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MU-TRON FLANGER
OWNER'S MANUAL

(A)

The Mu TRON ~~F~~LANGER is an uncompromising sound modification unit. It delivers a true studio quality flanging effect in a package designed to offer the maximum versatility and control for live music performance. A very wide range of musical effects can be obtained with this product, ~~and you should plan to experiment with the controls bullshit.~~ making it a worthwhile addition to the performing musician's equipment collection.

Flanger Manual

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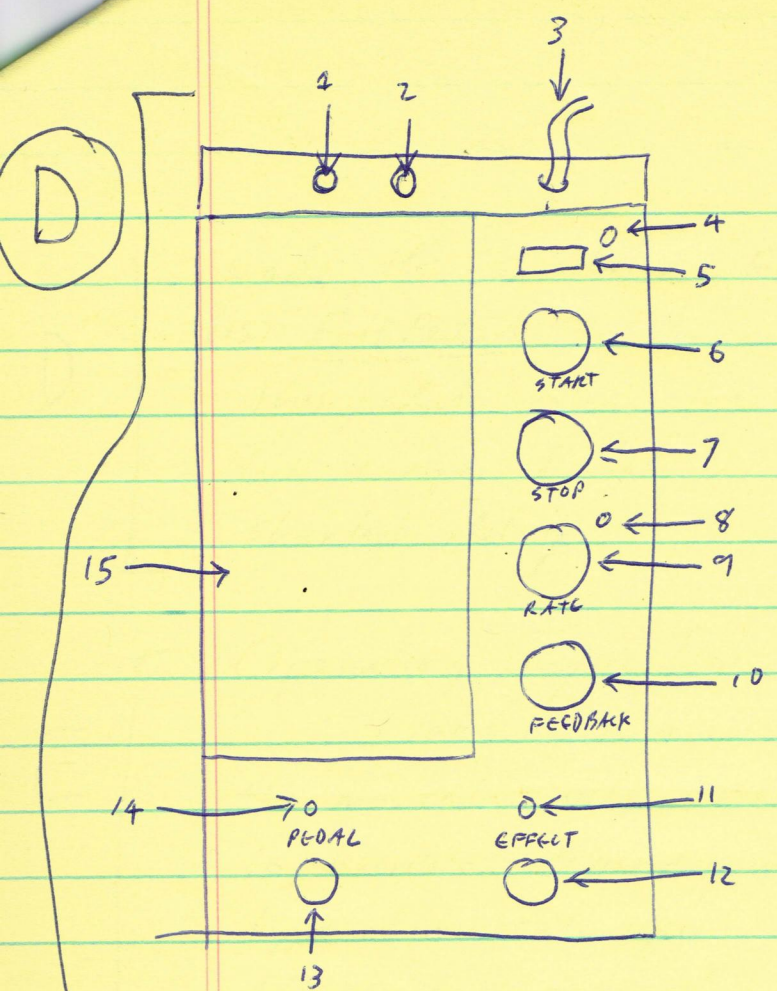

1. Inst Jack - connect to guitar, keyboard or other musical input.
2. Amp Jack - effect output. Connect to amplifier, mixer, or other accessories.
3. AC Line Cord. Plug into 110-220V 50-60 Hz AC outlet.
4+5 Power switch + LED. This switch turns the unit ON when AC Line Cord is plugged in. LED indicates ON
6. Sweep Start Control. Sets one limit of the oscillator sweep. Wherever the effect is switched in, the sweep always begins at the START position.
7. Sweep Stop Control - Sets other limit of the oscillator sweep.

NOTE: Sweep start + stop controls can be set to any combination for variable direction of initial sweeps trajectory.

8. Osc LED - When flanger is in "Oscillator" mode, this Led is on. The LED blinks in synchronism with the actual oscillator sweep rate.
9. Osc Rate Control - Sets the sweep rate of the flanger in "Oscillator" mode. (from .05 to 20 Hz)
10. Feedback Control - Sets the amount of feedback around the analog delay line for controlling the intensity of the Flanging effect.

11+12 Effet - foot switch + LED. Depress to turn flanging effect ON or off. LED Lights when Effect is ON.

13+14 Pedal foot switch + LED. Depress to control Flanger sweep from either the Foot Pedal (15) or the oscillator. When the unit is in Pedal mode the Pedal LED (14) is on. When in the Oscillator (or

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mode, the oscillator LED (8) will be on.

(15) Foot Pedal - When engaged by the Pedal foot Sw. (13), this pedal controls the flanger delay (sweep) over its full range. Pedal UP = Longest delay. Pedal down = shortest delay.

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Operating Suggestions.

Flanging is a very sophisticated musical effect, and the musical results obtained can vary from "beautiful" to "horrible", depending on the control settings and the type of musical input. Although at first hearing, flangers might sound similar to phasing devices (and with good reason - they both are quite similar in concept), the musical uses and advantages of flangers must be achieved with more subtlety and experimentation than phasers usually require.

The MU TRON flanger was designed to give the maximum availability of control features and limits of the effect. That's great if you know how to use the controls, and bad if you don't. So plan to spend a fair amount of time familiarizing yourself with all the controls and functions, and then experiment with the different settings and musical styles to acheive the effects you want. Remember - there are many numbers between 1 and 10 on the controls!!

Follow this sequence of operating instructions the first time you use the MU TRON Flanger, and you will be on your way to achieving the great sounds you want.

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1. Plug the line cord into a 110-120 volt AC socket, and turn the power switch to ON. (Power LED will light up.)
2. Connect the jack marked AMP to your amplifier, mixer, etc. Go direct; add other devices later.
3. Connect your instrument directly to the Inst. input.
4. Set the controls as follows:

   Start :
   Stop :
   Rate :
   Feedback :
   Ped sw : Oscillator (Pedal LED is OFF)
   Effect Sw : Normal (Effect LED is OFF)

5. Adjust amplifier controls for normal playing volume. You should now be hearing your normal instrument sound as you play.
6. Depress the Effect Foot-Switch. Play some slow chords or single notes. You should hear a slow-swept, moderate Flanging effect. The OSC Led should be on, ranging slowly in brightn
7. Depress the Pedal Foot Switch. The Pedal LED should go ON and the OSC LED should go off. The sound should now appear static, but will have a tone color characteristic of the COMB-FILTER delay line. Now slowly move the PEDAL through its range. The Flanging effect will follow your foot, over the full range of its capability.
8. Turn the Feedback Control to ____. Pedal in the heel-down position. This should sound like an echo or reverberation chamber. If you get acoustical feedback from your amp., turn the FEEDBACK

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control down slightly, or adjust the tone controls on the amp. Move the pedal slightly upward in small steps. The tone color and "reverberation" effect should change dramatically with each different position.

9. Set the controls: Rate

Start 1

Stop 10

Feedback

Ped sw: Osc

Effect sw: ON

This will give you a very intence, slow swept flanging effect over the entire range of Flanging.

Depress the Effect sw OFF and ON while playing. You will notice that the Flanging sweep always starts at the "bottom" of the sweep.

Now set the Start = 10

Stop = 1

~~Repeat the~~. The effect will now start from the "Top" of the sweep every time the effect switches in.

10. Now that you have the basics of Flanger operation, try the following control settings for a sampling of the many effects available with the MC 1500 Flanger.

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Sample Settings

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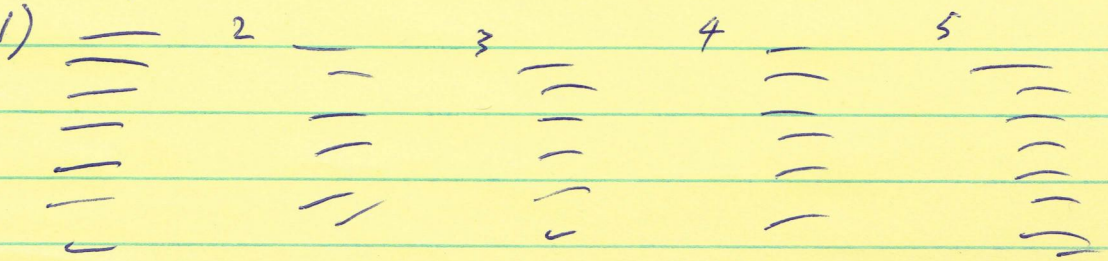

Using the MU TRON Flanger with other Effects

The MU-TRON FLANGER ~~will enhance the quality of your musical sounds~~ can be used with most other sound modification products, to achieve a ~~great~~ wide variety of interesting colorations ~~of~~ of musical sound. Generally, you will want to experiment with the types of effects you combine, and their sequence (from instrument to amp). ~~Here~~

Here are a few general guidelines when operating the MU TRON Flanger with other effects units:

Units to be used before the flanger input:

- Fuzz tones or "Ringers"
- Octave dividers
- Any other "single-note" types of effect.

Units to be used before or after the flanger: ~~Top~~

- Envelope ~~Controlled~~ Filters *
- Volume or Wah Pedals *
- Equalizers *
- Phasors *

* These types of effects, which create ~~peaks~~ resonances in the frequency response of the system, should be carefully adjusted to prevent acoustic feedback when used with the Flanger at a high Feedback setting.

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Specifications

Input Impedance: 390 K Ω

Output Impedance: 600 Ω unbalanced

Delay Time Range: .56 milliseconds to 25.6 milliseconds

Signal Handling Capability:

Signal to Noise Ratio: ref. to ___ RMS input voltage

Power Consumption 110-120 VAC 60 Hz ___ VA ~~max~~ max

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What is a Flanger?

The term "Flanger" comes from a recording-studio sound-effect technique. A musical sound would be simultaneously recorded on two studio tape-recorders, ~~the outputs~~ and the playback outputs would be summed. Then, ~~as~~ the recording engineer would manually adjust the tape-tensioning "flange" on one of the tape machines to create a varying delay between the record- and playback heads. This would result in a ~~sweep~~ characteristic sound-effect.

Modern flangers use a variable "analog delay line" ~~to simulate the tape machine with~~ to replace the manually operated "tape delay", and thus obtain exactly the same effect. Actually, the ~~electron~~ analog delay lines have ~~present~~ many advantages: they can be controlled precisely and repeatably over a much greater range - either manually or with a sweep oscillator.

Now that advanced "companding" and noise-gating techniques have been applied to expand the dynamic-range of analog delay lines, you can have an effect superior in every way to the

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original studio Flanger. And of course, MuTRON's Flanger design assures you of the highest quality and most versatility you can buy.

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Features of the MuTRON FLANGER

1. Double noise-reduction circuitry (companding and noise gate) provides widest dynamic range available. Preserves high-frequency overture content & "busy" effect ~~but~~ without creating objectionable "clipping" distortion.
2. Wide sweep range provides delays from .5 to 25.6 milliseconds, ~~for dramatic sweep effects.~~ Smooth, even sweep generator automatically compensates for different sweep rates.
3. Start-Stop Sweep controls allow precise setting of sweep range. Sweep always begins at "start" position, for predictable effect in live performance.
4. Feedback control, in combination with input-sensing circuitry, allows ~~true regenerative feedback~~ widest available feedback range without uncontrollable oscillation.
5. Electro-optical pedal control of sweep - for filter-matrix effect and irregular sweep trajectories. Pedal is temperature and environment stabilized, and will not need adjustment or replacement of parts.
6. ~~L.E.D.~~ Light-emitting diode indicators for all effect functions: Effect off-on, oscillator sweep and rate, pedal sweep
7. AC Powered
8. Full 3-year warranty on parts and labor