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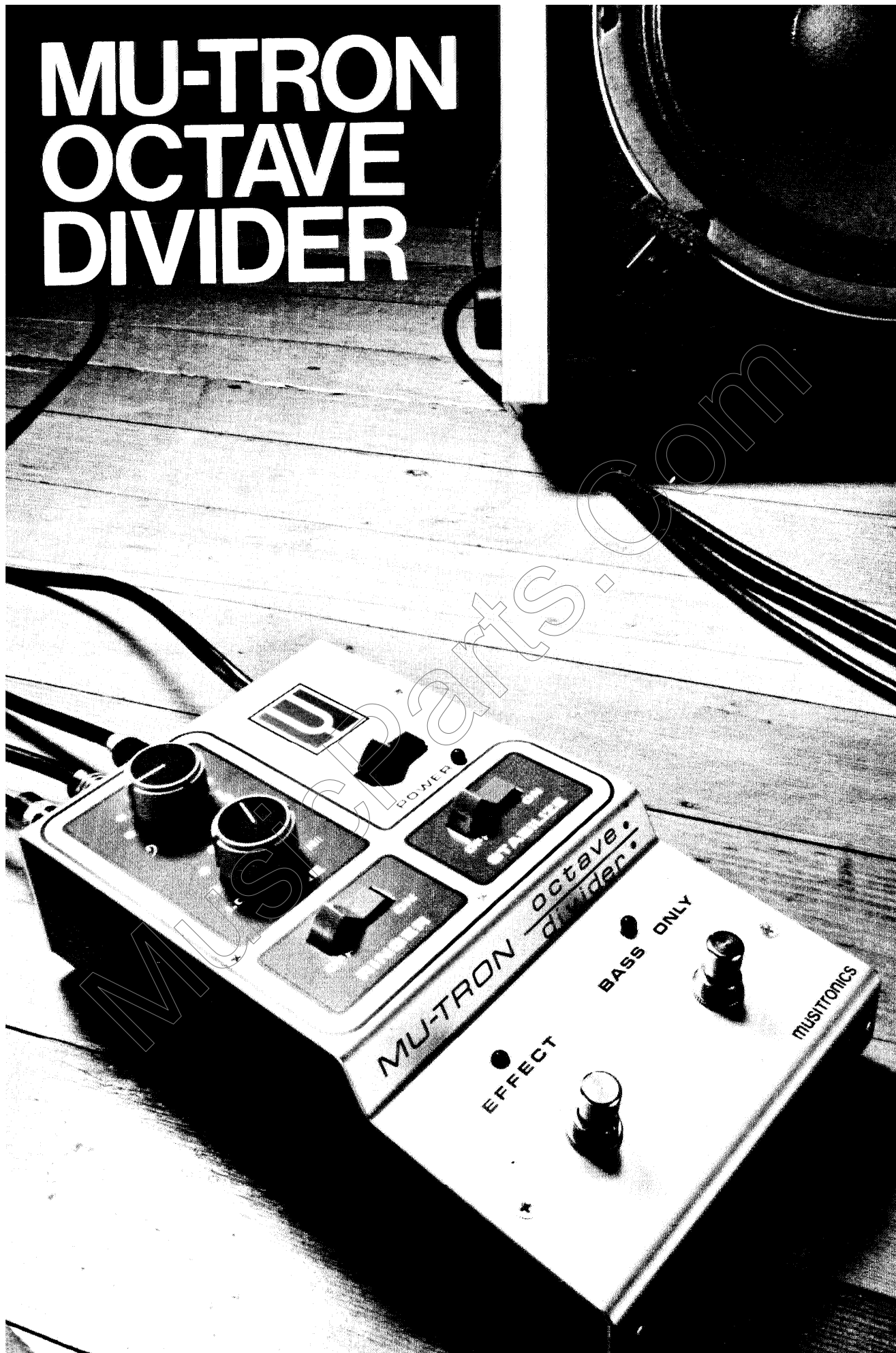
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MU-TRON OCTAVE DIVIDER



MUSIPARTS.COM

MU-TRON octave divider

EFFECT

BASS ONLY

MUSITRONICS

OPERATING INSTRUCTIONS

The Mu-tron OCTAVE DIVIDER makes the full, harmonically rich option of "playing in octaves" available to all horn and stringed instrument players. This live effect is created by newly developed circuitry that analyzes the original signal and "pairs" it with the note one octave below, matching tone color and dynamics over an exceptionally wide range. The unique "stabilization" circuit (patent pending) enables the Mu-tron OCTAVE DIVIDER to "lock into" the musical tone and sound a simultaneous sub-octave with accuracy that is not found in any other device. An important advance in electronic music technology, the OCTAVE DIVIDER has the same quality, ruggedness and reliability that makes Mu-tron the first choice of professional musicians.

FEATURES

1. The ability to *preserve dynamics* and harmonic content of the original signal in the sub-octave.
2. A *stabilization* circuit that "locks into" all single-voiced signals.
3. A *tone color* control for sub-octave.
4. A *ringer circuit* for harmonic emphasis of upper tones, and special multi-note effects.
5. A novel *mixing circuit* with BASS ONLY switch for extended range and dramatic effects.
6. Auxiliary impedance-compensated output.
7. LED (light emitting diode) indicators to show operating status of effects.
8. AC powered in rugged Mu-tron enclosure.

CONTROLS

AC LINE CORD: Plug into 110-120V, 60Hz AC outlet.

INST jack: Signal input. Connect your guitar, wind instrument, microphone (etc.) directly into this jack.

AMP jack: Effect output. Connect to amplifier, mixer or other accessories (see USE WITH OTHER DEVICES).

AUX output: An impedance-compensated, unmodified output. Use for deriving other effects totally separated from the OCTAVE DIVIDER.

POWER switch: When AC cord is connected, this switch turns the unit on. LED indicates ON.

STABILIZATION switch: Eliminates all "hunting" and "breaking up" of sub-octave for guitar or keyboards. (Not usually necessary for wind instruments.)

MIX control: Blends original sound with sub-octave. Full treble is all original tone; full bass is all sub-octave signal.

TONE control: Controls the brightness of the sub-octave. Full LOW is a mellow, brassy sound; full HIGH is a brighter, "fuzzy electronic bass" sound.

RINGER switch: Provides a brassy sound on single notes and "extra note" effects on chords. Also simulates an octave-up effect for some instruments.

EFFECT footswitch and LED: Push on, LED on; complete sub-octave effect, as determined by panel controls. Push off, LED off; original signal only to output.

BASS ONLY footswitch and LED: Push on, LED on; only the sub-octave goes to the output. MIX and RINGER are non-functioning. Push off, LED off; all overall controls revert to EFFECT footswitch.

APPLICATIONS

If you follow this sequence of operating instructions the first time around, you will quickly understand how to use all the versatile options built into the OCTAVE DIVIDER.

1. Plug the LINE cord into a 110-120V AC socket, and turn the POWER switch to ON. (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 into the INST input.

STRINGED INSTRUMENTS: Set volume and tone controls full up, and turn the neck pick-up on. Set the STABILIZE switch to on. Play single notes only. If you experience any difficulty with sub-octave skip, try lighter gauge bass (4th, 5th, and 6th) strings.

WIND INSTRUMENTS: If instrument pick-up has volume control, adjust for level which provides a sub-octave over the maximum range of the instrument (frequency and dynamics). Set the STABILIZE switch to OFF.

4. Set both the MIX and TONE controls to "12 o'clock." Turn the RINGER switch OFF, and operate the EFFECT and BASS ONLY footswitches so their LEDs are off.
5. Adjust amplifier for normal playing volume. You should now be hearing your normal instrument signal as you play. (The output of the OCTAVE DIVIDER is a unity-gain, no loss, impedance-compensated signal for all control settings.)
6. Push EFFECT footswitch (LED on). Play some single notes. You should now hear two tones, one an octave below the other.

STRINGED INSTRUMENTS: Experiment with tone controls on instrument or pick-up. Switch pick-ups. Try sustained and bent notes. Remember, STABILIZE switch ON.

WIND INSTRUMENTS: Play with full dynamics (ppp to FFF) over the full instrument range. Experiment with staccato, legato and trills. Remember, STABILIZE switch OFF.

VOICE: For some unusual effects, try a high impedance microphone with voice. Experiment with best position for STABILIZE switch.

7. Vary the TONE control to get the sub-octave sound you like.
8. Vary the MIX control until you get a pleasing combination of the original note and the sub-octave. (GUITAR note: with MIX control at about "2 or 3 o'clock" chords can be played with some success, alternated with single notes. When multiple notes are played, the sub-octave tends to "dissolve.")
9. Push RINGER switch on. This provides multiple effects of distortion, extra note generation, and a kind of "octave up" effect. RINGER effect is added to output, regardless of MIX. The more "pure" the instrument tone, the stronger the "octave up" effect. For the strongest "octave up", turn MIX full down to eliminate the originally played register.

STRINGED INSTRUMENTS: neck pick-up tone down, volume up full. (GUITAR, play from tenth fret up on all strings.) Two notes played simultaneously will beat with each other, producing "extra" notes. Try parallel fourths, fifths, other simple chords. MIX full up.

WIND INSTRUMENTS: play with clear "round" tone.

10. With the EFFECT footswitch ON, push on BASS ONLY footswitch (LED on). The MIX control and RINGER effect are now entirely deleted, passing only the sub-octave signal to the output. This option allows for dramatic changes in sound without altering any of the panel controls; that is, without stopping playing.
11. Use of AUX output allows for connection to another amp, a wah/volume pedal, an echo unit, etc. to be made. Use your imagination. This output functions like a "powered 'Y' cord", as it produces the sound of the instrument "cleaned up" but otherwise unaltered.

USE WITH OTHER DEVICES

The OCTAVE DIVIDER can be used successfully with many other devices, but the OCTAVE DIVIDER must be the first to receive the signal from the instrument.

The OCTAVE DIVIDER followed by a MU-TRON III or a MU-TRON PHASOR II are especially effective.

Always connect the instrument to the OCTAVE DIVIDER with the shortest practical, high-quality (not curled) cord. Output cords should also be high-quality ("straight through"), to prevent losses in EFFECT OFF mode.

SPECIFICATIONS

Input Impedance: Greater than 300K ohms.

Output Impedance: Less than 1K ohm at AMP output jack with EFFECT on.

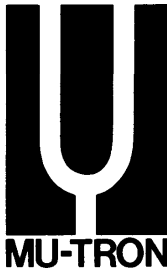
Gain: Unity with MIX and TONE controls at mid position.

Signal Handling Capability: 1.7V RMS minimum.

Power Consumption: 110-120V AC, 60Hz, 5VA maximum.

WARNING

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





MU-TRON, Incorporated
45 Hartwell Avenue
Lexington, Massachusetts, 02173
Telephone: 617/861-6000

THE MU-TRON OCTAVE DIVIDER

Since the Mu-tron effects devices are quite simple in comparison to the much larger ARP synthesizers, we are not including all the detailed instruction that goes into the ARP service manuals. You will find herewith the necessary schematics, assembly drawings and parts lists. Should you have any questions, please call the ARP Service Department at (617) 861-6000.

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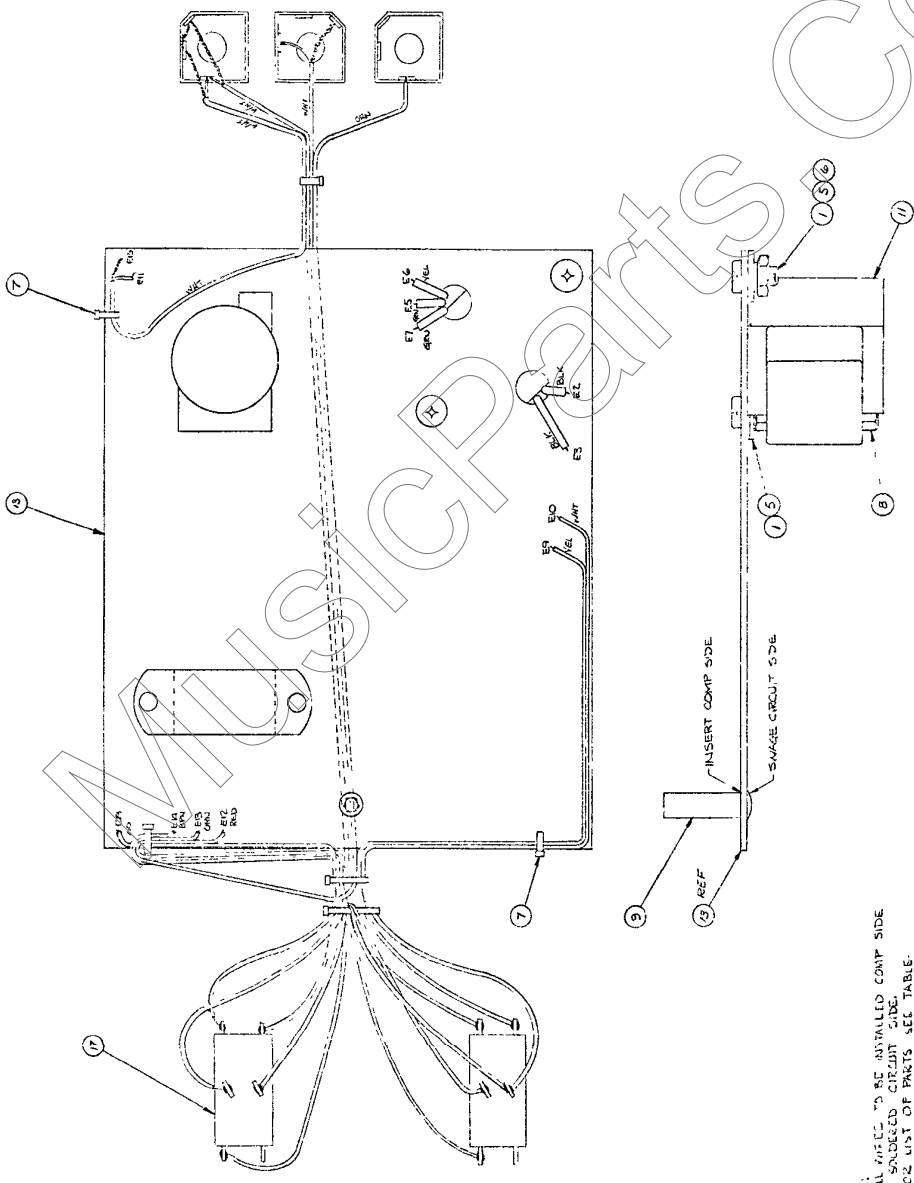


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OCTAVE DIVIDER

REFERENCE	ARP PART NUMBER	ARP/MFG NUMBER	DESCRIPTION
<u>P. C. Board #1</u>			
CR1	1200101	1N34A	Diode, Germanium
CR2,3	1200301	1N4148	Diode, Signal
CR8,9	1201901	1N4742A	Diode, Zener 12V
CR10	1202002	MV5054-2	Diode, light emitting, red
CR4,5,6,7	1202101	1N4002	Rectifier, 100V, 1A
Q1,2	1302901	2N3904	Transistor, NPN
F1	1700403	MDV 1/4	Fuse, pigtail, slo-blo. 1/4A, 250V
S4	1903601	RSW422-X-CE-P-RI- BK-SG	Switch, rocker, DPDT, red
S1,5	1903901	RSW0422-OSD-00-P- A2-BK-0000	Switch, rocker, DPDT, lt. gray
Z1,2,3	5602701	1406401	Dual Op Amp, Sel. (RC4558NB)
R15	7533401		Pot Assembly
R38	7533404		Pot Assembly
<u>P. C. Board #2</u>			
CR1	1200101	1N34A	Diode, Germanium
CR2,3,4,5	1200301	1N4148	Diode, Signal
CR6,7	1201901	1N4742A	Diode, Zener 12V
CR8,9	1202002	MV5054-2	Diode, Light emitting, red
Q3,4,5	1302901	2N3904	Transistor, NPN
Q1,6	1303001	2N3906	Transistor, PNP
Q2	1305801	2N5457	Transistor, N channel FET
Z2	1400601	4011UBE	NAND, GATE, IC 4x21
Z1	1404401	4013AE	Dual, Flip Flop, Set/ reset
Z3,4,5	5602701	1406401	Dual Op Amp, Sel. (RC4558NB)
<u>P. C. Board #1</u>			
-	5707301		Power Transformer, 117VAC
-	5707001		Knobs

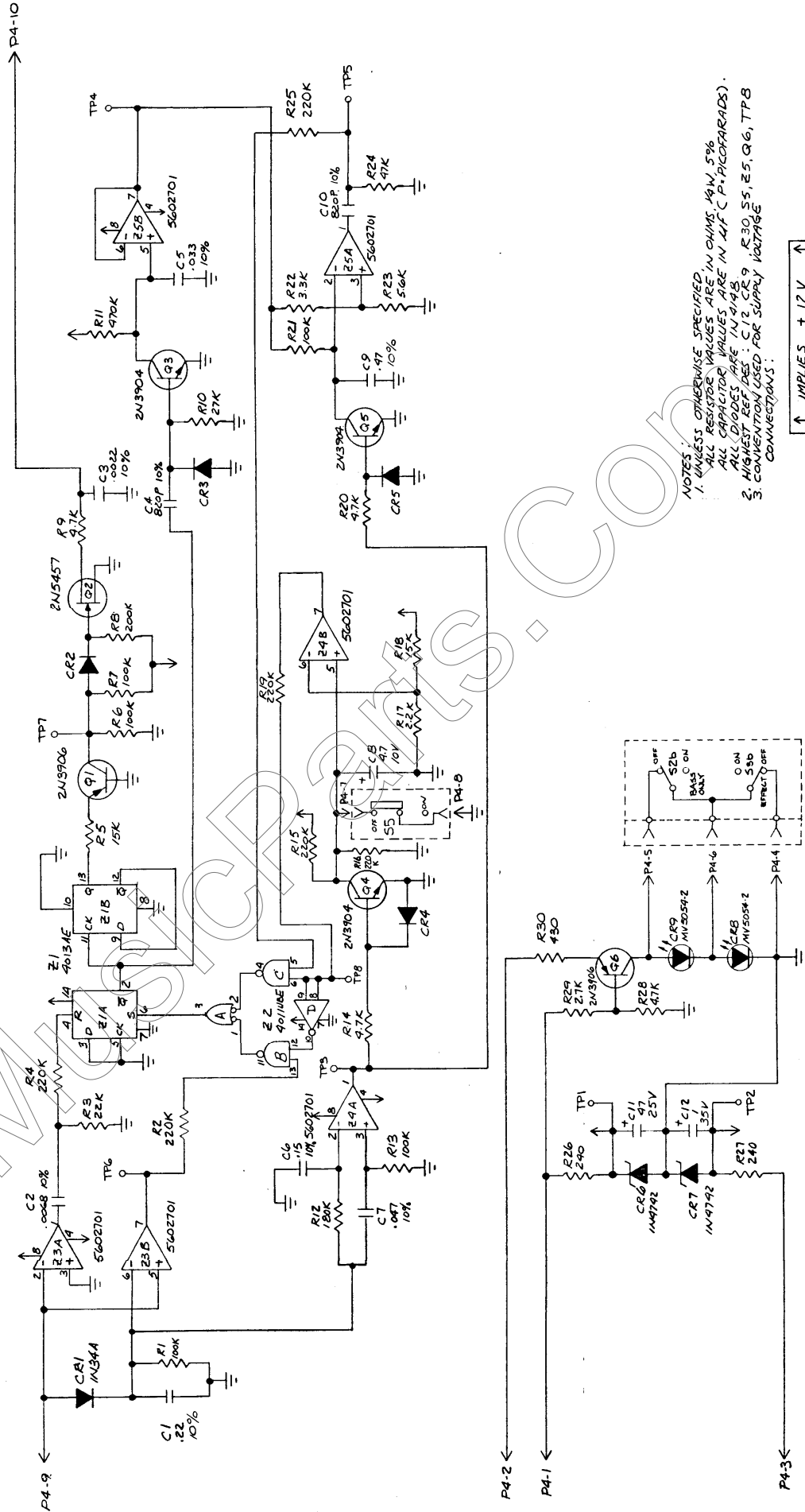
REV	DESCRIPTION	DATE	APPROVED
1			
2			



NOTE:
 1. ALL WIRES TO BE INSTALLED COMP. SIDE
 2. SOLDERED CIRCUIT SIDE.
 3. FOR LIST OF PARTS SEE TABLE.

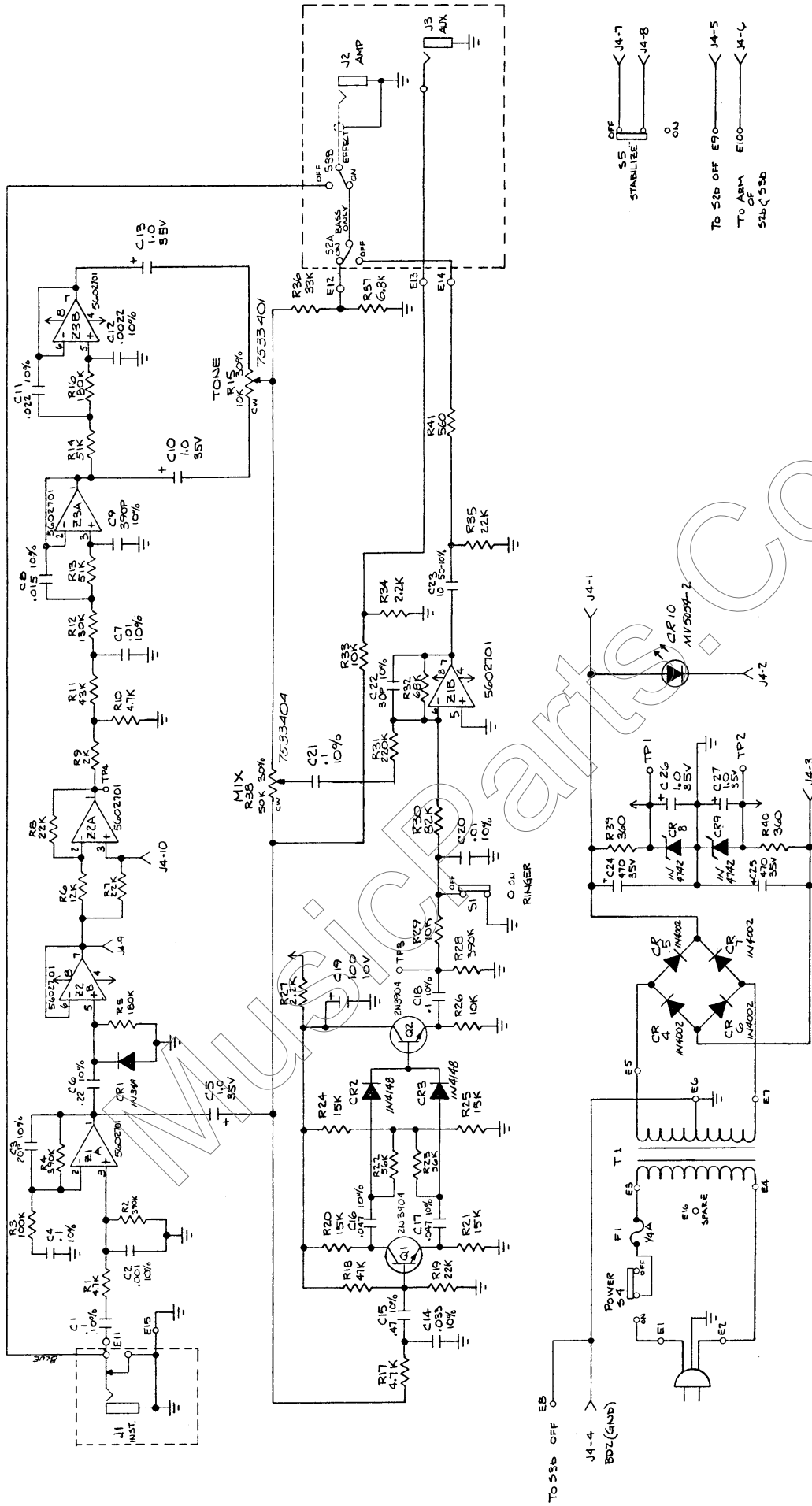
ALY 101 UN.	DESCRIPTION	QUANTITY USED
75-20101	220 V. STANDARD	1-75357-01
75-31010	100V CSA LA	1-1559705

UNIT OF MEASUREMENT	AMPERES	INSTRUMENTS	INC
DESCRIPTION	75-357-01	75-357-01	75-357-01
QUANTITY	1	1	1
DATE	10/1/55	10/1/55	10/1/55
BY	W. J. DAVIS	W. J. DAVIS	W. J. DAVIS
CHECKED			
APPROVED			



NOTES:
 1. UNLESS OTHERWISE SPECIFIED ALL RESISTOR VALUES ARE IN OHMS, 1% 5% ALL CAPACITOR VALUES ARE IN P-PICOFARADS.
 2. ALL DIODES ARE IN P-PICOFARADS.
 3. HIGH SPEED LOGIC IS USED FOR SUPPLY VOLTAGE CONNECTIONS.

↑	IMPLIES + 12V
↓	IMPLIES - 12V



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
 RESISTOR VALUES ARE IN OHMS, 1/4W, 5%.
 CAPACITOR VALUES ARE IN μ F (P = PICOFARADS).

2. HIGHEST REF DESIGNATIONS ARE, R41, C27, CR10, Z3, J3, Q2, S5, F1, T1, E16

3. CONVENTIONS USED FOR SUPPLY VOLTAGE CONNECTIONS:

