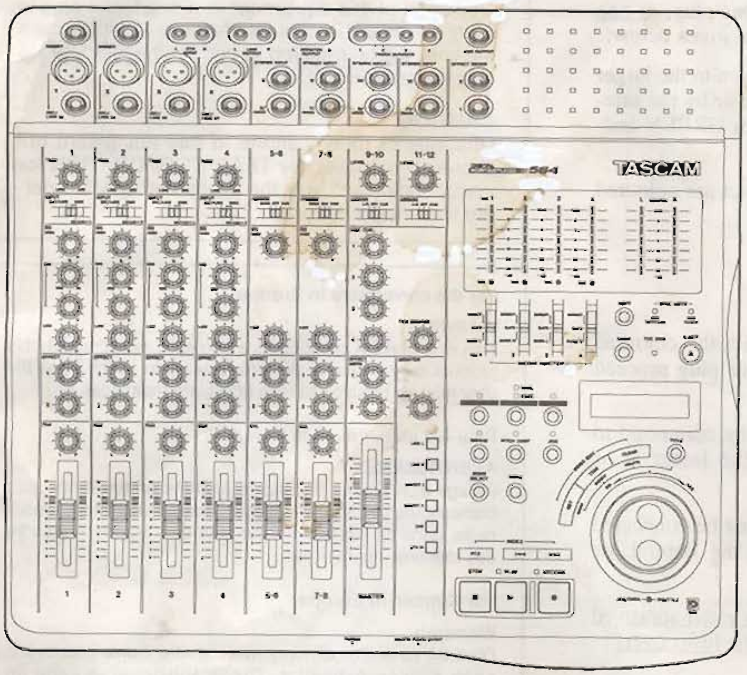
TASCAM

TEAC Professional Division

564

DIGITAL PORTASTUDIO



OWNER'S MANUAL

D00263000A

Important Safety Precautions

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.

Model number _____

Serial number _____

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT (for U.K. Customers)

DO NOT cut off the mains plug from this equipment.
If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer.

If nonetheless the mains plug is cut off, remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.

If this product is not provided with a mains plug, or one has to be fitted, then follow the instructions given below:

IMPORTANT. DO NOT make any connection to the larger terminal which is marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-and-YELLOW.

The wires in the mains lead on this product are coloured in accordance with the following code:

BLUE: NEUTRAL
BROWN: LIVE

As these colours may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

When replacing the fuse only a correctly rated approved type should be used and be sure to re-fit the fuse cover.

IF IN DOUBT — CONSULT A COMPETENT ELECTRICIAN.

For U.S.A

TO THE USER

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residental area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION
Changes or modifications to this equipment not expressly approved by TEAC CORPORATION for compliance could void the user's authority to operate this equipment.

For the consumers in Europe

WARNING
This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Pour les utilisateurs en Europe

AVERTISSEMENT
Il s'agit d'un produit de Classe A. Dans un environnement domestique, cet appareil peut provoquer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre des mesures appropriées.

Für Kunden in Europa

Warnung
Dies ist eine Einrichtung, welche die Funk-Entstörung nach Klasse A besitzt. Diese Einrichtung kann im Wohnbereich Funkstörungen versursachen ; in diesem Fall kann vom Betrieber verlang werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.

SAFETY INSTRUCTIONS

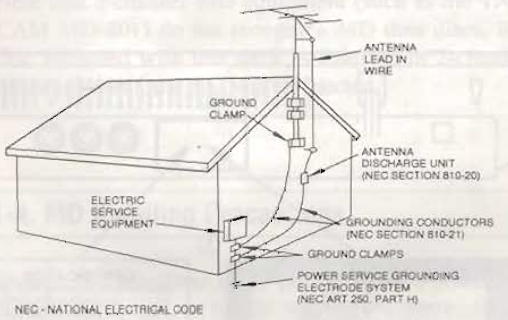
CAUTION:
- **Read all of these Instructions.**
- **Save these Instructions for later use.**
- **Follow all Warnings and Instructions marked on the audio equipment.**

1) Read Instructions — All the safety and operating instructions should be read before the product is operated.
2) Retain Instructions — The safety and operating instructions should be retained for future reference.
3) Heed Warnings — All warnings on the product and in the operating instructions should be adhered to.
4) Follow Instructions — All operating and use instructions shoud be followed.
5) Cleaning — Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6) Attachments — Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7) Water and Moisture — Do not use this product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
8) Accessories — Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
9) A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

10) Ventilation — Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
11) Power Sources — This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
12) Grounding or Polarization — This procuct may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
13) Power-Cord Protection — Power-supply cords shoud be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
14) Outdoor Antenna Grounding — If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

"Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Section 820-40 of the NEC which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Example of Antenna Grounding as per
National Electrical Code, ANSI/NFPA 70

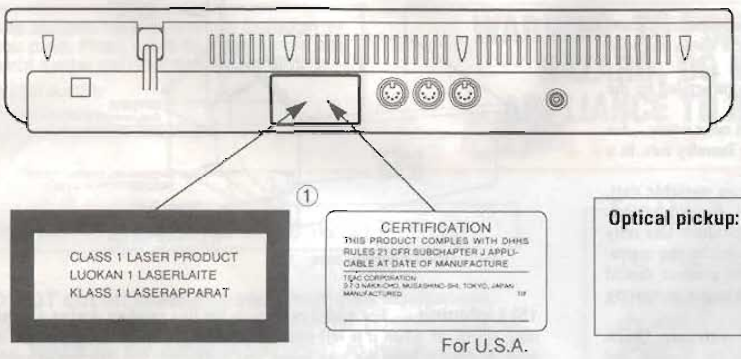


15) Lightning — For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
16) Power Lines — An outside antenna system should not be located *in the vicinity of overhead* power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
17) Overloading — Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in risk of fire or electric shock.
18) Object and Liquid Entry — Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
19) Servicing — Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
20) Damage Requiring Service — Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
a) when the power-supply cord or plug is damaged.
b) if liquid has been spilled, or objects have fallen into the product.
c) if the product has been exposed to rain or water.
d) if the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
e) if the product has been dropped or damaged in any way.
f) when the product exhibits a distinct change in performance – this indicates a need for service.
21) Replacement Parts — When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
22) Safety Check — Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
23) Wall or Ceiling Mouting — The product shoud be mounted to a wall or ceiling only as recommended by the manufacturer.
24) Heat — The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

SAFETY INFORMATION

This product has been designed and manufactured according to FDA regulations "title 21, CFR, chapter 1, subchapter J, based on the Radiation Control for Health and Safety Act of 1968", and is classified as class 1 laser product. There is not hazardous invisible laser radiation during operation because invisible laser radiation emitted inside of this product is completely confined in the protective housings.
The label required in this reguration is shown ①.

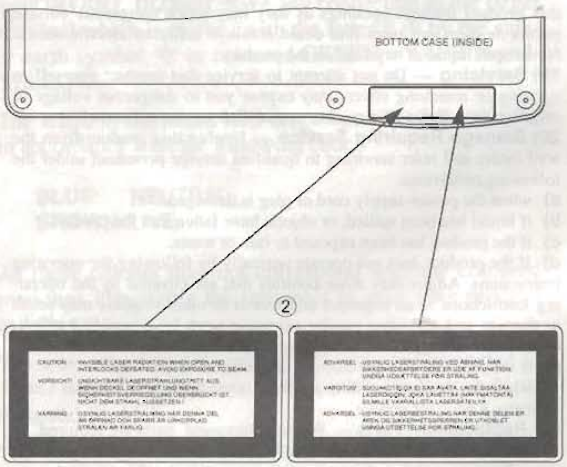
- **CAUTION**
- DO NOT REMOVE THE PROTECTIVE HOUSING USING SCREWDRIVER.
- USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
- IF THIS PRODUCT DEVELOPS TROUBLE, MAKE A CONTACT WITH OUR SERVICEMAN, AND DO NOT USE THE PRODUCT IN A TROUBLED STATE.



For U.S.A.

Optical pickup:	Type	: KMS-190A
	Manufacturer	: SONY Corporation
	Laser output	: 0.25 mW Min. (Play), 5.0 mW Max. (Record)
	Wavelength	: 780 nm ±20 nm

● CAUTION ● ACHTUNG ● OBSERVERA ● ADVARSEL



① THIS LABEL IS ATTACHED TO THE PLACE AS ILLUSTRATED TO INFORM THAT THE APPARATUS CONTAINS A LASER COMPONENT.

① DIESE AUFKLEBEMARKE IST AN DEM IN DER ABBILDUNG GEZEIGTEN ORT ANGEBRACHT UM DARAUF HINZUWEISEN, DASS IM INNERN DES GERÄTS EINE LASER-KOMPONENTE BEFINDET.

① PÅSKRIFTEN SITTER PÅ APPARATEN SOM VISAS SOM UPPMANING OM ATT APPARATEN OMFATTAR EN INBYGGD LASERKOMPONENT.

① DETTE MÆRKAT ER ANBRAGT SOM VIST I ILLUSTRATIONEN FOR AT ADVARE BRUGEREN OM AT APPARATET INDEHOLDER EN LASERKOMPONENT.

② DETTE MÆRKAT ER SOM VIST PÅ ILLUSTRATIONEN ANBRAGT PÅ INDERSIDEN AF TOPDÆKSLET FOR AT ADVARE BRUGEREN OM AT YDERLIGERE FREMTRÆNGEN VIL VÆRE FORBUNDET MED FARE FOR AT UDSÆTTE SIG FOR LASERSTRÅLING.

ADVARSEL — BETJENING AF ANDRE KONTROLLER OG REGULATORER ELLER BENYTTELES AF ANDRE FREMGANGSMÅDER END BESKREVET HERI ER FORBUNDET MED FARE FOR UDSÆTTELSE FOR LASERSTRÅLING.

VARING: APPARATEN INNEHÅLLER LASER KOMPONENT MED STRÅLNING ÖVERSTIGANDE KLASS 1.

"ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING"

"VAROITUS! SUOJAKOTELOA EI SAA AVATA. LAITE SISÄLTÄÄ LASERDIODIN. JOKA LÄHETTÄ (NÄKYMÄTÖNTÄ) SILMILLE VAARALLISTA LASERSÄTEILYÄ".

ADVARSEL: USYNLIG LASERBESTRÅLING NÅR DENNE DELEN ER ÅPEN OG SIKKERHETSSPERREN ER UTKOBLET UNNGÅ UTSETTELSE FOR STRÅLING.

Section 1 : Introduction

Thank you for purchasing the TASCAM DIGITAL PORTASTUDIO 564.
The 564 is an all-in-one digital recording system with an integrated mixer and multi-track MD recorder.

Before using your new recorder, read this manual over carefully. Knowing how to properly handle and operate this product is the key to getting the best performance from it over the longest period of time. Once you've read this manual, keep it handy for future reference.

Recording is a large subject. In a manual like this one we can't cover every possible application, potential user, or combination of equipment. We can only convey the basic concepts that directly affect the 564's operation. There is a wealth of other literature — books, magazines — to help you understand and use your equipment successfully.

1-1. Product Configuration

The following items should be contained in the product package.
1. DIGITAL PORTASTUDIO 564 ... x 1
2. Owner's Manual ..... x 1
3. Warranty Card ..... x 1

1-2. Handling Precautions

- The operating temperature is between 5° and 35°C (41°and 95°F). Do not operate the deck outside this range.
- Do not subject the deck to severe impact, as this may damage the internal circuitry or exterior case.
  Be especially careful to avoid subjecting the unit to a strong shock during recording as this could make it impossible to continue recording or damage recorded data.
- Do not use this unit in an environment subject to dust, cigarette smoke, etc. as this will lead to build-up on the lens. If necessary, clean the lens using a commercially available cleaning disc.
- When cleaning the panel and case, use a soft cloth (such as a silicon cloth). If the unit is extremely dirty, moisten a soft cloth with a solution of neutral detergent and water and wipe gently. Never use any type of solvent such as thinner or benzine; these substances will damage the acrylic or painted finish and fade the indication characters.

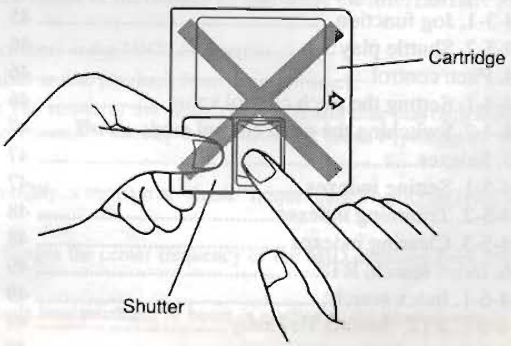
1-3. Usable MDs

- This deck can record 4-track audio on "MD data discs". Recording time is up to a maximum of 37 minutes (when a 140 MB MD data disc is used).
- This deck can play back music MDs, but cannot record or edit audio on them.
- Note that 2-channel MD equipment (such as the TASCAM MD-801) do not recognize MD data discs. If a disc recorded with this deck is inserted in 2-channel MD equipment, the disc will be ejected.

1-4. MD Handling Precautions

Although the MiniDisc itself is housed in a protective cartridge and is easy to handle, the deck might malfunction if the disc cartridge has dust on it or is deformed in some way. To protect your recordings, always take the following precautions.

- Do not touch the disc inside the cartridge. Do not force open its shutter; this can also damage the disc.
- Do not use discs where they may be subject to excessive dust.
- Do not leave discs where they may be exposed to high temperatures, direct sunlight, or high levels of humidity.
- Use a soft dry cloth to clean the cartridge.



Terms and symbols used in this manual

- An "MD data disc" is referred to as "MD" or "disc".
- ☼ indicates continuously lit.
  ☼ indicates blinking.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Table of Contents

DIGITAL PORTASTUDIO 564 Brief Guide

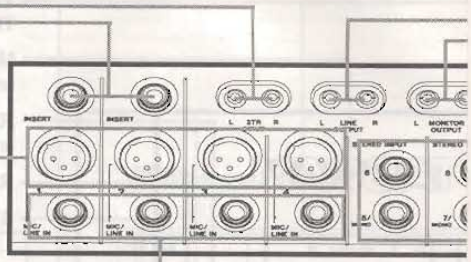
For detailed information on each feature, see "Outline of the 5

Input Section

INSERT jacks : Each jack lets you insert an external signal processor in the input channel signal path between the EQ section and the channel fader.

2TR INPUT L and R jacks : These jacks connect directly to the MONITOR select 2TR IN switch. They are typically connected to the –10 dBV unbalanced outputs of a two track mastering recorder.

MIC/LINE IN jacks : Each 3-contact XLR type connector accepts balanced signals ranging from –65 dBV (0.6 mV) to –10 dBV (0.3 V).

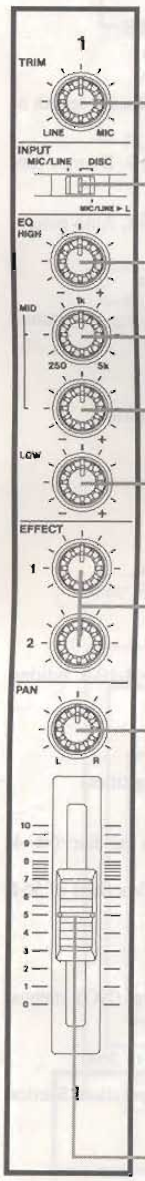


NOTE

DO NOT use both XLR-type and 1/4" connections in the same channel at one time. Disconnect one when the other is used.

STEREO INPUTS jacks : You can connect the outputs of your effects devices to these 1/4" jacks, but they can be used for any line level input if desired. The nominal input level is –10 dBV (0.3 V).

MIC/LINE IN jacks : Each 1/4" jack accepts unbalanced signals ranging from –65 dBV (0.6mV) to –10 dBV (0.3 mV) .



LEVEL controls (Ch. 9-10 and 11-12) : Each rotary control varies the level fed into the corresponding stereo channel.

ASSIGN switches : Each switch controls where STEREO INPUT will go:

MAIN (Ch. 5-6 and 7-8) : For sending a signal through the channel controls (EQ, fader and BAL) to the Left and Right sides of the main stereo mix for recording. The signal is also sent to the EFFECT 1 and 2 controls.

L-R (Ch. 9-10 and 11-12) : For sending a signal directly to the Left and Right sides of the main stereo mix for recording.

OFF : Stops signal here.

CUE : Setting the switch to this position lets you send a signal directly to the CUE MASTER control.

TRIM controls : Each control sets how much preamplification level there is on the MIC/LINE INputs.

INPUT switches : Each controls what the source of the channel is, and where the MIC/LINE IN source will go.

MIC/LINE : The source of the mixer channel is the MIC/LINE input.

DISC (center) : The source of the mixer is disc playback from the multi-track.

DISC and MIC/LINE ► L (or R) : The source of the mixer channel is still disc playback from the multi-track, but the MIC/LINE IN source connects directly to the MASTER fader, bypassing the mixer controls.

EQ HIGH controls : Each controls the tonality of the high or "treble" frequencies. The EQ shelving point is 12 kHz.

EQ MID frequency controls : Each changes the center frequency of the MID equalizer from 250 Hz to 5 kHz.

EQ MID amount controls : Each controls how much cut or boost is applied to the band chosen by the upper knob.

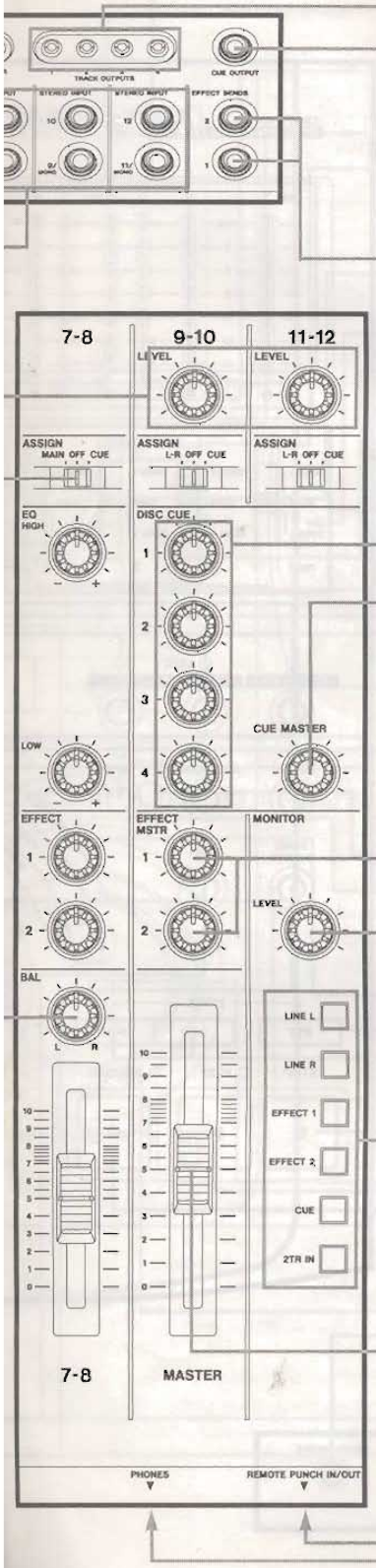
EQ LOW controls : Turned to the right, the control boosts the bass frequencies and the signal will sound relatively heavy. The EQ shelving point is 80 Hz.

EFFECT send controls : Each control gets its signal from a point just after the channel fader (i.e., "post fader send") and routes the corresponding channel signal to the EFFECT MSTR.

PAN controls : Each control allows you to create stereo mixes by sending the signal from the channel fader in continuously variable degree to the left or right side of the stereo mix.

BAL balance controls (Ch. 5-6 and 7-8) : Each control works similarly to the PAN control on channels 1-4. It controls the relative level of the left and right signals. If only the MONO input is plugged in, the stereo feature is defeated, and the BAL control works just like PAN, sending the one input anywhere to the left or right of the stereo mix.

Channel faders : Each linear control varies the level feeding the MASTER fader and the EFFECT send controls.



Output Section

LINE OUTPUT L and R jacks : These jacks are the line-level outputs from the MASTER fader. The L and R jacks are typically connected to your two-track mixdown recorder at Mixdown.

MONITOR OUTPUT L and R jacks : These provide a line level version of the same signal that feeds the PHONES jack and may be connected to your control room speaker amplifier.

TRACK OUTPUTS jacks : These get signals directly from the disc (jack 1 from track 1, jack 2 from track 2.....). Use them if you want to mix the disc down with an external mixing console.

CUE OUTPUT jack : This jack carries the disc playback signal and may be connected to the input of a studio speaker amplifier. This gets its signal directly from the CUE MASTER control.

The signal from the CUE position of the ASSIGN switch in stereo channels 5-6 through 11 - 12 also comes here. This signal may be sent to an additional effect device.

EFFECT SEND jacks : These are the output jacks for EFFECT send mixes 1 and 2 of the 564. Signals come here directly from the EFFECT MSTR level controls. They are typically connected to the inputs of external devices such as reverbs, digital delays, etc.

Disc Cue and Monitor Section

DISC CUE controls 1-4 : Each control gets its signal directly from the corresponding disc track.

CUE MASTER control : This gets its signal from disc via the disc CUE controls. It can also receive signals fed into the stereo channels if their ASSIGN switch is in the CUE position.

EFFECT MSTR controls : These are the master volume controls for the Effect Send mix.

LEVEL control : This sets the level feeding both MONITOR OUT and PHONES jacks.

MONITOR source select switches : These control where the signal in your headphones/monitor speakers is coming from. They can be used in combination.

LEFT : Press this to hear the Left output of the mixer. To hear the Left output at center in the headphones/monitor speakers, the RIGHT switch must be OFF.

RIGHT: Press this to hear the Right output of the mixer. To hear the Right output at center in the headphones/monitor speakers, the LEFT switch must be OFF.

EFFECT 1 : Press this to hear the mix being sent to the EFFECT SENDS 1 jack. You can hear it at center in the headphones/monitor speakers if the EFFECT 2 switch is OFF. If both the EFFECT 1 and 2 switches are ON, you'll hear the Effect 1 mix on the left side and the Effect 2 mix on the right side.

EFFECT 2 : Similar to EFFECT 1.

CUE : Press this to hear the DISC CUE section.
The stereo channels (5-6/7-8/9-10/11-12) are also be heard without recording by pressing this CUE switch if their ASSIGN switch is in the CUE position.
The CUE mix is always in the center (mono).

2TR IN : Press this to hear the output of your 2-track mixdown recorder plugged into the 2TR IN L and R jacks.

MASTER fader : This fader is a stereo type and adjusts the output level of both Left and Right mixes simultaneously.

REMOTE PUNCH IN/OUT jack : For connection to the optional remote footswitch.

PHONES jack : Connect any stereo headphones (with a 1/4" stereo TRS 3-conductor plug) to this jack. Signal comes here from the MONITOR select switches.

CAUTION

Don't connect a 2-conductor mono plug to this jack. This short out the headphone amplifier, causing it to burn out.

MD Control Section

RECORD FUNCTION switches : Each switch selects the signal to be recorded in the corresponding track (1 to 4).

- **DIRECT :** Records the signals input to the channels (1 to 4) directly into the corresponding track (1 to 4).
- **SAFE :** Recording is disabled. This is the position for preventing accidental erasure of recording.
- **BUSS (L/R) :** Records the L BUSS signal into TRK 1 or 3. Records the R BUSS signal into TRK 2 or 4.

RTZ (Return-To-Zero) key : Used to locate the beginning of a song (index No. 00). (➡ 4.6 Index search, RTZ)

|◄◄ and ►►| keys : Used for index search operation. (➡ 4-6. Index search, RTZ)

STOP key

- Used to stop MD disc operations.
- In stop mode, used to display the remaining time on the disc.

PLAY key

- Used to play back an MD. The PLAY indicator lights up during playback. (➡ 4-2. Playback)
- Pressing the PLAY key during recording initiates the punch-out operation. (➡ 4-1-2. Over-dubbing)

RECORD key

- Hold the RECORD key depressed and press the PLAY key to start recording of the signals selected with the RECORD FUNCTION switches onto the selected tracks. The RECORD indicator lights up during recording. (➡ 4-1. Recording)
- Pressing the RECORD key during playback initiates the punch-in operation. (➡ 4-1-2. Over-dubbing)

Rear Panel

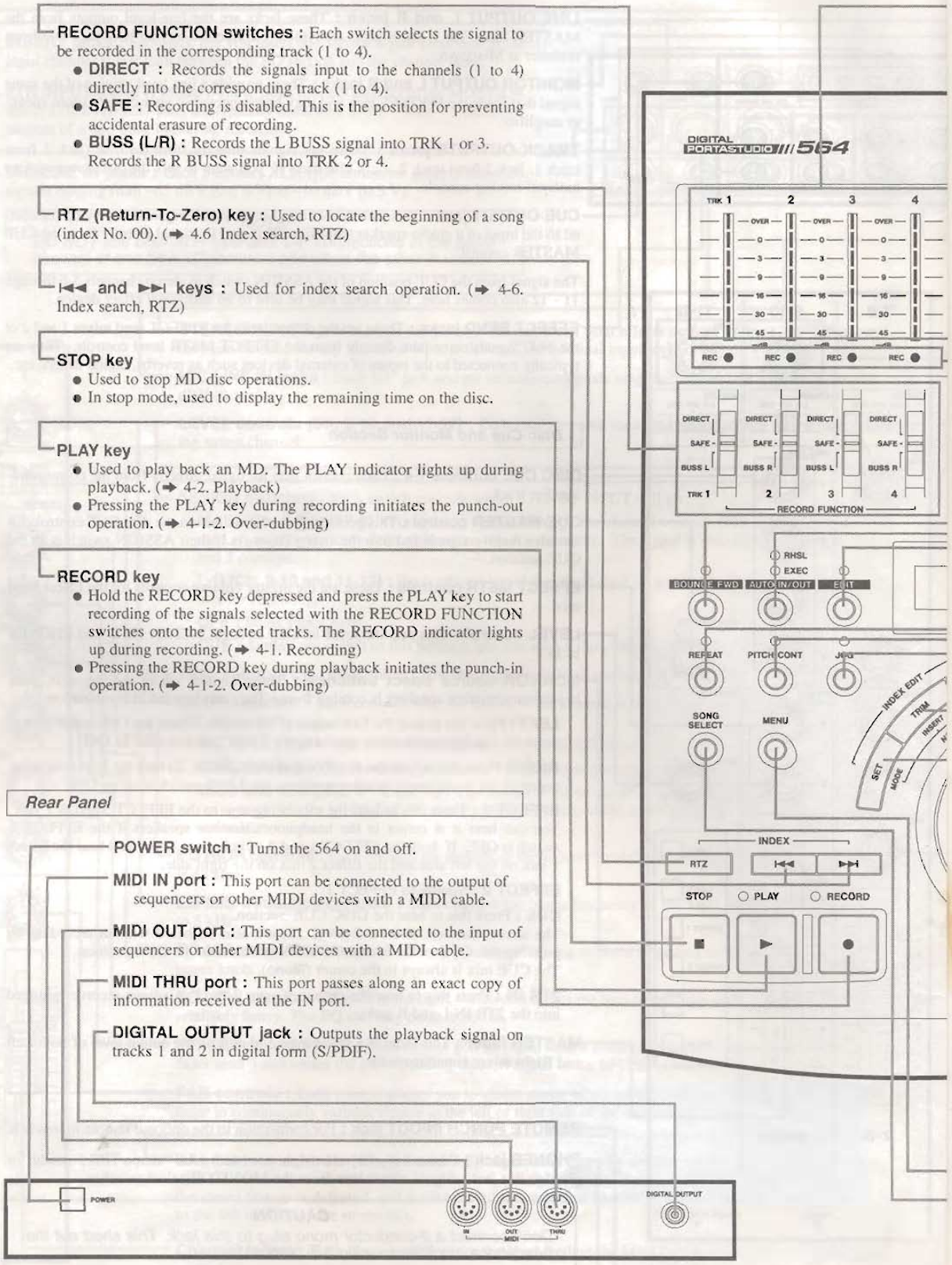
POWER switch : Turns the 564 on and off.

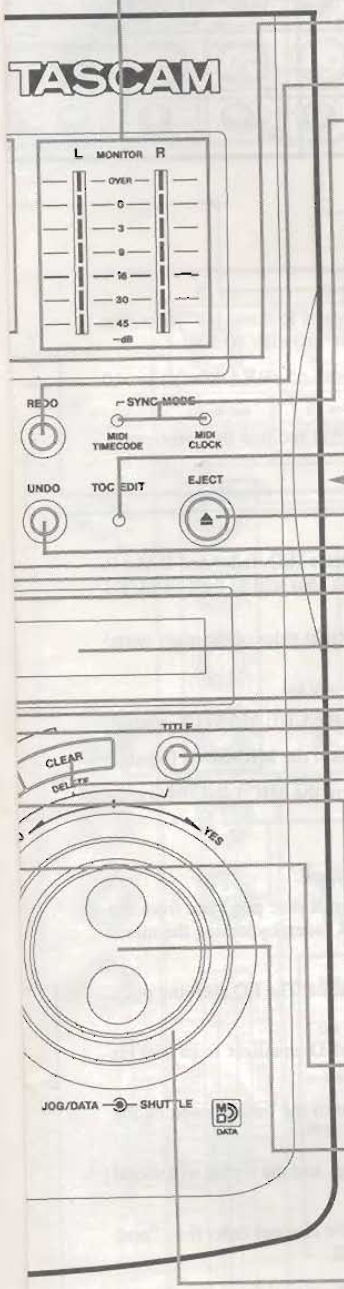
MIDI IN port : This port can be connected to the output of sequencers or other MIDI devices with a MIDI cable.

MIDI OUT port : This port can be connected to the input of sequencers or other MIDI devices with a MIDI cable.

MIDI THRU port : This port passes along an exact copy of information received at the IN port.

DIGITAL OUTPUT jack : Outputs the playback signal on tracks 1 and 2 in digital form (S/PDIF).





TRK level meters : Indicate the levels of the signals selected with the RECORD FUNCTION switches.

MONITOR level meters : Indicate the levels of the signals selected with the MONITOR selector switches.

REC indicators : Each indicator lights up when the corresponding track is in record mode and blinks when it is in record-pause mode.

REDO key : Used to redo the operation canceled with the UNDO key.

SYNC MODE indicators
- **MIDI TIMECODE :** Lights up when "MIDI Timecode" is selected in the SYNC SETUP utility.
- **MIDI CLOCK :** Lights up when "MIDI Clock" is selected in the SYNC SETUP utility.

TOC EDIT indicator : Lights up or blinks as long as the TOC has not been saved. Blinks during UNDO operation.

Disc slot : MiniDiscs are inserted into this slot.

EJECT key : Used to eject the disc.

UNDO key
- During editing, used to cancel the last edit operation performed.
- During recording, used to cancel the last recording operation performed. Note that this key cannot cancel the recording which determines or modifies the length of song (first recording, COPY, etc.).

BOUNCE FWD key : Used to execute the bounce forward operation. (➡ 4-9. Bounce forward)

AUTO IN/OUT key : Used to execute the auto punch-in/out operation. (➡ 4-8. Auto punch-in/out)

EDIT key : Used to enter the edit mode. (➡ Section 5: Edit Functions of 564)

LCD (Liquid Crystal Display) : Displays alphanumeric characters indicating disc status, title, time information, mode information and menus.

REPEAT key : Used to enter the repeat mode. (➡ 4-7. Repeat play)

PITCH CONT key : Used to enter the pitch control mode. (➡ 4-4. Pitch control)

JOG key : Used to enter the jog mode. (➡ 4-3. Jog function/shuttle play)

TITLE key : Used to enter the title mode. (➡ 4-10. Title)

CLEAR/DELETE key :
- Used to clear an index. (➡ 4-5-3. Clearing indexes)
- In the title and index program mode, used to delete a character or program. (➡ 4-10-1. Editing titles, 5.5 INDEX PGM)

TRIM/INSERT key
- Used to fine adjust an index. (➡ 4-5-2. Trimming indexes)
- In the title or index program mode, used to add a character or program. (➡ 4-10-1. Editing titles, 5.5 INDEX PGM)

SET/MODE key
- Used to set an index. (➡ 4-5-1. Setting indexes)
- In the title mode, used to switch the title input modes. (➡ 4-10-1. Editing titles)

JOG/DATA dial
- In the jog mode, used for locating or pinpointing the desired cue point on the disc. (➡ 4-3. Jog function/shuttle play)
- In the edit or utility mode, used for selecting menus. (➡ Section 5: Edit functions of 564, Section 6: Utility functions of 564)

SHUTTLE knob
- Used for shuttle play function. (➡ 4-3. Jog function/shuttle play)
- In the edit or utility mode, used for determining (YES) or canceling (NO) menus. (➡ Section 5: Edit functions of 564, Section 6: Utility functions of 564)

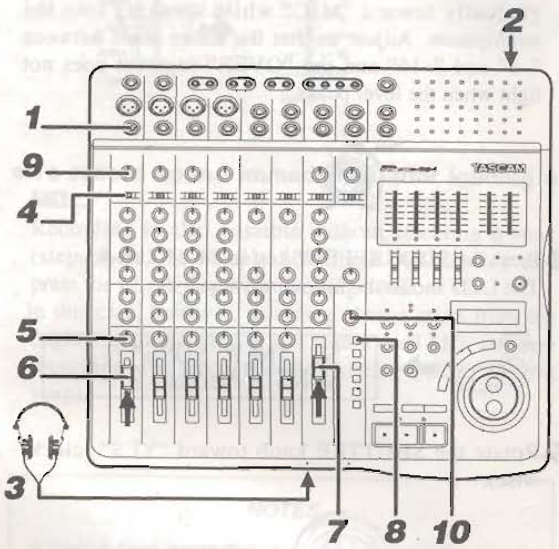
MENU key : Used to enter the utility mode. (➡ Section 6: Utility functions of 564)

SONG SELECT key : Used to select a song. (➡ 2-2. Basic MD recording operation, Section 4: Operations of 564)

Section 2 : Welcome to the World of the 564 (Getting Started)

This section discusses basic operating procedures and is intended for anyone using a mixer and multi-track recorder for the first time.
To get started, you'll need a microphone (or any electronic musical instrument such as an electric guitar, bass and synthesizer), cables, headphones and a new MD.
The operating procedures discussed below are those in which a microphone is used. However, regardless of whether you use a microphone or other instrument, the procedure is basically the same.

2-1. Basic Mixer Operation



This section describes the basic operating procedure of the mixer block.
To use the mixer, sound must be input to one or more of the 16 sound input jacks on 564's top panel.

CAUTION

SWITCH ALL COMPONENTS OFF BEFORE CONNECTING CABLES.

NOTES

- *Set all of the fader controls to "0" and the switches to "OFF".*
- *Turn all the TRIM controls fully counterclockwise to the "LINE" position.*

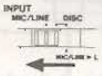
Make sure you have a microphone (dynamic or electret type) and headphones.
Electronic instruments such as an electric guitar, bass and/or synthesizer can be used instead of a microphone.

1 Insert the phone plug of the microphone cable into the 564's leftmost MIC/LINE IN jack (CH 1 phone jack).

2 Press the POWER switch on the rear panel to turn the power ON.

3 To listen to the audio, plug the headphones into the PHONES jack on the front of the 564.

4 Set the CH 1 INPUT switch to "MIC/LINE".

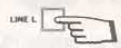


5 Turn the CH 1 PAN control fully counterclockwise to "L".

6 Set the CH 1 input fader to a level between "7" and "8".

7 Set the MASTER fader to a level between "7" and "8".

8 Press the MONITOR "LINE L" switch.



9 While speaking into the microphone, rotate the CH 1 TRIM control gradually toward "MIC" until the MONITOR meter is between "–3" and "–16" and the "OVER" segment does not light when the level peaks.

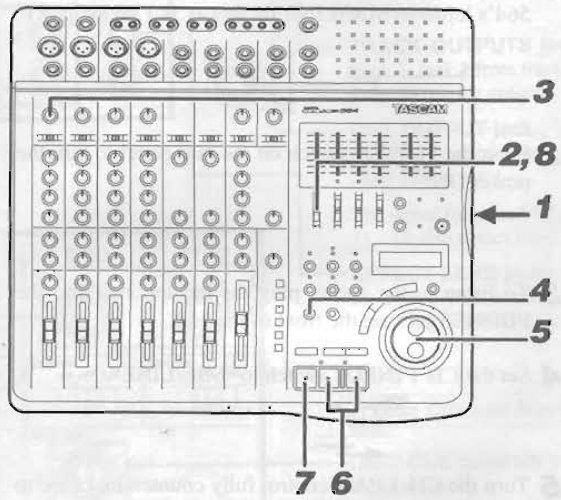
If "OVER" starts to light when TRIM is rotated slightly, set the input fader to a lower level.

10 Adjust the headphone volume by rotating the MONITOR "LEVEL" control gradually clockwise.

- Step 9 is not required if an electronic instrument is connected instead of a microphone.

2-2. Basic MD Recording Operation

Reference: 4-1. Recording, 6-2. DISC ERASE



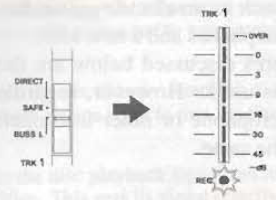
Before you start recording, decide which sound you want to record on which track (TRK).
For example, a typical assignment would be to lay down a basic rhythm track on TRK 1, the melody on TRK 2 and so on.

Now, let's record your voice onto an MD.
First, make sure you've got a new MD (MD data disc) ready. An MD with a capacity of 140 MB allows 4-track recording for up to 37 minutes or so.

1 Insert the MD into the disc slot in the panel on the right-hand side.
Once the MD is inserted, the following messages are displayed on the liquid crystal display (LCD): "DISC LOADING", "TOC READING...", then "REMAIN XXsXXmXX" (which indicates the total remaining time on the MD).
If the following messages are not displayed (that is, the disc has already been recorded on), erase the MD. (➡ 6-2. DISC ERASE)

```
BLANK DISC
REMAIN  37m27s85
```

2 Set the RECORD FUNCTION "TRK 1" switch in the MD block to "BUSS L".
The REC LED indicator below the level meter starts blinking.



3 Speak into the microphone; the TRK 1 level meter segments should light.
If the level meter segments do not light or only a few segments light up, rotate the TRIM control of CH 1 gradually toward "MIC" while speaking into the microphone. Adjust so that the meter reads between "–3" and "–16" and the "OVER" segment does not light when the level peaks.

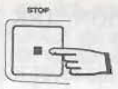
4 Press the SONG SELECT key in the MD block.
The LCD shows the following messages.


```
S1 *NEW SONG*
SONG Create ?
```

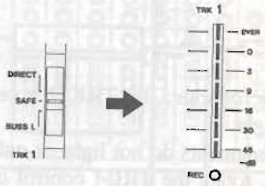
5 Rotate the SHUTTLE knob toward "YES" (clockwise).

6 Hold the RECORD key and press the PLAY key.
The MD recorder starts recording, and the REC indicator below the level meter stops blinking and lights continuously to indicate that recording is in progress.
Speak into the microphone.

7 Press the STOP key to stop recording.
The length of each song is determined when the first track is recorded. To give yourself some leeway, make sure you continue recording for at least as long as the planned duration and preferably for a bit longer.



8 To protect the recording from accidental erasure, set the RECORD FUNCTION "TRK 1" switch to "SAFE" (center position).
The REC indicator below the level meter turns off.



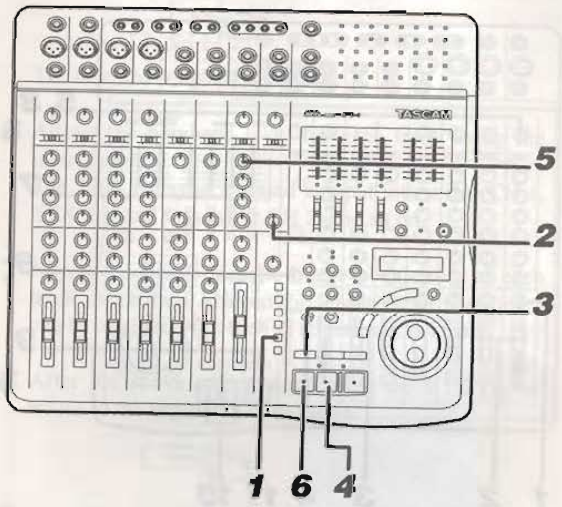
• To record sound immediately after loading a MD...

Recording is also possible without selecting a song (steps 4 and 5). Simply hold the RECORD key and press the PLAY key after inserting a MD.
In this case, however, recording always starts from the beginning of the MD. If you load a used MD, the new recording will overwrite the existing SONG 1 (first song).

NOTES

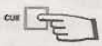
- *Unlike tape recording, recorded audio data is not saved on the MD as it is being recorded.*
  The "TOC EDIT" indicator to the left of the EJECT key lights continuously or blinks when the data has not been saved.
  Recorded data is saved when the song is switched or the MD is ejected.
  Be careful not to switch power OFF before saving the recorded data. Also, to protect the MD, we recommend that you eject the MD before switching power OFF.
- *The message "WRITE PROTECTED" is displayed on the LCD when you attempt to record data on a disc whose write-protective tab is open. Recording is not possible when the write-protective tab is open: close the tab before recording.*

2-3. Basic MD Playback Operation



Now let's play back the sound recorded in the previous section using "DISC CUE".

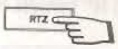
1 Press the MONITOR "CUE" switch.



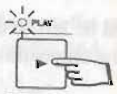
All other MONITOR selector switches should be set to the off position (■).

2 Rotate the CUE MASTER control to the 2 o'clock position.

3 The current position is the "END OF SONG" position: Press the RTZ key to return to the beginning of the current song.

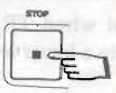


4 Press the PLAY key to start playing the song.

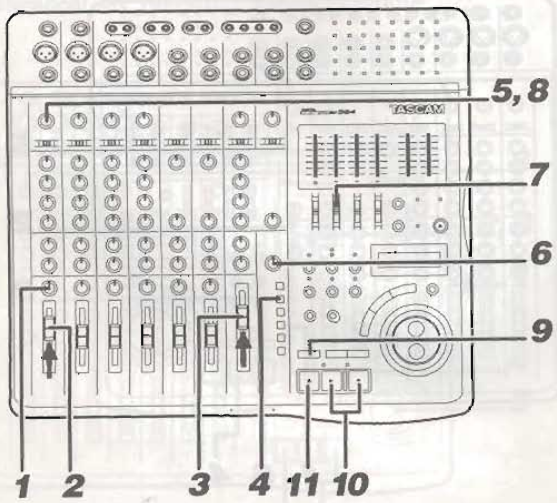


5 Rotate the DISC CUE "1" control gradually clockwise.
You should hear your voice (as recorded on TRK 1) from the headphones.

6 Press the STOP key to stop playback.



2-4. Basic Over-dubbing Operation



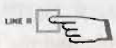
After recording your first track, the next step is to record a different sound on another track (TRK 2) using the same microphone. This is called overdubbing — it means recording new sound on a track while playing and monitoring the sound previously recorded.

1 Rotate the CH 1 PAN control fully clockwise to "R".

2 Set the CH 1 input fader to a level between "7" and "8".

3 Set the MASTER fader to a level between "7" and "8".

4 Press the MONITOR "LINE R" switch.



The "LINE L" switch should be left in the off position (▬) and "CUE" switch in the on position (▂).

5 While speaking into the microphone, rotate the CH 1 TRIM control gradually toward "MIC" until the MONITOR meter reads between "–3" and "–16" and the "OVER" segment does not light when the level peaks.

If "OVER" starts to light when TRIM is rotated slightly, set the input fader to a lower level.

6 Adjust the headphone volume by gradually rotating the MONITOR "LEVEL" control clockwise.

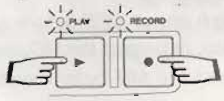
7 Set the RECORD FUNCTION "TRK 2" switch in the MD block to "BUSS R".
The REC indicator below the level meter starts blinking.

8 Speak into the microphone; the TRK 2 level meter segments should light.
If the level meter segments do not light or only a few segments light up, rotate the TRIM control of CH 1 gradually toward "MIC" while speaking into the microphone.

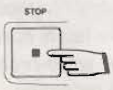
Adjust so that the meter reads between "–3" and "–16" and the "OVER" segment does not light at peak level.

9 Press the RTZ key to return to the beginning of the song.

10 Hold the RECORD key and press the PLAY key.
The MD recorder starts recording, and the REC indicator below the level meter stops blinking and lights continuously to indicate that recording is in progress.
Speak into the microphone. You should hear the sound already recorded on TRK 1 as well as the sound you are recording now from the headphones.

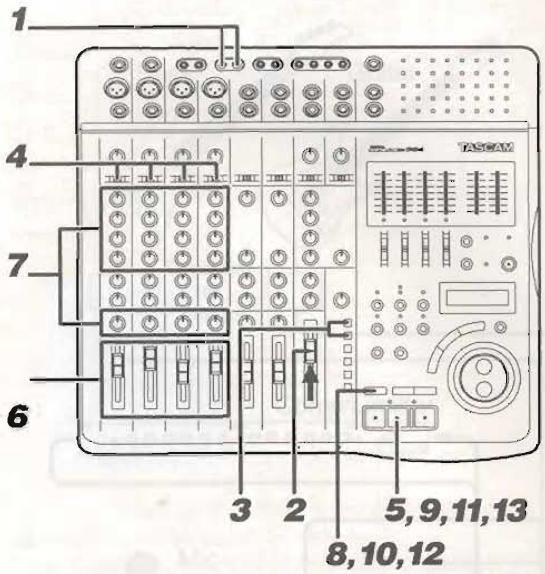


11 Press the STOP key to stop playback.



● You can record sound from any of the mixer input channels onto any of tracks 1 to 4. Just set the PAN control for each channel and the RECORD FUNCTION switch for each track according to the track you want to record onto.

2-5. Mix-Down Operation

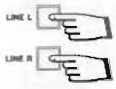


After you've finished recording on the 4 tracks, you can mix the sounds from the 4 tracks down into two channels. This is done by balancing the levels of each track and dubbing the sound onto another recorder (master recorder). This operation is referred to as mix-down.
This section describes a mix-down operation on an analog master recorder.

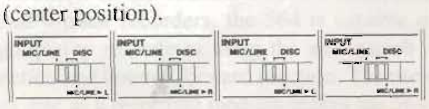
1 Connect the 564's LINE OUTPUT "L" and LINE OUTPUT "R" jacks to the master recorder's "L" and "R" input jacks.

2 Set the MASTER fader to a level between "7" and "8".

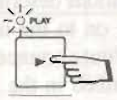
3 Press the MONITOR "LINE L" and "LINE R" switches.



4 Set the INPUT switch of each channel to "DISC" (center position).



5 Press the PLAY key.

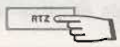


The selected song starts playing.

6 Adjust the playback level for each track using the input fader.
The TRK 1 playback sound is input into mixer CH 1, TRK 2 sound into mixer CH 2, and so on

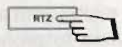
7 Adjust the stereo acoustic image positioning of each track using the PAN control. The tone of each track can be adjusted with the EQ (equalizer) controls.

8 After the above adjustments, press the RTZ key to return to the beginning of the song.



9 Press the PLAY key and check the adjustment results.

10 If the result is satisfactory, press the RTZ key to return to the beginning of the song.



11 Press the PLAY key.
As the selected song starts to play, put the master recorder in record-pause mode and adjust the recording level.

12 Press the RTZ key to return to the beginning of the song.

13 Start recording on the master recorder, then press the PLAY key on the 564.

When the song finishes playing, stop the master recorder and check the results.

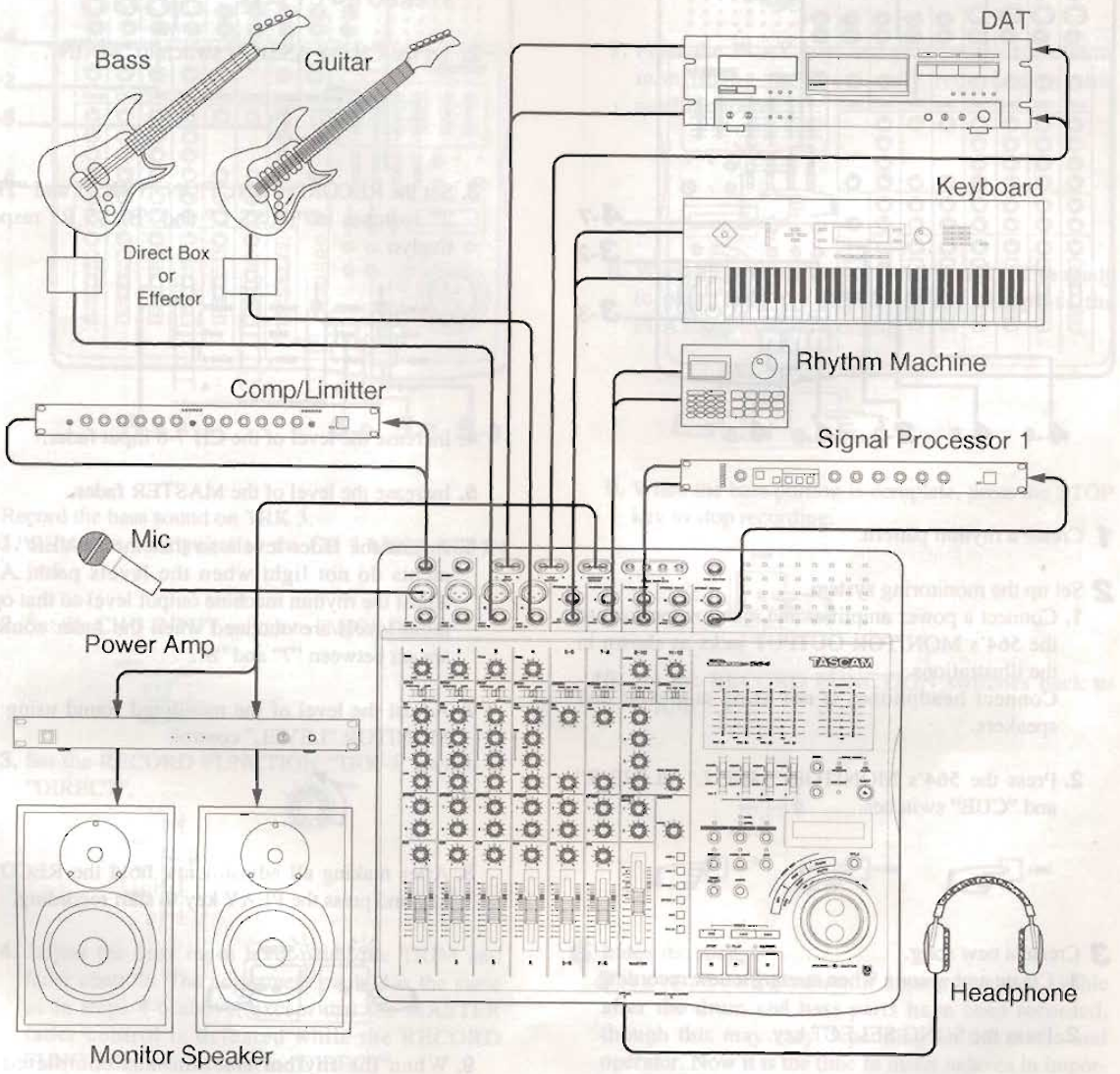
That completes the mix-down operation.
If the results are not satisfactory, change your settings and try again.

This is the end of the "Getting Started" section. Once you feel comfortable with the operations described in this section, you'll be ready to move on to the more advanced operations such as punch-in/out, bounce forward and mastering edit which are described in the following sections.

ADVICE

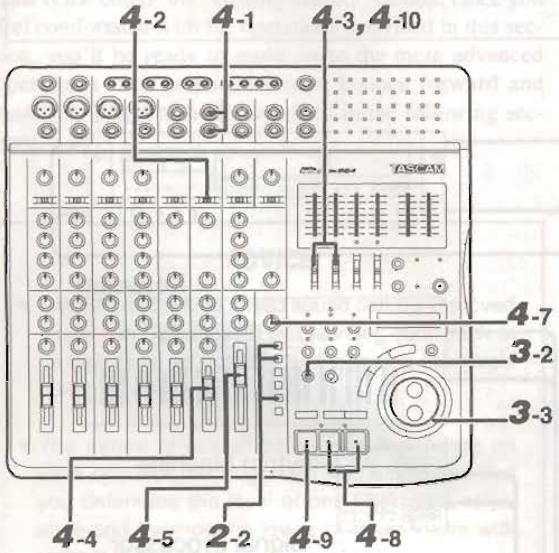
- The S/N of the final mixed sound can be improved (noise can be removed) by recording each track at as high level as possible and reducing the levels during mix-down.
- The sense of overall balance is dependent on each operator, but in general we recommend that you determine the level of one track as a reference and balance the levels of other tracks with respect to that track.
  The easiest way to do this is to use the track on which the song's main instrument is recorded as the reference track.
- There are no specific rules regarding acoustic image positioning using the PAN controls. This can vary according to the instrument used, the atmosphere or mood of the music, and, of course, your own taste. Feel free to experiment and create your own sound. Try listening to professionally produced recordings on CD or MD and see if you can pick up some of the techniques used by professional engineers.

2-6. Usage Examples



The examples shown in this section are based on a conventional multi-track recording system.
In addition to the functions of conventional, cassette-based 4-track recorders, the 564 is capable of creating high quality recordings using the auto punch-in/out take function and bounce forward function. The use of the MD data disc as a recording medium makes the 564 as easy to use as cassette-based multi-track recorders.

In many cases, the rhythm machine is likely to be the first instrument recorded. When recording the first track, be sure to record for a longer period than the desired music length (for example, record a song for more than 3 min. 20 sec. if the desired music length is 3 min. 20 sec.). Note that the length of each song on the MD is determined by the length of the first track recorded.



1 Create a rhythm pattern.

2 Set up the monitoring system.

1. Connect a power amplifier and monitor speakers to the 564's MONITOR OUTPUT jacks as shown in the illustrations.
   Connect headphones if not using amplifier and speakers.

2. Press the 564's MONITOR "LINE L", "LINE R" and "CUE" switches.

3 Create a new song.

1. Create a new song when starting a new recording.

2. Press the SONG SELECT key.

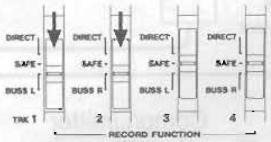
3. Rotate the SHUTTLE knob toward "YES" (clockwise).

4 Record the sound of the rhythm machine on TRK 1 and 2.

1. Connect the rhythm machine to the CH 7-8 STEREO INPUT jacks.

2. Set the CH 7-8 ASSIGN switch to "MAIN".

3. Set the RECORD FUNCTION "TRK 1" and "TRK 2" switches to "BUSS L" and "BUSS R" respectively.



4. Increase the level of the CH 7-8 input fader.

5. Increase the level of the MASTER fader.

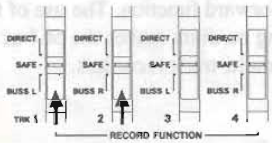
6. Adjust the fader levels so that the "OVER" segments do not light when the levels peak. Also adjust the rhythm machine output level so that optimum levels are obtained when the fader controls are set between "7" and "8".

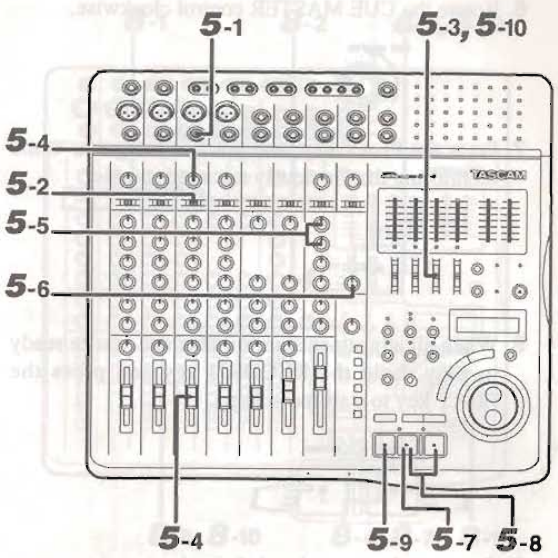
7. Adjust the level of the monitored sound using the MONITOR "LEVEL" control.

8. After making all adjustments, hold the RECORD key and press the PLAY key to start recording.

9. When the rhythm machine has completed its sequence, press the STOP key to stop recording.

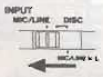
10. Set the RECORD FUNCTION switches back to "SAFE".





5 Record the bass sound on TRK 3.

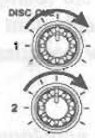
1. Connect a bass guitar to the CH 3 MIC/LINE IN jack.
2. Set the CH 3 INPUT switch to "MIC/LINE".



3. Set the RECORD FUNCTION "TRK 3" switch to "DIRECT".

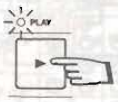
4. Adjust the bass input level using the TRIM and fader controls. The adjustment method is the same as in steps 4-6 above, except that the MASTER fader control is defeated while the RECORD FUNCTION switch is set to "DIRECT".

5. To monitor the rhythm machine sound recorded above, increase the levels of the DISC CUE "1" and "2" controls.

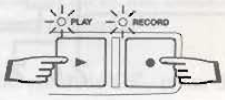


6. Rotate the CUE MASTER control clockwise.

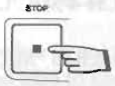
7. Press the PLAY key, and practice the bass while monitoring the previously recorded rhythm machine sound.



8. When all adjustments are suitable and you're ready to play, hold the RECORD key and press the PLAY key to start recording.



9. When the bass portion is complete, press the STOP key to stop recording.

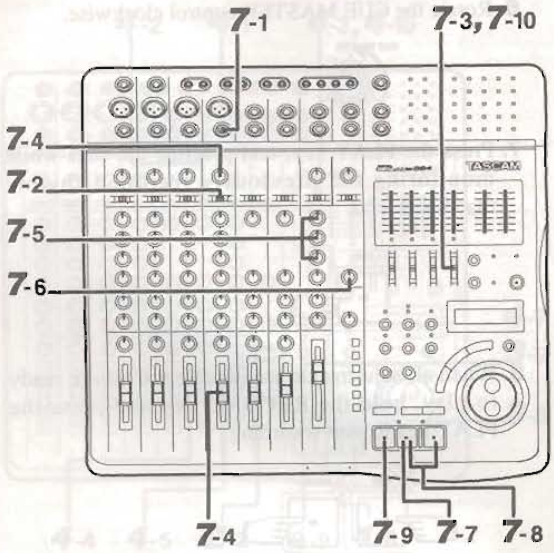


10. Set the RECORD FUNCTION switches back to "SAFE".

6 Index the song.

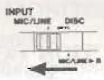
The overall configuration of a song becomes visible after the drum and bass parts have been recorded, though this may vary depending on the music and operator. Now it is the time to insert indexes in important points of song. This will make it possible to locate desired points easily.

For example, indexes may be set in; 01 - Count in; 02 - Intro; 03 - Verse #; 04 - Chorus; ... ; 08 - Bridge; 09 - Solo; ... ; 16 - Ending. (➡ 4.5.1 Setting indexes)



7 Record the guitar sound on TRK 4.

1. Connect a guitar to the CH 4 MIC/LINE IN jack.
2. Set the CH 4 INPUT switch to "MIC/LINE".



3. Set the RECORD FUNCTION "TRK 4" switch to "DIRECT".

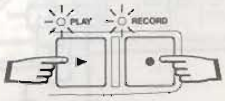
4. Adjust the guitar input level using the TRIM and fader controls. The adjustment method is the same as in steps 4-6 above.

5. To monitor the rhythm machine and bass sounds recorded above, increase the levels of the DISC CUE "1", "2" and "3" controls.

6. Rotate the CUE MASTER control clockwise.

7. Press the PLAY key, and practice the guitar while monitoring the previously recorded sounds.

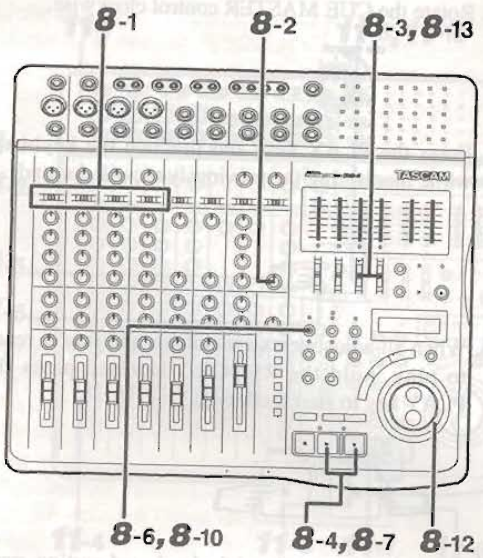
8. When all adjustments are suitable and you're ready to play, hold the RECORD key and press the PLAY key to start recording.



9. Once you've completed the guitar portion, press the STOP key to stop recording.

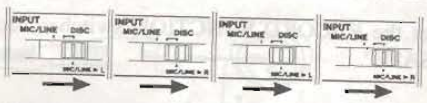
10. Set the RECORD FUNCTION switches back to "SAFE".

Even after you've already recorded sound on all 4 tracks, you can still add more sound using the 564's bounce forward function. The steps below describe how to "bounce forward" the sound recorded on the four tracks you've just recorded to TRK 3 and 4 of another song (SONG 2). This is an example of stereo "Ping-Pong" recording.



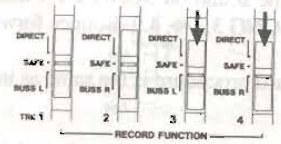
8 Bounce forward the sound from the 4 tracks onto TRK 3 and 4 of SONG 2. (➡ 4.9 Bounce forward)

1. Set the INPUT switches for CH 1 to 4 to "DISC".



2. Rotate the CUE MASTER control fully counterclockwise.

3. Set the RECORD FUNCTION "TRK 3" and "TRK 4" switches to "BUSS L" and "BUSS R" respectively.



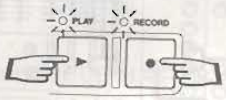
4. Start playback and adjust the sounds recorded in TRK 1 to 4.

   Once the level balance, PAN setting and EQ levels have been adjusted and the effector processing has been applied, the sound on each track cannot be changed individually later. Make sure you are completely satisfied with the adjustments before proceeding.

5. After completing the adjustments, proceed to the bounce forward operation.

6. Press the BOUNCE FWD key.

7. Hold the RECORD key and press the PLAY key to start recording.



8. The beginning of the song is located automatically and the tracks are "bounced forward" to TRK 3 and 4 of SONG 2.

9. The 564 enters the check mode after the bounce forward operation.

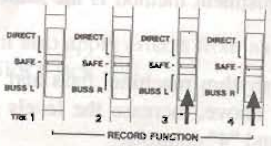
10. If the result is OK, press the BOUNCE FWD key again.

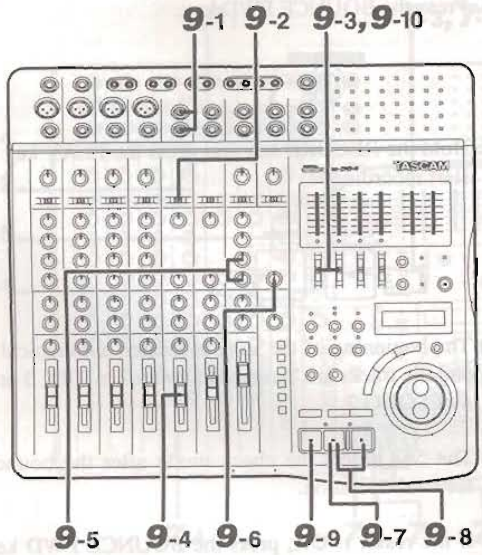
11. Select whether or not to retain the original data. It is a good idea to keep the original data whenever the disc's remaining capacity allows.

```
Original=SAVE ?
```

12. Rotate the SHUTTLE knob toward "YES" (clockwise).

13. Set the RECORD function switches back to "SAFE".

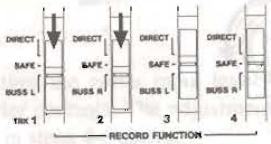




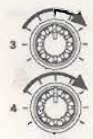
9 Record the keyboard sound in TRK 1 and 2 of SONG 2.

1. Connect a keyboard instrument to the CH 5-6 STEREO INPUT jack.
2. Set the CH 5-6 ASSIGN switch to "MAIN".

3. Set the RECORD FUNCTION "TRK 1" and "TRK 2" switches to "BUSS L" and "BUSS R" respectively.



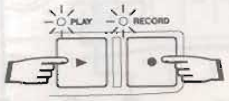
4. Adjust the keyboard input level using the fader controls. The adjustment method is the same as in steps 4-6 above.
5. To monitor the rhythm machine, bass and guitar sounds recorded above, increase the levels of the DISC CUE "3" and "4" controls.



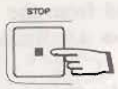
6. Rotate the CUE MASTER control clockwise.

7. Press the PLAY key, and practice the keyboard while monitoring the previously recorded sounds.

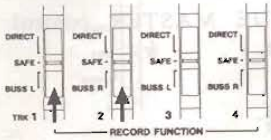
8. When all adjustments are suitable and you're ready to play, hold the RECORD key and press the PLAY key to start recording.



9. Once you've completed the keyboard portion, press the STOP key to stop recording.

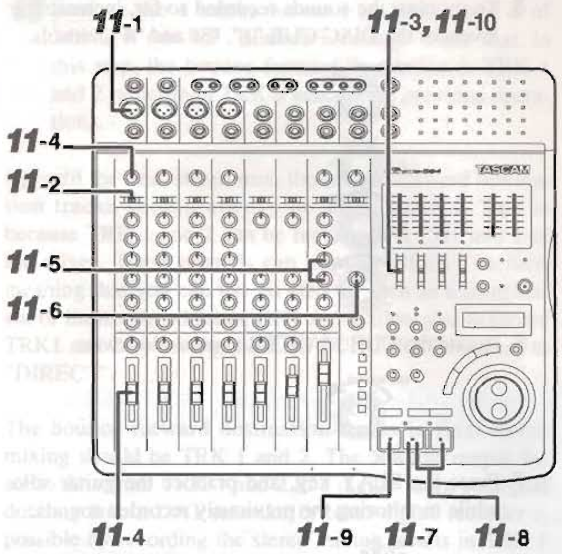


10. Set the RECORD FUNCTION switches back to "SAFE".



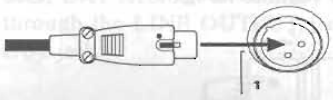
10 Bounce forward the sound on SONG 2's 4 tracks to TRK 3 and 4 of SONG 3. (➡ 4.9 Bounce forward)

The bounce forward procedure is the same as in 8.

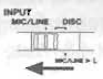


11 Record the vocal on TRK 1 of SONG 3.

1. Connect a microphone to the CH 1 MIC/LINE IN jack.



2. Set the CH 1 INPUT switch to "MIC/LINE".



3. Set the RECORD FUNCTION "TRK 1" switch to "DIRECT".

4. Adjust the microphone input level using the TRIM and fader controls. The adjustment method is the same as in steps 4-6 above.

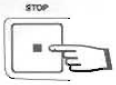
5. To monitor the rhythm machine, bass, guitar and keyboard sounds bounced forward previously, increase the levels of the DISC CUE "3" and "4" controls.

6. Rotate the CUE MASTER control clockwise.

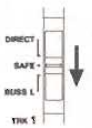
7. Press the PLAY key, and practice the vocal while monitoring the previously recorded sounds.

8. When all adjustments are suitable and you're ready to sing, hold the RECORD key and press the PLAY key to start recording.

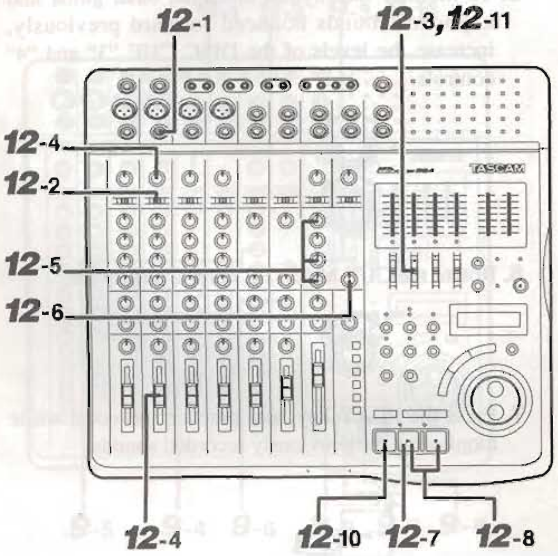
9. Once you've completed the vocal portion, press the STOP key to stop recording.



10. Set the RECORD FUNCTION switches back to "SAFE".

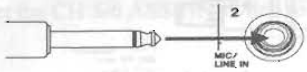


You can also apply effects from an effector connected to the INSERT jack.

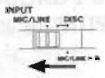


12 Record the guitar solo part in TRK 2 of SONG 3.

1. Connect a guitar to the CH 2 MIC/LINE IN jack.



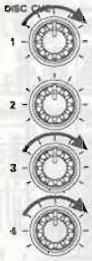
2. Set the CH 2 INPUT switch to "MIC/LINE".



3. Set the RECORD FUNCTION "TRK 2" switch to "DIRECT".

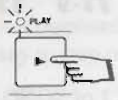
4. Adjust the guitar input level using the TRIM and fader controls. The adjustment method is the same as in steps 4-6 above.

5. To monitor the sounds recorded so far, increase the levels of the DISC CUE "1", "3" and "4" controls.

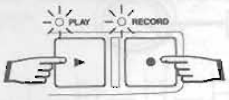


6. Rotate the CUE MASTER control clockwise.

7. Press the PLAY key, and practice the guitar solo while monitoring the previously recorded sounds.

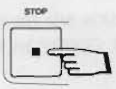


8. When all adjustments are suitable and you're ready to play, hold the RECORD key and press the PLAY key to start recording.



9. Since all you have to record in this step is the guitar solo, you may find it convenient to use the auto punch-in/out function. (➡ 4.8 Auto punch-in/out)

10. Once the guitar solo is completed, press the STOP key to stop recording.



11. Set the RECORD FUNCTION switches back to "SAFE".

13 Bounce the 4 tracks forward to TRK 1 and 2 of SONG 4 (➡ 4.9 Bounce forward). Note that, in this step, the bounce forward destination is TRK 1 and 2 rather than TRK 3 and 4 as in previous operations.

Up until the final stereo mix, the bounce forward destination tracks should always be TRK 3 and 4. This is because TRK 1 and 2 can be recorded via CH1 and 2 of the mixer. These chanels can use the INSERT facility, meaning that you can use an effector such as a compressor or limiter. In addition, CH1 and 2 allow you to record TRK1 and 2 by setting the REC FUNCTION switches to "DIRECT".

The bounce forward destination tracks in final stereo mixing should be TRK 1 and 2. The 564 can output the audio data from TRK 1 and 2 in a digital form, so digital dubbing onto a DAT recorder or other digital recorder is possible by recording the stereo mixing results in TRK 1 and 2.

Now the song is finished.

14 You can record the finished music on a cassette deck, DAT recorder, an ordinary MD recorder, etc. through the LINE OUTPUT jacks or DIGITAL OUT jack.

When producing music as described above, we recommend you use one disc per music. The 564 is a multitrack recorder capable of non-destructive editing (which retains the original data). Retaining the original data means that you can re-edit music. This is also why we recommend the use of single disc per music.

Using the index program function (➡ 5.5 INDEX PGM) allows you to play back specified parts of the song only. You can also use the 564 like an analog sequencer, by creating a rhythm pattern, overdubbing other sounds on it and playing only the desired part using the INDEX PGM function. Also, you can use the 564 to store your phrases in what you might call a "sound sketchbook".

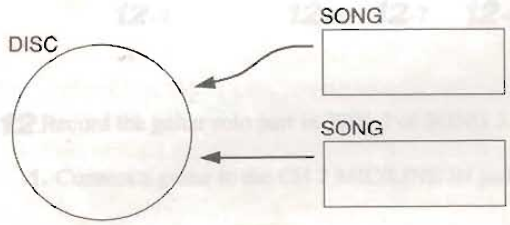
When mastering the finished music, you can also apply a variety of additional effects using edit functions such as MOVE, ERASE and COPY.

Section 3 : Product Outline

If the DIGITAL PORTASTUDIO 564 is your first experience with an integrated mixer and multi-track recorder, please take some time to read through this section. Here you'll be introduced to the many functions of the 564 and the switches and controls that operate them. We'll also tell you about the 564 system and describe the signal flow for you so that you'll have a better idea of this sophisticated but simple machine 564, the names and functions of controls and the basic signal flow.

3-1. System

Basically, the Digital Portastudio 564 is an integrated recording mixer and MD recorder. This section describes the basic concepts and terms that the 564 is based on.

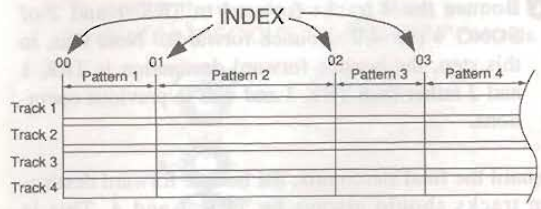


Song

The primary music building unit on the 564 is the "song" — a concept that's also used on sequencers and other electronic music equipment. Every single track on an MD can be managed independently as a single "song".
After loading an MD, the first thing you have to do is select a song with the SONG SELECT key. Once you've done that, you can proceed to other operations such as recording, playback and editing.
These operations do not continue across more than one song. If you select and play SONG 2, for example, the 564 stops after playing SONG 2; it does not go on to play SONG 3.

The maximum number of songs which can be recorded is 5 songs per MD, provided that the MD capacity (max. recording time) is sufficient to allow this.

The maximum recording time is about 37 minutes of 4-track recording per MD (140 MB MD).
To assure stability in editing (➡ Section 5 : Edit functions), reserve at least 15 minutes of free space.



Index

The 564 allows you to set up to 20 indexes (markers) per song. The indexes can be used in such operations as locating the beginning of a song, repeat play and auto punch-in/out.
The indexes can be saved on the disc.

Pattern

The section between two indexes is referred to as a pattern.
The 564 allows you to move, erase and copy a pattern as well as program patterns. (➡ Section 5)

UTOC (User Table of Contents)

The UTOC* is the TOC (Table of Contents) which can be recorded by the user.
The UTOC contains important data and functions much like a table of contents of a book.
On MDs, audio data is not recorded sequentially like on a tape; instead it is recorded randomly. The UTOC is used to manage the data in much the same way as a computer manages its data with directories and files.

* In addition to the UTOC, there is a system TOC. The user cannot record data in this TOC.

Saving the UTOC

Unlike tape recordings,UTOC are not automatically saved during recording or editing.
The "TOC (= UTOC) EDIT" indicator to the left of the EJECT key lights continuously or blinks as long as the data has not been saved.
Recorded or edited data is saved at the following times. The LCD shows "UTOC SAVE..." during the save operation.

- When switching songs
  = When the SHUTTLE dial is rotated clockwise after pressing the SONG SELECT key.

- When ejecting the disc
  = When the EJECT key is pressed in stop mode. The disc is ejected after UTOC has been saved.

- After completion of auto punch-in/out or bounce forward operation.

CAUTION

The UTOC is critical data used to manage the contents of the disc. Be sure not to switch the power OFF before or during saving the UTOC.
If power is switched OFF, the data may be destroyed and the disc may become unusable.
Also, to protect the MD, it is best to eject MD before switching the power OFF.

• To save UTOC in the middle of work....

Press the SONG SELECT key then rotate the SHUTTLE knob toward "YES" (clockwise).
To avoid the frustration of seeing your hard work disappear, it is recommended that you save the UTOC regularly and after each important recording session.

3-2. Specifications

GENERAL

Usable discs :	MD DATA (Record/Play), MD AUDIO (Play)
Recording format :	MD DATA System Audio Data Format
Playback formats :	MD DATA System Audio Data Format, MiniDisc System
Pitch control :	±9.9%
Dimension (WxHxE) :	444 x 126 x 403 mm (17-1/2" x 4-15/16" x 15-7/8")
Weight :	6 kg (13.2 lbs)

ELECTRIC

(Mixer block)

I/O channels :

12 inputs :	MIC/LINE x 4, STEREO INPUT x 4
5 outputs :	LINE OUT L/R, EFFECT OUT x 2, CUE OUT
4 track outputs :	TRACK OUT x 4
Digital output(S/PDIF):	DIGITAL OUTPUT x 1

MIC/LINE inputs (1/4" phone jack x 4, XLR x 4)

Input impedance :	10 kohms
Nominal input level :	-65 dBV (0.56 mV)/MIC ~ -10 dBV (0.3 V)/LINE
Max. input level :	+6 dBV (2.0 V)/TRIM in min. position

STEREO inputs CH 5 to 8 (1/4" phone jack x 4)

Input impedance :	20 kohms
Nominal input level :	-10 dBV (0.3 V)
Max. input level :	+6 dBV (2.0 V)

STEREO inputs CH 9 to 12 (1/4" phone jack x 4)

Input impedance :	8.2 kohms
Nominal input level :	-10 dBV (0.3 V)
Max. input level :	+6 dBV (2.0 V)

INSERT (1/4" stereo phone jack x 2)

Input (RING)

Input impedance :	10 kohms
Nominal input level :	-10 dBV (0.3 V)
Max. input level :	+6 dBV (2.0 V)

Output (TIP)

Output impedance :	100 ohms
Nominal output level :	-10 dBV (0.3 V)
Min. load impedance :	2.0 kohms

2TR inputs (RCA pin jack x 2)

Input impedance :	22 kohms
Nominal input level :	-10 dBV (0.3 V)
Max. input level :	+6 dBV (2.0 V)

LINE outputs (RCA pin jack x 2)

Output impedance :	100 ohms
Nominal output level :	-10 dBV (0.3 V)
Min. load impedance :	2.0 kohms

EFFECT outputs (1/4" phone jack x 2)

Output impedance :	100 ohms
Nominal output level :	-10 dBV (0.3 V)
Min. load impedance :	2.0 kohms

TRACK outputs (RCA pin jack x 4)

Output impedance :	100 ohms
Nominal output level :	-10 dBV (0.3 V)
Max. output level :	+6 dBV (2.0 V)
Min. load impedance :	2.0 kohms

CUE output (1/4" stereo phone jack x 1)

Output impedance :	1.0 kohms
Nominal output level :	-10 dBV (0.3 V)
Min. load impedance :	10 kohms

MONITOR outputs (RCA pin jack x 2)

Output impedance :	220 ohms
Nominal output level :	-10 dBV (0.3 V)
Min. load impedance :	2.0 kohms

PHONES output (1/4" stereo phone jack x 1)

Nominal load impedance :	30 ohms
Max. output level :	100 mW

Equalizer

HIGH (Shelving)

Standard frequency:	12 kHz
Variation range:	±12 dB

MID (Parametric)

Frequency:	250 Hz to 5 kHz
Variation range:	±14 dB

LOW (Shelving)

Standard frequency:	80 Hz
Variation range:	±12 dB

Frequency response

MIC input to LINE output:	20 Hz to 20 kHz, ±1 dB
LINE input to LINE output:	20 Hz to 20 kHz, ±1 dB
LINE input to EFFECT output:	20 Hz to 20 kHz, ±1 dB
LINE input to PHONES output:	40 Hz to 20 kHz, ±1 dB

S/N (20 Hz to 20 kHz, with BPF)
DIN AUDIO / IHF-A

Input (-65 dBV: MIC level)
1 MIC to LINE output: 60 dB / 65 dB
4 MIC to LINE output: 55 dB / 59 dB

Input (-10 dBV: LINE level)
1 LINE to LINE output: 78 dB / 82 dB
ALL ASSIGN to LINE output: 76 dB / 80 dB

Distortion (22 kHz LPF + IHF-A) :
1 MIC input to LINE output: 0.01% or less (+6 dB input)
1 LINE input to LINE output: 0.01% or less (+6 dB input)

Crosstalk : 67 dB (1 kHz, measures using 30 kHz LPF at nominal input level)

[MD recorder block]

Record/play channels : 4/4
4-track recording : 37 minutes
Max. recorded songs : 5 songs
Sampling frequency : 44.1 kHz
Quantization bits : 16 bits
Audio compression : ATRAC
Error correction : ACIRC
Overall frequency response : 20 Hz to 20 kHz, ±1 dB
Overall S/N : More than 87 dB (22 kHz LPF + IHF-A)
Distortion : 0.009% or less (1 kHz input, 22 kHz LPF + IHF-A)
Channel separation : More than 75 dB (1 kHz input, 1 kHz BPF + IHF-A)

Power requirements
U.S.A./CANADA : 120V AC, 60Hz
U.K./EUROPE : 230V AC, 50Hz
AUSTRALIA : 240V AC, 50Hz
Power comsumption : 28 watts

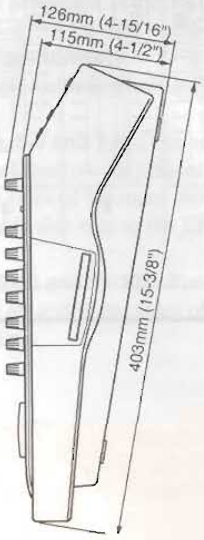
- *In these specifications, 0 dBV = 1V, -10 dBV = 0.316 V (which is approximated to 0.3 V)*
- *Changes in specifications and features may be made without notice or obligation.*

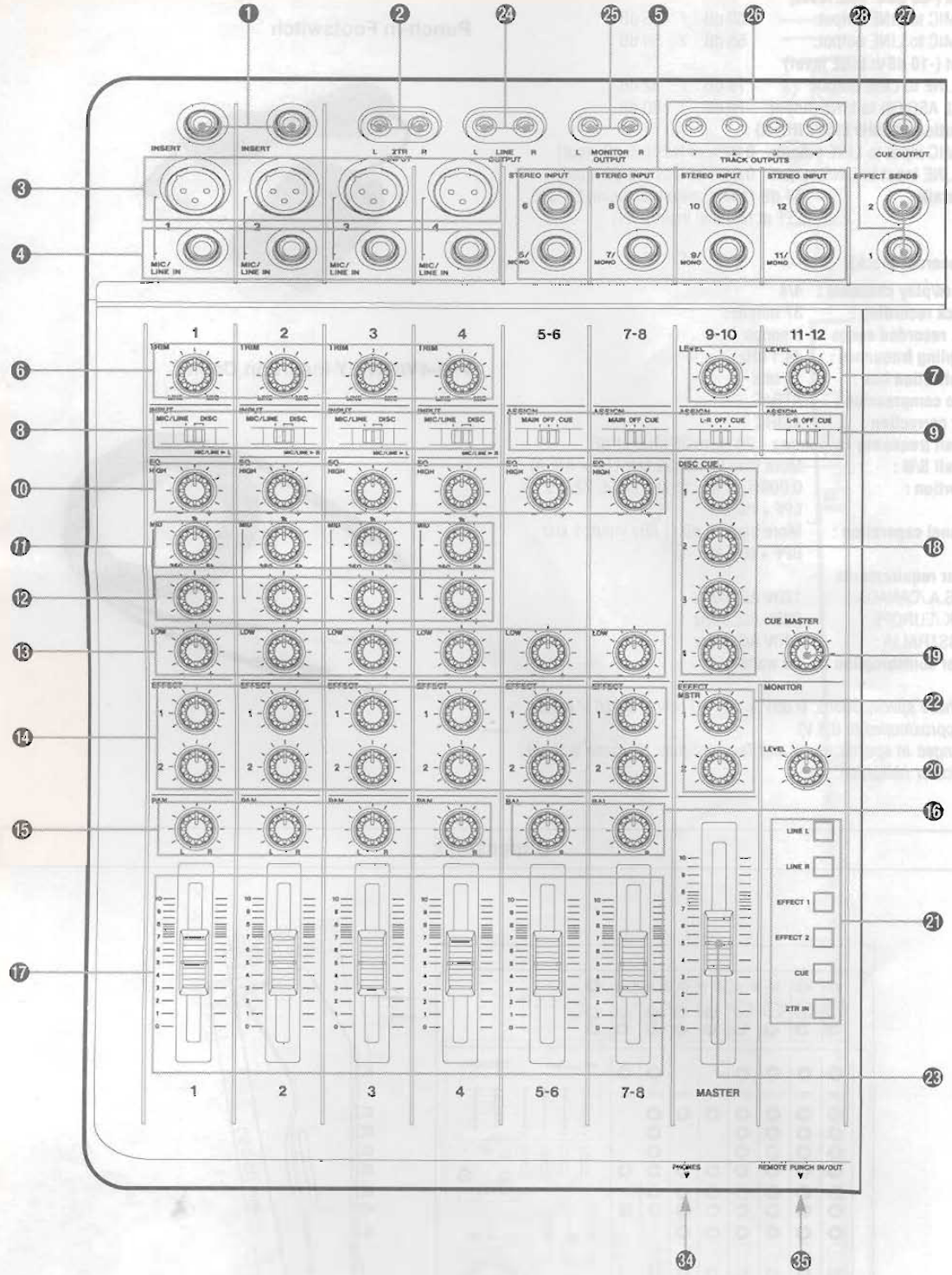
Optional Accessories

Punch-in Footswitch

PW-4Y/PW-2Y Insertion Cable

Dimensions




INSERT
2TR IN
LINE OUTPUT
MONITOR OUTPUT
TRACK OUTPUTS
CUE OUTPUT
STEREO INPUT
EFFECT SENDS
MIC/ LINE IN
1
2
3
4
5-6
7-8
9-10
11-12
TRIM
LEVEL
INPUT
MIC/LINE
DISC
ASSIGN
MAIN OFF CUE
L-R OFF CUE
EQ
HIGH
MID
LOW
DISC CUE
CUE MASTER
EFFECT
MSTR
MONITOR
PAN
LINE L
LINE R
EFFECT 1
EFFECT 2
CUE
2TR IN
MASTER
PHONES
REMOTE PUNCH IN/OUT

3-3. Mixer Block

Input Section

❶ INSERT jacks

Each jack lets you insert an external signal processor (typically a compressor or limiter) in the input channel signal path between the EQ section and the channel fader. If nothing is plugged into this jack, it has no effect; the signal will go down the channel normally. Use the TASCAN PW-2Y/4Y insertion cable.

❷ 2TR INPUT L and R jacks

These jacks connect directly to the MONITOR select 2TR IN switch. They are typically connected to the –10 dBV unbalanced outputs of a two track mastering recorder, so playback can be heard in the headphones/control monitor speakers without disturbing any settings or risking feedback by bringing the two track returns into a channel.

❸ MIC/LINE IN jacks

Each 3-contact XLR type connector accepts balanced signals ranging from –65 dBV (0.6 mV) to –10 dBV (0.3 V), depending on the setting of the TRIM control.

> *NOTE*
>
> *DO NOT use both XLR-type and 1/4" connections in the same channel at one time. Disconnect one when the other is used.*

❹ MIC/LINE IN jacks

Each 1/4" jack accepts unbalanced signals ranging from –65 dBV (0.6mV) to –10 dBV (0.3 mV) depending on the setting of the TRIM control.

❺ STEREO INPUT jacks

You can connect the outputs of your effects devices to these 1/4" jacks, but they can be used for any line level input if desired (especially the jacks for channels 5-6 and 7-8 because these channels have their own EQ and Fader and can also be assigned to the Effect Send mix).

The nominal input level is –10 dBV (0.3 V) ; the STEREO INPUT has no trim control so it cannot accept microphone signals unless they are preamplified.

❻ TRIM controls

Each control sets how much preamplification level there is on the MIC/LINE INputs. When TRIM is turned all the way to the left, the preamplifier gain is low, allowing the jack to accept line level sources such as electronic instruments or other –10 dBV output audio equipment. As you turn TRIM up, the preamplifier gain increases and when you turn TRIM full clockwise, the nominal input sensitivity of the jack increases to –65 dBV (0.6 mV)

❼ LEVEL controls (Ch. 9-10 and 11-12)

Each rotary control varies the level fed into the corresponding stereo channel and going to the L-R or the CUE mix as selected by the ASSIGN switch.

❽ INPUT switches

Each controls what the source of the channel is, and where the MIC/LINE IN source will go.

MIC/LINE : The source of the mixer channel is the MIC/LINE input.

DISC (center) : The source of the mixer is disc playback from the multi-track.

DISC and MIC/LINE ► L (or R) : The source of the mixer channel is still disc playback from the multitrack, but the MIC/LINE IN source connects directly to the MASTER fader, bypassing the mixer controls.

The left position (MIC/LINE) is used when recording microphones/instruments (in Tracking or Over-dubbing).

The right position (DISC and MIN/LINE ► L/R) is used during Mixdown when you need more inputs for external MIDI virtual tracks. In this position, the MIC/LINE IN jack is acting as a "Sub " or "Buss" input to the stereo mix. The only control that affects it before the MASTER is the TRIM control.

❾ ASSIGN switches

Each switch controls where STEREO INPUT will go:

MAIN (Ch. 5-6 and 7-8) : For sending a signal through the channel controls (EQ, fader and BAL) to the Left and Right sides of the main stereo mix for recording. The signal is also sent to the EFFECT 1 and 2 controls.

L-R (Ch. 9-10 and 11-12) : For sending a signal directly to the Left and Right sides of the main stereo mix for recording.

- The ASSIGN switch in channels 9-10 and 11-12 gets its signal from the input LEVEL control, while the switch for channels 5-6 and 7-8 gets its signal directly from the input jacks on the respective channels.

OFF : Stops signal here.

CUE : Setting the switch to this position lets you send a signal directly to the CUE MASTER control. Useful for listening to MIDI-sequenced "virtual tracks".

⑩ EQ HIGH controls

Each controls the tonality of the high or "treble" frequencies. Turn it to the right to boost the high frequency content of the signal and emphasize its brilliance or brightness. Turning it to the left cuts the high frequency content if the signal sounds too harsh or shrill. The EQ shelving point is 12 kHz.

⑪ EQ MID frequency controls

Each control changes the center frequency of the MID equalizer from 250 Hz to 5 kHz.

⑫ EQ MID amount controls

Each controls how much cut or boost is applied to the band chosen by the upper knob. Turning the lower control to the right amplifies the band, to a maximum of 14 dB. Turning it to the left cuts the band, to a maximum of –14 dB. At center, there is no effect (flat response).

⑬ EQ LOW controls

Turned to the right, the control boosts the bass frequencies and the signal will sound relatively heavy. Turn the control to the left to cut bass and make the signal sound thinner. The EQ shelving point is 80 Hz.

⑭ EFFECT send controls

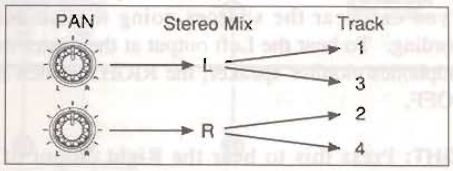
Each control gets its signal from a point just after the channel fader (i.e., "post fader send") and routes the corresponding channel signal to the EFFECT MSTR. Turn the control to the right to send more signal to the EFFECT MSTR.

⑮ PAN controls

Each control allows you to create stereo mixes by sending the signal from the channel fader in continuously variable degree to the left or right side of the stereo mix. If the PAN is set towards the center, it is possible to send to both sides at once.

The 564 mixer has only two main mix outputs while the incorporated recorder has four tracks.

You can record all 4 tracks at one time (using DIRECT), but when recording a mix of multiple sources you must record only 2 tracks at a time: one from Left, one from Right. The diagram below depicts how a channel signal goes through the mixer controls to the tracks.



⑯ BAL balance controls (Ch. 5-6 and 7-8)

Each control works similarly to the PAN control on channels 1-4. It controls the relative level of the left and right signals. The left signal goes to the left side of the stereo mix, and the right signal goes to the right side at all times, as long as there are two inputs (left and right) plugged in. If only the MONO input is plugged in, the stereo feature is defeated, and the BAL control works just like PAN, sending the one input anywhere to the left or right of the stereo mix.

⑰ Channel faders

Each linear control varies the level feeding the MASTER fader and the EFFECT send controls.

The nominal setting position is between 7-8 (shaded area).

Disc Cue and Monitor Section

⑱ DISC CUE controls 1-4

These act as a separate 4 x 1 submixer. Each control gets its signal directly from the corresponding disc track. You turn each control to set the level of each track in the CUE mix. The overall level of the CUE mix depends on the CUE MASTER control.

These controls are totally separate from the channel controls and the stereo MASTER fader.
The output of the DISC CUE submixer appears at the CUE OUT jack, and at the MONITOR CUE switch.

⑲ CUE MASTER control

This gets its signal from disc via the disc CUE controls. It can also receive signals fed into the stereo channels if their ASSIGN switch is in the CUE position.

⑳ LEVEL control

This sets the level feeding both MONITOR OUT and PHONES jacks.

㉑ MONITOR source select switches

These control where the signal in your headphones/monitor speakers is coming from. They can be used in combination.

LEFT : Press this to hear the Left output of the mixer, so you can hear the sources going to disc during recording. To hear the Left output at the center in the headphones/monitor speaker, the RIGHT switch must be OFF.

RIGHT: Press this to hear the Right output of the mixer. To hear the Right output at center in the headphones/monitor speakers, the LEFT switch must be OFF.

EFFECT 1 : Press this to hear the mix being sent to the EFFECT SENDS 1 jack. You can hear it at center in the headphones/monitor speakers if the EFFECT 2 switch is OFF. If both the EFFECT 1 and 2 switches are ON, you'll hear the Effect 1 mix on the left side and the Effect 2 mix on the right side.

EFFECT 2 : Similar to EFFECT 1. Pressed, this lets you hear the mix being sent to the EFFECT SENDS 2 jack. You can hear it at the center of the headphones/monitor speakers if the EFFECT 1 switch is OFF.

CUE : Press this to hear the DISC CUE section, so you can hear what's being played back from the multitrack disc while over-dubbing.

The stereo channels (5-6/7-8/9-10/11-12) are also be heard without recording by pressing this CUE switch if their ASSIGN switch is in the CUE position.

The CUE mix is always in the center (mono).

> ***NOTE***
>
> *Don't use CUE when bouncing tracks — you won't get an accurate picture of the mix in your phones. Use LEFT and RIGHT MONITOR switches instead.*

2TR IN : Press this to hear the output of your 2-track mixdown recorder plugged into the 2TR IN L and R jacks.

㉒ EFFECT MSTR controls

These are the master volume controls for the Effect Send mix. Each gets its signal from the EFFECT controls in the channels and sends it to the EFFECT SENDS jacks.

㉓ MASTER fader

This fader is a stereo type and adjusts the output level of both Left and Right mixes simultaneously. It gets its signal from the PAN control in channels 1-4, from the BAL control in stereo channels 5-8, and from the ASSIGN switch in stereo channels 9-12. It sends signals to the BUSS L and BUSS R position of the track RECORD FUNCTION switches, to the LINE OUTPUT L-R jacks and to the MONITOR LINE L and LINE R switches.

This fader controls the overall level both for multitrack recording (when not using DIRECT) and for mixdown.

Output Section

㉔ LINE OUTPUT L and R jacks

These jacks are the line-level outputs from the MASTER fader. The L and R jacks are typically connected to your two-track mixdown recorder at Mixdown. Another use of the LINE OUTPUT jacks is when you want to send the 564's mixer outputs to the sub inputs of a larger mixer.

㉕ MONITOR OUTPUT L and R jacks

These provide a line level version of the same signal that feeds the PHONES jack and may be connected to your control room speaker amplifier.

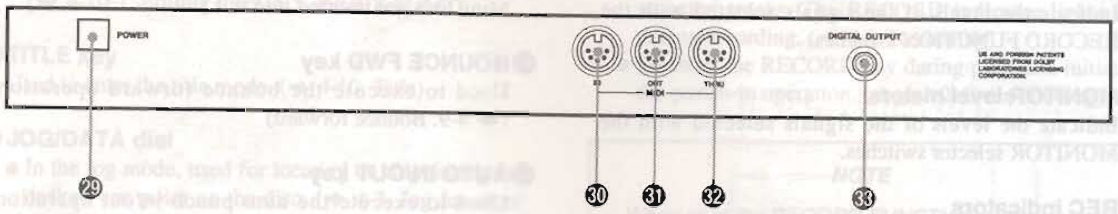
㉖ TRACK OUTPUTS jacks

These get signals directly from the disc (jack 1 from track 1, jack 2 from track 2.....). Use them if you want to mix the disc down with an external mixing console.

㉗ CUE OUTPUT jack

This jack carries the disc playback signal and may be connected to the input of a studio speaker amplifier. This gets its signal directly from the CUE MASTER control.

The signal from the CUE position of the ASSIGN switch in stereo channels 5-6 through 11 - 12 also comes here. This signal may be sent to an additional effect device.



㉘ EFFECT SEND jacks

These are the output jacks for EFFECT send mixes 1 and 2 of the 564. Signals come here directly from the EFFECT MSTR level controls. They are typically connected to the inputs of external devices such as reverbs, digital delays, etc. (After the signals are processed, they are usually returned to the 564 via STEREO INPUT on channels 5-6 through 11- 12.) The Effect Send system may also be used to feed a separate monitor, but it will be affected by changes to the channel fader.

㉙ POWER switch

Turns the 564 on and off.

> ***NOTE***
>
> - *The power switch is located on the back of the unit.*
> - *When installing the unit, be sure to leave space for easy access to the power switch.*

㉚ MIDI IN port

This port can be connected to the output of sequencers or other MIDI devices with a MIDI cable.

㉛ MIDI OUT port

This port can be connected to the input of sequencers or other MIDI devices with a MIDI cable.

㉜ MIDI THRU port

This port passes along an exact copy of information received at the IN port.

㉝ DIGITAL OUTPUT jack

Outputs the playback signal on tracks 1 and 2 in digital form (S/PDIF).

㉞ PHONES jack

Connect any stereo headphones (with a 1/4" stereo TRS 3-conductor plug) to this jack. Signal comes here from the MONITOR select switches.

> ***CAUTION***
>
> *Don't connect a 2-conductor mono plug to this jack. This short out the headphone amplifier, causing it to burn out.*

㉟ REMOTE PUNCH IN/OUT jack

For connection to the optional remote footswitch.

3-4. MD Block

㊱ TRK level meters
Indicate the levels of the signals selected with the RECORD FUNCTION switches.

㊲ MONITOR level meters
Indicate the levels of the signals selected with the MONITOR selector switches.

㊳ REC indicators
Each indicator lights up when the corresponding track is in record mode and blinks when it is in record-pause mode.

㊴ RECORD FUNCTION switches
Each switch selects the signal to be recorded in the corresponding track (1 to 4).
- **DIRECT**
  Records the signals input to the channels (1 to 4) directly into the corresponding track (1 to 4).
- **SAFE**
  Recording is disabled. This is the position for preventing accidental erasure of recording.
- **BUSS (L/R)**
  Records the L BUSS signal into TRK 1 or 3.
  Records the R BUSS signal into TRK 2 or 4.

㊵ REDO key
Used to redo the operation canceled with the UNDO key.

㊶ UNDO key
- During editing, used to cancel the last edit operation performed.
- During recording, used to cancel the last recording operation performed.
  Note that this key cannot cancel the recording which determines or modifies the length of song (first recording, COPY, etc.).

㊷ SYNC MODE indicators
- **MIDI TIMECODE**
  Lights up when "MIDI Timecode" is selected in the SYNC SETUP utility.
- **MIDI CLOCK**
  Lights up when "MIDI Clock" is selected in the SYNC SETUP utility.

㊸ TOC EDIT indicator
Lights up or blinks as long as the TOC has not been saved.
Blinks during UNDO operation.

㊹ EJECT key
Used to eject the disc.

㊺ Disc slot
MiniDiscs are inserted into this slot.

㊻ BOUNCE FWD key
Used to execute the bounce forward operation. (➡ 4-9. Bounce forward)

㊼ AUTO IN/OUT key
Used to execute the auto punch-in/out operation. (➡ 4-8. Auto punch-in/out)

㊽ EDIT key
Used to enter the edit mode. (➡ Section 5: Edit Functions of 564)

㊾ REPEAT key
Used to enter the repeat mode. (➡ 4-7. Repeat play)

㊿ PITCH CONT key
Used to enter the pitch control mode. (➡ 4-4. Pitch control)

(51) JOG key
Used to enter the jog mode. (➡ 4-3. Jog function/shuttle play)

(52) SONG SELECT key
Used to select a song. (➡ 2-2. Basic MD recording operation, Section 4: Operations of 564)

(53) MENU key
Used to enter the utility mode. (➡ Section 6: Utility functions of 564)

(54) LCD (Liquid Crystal Display)
Displays alphanumeric characters indicating disc status, title, time information, mode information and menus.

(55) SET/MODE key
- Used to set an index. (➡ 4-5-1. Setting indexes)
- In the title mode, used to switch the title input modes. (➡ 4-10-1. Editing titles)

(56) TRIM/INSERT key
- Used to fine adjust an index. (➡ 4-5-2. Trimming indexes)
- In the title or index program mode, used to add a character or program. (➡ 4-10-1. Editing titles, 5.5 INDEX PGM)

⑰ CLEAR/DELETE key

- Used to clear an index. (➡ 4-5-3. Clearing indexes)
- In the title and index program mode, used to delete a character or program.
  (➡ 4-10-1. Editing titles, 5.5 INDEX PGM)

⑱ TITLE key

Used to enter the title mode. (➡ 4-10. Title)

⑲ JOG/DATA dial

- In the jog mode, used for locating or pinpointing the desired cue point on the disc. (➡ 4-3. Jog function/ shuttle play)
- In the edit or utility mode, used for selecting menus. (➡ Section 5: Edit functions of 564, Section 6: Utility functions of 564)

⑳ SHUTTLE knob

- Used for shuttle play function. (➡ 4-3. Jog function/ shuttle play)
- In the edit or utility mode, used for determining (YES) or canceling (NO) menus. (➡ Section 5: Edit functions of 564, Section 6: Utility functions of 564)

㉑ RTZ (Return-To-Zero) key

Used to locate the beginning of a song (index No. 00). (➡ 4.6 Index search, RTZ)

㉒ ⏮ and ⏭ keys

Used for index search operation. (➡ 4-6. Index search, RTZ)

㉓ STOP key

- Used to stop MD disc operations.
- In stop mode, used to display the remaining time on the disc.

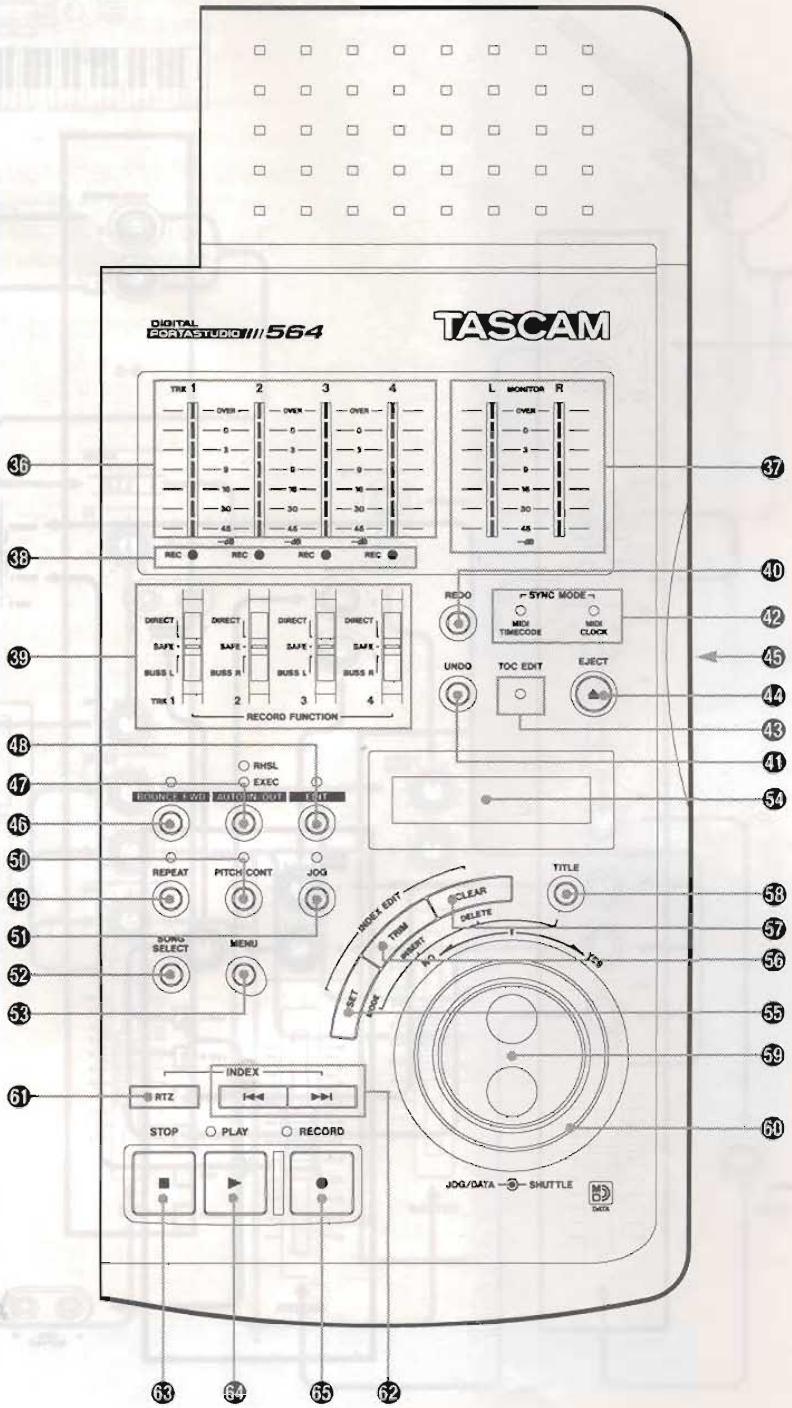
㉔ PLAY key

- Used to play back an MD. The PLAY indicator lights up during playback. (➡ 4-2. Playback)
- Pressing the PLAY key during recording initiates the punch-out operation. (➡ 4-1-2. Over-dubbing)

㉕ RECORD key

- Hold the RECORD key depressed and press the PLAY key to start recording of the signals selected with the RECORD FUNCTION switches onto the selected tracks. The RECORD indicator lights up during recording. (➡ 4-1. Recording)
- Pressing the RECORD key during playback initiates the punch-in operation. (➡ 4-1-2. Over-dubbing)

> ***NOTE***
>
> *When all of the RECORD FUNCTION switches are set to "SAFE", recording is impossible.*
> *In this case, set the RECORD FUNCTION switches of the tracks to be recorded to "BUSS L", "BUSS R" or "DIRECT".*


DIGITAL PORTASTUDIO 564
TASCAM
TRK 1 2 3 4
L MONITOR R
REC
DIRECT
SAFE
BUSS L
BUSS R
RECORD FUNCTION
REDO
UNDO
SYNC MODE
MIDI TIMECODE
MIDI CLOCK
TOC EDIT
EJECT
RHSL
EXEC
BOUNCE + WB
AUTO IN/OUT
EDIT
REPEAT
PITCH CONT
JOG
TITLE
INDEX EDIT
TRIM
INSERT
SET
CLEAR
DELETE
SONG SELECT
MENU
INDEX
RTZ
STOP
PLAY
RECORD
JOG/DATA
SHUTTLE
36
37
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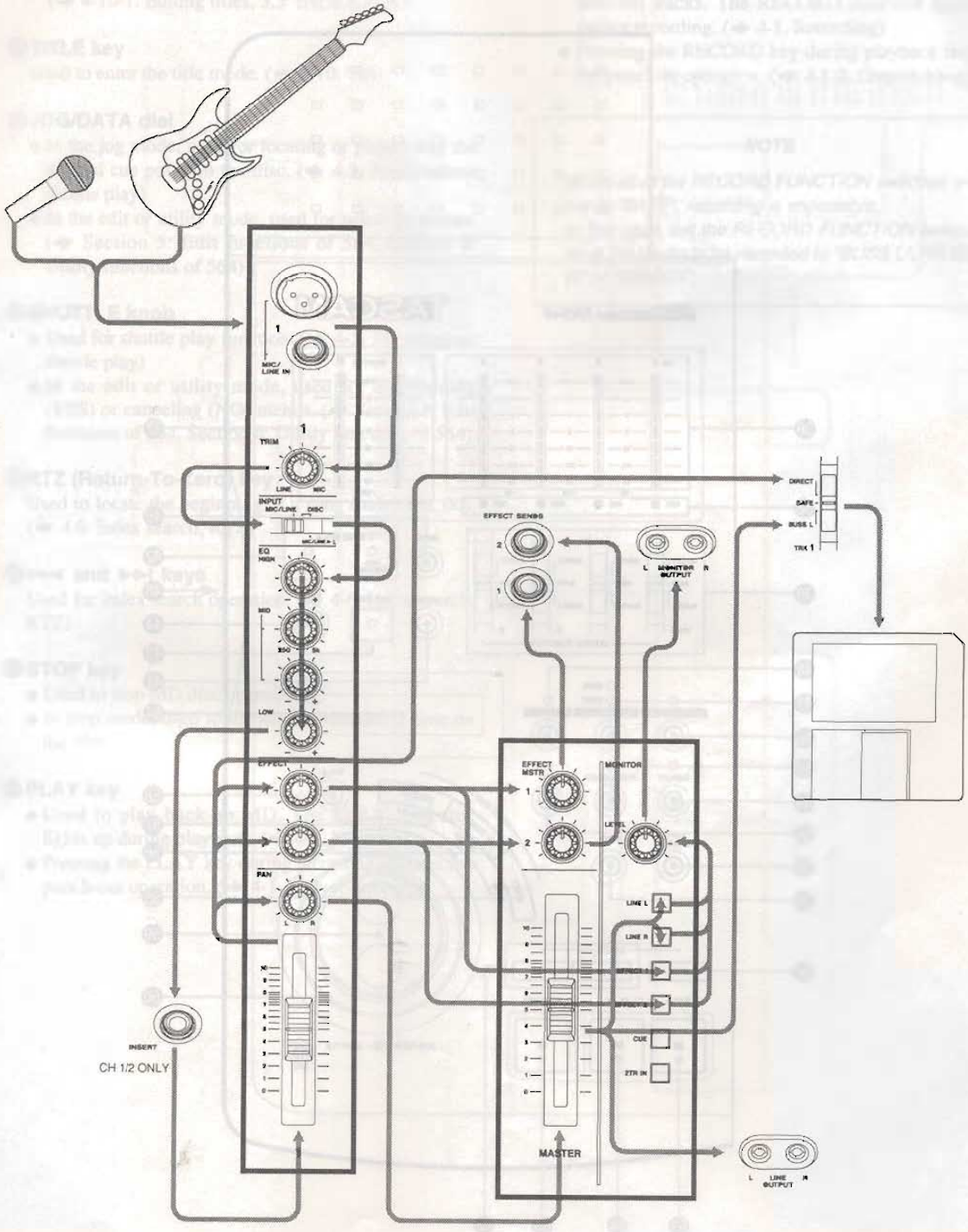
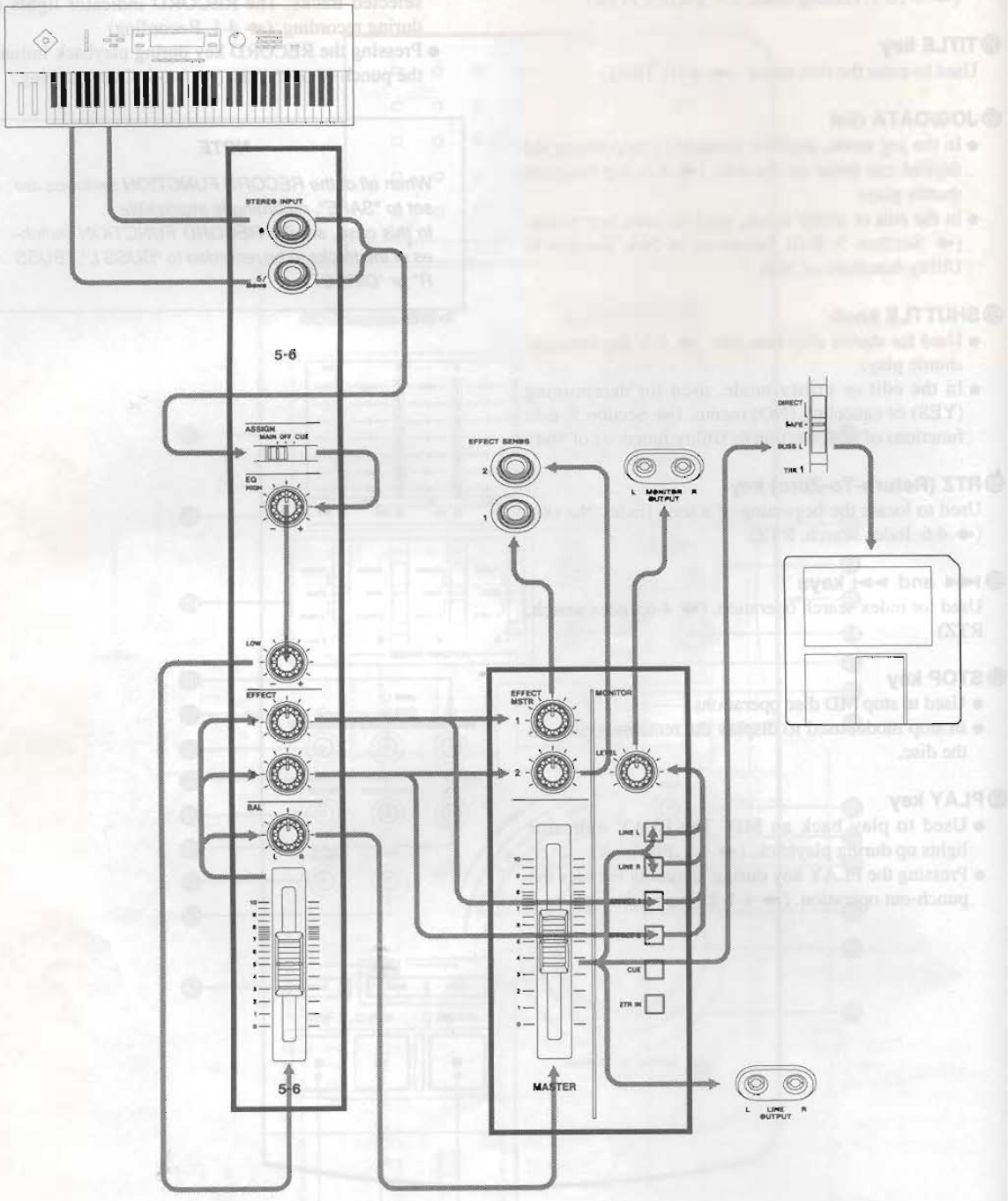
3-5. Signal Flowcharts

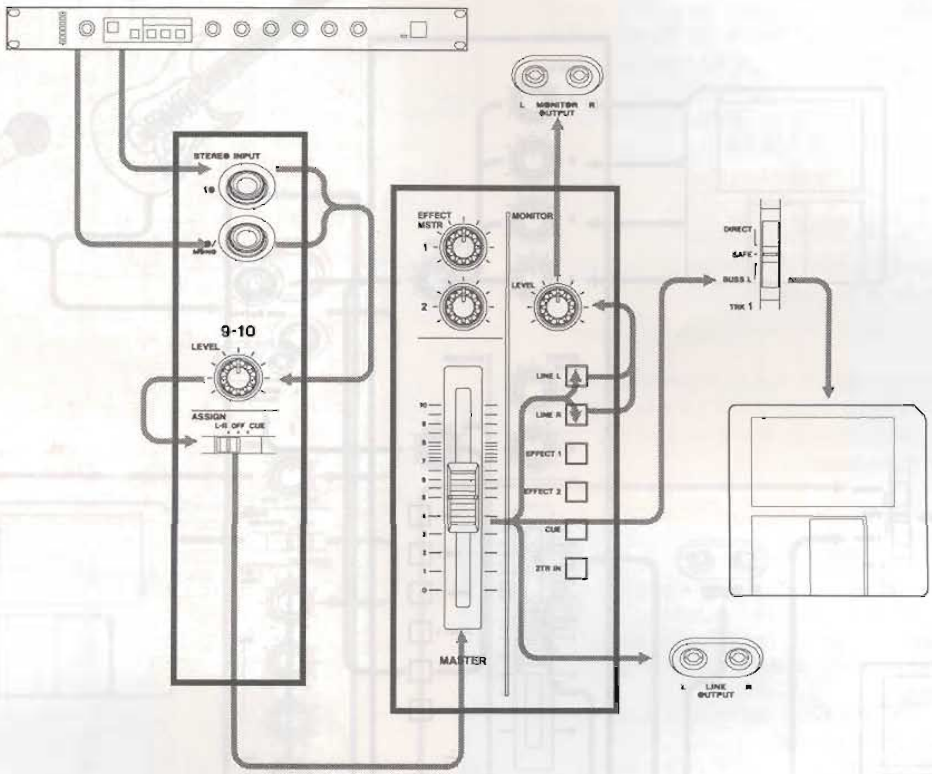
Main Mix 1 (Mic)



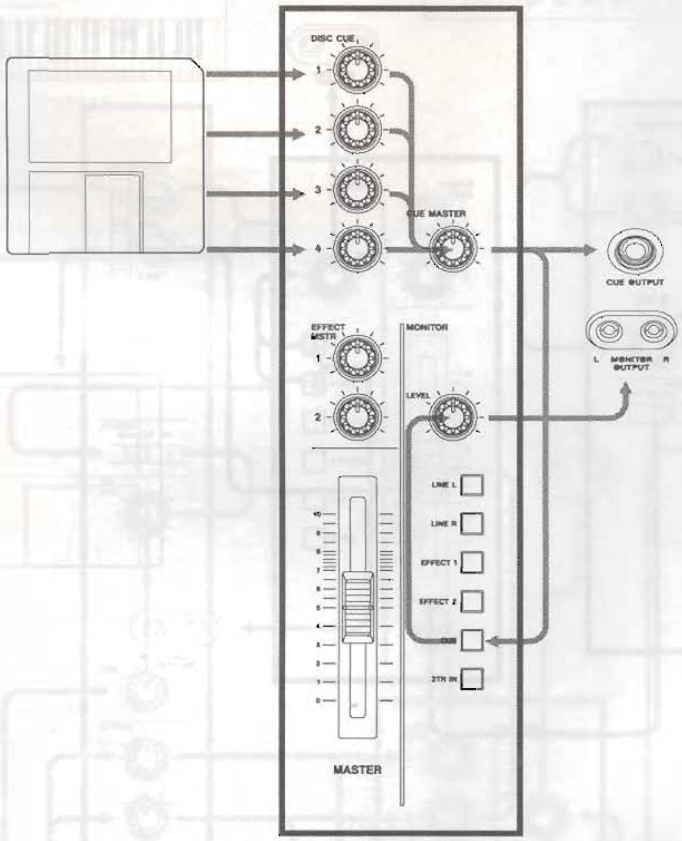
Main Mix 2 (STEREO)



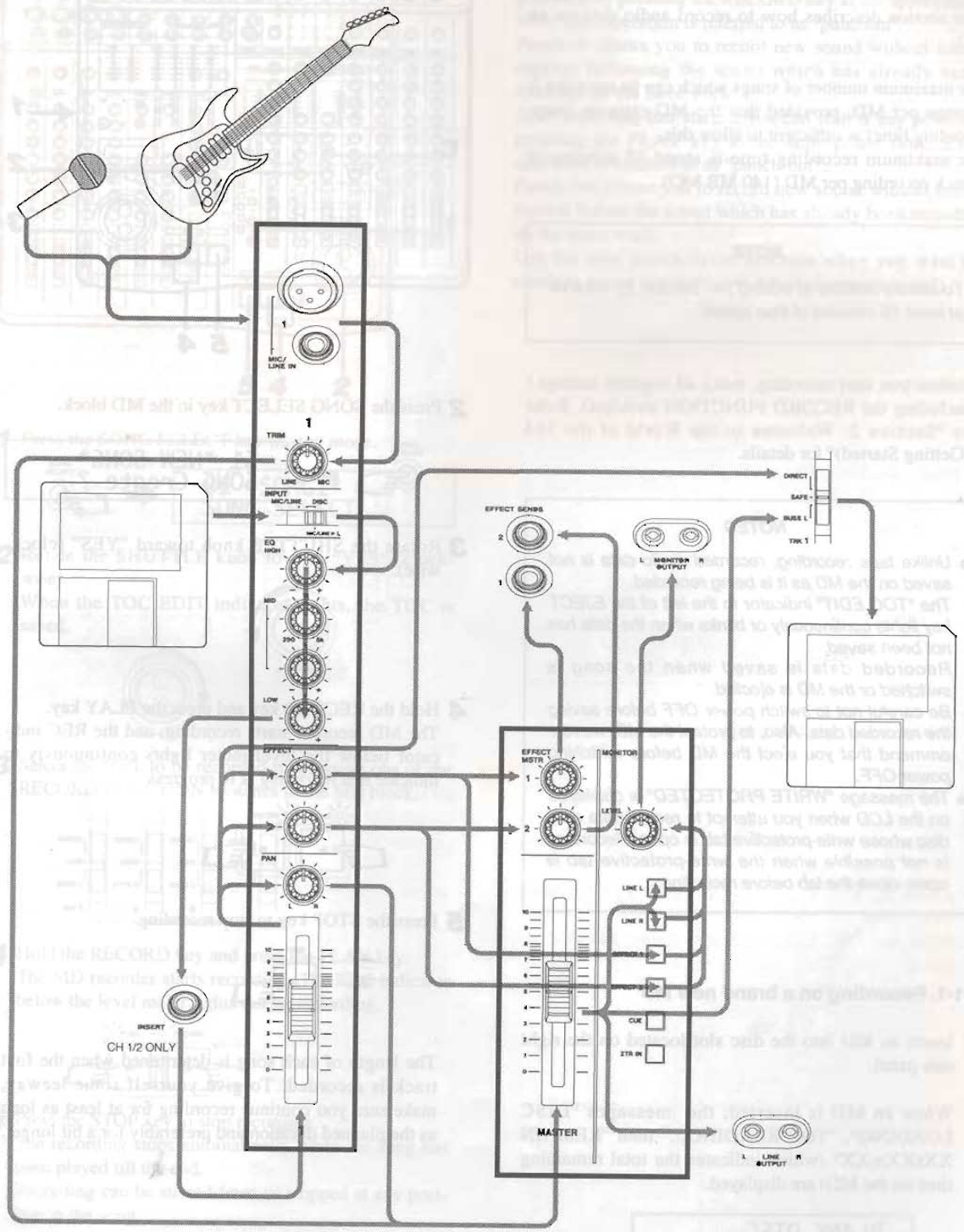
STEREO INPUT



CUE MONITOR


DISC CUE
1
2
3
4
CUE MASTER
CUE OUTPUT
EFFECT MSTR
MONITOR
LEVEL
L MONITOR OUTPUT R
LINE L
LINE R
EFFECT 1
EFFECT 2
2TR IN
MASTER

Multi Mix


MIC/
LINE IN
TRIM
LINE
MIC
INPUT
MIC/LINE
DISC
EQ
HIGH
MID
LOW
EFFECT
PAN
INSERT
CH 1/2 ONLY
EFFECT SENDS
MONITOR
OUTPUT
DIRECT
SAFE
TRK 1
EFFECT
MSTR
LEVEL
LINE L
LINE R
CUE
MASTER
LINE
OUTPUT

4-1. Recording

This section describes how to record audio data on an MD.

The maximum number of songs which can be recorded is 5 songs per MD, provided that the MD capacity (max. recording time) is sufficient to allow this.
The maximum recording time is about 37 minutes of 4-track recording per MD (140 MB MD).

> ***NOTE***
>
> *To assure stability in editing (➡ Section 5), reserve at least 15 minutes of free space.*

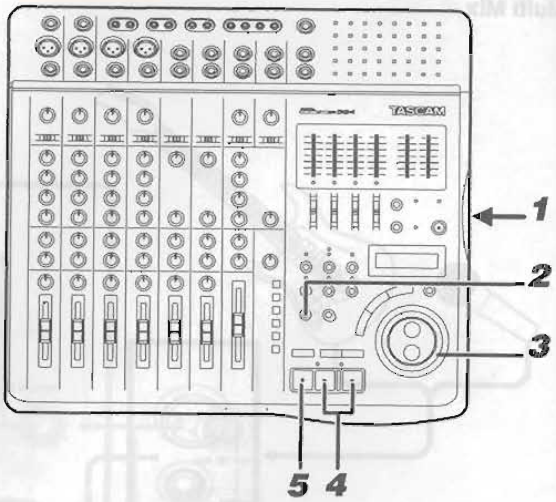
- Before you start recording, make all required settings (including the RECORD FUNCTION switches). Refer to "Section 2: Welcome to the World of the 564 (Getting Started)" for details.

> ***NOTES***
>
> - *Unlike tape recording, recorded audio data is not saved on the MD as it is being recorded.*
> *The "TOC EDIT" indicator to the left of the EJECT key lights continuously or blinks when the data has not been saved.*
> *Recorded data is saved when the song is switched or the MD is ejected.*
> *Be careful not to switch power OFF before saving the recorded data. Also, to protect the MD, we recommend that you eject the MD before switching power OFF.*
> - *The message "WRITE PROTECTED" is displayed on the LCD when you attempt to record data on a disc whose write-protective tab is open. Recording is not possible when the write-protective tab is open: close the tab before recording.*

4-1-1. Recording on a brand new MD

1 Insert an MD into the disc slot located on the right side panel.

When an MD is inserted, the messages "DISC LOADING", "TOC READING..." then "REMAIN XXsXXmXX" (which indicates the total remaining time on the MD) are displayed.



2 Press the SONG SELECT key in the MD block.

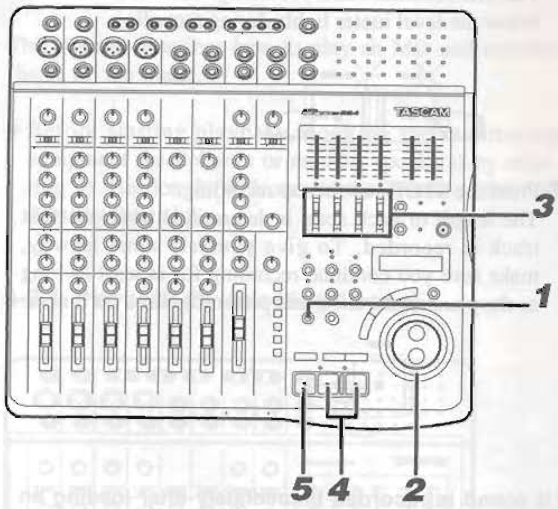
3 Rotate the SHUTTLE knob toward "YES" (clockwise).

4 Hold the RECORD key and press the PLAY key.
The MD recorder starts recording, and the REC indicator below the level meter lights continuously to indicate that recording is in progress.

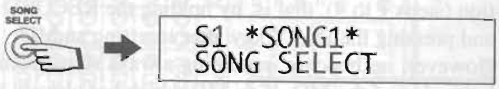
5 Press the STOP key to stop recording.

The length of each song is determined when the first track is recorded. To give yourself some leeway, make sure you continue recording for at least as long as the planned duration and preferably for a bit longer.

4-1-2. Over-dubbing

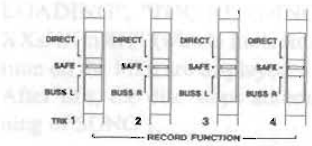


1 Press the SONG SELECT key in stop mode.

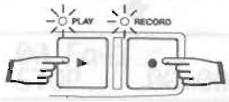


2 Rotate the SHUTTLE knob toward "YES" (clockwise).
When the TOC EDIT indicator lights, the TOC is saved.

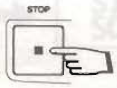
3 Select the track to be recorded by pressing one of the RECORD FUNCTION switches in the MD block.



4 Hold the RECORD key and press the PLAY key.
The MD recorder starts recording. The REC indicator below the level meter lights during recording.



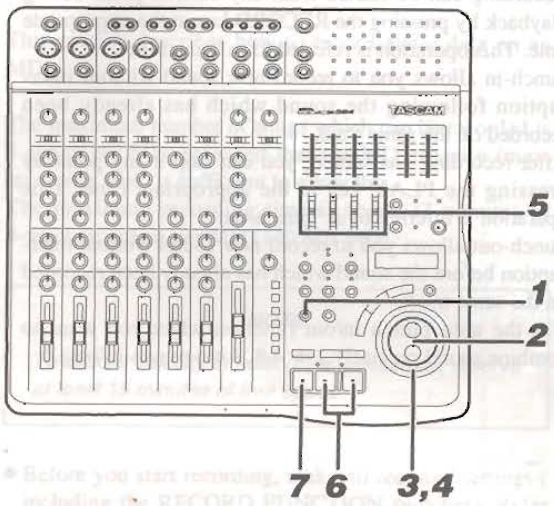
5 Press the STOP key to stop recording.
The recording stops automatically when the song has been played till the end.
Recording can be started from or stopped at any position in the song.



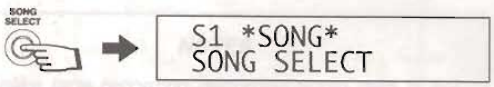
Punch-in/out

Recording can be started from any desired point during playback by pressing the RECORD key at the appropriate time. This operation is referred to as "punch-in".
Punch-in allows you to record new sound without interruption following the sound which has already been recorded on the same track.
After recording has started, you can stop it any point by pressing the PLAY key at the appropriate time. This operation is referred to as "punch-out".
Punch-out allows you to record new sound without interruption before the sound which has already been recorded on the same track.
Use the auto punch-in/out function when you want to combine sound precisely. (➡ 4.8. Auto punch-in/out)

4-1-3. Recording another song



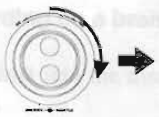
1 Press the SONG SELECT key in stop mode.



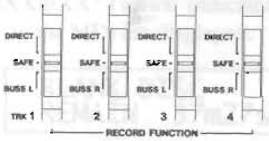
2 Rotate the JOG dial to select "NEW SONG".

3 Rotate the SHUTTLE knob toward "YES" (clockwise).

4 Rotate the SHUTTLE knob toward "YES" (clockwise) again.
When the TOC EDIT indicator lights, the TOC is saved.

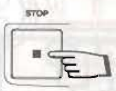


5 Select the track to be recorded by pressing one of the RECORD FUNCTION switches in the MD block.



6 Hold the RECORD key and press the PLAY key.
The MD recorder starts recording. The REC indicator below the level meter lights during recording.

7 Press the STOP key to stop recording.
The length of each song is determined when the first track is recorded. To give yourself some leeway, make sure you continue recording for at least as long as the planned duration and preferably for a bit longer.



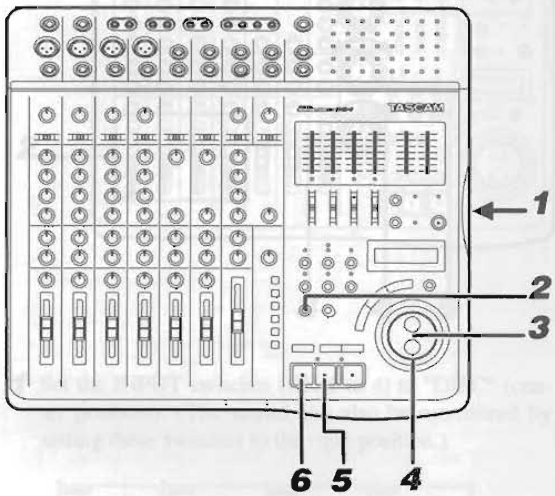
- **If sound is recorded immediately after loading an MD...**
Recording is also possible by skipping the song selection (steps 1 to 4), that is, by holding the RECORD key and pressing the PLAY key after inserting an MD. However, in this case, recording always starts from the beginning of the MD. If an MD which has already been used is loaded, the recording will overwrite the existing SONG 1 (first song).

4-2. Playback, Monitoring

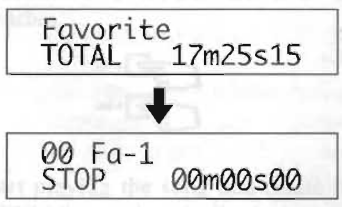
This section describes how to play an MD and monitor (listen to) the sound.

- Before starting playback, hook up the monitoring equipment (headphones or monitor speakers) by referring to "Section 2: Welcome to the World of the 564 (Getting Started)".

4-2-1. Playback (by selecting a song)

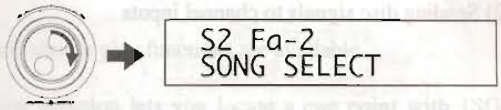


1 Insert an MD into the disc slot located on the right side panel.
When an MD is inserted, the messages "DISC LOADING", "TOC READING..." then "REMAIN XXsXXmXX" (which indicates the total remaining time on the MD) are displayed.
After this, the disc stops automatically at the beginning of SONG 1.

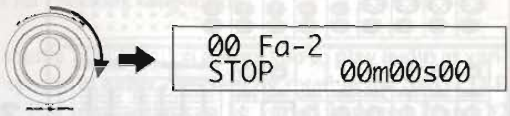


2 Press the SONG SELECT key if you want to play other song than SONG 1.

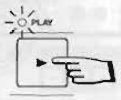
3 Rotate the JOG dial to select the desired song.



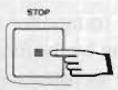
4 Rotate the SHUTTLE knob toward "YES" (clockwise).



5 Press the PLAY key to start playback.
The sound can be listened to with any of the monitoring techniques described below.

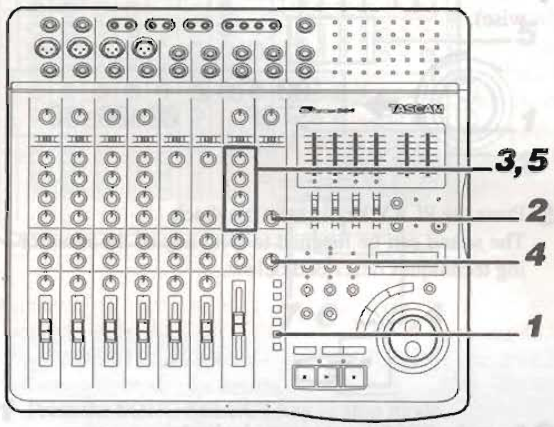


6 Press the STOP key to stop playback.



The sound can be monitored in two ways:
1) Using DISC CUE
2) Sending disc signals to channel inputs

4-2-2. Using DISC CUE

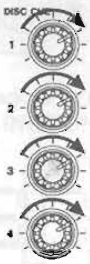


DISC CUE makes it possible to monitor the sound as it was recorded, without alteration by the tone control.
This technique is used mainly to listen to the sound during over-dubbing.

1 Press the MONITOR "CUE" switch.
All other MONITOR selector switches should be set to the off position (■).

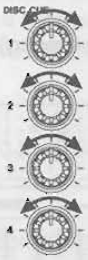
2 Rotate the CUE MASTER control to the 2 o'clock position.

3 Rotate the DISC CUE controls (1 to 4) to the 2 o'clock position.



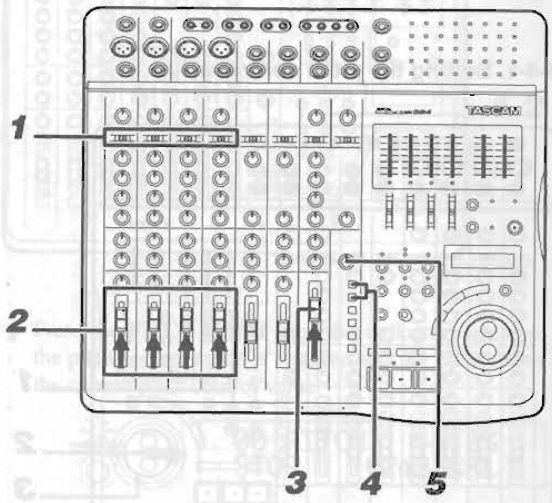
4 Start playing the song and rotate the MONITOR "LEVEL" control gradually clockwise.
The sound is heard from the monitoring equipment (headphones or monitor speakers).

5 While listening to the sound, adjust the DISC CUE controls to optimize the sound level balance.

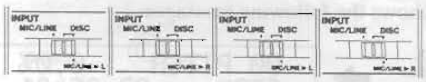


4-2-3. Sending disc signals to channel inputs

The sound can be adjusted using the EQ, PAN and fader controls by applying the sound from the MD to the mixer channel inputs.
This technique is used mainly in bounce forward and mix-down recording.



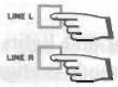
1 Set the INPUT switches (CH 1 to 4) to "DISC" (center position). (The sound can also be monitored by setting these switches to the right position.)



2 Set the input fader controls of CH 1 to 4 to a level between "7" and "8".

3 Set the MASTER fader control to a level between "7" and "8".

4 Press the MONITOR "LINE L" and "LINE R" switches.



5 Start playing the song and rotate the MONITOR "LEVEL" control gradually clockwise.
The sound is heard from the monitoring equipment (headphones or monitor speakers).

4-3. Jog Function/Shuttle Play

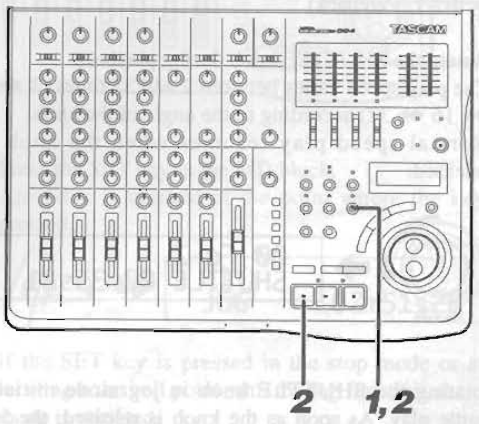
Jog and shuttle play functions are available.

The jog function lets you locate a cue point with 1SG (Sound Group = minimum unit of MD recording) precision by rotating the JOG dial. This allows you to pinpoint the sound immediately before the cue point and is convenient for checking song intros.

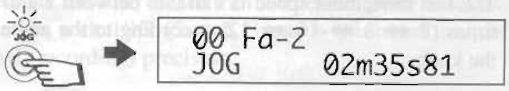
The shuttle play function allows you to play audio at variable speeds in either direction by rotating the SHUTTLE knob. The play speed can be varied between 2 and 32 times (x2 ↔ 8 ↔ 16 ↔ 32) according to the angle by which the knob is rotated.

4-3-1. Jog function

- Select a song before using the jog function. (➡ 4-2-1. Playback)

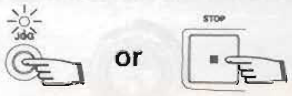


1 Press the JOG key in the MD block. The JOG indicator lights and the LCD shows the following messages.

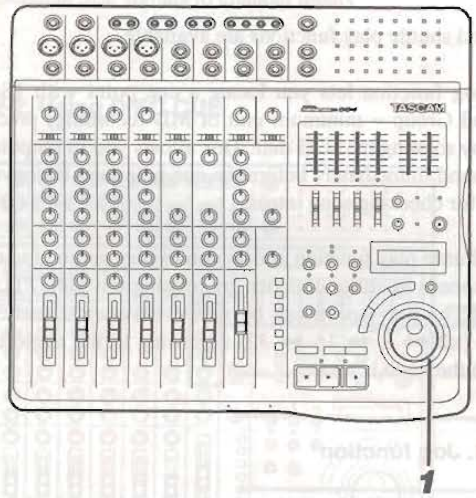


The sound immediately before the point where the JOG key was pressed will play repeatedly (jog mode). Rotate the JOG dial to locate the desired point.

2 Press the JOG key or STOP key to cancel the jog function (jog mode).



4-3-2. Shuttle play



- Select a song before using the shuttle play function. (➡ 4-2-1. Playback)

1 Rotate the SHUTTLE knob during playback.
The play speed varies between 2 and 32 times (2 ↔ 8 ↔ 16 ↔ 32) according to the angle of the knob.
Normal-speed play resumes when the knob is released.

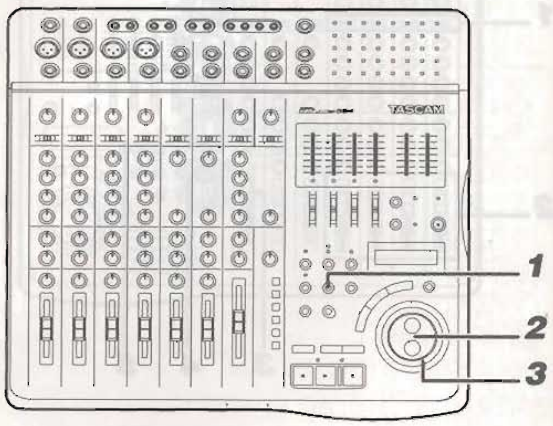
- Rotating the SHUTTLE knob in jog mode initiates shuttle play. As soon as the knob is released, the 564 returns to jog mode.
- Rotating the SHUTTLE knob in stop mode allows you to fast forward or fast reverse from the current position. The fast movement speed is variable between 2 and 32 times (2 ↔ 8 ↔ 16 ↔ 32) according to the angle of the knob.

4-4. Pitch Control

The 564 allows you to vary the pitch of recording and playback in 0.1% steps, up to +/–9.9%.

- Select a song before using the pitch control function. (➡ 4-2-1. Playback)

4-4-1. Setting the pitch control value



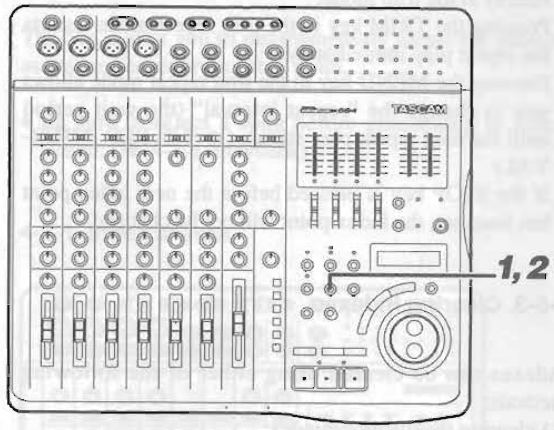
1 Press and hold the PITCH CONT key until the PITCH CONT indicator in the MD block starts to blink. The LCD shows the following messages.

2 Rotate the JOG dial to set the pitch control value (in %).

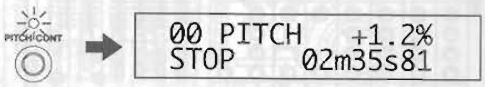
3 Rotate the SHUTTLE knob toward "YES" (clockwise).
The indicator stops blinking and lights continuously to indicate the pitch control mode is engaged.

- The pitch control value can be changed even during playback. The actual pitch varies in real time as the value is changed.

4-4-2. Switching the pitch control mode on/off



1 Press the PITCH CONT key; the indicator lights up, the pitch control mode is engaged and the LCD shows the current pitch control value.



2 Press the PITCH CONT key again to cancel the pitch control mode.
The indicator turns off and the normal mode (pitch control OFF mode) returns.

- The pitch control mode can be switched on/off even during playback.

4-5. Indexes

The 564 allows you to mark up to 20 indexes (markers) per song. The indexes can be used in operations such as search, repeat play and auto punch-in/out.
It is also possible to assign titles to indexes. (➡ 4-10. Titles)
This section describes how to set, trim (fine-adjust) and clear indexes.

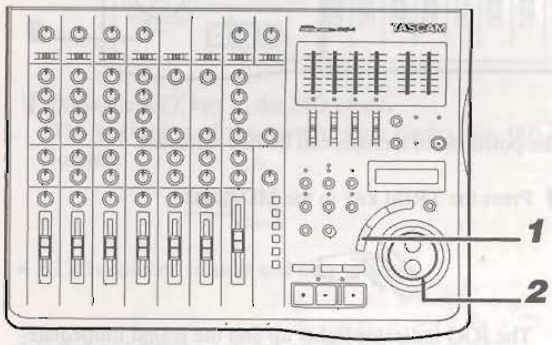
- Be sure to select a song before setting indexes.(➡ 4-2-1. Playback)

4-5-1. Setting indexes

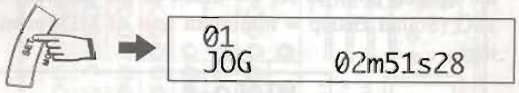
Indexes can be set using one of the following methods;

1) pressing the SET key in stop mode;
2) locating a desired point with the jog function then pressing the SET key;
3) pressing the SET key during playback.

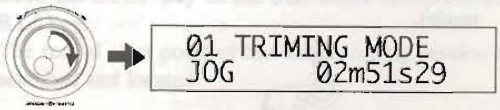
With methods 1) and 2), the trim mode is initiated immediately after the SET key is pressed.
With method 3), the trim mode is not initiated so it's possible to set additional indexes one after another according to the overall configuration of the song.



1 Press the SET key in the MD block.
An index is marked at the point where the key is pressed.

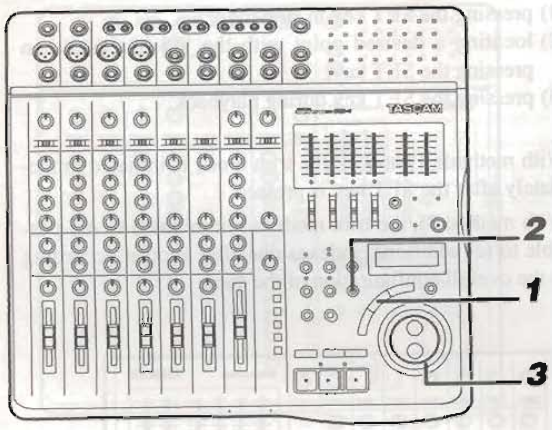


If the SET key is pressed in the stop mode or after locating a desired point with the jog function, the trim mode is initiated.
In the trim mode, the sound immediately before the point where the SET key was pressed will play repeatedly.
Rotate the JOG dial to trim the desired point to set the index with 1SG (Sound Group = minimum unit of MD recording) precision.



2 When you've decided where to mark the index, rotate the SHUTTLE knob toward "YES" (clockwise).
The index is set and trim mode is canceled.

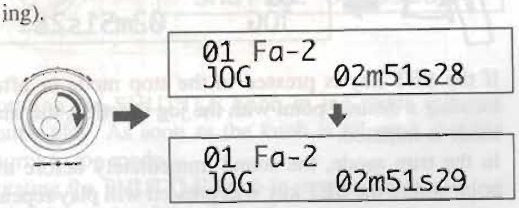
4-5-2. Trimming indexes



The positions of indexes can be fine-adjusted.

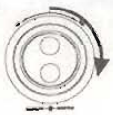
1 Press the TRIM key in the MD block.

The JOG indicator lights up and the sound immediately before the point corresponding to the index number which was displayed when the TRIM key was pressed (index No. 01 in the example show below) will play repeatedly (trim mode). Rotate the JOG dial to trim the desired point to set the index to the accuracy of 1SG (Sound Group = minimum unit of MD recording).



2 When the JOG key is pressed in the trim mode, the trim mode is canceled and a section of about 3 seconds in duration will play repeatedly (trim repeat mode).

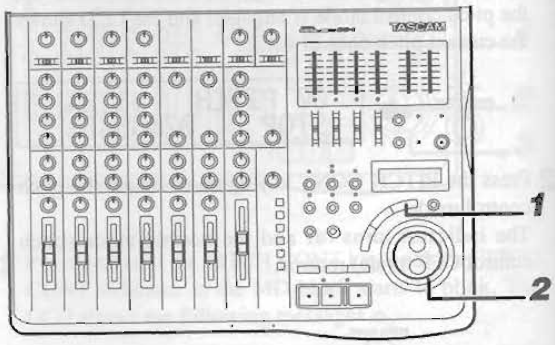
3 When you've decided where to mark the index, rotate the SHUTTLE knob toward "YES" (clockwise).
The index is set and the trim mode is canceled.



- Index No. 00 cannot be trimmed.
- Pressing the JOG key in the trim repeat mode (step 2) returns to the trim mode.
- Pressing the TRIM key in the trim repeat mode restarts the repeat play immediately.
- Pressing the MENU key in the trim repeat mode allows you to change the "repeat interval" (the wait period until the next repeat play starts). (➡ 6-6. REP INTERVAL)
- If the STOP key is pressed before the new index point has been set, the index point will not be changed.

4-5-3. Clearing indexes

Indexes can be cleared using either of the following methods:
1) clearing the displayed index;
2) clearing all of the indexes set for the song.



1 Press the CLEAR key in the MD block in stop mode.

2 Rotate the SHUTTLE knob toward "YES" (clockwise).
The currently displayed index is cleared. After clearing, the numbers of the subsequent indexes will be reduced by 1. (Method 1)

All of the indexes set for the song can be cleared by pressing the CLEAR key while index number "00" is displayed. (Method 2)

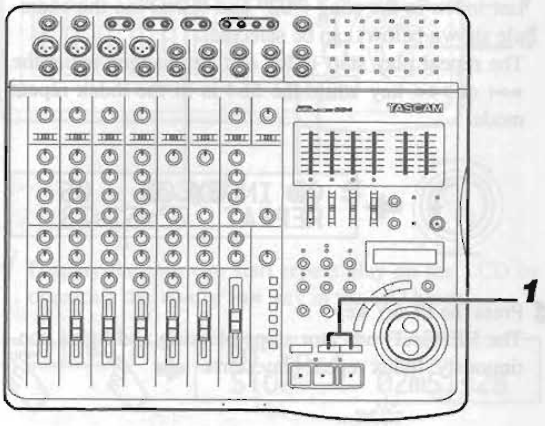
- The undo function is available in the index clear operation.
  Pressing the UNDO key immediately after clearing indexes allows you to cancel the clearing of indexes.

4-6. Index Search, RTZ

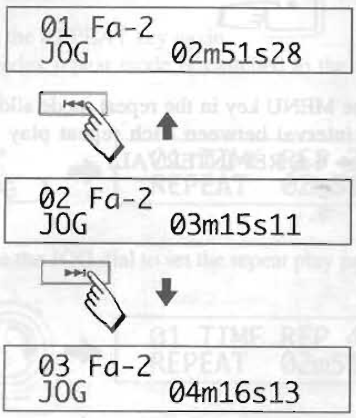
The 564 allows you to instantaneously locate the indexes as well as the recording start point.

- Be sure to select a song before proceeding to index search. (➡ 4-2-1. Playback)

4-6-1. Index search

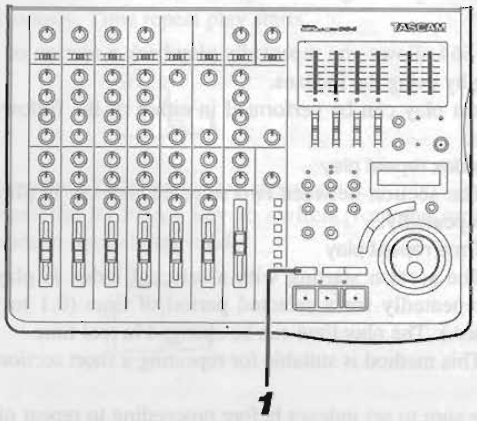


1 Press the ⏭ or ⏮ key in the MD block.
Pressing the ⏭ key searches and locates the first index after the point where the key is pressed (index No. 03 in the example shown below).
Pressing the ⏮ key searches and locates the first index before the point where the key is pressed (index No. 01 in the example shown below).



- In stop mode, indexes can also be searched and located by rotating the JOG dial.

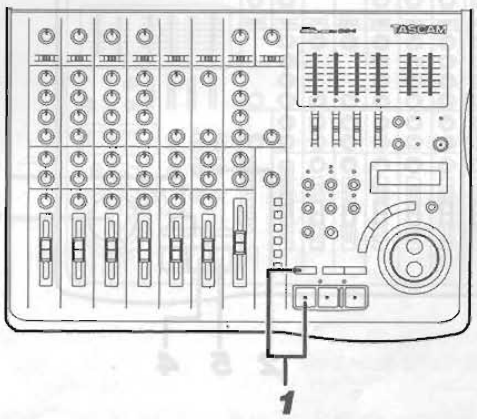
4.6.2 RTZ (Return-To-Zero)



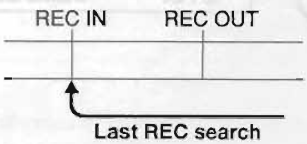
1 Press the RTZ key in the MD block.
The beginning of the current song (index No. 00) is located.

- RTZ is enabled in stop and play modes.

4-6-3. Last REC search



1 Hold the STOP key in the MD block and press the RTZ key.
The record start point of the last recording session is searched and located.



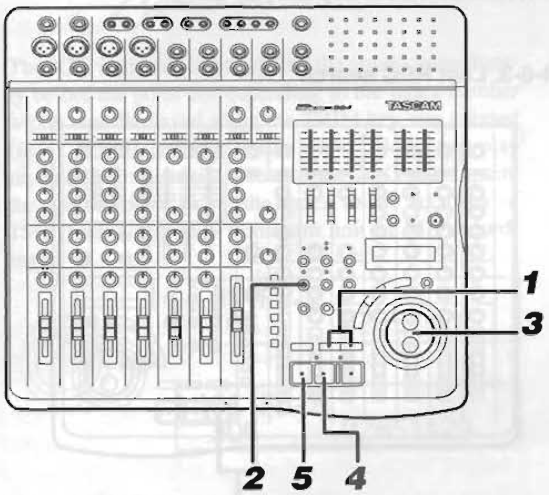
4-7. Repeat Play

The 564 allows you repeatedly play back a section of the song by using the indexes.
Repeat play can be performed in either of the following ways:

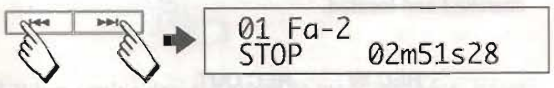
1) Index repeat play
   The section between two selected indexes is played repeatedly.
2) Time repeat play
   The section starting with a selected index is played repeatedly for a selected period of time (0.1 to 9.9 sec.). The play time can be changed in real time.
   This method is suitable for repeating a short section.

- Be sure to set indexes before proceeding to repeat play. (➡ 4-5. Setting indexes)
- Be sure to select a song before proceeding to repeat play. (➡ 4-2-1. Playback)

4-7-1. Index repeat play



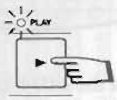
1 Display the index to start repeat play on the LCD by operating the ▶▶| or |◀◀ key in the MD block.



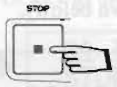
2 Ensure that the 564 is in stop mode and press the REPEAT key in the MD block.
The REPEAT indicator starts blinking to indicate that the 564 is in the index repeat mode.

3 Select the index to end repeat play by rotating the JOG dial.
Any index between the selected starting index and the last index in the song ("02" and "END" in the example shown below) can be selected.
The repeat play start index can be changed using the ▶▶| or |◀◀ key while the 564 is in the index repeat mode.

4 Press the PLAY key.
The REPEAT indicator stops blinking and lights continuously. Index repeat play starts.

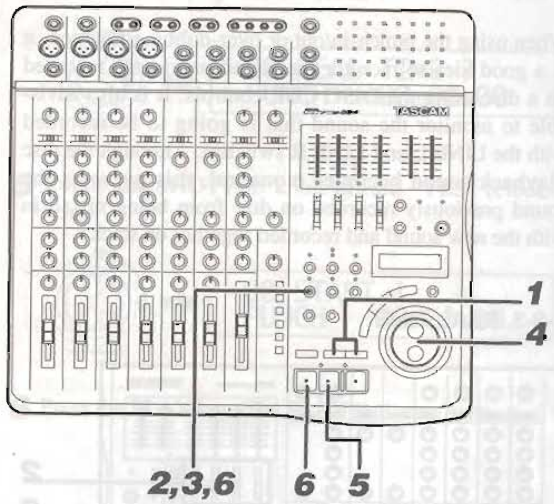


5 Press the STOP key to stop repeat play.
Press the REPEAT key to switch from the repeat mode to normal play mode.

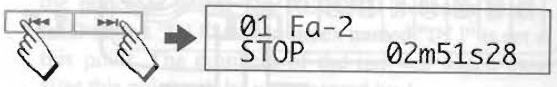


- Pressing the MENU key in the repeat mode allows you to set the interval between each repeat play (repeat interval). (➡ 6-6. REP INTERVAL)

4-7-2. Time repeat play

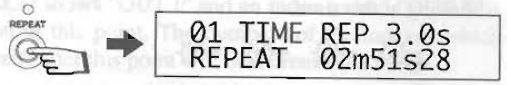


1 Display the index to start repeat play on the LCD by operating the ►►I or I◄◄ key in the MD block.

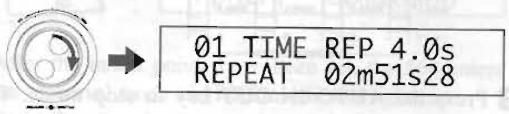


2 Ensure that the 564 is in stop mode and press the REPEAT key in the MD block.
The REPEAT indicator starts blinking to indicate that the 564 is in the index repeat mode.

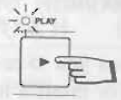
3 Press the REPEAT key again.
The index repeat mode is switched to the time repeat mode.



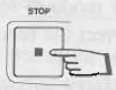
4 Rotate the JOG dial to set the repeat play period.



5 Press the PLAY key.
The REPEAT indicator stops blinking and lights continuously. Time repeat play starts.



6 Press the STOP key to stop repeat play.
Press the REPEAT key to switch from the repeat mode to normal play mode.



- The repeat play time can be changed in real time during playback.
- Pressing the MENU key in the repeat mode allows you to set the interval between each repeat play (repeat interval). (➡ 6-6. REP INTERVAL)
- The repeat play start index cannot be changed once the 564 has entered the time repeat play mode.

4-8. Auto Punch-in/out

4-8-1. What is auto punch-in/out ?

The punch-in/out function allows you to re-record a part of a previously recorded track or insert a new recording in the middle of a song. For example, it can be used to re-record only the second chorus in the vocal part or to record or re-record only the guitar solo in the middle of the song.
Play a disc and switch the play mode to record mode at the point where you want to correct the recording. This is the punch-in operation.
At the point where you want to end the correction, switch the record mode to play mode (or stop mode). This is the punch-out operation.
Auto punch-in/out is an automatic operation executed by storing the punch-in and punch-out points in memory.

The auto punch-in/out points can be set using either of the following methods.

1. REAL TIME setting
   This method sets the in and out points using the RECORD key, PLAY key or a foot switch in the rehearsal mode just like with a cassette-based multi-track recorder.

2. INDEX SELECT setting
   This method sets the in and out points by selecting them from previously-set indexes.

With REAL TIME setting, indexes are marked automatically at the IN and OUT points. There may be times when you want to redo the auto punch-in/out operation. In this case, you can use the INDEX SELECT method to restart auto punch-in/out between the in and out points set with the REAL TIME method.

4-8-2. Take function

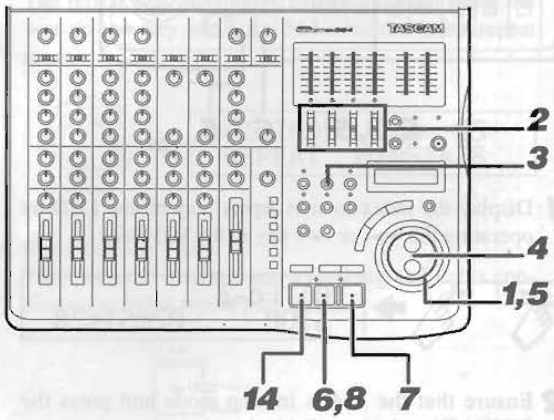
The 564 allows you to create up to 5 "takes" per punch-in or out point. Take refers to each recording of a performance. You can record your performance up to 5 times and listen to each take to compare them.
This means that you can reserve a take which has been recorded, try recording another take and choose the better one as the OK take for the music. This is possible thanks to the use of the disc medium.

> ***NOTE***
>
> *When the auto punch-in/out mode is canceled, only one of the takes or the original is saved on the disc. Takes which have not been saved are erased.*

- The auto punch-in/out mode can be entered from the stop mode.

When using the punch-in/out or over-dubbing function, it is a good idea to monitor the sound previously recorded on a disc using the DISC CUE controls. It is also advisable to monitor the sound that is going to be recorded with the LINE L and LINE R switches. Although the disc playback sound becomes monaural, this prevents the sound previously recorded on disc from being mixed in with the new sound and recorded together on tracks.

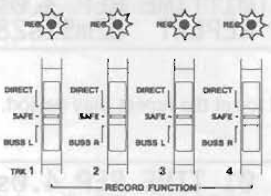
4-8-3. REAL TIME



This is the standard technique. The RECORD key is used to set the punch-in point and the PLAY key to set the punch-out point.

1 Search and locate the point where you want to start preroll play. This point is called the start point.

2 Set the REC FUNCTION switch of the track where you want to execute auto punch-in/out to "DIRECT", "BUSS L" or "BUSS R". The REC indicator starts blinking at this time.



3 Press the AUTO IN/OUT key in stop mode. The RHSL indicator starts blinking.

4 Select the auto punch-in/out method by rotating the JOG dial to display "REAL TIME".

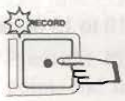
```
00 REAL TIME ?
PUNCH   00m00s00
```

5 Rotate the SHUTTLE knob toward "YES" (clockwise).

```
00 START !
PUNCH   00m00s00
```

6 Press the PLAY key. The PLAY indicator lights up.

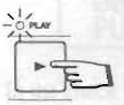
7 Press the RECORD key at the point you want to set as the punch-in point. The RECORD indicator blinks, LCD shows "IN !" and an index named "IN !" is set at this point. The numbers of the indexes which exist after this point will be incremented by 1.




```
01 IN !
PUNCH   00m05s00
```

Note that actual recording does not occur in this step but that we're just setting the point to start recording (punch-in point). The monitored sound is the disc playback sound and cannot be switched in this mode. The REC indicator continues to blink.

8 Press the PLAY key at the point you want to set as the punch-out point. The RECORD indicator turns off, LCD shows "OUT !" and an index named "OUT !" is set at this point. The numbers of the indexes which exist after this point will be incremented by 1.




```
02 OUT !
PUNCH   00m10s00
```

9 After the in/out points have been set, the 564 enters the rehearsal mode and RHSL indicator lights up. Postroll occurs for 3 seconds and then the start point is located automatically.

10 After the start point has been located, playback starts automatically for rehearsal.

```
00 REHEARSAL
PUNCH   00m00s00
```

11 At the in point, the monitored sound changes from the disc playback sound to input sound and the RECORD indicator starts to blink.

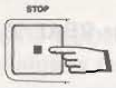
```
01 IN !
PUNCH   00m05s00
```

12 At the out point, the monitored sound changes from the input to disc playback and the RECORD indicator turns off.

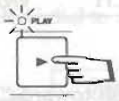
```
02 OUT !
PUNCH   00m10s00
```

13 Postroll occurs for 3 seconds and then the start point is located automatically. The operations in steps 10 to 13 will be repeated.

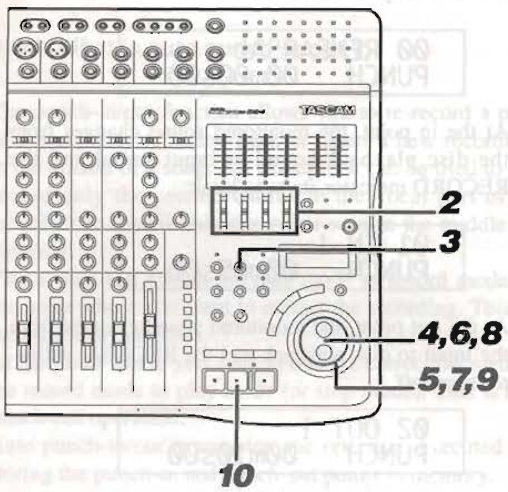
14 Press the STOP key to end rehearsal before completion.



15 Press the PLAY key to restart rehearsal. The start point is located and the operations in steps 10 to 13 will be repeated.



4-8-4. INDEX SELECT

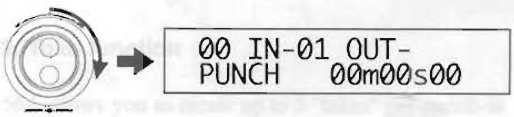


You can only use this method when indexes have been set at the points you want to use as the punch-in/out points. (➡ 4-5-1. Setting indexes)
To make things easy, add indexes for "START", "IN" and "OUT".

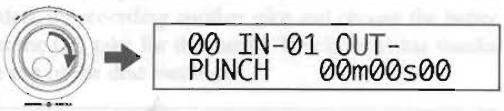
Steps 1 to 3 are identical to the REAL TIME procedure above.

4 Select the auto punch-in/out method by rotating the JOG dial to display "INDEX SELECT".

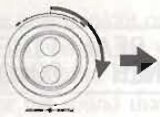
5 Rotate the SHUTTLE knob toward "YES" (clockwise).



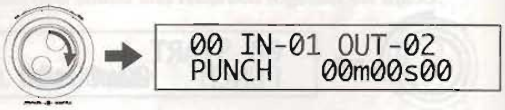
6 To set the in point, rotate the JOG dial to display the number of the index you want to select as the in point.



7 Rotate the SHUTTLE knob toward "YES" (clockwise).



8 To set the out point, rotate the JOG dial to display the number of the index you want to be the out point.

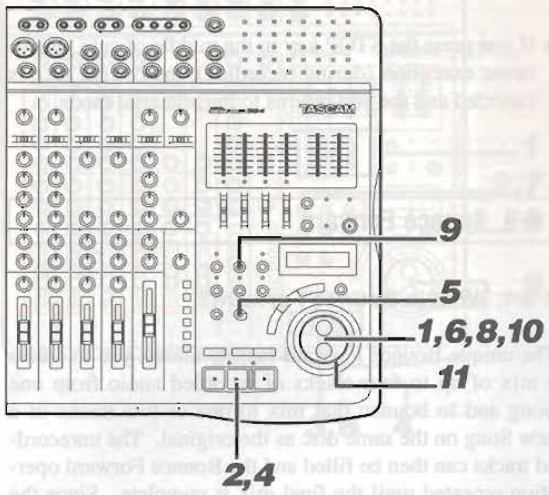


9 Rotate the SHUTTLE knob toward "YES" (clockwise).

10 Press the PLAY key.

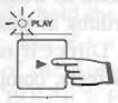
The subsequent steps are identical to steps 10 to 15 of the REAL TIME procedure above.

4-8-5. Executing auto punch-in/out



1 To start actual recording, rotate the JOG dial in stop mode of rehearsal mode (while the RHSL indicator is lit) to display "TAKE 1". The EXEC indicator starts blinking.

2 Press the PLAY key. Playback starts from the start point, and the punch-in → punch-out operations are executed automatically.
The RECORD and REC indicators light in the section between the punch-in/out points.



3 The check mode is initiated after auto punch-in/out recording. The EXEC indicator lights continuously and the start point is located.

```
00 CHECK 1
PUNCH    00m00s00
```

4 In the check mode, pressing the PLAY key allows you to play the recording between the start point and postroll point.

5 If you want to record another take by executing punch-in/out at the same points, press the MENU key to return to the rehearsal mode. Pressing the MENU key in the rehearsal mode returns to the check mode again.


```
00 REHEARSAL
PUNCH    00m00s00
```

6 Takes can be set up to "TAKE 5". The AUTO IN/OUT indicator lights when a take number is selected.

```
00 TAKE 2
PUNCH    00m00s00
```

7 Repeat steps 2 to 4 above.

8 To compare several takes, rotate the JOG dial in the check mode's stop mode to select each take number and play it.

```
00 CHECK 2
PUNCH    00m00s00
```

9 Press the AUTO IN/OUT key again in stop mode of check mode initiates the mode for selecting the OK take.


```
00 OK TAKE 1 ?
PUNCH    00m00s00
```

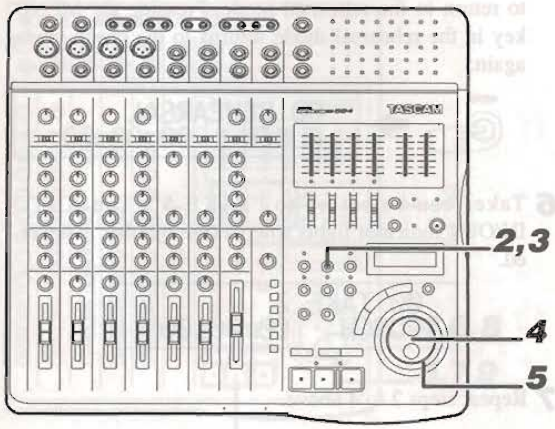
10 Rotate the JOG dial to display the OK take.

```
00 OK TAKE 2 ?
PUNCH    00m00s00
```

11 Rotate the SHUTTLE knob toward "YES" (clockwise).

- Comparison and execution targets can include the original recording as well as TAKEs 1 to 5.
- The UTOC is saved on disc at the moment the 564 completes the above operation and returns to normal mode.

4-8-6. Correcting auto punch-in/out points



When auto punch-in/out is executed using the INDEX SELECT method, the punch in/out indexes can be fine-adjusted (➡ 4-5-2. Trimming indexes). The following procedure allows you to execute more accurate punch-in/out operation by setting the in/out points by frame.

1 Set approximate in/out points with the REAL TIME method.

2 Press the AUTO IN/OUT key to quit the REAL TIME mode temporarily, and fine-adjust the indexes of the in/out points. (➡ 4-5-2. Trimming indexes)

3 Press the AUTO IN/OUT key again.

4 Rotate the JOG dial to display "INDEX SELECT".

5 Rotate the SHUTTLE knob toward "YES" (clockwise).

6 Set the indexes of the fine-adjusted in/out points.

- If you press the STOP key in the middle of auto punch-in/out execution (during recording), the current take is canceled and the 564 returns to the rehearsal mode.

4-9. Bounce Forward

4-9-1. What is Bounce Forward?

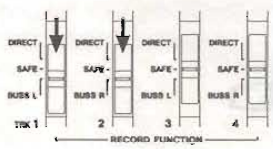
The unique Bounce Forward facility allows you to create a mix of up to four tracks of recorded audio from one Song and to bounce that mix to one or two tracks of a new Song on the same disc as the original. The unrecorded tracks can then be filled and the Bounce Forward operation repeated until the final mix is complete. Since the 564 can, if required, hold up to five songs on one disc, up to four of the source (original) Songs leading to a final mix, an original plus up to four sets of overdubs on alternative bounced mixes, or up to four alternative mixes of a final Song could be created and kept on the same disc.

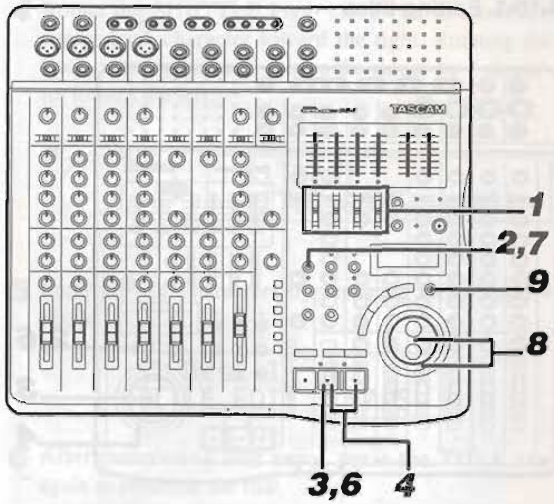
The tracks to be Bounced Forward are mixed down through the 564 mixer section, allowing control of level, equalisation, effects, external audio sources and stereo positioning in the mix. The Song Title and all Index Markers and their names are automatically carried forward to the new Song.

If the Bounce Forward is being carried out to create a submix for overdubbing, we recommend that Tracks 3 & 4 of the new Song should be used to Bounce to and that Tracks 1 & 2 be used for overdubs as this allows mixer channels 1 & 2 to be routed Direct if required while retaining the ability to insert effects, compressors etc in the signal path.

If the Bounce Forward is being used to create a final mix then the Bounce should be to Tracks 1 & 2 of the new Song as these tracks can output audio in SPDIF format for direct digital connection to DAT and Minidisc recorders.

1 Set the RECORD FUNCTION switches of the destination tracks to "BUSS L" and "BUSS R".



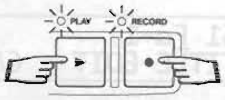


2 Press the BOUNCE FWD key in Stop mode. The BOUNCE FWD indicator blinks to indicate that Bounce Forward Rehearsal Mode is active.

```
00 *SONG1*
BOUNCE   00m00s00
```

3 Pressing the PLAY key at this point allows you to check the mix, if required, before finally Bouncing Forward. Press STOP to end the check.

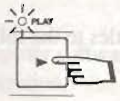
4 In Stop mode, hold the RECORD key and press the PLAY key. The 564 will automatically locate to the beginning of the Song and Bounce Forward will begin. The BOUNCE FWD indicator will stop blinking and light continuously.



5 Once the Bounce Forward operation has completed, the 564 stops recording and enters CHECK mode. The BOUNCE FWD indicator will start blinking again.

```
00 CHECK !
BOUNCE 00m00s00
```

6 Pressing the PLAY key at this point allows you to check the mix. Press STOP to end the check.



7 Press the BOUNCE FWD key again.

8 Select whether or not the original Song is to be saved or cleared. Rotate the JOG dial to select SAVE? Or CLEAR?. Rotate the SHUTTLE wheel towards YES (clockwise) to confirm your selection. We recommend that you save the original if there is sufficient capacity remaining on the disc.

```
Original=SAVE ?
```

9 Since the Bounce Forward operation creates a new Song which has the same Title as the original we recommend that you change the title of one of the Songs using the TITLE key. (➡ 4.10 Titles).

- Since the Bounce Forward results in the creation of a new Song the number of available Songs on the disc will decrease by 1. Once the 5 Song capacity of a disc has been reached it will be necessary to ERASE a Song in order to carry out another Bounce Forward.
- Bounce Forward cannot be carried out if the disc does not have enough remaining time to record the new Song.
- If the STOP key is pressed during Bounce Forward the operation is halted at that point and any remaining part of the Song is not recorded. If you want to Bounce Forward the entire Song the original must be saved before attempting to repeat the Bounce Forward.
- The UTOC is saved on disc once the 564 has completed the SAVE? or CLEAR? operation described above and returned to normal operating mode.

4-10. Titles

The 564 allows you to assign titles to the following items:
1) Songs.
2) Indices.
3) Discs.

You can enter titles by using the following characters.

① **small (Lowercase alphabets)**
abcdefghijklmnopqrstuvwxyz:;<=>?@!"#
$%&'()*+,-./[]^_

② **CAPS (Uppercase alphabets)**
ABCDEFGHIJKLMNOPQRSTUVWXYZ:;<=>?@!"#
$%&'()*+,-./[]^_

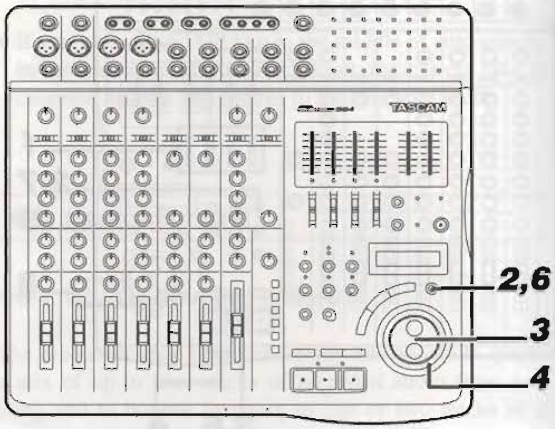
③ **NUM (Numeric and symbol characters)**
0123456789:;<=>?@!"#$%&'()*+,-./[]^_

④ **WORD (Preset words)**
1. COUNT IN
2. INTRO
3. MELODY
4. VERSE
5. CHORUS
6. HOOK
7. SOLO
8. BRIDGE
9. REFRAIN
10. ENDING

The number of characters which can be used in each title is as follows.

1) Song title ..... Max. 28 characters
2) Index title ..... Max. 13 characters
3) Disc title ..... Max. 28 characters

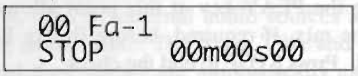
4-10-1. Editing titles



1 Display the item to be titled.

- **Song**
  The song title is displayed when the index number is "00".
- **Index**
  The index title is displayed when the index number is between "1" and "20".

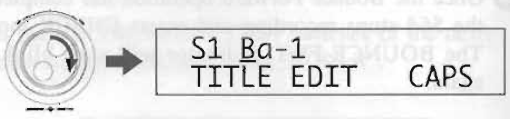
Index No.



- **Disc**
  The disc title can be displayed by pressing the MENU key, then selecting "DISC TITLE?" and rotating the SHUTTLE knob clockwise (toward "YES"). (➡ 6-1. DISC TITLE)

2 Press the TITLE key in the MD block.
If a title has already been assigned, the existing title is displayed scrolling from the right to the left. (Title edit mode)

3 Rotate the JOG dial to select the title characters.



- **To switch the title entry modes...**
  Press the MODE key*.
  This switches the title entry modes in the following order:

CAPS → small → NUM → WORD** →

4 Rotate the SHUTTLE knob clockwise to move the cursor by 1 character toward the right. Rotating the knob counterclockwise moves the cursor by 1 character toward the left.

5 Enter all title characters by repeating steps 3 and 4 above.

6 After completing title entry, press the TITLE key again to establish the title.

- **To insert a character between characters...**
  Press the INSERT* key.
  This inserts a space in the cursor position.

- **To delete a character...**
  Press the DELETE* key.
  This deletes the character in the cursor position and moves the subsequent characters by 1 character toward the left.

* In the title edit mode, the SET, TRIM and CLEAR keys function respectively as the MODE, INSERT and DELETE keys.

** When "WORD" is selected as the title entry mode, the existing title can be changed to one of the preset words (original words). (➡ 6.7 USER WORD)

4-11. UNDO/REDO

Like most computer software, the 564 allows you to undo or redo any operation.

4-11-1. UNDO

- During MOVE or ERASE operation, press the UNDO key to cancel the last operation performed.
- In record mode, press this key to cancel the last recording made.
  However, note that this key cannot cancel the recording which determines or modifies the length of song (first recording, COPY, etc.).

4-11-2. REDO

Any operation that has been undone can be redone.
Press the REDO key to cancel the UNDO key operation and redo the operation canceled by UNDO.

Section 5: Editing Functions

This section describes the 564's editing functions.
The 564 incorporates editing functions for use in mastering and is capable of moving or erasing the sections between indexes of a recorded disc (called patterns).

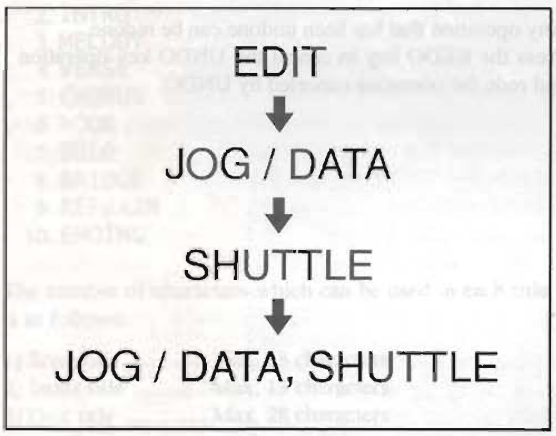
The 564 provides the following edit functions:

1. MOVE
2. ERASE
3. COPY
4. BLACK OUT
5. INDEX PGM (Index program)

NOTES

- *The "TOC EDIT" indicator to the left of the EJECT key lights continuously or blinks as long as the data has not been saved.*
  The recorded data is saved when the song is switched or the MD is ejected.
  Be careful not to switch the power OFF before saving the recorded data. Also, to protect the MD, it is a good idea to eject the MD before switching the power OFF.
- *The message "WRITE PROTECTED" is displayed on the LCD when you attempt to record data on a disc whose write-protective tab is open. Recording is not possible while the write-protective tab is open: Close the write-protective tab before starting recording.*

The basic flow of editing with the 564 is as follows.



Press the EDIT key in stop mode to enter the edit mode.

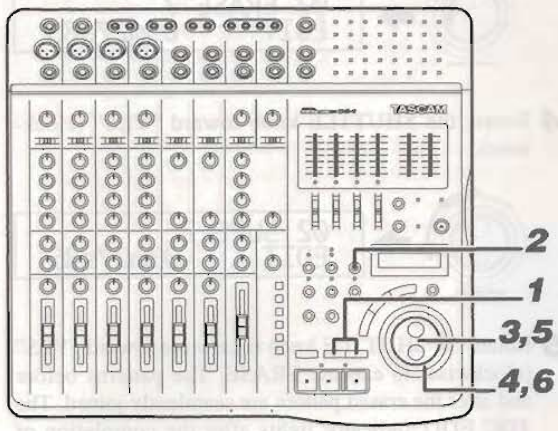
Rotate the JOG/DATA key to select the edit menu.

Rotate the SHUTTLE knob toward "YES" to open the edit menu.

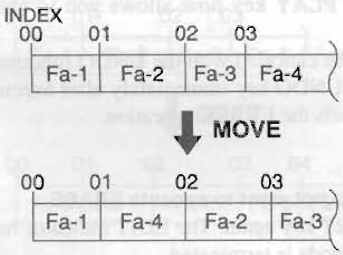
Select or establish each parameter using the JOG/DATA dial or SHUTTLE knob.

After completing this series of operations, save the UTOC by pressing the SONG SELECT key and rotating the SHUTTLE knob toward "YES" (clockwise).

5-1. MOVE

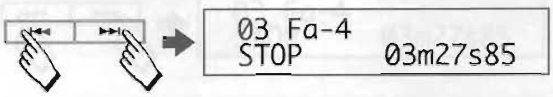


MOVE allows you to move a pattern (a section between two indexes) to another index point in the same song. After MOVE, the moved pattern is seamlessly joined with the patterns before and after it.



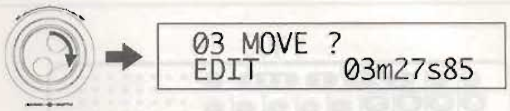
- Be sure to set indexes before proceeding to MOVE. (➡ 4-5. Setting indexes)
- Be sure to select the song before proceeding to MOVE. (➡ 4-2-1. Playback)

1 Display the start index of the pattern to be moved on the LCD by operating the ▶▶| or |◀◀ key in the MD block.



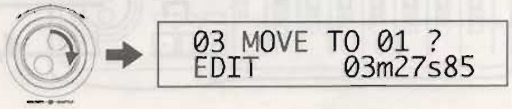
2 Press the EDIT key in stop mode.
The EDIT indicator lights to indicate the edit mode.

3 Rotate the JOG/DATA dial to display "MOVE ?".

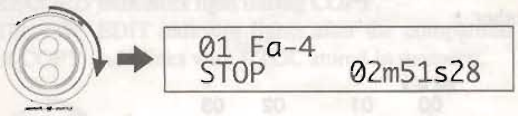


4 Rotate the SHUTTLE knob toward "YES" (clockwise).

5 Rotate the JOG/DATA dial to select the MOVE destination index.



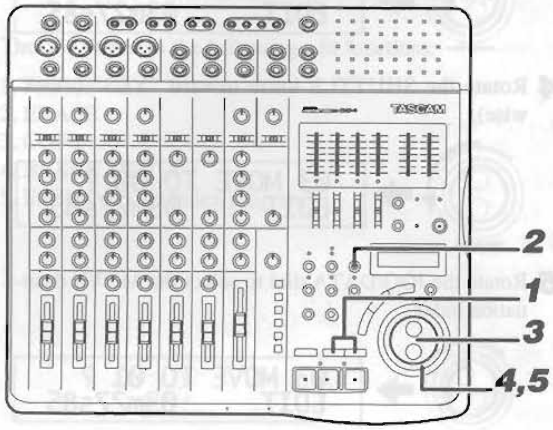
6 Rotate the SHUTTLE knob toward "YES" (clockwise) to execute MOVE. The TOC EDIT indicator lights after the completion of MOVE.



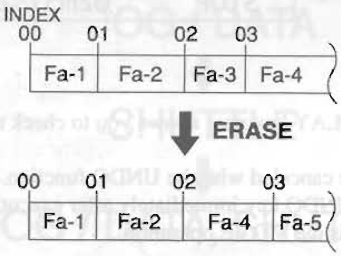
- Pressing the PLAY key now allows you to check the result.
- MOVE can be canceled with the UNDO function. Pressing the UNDO key immediately after execution of MOVE cancels the MOVE operation.

- **When you do not want to execute MOVE...**
Press the EDIT key again. The EDIT indicator turns off and the edit mode is terminated.
Rotating the SHUTTLE knob toward "NO" (counterclockwise) allows you to return to the previous step.

5-2. ERASE



ERASE allows you to erase a pattern.
After ERASE, the patterns which were located before and after the erased pattern are seamlessly joined with each other.

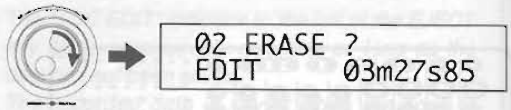


- Be sure to set indexes before proceeding to ERASE. (➡ 4-5. Setting indexes)
- Be sure to select the song before proceeding to ERASE.(➡ 4-2-1. Playback)

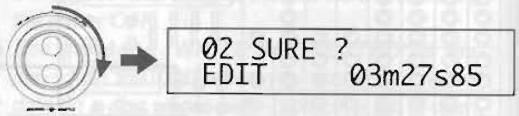
1 Display the start index of the pattern to be erased on the LCD by operating the ▶▶I or I◀◀ key in the MD block.

2 Press the EDIT key in stop mode.
The EDIT indicator lights to indicate the edit mode.

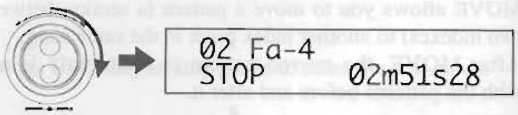
3 Rotate the JOG/DATA dial to display "ERASE ?".



4 Rotate the SHUTTLE knob toward "YES" (clockwise).



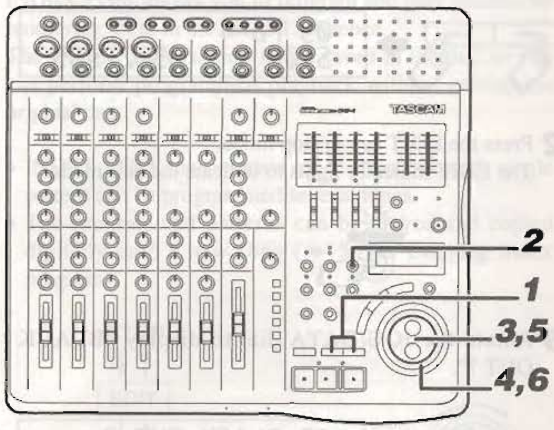
5 Rotate the SHUTTLE knob once more toward "YES" (clockwise) to execute ERASE. The patterns before and after the erased pattern are seamlessly joined. The TOC EDIT indicator lights after the completion of ERASE.



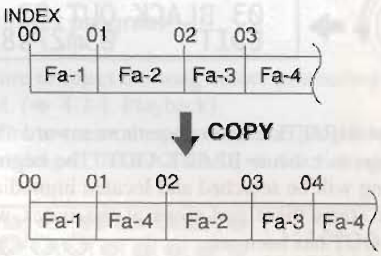
- Pressing the PLAY key now allows you to check the result.
- ERASE can be canceled with the UNDO function. Pressing the UNDO key immediately after execution of ERASE cancels the ERASE operation.

- **When you do not want to execute ERASE...**
  Press the EDIT key again. The EDIT indicator turns off and the edit mode is terminated.
  Rotating the SHUTTLE knob toward "NO" (counter-clockwise) allows you to return to the previous step.

5-3. COPY



COPY allows you to copy a pattern to another index point in the same song.
The 564 executes COPY by digitally recording the copy source pattern after the destination index point.

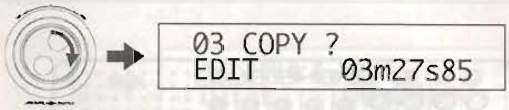


- Be sure to set indexes before proceeding to COPY. (➡ 4-5. Setting indexes)
- Be sure to select the song before proceeding to COPY.(➡ 4-2-1. Playback)

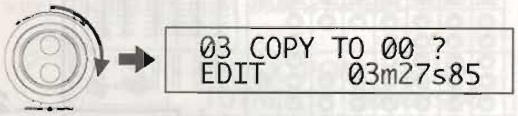
1 Display the start index of the COPY source pattern on the LCD by operating the ▶▶| or |◀◀ key in the MD block.

2 Press the EDIT key in stop mode.
The EDIT indicator lights to indicate the edit mode.

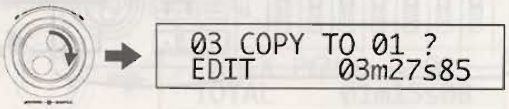
3 Rotate the JOG/DATA dial to display "COPY ?".



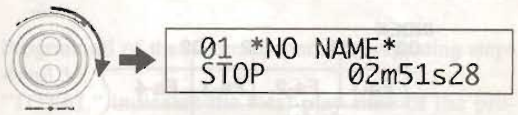
4 Rotate the SHUTTLE knob toward "YES" (clockwise).



5 Rotate the JOG/DATA dial to select the COPY destination index.



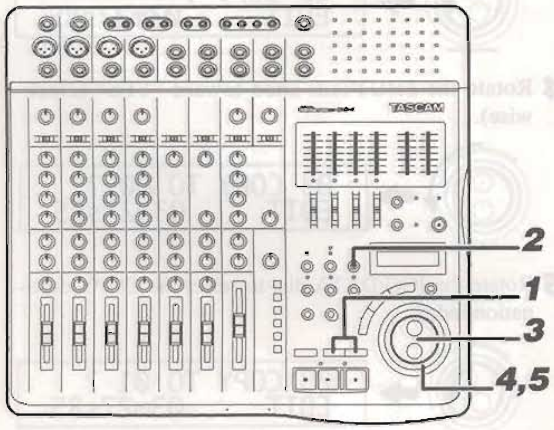
6 Rotate the SHUTTLE knob toward "YES" (clockwise) to execute COPY. As the COPY operation consists of actual digital recording, the PLAY and RECORD indicators light during COPY.
The TOC EDIT indicator lights after the completion of COPY and blinks with UTOC stored in memory.



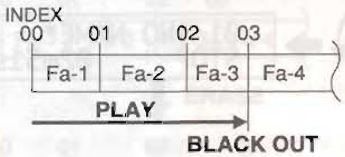
- Pressing the PLAY key now allows you to check the result.
- COPY cannot be canceled with the UNDO function. Use ERASE to erase the copied pattern. (➡ 5.2 ERASE)
- The pattern title is not copied so the newly copied pattern has a title of "*NO NAME*".

- **When you do not want to execute COPY...**
Press the EDIT key again. The EDIT indicator turns off and the edit mode is terminated.
Rotating the SHUTTLE knob toward "NO" (counterclockwise) allows you to return to the previous step.

5-4. BLACK OUT



Just prior to the specified index point, the 564 will terminate playback and Stop.
The BLACK OUT setting is not saved on the disc so you can stop playback accurately at any point without erasing the original data after this point.

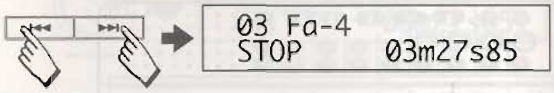


Examples of uses for the Black Out function:

1. Black Out provides a non-destructive means to experiment with different versions of your song's ending. Perhaps one version stops after an orchestra hit or brass stab while the other version repeats and fades.
2. You can experiment with signal processing characteristics by forcing abrupt stops to inspect, for example, a reverb's decay.
3. Used in conjunction with Index Programming, a 30 second version of a commercial might be "trimmed" to a 15 second version.

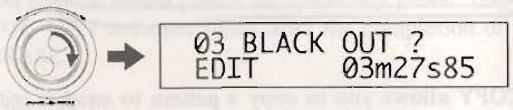
- Be sure to set indexes before proceeding to BLACK OUT. (➡ 4-5. Setting indexes)
- Be sure to select the song before proceeding to BLACK OUT. (➡ 4-2-1. Playback)

1 Display the index where you want to stop playback on the LCD by operating the ►►I or I◄◄ key in the MD block.

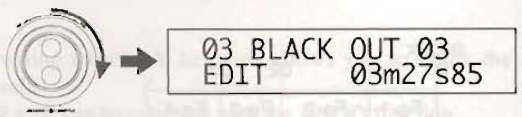


2 Press the EDIT key in stop mode.
The EDIT indicator lights to indicate the edit mode.

3 Rotate the JOG/DATA dial to display "BLACK OUT ?".



4 Rotate the SHUTTLE knob toward "YES" (clockwise).



5 Rotate the SHUTTLE knob once more toward "YES" (clockwise) to execute BLACK OUT. The beginning of the song will be searched and located immediately, playback starts there and stops at the index where BLACK OUT has been set.

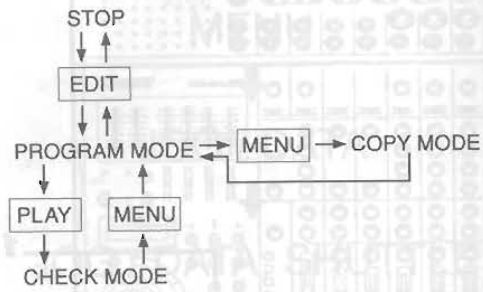
- When BLACK OUT is executed, only one cycle of start and forced end of playback occurs.
When you want to dub the BLACK OUT result on a master recorder, put the master recorder in record mode before executing BLACK OUT.

- **When you do not want to execute BLACK OUT...**
Press the EDIT key again. The EDIT indicator turns off and the edit mode is terminated.
Rotating the SHUTTLE knob toward "NO" (counterclockwise) allows you to return to the previous step.

5-5. INDEX PGM (Index program)

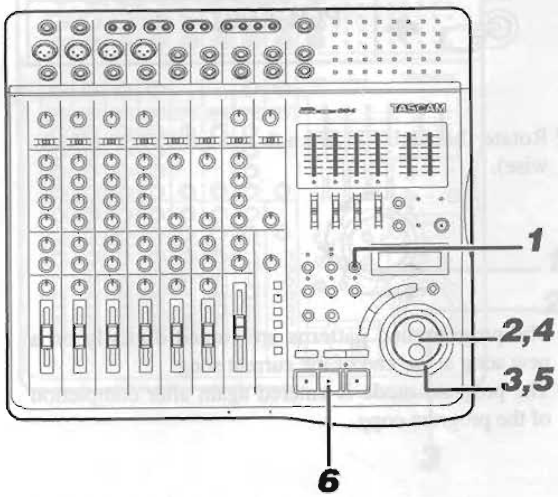
INDEX PGM allows you to program and play patterns by reordering them in the desired sequence.
The INDEX PGM setting is not saved in the disc so you can perform programmed playback without editing the original data.

- INDEX PGM can program up to 99 patterns. A single pattern can be programmed several times.
- The programmed patterns can be played and copied digitally onto a new song (➡ 5-5-2. Copying index program)



5.5.1 Index program

- Be sure to select the song before proceeding to INDEX PGM. (➡ 4-2-1. Playback)
- Be sure to create the patterns to be programmed before proceeding to INDEX PGM. (➡ 4-5. Setting indexes)



1 Press the EDIT key in stop mode.
The EDIT indicator lights to indicate the edit mode.

2 Rotate the JOG/DATA dial to display "INDEX PGM ?".

3 Rotate the SHUTTLE knob toward "YES" (clockwise). The INDEX PGM mode is initiated.

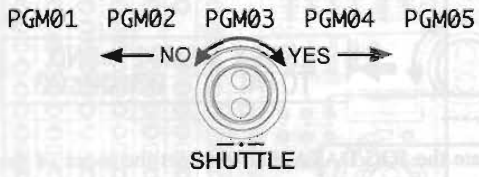
4 Rotate the JOG/DATA dial to select the index of the pattern to be programmed.

5 Rotate the SHUTTLE knob toward "YES" (clockwise). The program number is incremented by +1.

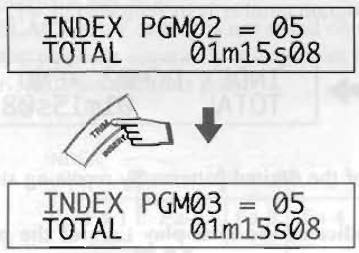
Program all of the desired patterns by repeating steps 4 and 5.
"TOTAL" indicates the total play time of the programmed patterns.
To end programming, select "END".

6 Press the PLAY key.
The program check mode is initiated, in which you can operate the 564 in the same way as in normal play mode.
The JOG/DATA dial, SHUTTLE knob, STOP key and Play key can be used in the program check mode. (Recording-related operations are disabled.)

• **To change the index program...**
Press the MENU key.
The program check mode switches to the program mode so you can change the index programmed patterns by repeating steps 4 and 5.
Rotating the SHUTTLE knob in the INDEX PGM mode allows you to check the programs before and after the current position.

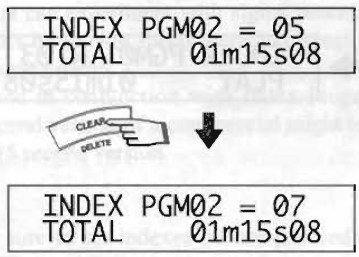


• **To insert an index program in the middle of an index program...**
Display "INDEX PGMXX = XX" on the LCD and press the INSERT* key.



Then add a pattern to the program following the program operation (steps 4 and 5) procedure.

• **To delete a programmed pattern in the middle of an index program...**
Display the program to be deleted on the LCD and press the DELETE* key.



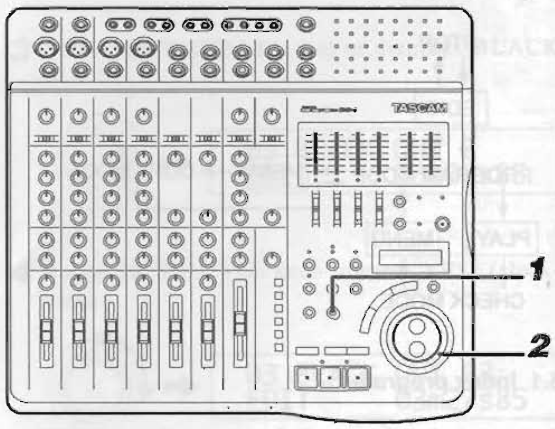
(Example when the program is composed of indexes 3 → 5 → 7 → 9)

* In the INDEX PGM mode, the TRIM and CLEAR keys function respectively as the INSERT and DELETE keys.

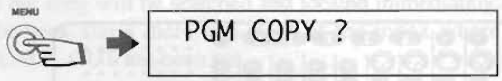
5-5-2. Copying index program

An index program can be played and copied digitally into a new song.
However, note that the indexes in the original song and the index programming contents are not copied.

> ***NOTE***
> *Reserve an enough free space in the disc before copying a long program.*



1 Press the MENU key in the INDEX PGM mode.



2 Rotate the SHUTTLE knob toward "YES" (clockwise).

The programmed patterns are copied digitally on a new song at the end of the current song.
The program mode is entered again after completion of the program copy.

Section 6 : Utility Functions

This section describes the 564's utility functions.

The following utility functions are available:
1. DISC TITLE
2. DISC ERASE
3. SONG ERASE
4. SYNC SETUP
5. TEMPO MAP EDIT
6. REP. INTERVAL
7. USER—WORD

The basic flow of utility operations is as follows.

MENU
↓
JOG / DATA
↓
JOG / DATA, SHUTTLE

Press the MENU key in the stop mode to enter the utility mode.

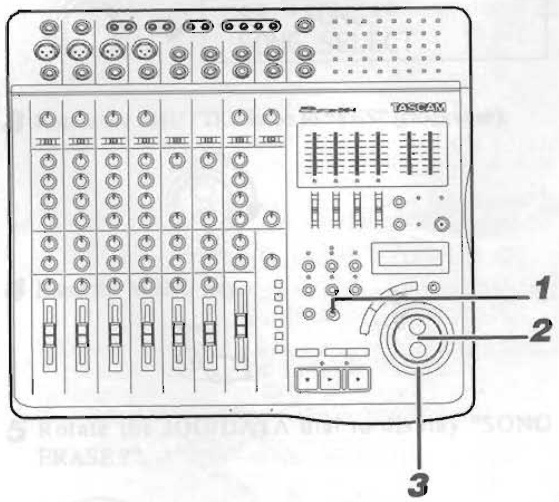
↓

Rotate the JOG/DATA key to select the utility menu.

↓

Select or establish each parameter using the JOG/DATA dial or SHUTTLE knob.

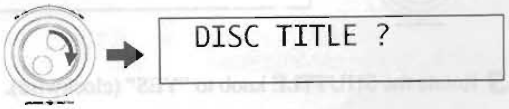
6-1. DISC TITLE



DISC TITLE allows you to displays the disc title.

1 Press the MENU key in the stop mode.

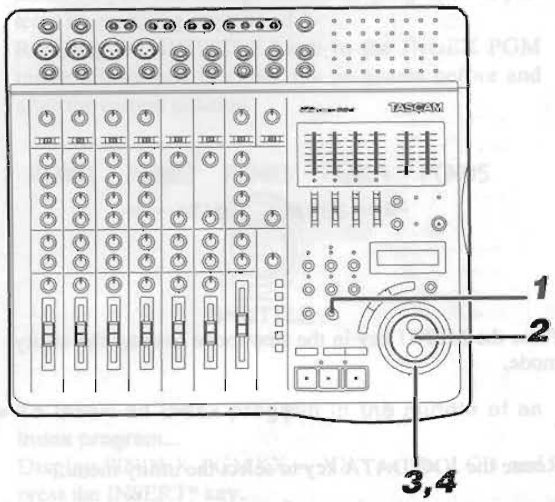
2 Rotate the JOG/DATA dial to display "DISC TITLE ?".



3 Rotate the SHUTTLE knob to "YES" (clockwise). The LCD shows the title of the disc.

- Pressing the TITLE key while the disc title is displayed allows you to edit the title. (➡ 4-10. Titles)
- Press the MENU key again or rotate the SHUTTLE knob to "YES" (clockwise) to return to the normal display.

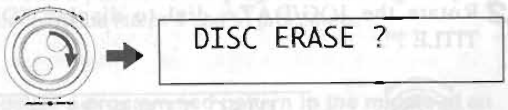
6-2. DISC ERASE



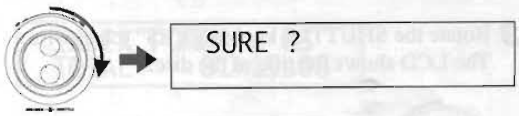
DISC ERASE allows you to erase all of the data on a disc. And the disc restores its unused condition.

1 Press the MENU key in the stop mode.

2 Rotate the JOG/DATA dial to display "DISC ERASE?".



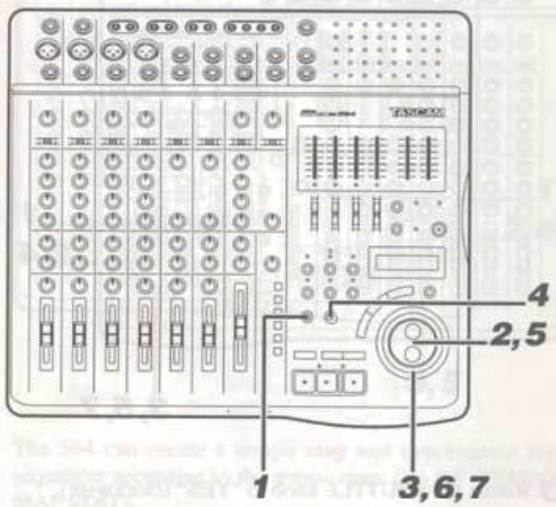
3 Rotate the SHUTTLE knob to "YES" (clockwise).



4 When the confirmation message "SURE ?" is displayed, rotate the SHUTTLE knob to "YES" (clockwise) again if you want to erase the entire disc.
The disc is erased and the TOC EDIT indicator lights up.

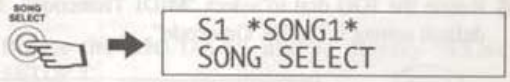
- Press the MENU key again or rotate the SHUTTLE knob to "NO" (counterclockwise) to return to the normal display.
- DISC ERASE can be canceled with the UNDO function.
  Pressing the UNDO key immediately after execution of DISC ERASE cancels the DISC ERASE operation.

6-3. SONG ERASE

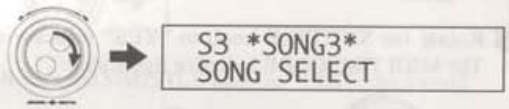


SONG ERASE allows you to erase a selected song.

1 Press the SONG SELECT key in the stop mode.



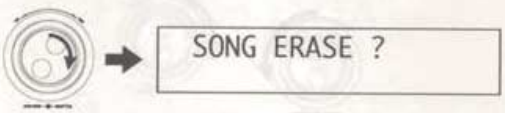
2 Rotate the JOG/DATA dial to select the song to be erased.



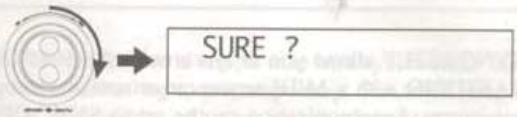
3 Rotate the SHUTTLE knob to "YES" (clockwise).

4 Press the MENU key.

5 Rotate the JOG/DATA dial to display "SONG ERASE ?".



6 Rotate the SHUTTLE knob to "YES" (clockwise).



7 When the confirmation message "SURE ?" is displayed, rotate the SHUTTLE knob to "YES" (clockwise) again if you want to erase the song contents.
The song contents are erased and the TOC EDIT indicator lights up.

- Press the MENU key again or rotate the SHUTTLE knob to "NO" (counterclockwise) to return to the normal display.
- SONG ERASE can be canceled with the UNDO function.
  Pressing the UNDO key immediately after execution of SONG ERASE cancels the SONG ERASE operation.

6-4. SYNC SETUP

SYNC SETUP allows you to synchronize the 564 PORTASTUDIO with a MIDI sequencer or similar external equipment. Synchronization can be set to SYNC OFF, MTC (MIDI Timecode) sync or MIDI Clock sync.
When the 564 and a sequencer are synchronized, the 564 functions as the master and the sequencer as the slave. This applies equally to the MTC sync and MIDI Clock sync.
With MTC sync, the sequencer must be compatible with MTC.
With MIDI Clock sync, it is best to use a sequencer which is compatible with song position pointer. Song position pointer compatibility makes it possible to synchronize the equipment even from the middle of a song.
When MTC is selected, the 564 can be controlled from a MMC-compatible sequencer. Applicable commands are STOP, DEFERRED PLAY and LOCATE.

- The SYNC SETUP menu cannot be opened unless a disc is loaded.
- The sync setup is not backed up and the default "MIDI Timecode" sync is recalled when power is switched OFF.
- Synchronization between the 564 and sequencer requires setup of the sequencer as well as the 564. In this case, the sequencer should be set to the external sync mode. This is expressed in a variety of ways depending on the sequencer. In general, select "MTC" or "MIDI TIMECODE" for MTC sync and select "MIDI", "MIDI CLOCK" or "EXTERNAL SYNC" for MIDI Clock sync.

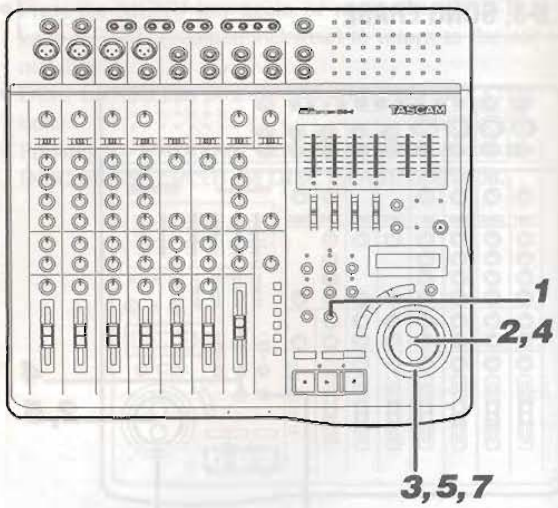
6-4-1. MTC synchronization

The 564 can output the time data on the LCD by converting it into MTC (MIDI Timecode).

1 Press the MENU key in the stop mode.

2 Rotate the JOG/DATA dial to display "SYNC SETUP ?".

SYNC SETUP ?

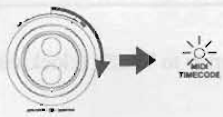


3 Rotate the SHUTTLE knob to "YES" (clockwise).

4 Rotate the JOG dial to select "MIDI Timecode". The default setting is "MIDI Timecode".

MIDI Timecode

5 Rotate the SHUTTLE knob to "YES" (clockwise). The MIDI TIMECODE indicator lights up.

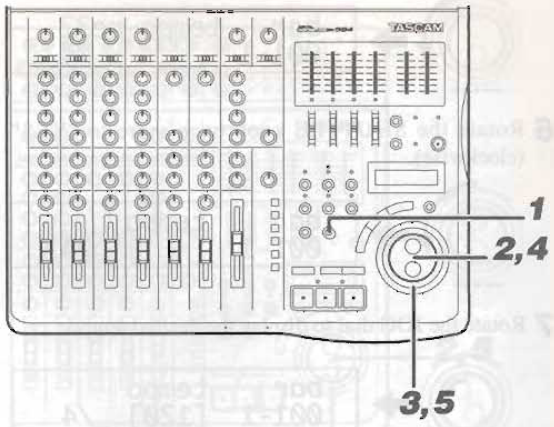


6 Select the MTC frame rate. The default setting is "30NDF".
The 564's MTC frame rate can be selected from the following:
30NDF, 30DF (29.97), 25, 24.

MIDI Timecode
TYPE= 30NDF

7 Rotate the SHUTTLE knob to "YES" (clockwise).

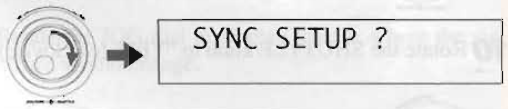
6-4-2. MIDI Clock synchronization



The 564 can create a tempo map and synchronize the sequencer according to the tempo map. (=> 6.5 TEMPO MAP EDIT)

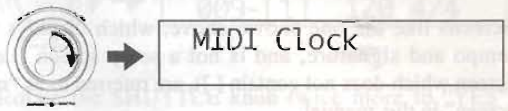
1 Press the MENU key in the stop mode.

2 Rotate the JOG/DATA dial to display "SYNC SETUP ?".



3 Rotate the SHUTTLE knob to "YES" (clockwise).

4 Rotate the JOG/DATA dial to select "MIDI Clock". The default setting is "MIDI Timecode".



5 Rotate the SHUTTLE knob to "YES" (clockwise). The MIDI CLOCK indicator lights up.

Next, create a tempo map. If a tempo map has already been created for the song, the sequencer can be synchronized immediately.

6-5. TEMPO MAP EDIT

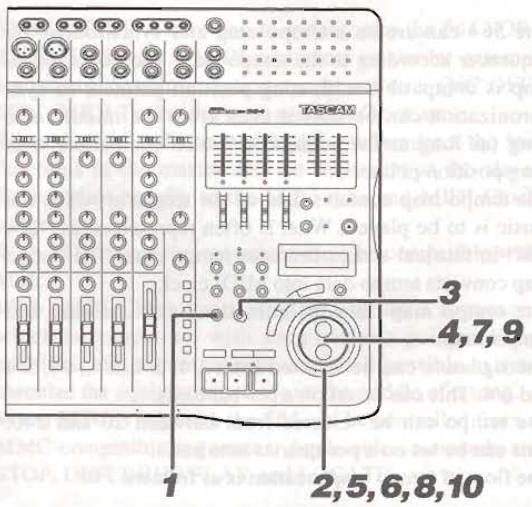
The 564 can create a tempo map and synchronize the sequencer according to the tempo map. The 564's tempo map is compatible with song position pointers so synchronization can be started even from the middle of a song (as long as the sequencer is also compatible with song position pointers).
The tempo map contains data on the tempo at which the music is to be played. What is often represented as "♩ = 120" in musical scores becomes tempo data. The tempo map converts tempo data into MIDI clocks.
The tempo map data includes the signature data and tempo data.
The signature can be selected from 1/4, 2/4, 3/4, 4/4, 5/4 and 6/4. This can be set on a per-bar basis.
The tempo can be selected from between 20 and 240. This can be set on a per-quarter note basis.
The flow of tempo map creation is as follows:

1. Input the signature of the 1st bar.
2. Input the initial tempo.
3. Specify the bar where the signature should change.
4. Input the new signature.
5. Repeat 3 and 4 as required.
6. Specify the position where the tempo should change.
7. Input the new tempo.
8. Repeat 6 and 7 as required.
9. Record the tempo map on disc.

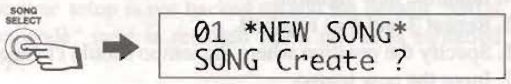
If the signature and tempo do not change, the operation consists only of 1, 2 and 9.

- The total number of the points where the tempo changes and those where the signature changes may be up to 32 per song, or 96 points per disc.

6-5-1. Creating a tempo map



1 Press the SONG SELECT key in the stop mode to create or select a song.



If one or more song has already been created, the LCD shows the following.

```
01 *SONG1*
SONG SELECT
```

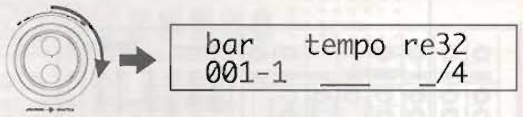
In this case, rotate the JOG dial to select the song for which you want to create a tempo map.

2 Rotate the SHUTTLE knob to "YES" (clockwise).

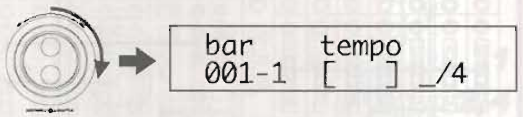
3 Press the MENU key in the stop mode.

4 Rotate the JOG dial to display "TEMPO MAP EDIT ?".

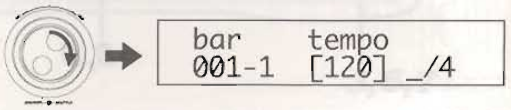
5 Rotate the SHUTTLE knob to "YES" (clockwise).



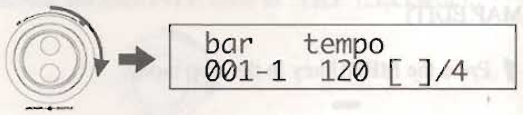
6 Rotate the SHUTTLE knob once more to "YES" (clockwise).



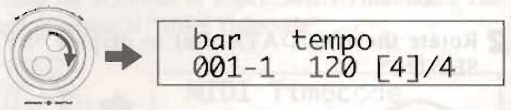
7 Rotate the JOG dial to display the desired tempo.



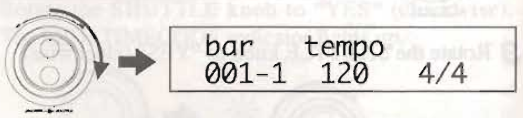
8 Rotate the SHUTTLE knob to "YES" (clockwise).



9 Rotate the JOG dial to display the desired signature.



10 Rotate the SHUTTLE knob to "YES" (clockwise).

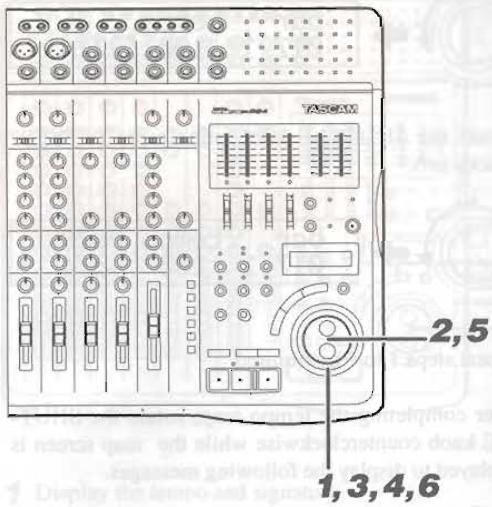


The operation is complete if the tempo and signature of the song do not change in the middle. Go to "step 8 in 6-5-3".

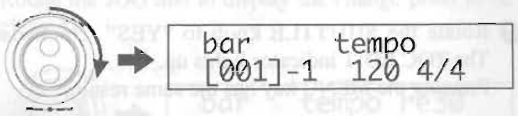
Screens like the one shown above, which displays the tempo and signature, and is not a setup screen (i.e. a screen which does not contain [ ]), are referred to as "map screen" in this manual.

To change the tempo and/or signature in the middle of a song, follow the steps below.

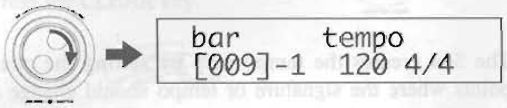
6-5-2. Steps for changing the signature setting



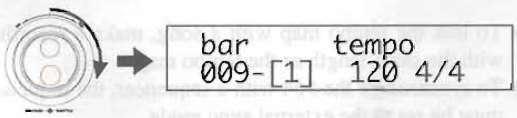
1 With the map screen displayed, rotate the SHUTTLE knob to "YES" (clockwise).



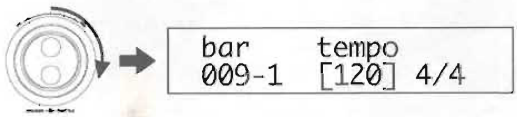
2 Rotate the JOG dial to display the bar where the signature should change.

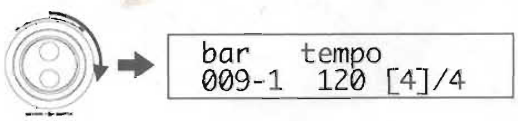


3 Rotate the SHUTTLE knob to "YES" (clockwise).

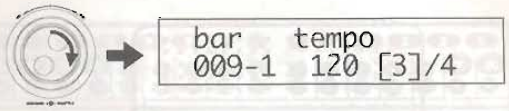


4 Rotate the SHUTTLE knob twice more to "YES" (clockwise).

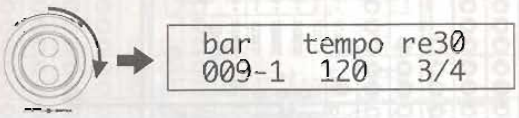




5 Rotate the JOG dial to display the desired signature.



6 Rotate the SHUTTLE knob to "YES" (clockwise).



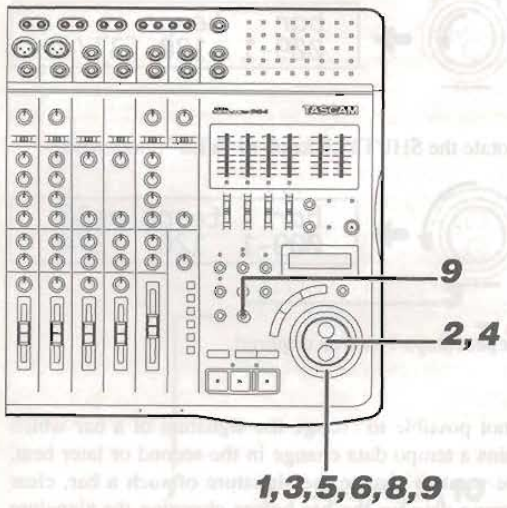
7 Repeat steps 1 to 6 as required.

It is not possible to change the signature of a bar which contains a tempo data change in the second or later beat. If you want to change the signature of such a bar, clear the tempo data for the bar before changing the signature (➔ 6-5-4. Clearing input data), and input the tempo data again afterwards.

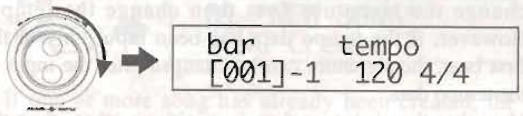
If a bar contains both signature change and tempo change and you want to change either or both of them, always change the signature first then change the tempo. However, if the tempo data has been input only in the first beat, the signature can be changed after the input of the tempo data.

Note that the signature data in positions other than the first beat cannot be changed.

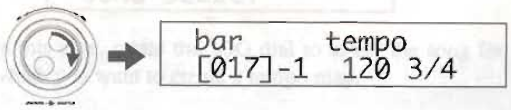
6-5-3. Steps for changing the tempo setting



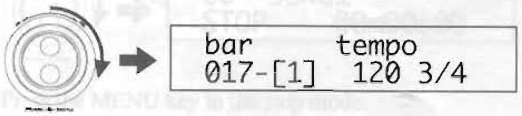
1 With the map screen displayed, rotate the SHUTTLE knob to "YES" (clockwise).



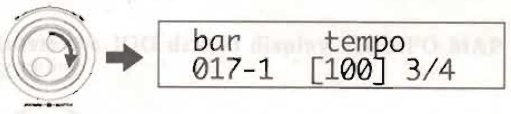
2 Rotate the JOG dial to display the bar where the tempo should change.



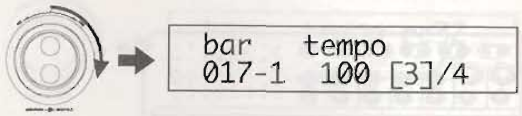
3 Rotate the SHUTTLE knob to "YES" (clockwise).



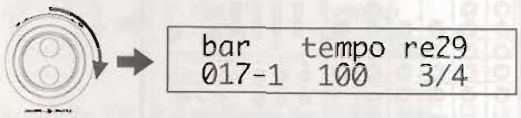
4 Rotate the JOG dial to display the desired tempo.



5 Rotate the SHUTTLE knob to "YES" (clockwise).

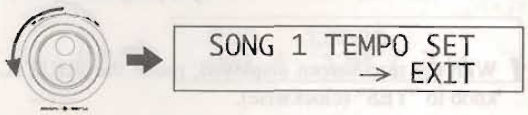


6 Rotate the SHUTTLE knob once more to "YES" (clockwise).

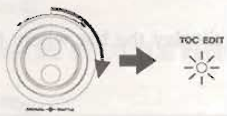


7 Repeat steps 1 to 6 as required.

8 After completing the tempo map, rotate the SHUTTLE knob counterclockwise while the map screen is displayed to display the following messages.



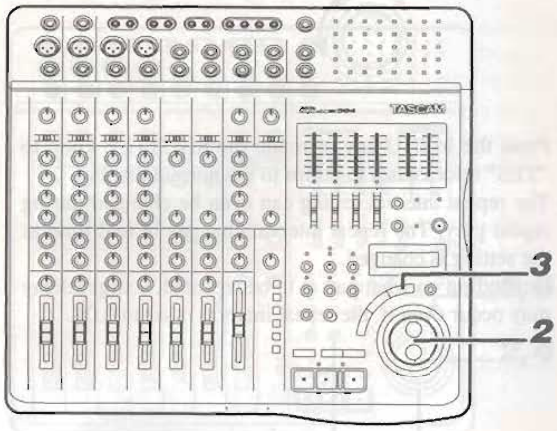
9 Rotate the SHUTTLE knob to "YES" (clockwise). The TOC EDIT indicator lights up. Pressing the MENU key has the same result.



The 564 creates the tempo map by setting the change points where the signature or tempo should change and inputting new data at these points. This reduces the amount of data required and simplifies data input operation.

- To link the tempo map with a song, make a recording with the same length as the tempo map.
- To synchronize the 564 with a sequencer, the sequencer must be set to the external sync mode.

6-5-4. Clearing input data



1 Display the tempo and signature.

```
bar   tempo re30
001-1  120   3/4
```

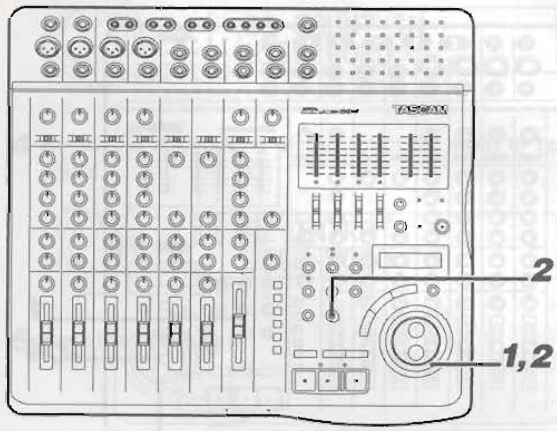
2 Rotate the JOG dial to display the change point to be cleared.

```
bar   tempo re30
009-1  100   3/4
```

3 Press the CLEAR key.

4 The change data is cleared. The LCD should show the data for the next change point.

6-5-5. Aborting operation



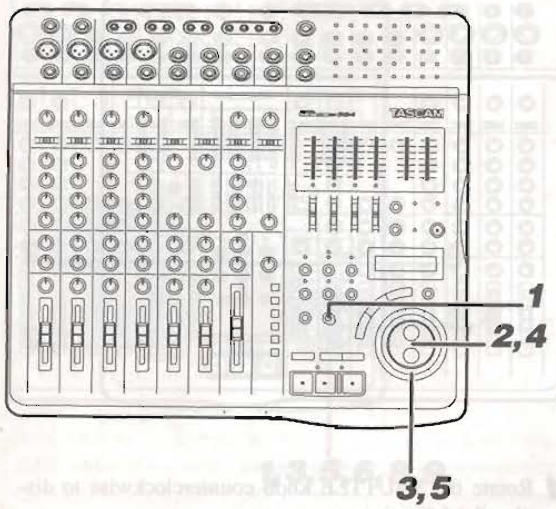
1 Rotate the SHUTTLE knob counterclockwise to display the following messages.

```
SONG 1 TEMPO SET
          → EXIT
```

2 Rotate the SHUTTLE knob to "YES" (clockwise). The TOC EDIT indicator lights up.
Pressing the MENU key has the same result.

- When editing after a tempo map is created, the consistency of the sync between the 564 and sequencer may be lost. Be careful when using the editing functions after having created a tempo map.

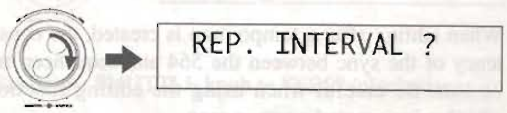
6-6. REP. INTERVAL



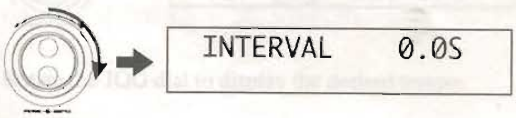
REP. INTERVAL allows you to set the waiting time until the start of the next repeat play (repeat interval).
This setting is valid in repeat play or in the trim repeat mode.
The repeat interval can be set from 0.0 to 9.9 seconds.

1 Press the MENU key in the stop mode.

2 Rotate the JOG/DATA dial to display "REP. INTERVAL ?".



3 Rotate the SHUTTLE knob to "YES" (clockwise).

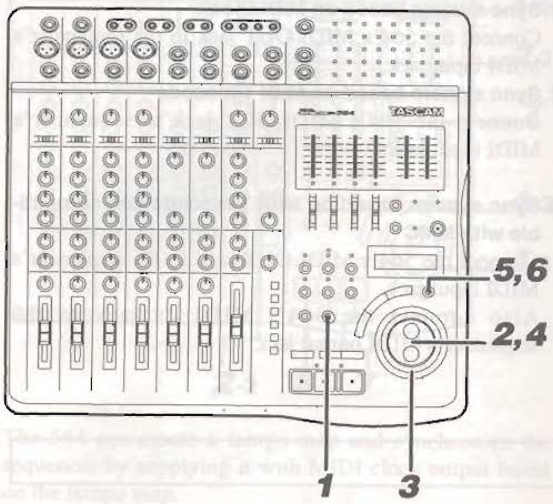


4 Rotate the JOG/DATA dial to set the repeat interval time.

5 Rotate the SHUTTLE knob to "YES" (clockwise).

- Press the MENU key or rotate the SHUTTLE knob to "YES" (clockwise) to return to the normal display.
- The repeat interval setting can even be changed during repeat play. The repeat interval changes in real time as the setting is changed.
- Depending on what part is to be repeated, a slight delay may occur even if the repeat interval is set to 0.0S.

6-7. USER-WORD



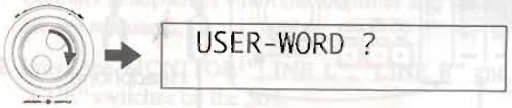
USER-WORD refers to words preset to simplify title input.
The following 10 user words (preset words) are preset when the 564 is shipped.
Preset words can be edited.

1. COUNT IN
2. INTRO
3. MELODY
4. VERSE
5. CHORUS
6. HOOK
7. SOLO
8. BRIDGE
9. REFRAIN
10. ENDING

- Up to 10 user words can be preset.
  Each word can contain up to 12 characters.

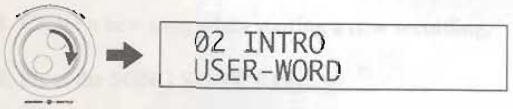
1 Press the MENU key in the stop mode.

2 Rotate the JOG/DATA dial to display "USER—WORD ?".



3 Rotate the SHUTTLE knob to "YES" (clockwise).

4 Rotate the JOG/DATA dial to select the word to be edited.



5 Press the TITLE key.

The rest of the procedure is the same as the title input or editing procedure. (➡ 4-10. Titles)

○ Rotate the JOG dial to select title characters.
○ Rotate the SHUTTLE knob to move cursor.

6 After editing a word, press the TITLE key.
The word is reset.

- Press the MENU key again or rotate the SHUTTLE knob to "YES" (clockwise) to return to the normal display.

- To change the word input mode...
  Press the MODE key*.
  The word input mode switches as follows:
  CAPS → small → NUM →

- To insert a character...
  Press the INSERT key*.
  This inserts a space in the cursor position.

- To delete a character...
  Press the DELETE* key.
  This deletes the character in the cursor position and moves the subsequent characters by 1 character to the left.

* In the edit mode, the SET, TRIM and CLEAR keys function respectively as the MODE, INSERT and DELETE keys.

Section 7 : Sync Functions

The 564 can be synchronized with a MIDI sequencer in either of the following ways:

1. Sync based on MIDI Clock
2. Sync based on MIDI Timecode

With either method, the 564 is the master and sequencer is the slave.

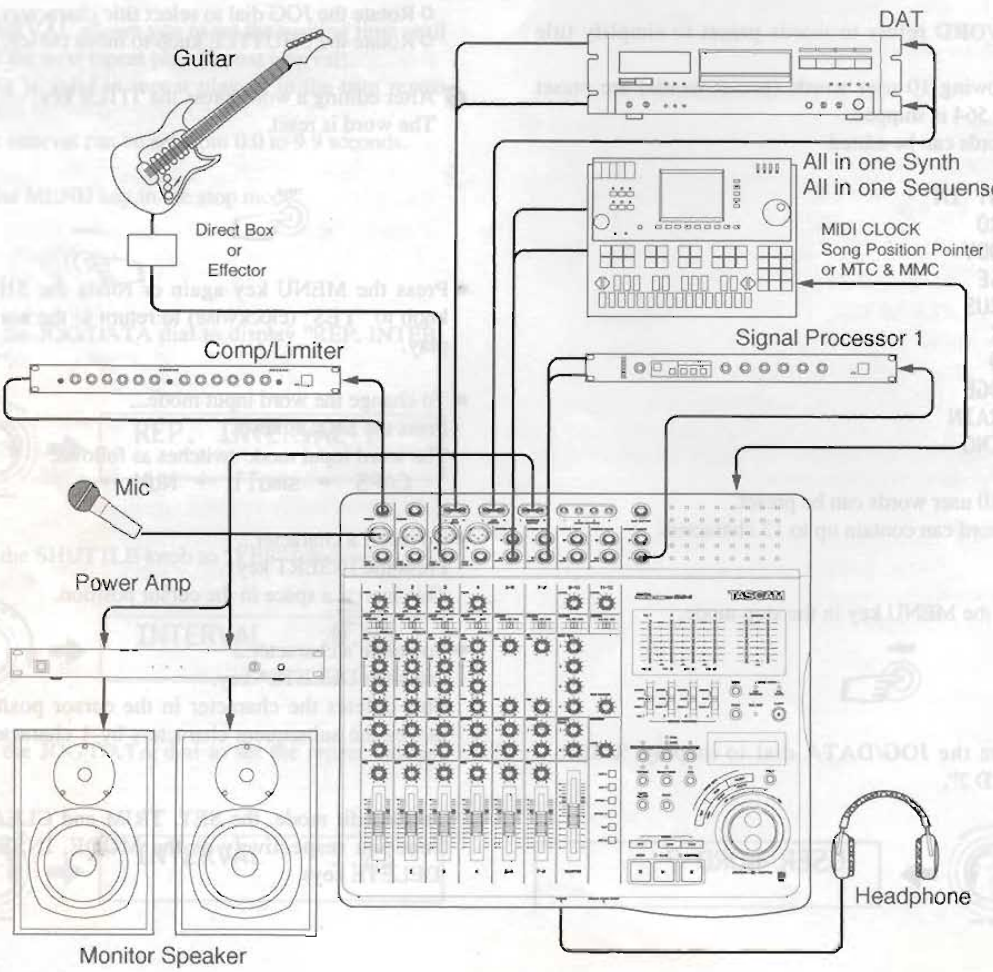
7-1. MIDI Connection

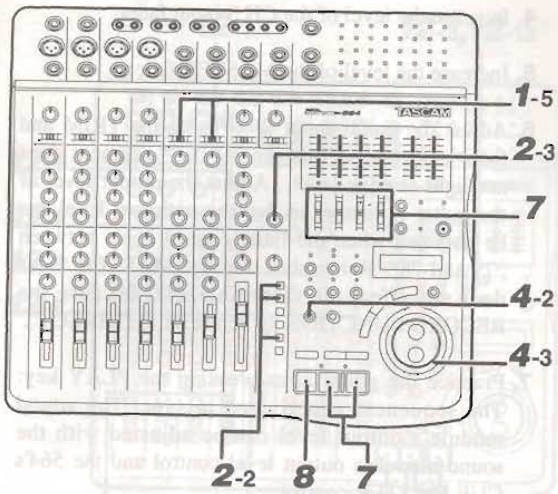
1. Sync system based on MIDI Clock
Connect the 564's MIDI OUT jack to the sequencer's MIDI input jack.

2. Sync system based on MIDI Timecode
Connect the 564's MIDI OUT jack to sequencer's MIDI input jack.

3. Sync system based on MIDI Timecode and compatible with MMC
Connect the 564's MIDI OUT jack to the sequencer's MIDI input jack.
Also connect the 564's MIDI IN jack to the sequencer's MIDI output jack.

7-2. Sync System Based on MIDI Clock





The 564 can create a tempo map and synchronize the sequencer by supplying it with MIDI clock output based on the tempo map.
The 564 is compatible with song position pointers and can synchronize a sequencer even from the middle of a song (as long as the sequencer is also compatible with song position pointers).

Now, let us see how music can be composed by following the actual operation steps.

1 Compile the sequencer input data.

1. Assume that you have a sound module and effector.
2. Assume that the analog musical instruments are a guitar and vocal.
3. You want to record the vocal and chorus in TRK 1 and 2, and guitar and guitar solo in TRK 3 and 4.
4. Connect the sound sources as shown in the illustration.
5. Set the ASSIGN switches of CH 5-6 and 7-8 to "CUE".

2 Prepare for monitoring.

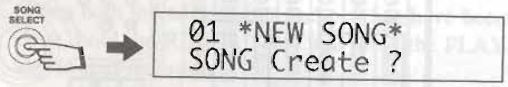
1. Connect a power amplifier and monitor speakers to the 564's MONITOR OUTPUT jacks as shown in the illustration.
   Connect headphones when the amplifier and speakers are not used.
2. Press the MONITOR "LINE L", "LINE R" and "CUE" switches on the 564.

3. Turn the CUE MASTER knob.

3 Set SYNC SETUP on the 564 to "MIDI Clock". (➔ 6-4. SYNC SETUP)

4 Create a new song.

1. Create a new song when starting a new recording.
2. Press the SONG SELECT key.



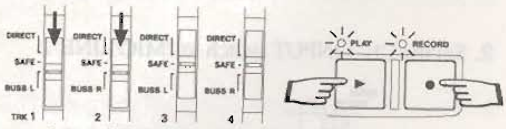
3. Rotate the SHUTTLE knob to "YES" (clockwise).

5 Create a tempo map on the 564. (➔ 6-5. TEMPO MAP EDIT)
If no tempo map is created, MIDI clock of "♩ = 120" will be output.

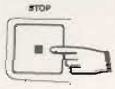
6 Set the sequencer to the external sync mode (MIDI Clock sync mode).

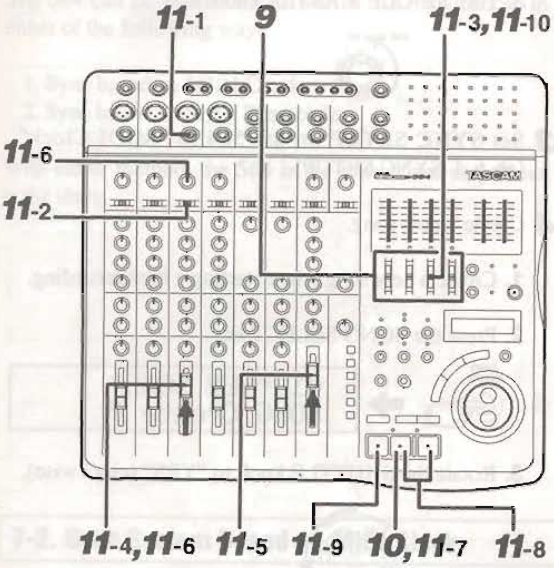
7 Set the RECORD function switches to "DIRECT", "BUSS L" or "BUSS R". Hold the RECORD key and press the PLAY key to start blank recording*1. This is an important operation which links the song with tempo map. The length of the recording made on this occasion determines the maximum length of the new song. The area for future recording operations is reserved by this operation.
In this case, MIDI Clock (MTC*2) is output. However, do not execute recording using this clock.

*1 No-signal recording.
*2 With the SYNC SETUP set to "MIDI Timecode".

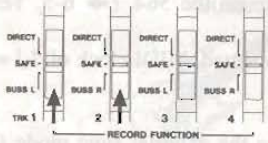


8 After completing recording, press the STOP key.

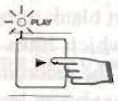




9 Set the RECORD function switch back to "SAFE".

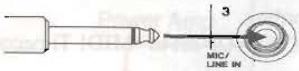


10 Now check that the sequencer follows the operation of the 564 in sync.
Press the PLAY key.



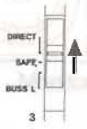
11 Record the guitar sound in TRK 3.

1. Connect the guitar to the CH 3's MIC/LINE IN jack.



2. Set the CH 3 INPUT switch to "MIC/LINE".

3. Set the RECORD FUNCTION "TRK 3" switch to "DIRECT".

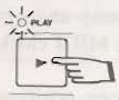


4. Increase the level of the CH 3 input fader.

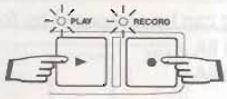
5. Increase the level of the MASTER fader.

6. Adjust the guitar input level using the TRIM and fader controls, so that the "OVER" segment does not light at peak level. Adjust the output level of the guitar (effector) so that the optimum level can be obtained when the fader control is set between "7" and "8". Remember that the MASTER fader does not affect the recording level because the RECORD FUNCTION switch is set to "DIRECT".

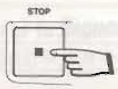
7. Practice the guitar after pressing the PLAY key: The sequencer is activated in sync. The sound module's output level can be adjusted with the sound module's output level control and the 564's CUE MASTER control.



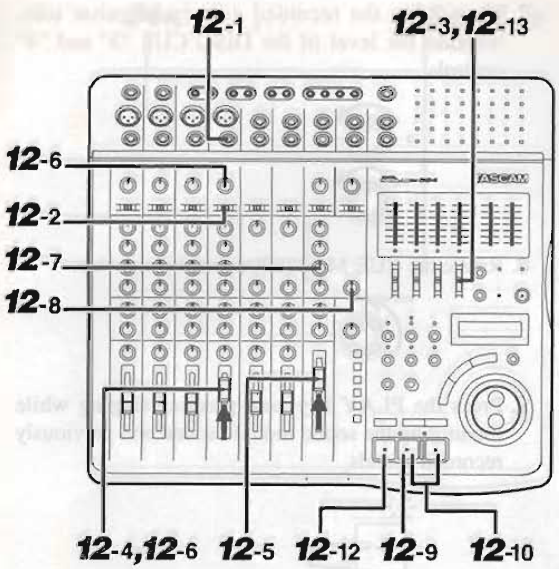
8. When the adjustments have been done, hold the RECORD key and press the PLAY key to start recording.



9. After completing the guitar part, press the STOP key to stop recording.



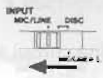
10. Set the RECORD FUNCTION switch back to "SAFE".



12 Record the guitar solo part in TRK 4.

1. Connect the guitar to the CH 4 MIC/LINE IN jack.

2. Set the CH 4 INPUT switch to "MIC/LINE".



3. Set the RECORD FUNCTION "TRK 4" switch to "DIRECT".

4. Increase the level of the CH 4 input fader.

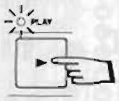
5. Increase the level of the MASTER fader.

6. Adjust the guitar input level using the TRIM and fader controls. The adjustment method is identical to step 11-4 above.

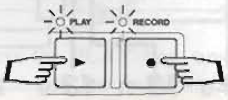
7. To monitor the previously recorded guitar sound, increase the level of the DISC CUE "3" control.

8. Rotate the CUE MASTER control clockwise.

9. Press the PLAY key, and practice the guitar solo while monitoring the sound module sound and previously recorded guitar sound.

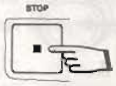


10. When both the adjustments and practice have been done, hold the RECORD key and press the PLAY key to start recording.

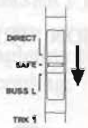


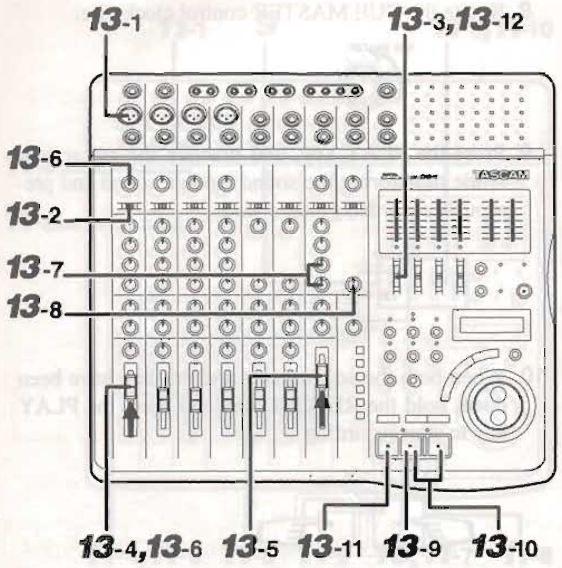
11. Since all you have to record in this step is the guitar solo part, it may be convenient to use the auto punch-in/out function. (➡ 4.8 Auto punch-in/out)

12. After having completed the guitar solo play, press the STOP key to stop recording.



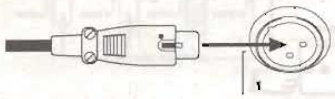
13. Set the RECORD FUNCTION switch back to "SAFE".



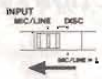


13 Record the vocal in TRK 1.

1. Connect a microphone to the CH 1 MIC/LINE IN jack.



2. Set the CH 1 INPUT switch to "MIC/LINE".



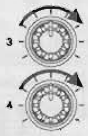
3. Set the RECORD FUNCTION "TRK 1" switch to "DIRECT".

4. Increase the level of the CH 1 input fader.

5. Increase the level of the MASTER fader.

6. Adjust the microphone input level using the TRIM and fader controls. The adjustment method is identical to step 11-4 above.

7. To monitor the recorded guitar and guitar solo, increase the level of the DISC CUE "3" and "4" controls.



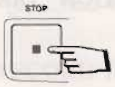
8. Rotate the CUE MASTER control clockwise.

9. Press the PLAY key, and practice singing while monitoring the sound module sound and previously recorded sounds.

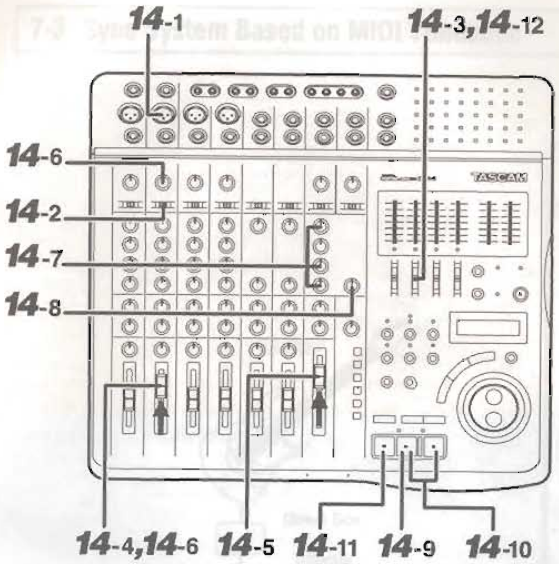
10. When both the adjustments and practice have been done, hold the RECORD key and press the PLAY key to start recording.

You can also apply effects via an effector connected to the INSERT jack.

11. After completing the singing, press the STOP key to stop recording.

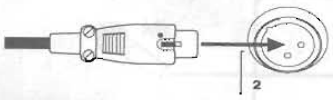


12. Set the RECORD FUNCTION switch back to "SAFE".

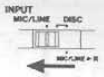


14 Record the chorus in TRK 2.

1. Connect a microphone to the CH 2 MIC/LINE IN jack.



2. Connect a microphone to the CH 2 MIC/LINE IN jack.



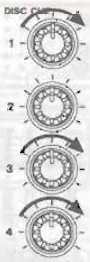
3. Set the RECORD FUNCTION "TRK 2" switch to "DIRECT".

4. Increase the level of the CH 2 input fader.

5. Increase the level of the MASTER fader.

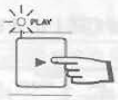
6. Adjust the microphone input level using the TRIM and fader controls. The adjustment method is identical to step 11-4 above.

7. To monitor the sound recorded so far, increase the level of the DISC CUE "1", "3" and "4" controls.

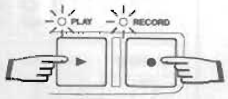


8. Rotate the CUE MASTER control clockwise.

9. Press the PLAY key, and practice singing while monitoring the sound module sound and previously recorded sounds.

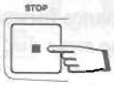


10. When both the adjustments and practice have been done, hold the RECORD key and press the PLAY key to start recording.

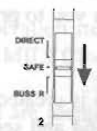


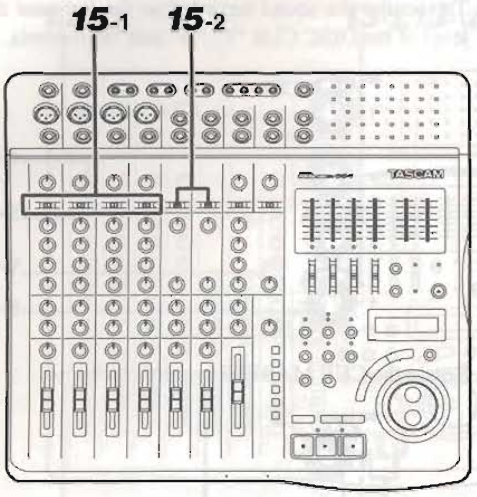
You can also apply effects via an effector connected to the INSERT jack.

11. After completing the singing, press the STOP key to stop recording.



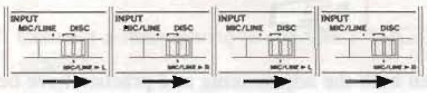
12. Set the RECORD FUNCTION switch back to "SAFE".





15 Mix down the recordings.

1. Set the INPUT switches of CH 1 to 4 to "DISC".



2. Set the ASSIGN switches of CH 5-6 and 7-8 to "MAIN".

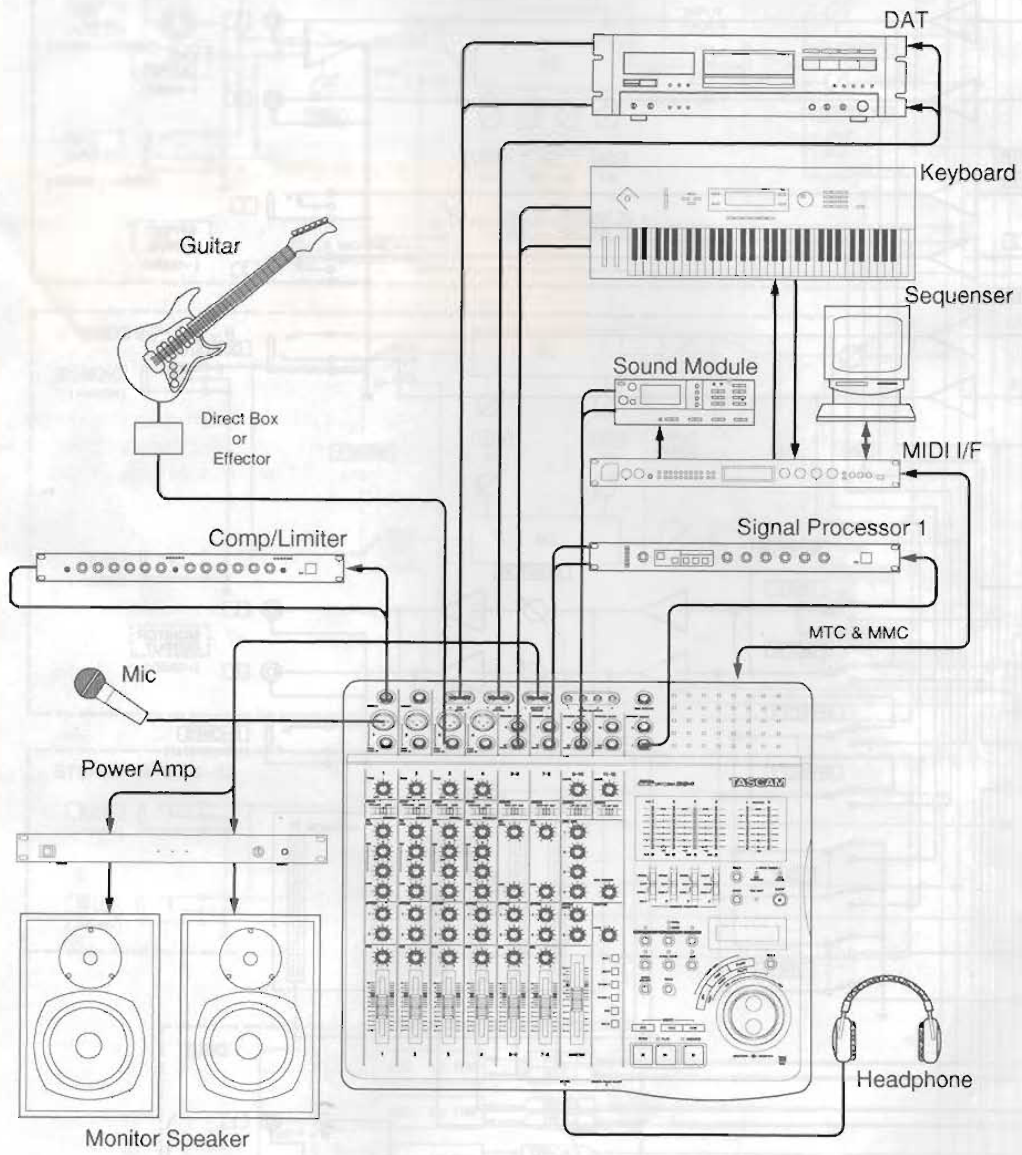
3. Apply effects as required. The output level to the effector is controlled with the EFFECT 1 and EFFECT MASTER 1 controls, and the return level from the effector is controlled with the fader control of CH 7-8. Also adjust the effector's controls.

4. It is possible to execute bounce forward as in 2-6 to master the recording on the same disc or dub it on a cassette or DAT recorder.

As seen above, with a system synchronized with a sequencer, the sounds of the rhythm machine and other sources are not recorded onto disc till the mix-down operation in the final stage. This allows you to produce music with higher quality sound.

- When editing after a tempo map is created, the consistency of the sync between the 564 and sequencer may be lost. Be careful when using the editing functions after having created a tempo map.

7-3. Sync System Based on MIDI Timecode

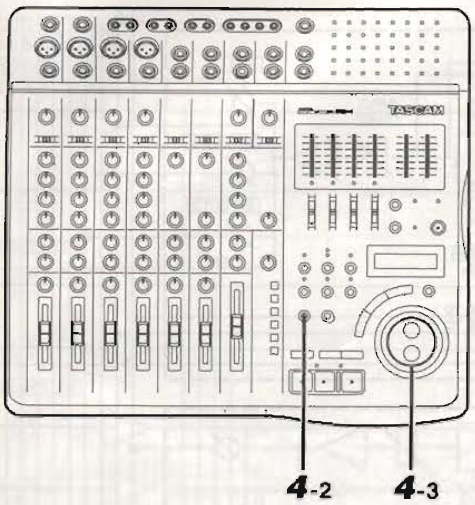


The 564 can also synchronize a sequencer by supplying it with MIDI Timecode (MTC).
It is not necessary to create a tempo map for the sync system based on MTC because it does not need the tempo data.
The sequencer used in a sync system based on MTC should be compatible with MTC.
When a sync system based on MTC is selected, the 564 can be controlled from a MMC-compatible sequencer. Applicable commands are STOP, DEFERRED PLAY and LOCATE.

The actual operation steps are almost identical to the system based on MIDI Clock.

Steps 1 and 2 are identical to those in "7-2. Sync system based on MIDI Clock", except that the ASSIGN switch of CH 9-10 should also be set to "CUE".

3 Set SYNC SETUP of the 564 to "MIDI Timecode". (➡ 6-4. SYNC SETUP)



4 Create a new song.

1. Create a new song when starting a new recording.

2. Press the SONG SELECT key.

3. Rotate the SHUTTLE knob to "YES" (clockwise).

5 Set the sequencer to the external sync mode (sync mode with MIDI timecode).

The subsequent operations are identical to those in steps 7 to 15 in "7.2 Sync system based on MIDI CLOCK".

In the example shown in the illustration, the keyboard is connected to CH 5-6, the effector is connected to CH 7-8 and the sound source (sound module) is connected to CH 9-10. If a sound is a finished sound like that from a sound module and does not need further processing (equalization or effector processing), it can be connected to CH 9-10 or 11-12. Only the level can be controlled but the controlled sound can also be sent to the CUE circuitry.

The sync system based on MTC makes it possible to start recording from the 564 side.
For example, if the music is composed of guitar, vocal, piano and keyboard, it can be recorded with the procedure below.

1 Record the guitar.

2 Synchronize the sequencer and record the piano in real time in the sequencer.

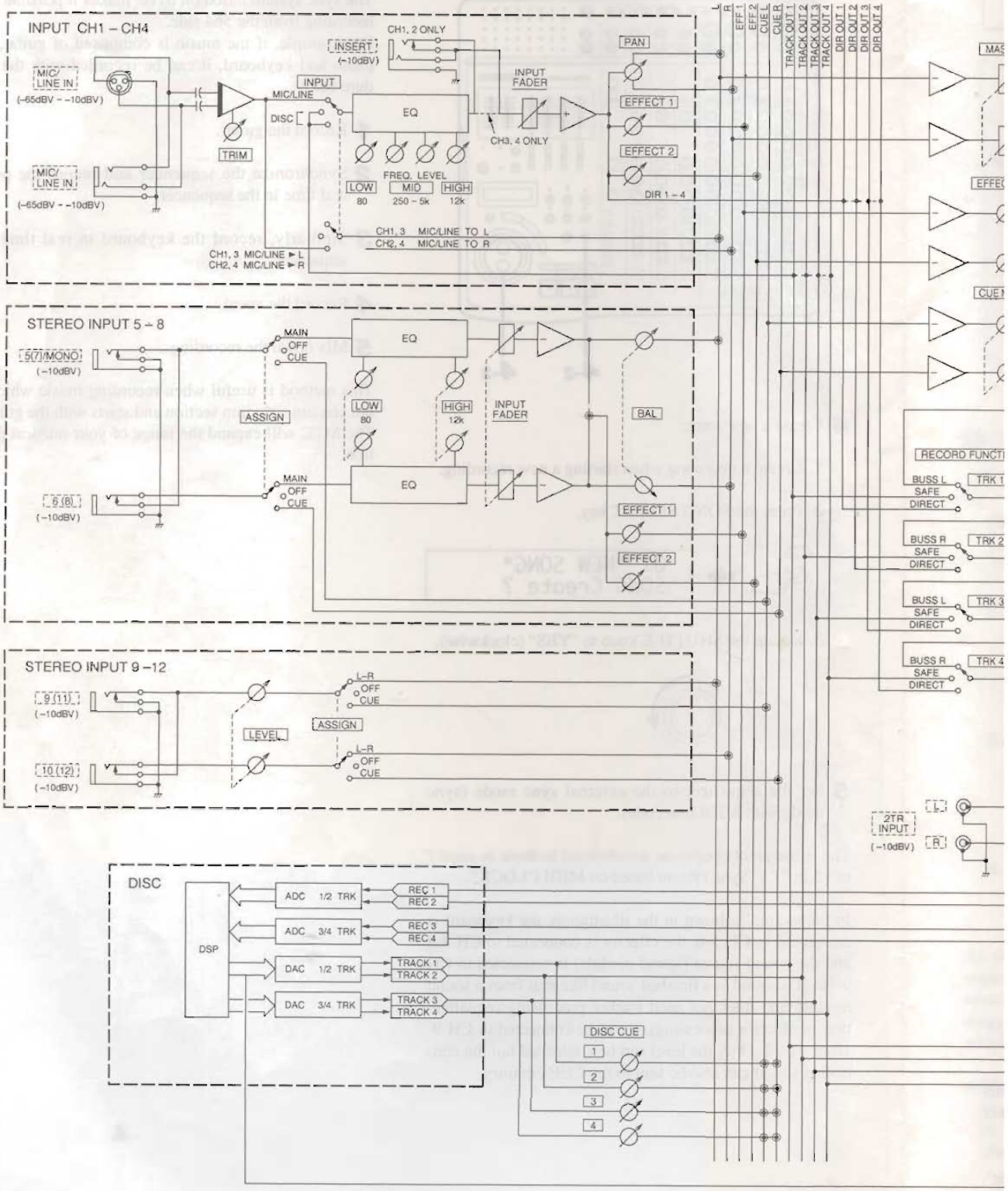
3 Similarly, record the keyboard in real time in the sequencer.

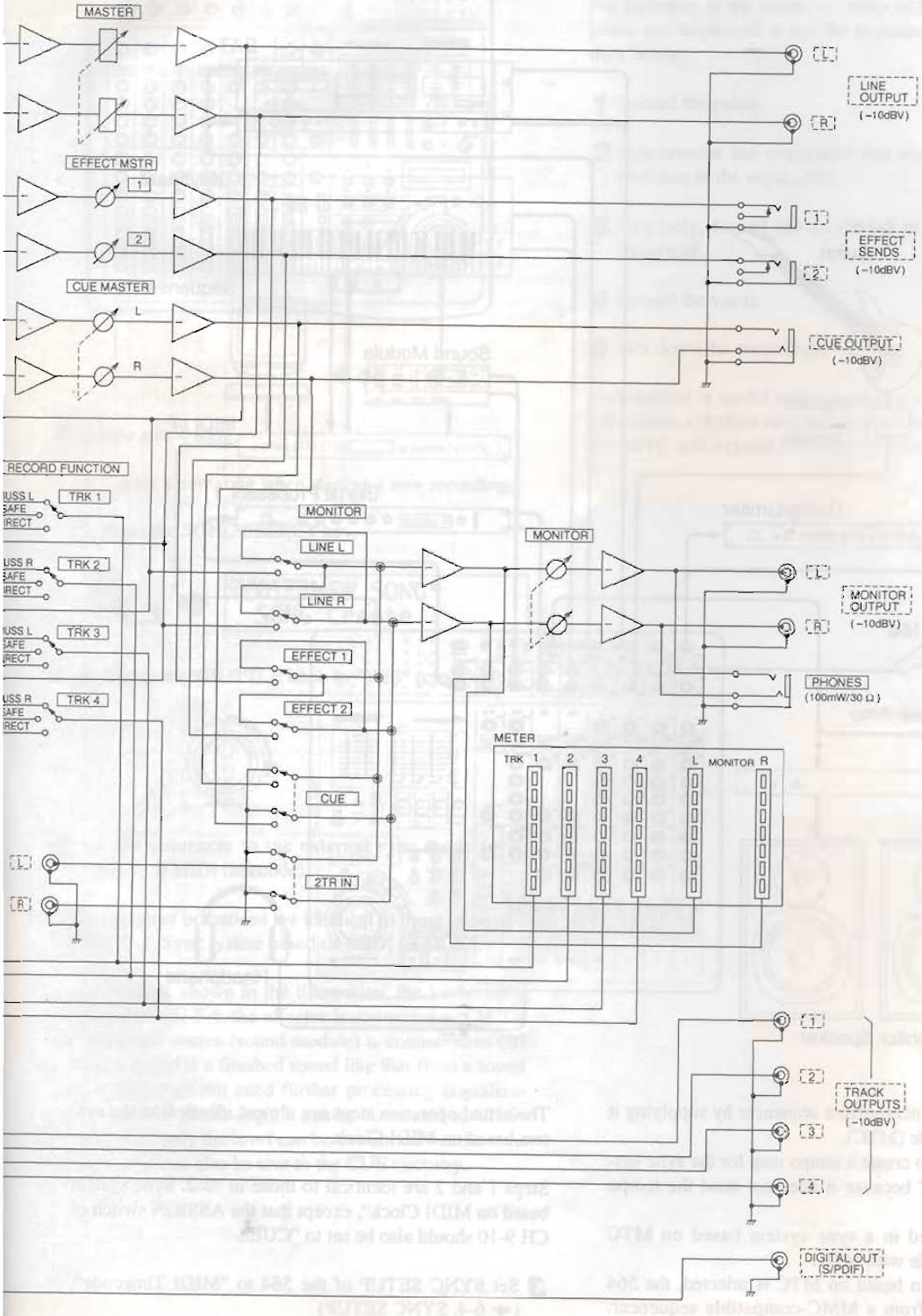
4 Record the vocal.

5 Mix down the recordings.

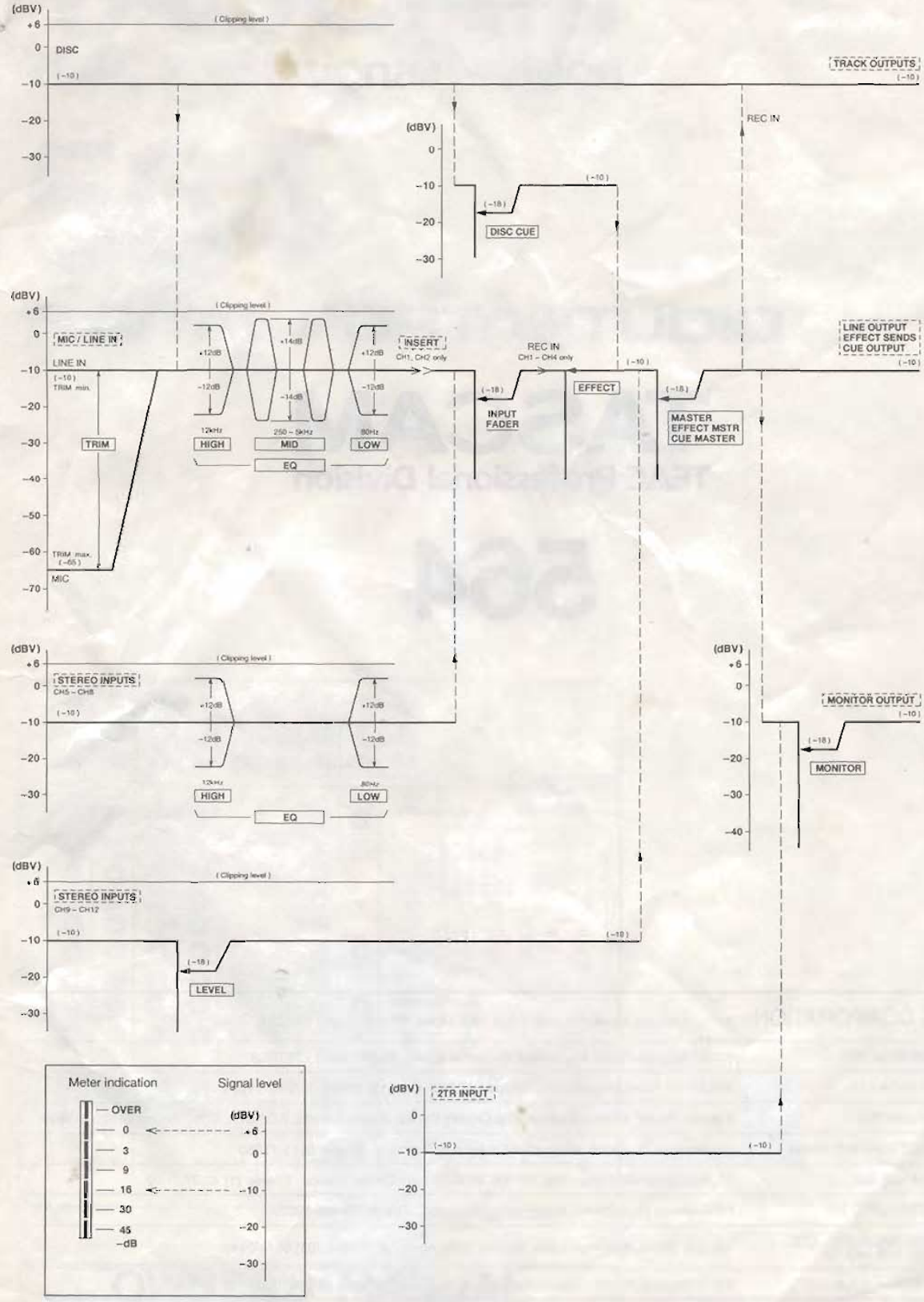
This method is useful when recording music which does not contain a rhythm section and starts with the guitar.
The MTC will expand the range of your musical production.

Block Diagram




MASTER
EFFECT MSTR
1
2
CUE MASTER
L
R
RECORD FUNCTION
TRK 1
TRK 2
TRK 3
TRK 4
MONITOR
LINE L
LINE R
EFFECT 1
EFFECT 2
CUE
2TR IN
MONITOR
METER
TRK 1 2 3 4 L MONITOR R
LINE OUTPUT (-10dBV)
EFFECT SENDS (-10dBV)
CUE OUTPUT (-10dBV)
MONITOR OUTPUT (-10dBV)
PHONES (100mW/30 Ω)
TRACK OUTPUTS (-10dBV)
DIGITAL OUT (S/PDIF)

Level Diagrams



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