

Instructions



040-1622-51
DG2030 Firmware Upgrade Kit
Version 3.00
061-A014-51

Warning

The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

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Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service Safety Summary* and the *General Safety Summary* before performing any service procedures.

Do Not Service Alone. Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power. To avoid electric shock, switch off the instrument power, then disconnect the power cord from the mains power.

Use Caution When Servicing the CRT. To avoid electric shock or injury, use extreme caution when handling the CRT. Only qualified personnel familiar with CRT servicing procedures and precautions should remove or install the CRT.

CRTs retain hazardous voltages for long periods of time after power is turned off. Before attempting any servicing, discharge the CRT by shorting the anode to chassis ground. When discharging the CRT, connect the discharge path to ground and then the anode. Rough handling may cause the CRT to implode. Do not nick or scratch the glass or subject it to undue pressure when removing or installing it. When handling the CRT, wear safety goggles and heavy gloves for protection.

Use Care When Servicing With Power On. Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections.

X-Radiation. To avoid x-radiation exposure, do not modify or otherwise alter the high-voltage circuitry or the CRT enclosure. X-ray emissions generated within this product have been sufficiently shielded.

Introduction

This is the instructions sheet of the 040-1622-51 firmware upgrade kit for the DG2030 instrument.

You can upgrade your DG2030 instrument below firmware V1.01 to firmware V3.00, using the 040-1622-51 upgrade kit.

This upgrade kit supports Tektronix ECR 31013.

This upgrade kit requires a performance check.

Product

DG2030

Kit Parts List

This upgrade kit contains the parts shown in Table 1. The index numbers correspond to Kit Part Illustration at the back of these instructions.

Table 1: Upgrade Kit Parts

Index No.	Q'ty	Part number	Description
1	1 ea.	160-M395-50	IC, MEMORY: EPROM; CMOS, 262144 X 16 (A6U300)
2	1 ea.	160-M396-50	IC, MEMORY: EPROM; CMOS 262144 X 16 (A6U305)
3	1 ea.	-----	MARKER, IDENT: TYPE "B266-51"
4	1 ea.	-----	MARKER, IDENT: TYPE "040-1622-51"
5	1 ea.	061-A014-51	INSTRUCTION SHEET : 040-1622-51 UPGRADE KIT

Equipment List

To install the 040-1622-51 upgrade kit, the tools in Table 2 are required.

Table 2: Required Equipment

Name	Description	Part number
Screwdriver handle	Accepts Torx®-driver bits	003-0524-00
T-9 Torx® tip	Torx®-driver bit for T-9 size screws	003-0965-00
T-15 Torx® tip	Torx®-driver bit for T-15 size screws	003-0966-00
Nut driver, 1/4 inch	Standard tool	
IC Remover	Standard tool	

DG2030 Orientation

Figure 1 shows how the sides of the DG2030 are referenced in this document.

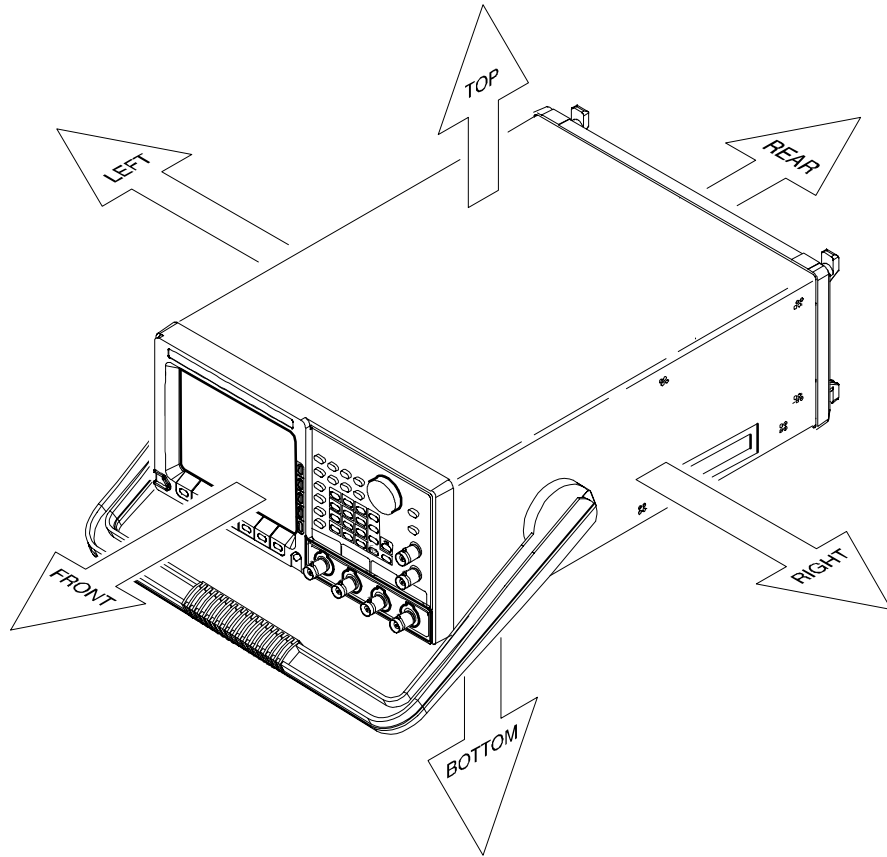


Figure 1: DG2030 orientation

Installation Instructions

The following instructions describe how to install this kit to your DG2030 instrument and how to verify that it is installed correctly.

Installation Procedure

The section below explains how to install this kit. This kit is installed in the following order:

- Rear Cover and Cabinet Removal
- ROM Installation
- Rear Cover and Cabinet Installation

References to index numbers from Table #1 are shown in parentheses ().

When you install the ROMs located on the A6 CPU board, adhere to the following caution:



CAUTION. *To avoid permanent loss of waveform files, note the following: A lithium battery, which maintains the nonvolatile memory during power-off time, is located on the A5 Backplane board. The nonvolatile memory that contains the waveforms and their setup parameter data is located on the A6 CPU board. Removing the A6 CPU board will cause the waveform files, sequence files, and autostep files in nonvolatile memory to be permanently lost. Before removing the A6 CPU board, save the waveform files, sequence files, and autostep files in the instrument nonvolatile memory to a floppy disk. Then, after reinstalling the board, reload the files into nonvolatile memory.*

Rear Cover and Cabinet Removal

1. Disconnect the power cord from the power source and detach it from the rear of the instrument.
2. Set the DG2030 so that it is face down, with the front cover (optional accessory) on the work surface and the instrument bottom facing you (see Figure 2).
3. Using a screwdriver with a T-15 Torx tip, remove the four screws securing the rear cover to the instrument. Lift off the rear cover.
4. Move the DG2030 so that its right side is facing you.
5. Using a screwdriver with a T-9 Torx tip, remove the four screws securing the floppy disk drive bezel to the cabinet. Lift off the floppy disk drive bezel.



CAUTION. To prevent damaging the eject button, before removing the cabinet from the DG2030, make sure that the floppy disk is not inserted in the floppy disk drive.

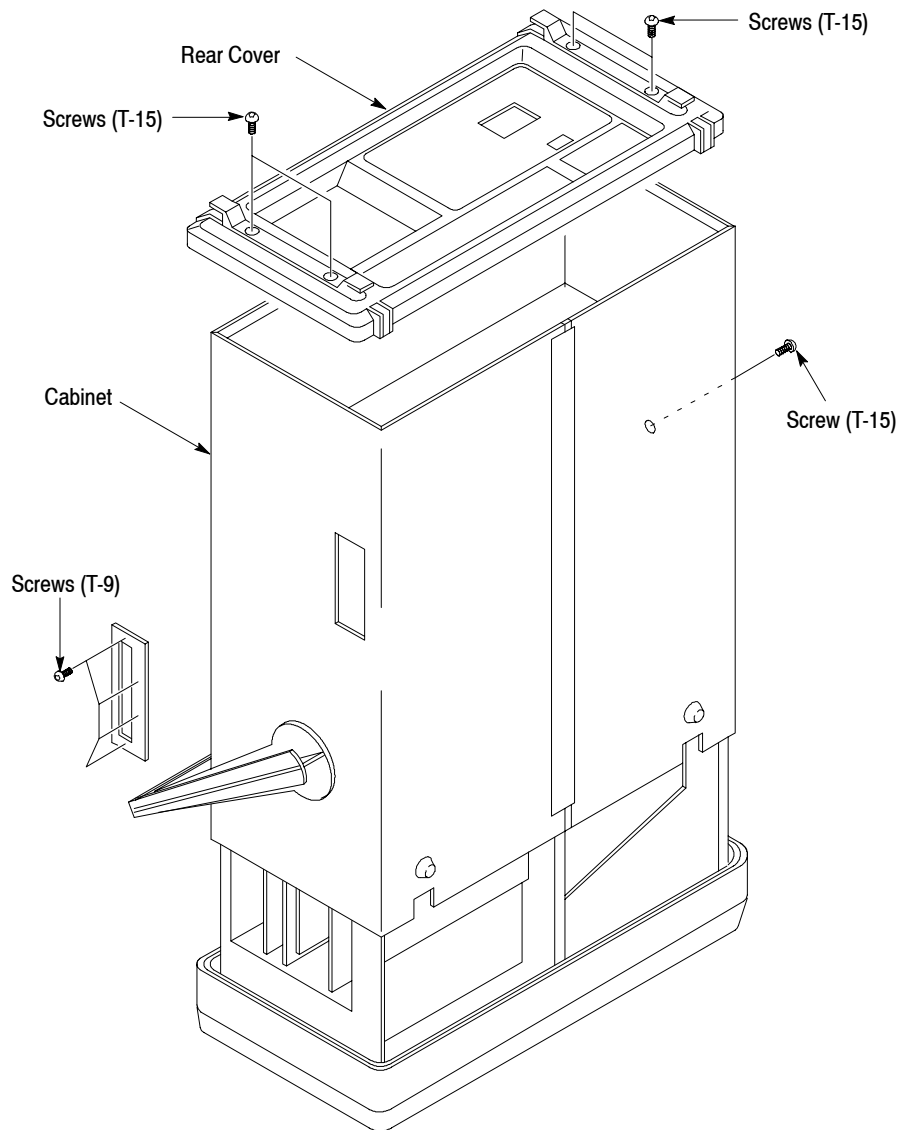


Figure 2: Rear cover and cabinet removal

- 6.** Using a screwdriver with a T-15 Torx tip, remove the screw securing the left side of the cabinet to the instrument.
- 7.** Grasp the right and left edges of the cabinet toward the back.



CAUTION. To prevent damaging the ICs (there are 11) that have heat sinks, do not touch the heat sink when you remove or install the cabinet or do other service. These ICs can be easily cracked or broken by even the slight touch to the heat sink.

8. Pull upward to slide the cabinet off the instrument. Take care not to bind or snag the cabinet on internal cabling as you remove it.

ROM Installation

Below is the procedure for installing the ROMs for firmware version 3.00.

- Rear Shield Cover Removal
- A6 CPU Board Removal
- ROM Installation
- A6 CPU Board Installation
- Rear Shield Cover Installation

Rear Shield Cover Removal

1. Set the DG2030 with the bottom down on the work surface and the rear facing you (See Figure 3).
2. Disconnect the ribbon interconnect cable from J30 on the A6 CPU board (See Figure 3).
3. Using a screwdriver with a T-9 Torx tip, remove the ten screws securing the rear shield cover to the chassis.
4. Using a 1/4 inch nut driver, remove the two spacer posts attaching the GPIB connector cover to the rear shield cover, and then remove the GPIB cover.
5. Grasp the RS-232C connector, and pull the rear shield cover toward you, taking care not to damage the cables.
6. Remove the rear panel of the first slot from the top in which no board is installed.

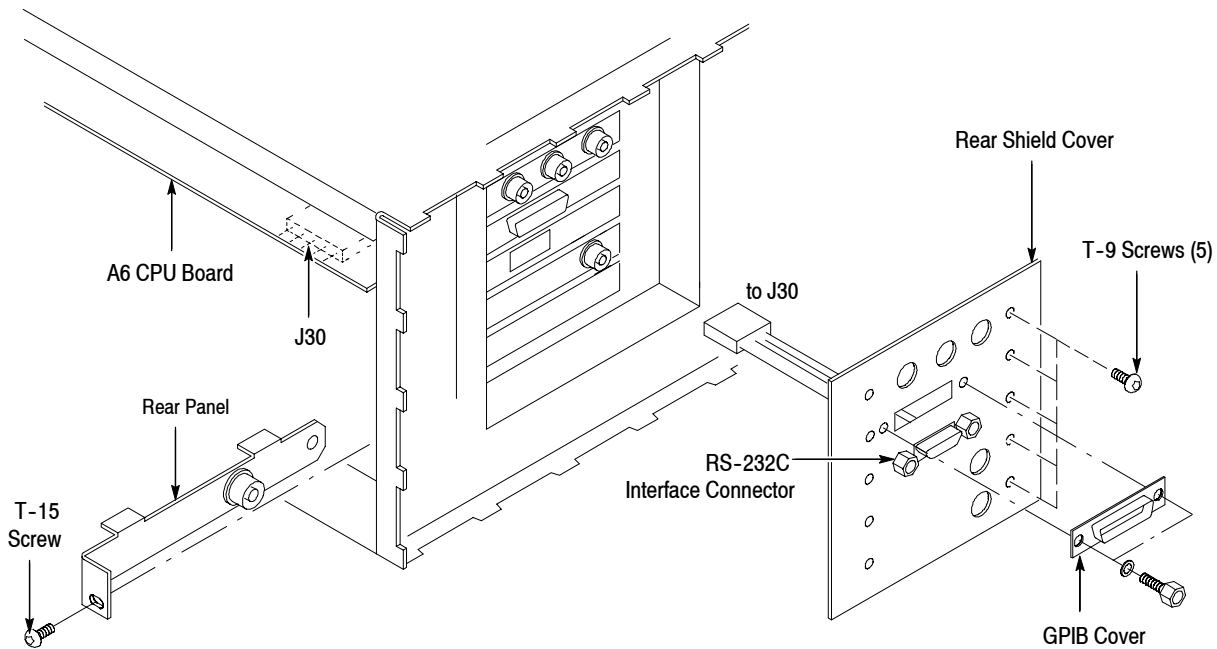


Figure 3: Rear shield cover removal

A6 CPU Board Removal

7. Set the DG2030 with the left side down on the work surface and the top facing you (See Figure 4).
8. Remove the board support up with pushing its hook down.
9. Disconnect the ribbon interconnect cables at J50, J64, and J64 on the A6 CPU board (See Figure 4).
10. Disconnect the flat cable at J75 on the A6 CPU board. Remove the flat cable as shown in Figure 4.
11. Remove the two screws securing the rear panel of the A6 CPU board to the chassis from the rear and right side using a screwdriver with a T-15 Torx tip.
12. Grasp the upper part of the A6 CPU board, and pull upward to remove it.

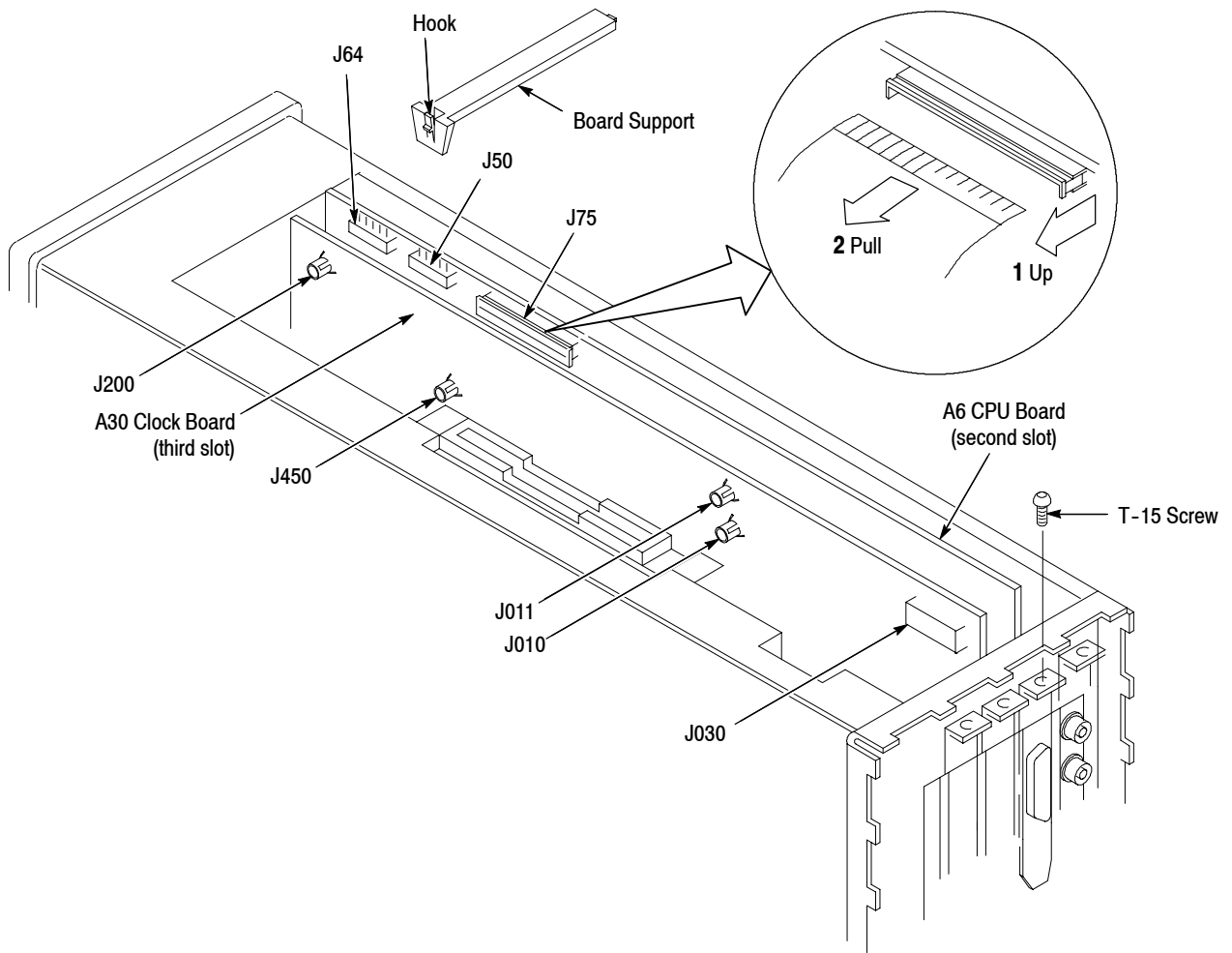


Figure 4: A6 CPU Board removal

ROM Installation

- 13.** Using an IC remover, remove the two ROMs (U300 and U305) below firmware version 3.00 from the A6 CPU board. See Figure 5.
- 14.** Install the two ROMs (U300 (1) and U305 (2)) for firmware version 3.00 on the A6 CPU board.
- 15.** Paste the Kit Number Label (3) on the A6 CPU board as shown Figure 5.

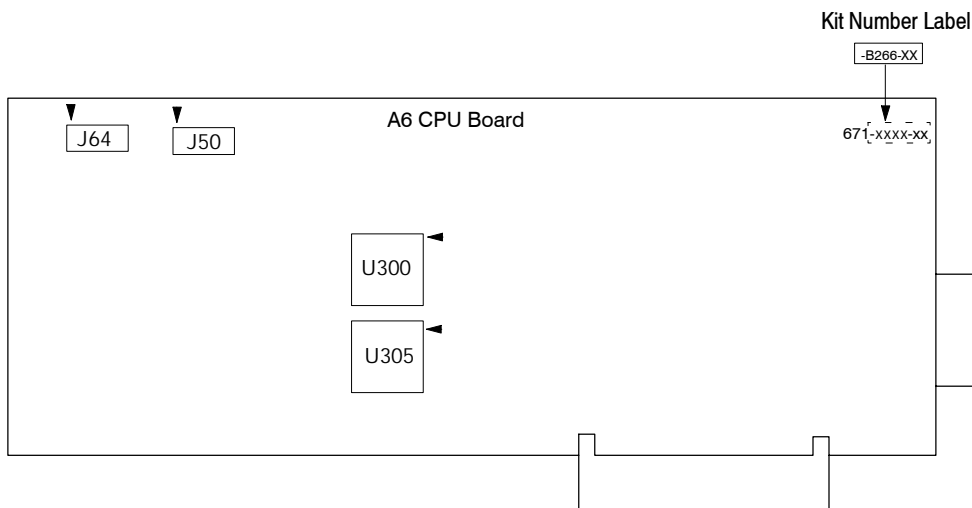


Figure 5: ROMs and board kit number locations on the A6 CPU Board

A6 CPU Board Installation

- 16.** Install the A6 CPU board in the DG2030 using the reverse of the procedure for A6 CPU board removal.

Rear Shield Cover Installation

- 17.** Install the rear shield cover on the using the DG2030 reverse of the procedure for Rear Shield Cover removal.

Rear Cover and Cabinet Installation

1. Install the rear cover and the cabinet on the DG2030 using the reverse of the procedures for Rear Cover and Cabinet removal.
2. Remove the protective backing from the 040-1662-51 kit label (4) and place it on the rear cover of the DG2030 as shown in Figure 6.

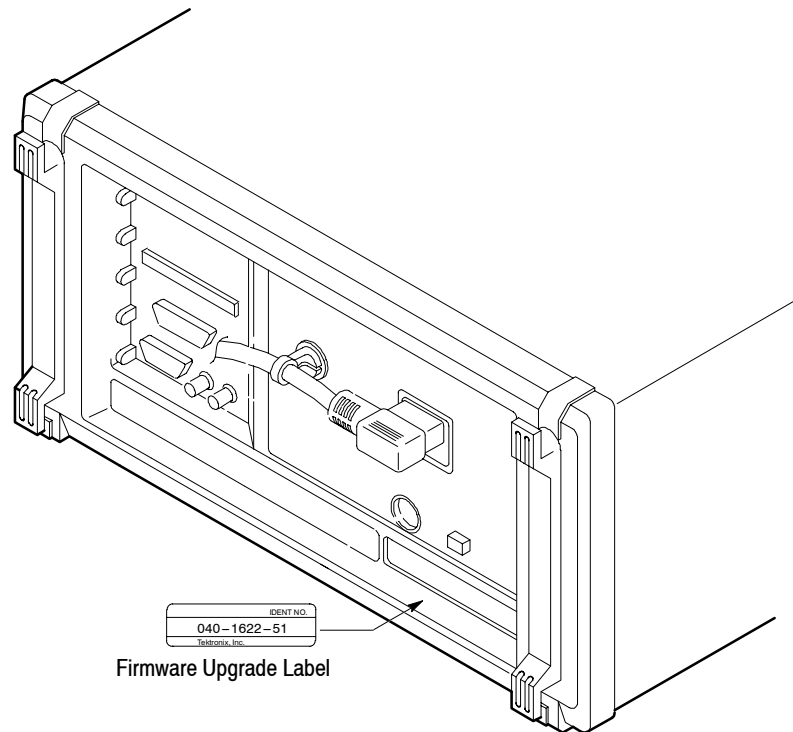


Figure 6: Firmware upgrade label pasting

Checking the Installation

Press the DG2030 **ON/STBY** switch to power on the instrument. Check that **Version FV:3.00** is now indicated on the screen and that all Power on diagnostics tests indicate **PASS**.

Performance Check

Execute the performance check for the DG2030 instrument as described in the DG2030 User Manual Appendix E (Performance Verification), or DG2030 Service Manual Section 4 (Performance Verification).

Kit Part Illustration

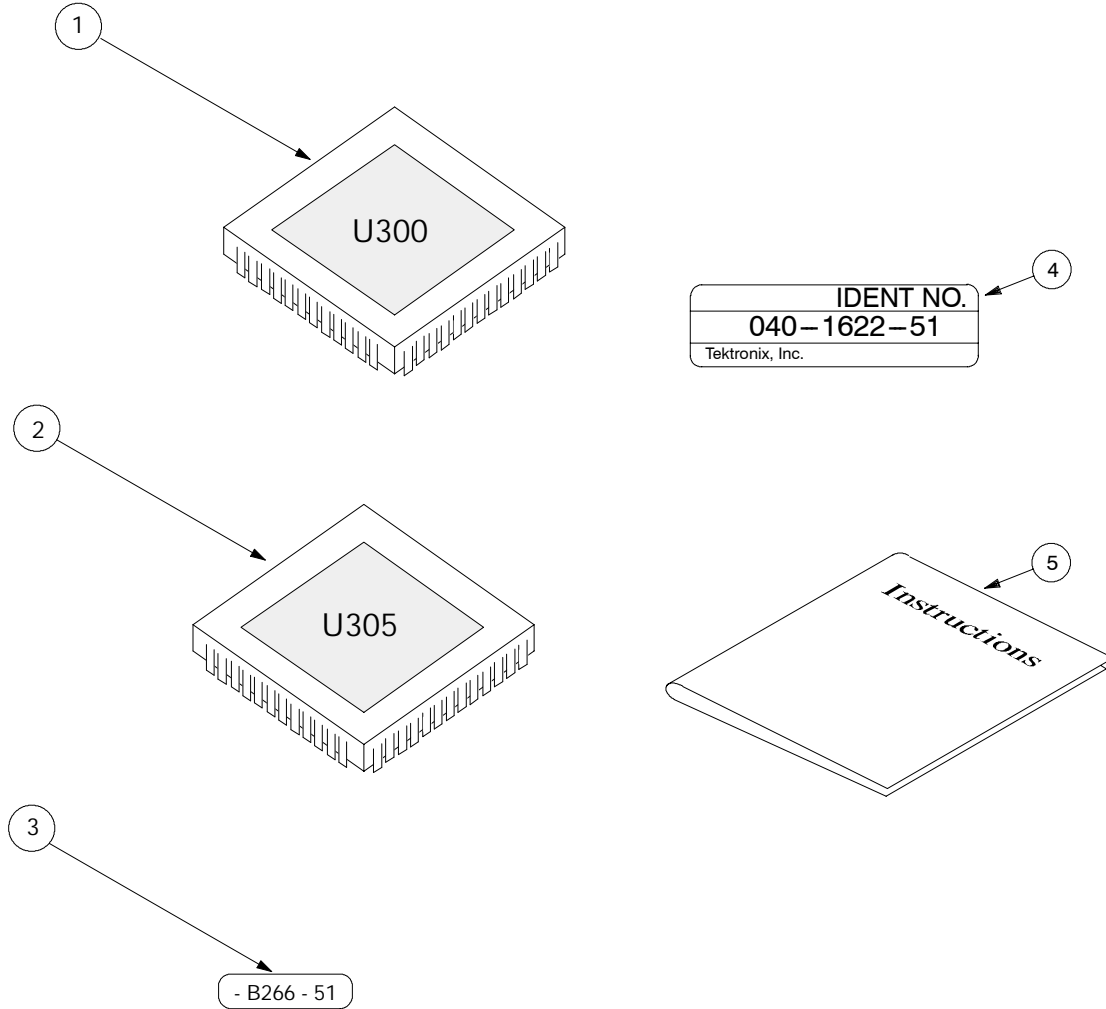


Figure 7: 040-1622-51 Upgrade Kit

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