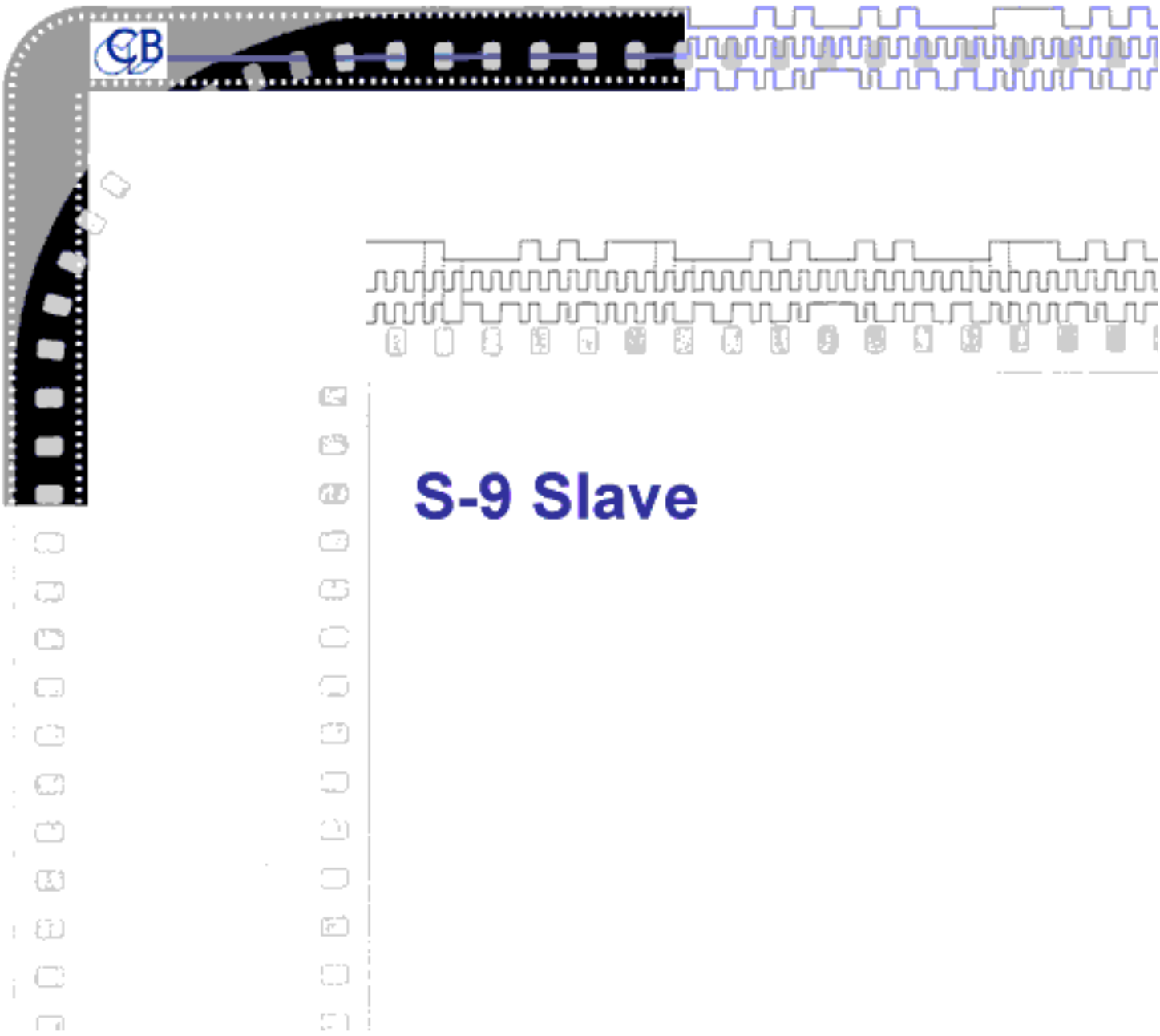

S-9 Slave

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SERIAL MACHINE CONTROL

1.00 SLAVING A VTR USING SONY PROTOCOL

1.1 MARK SYNC
1.2 INCREMENT / DECREMENT OFFSET
1.3 USING LTC INSTEAD OF RS422 TIMECODE

2.00 MM-1 MASTER MOTION CONTROLLER

2.1 ENABLE
2.2 MARK SYNC
2.3 MASTER TIMECODE

3.00 SS-1 BIPHASE SERIAL SYNCHRONISER

3.1 ENABLE
3.2 MARK SYNC
3.3 MASTER TIMECODE

4.00 SS-2 TIMECODE SERIAL SYNCHRONISER

4.1 ENABLE
4.2 MARK SYNC
4.3 MASTER TIMECODE
4.4 CONFIGURATION
4.5 OFFSET

5.00 IS-1 ISDN SYNCHRONISER

5.1 ENABLE
5.2 MARK SYNC
5.3 TIMECODE MASTER
5.4 ISDN MASTER
5.5 OFFSET

7.00 SERIAL COMMUNICATIONS

7.1 HARDWARE
7.2 SERIAL CONFIGURATION
- 7.21 MACHINE TYPE
- 7.22 SLAVE POSITION SOURCE
- 7.23 RECORD ENABLE
- 7.24 SYNCHRONISER ENABLE
  - 7.241 OVERLAP
- 7.25 LOCAL OFFSET
- 7.26 START DELAY
- 7.27 PARK OFFSET
- 7.28 LOCATE
- 7.29 USE LOCATE/SHUTTLE
- 7.30 MAXIMUM SHUTTLE SPEED
- 7.31 ALLOWABLE SYNC ERROR
- 7.32 NUMBER OF TRY's
- 7.33 COMMUNICATION POSITION

7.5 RS422 Interface cable:-

NOTE: this should be used with the appropriate unit manual.

1.00 SLAVING A VTR USING SONY PROTOCOL

Note: This should be read with section 7.00 which discusses the serial setup.

To slave a VTR the following must be carried out.

1) The SYNCHRONISER should be setup as required with the VTR timecode output **if used** connected to **AUX-B** and the serial control to **SERIAL-B**.

2) The unit timecode output at the sync point should be the same as the timecode at the video start mark. One way this may be achieved easily is described in section **1.1 MARK SYNC** below.

3) The Generator timecode standard and frame rate should be the same as the timecode and frame rate of the video machine.

4) The VTR should be selected to **SERIAL REMOTE CONTROL**

5) The synchroniser should be enabled as described below.

If all the above are carried out and the VTR timecode is within 2 hours of the current timecode the VTR will then locate to the current **GENERATOR TIMECODE** position (**GEN**).

If a VO9800 or VO9850 is used and you expect to use timecode on track 1 or 2 as well as the dedicated timecode track then it is recommended that the modification as detailed in our application note are carried out. The machine modification as designed by our Italian agents (Audio International) allows the use of time code from any of the tracks by a simple switch behind the front panel.

1.1 MARK SYNC

The quickest way of setting the generator timecode the same as the slave time code is to mark sync. this may be achieved as follows:-

1) Disable the synchroniser.
2) Position both the master and slave on a known sync point.
3) Depress the **MARK SYNC** key combinations as described below.

1.2 INCREMENT / DECREMENT OFFSET

To fine tune the synchronisation the offset may be adjusted whilst synchronised.

INCREMENT OFFSET:- **SET** + **INC**
DECREMENT OFFSET:- **SET** + **DEC**

1.3 USING LTC INSTEAD OF RS422 TIMECODE

When using a machine without a timecode reader or a tape with timecode on one of the Audio tracks it is necessary to use the LTC reader option. The CB controller will update the tach counter on the machine with the current LTC timecode at the start of each new timecode read.

To enable this option:-

1) Enter the configuration on the CB unit, select Serial B and set
   tAch-LtC instead of Ser CodE
   POS tin1 instead of POS LtC

2) On the Machine select to display CTL instead of TC.

The machine should then be put into play from the front panel and switched to Remote. On IS-1 units it may also be put into play when in remote by the IS-1.

2.00 MC-1 Motion Controller (Virtual Master)

2.1 ENABLE

To Enable the synchroniser depress the **F1** key so that the **F1** LED is illuminated.

2.2 MARK SYNC

The key combination for mark sync is **SET** + **F1**.

2.3 MASTER TIMECODE

The master timecode is the timecode output from the virtual master, the video slave will be locked to this timecode.

3.00 SS-1 BI-PHASE SERIAL SYNCHRONISER (FILM-CODER)

3.1 ENABLE

To enable the synchroniser depress the **HEAD** key so that the **HEAD** LED is illuminated.

3.2 MARK SYNC

The key combination for mark sync is **SET** + **HEAD**.

3.3 MASTER TIMECODE

The master timecode is the timecode output from the FilmCoder, the video slave will be locked to this timecode.

3.4 FRAME RATE

The Filmcode contains a frame rate gearbox, the film and timecode frame rates must be set up correctly for the synchroniser to work.

4.00 SS-2 TIMECODE SERIAL SYNCHRONISER (READER/GENERATOR/INSERTER)

4.1 ENABLE

To enable the synchroniser depress the **JAM** key so that the **JAM** LED is illuminated.

4.2 MARK SYNC

The key combination for mark sync is **SET** + **JAM**.

4.3 MASTER TIMECODE

The master timecode is fed to READER 1 input. The slave is synchronised to the Generator timecode jammed to the reader timecode.

4.4 CONFIGURATION

The following configuration should be set:-

GEN REF	VIDEO
JAM SOURCE	READER 1
JAM TYPE	JAM CODE
JAM OFFSET	JAM OFFS

4.5 OFFSET

To synchronise with an offset the unit should be set up to jam with offset and the appropriate offset entered. See section 2.10 of the READER/GENERATOR/INSERTER manual.

5.00 IS-1 ISDN SYNCHRONISER

5.1 ENABLE

The IS-1 may be synchronised either to timecode from the timecode READER, or timecode from the ISDN serial input.

1) Select the MASTER using the READER or ISDN switch.

2) Enable the synchroniser via MACHINE CONTROL using the CHASE switch.

5.2 MARK SYNC

The MARK key is used for mark sync.

5.3 TIMECODE MASTER

The master timecode is read from the READER 1 input. The slave is synchronised to the Generator timecode jammed to the reader timecode. The following configuration is set when **READER** is selected:-

GEN REF VIDEO
JAM SOURCE READER 1
JAM TYPE JAM CODE
JAM OFFSET JAM OFFS

5.4 ISDN MASTER

The master timecode is fed to SERIAL-A input. The slave is synchronised to the Generator timecode jammed to SERIAL-A. The following configuration is set when **ISDN** is selected:-

GEN REF VIDEO
JAM SOURCE Serial-A
JAM TYPE JAM CODE
JAM OFFSET JAM OFFS

5.5 OFFSET

To synchronise with an offset the unit should be set up to jam with offset and the appropriate offset entered. The MARK key is used to capture the offset, the offset once captured may be adjusted using the LOCAL OFFSET TRIM+/- keys.

7.00 SERIAL COMMUNICATIONS

7.1 HARDWARE

Connector:	9 pin FEMALE 'D', screw-lock. On rear panel.
Data Format:	1 Start bit, 8 Data bits, 1 Stop bit, No parity
Baud Rate:	Nominal 38400
Standard:	RS232/RS422
Protocol:	Sony 9 pin (S9)

7.2 SERIAL CONFIGURATION

CONFIGURATION SELECTION
The configuration of the unit is selected by first depressing the **SET** key so that the **SET** LED is illuminated then depress both **<-** and **->** simultaneously to enable configuration selection. The first display allows you to select which configuration you wish to adjust **UNIt / VIdEO / SERIAL A / SERIAL b**. Make your selection and then depress **<-** and **->** simultaneously to select.

To enter the SERIAL configuration mode first enable **SET** then when the **SET** LED is illuminated depress both **<** and **>** simultaneously. Use the **<** or **>** keys to select **SERIAL A** or **SERIAL b.** In SERIAL CONFIGURATION the display indicates either the parameter to be modified or the various selections of a particular parameter in the same way as in CONFIGURATION.

0 INPUt / 1 bUU800 / 2 UO9850 / 3 PU2800 / 4 SSL SS / 5 dA-88 / 6 r-dAt
SEr Code / TAch-LtC / TAchOnlY
rEC OFF / AUDIO 1 / AUDIO 2 / AUDIO 12
SYNC ALL / SYNC ENb / SY O-LAP
LOFSt 00
PLAYd 08
PAr-O OO
LOCAtE02
USE LOC / USE SHUt
SHtSPd30
trYS 06
Conn Nid / ConStArt
Error 00
No Chase / USECHASE
BUU-950 / BUH-1100 / dA-88

The **<** and **>** keys are used to select the parameter displayed. The **INC** and **DEC** keys are used to change the selection of the displayed parameter.

When the **SET** key is depressed the SERIAL CONFIGURATION MENU, CONFIGURATION MENU and SETUP MODE are exited. The parameters are then set as selected whilst in setup or CONFIGURATION.

The serial configuration is used to optimize a video slave to the Master.

7.21 MACHINE TYPE: 0 INPUT / 1 BUU800 / 2 U9850 / 3 SSL SS / 4 dA-88

Currently the input selection and three different machines have been interfaced, when the machine type is changed the parameters are updated with the factory preset information. When the machine type is not changed the user may adjust the individual variables for his machine.

0 INPUT

This should be used on SERIAL-A when remote control from a hard disk controller is used.

3 SSL SS

The SSL Screen Sound has a slow start time and is set-up with a two second park offset and a 25 frame Play delay. The settings required will vary with the amount of audio on the work top.

4 dA-88

Not yet available.

7.22 SLAVE POSITION SOURCE: SEr Code / TAch-LtC / TAchOnlY

The position of the Serial slave may be determined in one of three ways:-

SEr Code This is the simplest selection, the position is determined via the RS422 serial link by using the timecode reader in the machine.

TAch-LtC This selection uses the serial tach from the machine and receives timecode via the rdr2 on the unit. The rdr2 input on the unit is **AUX-B**. Useful for machines without a timecode reader card or where a the timecode is no an audio track.

TAchOnly This selection uses the tach counter in the machine only. No attempt is made to read timecode.

7.23 RECORD ENABLE: rEC OFF / AUDIO 1 / AUDIO 2 / AUDIO 12

In order to record on the serial slave it is necessary to send a record command as follows:-

rEC OFF Record disabled
AUDIO 1 Record on Channel 1 only.
AUDIO 2 Record on Channel 2 only.
AUDIO 12 Record on Channels 1 & 2.

7.24 SYNCHRONISER ENABLE : SYNC ALL / SYNC ENb / SY O-LAP

The synchroniser is either always enabled and following the GENERATOR TIMECODE or he appropriate enable command must be used.

SYNC ALL The synchroniser is always enabled, in this case the machine Local/Remote switch should be used to enable the synchroniser.

SYNC ENb The appropriate enable key as described above should be used.

SY O-LAP The appropriate enable key should be used and the system will then wait for coincident timecode before enabling the sync function. See the discussion below.

7.241 OVER-LAP

When a program is split between two machines it is necessary to sync the two machines at the overlap point. The unit used for this is a SS2 timecode serial synchroniser. It performs the following actions:-

1) A ready command to be sent to the slave when the master is 10 seconds before the sync point
2) Synchronisation to be enabled when the master is within 5 frames of the slave.
3) A relay contact to close when the slave ins in lock with the master.
4) The slave should keep playing when the master eventually stops.

To permit OVERLAP the unit should be adjusted as follows:-

SY O-LAP
JAM FREE
NO OFFS

7.25 LOCAL OFSET: LOFSt 00

This is a frame ofset added or subtracted to the master time only in play before locking the video slave.

7.26 START DELAY: PLAYd 08

If the video is parked less than two seconds ahead of the master it will wait for the master to arrive at its position. Video machines take a little time to accelerate to play speed. It is therefore necessary to send a play command to the video slave before the master arrives at the same point, **STARTD** defines when to send the play command to the slave. Increase STARTD if the video always has to speed up to lock, decrease STARTD if the video always has to slow down to lock.

7.27 PARK OFFSET

Normally the video slave is parked at the same position as the master. When the slave has only a very small vari-speed range this will lead to very long lock-up times. The solution is to down-stream park the slave and trim the START DELAY for optimum performance.

7.28 LOCATE

This parameter is used to specify the effectiveness of the machines locate. If is mainly used when chasing as moving master. Set this number higher if the slave appears never to catch up with the master.

7.29 USE LOCATE/SHUTTLE

On some machines the locate is very slow on these machines it is better to shuttle close to the master and then issue a locate command. On Tapeless machines it is better to always use the Locate command.

7.30 MAXIMUM SHUTTLE SPEED

This specifies the speed to shuttle to the master position during a locate.

7.31 ALLOWABLE SYNC ERROR

Maximum allowable sync error in frames after the trying for zero error "Try" times, normally set to four to allow for a 8 field colour frame sequence.

7.32 NUMBER OF TRY's

After locking the video machine it is released to video syncs, when this happens the video machine will sometimes move by one frame, the synchroniser will then take over and pull the video machine to zero error, and let go again. This parameter sets the maximum number of times the video may be pulled into lock.

7.33 COMMUNICATION POSITION

Commands are sent to the video machine once per frame. Depending on the relative phase of the Video and timecode changes the performance of the lock-up. This can also be tape dependant!

7.5 RS422 Interface cable:-

SERIAL-B (To Machine)	
9 pin 'D'	Function
1	Internal
2	Rx Data A-
3	Tx Data B+
4	Gnd.
5	+5v
6	Gnd.
7	Rx Data B+
8	Tx data A-
9	Gnd

SERIAL-A (From Controller)	
9 pin 'D'	Function
1	Internal
2	Tx Data A-
3	Rx Data B+
4	Gnd.
5	+5v
6	Gnd.
7	Tx Data B+
8	Rx data A-
9	Gnd

RS422 operation Serial-A:- **PB4** link pins 1 & 2 (towards front of unit).
Serial-B:- **PB5** link pins 1 & 2 (towards front of unit).

SERIAL-A Converter cable	
9 pin 'D' Male	9 pin 'D' Female
1	No Connection
2	8
3	7
4	4 (Screen)
5	No Connection
6	No Connection
7	3
8	2
9	No Connection