

# Musician's Manual

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# SAFETY INFORMATION

For your protection, please read these safety instructions completely before operating the product, and keep this manual for future reference.

Carefully observe all warnings, precautions and instructions on the product and described in the operating instructions supplied with the product.

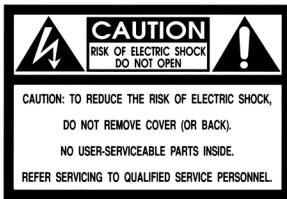
## INSTALLATION

**Water and Moisture** - Do not install the product near water: for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

**Heat** - Do not install the product near sources of heat such as radiators, heat registers, stoves, or other products that produce heat.

**Ventilation** - Situate the product so its location or position does not interfere with its proper ventilation. For example, you should not place the product on a bed, sofa, rug, or similar surface that might block the vent openings, or placed in a built-in installation, such as a bookcase or cabinet that might impede the flow of air through the ventilation openings.

**Accessories** - Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with



the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

## USE

**Power Source** - Connect the product to a power supply only of the type described in the operating instructions or as marked on the product.

**Power-Cord Protection** - Route the power cord so that it is not likely to be walked on or pinched by having objects placed on it, paying particular attention to the plugs, receptacles, and the point where the cord exits from the product.

**When not in use** - Unplug the power adapter cord of the product from the outlet when left unused for a long period of time. To disconnect the cord, pull it out by grasping the power adapter. Never pull the power adapter plug out by the cord.

**AC Receptacle** - Check to make sure that the AC receptacle holds the power adapter plug firmly and securely. If the power adapter plug is loose, contact

## WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

**ATTENTION: RISQUE DE CHOC ELECTRIQUE- NE PAS OUVRIIR.**



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



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

your electrician to replace the defective and unsafe AC connection.

**Foreign Objects** - Be careful that foreign objects and liquids do not enter the enclosure through openings.

Cleaning - unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

## SERVICE

Unplug the product from the wall outlet and consult qualified service personnel when:

- the power cord or the plug has been damaged.
- a solid object or liquid has fallen into the cabinet.
- the product has been exposed to rain or moisture.
- the product does not appear to operate normally or exhibits a marked change in performance.
- the product has been dropped, or the enclosure damaged.

Do not attempt to service the product beyond that described in the operating instructions. For all other servicing, refer to qualified service personnel only.

## **Thank you for purchasing the Mu-FX Tru-Tron 3X.**

The Tru-Tron 3X™ is the modern all-analog re-issue and refinement of the classic Mu-Tron III™ envelope controlled filter. Mike Beigel, inventor/designer of the Mu-Tron III™ and co-founder of Musitronics Corp., has retained all the mojo that made the 1972 unit so popular with Stevie Wonder, Jerry Garcia, Bootsy Collins, Larry Coryell, Frank Zappa, Carlos Santana, Joe Zawinul, George Duke, Elliott Randall and many more.

The Tru-Tron 3X™ is the closest you'll find to the original Musitronics Mu-Tron III, because at it's heart—it is.

Please check the contents of this box to insure that the following items are included:

- The Mu-FX Tru-Tron 3X Envelope Controlled Filter unit
- 12VAC Output External Power Supply
- Trimmer Screwdriver
- The Mu-FX Tru-Tron 3X Musicians Manual
- Mu-FX Sticker

If any of these items are found to be damaged or missing, immediately contact Mu-FX at [service@mu-fx.com](mailto:service@mu-fx.com).

This manual will help you to effectively use the Mu-FX Tru-Tron 3X. Should you have any questions, please feel free to contact us at [service@mu-fx.com](mailto:service@mu-fx.com).

Please refer to SAFETY and WARRANTY INFORMATION on pages 2 and 22!

## CONTROLS AND CONNECTIONS

1. **IN** - Instrument input 1/4" mono jack
2. **OUT** - Effect output to amplifier in or next input in signal chain 1/4" mono jack
3. **PWR JACK** - Connect to supplied 12VAC power adapter (the device will not operate from a DC power supply!)
4. **MU** control - Rotary pot envelope (and filter signal) drive control (0-10)
5. **ENV SAT** LED- When the **ENV**elope is driven into saturation at the top of its range, this yellow LED lights up.
6. **MU/PRE** switch: Determines the **PRE**amp and **ENV**elope drive modes of the device
  - MU** position: ..... Works exactly like the original Musitronics Mu-Tron III  
**MU** control adjusts envelope and filter audio drive.
  - PRE** position: ..... **MU** control adjusts only envelope drive, **PRE** control only adjusts filter audio drive.
7. **PRE** control - Rotary pot preamp drive control (0-11)
8. **AUDIO DIST** - When the audio signal to the filter from any of the MU control, PRE control or the filter output hits audio clipping distortion or filtered distortion, this red LED lights up.

9. **ENVELOPE DRIVE** switch:

**UP** position: ..... produces more familiar “auto-wah” sound

**DOWN** position: ... produces the “down swoop” sound

10. **PEAK** (or Q)- Rotary pot controls the PEAK, or Q, of the filter audio response from very weak to very strong. The original Musitronics product peak maximum was at about 8 on the dial, the Tru-Tron 3X peak is much stronger, from about 9 to



11 on the dial. If trying to match the setting of the original Mutron III, set the Tru-Tron 3X proportionately lower.

11. **MODE** (4-position rotary control switch):

**LP** (lowpass filter): Passes all the signals BELOW the PEAK and attenuates signals above the peak.

**BP** (bandpass filter): Passes signals only NEAR the PEAK and attenuates signals below and above the peak.

**HP** (highpass filter): Passes all the signals ABOVE the PEAK and attenuates signals below the peak.

**MIX**: ..... an optimized mixture of the DRY (unfiltered) signal and the filtered signal.

12. **FILTER RANGE** switch:

**LOW**: ..... Sets the filter sweep to a LOW range for most rhythm guitar, bass guitar and lower fret uses.

**HIGH**: ..... Sets the filter sweep to a HIGH range for accenting string harmonics or for up-the-neck and solo work.

13. **FX status**: This two-color LED tells when the effect is powered on and whether it

is in FX or BYPASS mode. LED BLUE – filter effect is activated. LED GREEN – effect BYPASS mode. LED OFF – no power to the unit, but TRUE BYPASS (the factory default internal jumper setting) will still pass the signal if the footswitch is in the right position.

14. **Foot switch:** Controls the effect or bypass modes, and changes the FX status LED color.



## Just Like the Original—Only Better

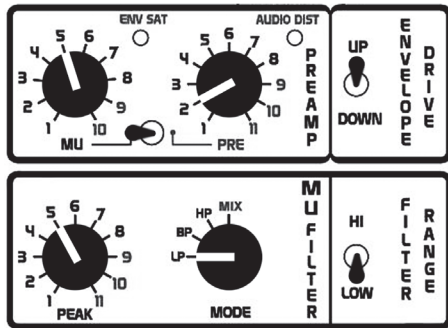
You can see from the photos that to re-make the “Mu-Tron III”, we took a VERY DIFFERENT approach than the UNAUTHORIZED versions. The package has been made smaller and EVEN MORE ROBUST. The electronics use the original MU-TRON MOJO circuitry that has been used in all original Mu-Tron III products made by Musitronics Corp.

We have retained the authentic SOUND and RESPONSE of the original product (you can operate it exactly like the original IF YOU WISH). And we have added features and extra range capabilities that allow you to build on the flexibility and play-ability of the original. You get more intense effects, and also some NEW EFFECT MODES including Hi-gain DISTORTED FILTER MODES (while retaining completely variable ENVELOPE control to articulate this NEW kind of distortion sound).

## SUGGESTED SETTINGS

### “Jerry”

1. **MU**..... 5
2. **MU/PRE** ..... **MU**
3. **PRE** ..... 2\*
4. **DRIVE** ..... **UP**
5. **PEAK** ..... 3-5\*\*
6. **MODE** ..... **LP**
7. **RANGE** ..... **LOW**

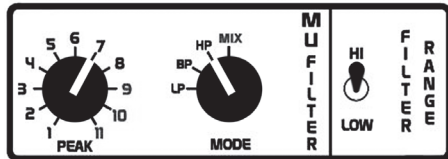
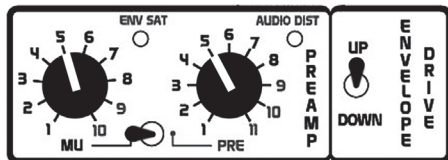


\*Control Setting does not matter because **MU/PRE** is in the **MU** position so the (**PRE** amp to filter) is inactivated.

\*\***PEAK** settings on the Tru-Tron 3X are set LOWER than on the original Musitronics Mutron III. The **PEAK** at 5 on a Mu-Tron III corresponds to about 4 on the Tru-Tron 3X.

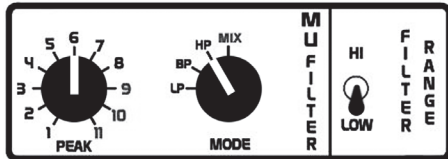
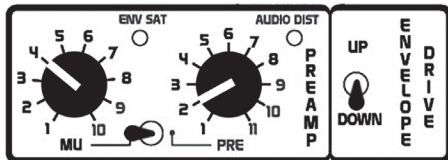
## Chunky Down Drive

1. **MU**..... 5
2. **MU/PRE** ..... **MU**
3. **PRE** ..... 5
4. **DRIVE** ..... **UP**
5. **PEAK** ..... 7
6. **MODE** ..... **HP**
7. **RANGE** ..... **HI**



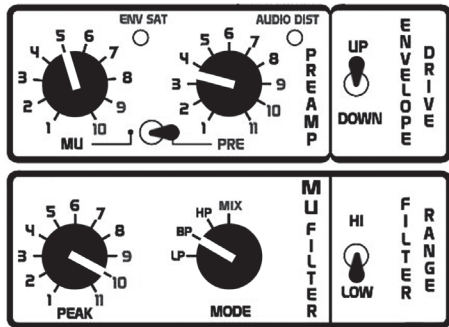
## Classic Down Drive

1. **MU**..... 4
2. **MU/PRE** ..... **MU**
3. **PRE** ..... 2
4. **DRIVE** ..... **DOWN**
5. **PEAK** ..... 5
6. **MODE** ..... **HP**
7. **RANGE** ..... **LOW**



## Super Q Undistorted\*

1. **MU**..... 5
2. **MU/PRE** ..... **PRE\***
3. **PRE** ..... 3-4
4. **DRIVE** ..... **UP**
5. **PEAK** ..... 10
6. **MODE** ..... **BP**
7. **RANGE** ..... **LOW**



To get an undistorted sound:

HI input signal level — lower **PRE**

HI **PEAK** — Lower **PRE**

\*For an undistorted signal through the filter, there are 3 important contributing factors:

1. The **OUTPUT LEVEL** and **IMPEDANCE** of the guitar or musical instrument input.
2. The **Q** of the filter: How much the filter amplifies the signal when you play a note at resonant frequency.
3. The **GAIN** setting on the **PREAMP**: The higher the instrument signal level and higher **Q**, the lower you should set the **PRE** gain.

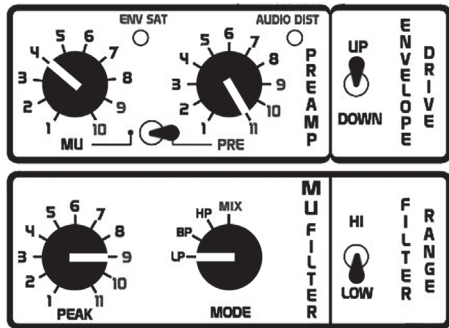
## Flat-Out Filter Distortion\*

1. **MU**..... 4
2. **MU/PRE** ..... **PRE**
3. **PRE** ..... 11
4. **DRIVE** ..... **UP**
5. **PEAK** ..... 9
6. **MODE** ..... **LP**
7. **RANGE** ..... **LOW**

Experiment to find out what single notes or sparse (2-3note) chords give desirable sound output.

Set the **MU** control to either **MAX** saturation or low drive to get a sweep that works within the music.

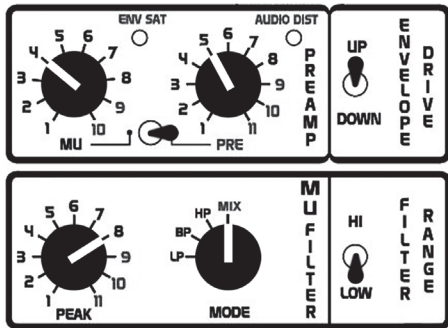
Play loud into the Tru-Tron 3X or use a booster preamp with low-signal guitars.



## Mix Undistorted

1. **MU**..... 4
2. **MU/PRE** ..... **PRE\***
3. **PRE** ..... 5
4. **DRIVE** ..... **UP**
5. **PEAK** ..... 8
6. **MODE** ..... **MIX**
7. **RANGE** ..... **LOW**

\*Undistorted **PRE** setting varies with guitar signal strength. Stronger input signal — lower **PRE**.



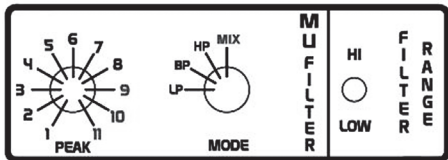
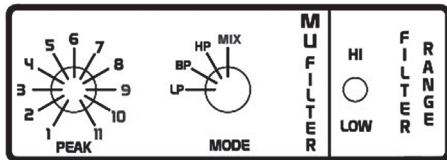
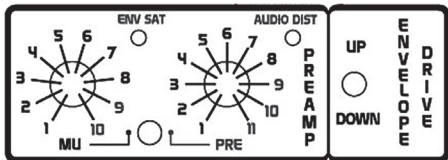
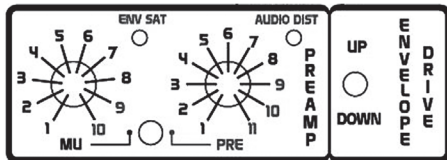
## MY FAVORITE SETTINGS

Take notes on the settings you like most for different type of musical input.

HINT: Use your smart phone or camera to record your settings.

1. **MU**.....
2. **MU/PRE** .....
3. **PRE** .....
4. **DRIVE** .....
5. **PEAK** .....
6. **MODE** .....
7. **RANGE** .....

1. **MU**.....
2. **MU/PRE** .....
3. **PRE** .....
4. **DRIVE** .....
5. **PEAK** .....
6. **MODE** .....
7. **RANGE** .....



## CONTROLS–Advanced Description

The control panel is very much the same as the original Musitronics Mu-Tron III with several enhancements:

- The **MU control** corresponds to and functions the same as the original GAIN control on the original Musitronics Mu-tron III. It controls the signal gain for both the ENVELOPE and the FILTER audio, but only when the NEW “**MU/PRE**” switch is set to the **MU** position (left toggle).
- The **MU/PRE switch** allows for completely independent setting of the audio levels to the envelope follower and to the audio feed to the filter. It has another position (right toggle) which provides a CONSTANT HIGH IMPEDANCE, HI-GAIN, low noise, AUDIO PREAMP that sends the audio signal from the input directly to the FILTER audio input. (See-PRE control)
- The new **PRE control** sends the dry audio signal from the INPUT directly to the filter, when in the **PRE** toggle switch position. It provides a FIXED, HIGH IMPEDANCE INPUT compared to the VARIABLE IMPEDANCE input of the **MU** control which was intentionally left as originally designed, for use in the **MU** position. The **MU** control still works as it did in the MU position of the switch, but it only drives the envelope follower that controls the filter sweep. For low output guitar pickups (which are usually also high resistance) there may be noticeable change in the envelope drive. It is best, when using

both **MU** and **PRE** controls to set **MU** for the best filter drive control and then set **PRE** for the desired audio level.

### **Gain of MU and PRE controls**

- The **PREAMP CONTROL** to the filter, because it is buffered by the buffer amplifier, does NOT change the input impedance no matter how you set it. Like the **MU** control, it starts with a gain of less than 1, so it can take mixing board level signals and still provide useful volume control. But the HIGH GAIN END (the dial is marked to 11 and red-lined at 9, 10 and 11) can give a very high signal gain and drive itself into almost constant clipping overload if you play aggressively. This, by itself, is NOT the kind of overload distortion you usually want to hear. But when you put it through the filter you get a new kind of distortion effect.

### **THE OVERLOAD LIGHTS: How to get the most information from the overload lights, and how this helps to define your sound.**

There are two overload lights in the Mu-Tron 3X, which indicate two different overload types in the signal processing sections:

- The **ENV SAT** (Envelope Saturation) LED (Yellow) - means the ENVELOPE level is drive to its maximum sweep.
- The **AUDIO DIST** (Audio Distortion) LED (RED) - means the audio level is distorted in

one or more places in the signal path: The ENV preamp in MU mode, the PRE preamp in PRE mode or the FILTER OUTPUT in the filter mode. As with tub amplifiers, this distorted audio may be a desirable effect.

- The separation of the ENVELOPE GAIN (**MU**) and AUDIO GAIN (**PRE**) controls in the 3X is an innovation which gives the user a choice of **MU** (Original Mu-Tron III) sound setting control (the **MU** position of the **MU/PRE** toggle switch) in which the **MU** control defines the amplification level for BOTH THE ENVELOPE AND THE AUDIO AMPLIFICATION. This feature allows the user to use the same principle of operation as the original Musitronics Corp Mu-Tron III.

The separation of AUDIO and ENVELOPE signal gain has been used for years in subsequent product designs but the choice between gain control was either UNITY or exactly proportional to the gain setting of the (MU, or in previous designs SENSITIVITY or ENVELOPE GAIN) control.

In the Tru-Tron 3X we are using a combination of INDEPENDENT GAIN CONTROLS for both Envelope and Audio to the filter section.

Surprisingly, this feature gives the possibility for “unexpectedly interesting” effects since both the **MU** and the **PRE** preamps are capable of very high gain, leading to audio distortion or saturation/distortion of either or both the Envelope and the Audio signals separately.

- The “**U▶**” indicators on the **MU** and **PRE** control range settings correspond to approximately UNITY GAIN (gain+1), so the signal level sent to the Filter input corresponds to the actual DRY signal input to the Tru-Tron 3X.

## **PHOTOMOD WARM-UP TIME**

A very important aspect of the characteristics of the PHOTOMODS (optocouplers) that control the filter frequency is that they have “WARM UP” time! For best results, leave the power on and the sweep in DOWN DRIVE, with no input for about 10 minutes before you start to experiment with the settings or play using your last settings.

Most people cannot hear the difference in sweep due to this “light history” effect, but for maximum accuracy of control settings it is best to “warm-up” the photomods in this way - if you have time. If you don’t have time for this warm-up period, the unit might sweep a bit high at first, but will gradually settle to its usual operating range.

## **INTERNAL TRIMPOT AND JUMPER ADJUSTMENTS**

(ADVANCED USERS OR TECHNICIANS ONLY!!!)

The Tru-Tron 3X was carefully calibrated at the factory to give a sweep range and speed of response similar to the best years of the Mu-tron III production units. However, we built in some special features for advanced users to customize the sweep range and response time of the Tru-Tron 3X. Please read this section completely before opening the unit!!!

- CHANGES TO THE OPERATING PARAMETERS OF THE UNIT SHOULD NEVER BE PERFORMED BY USERS UNFAMILIAR WITH ELECTRONICS AND THE SERVICING OF ELECTRONIC MUSICAL PRODUCTS.
- ANY DAMAGE OR MIS-CALIBRATION RELATED TO OPENING THE PACKAGE AND ACCESSING THE INSIDE ELECTRONICS WILL NOT BE COVERED BY THE PRODUCT WARRANTY.
- ADJUSTMENTS TO THE INTERNAL FINE-ADJUSTMENT CONTROLS SHOULD ONLY BE DONE BY PEOPLE FAMILIAR WITH THE ELECTRONICS OF MUSICAL EFFECTS, OR WITH THE ASSISTANCE OF A QUALIFIED REPAIR TECHNICIAN.

**UNPLUG THE AC ADAPTER BEFORE OPENING THE PACKAGE!**

## **TO OPEN THE BOTTOM OF THE HOUSING**

1. you must take all the black screws out of the bottom side of the top housing (8 screws total)
  2. very carefully remove the housing bottom without letting it touch the components
- To make adjustments to the trimpots it is necessary to use a PLASTIC INSULATED phillips head trimmer adjustment tool that fits correctly into the trimpot adjustment slots.

- The proper tool is supplied with the unit for all original buyers of the product. Any larger or smaller screwdriver may cause damage to the trimpots.
- In cold and dry locations there is danger of electrostatic damage to the electronic components on the circuit board. Use a grounding wrist strap and ESD dissipating surface to perform all manipulation of the internal electronics.
- The trimpots have an adjustment range similar to the panel pots, in terms of the angle of rotation from minimum to maximum. They must be very gently handled, and never pushed beyond the ends of their travel, or they will be broken and not covered under your warranty.
- THE BEST AND SAFEST WAY TO MAKE THE ADJUSTMENTS AND EVALUATE THE RESULTS IS TO REMOVE THE POWER SUPPLY BARREL PLUG OUT OF THE HOUSING AT THE BACK OF THE UNIT WHILE MAKING THE ADJUSTMENT, AND THEN PLUGGING IT BACK IN TO EVALUATE THE RESULT BY PLAYING THROUGH THE EFFECT.

The adjustments would be most safely made with the power to the unit OFF, to prevent accidental damage to the circuitry and voiding of the warranty. If you choose to make adjustments with the power on to hear the changes as you make them, please be extremely careful to not touch the inside components or drop the trimmer tool inside the unit.

- MAKE very small INCREMENTAL ADJUSTMENTS to the trimpot settings UNTIL

YOU FIND THE IDEAL SETTING FOR YOUR PLAYING STYLE. The Frequency Range Trimpot is much more sensitive than the Envelope Time Response trimpot.

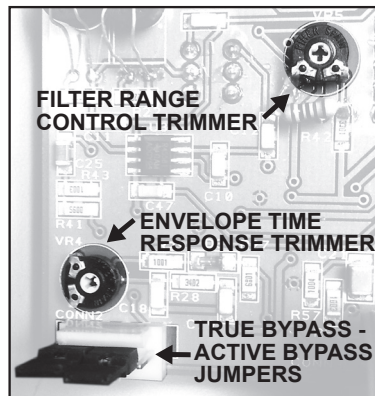
### **ENVELOPE TIME RESPONSE TRIMMER:**

The trimpot at the bottom left next to the JUMPERS: This controls (to a limited extent) the ENVELOPE TIME RESPONSE of the unit. It is set at a medium value, but certain players may want it slower and others may want it faster.

FULL COUNTER-CLOCKWISE IS THE “FASTEST” ENVELOPE RESPONSE. FULL CLOCKWISE POSITION IS THE “SLOWEST” ENVELOPE RESPONSE.

### **FILTER RANGE CONTROL TRIMMER:**

This trimpot is slightly up and to the right of the ENVELOPE TIME RESPONSE TRIMMER. This controls the RANGE of the filter drive from the envelope drive (**MU** pot). Turning it clockwise increases THE TOP FREQUENCY of the filter in UP drive (**MU** pot). So although it will increase the sensitivity



to lower amplitude signals it will also make the top end of the filter range HIGHER and “Brighter”. Turning it counterclockwise will make it LOWER, “darker” and less sensitive to the envelope drive. This trimpot is very carefully adjusted at the factory using test equipment not available to most musicians.

Note that this trimpot is VERY SENSITIVE to adjustment, and most of the adjustments will be in a very small range of the factory adjustment position. Adjust in very small increments and listen carefully to the change in frequency.

**WE ARE NOT RESPONSIBLE IF YOU CAN'T GET THE  
FREQUENCY OR ENVELOPE RESPONSE THAT YOU WANT.  
RE-CALIBRATION TO FACTORY PRESETS IS NOT COVERED  
UNDER WARRANTY.**

## MU POT AND THE FILTER RANGE TRIMPOT INTERACTION

If you turn up the **MU** pot on top panel, the 3x will be more sensitive to softer notes and saturate sooner with louder notes. If you set the trimpot HIGHER the top frequency will be higher, and if you have set it LOWER, the top frequency will be lower when the envelope is fully saturated.

By optimizing the frequency trimpot and the **MU** pot you can set the sensitivity to your playing range (dynamics), and by switching from **MU** to **PRE** and adjusting the signal level to the filter you can adjust how loud, soft, “clean” or “Dirty” the sound will be.

## **Summary**

You have the options, using the RESPONSE TIME and FREQUENCY TOP END trimmer adjustments, plus the **MU** and the **PRE** controls on top, to vary the response of the Tru-Tron 3X to your playing style and preferences.

## **TRUE BYPASS - ACTIVE BYPASS JUMPERS**

The Tru-Tron 3X can operate exactly like the Musitronics Mu-Tron III by changing the internal jumpers to the ACTIVE BYPASS mode. The Tru-Tron 3X is factory pre-set to the TRUE BYPASS mode which is different than the Musitronics Mu-tron III.

## **TRUE BYPASS**

At the bottom left of the circuit board you will see two (2 pin) jumpers and one extra pin on the right of the JUMPER PANEL. THIS IS THE “FACTORY DEFAULT” SETTING THAT PROVIDES TRUE BYPASS WHEN THE FOOTSWITCH IS ACTIVATED SO THAT THE FX STATUS LED IS GREEN. In this mode, the instrument signal passes by all the FX circuitry as if the FX was not even there.

This setting also works when the unit is in the OFF state (power supply detached and NO LED is activated). Even if your unit is NOT POWERED, you can still activate the foot switch so that signal passes through the unit. So in TRUE BYPASS you can ALWAYS get your signal, completely unmodified, through the Tru-Tron 3X unit, even though the LED indicator is off.

IF the unit has previously been changed to the ACTIVE BYPASS mode and you want to change it back to the factory TRUE BYPASS setting, simply move BOTH JUMPERS to the right, so that the RIGHTmost pin is attached to a jumper and the LEFTmost pin is now disconnected.

## ACTIVE BYPASS

In the ACTIVE BYPASS mode, the signal is fed through the preamp circuitry of the Tru-Tron 3X unit when it is powered on. The signal level is first BUFFERED by a high input impedance, low output impedance, low noise unity gain BUFFER AMPLIFIER and then fed through either the **MU** or the **PRE** preamplifiers depending on the position of the **MU/PRE** switch.

The SIGNAL LEVEL is set for both BYPASS AND EFFECT so that the signal levels for BYPASS and EFFECT are similar in volume depending on the setting on either of the **MU** or **PRE** controls. In this way you can either REDUCE or INCREASE the SIGNAL OUTPUT of the unit in BYPASS and EFFECT modes. This is most useful when the setting of the **MU** or **PRE** controls results in a significantly HIGHER or LOWER volume than the actual signal

volume of the input instrument.

Effectively the **PRE** control is a high impedance input, low impedance output, VARIABLE GAIN BUFFER PREAMP when the unit is in ACTIVE BYPASS mode, whether or not the effect is bypassed. This allows you to set the signal chain loudness from the Tru-Tron 3X for all processors after the Tru-Tron 3X.

The **MU** and the **PRE** have gain ratios that range from about .2 at setting “1”, to about 6.5 at 10 (**MU**) or 11 (**PRE**). With Peak set to 1 and range set to produce the best measurable signal over the part of the audio range passed by the filter.

These figures may vary because of guitar impedance and also some tolerance in the potentiometers in the devices.

The signal output from the TT3X active mode can vary far out of proportion to the input signal in both voltage and power output. So, because of the very high gain of both the **MU** and **PRE** controls at the top settings it is possible to completely overload the rest of the FX chain and the AMPLIFIER if the volume cannot be turned down. If you use the **MU** or **PRE** controls to set the audio signal levels, both preamps have enough gain to drive the DRY signal into opamp CLIPPING (and amplifier breakup) signal levels of 16 volts peak to peak. Be careful to either use an attenuator at the AUDIO OUT or TURN DOWN YOUR AMP VOLUME.

TO OBTAIN THE ACTIVE BYPASS FUNCTION, simply move BOTH JUMPERS to the right, so that the RIGHTmost pin is attached to a jumper and the LEFTmost pin is now disconnected.

## **WARRANTY AND SAFETY INFORMATION**

Beigel Sound Lab / Mu-FX offers a one-year limited warranty on all our products.

In the unlikely event of a malfunction due to component failure or defective workmanship, contact us at [service@mu-fx.com](mailto:service@mu-fx.com) for return authorization. We will then repair or replace your product and send it back to you – free of charge and usually within 2 weeks.

Please note that we cannot replace a product until we have received it here at the factory.

User-generated malfunctions due to dropping, intentionally breaking, attempting to repair during the warranty, or opening the product and damaging the circuit components will NOT be covered by the warranty. You may send the unit to us and we will give you an estimated repair charge, and upon your authorization we will repair and re-calibrate the product.

**POWER SUPPLY:** The Tru-Tron 3X uses a specially designed internal power supply that connects to a 12 volt AC isolated output transformer.

**THE TRANSFORMER POWER SUPPLY PROVIDED WITH THE PRODUCT IS DESIGNED TO PLUG INTO 110 VOLTS AC, 60 HZ.**

**USE OF THIS TRANSFORMER WITH ANY OTHER VOLTAGE WILL RESULT IN PERMANENT DAMAGE TO THE TRANSFORMER AND POSSIBLE DAMAGE TO**

**THE PRODUCT ITSELF, AND WILL VOID ANY AND ALL WARRANTIES.**

### **LIMIT OF LIABILITY REGARDING THE PRODUCT AND ITS POWER SUPPLY**

BEIGEL TECHNOLOGY CORPORATION (PARENT COMPANY OF BEIGEL SOUND LAB) ASSUMES NO RESPONSIBILITY FOR DAMAGE TO THE PRODUCTS, OTHER EQUIPMENT THEY MIGHT CONNECT TO BY ANY MEANS, OR ANY OTHER PROPERTY DAMAGE, INJURY OR DEATH RESULTING FROM ITS USE OR MISUSE.

IT IS POSSIBLE THAT CONNECTING THE TRANSFORMER TO AN INCORRECT VOLTAGE MAY RESULT IN INJURY OR DEATH TO ANYONE OPERATING THE EQUIPMENT.

USE OF ANY OTHER POWER ADAPTER NOT SUPPLIED BY OR APPROVED BY MU-FX /BEIGEL SOUND LAB DIVISION OF BEIGEL TECHNOLOGY CORPORATION IS NOT RECOMMENDED.

**PEDAL BOARD POWER SUPPLIES:** Most pedal board supplies do not put out the correct voltage (12 volts AC – ISOLATED!!! - with at least 100 milliamps drive current) to power the Tru-Tron 3X.

However, some advanced power supplies DO put out this voltage. So far we know of at least one power supply: the T-REX CHAMELEON, which works with both 110 and 220 (switchable) line voltages for international touring, and has 3 12VAC isolated supplies. See: <http://t-rex-effects.com/products/fueltank-chameleon-1.aspx>

# Specifications

**Signal to Noise Ratio:** 90dB or better

**Input Impedance:**

**PRE** - 390K Ohms

**MU** - 1 meg Ohms to 3.9K Ohms

**Nominal Input Level:** -10dBu (electric Guitar)

**Output Impedance:** 150 Ohms

**Nominal Output Level:** -10dBu

**Maximum Output Level:** +16dBu

**Input Modes:** True Bypass/Convertible to Active

**Connections:** 1/4" Input and Output Jacks

**Case:** 2mm aluminum welded and powder coated

**Weight:** 16.3oz/462g (main unit only)

**Dimensions:** 7"(L) x 4 15/16"(W) x 2 1/4"(H)

**Power Requirements:** 12VAC 200MA adapter

Made in USA to ISO 9001 standard

1 year limited warranty

Note: Due to ongoing product refinements, specifications and design are subject to change without notice

**MU-FX™**  
*By Mike Beigel*

Modern Vintage Analog™



TRU-TRON 3X

Mu-FX

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