

AKAI
professional

RIFF-O-
MATIC  **40**

**Variable Tempo / Constant Pitch
Phrase Recorder**

WARNING

To prevent fire or shock hazard, do not
expose this appliance to rain or moisture.

Operator's Manual

WARNING

The U40 is designed to be used in a standard household environment.

Power requirements for electrical equipment vary from area to area. Please ensure that your AC Adaptor supplied meets the power requirements in your area. If in doubt, consult a qualified electrician or Akai Professional dealer.

120 VAC	@ 60 Hz for USA and Canada
220~230/240 VAC	@ 50 Hz for Europe
240 VAC	@ 50 Hz for Australia

PROTECTING YOURSELF AND THE U40

- Never touch the AC Adaptor with wet hands.
- Always disconnect the AC Adaptor from the power supply by pulling on the adaptor/plug, not the cord.
- Allow only an Akai Professional dealer or qualified professional engineer to repair or reassemble the U40. Apart from voiding the warranty, unauthorized engineers might touch live internal parts and receive a serious electrical shock.
- Do not put, or allow anyone to put any object, especially metal objects, into the U40.
- Use only a household AC power supply. Never use a DC power supply.
- If water or any other liquid is spilled into or onto the U40, disconnect the power, and call your dealer.
- Make sure that the unit is well-ventilated, and away from direct sunlight.
- To avoid damage to internal circuitry, as well as the external finish, keep the U40 away from sources of direct heat (stoves, radiators, etc.).
- Avoid using aerosol insecticides, etc. near the U40. They may damage the surface, and may ignite.
- Do not use denaturated alcohol, thinner or similar chemicals to clean the U40. They will damage the finish.
- Modification of this equipment is dangerous, and can result in the functions of the U40 being impaired. Never attempt to modify the equipment in any way.
- Make sure that the U40 is always well-supported when in use on a firm level surface.
- In order to assure optimum performance of your U40, select the setup location carefully, and make sure the equipment is used properly. Avoid setting up the U40 in the following locations:
 1. In a humid or dusty environment
 2. In a room with poor ventilation
 3. On a surface which is not horizontal
 4. Inside a vehicle such as a car, where it will be subject to vibration
 5. In an extremely hot or cold environment

WARNING!!

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

14-En

CAUTION (Only for the product sold in Canada and U.S.A.)

To prevent electric shock, do not use this polarized AC power plug with an extension cord, receptacle, or other outlet unless the blades can be fully inserted to prevent blade exposure.

14-En

ATTENTION

Afin d'éviter tout risque de décharge électrique, n' utilisez pas cette prise polarisée avec une rallonge, une prise de courant ou autre sortie à moins que les lames puissent être complètement insérées et qu'elles ne soient plus visibles.

14-F

IMPORTANT

This equipment is fitted with an approved converter plug.

To change the fuse in this type of plug proceed as follows:

- 1) Remove the fuse cover and old fuse.
- 2) Fit a new fuse which should be a BS1362 5 Amp A.S.T.A. or BSI approved type.
- 3) Refit the fuse cover.

If the AC mains plug fitted to the lead supplied with this equipment is not suitable for your type of AC outlet sockets, it should be changed to an AC mains lead, complete with moulded plug of the appropriate type.

If this is not possible, the plug should be cut off and a correct one fitted to suit the AC outlet. This should be fused at 5 Amps.

If a plug without a fuse is used, the fuse at the distribution board should not be greater than 5 Amp.

PLEASE NOTE: THE SEVERED PLUG MUST BE DESTROYED TO AVOID A POSSIBLE SHOCK HAZARD SHOULD IT BE INSERTED INTO A 13 AMP SOCKET ELSEWHERE.

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 in your plug, please 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.

DO NOT CONNECT ANY WIRE TO THE PIN MARKED E OR $\frac{1}{2}$ OR COLOURED GREEN OR YELLOW & GREEN WHEN WIRING THE PLUG.

Ensure that all the terminals are securely tightened and no loose strands of wire exist.

Before replacing the plug cover, make certain the cord grip is clamped over the outer sheath of the lead and not simply over the wires.

6F-En

CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

32-En

FCC WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

21B-En

AVIS POUR LES ACHETEURS CANADIENS DU U40

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

27-F

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

27-En

FÜR KUNDEN IN DER BUNDESREPUBLIK DEUTSCHLAND

Bescheinigung von AKAI

Hiermit wird bescheinigt, daß das Gerät AKAI

U40

in Übereinstimmung mit den Bestimmungen der
 Amtsblattverfügung 1046/1984

funktentstört ist.

Der Deutschen Bundespostwurde das Inverkehrbringen dieses Gerätes angezeigt und die Berichtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.
 AKAI ELECTRIC CO., LTD.

17B-G

This appliance is not equipped with a main power switch. Even when the appliance is turned off, the power supply to the appliance is not completely turned off when the power cord is plugged in. Pull out the adaptor when not using the appliance for long periods.

4-En

WARRANTY

AKAI Electric Co. Ltd. warrants its products, when purchased from an authorized "AKAI professional" dealer, to be free from defects in materials and workmanship for a period of 12 (twelve) months from the date of purchase. Warranty service is effective and available to the original purchase only, and only on completion and return of the AKAI Warranty Registration Card within 14 days of purchase.

Warranty coverage is valid for factory-authorized updates to AKAI instruments and their software, when their installation is performed by an authorized AKAI Service Center, and a properly completed Warranty Registration has been returned to your "AKAI professional" dealer.

To obtain service under this warranty, the product must, on discovery of the defect, be properly packed and shipped to the nearest AKAI Service Center. The party requesting warranty service must provide proof of original ownership and date of purchase of the product.

If the warranty is valid, AKAI will, without charge for parts or labor, either repair or replace the defective part(s). Without a valid warranty, the entire cost of the repair (parts and labor) is the responsibility of the product's owner.

AKAI warrants that it will make all necessary adjustments, repairs and replacements at no cost to the original owner within 12 (twelve) months of the purchase date if:

- 1) The product fails to perform its specified functions due to failure of one or more of its components.
- 2) The product fails to perform its specified functions due to defects in workmanship.
- 3) The product has been maintained and operated by the owner in strict accordance with the written instructions for proper maintenance and use as specified in this Operator's Manual.

Before purchase and use, owners should determine the suitability of the product for their intended use, and owner assumes all risk and liability whatsoever in connection therewith. AKAI shall not be liable for any injury, loss or damage, direct or consequential, arising out of use, or inability to use the product.

The warranty provides only those benefits specified, and does not cover defects or repairs needed as a result of acts beyond the control of AKAI, including but not limited to:

- 1) Damage caused by abuse, accident, negligence.
- 2) Damage caused by any tampering, alteration or modification of the product: operating software, mechanical or electronic components.
- 3) Damage caused by failure to maintain and operate the product in strict accordance with the written instructions for proper maintenance and use as specified in this Operator's Manual.
- 4) Damage caused by repairs or attempted repairs by unauthorized persons.
- 5) Damage caused by fire, smoke, falling objects, water or other liquids, or natural events such as rain, floods, earthquakes, lightning, tornadoes, storms, etc.
- 6) Damage caused by operation on improper voltages.

IMPORTANT NOTE: This warranty becomes void if the product or its software is electronically modified, altered or tampered with in any way.

AKAI shall not be liable for costs involved in packing or preparing the product for shipping, with regard to time, labor, or materials, shipping or freight costs, or time or expense involved in transporting the product to and from AKAI Authorized Service Center or Authorized Dealer.

AKAI will not cover under warranty an apparent malfunction that is determined to be user error, or owner's inability to use the product.

THE DURATION OF ANY OTHER WARRANTIES, WHETHER IMPLIED OR EXPRESS, INCLUDING BUT NOT LIMITED TO THE IMPLIED CONDITION OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

AKAI hereby excludes incidental or consequential damages, including but not limited to:

- 1) Loss of time.
- 2) Inconvenience
- 3) Delay in performance of the Warranty.
- 4) The loss of use of the product.
- 5) Commercial loss.
- 6) Breach of any express or implied warranty, including the Implied Warranty of Merchantability, applicable to this product.

Copyright Notice

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Introduction

Thank you for buying an AKAI RIFF-O-MATIC U40 Variable Tempo/Constant Pitch Phrase Recorder.

This new musical tool enables you to sample a recorded musical phrase and play it back at one of the tempos provided without changing its original pitch. With the U40, you can easily transcribe or practice along with phrases that are too fast to distinguish at their original tempos.

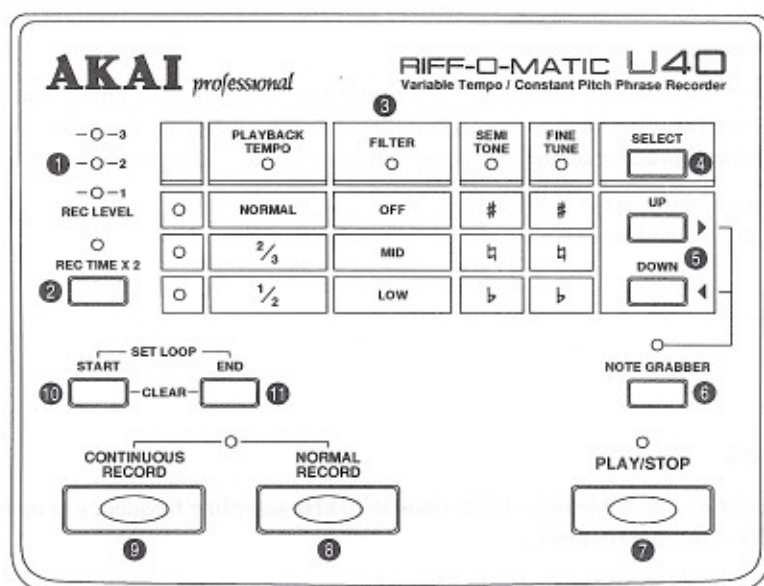
To make best use of the U40, please read this manual thoroughly before operating it. Also, please keep this manual in a safe location for future reference.

Please note: Words entirely in upper case letters refer to controls or input/output jacks on the U40.

Features

- Recording possible up to 13 seconds at 20 kHz sampling frequency or up to 26 seconds at 10 kHz sampling frequency
- Playback speed switchable to Normal, 2/3, or 1/2
- Key transposition available up to ± 6 semitones and fine tuning of the pitch of the recording
- Simple operation with REC and PLAY keys for immediate looped playback
- Instrument input that accepts an output from an electric guitar or bass
- Note grabber function for looped playback of individual notes
- Looping of any segment of a recording
- Band-pass filters (MID/LOW) to isolate the sepecific instrument you are interested in transcribing

Panel Descriptions



1 REC LEVEL

Indicates the signal level at **LINE IN**. Adjust the input level using **LINE IN LEVEL**, so that the third red LED indicator does not light.

2 REC TIME x2

Pressing this key lights up the LED and expands total recording time to 26 sec. It is more useful for a longer recording but may degrade the sound quality as the sampling frequency is halved to 10 kHz.

3 Edit Matrix

The various edit parameters on the U40 are mapped here. The lighted row and column LEDs in the matrix show the current parameter selection; You can use **SELECT**, **UP**, and **DOWN** to select parameters such as **PLAYBACK TEMPO**, **FILTER**, etc.

4 SELECT

Moves the column LED light for parameter selection; Each pressing of this key moves the light by one step horizontally.

5 UP and DOWN

Moves the row LED light for value selection; Pressing **UP** moves the light by one step upward and **DOWN** moves it downward. With **NOTE GRABBER** active, use these keys to play the recording forward or backward to locate the note you want to loop.

6 NOTE GRABBER

Pressing this key activates the Note Grabber function. The function provides a short looped playback at any point of the recording. See page 10 for details.

7 PLAY/STOP

Pressing this key starts looped playback. (The source sound through **LINE IN** is muted) Pressing the key a second time stops playback. (The input source sound becomes available again.)

8 NORMAL RECORD

Pressing this key lights up the LED and starts recording of the source sound through **LINE IN**. Recording will stop when **PLAY/STOP** is pressed or when maximum recording time has elapsed.

9 CONTINUOUS RECORD

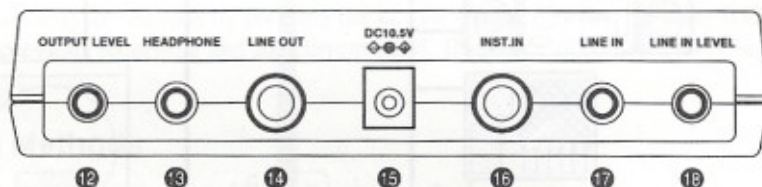
Pressing this key puts the U40 in record standby status; The next key that is pressed determines how recording proceeds. See page 5~7 for details.

10 SET LOOP START

Determines the start point of looped playback. The point where this key is pressed during playback will be a new start point for that playback.

11 SET LOOP END

Determines the end point of looped playback. The point where this key is pressed during playback will be a new end point for that playback. Pressing this key together with **SET LOOP START** while the loop is playing will cancel the current start and end point settings; The whole recording will be looped (played repeatedly).

**12 OUTPUT LEVEL**

Adjusts the output level at **HEADPHONE** and **LINE OUT**.

13 HEADPHONE

Connect a pair of headphones here. The headphone level is adjusted by **OUTPUT LEVEL**.

14 LINE OUT

Connects to a mixer or amplifier. This outputs a mix of the recording and sounds from **LINE IN** and **INST.IN**. The output level is adjusted by **OUTPUT LEVEL**.

15 DC 10.5V

Connects to the AC power adaptor included.

16 INST.IN

Connects to an electric guitar, bass, etc. Source sounds input here are sent to **LINE OUT** and **HEADPHONE**. Adjust the input level using volume controls on the instrument. Note that too high a volume level will result in distortion.

17 LINE IN

Connects to line outputs on an audio device such as a tape player, CD player, etc., using the audio cable supplied. The input level is adjusted by **LINE IN LEVEL**.

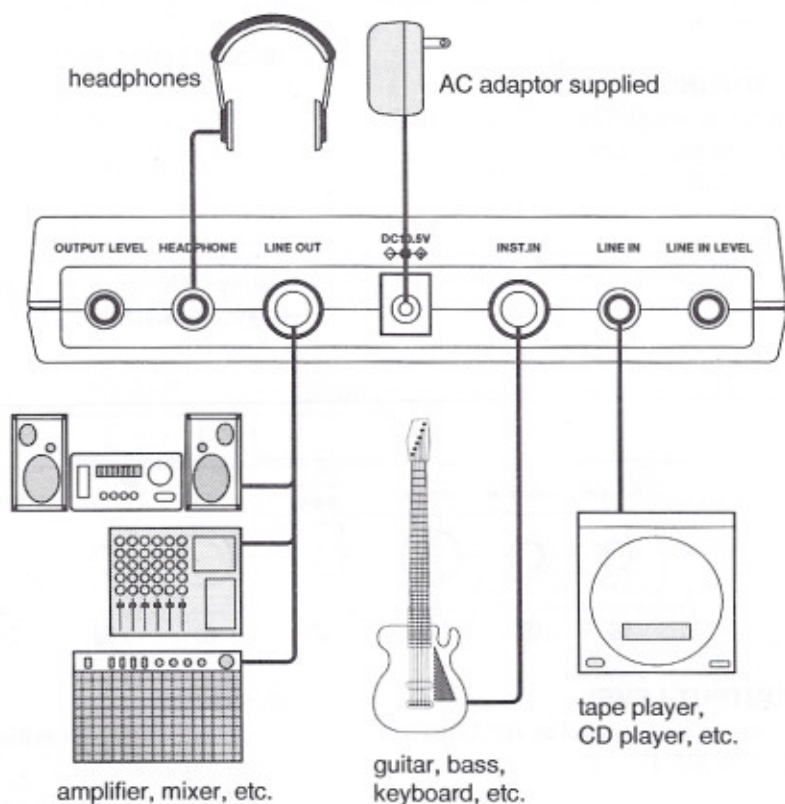
18 LINE IN LEVEL

Adjusts the input level at **LINE IN**.

Note: Any controls on the U40—pots, keys and jacks, are all represented in uppercase in the manual description.

Connections

Connect all equipment to the U40 as shown in the following illustration.



- Always use the AC power adaptor supplied to supply power to the U40. As there is no power switch on the U40, the device is turned on or off by plugging or unplugging the AC adaptor. Never pull on the cable to disconnect.
- If you use the U40 in an area of different voltage from where you bought the device, it requires another AC power adaptor for that area. Consult your AKAI professional dealer for more information.

Recording

First of all, you need to record the phrases you wish to transcribe or practice along with. Remember, a stereo source is recorded in mono (merged).

Preparations

Ensure that audio device that supplies phrases you wish to record is correctly connected using the audio cable supplied.

Using **LINE IN LEVEL**, adjust the input level as high as possible, without turning on the third red LED indicator on the REC LEVEL meter. Too high a level makes sounds distorted whereas too low a level makes sounds noisy.

—○—3
—●—2
—●—1
REC LEVEL

Recording Time

Set a recording time according to the phrase you pick using **REC TIME x2**. The normal recording time is approximately 13 seconds (with the **REC TIME x2** LED turned off). You can expand it to approximately 26 seconds by pressing the key (with the LED lit); Pressing **REC TIME x2** erases any previous recording and the current **LINE IN** source becomes available.

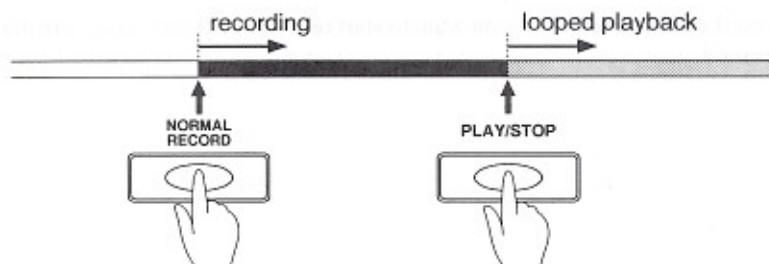
Recording Methods

You can start recording in one of the following methods.

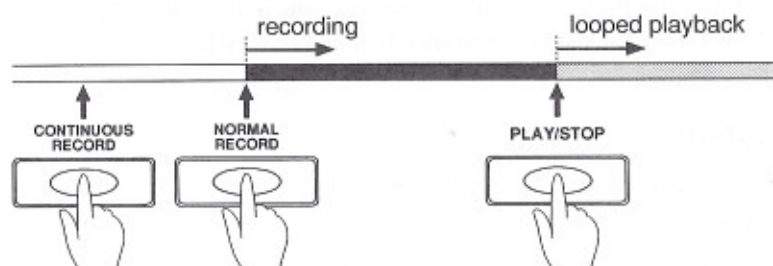
< Immediate Recording >

Pressing **NORMAL RECORD** starts recording immediately.

The recording will be stopped by pressing **PLAY/STOP**. Otherwise, it will automatically stop in approximately 13 seconds (26 seconds with **REC TIME x2** pressed). On the completion of recording, the U40 automatically starts looped playback over the whole length of the recording.



If the U40 is in stand-by recording with **CONTINUOUS RECORD** pressed (see below), pressing **NORMAL RECORD** will cancel stand-by and start immediate recording.

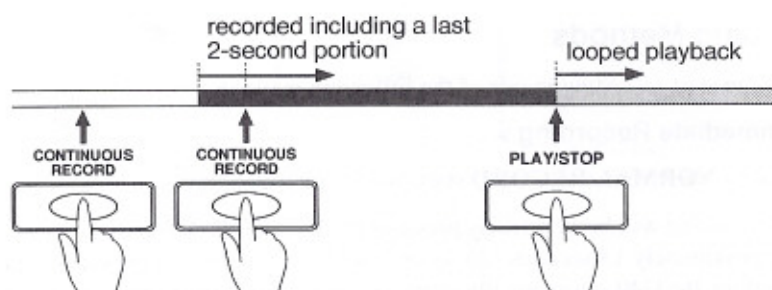


< Pre-roll Recording >

Pressing **CONTINUOUS RECORD** puts the U40 in record stand-by status with the LED blinking.

Pressing **CONTINUOUS RECORD** a second time starts recording including the last 2-second portion from the source.

The recording will be stopped when **PLAY/STOP** is pressed or the specified recording time is reached. On the completion of recording, the U40 automatically starts looped playback over the whole length of the recording.



This method is convenient if you want to start recording after making sure that the source phrase has started.

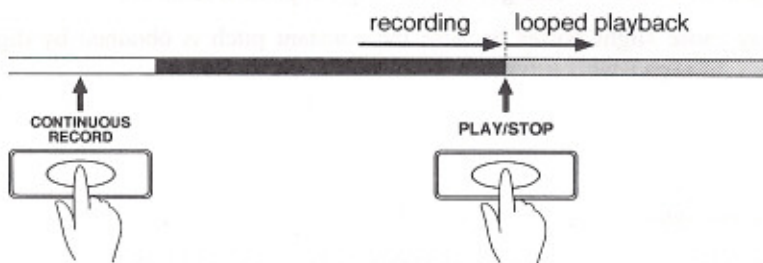
< Elapse Recording >

The above two recording methods can determine the record start point. This method, however, determines the record end point in a case where you want to transcribe the end of a passage.

Pressing **CONTINUOUS RECORD** puts the U40 in record stand-by status with the LED blinking.

Pressing **PLAY/STOP** finishes recording of up to the last 13-second portion (26-second portion with REC TIME x2 pressed) of source before the **PLAY/STOP** key is pressed.

On the completion of recording, the U40 automatically starts looped playback over the whole length of the recording.



This method is convenient if you want to stop recording after making sure that the source phrase is ended.

Note: Your recording will be erased when another recording is done or the U40 is turned off. The device has no memory area for storage so that you can record only a single phrase of up to 13-seconds (26-seconds with REC TIME x2 pressed).

Edit Parameters

You can use the Edit Matrix options to set the playback speed, filter, pitch, etc., to your requirements.

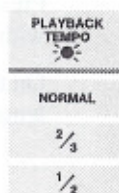
Playback Speed

Move the light horizontally using **SELECT**, to select **PLAYBACK TEMPO**.

Select a playback speed using **UP** and **DOWN**, from 2/3x and 1/2x speeds to the original one; **NORMAL** plays at the original tempo.

The playback speed is changed but the original pitch is retained.

It may cause slight noises because the constant pitch is obtained by digital waveform expansion.



Filter

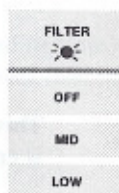
Move the light horizontally using **SELECT**, to select **FILTER**.

Select a filter type using **UP** and **DOWN**, from **MID** and **LOW**.

MID is a band-pass filter that attenuates sounds of higher and lower frequencies; It makes sounds in the middle range more distinct to hear a guitar phrase, etc.

LOW is a low-pass filter that attenuates sounds of higher and middle frequencies; It makes sounds in the lower range more distinct to hear a bass phrase, etc.

Selecting **OFF** cancels filtering and plays the entire frequency range.



Key Transposition

Move the light horizontally using **SELECT**, to select **SEMITONE**.

Pressing **UP** transposes up by one semitone and **DOWN** transposes down by one semitone; Key transposition is available up to ± 6 semitones; Attempting a key transposition beyond that range blinks the sharp (#) LED or flat (b) LED.

The light of the natural (n) LED indicates that the phrase is at its original pitch.

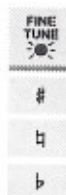


Fine Tuning

Move the light horizontally using **SELECT**, to select **FINE TUNE**.

Pressing **UP** moves the pitch higher by one cent and **DOWN** moves the pitch lower by one cent; Fine tuning is available up to ± 50 cents. (100 cents equals one semitone.)

Pressing **UP** and **DOWN** simultaneously brings the tuning back to the original pitch; The light of the natural (n) LED indicates that it is at the original pitch.

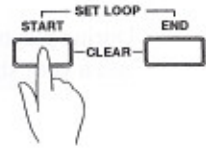


Loop Points

On the completion of recording, the U40 automatically starts looped playback over the whole length of the recording. You can adjust the start and end points of that loop to playback just the portion you want to hear.

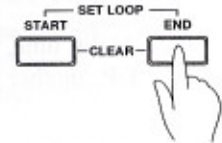
Start Point

During playback of the recording, pressing **SET LOOP START** specifies a new start point for the looped playback.



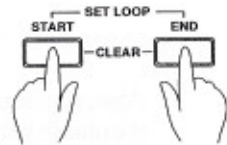
End Point

During playback of the recording, pressing **SET LOOP END** specifies a new end point for the looped playback.



Canceling a Loop

During playback of the recording, pressing both **SET LOOP START** and **SET LOOP END** cancels a loop you specified; Playback will be looped over the whole length of the recording.



Warning: Do not press either the **SET LOOP START** or **SET LOOP END** buttons while the **Note Grabber** function (pg. 10) is activated. Doing so will change the loop points, but the change will not be available until the next time you enter normal play mode. The results will be unpredictable. If you accidentally do this, cancel the loop (as described above) and set a new loop.

Note Grabber Function

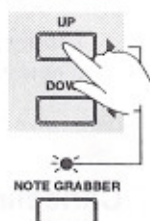
This function provides a very short looped playback at any point in the recording. It is useful to isolate individual notes in a complex phrase.

Method

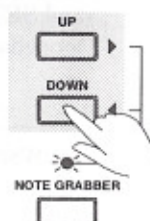
During playback of the recording, pressing **NOTE GRABBER** lights up its LED and a very short looped playback occurs at that point.



At this time, you can move the loop forward by holding **UP**; When releasing **UP**, another short loop will occur at the new point.



Also, you can use **DOWN** to move the loop backward; While holding **DOWN**, the phrase will be played in reverse. When you release **DOWN**, another short loop will occur at the new point.



While **UP** or **DOWN** is being held down, the playback speed will be the one you specified using **PLAYBACK TEMPO**. Searching is possible in the whole recording length, regardless of the loop points specified.

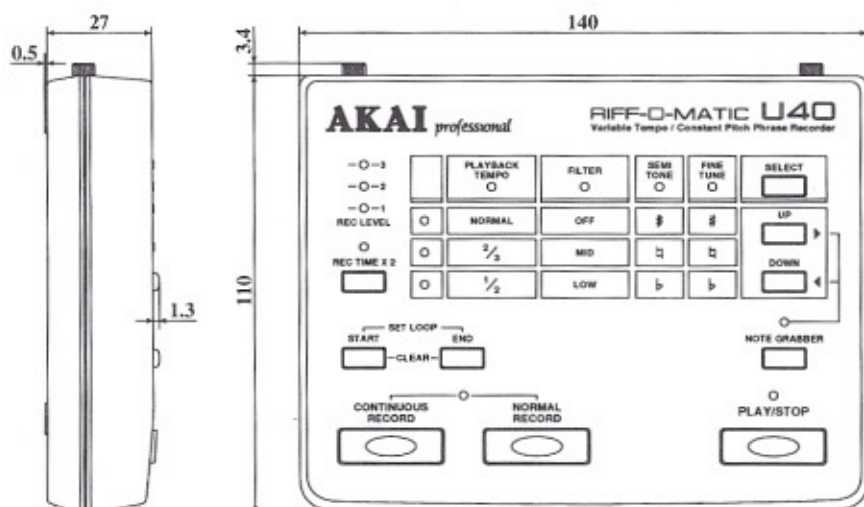
To cancel the Note Grabber function, press **NOTE GRABBER** a second time; Its LED goes out and playback stops immediately.

Instead, you can press **PLAY/STOP** to resume normal playback.

Note: Normally, you press **NOTE GRABBER** during playback of the recorded phrase to start the short loop at that point. However, if you press **NOTE GRABBER** while playback is stopped, you will hear a short loop that is located at the point most recently set by the **SET LOOP START** button. If no loop start point has been set, then the short Note Grabber loop is located at the very beginning of the recording.

Specifications

Model	: Variable Tempo/Constant Pitch Phrase Recorder RIFF-O-MATIC U40
Sampling Frequency	: 20 kHz (NORMAL), 10 kHz (REC TIME x2)
Recording Time	: 13 seconds (NORMAL), 26 seconds (REC TIME x2)
Memory Capacity	: 512 KBytes
Parameters	: PLAYBACK TEMPO NORMAL, 2/3, 1/2 FILTER OFF, MID, LOW SEMITONE up to ± 6 semitones FINE TUNE up to ± 50 cents REC TIME NORMAL, x2
Inputs	: LINE IN 1/8-inch stereo phone jack/47k Ω INST.IN 1/4-inch phone jack/47k Ω
Outputs	: LINE OUT 1/4-inch phone jack/130 Ω HEADPHONE 1/8-inch stereo phone jack/130 Ω
Pots	: OUTPUT LEVEL output level control of LINE OUT and HEADPHONE LINE IN LEVEL input level control of LINE IN for recording
Level Meter	: 3 LEDs at REC LEVEL
Power Supply	: DC 10.5V supplied by the AC power adaptor included
Weight	: 200g (without AC Adaptor)
Accessories	: AC power adaptor (10.5 VDC converter, 300 mA output) 1 Audio connection cable (1/8-inch stereo phone plugs) 1 Operator's Manual 1
Dimensions	:



* Above specifications are subject to change without notice.



AKAI ELECTRIC CO., LTD.
Electronic Musical Instrument Div.

950920-1 printed in Japan
Ⓔ APC