

MODIFICATION RECOMMENDED

33220A-02B

S E R V I C E

N O T E

Supersedes:
33220A-02A

33220A - 20 MHz Function/Arbitrary Waveform Generator

Serial Numbers: MY43000000/MY44044539
SG43000000/SG44002510

Encoder May Be Subject to Early Failure

Parts Required:

P/N	Description	Qty.
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ONE of the following:

33220-80002	Front panel kit	1
33220-69101	Exchange Unit: MY44 STD	1
33220-69111	Exchange Unit: MY43 STD	1
33220-69201	Exchange Unit: SG44 STD	1
33220-69211	Exchange Unit: SG43 STD	1
33220-69102	Exchange Unit: MY44 opt 001	1
33220-69112	Exchange Unit: MY43 opt 001	1
33220-69202	Exchange Unit: SG44 opt 001	1
33220-69212	Exchange Unit: SG43 opt 001	1

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
MODIFICATION RECOMMENDED			
ACTION CATEGORY:	X ON SPECIFIED FAILURE ☐ AGREEABLE TIME	STANDARDS LABOR: 0.0 Hours	
LOCATION CATEGORY:	X CUSTOMER INSTALLABLE ☐ ON-SITE X SERVICE CENTER ☐ CHANNEL PARTNER	SERVICE INVENTORY: X RETURN ☐ SCRAP ☐ SEE TEXT	USED PARTS: ☐ RETURN ☐ SCRAP X SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE NO CHARGE AVAILABLE UNTIL: February 1, 2012		
AUTHOR: LH	PRODUCT LINE: SP		
ADDITIONAL INFORMATION:			

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Rev. 18



Situation:

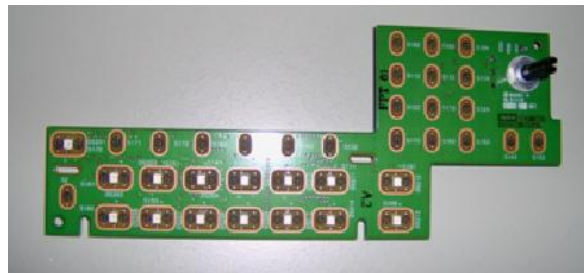
Mechanical encoders need to be replaced as they wear out with use, resulting in erratic knob behavior. Agilent has determined some 33220A encoders have been subject to early failure.

Solution/Action:

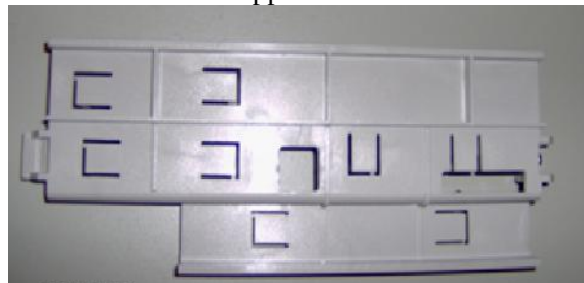
Customers with 33220A units displaying intermittent behavior of the knob should contact their local Agilent Service Center to arrange to have their instruments exchanged free of charge.

Customers have the option of repairing their own instruments by following the instructions on the subsequent pages. First order 33220-80002 front panel kit. The kit contains 3 parts:

Front Panel Board



Support Plate



Flat Flex Cable



Disassembly

For these procedures, the following tools are required for disassembly:

- T20 Torx driver (most disassembly)
- T15 Torx driver (support plate)

Warning

***SHOCK HAZARD.** Only service-trained personnel who are aware of the hazards involved should remove the instrument covers. To avoid electrical shock and personal injury, make sure to disconnect the power cord from the instrument before removing the covers. Some circuits are active and have power applied even when the power switch is turned off.*

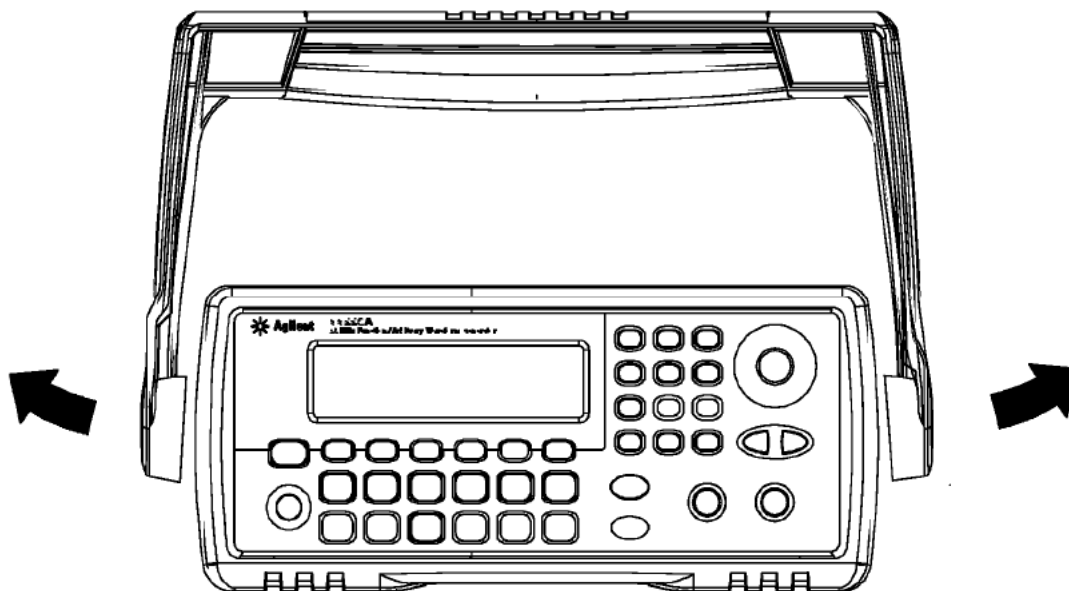
Electrostatic Discharge (ESD) Precautions

Almost all electrical components can be damaged by electrostatic discharge (ESD) during handling. Component damage can occur at electrostatic discharge voltages as low as 50 volts. The following guidelines will help prevent ESD damage when servicing the instrument.

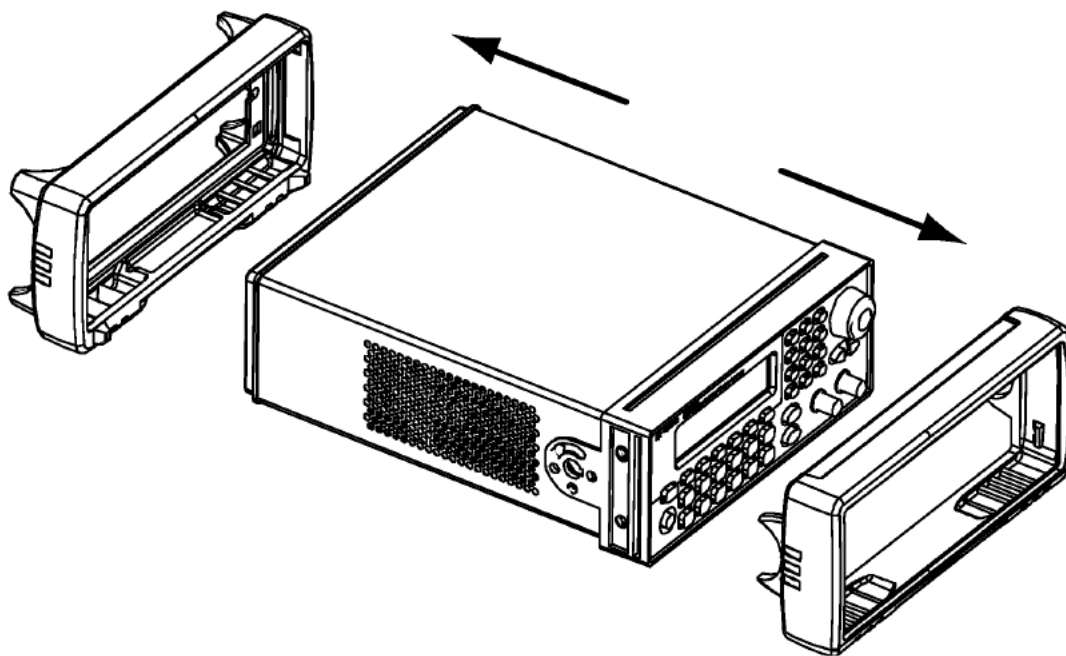
- Disassemble the instrument only in a static-free work area.
- Use a conductive work area to dissipate any static charge.
- Use a conductive wrist strap to dissipate static charge accumulation.
- Minimize handling.
- Keep replacement parts in their original static-free packaging.
- Remove all plastic, foam, vinyl, paper, and other static-generating materials from the immediate work area.
- Use only anti-static solder suckers.

General Disassembly Procedure

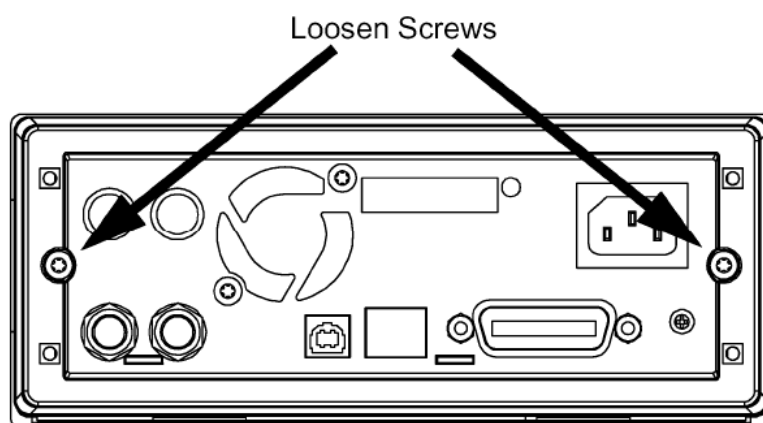
1. Turn off the power. Remove all cables from the instrument.
2. Rotate the handle upright and pull off.



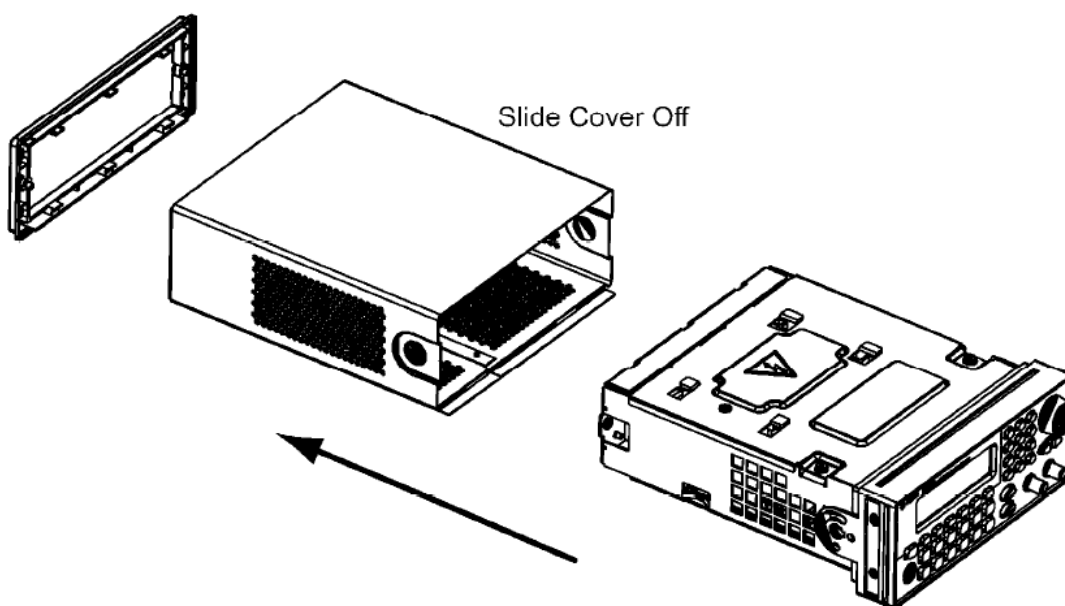
3. Pull off the instrument bumpers.



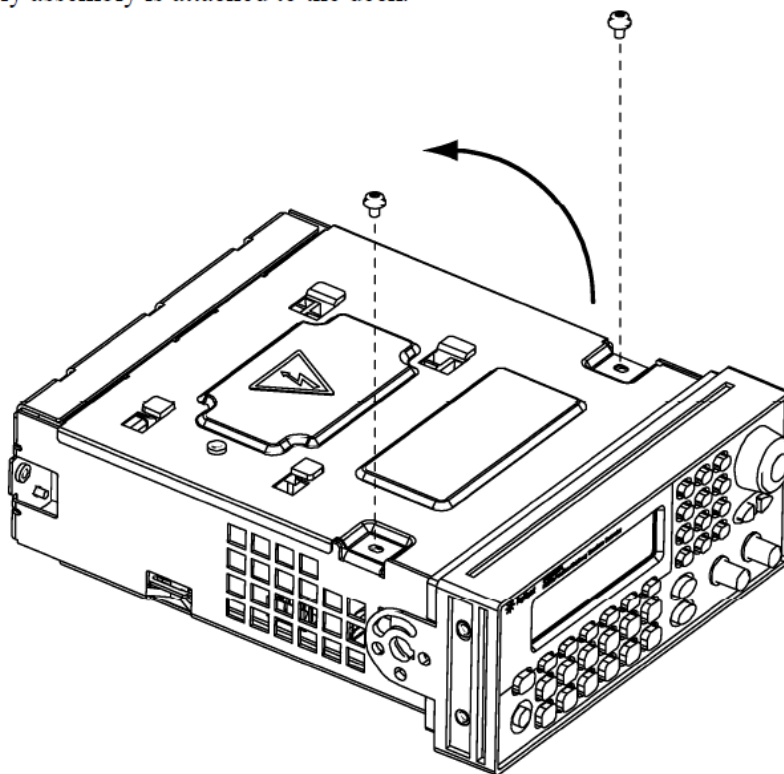
4. Loosen the two captive screws in the rear bezel and remove the rear bezel.



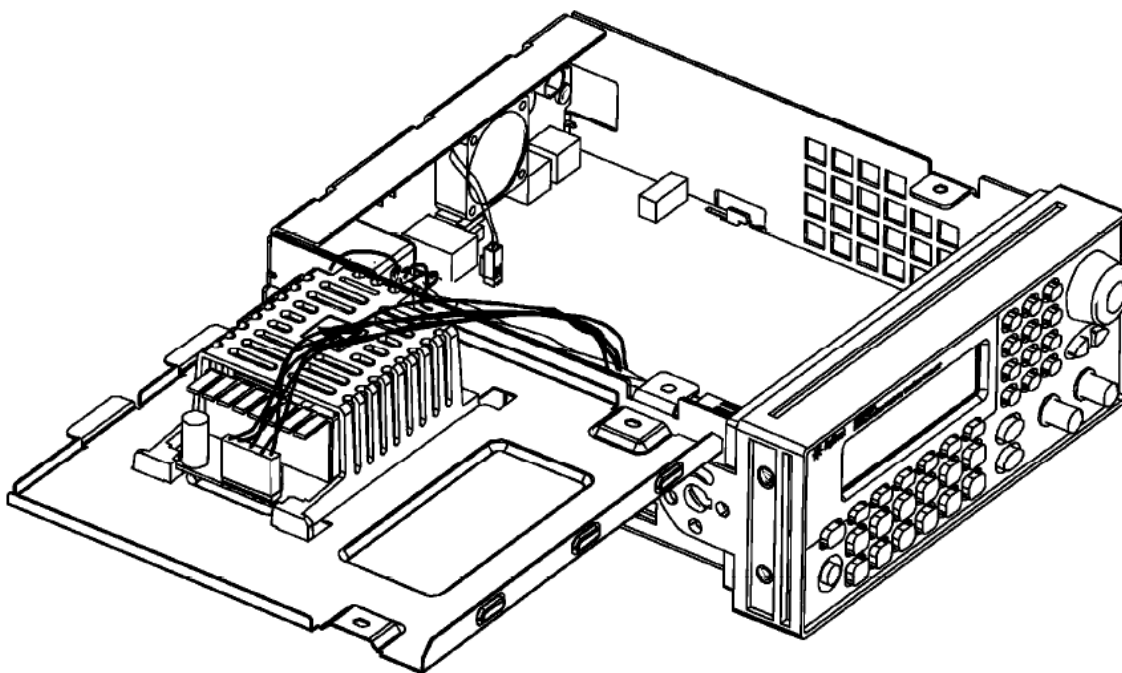
5. Slide off the instrument cover.



6. Remove the two screws securing the power supply deck to the chassis. Lift off the deck. The power supply assembly is attached to the deck.



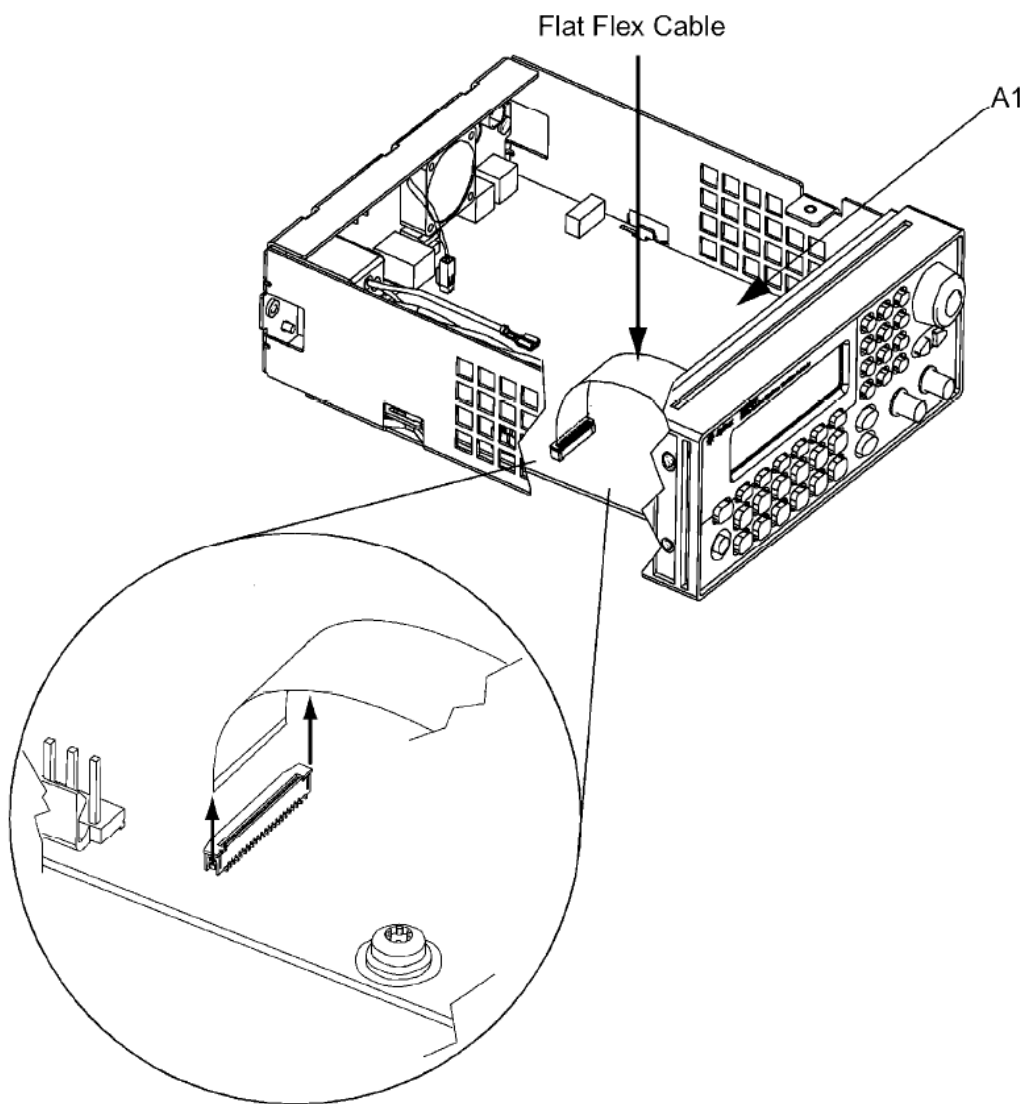
7. Lay the deck and power supply assembly to the side.



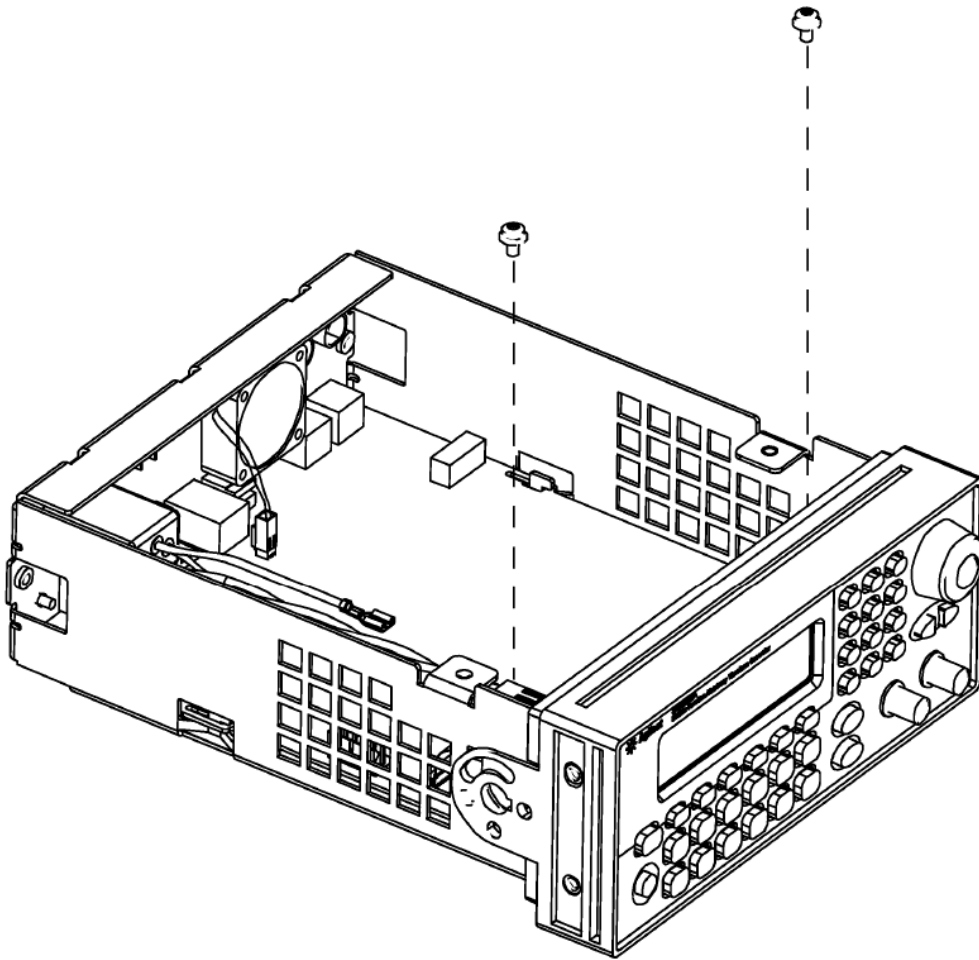
Front-Panel Removal Procedure

1. Gently lift both ends of the flat flex cable connector actuator and disconnect the cable from the main PC board (A1 assembly).

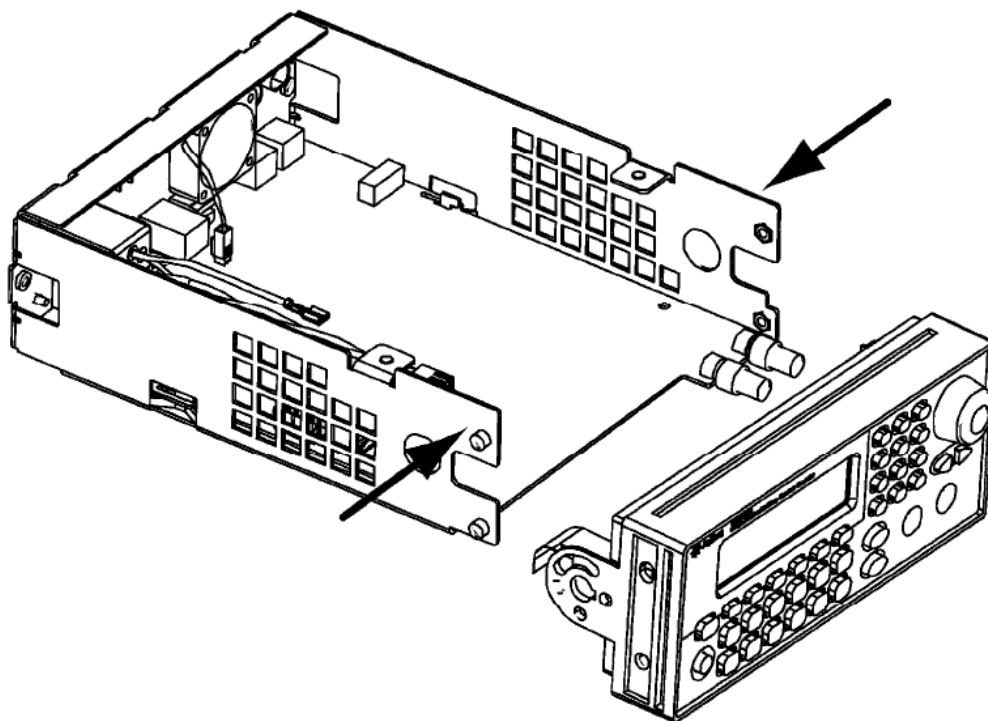
Caution To prevent damage to the cable and connector, use care when lifting the actuator. Excessive or uneven force may damage the actuator or connector.



2. Remove the two screws from the front edge of the main PC board (A1 assembly).

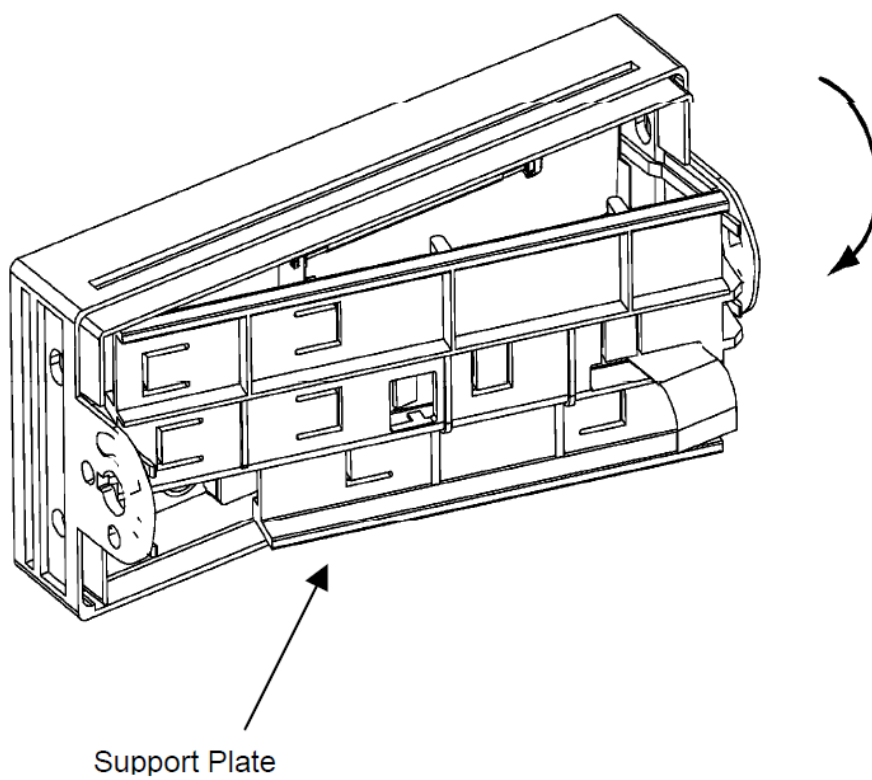
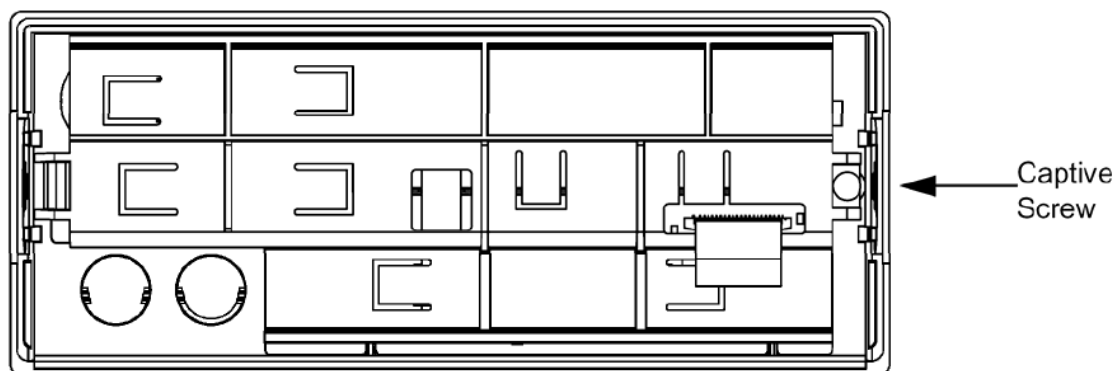


3. Push the side flanges of the chassis inward while lifting off the front panel. There should now be enough play in the chassis sides and front panel assembly to allow the side of the front panel to be disconnected from the chassis.



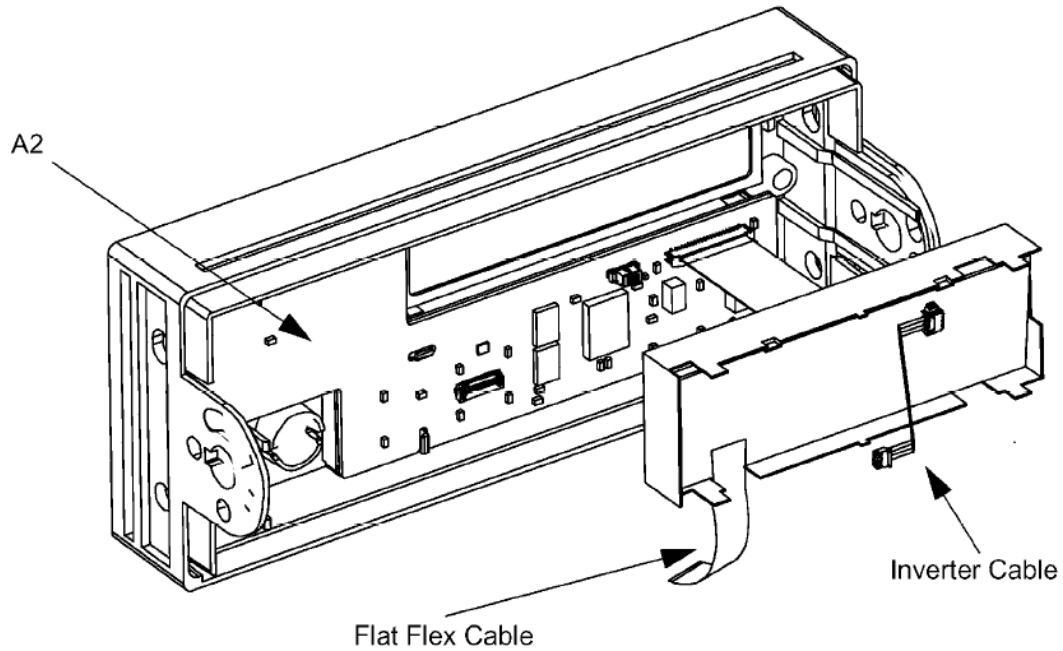
Front-Panel Disassembly

1. Loosen the captive screw holding the support plate. Lift the end of the support plate and rotate out of the front panel assembly.

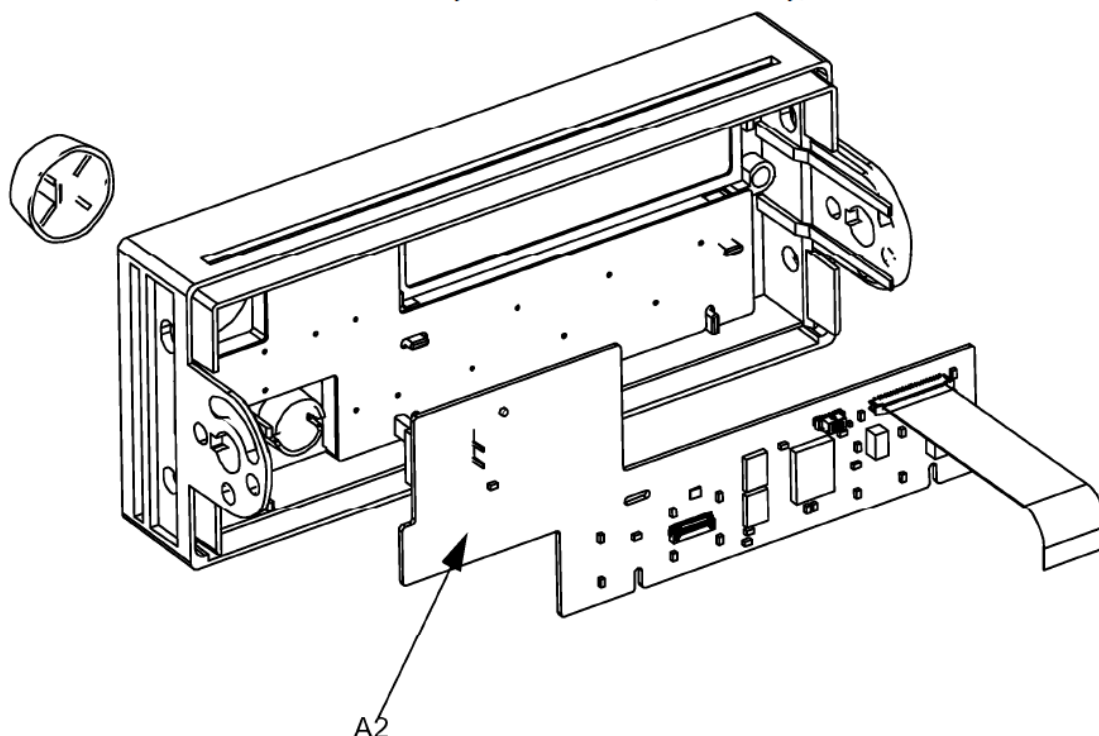


2. Unplug the inverter cable from the keyboard PC board (A2 assembly). Gently lift both ends of the flat flex cable connector actuator and disconnect the cable from the PC board. Lift out the display assembly.

Caution To prevent damage to the cable and connector, use care when lifting the actuator. Excessive or uneven force may damage the actuator or connector.



3. Pull to remove the knob. Lift out the keyboard PC board (A2 assembly).



4. Replace the following assemblies:
 - A2 front panel board, part number 33220-66512
 - Support plate, part number 33220-04112

Reassembly and Test

1. Follow the procedures in reverse to reassemble the unit.
2. Power on the instrument and perform a complete self-test:
 - Press **UTILITY** on the front panel.
 - Select the **Self Test** softkey from the "Test / Cal" menu.
 - The instrument will automatically perform the complete self-test procedure when you release the key. The self-test will complete in approximately 30 seconds.
 - If the self-test is successful, "Self Test Pass" is displayed on the front panel.
 - If the self-test fails, "Self Test Fail" and an error number are displayed. See the [33220A Service Guide](#) for a complete description of self tests and error numbers.
3. Verify operation of the knob.
4. If the unit is inoperative:
 - Verify that the AC power cord is connected to the instrument.
 - Verify that the front-panel On/Standby switch has been pushed.
 - Verify the flat flex cable connector actuator is properly connected to the main PC board (A1 assembly) by following the [Front-Panel Removal Procedure](#) (page 7 of this service note)

Update Firmware

Customers who have units with serial numbers beginning in MY44/SG44 should update their firmware. The update will improve the encoder speed and overall performance. The instructions and download link for the latest firmware can be found here:

<http://www.home.agilent.com/agilent/editorial.jsp?cc=US&lc=eng&ckey=839521&nid=-536902257.536883183&id=839521>

This firmware update is not yet available to customers who have serial numbers beginning in MY43/SG43.