Vestax

VRX-2000

TRAINING MANUAL

GENERAL CAUTION

❶ Please read this manual carefully. Vestax will not be responsible for the problems caused by improper use.
❷ Please save the original VRX-2000 hard carton/ padding/packing. Always use them for transportation. If the unit is transported with improper packing and consequently damaged, the warranty repair will not apply.
❸ VRX-2000 is very high-tech creation. Please use great caution in moving and setting up.

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VESTAX VRX-2000 CUTTING SEMINAR

Section 1 History

Up to now it only was possible to produce vinyl's with big machines and a room full of equipment. The cost was tremendous
The new VRX-System now enables a musician to produce his own music on a vinyl in a very short time and without the necessity of. having a room full of recording equipment.
Also it is possible to perform a recording without having studied this subject or working for several years with such a equipment.
However working with the VRX-System also technical knowledge and understanding as well as a sufficient practice is necessary.

This introduction to the VRX recording system will show you how to use the machine to record music direct on a vinyl .

You will be guided through all necessary setups, adjustments and cutting procedures to create your own vinyl.

As the VRX is an analog machine like a musical instrument your success depends very much on your patience to learn and to practise as well as on your musical understanding.

We often compare this VRX machine with a car. We can show how to operate this machine but you have to drive yourself. If you will become an excellent driver depends on you, your practice your patience and your skills.

SECTION 2 Basics

The VRX-2000 will give you superb results in the making of long-lasting vinyl records. To achieve such results, please remember that the mastering process of vinyl records requires skill and a basic understanding of complicated audio waveforms.

Cutting vinyl from a cassette-based multi-track recording or a stereo cassette recorder should prove to be straightforward, as the frequency response of cassette-based music is not as intense as that of a CD.

Cutting from professionally mastered CDs that have good equalization and compression should also give excellent results.

However, recording from some CDs (for example, CDs from home studio set-ups) may provide difficulties. This is due to the fact that these recordings sometimes have very wide frequency ranges, and have not been prepared professionally for mass-production or broadcast.

PLEASE
allways refer to the following pages to understand the difference between a big Lace and the VRX-2000.

2.1 VRX-recording

2.1 VRX-2000 RECORDING

The VRX-2000 is an innovative machine for the experienced professional musician. When used with proper training and knowledge, your ability to produce unique, high quality recordings with the warmth of vinyl is greatly improved.

Although the VRX-2000 is comparable to standard master recording laces (such as the Neuman) there are a number of important differences to be aware of. Two very important issues to consider are;

HEAD FREQUENCY EQUALISATION

VRX-2000	3 Band EQ
NEUMANN	Motion Feedback

GROOVE PITCH

VRX-2000	Constant Pitch
NEUMANN	Variable Pitch

HEAD FREQUENCY EQUALISATION

The manner by which the Cutting Head reacts to various frequencies will affect the final output. Basically, the Cutting Head is like a very small yet powerful speaker when it reacts to various sound frequencies. (Refer to fig.1&fig.2) Extreme frequencies will cause it to move rather severely, with that movement being further reflected in the sound recorded.

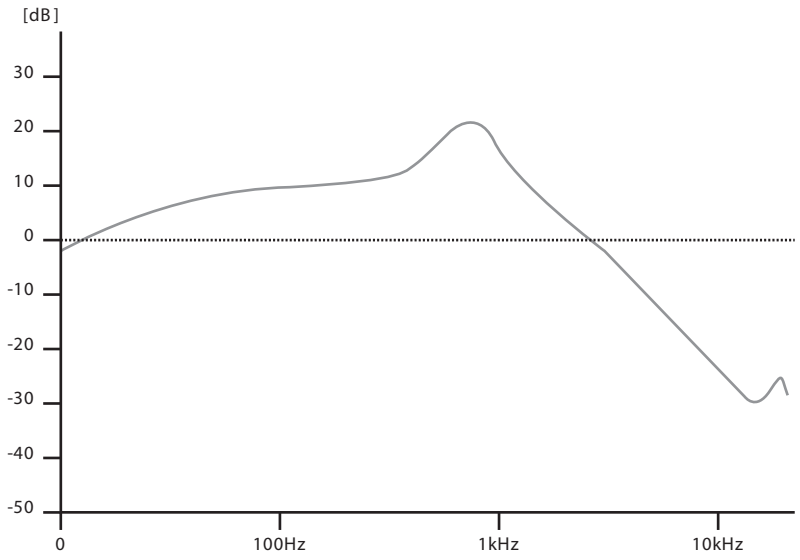


fig.1 : CUTTING HEAD FREQUENCY RESPONSE NEUMANN Sx74

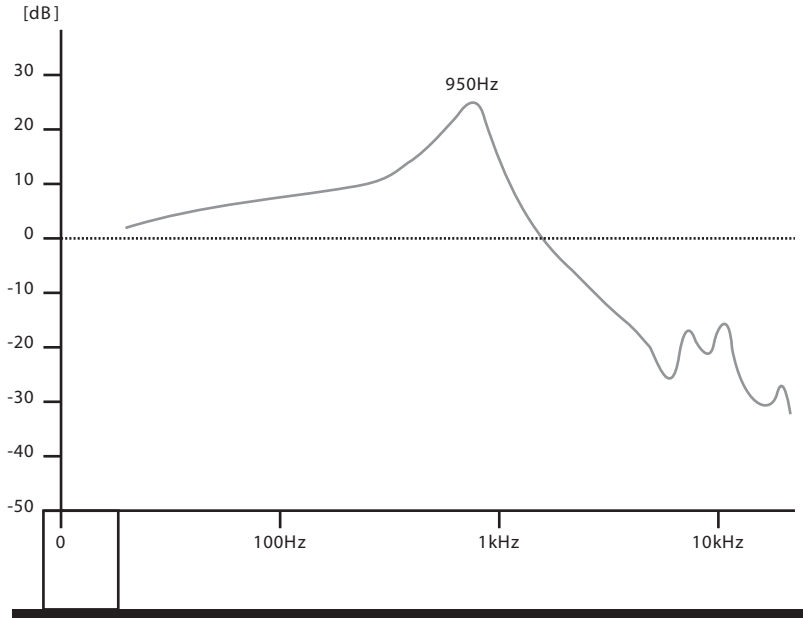


fig.2 : CUTTING HEAD FREQUENCY RESPONSE VESTAX VRX-2000

Though both machines can tolerate such extreme sounds, the way in which they are handled is completely different. The process of compensating for these extremes (peaks & troughs), namely Equalization, involves the flattening / correction of the incoming curve signal. The method by which the Neuman(fig.3) and the VRX-2000(fig.4) adjust curves is very different. On a big powerful machine, any extreme incoming signals are compensated for with an inverted signal, the result being a true sound with a flat signal.(fig.5) This system of compensation is called motion feedback and as mentioned above, is used exclusively in large expensive recording lace systems like the Neuman. The VRX-2000, however, utilizes a standard graphic EQ system to compensate for extreme incoming signal curves. This system is aurally difficult and requires hours of practice and experimentation to get it perfect over and over again.

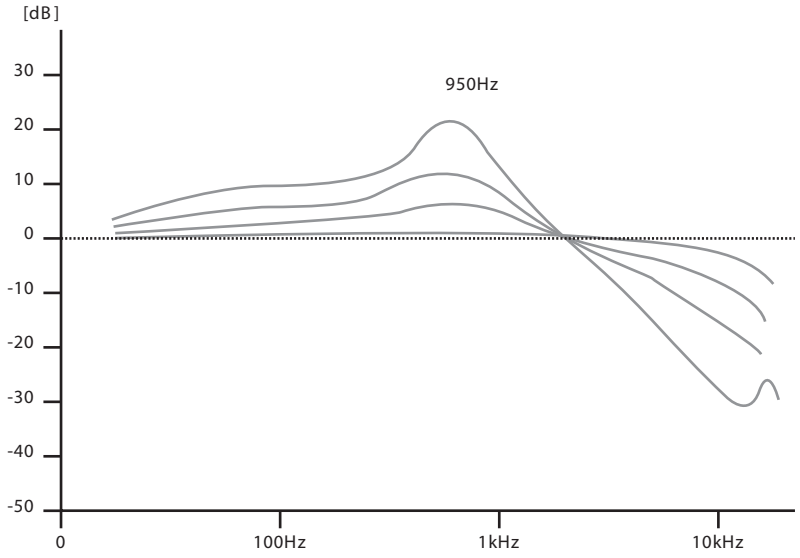


fig.3 : CUTTING HEAD FREQUENCY RESPONSE NEUMANN Sx74

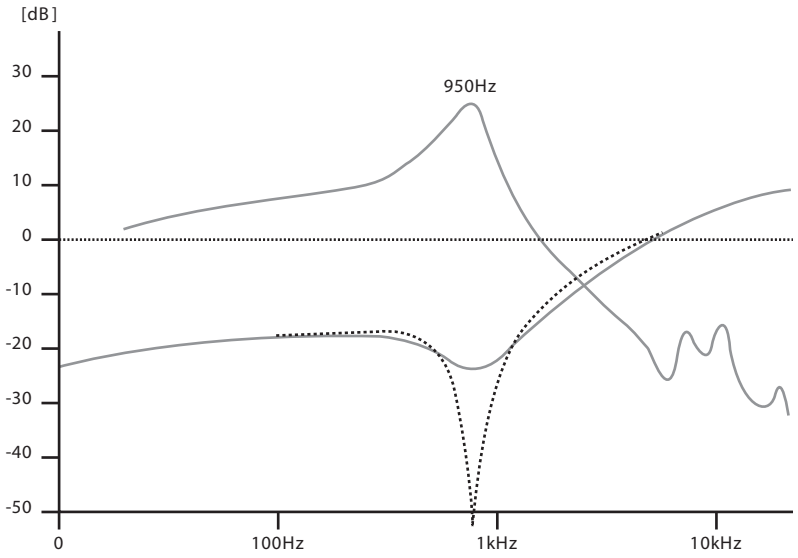


fig.4 : CUTTING HEAD FREQUENCY RESPONSE VESTAX VRX-2000

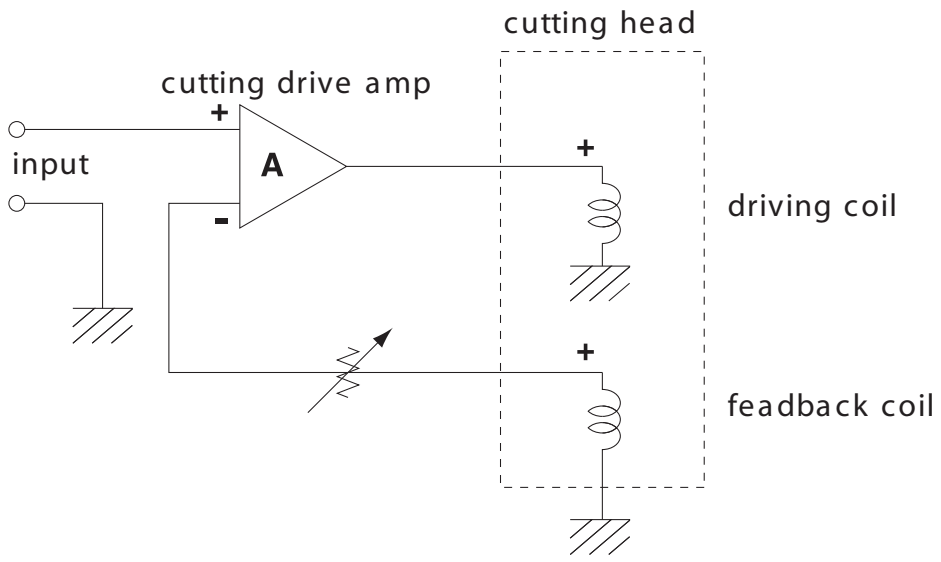


fig.5 : MOTION FEEDBACK CIRCUIT

VRX-2000

Advantages	* Small System * No cooling system is needed * Can use a small power amplifier
Disadvantages	* Recording level is not perfectly flat * Difficult to adjust the EQ to get a great sound * The recorders EQ, needs to be adjusted professionally. * Professional service is needed to replace or tune up selected parts.

NEUMANN

Advantages	* Very flat frequency response specifications * True sounding final output
Disadvantages	* Needs a very powerful amplifier (600W) * Head coil gets extremely hot (210 C) and needs to be cooled down using a helium gas cooling system * Very expensive, heavy, high-end professional use only sound recording device.

Although the VRX-2000 differs greatly from the big machines, such as the Neumann, attaining high quality recordings time and time again can be easily achieved with study and perseverance. Furthermore, acknowledging the above differences will help you to understand the process by which to grasp your pre cutting needs, thereby facilitating easier high end results.

ATTAINING THE BEST CUT AGAIN AND AGAIN.

To ensure that your results live up to your expectations of sound quality please follow the steps below carefully until you have become a consistent producer or amazing, unique recordings.(fig.6)

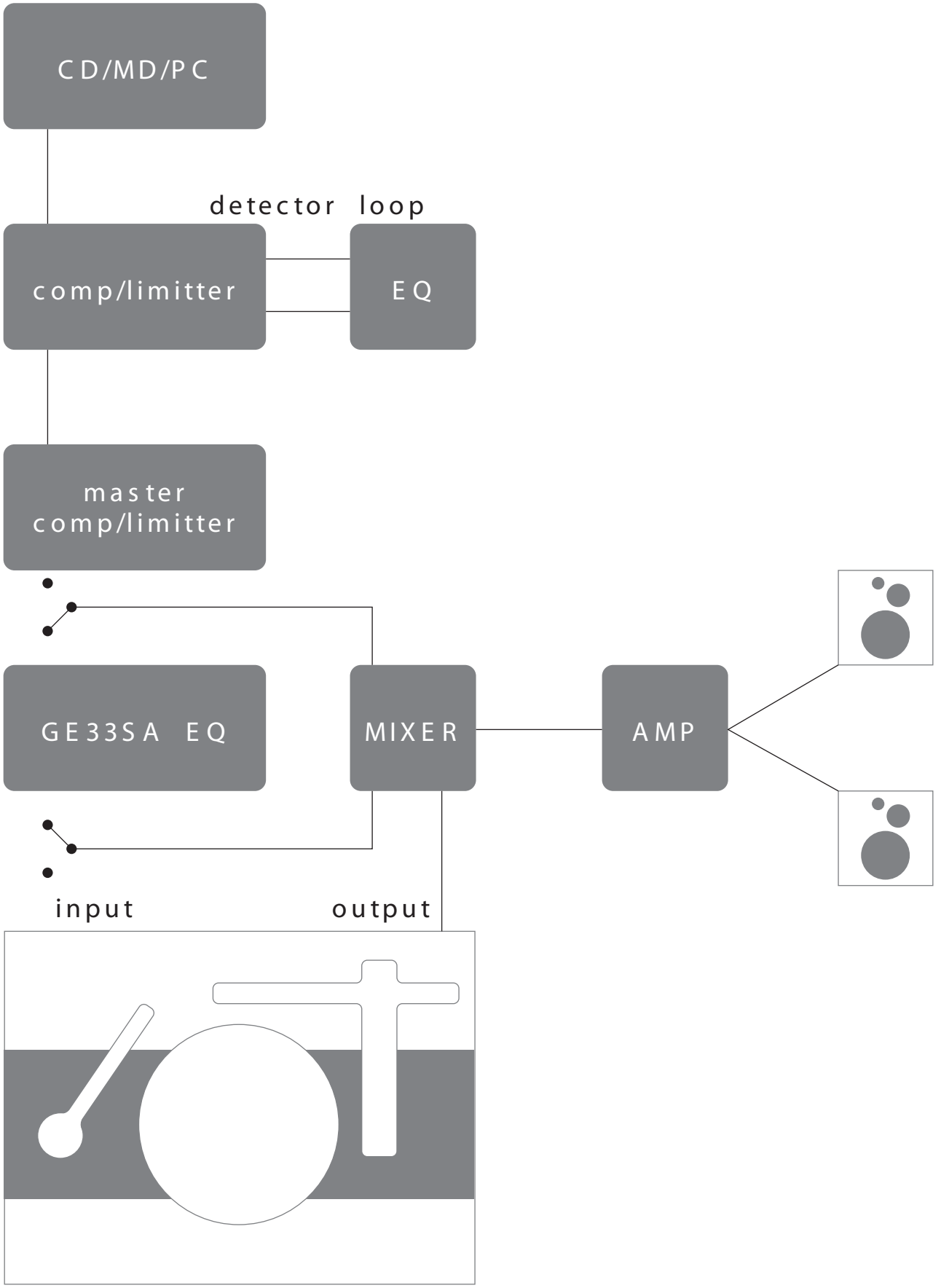


fig.5 : VRX-2000 RECOMENDED SET UP

(1) TEST CUT - TRIAL CUT

A. Set up the cutting stylus, making sure that its position is correct and secure.
B. Check the stylus connection and pressure.
C. Warm up to the heating coil based on your room temperature and desired sound style. (Your genre - Jazz, hardcore - will require slightly to greatly different temperatures)
D. Perform a one-minute test cut to check for irregularities in cutting quality.
E. Inspect the cutting blank and the residue (from cutting) for cracks and cutting precision. TIP: You should watch the "cutting-tip"(offcut) to see that the cutting is precisely and smoothly.

(2) STRAIGHT CUT - SOUND INPUT CHECK & EQ

A. Assuming that the above check has proved positive, this check is to allow you to set up for your final recording correctly.
B. Connect your input source directly to the VRX-2000 - DEFFINATELY NO EQ - This will help you see how your VRX-2000 records and allow you to understand its recording character.
C. Make a sample recording - NO EQ - for a few minutes. The longer the recording the more easily it will be for you to adjust your EQ later to ensure a superior final cut.

(3) PLAY BACK - EQ ADJUSTMENT

A. Play back your recording through an EQ making adjustments to the sound (EQ) according to your style, tastes or target result.
B. These EQ adjustments, that you have made on the playback of the test, are what will ensure that the final cut is flat and true to your input source.
C. A frequency range of between 200Hz - 600Hz is the recommended range that will give you warmth and sensitivity whilst still being clearly balanced.
D. YOUR CUTTING LEVEL SHOULD NOW BE SET TO MINIMISE EXTREME 'OVER' PEAKS. Use of the input meter on the VRX-2000 is recommended in this case. This balance is important so as to minimize any chance of damage to your head and the heating coil of the VRX-2000.

(4) FINAL CUT - UNIQUE QUALITY END RESULTS

A. Reconnect the VRX-2000 to your input source through your EQ.
B. Ensure that your input sound is well balanced and the extreme peaks compensated for.
C. Make your final cut.

**NOTE -- The taking of notes will facilitate an improved understanding of the recording process and help speed up your recording process. These notes will also allow you to perfect your process over and over again.

2.2 Mastering

Excellent cutting is only possible with excellent mastered records. This Seminar is not intended to teach mastering and engineering skills. These are a requirement for successful cutting.

However here are some hints about Mastering.

More and more people nowadays are recording in their living room or garage without caring about monocompatibility or phase continuity and correlation. etc.
Recording this kind of material to a Vinyl (or to a CD) will end up with a terrible sounding result.

Special Studio equipment like studio monitors; VU and peak meters; Multiband Equalizer; Compressor-Limiter; De-esser; Correlation Meter; Leveler etc. are necessary for a high quality mastering.

Some good ideas can be found in the booklet "The Secret of the Mastering Engineer" by Bob Katz.
This booklet is downloadable under www.digido.com where also several other interesting information about recording can be found.

Here are some recommendations from Vinyl Mastering engineers :

To achieve the best results on vinyl following points should be taken care of when a Master Tape or CD is produced:

- The most powerful tracks should be put to the beginning of a side. Due to the smaller diameters the performance of high levels decreases when you are recording in the middle of the vinyl.
- Please insert 2 or 3 seconds of silence between each track.
- All tracks should be checked with a correlation meter to prevent the music being in the red area.
- It might be necessary to change the sound of loud, stressed (woman) voices or similar sounds during the mastering process
- Psychoacoustic sound processing like exciter, enhancer, etc should not be used.
- Extreme bass frequencies must be in phase, check with correlation meter
- Subfrquencies below 15Hz need to be cut. Many playback tonearms have a resonance frequency from 5 to 10Hz.
- Most important is that the mastered material meets the physical limitations of the cutting stylus.

2.3 General

This is a product to cut analog records. It is not like a CD-Recorder where one only needs to push a button. Cutting records requires experience and technique. If you do not learn how to use the VRX-2000 properly, you may not get the best possible results.

Especially in the beginning it is very important to learn how to use this machine step by step.

VRX-2000 is a very high-tech creation. Please use great caution in moving and setting up.

Before starting with any work on the VRX-2000 ensure that no magnetic sensitive material is around.

As magnetic tapes, disks, bank and credit cards, and especially wristwatches.

Please remove your wristwatch !

Section 3: BASIC VRX-2000 SET-UP AND COMPONENTS

3.1 SET UP

Please place this unit on a solid, stable and horizontal surface. An unstable surface may pick up external vibrations, and these unwanted sounds will be recorded on the vinyl. Unstable surfaces may also cause platter rotation fluctuations.

Please avoid sunlight, dust, humidity, and do not place the unit near heating appliances or sources of heat. If dust gets on the vinyl recording it will cause additional noise on recording sound.

Please do not place the VRX-2000 near loudspeakers, as any sound with enough volume will be recorded on the vinyl.

Please also never place the unit near TV, radio, or other equipment which generates electric or magnetic fields. If the unit is located in such a place it may have an effect on the cutting head and you will not achieve the best result.

3.2 HANDLING

The VRX-2000 is very heavy. It is recommended that extreme care is taken when moving the unit, and that it is moved by more than one person. If you are going to ship the unit, please use original packing material.

When transporting, please be sure to disassemble the following parts from the main unit:

1. Cutting head
2. Play back cartridge
3. Platter

N.B. Please also remove the stylus from the cutting head and place both parts in the original case for transportation.

3.3 CUTTING HEAD

The cutting head is fragile. Please do not drop or force undue power or pressure, and do not touch any place other than the stylus holding section. If there is any damage inside the cutting head, quality recording will not be possible.

Please do not place the cutting head in dusty or dirty areas. If dust particles get inside the cutting head, the head will cease to function properly.

If there is too high a signal applied, the coil may burn or break. In order to avoid such a problem, a limiter circuit is built-in to the VRX-2000. If you would like to use the unit without internal limiter circuitry, please adjust the recording levels very carefully, otherwise a high input signal may damage the head.

When you replace the stylus, you will have to assemble and disassemble. Please be careful not to damage the head on replacement. The cutting head contains a very strong magnet - if steel or other metal is placed near the cutting head, it will create a very strong magnetic field. Such a damaging strong magnetic field might also cause a problem with wristwatches, so please remove yours when handling or recording.

Each cutting head is matched to its VRX recorder. Never change heads between different VRX-machines.

3.4 TRACKING ARM

The VRX-2000 tracking arm is another sensitive component, and is and very accurately made. Please do not put pressure on the tracking arm, as it may cause inaccuracies and problems in recording.

If the arm is bent by strong force it will cause the VRX2000 to disfunction totally.

Please also note that the moving parts of the tracking arm require maintenance from time to time.
It is recommended to put some silicone oil on the tracking bar and the other moving parts
every one or two month, depending on the time of usage.

3.5 STYLUS & HEATER LIFE

- The life of the cutting stylus is approximately between 200-300 minutes (depending on the cutting pressure used and the level of stylus heat). Overusing the stylus reduces the quality of recording. You may initially notice a reduction in the volume of one side (L/R) of the recording as the cutting stylus wears out. Please replace the stylus regularly.

- Although the stylus consists of a very hard material, it might be damaged or broken if it is touched or dropped, mishandled. This will make recording impossible. Please replace the stylus if any of these instances occur.

- The heater line (wire) is very thin and fragile, therefore please handle very carefully. If the heater line is cut, please replace the whole stylus immediately.

- If too much current is applied to the heater line, the line may burn and break down. Please be very careful with adjustments of heater current.

- On assembly of the stylus on the cutting head, please be careful that the heater line does not touch the vinyl or surrounding parts of the cutting head.

3.6 BLANK VINYL

- The Vinyl's should be stored in the same room and temperature where the VRX is and where you are recording.

- Please make sure that the vinyl is perfectly flat when placed on the VRX-2000 for the vinyl cutting procedure. Vinyl that is not perfectly flat will prevent perfect quality recording.

- If a bent or warped vinyl is used, the depth or width of the groove will be inconsistent. It will cause a distortion or needle skipping on playback.

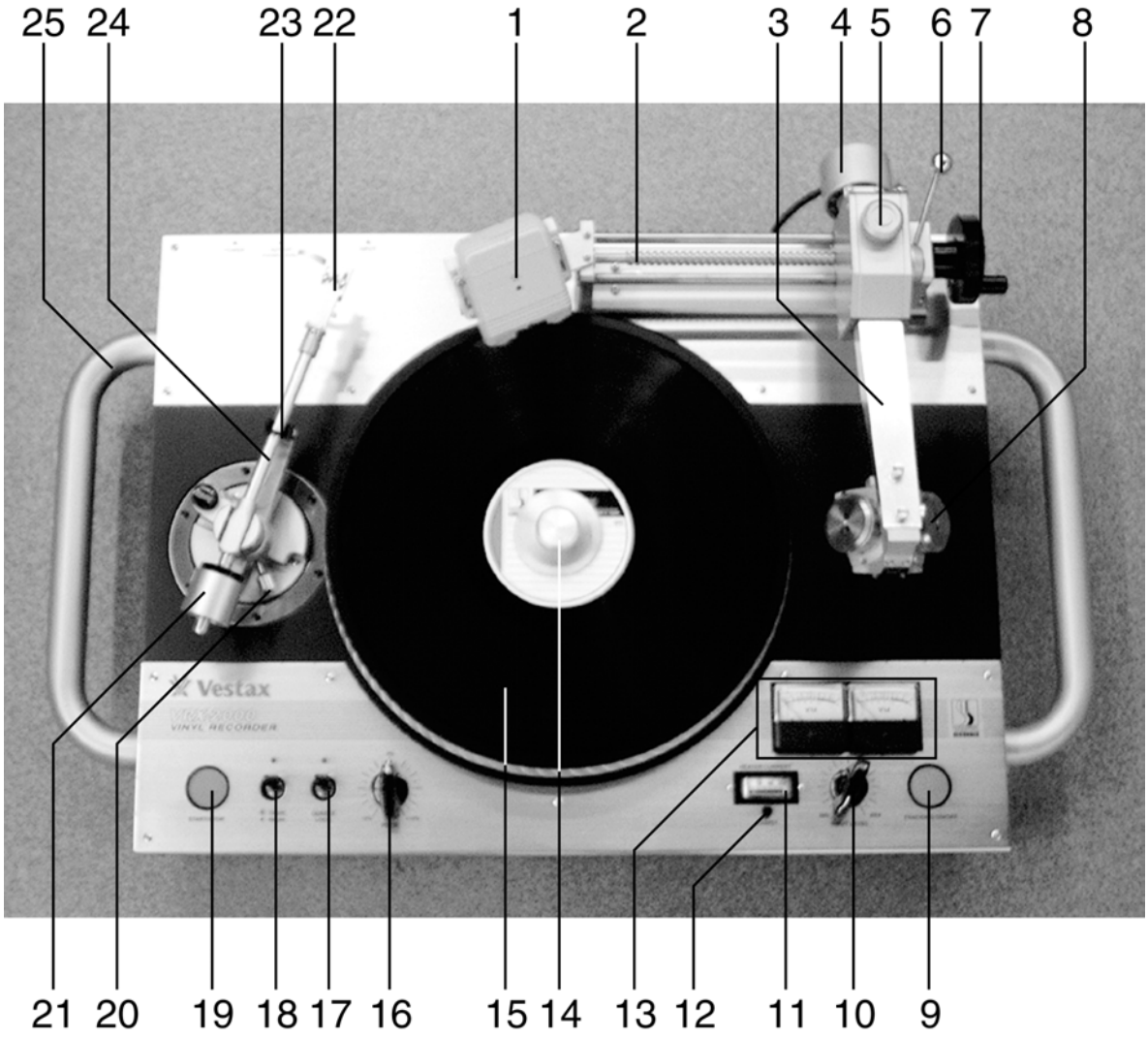
- On recording, please make sure the surface of the vinyl is clean. Please do not use thinner or methylated spirits for cleaning.

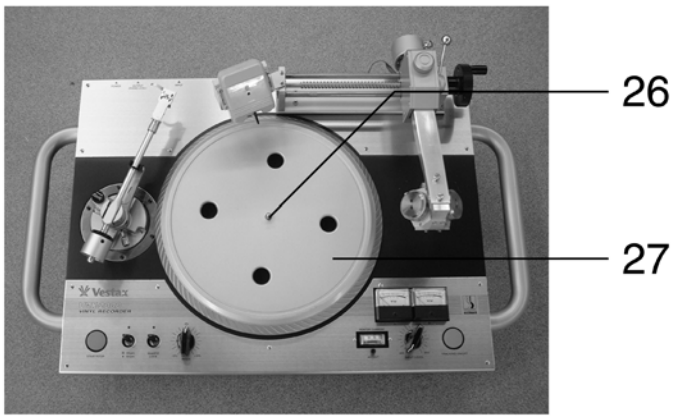
- Before recording, please remove the protective sheets on the side of the blank vinyl you intend to record.

- The special vinyl for the VRX-2000 has a similar durability of commercial vinyl, but a record cut in improper circumstances/condition may have less durability than usual

Section 4: Description of VRX-2000 Components

4.1 Top Panel

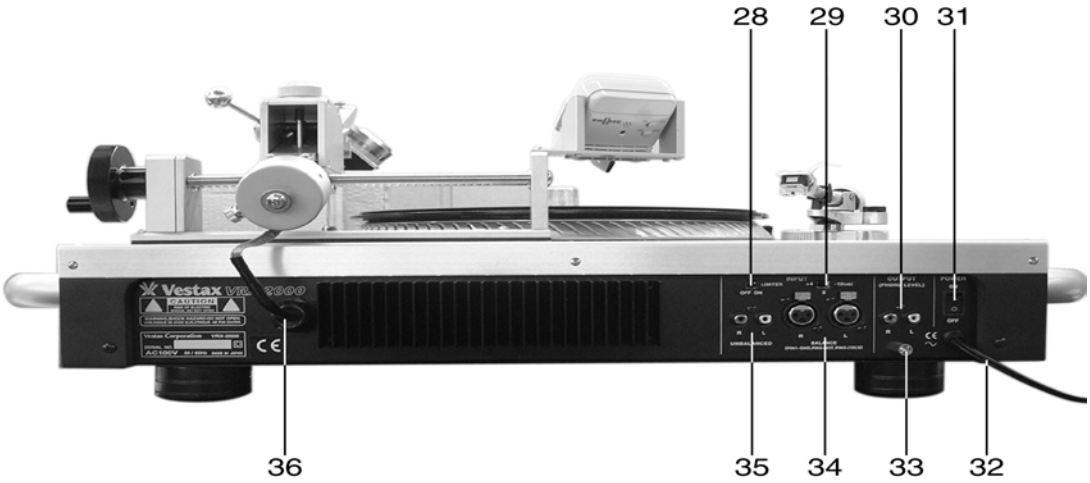




VRX-2000 Components:

1. Ioniser: reduces static build up
2. Slider arm base : mechanism to move the cutting arm
3. Tracking arm: arm to hold cutting head and apply correct pressure
4. Tracking arm weight: adjusts cutting pressure
5. Slider cam: locks the cutting arm in place
6. Release lever (only some special series are equipped with this release lever.)
7. Manual rotation wheel: to set the position of the cutting arm in the correct place on the vinyl blank
8. Cutting head: Vestax proprietary design high quality stereo cutting head
9. Tracking on/off switch
10. Recording level volume control: to adjust the level of the incoming signal
11. Heater current meter: visual display of the level of heat applied to the cutting stylus
12. Heater current adjustment control: adjusts the level of the heat applied to the cutting stylus.
13. VU level meters: a display of the input level signal left and right
14. Vinyl blank holder: secures blank disc to platter
15. Blank disc
16. Pitch control adjuster: adjusts pitch of platter +/- 10% , only applicable when quartz lock is disengaged.
17. Quartz lock switch: locks pitch
18. Speed select switch: selects the speed – 33 1/3 rpm or 45 rpm. LED displays 45rpm.
19. Start/stop switch
20. Playback arm height adjustment screw
21. Playback arm counter weight
22. Playback arm headshell
23. Playback arm armrest
24. Playback arm
25. Heavy duty carrying handles
26. Center spindle on turntable platter
27. Turntable platter

4.2 Rear View



28. Limiter bypass switch: turns the internal compressor limiter on or off. Must always be in on position unless external compressor limiter devices are used in the cutting process.

29. Input level select switch: adjusts the input gain +4dB/ 0dB/ -10dB

30. Phono level output jacks: standard RCA left/right output jacks for playback

31. On/off power switch

32. AC power cable

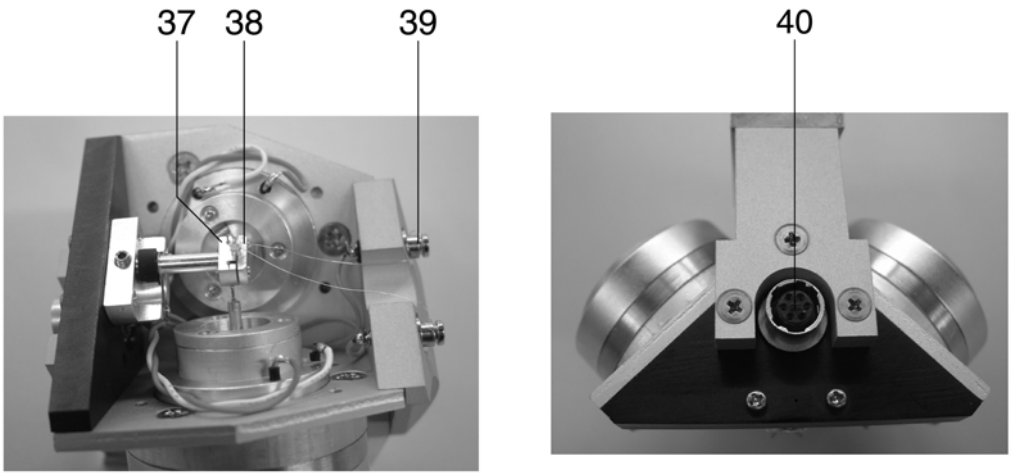
33. Ground terminal

34. XLR balanced left/right audio input sockets PIN1 – ground; PIN2 – hot; PIN3 – cold

35. Unbalanced input jacks: standard left/right RCA audio input sockets. N.B. if both XLR and RCA audio input sockets have equipment connected, the RCA takes precedence and XLR becomes disengaged.

36. Connector cable from cutting head to internal mechanisms.

4.3 Cutting Head Section



37. Cutting stylus holder (A)
38. Cutting stylus holder (B)
39. Heater wire terminal
40. Multipin connector

Section 5: TECHNICAL DESCRIPTION OF VRX-2000 CUTTING MACHINE

5.1 Description of each Part

- **Cutting arm** - the cutting arm consists of two parts: the base and the arm. The base has a mechanism which moves the arm from the outside to inside of the vinyl as you record. The VRX-2000 uses a DC motor to rotate the gear and move the head in a constant speed. In addition, the arm can be moved quickly by using the manual rotation wheel, to move the head toward the specific location on the vinyl blank where you would like to start recording, or to create a tail.

- **Turntable** - consists of a platter, platter weight, silicone mat, and disc holder. The platter weight is very heavy, facilitating consistent rotation. The silicone mat and disc holder secure the disc on the turntable solidly, and prevents shifting of the blank disc. The turntable is driven by high torque direct drive AC motor and generates a very stable rotation to record the music accurately.

- **Cutting Head** – the cutting head translates the music signal to the physical movement of the stylus and cuts the groove on the blank disc. The cutting head of the VRX-2000 uses the same moving coil technology as top professional cutting machines from the past. The cutting head has 2 magnetic drivers separated by a 90 degree angle creating a V shape. This layout is optimum for stereo signal recording with the best possible channel separation, and best balance. The operation of the cutting head is very similar to that of a loudspeaker – it consists of a coil and a magnet, and the coil moves as the electric current is applied. The coil is very intricate and fragile – improper handling or overloading may burn the coil or damage the components. Please be careful not to overload the coil and do not touch or disassemble the cutting head – damage by improper usage will not be covered by warranty service.

- **Cutting Stylus** – the cutting stylus of the VRX-2000 uses a sapphire tip. The sapphire tip is very delicate and requires careful handling. The cutting head has a heater line to apply heat to the sapphire tip while recording. The heater line is very thin and easily damaged; it requires careful handling and setting up. Please do not use this cutting stylus for any other purpose.

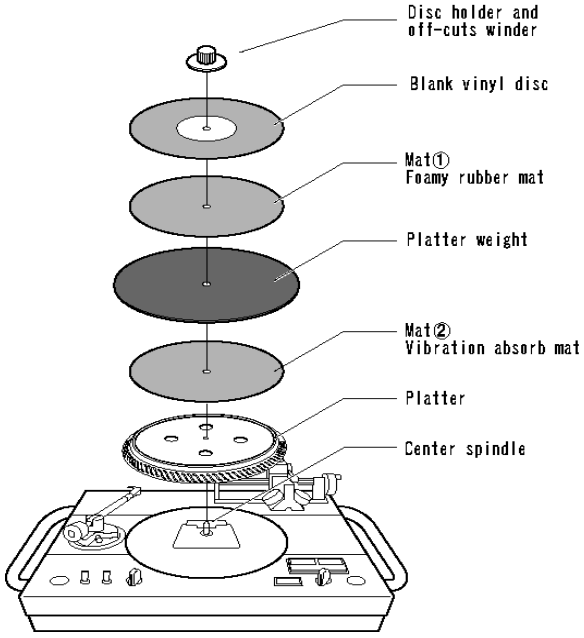
Cutting Equalizer – An analogue record is recorded using RIAA equalizer, in order to allow the vinyl to hold a wide frequency range. The VRX-2000 has an RIAA equalizer built in. This equalizer decreases the low end and increases the high end for the recording process. On playback, the phono EQ will automatically adjust to restore the original signal.

Section 6: ASSEMBLY AND SET-UP

6.1 Platter assembly

1. Insert platter to center spindle
2. Stick the lower “mirror mat” (2) on the platter with 4 small pcs 2x2 cm of double sided adhesive tape.
2. Also stick the platter weight on “mirror mat” at the same way.
3. Stick the upper “mirror mat” (1) on the platter weight with 4 small pcs 2x2 cm of double sided adhesive tape

4. Remove the protective sheet of blank disc on the top side, and push the blank disc down on the mirror mat (1) using a lint-free cloth or the included record cleaner. Apply sufficient pressure to firmly secure the vinyl blank to the mirror mat.
5. Put on the disc holder to secure the blank vinyl.
    - If the blank disc is not dust-free, it may create skipping or noise problems. Ensure your blank is perfectly clean.
    - If the blank disc is not secured to mirror mat, slipping may occur which will render your final cut unusable.



6.2 Ioniser Assembly

Secure ioniser with 2 screws as per picture below. (Figure 10.2-A)

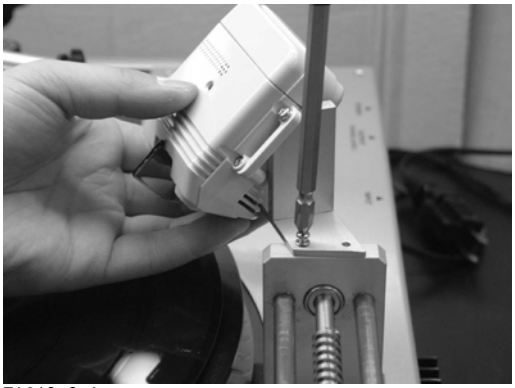


FIG10. 2-A

6.3 Tracking arm/counter weight assembly

Assemble counter weight on the rear of tracking arm. (Figure 10.3-A)

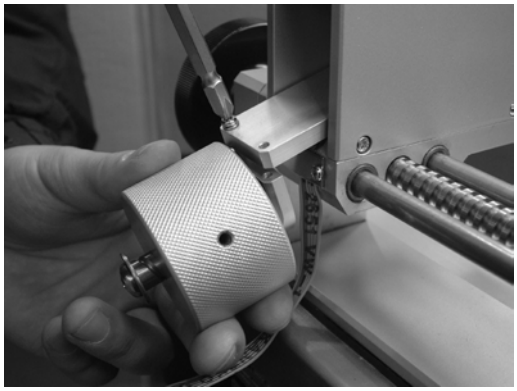
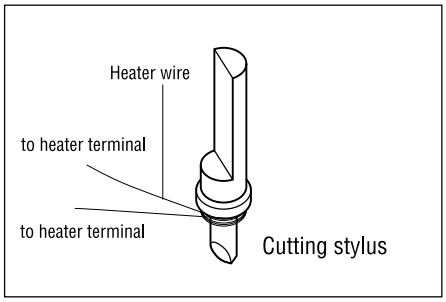


FIG10.3-A

6.4 Cutting stylus assembly

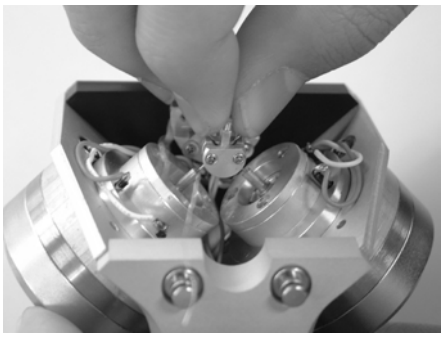
Cutting stylus components:

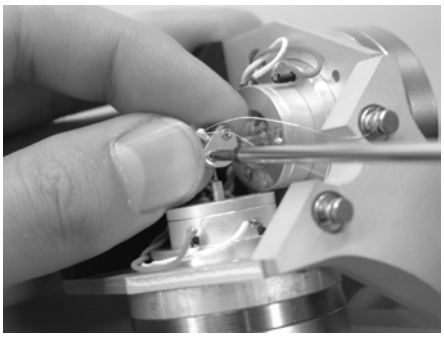
- Stylus tip – highest quality sapphire
- Heater line – to heat stylus tip to 40-60 degrees centigrade
- Lifetime of stylus – 200-300 minutes



N.B.
To mount the stylus please only use the screwdriver which comes with the >VRX-2000 !!
Please be careful of sapphire tip due to its delicate nature. The lifetime varies, depending on recording conditions, the applied stylus heat and pressure. Different atmospheric conditions will dictate different levels of stylus pressure and heat. Please find optimum conditions for the VRX-2000 to maximize the life of the cutting stylus.

1. Loosen the screw on the stylus holder
2. Carefully insert cutting stylus into stylus receptor. The shaft of the cutting stylus is half circle, or D shaped. Please ensure that this is placed into the cutting stylus receptor correctly.
3. Holding the stylus tip gently, alternatively tighten the 2 stylus screws one rotation each until each of the 2 screws secure the stylus shaft. Do not over tighten and do not tighten screw a and then screw b independently. Please make sure that the stylus shaft and cutting stylus are correctly aligned with the receptor. This is why the 2 screws must be tightened slowly and alternatively. Please refer (Figure 10.4-C) (correct stylus installation) and (Figure 10.4-D) (incorrect stylus installation).





N.B.
The cutting stylus must have an angle of approx 15 degrees to the surface of the vinyl blank. If the cutting result is not satisfactory (L&R side not even), please repeat steps 1-3 above using the 2 screws that hold the stylus shaft to achieve the angle of approximately 15 degrees.
Please refer (Figure 10.4-F) and (Figure10.4-G).

4. Connect the two heater wires to the heater wire terminal. There is no positive or negative polarity here, so there is no requirement for the wires to be attached in a particular order. To attach the wire to the terminal, push down, insert wire and release. N.B. please make sure there is no slack in the heating wire and it totally clears the surface of the vinyl blank.

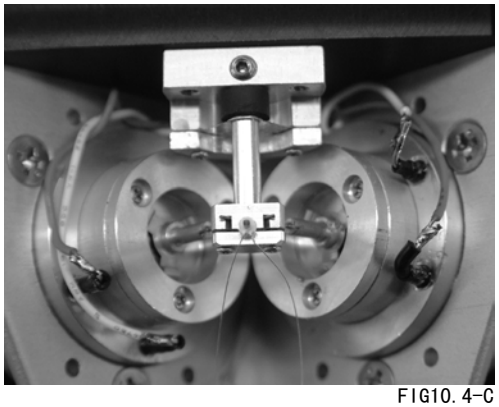


FIG10. 4-C

Right !

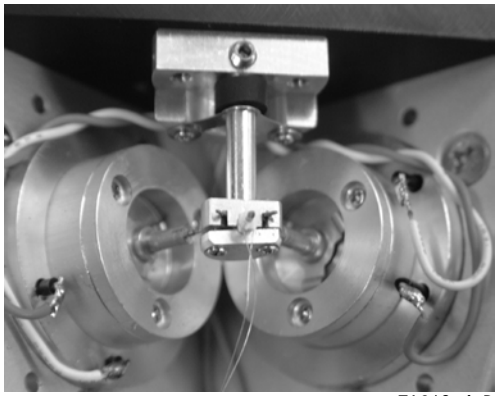


FIG10. 4-D

WRONG !

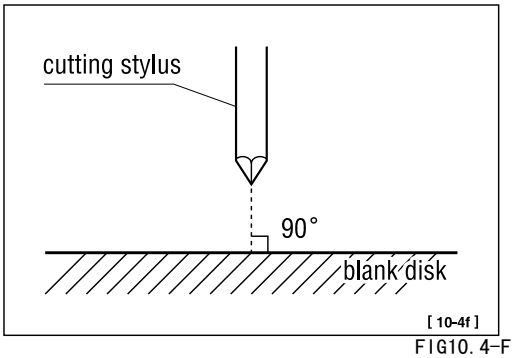


FIG10. 4-F

Front View

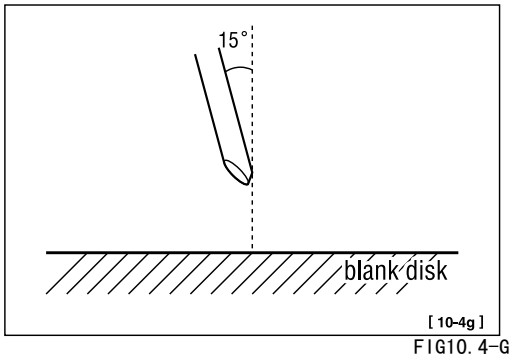


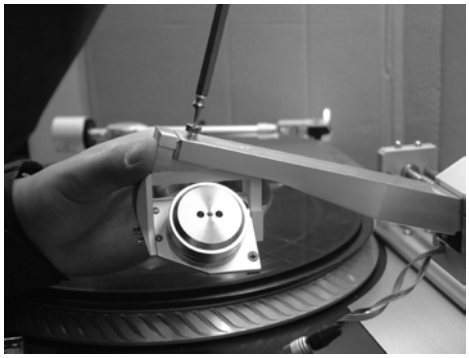
FIG10. 4-G

Side View

6.5 Cutting head assembly

- Before the assembly, please ensure that the cutting head is always to the right
- Please assemble the cutting head after installing the stylus.

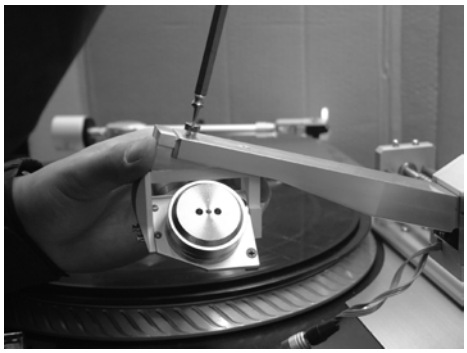
1. If you lift the cutting arm release lever, the cutting arm lifts up. Please ensure the release lever is locked. Slide the cutting head into the arm from the front.
2. Secure the cutting head on the cutting arm **carefully** with supplied two screws **by using a screwdriver !!**



N.B.

- **Please ensure the cutting head is totally secured or cutting result will be imperfect.**
- **The magnet on the cutting head is very strong – therefore make sure your wristwatch is removed.**

3. **Connect the multipin cutting head cable into the cutting head, ensuring it locks.**
4. **N.B. when you disconnect, gently pull back the metal sheath.**



Before mounting the cutting head to the tracking arm please check the screws on the cutting head. As the head is vibrating during recording, the screws may get loose and have to be checked from time to time !

Section 7: FINAL ADJUSTMENTS

7.1 Stylus pressure adjustment

- Move the cutting arm over the blank disk
- Ensure that the tracking is off.
- Put the cutting arm with the stylus gently on the blank disk

1. Attach the supplied extra fine weight scale (Figure 11.1-A). to one of the head magnets

2. Holding the scale by the black cylinder and pull gently upwards until the stylus just lifts of the vinyl. Read the measure of the scale and adjust if neceessary

FIG11. 1-A

7.2 General Adjustment

Condition		Stylus pressure [N]	Current heater [mA]
Kind of blank disc	rpm		
Harmo disc	33	0.45 0.50	200
Harmo disc	45	0.50 0.55	500
Lacquer disc	33/45	0.30 0.35	300

The above figures should give you a basic setting to start with. As a perfect recording depends very much on the right adjustment between temperature of the stylus; stylus pressure; and stylus angle to the disc, you always should find your own proper setting.
A the stylus temperature also is depending on the temperature and humidity of the surrounding air, the settings also will vary due to this parameters. It is also recommended to make notes about your settings with your machine.

Section 8: RECORDING PROCEDURE

1. Remove the protective sheet of disc on top side and secure.
2. Secure clean blank disc
3. Select speed N.B. recommended speed for easiest cutting is 45rpm
4. Adjust pitch
5. Push start button
6. Turn Ioniser on using on/off switch on rear of Ioniser mechanism.
   Select “high”. Please refer (Figure12.1-A).
7. Rotate the slider cam and release lock of the cutting arm. See (Figure 12.1-B).
8. Set the input level control to minimum and heater control adjustment to minimum.
9. Turn tracking on/off switch to “on”

FIG12. 1A

N.B.
if the arm starts moving, the lock is in the incorrect position. Please ensure lock is released before proceeding.

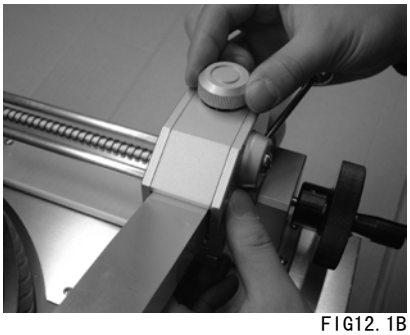


FIG12. 1B

10. To achieve the desired heat of the cutting stylus wait 2-4 minutes.
11. Begin play back of the recording source and increase the input level control, making sure that the level does not exceed 0db.
12. Peaks of the source material must never exceed 0db.

N.B.

- **A too high input level will burn the coil**
- **If the source material has an extremely wide dynamic range, minimum levels may not be sufficient to achieve the desired result. In this case, use of Vestax SL-201mkII Compressor-Limiter is required.**

FIG12. 1C

13. Using anti-static spray, clean the vinyl blank perfectly. Clean the stylus gently with the small black brush covered with two drops of the cleaning liquid.

14. Set external music source at the desired start point in pause or stop mode

15. Lock the cutting arm by rotating the cam. Manually move the arm by using manual rotation wheel and position arm above appropriate point on blank.

16. Hold the brush as per (Figure 12.1-C). Place the release lever in the down position gently.

17. Start the music source and recording begins!

18. Using the brush gently take the excess vinyl off-cuts away form the cutting stylus. Try to make the vinyl off-cuts wind around the center spindle (disc holder). This will reduce the amount of brush action required. Please refer to (Figure 12.1-D).

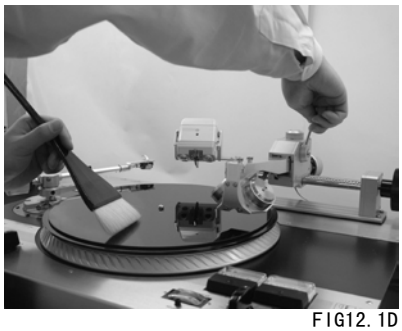


FIG12. 1D

Caution: If the vinyl off-cuts builds up around the cutting stylus you will not get a perfect cutting result. Please continually check the stylus. In case the off-cuts get stuck around the stylus use the tweezers to remove the build up very carefully.

19. Put the input level down as you would with a fade out on an audio mixer.

20. Move the release lever gently to the up position, then unlock the cam. Move the arm all the way to the right away from the vinyl(Figure 12.1-E).

21. Push Start/Stop button to stop the platter rotation.

22. Check the surface of the vinyl and check there are no off-cuts on the vinyl. If there is any residual, use the record cleaner and cleaning solution to clean the vinyl.

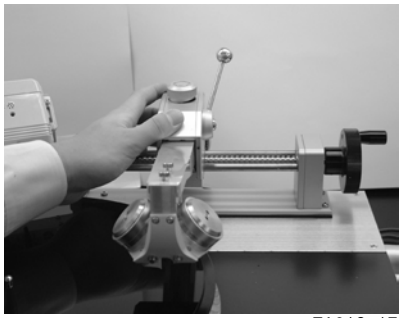


FIG12. 1E

Section 9: PLAYBACK

Before playing back your vinyl cut, please ensure the following:

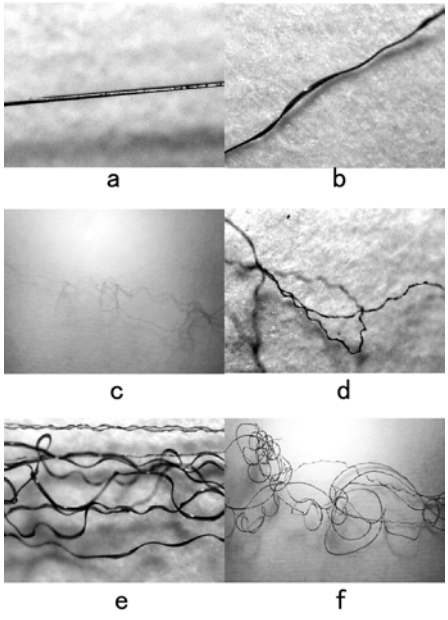
- Make sure the surface of the vinyl is totally clean and no off-cuts remain.
- Make sure the recording arm is all the way to the right and locked.
- Turn the Ioniser off

Section 10: Troubleshooting

10.1 Step by Step

If you have any problem to cut vinyl's please follow these instructions step by step.

A :The OFF-CUT is straight like fig. (a)
Please follow instructions after E !



B: The OFF-CUT is curly (b); or (c)

After adjusting stylus pressure and heating current (50N and 500mA at 33U/Min.recommended basic setup) wait about one minute to get a stable stylus temperature.
Do not apply any signal !

After lowering the stylus carefully to the vinyl you should get a straight off-cut.
Ensure that the off-cut is straight like fig. (a) and not too thin like © or (f)
use a test blank to check this out.

- If the off-cut is curly the stylus should be adjusted.
- Please try to adjust the stylus slightly by pushing it with a finger (only touch the holder not the stylus) slightly to the right or left side until the stylus is in a 90 degree position to the vinyl if you are looking from the front of the VRX to the stylus.
- **Try to reduce the stylus heating by 50 mA**
- **If you are not successful please reinsert the stylus into its holder and fasten it carefully.**
  Ensure that the stylus is fixed carefully and the stylus base is pushed fully down into the receptor.
  The heating wires should be led upwards on the stylus and then in a curve to the front to the terminals.
- **If you are still not successful please replace the stylus**.

C: The OFF-CUT is too thin and straight ©

- Please check the stylus pressure and increase it if necessary
- Ensure that the cable to the recording head does not stick to the anti-resonating material under the tracking arm. The cable should hang in a slight curve from the cutting head to the fixing point on the tracking arm.
- Please check that the cable from the tracking arm to the YRX-Recorder-base does not hang on the screw of the tracking arm-weight.

D: The OFF-CUT is too thin and curly (d)

- This happens when the stylus temperature is too low.
  Please either increase the heating current or
- please check carefully with your fingertip the heat of the stylus (just touch the connection of the stylus to the base from the rear with your finger). You should feel the temperature.
  If not and you still are reading a heating current the wires to the stylus may be crossed or shorted.
  Please re-mount the stylus. (10.4)
- If you can read no heating current or a changing heating current please ensure that the heating wires are properly fixed to the connection terminals and or reconnect the heating wires to the terminals. (10.4)

E: The OFF-CUT breaks

- If the off-cut breaks the temperature of the stylus is too high; please lower the heating current in steps of about 50 mA please also let the stylus cool down.
- If the head starts vibrating and your are getting short pieces of OFF-CUT please ensure that the VRX stands on a non vibrating, stable and flat surface.
  If the surface is not stable please change it, or if the VRX is shaking itself please adjust the height of the feed by turning them.
  Also please check that the blank vinyl has been mounted flat to the platter and that there is no space between the platter and the vinyl

10.2 Start Recording

If the OFF-CUT is ok please start to record music without equalization
For testing only record 1-2minutes so you will save time and money.

F: The OFF-CUT starts to be curly again

- Try to reduce the stylus heating by 50 mA
- The music you are recording might be distorted, or out of phase
  Please reduce the volume and check the phase correlation of the left and right signal.
- Too strong woman voices.
  Please use a De-esser.
- Too many overloaded peaks (percussive sound material)
  Please use a Compressor-Limiter.
- Please ensure that there is no moving air which may cause the stylus temperature to be unstable.

G: The OFF-CUT breaks

- Too much bass so the grooves are touching or crossing each other
  Please reduce the bass signal
- The music tracks you are recording are out of phase or excited.
  Please check with a correlation meter; please remove any psycho-acoustic processor
  Exciter etc.

10.3 NOISE

The music you have recorded is too noisy

H: The vinyl is not clean

- Firstly if there is random noise or “white noise” the stylus tip may be broken or the disc is not clean enough.
- Please clean the vinyl carefully prior to any recording. The vinyl should be completely covered by a fog of the antistatic spray recommended.
- The vinyl should be cleaned completely with the vinyl cleaning wiper.
- Please ensure that there is no moving air, dust or smoke in the recording room.

I: Static electricity

- Switch on the Ioniser (High position) and check that the internal 9V battery is ok (red light flashing)
- Clean the vinyl see under “H”
- During playback please switch the Ioniser off otherwise it my cause noise.

K: The stylus is not clean

- Some of the Off-Cut may stick on the stylus and cause noise and distortion during recording.
- Please clean the stylus before any recording gently with the small black brush and some cleaning fluid applied to the brush.

L: The groove is not clean

- After recording please clean the vinyl with the brush and the Antistatic fluid
- During playback the first time you sometimes may hear some noise from cut-off which will have been disappeared while playing a second time.

M: The stylus is worn out or broken

- If the stylus is worn out or broken you will hear a random or static noise, If its worn out the noise mostly starts on one side either from the left or the right side.
- Please replace the stylus

10.4 Distortion

The recorded music sounds distorted. This means inharmonic distortion, not just missing high or low frequencies.

N: Electrical reason

- Please ensure that you are recording at a level around 0dB
- The setting of the input level volume should not be close to the “MIN” point; so please adjust your signal and the input attenuator so that you are able to set the Input level control around a middle position.
- Even if you are recording at 0dB max and you are using percussive music, you may get an overdrive distortion please use a Compressor-Limiter
- Please check also points “F” and “G”

O: Mechanical reason

- Please check the screws on the recording head but be careful with the strong magnetic field.
- Please check the fixing screws head to cutting-arm these should be carefully fixed by a screwdriver. !! Please refer to 10.5
- Please check that the stylus is strongly fixed in its shaft
- Please check and fix the stylus if necessary
- Please clean the stylus. Refer to “L” and “M” ;also the stylus may be broken. So please change the stylus.

P: Playback problem

- If you get distortion during playback the playback stylus may be broken or worn out.
- Please replace it.
- On records of the VRX it also is possible that you have placed the playback stylus between the grooves and not in the groove. Please try again.
- During playback please switch off the Ioniser as it my cause noise and distortion.

Section 11: COPYRIGHT ISSUES

VESTAX takes no responsibility for copyright infringement. Copyright laws are different in many countries and we strongly suggest that you get all the copyright information before duplicating any artists’ recordings. Artists deserve to be paid for public performance of their works, and VESTAX supports this stance.

You can check copyright laws at the following web sites:

- http://cybeat.com.au – broadcasters and music copyright
- http://webcom.com/~music – music copyright site
- http://mpa.org – guide to copyright searching
- http://cyberplayground.net – music & copyright law sites of information
- http://mpaonline.org.uk – Music Publishers Association – copyright law

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