NAGRA KUDELSKI
INSTRUCTIONS MANUAL
for
RCHS

Code no. 20.15.600.151
Printed in Switzerland by Kudelski S.A.
May 1982

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RCHS INSTRUCTIONS MANUAL

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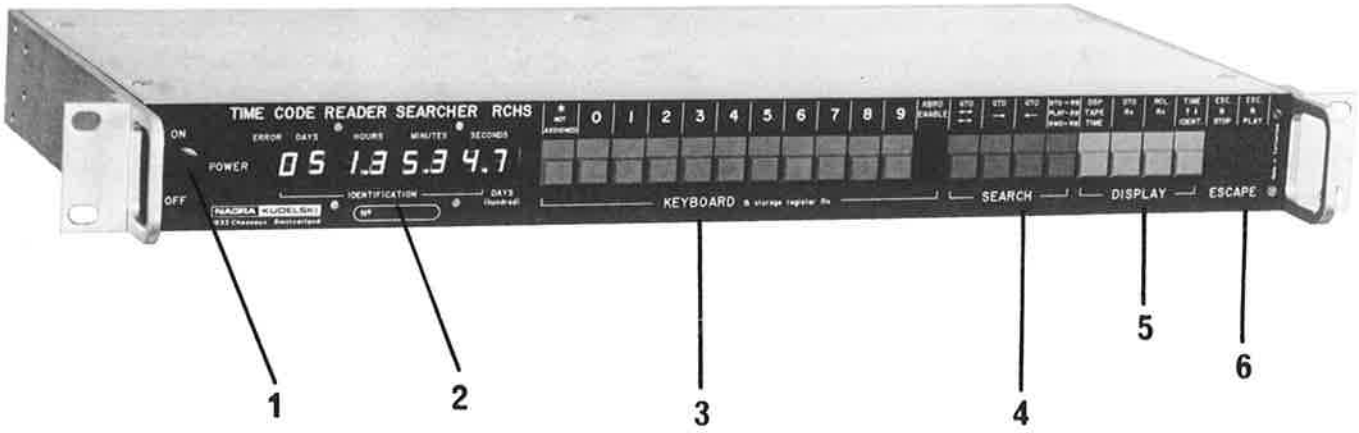


1 ON/OFF POWER SWITCH

2 8-Digits DISPLAY

Shows :

- either the time code (days, hours, minutes, seconds) .
- or the recorder identification number plus the hundreds of days.

Includes also an error indicator.

3 KEYBOARD & Storage register Rn

Includes 12 keys:

- 10 for the 0 to 9 digits.
- One ''* NOT ASSIGNED'' key.
- One '' KBRD ENABLE'' key (keyboard enable).

4 SEARCH KEYS

GTO ⇄	The fastest search mode when the time code is continuous on the tape between the present location and the searched one.
GTO ←	Fast rewind mode.
GTO →	Fast wind mode.
GTO R8 PLAY—R9 RWD—R8	Special mode using registers 8 and 9 for playing a chosen tape section.

5 DISPLAY KEYS

STO Rn	To store the displayed time code into a register.
RCL Rn	To recall a previously stored time code.
TIME ↑↓ IDENT	Switches the display mode between the 8 time digits and the 7 identification digits plus the hundreds of days digits.
DSP TAPE TIME	Shows the time or the identification number of the recorder coded on the tape independently of other commands freezing the display.

6 ESCAPE KEYS

STOP PLAY	In order to stop or play and to override any current function

1. INTRODUCTION

The RCHS Time Code Reader Searcher is a NAGRA TRVR accessory allowing decoding and display of the time code as well as automatic high speed search of a particular sequence when its time code (days, hours,minutes and seconds in IRIG B standard) has been entered on the keyboard (or recalled from memory).
It includes ten registers where ten different time codes can be stored and recalled by a single key.

A special repeat function is possible : search, playback and rewind between two specified locations on the tape.

The reliability is increased by an error detection circuit.

2. FRONT PANEL

The front panel includes, from left to right :
– The mains power switch
– The display
– The keyboard

2.1 Power switch

The RCHS unit must be switched on and off separately with the mains power switch on the left of the front panel.
Caution : Before switching on the unit for the first time, be sure to check the rear panel voltage selector setting (110 or 220 V) against the local voltage.

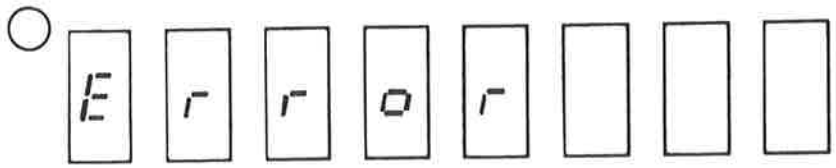
Note:
- Switching on the RCHS after the TRVR selects the 4,75 cm/s (1 7/8 ips) speed on the recorder and sets it into PLAYBACK mode The speed can then be chosen freely. If another initialization speed is desired, the memory programme has to be changed. Contact your NAGRA dealer.
- If the speed chosen is 2,38 cm/s (15/16 ips), see paragraph 2.4.
- If the TRVR and the RCHS are connected together, and the RCHS is not switched on, the TRVR keyboard is inhibited: disconnect the TRVR from the RCHS or switch on the RCHS.

2.2 Display

The left side of the front pannel comprises an 8 digit display and an error condition indicator.
The display shows either the time code or the recorder identification number. Refer to section 2.5 under "TIME/IDENT".

The error indicator on the upper left of the display indicates trouble in the time code playback or decoding. If this indicator flashes more than two or three times per minute, check the calibration of the TRVR. If this calibration is correct, calibrate the RCHS according to paragraph 4.
In case of unauthorized or illogical commands, the display will show:

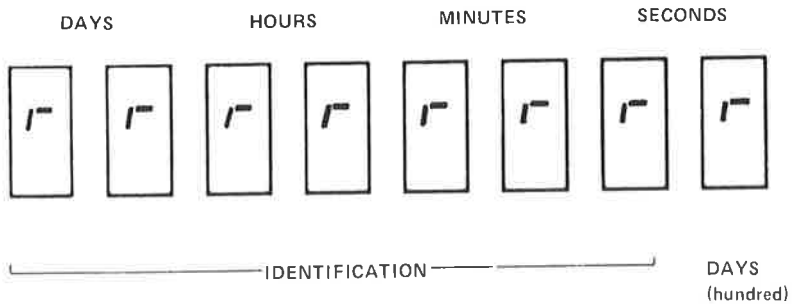
Error



2.3 Keyboard

The keyboard includes twelve keys : ten for the 0 to 9 digits, one "NOT ASSIGNED" key and "KBRD ENABLE" (Keyboard enable).

KBRD ENABLE — To key in the time code of the sequence to be searched, first depress the "Keyboard Enable". The display will show:



Then enter the code in the following sequence: three digits for the day and two each for the hours, minutes and seconds (ddd.hh.mm.ss).

At each entry the digits are shifted from the right to the left of the display. Since the display has eight digits and the IRIG B time code has nine, the first digits entered, i.e. the hundreds of days, will be shifted out of the display on its left. However, if necessary the hundreds of days can be displayed by pressing the "TIME/IDENT" key; refer to section 2.5.

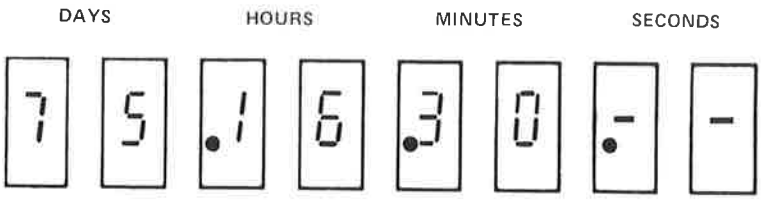
*
NOT ASSIGNED — If some of the nine "ddd.hh.mm.ss" digits are irrelevant or unknown, they can be replaced by the "NOT ASSIGNED" key which will show a "–" on the display. This is a "don't care" symbol, so the RCHS will stop at the first found code that matches the specified digits.

For more information, see the examples of paragraph 2.4.

Example 1: 275 th. day, 4.30 PM, any seconds.

keys : 2 7 5 1 6 3 0 * *

Display :



Example 2: Same day as the one of the part of the tape being played, 10.24.16 AM

Keys : * * * 1 0 2 4 1 6

Display : — —. 10.24.16

Note: — To clear a wrong digit entry, push again KBRD ENABLE and reenter the right one.
— The display is frozen after the 9th digit entry, so any attempt to enter more digits has no effect.

2.4 Search keys

During any search function all keys except the two escape keys are inhibited.

Note: The search speed for all recording speeds faster or equal to **4,75 cm/s (1 7/8 ips)** corresponds to the **fast winding speed.**
However a time code recorded at **2,38 cm/s (15/16 ips)** cannot be played back at this fast winding speed. It is why the RCHS will limit its search speed at **16 x 2,38 cm/s (15/16 ips)**, insofar as this rate has been confirmed first on the TRVR and transmitted so to the RCHS.

GTO ⟷ Starts the search for the location corresponding to the code displayed. The recorder receives the proper commands for speed and direction. This is the **fastest** search mode when the time code is continuous on the tape between the present location and the searched one. The continuity is not imperative but makes sure that the desired sequence exists on the tape. If not, there are two possibilities:

– The desired code does not exist on tape but could be placed between two existing sequences. The error is detected, the recorder is stopped and the display shows "Error".
– The desired code is higher or lower than any recorded code. The recorder will wind or rewind the tape entirely.

If the day (3 digits) is not specified but replaced by * * *, the day is assumed to be the same.
However the * symbol is unauthorized in the hours, minutes or seconds (in the GTO function only). The display will show "Error".

Example 1: AUTHORIZED

Keys: * * * 1 6 3 0 0 0

Display: – –. 16. 30.00

Example 2: UNAUTHORIZED

Keys: 2 7 5 1 6 * * 0 0

Display: Error (when GTO is pressed)

The two following modes are useful to find a day's first or last recording. All unwanted digits can be replaced by a * symbol.

GTO ←—

The recorder is put in **fast rewind mode**, i.e. backwards, (or **16 x 2,38 cm/s** if the recorder speed is **2,38 cm/s** (15/16 ips)) until the desired digits are reached.
The symbol '–' on the display (appearing when the key * is pressed) is taken as any value: it could be suitable to mask out unknown or unwanted digits for a specific time location.

Example 1: The present time code is (0) 00.01.44.34. And the desired code includes number 3 in the tens of minutes.

Keys: 0 0 0 0 1 3 * * *

GTO ←—

When the tape stops, the display shows:

00.01.39.59 (if time code continuous).

Example 2:

Keys: 0 0 0 0 1 3 * 4 *

GTO ←

When the tape stops, the display shows:

00.01.39.49

GTO → The recorder is put in **fast wind mode** , i.e. forwards, (or **16 x 2,38 cm/s** if the recorder speed is **2,38 cm/s** (15/16 ips)). Otherwise as GTO ←.

Example: The present time code is (0) 00.01.44.34 . And the desired code includes number 5 in the tens of minutes and number 2 in the units of seconds.

Keys: 0 0 0 0 1 5 * * 2

GTO →

When the tape stops, the display shows:

00.01.50.02

GTO R8
PLAY—R9
RWD—R8 This is a special mode. The recorder will locate the sequence corresponding to the code in register 8, play until the code in register 9 is reached (forward play only) rewind again to R8 and stop.

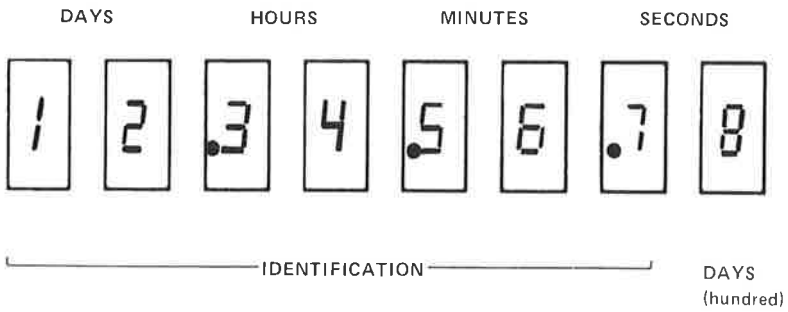
2.5 Display keys

DSP
TAPE
TIME Pressing the DSP TAPE TIME key will show the time or the identification number of the recorder coded on the tape (chosen through the "TIME/IDENT" key).
It is useful after commands that freeze the display, i.e. "KBRD ENABLE"(see section 2.3) or "RCL" (memory recall).

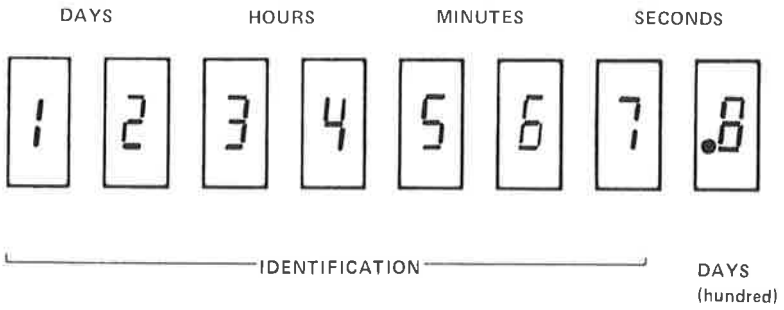
TIME
↑ ↓
IDENT The time / identification key switches the display mode between the 8 time digits (dd.hh.mm.ss) and the seven identification digits plus the hundreds of days digits (iiiiiii.d).

The mode actually displayed is easily recognized (through the decimal points : three decimal points in the time mode and one in the identification mode (dd.hh.mm.ss or iiiiiii.d) as shown below:

TIME MODE



IDENTIFICATION MODE



The identification is a part of the IRIG B time code which on the TRVR identifies the machine on which the recording was made. This number is determined by soldered bridges on the A16 Time Code Generator board inside the NAGRA TRVR and can be chosen freely. The serial number of the TRVR is a practical choice and is already coded when the machine leaves the factory. This number also appears on the front of the TRVR.

STO Rn

This store key acts in the same way as the store key of a calculator. There are 10 registers, each storing one complete time code (9 digits). To store a code, simply depress the STO Rn key, immediatly followed by one of the ten numeric keys to indicate the chosen register. Register O through 7 can be used freely, while R8 and R9 are reserved for the special repeat search function if this function is to be used. Refer to section 2.4.

Thus a time code can directly be stored into one of the ten registers either during recording or playback or manually (see section 2.3).

RCL Rn — To recall a previously stored time code, press the RCL Rn key followed by the register number on the keyboard. If no code is stored in the register, the display will show 00.00.00.00 since all registers are initia- at zero when switching the power on. Thus an easy way to reset all registers is to switch the power off and on again.

2.6 Escape keys

The two escape keys are located on the right of the front panel.

ESC & STOP — This key overrides any current function. The recorder is stopped and waits for a new command.

ESC & PLAY — This key also overrides any current function, but the recorder is put in playback mode.

3. REAR PANEL

3.1 Power connection

The RCHS unit must be connected to the mains through the socket on the right of the rear panel (viewed from the back).
Before connecting this cable, make sure that the voltage selector next to the socket is in the appropriate position (110 or 220 V AC).
The mains fuse is accessible from the outside and located next to the voltage selector. Replace only with 20 mA slow blow fuses (Ø 5 x 20 mm).

3.2 Connections to the TRVR

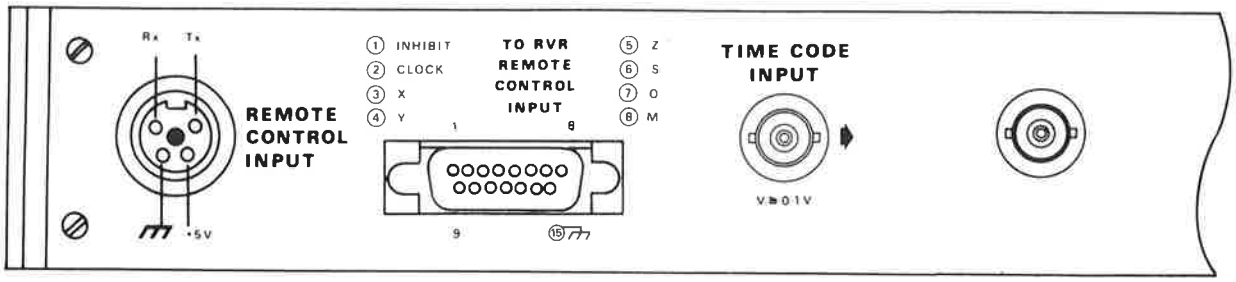
The time code is transferred from the NAGRA TRVR to the RCHS unit through a coaxial cable linking the BNC–type socket in the center of the rear panel of the RCHS and the 3rd track playback output BNC socket of the TRVR.
The tape transport control signals are supplied to the TRVR through a cable connected to the 25 poles CANNON–type socket on the rear panel of the RCHS and TRVR. The pin connections are indicated on the panels.

Note: In order to use the RCHS with the early Nagra TRVR's (serial number up to 110) it is necessary to plug in the ROIF (Remote Interface Board A13) into the TRVR. From serial number 111 on, this interface is included in the TRVR main circuitry. See page 56 of the TRVR Instructions Manual.

3.3 Remote control of the RCHS

Provision is made for a remote control (second keyboard or microprocessor). However, these are not yet available.

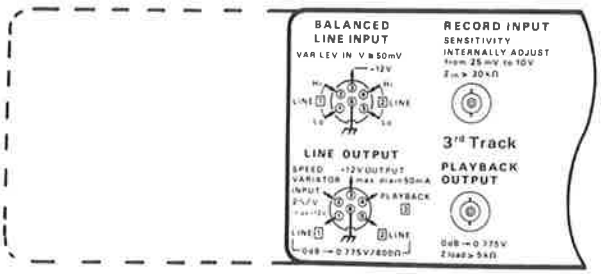
RCHS REAR PANEL CONNECTIONS (left side)



transfer of tape transport control signal

time code transfer

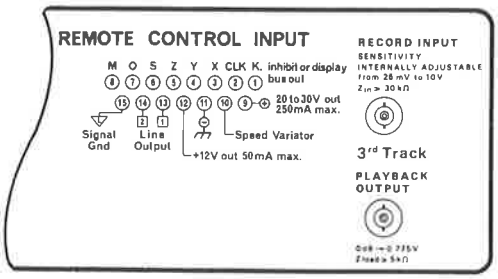
TRVR REAR PANEL CONNECTIONS (left side)
up to serial number 110



Transfer of tape transport control signal
Refer to page 56 of your TRVR Instructions Manual

time code transfer

TRVR REAR PANNEL CONNECTIONS (right side)
from serial number 111 on



transfer of tape transport control signal

time code transfer

4. Time code triggering level adjustment.

- Set oscilloscope AC/DC selector to DC; Set both GND traces (ground) coincident on the screen.
- Connect one input to TP10 (time code) and the other one to TP9 (DC reference).
- Adjust R4 in order to bring the DC signal between the low and the high signal peaks in the ratio of about one third – two thirds (see drawing).