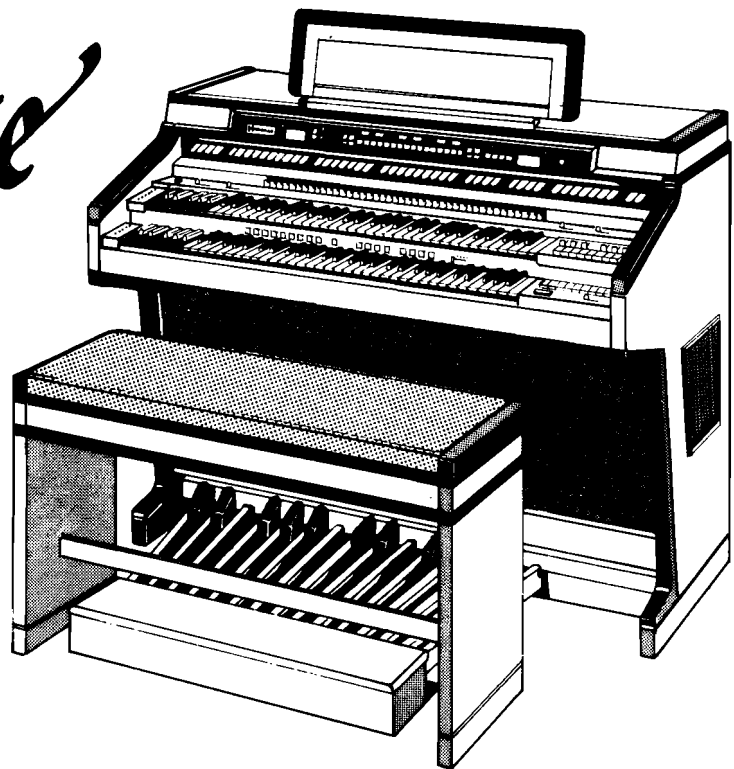


SERVICE MANUAL

PRELIMINARY

Elegante



MODEL NO.

340107

H000-006121

CAUTION

SEE SAFETY NOTICE ON
INSIDE COVER SHEET



HAMMOND ORGAN COMPANY

A DIVISION OF MARMON COMPANY

A MEMBER OF THE MARMON GROUP OF COMPANIES

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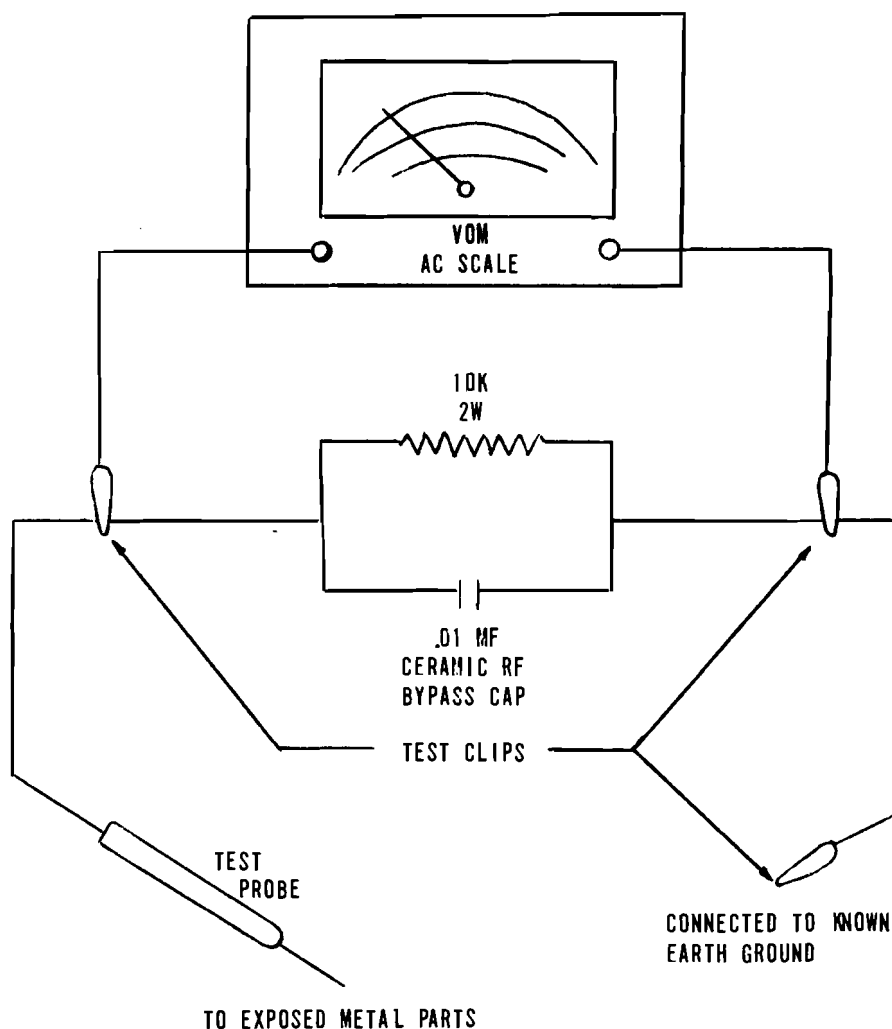
[312] 283-2000

SAFETY NOTICE

Great care has been taken in the design and manufacture of this product to assure that no shock hazard exists on any exposed metal parts. Internal service operations can expose the technician to hazardous line voltages and accidentally cause these voltages to appear on exposed metal parts during repair or reassembly of product components. To prevent this, work on these products should only be performed by those who are thoroughly familiar with the precautions necessary when working on this type of equipment.

To protect the user, it is required that all enclosure parts and safety interlocks be restored to their original condition and the following tests be performed before returning the product to the owner after any service operation.

Plug the AC line cord directly into a line voltage AC receptacle (do not use an isolation transformer for this test) and turn the product on. Connect the network (as shown below) in series with all exposed metal parts and a known earth ground such as a water pipe or conduit. Use an AC VOM of 5,000 ohms per volt or higher sensitivity to measure the voltage drop across the network. Move the network connection to each exposed metal part (metal chassis, screw heads, knobs and control shafts, escutcheon, etc.) and measure the voltage drop across the network. Reverse the line plug and repeat the measurements. Any reading of 4 volts RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the product to the user.

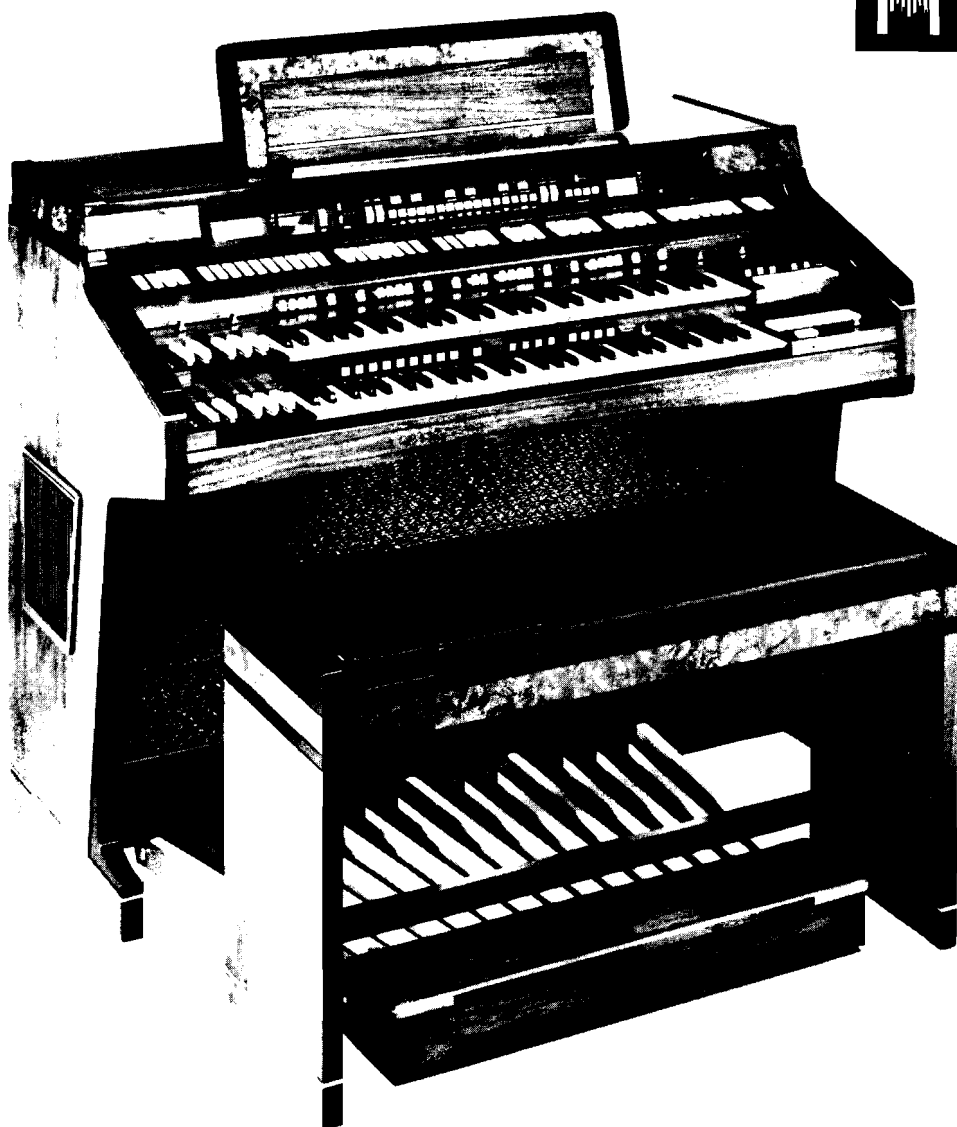


The HAMMOND Elegante—340100

Hammond proudly presents the flagship of the Hammond Organ line...the exciting new ELEGANTE. The ELEGANTE, a new four channel instrument, is truly a unique console organ. Musical creativity and professionalism are blended in the finest tradition of "Hammond Sound"® with the latest in distinctive features and effects.

The peerless Auto Vari® 64 is totally enhanced with new flexibility and control...a new illuminated rhythm selector panel...Hammond's exclusive Touch Tempo®...a variety of original Rhythm Breaks...even the capability of programming the variation possibilities in limitless combinations.

This exclusive new console features the famous "Hammond Tonebar Sound," Hammond's exclusive Melody Maker™, nine deluxe preset pistons, Hammond's Fascinating Fingers™ and even a deluxe Easy Play division. Truly an instrument with unmatched versatility and dependable performance...the ELEGANTE by Hammond.



PRODUCT DATA SHEET

- **Multiplex Synthesis Technology**
- **Two 61-Note Keyboards**
25 Pedals
- **Harmonic Tonebars**
Two sets of 9 Harmonic Tonebars for each keyboard
- **Accents**
Variable Repeat, Key Click, Percussion Fast, Pro Chord™
- **Poly Synthesis Percussion**
1st, 2nd, 3rd, 4th, 5th, 6th, and 8th Harmonics, Vibraharp, Twin Mallet Marimba, and Chime Solo
- **Brite Percussion**
Dual Voice, Pizzicato, Banjo, Harpsichord, Honky Tonk Piano, Piano, and Solo Piano
- **Upper Manual Voices**
Tuba 16', Post Horn 8', Kinura 8', Diapason 8', Violin 4'
- **Lower Manual Voices**
Diapason 8', Horn 8', Violina 4'
- **Pedals**
16' and 8' Tonebars, Pedal Sustain (variable), Bass Guitar, Pedal Mute, Lower to Pedal
- **Easy Play Group**
Variable Bass Walk, Memory, Note-A-Chord™, One Finger Chords
- **Autochord®**
- **Auto Vari® 64**
16 rhythms each with four programmable variations, Measure Selector, Tempo Selector, Volume Selector, Touch Tempo® Rhythm Break, Continuous/Touch Start, Foot Switch Reset
- **Follow-The-Player-Rhythms**
Bass Drum, Cymbal, Brush, Snare Drum
- **Animation**
Leslie Upper, Leslie Lower, Leslie Reverb, Leslie Chorale, Vibrato On, Vibrato Small, Delayed Vibrato
- **Variable Reverb**
- **Brilliance, Volume Soft**
- **Philharmonic Strings™**
Each manual features 16', 8', and 4' Strings, Variable Attack, Variable Sustain, and Variable Volume
- **Fascinating Fingers**
Patterns: Zig, Single, Up/Down, Strum
Voices: Piano, Zither, Banjo, Cancel, Variable Volume
- **Pro Foot™**
Piano Solo, Dual Voice, Leslie Speed, Rhythm Break, Rhythm Fade
- **Sustain**
Variable Upper Manual, Variable Lower Manual, Variable Pedal
- **Piston Presets**
Nine illuminated presets to register the entire organ
- **Preset Keys**
Eleven reverse preset keys to control flexibility of upper and lower manuals and tonebars
- **Headphone Jack**
- **Speakers**
One 15", Two 8", One 6½" speaker
One 6" x 9" Leslie Rotosonic
- **Power Amplifiers**
2—35 Watt, 2—10 Watt
- **Dimensions**
53½" L, 51½" H (music rack up), 28¾" D
- **Weight**
441 pounds, including pedals and bench

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HOW THE ORGAN OPERATES

GENERATOR SYSTEM

Tone generation is accomplished by using the 6 channel 440/Multiplex generator system for melody, accompaniment and pedal voices. The 434/435 LSI system generates the pedal tones in Ease of Play modes while an additional 435 LSI generates the arpeggiator tones. Therefore, the organ has the equivalent of eight tone generating systems. The Multiplex generators are assigned to: (1) Upper Manual Synthesis (2 drawbars); (2) Lower Manual Synthesis (9 drawbars); (3) Lower String Ensemble and Tab Voices; (4) Brite or Synthesis Percussion; (5) Upper Manual String Ensemble, Synthesizer Voices, and Tab Voices; and (6) Pedal Voices.

Instead of using "Second Voices" on this organ, five "full time" tab voices on the upper manual and three on the lower are used. The upper manual voices are TUBA 16', POST HORN 8', KINURA 8', DIAPASON 8', and VIOLIN 4'. The lower manual voices are DIAPASON 8', HORN 8', and VIOLINA 4'. As implied in the "full time" description they will add to all other voices.

In order to make the organ as easy to play as possible, it has been necessary to establish some priorities for the Upper, Lower and pedals. They are as follows:

1. UPPER MANUAL

- a. Drawbar tones and/or reverse color preset voices play except when solo presets, or PISTONS are actuated.
- b. Brite percussion has priority over synthesis percussion except for CHIME SOLO.
- c. String Ensemble adds to all upper manual divisions except the solo presets and reverse color presets.
- d. Synthesizer voices add to all upper manual divisions except solo presets and reverse color presets.
- e. Tab voices add to each other and all upper divisions except solo presets and reverse color presets.
- f. Upper manual sustain is simultaneously applied to drawbar synthesis, String Ensemble and tab voices.
- g. PIANO SOLO has priority over all upper divisions.
- h. Organ PISTONS have priority over all upper manual divisions including PIANO SOLO.
- i. CHIME SOLO has priority over all divisions except PIANO SOLO.

2. LOWER MANUAL

- a. STRING ENSEMBLE adds to drawbar tones and tab voices.
- b. Sustain can be applied to String Ensemble, synthesis tones and tab voices.
- c. PISTONS have priority over String Ensemble, synthesis drawbars, tab voices and reverse color presets.

3. PEDALS

- a. 16' and 8' pedal drawbar tones add to each other.
- b. BASS GUITAR adds to both drawbar tones.
- c. PEDAL SUSTAIN effects 16' and 8' pedal pitches and couples L/M tones.
- d. PISTONS have priority over all pedal voices.
- e. Lower to pedal coupler functions at all times.

REVERSE COLOR PRESETS

The 340 incorporates the Hammond reverse color keyboard presets on both upper and lower manuals. As in the past, this feature provides for 9 preset division voices, 2 programmable division presets and a cancel key on each manual.

The specific voices used on the 9 preset voices on upper and lower manuals are summarized in Table 1.

PISTONS

Nine combination pistons provide the selective performance as shown in Table 2. Five of these are essentially the same preset voices and functions used on the 333. The four new pistons provide immediate set ups for "Solo Instruments" on the Melody Maker, "Cathedral" organ, "Full Theater" organ and Solo Strings. The pistons are controlled by nine lighted momentary push buttons and a cancel button (not lighted) mounted in the front strip to the left of the Arpeggiator controls. The buttons are white and are marked 1 through 9 and C (cancel).

PERCUSSION DIVISIONS

The upper manual has provision for both synthesis and brite percussion. The synthesis group includes 1st, 2nd, 3rd, 4th, 5th, 6th and 8th harmonics, VIBRA-HARP, TWIN Mallet MARIMBA and CHIME SOLO. The brite group includes five percussion voices. These are PIANO, HONKY TONK PIANO, HARPSICHORD, BANJO and PIZZICATO. In addition, a PIANO SOLO preset is provided which cancels all upper manual voices.

A REPEAT tab and variable rate pot which effects all voices in these divisions except the solo presets is provided. The repeat rate range is from 2 to 17 Hz.

The KEY CLICK feature provided on this model effects only drawbar tones on both manuals and percussion harmonic tones on the upper manual.

To provide for balancing percussion voices against the other divisions of the organ, a volume control is incorporated on the drawbar base.

A new DUAL VOICE feature is incorporated into the brite percussion. When this tab is operated it turns on (couples) both 16' and 4' pitches and turns off the 8' pitch. It is controllable by either the control panel tab or the programmable foot switch on the swell pedal.

PEDALS

The pedal bass has three additive voices -- 16' and 8' drawbar tones and BASS GUITAR. In the normal playing mode pedals will perform polyphonically. The pedals will have priority over AUTOCHORD or BASS WALK modes of automatic pedal playing. For example, if the player is in the BASS WALK mode and desires to inject his own bass pattern or legato pedal, he may simply play pedals in the normal manner.

The automatic bass line will be cancelled and the pedals will sound with the voices set up on the drawbars or tabs. On release of the pedal the automatic bass will again sound at the start of the next programmed bass note as determined by the Rhythm Unit tempo.

STRING ENSEMBLE

The Model 340100 has a full complement of string voices. The controls are mounted in the upper right-hand endblock. The string voices consist of three pitches (16', 8', and 4') on the upper manual and three pitches (16', 8' and 4') on the lower. Independent controls for string ATTACK, SUSTAIN, and VOLUME are provided for each manual. Separate rocker tab controls have been provided to turn SUSTAIN "on". This allows the player to preset the amount of this effect. The SUSTAIN controls on this endblock also control the degree of sustain on other voices as noted earlier under priorities. The BRILLIANCE tab will effect the strings.

In order to achieve optimum performance of the String Ensemble group, three channel acoustic mix is used.

SYNTHESIZER VOICES

The 340 incorporates the identical Melody Maker performance used in the 333 organ. The controls are mounted in the lower right-hand endblock on the 340.

EASE OF PLAY

The 340 utilizes the chord recognition capability of the 434/435 LSI to good advantage. This performance includes true root/fifth AUTOCHORD, ONE-FINGER CHORDS, programmed BASS WALK, and electronic MEMORY on the lower manual. In addition, visual keyboard memory is provided by NOTE-A-CHORD.

AUTOMATIC ARPEGGIATOR

The 340 incorporates the FASCINATING FINGERS performance used in the 333 organ. The controls and their location are also similar to the 333.

ANIMATION

The 340 incorporates a two speed Leslie Rotosonic unit. The organ also provides for manual separation so that upper and lower manuals may be independently animated by the Leslie.

The percussion divisions, synthesizer instruments, pedals and rhythm voices are channeled only through the main amplifier so that they will always be "dry" with respect to Leslie animation.

ANIMATION (Cont'd)

After vibrato is also available in two depths and delayed. It will effect all organ voices except rhythm voices, brite percussion, harmonic percussion, and pedals.

A tone cabinet output socket is incorporated in the organ to accept the Leslie 11 pin plug used on the self-powered series of tone cabinets.

The third and fourth audio channels, which are used exclusively for String Ensemble will not be animated by the Leslie or after vibrato. Since the tone cabinet and headphone outputs feed two channel devices, it is necessary to provide for electrical mix of the String Ensemble in these accessories. However, a switch will be provided next to the tone cabinet plug, which will permit acoustic mix for a 4 channel tone cabinet system.

The 340 organ is the first to use the new AV-64 Rhythm Unit, with improved voicing and several new features. The 340 Rhythm Unit has "TOUCH TEMPO", programmable pattern variations, rhythm breaks, rhythm fade, auto pedal, touch pad break and silent/sound controls, lighted pattern buttons and overall up-graded aesthetics.

PRO CHORD

The 340 organ has incorporated a new automatic harmony feature, Pro Chord. When this effect is turned "on", harmony notes will automatically sound above the melody note(s) being played on the upper manual. The notes which play automatically are programmed from the chord notes being played on the lower manual. This effect is limited to 48 notes on the upper manual (Keys 10 thru 57). The harmony notes sound in the same voices being used with the melody, but at a slightly reduced level. The tab control for this feature is located with the Accents group on the control panel.

TRANSPOSER

The 340 incorporates a transposer in the upper left-hand endblock. As in the B-3000 this feature provides two semi-tone transposition steps above "A 440" and four steps below. Control means is achieved by lighted miniature push button switches.

REVERBERATION

A Type IV Reverb Unit is used to provide this feature. The degree of REVERB is controlled by a slider pot mounted on the drawbar base. An additional control tab is provided in the Leslie animation group to permit the LESLIE on REVERB effect to be obtained at the player's option.

In this mode of playing some main channel signal is sampled by the reverb system. Therefore, some of the "dry" organ voices have some degree of Leslie animation.

AUDIO SYSTEM

The basic audio system consists of two 10 watt and two 35 watt amplifiers. One 35 watt unit is dedicated to the main "dry" channel, while the other powers the Leslie channel. The 10 watt amplifiers are dedicated to amplifying the String Ensemble channels.

AUXILIARY CONNECTIONS

Provisions are made for an auxiliary audio input and headphone. Both of these connections are made by 1/4 inch phone jacks. The headphone jack is located under the manual shelf on the right side of the organ, while the auxiliary input circuit is under expression and designed to have an impedance of 47,000 ohms and produce full output with 1/4 volt signal.

The headphone jack is wired to perform properly with either mono or stereo phones without adapters. All organ speakers will go silent when the phone plug is connected.

PROGRAMMABLE SWITCHES

Two foot controlled switches are incorporated on the swell pedal. As on other Hammond products, the right hand switch controls the Rhythm Unit to provide for foot control of "cancel" or "reset" modes of operation. Since the auto arpeggiator runs off the Rhythm Unit clock, it can also be controlled by the right hand foot switch.

The left hand foot switch on the 340 is designed to be programmable to select one of five functions. The function options will be PIANO SOLO, DUAL VOICE, LESLIE SPEED, RHYTHM FADE and RHYTHM BREAK. The programmable selector switches are push type and located in the lower left-hand endblock. This feature is called PRO FOOT.

LIGHTING

In addition to lighted controls in several areas, the 340 incorporates a music desk light and control panel light. Lights are controlled by a switch mounted on the rhythm control panel. However, the organ power ON/OFF switch will control all the line power to the organ. Therefore, the lights can not be turned "ON" unless the organ is "ON".

NEW AV-64 RHYTHM

The 340 is the first organ to use the new AV-64 Rhythm Unit. This unit has a number of new features in both musical performance and control areas. Feature highlights are optional TOUCH TEMPO or adjustable tempo rate; Silent/Sound touch pad control; Six composed Rhythm Breaks assigned to 12 of the 16 patterns; Dedicated touch pad control for Rhythm Breaks or optional foot switch control; Player Programmable rhythm pattern variations; Rhythm Fade; Optional Manual Sustain in AUTOCHORD mode; Lighted momentary pattern switches to provide good identification and quiet operation; Lamps Off with automatic "on" triggered from pattern switches; and overall improved voicing. The following paragraphs describe in detail the overall performance of this new rhythm unit.

PATTERNS

The pattern tracks, voice assignments, names and order are identical to our current AV-64 as used on the 333, 328 and 232 organs. However, the voice generators have been revised using as many digital parameters as possible to obtain better and more consistent voicing from organ to organ.

PATTERNS (Cont'd)

The same "follow the player" optional voices are available on the new unit; namely, Brush and Snare on the lower manual and Bass Drum and Cymbal on the pedals. Assigned voices sound only when the rhythm unit is not running.

Pattern order and names are shown in Figure 1 as are location of the "follow the player" voices. Also shown above the pattern buttons are the Continuous/Touch Start and Foot Switch Reset controls. In the Continuous mode, the selected rhythm pattern will sound at all times except when a "Break" is desired. In the Touch Start mode the rhythm unit will not sound until a lower manual or pedal note is played. In both modes on/off control is made by means of the left hand touch pad.

The foot switch mounted on the right side of the swell pedal can be used to interrupt (silence) the rhythm pattern in either Continuous or Touch Start modes without losing the tempo. However, when the Foot Switch Reset is "on" and the player is in the Touch Start mode, the rhythm unit will not sound again until a L/M key or pedal is played. In both Continuous and Touch Start modes with foot switch operation in the Reset Mode the pattern starts at beat one, measure one of Variation A or the first programmed variation.

RHYTHM BREAKS

There are six Rhythm Breaks assigned to twelve specific rhythm pattern. The break assignments are shown in Table 3. A Rhythm Break is initiated by touching the break pad at any time when one of these patterns with an assigned break is playing. The amount (number of beats) of break that one hears is determined by the time of initiation.

If the break is triggered at the start of measure one beat one, two full measures of the break will play. If the break is triggered at any time after beat one measure one, only the remaining period of the two measure cycle will play. This musical logic was established to prevent the break from getting out of step with the basic pattern. However, it also permits the player to do creative drum fills with 2 or 3 beat (etc.) breaks.

If the break is triggered when Autochord with Memory is on, the lower manual and pedal will go silent. However, if one is holding any lower manual keys, the manual will sound but will not be chopped during the break period. After the break, the player must restore memory by playing the lower manual if he wishes to hear manual and pedal in AUTOCHORD mode.

A break may be played as an introduction simply by touching the break pad before starting the rhythm pattern with the Silent/Sound pad.

On the 340 organ, break control can also be selectively triggered by the PRO FOOT switch mounted on the left hand side of the swell pedal.

RHYTHM FADE

This feature can be controlled by a momentary switch mounted on the Rhythm control panel or selectively triggered by the PRO FOOT switch. Fade will smoothly reduce the level of all rhythm voices to inaudibility over a period of approximately 10 seconds. To turn the voices "on" after a Fade sequence, the player must again momentarily operate the Fade control(s) or perform a Stop/Start cycle.

TOUCH TEMPO

This feature, which previously had been incorporated in the endblock on some organs, is an integral part of the new AV-64. The Touch pad on the left side of the unit can be used optionally for normal rhythm start/stops with adjustable tempo rate or TOUCH TEMPO (TT). To set up the unit for TT operation, the amber button located in the upper left hand corner of the touch pad must be "on" (lighted). To establish the tempo in TT mode, the player simply taps the pad four beats at the desired rate. If the rhythm unit is in the Continuous mode, it will sound on the fifth beat. If it is in the Touch Start mode, it will not sound until a lower manual key or pedal is played.

Red and green indicator lights are also located on this pad. When the red light is on the rhythm unit is not playing. When the green light is on, the unit is playing or ready to be played in Touch Start or Fade.

PROGRAMMABLE VARIATIONS

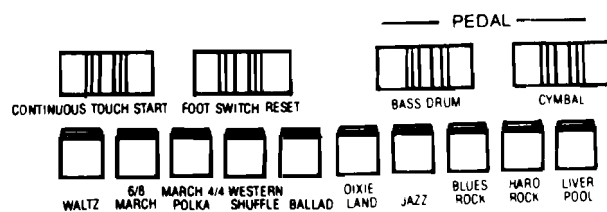
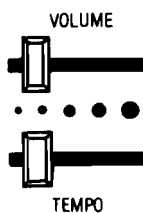
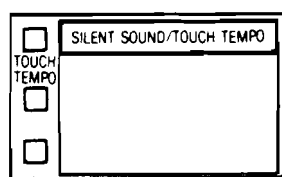
All previous Auto-Vari rhythm units have had fixed variation sequences, namely, A,B,C and D. The new AV-64 on the 340 organ gives the player the option to program his own sequence. To program a variation series, the Program switch must be turned "on" and the Automatic switch "off". The player can then punch the desired sequence by simply pushing the A,B,C, d buttons in the desired order, omitting any he does not wish to hear. Each time a variation (A,B,C,C) is pushed, it is automatically programmed to play a measure sequence (i.e., $\frac{1}{2}$, 1,2,4,8). As many as 16 measure sequences can be programmed in any order. The rhythm unit will play this sequence when the Automatic switch is turned "on" and the rhythm unit started. This sequence will be remembered as long as the Program switch is "on". When this switch is turned "off" the variation sequence returns to A,B,C,D.

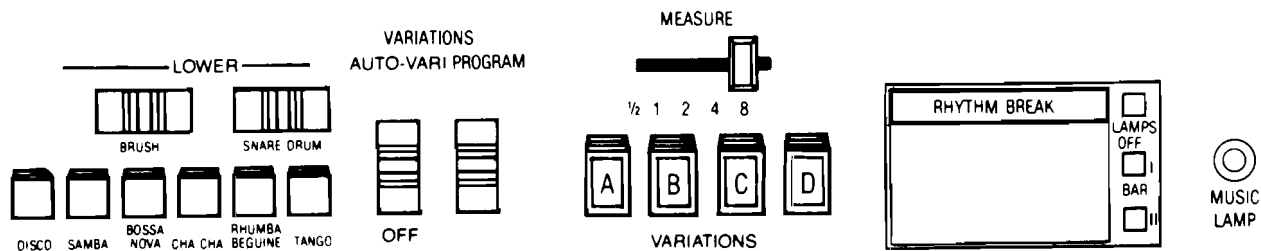
OTHER FEATURES

This new rhythm unit also includes a feature which gives the player the option of having the lower manual chopped in the AUTOCHORD mode. This feature which permits automatic Bass Walk or True Root/Fifth pedals without the rhythmic chopped lower manual notes is turned on by means of the SUSTAIN CHORD switch.

The rhythm unit may be turned "off" (all lights turned off except TT or Silent/Sound (red or green) by activating the Lights Cancel button located in the right touch pad bezel. To turn on the lights, one simply pushes any rhythm pattern button.

Tempo rate and measure identification is accomplished by means of two red lights located in the right touch pad bezel. These are marked Bar I and II.





AUTO VARI® 64

TABLE 1

REVERSE COLOR MANUAL PRESETS

UPPER MANUAL

C - Cancel
C# - Glockenspiel/Sub Fund. 2nd and 5th Harmonics.
D - Tibias 8' & 2'/(008408004).
D# - Theatre Tuba/(008000000), Tibia 16'
E - Novel Solo 8'/(088800880).
F - Tibia Solo/(830000048).
F# - Kinura 8' Tibia 4' (000800000).
G - Full Tibias 16'/(608807006).
G# - Theater Ensemble/(808808008), 16', 8', 4' Strings, ½ Vol.
A - Hammond Sound/(768878667).
A# - (1st group Tone Bars) Adjust.
B - (2nd group) Tone Bars and Percussion.

LOWER MANUAL

C - Cancel
C# - Music Box/(000800004), Full Sustain.
D - Harp/(008000000), Full Sustain.
D# - Flute - String Chorus 4'/(000806003), 4' String.
E - Open diapason 8'/(005642200).
F - Accompaniment 8'/(007222222).
F# - Flute-String Chorus 8'/(008603000), 8' String.
G - Full Accompaniment 8'/(007656311).
G# - Tibia 8'/(008030000).
A - Bombarde 16'/(847767666).
A# - (1st group Tone Bars) Adjust.
B - (2nd group Tone Bars) Adjust.

TABLE 2

340 COMBINATION PISTONS

<u>PRESET</u>	<u>UPPER MANUAL</u>	<u>LOWER MANUAL</u>	<u>PEDALS</u>
#1	Vibraharp Maximum Sustain Leslie, Slow	005200000 Leslie	43
#2	8' String (Approx. $\frac{1}{2}$ Vol.) 000800000 (Approx. $\frac{1}{3}$ Sus.) Leslie, Fast	004400020 Leslie	64
#3	888000000 3rd Harmonic Leslie, Slow	006442000 Leslie	08
#4	808808008 Leslie, Fast	008855000 Leslie	66
#5	858858558 16', 8', 4' Strings (Full Vol.) Leslie, Fast	8', 4' Strings (Full Vol.) 008806004 Leslie	86
#6	808808000 Leslie Fast Post Horn Diapason Vibrato Optional	008705000 Leslie Horn Violina	78
#7	16', 8', 4' Strings (Full Volume)	8', 4' Strings ($\frac{3}{4}$ Volume)	66
#8	808808880 Leslie, Slow	008603003 Leslie	83
#9	Cancels everything except Melody Maker. If no Melody voice is selected, selects Sax, but can be changed to others while any other presets are on.	006400000 Leslie Slow 4' String ($\frac{1}{4}$ Volume)	56

- NOTES:
- a) Cancel returns organ to normal tab and tonebar operation.
 - b) All String Ensemble settings will be with Sustain Off.
 - c) Percussion Voices, Tab Voices, Melody Maker, Animation, Drawbars, Piano Solo and Chime Solo will not operate in any of the piston positions except as noted above.
 - d) Pistons will not affect Pedal Mute, Pedal Sustain, Lower to Pedal coupler, Reverb, Rhythm, Memory, Volume Soft, Brilliance and Easy Play features.
 - e) KEYCLICK is optional on preset 3 only.

TABLE 3
RHYTHM BREAK ASSIGNMENTS

<u>BREAK</u>	<u>PATTERN USE</u>
1	Disco, Cha-Cha
2	March 4/4 Polka, Dixieland
3	Western/Shuffle, Jazz
4	Samba, Bossa Nova, Rhumba/Beguine, Tango
5	Ballad
6	Hard Rock
None	Waltz, March 6/8, Blues Rock, Liverpool

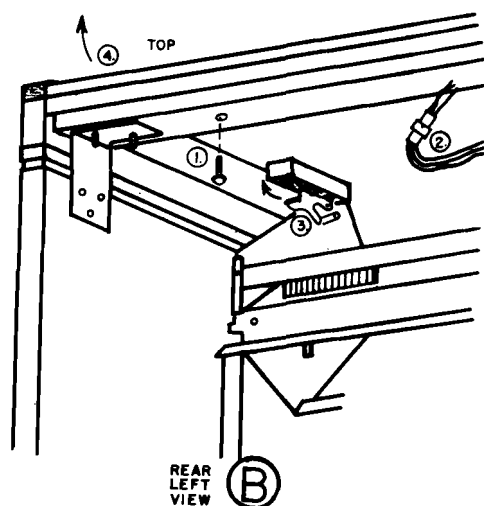
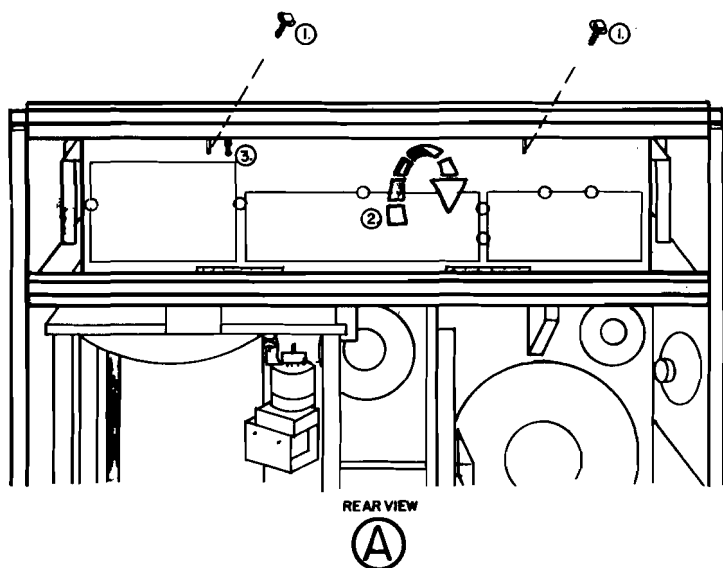
DISASSEMBLY PROCEDURE

TO REMOVE REAR COVER:

- 1) Remove ten 5/16" hex head screws from the rear cover. Pull the cover away from the console.

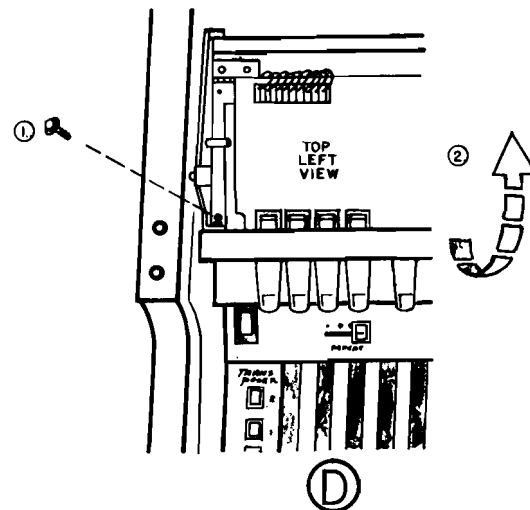
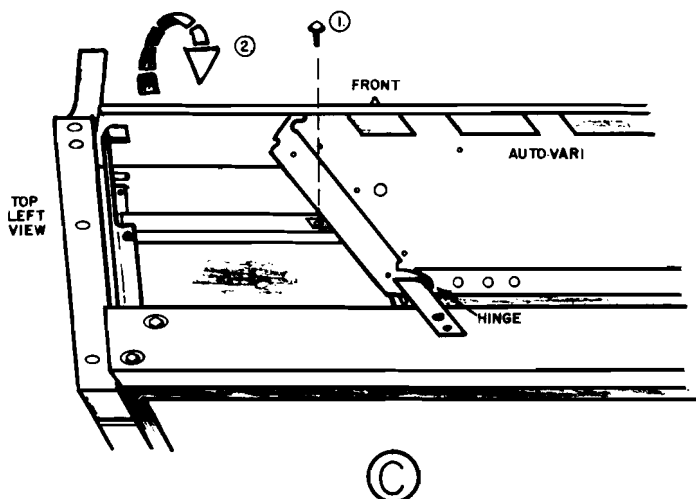
TO REMOVE TOP COVER:

- 1) Remove two 1/4" screws that secure the swing down panel, as shown in Figure A, Number 1.
- 2) Fold down the swing down panel as shown in Figure A, Number 2.
- 3) Loosen the nylon cords that extend the swing down panel as shown in Figure A, Number 3.
- 4) Remove two 1/4" hex head screws from the right and left sides of the top rail as shown in Figure B, Number 1.
- 5) Unplug the three prong plug from the Music Light assembly on the left side of the Auto-Vari unit, as viewed from the rear of the console, as shown in Figure B, Number 2.
- 6) Reach in from the rear of the console and release the latch on the right and left sides on the front side of the console, pulling the latch towards the rear of the console, as shown in Figure B, Number 3.
- 7) Gently lift the top cover up and away from the console, as shown in Figure B, Number 4.



TO SWING BACK AUTO-VARI UNIT:

- 1) Remove two 1/4" hex head screws from the metal rail on the right and left sides of the Auto-Vari chassis as shown in Figure C, Number 1.
- 2) Gently lift the Auto-Vari unit and swing the chassis backward towards the rear of the console to a horizontal position, as shown in Figure C, Number 2.



TO LIFT UP CONTROL PANEL ASSEMBLY:

- 1) Follow steps to swing back the Auto-Vari unit.
- 2) Remove two 1/4" hex head screws from the mounting brackets at the extreme left and right sides of the console as shown in Figure D, Number 1.
- 3) Gently lift the Control Panel assembly and pivot backwards, as shown in Figure D, Number 2.

CAUTION: THE CONTROL PANEL ASSEMBLY MUST BE FIRMLY SECURED WHEN PLACED IN THE UPRIGHT POSITION, OTHERWISE IT MAY FALL, CAUSING DAMAGE TO ORGAN PARTS OR PERSONAL INJURY.

TO LIFT UP UPPER MANUAL:

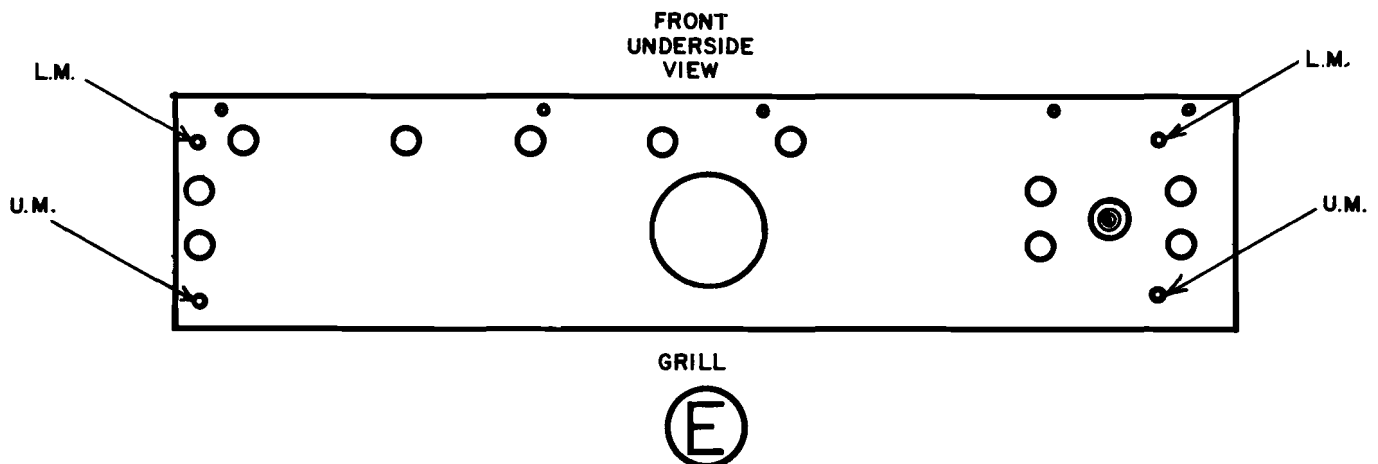
- 1) Follow steps to swing back the Auto-Vari unit, and lift up the Control Panel assembly.
- 2) Remove two 3/8" bolts from the underside of the organ shelf as shown in Figure E.
- 3) Grasp the Upper Manual at each end from the front of the console and tilt backward.

CAUTION: THE UPPER MANUAL MUST BE FIRMLY SECURED WHEN PLACED IN THE UPRIGHT POSITION, OTHERWISE IT MAY FALL, CAUSING DAMAGE TO ORGAN PARTS OR PERSONAL INJURY.

TO LIFT UP LOWER MANUAL:

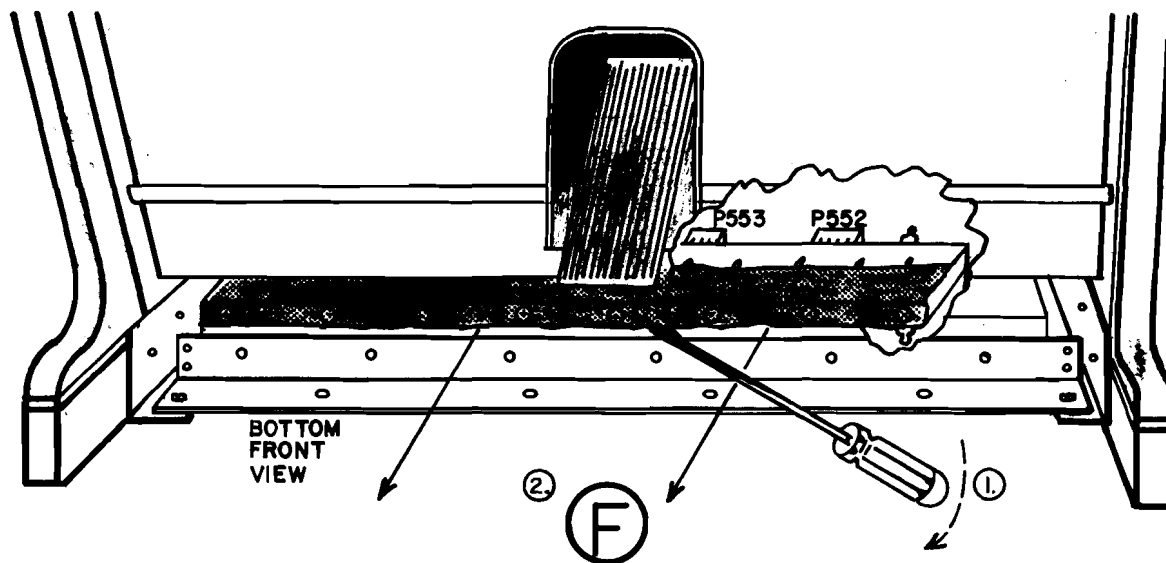
- 1) Follow steps to swing back the Auto-Vari unit, and lift up the Control Panel assembly, and the Upper Manual.
- 2) Remove two 7/16" bolts from the underside of the organ shelf as shown in Figure E.
- 3) Grasp the Lower Manual at each end from the front of the console and tilt backward.

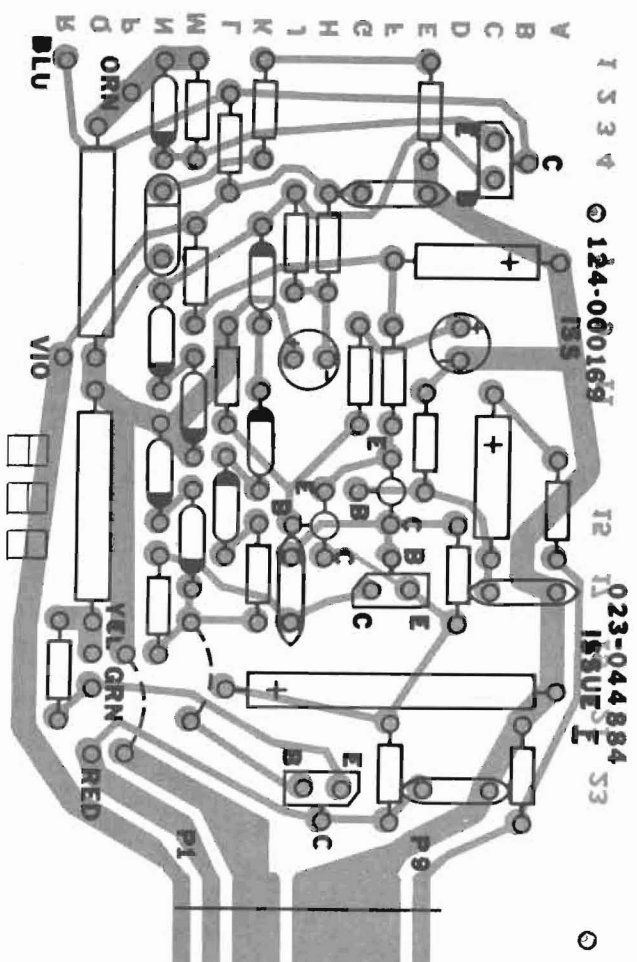
CAUTION: THE LOWER MANUAL MUST BE FIRMLY SECURED WHEN PLACED IN THE UPRIGHT POSITION, OTHERWISE IT MAY FALL, CAUSING DAMAGE TO ORGAN PARTS OR PERSONAL INJURY

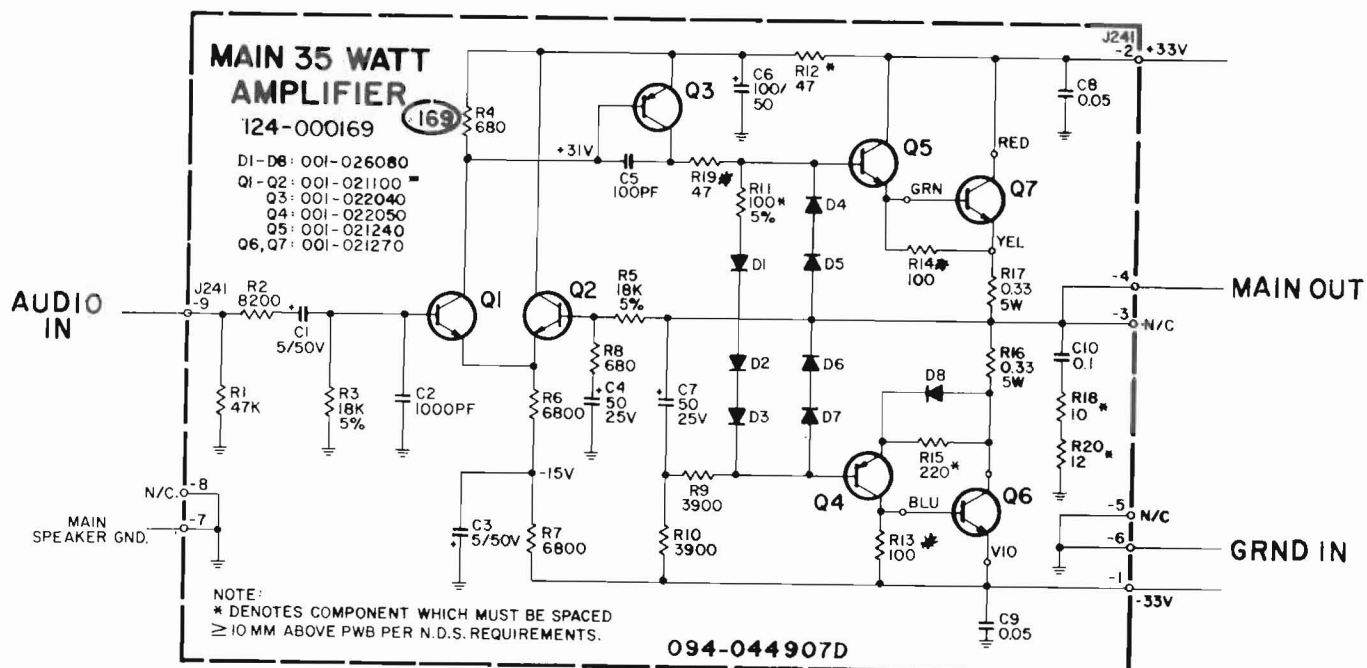


TO REMOVE PEDAL SWITCH:

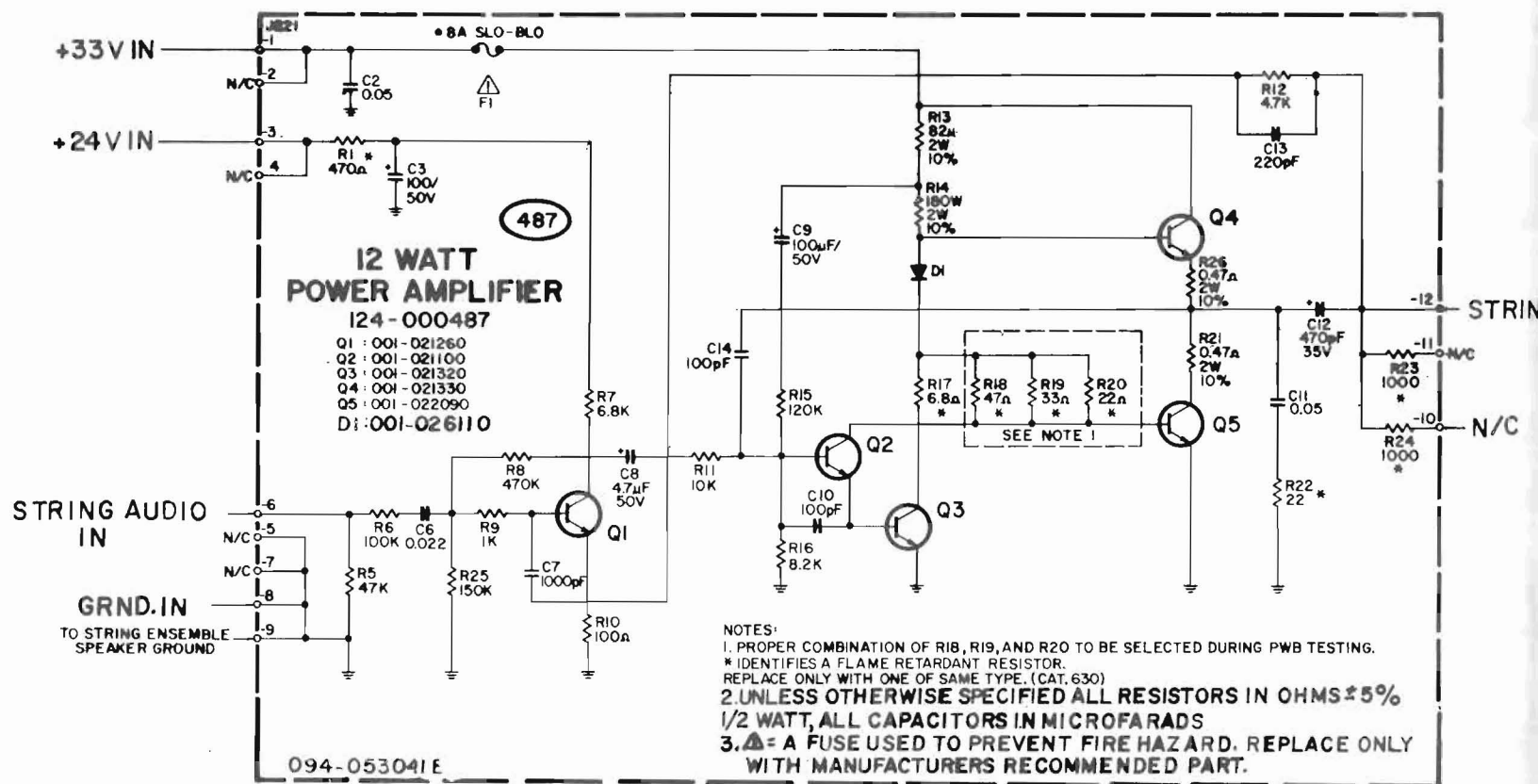
- 1) To service the pedal switch it may be necessary to loosen the pedal switch cables at the rear of the console that are routed through an access hole in the bottom shelf. Also, it may be necessary to disconnect the ground wire on the pedal switch from the ground lug assembly on the bottom shelf at the rear of the console.
- 2) Insert a screwdriver in between the pedal switch chassis and the bottom support rail, as shown in Figure F. Gently pry the pedal switch upward to unlock the studs on the pedal switch from the support rail locks, as shown in Figure F, Number 1.
- 3) When the pedal switch unlocks from the support rail, grasp the pedal switch and gently pull it away from the console to release the pedal switch studs from the rear locks on the support rail, as shown in Figure F, Number 2.
- 4) To service the pedal switch it may be necessary to unplug the pedal cables from the pedal switch and remove it from the console. To reconnect the pedal cables to the pedal switch, as viewed from the front of the console, Plug 552 is connected to the right Plug and Plug 553 is connected to the Plug on the left.



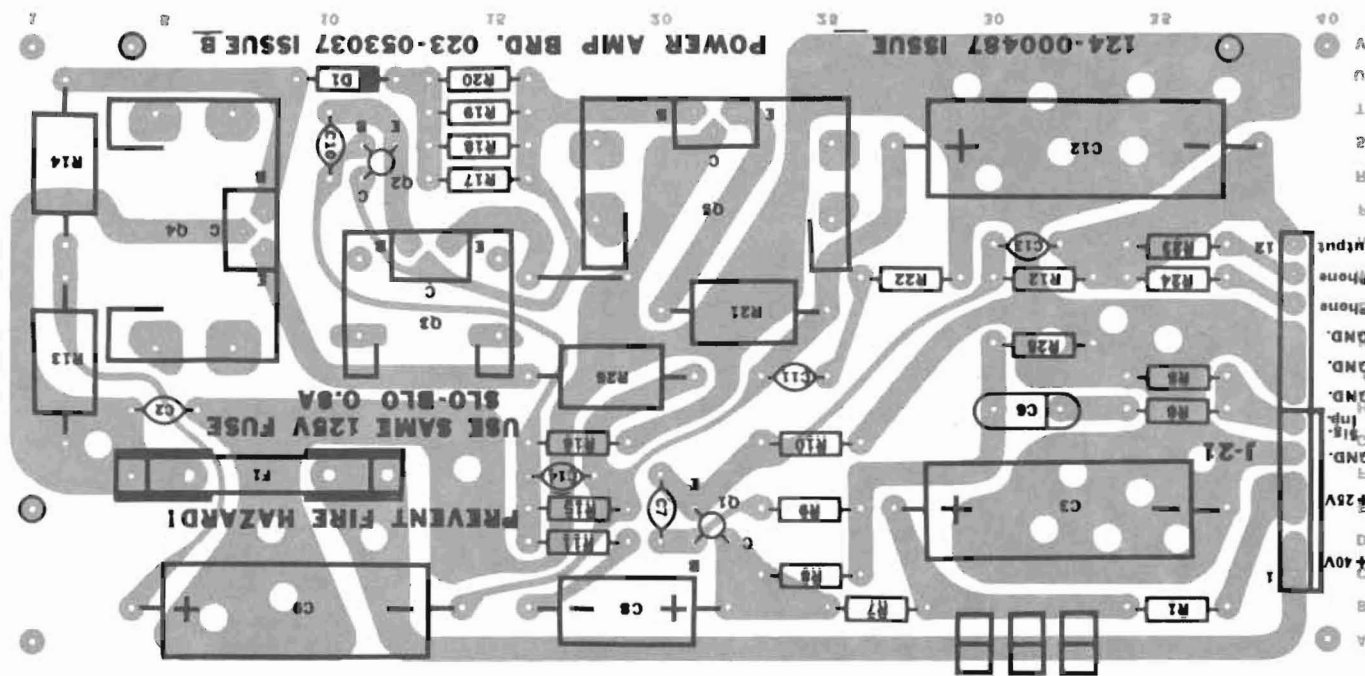


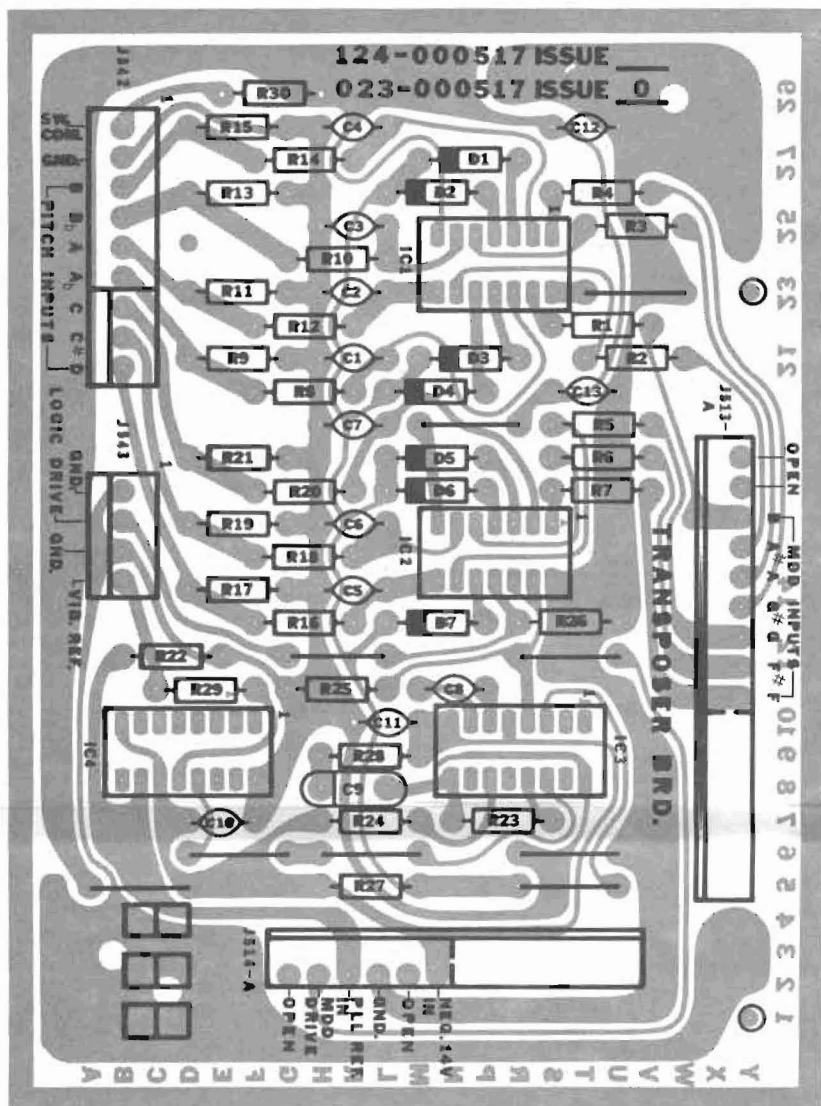


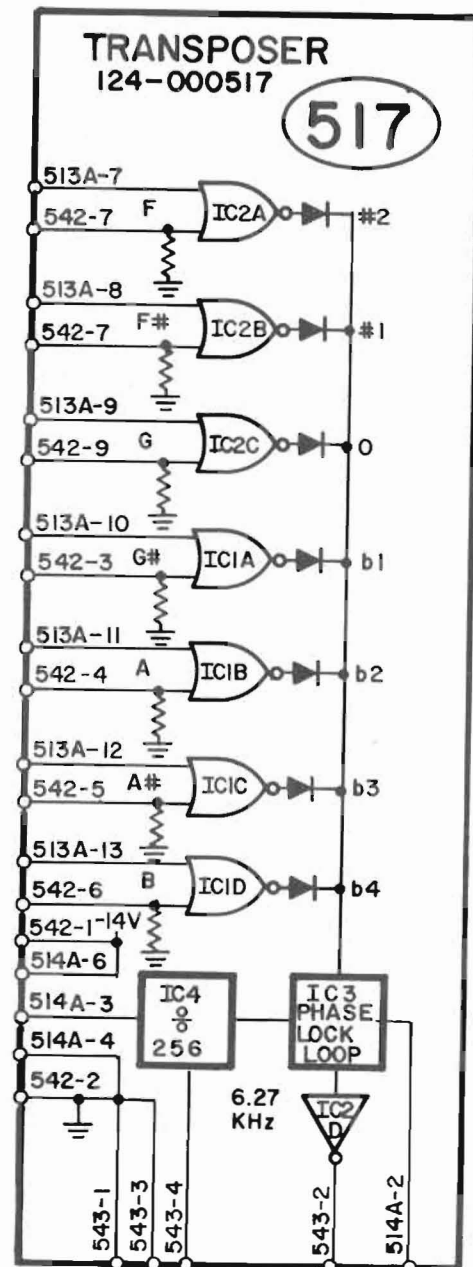
35 WATT POWER AMP PWB
SCHEMATIC
COPPER & LEGEND
124-000169



12 WATT POWER AMP PWB
SCHEMATIC
COPPER & LEGEND
124-000487

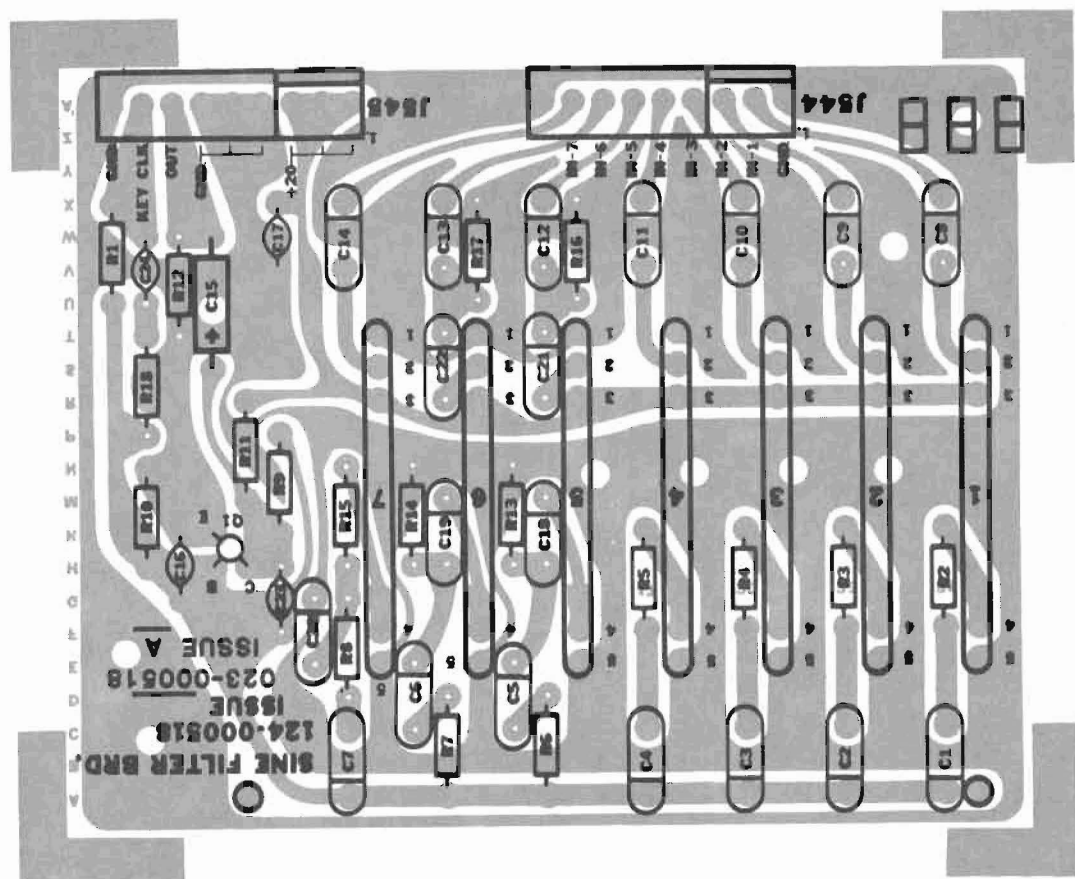


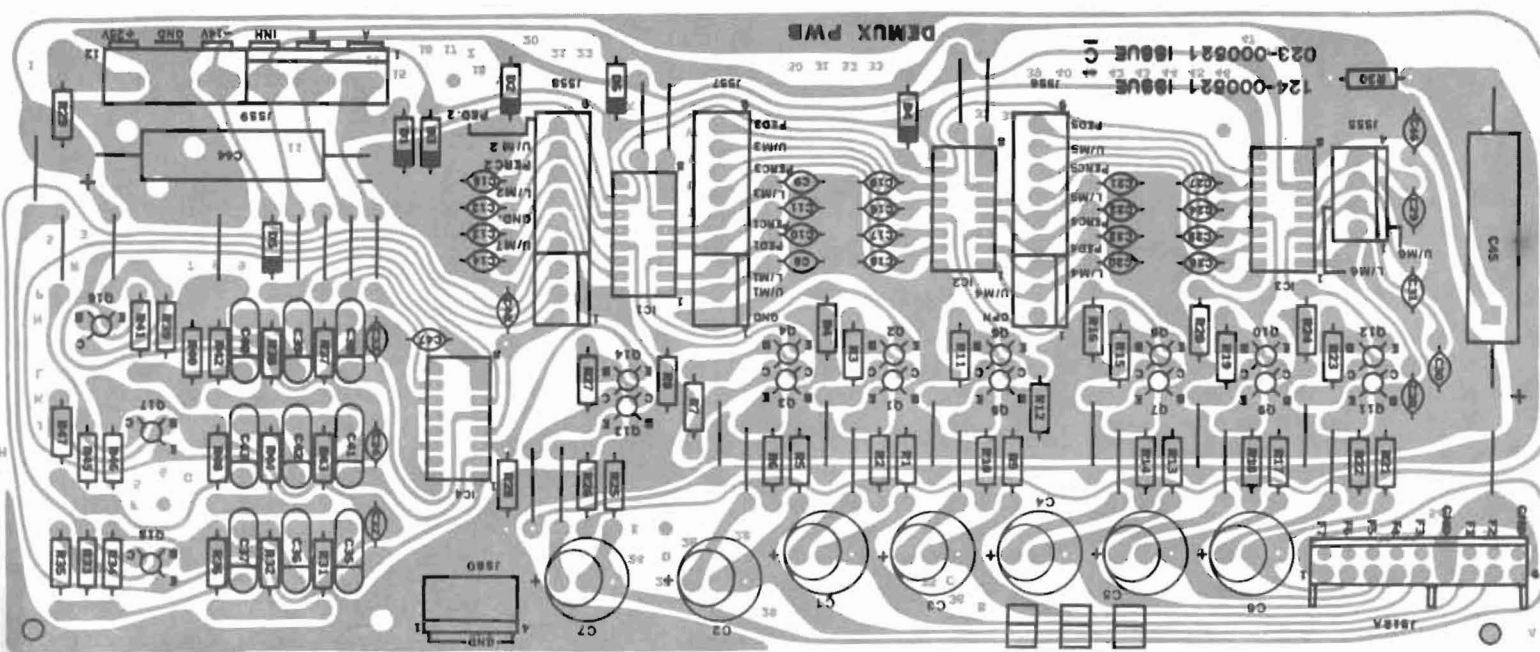


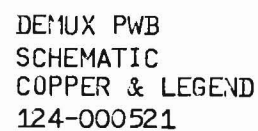


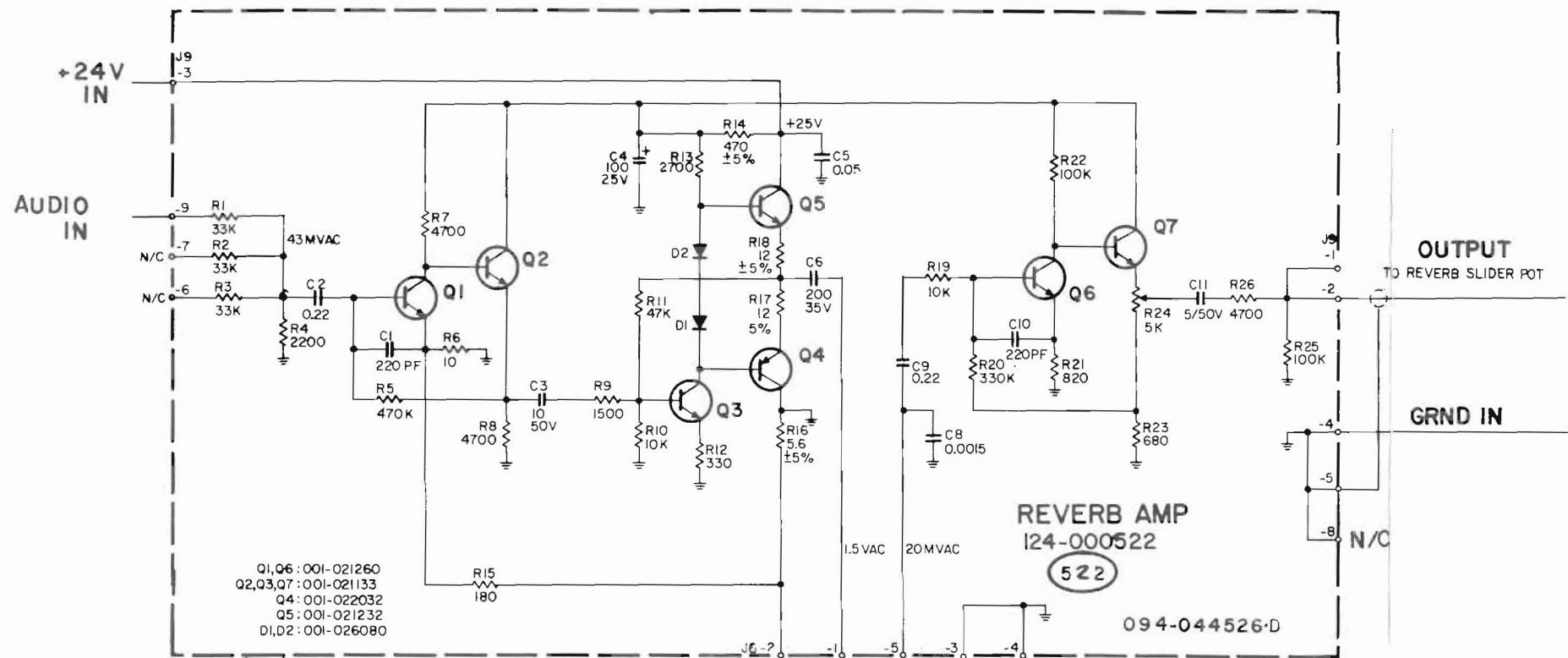
TRANSPOSER PWB
SCHEMATIC
COPPER & LEGEND
124-000517



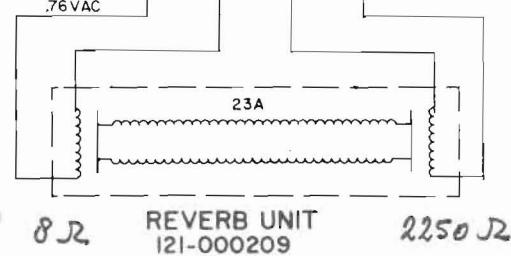




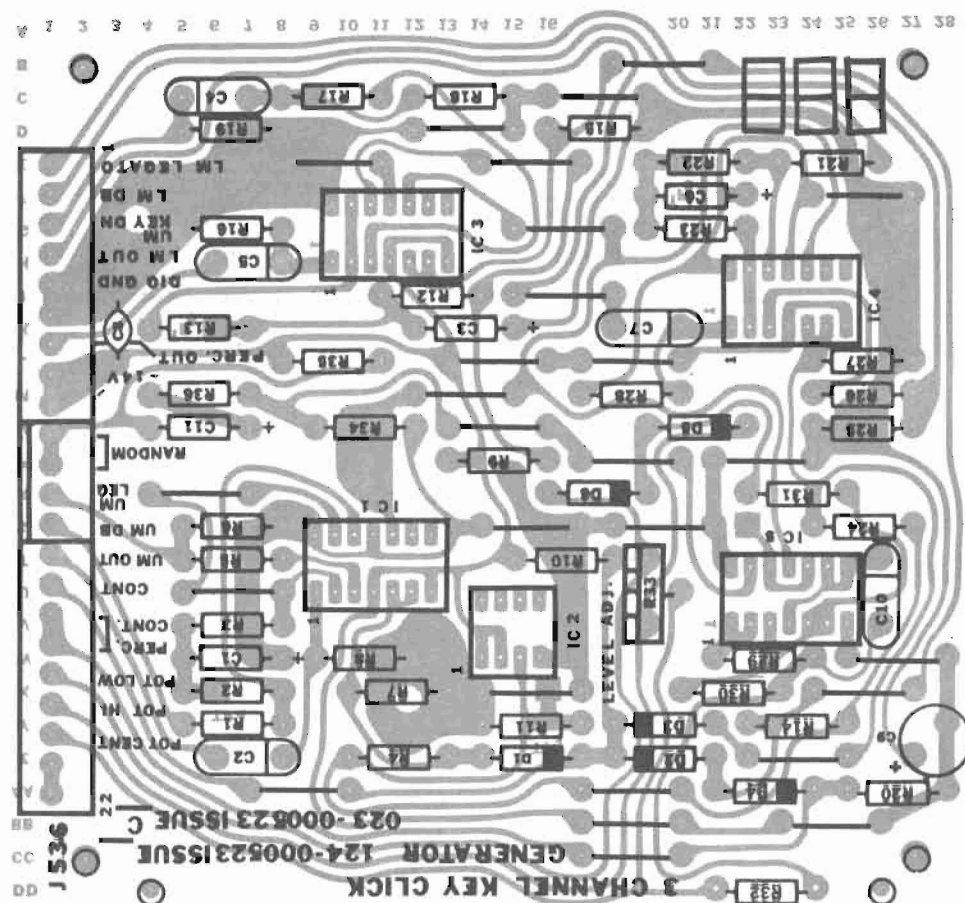


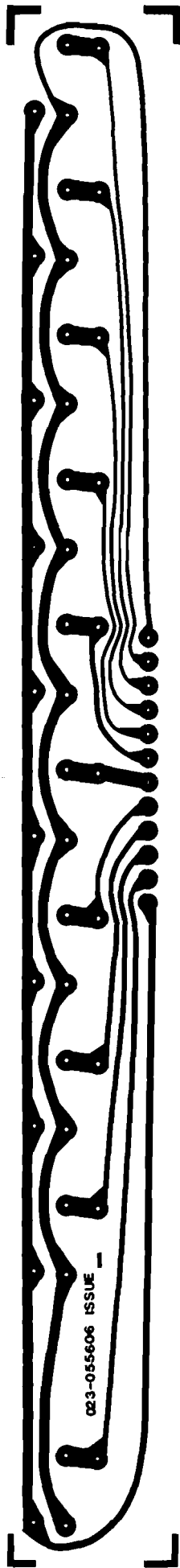


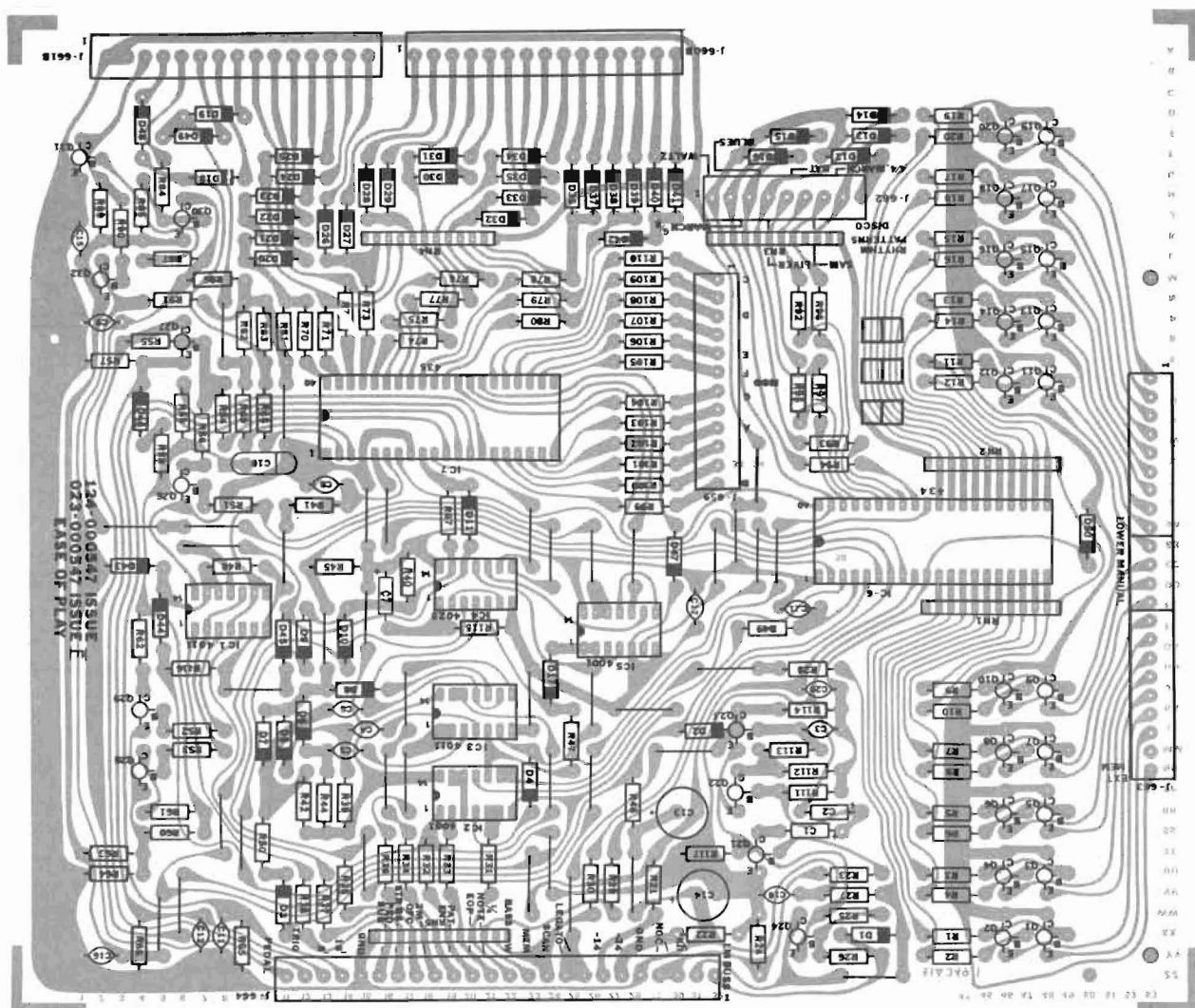
026080 = 1N4148
 021232 = 2N3403 = BC141-16
 022032 = 2N5355 = BC161-16
 021133 = 021260 = BC550B
 021260 = 2N5026 =

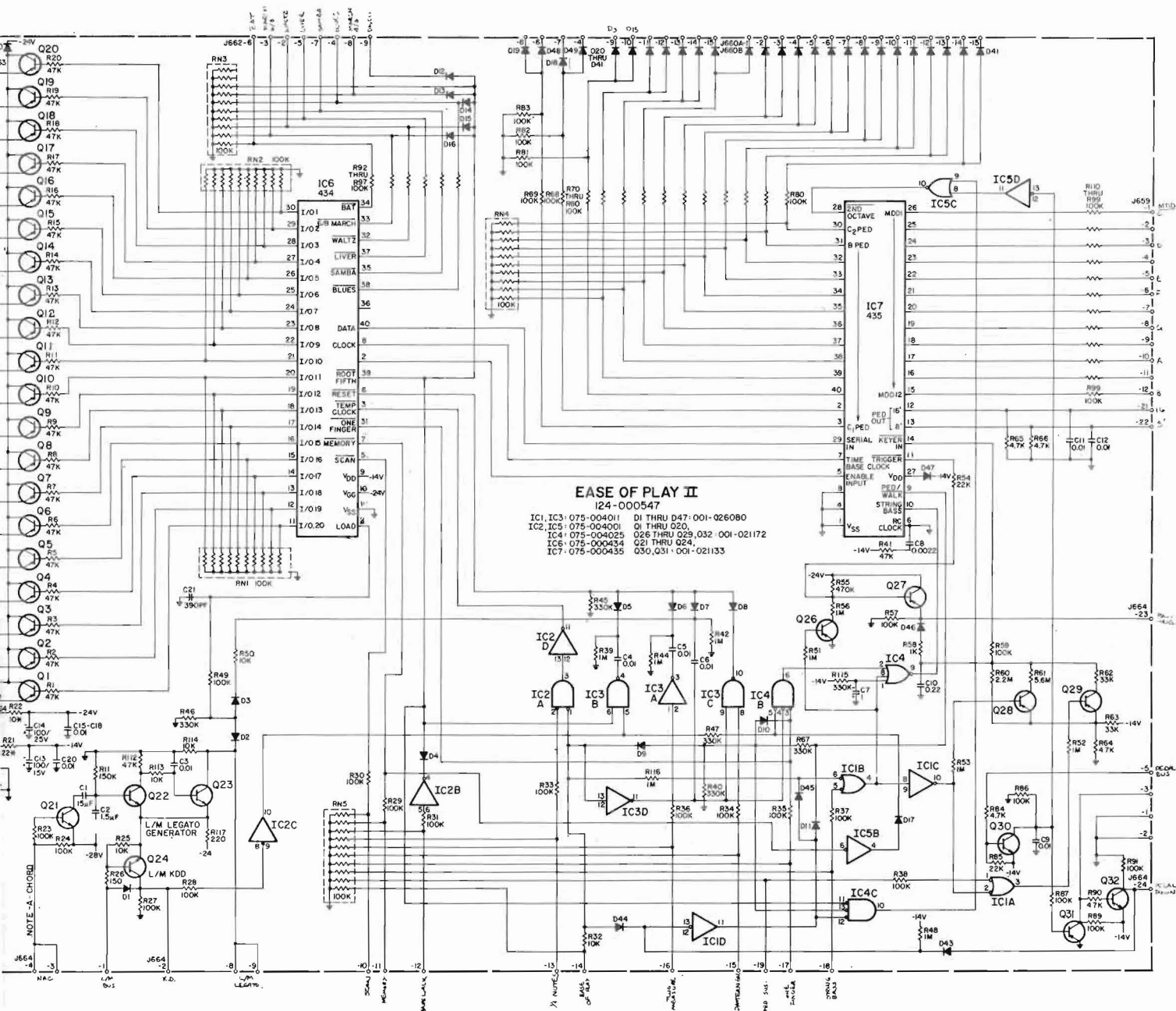








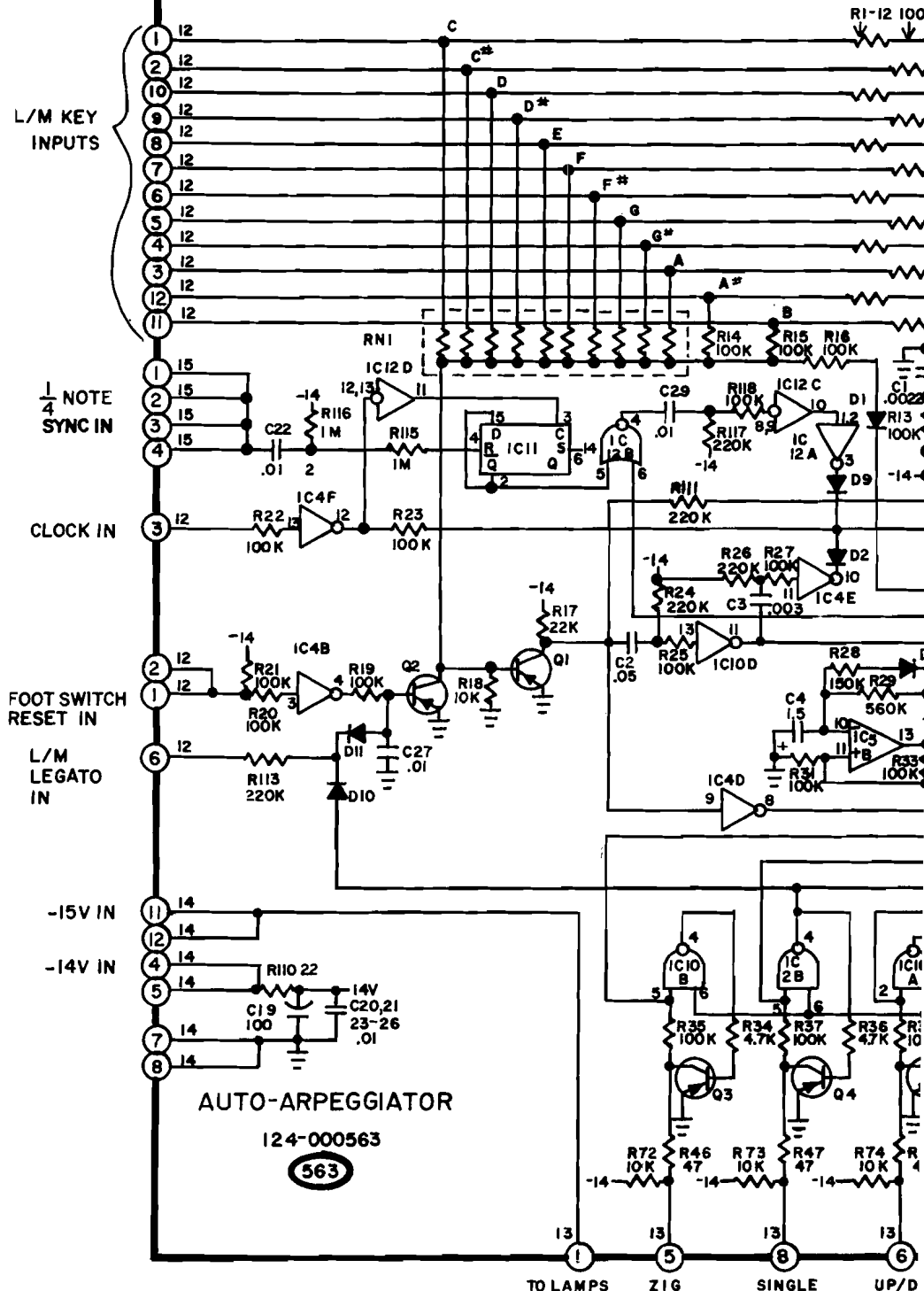




EASE OF PLAY #2 PWB
 SCHEMATIC
 COPPER & LEGEND
 124-000547

IC #	PART - 075
1	4001
12	
7	
2	4011
3	
4	4069
5	339
6	4016
8	435
9	4013
11	
10	4093

Q1→11:001-021173

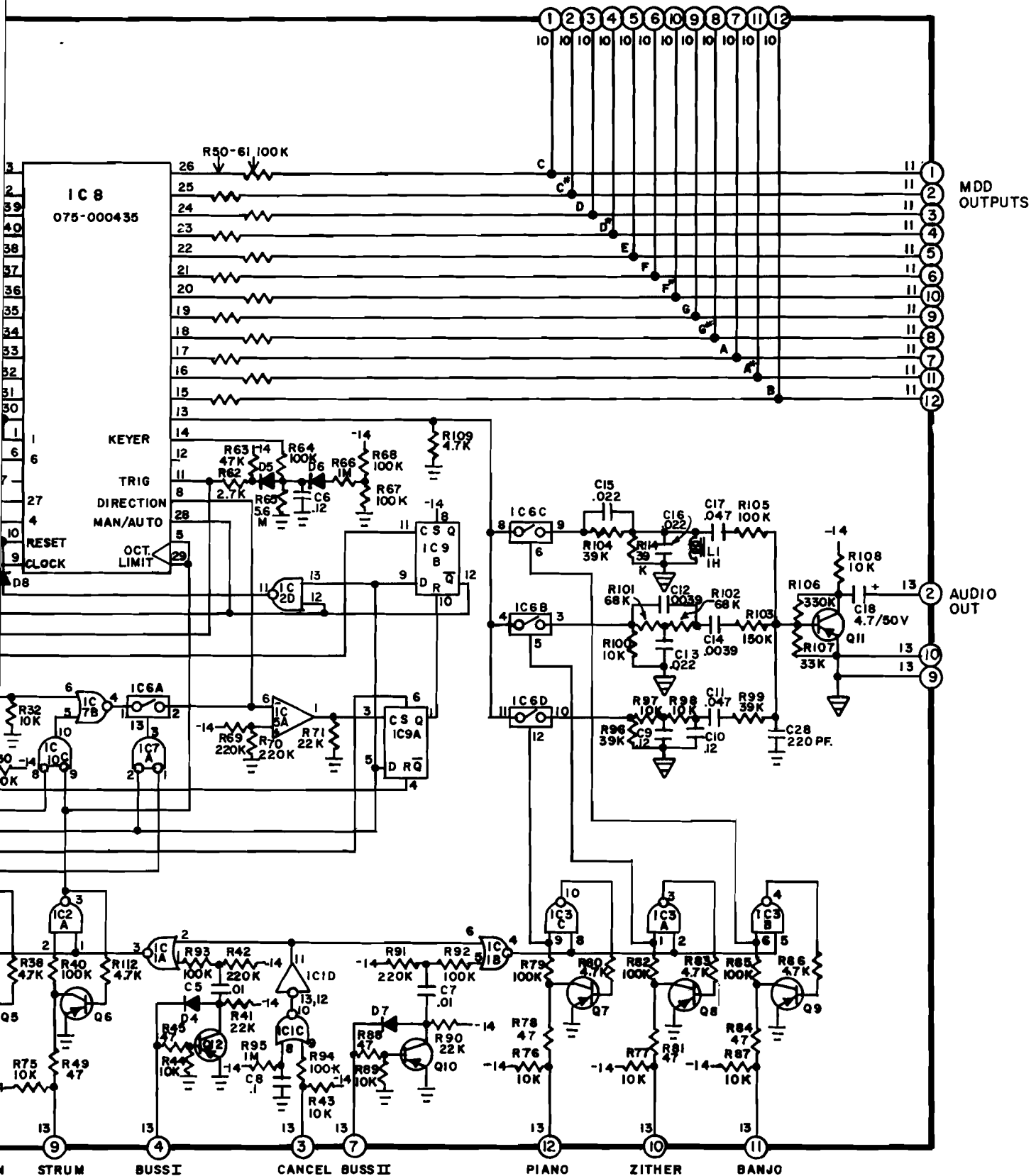


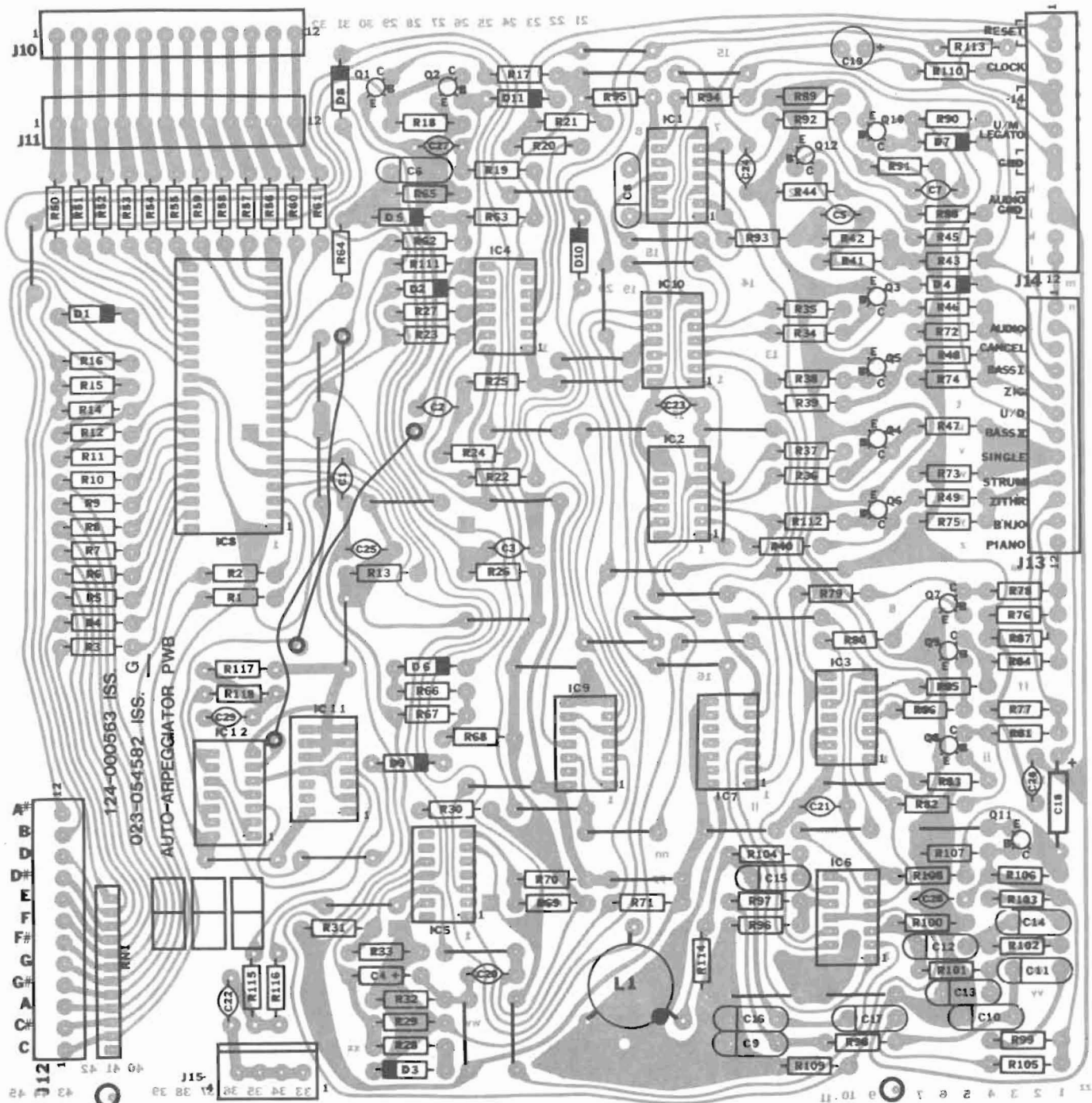
AUTO ARP PWB
SCHEMATIC

124-000563

340107 PRELIMINARY

MDD. INPUTS

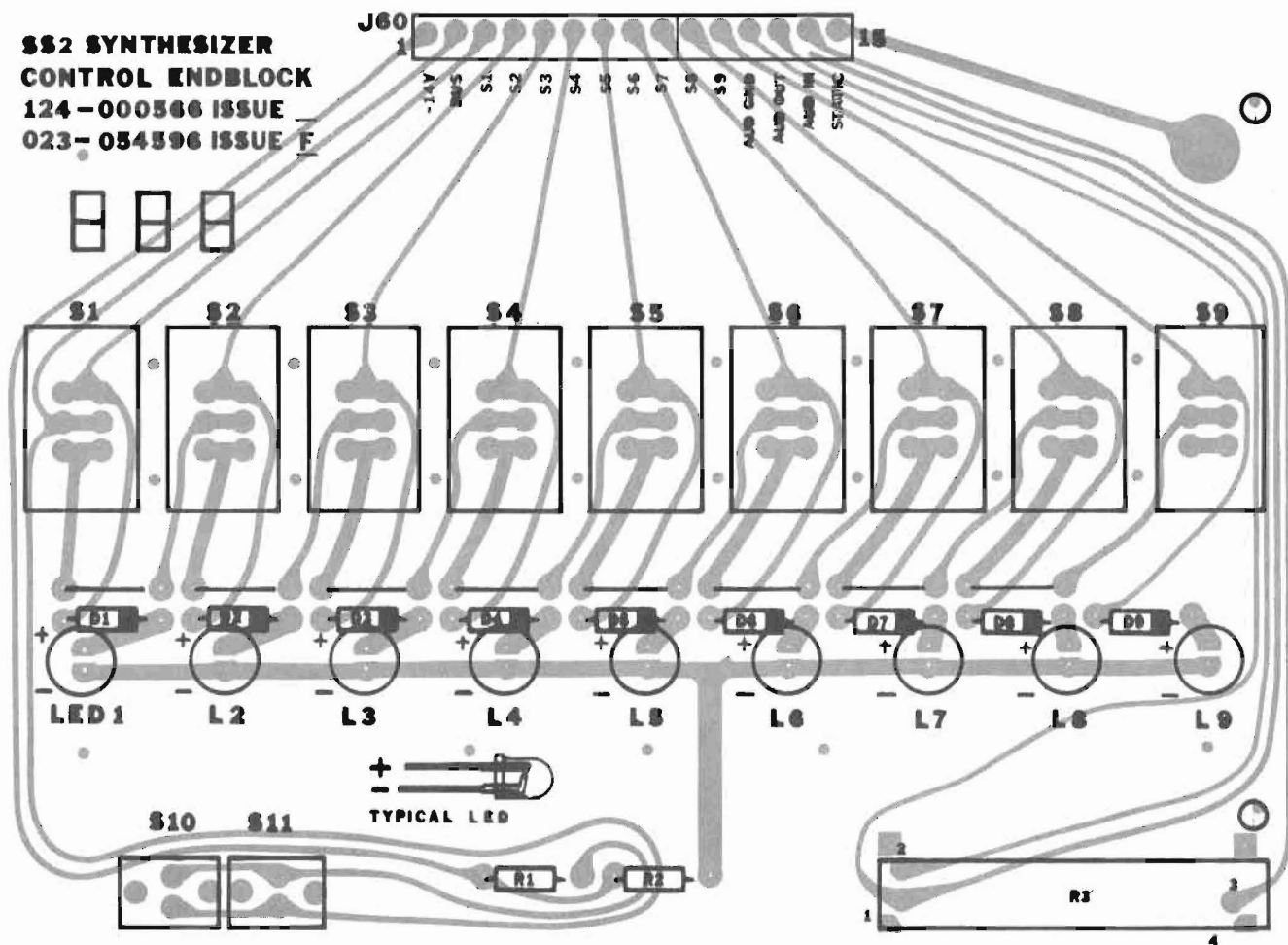




AUTO ARP PWB
CUPPER & LEGEND

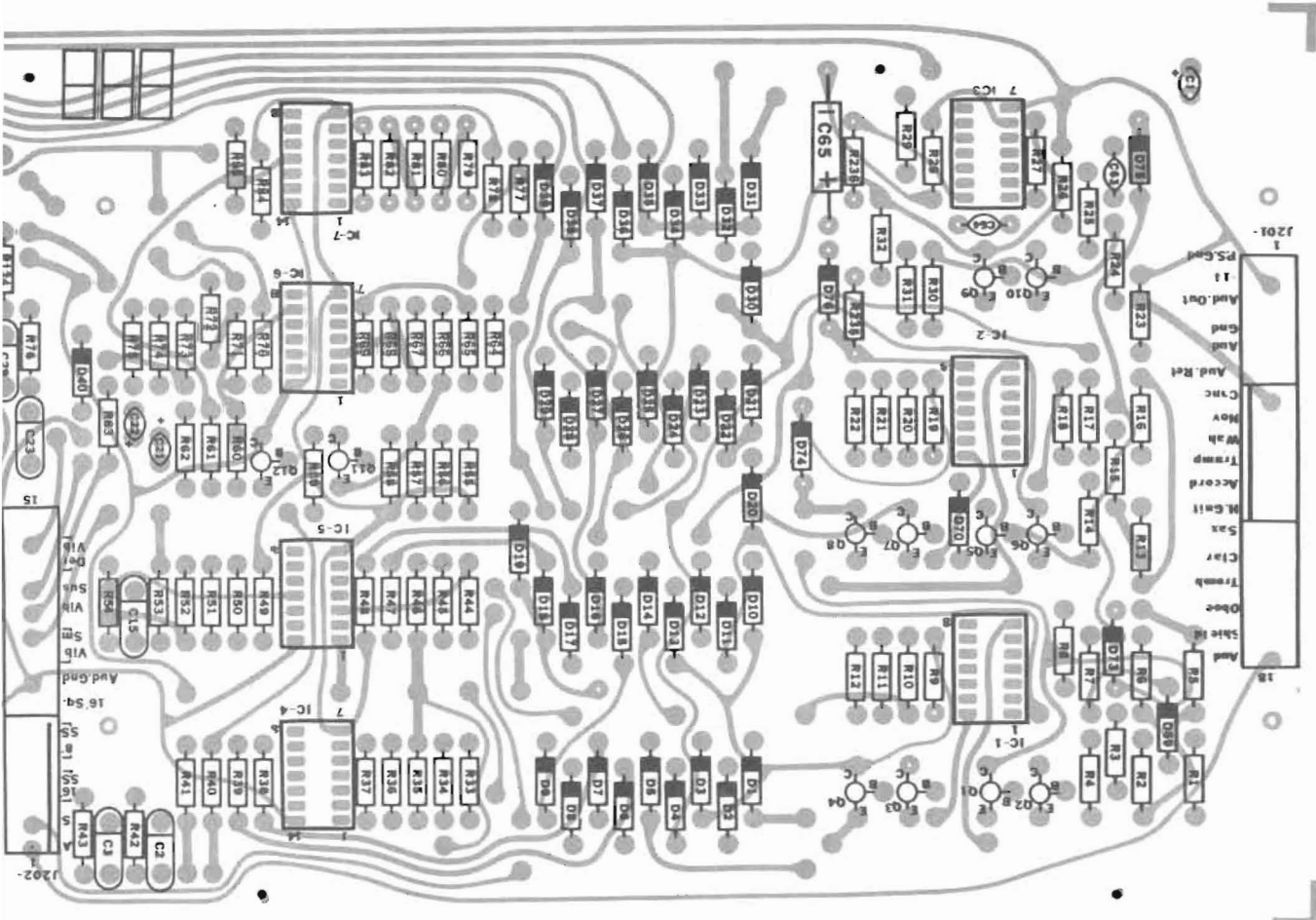
124-000563

SS2 SYNTHESIZER
CONTROL ENDBLOCK
124-000566 ISSUE
023-054596 ISSUE

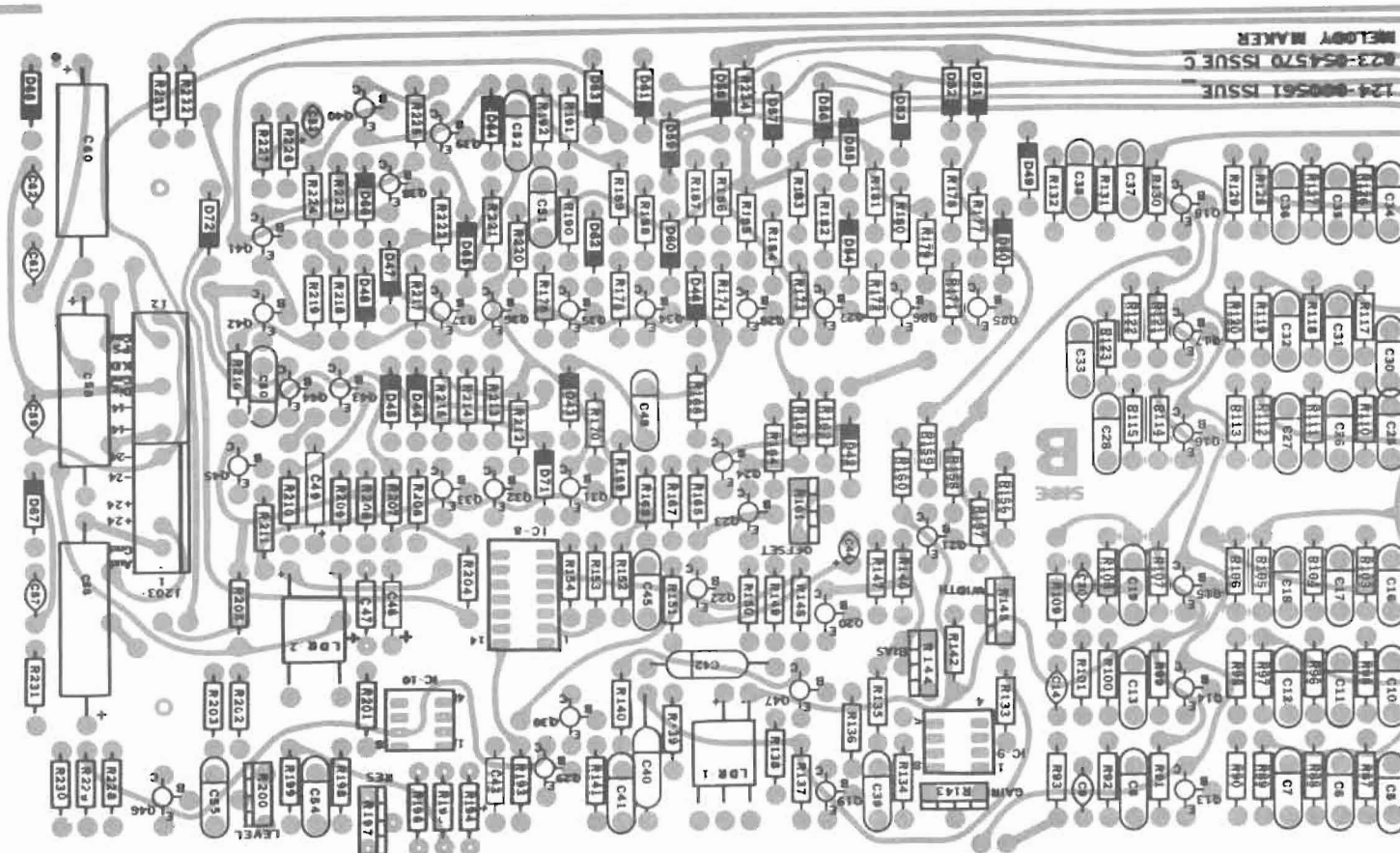


MELDY MAKER SS2 PWB
COPPER & LEGEND

124-000566

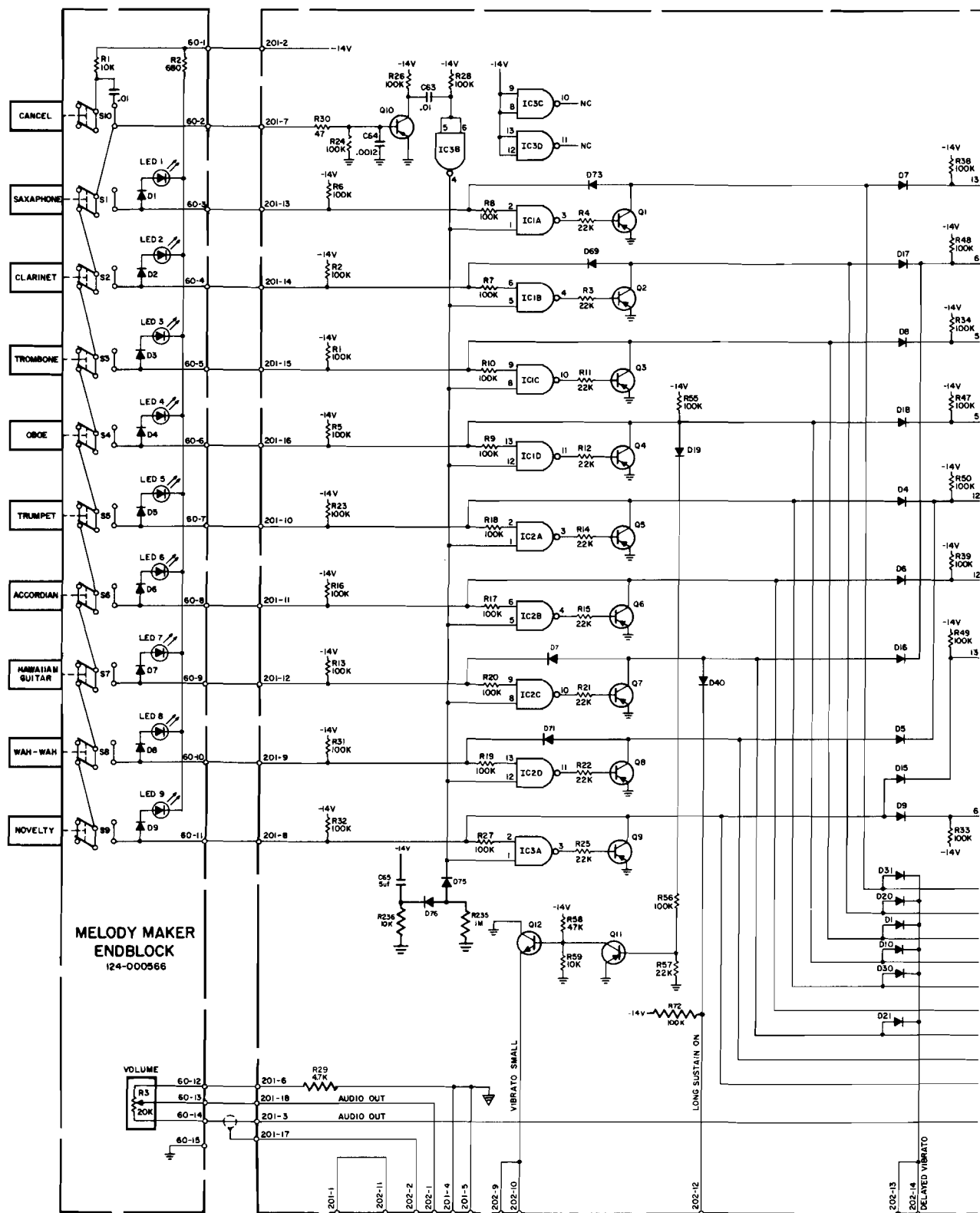


124-000561 ISSUE C
MELODY MAKER

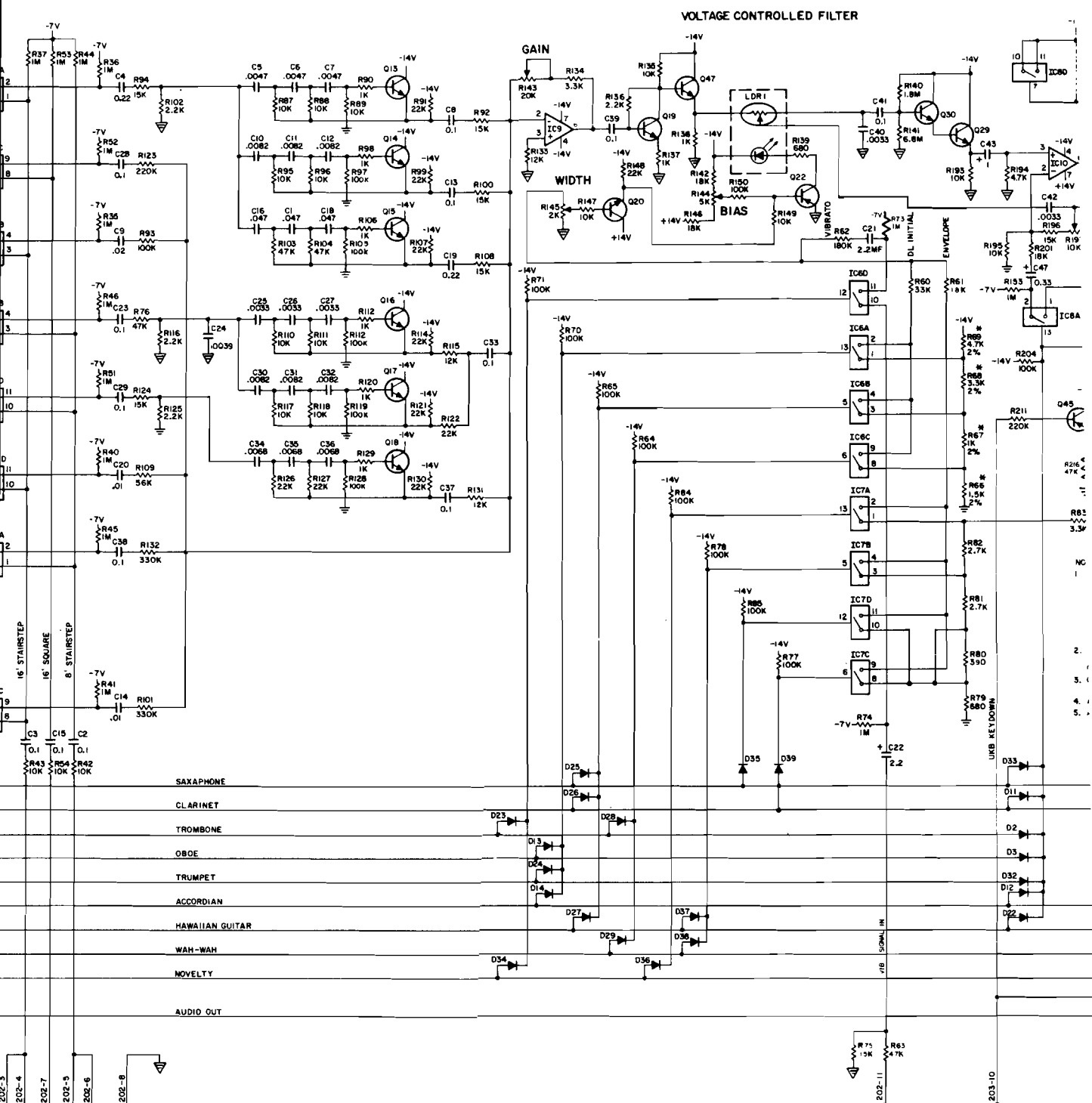


MELODY MAKER PWB
COPPER & LEGEND

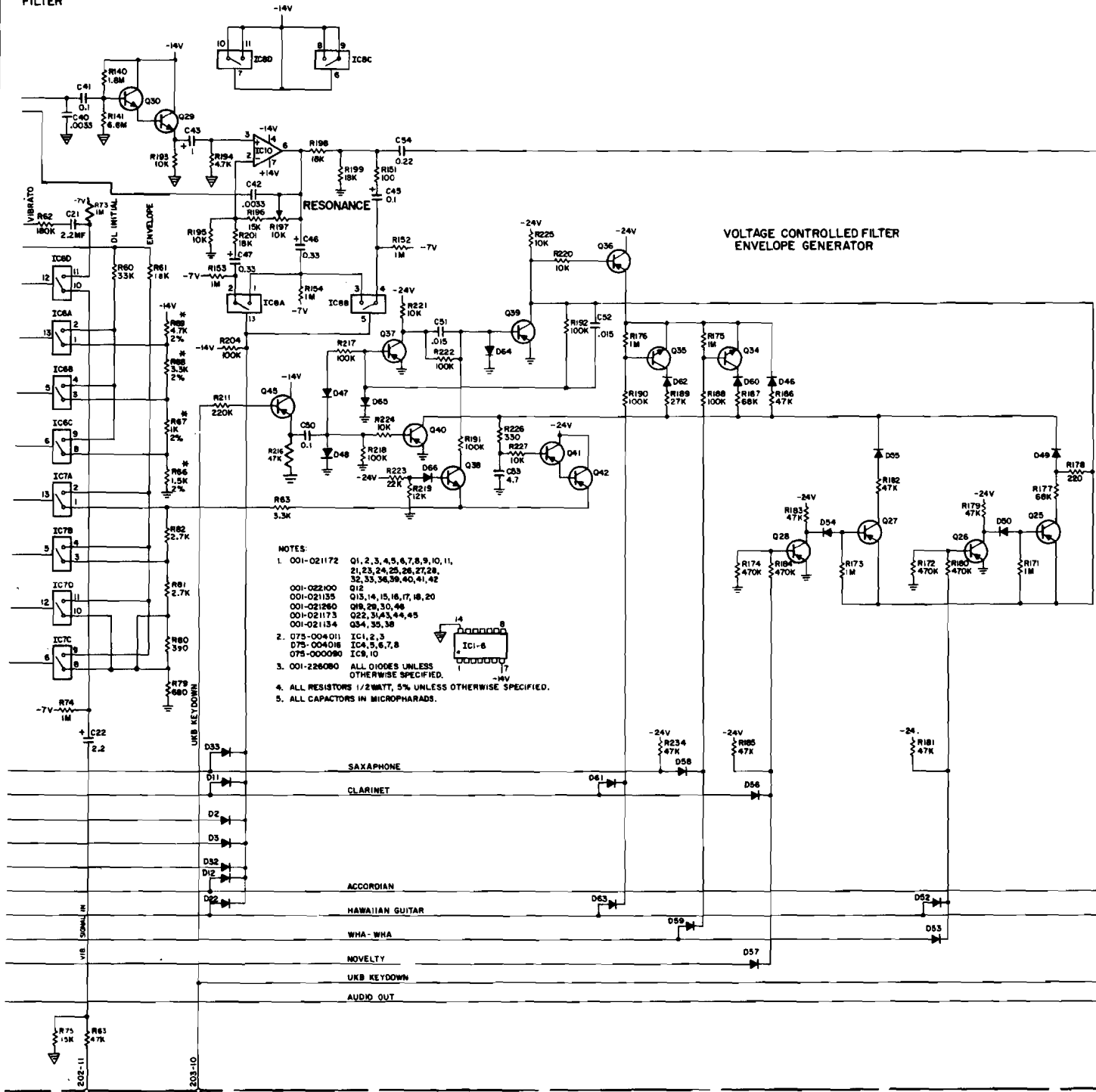
124-000561

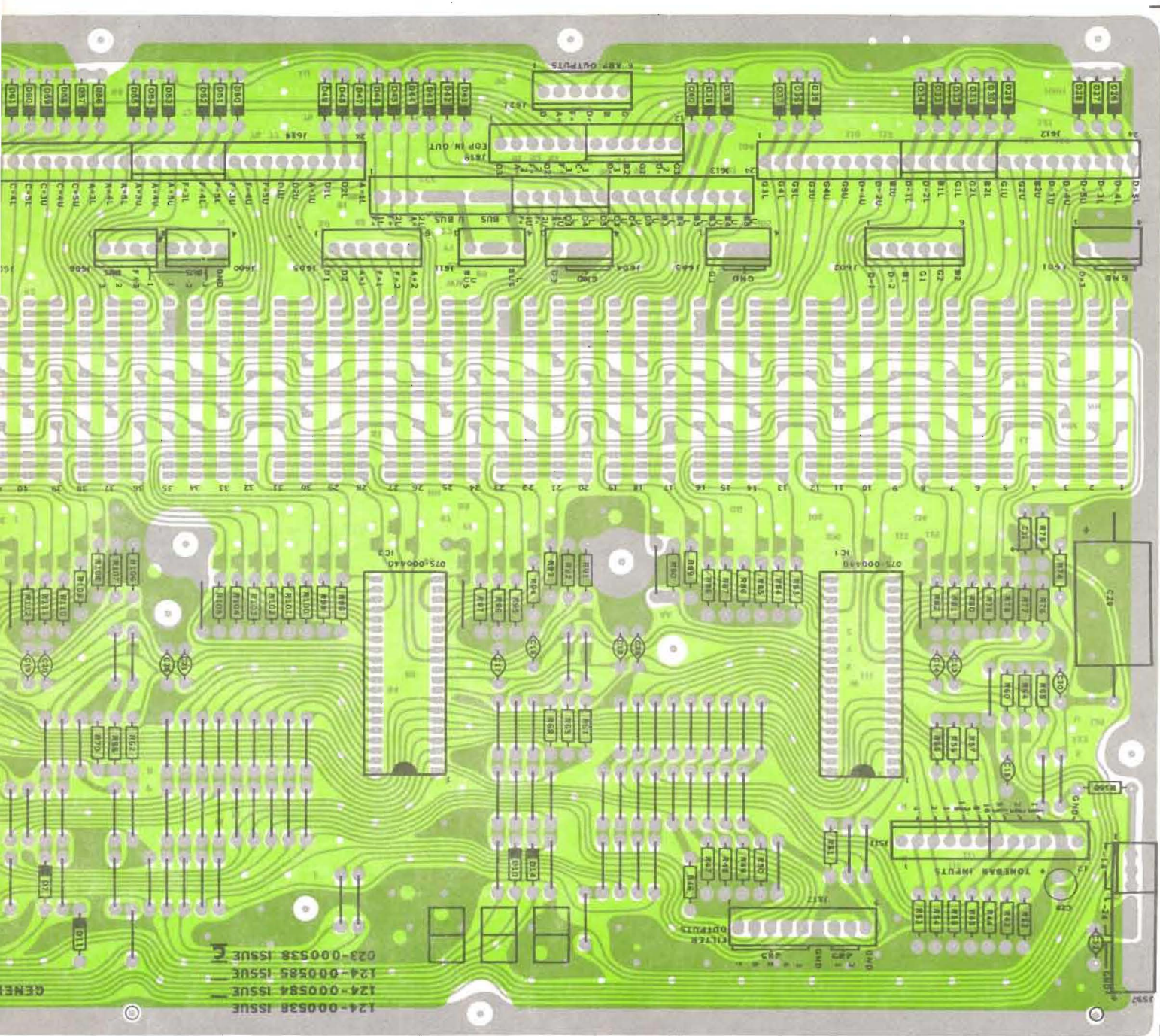


MELODY MAKER PWB
 MELODY MAKER SS2 PWB
 SCHEMATICS
 124-000561 124-000566

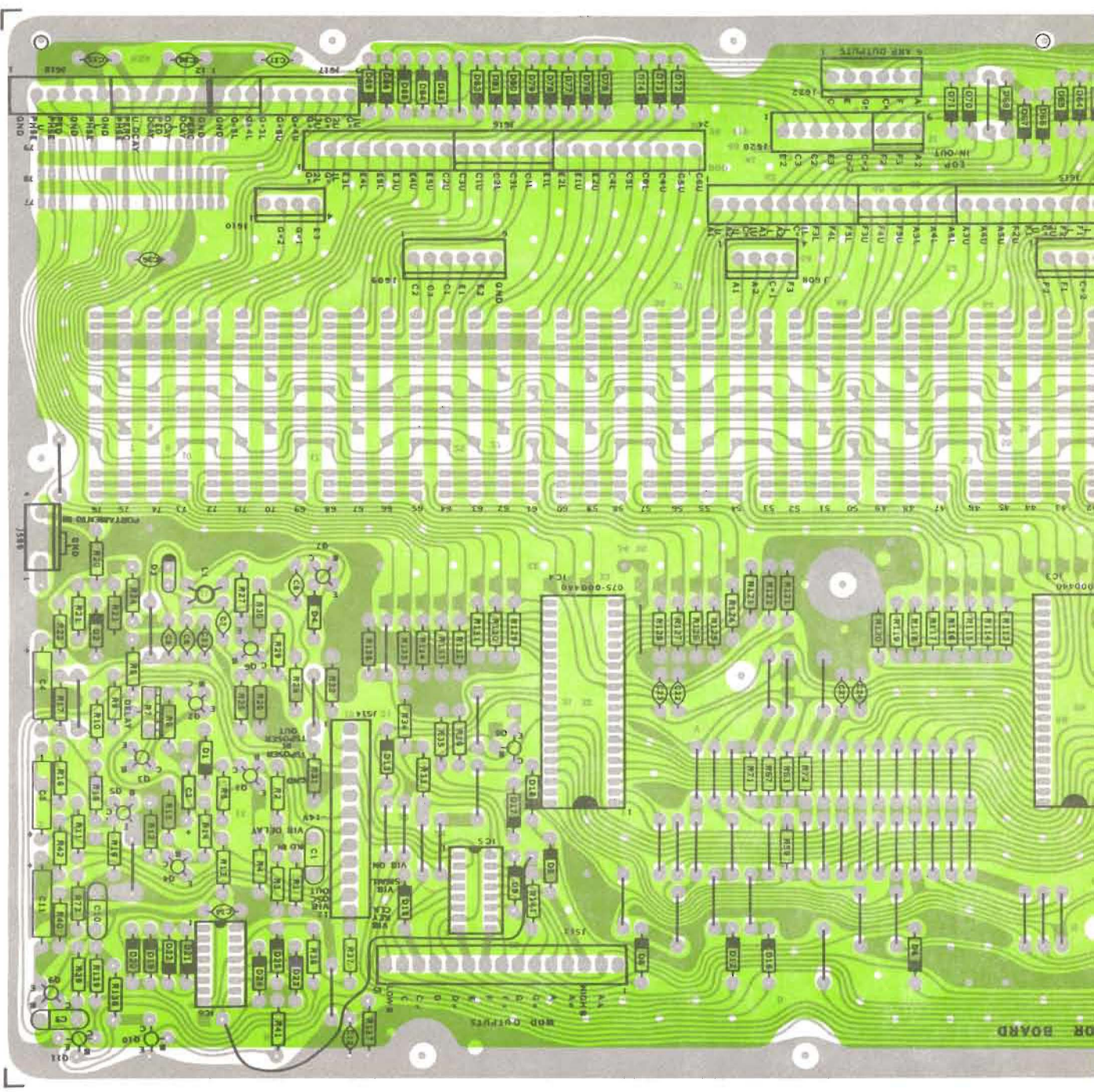


MELODY MAKER
124-000561

FILTER



OR BOARD





DRAWBAR INPUTS _____ FROM MUX



124-000585

1-1 3 DRIVE
1-3 5 DRIVE
1-3 5 PERC.
1-1 3 PERC.
2-2 3 DRIVE
2-2 3 PERC.
-13.5V
2 PERC.
-13.5V

MULTIPLEX BOARD
124-000591 ISSUE 1
023-055084 ISSUE 2

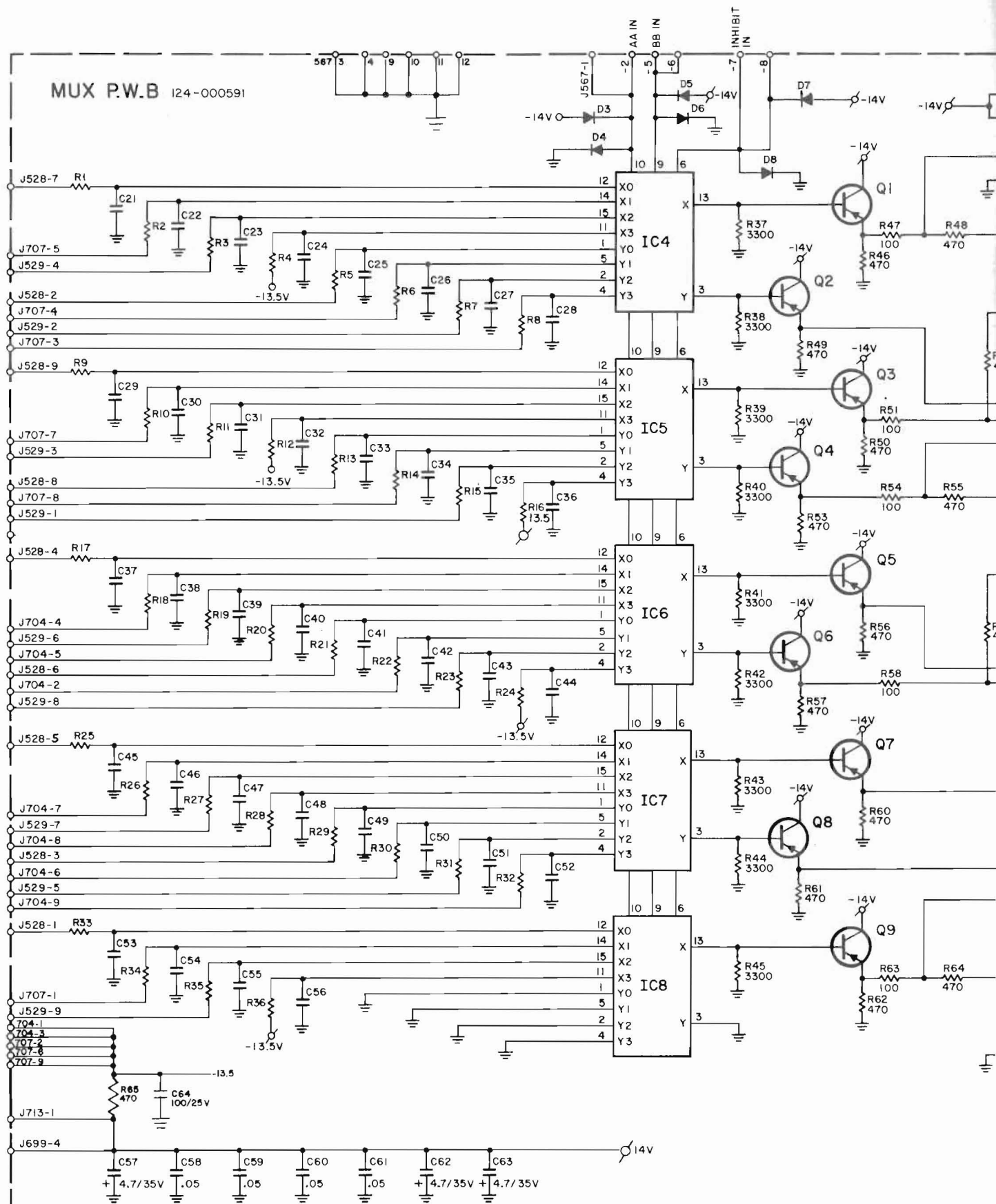
-13.5V
4 PERC.
8 PERC.
-13.5V
16 PERC.
5-1 3 PERC.
5-1 3 DRIVE
-13.5V
1 PERC.

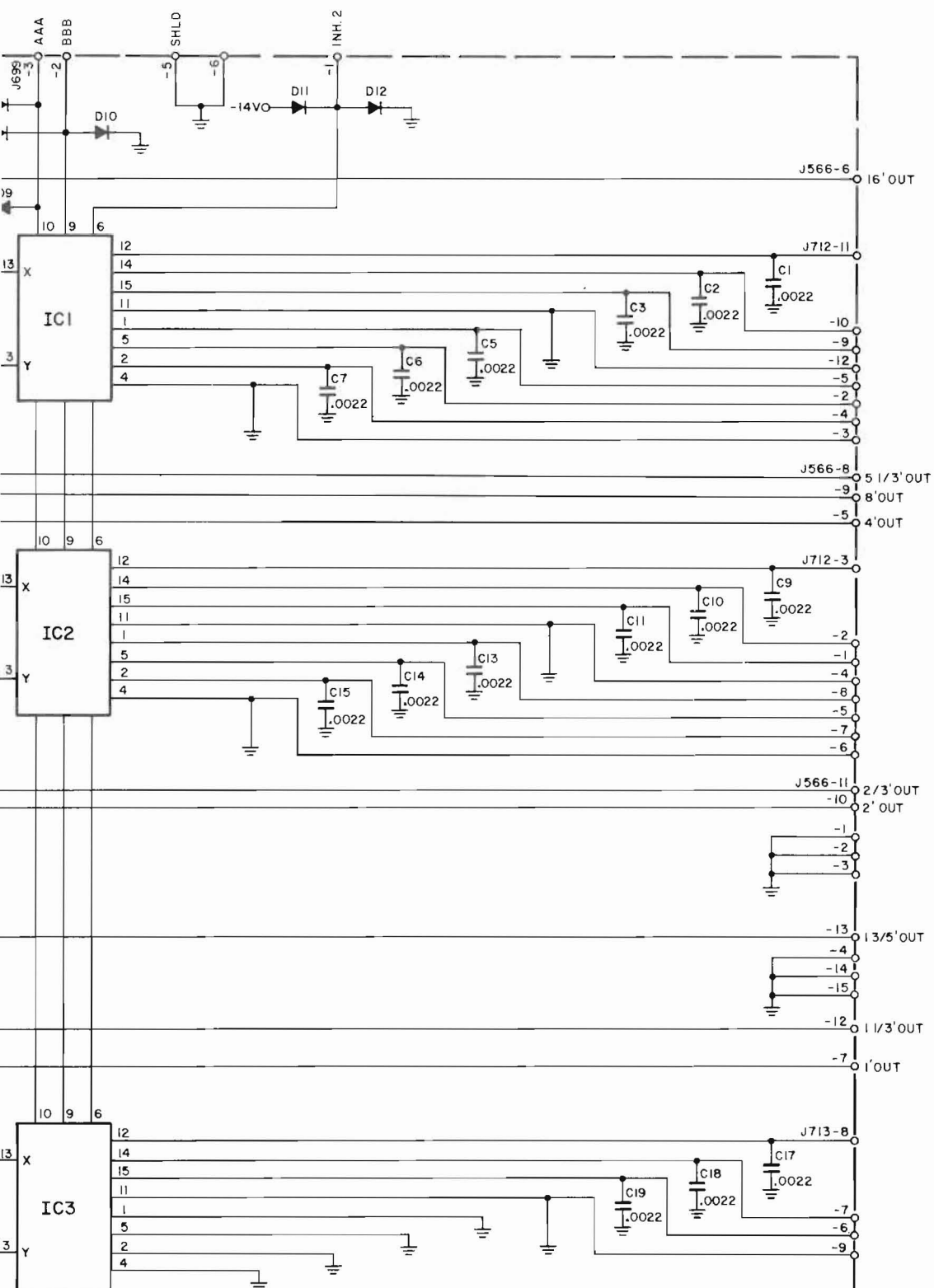
LOWER

UPPER

LS4
P.4
SV4
GND
P.2
GND
LS2
SV2
LS16
P.16
SV16
GND
P.16
OPEN
-14
P.8
GND
LS8
SV8
LS1
P.1
SV1
GND
INH2
BBB
AAA
-14
GND

MUX P.W.B 124-000591





NOTES:

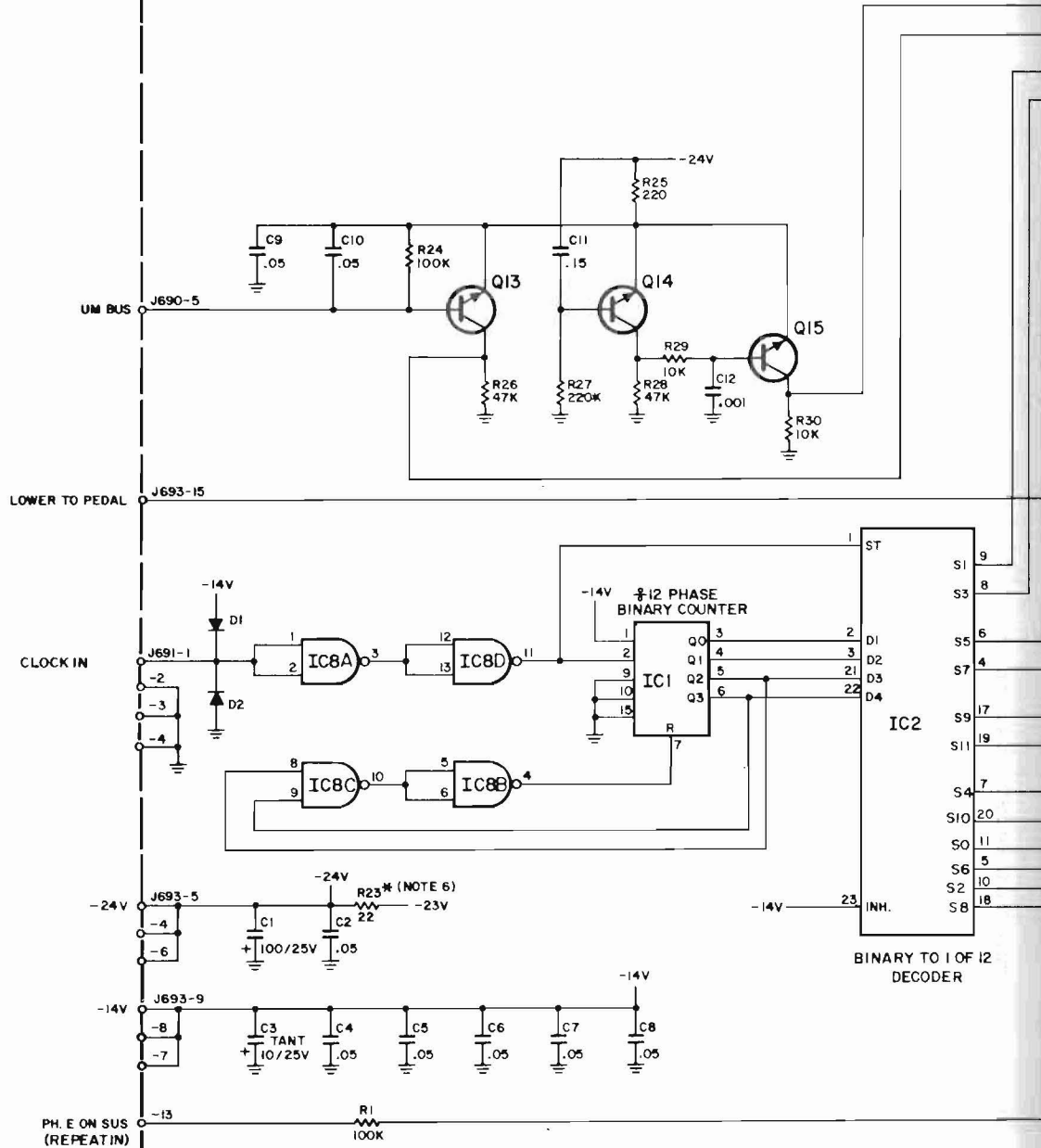
1. IC1 THRU 8 075-004052, PIN 8 -14V AND PIN 16 GROUND.
2. ALL CAPACITORS .01 DISC. UNLESS OTHERWISE SPECIFIED.
3. TRANSISTORS; 001-022114.
4. DIODES, 001-226080.
5. ALL RESISTOR 1K, 1/2W, 5%, UNLESS OTHERWISE SPECIFIED.

MULTIPLEX PWB
SCHEMATIC

12 4-00J591

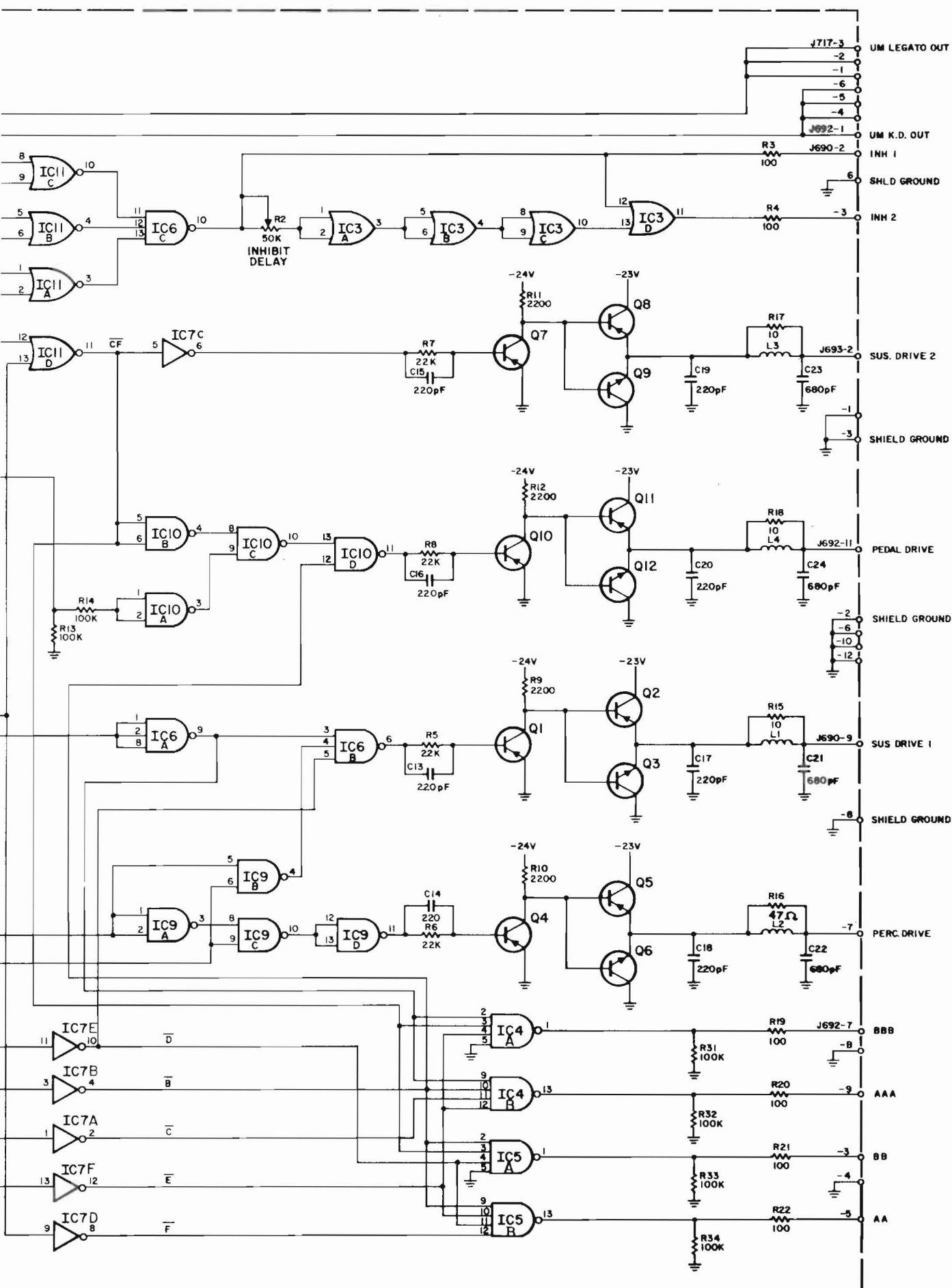
LOGIC PWB 124-000595

(595)



LOGIC PWB
SCHEMATIC

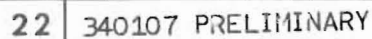
124-000595

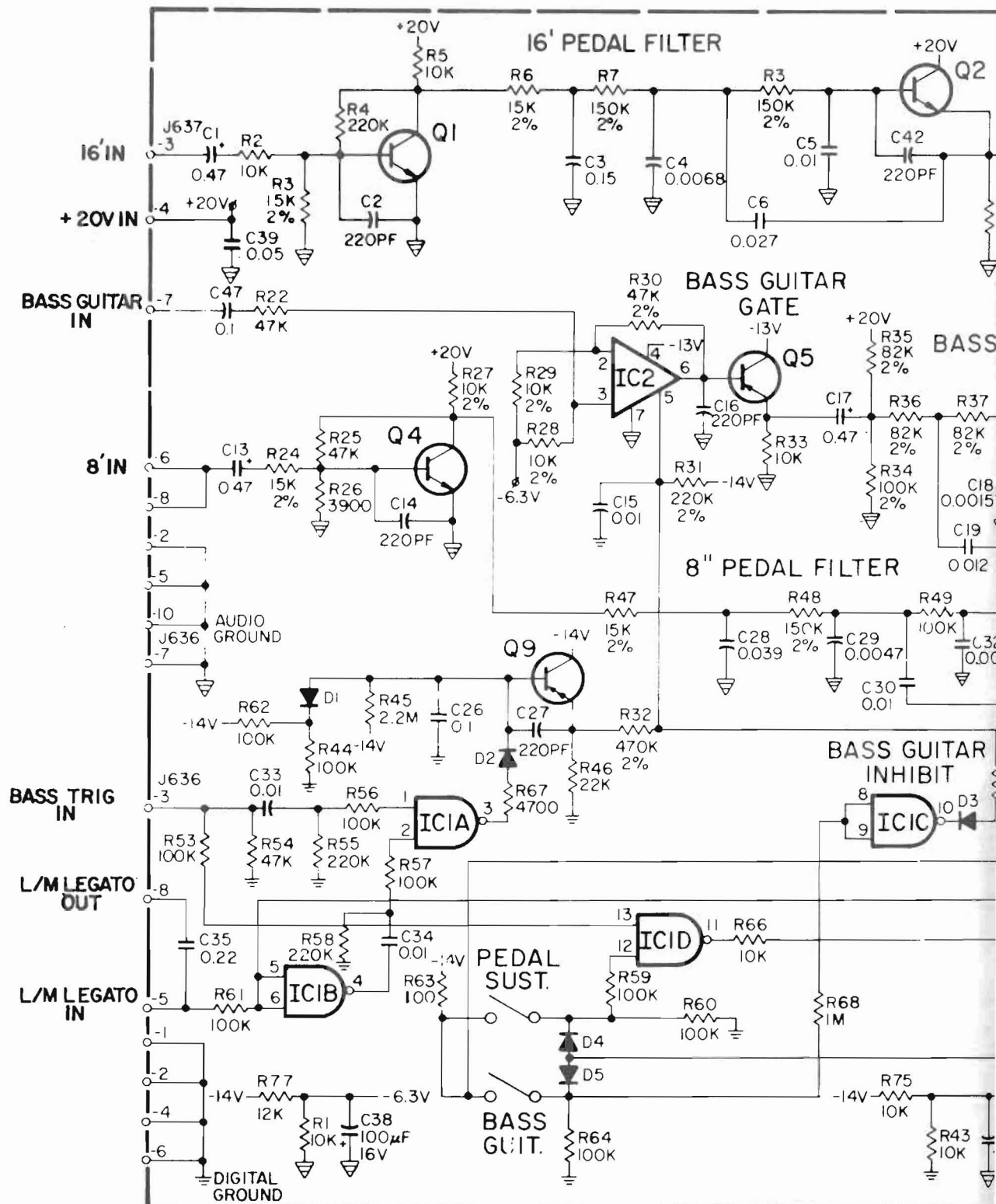


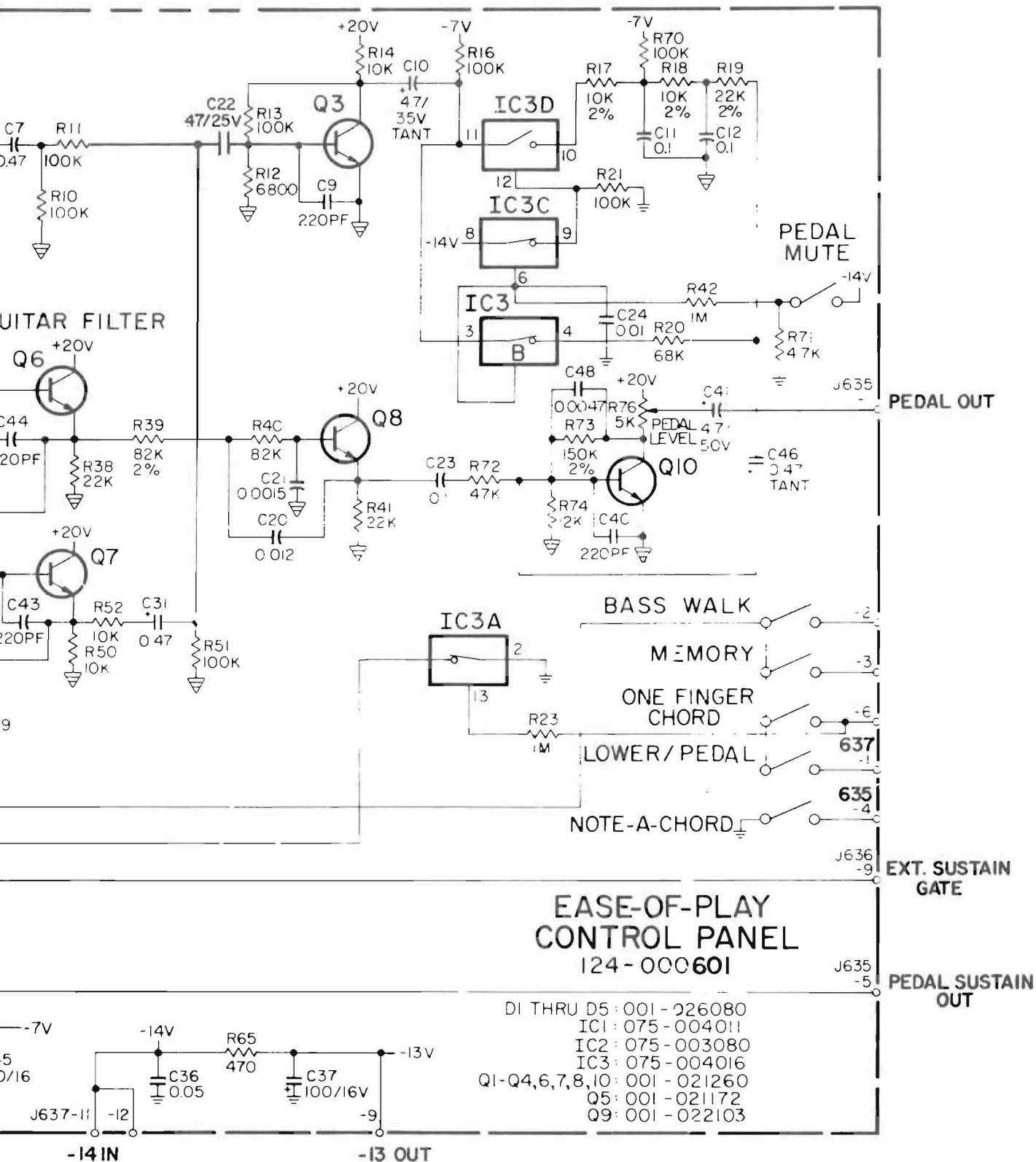
V B C



LOGIC PWB
COPPER & LEGEND
124-000595

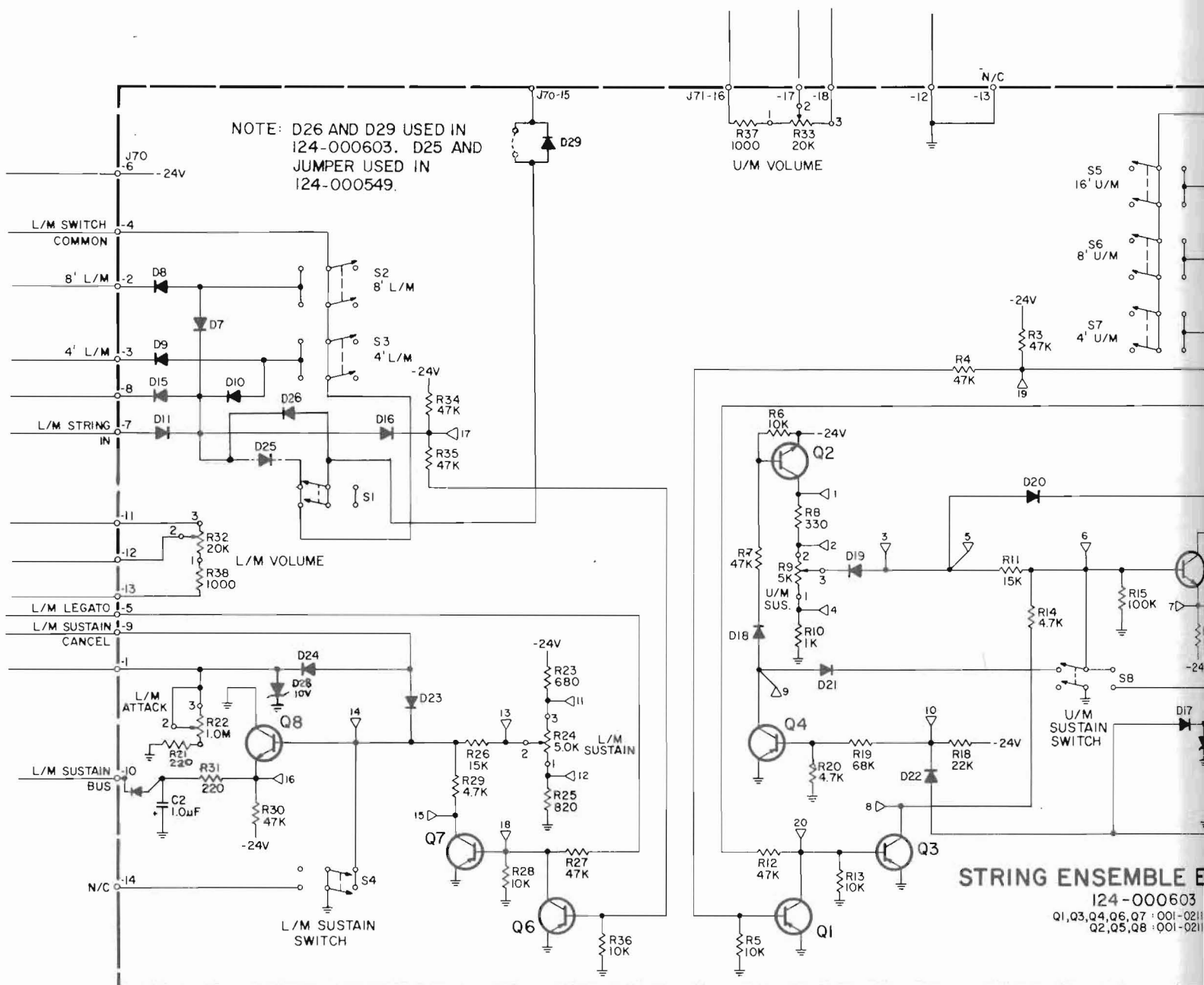
023-000543 ISSUE A



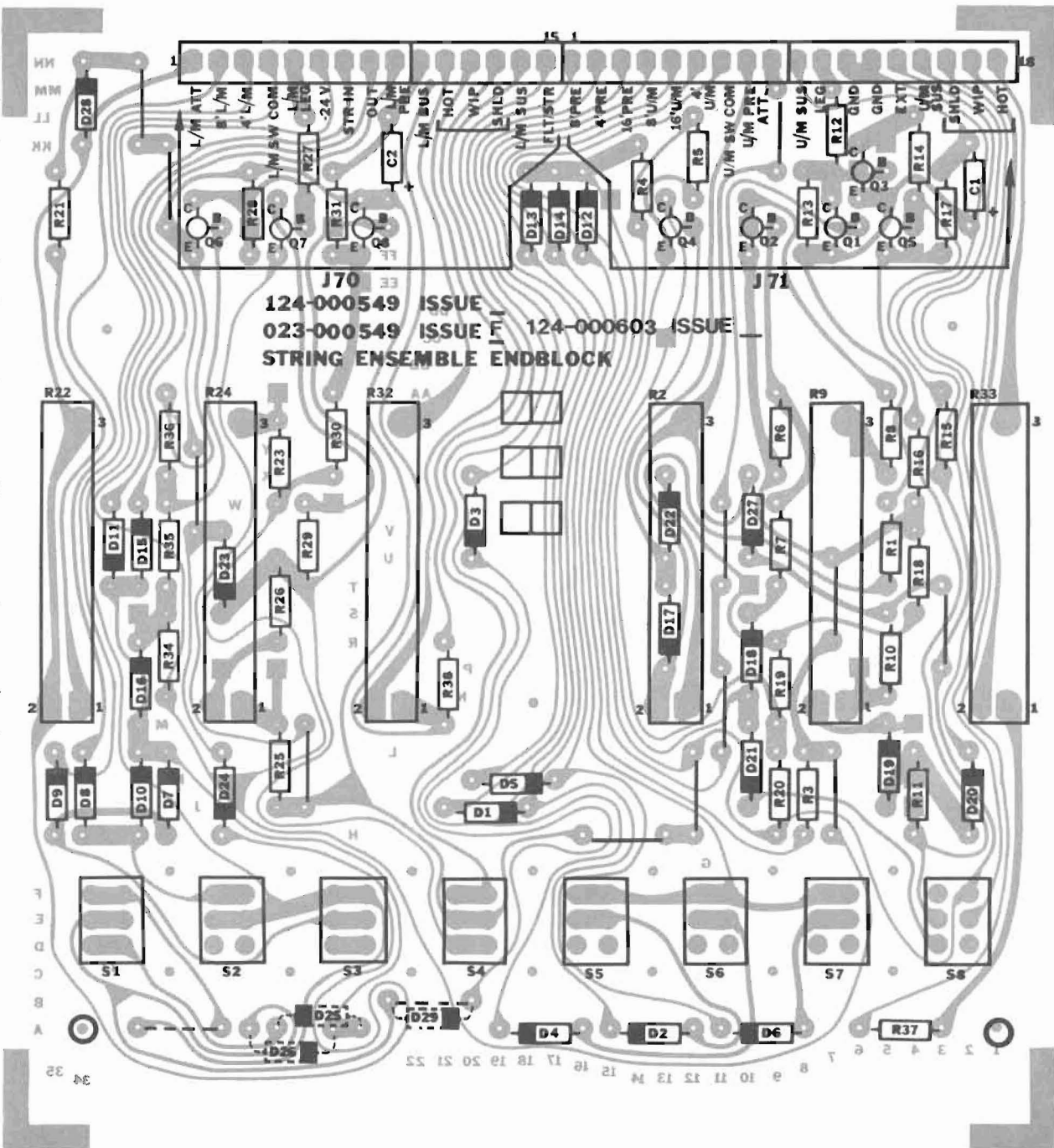
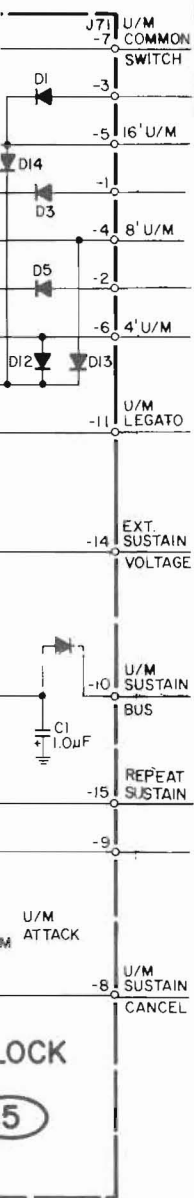


EASE OF PLAY CONTROL PANEL PWB
SCHEMATIC

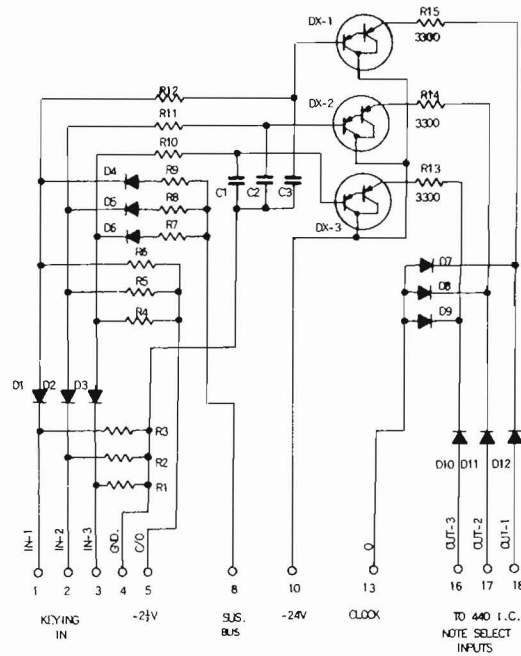
124-000601



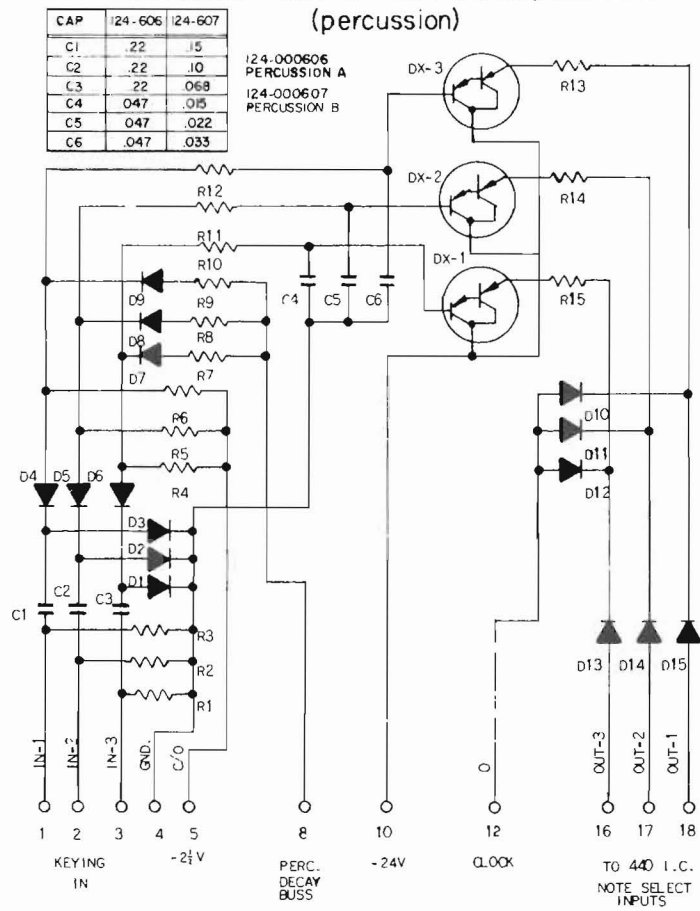
STRING ENSEMBLE ENDBLOCK PWB
SCHEMATIC
COPPER & LEGEND
124-000603

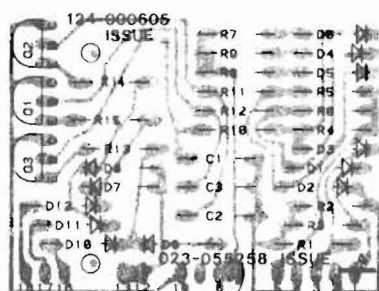


TYPICAL PRINTED NETWORK (COUPLET)
(sustain)



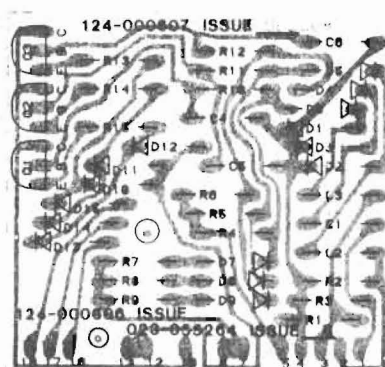
TYPICAL PRINTED NETWORK (COUPLET)
(percussion)





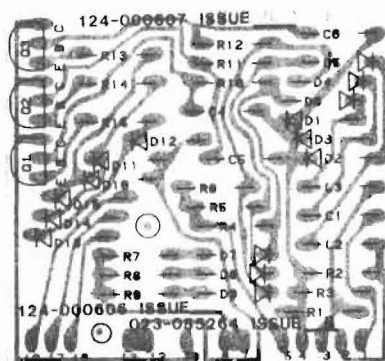
124-000605 Sustain Couplate PWB

Q1-Q3	Transistor	001-022103
D1-D12	Sig Diode	001-226080
C1-C3	Cap .22 MFD	438-210292



124-000606 Perc A Couplate PWB

Q1-Q3	Transistor	001-022103
D1-D15	Sig Diode	001-226080
C1-C3	Cap .22 MFD	438-210292
C4-C6	Cap .047 MFD	438-210212



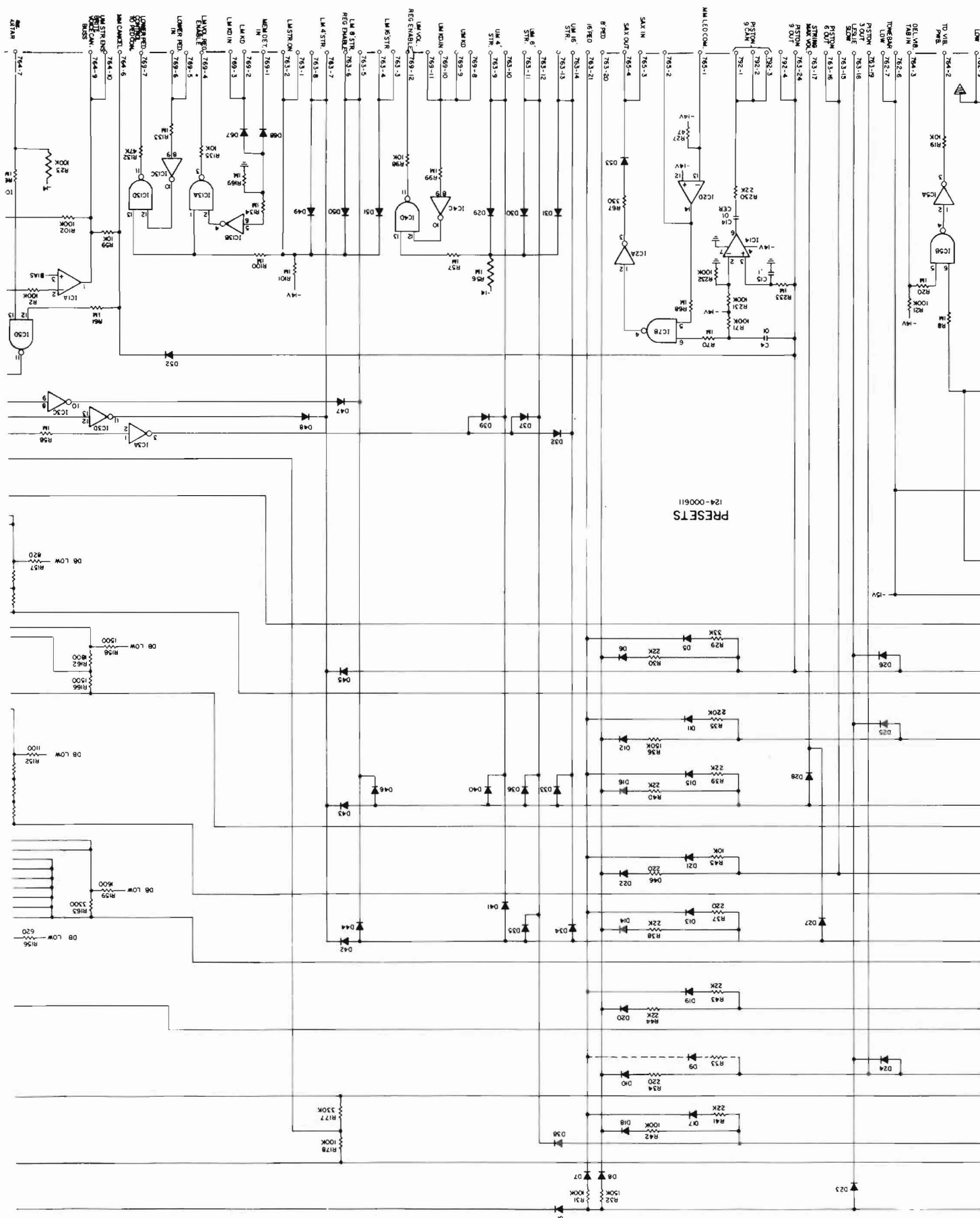
124-000607 Perc B Couplate PWB

Q1-Q3	Transistor	001-022103
D1-D15	Sig Diode	001-226080
C1	Cap .15 MFD	438-210272
C2	Cap .10 MFD	438-210252
C3	Cap .068 MFD	438-210232
C4	Cap .015 MFD	438-210152
C5	Cap .022 MFD	438-210172
C6	Cap .033 MFD	438-210192

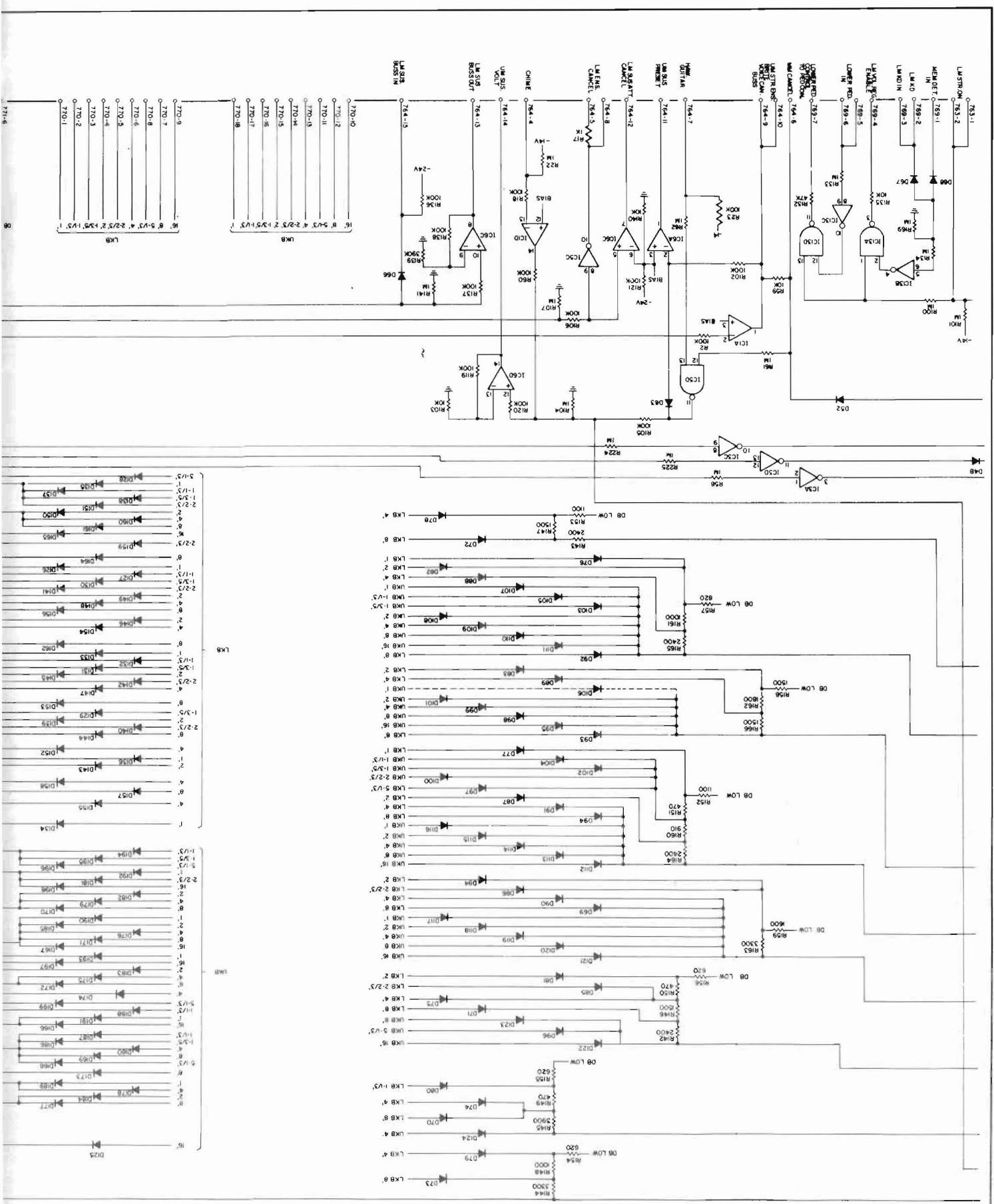
SUSTAIN KEYER COUPLATE PWB
 PERC KEYER COUPLATES PWB
 SCHEMATICS
 COPPERS & LEGENDS
 124-000605 124-000606 124-000607

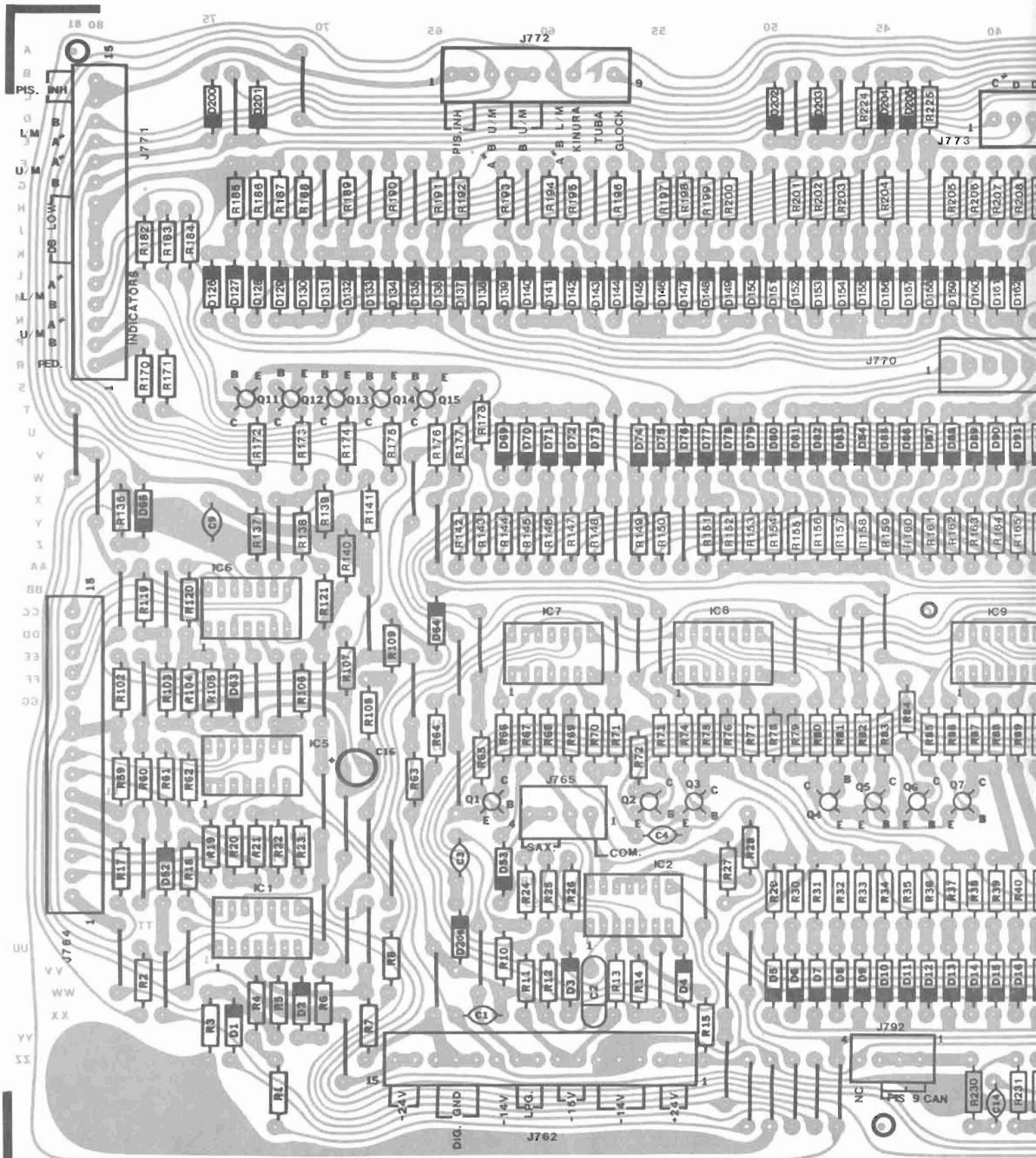


124-000611



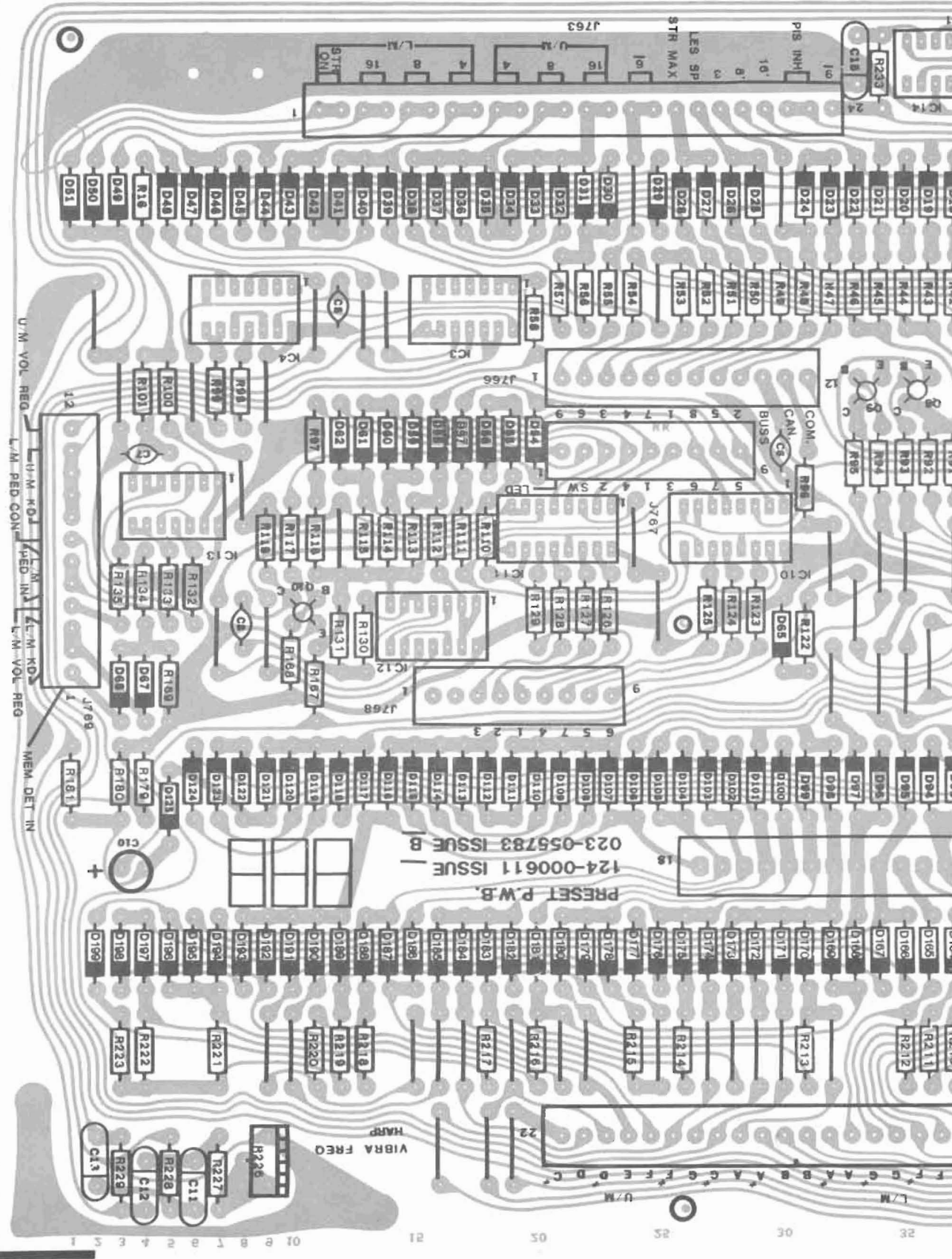
00pp





PRESETS PWB
COPPER & LEGEND

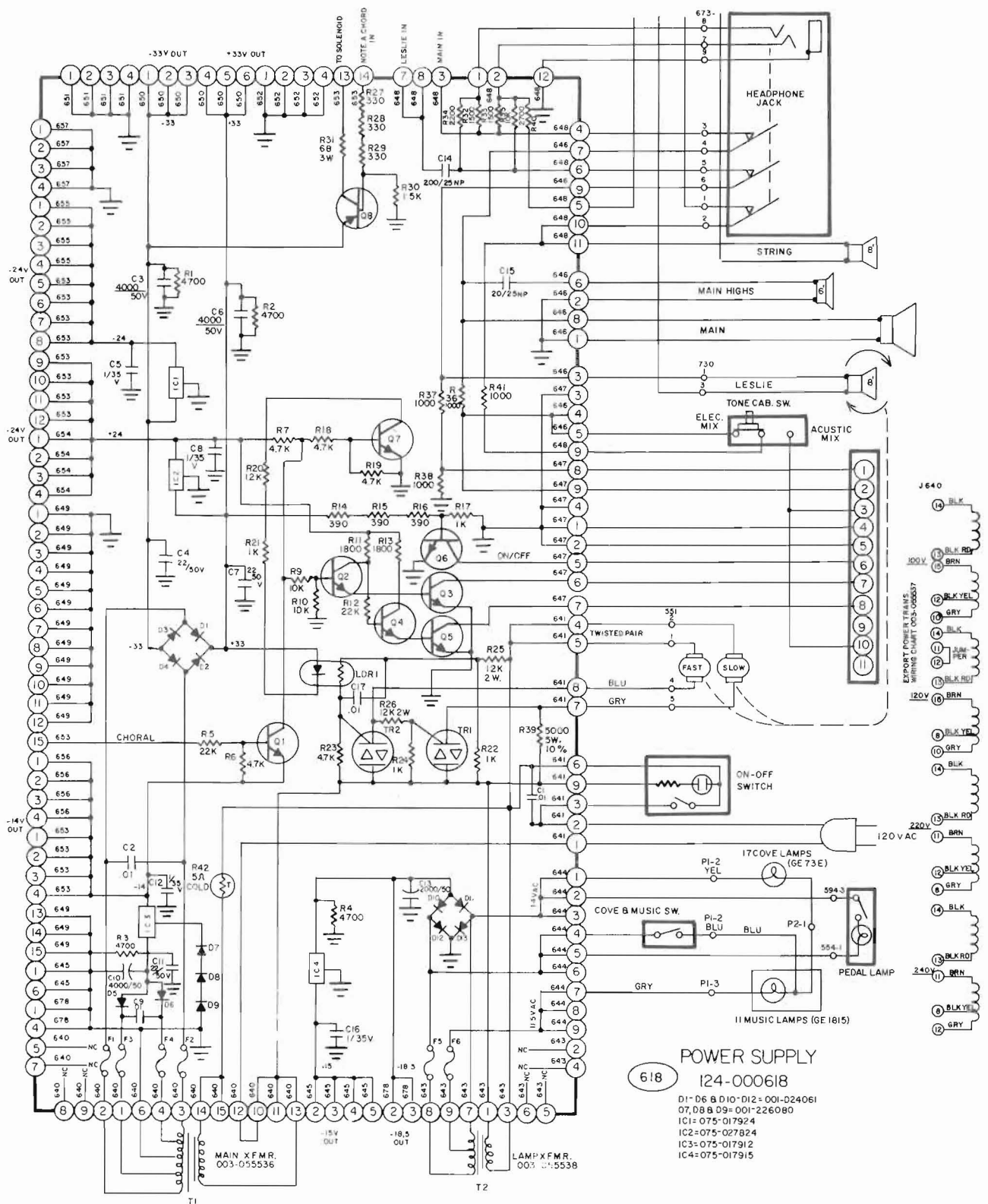
124-000611



PRESET P.W.B.
124-000611 ISSUE B
023-055783 ISSUE B

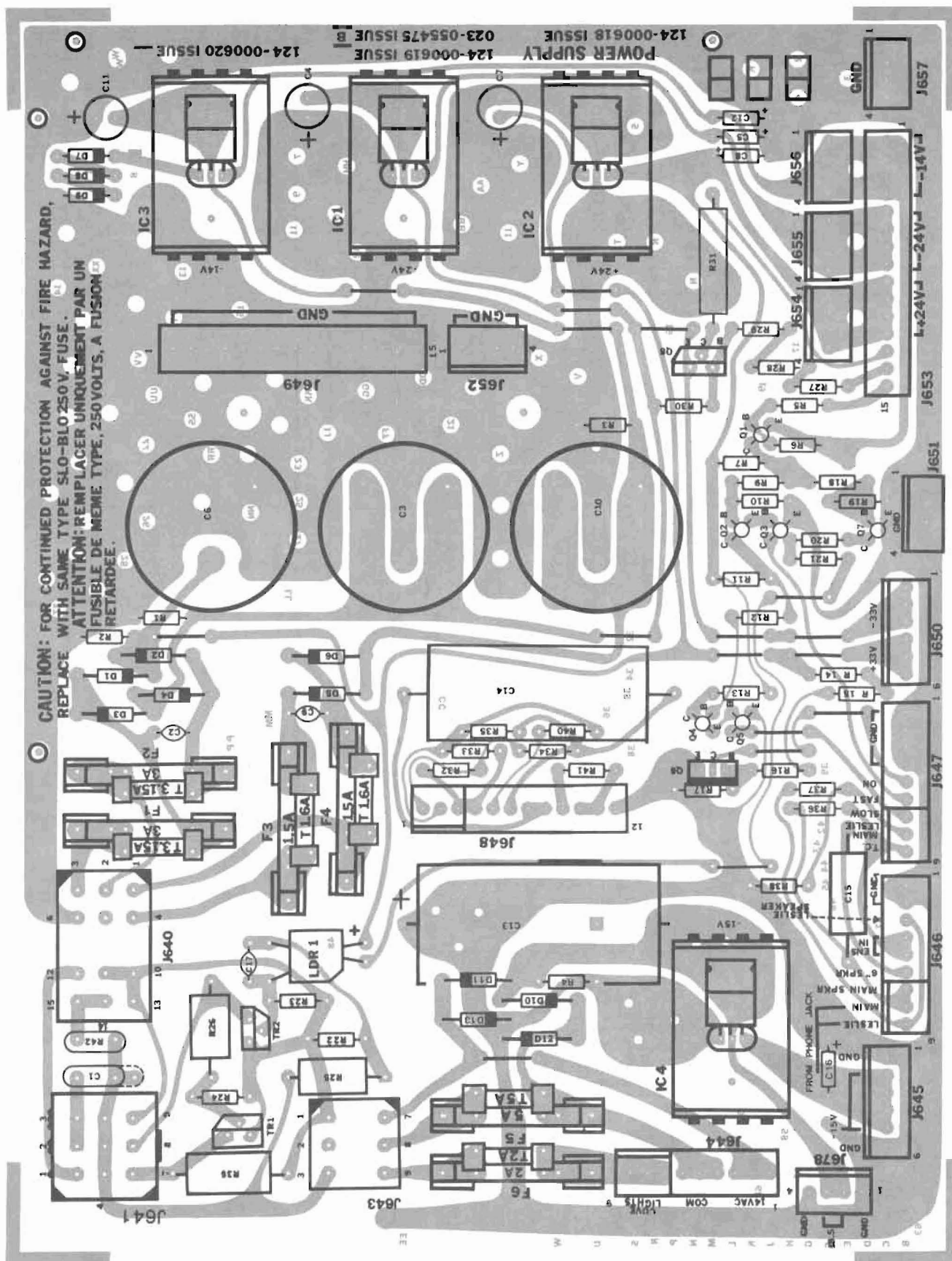
VIBRA FREQ

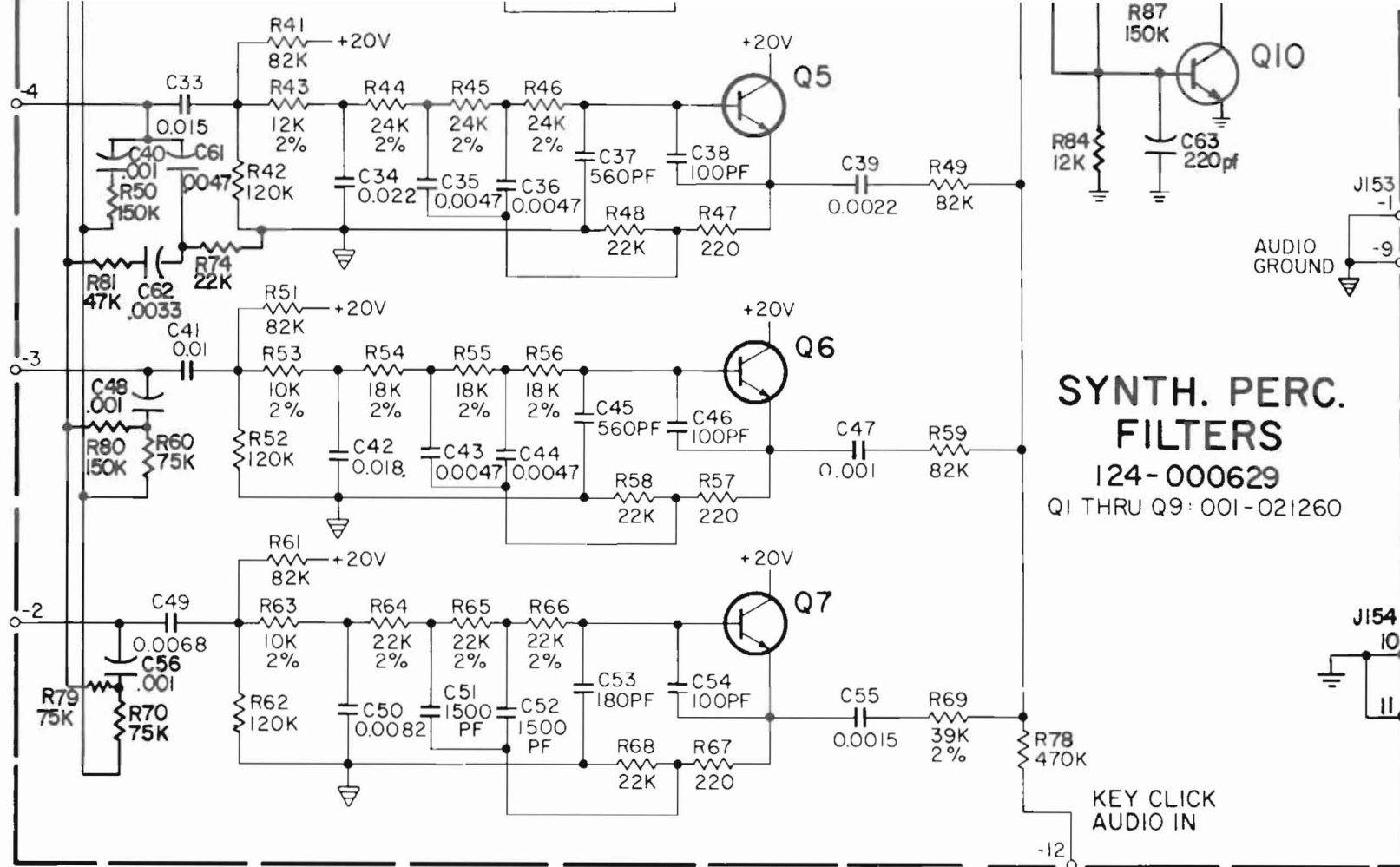
U/M VOL REG
L/M PED CON
MEM DET IN
L/M VOL REG



POWER SUPPLY PWB
SCHEMATIC
COPPER & LEGEND
124-000618

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE WITH SAME TYPE SLO-BLO 250V. FUSE.
ATTENTION: REMPLACER UNIQUEMENT PAR UN
FUSIBLE DE MEME TYPE, 250VOLTS, A FUSION
RETARDEE.

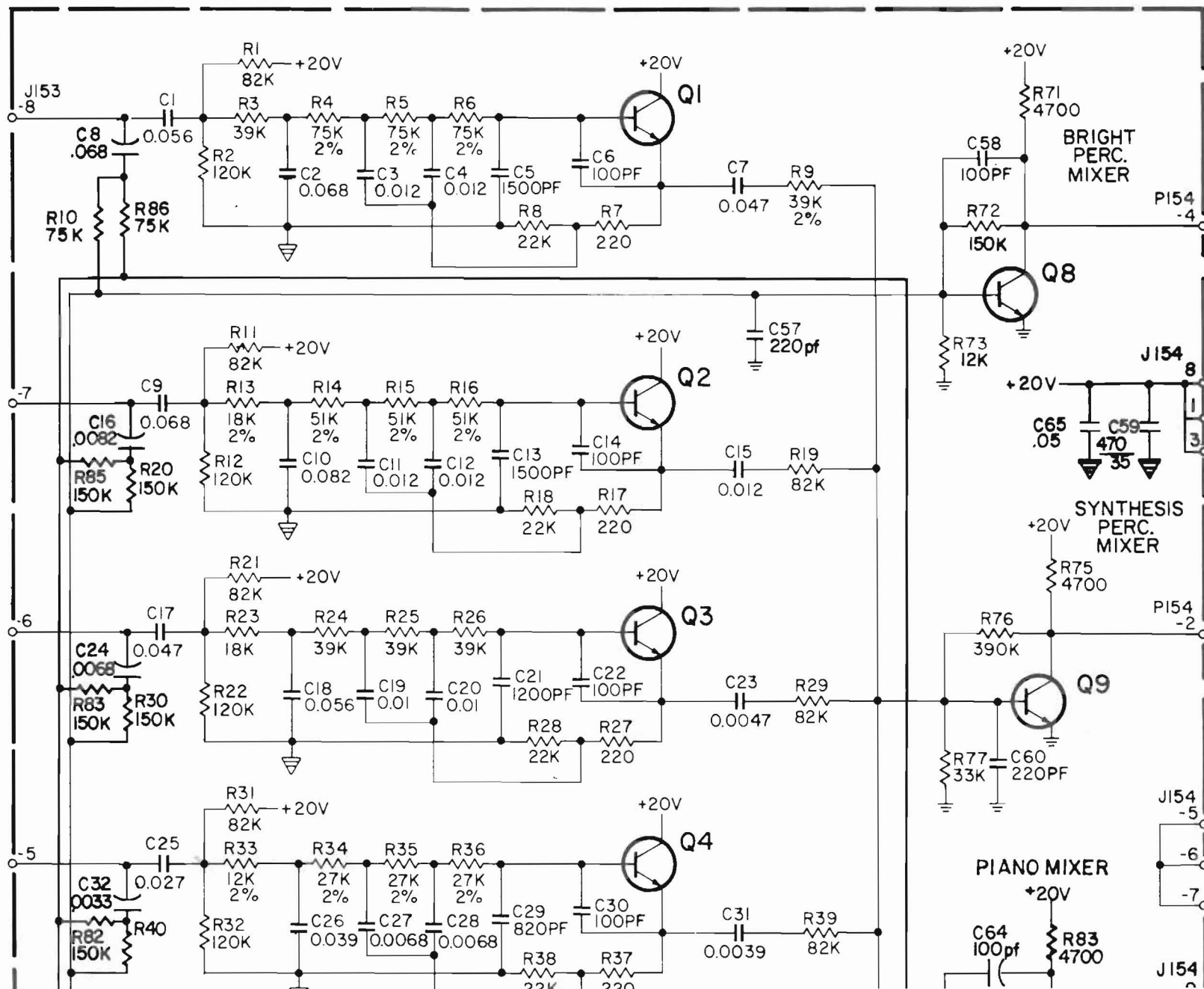


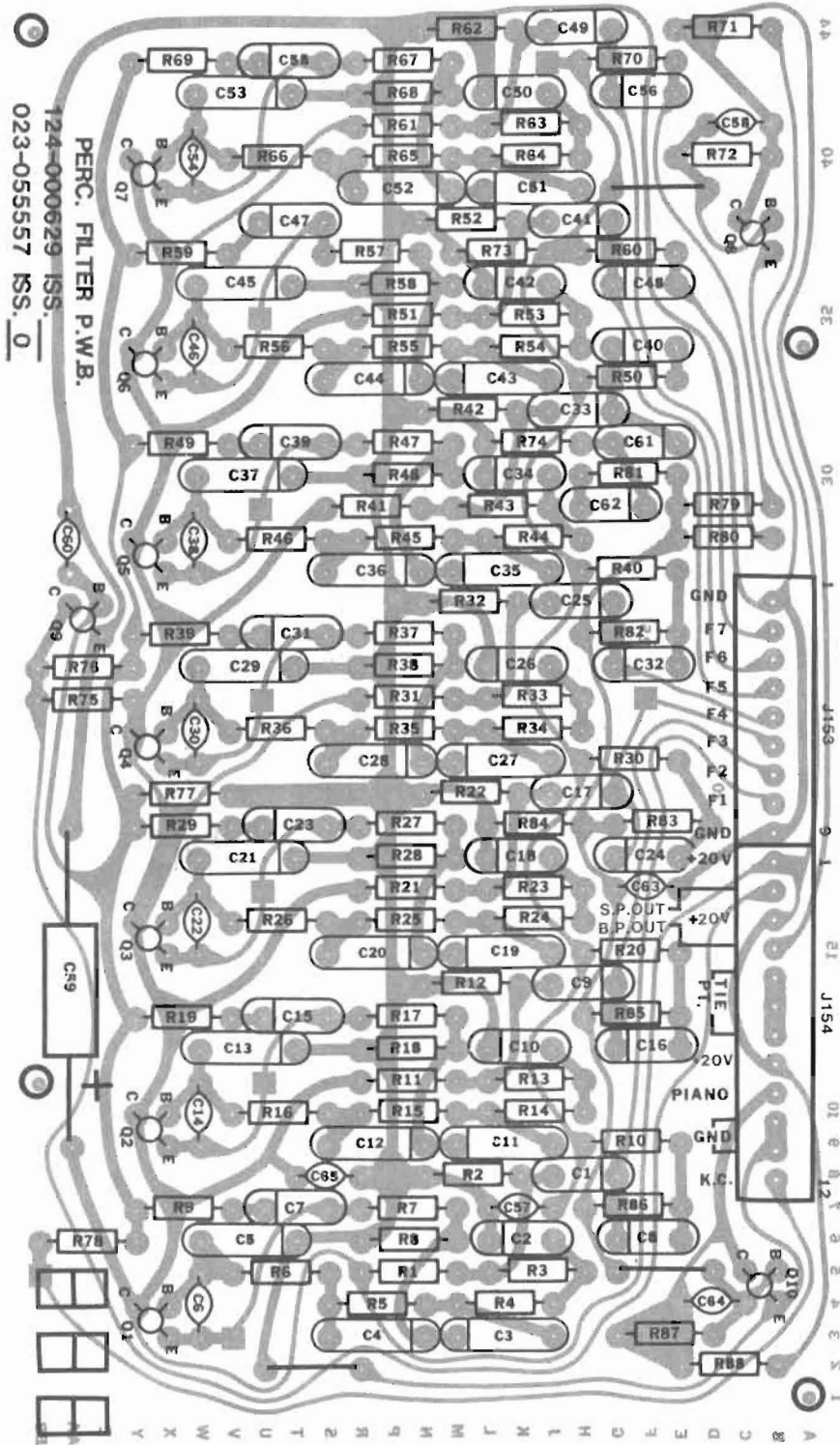


SYN PERC FILTER PWB
 SCHEMATIC

124-000629

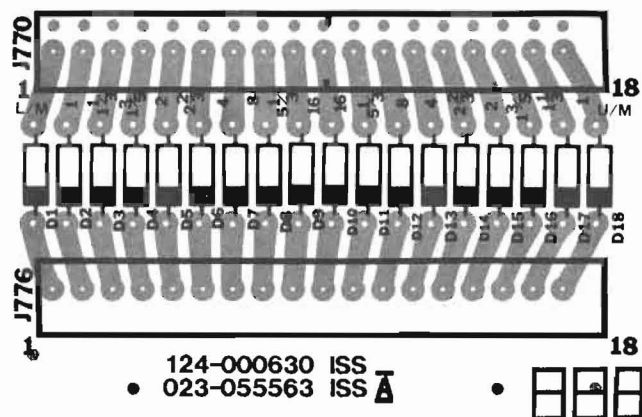
340107 PRELIMINARY





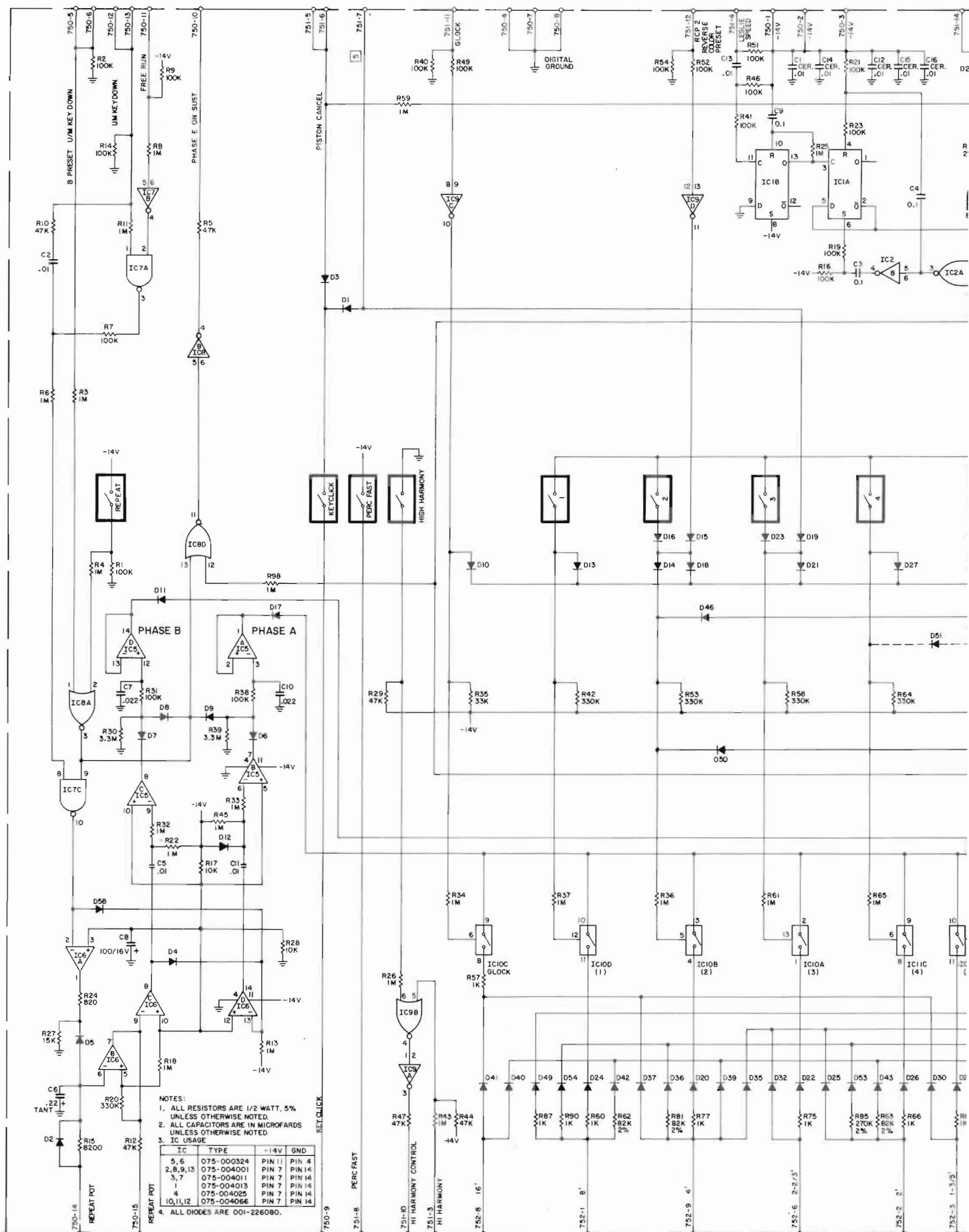
SYN PERC FILTER PWB
CUPPER & LEGEND

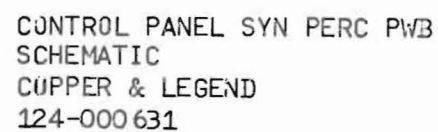
124-000629

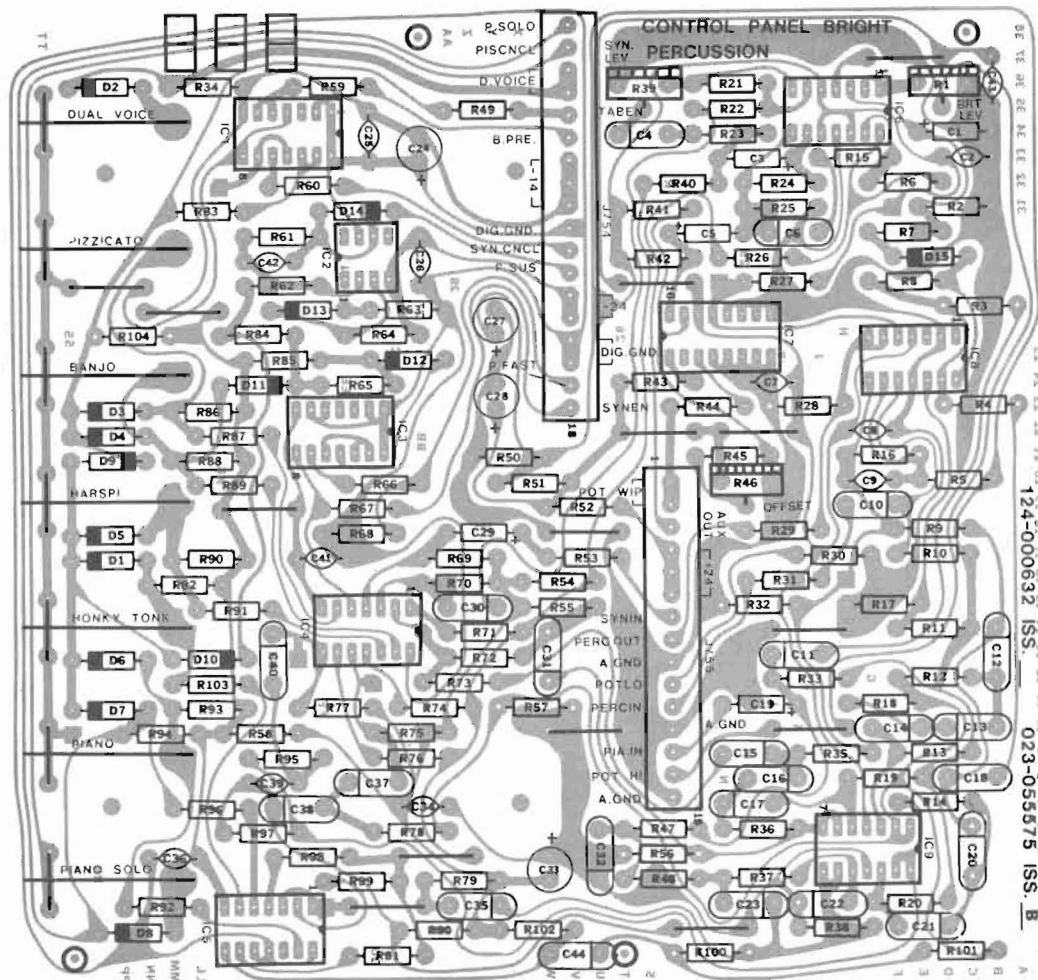


PRESET DIODE PWB
COPPER & LEGEND

124-000630







CONTROL PANEL BRIGHT PERC PWB
SCHEMATIC
COPPER & LEGEND
124-000632

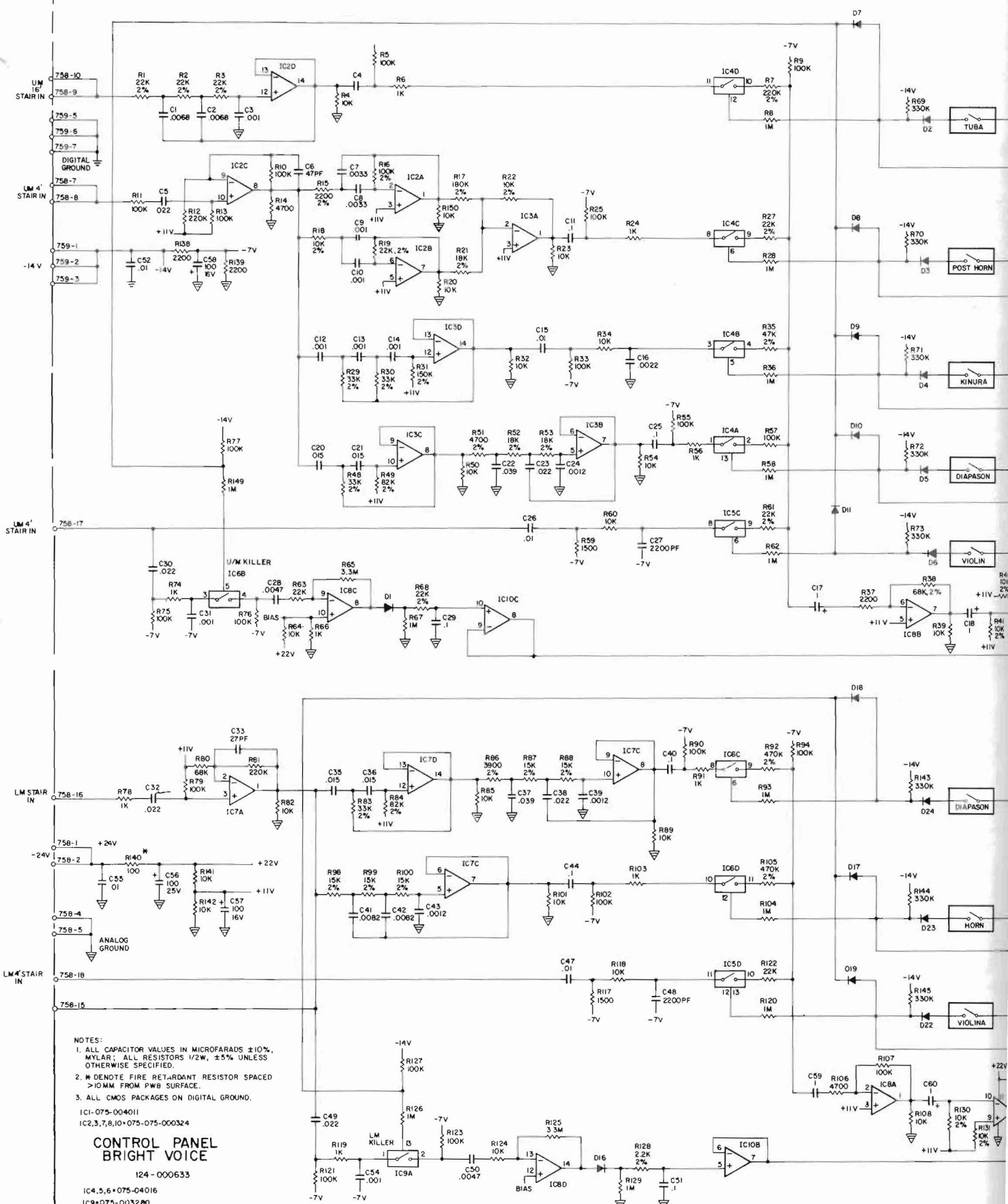
124-000632

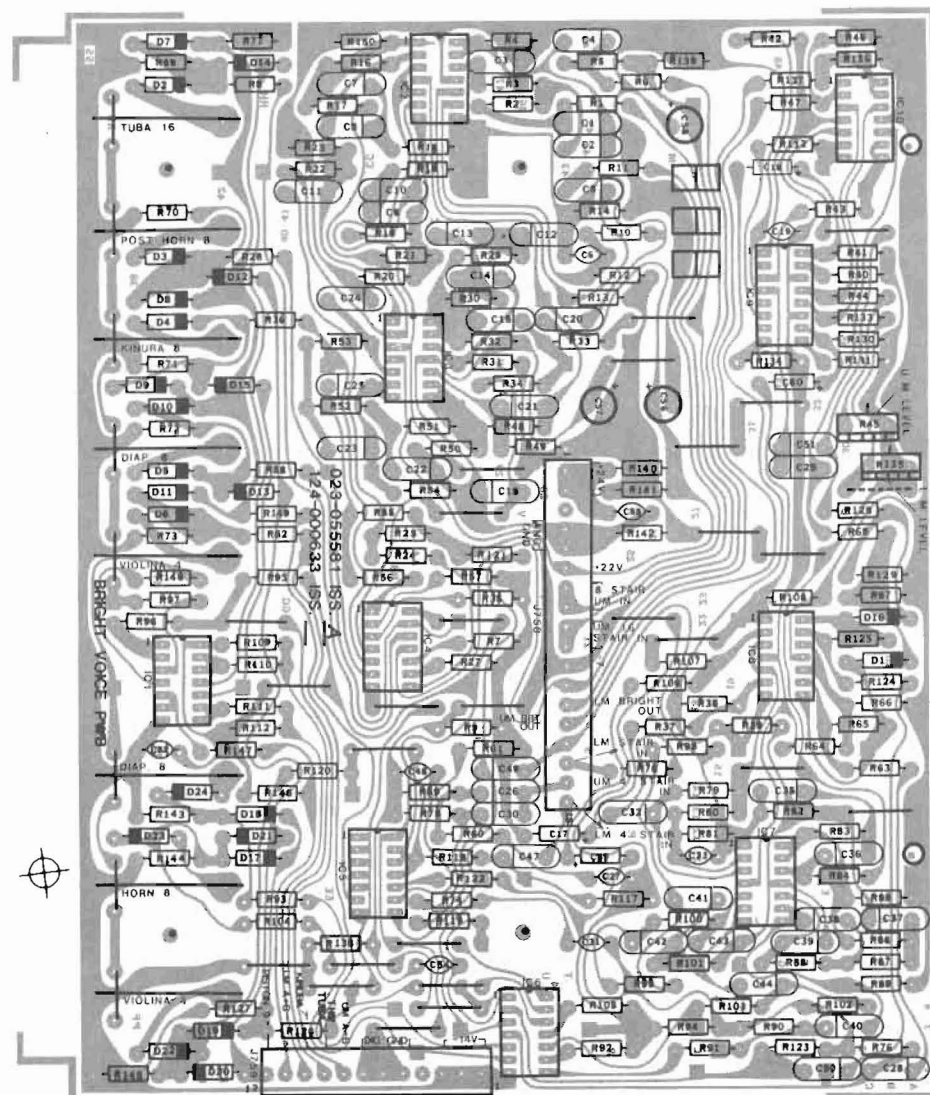
1. ALL RESISTORS ARE 1/2 WATT, 5% UNLESS OTHERWISE NOTED.
2. ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE NOTED.
3. ALL DIODES ARE DOI-226080.

YC TYPE

IC TYPE	IC NO	-24	-14	GND	+24
075-000090	2	4		7	
075-000324	6,8,9			11	4
075-003280	7			4	14
075-004011	4,5		7	14	
075-004016	1,3		7	14	

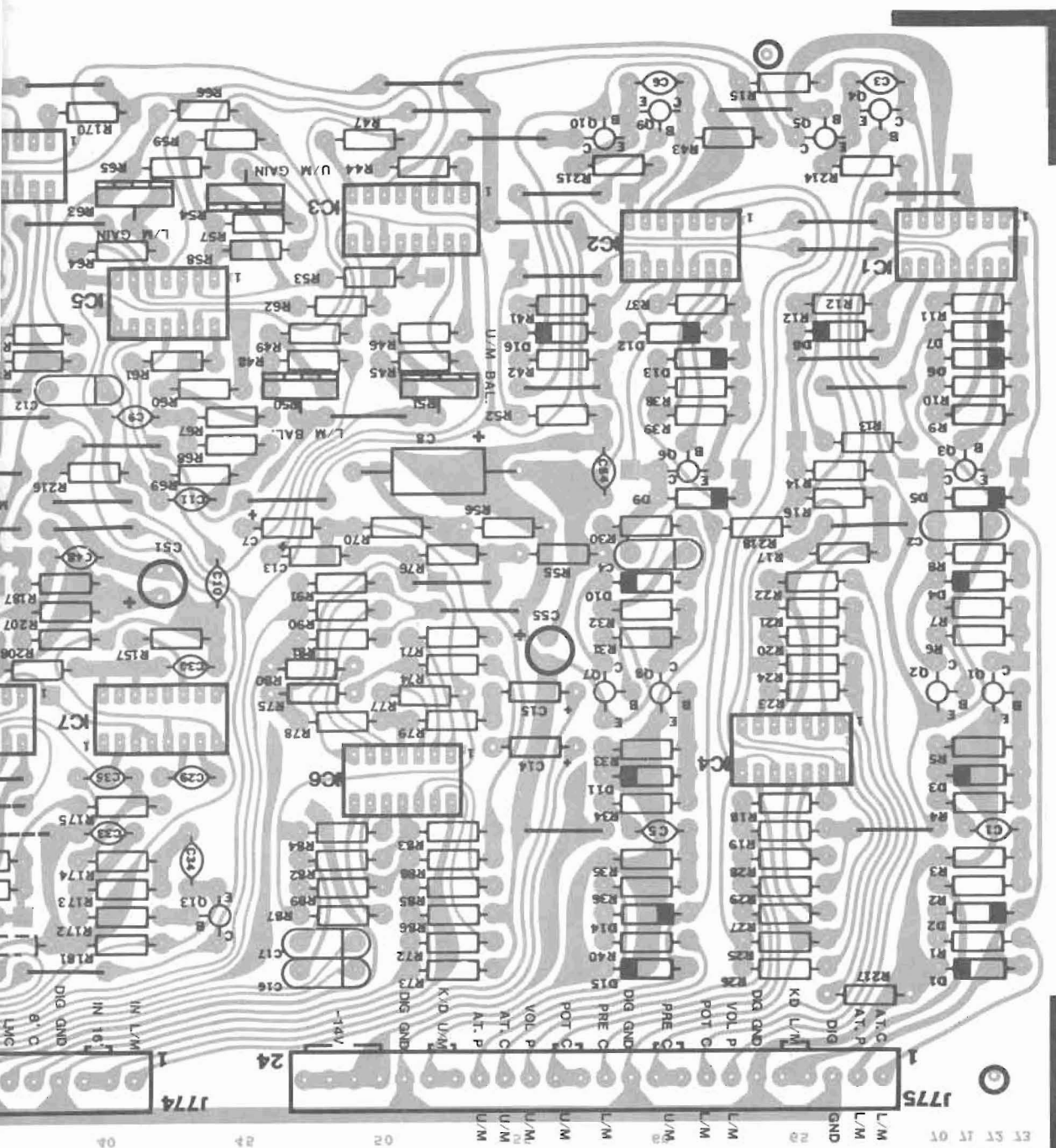
CP



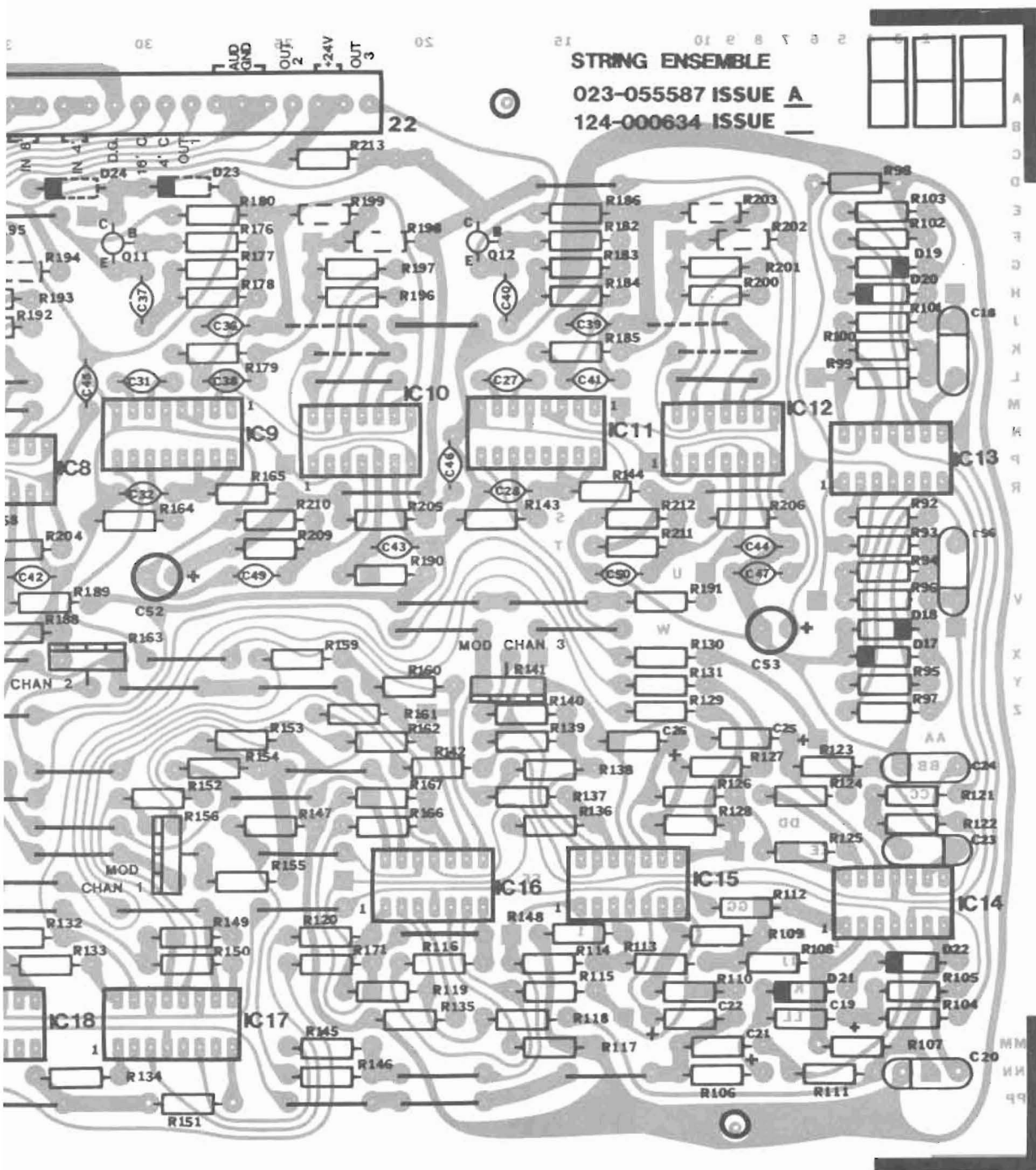


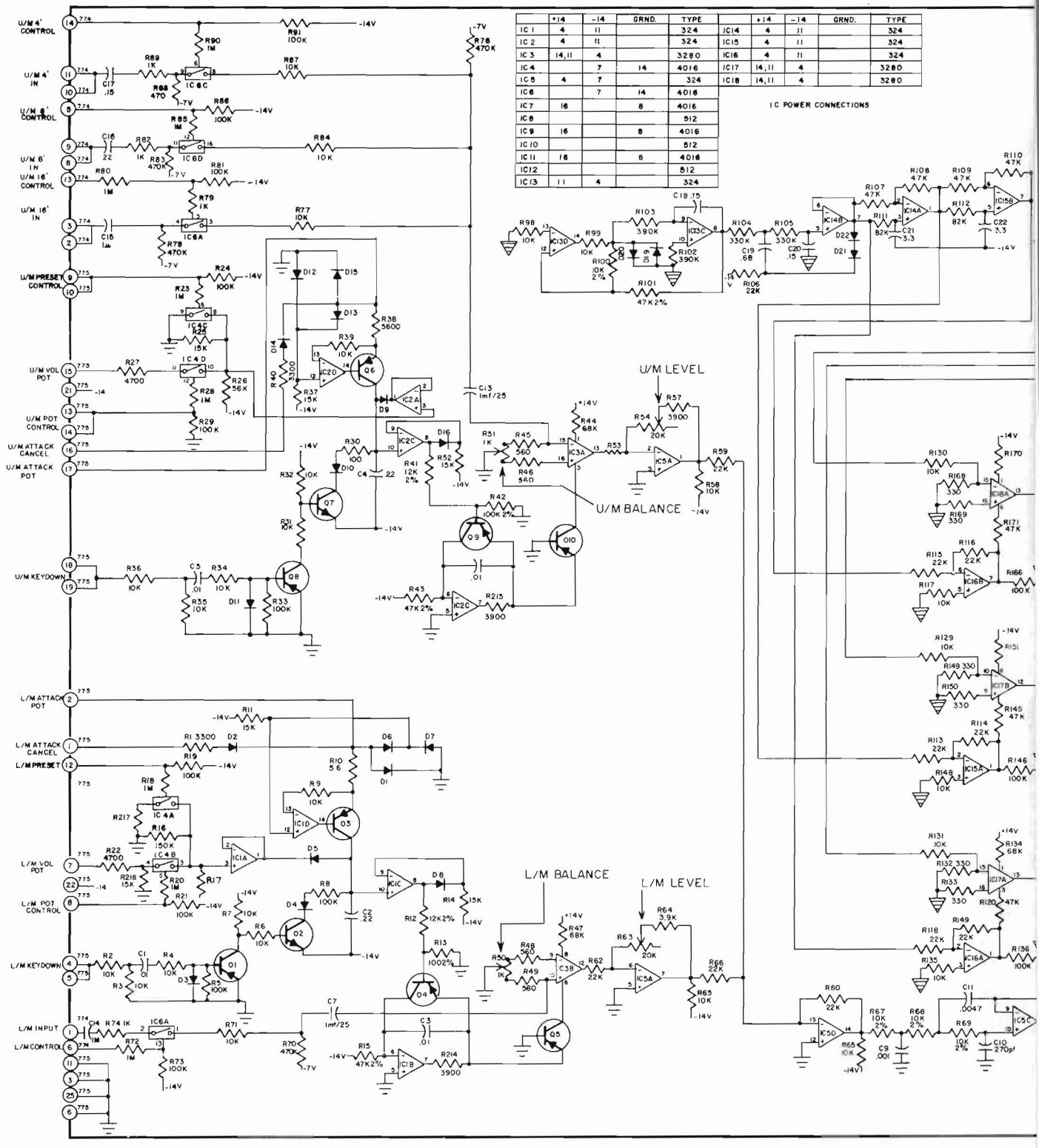
340107 PRELIMINARY	35
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STRING ENSEMBLE PWB
COPPER & LEGEND



124-000634 ISSUE _____





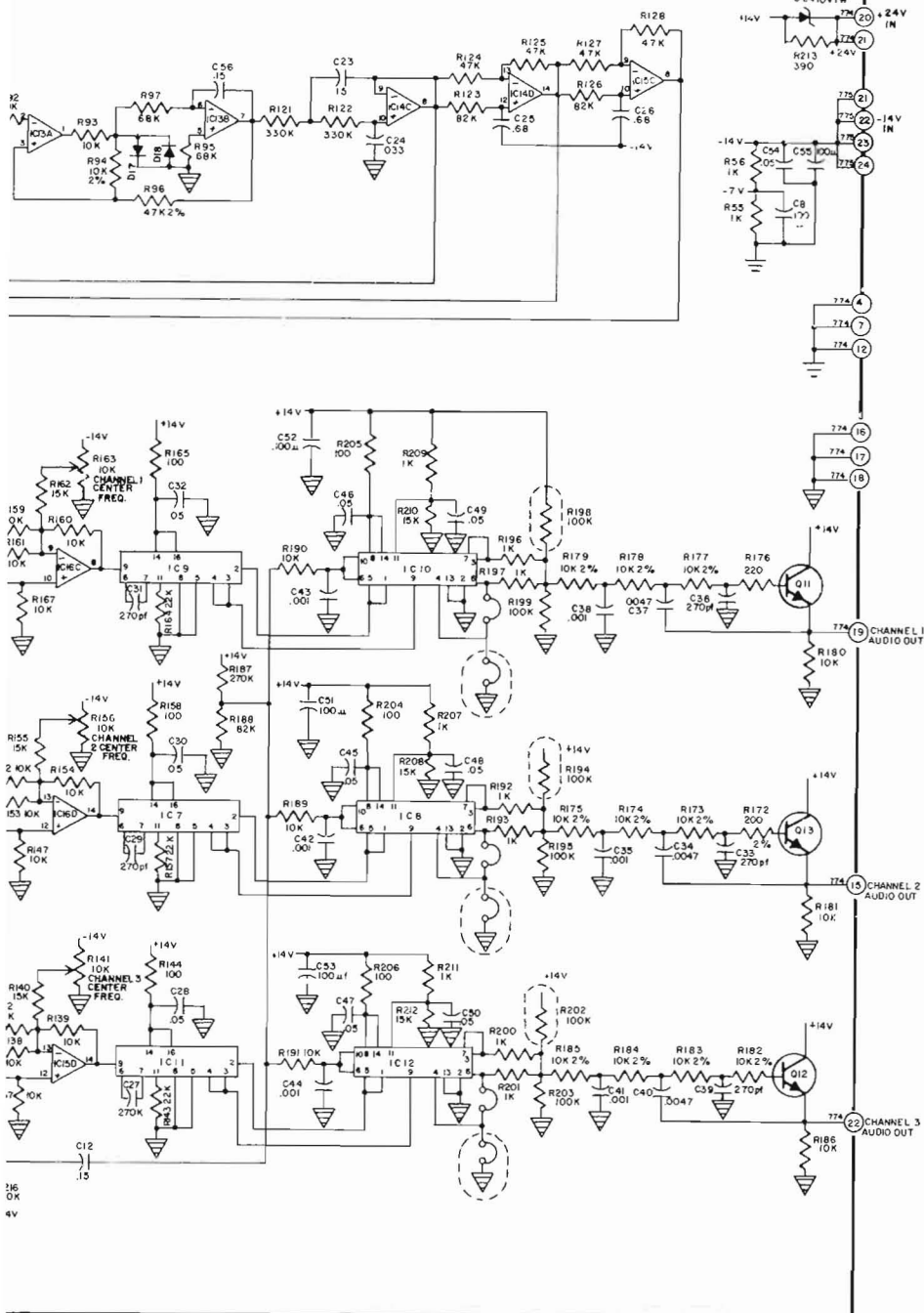
NOTES:

1. ALL RESISTOR VALUES IN OHMS ± 5% UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITOR VALUES IN MFD. UNLESS OTHERWISE SPECIFIED.
3. COMPONENTS IN DOTTED LINES ARE NOT USED.
4. ALL PNP TRANSISTORS 001-021172
5. Q2 AND Q7 ARE 001-021135
6. Q1, 12, AND 13 001-021260

094-055591-A

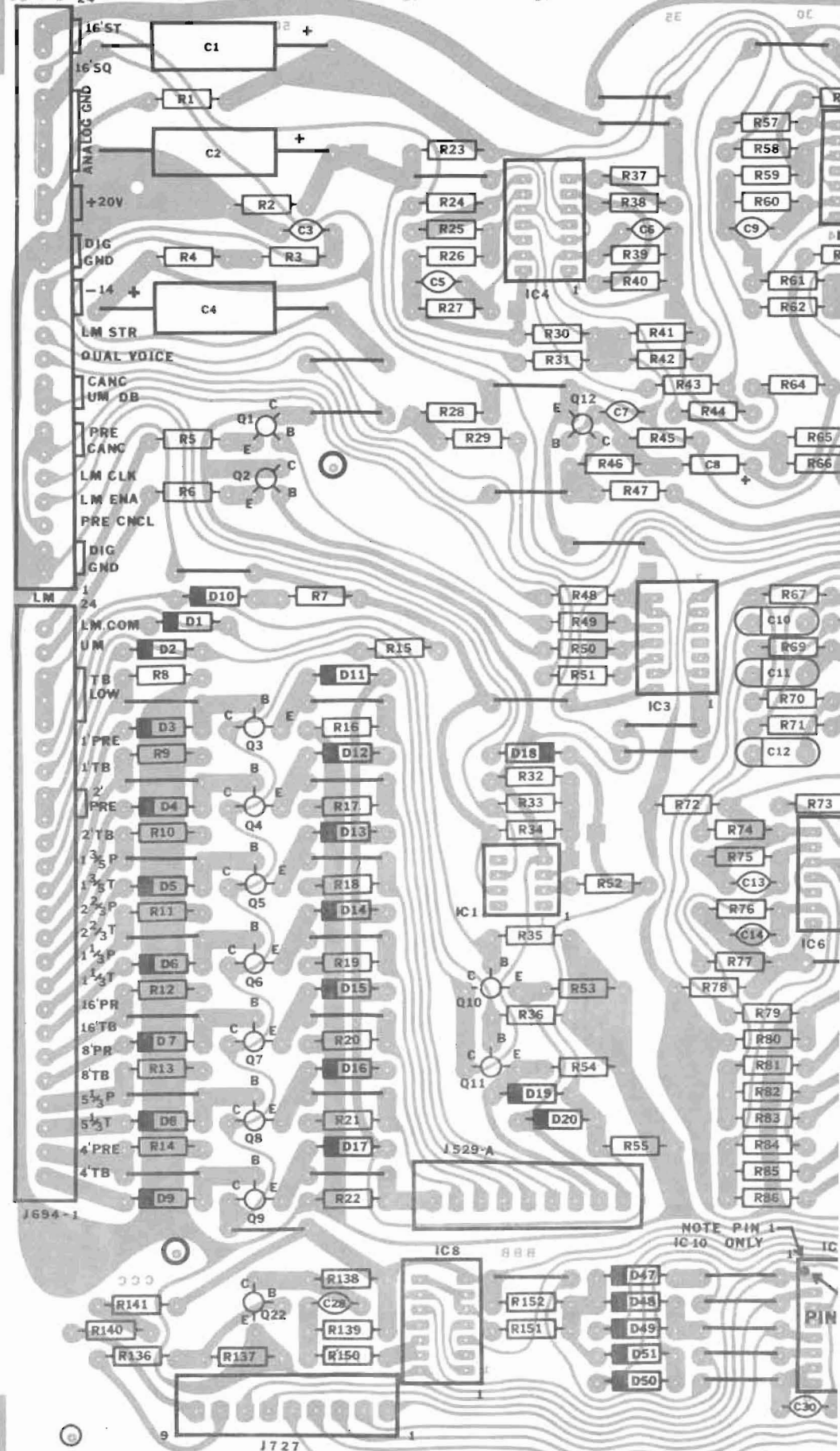
3 CHANNEL STRING
ENSEMBLE
PWB 124-000634

634



STRING ENSEMBLE PWB
SCHEMATIC

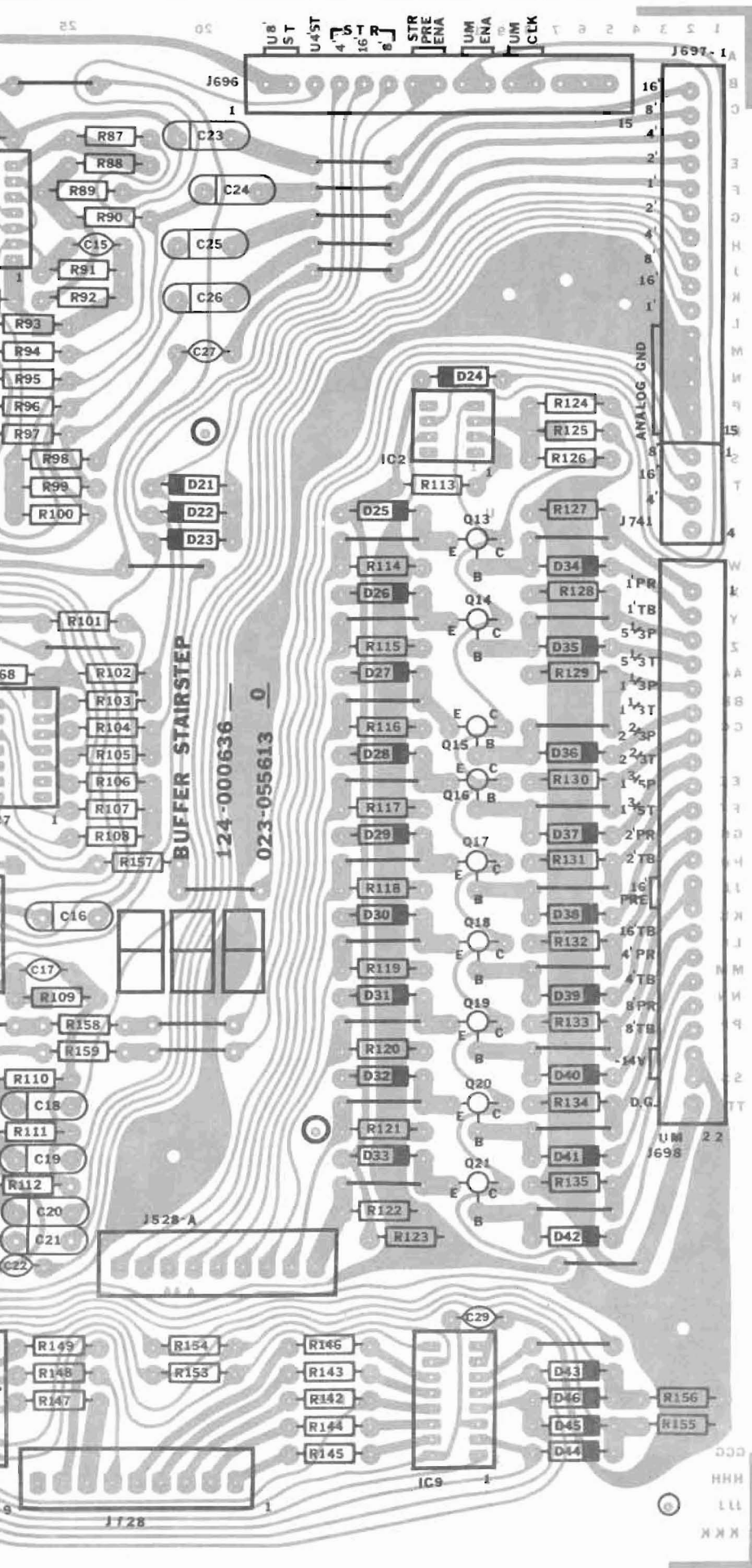
124-000634

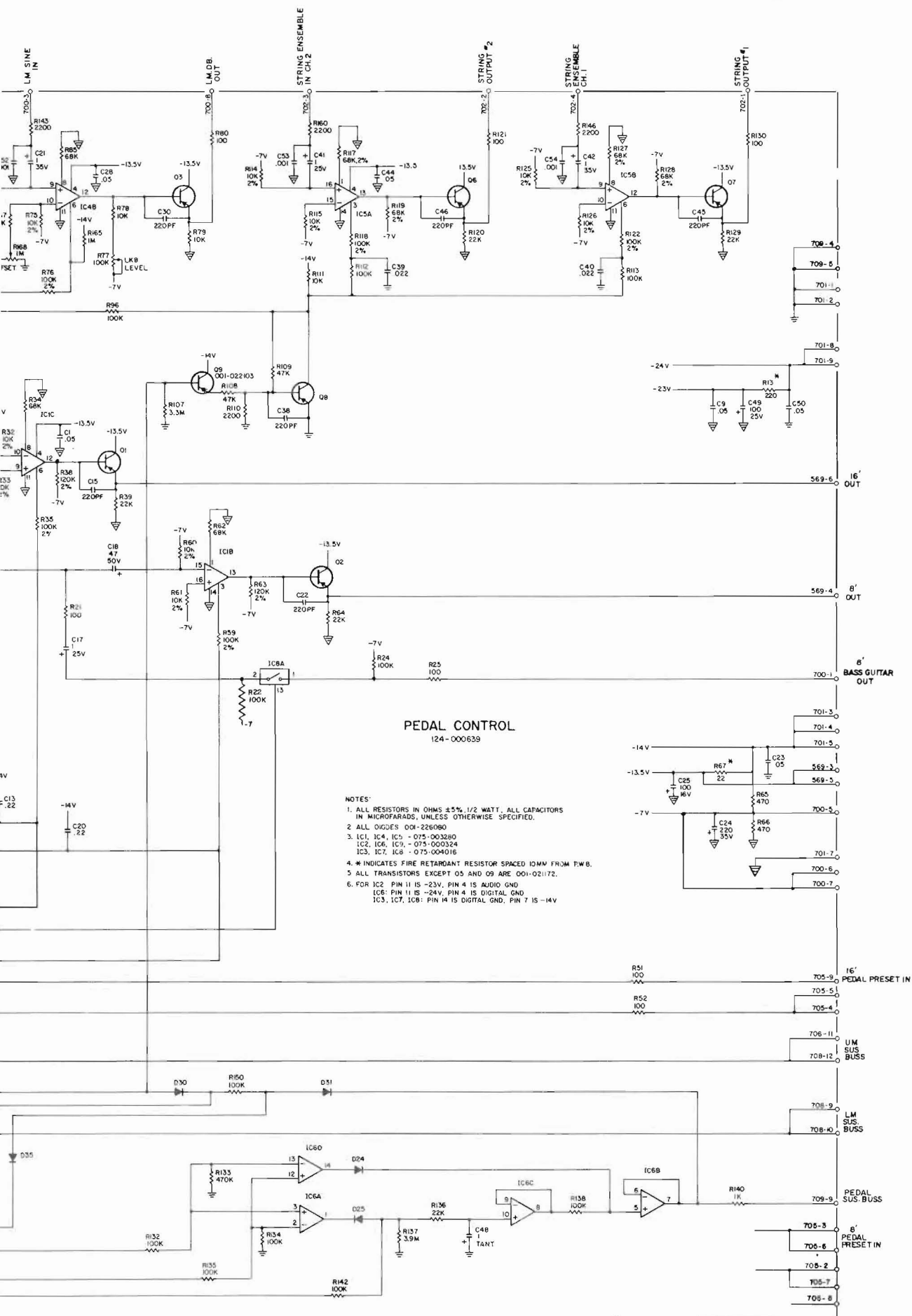


BUFFER STAIRSTEP PWR
COPPER & LEGEND

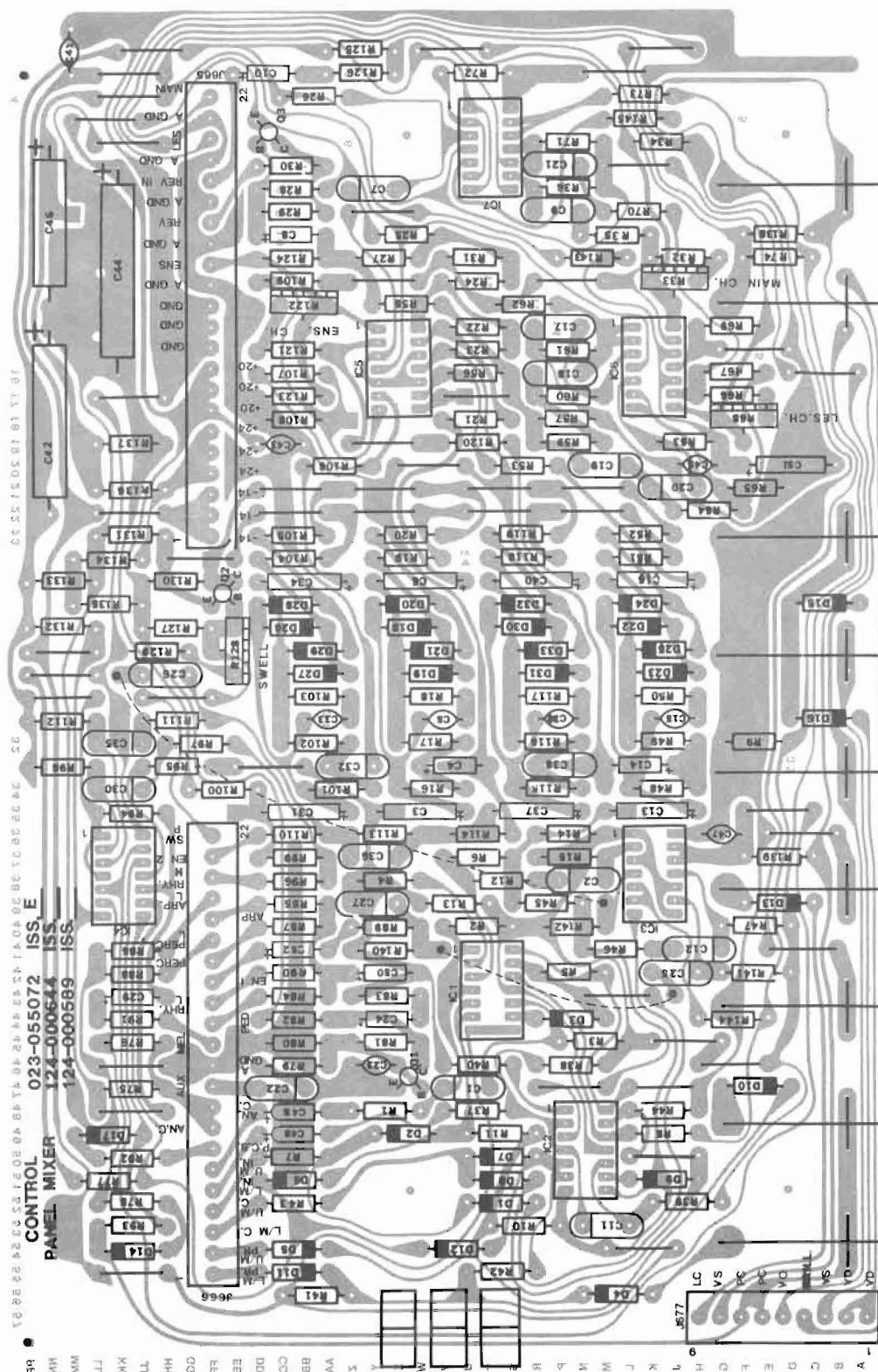
124-000636

340107 PRELIMINARY





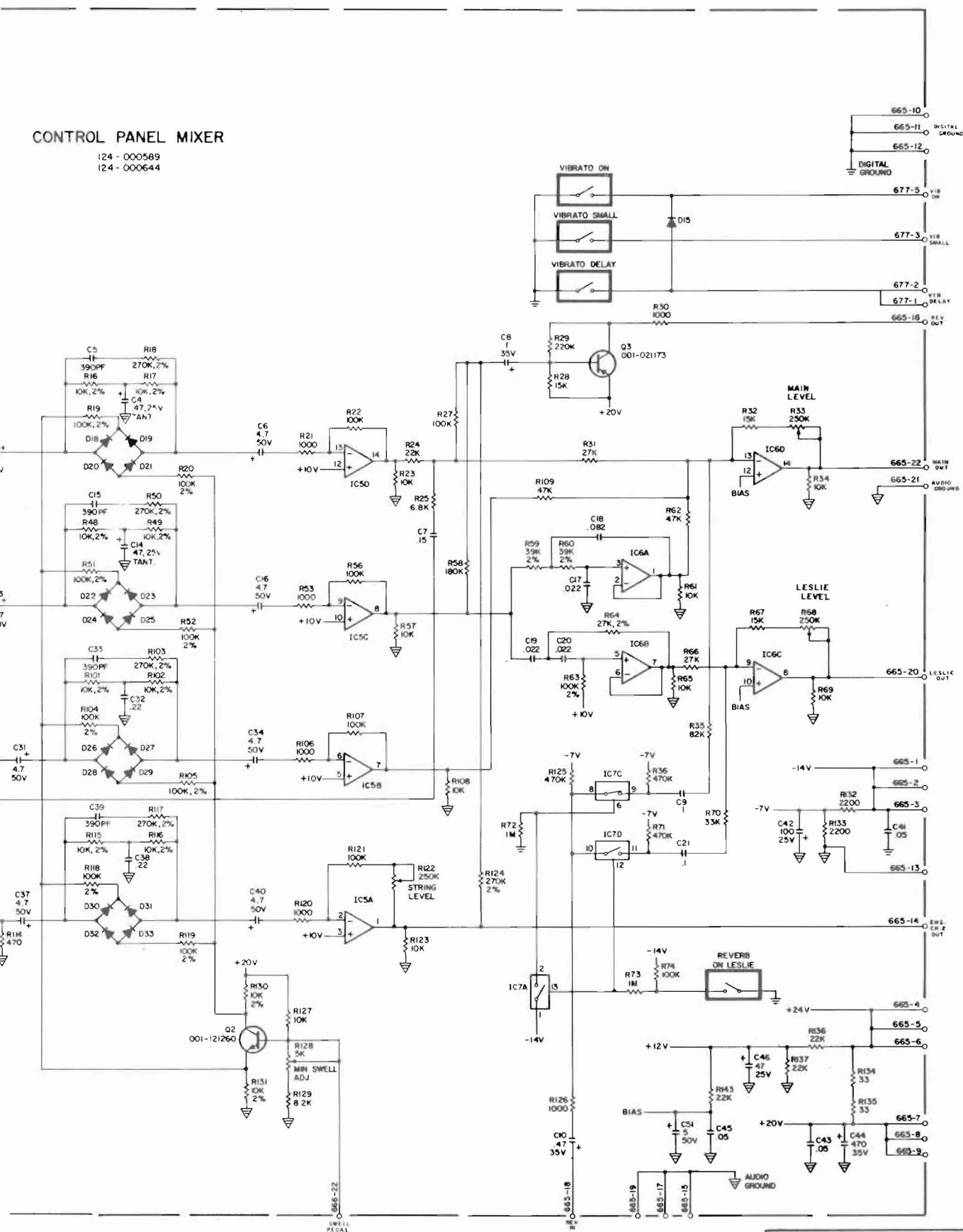
CONTROL PANEL MIXER PWB
COPPER & LEGEND





CONTROL PANEL MIXER

124 - 000589
124 - 000644



CONTROL PANEL MIXER PWB
SCHEMATIC

124-000644

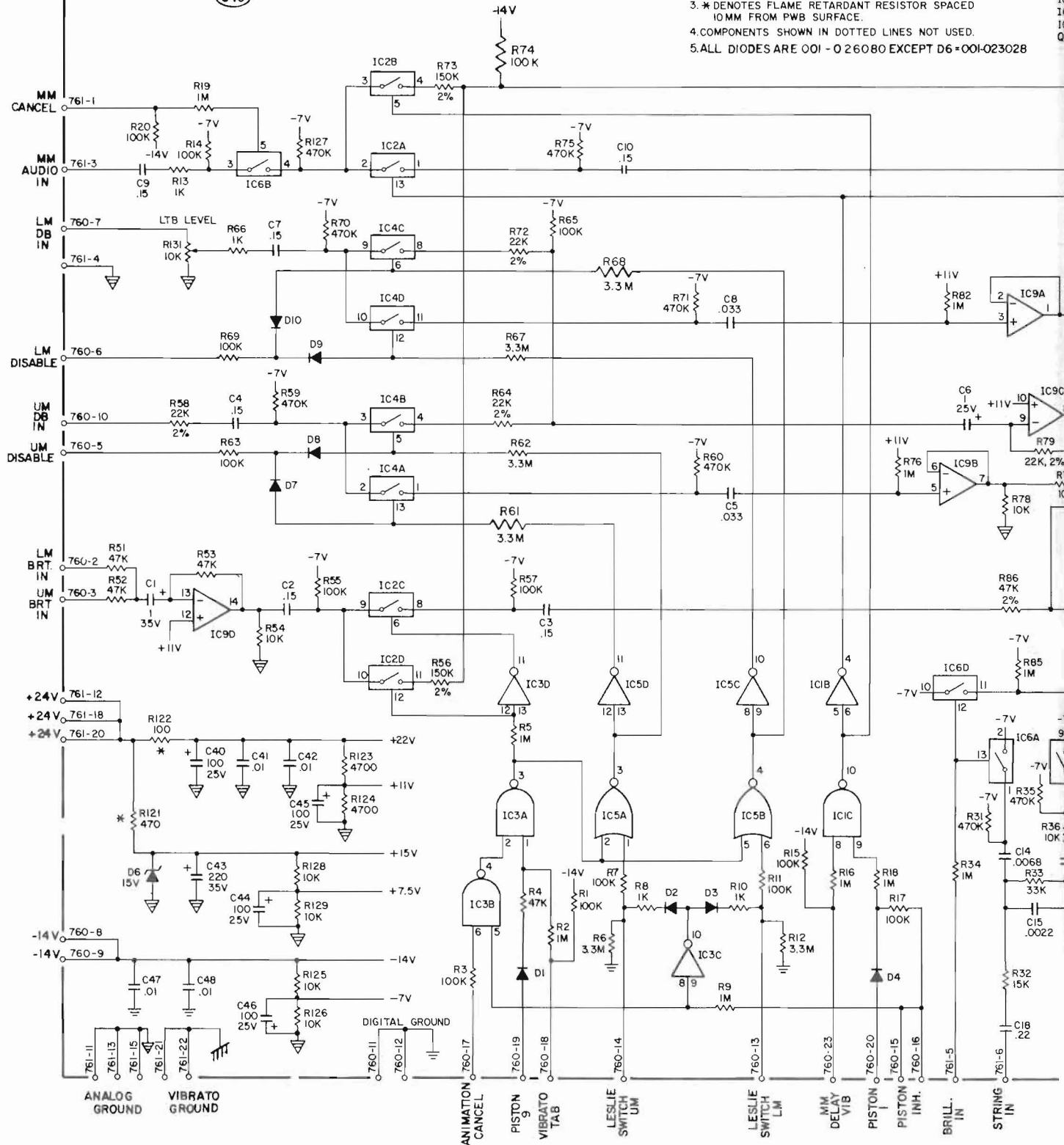
VIBRATO

124-000645

(645)

NOTES:

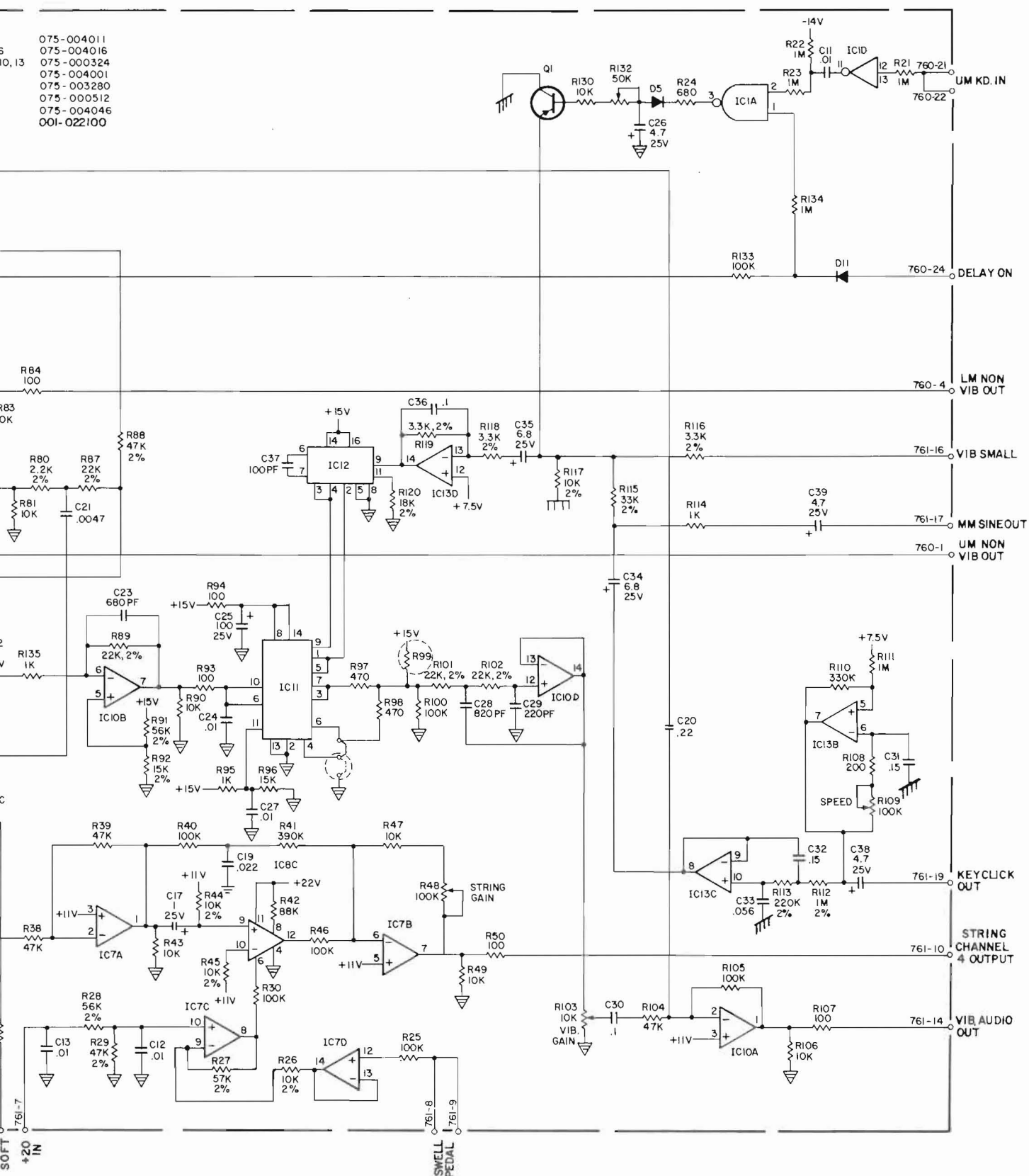
1. ALL CAPACITOR VALUES IN MICROFARADS, $\pm 10\%$ UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTOR VALUES IN OHMS $\pm 5\%$ UNLESS OTHERWISE SPECIFIED.
3. * DENOTES FLAME RETARDANT RESISTOR SPACED 10MM FROM PWB SURFACE.
4. COMPONENTS SHOWN IN DOTTED LINES NOT USED.
5. ALL DIODES ARE 001-026080 EXCEPT D6=001-023028

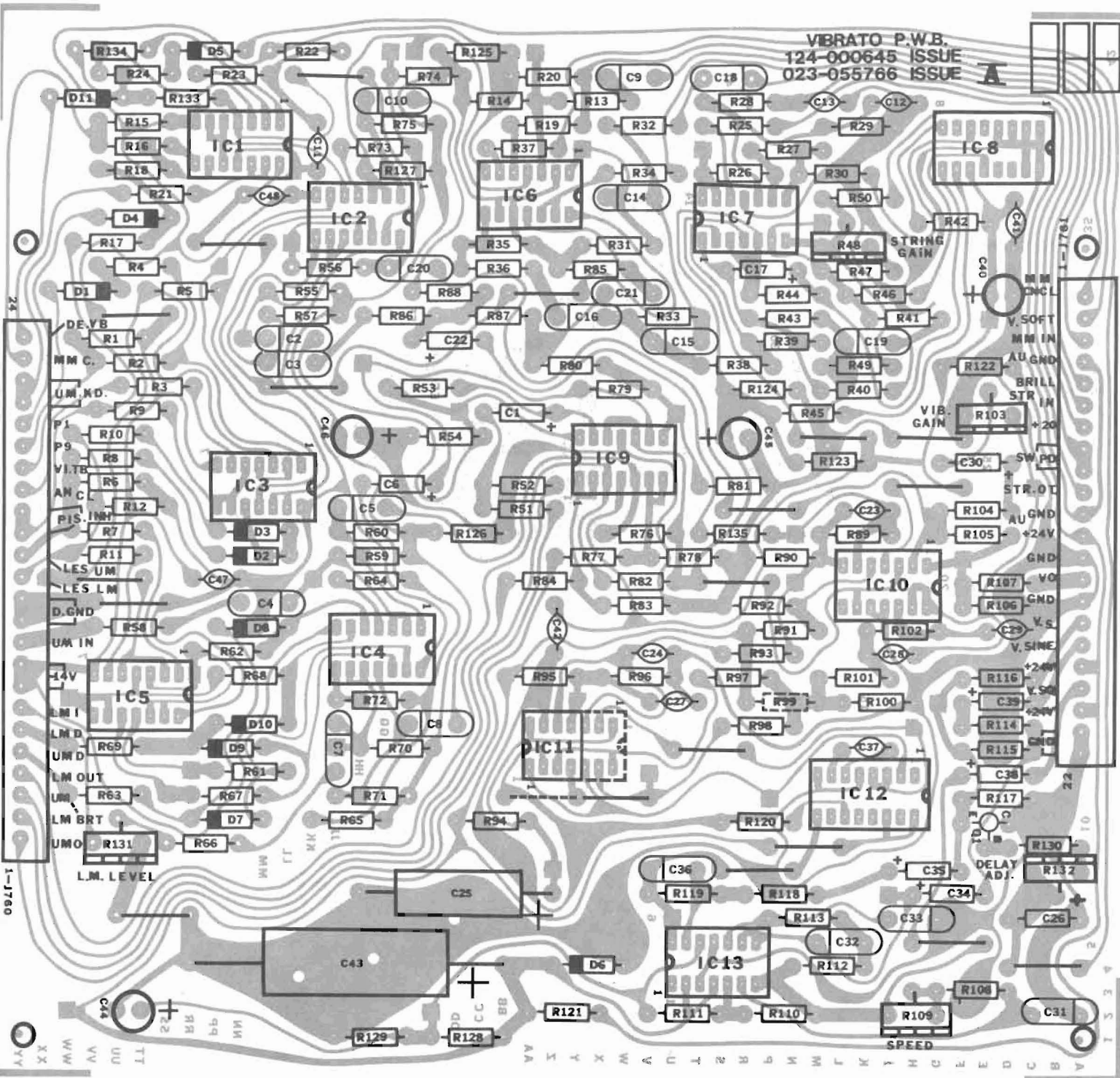


VIBRATO PWB
SCHEMATIC

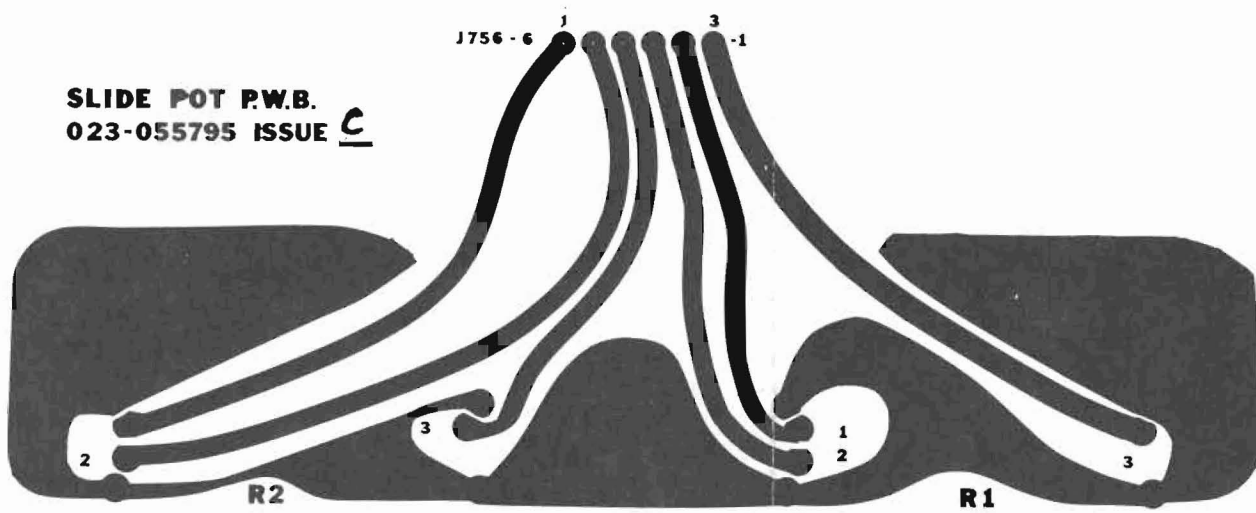
124-000645

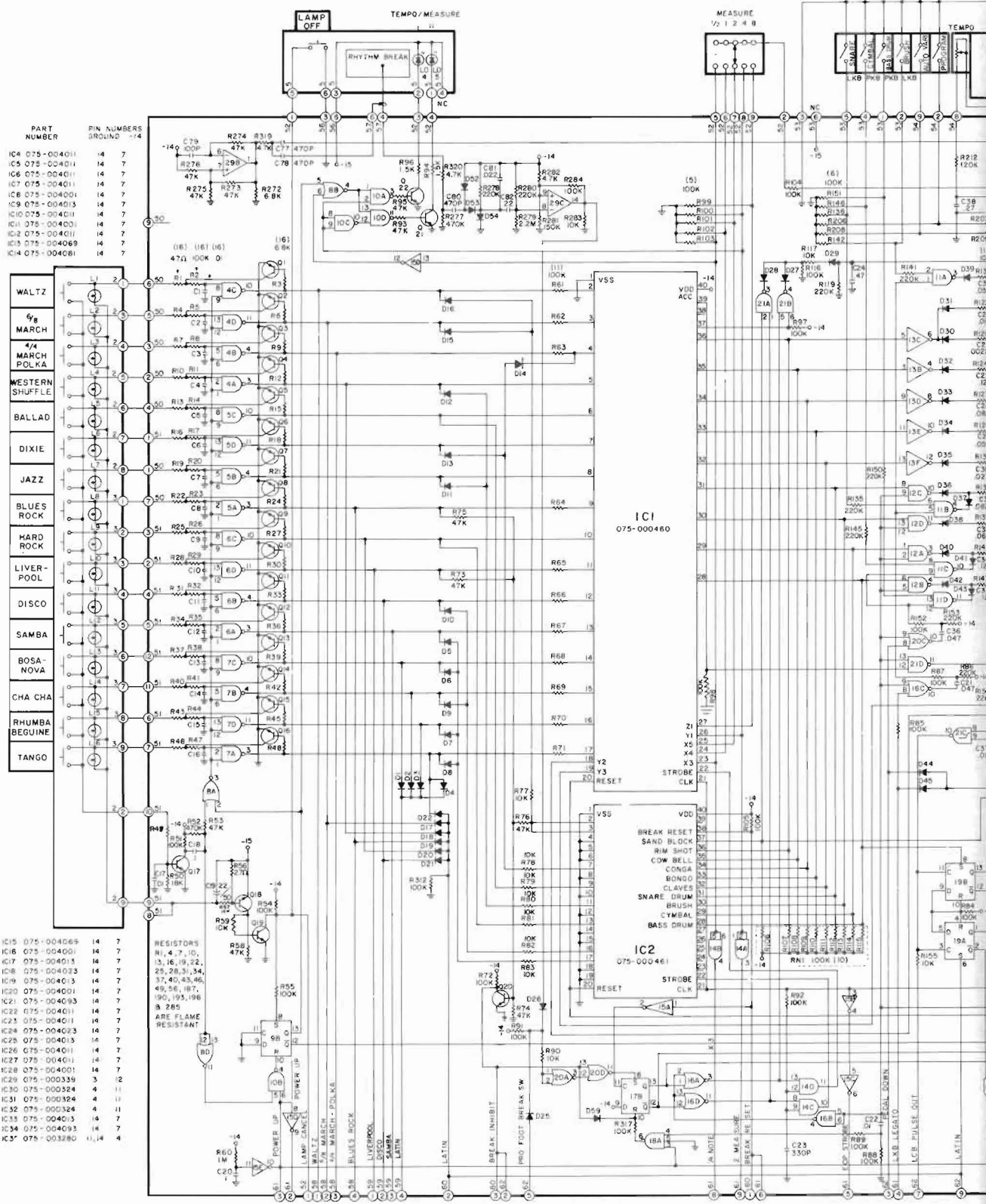
075-004011
075-004016
075-000324
075-004001
075-0003280
075-000512
075-004046
001-022100





SLIDE POT P.W.B.
023-055795 ISSUE C



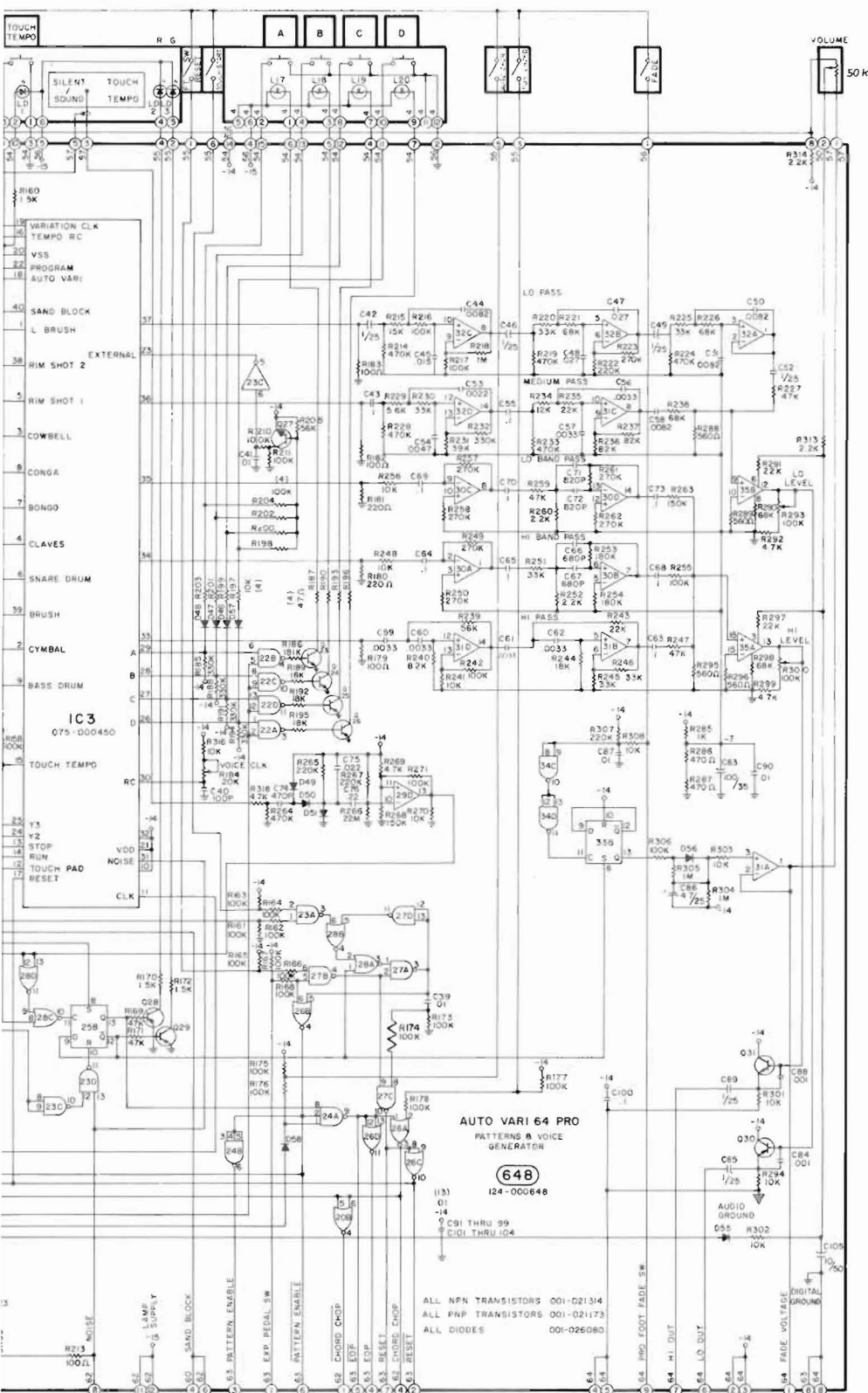


PART NUMBER	PIN NUMBERS	GROUND
IC4 075-004001	14	7
IC5 075-004001	14	7
IC6 075-004001	14	7
IC7 075-004001	14	7
IC8 075-004001	14	7
IC9 075-004001	14	7
IC10 075-004001	14	7
IC11 075-004001	14	7
IC12 075-004001	14	7
IC13 075-004001	14	7
IC14 075-004001	14	7

IC15 075-004069	14	7
IC16 075-004001	14	7
IC17 075-004015	14	7
IC18 075-004023	14	7
IC19 075-004013	14	7
IC20 075-004001	14	7
IC21 075-004093	14	7
IC22 075-004001	14	7
IC23 075-004001	14	7
IC24 075-004023	14	7
IC25 075-004013	14	7
IC26 075-004001	14	7
IC27 075-004001	14	7
IC28 075-004001	14	7
IC29 075-000339	3	12
IC30 075-000324	4	11
IC31 075-000324	4	11
IC32 075-000324	4	11
IC33 075-004013	14	7
IC34 075-004093	14	7
IC35 075-000380	11, 14	4

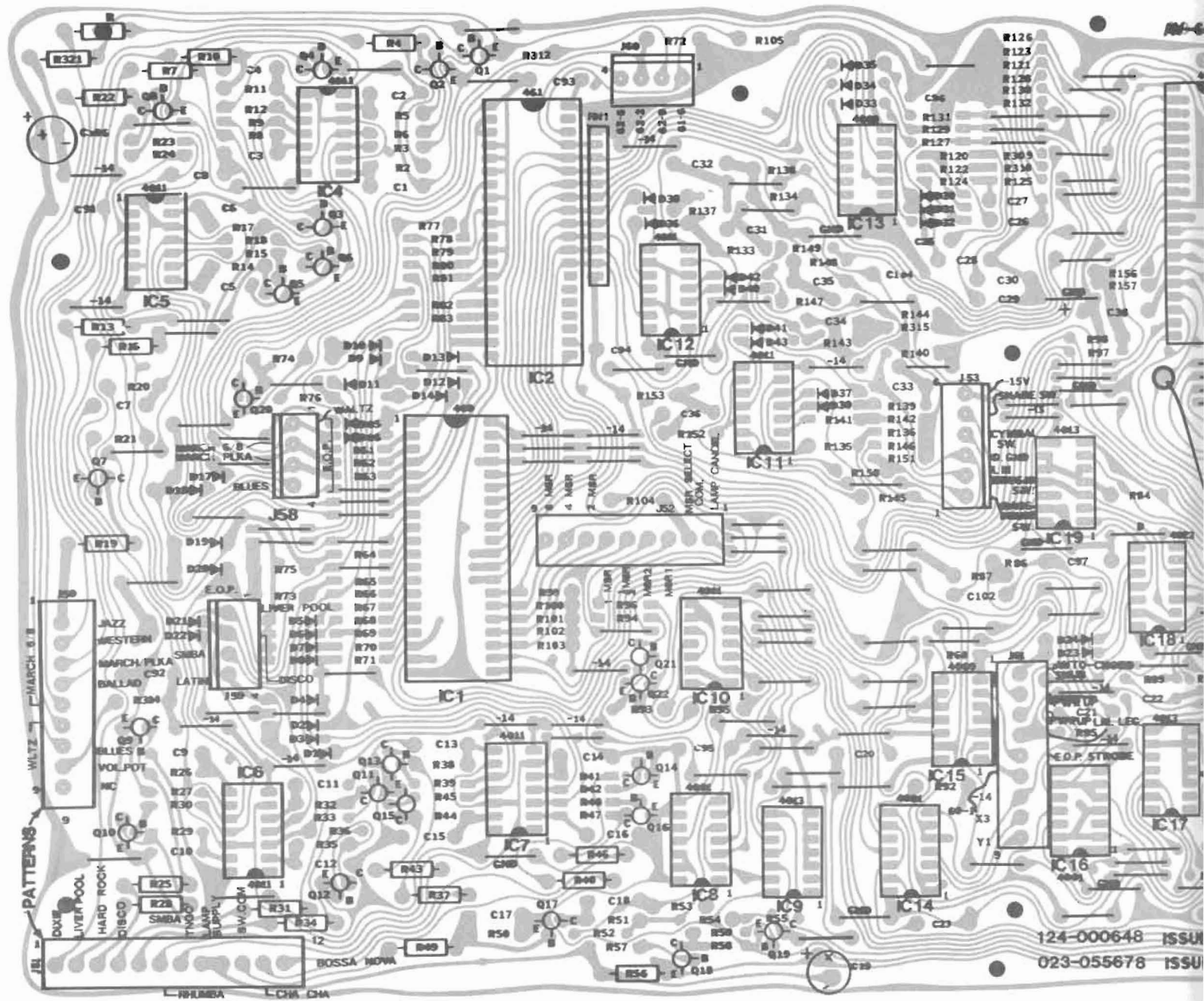
RESISTORS
R1, 4, 7, 10,
13, 16, 19, 22,
25, 28, 31, 34,
37, 40, 43, 46,
49, 56, 187,
190, 195, 198
3.2K5
ARE FLAME
RESISTANT

POWER UP
POWER DOWN
LAMP OFF
WALTZ
MARCH
4/4 MARCH - POLKA
WESTERN SHUFFLE
BALLAD
DIXIE
JAZZ
BLUES ROCK
HARD ROCK
LIVER-POOL
DISCO
SAMBA
BOSA-NOVA
CHA-CHA
RHUMBA BEGUINE
TANGO
LATIN
BREAK INHIBIT
PRO FOOT BREAK SW
MEASURE
TEMPO



AUTO VARI 64 PWB
SCHEMATIC

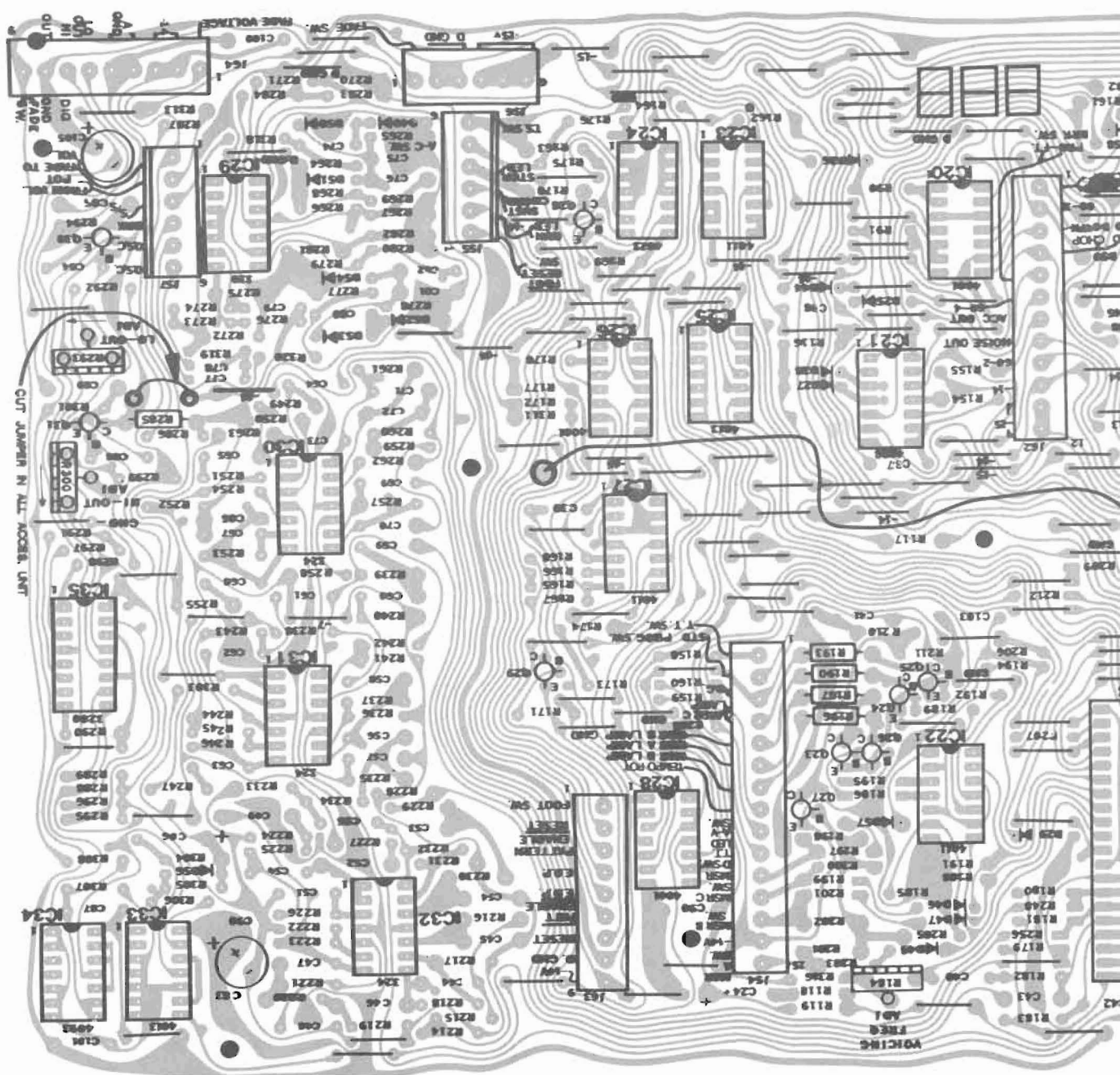
124-000648

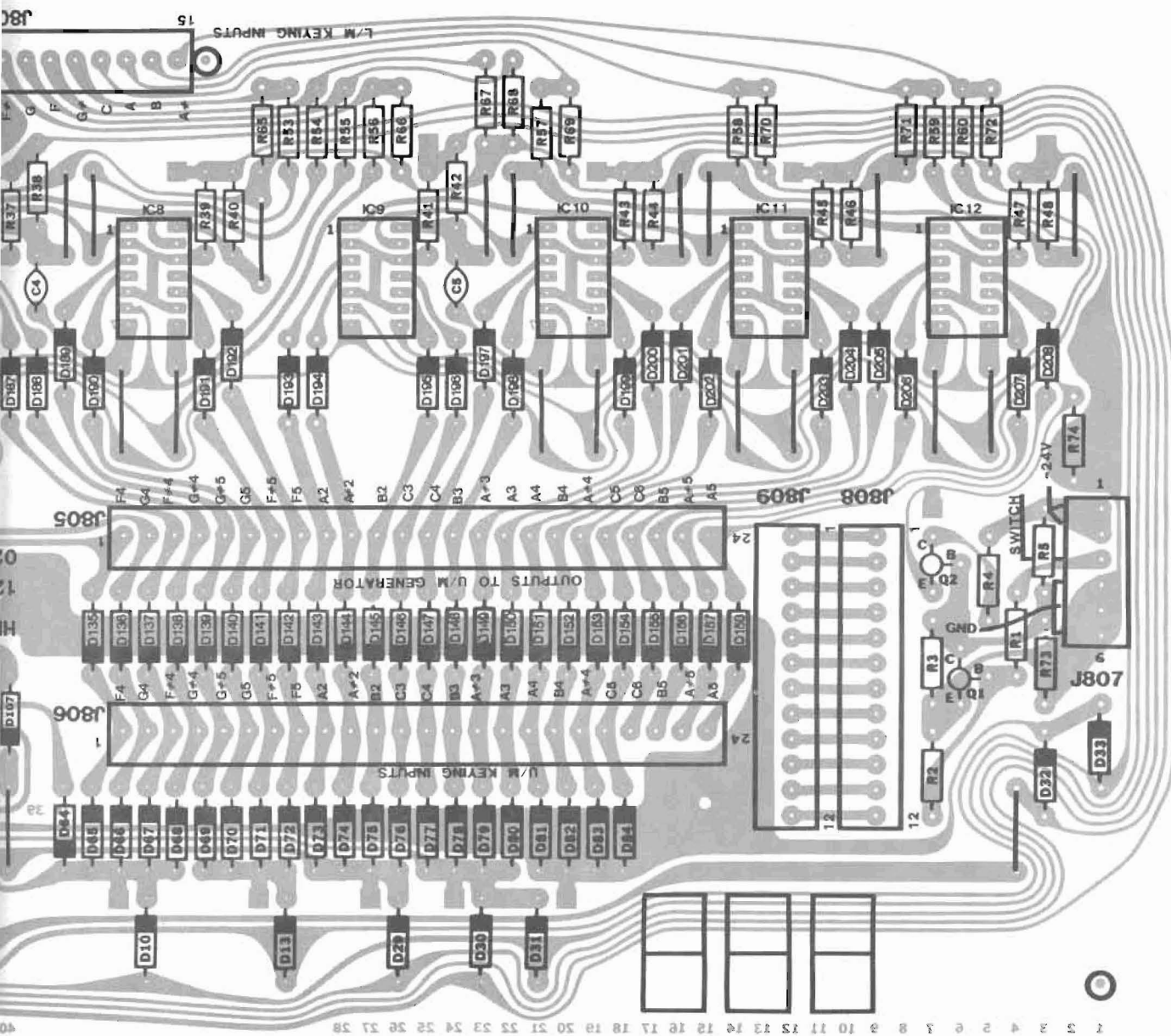


AUTO VARI 64 PW3
COPPER & LEGEND

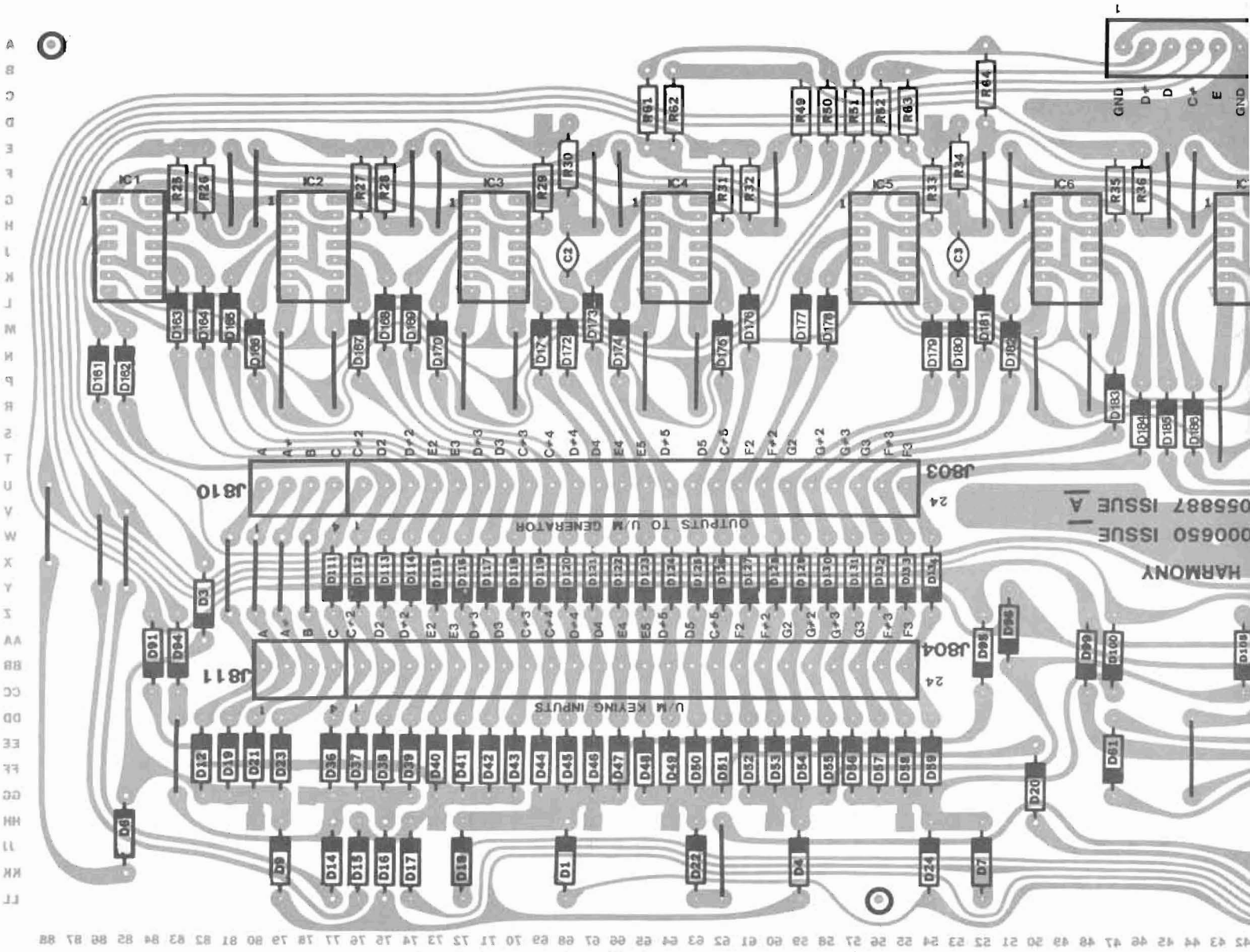
124-000648

3 340107 PRELIMINARY

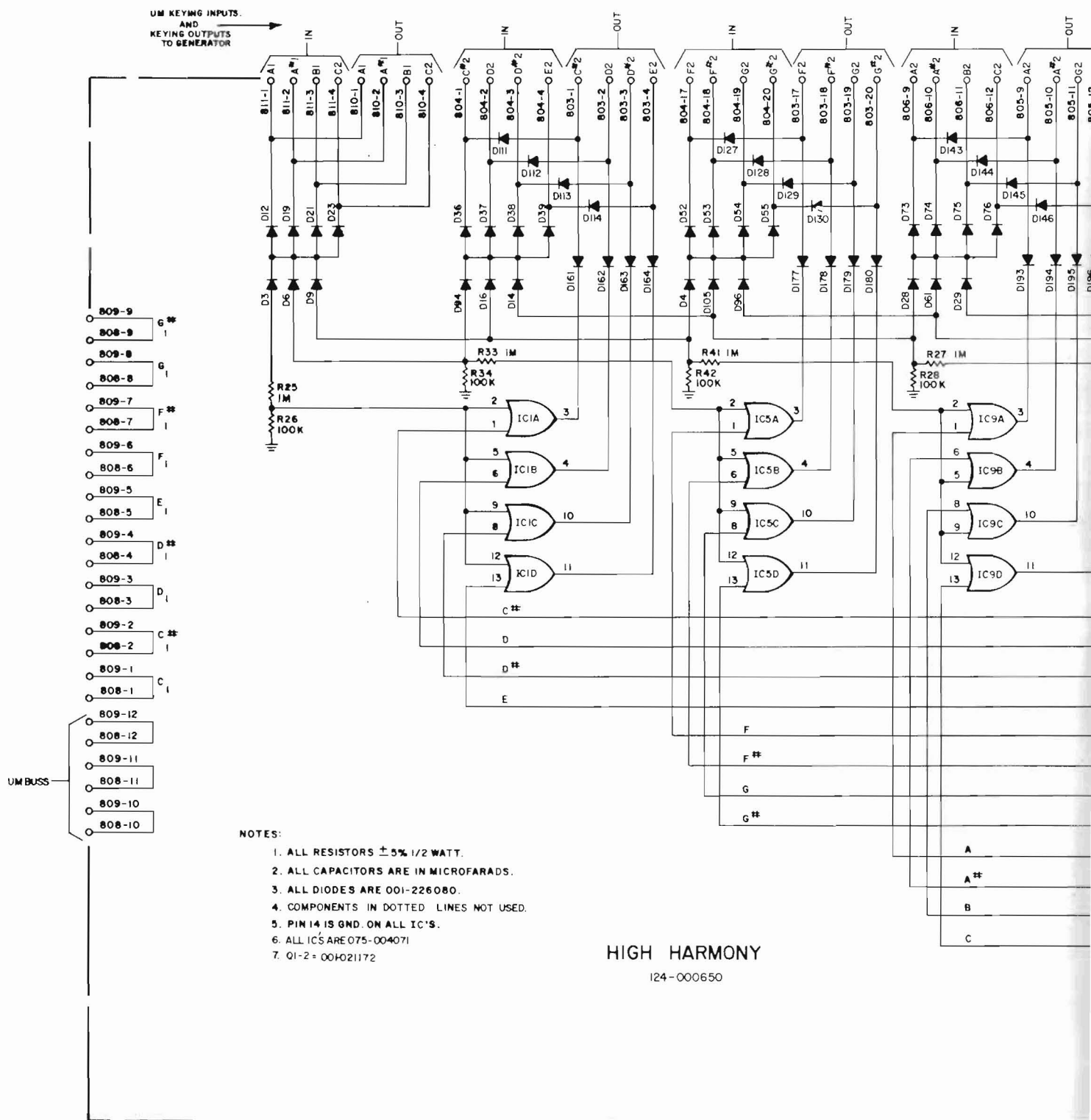




124-000 650
HIGH HARMONY PWB
COPPER & LEGEND



43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



HIGH HARMONY PWB
SCHEMATIC

124-000650

