Film-Tech

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dts	**Installing a DVD Multi-Drive Kit into DTS-6/6D Players**	TN-E211	H	1 of 11

DEPARTMENT	CREATED BY:	EFFECTIVE DATE	APPROVED BY:
Engineering	K. Hultgren	11/21/05	L. Brown

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> This procedure applies only to the DTS-6/6D players.

TOOLS NEEDED FOR THE JOB

- Phillips head screwdrivers, #1 & #2
- Nut driver, 5/16
- DS3 Setup Disc, Empirical Test Disc, or a movie disc
- Upgrade kit*:
  - CD-ROM, DTS 6/6D System Update Disc V2.40.24 or higher, PN 9311E82701
  - Firmware IC (TCR) V1.46 or higher, PN 90500TCR00
  - SCSI cable PN 9022D43200 rev. A or higher (DTS-6) or PN 9022D56800 rev. B or higher (DTS-6D)
  - DVD Drive assembly with SCSI-IDE bridge board and power adapter cable PN 9020E83200 (qty. 2 DTS-6, qty. 3 DTS-6D)
  - Virtual ROM PCA/AQRM Chip, PN 9020E65300
  - SCSI PCA PN 5108002900 or equivalent
  - Anti-static wrist strap PN 1050000200

*For a DTS-6D (3-drive) player, use upgrade kit **E209.**
*For a DTS-6 (2-drive) player, use upgrade kit **E208.**
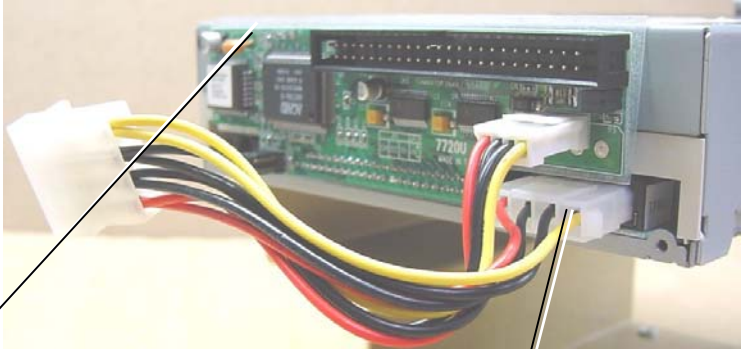
Back view of DVD drive assembly. Note: The SCSI-IDE bridge board is already attached to the drive. You may need to attach the power adapter cable.
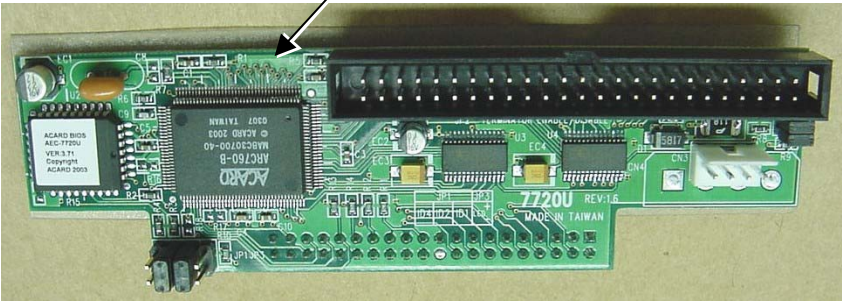
SCSI-IDE bridge board
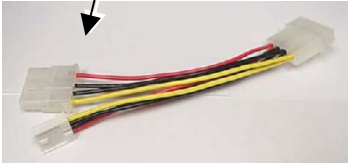
Power adapter cable

◈   **WARNING**   When handling boards or ICs, use caution as they are susceptible to damage from **static discharge**. If the parts came to you in an anti-static bag, keep them in the bag until needed. Then, just before removing parts from the bag, hold the bag and touch the chassis of the player. This will make your body the same potential as the player. It's best to stand on a linoleum or cement floor (<u>not</u> carpet) and use the provided wrist-grounding strap when handling boards and ICs.

![dts logo]	TITLE **Installing a DVD Multi-Drive Kit into DTS-6/6D Players**	NUMBER TN-E211	REV H	PAGE 2 of 11
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HOW TO INSTALL

Below is shown for upgrade kit **E209** used on a DTS-6D (3-drive) player. The installation **E208** used on the DTS-6 (2-drive) player is basically the same other than the additional third drive used on the DTS-6D.

①   Remove all discs from drives.

②   Turn the player's power switch off. Remove all cables from back of player. Remove player from sound rack and open player's top cover. Remove all cables from the drives.

Remove SCSI cable

Drives

Remove power cables

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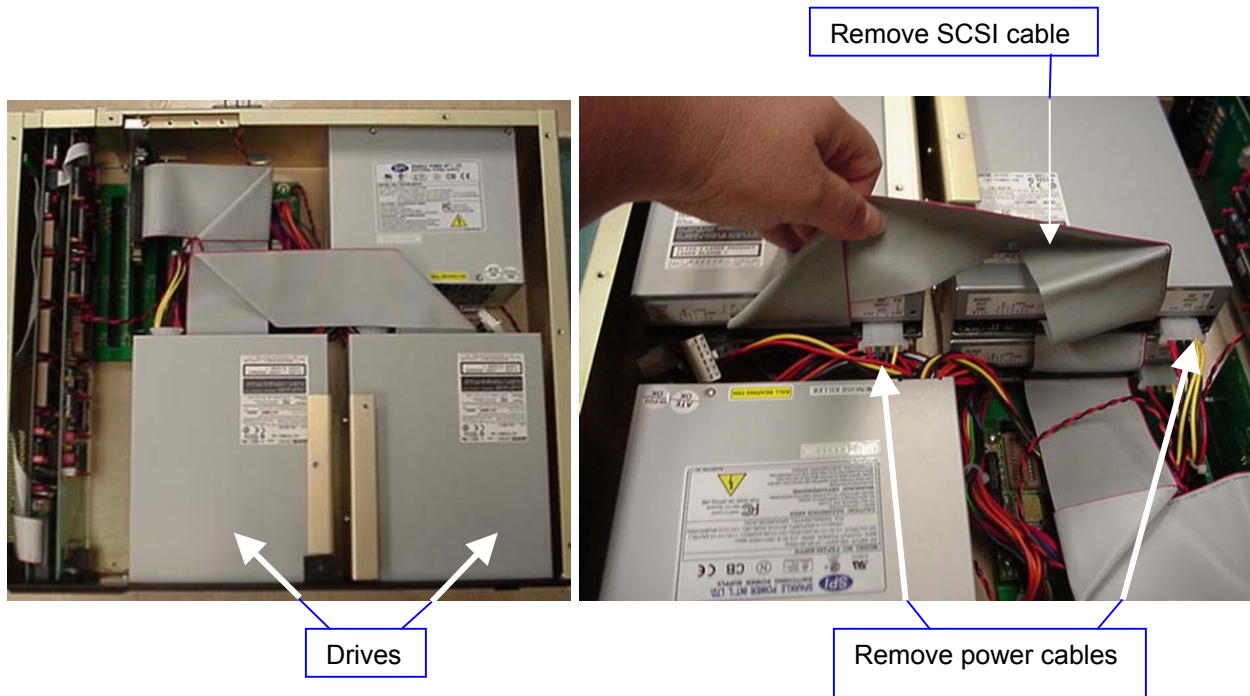DTS, 5171 Clareton Dr., Agoura Hills, CA 91301   Contact Document Control for the latest revision.

③   Remove drives from the player. Save all screws and nuts.

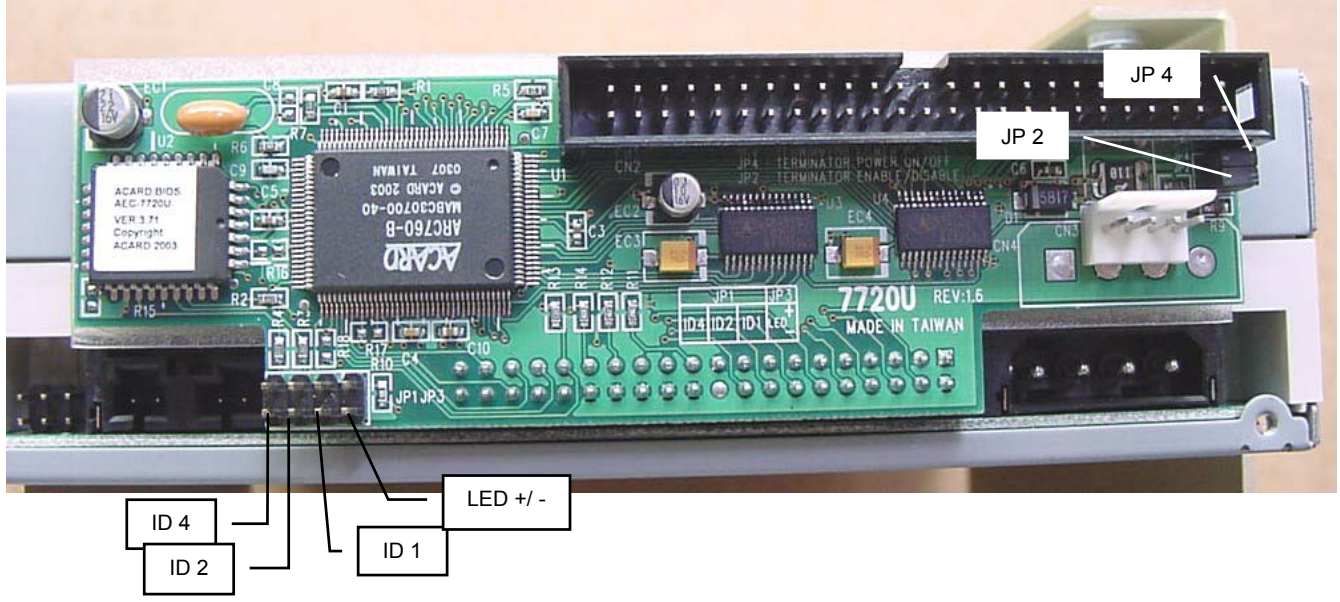④   Remove the brackets from the old drives and put them on the new drives.

> 💡 **Helpful Hint**: Do one bracket at a time. Align new drive to the old drive still in bracket. Then, remove the other drive and align new drive to the first. This will make drives fit flush with front panel when finished

.

⑤   Verify the jumpers on the back of the new drives.

ID 4
ID 2
ID 1
LED +/ -

DTS-6D (3-drive player)
Drives are addressed as 3, 4 and 5 with 3 as the last drive ("C")

DTS-6 (2-drive player)
Drives are addressed as 4 and 5 with 5 as the last drive ("B").

	Jumper Location (X = ON)					
	ID4	ID2	ID1	LED+/-	JP4	JP2
Drive A (address 4)	X				X	
Drive B (address 5)	X		X		X	
Drive C (address 3)		X	X		X	X

	Jumper Location (X = ON)					
	ID4	ID2	ID1	LED+/-	JP4	JP2
Drive A (address 4)	X				X	
Drive B (address 5)	X		X		X	X

Notes:
JP4 (Terminator Power ON/OFF) – leave this jumper ON for all drives.
JP2 (Terminator Enable/Disable) – for DTS-6D remove on drives A and B only. For DTS-6 remove on drive A only.
Shunt removed = DISABLE
Only the last drive in the series is terminated (JP2 installed)

⇐ **Note**: The order of these SCSI addressing jumpers is different from all previous drives.

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⑥   Mount drives into player.
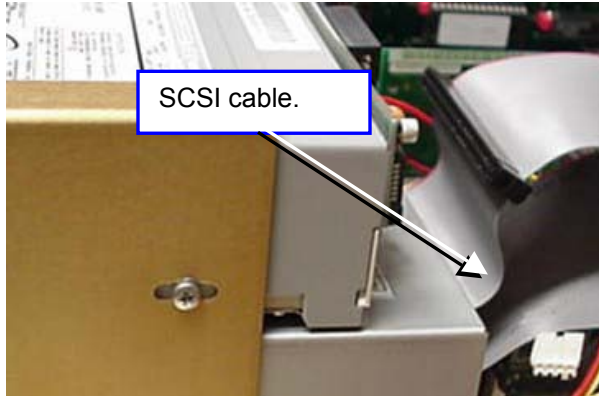
SCSI cable.

Connect the new SCSI cable to the SCSI-IDE bridge boards.

.

Using the power adapter, connect the power supply to the drive and to the SCSI-IDE bridge boards.


From power supply

Power adapter cable

SCSI-IDE bridge board connector

Drive connector

Install power adapter cable.
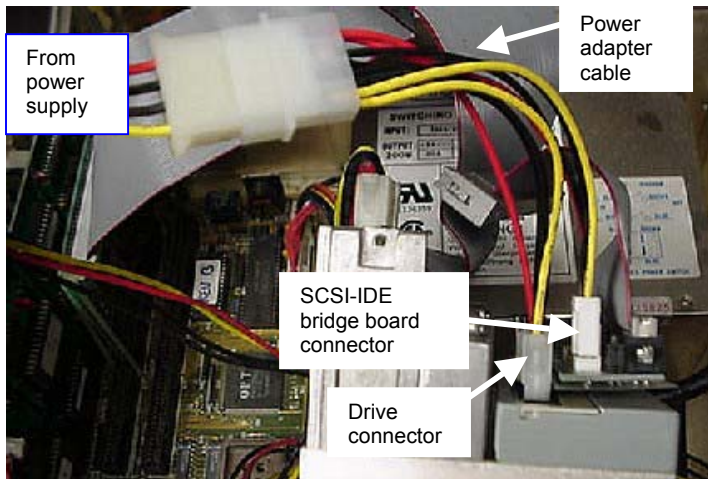
Connect one end of the power adapter cable to the power supply connector and the other ends to the drive and to the SCSI-IDE bridge board.

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⑦   Remove the existing **SCSI** board. Once removed, you now have access to **U14** (TCR firmware chip) on the **D422 timecode board**. If the TCR is an older version than what was sent to you, remove the old and install new TCR firmware chip in its place. When installing, check orientation of pin 1.

D422 board
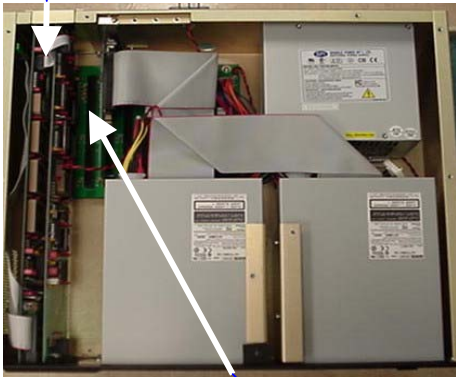
Remove SCSI board
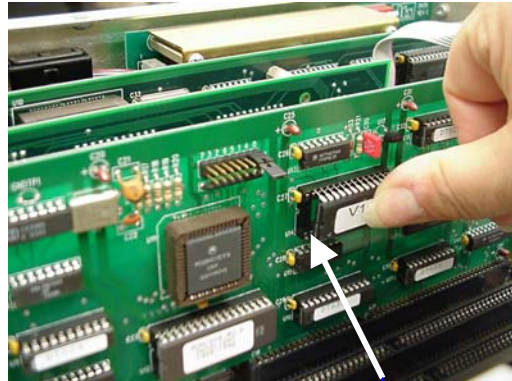
Install new U14 in D422. Verify pin 1.

💡 **Helpful Hint** Pin 1 is next to the notch on the IC. When plugging an IC into a socket, insert the bottom row legs first. Then, guide the top row legs into the socket. Be sure all the legs go into the socket.
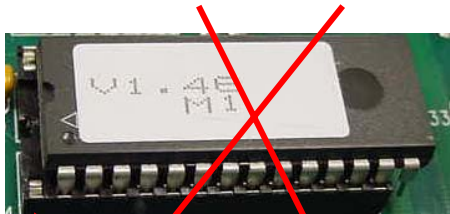

◈ **WARNING** <u>What not to do:</u>

Legs should not be touching.

Legs should not be bent.

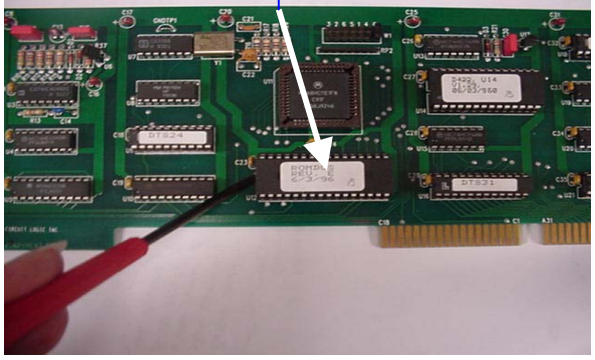All legs are not in the socket.

Legs should not be hanging out.

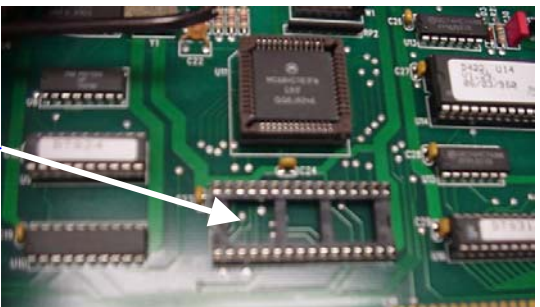Installing the IC backwards will damage it!

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⑧ Remove **U12**, "ROM-DOS " IC from the **D422 timecode board**.
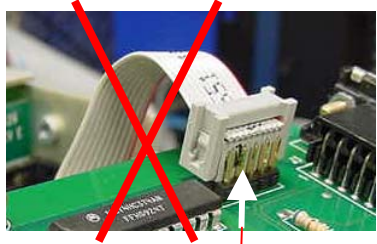
Remove U12

U12 should remain empty.

💡 **Helpful Hint** If you removed the D422 board from the player, be sure to reinstall the board correctly. Verify 10-pin cable, between SCSI and D422 boards, is plugged in properly.
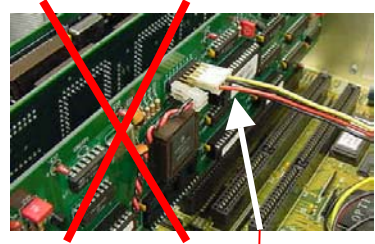

Be sure red wire on cable is plugged into pin 1 on header.

◈ **WARNING** <u>What not to do:</u>

No legs on header should be exposed

Do not plug any power cable into D422. You will damage the board!

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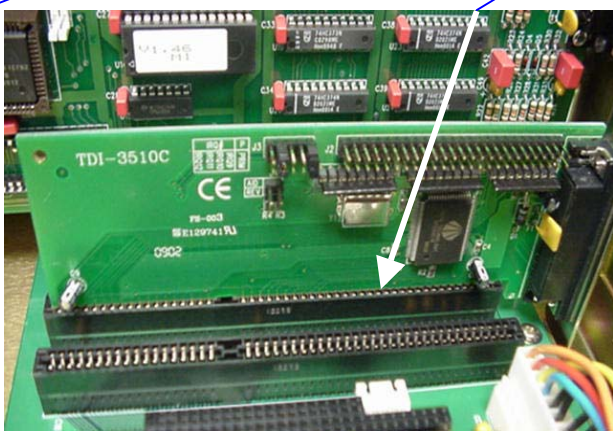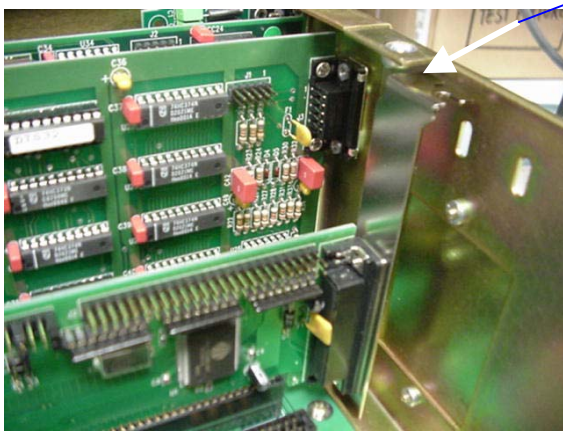
⑨   Install the new **SCSI board** in an unused slot on the motherboard.
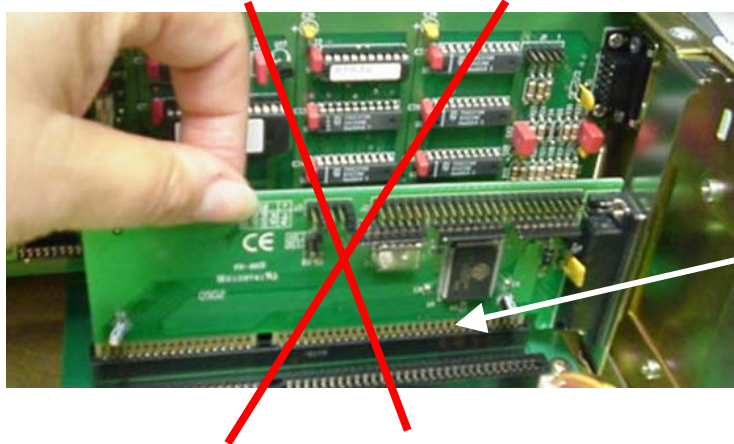

Install the new SCSI board.

💡 **Helpful Hint**   The metal tab may need to sit under chassis lip for SCSI to sit flat in motherboard.


◈   **WARNING**   Be sure boards sit completely flat in motherboard connectors. No bottom copper fingers should not be exposed. All fingers should be in the socket.

The copper fingers of this board are showing. The board is too high and must be pushed down.

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⑩　　Look at your motherboard. If you have an **E363** motherboard, proceed to step 11. Do not install the ROM board or change the AQRM chip.
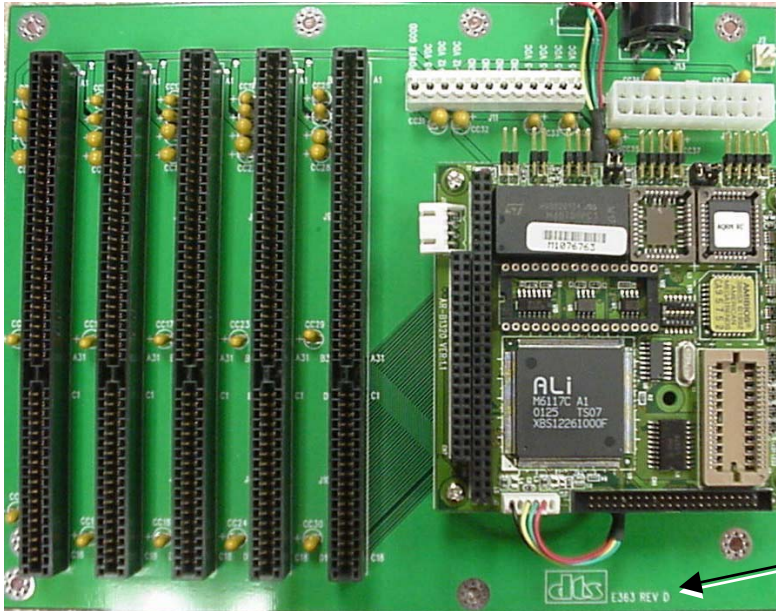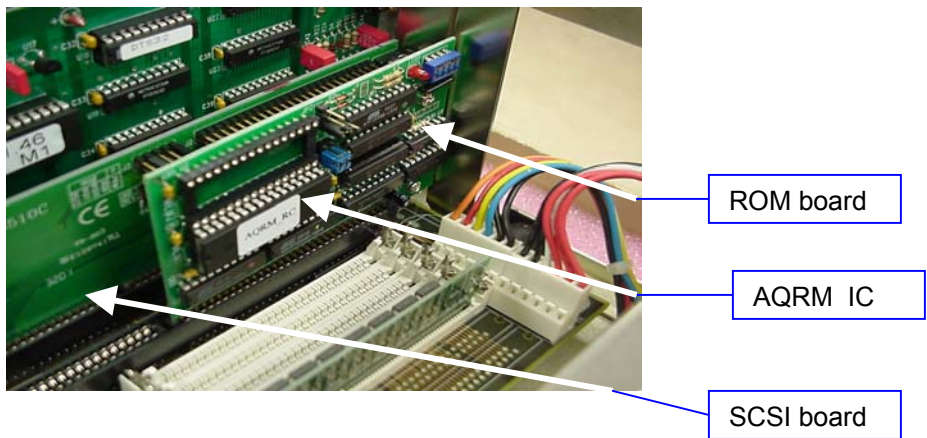

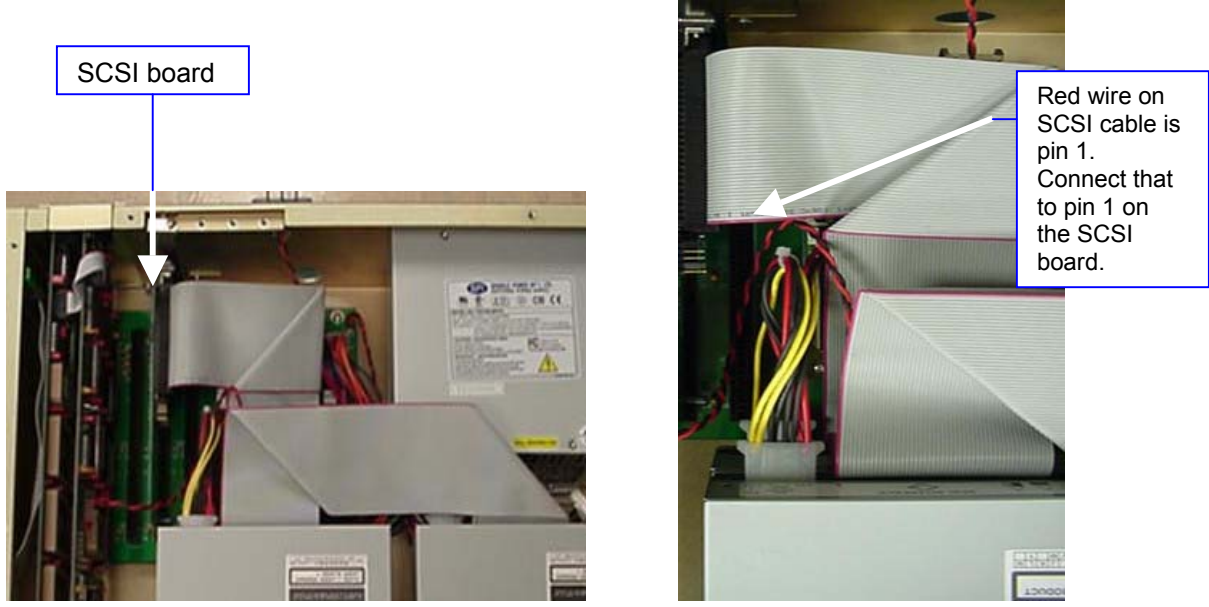> The E363 motherboard has DTS logo with E363 silk-screened onto board.

E363 motherboard

If you have anything other than an E363 motherboard, insert the **ROM board** (with "AQRM" chip) into an unused slot on the motherboard.

> The ROM board is shown in front of the SCSI board. It may be installed either in front of, **OR**, behind the SCSI board, it does not matter.
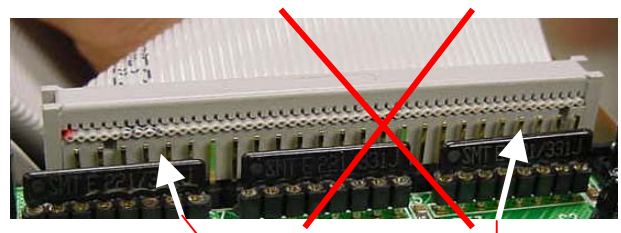

ROM board

AQRM IC

SCSI board

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⑪   Connect **SCSI** cable to the SCSI board.

SCSI board

Red wire on SCSI cable is pin 1. Connect that to pin 1 on the SCSI board.

◈ **WARNING**   <u>What not to do:</u>

Do not plug in backwards.

No header pins should be exposed.

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⑫   Update the software on the DTS-6 or DTS-6D using the DTS 6/6D System Update Disc. Follow the directions printed on the disc label. Remove disc once the update is complete.

⑬   Test unit using a DTS setup disc or movie disc. Load the disc into the player and verify the SYSTEM light blinks after about two minutes. If using a setup disc, it will self-play. A movie disc will not self-play but it should make the SYSTEM light blink.

     Check each drive.
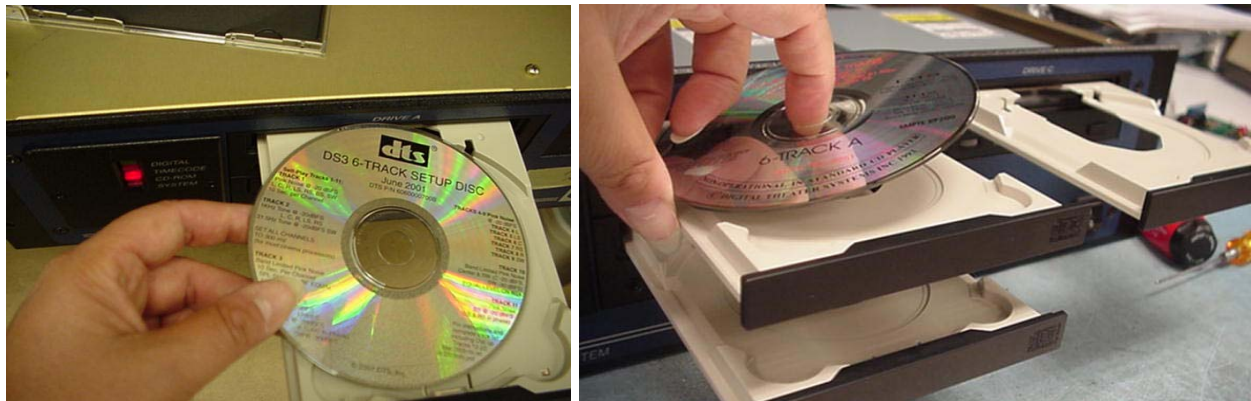
⑭   After the testing is complete, attach the top cover and re-install player into the sound rack.

DTS warranties drive kits one year upon purchase

Refer questions to DTS Cinema Technical Support

Telephone: (800) 959-4109   or   (818) 706-3525
Fax: (818) 706-1868
Email: cinematech@dtsonline.com