

MSO8104A-05A

S E R V I C E N O T E

Supersedes:
MSO8104A-05

MSO8104A Digitizing Oscilloscope

Serial Numbers: MY00000000-MY46001900
SG00000000-SG46001900

The original scopes motherboard is no longer available for replacement if the above serial numbers of scopes need a replacement board. This new replacement motherboard will requires some different cables and other hardware. This service note is to provide service centers the documentation to perform the motherboard upgrade.

Parts Required:

P/N	Description	Qty.
D8104-68700	M880 Motherboard Kit	1

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:	
INFORMATION ONLY	
AUTHOR: KO	PRODUCT LINE: 1A
ADDITIONAL INFORMATION:	

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Situation:

The old motherboard that the units originally shipped with is no longer available. The new replacement motherboard requires new cables and other hardware.

Solution/Action:

This is the documentation to perform the upgrade

M880 Motherboard Upgrade Procedure.

8000 series part number changes:

Old	New	Description
0960-2652 or 81004-68809	0960-2689 3160-4243	ADLink M880 motherboard w/ 2 SATA cables Heatsink/Fan assembly
D8104-60102	D8104-60103	Motherboard deck w/ 4 mount points for heatsink/fan
D8104-61605	D8104-61607	Backlight cable
D8104-61602	D8104-61608	Front panel USB port
D8104-61604	D8104-61609	Touchscreen USB cable
54855-61624	54855-61628	Motherboard switch cable
0960-2530	1400-2120	ADD2 board replaced by rear panel slot filler plate
0515-0430	0515-0430	Screw for ADD2 or filler plate
D8104-94302	NA	USB Front Panel Label

1 Disconnect the power cable and remove the top cover.

2 Remove the CD-ROM

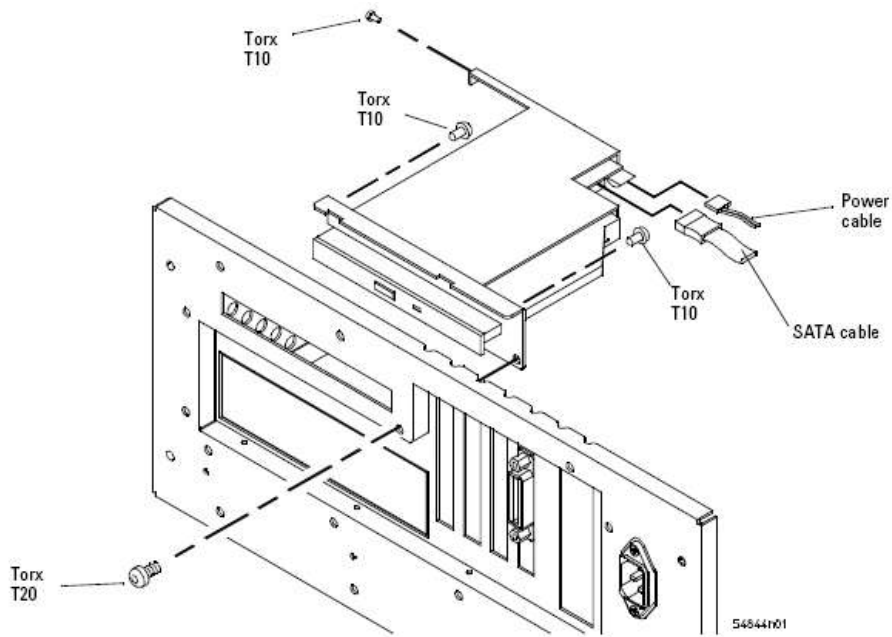
3 Remove the following cables:

- SATA Cable
- CD-ROM Power cable

4 Using a Torx T10 driver remove the three CD-ROM support bracket screws holding the CD-ROM drive in place.

5 Using a T20 driver remove the rear panel screw holding the CD-ROM drive in place.

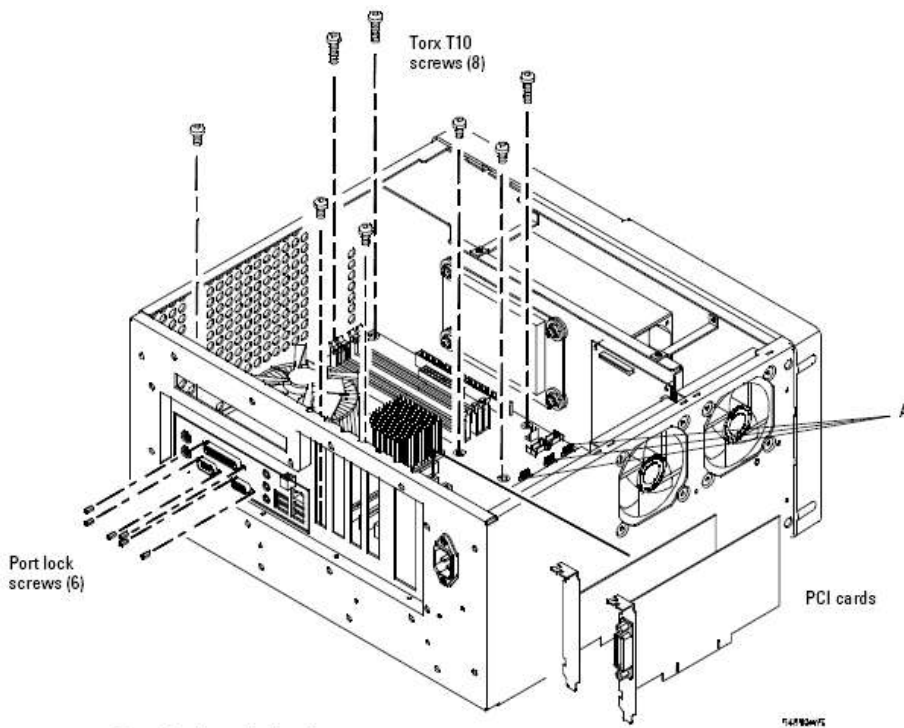
6 Move the CD-ROM drive back towards the front frame, then lift and pull to remove.



Removing the CD-ROM assembly

Figure 1

- 7 Remove all cables from the PCI cards.
- 8 Remove all PCI cards from the motherboard.
- 9 Disconnect all cables from the motherboard.
- 10 Remove the six 5 mm port lock screws from the rear panel connectors.
- 11 Remove the 5 short and 3 long Torx T10 screws holding the motherboard to the ATX tray.
- 12 Remove the 8 T20 screws holding the tray to the rear panel.
- 13 Remove the 3 T10 screws holding the filler plate to rear panel and tray.



Removing the motherboard

Figure 2

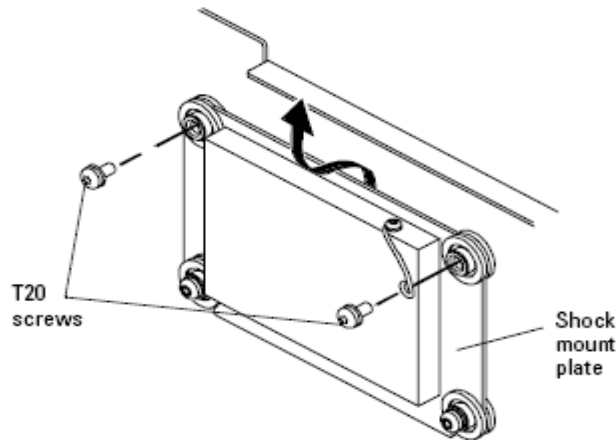
Figure 3

Remove the two Torx T20 screws holding the shock mount in place (See Figure 4)
You may need to use a Torx key to loosen the screws.

14 Tilt the disk drive assembly forward and lift up to remove.

15 Remove the following cables:

- SATA Cable
- Hard Drive Power cable

**Removing the hard disk drive****Figure 4**

16 Lift tray with old motherboard from rear and slide to clear the rear panel clearing the three long standoffs under the tray remove the tray from the chassis.

17 Remove the Auto Probe board by the following.

a Place the unit so the bottom is facing up.

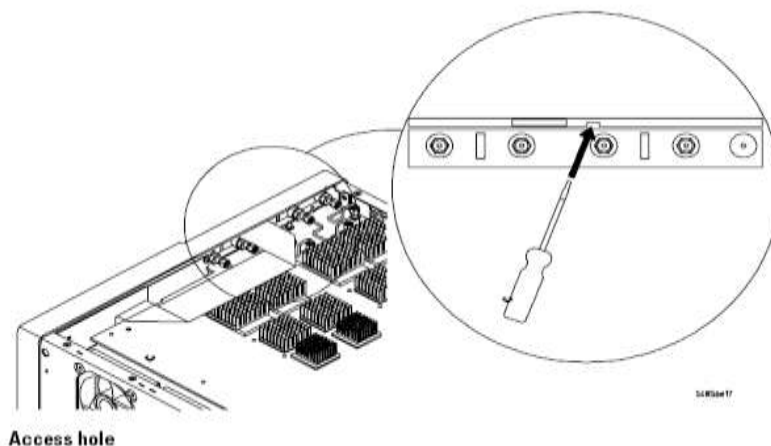
b Locate the access hole on the inside of the front-panel assembly which is below and almost between channel 2 and channel 3 BNC connectors.

c From the back of the front panel, put a small screw driver or other slender pointed object through the access hole to push the Auto Probe assembly faceplate away from the front panel assembly.

Figure 5**Access hole**

CAUTION: AVOID DAMAGE TO THE RIBBON CABLE AND FACEPLATE!

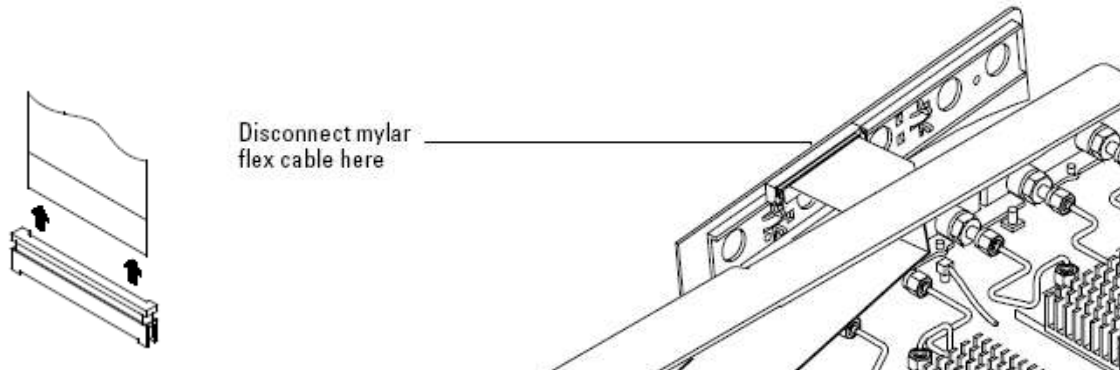
Do not pry around the edge of the assembly. Doing so may damage the ribbon cable or faceplate.

**Figure 5**

d Disconnect the mylar flex cable from the AutoProbe board.

To disconnect the cable

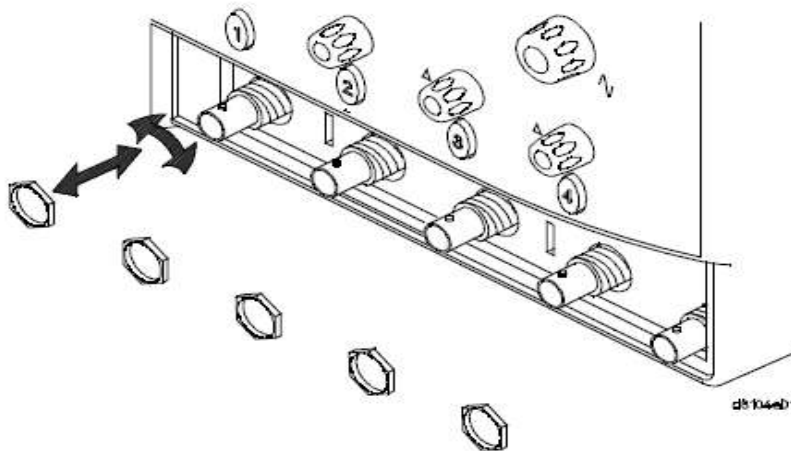
- e Pry up the retainer slightly at either end of the connector using a small flat-blade screwdriver. Do not force the retainer; it should remain attached to the body of the socket.
- f Gently pull the flex cable out of the connector.

**Figure 6**

18 Using a 9/16" nut driver, remove the hex nuts that secure the BNC connectors to the front panel.

Figure 7

Removing the BNC nuts



Removing the BNC nuts

Figure 7

19 Remove the four Torx T15 screws that secure the chassis sides to the front panel assembly.

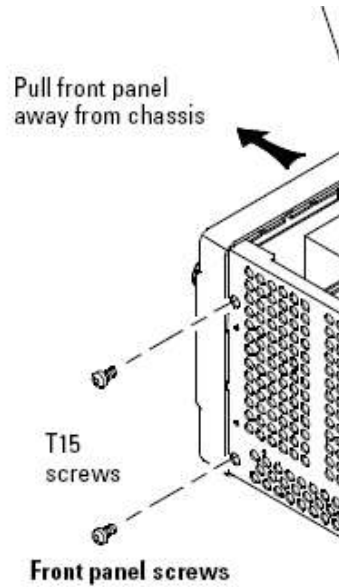


Figure 8

20 Remove the ten Torx T10 screws that secure the front panel cover plate to the front casting. The four screws in circled in red are longer be sure to re-assemble correctly.

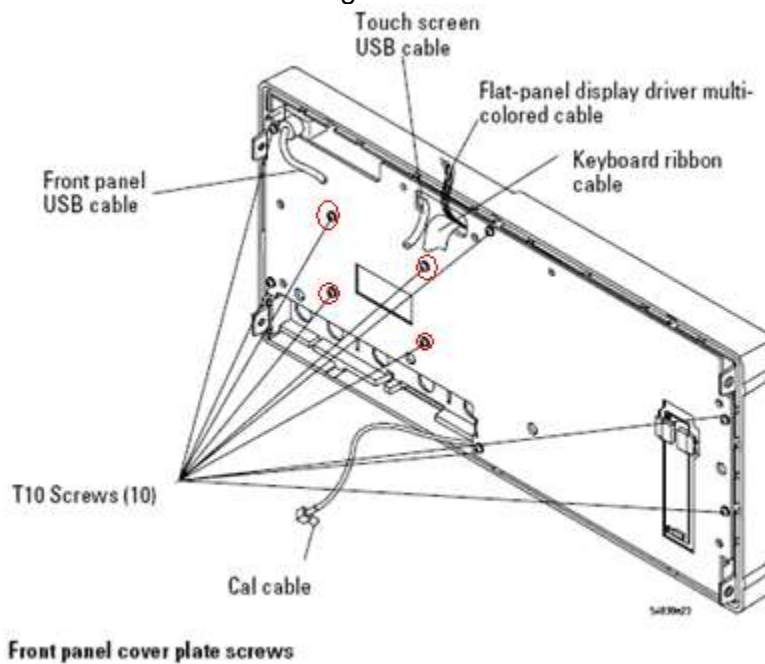


Figure 9

21 Turn front panel cover plate over and Remove the Touch Screen cable D8104-61604 and replace with D8104-61609. Route new cable though the hole. Secure with tape (see figure 10)

**Figure 10**

22 Turn front panel cover plate back over and re-assemble. When re-assembling, torque the ten Torx T10 screws to 5 in-lb.

23 Remove old Back Light cable D8104-61605 and replace with D8104-61607.

See Figure 11

**Figure 11**

24 Remove the Front Panel USB cover label remove two T10 screws and replace the old USB cable D8104-61602 with new D8104-61608. Install New USB Cover Label D8104-94302 (See figure12)



Figure 12

25 Route cables through the chassis holes to prepare to reattach the front Panel assembly to the frame. (See figure 12 and 13)

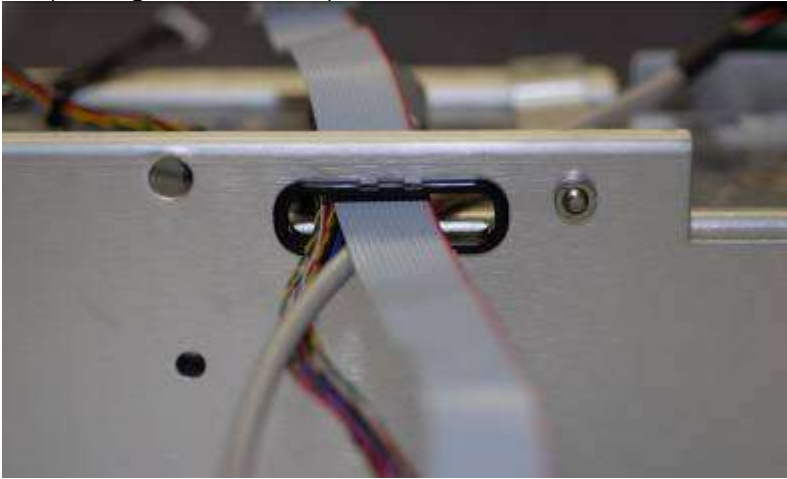


Figure 13 and 14

26 Re-install Front Panel with four Torx T15 screws that secure the chassis sides to the front panel assembly.

When re-assembling, torque the four Torx T15 screws to 18 in-lb.

27 Using a 9/16" nut driver, install five hex nuts that secure the BNC connectors to the front panel.

When assembling the hex nuts to secure the BNC connectors to the front panel, put the conical side of the nut toward the front-panel casting. Torque the five hex nuts to 18 in-lb.

28 Reattach the Auto-Probe to the mylar flex cable and pop board back into place.

29 Using new Motherboard Deck "Tray" D8104-60103 and New Motherboard 0960-2689

a Install the six 5 mm port lock screws from the rear panel connectors.

b Install the 5 short Torx T10 screws holding the motherboard to the M880 tray. (See Figure 15)



Figure 15

30 Using new Heat Sink and Fan Assembly install fan to Motherboard and Deck. (See Figure 16) Connect fan power cable to fan CPU Fan jack. Torque fan screws to 5 in-lb.



Figure 15

Note: **Do not** use thermal grease on Heat Sink/Fan assembly. It comes with its own thermal type material.

31 Using new Motherboard Switch Cable 54855-61628 connect to motherboard assembly. (See Figure 16)

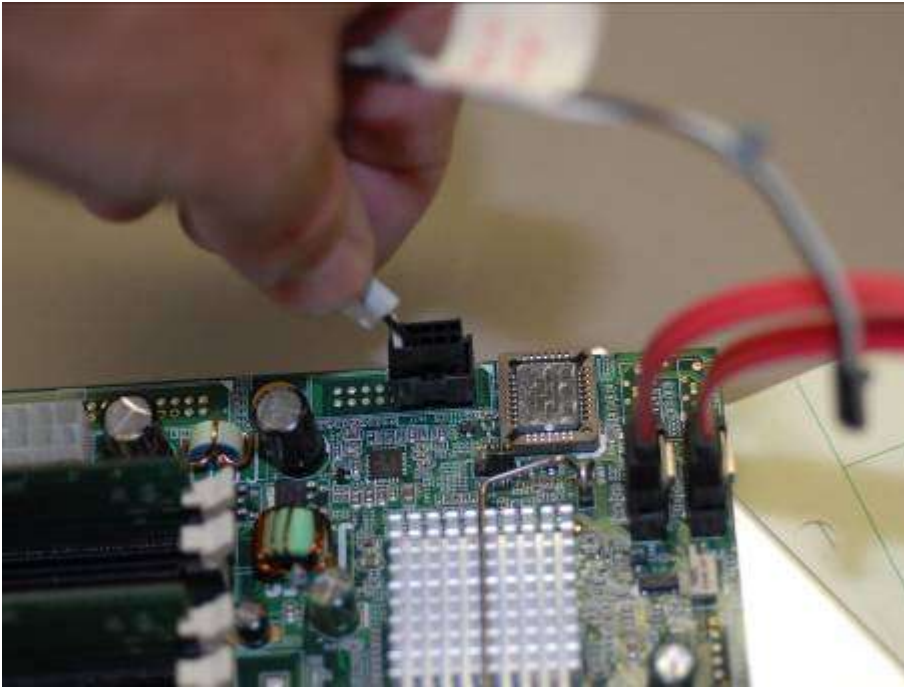


Figure 16

- 32** Re-install Motherboard Assembly into the frame chassis.
a Install the 3 long Torx T10 screws and two short T10 into the tray holding the motherboard assembly to the frame chassis. (See Figure 17 and 18)



Figure 17

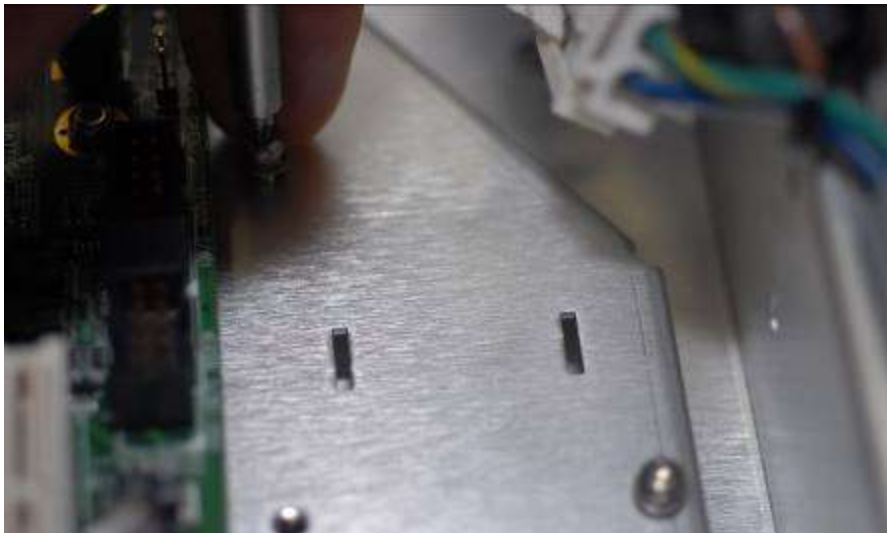


Figure 18

33 Re-install eight short T20 screws in rear panel attaching deck to the frame chassis. Torque T20 to 8 in-lb.

34 Re-install three short T10 screws and filler plate to the rear panel. Torque T10 to 5 in-lb.

35 Re-install the Acquisition Interface PCI card into the slot marked GPIB on the rear panel.

36 Re-connect new cables

a Connect new display cable to motherboard. (See Figure 19)

b Connect the two USB cables (See Figure 20)

c. Connect motherboard Switch cable to PCI card (See Figure 21)

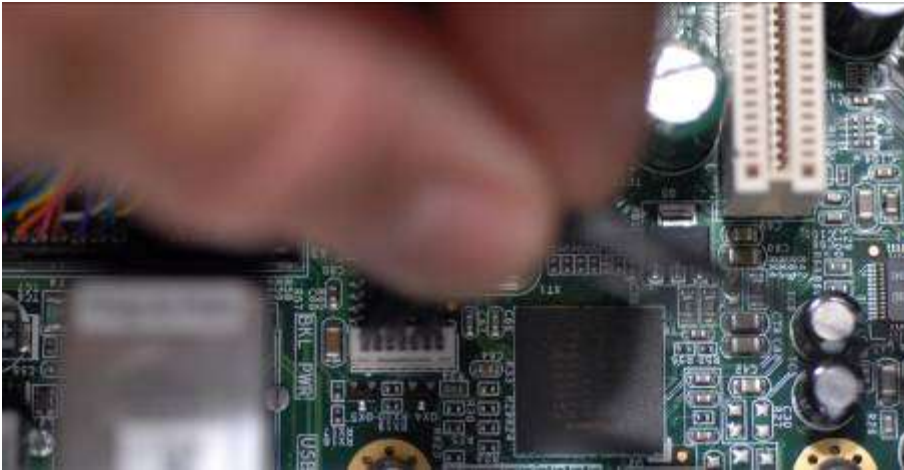


Figure 19

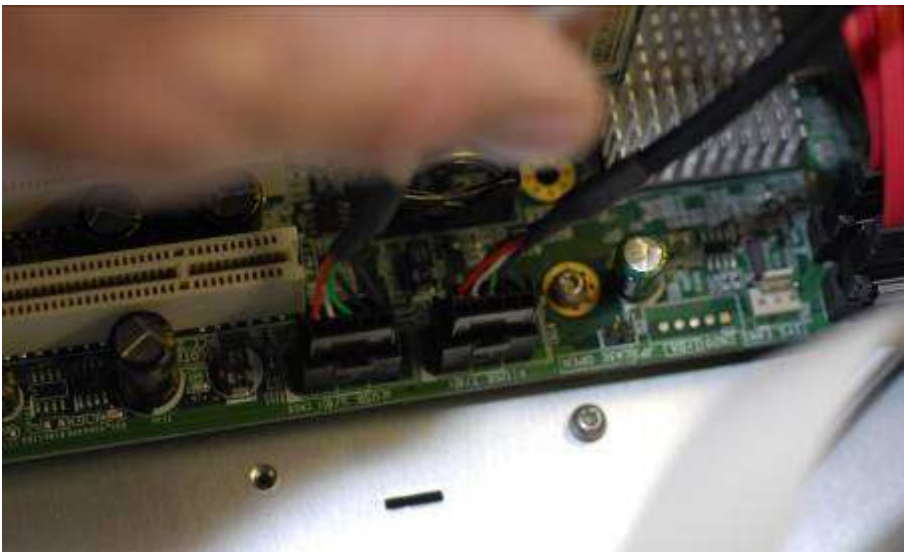


Figure 20

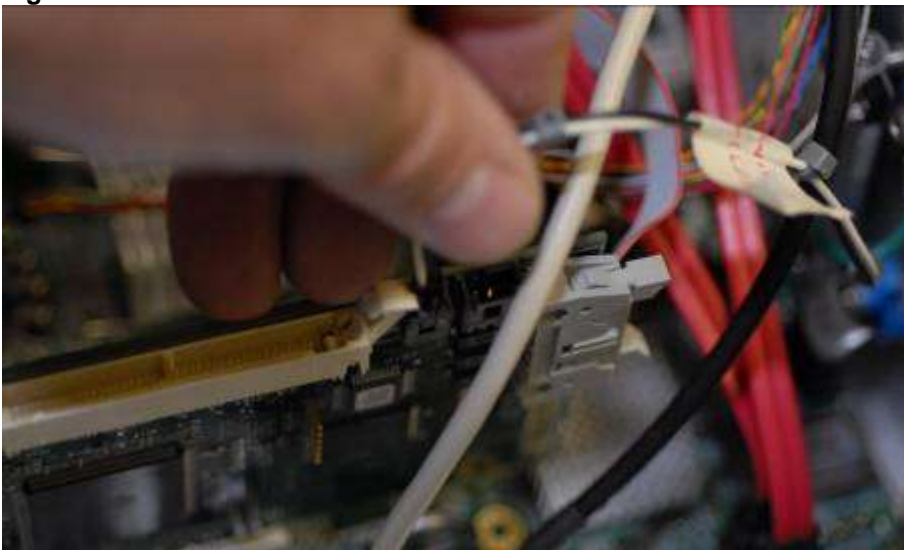


Figure 21

- 37 Re-connect all other cables to the appropriate sources.
- 38 Install all ISA slot filler plates (See figure 22)

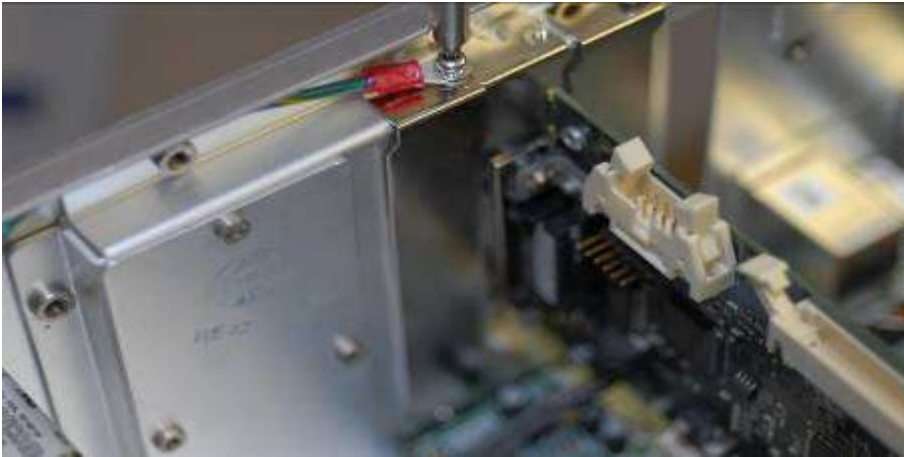
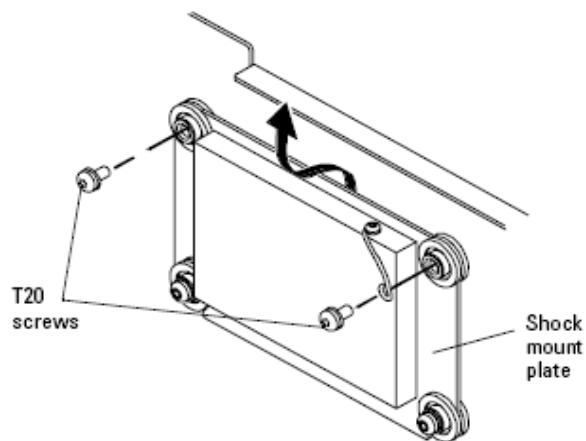


Figure 22

39 Tilt the disk drive assembly forward and push down to reinstall. When re-assembling, torque the screws to 18 in-lb.

a Reattach the following cables:

- SATA Cable
- Hard Drive Power cable



Removing the hard disk drive

40 Re-install CDROM

3 Reattach the following cables:

- SATA Cable
- CD-ROM Power cable

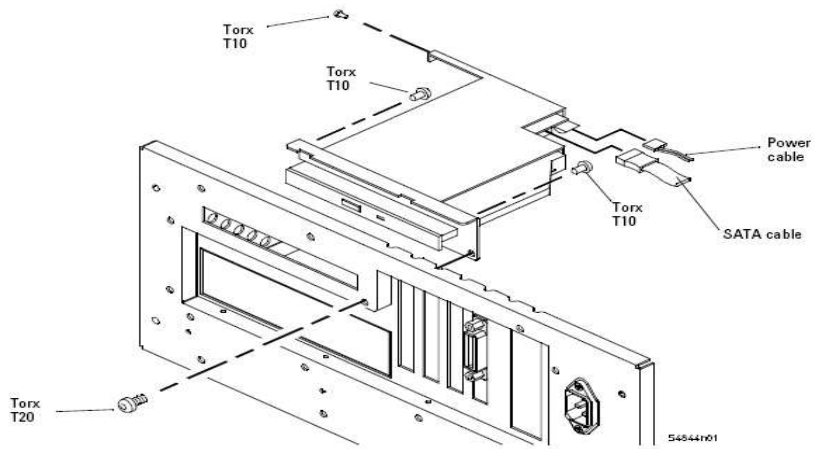
a Using a Torx T10 driver, install the three CD-ROM support bracket screws holding the CD-ROM drive in place.

When re-assembling, torque the three Torx T10 screws to 5 in-lb.

b Using a T20 driver install the rear panel screw holding the CD-ROM drive in place.

When re-assembling, torque the Torx T20 screw to 18 in-lb.

c Move the CD-ROM drive back towards the rear frame.



Removing the CD-ROM assembly

- 41 Re-dress all cables to their original positions. Making sure they are in the appropriate tie downs and clamps.
- 42 Re-install top cover and feet and handles.