RX-8016/8032

8 mm DATA RECORDER

INSTRUCTION MANUAL

TEAC CORPORATION

P/N: D002799-00C

Apr. 2000

SAFETY INSTRUCTIONS

Avoid places such as the following.

- Places colder than 0 ℃
- Places hotter than 40 ℃
- Places exposed to direct sunlight
- Places with lower humidity than 20 %
- Places with higher humidity than 80 %
- Dusty places
- Places under abnormal barometric pressure

Stop using the unit when irregular.

If for some reason you notice an irregularity or breakdown of the unit, stop using the unit right away and contact us. Using broken unit may cause fire or electrical shock.

Do not open the cabinet.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
To prevent fire or electrical shock, do not modify the unit.

Do not put object and liquid inside.

Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

Do not subject the unit to strong shocks.

This is a precision recorder. Be careful when handling.

Do not block ventilation opening.

Do not block the ventilation opening.
Blocking may cause fire.

Protect power-cord.

Power-supply cord should be routed so that they are not likely to be walked on or pinched by items placed upon or against it.
Damaged cord may cause fire or electrical shock.

Table of Contents

Chapter 1 Introduction

Features 1
Precautions 3

Chapter 2 Names and Functions of Parts

TTP (Tape Transport) 4
Function Keys 6
Display 8
Power 11
Analog Input/Output and Memo 12
Rear Panel 13

Chapter 3 Basic Operation

How to Set 14
Recording and Reproduction 15
ID Number 17
Voice Memo 17
Recording without Blanks 18

Chapter 4 How to Search

End Search 20
Search for Head of ID During Reproducing ... 20
Search by SEARCH Screen 21

Chapter 5 Setting Input/Output Conditions (PARAMS)

Switching Contents on PARAMS Screen 22
Setting Input Conditions 23
Setting Output Conditions 24
Entering TITLE and COMMENT 25
Other Functions on PARAMS Screen 26

Chapter 6 Setting Modes on SYSTEM Screen

Tape Speed and Multiplex 27
D I/O PLAY MODE 29
EXTERNAL START/STOP 29
PRE-TRIGGER 29

Chapter 7 Setting Modes on MISC Screen

CLOCK SET 30
CALIBRATION DATA 30
CALIBRATION MODE 31
SPEAKER MONITOR 31
FRONT MIC LOCK 31
MIC SELECT 31
POWER SAVE TIMER 31
ALARM ENABLE 31
PEAK HOLD 32
HEAD CLEANING 32
SELF TEST 32

Chapter 8 DIGITAL I/O

DIGITAL I/O SERIAL 1 33
DIGITAL I/O SERIAL 2 36
PARALLEL I/O 38
Combination of DIGITAL I/O 41
Transfer Rate and Capacity of DIGITAL I/O .. 41

Chapter 9 DIGITAL OUT 42

Chapter 10 EXT. CONTROL 46

Appendices

Error Messages 48
Specifications 50
Standard Accessories 54
Optional Accessories 54
External View 55

Chapter 1 Introduction

Thank you for purchasing TEAC RX-8000. Read this manual carefully before operating and keep it after reading.

As for the TZ-711, a standard accessory, refer to the separate volume. The TZ-711 enables the RX-8000 to record and reproduce IRIG-B time code, to perform synchronous recording and to dub digital data.

Features

This is a developed model of RX-816/832, which has been given favorable reputation, with an additional function to record and play for long period of time.

It employs a Hi8 8mm video cassette MP tape as a media. The tape has a big capacity of approximately 7.7 Gbytes of digital data. We have developed an original PCM (Pulse Code Modulation) format and achieved the following features.

(1) Frequency characteristic of 20 kHz in 16 channels

Channel band product* is 16ch × 20 kHz or 32ch × 10 kHz.

Channel band product:
frequency band per channel × number of channels

(2) Wide dynamic range, high S/N ratio and small interchannel phase difference

The unit employs delta-sigma type A/D converters in each channel with fine anti-aliasing characteristic by 64 times over sampling. In combination with 8 times over sampling digital filter on the output side, they realizes high performance:

- Dynamic range more than 80 dB
- S/N Ratio more than 78 dB
- All-channel simultaneous sampling
- Phase difference among channels smaller than 1 ° (within the same input range)
- Frequency response flatness of +0.5/-1 dB

Six input ranges are selectable, which allow high quality recording.

(3) Long recording time up to 32 hours

Recording time per tape is selectable: 1, 2, 4, 8, 16, 32 hours. However, the longer the recording time, the lower the sampling frequency becomes.

Reproducing can be performed at any tape speed regardless of the tape speed at which recording was done. By changing tape speed between recording and reproducing like traditional analog data recorders, time-axis can be converted in the ratio up to 1 : 32.

NOTE

The term "tape speed" in this manual means "the period of time for which one tape is recorded or reproduced," not "the speed at which a tape moves." Actually, the tape is forwarded at 2 speeds. (☞ p. 28)

(4) Compatible with RX-816/832

A tape recorded by RX-8000 can be reproduced by RX-800 at the fixed tape speed "× 2." The speed "× 2" equals to 1H mode of the RX-8000. A tape recorded by RX-800 can be reproduced by RX-8000 in any tape speed mode. However, voice memo can be reproduced in the same tape speed mode as the mode in which it was recorded.

(5) Synchronized recording of up to four sets

In 1H and 2H mode, up to four sets of RX-8016 or RX-8032 can be connected and operated simultaneously matching the time code. For example, four sets of RX-832 connected form a recording system of 128ch × 10 kHz.

(6) Various digital input/output

The following digital input/output functions are provided.

● Serial data recording/reproducing (1)

Serial data can be recorded/reproduced simultaneously with all the analog channels. This function is effective for recording tachometer pulses, stimulus pulses or timing signals combined with analog signals.

● Serial data recording/reproducing (2)

By replacing all the analog channels, serial data can be recorded/reproduced allowing the use as a pure digital recorder to record and monitor bus signals of telemeter/computer and various high speed communication line signals.

● 16-bit parallel data recording/reproducing

In the ANALOG CH1 mode, 16-bit parallel data can be recorded/reproduced by replacing the analog channel 1. In addition to the analog data of the 2nd and following channels, various digital data such as counter, trigger, alarm and event marker can be recorded.

In the DIGITAL CH mode, 16-bit parallel data can be recorded/reproduced keeping all the analog channels available.

● Digital Out

A/D converted 16-bit parallel data can be generated simultaneously with analog outputs, allowing the use as an A/D converter.

(7) Other useful functions

● Expansion unit AU-RX816 (optional)

Unit to increase the number of the channels of RX-8016 from 16 to 32 channels. With this expansion, the channel band product (frequency band per channel × number of channels) will be 16 ch × 20 kHz or 32 ch × 10 kHz.

● Digital copy

Enables digital copying of data, time code and voice memos by connecting two sets of RX-8016 or RX-8032, causing no deterioration of quality (S/N ratio, distortion factor).

● GPIB interface AR-510 (optional)

Enables control by a computer and data transfer to a computer.

● Remote control unit ER-46 (optional)

Provided with a bar meter. The interface conforms to RS-232C.

● Pre-trigger

Enables recording without data missing during mechanical rise time.

● Bar meter monitor with high visibility

A monochrome LCD screen with a back light capable of displaying all channels of input/output signals with a peak hold. It also displays the voice levels, ID number, clock and conditions for recording and reproduction.

● Voice memos

Enables recording/reproduction of voice memos in addition to input data.

● Speaker monitor

Data can be heard as a sound as well as voice memos.

● Data number (ID number)

ID numbers for data are recorded.

● Time code recording

Data of year, month, date, hour, minute and second generated by the internal clock are always recorded.

● IRIG-B time code recording and searching allowed.

● Various high speed searches

High speed searches using the ID numbers, counter and clock as keys are possible.

● Front operations for ease of use in the field

All operation keys, BNC connectors for input/output, and a monitor screen are arranged on the front panel.

● Self-test

The unit is automatically diagnosed by this function.

● AC/DC power supply

Voltage Supplies (100 V/200 V AC and 12 V/24 V DC) are automatically switched.

Precautions

● Check that the unit is the one you ordered.

Check the model No. and the accessories. ("Supplied Accessories" ☞ p. 54) If any inadequacy is found, contact our sales agent or service agent.

● Supply specified voltage.

Voltage supplies other than those specified may break the unit. Pay attention to a large noise even if the RMS value meets the standard. The unit uses the switching power supply, and a large current (approx. 30A) flows at the moment of power on.

● Beware of condensation.

When the unit is moved from a cold to a warm place, condensation may occur on the drum or tape. Turn on the power and leave the unit for at least 30 minutes to familiarize with the ambient temperature before inserting a tape, and check that no condensation occurs. Generally, even if the ambient temperature meets the specification, condensation may occur if a temperature changes over 15° in an hour.

● Take out a tape before turning off the power.

If a tape is left loaded for a long time, it may stick to the rotary head. If the power is turned on in this state, the tape may be wound around the rotary head and damaged.

● Wait 2 seconds before turning on again.

When you turn on the power just after turning off, wait more than two seconds before turning on. Turning on the power just after turning off may cause a malfunction. If a malfunction occurred, turn off the power and then on again.

● Do not subject the unit to strong shocks.

This is a precision recorder. Be careful when handling.

● Clean the heads regularly.

After long periods of use, the heads may become dirty causing write/read errors. They should be cleaned after every 50 hours of operation.

As to how to clean the heads, refer to "Head Cleaning" (☞ p. 32).

● Use specified tapes.

Tapes other than those specified may fail to record or reproduce.

Specified tape:

FUJI PHOTO FILM Hi8 ME Position 120
or FUJI PHOTO FILM M221E E6-120
(tape length 106 m)

● Preventing mistaken erasure of tapes

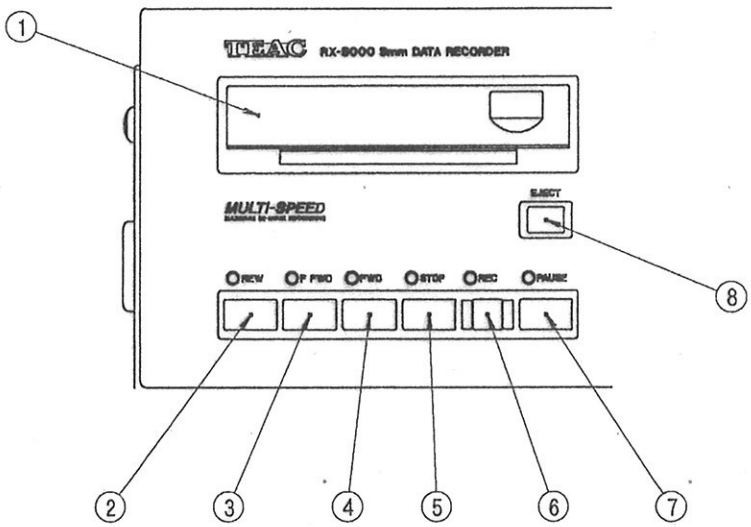
To protect the recorded data from mistaken erasure, push the slide lever at the back of the cassette to "SAVE."

● Store tapes with care.

When storing a tape for a long period of time, wind up the tape to its beginning, insert it into a case, and keep it in a location free from high temperature and high humidity.

Chapter 2 Names and Functions of Parts

TTP (Tape Transport) Control



① Cassette lid

When loading a cassette, open the lid by pulling it down. When the cassette is inserted halfway, it is automatically loaded in place. After the loading, close the lid with your hand to prevent the entry of dust.

② REW (REWIND) key, indicator

Pressing the REW key rewinds the tape. The REW key is not accepted in REC FWD mode, or REC PAUSE mode. So, press the STOP key first to enter the REW mode. Pressing the REW key during reproduction (FWD) rewinds the tape at the 4 times speed of 1H mode FWD. In this case, no signal is reproduced.
During rewinding, the indicator lights.

NOTE

Though the tape transport makes somewhat large sound when rewinding a tape from a position close to BOT (Beginning of Tape) or when fast-forwarding from a position close to EOT (End of Tape), that is not trouble.

③ F.FWD (FAST FORWARD) key, indicator

Pressing the F.FWD key fast-forwards the tape. The F.FWD key is not accepted in REC FWD mode, or REC PAUSE mode. So, press the STOP key first to enter the F.FWD mode. Pressing the F.FWD key during reproduction (FWD) forwards the tape at the 4 times speed of 1H mode FWD. In this case, no signal is reproduced. During fast-forwarding, the indicator lights.

④ FWD (FORWARD) key, indicator

Pressing the FWD key feeds the tape in forward direction and performs reproduction. When the FWD key is pressed in the REC PAUSE mode, recording starts. In the FWD or REC FWD mode, the indicator lights. During the REC FWD mode, the FWD key is ignored.

⑤ STOP key, indicator

Pressing the STOP key in the FWD, REC FWD, REW, F.FWD modes releases them and stops the unit. The indicator lights at that time. The indicator blinks when the cassette tape is inserted, and then stays on.

⑥ REC (RECORD) key, indicator

When the REC key is pressed in the STOP or PAUSE mode, the REC and PAUSE indicators blink during the record ready operation. When the record ready operation is completed, the REC and PAUSE indicators stay on. The unit starts recording when the FWD key is pressed. Or, pressing the FWD key while the indicators are blinking allows the unit to enter REC/FWD (recording) mode after completion of the record ready operation. If the protect tab of the cassette is slid (write-protected), the REC key is ignored.

In 1H or 2H tape speed mode, when REC PAUSE mode status continues for more than 5 min, the rotary drum stops rotating to protect the tape. At this time, the REC and PAUSE indicators blink. Pressing the FWD key in this case starts recording, but it takes about one second more until the recording starts than the case it starts from the REC PAUSE mode.

⑦ PAUSE key, indicator

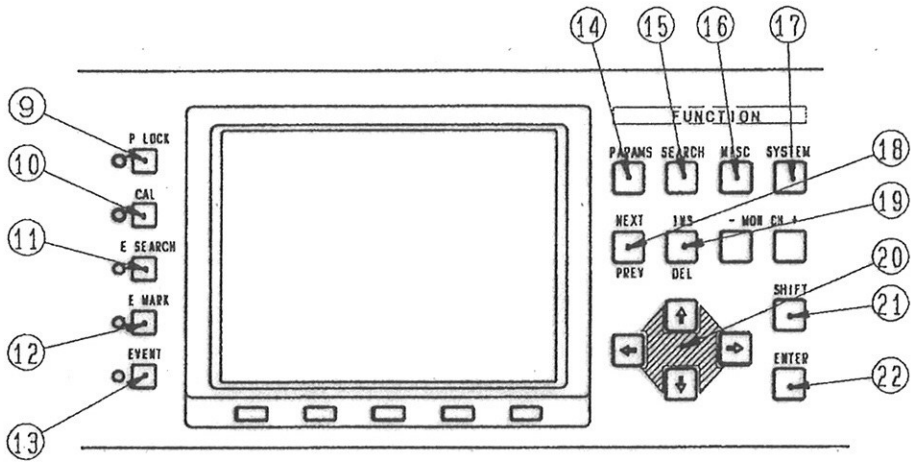
Pressing the PAUSE key in the REC FWD operation sets the unit to the REC PAUSE mode. Pressing the PAUSE key in the FWD, REW, F.FWD mode, etc. releases the mode and stops the unit.

The indicator blinks when the key is pressed, and then stays on.

⑧ EJECT key

To eject the cassette, press the EJECT key. The tape is automatically unloaded and you can take it out. Don't touch the cassette until it is completely ejected.

Function Keys



⑨ P LOCK (PANEL LOCK) key, indicator

The P LOCK key is to lock a function of each key in order to avoid mistaken operation. With the panel locked, all the keys are locked except the power switch and the P LOCK key. To perform the panel lock, keep pressing the P LOCK key for about 3 sec. The LED blinks and then stays on as the lock is completed. To release the lock, likewise press the P LOCK key for about 3 sec. The LED blinks and then turns off as the lock is released.

⑩ CAL (CALIBRATION) key, indicator (☞ p. 30)

Pressing the CAL key generates a CAL signal set on the MISC screen.

In the REC PAUSE or REC mode, the signal can be generated by pressing the CAL key. To generate the signal when a tape is not inserted, press the F4 key (EE START) in the PARAMS screen and then press the CAL key.

⑪ E SEARCH (END SEARCH) key, indicator

When the E SEARCH key is pressed, the tape is rewound to BOT and the unit searches for the E Mark. When the E SEARCH key is pressed while the SHIFT key ㉑ is pressed, the unit searches for the nearest E Mark on the tape. The indicator lights when the E SEARCH key is pressed, and turns off when the search is completed.

For details of the End Search, refer to "E Search" (☞ p. 20).

⑫ E MARK (END MARK) key, indicator

When the E MARK key is pressed in the REC PAUSE mode, the unit records an End Mark and then enters the STOP mode.

While the REC and PAUSE indicator are blinking, the E MARK key is not accepted. Confirm that the REC and PAUSE LEDs stay on, then press the E MARK key. After the END MARK is recorded, the indicator turns off.

⑬ EVENT key, indicator

Pressing this key during the REC mode increments the ID number by one. About 2 seconds is required to record one ID, and the EVENT LED turns on for that period. TTP control keys are not accepted while the EVENT LED is on.

⑭ PARAMS (Parameters) key

Displays the PARAMS screen for setting input and output conditions.

⑮ SEARCH key (☞ p.21)

Displays the SEARCH screen for searching operation.

⑯ MISC (Miscellany) key

Displays the MISC screen to set modes not directly related to recording or reproduction.

⑰ SYSTEM key

Displays the SYSTEM screen to set modes related to recording and reproduction.

The SYSTEM screen is not displayed during recording or reproduction.

⑱ NEXT/PREV key

Used to modify values or modes of cursor position (inverted character) in all the screens.

⑲ INS/DEL key

Used to insert or delete characters when setting TITLE and COMMENT.

⑳ Arrow keys

Four arrow keys (↑ , ↓ , ← and →) are used to move the cursor upward, downward, left or right.

㉑ SHIFT key

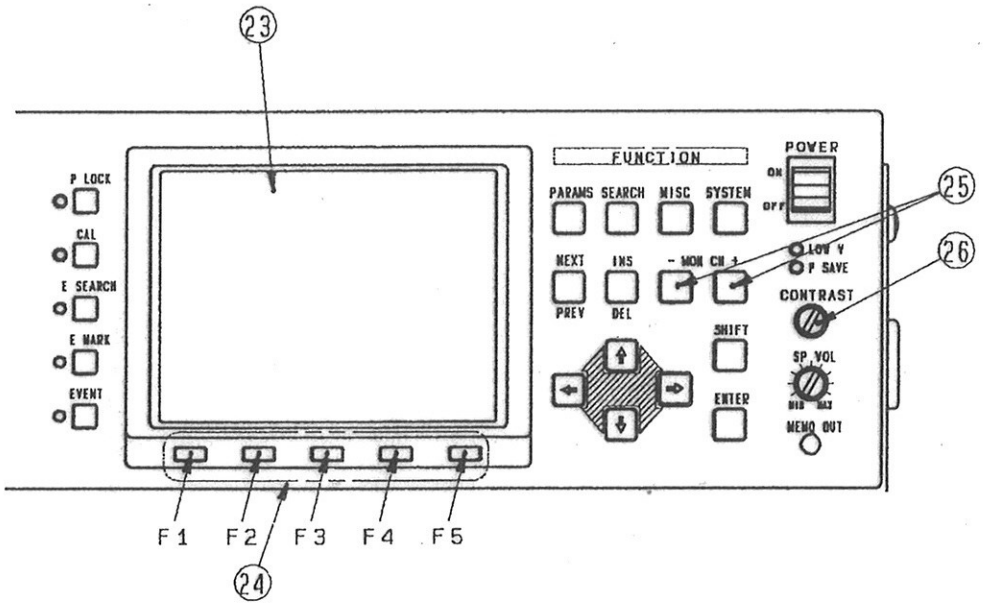
The SHIFT key is used to select either one of two functions incorporated in a key.

While this key is pressed, NEXT/PREV key⑱ operates as "PREV," and INS/DEL key⑲ operates as "DEL."

㉒ ENTER key

Used to enter current time, TITLE and COMMENT.

Display



㉓ Display

The screen is a backlit monochrome liquid crystal display. The display shows the COUNTER, ID NO. (Identification Number), P-COUNTER (Program Counter), MONITOR, REM (Tape Remain), CLK (Clock), SYSTEM LIST and a bar meter for data and voice memos.

At the bottom of the screen the functions assigned to optional keys ㉔ are displayed.

*The details of items displayed on the screen are explained in the next page.

㉔ Optional keys (F1, F2, F3, F4, F5)

Though the names of these keys are not indicated, they are defined as F1, F2, F3, F4, F5 from the left to right for convenience.

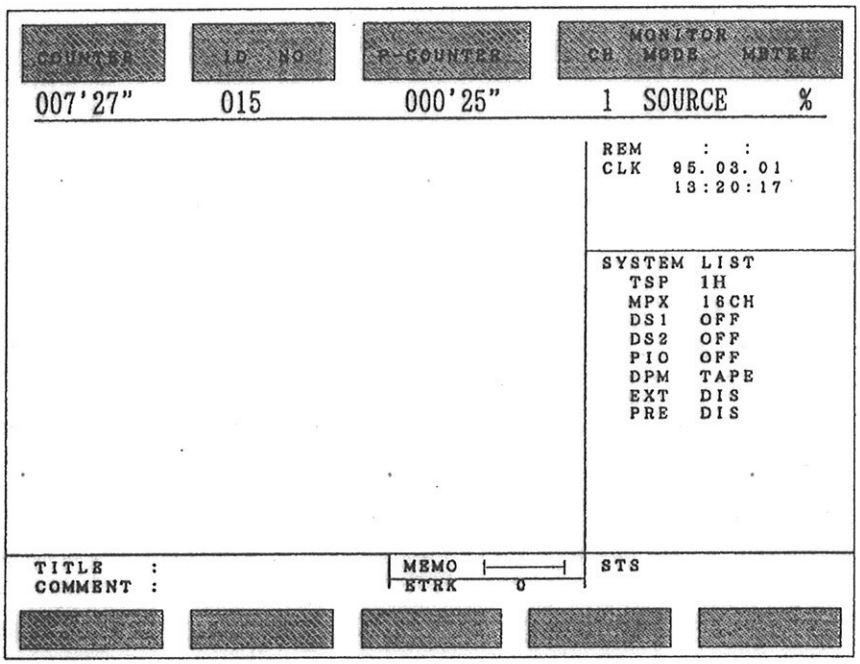
㉕ MON CH (MONITOR CHANNEL) key

Selects a channel to output from the monitor BNC connector ㊳, and is interlocked with the monitor display in the upper right of the screen. If the SPEAKER MONITOR of the MISC screen is set to DATA, the data of the channel set by this key will be heard as a sound and outputted from the MEMO OUT ㊵.

㉖ CONTRAST

Adjusts the contrast of the LCD.

Details of Items on Screen



COUNTER . . . . . Shows a tape position from BOT in 3 digits for "minute" and 2 digits for "second." (000' 00") It does not mean "elapsed time" but the *length* of a tape from BOT. Only in the 2H mode the COUNTER matches with real time.
The COUNTER does not count up when a tape is stopped during recording or reproduction in 4~32H mode, in which the TTP moves intermittently.
If recording begins from a blank (non-recorded) area at a midpoint in a tape, the COUNTER displays a value estimated by the unit. In this case, '•' precedes the count.

Example: • 062' 34"

ID NO . . . . . ID NO shows lower 3 digits of a ID number (001 ~ 999).
Next to "999" comes "000."
If recording begins from a blank area at a midpoint in a tape, the ID NO starts from 001 again.

P-COUNTER . . . . . Shows a tape position from a beginning of each ID in 3 digits for "minute" and 2 digits for "second." (000' 00") It indicates a present point of a tape.
Only in the 2H mode the P-COUNTER matches with real time.
It is reset every time the ID NO is incremented.
The P-COUNTER counts up even when a tape is stopped in 4~32H mode, in which the TTP moves intermittently.

MONITOR . . . . . Shows the channel number set by the MON CH key ㉕, MONITOR MODE (SOURCE or TAPE) and a level of the channel data expressed as a percentage of the range.

REM . . . . . Indicates tape remaining time: hour, minute and second each in 2 digits (hh:mm:ss).

CLK . . . . . Displays a current time in year, month, day, hour, minute and second. When the MONITOR MODE is TAPE, the time read out from a tape is displayed.

SYSTEM LIST . . . . . When the MONITOR MODE is SOURCE, the modes currently set on the SYSTEM screen is displayed. When the MONITOR MODE is TAPE, the SYSTEM modes read out from a tape is displayed. On the SYSTEM screen the HELP window (☞ p. 14) appears in this area.

● The switching between SOURCE and TAPE is enabled only when the PARAMS screen is displayed and a tape is inserted and stopped.

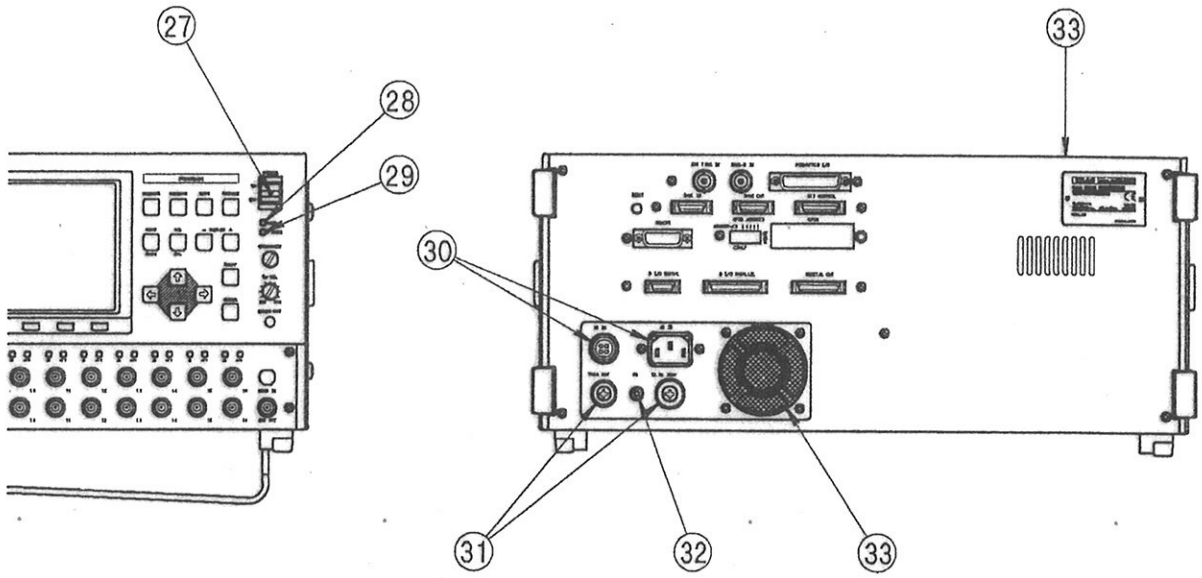
MEMO . . . . . Displays a level of a voice memo in the bar meter.

TITLE . . . . . Displays TITLE (maximum 10 characters) and COMMENT (maximum 50 characters) which can be recorded on a tape in addition to data. The display allows only 10 characters of COMMENT to appear. When the MONITOR MODE is SOURCE, the characters following the 10th can be seen by pressing the arrow key ⑳. However, when the MONITOR MODE is TAPE, only the first 10 characters read out from a recorded tape are displayed. For reading out more than 10 characters, the AR-510 GPIB option is necessary. (☞ p. 25)

STS . . . . . If any error occurs, an error information is displayed. (☞ p. 48 "Error Messages")

ETRK . . . . . Monitors the number of drop-out tracks in total during recording and reproducing. If the count increases extremely, a tape or the TTP may be defective. In this case, change the tape and clean the heads. The count is cleared each time the TTP mode is changed (STOP to FWD ...etc.). When an asterisk '*' follows the count, it means that the passing part of the tape is erroneously recorded or reproduced.

Power



㉗ POWER switch

Turns on and off the power. If the switch is turned off when a cassette tape is loaded, the tape protection function works, and then the power is turned off with a delay of several seconds.

㉘ LOW V (LOW VOLTAGE) indicator

Lights when the DC input voltage falls short of the rated value. If it lights, examine the DC input voltage.

㉙ P SAVE indicator

The P SAVE (Power Save) function turns off the back light of the LCD to save power consumption. The indicator lights while this function is working. (☞ p. 31)

㉚ Power input connector

Apply a DC voltage within the range of 11 ~ 15V DC or 22 ~ 30V DC.

Apply an AC voltage within the range of 90 ~ 132V AC or 180 ~ 264V AC.

㉛ Fuse

Use a DC fuse of T15A/32V.

Use an AC fuse of T2.5A/250V.

㉜ FG (FRAME GROUND)

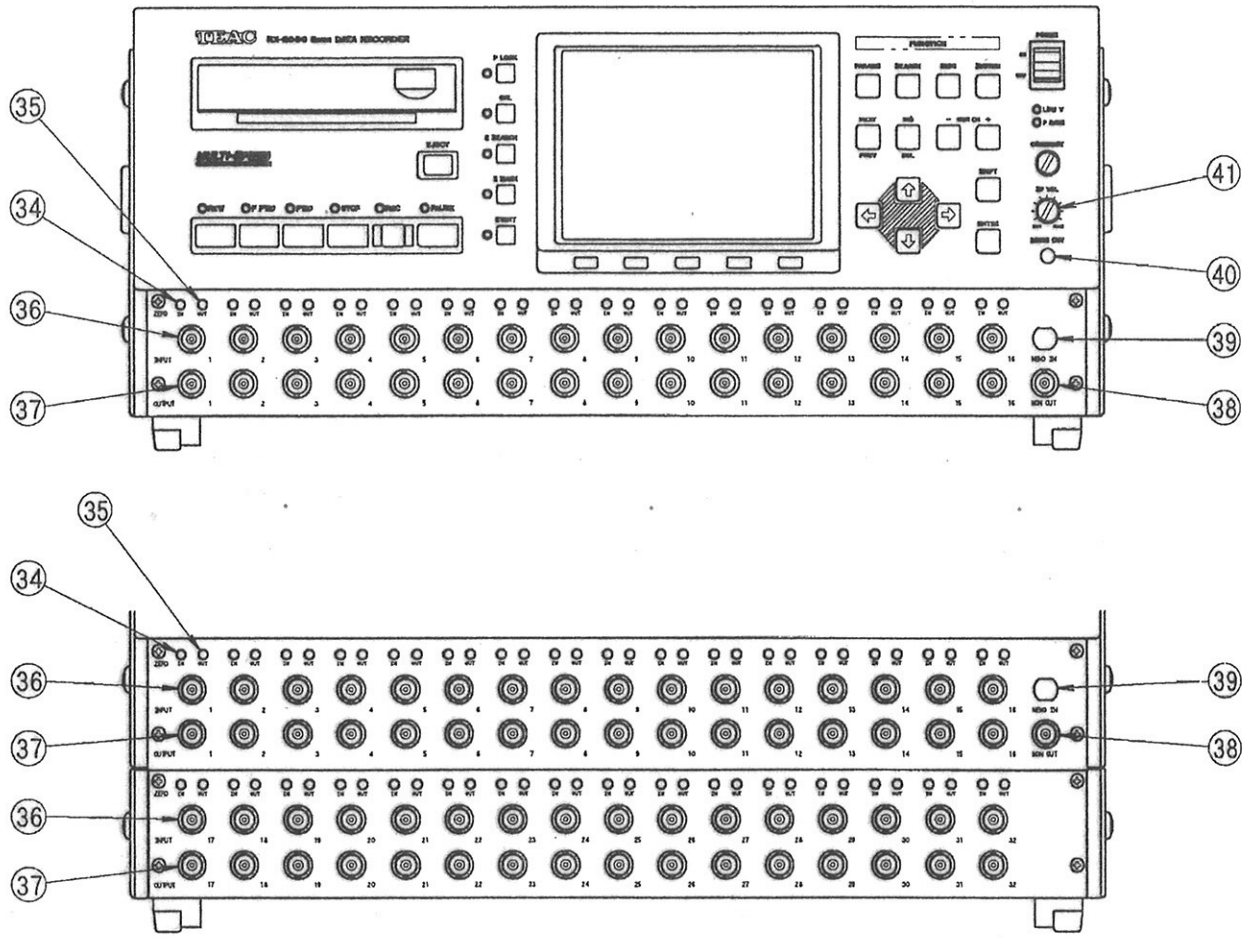
Frame ground terminal

㉝ Fan

Fans to cool the whole unit and the power unit.

Do not block the air outlets.

Analog Input/Output and Memo



㉞ INPUT ZERO potentiometer
Adjusts input zero level. Use the accessory screwdriver to adjust.

㉟ OUTPUT ZERO potentiometer
Adjusts output zero level. Use the accessory screwdriver to adjust.

㊱ Input BNC connectors
BNC connectors for analog input.

㊲ Output BNC connectors
BNC connectors for analog output.

CAUTION
Do not input to the output connectors.
Inputting may break the output amplifiers.

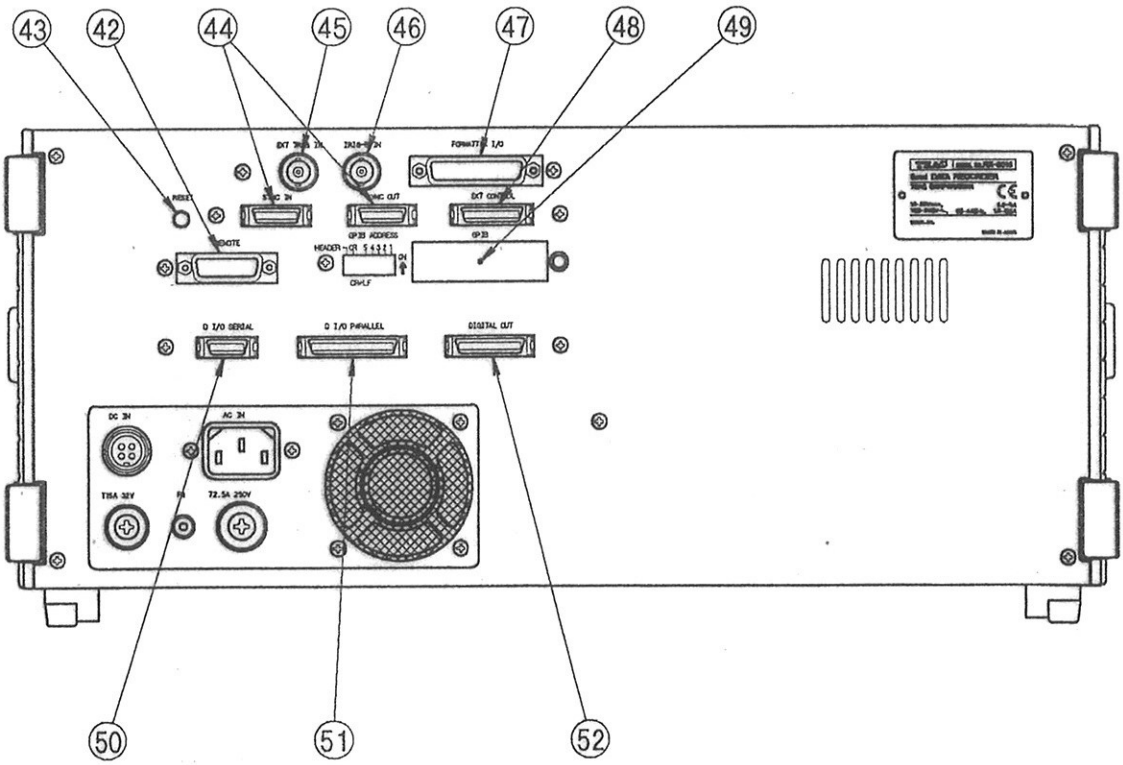
㊳ Monitor BNC connector
Output connector for monitoring. Outputs the signal of the channel selected by the MON CH key ㉕. The level of the signal is same as those outputted from the connectors ㊲.

㊴ MEMO IN
Microphone connector for voice memos.

㊵ MEMO OUT
Earphone connector for voice memos.

㊶ SP VOL
Volume control of the speaker and an earphone.

Rear Panel



㊷ Remote control (optional)
Connector for the remote control unit ER-46.

㊸ RESET
Used when the unit is hung up.
Generally it is not necessary to push.
NOTE: Pushing this switch may return the settings to the initial state set at the factory.

㊹ SYNC IN/OUT
Connector for synchronous recording.

㊺ EXT TRIG IN
Connector for external triggering. (☞ p. 29)

㊻ IRIG-B
Used to record the IRIG-B time code.

㊼ FORMATTER I/O
Connector for digital copy.

㊽ EXT CONTROL
Connector for remote contact input. (☞ p. 46)

㊾ GPIB (optional)
Connector for GPIB.

㊿ D I/O SERIAL (DIGITAL I/O SERIAL 1/2)
Allows serial digital recording and reproduction through two types of digital I/O: SERIAL 1 and 2. (☞ p. 33, 36)

(51) D I/O PARALLEL (DIGITAL I/O PARALLEL)
Records and reproduces 16-bit parallel data. (☞ p. 38)

(52) DIGITAL OUT
Outputs digital data in parallel at the same time as analog output. (☞ p. 42)

Chapter 3 Basic Operation

In this chapter basic operations for recording and reproducing are explained. The details of each function are explained in the following chapters.

How to Set

To operate the TTP (tape transport)

Press the TTP control keys ② ~ ⑧.

To set values and modes

1. Select a screen using the FUNCTION keys ⑭ ~ ⑰.
2. Move the cursor using the arrow keys ⑳.
3. Change modes and values using the NEXT/PREV key ⑱ and the SHIFT key ㉑.

Values and modes entered are saved in memory and maintained even if the power is turned off.

■ Tutorial: Setting the Calibration Signal to "AC"

1. Connect the power cord.

Check to see that the voltage conforms to the specification.

2. Turn the power on.

All the indicators will light up and about a second later go out.

The PARAMS screen will appear.

3. Press the MISC key ⑯.

The MISC screen will appear.

4. Press the arrow key ↓ ⑳ once.

▶ mark will move to the left of CALIBRATION DATA and "0 %" will be reversed.

5. Press the NEXT/PREV key ⑱ 3 times.

The reversed "0 %" will be changed:

0 % ➡ +100 % ➡ −100 % ➡ AC

This is the end of the setting. Pressing the CAL key ⑩ when recording will generate the AC calibration signal. Press the PARAMS key ⑭ to return to the PARAMS screen.

Moving the Cursor

- Pressing an arrow key ⑳ moves the cursor in the direction of the arrow.
- Holding an arrow key ⑳ pressed moves the cursor continuously in the direction of the arrow.
- The cursor stops when it reaches the end of that direction. In this case, releasing the key and pressing it again moves the cursor to the opposite end.

Returning a Value or Mode at the Cursor

Pressing the F5 key (ESC) returns the setting at the cursor to the value or mode it had just after the current screen was displayed.

As for the TITLE and COMMENT, the entire strings will be returned to the previous state.

Returning Values or Modes on the Screen

Pressing the SHIFT ㉑ + F5 key (ESC) returns entire settings on the screen to the values or modes they had just after the current screen was displayed.

ADVICE HELP Window

Pressing the SHIFT ㉑ + ENTER key ㉒

changes the SYSTEM LIST to the HELP window.

In the HELP window, a menu of choices and a simple operation guide for the setting at the cursor are displayed.

To return to the SYSTEM LIST, press the SHIFT + ENTER key again.

- On the SYSTEM screen the HELP window always appears in the SYSTEM LIST area.

Recording and Reproducing

Before use in the field, practice the operation of recording and reproducing following the steps explained here.

Actual measurements require the settings of the following at least:

- Input conditions (☞ p. 23)
- Tape speed (☞ p. 28)
- Multiplex (for 8032) (☞ p. 28)

Here, leave them as they have been set at the factory, and record and reproduce the AC calibration signal you set in the previous page.

1. Insert a cassette tape.

Use a new cassette from BOT.

CAUTION
Do not insert the cassette too forcefully.
Forced inserting may cause trouble.

Insert a cassette with the tape-visible side up and the label side toward you.

Open down the cassette lid ① and insert a cassette tape halfway, and it will be loaded automatically in place.

The screen will show:

COUNTER . . . .000' 00"
I D . . . . . .BOT
CLOCK . . . . . .Current time and date

2. Press the REC key.

The REC and PAUSE indicators will blink while the TTP prepares for recording, and then they will stay on.

- It takes about 30 seconds for the TTP to prepare for recording from BOT in order to record dummy data.

In 2H mode it takes about 60 seconds.

3. Press the CAL key.

The calibration signal will be generated and the bar graphs on the PARAMS screen will show ± 100%. Pressing the CAL key once more stops the calibration signal and switches to inputted signals.

4. Press the FWD key.

The REC and FWD indicators will blink and some seconds later stay on when recording starts.

COUNTER . . . .Shows the position from BOT
I D 001
CLOCK . . . . . .Current time and date

- If you press the FWD key while the REC and PAUSE indicators are blinking as in step 2, recording will start after the preparation and the REC and FWD indicators will stay on.

5. (After about 60 seconds) Press the PAUSE key.

Recording will be paused and the REC and PAUSE indicators will turn on.

COUNTER . . . .Holds
I D 001
CLOCK . . . . . .Current time and date

6. Press the FWD key.

Recording starts again and the REC and FWD indicators will turn on.

COUNTER . . . .Shows the position from BOT
I D 002
P-COUNTER . .Shows the position from the head of ID 2.
CLOCK . . . . . .Current time and date

7. Repeat the steps 5 ~ 6 until ID reaches 010.

I D .....002 ⇒ 003 ⇒ . . . 009 ⇒ 010

8. Press the STOP key.

The tape stops.

COUNTER . . . .Stops.
I D 010
P-COUNTER . .Stops.
CLOCK . . . . . .Current time and date

9. Press the REW key.

The tape returns to BOT and stops.
During rewinding:
COUNTER . . .Shows the COUNTER recorded on the tape.
I D .....Shows the ID No. recorded on the tape.
P-COUNTER .Shows the P-COUNTER recorded on the tape.
CLOCK . . . . .Shows the time and date recorded on the tape.

10. Press the FWD key.

Reproduction begins from BOT.
Reproduced signals will be outputted from the output BNC connectors. The bar graphs will show the levels of signals.

COUNTER . . .Shows the position from BOT.
I D .....Shows the ID No. recorded on the tape.
P-COUNTER .Shows the position from the head of each ID.
CLOCK . . . . .Shows the time and date recorded on the tape.

● When reproducing from BOT, it takes some seconds for signals to be outputted because the dummy data is skipped first.

Monitoring Signals

The inputted signals can be monitored for convenience of parameter setting and recording monitor.
The following measures are available for monitoring.

- ○ The bar graphs on PARAMS and bar meter screen
- ○ Outputs from the BNC connectors
- ○ Output from the MONITOR BNC connector
- ○ METER (%) display in the upper right of the screen

To monitor signals, perform *either* of the following operations.

- ○ Insert a tape and press the REC key.

Or, ○ Start the EE mode without a tape. (☞ p. 26)

Then A/D converted data returns to the D/A converter, allowing the bar graph indication and outputs at the output BNC connectors.

NOTE

The signals outputted during recording are not those reproduced by the heads. Even if the signals are outputted without trouble while recording is done, it does not always guarantee the perfect record on a tape. Watch the ETRK value on the PARAMS screen during recording.

■ Selecting a channel to be monitored

The number of the channel being monitored with the MONITOR connector and the METER (%) is indicated in the upper right on the screen. To change the channel to be monitored, press the MON CH keys ⑮:

- ● Pressing the '−' key decreases the channel number.
- ● Pressing the '+' key increments the channel number.
- ● Holding the key pressed changes the channel number continuously. When the channel number reaches the maximum (minimum), the change of the channel number stops. In this case, releasing the key and then pressing it again changes the channel number to the minimum (maximum).

ID Number

The ID number starts from 001 at BOT and increases sequentially. It is convenient for searching for data.

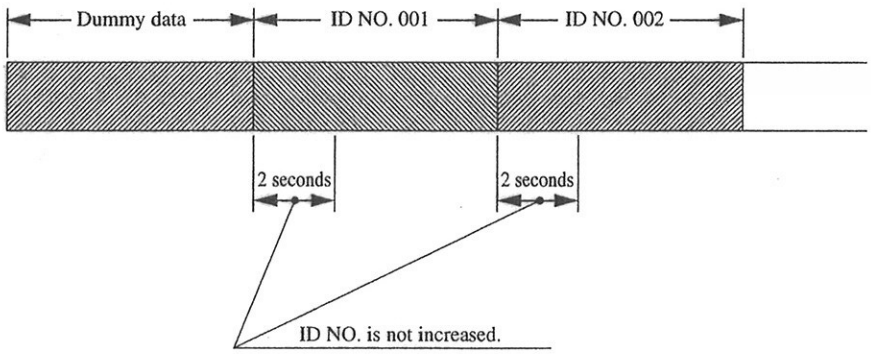
The ID number is incremented each time:
○ recording begins (after PAUSE or STOP).
○ EVENT key ⑬ is pressed during recording.

- While the EVENT LED stays on, the TTP control keys are disabled.
- If recording begins from a blank area at a midpoint in a tape, the ID number starts from 001 again.
- Each ID cannot be shorter than 2 seconds.

(See Fig. 1.)

The following messages may be displayed in place of the ID Number.

- - - ➡ No cassette inserted
*** ➡ Reproducing a blank part of a tape
EMK ➡ At an End Mark
EOD ➡ At a blank part of a tape
BOT ➡ At BOT
EOT ➡ At EOT
DMY ➡ At the dummy data



〈Fig. 1〉

Voice Memo

Voice memos can be recorded and reproduced in addition to data. Reproduced voices can be heard from the speaker. The volume can be adjusted by the knob ㊶. When the SPEAKER MONITOR on the MISC screen is set to DATA, the mode to convert data into sound, voices are not reproduced.
When an earphone is connected to the MEMO OUT ㊵, the speaker sound can not be heard.

- If reproducing tape speed differs from that of recording, voices can not be reproduced. Between 1H and 2H mode, voices are played back compatibly though tones are changed.

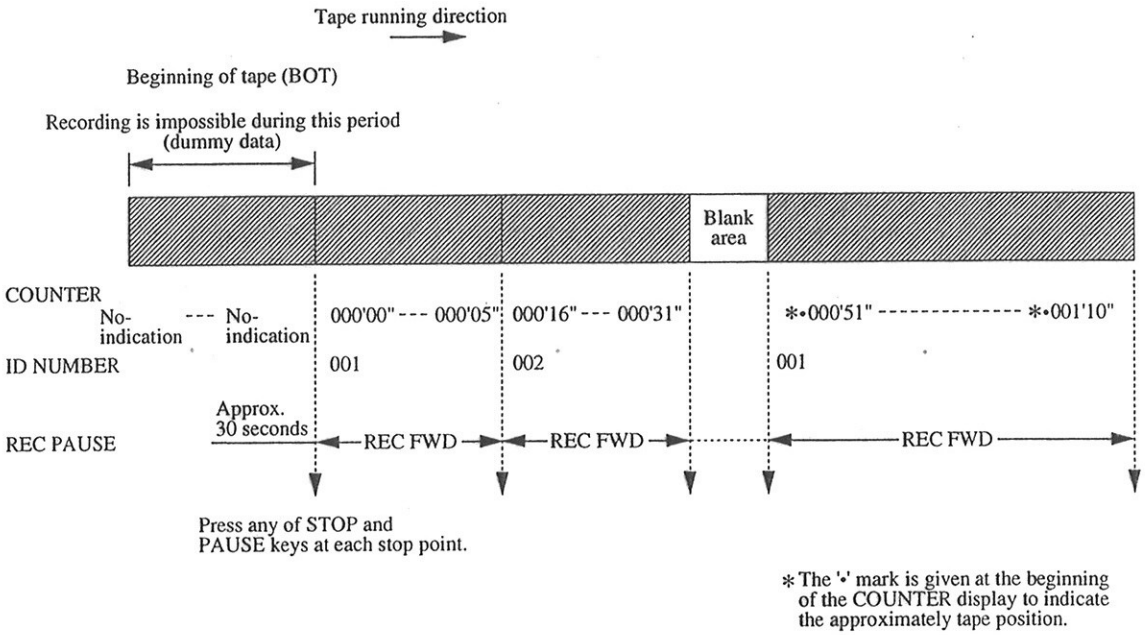
NOTE

- The voice input level is Auto-Gain-Controlled to record at the optimum.
- The level is monitored by the MEMO bar meter on the PARAMS screen.
- The MIC SELECT on the MISC screen selects a microphone connected to the front panel or that connected to a remote control unit. When FRONT is selected, the FRONT MIC LOCK is enabled. The FRONT MIC LOCK locks the press-to-talk switch of the microphone into "on." (☞ p. 31)

Recording without Blanks

Avoid making blanks on a tape.

If recording starts from a non-recorded part at a midpoint in a tape, the ID number returns to 001, and the COUNTER does not show the exact count but the count estimated by the unit. (See Fig. 2.)

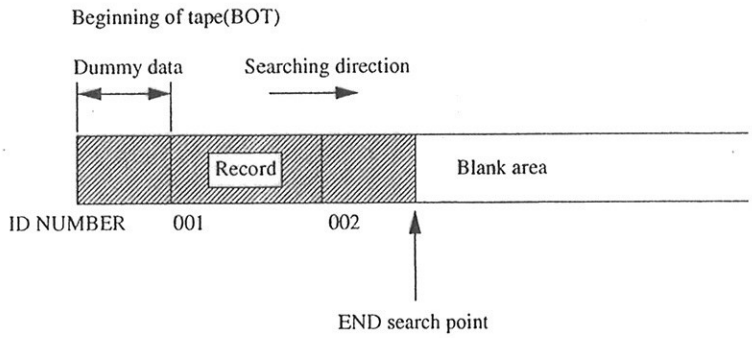


〈Fig. 2〉

To avoid making blank areas on a tape

Searching for the End of the Recorded Area (☞ p. 20)

To restart recording after FWD, REW, F-FWD, EJECT, etc. which move a tape, perform the END search. The END search finds the end of the recorded part. Starting recording from that point eliminates a blank area. (See Fig. 3.)

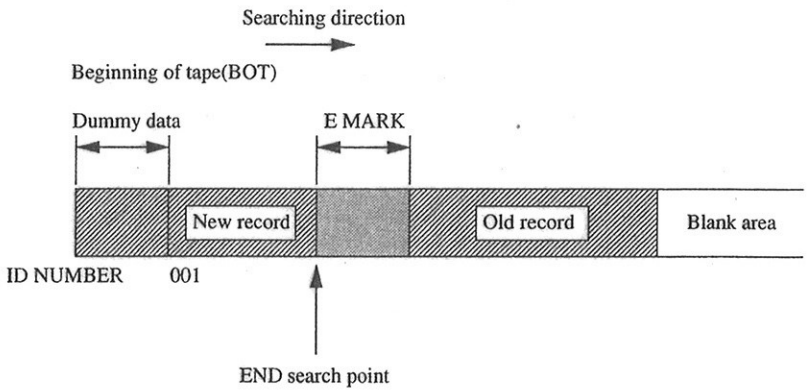


〈Fig. 3〉

Searching for the End Mark (☞ p. 20)

When recording from BOT on an already-recorded tape, if the new record is shorter than the old one, record the E MARK at the end of the new record. The End search finds this E MARK. If you start recording from this point, the record overlaps and clears the E MARK.

(See Fig. 4.)



〈Fig. 4〉

NOTE

● To record an End Mark

Press the E MARK key ⑫ when REC PAUSE.

The tape stops after the mark recording completed.

● To restart recording after PAUSE or STOP

The REC PAUSE mode automatically rewinds a tape slightly, and in this way the recorded part continues without blank.

Chapter 4 How to Search

This chapter explains how to search for a recorded data. Three kinds of search are available:

- **Searching for the end of a recorded part**
- **Searching for the head of an I D during reproducing**
- **Searching by the SEARCH screen**

For the full performance of the search function, refer to 'Recording without blanks' (p. 18).

End Search

End Search finds an END MARK or the end of an already-recorded part.

Press the E SEARCH key ⑪.
The unit will rewind the tape to BOT, and then search for the first End Mark from BOT. If there's no E Mark on a tape, the unit searches for a blank.

When searching for the end of overwritten data without End Mark, the search will find previously recorded End Mark or the end of recorded part.

ADVICE To End search a little faster

Press the SHIFT key ㉑ + E SEARCH key ⑪.
The unit will recognize the current tape position and determine the searching direction.

■ From a recorded area:
Forwards the tape and detects the first end mark or end of recorded area.

■ From a non-recorded area:
Rewinds the tape and detects the first end mark or end of recorded area.

The search may fail if a blank area is shorter than 20 counts (in COUNTER).

Search for Head of ID During Reproducing

Pressing REW or F FWD key during reproducing (FWD) searches for the head of an ID and reproduces from there.

■ To return to the head of the ID being reproduced
➡ Press the REW key.

■ To return to the previous ID
➡ Press the REW key 2 times.

■ To return *N* IDs before
➡ Press the REW key ***N+1*** times.

■ To skip to the next ID
➡ Press the F FWD key.

■ To skip to the ID following the next ID
➡ Press the F FWD key 2 times.

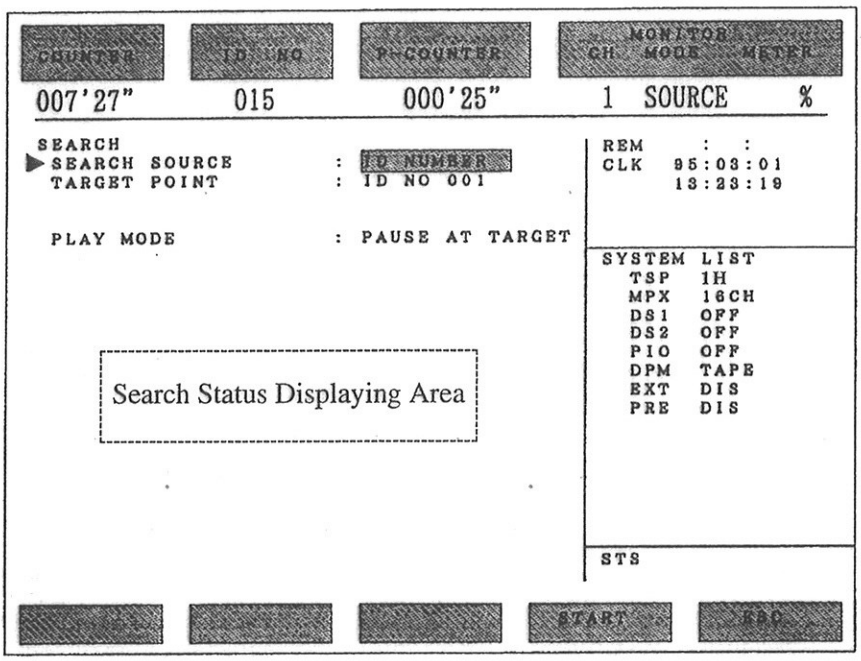
■ To skip *N* IDs ahead
➡ Press the F FWD key ***N*** times.

Indicators corresponding to each tape motion turn on during searching.

- If ID numbers are not recorded normally, the search may fail.
- If the objective ID can not be detected, the TTP stops.
- If you press a TTP control key except the REC key during search, the search is stopped and the TTP enters the mode corresponding to the key.

Search by SEARCH Screen

On SEARCH screen, ID number, COUNTER, CLOCK can be used as keys to search.



1. Press the SEARCH key ⑮.

The SEARCH screen above will appear.

2. Select SEARCH SOURCE.

Select a key to search from the following:

- ○ID NUMBER
- ○ID + P-COUNTER
- ○CLOCK
- ○COUNTER
- ○IRIG-B (Refer to the TZ-711 Operation Manual.)

3. Enter TARGET POINT.

Enter the objective values.

4. Select PLAY MODE.

- ○PAUSE AT TARGET
- ○PLAY FROM TARGET

5. Press F4 key ㉔ (START).

Searching will start.

- ● Capable of search even when the TTP is moving except when recording.
- ● During searching, the status of searching is shown in the "Search Status Displaying Area."
- ● If the search ended successfully, "SEARCH COMPLETED" is displayed. If the search failed, "SEARCH FAILED" is displayed.
- ● If you press a TTP control key except the REC key during search, the search is stopped and the TTP enters the mode corresponding to the key.
- ● If the COUNTER or CLOCK values entered as TARGET POINT does not match with the values recorded on the tape, the search will fail.
- ● If overwriting has been made from a midpoint in a tape, the search to the position near the recording start or end point may fail.
- ● If recording has been started from a blank part at a midpoint in a tape, the counter search to the position near the recording start point may fail.

Chapter 5 Setting Input/Output Conditions (PARAMS)

This chapter explains the functions on the PARAMS (parameters) screen and how to set input/output conditions.
Press the PARAMS key ⑭ and the PARAMS screen will appear.

Switching Contents on PARAMS Screen

Switching INPUT ⇔ OUTPUT ····· F2 key

Switches between the screen for input conditions and that for output conditions.

Switching PARAMS ⇔ Bar Meter ··· F3 key

On the bar meter screen, bar graphs indicate input/output levels of all the channels and the voice memo. PARAMS key also returns the screen to the PARAMS.

- When the PEAK HOLD on the MISC screen is set to ON, the peaks are held. To clear the peaks, press the F2 (PK CLEAR) key.
- The peaks on the PARAMS screen are also held. To clear the peaks, first switches to the bar meter screen and then press the F2 key.

Switching SOURCE ⇔ TAPE ···PARAMS key ⑭

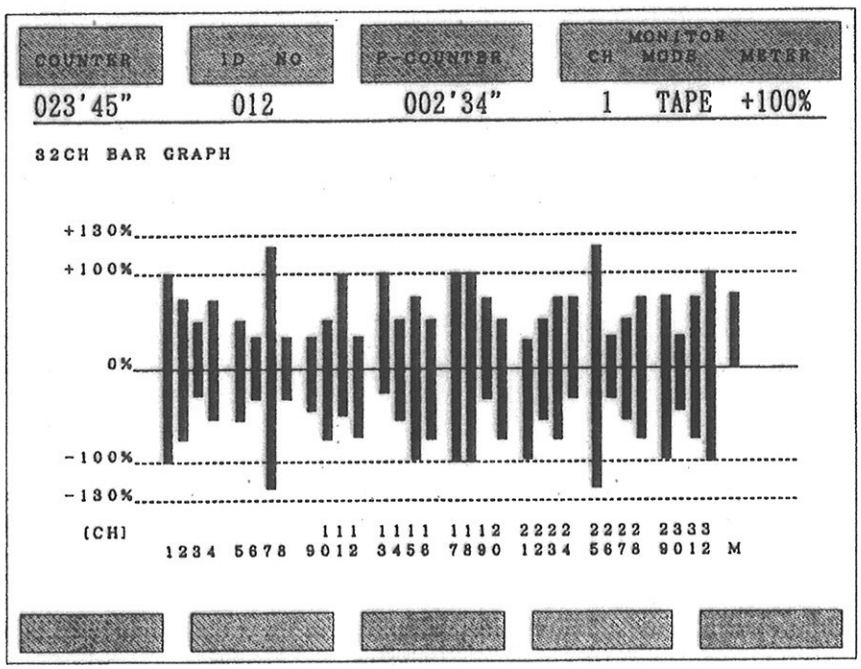
When the MONITOR MODE is SOURCE, the current values and SYSTEM LIST are displayed; when TAPE, the values and SYSTEM LIST reproduced from a tape are displayed.
Switching is enabled only when the PARAMS screen is displayed and a tape is inserted and stopped.

- To set input conditions, switch to SOURCE.
- MONITOR mode is set to SOURCE when no tape inserted or during recording.
- MONITOR mode is set to TAPE during reproduction.

Switching ch 1 ~ 16 ⇔ ch 17 ~ 32 ··· F1 key
(For RX-8032)

- Pressing the F1 key on the PARAMS screen switches between ch 1 ~ 16 and ch 17 ~ 32.
- Pressing the F1 key on the bar meter screen steps from all channels to ch 1 ~ 16 and to ch 17 ~ 32.

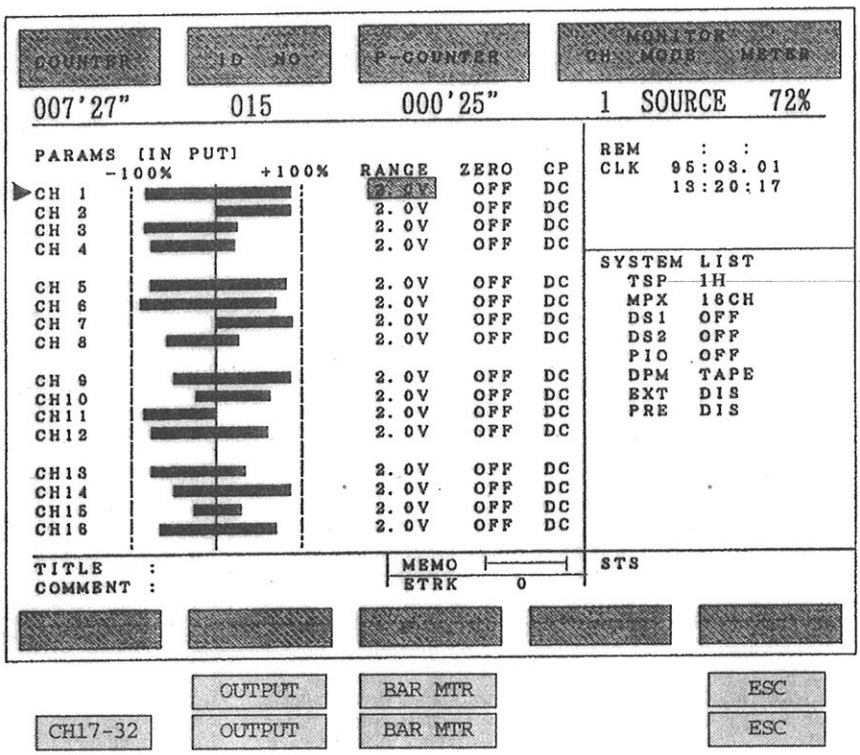
Bar Meter Screen (8032)



RX-8016 PK CLEAR PARAMS
RX-8032 MORE PK CLEAR PARAMS

Setting Input Conditions

PARAMS Screen (INPUT)



RX-8016 OUTPUT BAR MTR ESC

RX-8032 CH17-32 OUTPUT BAR MTR ESC

■ Setting input range (RANGE)

Selectable from 6 steps for each channel according to the level of input signals:

$\pm 0.5 / 1 / 2 / 5 / 10 / 20$ Vp

Select a range monitoring by the bar graphs so that the input does not exceed the range. If exceeds, the recorded signal will be saturated.

■ Setting input zero level (ZERO)

Setting ZERO to ON enables INPUT ZERO potentiometers ㉞ to adjust input zero levels up to ± 100 %.

The shifted level can be monitored with the bar graphs, the METER display (%) or the output BNC connectors. (If you monitor the input zero levels with the output BNC connectors, first adjust the output zero levels .)

■ Setting input coupling (CP)

☐DC . . . Allows to record DC component of signals.

☐AC . . . Cuts the frequency component lower than 3 Hz, allowing to record micro signals superposed on DC.

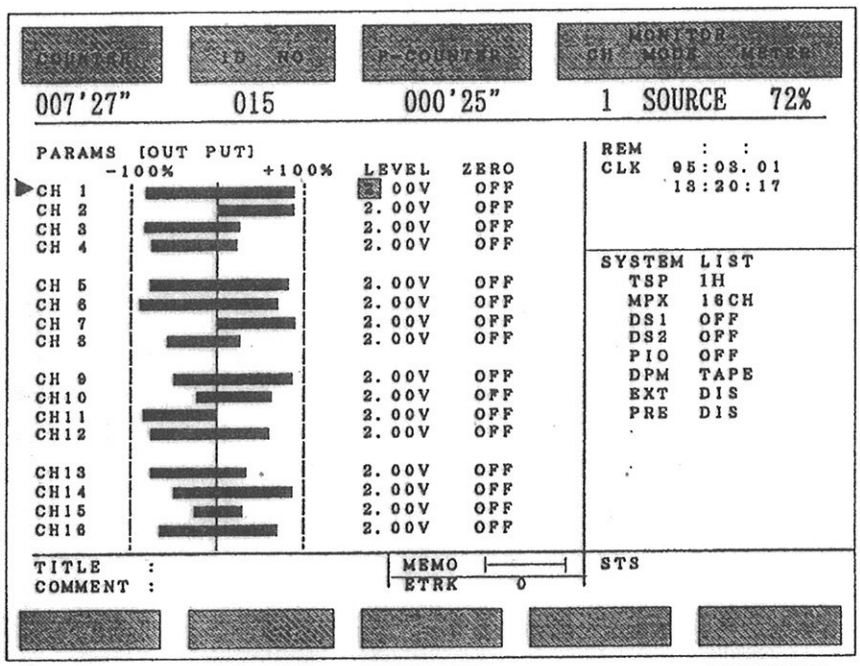
ADVICE

To set more than one channel at a time

Pressing the SHIFT + ↑ (↓) copies the value at the cursor to all the channels above (below) the cursor.

Setting Output Conditions

PARAMS Screen (OUTPUT)



■ Setting output level (LEVEL)

Variable from ± 1 V to ± 5 V in 20 mV steps.

■ Setting output zero level (ZERO)

Setting ZERO to ON enables OUTPUT ZERO potentiometers ㉟ to adjust output zero levels up to ± 50 %.

Monitor the shifted level with the output BNC connectors. It can not be monitored with the bar graphs and the METER display (%).

Entering TITLE and COMMENT

10 characters for the TITLE, and 50 for the COMMENT can be entered.

To enter the TITLE and the COMMENT

1. Move the cursor to the TITLE or COMMENT.

A window displaying characters to be entered will appear in the center of the screen.

2. Move the cursor in the window to the character you want to enter.

○ NEXT/PREV key ⑱ : to the **right**
○ SHIFT ㉑ + NEXT/PREV : to the **left**
○ SHIFT + arrow key ⑳ : in the direction of the arrow

3. Press the ENTER key ㉒.

The character is entered at the cursor on the TITLE or COMMENT line, and the cursor moves right by one.

■ To insert a character

Move the cursor to the position where you want to insert, and then press the INS key ⑲. A space will appear there.

■ To delete a character

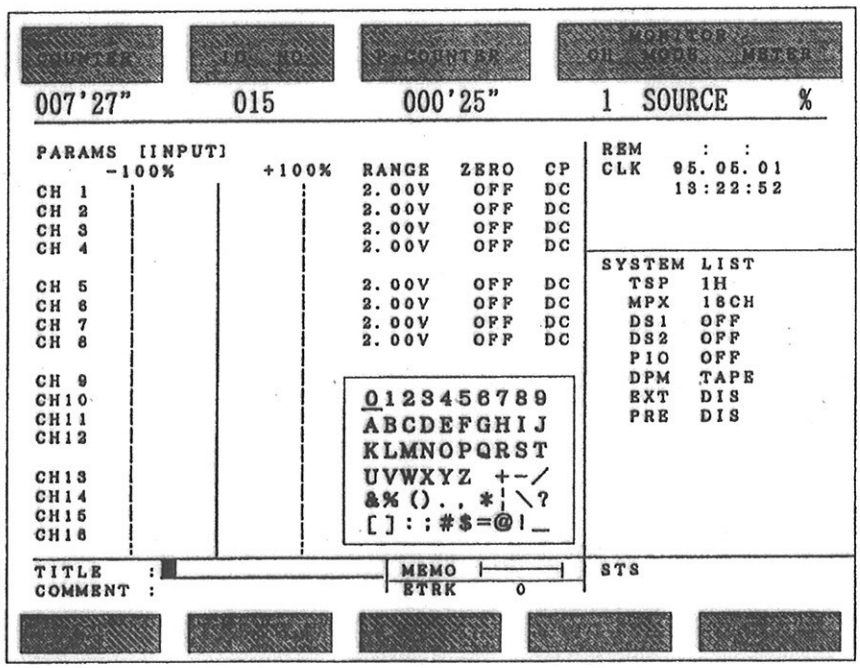
Move the cursor to the character you want to delete, and then press the SHIFT key ㉑ + INS key ⑲.

IMPORTANT

- The characters entered are maintained even if the power is turned off. Unless they are re-entered, the same characters will be recorded as the TITLE and COMMENT.
- Before entering a COMMENT, hold the left arrow key pressed for about 10 seconds to return the cursor to the beginning of the line.

NOTE

- Though 50 characters can be entered for a COMMENT, the display can show only 10 characters of a COMMENT.
- When the MONITOR MODE is SOURCE, the characters following the 10th can be scrolled with the left and right arrow keys ⑳.
- When reproducing, however, only the first 10 characters of COMMENT reproduced from a tape are displayed.
- To read out more than 10 characters, the AR-510 GPIB option is necessary.



Other Functions on PARAMS Screen

The option keys ㉔ on PARAMS screen have the functions below.

Monitoring otherwise than REC mode (EE)

Press the F4 key (EE START).

- Available only when no tape inserted.

The EE (Electric to Electric) mode is useful in setting input/output conditions. In the EE mode, A/D converted data returns to the D/A converter, allowing outputs at the output BNC connectors and the bar graph indication.
(To monitor signals otherwise than the EE mode, it is necessary to put the unit into REC PAUSE or REC FWD mode.)

- In the EE mode, you can not switch to the SEARCH, MISC and SYSTEM screen.
- To stop this mode, press the F4 key (EE STOP) again.

Copying input condition values from tape (PRM SAVE)

Useful in setting the same input condition as former one. The input condition values are recorded on a tape together with data. The PRM SAVE reads them from the tape, and copy them to the current settings.

- Copiable items are:

RANGE; ZERO; CP; TITLE; COMMENT
Input zero *levels* can not be copied. Adjust the potentiometers again.

1. **Switch to the input condition screen.**

2. **Forward the recorded tape.**
   The input condition values reproduced from the tape will be displayed on the screen.

3. **Stop the tape.**

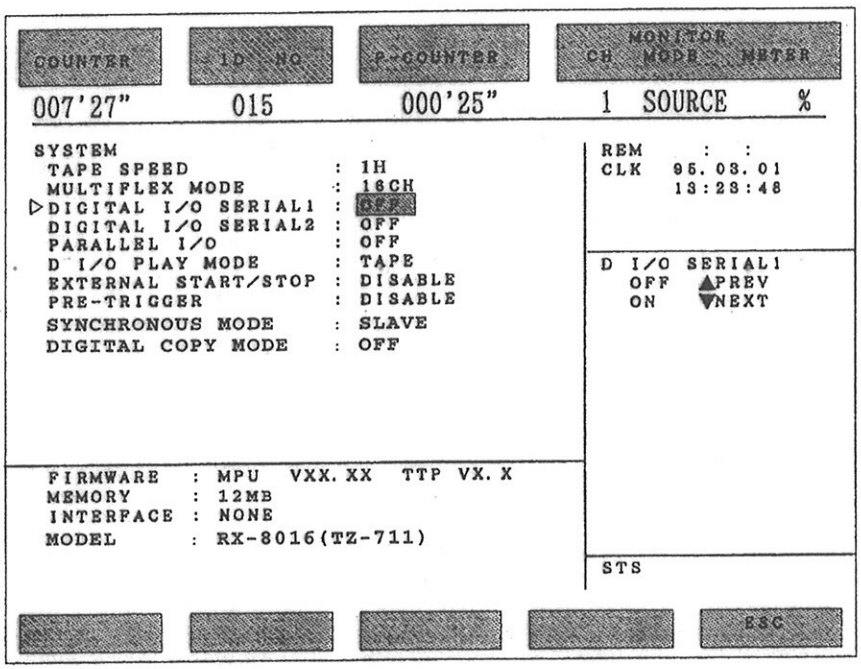
4. **Press the F4 key (PRM SAVE).**
   The MONITOR MODE will be switched to SOURCE, and at the same time the reproduced values will be copied to the current settings.

Chapter 6 Setting Modes on SYSTEM Screen

This chapter explains how to set modes on the SYSTEM screen.
Press the SYSTEM key ⑰ and the SYSTEM screen will appear.
The SYSTEM screen can not be selected while the TTP is moving. While the SYSTEM screen is selected, the TTP control keys except the EJECT key are disabled.

For ● DIGITAL I/O SERIAL 1, ● DIGITAL I/O SERIAL 2 and ● PARALLEL I/O, refer to the chapter 8.
These must be set to OFF when not use.

For ● SYNCHRONOUS MODE and ● DIGITAL COPY MODE, refer to the TZ-711 Operation Manual.



Tape Speed and Multiplex

The frequency range varies according to the combination of the tape speed and multiplex. See the table below.

Tape Speed, Multiplex and Frequency Range (+0.5 dB / -1.0 dB)

TAPE SPEED	Frequency Range (kHz)		Recording Time per Tape
	16 CH	32 CH (RX-8032)	
1 H	DC ~ 20	DC ~ 10	1 hour
2 H	DC ~ 10	DC ~ 5	2 hours
4 H	DC ~ 5	DC ~ 2.5	4 hours
8 H	DC ~ 2.5	DC ~ 1.25	8 hours
16 H	DC ~ 1.25	DC ~ 0.625	16 hours
32 H	DC ~ 0.625	DC ~ 0.313	32 hours

■ Tape Speed

Available recording time per tape is selectable from 6 modes: 1H / 2H / 4H / 8H / 16H / 32H

The term "tape speed" in this manual means **"the period of time for which one specified tape (tape length: 106 m) is recorded or reproduced,"** not "the speed at which a tape is moved."

Actually, the tape is forwarded at 2 kinds of *speed.* In 2H mode the tape is forwarded at the speed same as Hi8 8mm video recorders; in 1H mode at double speed. In 4~32H mode, the tape is forwarded at the double speed intermittently.

In **recording**, the unit repeats the following.

○ Saves data in the memory keeping the tape stopped. ⇒

○ Writes data on the tape from the memory.

In **reproduction**, the unit repeats the following.

○ Reads data from the tape by forwarding, and saves it in the memory. ⇒

○ Sends data from the memory to D/A at the rate corresponding to the selected tape speed.

In 32H mode, for example, the tape is forwarded for 8 seconds and then stopped for 2 minutes and 54 seconds. When the tape is stopped, the TTP modes are not changed but stay REC or FWD.

In 4~32H mode,

COUNTER . . . .counts only when the tape is forwarded.

P-COUNTER . .counts at the rate corresponding to the selected tape speed. (In 32H mode it is incremented by one every 16 seconds.)

● Reproduction

Reproduction can be made at any tape speed regardless of the speed at which recording was performed. Therefore, changing tape speed can convert time-axis of signals.

When reproducing, the speed is not switched automatically to the speed selected when the recording was done. To know at which speed the recording was performed, forward the tape, and the MONITOR MODE will be switched to TAPE and the TSP in the SYSTEM LIST will display like the following:

```
TSP   32(16)H
```

In the example above,

32H . . . shows the mode selected at **recording**.

16H . . . shows the mode **now set** on the SYSTEM screen.

CAUTION

Do not turn off the power while recording in 4~32H mode. In these modes, data saved in the memory is recorded on the tape after the STOP key is pressed. The TTP stops after the recording has completed. If the power is turned off before the TTP stops, the data in the memory will be lost.

■ Multiplex Mode (for RX-8032)

The number of channels available for recording is selectable from 16 and 32.

For RX-8016, this mode is fixed as 16CH.

- When reproducing, the mode is automatically switched to the mode selected when the recording was done.
- A tape recorded in 32CH mode can not be reproduced by RX-8016. (The error message "MPX UNMATCH" will be displayed.)

D I/O PLAY MODE

Selects whether reproduction is carried out according to the DIGITAL I/O SERIAL 1 or 2 mode selected when the recording was done or the mode currently set in the SYSTEM screen. When TAPE is selected, the reproduction is performed according to the mode recorded on the tape; when SOURCE, according to the mode currently set.

EXTERNAL START/STOP

Starts and stops recording by the contact signal inputted to the EXT TRIG IN ㊺ on the rear panel.
To do a triggered start:

1. Set to ENABLE.
2. Press the REC key.
3. Short-circuit the contact.

Recording continues as long as the contact is short-circuited.

Then, when this contact is opened, the TTP mode turns from REC FWD to REC PAUSE.

- If this mode is set to ENABLE, recording can not be started by the TTP control keys, remote control, GPIB, etc.
- While the EVENT indicator is on, the contact signal is ignored.
- Recording starts about 3 seconds after the contact is short-circuited. This time lag is almost the same as the case operated by the TTP control keys.

If REC PAUSE continues for more than 5 minutes, the rotary drum stops rotating to protect the tape. In this case, the time lag to start recording will be about four sec.

- This function can be used in combination with the synchronous mode and the pre-trigger.

PRE-TRIGGER

Allows to record data stored in the memory from about 3 seconds before the start of recording. It saves the data otherwise lost before the TTP actually begins recording.

- This function is available only in 1H or 2H mode.

1. Set the PRE-TRIGGER to ENABLE.
2. Press the REC key.
   Data storage will begin at this time.
3. Press the FWD key when you want to start.
   The data stored 3 seconds before the start will be recorded.

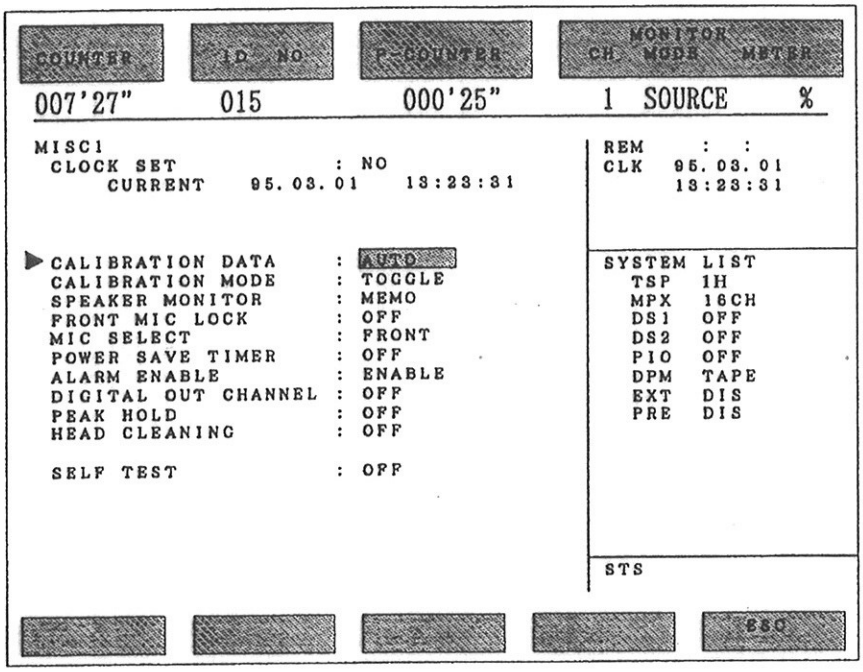
- In reproduction, the P-COUNTER for the data stored in the memory before recording was started is shown in a negative number. (The ID number is the same.)
- When recording with the PRE-TRIGGER enabled, the COUNTER displays a smaller value by about 6 than a normal value. So, care will be necessary when searching with the counter.
- This function can be used in combination with the synchronous mode and the external start/stop.

Chapter 7 Setting Modes on MISC Screen

This chapter explains the functions on the MISC screen. The functions on this screen is not directly related to recording or reproducing.
Press the MISC key ⑯ and the MISC screen will appear.

● DIGITAL OUT CHANNEL

Set to OFF when not use DIGITAL OUT function. Refer to the chapter 9 for this function.



CLOCK SET

Sets or adjusts current time.

1. Set to YES.
   The line "SETTING" will appear under the line "CURRENT."
2. Change the values using the NEXT/PREV key ⑱.
3. Press the ENTER key ㉒.
   The date and time you set will be entered.

CALIBRATION DATA

5 types of calibration signals are available:
0% / +100% / -100% / AC100% / AUTO

The AUTO generates four other signals sequentially (each signal for about 2 sec).
The signal is generated by pressing the CAL key ⑩ in REC mode, in REC PAUSE mode or in EE mode.
Factory-set to 0%.

● The frequency of AC100% varies according to the tape speed:

1 H	2 H	4 H	8 H	16 H	32 H
1 kHz	500 Hz	250 Hz	125 Hz	62.5 Hz	31.25 Hz

CALIBRATION MODE

Switches the way the CAL key ⑩ works.

☐ **TOGGLE**
The calibration signal is kept generated from the time the CAL key is pressed until it is pressed again.

☐ **CONTINUE**
The calibration signal is generated only while the CAL key is pressed.

Factory-set to TOGGLE.

SPEAKER MONITOR

☐ **MEMO**
Reproduces recorded voice memos.

☐ **DATA**
Converts the data selected by the MON CH key ㉕ into sound and outputs from the speaker.
Available in both recording and reproduction.

Factory-set to MEMO.

FRONT MIC LOCK

Locks into *on* the press-to-talk switch of the microphone connected to the MEMO IN ㊴.

☐ **ON**
Records voices regardless of the press-to-talk switch.

☐ **OFF**
Enables the press-to-talk switch.

Factory-set to OFF.

MIC SELECT

☐ **FRONT**
Records the voice from the microphone connected to the MEMO IN ㊴.

☐ **REMOTE**
Records the voice from the microphone connected to the optional ER-46 remote control unit.

Factory-set to FRONT.

POWER SAVE TIMER

Saves power consumption. The backlight of the display is turned off if no key is operated for the selected period.

☐ **3 SEC / 30 SEC / 1 MIN / 2 MIN**
Turns off the display if no key is operated for the selected period.

☐ **OFF**
Disables the POWER SAVE function.

- P SAVE indicator ㉙ turns on while the display is off.
- If any key except the power switch is pressed while the display is off, the display is turned on. It is turned off again after the selected period of no key operation.
- The mode is set to OFF whenever the power is turned on.

ALARM ENABLE

☐ **ENABLE**
Sounds beeps if an error arises.

☐ **DISABLE**
Mutes beeps.

- Upon switching from DISABLE to ENABLE, beeps are made.

Factory-set to ENABLE.

PEAK HOLD

☐ **ON**

Holds peak levels of the bar graphs on the PARAMS screen and the bar meter screen.

☐ **OFF**

Disables peak holding.

● To clear the peaks, press the F2 (PK CLEAR) key on the bar meter screen. The peaks are not cleared even when the TTP mode is changed.

Factory-set to OFF.

HEAD CLEANING

Performs the head cleaning.
Set to ON and insert the dedicated cleaning tape.
It takes about 10 seconds to clean the heads.
After the cleaning has completed, the cleaning tape is ejected and the mode returns to OFF.

● This function is disabled when a tape for recording or reproduction is loaded.

CAUTION

Do not insert the head cleaning tape unless the HEAD CLEANING is ON. Fast forwarding or rewinding the cleaning tape may cause damage to heads or the cleaning tape.

SELF TEST

Runs diagnostic checks. The self test before measurements is recommended to make successful recording.
The checked items are: ROM, RAM1 (LONG WORD), RAM2 (Byte), WRITE and READ tests.

CAUTION

The tape is actually recorded during the self test. Use a tape whose data may be erased.

1. Set the SELF TEST to ON.
2. Insert a tape.
3. Press the F4 key (START).

After the test has completed, the tape is ejected and the mode returns to OFF.

● To stop the test, press the F4 key (STOP).

If all the items passed the test, the message "SELF TEST COMPLETED" will be displayed. If any item failed, the test will stop at that item displaying "NG."

● If NG is displayed for ROM or RAM, press the RESET switch ㊸ on the rear panel and perform the test again. Note that pressing the RESET switch may initialize the settings.

● If NG is displayed for WRITE or READ, perform the head cleaning and then repeat the self test. If the result is still NG, change the tape and retest.

*Though the tape transport makes noise in rewind mode during the test, that is not trouble.

DIGITAL I/O SERIAL 1

1. Function

Uses the connector ⑤⓪. Records and reproduces serial digital data keeping all the analog channels available.
In this mode, however, the DIGITAL CH mode of the PARALLEL I/O can not be used.

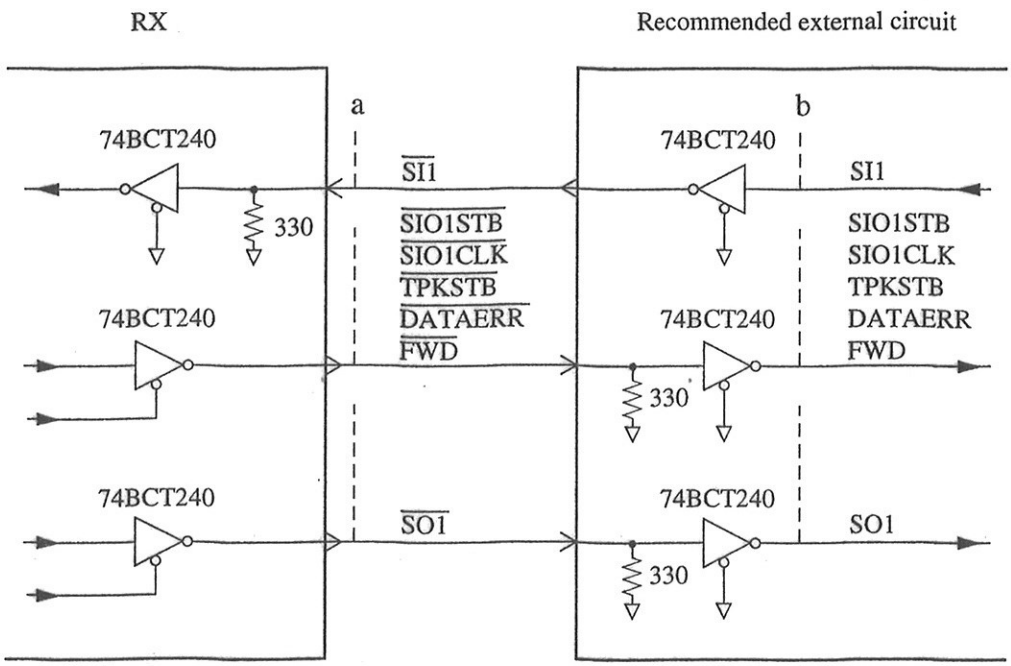
2. Setting

Set the DIGITAL I/O SERIAL 1 on the SYSTEM screen to ON

3. Input/output Circuit Format

Connector	Square half pitch 20-pin (DHA-RC20-R1xxx series)
Input/output level	TTL (74BCT series used)
Transfer speed	3.072 Mbps (in 1H mode)

4. Recommended External Circuit

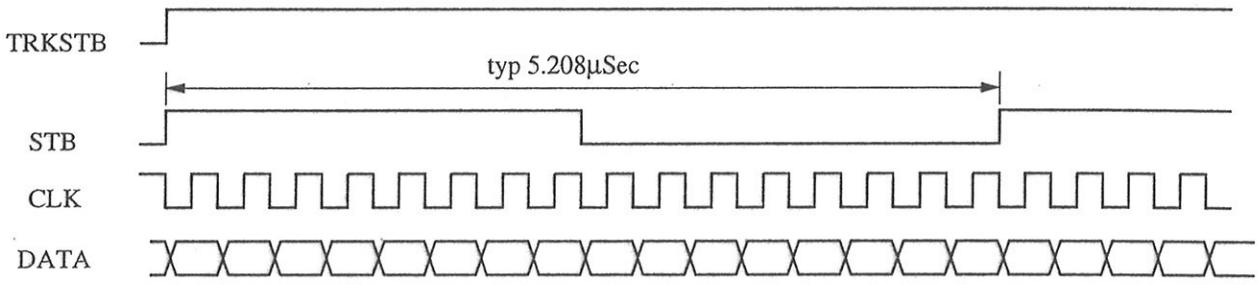


Cable length 1m max

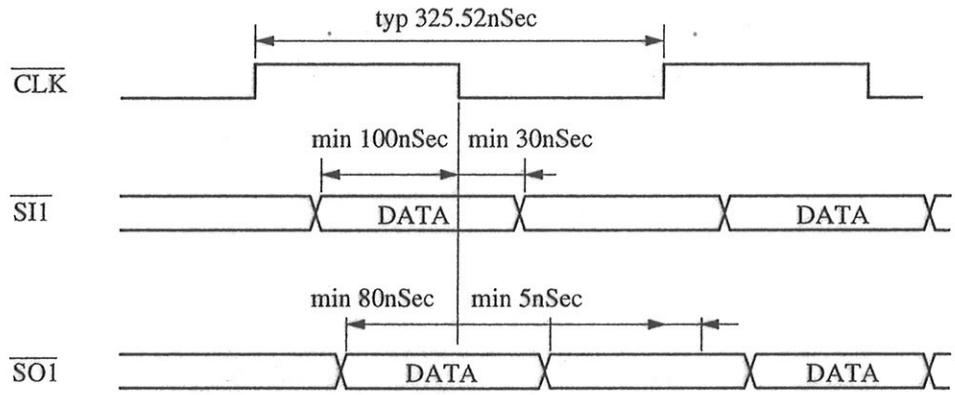
Recommended cable: DHA-C20-3GA-01S2

5. Input/output Timing (Shows the case in 1H mode. The time-axes below increase proportionally to rec/repro time.)

a. Data Input/output Timing

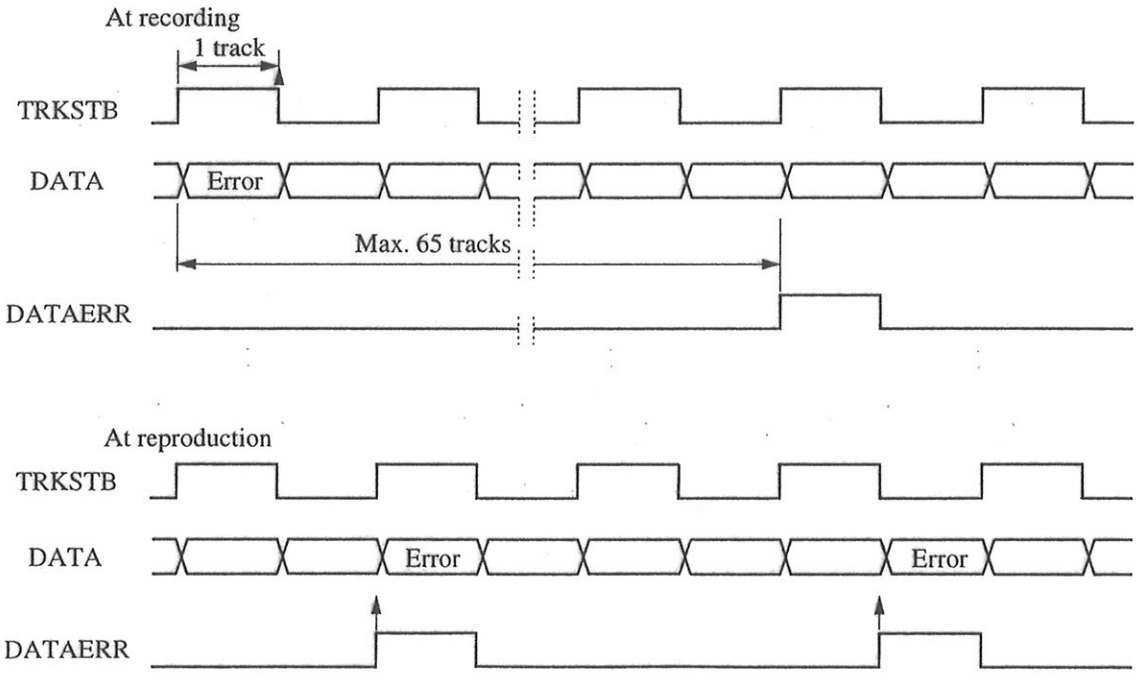


Notes) 1. This shows the waveform at the point b in the recommended external circuit.
2. The 1.2 cycle of TRKSTB (60Hz) corresponds to one track on the tape.
25.6K bits per one track.
3. Output the data to SI1 at the falling edge of CLK.
4. Latch the data of SO1 at the rising edge of CLK.
5. The FWD signal is L at recording and H at reproduction.



Note) The timing shows the state at the point a.

b. Data Error Signal Output Timing



Note) The timing shows the state at the point b.

c. Relation between DIGITAL I/O SERIAL1 and Analog I/O

● At recording

The analog output signal is generated about 1.75msec (84/fs)* in 16CH mode and about 3.5msec in 32CH mode after the DIGITAL I/O SERIAL 1 output (S01).

● At reproducing

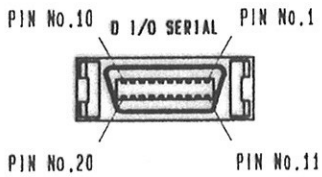
The delay of the analog output from the DIGITAL I/O SERIAL 1 output is about 20.8µsec (1/fs) in 16CH mode and about 41.6µsec in 32 CH mode.

* The 'fs' indicates the sampling frequency (48 kHz in 16CH mode and 24 kHz in 32CH mode) of the analog signal.

6. Pin Assignment

Pin No.	Signal	Function
1	$\overline{SI1}$	DI/O SERIAL 1 data input
2	GND	Ground
3	$\overline{SO1}$	DI/O SERIAL 1 data output
4	GND	Ground
5	$\overline{SIO1STB}$	DI/O SERIAL 1 strobe
6	$\overline{DATAERR}$	Data error signal
7	$\overline{SIO1CLK}$	DI/O SERIAL 1 clock
8	GND	Ground
9	$\overline{FWD}$	Reproducing signal
10	GND	Ground
11	$\overline{SI2}$	DI/O SERIAL 2 data input
12	GND	Ground
13	$\overline{SO2}$	DI/O SERIAL 1 data output
14	GND	Ground
15	$\overline{SIO2STB}$	DI/O SERIAL 2 strobe
16	$\overline{TRKSTB}$	Track strobe signal
17	$\overline{SIO2CLK}$	DI/O SERIAL 2 clock
18	GND	Ground
19	+5V	Power supply
20	GND	Ground

Note: +5V is 100mA maximum.



DIGITAL I/O SERIAL 2

1. Function

Uses the connector ㊿. Records serial data using the area normally allocated to A/D converted analog inputs. Therefore, with the SERIAL 2 selected, all the analog channels can not be used.
In this mode, the ANALOG CH1 mode of the PARALLEL I/O can not be used.

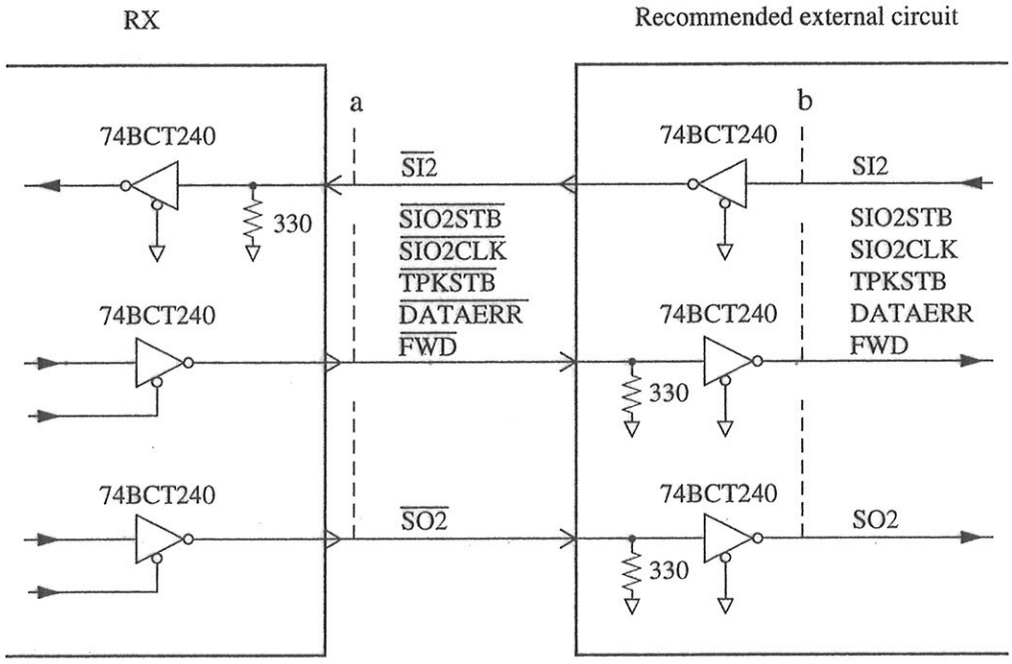
2. Setting

Set the DIGITAL I/O SERIAL 2 on the SYSTEM screen to ON

3. Input/output Circuit Format

Connector	Square half pitch 20-pin
	(Common to DIGITAL I/O SERIAL 1)
Input/output level	TTL (74BCT series used)
Transfer speed	12.288 Mbps (in 1H mode)

4. Recommended External Circuit

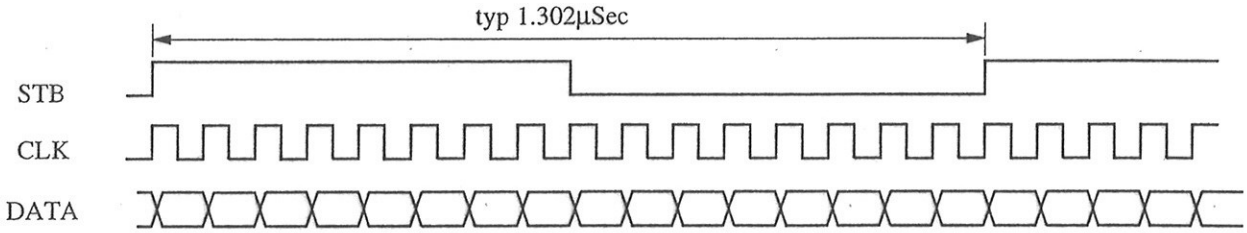


Cable length 1m max

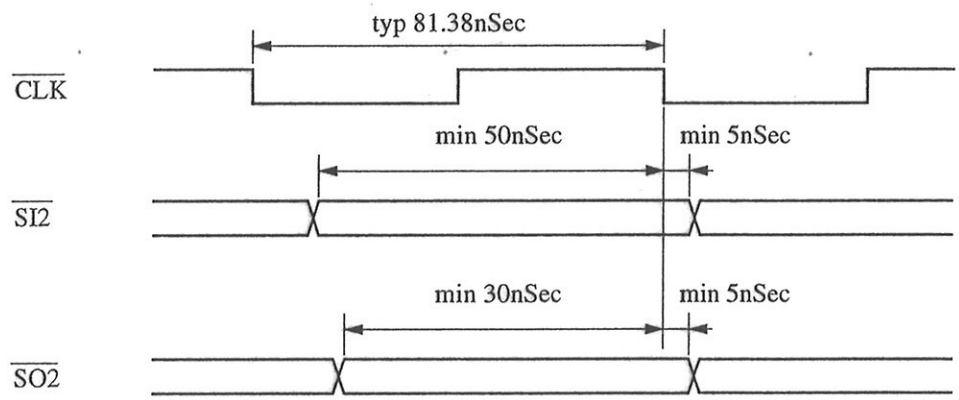
Recommended cable: DHA-C20-3GA-01S2

5. Input/output Timing (Shows the case in 1H mode. The time-axes below increase proportionally to rec/repro time.)

a. Data Input/output Timing

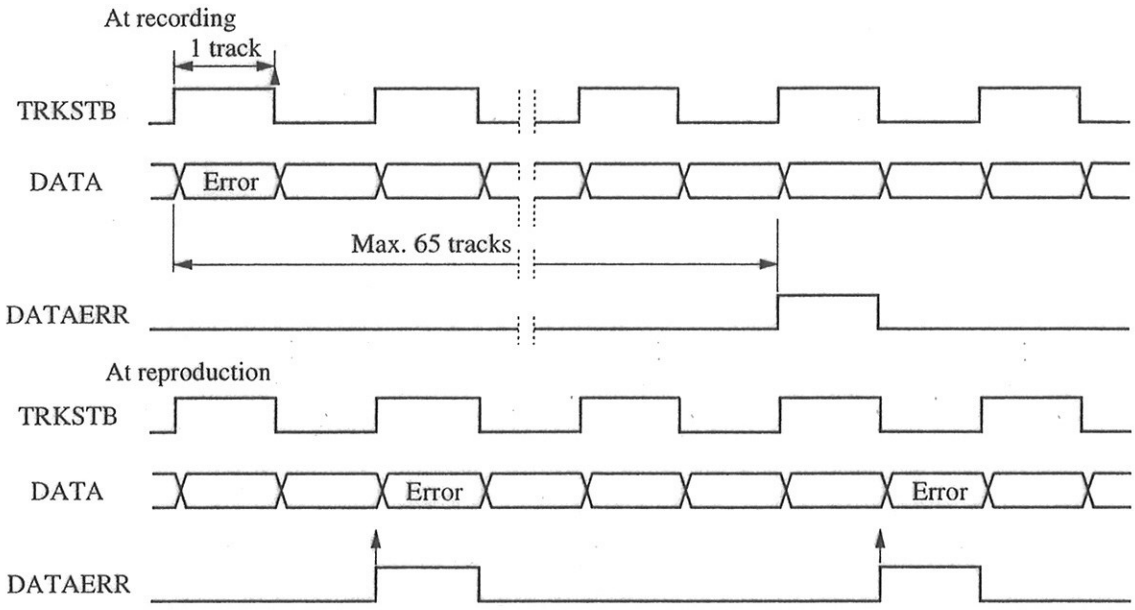


Notes) 1. This shows the waveform at the point b in the recommended external circuit.
2. The 1.2 cycle of TRKSTB (60Hz) corresponds to one track on the tape.
102.4K bits per one track.
3. Output the data to SI2 and take in the data from SO2 the rising edge of CLK.



Notes) The timing shows the state at the point a.

b. Data Error Signal Output Timing



Note) The timing shows the state at the point b.

PARALLEL I/O

1. Function

Uses the connector ⑤①. 2 modes are available.

● ANALOG CH1 Mode

Records parallel data using the area normally allocated to A/D converted ch1 analog input. Therefore, in this mode, ch1 analog input is disabled.

D/A converted data is output from ch1 output BNC.

The DIGITAL I/O SERIAL 2 can not be used when this mode is selected.

● DIGITAL CH Mode

Records 16-bit digital data keeping all the analog channels available.

The DIGITAL I/O SERIAL 1 can not be used when this mode is selected.

2. Setting

Set the PARALLEL I/O on the SYSTEM screen to ANALOG CH1 or DIGITAL CH.

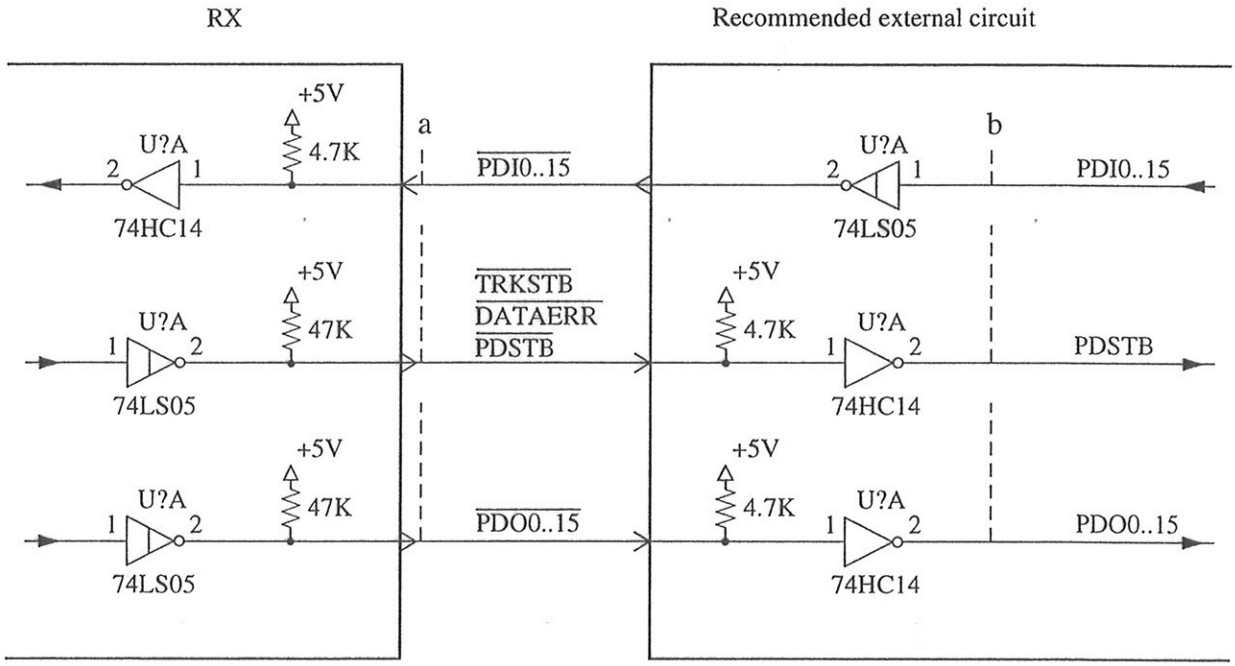
3. Input/output Circuit Format

Connector	Square half pitch 50-pin (DHA-RC50-R1xxx series)
Input level	CMOS
Output level	Open collector, maximum sink current 8mA

Transfer speed (in 1H mode)

ANALOG CH1 mode	48 kWords/s (16 CH mode)
	24 kWords/s (32 CH mode)
DIGITAL CH mode	192 kWords/s (1 Word=16 bits)

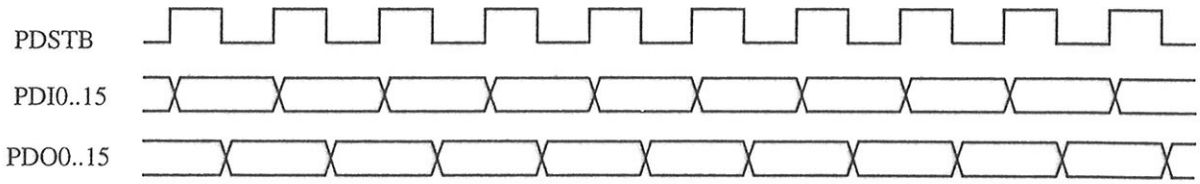
4. Recommended External Circuit



Cable length 1m max

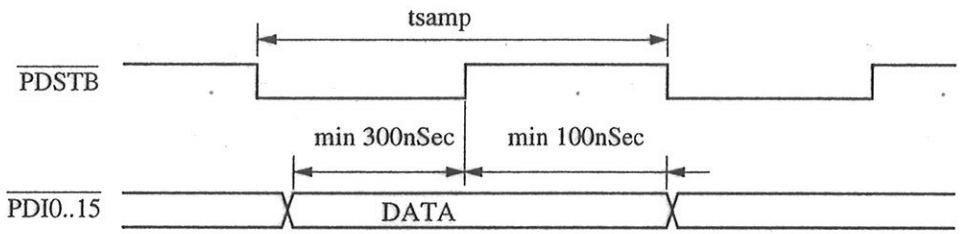
Recommended cable: DHA-C50-3GA-01S2

5. Input/output Timing (Shows the case in 1H mode. The time-axes below increase proportionally to rec/repro time.)

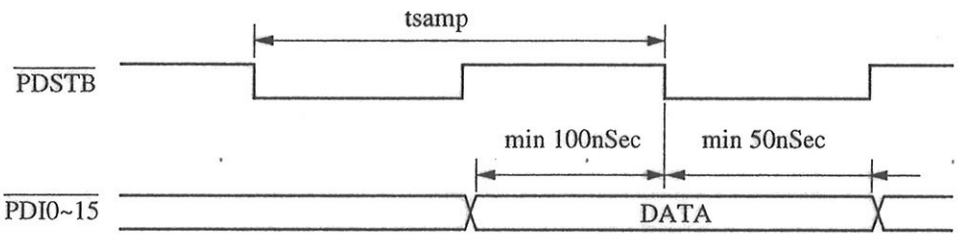


Notes) 1. This shows the waveform at the point b in the recommended external circuit.
2. The 1.2 cycle of TRKSTB (60Hz) corresponds to one track on the tape. In the ANALOG CH1 mode, 400 bits in 16CH mode/track or 200 bits in 32CH mode/track per one data. In the DIGITAL CH mode,1.6K bits/track per one data.
3. Output PDI0..15 at the rising edge of PDSTB.
4. Latch PDO0..15 at the rising edge of PDSTB.

a. Data Input Timing



b. Data Output Timing



Notes) The timing shows the state at the point a when the recommended circuit is connected.
The 'tsamp' is 20.833µsec (typ) in the ANALOG CH1 mode, and 5.208µsec (typ) in the DIGITAL CH mode.

c. Relation between PARALLEL I/O and Analog I/O

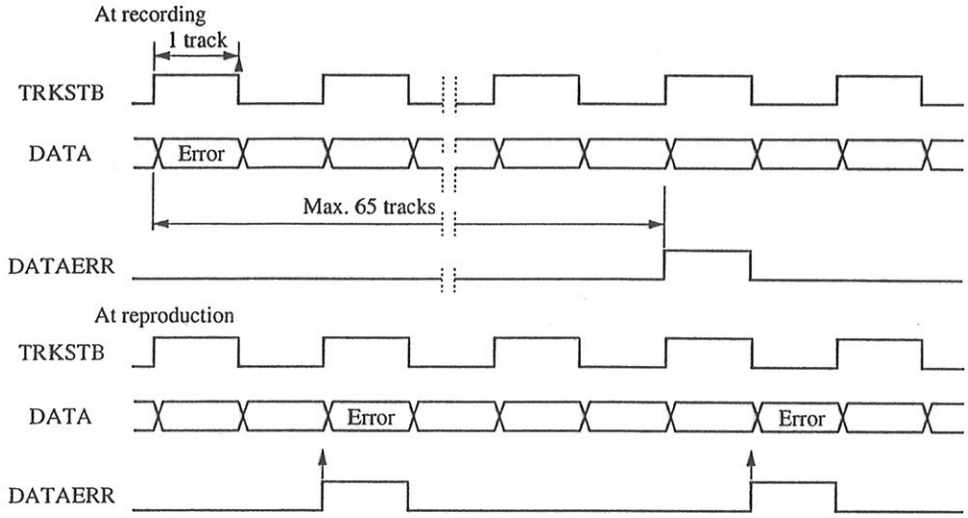
● At recording

A parallel input signal is returned as a parallel output signal. The analog output signal delays a little because it passes through the analog and digital filters. So, the analog output signal is generated about 1.75msec (84/fs) in 16CH mode and about 3.5msec in 32CH mode after the output signal of PARALLEL I/O. However, the analog signal is recorded on a tape with the delay of about 20.8µsec (1/fs) in 16CH mode and about 41.6µsec in 32CH mode.

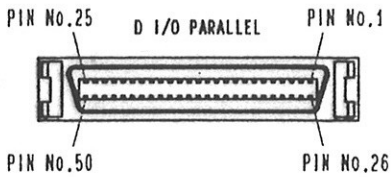
● At reproduction

The delay of the analog output from the PARALLEL I/O output is about 20.8µsec (1/fs) in 16CH mode and about 41.6µsec in 32CH mode.

d. Data Error Signal Output Timing



Note) The timing shows the state at the point b.



6. Pin Assignment

Pin No.	Signal	Function	Pin No.	Signal	Function
1	$\overline{\text{PDI0}}$	Parallel input 0	26	$\overline{\text{PDO0}}$	Parallel output 0
2	$\overline{\text{PDI1}}$	Parallel input 1	27	$\overline{\text{PDO1}}$	Parallel output 1
3	$\overline{\text{PDI2}}$	Parallel input 2	28	$\overline{\text{PDO2}}$	Parallel output 2
4	$\overline{\text{PDI3}}$	Parallel input 3	29	$\overline{\text{PDO3}}$	Parallel output 3
5	$\overline{\text{PDI4}}$	Parallel input 4	30	$\overline{\text{PDO4}}$	Parallel output 4
6	$\overline{\text{PDI5}}$	Parallel input 5	31	$\overline{\text{PDO5}}$	Parallel output 5
7	$\overline{\text{PDI6}}$	Parallel input 6	32	$\overline{\text{PDO6}}$	Parallel output 6
8	$\overline{\text{PDI7}}$	Parallel input 7	33	$\overline{\text{PDO7}}$	Parallel output 7
9	$\overline{\text{PDI8}}$	Parallel input 8	34	$\overline{\text{PDO8}}$	Parallel output 8
10	$\overline{\text{PDI9}}$	Parallel input 9	35	$\overline{\text{PDO9}}$	Parallel output 9
11	$\overline{\text{PDI10}}$	Parallel input 10	36	$\overline{\text{PDO10}}$	Parallel output 10
12	$\overline{\text{PDI11}}$	Parallel input 11	37	$\overline{\text{PDO11}}$	Parallel output 11
13	$\overline{\text{PDI12}}$	Parallel input 12	38	$\overline{\text{PDO12}}$	Parallel output 12
14	$\overline{\text{PDI13}}$	Parallel input 13	39	$\overline{\text{PDO13}}$	Parallel output 13
15	$\overline{\text{PDI14}}$	Parallel input 14	40	$\overline{\text{PDO14}}$	Parallel output 14
16	$\overline{\text{PDI15}}$	Parallel input 15	41	$\overline{\text{PDO15}}$	Parallel output 15
17	$\overline{\text{PDSTB}}$	Data I/O strobe	42	NC	
18	GND	Ground	43	GND	Ground
19	GND	Ground	44	GND	Ground
20	NC		45	$\overline{\text{DATAERR}}$	Data error signal
21	NC		46	FWD	Reproduction signal
22	NC		47	$\overline{\text{TRKSTB}}$	Track strobe signal
23	NC		48	NC	
24	+5V	Power supply	49	+5V	Power supply
25	GND	Ground	50	GND	Ground

Note: +5V is 100mA maximum.

Combination of DIGITAL I/O

The Digital I/O can be used in following seven combinations.
Available analog channels in each combination are also shown below.

DIGITAL I/O SERIAL 1	ON	——	——	ON	——	ON	——
DIGITAL I/O SERIAL 2	——	——	——	——	ON	ON	ON
PARALLEL I/O	——	DIGITAL	ANA CH1	ANA CH1	——	——	DIGITAL
Available Analog Channels	All Channels		All except ch1		None		

"——" stands for OFF setting

Transfer Rate and Capacity of DIGITAL I/O

The transfer rate and capacity of each digital input mode is shown below.

Digital Input Mode	Transfer Rate (in 1H mode)	Capacity per Tape
DIGITAL I/O SERIAL 1	3.072 Mbps	approx. 10 Gbits
DIGITAL I/O SERIAL 2	12.288 Mbps	approx. 43 Gbits
PARALLEL I/O ANALOG CH1	48(24) kWords/sec	approx. 172(86) MWords
PARALLEL I/O DIGITAL CH	192 kWords/sec	approx. 691 MWords

( ) applies to RX-8032.

NOTE

Transfer rate is inversely proportional to rec/rep time.
(The slower the tape speed, the slower the transfer rate becomes.)

Outputs parallel digital data from the connector ㊷ simultaneously with analog output.
Selectable either any one channel or all the channels.

1. Function

● At recording

Outputs A/D converted data of analog input in 16-bit parallel, enabling the use as an A/D converter.

● At reproduction

Outputs reproduced data in 16-bit parallel.

NOTE

When the DIGITAL I/O SERIAL 2 is set to ON, no signal is generated at the DIGITAL OUT (the data is undefined).

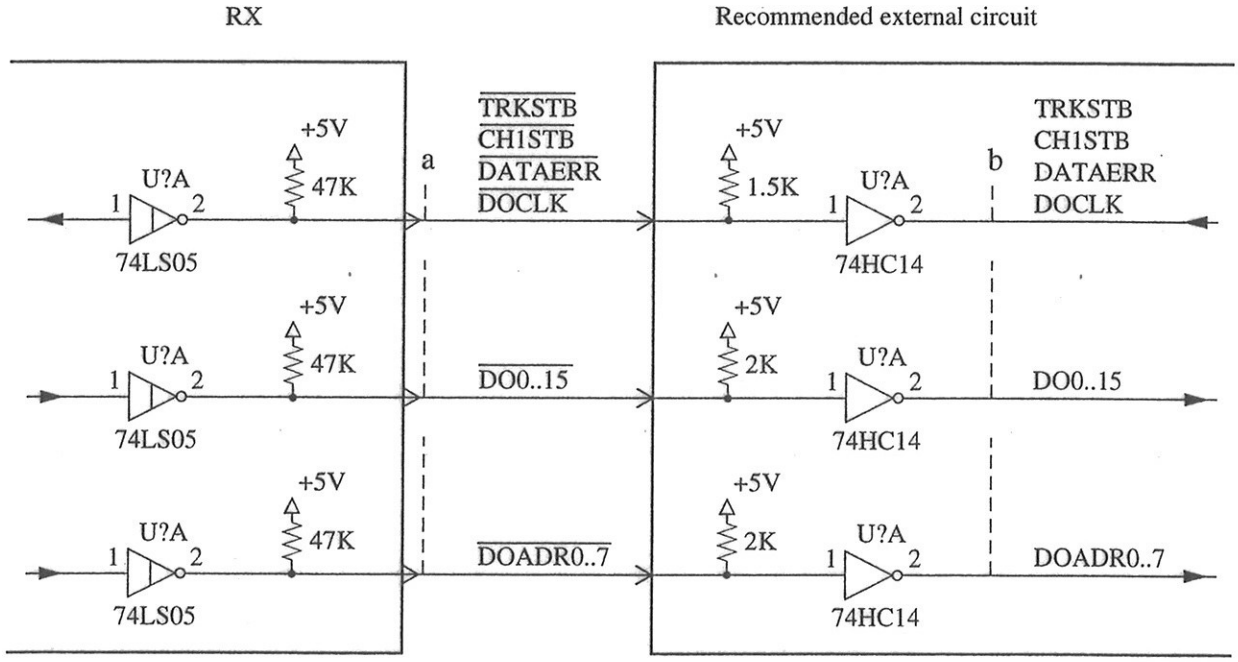
2. Setting

Move the cursor to DIGITAL OUT on the MISC screen. Press the NEXT key ⑱ to select ALL, and press it again to select CH1. The channel number increases like CH2, CH3, ...CH16 each time the NEXT key is pressed. If the NEXT key is pressed after CH16, the setting returns to OFF. Press the SHIFT key + PREV key to change the channel number in the reverse direction.

3. Output Circuit Format

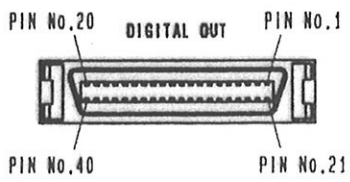
Connector	Square half pitch 40-pin (DHA-RC40-R1xxx series)
Output level	Open collector, maximum sink current 8mA
Transfer speed (in 1H mode)	
All channels selected	768 kWords/s
Any one channel selected	48 kWords/s (16 CH mode)
	24 kWords/s (32 CH mode)
	(1 Word=16 bits)

4. Recommended External Circuit



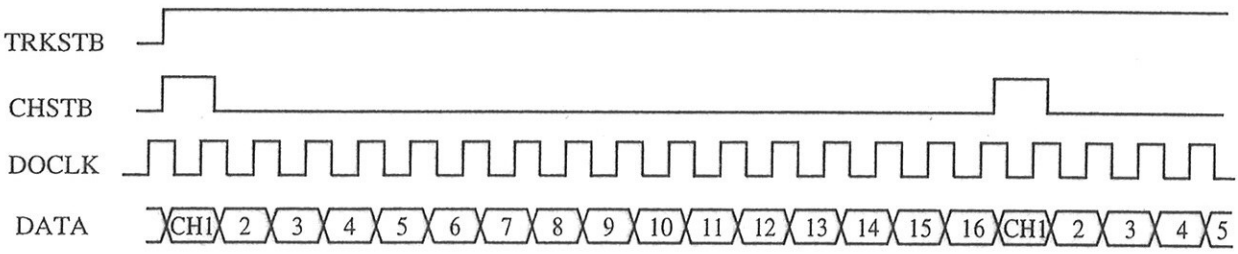
Cable length 1m max

Recommended cable: DHA-C40-3GA-01S2

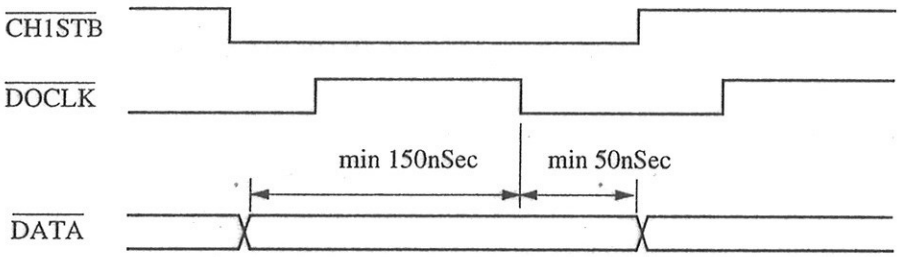


5. Output Timing (Shows the case in 1H mode. The time-axes below increase proportionally to rec/repro time.)

a. When "ALL" is selected. (in 16CH mode)



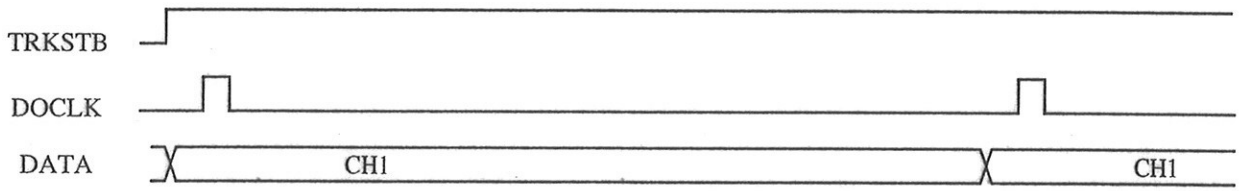
Notes) 1. Showing waveforms at point b on a recommended external circuit.
2. 1/2 period of TRKSTB (60Hz) is equivalent to 1 track on the tape. 6.4K words per one track.
3. Latch the data at rising edge of DOCLK.



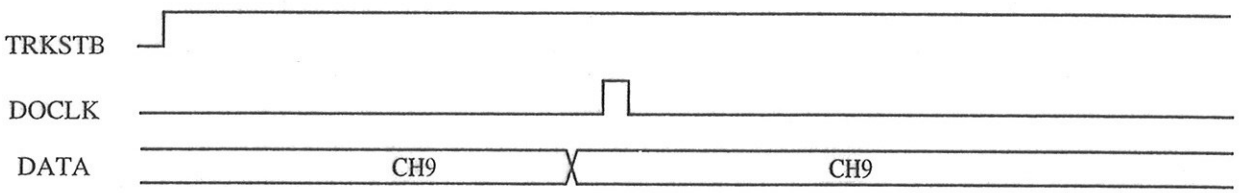
Note) The timing shows the state at the point a when the recommended external circuit is connected.

b. When one desired channel is selected. (in 16CH mode)

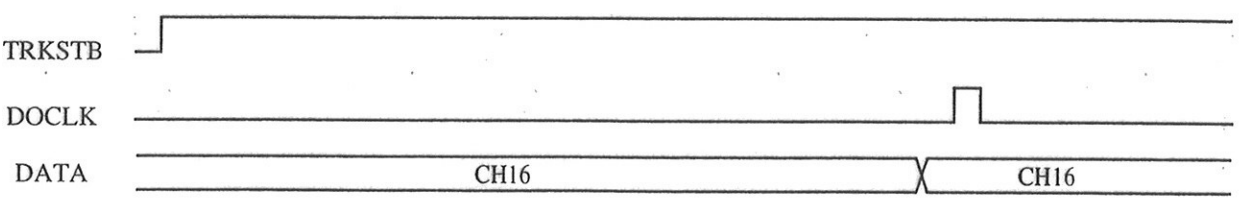
● **When CH1 is selected.**



● **When CH9 is selected.**

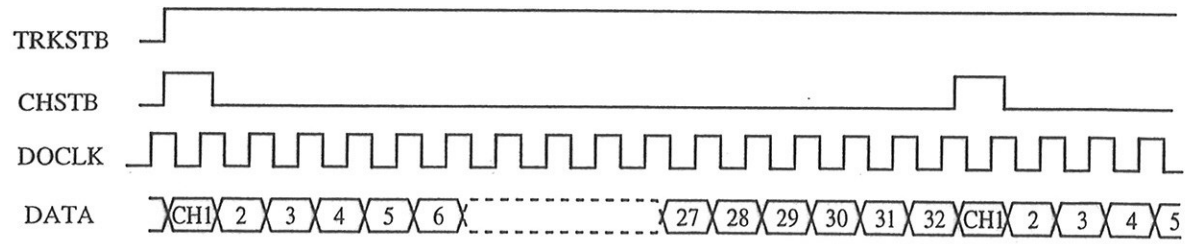


● **When CH16 is selected.**

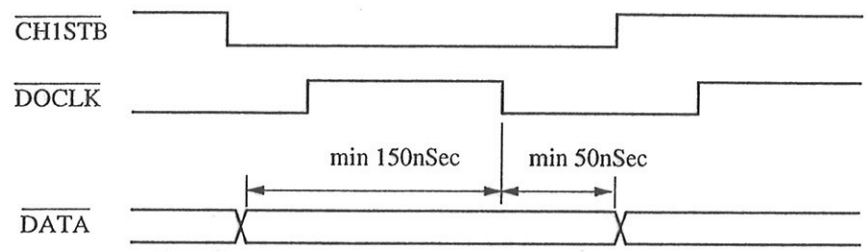


Notes) 1. As an example, a status with CH 1, CH 9, and CH 16 selected is shown.
When other channels are selected, the DOCLK is developed at that channel.
2. When an arbitrary one channel is selected, CH1STB shows always "L".
3. Showing waveforms at point b on the recommended external circuit.
4. 1/2 period of TRKSTB (60Hz) is equivalent to 1 track on the tape 400 words per one track.

c. When "ALL" is selected. (in 32CH mode)



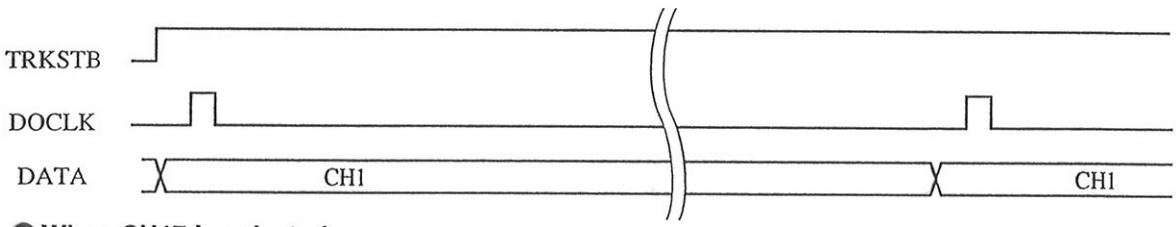
Notes) 1. Showing waveforms at point b on a recommended external circuit.
2. 1/2 period of TRKSTB (60Hz) is equivalent to 1 track on the tape. 6.4K words per one track.
3. Latch the data at rising edge of DOCLK.



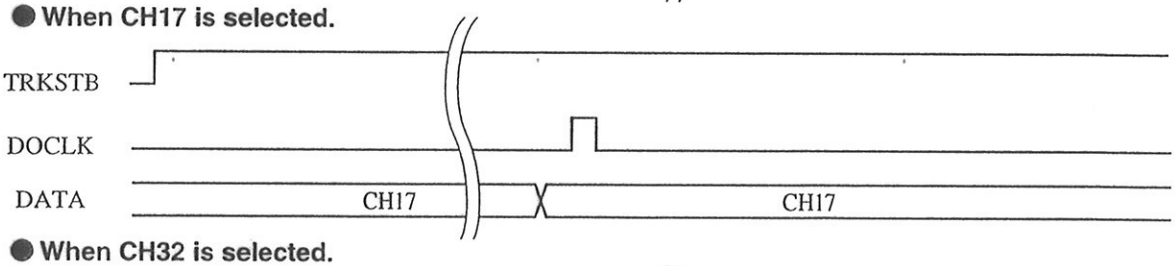
Note) The timing shows the state at the point a when the recommended external circuit is connected.

d. When one desired channel is selected. (in 32CH mode)

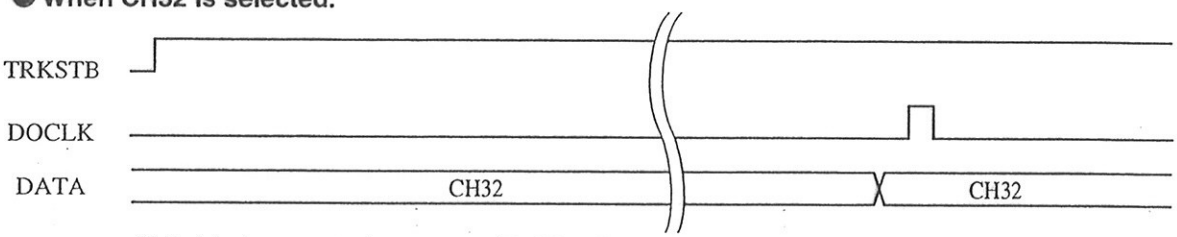
● **When CH1 is selected.**



● **When CH17 is selected.**



● **When CH32 is selected.**



Notes) 1. As an example, a status with CH 1, CH 17, and CH 32 selected is shown.
When other channels are selected, the DOCLK is developed at that channel.
2. When an arbitrary one channel is selected, CH1STB shows always "L".
3. Showing waveforms at point b on the recommended external circuit.
4. 1/2 period of TRKSTB (60Hz) is equivalent to 1 track on the tape 200 words per one track.

e. Relation between DIGITAL OUT and Analog I/O.

● At recording

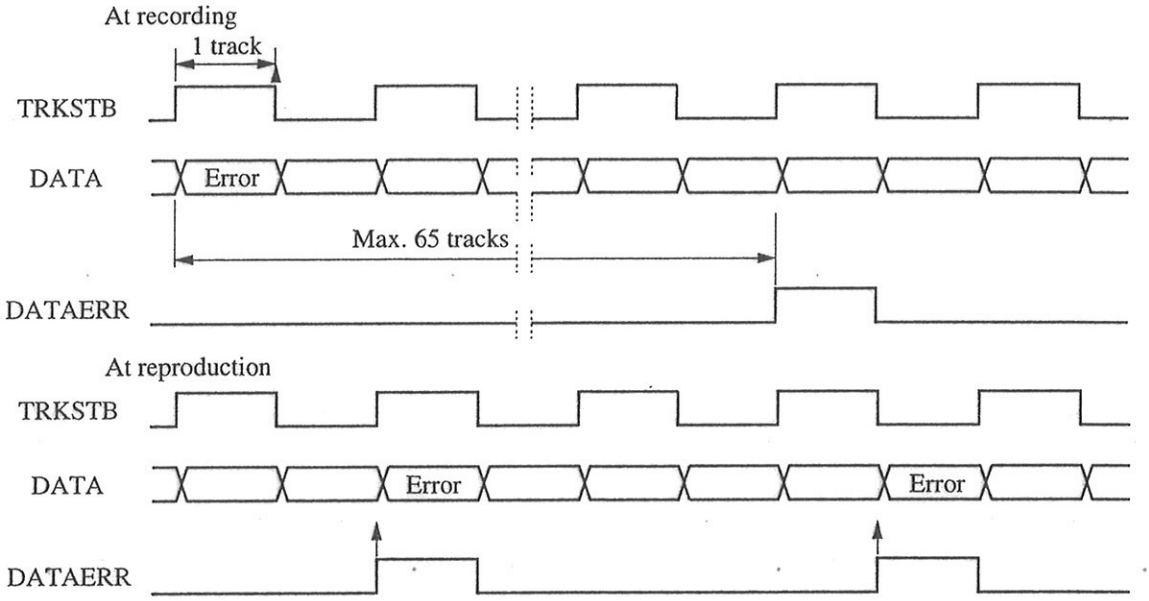
The DIGITAL OUT delays by about 770µsec from the analog input signal.

The analog output signal delays by about 980µsec from the DIGITAL OUT.

● At reproduction

The analog output signal delays by about 980µsec from the DIGITAL OUT.

f. Data Error Signal Output Timing



Note) The timing shows the state at the point b.

6. Pin Assignment

Pin No.	Signal	Functions	Pin No.	Signal	Functions
1	$\overline{DO0}$	Parallel output 0 (LSB)	21	$\overline{DOADR0}$	Output channel address 0
2	$\overline{DO1}$	Parallel output 1	22	$\overline{DOADR1}$	Output channel address 1
3	$\overline{DO2}$	Parallel output 2	23	$\overline{DOADR2}$	Output channel address 2
4	$\overline{DO3}$	Parallel output 3	24	$\overline{DOADR3}$	Output channel address 3
5	$\overline{DO4}$	Parallel output 4	25	$\overline{DOADR4}$	Output channel address 4
6	$\overline{DO5}$	Parallel output 5	26	$\overline{DOADR5}$	Output channel address 5
7	$\overline{DO6}$	Parallel output 6	27	$\overline{DOADR6}$	Output channel address 6
8	$\overline{DO7}$	Parallel output 7	28	$\overline{DOADR7}$	Output channel address 7
9	$\overline{DO8}$	Parallel output 8	29	$\overline{DATAERR}$	Data error signal
10	$\overline{DO9}$	Parallel output 9	30	$\overline{CH1STB}$	Data output strobe
11	$\overline{DO10}$	Parallel output 10	31	$\overline{DOCLK}$	Data output strobe
12	$\overline{DO11}$	Parallel output 11	32	$\overline{TRKSTB}$	Track strobe
13	$\overline{DO12}$	Parallel output 12	33	GND	Ground
14	$\overline{DO13}$	Parallel output 13	34	GND	Ground
15	$\overline{DO14}$	Parallel output 14	35	GND	Ground
16	$\overline{DO15}$	Parallel output 15	36	GND	Ground
17	NC		37	NC	
18	+5V	Power supply	38	+5V	+5V
19	GND	Ground	39	GND	Ground
20	GND	Ground	40	GND	Ground

Note: +5V is 100mA maximum.

Remote control by contact signals inputted to the connector ㊽.

1. Function

● Input

REW, FFWD, FWD, STOP, REC, PAUSE, Event, E MARK Write, E MARK Search, Panel Lock

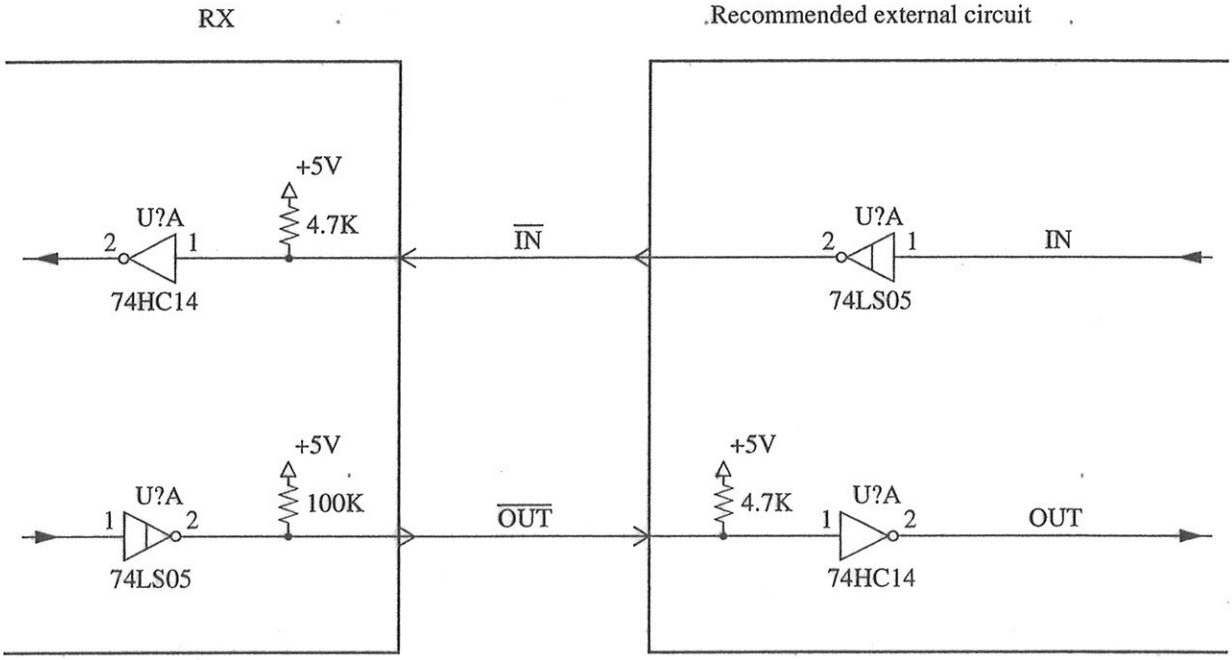
● Output

REW, FFWD, FWD, STOP, REC, PAUSE, Event, E MARK Write, E MARK Search, Panel Lock, Loading End, Servo Lock, BOT, EOT

2. Input/output Circuit Format

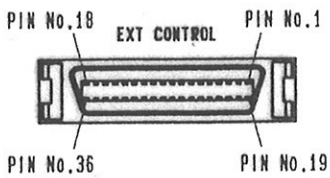
Connector	Square half pitch 36-pin (DHA-RC36-R1xxx series)
Input level	CMOS, pulse width 100 msec minimum
Output level	Open collector, maximum sink current 8mA

3. Recommended External Circuit



Cable length 1m max

Recommended cable: DHA-C36-3GA-01S2

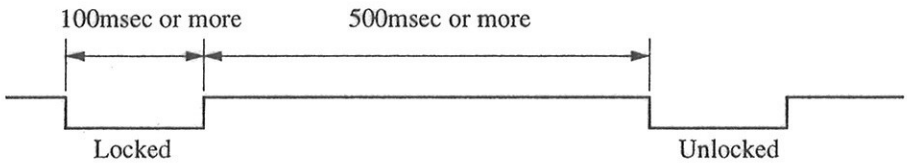


4. Pin Assignment

Pin No.	Signal	Function	Pin No.	Signal	Function
1	$\overline{\text{REWIN}}$	REW input	19	$\overline{\text{REWOUT}}$	REW output
2	$\overline{\text{FFWDIN}}$	FFWD input	20	$\overline{\text{FFWDOUT}}$	FFWD output
3	$\overline{\text{FWDIN}}$	FWD input	21	$\overline{\text{FWDOUT}}$	FWD output
4	$\overline{\text{STOPIN}}$	STOP input	22	$\overline{\text{STOPOUT}}$	STOP output
5	$\overline{\text{RECIN}}$	REC input	23	$\overline{\text{RECOUT}}$	REC output
6	$\overline{\text{PSEIN}}$	PAUSE input	24	$\overline{\text{PSEOUT}}$	PAUSE output
7	AUXIN1	Auxiliary	25	AUXOUT1	Auxiliary
8	AUXIN2	Auxiliary	26	AUXOUT2	Auxiliary
9	$\overline{\text{EVNIN}}$	EVENT input	27	$\overline{\text{EVNOUT}}$	EVENT output
10	$\overline{\text{EMWIN}}$	E MARK write input	28	$\overline{\text{EMWOUT}}$	E MARK write output
11	$\overline{\text{EMSIN}}$	E MARK search input	29	$\overline{\text{EMSOUT}}$	E MARK search output
12	$\overline{\text{PLOCKIN}}$	PANEL LOCK input	30	$\overline{\text{PLOCKOUT}}$	PANEL LOCK output
13	AUXIN3	Auxiliary	31	$\overline{\text{LODOUT}}$	LOADING output
14	AUXIN4	Auxiliary	32	$\overline{\text{SVLOUT}}$	SERVO LOCK output
15	$\overline{\text{RTCADJ}}$	Internal clock calibration input	33	$\overline{\text{BOTOUT}}$	BOT output
16	RESERVE	Reserved	34	$\overline{\text{EOTOUT}}$	EOT output
17	+5V	Power supply	35	+5V	Power supply
18	GND	Ground	36	GND	Ground

Note:

- +5V is 100mA maximum.
- PANEL LOCK input is to disable the front panel key operation of the RX-8016/8032 main unit. The panel is locked with the first signal and unlocked with the next signal.



Error Messages

Probable causes of errors below are improper operations.

Message	Meaning
POWER OFF	The power off sequence is working.
AUTO XXXXXXX	The tape stick correction mode is working.
NOT SUPPORT	Not supported because option is not installed.
CMD ERROR	Error during command transmission in GPIB, "Quik Vu," synchronous operation, etc.
PARAM ERROR	
NO TAPE	No tape
PROTECT	Tape is write-protected
BOT DETECT	BOT is detected.
EOT DETECT	EOT is detected.
BUSY	An inexecutable operation is commanded during other operation. (e.g. REW during recording)
CMD REJECT	A command through GPIB was not accepted.
OPR REJECT	
OPR LOCKED	
SYSTEM DISP	Execution is impossible because the SYSTEM screen is displayed.
TEST WORKING	Execution is impossible because the TEST mode is being executed.
LOW VOLTAGE	Low Voltage status detected.
MPX UNMATCH	32ch mode recorded tape was played back with RX-8016.
REC DROP OUT	Tape data dropped out.
POWER DOWN	POWER DOWN status detected.
DEW ERROR	DEW status detected.

Probable causes of errors below are hardware troubles.
Contact us if they occurred.

Message	Meaning
CONFIG RESET	The protected configuration data was initialized because of irregular data in backed up RAM.
HD CLEN ERR	An error is detected during head cleaning.
TIN CHKERR	An error is detected by the position check at the tape insertion.
RTC ADJ SKIP	Real time clock automatic calibration skipped.
RTC ADJ FAIL	Error detected in real time clock automatic calibration.
REC SBR FAIL FWD SBR FAIL	Servo lock not established when rec/rep started.
REC TTP ERR FWD TTP ERR	TTP abnormality detected during rec/rep.
REC TIME OUT FWD TIME OUT	Tape was stopped due to some abnormality when rec/rep started.
TTP STS ERR	TTP error status ON.
OVER HEAT nn	OVER HEAT status detected. "nn" stands for the number of seconds remained up to power off.
CASSET MT ERR	Cassette Motor error status detected.

Specifications

Record/reproduction system:	NRZI saturation digital recording
Record format:	Helical scan Original PCM format
Error correction method:	1 track completed type interleave, double Reed-Solomon
Tape used (specified):	FUJI PHOTO FILM Hi8 ME Position 120
	or FUJI PHOTO FILM M221E E6-120 (tape length 106 m)
Quantization bit number:	16 bits (simultaneous sampling)
Record data length:	16 bits
Rec/rep heads:	2 for record, 2 for reproduction (erase: overwrite)
Recording/reproduction period:	1 H: 1 hour; 2 H: 2 hours; 4 H: 4 hours;
(when E6-120 continuously used)	8 H: 8 hours; 16 H: 16 hours; 32 H: 32 hours
Time-axis conversion:	Recording/reproduction period is arbitrarily selectable.
Tape speed:	28.69 mm/sec (in 1 H mode); 14.345 mm/sec (in 2 H mode);
	in 4 — 32 H: TTP moves at 28.69 mm/sec intermittently.
Start/stop time:	Approx. 3 sec
F FWD/REW time:	Approx. 80 sec (E6-120, tape length 106 m)
Analog input/output	
Input: Input voltage:	+/–0.5; 1; 2; 5; 10; 20 Vp (over range +/–127%)
Absolute maximum input voltage:	+/–100 V
Zero shift:	+/–100%
Coupling:	AC/DC switchable (3 Hz/–3 dB)
Impedance:	100 kΩ unbalanced
Filter:	Digital filter + analog filter
Output: Output voltage:	+/–1 — 5 Vp (fine adjustable in 20 mV steps)
Zero shift:	+/–50%
Impedance:	75 Ω unbalanced
Current:	+/–10 mA (at 20 Ω loaded)
Filter:	Digital filter + analog filter

Tape Speed, Multiplex and Frequency Range (+0.5 dB / –1.0 dB)

TAPE SPEED	Frequency Range (kHz)	
	16 CH	32 CH (RX-8032)
1 H	DC — 20	DC — 10
2 H	DC — 10	DC — 5
4 H	DC — 5	DC — 2.5
8 H	DC — 2.5	DC — 1.25
16 H	DC — 1.25	DC — 0.625
32 H	DC — 0.625	DC — 0.313

Dynamic range:	82 dB or more
SN ratio:	80 dB or more (inside band)
Crosstalk:	–78 dB or less
Interchannel phase difference:	1° or less (in the same input range)
Linearity:	+/–0.1% or less
Distortion:	0.05% or less (frequency band 20 kHz, 10 kHz, 5 kHz)
	(when frequency band is 2.5 kHz or less, output is stepped wave)
Drift:	+/–0.1% or less (after 10 minutes heat run)

Digital data input/output

SERIAL I/O 1: Serial data record/reproduction (usable with all the channels)

Transfer rate : 3 Mbps (in 1H mode)
: 1.5 Mbps (in 2H mode)
: 0.75 Mbps (in 4H mode)
: 0.375 Mbps (in 8H mode)
: 0.188 Mbps (in 16H mode)
: 0.094 Mbps (in 32H mode)

Input/output level: TTL

SERIAL I/O 2: Serial data record/reproduction

Transfer rate : 12 Mbps (in 1H mode)
: 6 Mbps (in 2H mode)
: 3 Mbps (in 4H mode)
: 1.5 Mbps (in 8H mode)
: 0.75 Mbps (in 16H mode)
: 0.375 Mbps (in 32H mode)

Input/output level: TTL

PARALLEL I/O: Transfer rate

ANALOG CH1 mode (switched from ch1 input)
: 48 KWords/sec (in 1H, 16CH mode)
: 24 KWords/sec (in 1H, 32CH mode)

DIGITAL CH mode (usable with all the channels)
: 192 KWords/sec (in 1H mode)
: 96 KWords/sec (in 2H mode)
: 48 KWords/sec (in 4H mode)
: 24 KWords/sec (in 8H mode)
: 12 KWords/sec (in 16H mode)
: 6 KWords/sec (in 32H mode)

Input level : CMOS

Output level : Open collector

DIGITAL OUT:	16 bits parallel output (parallel digital data output simultaneous with analog output) Transfer rate : 768 kWords/sec (in 1H mode) : 384 kWords/sec (in 2H mode) : 192 kWords/sec (in 4H mode) : 96 kWords/sec (in 8H mode) : 48 kWords/sec (in 16H mode) : 24 kWords/sec (in 32H mode) Output level: : Open collector
ID data:	ID number: One count incremented at each start of recording; or each time the event key is pressed during recording. Clock : Year, month, day, hour, minute, second
Search:	High speed search by ID number, counter, ID + P counter, clock END (E Mark) search; ID search during reproduction
Control:	F·FWD, REW, FWD, STOP, REC, PAUSE, CUE, REVIEW, EJECT
Voice memo:	Frequency band (with an external microphone): 400 ~ 2600 Hz (in 1 ~ 16 H mode); 400 ~ 1300 Hz (in 32 H mode)
Monitor:	Bar graph indication (all the channels + voice memo) and modes setting function on monochrome LCD with a back light. Speaker/earphone, BNC connector for monitor output
Test signal (built-in):	DC ± 100 %、0 %、AC100 % (1 kHz: 1 H ／ 500 Hz: 2 H ／ 250 Hz: 4 H ／ 125 Hz: 8 H ／ 62.5 Hz: 16 H ／ 31.25 Hz: 32 H)
Other functions:	External trigger start/stop Pre-trigger (only in 1H or 2 H mode) Synchronous recording up to 4 units (only in 1H or 2 H mode) Digital copy IRIG-B time code recording and search Self test

Operation temperature:	0 — 40 ℃
Operation humidity:	20 — 80% RH (non-condensing)
Vibration:	Test condition: MIL-STD-810D
Shock:	Test condition: MIL-STD-810D
Power supply:	Permissible supply voltage and frequency
	[( ) stands for the rated values]
	90 — 130 V AC (100 — 120 V AC), 180 — 260 V AC (200 — 240 V AC)
	Frequency: 48 — 440 Hz (100/200 V AC automatically switched)
	11 — 15 V DC (12 — 14 V DC), 22 — 30 V DC (24 — 28 V DC)
	(12/24 V DC automatically switched)
Power consumption:	RX-8016 : Approx. 2.1 A (at 100 V AC), Approx. 9.5 A (at 12 V DC)
	RX-8032 : Approx. 2.5 A (at 100 V AC), Approx. 12.5 A(at 12 V DC)
Dimensions:	RX-8016 : Approx. 440(W)× 183(H)× 300(D) mm (excluding protrusion)
	RX-8032 : Approx. 440(W)× 241(H)× 300(D) mm (excluding protrusion)
Mass:	RX-8016 : Approx. 17 kg
	RX-8032 : Approx. 21 kg

NOTE for Users in Europe:

The AD-393 AC line noise fiter has been added to the standard accessories. Use the AD-393 when operating the unit on AC.

The specifications for the power supply and power consumption are as follows when the AD-393 is connected:

Power supply:	Permissible supply voltage and frequencies [( ) stands for the rated value]
	210—250 V AC (220—240 V AC) 48—62 Hz
	11—15 V DC (12—14 V DC), 22—30 V DC (24—28 V DC)
	(12/24 V DC automatically switched)
Power consumption:	RX-8016: Approx. 1.3 A (at 230 V AC)/Approx. 9.5 A (at 12 V DC)
	RX-8032: Approx. 1.4 A (at 230 V AC)/Approx. 12.5 A (at 12 V DC)

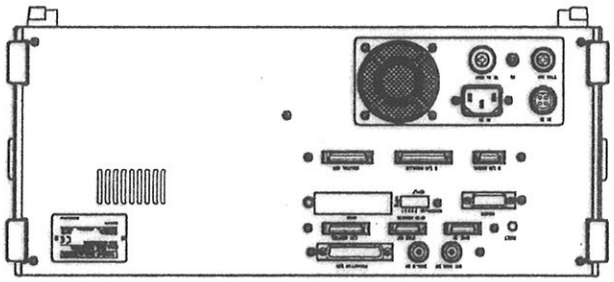
Supplied Accessories

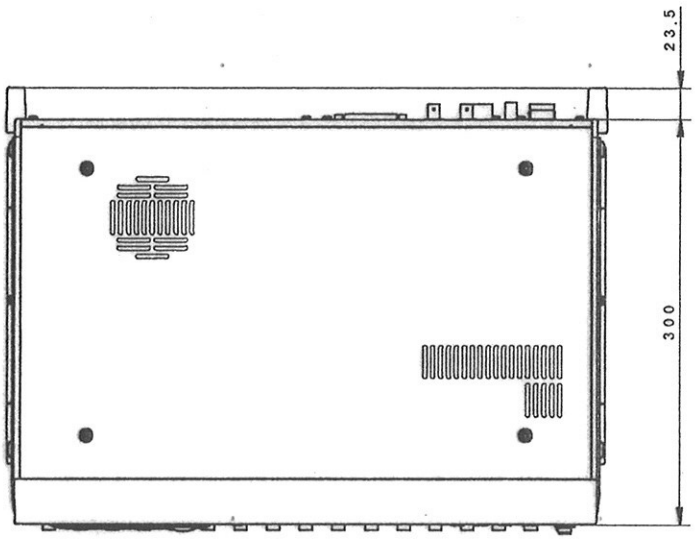
8mm video cassette tape		1 pc.
8 mm cleaning tape		1 pc.
Input/output cables		33 pcs. (RX-8016)
		65 pcs. (RX-8032)
Microphone		1 pc.
Earphone		1 pc.
Screw driver		1 pc.
Vinyl case for accessories		1 pc.
Vinyl cover for the main unit		1 pc.
AC power cord		1 pc.
3-pin adapter for AC power cord		1 pc.
DC power cord (CL-250)		1 pc.
AC fuse (2.5 A)		1 pc.
DC fuse (15 A)		1 pc.
Instruction manual (this manual)		1 copy
TZ-711	Firmware	Installed in the main unit
	Cable for synchronous recording	1 pc.
	Cable for digital copy	1 pc.
	TZ-711 Operation manual	1 copy
User registration card		1 pc.
AC line noise filter (AD-393)		1 pc. (for CE version only)

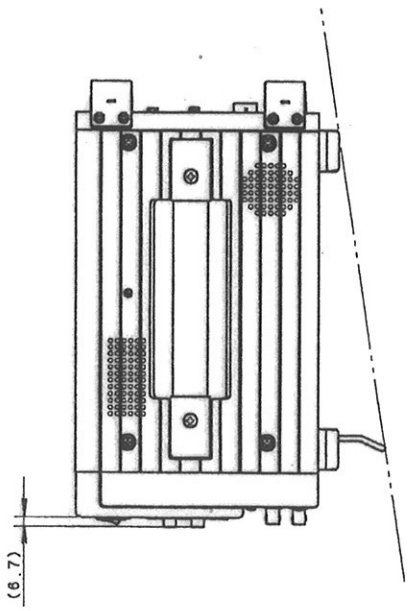
Optional Accessories

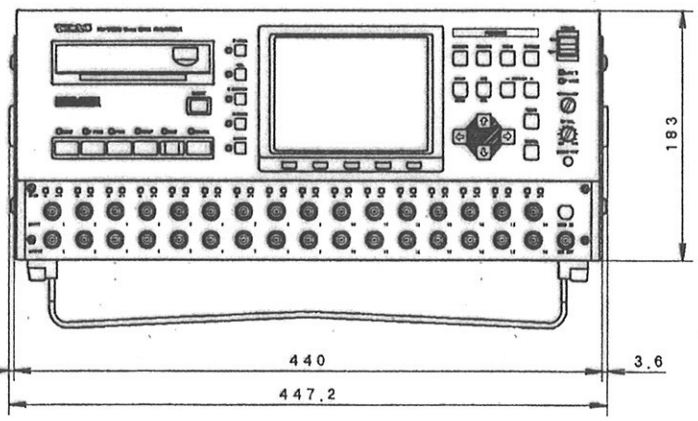
Expansion unit	AU-RX816 (for RX-8016)
Remote control unit (RS-232C interface, with bar meter)	
	ER-46
GPIB board	AR-510
SCSI board	AR-511
Front handle	TZ-702
Car mount adapter	TZ-706 (for RX-8016)
	TZ-707 (for RX-8032)
Rack mount adapter	TZ-708 (for RX-8016)
	TZ-709 (for RX-8032)
Trunk case	CS-RX816 (for RX-8016)
	CS-RX832 (for RX-8032)
8 mm video cassette tape	
8 mm cleaning tape	

External View (RX-8016)









External View (RX-8032)