Film-Tech

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DIGITAL THEATER SYSTEMS

Digital Sound For Movies

DTS-6 INSTALLATION AND OPERATION MANUAL

35mm

Revised February 14, 1996

Digital Theater Systems
31336 Via Colinas, #101
Westlake Village, CA 91362 USA
Phone: (818) 706-3525 / (800) 959-4109
Fax: (818) 706-1868

EMI NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Department of Communications compliance statement:

This equipment does not exceed Class A limits per radio noise emissions for digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the owner or operator to take whatever steps are necessary to correct the interference.

Avis de conformite aux normes du ministere des Communications du Canada:

Cet equipment ne depasse pas les limites de Classe A d'emission de bruits radioelectriques pour les appareils numeriques telles que perscrites par le Reglement sur le brouillage radioelectrique etabli par le ministere des Communications du Canada. L'exploitation faite en milieu residentiel peut entrainer le brouillage des receptions radio et television, ce qui olbigerait le proprietaire ou l'operateur a prendre les dispositions necessaires pour en eliminer les causes.

PATENTS

The DTS system has been granted the following patents:

1. U.S. Patent No. 5,155,510

2. U.S. Patent No. 5,386,255

3. U.S. Patent No. 5,450,146

Foreign patents have been filed and are pending.

WARRANTY INFORMATION

Equipment manufactured by Digital Theater Systems, L.P. is warranted against defects in materials and workmanship for one year from date of purchase. There are no other express or implied warranties.

Digital Theater Systems, L.P. obligation is restricted to repair and replacement of defective parts. Under no circumstances will Digital Theater Systems, L.P. be liable for any other damage, either direct or consequential.

All requests for repairs or information should include the unit serial number to ensure rapid service.

RETURNS

For warranty, repair, exchange or replacement parts, please call DTS at (818) 706-3525 or toll free 1-800-959-4109 for a Return Authorization number **before** sending any item back to us. At the time of the call, DTS will require that you provide the serial number of any DTS-6 unit(s) or reader head(s) to be returned **before** warranty replacement units will be sent. All return packaging should be clearly marked with the Return Authorization number on the outside of the package. DTS FAX: (818) 706-1868

Please send all returns to:

Digital Theater Systems
1270 Avenida Acaso, Suite C
Camarillo, California 93010 USA

PROMOTIONAL MATERIALS

Promotional materials are available from DTS. These items include:

* DTS marquee signs (see order form at the back of this manual)
* DTS one sheets
* DTS logo films, available in scope and flat
* DTS buttons and pins
* DTS T-Shirts
* DTS Letterman's Jackets
* DTS Denim Jackets
* DTS Hats
* DTS Sweatshirts
* DTS Tweekers

Call DTS Customer Service for price and availability

DTS NEWSLETTER

Keep up-to-date with DTS events. The DTS Newsletter is published quarterly. If you would like to be added to the mailing list, contact DTS Customer Service.

FACTORY WARRANTY INFORMATION

The following is a list of information necessary for every location where the Digital Theater System is installed.

THEATER NAME/CIRCUIT: _____

THEATER LOCATION: _____

SCREEN NUMBER: _____

THEATER CONTACT/TELE #: _____

LOCAL TECH/TELE #: _____

DTS UNIT TYPE: _____

SERIAL NUMBER:: _____

PROJECTOR TYPE: _____

SOUND PROCESSOR: _____

SOUND AMPLIFIER: _____

SPEAKER SYSTEM: _____

Screen (model): _____

Surrounds (model): _____

Split: _____ Mono: _____

Subwoofer: _____

Subwoofer Amp (model): _____

Are the Left Extra and Right Extra being used for Subwoofer? _____

DTS requires the above information to provide proper and timely technical support. Fill page out and send to DTS (address and FAX number below), attention Customer Service.

IMPORTANT

Failure to return this information sheet within 30 days to DTS **WILL VOID** your warranty.

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RACK-MOUNTED INSTALLATIONS

If this product is installed in a closed or multi-unit rack assembly, the following items must be considered.

1. The ambient temperature within the rack may be greater than room ambient temperature. The maximum temperature for the equipment in this environment is 50°C. Consideration should be given to the maximum rated ambient.

2. Installation should be such that the amount of air flow required for safe operation is not compromised, and that a hazardous condition is not achieved due to uneven loading.

3. Check nameplate ratings to assure there is no overloading of supply circuits that could have an effect on overcurrent protection and supply wiring.

4. Reliable grounding of this equipment should be maintained. Particular attention should be given to supply connections when connecting to power strips, rather than direct connections to the branch circuit.

5. A quality surge / spike suppressor power strip is recommended to protect the DTS-6 processor.

SYSTEM CONSIDERATIONS

A DTS digital playback system can place enormous demands on the amplifiers and speakers in your theater. Some of the factors that can effect the power requirements are speaker efficiency, room size, and room acoustics. The following is a rough guideline of power requirements:

Theater Size	Screen Channels	Each Surround Channel	Subwoofer
Small	200 WPC	200 WPC	400 W
Medium	300 WPC	300 WPC	600 W
Large	400 - 500 WPC	400 - 500 WPC	+800 W

DTS SYSTEM SPECIFICATIONS

General	Six channel configuration: left, center, right, left surround, right surround, and subwoof. Holds two CD-ROM discs for up to 3 hours and 20 minutes play time. One disc can play up to 90 minutes.
Frequency Response	L, C, R, LS, RS: 20 Hz to 20 kHz Sub: 20 Hz to 80 Hz
Dynamic Range:	96 dB, all channels
Size:	5 1/4" high, 19" long rack mount, 15 1/2" deep

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I. INTRODUCTION

The DTS digital sound process for motion pictures is designed for the digital sound release of motion pictures in 6-track theaters. It is a dual system in that the digital audio data is recorded on CD-ROM discs. A special DTS timecode is printed on the motion picture print along with a conventional stereo optical soundtrack. The timecode is used by the DTS system to synchronize the sound and picture. The timecode lies between the picture and optical sound track, and is printed onto the release print from the soundtrack negative. There is a single inventory of prints.

The DTS-6 system provides left, center, right, split surrounds (or mono surround) and subwoof channels. The systems allow for play times up to 3 1/3 hours. They are completely automatic and fail-safe in operation requiring no action by the projectionist. The systems automatically start and stop, and track film breaks and change-overs. The digital audio data is sampled at 44.1K samples per second. APTX100 digital audio data compression (4:1) is used. Transfer into the process can be made from conventionally mixed analog or digital sound masters.

How Does DTS Work?

Using DTS timecode printed on the motion picture film, the DTS-6 system (with matching movie discs loaded) reads the timecode and plays the correct sound for each frame of film projected. The projectionist inserts the movie disc(s) into the DTS-6 and threads the film though the DTS timecode reader head. Once the film is started, the DTS system checks a keyed serial number in the timecode and on the movie disc(s) to assure the correct sound is being played with the movie being shown. Films released in the DTS digital sound format also contain a traditional analog (optical) sound track (either "SR" or "A" type) which serves as a back-up sound source.

II. UNPACKING

The packaging is designed to handle normal shipping and handling. Upon receipt of shipment, check for signs of damage before opening and report all damage to the carrier. All shipments made from DTS are customer responsibility once they leave our premises.

Before installation is begun it is suggested that a complete inventory be taken to minimize problems or questions during installation. Additionally, save all packing material until installation is complete in the unlikely event that a component(s) requires return to the factory. Use the packing slip that came with your unit to verify received inventory.

The following is a sample packing list for a single projector (platter) system:

- DTS-6 processor and power cord
- Timecode Reader Head
- Reader Head Mounting Bracket
- Manual
- Installation Hardware
- Reader Head Timecode Interconnect Cable, P/N D435
- 6-Track Output Cable, P/N D434
- 6-Track audio breakout card, P/N D437
- Logic breakout card (as it applies to your cinema processor)
- Stereo cable (if applicable), P/N D436
- DTS trailer (logo) films, two scope and two flat

If you have a two projector (change-over) system, you should receive an additional reader head, mounting bracket, and hardware. Plus, the timecode cable will change to a "Y" cable.

If any of the items on your packing list cannot be found, contact DTS with the P/N and description of the missing item(s).

Refer to **"RETURNS,"** page ii, when sending any product back to DTS.

III. INSTALLATION PROCEDURE

The DTS system consist of two major components: the DTS Timecode Reader Head and the DTS-6 processor (player). The following is a generic procedure intended to supplement the processor installation wiring diagrams for specific manufacturer's sound systems. Look for these diagrams in Section VIII.

3.1 Timecode Reader Head Installation

- The Timecode Reader Head is designed to be mounted onto most projectors with a single mounting bracket.

- Position the appropriate DTS mounting bracket on the same bolt pattern as the reel arm and bolt securely in place (see "bracket mounting diagrams," in Section VIII).

- Install the Timecode Reader Head onto the DTS mounting bracket and bolt into place with supplied hardware.

- Reinstall the reel arm on the top bolt pattern of the DTS mounting bracket.

- Align the DTS mounting bracket and the reel arm.

- The DTS timecode reader **MUST** have a straight film path (no angles or twists) and at least a small amount of tension. The auxiliary flanged roller on the timecode reader head is used to avoid film "walk out" and helps to stabilize the film. Additional guide rollers may be added to ensure proper film tension - most critical on platter systems.

- Connect the 9-pin timecode cable and route to the sound processor rack for interconnect with the DTS-6 processor.

- **Two projector (change-over) theaters**
  Be sure to place each reader head at the same place on the projectors. **The offset value must be the same for the movie to play in sync at both projectors.**

3.2 DTS-6 Processor Installation

DTS has configured your DTS-6 processor to interface to the cinema processor as indicated on the packing list. A DTS-6 labeled "generic" will be set for stereo surrounds, subwoofer-disable turned off, and platter (single projector) operation. If the DTS-6 processor you are about to install did **not** come from the factory then you will need to check some internal switches.

** Be sure the rear panel AC voltage switch is properly set for your mains AC supply rating **

Remove the top cover. See Figure 1.

Programming the Surrounds

The transformer board, D426, that is mounted to the left of the unit must be set for either split surround *or* mono surround operation. Current boards have toggle dip switches near the top of the unit. Toggling all these switches up is for **split surround** and toggling them all down is for **mono surround** operation. If your transformer board does **not** have dip switches then there are three shunts that have to be set. All three locations are clearly marked split or mono. Place the shunt over the middle pin and split pin for split surround operation, or the middle pin and mono pin for mono surround operation. See D426 transformer card diagram for details.

Programming the Subwoofer Output at the Stereo Cable

Locate the playback card D420 REV E (the card with the 15-pin D-connector on rear panel). To ensure the subwoofer signal always appears at the stereo cable:

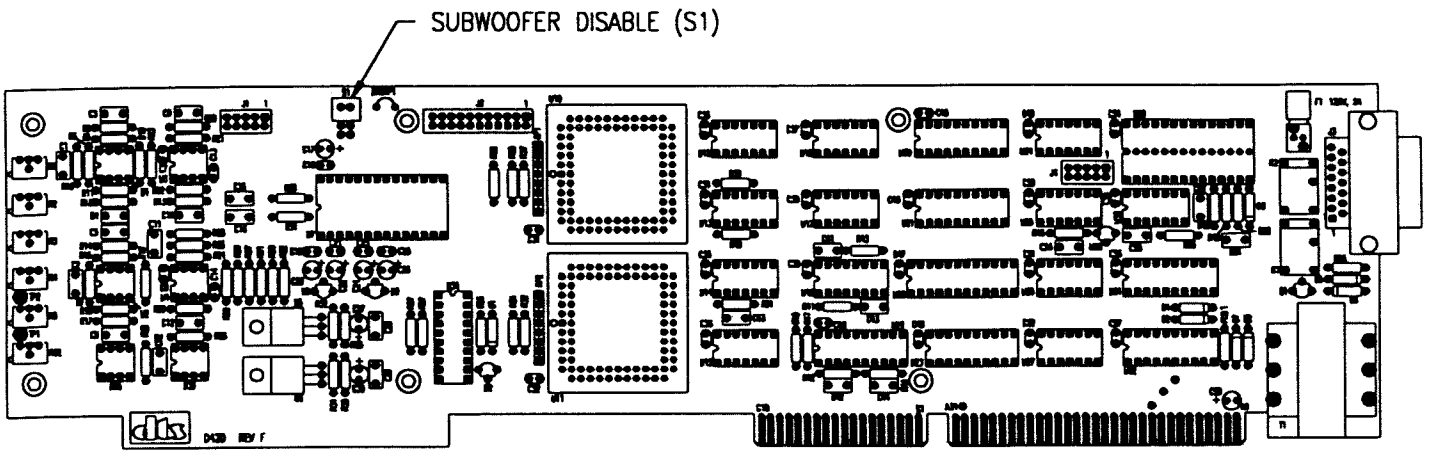
- DTS-6 units with serial number 2000 or over, set both dip switches at the top of the board (S1) to the following: S1-#1 OFF (open) towards the board and S1-#2 ON (closed) away from the board. Setting S1-#1 ON will cause the subwoofer signal to not appear at the stereo cable. S1-#2 is no longer used.

- DTS-6 units with serial number 1000 or under, be sure no shunt appears across J6. Putting a jumper across J6 will cause the subwoofer signal to not appear at the stereo cable.

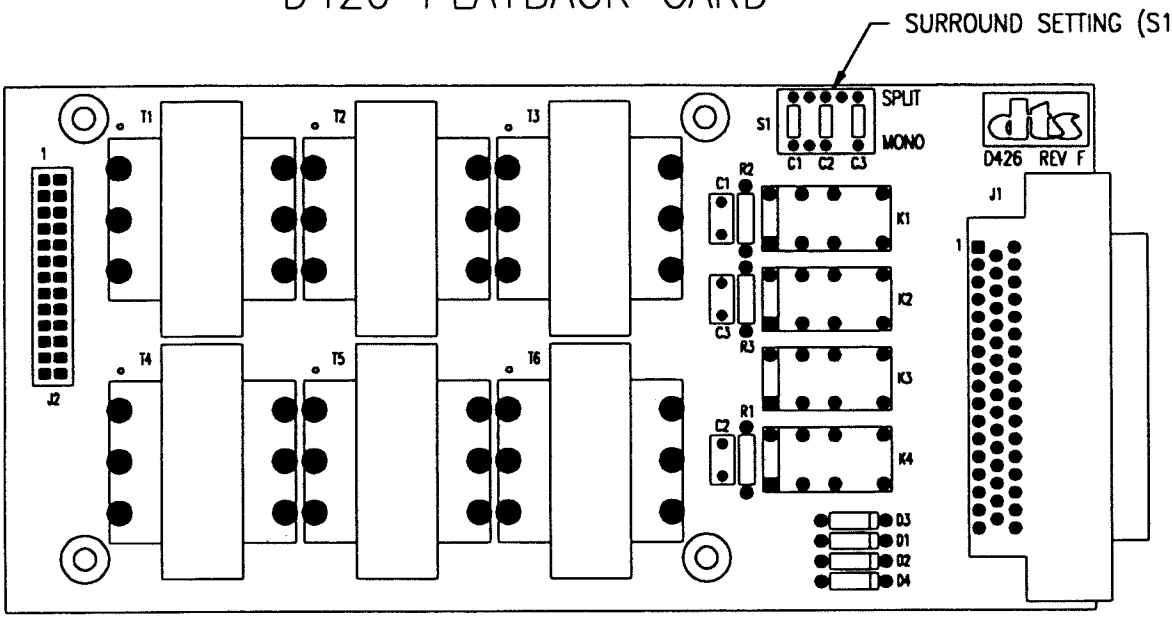
Programming for Change-over Operation

Locate the timecode board D422 (the card with the 9-pin D-connector on the rear panel and LED's on the front). Near top center of the board there is a 7-position header. A shunt is required vertically over position "**0**" (farthest right position) if you are installing for change-over operation. Remove this shunt for platter house operation.

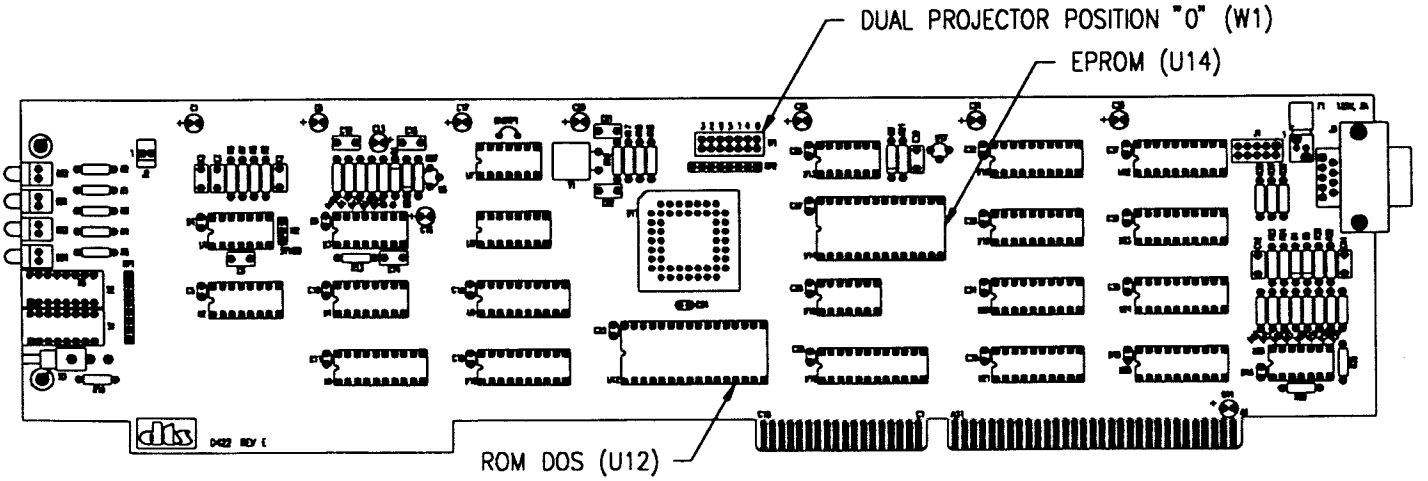
Reinstall top cover.



D420 PLAYBACK CARD



D426 TRANSFORMER CARD



D422 TIMECODE CARD

FIGURE 1

The DTS-6 Processor

- The DTS-6 processor is designed to be integrated into your existing theater sound system without affecting normal theater operation. All interconnects are stand-alone. No cuts or jumpers are necessary on most systems.

- DTS-6 processor requires 5 1/4" tall by 17" deep of 19" wide rack space for proper mounting. Select a space in the sound rack not more than three feet from the existing *cinema processor to be interconnected. Bolt the DTS processor into the rack. Be sure to observe ventilation requirements specified in the beginning of this book.

- Check that the DTS-6 front panel power switch is in the **OFF** position.

- Connect the power cable to the DTS-6 processor. (NOTE: The DTS-6 processor is a computer based system and as such can be susceptible to power line surges. A quality surge/spike suppresser made for computers is recommended.

- Connect the 9-pin cable (P/N D435) from the timecode reader head to the back of the DTS-6 processor.

- Refer to wiring drawings in Section VIII that relates to your specific installation. Connect the DTS-6 50-pin cable (P/N D434) into your cinema sound system / processor.

- The 15-pin "stereo" cable is used for some installations. It is used to route the DTS-6 subwoofer output to the subwoofer amplifier. It is used with the Dolby CP200, CP55, and some Ultra*Stereo processors. Other cinema processors use the other DTS subwoofer output at the 50-pin connector (JM21). See Section VIII "Wiring Diagrams" and find the diagram that pertains to your installation.

- You may connect the DTS-6 into other digital playback sound systems. You may obtain the necessary adapter cables from DTS.
  -- for a CP200 with SR-D™, use the D462 cable
  -- for a CP65 with SR-D™, use the D462-01 cable
  -- for a CP500, use the D561 cable

  See Section VIII "Wiring Diagrams" for installation details.

REMEMBER

** Be sure the rear panel AC voltage switch is properly set for your main AC supply rating **

IV. CHECKOUT AND ADJUSTMENT PROCEDURE

A SPL meter and the DTS technician's kit (not included with the DTS system) are required to complete the checkout and adjustment procedure. The technician's kit consists of:

- a DTS 6-track Rev. D (or C) Setup disc (to adjust DTS-6 levels)
- a DTS 6-track Demonstration D-1 disc (to test the DTS system)
- the DTS Demo film (used with the demonstration disc)
- a DTS Empirical test disc (to test the theater's sound system)
- a DTS trimpot tweeker
- a DTS T-shirt

4.1 Setting SPL (Sound Pressure Level)

The theater sound processor's B-chain should be checked and adjusted before the DTS system is installed. Any changes to the B-chain will effect the output levels on the DTS system.

Introduction

The output levels are factory preset at 250mV rms. This nominal level will insure that speakers will not be overdriven during the setup procedure. If the DTS-6 processor you are about to install has come from another theater installation, be sure to turn down the level trimpots (CCW) before proceeding to guard against accidental overdriving of speakers.

Subwoofer

The DTS subwoofer output level ranges from 20Hz to 80Hz, up to 27dB above reference (112dB). **You must observe your subwoofer's specifications to avoid damage to the speaker.** If a subwoofer is driven below its cutoff frequency, its driver(s) may become unloaded. When unloaded, the voice coil can travel outside of the magnet's gap, thus overheating or causing mechanical damage to the speaker. A high pass filter should be installed on those speakers with high cutoff frequencies. Contact your speaker manufacturer for more information.

Setting DTS-6 Levels

Turn power on and insert the SETUP DISC (mentioned above). After a delay of about 40 seconds, the SYSTEM light will blink, then the DIGITAL light and the CD-ROM light will illuminate and the cinema processor will change to digital format. Tone should be heard in the theater.

Open the screen curtains. Go into the theater to make SPL readings in the rear third and just off-center of the room. **Do not simply point the sound pressure level meter out of the port hole window.** This will not give you accurate SPL readings. See the next page for SPL level settings.

(continued)

The DTS 6-CHANNEL SETUP DISC contains the following signals:

	TIME	
• 1 kHz at reference level. All five channels	1:30	
• 30 Hz tone at reference level. Sub bass channel.	0:30	
		SPL
Set the DTS-6 for these levels (see Figure 2):		
• left channel PINK noise	1:00	85dB
• left surround PINK noise high passed at 80Hz	1:00	82dB
• center channel PINK noise	1:00	85dB
• right surround PINK noise high passed at 80Hz	1:00	82dB
• right channel PINK noise	1:00	85dB
• sub bass channel PINK noise low passed w\ DTS filter	1:00	85dB

(NOTE: SPL readings should be measured unweighted, or C weighted - slow)

Remove the blue cover by unscrewing the two black Philips screws from the front panel. With **ALL** power amplifiers turned on, master fader set to reference position "7" and speakers unmuted, adjust the appropriate "6-TRACK" trimpots on the DTS-6 processor (see Fig 3) to achieve the specified SPL noted above.

MONO SURROUND

For those theaters with mono surround only, wait for either the left *-or-* the right surround PINK noise when adjusting the MONO SURR trimpot for 82dB SPL. Be sure the surround switches inside the DTS-6 player are set for MONO. See Section 3.2.

NOTE: The STEREO adjustment trim pots are no longer used.

- **Index Switch**

On some models, there is a small black momentary push button switch located below the TIMECODE HEAD OFFSET switches (Figure 3). It is commonly called the "index switch". This button can be used to increment to the next track being played. This feature works on the DTS 6-TRACK SET UP discs Rev. D and Rev. C *only*. On shows of serial number 1009 and higher, the momentary button also bypasses the DTS-6 processor to allow checking of the optical bypass function.

If your DTS-6 does not have an index switch and you'd like to install one, call DTS and purchase the *D475 kit*. This kit has all you need to install the index switch to your DTS-6.

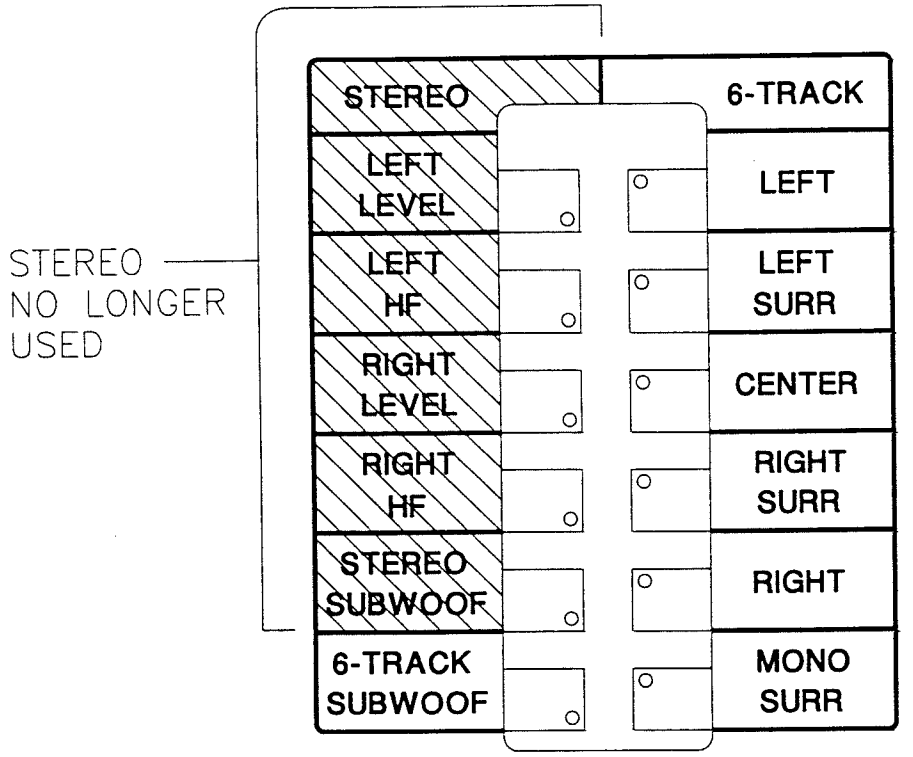

STEREO
NO LONGER
USED
STEREO
6-TRACK
LEFT LEVEL
LEFT
LEFT HF
LEFT SURR
RIGHT LEVEL
CENTER
RIGHT HF
RIGHT SURR
STEREO SUBWOOF
RIGHT
6-TRACK SUBWOOF
MONO SURR

FIG 2

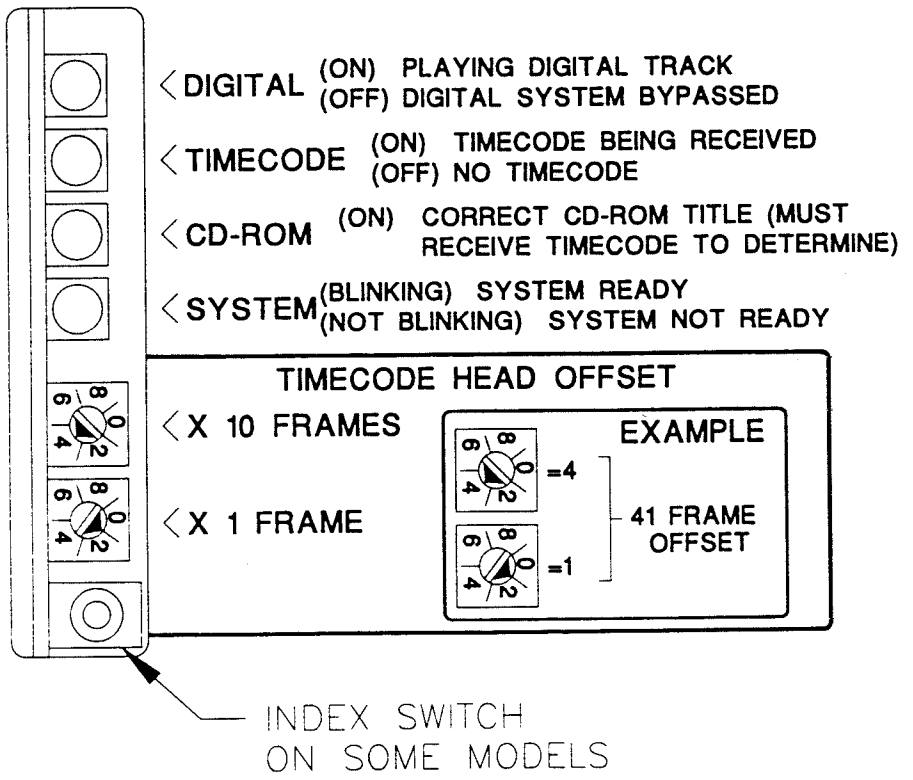

DIGITAL (ON) PLAYING DIGITAL TRACK
(OFF) DIGITAL SYSTEM BYPASSED
TIMECODE (ON) TIMECODE BEING RECEIVED
(OFF) NO TIMECODE
CD-ROM (ON) CORRECT CD-ROM TITLE (MUST RECEIVE TIMECODE TO DETERMINE)
SYSTEM (BLINKING) SYSTEM READY
(NOT BLINKING) SYSTEM NOT READY
TIMECODE HEAD OFFSET
X 10 FRAMES
X 1 FRAME
EXAMPLE
=4
=1
41 FRAME OFFSET
INDEX SWITCH
ON SOME MODELS

FIG 3

4.2 Timecode Reader Adjustment. See Figure 4.

- Eject the SETUP DISC and insert the DTS 6-TRACK DEMONSTRATION D-1 disc. Thread the DEMO REEL through the projector **and** the DTS reader head.

- The DEMO REEL has a specially printed leader for setting the timecode head offset. Start with the offset measurement start mark, **"00",** at the timecode head's red LED (inside the lens). Read the number at the projector's optical sound head and set the DTS processor TIMECODE HEAD OFFSET switches to this offset number. The offset number must be between "15" and "70". If the offset is not within these parameters, relocate the reader head(s) on the projector(s) until a valid number is achieved.

- If you do **not** have a DEMO REEL, you can still set the offset switches by counting the number of picture frames from the DTS reader head red LED (lens) to the projector's picture ("film") aperture. Multiply the result by 1.25. Set the TIMECODE HEAD OFFSET switches to this number. EXAMPLE: 27 frames X 1.25 = 33.75 offset. Round this number off to the next whole number. So, "34" would be your offset number.

REMEMBER: If you use the counting frame method, frames are counted from the timecode reader lens to the *picture aperture*. If you are using the numbered film strip method, thread projector with the "00" at the timecode reader lens and read the number at the *optical sound head* (solar cell).

IMPORTANT: Be sure to make the same size film loops inside the projector when measuring the offset as you do when running a movie. Failure to do so will result in improper sync when the movie runs in DTS.

- **Run the DEMO REEL**. The green light on the Timecode Reader Head should light when timecode is read. The light should be bright and steady.

- **Listen test**. Go into the theater. Watch and listen to the demo film. Verify the sound sync to picture is correct. Check the front and back of the theater. If any delay is seen adjust the TIMECODE HEAD OFFSET switches as necessary to obtain proper sync.
  - Listen through the entire reel to be sure that no distortion or breakup occurs. If you are a change-over theater, run the demo film a second time through the other projector.

- **Check the fail-safe operation.**
  - While the film is running in digital, slip a business card into the timecode reader head, (between the film and the lens as to block out the timecode from being read) for at least six seconds, while the show is running. The cinema processor should switch back to the optical format.
  - There should **not** be a dramatic level difference between optical and digital sound (in a quiet scene). If there is, recheck the "B" chain and the DTS-6 level settings.
  - Remove the business card and verify the cinema processor switches back to digital format within six seconds.

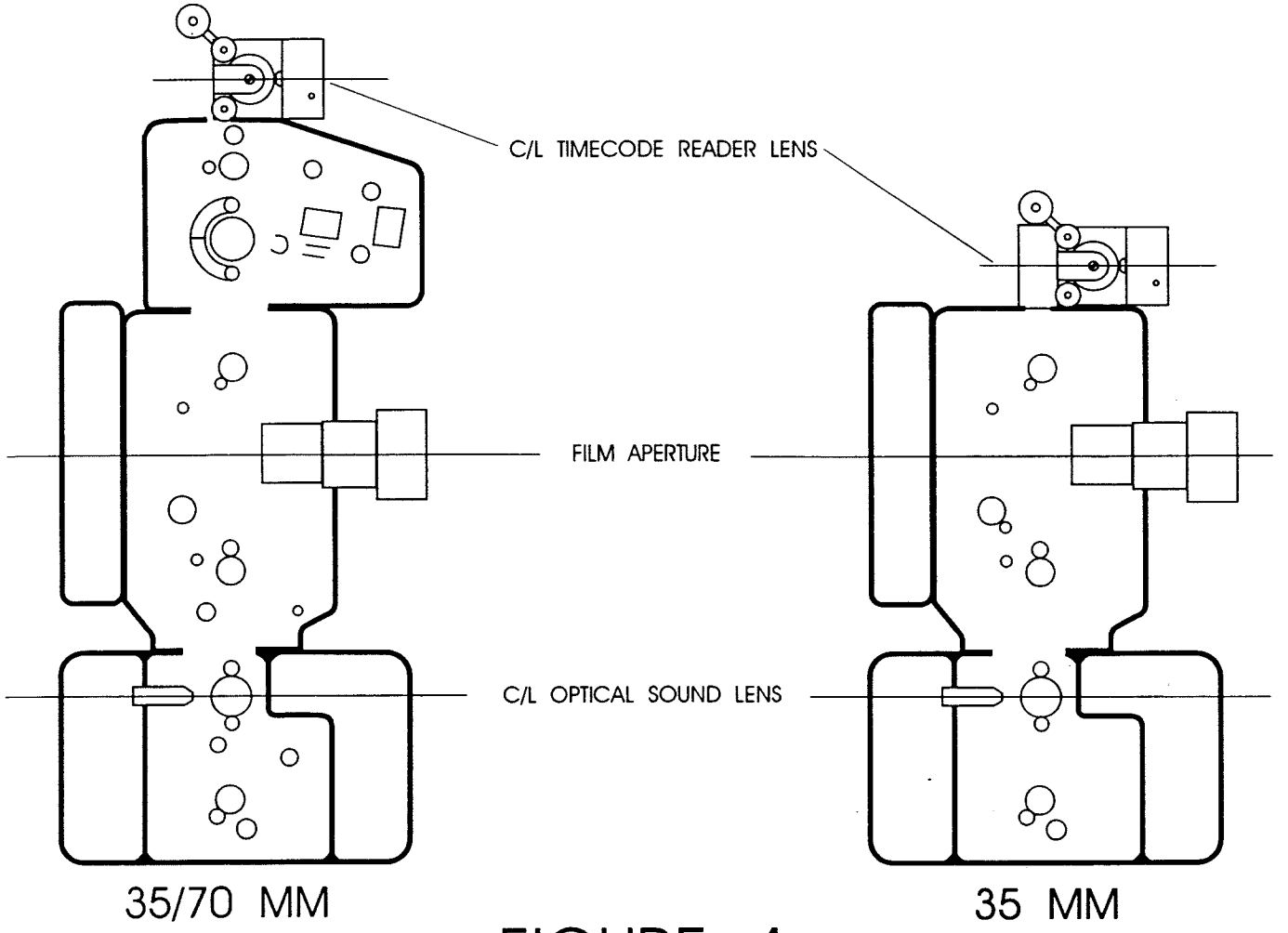


FIGURE 4

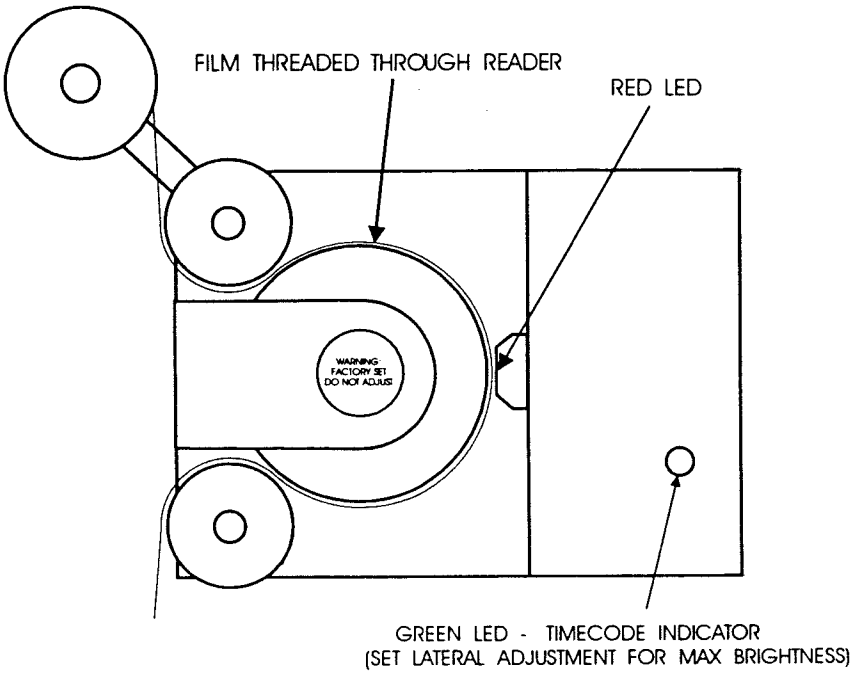


FIGURE 5

V OPERATION

- **Threading Timecode Reader**: Refer to Figure 5. Make the same size loops through the projector as you did when checking the offset number.

- **Verifying Movie Discs**
  Make sure your discs match the movie (e.g. "Jurassic Park" film with "Jurassic Park" movie discs). If the film and discs don't match the digital sound track will not play.

  For movies running over 90 minutes, you should receive **two** movie discs: one labeled **6-track A** *and* another labeled **6-track B.** The two discs can be inserted into the drives in any order.

  For movies running at or under 90 minutes, you should receive **one** movie disc. These movie discs will be labeled "one disc only". You may place the single disc into either drive. **Do not put any other disc in the remaining drive.**

  A disc labeled STEREO will not play properly in your system.

- **Loading Discs into the DTS-6**
  Turn power on. Press the eject button of both drives to remove any discs that may be left in the drives. Any discs present will eject after 3 seconds. Remove the old discs from the drives. Open drive door, and slowly push the new CD-ROM (in caddie) into drive. When about 1/2 inch of caddie is left sticking out of the drive, the drive will automatically pull in the disc. Do not eject any disc from the DTS-6 while playing in digital as it will cause the unit to reset.

  IMPORTANT: Whenever discs are changed from one movie to another, eject the old discs, insert the new discs, wait for discs to seat, turn power off, wait 2 seconds and then turn power on.

- **Before The Show**
  Remember to add the DTS trailer (logo) film to the head of the DTS encoded movie. Cut the trailer at about six frames after fade-out (should still have timecode) and splice directly to the first frame picture (of the movie) with timecode.

- **Fader Setting**
  Most faders should be set to "7". This may be readjusted for best play in your theater. NOTE: In some theaters, the subwoofer will not change with the fader.

- **The DTS "Stand Alone Trailer" Disc**

  Do NOT insert the "Stand Alone Trailer Disc" into the DTS-6 with any movie disc. This will cause the DTS-6 to malfunction. This disc is meant to be used when the DTS and THX trailers are attached to a non-DTS feature. All current DTS movie discs contain the DTS and THX trailers. To verify that these trailers are on your movie discs, look to the right of the movie title. If it says "DTS Stand Alone Trailer" and "THX Grand Trailer," then the trailers are on the movie discs.

  If you use the Stand Alone Trailer disc with a film not in DTS, add the trailer and insert the disc into the DTS-6. Use of this stand-alone disc is for non-DTS films only.

- **Starting Show**

  Less than a minute after power is turned on and the DTS movie discs are loaded, the SYSTEM light will flash. This indicates the DTS-6 processor is ready for show start. If the SYSTEM light does not flash, cycle the power on the DTS-6: turn unit off, wait 2 seconds, turn unit on. If the light does not flash after 40 seconds, turn off the DTS-6 unit, and contact DTS technical support. Call 800-959-4109 or (818) 706-3525.

  When DTS time coded film reaches the timecode reader head, the green light on the timecode reader head and the TIMECODE light on the DTS-6 processor will illuminate. A few seconds later, the DIGITAL light on the DTS-6 processor will illuminate and the DTS digital sound track will start playing.

  DTS recommends the show be pre-run. Check that the green timecode reader LED is bright and steady, and the system performs properly. Check all reels for good time code, if time permits. Occasional blink of the TIMECODE LED is normal. Go into the theater and listen for good sound quality.

  On current reader heads, the lateral adjustment screw has been covered. **Do not remove the sticker, this is factory set and there is no need of adjustment.** On older reader heads that do not have a sticker, you may adjust the lateral screw to achieve maximum brightness of the green LED.

**** Never adjust the lens on the reader head ****

- **Change-over**

  For those theaters that have two projectors, the DTS-6 processor will automatically change over when first frame of picture timecode is read on the upcoming projector. DTS digital sound changes independent of the projector's dowser position. Adjustment of the roll down on the upcoming projector may be necessary to keep the change-over "seamless". See "Guide For a Seamless Change-Over" towards the end of this manual.

- **Film Breaks and Edits**

  The DTS-6 processor will automatically track any length edit. A 30 millisecond cross fade makes the edit transparent. Make sure the automation has switched to digital format after show re-start.

- **Maintenance**

  The timecode reader lens should be blown off with compressed air once a day to remove any dust build up. The CD-ROM drives do not have to be cleaned, but keep their doors shut as to keep dust out.

- **After The Show**

  When returning a DTS encoded movie back to the distributor, put the movie discs back into the yellow reel. Put the loaded yellow reel in the can with the film. Remember to remove the DTS trailer (logo) film so you may use it with other DTS encoded films.

- **Moving the DTS System**

  Many theaters are moving their DTS systems from house to house following DTS movies. If you are a theater that does this, there are a few steps that must be taken to ensure proper digital playback. Give the person moving the system *at least* one hour's time to complete the task.

  * The DTS system must be configured for the type surrounds (mono/stereo) present in your theater. Since the player's top cover must be removed to change the settings, check this before putting it into the rack. To check or change the DTS-6 surround programming, see Section 3.2.

  * The DTS-6 offset switches may have to be reset. Many people have purchased extra brackets and are marking them with the offset number for that projector. Having a bracket on every projector saves time when installing/moving the reader head. Remember, the unit's offset switches must be correct for the digital sound track to play in sync with the picture. See Section 4.2. Change-over houses must attach the reader heads at the same place on both projectors so their offset numbers match.

  * The DTS-6 level pots must be recalibrated for its new location. Using a sound pressure level meter and a DTS 6-track setup disc, measure the pink noise in the theater. See Section 4.1. **Do not simply point the meter out of the port-hole window**. This will not give you proper readings. SPL readings must be taken in an empty theater with the screen's curtain open and the cinema processor's fader to "7".

  * Whenever anything is changed on the DTS system, be sure to go into the theater at the start of the first screening. Check that the sync and levels are correct. Watch mouth movements (lip sync) on screen to verify proper offset.

** WARNING WARNING **

Failure to correctly recalibrate the "moved" DTS-6 unit will result in improper playback levels.

• How DTS Effects other Cinema Processors

Dolby CP200 Operation

The automation should set the CP200 processor's optical default to either "04" A-type or "05" SR . When the DTS switches to digital, the normal signal paths of the CP200 are interrupted. The DTS-6 signals will be inserted just prior to the CAT64 EQ cards, in effect taking over the CP200. When the DTS-6 switches out of digital, the CP200 is released to function as normal and default to the format previously selected.

Unless modified, the CP200 does not have a subwoofer input. DTS normally inserts its subwoofer signal after the CP200. As a result, the subwoofer level will not be effected by the fader or mute.

Dolby CP55, CP65, *CP500, and UltraStereo JS Operation

The DTS-6 will automatically pulse the audio processor to the digital format when it starts to play a digital sound track. Whenever the DTS-6 drops out of digital, a pulse will be sent to switch the audio processor back to the optical format. On units equipped with a DTS D490, D496, or D497 logic board, the pulse to switch back to optical will be blocked if the audio processor is not in the digital format. Example, if the automation switches to non-sync, the DTS-6 will not switch back to optical. The DTS D490, D496, and D497 logic boards also have a jumper which is used to select between A-type or SR as the fall-back format.

The DTS-6 will only pulse the audio processor into the digital format when it first switches to digital. After the show has started (or the show is re-started after a film break) make sure the automation doesn't switch the theater processor back out of the digital format. Set the automation/cues so no audio format change takes place after the DTS has switched into digital. Switching to nonsync at the end of the show is OK.

*Dolby CP500

- Must have the Cat. 685 (analog input card) installed.
- JM21 on the DTS-6 50-pin cable uses the DTS D561 (interface cable) to connect to the "6 CH. INPUT" on the CP500. Format 11 is normally used to access this connector.
- The DTS D563 (logic card) interfaces DTS BS22 (on 50-pin cable) to the "AUTOMATION" connector on the CP500. Logic for Format 11 is already programmed in on stock units from Dolby.

Dolby DA10 / 20 SR-D™ System

The DTS-6 can be connected to the Dolby SR-D™ system without effecting its performance. The DA20 connects to the DTS-6 JM11 connector through a special adapter, *D462. When the DTS-6 is off, the DA20 output is routed through the DTS-6 from JM11 to JM21. When DTS is on and playing in digital, the DA10 / 20 connection (to the cinema processor) is broken inside the DTS-6 (via relays) and the DTS digital sound track comes out of JM21. SR-D should be powered down when playing DTS.

* Use the DTS D462-00 adapter with the Dolby CP200
* Use the DTS D462-01 adapter with the Dolby CP65

Sony SDDS™

The DTS system does not effect nor connects to the SDDS™ system.

VII TROUBLESHOOTING

INSIDE THE DTS-6. See Figure 6

- **D-426 TRANSFORMER BOARD**

See drawing D426. Located on this board is the 50-pin output connection, transformers, relays, and split/mono surround switches. Output of all channels leave from this card. Subwoofer is also carried on the "stereo" cable.

The newest boards have three dip switches, all grouped together and located towards the top and rear of the board. These dip switches are either all up for stereo or all down for mono surrounds.

Older boards had three shunts to change to split or mono surround. All three shunts P1, P2, and P3 are clearly marked split or mono. The shunts are not grouped together, P1 and P2 shunts are located near the top rear of the board. The P3 shunt is located at the front of the board just next to the first transformer towards the top. It is not necessary to remove the board to change shunt positions, but using needle nose pliers will make it easier to grab them securely.

- **D-421 MEZZANINE BOARD**

The D-420 and D-421 come as a set. The D-420 board is the larger of the two and as a set, both boards provide audio for all channels. Located on this board are the stereo pots, S1 dip switch, fuse, and stereo output connection. The stereo pots on the front of the card are no longer used, with the exception of the very bottom one marked 6-track subwoof.

There is a dip switch marked S1, which is located on top of the board about 3" back from the front. This switch controls both the subwoof-out relay and (stereo) DTS-in relay. Since the stereo format is no longer used, the proper setting of this switch is #1 off and #2 on. If the dip switch is not marked, **on** is away from the circuit board and **off** is towards the circuit board. The fuse is for the 5V output on the stereo cable.

- **D-420 PLAYBACK BOARD**

See drawing D420. The D-421 and D-420 come as a set. The D-421 is the smaller of the two and contains the logic control. Located on this board are the 6-track channel SPL adjustment pots.

- **D-422 TIMECODE BOARD**

See drawing D422. This board has the timecode head offset switches, the four system status LED lights, a 7-position programming header, a 15-pin time-code cable output connector, an EPROM chip, a ROM-DOS chip, an indexing switch, and 5V fuse.

- The OFFSET switches are adjusted according to the timecode reader location. This setting is different depending on type of projector or location of the timecode reader. Determining the offset setting is done with either frames count method or using the DTS leader from the Demo Film.

- The status LED lights: SYSTEM light flashes when the DTS-6 is ready to play, TIMECODE lights if good timecode is being read, DIGITAL lights when the DTS-6 is playing in digital, and CD-ROM lights if the drives are recognized and the discs are being read.

- The 7-position header has jumper settings for different functions, most common is the setting for single projector operation. For this, the jumper is in a holder position which is across top part of the header, set horizontally between the **"4"** and **"0"**. For dual projector operation the jumper is set vertically on the **"0"** position.

- The 15-pin connector is there for the "stereo" cable to plug into. The stereo cable is currently being used for subwoofer output only.

- The EPROM stores part of the operating software information while the rest is on the movie disc(s).

- The ROM-DOS is located near the center bottom of the board When updating the CD-ROM drives from 2X to 4X, the ROM-DOS chip has to be replaced to Rev. C.

- The index switch, located below the offset switches, can be used to advance though the individual channel pink noise tests on the DTS "REV C" Setup Disc. It can also be used to force the DTS-6 (when playing in digital) to optical for as long as the button is held down.

- The 5V fuse protects the power going to the timecode reader head.

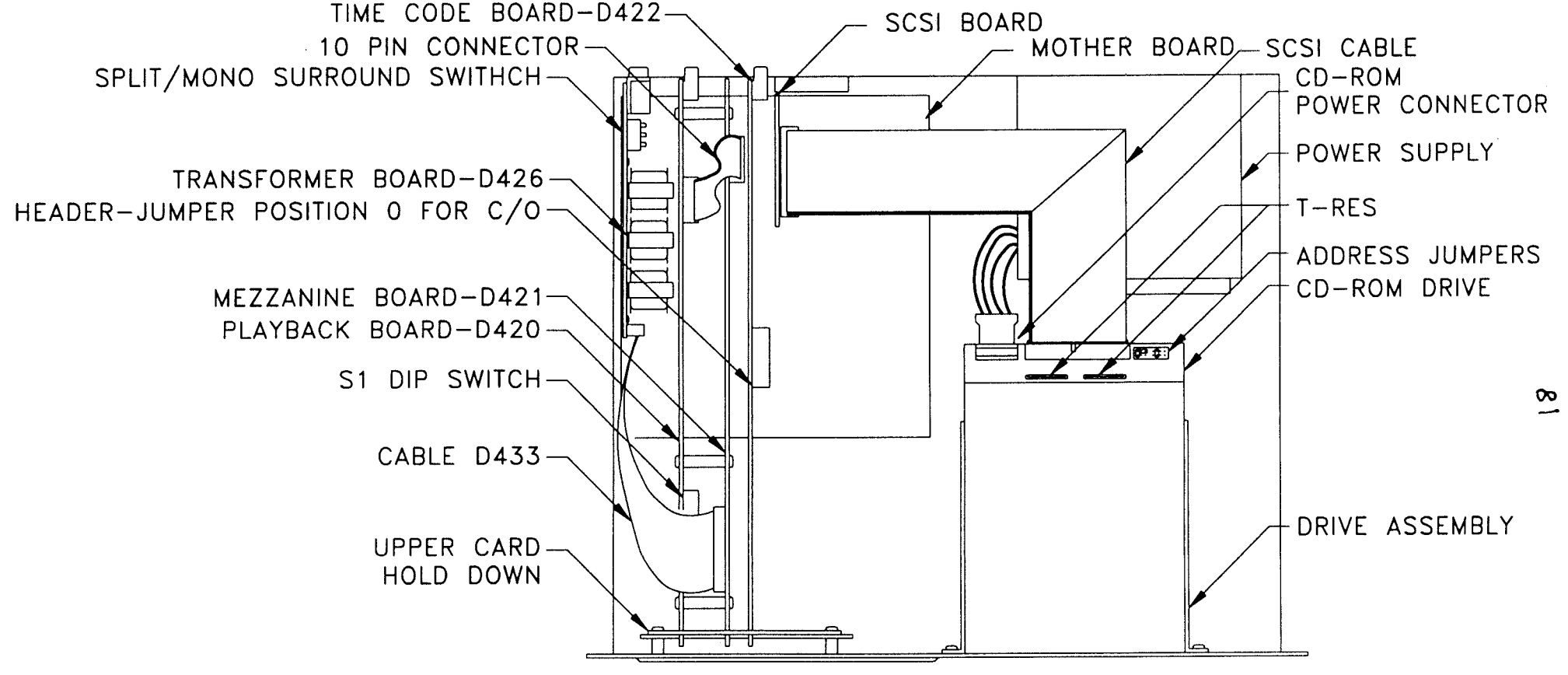
- **POWER SUPPLY** - Supplies power to the DTS-6 unit. **Caution, be sure to check that the proper AC voltage is selected on the supply for your installation.**

- **SCSI BOARD** - Controls the CD-ROM drives.

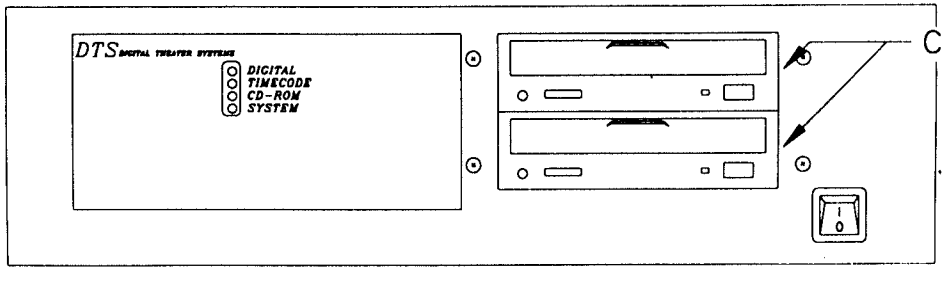
- **CD-ROM DRIVES** - There are two CD-ROM drives in the DTS-6. Both are the same with exception of the way top and bottom drive program jumpers are installed and if terminating resistors are added. For proper set up of programming jumpers refer to the CD-ROM drive diagram (see **Other Helpful Diagrams** in Section VIII, the "Quad CD-ROM Drive" notice). Earlier CD-ROM drives were dual speed (2X). The latest drives are quad speed (4X). If drives are updated from dual to quad it will be necessary to change the ROM-DOS chip which is located towards the bottom center of the D422 board. Contact DTS for more information.

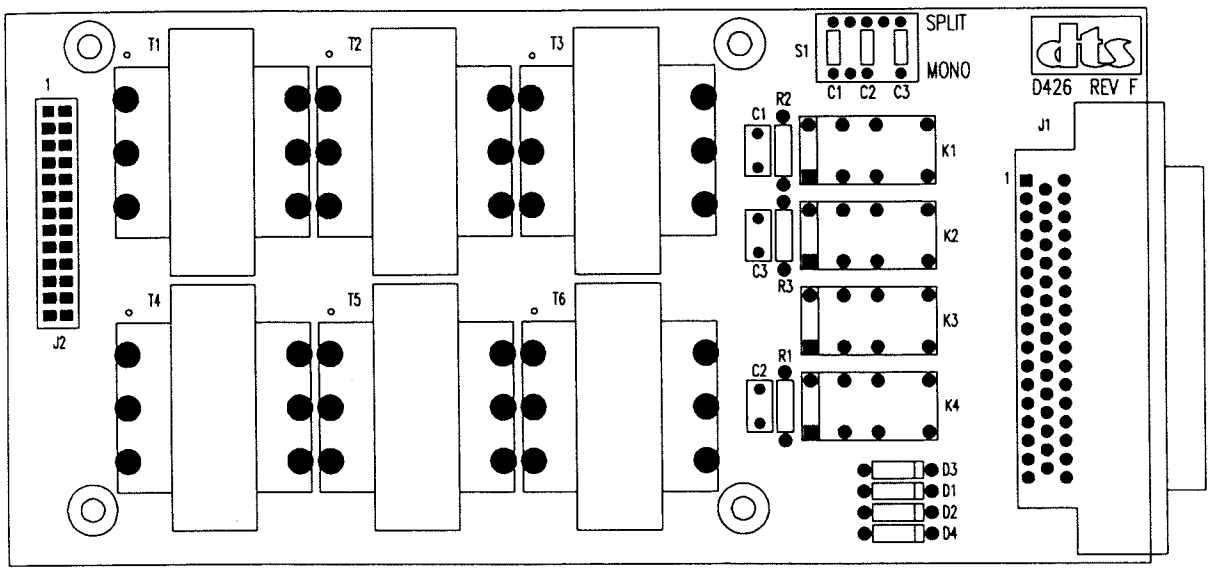
The lights on the two CD-ROM drives will flash when the drives are recognized during the test cycle (after power-up) or when the movie discs are being read.

FIG. 6 TOP VIEW

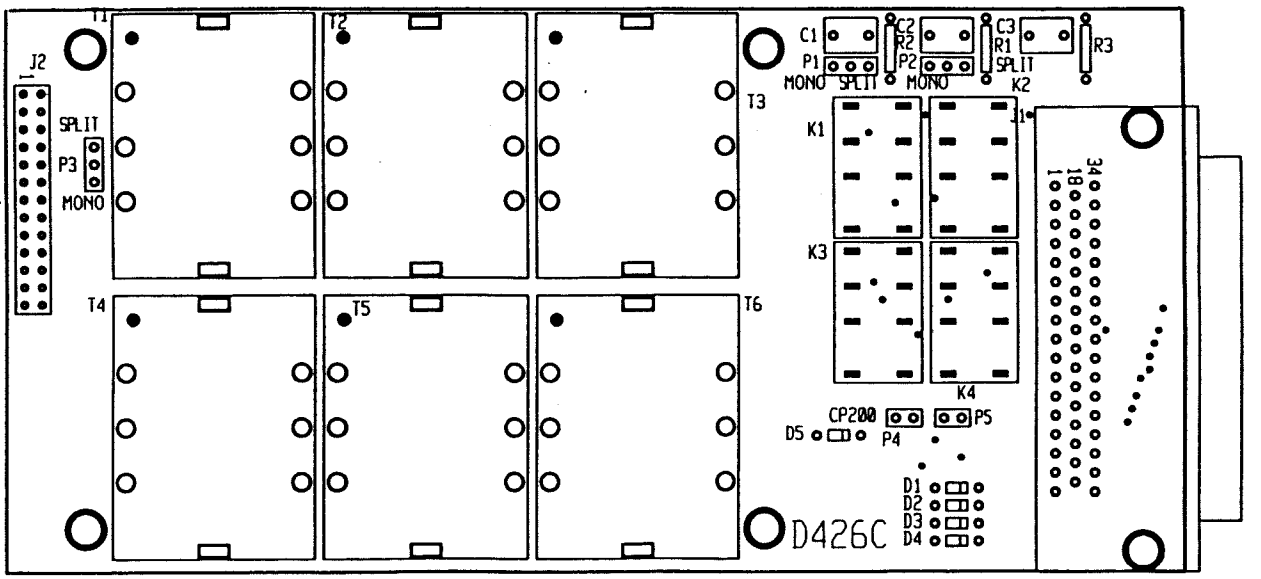


FRONT VIEW





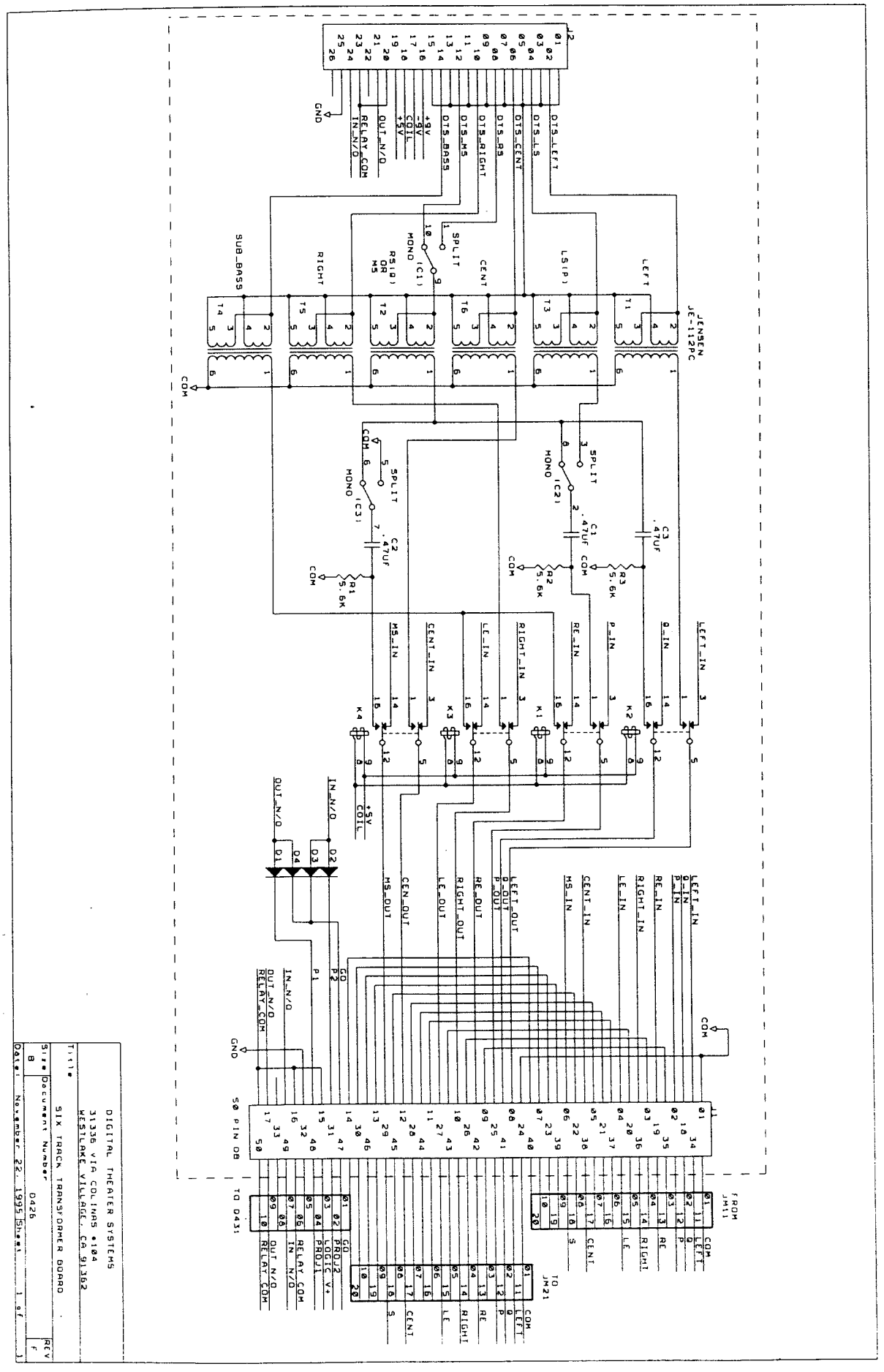
D426 TRANSFORMER CARD
CURRENT VERSION



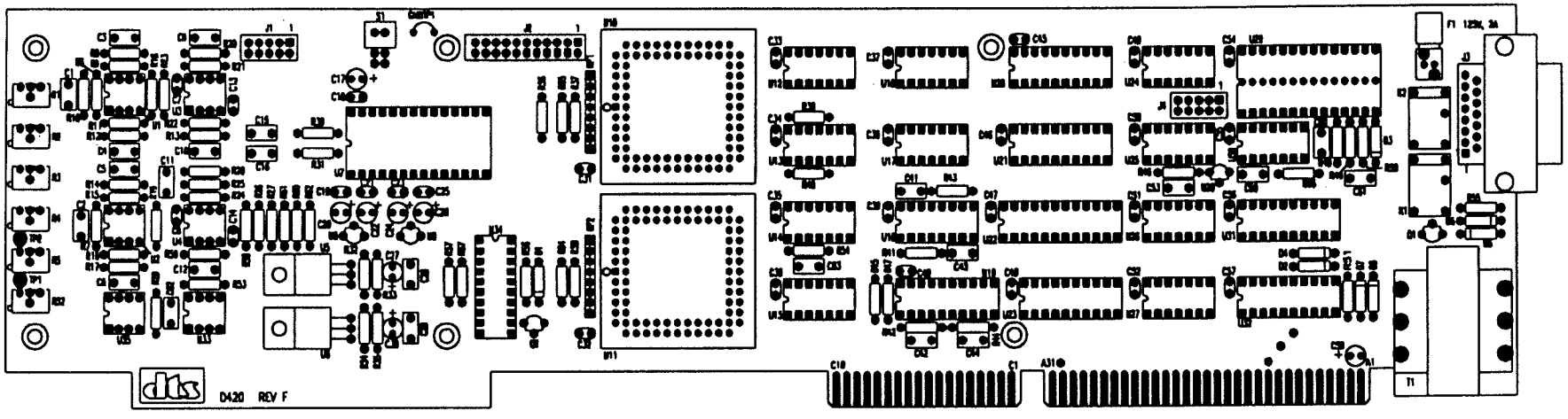
D426 JUMPER SETTINGS

JUMPER	MONO SURROUND	SPLIT SURROUND
P1	MONO	SPLIT
P2	MONO	SPLIT
P3	MONO	SPLIT
P4	CLOSED	CLOSED
P5	CLOSED	CLOSED

First Generation Transformer Board

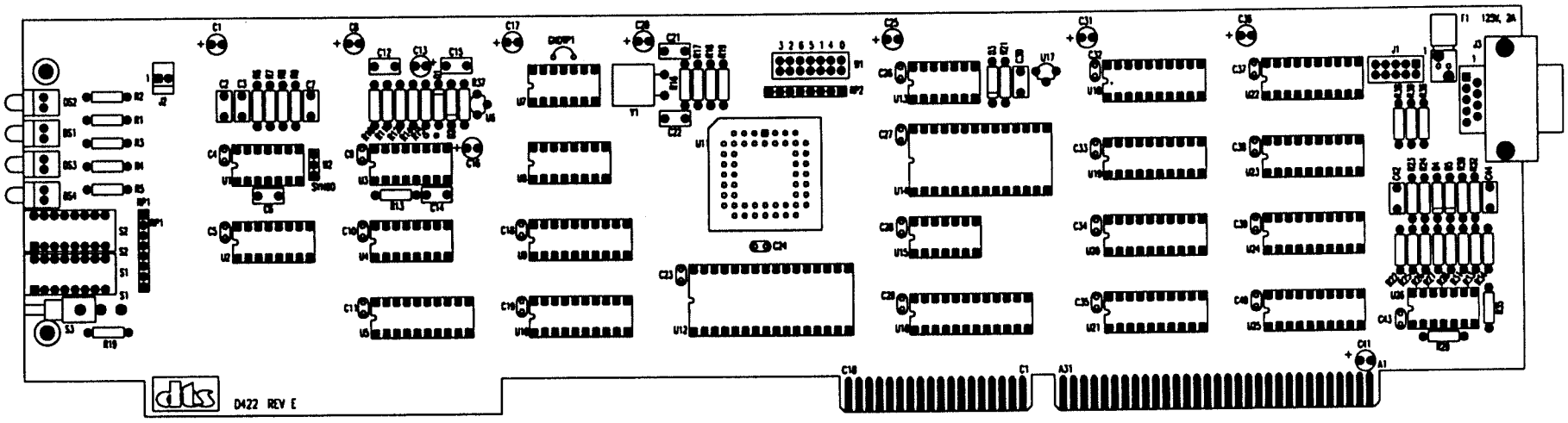

DIGITAL THEATER SYSTEMS
31336 VIA COLINAS #104
WESTLAKE VILLAGE, CA 91362
Title
SIX TRACK TRANSFORMER BOARD
Size B
Document Number 0426
REV F
Date: November 22, 1995 Sheet 1 of 1
JENSEN JE-112PC
SUB_BASS
RIGHT
RS(R) OR MS
CENT
LS(P)
LEFT
MONO (C1)
SPLIT
MONO (C2)
MONO (C3)
C1 .47uf
C2 .47uf
C3 .47uf
R1 5.6K
R2 5.6K
R3 5.6K
COM
GND
DTS_BASS
DTS_MS
DTS_RIGHT
DTS_RS
DTS_CENT
DTS_LS
DTS_LEFT
+9V
-9V
COIL
+5V
RELAY_COM
IN_N/O
OUT_N/O
LEFT_IN
P_IN
RE_IN
RIGHT_IN
LE_IN
CENT_IN
MS_IN
K1
K2
K3
K4
D1
D2
D3
D4
LEFT_OUT
P_OUT
RE_OUT
RIGHT_OUT
LE_OUT
CEN_OUT
MS_OUT
50 PIN DB
TO D431
FROM JM11
TO JM21
PROJ1
PROJ2
LOGIC V+
GO

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	E	REV TO COMPLY WITH ARTWORK.	8/30/93	
	F	REV TO COMPLY WITH ARTWORK.	12/3/93	



CONTRACT NO.	DIGITAL THEATER SYSTEMS
APPROVALS / DATE	ASSEMBLY DRAWING – PLAYBACK CARD
DRAWN R.K.BOOTH 4/1/93	
CHECKED	
ISSUED	
SIZE A / FSCM NO. / DWG NO. D420 / REV F	
SCALE NONE / SHEET	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



CONTRACT NO.		DIGITAL THEATER SYSTEMS	
APPROVALS	DATE	ASSEMBLY DRAWING – TIMECODE READER/ PLL CONTROL	
DRAWN R.K.BOOTH	4/1/93		
CHECKED			
ISSUED		SIZE A / FSCM NO. / DWG NO. D422 / REV E	
		SCALE / SHEET	

EXTERNAL CABLE ASSEMBLIES

- **6-Track Cable Assembly - D434**
  The 6-track cable is broken into three parts: JM11, JM21, BS22. The white dot on plugs indicate pin 1.
  - JM11 is used as an input from other sound sources (such as the CP200 pass through) to the DTS-6. This includes other digital sound sources such as Dolby SR-D™.
  - JM21 is used as an output from the DTS-6. When the DTS-6 is playing in digital, only the DTS-6 output appears at JM21. If the DTS-6 is powered off or if it is **not** playing in digital, then any signal fed into JM11 appears at JM21, and if no signal is fed into JM11, then no output will be seen at JM21.
  - BS22 is used to control some logic circuits on cinema processors.

- **Stereo Cable Assembly - D436**
  The stereo cable is currently being used for only subwoofer output to some cinema processors. A relay built into the DTS-6 will pass the analog subwoofer or play the DTS subwoofer.

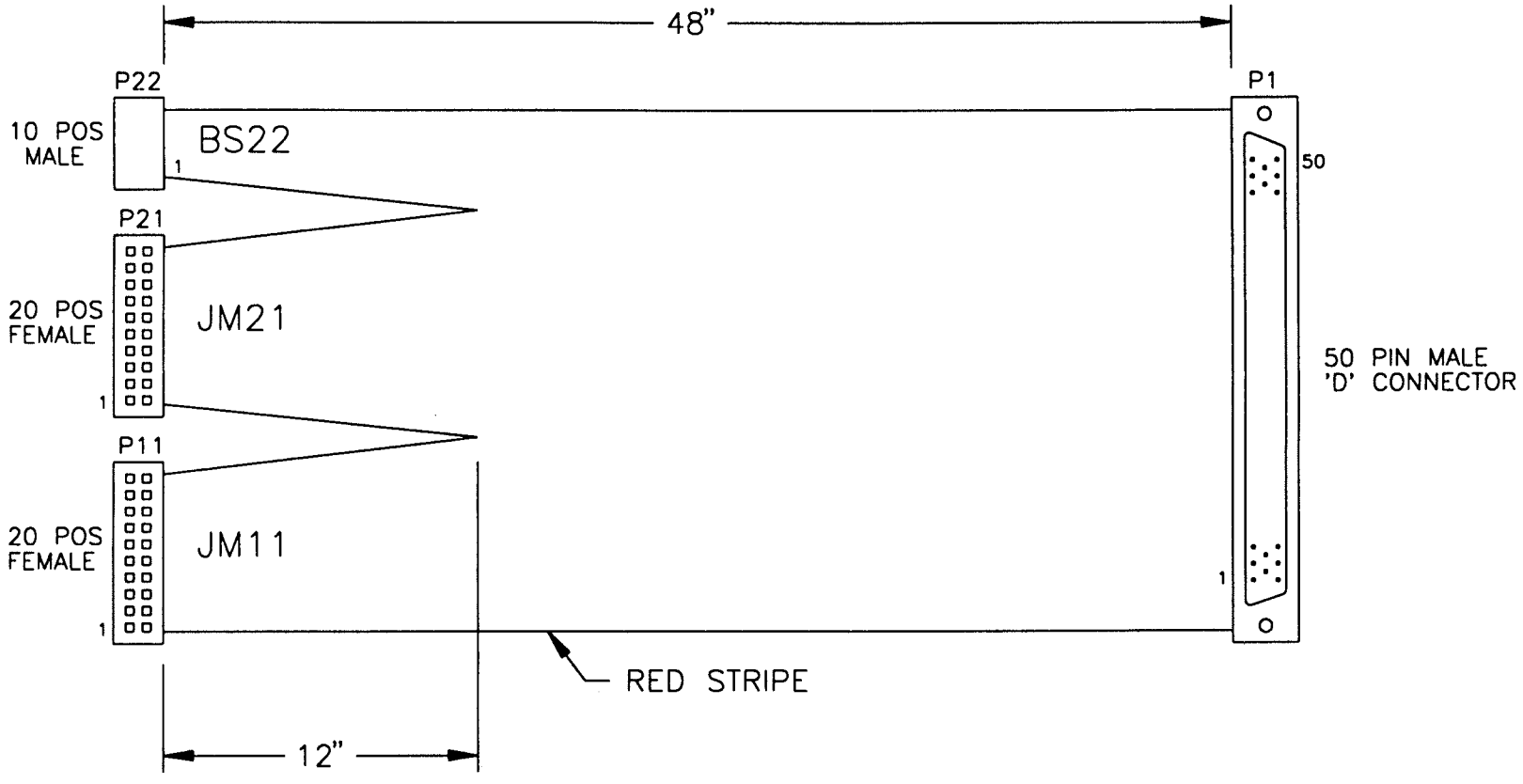
- **Timecode Cable Assembly - D435**
  This cable connects the DTS Timecode Reader Head to the DTS-6 Processor. On single projector (platter) systems, this cable has a single connector at both ends. For dual (change-over) projector systems, this cable has a single connector at one end and two connectors at the other end. See D477 for assembly diagram.

EXTERNAL BREAK-OUT BOARDS

- **Generic Logic Break-out Board** - D431 - Connects to BS22 on D434 if a "special logic" board is not used.

- **Special Logic Break-out Boards**
  These boards are used to block the pulse that selects the optical format when the processor is in nonsync. You may select the default format to SR or A-type. These boards are used with the following cinema processors:
  - D490 is used with the Dolby CP55
  - D496 is used with the Dolby CP65
  - D563 (or D496-01) is used with the Dolby CP500
  - D497 is used with Ultra*Stereo

- **Audio Break-out Boards**
  - D437-00 is our generic audio breakout board. Wires must be soldered to the board for connections to the cinema processor. Has no spade lugs. Generally used for testing the audio output from the DTS-6.
  - D437-01 is used with the Dolby CP55 and CP65. Has spade lugs which are intended to slide under the terminal strip of the cinema processor.
  - D458-00 is used with the Dolby CP50. See D459 wiring diagram for connection.
  - D458-01 is used with the Dolby CP100. See D460 wiring diagram for connection.
  - DTS10B is used to attach the DTS-6 to UltraStereo processors.

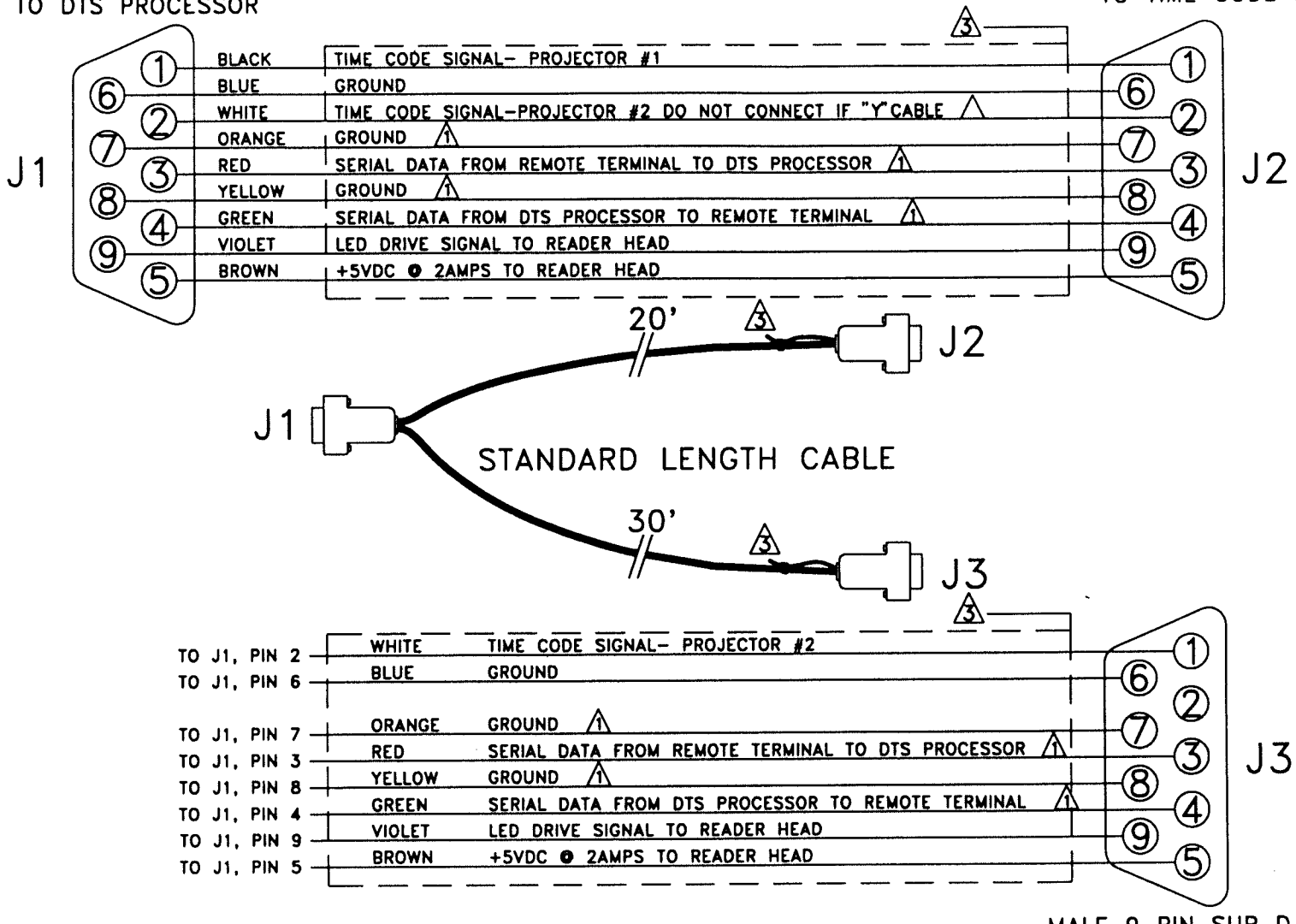


NOTE: 1) P11, P21 & P22 ARE TO BE LABELED, AS NOTED, ON TOP (NON-CONTACT) SIDE.

6 TRACK BREAK OUT CABLE ASSY

MALE 9 PIN SUB D
TO DTS PROCESSOR

MALE 9 PIN SUB D
TO TIME CODE READER-PROJECTOR #1



MALE 9 PIN SUB D
TO TIME CODE READER-PROJECTOR #2
ONLY USED FOR CHANGE OVER OPERATION.

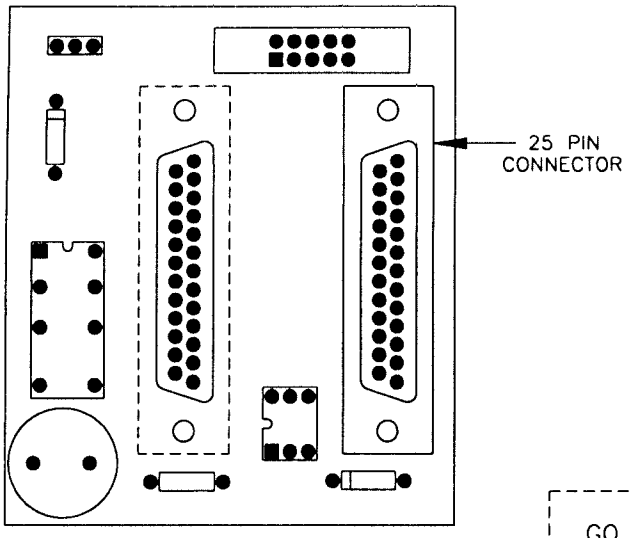
NOTES

1. THIS CONDUCTOR IS NOT NEEDED FOR TIME CODE READER TO OPERATE.
2. VERIFY WIRE COLORS-SOME CABLES MAY VERY.
3. IF PROBLEMS READING TIME CODE ARE EXPERIENCED, CONNECT SHIELD WIRE TO A GROUND ON THE PROJECTOR.

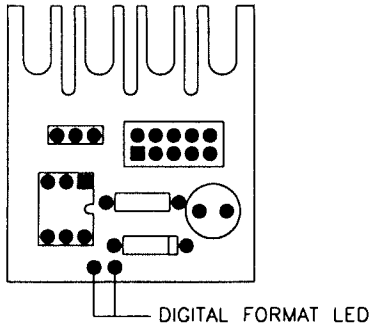
TITLE: TIME CODE READER CABLE
DATE 1/8/95 APPROVED DRAWN: M.SHIRZAY
SCALE: NONE REV. C 5/13/95

DIGITAL THEATER SYSTEMS
31332 VIA COLINAS #112
WESTLAKE VILLAGE CA. 91362

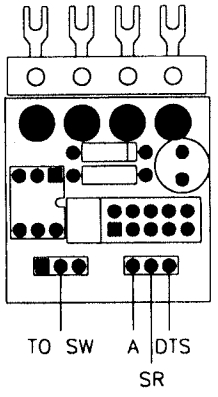
COMPUTER FILE NAME: TCRC
DWG. NO. D477



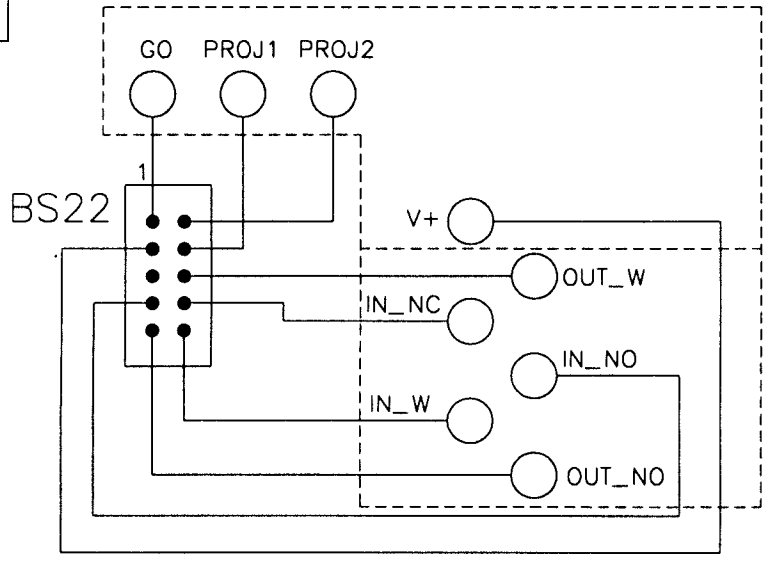
D496 (CP65)



D497 (ULTRA STEREO)



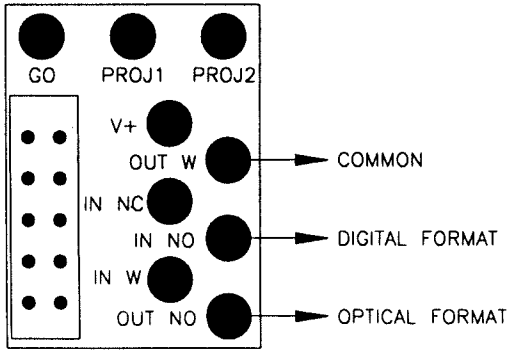
D490 (CP55)

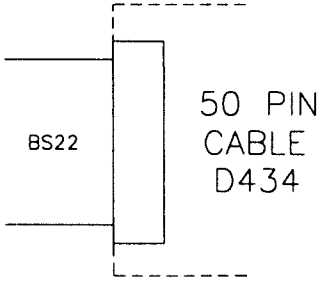


FOR CP200

FOR ALL EXCEPT CP200

D431 (GENERIC)





CABLE 50 PIN ⟶ BS22

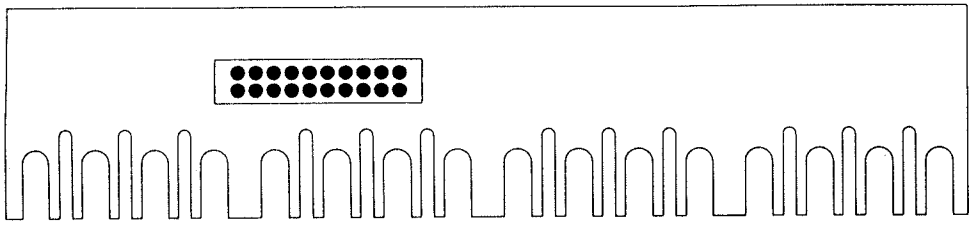
RELAY PULSES 250mS WHEN GOING TO OPTICAL

OUT_W – WIPER CONTACT
OUT_W – NORMALLY OPEN CONTACT

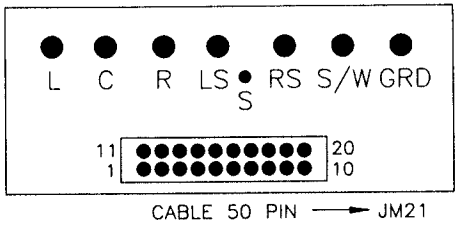
RELAY PULSES 250mS WHEN GOING TO DIGITAL

IN_W – WIPER CONTACT
IN_W – NORMALLY OPEN CONTACT

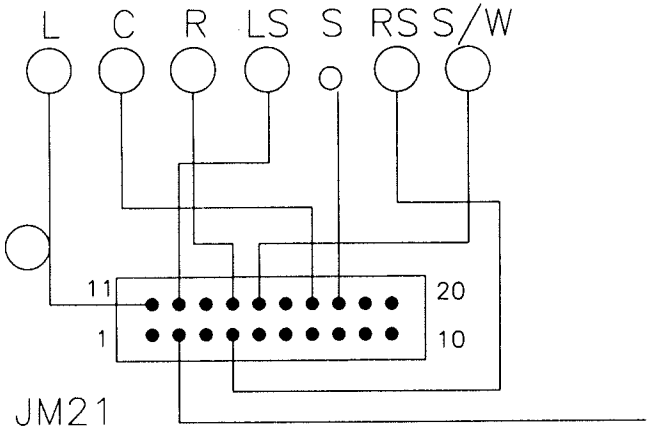
LOGIC BREAKOUT BOARDS

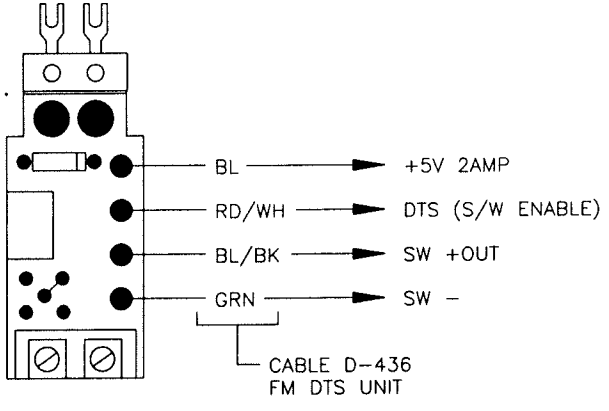


9451 (ULTRA STEREO)

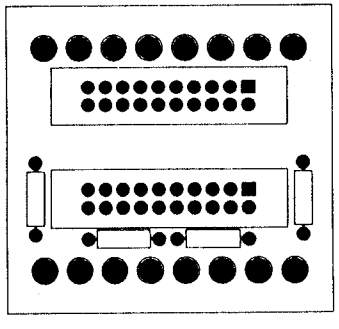


D437 (GENERIC)





D427 (SUBWOOFER RELAY
DTS-6 SN 0-1000 ONLY)



D458-00 (RP50, CP100)

AUDIO BREAKOUT BOARDS

TROUBLESHOOTING TIPS

Its always a good idea to stand in the theater and listen to the first few minutes of the movie. Listen to the sound level and general quality of the sound. The sound track should be in sync with the picture (wait for a dialogue scene) and played at a comfortable level. Even though not every scene will have surround material, do your best to listen for the surround speakers. Most opening musical sequences have surround information. **Be sure the movie discs match the film you are playing**. Feel free to contact DTS and ask for help.

- **I have a DTS print but I don't have discs**
  Contact your film distributor and ask for the disc(s). Remember. a film that runs less than 90 minutes will have only one movie disc - it should also be labeled "one disc only". Movies running over 90 minutes will have two movie discs. If the movie runs over 3 hours and 20 minutes, then you will receive more than two discs and special show instructions.

- **Film not in sync or doesn't sound right**
  Turn off the DTS-6 unit. Check and listen that the movie is playing in optical format. Let the film finish playing in optical. **Do not attempt to remedy these problems while playing in DTS**. The theater's technician should perform a full DTS quality check with the setup discs and verify sync with the demo film. Give the technician at least one hour to complete the test and alignment.

- **Volume too loud**
  Turn down the fader pot on cinema processor. Do not adjust the DTS-6 trimmer pots behind the blue panel. If sound level needs adjustment after it switches to digital, contact your theater's technician and request a B chain alignment (to DTS).

- **DTS-6 won't switch into digital sound**
  - Verify movie discs are in the DTS-6 unit. Push both CD-ROM drive's EJECT button and if nothing comes out, get the movie discs and insert them in the drives.
  - Verify the movie discs match the movie. Push the EJECT button, and look at the movie discs. If the title doesn't match the film, the DTS-6 will not play. Find the correct movie discs, insert them in the CD-ROM drives, and do the next step below.
  - If the movie was recently changed, first power off the DTS-6 unit. Wait three seconds, then turn the player back on. The DTS-6 should reboot in about 30 seconds and play in digital if the correct movie discs are in the CD-ROM drive(s).
  - If the unit does not switch to digital, verify the green LED on the reader head (on the projector) is glowing brightly and steadily while the movie is running. If the LED is dark, then verify the film is threaded through the DTS reader and that the film has a timecode strip (located between the picture and the analog sound track). If **no** timecode (dots and dashes) strip is seen, call the film's distributor and request a DTS print.

- **Switches out of DTS digital**
  - The sound should default to optical when the DTS-6 does not see timecode for four seconds. Verify the green LED on the DTS reader head is glowing brightly and steadily while the film is running.

- **Switches out of DTS digital (continued)**
  - If the TIMECODE LED on the DTS-6 or reader head is blinking, gently squeeze the film between two fingers as it exits the reader head. Do the same at the entrance of the reader. If the LED stops blinking and maintains a steady glow, this indicates that you need to add more tension. Tension is added by repositioning the auxillary flanged roller on the reader head so that it has maximum contact with the film or by adding additional rollers. Verify all the gears in the projector are in good condition.
  - If the reader head does NOT have a sticker on the largest roller and the LED is not bright or is blinking, adjust the lateral screw which is located in the center of the reader head's largest roller. Turn the screw slowly one way, and if the LED does not brighten, turn slowly the other way until the LED is on steadily.
  - Use compressed air to blow off the reader head's lens, but **never adjust the lens**.
  - If the reader head DOES have a sticker on the largest roller, do not disturb the sticker on the reader head and do not adjust the lens. *Make no adjustments on this style reader head* (unless directed by DTS engineers).
  - Attach the grounding jumper on the timecode cable to the projector. Easiest place to do that is attach to the screw that secures the timecode cable to the reader head. The reader's housing must be electrically connected to the projector housing. Verify with an ohm meter. This is needed for projectors that are not properly grounded.
  - If the drop-out occurs during the same place(s) in the movie, replace the reel(s).
  - If you are a platter house - turn off the DTS-6 unit. Take the unit out of the rack and open the lid. Look inside at the timecode card (one with the LEDs). Be sure the jumper is positioned horizontally across the top row of W1. The jumper should **not** be installed vertically.
  - Remove any sound format cues that appear after the DTS timecode starts. Or contact DTS engineers for assistance.
  - Last resort is to force the unit to play in optical. Turn off the DTS-6 unit. Be sure the cinema processor switched to optical, if not manually select. Call your theater technician who should contact DTS engineers.

- **What do I do with the discs when the movie has finished its run?**
  Simply return the movie discs with the film to the depot. Put the discs in the DTS yellow reel and load it into the film can.

DTS TECHNICAL SUPPORT

TELEPHONE: (800) 959-4109 *or* (818) 706-3525 **FAX:** (818) 706-1868
DTS engineers are available to help you **every day**, including holidays and after hours via pagers.

INTERNET users may email DTS at the following address: 73362.1140@compuserve.com

DTS is on-line with CompuServe. Our user ID number is 73362,1140 E-mail can be directed to Karen Hultgren who oversees the service. DTS participates in the following two forums: Showbiz & CEVideo. Technical materials & movie lists are contained in their libraries.

DTS Web Site. If you have access to the INTERNET, look for the DTS web. In the web site you will find the latest DTS news for both theater and home products.
The address is: http://www.dtstech.com

VIII INSTALLATION DIAGRAMS

The diagrams on the following pages cover most installations. Contact DTS if the system you are installing into does not appear. 70 MM spacer kits available, contact DTS.

Brackets for the DTS Timecode Reader Head

- **D614 - Standard Bracket**
  For projectors: Century, Simplex, and Cinemeccanica with Kelmar bracket (below). Intended to fit between the projector and reel arm. We have produced the bracket with the American standard size hole to accommodate 2" center spacing 3/8 - 16 tap, that is utilized to mount the American made upper reel arms. Comes with the following hardware:

QTY	Description
2	10 x 24 x 1/2" long screw
2	3.4 x 16 x 1" long hex bolt nut
2	3/8" lock washer

- **D615 - DP70 Universal Bracket**
  Used for American projectors with a penthouse. Comes with tap and drill bit 8-32, and the following hardware:

QTY	Description
2	10 x 24 x 1/2" long screws
2	3.4 x 16 x 1" long hex bolt nuts
2	3/8" lock washers

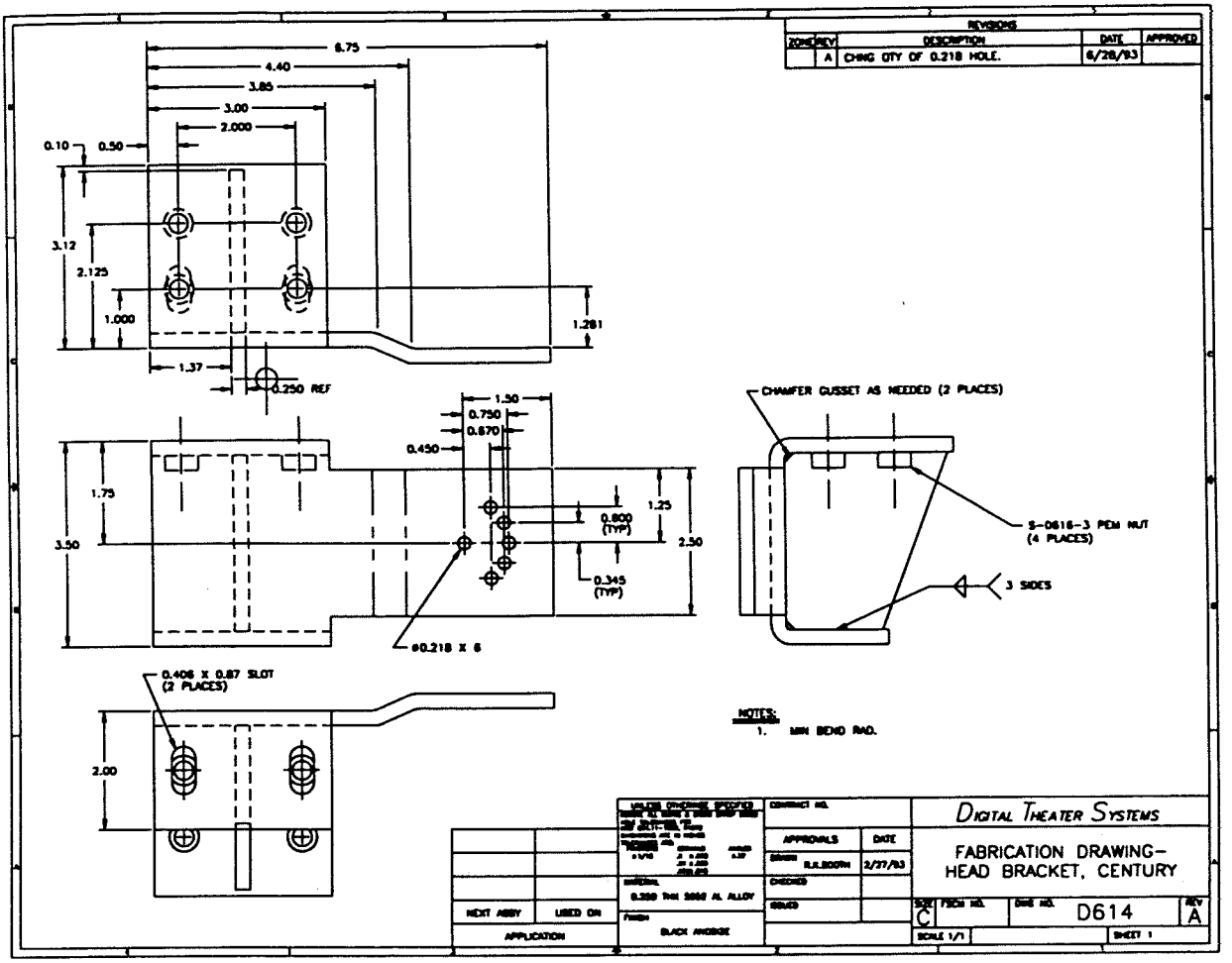
- **D616 - AA2 bracket**
  For Norelco AA projectors. Comes with the following hardware:

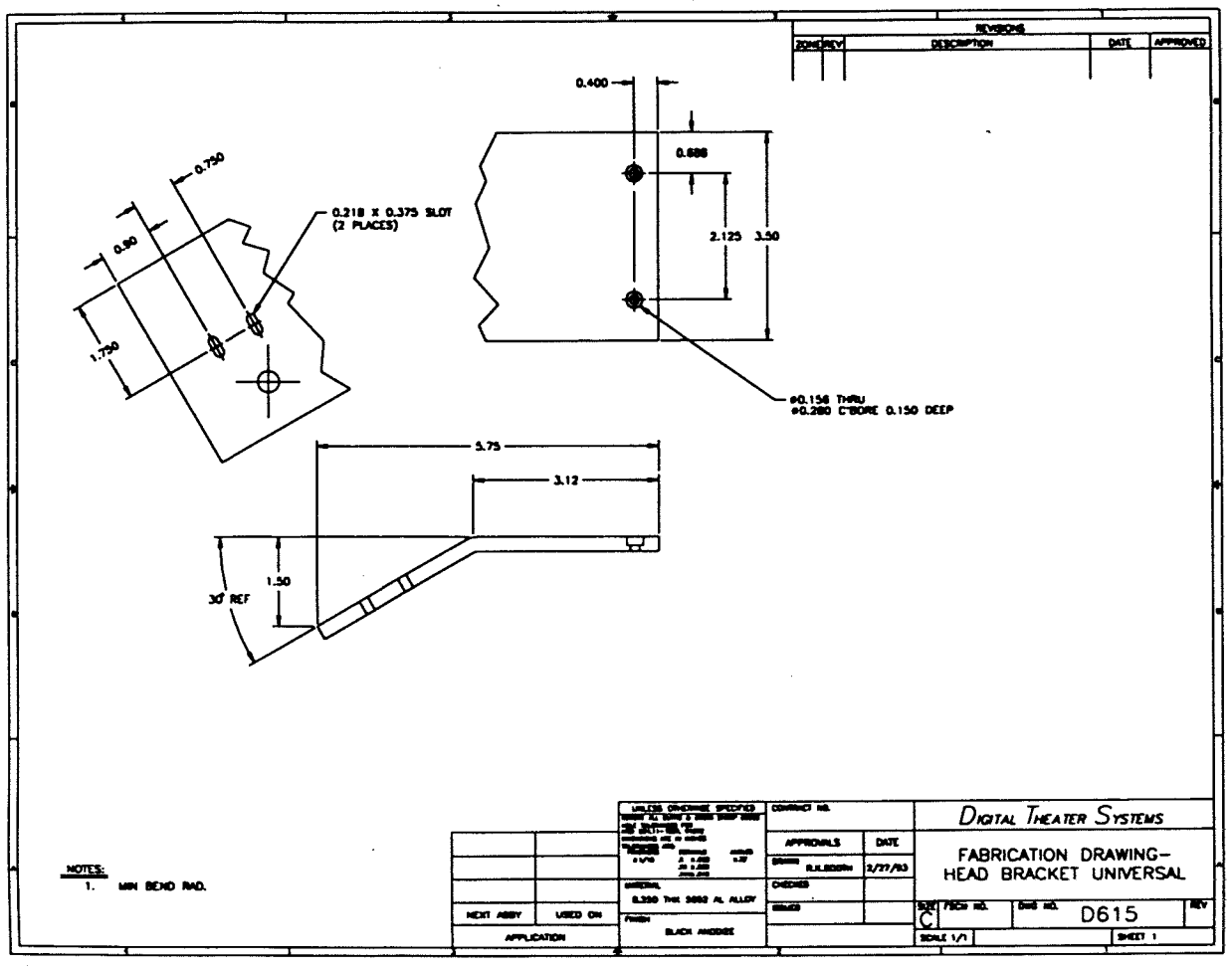
QTY	Description
2	#10 lock washers
3	5/16" x 18 x 5" long screws
3	3/8" split ring lock
2	10 x 24 x 1/2" long screw

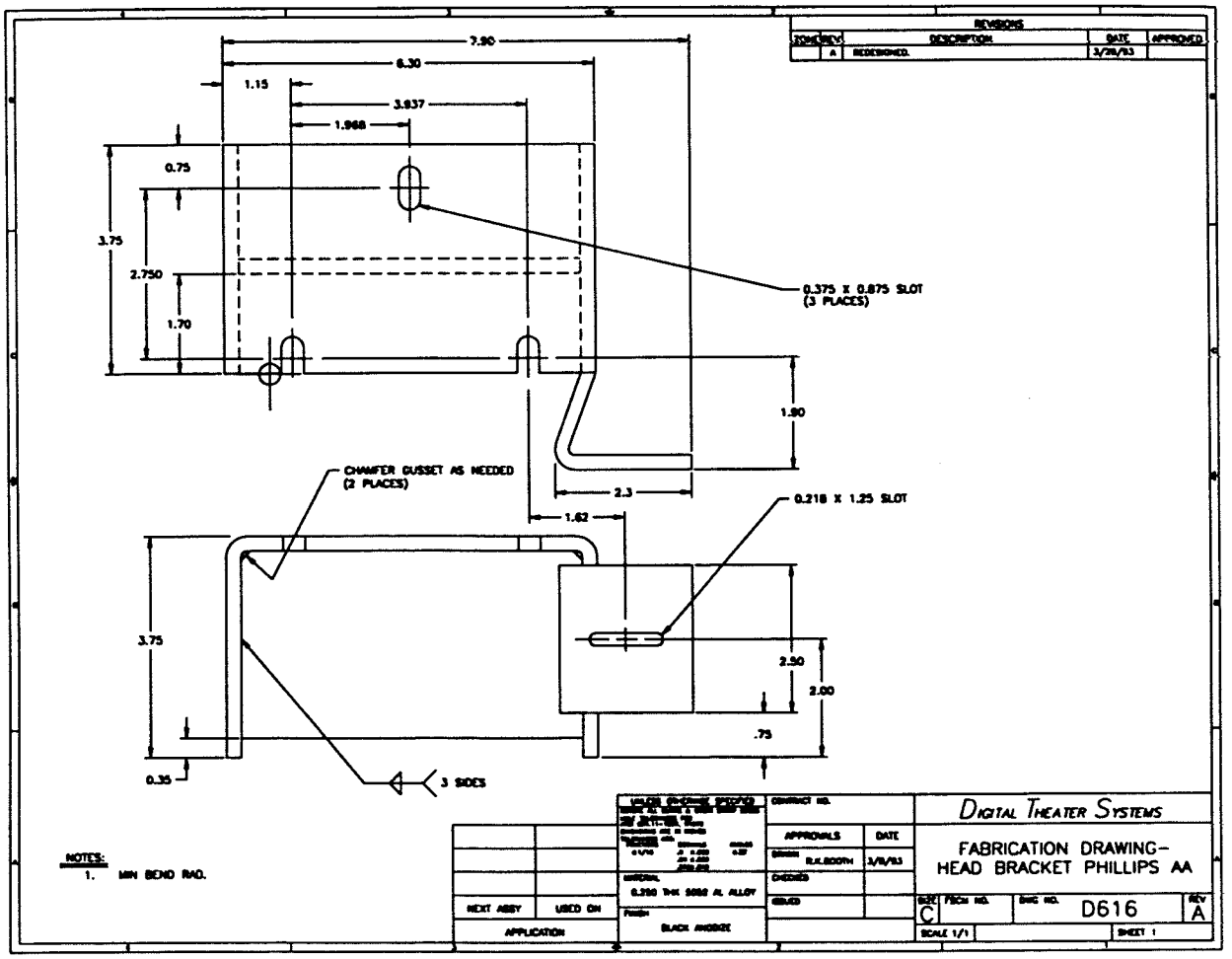
- **D617 - DP75 Bracket**
  Used to mount the DTS timecode reader head to the side of the projector. Comes with same hardware as the D614.

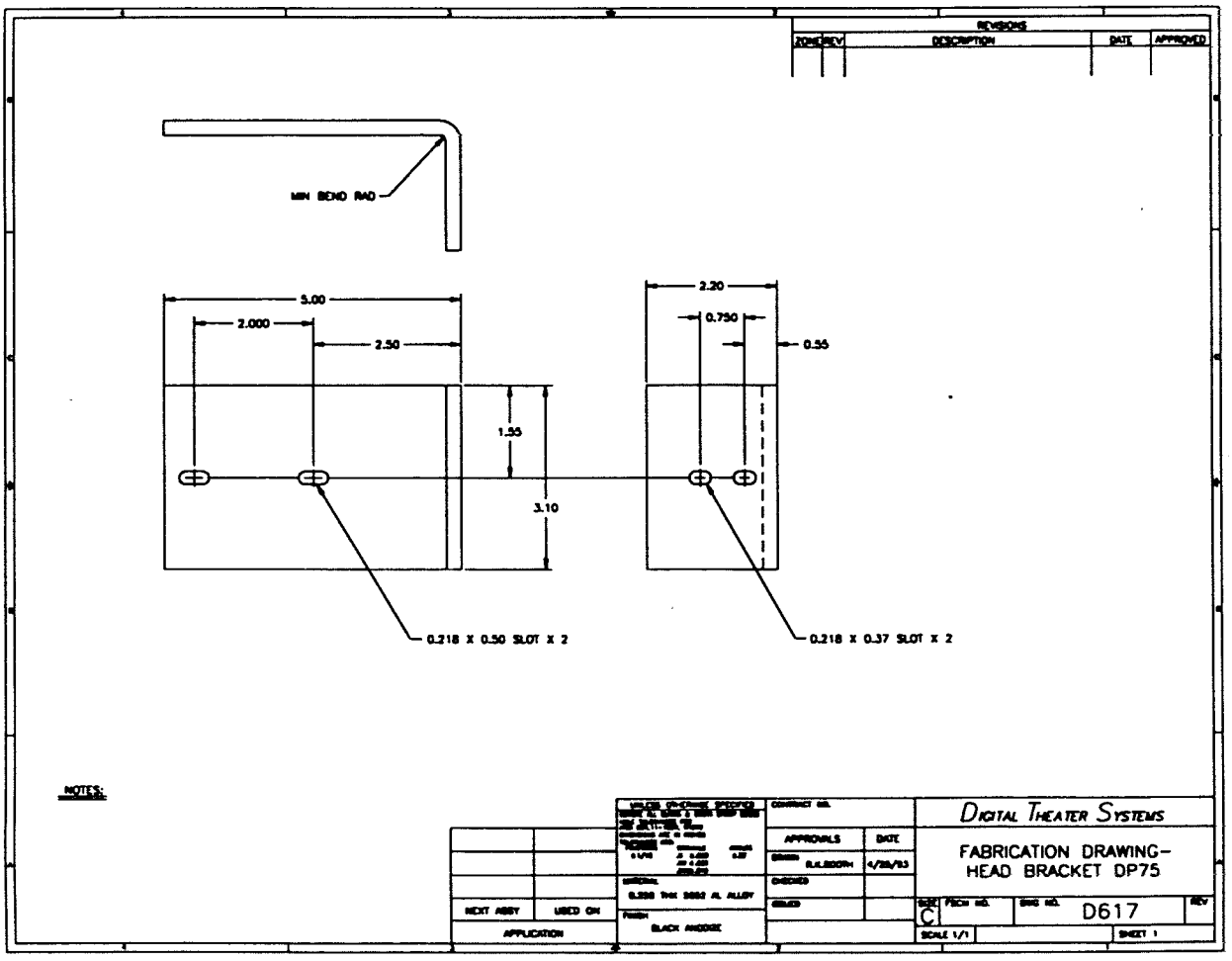
- **D622 - Front Mount Bracket**
  Used when installing multiple digital sound heads or when there is not room to lift the projector arm. Used with Dolby SR-D™ and Sony SDDS reader heads.

- **5006-0001-00 Cinemeccanica Bracket / adapter plate**
  For Cinemeccania projectors. Must be used with the D164 standard bracket for mounting the DTS timecode reader head. If the reel arm needs to be remounted, two plates are required. Note: Cinemeccanica also has their own brackets available. Contact them directly.


REVISIONS
ZONE REV DESCRIPTION DATE APPROVED
A CHNG QTY OF 0.218 HOLE. 6/28/93
6.75
4.40
3.85
3.00
2.000
0.10
0.50
3.12
2.125
1.000
1.281
1.37
0.250 REF
1.50
0.750
0.870
0.450
1.75
3.50
1.25
0.800 (TYP)
2.50
0.345 (TYP)
ø0.218 X 6
CHAMFER GUSSET AS NEEDED (2 PLACES)
S-0616-3 PEM NUT (4 PLACES)
3 SIDES
0.406 X 0.87 SLOT (2 PLACES)
2.00
NOTES:
1. MIN BEND RAD.
DIGITAL THEATER SYSTEMS
FABRICATION DRAWING-
HEAD BRACKET, CENTURY
D614
A
SCALE 1/1
SHEET 1


REVISIONS
ZONE REV DESCRIPTION DATE APPROVED
0.400
0.688
2.125
3.50
0.750
0.90
1.750
0.218 X 0.375 SLOT (2 PLACES)
ø0.156 THRU
ø0.280 C'BORE 0.150 DEEP
5.75
3.12
1.50
30° REF
NOTES:
1. MIN BEND RAD.
DIGITAL THEATER SYSTEMS
FABRICATION DRAWING-
HEAD BRACKET UNIVERSAL
D615
SCALE 1/1
SHEET 1


REVISIONS
ZONE/REV
DESCRIPTION
DATE
APPROVED
A
REDESIGNED
3/18/93
7.90
6.30
1.15
3.937
1.968
0.75
3.75
2.750
1.70
0.375 X 0.875 SLOT
(3 PLACES)
1.90
2.3
1.62
CHAMFER GUSSET AS NEEDED
(2 PLACES)
0.218 X 1.25 SLOT
3.75
2.50
2.00
.75
0.35
3 SIDES
NOTES:
1. MIN BEND RAD.
CONTRACT NO.
APPROVALS
DATE
DRAWN
R.K.BOOTH
3/18/93
CHECKED
ISSUED
NEXT ASSY
USED ON
APPLICATION
0.250 THK 5052 AL ALLOY
BLACK ANODIZE
DIGITAL THEATER SYSTEMS
FABRICATION DRAWING-
HEAD BRACKET PHILLIPS AA
SIZE
C
FSCM NO.
DWG NO.
D616
REV
A
SCALE 1/1
SHEET 1


REVISIONS
ZONE/REV
DESCRIPTION
DATE
APPROVED
MIN BEND RAD
5.00
2.000
2.50
2.20
0.750
0.55
1.55
3.10
0.218 X 0.50 SLOT X 2
0.218 X 0.37 SLOT X 2
NOTES:
CONTRACT NO.
APPROVALS
DATE
DRAWN
R.K.BOOTH
4/28/93
CHECKED
ISSUED
NEXT ASSY
USED ON
APPLICATION
0.250 THK 5052 AL ALLOY
BLACK ANODIZE
DIGITAL THEATER SYSTEMS
FABRICATION DRAWING-
HEAD BRACKET DP75
SIZE
C
FSCM NO.
DWG NO.
D617
REV
SCALE 1/1
SHEET 1

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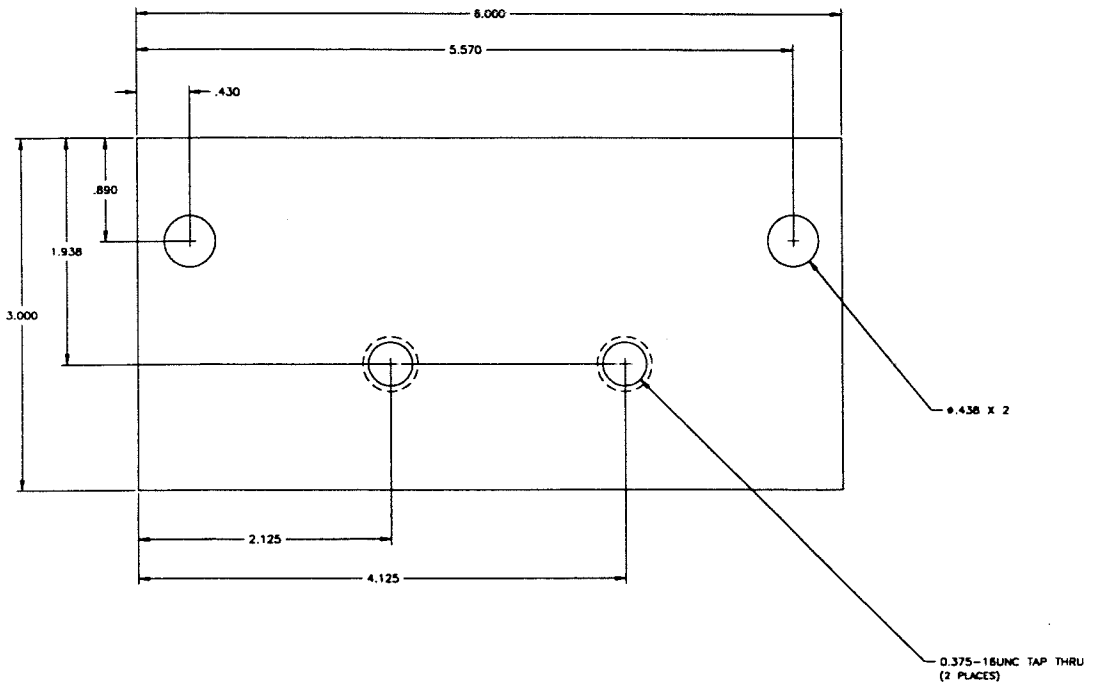
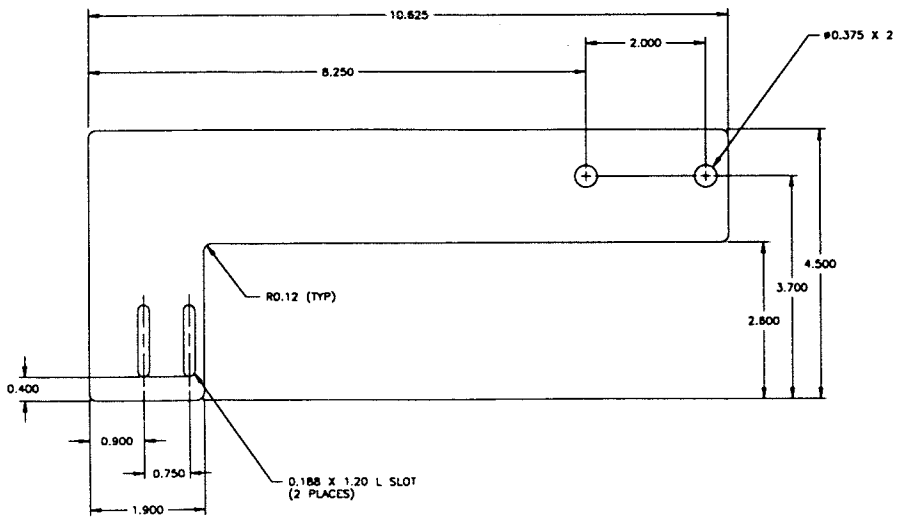


UNLESS OTHERWISE SPECIFIED	CONTRACT NO.	dts DIGITAL THEATER SYSTEMS	
	APPROVALS	DATE	FABRICATION DRAWING– CINEMACCANICA PLATE
	DRAWN R.K.BOOTH	3/20/95	
MATERIAL 0.375 THK AL ALLOY	CHECKED		
FINISH DRAWN LENTOHWISE AND BLACK ANODIZE	ISSUED		SIZE C / FSCM NO. / DWG NO. / REV
NEXT ASSY / USED ON			SCALE 1/1 / SHEET 1
APPLICATION			

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	CHNG SHAPE. CHNG THK WAS: 0.312.	4/6/94	



UNLESS OTHERWISE SPECIFIED	CONTRACT NO.	dts DIGITAL THEATER SYSTEMS	
	APPROVALS	DATE	FABRICATION DRAWING– FRONT MOUNT, TIMECODE HEAD READER
	DRAWN R.K.BOOTH	3/24/95	
MATERIAL 0.375 THK AL ALLOY	CHECKED		
FINISH DRAWN LENTOHWISE AND BLACK ANODIZE	ISSUED		SIZE C / FSCM NO. / DWG NO. D622 / REV A
NEXT ASSY / USED ON			SCALE 1/1 / SHEET 1
APPLICATION			

NOTES

Thank you for choosing DTS !

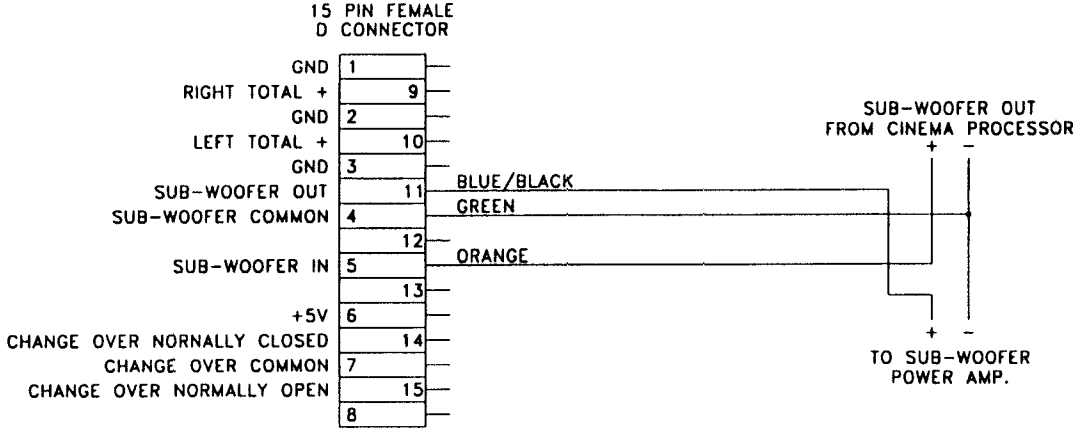
Wiring Diagrams

Cinema Processor

To DTS-6

Serial Number 2000+

DTS STEREO INTERFACE



DTS CONNECTORS

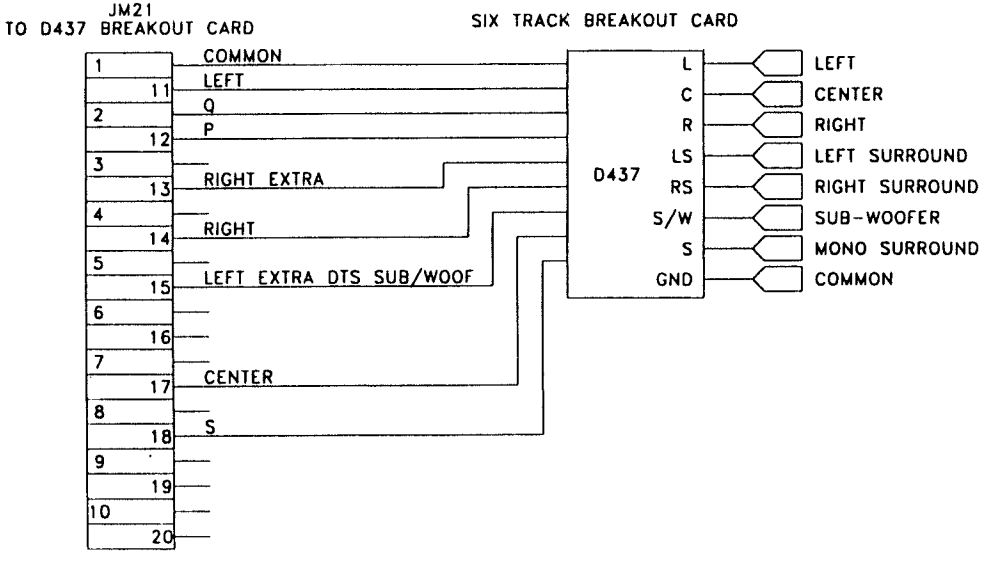
JM11,JM21 PINOUT

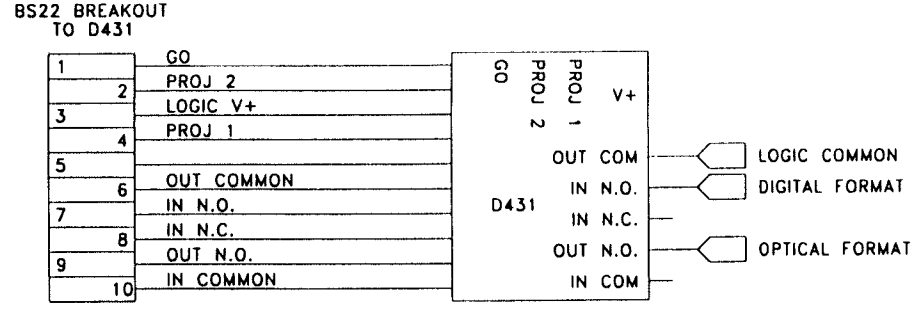
PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	P(LEFT SURROUND)
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL −	BLACK
2	LEFT CHANNEL −	WHITE
3	GROUND	RED
4	SUB WOOF −	GREEN
5	SUB-WOOFER IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUB-WOOFER OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

DTS 6 TRACK INTERFACE

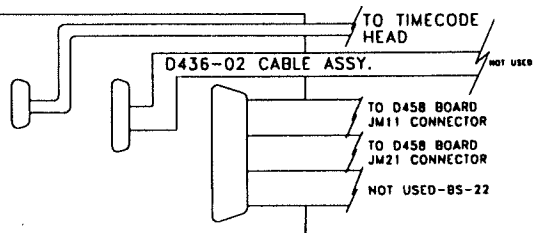




LOGIC BREAKOUT CARD

NOTE: THE OUT AND IN COMMONS ARE JUMPERED TOGETHER ON THE D426 CIRCUIT CARD. SEE THE D426 SCHEMATIC. CONTACTS ARE PULSED.

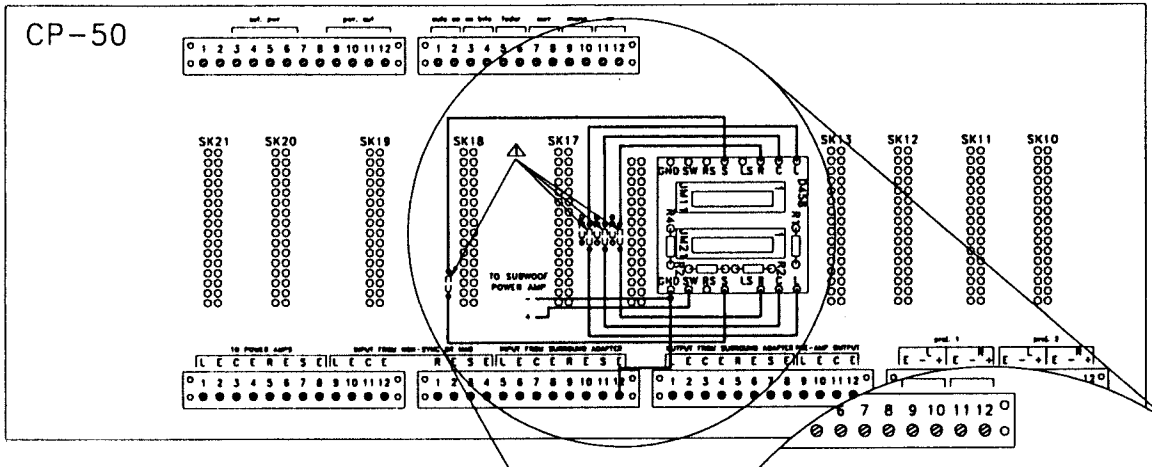
DTS-6 DIGITAL AUDIO PROCESSOR

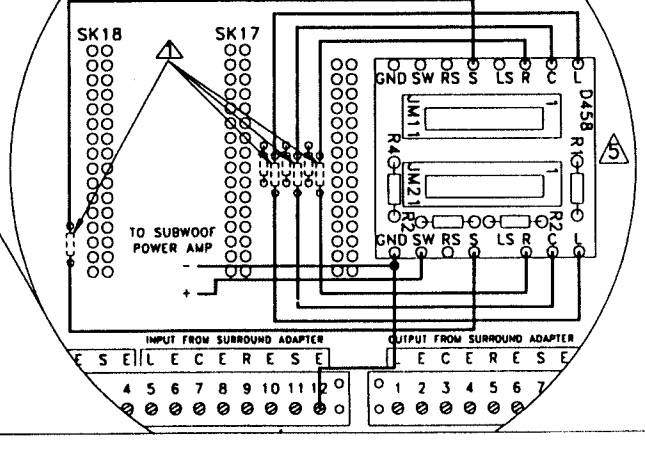


JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

CP-50





STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD.

POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD

ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

5. INSTALL 20 PIN JUMPER IF DTS IS REMOVED.
4. SET SURROUND SWITCHES TO MONO (DOWN).
3. ONLY QUALIFIED TECHNICIANS SHOULD PERFORM THIS MODIFICATION.
2. THIS MODIFICATION WILL VOID THE CP-50's WARRANTY.

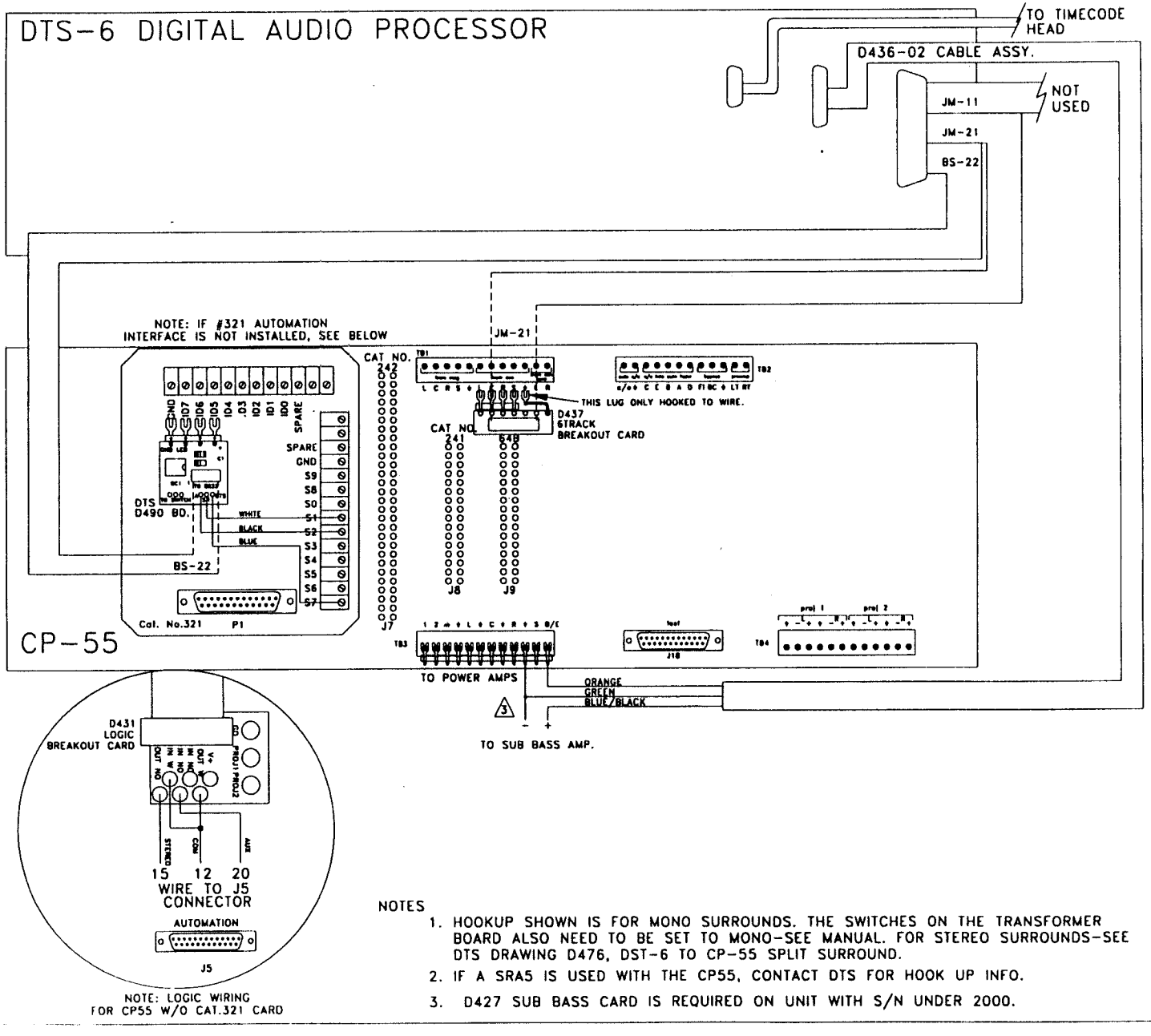
NOTES: 1. RESISTORS SHOWN WITH HIDDEN LINES ARE ON THE INSIDE OF PROCESSOR. LIFT OR CUT ONE SIDE OF EACH RESISTOR.

TITLE: DTS-6 TO CP-50 CABLING S/N +2000
DATE 10/13/93 APPROVED DRAWN: M.SHIRZAT
SCALE: NONE REV. A

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP50B DWG.NO. D459

DTS-6 DIGITAL AUDIO PROCESSOR



JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD.

POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD

ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

NOTES

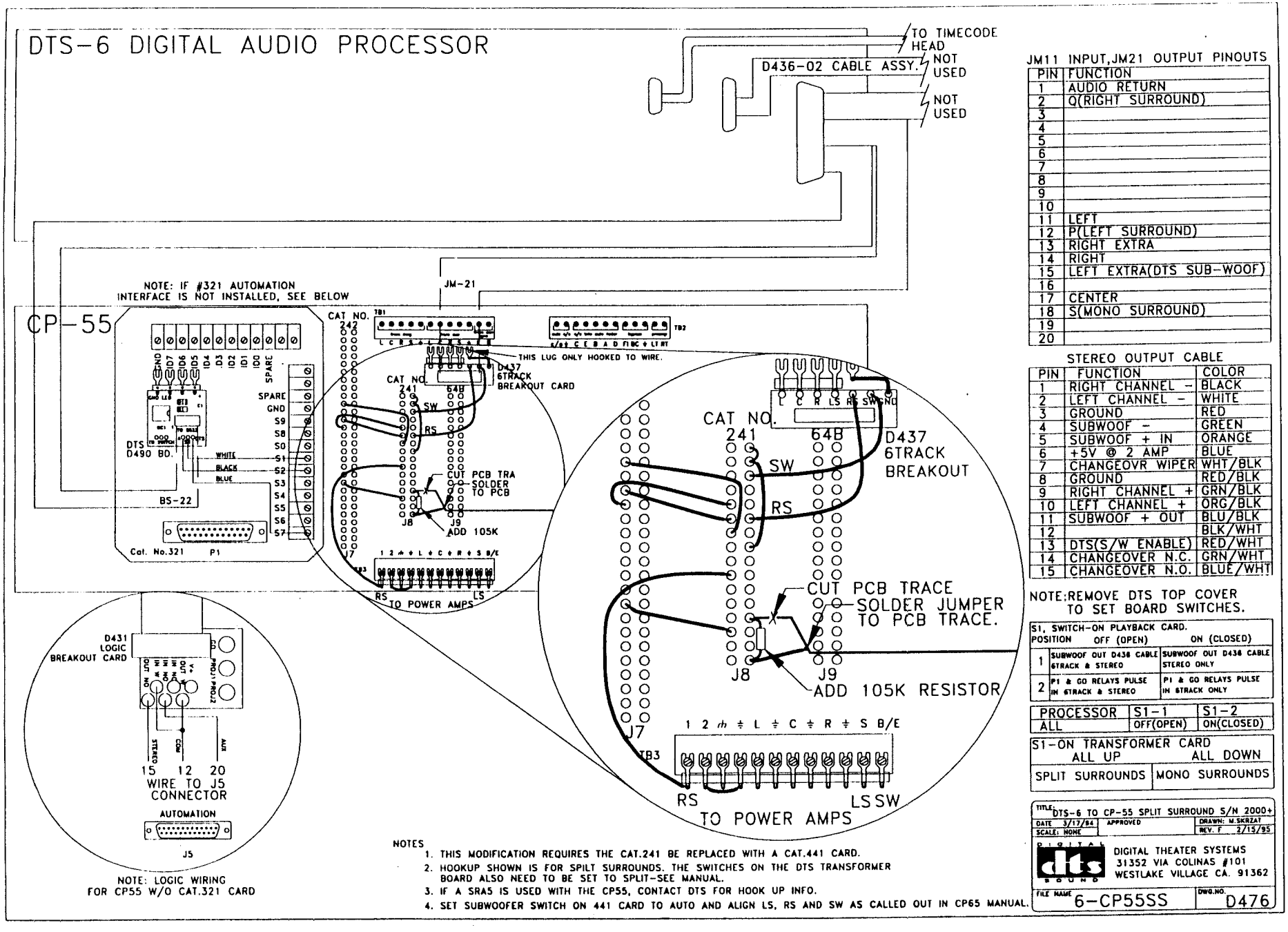
1. HOOKUP SHOWN IS FOR MONO SURROUNDS. THE SWITCHES ON THE TRANSFORMER BOARD ALSO NEED TO BE SET TO MONO-SEE MANUAL. FOR STEREO SURROUNDS-SEE DTS DRAWING D476, DST-6 TO CP-55 SPLIT SURROUND.
2. IF A SRA5 IS USED WITH THE CP55, CONTACT DTS FOR HOOK UP INFO.
3. D427 SUB BASS CARD IS REQUIRED ON UNIT WITH S/N UNDER 2000.

TITLE: DTS-6 TO CP-55 MONO SURROUND S/N 2000+
DATE: 3/11/94 APPROVED DRAWN: M.SKRZAT
SCALE: NONE REV. E 7/15/95

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP55B DWG.NO. D454

DTS-6 DIGITAL AUDIO PROCESSOR



JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD. POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

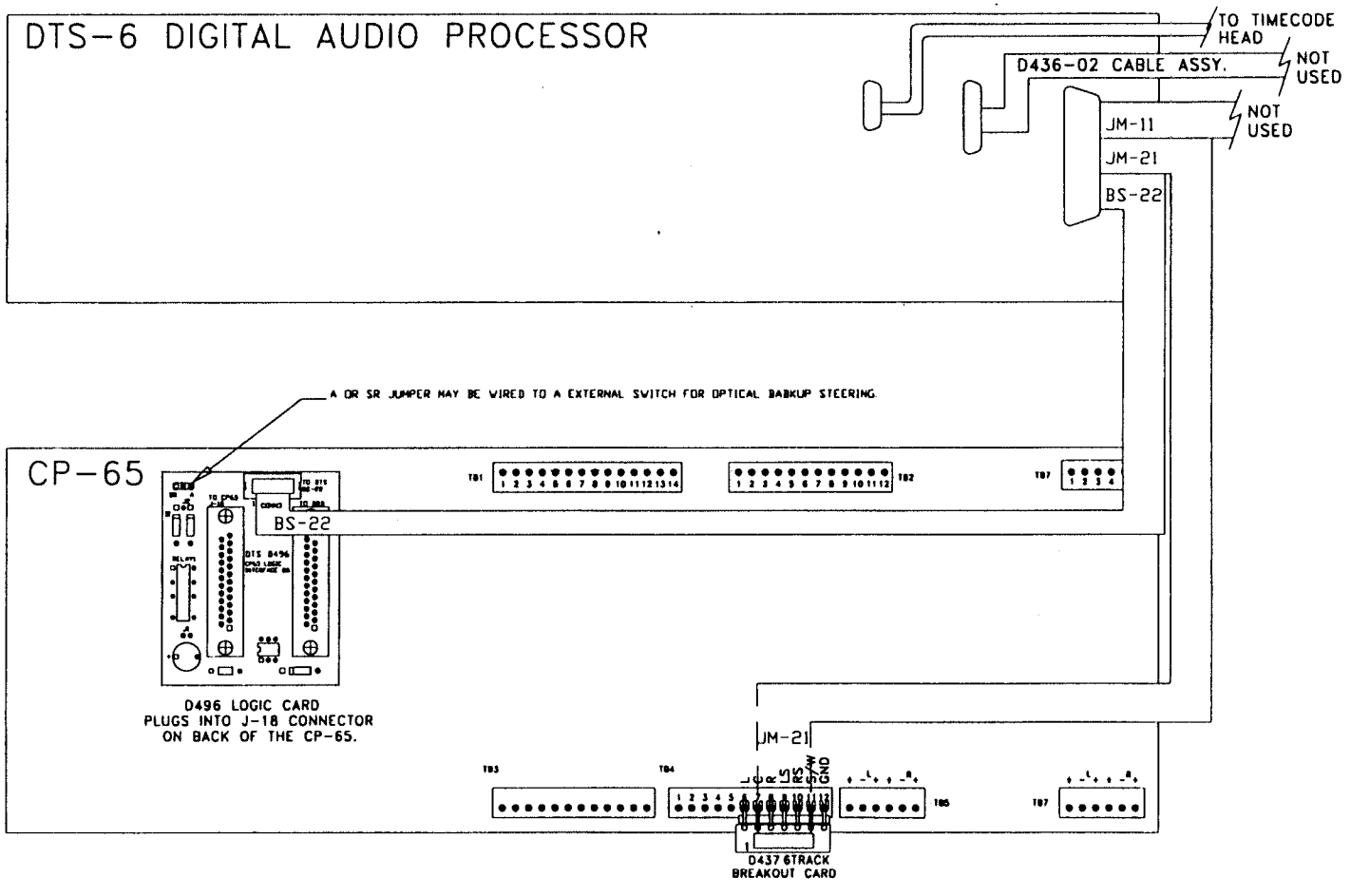
NOTES
1. THIS MODIFICATION REQUIRES THE CAT.241 BE REPLACED WITH A CAT.441 CARD.
2. HOOKUP SHOWN IS FOR SPILT SURROUNDS. THE SWITCHES ON THE DTS TRANSFORMER BOARD ALSO NEED TO BE SET TO SPLIT-SEE MANUAL.
3. IF A SRA5 IS USED WITH THE CP55, CONTACT DTS FOR HOOK UP INFO.
4. SET SUBWOOFER SWITCH ON 441 CARD TO AUTO AND ALIGN LS, RS AND SW AS CALLED OUT IN CP65 MANUAL.

TITLE: DTS-6 TO CP-55 SPLIT SURROUND S/N 2000+
DATE 3/17/94 | APPROVED | DRAWN: M.SKRZAT
SCALE: NONE | REV. F 2/15/95

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP55SS | DWG.NO. D476

DTS-6 DIGITAL AUDIO PROCESSOR



JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD.

POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD

ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

NOTES

THE SUBWOFER SWITCH ON THE CAT.441 CARD MUST BE IN THE AUTO POSITION.

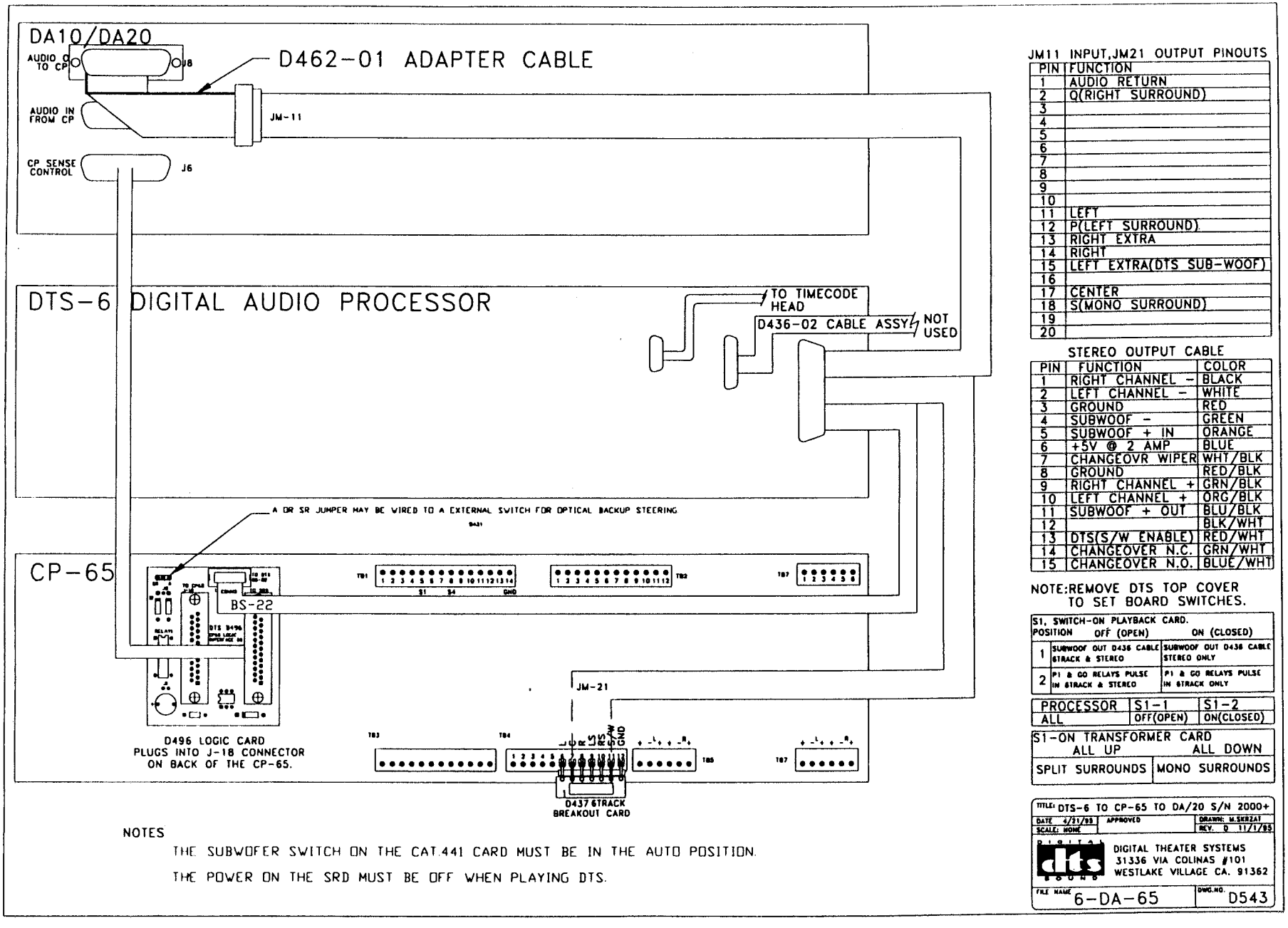
TITLE: DTS-6 TO CP-65 CABLING S/N 2000+

DATE 8/27/93 | APPROVED | DRAWN: M.SKRZAT

SCALE: NONE | REV. C 3/6/95

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP65B | DWG.NO. D455



NOTES

THE SUBWOFER SWITCH ON THE CAT.441 CARD MUST BE IN THE AUTO POSITION.

THE POWER ON THE SRD MUST BE OFF WHEN PLAYING DTS.

JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD.

POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD

ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

TITLE: DTS-6 TO CP-65 TO DA/20 S/N 2000+

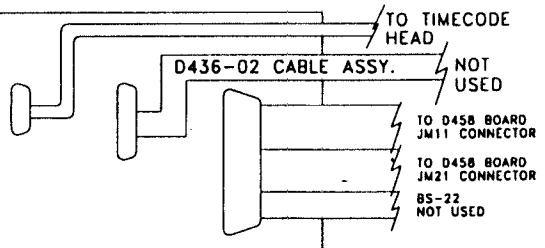
DATE 4/21/95 | APPROVED | DRAWN: M.SKRZAT

SCALE: NONE | REV. D 11/1/95

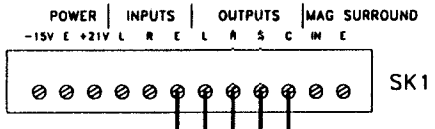
DIGITAL THEATER SYSTEMS
31336 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-DA-65 | DWG.NO. D543

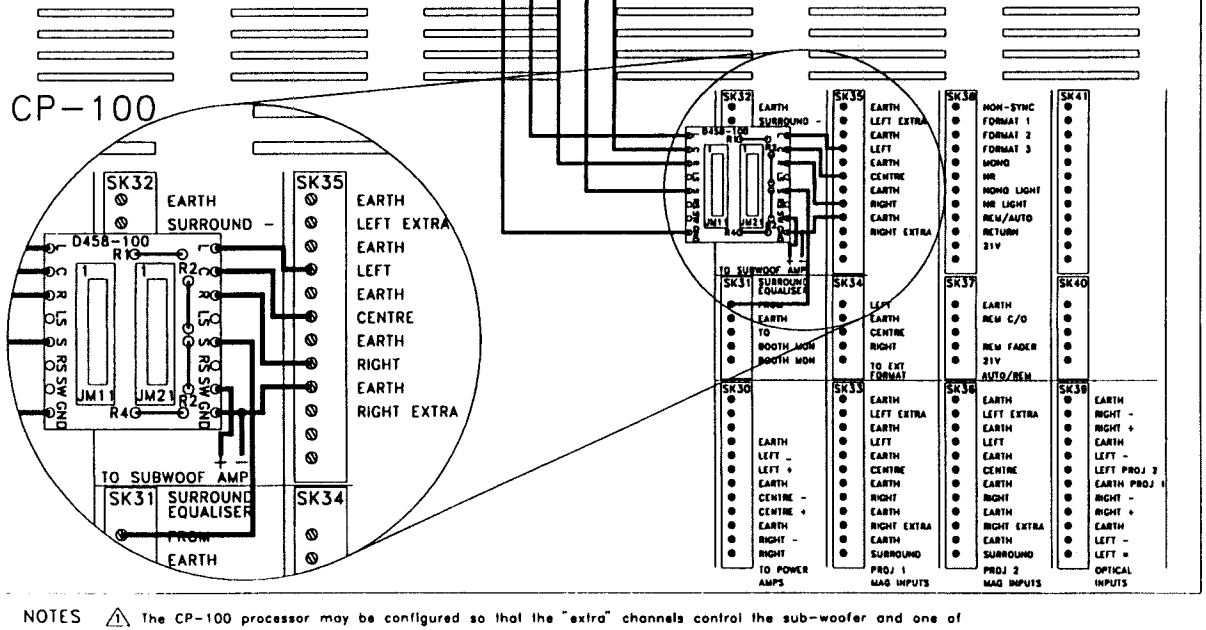
DTS-6 DIGITAL AUDIO PROCESSOR



SA4 or SA5



CP-100



NOTES

⚠1 The CP-100 processor may be configured so that the "extra" channels control the sub-woofer and one of the split surround channels. Contact DTS for more information.

⚠2 INSTALL 20 PIN JUMPER IN D458 BOARD IF DTS IS REMOVED.

JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD.

POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD

ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

TITLE: DTS-6 TO CP-100 CABLING S/N 2000+

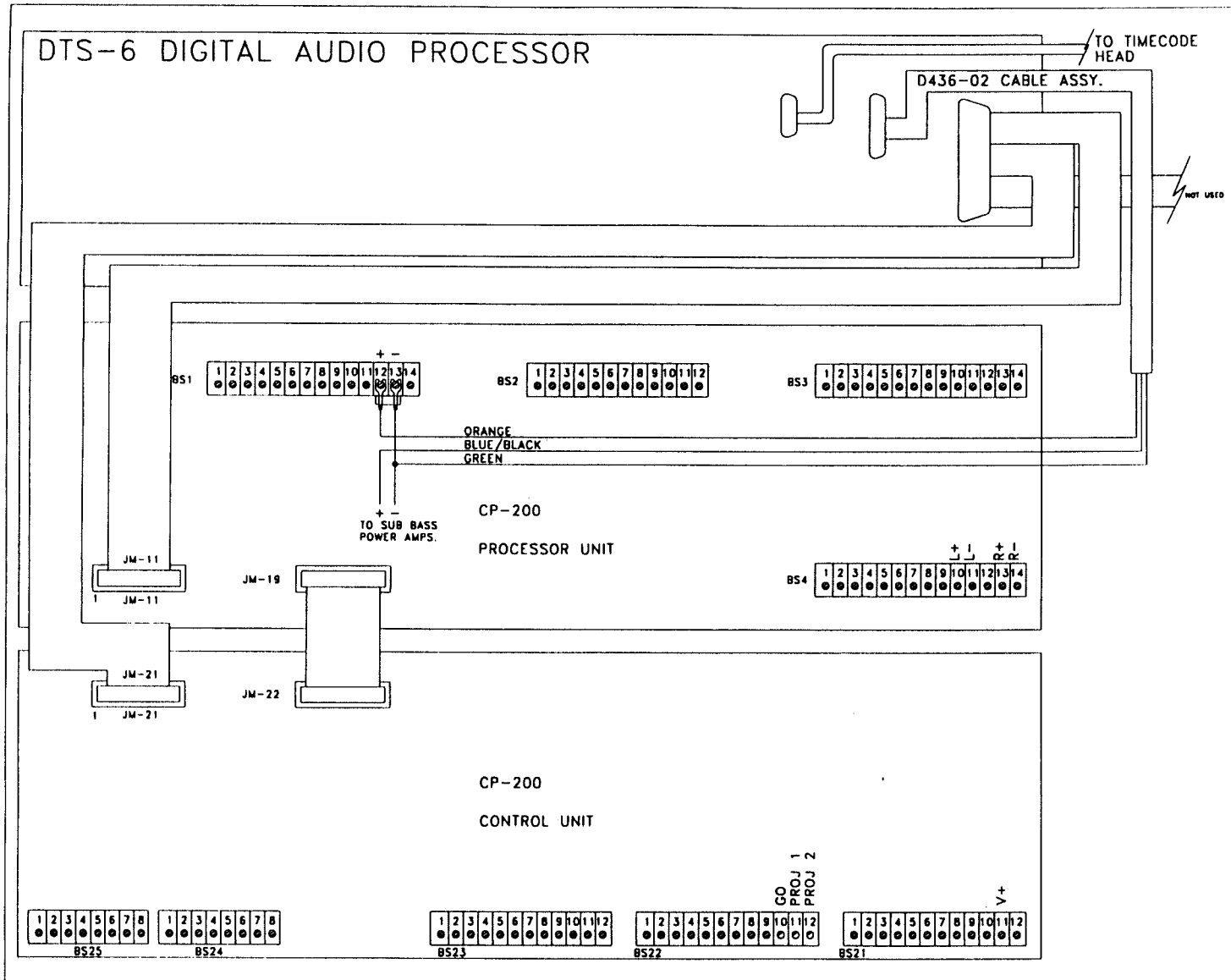
DATE 10/18/93 APPROVED DRAWN: M.SHRZAT

SCALE: NONE REV.C 5/12/95

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP100B DWG.NO. D460

DTS-6 DIGITAL AUDIO PROCESSOR



JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD.

POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 8TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 8TRACK & STEREO	P1 & GO RELAYS PULSE IN 8TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

NOTES: 1) SEE DWG. D450 FOR CAT.157 CARD MOD.

TITLE: DTS-6 TO CP-200 CABLING S/N +2000

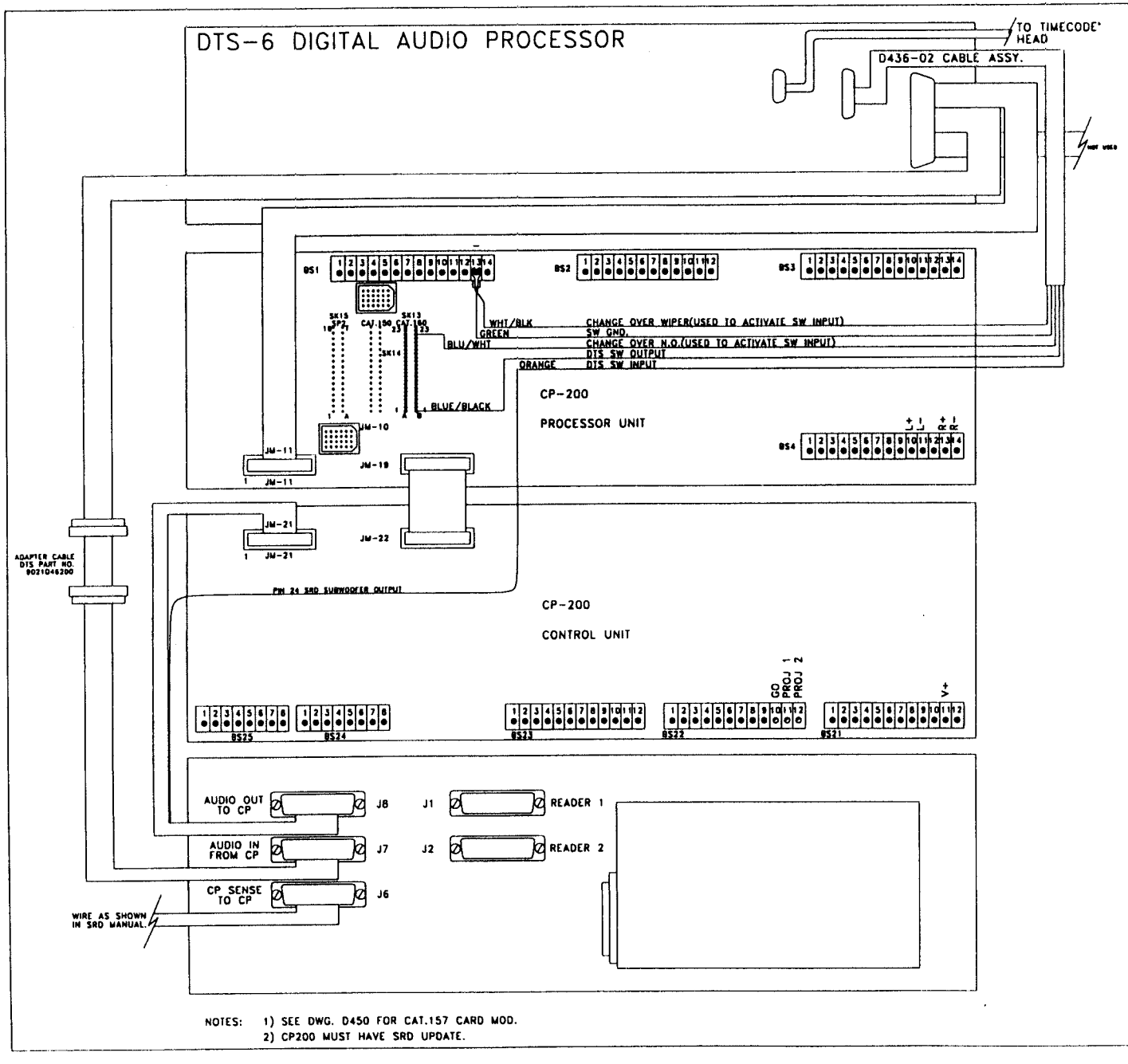
DATE 8/24/93 | APPROVED | DRAWN: M.SHRZAI

SCALE: NONE | REV. D 11/15/94

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP200B | DWG.NO D444

DTS-6 DIGITAL AUDIO PROCESSOR



NOTES: 1) SEE DWG. D450 FOR CAT.157 CARD MOD.
2) CP200 MUST HAVE SRD UPDATE.

JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD.

POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD

ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

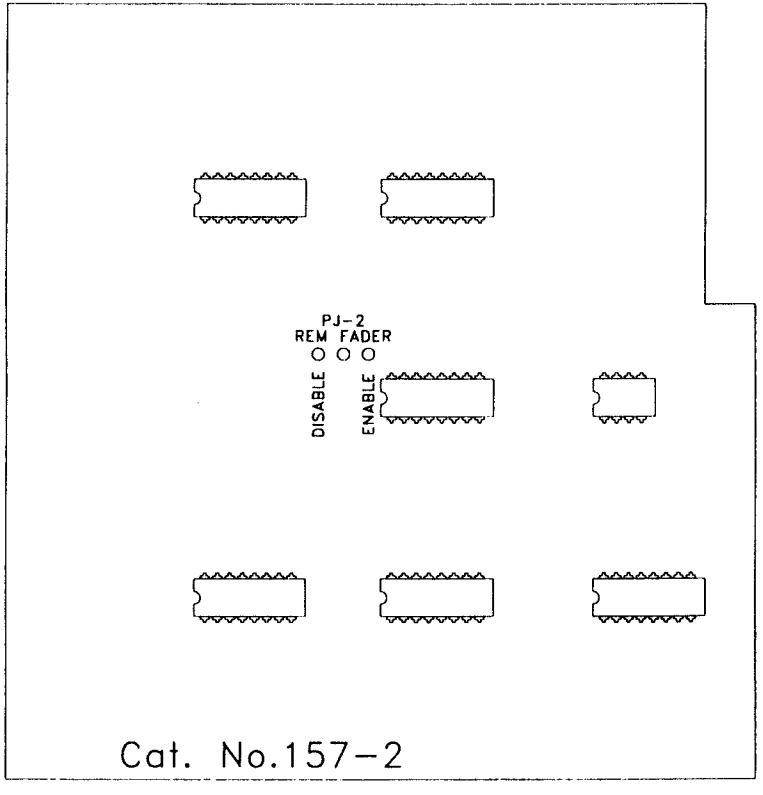
TITLE: DTS-6 TO CP-200 W/SRD
DATE 10/24/93 APPROVED DRAWN: M.SKREAT
SCALE: NONE REV. A

DIGITAL THEATER SYSTEMS
31336 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME CP200SRD DWG.NO. D537

44

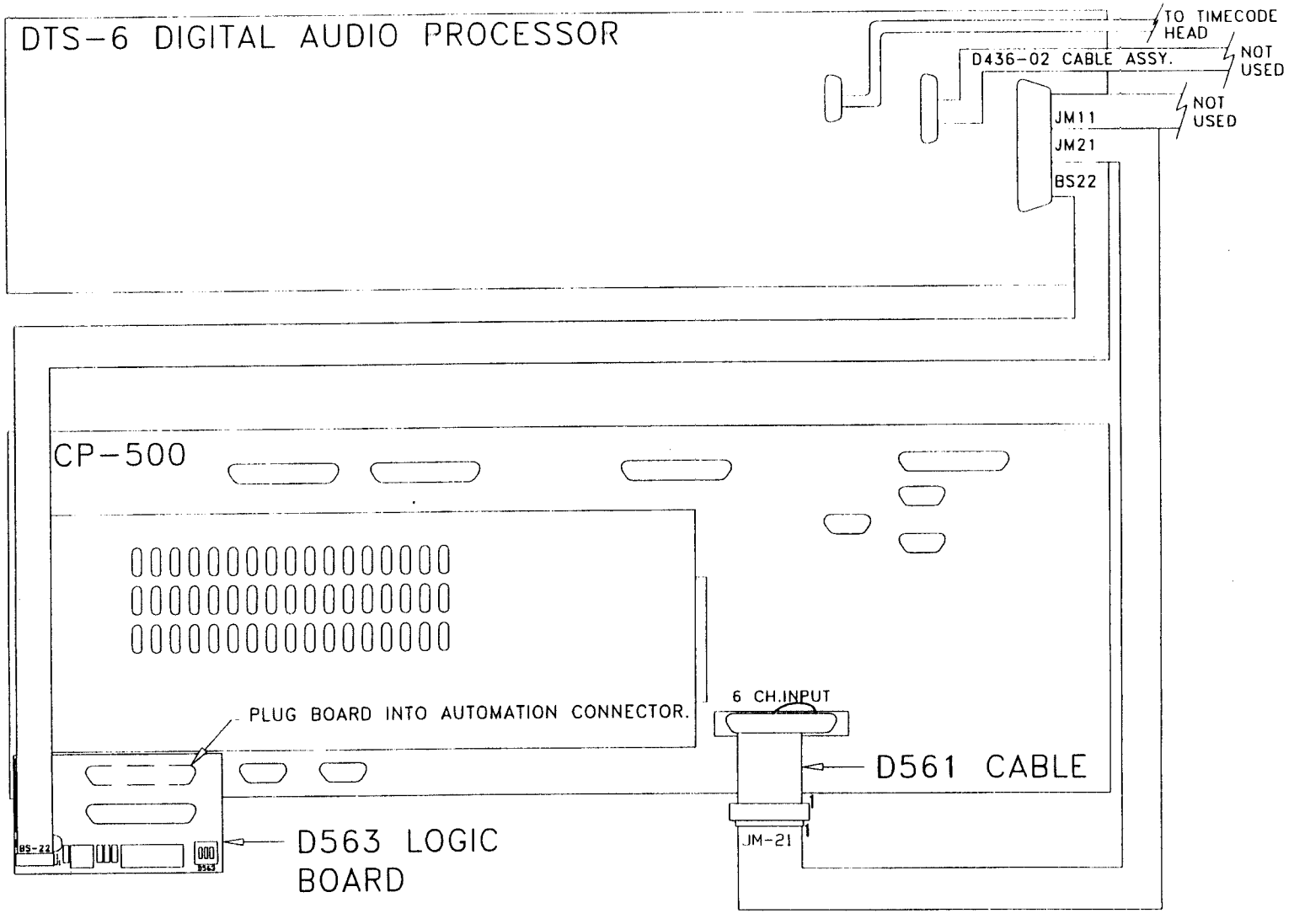
CP-200 MODIFACITION.



THE PJ-2 MUST BE IN THE DISABLE POSITION, UNLESS A REMOTE FADER IS BEING USED.

TITLE: CP-200/CAT-157 CARD MOD.		
DATE 7/14/93	APPROVED	DRAWN: M.SKRZAT
SCALE: NONE		REV. A 7/14/93
DIGITAL THEATER SYSTEMS 31352 VIA COLINAS #101 WESTLAKE VILLAGE CA. 91362		
COMPUTER FILE NAME: CAT-157		DWG.NO. D450

DTS-6 DIGITAL AUDIO PROCESSOR



NOTES
CP-500 MUST HAVE THE CAT.685 CARD INSTALLED.
SEE D563 LOGIC BD. DRAWING FOR JUMPER SETTINGS ON D563.

JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH ON PLAYBACK CARD.

POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1	S1-2
ALL	OFF(OPEN)	ON(CLOSED)

S1-ON TRANSFORMER CARD

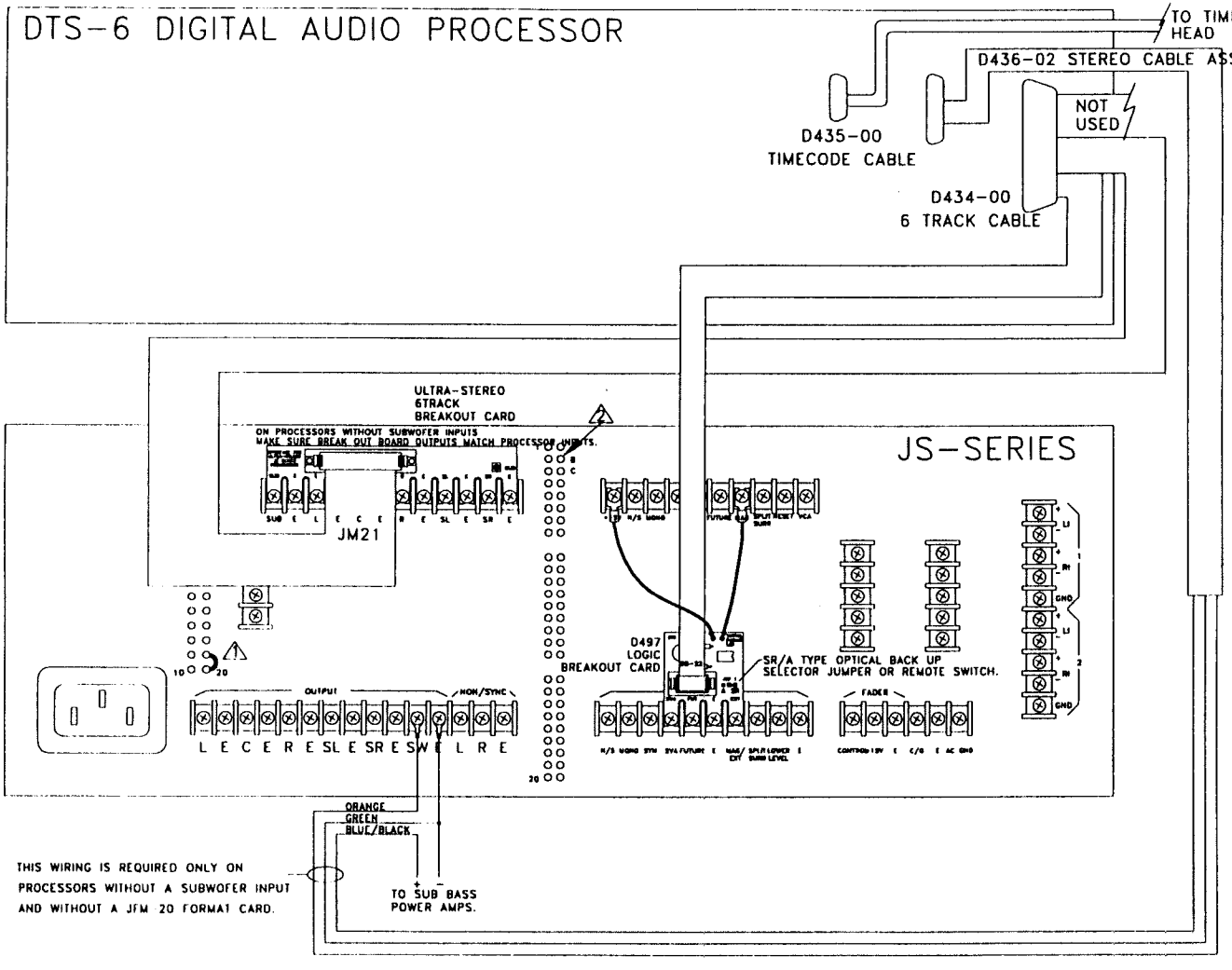
ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

TITLE: DTS-6 TO CP-500 CABLING
DATE 2/2/96 | APPROVED | DRAWN: M.SKRZAT
SCALE: NONE | REV. A

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP500 | DWG NO. D566

DTS-6 DIGITAL AUDIO PROCESSOR



JM11 INPUT, JM21 OUTPUT PINOUTS

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET BOARD SWITCHES.

S1, SWITCH-ON PLAYBACK CARD. POSITION	OFF (OPEN)	ON (CLOSED)
1	SUBWOOF OUT D436 CABLE 6TRACK & STEREO	SUBWOOF OUT D436 CABLE STEREO ONLY
2	P1 & GO RELAYS PULSE IN 6TRACK & STEREO	P1 & GO RELAYS PULSE IN 6TRACK ONLY

PROCESSOR	S1-1 OFF(OPEN)	S1-2 ON(CLOSED)
ALL		

S1-ON TRANSFORMER CARD ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

NOTES

⚠1 IF THE JSE-05 OR JSE-10 MODULE IS IN THIS SLOT, SOLDER A JUMPER BETWEEN PIN 19 & 20 TO ENABLE SURROUND RIGHT CHANNEL. IF A JSE-20 STEREO SURROUND MODULE IS IN THIS SLOT, NO JUMPER IS NECESSARY.

⚠2 ON PROCESSORS WITH OUT SUBWOFER INPUT AND IF JFM-20 SIX CHANNEL FORMAT MODULE IS INSTALLED IN THIS SLOT, SOLDER A WIRE FROM THE SUB-WOOFER OUTPUT(ON BREAKOUT BOARD) TO PIN 8-SUB-WOOFER INPUT. DO NOT WIRE TO SUBWOOFER AS SHOWN ABOVE.

TITLE: DTS-6 TO ULTRA*STEREO JS SERIES S/N 2000+		
DATE 8/30/93	APPROVED	DRAWN: W.SKRZAT
SCALE: NONE		REV. E 9/19/95

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME	DWG.NO.
6-USJSB	D456

NOTES

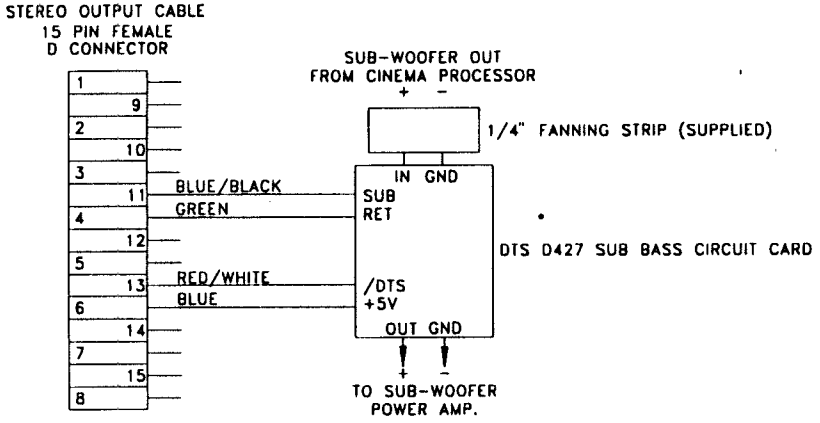
Thank you for choosing DTS !

WIRING DIAGRAMS

FOR DTS-6 UNITS

SERIAL NUMBER 1 - 1000

DTS SUB WOOFER INTERFACE



DTS CONNECTORS

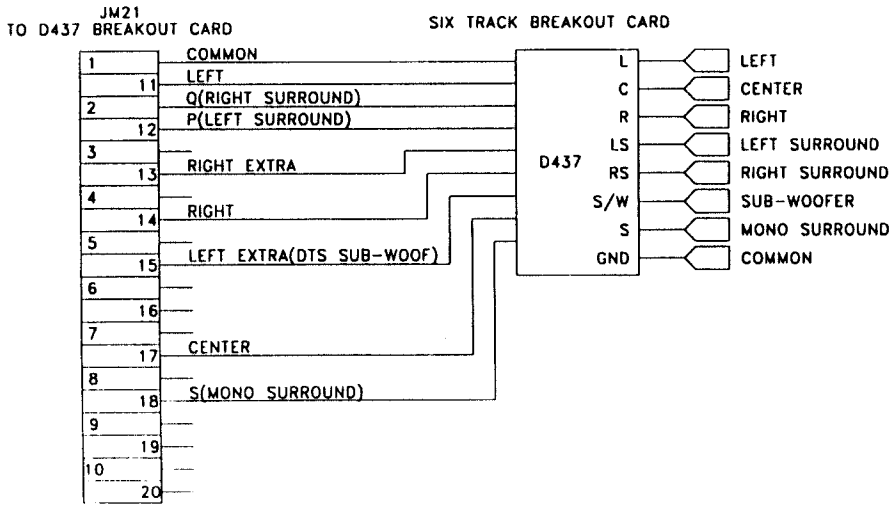
JM11,JM21 PINOUT

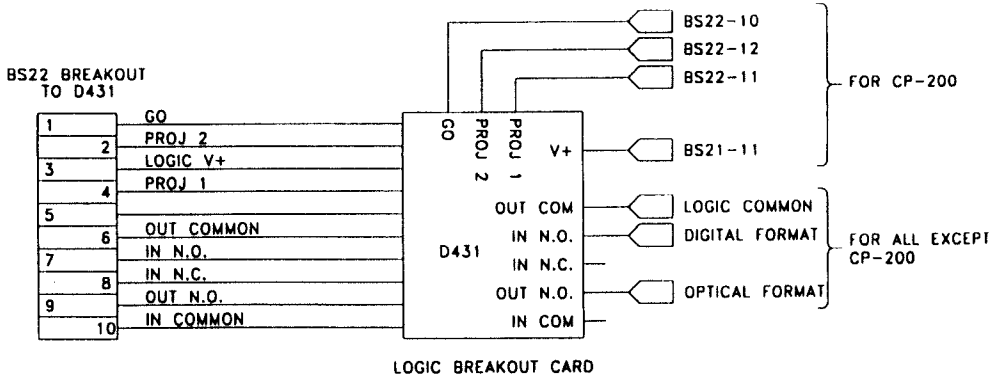
PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUB WOOF -	GREEN
5	SUB-WOOFER IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUB-WOOFER OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

DTS 6 TRACK INTERFACE





LOGIC BREAKOUT CARD

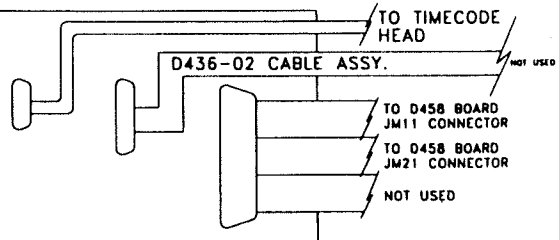
NOTE: THE OUT AND IN COMMONS ARE JUMPERED TOGETHER ON THE D426 CIRCUIT CARD. SEE THE D426 SCHEMATIC. CONTACTS ARE PULSED.

TITLE: DTS-6 HOOK-UP DIAGRAM FOR UPGRADED UNITS SERIAL NUMBERS 0001-1000
DATE 1/12/94 | APPROVED | DRAWN: L. BROWN
SCALE: NONE | REV.

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME HOOKUPC | DWG NO.

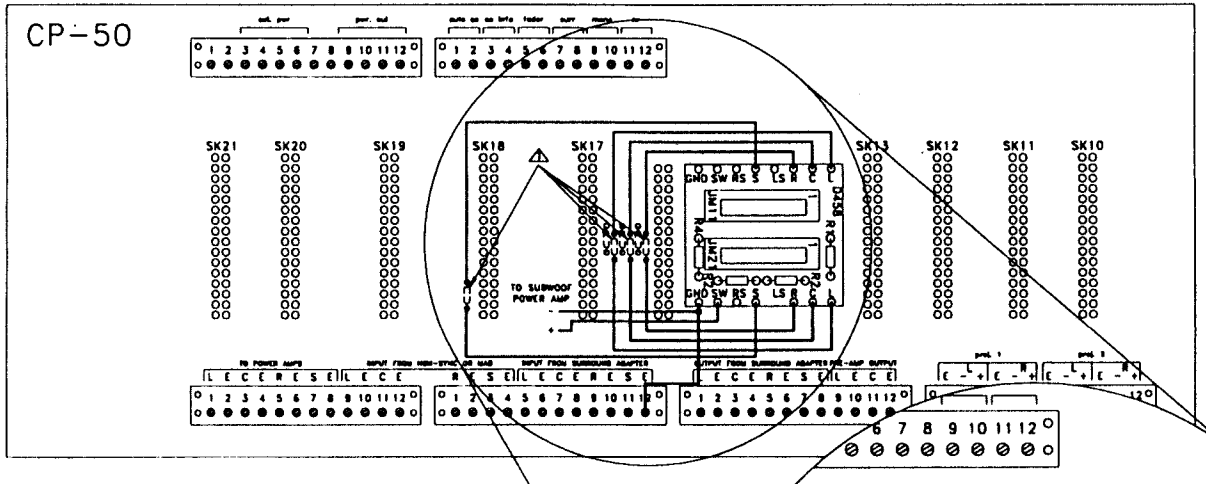
DTS-6 DIGITAL AUDIO PROCESSOR



JM11,JM21 PINOUT

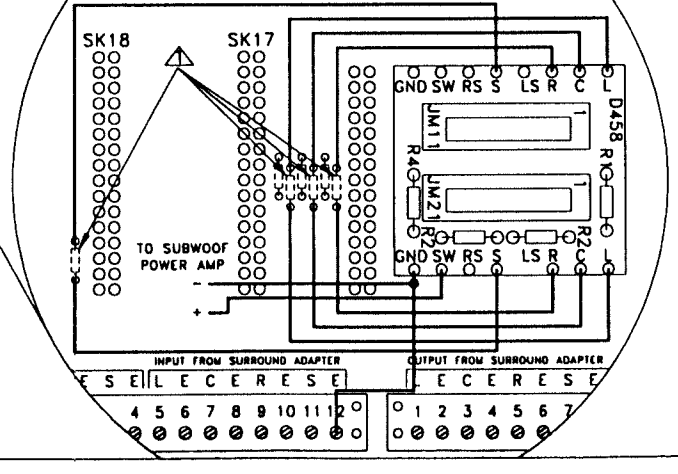
PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

CP-50



STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT



NOTE:REMOVE DTS TOP COVER TO SET JUMPER AND SWITCHES

D420 JUMPER SETTING.

JUMPER	OPEN/CLOSE
J6	CLOSED

D426 SWITCH SETTINGS.

S1-ON TRANSFORMER CARD ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

5 DTS-6 UNITS WITH D420 STEREO PLAYBACK P.C. BOARDS REV. C OR EARLIER MUST HAVE DTS34_5X PAL INSTALLED AT U34 FOR PROPER FUNCTION WITH CP50 PROCESSOR.

⚠4 SET SURROUND SWITCHES TO MONO (UP).

⚠3 ONLY QUALIFIED TECHNICIANS SHOULD PERFORM THIS MODIFICATION.

⚠2 THIS MODIFICATION WILL VOID THE CP-50's WARRANTY.

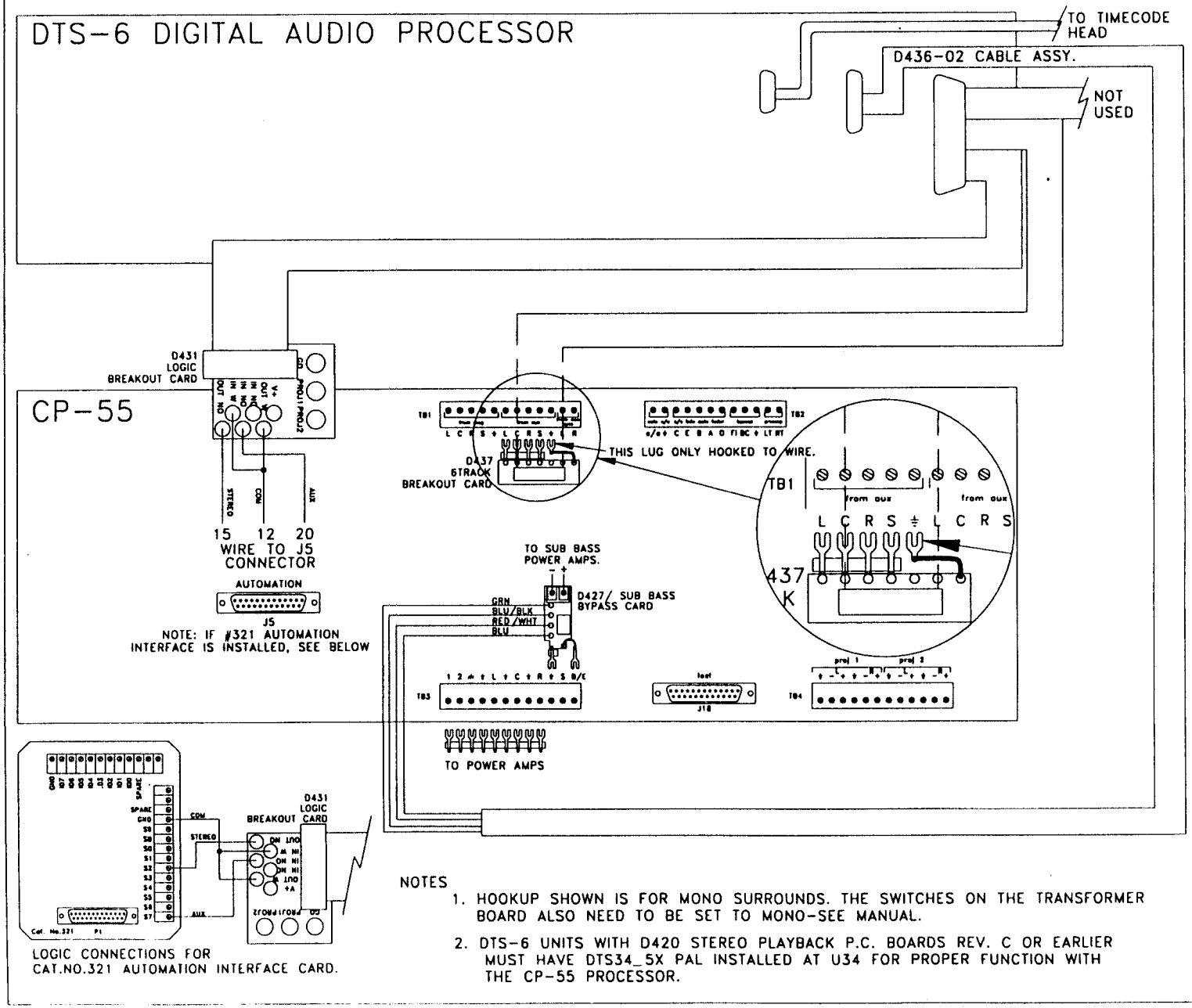
NOTES: ⚠1 RESISTORS SHOWN WITH HIDDEN LINES ARE ON THE INSIDE OF PROCESSOR. LIFT OR CUT ONE SIDE OF EACH RESISTOR.

TITLE: CP-50 CABLING FOR DTS-6 UPGRADED UNITS SERIAL NUMBERS 0001-1000
DATE 1/14/94 APPROVED DRAWN: L. BROWN
SCALE: NONE REV. B

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP50C DWG.NO. D459

DTS-6 DIGITAL AUDIO PROCESSOR



JM11-INPUT, JM21-OUTPUT PINOUT

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE: REMOVE DTS TOP COVER TO SET JUMPER AND SWITCHES

D420 JUMPER SETTING.

JUMPER	OPEN/CLOSE
J6	CLOSED

D426 SWITCH SETTINGS.

S1-ON TRANSFORMER CARD ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

NOTES

1. HOOKUP SHOWN IS FOR MONO SURROUNDS. THE SWITCHES ON THE TRANSFORMER BOARD ALSO NEED TO BE SET TO MONO-SEE MANUAL.
2. DTS-6 UNITS WITH D420 STEREO PLAYBACK P.C. BOARDS REV. C OR EARLIER MUST HAVE DTS34_5X PAL INSTALLED AT U34 FOR PROPER FUNCTION WITH THE CP-55 PROCESSOR.

TITLE: CP-55 CABLING FOR DTS-6 UPGRADED UNITS SERIAL NUMBERS 0001-1000
DATE 1/13/94 APPROVED DRAWN: MIKE SKRZAT
SCALE: NONE REV. D 6/14/95

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP55C DWG.NO. D454

TECHNICAL UPDATE FOR DTS TO DOLBY CP-55 / WITH AUTOMATION

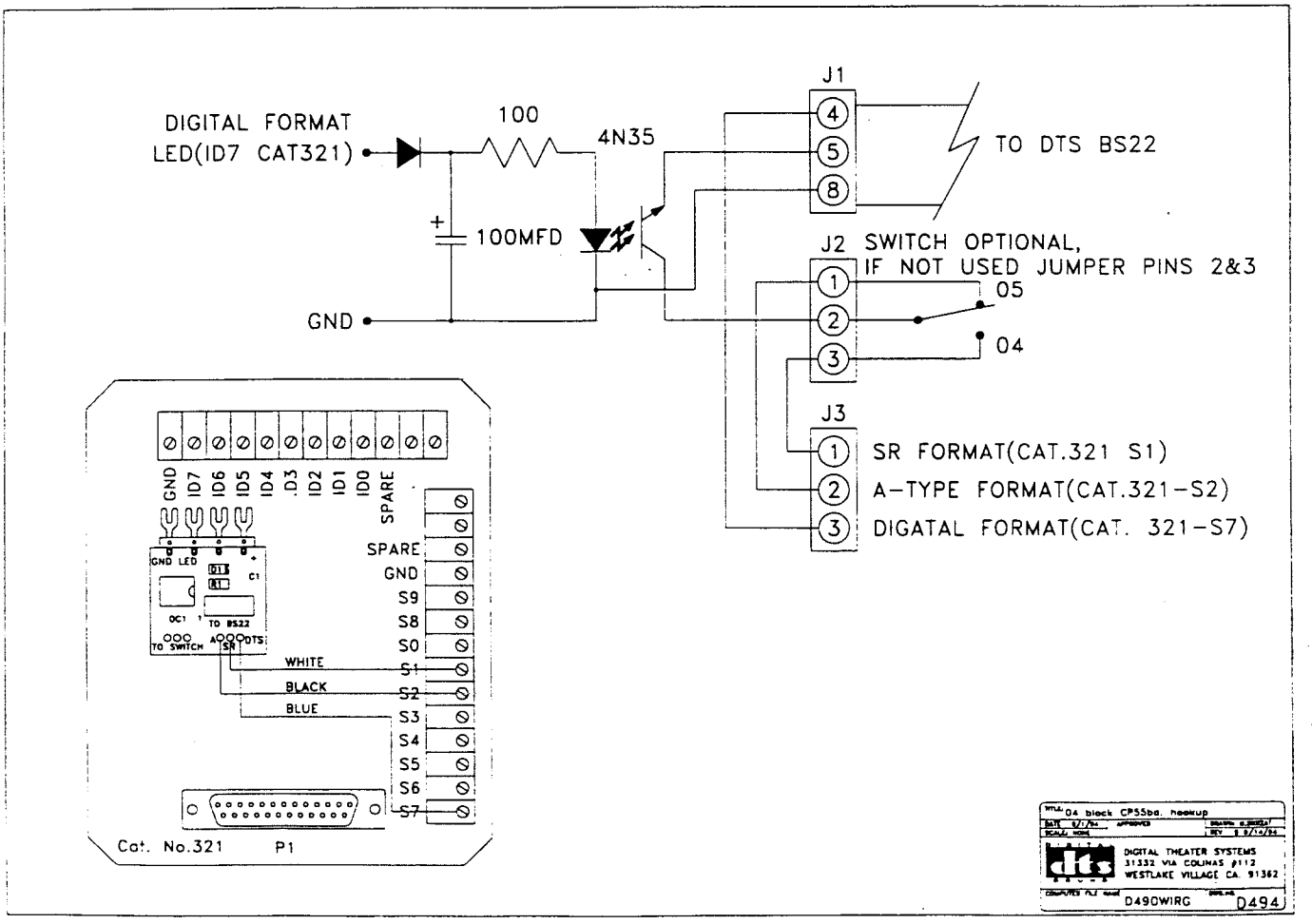
At the end of the show when the automation pulses the processor to non-sync it will occasionally switch back to 04 optical causing the tail end of the film to be heard as it runs out of the projector. To prevent this from occurring it will be necessary to replace the small board D-431.

READ INSTRUCTIONS AND SEE ILLUSTRATION BEFORE MAKING ANY MODIFICATIONS

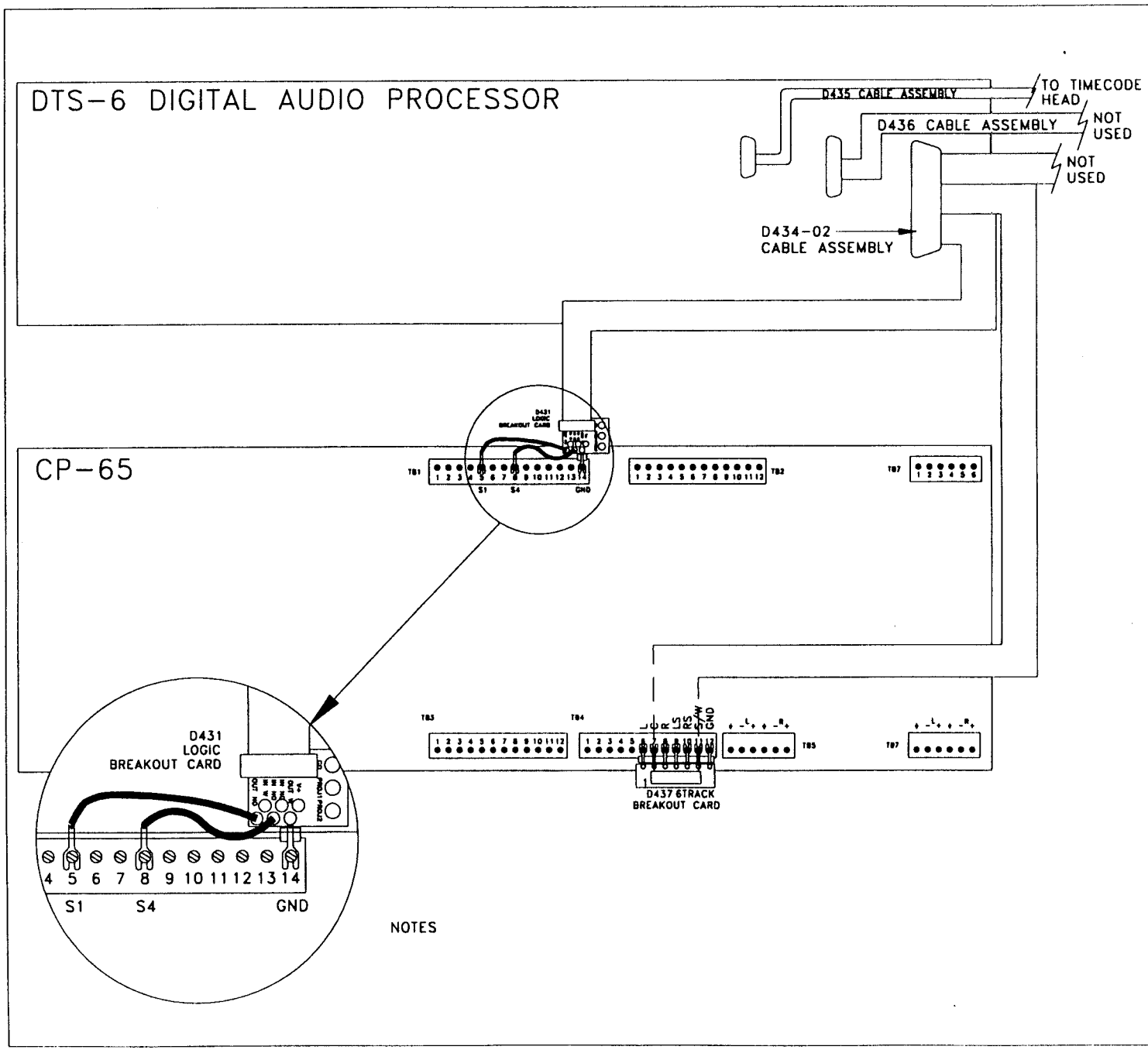
The D-431 board is connected between the BS-22 ribbon cable and the CP-55. NOTE: on some 50-pin cables the BS-22 ribbon cable is soldered directly to the D-431 card. If this is the case you will need to cut the ribbon cable removing D-431 and then install the enclosed 10-pin strip IDC socket which will plug into the new D-490 card.

The new D-490 card has an additional feature, if your CP-55 is equipped with an SR unit it can be wired in such a way that you may select SR or A-type format back-up. This can be done by moving the jumper located on the new D-490 card J2 across pins 2 & 3 for A-type or across pins 1 & 2 for SR.
An optional remote switch can be installed and labeled on front on the rack for more ease of setup and eliminate the need of moving the jumper.

IF YOU HAVE ANY QUESTIONS PLEASE CALL DTS FOR ASSISTANCE 1-800-959-4109



DTS-6 DIGITAL AUDIO PROCESSOR



JM11,JM21 PINOUT

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE:REMOVE DTS TOP COVER TO SET JUMPER AND SWITCHES

D426 SWITCH SETTINGS.

S1-ON TRANSFORMER CARD ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

D420 JUMPER SETTING.

JUMPER	OPEN/CLOSE
J6	CLOSED

TITLE: CP-65 CABLING FOR DTS-6 UPGRADED UNITS SERIAL NUMBERS 0001-1000
DATE 1/12/94 APPROVED DRAWN: L. BROWN
SCALE: NONE REV. C

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

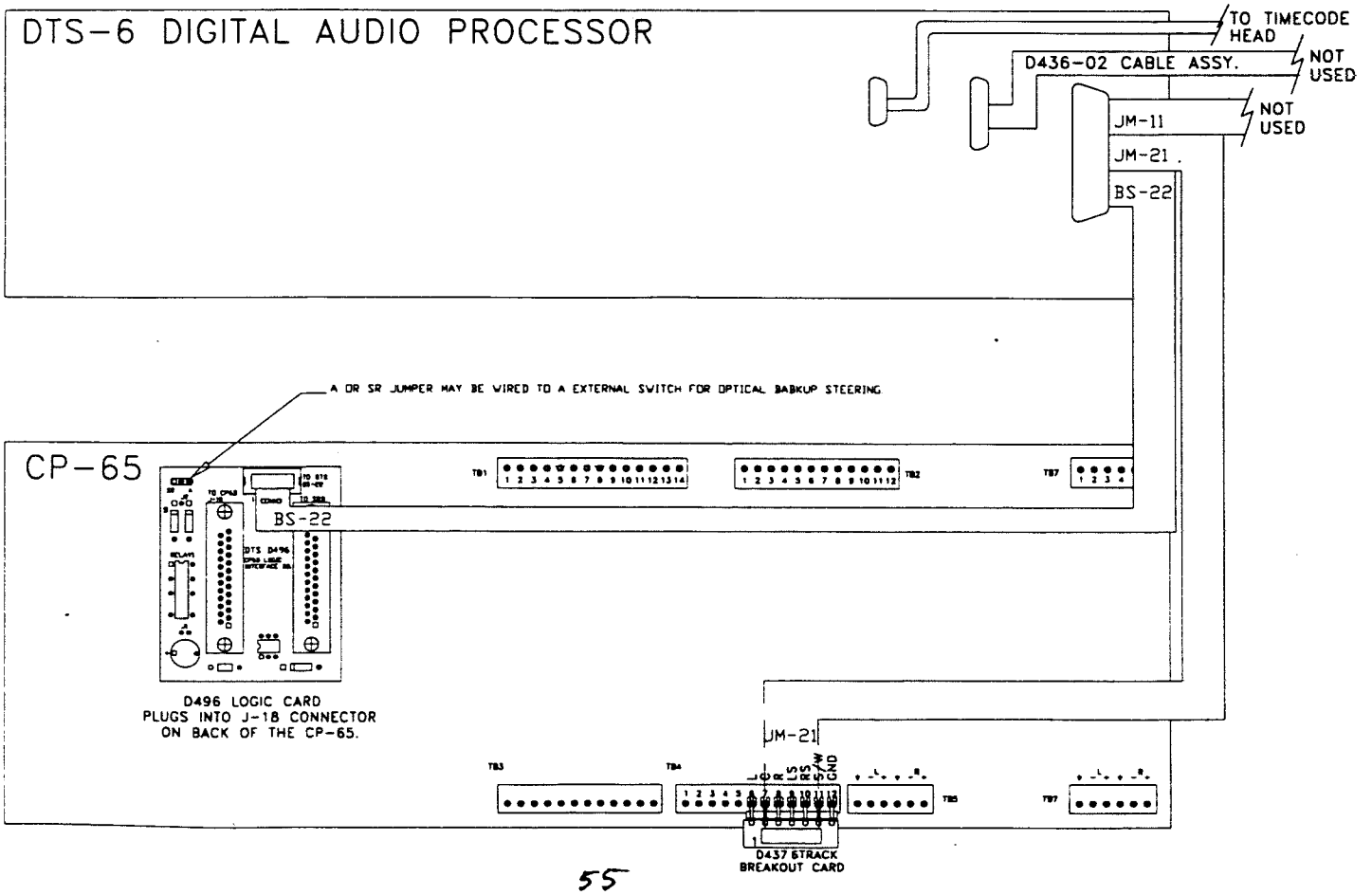
FILE NAME 6-CP65C DWG.NO. D455

TECHNICAL UPDATE FOR DTS TO DOLBY CP-65 / WITH AUTOMATION

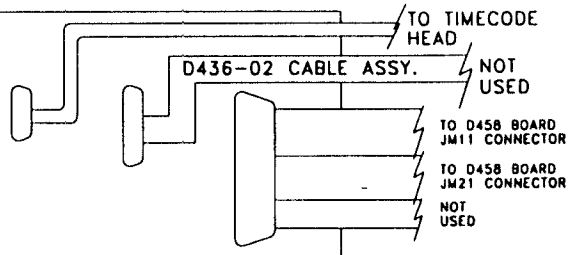
At the end of the show when the automation pulses the processor to non-sync it will occasionally switch back to 04 optical causing the tail end of the film to be heard as it runs out of the projector. To prevent this from occurring it will be necessary to replace the small board D-431. This new card also features a selectable "SR" or "A" type back-up switching feature. In addition the new card will accept the SR-D sense control plug.

To install the D-496 board on the CP-65, remove the cover off the J-18 pin connection on the back plane. Plug the new card directly into the J-18 socket of the CP-65. Plug the SR-D sense control into conn 2 of the new board.(If you are equipped with SR-D) If you are not equipped with an SR-D unit simple cover conn 3 with the cover that was removed from the back plane of J-18. Next remove DTS cable BS-22 from old logic board D-431 and install cable on conn 3 of the new board. *Note on some 50 pin cables the BS-22 ribbon cable is soldered directly to the D-431 card. If this is the case you will need to cut the ribbon cable removing D-431 then install the enclosed 10-pin IDC socket which will plug into the new D-496 board. Make sure BS-22 is plugged in correctly. See diagram.

IF YOU HAVE ANY QUESTIONS PLEASE CALL DTS FOR ASSISTANCE 818-706-3525



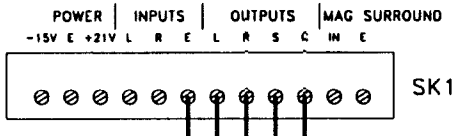
DTS-6 DIGITAL AUDIO PROCESSOR



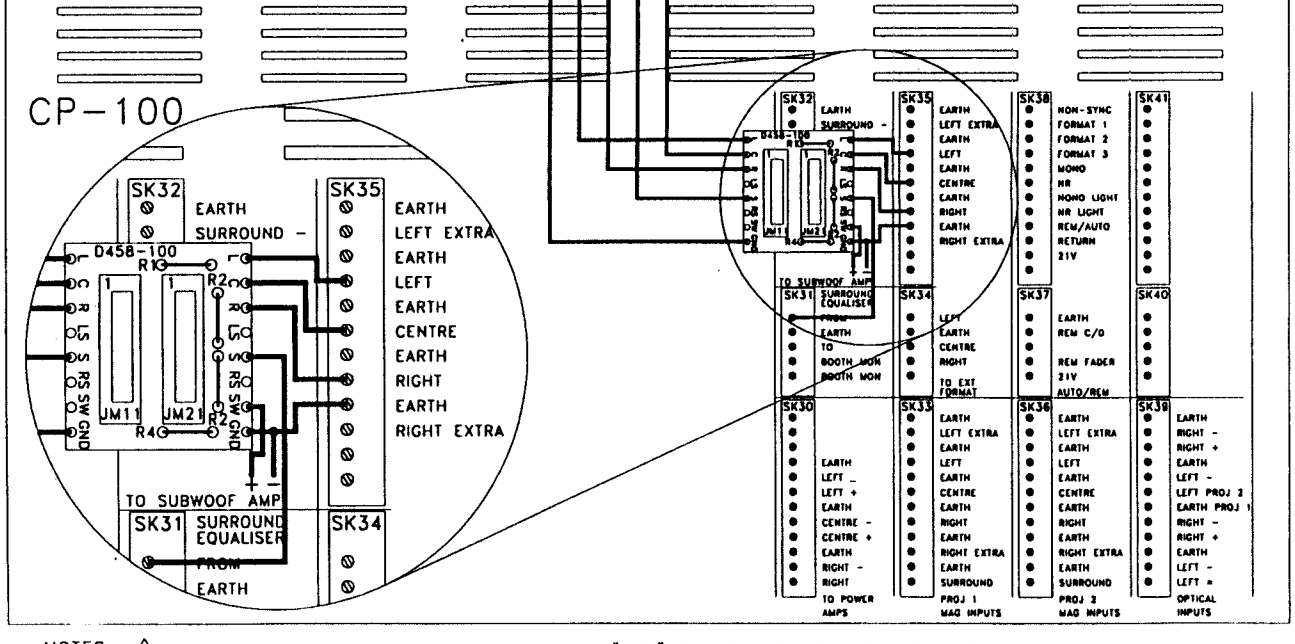
JM11,JM21 PINOUT

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

SA4 or SA5



CP-100



STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE:REMOVE DTS TOP COVER TO SET JUMPER AND SWITCHES

D420 JUMPER SETTING.

JUMPER	OPEN/CLOSE
J6	OPEN

D426 SWITCH SETTINGS.

S1-ON TRANSFORMER CARD ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

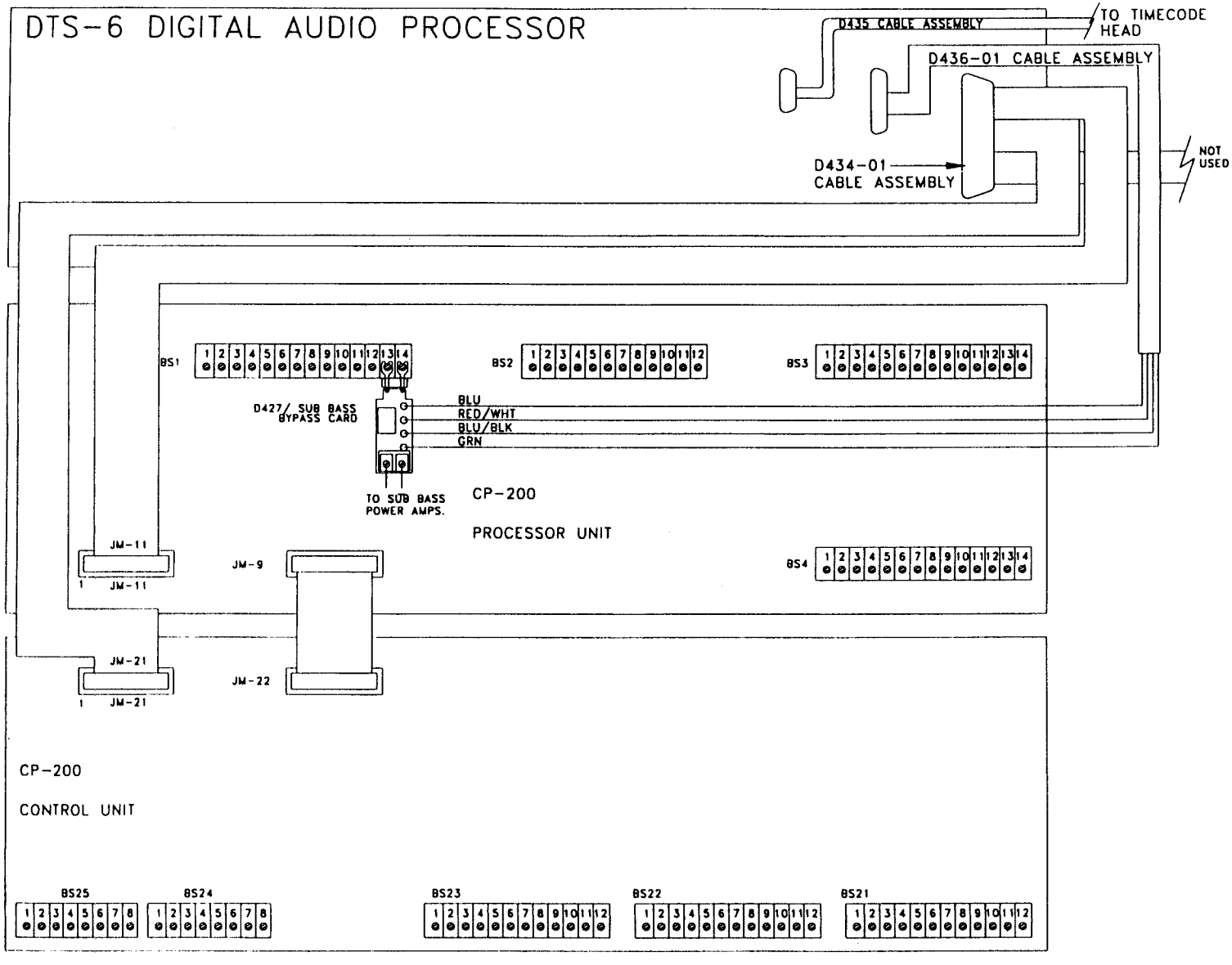
NOTES ⚠ The CP-100 processor may be configured so that the "extra" channels control the sub-woofer and one of the split surround channels. Contact DTS for more information.

TITLE: CP-100 CABLING FOR DTS-6 UPGRADED UNITS SERIAL NUMBERS 0001-1000
DATE 1/14/94 APPROVED DRAWN: L. BROWN
SCALE: NONE REV. B

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP100C DWG.NO. D460

DTS-6 DIGITAL AUDIO PROCESSOR



JM11,JM21 PINOUT

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	P(LEFT SURROUND)
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUB WOOF -	GREEN
5		ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUB WOOF +	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE:REMOVE DTS TOP COVER TO SET JUMPER AND SWITCHES

D426 SWITCH SETTINGS.

S1-ON TRANSFORMER CARD ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

D420 JUMPER SETTING.

JUMPER	OPEN/CLOSE
J6	OPEN

NOTE : SEE D450 DRAWING CP200 CAT 157 CARD MUST BE MODIFIED.

TITLE: CP-200 CABLING FOR DTS-6 UPGRADED UNITS SERIAL NUMBERS 0001-1000

DATE 1/11/94 | APPROVED | DRAWN L. BROWN

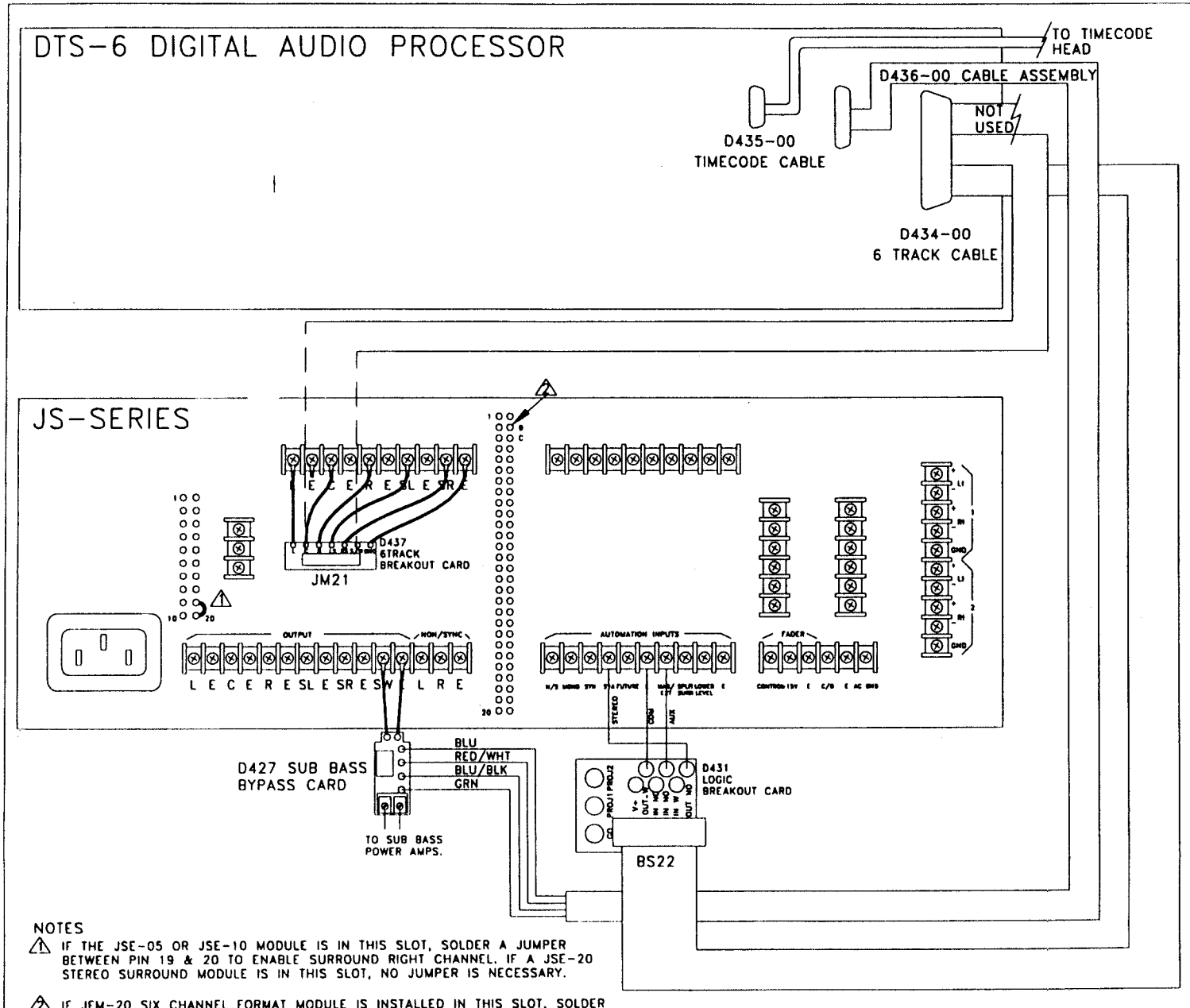
SCALE: NONE | REV. C

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-CP200C | DWG.NO. D444

57

DTS-6 DIGITAL AUDIO PROCESSOR



JM11,JM21 PINOUT

PIN	FUNCTION
1	AUDIO RETURN
2	Q(RIGHT SURROUND)
3	
4	
5	
6	
7	
8	
9	
10	
11	LEFT
12	P(LEFT SURROUND)
13	RIGHT EXTRA
14	RIGHT
15	LEFT EXTRA(DTS SUB-WOOF)
16	
17	CENTER
18	S(MONO SURROUND)
19	
20	

STEREO OUTPUT CABLE

PIN	FUNCTION	COLOR
1	RIGHT CHANNEL -	BLACK
2	LEFT CHANNEL -	WHITE
3	GROUND	RED
4	SUBWOOF -	GREEN
5	SUBWOOF + IN	ORANGE
6	+5V @ 2 AMP	BLUE
7	CHANGEOVR WIPER	WHT/BLK
8	GROUND	RED/BLK
9	RIGHT CHANNEL +	GRN/BLK
10	LEFT CHANNEL +	ORG/BLK
11	SUBWOOF + OUT	BLU/BLK
12		BLK/WHT
13	DTS(S/W ENABLE)	RED/WHT
14	CHANGEOVER N.C.	GRN/WHT
15	CHANGEOVER N.O.	BLUE/WHT

NOTE;REMOVE DTS TOP COVER TO SET JUMPER AND SWITCHES

D420 JUMPER SETTING.

JUMPER	OPEN/CLOSE
J6	OPEN

D426 SWITCH SETTINGS.

S1-ON TRANSFORMER CARD	
ALL UP	ALL DOWN
SPLIT SURROUNDS	MONO SURROUNDS

NOTES

⚠1 IF THE JSE-05 OR JSE-10 MODULE IS IN THIS SLOT, SOLDER A JUMPER BETWEEN PIN 19 & 20 TO ENABLE SURROUND RIGHT CHANNEL. IF A JSE-20 STEREO SURROUND MODULE IS IN THIS SLOT, NO JUMPER IS NECESSARY.

⚠2 IF JFM-20 SIX CHANNEL FORMAT MODULE IS INSTALLED IN THIS SLOT, SOLDER A WIRE FROM THE SUB-WOOFER OUTPUT(STEREO OUTPUT CABLE-BLU/BLK) OF THE DTS PROCESSOR TO PIN 8-SUB-WOOFER INPUT. DO NOT WIRE TO SUBWOOFER AS SHOWN ABOVE.

TITLE: ULTRA*STEREO JS SERIES CABLING FOR DTS-6 UNITS SERIAL NUMBERS 0001-1000
DATE 1/14/94 | APPROVED | DRAWN: L. BROWN
SCALE: NONE | REV. C

DIGITAL THEATER SYSTEMS
31352 VIA COLINAS #101
WESTLAKE VILLAGE CA. 91362

FILE NAME 6-USJSC | DWG.NO. D456

OTHER

HELPFUL

DOCUMENTS

Notice to Field Technicians

Subject: Quad CD-ROM drive June 16, 1995

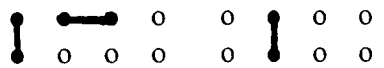
We have upgraded our CD-ROM drive from dual to quad. A quad drive's model number will be 3501 (dual drive is model number 3401) . The quad drive can be used with a dual drive only if the ROM-DOS chip inside the DTS player unit is programmed to "Rev. C" (or higher). If both drives are quad, you must still use ROM-DOS "Rev. C" (or higher revision).

When putting a new quad drive into a DTS player unit, follow the steps below:

* Remove the old drive. Carefully unplug its cables.

* Set up the new drive (for top or bottom position) as shown:

Top Drive

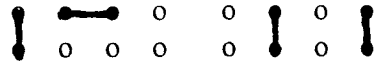


Install programming jumpers as shown

No resistor packs should be installed

- front panel-

Bottom Drive



Install programming jumpers as shown

T-RES T-RES

Two resistor packs should be installed

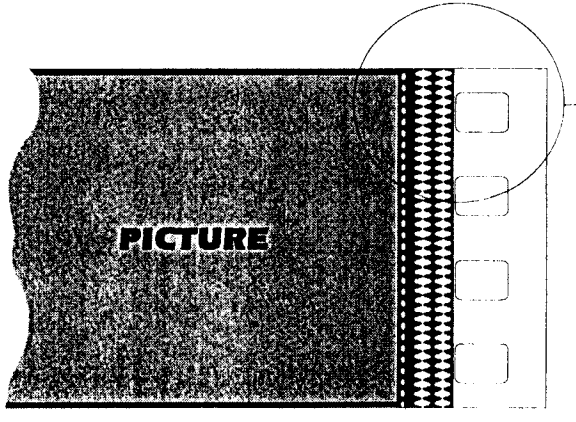
-front panel-

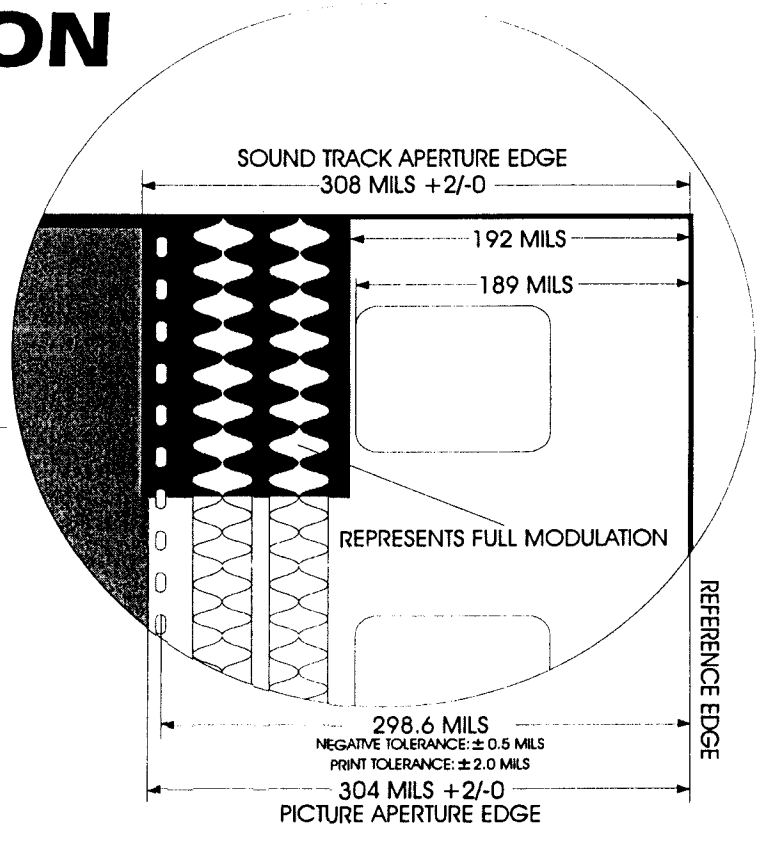
* The ROM-DOS chip must be changed with one labeled "Rev C" (a higher version may be used). This IC is located inside the player in the timecode reader card (D422). Carefully remove the old chip and install the new one in its place.

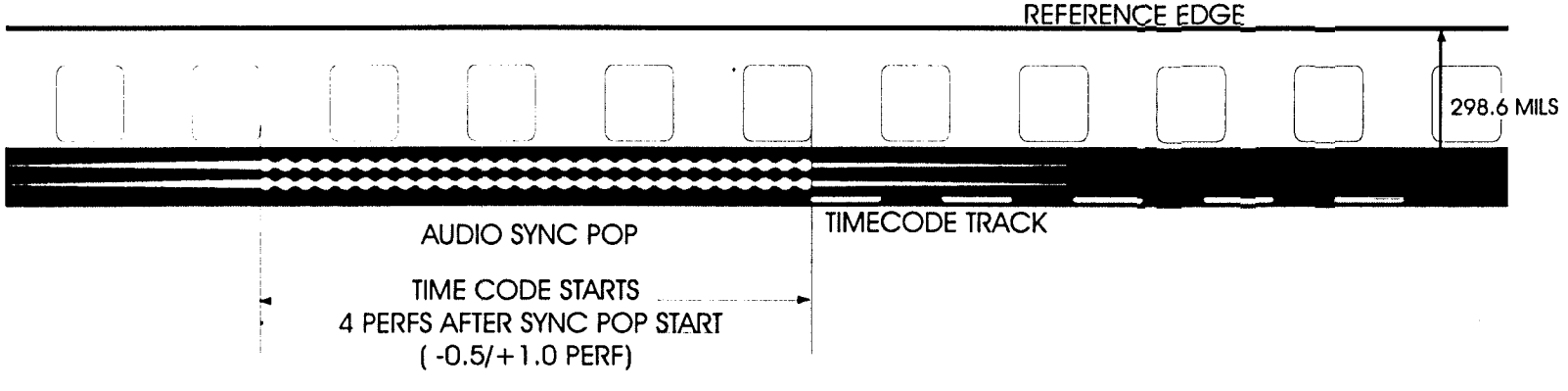
* Install the new drive. Plug in both cables. Power the DTS player. To test, insert a 6-track setup disc into replaced drive. DTS-6 unit should switch in and play in digital once "boot" sequence is completed.

DTS TRACK SPECIFCATION

DIGITAL dts SOUND







DTS EMPIRICAL TEST DISC

Test #1 will play automatically. To proceed, wait for the announcement, then select the desired test number on the TIMECODE HEAD OFFSET rotary switches (located behind the player's front panel access cover). Be sure to write down the current offset setting *before* your selection is made and restore the setting for proper DTS movie playback. **NOTE: *Some of these test signals may cause serious damage to sound systems that are not properly designed to reproduce the extended dynamic range of a digitally-based sound storage system.**

1	Empirical test section
***2**	**Power handling test**
3	Left level, set channel ID, pink noise @ 0dB alternating with low level multi-tone
4	Left surround level set
5	Center level set
6	Right surround level set
7	Right level set
8	Male voice for speaker comparison
9	Female voice for speaker comparison
10	Music for speaker comparison
11	Dialog, front speaker balance
12	Pink noise, surround speaker balance
13	Music, front speaker balance
14	Digital silence
15	Left channel ID, -10dB sweep, 0dB sweep
16	Left surround channel ID, -10dB sweep, 0dB sweep
17	Center channel ID, -10dB sweep, 0dB sweep
18	Right surround channel ID, -10dB sweep, 0dB sweep
19	Right channel ID, -10dB sweep, 0dB sweep
20	Room acoustics test: left surround, right surround, center
21	Left level sweep 400 Hz, -5dB to +5dB
22	Left surround sweep 400 Hz, -5dB to +5dB
23	Center level sweep 400 Hz, -5dB to +5dB
24	Right surround sweep 400 Hz, -5dB to +5dB
***25**	**Right level sweep 400 Hz, -10dB to +20dB**
26	Left level sweep 400 Hz, -10dB to +10dB
27	Left surround level sweep 400 Hz, -10dB to +10dB
***28**	**Center level sweep 400 Hz, -10dB to +20dB**
29	Right surround level sweep 400 Hz, -10dB to +10dB
***30**	**Right level sweep 400 Hz, -10dB to +20dB**
***31**	**Left explosion @ +10dB, +20dB**
***32**	**Left surround explosion @ +10dB, +20dB**
***33**	**Center explosion @ +10dB, +20dB**
***34**	**Right surround @ +10dB, +20dB**
***35**	**Right explosion @ +10dB, +20dB**
36	1KHz @ reference level, all channels (250mV RMS)
37	Left pink noise @ reference level (85dB SPL)
38	Left surround pink noise @ reference level (82 dB SPL)
39	Center pink noise @ reference level (85dB SPL)
40	Right surround pink noise @ reference level (82dB SPL)
41	Right pink noise @ reference level (85dB SPL)
42	Sub bass pink noise @ reference level (85dB SPL)
43	Left 1/3 octave pink sweep 25 Hz - 2 KHz, 1 second pause, sweep 2 KHz - 20 KHz
44	Left surround 1/3 octave pink sweep 125 Hz - 2 KHz, 1 second pause, sweep 2 KHz - 20 KHz
45	Center 1/3 octave pink sweep 25 Hz - 2 KHz, 1 second pause, sweep 2 KHz - 20 KHz
46	Right surround 1/3 octave pink sweep 125 Hz - 2 KHz, 1 second pause, sweep 2 KHz - 20 KHz
47	Right 1/3 octave pink sweep 25 Hz - 2 KHz, 1 second pause, sweep 2 KHz - 20 KHz
48	Sub Bass sweep 20 Hz - 80 Hz
49	5 channel pop test, channel number ID by number of pops
50	4 seconds pink noise: left, center, right, left surround, right surround

11-94

DTS-6 System Parts List

D431-00	Logic break-out board (generic, Dolby CP50, CP100, Odyssey system)	
D490-00	Logic break-out board (Dolby CP55)	
D496-00	Logic break-out board (Dolby CP65)	
D497-00	Logic break-out board (UltraStereo)	
D563	Logic break out board (Dolby CP500)	
D437-00	Audio break-out board (generic, test board)	
D437-01	Audio break-out board (Dolby CP55, CP65)	
D458-00	Audio break-out board (Dolby CP50)	
D458-01	Audio break-out board (Dolby CP100, Smart Mod IIB)	
9030-DT10-00	Audio break-out board (UltraStereo)	
D434-01	6-track cable, 5 ft., generic, standard	- other lengths available, call DTS
D436-00	5 ft. stereo cable, standard	
D436-03	15 ft. stereo cable	
D462-00	Interface cable, DTS-6 audio loop-thru to Dolby CP200 with SR-D™	
D462-01	Interface cable, DTS-6 audio loop-thru to Dolby CP65 with SR-D™	
D561	Interface cable, DTS-6 audio to Dolby CP500	
D427-00	Subwoof relay board (used *only* with DTS-6 units # 1000 - 0001)	
D475	Index switch assembly	
2800-0200-01	Fuse, 2 amp	
2501-0001-00	Power cord, straight, detachable, standard	- bare ended available, call DTS
2501-0002-00	Power cord, right angle, detachable	- bare ended available, call DTS
For single projectors:		
D435-00	20 ft. Timecode cable, standard	- single-ended available, call DTS
D435-01	30 ft. Timecode cable	
D435-02	40 ft. Timecode cable	
D435-05	45 ft. Timecode cable	
D435-06	60 ft. Timecode cable	
For dual projectors:		
D435-03	Timecode Y cable, 20 ft. / 30 ft, standard	- single-ended available, call DTS
D435-08	Timecode Y cable, 30 ft. / 40 ft.	
D435-09	Timecode Y cable, 40 ft. / 50 ft.	
D435-10	Timecode Y cable, 60 ft. / 60 ft.	
D600	Timecode reader head (auxiliary roller attached), 35mm	
E108	Auxiliary roller assembly kit, 35mm	
Mounting brackets (to projector) for timecode reader heads (hardware included):		
D614	Standard bracket (for Century, Simplex, Ballantyne)	
D615	Universal bracket	
D616	Phillips AA bracket (Norelco)	
D617	"L" bracket (Kinoton)	
D622	Front mount bracket (used with Dolby SR-D™ or Sony SDDS™ readers)	
5006-0001-00	Cinemeccanica bracket (use with D614 standard bracket)	
E102	70MM spacer kit (used to fit a 35mm reader in a 70mm space)	
E107	DTS Technician's Kit (includes all the items below and a DTS T-shirt)	
6060-0005-0D	6-Track Setup Disc Rev. D	
6060-0006-00	Empirical Test Disc	
6060-0003-00	6-Track Demonstration Disc D1 (used with the DTS Demo film)	
6800-0001-00	DTS Demo Film (used with the 6-track DTS Demo Disc D1)	
6800-1045-01	DTS logo (trailer) film, scope	
6800-1045-00	DTS logo (trailer) film, flat	1-25-96

DIGITAL dts SOUND

Digital Theater Systems Corp.

31336 Via Colinas #101, Westlake Village, California 91362 . (818) 706-3525 . Fax (818) 706-1868

Installation Procedure, Timecode Reader Head Auxiliary Roller

The Auxiliary Roller is designed to mount on either of the two Secondary rollers of the Timecode Reader Head, as detailed below:

1. Remove the screw ① from the end cap ② of the desired secondary roller ③, and remove the end cap ②.

2. Loosen the set screw ④ which holds the roller shaft ⑤ of the secondary roller ③.

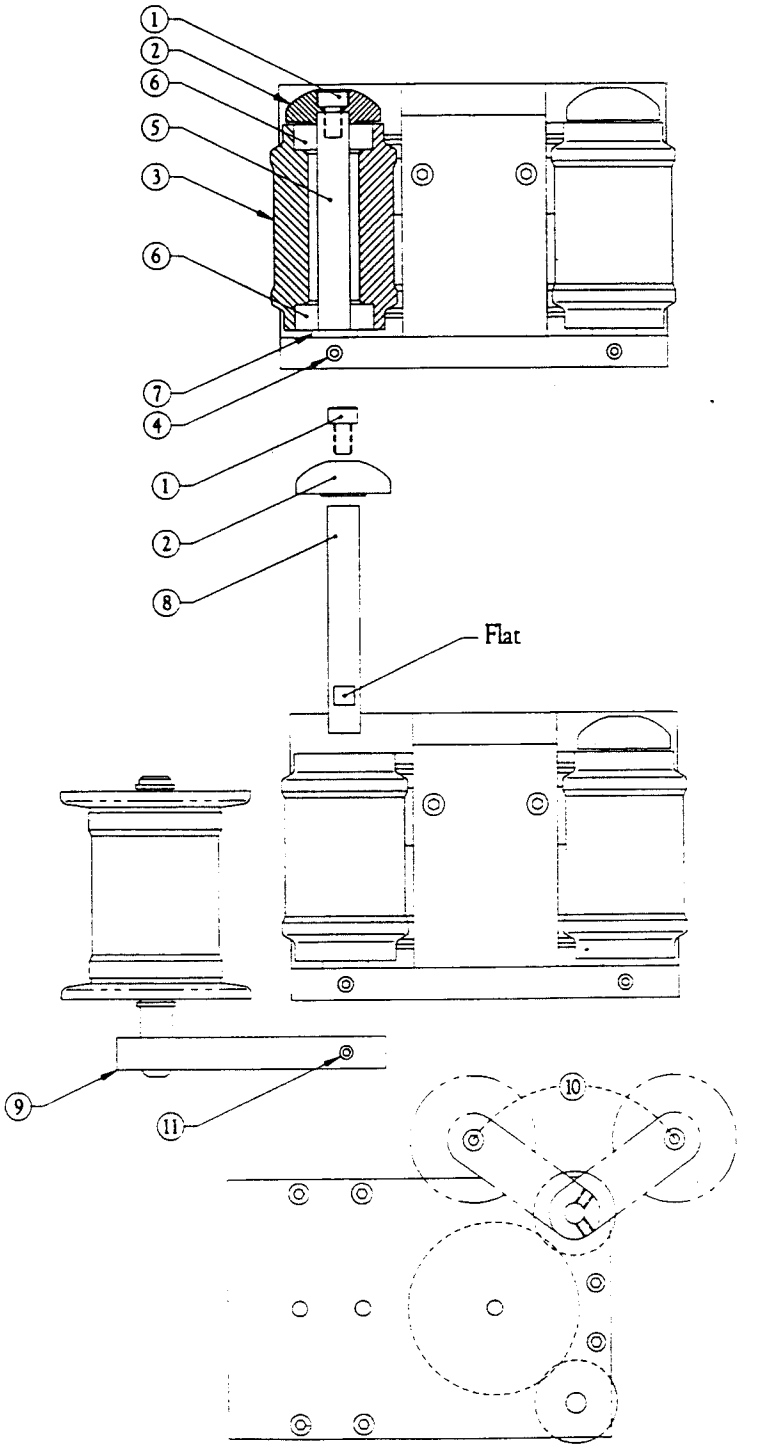
3. Gently push the roller shaft ⑤ out of the secondary roller ③. Note: Excessive force may damage the bearings ⑥. Be careful not to lose the washer ⑦, or the bearings ⑥ that mount on the roller shaft ⑤.

4. Install the longer roller shaft ⑧ provided. Note: The flat section on the roller shaft ⑧ should face the set screw ④ in the Reader Head. About 1/4" of the longer roller shaft ⑧ will protrude from the bottom of the Reader Head.

5. Tighten the set screw ④, and replace the secondary roller ③ and end cap ②.

6. Make sure that the secondary roller ③ spins freely. If not, loosen the set screw ④ and ajust the roller shaft ⑤ up slightly. This should free the secondary roller ③. If, after adjustment the secondary roller ③ still does not spin, double check that all parts have been properly replaced onto the roller shaft ⑤.

7. Place the Auxiliary Roller ⑨ on the protruding section of the roller shaft ⑧, in the desired position ⑩, and tighten the cap screw ⑪.



Guide For A Seamless Change-Over

Occasionally, when running a DTS movie with dual projectors, you may come across situations when the picture and sound are not changing in unison during a change over. This is due to the fact that as soon as the first frame of action reaches the picture aperture on the incoming projector, the DTS digital sound will change over to that reel. DTS digital sound changes independent of the projector's dowser position. Change over anomalies are most evident on movies that have very tight editing / scene change tolerances from one reel's end to the next reel's start.

Since every brand of projector has variances (speed, for example), you may come across occasions when, during a change-over, the picture and sound are not changing at the same time. When this occurs, do the steps below.

Sound changes before picture

When threading the incoming projector, roll down the film to a greater number of feet. If you normally thread to "8", try threading to "9" or "10". Keep adjusting the roll down setting until the picture changes with the sound. Also, try hesitating a second before starting the incoming projector on the first cue.

Picture changes before sound

When threading the incoming projector, roll down the film to a lesser number of feet. If you normally thread to "8", try threading to "7" or "6". Keep adjusting the roll down setting until the picture changes with the sound. Be sure to hesitate opening the dowser on the incoming projector (on the second cue) until the last word on the outgoing reel is heard on screen.

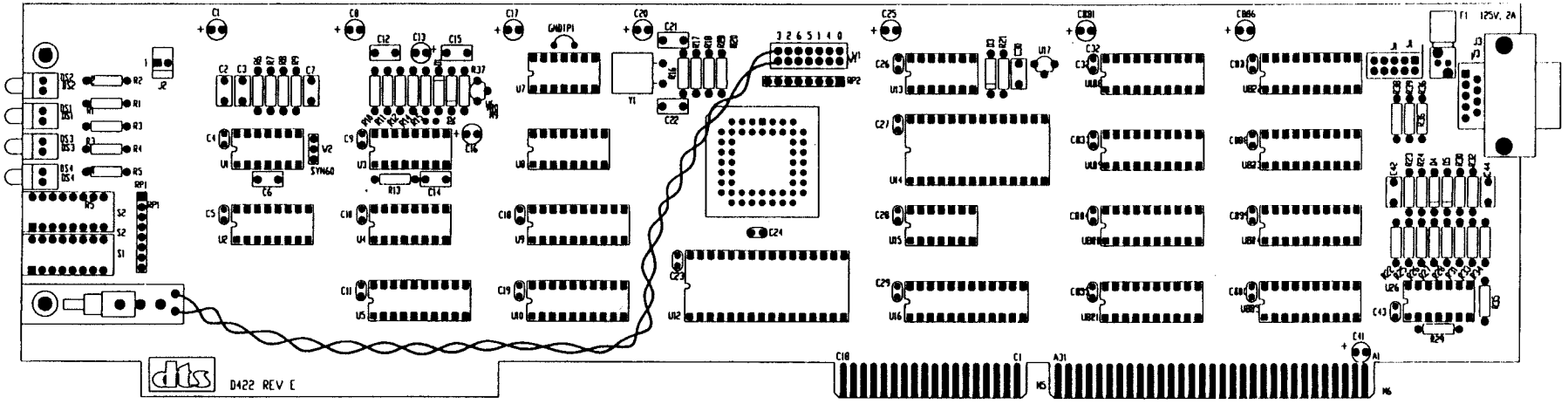
Determining roll-down

Adjusting the roll down setting is a judgment call. Base it on the time delay of picture vs. sound. One second of delay equates to 24 frames, or 1.5 feet.

For further information, please contact DTS at (800) 949-4109.

Thank you for choosing DTS !

HOW TO INSTALL D-475 INDEXING SWITCH



D-475 INDEXING SWITCH

TO INSTALL SWITCH:

1 - - REMOVE D-422 TIMECODE READER BOARD FROM DTS UNIT.
2 - - REMOVE SCREW (LOCATED ON FRONT OF CARD NEAR BOTTOM).
3 - - INSTALL NEW SWITCH WITH PLASTIC WASHER BETWEEN CIRCUIT BOARD AND SWITCH BOARD.
4 - - ROUTE WIRE ALONG BOTTOM OF CARD THEN UP TO W1 PINS, CONNECT AS SHOWN.

DTS MARQUEE SIGN ORDER FORM

For every DTS-6 unit in the field, we will provide one 4" mini-marquee sign and an 8", 10" or 12" marquee sign at no charge. Please fill out the following information and these will be shipped within 2-3 weeks of receipt of the order form. We will send the marquees directly to the theatre, or to the dealer for distribution. If we send the marquees directly to the dealer, we need to know the names and locations of the theatres for our records.

May 1995

Dealer: _____ Theatre: _____

Address: _____ Address: _____

_____ _____

Contact: _____ Contact: _____

Phone: _____ Phone: _____

FOR EXISTING DTS-EQUIPPED THEATRES

☐ 8" panel Qty. _____

☐ 10" panel Qty. _____

☐ 12" panel Qty. _____

☐ One-Sheets Qty. _____

FOR ADDITIONAL MARQUEES

☐ 8" panel Qty. _____ Price:$5.00 each*

☐ 10" panel Qty. _____ Price:$5.50 each*

☐ 12" panel Qty. _____ Price:$7.25 each*

*Plus tax and shipping

Please return this form to:

Natasha Norris
Digital Theater Systems
31336 Via Colinas, #101
Westlake Village, CA 91362
Phone: (818) 706-3525
Fax: (818) 706-1868

Notice to Field Technicians

Subject: UltraStereo Interface to DTS-6 July 24, 1995

A problem has been identified in the UltraStereo DTS-10B board.

The UltraStereo audio breakout board, DTS-10B, has the left surround and the mono surround outputs tied together. This lowers the left surround's output level and rolls off its high end when the DTS-6 is set for split (stereo) surrounds.

Only the DTS-10B (shown below), WITH NO REV. LETTER, requires modification. Boards marked with a yellow dot have been reworked by DTS.

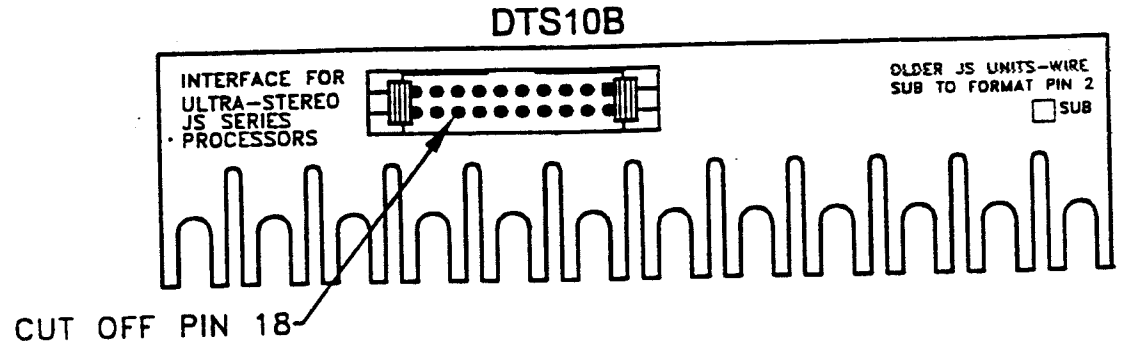
If you have a DTS-10B board that has no Rev. letter, do the steps below:

1) Unplug the JM21 ribbon cable connector from the DTS-10B board. Remove the DTS-10B board from the back of the UltraStereo processor.

2) On the DTS-10B board, cut off pin 18 (as shown). Cut the pin as close to the board as possible.

3) Reconnect the DTS-10B board to the UltraStereo processor and the JM21 connector.

4) Recalibrate the left surround SPL level using the DTS REV. D (or Rev. C) SETUP DISC or DTS EMPIRICAL TEST DISC. See Section IV, "Setting the DTS-6 Levels". Verify all channels have proper SPL settings.



Please direct any questions about this modification to DTS Field Services (800) 959-4109.