TASCAM
TEAC Professional Division

PORTA Q7
MINISTUDIO

OWNER'S MANUAL

5700139700

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

NOTE FOR U.K. CUSTOMERS

U.K. Customers Only:

Due to the variety of plugs being used in the U.K., this unit is sold without an AC plug. Please request your dealer to install the correct plug to match the mains power outlet where your unit will be used as per these instructions.

IMPORTANT

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

BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals of 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.

THE APPLIANCE CONFORMS WITH EEC DIREC-TIVE 87/308/EEC REGARDING INTERFERENCE SUPPRESSION

CONFORME AL D.M. 13 APRILE 1989
DIRETTIVA CEE/87/308

THIS DIGITAL APPARATUS DOES NOT EX-CEED THE CLASS B LIMITS FOR RADIO NOISE EMISSIONS FROM DIGITAL APPARA-TUS AS SET OUT IN THE RADIO INTER-FERENCE REGULATIONS OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

LE PRESENT APPAREIL NUMERIQUE N'EMET PAS DE BRUITS RADIOELECTRIQUES DE-PASSANT LES LIMITES APPLICABLES AUX APPAREILS NUMERIQUES DE CLASSE B PRESCRITES DANS LE REGLEMENT SUR LE BROUILLAGE RADIOELECTRIQUE EDICTE PAR LE MINISTERE DES COMMUNICATIONS DU CANADA.

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

Mischpult mit Magnettonbandgerät PORTA 07

(Gerät, Typ, Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

AMTSBLATT 163/1984, VFG 1045/1984, VFG 1046/1984

(Amtsblattverfügung)

funk-entstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Über-prüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

TEAC CORPORATION

Name des Herstellers/Importeurs

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 appliance is operated.

2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.

3. **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.

4. **Follow Instructions** — All operating and use instructions should be followed.

5. **Water and Moisture** — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

6. **Carts and Stands** — The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. **Wall or Ceiling Mounting** — The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.

8. **Ventilation** — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

9. **Heat** — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

10. **Power Sources** — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

11. **Grounding or Polarization** — The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.

12. **Power-Cord Protection** — Power-supply cords should 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 appliance.

13. **Cleaning** — The appliance should be cleaned only as recommended by the manufacturer.

14. **Power Lines** — An outdoor antenna should be located away from power lines.

15. **Outdoor Antenna Grounding** — If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70 — 1984, provides information with respect 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. See Figure below.

EXAMPLE OF ANTENNA GROUNDING
AS PER NATIONAL
ELECTRICAL CODE

NEC — NATIONAL ELECTRICAL CODE
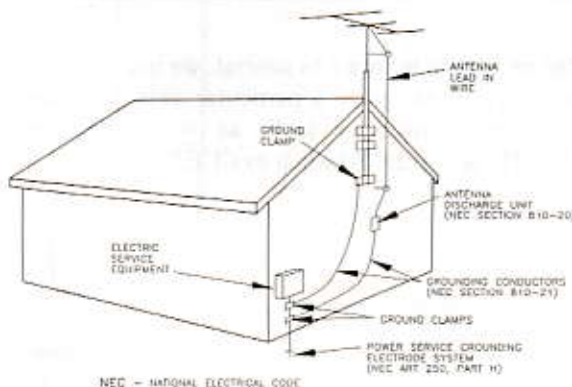
16. **Nonuse Periods** — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

17. **Object and Liquid Entry** — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

18. **Damage Requiring Service** — The appliance should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.

19. **Servicing** — The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

Introduction

The MINISTUDIO PORTA 07 is a complete audio production facility in a single box. It contains a full-function 4-in/2-out mixer with effects send and cue (monitor) submixers and a 4-track, 4-channel cassette recorder with dbx noise reduction, pitch control and zero return.
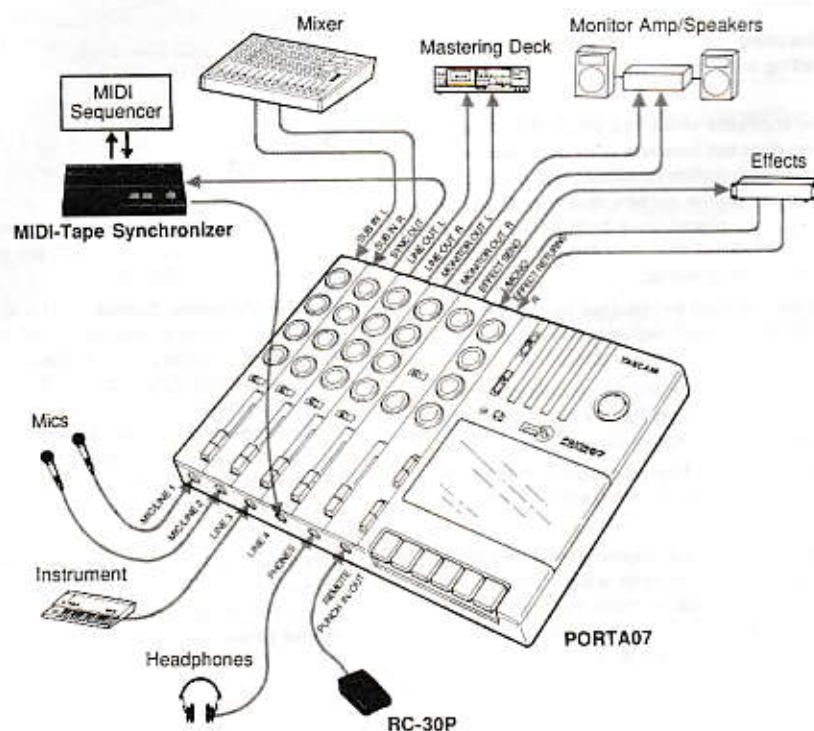
❑ **Using this manual**

> It is not necessary to memorize or understand all of what is here or to try to build up details into a systematic picture to begin. But, before actually using the PORTA 07, please skim at least through this manual from the beginning to the end, that way you will be able to locate information whenever you need.
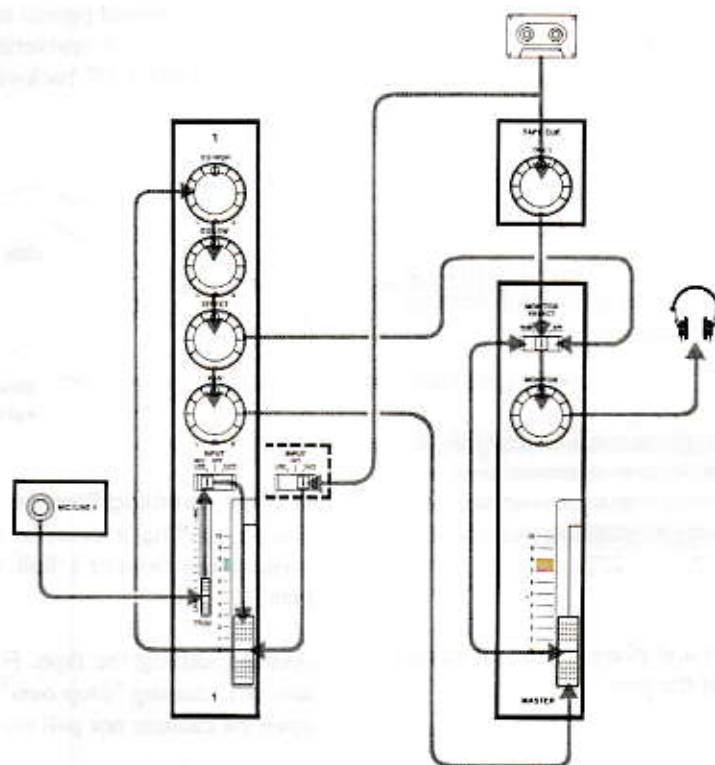
Use of capital letters : In general, we use all upper case type to designate a particular switch, setting position, control or jack, as in : "Set the MONITOR SELECT switch to CUE."

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□ **Signal Flow in the Mixer of the PORTA 07**

Optional Accessories

MIDI-Tape Synchronizer

RC-30P Footswitch

Head Demagnetizer

PW-2Y/PW-4Y Insertion Cable:
Connects the "synthesized" stereo
outputs of effects units to a single
Effects Return jack.

TZ-261 Cleaning kit
(Except U.S.)

HC-1 Head Cleaner &
RC-1 Rubber Cleaner (U.S. only)

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Precautions and Recommendations

❏ Tape Speed and Track Format

The PORTA 07 operates at 9.5 cm/sec.(3-3/4 ips) which is two times normal speed of the standard cassette deck. Tapes recorded on stereo cassette decks may play back on the PORTA 07 if they were recorded at 9.5 cm/sec. without noise reduction or with dbx. As shown in track layout diagram below, Tracks 1 and 2 roughly follow the standard "stereo" format, but tracks 3 and 4 use the "Side B" (reverse side) tracks. So you must turn the TAPE CUE 3 and 4 controls all the way to the left to stop hearing the "Side B" playing backwards.

| TASCAM 4Tr 3ch | TASCAM 4Tr 4ch | Philips 4Tr 4ch | Philips 4Tr 2ch | ANSI (Philips) 2Tr 2ch |
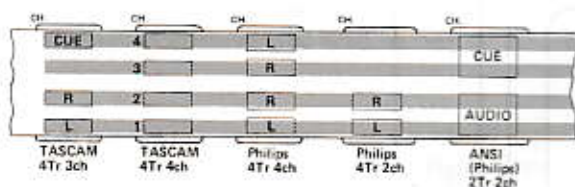
The PORTA 07 records and plays in one direction using the whole width of the tape.

❏ Tape Type

The PORTA 07 is internally adjusted for "High Position" (CrO2, Type II) tape. For best results, don't use any other tape (Normal or Metal).

❏ Tape Length

Use the shortest possible tape for a given work. Don't use C-120 cassettes under any circumstances; the tape used in C-120 cassettes is too thin and is not sturdy for multitrack recording.

Remember that at two times normal speed, and the "one-side- only" 4-track single direction means that you have only 1/4 times normal play/record time :

C-30	7.5 min.
C-46	11.5 min.
C-60	15 min.
C-90	22.5 min

(approx.)

❏ Accidental Erase/Record Protection

To insure against accidental erase, you have to remove both record protect tabs. If you remove only one tab, you could inadvertently insert the cassette into the PORTA 07 backwards and erase all four tracks at once.

Side A safety tab

Side B safety tab

❏ Tape Handling/Storage

Before loading a cassette remove tape slack by turning the cassette's hub with your finger or a pencil.

Avoid touching the tape. Fingerprints attract dust and dirt, causing "drop outs" or signal losses. Don't open the cassette nor pull the tape off the cassette.

Keep the tape away from any equipment that could generate magnetic fields such as televisions, loudspeakers.

❏ Environmental Limitations

Don't expose the PORTA 07 and tapes to direct sunlight or high humidity and temperature. Especially, remember that the temperature easily reaches a devastating degree in a car parked with its doors closed up under a direct summer sunlight.


CAUTION

To power the PORTA 07, use only the provided PS-P2 AC adapter. Using any other adapter will cause damage to the PORTA 07, and such damage would not be covered by the limited warranty on the product.

Recording the First Track

❑ As a trial, let's record a signal source on hand

Before anything else, make the following settings :

○ Turn all the **EQ** and **PAN** controls to their center position.

○ Turn all the **EFFECT, TAPE CUE,** and **MONITOR** controls all the way to their left position.

○ Set all the **INPUT** and **RECORD FUNCTION** switches to their center/off position.

○ Bring all the **TRIM** controls fully down.

○ Bring all the **faders** fully down.
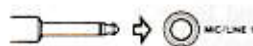
1. Plug a signal source (microphone or instrument) into the leftmost **MIC/LINE 1** jack.

2. Plug your headphones into the **PHONES** jack.

3. Press the **POWER** switch to turn on the unit. (The switch is located on the rear panel.)

4. Set the channel 1 **INPUT** switch to the left MIC/LINE position.

5. Turn the channel 1 **PAN** control all the way to the left position, so you can send your mic or instrument signal to the left buss.

    Buss (or bus) is a signal path to which signals are sent from multiple inputs. Signals sent to the buss are then routed to the internal recorder, meters, and output connectors.

6. Push the channel 1 **fader** up to the shaded area.

7. If you have plugged a microphone, set the channel 1 **TRIM** control to the proper position (a little higher than the center on the scale).

    If you have plugged an instrument, the TRIM does not need to be pushed up very far, if at all.

7
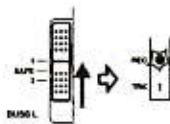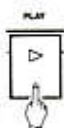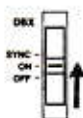
8. Push the **MASTER** fader up to the shaded area.

9. Set the **MONITOR SELECT** switch to the center/CUE position.

10. Turn up the **MONITOR** control to the center (12 o'clock) position.

11. Set the **DBX** switch to the ON position for best quality recording.

12. Pull the cassette compartment door open, and insert a cassette tape ("High Position," CrO2, Type II, C-90 or shorter).

13. Put the headphones on and, while speaking into the mic or playing the instrument, adjust the **MONITOR** level control to a comfortable listening level. You'll hear your voice or instrument sound at the center in the headphones.

14. Make sure that the **PITCH CONTROL** is at the center/off position.

15. Push the **PLAY** key and allow the tape to run for a few seconds. This will run the tape leader onto the takeup reel and put the beginning of the tape in front of the heads.

16. Press the small button located to the right of the tape counter to reset it to 000, and set the **ZERO RETURN** switch to its down/ON position. This specifies the beginning point of your recording and allows you to quickly return to this point simply by pressing the REW key.

17. Set the **BUSS L RECORD FUNCTION** switch to its 1 position to select track 1 for recording. The TRK 1 REC indicator will begin to flash, showing that track 1 is ready to be recorded with what you panned (routed) to the left buss.
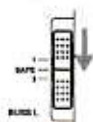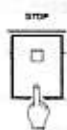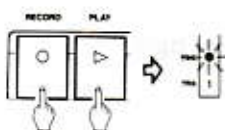
18. Set the **METER** select switch to TRK.

19. Test the signal level by speaking into the mic (or playing your instrument) at a normal volume. If the level is correct, meter 1/L should read "0" or so. If necessary, adjust the channel **TRIM** control. Signals peaking at around "+6" may be recorded without distortion.

20. Push the **RECORD** key. The TRK 1 REC indicator will stop flashing and glow solid to indicate that track 1 is now recording.

21. Speak or sing a song into the mic, or play the instrument.

22. Once you have recorded to your satisfaction, push **STOP**. The tape will stop, and the TRK 1 REC indicator will begin flashing as before.

23. Set the **BUSS L RECORD FUNCTION** switch to SAFE. The TRK 1 REC indicator will turn off.

❏ **Playback : How to use TAPE CUE**
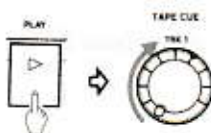
24. Push **REW**. The tape will rewind, stopping at 000, automatically.

    Because of inertia the tape may not necessarily stop at the exact 000 point. This is normal.

25. Check to see that the **MONITOR SELECT** switch is set to CUE.

26. Push **PLAY**, and slowly turn the **TRK 1 TAPE CUE** control to the right until the listening level in the headphones is comfortable. You will hear what you have just recorded at the center in the headphones.

27. Push **STOP** to stop playing.

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Overdubbing

❏ **Recording the Second Track**
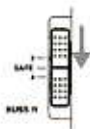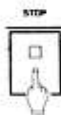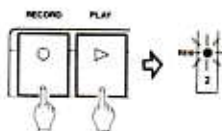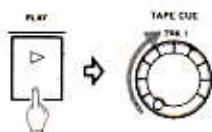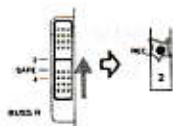
If you want to continue to use the same mic or instrument, there is no need of plugging it into the MIC/LINE 2 jack. Leave it connected to the MIC/LINE 1 jack.

1. Set the **BUSS R RECORD FUNCTION** switch to its 2 position to select track 2 for recording.

2. Turn the channel 1 **PAN** control all the way to the right.

3. Speak into the mic or play the instrument at a normal volume. Unless you have changed the channel 1 TRIM control, meter 2/R should read "0" or so.

4. Push **PLAY** and speak or sing a song into the mic, or play the instrument. You will hear both the track 1 playback and the "live" input at the center in the headphones. Balance their levels with the **TRK 1 TAPE CUE** and **MONITOR** controls.

☞ *Remember, if the TAPE CUE control affects only the track playback level, the MONITOR control affects both the track and input signals at one time.*

5. Push **REW**.

6. Push **RECORD**. The TRK 2 REC indicator will glow solid to show that track 2 is recording.

7. Once you have recorded to the end of the first track, push **STOP**, then push **REW**.

8. Set the **BUSS R RECORD FUNCTION** switch to SAFE.
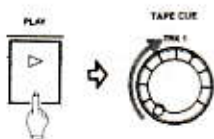
9. Push **PLAY** and listen to tracks 1 and 2. Adjust the **TRK 1** and **2 TAPE CUE** controls for the desired listening level and balance.

❏ Recording Tracks 3 and 4
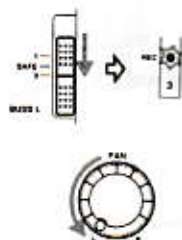
The procedure is virtually the same as the one used for recording tracks 1 and 2.

To record on track 3, make the following changes :

1. Set the **BUSS L RECORD FUNCTION** switch to track 3. The BUSS R should be at SAFE.

2. Turn the **PAN** control (of any channel into which the source you want to record on track 3 is plugged) all the way to the left.

To record on track 4, their settings are reversed :
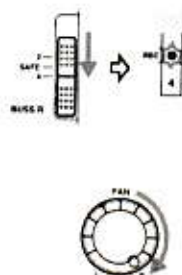
1. Set the **BUSS R RECORD FUNCTION** switch to track 4. The BUSS L switch should be at SAFE.

2. Turn the channel **PAN** control all the way to the right.

❏ How to Record Many Sources onto a Single Track

In the above example, we recorded one source onto one track at a time for simplicity. But the mixer of the PORTA 07 can take multiple channel signals and mix them onto a single track. To do this :

○ Set the **PAN** controll of each channel to the same position, for example :
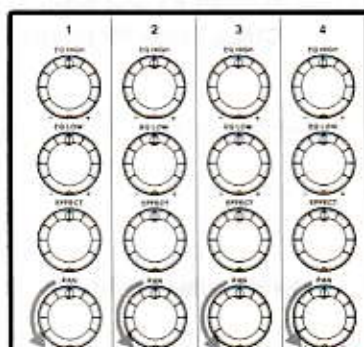
In this example, all instruments plugged into channels 1-4 will be recorded onto track 1 or 3.

○ Once you have each channel's **TRIM** and **fader** level set, use the **MASTER** fader to make overall level adjustments.

○ Make sure the **INPUT** switch of every channel you want to record is set to MIC/LINE or LINE.

Punch-in or Insert Recording

Quite often, it becomes apparent that the recorded material contains a mistake or could be improved. One obvious way to correct this problem is to re-record the entire track, but, if the mistake is minor, this is not practical or necessary. You can use the technique known as Punch-in or Insert recording. This provides a way to re-record only a small part of a track, thus covering the mistake, or to record additional material on a blank section of a track, augmenting the original material.

For smooth punch-ins and outs we recommend you the use of the optional RC-30P footswitch. This streamlines the process and you can control the timing of punching in and out with ease. Especially if you are recording alone and are busy playing an instrument, it is really handy.

Let's say we've discovered a small error on track 2, here's how to fix it using the footswitch :
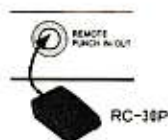
1. Plug the optional **RC-30P** footswitch into the REMOTE PUNCH IN/OUT jack.

2. Plug the mic or instrument as required into, let's say, channel 1.
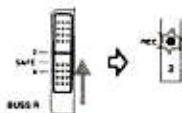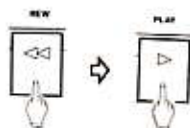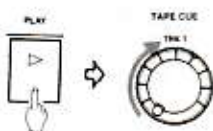
3. Play the tape up to a point several seconds before the error, and reset the tape counter to mark this point.

4. Set the channel 1 **INPUT** switch to MIC/LINE.

☞ *Don't set the BUSS R RECORD FUNCTION switch to track 2 yet. Both the BUSS L and R switches should be at SAFE at this step.*

5. Turn the channel 1 **PAN** control all the way to the right.

6. Set the **MONITOR SELECT** switch to CUE.

7. Set the **METER** switch to TRK.

8. Check to see that the **channel 1** and **MASTER faders** are set to their original shaded area.

9. Push **PLAY**, adjust the **TRK 1 TAPE CUE** control to the desired listening level.

   If you want to hear other tracks together, turn up their TAPE CUE controls as well to the desired level and balance, and adjust the overall level with the MONITOR control.

10. Rewind the tape, push **PLAY** again, and rehearse the punch-in ; play the part containing the error while listening to the tape as a guide and making the necessary corrections to your performance.

   Repeat the rehearsal as many times as you need. Once you are satisfied with the rehearsal, perform the following steps.

11. Set the **BUSS R RECORD FUNCTION** switch to track 2.

12. Push **PLAY** and, as in the rehearsal, play the part along with the tape.

13. When you reach JUST BEFORE the error, push the **footswitch** to punch into record mode.

RC-30P

13

RC-10P
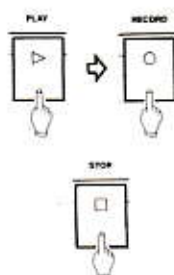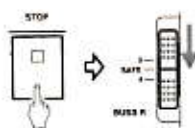
14. When you have performed the punch-in correctly, push the **footswitch** again to punch out of record. The tape will continue to roll in play mode, so you can immediately check if the new recording is smoothly followed by the original material remaining on the track.

15. Press **STOP** to stop the tape, and set the **BUSS R RECORD FUNCTION** switch back to its SAFE position. Then rewind the tape and listen to the results from the beginning.

Without using the optional footswitch

This approach is a little bit exacting.

Follow steps 2-12 as described above. When you get to step 13, follow the instruction below :

13. When you approach the error, *HOLD* **PLAY** and, when you reach JUST BEFORE the error, push **RECORD**.

14. To punch out of record, push **STOP**.

❏ **Punch-in Considerations**

○ Always punch into record when there is a signal present on another track. This will mask any slight noise from the electronics. The same applies to punching out of record.

○ Always rehearse your punch-in until you are sure that you will get it right when actually recording. Remember, once you punch into record over existing (already recorded) material, that original signal is permanently erased. Make your mistakes in the rehearsal, not on tape.

○ Select points that are "in the clear," i.e. in the pauses between phrases or notes. If a new note and the old one overlap, it sounds unnatural, making it noticeable.

○ No matter how carefully you select punch-in and out points, if the new recording is louder or softer than, or different in tonality from, the original material remaining on the track, it will be noticeable. The EQ and level control settings should be the same as they were during the original recording. Keep in mind that at a certain point it's better to record the whole track over than making multiple punch-ins.

14

Ping-Ponging or Bouncing Tracks

The recording capability of the PORTA 07 is not limited to just the four tracks. As you progress with your recording, you may reach a point where you need more than four tracks. This is where "ping-ponging" or "bouncing" tracks is invaluable. This allows you to combine tracks you have recorded to an empty track, and then overwrite (replace) the original tracks with new material. The following diagrams depict the process.

TRK	1	A
	2	B
	3	C
	4	

D
E
F
A + B + C

Bouncing tracks 1-3
onto track 4

Tracks 1-3
available for
recording new parts
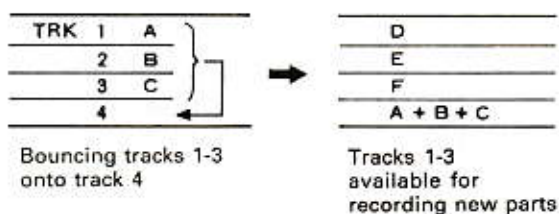
If you have recorded tracks 1 and 2, and, perhaps, track 3 as well, follow the steps below to "bounce" them to empty track 4.

1. Set the **INPUT** switch of channels 1-3 to TAPE. The channel 4 INPUT switch should be at OFF.

2. Turn the **PAN** control of channels 1-3 all the way to the right.

3. Set the **BUSS R RECORD FUNCTION** switch to track 4.

4. Set the **channel 1-3** and **MASTER faders** to the shaded area.

5. Set the **MONITOR SELECT** switch to CUE.

6. Turn the **TRK 1-4 TAPE CUE** controls all the way to the left.

7. Set the **METER** switch to TRK.

8. Push **PLAY**. You are now hearing the mix of tracks 1-3. Make any necessary level adjustment with the **channel** and **MASTER faders**. You may want to repeat this step several times to get the balance correct.

15
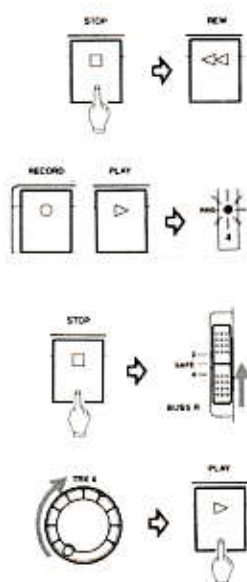
9. When the balance is right, and the level averages at 0 and peaks at +6 or so on the BUSS R meter, push **STOP** then **REW** to rewind the tape to the beginning.

10. Push **RECORD**. Tracks 1-3 are now being mixed and recorded onto track 4.

11. Once recording is done, push **STOP**, set the **BUSS R RECORD FUNCTION** switch back to SAFE, then push **REW**.

12. Turn up the **TRK 4 TAPE CUE** control to the proper level, and push **PLAY** to listen to the results.

☞ *Don't bounce solo parts or lead vocals so you can control them at the final mixdown time, separately.*

❏ Ping-pong Plus Live Material
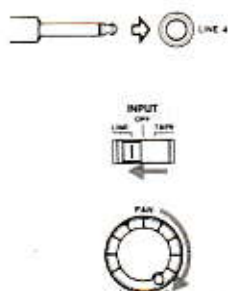
You may use any open channel to add "live" metarial to the tracks being "bounced." In our example, channel 4 of the mixer is open. To make use of this :

1. Plug the source into the LINE 4 jack.

2. Set the **INPUT** switch of channel 4 to LINE.

3 Turn the **PAN** control of channel 4 all the way to the right.

4. Set the channel **TRIM** and **fader** as for any other recordings.

5. Set the **other channel faders** (1-3) for the final balance. Proceed with the ping-pong procedure as before.

You will wind up with a mix of the live instrument along with the previously recorded tracks 1-3 all on track 4.

Mixdown or Remix

Once you have recorded all four tracks, the next and last step is mixing them into a standard stereo format.

Since the idea of mixing down is to bring the four tracks down to two, you need another, two-track cassette recorder which will act as the mastering deck.
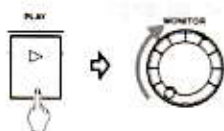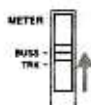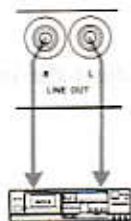
1. Connect the **L** and **R LINE OUT** jacks of the PORTA 07 to the line inputs of the mastering deck.

2. Check to see that all the **channel** and **MASTER faders** are set to the shaded area between 7 and 8, and that the PAN controls are set to the center (12 o'clock) position.

3. Set the **MONITOR SELECT** switch to REMIX.

4. Set the **METER** switch to BUSS.

5. Set the **INPUT** switch of all channels to TAPE.

6. Turn all the four **TAPE CUE** controls all the way to the left/minimum position.

7. Rewind the recorded four-track tape to 000.

8. Push **PLAY**, and adjust the **MONITOR** control to a comfortable listening level.

   Don't use the TAPE CUE controls at this step. They receive playback signals directly from the tape. What you have to hear during mixing down is how the four track signals are mixed into two *through the channel controls.*

17
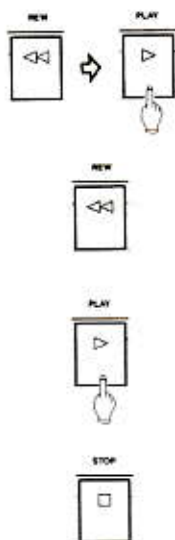
9. Use the channel **PAN** and **fader** controls to set each track's level and left-to-right position for the desired balance.

   You can also use the **EQ** controls to adjust the tonality of each track signal.

10. When the mix sounds right, set the overall level using the **MASTER** fader.

11. Rewind the tape, and push **PLAY** again and adjust the input level controls on your mastering deck.

12. Rewind the tape again. Put a fresh tape in the mastering deck, and let it play for a few seconds, then stop it and reset the mastering deck's counter to zero.

13. You are now ready to record the mix. Put the mastering deck into Record mode, then push **PLAY** on the PORTA 07. Continue to monitor the process through the headphones.

14 When recording is complete, stop both machines, rewind the stereo mixdown tape and audition it.

   If the mixdown tape does not sound right, make the necessary corrections and try again.

❏ Use of Monitor Speakers

If you want to use speakers to monitor the recording or mixing process—

o Make sure that the amplifier is turned off before connecting it to the PORTA 07. When you are ready to monitor, turn on the PORTA 07 **before** the amplifier. When turning off them, reverse the order ; turn off the PORTA 07 **after** the amplifier. Otherwise an explosion of "pop" could damage your equipment or ears.

o Take care that microphones don't cause feedback or howling.

Recording with Effects

Reverb, delay, compressor, chorus, phaser, sampler, flanger, echo, limiter, de-esser ; the list goes on and on. Recording today requires the extensive use of signal processors, effects, that come in various shapes and sizes from footpedal "squash boxes" to professional rack-mount units. Your PORTA 07 is very flexible and powerful in the way it handles signal processing and effects.

Your PORTA 07 can process all, or any combination of, your mixer channels with effects using its built-in Effects buss. The EFFECT control in each of the channels of the unit is used to send, in amounts varied by the control, signal to the Effects buss. Signals from the channels are summed together and sent to the EFFECT SEND jack. Your PORTA 07 has a dedicated EFFECT RETURNS jacks to bring the signals from your effects devices back into the unit.

You can monitor the effects send level by meter 4 if the METER switch is at BUSS.

Recording with "Tape Sync"

Tape Sync refers to running tape and electronic instruments together in sync.

Sync signal used by MIDI (Musical Instrument Digital Interface) is a computer type digital language, and for it to be recorded on tape, it has to be converted into analog signal using a technique called FSK (Frequency Shift Keying).

This type of MIDI-FSK converter is implemented on sequencers or other devices such as the TASCAM "MIDI-Tape Synchronizer". This is not a mere MIDI-FSK converter but allows score "bar" information or "Song Position Pointer" contained in MIDI clocks (timing information) to be recorded on tape ; so that your MIDI instruments follow the tape no matter where you move it within a given song. Accuracy of the sync performance is ensured by the use of a TASCAM-exclusive error correction circuit in the MIDI-Tape Synchronizer.
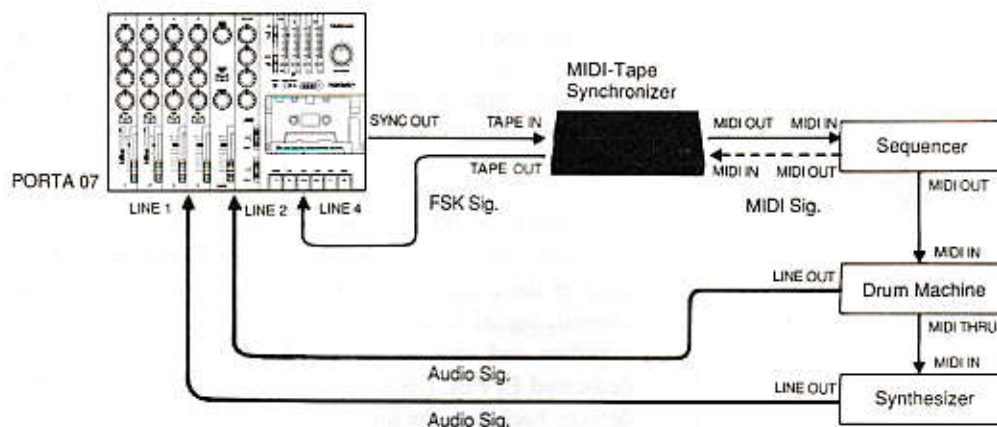
To record FSK-converted MIDI sync signals on track 4 :

1. Connect the tape out of the MIDI-Tape Synchronizer to the **LINE 4** jack of the PORTA 07.

2. Set the **DBX** switch to SYNC.
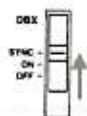
3. Set the **BUSS R RECORD FUNCTION** switch to track 4.
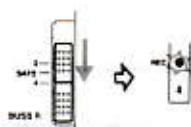
4. Push **RECORD** to put track into record mode, and start your MIDI data source unit connected to the MIDI IN of the MIDI-Tape Synchronizer.
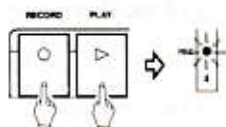
Once track 4 has been recorded with sync signal, connect the SYNC OUT to the TAPE IN of the MIDI-Tape Synchronizer, and put track 4 into Play mode, and track you want to record into Record Ready mode. The MIDI-Tape Synchronizer will translate the sync signal from track 4 back into MIDI information which, in turn, will drive the MIDI program in your sequencer ; so that MIDI instruments connected to the sequencer will all be referenced to the sync signal from track 4, and you can continue to record audio from your MIDI instruments on the PORTA 07's tracks during overdubs, ping-pongs, and remix in perfect sync with each other.

Features and Controls

❏ Top Panel

EQ HIGH control

The equalizer or EQ controls the tonality of the channel signal.
Turning this control to the right of center boosts (amplifies) the high frequencies of the signal, and emphasizes its brilliance or brightness. If the signal sounds too harsh or shrill, turn the control to the left of center to cut (attenuate) the high frequencies.

EQ LOW control

Turning this control to the right of center boosts the low frequencies, and the signal will sound relatively heavy. Turning it to the left of center makes the signal sound thinner.

EFFECT send control

This gets its signal from a point before PAN, and adjusts how much signal will be routed to the EFFECT SEND jack.

PAN control

This assigns (sends) the channel signal in continuously variable degree to the left or right buss.
Signals you want to record are sent through the left and right busses to the PORTA 07 recorder (through the left buss to track 1 OR 3, and through the right buss to track 2 OR 4). So you can record two tracks at one time (one from the left, one from the right) but not three or four tracks.
At mixdown time, you'll use this control to create a stereo mix by sending each track signal between the left and right sides.

INPUT switch

This controls what the source of the channel is.

MIC/LINE : Takes signals plugged into the MIC/LINE jack into the channel.
OFF   : Mutes (cuts off) the channel.
TAPE   : Lets playback signals from the multitrack tape go through the channel to the left and right busses.

TRIM control

This adjusts the level (sensitivity) of MIC/LINE inputs but has no effect on the TAPE signals.
Pushing up this control increases the incoming signal level when working with mic's or softer sound sources. Pulling down the control decreases the incoming level when working with line level signals or louder sound sources such as electronic musical instruments.

Channel fader

The channel fader or input fader controls the amount of signal going through the channel to the outputs.

❏ Front Panel

MIC/LINE jack (channels 1 and 2)

This 1/4" phone jack accepts unbalanced signals either from any mic or electronic instrument. When you plug a mic, its level will need to be amplified by pushing up the TRIM control.

EFFECT RETURN control

Adjusts the signals plugged into the EFFECT RETURNS L/MONO and R jacks before they are sent to the MASTER fader.

TAPE CUE controls, TRK 1-4

These are used to adjust the playback level of each track being sent to the PHONES/MONITOR OUT jacks when the MONITOR SELECT switch is set to CUE, and to the meters when the METER switch is set to TRK.

Playback signals you can take into the channels by switching their INPUT select switch to TAPE are NOT affected by the TAPE CUE controls.

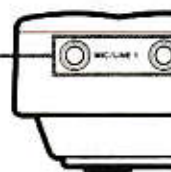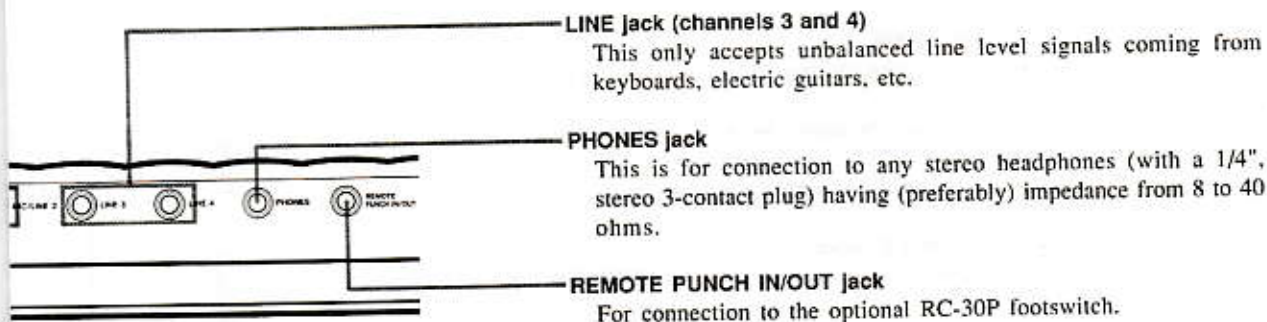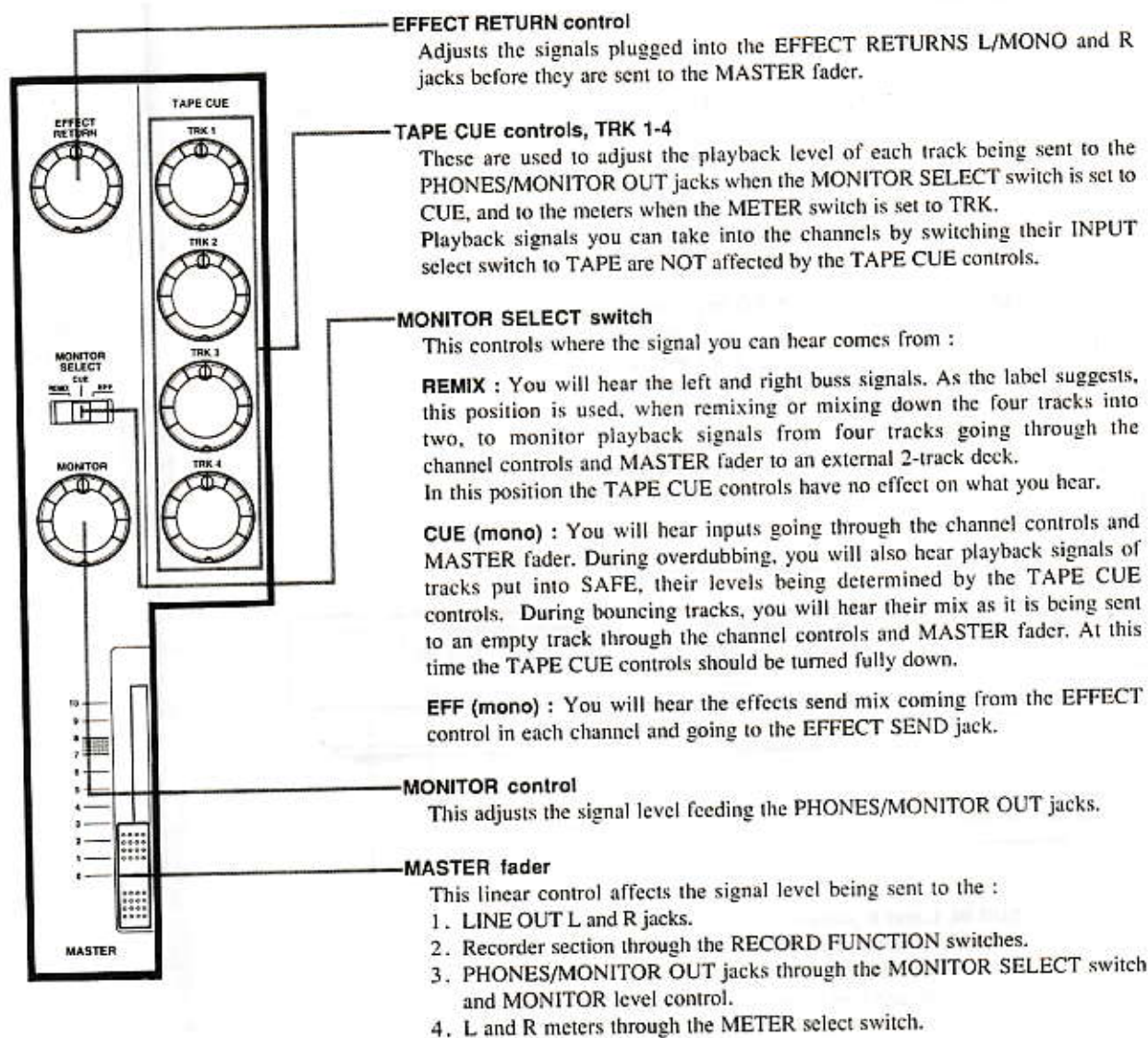**MONITOR SELECT switch**

This controls where the signal you can hear comes from :

REMIX : You will hear the left and right buss signals. As the label suggests, this position is used, when remixing or mixing down the four tracks into two, to monitor playback signals from four tracks going through the channel controls and MASTER fader to an external 2-track deck.

In this position the TAPE CUE controls have no effect on what you hear.

CUE (mono) : You will hear inputs going through the channel controls and MASTER fader. During overdubbing, you will also hear playback signals of tracks put into SAFE, their levels being determined by the TAPE CUE controls. During bouncing tracks, you will hear their mix as it is being sent to an empty track through the channel controls and MASTER fader. At this time the TAPE CUE controls should be turned fully down.

EFF (mono) : You will hear the effects send mix coming from the EFFECT control in each channel and going to the EFFECT SEND jack.

MONITOR control

This adjusts the signal level feeding the PHONES/MONITOR OUT jacks.

MASTER fader

This linear control affects the signal level being sent to the :

1. LINE OUT L and R jacks.
2. Recorder section through the RECORD FUNCTION switches.
3. PHONES/MONITOR OUT jacks through the MONITOR SELECT switch and MONITOR level control.
4. L and R meters through the METER select switch.

LINE jack (channels 3 and 4)

This only accepts unbalanced line level signals coming from keyboards, electric guitars, etc.

PHONES jack

This is for connection to any stereo headphones (with a 1/4", stereo 3-contact plug) having (preferably) impedance from 8 to 40 ohms.

REMOTE PUNCH IN/OUT jack

For connection to the optional RC-30P footswitch.

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❏ **Rear Panel**

POWER switch
Turns the unit on or off.
The provided PS-P2 AC adapter is plugged into the DC IN jack next to the
POWER switch.

CAUTION

Don't connect any other AC adapter or the unit could be damaged.

EFFECT RETURNS, L/MONO and R jacks
If your effects device has not stereo output but a mono output, connect it
to the L/MONO jack. By doing so, the return signal is sent to both the left
and right busses evenly.

EFFECT SEND jack
This is connected to the input of external effects devices such as reverb,
echo, etc. After processed, the send signal is fed back to the EFFECT
RETURNS jacks.

SUB IN, L and R jacks
These allow you to connect the stereo mix output of an external mixer
directly to the left and right busses of the PORTA 07, so you'll have more
inputs in addition to the four inputs of the PORTA 07. Or "virtual tracks"
such as drum machine may be connected, so they are merged with the tape
tracks.

SYNC OUT jack
This is used to route out the sync signal recorded on rack 4 to the optional
MIDI-Tape Synchronizer or other synchronizers or sequencers.

LINE OUT, L and R jacks
This pair of RCA jacks are connected to the left and right inputs of your 2-
track, mixdown deck.
These jacks may also be connected to the inputs of external larger mixer.
But, since the TAPE CUE signals cannot be routed to the LINE OUT jacks,
these are not intended for connection to any monitoring system.

MONITOR OUT, L and R jacks
These jacks carry the same signals as the PHONES jack, and may be
connected to your monitor amp/speaker system.

DBX switch

When recording and playing back sync signals on track 4, set this switch to **SYNC**. This turns on the built-in dbx noise reduction system for all tracks 1-4, and inserts a bandpass filter to track 4 for "neat" sync signals.

Unless you use track 4 to record and play back sync signals, set this switch to **ON** for quality audio recording and playback.

Setting the switch to **OFF** defeats the dbx system from all tracks.

Peak level meters and the METER switch

When the METER switch is set to **TRK**, the meters show : (1) the record level of tracks whose REC LED is flashing or lights solid, and (2) the playback level of tracks put into SAFE mode when the tape is rolling either in Record or Play mode.

Setting the METER switch to **BUSS** will switch meter 1 to show the left buss level, meter 2, the right buss level, meter 3, no signal, and meter 4, the effects send level.

Only when you want to see the final stereo mix or the effects send levels, you have to set the METER switch to BUSS. In other cases you can leave the switch set to TRK.

REC indicators, TRK 1-4

They show each track's status :
(1) Off : "Safe" mode. No recording can take place.
(2) Flashing : "Record Ready" mode. Recording will start on that track when RECORD is pressed.
(3) On solid : "Record" mode. The track is currently recording.

PITCH CONTROL knob

Provides a plus or minus 12% variation to the tape speed in both Record and Play modes.

Normally, leave the knob at the center position for the tape to roll at the standard speed (9.5 cm/sec., 3-3/4 ips).

CAUTION

The PITCH CONTROL affects the record speed too. Unless you use the function intentionally, make sure that the knob is at its center "off" position.

ZERO RETURN switch

When this switch is pressed, and you press REW, the tape will stop at the counter 000 point. If the tape overshoots, it is because of inertia, and it is normal. The tape counter can be reset to 000 at any time by pressing the small button located to the right of the counter.

RECORD FUNCTION switches

Select tracks for recording.

Input signals sent to the left buss can be recorded on track 1 or 3, as selected by the BUSS L RECORD FUNCTION switch. Similarly, input signals sent to the right buss can be recorded on track 2 or 4, as selected by the BUSS R RECORD FUNCTION switch. Only two tracks can be recorded at one time.

Transport control buttons

RECORD : When pushed, PLAY is also activated, and recording will start on the track (or tracks) selected by the RECORD FUNCTION switches.

PLAY : Lets the tape play back.

REW : Winds the tape at high speed in reverse. The tape will stop at the beginning, or at the counter 000 point if ZERO RETURN is engaged.

F.FWD : Winds the tape at high speed in the forward direction.

STOP : Stops the tape motion.

PAUSE : Interrupts recording or playback momentarily. To resume record or play from the interrupted point, push PAUSE again.
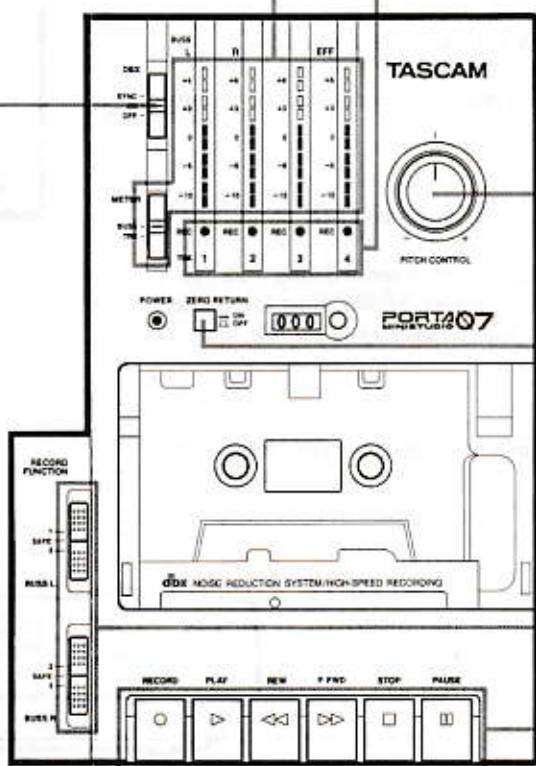
Care And Maintenance

Even though the heads used in your PORTA 07 have high wear resistance and are rigidly constructed, performance degradation or electro-mechanical failure can be prevented if maintenance is performed regularly.

CLEANING

The first things your will need for maintenance are not expensive. The whole kit with the swabs and fluids you will need for months will cost less than a couple of high quality cassettes.

We cannot stress the importance of cleaning too much. Clean up before each session. Clean up after every session. Clean up every time you take a break in the middle of a session.

Here's why:

1. Any dirt or oxide build-up on the heads will force the tape away from the gaps that record and playback. This will drastically affect the response. Even so small a layer of dirt as one thousandth of an inch will result in degraded preformance. All the money you have paid for high performance will be wiped out by a bit of oxide. Wipe it off with head cleaner and you're back to normal.

2. Tape and tape oxide act very much the same way as fine sandpaper. The combination will slowly grind down the tape path. If you do not clean off this abrasive material on a regular basis, the wear will be much more rapid and will become irregular. Even wear on heads can be compensated for with electronic adjustments for a while, but uneven wear can produce notches on heads and guides that will cause the tape to "skew" and skip around, making adjustment impossible. This ragged pathway also chews up the tape, producing more abrasive material which in turn causes more uneven wear. This begins a vicious circle that cannot be stopped once it gets a good start. The only solution to this will be to replace not ony the heads, but the tape guides as well. Being conscientious about cleaning the tape path on your PORTA 07 will more than double the life of the heads and tape guides.

Cleaning the Heads and Tape Guides

All heads and metal parts in the tape path must be cleaned after every 6 hours of operation, or before starting and after ending a recording session.

1. Open the cassette door.

2. Using a good head cleaning fluid and a cotton swab, clean the heads and tape guides until the swab comes off clean. Wipe off any excess ceaning fluid with a dry swab.

Cleaning the Pinch Roller

Clean the pinch roller at least once each day the deck is used. Use a good rubber cleancer.

1. Clean the pinch roller with a cotton swab moistened with rubber cleaner, until there is no visible residue on the pinch roller.

2. Using a clean cotton swab, wipe off all excess rubber cleaner from the pinch roller. Make certain that there is no foreign matter remaining on the pinch roller.

Cleaning the Capstan Shaft

After cleaning the pinch roller, clean the capstan shaft with a cotton swab moistened with head cleaning fluid.

Erase head   Record/Play head   Capstan   Pinch roller
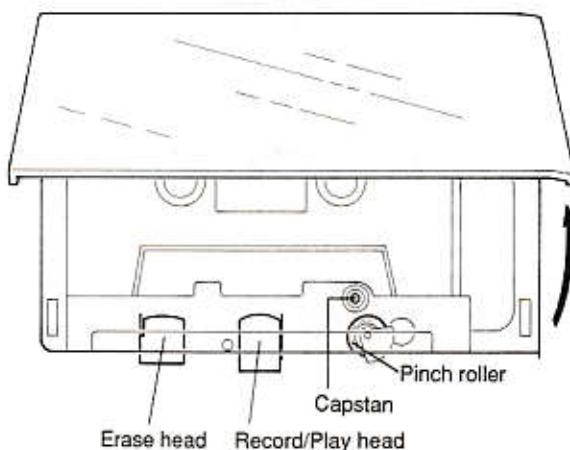
Specifications

❑ Transport

Tape : Compact cassette (C-30 to C-90), CrO2 (Type II, 70 µs EQ) only

Track Format : 4-track/4-channel, single directional record/play

Head : 4-channel record/play head (permalloy) x1
4-channel erase head (ferrite) x1

Motor : DC servo motor x1

Tape Speed : 9.5 cm/sec. (3-3/4 ips)

Speed Accuracy : +/-1.0%

Pitch Control : +/-12%

Wow and Flutter : 0.12% WRMS

Fast Winding Time : 110 sec. (approx.) using C-60

❑ Electronics

MIXER SECTION

Inputs

MIC/LINE Input, Ch.1-2 (1/4" jack x2)
Input Impedance : 50 kohms
Nominal Input Level : -50 dBV (3 mV), trim max
-10 dBV (0.3 V), trim min
Maximum Input Level : +5 dBV (1.8 V), trim min

LINE Input, Ch.3-4 (1/4" jack x2)
Input Impedance : 10 kohms
Nominal Input Level : -10 dBV (0.3 V)
Maximum Input Level : +5 dBV (1.8 V)

SUB IN, L and R (RCA jack x 2)
Input Impedance : 10 kohms
Nominal Input Level : -10 dBV (0.3 V)
Maximum Input Level : +5 dBV (1.8 V)

EFFECT RETURNS, L/MONO and R (1/4" jack x2)
Input Impedance : 10 kohms
5 kohms (only L/MONO connected)
Nominal Input Level : -10 dBV (0.3 V)
Maximum Input Level : +5 dBV (1.8 V)

Outputs

LINE OUT, L and R (RCA jack x 2)
Output Impedance : 100 ohms
Nominal Output Level : -10 dBV (0.3 V)
Maximum Output Level : +5 dBV (1.8 V)

MONITOR OUT, L and R (RCA jack x2)
Output Impedance : 1 kohms
Nominal Output Level : -10 dBV (0.3 V)
Maximum Output Level : +5 dBV (1.8 V)

EFFECT SEND (1/4" jack x 1)
Output Impedance : 100 ohms
Nominal Output Level : -10 dBV (0.3 V)
Maximum Output Level : +5 dBV (1.8 V)

SYNC OUT (RCA jack x 1)
Output Impedance : 100 ohms
Nominal Output Level : -10 dBV (0.3 V)
Maximum Output Level : +5 dBV (1.8 V)

PHONES (1/4" stereo jack x1)
Nominal Load Impedance : 40 ohms
Maximum Output Level : 60 mW + 60 mW

Typical Performance

Equalizer, Ch. 1-4 (2-band)
HIGH : 10 kHz, +/-10 dB (shelving)
LOW : 100 Hz, +/-10 dB (shelving)

Frequency Response
MIC to L/R LINE OUT : 20 Hz to 20 kHz, +/-3 dB
LINE to L/R LINE OUT : 20 Hz to 20 kHz, +/-2 dB
LINE to EFFECT SEND : 20 Hz to 20 kHz, +/-2 dB
LINE to MONITOR OUT : 20 Hz to 20 kHz, +/-2 dB

Signal-to-Noise Ratio (at nominal input level, UNWTD, 20 Hz to 20 kHz, BPF inserted)
MIC to L/R LINE OUT : 65 dB, trim max
LINE to L/R LINE OUT : 75 dB

Total Harmonic Distortion (THD)
  MIC to L/R LINE OUT : 0.05%, trim max
  (at 1 kHz, 15 dB above nominal input level,
  30 kHz- LPF inserted)
  LINE to L/R LINE OUT : 0.03%, trim min
  (at 1 kHz, nominal input level, 30 kHz-LPF
  inserted)

Crosstalk: 60 dB (at 1 kHz, nominal input level,
  30 kHz-LPF inserted)

Power Requirements : DC 12V, 500 mA, 8 watts,
  via the provided PS-P2 AC-DC adapter

RECORDER SECTION

Record Channel : 4-track single direction, 2-track
  record at one time

Noise Reduction : dbx*, Type II

Overall Frequency Response : 40 Hz to 16 kHz,
  +/-3 dB (without dbx)

Overall Signal-to-Noise Ratio : 85 dB (at 1 kHz,
  ref.to 3% THD, "A" weighted, with dbx)

Total Harmonic Distortion (THD) : 1.0% (at 1
  kHz, nominal input level, with dbx)

Channel Separation : 70 dB (at 1 kHz, nominal
  input level, with dbx)

Erasure : 70 dB or greater (at 1 kHz, BPF inserted)

❏ **Others**

Dimensions (WxHxD) : 338 x 63 x 236.5 mm
  (protruding parts included)

Weight (Net) : 1.9 kg

In these specifications, 0 dBV is referenced to 1
Volt. Actual voltage levels are also given in
parenthesis (0.316 V for -10 dBV is rounded off to
0.3 V).

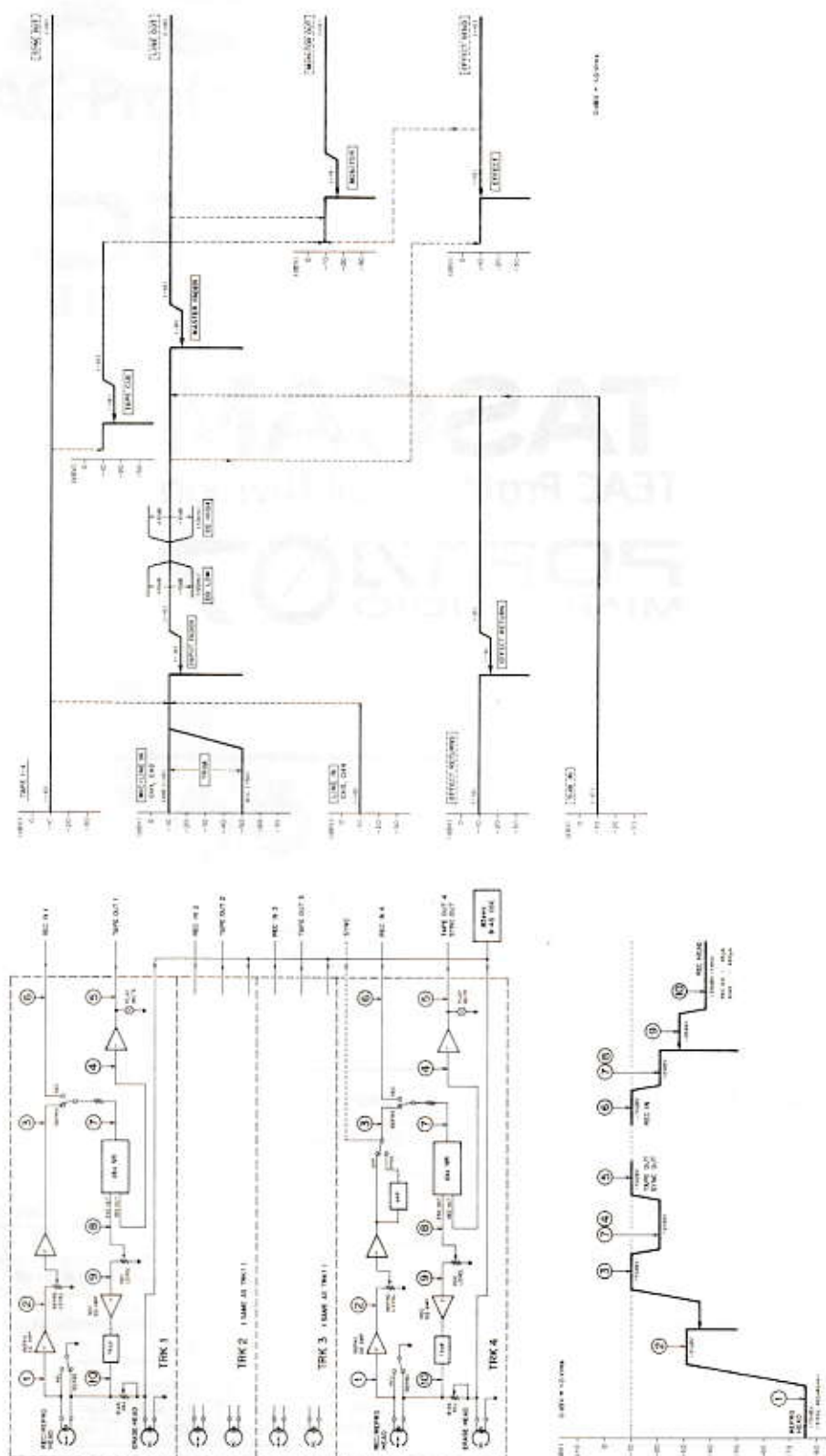*dbx is a registered trademark of dbx Incorporated.

☞ *Changes in specifications and features may be
made without notice or obligation.*
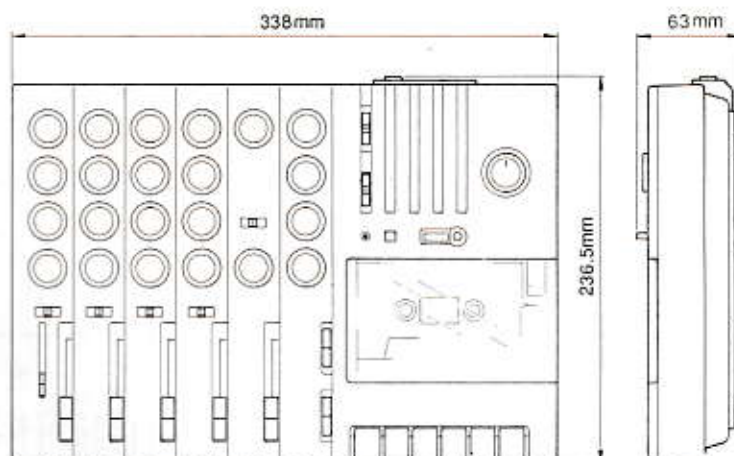
Block Diagram
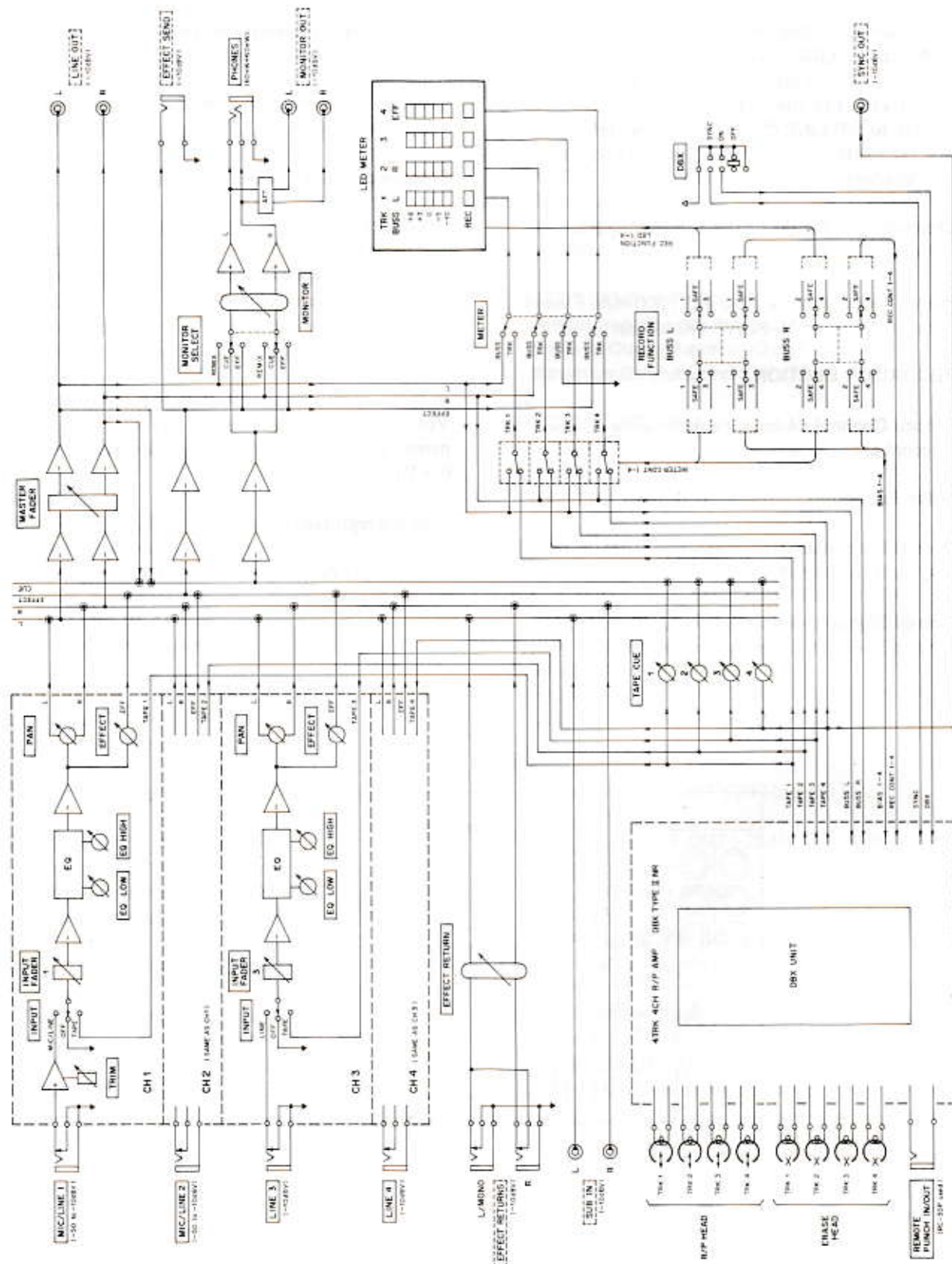
Level Diagram

TASCAM
TEAC Professional Division
PORTA 07
MINISTUDIO