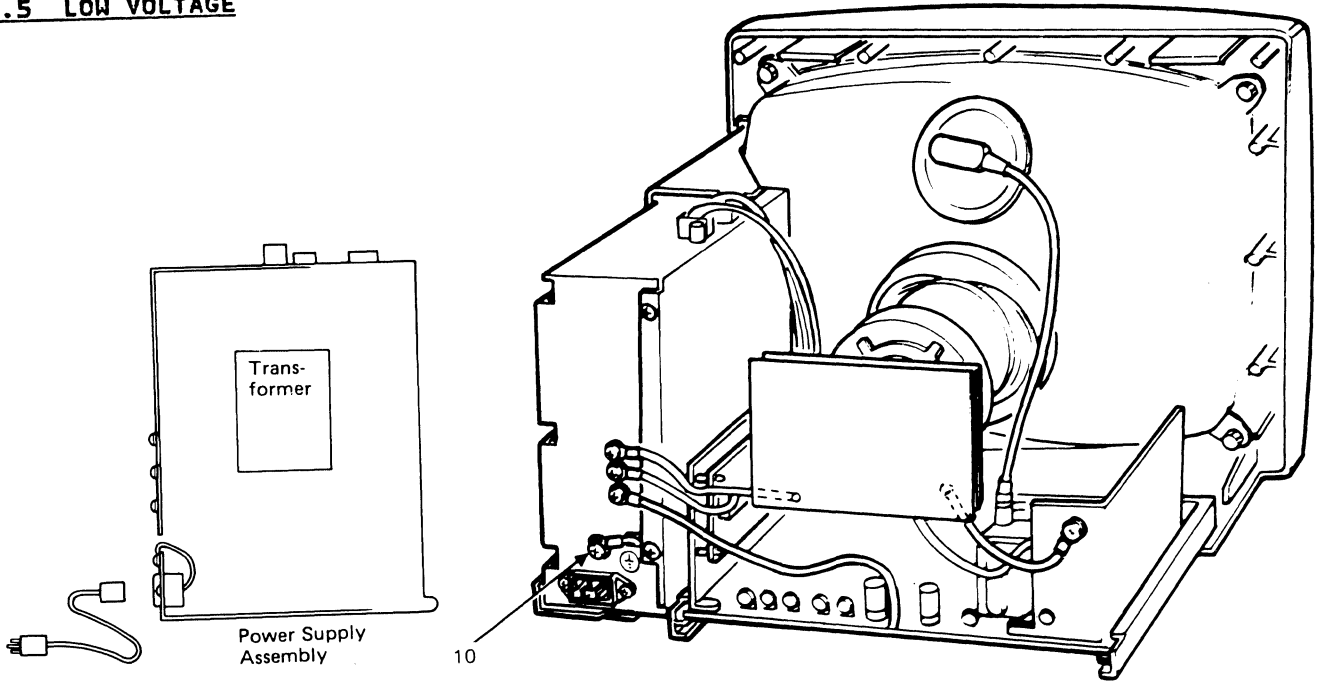


Figure 5-2. Grounding Pass Schematics

5.6 HIGH VOLTAGE

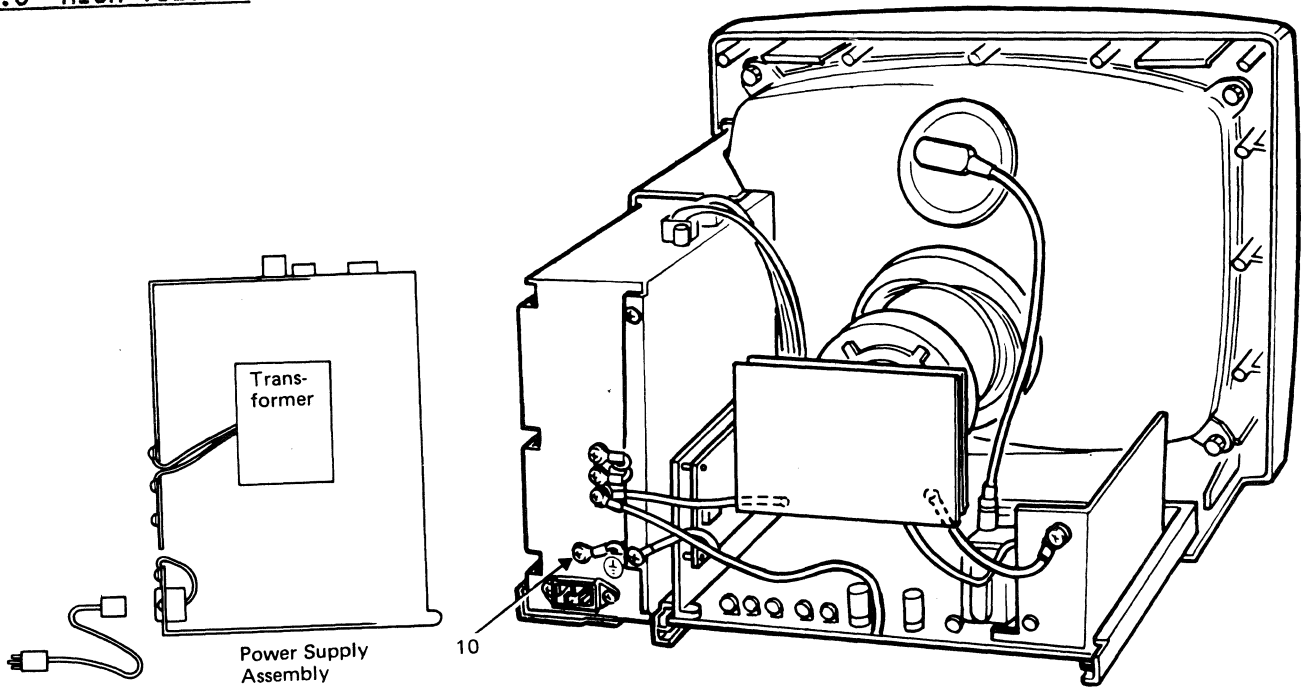


Figure 5-3. Grounding Pass Schematics

5.7 KEYBOARD UNIT (MEMBRANE TYPE)

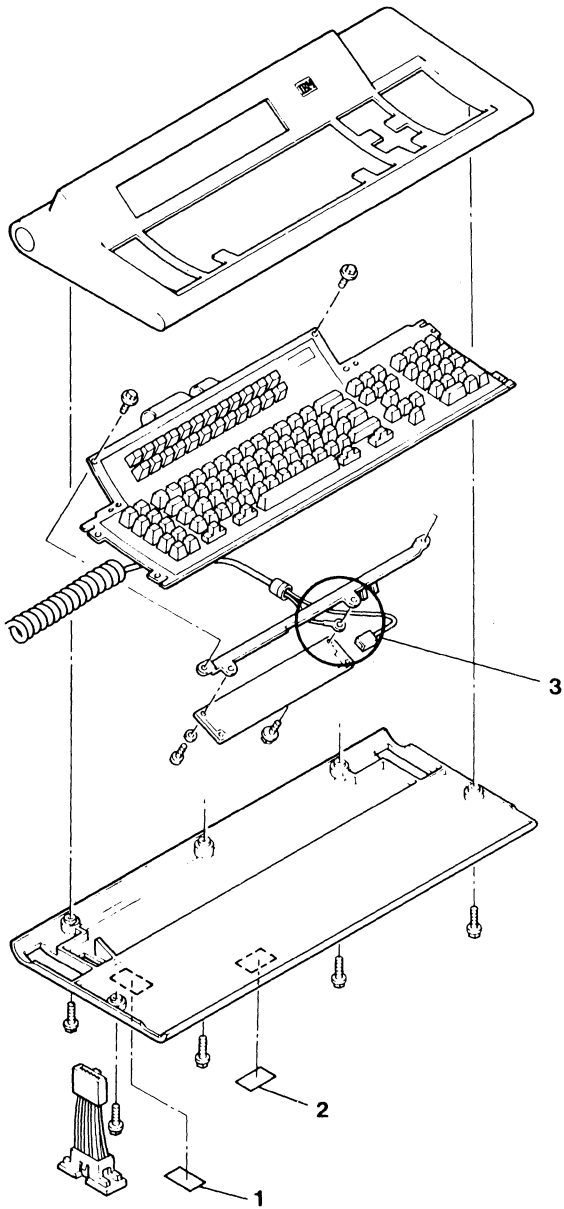


Figure 5-4. Keyboard Unit (Membrane type)

CHECK:

_____ Ensure that the following labels are installed:

_____ Part 6110502 Label-CSU Switch <1>
_____ Label-RID Tag <2>

_____ Ensure that the screw is installed for proper grounding <3>

5.8 KEYBOARD UNIT (CAPACITANCE TYPE)

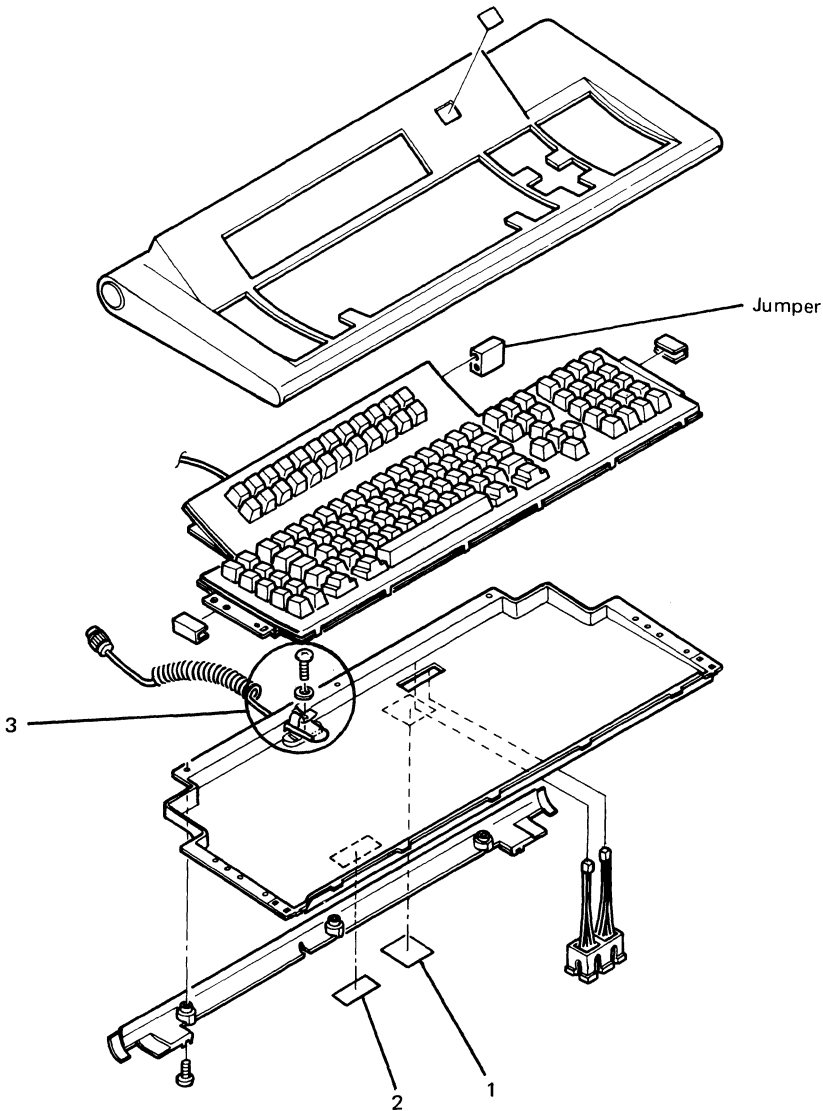


Figure 5-5. Keyboard Unit (Capacitance type)

CHECK:

_____ Ensure that the following labels are installed:

_____ Part 6110502

Label-CSU Switch <1>
Label-RID Tag <2>

_____ Ensure that the screw is installed for proper grounding <3>

APPENDIX A. IBM 3205 INSTALLATION INSTRUCTIONS

This chapter describes the procedures to set up the 3205 console and attach it to the processor.

1. Make sure you received these items shown in Figure A-1. Check off each item and if any are missing, call the Raleigh Hotline (800)334-0431 or Hotline Tie line 441-5004, in North Carolina call collect (919)543-5004.

Note:

For WT please contact your local IBM Branch Office or Service Center.

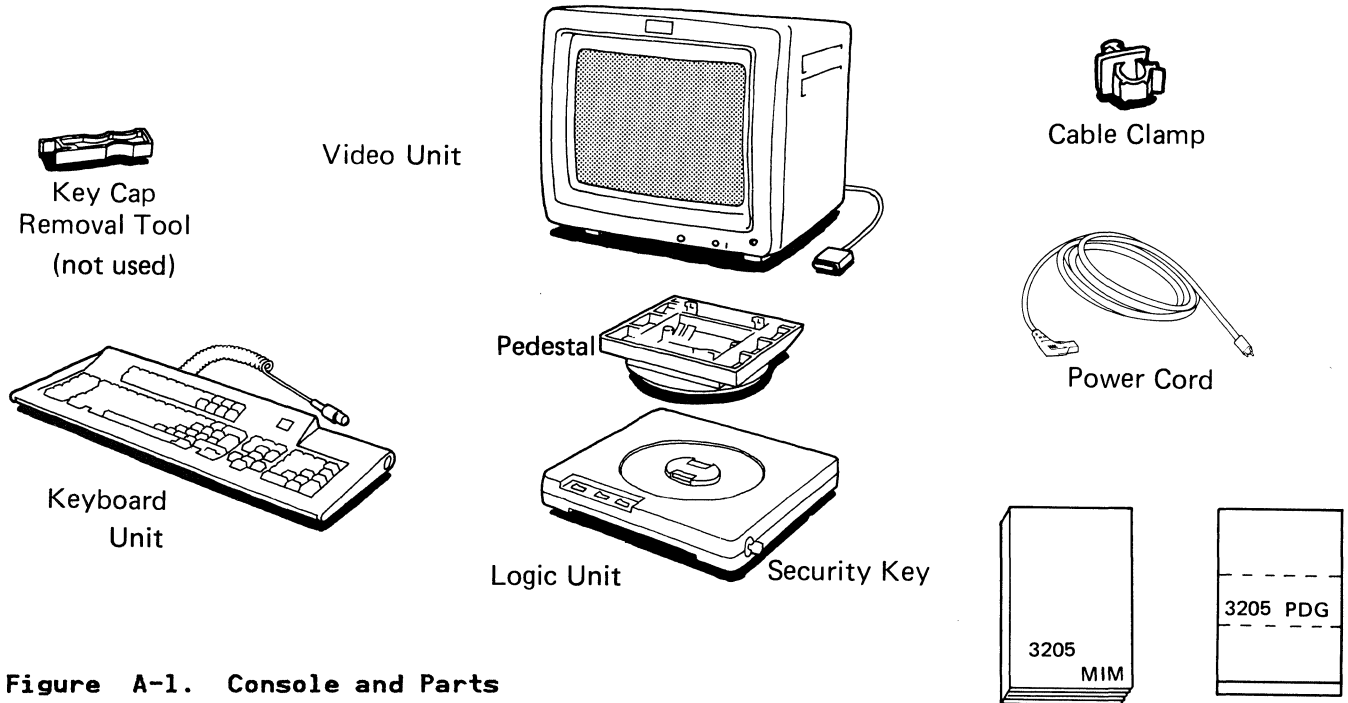


Figure A-1. Console and Parts

2. Record the part number of the keyboard, logic board, and video unit, into the problem reporting section of the 3205 Color Display Console, Operator Reference and Problem Determination Guide, order number GA18-2339. Keyboard and video part numbers are on the unit.

Code Item

- K = Keyboard part number
- L = Logic board part number. Select one of the following:
6342702 (US); 6342703 (E/ME/A, EXCEPT SPAIN);
6426644 (SPAIN); 6342704 (A/FE)
- V = Video unit part number
- A = Video unit and Logic board part number
- B = Video unit, Logic board, and Keyboard part number
- C = Logic board and Keyboard part number
- P = Pedestal part number, 5954170
- S = Security Key 6112987 and Logic board part number

A.1 SET SWITCHES ON THE UNDERSIDE OF THE KEYBOARD

1. Turn the keyboard over.

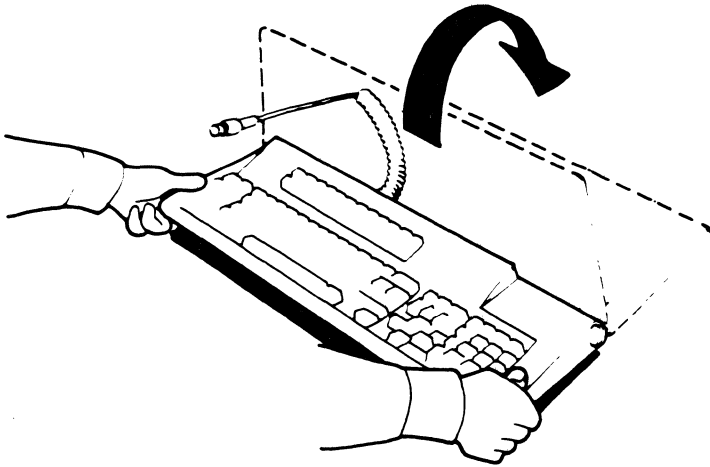
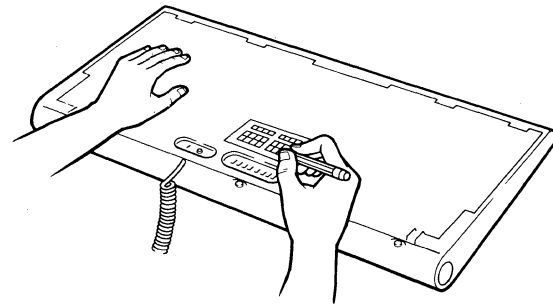
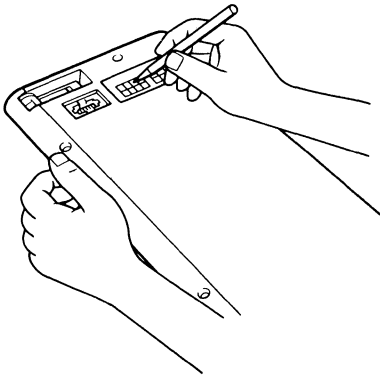


Figure A-2. Turn Keyboard

2. Set switches and record them on the label.



Membrane Type

Capacitance Type

Keyboard without numeric lock	Keyboard languages	Part Number (MEM.)	Part Number (CAP.)
0000 0000	US English	1389100	1385082
0000 0001	UK English	1389124	1385503
0000 0010	Canadian French	1389106	1385492
0000 1101	Japanese Katakana	1389126	1385504
0001 0000	Austrian/German	1389102	1385490
0001 0001	Belgian	1389104	1385491
0001 0011	Danish	1389108	1385493
0001 0110	French (AZERTY DPTW)	1389110	1385494
0001 1000	Italian	1389112	1385495
0001 1001	Norwegian	1389114	1385496
0001 1010	Portuguese	1389116	1385497
0001 1011	Spanish	1389118	1385498
0001 1100	Spanish-Speaking	1389120	1385499
0001 1101	Finnish/Swedish	1389122	1385500

Figure A-3. Setup Switches

A.2 ATTACH PEDESTAL TO LOGIC UNIT

1. Set the pedestal on the logic unit and align the notches.

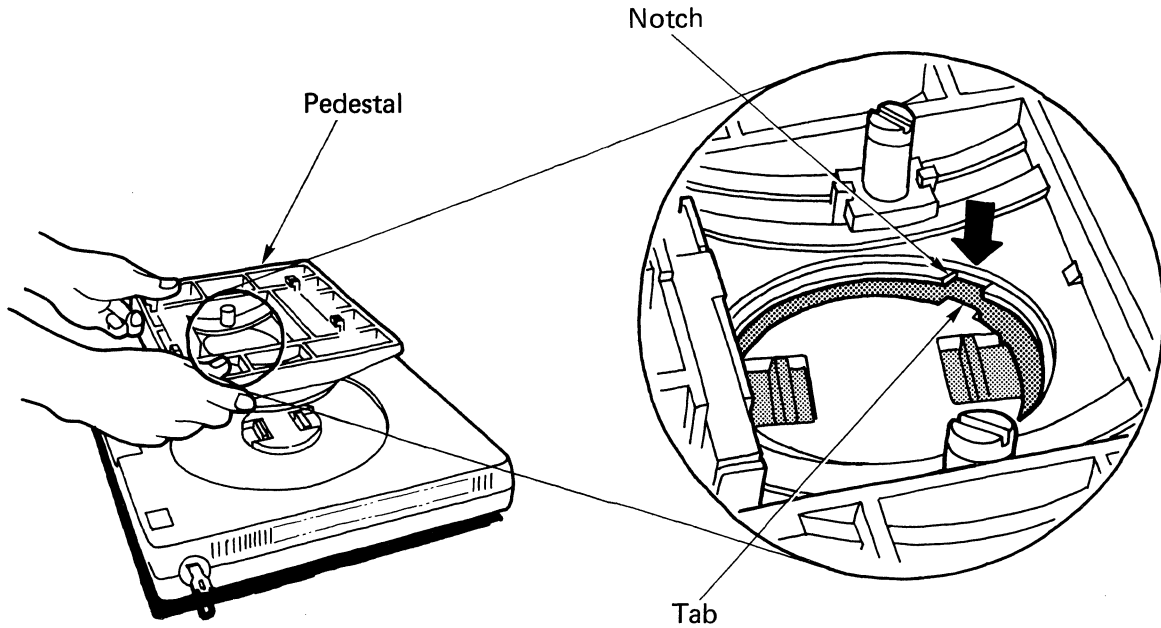


Figure A-4. Set Pedestal

2. Lock the pedestal onto the logic unit by pinching the two gray latches on the logic unit; then, release them.

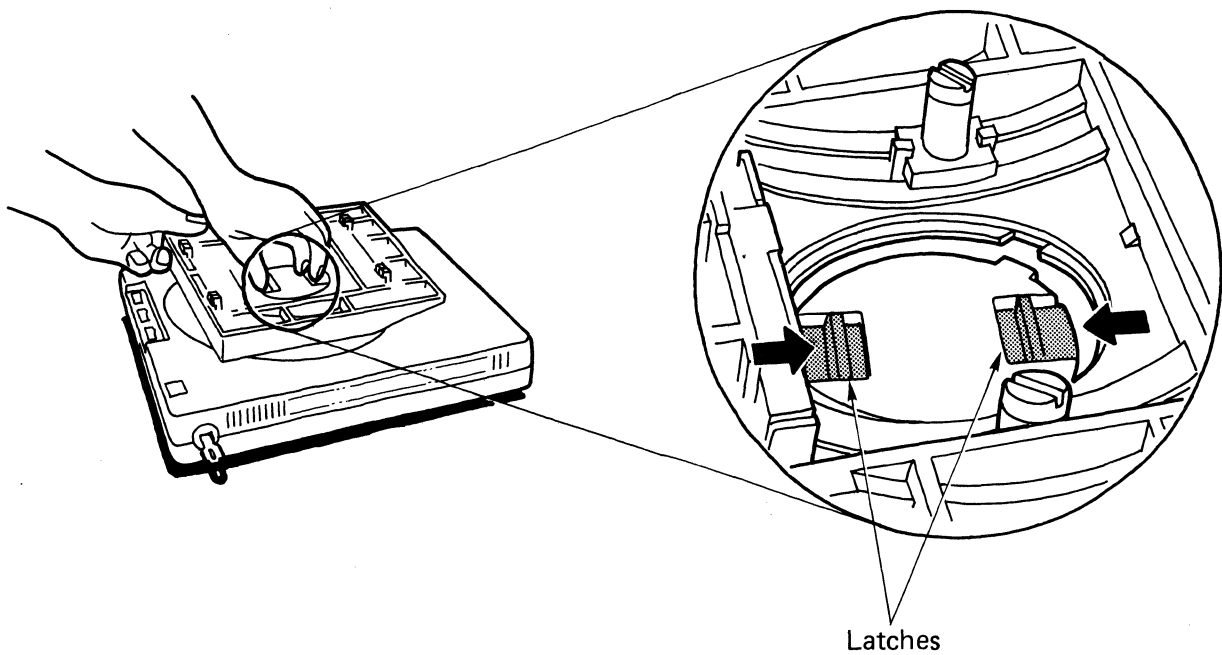


Figure A-5. Lock Gray Latches

3. Lift up on the pedestal to make sure the pedestal is locked onto the logic unit.

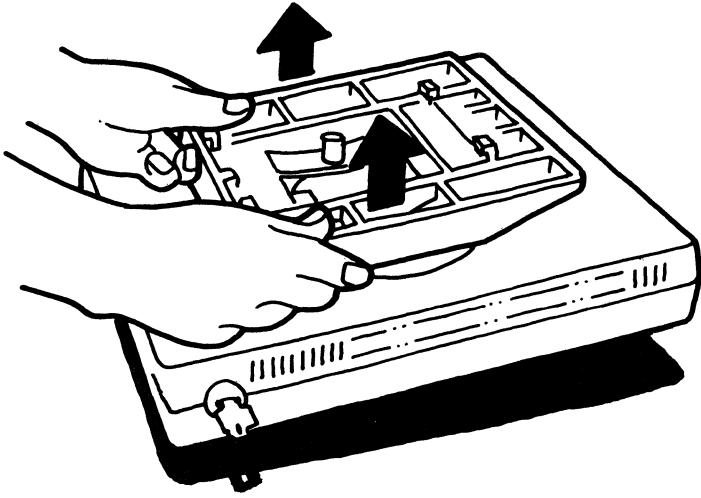


Figure A-6. Ensure Lock

A.3 ATTACH PEDESTAL TO VIDEO UNIT

1. Turn the video unit so that the screen faces up.

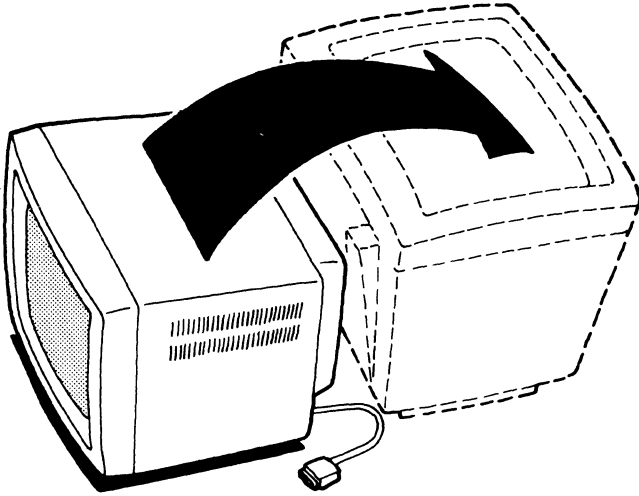


Figure A-7. Turn Video Unit

2. Insert the hooks into the slots and lift up on the logic unit until it latches in the video unit.

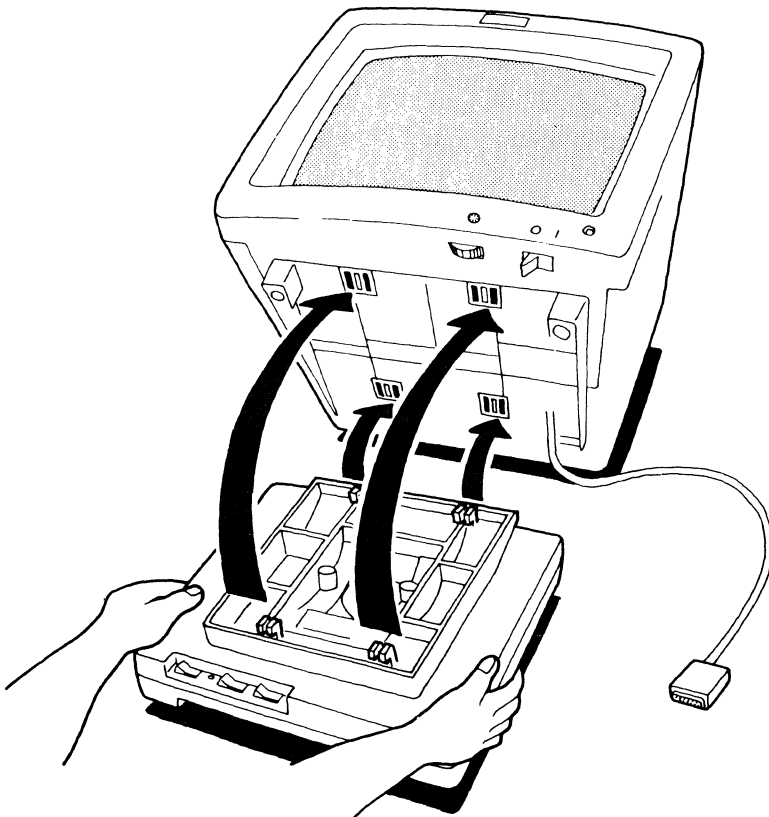


Figure A-8. Hook Pedestal to Video Unit

3. Turn the video unit right side up.

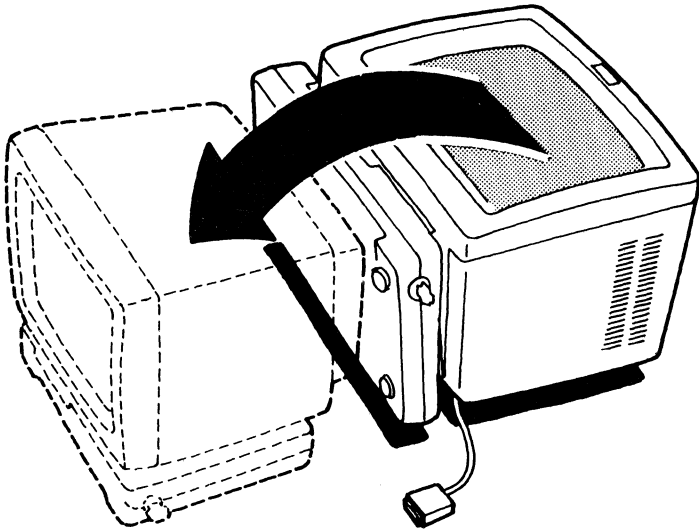


Figure A-9. Turn Video Unit

A.4 CONNECT CABLES TO THE REAR

1. Insert the video cable into the connector and tighten the screws.

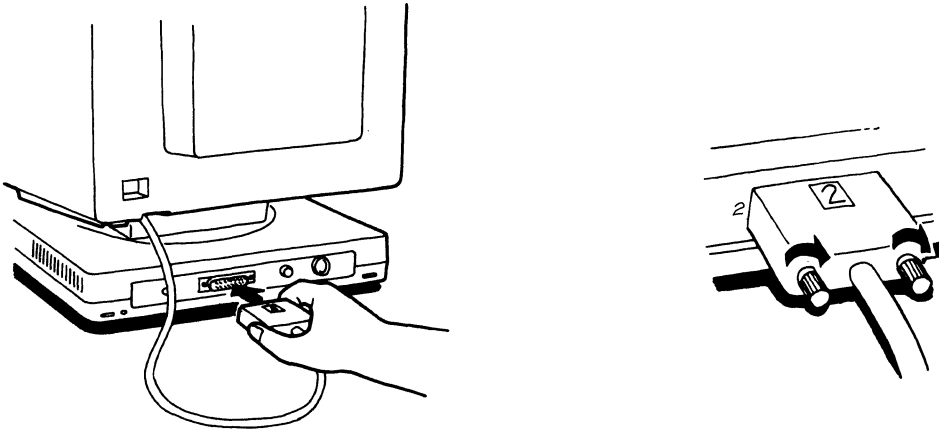


Figure A-10. Connect Video Cable

2. Pull off the red cap (if fitted) from keyboard cable and insert the keyboard cable into the connector and tighten the collar.

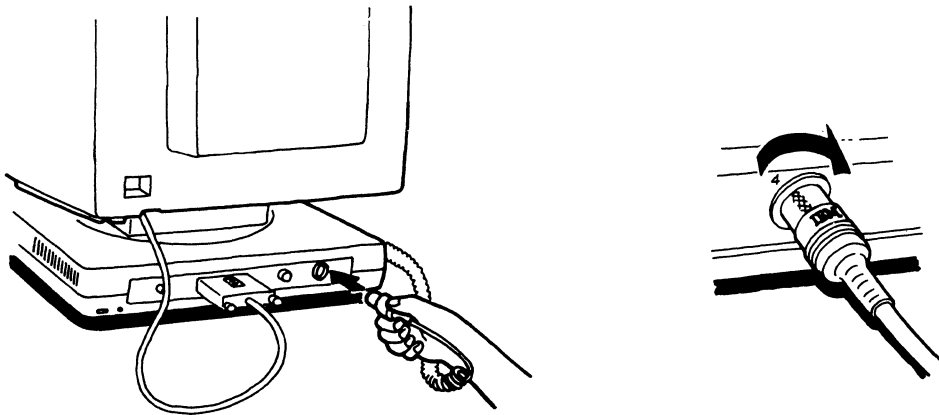


Figure A-11. Keyboard Cable

3. Insert the power cord into the video unit.

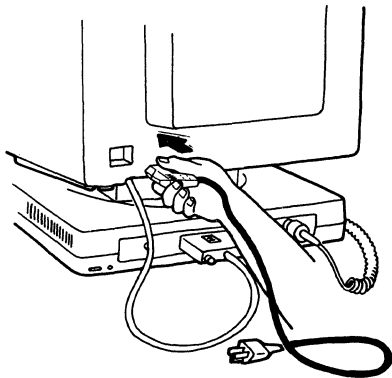


Figure A-12. Connect Power Cord

A.5 ATTACH CABLE CLAMP

1. Thread the power cord through the clamp. Leave about 60 centimeters (24 inches) between the plug **1** and the clamp **2**.

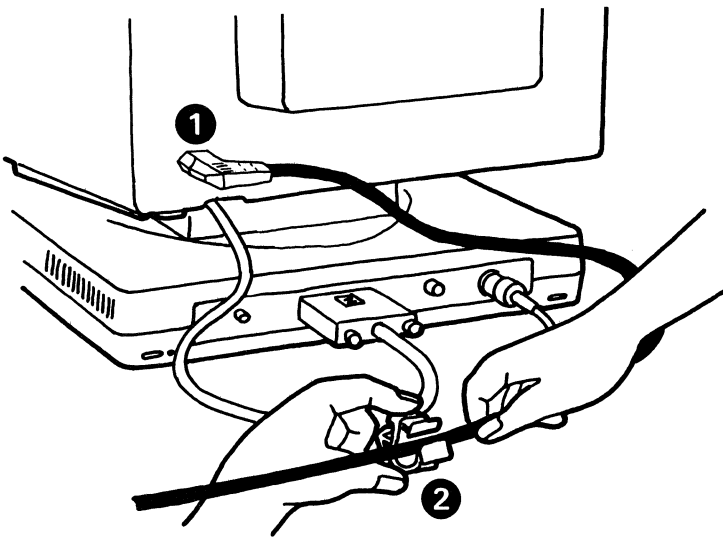


Figure A-13. Prepare Cable Clamp

2. Close the clamp.

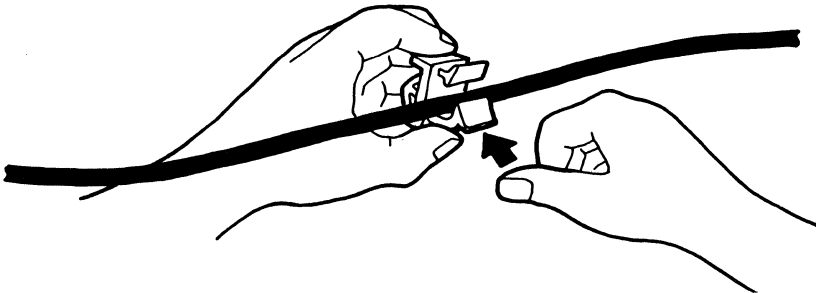


Figure A-14. Close Cable Clamp

3. Insert the clamp into the logic unit.

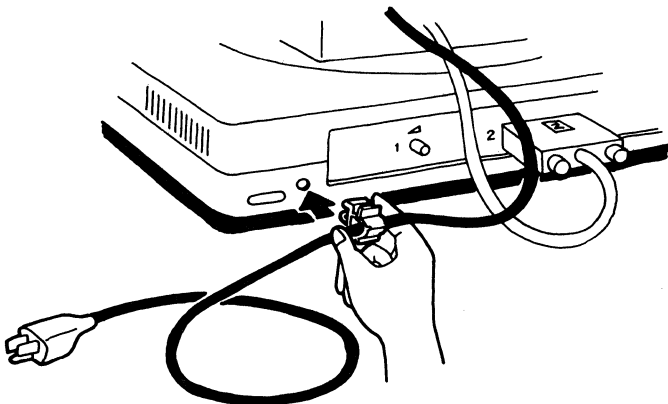


Figure A-15. Attach Cable Clamp

A.6 SET POWER ON

1. Make sure the security key is turned fully clockwise.

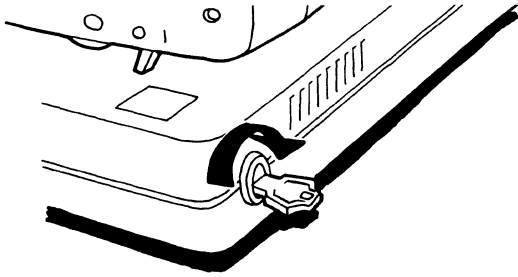


Figure A-16. Unlock Security Key

2. Switch power off (O).

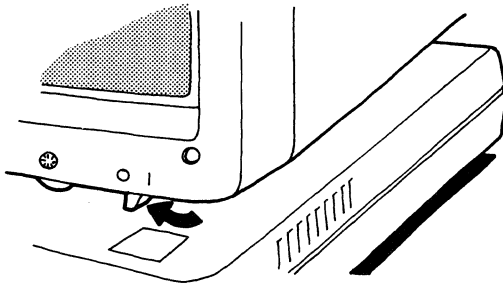


Figure A-17. Power off

3. Plug in the power cord.

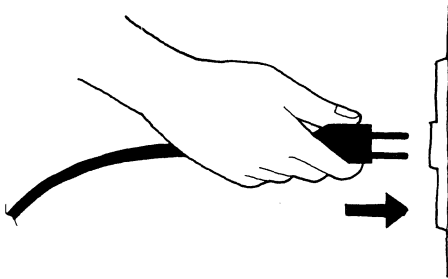


Figure A-18. Plug in Power Cord

4. Switch power on (I). The Power-on light should come on.

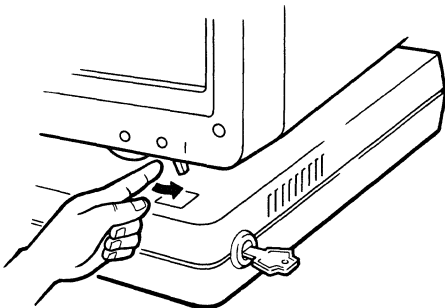


Figure A-19. Power on

A.8 CHECK AUDIBLE ALARM

1. Check the volume of alarm by switching the Test/Normal switch back and forth slowly. You should hear a beep.

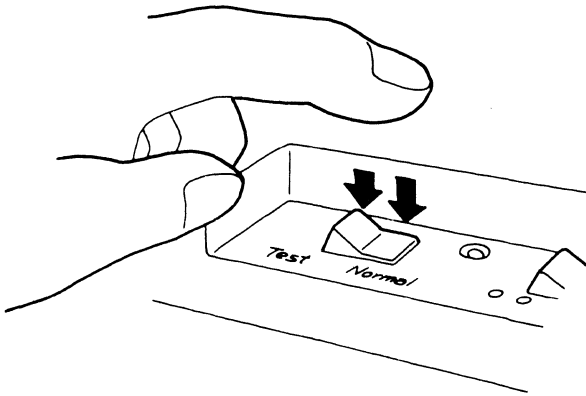


Figure A-23. Check Audible Alarm

2. Adjust the volume for comfortable level by turning the knob at the back of the logic unit.

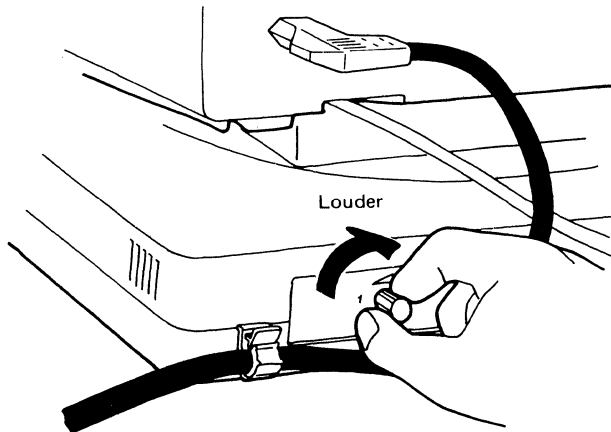


Figure A-24. Adjust Audible Alarm

3. Set the switch to Normal.

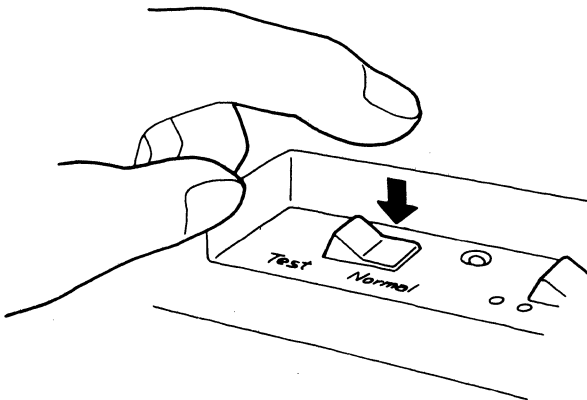


Figure A-25. Set Test/Normal Switch

Installation is now complete. Go on to the next page.

A.9 PERSONALIZE THE CONSOLE FOR THE OPERATOR

1. Position the console for comfortable viewing for 3205 operator.

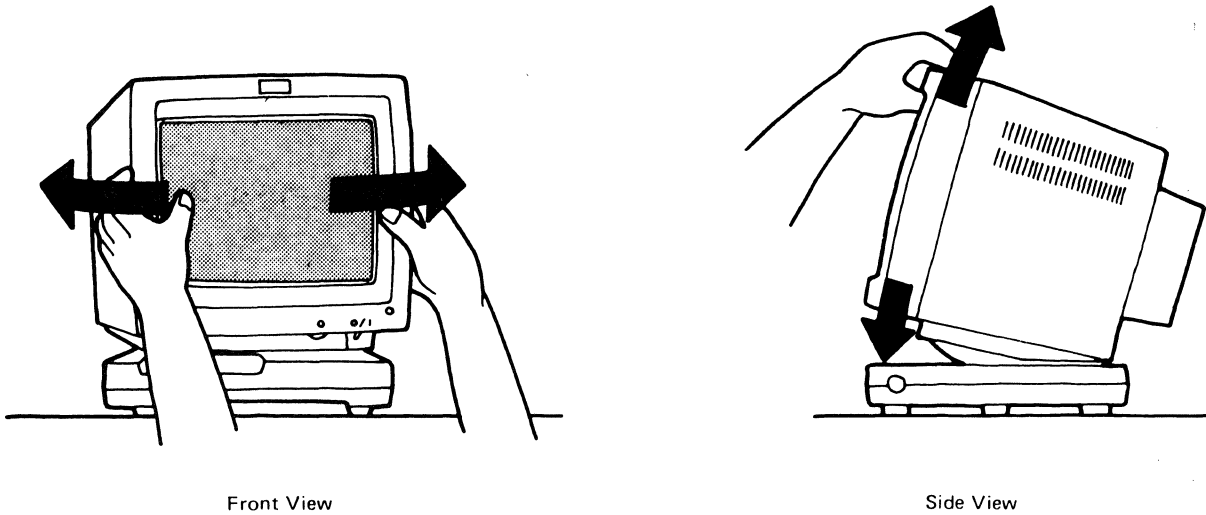


Figure A-26. Position the console

2. Adjust the keyboard angle for the 3205 operator:
 - a. Lift up the keyboard and push the buttons on each side until short legs drop down. Push harder to get long legs.
 - b. Push legs back to lock them.

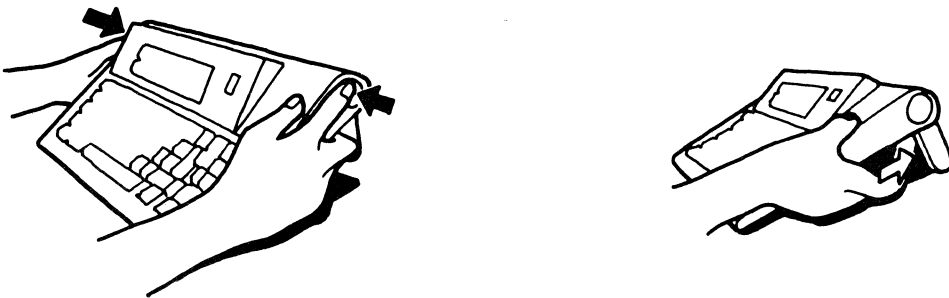


Figure A-27. Adjust Keyboard Angle

3. Store the maintenance manual along with the host processor MI in the cart or book-shelf.
4. Give the 3205 Color Display Console Operator Reference and Problem Determination Guide to the customer. Fold the operator guide over twice and store it in the pocket.

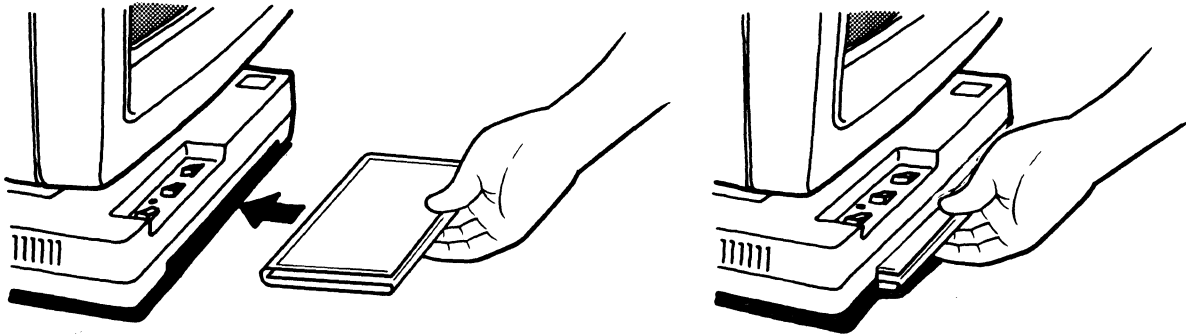


Figure A-28. Store Manual into Pocket

APPENDIX B. PACKING INSTRUCTIONS

B.1 VIDEO UNIT

The video unit should be packed in the original or equivalent packaging material.

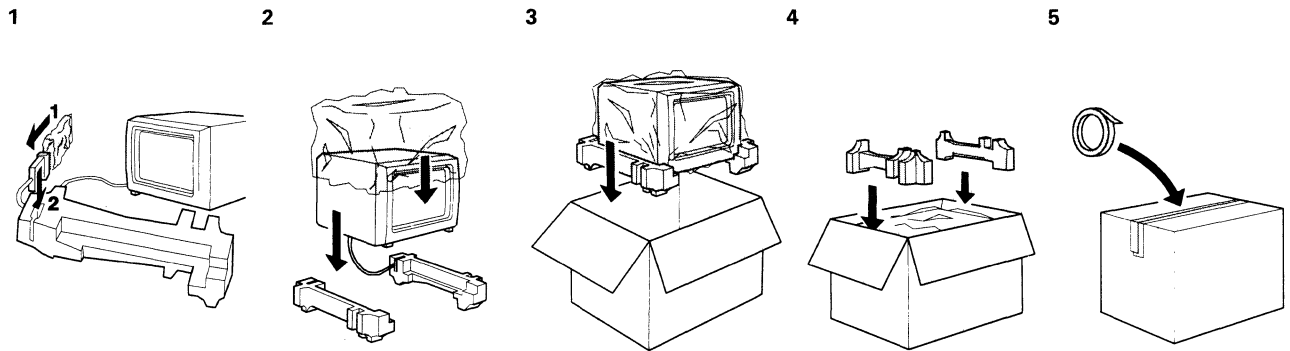


Figure B-1. Packing Video Unit

B.2 KEYBOARD UNIT

The keyboard should be packed in the original or equivalent packaging material.

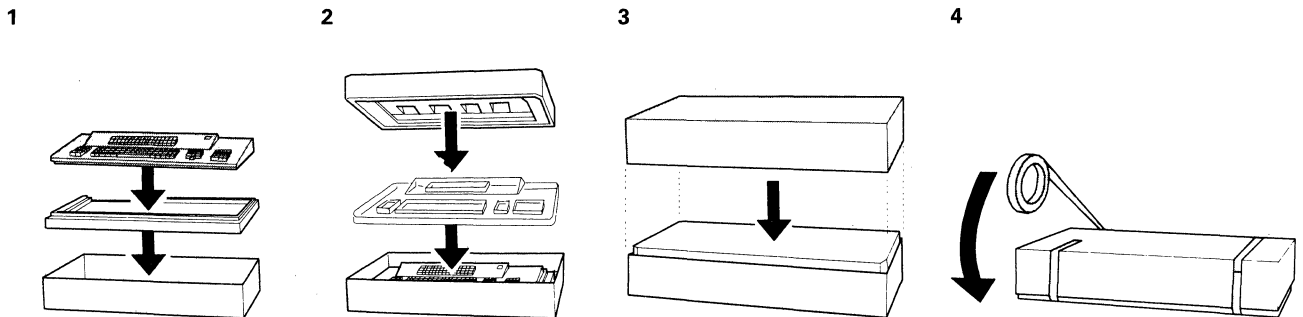


Figure B-2. Packing Keyboard Unit

B.3 LOGIC UNIT

The logic unit and both security keys (one inserted in the lock of the logic unit) should be packed in the original or equivalent packaging material.

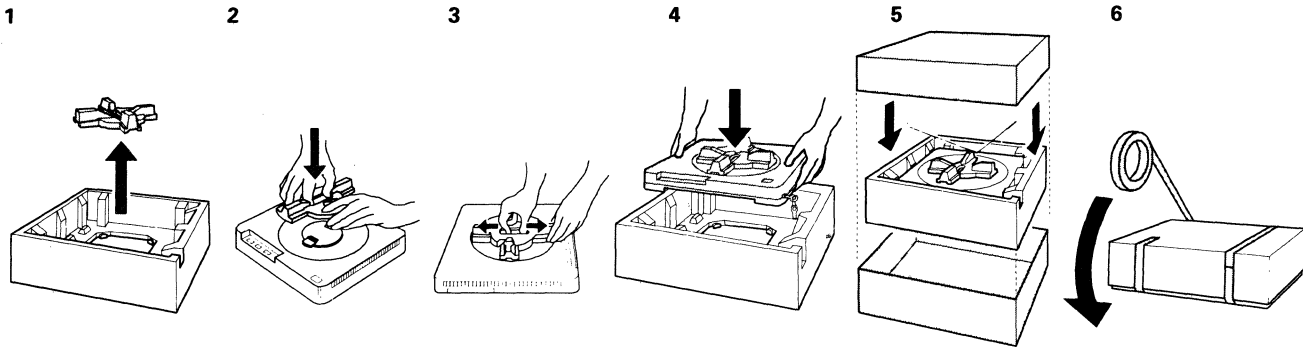


Figure B-3. Packing Logic Unit

B.4 THREE UNITS IN A MASTER CARTON

If all three units must be returned, pack all three cartons in one master carton.

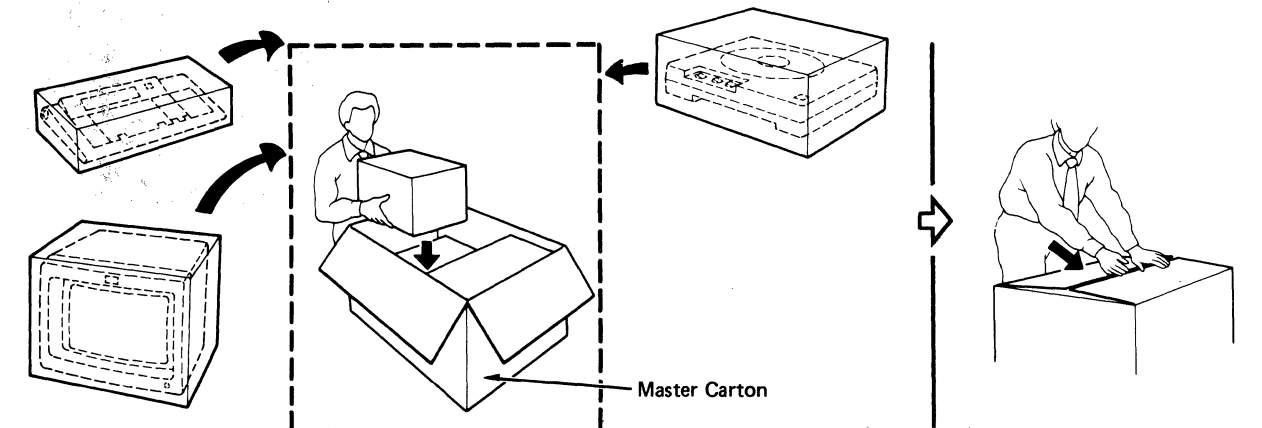


Figure B-4. Packing Three Units

IBM 3205 Color Display Console
Maintenance Information

READER'S
COMMENT
FORM

SY18-2121-1

You may use this form to communicate your comments about this publication, its organization, or subject matter, with the understanding that IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

Your comments will be sent to the author's department for whatever review and action, if any, are deemed appropriate.

Note: *Copies of IBM publications are not stocked at the location to which this form is addressed. Please direct any requests for copies of publications, or for assistance in using your IBM system, to your IBM representative or to the IBM branch office serving your locality.*

Possible topics for comment are:

Clarity Accuracy Completeness Organization Coding Retrieval Legibility

If you wish a reply, give your name, company, mailing address, and date:

Note: Staples can cause problems with automated mail-sorting equipment.
Please use pressure sensitive or other gummed tape to seal this form.

What is your occupation? _____

Number of latest Newsletter associated with this publication: _____

Thank you for your cooperation. No postage stamp necessary if mailed in the U.S.A. (Elsewhere, an IBM office or representative will be happy to forward your comments, or you may mail directly to the address in the Edition Notice on the back of the title page.)

Reader's Comment Form

Cut or Fold Along Line

IBM 3205 Color Display Console Maintenance Information Printed in U.S.A. SY18-2121-1

Fold and tape

Please Do Not Staple

Fold and tape



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 40 ARMONK, N.Y. U.S.A.

POSTAGE WILL BE PAID BY ADDRESSEE:

IBM CORPORATION
DEPARTMENT 6R1 J
180 KOST ROAD
MECHANICSBURG, PA 17055

Fold and tape

Please Do Not Staple

Fold and tape





SY18-2121-1

IBM 3205 Color Display Console Maintenance Information Printed in U.S.A. SY18-2121-1

SY18-2121-1

