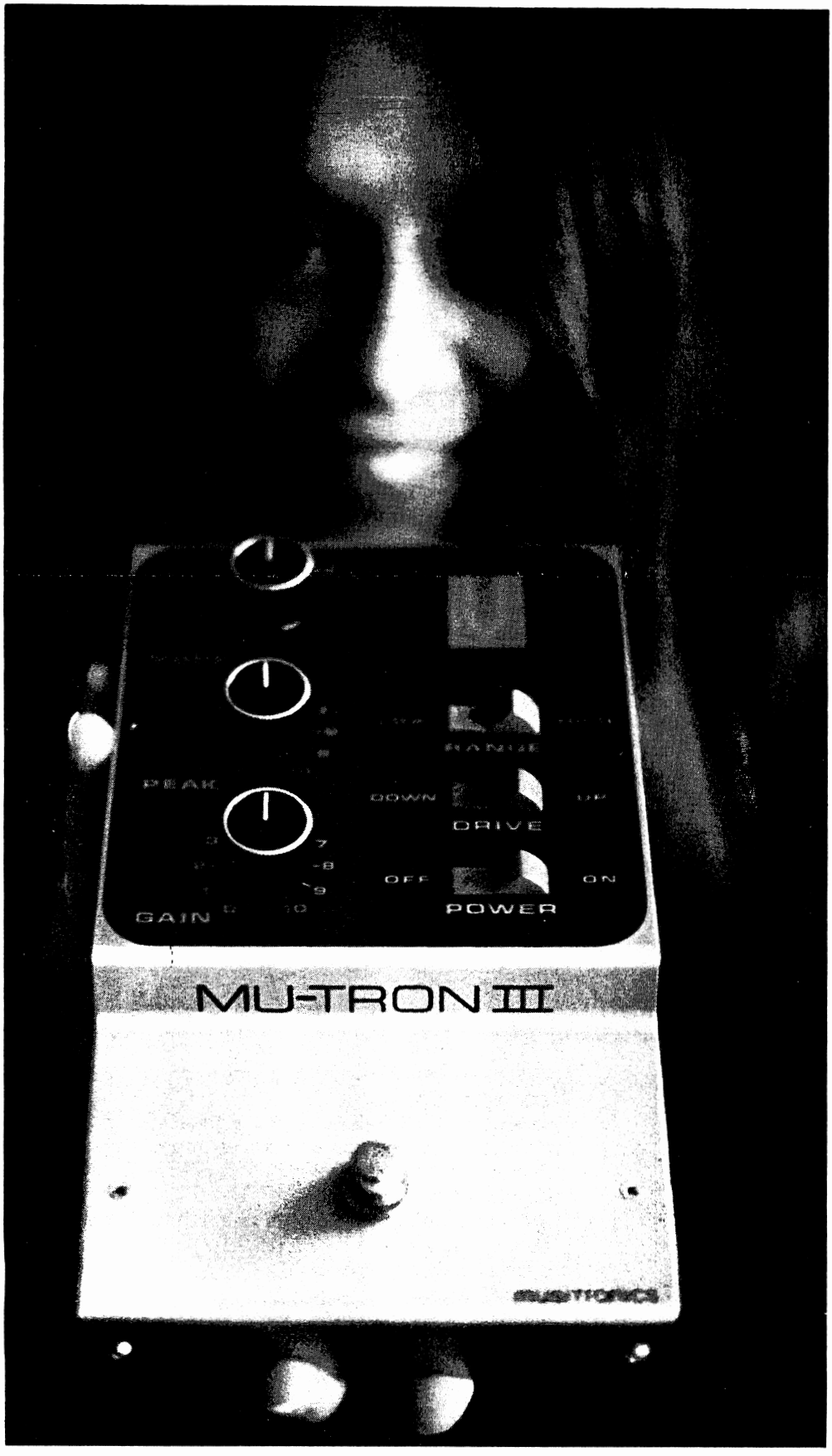
MU-TRON III®

SYNTHESIZER EFFECTS!



New, sophisticated, versatile . . . utilizing the latest in music synthesis techniques. Small enough to be a "mini-synthesizer".

Mu-tron III translates the envelope or "volume picture" of every note automatically . . . into an easily-controlled, articulated, vowel-like sound — as fast or slow as you play.

Use Mu-tron III to create a variety of synthesizer sounds through most electrified instruments — guitar, keyboards, drums, flute, saxophone, brasses, bass, mandolin . . . even microphone.

The sharper your attack and the more percussive your instrument, the wilder your sounds. Mu-tron III can be used with an octave divider or other devices — or in pairs for cascading effects.

Besides providing inverted vowel trajectory ("staccato snap"), Mu-tron III also functions as an automatic "wah" pedal.

Full instructions included, but **you** decide how far out **you** want to go. Try Mu-tron III at your dealer.

For technical specifications, please turn the page.

musitronics
Corporation.
Rosemont, N.J. 08556
Phone (609) 397-2000

MU-TRON III®

by musitronics

SYNTHESIZER EFFECTS!

Patents Pending

TECHNICAL SPECIFICATIONS

Gain: Variable from 0.1 to 40, when driven from low impedance source.
Input Impedance: 1 megohm at lowest setting of Gain control, variable to 3.3 K ohms at maximum Gain setting.
Minimum Input Signal for Full Mu-tron Effect: 1.5 mV from 600 ohm source.
Output Impedance: 600 ohms.
Maximum Undistorted Output Signal: 3.6 volts RMS.
Power Supply: ± 9 volts from 2 NEDA 1604 batteries.
Weight: 3¼ lbs., without batteries.
Dimensions: 8¾″ long x 5″ wide x 3⅛″ high.
Warranty: 1 year on parts and labor.
Suggested Retail Price: $99.95
Made in U.S.A.

CONTROLS

Power: On-off switch.
Range Switch: Emphasizes high or low frequencies.
Drive Switch: Up or down drive for two totally different effects.
Mode Switch: High Bass, Band Pass or Low Pass filter characteristics. For accenting different regions of audio signal, allowing three distinct tonal ranges.
Gain Control: For optimum operation from any musical source, or for controlled amplifier overload when desired.
Peak Control: For varying filter "sharpness" from a subtle accentuation through a distinct vowel sound to high resolution filtering that "plays" individual overtones.

No. 7784 Litho in U.S.A.

Specifications and price subject to change without notice.

IMPORTANT NOTE CONCERNING BATTERIES:

The first indication of battery failure will be a reduction or loss of the "Wah" effect, which may or may not be accompanied by a high frequency oscillation. Always try new batteries before assuming that your Mu-tron is defective, keeping in mind the following:

Due to unequal current drain during operation, the useful life of the battery in the holder with the red lead is considerably shorter than that of the battery in the holder with the black lead.

You should be able to replace only the battery in the holder with the red lead at least two or three times before both batteries require replacement.

Remember, however, that if the Mu-tron is accidentally left with the POWER switch in its ON position, particularly if the DRIVE switch is in the DOWN position, battery life will be short.

We recommend the use of alkaline type batteries in this product, especially in the holder with the red lead.

In order to avoid noisy or intermittent connections between the battery terminals and battery holder contacts, remove weak batteries by lifting straight up from the rear of the battery without any side to side rocking motion which might spread the "+" or female contact of the holder. Should these contacts ever become loose or noisy, close them together slightly with a pliers.

USE WITH MODEL PS-1 BATTERY ELIMINATOR

A 3-pin socket located on the rear of your Mu-tron will accept the output of the MODEL PS-1. When using the PS-1, it is best to remove the batteries from the Mu-tron. Batteries left in the holder will be charged by the PS-1 whenever it is connected to the power line and the Mu-tron. Should the batteries already be fully charged, there is some danger of leakage or even damage to the battery cases taking place.

TECHNICAL SPECIFICATIONS:

GAIN: Variable from 0.1 to 40, when driven from low impedance source.

INPUT IMPEDANCE: 1 Megohm at lowest setting of GAIN control, variable to 3.3K ohms at maximum gain setting.

MINIMUM INPUT SIGNAL FOR FULL MU-TRON EFFECT: 1.5mV from 600 ohm source.

OUTPUT IMPEDANCE: 600 ohms

MAXIMUM UNDISTORTED OUTPUT SIGNAL: 3.6 volts RMS

POWER SUPPLY: ± 9 Volts from 2 NEDA 1604 batteries or Musitronics Model PS-1 Battery Eliminator.

musitronics Corporation P.O. Box 57 Rosemont, N.J. 08556

MU-TRON III OPERATING INSTRUCTIONS

INTRODUCTION:

Congratulations on your purchase of the Mu-tron III by Musitronics Corporation. The Mu-tron has been designed and manufactured to provide years of dependable service.

While simple to operate once all its functions are understood, the Mu-tron III is capable of producing a number of unique musical effects. Before you can use your Mu-tron as a tool of musical expression, a few minutes will have to be spent in familiarization with the function of its various controls and switches.

CONTROLS:

POWER Switch Off - On	- Turns unit off and on from batteries or PS-1
DRIVE Switch Down - Up	- Makes the Mu-tron's automatic filter sweep either up or down in pitch as indicated
RANGE Switch Low - High	- Emphasizes vowel-like sounds in the Low position and the overtones in the High position
GAIN 0-10	- Functions as both a volume control and the sensitivity control for the Mu-tron's effect
PEAK 0-10	- This control determines the strength of the Mu-tron effect--effect becomes stronger as the control is turned clockwise
MODE LP,BP,HP	- Emphasizes low or bass range in LP (Low Pass) position, mid range in BP (Band Pass) position, and treble or high frequency portion of the sound in the HP (High Pass) position
FOOT Switch	- Switches the Mu-tron effect in or out as desired

An additional control over the resulting effect of the Mu-tron is your playing style with regard to strength and sharpness of attack.

SET-UP AND OPERATION:

Make sure the POWER switch is in its OFF position. Either connect the Mu-tron to the PS-1 Battery Eliminator, or remove the battery access door on the bottom of the Mu-tron by turning the fastener ½ turn counter-clockwise and sliding the door away from the unit. Insert two 9 volt batteries in their holders and replace the door.

Connect your instrument to the appropriate jack on the rear of the Mu-tron, and connect the Mu-tron to your amplifier using shielded cables.

Set the controls on your amplifier in a normal manner, and set the Mu-tron as follows:

POWER switch - ON
DRIVE switch - UP
RANGE switch - LOW
MODE switch - BP
PEAK control - 10
GAIN control - See Below

Play a few notes on your instrument in a strong and percussive (with sharp attack) manner while varying the GAIN control on the Mu-tron from 0 through 5. If no effect other than a change in loudness is observed, operate the foot switch, which may be in the position which by-passes the other effects of the device. A setting of the GAIN control should be found which approximates the sound of a conventional "Wah" pedal.

Note that the GAIN control also functions as a sensitivity control for the effect, and that the effect is controlled by the manner in which the instrument is played (stronger playing or sharper attack, more pronounced effect) as well.

Once a satisfactory basic setting for the GAIN control has been found, experiment with the settings of all of the controls and note the various sounds produced. Note that the two basic sounds of the Mu-tron are controlled by the position of the DRIVE switch. The GAIN control may have to be re-set for best results in the DOWN position of this switch.

Note that any time the effects of the Mu-tron are not desired, merely depress the foot switch and the Mu-tron serves as a flat pre-amplifier whose gain can be controlled by the setting of the GAIN control. If desired, higher settings of the GAIN control may be used to produce distortion by overdriving the amplifier.

Through careful experiment, you will discover many useful effects on your own; we are listing a few here to help you get started.

WINDS AND BRASSES: Most instruments in these families are effective with the Mu-tron III. Use a standard mounted pick-up or "bug". Try different Mu-tron settings to get desired effects, but remember that the final sound is controlled by the sharpness of attack.

An octave divider device used between the instrument and the Mu-tron is very effective.

DRUMS: You may mike your drums or use the Barcus-Berry pick-up with the Mu-tron III for startling effects.

GUITAR: For guitar, try the following:

MODE	PEAK	GAIN	RANGE	DRIVE	
HP	10	1-4	LOW	UP	Lead
HP	4-7	3-6	HIGH	DOWN	Lead
BP	9	1-4	LOW	UP	Funky Rhythm
HP	10	10	HIGH	DOWN	Distortion

Exact settings will depend upon the specific instrument used and the effect desired. Try varying your picking strokes from strong to soft and from short to sustained. Use other normal techniques such as bending, etc.

GUITAR BEAT PHENOMENON: Use any desired Mu-tron settings. Play the same note simultaneously on two different strings, and bend one slightly out of tune. The beat produced by the difference in pitch between the two tones will trigger the Mu-tron effect on each beat.

USING THE MU-TRON TOGETHER WITH OTHER DEVICES: A variety of additional effects may be produced by using other sound modifiers in conjunction with your Mu-tron. Experiment to determine whether better results are obtained with the other device connected between the instrument and the Mu-tron or between the Mu-tron and the amplifier, since the effect will not be the same. Devices which produce a sub octave are particularly good, and should be connected between the instrument and the Mu-tron.

USING TWO MU-TRONS:

An outstanding effect is produced by using two Mu-trons and two amplifiers with a stereo instrument. Set one with its DRIVE switch in the UP position and the other with its DRIVE switch in the DOWN position. It will sound as though you are playing two different instruments at the same time.

Many unusual effects can be produced by cascading two Mu-trons (Connect the instrument to the first Mu-tron, connect the AMPLIFIER jack of the first Mu-tron to the INSTRUMENT input of the second Mu-tron and connect the output of the second Mu-tron to your amplifier.) Try one Mu-tron with its DRIVE switch in the UP position and the other with its DRIVE switch in the DOWN position.

USE OF THE MODEL PS-1 BATTERY ELIMINATOR WITH YOUR MU-TRON III

Insert the 3-pin output plug into the socket located on the rear of your Mu-tron. Note that this plug is keyed and will only fit the socket in one position. Connect the AC line cord to a source of 110-120 volts AC, and use the Mu-tron in exactly the same manner as when powered by batteries. Although the POWER switch on the Mu-tron will not operate the power to the Model PS-1, it must be in its ON position for the Mu-tron to function.

When using the PS-1, it is best to remove the batteries from the Mu-tron. Batteries left in the holder will be charged by the PS-1 whenever it is connected to the AC supply and to the Mu-tron. Should the batteries already be fully charged, there is some danger of leakage or even damage to the battery cases taking place.

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

THE MU-TRON III

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.

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

THE MU-TRON III

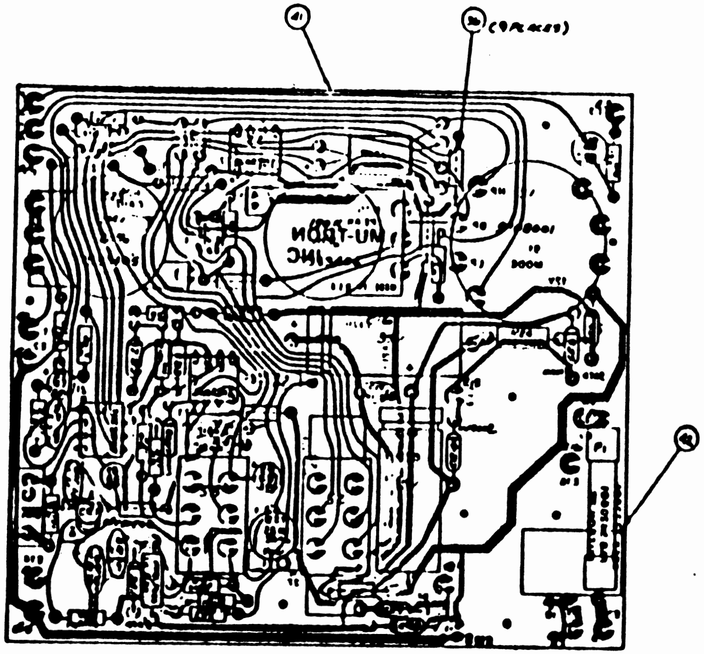
FERENCE	ARP PART NUMBER	ARP/MFG NUMBER	DESCRIPTION
7	1001602	U260R103B	Pot, Rotary Trimmer 10
1,2,10	1200301	1N4148	Diode, Signal
7	1202002	MV5054-2	Diode, Light emitting, Red
3,4,8,9	1202101	1N4002	Rectifier, 100V
5,6	1201901	1N4742A	Diode, Zener, 12V
	1701101	GJV-1/4	Fuse, Pigtail, Normal Blow
	1903901	RSW0422-0SD-00-P-A2-BK-0000	Switch, Rocker, DPDT Gray
	1904001	RSW0422-0SD-00-P-U2-BK-0000	Switch, Rocker, DPDT Blue
1	2602501	P873-13	Photo Cell, 1 LED
,2,3	5602701	1406401	Dual Op Amp, Sel. (RC4558NB)
5	7533405		Pot Assembly, 1M
6	7533406		Pot Assembly, 150K
	5708001		Switch, Rotary, SP, 3 position
	5707301		Power Transformer, 117
	5707001		Knobs

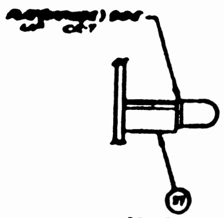
Please order parts by ARP part number.

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

Musitronics Bi-PHASE (No references given)

ARP PART NUMBER	ARP/MFG PART NUMBER	DESCRIPTION
5707101	CTS type VDT450	Pot, 10K, Linear
5707201	CTS type VDT450	Pot, 25K, Clockwise log taper
1001901	Brel (Mfg.)	Trim Pot, 10K, 3 terminal, horiz. mtg.
1001902	"	Trim Pot, 1K, " "
1001904	"	Trim Pot, 22K " "
1903801	RSW422-SD-P-R1-BK	Rocker Switch DPDT, Red
5708001	212-1	Rotary Switch, SP3T
1903901	RSW422-SD-P-A2-BK	Rocker Switch DPDT, Gray
1904001	RSW422-SD-P-U2-BK	Rocker Switch, DPDT, Blue
1904401	8174K11X121T50	Rocker Switch, power, illuminated
1903701	112-P	Footswitch SPDT
5708301		Power transformer, 117VAC
1305701	2N4401	Transistor NPN
1200301	1N4148	Diode, Signal
1202101	1N4002	Rectifier, 1A
2602401	P653-G50-6	Photo cell
2602901	P873-12	Photo cell
1202001	MV5054-1	LED
1410101	RC4195TK	IC, Voltage Regulator
5602701	RC4558NB	IC, Dual Op Amp, Selected
1700901	312.001	Fuse, 1Amp
5708601	AR-3-M-L ROUND	Knob
5708501	AR-1-B-SK-M POINTER	Knob

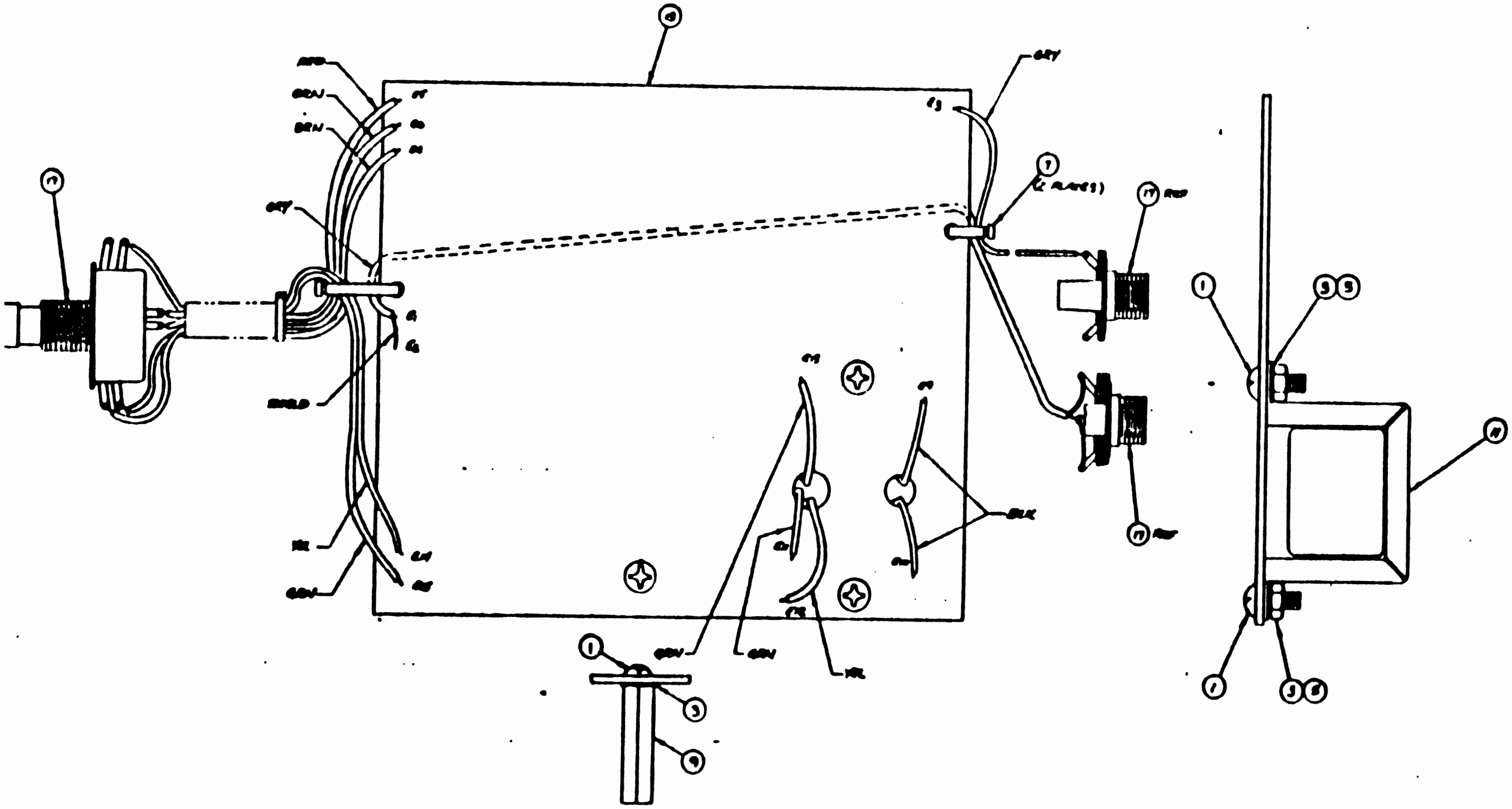




VIEW A-A

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
ALL RESISTOR VALUES ARE IN OHMS, 1/4W, 5%.
ALL CAPACITOR VALUES ARE µF (P=PICOFARADS).
ALL DIODES ARE 1N914B (?).
2. BEND DOWN PIN 1 & ITS OPPOSITE COUNTERPART OF E1-E3 (?).
3. FINISHED ASSY TO BE [illegible].
4. FOR LIST OF PARTS, SEE PL [illegible].

PL 7?39901 (?)	PC BD ASSY
	SEMI-FINISHED (?)
	NU-TRON III (?)
SCALE 2:1	78296 (?)



NOTES:
1 FOR LIST OF PARTS, SEE TABULATION.

ARP PART NO.	DESCRIPTION	USED ON
7535901	120V STD.	PL 7536401
7535903	120V CSA	PL 7536403

SEE TABULATION

SEE TABULATION

DLJ

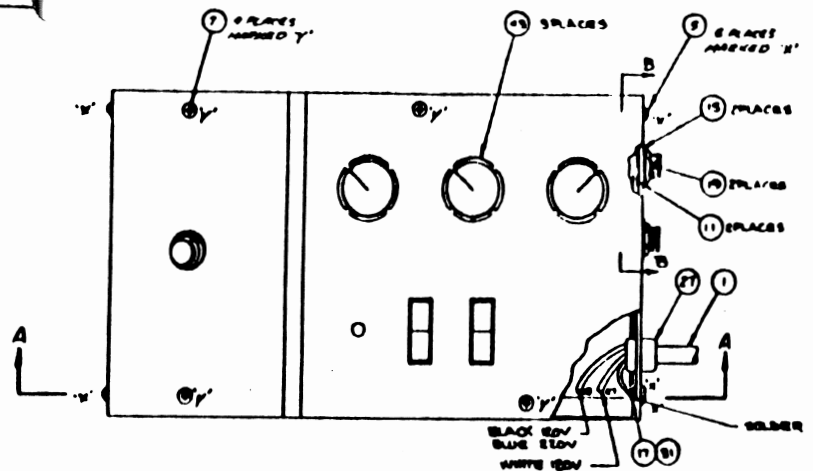
DC

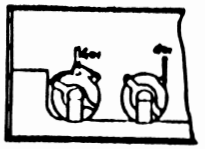
ARP INSTRUMENTS INC

PC BD ASSY
MU-TRON III

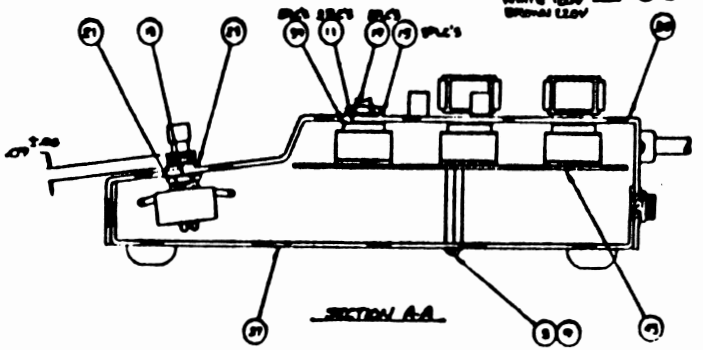
D

75359

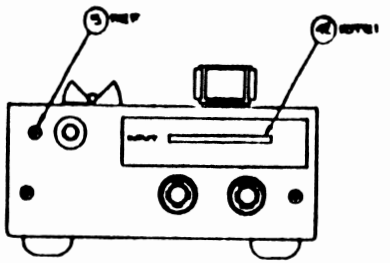




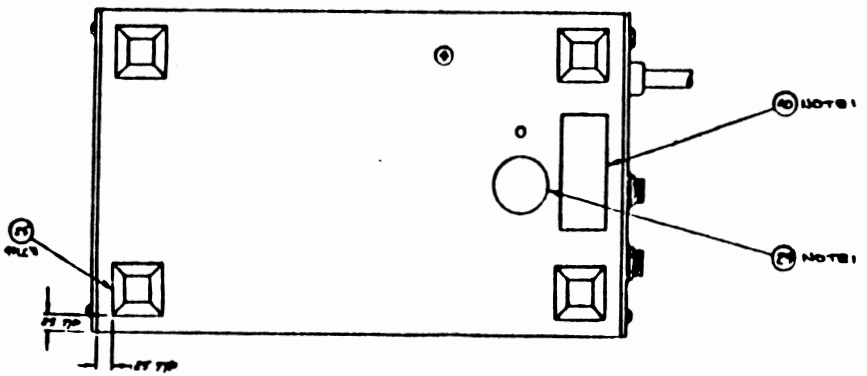
SECTION B-B
ROTATED 90° CCW



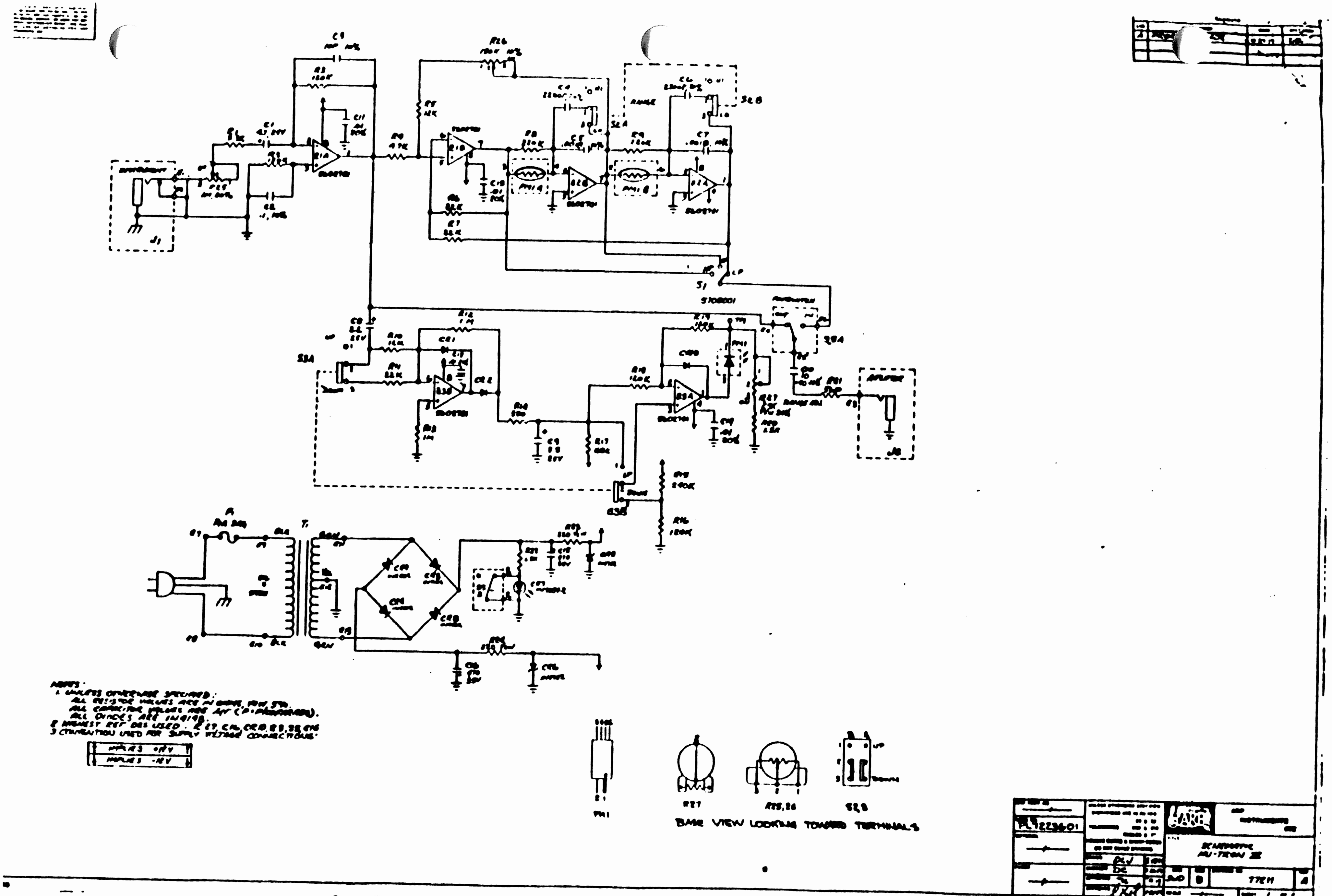
SECTION A-A



NOTES:
1. LOCATE LABELS APPROXIMATELY WHERE SHOWN.
2. FOR PARTS LIST SEE TABULATION.

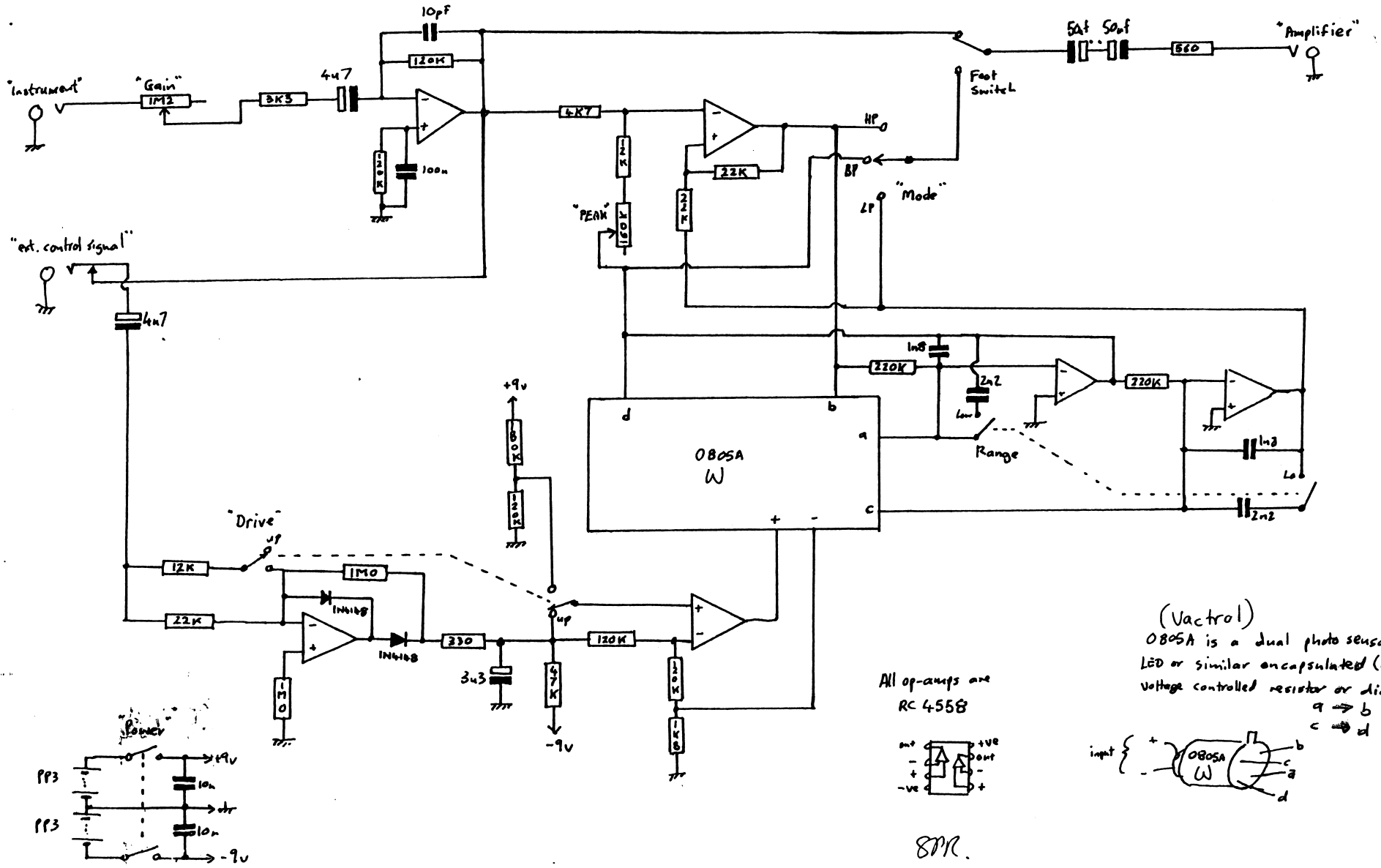


ARP PART NO.	DESCRIPTION	USED ON
75 3640 1	220V STD	PL 85 1040 1
75 3640 5	120V CSA/LA	PL 85 1090 1

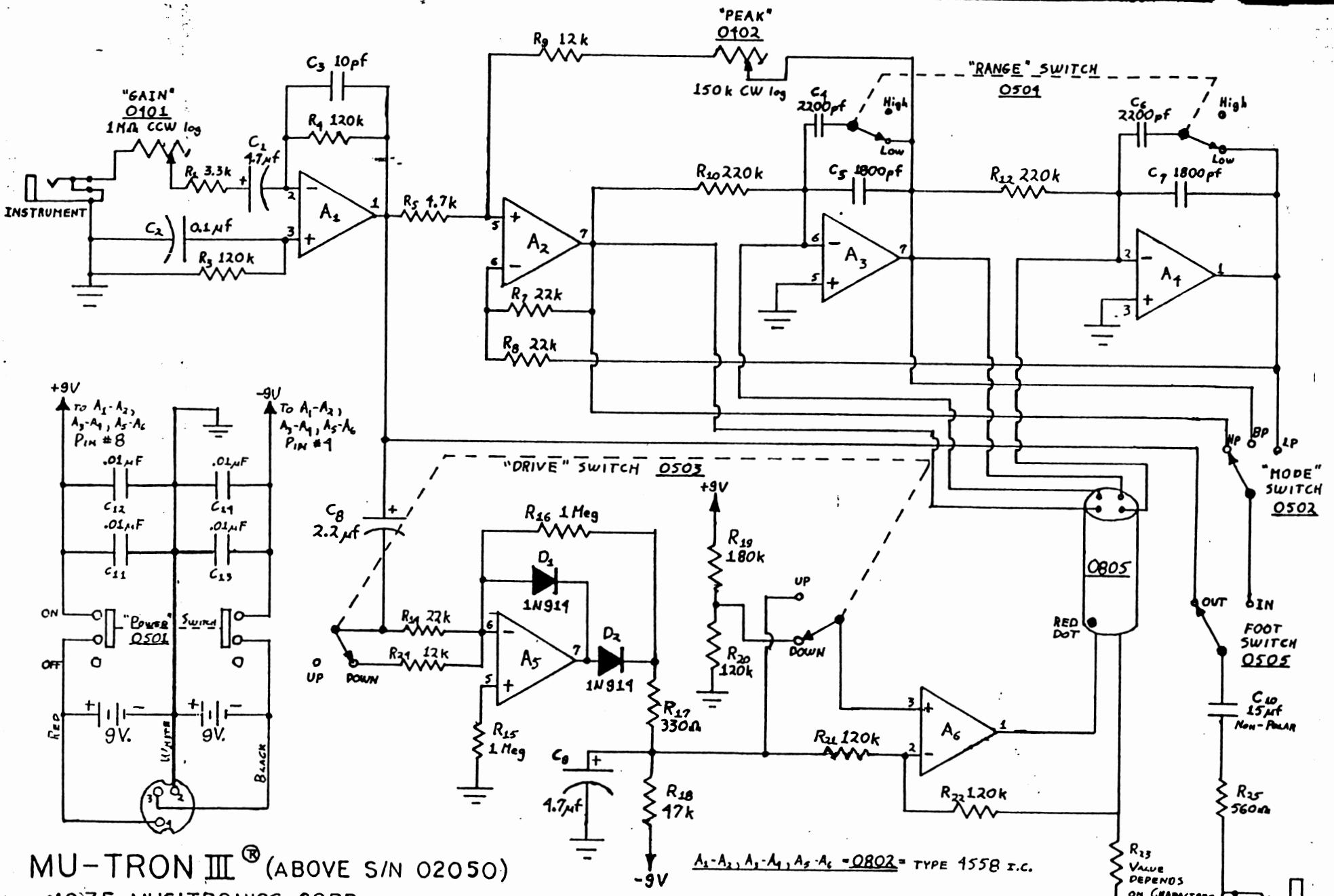


BASE VIEW LOOKING TOWARD TERMINALS
R27
R25,26
S2,3
PH1
NOTES:
1. UNLESS OTHERWISE SPECIFIED:
ALL DIODES ARE 1N4148.
3 CONVENTION USED FOR SUPPLY VOLTAGE CONNECTIONS:
PL 1223601
SCHEMATIC
MU-TRON III
D
772H
A

Mu-Tron III



BM.



MU-TRON III® (ABOVE S/N 02050)

ROSEMONT, N.J.

A1-A2, A3-A4, A5-A6 = 0802 = TYPE 4558 I.C.

11/13/75

DATE	SYM	REVISION RECORD	AUTH.	DR.	CK.
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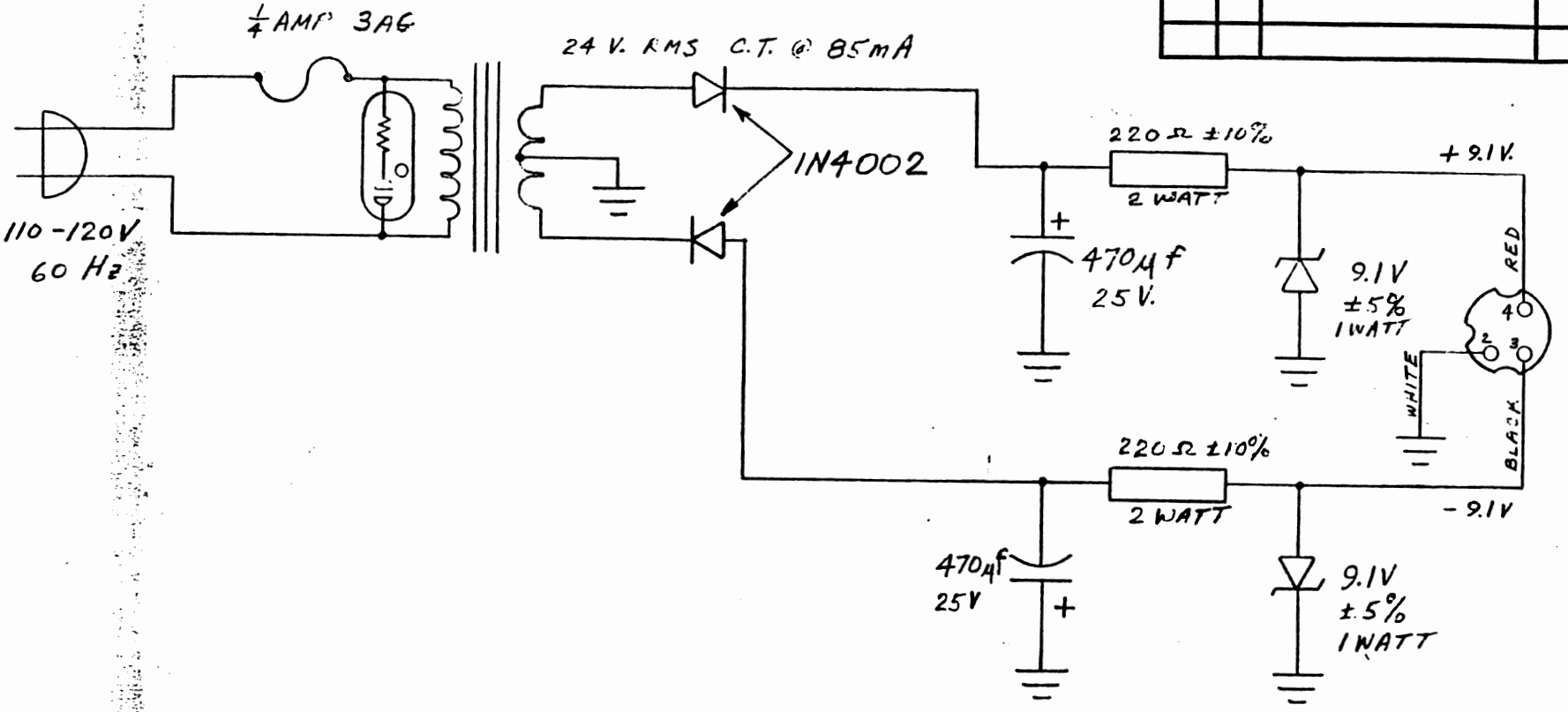

TOLERANCES (EXCEPT AS NOTED)	MUSITRONICS CORP.		
DECIMAL ±		SCALE	DRAWN BY
			APPROVED BY
FRACTIONAL ±	TITLE PS-1 SCHEMATIC DIAGRAM		
ANGULAR ±	DATE 10/19/73	DRAWING NUMBER	