

# Instructions Manual



## AWG5UP 11 Removable Hard Disk Upgrade Kit

**075-0829-00**

### **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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# General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

*Only qualified personnel should perform service procedures.*

## To Avoid Fire or Personal Injury

**Use Proper Power Cord.** Use only the power cord specified for this product and certified for the country of use.

**Connect and Disconnect Properly.** Do not connect or disconnect probes or test leads while they are connected to a voltage source.

**Ground the Product.** This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

**Observe All Terminal Ratings.** To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

The common terminal is at ground potential. Do not connect the common terminal to elevated voltages.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

**Do Not Operate Without Covers.** Do not operate this product with covers or panels removed.

**Use Proper Fuse.** Use only the fuse type and rating specified for this product.

**Avoid Exposed Circuitry.** Do not touch exposed connections and components when power is present.

**Do Not Operate With Suspected Failures.** If you suspect there is damage to this product, have it inspected by qualified service personnel.

**Do Not Operate in Wet/Damp Conditions.**

**Do Not Operate in an Explosive Atmosphere.**

**Keep Product Surfaces Clean and Dry.**

**Provide Proper Ventilation.** Refer to the manual's installation instructions for details on installing the product so it has proper ventilation.

**Symbols and Terms**    **Terms in this Manual.** These terms may appear in this manual:



**WARNING.** *Warning statements identify conditions or practices that could result in injury or loss of life.*



**CAUTION.** *Caution statements identify conditions or practices that could result in damage to this product or other property.*

**Terms on the Product.** These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

**Symbols on the Product.** The following symbols may appear on the product:



WARNING  
High Voltage



Protective Ground  
(Earth) Terminal



CAUTION  
Refer to Manual



# 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 main 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.

**Calendar (date and time) Backup Battery.** This product contains a Lithium:poly-carbon monofluoride battery for calendar backup purposes. This battery is part of the CPU unit and is not replaceable.



# Introduction

This kit contains parts and instructions that replace the Removable Hard Disk Drive for AWG520.

## Instruments

AWG520 S/N J320267 and above, or OS V2.1 and greater  
 Exclusive to Option 10 and/or Option 03

## Kit Parts List

This Upgrade kit contains the parts shown in Table -1 Package List and Table -2 Parts List.

**Table -1: Package List**

Fig. & index number	Tektronix part number	Qty	Name & description
		1	PRE-ASSEMBLED CABINET & CHASSIS
-1	174-5006-00	1	CABLE, ASSY:FLAT,L=270MM
-2	334-1377-50	1	MARKER,IDENT:ID
-3	348-A144-00	4	DAMPER
-4	129-A593-00	4	SPACER,POST:PLASTIC 8MM
-5	210-A014-00	4	WASHER,PLAIN
-6	211-A159-00	4	SCREW MACHINE:M3X12MM,W/WASHER
	071-1500-00	1	MANUAL,TECH;USER GUIDE;REMOVABLE HARD DISK DRIVE;AWG520Opt11,AWG5UP 11
	075-0829-00	1	MANUAL,TECH;INSTRUCTION FOR AWG520 ADD OP11,REMOVABLE HARD DISK DRIVE;AWG5UP 11



Table -2: Parts List

Fig. & index number	Tektronix part number	Qty	Name & description
2-1	105-1155-00	1	EJECTER,LOCK,LEFT
-2	105-1156-00	1	EJECTER,LOCK,RIGHT
-3	333-4492-00	1	PANEL,FRONT:RHD UNIT
-4	129-A593-00	4	SPACER,POST:PLASTIC 8MM
-5	348-A144-00	4	DAMPER
-6	119-B090-00	-	HDD UNIT, Not Included
-7	174-5005-00	1	CABLE, ASSY:FLAT,L=40MM
-8	211-A159-00	4	SCREW MACHINE:M3X12MM,W/WASHER
-10	210-A014-00	4	WASHER,PLAIN
-11	671-5832-00	1	CIRCUIT BD ASSY:A510
-12	351-A174-00	1	GUIDE,CKT BD
-13	351-A173-00	1	GUIDE,CKT BD
-14	333-4493-00	1	PANEL,FRONT:MAIN CHASSIS
-15	220-0209-00	2	NUT,ASSEM WASHER:M4X7MM HEX
-16	437-0512-00	1	CABINET,ASSY,RHD:AWG520
-17	220-0209-00	10	NUT,ASSEM WASHER:M4X7MM HEX
-18	441-2377-00	1	CHASSIS,ASSY:RHD
-19	671-5833-00	1	CIRCUIT BD ASSY:A520
-20	211-0751-00	4	SCREW MACHINE:M3X8MM
-21	174-5006-00	1	CABLE, ASSY:FLAT,L=270MM
-22	200-4896-00	1	COVER,TOP:RHD
-23	211-0751-00	4	SCREW, MACHINE:M3X8MM,NI PL
-24	211-A152-00	2	SCREW,MACHINE:M2.5X8MM,NI PL
-26	348-1110-04	4	FOOT,CABINET:TEKBLUE
-27	348-0875-00	1	FRIPSTAND,CAB
-28	367-0247-01	1	HANDLE,CARRYING:11.54L
-29	200-2191-00	2	CAP,RETAINER:PLASTIC
-30	348-1314-00	122 (cm)	GASKET,SHIELD:FINGER TYPE,BE-CU
-101	437-0514-00	1	CABINET,ASSY:CABINET FOOT,STAND & CARRYING HANDLE BUILD ON AWG520 RHD CABINET(437-0512-XX)
-31	334-1377-50	1	MARKER,IDENT:ID
-33	071-1500-00	1	MANUAL,TECH;USER GUIDE;REMOVABLE HARD DISK DRIVE;AWG520Opt11,AWG5UP 11
-34	075-0829-00	1	MANUAL,TECH;INSTRUCTION FOR AWG520 ADD OP11,REMOVABLE HARD DISK DRIVE;AWG5UP 11

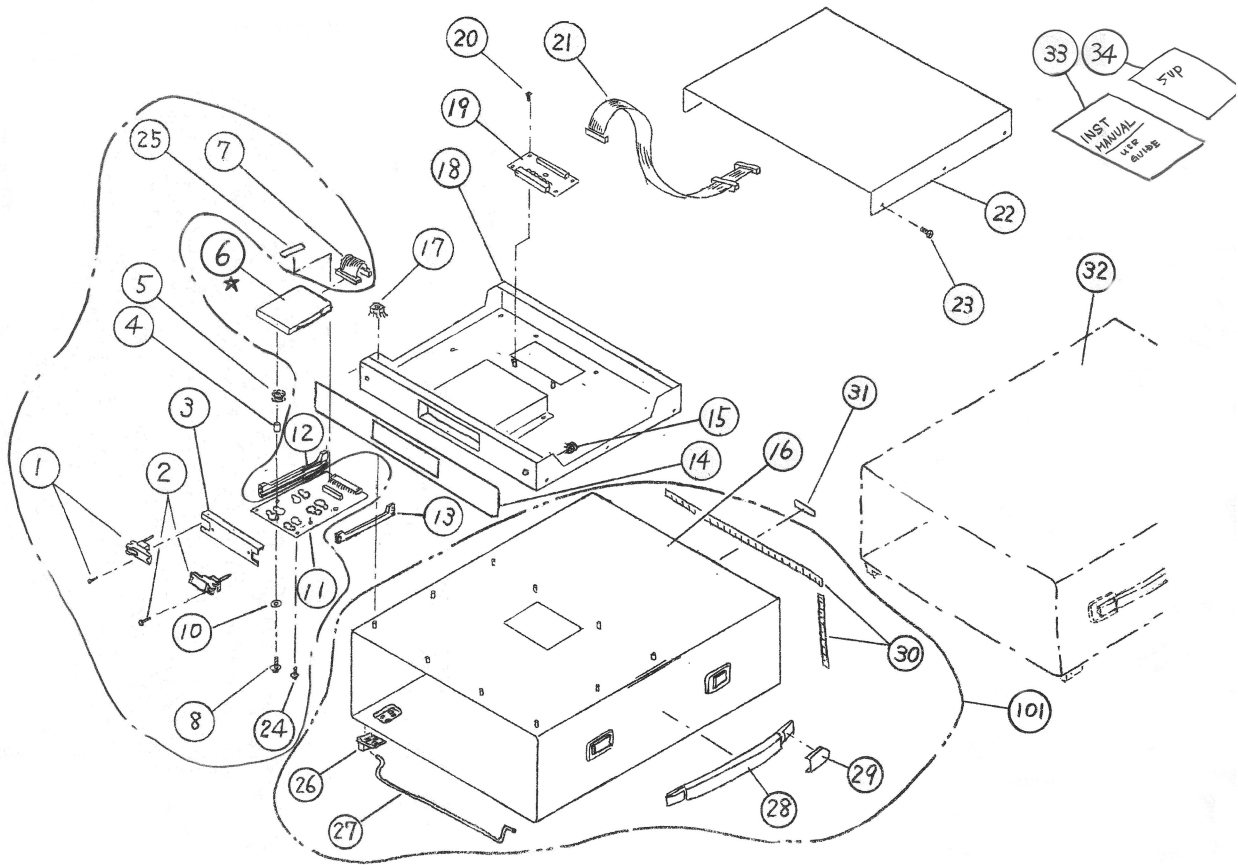


Figure -1: Kit parts

## Equipment List

Table -3 lists the tools you will need to install the Removable Hard Disk Drive

**Table -3: Tools required for kit installation**

<b>Item no.</b>	<b>Name</b>	<b>Description</b>
1	Screwdriver handle	Accepts Phillips–driver bits
2	#1 Phillips tip	Phillips–driver bit for #1 screw size
3	#2 Phillips tip	Phillips–driver bit for #2 screw size
4	Flat–blade screwdriver	Screwdriver for removing standard-headed screws
5	Pliers	Standard tool

# Installation Instructions

The following instructions explain how to install the AWG5UP 11 upgrade kit to your AWG520 instrument. Execute these items in the order they are described.

## Installation Procedure

To install the new Removable Hard Disk Drive Kit, perform the following steps.

1. Remove the cabinet.
2. Remove the CPU unit.
3. Remove the internal hard disk drive.
4. Install the CPU unit.
5. Exchange the flat cable connecting to the CPU board, Flash disk and Hard Disk Drive.
6. Install the Hard Disk Drive removed from your AWG520 to the Removable Hard Disk Assembly.
7. Install the new cabinet with the Removable Hard Disk chassis.
8. Connect the flat cable from the internal CPU board to the connector board in the Removable Hard Disk chassis.
9. Checking the operation of the AWG520.
10. Install the top cover and pasting the AWG5UP 11 Kit Label.

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**NOTE.** *When your AWG520 is rackmounted instrument, you need additional working to remove the cabinet modules and to reinstall the rackmount assembly.*

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**WARNING.** Before doing this or any other procedure in this manual, read the Safety Summary found at the beginning of this manual.

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**WARNING.** Before doing any procedure in this subsection, disconnect the power cord from the line voltage source. Failure to do so can cause serious injury or death.

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**CAUTION.** Static discharge can damage any semiconductor component and hard disk drive in this instruments.

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### **Cabinet removal**

You will need a screwdriver with a size #2 Phillips tip.

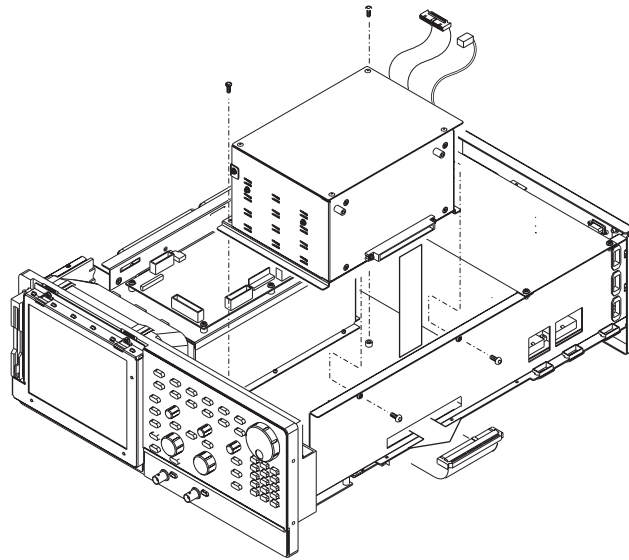
1. Remove the six screws at the rear of the cabinet which secure the two feet.
2. Grasp the left and right edges at the rear of the cabinet.
3. Pull upward to slide the cabinet off the generator. Take care not to bind or snag the cabinet on the internal cabling as you remove it

### **Internal Hard Disk Drive removal**

The following steps describe how to remove the Internal Hard Disk Drive. You will need a screwdriver with a size #2 Phillips tip.

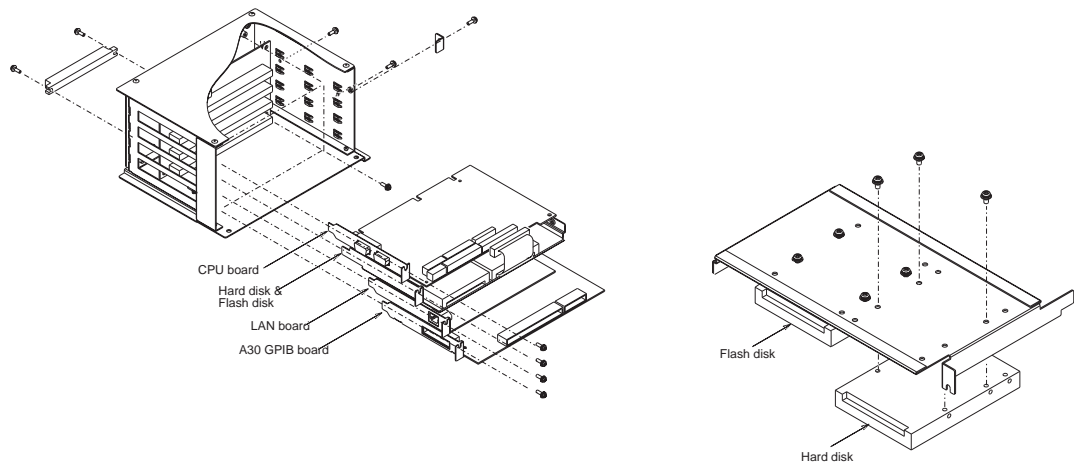
1. To remove the internal Hard Disk Drive, it is necessary to remove the CPU unit first. To remove the CPU unit do the following substeps:
  - a. Unplug the GPIB interconnect cable at J110 on the A30 GPIB board and and the LAN interconnect cable of the LAN interface board.
  - b. Unplug the interconnect cable from J100 on A50 AWG board.
  - c. Remove the two screws on the bottom and another two from the right side.
  - d. Lift the CPU unit up and out from the main chassis.





**Figure -2: CPU Unit removal**

2. Remove the Hard disk *unit* using Figure -3 as a guide while doing the following substeps



**Figure -3: Internal Hard Disk Drive removal**

- a. Using a screwdriver with a size Phillips #2 tip, remove the two screws securing the hard disk and flash disk bracket to the frame on the right side of the CPU Unit. See Figure -3

- b. Remove the screw on the left side of the bracket.
      - c. Grasp the bracket and slide it out.
      - d. Using a screwdriver with a size Phillips #2 tip, remove the three screws securing the hard disk to the bracket.
3. Reinstall the Flash Disk board without internal hard disk drive in the CPU Unit.
4. Reinstall the CPU Unit.

### Exchange the flat cable

You need to exchange the flat cable connecting the CPU board, the flash disk and the hard disk drive.

1. Connect the flat cable included in this kit from the CPU board to the flash disk.

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**NOTE.** One end of the connector near an intermediate connector is connected to the CPU board. An intermediate connector is connected the Flash Disk. The rest of connector will be connected to the Hard Disk Drive after the cabinet is installed.

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### Install the Hard Disk Drive

1. To remove the removable hard disk cartridge, press the eject knobs by pushing the release button to the outside, then pull out the cartridge.
2. With four M3x12 screws, washers, spacers and dampers included in this kit, attach the hard disk drive removed from inside of the AWG520 on the A510 board. (Recommended bolting torque is 0.6 Nm)
3. Connect the flat cable from the connector on the A510 board to the hard disk drive.

### Install the new cabinet

1. Remove the four screws to remove the top cover of the Removable Hard Disk cabinet.
2. To install the new cabinet included in this kit, do the cabinet removal procedure in reverse order.
3. While reinstalling a cabinet, pull out the flat cable which have connected to the CPU unit and the Flash Disk from the hole of the cabinet..

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**NOTE.** When your instrument is rackmounted AWG520:

- *Remove the handle, the handle caps, the flip stand and the feet from the new cabinet. Refer to the AWG510 & AWG520 Arbitrary Waveform Generator Service Manual for details.*
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**Connect the flat cable**

1. After the new cabinet installation, connect a flat cable to the connector on the A520 board.

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**NOTE.** When your instrument is rackmounted AWG520:

- *Reinstall the inside tracks and the rear brackets to a new cabinet from an original cabinet.*
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**Install the Removable Hard Disk Assembly**

1. Insert the Removable Hard Disk Assembly firmly to the back according to the guide of the Removable Hard Disk Assembly bay.
2. Press the eject knobs to the inside to lock the Removable Hard Disk Assembly.

**Checking the operation**

1. Connect the AC power cord.
2. Turn on the PRINCIPAL POWR SWITCH at the rear panel.
3. Push the front panel ON/STBY switch to power on the AWG520.
4. Check that the AWG520 starts up, runs power-on self tests and all the diagnostic tests are completed without error.
5. If there is any trouble, confirm whether connection of all cables and attachment of the Removable Hard Disk Assembly are performed correctly.
6. Power off the AWG520 and disconnect the AC power cord.

**Pasting the AWG5UP 11 Kit Label**

1. Install the top cover with four screws.
2. Paste the AWG5UP 11 Kit label on the AWG520 rear panel.
3. Remove the protective backing from the 334-1377-50 kit label and place it on the rear panel of the instrument.

