

**CONTENTS**

01-005	Introduction
01-010	System/34 Maintenance Documents
01-020	Maintenance Analysis Procedures (Volume A)
01-030	Maintenance Manual (Volume B)
01-031	Parts Catalog (Volume B)
01-032	Theory Diagrams Manual (Volume C)
01-034	Field Service Logics (Volume D)
01-070	MAP and Maintenance Manual Section Numbering
01-080	MAP Numbering
01-090	Maintenance Manual Numbering
01-100	How to Use the System/34 MAPs and Maintenance Manual
01-110	Rules for Using MAPs
01-120	Probing Information When Using MAPs
01-130	Preventive Maintenance

## 01-005 INTRODUCTION

This section of the manual contains the following:

- A list of publications that you can use when performing maintenance on the System/34
- A short description of the types of information found in each publication
- Information on using the MAPs (maintenance analysis procedures) along with this maintenance manual when troubleshooting a system or device failure

## 01-010 SYSTEM/34 MAINTENANCE DOCUMENTS

The following maintenance documents are shipped with the system:

- *IBM System/34 Maintenance Analysis Procedures (MAPs)* (Volume A)
- *IBM System/34 5340 System Unit Maintenance Manual*, SY31-0457 (Volume B)
- *IBM System/34 5340 System Unit Parts Catalog*, S131-0632 (Volume B)
- *IBM System/34 5340 System Unit Theory Diagrams Manual*, SY31-0458 (Volume C)
- *IBM System/34 Field Service Logics* (Volume D)

## 01-020 Maintenance Analysis Procedures (Volume A)

Each MAP (maintenance analysis procedure) contains:

- A short description of its purpose
- A list of conditions under which it can be used
- A list of the logic cards that it tests
- Step-by-step procedures to follow when determining the cause of a failure

MAPs are described in more detail in sections 01-100 and 01-110.

## 01-030 Maintenance Manual (Volume B)

The maintenance manual contains information that you will need when using MAPs. This information includes:

- Service checks
- Adjustments
- Removal and replacement procedures
- Second-level logic diagrams
- Error recording information
- A diagnostic service guide
- System installation instructions

## 01-031 Parts Catalog (Volume B)

The parts catalog is divided into three major sections:

- The Visual Index, containing complete figures of the machine, with callouts that point to detailed figures.
- The Catalog Section, containing a visual detail figure of assemblies and subassemblies.
- The Numerical Index, which is a numerical list of all parts used in the machine, with references to other figure(s) on which the part is found.

## 01-032 Theory Diagrams Manual (Volume C)

The theory diagrams manual contains text and logic diagrams that show how the System/34 operates. You can also use this manual to analyze a machine failure that the MAPs fail to isolate.

The list of abbreviations at the front, and the glossary at the back of the theory diagrams manual give the meanings of terms used in both the theory diagrams manual and this maintenance manual.

## 01-034 Field Service Logics (Volume D)

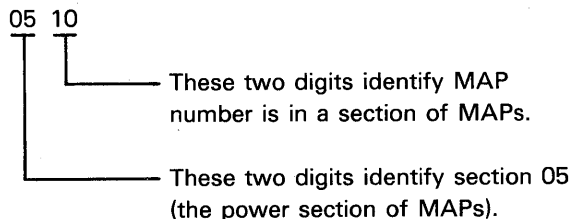
The FSL (field service logics) contain wiring diagrams and pin, socket, board, and gate information that is used when troubleshooting machine failures.

### 01-070 MAP AND MAINTENANCE MANUAL SECTION NUMBERING

The MAPs and the maintenance manual use the same section numbers for each section. For example, MAPs and maintenance manual pages pertaining to power start with 05, while those pertaining to 62EH disk drives start with 09.

#### 01-080 MAP Numbering

MAPs are numbered with a four-digit number. The first two digits identify the MAP section. The last two digits identify the MAP.

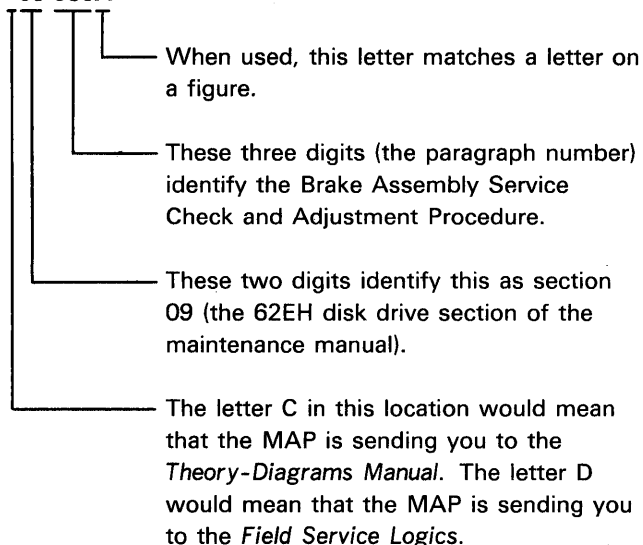


#### 01-090 Maintenance Manual Numbering

Each unit in the maintenance manual is identified with a five-digit number. The first two digits identify the section. The last three digits identify the paragraph in the section. Most references from MAPs to the maintenance manual are written as in the following example: PERFORM THE DISK BRAKE SERVICE CHECK (09-050).

Example:

**\*09-050A**



The MAPs (Volume A) and the maintenance manual (Volume B) do not use this character position because most references are between these two volumes. When the reference is not easily understood, the volume identification letter is added.

Pages in each section of the maintenance manual are numbered consecutively, starting with 1. These numbers are used only when the manual is being printed; they are not used for any other purpose.



## 01-110 RULES FOR USING MAPS

You will usually be using MAPs or MAP diagnostic integration (MDI) tests to diagnose a failure with symptoms that remain constant. MAPs and MDI tests used in this way should identify a failing field-replaceable unit (FRU).

If the failure symptoms do not remain constant, you should still use the MAPs and MDI tests when attempting to isolate the problem. If the MAPs and MDI tests fail to find the problem, perform the following:

- Reseat the cards and cables
- Use the error recording procedures (Section 80-000)
- Use the intermittent failure replacement list (MAP 5000)

When using a MAP or running an MDI test, the MAP or MDI test always describes how to prepare the machine or operate the switches needed to answer the MAP questions or run the tests. Additional information describing the purpose of the MAP or MDI test is also given.

You should observe the following procedures when using the System/34 MAPs or MDI tests:

1. Always analyze any unusual noise or distinct errors before going through the MAPs by using the table of contents or index to find information that pertains to the symptom, or, use the MAP for the specific part of the machine that is failing. If you cannot determine the cause of the failure from these sources of information, start at the system entry MAP for a detailed analysis of the symptom.
2. For other system failures, or failures reported by the customer, you should normally start at MAP 0101.
3. Always start using a device MAP or MDI test at entry point A unless you are instructed not to, and check to see that the START conditions are met.
4. Always power down before removing or installing a fuse, cable, or card, unless you are instructed not to.

5. When a MAP indicates that a card or cable is bad, do the following:
  - a. Inspect the card and socket, then reseat the card and run the test that failed.
  - b. Remove the bad card or cable, install a good one, and run the test that failed.
  - c. If the card has top card connectors, reverse the connectors end for end and run the test that failed to see if the symptom changes.
  - d. Swap cards in the system unit to see if the symptom changes. Card swapping information is in the *Field Service Logics* on page AC500.
  - e. Install new cards for each card in the LOGIC CARDS TESTED list at the start of the MAP or MDI test.
6. Always probe all lines indicated, observing the status of each line, before answering the question that follows in the MAP or MDI test, unless you are instructed to perform some other action.
7. Names of all switches and indicators are shown in MAPs in the same way that they appear on the panel itself.
8. Hexadecimal numbers are shown as hex AB23 or X'AB23'.
9. An X inside single quotation marks indicates a don't care position. For example, the second X in X'X54B' could represent any hexadecimal number.
10. After you diagnose and repair a problem, run the failing MAP or MDI test again to verify that the problem is corrected.

## 01-120 PROBING INFORMATION WHEN USING MAPS

Use the General Logic Probe II tool, (IBM part 453212) to measure signal levels when the MAPs instruct you to. This probe is used instead of an oscilloscope for normal System/34 maintenance. Detailed information on using and maintaining the probe is in the *IBM General Logic Probe II Manual*, SY27-0127, and in paragraphs 02-015 through 02-045 of this manual.

**01-130 PREVENTIVE MAINTENANCE**

Perform preventive maintenance (PM) on the system unit on any O1 (unscheduled) call if either of the following units has an obstruction.

Unit	Operation
Power compartment fan	Remove any dirt or obstructions around the fan.
Logic gate blower assembly	Remove any dirt or obstructions around the blower assembly.