Film-Tech

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◼◻◼◻ Dolby®

CAT. NO. 701
DIGITAL SOUNDHEAD
Installation Instructions

ISSUE 03   **Part No. 91478**

NOTE: For complete system installation please refer to the Model CP500 or
Model DA20 Installation Manual.

INSTALLATION INSTRUCTIONS

FOR

CAT. NO. 701
DIGITAL SOUNDHEAD

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<div align="right">

SECTION 1
POWER REQUIREMENTS

</div>

Power Requirements

The Cat. No. 701 Digital Soundhead contains an internal power supply and is intended for operation at nominal 120Vac or 240 Vac input and nominal 5Vdc output. The switching power supply used in the Cat. No. 701 may be used with mains voltages in the range 85-265 Vac, 50-60 Hz without adjustment for input voltage.

FUSE—T 400mA 5mm x 20mm Time Lag

The fuse may be inspected or replaced by removing the power cord from the unit and opening the hinged cover of the power entry module. The fuse holder can then be removed.

Regulatory Notices

FCC
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 this 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 or her own expense.

UL
Troubleshooting must be performed by trained technicians. Do not attempt to service the unit unless you are qualified to do so. A power cord for connecting to 120 Vac mains is supplied with units shipped to U.S. destinations.

WARNING: Check that the correct fuse has been installed. To reduce the risk of fire, replace the fuse only with the same type and rating. Do not use a ground-lifting adapter and never cut the ground pin on the three-prong power plug.
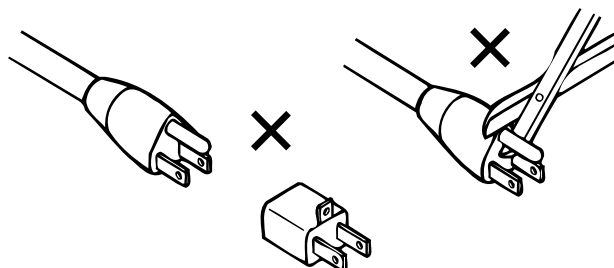
UK
Connections for United Kingdom.

WARNING: THIS APPARATUS MUST BE EARTHED.

As the colours of the cores in the mains lead may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The core which is coloured green and yellow must be connected to the terminal in the plug which is marked with the letter **E** or by the earth symbol ⏚, or coloured green or green and yellow.

- The core which is coloured blue must be connected to the terminal which is marked with the letter **N** or coloured black.

- The core which is coloured brown must be connected to the terminal which is marked with the letter **L** or coloured red.

IEC NOTICES

⚠	LED Light **DO NOT STARE INTO BEAM** CLASS 2 LED Product Per EN 60825-1:1996 1mW at 650-680 nm	**GB**
⚠	Faisceau de LED **Ne pas rester dans le faisceau** LED Classe 2 selon EN 60825-1:1996 1 mW à 650-580 nm	**F**
⚠	LED Lichtquelle **Nicht in den Lichtstrahl blicken** LED der Kategorie 2 entspr. EN 60825-1:1996 1 mW bei 650-680 nm	**D**
⚠	L'indicatore del LED **Non guardare fissamente il raggio** Prodotto LED classe 2 secondo al EN 60825-1: 1996 1 mW a 650-680 nm	**I**
⚠	La luz LED **No mire fijamente al rayo de luz** Producto LED clase 2 según el estandár EN 60825-1: 1996 1 mW a 650-680 nm	**E**
⚠	LED ljus **Undvik att titta direkt in i laser strålen** Klass 2 LED produkt per EN 60825-1:1996 1 mW wid 650-680 nm	**S**
⚠	LED belichting **Kijk niet in de lichtstraal** Klasse 2 LED product volgens EN60825-1:1996 1 mW bij 650-680 nm	**NL**

IMPORTANT SAFETY NOTICE

This unit complies with the safety standard IEC65. To ensure safe operation and to guard
against potential shock hazard or risk of fire, the following **must** be observed:
- If the unit has a **voltage selector**, ensure that it is set to the correct mains voltage for your **supply**. If there
  is no voltage selector, ensure that your supply is in the correct range for the input requirement of the unit.
- Ensure **fuses** fitted are the **correct rating and type** as marked on the unit.
- The unit **must be earthed** by connecting to a correctly wired and **earthed** power outlet.
- The **power cord** supplied with this unit must be wired as follows:
             Live—Brown   Neutral—Blue   Earth—Green/Yellow

GB

IMPORTANT – NOTE DE SECURITE

Ce materiel est conforme à la norme IEC65. Pour vous assurer d'un fonctionnement sans danger et de prévenir
tout choc électrique ou tout risque d'incendie, veillez à observer les recommandations suivantes.
- Le selecteur de tension doit être placé sur la valeur correspondante à votre alimentation réseau.
- Les fusibles doivent correspondre à la valeur indiquée sur le materiel.
- Le materiel doit être correctement relié à la terre.
- Le cordon secteur livré avec le materiel doit être câblé de la manière suivante:
             Phase—Brun   Neutre—Bleu   Terre—Vert/Jaune

F

WICHTIGER SICHERHEITSHINWEIS

Dieses Gerät entspricht der Sicherheitsnorm IEC65. Für das sichere Funktionieren des Gerätes und zur Unfallverhütung
(elektrischer Schlag, Feuer) sind die folgenden Regeln unbedingt einzuhalten:
- Der Spannungswähler muß auf Ihre Netzspannung eingestellt sein.
- Die Sicherungen müssen in Type und Stromwert mit den Angaben auf dem Gerät übereinstimmen.
- Die Erdung des Gerätes muß über eine geerdete Steckdose gewährleistet sein.
- Das mitgelieferte Netzkabel muß wie folgt verdrahtet werden:
             Phase—braun   Nulleiter—blau   Erde—grün/gelb

D

NORME DI SICUREZZA – IMPORTANTE

Questa apparecchiatura è stata costruita in accordo alle norme di sicurezza IEC 65. Per una perfetta sicurezza ed
al fine di evitare eventuali rischi di scossa êlettrica o d'incendio vanno osservate le seguenti misure di sicurezza:
- Assicurarsi che il selettore di cambio tensione sia posizionato sul valore corretto.
- Assicurarsi che la portata ed il tipo di fusibili siano quelli prescritti dalla casa costruttrice.
- L'apparecchiatura deve avere un collegamento di messa a terra ben eseguito; anche la connessione rete deve
  avere un collegamento a terra.
- Il cavo di alimentazione a corredo dell'apparecchiatura deve essere collegato come segue:
             Filo tensione—Marrone   Neutro—Blu   Massa—Verde/Giallo

I

AVISO IMPORTANTE DE SEGURIDAD

Esta unidad cumple con la norma de seguridad IEC65. Para asegurarse un funcionamiento
seguro y prevenir cualquier posible peligro de descarga o riesgo de incendio, se han de observar
las siguientes precauciones:
- Asegúrese que el selector de tensión esté ajustado a la tensión correcta para su alimentación.
- Asegúrese que los fusibles colocados son del tipo y valor correctos, tal como se marca en la unidad.
- La unidad debe ser puesta a tierra, conectándola a un conector de red correctamente cableado y puesto a tierra.
- El cable de red suministrado con esta unidad, debe ser cableado como sigue:
             Vivo—Marrón   Neutro—Azul   Tierra—Verde/Amarillo

E

VIKTIGA SÄKERHETSÅTGÄRDER!

Denna enhet uppfyller säkerhetsstandard IEC65. För att garantera säkerheten och gardera mot
eventuell elchock eller brandrisk, måste följande observeras:
- Kontrollera att spänningsväljaren är inställd på korrekt nätspänning.
- Konrollera att säkringarna är av rätt typ och för rätt strömstyrka så som anvisningarna på enheten föreskriver.
- Enheten måste vara jordad genom anslutning till ett korrekt kopplat och jordat el-uttag.
- El-sladden som medföljer denna enhet måste kopplas enligt följande:
             Fas—Brun   Neutral—Blå   Jord—Grön/Gul

S

BELANGRIJK VEILIGHEIDS-VOORSCHRIFT:

Deze unit voldoet aan de IEC65 veiligheids-standaards. Voor een veilig gebruik en om het gevaar van electrische
schokken en het risico van brand te vermijden, dienen de volgende regels in acht te worden genomen:
- Controleer of de spanningscaroussel op het juiste Voltage staat.
- Gebruik alleen zekeringen van de aangegeven typen en waarden.
- Aansluiting van de unit alleen aan een geaarde wandcontactdoos.
- De netkabel die met de unit wordt geleverd, moet als volgt worden aangesloten:
             Fase—Bruin   Nul—Blauw   Aarde—Groen/Geel

NL

2.1   Mounting the Digital Soundhead

Adapter Plates
The Cat. No. 701 Digital Soundhead casting has bolt patterns for several common projector types, and may be mounted to these projectors without an adapter plate:

SIMPLEX   35/70 and XL35
CENTURY   JJ with 2" bolt adapter
CENTURY   35MM-A
CHRISTIE   P35
BALLANTYNE   PR0 35

Adapter kits are available for the following projector types.

CINEMECCANICA   V8 / V5
                                         Order Cat. No. 690 Adapter Kit (plate Part No. 67185) needed
                                         for re-installing the reel arm to the top of the digital reader.

NORELCO   AAII / DP70
                                         Order Cat. No. 695 Adapter Kit (plate Part No. 67079)

KINOTON   DP75, FP20, FP30
                                         Order Cat. No. 696 Adapter Kit (plate Part No. 67139)

Additional plates may become available. Consult Dolby Laboratories for availability.

Mounting the soundhead on a projector is accomplished by selecting the appropriate adapter plates (if needed), attaching the plates to the soundhead casting, then bolting the plate to the projector and the reel arm or platter guide roller assembly. Lateral positioning is verified by threading a piece of film through the Digital Soundhead and the projector, and verifying equal tension on each edge.

Installation
While the Digital Soundhead is rugged and reliable, it has been designed and built to precision optical and mechanical tolerances. Handle the unit very carefully.

1. Remove the package of parts from the top of the shipping box.

2. Pull out the inner box containing the Digital Soundhead, and slide it out of the surrounding foam. Place the digital soundhead on a table or bench top, with mounting base down. The mounting base is the surface with thirteen mounting holes. **Figure 2.1** shows how the mounting holes correspond to bolt patterns for various projectors. This diagram shows the hole pattern as viewed from the top, inside the housing.
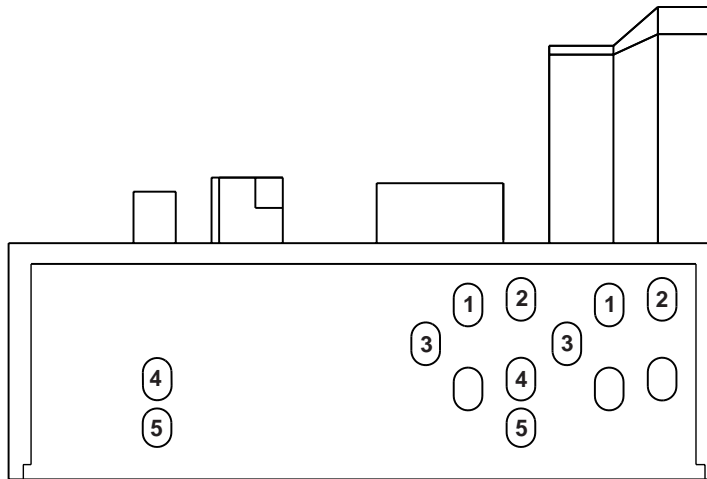
VIEW FROM INSIDE OF READER LOOKING DOWN

1   CENTURY JJ WITH 50.8 MM (2 INCH) BOLT PATTERN REEL ARM ADAPTER
     SIMPLEX 35

2   CHRISTIE
     CENTURY 35

3   SIMPLEX 35 - 70

4   CINEMECCANICA   V4, V5, V8 (35mm), V9

5   CINEMECCANICA   V8 (70mm)

Figure 2.1 Mounting Hole Bolt Pattern

3. Remove the six screws which hold the back cover/power supply assembly onto the Digital Soundhead. Carefully remove the LED connector. Put the assembly in a safe place.

4. Remove the upper reel arm or guide rollers from the projector on which the Digital Soundhead is to be mounted.

5. If an adapter kit is necessary, mount the adapter plate to the top of the projector. In the case of the Cat. No. 690 adapter kit, the reader attaches to the projector and the adapter plate attaches to the top of the reader.

6. Mount the Digital Soundhead to the projector body (or adapter plate) matching the appropriate set of bolt holes for the projector type.

    NOTE: When two Cat. No. 701 Digital Soundheads are mounted for use in a two-projector installation, care must be taken to ensure that the film path lengths between the Digital Soundhead and the picture gates in the two projectors are identical. The soundhead delay setting in the CP500 or DA20 is adjusted for correct synchronization of sound and picture during installation. Since only one adjustment is provided, both projectors must have the same film path length from the Digital Soundhead to the picture gate.

7. Reattach the upper reel arm or guide rollers to the Digital Soundhead, using an adapter plate if necessary.

8. Thread film through the Digital Soundhead and first few rollers of the projector and adjust the placement of the Digital Soundhead such that there is equal tension on each edge of the film, then firmly tighten the mounting bolts.

Set film path so that top and bottom tension
arm rollers Ⓐ are approximately 5 MM (1/4 inch) apart.
Use the white painted semi-circles Ⓑ for angular alignment
of tension arms Ⓒ . Make sure that the rollers do not touch.

SR•D Print Threading Path ———————
Bypass Threading Path ———————
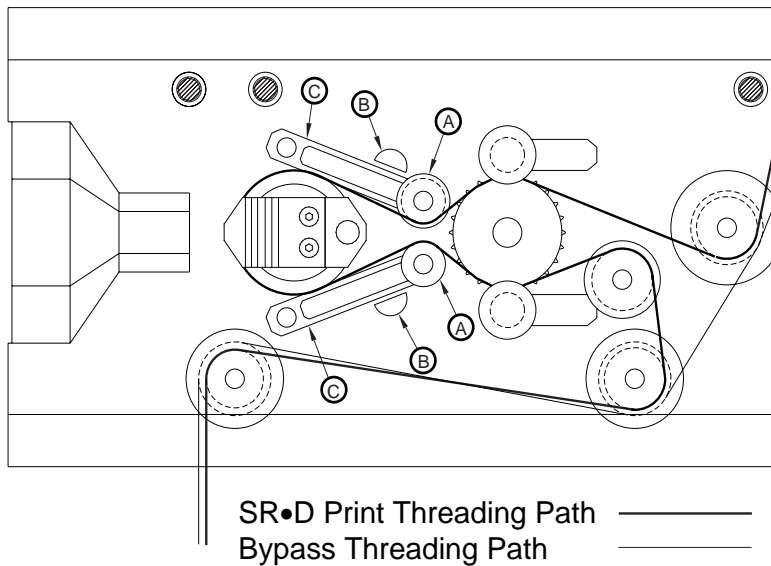
9. If desired, route appropriate conduit from the audio rack where the CP500 or DA20 is to be installed, terminating the conduit at the end of the Digital Soundhead. The soundhead has an unthreaded 27 mm diameter hole in a 2 mm plate to accept 3/4" (USA) conduit fittings or 25 mm (Europe) conduit adapters. Be sure to follow all local electrical codes.

10. Remove the shipping collar using the supplied Allen wrench, and install the Digital Soundhead flywheel, which is packed separately for shipping (see **Figure 2.2**).

11. Replace the cover/power supply assembly.

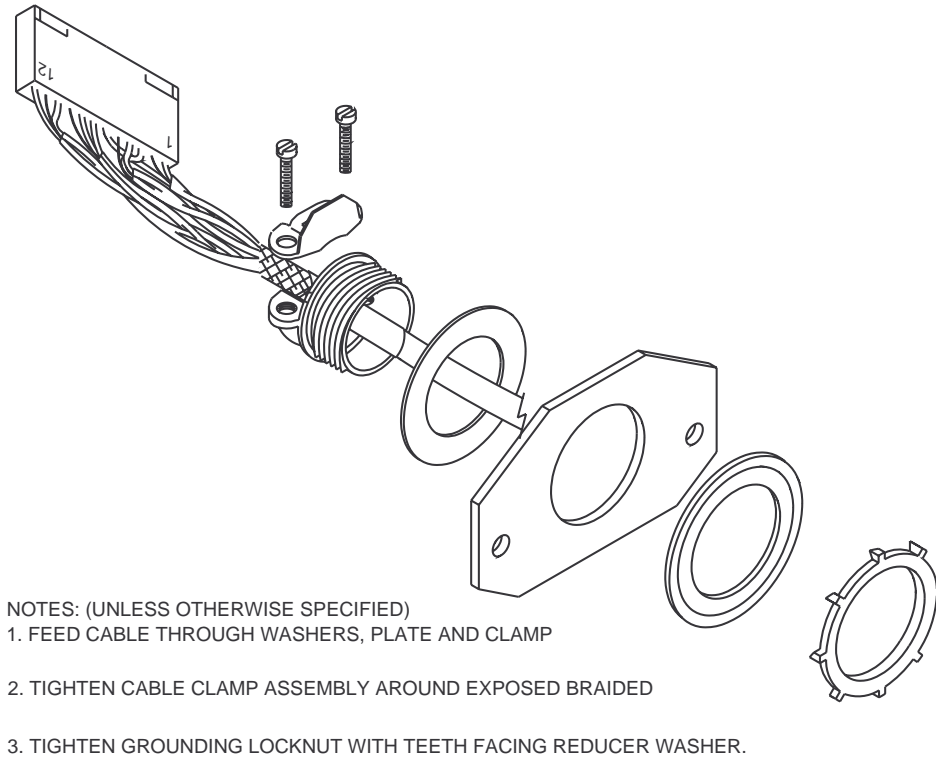12. Route the video cable to the soundhead (see Section 2.2).
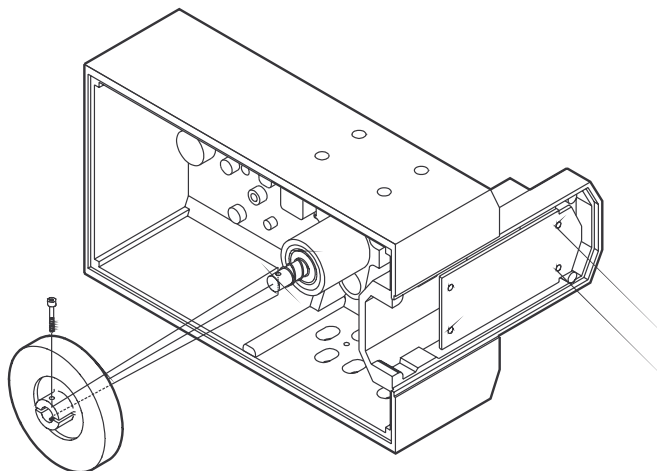
Figure 2.2   Flywheel Mounting

2.2   Electrical Connections to the Digital Soundhead

Video Cable Mounting Assembly

The video cable is normally mounted to the Cat. No. 701 by a cable clamp, a locknut and two washers. Figure 2.3 shows the details of this mounting assembly. This method is used in non-conduit installations.

NOTES: (UNLESS OTHERWISE SPECIFIED)
1. FEED CABLE THROUGH WASHERS, PLATE AND CLAMP

2. TIGHTEN CABLE CLAMP ASSEMBLY AROUND EXPOSED BRAIDED

3. TIGHTEN GROUNDING LOCKNUT WITH TEETH FACING REDUCER WASHER.

Figure 2.3 Assembly Video Cable Clamp

If the cable is installed in conduit, then the cable clamp assembly should be removed from the Cat. No. 701 mounting plate and replaced with the appropriate hardware for the conduit installation.

LED Power

The Cat. No. 701 Digital Soundhead comes equipped with a 5V power supply to power the red LED. This supply is powered via an IEC mains connector on the rear of the soundhead. A 2 meter long power cord is included. Outside the United States the appropriate connector (not supplied) must be attached to the power cord. See Section 1 for the required mains connector wiring. The supply will operate on 85-265 Vac, 50-60 Hz.

Video Cable

The video cable connects the Cat. No. 634R CCD Board in the Digital Soundhead to the CP500 or DA20. This cable must be pulled through grounded metal conduit or other shielded wireway to meet EMI emission standards. The male DB25 connector is attached to the CP500 or DA20 end of the cable; on the other end the pins for a 12-way Molex connector are inserted into the Molex connector housing. The standard cable is 10m (about 30 feet) long. 30m (about 100 feet) or 15m (about 50 feet) cables are available. An extra set of connector pins is included in case it is necessary to cut the cable for any reason.

> ⚠️ **Plug the Molex connector onto the CCD board in the Digital Soundhead before plugging the male DB25 connector onto the DA20.**

## 2.3   Making a Custom Video Cable

The following information is included for use when a cable is being made up on site. The cable should be Belden Datalene 8164, which contains four shielded twisted pairs of computer-grade cable with the shields isolated from each other plus a 100% coverage overall shield.   Using other types of cable may result in unsatisfactory operation. The overall shield is necessary to prevent RF interference signals from radiating from the video cable, causing possible complaints and violating government EMI standards. A metal shell MUST be used on the D-connector and the overall shield MUST be grounded to the connector shell to ensure proper operation and compliance with EMI regulations.

Wiring table for DB25 end of video cable

25 pin D-connector pin no.	Molex pin no.	Wire Color	Signal name
1			n.c.
2			n.c.
3			n.c.
4	7	Blue	TTC
5	9	Shield	TC GND
6	8	Black	FTC
7	10	White	TSC
8	11	Shield	SC GND
9	12	Black	FSC
10			n.c.
11			n.c.
12			n.c.
13			n.c.
14	1	Black	Video 0
15	2	Shield	GND
16	6	Red	+15V
17	3	Black	Video 1
18	5	Shield	GND
19	4	Green	−15V
20 through 25			n.c.

Wiring to the Molex Connector

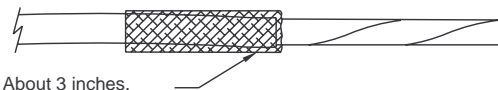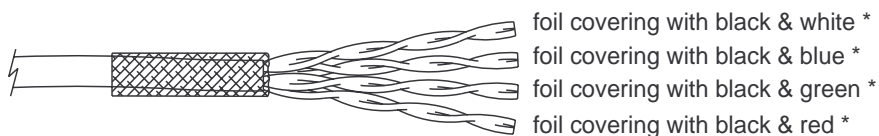1. Strip back vinyl outer jacket of cable to 3.0 inches.
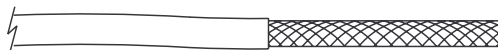
2. Add 1/2 inch dia heat-shrink about 1/4 inch long near end of vinyl outer jacket.
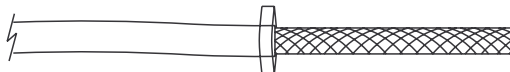
3. Fold outer shield braid back over vinyl outer jacket.

About 3 inches.

4. Trim back outer foil shield and plastic cords.

foil covering with black & white *
foil covering with black & blue *
foil covering with black & green *
foil covering with black & red *

* foil color may vary depending
upon cable manufacturer

5. Install shrink tubing.

a.) black 1/2" dia

Install 3 inches long over vinyl outer jacket and shield.

Leave .75 inch of the folded back braided shield exposed.
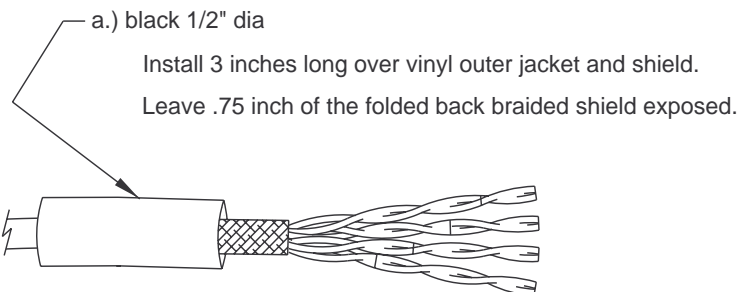
b.) clear 1/8" dia

2.4 inches on foil covering with black & white *
2 inches on foil covering with black & blue *
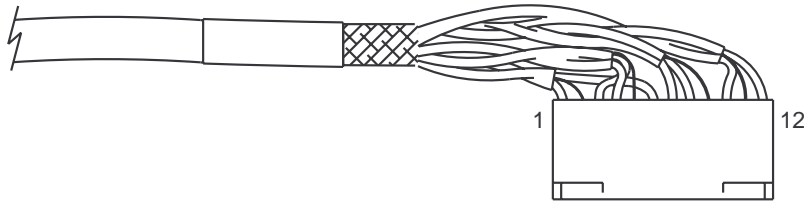1.5 inches on foil covering with black & green *
1.2 inches on foil covering with black & red *

6. Strip back foil to edge of 1/8 inch shrink tubing.

7. Cut exposed wiring and twisted shield to the lengths indicated below; measured from end of the outer cable casing.

black - cut to 3 inches
shield - cut to 2.9 inches
white - cut to 2.8 inches

shield - to 2.6 inches
black - cut to 2.5 inches
blue - cut to 2.4 inches

end of outer casing

shield - cut to 2.1 inches
green - cut to 2 inches
black - cut to 1.9 inches

Tin last .12 inch of shield drain wires

red - cut to 2.2 inches
shield - cut to 1.8 inches
black - cut to 1.6 inches

8. Strip insulated wires back .12 inch and tin

9. Install 1/16 inch dia clear shrink tubing over each drain wire of the twisted pairs and heat shrink.

.4" long clear shrink tubing

.5" long clear shrink tubing

.5" long clear shrink tubing

.5" long clear shrink tubing

10. Crimp Molex pins onto wires, 12-PL, using Molex tool HTR-2262-20A, then solder pins to wires.

11.   Arrange wires in the following order and bend them 90 degrees as shown.

black
shield
white
shield
black
blue
red
shield
black
green
black
shield
black

12. Install pins into Molex housing according to wiring table

The pins must be inserted in the Molex connector block as shown in the following table.

Perform this operation before plugging the male DB25 connector into the DA20 or CP500. Incorrect placement of pins will result in damage to the Cat. No. 634R CCD board or the Cat. No. 670 video acquisition module.

Pin 1 is to the left when the Molex connector is connected to the Cat. No. 634R CCD Board in the Cat. No. 701 Digital Soundhead. This assembly is easiest if you insert the shortest leads first.

Wiring table for inserting pins in red Molex connector block

Molex pin no.	Wire color	Signal name
1	Black	Video 0
2	Shield	GND
6	Red	+15V
3	Black	Video 1
4	Green	−15V
5	Shield	GND
7	Blue	TTC
8	Black	FTC
9	Shield	TC GND
10	White	TSC
11	Shield	SC GND
12	Black	FSC

The cable clamp which is attached to the Cat. No. 700 cable mounting plate, along with the exposed braid on the video cable, provide an electrical ground path for the shield of the video cable.

This video cable shield may be isolated if necessary by loosening the 2 screws which clamp the video cable shield and installing an insulator around the braided shield (such as 1/2 inch diameter heat shrink tubing). It is important to re-tighten the cable clamp after installing the insulation to provide strain relief for the video cable.

Plug the Molex connector onto the CCD board in the Digital Soundhead before plugging the male DB25 connector onto the DA20 or CP500.