Chapter 3 Installation

This chapter describes installation and interface procedures for the TimeLine Keyboard Control Unit (KCU). It also includes a quick software verification that shows the KCU is operational.

This chapter contains the following information:

- Hardware supplied
- System setup planning
- Installing the KCU
- Quick test and initialization
- Interface diagram

Sections of this chapter assume some prior working knowledge of the Lynx-2 Time Code Module. Correct operation requires that each module be properly installed and initialized. The Installation chapter of the Lynx-2 manual provides detailed information on initialization and installation.

Note: Please save the original factory packaging. It is specially designed to protect your KCU, should it require reshipment.

Hardware Supplied

The KCU includes the following items:

1 Keyboard Controller Unit

1 KCU Power Supply

1 KCU to Power Supply Cable

1 KCU to Lynx-2 Cable

1 IEC AC Power Cord

1 HEX key wrench (to tighten display swivel)

System Setup Planning

Before you install and configure the KCU, there are several fundamental issues to consider.

Power

An AC outlet is required for the KCU. If more than one piece of equipment will be connected to the AC outlet, use a surge-protected power distribution strip as an adequate extension cable.

Cabling

The KCU requires communication and power cabling. Careful connection and routing of cables will ensure a quick and successful installation. Power supply and Lynx-2 cables are included with the KCU.

Power On Initialization

The KCU is supplied from the factory ready for initialization. All parameters of the KCU are stored in RAM, and are restored on subsequent power ups.

On power-up, the KCU will automatically poll any Lynx-2 module that is communicating on the RS422 serial bus. At this point, the KCU is ready to address each module within a group, or individually, for machine control.

Installing the KCU

Because the KCU is a free-standing controller, installation offers configuration choices. The KCU and its power supply have been designed with the utmost in versatility, which provides a simple path for any future upgrade requirements your facility might require.

Cabling

Cable connections are critical. Bad or poorly routed cables are often the cause of installation problems. It is essential that the correct, high quality cables are used to ensure reliable, trouble-free operation.

Cabling harnesses for the power supply and Lynx-2 modules are provided from the factory with every KCU. The KCU power supply also provides outputs for GPI relays and the SSU. Use the following cable requirements diagram to determine what equipment will be connected to the KCU and to verify that the correct cables are available.

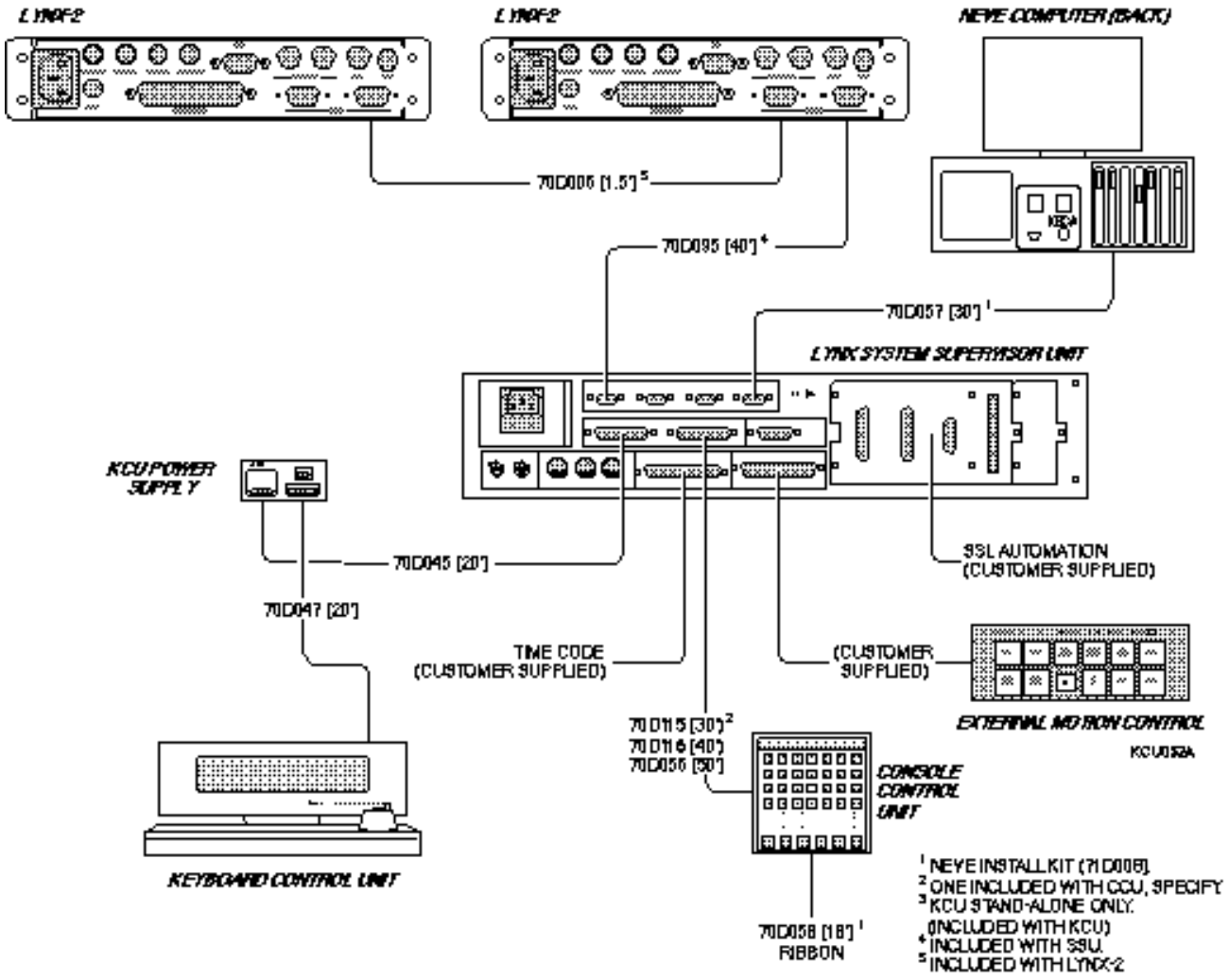

Figure Chapter 3 -1. Cable Requirements

Connecting the KCU and Power Supply Unit

Verify that the KCU power supply is set for the correct AC mains voltage as indicated by a small white button showing through one of the four holes at the right of the IEC power cord receptacle. If the voltage setting is not correct for your facility, please refer to the section *Changing the Mains Voltage Setting.*

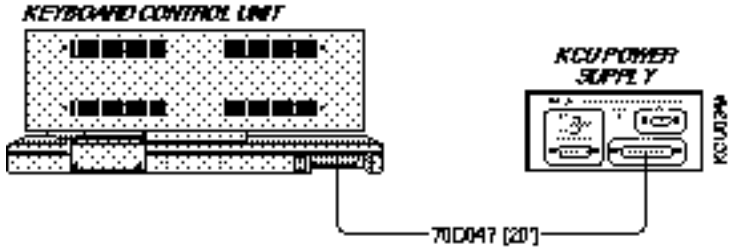

Figure Chapter 3 -2. KCU with Power Supply Connected

Connect the supplied 25-pin cable between the KCU connector on the power supply and the Keyboard Unit. Secure both connections with the retaining screws and secure the cable to the KCU with the supplied cable clamp.

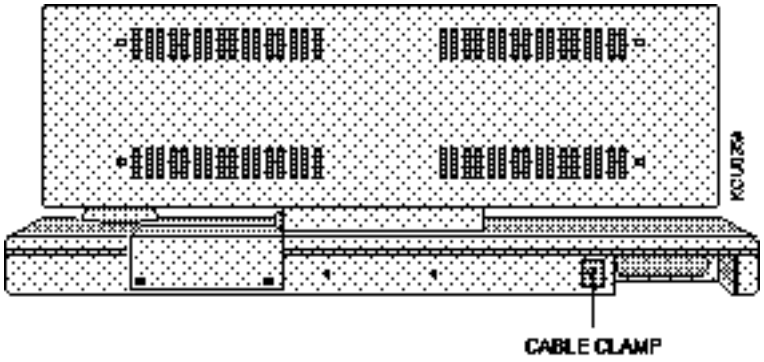

Figure Chapter 3 -3. KCU Cable Clamp

Power Supply

The KCU has an external DC power supply that can be switched to the correct AC voltage for your site. It is suitable for operation at any voltage in any country.

Changing the Mains Voltage Setting

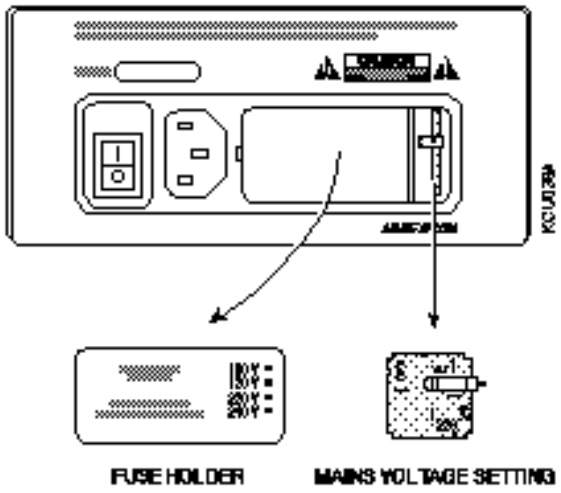

Figure Chapter 3 -4. KCU Power Supply, Rear Panel

1. Remove the AC mains cord from the power supply.
2. With a small slotted screwdriver, gently pry the fuse holder cover off the power supply.
3. Use long-nosed pliers to remove the small printed circuit board from the right side of the compartment.
4. Locate the edge of the circuit board that has the correct AC mains voltage rating printed on it. Manipulate the white nylon tab to position it on the edge opposite the desired mains voltage. This tab position provides the external indication of the voltage selection.
5. Re-insert the circuit board into its compartment in the power supply.
6. Verify that the fuse is the correct type and rating for the new operating voltage. See the *Fuses* section following this procedure.
7. Replace the fuse holder in the power supply and confirm that the tip of the white nylon tab is located in the correct hole in the fuse holder cover.
8. Replace the AC mains cord.
9. Turn on the power switch. Confirm that the POWER LED lights up and the KCU itself powers on.

Fuses

The correct fuse is installed in the power supply by the factory. In the event that the fuse in the KCU power supply needs to be changed, replace it only with the same type and rating fuse. The normal fuse types for the KCU power supply are listed in the following table:

Table Chapter 3 -1. KCU Power Supply Fuse Specifications

100-120 volt AC mains	1/2 ampere, 250 volt, type MDL (slow blow)
220-240 volt AC mains	1/4 ampere, 250 volt, type MDL (slow blow)

Replacing a Fuse

1. With a small slotted screwdriver, pry the fuse holder cover off the power supply.
2. Pull the fuse out of its holder.
3. Use 250V fuses only.

Connecting the Lynx-2 Modules

Connect the supplied 9-pin cable between the LYNX connector on the KCU power supply and either RS422 connector on any Lynx-2 Module in the system. The order in which the modules are connected is arbitrary and does not affect operations. Secure both connections with the retaining screws.

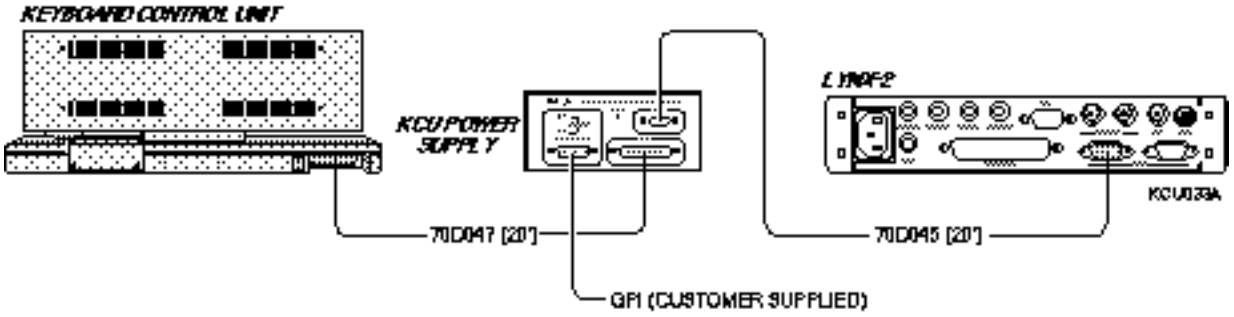

Figure Chapter 3 -5. KCU with Power Supply and Lynx-2 Time Code Module

To daisy-chain the first Lynx-2 Module to the next module, connect a 9-pin jumper cable from the second RS422 connector on the first Lynx-2 Module to either RS422 connector on the next module.

Connect the KCU power supply to a convenient AC mains outlet of the correct voltage. Turn on the power and confirm that the POWER LED indicator on the power supply lights up and the KCU itself powers up.

GPIs

The KCU power supply contains two relays which are used as GPI (General Purpose Interface) closures to trigger a wide variety of external events when the Lynx system doesn't include a System Supervisor Unit. The GPIs in the KCU power supply are presented as a pair of normally-open relay closures on four pins of the GPI/SUPERVISOR connector. The pair of annunciator LEDs on the power supply light simultaneously with each relay closure.

The GPI connector on the KCU power supply is a standard female 15-pin D-subminiature connector.

Table Chapter 3 -2. GPI Pinout

Pin	Signal	Pin	Signal
1		9	
2		10	
3	GPI 2 N/O	11	GPI 2 COM
4	GPI 1 N/O	12	GPI 1 COM
5	+5V	13	Ground
6		14	
7		15	
8			

The GPI relays are rated at 2 Amperes maximum in low voltage DC applications (up to 30 volts DC), or at 0.6 Amperes maximum in higher voltage DC or AC applications.

System Supervisor Unit

In addition to the steps detailed above, connect the cable supplied with the System Supervisor Unit between the GPI/SUPERVISOR connector on the KCU power supply and the COMPUTER/ KEYBOARD CONTROL PORT 1 connector on the back panel of the SSU.

When the KCU is connected to the SSU, the Lynx-2 RS422 connections are made directly to the SSU Trip Port 1. The modules are not connected to the KCU. See the System Supervisor Unit manual, Installation chapter for complete details.

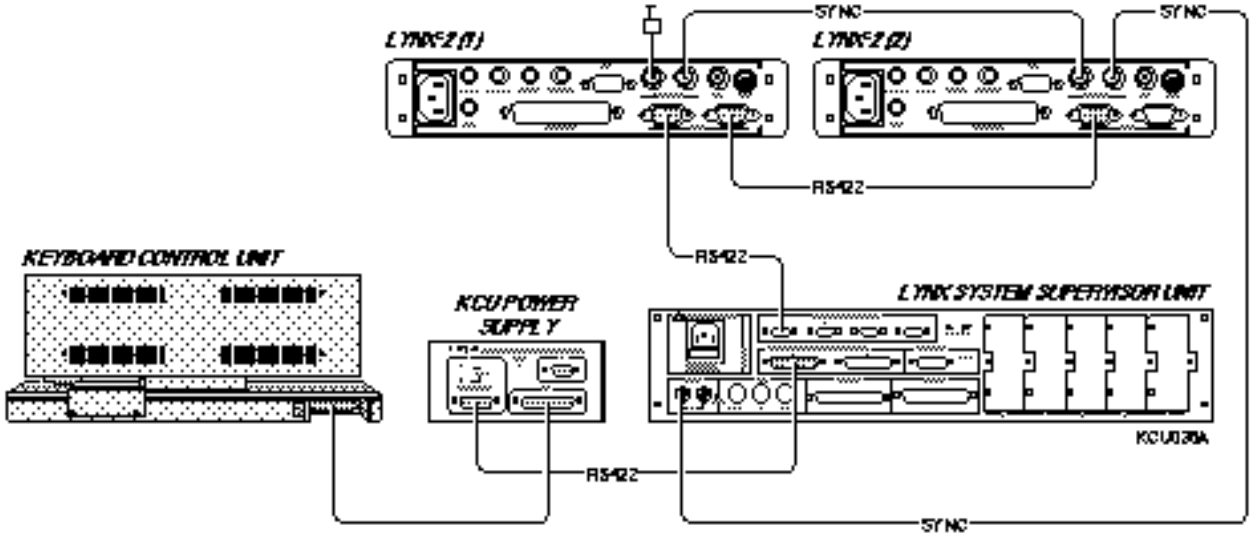

Figure Chapter 3 -6. KCU with Power Supply, Lynx-2 and System Supervisor Unit

Quick Test and Initialization

Follow this procedure to test the communication of different equipment and initialize the KCU. You will be able to operate the system when this procedure is complete.

Specific questions regarding initialization for the SSU and Lynx-2 modules can be addressed from their respective owner's manuals.

Testing the Lynx-2 Modules

To verify that the Lynx-2 modules are communicating to the KCU:

1. Press [POWER] (Lynx-2 module)

   Module turns on.
   Turn on each Lynx-2 module. Confirm the setup parameters of each Lynx-2.

2. Press [TRAN MODE]

   Online LED on
   Put all modules online.

   Each module must have a unique address. If the KCU detects that the modules have the same address, the KCU will not poll correctly. The message *Press the 'Poll' key to establish communications* is displayed on the KCU.

   The Lynx-2 power-on sequence displays the serial address of each module. If you need to review or change the address of a module, press [SHIFT] + [MSTR] simultaneously, then [GEN CODE] to access the address menu. Use the [↑] and [↓] arrow keys to make changes. Press [SHIFT] + [MSTR] to exit setup.

3. Press[PLAY] (Transport)

   Time code reader display increments, VID LED on
   Lets the Lynx-2 modules read time code for ten seconds.

4. Press [STOP] (Transport)

   Display stops incrementing
   The Lynx-2 modules are ready to be controlled by the KCU.

Setting Up the KCU

Turn on the KCU power supply unit. The KCU automatically polls the Lynx-2 RS422 Control bus to establish communications with the modules. The LEDs in the KCU STATUS/ON LINE display light, corresponding to the addresses previously set on the modules. The 422 LEDs on each module come on.

Verifying Communications

To verify that the KCU and Lynx-2 modules are communicating correctly,

1. Press [SOLO] then [A] (KCU)

   SOLO : a displayed*
   This solos the transport assigned to the [A] key.

2. Press [PLAY] (KCU)

   SOLO:A>L displayed on the KCU
   Play the transport for ten seconds to allow the Lynx-2 to read the time code and lock. If you don't get a lock indication, refer to the Troubleshooting chapter of the Lynx-2 manual.

3. Press [STOP] (KCU)

4. Repeat steps 1-3 for each transport.

Interface Diagrams

This section presents a variety of interface diagrams. Refer to the diagram that most closely represents your system setup and application. Remember, slight differences in equipment may require small configuration modifications.

There are two interface diagrams:

- KCU stand-alone
- Post-production system–System Supervisor Unit

KCU Stand-Alone

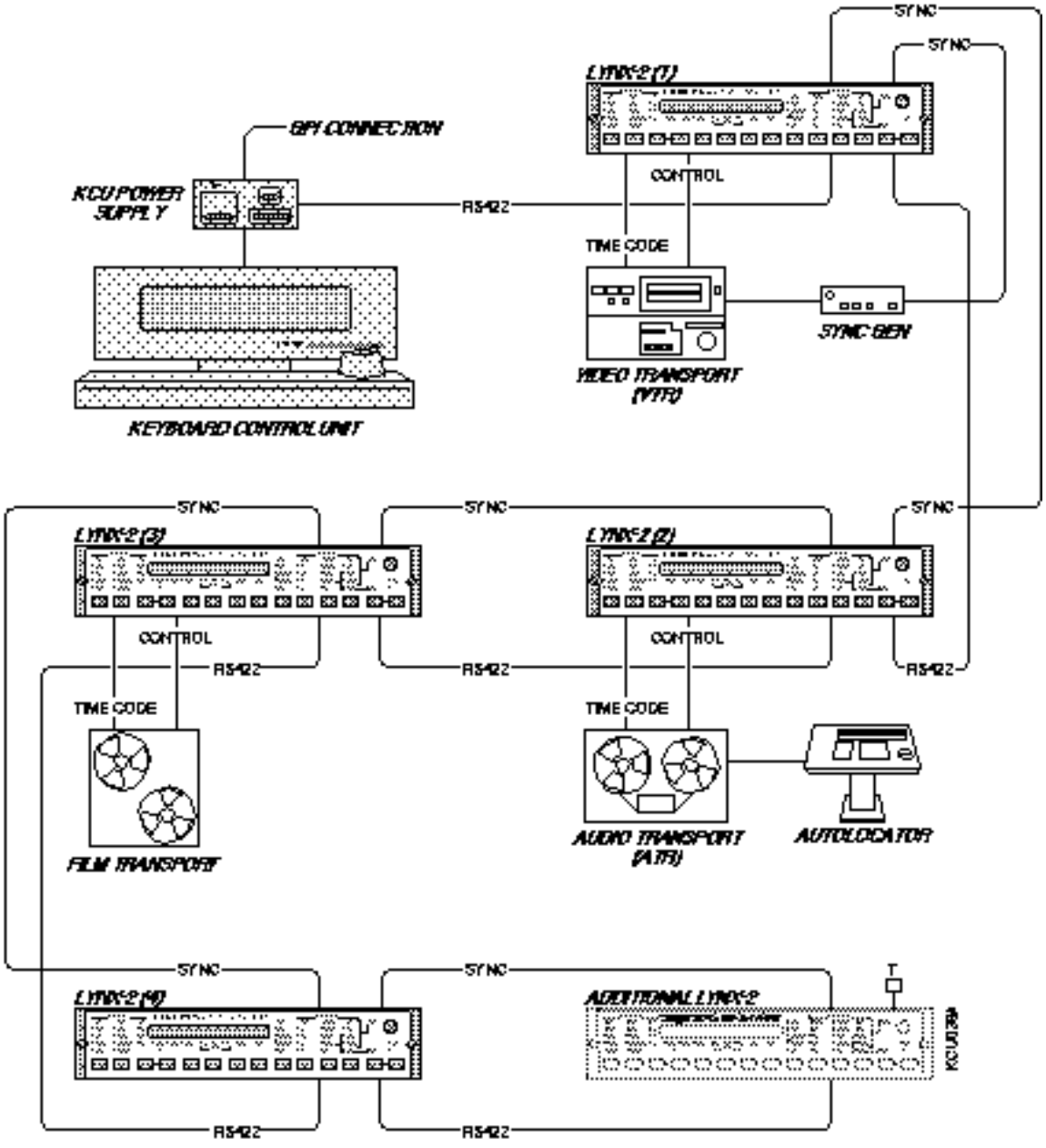

Figure Chapter 3 -7. KCU Stand-Alone Production System

Post-Production System–System Supervisor Unit

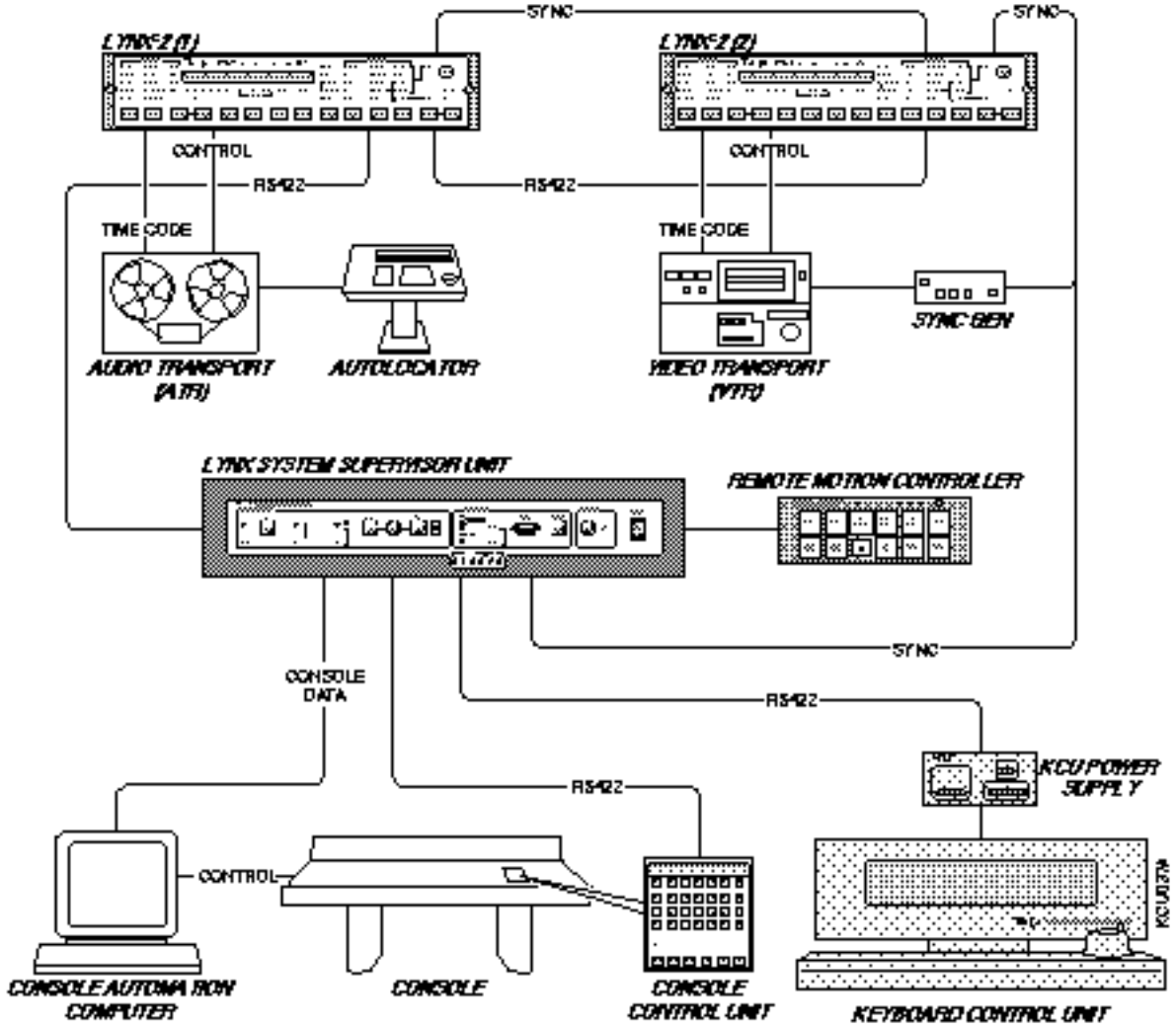

Figure Chapter 3 -8. Post Production System - Audio