

Cushman



**Triton
Electronics, Inc.**

SERVICE • PARTS

PHONE: (708) 934-6426
FAX: (708) 934-7195

CE-6000 SERIES RADIO SYSTEM ANALYZER

MAINTENANCE MANUAL

Cushman Electronics, Inc.
1525 Atteberry Lane
San Jose, CA 95131

TABLE OF CONTENTS

		Page
SECTION 1	GENERAL	
	Introduction	1-1
	Description	1-1
	Special Accessories and Options.	1-3
	Specifications	1-4
SECTION 2	SHIPPING AND RECEIVING	
	Introduction	2-1
	Receiving.	2-1
	Preparation for Shipment	2-1
	Preparation for Storage.	2-2
SECTION 3	THEORY OF OPERATION	
	Introduction	3-1
	General Overview	3-1
	Monitor Section.	3-1
	Signal Generator Section	3-3
	System Block Diagram Description	
	Monitor (RCV) Operation	3-3
	Signal Generation	3-5
	Freq. Generation/Frequency Loops	3-7
	Power Supplies.	3-9
	Oscilloscope/Spectrum Monitor	3-10
	Circuit Description	
	12000 Key Pad Control/LCD	3-10
	13000 LCD Drivers	3-10
	14000 Microprocessor.	3-10
	41000 RF Attenuator	3-16
	42000 1st Converter	3-19
	43000 2nd Converter	3-19
	24000 10.7 MHz IF/ALC/Squelch	3-19
	25000 FM/AM Detector.	3-20
	37000 SINAD	3-26
	23000 FM/AM Modulation.	3-26
	31000 Audio Synthesizer/Control	3-28
	62000 210.7 MHz IF.	3-29
	64000 210.7 MHz BPF	3-29
	65000 2010.7 MHz Upconverter.	3-29
	36000 Offset Generator.	3-30
	69000 Upconverter	3-30
	75000 Final Mixer/1.1 GHz LPF	3-31
	47000 High Level Amplifier.	3-31
	46000 Output Prot/Pwr Detect.	3-31
	26000 Reference Freq. Gen/Div	3-32
	63000 200 MHz VCO	3-33
	76000 YIG Freq Dir Cplr/Buf Amp.	3-33
	74000 YIG PLL Mixer	3-33
	73000 1935 MHz Upconverter.	3-33
	72000 High Frequency Divider.	3-34
	32000 YIG Main Coil Steering.	3-34

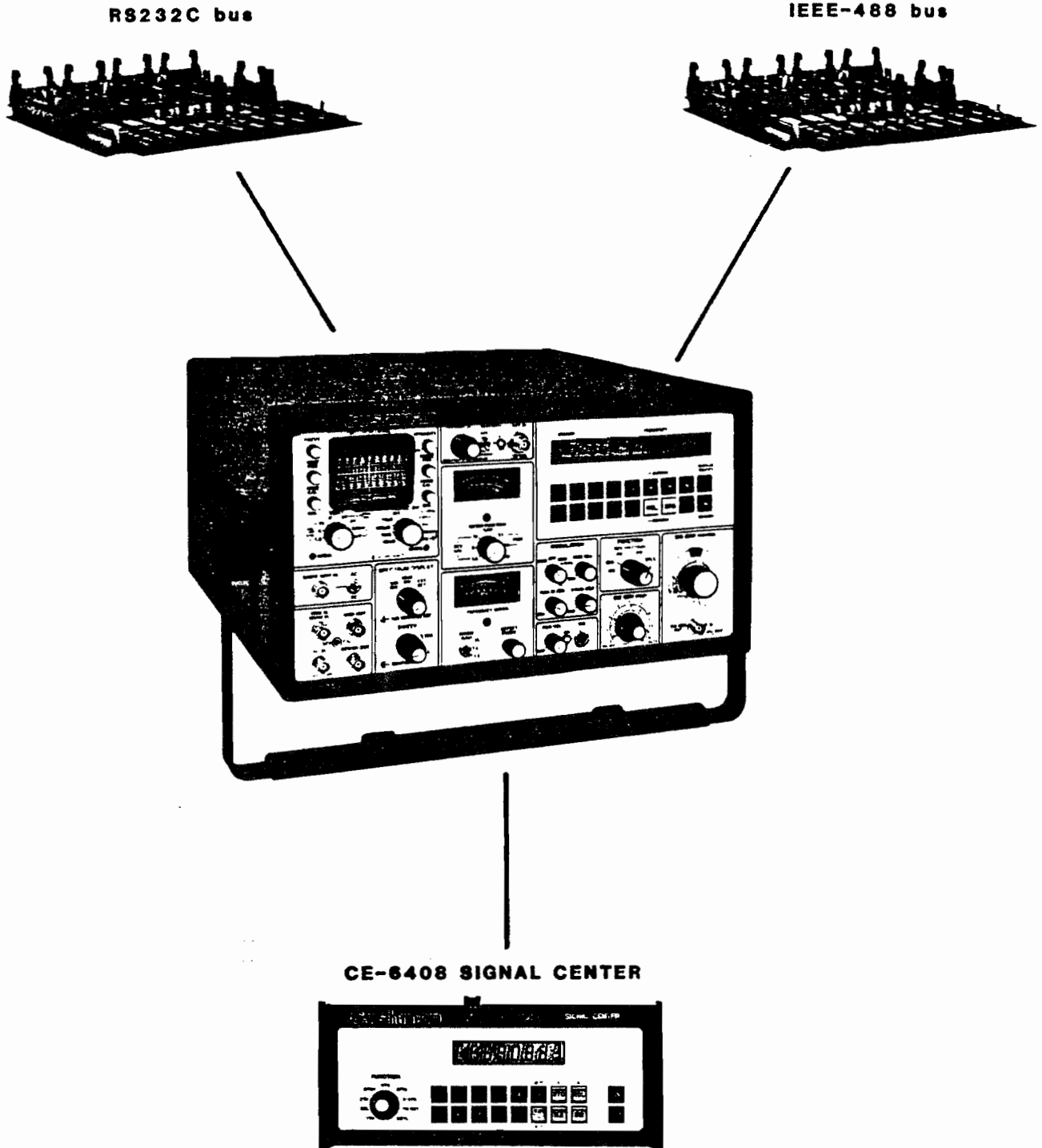


Figure 1-1. CE-6000 Series Radio System Analyzer

- b. Provides a portable test instrument which can monitor and test the frequency characteristics of transceivers in the VHF/UHF range to 1000 MHz.
- c. Can be optionally provided with a rechargeable battery for fully portable operation.

1.04 The CE-6020 Radio System Analyzer includes the basic instrument capability plus OP-04 Tracking Generator (TG) option, and the Cable Fault Location function.

1.05 The CE-6030 Radio System Analyzer includes all the functions of the CE-6020 instrument plus an Offset Frequency Generator (OP-03), and a Model 6408 Signal Center Encoder (OP-05).

1.06 The basic CE-6020 and CE-6030 instruments can be equipped with either an IEEE-488 (CE-6488) or RS-232C (the CE-6232) data bus option to provide a system interface capability for remote operation of the Analyzer.

1.07 SPECIAL ACCESSORIES AND OPTIONS

OPTIONS

1.07.1 System capability can be increased with the addition of special accessories and options available from Cushman Electronics.

1.07.2 Additional options available include:

- a. OP-01: Provides a rechargeable battery for fully portable operation.
- b. OP-02: Replaces the standard temperature-compensated crystal oscillator reference (TCXO) with an oven-controlled crystal oscillator reference (OCXO).
- c. OP-03: Adds an Offset Frequency Generator (Bus or local control). Option included with the CE-6030.
- d. OP-04: Will provide a local control Tracking Generator function. Option included on the CE-6020 and CE-6030.
- e. OP-05: Adds a CE-6408 Signal Center Encoder (local control). Included with CE-6030.
- f. OP-06: Allows operation with external 11-15 Vdc (less battery pack and charger).

- g. OP-07: IEEE-488 Interface bus option. Not available for units equipped with OP-01 or OP-09. Included in CE-6488.
- h. OP-08: 150 watt Single-Cable Duplex option. Instrument must be equipped with OP-03.
- i. OP-09: RS-232C Interface bus option. Not available for units with OP-01 or OP-07. The option is included in CE-6232.

1.07.3 The purchase of a more basic instrument does not limit the overall CE-6000 capability. Any CE-6000 instrument can be updated at any time to include these additional capabilities, subject to some option capability restrictions. Contact Cushman Electronics for further information.

ACCESSORIES

1.07.4 Each CE-6000 Series instrument is shipped with an accessories package, a telescoping whip antenna (which connects to the ANT IN connector), 74" coaxial cable, power cord, front cover, an owner's manual, and extender boards for maintenance. Other accessories available include a fiberglass shipping trunk (5287-0068), a soft zippered cover with shoulder strap (5287-0069), an instrument mounted Accessory Pouch (5285-0020: recommended for CE-6408 Signal Center Encoder), and vehicular power cord.

SPECIFICATIONS

1.07.5 Specifications for the CE-6000 Series Radio System Analyzer purchased are inserted here for reference, and are the latest release available of specifications for this product at the time of sale.

NOTE

Maintenance procedures included in this manual are intended to verify system operation only, and should not be used to verify product specifications. In some instances, this requires special and laboratory type equipment not normally available in field environments.

TABLE 1-1

CE-6000 SERIES RADIO SPECTRUM ANALYZER SPECIFICATIONS

MONITOR

FUNCTIONS

Frequency error, FM deviation, %AM, RF Power, SINAD, audio frequency (Lissajou), SSB (receive).

FREQUENCY

Range: 0.45 to 999.9999 MHz (usable to 50 kHz)
Accuracy: $\pm 1 \times 10^{-7} \pm$ (time base stability)

INPUTS

2 BNC connectors: high sensitivity (2uV) antenna input, and a high power input/output for direct connection of transceivers of up to 150 W transmitter power.

SENSITIVITY (NARROW SELECTIVITY)

FM: 2uV (0.6uV typical) for 10 dB SINAD; frequency ≥ 2.0 MHz
AM: 2uV typical for 10 dB SINAD; Frequency ≥ 10 MHz

SELECTIVITY/SQUELCH

Selects IF and audio 3 dB bandwidths: Narrow=22 kHz & 3 kHz; Medium=22 kHz & 21 kHz; Wide=220 kHz & 21 kHz
(Concentric controls adjust squelch and receiver sensitivity)

FREQUENCY ERROR METER

Zero centered meter reads offset from display frequency
Ranges: ± 1.5 , ± 5 , and ± 15 kHz
Resolution: 50 Hz

FM DEVIATION

FM peak deviation read simultaneously on meter and CRT
Ranges (meter and CRT): 1.5, 5, and 15 kHz peak
Accuracy: $\pm 5\%$ of full scale on meter

AM MODULATION

% AM modulation read simultaneously on CRT display and calibrated meter.
Meter range: 0 to 100%
CRT Range: $\pm 15\%$, $\pm 50\%$, and $\pm 150\%$
Accuracy: $\pm 5\%$ of meter scale

POWER METER

Range: 1W to 15W; 10W to 150W
Accuracy: $\pm 10\%$ full scale from 1-500 MHz; $\pm 20\%$ full scale from 500 - 1,000 MHz.
Frequency range: 1 - 1,000 MHz
Power handling: 150 watts for 5 minutes typical. Then thermal safety alarm sounds if load temperature reaches 75°C

TABLE 1-1 (cont'd)

CE-6000 SERIES RADIO SPECTRUM ANALYZER SPECIFICATIONS

SINAD METER

Range: 0 to 20 dB

Accuracy: 10, 12, and 20 dB SINAD ± 1.5 dB

Frequency: 1,000 Hz

INTERNAL TONE

Connects MOD OUT to horizontal scope input to measure frequency of audio tones using Lissajou method.

FM RESIDUAL NOISE

 ≤ 100 Hz; $f_c \geq 10$ MHz, 20uV input, narrow selectivity

DEMOD OUT

Level: 2V peak-to-peak for 15 kHz FM deviation, typical

SIGNAL GENERATOR

FREQUENCY RANGE

.45 to 999.9999 MHz (usable to 10 kHz)

ACCURACY

FM, AM, CM: $\pm 1 \times 10^{-7} \pm$ (time base stability)

VARIABLE FREQUENCY OFFSET

 ± 15 kHz about dialed-in frequency with single knob control (push to activate)

LEVEL

Range: 0.1uV to 300 mV rms, continuous.

Accuracy: ± 3 dB overall; ± 2 dB typical for levels between 0.7uV to 100 mV.

MODULATION

FM Internal: Frequency, accuracy; refer to the audio synthesizer specifications.

Deviation: 1.5, 5, and 15 kHz peak deviation full scale ranges on meter and CRT.

Accuracy: $\pm 5\%$ FM External Deviation:

Sine Wave: 30 Hz to 10 kHz, 15 kHz max. deviation

Square Wave: 5 Hz to 300 Hz, 3 kHz max. deviation

AM Internal: Frequency, accuracy; refer to the audio synthesizer specifications.Range: 0 to 100% full-scale range on meter; ± 15 , ± 50 , and $\pm 150\%$ full-scale ranges on CRT.AM External Frequency: 30 Hz to 10 kHzSpurious OutputsHarmonics (freq. ≥ 1 MHz): > 30 dBc (60 dB typical)Non-harmonics: > 35 dBc (60 dB typical)Residual FM: ≤ 100 Hz

TABLE 1-1 (cont'd)

CE-6000 SERIES RADIO SPECTRUM ANALYZER SPECIFICATIONS

SPECTRUM MONITOR

FREQUENCY RANGE

10 to 1,000 MHz (usable to 100 kHz)

DYNAMIC RANGE

+0 to -115 dB

RF ATTENUATOR

 \geq 40 dB in 20 dB steps

DISPLAY RANGE

70 dB (10 dB/div.), and
8 dB (1 dB/div.)

VERTICAL OFFSET RANGE

> 20 dB (1 dB/div. only)

LOG SCALE LINEARITY

 \pm 1.5 dB from 0 to -60 dB (10 dB/div.)
 \pm 0.25 dB from 0 to 8 dB (1 dB/div.)

ABSOLUTE LEVEL ACCURACY

 \pm 4.5 dB (S/N \geq 20 dB)

SCAN WIDTHS

Fixed: 10, 100 kHz/div.; 1, 10 MHz/div.; 0 - 1,000 MHz
Variable: 10 to > 350 MHz (for cable fault)

MINIMUM RESOLUTION

3 kHz for 2 equal signal levels

AUDIO SYNTHESIZER

FREQUENCY MODES

MOD: 0.1 Hz to 19,999.9 Hz, with resolution of 0.1 Hz
MOD + 1 kHz: Simultaneous 1 kHz tone + GEN frequency

ACCURACY

1 kHz: Time base stability

MOD OUT LEVEL RANGE

0 - 2V peak-to-peak into 1 K ohm typical. Separately
adjustable controls for GEN frequency and 1 kHz tone.OSCILLOSCOPE

FREQUENCY RANGE

DC to 500 kHz, 3 dB bandwidth (usable to 1 MHz)

TABLE 1-1 (cont'd)

CE-6000 SERIES RADIO SPECTRUM ANALYZER SPECIFICATIONS

CRT SCALE

8 divisions high x 10 divisions wide

VERTICAL SENSITIVITY (CALIBRATED)

5 mV/div., 50 mV/div., 0.5 V/div., 5.0 V/div ($\pm 5\%$)
Continuously adjustable between ranges

HORIZONTAL SWEEP RATE (CALIBRATED)

10 msec/div., 1 msec/div., 100 usec/div., 10 usec/div.
($\pm 5\%$) Continuously adjustable between ranges

EXTERNAL INPUTS

Vertical and horizontal inputs (horizontal through MOD
IN connector)

Vertical input impedance: 1 megohm, $\pm 5\%$, in parallel
with 30 pF.

TRACKING GENERATOR (Optional for CE-6232 and CE-6488)

Swept frequency output is exactly equal to input frequency
of Spectrum Monitor.

FREQUENCY RANGE

10 MHz to 999.9999 MHz (usable from 450 kHz)

SWEEP WIDTHS

Fixed: 100 kHz, 1 MHz, 10 MHz, and 100 MHz
Variable: 10 MHz > 300 MHz

OUTPUT LEVEL

0.1 uV to 300 mV, continuous

OUTPUT

BNC Connector at SIG GEN OUT. Controlled by ON/OFF
position on SIG GEN (FINE) attenuator control.

INTERNAL LEAKAGE

60 dB typical below 0 dB ref. on Spectrum Monitor (CRT)
display, and SIG GEN (FINE) attenuator below -10 dB

DISPLAY MODES

Spectrum Monitor; External detector; oscilloscope

DISPLAY RANGE

60 dB typical on Spectrum Monitor with SIG GEN (FINE)
attenuator control below -10 dB level.

DYNAMIC RANGE

>10 MHz: ≥ 100 dB, typical
455 kHz to 10 MHz: ≥ 70 dB, typical

TABLE 1-1 (cont'd)

CE-6000 SERIES RADIO SPECTRUM ANALYZER SPECIFICATIONS

OFFSET GENERATOR (Optional for CE-6020, CE-6232, CE-6488: Must be installed before option OP-08 can be incorporated). In DPLX mode, offset signal is generated simultaneously.

BASE FREQUENCY RANGE

10 MHz to 999.9999 MHz monitor receiver frequency.

FREQUENCY OFFSET

± 0.10 to ± 11.999 MHz, and ± 45 MHz about the monitor frequency (Frequency > offset frequency)

RESOLUTION

1.0 kHz

OUTPUT LEVEL

0.1 μ V to 300 mV (uncalibrated)

OUTPUT SPECTRUM

DSB suppressed carrier (2 signals of equal level above and below monitor display frequency).

CARRIER SUPPRESSION

Received frequency suppressed 20 dB min., 30 dB typical

MODULATION

AM; FM

IEEE-488 BUS

TRANSFER RATE: 2,500 bytes/second (Baud)

BUS MODES: Talker/Listener

BUS FUNCTIONS SUPPORTED:

Source Handshake	(SH)	Allows data transfer
Acceptor Handshake	(AH)	
Talker	(T)	Talker/Listener without
Listener	(L)	secondary addresses
Service Request	(SR)	Data available indicator
Remote/Local	(RL)	Allows controller to take
		over CE-6488 instrument.

INSTRUMENT BUS ADDRESS

Select resident memory location number 70; enter desired address (1-15) at CE-6488 front panel keyboard. Address is retained in memory until changed.

INSTRUMENT FUNCTIONS UNDER BUS CONTROL

Monitor	Signal Generator
Offset Generator	Audio Synthesizer

TABLE 1-1 (cont'd)

CE-6000 SERIES RADIO SPECTRUM ANALYZER SPECIFICATIONS

RS-232C INTERFACE BUS

TRANSFER RATE: 9600 bytes/second (Baud); half duplex

BUS PROTOCOL:

No handshake (three-wire operation)
 Eight bit ASCII
 One "START" bit
 One "STOP" bit
 No parity

BUS MESSAGE STRUCTURE

ASCII control string terminated with CR/LF
 (carriage return/line feed)

INSTRUMENT FUNCTIONS UNDER BUS CONTROL

Monitor	Signal Generator
Offset Generator	Audio Synthesizer

GENERAL

WEIGHT

43 lbs.

DIMENSIONS

Height: 8 1/4" Width: 15" Depth: 18"

POWER SOURCES

115/230 Vac (+10%), 50-400 Hz, 85 watts
 External 11-15 Vdc at 7.5 amps. (Optional)
 Self-contained battery pack and charger (Optional)

FREQUENCY STABILITY, TIME BASE

TCXO: 1×10^{-6} per year after 30 seconds; $\pm 3 \times 10^{-7}$
 per month after 30 days.
 Oven: (Optional) 2×10^{-7} per year after 25 minutes at
 25°C.

FREQUENCY SELECTION

Microprocessor based, keyboard entry (with LCD display)
 69 memory locations for RF and analog tone frequencies.

AUTOMATIC OVERLOAD PROTECTION

SIG GEN OUT/RF IN port automatically protected in SIG
 GEN mode against accidental transmitter keying for
 150 watts maximum power for 5 minutes. High power
 protection is still active when instrument power
 is OFF.

TABLE 1-1 (cont'd)

CE-6000 SERIES RADIO SPECTRUM ANALYZER SPECIFICATIONS

MICROPHONE INPUT

For optional Cushman microphone with built-in DTMF pad,
or to connect Cushman's Model CE-6408 Signal
Center Encoder.

TEMPERATURE OPERATING RANGE

0°C to +55°C (32°F to 131°F)

MODEL CE-6408 SIGNAL CENTER

FREQUENCY RANGE:

Single Tone Generator	0.1 to 3275 Hz
Multi-Frequency Tone Pairs	0.1 to 2100 Hz each

RESOLUTION	0.1 Hz
------------	--------

ACCURACY	±0.01%
----------	--------

ANALOG OUTPUT

Wave Shape	Sinusoidal
Distortion	<1.0% at 1 kHz
Phase Jitter	≤3.0° p-p
Frequency Response (as measured at modular input)	+0.25, -1.0 dB

INTER-TONE TIMING

Tone ON/OFF (Control and Delay Range)	0 - 64 seconds
--	----------------

Resolution	1 ms
Display	8 digit LCD

DIGITAL OUTPUT

Internal memory with "firmware" for the following
signaling methods:

- Digital coded squelch (DCS)
- Digital pager systems
 - * POCSAG
 - * NEC
 - * Motorola GOLAY

Resolution	1 ms
Display	8-digit LCD

SECTION II - SHIPPING AND RECEIVING

2.01 INTRODUCTION

2.01.1 This section contains instructions for receiving, inspecting, unpacking, preparation for shipment, and the preparation for storage of Cushman Electronics equipment.

2.02 RECEIVING

2.02.1 Upon receipt, the shipping containers should be visually inspected for signs of external damage which might indicate damage to the contents, and such damage noted on the transporting agencies Receipt Invoice.

2.02.2 Carefully remove the equipment from the packing containers, and save the containers and packing material for future use. Visually examine the exterior of the unit on all sides for damage.

2.02.3 Any signs of damage seen should be documented as completely as possible to expedite the claims response (photographs are recommended). Claims made should be filed as quickly as possible with the responsible transporting agency.

2.03 PREPARATION FOR SHIPMENT

2.03.1 In the event factory service or repair is needed, contact the Cushman Electronics Customer Service Department for further service information or to make arrangements for shipment to the factory or Service Center. The factory address is:

Cushman Electronics, Inc.
Customer Service Department
1525 Atteberry Lane
San Jose, CA 95131

2.03.2 The following is a general guide for repackaging Cushman Electronics instruments for shipment. Use care when packaging to minimize the possibility of damage during shipment.

CAUTION

FEDERAL REGULATIONS PROHIBIT SHIPPING INSTRUMENTS WITH THE BATTERIES CONNECTED. ALWAYS DISCONNECT BATTERIES (IF INSTALLED) BEFORE SHIPPING ANY INSTRUMENT.

2.03.3 Before packing an instrument for shipment to the factory or regional Service Center for repair, attach a tag with the following information:

- * Owner's name
- * Model Number
- * Serial Number
- * Service/Repair Action Required

2.03.4 If the original container is to be used, place the instrument in the container as shown in Figure 2-1. If the original container is not available, one can be purchased from Cushman Electronics. Seal the container with packaging tape approved by the transporting agency.

2.03.5 If the original container and packing material are not used, proceed as follows:

- a. Wrap the tagged instrument in plastic or heavy paper and place in an inner container.
- b. Place packing material around all sides of the wrapped instrument.
- c. Place the instrument and inner container in a heavy carton or wooden box and seal with strong (shipping or reinforced strapping) tape or metal bands.

2.03.6 Mark the shipping container as follows on at least two sides:

DELICATE
ELECTRONIC INSTRUMENT
FRAGILE

2.04 PREPARATION FOR STORAGE

2.04.1 If preparing the equipment for storage, the procedures of 2.03.3 or 2.03.4 above should be followed to ensure proper storage protection.

NOTE

If the optional 12Vdc battery is installed in the instrument battery compartment, the battery should be disconnected before shipment or storage. Federal Regulations prohibit shipping instruments with the batteries connected.

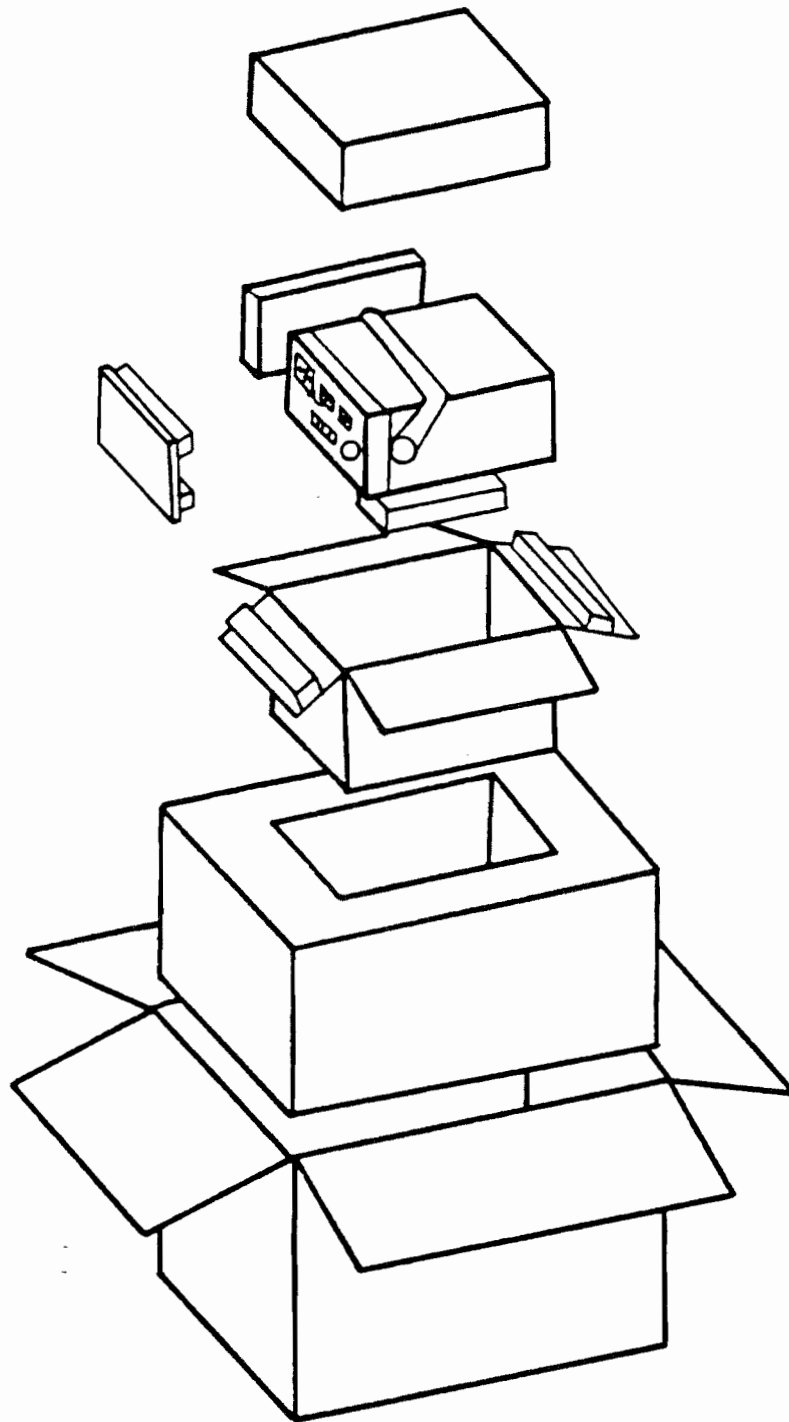


Figure 2-1. Typical CE-6000 Series Instrument Packaging

SECTION III

THEORY OF OPERATION

INTRODUCTION

3.0 The CE-6000 Theory of Operation is divided into three subsections. The first is a general overview of instrument operation. The second describes the operation of the instrument from a System Block Diagram viewpoint. The third is a description of the circuit functions as mounted on the printed circuit boards (PCB), and gives their theory of operation to a component level.

GENERAL OVERVIEW

3.1 Operated as a Communications Monitor, the CE-6000 functions as a triple-conversion superheterodyne receiver over the VHF/UHF frequency range to 1000 MHz. See the CE-6000 Basic Operational Block Diagram, Figure 3-1.

3.2 Fixed internal frequencies are derived from a stable and accurate temperature compensated crystal oscillator (TCXO), or optional Oven Controlled Crystal Oscillator (OCXO) Time Base. The first local oscillator (L.O.) is a 2.01-3.01 GHz YIG oscillator. Its frequency is set by the position of Front Panel push button switches which allow frequency entry of the 100 MHz and 10 MHz digits to the LCD display and microprocessor. The 1800 MHz second L.O. is derived from an internal 600 MHz saw oscillator through a cavity filter tuned to its third harmonic. The third L.O. is 200 MHz derived from the 10 MHz Time Base.

MONITOR SECTION

3.3 The 0-1000 MHz RF signal to be monitored is input at the CE-6000 ANT IN front panel connector. It is mixed with the first L.O. (YIG frequency) of 2.01-3.01 GHz to form the first Intermediate Frequency (I.F.) of 2010.7 MHz.

3.4 When the second L.O. frequency of 1800 MHz is mixed with the 2010.7 MHz first I.F., the second I.F. of 210.7 MHz is formed. This frequency is then mixed with one of two frequencies. In the Spectrum Analyzer mode, the 2nd I.F. is mixed with a 221.4 MHz L.O. signal to provide a special See and HearTM function for display on the CRT. In other modes, the second I.F. is mixed with the 200 MHz 3rd L.O. and the difference frequency becomes the third I.F. of 10.7 MHz. The 10.7 MHz I.F. is then mixed with a fixed 10 MHz to form the final I.F. of 700 kHz.

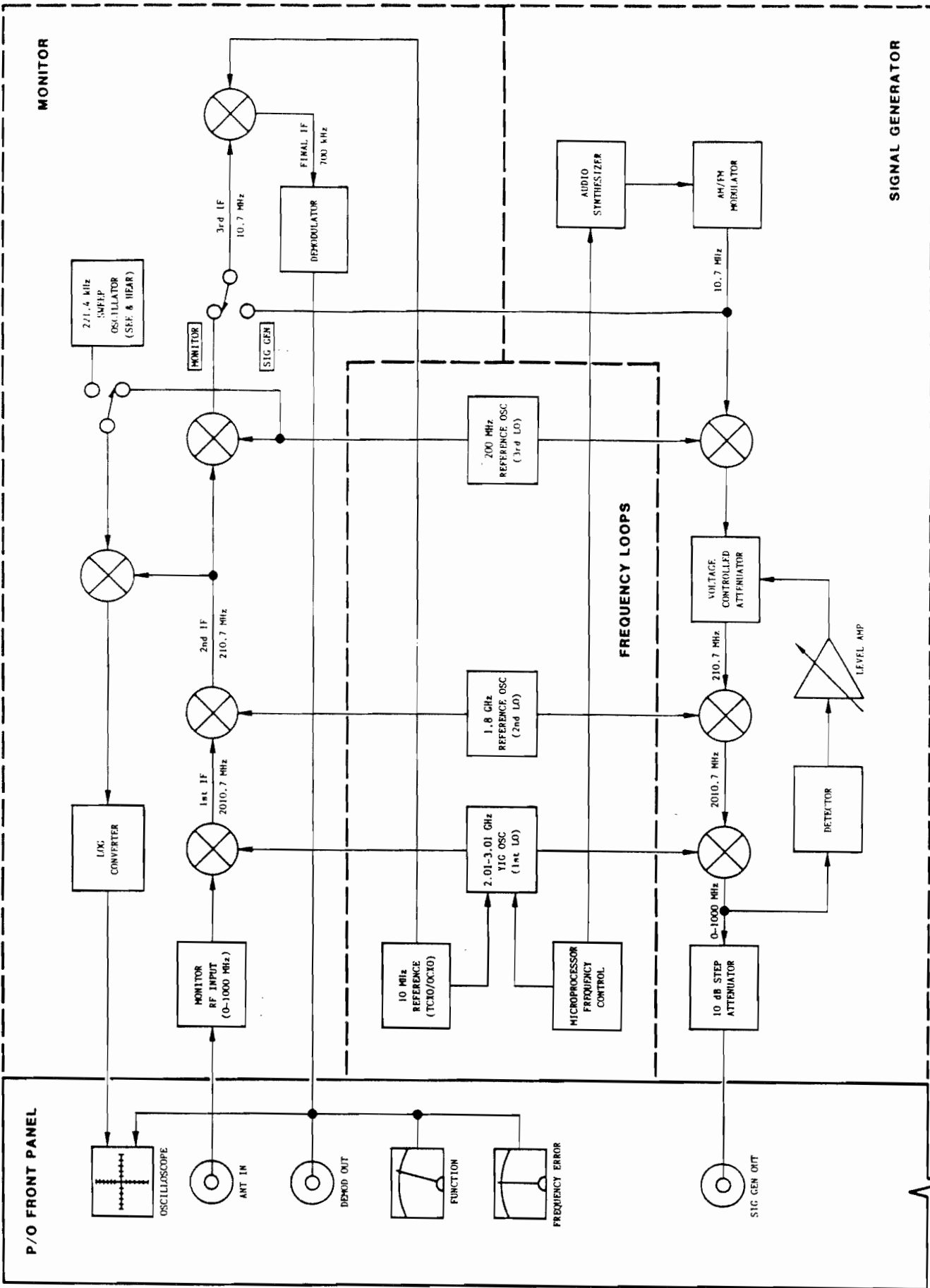


Figure 3-1. CE-6000 Basic Block Diagram

3.5 This 700 kHz final I.F. is sent to the demodulation section where the signal characteristics are removed for display on the oscilloscope and meter circuits. Since all CE-6000 L.O. frequencies used to achieve the final I.F. frequency are very stable and accurate, the signal characteristics present on the 700 kHz I.F. are the same as those on the original signal and not just equivalents.

SIGNAL GENERATOR SECTION

3.6 In the signal generator (SIG GEN) mode, the generation of the RF output signal begins at the FM/AM modulation input. A 10.7 MHz signal is generated by a 10.7 MHz PLL which is either phase locked or is free running (controlled by a DC front panel offset control). This FM/AM modulation output is mixed with the 200 MHz L.O. to form a 210.7 MHz signal whose level is controlled by a voltage controlled attenuator.

3.7 The 210.7 MHz output goes through a bandpass filter (BPF), and is mixed with the 1800 MHz L.O. to form a 2010.7 MHz signal. This signal goes through a 2010.7 MHz BPF, and is mixed with the 2010.7-3010.7 MHz YIG frequency output to form the difference frequency of 0-1000 MHz.

3.8 The 0-1000 MHz signal goes through a 1.1 GHz low pass filter and is amplified and level detected. This is used to control the output signal level, and is adjustable with the SIG GEN (FINE) control continuously from 0 to -10 dB.

3.9 The signal then goes to a 0 - 120 dB variable (10 dB Step) attenuator where the output level is adjustable by the SIG GEN (COARSE) control. The attenuator output then goes through limiter and power detector circuits to the front panel RF IN/SIG GEN OUT jack.

SYSTEM BLOCK DIAGRAM DESCRIPTION

3.10 The Block Diagram description of CE-6000 Radio Analyzer operation shows the functions of the system as divided into five primary sections: the Monitor (RCV), Signal Generator (SIG GEN), Frequency Generator/Frequency Loop, Power Supply, and Oscilloscope sections. See the CE-6000 System Block Diagram, Figure 3-6.

Monitor (RCV) Operation (Figure 3-2)

3.11 The 0-1000 MHz RF signal to be monitored is input at the CE-6000 ANT IN front panel connector. The input goes through an RF fuse to the 41000 board. Here, the input sensitivity is set by a pin diode RF attenuator which is controlled by the front panel SENSITIVITY (RF LEVEL dBm) switch setting.

3.12 The signal then goes to the 42000 First Converter board to be mixed with the first L.O. (YIG frequency) of 2.01-3.01 GHz. This forms the first Intermediate Frequency (I.F.) of 2010.7 MHz, which goes through a 2010.7 MHz Bandpass filter (BPF) to the 43000 board Second Converter.

3.13 At the Second Converter, the 2010.7 MHz I.F. is mixed with the second L.O. frequency of 1800 MHz from the 66000 board. The difference frequency is selected to form the second I.F. of 210.7 MHz going to the Third Converter section on the 43000 board.

3.14 The 210.7 MHz second I.F. is then mixed with one of two frequencies at the Third Converter. In the Spectrum Analyzer 10 kHz/DIV or 100 kHz/DIV mode, the 2nd I.F. is mixed with a 221.4 MHz L.O. signal from the 21000 board to provide a special See and HearTM function for display on the CRT. In other modes, the second I.F. is mixed with the 200 MHz 3rd L.O. from the 63000 board, and the difference frequency becomes the third I.F. of 10.7 MHz.

3.15 The 10.7 MHz third I.F. goes to the 24000 board where it is mixed with a fixed 10 MHz from the 26000 Reference Generator board to form the final I.F. of 700 kHz.

3.16 This 700 kHz final I.F. is sent to the 25000 AM/FM Demodulation board where the signal characteristics are removed for display on the oscilloscope and meter circuits. Since all CE-6000 L.O. frequencies used to achieve the final I.F. frequency are very stable and accurate, the characteristics present on the 700 kHz I.F. signal are the same as those on the original signal and not just equivalents.

Signal Generation (Figure 3-3)

3.17 Signal generation is achieved by a reverse process of the monitoring sequence. A 10.7 MHz VCO signal from the 23000 AM/FM Modulation board is modulated by an audio frequency selected by the MODULATION frequency (Hz) push button switches. The type of modulation applied (AM, FM, or CW) is selected by the front panel FUNCTION switch.

3.18 The modulated 10.7 MHz signal is output from the 23000 board to two places. One of the signals is sent to the 24000 board (10.7 MHz IF/ALC/Squelch) to mix with 10.0 MHz and provide a 700 kHz signal to the 25000 board demodulation circuits to be displayed by the CE-6000 oscilloscope and meter circuits.

3.19 The other 10.7 MHz signal goes to the 62000 board. Here it is mixed with a 200 MHz L.O. which comes through the 21000 board from the 63000 board to make a 210.7 MHz signal. The output level of the 62000 board is set by a pin diode attenuator controlled by SIG GEN (FINE) at the front panel through the 47000 High Level Amplifier board.

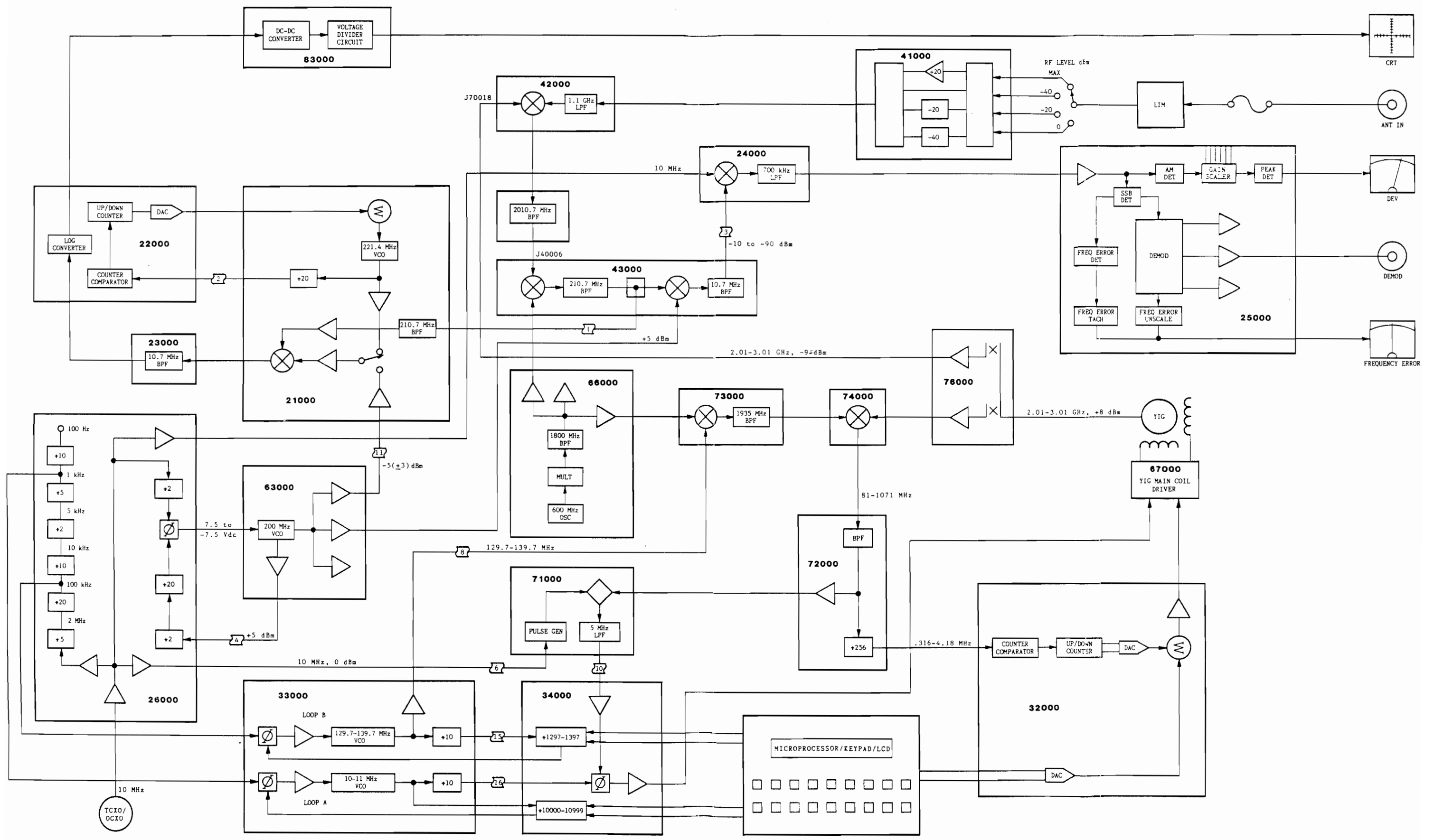


Figure 3-2 Monitor Section Block Diagram

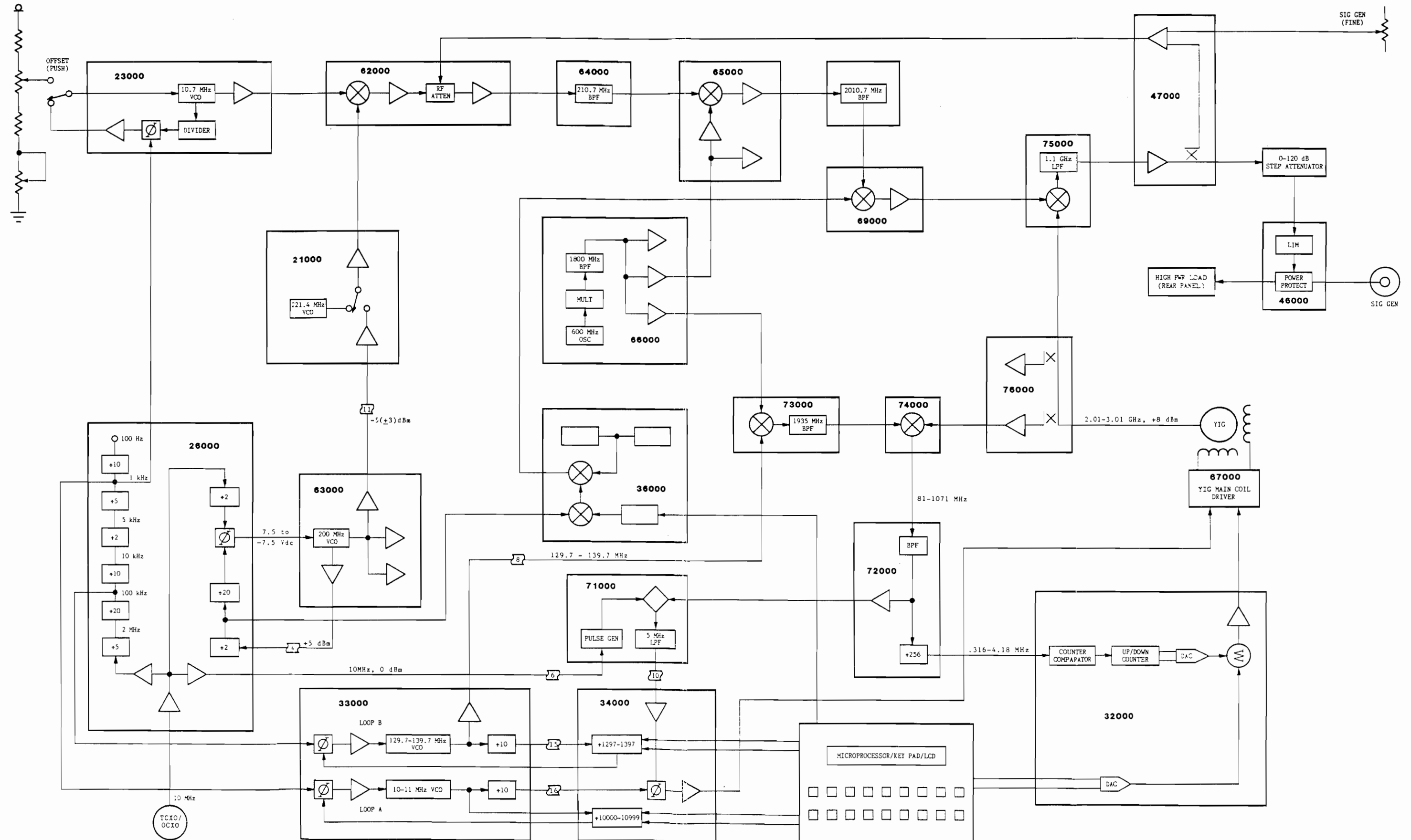


Figure 3-3 Signal Generator Section Block Diagram

3.20 The 62000 board 210.7 MHz is filtered through the 64000 board 210.7 MHz Bandpass filter (BPF), then input to the 65000 2010.7 MHz Upconverter board. Here it is mixed with the 66000 board 1800 MHz L.O. to make 2010.7 MHz.

3.21 The output of the 65000 board is passed through a 2010.7 MHz BPF, and is then mixed at the 69000 board with the Offset Frequency set at the 36000 board. The 2010.7 MHz plus its offset is then mixed at the 75000 Final Mixer board with the 2.010.1-3010.7 GHz YIG oscillator frequency. This produces the 0-1000 MHz SIG GEN output frequency selected.

3.22 The 0-1000 MHz output from the 75000 board is amplified through the 47000 board and then input to the 0-120 dB Step Attenuator controlled by the SIG GEN (COARSE) front panel control. The Step Attenuator output then goes through the 46000 board Limiter and Power Detector circuits to the front panel SIG GEN OUT/RF IN jack.

Frequency Generator/Frequency Loops (Figure 3-4)

3.23 All CE-6000 reference frequencies are derived from its 10.0 MHz TCXO (or optional OCXO) time base. The 10 MHz time base signal is input to the 26000 Reference Frequency Generator/Divider board where it is divided into reference frequencies of 10 MHz, 5 MHz, 2 MHz, 100 kHz, 10 kHz, 1 kHz, and 100 Hz. These reference frequencies are used on the FM/AM Modulator (23000) board, 10.7 MHz IF/ALC/Squelch (24000) board, Audio Synthesizer & Control (31000) board, Loop A & B Phase Lock Loop (PLL) 33000 board, 200 MHz PLL (63000) board, and the 10 MHz Sampler (71000) board.

3.24 The YIG Frequency Loops are composed of the (68000) YIG Oscillator Assembly, and the Directional Coupler/Buffer Amplifier (76000), YIG Phase Lock Loop (PLL) Mixer (74000), 10 MHz Sampler (71000), High Frequency Divider (72000), YIG Main Coil Steering (32000), and A & B Divider/YIG FM Coil Driver (34000) boards.

3.25 The 68000 YIG Oscillator Assembly provides an output frequency of 2.010.7-3.010.7 GHz, set by the frequency selected at the CE-6000 front panel. This YIG output goes to the 76000 board Directional Coupler from which it is coupled to two places.

3.26 The first output is to the 42000 board First Converter where it is used as the First L.O. of the Monitor circuits. The second output is to the YIG PLL Mixer 74000 board, whose other input is from the 1935 MHz Upconverter 73000 board.

3.27 There are two inputs to the 73000 Upconverter. The first input is 1800 MHz from the 66000 board. The second input is a 129.7-139.7 MHz output from the 33000 board Loop B. These frequencies are mixed in the 73000 board, and the

resulting 1929.7-1939.7 MHz frequency is input to the YIG PLL Mixer (74000) board. Mixed with the YIG frequency, the output of the 74000 board is 81-1071 MHz to the 72000 High Frequency Divider board.

3.28 The input to the High Frequency Divider (72000) board goes through a lowpass filter to a power splitter. At the power splitter, the signal is sent to two places. One signal goes through a divide-by-256 circuit to the YIG Main Coil Steering (32000) board. The other signal is output to the 10 MHz Sampler (71000) board.

3.29 The 32000 board input is the divided down 81-1071 MHz (.316-4.18 MHz) signal from the 72000 board which is compared with a scaled down input from the microprocessor 100 MHz and 10 MHz frequency entry. The output is corrected by an up/down counter and then changed from digital to analog level through the Digital-to-Analog Converter (DAC).

3.30 On the 71000 board, the 81-1071 MHz signal from the 72000 board is applied to a Sampler circuit, where it is sampled at a 10 MHz reference rate. The 10 MHz sample pulse is formed from a 10 MHz input from the 26000 Reference Frequency Generator/Divider board, which is amplified and formed to provide the proper sample. The Sampler circuit output is a .81-1.071 MHz signal which goes out to the A & B Divider/YIG FM Coil Driver (34000) board.

3.31 The .81-1.071 MHz Sampler output from the 71000 board goes through a lowpass filter on the 34000 board to the phase comparator circuit. Here it is compared with the 1-1.1 MHz output of the Loops A & B PLL (33000) board Loop A which has been divided by 10. The dc output of the phase comparator is sent to the YIG Main Coil Driver (67000) board to control the YIG output frequency.

Power Supplies

3.32 Source voltage input to the CE-6000 is from the rear panel power cord. Available input options are for 115/230 Vac, 11-15 Vdc (External), and 12 Vdc (Internal battery pack and charger).

3.33 Input power goes to the 100W Switcher/Inverter (52000) board. Here, it goes through an input filter and voltage doubler circuit and then to a switching circuit. The switching circuit output has voltage filtering circuits for +27 Vdc, -14 Vdc, +7 Vdc, and +12 Vdc (unregulated). These outputs are sent to the 53000 board Linear Regulator.

3.34 Inputs from the 52000 Switcher/Inverter board are regulated on the 53000 board and used to provide +25 Vdc, +10 Vdc, +5 Vdc, and -12 Vdc for the CE-6000 circuits. The +25 Vdc is also used to provide oscilloscope high power voltages.

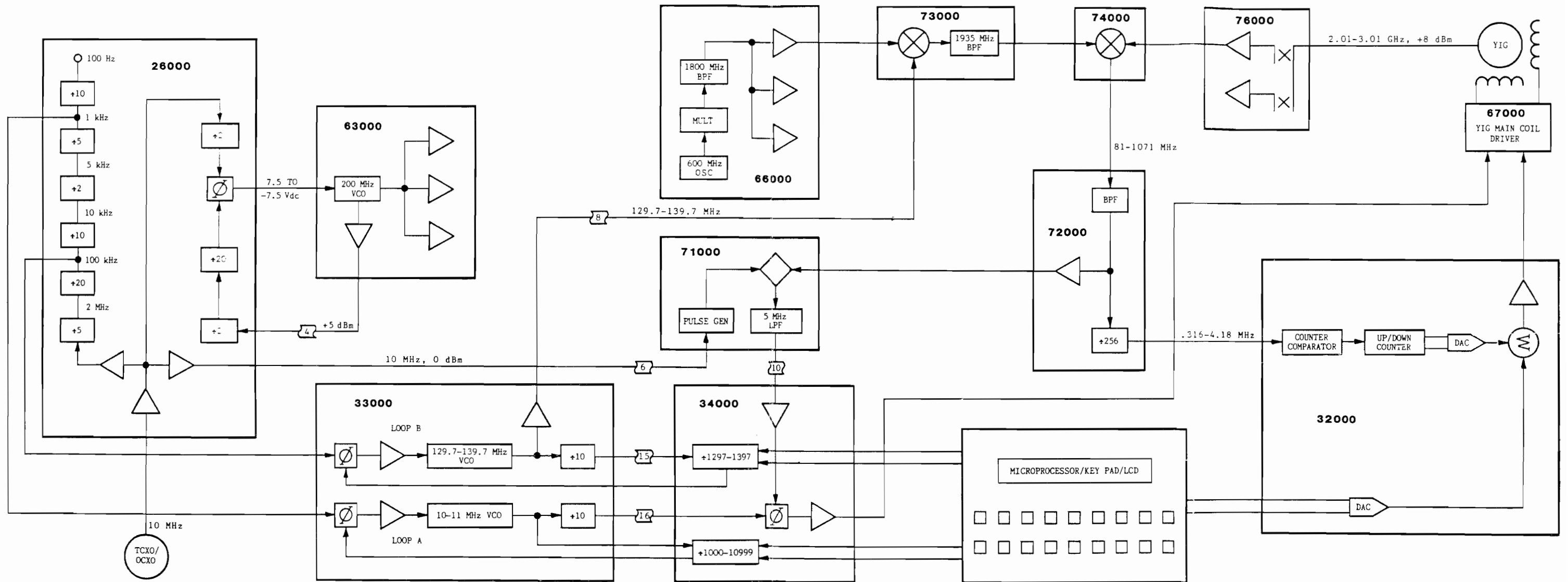


Figure 3-4 Frequency Loops Block Diagram

Oscilloscope/Spectrum Monitor

3.35 The 53000 board Linear Regulator +25 Vdc output goes to the 83000 High Voltage Power Supply. The input goes to a DC-DC Converter where the +25 Vdc is converted to the high voltages needed to drive the oscilloscope CRT.

3.36 Additional inputs to the CRT are from the 82000 board Oscilloscope circuits. There are three inputs to the 82000 board: the first is from the FM/AM Detector (25000) board demodulator circuits. This signal goes to the 82000 board Demodulation Buffer Amplifier. The second input is from the Log Converter (22000) board, and goes to the 82000 board Spectrum Pre-amplifier circuits. The third input is from the front panel SCOPE VERT IN jack, and goes to the External Vertical Buffer Amplifier circuits. The inputs are selected as required by the front panel VERT/DIV (S1) and HORIZ/DIV (S2) switches, and sent to the Horizontal and Vertical Deflection Amplifiers.

CIRCUIT DESCRIPTION

3.37 The Circuit Description of the CE-6000 boards will follow the outline set in the System Block Diagram Description for unit operation, starting with the front panel Frequency Entry and Display board descriptions.

12000 Key Pad Control/LCD Display (see Schematic, page 6-15)

3.38 The 12000 board Key Pad Control/LCD Display provides frequency entry memory storage and display of all functions (ie, SIG GEN, MONITOR, AUDIO, FREQUENCY, MEMORY). Key pad switches S1 through S18 are connected to a key pad matrix and then go via cable to the LCD drivers U1, U2, U4, U8, U9 on the 13000 LCD Driver board. See Block Diagram, Figure 3-5.

13000 LCD Drivers (see Schematic, page 6-17)

3.39 The outputs of 13000 board U1, U2, U4, U8, U9 go back to the 12000 board directly to the LCD module. The BCD lines are multiplexed in U11 and then go to U3, U5, U6, U12 drivers. The output from the drivers goes to the LCD display module LCCUR 0 - LCCUR 8, pins 4, 9, 19, 24, 29, 34, 39, 44, 49.

14000 Microprocessor (see Schematic, page 6-19)

3.40 On these boards are mounted all the memory and controls for the frequency entry, audio tone control entry, memory storage, signal generation, audio and monitor display functions. The microprocessor unit is operated as a plug-in module, and uses an M8085A controller chip.

3.41 The M8085A is an 8-bit parallel central processor, and requires a single +5 volt supply. Its basic clock speed is 3 MHz, and it is designed to fit into a minimum system of three IC's: the CPU (8085A), a RAM/10 (8156), and a ROM EPROM/10 chip (8355 or 8755A).

3.42 The M8085A has twelve addressable 8-bit registers. Four of them can function only as two 16-bit register pairs. Six others can be used interchangeably as 8-bit registers or as 16-bit register pairs. The M8085A register set is as follows:

Mnemonic	Register	Contents
ACC or A	Accumulator	8 bits
PC	Program Counter	16-bit address
BC, DE, HL	General-Purpose Registers; data pointer (HL)	8 bits x 6 or 16 bits x 3
SP	Stack Pointer	16-bit address
Flags or F	Flag Register	5 flags (8-bit space)

3.43 The M8085A uses a multiplexed Data Bus. The address is split between the higher 8-bit Address Bus and the lower 8-bit Address/Data Bus. During the first T state (clock cycle) of a machine cycle the lower order 8-bit address is sent out to the Address/Data bus. These lower 8 bits may be latched externally by the Address Latch Enable signal (ALE). During the rest of the cycle the data bus is used for memory or I/O data.

3.44 The M8085A provides RD (Read), WR (Write), SO and SI (Encoded data bus status), and IO/M (indicates if Read/Write is to memory or I/O) signals for bus control. An Interrupt Acknowledge signal (INTA) is also provided, as are Serial Input Data (SID) and Serial Output Data (SOD) lines for simple serial interface. HOLD, READY, and all interrupts are synchronized with the processor's internal clock.

3.45 Additionally, the M8085A has five interrupt inputs: INTR (Interrupt Request), TRAP, and the three RESTART Interrupts RST 5.5, RST 6.5, and RST 7.5. INTR is a general purpose interrupt. Each of the three RESTART inputs has a programmable mask. TRAP is also a RESTART interrupt but it is nonmaskable, and has the highest priority of any interrupt.

3.46 The three RESTART interrupts automatically save the program counter in the stack and jump to the RESTART address if the interrupts are enabled and the interrupt mask is not set. The TRAP interrupt causes the microprocessor program to automatically jump to the RESTART address independent of the state of the interrupt enable or masks.

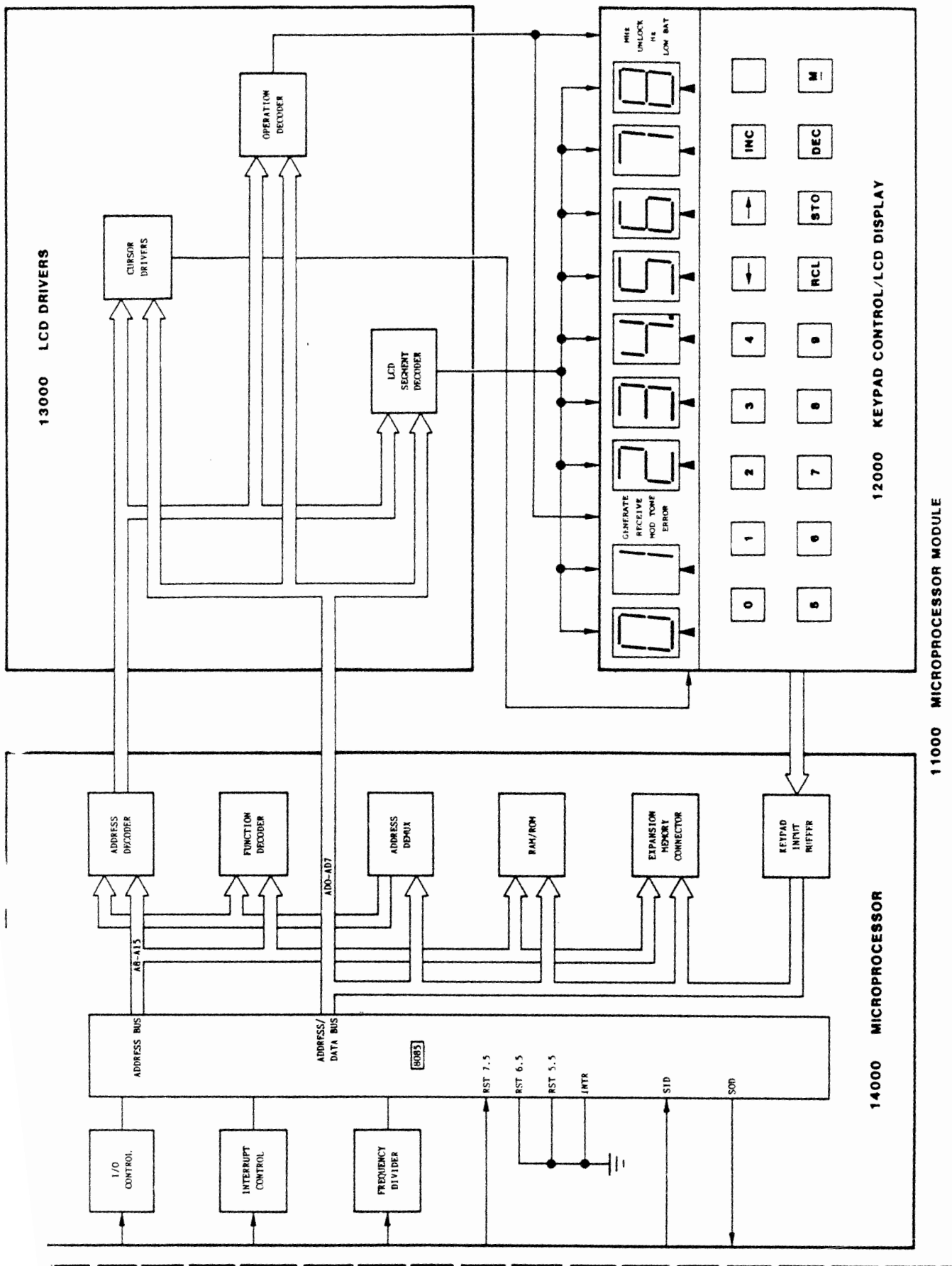


Figure 3-5. Frequency Entry and Display Block Diagram

3.47 There are two different types of inputs in the RESTART interrupts. RST 5.5 and RST 6.5 are high level-sensitive like INTR (and INT on the 8080) and are recognized with the same timing as INTR. RST 7.5 is rising edge-sensitive.

3.48 For RST 7.5, only a pulse is required to set an internal flip-flop which generates the internal interrupt request. The RST 7.5 request flip-flop remains set until the request is serviced. Then it is reset automatically. This flip-flop may also be reset by using the SIM instruction or by issuing a RESET IN signal to the M8085A. The RST 7.5 internal flip-flop will be set by a pulse on the RST 7.5 pin even if the interrupt is masked out. The status of the three RST interrupt masks can only be affected by the SIM instructions and RESET IN.

3.49 The interrupts are arranged in a fixed priority that determines which interrupt is to be recognized if more than one is pending as follows: TRAP (highest priority), RST 7.5, RST 6.5, RST 5.5, and INTR (lowest priority). This priority scheme does not take into account the priority of a routine that was started by a higher priority interrupt. RST 5.5 can interrupt an RST 7.5 routine if the interrupts are re-enabled before the end of the RST 7.5 routine.

3.50 The TRAP interrupt is useful for catastrophic events such as power failure or bus error. It is recognized just as any other interrupt but has the highest priority. It is not affected by any flag or mask. The TRAP input is both edge and level sensitive. The TRAP input must go high and remain high until it is acknowledged. It will not be recognized again until it goes low, then high again. This avoids any false triggering due to noise or logic glitches. Servicing of any interrupt (TRAP, RST 7.5, RST 6.5, RST 5.5, or INTR) disables all future interrupts (except TRAPs) until an EI instruction is executed.

3.51 The TRAP interrupt is special in that it disables interrupts but preserves the previous interrupt enable status. Performing the first RIM instruction following a TRAP interrupt allows one to determine whether interrupts were enabled or disabled prior to the TRAP. All subsequent RIM instructions provide current interrupt enable status. Performing a RIM instruction following INTR, or RST 5.5-7.5 will provide current interrupt enable status, revealing that interrupts are disabled.

3.52 The M8085A has a multiplexed Data Bus. The Address Latch Enable (ALE) is used as a strobe to sample the lower 8-bits of address on the Data Bus. During the I/O write and read cycle, the I/O port address is copied on both the upper and lower half of the address.

3.53 There are seven possible types of machine cycles. Which of these cycles occurs is defined by the status of the three status lines (IO/M, S1, S0) and the three control signals RD, WR, and INTA. The status lines can be used as advanced controls (for device selection, for example), since they

become active at the T1 state, at the outset of each machine cycle. Control lines RD and WR become active later, at the time when the transfer of data is to take place, so are used as command lines.

3.54 A machine cycle normally consists of three T states, with the exception of OP CODE FETCH, which has either four or six T states (unless WAIT or HOLD states are forced by the receipt of READY or HOLD inputs). Any T state must be one of ten possible states.

3.55 The function of each M8085A pin is as follows:

Symbol	Function
A8-A15 (Output, 3-state)	Address Bus: The most significant 8 bits of the memory address or 8 bits of the I/O address, 3-stated during Hold and Halt modes and during RESET.
ADO-7 (Input/Output, 3 state)	Multiplex Addressed/Data Bus: Lower 8 bits of the memory address (or I/O address) appear on the bus during the first clock cycle of a machine state. It then becomes the data bus during the second and third clock cycles.
ALE (Output)	Address Latch Enable: It occurs during the first clock state of a machine cycle and enables the address to get latched into the on-chip latch of peripherals. The falling edge of ALE is for the address information. The falling edge of ALE can also be used to strobe status information. ALE is never 3-stated.
RD (Output, 3-state)	READ control: If RD is Low, it indicates the selected memory or I/O device is to be read and the Data Bus is available for the data transfer. 3-stated during RESET and Hold and Halt modes.
WR (Output, 3-state)	WRITE control: A Low WR indicates that data on the Data Bus is to be written into a selected memory or I/O location. Data is set up at the trailing edge of WR, which is 3-stated during Hold and Halt modes and during RESET.
READY (Input)	If READY is high during a read or write cycle, then the memory or peripheral is ready to send or receive data. If low, the CPU will wait for READY to go high before completing the read or write cycle.

Symbol	Function																																								
S0, S1, and IO/M (Output)	<p style="text-align: center;">Encoded machine cycle status:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="border-right: 1px solid black;">IO/M</th> <th style="border-right: 1px solid black;">S1</th> <th style="border-right: 1px solid black;">S0</th> <th>Status</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>1</td><td>Memory write</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>Memory read</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>I/O write</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>I/O read</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>Opcode fetch</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>Interrupt acknowledge</td></tr> <tr><td>*</td><td>0</td><td>0</td><td>Halt</td></tr> <tr><td>*</td><td>X</td><td>X</td><td>Hold</td></tr> <tr><td>*</td><td>X</td><td>X</td><td>Reset</td></tr> </tbody> </table>	IO/M	S1	S0	Status	0	0	1	Memory write	0	1	0	Memory read	1	0	1	I/O write	1	1	0	I/O read	0	1	1	Opcode fetch	1	1	1	Interrupt acknowledge	*	0	0	Halt	*	X	X	Hold	*	X	X	Reset
IO/M	S1	S0	Status																																						
0	0	1	Memory write																																						
0	1	0	Memory read																																						
1	0	1	I/O write																																						
1	1	0	I/O read																																						
0	1	1	Opcode fetch																																						
1	1	1	Interrupt acknowledge																																						
*	0	0	Halt																																						
*	X	X	Hold																																						
*	X	X	Reset																																						
* = 3-state (Hi imped.) X = unspecified																																									
	<p>S1 can be used as an advanced R/W status. IO/M, S0 and S1 become valid at the beginning of a machine cycle and remain stable throughout the cycle. The falling edge of ALE may be used to latch their state.</p>																																								
HOLD (Input)	<p>HOLD indicates that another master is requesting use of the address and data buses. The CPU, upon receiving the hold request, will relinquish the bus at completion of the current bus transfer. Internal processing can continue. The processor can regain the bus only after HOLD is removed. When HOLD is acknowledged, the Address, Data, RD, WR, and IO/M lines are 3-stated.</p>																																								
HLDA (Output)	<p>HOLD ACKNOWLEDGE: Indicates that the CPU has received the HOLD request and that it will relinquish the bus in the next clock cycle. HLDA goes low after the Hold request is removed. The cpu takes the bus one half clock cycle after the Hold request is removed. The cpu takes the bus one half clock cycle after HLDA goes low.</p>																																								
INTR (Input)	<p>INTERRUPT REQUEST: Used as a general purpose interrupt. It is sampled only during the next to the last clock cycle of an instruction and during Hold and Halt states. If it is active, the Program Counter (PC) will be inhibited</p>																																								

Symbol	Function
	from incrementing and an INTA will be issued. During this cycle a RESTART or CALL instruction can be inserted to jump to the interrupt service routine. The INTR is enabled and disabled by software. It is disabled by Reset and immediately after an interrupt is accepted.

41000 RF Attenuator (see Schematic, page 6-129)

3.56 The RF attenuator controls the input level of a selected RF input frequency at the CE-6000 antenna. The input goes to the RF IN on the attenuator board, and the input level is either amplified or attenuated to produce an output to the 1st Converter (42,000) board within the circuits range. The RF attenuator board operation is controlled by the front panel SENSITIVITY (REF LEVEL dbm) switch.

3.57 In the MAX position the input RF is amplified +20 db. A +10V level is applied to tie point 1, and goes through R12, turning on CR2. It also applies power to Q1, Q2, Q3, Q4 and goes through R6, R11 to turn on CR10. This gives the input RF at tie point 6 a path through CR2 to Q2, and through the 20 db amplifier Q2, Q4 (whose bias is controlled by Q1, Q3) to CR10 and output at tie point 8. In the -40 position of the SENSITIVITY switch, the path goes through the board with no amplification or attenuation. The -40 position applies +10V to tie point 2. This turns on diodes CR3, CR4. The +10V also goes through CR11 to turn on CR6 and CR8 to give a straight-through path for the input RF from tie point 6 to tie point 8.

3.58 When the SENSITIVITY switch is turned to -20, the RF attenuator board must attenuate input RF by 20 db. To do this, the switch applies +10V to tie points 3 and 5. The +10V at tie point 3 goes through R24 to turn on diodes CR6 and CR8. At tie point 5 the +10V turns on CR1 and CR5 to open a path from the tie point 6 RF input through CR1 to the 20 db attenuator pad R20, R21, R22 and out to tie point 8 through diodes CR5, CR6 and CR8.

3.59 In the 0 position, the SENSITIVITY switch must turn on 40 db of attenuation in the RF attenuator board. It does this by applying +10V to tie point 4. This opens a current path for the input RF signal through both 20 db attenuator pads by forward biasing CR7 and CR9, and through CR12, CR1, and CR5. The input RF path then is through CR1, 20 db pad R20, R21, R22, CR5, CR7, 20 db pad R26, R27, R28, and CT 9 to the output tie point 8. From tie point 8, the signal goes to the 1st Converter (42000) board.

42000 board 1st Converter (see Schematic, page 6-131)

3.60 The input signal 100 kHz - 1 GHz goes to tie point 1 through a 1.1 GHz bandpass filter (BPF) to mixer CR1. The LO signal 2.010.7 GHz at -9 dbm goes to tie point 3. This signal goes to LO amp Q3, Q1, the output of Q1 collector drives the mixer CR1 through T1. Q2 and Q4 are used to control the LO amp gain of 13 db. The IF signal difference of the RF input and LO signal mix at CR3 is 2010.7 MHz and goes through 18 db gain of Q5 and Q6 and then out to tie point 4. Tie point 4 output then goes to a 2010.7 MHz band pass filter FL 50001 assembly.

43000 board 2nd Converter (see Schematic, page 6-133)

3.61 The RF input to tie point 6 of 2010.7 MHz goes to the mixer input CR1, CR2, T1. The LO input at tie point 5 to the mixer (through T1) is 1800 MHz. When the two signals are mixed, the IF frequency of 210.7 MHz is produced. This signal goes to a 189.3 MHz Trap and IF Amplifier comprised of Q2, Q3, and associated components. It then goes out through a 210.7 MHz band pass filter (L2, C6, L3, L4, C8-C14, L5-L7, and R5) to Q6 amplifier.

3.62 The output of Q6 is transformer coupled through T3 to two places. One output goes to Buffer Amp U1, pin 2. The U1, pin 4 output goes to tie point 18 as 210.7 MHz IF output. The second T3 output goes through T2, C23 to Mixer Z1 as the RF input. The LO input to Z1 is 200 MHz from tie point 8 through C19, L10, C22. When mixed, the output IF of 10.7 MHz is produced and amplified by 10.7 MHz Amp Q4. It then goes to FL1 (10.7 MHz, 220 kHz BPF). The FL1 output goes to Buffer Q1, and then to tie point 11 to be sent to the 24000 board.

24000 board 10.7 MHz IF/ALC/Squelch (see Schematic, page 6-73)

3.63 The -10 to -90 dBm 10.7 MHz IF signal comes in at tie point 9 and goes to Q1 and Q2. Q1 gain is controlled by IF attenuator control R3. The output of Q2 goes to tuned matching network C9, L3 and into 10.7 MHz, 22 kHz BPF FL1. A front panel switch controls the output of Q2 through relay K1 either through FL1, or bypasses FL1 to go directly to Q3 and Q4. Matching network L4, C12, and R146 allows for distortion adjustment.

3.64 The output of Q4 goes to 1st AGC Controlled Amp Q6. The output of Q6 goes through Amplifier Q7 to 10.7 MHz, 280 kHz filter FL2, pin 1. FL2, pin 3 output goes to Amplifier Q8, and then to emitter follower Q9. The emitter of Q9 goes to the 2nd AGC amplifier Q11, and also to the 1st AGC amplifier and Detector Q16, Q15, and CR3. The output of CR3 goes to the base of Q5 where R31 AGC 1 Control provides a voltage through pin diode switch CR 1 to control the Q6 base.

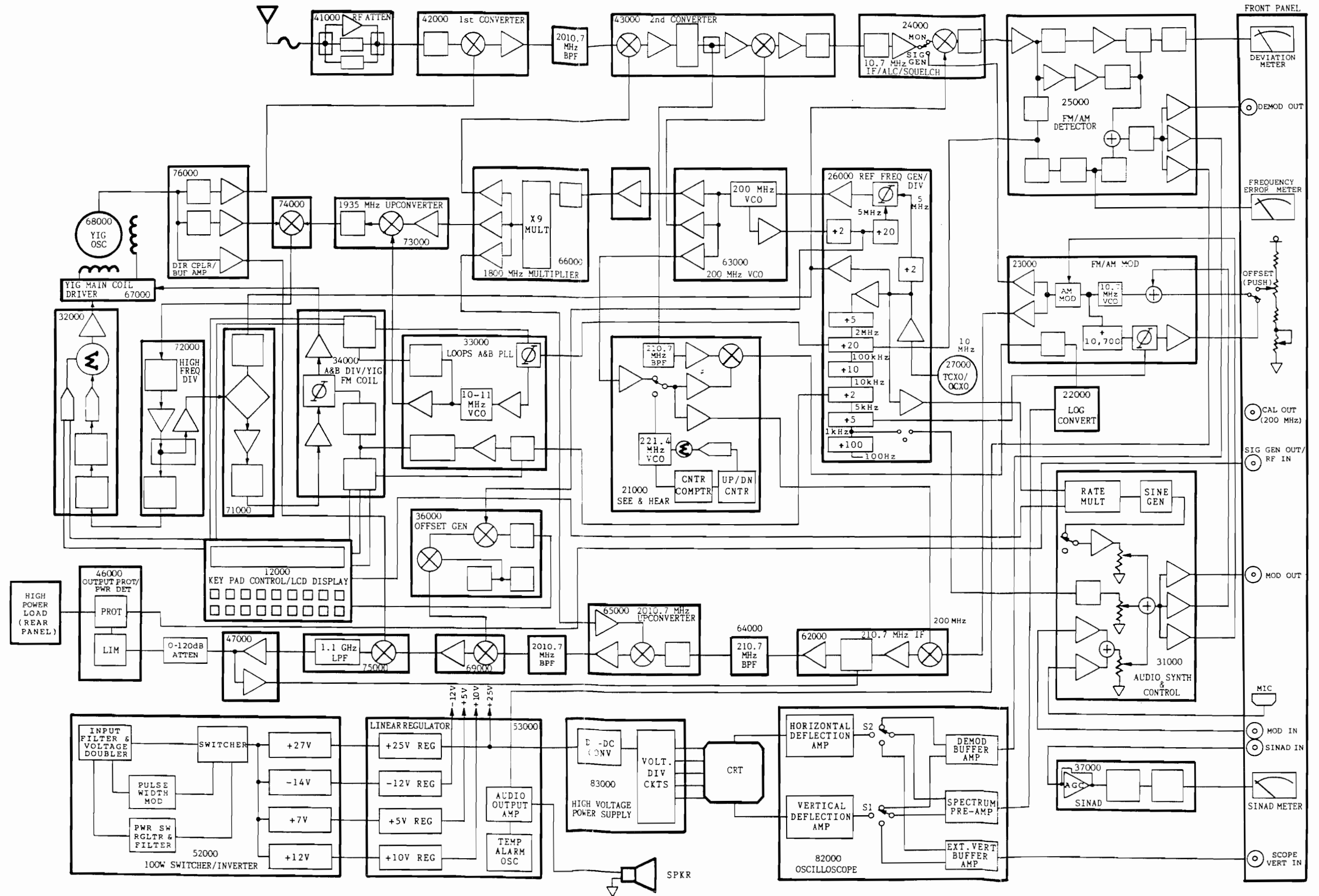


Figure 3-6 Overall Block Diagram

3.65 The output of 2nd AGC Amp Q11 goes to Q12, and the Q12 output goes to 10.7 MHz, 280 kHz filter FL3, pin 1. The FL3, pin 3 output goes to Q13, and then to emitter follower Q14.

3.66 The emitter output of Q14 goes to two places. One output goes to K2, pin 4. The other output goes to the 2nd AGC Amplifier and Detector Q18, Q17. The output of Q17 goes to two places. One output is through diode CR8 to Squelch Detector U1, pin 2. The front panel Variable Squelch control goes to U1, pin 3, which adjusts the squelch level. Output U1, pin 7 goes to CR9 and Q22 which drives a signal level LED on the front panel. It also goes to U3, pin 2 whose output at pin 1 indicates low squelch at P2-E.

3.67 The second output of Q17 goes to Detector CR6, and then to Q10 where R60 AGC 2 control adjusts the gain of Q11 through pin diode switch CR2.

3.68 When in the Generate mode, the input to Q19 is from K2, pin 8. In Monitor, the 10.7 MHz IF from Q14 goes through K2, pin 6. The 10.7 MHz output of K2 goes to Q19, and then out to Mixer M1. A 10 MHz signal comes in at P1-15 to Q20 and Q21 Amplifiers, and then goes to M1 to mix with the 10.7 MHz IF. The output of M1 is a 700 kHz IF signal through low pass filter C61, L10, C62 to the 25000 board.

25000 board FM/AM Detector (see Schematic, page 6-81)

3.69 The FM/AM Detector board demodulates the instrument's 700 kHz IF signal. Outputs include demodulated audio voltage to the scope, speaker circuits, front panel DEMOD OUT connector, levelled 700 kHz IF for the oscilloscope, and DC drive for the peak modulation and Frequency Error meters. Major functional blocks of the demodulation circuit are labelled on the schematic.

3.70 The 700 kHz Automatic Gain Control (AGC) circuit holds the nominally 100 mVp-p, 700 kHz IF signal from P1-D, to a fixed, 2V p-p output level. The output voltage is constant for slowly varying input levels from 32 to 320 mVp-p. Audio frequency AM at the input produces an AM output with an average level of 2 Vp-p.

3.71 The 24000 board 700 kHz output enters the circuit through R6, which controls distortion and maximum gain, and goes to the emitters of differential pair Q2, Q3. The differential pair sets the signal gain in proportion to the AGC voltage at the base of Q2. Signal gain is maximum when the DC base voltage of Q2 approaches +.08V, since this causes most of the signal current to pass through to the following gain stages.

- 3.72 Emitter follower Q4 is a buffer amp which drives the differential gain stage Q5, Q6. The signal enters the differential stage at the base of Q5. R14 provides DC bias for Q6. R15 provides emitter degeneration for reduced distortion and controlled gain. C7 separates the bias paths so that collector current balance will be unaffected by Vbe offsets. Nominal signal level at Q5, Q6 collectors is 2 V p-p. R17 and R18 are slightly larger than resistors R13 and R16 to compensate for gain imbalance caused by the single-ended input drive through Q5.
- 3.73 Emitter followers U1A and U1B, which are part of a five transistor array, buffer the outputs of Q5 and Q6 for distribution to other circuits on the board. Q15, which buffers the 700 kHz scope output (P1-A), is protected by C66 and terminating resistor R153. The balanced 700 kHz outputs from U1A and U1B of the AGC amplifier are full-wave rectified by the base-emitter junctions of U1D and U1E. The bases of the rectifier transistors are biased positively by U1C such that the rectified output voltage, (at U1 pin 3) is always referenced to ground, independent of temperature-sensitive Vbe. The rectified waveform, with no AM, has minimum peaks at 0 volts and max peaks at +1.0 volts. With 100% AM the peaks are 0 volts and +2 volts.
- 3.74 A two section 20 kHz RC lowpass (R27, C14, R28, C15) removes the 1.4 MHz component from the rectified IF, leaving only detected DC and AM components. U2A buffers the lowpass output. The DC component, nominally +1.0 volt (assuming adequate IF level at the 700 kHz AGC amp input) is directly proportional to the levelled 700 kHz amplitude. U26 compares the DC component with a +1.0 volt reference set by R32, and adjusts the AGC via Q2 to correct the detected DC level. By monitoring and correcting the detected DC level in this manner, the 700 kHz output level is held constant despite input level variations. C17 slows the response of U26 so that the AGC will not remove audio frequency AM from the 700 kHz signal.
- 3.75 The FM Limiter is a low offset voltage, high gain amplifier which detects zero crossings of the 700 kHz IF signal. The limiter output, which changes state at the input zero crossing, is used to trigger the FM discriminator one-shot. Accurate zero crossing detection is required for AM rejection.
- 3.76 All transistors in the FM limiter circuit are from a single 5-transistor array, U3. Balanced 700 kHz IF (2Vp-p from the AGC amplifier) is input to the limiter through differential gain stage U3A, U3B. C18 provides AC signal coupling, but eliminates any DC offset. The 700 kHz, 1.1 Vp-p square wave produced at the U3A, U3B collectors is further squared by differential amplifier U3C, U3D. The U3D output is AC coupled to saturating switch U3E, which triggers discriminator one-shot, U5. During the half cycle it reverse biases the base of U3E, base drive capacitor C22 discharges by about 50% of its peak-to-peak voltage swing. This causes U3E to turn on near mid-swing of the preceding differential stages, ensuring fast switching and low effective offset voltage at the limiter input.

3.77 The FM Discriminator is a frequency to voltage converter. The IF signal, converted to TTL level by the limiter circuit, triggers the one-shot multivibrator, U5, at a rate of 700 kHz plus the FM deviation. Each time U5 is triggered, it produces a constant width, 700 nsec output pulse. The pulse width is constant, so variations in the triggering frequency cause the output duty cycle to change. Q7 and Q8 form a differential current source, switched by U5's output. Current from Q7 is inverted by current mirror Q9, Q10 so that R58 receives alternating polarity 5 mA pulses, controlled by U5's output state. Duty cycle of the current waveform at R58 is signal frequency dependent, so average voltage across R58 varies with input frequency. A 3-pole, 70 kHz, LC filter (C28, L1, C24) blocks the 700 kHz at R58, but passes demodulated audio voltage to R59 and U6A for amplification.

3.78 The pulse width of U5, and therefore nominal DC output voltage across R59, is adjusted by pot R47. Normally, with a 700 kHz IF input, voltage at R59 should be 0 Vdc +/- 150 mV or less. Conversion gain at R59 is about -3.6 mV per kHz of deviation. Demodulation FM is amplified by U6A and U6B to a level of 200 mV per kHz of deviation at U6, pin 7. C30 rolls off the 1st stage gain at 100 kHz to help attenuate 700 kHz from the discriminator. C33 establishes second stage and overall FM detector bandwidth at 20 kHz, or 3 kHz when U17A switches C32 in parallel. A +10v control signal at P2-K is required to switch U17A to the 3 kHz position.

3.79 The Gain Scaling circuit acts as a selectable gain amplifier to scale the FM signal, or demodulated AM signal, for use by the peak modulation meter.

3.80 Analog switch, U7, controls the gain of inverting amplifier U8A by connecting different input resistors, according to the range selected for the peak modulation meter. Output from U8A, pin 1 is scaled to be 2.0 volts peak at either 100% AM, or 1.5, 5, or 15 kHz peak FM deviation (depending upon control status). Scale selection is made by applying +10 volts to one of four control inputs: P2-11 for 1.5 kHz peak, P2-M for 5kHz, P2-N for 15 kHz, or P2-12 for 100% AM.

3.81 U7 is an analog 5 Pole, 8 Throw (5P8T) switch with 3 binary-coded control inputs. Three of the required selections are accomplished by individually addressing each of the three available inputs. The fourth control function (15 kHz) requires CR1 and CR2 to simultaneously address two inputs. A squelch command, 0 volts at P2-14, disables all demodulated outputs, including the peak modulation meter. Q11 inverts the TTL squelch command to operate the inhibit input of U7. When the inhibit line (U7, pin 6) is high (+5 volts) all switches in U7 open, and no signals reach the peak detector circuit.

3.82 In the Peak Detector circuit, the scaled, demodulated FM or AM signal from U8A is full-wave rectified by U8B. Voltage peaks of the rectified waveform are detected by U9 and

stored in C36. The voltage at C36, proportional to peak modulation, is buffered by voltage follower U9B and used to drive the peak modulation meter.

3.83 The full-wave rectifier requires only one op amp due to its location between a low impedance signal source, U8A, and a high impedance load, U9A. Positive input voltages are inverted by U8B, using R76 as the input path and R78 as the feedback path. Inverting gain is .75. Negative input voltages cause the op amp output to limit at about +0.6 volts due to feedback through CR3. CR4 blocks any more positive output. At the same time, R77 and R78 form a voltage divider between the input (from U8A, pin 1) and the virtual ground at U8B, pin 6. Output voltage to U9A, pin 3 is determined by the R77, R78 divider ratio of 0.75.

3.84 Peak voltage at U9A, pin 3 is -1.5 volts at full-scale modulation. U9A compares the rectified voltage with voltage stored in C36. The stored voltage reaches pin 2 of U9A by way of buffer U9B and R81. If the input to U9A, pin 3 is more negative than the stored voltage, then the output of U9A goes negative, rapidly charging C36 through CR6 and R82. If the input voltage is less negative than the stored value, then the output of U9A clamps, using CR5, to a level about 0.6 volts more positive than the input. CR6 keeps C36 from discharging into U9A. R79 allows C36 to slowly discharge so that the circuit can follow varying peak levels.

3.85 R80 and R82 enhance stability by reducing loop gain. Charge current through R82 does produce a significant error for non-repetitive, short duration peaks. The error, however becomes insignificant when monitoring a repetitive waveform. Peak detector output voltage at U9B, pin 7 is -1.5 volts at full deflection of the peak modulation meter.

3.86 The Frequency Error Detector circuit measures the average frequency difference between the IF and 700 kHz. Since a 700 kHz reference is not conveniently available for this comparison, the IF is actually divided by 7 and compared with the instrument's 100 kHz signals and clocks a tachometer circuit that drives the Frequency Error meter.

3.87 The 700 kHz IF from the FM discriminator (U5, pin 8), is converted from TTL level to 10 Vp-p by comparator U10A, to clock CMOS counter U11. U11 divides the frequency by 7 and clocks U12A at about 100 kHz. A 100 kHz reference signal from P2-6 is level shifted by U10B to 10 Vp-p to clock U12B.

3.88 U12A and U12B are D-type flip-flops connected with NAND gate U13A to make a phase/frequency detector. If the two clock signals occur simultaneously, both of the flip-flops set and then reset simultaneously, producing only transient output pulses. If, however, one of the clock pulses leads the other in phase, the corresponding flip-flop will stay set the longest before conditions are met for the simultaneous reset. A

frequency difference between the two clock signals causes a progressive phase lead at the higher frequency input, and a ramping duty-cycle pulse at the corresponding output. Output from the lagging flip-flop is always a transient pulse, just long enough to achieve reset. An RC lowpass at each output U12, pins 6 and 8, integrates the pulses so that a negative-slope ramp wave is produced by the flip-flop with the higher input frequency. The ramp wave frequency is equal to the difference in clock frequencies. An RC highpass attenuates detected audio FM and differentiates the ramp wave to produce a positive output pulse at the positive transition of each ramp cycle. Pulse amplitude is about +3.5 volts.

3.89 Difference frequency pulses are detected by comparator U10C if the IF divided by 7 is greater than 100 kHz, or by U10d if the it is lower. The comparator outputs are combined in U13 to produce pulses at the difference frequency rate. An SR latch, formed by U13B and U13C, stores the difference frequency polarity information. U13, pin 11 is +5 volts if the IF is greater than 700 kHz, -5 volts if the IF is lower. U13, pin 10 is the complement.

3.90 A tachometer circuit converts the difference frequency into a proportional voltage to drive the frequency error meter. U13D triggers CMOS one-shot U14, which produces constant width (about 292 usec) negative pulses. The duty cycle at U14, pin 10 is directly proportional to the frequency difference between the IF and 700 kHz. The output from U14 controls transistor U15A, which gates a constant current from U15D into the emitters of U15B and U15C. If the IF is high, the output of U13B goes high (5v) and the current pulses are diverted through U15B to the inverting input of differential amplifier U16. If the IF is low, the output of U13C goes high and U15C diverts all current to the U16 non-inverting input. U16 integrates the current pulses to produce an output voltage proportional to the IF error frequency. Voltage at U16, pin 6 is +3.1 volts at +100% of full scale frequency, which translates to $\pm 0.5\text{mA}$ at the Frequency Error meter.

3.91 The current at U15D is selectable to accommodate different meter ranges. Greater current gives greater meter sensitivity. U15D and U15E form a mirror for the reference current which is determined by R107, R109, R111, and the locally generated ± 5 volt supplies. In the low sensitivity, 15 kHz range, control inputs P2-9 and P2-1 are high, Q13 and Q14 are off, and R107 determines the current. In the 5 kHz range, P2-L is grounded, which saturates Q13 and parallels R109 with R107, thereby increasing the current. Similarly, in the 1.5 kHz range, P2-9 is grounded, paralleling R111 and R107. Trimmer R104 adjusts the reference current to compensate for tolerances in the one-shot, meter, and current sources.

3.92 The SSB Detector is a mixer that down-converts the 700 kHz IF to 0Hz center frequency. Harmonic mixing with the 100 kHz instrument reference (from P2-6) eliminates the need

for a 700 kHz LO. The 100 kHz reference signal triggers the U22 one-shot to produce 700 nsec pulses at 100 kHz. These pulses (at U22, pins 6 and 8) have a high 700 kHz harmonic content for mixing efficiency. The narrow pulse width also reduces the relative level of lower harmonics and the effects of component variations on the 700 kHz component amplitude. C52 and R153 determine the pulse width.

3.93 Modulated 700 kHz from the AGC amplifier is mixed in balanced mixer U23 with the pulse output of U22. The audio IF output of the mixer, (U23, pins 6 and 12), is filtered by a two-section RC lowpass to remove LO feedthrough and unwanted conversion products. Audio output is boosted by U24 to about 2Vp-p within a 5 kHz bandwidth.

3.94 The Demod Select circuit acts as a switch to permit front panel selection of the AM, FM, or SSB demodulator output for distribution to the front panel, scope, and audio board. AM and SSB signals are taken directly from their demodulators, but the FM selection combines the FM and frequency error outputs to approximate a single FM detector with DC response.

3.95 To produce the composite FM signal, the frequency error voltage from U16 is first "unscaled" by voltage divider R116, R117, R118 and switches U17B, U17C, such that its magnitude is not a function of the Frequency Error meter range. The same TTL level control signals from P2-L and P2-9 that control error meter scaling also control the unscaling. 0 volts on both P2-L and P2-9 produce maximum attenuation of the error voltage.

3.96 Operational amplifier U18A adds the unscaled error voltage to the demodulated FM from U6B such that the composite signal amplitude at U18 pin 1 is 0.1 volt per kHz of deviation. U19 is a CMOS analog switch array connected for use as a 3pole, single throw (3PST) switch. A +10 volt control signal at P2-R, P2-13, or P2-P closes its respective FM, AM, or SSB switch, connecting one of the demodulated signals to op amp buffers U18B, U20A, and U20B. The AM and SSB signals are AC coupled through C49 to eliminate DC offsets. The FM path is DC coupled, however, to preserve the frequency offset information. A +5 volt squelch command from Q11 opens all switches in U19 to disable the demodulator outputs.

3.97 Voltage divider R128, 129, 130 scales the signal amplitude into voltage follower buffers U18B, U20A, and U20B to levels suitable for use elsewhere in the instrument. U18B feeds the front panel DEMOD OUT port through R131 and P2-2. Open circuit level at P2-2 is 2Vp-p for SSB, 100% AM, or 10 kHz peak FM. For the same conditions, the scope receives 1.5 Vp-p from U20A at P2-C, and the audio board receives 0.2Vp-p from U20B at P2-8.

37000 board SINAD (see Schematic, page 6-125)

3.98 The input to the SINAD circuit AGC Amplifier is 300 mVrms to 10 Vrms at 1000 Hz (± 5 Hz) from the front panel SINAD jack. This input goes to U1, pin 2. The reference voltage input at U1 and U2, pin 3, and to U3, U4, and U6 is provided by voltage regulator U2, pin 7. U1, pin 6 goes to U2, pin 2 and U2, pin 1 output goes to two places.

3.99 The first is to feedback amp U4, pin 6 and then to U3, pin 2. U3, pin 6 completes the AGC back to U1, pin 5. U2, pin 1 also goes to Notch Filter U5. The 1kHz notch is set to 60 db or more by the adjustment of R17 and R34. R35 adjusts the 1 kHz lowpass filter output to U5, pin 3 (Notch C), while R36 adjusts the highpass noise plus 1 kHz (Notch D) output level to U5, pin 2. The input of 1 kHz at both pin 2 and pin 3 of U5 results in the 1 kHz signal cancellation, leaving only noise around the 1 kHz notch to be amplified and passed to U5, pin 1.

3.100 U5, pin 1 goes to U6, pin 4, where it is compared with the reference voltage input from U2, pin 7. This true rms difference is converted to dc (component offset differences are adjusted out by R24, ZERO dB potentiometer) and input to Meter Drive amplifier U4, pin 2. U4, Q1, U7 make up the meter drive circuit. R29 and R51 are the meter circuit zero balance adjustments. The CR5 output goes to the terminal of the meter. The ANTI PEG pot R31 is adjusted to prevent damage to the meter from excessive input level, while R29 is the meter SCALE ADJUST control.

23000 Board FM/AM Modulation/BPF (see Schematic, page 6- 67)

3.101 In the signal generation FM/AM/PFM modes, a 10.7 MHz Voltage Controlled Oscillator (Q1) is activated. This VCO frequency is controlled by varicaps CR3, CR4 in conjunction with L1 and C11-C13. The oscillator operates either as a phase locked oscillator, or as a free-running variable frequency oscillator controlled by the front panel OFFSET (PUSH) control S10007/R10006, and offset limit control R3.

3.102 In the free-running mode (S10007 pressed), R1, R10006, R2 and R3 form a voltage divider circuit which divides the +10V reference to set the frequency of Q1 by varicaps CR3 and CR4. FM modulation is input to C8 and controlled by FM ADJ pot R17. In the phase locked mode, the controlling voltage for CR3 and CR4 comes through S10007 from the Phase Detector and Loop Amp circuit output at U4, pin 6. The Loop Amp input at U3, pin 2 comes from the Phase Detector circuit of U1 and U2. There are two inputs to the phase detector circuit. One (U1, pin 3) is 1 kHz from the CE-6000 Reference Generator (26000) board, and the other (U1, pin 11) is 1 kHz from the divided down output of the 10.7 MHz VCO oscillator, Q1.

- 3.103 The 10.7 MHz oscillator Q1 output goes to Buffer Amp, Q2. The output of Q2 goes two places. One output goes to Q3 Sine Wave-to-TTL converter. The TTL output of Q3 goes to U5, pins 1,2. The U5, pin 3 output goes to the Divide-by-10700 input, U6 pin 11. The 10.7 MHz frequency is divided by 10,700 in U6, U7, U8, and U9. The U7, pin 11 output goes to U1, pin 11 as the 1 kHz divide-by-N input to phase detector U1, U2.
- 3.104 The other output of Q2 goes to Q4 buffer amp. The output of Q4 goes to AM Modulator U10, pin 10. The output of U10, pin 4 goes to P2-4 to AM modulate the 10.7 MHz signal. Potentiometer R38 is the % AM modulation adjustment. The output level of U10, pin 12 is adjusted by R47, which also controls the CW level to the 62000 board. The output goes to buffer amps Q5, Q6 and through low pass filter C31, L8, C33, L9, C35, C32, C34 to the 10.7 MHz IF OUT; pin 1 (J60004). The lowpass filter output also goes to emitter follower Q7, and out through diode switch CR6 to the 62000 board 210.7 MHz IF.
- 3.105 The 23000 Bandpass Filter (BPF) circuit has three bandpass filters to give the needed resolution for input signal spectrum monitoring. The 2 kHz filter allows the resolution of signals which are close together and need to be looked at separately. The 100 kHz bandpass allows widely separated components of a signal, or widely separated signals, to be monitored simultaneously for evaluation. The 10 kHz bandpass allows an intermediate range of signal resolution on the signal spectrum.
- 3.106 The bandpass filter input is from the 43000 board 2nd Converter output, which also goes to the 10.7 MHz IF (23000)board. The 10.7 MHz comes in at P1-17, and goes through amplifier Q1 whose gain is adjustable by potentiometer R6. The output of Q1 is buffered through Q2 to amplifier Q3, Q4. The collector output of Q4 is applied to the anode sides of diodes CR1, CR3, and CR5.
- 3.107 The bandpass filter selected is determined by the position of the HORIZ (Per div) switch in the SPECTRUM MONITOR positions of 10 kHz, 100 kHz, and 1 MHz. If the switch is in the 10 kHz position, the input to P1-15/S will be at ground, turning on CR5 and CR6. This allows the Q4 output to go through the 2 kHz bandpass filter. The 100 kHz switch position turns on CR1 and CR2, and the 1 MHz position turns on the CR3, CR4 100 kHz bandpass path. The output of the selected bandpass filter goes to the emitter of amplifier Q7, and then to amplifier Q6. The output of Q6 is buffered through Q5 emitter to the P1-2, B output pin, and then to the 22000 Log Converter board.
- 3.108 The emitter output of Q4 goes through amplifier Q6, Q7 to the 10.7 MHz filter FL2, with a bandwidth of 280 kHz. The FL2 output is amplified through Q8, Q9 and sent to the second AGC controlled amplifier. The Q9 emitter output is also amplified through AGC amplifier Q25, Q24. The output of Q24 is detected in CR16, CR17 and the detected level used to control the

Q5 bias set by R88, and the feedback from Q5 to the first AGC amplifier. The Q9 emitter output of the last AGC amplifier is amplified through the second AGC amplifier Q11-14, with AGC feedback through Q27, Q26, detected in CR21, CR23, and applied through Q10 to the base of Q11. The level of the second AGC amplifier gain is set by R98. Its output is through buffer driver Q15 to P1-17, U and the FM/AM detector No.1 (24000 board).

3.109 The squelch circuit is on the 10.7 MHz I.F. amplifier (24000) board, and is composed of U1 and associated components. The inputs to U1 are the detector outputs of CR16, CR17 and CR21, CR23 compared to the setting of the front panel SQUELCH CONTROL. The U1 squelch detector also controls the Schmitt trigger Q28, Q29 output to P1-16 which sets a signal level LED on the ALC/Squelch/DC control (21000) board when the squelch range has not been exceeded.

31000 board Audio Synthesizer/Control (see Schematic, page 6-93)

3.110 The Audio Synthesizer and Control board generates a constant 1 kHz frequency, plus a modulation frequency of up to 23 kHz which is selectable at the front panel modulation frequency select switches. It also combines and buffers input modulation from external inputs to the MOD IN/SINAD IN jack, and the microphone input jack MIC.

3.111 The constant 1 kHz output is derived from a 1 kHz input from the 26000 Frequency Generator board. The 1000 Hz signal from P2-14 goes to U18 and U19 1 kHz low pass filter (LPF). The LPF output from U19, pin 1 goes to the front panel control (1 kHz ADJ), and back to U19, pin 6 and U21, pin 2.

3.112 The synthesized modulation frequency (to 23 kHz) also goes to U19, pin 6 and U21, pin 2, as does the microphone (MIC) input and the input from the MOD IN/SINAD IN front panel jack on the CE-6000 as well.

3.113 The modulation frequency is generated by dividing down a 10 MHz reference input signal. The 10 MHz reference from P1-1 goes through U17, pin 13 to U17, pin 2. Output U17, pin 3 goes to U5, pin 3, and U17, pin 11 goes to U5 pin 11 and U8, pin 3 dividers to set up the clock. Divider output U5, pin 5 goes to 10 kHz Adder U7, pin 2, while U5, pin 9 goes to Rate Multiplier U1, U2, U3, U4 and U14.

3.114 The Rate Multipliers are preset by tone digit switches 0, 1, 2, 3, and 4. Multipliers U1, U2, U3, and U4 are decoded for every 10 counts that there is one enable pulse (i.e., U1-U4, and U14 = divide by 10000). Triangle Generator U13 and Triangle Correction U15, along with counters U8, U11, and U12, develop the digitally generated wave which is filtered at Buffer Amplifier U16 to become the output sine wave. The output signal at P1-14/R goes to the MOD ADJ control, and back onto the board at P2-11, where it goes to U19, pin 6.

3.115 The MIC (microphone) input comes onto the board at P2-3, and into the Mike Preamp U22, pin 3. The U22, pin 1 output goes to the External Summing Amp U22, pin 6 where it is summed with the input signal from the MOD IN/SINAD front panel jack. The U22, pin 7 output goes to Buffer Amp U21, pin 6, and out to the MOD IN ADJ control through P2-D. The MOD IN ADJ control signal comes back onto the board at P2-E and goes to the junction of R31 and R42. Here, switch Q3 will disable the input if the front panel switch is in the SINAD position. If not, the signal will go to U19, pin 6 and U21, pin 2 and be summed with the 1 kHz and synthesized modulation frequencies.

3.116 The output of U21, pin 1 goes to Q1 and Q2 output buffers, and then to the front panel as the MOD OUT signal. The U19, pin 7 goes to AM Scaling U20, pin 6 or FM Scaling U20, pin 2 depending on mode of operation.

62000 board 210.7 MHz IF (see Schematic, page 6-163)

3.117 The 10.7 MHz output of the 23000 board goes to a 14 MHz low pass filter (LPF) C1, C2, L1, and C3, and a 6 dB attenuator R1, R2, R3 into pin 8 of Upconverter Mixer BM1. A 200 MHz signal at -3 dbm, or 221.4 MHz signal from the 2000/22000 boards goes to tie point 3 and then to 10 dB Amplifier Q1. The output of Q1 goes to C8, C3 and pin 1 of Mixer BM1.

3.118 The 10.7 MHz is mixed in BMI with the 200 (or 221.4) MHz input, and the 210.7 MHz IF difference goes to Q2, a 13.5 dB Amplifier, and then to 13.5 dB Amplifier Q3. The gain of these 2 amplifiers is controlled by the ALC voltage input at tie point 4. CR1, CR2 are pin diode switches, which separately control Amplifiers Q2 and Q3. The output of Q3 is 210.7 MHz and goes to the 64000 board, tie point 1.

64000 board 210.7 MHz BPF (see Schematic, page 6-167)

3.119 The input at tie point 1 is 210.7 MHz at 0 dbm level from the 62000 board. This signal goes through a 5 section timetable filter. The output is 210.7 MHz at -4 to -7 dBm, and goes to the 65000 board tie point 3.

65000 board 2010.7 MHz Upconverter (see Schematic, page 6-169)

3.120 The 65000 board has two inputs. The 210.7 MHz from the 64000 board comes in at tie point 3 and goes to BMI. An 1800 MHz signal from the 66000 board goes to 1800 MHz LO Amplifier, Q4. The 1800 MHz output of Q4 goes to BM1, and is mixed with 210.7. The summation frequency of 2010.7 MHz goes to tie point 4, and to 2010.7 MHz BPF.

36000 board Offset Generator (see Schematic, page 6-119)

3.121 The Offset Generator has a 9-10 MHz Loop 1 VCO (Q6 and Q7) whose output goes through two Loop Driver circuits. Loop driver Q8 goes to the 35000 board Power Switch/Offset Divider. The 35000 board Offset Divider output comes back to the 36000 board Offset Generator to the Loop 1 Phase Detector, U6, pin 3. The U6, pin 11 input is a reference 1000 Hz from the 26000 board. Phase det outputs go to U4 loop amp and filter. U4, pin 1 output is the DC control voltage for Loop 1 VCO.

3.122 The second Loop Driver circuit (Q9) goes to Mixer M1, pin 1 RF port. The M1, pin 8 LO port input is 100 MHz from the 26000 board. The mixer output is 90-90.999 MHz, which goes through a 90.5 Mhz BPF to a 90.5 MHz Amplifier, Q10. The output of Q10 then goes to mixer M2, pin 1 RF port.

3.123 The M2, pin 8 LO input is 79-90 MHz from the Q3 Loop 2 VCO Driver. Input to the driver comes from the Loop 2 79-90 MHz VCO, which also goes to VCO driver Q4. The Loop 2 frequency is controlled through Loop 2 Amp and Filter U3 by Loop 2 Phase Detector U1, U2.

3.124 There are two inputs to the Loop 2 Phase Detector U1. The U1, pin 11 100 kHz input is from the 26000 board Reference Generator. The U1, pin 3 input is from the 35000 board Offset Divider. The Loop 2 VCO output through Loop Driver Q4 goes to Divider U5, pin 12. The pin 2 output of U5 then goes to tie point 3, and to the 35000 board Power Switch/Offset Divider. The 35000 board Offset Divider output comes back to the 36000 board Offset Generator to the Loop 2 Phase Detector, U1, pin 3.

3.125 The pin 14 output of U5 is 45 MHz. When 45 MHz Offset is selected, the high input to P1-D will give low outputs at Inverters U8, pins 1 and 4, and high at U8, pin 13. This allows the signal to go through 45 MHz Amp Q17 and Output Driver Q19 to tie point 5. At the same time, the low at U8, pin 4 will turn OFF switches Q5 and Q16 which inhibits the .1-11.999 MHz output of Mixer M2, pin 3,4 to tie point 5 through Low Frequency Output Amp/Driver Q11, Q12, and Q13.

3.126 If 45 MHz Offset Frequency is not selected, the signal at P1-D will be low. This caused a high output at Inverters U8, pins 1 and 4, and a low at U8, pin 13. The high output at U8, pin 4, and low at U8, pin 13 will turn on switches Q18, Q16, and Q5, and turn off Q21. This inhibits the 45 MHz output, and allows the M2 Mixer output of .1-11.999 MHz to go to tie point 5. The output goes to the 69000 board and mixes with the 2010.7 MHz signal to generate the offset frequency.

69000 board Upconverter (see Schematic, page 6-177)

3.127 The 36000 Offset Generator input to the Upconverter board at tie point 1, and the modulated 2010.7 MHz

input from the 65000 board (at tie point 3) are mixed on the 69000 board. This signal combination provides a modulated signal generator output which can be offset from the dialed carrier by a variable frequency from .1-11.999 MHz, or a fixed 45 MHz. The mixed frequency goes to Q1 and Q2 amp and filter and out to tie point 5. In the offset mode of operation this output goes to the 75000 board to mix with the YIG 2010.7-3010.7 MHz output and provide the signal generator output plus its offset frequency.

75000 board Final Mixer & 1.1 GHz LPF (see Schematic, page 6-191)

3.128 The 2010.7 MHz BPF input at pin 2 (which includes modulation and offset, if used) goes through an impedance matching network to mixer CR1, CR2. Here it is mixed with the 2010.7 - 3010.7 MHz YIG input from pin 1 through transformer T1. The output of mixer CR1, CR2 is the difference frequency of DC - 1000 MHz which goes through a 1.1 GHz low pass stripline filter. The DC -1000 MHz output goes to the 47000 board.

47000 board High Level Amplifier (see Schematic, page 6-141)

3.129 The high level amplifier consists of a pair of wideband feedback amplifiers which amplify the 100 kHz - 1 GHz input signal to the needed output level, and an ALC detector circuit which allows the automatic level control on the 62000 board to control the signal generator output level.

3.130 The two feedback amplifiers, Q1, Q2 and Q3, Q4 have their feedback controlled to maintain input and output impedances at each amplifier of 50 ohms and an overall amplifier gain of 36 db. Together, the feedback amps form a wideband amplifier, whose output is sampled at the collector of Q4 and input to the U1 ALC detector. The signal is rectified by CR1 and then RF filtered by C19, C20. Variations in CR1 over temperature are compensated by CR2 to maintain an input to ALC amplifier U1 which changes only with the output level of the wideband amplifier. The ALC detector output is sent through the front panel 0 - 120 dB Attenuator to the 46000 board.

46000 board Output Protect/Pwr Detect (see Schematic, page 6-139)

3.131 The attenuated input RF from the 47000 board comes in at tie point 11, and goes to relay K1 (shown in the deenergized position). Limiter diodes CR1 - CR2, CR3 protect the high level amp until K1 can switch the RF input to the load and detector circuits.

3.132 With no input RF Power at the SIG GEN OUT/RF IN front panel connector, K1 will be energized, and the signal will go to the SIG GEN OUT/RF IN jack which is also connected through C4, R7 to detector diodes CR3, CR4. Any input RF is

detected through C4, and goes to Relay Driver U1, pin 2. Diode CR10 sets the input signal level for turning on U1. If the input level exceeds the CR10 voltage (which will happen if a high RF input is applied to the SIG GEN OUT/RF IN jack), U1, pin 6 output will turn off FET switch Q1, and deenergize K1. This will switch the input power to the power measuring system, and apply power to the High Power Alarm circuit.

3.133 Input RF power is applied from the 30 db attenuator to a 5 db pad at pin 18. The signal is applied through CR6 and CR7 detector to U2, pin 3. The U2, pin 6 output goes to the power meter on the front panel.

26000 board Reference Freq Gen/Divider (see Schematic, page 6-87)

3.134 The 26000 board reference input is a 10.000 MHz signal either from a TCXO or optional OCXO. The 10.000 MHz input signal is then buffered to provide 10 MHz signal outputs to the 23000, 24000 and 31000 boards. The 10 MHz signal to the 23000 is buffered by Q1 and Q2, and the signal to the 24000 board is buffered by Q3 and Q4. The 10 MHz reference signal for the 31000 board Audio Synthesizer is buffered by Q5, Q6, Q7 and U1.

3.135 U1 also buffers the 10 MHz signal to the divider chain. The 10 MHz signal goes to U7 buffered by U1, pin 6 to provide a 5 MHz signal reference through a Divide-by-2 on U7, pin 12 buffered by U10, pin 6. A Divide-by-10 out of U7, pin 11 is buffered by U10, pin 2. A 1 Mhz reference from U7, pin 11 goes to Divide-by-10 U8, pin 1. Divider U8, pin 12 has 4 buffered outputs, of which three go off the board to other circuits. U14, pin 3 is 100 kHz ref 1, U14, pin 11 is 100 kHz ref 2, and U14, pin 8 is 100 kHz ref 3.

3.136 The 100 kHz output of U8, pin 12 also goes to buffer U14, pin 4,5. The buffer output at pin 6 goes to U9, pin 14 Divide-by-10. The output of U9, pin 11 is 10 kHz which goes to Divide-by-10 U11, pin 1. The pin 12 output of U11 goes to 1 kHz buffers U12. The U12, pin 11 1000 Hz output goes to U12, pin 10 as 1000 Hz reference. The output of U11, pin 12 also goes to Inverter/Buffer U12, pin 1, 2 whose U12, pin 6 output goes to U13 Divide-by-10. The output of U13, pin 12 is a reference 100 Hz.

3.137 The 26000 board also contains the 200 MHz PLL Detect, Divide-by-20 and Divide-by-2, and the Loop A 100 MHz Amplifier. The 200 MHz VCO input from the 63000 board comes into the 26000 board at J4 and goes to two places. One signal goes through a 25 dB pad to J3 as the -20 dBm 200 MHz CAL OUT signal at the front panel. The other signal goes to Divide-by-2, U5, pin 7. The U5, pin 2 output also goes to two places. One signal goes to Divide-by-10 U6, pin 7, whose 10 MHz output at U6, pin 15 goes to TTL Converter Q15. The other signal goes to 100 MHz Amplifier, Q14, whose collector output to J2 is the 100 MHz input to the Offset Generator (36000) board.

63000 board 200 MHz VCO (see Schematic, page 6-165)

3.138 The 200 MHz VCO Q1 is a varicap oscillator using two MV109 Varicap diodes to control the VCO frequency. The tuning elements for Q1 are L1, C8, C9, C2, and C5. The Q1 output is buffered by Q2, Q5, and Q6. Q2 provides the 200 MHz, +5 dBm input signals to Q3 and Q4, the high power drivers to the 2nd Converter mixer and Reference Generator boards. Buffers Q5 and Q6 provide 200 MHz signals at -5 dBm to the See and HearTM (22000) circuits and to the input of the 1800 MHz Multiplier (66000).

76000 board YIG Freq Dir Cplr/Buf Amp (see Schematic, page 6-193)

3.139 The YIG Loop is comprised of the 76000, 74000, 71000, 72000, 32000, and 34000 boards. The 2010.7-3010.7 MHz YIG frequency comes onto the 76000 Directional Coupler board at tie point 1. The signal is then coupled off the main path to two additional places. The first signal goes through a matching circuit to Buffer Amp Q1, and then out tie point 3 to the 42000 board as the 1st LO signal.

3.140 The second YIG signal is coupled to tie point 2, and goes to the 74000 YIG PLL Mixer board. The main signal path from input tie point 1 goes through a 10 dB pad (R9, R11, C8, and R10), and a matching network to the base of Q2/Q3 Buffer Amplifier. The collector output of Q3 goes through impedance matching and decoupling to tie point 4, which goes to the 75000 Final Mixer and 1.1 GHz LPF board.

74000 board YIG PLL Mixer (see Schematic, page 189)

3.141 The 2010.7-3010.7 MHz input at tie point 1 (from the 76000 board) goes to the Mixer, where it is combined with the output of the 73000 1935 MHz Upconverter board coming in at J1. The 81-1071 MHz difference output now goes to the 72000 board as a YIG PLL reference.

73000 board 1935 MHz Upconverter (see Schematic, page 6-187)

3.142 Input to the 73000 board is 1800 MHz from the 66000 board, and 129.7-139.7 MHz (set by the Frequency Entry input to the CE-6000) from the 33000 board Loop B. The signals are combined at mixer BM1, and the 1929.7-1939.7 MHz output goes through a filter circuit to Q1. The output of Amplifier Q1 goes through another filter circuit to Amplifier Q2, and then out to P1. P1 output goes to tie point 4 of the board, and then out to the 74000 board.

72000 board High Frequency Divider (see Schematic, page 6-185)

3.143 The 81-1071 MHz input at tie point 4 (from the 74000 YIG PLL Mixer board) goes through a low pass filter (LPF) and decoupling capacitor C1 to the pin 2 input of 10 dB Amplifier U1. The pin 4 output of U1 goes through decoupling capacitor C4 to the Power Splitter/Attenuator circuit of R1, R2, R3. One output goes to the pin 10 input to Frequency Divider U2. Voltage for U2 is provided by the 5 Vdc regulator, U3, which reduces the input +10 Vdc from tie point 1. The output of U2 is 0.316-4.18 MHz at tie point 2 which goes to the 32000 board.

3.144 The other output of the Power Splitter/Attenuator circuit goes through R7, R8, R9 impedance matching pad to Buffer Amplifier U4, pin 2 input. The U4, pin 4 output to tie point 3 goes to the 71000 board 10 MHz Sampler.

32000 board YIG Main Coil Steering (see Schematic, page 6-97)

3.145 The .316-4.18 MHz input from High Frequency Divider 72000 comes onto the board, and goes through TTL Converter Q1 to Buffer U1. U1, pin 2 goes to Counter U16, pin 2 as the reference clock pulse for the Counter/Comparator comprised of U3, U12, U16, U20, U19, and U18.

3.146 Input to U3 is Binary Coded Decimal (BCD) inputs from the 14000 board Microprocessor for the 100 MHz and 10 MHz digit switch settings. This input is compared with the clock frequency. If the Counter/Comparator output shows the 100/10 MHz frequencies are greater than, or less than the clock frequency, the U10/U14 Up/Down Counter U14, pin 8 or 9 will be High, signifying a correction either up or down is needed in the clock frequency (which is derived from the YIG frequency). The count from the Up/Down Counter is gated through U11, U15, and U32 to U25, U26, and U28 Counters to preset the Digital-to-Analog (DAC) Converter U27 to fine tune the YIG main coil. The DAC U27 output goes to a Summing Amplifier and out to K1, pin 11 to K2, pin 11, and then to the YIG main coil.

3.147 The 100 MHz and 10 MHz BCD input also goes to a thumbwheel Data Scaler (Adder circuits) U22, U23, and U24. The Scaler output goes to the Coarse Steering DAC, U21. The output from U21, pin 2 goes to K1, pin 11 and K2, pin 11 and out to the YIG main coil.

3.148 Up/Down Counter U10, U14 is gated by a 1 MHz signal. Counter Gate Generator U17, U13, U9, and U5 output goes through gates U6, U34, and U33 to Sweep Generator U31, whose pin 1 output goes through Buffer U29 to P2-10 as the Spectrum Sweep pulse in the SPECTRUM mode.

71000 board 10 MHz Sampler (see Schematic, page 6-181)

3.149 There are two input signals to the 10 MHz Sampler board. The first is the 81-1071 MHz input at tie point 5 from the 72000 High Frequency Divider board, and goes to the CR9, CR10 Sampler junction.

3.150 The second is an input sine wave of 10.000 MHz at 0 dBm at tie point 2. The signal goes through Amplifier Q1 and Pulse Clipper CR1-CR2 to the Level Shift circuit of Q3, Q4, Q5, Q6, and Q10. The collector output of Q6 splits and goes to Drivers Q7, Q8 and to CR4. The output of the Drivers goes to the Slow Switch Q9, and is combined at the anode of CR4 to drive the Pulse Forming Network of C12, C13, and CR5. The signal then goes through Fast Switch CR6 to the Pulse Shaping Network of C14, R15, CR7, and CR8. This signal then goes through C16 and T1 to the Sampler circuit through C17, R21 (to diode anodes) and C18, R23 (to diode cathodes).

3.151 The 10 MHz Sample Pulse acts as a switch to turn on the Sampler diodes, and allow a sample of the 81-1071 MHz signal input to be passed to the gate input of Switch Q11. Gate bias to Q11 is controlled by the network of R19-R21, L4, L5, C22, C23, and R23-R30. Bias is adjusted for minimum waveform distortion at the tie point 3 output by R29 and R34.

3.152 The Q11 output goes to Amplifier Q12 and out to Q14. Feedback Amplifier Q13 controls gain through the Q12, Q14 Output Amplifier. This signal goes to tie point 3, and is the approximate 1 MHz (.81-1.071 MHz) that drives the Phase Comparator on the 34000 board.

33000 board Loops A and B PLL (see Schematic, page 6-103)

3.153 Loop "A" Voltage Controlled Oscillator (VCO) operates from 10-11 MHz. The Loop "A" VCO is comprised of Q1, and the frequency determining components CR3, CR4, L4, and C39, 42, and 43. The Q1 output goes to Q2, and out through filter C45, L5, C46 to J2 to go to the 34000 board Divide-by-N circuit.

3.154 The 34000 board Divide-by-N 1000 Hz output comes back to the 33000 board at P1, pin 2 and goes to the Loop "A" Phase Detector, (U1, U2, U3) at U1, pin 8. Here it is compared with a 1000 Hz Reference input from the 26000 board at P1, pin M into U1, pin 3. If the two signals are coincident in frequency and phase, the U3, pin 11 output will hold U1, pins 1 and 13 (CLR) low. This will keep U1, pin 5 Low and U1, pin 8 High. This output is combined through CR1, CR2 into the Loop A Amplifier U10, pin 2, and the U11, pin 6 output to Varicap diodes CR3, CR4 control the VCO output frequency.

3.155 The Low output of U1, pins 5 and 9 keeps Loop A Unlock Detector U2, pins 5 and 9 Low into U7, pins 1 and 2. If all inputs into U7, pins 1, 2, 4, and 5 are Low (showing Loops

"A" and "B" are each in phase lock), the U7, pin 8 output to P1, pin P will remain Low.

3.156 The Loop "B" VCO operates at a frequency of 129.7-139.7 MHz, and is comprised of Q5 (Q6 provides bias) and frequency determining components CR7, CR8, C64, C66, and L7. The Loop "B" VCO output goes to Loop "B" Buffers Q4 and Q7. Output from Q7 goes to the 73000 board 1935 MHz Upconverter. The Q4 output at J1 goes to the Loop "B" Divide-by-N circuit on the 34000 board.

3.157 The Loop "B" Divide-by-N comes back to the 33000 board at P1, pin U, and goes to Loop "B" Phase Detector (U4, U5, U6) at U4, pin 3. Here it is compared with a 100 kHz Reference input from the 26000 board at P1, pin S into U4, pin 11. If the two signals are coincident in frequency and phase, the U6, pin 11 output will hold U4, pins 1 and 13 (CLR) low. This will keep U4, pin 5 Low and U4, pin 8 High. This output is combined through CR5, CR6 into the Loop "B" Amplifier U12, pin 2, and the U13, pin 6 output to Varicap diodes CR7, CR8 control the VCO output frequency.

3.158 The Low output of U4, pins 5 and 9 keeps Loop B Unlock Detector U5, pins 5 and 9 Low into U7, pins 4 and 5. If all inputs into U7, pins 1, 2, 4, and 5 are Low (showing Loops "A" and "B" are each in phase lock), the U7, pin 8 output to P1, pin P will remain Low.

34000 board A&B Div/YIG FM Coil Drvr (see Schematic, page 6-107)

3.159 The 71000 10 MHz Sampler signal is input at tiepoint 1, and goes to the base of Q2. The sample is conditioned through the circuits of Q3 and Q4, and differential amplifier Q5, Q6. Q7 acts as a current limit for the differential amplifier, whose output at the collector of Q6 goes to Phase Detector U13, pin 3 and U14, pin 3.

3.160 At the Phase Detector, the 10 MHz Sample is compared at U13, pin 11 and U14, pin 11 with the Phase Lock Loop (PLL) A output of the 33000 board. The PLL A input is from J3302 to pins 5,6 and goes to the base of Q1, and through inverter U7, pin 8 to provide two functions. One function is to provide the CK input to the Divide-by-N circuit U1, U2, U3, U8, U9. The second function is to provide the PLL A signal input (divided by 10 in U12, and output through U12, pin 5) to Phase Comparator U13, pin 11 and U14, pin 11.

3.161 If the 10 MHz Sample and PLL A signals do compare in phase, the output of Flip-Flop U15, pin 10 will remain Low and hold the Comparator reset. If either the 10 MHz Sample or PLL A signal does not compare, the Flip-Flop will be reset, and U14, pin 5 or U14, pin 9 will cause the output of U16, pin 7 to go High. The output of U16, pin 7 goes to P2-1 YIG Unlock, and to relay K1.

3.162 The U13, pins 5 (Q1), 6 (Q1), 8 (Q2), and 9 (Q2) go to Current Conversion transistors Q11, Q13, Q14, Q12, Q15 and Q16. The output drive of Q14, Q15 goes through an output filter to Loop Amplifier U21, pin 2. The U21, pin 6 output goes through Driver Amplifier Q17, Q18 and relay K1, pins 11, 13 to the 67000 YIG Main Coil Driver through P2-K. The Q17, Q18 emitter output also goes to Drift Sense network U19, pin 3. The U17, U18, U19 Drift Sense network provides a low count up or down to steer the FM Coil to the correct YIG frequency.

3.163 Also into the 34000 board is the 129.7-139.7 MHz PLL B input (through J33001 to pin 3,4) from the 33000 board. This signal goes to the Divide-by-1297 to 1397 circuit of U4, U5, U6, U10, U11, U22, and U24. The divider output is taken at U10, pin 14 and output at P1-S to go back to the 33000 board.

67000 board Yig Main Coil Driver (see Schematic, page 6-173)

3.164 The input to the YIG Main Coil Driver is at P1-12 from the 32000 board, and goes to U1, pin 2. Here it is summed with a sample of the YIG Main Coil output from J2-6 through Switch Q2 and R3. The output at Q1, pin 6 goes to Source Follower Q1 which controls the base drive to Switch Q2.

3.165 When de-energized, relay K1 provides a reference input to U1, pin 3. If energized by K1 Drive input J1-(SWEEP ENABLE), the relay allows a sweep voltage from J1-7 to be applied to U1, pin 3. This allows the YIG Main Coil to be swept over its range.

Optional - 57000 Battery Module Assy (see Schematic, page 6-157)

3.166 The Rear Panel mounted Module/Battery Assembly contains the Option 1 (OP-1) battery and 58000 Battery Charging circuit board. When switch S57001 on the Battery Module Assembly is in the EXTERNAL DC position, the input is 11-14 Vdc at J57001 on the Assembly. The voltage goes through S57001 to the 58000 Battery Charger at pin A. The 58000 board uses this voltage to develop the output +14 Vdc at pin H which goes through the DC Fuse to the battery "+" terminal to provide a charging current. As long as the CE-6000 is connected to EXTERNAL DC, it will provide charging current for the battery.

3.167 To protect the CE-6000 battery, the output of the +12Vdc Regulator on the 52000 Switcher/Inverter board is input (through S57001) to the 58000 Battery Charger pin B to control the charger output. If the regulator fails, the battery is switched out of operation by circuits on the 58000 board.

3.168 In either EXTERNAL DC or BATTERY, switch S57001 carries the source voltage from the 57000 Battery Module Assembly to the 51000 DC/DC Converter board, where it is used to provide required voltages for the CE-6000.

NOTE

The 58000 and 51000 boards are manufactured for Cushman Electronics by another manufacturer, and are not repairable in the field. If repairs become necessary, contact Cushman Electronics Customer Service Department for information.

Optional-51000 DC/DC Converter board (P/O Intcon Dwg, page 6-143)

3.169 The DC/DC Converter board is manufactured for Cushman, and is installed for options OP-1 (Battery pack operation) and OP-6 (External DC operation only - no battery). Input to the 51000 board is 11-14 Vdc from the 57000 Battery Module Assembly S57001. The DC/DC Converter uses this voltage to provide output voltages of +12Vdc, +7Vdc, +27Vdc, and -14Vdc to be input to the 53000 Linear Regulator board.

52000 board 100W Switcher/Inverter (see Schematic, page 6-145)

3.170 Source voltage input to the 52000 board is from the AC input circuits at the CE-6000 Rear Panel. Input 115 or 230 Vac goes through the Rear Panel line filter and ac input filter, switching, and fusing to J52001, pins 1, 2, and 4. If the 115/230 switch on the Rear Panel is in the 115 Vac position, pins 1 and 2 of J52001 are connected together. The input 115 Vac (rms) goes through the turn-on surge protector circuit of thermister R1 and Q1, and transient spike protectors R89, R85 to full wave rectifier CR2-CR5. The positive excursion of the voltage goes through CR2 and CR4 to the top of C1, while the negative excursion goes through CR3, CR5 to the bottom of C2. The differential across C1, C2 is now double the 170V peak input, or about 330V.

3.171 If the 115/230 Rear Panel switch is moved to the 230 position, the input voltage is between J52001, pins 4 and 1. Now the input 230 Vac (rms) goes through the protection circuits to Bridge CR2-CR5, but this time the differential across C1, C2 is only the peak 230 Vac voltage, which is again about 330V. This voltage goes to two places.

3.172 The voltage goes through R6 to the pin 1 input of the U1 Regulator Drivers. At U1, pin 1 the 330 V is modulated by turning switches Q10 and Q9 "ON" and "OFF" with the (approximately) 30 kHz output of Regulating Pulse Width Modulator (PWM) U3, pin 11, 14. The frequency of U3 is synchronized at its pin 3 input by the 30 kHz output of Synchronizing Multivibrator U5, pin 13.

3.173 The 330V also goes through CR19 and the voltage divider inputs at Overvoltage Detector U2, pin 10, and the U2, pin 9 Undervoltage Detector. Here it is compared with the

reference voltage at U2, pins 11 and 8. Over or under voltage conditions will turn "ON" switch Q8 and apply +15V to U2, pin 4. This will pull U2, pin 2 Low, and shut down the Regulating Pulse Width Modulator (PWM) U3. With no output from U3, pin 11, 14, Q10 will be turned "OFF", and Q9 turned "ON". This removes the 30 kHz modulated input to U1, pin 1 and turns "ON" switch Q2 which removes source to gate bias from Q3, turning it "OFF" and shutting down the switching supply.

3.174 When the 52000 Switcher/Inverter board is operating correctly, the output of the Q3 drain will be a 30 kHz switched output at 330V peak going through inductor L1 to the center-tap of the transformer T1 primary. The top of the primary is switched to and from ground through Drivers Q4-Q7, while the bottom is switched by Drivers Q11-14. The Drivers are turned "ON" and "OFF" by the 15 kHz output of U5, pin 10, 11. This alternately grounds first the top and then the bottom of the T1 primary at a 15 kHz rate, and enables the coupling of the switched output to the T1 secondary windings.

3.175 At the T1 secondary windings, there are full wave rectifiers for +27V (CR25, CR26), -14 V (CR27, CR28), +7V (Z2), and +12V (Z1). The output of each full wave rectifier goes to J3 to be sent to the 53000 Linear Regulator. If the External DC (OP-6) or Battery (OP-1) options are installed, the +27V, -14V, +7V, and +12V inputs from the 53000 DC/DC Converter are also input to the 52000 Switcher/Inverter at J2.

3.176 The +12V Regulator is on the 52000 Switcher/Inverter board, also. Its input is either from the Z1, pin 2 full wave rectifier output, or J3, pin 6 from the 53000 DC/DC Converter. Zener diode CR29 provides the +2.5V reference used by Comparison Amplifier U7 to control the +12Vdc output of the regulator. The reference voltage is compared to the +12V input sample set by R72 at U7, pin 2. If the sample voltage exceeds the reference by any amount, the U7, pin 6 output will decrease, causing the Shunt Regulator Q22 to increase conduction. This will pull current from the load, and thus reduce the output voltage level going to the 53000 Linear Regulator J2, pin 7 and to J4, pins 4,5.

53000 board Linear Regulator (see Schematic, page 6-151)

3.177 The Linear Regulator board contains the circuits for regulating +5Vdc, +10Vdc, -12Vdc, and +25Vdc. It also contains the Microprocessor Reset, Audio AGC, Audio Output (to the speaker), and Temperature Alarm Oscillator circuits.

3.178 The +5Vdc Regulator input is +7Vdc from the 52000 Switcher/Inverter board. It comes into the circuit at P1, pin 12,N and goes through input filter L1, C1 to the Series Regulator, Q1. Drive through Q1 is controlled by the conduction of Q2, which is increased or decreased by the output of Current Limit Amplifier U3, or Voltage Comparison Amplifier U1. The

+5Vdc circuit current is monitored by U3 by measuring the voltage drop across R4. Likewise, the +5Vdc output is monitored by U1, pin 6 and compared with a reference on U1, pin 5. A change in the +5Vdc will cause a change in the output of U1, pin 7 which will increase or decrease the drive from Q2 to Q1. U9 is a crowbar circuit which protects the +5Vdc output from overvoltage.

3.179 The +10Vdc Regulator input is +12Vdc from the 52000 Switcher/Inverter board. It comes into the circuit at P1, pin 17/U, 18/V and goes through input filter L2, C6 to the Series Regulator, Q3. Drive through Q3 is controlled by the conduction of Q5, which is increased or decreased by the output of Current Limit Amplifier U10, or Voltage Comparison Amplifier U1. The +10Vdc circuit current is monitored by U10 by measuring the voltage drop across R19. Likewise, the +10Vdc output is monitored by U1, pin 2 and compared with a reference on U1, pin 3. A change in the +10Vdc will cause a change in the output of U1, pin 1 which will increase or decrease the drive from Q5 to Q3. Auxiliary power regulator Q4 is added to the circuit to provide an output +10Vdc which can be used as an auxiliary power source.

3.180 The +25Vdc Regulator input is +27Vdc from the 52000 Switcher/Inverter board. It comes into the circuit at P1, pin 14/R and goes to the U11 Regulator input. The output is sent to relay K1 which is energized when the front panel CE-6000 power switch is turned on. The +25Vdc goes through K1, pin 9 to pin 13 and then out to J1, pin 12 to go to the oscilloscope circuits.

3.181 The -12Vdc Regulator input is -14Vdc from the 52000 Switcher/Inverter board. It comes into the circuit at P1, pin 4/D and goes through input filter L3, C12 to the Series Regulator, Q7. Drive through Q7 is controlled by the conduction of Q6, which is increased or decreased by the output of Current Limit Amplifier U12, or Voltage Comparison Amplifier U4. U12 monitors the -12Vdc circuit current by measuring the voltage drop across R36. Likewise, the -12Vdc output is monitored by U4, pin 6 and compared with a reference on U4, pin 5. A change in the -12Vdc will cause a change in the output of U4, pin 7 which will increase or decrease the drive from Q6 to Q7.

3.182 The Microprocessor Reset circuit output will normally be at a low level until power is turned on. Then the +5Vdc input to U2, pin 2 will exceed the reference level at U2, pin 3 and cause the U2, pin 7 output to the 14000 Microprocessor board to go high, and reset the circuit.

3.183 The Audio Output Amplifier circuit provides the drive for the CE-6000 speaker. Inputs to the circuit come from two primary sources. First is from the Temperature Alarm Oscillator circuit. During normal operation, the temperature sensor on the Rear Panel Power Attenuator will be closed, providing a ground to the U5, pin 6 input. The ground will prevent the Oscillator circuit from being turned on. If the

Power Attenuator temperature exceeds 170°F, the sensor will open, and the U5 oscillator will provide a 2850 Hz tone to the Audio Amplifier input at U6, pin 6.

3.184 The second input to Audio Amplifier U6 is from the Audio AGC circuit. Demodulated audio from the 25000 FM/AM Detector comes into the Linear Regulator board at P1, 6. It goes to AGC Amplifier U6, pin 2 and out U6, pin 1 to the front panel VOLUME control, R10007. The R10007 control comes back onto the board and goes through C27, R51 to the U6, pin 6 input. The U6, pin 7 amplifier output goes to Speaker Driver U7, pin 1 whose pin 4 output goes through coupling capacitor C34 and J1, pin 1 to the Speaker, LS1.

21000 board See and HearTM (see Schematic, page 6-57)

3.185 The 210.7 MHz input from the 43000 2nd Converter comes into P3 and goes to Amplifier Q6. Current Limiter Q5 prevents excess current drain at the input. The signal goes from Q6 through 210.7 MHz BPF C43, L12, C45-C49, and L13 to Mixer BM1. At BM1, the 210.7 MHz signal is mixed with either 200 MHz, or 221.4 MHz for a 10.7 MHz difference frequency output. The output from BM1 goes to 10.7 MHz filter FL1 through LPF C58, L15, and C59, and then coupled through C61 to Q7 and Q8 10.7 MHz IF amp. The output of Q7 and Q8 10.7 MHz IF amp goes to the 23000 board 10.7 MHz Bandpass Filter board.

3.186 The 200 MHz signal from the 63000 board 200 MHz VCO comes in at P5 and goes to 200 MHz Reference Amplifier Q4 through input filter L8, R44, C27. The signal then goes from the Q4 collector to 200 MHz pin diode switch CR5, CR6, CR7 and out to the junction of C18, R23, R24. Also going to this junction is the output of the 221.4 MHz VCO Amplifier, Q2, which goes to two places. One output goes through R21, C17 to VCO Divide-by-20 U5, U6 and then out to P2, pin H, which is a Clock Signal to circuits on the Log Converter/See and Hear Digital (22000) board. The second Q2 output goes through VCO Pin Diode Switch CR3. CR3 will be switched "ON" if the output of U4, pin 6 is High, showing that 10 kHz/Div (P2, pin J is Low) or 100 kHz/Div (P2, pin K is Low) is selected at the CE-6000 front panel HORIZ/DIV switch, and the unit is in the See and HearTM mode.

3.187 At the same time CR3 is turned "ON", the outputs of U3, pin 1 and U4, pin 10 will cause Lows at U4, pin 2 and U4, pin 4 to turn "OFF" switches CR5, CR6, CR7, and interrupt the 200 MHz output signal from the 200 MHz Reference Amplifier. In other positions of the HORIZ/DIV switch, the pin diode switch CR3 will be turned "OFF", and CR5, CR6, and CR7 turned "ON", allowing only the 200 MHz signal to pass to the R23, R24, R25 Power Splitter. The 200 MHz or 221.4 MHz output of the Power Splitter goes to two places. One goes through Impedance Match R26, R27, R28 to P4 and the 23000 board FM/AM Modulation BPF. The other output goes through 200/221.4 MHz Buffer Amplifier Q3 to Mixer BM1 to be mixed with the 210.7 MHz input.

3.188 The Sweep Amplifier input is a 10V peak-peak signal at P2, pin L going to non-inverting Amplifier U1, pin 3. This amplifier normally has unity gain for the sweep signal path. The CMOS switch, U2, changes the gain to 10x for a 1 MHz sweep (100 kHz/Div). The U1, pin 1 output goes to Summing Amplifier U1, pin 6 where it is summed at pin 5 with the DAC VCO Control input from P2, pin H coming from the 22000 board. This signal, with the Sweep Rate Control input, turns "ON" or "OFF" the 221.4 MHz VCO.

22000 board Log Cnvtr/See & HearTM Dig (see Schematic, page 6-61)

3.189 The Log Converter takes the input 10.7 MHz signal from the 23000 board, and converts the analog levels to a logarithmic scale for display on the spectrum monitor CRT.

3.190 The 10.7 MHz input signal comes in at P1, pin A and goes to the base of Q3. Differential Amplifier Q1, Q2 make up an IF amplifier whose gain is controlled by the setting of the front panel LEVEL ADJ control. The output of Q2 is filtered by the paralleled resonant (bandpass filter) circuit L4, C12 and applied to the base of Q4.

3.191 The circuits of Q4-Q8 and Q9-Q15 are used to provide the inputs needed by the U1 Log Converter circuits. Attenuation by R18, R19 at the base of Buffer Q4 provides the -30 db input needed at U1, pin 7, while R68 and R67 further reduce the level to the -60 db needed for U1, pin 4. When amplified by the Q4-Q8 15 db IF Amp/Limiter, the signal at U1, pin 9 is at the 0 db reference level needed, and limited to 5 volts p-p.

3.192 The emitter output of Q8 goes to Q9 through the input level control potentiometer R28. This pot controls the output level of the 30 db Log Amp circuit, Q9-Q15, so the input to U1 pin 12 will be at +30 db. The output of Log converter U1 is adjustable by setting gain control potentiometers R69, R70 and R71 for the LOW, MEDIUM and HIGH level gain break points needed for the correct logarithmic output curve. The output is amplified in Q18, Q20 and buffered by Q19 to the CR3 log detector. The detected modulation is input to Differential amplifier U2 which amplifies it and outputs it through Log Signal Amp U3 to P1-4, D going to the Oscilloscope (82000) board. The OFFSET potentiometer R82 adjusts the no signal zero reference trace on the CRT.

3.193 The 221.4 MHz output of the 21000 board is prescaled by a Divide-by-20 circuit and input to the 22000 board at P2, pin 6/F. It is used as an 11.07 MHz clock frequency at the U4 Synchronizer, and U8 - U13 Counters. The Sweep Time input from the 32000 YIG Main Coil Steering board comes in at P2, pin 12/N to act as the time reference for the loop. It is first synchronized with the 11.07 MHz clock to avoid any ambiguities on the transitions, and the U4, pin 9 Synchronizer output then sent to U4, pin 3 where it is divided by 2.

3.194 The 18 bit Reference Counter, U9 - U13, is loaded with a preset count of 765,183. This allows the Counter to count 283,392 input clock pulses to reach its terminal count of 1,048,575. While the count is being made, the Sweep Time input period to U4 will cause U4, pin 5 to be High for one sweep period and Low for the next. When U4, pin 5 is Low, it enables U5, pin 6. If the 18 bit Reference Counter reaches its terminal count (U15, pin 9 goes Low) before the Sweep period resets, U5, pin 4 will go High and enable the 2 Count Delay U6 to start counting clock pulses. It also enables the ± 1 Count Dead Zone counter U8 (used to avoid jitter on the count) to start counting. This combination of signals enables U14, pin 6 to allow clock pulses to be entered into 14 Bit Up/Down Correction Counter, U16, pin 4 and cause it to start counting down.

3.195 Likewise, if the Sweep period resets before the 18 bit Reference Counter reaches its terminal count (U15, pin 9 goes Low), U4, pin 6 will be Low and enable U5, pin 13. This enables the ± 1 Count Dead Zone Counter U8, and causes the 2 Count Delay to start counting. The 2 Count Delay register allows correction to be made back to center instead of to within one count of center. Now, U14, pin 12 is enabled, and the 14 Bit Up/Down Correction Counter will count up with each input clock pulse until the Reference Counter has completed its Terminal Count.

3.196 The correction count contained in the 14 Bit Up/Down Correction Counter is now input to the U20 and U21 DAC (Digital-to-Analog Converter) circuit. Here it is converted to a dc voltage going to P2, pin 14/R, and becomes the correction voltage going back to the 221.4 MHz VCO on the 21000 Board.

83000 board High Voltage Power Supply (see Schematic, page 6-203)

3.197 Input voltage for the High Voltage Power Supply is +25Vdc from the 53000 Board Linear Regulator which goes to the Current Limiting circuit of Q3, Q4. The voltage is applied through R1 and T1 secondary windings A, B, C, D to the bases of Q1 and Q2. Due to normal transistor differences, one of the transistors will begin to conduct before the other. For purposes of explanation, it will be assumed to be Q1.

3.198 As Q1 begins conducting, it pulls current through L1, through primary winding terminals 3 to 1, and through the Q1 collector to emitter, or ground. As the current is drawn through the primary winding, it induces an opposite flow of current in the secondary windings of terminals A, B, C, D. With terminal A more positive, Q1 is turned on harder, and the more negative terminal D holds Q2 off. Conduction of Q1 will continue to increase until the field in the primary of T1 reaches the maximum voltage of the input. The field will then begin to collapse. The collapsing field will cause the current to reverse in the primary, with current now going from L1 through terminal 3 and 5 to the collector of Q2. This induces a reversed current i.

the terminal A, B, C, D secondary which makes terminal D now more positive and A more negative. This turns off Q1 and turns on Q2. Switches Q1 and Q2 will alternatively turn on and off at the natural oscillating frequency of the circuit.

3.199 The remaining secondary windings provide the voltages for CRT operation. Current induced in the secondary winding at terminals 8 and 10 is rectified by full-wave bridge CR3 - CR6 to provide -1500 V to resistive divider R4 (INTENSITY), R5, R6, R10, R11 (FOCUS), R12, R13, and R14. The secondary winding of terminals 8 and 6 go to full-wave rectifier Z1, and provide +200 V to divider R16, R17 (ASTIGMATISM), R18. Filament voltage for the CRT is developed by the T1 secondary winding at terminals E and F.

82000 board Oscilloscope (see Schematic, page 6-197)

3.200 This board contains the circuitry for producing a display on the oscilloscope in the horizontal (X-axis) and vertical (Y-axis) planes, including the necessary switching. It also contains the circuits needed for Spectrum display of signals.

3.201 The HORIZ/DIV switch (S2) on the CE-6000 front panel is marked in divisions representing two CRT functions: oscilloscope and Spectrum Display. The oscilloscope functions are the first five positions of the switch starting from the full counter-clockwise (CCW) position, and are marked 10mS, 1mS, 100uS, 10uS, and INT. The switch positions marked 0-1000MHz, 10MHz, 1MHz, 100kHz, and 10 kHz are for Spectrum Display.

3.202 Relays K1 and K2 are shown in the de-energized state as they would be in the Spectrum Display positions of the HORIZ/DIV switch S2. The horizontal Sweep Analog input from the 32000 board comes in at J2-9, and goes through adjust R19 to K2, pin 6. K2, pin 4 goes to the Horizontal Deflection Amp buffer U5, pin 2 and out to X-axis Deflection Amp Q4. The Q5 side of the Deflection Amp comes through U5, pin 7 from relay K2, pin 13, and is set by divider R33, R34, R35.

3.203 In the oscilloscope positions of S2 (10mS, 1mS, 100uS, 10uS, and INT), relays K1 and K2 will be energized. The first five positions of S2-C are connected to +10Vdc, and the S2-C wiper connection is through jumper J-H to the top of the K2 coil, and through switch Q14 (which is turned on by the +10Vdc, and provides a ground) to K1. The relays will be energized in any one of these five positions.

3.204 Inputs to the Horizontal Deflection circuits are Audio In at J2-11 (from 31000 board Audio Synthesizer and Control), HORIZ POS front panel control at J5, pin 10 (for INT signal positioning), HORIZ POS front panel control at J5, pin 7 (for input signal positioning), and the HORIZ CAL front panel control at J5, pin 4.

3.205 The HORIZ CAL signal goes to U1, pin 5 and out pin 7 to Q1. Together, U1/Q1 provide a constant current source. The collector of Q1 is connected to the wiper of S2-A, which is connected to grounded capacitors C4, C3, C2, C1. Whenever one of these capacitors is placed in the circuit by selecting a Sweep speed on the HORIZ/DIV switch, it is charged by the constant current source and generates a ramp voltage through U1, pin 1 to K2, pin 8 and U2, pin 4. When the ramp level reaches the level set by divider R13/R14 at U1, pin 5, the pin 2 output will cause U3 to Preset, and force U3, pin 15 High and pin 14 Low. The Low at pin 14 turns on Q3, which turns on Q2 and discharges the selected capacitor.

3.206 The High at U3, pin 15 resets One-Shot Multivibrator U4, so U4, pin 5 is Low into U6, pin 12. Since U6, pin 11 is Low also (U3 is Preset), the pin 13 output of U6 will be High, giving a High output at U2, pin 14, and clocking a Trigger signal into U3, pin 6. This will set U3, pin 11 Low, and the two Lows into U6, pins 2 and 3 will put a High clock input at U3, pin 1 and reset it. Now U3, pin 14 will be High, which turns off Q3, turning off Q2 and allowing the selected sweep capacitor to charge again.

3.207 The ramp voltage at relay K2, pin 8 goes through the energized relay contacts to pin 4, and into Deflection Amplifier U5, pin 2. The U5, pin 1 output signal goes to Driver Q4 to provide X-Axis deflection. The Driver Q5 input signal comes from Deflection Amplifier U5, pin 7. It is input to U5, pin 5 from the K2, pin 9, 13 relay contacts, and comes from the wiper of S2-B. In the INT position of S2, the signal comes from the AUDIO IN at J2, pin 11 and the HORIZ POS setting at J5, pin 10. In the other sweep speed positions of S2 (10mS, 1mS, 100uS, and 10uS), the input is from the HORIZ POS input at J5, pin 7.

3.208 Vertical deflection for the Spectrum Display function is input at J2-17 from the 22000 board Log Converter. This signal goes through Spectrum Pre-Amp U10, pin 1 to Relay K1, pin 6. The pin 4 output of K1 goes to Vertical Deflection Amp Q8. Q10 is a current source for the Q8/Q9 Differential Amp. The Q9 output goes to differential amp Q11/Q12, whose current source is Q13. The Q12 collector output goes to J4-1, and Q11 to J4-3 for Y-Axis Deflection.

3.209 When not in the Spectrum Display mode, the Vertical signal input is 700 kHz IF at J2, pin 15 (when IF is selected at the VERT/DIV switch), or DEMOD OUT (when 1.5, 6, or 15 kHz is selected at the VERT/DIV switch). Both signals are from the 25000 FM/AM Detector board. External AC or DC can also be input at the SCOPE VERT IN connector on the front panel when 5V - EXT is selected at the VERT/DIV switch.

3.210 If the input signal is IF from the 25000 board at J2, pin 15, it goes through jumpers N - M and L - K to switch S1-C. A DEMOD OUT signal comes in at J2, pin 13 and goes to Demod Buffer U10, pin 6. Buffer gain is set by R63 for the

switch S1 set to the 1.5 position. Divider R62, R61, and R60 set the level for the 6 and 15 positions of the switch. If the SCOPE VERT IN (AC or DC) is connected to the input signal, it goes in at J1, pin 1 and through S1-A wiper to the 5mV, 50mV, .5V, or 5V positions of the switch. If the switch is set to 5mV, the signal goes to the S1-B wiper and up to the Ext Vert Buffer Amplifier, Q18, Q19, and Q7. The Q7 output of the Buffer goes to the Ext Buffer U7, and out pin 10 to S1-C.

3.211 The S1-C wiper output goes to Buffer U8, whose pin 6 output goes to the front panel VERT CAL control. The output of the VERT CAL control goes through Buffer U9, pin 6 to Relay K1, pin 8, and with the relay energized, the pin 4 output of K1 goes to Vertical Deflection Amp Q8. Q10 is a current source for the Q8/Q9 Differential Amp. The Q9 output goes to differential amp Q11/Q12, whose current source is Q13. The Q12 collector output goes to J4-1, and Q11 to J4-3 for Y-Axis Deflection on the CRT.

SECTION IV
CALIBRATION AND MAINTENANCE

INTRODUCTION

- 4.01 The Calibration and Maintenance section has three main subdivisions:
- (1) The Introduction describes the contents of the section, and gives a general overview of the CE-6000 unit operation.
 - (2) The Parts Location lists available configurations of the system, and the location of each component module and part.
 - (3) Performance Testing and Calibration gives the alignments, adjustments, and expected results for given testing procedures.
- 4.02 The CE-6000 Radio System Analyzer has two primary functions:
- a) To GENERATE audio modulated (FM/AM/SSB) RF signals from 450 kHz - 1000 MHz to verify radio receiver operation.
 - b) To RECEIVE transmitted frequencies of 450 kHz - 1000 MHz (by antenna or cable) to test a repeater or other transceiver's response to known inputs.
- 4.03 Within each function, there are different modes of operation which allow the CE-6000 to perform the operations of up to 12 separate laboratory and field instruments with no more than two cable interconnects. Additionally, the microprocessor-based LCD keyboard entry allows the operator to store and recall different transmit and receive frequencies (and an audio tone) for up to 69 RF channels.
- a) When used in the RCV (MONITOR) function, the CE-6000 operates as a triple-conversion superheterodyned RF receiver over the frequency range of 450 kHz-1000 MHz (see the CE-6000 Monitor Block Diagram, Figure 4-1). In this function it can act as an oscilloscope, or measure SINAD, frequency error, frequency deviation and modulation (AM, FM, or SSB), and up to 150 watts of transmitter RF power.
 - b) In the GEN (GENERATE) function, the CE-6000 operates as an RF signal generator, and can also provide an audio synthesizer, modulator, and microphone input. With available options installed, the CE-6000 can also provide the functions of a tracking generator, offset generator, cable fault locator, and duplex operation.

PARTS LOCATION

4.04 For ease of identification and location, each major component of the CE-6000 is given a circuit reference series number from 10,000 to 99,999. This series of numbers make it possible to locate and identify individual circuit boards, components, and areas of the instrument on schematics, parts lists, the instrument itself, and other CE-6000 drawings. The series of numbers assigned to the CE-6000 are:

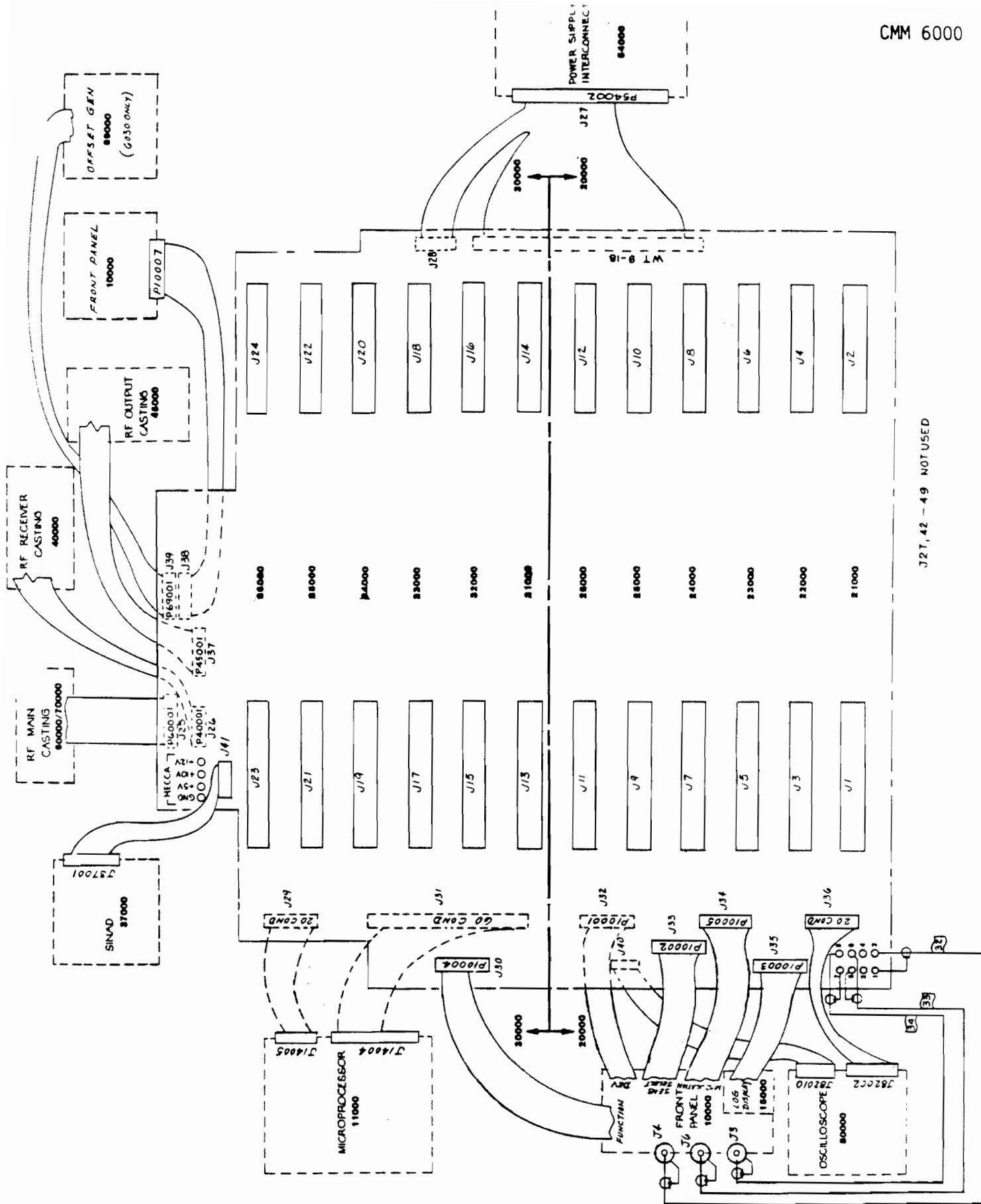
Front Panel	10000
Main Chassis Interconnect	20000/30000
RF Receiver Casting	40000-44000
Output Casting	45000-47000
Rear Panel Assembly	50000/90000
RF Main Casting	60000/70000
Oscilloscope Module	80000

4.05 Each main grouping of circuits is further divided into 1000 number groups (e.g. 41000, 42000, 43000, etc.), each of which represents circuit boards or modules. Components on each module or circuit board, including connectors, are designated by a letter representing the type of component (e.g. R=resistors, CR=diodes, C=capacitors, Q=transistors, L=inductors, etc.), and are numbered from 1-999. The complete reference to any component then includes the circuit reference number, the individual component number, and the letter designator. For example, the first capacitor on the 43000 2nd Converter board is C43001, the seventh resistor is R43007, etc.

4.06 When describing individual circuits, complete component references are abbreviated for convenience. Thus, when describing the 2nd Converter circuit board, resistor R43001 will be referred to as R1, since it is assumed that all components described are on the 43000 circuit board. If reference is made to components outside that board, the full reference designation for the components will be used.

4.07 To identify each circuit board, a cross reference table is given at the beginning of SECTION VI - PARTS LISTS AND DRAWINGS which lists the board numbers in sequence. These numbers are etched on the circuit boards themselves. The table also lists the circuit board title, assembly number, circuit reference number and the figure and page numbers of its schematic diagram.

4.08 The physical location of each circuit board or module in the CE-6000 is shown in CE-6000 Module Location Drawing, Figure 4-1. Top and bottom views refer to the instrument viewed in an upright position from the Front Panel.



J2T, 42 - 49 NOT USED

Figure 4-1. CE-6000 Module Location Drawing

PERFORMANCE TESTING AND CALIBRATION

4.09 The following tests will check for proper operation of the CE-6000 circuits, and provide for calibration and alignment when necessary. The tests are necessary only if the instrument fails to function properly, and then should be performed in the order given unless the solution to the problem is immediately determined (for example, plugging in the unit). If a problem is found at any time during the performance testing, correct it as required and then continue checking to ensure that another problem has not been masked by the first.

MECHANICAL/VISUAL CHECK

- 4.09.1 Visually inspect the exterior of the instrument, checking for observable damage.
- a. Check the Front Panel knobs and switches for mechanical function and proper positioning.
 - b. Check that installed fuses are the correct value, and are not blown.
 - c. Ensure that input power is correct and has been properly applied.
- 4.09.2 Remove the top and bottom instrument covers and inspect the interior.
- a. Ensure all circuit boards are installed firmly and correctly.
 - b. Check that all connectors are mated firmly and correctly, and there is no damage to wiring or interconnects.
 - c. Verify that no foreign object is present in the instrument interior.

COMMON CIRCUITS CHECK

4.09.3 Common circuits are those which are used in both signal generation and monitoring functions. These circuits are checked if a problem is common to all CE-6000 functions, and include the Power Supply, LCD Display, YIG Oscillator/PLL, TCXO/OCXO, 200 MHz PLL, and the optional Tracking Generator. Test equipment required to test and align the common circuits are a Tektronix 475 oscilloscope, HP8555 Spectrum Analyzer, EIP Digital Voltmeter, EIP Frequency Counter, HP 334 Distortion Analyzer, and HP8640 Signal Generator. Equivalent instruments may be used.

Power Supply Check

4.09.3.1 Ensure that the correct power source is selected at the CE-6000 Rear Panel. If the optional Battery Pack provides the source voltage, be sure that the battery has charged for at least 15 hours. This will allow the battery to operate for its full 1/2 hour (nominal) capability.

WARNING

REPAIR OR ALIGNMENT OF THE CE-6000 SWITCHER/INVERTER (52000) BOARD SHOULD NOT BE ATTEMPTED BY PERSONS NOT FULLY TRAINED AND AUTHORIZED BY CUSHMAN ELECTRONICS. EXTREMELY HAZARDOUS VOLTAGE LEVELS ARE PRESENT WHICH CAN BE DEADLY. CUSHMAN ELECTRONICS WILL ASSUME NO RESPONSIBILITY FOR UNAUTHORIZED ATTEMPTS TO REPAIR.

- a. Verify that there are no blown (open) fuses.
- b. Connect the CE-6000 to the correct power source.

CAUTION

HIGH VOLTAGES/CURRENTS ARE PRESENT IN SUPPLY CIRCUITS! OBSERVE CAUTION WHEN PROBING TEST POINTS AND TOUCHING. WAIT 30 SECONDS MINIMUM AFTER TURN-OFF BEFORE HANDLING.

- c. On the Front Panel, turn the PWR/VOL switch to ON. Observe that the green LED marked ON is lighted.
- d. With a Digital Voltmeter (DVM), check the voltage at TP53000-2. Adjust R52072 for +11.40 to +11.6 Vdc.
- e. Verify (with the DVM) that the voltage at TP53000-3 is +27 VDC.
- f. Verify the voltage at TP53000-1 is +6.2 Vdc.
- g. Verify the voltage at TP53000-4 is -12.9 Vdc.
- h. Short the +12 VDC output at TP53000-2 to GND. Verify that the AC switching circuit shuts off.

- i. Remove the short. Verify that the switching circuit turns ON again (there may be a delay of about three seconds).
- j. Measure the +10 Vdc mecca test point on the Interconnect (54000) board. Adjust R53028 for +10.000 Vdc.
- k. Measure the 54000 Interconnect board +5 Vdc mecca point. It should be +5 \pm 0.15 Vdc.
- l. Measure the 54000 Interconnect board -12 Vdc mecca point. It should be -12 \pm 0.30 Vdc.

LCD Display/Microprocessor Check

4.09.3.2 To check the LCD Display for proper operation, perform the following:

- a. Set the CE-6000 to FM/GEN mode.
- b. Turn the PWR/VOL switch clockwise (CW) from the OFF detent, and adjust the control for a comfortable listening level from the speaker.
- c. All segments of the LCD Display will light for 10 seconds (display "All 8's"). After 10 seconds, the LCD will display the frequency stored in memory location 01, as determined by the position of the FUNCTION switch, and the cursor will move to the most significant digit (MSD) of the frequency display. This is the "Home" position of the cursor.
- d. Press the DISPLAY SELECT pushbutton, and check that the display will cycle between MOD TONE and GENERATE when the pushbutton switch is pressed.
- e. Verify cursor operation by moving the cursor from left to right with the cursor arrow keys.
- f. Check all numeric pushbuttons to verify entry of numbers into the display.
- g. Ensure that the INC (increment) and DE (decrement) pushbuttons cause the digit with the cursor beneath it to increase or decrease in value when pressed.
- h. Check memory entry. Move the cursor to the MSD position of the frequency to be entered, and enter 123.4567 MHz into the LCD Display.

- i. Store the frequency in memory location 11 (Press the STORE pushbutton once. The cursor will move to the MEMORY portion of the display. Enter "11". The memory location will be displayed and flashing. Press STORE again to complete).
- j. To verify memory recall, set the LCD Display frequency to 888.8888 MHz and recall memory location 11 (Press the RECALL pushbutton. The cursor will move to the display "MEMORY" section. Enter "11". The LCD Display will now contain the 123.4567 MHz RF frequency previously stored in memory location 11).
- k. Check the memory scan function. Press the DISPLAY SELECT pushbutton until the desired display function (RECEIVE, GENERATE, or MOD TONE) is displayed. Press the M/SEARCH pushbutton. When the cursor moves to the memory portion of the display, enter the number of the first memory location to be observed. The frequency stored at that location will be displayed. Press the INC or DEC keys to scan memories above or below the first memory location displayed.
- l. To exit the memory scan function, press the M/SEARCH pushbutton again.

TCXO/OCXO Check

4.09.3.3 Proper TCXO (or optional OCXO) operation can be verified as follows:

- a. Turn the FUNCTION switch to CW/GEN. Set the SIG GEN Frequency to 995.0000 MHz. Adjust the SIG GEN (FINE) control to 0 dB and SIG GEN (COARSE) to -10 dBm.
- b. Connect a calibrated frequency counter to the SIG GEN output connector on the CE-6000.
- c. Adjust the TCXO/OCXO control for an output frequency reading of 995.0000 MHz.
- d. Check frequency accuracy at 111.1111 MHz, 222.2222 MHz, 333.3333 MHz, 444.4444 MHz, 555.5555 MHz, 666.6666 MHz, 777.7777 MHz, 888.8888 MHz, and 999.9999 MHz. All should be correct within ± 120 Hz.

YIG Oscillator/PLL Check

4.09.3.4 The YIG Oscillator and Phase-Lock Loop circuits can be verified as follows:

- a. Measure the 1800 MHz frequency at cable "R". Subtract 1800 from this measured frequency to get a difference frequency "D".
- b. Set the SIG GEN frequency to 000.0000 MHz.
- c. Connect the EIP Counter to J70021 - Cable P.
- d. Set S32001 to TEST (down).
- e. Ground K34001, terminal 16 with a clip lead to the chassis.
- f. Adjust R67005 if necessary for a reading on the EIP Counter of 2010.7 MHz plus the difference frequency "D" measured in Step a.
- g. Set the SIG GEN frequency to 990.0000 MHz.
- h. Adjust R32010 if necessary for a reading on the EIP Counter of 3000.7 MHz plus the difference frequency "D".
- i. Repeat Steps a. and e.- g. until the YIG frequency tolerances given are met.
- j. Remove the K34001, terminal 16 ground. The EIP Counter should read 3000.7 (± 0.001) MHz.
- k. Set S32001 to RUN (up).

200 MHz PLL Check

4.09.3.5 Perform the following to ensure proper operation of the 200 MHz circuits.

- a. Connect the EIP Counter to J60011 - CAL OUT and verify the frequency is 200.00MHz.
- b. Remove the EIP Counter and connect the Spectrum Analyzer to J60011 - Cable S. Check that the level is +5 dBm, ± 2 dB.
- c. Move the Spectrum Analyzer to J60012 - Cable M, and verify that the 200 MHz level there is -3 dBm, ± 3 dB.
- d. Connect the power meter to the CAL OUT jack, and adjust R26046 for -20 dBm.

GENERATE (GEN) FUNCTION CHECKS

MODULATION CIRCUITS

4.09.4 The CE-6000 can provide amplitude and frequency modulation of its generated output signal. Test equipment required for modulation checks are: (1) an HP8901A Modulation Analyzer, (2) HP334 Distortion Analyzer, and (3) Tektronix 475 oscilloscope.

AM Modulation Circuits Test and Calibration

4.09.4.1 To test and calibrate the CE-6000 AM Modulation circuit, proceed as follows:

- a. Set the CE-6000 controls to:
 - FUNCTION GEN/AM
 - SIG GEN (COARSE) . . -10 dBm
 - SIG GEN (FINE) . . . 0 dBm
 - RF FREQUENCY 900.0000 MHz
 - MODULATION 1000 Hz
 - METER FUNCTION . . . % AM
 - (o'scope) VERT . . . 60 or 150 as req'd.
 - (o'scope) HORIZ. . . 1 ms/DIV
- b. Set the Modulation Analyzer controls to:
 - FUNCTION % AM
 - PEAK +
 - LOWPASS. 15 kHz
- c. Connect the HP8901A Modulation Analyzer to the CE-6000 SIG GEN OUT jack, and connect the Distortion Analyzer to the HP8901A MOD output.
- d. Adjust the CE-6000 MOD ADJ control for a 30% reading on the HP8901A. The CE-6000 % AM meter should read 25% (minimum) to 35% (maximum). Note that distortion is less than 4% on the Distortion Analyzer.
- e. Adjust the CE-6000 MOD ADJ control for an 80% reading on the HP8901A. The CE-6000 % AM meter should read 70% (minimum) to 90% (maximum), and the Frequency Error meter should remain stable and centered. Note that the distortion is less than 8%.
- f. The CE-6000 Oscilloscope should read between 72% and 88% with the setting of e. above. If the o'scope VERT control is switched to IF, no anomalies should be seen in the RF signal.

- g. If modulation circuit adjustment is needed, connect J60004 - cable 9 to the Tektronix 475 oscilloscope VERT input, and proceed to Step h. If no adjustment is necessary, proceed to Step 4.09.4.3.
- h. Set the CE-6000 MOD ADJ to about 90% of maximum.
- i. Adjust R23038 for 100% AM on the Tektronix oscilloscope. The observed signal should be symmetrical, and with no visible distortion.
- j. Set the CE-6000 FUNCTION switch (inner) to CW. There should be a 10.7 MHz signal on the oscilloscope with no AM modulation.
- k. If necessary, adjust R23047 for a -20 dBm \pm 0.5 dB level at J60004 - cable 9.

FM Modulation Check

4.09.4.2 To test the CE-6000 FM Modulation circuits, proceed as follows:

- a. Set the CE-6000 controls to:
 - FUNCTION. GEN/FM
 - SIG GEN (COARSE). . . -10 dBm
 - SIG GEN (FINE). . . . 0 dBm
 - RF FREQUENCY. 152.1500 MHz
 - MODULATION. 1000 Hz
 - (o'scope) HORIZ . . . 1 ms/DIV
 - Other controls. . . . as required
- b. Set the Modulation Analyzer controls to:
 - FUNCTION FM
 - PEAK +
 - LOWPASS. 3 kHz
 - HIGHPASS 50 Hz
- c. Connect the HP8901A Modulation Analyzer to the CE-6000 SIG GEN OUT jack, and the HP 334 Distortion Analyzer to the HP8901A MOD jack.
- d. Adjust the CE-6000 MOD ADJ control for 1.4 kHz deviation on the HP8901A. The CE-6000 peak deviation meter and o'scope must read 1.34 kHz (minimum) to 1.46 kHz (maximum).
- e. Change the CE-6000 MOD ADJ control to 4.8 kHz on the HP8901A. The CE-6000 peak deviation meter and o'scope must read between 4.6 kHz and 5.0 kHz. The Distortion Analyzer should show less than 3% distortion.

- f. Increase the modulation to 14.0 kHz. The peak deviation meter and o'scope must read between 13.4 - 14.6 kHz.

NOTE

If these checks are not met, proceed to the Monitor Section maintenance procedures (paragraph 4.09.5.3) to get proper alignment/adjustment procedures.

- g. Press the OFFSET (PUSH) control and adjust for a ± 15 kHz SIG GEN OUT offset. The peak deviation meter and o'scope should change no more than 600 Hz.
- h. If any of the preceding limits are not met, go to 4.09.4.2 and calibrate the modulation circuits.

Variable Frequency Offset Check

- 4.09.4.3 To verify CE-6000 Variable Frequency Offset operation, proceed as follows:
 - a. Connect J60004 - cable 9 to an EIP Frequency Counter.
 - b. Press the OFFSET (PUSH) control and verify that the frequency excursions are symmetrical and are as follows:

Fully CCW	10.720, ± 0.004 MHz
Fully CW	10.680, ± 0.004 MHz
 - c. Release the OFFSET (PUSH) control. When the loop resumes lock (it may take several seconds), the frequency on J60004 - cable 9 should be steady and 10.700 MHz.

Sig Gen Output Calibration

- 4.09.4.4 To check and calibrate the CE-6000 Signal Generator output level, proceed as follows:
 - a. Connect a power meter to the SIG GEN output connector at the CE-6000 Front Panel.
 - b. Set the CE-6000 SIG GEN OUT frequency to 50.0000 MHz.
 - c. Set the SIG GEN (COARSE) control to -10 dBm, and SIG GEN (FINE) to -10 dBm.

- d. The power meter at SIG GEN OUT should read -20 dBm. If not, adjust R24131.
- e. Set the SIG GEN (FINE) control for 0 dB. Set the SIG GEN OUT frequency to 550.0000 MHz and adjust R24098 for a reading of -10 dBm. Repeat Steps c. through e.
- f. Step through each listed frequency below and adjust its appropriate potentiometer (as required) for -10.0 dBm.

50.0000 MHz	R24103
150.0000 MHz	R24102
250.0000 MHz	R24101
350.0000 MHz	R24100
450.0000 MHz	R24099
550.0000 MHz	R24098
650.0000 MHz	R24097
750.0000 MHz	R24096
850.0000 MHz	R24095
950.0000 MHz	R24094

Offset Generator Tests/Calibration

4.09.4.5 Check the Offset Generator as follows:

- a. Connect the CE-6000 SIG GEN OUT connector to a Spectrum Analyzer tuned to 155.0000 MHz.
- b. Set the CE-6000 controls as follows:

FUNCTION . . . . .	.DPLX/CW
RCV FREQUENCY. . . . .	.155.0000 MHz
SIG GEN FREQUENCY. . . . .	.156.0000 MHz
SIG GEN (COARSE)	-.50 dBm
SIG GEN (FINE) . . . . .	.0 dBm
- c. Observe the signal on the Spectrum Analyzer. It should display the 155.0000 MHz duplex signal (at -70 dBm or less, which is a 20 dB carrier suppression) plus sidebands at 156.0000 and 154.0000 MHz.
- d. If carrier suppression is not greater than 20 dB, adjust C69002, C69003, C69005, and C69008 for maximum carrier suppression.
- e. Set the CE-6000 SIG GEN OUT frequency to 200.0000 MHz and observe the duplex carrier suppression. If it is not still greater than 20 dB, repeat Step d.
- f. Repeat Steps c. through e.

MONITOR (MON) FUNCTION CHECKS

4.09.5 The CE-6000 MONITOR functions are those which require a signal input at the CE-6000 ANT IN, RF IN, SCOPE VERT IN, and/or MOD IN/SINAD IN front panel connectors. These signal inputs are sources for the measurement of input signal power, level, frequency error, modulation/demodulation, SINAD, spectrum monitoring, and oscilloscope functions.

Power Meter Calibration

4.09.5.1 To calibrate the CE-6000 Power Meter circuits perform the following:

- a. Set the METER FUNCTION switch to PWR x1. The CE-6000 Power Meter should read 0 watts with no input to the SIG GEN OUT/RF IN connector. If not, adjust R24123.

CAUTION

DO NOT CONNECT HIGH RF INPUTS TO THE CE-6000 ANT IN CONNECTOR. THIS CAN DAMAGE RECEIVER CASTING CIRCUITS AND DISABLE THE CE-6000.

- b. Apply an RF input signal to the SIG GEN OUT/RF IN connector at 150 MHz and a 10 watt level.
- c. If necessary, adjust R24121 for a reading of 10 watts on the RF Power Meter.
- d. Repeat Steps a. - c. until there is no change necessary on R24121 or R24123.
- e. Set the METER FUNCTION switch to PWR x10. The Power Meter should read 0 watts with no input to the SIG GEN OUT/RF IN connector. If not, adjust R24118.
- f. Apply 100 watts at 150 MHz to the SIG GEN OUT/RF IN connector. If necessary, adjust R24116 for a reading of 100 watts on the Power Meter.
- g. Remove power from the SIG GEN OUT/RF IN connector and repeat Steps e. - f. above.

SINAD Sensitivity Test and Calibration

4.09.5.2 To calibrate the CE-6000 SINAD circuits, an EIP DVM and HP 334 Distortion Analyzer are required. Calibrate the SINAD function as follows:

- a. Set the METER FUNCTION switch to the SINAD position.
- b. Set the CE-6000 modulation to MOD + 1 kHz, and turn the MOD ADJ control fully CCW (minimum).
- c. Adjust the 1 kHz ADJ control for 1 Vrms out of the MOD OUT jack.
- d. Connect the CE-6000 MOD OUT jack to the MOD IN/SINAD IN connector.
- e. Use clip leads to connect U37002, pin 1 to U37005, pin 5.
- f. With the oscilloscope, look at Test Point 1 on the 37000 board. Alternately adjust R37035 and R37036 for a minimum signal level on the oscilloscope. Repeat the adjustments as necessary to remove any interaction.
- g. Remove the clip leads between U37002, pin 1 and U37005, pin 5.
- h. Probe U37005, pin 7 with the oscilloscope. Adjust R37017 and R37034 as necessary to obtain a minimum signal on the oscilloscope. Repeat adjustments as necessary to remove any interaction.
- j. Set the modulation switch to MOD, and the modulation frequency to 2500 Hz. Adjust the MOD ADJUST control for a 1 Vrms output at MOD OUT. Connect the CE-6000 MOD OUTPUT jack to the MOD IN/SINAD IN connector.
- k. Using the EIP DVM, measure and note the signal level at U37006, pin 2.
- l. Adjust R37024 until the level measured at U37006, pin 8 is from 10 - 50 mV less than that measured at U37006, pin 2.
- m. Adjust R37031 for full scale deflection on the SINAD meter.

- n. Set the modulation for MOD + 1 kHz, and the MOD ADJ control to minimum (full CCW). Set the +1 kHz ADJ to 1 Vrms at MOD OUT. Cable the MOD OUT jack (through a "Tee" connector) to MOD IN/SINAD IN . Connect a Distortion Analyzer to the other end of the "Tee".
- o. Verify the MOD frequency is still 2500 Hz. Adjust the MOD ADJ control so the Distortion Analyzer reads 32% distortion. Adjust R37024 for a reading of 10 dB on the SINAD meter.
- p. Change the MOD ADJ control so the Distortion Analyzer reads 25% distortion. Verify that the SINAD meter reads 12 dB.
- q. Change the MOD ADJ control so the Distortion Analyzer reads 10% distortion. Verify that the SINAD meter reads 20 dB. If necessary, repeat Steps o.- q. above.

10.7 MHz IF and FM/AM Detector Calibration

4.09.5.3 This procedure will test and calibrate the CE-6000 10.7 MHz IF and Demodulator circuits. Test equipment required is an HP 8901 Modulation Meter, HP8640 Signal Generator, and HP334 Distortion Analyzer. Perform system test and calibration as follows:

- a. Set the CE-6000 FUNCTION switch to REC and FM, frequency to 56.0000 MHz, SENSITIVITY to MAX, and SELECTIVITY to NARROW.
- b. Apply a 1,000 Hz modulated 56.0000 MHz signal (at -70 dBm), with 5,000 Hz peak deviation to the ANT IN connector.
- c. On the CE-6000 oscilloscope, set the VERT switch to 6 kHz, and HORIZ/DIV switch to 1mS.
- d. Set the SQUELCH control to just break squelch (the green SIG LEV LED turns on), and adjust L24003 and L24004 to as clean a sine wave as possible on the CRT.
- e. Set the CE-6000 FUNCTION switch to REC/FM.
- f. Connect the HP 334 Distortion Analyzer to the CE-6000 DEMOD OUT connector. Adjust L24003, L24004, and R24146 for minimum distortion.
- g. Set the METER FUNCTION switch to 5 kHz DEV and adjust R25047 for a reading of 5 kHz on the Modulation meter.

- h. Set the VERT switch at the CRT to 6 kHz and adjust R82063 for a 5 kHz peak deviation reading on the CRT graticule.
- i. Set the CE-6000 FUNCTION switch to REC/AM, and the METER FUNCTION switch to %AM.
- j. Set the HP8640 Signal Generator to 56.0000 MHz, -70 dBm level with 80% ($\pm 1\%$) AM modulation. Cable its output to the CE-6000 ANT IN connector.
- k. Adjust R25032 for a reading of 80% on the CE-6000 Modulation meter.
- l. Change the HP8640 modulation to 30%. If the CE-6000 Modulation meter does not read 30%, readjust R25032 to halfway between the present reading and 30% on the meter.
- m. Set the CE-6000 FUNCTION switch to REC/FM, frequency to 200.0000 MHz, and FREQUENCY ERROR meter RANGE (kHz) switch to 5.
- n. Connect the CE-6000 CAL OUT connector to ANT IN. With the squelch broken, the FREQUENCY ERROR meter should read 0 error.
- o. Center the trace using the VERT POS control. Step through the CE-6000 oscilloscope VERT switch positions of 1.5, 6, and 15 kHz while observing trace on the CRT. If necessary, adjust R82058 for no trace movement between positions.
- p. Change the input frequency to the CE-6000 to 200.0050 MHz.
- q. Set the CE-6000 VERT switch to 6 kHz and observe the FREQUENCY ERROR meter. It should indicate -5.0 kHz error. If not, adjust R25104.
- r. The frequency error reading on the CE-6000 oscilloscope CRT should be -5.0 kHz. If not, adjust R25005.
- s. Change the CE-6000 input frequency to 199.9950 MHz. The FREQUENCY ERROR meter should indicate +5.0 kHz, ± 0.1 kHz. If not, readjust R25104 so that the error readings at -5.0 kHz and +5.0 kHz have the same error, not to exceed ± 0.1 kHz at either reading.

Oscilloscope Test and Calibration

4.09.5.4 The CE-6000 500 kHz oscilloscope can be used as a stand-alone instrument, apart from its usual RCV/SPECTRUM operation. No test equipment is required for test and calibration of the oscilloscope.

CAUTION

PROLONGED DISPLAY OF A STATIONARY HIGH INTENSITY SIGNAL OR TRACE MAY DAMAGE THE CRT PHOSPHOR COATING. INTENSITY SHOULD BE SET NO HIGHER THAN NECESSARY FOR COMFORTABLE VIEWING.

- a. Set the HORIZ/DIV switch to 10 mS, and the VERT switch to 5V/DIV. Turn on the CE-6000 oscilloscope by moving the INTENSITY/OFF control clockwise from OFF. Adjust INTENSITY and FOCUS controls for a sharp, clear trace on the CRT.
- b. Center the trace using the VERT POS and HORIZ POS controls. Set the AC/DC switch for the type of input signal being measured.
- c. Compare the CRT trace to the graticle lines. If they are not parallel, loosen the nut on the CRT shield and turn the CRT to level the trace. Make sure the front (face) of the CRT touches the graticle and retighten the nut.
- d. Check that the CRT trace just sweeps 10 divisions on the graticle. If not, adjust R82042.

WARNING

HAZARDOUS VOLTAGE LEVELS ARE PRESENT ON THE HIGH VOLTAGE POWER SUPPLY TO THE CRT. USE EXTREME CAUTION WHEN PERFORMING MAINTENANCE IN THIS AREA.

- e. Vary the VERT CAL control between CAL and minimum and adjust R82065 for no trace movement as the control is changed. Return VERT CAL to the CAL position. Set the VERT oscilloscope switch to .5V (PER DIV).
- f. On the CE-6000, set the HORIZ/DIV switch to 1 mS, HORIZ CAL to CAL, and AC/DC switch to DC.

- g. At the CE-6000 Keypad Control, enter 500 Hz into the MOD TONE frequency entry. Adjust the MOD ADJ control for a 20 Vp-p output at the MOD OUT jack. Connect the MOD OUT jack to the CE-6000 VERT IN connector.
- h. Adjust R82003 so the signal is 5 1/2 cycles in 10 divisions on the CRT graticle.
- i. Readjust R82042 to make the signal exactly 5 cycles in 10 divisions on the CRT graticle.
- j. Remove the input signal from the CE-6000 VERT IN connector. Set the trace on the CRT two divisions from the bottom of the graticle with the VERT POS control.
- k. Apply 20 V \pm 0.1 Vdc to the oscilloscope VERT IN connector and adjust R82088 for a four division increase in the trace level.

FM Sensitivity Test

4.09.5.5 Set the CE-6000 controls as follows:

```

FUNCTION . . . . . FM/RCV
FREQUENCY. . . . . 999.XXXX MHz
SENSITIVITY. . . . . MAX
SELECTIVITY. . . . . NARROW
METER FUNCTION . . . . . SINAD
FREQUENCY ERROR RANGE. . 1.5 kHz

```

- a. Connect a cable from the CE-6000 DEMOD OUT jack to the SINAD IN jack.
- b. Set the HP8640 controls as follows:


```

FREQUENCY. . . . . 999.XXXX MHz
MODULATION . . . . . INT FM, 1 kHz
DEVIATION. . . . . 3.3 kHz PK.
LEVEL. . . . . -60 dBm

```
- c. Connect the HP8640 to the CE-6000 ANT IN jack, and tune the CE-6000 to the exact HP8640 frequency (the SIGNAL LEVEL LED will turn on, and the FREQUENCY ERROR meter will read 0 kHz error).
- d. Decrease the HP8640 output level until the SINAD meter on the CE-6000 reads 10 dB. Verify that the HP8640 level is \leq 101 dBm.
- e. Repeat the above test at 124.xxxx MHz and at 10.2xxx MHz. Verify that the 10 dB SINAD is \leq -101 dBm at each frequency.

- f. Change the CE-6000 SENSITIVITY control to -40 and repeat Step d. Check also at -20 and 0 dB. Verify that the sensitivity difference measured at these levels agrees with the level changes required on the HP8640 (+2 dB).

AM Sensitivity Test

4.09.5.6 Set the CE-6000 controls as follows:

```

FUNCTION . . . . . AM/RCV
FREQUENCY. . . . . 999.XXXX MHz
SENSITIVITY. . . . . MAX
SELECTIVITY. . . . . NARROW
METER FUNCTION . . . . . SINAD
FREQUENCY ERROR RANGE. . 1.5 kHz

```

- a. Connect a cable from the CE-6000 DEMOD OUT jack to the SINAD IN jack.

- b. Set the HP8640 controls as follows:

```

FREQUENCY. . . . . 999.XXXX MHz
MODULATION . . . . . INT FM, 1 kHz
DEVIATION. . . . . 50% AM
LEVEL. . . . . -60 dBm

```

- c. Connect the HP8640 to the CE-6000 ANT IN jack, and tune the CE-6000 to the exact HP8640 frequency (the SIGNAL LEVEL LED will turn on, and the FREQUENCY ERROR meter will read 0 kHz error).

- d. Decrease the HP8640 output level until the SINAD meter on the CE-6000 reads 10 dB. Verify that the HP8640 level is ≤101 dBm.

- e. Repeat the above test at 124.xxxx MHz and at 10.2xxx MHz. Verify that the 10 dB SINAD is ≤-101 dBm at each frequency.

- f. Change the CE-6000 SENSITIVITY control to -40 and repeat Step d. Check also at -20 and 0 dB. Verify that the sensitivity difference measured at these levels agrees with the level changes required on the HP8640 (+2 dB).

Spectrum Monitor Function Calibration

4.09.5.7 The Spectrum Monitor function in the CE-6000 provides a 10 kHz/DIV - 100 MHz/DIV spectrum analyzer, with the additional capability of listening to the observed signal to speed its identification.

Test equipment required to calibrate the Spectrum Monitor circuits is a 0-70 dB step attenuator (10 dB steps), and an HP8640 Signal Generator. It can be tested and calibrated as follows:

- a. Set the CE-6000 controls to:

FUNCTION switch RCV/SPECTRUM - CW
 HORIZ/DIV switch. 10 MHz
 SIG GEN (FINE)/TG OFF
 SPECTRUM DISPLAY control. . 10 dB/DIV
 SENSITIVITY switch. -20 dBm
 FREQUENCY 200.0000 MHz

Connect the CAL OUT jack to the ANT IN connector.

- b. The CAL OUT signal should be at the center of the CRT graticule (fo line) \pm 0.5 division. If not, adjust R82034.
- c. Observe that the trace just fills the 10 horizontal divisions on the CRT graticule. If not, adjust R82019.
- d. Set the CE-6000 FREQUENCY to 240.0000 MHz. The signal should be 4 \pm 0.5 divisions left of CRT center (fo). If not, adjust R82019.
- e. Set the CE-6000 FREQUENCY to 200.0400 MHz, and the HORIZ/DIV switch to 10 kHz.

NOTE

The CE-6000 activates its SEE and HEARTM function when the HORIZ/DIV switch is in the 100 kHz or 10 kHz position. This enables the FREQUENCY ERROR and FUNCTION meters, and the audio circuits of the unit.

- f. The signal should be 4 \pm 0.5 divisions left of CRT center (fo). If not, adjust R21003.
- g. Set the CE-6000 FREQUENCY to 200.0000 MHz. From the HP8640, connect a 0 dBm level, 200.0000 MHz signal to the CE-6000 ANT IN connector through a 70 dB step attenuator (set at 0 attenuation).
- h. With the CE-6000 SENSITIVITY switch set to 0 dBm, the signal amplitude should be to the 0 dB line (top of the CRT graticule). If not, adjust R23085 and L23039.

- i. Adjust L23030, L23033, L23035, and L23037 for the best response on the CRT. No ringing should occur.
- j. Check linearity of the CE-6000 circuits by changing the step attenuator in 10 dB steps from 0 dB to -70 dB.
- k. Change the SPECTRUM DISPLAY control to 1 dB/DIV, and set the top of the signal to the middle of the CRT with the SIG GEN (FINE) control.
- l. Change the HORIZ/DIV switch to 100 kHz, and if necessary adjust R23077 to center the signal on the CRT.
- m. Set the HORIZ/DIV switch to 1 MHz. Adjust (if necessary) R23074 to center the signal on the CRT.
- n. Set the HORIZ/DIV switch to 10 MHz. Adjust (if necessary) R23071 to center the signal on the CRT.
- o. Set the HORIZ/DIV switch to 0-1000 MHz. If necessary, adjust R23078 to center the signal on the CRT.
- p. Set the CE-6000 SPECTRUM DISPLAY control to 10 dB/DIV, and the SWEEP control to FULL.
- q. Apply a 500.0000 MHz signal at -30 dBm to the CE-6000 ANT IN connector.
- r. If the signal is not centered at the CRT fo, adjust R32030.
- s. If the Spectrum Display L.O. signal is not at the first line on the left of the CRT graticule (0 reference), adjust R32044.

Tracking Scope Test (CE-6020 and CE-6030 only)

4.09.5.8 Set the CE-6000 controls as follows:

FUNCTION . . . . .	.RCV/CW
HORIZ/DIV. . . . .	.0-1000 MHz
SIG GEN (FINE) . . . . .	.0 Db
1dB/10dB/EXT DET . . . . .	.EXT DET
VERT . . . . .	.5v (PER DIV)
AC/DC (coupling switch).	.AC

Apply a 1 kHz signal at 1 Vp-p to the oscilloscope VERT IN jack on the CE-6000. The CRT display must have an amplitude of 2 divisions.

Tracking Generator Test (CE-6020 and CE-6030 only)

4.09.5.9 To check the CE-6000 Tracking Generator function, perform the following:

- a. To check Tracking Generator base line shift, set the CE-6000 controls :

```

FUNCTION . . . . .RCV/CW
SENSITIVITY. . . . .-40 dBm
HORIZ/DIV. . . . .1 MHz
1dB/10dB/EXT DET . . . . .10 dB
SIG GEN (COARSE) . . . . .0 dB
SIG GEN (FINE) . . . . .-10 dB
    
```

- b. With no connection to the CE-6000 front panel, check the CRT for base line shift at 10 MHz, 150 MHz, 450 MHz, and 850 MHz. Any shift must remain below the -57 dB level.
- c. To check the tracking function of the system, set the CE-6000 controls :

```

FUNCTION . . . . .RCV/CW
SENSITIVITY. . . . .-40 dBm
HORIZ/DIV. . . . .1 MHz
1dB/10dB/EXT DET . . . . .10 dB
SIG GEN (COARSE) . . . . .-60 dB
SIG GEN (FINE) . . . . .0 dB
    
```

- d. Connect a cable from the SIG GEN OUT/RF IN jack to the ANT IN jack on the CE-6000.
- e. The CRT trace must remain on the -20 dB REF LEV line (\pm 4.5 dB) as the frequency is changed from 10 MHz to 450 MHz to 850 MHz.
- f. Switch the SIG GEN (FINE) control to OFF. The CRT display must revert back to the Spectrum Monitor mode.

- g. Check for Tracking Generator noise level by setting the CE-6000 controls as follows:

```

FUNCTION . . . . .RCV/CW
FREQUENCY. . . . .0.455 MHz
SENSITIVITY. . . . .0 dBm
HORIZ/DIV. . . . .10 kHz
1dB/10dB/EXT DET . . . . .10 dB
SIG GEN (COARSE) . . . . .0 dB
SIG GEN (FINE) . . . . .0 dB
    
```

- h. Ensure a cable is connected from the SIG GEN OUT jack to the ANT IN jack of the CE-6000.
- i. The signal on the CRT must be above the -25 dBm REF LEV line. Note its exact level for the next step.
- j. Disconnect the cable from the CE-6000 ANT IN jack and set the CE-6000 REF LEV dBm control for -40 dBm. The noise level on the scope must be at least 30 dB below the level noted in Step h (for example, if the reference level in Step h. is -20 dBm, the noise level must be at least -50 dBm. If the noted level is -10 dBm, the noise must be at least -40 dBm on the CRT).

Full and Variable Sweep Test (CE-6020 and CE-6030 only)

4.09.5.10 Set the CE-6000 controls :

```

FUNCTION . . . . .RCV/CW
HORIZ/DIV. . . . .0-1000 MHz
SIG GEN (COARSE) . . . . -10 dB
SIG GEN (FINE) . . . . .0 dB

```

- a. Connect the CE-6000 SIG GEN OUT jack to a Spectrum Analyzer. Set the CE-6000 spectrum display SWEEP VAR control to minimum (CCW), making sure the control is not against the CCW stop. The sweep width must be less than 10 MHz.
- b. Set the SWEEP VAR control to maximum (full CW). The sweep width must be greater than 300 MHz.
- c. Connect a cable from the CE-6000 SIG GEN OUT jack to the ANT IN jack.
- d. With the spectrum display SWEEP VAR control at maximum (CW) but not full, turn the (inner knob) CENTERING control from fully CW to fully CCW and observe the CRT. There should be no glitches or "zero crossings" visible.
- e. Set the spectrum display SWEEP VAR control to FULL. The frequency response from 100 MHz to 1 GHz must have less than 6 dB of ripple.

SECTION V - TROUBLESHOOTING

INTRODUCTION

5.01 This section is intended as a troubleshooting aid for the CE-6000 Series Radio System Analyzer. The troubleshooting aids given are to assist in localizing CE-6000 problems, and do not show, and are not intended to show, all problems which might occur, or all available solutions. They are presented as guides to be used to isolate the problem to a printed circuit board, or other component, by a logical process of elimination.

5.02 If a problem has been localized to the CE-6000 Series equipment, contact the Cushman Electronics Customer Service Department for instructions on returning the unit to service. In California, call telephone number (408) 263-8100. Outside California, call (800) 538-7020.

5.03 If it becomes necessary to return equipment to Cushman Electronics, refer to the information contained in Section I of this manual for packing and shipment.

5.04 The General Troubleshooting Flow Chart, Figure 5-1, is used to locate the functional section of the CE-6000 causing the problem, and to direct the technician to the proper troubleshooting diagram(s) for localizing the specific problem. It also provides a troubleshooting guide for locating power supply, digital display, and other common circuit CE-6000 problems. The Signal Generator Troubleshooting Flow Chart, Figure 5-2, is for troubleshooting problems with signal generation and modulation, while the Monitor Troubleshooting Flow Chart, Figure 5-3, is used to locate problems in the receive, SINAD, Spectrum Analyzer, oscilloscope, demodulation, and Power Meter circuits.

"



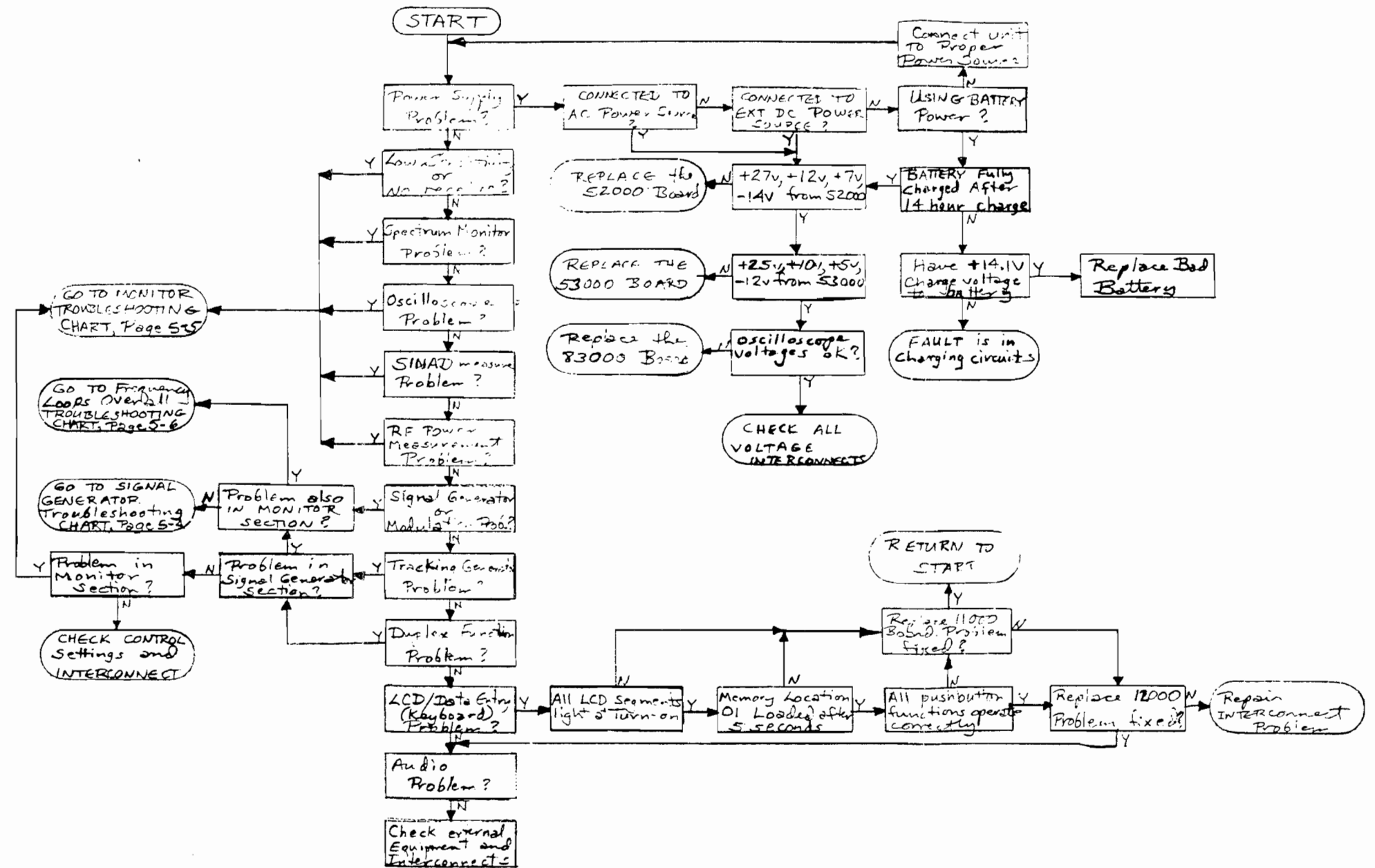


FIGURE 5-1

GENERAL TROUBLESHOOTING FLOW CHART

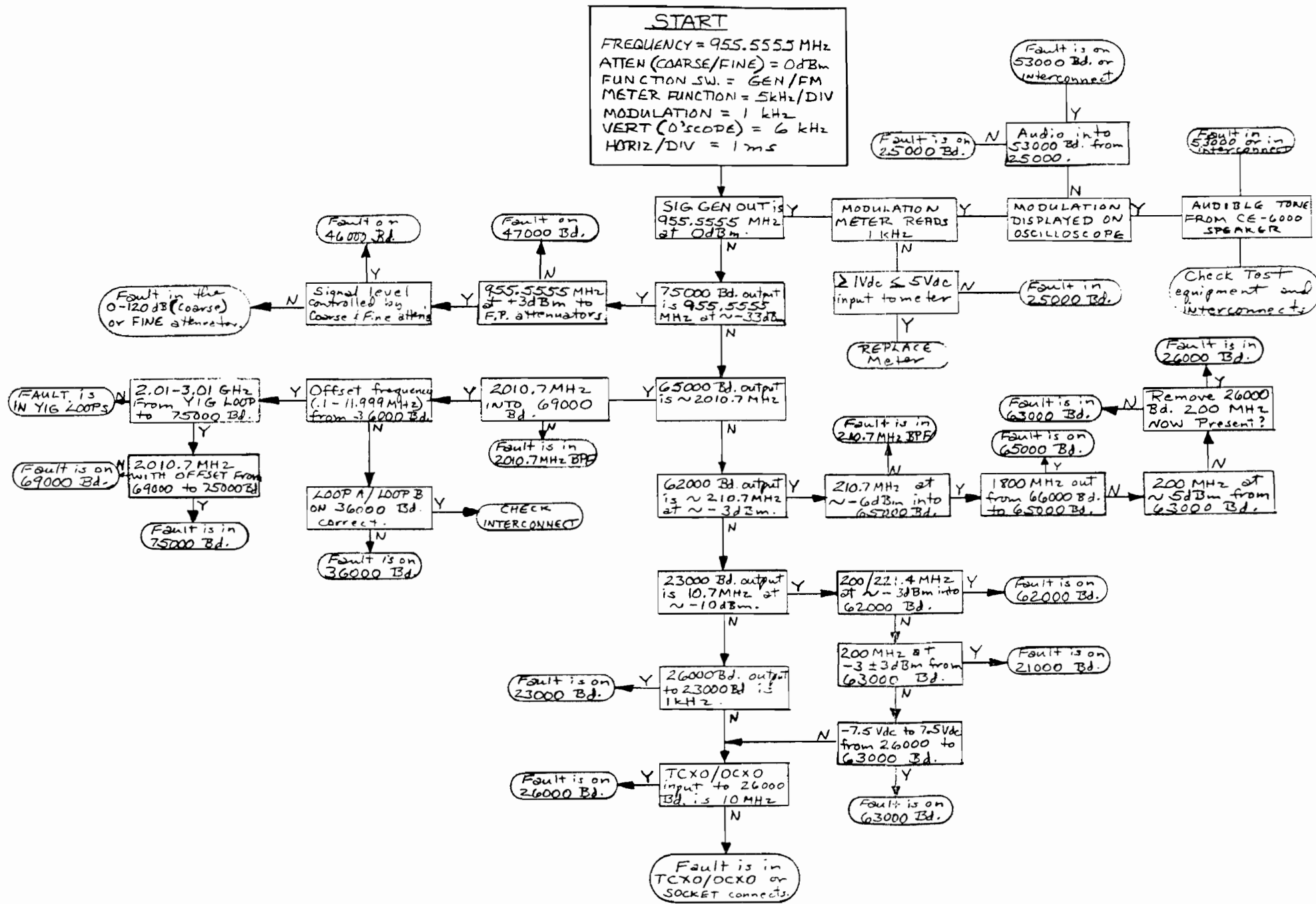


FIGURE 5-2 SIG GEN TROUBLESHOOTING FLOW CHART

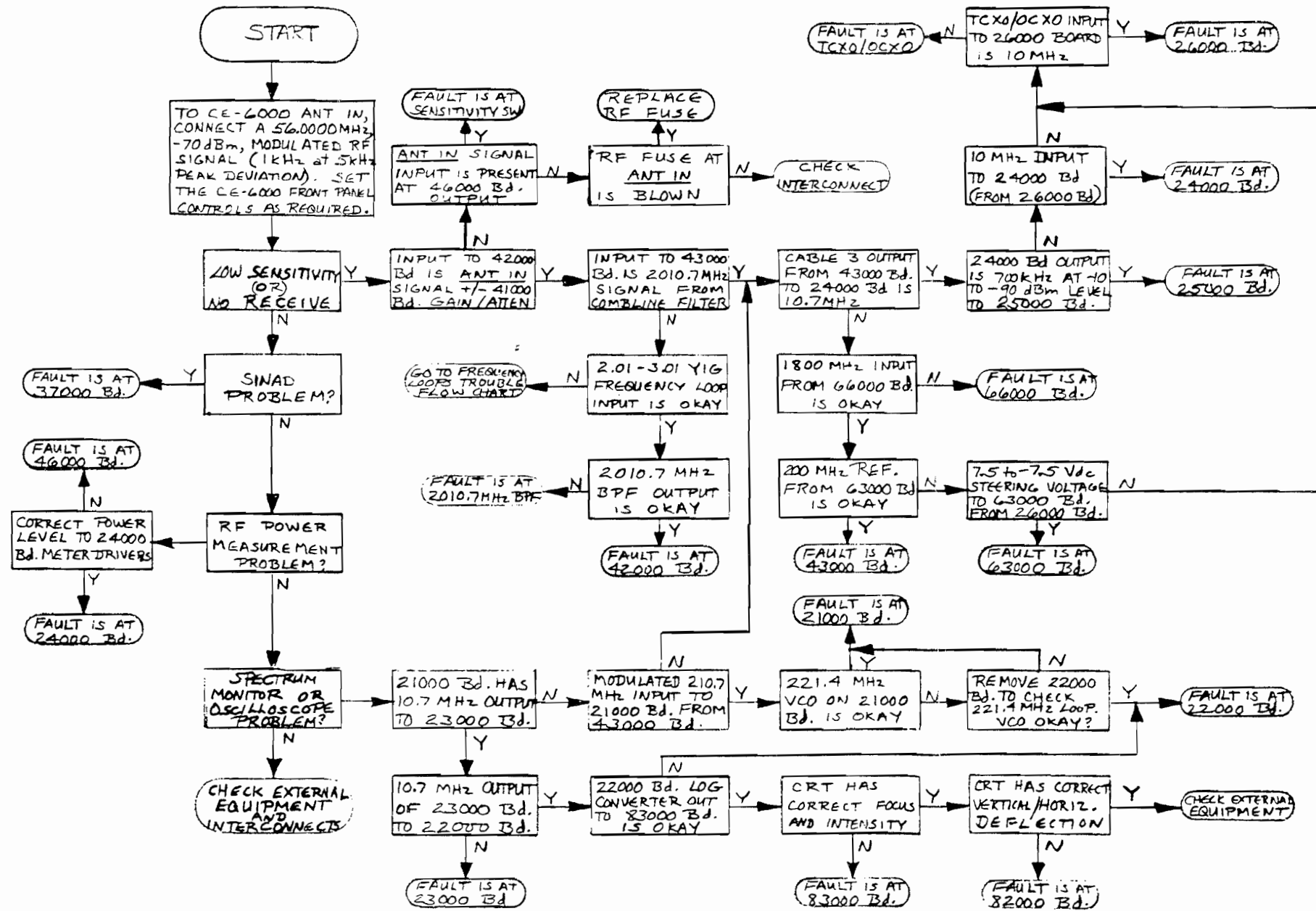


FIGURE 5-3

MONITOR TROUBLESHOOTING FLOW CHART

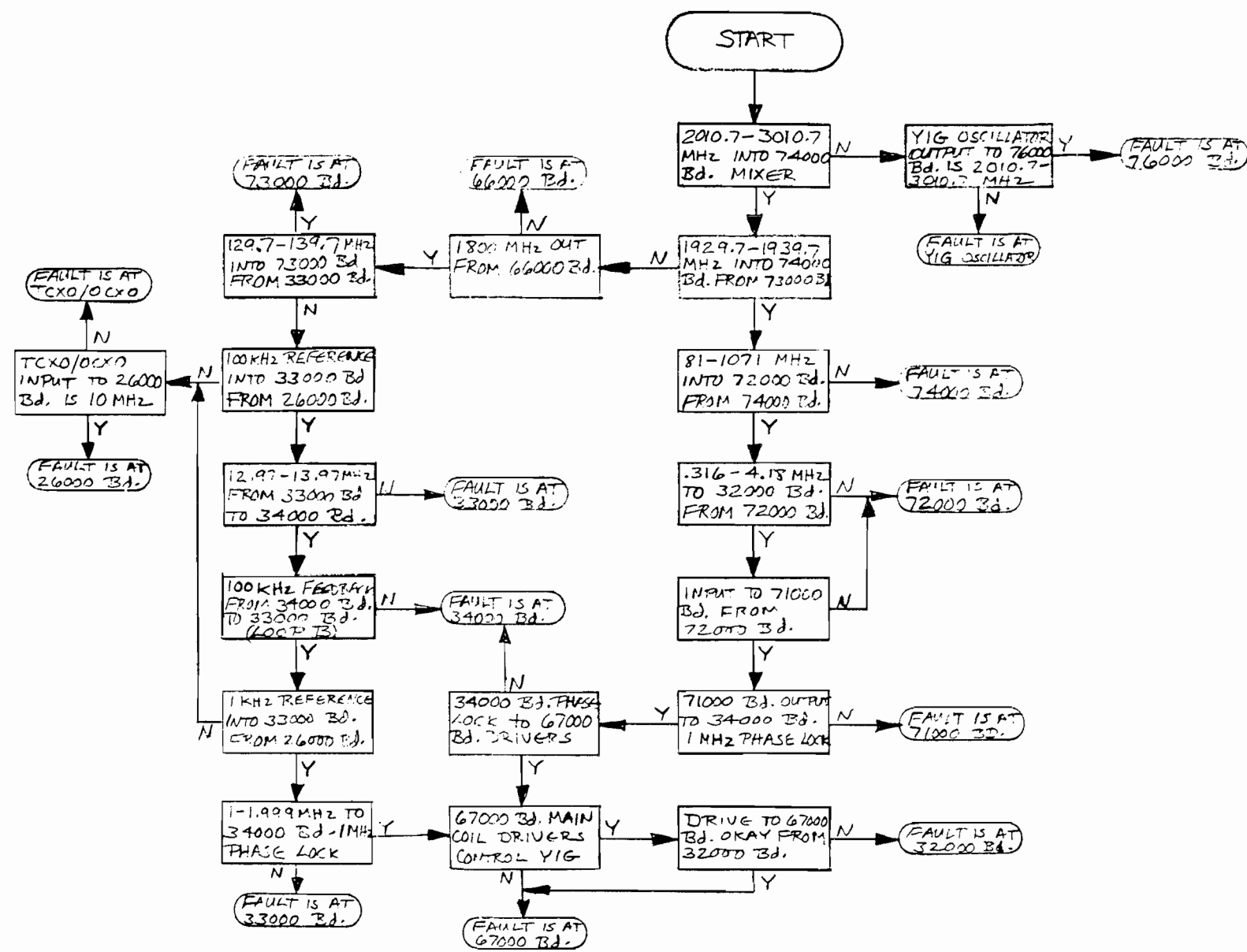


FIGURE 5-4 FREQUENCY LOOPS TROUBLESHOOTING FLOW CHART

Cushman Electronics stock numbers) for each individual printed circuit board (PCB).

6.02 Each schematic diagram has a reference designation listed with its title in the lower right corner of the drawing for easy reference. Drawings are inserted in numerical order of the circuit board reference number starting with 10000 and going through 83000. The optional 6408/6409 Signal Center drawings are located following the CE-6000 Series schematic drawings. To locate specific drawings, refer to the Table of Contents at the front of this manual.

MODULES

10000	PNL ASSY-FRONT	7003-0182	CUSHMAN
11000	MDL ASSY-MICROPROCESSOR	7060-0029	CUSHMAN
14000	PCB ASSY-MICROPROCESSOR	7001-0832	CUSHMAN
21000	PCB ASSY-SEE&HEAR ANAL	7001-0741	CUSHMAN
22000	PCB ASSY-LOG CONV/SEE&	7001-0742	CUSHMAN
23000	PCB ASSY-FM/AM MOD/BPF	7001-0870	CUSHMAN
24000	PCB ASSY-10.7MHZ IF/ALC	7001-0745	CUSHMAN
25000	PCB ASSY-FM/AM DETECTOR	7001-0746	CUSHMAN
26000	PCB ASSY-REF FREQ GEN/D	7001-0825	CUSHMAN
27000	CNTNR ASSY-OSCILLATOR	7046-0069	CUSHMAN
31000	PCB ASSY-AUDIO SYNTH&C	7001-0748	CUSHMAN
32000	PCB ASSY-YIG MAIN COIL	7001-0751	CUSHMAN
33000	PCB ASSY-LOOPS A&B PLL	7001-0750	CUSHMAN
34000	PCB ASSY-A&B DIV/YIG FM	7001-0749	CUSHMAN
40000	CSTG ASSY-RECEIVER	7046-0064	CUSHMAN
45000	CSTG ASSY-RF OUTPUT	7046-0068	CUSHMAN
60000/			
70000	CSTG ASSY-RF MAIN	7046-0065	CUSHMAN
80000	MDL-ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN
90000	PNL ASSY-REAR	7003-0165	CUSHMAN
91000	ATTEN-RTTY DEC 0-120DB	2381-0005	CUSHMAN

CABLE ASSY

LBL 4	CA ASSY-.085 SEMI RGD C	7033-0113	CUSHMAN
LBL 5	CA ASSY-.085 SEMI RGD C	7033-0112	CUSHMAN
LBL 6	CA ASSY-.085 SEMI RGD C	7033-0111	CUSHMAN
LBL14	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN
LBL21	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN
LBL22	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN
LBL23	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN
LBL24	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN
LBL25	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN
LBL26	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN
LBL27	CA ASSY-.085 SEMI RGD C	7033-0109	CUSHMAN
LBL30	CA ASSY-.085 SEMI RGD C	7033-0108	CUSHMAN
LBL31	CA ASSY-.085 SEMI RGD C	7033-0110	CUSHMAN
LBL35	CA ASSY-.085 SEMI RGD C	7033-0090	CUSHMAN
LBL36	CA ASSY-.085 SE05 RGD C	7033-0092	CUSHMAN
LBL37	CA ASSY-.085 SEMI RGD C	7033-0091	CUSHMAN

SPEAKER

SPKR-1.5W 45OHM IMP 1715-0006

KNOBS

KNOB-.92ODIA BLK .258	2780-0057
KNOB-.37DIA BLK .125SFT	2780-0066
KNOB-.37DIA BLK .125SFT	2780-0066
KNOB-.37DIA BLK .125SFT	2780-0066
KNOB-.37DIA BLK .125SFT	2780-0066
KNOB-.37DIA BLK .125SFT	2780-0066
KNOB-.71DIA BLK .258SFT	2780-0069
KNOB-.71DIA BLK .258SFT	2780-0069

11000	MDL ASSY-MICROPROCESSR	7060-0029	CUSHMAN
14000	PCB-ASSY-MICROPROCESSR	7001-0832	CUSHMAN
21000	PCB ASSY-SEE&HEAR ANAL	7001-0741	CUSHMAN
22000	PCB ASSY-LOG CONV/S/H	7001-0742	CUSHMAN
23000	PCB ASSY-FM/AM MOD/BPF	7001-0870	CUSHMAN
24000	PCB ASY-10.7MHZ IF/ALC	7001-0745	CUSHMAN
25000	PCB ASSY-FM/AM DETECTR	7001-0746	CUSHMAN
26000	PCB ASSY-REF FREQ G/D	7001-0825	CUSHMAN
27000	CNTNR ASSY-OSCILLATOR	7046-0069	CUSHMAN
31000	PCB ASY-AUDIO SYN&CTRL	7001-0748	CUSHMAN
32000	PCB ASY-YIG MAIN COIL	7001-0751	CUSHMAN
33000	PCB ASSY-LOOPS A&B PLL	7001-0750	CUSHMAN
34000	PCB ASY-AZB DIV/YIG FM	7001-0749	CUSHMAN
35000	PCB ASY-PWR SW/OFFSET	7001-0872	CUSHMAN
36000	PCB ASSY-OFFSET GEN	7001-0752	CUSHMAN
40000	CSTG ASSY-RECEIVER	7046-0064	CUSHMAN
44000	PCB ASSY-40DB SWITCH	7001-0828	CUSHMAN
45000	CSTG ASSY-RF OUTPUT	7046-0068	CUSHMAN
60000/ 70000	CSTG ASSY-RF MAIN	7046-0081	CUSHMAN
80000	MDL ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN
90000	PNL ASSY-REAR	7003-0165	CUSHMAN
91000	ATTN-RTRY DEC 0-120DB	2381-0005	CUSHMAN

SPEAKER

SPKR-1.5W 45 OHM IMPED	1715-0006
------------------------	-----------

KNOBS

KNOB-.920DIA BLK.25SFT	2780-0057
KNOB-.37DIA BLK.125SFT	2780-0066
KNOB-.71DIA BLK.25SFT	2780-0069

CABLE ASSY

LBL 4	CA ASSY-.085 S-RG COAX	7033-0113	CUSHMAN
LBL 5	CA ASSY-.085 S-RG COAX	7033-0112	CUSHMAN
LBL 6	CA ASSY-.085 S-RG COAX	7033-0111	CUSHMAN
LBL14	CA ASSY-RG188 RTNG SMB	7032-5617	CUSHMAN
LBL21	CA ASSY-RG188 RTNG SMB	7032-5635	CUSHMAN
LBL22	CA ASSY-RG188 RTNG SMB	7032-5635	CUSHMAN
LBL23	CA ASSY-RG188 RTNG SMB	7032-5635	CUSHMAN

LBL30	CA ASSY-.085 S-RG COAX	7033-0108	CUSHMAN
LBL31	CA ASSY-.085 S-RG COAX	7033-0110	CUSHMAN
LBL35	CA ASSY-.085 S-RG COAX	7033-0090	CUSHMAN
LBL36	CA ASSY-.085 S-RG COAX	7033-0092	CUSHMAN
LBL37	CA ASSY-.085 S-RG COAX	7033-0091	CUSHMAN
LBL38	CA ASSY-.085 S-RG COAX	7033-0093	CUSHMAN
LBL43	CA ASSY-.085 S-RG COAX	7033-0088	CUSHMAN

CORD-PWR 6'7" 3/18GA	3170-0015	CUSHMAN
CA-20 CNDCT RIBBN DUAL	3173-0008	CUSHMAN
HARN ASSY-SINAD	7030-0295	CUSHMAN
HARN ASSY-MAIN WIRING	7030-0313	CUSHMAN

OSCILLATOR

Y1	OSC-TCX0 10.0 MHZ	2001-0009
----	-------------------	-----------

PCB's

10000	PNL ASSY-FRONT	7003-0182	CUSHMAN
11000	MDL ASSY-MICROPROCESSOR	7060-0029	CUSHMAN
14000	PCB ASSY-MICROPROCESSOR	7001-0892	CUSHMAN
15000	PNL ASSY-FRONT LOG DISP	7003-0167	CUSHMAN
16000	PCB ASSY-RS232	7001-0888	CUSHMAN
21000	PCB ASSY-SEE&HEAR ANALOG	7001-0741	CUSHMAN
22000	PCB ASSY-LOG CONV/SEE&HEAR	7001-0742	CUSHMAN
23000	PCB ASSY-FM/AM MOD/BPF	7001-0870	CUSHMAN
24000	PCB ASSY-10.7MHZ IF/ALC	7001-0745	CUSHMAN
25000	PCB ASSY-FM/AM DETECTOR	7001-0746	CUSHMAN
26000	PCB ASSY-REF FREQ GEN	7001-0825	CUSHMAN
27000	CNTNR ASSY-OSCILLATOR	7046-0069	CUSHMAN
31000	PCB ASSY-AUDIO SYNTH&CONT	7001-0748	CUSHMAN
32000	PCB ASSY-YIG MAIN COIL	7001-0751	CUSHMAN
33000	PCB ASSY-LOOPS A&B PLL	7001-0750	CUSHMAN
34000	PCB ASSY-A&B DIV/YIG FM	7001-0749	CUSHMAN
35000	PCB ASSY- PWR SW	7001-0816	CUSHMAN
40000	CASTING ASSY-RECEIVER	7046-0064	CUSHMAN
45000	CASTING ASSY-RF OUTPUT	7046-0068	CUSHMAN
60000/ 70000	CASTING ASSY-RF MAIN	7046-0065	CUSHMAN
80000	MDL ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN
90000	PANEL ASSY-REAR	7003-0165	CUSHMAN

ATTENUATOR ASSY

SW ASSY-ATTEN CONTROL	7011-0045	CUSHMAN
ATTEN ASSY-O TO 120DB	7040-0064	CUSHMAN

CABLE ASSY

LBL 4	CA ASSY-.085 SEMI-RGD COAX	7033-0113	CUSHMAN
LBL 5	CA ASSY-.085 SEMI-RGD COAX	7033-0112	CUSHMAN
LBL 6	CA ASSY-.085 SEMI-RGD COAX	7033-0111	CUSHMAN
LBL 14	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN
LBL 21	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN
LBL 22	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN
LBL 23	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN

LBL 35 CA ASSY-.085 SEMI-RGD COAX 7033-0090 CUSHMAN
 LBL 36 CA ASSY-.085 SEMI-RGD COAX 7033-0092 CUSHMAN
 LBL 37 CA ASSY-.086 SEMI-RGD COAX 7033-0133 CUSHMAN
 LBL 38 CA ASSY-.086 SEMI-RGD COAX 7033-0134 CUSHMAN

LBL 42 CA ASSY-RG188 DUAL SMB 7032-4433 CUSHMAN
 LBL 43 CA ASSY-.085 SEMI-RGD COAX 7033-0088 CUSHMAN

CA-20 CNDCT RIBBON DUAL 3173-0008 CUSHMAN
 CA-60 CNDCT RIBBON DUAL 3173-0011 CUSHMAN
 CA ASSY-20 CNDCT RIBBON 7033-0158 CUSHMAN
 HARN ASSY-SINAD 7030-0295 CUSHMAN
 HARN ASSY-MAIN WIRING 7030-0313 CUSHMAN
 HARN ASSY-GPIB INPUT 7030-0340 CUSHMAN
 HARN ASSY-GPIB OUTPUT 7030-0341 CUSHMAN
 CORD-PWR 6'7" 3/18GA 3170-0015 CUSHMAN

SPEAKER

SPKR-1.5W, 45 OHM IMPED 1715-0006

KNOBS

KNOB-.92ODIA BLK.25SFT 2780-0057
 KNOB-.37DIA BLK.125SFT 2780-0066
 KNOB-.71DIA BLK.25SFT 2780-0069

CONNECTORS

COV-24PIN D TYPE CONN 2180-0281 CUSHMAN
 CONN-HDW PNL MT METRIC 2535-0220

RF GASKET

GSKT-RF .08ODIA 1 MESH 3460-0015 CUSHMAN

PCB'S

10000	PNL ASSY-FRONT	7003-0182	CUSHMAN
11000	MDL ASSY-MICROPROCESSOR	7060-0029	CUSHMAN
14000	PCB ASSY-MICROPROCESSOR	7001-0891	CUSHMAN
16000	PCB ASSY-GPIB	7001-0835	CUSHMAN
21000	PCB ASSY-SEE&HEAR ANALOG	7001-0741	CUSHMAN
22000	PCB ASSY-LOG CON/SEE&HEAR	7001-0742	CUSHMAN
23000	PCB ASSY-FM/AM MOD/BPF	7001-0870	CUSHMAN
24000	PCB ASSY-10.7MHZ IF/ALC	7001-0745	CUSHMAN
25000	PCB ASSY-FM/AM DETECTOR	7001-0746	CUSHMAN
26000	PCB ASSY-REF FREQ GEN/DIV	7001-0825	CUSHMAN
27000	CNTNR ASSY-OSCILLATOR	7046-0069	CUSHMAN
31000	PCB ASSY-AUDIO SYNTH&C	7001-0748	CUSHMAN
32000	PCB ASSY-YIG MAIN COIL	7001-0751	CUSHMAN
33000	PCB ASSY-LOOPS A&B PLL	7001-0750	CUSHMAN
34000	PCB ASSY-A&B DIV/YIG FM	7001-0749	CUSHMAN
35000	PCB ASSY-PWR SW	7001-0816	CUSHMAN
40000	CASTING ASSY-RECEIVER	7046-0064	CUSHMAN
45000	CASTING ASSY-RF OUTPUT	7046-0068	CUSHMAN
60000/ 70000	CASTING ASSY-RF MAIN	7046-0065	CUSHMAN
80000	MDL ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN
90000	PANEL ASSY-REAR	7003-0165	CUSHMAN

CABLES

LBL 4	CA ASSY-.085 SEMI-RGD COAX	7033-0113	CUSHMAN
LBL 5	CA ASSY-.085 SEMI-RGD COAX	7033-0112	CUSHMAN
LBL 6	CA ASSY-.085 SEMI-RGD COAX	7033-0111	CUSHMAN
LBL 14	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN
LBL 21	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN
LBL 22	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN
LBL 23	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN
LBL 24	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN
LBL 25	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN
LBL 26	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN
LBL 27	CA ASSY-.085 SEMI-RGD COAX	7033-0109	CUSHMAN
LBL 30	CA ASSY-.085 SEMI-RGD COAX	7033-0108	CUSHMAN
LBL 31	CA ASSY-.085 SEMI-RGD COAX	7033-0110	CUSHMAN
LBL 35	CA ASSY-.085 SEMI-RGD COAX	7033-0090	CUSHMAN
LBL 36	CA ASSY-.085 SEMI-RGD COAX	7033-0092	CUSHMAN
LBL 37	CA ASSY-.086 SEMI-RGD COAX	7033-0133	CUSHMAN

HAKN ASSY-SINAD	7030-0295	CUSHMAN
HARN ASSY-MAIN WIRING	7030-0313	CUSHMAN
HARN ASSY-GPIB INPUT	7030-0340	CUSHMAN
HARN ASSY-GPIB OUTPUT	7030-0341	CUSHMAN
HARN ASSY-ATTENUATOR	7030-0342	CUSHMAN
CA-20 CNDCT RIBBON DUAL	3173-0008	CUSHMAN
CA-60 CNDCT RBN DUAL PL	3173-0013	CUSHMAN
CA ASSY-20 CNDCT RIBBON	7033-0135	CUSHMAN
CORD-PWR 6'7" 3/18GA	3170-0015	

CONNECTORS

COV-24PIN D TYPE CONN	2180-0281
CONN-HDW PNL MT METRIC	2535-0220

GASKET

GSKT-RF.080DIA 1 MESH	3460-0015
-----------------------	-----------

KNOBS

KNOB-.920DIA BLK .25SFT	2780-0057
KNOB-.37DIA BLK.125SFT	2780-0066
KNOB-.71DIA BLK.25SFT	2780-0069

OSCILLATOR

Y1 OSC-TCXO 10.0 MHZ	2001-0009
----------------------	-----------

SPEAKER

SPKR-1.5W 45 OHM IMPED	1715-0006
------------------------	-----------

SWITCHES

SW ASSY-ATTEN CONTROL	7011-0045
ATTEN ASSY-0 TO 120DB	7040-0064

SECTION VI
PARTS LISTS AND SCHEMATIC DIAGRAMS

INTRODUCTION

6.01 This section contains circuit schematics, layout of component parts, and a complete list of parts (with Cushman Electronics stock numbers) for each individual printed circuit board (PCB).

6.02 Each schematic diagram has a reference designation listed with its title in the lower right corner of the drawing for easy reference. Drawings are inserted in numerical order of the circuit board reference number starting with 10000 and going through 83000. The optional 6408/6409 Signal Center drawings are located following the CE-6000 Series schematic drawings. To locate specific drawings, refer to the Table of Contents at the front of this manual.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
	MAIN ASSY-6000 FAMILY	7017-0045	CUSHMAN	
	OSCILLATOR			
Y1	OCS-TCXO 10.0 MHZ	2001-0009		
	MODULES			
10000	PNL ASSY-FRONT	7003-0182	CUSHMAN	
11000	MDL ASSY-MICROPROCESSOR	7060-0029	CUSHMAN	
14000	PCB ASSY-MICROPROCESSOR	7001-0832	CUSHMAN	
21000	PCB ASSY-SEE&HEAR ANAL	7001-0741	CUSHMAN	
22000	PCB ASSY-LOG CONV/SEE&	7001-0742	CUSHMAN	
23000	PCB ASSY-FM/AM MOD/BPF	7001-0870	CUSHMAN	
24000	PCB ASSY-10.7MHZ IF/ALC	7001-0745	CUSHMAN	
25000	PCB ASSY-FM/AM DETECTOR	7001-0746	CUSHMAN	
26000	PCB ASSY-REF FREQ GEN/D	7001-0825	CUSHMAN	
27000	CNTNR ASSY-OSCILLATOR	7046-0069	CUSHMAN	
31000	PCB ASSY-AUDIO SYNTH&C	7001-0748	CUSHMAN	
32000	PCB ASSY-YIG MAIN COIL	7001-0751	CUSHMAN	
33000	PCB ASSY-LOOPS A&B PLL	7001-0750	CUSHMAN	
34000	PCB ASSY-A&B DIV/YIG FM	7001-0749	CUSHMAN	
40000	CSTG ASSY-RECEIVER	7046-0064	CUSHMAN	
45000	CSTG ASSY-RF OUTPUT	7046-0068	CUSHMAN	
60000/ 70000	CSTG ASSY-RF MAIN	7046-0065	CUSHMAN	
80000	MDL-ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN	
90000	PNL ASSY-REAR	7003-0165	CUSHMAN	
91000	ATTEN-RTTY DEC 0-120DB	2381-0005	CUSHMAN	
	CABLE ASSY			
LBL 4	CA ASSY-.085 SEMI RGD C	7033-0113	CUSHMAN	
LBL 5	CA ASSY-.085 SEMI RGD C	7033-0112	CUSHMAN	
LBL 6	CA ASSY-.085 SEMI RGD C	7033-0111	CUSHMAN	
LBL14	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN	
LBL21	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL22	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL23	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL24	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL25	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN	
LBL26	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL27	CA ASSY-.085 SEMI RGD C	7033-0109	CUSHMAN	
LBL30	CA ASSY-.085 SEMI RGD C	7033-0108	CUSHMAN	
LBL31	CA ASSY-.085 SEMI RGD C	7033-0110	CUSHMAN	
LBL35	CA ASSY-.085 SEMI RGD C	7033-0090	CUSHMAN	
LBL36	CA ASSY-.085 SE05 RGD C	7033-0092	CUSHMAN	
LBL37	CA ASSY-.085 SEMI RGD C	7033-0091	CUSHMAN	

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
LBL38	CA ASSY-.085 SEMI RGD C	7033-0093	CUSHMAN	
LBL43	CA ASSY-.085 SEMI RGD C	7033-0088	CUSHMAN	
	CA-20 CNDCT RIBBON DUAL	3173-0008	CUSHMAN	
	CORD-PWR 6'7" 3/18GA	3170-0015		
SPEAKER				
	SPKR-1.5W 450HM IMP	1715-0006		
KNOBS				
	KNOB-.92DIA BLK .258	2780-0057		
	KNOB-.37DIA BLK .125SFT	2780-0066		
	KNOB-.37DIA BLK .125SFT	2780-0066		
	KNOB-.37DIA BLK .125SFT	2780-0066		
	KNOB-.37DIA BLK .125SFT	2780-0066		
	KNOB-.37DIA BLK .125SFT	2780-0066		
	KNOB-.71DIA BLK .258SFT	2780-0069		
	KNOB-.71DIA BLK .258SFT	2780-0069		

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
	MAIN ASSY-6030 COMM MON	7017-0045	CUSHMAN	
MODULES				
10000	PNL ASSY-FRONT	7003-0182	CUSHMAN	
11000	MDL ASSY-MICROPROCESSR	7060-0029	CUSHMAN	
14000	PCB-ASSY-MICROPROCESSR	7001-0832	CUSHMAN	
21000	PCB ASSY-SEE&HEAR ANAL	7001-0741	CUSHMAN	
22000	PCB ASSY-LOG CONV/S/H	7001-0742	CUSHMAN	
23000	PCB ASSY-FM/AM MOD/BPF	7001-0870	CUSHMAN	
24000	PCB ASSY-10.7MHZ IF/ALC	7001-0745	CUSHMAN	
25000	PCB ASSY-FM/AM DETECTR	7001-0746	CUSHMAN	
26000	PCB ASSY-REF FREQ G/D	7001-0825	CUSHMAN	
27000	CNTNR ASSY-OSCILLATOR	7046-0069	CUSHMAN	
31000	PCB ASY-AUDIO SYN&CTRL	7001-0748	CUSHMAN	
32000	PCB ASY-YIG MAIN COIL	7001-0751	CUSHMAN	
33000	PCB ASSY-LOOPS A&B PLL	7001-0750	CUSHMAN	
34000	PCB ASY-AZB DIV/YIG FM	7001-0749	CUSHMAN	
35000	PCB ASY-PWR SW/OFFSET	7001-0872	CUSHMAN	
36000	PCB ASSY-OFFSET GEN	7001-0752	CUSHMAN	
40000	CSTG ASSY-RECEIVER	7046-0064	CUSHMAN	
44000	PCB ASSY-40DB SWITCH	7001-0828	CUSHMAN	
45000	CSTG ASSY-RF OUTPUT	7046-0068	CUSHMAN	
60000/ 70000	CSTG ASSY-RF MAIN	7046-0081	CUSHMAN	
80000	MDL ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN	
90000	PNL ASSY-REAR	7003-0165	CUSHMAN	
91000	ATTN-RTRY DEC 0-120DB	2381-0005	CUSHMAN	
SPEAKER				
	SPKR-1.5W 45 OHM IMPED	1715-0006		
KNOBS				
	KNOB-.920DIA BLK.25SFT	2780-0057		
	KNOB-.37DIA BLK.125SFT	2780-0066		
	KNOB-.71DIA BLK.25SFT	2780-0069		
CABLE ASSY				
LBL 4	CA ASSY-.085 S-RG COAX	7033-0113	CUSHMAN	
LBL 5	CA ASSY-.085 S-RG COAX	7033-0112	CUSHMAN	
LBL 6	CA ASSY-.085 S-RG COAX	7033-0111	CUSHMAN	
LBL14	CA ASSY-RG188 RTNG SMB	7032-5617	CUSHMAN	
LBL21	CA ASSY-RG188 RTNG SMB	7032-5635	CUSHMAN	
LBL22	CA ASSY-RG188 RTNG SMB	7032-5635	CUSHMAN	
LBL23	CA ASSY-RG188 RTNG SMB	7032-5635	CUSHMAN	

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
LBL24	CA ASSY-RG188 RTNG SMB	7032-5635	CUSHMAN	
LBL25	CA ASSY-RG188 RTNG SMB	7032-5617	CUSHMAN	
LBL26	CA ASSY-RG188 RTNG SMB	7032-5635	CUSHMAN	
LBL27	CA ASSY-.085 S-RG COAX	7033-0109	CUSHMAN	
LBL30	CA ASSY-.085 S-RG COAX	7033-0108	CUSHMAN	
LBL31	CA ASSY-.085 S-RG COAX	7033-0110	CUSHMAN	
LBL35	CA ASSY-.085 S-RG COAX	7033-0090	CUSHMAN	
LBL36	CA ASSY-.085 S-RG COAX	7033-0092	CUSHMAN	
LBL37	CA ASSY-.085 S-RG COAX	7033-0091	CUSHMAN	
LBL38	CA ASSY-.085 S-RG COAX	7033-0093	CUSHMAN	
LBL43	CA ASSY-.085 S-RG COAX	7033-0088	CUSHMAN	
	CORD-PWR 6'7" 3/18GA	3170-0015	CUSHMAN	
	CA-20 CNDCT RIBBN DUAL	3173-0008	CUSHMAN	
	HARN ASSY-SINAD	7030-0295	CUSHMAN	
	HARN ASSY-MAIN WIRING	7030-0313	CUSHMAN	
	OSCILLATOR			
Y1	OSC-TCXO 10.0 MHZ	2001-0009		

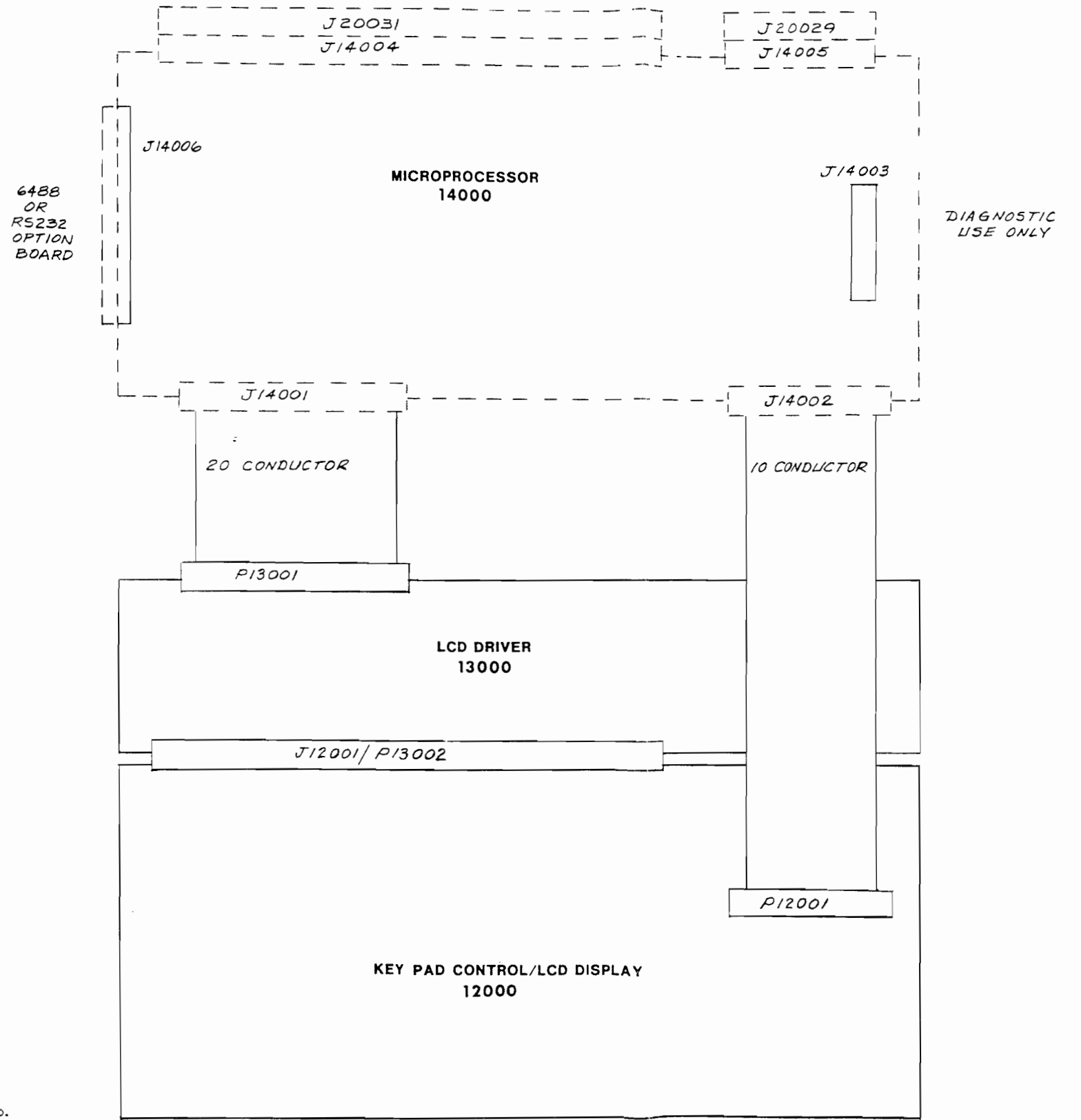
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
CE-6232	MAIN ASSY-COMM MON 6232	7017-0047	CUSHMAN	
	OSCILLATOR			
Y1	TCXO 10.0MHZ	2001-0009		
	PCB's			
10000	PNL ASSY-FRONT	7003-0182	CUSHMAN	
11000	MDL ASSY-MICROPROCESSOR	7060-0029	CUSHMAN	
14000	PCB ASSY-MICROPROCESSOR	7001-0892	CUSHMAN	
15000	PNL ASSY-FRONT LOG DISP	7003-0167	CUSHMAN	
16000	PCB ASSY-RS232	7001-0888	CUSHMAN	
21000	PCB ASSY-SEE&HEAR ANALOG	7001-0741	CUSHMAN	
22000	PCB ASSY-LOG CONV/SEE&HEAR	7001-0742	CUSHMAN	
23000	PCB ASSY-FM/AM MOD/BPF	7001-0870	CUSHMAN	
24000	PCB ASSY-10.7MHZ IF/ALC	7001-0745	CUSHMAN	
25000	PCB ASSY-FM/AM DETECTOR	7001-0746	CUSHMAN	
26000	PCB ASSY-REF FREQ GEN	7001-0825	CUSHMAN	
27000	CNTNR ASSY-OSCILLATOR	7046-0069	CUSHMAN	
31000	PCB ASSY-AUDIO SYNTH&CONT	7001-0748	CUSHMAN	
32000	PCB ASSY-YIG MAIN COIL	7001-0751	CUSHMAN	
33000	PCB ASSY-LOOPS A&B PLL	7001-0750	CUSHMAN	
34000	PCB ASSY-A&B DIV/YIG FM	7001-0749	CUSHMAN	
35000	PCB ASSY- PWR SW	7001-0816	CUSHMAN	
40000	CASTING ASSY-RECEIVER	7046-0064	CUSHMAN	
45000	CASTING ASSY-RF OUTPUT	7046-0068	CUSHMAN	
60000/ 70000	CASTING ASSY-RF MAIN	7046-0065	CUSHMAN	
80000	MDL ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN	
90000	PANEL ASSY-REAR	7003-0165	CUSHMAN	
	ATTENUATOR ASSY			
	SW ASSY-ATTEN CONTROL	7011-0045	CUSHMAN	
	ATTEN ASSY-0 TO 120DB	7040-0064	CUSHMAN	
	CABLE ASSY			
LBL 4	CA ASSY-.085 SEMI-RGD COAX	7033-0113	CUSHMAN	
LBL 5	CA ASSY-.085 SEMI-RGD COAX	7033-0112	CUSHMAN	
LBL 6	CA ASSY-.085 SEMI-RGD COAX	7033-0111	CUSHMAN	
LBL 14	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN	
LBL 21	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL 22	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL 23	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
LBL 24	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL 25	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN	
LBL 26	CA ASSY-RG188 RTANG SMB	7032-5635	CUSHMAN	
LBL 27	CA ASSY-.085 SEMI-RGD COAX	7033-0109	CUSHMAN	
LBL 30	CA ASSY-.085 SEMI-RGD COAX	7033-0108	CUSHMAN	
LBL 31	CA ASSY-.085 SEMI-RGD COAX	7033-0110	CUSHMAN	
LBL 35	CA ASSY-.085 SEMI-RGD COAX	7033-0090	CUSHMAN	
LBL 36	CA ASSY-.085 SEMI-RGD COAX	7033-0092	CUSHMAN	
LBL 37	CA ASSY-.086 SEMI-RGD COAX	7033-0133	CUSHMAN	
LBL 38	CA ASSY-.086 SEMI-RGD COAX	7033-0134	CUSHMAN	
LBL 42	CA ASSY-RG188 DUAL SMB	7032-4433	CUSHMAN	
LBL 43	CA ASSY-.085 SEMI-RGD COAX	7033-0088	CUSHMAN	
	CA-20 CNDCT RIBBON DUAL	3173-0008	CUSHMAN	
	CA-60 CNDCT RIBBON DUAL	3173-0011	CUSHMAN	
	CA ASSY-20 CNDCT RIBBON	7033-0158	CUSHMAN	
	HARN ASSY-SINAD	7030-0295	CUSHMAN	
	HARN ASSY-MAIN WIRING	7030-0313	CUSHMAN	
	HARN ASSY-GPIB INPUT	7030-0340	CUSHMAN	
	HARN ASSY-GPIB OUTPUT	7030-0341	CUSHMAN	
	CORD-PWR 6'7" 3/18GA	3170-0015	CUSHMAN	
	SPEAKER			
	SPKR-1.5W, 45 OHM IMPED	1715-0006		
	KNOBS			
	KNOB-.92ODIA BLK.25SFT	2780-0057		
	KNOB-.37DIA BLK.125SFT	2780-0066		
	KNOB-.71DIA BLK.25SFT	2780-0069		
	CONNECTORS			
	COV-24PIN D TYPE CONN	2180-0281	CUSHMAN	
	CONN-HDW PNL MT METRIC	2535-0220		
	RF GASKET			
	GSKT-RF .08ODIA 1 MESH	3460-0015	CUSHMAN	

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
CE-6488	MAIN ASSY-6488 GPIB MON	7017-0046	CUSHMAN	
ATTENUATOR				
	ATTEN-PRGM DECADE 0-120dB	2381-0008		
PCB'S				
10000	PNL ASSY-FRONT	7003-0182	CUSHMAN	
11000	MDL ASSY-MICROPROCESSOR	7060-0029	CUSHMAN	
14000	PCB ASSY-MICROPROCESSOR	7001-0891	CUSHMAN	
16000	PCB ASSY-GPIB	7001-0835	CUSHMAN	
21000	PCB ASSY-SEE&HEAR ANALOG	7001-0741	CUSHMAN	
22000	PCB ASSY-LOG CON/SEE&HEAR	7001-0742	CUSHMAN	
23000	PCB ASSY-FM/AM MOD/BPF	7001-0870	CUSHMAN	
24000	PCB ASSY-10.7MHZ IF/ALC	7001-0745	CUSHMAN	
25000	PCB ASSY-FM/AM DETECTOR	7001-0746	CUSHMAN	
26000	PCB ASSY-REF FREQ GEN/DIV	7001-0825	CUSHMAN	
27000	CNTNR ASSY-OSCILLATOR	7046-0069	CUSHMAN	
31000	PCB ASSY-AUDIO SYNTH&C	7001-0748	CUSHMAN	
32000	PCB ASSY-YIG MAIN COIL	7001-0751	CUSHMAN	
33000	PCB ASSY-LOOPS A&B PLL	7001-0750	CUSHMAN	
34000	PCB ASSY-A&B DIV/YIG FM	7001-0749	CUSHMAN	
35000	PCB ASSY-PWR SW	7001-0816	CUSHMAN	
40000	CASTING ASSY-RECEIVER	7046-0064	CUSHMAN	
45000	CASTING ASSY-RF OUTPUT	7046-0068	CUSHMAN	
60000/				
70000	CASTING ASSY-RF MAIN	7046-0065	CUSHMAN	
80000	MDL ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN	
90000	PANEL ASSY-REAR	7003-0165	CUSHMAN	
CABLES				
LBL 4	CA ASSY-.085 SEMI-RGD COAX	7033-0113	CUSHMAN	
LBL 5	CA ASSY-.085 SEMI-RGD COAX	7033-0112	CUSHMAN	
LBL 6	CA ASSY-.085 SEMI-RGD COAX	7033-0111	CUSHMAN	
LBL 14	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN	
LBL 21	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN	
LBL 22	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN	
LBL 23	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN	
LBL 24	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN	
LBL 25	CA ASSY-RG188 RTANG SMB	7032-5617	CUSHMAN	
LBL 26	CA ASSY-RG188 RTANG	7032-5635	CUSHMAN	
LBL 27	CA ASSY-.085 SEMI-RGD COAX	7033-0109	CUSHMAN	
LBL 30	CA ASSY-.085 SEMI-RGD COAX	7033-0108	CUSHMAN	
LBL 31	CA ASSY-.085 SEMI-RGD COAX	7033-0110	CUSHMAN	
LBL 35	CA ASSY-.085 SEMI-RGD COAX	7033-0090	CUSHMAN	
LBL 36	CA ASSY-.085 SEMI-RGD COAX	7033-0092	CUSHMAN	
LBL 37	CA ASSY-.086 SEMI-RGD COAX	7033-0133	CUSHMAN	

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
LBL 38	CA ASSY-.086 SEMI-RGD COAX	7033-0134	CUSHMAN	
LBL 42	CA ASSY-RG188 DUAL SMB	7032-4433	CUSHMAN	
LBL 43	CA ASSY-.086 SEMI-RGD COAX	7033-0088	CUSHMAN	
	HARN ASSY-SINAD	7030-0295	CUSHMAN	
	HARN ASSY-MAIN WIRING	7030-0313	CUSHMAN	
	HARN ASSY-GPIB INPUT	7030-0340	CUSHMAN	
	HARN ASSY-GPIB OUTPUT	7030-0341	CUSHMAN	
	HARN ASSY-ATTENUATOR	7030-0342	CUSHMAN	
	CA-20 CNDCT RIBBON DUAL	3173-0008	CUSHMAN	
	CA-60 CNDCT RBN DUAL PL	3173-0013	CUSHMAN	
	CA ASSY-20 CNDCT RIBBON	7033-0135	CUSHMAN	
	CORD-PWR 6'7" 3/18GA	3170-0015		
CONNECTORS				
	COV-24PIN D TYPE CONN	2180-0281		
	CONN-HDW PNL MT METRIC	2535-0220		
GASKET				
	GSKT-RF.080DIA 1 MESH	3460-0015		
KNOBS				
	KNOB-.920DIA BLK .25SFT	2780-0057		
	KNOB-.37DIA BLK.125SFT	2780-0066		
	KNOB-.71DIA BLK.25SFT	2780-0069		
OSCILLATOR				
Y1	OSC-TCXO 10.0 MHZ	2001-0009		
SPEAKER				
	SPKR-1.5W 45 OHM IMPED	1715-0006		
SWITCHES				
	SW ASSY-ATTEN CONTROL	7011-0045		
	ATTEN ASSY-0 TO 120DB	7040-0064		

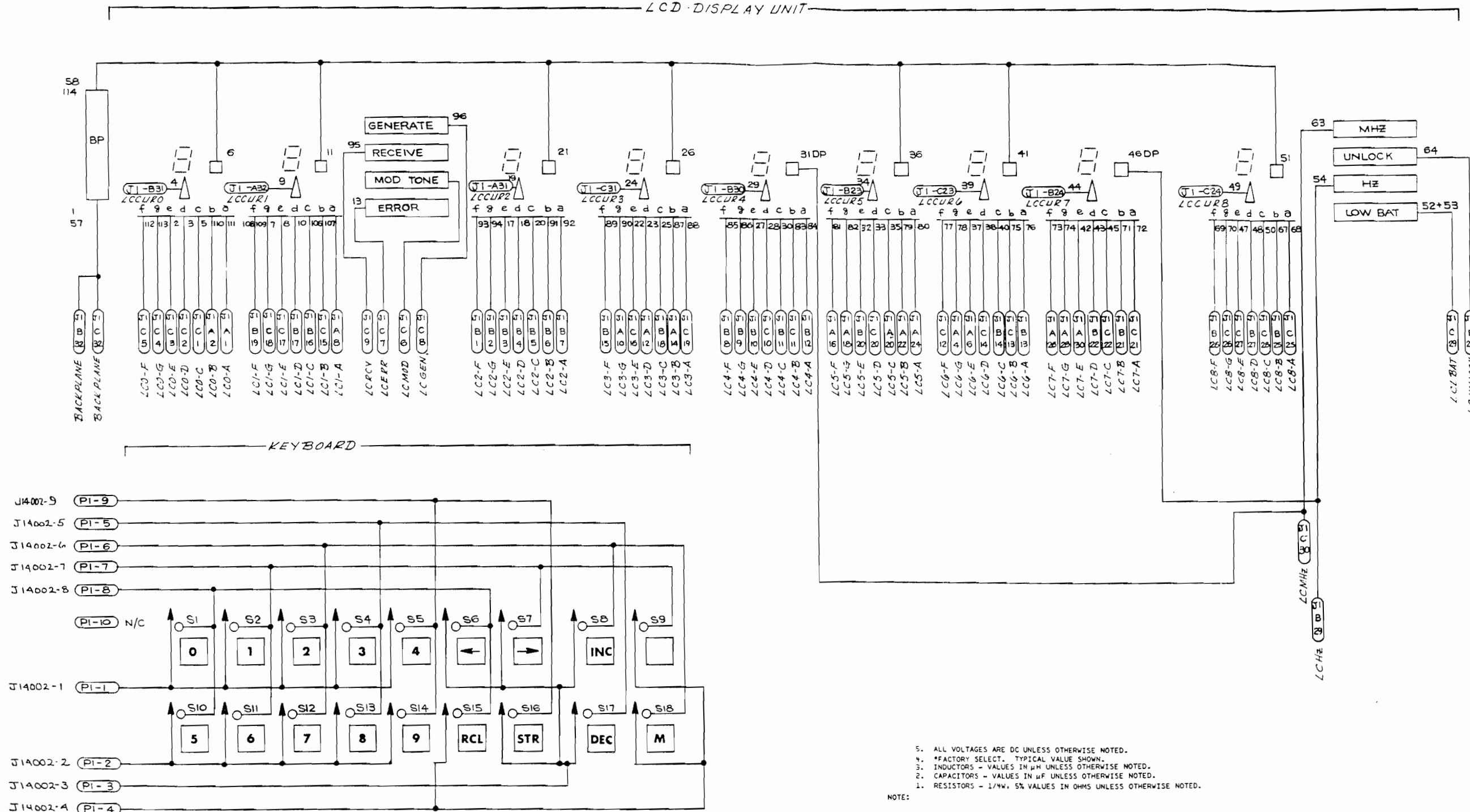
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
10000	PNL ASSY-FRONT	7003-0182	CUSHMAN	
CAPACITORS				
C1	CAP-.05UF +80-20% 500V	1005-0052	SPRAGUE	5HK-S50
C2	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C3	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C4	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C5	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C6	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C7	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C8	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
DIODES				
CR1	DIO-LT EMIT GRN 5V	1281-0145	DIALCO	559-0201-001
CR2	DIO-LT EMIT GRN 5V	1281-0145	DIALCO	559-0201-001
METERS				
M1	MTR-DC 0-500UA DEV/PWR	1402-0048		
M2	MTR-DC 500-0-500UA FREQ	1402-0048		
RESISTORS				
R2	POT-10K 10% 3/4W	1215-0034	SPECTROL	43P103T000
R3	POT-10K 20% 1/8W	1203-0097		
R4	POT-10K 20% 1/8W	1203-0097		
R5	POT-10K 20% 1/8W	1203-0097		
R6	POT-1K 10% 1/2W LIN	1203-0123		
R7	POT-10K 10% 1/2W LIN	1203-0129		
R8	POT-10K 20% 1/2W LIN	1203-0062		
SWITCHES				
S1	SW-RTRY CONC 1P 4 POS	1851-0122		
S2	SW-TOG CP ON-ON-ON	1850-0048		
S3	SW-RTRY 3 POLE 7 POS	1851-0119		
S4	SW-TOGGLE SPDT	1850-0008	C&K COMPONENT	7101
S5	SW-RTRY 1P 3 POS PNL	1851-0143		
S6	SW-TOG CP ON-ON-ON	1850-0048		
S10	SW-RTRY CNCTRC 2&1POLE	1851-0152		



- NOTE:
5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

11000 MICROPROCESSOR MODULE
(7060-0029)

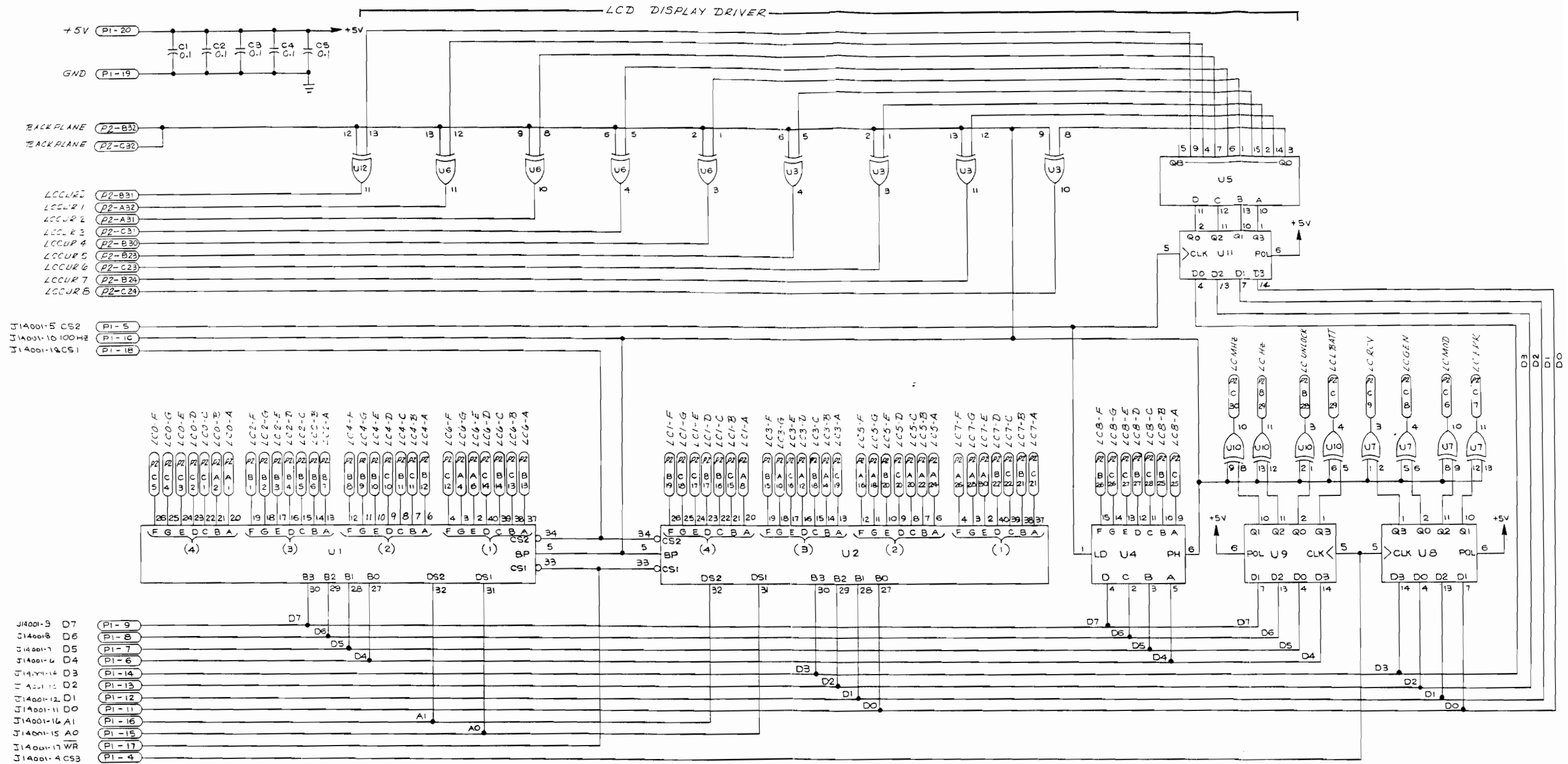
LCD DISPLAY UNIT



NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

12000 KEY PAD CONTROL/LCD DISPLAY (7001-0792)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
12000	PCB ASSY-KEY PAD CONT/LCD PCB-KEY PAD CONT/LCD DISP.	7001-0792 1780-1249	CUSHMAN CUSHMAN	
LIQUID CRYSTAL DISPLAY				
LCD1	DSPLY-LIQUID CRYSTAL	2030-0001		
SWITCH				
S1	SW-PB SPST MOM PCB MT	1852-0042		
S2	SW-PB SPST MOM PCB MT	1852-0042		
S3	SW-PB SPST MOM PCB MT	1852-0042		
S4	SW-PB SPST MOM PCB MT	1852-0042		
S5	SW-PB SPST MOM PCB MT	1852-0042		
S6	SW-PB SPST MOM PCB MT	1852-0042		
S7	SW-PB SPST MOM PCB MT	1852-0042		
S8	SW-PB SPST MOM PCB MT	1852-0042		
S9	SW-PB SPST MOM PCB MT	1852-0042		
S10	SW-PB SPST MOM PCB MT	1852-0042		
S11	SW-PB SPST MOM PCB MT	1852-0042		
S12	SW-PB SPST MOM PCB MT	1852-0042		
S13	SW-PB SPST MOM PCB MT	1852-0042		
S14	SW-PB SPST MOM PCB MT	1852-0042		
S15	SW-PB SPST MOM PCB MT	1852-0042		
S16	SW-PB SPST MOM PCB MT	1852-0042		
S17	SW-PB SPST MOM PCB MT	1852-0042		
S18	SW-PB SPST MOM PCB MT	1852-0042		



J14001-5 CS2
 J14001-10 100HZ
 J14001-18 CS1

J14001-9 D7
 J14001-8 D6
 J14001-7 D5
 J14001-6 D4
 J14001-14 D3
 J14001-13 D2
 J14001-12 D1
 J14001-11 D0
 J14001-16 A1
 J14001-15 A0
 J14001-17 WR
 J14001-4 CS3

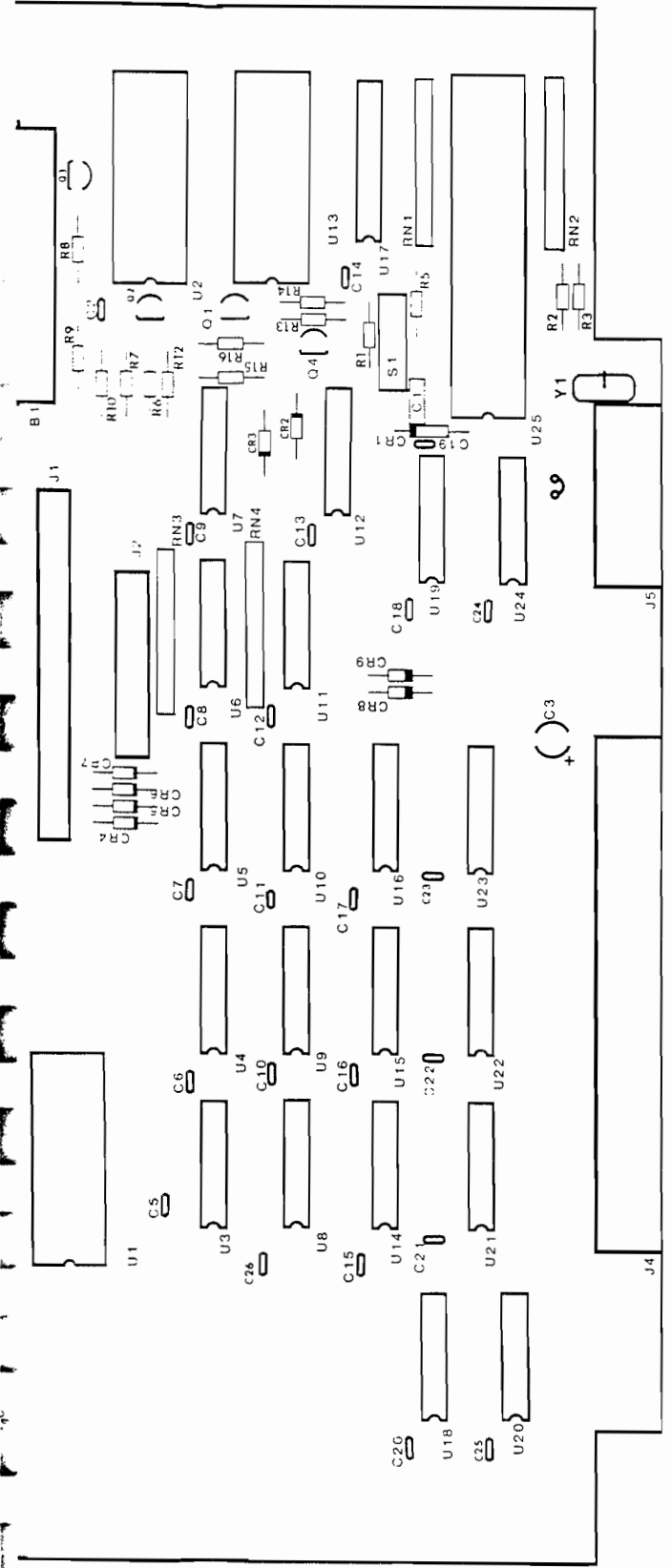
PIN # ASSIGNMENT FOR P1

100	CS3	CS2	D4	D5	D6	D7	HE	D0	D1	D2	D3	A0	A1	WR	CS1	GND	+5V		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

U NO	TYPE	VCC	GND
1, 2	7211	1	35,36
4	4543	16	7,8
8, 9, 11	4042	16	8
5	4028	16	8
3, 6, 7, 10	4070	14	7
12	4070	14, 15, 16	7

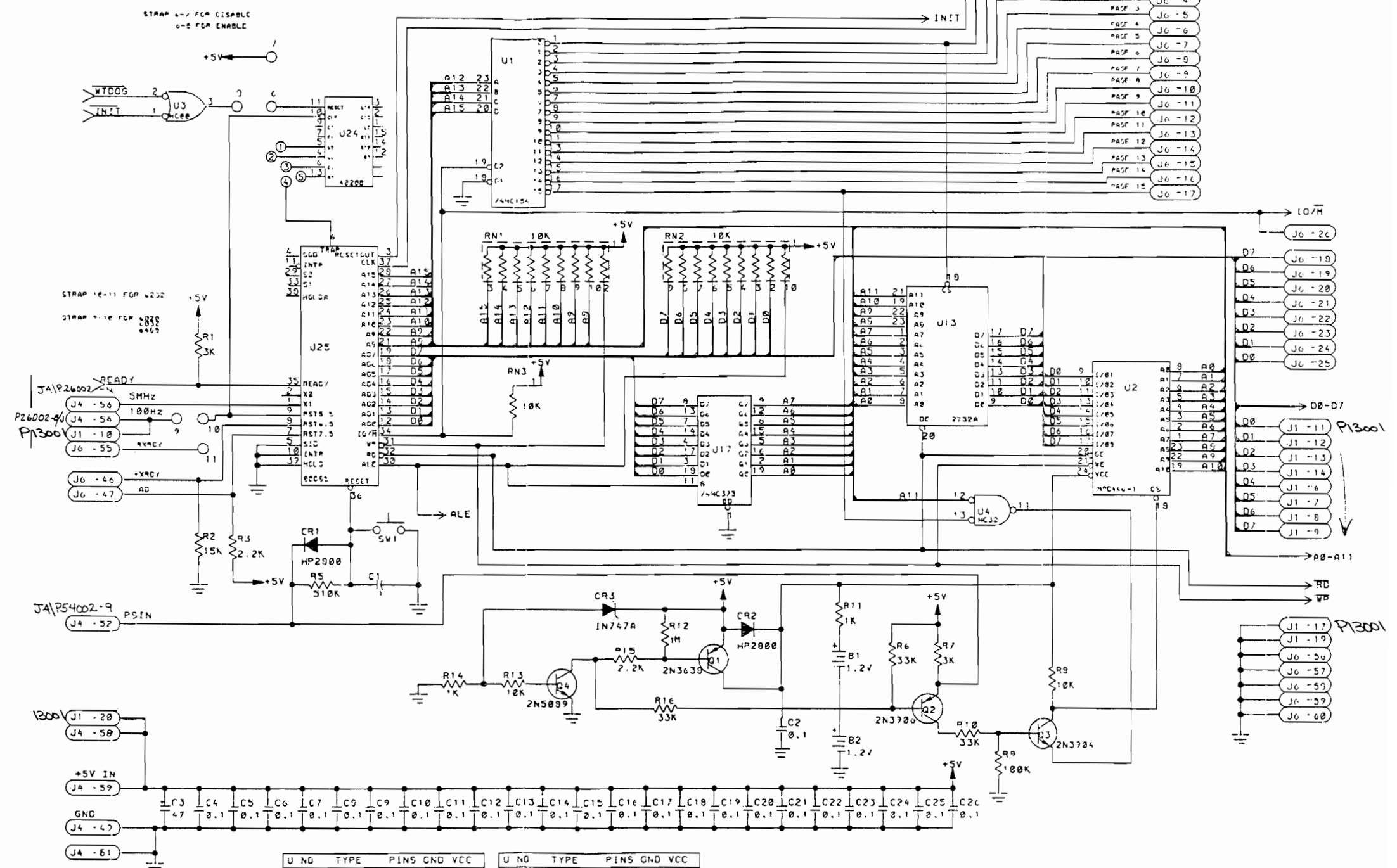
NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
13000	PCB ASSY-LCD DRIVER PRINTED CIRCUIT BOARD	7001-0793 1780-1254	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
INTEGRATED CIRCUITS				
U1	IC-7211AM 40 PIN DIP	2025-0299		
U2	IC-7211AM 40 PIN DIP	2025-0299		
U3	IC-4070B 14 PIN DIP QU	2025-0293		
U4	IC-4543B 16 PIN DIP	2025-0296		
U5	IC-4028B 16 PIN DIP	2025-0195	MOTOROLA	MC14028BP
U6	IC-4070B 14 PIN DIP QU	2025-0293		
U7	IC-4070B 14 PIN DIP QU	2025-0293		
U8	IC-4028B 16 PIN DIP	2025-0195	MOTOROLA	MC14028BP
U9	IC-4028B 16 PIN DIP	2025-0195	MOTOROLA	MC14028BP
U10	IC-4070B 14 PIN DIP QU	2025-0293		
U11	IC-4028B 16 PIN DIP	2025-0195	MOTOROLA	MC14028BP
U12	IC-4070B 14 PIN DIP QU	2025-0293		



7001-0891
(6488)

NOTES:
1. J6 MATES WITH BUSS OPTION BOARDS AND IS PIN COMPATIBLE.



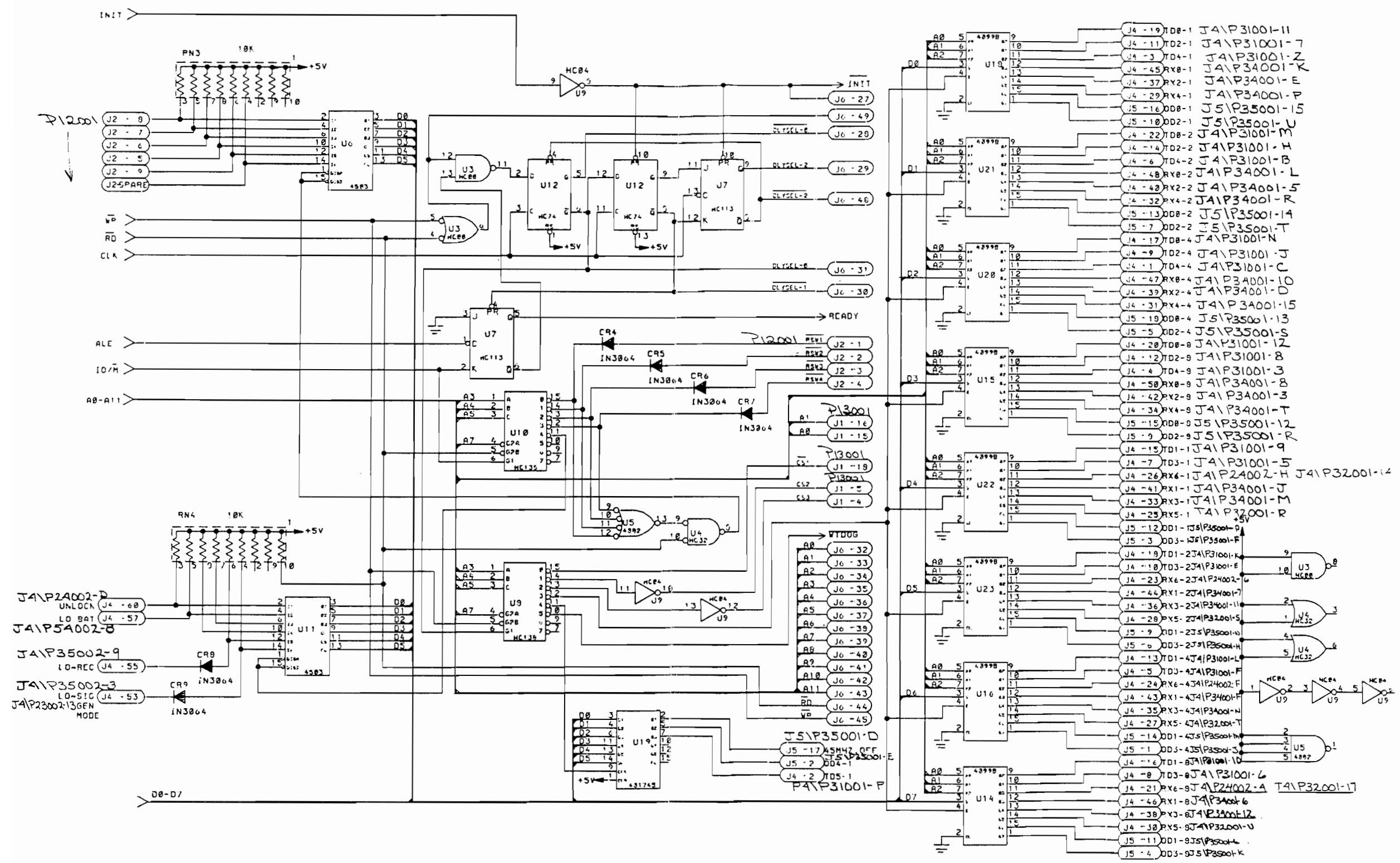
U NO	TYPE	PINS	GND	VCC	U NO	TYPE	PINS	GND	VCC
25	70C55	40	20	40	14.15	4899B	16	9	16
1	74HC154	24	12	24	16.18				
17	74HC373	20	10	20	20.21				
13	2732A	24	12	24	22.23				
2	7446-1	24	12	24	19	4817A8	16	9	16
24	4220B	16	9	16	9.10	744C138	16	9	16
3	744C00	14	7	14	7	744C113	14	7	14
4	744C32	14	7	14	12	744C74	14	7	14
6.11	4503B	16	9	16	9	744C04	14	7	14
					5	4222B	14	7	14

OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 14000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED	

14000 MICROPROCESSOR (7001-0832 = 6020/6030;
7001-0891 = 6488; 7001-0892 = 6232)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
14000	PCB ASSY-MICROPROCESSOR PRINTED CIRCUIT BOARD	7001-0832 1780-1291	CUSHMAN CUSHMAN	
BATTERY				
B1	BTRY-1.2V NKL CAD AAA	1046-0011		
B2	BTRY-1.2V NKL CAD AAA	1046-0011		
CAPACITORS				
C1	CAP-.1UF 10% 100V MLD	1005-0064	AEROVOX	CK06BX104K
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-47UF 20% 35V RDL	1013-0045		
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C13	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C23	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C24	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
DIODES				
CR1	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR2	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR3	DIO-1N747A SI ZENER A1	1281-0076		
CR4	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR5	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR6	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR7	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR8	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR9	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064

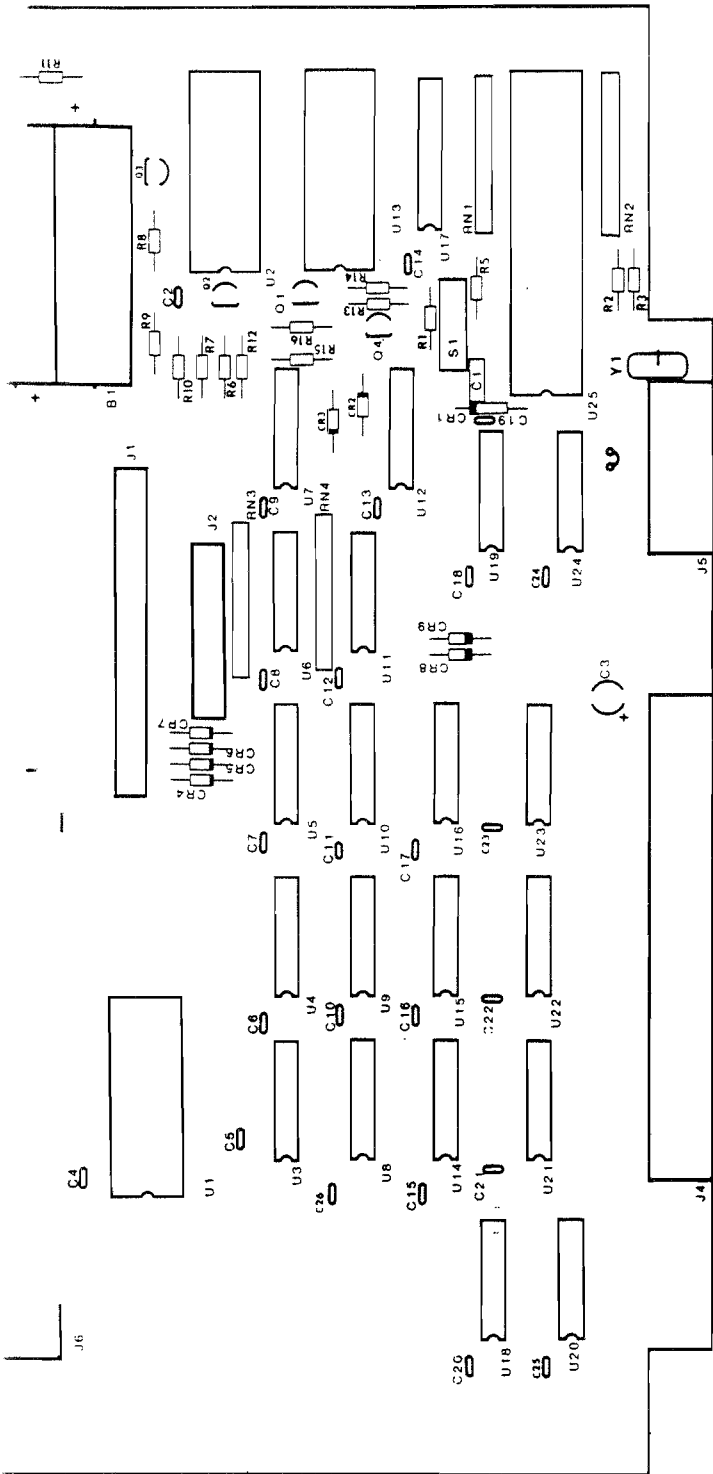
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
CONNECTORS				
J1	CONN-20PIN .1SP RTANG	2535-0195		
J2	CONN-10PIN .1SP RTANG	2535-0185		
J4	CONN-60(2X30)PIN	2535-0211		
J5	CONN-20(2X10)PIN	2535-0210		
J6	CONN-60(2X30)PIN	2535-0193		
TRANSISTORS				
Q1	XSTR-2N3638 PNP	1272-0015		
Q2	XSTR-2N3906 PNP	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3904 NPN	1272-0032	MOTOROLA	2N3904
Q4	XSTR-2N5089 NPN	1272-0031	MOTOROLA	2N5089
RESISTORS				
R1	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R2	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R3	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R5	RES-510K 5% 1/4W CC	1066-5145	ALLEN BRADLEY	CB5145
R6	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
R7	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R8	RES-10K 5% 1/42W CC	1066-1035	ALLEN BRADLEY	CB1035
R9	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R10	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
R11	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R12	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R13	RES-10K 5% 1/42W CC	1066-1035	ALLEN BRADLEY	CB1035
R14	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R15	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R16	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
RESISTOR NETWORKS				
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN2	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN3	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN4	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
INTEGRATED CIRCUITS				
U1	IC-74HC154 24PIN DIP	2025-0366		
U2	IC-446 24PIN DIP 2KX8	2025-0344		
U3	IC-74HC00 14PIN DIP	2025-0358		
U4	IC-74HC32 14PIN DIP	2025-0362		
U5	IC-4082B 14PIN DIP	2025-0354		



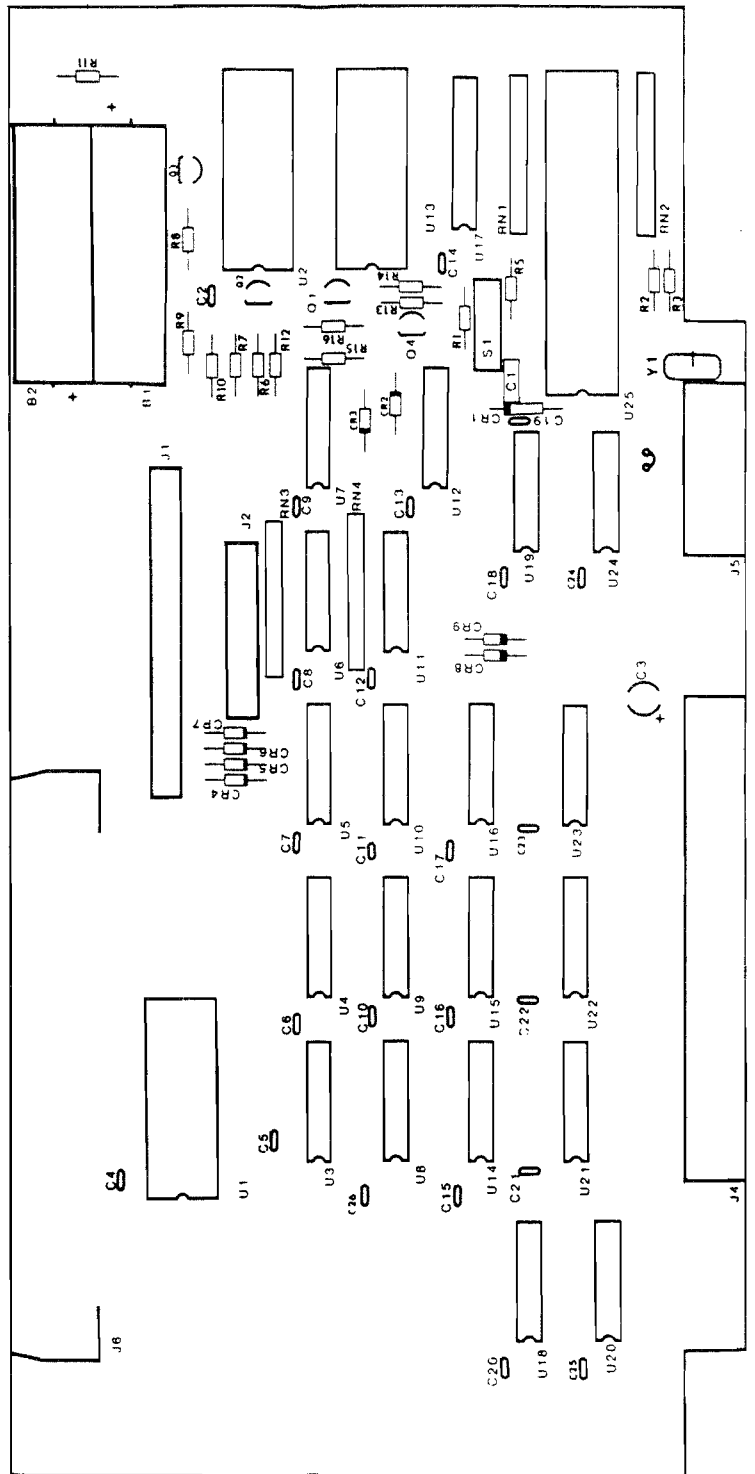
1400 MICROPROCESSOR (7001-0832 = 6020/6030;
 7001-0891 = 6488; 7001-0892 = 6232)
 2 OF 2

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
14000	PCB ASSY-MICROPROCESSOR PRINTED CIRCUIT BOARD	7001-0891 1780-1291	CUSHMAN CUSHMAN	
BATTERIES				
B1	BTRY-1.2V NKL CAD AAA	1046-0011		
B2	BTRY-1.2V NKL CAD AAA	1046-0011		
CAPACITORS				
C1	CAP-.1UF 10% 100V MLD	1005-0064	AEROVOX	CK06BX104K
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-47UF 20% 35V RDL	1013-0045	NICHICON	J350KB47M
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C13	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C23	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C24	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
DIODES				
CR1	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR2	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR3	DIO-1N747A SI ZENER	1281-0076	FAIRCHILD	1N747A
CR4	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR5	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR6	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR7	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR8	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR9	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
CONNECTORS				
J1	CONN-20PIN .1SP RTANG	2535-0195		
J2	CONN-10PIN .1SP RTANG	2535-0185		
J3	NOT USED			
J4	CONN-60(2X30)PIN.1X.1SP	2535-0211		
J5	CONN-20(2X10)PIN.1X.1SP	2535-0210		
J6	CONN-60(2X30)PIN.1X.1SP	2535-0193		
TRANSISTORS				
Q1	XSTR-2N3638 PNP SI R110	1272-0015		
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q4	XSTR-2N5089 NPN SI T082	1272-0031	MOTOROLA	2N5089
RESISTORS				
R1	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R2	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R3	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R4	NOT USED			
R5	RES-510K 5% 1/4W CC	1066-5145	ALLEN BRADLEY	CB5145
R6	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
R7	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R8	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R9	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R10	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
R11	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R12	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R13	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R14	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R15	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R16	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
RESISTOR NETWORKS				
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN2	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN3	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN4	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
INTEGRATED CIRCUITS				
U1	IC-74HC154 24PIN DIP	2025-0366		
U2	IC-466 24PIN DIP 2KX8	2025-0344		
U3	IC-74HC00 14PIN DIP Q	2025-0358		



7001-0892
(6232)



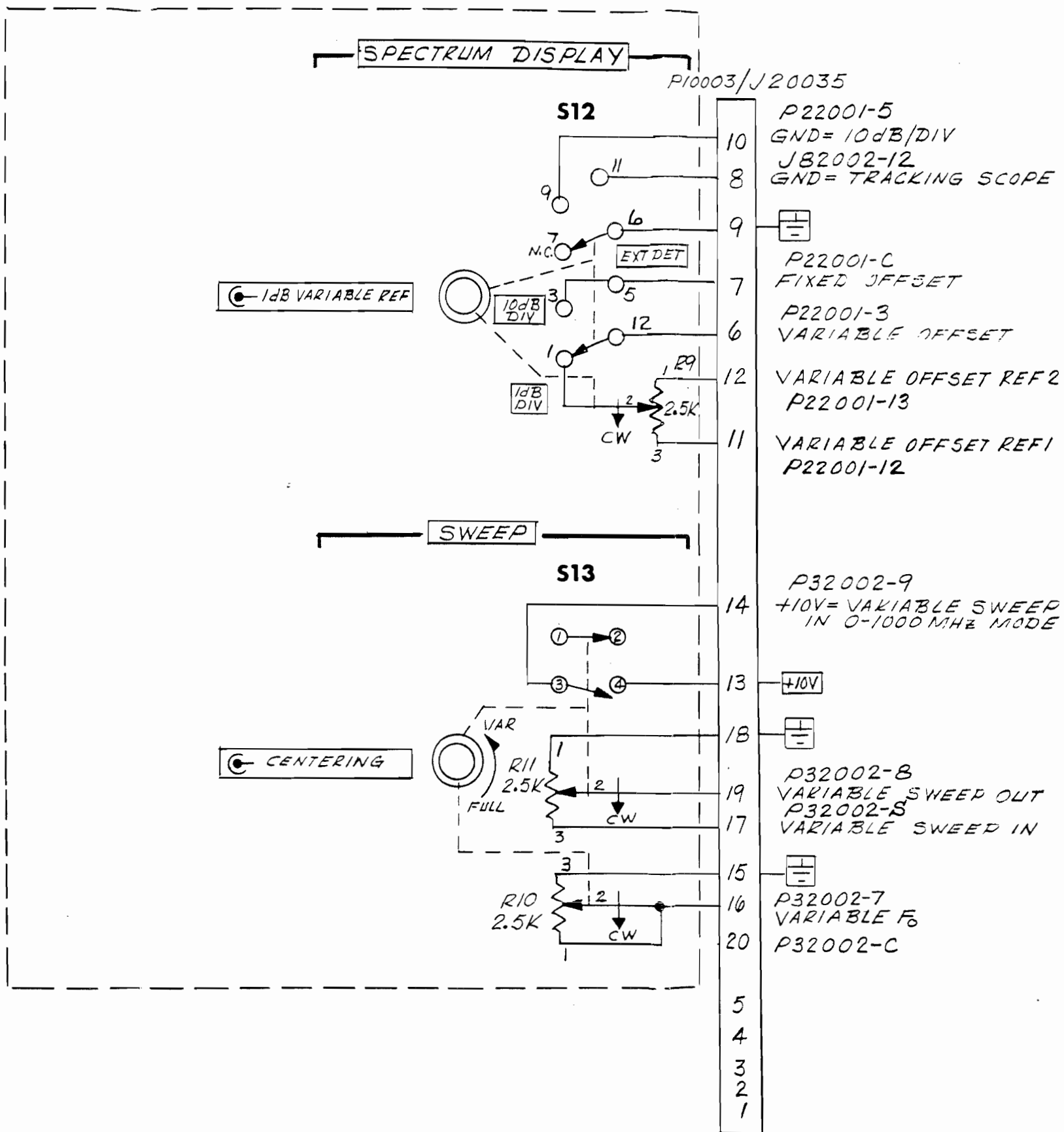
7001-0891
(6488)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
U6	IC-4503B 16PIN DIP	2025-0243		
U7	IC-74HC113 14PIN DIP	2025-0364		
U8	IC-74HC138 16PIN DIP	2025-0365		
U9	IC-74HC04 14PIN DIP	2025-0360		
U10	IC-74HC138 16PIN DIP	2025-0365		
U11	IC-4503B 16PIN DIP	2025-0243		
U12	IC-74HC74 14 PIN DIP	2025-0363		
U13	FIRMWARE-ERS PROM	2028-0101		
U14	IC-4099B 16PIN DIP	2025-0294		
U15	IC-4099B 16PIN DIP	2025-0294		
U16	IC-4099B 16PIN DIP	2025-0294		
U17	IC-74HC373 21PIN DIP	2025-0368		
U18	IC-4099B 16PIN DIP	2025-0294		
U19	IC-40174B 16PIN DIP	2025-0355		
U20	IC-4099B 16PIN DIP	2025-0294		
U21	IC-4099B 16PIN DIP	2025-0294		
U22	IC-4099B 16PIN DIP	2025-0294		
U23	IC-4099B 16PIN DIP	2025-0294		
U24	IC-4020B 16PIN DIP	2025-0291		

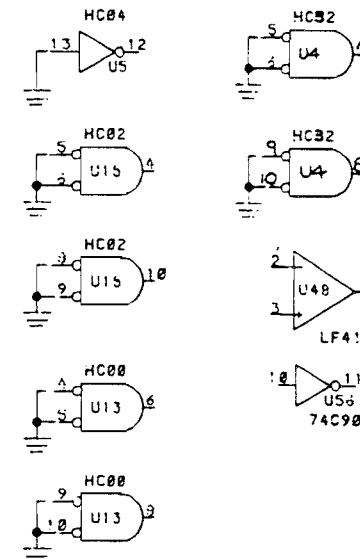
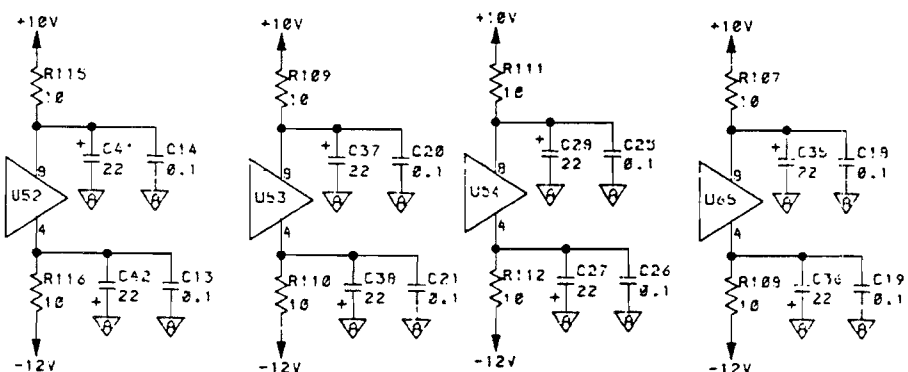
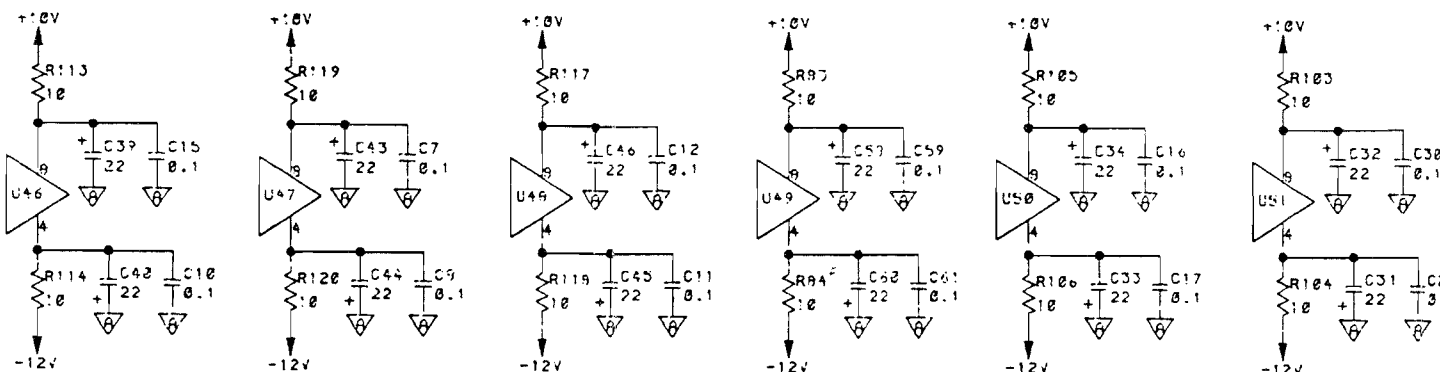
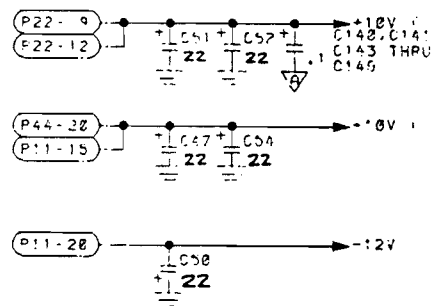
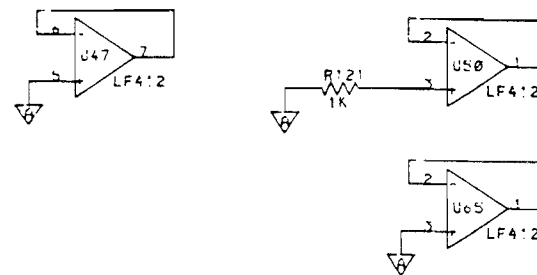
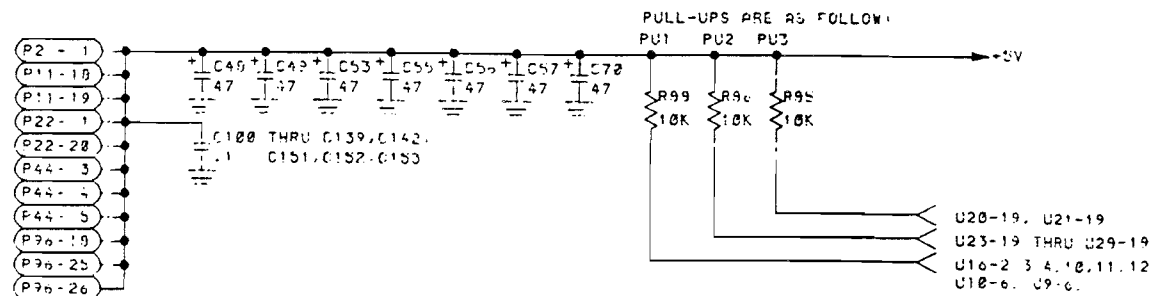
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
14000	PCB ASSY-MICROPROCESSOR PRINTED CIRCUIT BOARD	7001-0892 1780-1291	CUSHMAN CUSHMAN	
BATTERIES				
B1	BTRY-1.2V NKL CAD AAA	1046-0011		
B2	BTRY-1.2V NKL CAD AAA	1046-0011		
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-47UF 20% 35V RDL	1013-0045	NICHICON	J350KB47M
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C13	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C23	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C24	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
DIODES				
CR1	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR2	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR3	DIO-1N747A SI ZENER A1	1281-0076	FAIRCHILD	1N747A
CR4	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	1N3064
CR5	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	1N3064
CR6	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	1N3064
CR7	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	1N3064
CR8	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	1N3064
CR9	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	1N3064

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
CONNECTORS				
J1	CONN-20PIN .1SP RTANG	2535-0195		
J2	CONN-10PIN .1SP RTANG	2535-0185		
J3	NOT USED			
J4	CONN-60(2X30)PIN.1X.1SP	2535-0211		
J5	CONN-20(2X10)PIN.1X.1SP	2535-0210		
J6	CONN-60(2X30)PIN.1X.ISP	2535-0193		
TRANSISTORS				
Q1	XSTR-2N3638 PNP SI R110	1272-0015		
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q4	XSTR-2N5089 NPN SI T092	1272-0031	MOTOROLA	2N5089
RESISTORS				
R1	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R2	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R3	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R4	NOT USED			
R5	RES-510K 5% 1/4W CC	1066-5145	ALLEN BRADLEY	CB5145
R6	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
R7	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R8	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R9	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R10	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
R11	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R12	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R13	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R14	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R15	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R16	RES-33K 5% 1/4W CC	1066-3335	ALLEN BRADLEY	CB3335
RESISTOR NETWORKS				
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN2	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN3	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN4	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
INTEGRATED CIRCUITS				
U1	IC-74HC154 24PIN DIP	2025-0366		
U2	IC-446 24PIN DIP 2KX8	2025-0344		
U3	IC-74HC00 14PIN DIP Q	2025-0358		

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
U4	IC-74HC32 14PIN DIP 4/2	2025-0362		
U5	IC-4082B 14PIN DIP DUAL	2025-0354		
U6	IC-4503B 16PIN DIP HEX	2025-0243		
U7	IC-74HC113 14PIN DIP D	2025-0364		
U8	IC-74HC138 16PIN DIP	2025-0365		
U9	IC-74HC04 14PIN DIP HEX	2025-0360		
U10	IC-74HC138 16PIN DIP	2025-0365		
U11	IC-4503B 16PIN DIP HEX	2025-0243		
U12	IC-74HC74 14PIN DIP D	2025-0363		
U13	IC-ERS PROM 3732/2028	2028-0006		
U14	IC-4099B 16PIN DIP 8 BIT	2025-0294		
U15	IC-4099B 16PIN DIP 8 BIT	2025-0294		
U16	IC-4099B 16PIN DIP 8 BIT	2025-0294		
U17	IC-74HC373 20PIN DIP OC	2025-0368		
U18	IC-4099B 16PIN DIP 8 BIT	2025-0294		
U19	IC-40174B 16PIN DIP HEX	2025-0355		
U20	IC-4099B 16PIN DIP 8 BIT	2025-0294		
U21	IC-4099B 16PIN DIP 8 BIT	2025-0294		
U22	IC-4099B 16PIN DIP 8 BIT	2025-0294		
U23	IC-4099B 16PIN DIP 8 BIT	2025-0294		
U24	IC-4020B 16PIN DIP 14 B	2025-0291		
U25	IC-80C85A 40PIN DIP 8 B	2025-0345		



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
15000	PNL ASSY-FRONT LOG DISPLAY	7003-0167	CUSHMAN	
RESISTORS				
R1	Part of Front Panel Assy			
R2	Part of Front Panel Assy			
R3	Part of Front Panel Assy			
R4	Part of Front Panel Assy			
R5	Part of Front Panel Assy			
R6	Part of Front Panel Assy			
R7	Part of Front Panel Assy			
R8	Part of Front Panel Assy			
R9	Part of Switch S12			
R10	POT-2.5K/25K 10% 1/2W	1203-0125		
R11	POT-2.5K/25K 10% 1/2W	1203-0125		
SWITCHES				
S1	Part of Front Panel Assy			
S2	Part of Front Panel Assy			
S3	Part of Front Panel Assy			
S4	Part of Front Panel Assy			
S5	Part of Front Panel Assy			
S6	Part of Front Panel Assy			
S7	Part of Front Panel Assy			
S8	Part of Front Panel Assy			
S9	Part of Front Panel Assy			
S10	Part of Front Panel Assy			
S11	Part of Front Panel Assy			
S12	SW-RTRY CONC 2POLE 3POS	1851-0149		
S13	Part of R10/R11			



U NO.	TYPE	# OF PINS	GND	VCC
U1,2	Z732A	24	12	24
U3	JPD446-1	24	12	24
U4	MM74HC32	14	7	14
U5	MM74HC04	14	7	14
U6, 7, 9, 9, 10	MM74HC139	16	9	16
U16	MM74HC113	14	7	14
U13	MM74HC00	14	7	14
U15	MM74HC02	14	7	14
U17	D9251A	29	4	20
U19	MC14411	24	12	24
U19	1459	14	7	14
U20, 21, 23	JAC0932	20	10	20
24, 25, 26, 27, 29				
U29	ADC0917	40	20	17
U30, 37, 43	CD40174	16	8	16
U31, 32, 33, 34	MC14069	14	7	14
U35, 36, 39, 62	CD4503	16	8	16
63, 64				
U38, 41, 42	CD4042	16	8	16
U46, 47, 49, 49, 58	LF412	9		
51, 52, 53, 54, 65				
U55, 56, 57, 59	MM74C906	14	7	14
U59, 60, 61	DS5633	9	4	9
U48	MM74HC244	20	10	20
U66	1459	14		

CONNECTOR INTERCONNECTION	
P1	P10001
P2	P10002
P4	P10004
P5	P10005
P11	J20032
P22	J20033
P44	J30030
P55	J20034
P96	J14005
J6	J14004
J7	P90002

9 ALL INTERCONNECTIONS ARE PIN-TO-PIN COMPATIBLE.

9. SYMBOL = DIGITAL GROUND (GND).

7. SYMBOL = ANALOG GROUND.

8. SHIELD TRACE BY ANALOG GROUND.

- 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
- 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
- 3. INDUCTORS - VALUES IN uM UNLESS OTHERWISE NOTED.
- 2. CAPACITORS - VALUES IN uF UNLESS OTHERWISE NOTED.
- 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

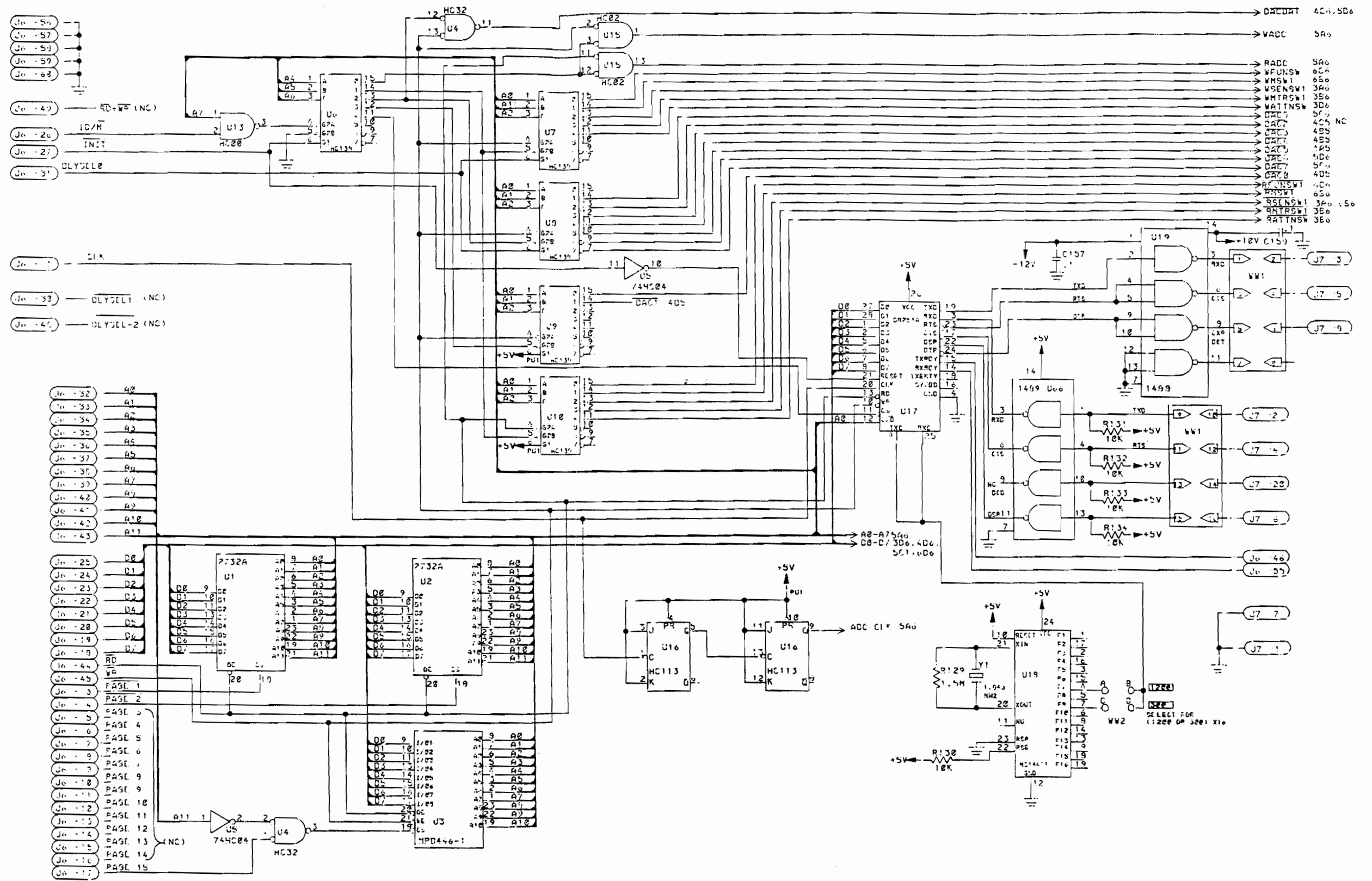
REF DES. NOT USED

- C1, 4, 5, 6, 9, 62 THRU 67, 71 THRU 99, 149, 150.
- R9, 9, 33
- Q1, 2, 4
- CR: 11, 20, 24 THRU 43
- U22, 44, 45, 11, 12, 14
- J1, 2, 3, 4, 5
- P3, 6, 7, 9, 9, 10, 12 THRU 21 THRU 43
- 45 THRU 54, 56 THRU 95.

NOTE:

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
16000	PCB ASSY-RS232 PRINTED CIRCUIT BOARD	7001-0888 1780-1304	CUSHMAN CUSHMAN	
	CAPACITORS			
C1	NOT USED			
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	NOT USED			
C5	NOT USED			
C6	NOT USED			
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	NOT USED			
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C13	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7R0-102K
C23	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7R0-102K
C24	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7R0-102K
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C28	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C29	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C30	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C31	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C32	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C33	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C34	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C35	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C36	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C37	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C38	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C39	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C40	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C41	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C42	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C43	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C44	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C45	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C46	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2

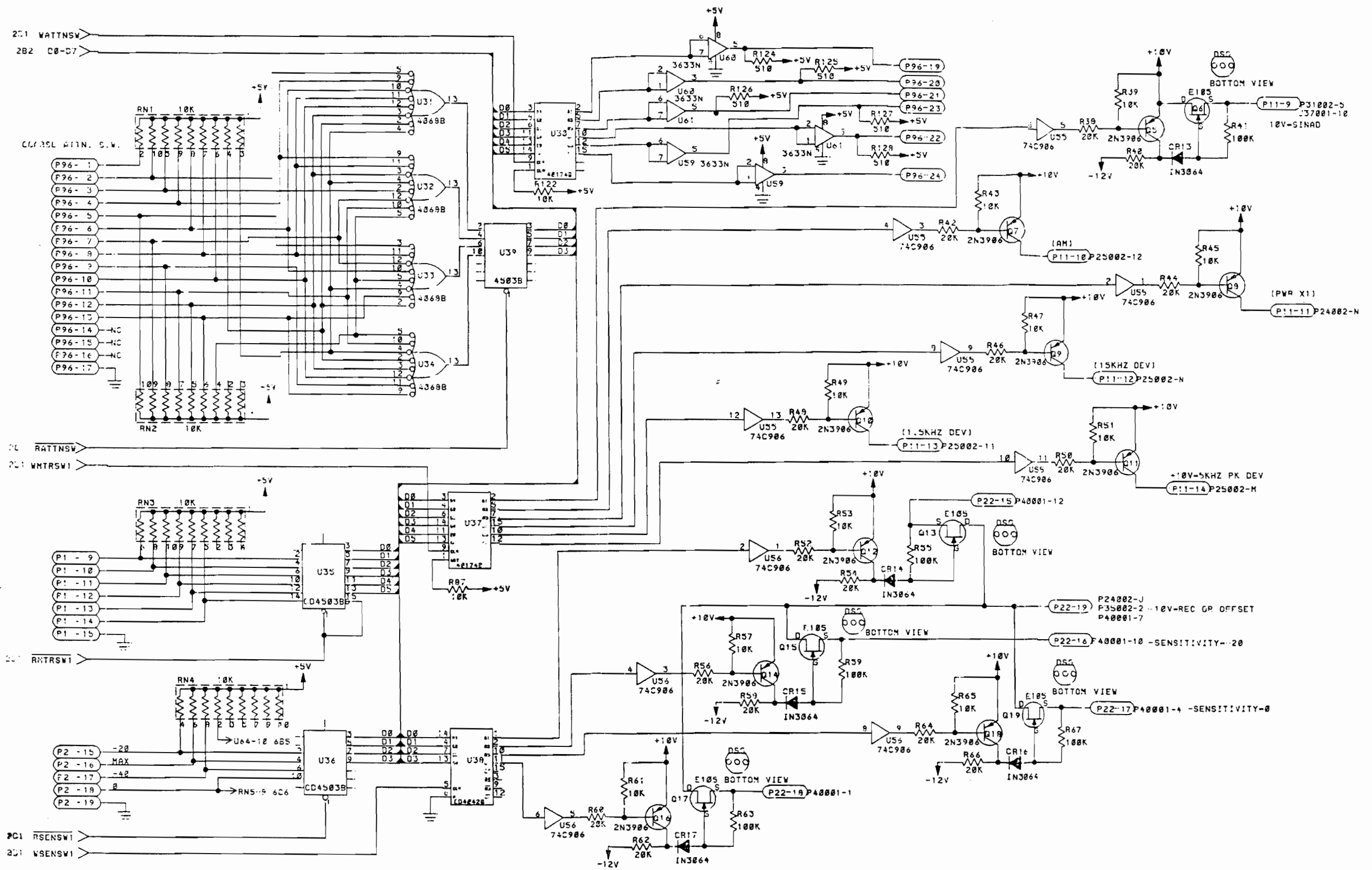
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
C47	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C48	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C49	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C50	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C51	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C52	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C53	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C54	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C55	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C56	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C57	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C58	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C59	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C60	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C61	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C62	NOT USED			
C63	NOT USED			
C64	NOT USED			
C65	NOT USED			
C66	NOT USED			
C67	NOT USED			
C68	NOT USED			
C69	NOT USED			
C70	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C71	NOT USED			
C72	NOT USED			
C73	NOT USED			
C74	NOT USED			
C75	NOT USED			
C76	NOT USED			
C77	NOT USED			
C78	NOT USED			
C79	NOT USED			
C80	NOT USED			
C81	NOT USED			
C82	NOT USED			
C83	NOT USED			
C84	NOT USED			
C85	NOT USED			
C86	NOT USED			
C87	NOT USED			
C88	NOT USED			
C89	NOT USED			
C90	NOT USED			
C91	NOT USED			
C92	NOT USED			
C93	NOT USED			
C94	NOT USED			
C95	NOT USED			
C96	NOT USED			
C97	NOT USED			



1600 RS232 (7001-0888)
 2 OF 6

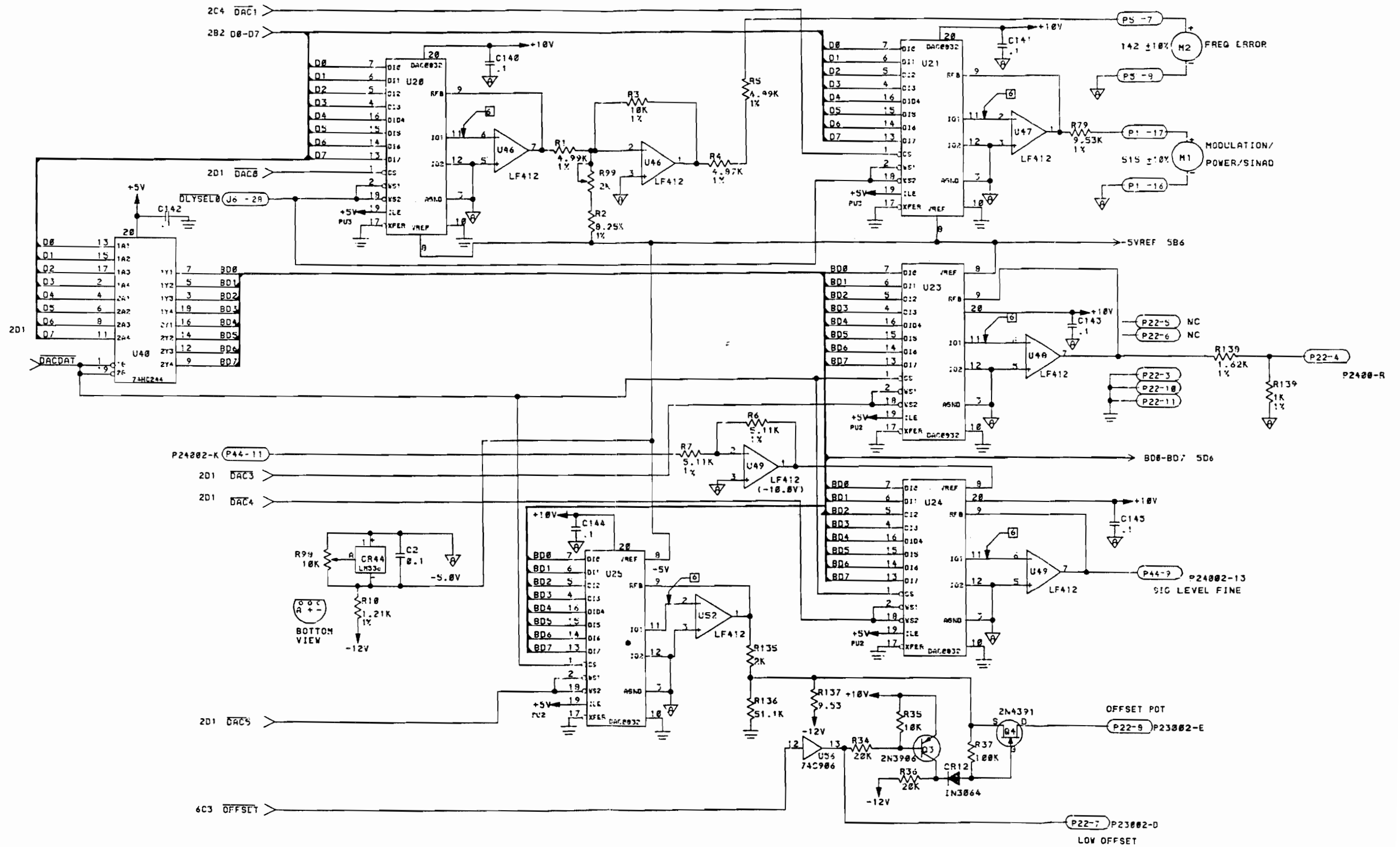
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
C149	NOT USED			
C150	NOT USED			
C151	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C152	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C153	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C154	CAP-100PF 5% 100V NPO	1005-0082	TUSONIX	8121-100-COGO-101J
C155	CAP-100PF 5% 100V NPO	1005-0082	TUSONIX	8121-100-COGO-101J
C156	CAP-100PF 5% 100V NPO	1005-0082	TUSONIX	8121-100-COGO-101J
C157	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C158	NOT USED			
C159	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
DIODES				
CR1	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR2	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR3	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR4	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR5	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR6	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR7	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR8	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR9	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR10	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR11	NOT USED			
CR12	DIO-1N3064-SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR13	DIO-1N3064-SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR14	DIO-1N3064-SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR15	DIO-1N3064-SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR16	DIO-1N3064-SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR17	DIO-1N3064-SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR18	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR19	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR20	NOT USED			
CR21	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR22	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR23	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR24	NOT USED			
CR25	NOT USED			
CR26	NOT USED			
CR27	NOT USED			
CR28	NOT USED			
CR29	NOT USED			
CR30	NOT USED			
CR31	NOT USED			
CR32	NOT USED			
CR33	NOT USED			
CR34	NOT USED			
CR35	NOT USED			
CR36	NOT USED			

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
CR37	NOT USED			
CR38	NOT USED			
CR39	NOT USED			
CR40	NOT USED			
CR41	NOT USED			
CR42	NOT USED			
CR43	NOT USED			
CR44	DIO-336B-5.0 ZENER T092	1281-0177		
CR45	DIO-336B-5.0 ZENER T092	1281-0177		
CONNECTORS				
J1	NOT USED			
J2	NOT USED			
J3	NOT USED			
J4	NOT USED			
J5	NOT USED			
J6	CONN-60(2X30)PIN.1X.1SP	2535-0223		
J7	CONN-20(2X10)PIN.1X.1SP	2535-0224		
	CONN-2 POSN RCPT JUMPER	2535-0221		
	CONN-2 POSN RCPT JUMPER	2535-0221		
	CONN-2 POSN RCPT JUMPER	2535-0221		
P1	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P2	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P3	NOT USED			
P4	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P5	CONN-20(2X10)PIN.1X.1SP	2535-0224		
	P6-P10 NOT USED			
P11	CONN-20(2X10)PIN.1X.1SP	2535-0224		
	P12-P21 NOT USED			
P22	CONN-20(2X10)PIN.1X.1SP	2535-0224		
	P23-P43 NOT USED			
P44	CONN-20(2X10)PIN.1X.1SP	2535-0224		
	P45-P54 NOT USED			
P55	CONN-20(2X10)PIN.1X.1SP	2535-0224		
	P56-P95 NOT USED			
P96	CONN-26(2X13)CONT STR	2535-0153		
WW1	CONN-20(2X10)PIN.1X.1SP	2535-0157		
WW2	CONN-20(2X10)PIN.1X.1SP	2535-0157		
TRANSISTORS				
Q1	NOT USED			
Q2	NOT USED			
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q4	XSTR-2N4391 SI T018	1272-0042	TELEDYNE	2N4391
Q5	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
Q6	XSTR-J105 SI T092	1272-0103		
Q7	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q8	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q9	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q10	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q11	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q12	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q13	XSTR-J105 SI T092	1272-0103		
Q14	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q15	XSTR-J105 SI T092	1272-0103		
Q16	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q17	XSTR-J105 SI T092	1272-0103		
Q18	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q19	XSTR-J105 SI T092	1272-0103		
Q20	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q21	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q22	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q23	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q24	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q25	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
RESISTORS				
R1	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R2	RES-8.25K 1% 100PPM	1075-0014	CAT. LIST	55-100
R3	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R4	RES-4.87K 1% 100PPM	1075-0168	CAT. LIST	55-100
R5	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R6	RES-5.11K 1% 150PPM	1074-1018	CAT. LIST	55-100
R7	RES-5.11K 1% 150PPM	1074-1018	CAT. LIST	55-100
R8	NOT USED			
R9	NOT USED			
R10	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R11	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R12	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R13	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R14	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R15	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R16	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R17	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R18	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R19	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R20	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R21	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R22	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R23	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R24	RES-143 OHM 1% 100PPM	1075-0256	CAT. LIST	55-100
R25	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R26	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R27	RES-4.42K 1% 100PPM	1075-0253	CAT. LIST	55-100

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R28	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R29	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R30	NOT USED			
R31	RES-3.48K 1% 100PPM	1075-0093	CAT. LIST	55-100
R32	POT-2K 20% 1/2W 4T	1215-0063		
R33	NOT USED			
R34	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R35	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R36	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R37	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R38	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R39	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R40	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R41	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R42	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R43	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R44	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R45	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R46	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R47	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R48	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R49	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R50	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R51	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R52	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R53	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R54	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R55	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R56	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R57	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R58	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R59	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R60	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R61	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R62	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R63	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R64	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R65	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R66	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R67	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R68	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R69	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R70	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R71	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R72	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R73	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R74	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R75	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R76	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R77	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R78	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R79	RES-9.53K 1% 100PPM	1074-1001	CAT. LIST	55-100
R80	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R81	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R82	NOT USED			
R83	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R84	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R85	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R86	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R87	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R88	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R89	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R90	NOT USED			
R91	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R92	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R93	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R94	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R95	POT-10K 20% 1/2W 1T	1215-0043	BECKMAN	91AR10K
R96	RES-6.98K 1% 150PPM	1074-1028	CAT. LIST	55-100
R97	RES-15K 1% 100PPM	1075-0081	CAT. LIST	55-100
R98	POT-10K 20% 1/2W 1T	1215-0043	BECKMAN	91AR10K
R99	POT-2K 20% 1/2W 4T	1215-0063		
R100	NOT USED			
R101	NOT USED			
R102	NOT USED			
R103	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R104	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R105	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R106	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R107	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R108	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R109	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R110	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R111	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R112	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R113	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R114	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R115	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R116	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R117	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R118	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R119	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R120	RES-10 OHM 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R121	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R122	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R123	NOT USED			
R124	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R125	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R126	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R127	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R128	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R129	RES-1.5MEG 1/4W CC	1066-1555	ALLEN BRADLEY	CB1555

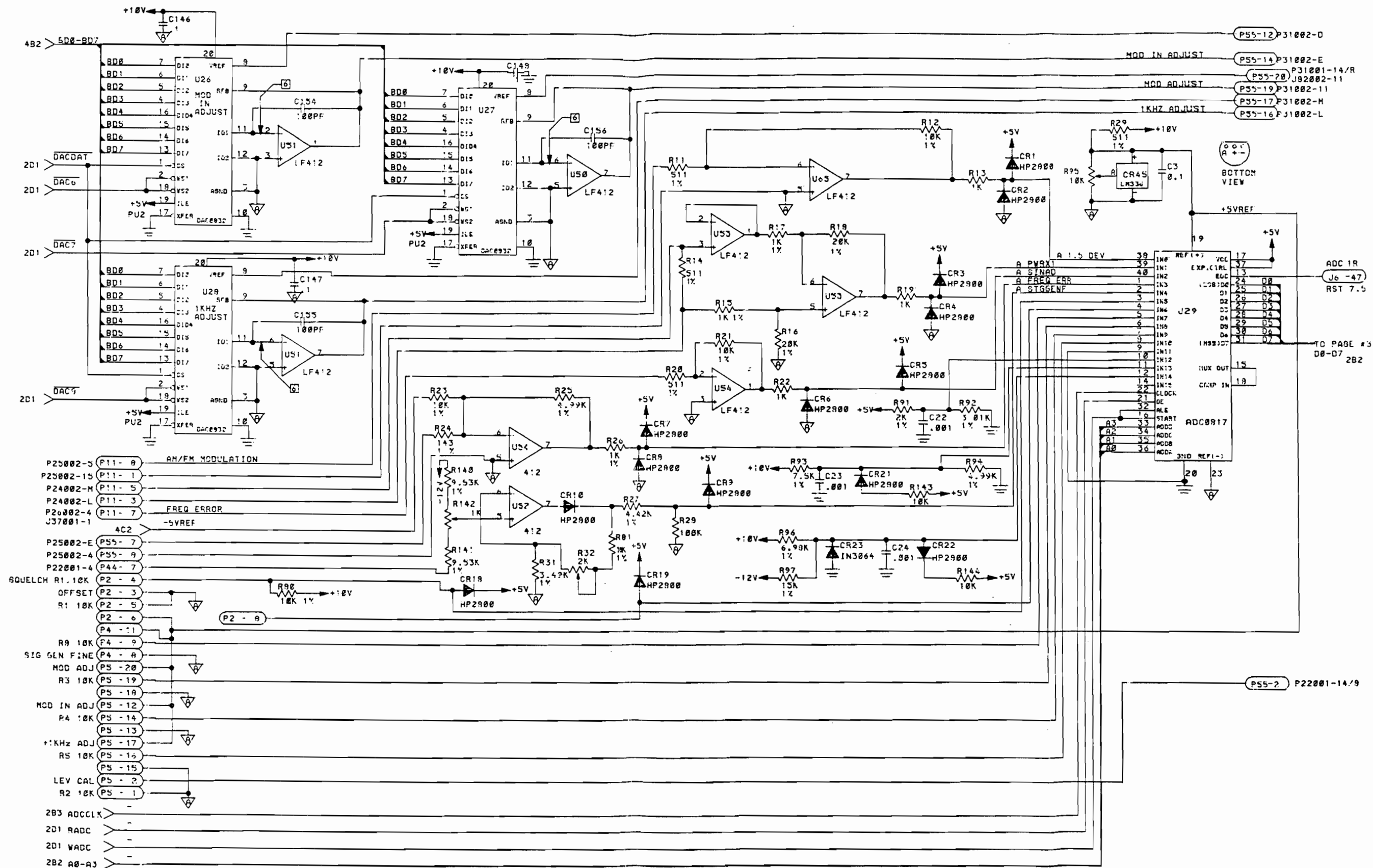
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R130	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB5115
R131	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R132	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R133	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R134	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R135	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R136	RES-51.5K 1% 100PPM	1075-0099	CAT. LIST	55-100
R137	RES-9.53K 1% 100PPM	1074-1001	CAT. LIST	55-100
R138	RES-1.62K 1% 25PPM	1075-0070	CAT. LIST	55-025
R139	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R140	RES-9.53K 1% 100PPM	1074-1001	CAT. LIST	55-100
R141	RES-3.16K 1% 100PPM	1074-1016	CAT. LIST	55-100
R142	POT-1K 20% 1/2W 4T	1203-0058	BOURNS	3339H-1-102
R143	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R144	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035

RESISTOR NETWORKS

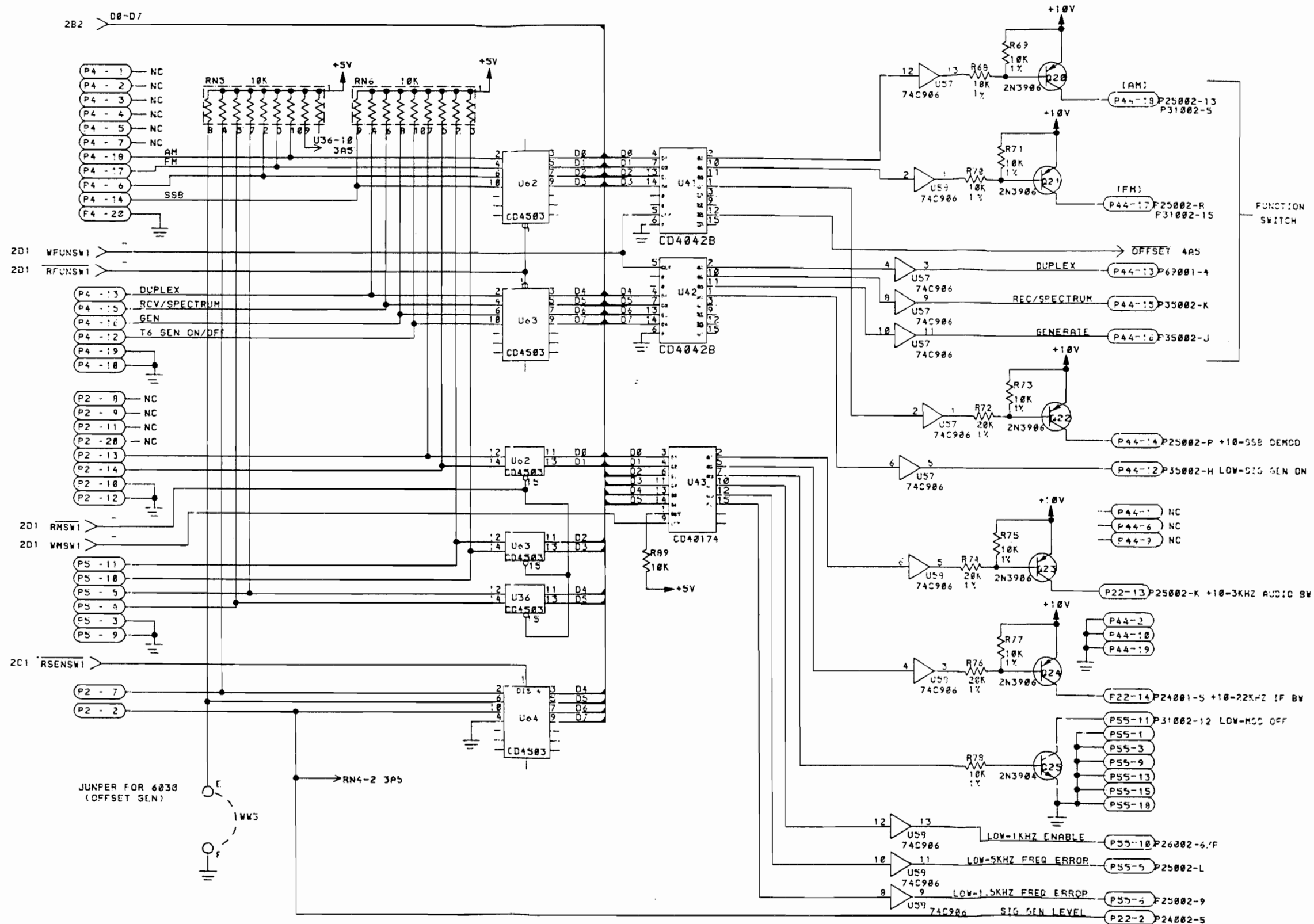
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN2	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN3	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN4	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN5	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN6	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G

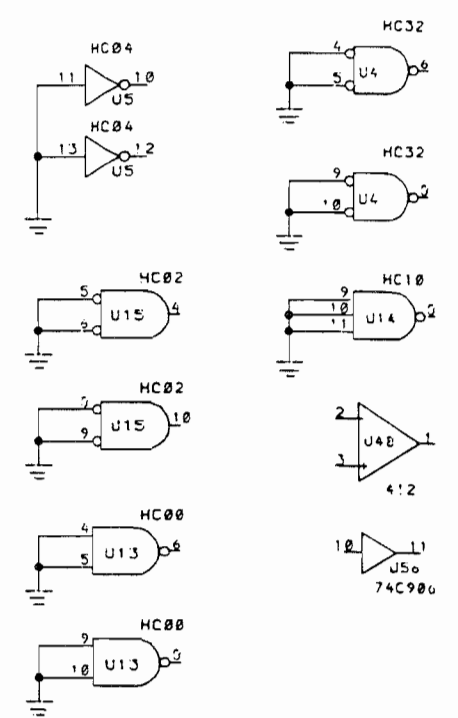
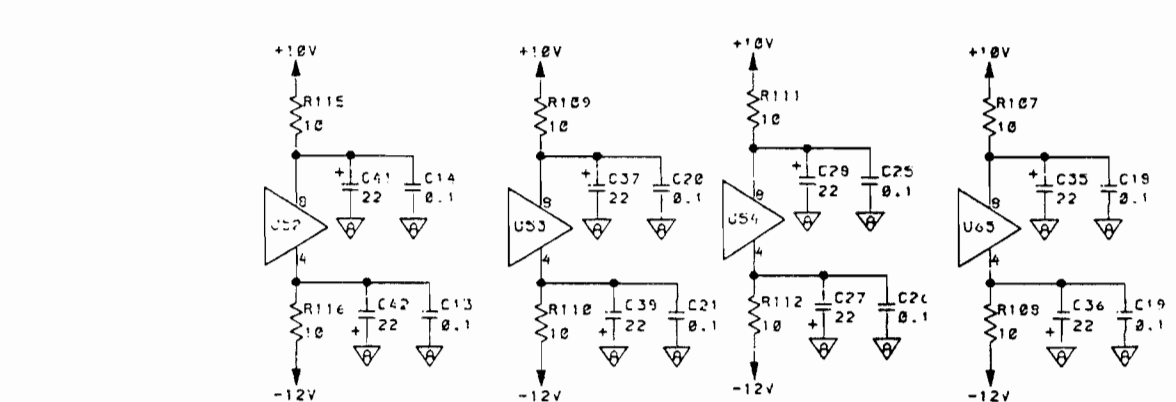
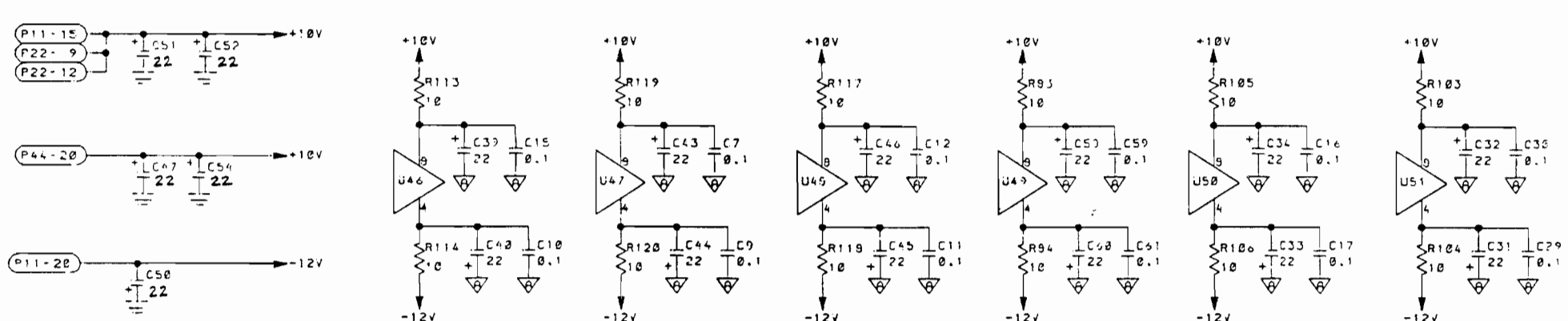
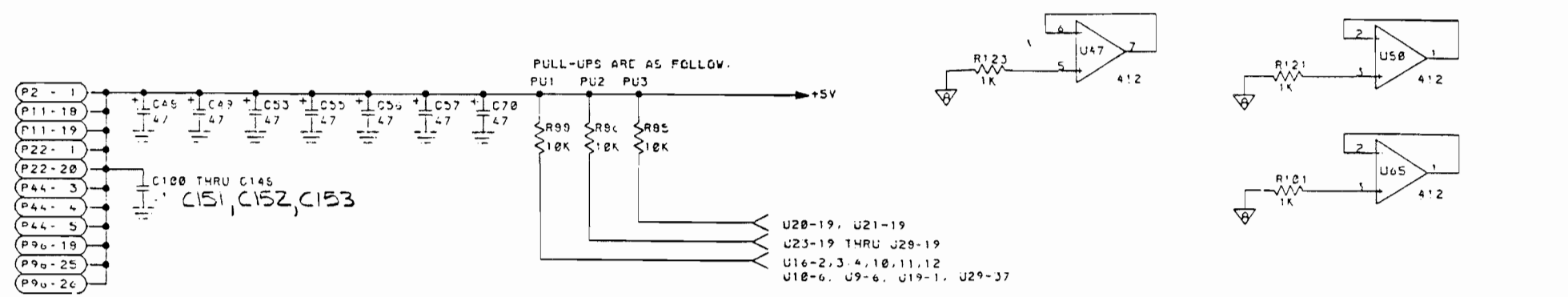
INTEGRATED CIRCUITS

U1	IC-ERS PROM 2732/2028	2026-0007		
U2	IC-ERS PROM 2732-2028	2026-0008		
U3	IC-446 24PIN DIP 2Kx8	2025-0344		
U4	IC-74HC32 14PIN DIP 4/2	2025-0362		
U5	IC-74HC04 14PIN DIP HEX	2025-0360		
U6	IC-74HC138 16PIN DIP	2025-0365		
U7	IC-74HC138 16PIN DIP	2025-0365		
U8	IC-74HC138 16PIN DIP	2025-0365		
U9	IC-74HC138 16PIN DIP	2025-0365		
U10	IC-74HC138 16PIN DIP	2025-0365		
U11	NOT USED			
U12	NOT USED			
U13	IC-74HC00 14PIN DIP Q	2025-0358		
U14	NOT USED			
U15	IC-74HC02 14PIN DIP 4/2	2025-0359		
U16	IC-74HC113 14PIN DIP D	2025-0364		
U17	IC-8251A 28PIN DIP PCI	2025-0439		
U18	IC-4411 24PIN DIP BIT	2025-0438		
U19	IC-1488 14PIN DIP	2025-0381		
U20	IC-0832 20PIN DIP 8 BIT	2025-0349		
U21	IC-0832 20PIN DIP 8 BIT	2025-0349		
U22	NOT USED			



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
U23	IC-0832 20PIN DIP 8 BIT	2025-0349		
U24	IC-0832 20PIN DIP 8 BIT	2025-0349		
U25	IC-0832 20PIN DIP 8 BIT	2025-0349		
U26	IC-0832 20PIN DIP 8 BIT	2025-0349		
U27	IC-0832 20PIN DIP 8 BIT	2025-0349		
U28	IC-0832 20PIN DIP 8 BIT	2025-0349		
U29	IC-0817 40PIN DIP 8 BIT	2025-0348		
U30	IC-40174B 16PIN DIP HEX	2025-0355		
U31	IC-4068B 14PIN DIP 8-IN	2025-0353		
U32	IC-4068B 14PIN DIP 8-IN	2025-0353		
U33	IC-4068B 14PIN DIP 8-IN	2025-0353		
U34	IC-4068B 14PIN DIP 8-IN	2025-0353		
U35	IC-4503B 16PIN DIP HEX	2025-0243		
U36	IC-4503B 16PIN DIP HEX	2025-0243		
U37	IC-40174B 16PIN DIP HEX	2025-0355		
U38	IC-4042B 16PIN DIP QUAD	2025-0292		
U39	IC-4503B 16PIN DIP HEX	2025-0243		
U40	IC-74HC244 20PIN DIP	2025-0367		
U41	IC-4042B 16PIN DIP QUAD	2025-0292		
U42	IC-4042B 16PIN DIP QUAD	2025-0292		
U43	IC-40174B 16PIN DIP HEX	2025-0355		
U44	NOT USED			
U45	NOT USED			
U46	IC-412 8PIN DIP DUAL OP	2025-0325		
U47	IC-412 8PIN DIP DUAL OP	2025-0325		
U48	IC-412 8PIN DIP DUAL OP	2025-0325		
U49	IC-412 8PIN DIP DUAL OP	2025-0325		
U50	IC-412 8PIN DIP DUAL OP	2025-0325		
U51	IC-412 8PIN DIP DUAL OP	2025-0325		
U52	IC-412 8PIN DIP DUAL OP	2025-0325		
U53	IC-412 8PIN DIP DUAL OP	2025-0325		
U54	IC-412 8PIN DIP DUAL OP	2025-0325		
U55	IC-74C906 14PIN DIP OD	2025-0357		
U56	IC-74C906 14PIN DIP OD	2025-0357		
U57	IC-74C906 14PIN DIP OD	2025-0357		
U58	IC-74C906 14PIN DIP OD	2025-0357		
U59	IC-3633 8PIN DIP DUAL	2025-0441		
U60	IC-3633 8PIN DIP DUAL	2025-0441		
U61	IC-3633 8PIN DIP DUAL	2025-0441		
U62	IC-4503B 16PIN DIP HEX	2025-0243		
U63	IC-4503B 16PIN DIP HEX	2025-0243		
U64	IC-4503B 16PIN DIP HEX	2025-0243		
U65	IC-412 8PIN DIP DUAL OP	2025-0325		
U66	IC-1489 14PIN DIP	2025-0382		
CRYSTAL				
Y1	XTAL-1.8432MHZ	2035-0053		





U. NO.	TYPE	# OF PINS	GND	VCC
U1, 2	2732	28	14	28
U3	LPD446-1	24	12	24
U4	MM74HC32	14	7	14
U5	MM74HC04	14	7	14
U6, 7, 9, 9.10	MM74HC139	16	9	16
U11, 12, 16	MM74HC113	14	7	14
U13	MM74HC08	14	7	14
U14	MM74HC10	14	7	14
U15	MM74HC02	14	7	14
U17	HC68A489	43	1	20
U18, 19	MC3447	24	12	24
U20, 21, 23, 24, 25, 26, 27, 29	DAC0932	28	18	28
U29	ADC0917	43	20	17
U30, 37, 43	CD40174	16	8	16
U31, 32, 33, 34	MC148698	14	7	14
U35, 36, 39, 42	CD45038	16	9	16
C3, 6, 4				
U38, 41, 42	CD4042B	16	8	16
U46, 47, 49, 50	LF412	8		
U51, 52, 53, 54, 65				
U55, 56, 57, 58	MM75C980	14	7	14
U59, 60, 61	DS3633	8	4	8
U48	MM74HC244	20	10	20

9

CONNECTOR INTERCONNECTION	
P1	P10001
P2	P10002
P4	P10004
P5	P10005
P11	J20032
P22	J20033
P44	J30030
P55	J20034
P96	J14005
J6	J14004
J7	P90002

REF DES. NOT USED

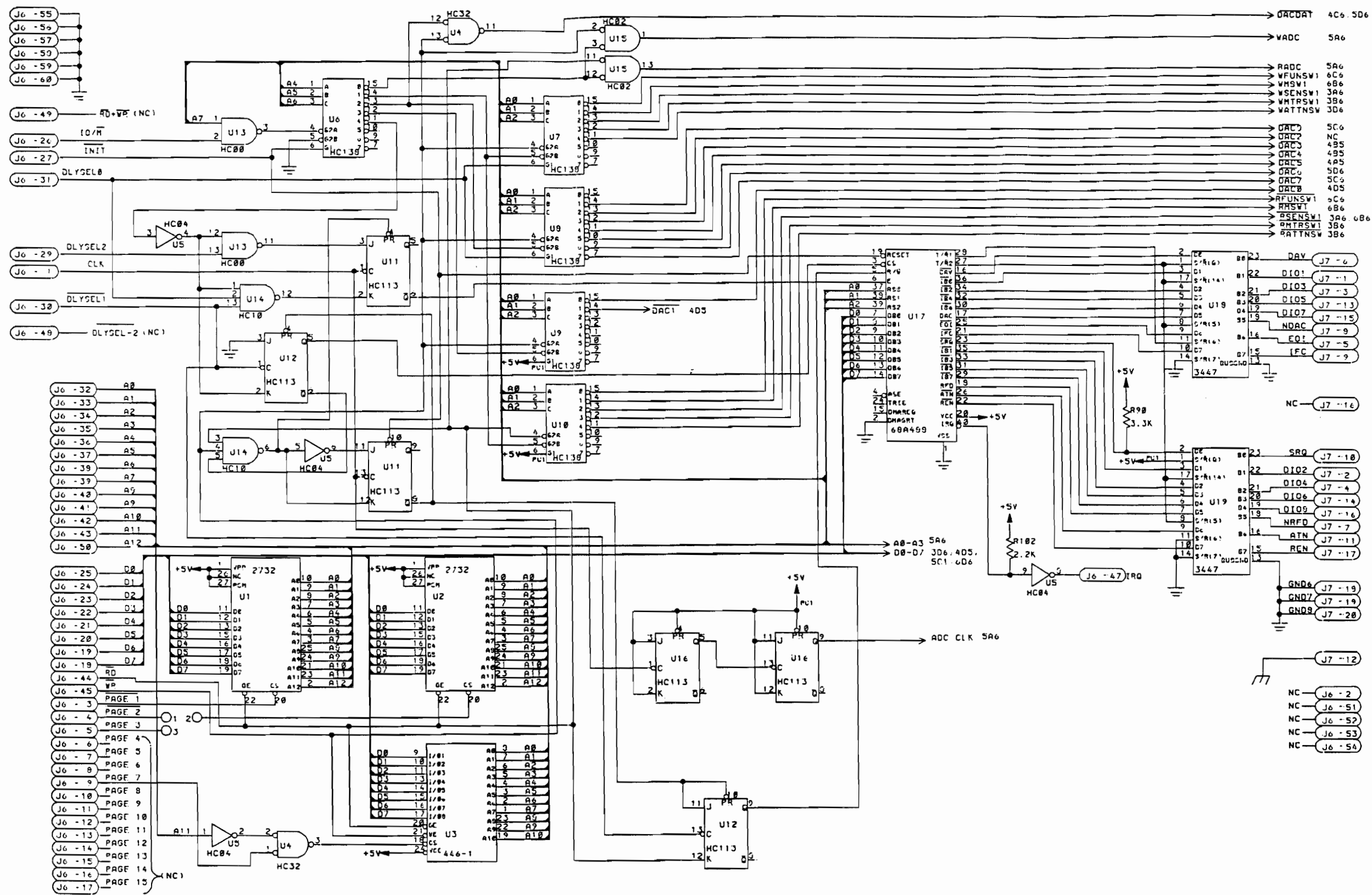
C1, 4, 5, 6, 9, 62 THRU 69, 71 THRU 99, C149, 150.
R2, 8, 9, 31, 32, 33, 81, 82, 129, 130, 131, 132, 133, 134, G1, 2.
CR11, 20, 24 THRU 43, U22, 44, 45, J1, 2, 3, 4, 5, P3, 6, 7, 9, 9.10, 12 THRU 21, 23 THRU 43, 45 THRU 54, 56 THRU 95.

- 9 ALL INTERCONNECTIONS ARE PIN-TO-PIN COMPATIBLE.
- 9 SYMBOL -DIGITAL GROUND (GND).
7. SYMBOL -ANALOG GROUND.
6. SHIELDED TRACE BY ANALOG GROUND.
5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
3. INDUCTORS - VALUES IN uH UNLESS OTHERWISE NOTED.
2. CAPACITORS - VALUES IN uF UNLESS OTHERWISE NOTED.
1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

NOTE.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
16000	PCB ASSY-GPIB PRINTED CIRCUIT BOARD	7001-0835 1780-1293	CUSHMAN CUSHMAN	
	CAPACITORS			
C1	NOT USED			
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	NOT USED			
C5	NOT USED			
C6	NOT USED			
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	NOT USED			
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C13	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C23	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C24	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C28	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C29	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C30	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C31	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C32	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C33	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C34	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C35	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C36	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C37	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C38	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C39	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C40	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C41	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C42	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C43	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C44	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C45	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C46	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2

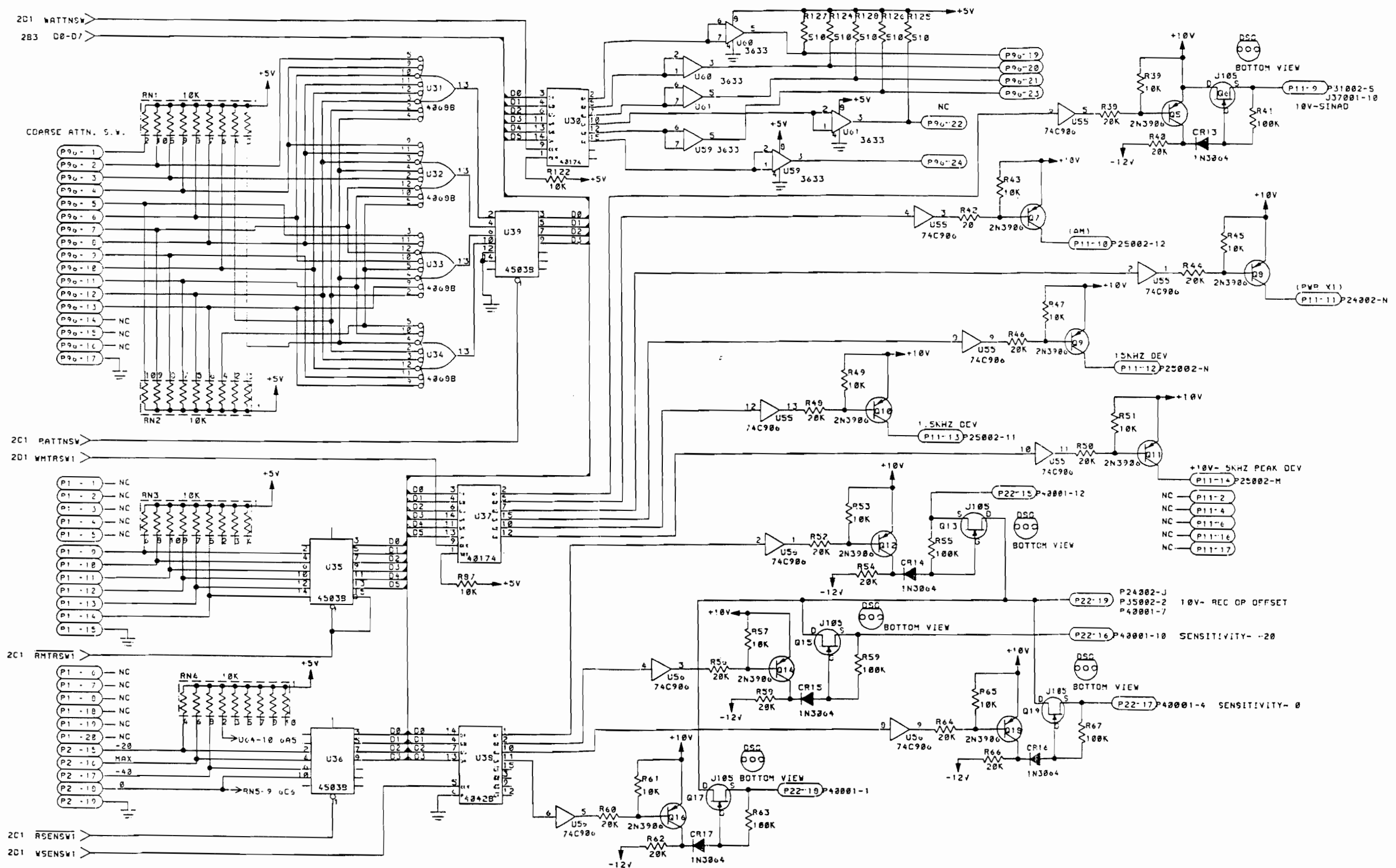
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
C47	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C48	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C49	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C50	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C51	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C52	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C53	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C54	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C55	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C56	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C57	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C58	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C59	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C60	CAP-22UF 10% 15V AXL	1011-0003	SPRAGUE	150D226X9015B2
C61	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C62	NOT USED			
C63	NOT USED			
C64	NOT USED			
C65	NOT USED			
C66	NOT USED			
C67	NOT USED			
C68	NOT USED			
C69	NOT USED			
C70	CAP-47UF 10% 6V AXL	1011-0005	SPRAGUE	150D225X9015B2
C71	NOT USED			
C72	NOT USED			
C73	NOT USED			
C74	NOT USED			
C75	NOT USED			
C76	NOT USED			
C77	NOT USED			
C78	NOT USED			
C79	NOT USED			
C80	NOT USED			
C81	NOT USED			
C82	NOT USED			
C83	NOT USED			
C84	NOT USED			
C85	NOT USED			
C86	NOT USED			
C87	NOT USED			
C88	NOT USED			
C89	NOT USED			
C90	NOT USED			
C91	NOT USED			
C92	NOT USED			
C93	NOT USED			
C94	NOT USED			
C95	NOT USED			
C96	NOT USED			
C97	NOT USED			



16000 G.P.I.B. (7001-0835)
2 OF 6

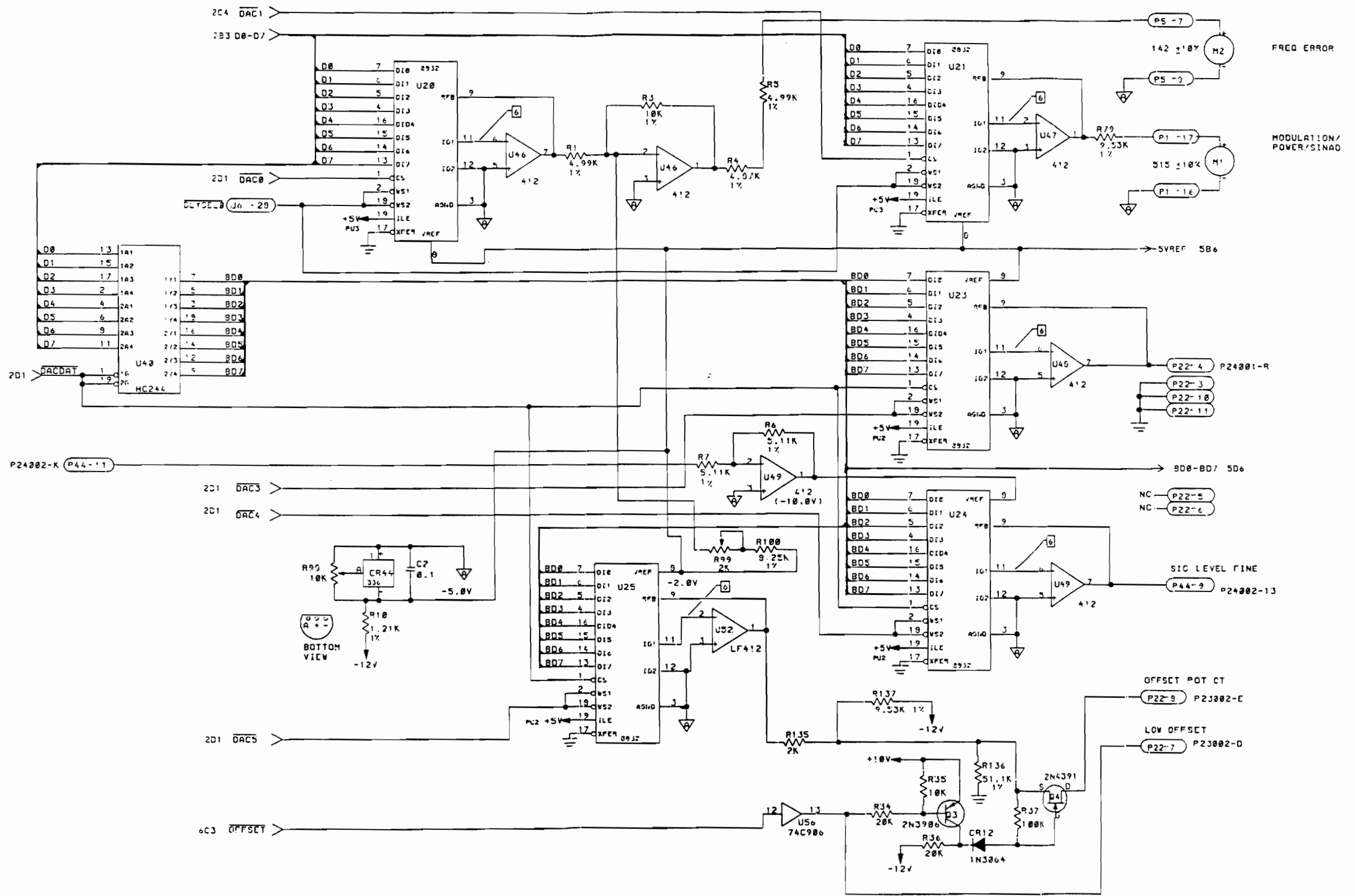
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
C149	NOT USED			
C150	NOT USED			
C151	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C152	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C153	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C154	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C155	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C156	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
DIODES				
CR1	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR2	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR3	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR4	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR5	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR6	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR7	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR8	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR9	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR10	DIO-1N3064-SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR11	NOT USED			
CR12	DIO-1N3064-SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR13	DIO-1N3064-SI SW C07/35	1281-0013	FAIRCHILD	1N3064
CR14	DIO-1N3064-SI SW C07/35	1281-0013	FAIRCHILD	1N3064
CR15	DIO-1N3064-SI SW C07/35	1281-0013	FAIRCHILD	1N3064
CR16	DIO-1N3064-SI SW C07/35	1281-0013	FAIRCHILD	1N3064
CR17	DIO-1N3064-SI SW C07/35	1281-0013	FAIRCHILD	1N3064
CR18	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR19	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR20	NOT USED			
CR21	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR22	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR23	DIO-1N3064-SI SW C07/35	1281-0013	FAIRCHILD	1N3064
CR24 THRU CR43 NOT USED				
CR44	DIO-336B-5.0 ZENER T092	1281-0177		
CR44	DIO-336B-5.0 ZENER T092	1281-0177		
CONNECTORS				
J1	NOT USED			
J2	NOT USED			
J3	NOT USED			
J4	NOT USED			
J5	NOT USED			
J6	CONN-60(2X30)PIN.1X.1SP	2535-0233		
J7	CONN-20(2X10)PIN.1X.1SP	2535-0224		

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
P1	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P2	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P4	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P5	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P11	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P22	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P44	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P55	CONN-20(2X10)PIN.1X.1SP	2535-0224		
P96	CONN-26(2X13)CONT STR	2535-0153		
TRANSISTORS				
Q1	NOT USED			
Q2	NOT USED			
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q4	XSTR-2N4391 SI T018	1272-0042	TELEDYNE	2N4391
Q5	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q6	XSTR-J105 SI T092 J-FET	1272-0103		
Q7	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q8	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q9	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q10	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q11	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q12	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q13	XSTR-J105 SI T092 J-FET	1272-0103		
Q14	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q15	XSTR-J105 SI T092 J-FET	1272-0103		
Q16	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q17	XSTR-J105 SI T092 J-FET	1272-0103		
Q18	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q19	XSTR-J105 SI T092 J-FET	1272-0103		
Q20	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q21	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q22	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q23	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q24	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q25	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
RESISTORS				
R1	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R2	RES-9.53K 1% 100PPM	1074-1001	CAT. LIST	55-100
R3	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R4	RES-4.87K 1% 100PPM	1075-0168	CAT. LIST	55-100
R5	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R6	RES-5.11K 1% 150PPM	1074-1018	CAT. LIST	55-100
R7	RES-5.11K 1% 150PPM	1074-1018	CAT. LIST	55-100
R8	POT-1K 1/2W 4T	1203-0058	BOURNS	3339H-1-102
R9	RES-3.65K 1% 100PPM	1075-0214	CAT. LIST	55-100
R10	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R11	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R12	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R13	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R14	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R15	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R16	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R17	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R18	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R19	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R20	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R21	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R22	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R23	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R24	RES-143 OHM 1% 100PPM	1075-0256	CAT. LIST	55-100
R25	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R26	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R27	RES-4.42K 1% 100PPM	1075-0253	CAT. LIST	55-100
R28	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R29	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R30	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R31	RES-3.48K 1% 100PPM	1075-0093	CAT. LIST	55-100
R32	POT-2K 20% 1/2W 4T	1215-0063		
R33	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R34	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R35	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R36	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R37	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R38	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R39	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R40	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R41	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R42	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R43	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R44	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R45	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R46	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R47	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R48	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R49	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R50	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R51	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R52	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R53	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R54	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035

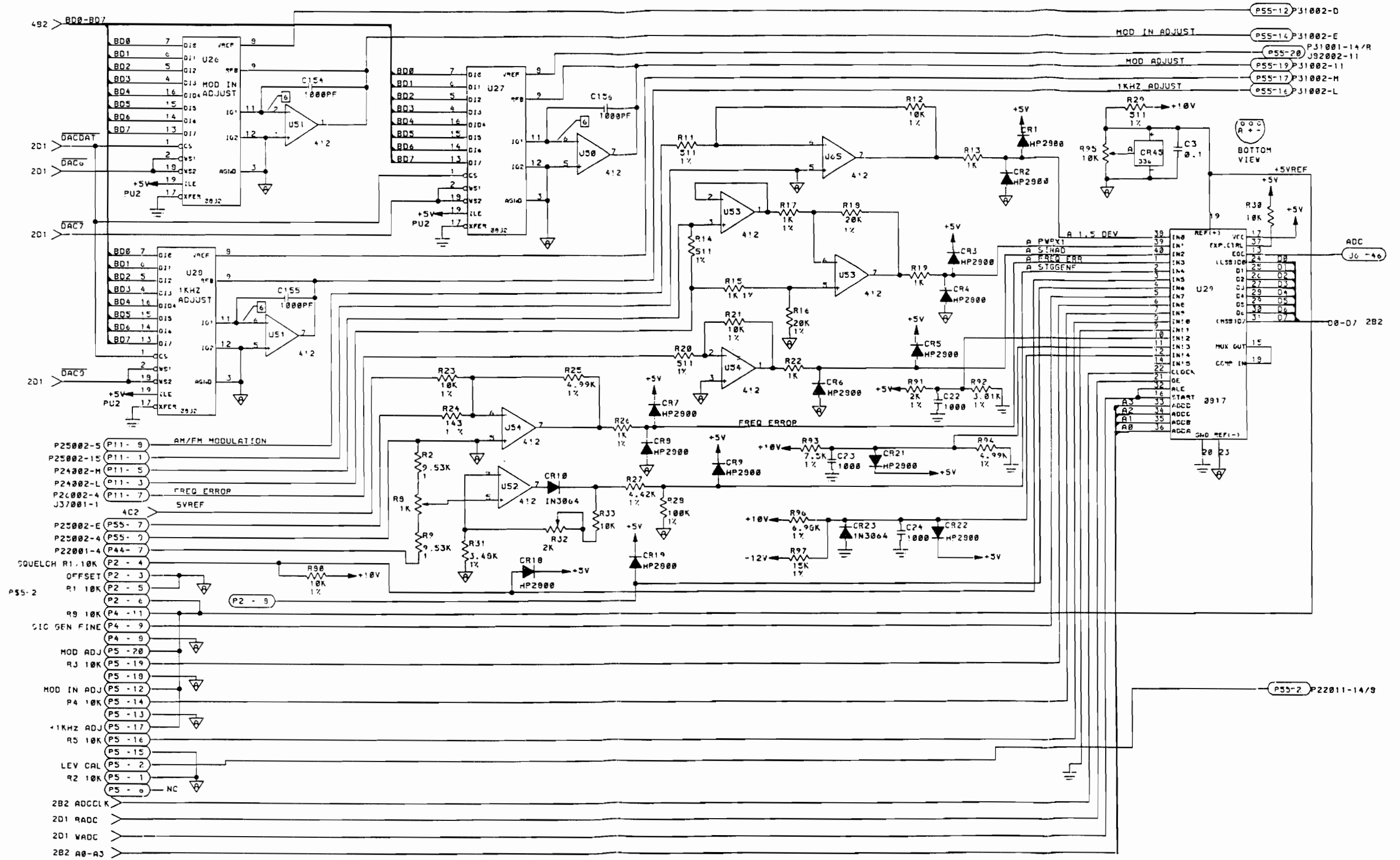
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R55	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R56	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R57	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R58	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R59	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R60	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R61	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R62	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R63	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R64	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R65	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R66	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R67	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R68	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R69	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R70	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R71	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R72	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R73	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R74	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R75	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R76	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R77	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R78	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R79	RES-9.53K 1% 100PPM	1074-1001	CAT. LIST	55-100
R80	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R81	NOT USED			
R82	NOT USED			
R83	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R84	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R85	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R86	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R87	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R88	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R89	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R90	RES-3.3K 5% 1/4W CC	1066-3325	ALLEN BRADLEY	CB3325
R91	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R92	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R93	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R94	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R95	POT-10K 20% 1/2W 4T	1203-0061	BOURNS	3339H-1-103
R96	RES-6.98K 1% 150PPM	1074-1028	CAT. LIST	55-100
R97	RES-15K 1% 100PPM	1075-0081	CAT. LIST	55-100
R98	POT-10K 20% 1/2W 4T	1203-0061	BOURNS	3339H-1-103
R99	POT-2K 20% 1/2W 4T	1215-0063		
R100	RES-8.25K 1% 100PPM	1075-0014	CAT. LIST	55-100
R101	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R102	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R103	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R104	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R105	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005



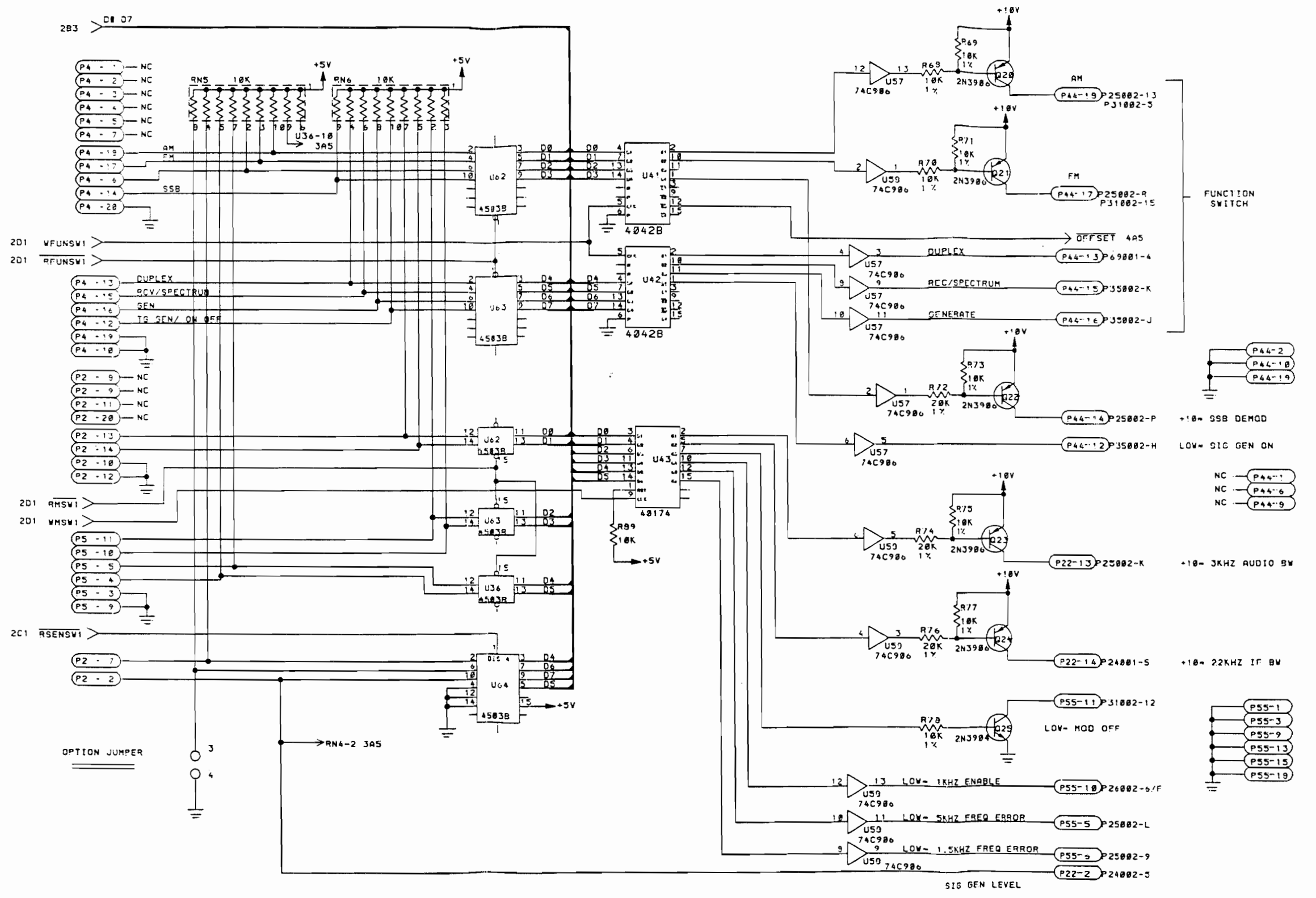
16000 G.P.I.B. (7001-0835)
4 OF 6

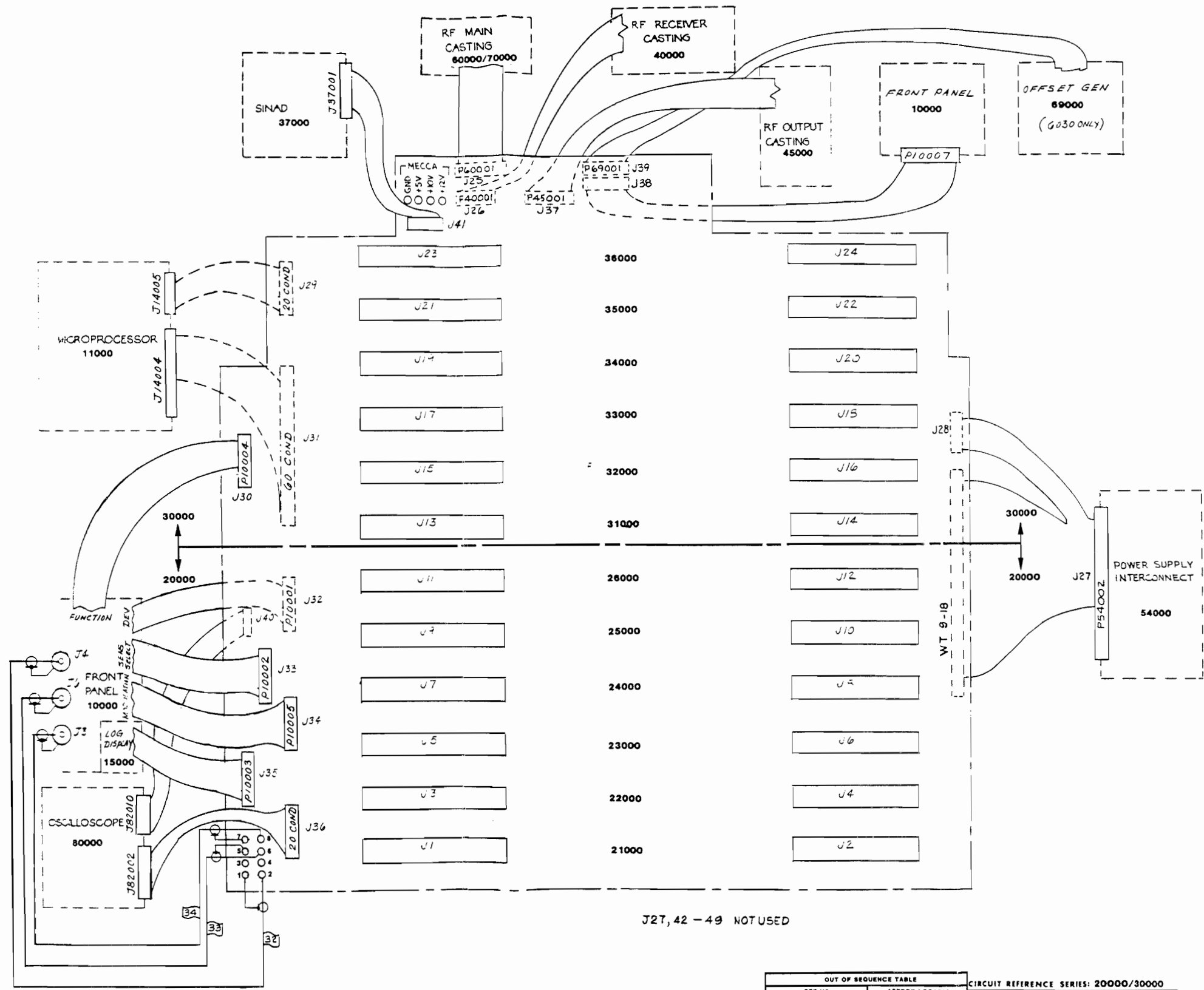
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R106	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R107	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R108	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R109	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R110	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R111	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R112	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R113	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R114	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R115	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R116	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R117	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R118	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R119	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R120	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R121	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R122	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R123	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R124	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R125	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R126	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R127	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R128	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R129	NOT USED			
R130	NOT USED			
R131	NOT USED			
R132	NOT USED			
R133	NOT USED			
R134	NOT USED			
R135	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R136	RES-51.5 OHM 1% 100PPM	1075-0077	CAT. LIST	55-100
R137	RES-9.53K 1% 100PPM	1074-1001	CAT. LIST	55-100
RESISTOR NETWORKS				
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN2	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN3	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN4	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN5	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN6	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
INTEGRATED CIRCUITS				
U1	IC-ERS PROM 2732/2028	2028-0004		
U2	IC-ERS PROM 2732/2028	2028-0005		
U3	IC-446 24PIN DIP 2KX8	2025-0344		
U4	IC-74HC32 14PIN DIP 4/2	2025-0362		
U5	IC-74HC04 14PIN DIP HEX	2025-0360		

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
U6	IC-74HC138 16PIN DIP	2025-0365		
U7	IC-74HC138 16PIN DIP	2025-0365		
U8	IC-74HC138 16PIN DIP	2025-0365		
U9	IC-74HC138 16PIN DIP	2025-0365		
U10	IC-74HC138 16PIN DIP	2025-0365		
U11	IC-74HC113 14PIN DIP D	2025-0364		
U12	IC-74HC113 14PIN DIP D	2025-0364		
U13	IC-74HC00 14PIN DIP Q	2025-0358		
U14	IC-74HC10 14PIN DIP 3/3	2025-0361		
U15	IC-74HC02 14PIN DIP 4/2	2025-0359		
U16	IC-74HC113 14PIN DIP D	2025-0364		
U17	IC-68A488 40PIN DIP	2025-0356		
U18	IC-3447 24PIN DIP GPIB	2025-0351		
U19	IC-3447 24PIN DIP GPIB	2025-0351		
U20	IC-0832 20PIN DIP 8 BIT	2025-0349		
U21	IC-0832 20PIN DIP 8 BIT	2025-0349		
U22	NOT USED			
U23	IC-0832 20PIN DIP 8 BIT	2025-0349		
U24	IC-0832 20PIN DIP 8 BIT	2025-0349		
U25	IC-0832 20PIN DIP 8 BIT	2025-0349		
U26	IC-0832 20PIN DIP 8 BIT	2025-0349		
U27	IC-0832 20PIN DIP 8 BIT	2025-0349		
U28	IC-0832 20PIN DIP 8 BIT	2025-0349		
U29	IC-0817 40PIN DIP 8 BIT	2025-0348		
U30	IC-40174B 16PIN DIP HEX	2025-0355		
U31	IC-4068B 14PIN DIP 8 IN	2025-0353		
U32	IC-4068B 14PIN DIP 8 IN	2025-0353		
U33	IC-4068B 14PIN DIP 8 IN	2025-0353		
U34	IC-4068B 14PIN DIP 8 IN	2025-0353		
U35	IC-4503B 16PIN DIP HEX	2025-0243		
U36	IC-4503B 16PIN DIP HEX	2025-0243		
U37	IC-40174B 16PIN DIP HEX	2025-0355		
U38	IC-4042B 16PIN DIP QUAD	2025-0292		
U39	IC-4503B 16PIN DIP HEX	2025-0243		
U40	IC-74HC244 20PIN DIP 8/	2025-0367		
U41	IC-4042B 16PIN DIP QUAD	2025-0292		
U42	IC-4042B 16PIN DIP QUAD	2025-0292		
U43	IC-40174B 16PIN DIP HEX	2025-0355		
U44	NOT USED			
U45	NOT USED			
U46	IC-412 8PIN DIP DUAL OP	2025-0325		
U47	IC-412 8PIN DIP DUAL OP	2025-0325		
U48	IC-412 8PIN DIP DUAL OP	2025-0325		
U49	IC-412 8PIN DIP DUAL OP	2025-0325		
U50	IC-412 8PIN DIP DUAL OP	2025-0325		
U51	IC-412 8PIN DIP DUAL OP	2025-0325		
U52	IC-412 8PIN DIP DUAL OP	2025-0325		
U53	IC-412 8PIN DIP DUAL OP	2025-0325		
U54	IC-412 8PIN DIP DUAL OP	2025-0325		
U55	IC-74C906 14PIN DIP O D	2025-0357		
U56	IC-74C906 14PIN DIP O D	2025-0357		



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
U57	IC-74C906 14PIN DIP O D	2025-0357		
U58	IC-74C906 14PIN DIP O D	2025-0357		
U59	IC-3633 8PIN DIP DUAL	2025-0441		
U60	IC-3633 8PIN DIP DUAL	2025-0441		
U61	IC-3633 8PIN DIP DUAL	2025-0441		
U62	IC-4503B 16PIN DIP HEX	2025-0243		
U63	IC-4503B 16PIN DIP HEX	2025-0243		
U64	IC-4503B 16PIN DIP HEX	2025-0243		
U65	IC-412 8PIN DIP DUAL OP	2025-0325		

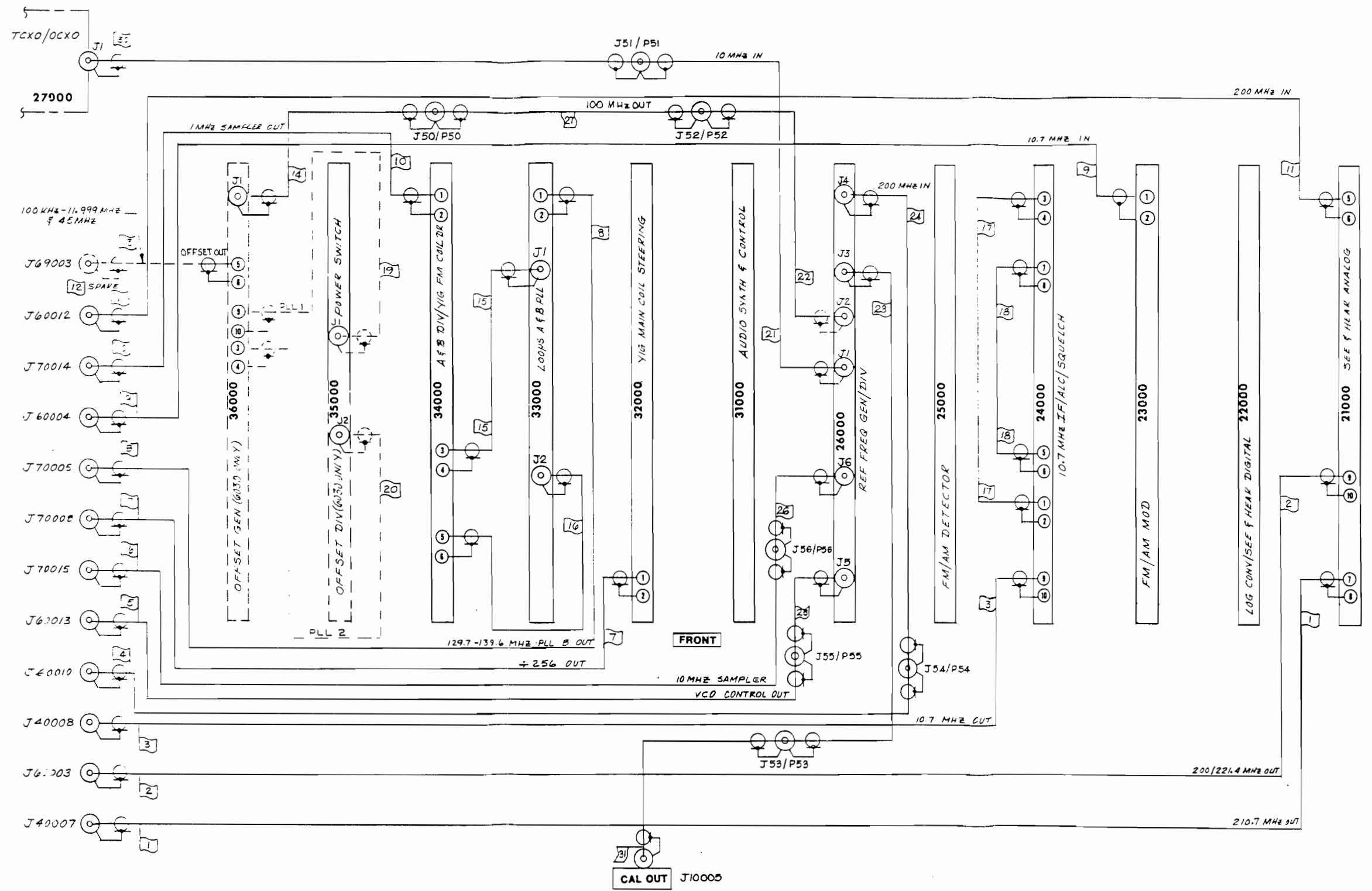




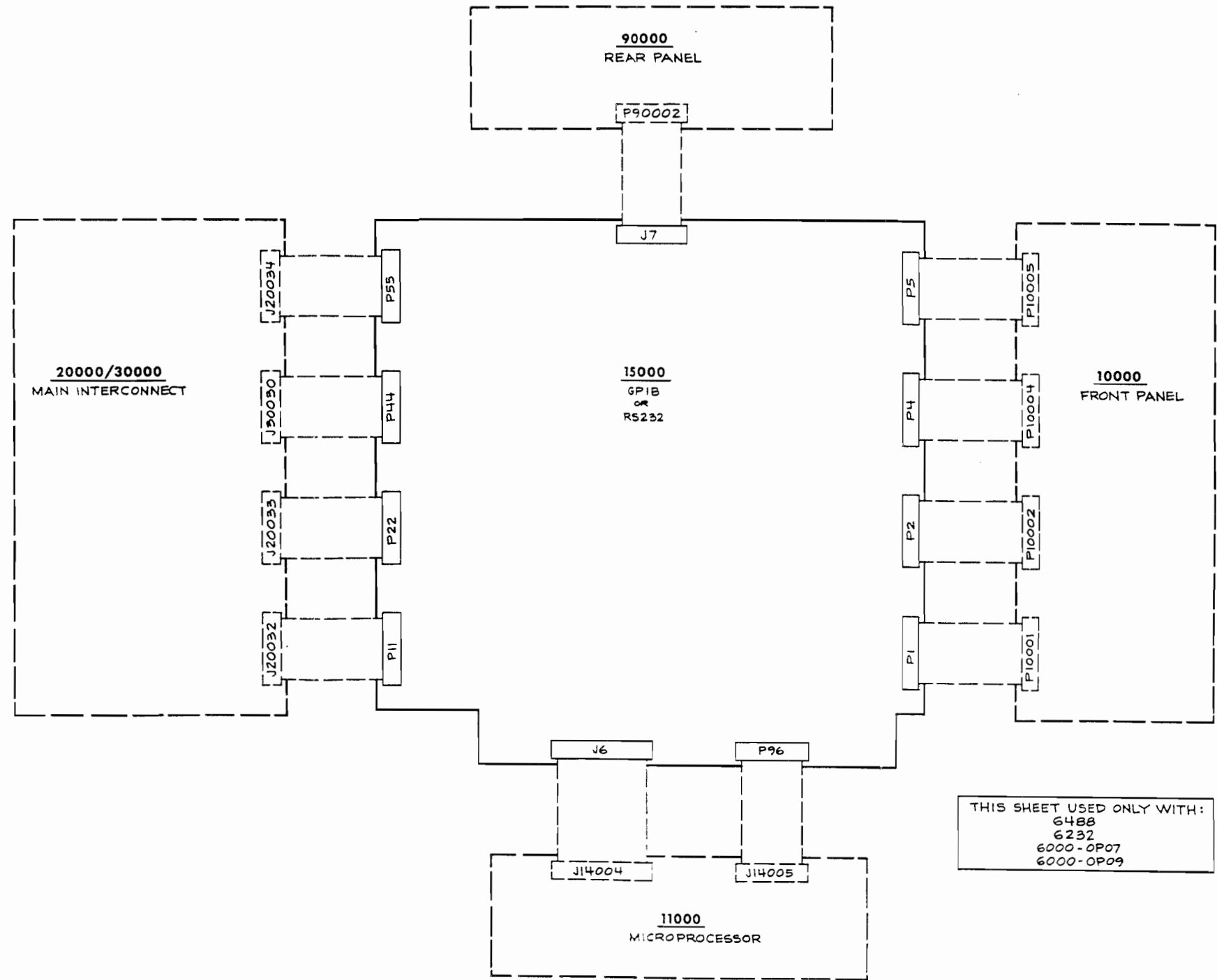
J27, 42 - 49 NOT USED

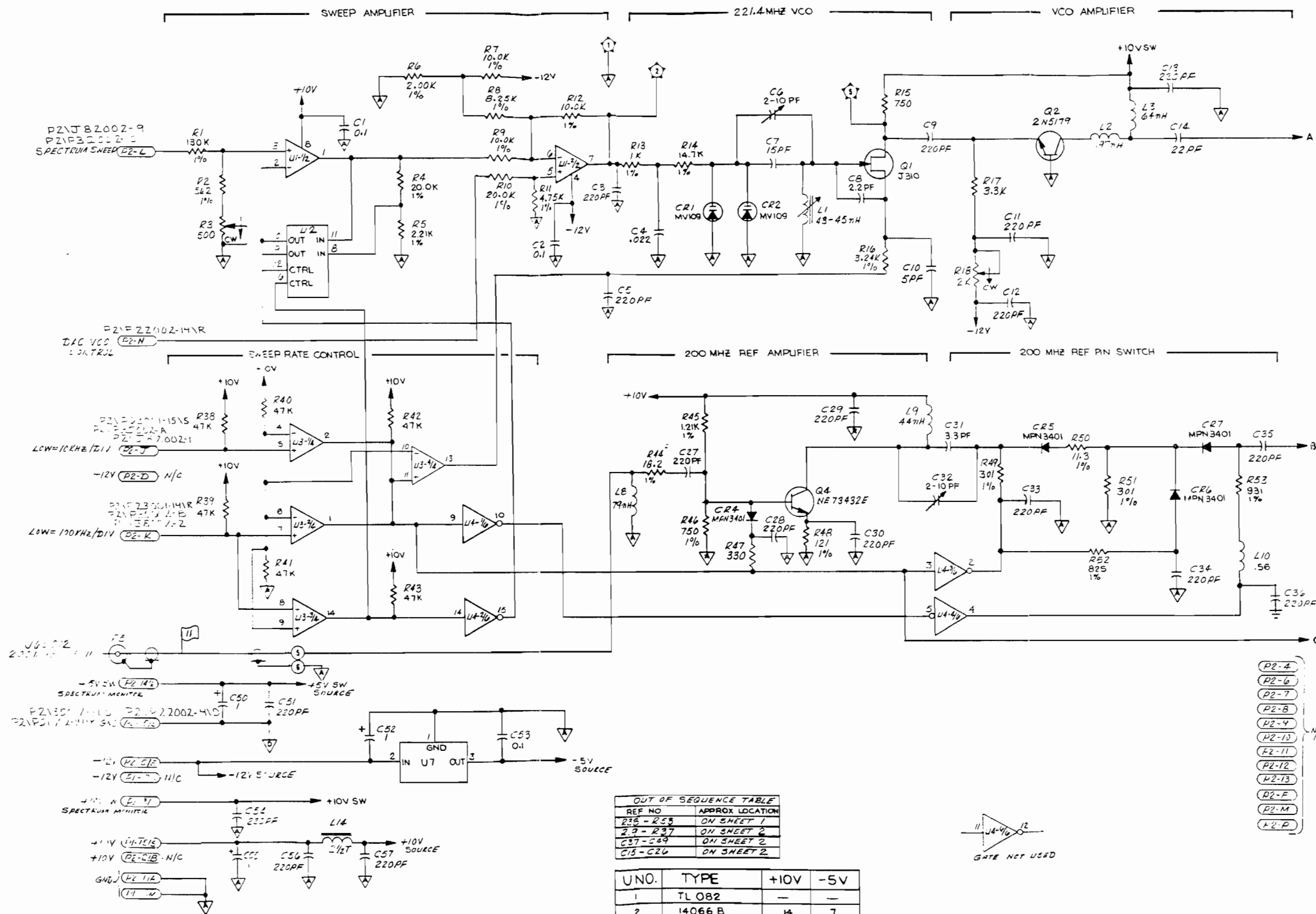
OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 20000/30000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
		CE) - CE)	GE) - GE)
		CR) - CR)	RE) - RE)
		DE) - DE)	SE) - SE)
		FE) - FE)	TE) - TE)
		UE) - UE)	YE) - YE)
		LE) - LE)	JE) - JE)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
20000/ 30000	PCB ASSY-MAIN INTCON	7001-0836	CUSHMAN	
RESISTORS				
R1	RES-820 OHM 5% 1/4W CC	1066-8215	ALLEN BRADLEY	CB8215
R2	RES-820 OHM 5% 1/4W CC	1066-8215	ALLEN BRADLEY	CB8215



NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT - TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 2%, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

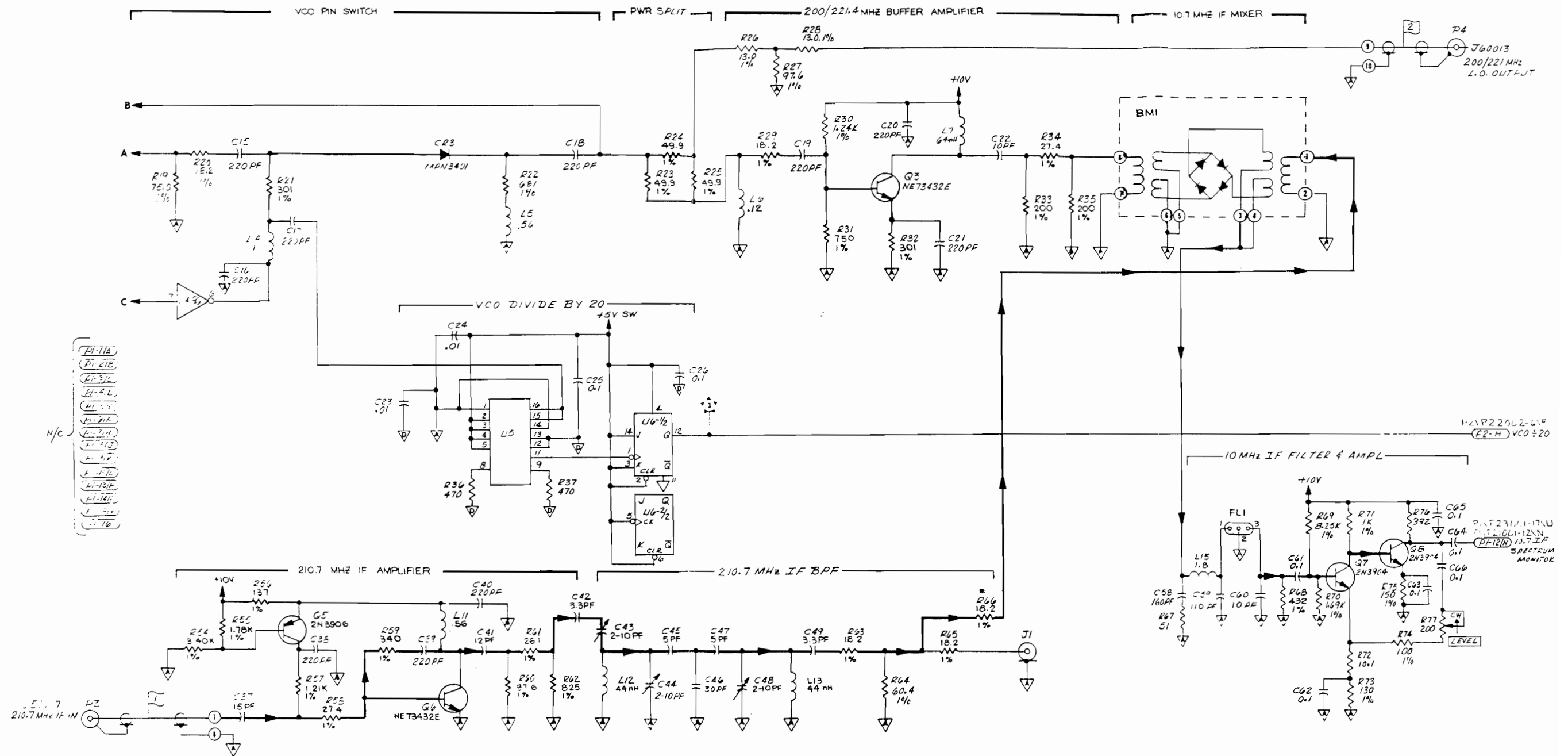




NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 6. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 7. INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
 8. CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
 9. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.
 10. □ = DIGITAL GND.
 11. ▽ = ANALOG GND.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
21000	PCB ASSY-SEE & HEAR ANALOG PRINTED CIRCUIT BOARD	7001-0741 1780-1252	CUSHMAN CUSHMAN	
	BALANCED MIXER			
BM1	MXR-DBL BAL 1050MHZ	2010-0009	MINI CKTS LAB	SBL-1
	CAPACITORS			
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C4	CAP-.022UF 10% 100V	1005-0079		
C5	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C6	CAP-2-10PF 25V NPO VADJ	1001-0024	TUSONIX	513-011 A 2-10PF
C7	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C8	CAP-2.2PF .25 PF 500V	1005-0017		
C9	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C10	CAP-5PF .25PF 500V NPO	1005-0012		
C11	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C12	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C13	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C14	CAP-22PF 5% 500V DIP	1002-0023	CORNELL DUBIL	CD15CD220J
C15	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C16	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C17	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C18	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C19	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C20	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C21	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C22	CAP-10PF 5% 500V DIP	1002-0016	ELMENCO	DM15-C-100J
C23	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C24	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C25	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C28	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C29	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C30	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C31	CAP-3.3PF .25PF 500V	1005-0011	TUSONIX	301-00-COJO-339C
C32	CAP-2-10PF 25V NPO VADJ	1001-0024	TUSONIX	513-011 A 2-10PF
C33	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C34	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C35	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C36	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C37	CAP-15PF 5% 500V DIP	1002-0111		
C38	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C39	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C40	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K

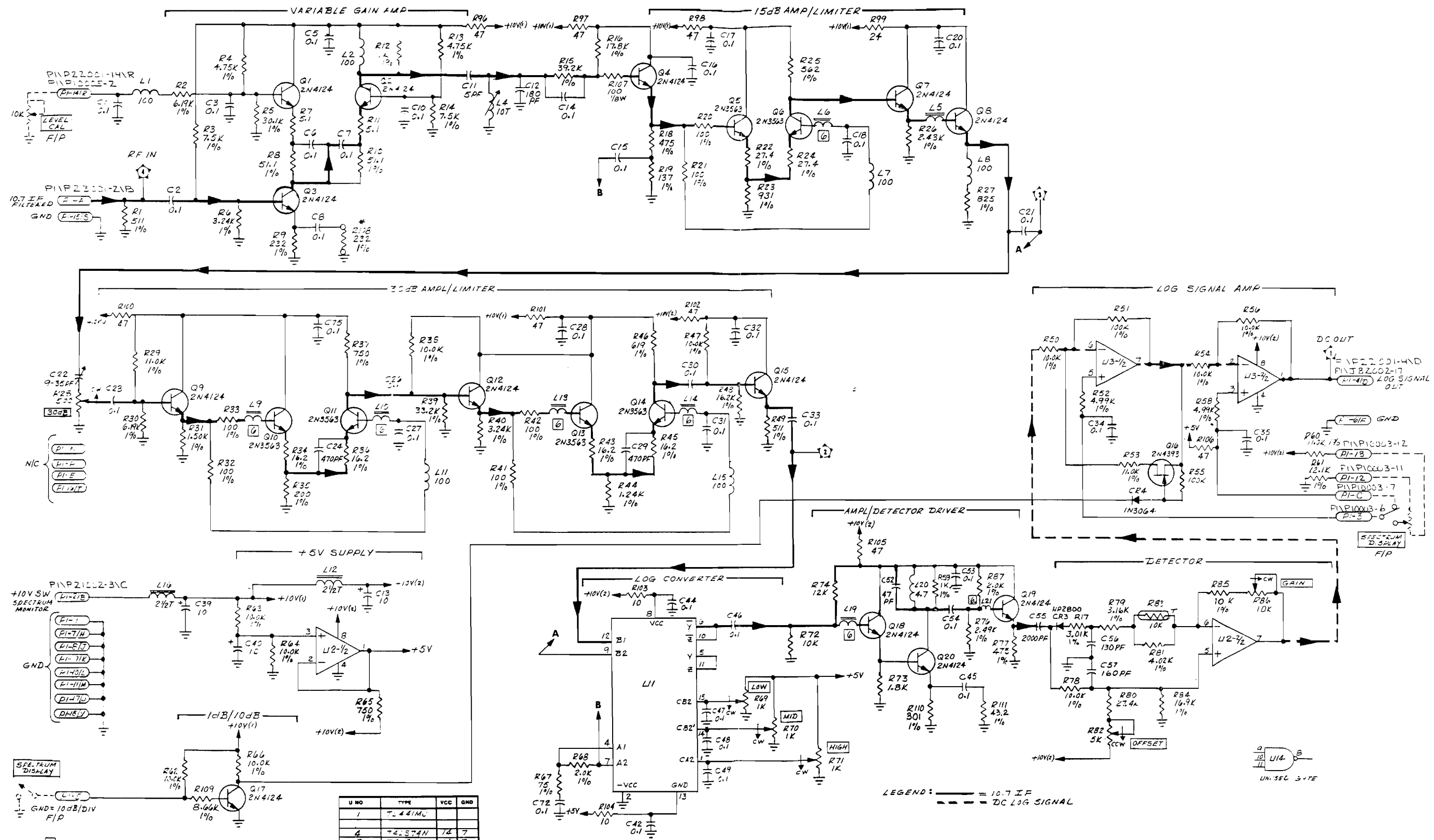
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C41	CAP-12PF 5% 500V DIP	1002-0017	ELMENCO	DM15-C-120J
C42	CAP-3.3PF .25PF 500V	1005-0011	TUSONIX	301-00-COJO-339C
C43	CAP-2-10PF 25V NPO VADJ	1001-0024	TUSONIX	513-011 A 2-10PF
C44	CAP-2-10PF 25V NPO VADJ	1001-0024	TUSONIX	513-011 A 2-10PF
C45	CAP-5PF .25PF 500V NPO	1005-0112		
C46	CAP-30PF 5% 500V DIP	1002-0043	ELMENCO	DM15-E-300J
C47	CAP-5PF .25PF 500V NPO	1005-0112		
C48	CAP-2-10PF 25V NPO VADJ	1001-0024	TUSONIX	513-011 A 2-10PF
C49	CAP-3.3PF .25PF 500V	1005-0011	TUSONIX	301-00-COJO-339C
C50	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C51	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C52	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C53	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C54	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C55	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C56	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C57	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C58	CAP-160PF 5% 500V DIP	1002-0091		
C59	CAP-110PF 5% 500V DIP	1002-0026		
C60	CAP-10PF 5% 500V DIP	1002-0016	ELMENCO	DM15-C-100J
C61	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C62	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C63	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C64	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C65	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C66	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
	DIODES			
CR1	DIO-MV209 SI VARICAP	1281-0064	MOTOROLA	MV109
CR2	DIO-MV209 SI VARICAP	1281-0064	MOTOROLA	MV109
CR3	DIO-MPN3401 SI PIN SW	1281-0050		
CR4	DIO-MPN3401 SI PIN SW	1281-0050		
CR5	DIO-MPN3401 SI PIN SW	1281-0050		
CR6	DIO-MPN3401 SI PIN SW	1281-0050		
CR7	DIO-MPN3401 SI PIN SW	1281-0050		
	FILTER			
FL1	FLTR-CER 10.7 MHZ 3DB	1040-0043	MURATA CORP.	10.70MHZ RED ONLY
	INDUCTORS			
L1	COIL-VAR IF .30X.30SQ	1596-3501		
L2	CH-197NH 23GA/11.T5	1585-1007		
L3	CH-64NH 22GA/5.5T	1585-1003		
L4	CH-.1UH 10% RF MLD SH	1585-0041		
L5	CH-.56UH 10% RF MLD AXL	1585-0076		



- N/C
- PI-11A
 - PI-21B
 - PI-31C
 - PI-41D
 - PI-51E
 - PI-61F
 - PI-71G
 - PI-81H
 - PI-91I
 - PI-101J
 - PI-111K
 - PI-121L
 - PI-131M
 - PI-141N
 - PI-151O
 - PI-161P

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R26	RES-13 OHM 1% 100PPM	1075-0172	CAT. LIST	55-100
R27	RES-97.6 OHM 1% 100PPM	1074-0101	CAT. LIST	55-100
R28	RES-13 OHM 1% 100PPM	1075-0172	CAT. LIST	55-100
R29	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R30	RES-1.24K 1% 100PPM	1075-0087	CAT. LIST	55-100
R31	RES-750 OHM 1% 100PPM	1075-0043	CAT. LIST	55-100
R32	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R33	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R34	RES-27.4 OHM 1% 150PPM	1074-1012	CAT. LIST	55-100
R35	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R36	RES-470 OHM 5% 1/4W CC	1066-4715	ALLEN BRADLEY	CB4715
R37	RES-470 OHM 5% 1/4W CC	1066-4715	ALLEN BRADLEY	CB4715
R38	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R39	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R40	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R41	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R42	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R43	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R44	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R45	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R46	RES-750 OHM 1% 100PPM	1075-0043	CAT. LIST	55-100
R47	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315
R48	RES-121 OHM 1% 100PPM	1075-0006	CAT. LIST	55-100
R49	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R50	RES-11.3 OHM 1% 100PPM	1075-0150	CAT. LIST	55-100
R51	RES-11.3 OHM 1% 100PPM	1075-0150	CAT. LIST	55-100
R52	RES-825 OHM 1% 100PPM	1074-1000	CAT. LIST	55-100
R53	RES-931 OHM 1% 100PPM	1074-0103	CAT. LIST	55-100
R54	RES-3.4K 1% 100PPM	1075-0020	CAT. LIST	55-100
R55	RES-1.78K 1% 100PPM	1075-0089	CAT. LIST	55-100
R56	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R57	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R58	RES-27.4 OHM 1% 150PPM	1074-1012	CAT. LIST	55-100
R59	RES-340 OHM 1% 100PPM	1074-1055	CAT. LIST	55-100
R60	RES-97.6 OHM 1% 100PPM	1074-0101	CAT. LIST	55-100
R61	RES-26.1 OHM 1% 150PPM	1074-1011	CAT. LIST	55-100
R62	RES-825 OHM 1% 100PPM	1074-1000	CAT. LIST	55-100
R63	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R64	RES-60.4 OHM 1% 100PPM	1074-0115	CAT. LIST	55-100
R65	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R66	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R67	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R68	RES-432 OHM 1% 100PPM	1075-0142	CAT. LIST	55-100
R69	RES-8.25K 1% 100PPM	1075-0014	CAT. LIST	55-100
R70	RES-69K 1% 150PPM	1074-1015	CAT. LIST	55-100
R71	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R72	RES-10.1 OHM .1% 50PPM	1074-1043		
R73	RES-130 OHM 1% 100PPM	1075-1010	CAT. LIST	55-100
R74	RES-100 OHM 1% 100PPM	1074-1033	CAT. LIST	55-100
R75	RES-150 OHM 1% 100PPM	1075-0125	CAT. LIST	55-100
R76	RES-332 OHM 1% 100PPM	1075-0024	CAT. LIST	55-100
R77	POT-200 OHM 10% 1/2W 1T	1215-0050		

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
INTEGRATED CIRCUITS				
U1	IC-TL082 8 PIN DIP	2025-0192	TI	TL082CP
U2	IC-4066B 14 PIN DIP	2025-0193	MOTOROLA	MCI14066BCP
U3	IC-339 14 PIN DIP	2025-0201	MOTOROLA	MLM339P
U4	IC-4049 16 PIN DIP	2025-0189	MOTOROLA	MCI14049UBP
U5	IC-11C90 16 PIN DIP	2025-0182		
U6	IC-SN74LS73N DUAL	2025-0110	TI	SN74LS73N
U7	IC-79L05A T092 3-TERM	2025-0305		



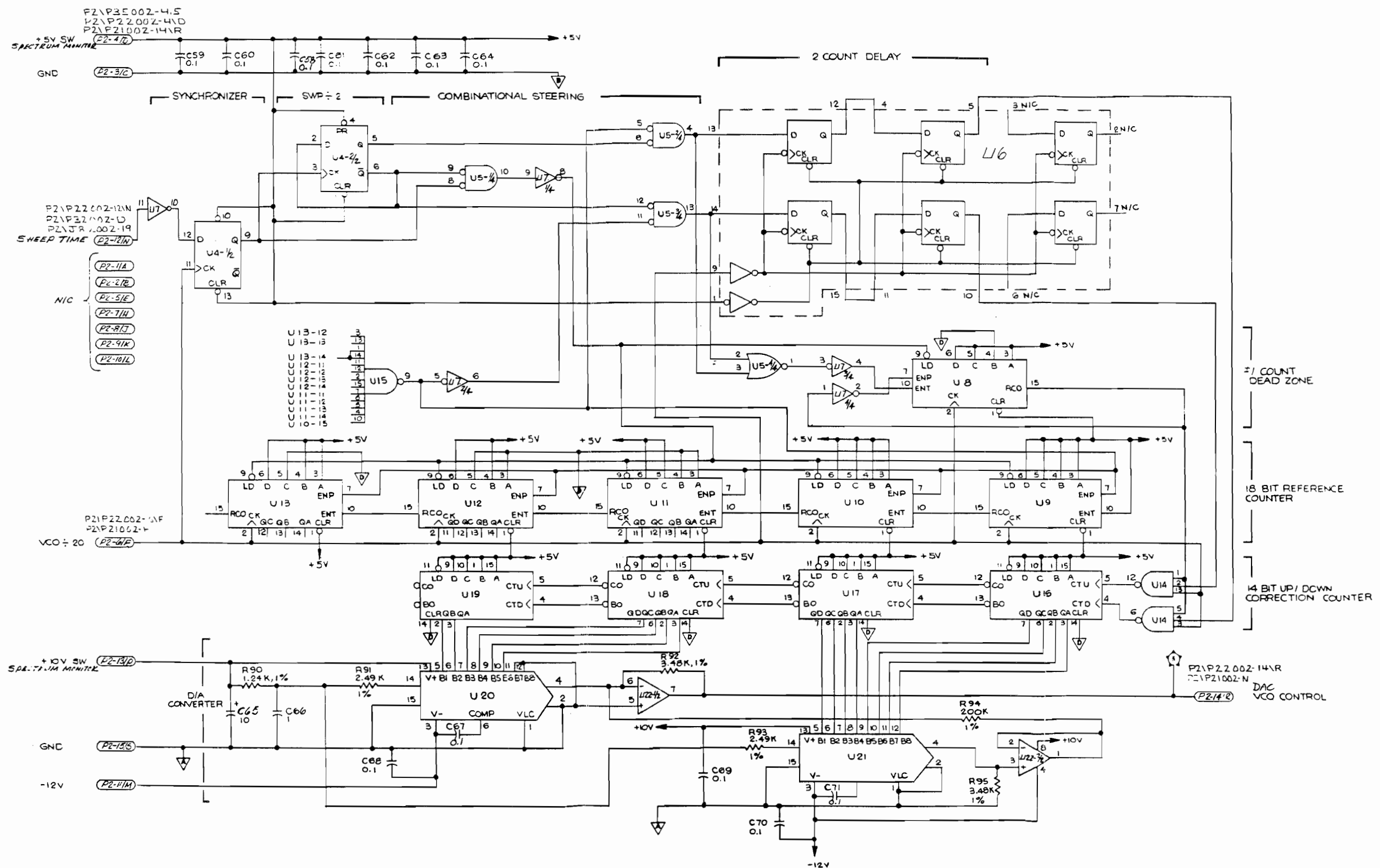
NOTE: 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 4. FACTORY SELECT. TYPICAL VALUE SHOWN.
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 6. FERRITE BEADS.

U NO	TYPE	VCC	GND
1	7-441M		
4	74LS74N	14	7
5	74LS02N	14	7
6	74LS174N	16	8
7	74LS04N	14	7
8,9,10,11,12	74LS193AN	16	8
14	74LS10N	14	7
16,17,18,19	74LS193N	16	8
20,21	74C-08		
23,22	7-082		
15	74LS139N	16	8

REF DES NOT USED:
 C4,9,19,25,38,41,43,50,51,73,74,37,38
 R88,89,75,57
 L3,17,18 & CR1,2

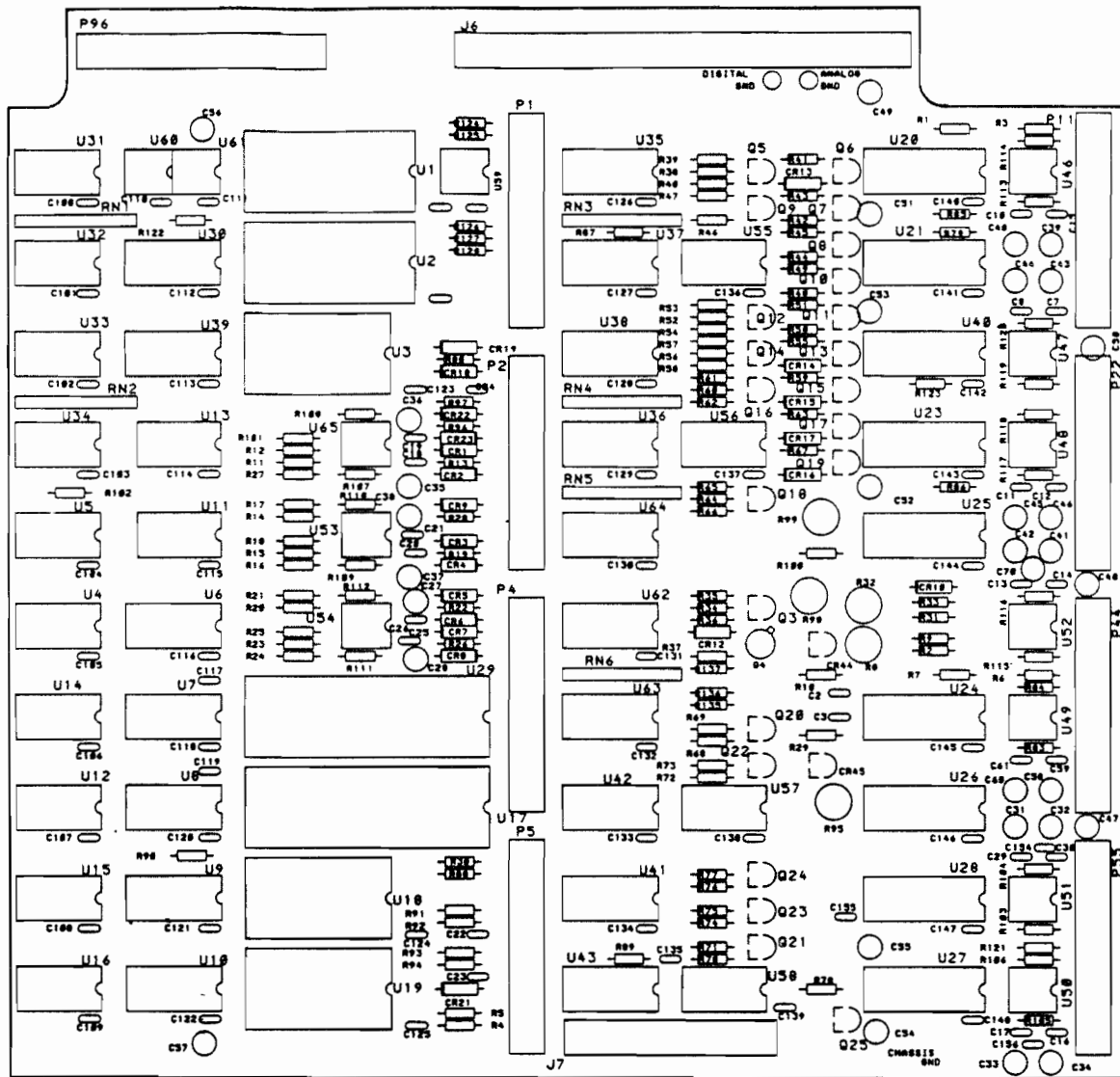
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
22000	PCB ASSY-LOG CONVERTER/SEE & HEAR DIGITAL PRINTED CIRCUIT BOARD	7001-0742 1780-1275	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	NOT USED			
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	NOT USED			
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-5PF .5PF 500V DIP	1002-0028	ELMENCO	DM15-C-050D
C12	CAP-180PF 5% 500V DIP	1002-0005	ELMENCO	DM15-F-181J
C13	CAP-10UF 20% 35V RDL	1011-0006	MATSUO	221L3502106M3
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	NOT USED			
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	CAP-9-35PF 200V N650	1001-0006		
C23	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C24	CAP-470PF 1% 500V DIP	1002-0044		
C25	NOT USED			
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C28	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C29	CAP-470PF 1% 500V DIP	1002-0044	CORNELL DUBIL	CD15FD471F
C30	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C31	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C32	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C33	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C34	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C35	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C36	NOT USED			
C37	NOT USED			
C38	NOT USED			
C39	CAP-10UF 20% 35 V RDL	1011-0006	MATSUO	221L3502106M3
C40	CAP-10UF 20% 35 V RDL	1011-0006	MATSUO	221L3502106M3
C41	NOT USED			
C42	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C43	NOT USED			
C44	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C45	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M

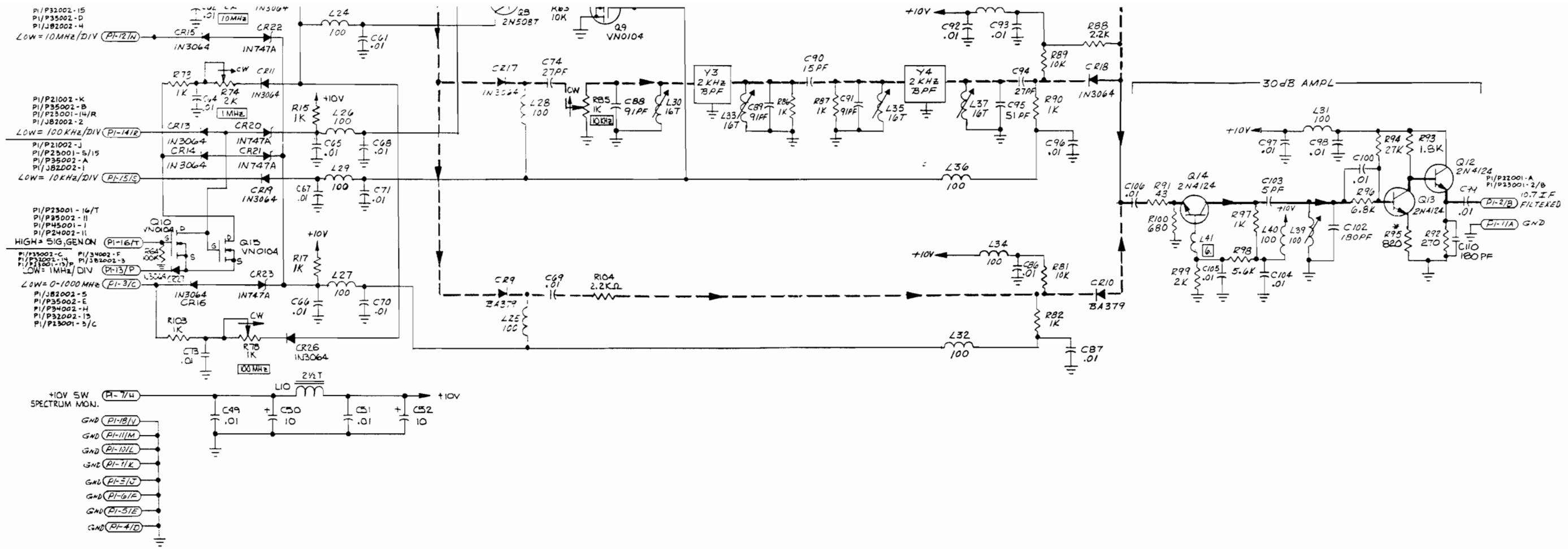
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C46	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C47	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C48	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C49	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C50	NOT USED			
C51	NOT USED			
C52	CAP-47PF 5% 500V DIP	1002-0012	ELMENCO	DM15-E-470J
C53	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C54	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C55	CAP-2000PF 5% 100V NPO	1005-0129	CENTRE	200-100-NPO-202J
C56	CAP-130PF 5% 500V DIP	1002-0095		
C57	CAP-160PF 5% 500V DIP	1002-0091		
C58	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C59	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C60	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C61	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C62	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C63	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C64	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C65	CAP-10UF 20% 35 V RDL	1011-0006	MATSUO	221L3502106M3
C66	CAP-1UF 10% 100V RDL	1008-0100	PLESSEY	60H105K100
C67	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C68	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C69	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C70	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C71	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C72	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C73	NOT USED			
C74	NOT USED			
C75	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
DIODES				
CR1	NOT USED			
CR2	NOT USED			
CR3	DIO-HP2800 SI	1283-0001	HP	5082-2800
CR4	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
INDUCTORS				
L1	CH-100UH 10% RF MLD	1585-0054	DELEVAN	1025-68
L2	CH-100UH 10% RF MLD	1585-0054	DELEVAN	1025-68
L3	NOT USED			
L4	NOT USED			
L5	CH-.047X.138X.118 FER	1586-0004	FERROXCUBE	56-590-65/4B
L6	CH-.047X.138X.118 FER	1586-0004	FERROXCUBE	56-590-65/4B
L7	CH-100UH 10% RF MLD	1585-0054	DELEVAN	1025-68
L8	CH-100UH 10% RF MLD	1585-0054	DELEVAN	1025-68
L9	CH-.047X.138X.118 FER	1586-0004	FERROXCUBE	56-590-65/4B



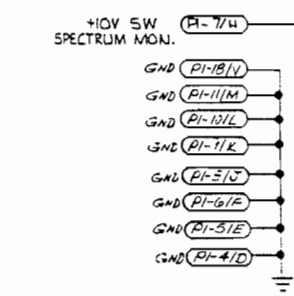
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R12	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R13	RES-4.75K 1% 100PPM	1075-0038	CAT. LIST	55-100
R14	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R15	RES-39.2K 1% 100PPM	1075-0228	CAT. LIST	55-100
R16	RES-17.8K 1% 150PPM	1074-1021	CAT. LIST	55-100
R17	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R18	RES-475 OHM 1% 100PPM	1075-0023	CAT. LIST	55-100
R19	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R20	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R21	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R22	RES-27.4 OHM 1% 150PPM	1074-1012	CAT. LIST	55-100
R23	RES-931 OHM 1% 100PPM	1074-0103	CAT. LIST	55-100
R24	RES-27.4 OHM 1% 150PPM	1074-1012	CAT. LIST	55-100
R25	RES-562 OHM 1% 100PPM	1075-0041	CAT. LIST	55-100
R26	RES-2.43K 1% 100PPM	1075-0019	CAT. LIST	55-100
R27	RES-825 OHM 1% 100PPM	1074-1000	CAT. LIST	55-100
R28	POT-500 OHM 20% 1/2W 4T	1203-0063		
R29	RES-11K 1% 100PPM	1074-0106	CAT. LIST	55-100
R30	RES-6.19K 1% 100PPM	1075-0109	CAT. LIST	55-100
R31	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R32	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R33	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R34	RES-16.2 OHM 1% 100PPM	1075-0068	CAT. LIST	55-100
R35	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R36	RES-16.2 OHM 1% 100PPM	1075-0068	CAT. LIST	55-100
R37	RES-750 OHM 1% 100PPM	1075-0043	CAT. LIST	55-100
R38	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R39	RES-33.2K 1% 100PPM	1075-0098	CAT. LIST	55-100
R40	RES-3.24K 1% 100PPM	1075-0092	CAT. LIST	55-100
R41	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R42	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R43	RES-16.2 OHM 1% 100PPM	1075-0068	CAT. LIST	55-100
R44	RES-1.24K 1% 100PPM	1075-0087	CAT. LIST	55-100
R45	RES-16.2 OHM 1% 100PPM	1075-0068	CAT. LIST	55-100
R46	RES-619 OHM 1% 100PPM	1075-0063	CAT. LIST	55-100
R47	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R48	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R49	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R50	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R51	RES-100K 1% 100PPM	1074-0109	CAT. LIST	55-100
R52	RES-4.99K 1% 25PPM	1074-1027	CAT. LIST	55-025
R53	RES-11K 1% 100PPM	1074-0106	CAT. LIST	55-100
R54	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R55	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R56	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R57	NOT USED			
R58	RES-4.99K 1% 25PPM	1074-1027	CAT. LIST	55-025
R59	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R60	RES-11K 1% 100PPM	1074-0106	CAT. LIST	55-100
R61	RES-12.1K 1% 100PPM	1075-0011	CAT. LIST	55-100
R62	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR
R63	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R64	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R65	RES-750 OHM 1% 100PPM	1075-0043	CAT. LIST	55-100
R66	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R67	RES-75 OHM 1% 100PPM	1075-0035	CAT. LIST	55-100
R68	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R69	POT-1K 10% 3/4W 15T	1215-0013	HELITRIM	89WR1K
R70	POT-1K 10% 3/4W 15T	1215-0013	HELITRIM	89WR1K
R71	POT-1K 10% 3/4W 15T	1215-0013	HELITRIM	89WR1K
R72	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R73	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R74	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R75	NOT USED			
R76	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R77	RES-475 OHM 1% 100PPM	1075-0023	CAT. LIST	55-100
R78	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R79	RES-3.16K 1% 100PPM	1074-1016	CAT. LIST	55-100
R80	RES-27.4K 1% 150PPM	1074-1004	CAT. LIST	55-100
R81	RES-4.02K 1% 100PPM	1075-0094	CAT. LIST	55-100
R82	POT-5K 10% 3/4W 15T	1215-0012	HELITRIM	89WR5K
R83	THMS-10K 10% 3.5MW AXL	1253-0001		
R84	RES-16.9K 1% 100PPM	1075-0059	CAT. LIST	55-100
R85	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R86	POT-10K 10% 3/4W 15T	1215-0014	HELITRIM	89WR10K
R87	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R88	NOT USED			
R89	NOT USED			
R90	RES-1.24K 1% 100PPM	1075-0087	CAT. LIST	55-100
R91	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R92	RES-3.48K 1% 100PPM	1075-0093	CAT. LIST	55-100
R93	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R94	RES-200K 1% 100PPM	1075-0148	CAT. LIST	55-100
R95	RES-3.48K 1% 100PPM	1075-0093	CAT. LIST	55-100
R96	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R97	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R98	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R99	RES-24 OHM 5% 1/4W CC	1066-2405	ALLEN BRADLEY	CB2405
R100	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R101	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R102	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R103	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R104	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R105	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R106	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R107	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R108	RES-232 OHM 1% 100PPM	1074-0097	CAT. LIST	55-100
R109	RES-8.66K 1% 100PPM	1075-0184	CAT. LIST	55-100
R110	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R111	RES-43.2 OHM 1% 100PPM	1075-0069	CAT. LIST	55-100





- PI/P32002-15
PI/P35002-D
PI/JB2002-4
LOW = 10 MHz/DIV (PI-12/W)
- PI/P21002-K
PI/P35002-B
PI/P23001-14/R
PI/JB2002-2
LOW = 100 kHz/DIV (PI-14/R)
- PI/P21002-J
PI/P25001-5/15
PI/P35002-A
PI/JB2002-1
LOW = 10 kHz/DIV (PI-15/D)
- PI/P23001-16/T
PI/P39002-II
PI/P45001-1
PI/P24002-II
HIGH = SIG.GEN ON (PI-16/T)
- PI/P35003-C
PI/P3003-F
PI/P32002-4
PI/P31001-15/P
LOW = 1 MHz/DIV (PI-13/P)
- PI/JB2002-3
PI/P35002-E
PI/P39002-H
PI/P32002-13
PI/P23001-5/C
LOW = 0-1000 MHz (PI-3/C)



6. FERRITE BEAD.

5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.

4. FACTORY SELECT. TYPICAL VALUE SHOWN.

3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.

2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.

1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

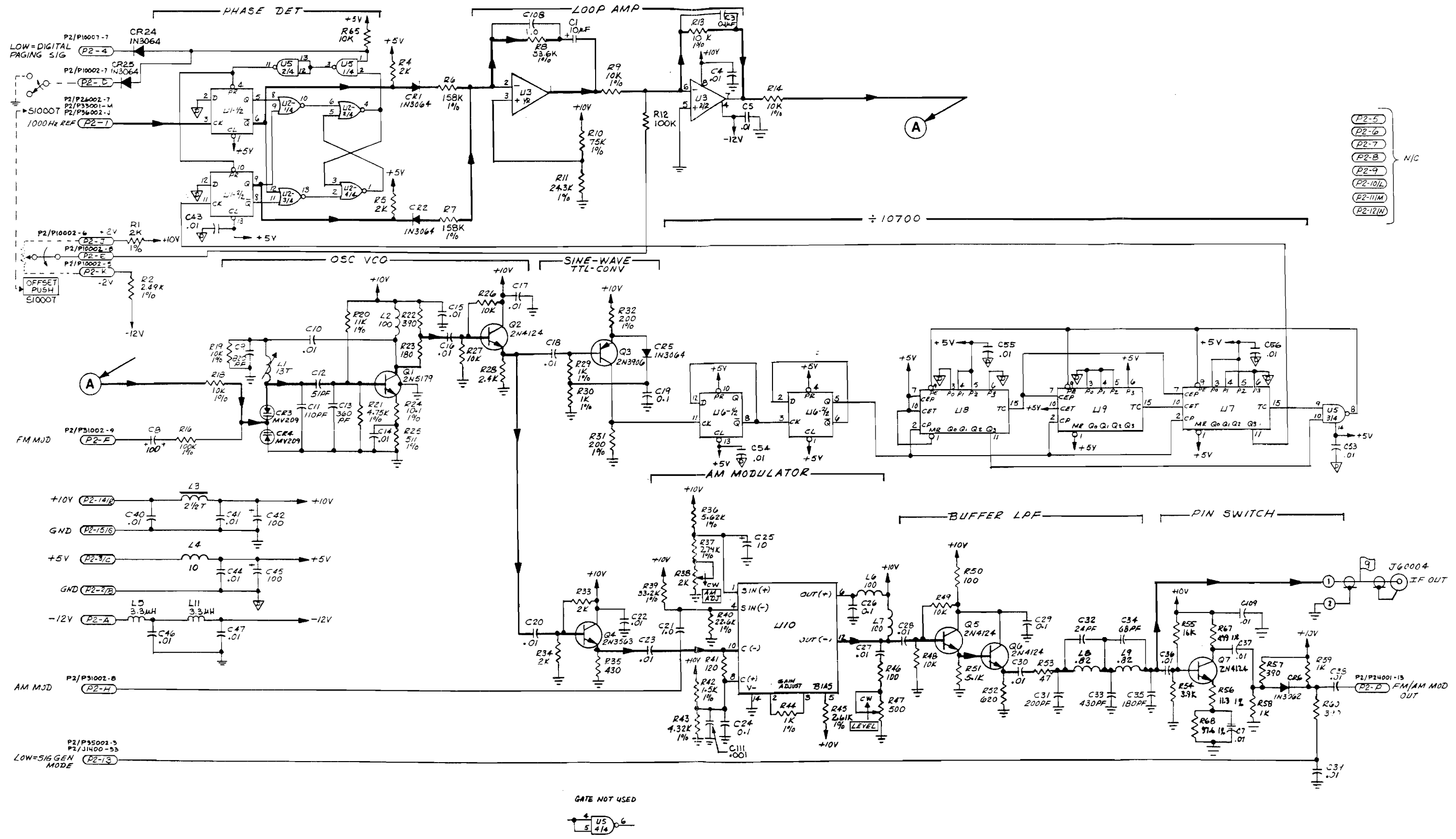
NOTE:

U NO	TYPE	VCC	GND
1, 6	SN74LS74	14	7
2	SN74LS02K	14	7
3, 4	OP-07D	-	-
5	74LS00N	14	7
7, 8, 9	74LS163	14	5
10	1496	-	-

REF DES NOT USED:
C57, 5B, 77, 101,
L11, 12, 13, 14, 15, 5

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
23000	PCB ASSY-FM/AM MOD/BPF PRINTED CIRCUIT BOARD	7001-0870 1780-1240	CUSHMAN CUSHMAN	CE-6000
	CAPACITORS			
C1	CAP-10UF 10% 20V AXL	1011-0007		
C2	NOT USED			
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C6	NOT USED			
C7	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C8	CAP-100UF +100-30% 16V	1013-0029	MATSUSHITA	ECEA16N100
C9	CAP-820PF 5% 300V MICA	1002-0039	ELMENCO	DM15-F-821J
C10	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C11	CAP-110PF 5% 500V MICA	1002-0026	ELMENCO	DM15-F-111J
C12	CAP-51PF 1% 500V MICA	1002-0056		
C13	CAP-360PF 5% 500V MICA	1002-0040	ELMENCO	DM15-F-361J
C14	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C15	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C16	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C17	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C18	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C19	CAP-.01UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-1UF 10% RDL MET-POL	1008-0100	PLESSEY	60H105K100
C22	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C23	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C24	CAP-.01UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C25	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C26	CAP-.01UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C28	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C29	CAP-.01UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C30	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C31	CAP-200PF 5% 500V MICA	1002-0042	ELMENCO	DM15-F-201J
C32	CAP-24PF 5% 500V MICA	1002-0051	ELMENCO	DM15-C-240J
C33	CAP-430PF 5% 500V MICA	1002-0034	ELMENCO	DM15-F-431J
C34	CAP-68PF 5% 500V MICA	1002-0013	ELMENCO	DM15-E-680J
C35	CAP-180PF 5% 500V MICA	1002-0005	ELMENCO	DM15-F-181J
C36	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C37	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C38	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C39	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C40	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C41	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C42	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C43	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C44	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C45	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C46	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C47	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C48	NOT USED			
C49	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C50	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP.	10PC25
C51	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C52	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP.	10PC25
C53	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C54	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C55	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C56	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C57	NOT USED			
C58	NOT USED			
C59	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C60	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C61	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C62	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C63	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C64	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C65	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C66	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C67	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C68	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C69	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C70	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C71	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C72	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C73	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C74	CAP-27PF 5% 500V MICA	1002-0008	ELMENCO	DM15-E-270J
C75	CAP-10PF 5% 500V MICA	1002-0016	ELMENCO	DM15-C-100J
C76	CAP-36PF 5% 500V MICA	1002-0041	ELMENCO	DM15-E-360J
C77	NOT USED			
C78	CAP-47PF 5% 500V MICA	1002-0012	ELMENCO	DM15-E-470J
C79	CAP-24PF 5% 500V MICA	1002-0051	ELMENCO	DM15-C-240J
C80	CAP-47PF 5% 500V MICA	1002-0012	ELMENCO	DM15-E-470J
C81	CAP-10PF 5% 500V MICA	1002-0016	ELMENCO	DM15-C-100J
C82	CAP-39PF 5% 500V MICA	1002-0018	ELMENCO	DM15-E-390J
C83	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C84	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C85	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C86	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C87	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C88	CAP-91PF 5% 500V MICA	1002-0027	ELMENCO	DM15-F-910J
C89	CAP-91PF 5% 500V MICA	1002-0027	ELMENCO	DM15-F-910J
C90	CAP-15PF 5% 500V MICA	1002-0001	ELMENCO	DM15-C-150J
C91	CAP-91PF 1% 500V MICA	1002-0048	ELMENCO	DM15-F-910F
C92	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C93	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C94	CAP-27PF 5% 500V MICA	1002-0008	ELMENCO	DM15-E-270J
C95	CAP-51PF 5% 500V MICA	1002-0045	ELMENCO	DM15-E-510J
C96	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C97	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z



- P2-5
 - P2-6
 - P2-7
 - P2-B
 - P2-9
 - P2-10L
 - P2-11M
 - P2-12IN
- N/C

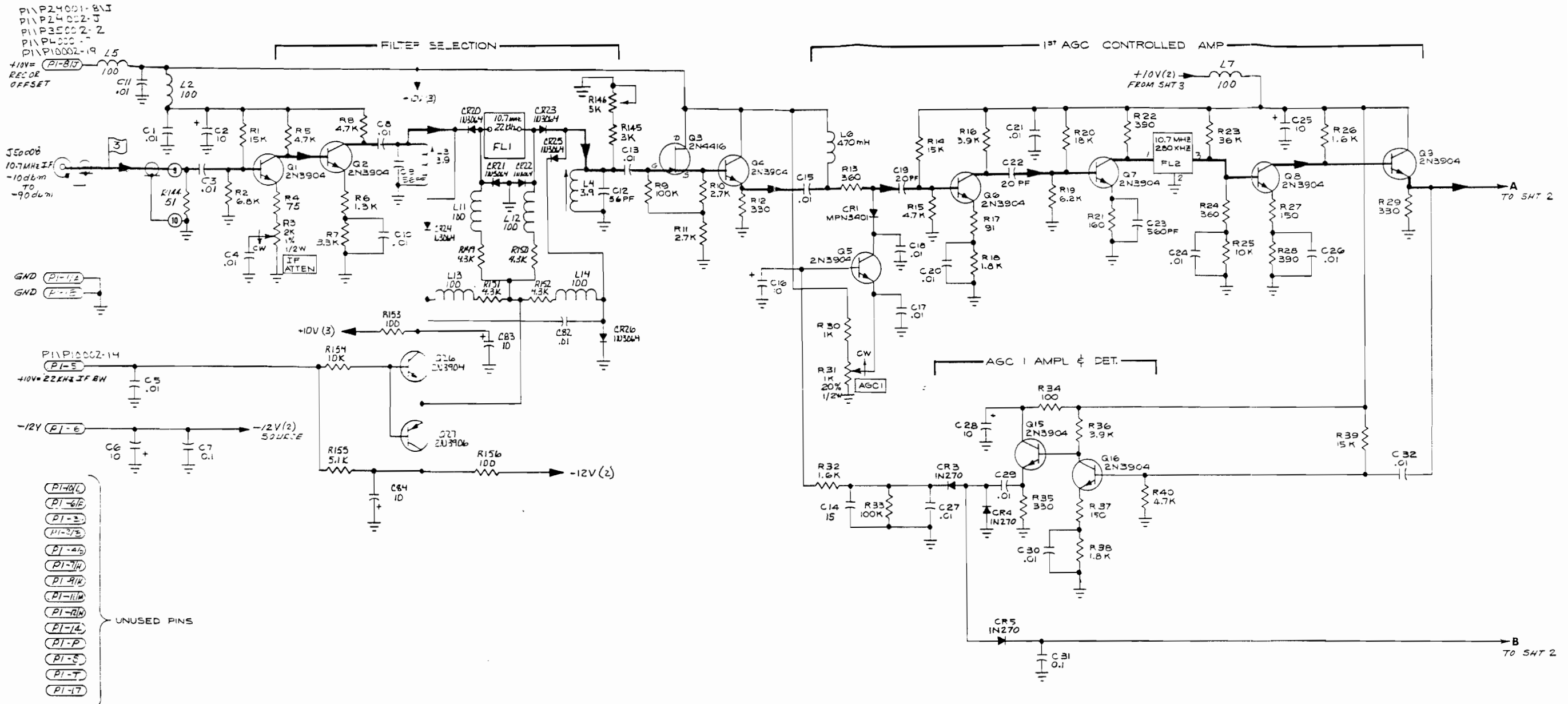
L11	CH-3.3UH 10% RF MLD AXL	1585-0080		
L12	NOT USED			
L13	NOT USED			
L14	NOT USED			
L15	NOT USED			
L16	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L17	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L18	COIL 3.9 MHZ	1596-0104		
L19	COIL 3.9 MHZ	1596-0104		
L20	COIL 3.9 MHZ	1596-0104		
L21	COIL 3.9 MHZ	1596-0104		
L22	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L23	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L24	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L25	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L26	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L27	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L28	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L29	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L30	COIL ASSY-VARIABLE	7050-0128	CUSHMAN	IN HOUSE
L31	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L32	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L33	COIL ASSY-VARIABLE	7050-0128	CUSHMAN	IN HOUSE
L34	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L35	COIL ASSY-VARIABLE	7050-0128	CUSHMAN	IN HOUSE
L36	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L37	COIL ASSY-VARIABLE	7050-0128	CUSHMAN	IN HOUSE
L38	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L39	COIL ASSY-VARIABLE	7050-0128	CUSHMAN	IN HOUSE
L40	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L41	CH-.047X.138X.118 F B	1586-0004	FERROXCUBE	56-590-65/4B
L42	CH-.047X.138X.118 F B	1586-0004	FERROXCUBE	56-590-65/4B

TRANSISTORS

Q1	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q2	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q4	XSTR-2N3563 NPN SI R110	1272-0022	FAIRCHILD	2N3563
Q5	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q6	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q7	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124

RESISTORS

R1	RES-2K 1% 100PPM FILM	1075-0103	CAT. LIST	55-100
R2	RES-2.49K 1% 100PPM FLM	1075-0027	CAT. LIST	55-100
R3	NOT USED			
R4	RES-2K 5% 1/4 W CC	1066-2025	ALLEN BRADLEY	CB2025
R5	RES-2K 5% 1/4 W CC	1066-2025	ALLEN BRADLEY	CB2025
R6	RES-158K 1% 100PPM FILM	1075-0061	CAT. LIST	55-100
R7	RES-158K 1% 100PPM FILM	1075-0061	CAT. LIST	55-100
R8	RES-53.6K 1% 150PPM FLM	1074-1023	CAT. LIST	55-100
R9	RES-10K 1% 100PPM FILM	1075-0009	CAT. LIST	55-100
R10	RES-75K 1% 100PPM FILM	1075-0135	CAT. LIST	55-100
R11	RES-24.3K 1% 100PPM FLM	1075-0097	CAT. LIST	55-100
R12	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R13	RES-10K 1% 100PPM FILM	1075-0009	CAT. LIST	55-100
R14	RES-10K 1% 100PPM FILM	1075-0009	CAT. LIST	55-100
R15	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R16	RES-100K 1% 100PPM FILM	1075-0105	CAT. LIST	55-100
R17	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R18	RES-10K 1% 100PPM FILM	1075-0009	CAT. LIST	55-100
R19	RES-10K 1% 100PPM FILM	1075-0009	CAT. LIST	55-100
R20	RES-11K 1% 100PPM FILM	1074-0106	CAT. LIST	55-100
R21	RES-4.75K 1% 100PPM FLM	1075-0038	CAT. LIST	55-100
R22	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
R23	RES-180 OHM 5% 1/4W CC	1066-1815	ALLEN BRADLEY	CB1815
R24	RES-10.1 OHM .1% 50PPM	1074-1043	CAT. LIST	55-025
R25	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R26	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R27	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R28	RES-2.4K 5% 1/4W CC	1066-2425	ALLEN BRADLEY	CB2425
R29	RES-1K 1% 100PPM FILM	1075-0037	CAT. LIST	55-100
R30	RES-1K 1% 100PPM FILM	1075-0037	CAT. LIST	55-100
R31	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R32	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R33	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R34	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R35	RES-430 OHM 5% 1/4W CC	1066-4315	ALLEN BRADLEY	CB4315
R36	RES-5.62K 1% 100PPM FLM	1075-0013	CAT. LIST	55-100
R37	RES-2.74K 1% 100PPM FLM	1075-0071	CAT. LIST	55-100
R38	POT-2K 20% 1/2W 1T	1203-0072	BECKMAN	91A-R2K
R39	RES-33.2K 1% 100PPM FLM	1075-0098	CAT. LIST	55-100



P11P24001-8V1
 P11P24002-3
 P11P35002-2
 P11P4000-1
 P11P10002-19

GND (PI-1,2)
 GND (PI-5)

- UNUSED PINS
- (PI-12)
 - (PI-6/R)
 - (PI-3)
 - (PI-3/2)
 - (PI-4/2)
 - (PI-7/H)
 - (PI-8/K)
 - (PI-11/W)
 - (PI-11/W)
 - (PI-14)
 - (PI-P)
 - (PI-S)
 - (PI-T)
 - (PI-17)

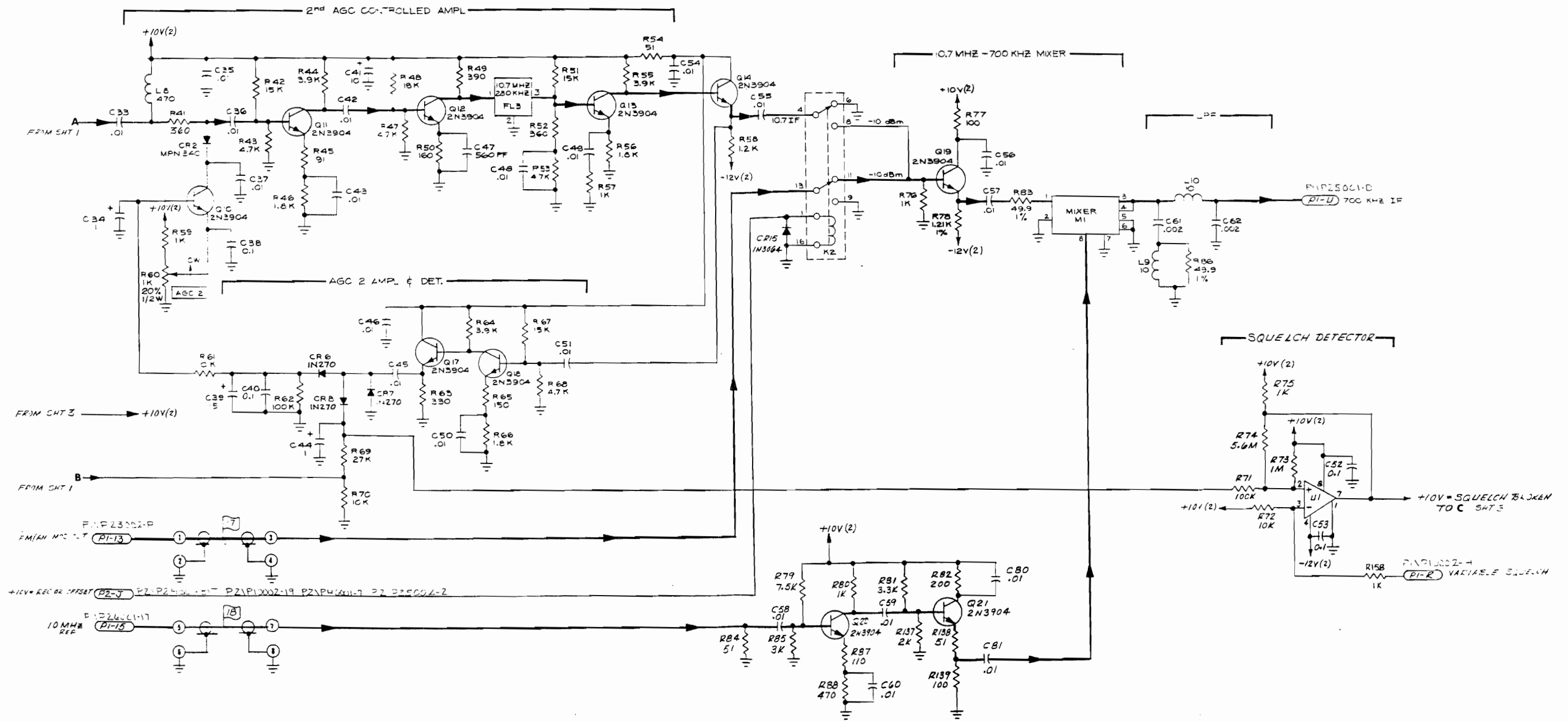
U NO	TYPE	VCC	GND
1	LM311	8	
2	78L05A	1	3
3	74LS02N	14	7
4,5	CD4051B	16	8
6	CD4066B	14	7
7,8,9	TLO82	8	

P11P4000-1, CR1, CR2, CR3, CR4, CR5, CR6, CR7, CR8, CR9, CR10, CR11, CR12, CR13, CR14, CR15, CR16, CR17, CR18, CR19, CR20, CR21, CR22, CR23, CR24, CR25, CR26, CR27, CR28, CR29, CR30, CR31, CR32, CR33, CR34, CR35, CR36, CR37, CR38, CR39, CR40, CR41, CR42, CR43, CR44, CR45, CR46, CR47, CR48, CR49, CR50, CR51, CR52, CR53, CR54, CR55, CR56, CR57, CR58, CR59, CR60, CR61, CR62, CR63, CR64, CR65, CR66, CR67, CR68, CR69, CR70, CR71, CR72, CR73, CR74, CR75, CR76, CR77, CR78, CR79, CR80, CR81, CR82, CR83, CR84, CR85, CR86, CR87, CR88, CR89, CR90, CR91, CR92, CR93, CR94, CR95, CR96, CR97, CR98, CR99, CR100

- NOTE:
5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. *INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
24000	PCB ASSY-10.7MHz IF/ALC/SQ PRINTED CIRCUIT BOARD	7001-0745 1780-1246	CUSHMAN CUSHMAN	
	MIXERS			
BM1	MXR-SBL-1 DBL BAL 1-500	2010-0009		
	CAPACITORS			
C1	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C2	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C3	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C4	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C6	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C9	CAP-56PF 5% 50V N750	1005-0142		
C10	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C11	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C12	CAP-56PF 5% 50V N750	1005-0142		
C13	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C14	CAP-15UF +100-10% 25V	1013-0042	ALLINS IND	CSR-NP15-25-1
C15	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C16	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C17	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C18	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C19	CAP-20PF 5% 500V DIP	1002-0060	ELMENCO	DM15-E-200J
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C22	CAP-20PF 5% 500V DIP	1002-0060	ELMENCO	DM15-E-200J
C23	CAP-56OPF 5% 300V DIP	1002-0037	SANGAMO	D155F561
C24	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C25	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C26	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C27	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C28	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C29	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C30	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C31	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C32	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C33	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C34	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HVO10S
C35	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C36	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C37	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C38	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C39	CAP-15UF +100-10% 25V	1013-0042	ALLINS IND	CSR-NP15-25-1
C40	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M

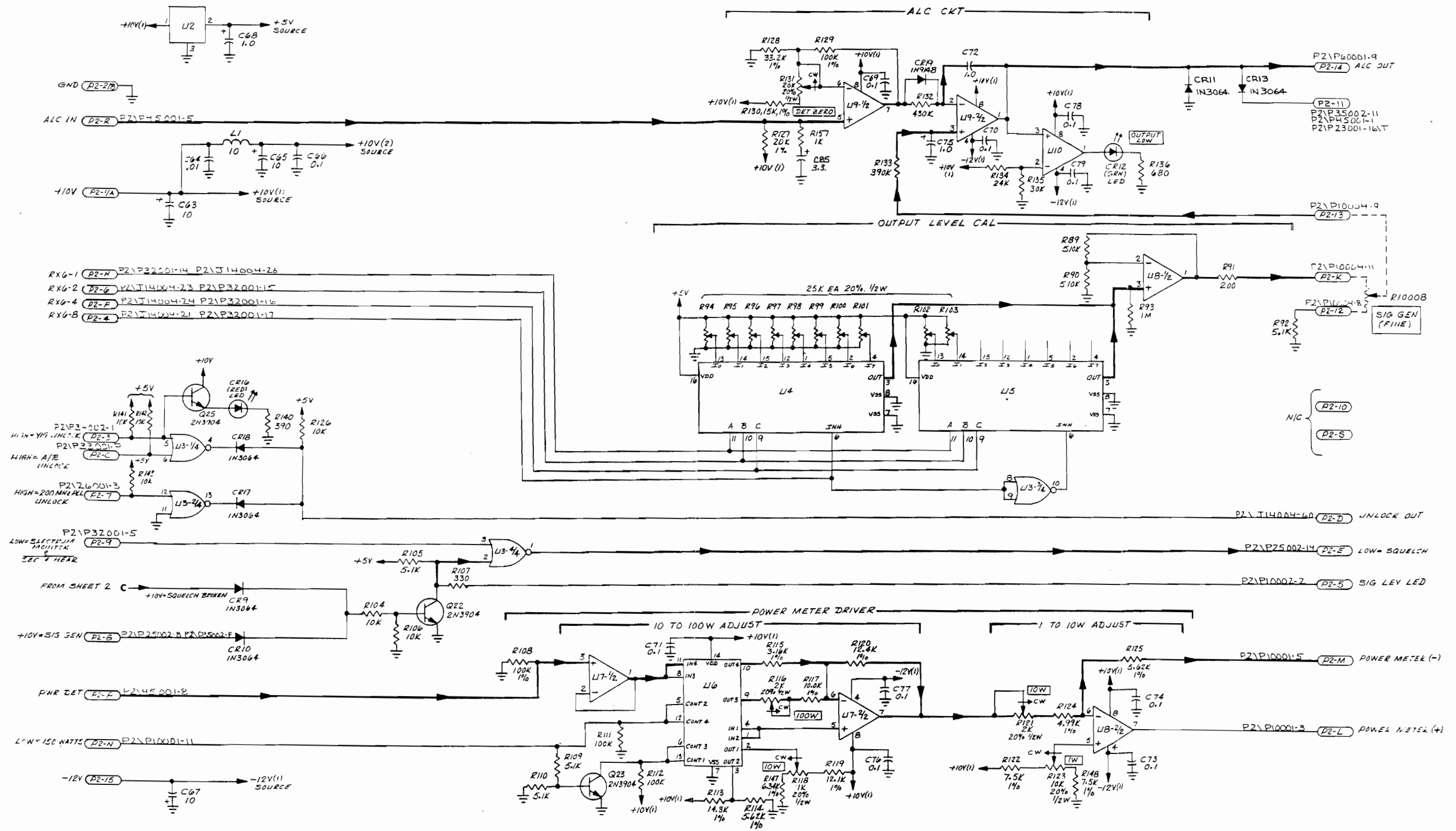
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C41	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C42	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C43	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C44	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HVO10S
C45	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C46	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C47	CAP-56OPF 5% 300V DIP	1002-0037	SANGAMO	D155F561
C48	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C49	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C50	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C51	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C52	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C53	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C54	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C55	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C56	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C57	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C58	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C59	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C60	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C61	CAP-.002UF 20% 500V Z5U	1005-0003	TUSONIX	831-596-Z5U-202M
C62	CAP-.002UF 20% 500V Z5U	1005-0003	TUSONIX	831-596-Z5U-202M
C63	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C64	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C65	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C66	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C67	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C68	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HVO10S
C69	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C70	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C71	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C72	CAP-1UF 10% 100V RDL	1008-0113	SPRAGUE	451P105X9100J
C73	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C74	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C75	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HVO10S
C76	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C77	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C78	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C79	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C80	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C81	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C82	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C83	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C84	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C85	CAP-3.3UF 10% 15V AXL	1011-0008		
	DIODES			
CR1	DIO-MPN3401 SI PIN SW	1281-0050	MOTOROLA	MPN3401
CR2	DIO-MPN3401 SI PIN SW	1281-0050	MOTOROLA	MPN3401



24000 10.7 MHz IF/ALC/SQUELCH (7001-0745)
2 OF 3

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
L11	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L12	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L13	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L14	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
TRANSISTORS				
Q1	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q2	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q3	XSTR-2N4416 SI T072	1272-0048	INTERSIL	2N4416
Q4	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q5	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q6	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q7	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q8	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q9	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q10	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q11	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q12	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q13	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q14	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q15	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q16	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q17	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q18	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q19	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q20	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q21	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q22	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q23	XSTR-2N3904 NPN SI T092	1272-0032-	MOTOROLA	2N3904
Q24	NOT USED			
Q25	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q26	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q27	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
RESISTORS				
R1	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R2	RES-6.8K 5% 1/4W CC	1066-6825	ALLEN BRADLEY	CB6825
R3	POT-2K 19% 1/2W 1T	1215-0057	ALLEN BRADLEY	A2A202
R4	RES-75 OHM 5% 1/4W CC	1066-7505	ALLEN BRADLEY	CB7505
R5	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R6	RES-1.3K 5% 1/4W CC	1066-1325	ALLEN BRADLEY	CB1325
R7	RES-3.3K 5% 1/4W CC	1066-3325	ALLEN BRADLEY	CB3325
R8	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R9	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R10	RES-2.7K 5% 1/4W CC	1066-2725	ALLEN BRADLEY	CB2725
R11	RES-2.7K 5% 1/4W CC	1066-2725	ALLEN BRADLEY	CB2725
R12	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R13	RES-360 OHM 5% 1/4W CC	1066-3615	ALLEN BRADLEY	CB3615
R14	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R15	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R16	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R17	RES-91 OHM 5% 1/4W CC	1066-9105	ALLEN BRADLEY	CB9105
R18	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R19	RES-6.2K 5% 1/4W CC	1066-6225	ALLEN BRADLEY	CB6225
R20	RES-18K 5% 1/4W CC	1066-1835	ALLEN BRADLEY	CB1835
R21	RES-160 OHM 5% 1/4W CC	1066-1615	ALLEN BRADLEY	CB1615
R22	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
R23	RES-36K 5% 1/4W CC	1066-3635	ALLEN BRADLEY	CB3635
R24	RES-360 OHM 5% 1/4W CC	1066-3615	ALLEN BRADLEY	CB3615
R25	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R26	RES-1.6K 5% 1/4W CC	1066-1625	ALLEN BRADLEY	CB1625
R27	RES-150 OHM 5% 1/4W CC	1066-1515	ALLEN BRADLEY	CB1515
R28	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
R29	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315
R30	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R31	POT-1K 20% 1/2W 1T	1215-0058	BECKMAN	91A-R1K
R32	RES-1.6K 5% 1/4W CC	1066-1625	ALLEN BRADLEY	CB1625
R33	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R34	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R35	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315
R36	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R37	RES-150 OHM 5% 1/4W CC	1066-1515	ALLEN BRADLEY	CB1515
R38	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R39	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R40	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R41	RES-300 OHM 5% 1/4W CC	1066-3015	ALLEN BRADLEY	CB3015
R42	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R43	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R44	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R45	RES-91 OHM 5% 1/4W CC	1066-9105	ALLEN BRADLEY	CB9105
R46	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R47	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R48	RES-18K 5% 1/4W CC	1066-1835	ALLEN BRADLEY	CB1835
R49	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
R50	RES-160 OHM 5% 1/4W CC	1066-1615	ALLEN BRADLEY	CB1615
R51	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R52	RES-360 OHM 5% 1/4W CC	1066-3615	ALLEN BRADLEY	CB3615
R53	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R54	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R55	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R56	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R57	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R58	RES-1.2K 5% 1/4W CC	1066-1225	ALLEN BRADLEY	CB1225
R59	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R60	POT-1K 20% 1/2W 1T	1215-0058	BECKMAN	91A-R1K
R61	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R62	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R63	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315



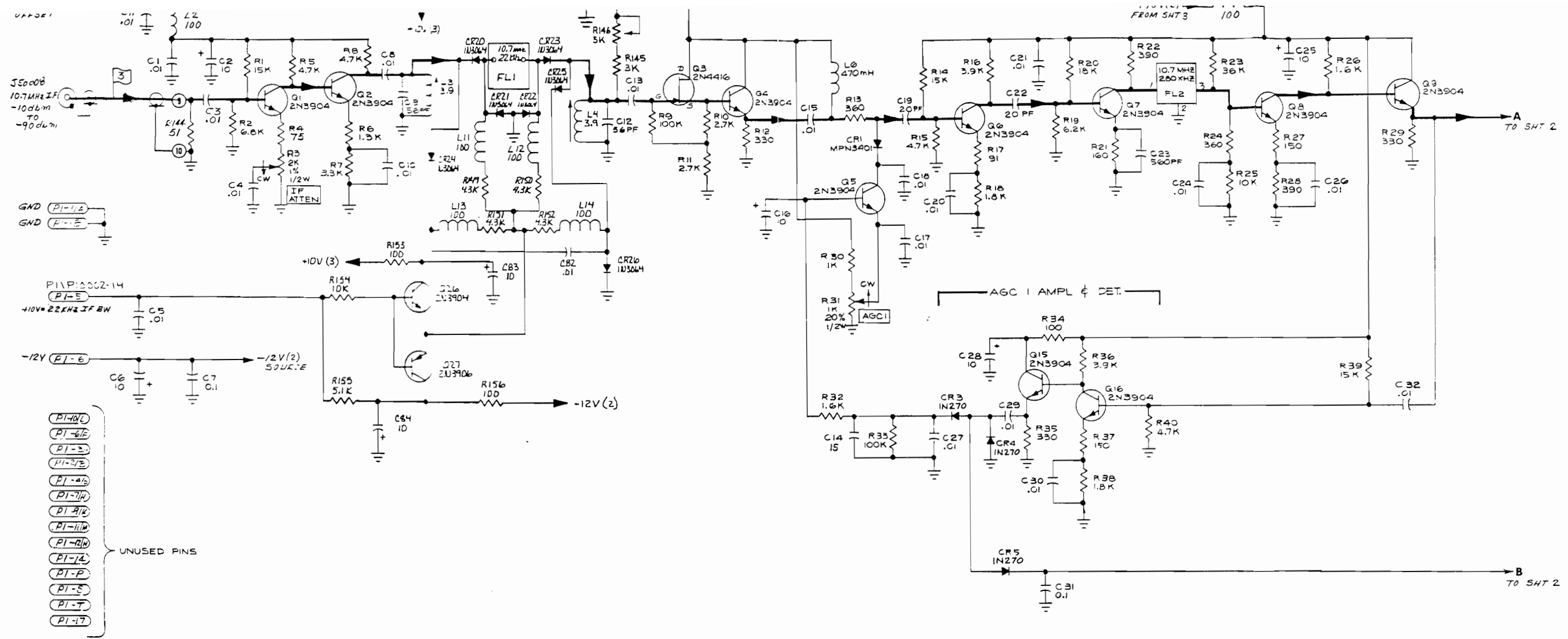
24000 10.7 MHz IF/ALC/SQUELCH (7001-0745)
3 OF 3

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R64	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R65	RES-1500HM 5% 1/4W CC	1066-1515	ALLEN BRADLEY	CB1515
R66	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R67	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R68	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R69	RES-27K 5% 1/4W CC	1066-2735	ALLEN BRADLEY	CB2735
R70	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R71	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R72	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R73	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R74	RES-5.6MEG 5% 1/4W CC	1066-5655	ALLEN BRADLEY	CB5655
R75	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R76	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R77	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R78	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R79	RES-7.5K 5% 1/4W CC	1066-7525	ALLEN BRADLEY	CB7525
R80	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R81	RES-3.3K 5% 1/4W CC	1066-3325	ALLEN BRADLEY	CB3325
R82	RES-200 OHM 5% 1/4W CC	1066-2015	ALLEN BRADLEY	CB2015
R83	RES-49.9 OHM 1% 150PPM	1074-1038	CAT. LIST	55-100
R84	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R85	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R86	RES-49.9 OHM 1% 150PPM	1074-1038	CAT. LIST	55-100
R87	RES-110 OHM 5% 1/4W CC	1066-1115	ALLEN BRADLEY	CB1115
R88	RES-470 OHM 5% 1/4W CC	1066-4715	ALLEN BRADLEY	CB4715
R89	RES-510K 5% 1/4W CC	1066-5145	ALLEN BRADLEY	CB5145
R90	RES-510K 5% 1/4W CC	1066-5145	ALLEN BRADLEY	CB5145
R91	RES-200 OHM 5% 1/4W CC	1066-2015	ALLEN BRADLEY	CB2015
R92	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R93	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R94	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R95	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R96	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R97	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R98	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R99	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R100	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R101	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R102	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R103	POT-25K 20% 1/2W 1T	1215-0045	BECKMAN	91AR25K
R104	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R105	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R106	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R107	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315
R108	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R109	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R110	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R111	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R112	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R113	RES-14.3K 1% 100PPM	1074-0113	CAT. LIST	55-100
R114	RES-5.62K 1% 100PPM	1075-0013	CAT. LIST	55-100

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R115	RES-3.16K 1% 100PPM	1074-1016	CAT. LIST	55-100
R116	POT-2K 20% 1/2W 1T	1203-0072	BECKMAN	91A-R2K
R117	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R118	POT-1K 20% 1/2W 1T	1215-0058	BECKMAN	91A-R1K
R119	RES-12.1K 1% 100PPM	1075-0011	CAT. LIST	55-100
R120	RES-12.4K 1% 100PPM	1075-0223	CAT. LIST	55-100
R121	POT-2K 20% 1/2W 1T	1203-0072	BECKMAN	91A-R2K
R122	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R123	POT-10K 20% 1/2W 1T	1215-0043	BECKMAN	91A-R10K
R124	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R125	RES-5.62K 1% 100PPM	1075-0013	CAT. LIST	55-100
R126	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R127	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R128	RES-33.2K 1% 100PPM	1075-0098	CAT. LIST	55-100
R129	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R130	RES-15K 1% 100PPM	1075-0081	CAT. LIST	55-100
R131	POT-20K 10% 1/2W 25T	1215-0048	BOURNS	3299X-1-203
R132	RES-430K 5% 1/4W CC	1066-4345	ALLEN BRADLEY	CB4345
R133	RES-390K 5% 1/4W CC	1066-3945	ALLEN BRADLEY	CB3945
R134	RES-24K 5% 1/4W CC	1066-2435	ALLEN BRADLEY	CB2435
R135	RES-30K 5% 1/4W CC	1066-3035	ALLEN BRADLEY	CB3035
R136	RES-680 OHM 5% 1/4W CC	1066-6815	ALLEN BRADLEY	CB6815
R137	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R138	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R139	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R140	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
R141	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R142	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R143	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R144	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R145	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R146	POT-5K 20% 1/2W 1T	1203-0071	BECKMAN	91A-R5K
R147	RES-6.34K 1% 150PPM	1074-1007	CAT. LIST	55-100
R148	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R149	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R150	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R151	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R152	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R153	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R154	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R155	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R156	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R157	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R158	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
INTEGRATED CIRCUITS				
U1	IC-311 VOLTAGE COMP	2025-0181	NATIONAL	LM311N
U2	IC-78L05A T092 5V 5%	2025-0230		
U3	IC-SN74LS02N QUAD	2025-0108	TEXAS INSTS.	SN74LS02N

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R40	RES-22.6K 1% 100PPM FLM	1074-1056	CAT. LIST	55-100
R41	RES-120 OHM 5% 1/4W CC	1066-1215	ALLEN BRADLEY	CB1215
R42	RES-1.5K 1% 100PPM FILM	1075-0039	CAT. LIST	55-100
R43	RES-4.32K 1% 100PPM FLM	1075-0111	CAT. LIST	55-100
R44	RES-1K 1% 100PPM FILM	1075-0037	CAT. LIST	55-100
R45	RES-2.61K 1% 100PPM FLM	1075-0090	CAT. LIST	55-100
R46	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R47	POT-500 OHM 10% 1/2W 1T	1215-0051	ALLEN BRADLEY	A2A501
R48	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R49	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R50	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R51	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R52	RES-620 OHM 5% 1/4W CC	1066-6215	ALLEN BRADLEY	CB6215
R53	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R54	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R55	RES-16K 5% 1/4W CC	1066-1635	ALLEN BRADLEY	CB1635
R56	RES-11.3 OHM 1% 100PPM	1075-0150	CAT. LIST	55-100
R57	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
R58	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R59	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R60	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
P61	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R62	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R63	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R64	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R65	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R66	NOT USED			
R67	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R68	RES-97.6 OHM 1% 100PPM	1074-0101	CAT. LIST	55-100
R69	RES-43 OHM 5% 1/4W CC	1066-4305	ALLEN BRADLEY	CB4305
R70	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R71	POT-2K 10% 3/4W 15T	1215-0015	BECKMAN	89WR2K
R72	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R73	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R74	POT-2K 10% 3/4W 15T	1215-0015	BECKMAN	89WR2K
R75	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R76	RES-430 OHM 5% 1/4W CC	1066-4315	ALLEN BRADLEY	CB4315
R77	POT-1K 10% 3/4W 15T	1215-0013	HELITRIM	89WR1K
R78	POT-1K 10% 3/4W 15T	1215-0013	HELITRIM	89WR1K
R79	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R80	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R81	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R82	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R83	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R84	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R85	POT-1K 10% 3/4W 15T	1215-0013	HELITRIM	89WR1K
R86	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R87	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R88	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R89	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R90	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R91	RES-43 OHM 5% 1/4W CC	1066-4305	ALLEN BRADLEY	CB4305
R92	RES-270 OHM 5% 1/4W CC	1066-2715	ALLEN BRADLEY	CB2715
R93	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R94	RES-27K 5% 1/4W CC	1066-2735	ALLEN BRADLEY	CB2735
R95	RES-820 OHM 5% 1/4W CC	1066-8215	ALLEN BRADLEY	CB8215
R96	RES-6.8K 5% 1/4W CC	1066-6825	ALLEN BRADLEY	CB6825
R97	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R98	RES-5.6K 5% 1/4W CC	1066-5625	ALLEN BRADLEY	CB5625
R99	RES 2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R100	RES-680 OHM 5% 1/4W CC	1066-6815	ALLEN BRADLEY	CB2025
R101	NOT USED			
R102	NOT USED			
R103	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R104	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
INTEGRATED CIRCUITS				
U1	IC-74LS74 DUAL D POS	2025-0124	TI	SN74LS74N
U2	IC-SN74LS02N QUAD	2025-0108	TI	SN74LS02N
U3	IC-412 8 PIN DIP DUAL	2025-0325		
U4	NOT USED			
U5	IC-SN74LS00N TTL NAND	2025-0114	TI	SN74LS00N
U6	IC-74LS74 DUAL D POS	2025-0124	TI	SN74LS74N
U7	IC-74LS163 16 PIN DIP	2025-0223	TI	SN74LS163N
U8	IC-74LS163 16 PIN DIP	2025-0223	TI	SN74LS163N
U9	IC-74LS163 16 PIN DIP	2025-0223	TI	SN74LS163N
U10	IC-1496 14 PIN DIP	2025-0197	MOTOROLA	MC1496P
FILTERS				
Y1	FLTR-XTAL 10.7MHZ 3DB	1040-0040	PIEZO	C/E DWG
Y2	FLTR-XTAL 10.7MHZ 3DB	1040-0039	CTS KNIGHTS	C/E DWG
Y3	FLTR-XTAL 10.7MHZ 3DB	1040-0038	CTS KNIGHTS	C/E DWG
Y4	FLTR-XTAL 10.7MHZ 3DB	1040-0038	CTS KNIGHTS	C/E DWG

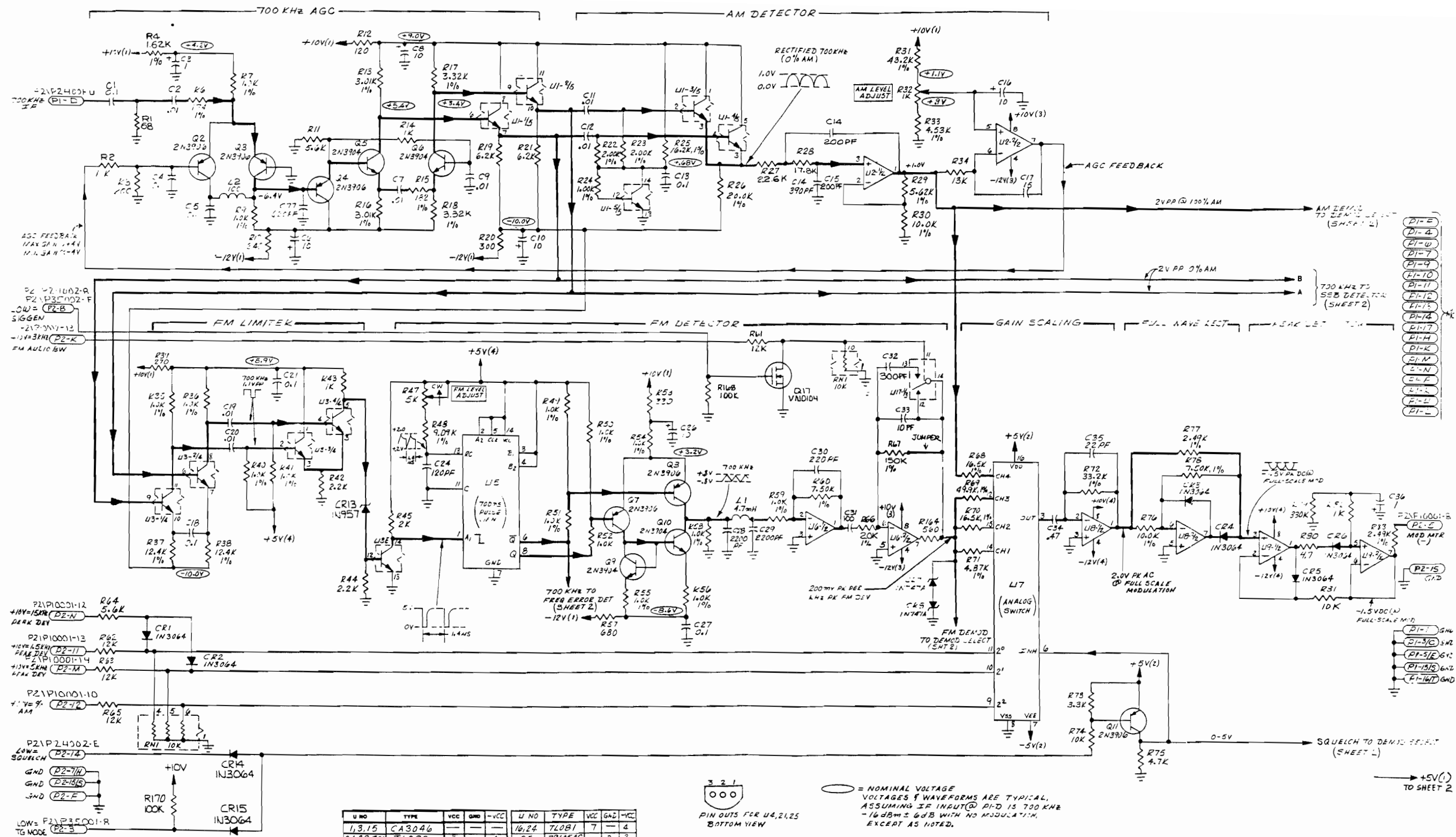


U NO	TYPE	VCC	GND
1	LM 311	3	
2	78 L05A	1	3
3	74LS02N	14	7
4, 5	CD4051B	14	8
6	CD4066B	14	7
7, 8, 9	TLO82	3	

REF DES NOT ICALS
K1, 11, 13 & 12, 4, CR14

- NOTE:
- ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 - FACTORY SELECT, TYPICAL VALUE SHOWN.
 - INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 - CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 - RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
U4	IC-4051B 16PIN DIP 8CH	2025-0313		
U5	IC-4051B 16PIN DIP 8CH	2025-0313		
U6	IC-4066B 14PIN DIP QUAD	2025-0193	MOTOROLA	MC14066BCP
U7	IC-TL082 8PIN DIP BIFET	2025-0192	TEXAS INSTS	TL082CP
U8	IC-TL082 8PIN DIP BIFET	2025-0192	TEXAS INSTS	TL082CP
U9	IC-TL082 8PIN DIP BIFET	2025-0192	TEXAS INSTS	TL082CP
U10	IC-TL082 8PIN DIP BIFET	2025-0192	TEXAS INSTS	TL082CP

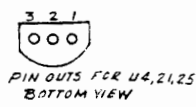


- P1-E
- P1-F
- P1-G
- P1-H
- P1-I
- P1-J
- P1-K
- P1-L
- P1-M
- P1-N
- P1-O
- P1-P
- P1-Q
- P1-R
- P1-S
- P1-T
- P1-U
- P1-V
- P1-W
- P1-X
- P1-Y
- P1-Z

U NO	TYPE	VCC	GND	-VCC
1, 3, 15	CA3046	—	—	—
2, 6, 8, 9, 12, 24	TLO82	8	—	4
4, 21	78L05AC	1	2	—
5, 22	74LS122	14	7	—
7	CD4051B	10	8	7
10	LM339	3	—	12
11	CD4017B	10	—	6
12	74C74	14	—	7
13	CD4011	14	—	7
14	CD4047B	14	—	7
17, 19	CD4053B	14	8	7
23	MC1496	—	—	14

REF DES NOT USED:
Q1
R166, 167

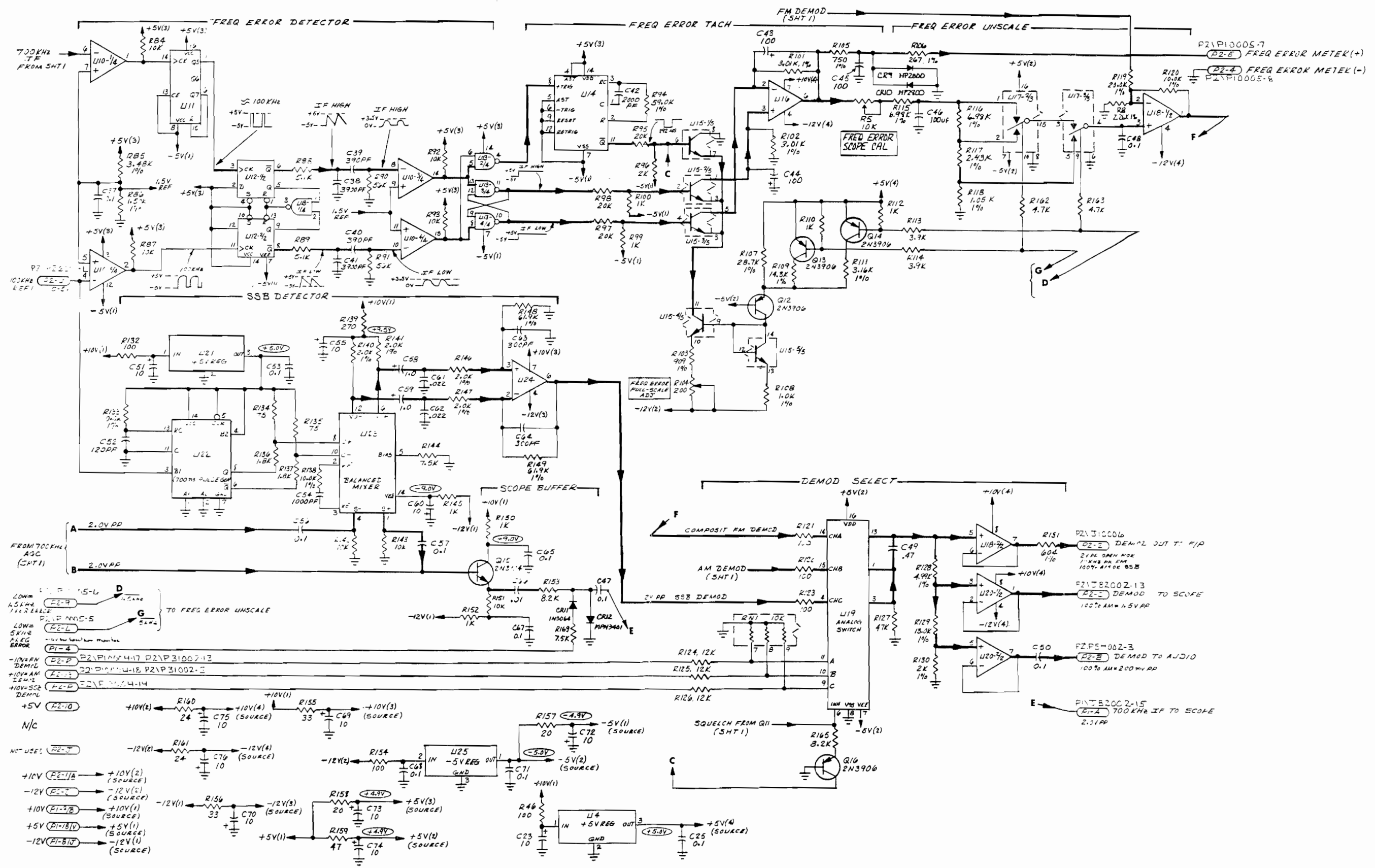
NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 6. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 7. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 8. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 9. RESISTORS - 1% 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.



○ = NOMINAL VOLTAGE
 VOLTAGES & WAVEFORMS ARE TYPICAL,
 ASSUMING IF INPUT @ P1-D IS 700 KHz
 -16 dBm \pm 6 dB WITH NO MODULATION,
 EXCEPT AS NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
25000	PCB ASSY-FM/AM DETECTOR PRINTED CIRCUIT BOARD	7001-0746 1780-1248	CUSHMAN CUSHMAN	
	CAPACITORS			
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C3	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C7	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C8	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C9	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C10	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C11	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C12	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C13	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C14	CAP-200PF 5% 500V DIP	1002-0042	ELMENCO	DM15-F-201J
C15	CAP-200PF 5% 500V DIP	1002-0042	ELMENCO	DM15-F-201J
C16	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C17	CAP-15UF +100-10% 25V	1013-0042	ALLINS IND	CSR-NP15-25-1
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	NOT USED			
C23	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C24	CAP-120PF 5% 500V DIP	1002-0010	ELMENCO	DM15-F-121J
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C27	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C28	CAP-220PF 10% 50V	1005-0144		
C29	CAP-220PF 10% 50V	1005-0144		
C30	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C31	CAP-100UF +100-30% 16V	1013-0029	MATSUSHITA	ECE-A16N100
C32	CAP-300PF 5% 500V DIP	1002-0059	ELMENCO	DM15-F-301J
C33	CAP-10PF 5% 500V DIP	1002-0016	ELMENCO	DC15-C-100J
C34	CAP-.47UF 10% 50V MLD C	1005-0092	AEROVOX	CKO6BX474K
C35	CAP-22PF 5% 500V THIN D	1004-0003	SANGAMO	CD6CD220J03
C36	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C37	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C38	CAP-3900PF 10% 50V	1005-0145		
C39	CAP-390PF 5% 100V NPO	1005-0140	CENTRE	200-100-NPO-391J
C40	CAP-390PF 5% 100V NPO	1005-0140	CENTRE	200-100-NPO-391J
C41	CAP-3900PF 10% 50V	1005-0145		
C42	CAP-2000PF 5% 100V NPO	1005-0129	CENTRE	200-100-NPO-202J
C43	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C44	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C45	CAP-100UF +100-30% 16V	1013-0029	MATSUSHITA	ECE-A16N100

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C46	CAP-100UF +100-30% 16V	1013-0029	MATSUSHITA	ECE-A16N100
C47	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C48	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C49	CAP-.47UF 10% 50V MLD C	1005-0092	AEROVOX	CKO6BX474K
C50	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C51	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C52	CAP-120PF 5% 500V DIP	1002-0010	ELMENCO	DM15-F-121J
C53	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C54	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C55	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C56	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C57	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C58	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C59	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C60	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C61	CAP-.022UF 10% 100V	1005-0079	AEROVOX	CKO6BX223K
C62	CAP-.022UF 10% 100V	1005-0079	AEROVOX	CKO6BX223K
C63	CAP-300PF 5% 500V DIP	1002-0059	ELMENCO	DM15-F-301J
C64	CAP-300PF 5% 500V DIP	1002-0059	ELMENCO	DM15-F-301J
C65	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C66	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C67	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C68	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C69	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C70	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C71	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C72	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C73	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C74	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C75	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C76	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C77	CAP-620PF 5% 300V DIP	1002-0038	ELMENCO	DM15-F-621J
	DIODES			
CR1	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR2	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR3	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR4	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR5	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR6	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR7	DIO 1N747A SI ZENER A1	1281-0076	FAIRCHILD	IN747A
CR8	DIO 1N747A SI ZENER A1	1281-0076	FAIRCHILD	1N747A
CR9	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR10	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR11	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR12	DIO-MPN3401 SI PIN SW	1281-0050	MOTOROLA	MPN3401
CR13	DIO-1N957 SI ZENER D07	1281-0007	MOTOROLA	1N957
CR14	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR15	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064



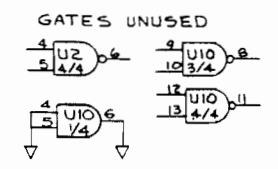
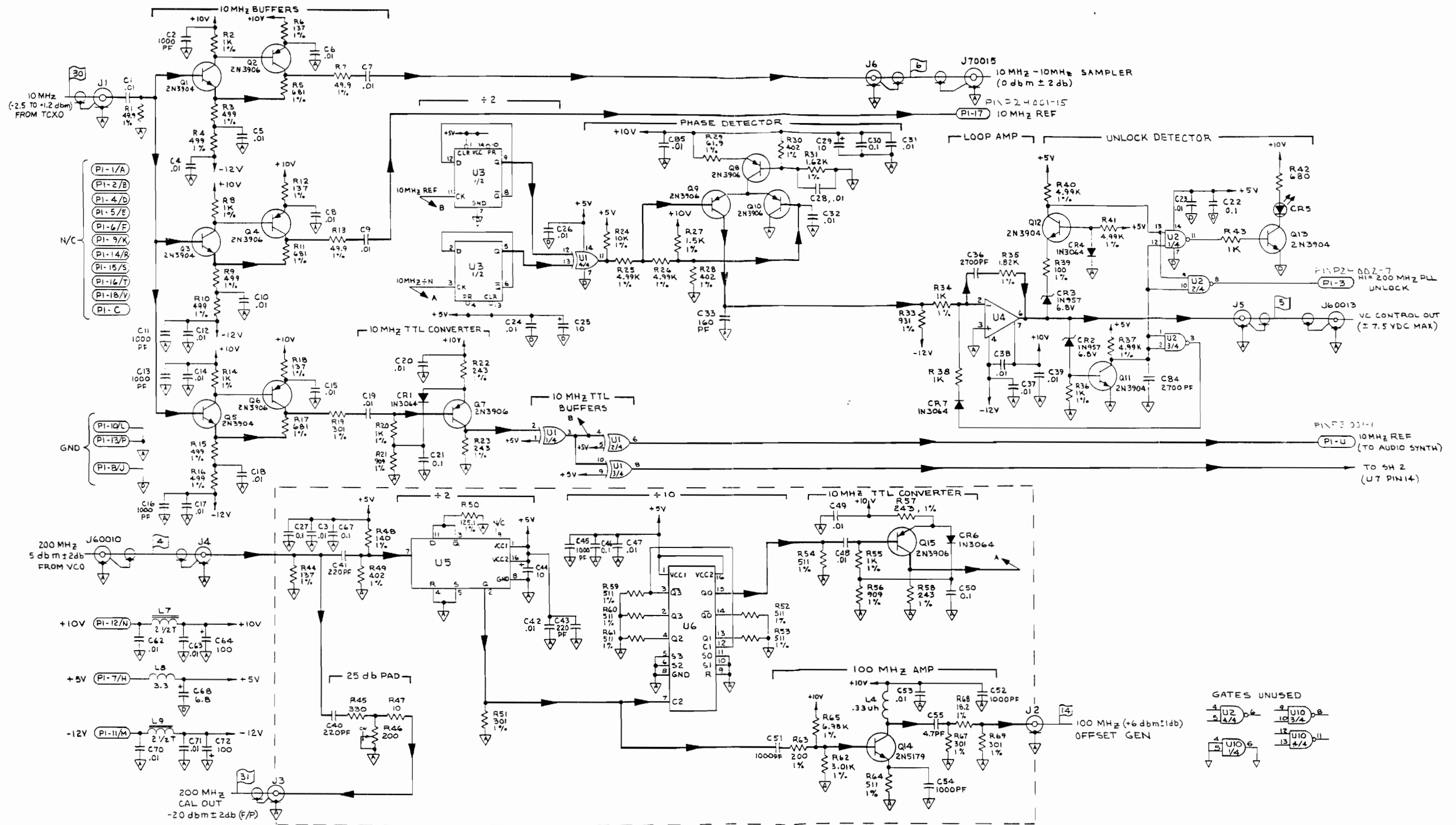
25000 FM/AM DETECTOR (7001-0746)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R23	RES-2K 1% 25PPM	1075-0079	CAT. LIST	55-025
R24	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R25	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R26	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R27	RES-22.6K 1% 100PPM	1074-1056	CAT. LIST	55-100
R28	RES-17.8K 1% 150PPM	1074-1021	CAT. LIST	55-100
R29	RES-5.62K 1% 100PPM	1075-0013	CAT. LIST	55-100
R30	RES-10K 1% 25PPM	1074-1029	CAT. LIST	55-025
R31	RES-43.2K 1% 100PPM	1075-0117	CAT. LIST	55-100
R32	POT-1K 20% 1/2W 1T	1215-0058	BECKMAN	91AR1K
R33	RES-4.53K 1% 100PPM	1075-0053	CAT. LIST	55-100
R34	RES-13K 5% 1/4W CC	1066-1335	ALLEN BRADLEY	CB1335
R35	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R36	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R37	RES-12.4K 1% 100PPM	1075-0235	CAT. LIST	55-100
R38	RES-12.4K 1% 100PPM	1075-0235	CAT. LIST	55-100
R39	RES-270 OHM 5% 1/4W CC	1066-2715	ALLEN BRADLEY	CB2715
R40	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R41	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R42	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R43	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R44	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R45	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R46	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R47	POT-5K 10% 3/4W 15T	1215-0012	HELITRIM	89WR5K
R48	RES-9.09K 1% 100PPM	1074-1019	CAT. LIST	55-100
R49	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R50	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R51	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R52	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R53	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315
R54	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R55	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R56	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R57	RES-680 OHM 5% 1/4W CC	1066-6815	ALLEN BRADLEY	CB6815
R58	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R59	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R60	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R61	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R62	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R63	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R64	RES-5.6K 5% 1/4W CC	1066-5625	ALLEN BRADLEY	CB5625
R65	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R66	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R67	RES-150K 1% 100PPM	1075-0152	CAT. LIST	55-100
R68	RES-16.5K 1% 100PPM	1075-0058	CAT. LIST	55-100
R69	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R70	RES-16.5K 1% 100PPM	1075-0058	CAT. LIST	55-100
R71	RES-4.87K 1% 100PPM	1075-0168	CAT. LIST	55-100
R72	RES-33.2K 1% 100PPM	1075-0098	CAT. LIST	55-100
R73	RES-3.3K 5% 1/4W CC	1066-3325	ALLEN BRADLEY	CB3325

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R74	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R75	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R76	RES-10K 1% 25PPM	1074-1029	CAT. LIST	55-025
R77	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R78	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R79	RES-330K 5% 1/4W CC	1066-3345	ALLEN BRADLEY	CB3345
R80	RES-4.7 OHM 5% 1/4W CC	1066-0001	ALLEN BRADLEY	CB47G5
R81	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R82	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R83	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R84	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R85	RES-3.48K 1% 100PPM	1075-0093	CAT. LIST	55-100
R86	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R87	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R88	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R89	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R90	RES-56K 5% 1/4W CC	1066-5635	ALLEN BRADLEY	CB5635
R91	RES-56K 5% 1/4W CC	1066-5635	ALLEN BRADLEY	CB5635
R92	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R93	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R94	RES-59K 1% 100PPM	1075-0236	CAT. LIST	55-100
R95	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R96	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R97	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R98	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R99	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R100	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R101	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R102	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R103	RES-909 OHM 1% 150PPM	1074-1036	CAT. LIST	55-100
R104	POT-200 OHM 20% 1/2W 1T	1215-0055	BECKMAN	91AR200
R105	RES-750 OHM 1% 100PPM	1075-0043	CAT. LIST	55-100
R106	RES-267 OHM 1% 100PPM	1075-0083	CAT. LIST	55-100
R107	RES-28.7K 1% 100PPM	1074-1057	CAT. LIST	55-100
R108	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R109	RES-14.3K 1% 100PPM	1074-0113	CAT. LIST	55-100
R110	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R111	RES-3.16K 1% 100PPM	1074-1016	CAT. LIST	55-100
R112	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R113	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R114	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R115	RES-6.98K 1% 150PPM	1074-1028	CAT. LIST	55-100
R116	RES-6.98K 1% 150PPM	1074-1028	CAT. LIST	55-100
R117	RES-2.43K 1% 100PPM	1075-0019	CAT. LIST	55-100
R118	RES-1.05K 1% 100PPM	1075-0086	CAT. LIST	55-100
R119	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R120	RES-10K 1% 25PPM	1074-1029	CAT. LIST	55-100
R121	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R122	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R123	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R124	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R125	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R126	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R127	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R128	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R129	RES-13K 1% 100PPM	1075-0128	CAT. LIST	55-100
R130	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R131	RES-604 OHM 1% 100PPM	1075-0234	CAT. LIST	55-100
R132	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R133	RES-10K 1% 25PPM	1074-1029	CAT. LIST	55-025
R134	RES-75 OHM 5% 1/4W CC	1066-7505	ALLEN BRADLEY	CB7505
R135	RES-75 OHM 5% 1/4W CC	1066-7505	ALLEN BRADLEY	CB7505
R136	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R137	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R138	RES-10K 1% 25PPM	1074-1029	CAT. LIST	55-025
R139	RES-270 OHM 5% 1/4W CC	1066-2715	ALLEN BRADLEY	CB2715
R140	RES-2K 1% 25PPM	1075-0079	CAT. LIST	55-025
R141	RES-2K 1% 25PPM	1075-0079	CAT. LIST	55-025
R142	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R143	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R144	RES-7.5K 5% 1/4W CC	1066-7525	ALLEN BRADLEY	CB7525
R145	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R146	RES-2K 1% 25PPM	1075-0079	CAT. LIST	55-025
R147	RES-2K 1% 25PPM	1075-0079	CAT. LIST	55-025
R148	RES-61.9K 1% 100PPM	1075-0018	CAT. LIST	55-100
R149	RES-61.9K 1% 100PPM	1075-0018	CAT. LIST	55-100
R150	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R151	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R152	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R153	RES-8.2K 5% 1/4W CC	1066-8225	ALLEN BRADLEY	CB8225
R154	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R155	RES-33 OHM 5% 1/4W CC	1066-3305	ALLEN BRADLEY	CB3305
R156	RES-33 OHM 5% 1/4W CC	1066-3305	ALLEN BRADLEY	CB3305
R157	RES-20 OHM 5% 1/4W CC	1066-2005	ALLEN BRADLEY	CB2005
R158	RES-20 OHM 5% 1/4W CC	1066-2005	ALLEN BRADLEY	CB2005
R159	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705
R160	RES-24 OHM 5% 1/4W CC	1066-2405	ALLEN BRADLEY	CB2405
R161	RES-24 OHM 5% 1/4W CC	1066-2405	ALLEN BRADLEY	CB2405
R162	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R163	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R164	RES-560 OHM 5% 1/4W CC	1066-5615	ALLEN BRADLEY	CB5615
R165	RES-8.2K 5% 1/4W CC	1066-8225	ALLEN BRADLEY	CB8225
R166	NOT USED			
R167	NOT USED			
R168	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R169	RES-7.5K 5% 1/4W CC	1066-7525	ALLEN BRADLEY	CB7525
R170	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
RESISTOR NETWORK				
RN1	RNET-9/10K 2% 10 PIN	1115-0005	DALE	MSP10C01103G

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
INTEGRATED CIRCUITS				
U1	IC-CA 3046 XSTR & DIO	2025-0171	RCA	CA3046
U2	IC-TL082 8 PIN DIP	2025-0192	TEXAS INSTS	TL082CP
U3	IC-CA 3046 XSTR & DIO	2025-0171	RCA	CA3046
U4	IC-78L05A T092 5V 5%	2025-0230		
U5	IC-74LS122 14PIN DIP MS	2025-0323	TEXAS INSTS	SN74LS122N
U6	IC-TL082 8 PIN DIP	2025-0192	TEXAS INSTS	TL082CP
U7	IC-4051B 16PIN DIP 8CH	2025-0313		
U8	IC-TL082 8 PIN DIP	2025-0192	TEXAS INSTS	TL082CP
U9	IC-TL082 8 PIN DIP	2025-0192	TEXAS INSTS	TL082CP
U10	IC-339 14PIN DIP QUAD	2025-0201		
U11	IC-4017B 16PIN DIP 5 ST	2025-0242		
U12	IC-74C74 DUAL D F F	2025-0169		
U13	IC-4011 14PIN DIP QUAD	2025-0203	MOTOROLA	MC14011BCP
U14	IC-4047B 14PIN DIP MS	2025-0321		
U15	IC-CA 3046 XSTR & DIO	2025-0171	RCA	CA3046
U16	IC-TL081 8PIN DIP J-FET	2025-0199	TEXAS INSTS	TL081CP
U17	IC-4053B 16PIN DIP MUX	2025-0322		
U18	IC-TL082 8 PIN DIP	2025-0192	TEXAS INSTS	TL082CP
U19	IC-4053B 16PIN DIP MUX	2025-0322		
U20	IC-TL082 8 PIN DIP	2025-0192	TEXAS INSTS	TL082CP
U21	IC-78L05A T092 5V 5%	2025-0230		
U22	IC-74LS122 14PIN DIP MS	2025-0323		
U23	IC-1496 14PIN DIP	2025-0197	MOTOROLA	MC1496P
U24	IC-TL081 8PIN DIP J-FET	2025-0199	TEXAS INSTS	TL081CP
U25	IC-79L05A T092 3 TERM	2025-0305		



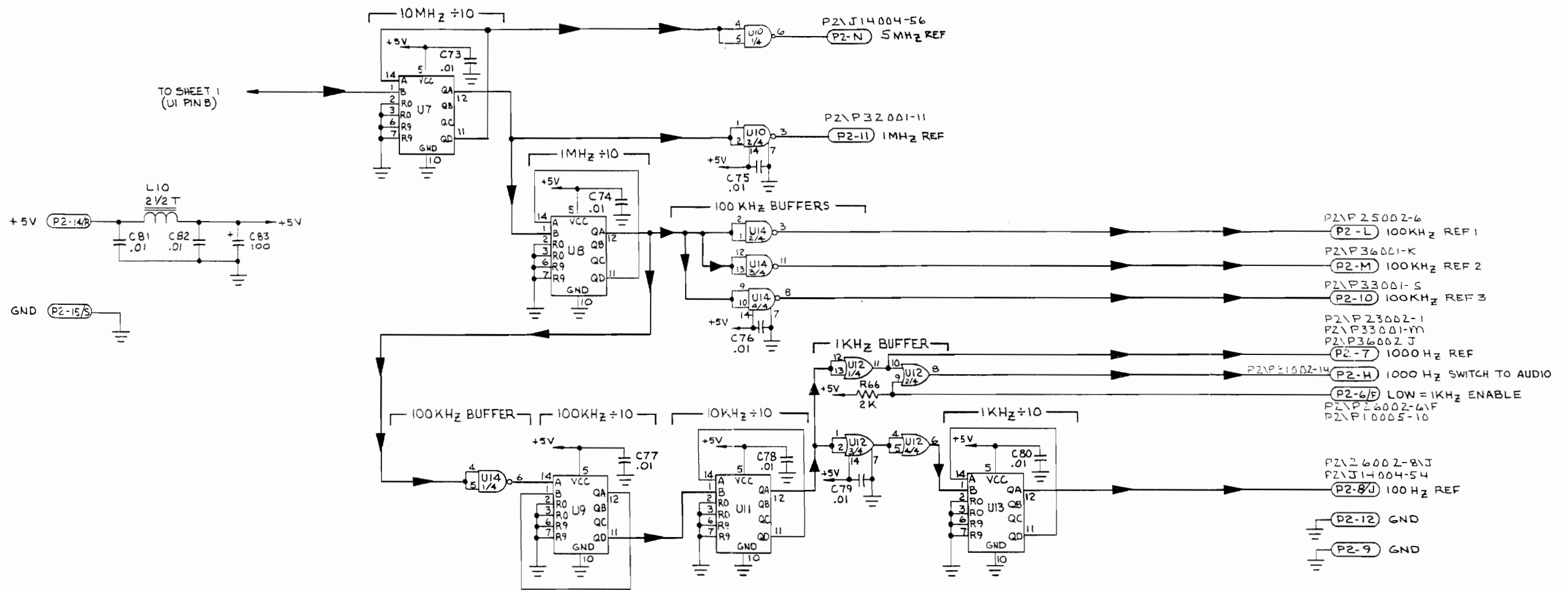
U NO	TYPE	VCC	GND
1	SN74LS86	14	7
2, 10, 14	SN74LS00N	14	7
3	74LS74	14	7
4	3515N	7	3
5	1670	1	8
6	1013B	1	8
7, 8, 9, 11, 13	SN74LS90N	5	10
12	SN74LS32N	14	7

REF DES NOT USED:
 C56, 57, 58, 59, 60, 61, 66,
 34, 35
 L5, 6, 1, 2, 3
 R32

NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
26000	PCB ASSY-REF FREQ GEN/DIV PRINTED CIRCUIT BOARD	7001-0825 1780-1288	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C2	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C3	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C4	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C6	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C7	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C8	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C9	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C10	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C11	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C12	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C13	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C14	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C15	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C16	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C17	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C18	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C19	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-.1UF 10% 100V RDL	1008-0098	PLESSEY	60C104K100
C22	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C23	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C24	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C25	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C26	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C27	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C28	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C29	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C30	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C31	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C32	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C33	CAP-160PF 5% 500V DIP	1002-0091		
C34	NOT USED			
C35	NOT USED			
C36	CAP-2700PF 5% 100V NPO	1005-0130		
C37	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C38	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C39	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C40	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C41	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C42	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C43	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C44	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C45	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C46	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C47	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C48	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C49	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C50	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C51	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C52	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C53	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C54	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C55	CAP-4.7PF .25PF 500V	1005-0015	TUSONIX	301-000-COHO-479C
C56	NOT USED			
C57	NOT USED			
C58	NOT USED			
C59	NOT USED			
C60	NOT USED			
C61	NOT USED			
C62	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C63	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C64	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C65	NOT USED			
C66	NOT USED			
C67	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C68	CAP-6.8UF 10% 35V RDL	1011-0002	DICKSON	D6R8GS1B35K
C69	NOT USED			
C70	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C71	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C72	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C73	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C74	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C75	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C76	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C77	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C78	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C79	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C80	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C81	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C82	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C83	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C84	CAP-2700PF 5% 100V NPO	1005-0130	CENTRE	200-100-NPO-272J
C85	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
DIODES				
CR1	DIO-1N3064 SI SW D07/	1281-0013	FAIRCHILD	1N3064
CR2	DIO-1N957 SI ZENER	1281-0007	MOTOROLA	1N957
CR3	DIO-1N957 SI ZENER	1281-0007	MOTOROLA	1N957
CR4	DIO-1N3064 SI SW D07/	1281-0013	FAIRCHILD	1N3064
CR5	DIO-LT EMIT RED 1.6V	1281-0137	HP	5082-4484
CR6	DIO-1N3064 SI SW D07/	1281-0013	FAIRCHILD	1N3064
CR7	DIO-1N3064 SI SW D035	1281-0105	FAIRCHILD	1N3064 D035 PKG



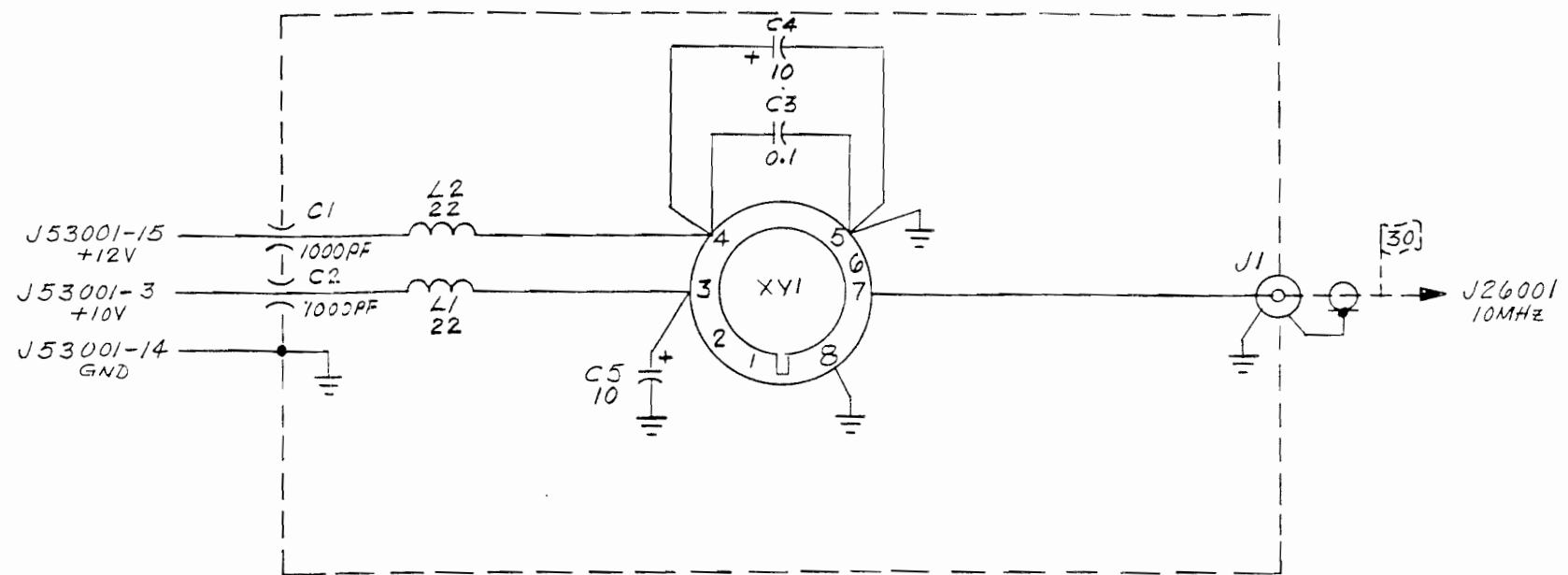
SINAD (+) (P2-4) N/C
 MTR
 NOT
 USED (-) (P2-5) N/C

MOD IN/SINAD IN (P2-C) N/C
 NOT USED

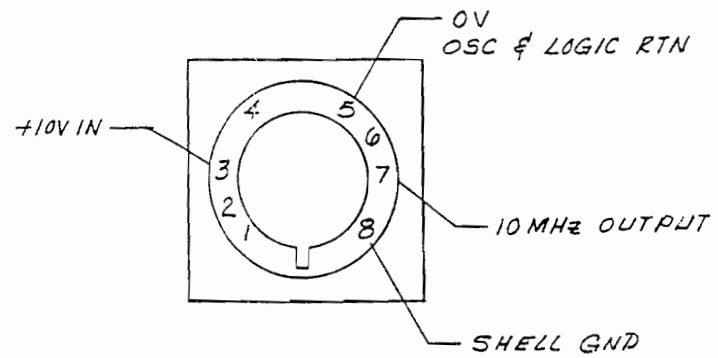
(P2-1/A)
 (P2-2/B)
 (P2-D)
 (P2-E)
 (P2-13/P)
 (P2-3)
 (P2-K)
 (P2-C) } N/C

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R7	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R8	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R9	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R10	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R11	RES-681 OHM 1% 100PPM	1075-0164	CAT. LIST	55-100
R12	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R13	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R14	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R15	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R16	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R17	RES-681 OHM 1% 100PPM	1075-0164	CAT. LIST	55-100
R18	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R19	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R20	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R21	RES-909 OHM 1% 150PPM	1074-1036	CAT. LIST	55-100
R22	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R23	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R24	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R25	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R26	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R27	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R28	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R29	RES-61.9 OHM 1% 100PPM	1075-0007	CAT. LIST	55-100
R30	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R31	RES-1.62K 1% 100PPM	1075-0104	CAT. LIST	55-100
R32	NOT USED			
R33	RES-931 OHM 1% 100PPM	1074-0103	CAT. LIST	55-100
R34	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R35	RES-1.82K 1% 100PPM	1075-0065	CAT. LIST	55-100
R36	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R37	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R38	RES-1K 5% 1/4W CC	1066-1025	CAT. LIST	55-100
R39	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R40	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R41	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R42	RES-680 OHM 5% 1/4W CC	1066-6815	ALLEN BRADLEY	CB6815
R43	RES-1K OHM 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R44	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R45	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315
R46	POT-200 OHM 10% 3/4W	1215-0033		
R47	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R48	RES-140 OHM 1% 100PPM	1074-0102	CAT. LIST	55-100
R49	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R50	RES-125.1 OHM .5% 25PPM	1074-0015	CAT. LIST	55-025
R51	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R52	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R53	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R54	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R55	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R56	RES-909 OHM 1% 150PPM	1074-1036	CAT. LIST	55-100
R57	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100

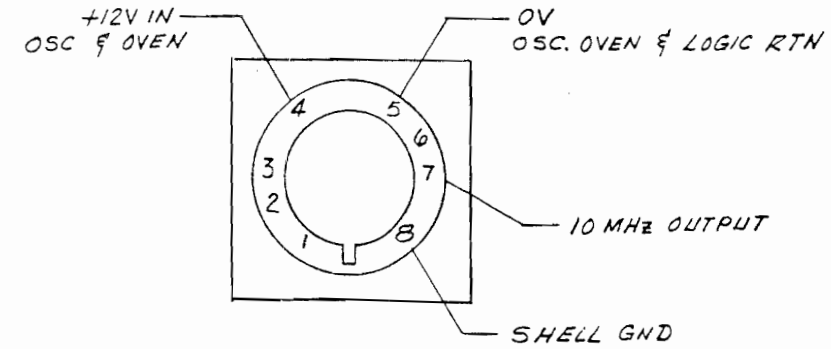
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R58	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R59	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R60	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R61	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R62	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R63	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R64	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R65	RES-6.98K 1% 150PPM	1074-1028	CAT. LIST	55-100
R66	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R67	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R68	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R69	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
INTEGRATED CIRCUITS				
U1	IC-74LS86 14PIN DIP	2025-0219		
U2	IC-SN74LS00N TTL NAND	2025-0114	TEXAS INSTS	SN74LS00N
U3	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U4	IC-411CN 8PIN DPI OP A	2025-0290		
U5	IC-1670 16 PIN DIP HS-D	2025-0285		
U6	IC-10138 16PIN DIP BI-Q	2025-0274	MOTOROLA	MC10138P
U7	IC-SN74LS90N DEC CTR	2025-0113	TEXAS INSTS	SN74LS90N
U8	IC-SN74LS90N DEC CTR	2025-0113	TEXAS INSTS	SN74LS90N
U9	IC-SN74LS90N DEC CTR	2025-0113	TEXAS INSTS	SN74LS90N
U10	IC-SN74LS00N TTL NAND	2025-0114	TEXAS INSTS	SN74LS00N
U11	IC-SN74LS90N DEC CTR	2025-0113	TEXAS INSTS	SN74LS90N
U12	IC-SN74LS32N QUAD 2 IN	2025-0085	TEXAS INSTS	SN74LS32N
U13	IC-SN74LS90N DEC CTR	2025-0113	TEXAS INSTS	SN74LS90N
U14	IC-SN74LS00N TTL NAND	2025-0114	TEXAS INSTS	SN74LS00N



TCXO
Y1

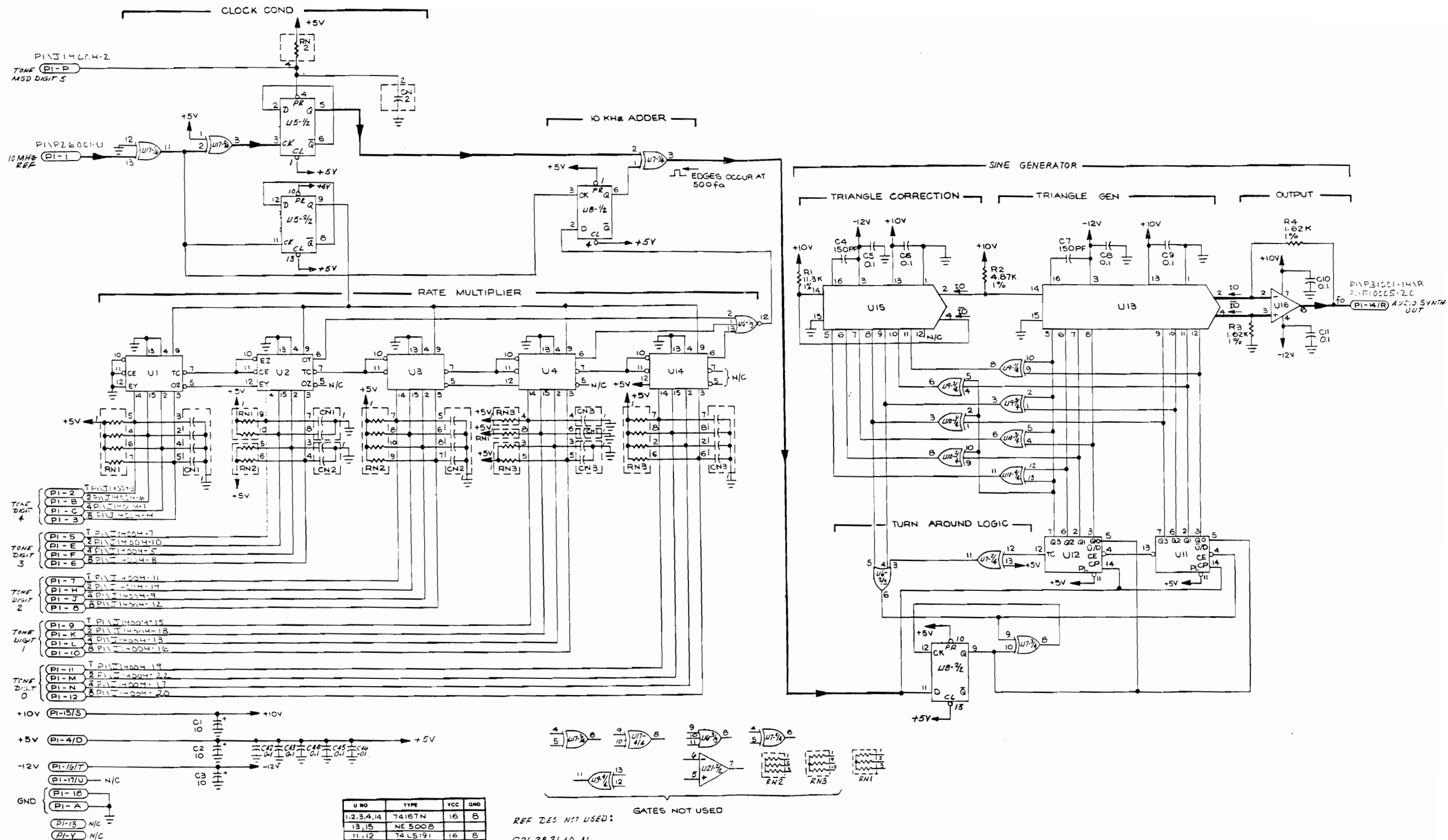


OPTIONAL OCXO
Y1



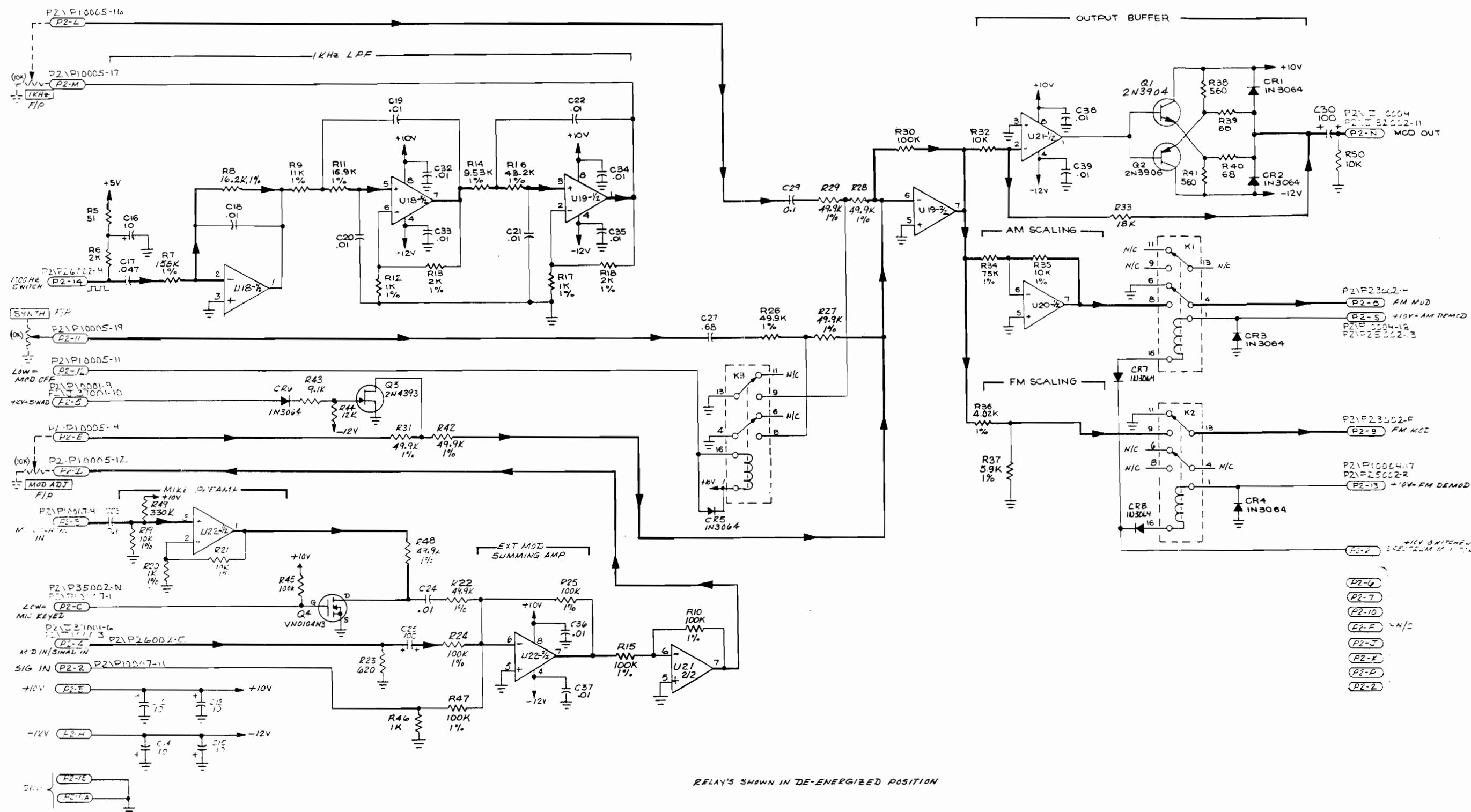
27000 TCXO/OCXO SOCKET CONTAINER
(7046-0069)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
27000	CONTNR ASSY - OSCILLATOR	7046-0069		
	CAPACITORS			
C1	CAP-1000PF GMV/20% 500V	1005-0107		
C2	CAP-1000PF GMV/20% 500V	1005-0107		
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	CAP-10UF 20% 35V RDL	1011-0006	MATSUO	221L3502106M3
C5	CAP-10UF 20% 35V RDL	1011-0006	MATSUO	221L3502106M3
	CONNECTOR			
J1	CONN-SMB 50 OHM STR	2536-0084	SEAELECTRO	
	INDUCTORS			
L1	CH-22UH 10% RF MLD AXL	1585-0012		
L2	CH-22UH 10% RF MLD AXL	1585-0012		

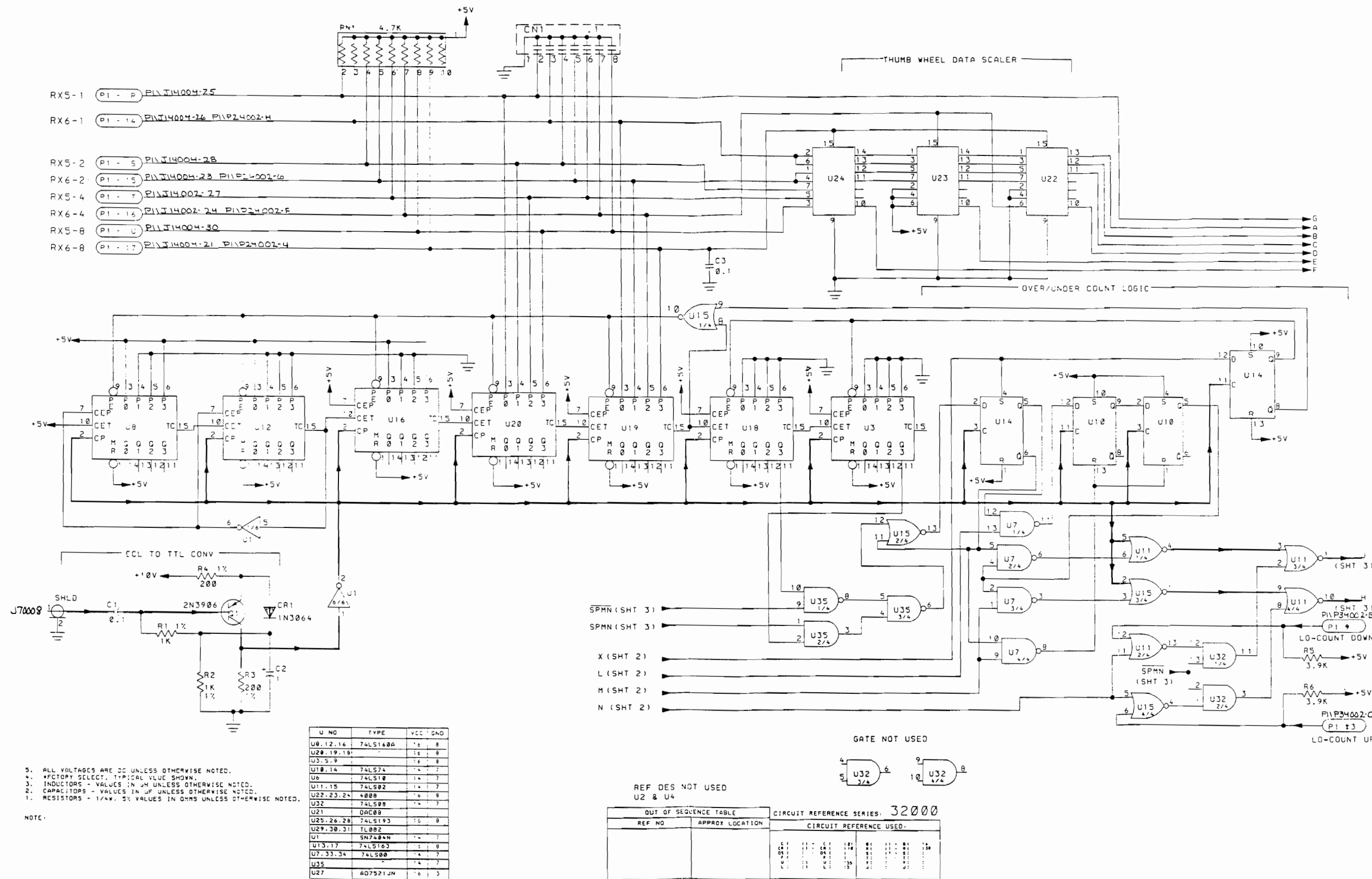


CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
31000	PCB ASSY-AUDIO SYNTH/CONT PRINTED CIRCUIT BOARD	7001-0748 1780-1264	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C2	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C3	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C4	CAP-150PF 5% 500V DIP	1002-0021	ARCO	ADM15FD151J
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-150PF 5% 500V DIP	1002-0021	ARCO	ADM15FD151J
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C13	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C14	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C15	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C16	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C17	CAP-.047UF 20% 100V Y5W	1005-0096	ERIE	8121-100-651-473M
C18	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C19	CAP-.01UF 1% 100V AXL	1008-0105		
C20	CAP-.01UF 1% 100V AXL	1008-0105		
C21	CAP-.01UF 1% 100V AXL	1008-0105		
C22	CAP-.01UF 1% 100V AXL	1008-0105		
C23	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C24	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C25	CAP-100UF +100-30% 16V	1013-0029	MATSUSHITA	ECEA16N100
C26	NOT USED			
C27	CAP-.68UF 10% 100V RDL	1008-0108	PLESSEY	60G684K100
C28	NOT USED			
C29	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C30	CAP-100UF +100-30% 16V	1013-0029	MATSUSHITA	ECEA16N100
C31	NOT USED			
C32	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C33	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C34	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C35	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C36	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C37	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C38	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C39	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C40	NOT USED			
C41	NOT USED			
C42	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C43	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C44	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C45	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C46	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
CAPACITOR NETWORKS				
CN1	CAP-7/.01UF 20% 100VX7R	1007-0001		
CN2	CAP-7/.01UF 20% 100VX7R	1007-0001		
CN3	CAP-7/.01UF 20% 100VX7R	1007-0001		
DIODES				
CR1	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR2	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR3	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR4	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR5	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR6	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR7	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR8	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
RELAYS				
K1	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K2	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K3	RLY-DPDT 9VOC COIL 2C	1313-0033		
TRANSISTORS				
Q1	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N4393 SI T018	1272-0055	TELEDYNE	2N4393
Q4	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
RESISTORS				
R1	RES-11.3K 1% 100PPM	1075-0034	CAT. LIST	55-100
R2	RES-4.87K 1% 100PPM	1075-0168	CAT. LIST	55-100
R3	RES-1.62K 1% 100PPM	1075-0104	CAT. LIST	55-100
R4	RES-1.62K 1% 100PPM	1075-0104	CAT. LIST	55-100
R5	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R6	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R7	RES-158K 1% 100PPM	1075-0061	CAT. LIST	55-100
R8	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R9	RES-11K 1% 100PPM	1074-0106	CAT. LIST	55-100
R10	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R11	RES-16.9K 1% 100PPM	1075-0059	CAT. LIST	55-100
R12	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R13	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R14	RES-9.53K 1% 100PPM	1074-1001	CAT. LIST	55-100
R15	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R16	RES-43.2K 1% 100PPM	1075-0117	CAT. LIST	55-100

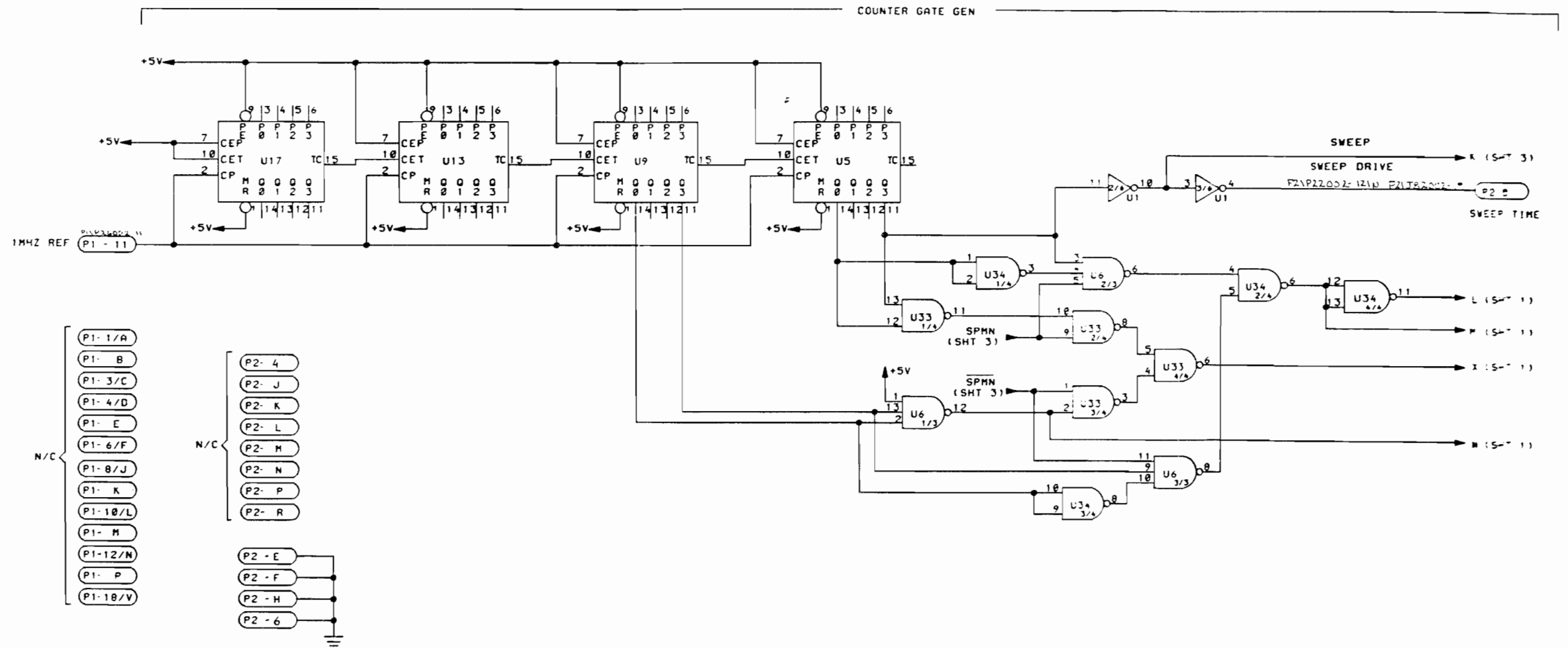
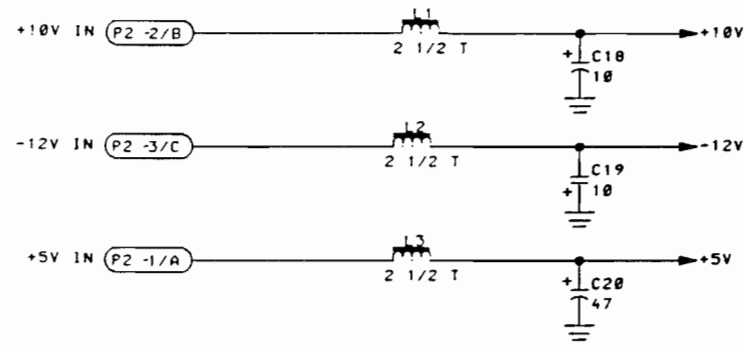


CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
U7	IC-74LS86 14PIN DIP Q	2025-0219		
U8	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U9	IC-74LS86 14PIN DIP Q	2025-0219		
U10	IC-74LS86 14PIN DIP Q	2025-0219		
U11	IC-SN74LS191N SYC U/D	2025-0115	TEXAS INSTS	SN74LS191N
U12	IC-SN74LS191N SYC U/D	2025-0115	TEXAS INSTS	SN74LS191N
U13	IC-08 16 PIN DIP D/A	2025-0188	SIGNETICS	NE5008
U14	IC-SN74167N SYN DECADE	2025-0097		
U15	IC-08 16 PIN DIP D/A	2025-0188	SIGNETICS	NE5008
U16	IC-356B 8PIN DIP OP AMP	2025-0278		
U17	IC-74LS86 14PIN DIP Q	2025-0219		
U18	IC-TL082 8PIN DIP BIF	2025-0192	TEXAS INSTS	TL082CP
U19	IC-TL082 8PIN DIP BIF	2025-0192	TEXAS INSTS	TL082CP
U20	IC-TL082 8PIN DIP BIF	2025-0192	TEXAS INSTS	TL082CP
U21	IC-TL082 8PIN DIP BIF	2025-0192	TEXAS INSTS	TL082CP
U22	IC-TL082 8PIN DIP BIF	2025-0192	TEXAS INSTS	TL082CP

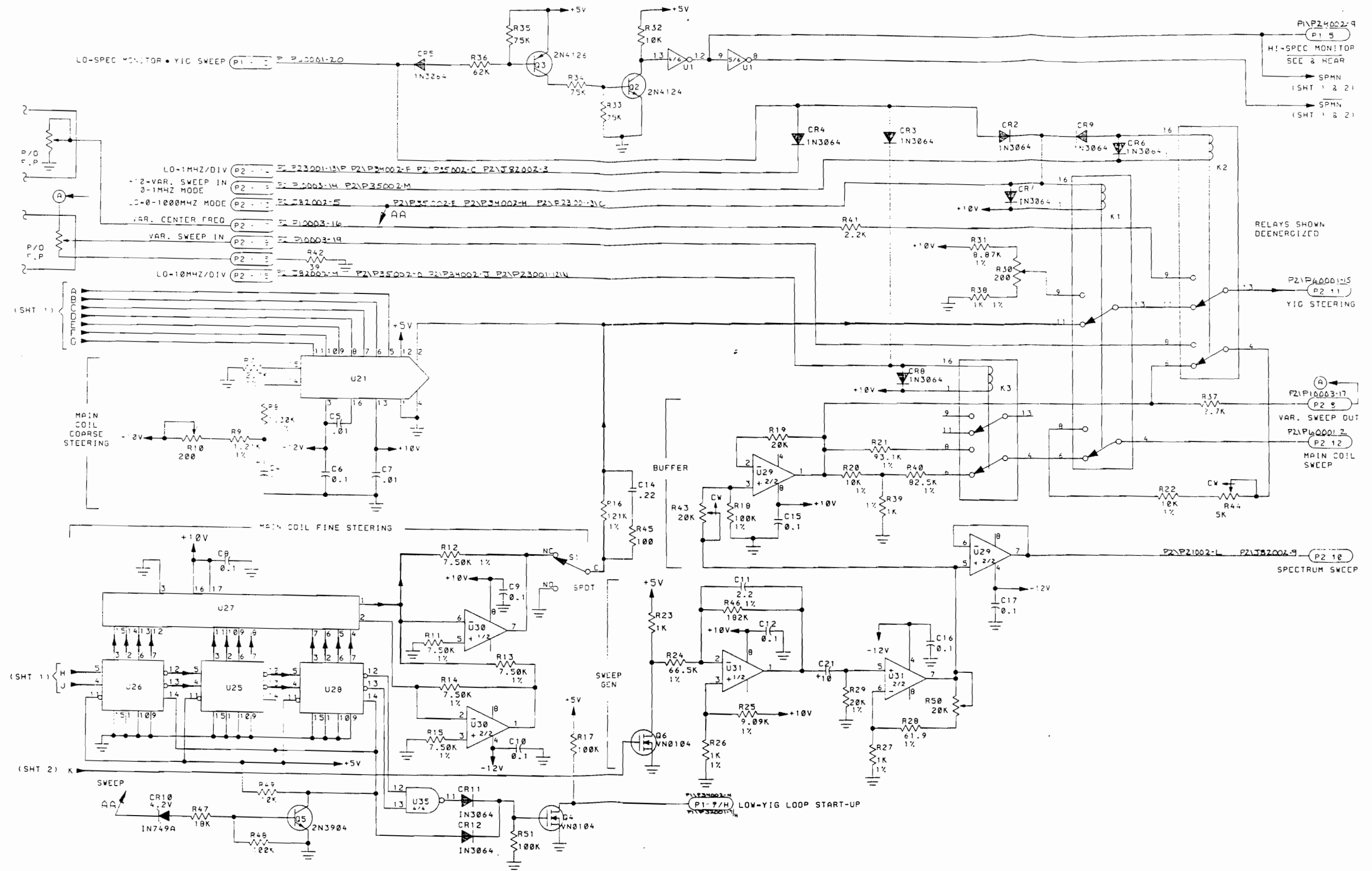


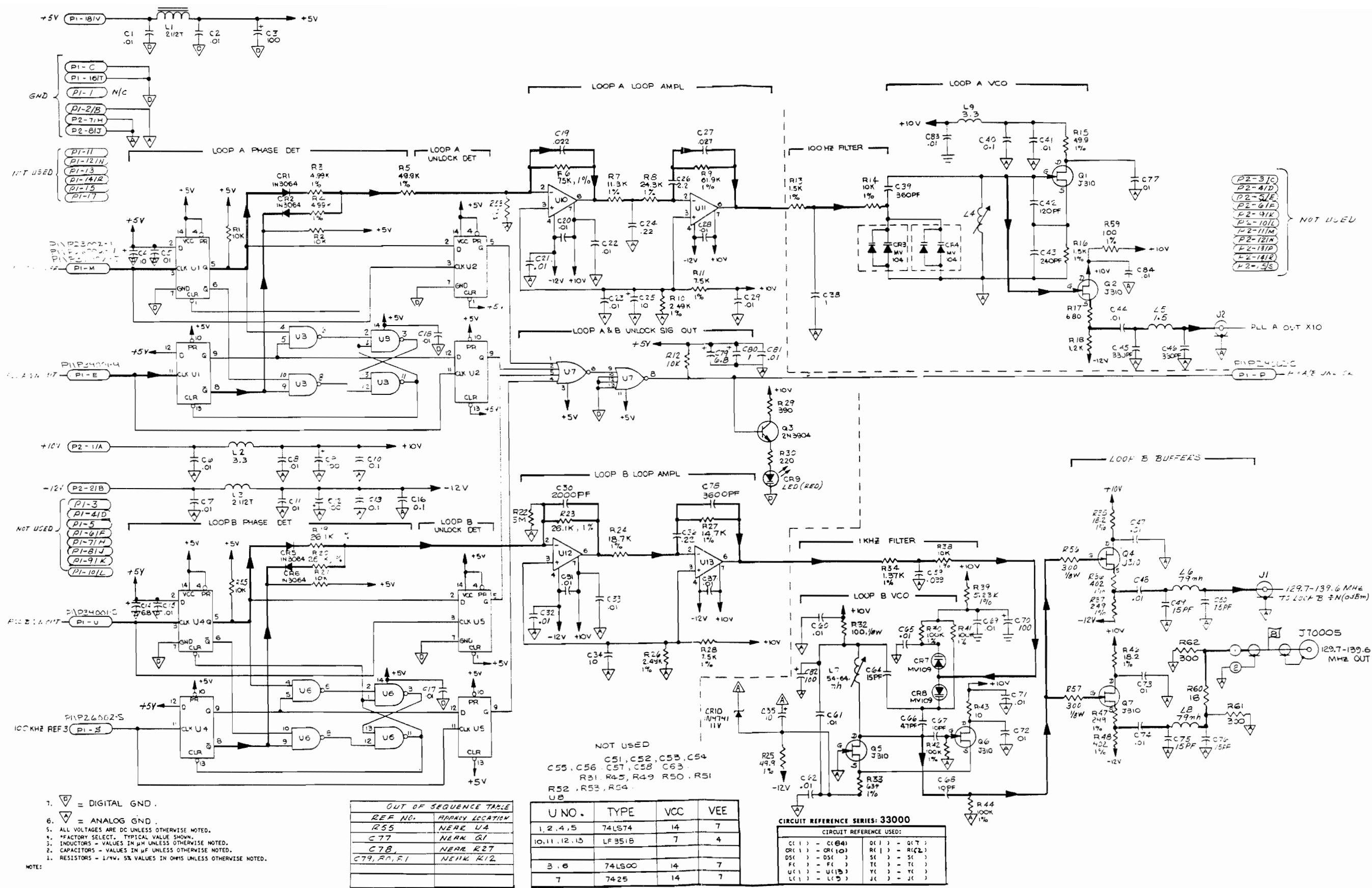
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
32000	PCB ASSY-YIG MN COIL STRG PRINTED CIRCUIT BOARD	7001-0751 1780-1238	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-2.2UF 10% 100V RDL	1008-0114		
C12	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C13	NOT USED			
C14	CAP-.11UF 10% 100V RDL	1008-0091	ELECTROCUBE	232A1B224K
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C19	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C20	CAP-47UF 20% 35V RDL	1013-0045	NICHICON	J350KB47M
C21	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
CAPACITOR NETWORK				
CN1	CAP-7/.01UF 20% 100VX7R	1007-0001		
DIODES				
CR1	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR2	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR3	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR4	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR5	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR6	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR7	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR8	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR9	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR10	DIO-1N749A SI ZENER	1281-0034	FAIRCHILD	IN749A
CR11	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR12	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	IN3064

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
RELAYS				
K1	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K2	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K3	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
INDUCTORS				
L1	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L2	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L3	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
TRANSISTORS				
Q1	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q2	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q3	XSTR-2N4126 PNP SI T092	1272-0090	FAIRCHILD	2N4126
Q4	XSTR-VN0104 DI T092	1272-0132	SUPERTEX INC	VN0104N3
Q5	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q6	XSTR-VN0104 DI T092	1272-0132	SUPERTEX INC	VN0104N3
RESISTORS				
R1	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R2	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R3	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R4	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R5	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R6	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
R7	RES-2.7K 5% 1/4W CC	1066-2725	ALLEN BRADLEY	CB2725
R8	RES-1.30K 1% 100PPM	1075-0153	CAT. LIST	55-100
R9	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R10	POT-200 OHM 10% 1/4W	1200-0016		
R11	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R12	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R13	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R14	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R15	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R16	RES-121K 1% 100PPM	1075-0200	CAT. LIST	55-100
R17	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R18	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R19	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R20	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R21	RES-93.1K 1% 100PPM	1075-0029	CAT. LIST	55-100
R22	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R23	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R24	RES-66.5K 1% 100PPM	1075-0143	CAT. LIST	55-100
R25	RES-9.09K 1% 100PPM	1074-1019	CAT. LIST	55-100
R26	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
U14	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U15	IC-SN74LS02N QUAD 2	2025-0108	TEXAS INSTS	SN74LS02N
U16	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U17	IC-74LS163 16PIN DIP	2025-0223	TEXAS INSTS	SN74LS163N
U18	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U19	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U20	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U21	IC-08 16PIN DIP D/A C	2025-0188	SIGNETICS	NE5008
U22	IC-4008B 16 PIN DIP 4B	2025-0183	MOTOROLA	MC14008BCP
U23	IC-4008B 16 PIN DIP 4B	2025-0183	MOTOROLA	MC14008BCP
U24	IC-4008B 16 PIN DIP 4B	2025-0183	MOTOROLA	MC14008BCP
U25	IC-74LS193 16PIN DIP	2025-0228	TEXAS INSTS	SN74LS193N
U26	IC-74LS193 16PIN DIP	2025-0228	TEXAS INSTS	SN74LS193N
U27	IC-7521 18PIN DIP D/A	2025-0303		
U28	IC-74LS193 16PIN DIP	2025-0228	TEXAS INSTS	SN74LS193N
U29	IC-TL082 8PIN DIP BIF	2025-0192	TEXAS INSTS	TL082CP
U30	IC-TL082 8PIN DIP BIF	2025-0192	TEXAS INSTS	TL082CP
U31	IC-TL082 8PIN DIP BIF	2025-0192	TEXAS INSTS	TL082CP
U32	IC-SN74LS0BN QUAD 2-IN	2025-0087		
U33	IC-SN74LS00N TTL NAND G	2025-0114	TEXAS INSTS	SN74LS00N
U34	IC-SN74LS00N TTL NAND G	2025-0114	TEXAS INSTS	SN74LS00N
U35	IC-SN74LS00N TTL NAND G	2025-0114	TEXAS INSTS	SN74LS00N





- NOT USED
- P2-31C
 - P2-41D
 - P2-51E
 - P2-61F
 - P2-91K
 - P2-101L
 - P2-111M
 - P2-121N
 - P2-131P
 - P2-141R
 - P2-151S

- NOT USED
- C51, C52, C53, C54
 - C55, C56, C57, C58, C63
 - R31, R45, R49, R50, R51
 - R52, R53, R54
 - U8

OUT OF SEQUENCE TABLE

REF NO.	APPROX LOCATION
R55	NEAR U4
C77	NEAR Q1
C78	NEAR R27
C79, R1, R1	NEAR R12

U NO.	TYPE	VCC	VEE
1, 2, 4, 5	74LS74	14	7
10, 11, 12, 13	LF351B	7	4
3, 6	74LS00	14	7
7	7425	14	7

CIRCUIT REFERENCE SERIES: 33000

CIRCUIT REFERENCE USED:

C() - C()	Q() - Q()
CR() - CR()	R() - R()
DS() - DS()	SE() - SE()
FC() - FC()	TE() - TE()
U() - U()	VE() - VE()
LC() - LC()	J() - J()

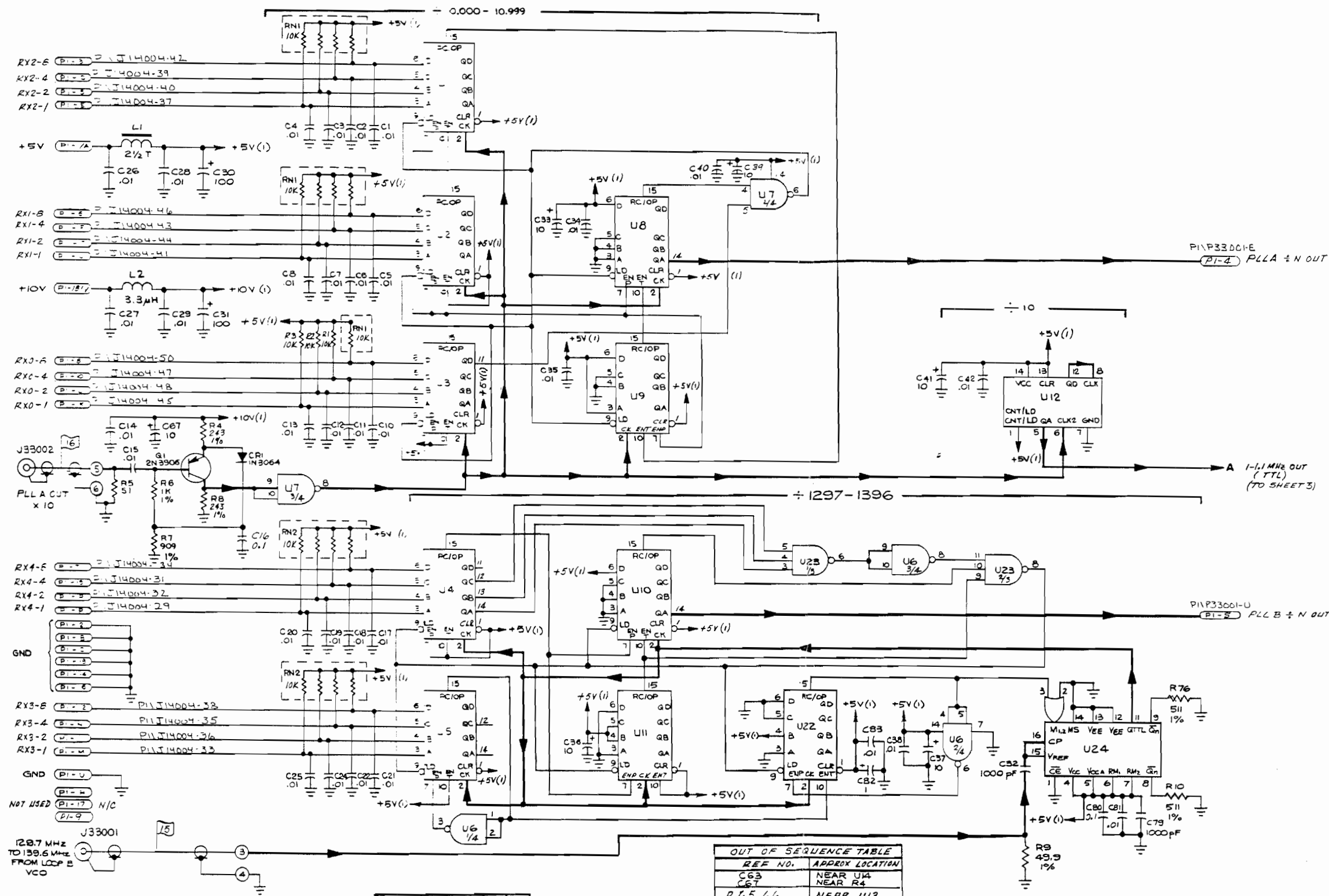
- NOTE:
1. RESISTORS - 1%, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN uF UNLESS OTHERWISE NOTED.
 3. INDUCTORS - VALUES IN uH UNLESS OTHERWISE NOTED.
 4. FACTORY SELECT. TYPICAL VALUE SHOWN.
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 6. ANALOG GND.
 7. DIGITAL GND.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
33000	PCB ASSY-LOOPS A & B PLL PRINTED CIRCUIT BOARD	7001-0750 1780-1242	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C2	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C3	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C4	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C6	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C7	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C8	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C9	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C12	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C13	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C14	CAP-6.8UF 10% 35V RDL	1011-0002	DICKSON	D6R8GS1B35K
C15	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C16	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C17	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C18	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C19	CAP-.022UF 5% 400V RDL	1008-0094	PLESSEY	60C223J400
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C22	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C23	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C24	CAP-.22UF 10% 100V RDL	1008-0091	ELECTROCUBE	232A1B224K
C25	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C26	CAP-2.2UF 10% 100V RDL	1008-0114		
C27	CAP-.027UF 10% 100V RDL	1008-0032	SPRAGUE	225P27391WA3
C28	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C29	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C30	CAP-2000PF 5% 500V DIP	1002-0077	ELMENCO	DM19-E-202J
C31	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C32	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C33	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C34	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C35	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C36	CAP-.22UF 10% 100V RDL	1008-0091	ELECTROCUBE	232A1B224K
C37	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C38	CAP-1UF 10% 100V RDL	1008-0113	SPRAGUE	451P105X9100J
C39	CAP-360PF 5% 500V DIP	1002-0040	ELMENCO	DM15-F-361J
C40	CAP-.1UF 10% 100V RDL	1008-0098	PLESSEY	60C104K100
C41	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C42	CAP-120PF 5% 500V DIP	1002-0010	ELMENCO	DM15-F-121J
C43	CAP-240PF 5% 500V DIP	1002-0030	ELMENCO	DM15-F-241J
C44	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C45	CAP-330PF 5% 500V DIP	1002-0032	ELMENCO	DM15-F-331J
C46	CAP-330PF 5% 500V DIP	1002-0032	ELMENCO	DM15-F-331J

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C47	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C48	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C49	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C50	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C51	NOT USED			
C52	NOT USED			
C53	NOT USED			
C54	NOT USED			
C55	NOT USED			
C56	NOT USED			
C57	NOT USED			
C58	NOT USED			
C59	CAP-.039UF 10% 100V RDL	1008-0045		
C60	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C61	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C62	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C63	NOT USED			
C64	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C65	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C66	CAP-47PF 5% 500V DIP	1002-0012	ELMENCO	DM15-E-470J
C67	CAP-10PF 5% 500V DIP	1002-0016	ELMENCO	DM15-C-100J
C68	CAP-10PF 5% 500V DIP	1002-0016	ELMENCO	DM15-C-100J
C69	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C70	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C71	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C72	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C73	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C74	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C75	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C76	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C77	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C78	CAP-3600PF 5% 500V DIP	1002-0092	ELMENCO	
C79	CAP-6.8UF 10% 35V RDL	1011-0002	DICKSON	D6R8GS1B35K
C80	CAP-1UF -10+50% 50V	1013-0047	PANASONIC	ECEA1HV010S
C81	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C82	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C83	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C84	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
DIODES				
CR1	DIO-IN3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035 PKG)
CR2	DIO-IN3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035 PKG)
CR3	DIO-MV104 SI DUAL VARI	1281-0058	MOTOROLA	MV104
CR4	DIO-MV104 SI DUAL VARI	1281-0058	MOTOROLA	MV104
CR5	DIO-IN3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035 PKG)
CR6	DIO-IN3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035 PKG)
CR7	DIO-MV209 SI VARICAP	1281-0064	MOTOROLA	MV209
CR8	DIO-MV209 SI VARICAP	1281-0064	MOTOROLA	MV209
CR9	DIO-LT EMIT RED 1.6V	1281-0137	HP	5082-4484
CR10	DIO-1N4741A SI ZENER	1281-0107	MOTOROLA	1N4741A

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R21	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R22	RES-5.1 MEG 5% 1/4W CC	1066-5155	ALLEN BRADLEY	CB5155
R23	RES-26.1K 1% 100PPM	1075-0182	CAT. LIST	55-100
R24	RES-18.7K 1% 150PPM	1074-1022	CAT. LIST	55-100
R25	RES-49.9 OHM 1% 150PPM	1074-1038	CAT. LIST	55-100
R26	RES-2.49K 1% 100PPM	1075 0027	CAT. LIST	55-100
R27	RES-14.7K 1% 150PPM	1074-1020	CAT. LIST	55-100
R28	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R29	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
R30	RES-220 OHM 5% 1/4W CC	1066-2215	ALLEN BRADLEY	CB2215
R31	NOT USED			
R32	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R33	RES-634 OHM 1% 150PPM	1074-1042	CAT. LIST	55-100
R34	RES-1.37K 1% 100PPM	1075-0051	CAT. LIST	55-100
R35	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R36	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R37	RES-249 OHM 1% 100PPM	1074-0098	CAT. LIST	55-100
R38	RES-10K 1% 25PPM	1074-1029	CAT. LIST	55-025
R39	RES-5.23K 1% 100PPM	1075-0169	CAT. LIST	55-100
R40	RES-100K 1% 100PPM	1074-0109	CAT. LIST	55-100
R41	RES-100K 1% 100PPM	1074-0109	CAT. LIST	55-100
R42	RES-100K 1% 100PPM	1074-0109	CAT. LIST	55-100
R43	RES-10 OHM 5% 1/8W CC	1065-1005	ALLEN BRADLEY	BB1005
R44	RES-100K 1% 100PPM	1074-0109	CAT. LIST	55-100
R45	NOT USED			
R46	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R47	RES-249 OHM 1% 100PPM	1074-0098	CAT. LIST	55-100
R48	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R49	NOT USED			
R50	NOT USED			
R51	NOT USED			
R52	NOT USED			
R53	NOT USED			
R54	NOT USED			
R55	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R56	RES-300 OHM 5% 1/8W CC	1065-3015	ALLEN BRADLEY	BB3015
R57	RES-300 OHM 5% 1/8W CC	1065-3015	ALLEN BRADLEY	BB3015
R58	RES-10MEG 5% 1/4W CC	1066-1065	ALLEN BRADLEY	CB1065
R59	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R60	RES-18 OHM 5% 1/4W CC	1066-1805	ALLEN BRADLEY	CB1805
R61	RES-300 OHM 5% 1/4W CC	1066-3015	ALLEN BRADLEY	CB3015
R62	RES-300 OHM 5% 1/4W CC	1066-3015	ALLEN BRADLEY	CB3015
INTEGRATED CIRCUITS				
U1	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U2	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U3	IC-SN74LSOON TTL NAND	2025-0114	TEXAS INSTS	SN74LSOON
U4	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U5	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U6	IC-SN74LSOON TTL NAND	2025-0114	TEXAS INSTS	SN74LSOON

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
U7	IC-7425 14PIN DIP DUAL	2025-0184	TEXAS INSTS	SN7425N
U8	NOT USED			
U9	NOT USED			
U10	IC-411CN 8PIN DIP OP A	2025-0290		
U11	IC-411CN 8PIN DIP OP A	2025-0290		
U12	IC-411CN 8PIN DIP OP A	2025-0290		
U13	IC-411CN 8PIN DIP OP A	2025-0290		



NOTE:
 1. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 2. FACTORY SELECT, TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 4. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 5. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

U NO	TYPE	VCC	GND
1,2,3,4,5	74LS160A	16	B
6,7,15	74LS00	14	7
12	74LS196	14	7
13,14	74LS74	14	7
16,17,18	311	9	4
19	78L05	7	4
20	78L05A	7	4
21	02-08	7	4
25	74LS10	14	7
24	1C90	4,5	12,13

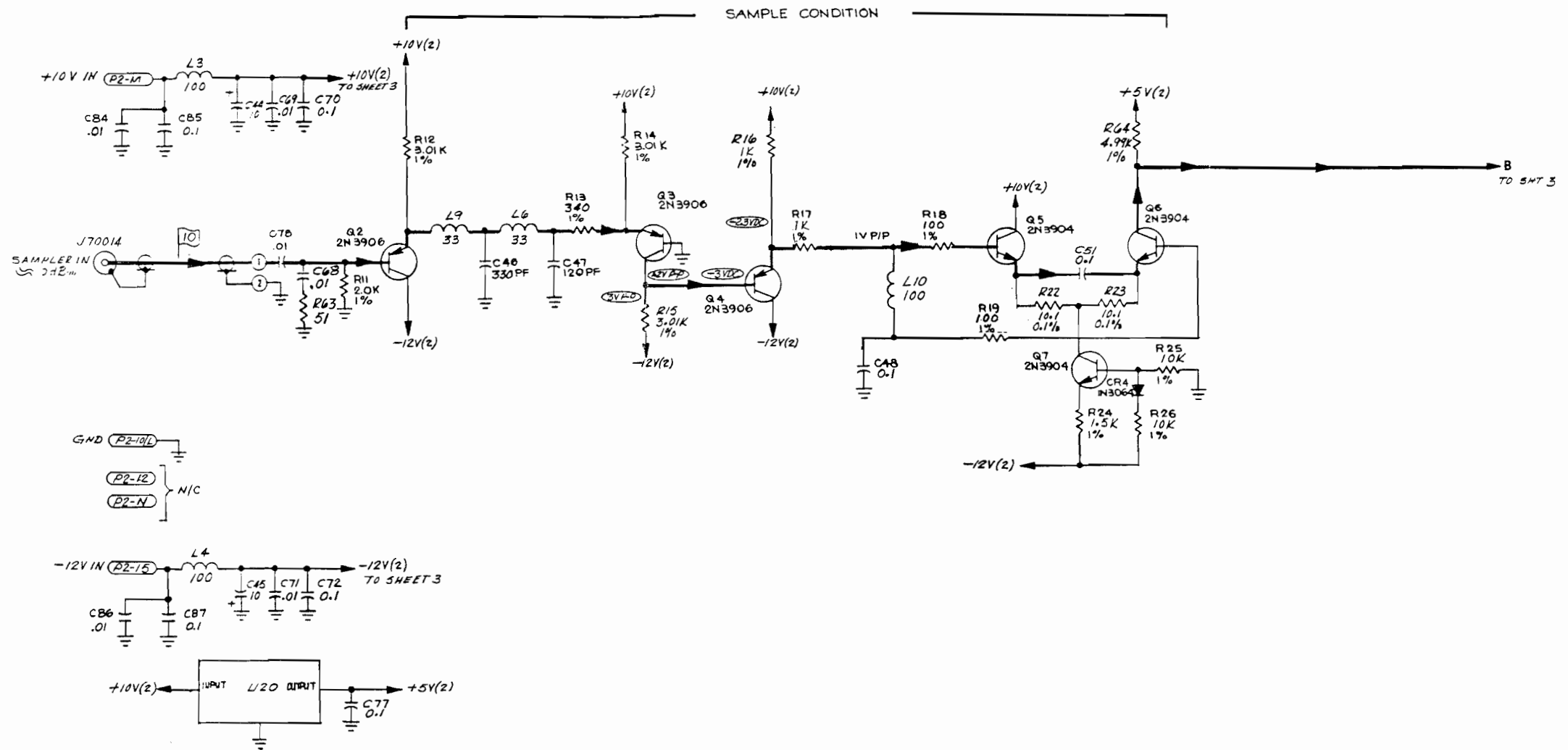
REF DES. NOT USED:
 R20,27,29,30,61,52
 C43,44, 164, 23,50
 Q10
 CR2,3,7

REF NO.	APPROX LOCATION
C63, C67	NEAR U14
R65,66	NEAR U13
R67,68,69,70,71 72, C73,74,75,76 Q17,18	NEAR U21
C68,69	NEAR C44
C68 & R63	NEAR R11
C77	NEAR U20
R64	NEAR Q6
U22,23,24 & C79 80,81,82,83 & R76	NEAR U6

CIRCUIT REFERENCE USED:					
CC	11 - CC	195	QC	11 - QC	118
CR	11 - CR	113	RE	11 - RE	176
DS	11 - DS	113	SE	11 - SE	118
KE	11 - KE	113	TE	11 - TE	118
UC	11 - UC	124	YE	11 - YE	118
LC	11 - LC	110	ZE	11 - ZE	118

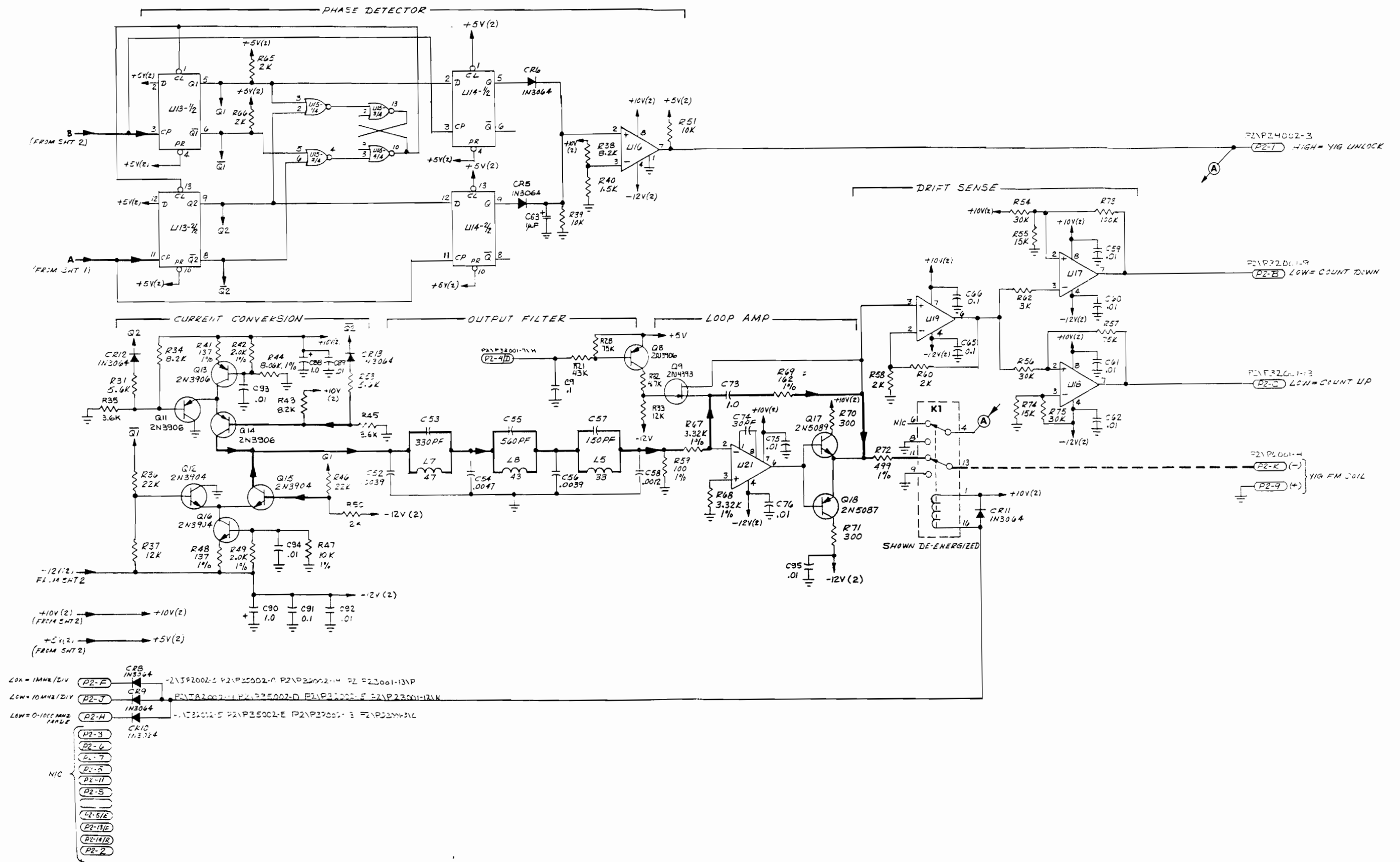
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
34000	PCB ASSY-A & B DIVIDER/ YIG FM COIL DRIVER PRINTED CIRCUIT BOARD	7001-0749 1780-1241	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C2	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C3	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C4	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C6	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C7	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C8	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C9	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C10	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C11	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C12	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C13	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C14	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C15	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C16	CAP-.1UF 10% 100V RDL	1008-0098	PLESSEY	60C104K100
C17	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C18	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C19	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C22	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C23	NOT USED			
C24	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C25	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C26	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C27	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C28	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C29	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C30	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C31	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C32	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C33	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C34	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C35	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C36	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C37	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C38	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C39	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C40	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C41	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C42	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C43	NOT USED			
C44	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C45	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C46	CAP-330PF 5% 500V DIP	1002-0032	ELMENCO	DM15-F-331J
C47	CAP-120PF 5% 500V DIP	1002-0010	ELMENCO	DM15-F-121J
C48	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C49	NOT USED			
C50	NOT USED			
C51	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C52	CAP-.0039UF 2% 100V AXL	1008-0050		
C53	CAP-330PF 5% 500V DIP	1002-0032	ELMENCO	DM15-F-331J
C54	CAP-.0047UF 2% 200V AXL	1008-0088		
C55	CAP-560PF 5% 300V DIP	1002-0037	ELMENCO	DM15-F-561J
C56	CAP-.0039UF 2% 100V AXL	1008-0050		
C57	CAP-150PF 5% 500V DIP	1002-0021	ELMENCO	DM15-F-151J
C58	CAP-.0012UF 5% 50V AXL	1008-0084		
C59	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C60	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C61	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C62	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C63	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C64	NOT USED			
C65	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C66	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C67	CAP-10UF +100-10% 25V	1013-0035	ILLINIOS CAP	10PC25
C68	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C69	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C70	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C71	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C72	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C73	CAP-1UF 10% 100V RDL	1008-0113	SPRAGUE	451P105X9100J
C74	CAP-30PF 5% 500V DIP	1004-0010	CORNELL DUB	CD10ED300J
C75	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C76	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C77	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C78	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C79	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C80	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C81	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C82	CAP-1UF -10+50% 50V	1013-0047	PANASONIC	ECEA1HV010S
C83	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C84	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C85	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C86	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C87	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C88	CAP-1UF -10+50% 50V	1013-0047	PANASONIC	ECEA1HV010S
C89	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C90	CAP-1UF -10+50% 50V	1013-0047	PANASONIC	ECEA1HV010S
C91	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C92	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C93	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C94	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C95	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M



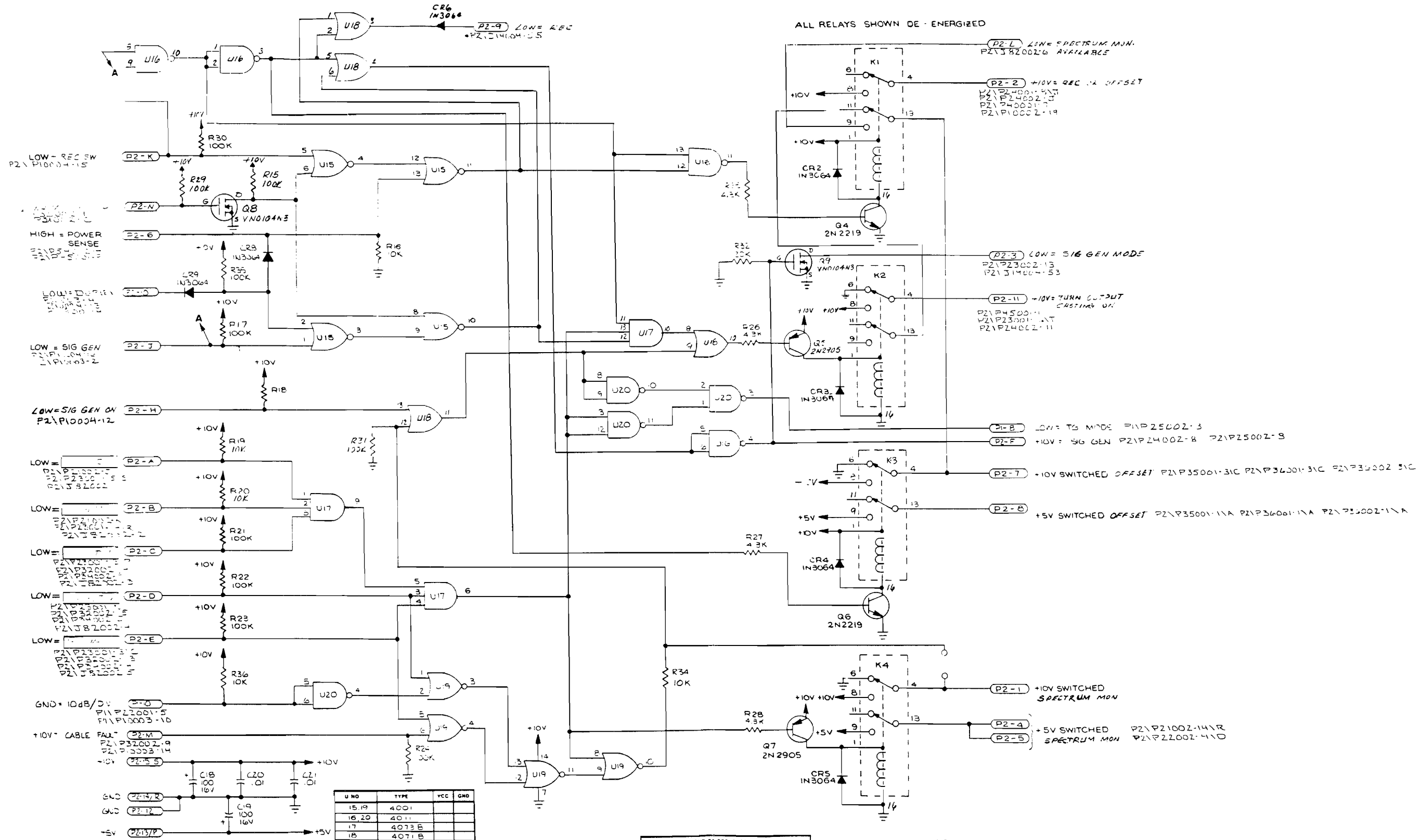
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
Q14	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q15	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q16	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q17	XSTR-2N5089 NPN SI T092	1272-0031	MOTOROLA	2N5089
Q18	XSTR-2N5087 PNP SI T092	1272-0038	MOTOROLA	2N5087
RESISTORS				
R1	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R2	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R3	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R4	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R5	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R6	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R7	RES-909 OHM 1% 150PPM	1074-1036	CAT. LIST	55-100
R8	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R9	RES-49.9 OHM 1% 150PPM	1074-1038	CAT. LIST	55-100
R10	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R11	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R12	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R13	RES-340 OHM 1% 100PPM	1075-0049	CAT. LIST	55-100
R14	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R15	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R16	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R17	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R18	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R19	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R20	NOT USED			
R21	RES-43K 5% 1/4W CC	1066-4335	ALLEN BRADLEY	CB4335
R22	RES-10.1 OHM .1% 50PPM	1074-1043		
R23	RES-10.1 OHM .1% 50PPM	1074-1043		
R24	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R25	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R26	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R27	NOT USED			
R28	RES-75K 5% 1/4W CC	1066-7535	ALLEN BRADLEY	CB7535
R29	NOT USED			
R30	NOT USED			
R31	RES-5.6K 5% 1/4W CC	1066-5625	ALLEN BRADLEY	CB5625
R32	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R33	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R34	RES-8.2K 5% 1/4W CC	1066-8225	ALLEN BRADLEY	CB8225
R35	RES-3.6K 5% 1/4W CC	1066-3625	ALLEN BRADLEY	CB3625
R36	RES-22K 5% 1/4W CC	1066-2235	ALLEN BRADLEY	CB2235
R37	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R38	RES-8.2K 5% 1/4W CC	1066-8225	ALLEN BRADLEY	CB8225
R39	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R40	RES-1.5K 5% 1/4W CC	1066-1525	ALLEN BRADLEY	CB1525
R41	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R42	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R43	RES-8.2K 5% 1/4W CC	1066-8225	ALLEN BRADLEY	CB8225
R44	RES-8.06K 1% 100PPM	1074-0105	CAT. LIST	55-100
R45	RES-3.6K 5% 1/4W CC	1066-3625	ALLEN BRADLEY	CB3625
R46	RES-22K 5% 1/4W CC	1066-2235	ALLEN BRADLEY	CB2235
R47	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R48	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R49	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R50	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R51	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R52	NOT USED			
R53	RES-5.6K 5% 1/4W CC	1066-5625	ALLEN BRADLEY	CB5625
R54	RES-30K 5% 1/4W CC	1066-3035	ALLEN BRADLEY	CB3035
R55	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R56	RES-30K 5% 1/4W CC	1066-3035	ALLEN BRADLEY	CB3035
R57	RES-75K 5% 1/4W CC	1066-7535	ALLEN BRADLEY	CB7535
R58	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R59	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R60	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R61	NOT USED			
R62	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R63	RES-51 OHM 5% 1/4W CC	1066-5105	ALLEN BRADLEY	CB5105
R64	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R65	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R66	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R67	RES-3.32K 1% 100PPM	1075-0181	CAT. LIST	55-100
R68	RES-3.32K 1% 100PPM	1075-0181	CAT. LIST	55-100
R69	RES-162 OHM 1% 150PPM	1074-1009	CAT. LIST	55-100
R70	RES-300 OHM 5% 1/4W CC	1066-3015	ALLEN BRADLEY	CB3015
R71	RES-300 OHM 5% 1/4W CC	1066-3015	ALLEN BRADLEY	CB3015
R72	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R73	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R74	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R75	RES-30K 5% 1/4W CC	1066-3035	ALLEN BRADLEY	CB3035
R76	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
RESISTOR NETWORKS				
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN2	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
INTEGRATED CIRCUITS				
U1	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U2	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U3	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U4	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U5	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U6	IC-SN74LSOON TTL NAND	2025-0114	TEXAS INSTS	SN74LSOON
U7	IC-SN74LSOON TTL NAND	2025-0114	TEXAS INSTS	SN74LSOON



3400 A & B DIV/YIG FM COIL DRVR (7001-0749)
3 OF 3

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
U8	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U9	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U10	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U11	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U12	IC-SN74LS196N DEC CTRS	2025-0111	TEXAS INSTS	SN74LS196N
U13	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U14	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U15	IC-SN74LS02N QUAD 2	2025-0108	TEXAS INSTS	SN74LS02N
U16	IC-311 VOLTAGE COMPAR	2025-0181	NATIONAL	LM311N
U17	IC-311 VOLTAGE COMPAR	2025-0181	NATIONAL	LM311N
U18	IC-311 VOLTAGE COMPAR	2025-0181	NATIONAL	LM311N
U19	IC-356B 8PIN DIP OP A	2025-0278		
U20	IC-78L05A TO92 5V 5%	2025-0230		
U21	IC-OP-08 8PIN CAN OP A	2025-0187	PRECISION MON	OP-0865
U22	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160AN
U23	IC-74LS10 14PIN DIP	2025-0215	NATIONAL	DM74LS10N
U24	IC-11C90 16PIN DIP DIV	2025-0182	FAIRCHILD	11CDODC



LOW = REC SW
P2 \ P10004-15

HIGH = POWER SENSE
P2 \ P10004-15

LOW = SIG GEN
P2 \ P10004-15

LOW = SIG GEN ON
P2 \ P10004-12

LOW = P2-A
P2 \ P10004-15

LOW = P2-B
P2 \ P10004-15

LOW = P2-C
P2 \ P10004-15

LOW = P2-D
P2 \ P10004-15

LOW = P2-E
P2 \ P10004-15

GND = 10dB/5V
P1 \ P2001-5
P1 \ P10003-10

+10V CABLE FAIL
P2 \ P2002-9
P2 \ P2003-14

-10V P2-S
P2 \ P10004-15

GND P2-N
P2 \ P10004-15

-5V P2-15/P
P2 \ P10004-15

ALL RELAYS SHOWN DE-ENERGIZED

P2-L LINE SPECTRUM MON.
P2 \ P2002-6 AVAILABLE

P2-2 +10V REC. 1A OFFSET
P2 \ P2002-3
P2 \ P24002-3
P2 \ P24003-7
P2 \ P10002-19

P2-3 LOW = SIG GEN MODE
P2 \ P23002-13
P2 \ P10004-53

P2-11 -10V TURN OUTPUT
CASTING ON
P2 \ P4500-11
P2 \ P23001-11
P2 \ P24002-11

P2-B LOW = TG MODE P1 \ P25002-3

P2-F +10V = SG GEN P2 \ P24002-8 P2 \ P25002-8

P2-7 +10V SWITCHED OFFSET P2 \ P35001-31C P2 \ P36001-31C P2 \ P36002-31C

P2-8 +5V SWITCHED OFFSET P2 \ P35001-11A P2 \ P36001-11A P2 \ P36002-11A

P2-1 +10V SWITCHED
SPECTRUM MON

P2-4 +5V SWITCHED
SPECTRUM MON P2 \ P21002-14A P2 \ P22002-41D

NOTE:
5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
6. *FACTORY SELECT* - TYPICAL VALUE SHOWN.
7. INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
8. CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
9. RESISTORS - 1% ± 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

U NO	TYPE	VCC	GND
15 19	4001		
16 20	4011		
17	4073B		
18	4071B		

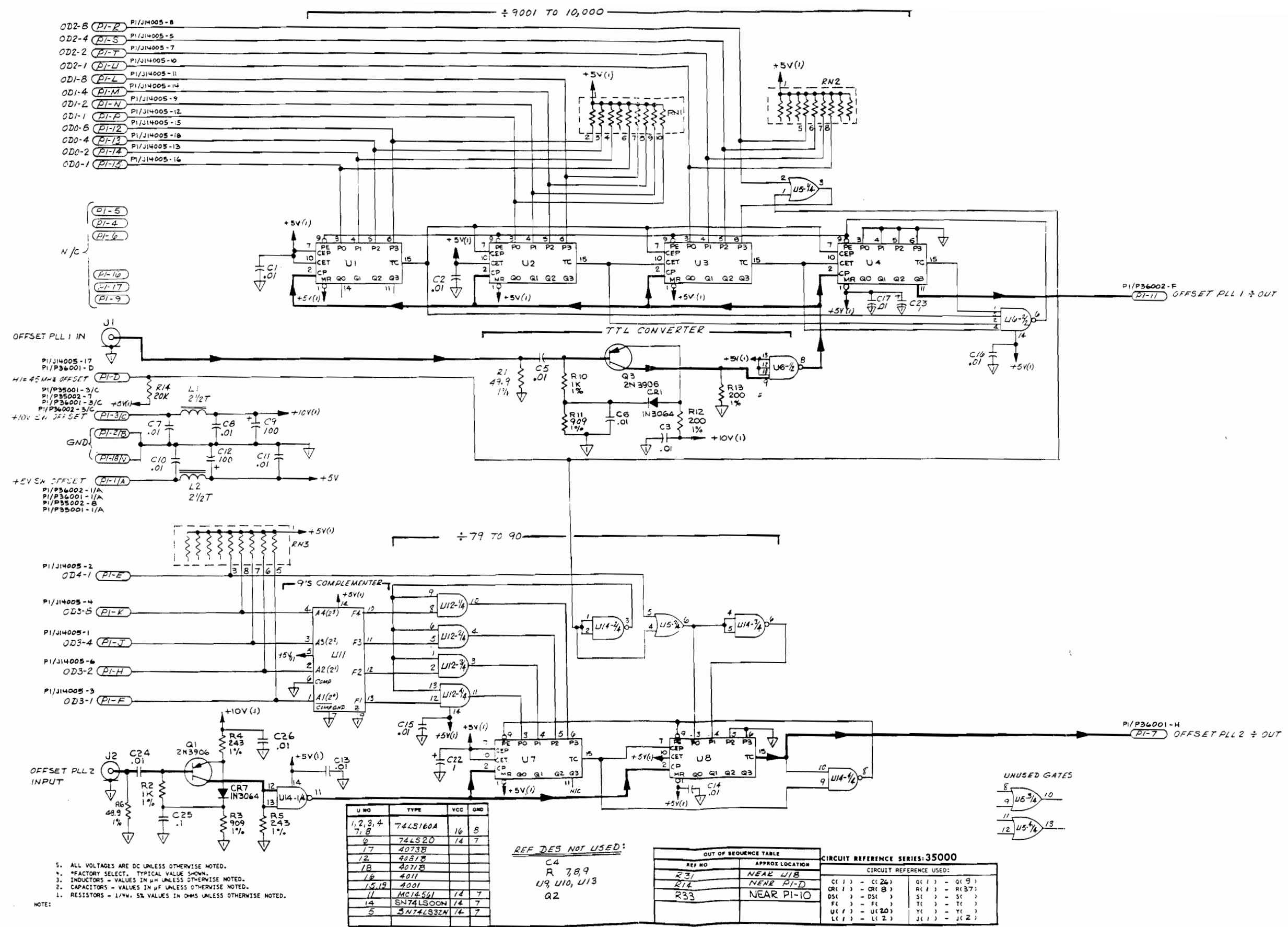
REF DES NOT USED
R 33

OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 35000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
R31	NEAR U13	C(8) - C(21)	Q(4) - Q(9)
		CR(2) - CR(9)	R(15) - R(36)
		DS(1) - DS(3)	S(1) - S(6)
		FE(1) - FE(3)	T(1) - T(1)
		U(15) - U(20)	Y(1) - Y(1)
		LC(1) - LC(1)	J(1) - J(1)

35000 PWR SW (7001-0953)
(6020; 6232; 6488)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
35000	PCB ASSY-POWER SWITCH PRINTED CIRCUIT BOARD	7001-0953 1780-1301	CUSHMAN CUSHMAN	
CAPACITORS				
C1	NOT USED			
C2	NOT USED			
C3	NOT USED			
C4	NOT USED			
C5	NOT USED			
C6	NOT USED			
C7	NOT USED			
C8	NOT USED			
C9	NOT USED			
C10	NOT USED			
C11	NOT USED			
C12	NOT USED			
C13	NOT USED			
C14	NOT USED			
C15	NOT USED			
C16	NOT USED			
C17	NOT USED			
C18	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C19	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV1C1S
C20	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C21	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
DIODES				
CR1	NOT USED			
CR2	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR3	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR4	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR5	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR6	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR7	NOT USED			
CR8	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR9	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
RELAYS				
K1	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K2	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K3	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K4	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N

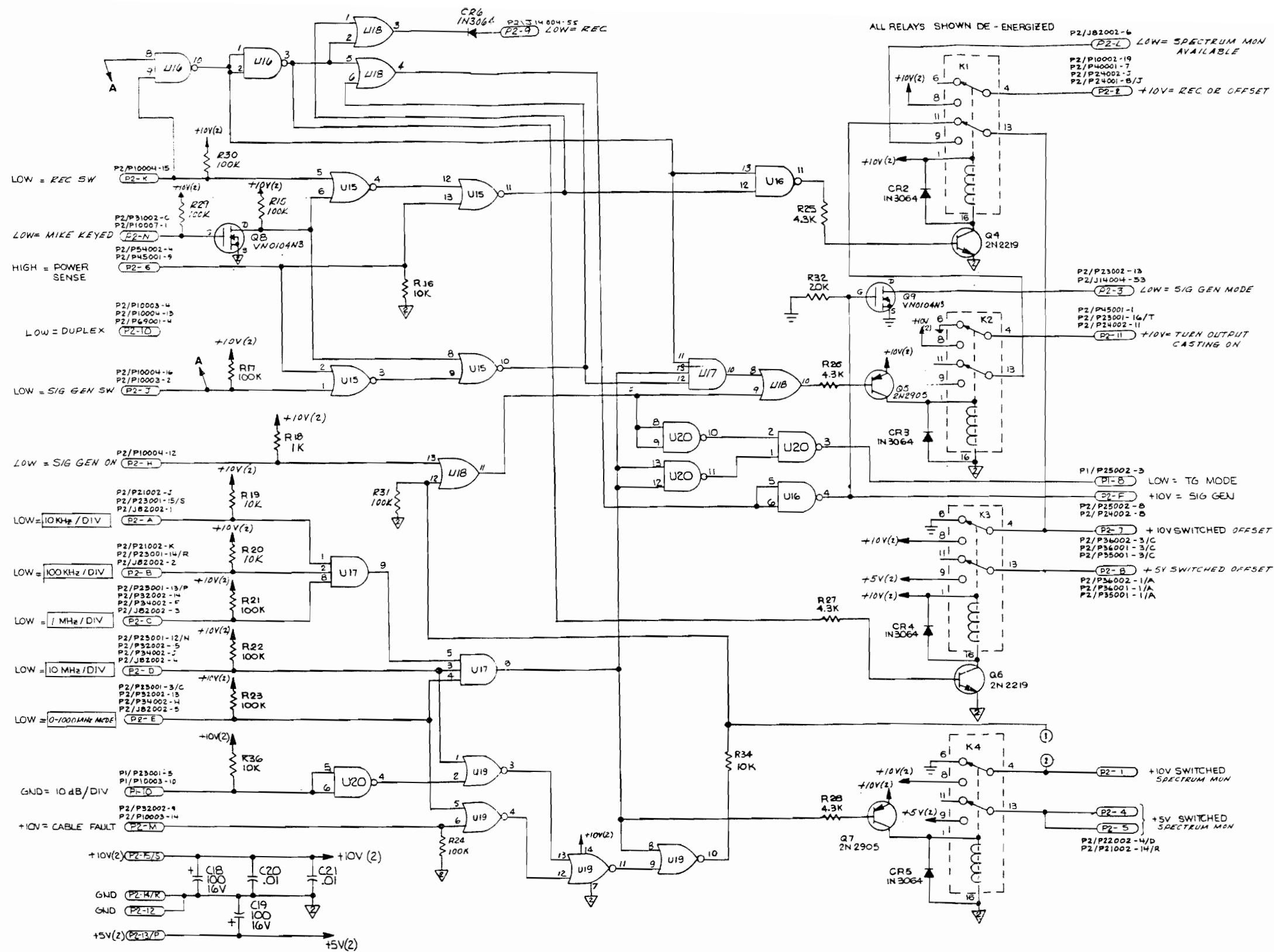
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
TRANSISTORS				
Q1	NOT USED			
Q2	NOT USED			
Q3	NOT USED			
Q4	XSTR-2N2219 NPN SI T05	1272-0036	FAIRCHILD	2N2219
Q5	XSTR-2N2905 PNP SI T05	1272-0035	MOTOROLA	2N2905
Q6	XSTR-2N2219 NPN SI T05	1272-0036	FAIRCHILD	2N2219
Q7	XSTR-2N2905 PNP SI T05	1272-0035	MOTOROLA	2N2905
Q8	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
Q9	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
RESISTORS				
R1	NOT USED			
R2	NOT USED			
R3	NOT USED			
R4	NOT USED			
R5	NOT USED			
R6	NOT USED			
R7	NOT USED			
R8	NOT USED			
R9	NOT USED			
R10	NOT USED			
R11	NOT USED			
R12	NOT USED			
R13	NOT USED			
R14	NOT USED			
R15	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R16	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R17	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R18	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R19	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R20	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R21	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R22	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R23	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R24	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R25	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R26	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R27	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R28	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R29	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R30	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R31	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R32	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R33	NOT USED			
R34	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R35	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R36	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035

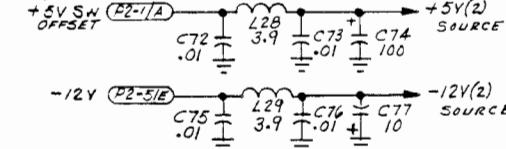
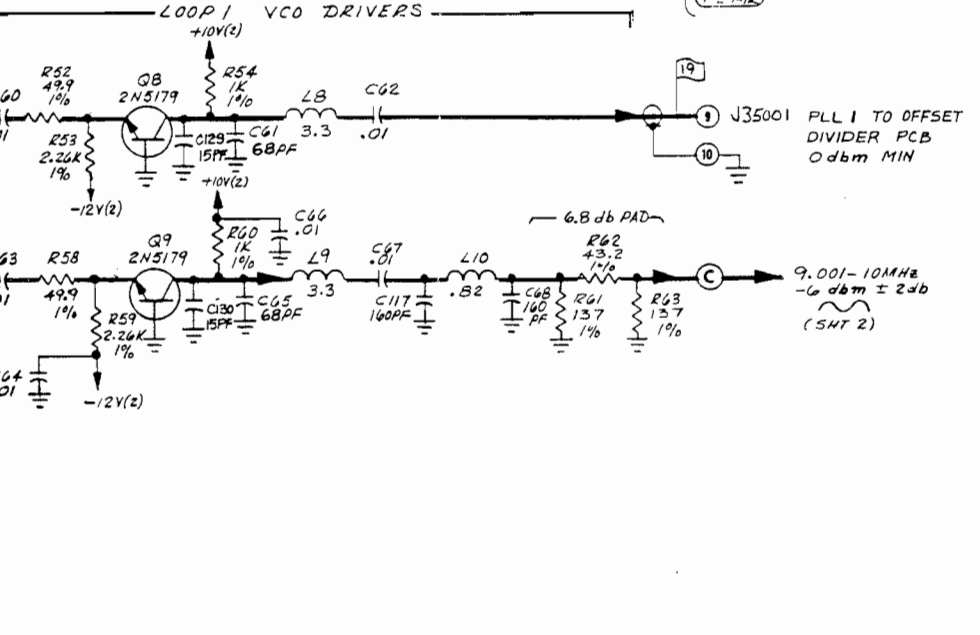
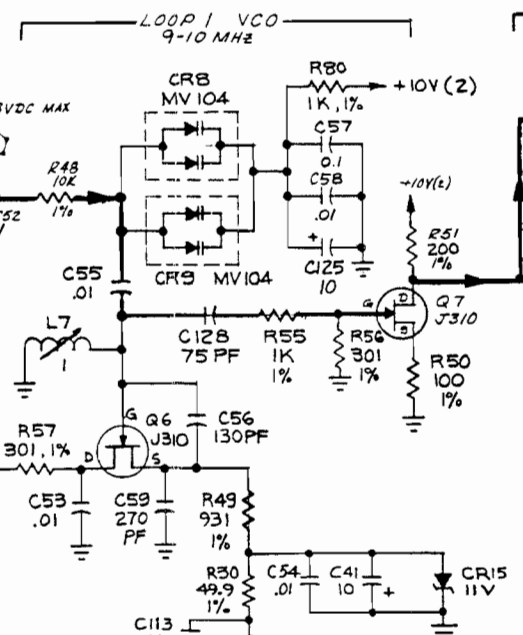
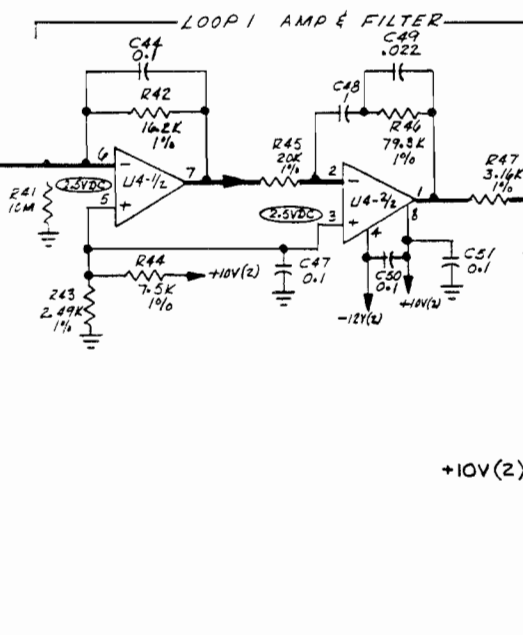
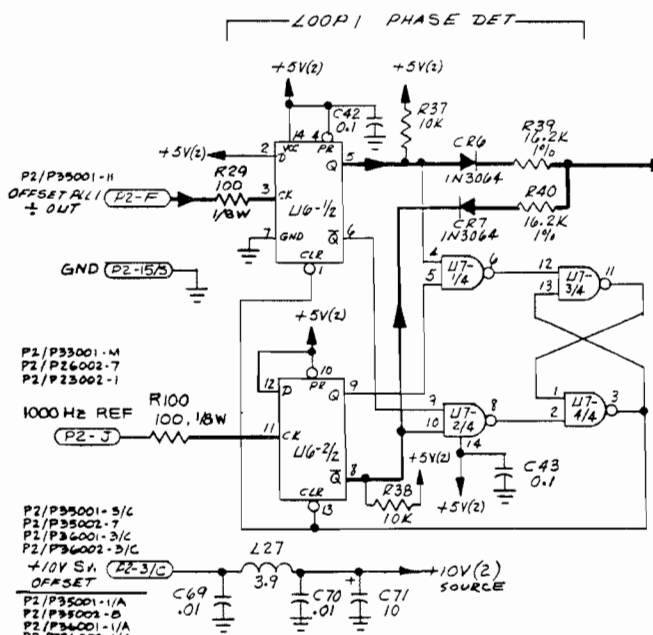
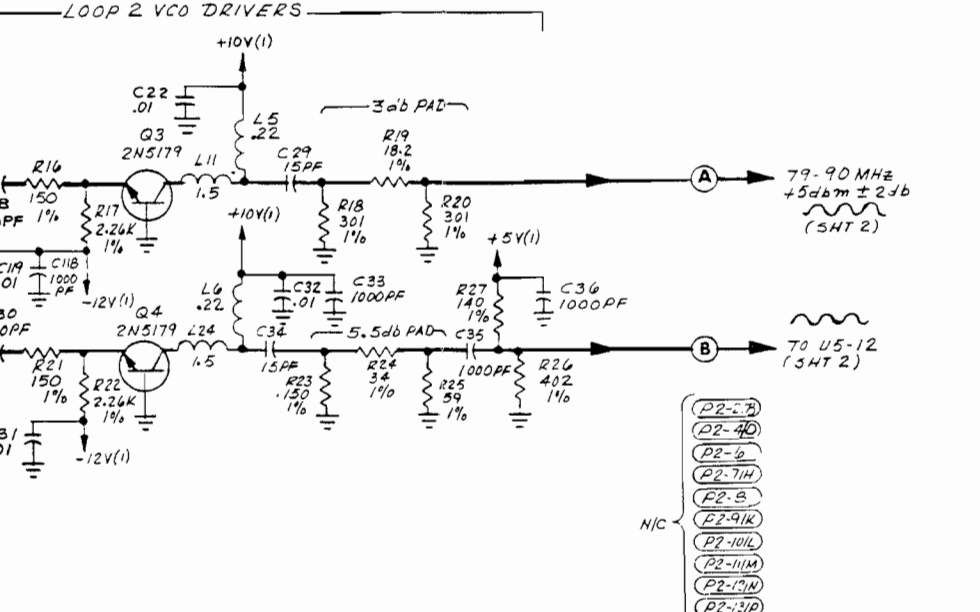
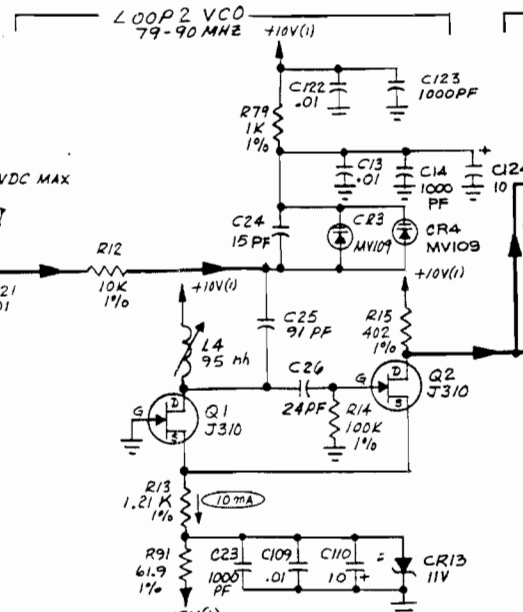
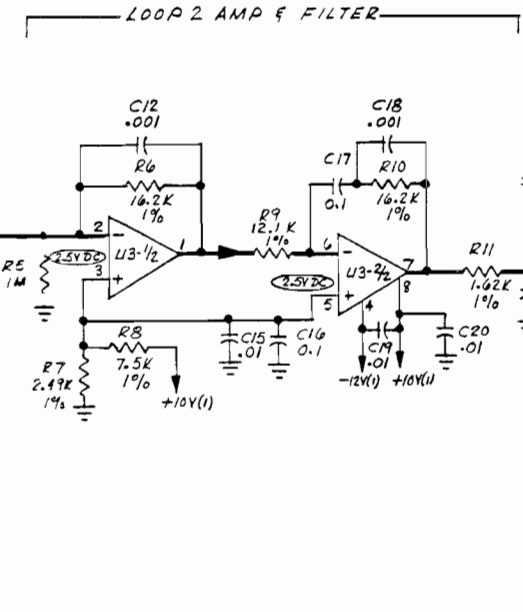
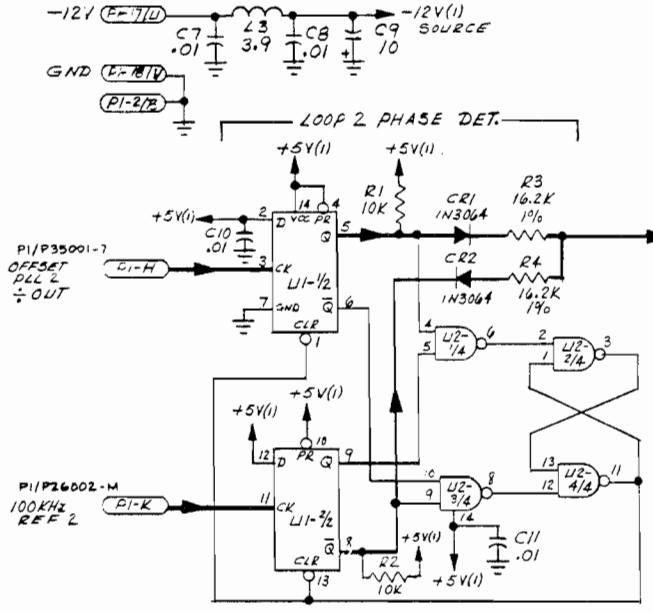
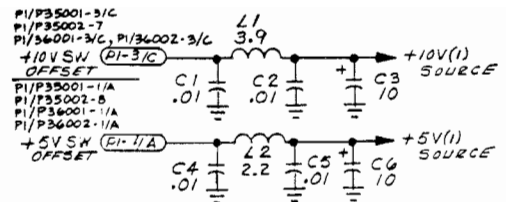


35000 PWR SW/OFFSET DIV (7001-0872) (6030 only) 1 OF 2

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
35000	PCB ASSY-PWR SW/OFFSET DIV PRINTED CIRCUIT BOARD	7001-0872 1780-1301	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C2	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C3	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C4	NOT USED			
C5	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C6	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C7	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C8	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C9	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C10	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C11	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C12	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C13	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C14	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C15	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C16	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C17	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C18	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C19	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C20	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C21	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C22	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C23	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C24	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
DIODES				
CR1	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR2	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR3	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR4	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR5	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR6	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR7	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR8	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR9	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CONNECTORS				
J1	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000
J2	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
RELAYS				
K1	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K2	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K3	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K4	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
INDUCTORS				
L1	CH-2 1/2 T WIDEBAND 4B	1586-0003	FERROXCUBE	VK20020/4B
L2	CH-2 1/2 T WIDEBAND 4B	1586-0003	FERROXCUBE	VK20020/4B
TRANSISTORS				
Q1	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q2	NOT USED			
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q4	XSTR-2N2219 NPN SI T092	1272-0036	FAIRCHILD	2N2219
Q5	XSTR-2N2905 PNP SI T05	1272-0035	MOTOROLA	2N2905
Q6	XSTR-2N2219 NPN SI T092	1272-0036	FAIRCHILD	2N2219
Q7	XSTR-2N2905 PNP SI T05	1272-0035	MOTOROLA	2N2905
Q8	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
Q9	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
RESISTORS				
R1	RES-49.9 1% 150PPM	1074-1038	CAT. LIST	55-100
R2	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R3	RES-909 OHM 1% 150PPM	1074-1036	CAT. LIST	55-100
R4	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R5	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R6	RES-49.9 1% 150PPM	1074-1038	CAT. LIST	55-100
R7	NOT USED			
R8	NOT USED			
R9	NOT USED			
R10	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R11	RES-909 OHM 1% 150PPM	1074-1036	CAT. LIST	55-100
R12	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R13	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R14	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R15	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R16	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R17	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1035
R18	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1035
R19	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R20	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R21	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R22	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R23	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045





U NO	TYPE	VCC	GND
1, 4	74LS74	14	7
2, 7	74LS00N	14	7
3, 4	412	8	4
5	10138	1, 16	B
10	74LS01	14	7

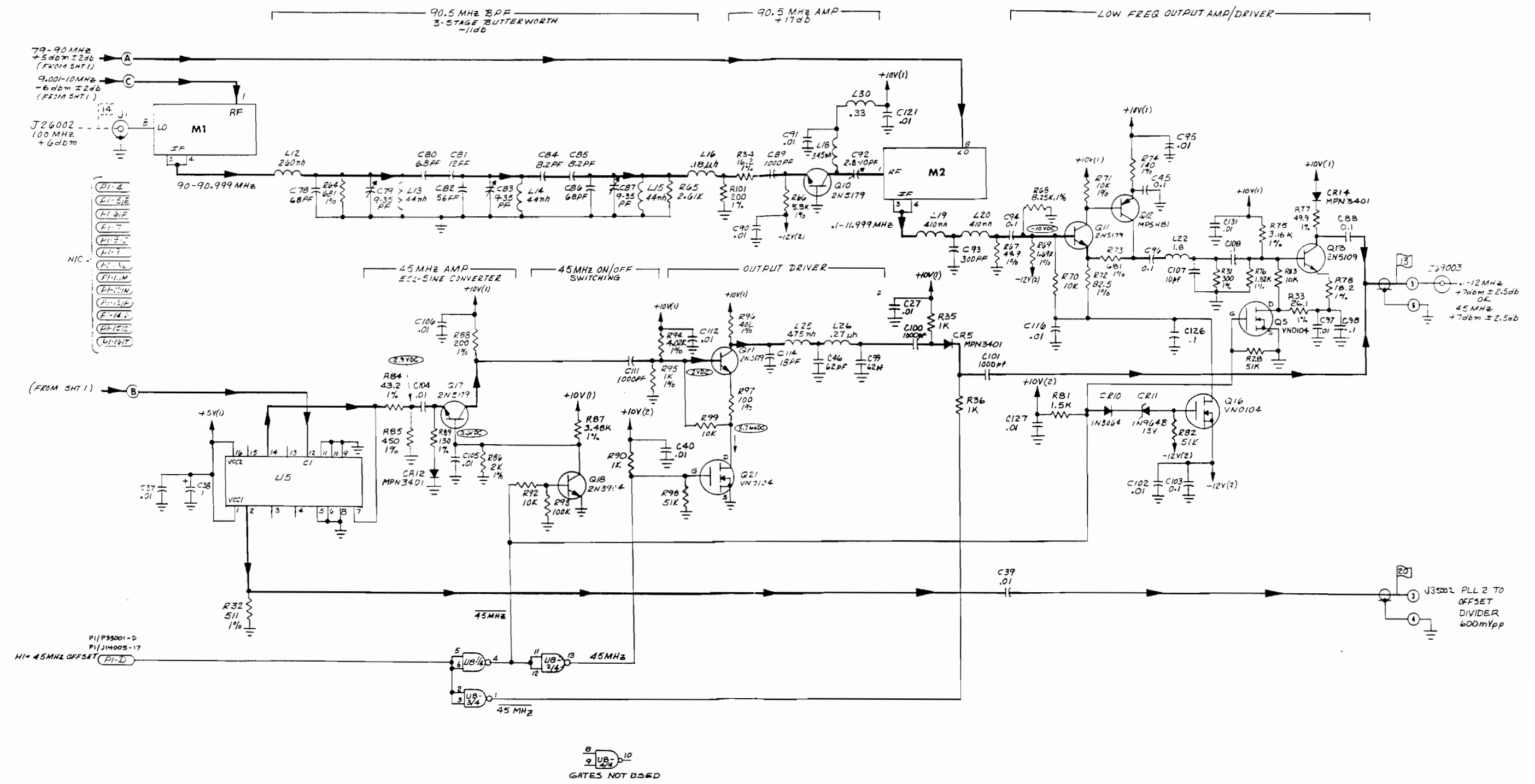
REF DES NOT USED:
Q14, 15, 20
L21, 23, 17
C120, 115

REF NO	APPROX LOCATION	CIRCUIT REFERENCE SERIES: 36000
C116	NEAR R70	
C39, 40, 41 & R33, 34	NEAR R16 (SHTZ)	
35, 36, 35, C85		
C125, 128	NEAR L7	
R100 & C127	NEAR U6	

- NOTE:
- ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 - *FACTORY SELECT. TYPICAL VALUE SHOWN.
 - INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
 - CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
 - RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
36000	PCB ASSY-OFFSET GENERATOR PRINTED CIRCUIT BOARD	7001-0752 1780-1255	CUSHMAN CUSHMAN	
	MIXERS			
BM1	MXR-SBL-1 DBL BAL 1-500	2010-0009	MINI-CKTS	SBL-1
BM2	MXR-SBL-1 DBL BAL 1-500	2010-0009	MINI-CKTS	SBL-1
	CAPACITORS			
C1	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C2	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C3	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C4	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C6	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C7	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C8	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C9	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C10	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C11	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C12	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C13	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C14	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C15	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C19	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C22	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C23	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C24	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C25	CAP-91PF 5% 500V DIP	1002-0027	ELMENCO	DM15-F-910J
C26	CAP-24PF 5% 500V DIP	1002-0051	ELMENCO	DM15-C-240J
C27	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C28	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C29	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C30	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C31	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C32	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C33	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C34	CAP-15PF 5% 500V DIP	1002-0001	ELMENCO	DM15-C-150J
C35	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C36	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C37	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C38	CAP-1UF -10+50% 50V RDL	1013-0047	PANASONIC	ECEA1HV010S
C39	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C40	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M

CKT. REF.	DESCRIPTION	CE STOCK NO.	MAN
C41	CAP-10UF 20% 35V RDL	1013-0044	NIC
C42	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C43	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C44	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C45	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C46	CAP-62PF 5% 500V DIP	1002-0057	ELM
C47	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C48	CAP-1UF 10% 100V RDL	1008-0113	SPI
C49	CAP-.022UF 5% 400V RDL	1008-0094	PLI
C50	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C51	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C52	CAP-1UF 10% 100V RDL	1008-0113	SPI
C53	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C54	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C55	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C56	CAP-130PF 5% 500V DIP	1002-0095	ELI
C57	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C58	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C59	CAP-270PF 5% 500V DIP	1002-0031	ELI
C60	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C61	CAP-68PF 1% 500V DIP	1002-0084	ELI
C62	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C63	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C64	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C65	CAP-68PF 1% 500V DIP	1002-0084	ELI
C66	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C67	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C68	CAP-160PF 5% 500V DIP	1002-0091	ELI
C69	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C70	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C71	CAP-10UF 20% 35V RDL	1013-0044	NIC
C72	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C73	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C74	CAP-100UF -10+75% 16V	1013-0033	PA
C75	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C76	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C77	CAP-10UF 20% 35V RDL	1013-0044	NIC
C78	CAP-68PF 1% 500V DIP	1002-0084	ELI
C79	CAP-9-35PF 200V N650	1001-0006	ERI
C80	CAP-6.8PF .25PF 500V	1005-0043	TI
C81	CAP-12PF 5% 500V DIP	1002-0017	ELI
C82	CAP-56PF 5% 500V DIP	1002-0019	ELI
C83	CAP-9-35PF 200V N650	1001-0006	ERI
C84	CAP-8.2PF .25PF 500V	1005-0043	TI
C85	CAP-8.2PF .25PF 500V	1005-0043	TI
C86	CAP-68PF 1% 500V DIP	1002-0084	ELI
C87	CAP-9-35PF 200V N650	1001-0006	ERI
C88	CAP-.1UF 20% 50V MINTR	1005-0097	ERI
C89	CAP-1000PF 10% 100V	1005-0081	TI
C90	CAP-.01UF 20% 100V Y5P	1005-0100	ERI
C91	CAP-.01UF 20% 100V Y5P	1005-0100	ERI

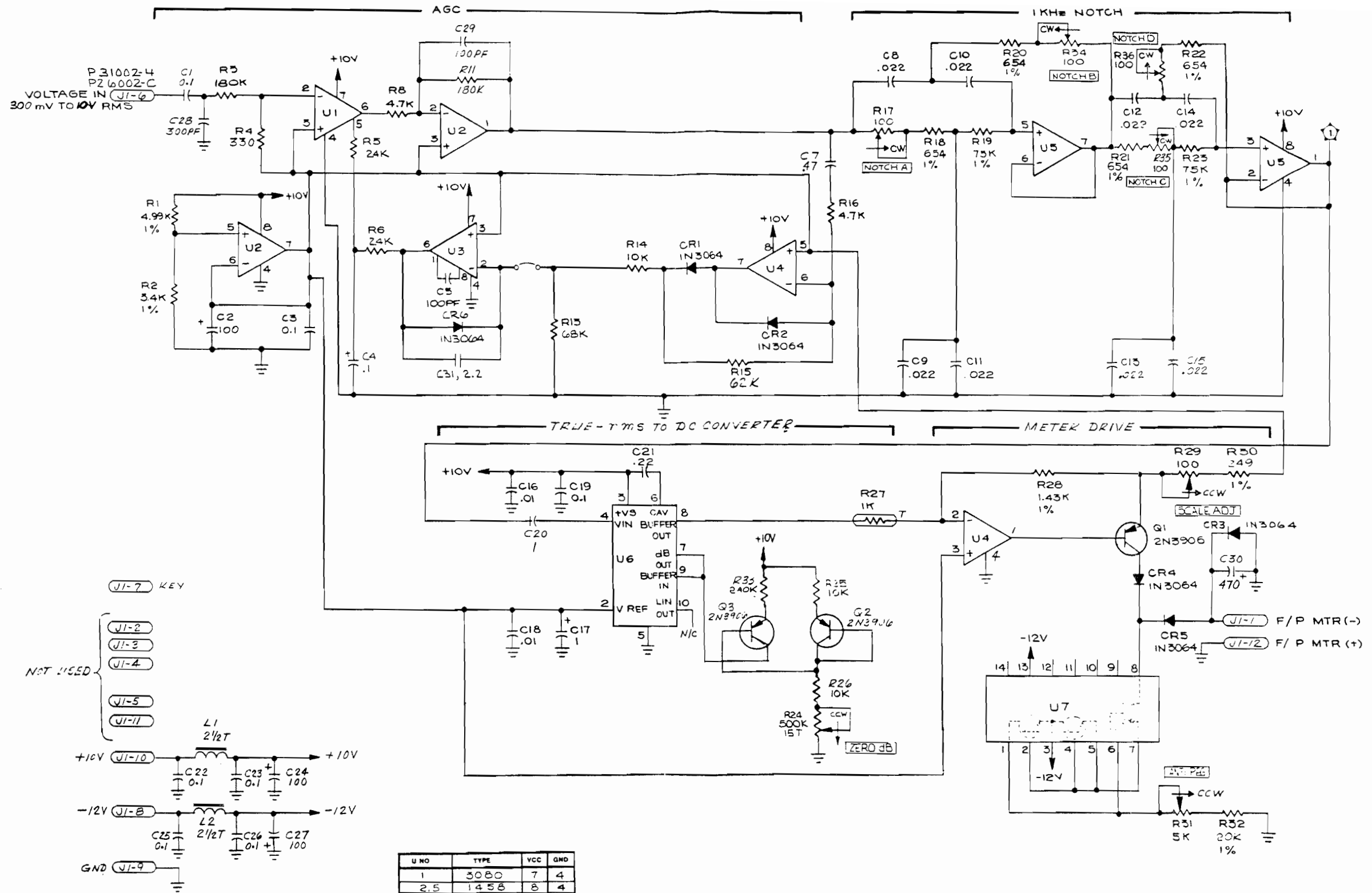


CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
CR8	DIO-MV104 SI DUAL VARICAP	1281-0058	MOTOROLA	MV104
CR9	DIO-MV104 SI DUAL VARICAP	1281-0058	MOTOROLA	MV104
CR10	DIO-1N3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035)
CR11	DIO-1N964B SI ZENER	1281-0070	MOTOROLA	IN964B
CR12	DIO-MPN3401 SI PIN SW	1281-0050	MOTOROLA	MPN3401
CR13	DIO-1N4741A SI ZENER	1281-0107	MOTOROLA	IN4741A
CR14	DIO-MPN3401 SI PIN SW	1281-0050	MOTOROLA	MPN3401
CR15	DIO-1N4741A SI ZENER	1281-0107	MOTOROLA	IN4741A
CONNECTOR				
J1	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000
INDUCTORS				
L1	CH-3.9UH 10% RF MLD AXL	1585-0014	DELEVAN	1537-26
L2	CH-2.2UF 10% RF MLD AXL	1585-0013	DELEVAN	1537-20
L3	CH-3.9UH 10% RF MLD AXL	1585-0014	DELEVAN	1537-26
L4	COIL-VAR IF .30X.30SQ	1596-3504		
L5	CH-.22UH 10% RF MLD AXL	1585-0075	DELEVAN	1025-04
L6	CH-.22UH 10% RF MLD AXL	1585-0075	DELEVAN	1025-04
L7	COIL-VAR IF L45-6/28GA	1596-0318		
L8	CH-3.3UH 10% RF MLD AXL	1585-0080	DELEVAN	1025-32
L9	CH-3.3UH 10% RF MLD AXL	1585-0080	DELEVAN	1025-32
L10	CH-.82UH 10% RF MLD AXL	1585-0093		
L11	CH-1.5UH 10% RF MLD AXL	1585-0095		
L12	CH-26ONH 25GA/13.5T ORN	1585-1009		
L13	CH-44NH 22GA/3.5T ORG	1585-1006		
L14	CH-44NH 22GA/3.5T ORG	1585-1006		
L15	CH-44NH 22GA/3.5T ORG	1585-1006		
L16	CH-.18UH 10% RF MLD AXL	1585-0074	DELEVAN	1025-02
L17	NOT USED			
L18	CH-345NH 25GA/15.5T/GRN	1585-1011		
L19	CH-41ONH 26GA/16.5T/BLU	1585-1010		
L20	CH-41ONH 26GA/16.5T/BLU	1585-1010		
L21	NOT USED			
L22	CH-1.8UH 10% RF MLS AXL	1585-0094		
L23	NOT USED			
L24	CH-1.5UH 10% RF MLD AXL	1585-0095		
L25	CH-475NH 26GA/17.5T.5T	1585-1008		
L26	CH-.27UH 10% RF MLD AXL	1585-0096		
L27	CH-3.9UH 10% RF MLD AXL	1585-0014	DELEVAN	1537-26
L28	CH-3.9UH 10% RF MLD AXL	1585-0014	DELEVAN	1537-26
L29	CH-3.9UH 10% RF MLD AXL	1585-0014	DELEVAN	1537-26
L30	CH-.33UH 5% RF MLD AXL	1585-0053		

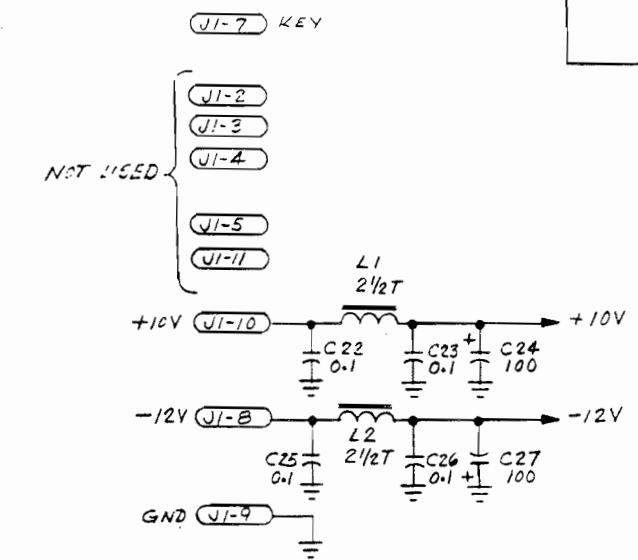
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
TRANSISTORS				
Q1	XSTR-J310 SI T092	1272-0130		
Q2	XSTR-J310 SI T092	1272-0130		
Q3	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q4	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q5	XSTR-VN0104 DI T092	1272-0132	SUPERTEX INC	VN0104N3
Q6	XSTR-J310 SI T092	1272-0130		
Q7	XSTR-J310 SI T092	1272-0130		
Q8	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q9	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q10	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q11	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q12	XSTR-MPSH81 PNP SI T092	1272-0111	MOTOROLA	MPSH81
Q13	XSTR-2N5109 NPN SI T039	1272-0110	MOTOROLA	2N5109
Q14	NOT USED			
Q15	NOT USED			
Q16	XSTR-VN0104 DI T092	1272-0132	SUPERTEX INC	VN0104N3
Q17	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q18	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q19	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q20	NOT USED			
Q21	XSTR-VN0104 DI T092	1272-0132	SUPERTEX INC	VN0104N3
RESISTORS				
R1	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R2	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R3	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R4	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R5	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R6	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R7	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R8	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R9	RES-12.1K 1% 100PPM	1075-0011	CAT. LIST	55-100
R10	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R11	RES-1.62K 1% 100PPM	1075-0104	CAT. LIST	55-100
R12	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R13	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R14	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R15	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R16	RES-150 OHM 1% 100PPM	1075-0125	CAT. LIST	55-100
R17	RES-2.26K 1% 100PPM	1075-0183	CAT. LIST	55-100
R18	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R19	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R20	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R21	RES-150 OHM 1% 100PPM	1075-0125	CAT. LIST	55-100
R22	RES-2.26K 1% 100PPM	1075-0183	CAT. LIST	55-100
R23	RES-150 OHM 1% 100PPM	1075-0125	CAT. LIST	55-100
R24	RES-34 OHM 1% 100PPM	1075-0046	CAT. LIST	55-100
R25	RES-59 OHM 1% 100PPM	1075-0067	CAT. LIST	55-100

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R26	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R27	RES-140 OHM 1% 100PPM	1074-0102	CAT. LIST	55-100
R28	RES-51K 5% 1/4W CC	1066-5135	ALLEN BRADLEY	CB5135
R29	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R30	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R31	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R32	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R33	RES-26.1 OHM 1% 150PPM	1074-1011	CAT. LIST	55-100
R34	RES-16.2 OHM 1% 100PPM	1075-0068	CAT. LIST	55-100
R35	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R36	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R37	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R38	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R39	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R40	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R41	RES-10MEG 5% 1/4W CC	1066-1065	ALLEN BRADLEY	CB1065
R42	RES-16.2K 1% 100PPM	1075-0057	CAT. LIST	55-100
R43	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R44	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R45	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R46	RES-79.3K 1% 100PPM	1075-0074	CAT. LIST	55-100
R47	RES-3.16K 1% 100PPM	1074-1016	CAT. LIST	55-100
R48	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R49	RES-931 OHM 1% 100PPM	1074-0103	CAT. LIST	55-100
R50	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R51	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R52	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R53	RES-2.26K 1% 100PPM	1075-0183	CAT. LIST	55-100
R54	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R55	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R56	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R57	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R58	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R59	RES-2.26K 1% 100PPM	1075-0183	CAT. LIST	55-100
R60	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R61	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R62	RES-43.2 OHM 1% 100PPM	1075-0069	CAT. LIST	55-100
R63	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100
R64	RES-681 OHM 1% 100PPM	1075-0164	CAT. LIST	55-100
R65	RES-2.61K 1% 100PPM	1075-0090	CAT. LIST	55-100
R66	RES-5.9K 1% 100PPM	1075-0110	CAT. LIST	55-100
R67	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R68	RES-8.25K 1% 100PPM	1075-0014	CAT. LIST	55-100
R69	RES-1.69K 1% 150PPM	1074-1015	CAT. LIST	55-100
R70	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R71	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R72	RES-82.5 OHM 1% 100PPM	1075-0106	CAT. LIST	55-100
R73	RES-681 OHM 1% 100PPM	1075-0164	CAT. LIST	55-100
R74	RES-140 OHM 1% 100PPM	1074-0102	CAT. LIST	55-100
R75	RES-3.16K 1% 100PPM	1074-1016	CAT. LIST	55-100
R76	RES-1.82K 1% 100PPM	1075-0065	CAT. LIST	55-100

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R77	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R78	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R79	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R80	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R81	RES-1.5K 5% 1/4W CC	1066-1525	ALLEN BRADLEY	CB1525
R82	RES-51K 5% 1/4W CC	1066-5135	ALLEN BRADLEY	CB5135
R83	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R84	RES-43.2 OHM 1% 100PPM	1075-0069	CAT. LIST	55-100
R85	RES-453 OHM 1% 100PPM	1075-0107	CAT. LIST	55-100
R86	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R87	RES-3.48K 1% 100PPM	1075-0093	CAT. LIST	55-100
R88	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R89	RES-130 OHM 1% 100PPM	1075-0101	CAT. LIST	55-100
R90	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R91	RES-61.9 OHM 1% 100PPM	1075-0007	CAT. LIST	55-100
R92	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R93	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R94	RES-4.02K 1% 100PPM	1075-0094	CAT. LIST	55-100
R95	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R96	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R97	RES-100 OHM 1% 150PPM	1074-1033	CAT. LIST	55-100
R98	RES-51K 5% 1/4W CC	1066-5135	ALLEN BRADLEY	CB5135
R99	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R100	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R101	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
INTEGRATED CIRCUITS				
U1	IC-10138 16PIN DIP BI Q	2025-0274	MOTOROLA	MC10138P
U2	IC-SN74LSOON TTL NAND	2025-0114	TEXAS INSTS	SN74LSOON
U3	IC-412 8PIN DIP DUAL	2025-0325		
U4	IC-412 8PIN DIP DUAL	2025-0325		
U5	IC-10138 16PIN DIP BI Q	2025-0274	MOTOROLA	MC10138P
U6	IC-10138 16PIN DIP BI Q	2025-0274	MOTOROLA	MC10138P
U7	IC-SN74LSOON TTL NAND	2025-0114	TEXAS INSTS	SN74LSOON
U8	IC-74LS01 14PIN DIP 2IN	2025-0326		
CABLE ASSY				
LBL13	CA ASSY-RG188 STR SMB	7032-5747	CUSHMAN	
LBL19	CA ASY-RG188 RT ANG SMB	7032-4147	CUSHMAN	
LBL20	CA ASY-RG188 RT ANG SMB	7032-4134	CUSHMAN	



P31002-4
P26002-C
VOLTAGE IN (J1-6)
300 mV TO 10V RMS



- NOTE:
- ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 - *FACTORY SELECT. TYPICAL VALUE SHOWN.
 - INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
 - CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
 - RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

U NO	TYPE	VCC	GND
1	3080	7	4
2,5	1458	8	4
3	CA 5130	7	4
4	TL082	8	4
6	AD 635	3	5
7	CA 5046		

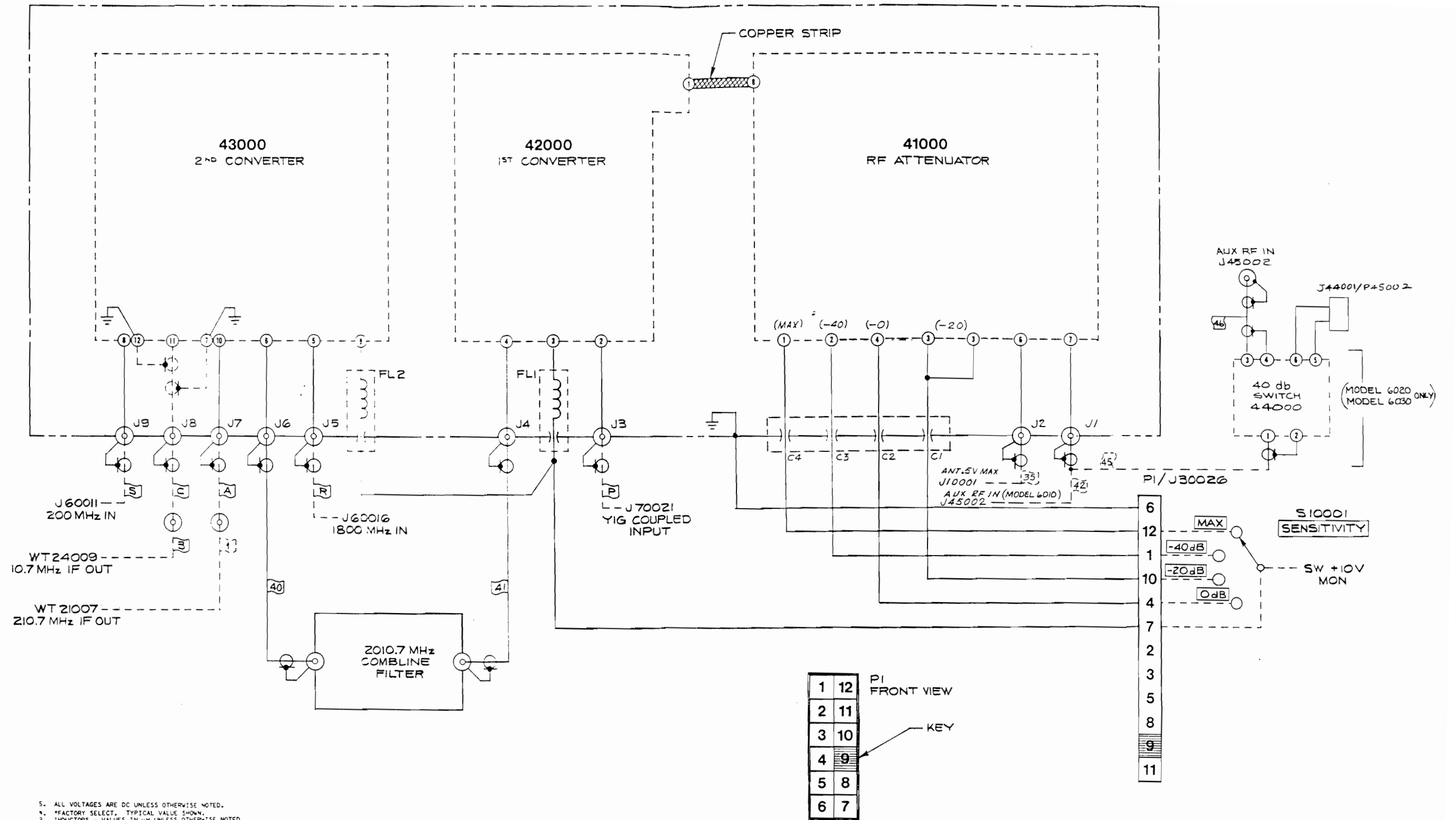
R9 NOT USED

OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 48000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
R34	NEAR R20	CC () - CC () 30	OC () - OC () 3
R36	NEAR R22	CR () - CR () 5	RC () - RC () 36
R35	NEAR R21	DS () - DS ()	SC () - SC ()
C28	NEAR C1	FC () - FC ()	TC () - TC ()
C29	NEAR R11	UC () - UC () 7	YC () - YC ()
		LC () - LC () 2	JC () - JC ()

37000 SINAD (7001-0800)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
37000	PCB ASSY-SINAD PRINTED CIRCUIT BOARD	7001-0800 1780-1271	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-100PF 5% 100V NPO	1005-0082	TUSONIX	8121-100-COGO-101J
C6	NOT USED			
C7	CAP-.47UF 10% 50V MLD	1005-0092	AEROVOX	CK06BX474K
C8	CAP-.022UF 1% 100V RDL	1008-0111	ELPAC COMPON	CIR223F
C9	CAP-.022UF 1% 100V RDL	1008-0111	ELPAC COMPON	CIR223F
C10	CAP-.022UF 1% 100V RDL	1008-0111	ELPAC COMPON	CIR223F
C11	CAP-.022UF 1% 100V RDL	1008-0111	ELPAC COMPON	CIR223F
C12	CAP-.022UF 1% 100V RDL	1008-0111	ELPAC COMPON	CIR223F
C13	CAP-.022UF 1% 100V RDL	1008-0111	ELPAC COMPON	CIR223F
C14	CAP-.022UF 1% 100V RDL	1008-0111	ELPAC COMPON	CIR223F
C15	CAP-.022UF 1% 100V RDL	1008-0111	ELPAC COMPON	CIR223F
C16	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C17	CAP-1UF -10+50% 50V	1013-0047	PANASONIC	ECEA1HV010S
C18	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-1UF 10% 100V RDL	1008-0113	SPRAGUE	451P105X9100J
C21	CAP-.22UF 10% 100V RDL	1008-0091	ELECTROCUBE	232P27391WA3
C22	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C23	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C24	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C28	CAP-300PF 5% 500V DIP	1002-0059	ELMENCO	DM15-F-301J
C29	CAP-100PF 5% 100V NPO	1005-0082	TUSONIX	8121-100-COGO-101J
C30	CAP-470UF +100-10% 6.3V	1013-0043	PANASONIC	ECEADJY471S
C31	CAP-2.2UF 10% 35V RDL	1011-0001	SPRAGUE	196D225X9035JA1
DIODES				
CR1	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR2	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR3	DIO-1N3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035)
CR4	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR5	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR6	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
CONNECTOR				
J1	CONN-12(2X6)PIN; RT ANGLE	2535-0182		
INDUCTORS				
L1	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L2	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
TRANSISTORS				
Q1	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
RESISTORS				
R1	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R2	RES-3.4K 1% 100PPM	1075-0020	CAT. LIST	55-100
R3	RES-180K 5% 1/4W CC	1066-1845	ALLEN BRADLEY	CB1845
R4	RES-330 OHM 5% 1/4W CC	1066-3315	ALLEN BRADLEY	CB3315
R5	RES-24K 5% 1/4W CC	1066-2435	ALLEN BRADLEY	CB2435
R6	RES-24K 5% 1/4W CC	1066-2435	ALLEN BRADLEY	CB2435
R7	NOT USED			
R8	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R9	NOT USED			
R10	NOT USED			
R11	RES-180K 5% 1/4W CC	1066-1845	ALLEN BRADLEY	CB1845
R12	NOT USED			
R13	RES-68K 5% 1/4W CC	1066-6835	ALLEN BRADLEY	CB6835
R14	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R15	RES-62K 5% 1/4W CC	1066-6235	ALLEN BRADLEY	CB6235
R16	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R17	POT-100 OHM 20% 1/2W 1T	1215-0054	BECKMAN	91AR100
R18	RES-654.4 OHM, .25%, 25PPM	1074-0024	CAT. LIST	55-025
R19	RES-75K 1% 100PPM	1075-0135	CAT. LIST	55-100
R20	RES-654.4 OHM, .25%, 25PPM	1074-0024	CAT. LIST	55-025
R21	RES-654.4 OHM, .25%, 25PPM	1074-0024	CAT. LIST	55-025
R22	RES-654.4 OHM, .25%, 25PPM	1074-0024	CAT. LIST	55-025
R23	RES-75K 1% 100PPM	1075-0135	CAT. LIST	55-100
R24	POT-500K 10% 3/4W 15T	1215-0041	BECKMAN	89WR500K
R25	RES-10K 5% 1/4W CC	1066-1035		
R26	RES-10K 5% 1/4W CC	1066-1035		
R27	RES-1K 1% .3W@70C	1177-0012		
R28	RES-1.43K 1% 25PPM	1074-1024	CAT. LIST	55-025
R29	POT-100 OHM 20% 1/2W 1T	1215-0054	BECKMAN	91AR100
R30	RES-249 OHM 1% 100PPM	1074-0098	CAT. LIST	55-100
R31	POT-5K 20% 1/2W 1T	1203-0071	BECKMAN	91AR5K
R32	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100

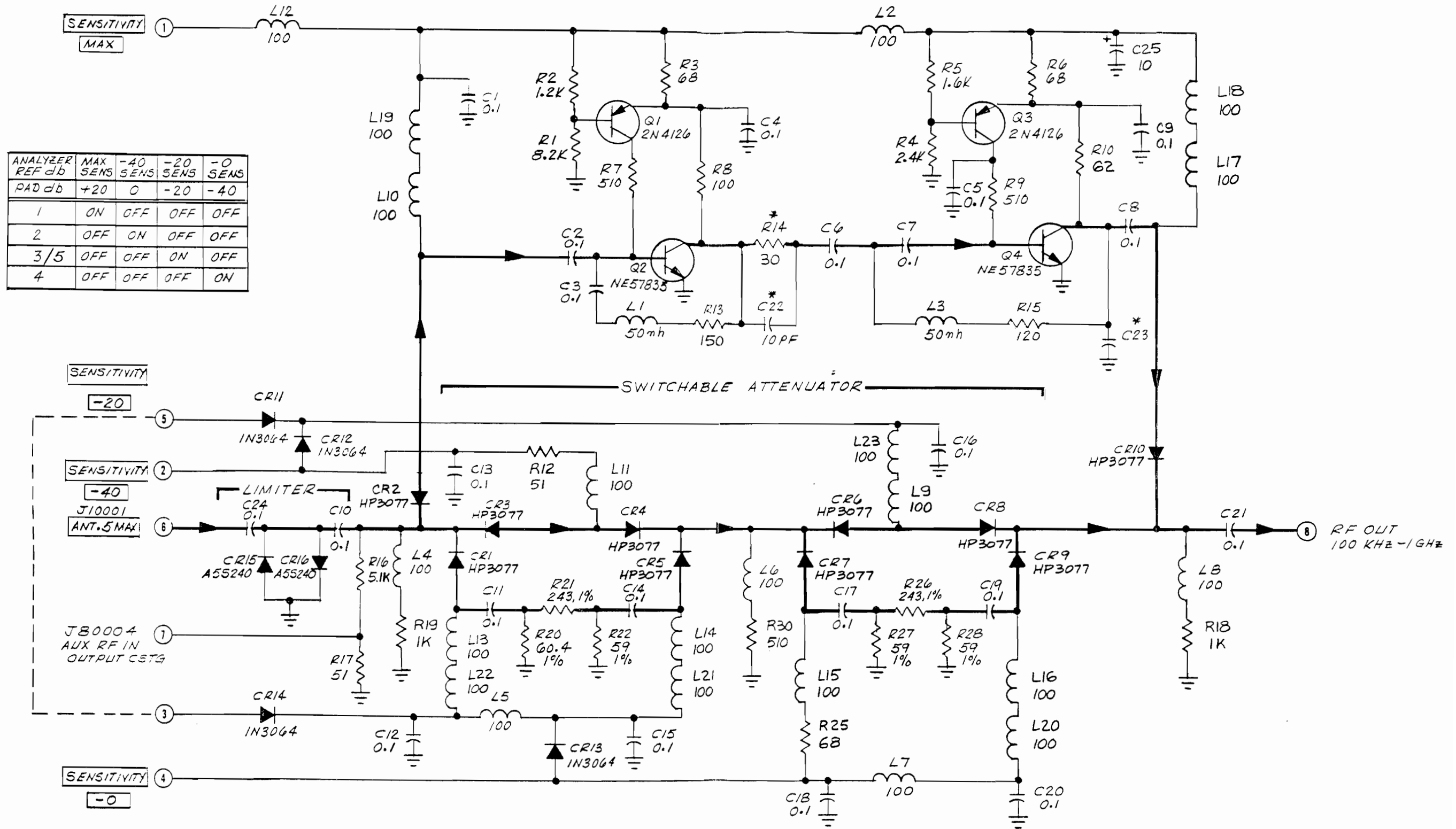


NOTE:

5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
1. RESISTORS - 1/4W, 5% VALUES IN Ω MS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
40000	CASTING ASSY-RECEIVER	7046-0064	CUSHMAN	
	PCB ASSEMBLYS			
41000	PCB ASSY-RF ATTENUATOR	7001-0764	CUSHMAN	
42000	PCB ASSY-1ST CONVERTER	7001-0508	CUSHMAN	
43000	PCB ASSY-2ND CONVERTER	7001-0765	CUSHMAN	
	CAPACITORS			
C1	PL ASSY-CAPACITOR MTG	7040-0044	CUSHMAN	
C2	PL ASSY-CAPACITOR MTG	7040-0044	CUSHMAN	
C3	PL ASSY-CAPACITOR MTG	7040-0044	CUSHMAN	
C4	PL ASSY-CAPACITOR MTG	7040-0044	CUSHMAN	
	FILTERS			
FL1	FLTR-EMI 1500PF 200V	1040-0044		
FL2	FLTR-EMI 1500PF 200V	1040-0044		
	FLTR ASSY-2010.7 MHZ	7041-0045	CUSHMAN	
	CONNECTORS			
J1	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J2	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J3	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J4	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J5	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J6	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J7	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J8	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J9	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09

.1 TO 1GHz AMPL



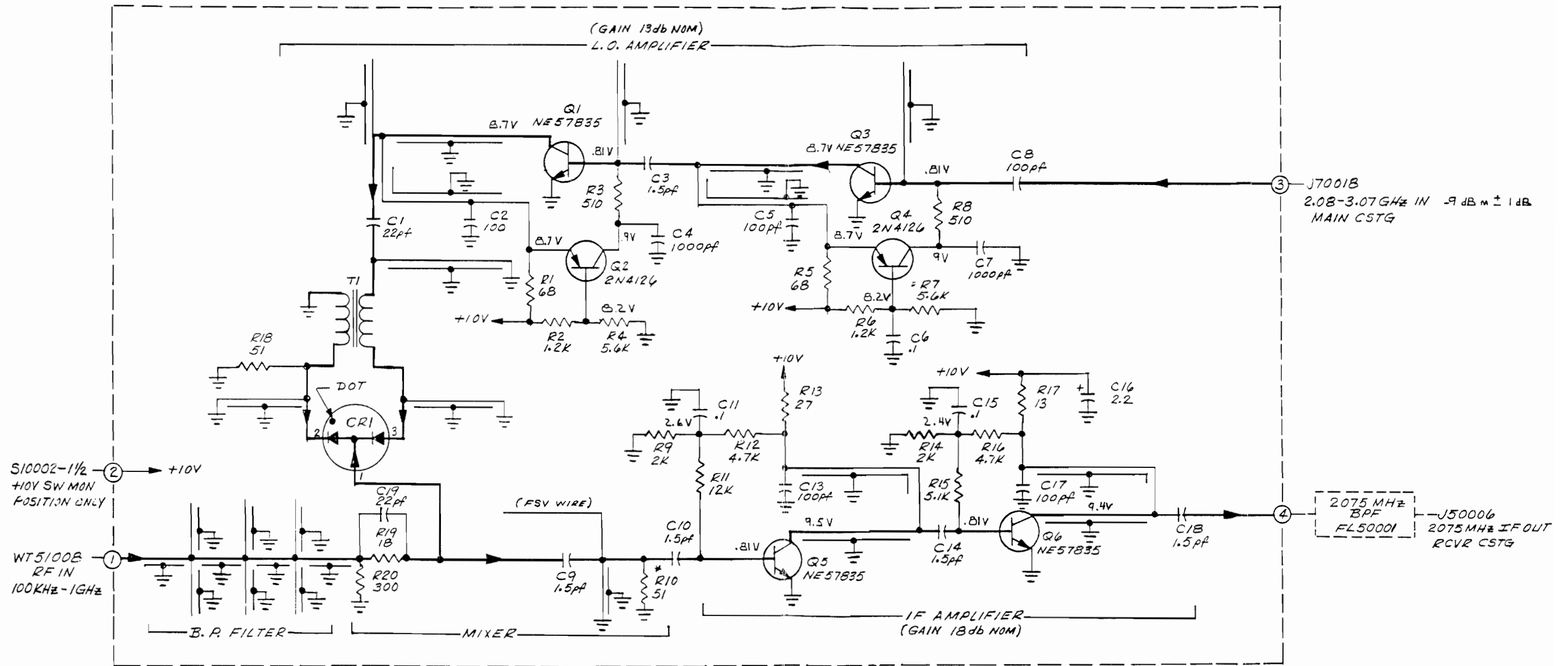
ANALYZER REF db	MAX SENS	-40 SENS	-20 SENS	-0 SENS
PAD db	+20	0	-20	-40
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3/5	OFF	OFF	ON	OFF
4	OFF	OFF	OFF	ON

NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W, 5% VALUES IN Ω 'S UNLESS OTHERWISE NOTED.

41000 RF ATTENUATOR (7001-0764)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
41000	PCB ASSY-RF ATTENUATOR PRINTED CIRCUIT BOARD	7001-0764 1780-1250	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C13	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	FSV, 10% 100V			SELECTED VALUE
C23	FSV, 10% 100V			SELECTED VALUE
C24	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C25	CAP-10UF 20% 35V RDL	1011-0006	MATSUO	221L3502106M3
DIODES				
CR1	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR2	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR3	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR4	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR5	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR6	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR7	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR8	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR9	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR10	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR11	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR12	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR13	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR14	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
CR15	DIO-A5S420 SI SW D034	1281-0155		
CR16	DIO-A5S420 SI SW D034	1281-0155		

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
INDUCTORS				
L1	COIL-AIR CORE .090 DIA	1596-0271		
L2	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L3	COIL-AIR CORE .090 DIA	1596-0271		
L4	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L5	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L6	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L7	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L8	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L9	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L10	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L11	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L12	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L13	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L14	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L15	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L16	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L17	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L18	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L19	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L20	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L21	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L22	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L23	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
TRANSISTORS				
Q1	XSTR-2N4126 PNP SI T092	1272-0090	FAIRCHILD	2N4126
Q2	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
Q3	XSTR-2N4126 PNP SI T092	1272-0090	FAIRCHILD	2N4126
Q4	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
RESISTORS				
R1	RES-8.2K 5% 1/8W CC	1065-8225	ALLEN BRADLEY	BB8225
R2	RES-1.2K 1/8W CC	1065-1225	ALLEN BRADLEY	BB1225
R3	RES-68 OHM 1/8W CC	1065-6805	ALLEN BRADLEY	BB6805
R4	RES-2.4K 5% 1/8W CC	1065-2425	ALLEN BRADLEY	BB2425
R5	RES-1.6K 5% 1/8W CC	1065-1625	ALLEN BRADLEY	BB1625
R6	RES-68 OHM 1/8W CC	1065-6805	ALLEN BRADLEY	BB6805
R7	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115
R8	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R9	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115
R10	RES-62 OHM 5% 1/8W CC	1065-6205	ALLEN BRADLEY	BB6205
R11	NOT USED			
R12	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R13	RES-150 OHM 5% 1/8W CC	1065-1515	ALLEN BRADLEY	BB5105
R14	RES-30 OHM 5% 1/8W CC	1065-3005	ALLEN BRADLEY	BB3005
R15	RES-120 OHM 5% 1/8W CC	1065-1215	ALLEN BRADLEY	BB1215

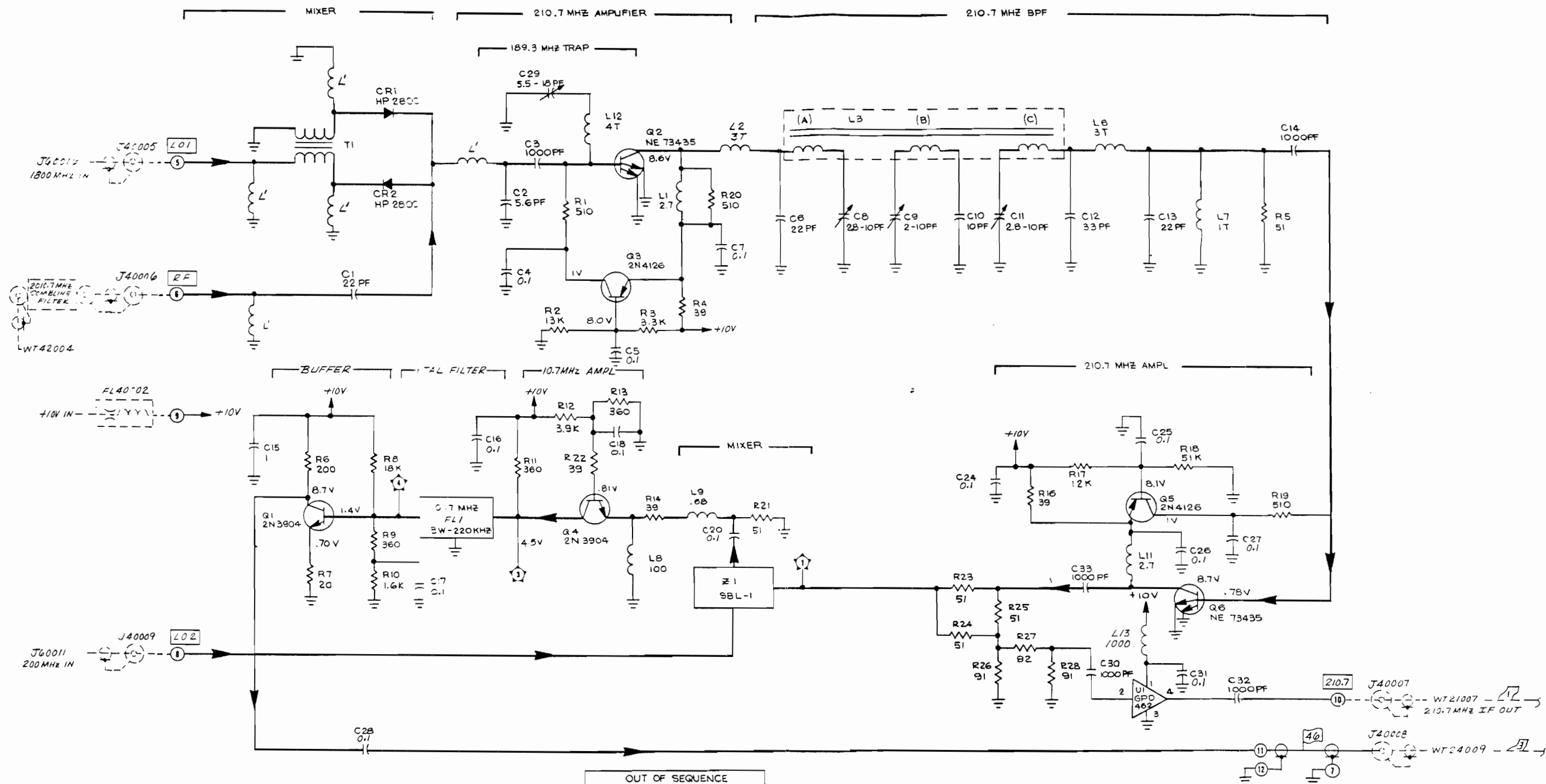


42000 1st CONVERTER

(7001-0508)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
42000	PCB ASSY-1ST CONVERTER PRINTED CIRCUIT BOARD	7001-0508 1780-1010	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-22PF 5% 50V NPO	1012-0007	VARADYNE	3BN050S220JS
C2	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C3	CAP-1.5PF .1PF 50V MIN	1012-0029		
C4	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C5	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C8	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C9	CAP-1.5PF .1PF 50V MIN	1012-0029		
C10	CAP-1.5PF .1PF 50V MIN	1012-0029		
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	NOT USED			
C13	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C14	CAP-1.5PF .1PF 50V MIN	1012-0029		
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-2.2UF 10% 35V RDL	1011-0001	SPRAGUE	196D225X9035JA1
C17	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C18	CAP-1.5PF .1PF 50V MIN	1012-0029		
C19	CAP-22PF 5% 50V NPO	1012-0007	VARADYNE	3BN050S220JS
DIODE				
CR1	DIO-DMD6460 SCHOTTKY B	1281-0095	ALPHA IND	DMD-6460-131-012
TRANSISTORS				
Q1	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
Q2	XSTR-2N4126 PNP SI T092	1272-0090	FAIRCHILD	2N4126
Q3	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
Q4	XSTR-2N4126 PNP SI T092	1272-0090	FAIRCHILD	2N4126
Q5	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
Q6	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
RESISTORS				
R1	RES-68 OHM 5% 1/8W CC	1065-6805	ALLEN BRADLEY	BB6805
R2	RES-1.2K 5% 1/8W CC	1065-1225	ALLEN BRADLEY	BB1225
R3	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115
R4	RES-5.6K 5% 1/8W CC	1065-5625	ALLEN BRADLEY	BB5625
R5	RES-68 OHM 5% 1/8W CC	1065-6805	ALLEN BRADLEY	BB6805
R6	RES-1.2K 5% 1/8W CC	1065-1225	ALLEN BRADLEY	BB1225
R7	RES-5.6K 5% 1/8W CC	1065-5625	ALLEN BRADLEY	BB5625
R8	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R9	RES-2K 5% 1/8W CC	1065-2025	ALLEN BRADLEY	BB2025
R10	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R11	RES-12K 5% 1/8W CC	1065-1235	ALLEN BRADLEY	BB1235
R12	RES-4.7K 5% 1/8W CC	1065-4725	ALLEN BRADLEY	BB4725
R13	RES-27 OHM 5% 1/8W CC	1065-2705	ALLEN BRADLEY	BB2705
R14	RES-2K 5% 1/8W CC	1065-2025	ALLEN BRADLEY	BB2025
R15	RES-5.1K 5% 1/8W CC	1065-5125	ALLEN BRADLEY	BB5125
R16	RES-4.7K 5% 1/8W CC	1065-4725	ALLEN BRADLEY	BB4725
R17	RES-13 OHM 5% 1/8W CC	1065-1305	ALLEN BRADLEY	BB1305
R18	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R19	RES-18 OHM 5% 1/8W CC	1065-1805	ALLEN BRADLEY	BB1805
R20	RES-300 OHM 5% 1/8W CC	1065-3015	ALLEN BRADLEY	BB3015
TRANSFORMER				
T1	XFMR-TOROIDIAL BIFILAR	1579-0042		



OUT OF SEQUENCE	
REF NO.	APPROX LOCATION
C29	NEAR L12
C33	NEAR L11
R20	NEAR L1

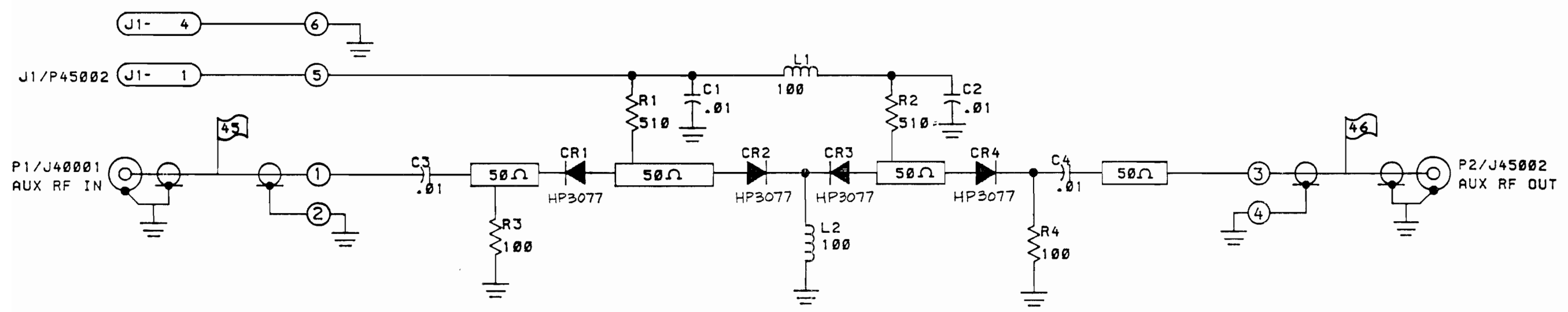
REF DES NOT USED:
 L4, 5, 10
 C19, 21, 22, 23
 R15

CIRCUIT REFERENCE SERIES: 43000					
CIRCUIT REFERENCE USED:					
CC	11 - CC	33	QC	11 - QC	6
CR	11 - CR	2	RC	11 - RC	2B
DS	11 - DS	3	SC	11 - SC	1
PA	11 - PA	1	TC	11 - TC	1
UC	11 - UC	1	XC	11 - XC	1
LC	11 - LC	13	YC	11 - YC	1

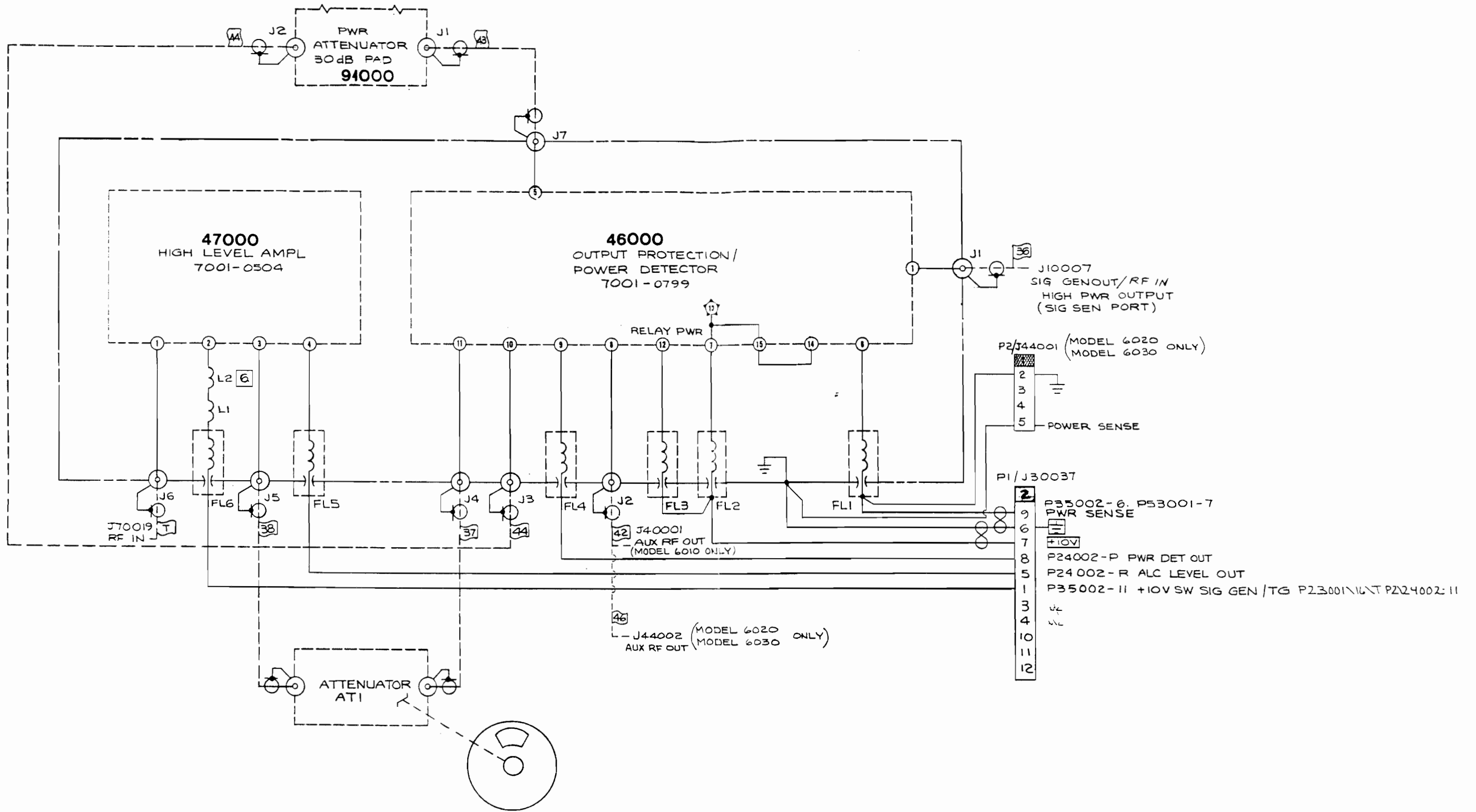
- NOTE:
- DC VOLTAGE MEASUREMENTS MADE WITH DVM HAVING 10 MΩ INPUT IMPEDANCE
 - L' = MICROSTRIP INDUCTORS (ETCHED).
 - ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 - *FACTORY SELECT, TYPICAL VALUE SHOWN.
 - INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
 - CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
 - RESISTORS - 1/8W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
43000	PCB ASSY-2ND CONVERTER PRINTED CIRCUIT BOARD	7001-0765 1780-1251	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-22PF 5% 50V NPO	1012-0007	VARADYNE	3BNO50S220JS
C2	CAP-5.6PF 10% 100V NPO	1005-0111	TUSONIX	8101-100-COGO-569D
C3	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-22PF 5% 500V THIN	1004-0003	CORNELL DUB	CD6CD220J03
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-2.8-10PF 250V VADJ	1001-0021	SPRAGUE	GRU10000
C9	CAP-1-10PF 25V NPO VADJ	1001-0024	TUSONIX	513-011-A 2-10pF
C10	CAP-10PF 10% 100V NPO	1005-0074	TUSONIX	8101-100-COGO-100K
C11	CAP-2.8-10PF 250V VADJ	1001-0021	SPRAGUE	GRU10000
C12	CAP-33PF 5% 500V THIN	1004-0006	CORNELL DUB	CD6ED330J
C13	CAP-22PF 5% 500V THIN	1004-0003	CORNELL DUB	CD6CD220J03
C14	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C15	CAP-.1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	NOT USED			
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	NOT USED			
C22	NOT USED			
C23	NOT USED			
C24	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C28	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C29	CAP-5.5-18PF 350V NPO	1001-0008	ERIE	CV31A180
C30	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C31	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C32	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C33	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
DIODES				
CR1	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
CR2	DIO-HP2800 SI HOT CARR	1283-0001	HP	5082-2800
FILTER				
FL1	FLTR-CER 10.7 MHZ 3DB	1040-0043	MURATA CORP	10.7 MHz (RED ONLY)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
INDUCTORS				
L1	CH-2.7UH 10% RF MLD AXL	1585-0079	DELEVAN	1025-30
L2	ASSY-COIL AIR CORE	1596-0076		
L3	COIL ASSY-5/6/5 TURN	1596-0223		
L4	NOT USED			
L5	NOT USED			
L6	ASSY-COIL AIR CORE	1596-0076		
L7	COIL-AIR CORE .209 DIA	1596-0232		
L8	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L9	CH-.68UH 10% RF MLD AXL	1585-0024	DELEVAN	1537-08
L10	NOT USED			
L11	CH-2.7UH 10% RF MLD AXL	1585-0079	DELEVAN	1025-30
L12	ASSY-COIL-AIR CORE	1596-0072		
L13	CH-1000UH 10% RF MLD	1585-0085	DELEVAN	1025-92
TRANSISTORS				
Q1	XSTR-2N3904 NPN SI TO92	1272-0032	MOTOROLA	2N3904
Q2	XSTR-NE73435 NPN SI	1272-0087	NIPPON ELECT	NE73435
Q3	XSTR-2N4126 PNP SI TO92	1272-0090	FAIRCHILD	2N4126
Q4	XSTR-2N3904 NPN SI TO92	1272-0032	MOTOROLA	2N3904
Q5	XSTR-2N4126 PNP SI TO92	1272-0090	FAIRCHILD	2N4126
Q6	XSTR-NE73435 NPN SI	1272-0087	NIPPON ELECT	NE73435
RESISTORS				
R1	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115
R2	RES-13K 5% 1/8W CC	1065-1335	ALLEN BRADLEY	BB1335
R3	RES-3.3K 5% 1/8W CC	1065-3325	ALLEN BRADLEY	BB3325
R4	RES-39 OHM 5% 1/8W CC	1065-3905	ALLEN BRADLEY	BB3905
R5	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R6	RES-200 OHM 5% 1/8W CC	1065-2015	ALLEN BRADLEY	BB2015
R7	RES-20 OHM 5% 1/8W CC	1065-2005	ALLEN BRADLEY	BB2005
R8	RES-18K 5% 1/8W CC	1065-1835	ALLEN BRADLEY	BB1835
R9	RES-360 OHM 5% 1/8W CC	1065-3615	ALLEN BRADLEY	BB3615
R10	RES-1.6K 5% 1/8W CC	1065-1625	ALLEN BRADLEY	BB1625
R11	RES-360 OHM 5% 1/8W CC	1065-3615	ALLEN BRADLEY	BB3615
R12	RES-3.9K 5% 1/8W CC	1065-3925	ALLEN BRADLEY	BB3925
R13	RES-360 OHM 5% 1/8W CC	1065-3615	ALLEN BRADLEY	BB3615
R14	RES-39 OHM 5% 1/8W CC	1065-3905	ALLEN BRADLEY	BB3905
R15	NOT USED			
R16	RES-39 OHM 5% 1/8W CC	1065-3905	ALLEN BRADLEY	BB3905
R17	RES-12K 5% 1/8W CC	1065-1235	ALLEN BRADLEY	BB1235
R18	RES-51K 5% 1/8W CC	1065-5135	ALLEN BRADLEY	BB5135
R19	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115
R20	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115
R21	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R22	RES-39 OHM 5% 1/8W CC	1065-3905	ALLEN BRADLEY	BB3905
R23	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
44000	PCB ASSY-40dB SWITCH PRINTED CIRCUIT BOARD	7001-0828 1780-1289	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C2	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C3	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C4	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
DIODES				
CR1	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR2	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR3	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
CR4	DIO-5082-3077 SI PIN	1281-0185	HP	5082-3077
INDUCTORS				
L1	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L2	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
RESISTORS				
R1	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115
R2	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115
R3	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R4	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
CABLE ASSY				
LBL45	CA ASY-RG188 RTNG	7032-4107	CUSHMAN	
LBL46	CA ASY-RG188 RTNG	7032-4117	CUSHMAN	
	HARN ASSY-40DB SWITCH	7030-0309	CUSHMAN	



6 FERRITE BEADS

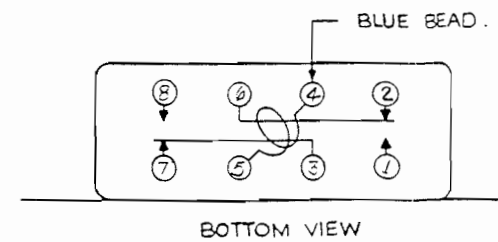
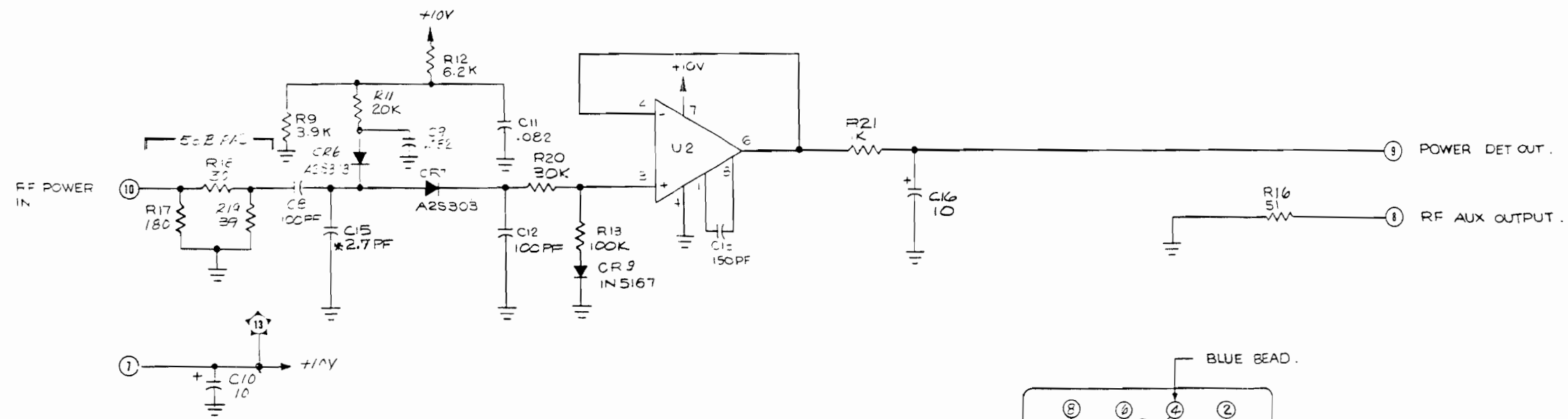
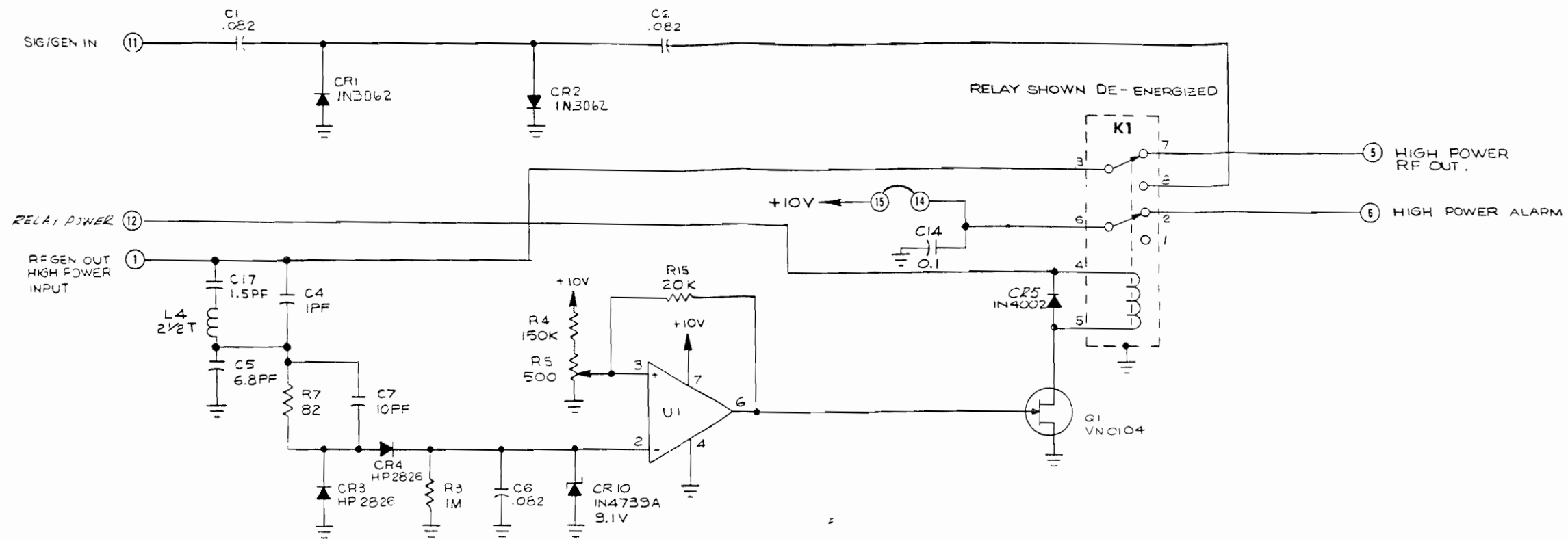
- 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
- 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
- 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
- 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
- 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

NOTE:

OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 45000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
		C() - C()	Q() - Q()
		CR() - CR()	R() - R()
		DS() - DS()	S() - S()
		F() - F()	T() - T()
		U() - U()	FL() - FL() 6
		L() - L()	J() - J() 7

45000 OUTPUT CASTING INTCON DIAG
(7046-0068)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
45000	CASTING ASSY-RF OUTPUT	7046-0068	CUSHMAN	
PCBS				
46000	PCB ASSY-OUTPUT PROT/PWR	7001-0799	CUSHMAN	
47000	PCB ASSY-HI LEV AMP	7001-0504	CUSHMAN	
INDUCTORS				
	CH-.047X.138X.118 FERRITE	1586-0004	FERROXCUBE	56-590-65/4B
FILTERS				
FL1	FLTR-EMI 1500PF 200V	1040-0044		
FL2	FLTR-EMI 1500PF 200V	1040-0044		
FL3	FLTR-EMI 1500PF 200V	1040-0044		
FL4	FLTR-EMI 1500PF 200V	1040-0044		
FL5	FLTR-EMI 1500PF 200V	1040-0044		
FL6	FLTR-EMI 1500PF 200V	1040-0044		
CONNECTORS				
J1	CONN-SMC 50 OHM STR JK	2536-0190		
J2	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J3	NOT USED			
J4	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J5	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J6	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J7	CONN-SMC 50 OHM STR JK	2536-0190		



U NO	TYPE	VCC	GND
1	IC 3130T		
2	IC 3130		

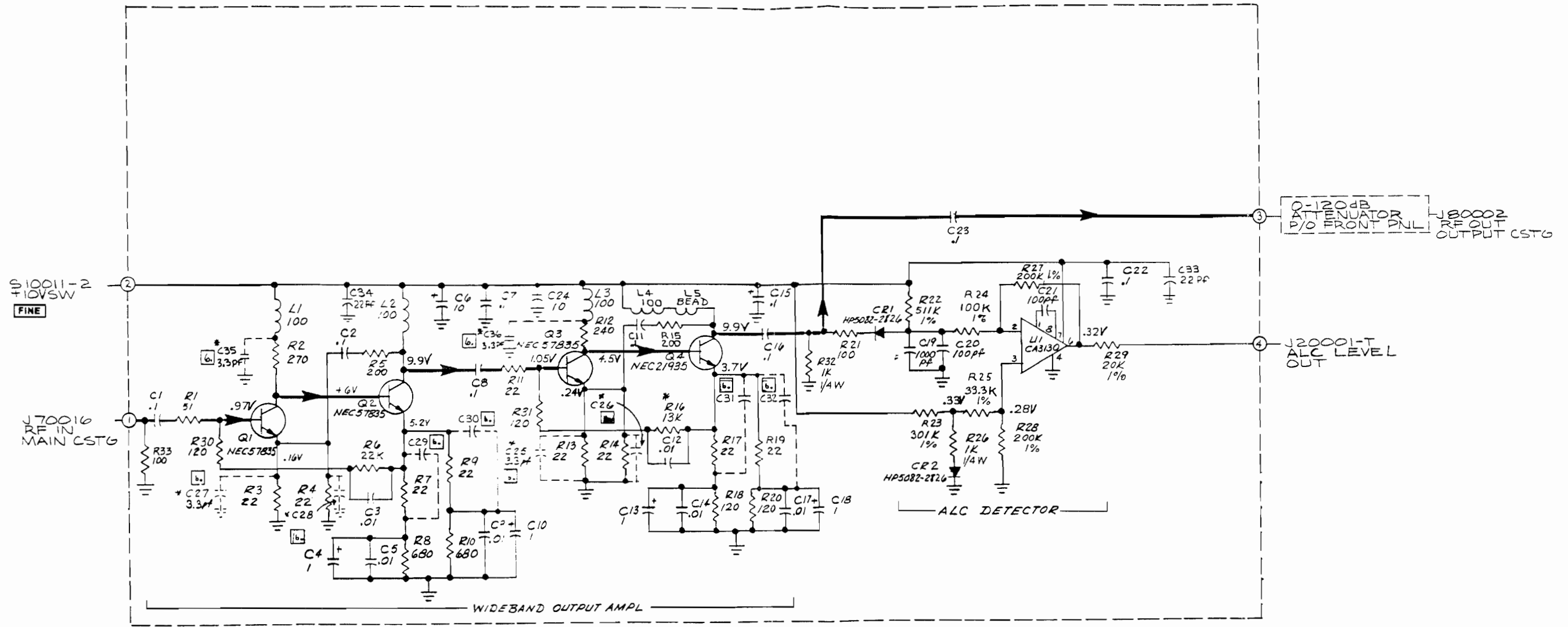
REF DES NOT USED:
 C3, L2, R1, R10, R14, R2,
 W7, 2, 3, 4, CR8, R6, R8

OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES:	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
CR8	NEAR L1	CC () - CC () 17	QC () - QC ()
R15	NEAR U1	CR () - CR () 10	RC () - RC () 21
		DS () - DS ()	SC () - SC ()
		FC () - FC ()	TC () - TC ()
		UC () - UC ()	MC () - MC ()
		LC () - LC ()	JC () - JC ()

NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT, TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN L - UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN P - UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/8W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
46000	PCB ASSY-OUTPUT PROT/PWR PRINTED CIRCUIT BOARD	7001-0799 1780-1273	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.082UF 20% 100V BX	1012-0041	VICLAN	1812B823M3P
C2	CAP-.082UF 20% 100V BX	1012-0041	VICLAN	1812B823M3P
C3	NOT USED			
C4	CAP-1PF .5PF 50V NPO	1012-0019	VITRAMON	VJ0805A1R00H
C5	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BN05056R8CS
C6	CAP-.082UF 20% 100V BX	1012-0041	VICLAN	1812B823M3P
C7	NOT USED			
C8	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C9	CAP-.082UF 20% 100V BX	1012-0041	VICLAN	1812B823M3P
C10	CAP-10UF 20% 35V RDL	1011-0006	MATSUO	221L3502106M3
C11	CAP-.082UF 20% 100V BX	1012-0041	VICLAN	1812B823M3P
C12	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C13	CAP-150PF 10% 100V NPO	1005-0108	ERIE	8121-100-COGO-151K
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	NOT USED			
C16	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C17	CAP-1.5PF .25PF 100V	1005-0121	CENTRE ENGR	1001ONPO159C
DIODES				
CR1	DIO-1N3062 SI SW DO7	1281-0080	ITT	IN3062
CR2	DIO-1N3062 SI SW DO7	1281-0080	ITT	IN3062
CR3	DIO-HP2826 HOT CARR	1283-0005	HP	5082-2826
CR4	DIO-HP2826 HOT CARR	1283-0005	HP	5082-2826
CR5	DIO-1N4002 SI RECT	1281-0023	ITT	IN4002
CR6	DIO-1N5167 SI SW A1AC	1281-0169	AERTECH	A25303
CR7	DIO-1N5167 SI SW A1AC	1281-0169	AERTECH	A25303
CR8	NOT USED			
CR9	DIO-1N5167 SI SW A1AC	1281-0169	AERTECH	A25303
CR10	DIO-1N4739A SI ZENER	1281-0027	IRC	1N4739A
RELAY				
K1	RLY-DPDT 12VDC COIL 2A	1313-0038	HI-G	2K-2A-112
INDUCTORS				
L1	NOT USED			
L2	NOT USED			
L3	NOT USED			
L4	CH-2/12 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
TRANSISTOR				
Q1	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
RESISTORS				
R1	NOT USED			
R2	NOT USED			
R3	RES-1MEG 5% 1/8W CC	1065-1055	ALLEN BRADLEY	BB1055
R4	RES-150K 5% 1/8W CC	1065-1545	ALLEN BRADLEY	BB1545
R5	POT-500 OHM 10% 1/2W 1T	1215-0051	ALLEN BRADLEY	A2A501
R6	NOT USED			
R7	RES-82 OHM 5% 1/8W CC	1065-8205	ALLEN BRADLEY	BB8205
R8	NOT USED			
R9	RES-3.9K 5% 1/8W CC	1065-3925	ALLEN BRADLEY	BB3925
R10	NOT USED			
R11	RES-20K 5% 1/8W CC	1065-2035	ALLEN BRADLEY	BB2035
R12	RES-6.2K 5% 1/8W CC	1065-6225	ALLEN BRADLEY	BB6225
R13	RES-100K 5% 1/8W CC	1065-1045	ALLEN BRADLEY	BB1045
R14	NOT USED			
R15	RES-20K 5% 1/8W CC	1065-2035	ALLEN BRADLEY	BB2035
R16	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R17	RES-180 OHM 5% 1/8W CC	1065-1815	ALLEN BRADLEY	BB1815
R18	RES-30 OHM 5% 1/8W CC	1065-3005	ALLEN BRADLEY	BB3005
R19	RES-39 OHM 5% 1/8W CC	1065-3905	ALLEN BRADLEY	BB3905
R20	RES-30K 5% 1/8W CC	1065-3035	ALLEN BRADLEY	BB3035
R21	RES-1K 5% 1/8W CC	1065-1025	ALLEN BRADLEY	BB1025
INTEGRATED CIRCUITS				
U1	IC-CA3130T OP AMPL	2025-0161	RCA	CA3130T
U2	IC-3130 8PIN DIP OP A	2025-0269	RCA	CA3130E



7. VOLTAGES ARE MEASURED WITHOUT RF INPUT, USING A DVM WITH 10MΩ INPUT IMPEDANCE.
6. INSTALLED IN CERTAIN UNITS DURING FINAL TEST. 3.3% TYP.
5. ALL VOLTAGES ARE DC ± 10% UNLESS OTHERWISE NOTED.
4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
3. INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
2. CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

NOTE:

50 6000

CIRCUIT REFERENCE SERIES: 82000 47000

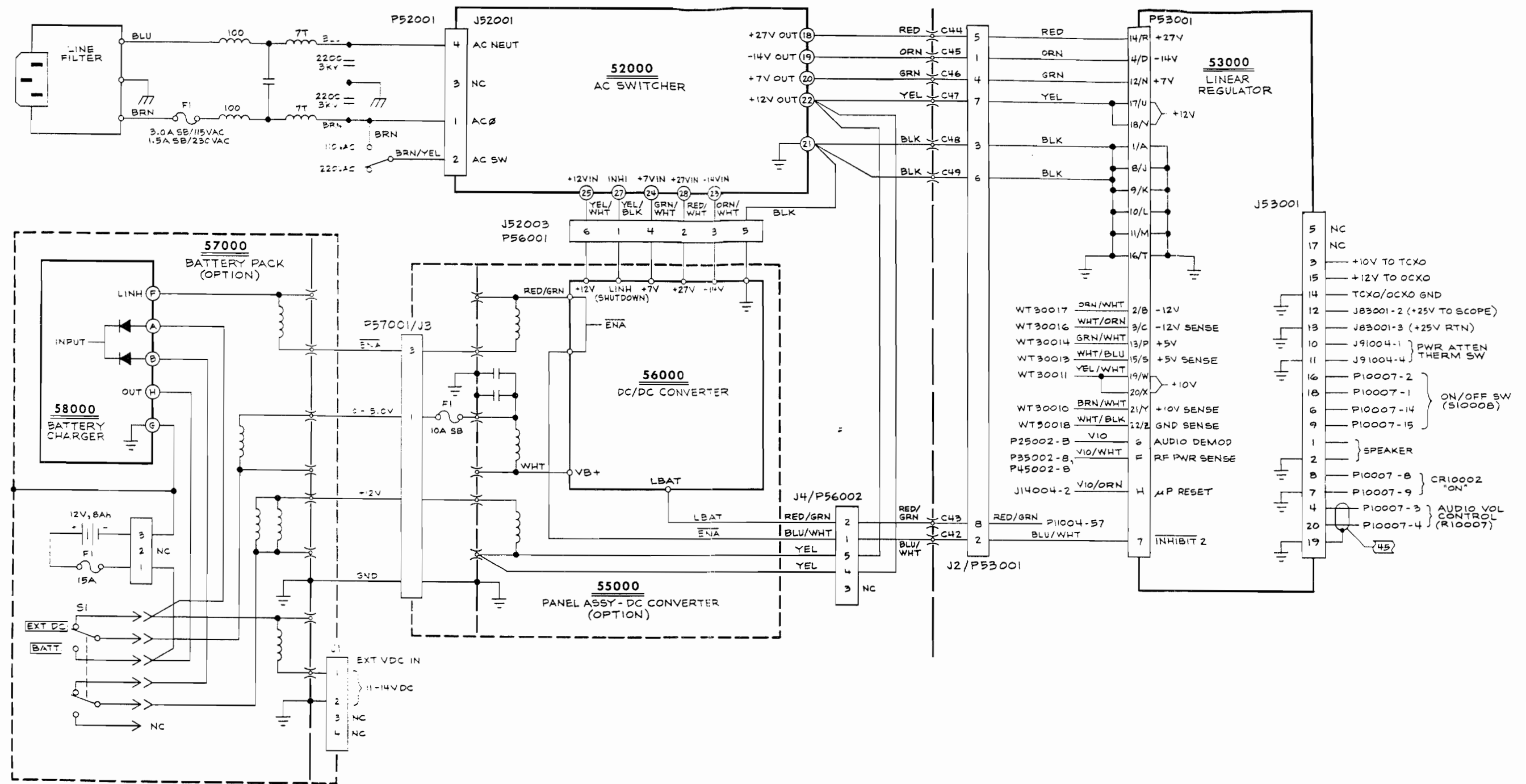
CIRCUIT REFERENCE USED:			
CC	1	CC	34
CR	1	CR	2
DS	1	DS	3
FC	1	FC	3
UC	1	UC	3
LC	1	LC	3

47000 HI LEVEL AMPL

(7001-0504)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
47000	PCB ASSY-HI LEVEL AMP PRINTED CIRCUIT BOARD	7001-0504 1780-1013	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C4	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C6	CAP-10UF 20% 35V RDL	1011-0006	MATSUO	221L3502106M3
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C10	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C13	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C14	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C18	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C19	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7R0-102K
C20	CAP-100PF 5% 100V NPO	1005-0082	TUSONIX	8121-100-COG0-101J
C21	CAP-100PF 5% 500V DIP	1002-0011	ELMENCO	DM15-F-101J
C22	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C23	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C24	CAP-10UF 20% 35V RDL	1011-0006	MATSUO	221L3502106M3
C25	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C26	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C27	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C28	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C29	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C30	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C31	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C32	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C33	CAP-22PF 5% 50V NPO	1012-0007	VARADYNE	3BN050S220JS
C34	CAP-22PF 5% 50V NPO	1012-0007	VARADYNE	3BN050S220JS
C35	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
C36	FSV 50V MINTR	1005-XXXX		FACTORY SELECT
DIODES				
CR1	DIO-HP2826 HOT CARR	1283-0005	HP	5082-2826
CR2	DIO-HP2826 HOT CARR	1283-0005	HP	5082-2826

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
INDUCTORS				
L1	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L2	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L3	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L4	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L5	CH-.047X.138X.118 F B	1586-0004	FERROXCUBE	56-590-65/4B
TRANSISTORS				
Q1	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
Q2	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
Q3	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELECT	NE57835
Q4	XSTR-NE21935 NPN SI	1272-0120	NEC	NE21935
RESISTORS				
R1	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R2	RES-270 OHM 5% 1/8W CC	1065-2715	ALLEN BRADLEY	BB2715
R3	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R4	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R5	RES-200 OHM 5% 1/8W CC	1065-2015	ALLEN BRADLEY	BB2015
R6	FSV 5% 1/8W CC	1065-XXXX	ALLEN BRADLEY	FACTORY SELECT
R7	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R8	RES-680 OHM 5% 1/8W CC	1065-6815	ALLEN BRADLEY	BB6815
R9	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R10	RES-680 OHM 5% 1/8W CC	1065-6815	ALLEN BRADLEY	BB6815
R11	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R12	RES-240 OHM 5% 1/8W CC	1065-2415	ALLEN BRADLEY	BB2415
R13	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R14	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R15	RES-200 OHM 5% 1/8W CC	1065-2015	ALLEN BRADLEY	BB2015
R16	FSV 5% 1/8W CC	1065-XXXX	ALLEN BRADLEY	FACTORY SELECT
R17	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R18	RES-120 OHM 5% 1/8W CC	1065-1215	ALLEN BRADLEY	BB1215
R19	RES-22 OHM 5% 1/8W CC	1065-2205	ALLEN BRADLEY	BB2205
R20	RES-120 OHM 5% 1/8W CC	1065-1215	ALLEN BRADLEY	BB1215
R21	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R22	RES-511K 1% 100PPM	1075-0156	CAT. LIST	55-100
R23	RES-301K 1% 150PPM	1074-1037	CAT. LIST	55-100
R24	RES-100K 1% 100PPM	1074-0109	CAT. LIST	55-100
R25	RES-33.3K 1% 100PPM	1075-0072	CAT. LIST	55-100
R26	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R27	RES-200K 1% 100PPM	1075-0148	CAT. LIST	55-100
R28	RES-200K 1% 100PPM	1075-0148	CAT. LIST	55-100
R29	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R30	RES-120 OHM 5% 1/8W CC	1065-1215	ALLEN BRADLEY	BB1215
R31	RES-120 OHM 5% 1/8W CC	1065-1215	ALLEN BRADLEY	BB1215
R32	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R33	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015



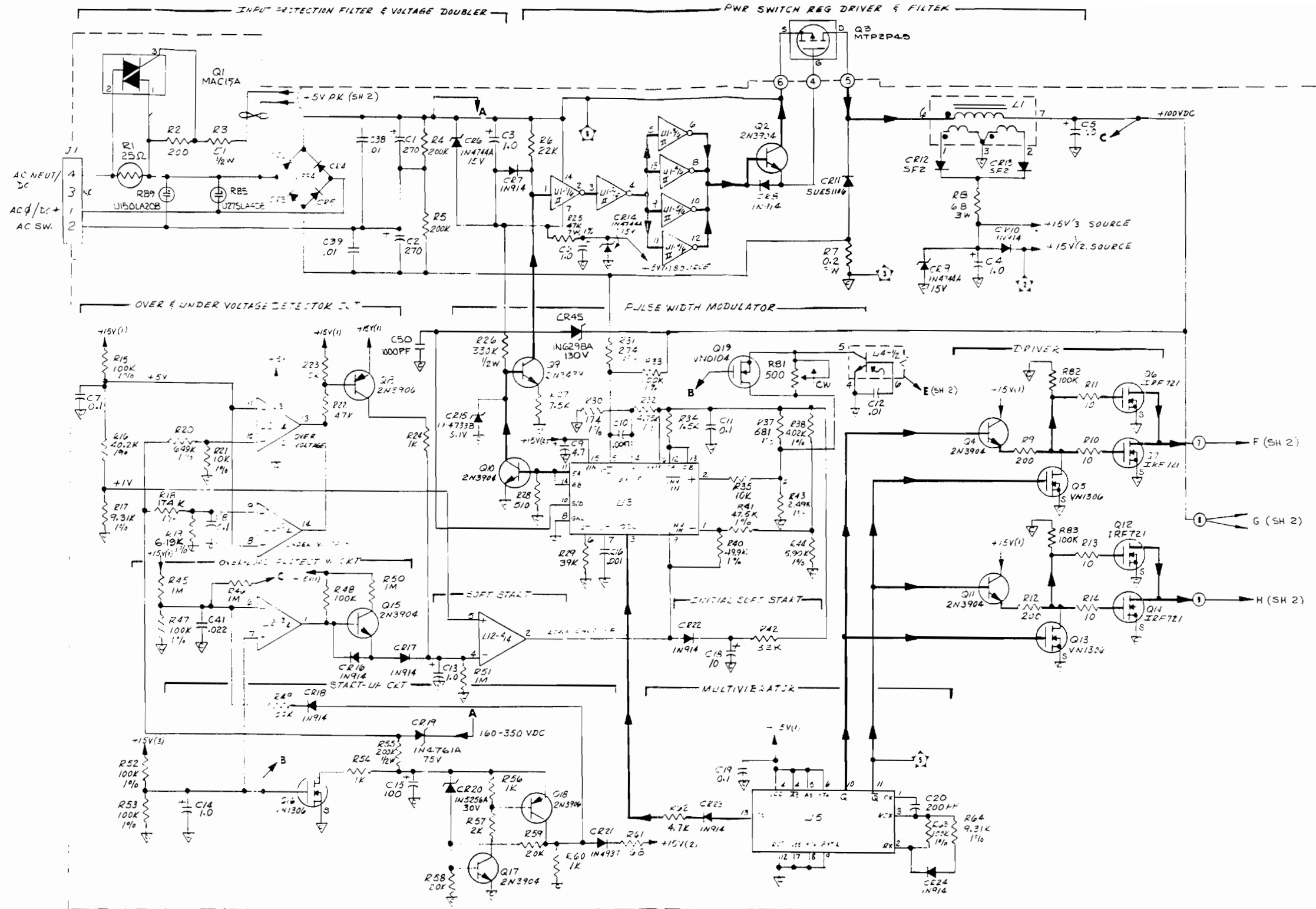
6. ENA LOW WHEN FRONT PANEL POWER SWITCH ON.
5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

NOTE:

50000/90000 REAR PANEL INTERCONN DIAG.
(7003-0165)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
90000/ 50000	PANEL ASSY-REAR	7003-0165	CUSHMAN	
CAPACITORS				
C90001	CAP-820PF 10% 1KV Z5R	1005-0047	CENTRALAB	DD821
C90002	CAP-2200PF 20% 3KV Z5U	1005-0098	CRL	DD 30222 M
C90003	CAP-2200PF 20% 3KV Z5U	1005-0098	CRL	DD 30222 M
TRANSISTORS				
Q1	XSTR-D45H11 PNP SI B22	1272-0133	GE	D45H11
Q2	XSTR-D45H11 PNP SI B22	1272-0133	GE	D45H11
INDUCTORS				
L90001	CHOKE-100UH 20% ENCAP AXL	1585-0040		
L90002	COIL-TOROIDAL	1595-0008		
SWITCHES				
S90001	SW-SLIDE DPDT 3A	1850-0050		
FUSES				
F90001	FU-3AMP 3AG SLO BLO	1955-0012	LITTLEFUSE	
	FU HLDR-BLK PNL MT RTANG	1965-0020		
	FU CARR-3AG SCDR SLOT	1965-0021		
PCB'S				
53000	PCB ASSY-LINEAR REG	7001-0840	CUSHMAN	
52000	PCB ASSY-SWITCHER/INV	7001-0841	CUSHMAN	
CASTING ASSY				
91000	CSTG ASSY-PWR ATTEN	7046-0076	CUSHMAN	

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
91000	PCB-HYBRID TRANSITION PRINTED CIRCUIT BOARD	7046-0076 1780-1280	CUSHMAN CUSHMAN	
CONNECTORS				
J1	CONN-SMC 50 OHM STR JK	2536-0190		
J2	CONN-SMC 50 OHM STR JK	2536-0190		
J3	CONN-SMC 50 OHM STR JK	2536-0190		



NOTE: COMMON GND NOT CONNECTED TO FRAME GND.
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 6. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 7. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 8. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 9. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

U NO	TYPE	VCC	GND
1	40106B	14	7
2	LM339	3	12
3	SG3524	15	B
4	H11A1		
5	4047B	14	7
7	CA5140	7	4

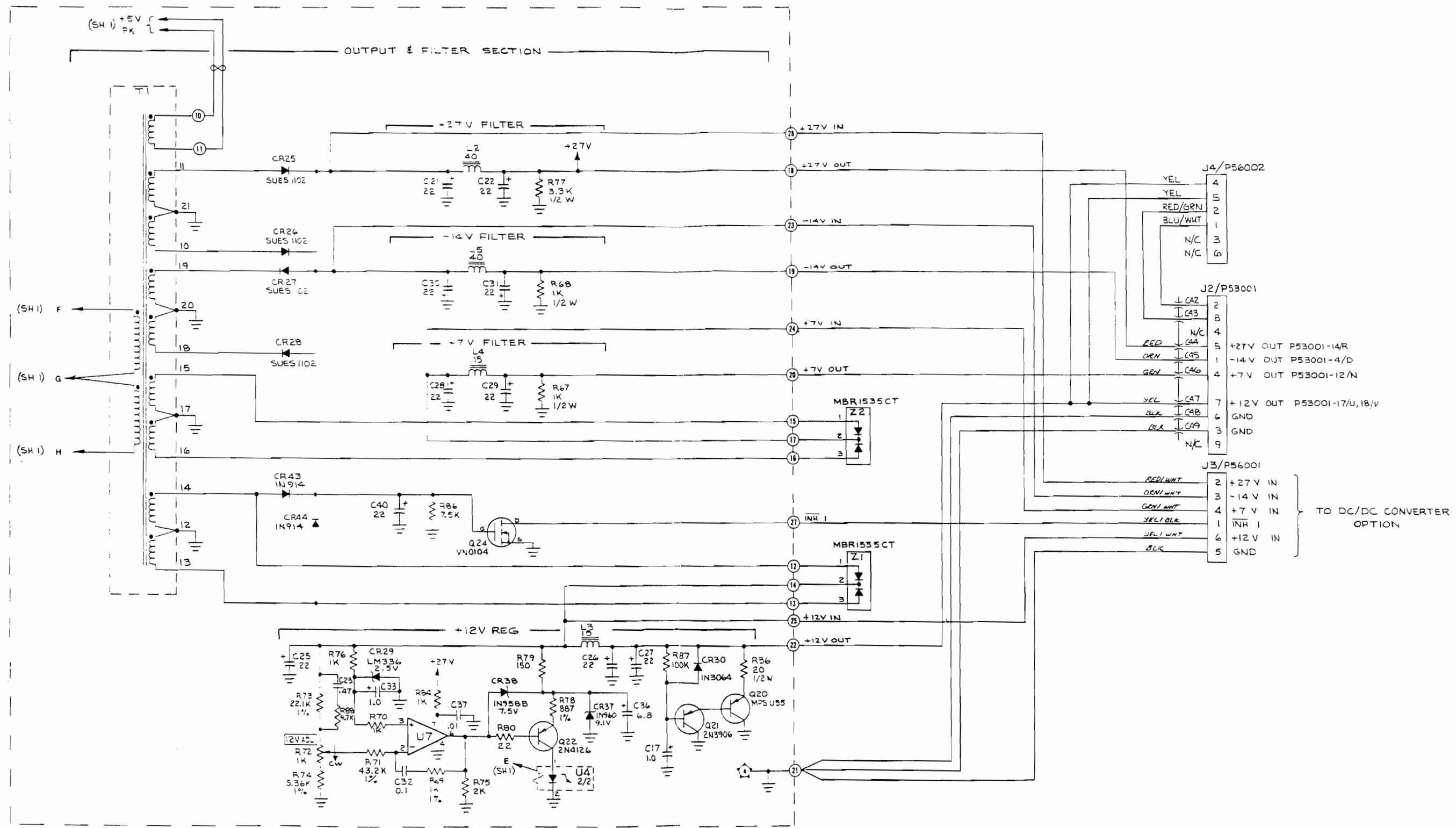
REF NOS NOT USED:
 34, 35
 CR1, 31, 32, 33, 34, 35, 36, 39, 40, 41, 42
 U6
 R39, 45, 46, 17, 18
 Q23

OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 52000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
		CR 1/ - CR 150	CR 1/ - CR 150
		CR 1/ - CR 145	CR 1/ - CR 145
		DS 1/ - DS 1	DS 1/ - DS 1
		FC 1/ - FC 1	FC 1/ - FC 1
		UT 1/ - UT 17	UT 1/ - UT 17
		LC 1/ - LC 16	LC 1/ - LC 16

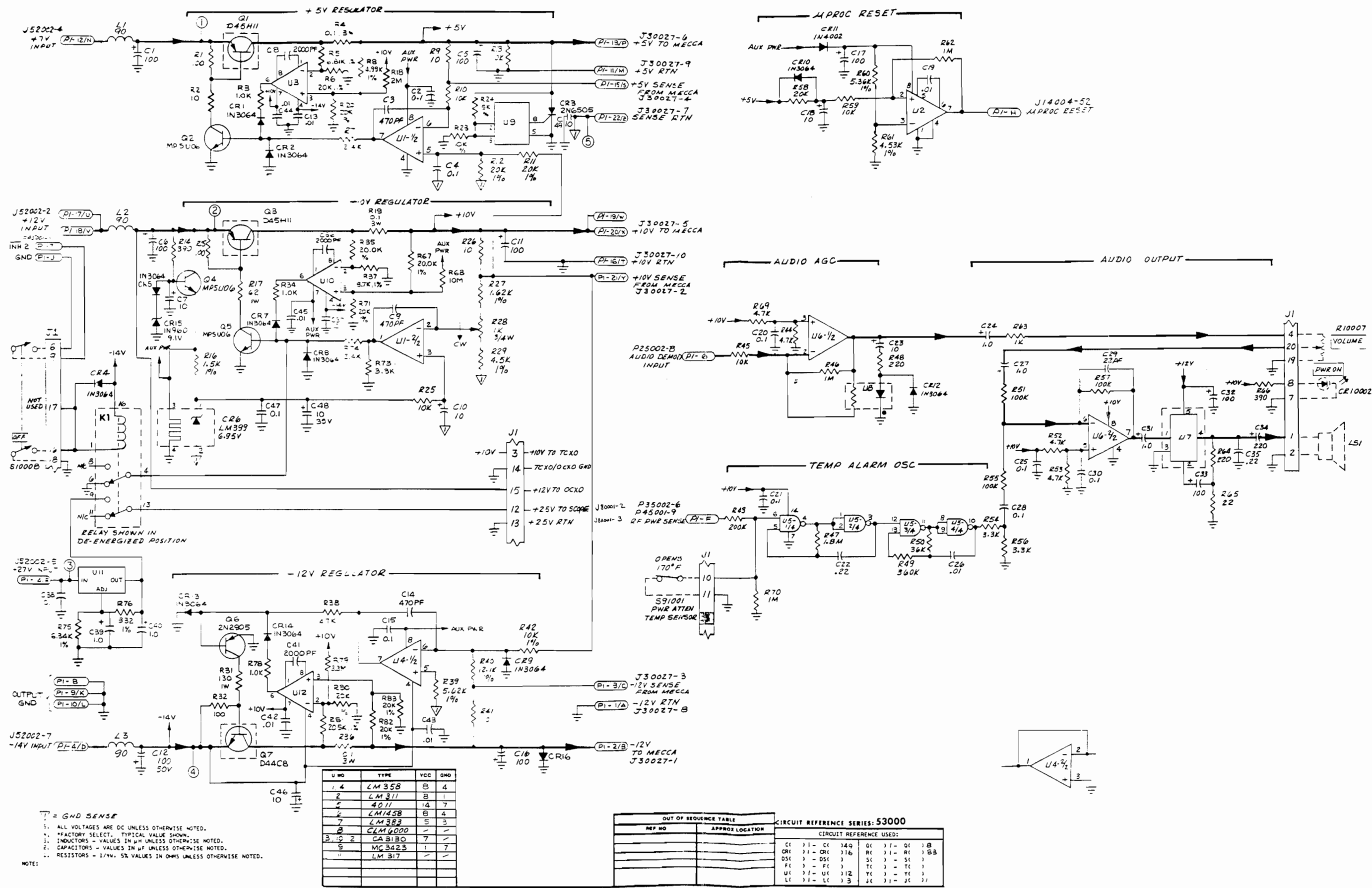
52000 SWITCHER/INVERTER (7001-0841)
 1 OF 2

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
52000	PCB ASSY-100W SWITCHER/INV PRINTED CIRCUIT BOARD	7001-0841 1780-1296	CUSHMAN CUSHMAN	
	CAPACITORS			
C1	CAP-270UF +20% 250V RDL	1013-0063		
C2	CAP-270UF +20% 250V RDL	1013-0063		
C3	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C4	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C5	CAP-1UF 20% 250V AXL	1008-0120		
C6	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C9	CAP-4.7UF 10% 50V RDL	1011-0023		
C10	CAP-.0047UF 2% 200V AXL	1008-0088		
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C13	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C14	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C15	CAP-100UF +100-10% 50V	1013-0036	ILLINOIS CAP	100R50
C16	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
C17	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C18	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-200PF 5% 500V DIP	1002-0042	ELMENCO	DM15-F-201J
C21	CAP-22UF +50-10% 50V	1013-0060		
C22	CAP-22UF +50-10% 50V	1013-0060		
C23	CAP-.47UF 10% 50V MLD	1005-0092	AEROVOX	CK06BX474K
C24	NOT USED			
C25	CAP-22UF +50-10% 50V	1013-0060		
C26	CAP-22UF +50-10% 50V	1013-0060		
C27	CAP-22UF +50-10% 50V	1013-0060		
C28	CAP-22UF +50-10% 50V	1013-0060		
C29	CAP-22UF +50-10% 50V	1013-0060		
C30	CAP-22UF +50-10% 50V	1013-0060		
C31	CAP-22UF +50-10% 50V	1013-0060		
C32	CAP-.1UF 10% 100V MLD	1005-0064	AEROVOX	CK06BX104K
C33	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C34	NOT USED			
C35	NOT USED			
C36	CAP-6.8UF 10% 35V RDL	1011-0002	DICKSON	D6R8GS1B35K
C37	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C38	CAP-.01UF +80-20% 500V	1005-0094		
C39	CAP-.01UF +80-20% 500V	1005-0094		
C40	CAP-22UF +50-10% 50V	1013-0060		
C41	CAP-.022UF 10% 100V MLD	1005-0079	AEROVOX	CK06BX223K
C42	NOT USED			
C43	NOT USED			
C44	NOT USED			
C45	NOT USED			
C46	NOT USED			

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C47	NOT USED			
C48	NOT USED			
C49	NOT USED			
C50	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7RO-102K
	DIODES			
CR1	NOT USED			
CR2	DIO-V334 SI RECT 400PRV	1281-0111		
CR3	DIO-V334 SI RECT 400PRV	1281-0111		
CR4	DIO-V334 SI RECT 400PRV	1281-0111		
CR5	DIO-V334 SI RECT 400PRV	1281-0111		
CR6	DIO-1N4744 SI ZENER	1281-0028		
CR7	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR8	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR9	DIO-1N4744 SI ZENER	1281-0028		
CR10	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR11	DIO-1106 SI F RCVY	1282-0026		
CR12	DIO-1N5615 SI F RCVY	1282-0010		
CR13	DIO-1N5615 SI F RCVY	1282-0010		
CR14	DIO-1N4744 SI ZENER	1281-0028		
CR15	DIO-1N4733 SI ZENER	1281-0015		
CR16	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR17	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR18	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR19	DIO-1N4761A SI ZENER	1281-0175		
CR20	DIO-1N5256A SI ZENER	1281-0173		
CR21	DIO-1N4937 SI F RCVY	1282-0023	MOTOROLA	1N4937
CR22	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR23	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR24	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR25	DIO-SUES1102 SI F RCVY	1282-0025		
CR26	DIO-SUES1102 SI F RCVY	1282-0025		
CR27	DIO-SUES1102 SI F RCVY	1282-0025		
CR28	DIO-SUES1102 SI F RCVY	1282-0025		
CR29	DIO-336 ZENER 2.5V REF	1281-0121		
CR30	DIO-1N3064 SI SW D035	1281-0105	FAIRCHILD	1N3064 (D035)
CR31	NOT USED			
CR32	NOT USED			
CR33	NOT USED			
CR34	NOT USED			
CR35	NOT USED			
CR36	NOT USED			
CR37	DIO-1N960B SI ZENER	1281-0118		
CR38	DIO-1N958B SI ZENER	1281-0071	MOTOROLA	1N958B
CR39	NOT USED			
CR40	NOT USED			
CR41	NOT USED			
CR42	NOT USED			
CR43	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
U4	IC-H11AV1 6PINDIP 3750	2025-0339		
U5	IC-4047B 14PIN DIP MS	2025-0321		
U6	NOT USED			
U7	IC-CA 3140E 8PIN DIP OP	2025-0237	RCA	CA3140E



† = GND SENSE
 1. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 2. FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
 4. CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
 5. RESISTORS - 1/4W. 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

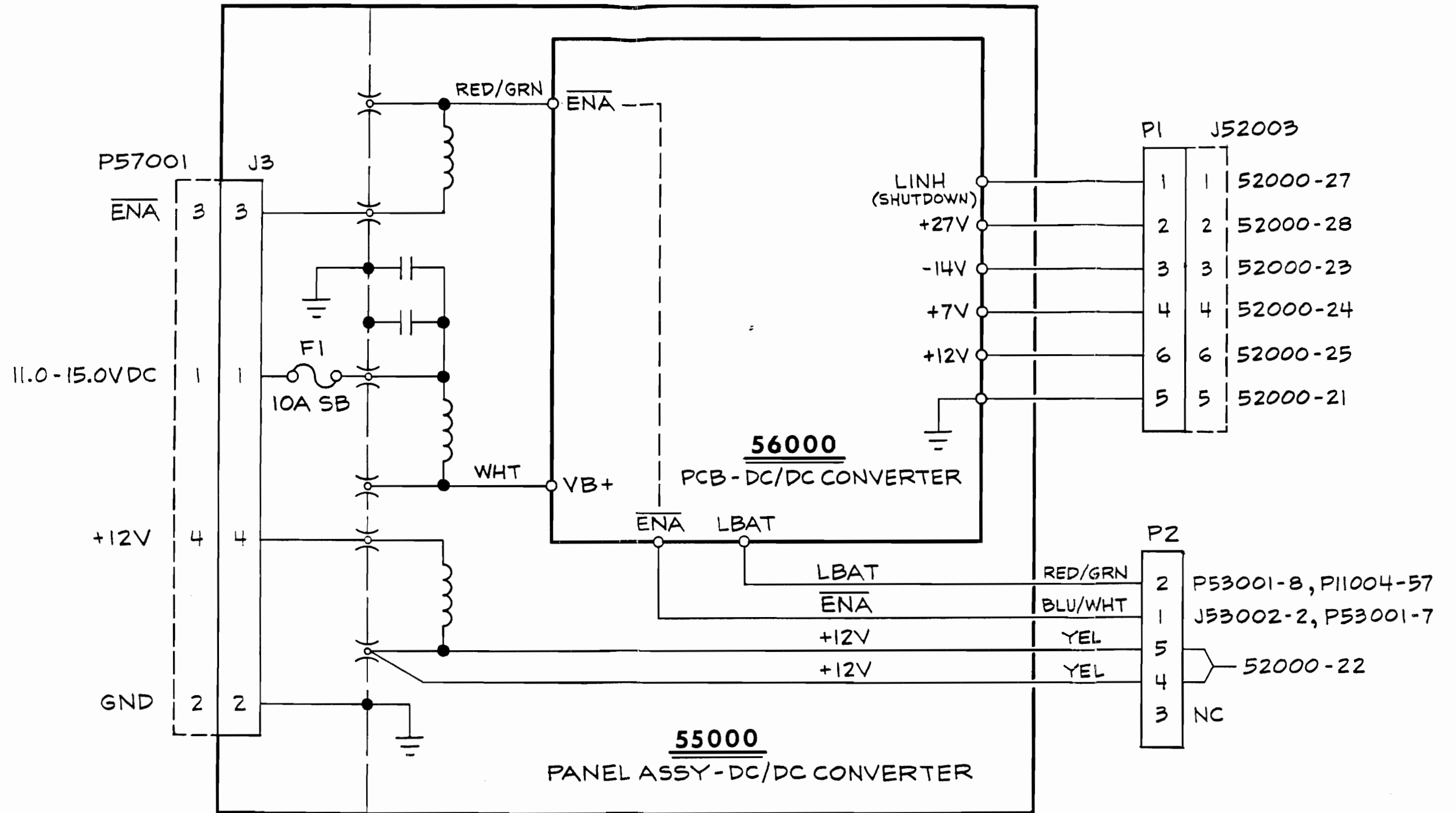
U NO	TYPE	VCC	GND
1, 4	LM 358	8	4
2	LM 311	8	1
3	4011	14	7
5	LM1458	8	4
7	LM 388	5	3
8	LM 4000	-	-
3, 10, 2	CA 3130	7	-
9	MC 3423	1	7
-	LM 317	-	-

OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 53000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
		C1	11 - C1 149
		CR1	11 - CR1 116
		DS1	3 - DS1 3
		FC	3 - FC 3
		UC	3 - UC 112
		LC	3 - LC 13
		QC	11 - QC 18
		RC	11 - RC 183
		SC	3 - SC 3
		TC	3 - TC 3
		YC	3 - YC 3
		ZC	3 - ZC 3

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
53000	PCB ASSY-LINEAR REGULATOR PRINTED CIRCUIT BOARD	7001-0840 1780-1295	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-470PF 5% 500V DIP	1002-0035	ELMENCO	DM15-F-471J
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C6	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C7	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C8	CAP-.002UF 20% 500V Z5U	1005-0003	TUSONIX	831-596-Z5U-202M
C9	CAP-470PF 5% 500V DIP	1002-0035	ELMENCO	DM15-F-471J
C10	CAP-10UF 20% 35V RLD	1011-0006	MATSUO	221L3502106M3V
C11	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C12	CAP-100UF +100-10% 50V	1013-0036	ILLINOIS CAP	100R50
C13	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C14	CAP-470PF 5% 500V DIP	1002-0035	ELMENCO	DM15-F-471J
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C17	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C18	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C19	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	CAP-.22UF 10% 100V RDL	1008-0091	ELECTROCUBE	232A1B224K
C23	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C24	CAP-1UF -10+50% 50V RDL	1023-0047		
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C27	CAP-1UF -10+50% 50V RDL	1023-0047		
C28	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C29	CAP-22PF 5% 500V DIP	1002-0023	CORNELL DUB	CD15CD220J
C30	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C31	CAP-1UF -10+50% 50V RDL	1023-0047		
C32	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C33	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C34	CAP-220UF +50-10% 16V	1013-0058		
C35	CAP-.22UF 10% 100V RDL	1008-0091	ELECTROCUBE	232A1B224K
C36	CAP-.002UF 20% 500V Z5U	1005-0003	TUSONIX	831-596-Z5U-202M
C37	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C38	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C39	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C40	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C41	CAP-.002UF 20% 500V Z5U	1005-0003	TUSONIX	831-596-Z5U-202M
C42	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C43	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C44	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C45	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C46	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25

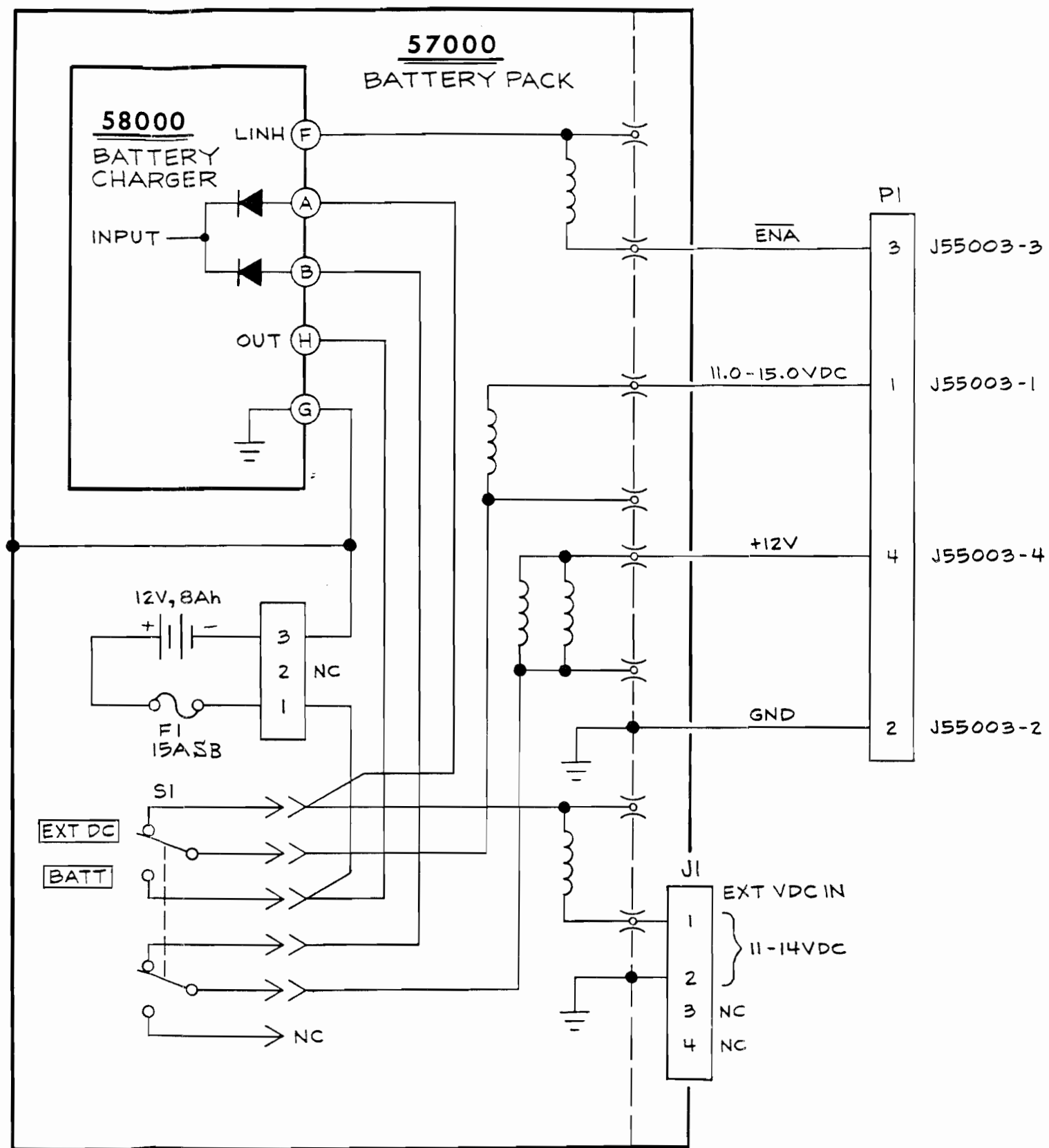
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C47	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C48	CAP-10UF 20% 35V RLD	1011-0006	MATSUO	221L350216M3
C49	CAP-10UF 20% 35V RLD	1011-0006	MATSUO	221L350216M3
DIODES				
CR1	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR2	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR3	DIO-2N6505 SI T0220	1281-0122		
CR4	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR5	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR6	DIO-399 ZENER T046 M 6	1281-0133	NATIONAL	LM399H
CR7	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR8	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR9	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR10	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR11	DIO-1N4002 SI RECT	1281-0023	ITT	IN4002
CR12	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR13	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR14	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CR15	DIO-1N960B SI ZENER	1281-0118		
CR16	DIO-1N3064 SI SW DO7/35	1281-0013	FAIRCHILD	IN3064
CONNECTOR				
J1	CONN-20 CONT DBL ROW	2535-0092		
RELAY				
K1	RLY-DPDT 12VDC COIL 2C	1313-0042		
INDUCTORS				
L1	COIL-TOROIDAL 90UH	1595-0003	CUSHMAN	
L2	COIL-TOROIDAL 90UH	1595-0003	CUSHMAN	
L3	COIL-TOROIDAL 90UH	1595-0003	CUSHMAN	
TRANSISTORS				
Q1	NOT USED			
Q2	XSTR-MPS-U06 NPN SI	1272-0053	MOTOROLA	MPSU06
Q3	NOT USED			
Q4	XSTR-MPS-U06 NPN SI	1272-0053	MOTOROLA	MPSU06
Q5	XSTR-MPS-U06 NPN SI	1272-0053	MOTOROLA	MPSU06
Q6	XSTR-2N2905 PNP SI T05	1272-0035	MOTOROLA	2N2905
Q7	XSTR-MPS-U06 NPN SI	1272-0053	MOTOROLA	MPSU06

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R51	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R52	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R53	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R54	RES-3.3K 5% 1/4W CC	1066-3325	ALLEN BRADLEY	CB3325
R55	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R56	RES-3.3K 5% 1/4W CC	1066-3325	ALLEN BRADLEY	CB3325
R57	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R58	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R59	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R60	RES-5.36K 1% 100PPM	1075-0187	CAT. LIST	55-100
R61	RES-4.53K 1% 100PPM	1075-0053	CAT. LIST	55-100
R62	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R63	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R64	RES-220 OHM 5% 1/4W CC	1066-2215	ALLEN BRADLEY	CB2215
R65	RES-22 OHM 5% 1/4W CC	1066-2205	ALLEN BRADLEY	CB2205
R66	RES-390 OHM 5% 1/4W CC	1066-3915	ALLEN BRADLEY	CB3915
R67	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R68	RES-10MEG 5% 1/4W CC	1066-1065	ALLEN BRADLEY	CB1065
R69	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R70	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R71	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R72	NOT USED			
R73	RES-3.3K 5% 1/4W CC	1066-3325	ALLEN BRADLEY	CB3325
R74	RES-2.4K 5% 1/4W CC	1066-2425	ALLEN BRADLEY	CB2425
R75	RES-6.34K 1% 150PPM	1074-1007	CAT. LIST	55-100
R76	RES-332 OHM 1% 100PPM	1075-0024	CAT. LIST	55-100
R77	NOT USED			
R78	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R79	RES-3.3MEG 5% 1/4W CC	1066-3355	ALLEN BRADLEY	CB3355
R80	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R81	RES-20.5K 1% 100PPM	1075-0185	CAT. LIST	55-100
R82	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R83	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
INTEGRATED CIRCUITS				
U1	IC-358 8PIN DIP OP AMP	2025-0311	TEXAS INSTS	LM358P
U2	IC-311 VOLTAGE COMPARA	2025-0181	NATIONAL	LM311N
U3	IC-3130 8PIN DIP OP AMP	2025-0269	RCA	CA3130E
U4	IC-358 8PIN DIP OP AMP	2025-0311	TEXAS INSTS	LM358P
U5	IC-4011 14PIN DIP QUAD	2025-0203	MOTOROLA	MC14011BCP
U6	IC-1458 DUAL OP AMP	2025-0058	RAYTHEON	RC1458NB
U7	IC-383 5PIN TO220 7W	2025-0317		
U8	IC-CLM6000 PHOTOCOND	2025-0196		
U9	IC-3423 8PIN DIP OVV	2025-0180		
U10	IC-3130 8PIN DIP OP AMP	2025-0269	RCA	CA3130E
U11	IC-317 TO220 3 TERM ADJ	2025-0320	MOTOROLA	LM317T
U12	IC-3130 8PIN DIP OP AMP	2025-0269	RCA	CA3130E



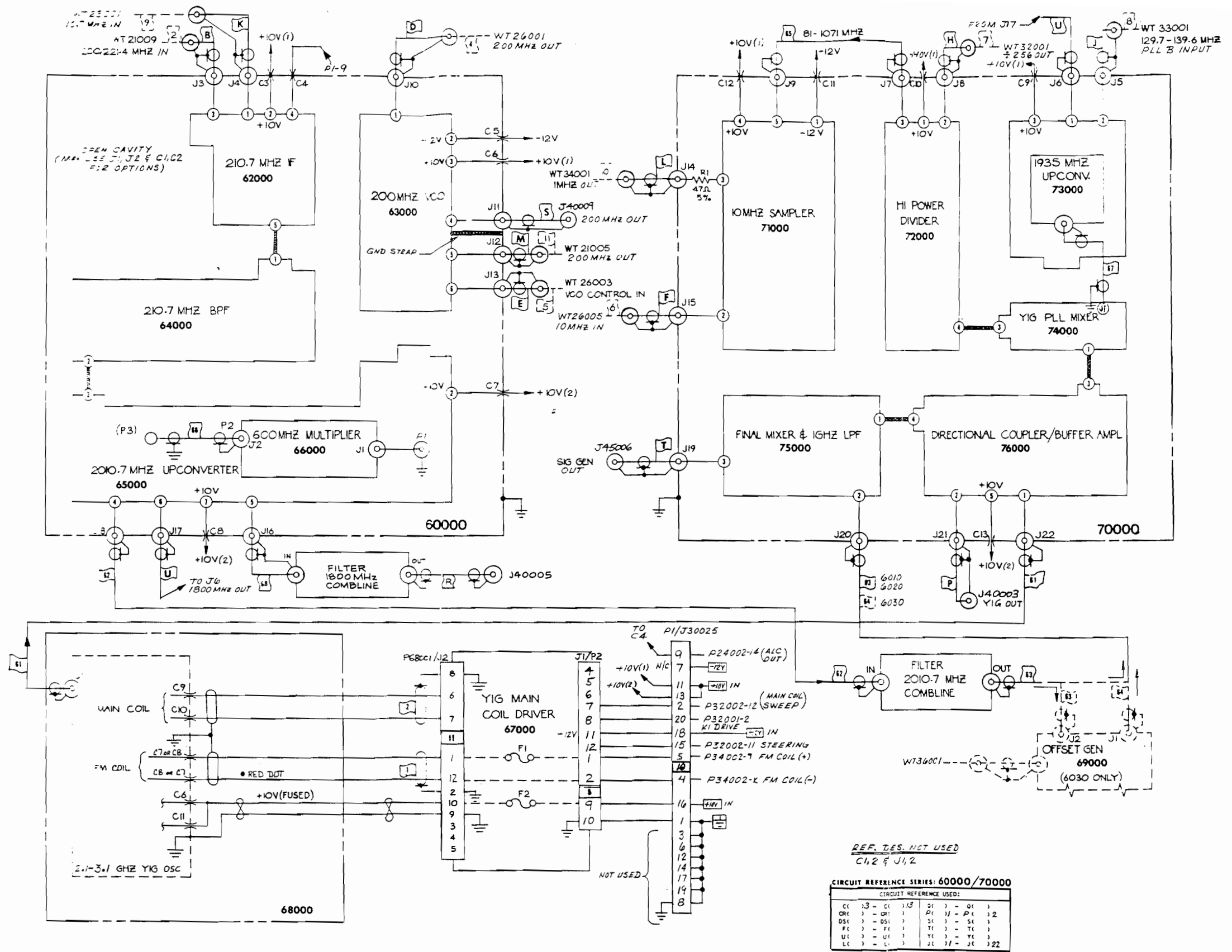
55000/56000

DC/DC CONVERTER INTCON
(7003-0186)



6030 (OP-01)

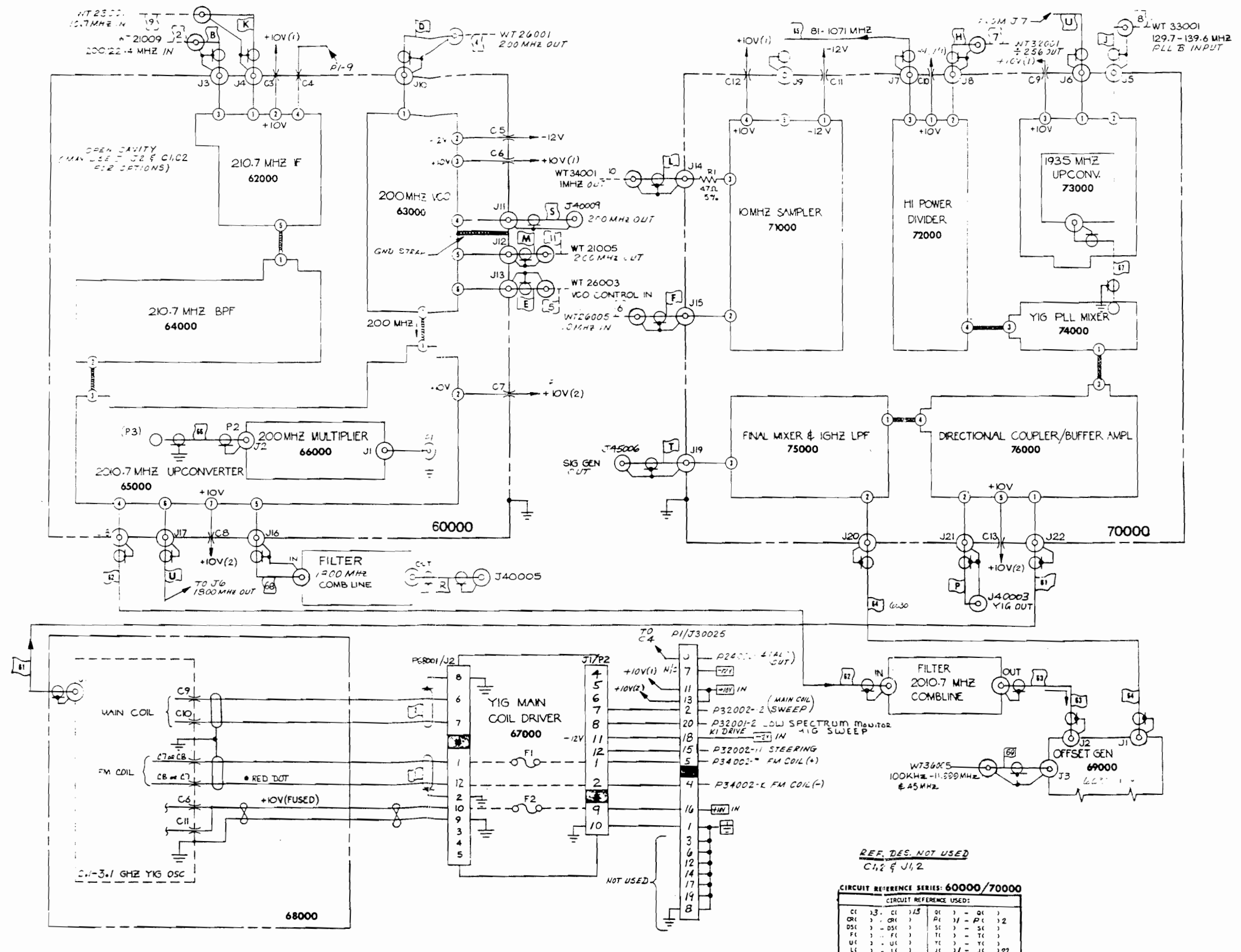
57000/58000 BATTERY MODULE ASSY
(7060-0057)



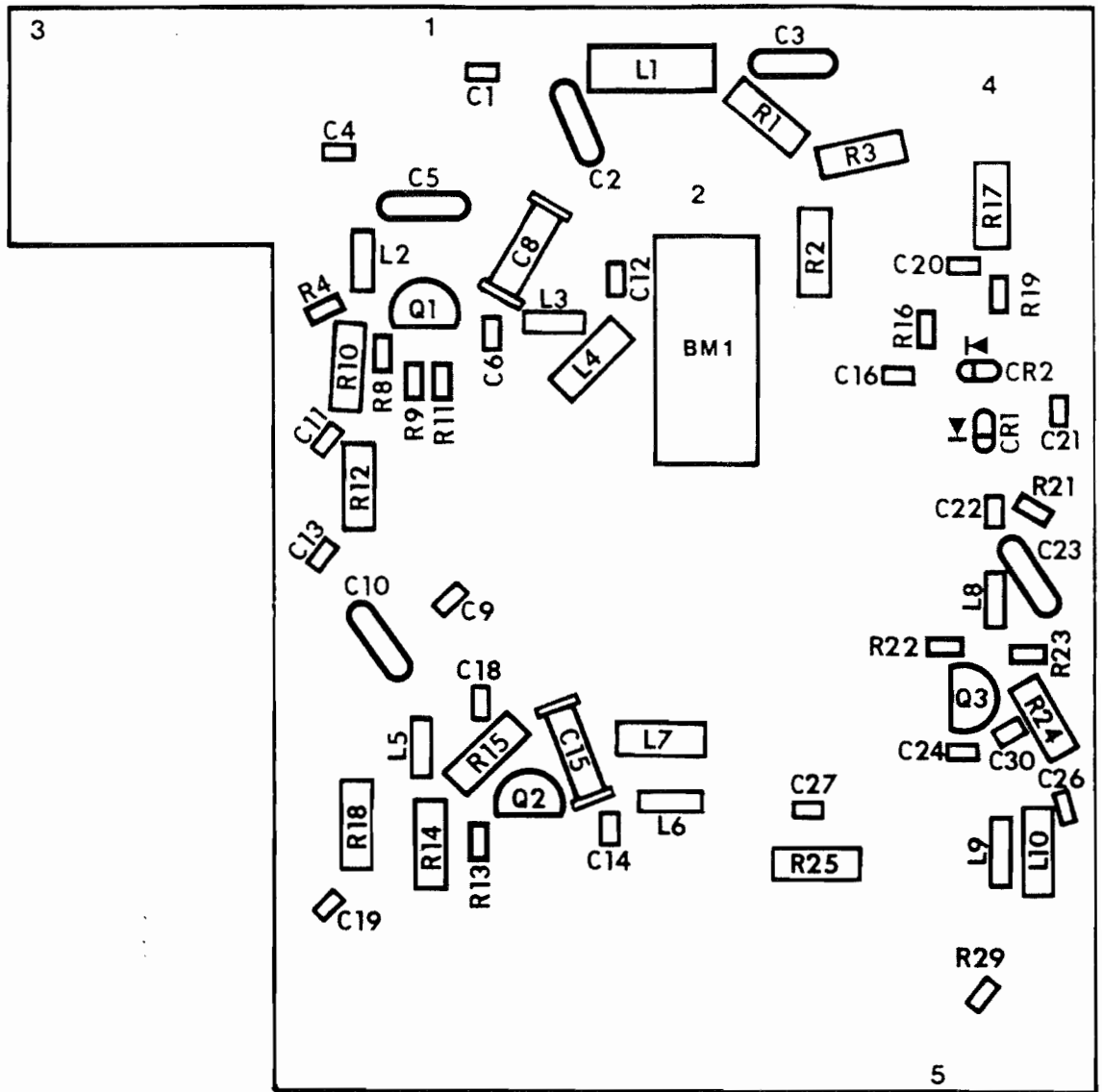
60000/70000 RF MAIN CASTING
7046-0065 (6020, 6232, 6488)
1 OF 2

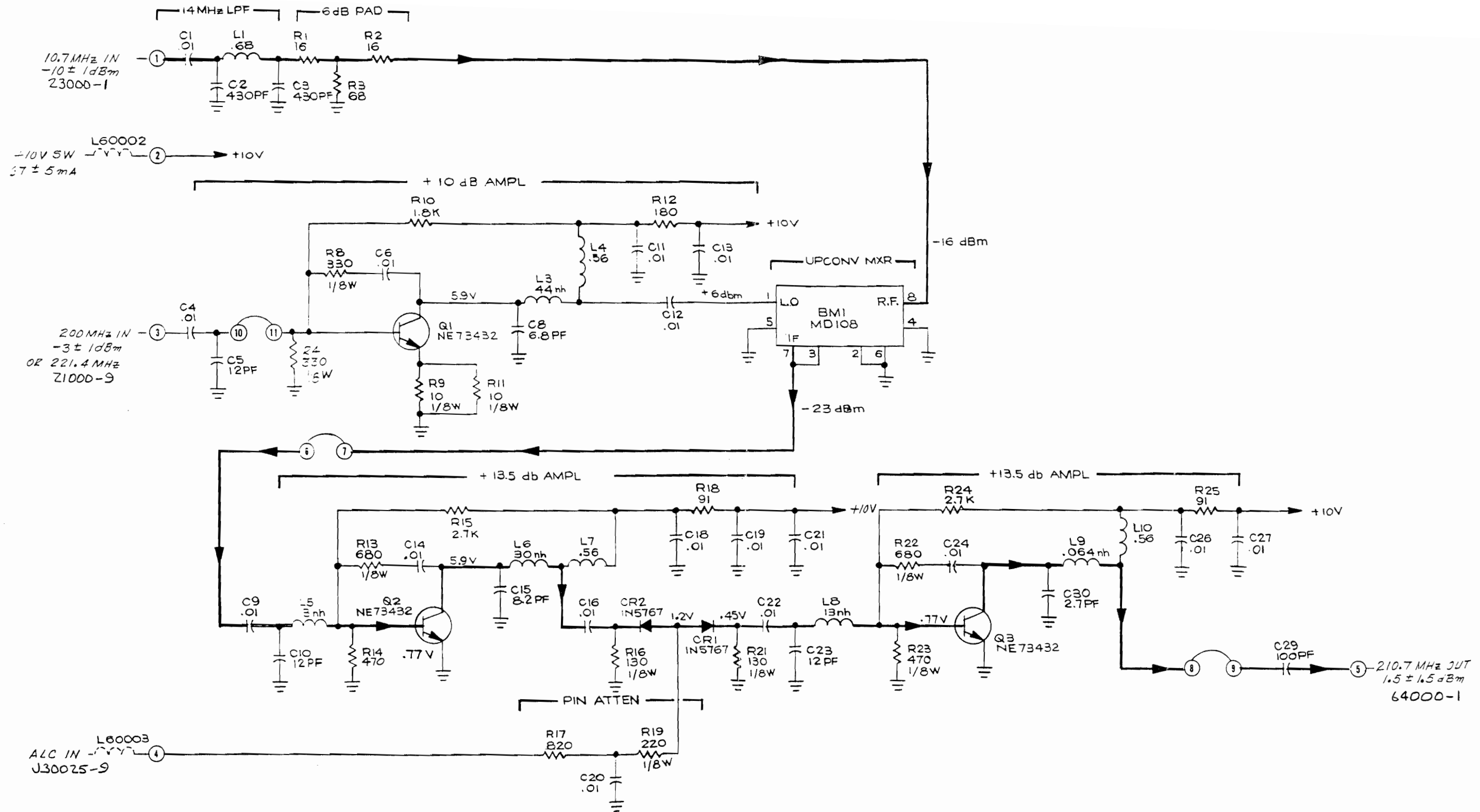
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
60000/ 70000	TESTING ASSY-RF MAIN	7046-0081	CUSHMAN	
CAPACITORS				
C1	NOT USED			
C2	NOT USED			
C3	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C4	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C5	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C6	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C7	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C8	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C9	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C10	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C11	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C12	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C13	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
CONNECTORS				
J1	NOT USED			
J2	NOT USED			
J3	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J4	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J5	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J6	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J7	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J8	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J9	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J10	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J11	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J12	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J13	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J14	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J15	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J16	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J17	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J18	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J19	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J20	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J21	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J22	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
RESISTOR				
R1	RES-47 OHM 5% 1/4W CC	1066-4705	ALLEN BRADLEY	CB4705

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
MODULES				
62000	PCB ASSY-210.7 MHZ IF	7001-0791	CUSHMAN	
63000	PCB ASSY-200 MHZ VCO	7001-0756	CUSHMAN	
64000	PCB ASSY-210.7 MHZ BPF	7001-0471	CUSHMAN	
65000	PCB ASSY-2010.7MHZ UPCONV	7001-0878	CUSHMAN	
67000	PCB ASSY-YIG MAIN COIL	7001-0774	CUSHMAN	
69000	MLD ASSY-OFFSET GEN	7060-0035	CUSHMAN	
71000	PCB ASSY-10MHZ SAMPLER	7001-0759	CUSHMAN	
72000	PCB ASSY-HI FREQ DIV	7001-0760	CUSHMAN	
73000	PCB ASSY-1935MHZ UPCONV	7001-0761	CUSHMAN	
74000	PCB ASSY-YIG PLL MIXER	7001-0762	CUSHMAN	
75000	PCB ASSY-FINAL MXR&1.1GHZ	7001-0808	CUSHMAN	
76000	PCB ASSY-DIRCPLR/BUFR AMP	7001-0763	CUSHMAN	
	OSC ASSY-2.1-3.1 GHZ	7041-0040	CUSHMAN	
	FLTR ASSY-2010.7MHZ COMBLIN	7041-0045	CUSHMAN	
	FLTR ASSY-1800MHZ COMBLIN	7041-0056	CUSHMAN	
CABLE ASSY				
LBL61	CA ASSY-.085 SEMI-RGD COAX	7033-0089	CUSHMAN	
LBL62	CA ASSY-RG188 DUAL SMB	7032-4415	CUSHMAN	
LBL63	CA ASSY-.086 SEMI-RGD COAX	7033-0129	CUSHMAN	
LBL64	CA ASSY-RG188 DUAL SMB	7032-4427	CUSHMAN	
LBL65	CA ASSY-RG188 DUAL SMB	7032-4405	CUSHMAN	
LBL68	CA ASSY-.086 SEMI-RGD COAX	7033-0128	CUSHMAN	
LBL P	CA ASSY-.086 SEMI-RGD COAX	7033-0130	CUSHMAN	
LBL R	CA ASSY-.086 SEMI-RGD COAX	7033-0131	CUSHMAN	
	HARN ASSY-RF MAIN CSTG	7030-0296	CUSHMAN	
	HARN ASSY-RF INTERCONN	7030-0339	CUSHMAN	
INDUCTORS				
L1	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B
L2	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B
L3	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B
L4	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B
L5	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B
L6	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B
L7	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B
L8	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B
L9	CH-.047X.138X.118 FER BEAD	1586-0004	FERROXCUBE	56-590-65/4B



60000/70000 RF MAIN CASTING (7046-0081)
(6030 ONLY) 2 OF 2





- R19
- R2
- C21
- R21
- R23
- R24
- R26
- L10
- C26

NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN pF UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

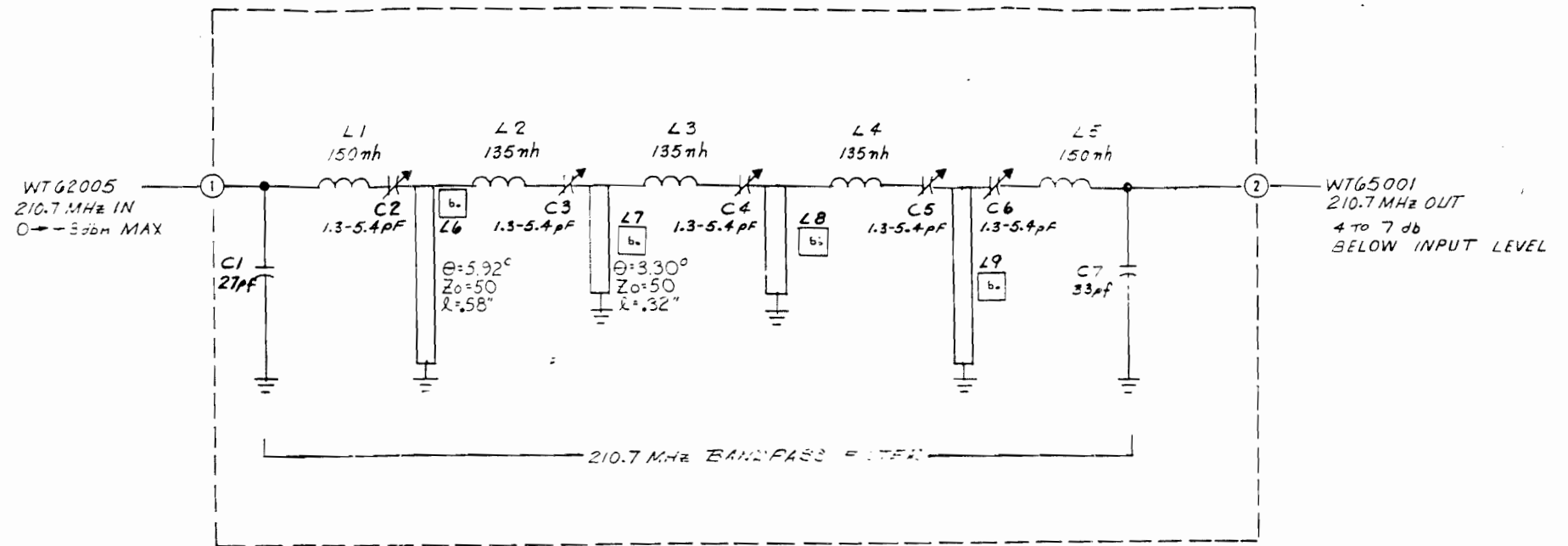
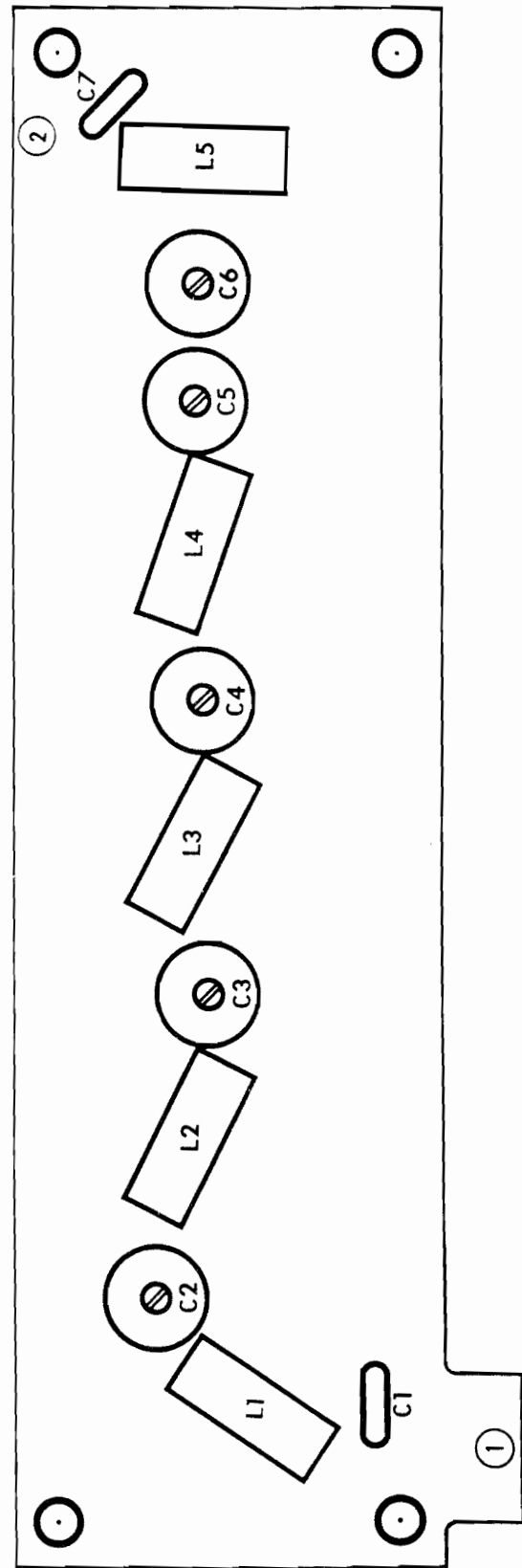
OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES:	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
		CC) - CC)	QC) - QC)
		CR) - CR)	RC) - RC)
		DS) - DS)	SC) - SC)
		FE) - FE)	TC) - TC)
		UC) - UC)	YC) - YC)
		LC) - LC)	JC) - JC)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
62000	PCB ASSY-210.7 MHz IF PRINTED CIRCUIT BOARD	7001-0791 1780-1269	CUSHMAN CUSHMAN	
MIXER				
BM1	MXR-SBL-1 DBL BAL 1-500	201C-0099	MINI CKTS LAB SBL-1	
CAPACITORS				
C1	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C2	CAP-430PF 5% 500V DIP	1002-0034	ELMENCO	DM15-F-431J
C3	CAP-430PF 5% 500V DIP	1002-0034	ELMENCO	DM15-F-431J
C4	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C5	CAP-12PF 5% 500V DIP	1002-0017	ELMENCO	DM15-C-120J
C6	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C7	NOT USED			
C8	CAP-6.8PF .25PF 500V	1005-0006	TUSONIX	301-000-COHO-689C
C9	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C10	CAP-12PF 5% 500V DIP	1002-0017	ELMENCO	DM15-C-120J
C11	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C12	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C13	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C14	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C15	CAP-8.2PF .25PF 500V	1005-0043	TUSONIX	301-000-COHO-829C
C16	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C17	NOT USED			
C18	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C19	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C22	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C23	CAP-12PF 5% 500V DIP	1002-0017	ELMENCO	DM15-C-120J
C24	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C25	NOT USED			
C26	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C27	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C28	NOT USED			
C29	CAP-100PF 5% 100V NPO	1005-0082	TUSONIX	8121-100-COHO-101J
C30	CAP-2.7PF 10% 100V NPO	1005-0124	TUSONIX	8101-100-COJO-279C
DIODES				
CR1	DIO-1N5767 DI PIN A1AH	1281-0075	NIPPON ELECT	1SV34
CR2	DIO-1N5767 DI PIN A1AH	1281-0075	NIPPON ELECT	1SV34

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
INDUCTORS				
L1	CH-.68UH 10% RF MLD AXL	1585-0024	DELEVAN	1537-08
L2	NOT USED			
L3	COIL-AIR CORE .136 DIA	1596-0273		
L4	CH-.56UH 10% RF MLD AXL	1585-0076	DELEVAN	1025-14
L5	COIL-AIR CORE .090 DIA	1596-0268		
L6	ASSY-COIL-AIR CORE	1596-0070		
L7	CH-.56UH 10% RF MLD AXL	1585-0076	DELEVAN	1025-14
L8	COIL-AIR CORE .090 DIA	1596-0268		
L9	ASSY-COIL .064UH RF	1596-5802		
L10	CH-.56UH 10% RF MLD AXL	1585-0076	DELEVAN	1025-14
TRANSISTORS				
Q1	XSTR-NE73432E NPN SI	1272-0112	CALIF EASTERN	6EM8Z
Q2	XSTR-NE73432E NPN SI	1272-0112	CALIF EASTERN	6EM8Z
Q3	XSTR-NE73432E NPN SI	1272-0112	CALIF EASTERN	6EM8Z
RESISTORS				
R1	RES-16 OHM 5% 1/4W CC	1066-1605	ALLEN BRADLEY	CB1605
R2	RES-16 OHM 5% 1/4W CC	1066-1605	ALLEN BRADLEY	CB1605
R3	RES-68 OHM 5% 1/4W CC	1066-6805	ALLEN BRADLEY	CB6805
R4	RES-330 OHM 5% 1/8W CC	1065-3315	ALLEN BRADLEY	BB3315
R5	NOT USED			
R6	NOT USED			
R7	NOT USED			
R8	RES-330 OHM 5% 1/8W CC	1065-3315	ALLEN BRADLEY	BB3315
R9	RES-10 OHM 5% 1/8W CC	1065-1005	ALLEN BRADLEY	BB1005
R10	RES-1.8K 5% 1/4W CC	1066-1825	ALLEN BRADLEY	CB1825
R11	RES-10 OHM 5% 1/8W CC	1065-1005	ALLEN BRADLEY	BB1005
R12	RES-180 OHM 5% 1/4W CC	1066-1815	ALLEN BRADLEY	CB1825
R13	RES-680 OHM 5% 1/4W CC	1065-6815	ALLEN BRADLEY	BB6815
R14	RES-470 OHM 5% 1/4W CC	1066-4715	ALLEN BRADLEY	CB4715
R15	RES-2.7K 5% 1/4W CC	1066-2725	ALLEN BRADLEY	CB2725
R16	RES-130 OHM 5% 1/8W CC	1065-1315	ALLEN BRADLEY	BB1315
R17	RES-820 OHM 5% 1/4W	1066-8215	ALLEN BRADLEY	CB8215
R18	RES-91 OHM 5% 1/4W CC	1066-9105	ALLEN BRADLEY	CB9105
R19	RES-220 OHM 5% 1/8W CC	1065-2215	ALLEN BRADLEY	BB2215
R20	NOT USED			
R21	RES-130 OHM 5% 1/8W CC	1065-1315	ALLEN BRADLEY	BB1315
R22	RES-680 OHM 5% 1/8W CC	1065-6815	ALLEN BRADLEY	BB6815
R23	RES-470 OHM 5% 1/8W CC	1065-4715	ALLEN BRADLEY	BB4715
R24	RES-2.7K 5% 1/4W CC	1066-2725	ALLEN BRADLEY	CB2725
R25	RES-91 OHM 5% 1/4W CC	1066-9105	ALLEN BRADLEY	CB9105

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
63000	PCB ASSY-200 MHz VCO PRINTED CIRCUIT BOARD	7001-0756 1780-1277	CUSHMAN CUSHMAN	
CAPACITORS				
C1	NOT USED			
C2	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C3	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C4	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C5	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C6	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C7	CAP-46PF 5% 500V DIP	1002-0046	ELMENCO	DM15-F-430J
C8	CAP-2.8-10PF 250V ADJ	1001-0021	SPRAGUE	GRU10000
C9	CAP-8.2PF +/- .5PF 100V	1005-0104	TUSONIX	8101-100-COHO-829D
C10	CAP-10PF 10% 100V NPO	1005-0074	TUSONIX	8101-100-COGO-100K
C11	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C12	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C13	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C14	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C15	CAP-4.7PF .25PF 500V	1005-0015	TUSONIX	301-000-COHO-479J
C16	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C17	CAP-4.7PF .25PF 500V	1005-0015	TUSONIX	301-000-COHO-479J
C18	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C19	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C20	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C21	CAP-15PF 10% 100V NPO	1005-0123		
C22	CAP-15PF 10% 100V NPO	1005-0123		
C23	NOT USED			
C24	NOT USED			
C25	NOT USED			
C26	NOT USED			
C27	NOT USED			
C28	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C29	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C30	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C31	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C32	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C33	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C34	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C35	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C36	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C37	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C38	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C39	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8101-100-XRRO-221K
C40	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C41	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C42	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C43	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K
C44	CAP-220PF 10% 100V W5R	1005-0075	ERIE	8101-100-XRRO-221K

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
DIODE				
CR1	DIO-MV209 SI VARICAP	1281-0064	MOTOROLA	MV209
INDUCTORS				
L1	COIL-VAR IF .30X.30SQ	1596-3501		
L2	CH-158NH 22GA/10.5T BL	1585-1005		
L3	CH-99NH 22GA/7.5T VIO	1585-1004		
L4	CH-79NH 22GA/6.5T BLU	1585-1001		
L5	CH-99NH 22GA/7.5T VIO	1585-1004		
L6	CH-79NH 22GA/6.5T BLU	1585-1001		
L7	COIL-NYL CORE 8-32/24G	1596-0317		
L8	NOT USED			
L9	CH-2 1/2T WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L10	CH-2 1/2T WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
TRANSISTORS				
Q1	XSTR-J310 SI T092	1272-0130		
Q2	XSTR-J310 SI T092	1272-0130		
Q3	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q4	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q5	XSTR-J310 SI T092	1272-0130		
RESISTORS				
R1	NOT USED			
R2	RES-4.02K 1% 100PPM	1075-0094	CAT. LIST	55-100
R3	RES-11.3 OHM 1% 100PPM	1075-0150	CAT. LIST	55-100
R4	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R5	NOT USED			
R6	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R7	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R8	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R9	RES-2.26K 1% 100PPM	1075-0183	CAT. LIST	55-100
R10	RES-150 OHM 1% 100PPM	1075-0125	CAT. LIST	55-100
R11	RES-34 OHM 1% 100PPM	1075-0046	CAT. LIST	55-100
R12	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R13	RES-2.26K 1% 100PPM	1075-0183	CAT. LIST	55-100
R14	RES-75 OHM 1% 100PPM	1075-0035	CAT. LIST	55-100
R15	RES-16.2 OHM 1% 100PPM	1075-0068	CAT. LIST	55-100
R16	RES-402 OHM 1% 100PPM	1075-0151	CAT. LIST	55-100
R17	RES-750 OHM 1% 100PPM	1075-0043	CAT. LIST	55-100
R18	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R19	NOT USED			
R20	NOT USED			
R21	NOT USED			
R22	NOT USED			



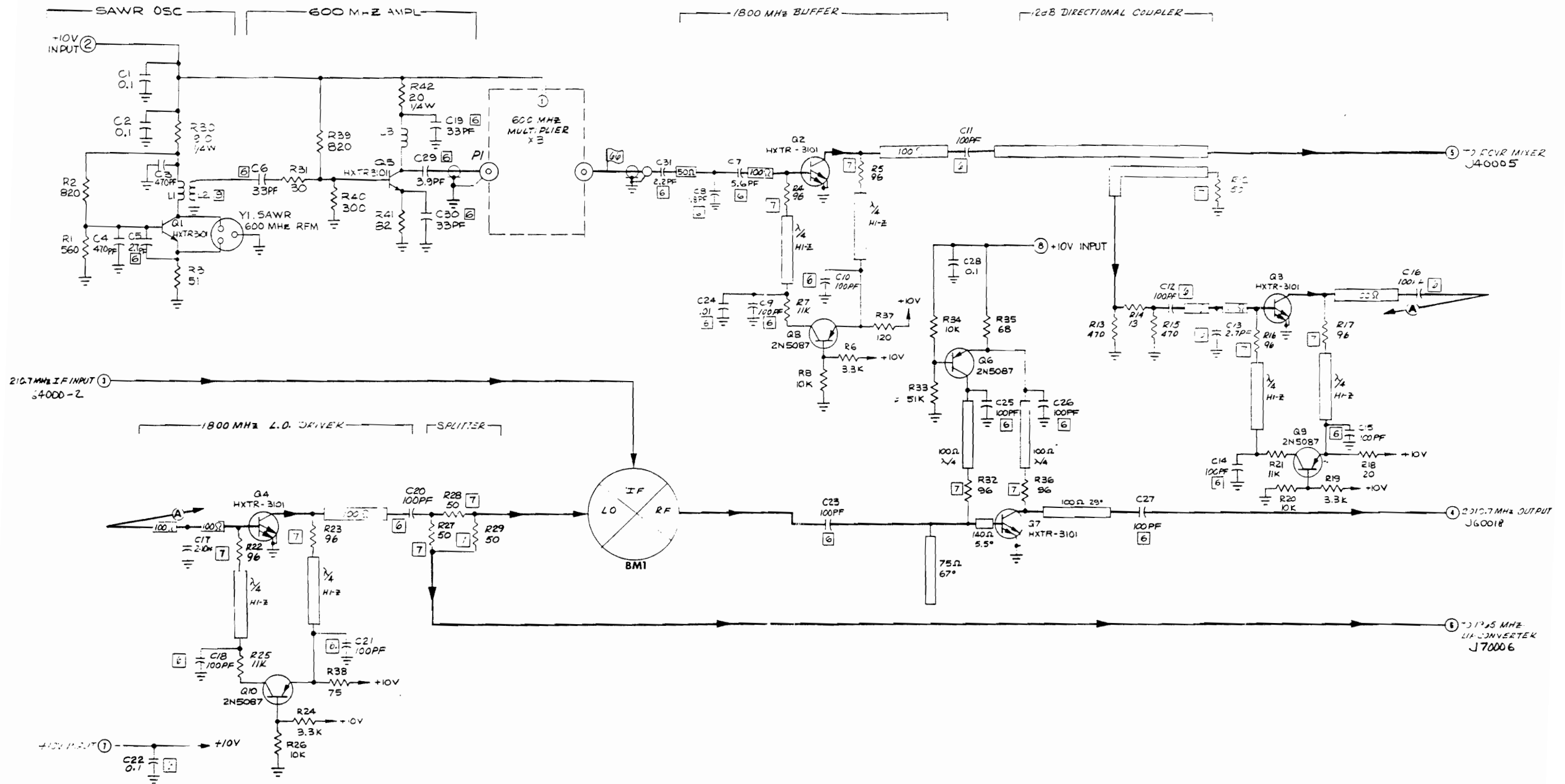
NOTE:

1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN uF UNLESS OTHERWISE NOTED.
 3. INDUCTORS - VALUES IN uH UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
- b.** L6-L9 STRIP LINE INDUCTORS.

CIRCUIT REFERENCE SERIES: 64000

CIRCUIT REFERENCE USED:				
CC	/ - CC	7	QC	) - QC
CR	- CR	)	RC	) - RC
DS	- DS	)	SC	) - SC
FC	- FC	)	TC	) - TC
IC	- IC	)	YC	) - YC
LC	- LC	) 9		

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
64000	PCB ASSY-210.7 MHz BPF PRINTED CIRCUIT BOARD	7001-0471 1780-1023	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-27PF 5% 500V DIP	1002-0008	ELMENCO	DM15-E-270J
C2	CAP-1.3-5.4PF V PCB MT	1000-0012	E.F. JOHNSON	187-0103-005
C3	CAP-1.3-5.4PF V PCB MT	1000-0012	E.F. JOHNSON	187-0103-005
C4	CAP-1.3-5.4PF V PCB MT	1000-0012	E.F. JOHNSON	187-0103-005
C5	CAP-1.3-5.4PF V PCB MT	1000-0012	E.F. JOHNSON	187-0103-005
C6	CAP-1.3-5.4PF V PCB MT	1000-0012	E.F. JOHNSON	187-0103-005
C7	CAP-33PF 5% 500V DIP	1002-0024	ELMENCO	DM15-E-330J
INDUCTORS				
L1	COIL-AIR CORE .228 DIA	1596-0275		
L2	COIL-AIR CORE .225 DIA	1596-0274		
L3	COIL-AIR CORE .225 DIA	1596-0274		
L4	COIL-AIR CORE .225 DIA	1596-0274		
L5	COIL-AIR CORE .228 DIA	1596-0275		



NOTE:

1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

2. CAPACITORS - VALUES IN uF UNLESS OTHERWISE NOTED.

3. INDUCTORS - VALUES IN uH UNLESS OTHERWISE NOTED.

4. FACTORY SELECT. TYPICAL VALUE SHOWN.

5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.

6. SAWR OSCILLATOR.

7. CHIP RESISTORS.

8. CHIP CAPACITORS.

9. LI #1,2 CLOSELY COUPLED

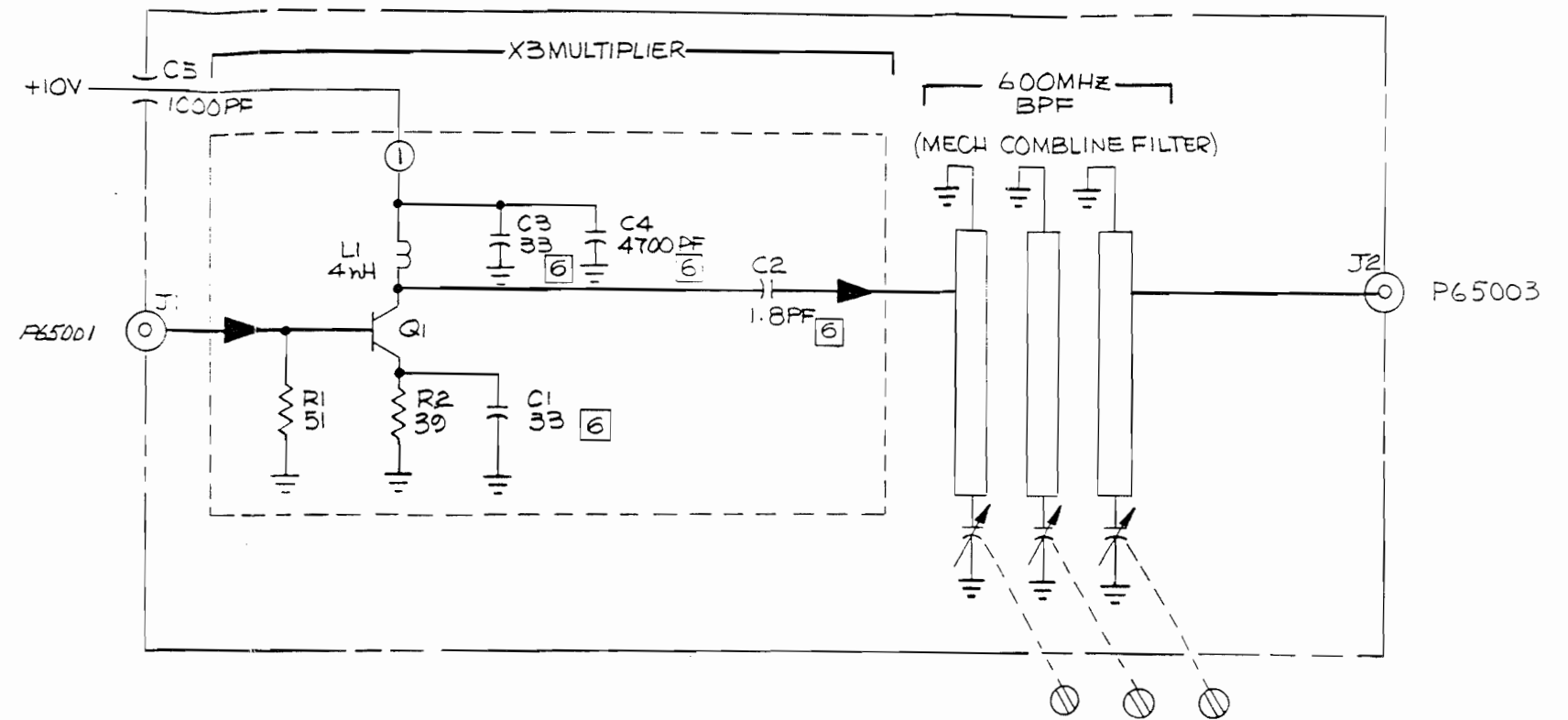
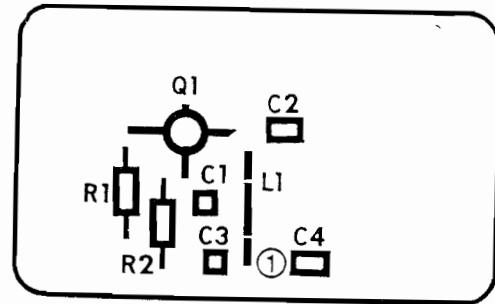
U NO	TYPE	VCC	GND
1	GPD1063	1	3

REF DESIGNATIONS NOT USED:
R9, 10, 11

OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 65000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
C19	NEAR C4	CR1	CR1
C31	NEAR C7	CR2	CR2
		CR3	CR3
		CR4	CR4
		CR5	CR5
		CR6	CR6
		CR7	CR7
		CR8	CR8
		CR9	CR9
		CR10	CR10
		CR11	CR11
		CR12	CR12
		CR13	CR13
		CR14	CR14
		CR15	CR15
		CR16	CR16
		CR17	CR17
		CR18	CR18
		CR19	CR19
		CR20	CR20
		CR21	CR21
		CR22	CR22
		CR23	CR23
		CR24	CR24
		CR25	CR25
		CR26	CR26
		CR27	CR27
		CR28	CR28
		CR29	CR29
		CR30	CR30
		CR31	CR31
		CR32	CR32
		CR33	CR33
		CR34	CR34
		CR35	CR35
		CR36	CR36
		CR37	CR37
		CR38	CR38
		CR39	CR39
		CR40	CR40
		CR41	CR41
		CR42	CR42

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
65000	PCB ASSY-2010.7 MHz UP CONV PRINTED CIRCUIT BOARD	7001-0578 1780-1303	CUSHMAN CUSHMAN	
	MIXER			
BM1	MXR-DBL BAL 1.8-2.2GHZ	2010-0012		
	CAPACITORS			
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-470PF 10% 50V X7R	1005-0105	TUSONIX	8111-050-X7R-471K
C4	CAP-470PF 10% 50V X7R	1005-0105	TUSONIX	8111-050-X7R-471K
C5	CAP-2.7PF .25PF 50V NPO	1012-0032	NOR CAL ASSOC	3BP050S2R7CS
C6	CAP-33PF 10% 50V NPO	1012-0025	JOHNSON	500R15N330KA
C7	CAP-5.6PF .5PF 50V NPO	1012-0011		
C8	CAP-1.8PF .5PF 50V NPO	1012-0008		
C9	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C10	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C11	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C12	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C13	CAP-2.7PF .25PF 50V NPO	1012-0032	NOR CAL ASSOC	3BP050S2R7CS
C14	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C15	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C16	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C17	CAP-2-10PF 25V NPO ADJ	1001-0024	NOVACAP	0805N101K500A
C18	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C19	CAP-33PF 10% 50V NPO	1012-0025	JOHNSON	500R15N330KA
C20	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C21	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C22	CAP-.1UF 20% 50V BX	1012-0038	VICLAN	129B104M2P
C23	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C24	CAP-.01UF 5% 50V W5R	1012-0013	ELECTRO	0805EM050U103J
C25	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C26	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C27	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C28	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C29	CAP-3.9PF .5PF 50V NPO	1012-0022	JOHANSON	50R15Q-3R9DP
C30	CAP-33PF 10% 50V NPO	1012-0025	JOHNSON	500R15N330KA
C31	CAP-2.2PF .5PF 50V NPO	1012-0003	KEMET	C0805C229D5GHH
	INDUCTORS			
L1	COIL-AIR CORE .116DIA	1596-0327		
L2	COIL-AIR CORE .65RAD	1596-0326		
L3	COIL-AIR CORE .090DIA	1596-0328		

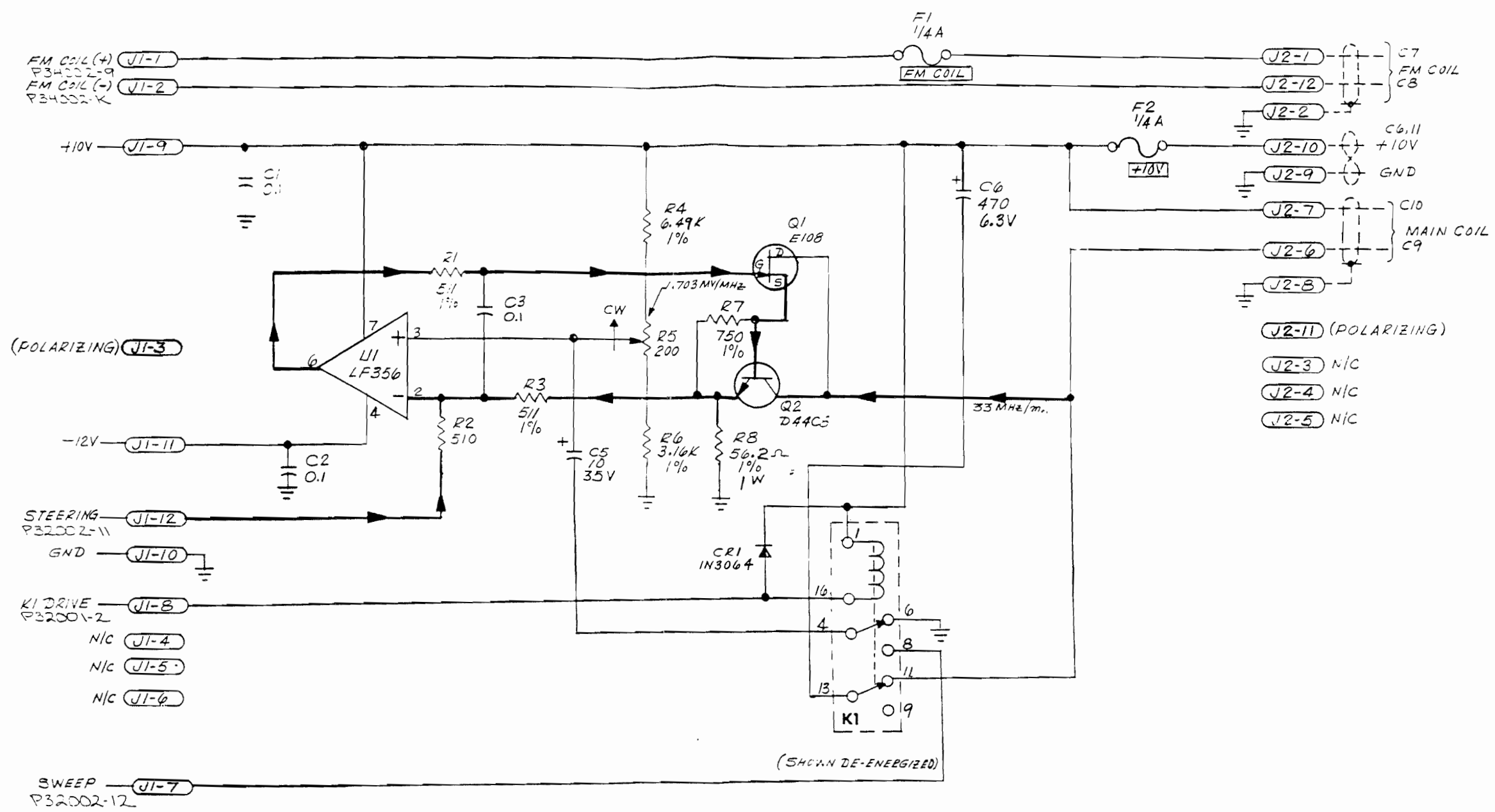
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
	CONNECTOR			
P1	CONN-SMB 50 OHM RTANG	2536-0100		
	TRANSISTORS			
Q1	XSTR-HXTR3101 NPN SI	1272-0129		
Q2	XSTR-HXTR3101 NPN SI	1272-0129		
Q3	XSTR-HXTR3101 NPN SI	1272-0129		
Q4	XSTR-HXTR3101 NPN SI	1272-0129		
Q5	XSTR-HXTR3101 NPN SI	1272-0129		
Q6	XSTR-2N5087 PNP SI T092	1272-0038	MOTOROLA	2N5087
Q7	XSTR-HXTR3101 NPN SI	1272-0129		
Q8	XSTR-2N5087 PNP SI T092	1272-0038	MOTOROLA	2N5087
Q9	XSTR-2N5087 PNP SI T092	1272-0038	MOTOROLA	2N5087
Q10	XSTR-2N5087 PNP SI T092	1272-0038	MOTOROLA	2N5087
	RESISTORS			
R1	RES-560 OHM 5% 1/8W CC	1065-5615	ALLEN BRADLEY	BB5615
R2	RES-820 OHM 5% 1/8W CC	1065-8215	ALLEN BRADLEY	BB8215
R3	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R4	RES-96 OHM 5% 1/8W 100	1130-0008		
R5	RES-96 OHM 5% 1/8W 100	1130-0008		
R6	RES-3.3K 5% 1/8W CC	1065-3325	ALLEN BRADLEY	BB3325
R7	RES-11K 5% 1/8W CC	1065-1135	ALLEN BRADLEY	BB1135
R8	RES-10K 5% 1/8W CC	1065-1035	ALLEN BRADLEY	BB1035
R9	NOT USED			
R10	NOT USED			
R11	NOT USED			
R12	RES-50 OHM 5% 1/8W 100	1130-0006		
R13	RES-470 OHM 5% 1/8W CC	1065-4715	ALLEN BRADLEY	BB4715
R14	RES-13 OHM 5% 1/8W CC	1065-1305	ALLEN BRADLEY	BB1305
R15	RES-470 OHM 5% 1/8W CC	1065-4715	ALLEN BRADLEY	BB4715
R16	RES-96 OHM 5% 1/8W 100	1130-0008		
R17	RES-96 OHM 5% 1/8W 100	1130-0008		
R18	RES-120 OHM 1/8W CC	1065-1215	ALLEN BRADLEY	BB1215
R19	RES-3.3K 5% 1/8W CC	1065-3325	ALLEN BRADLEY	BB3325
R20	RES-10K 5% 1/8W CC	1065-1035	ALLEN BRADLEY	BB1035
R21	RES-11K 5% 1/8W CC	1065-1135	ALLEN BRADLEY	BB1135
R22	RES-96 OHM 5% 1/8W 100	1130-0008		
R23	RES-96 OHM 5% 1/8W 100	1130-0008		
R24	RES-3.3K 5% 1/8W CC	1065-3325	ALLEN BRADLEY	BB3325
R25	RES-11K 5% 1/8W CC	1065-1135	ALLEN BRADLEY	BB1135
R26	RES-10K 5% 1/8W CC	1065-1035	ALLEN BRADLEY	BB1035
R27	RES-50 OHM 5% 1/8W 100	1130-0006		
R28	RES-50 OHM 5% 1/8W 100	1130-0006		
R29	RES-50 OHM 5% 1/8W 100	1130-0006		
R30	RES-910 OHM 5% 1/4W CC	1066-9115	ALLEN BRADLEY	CB9115
R31	RES-30 OHM 5% 1/8W CC	1065-3005	ALLEN BRADLEY	BB3005



- NOTE:
- 6. CHIP CAPCITOR
 - 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 - 4. "FACTORY SELECT." TYPICAL VALUE SHOWN.
 - 3. INDUCTORS - VALUES IN u H UNLESS OTHERWISE NOTED.
 - 2. CAPACITORS - VALUES IN uF UNLESS OTHERWISE NOTED.
 - 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
66000	MODULE ASSY-600MHz MULT	7060-0054	CUSHMAN	
	CAPACITOR			
C1	CAP-1000PF CMV 200V W5U	1005-0135		
	CONNECTORS			
	CONN-S/E 50 OHM STR JK	2536-0084	AMERICAN	5158-0000-09
	CONN-SMC 50 OHM STR JK	2536-0190		
	PCB			
66000	PCB ASSY-1800MHZ MULT	7001-0877	CUSHMAN	

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
66000	PCB ASSY-1800 MHz MULT PRINTED CIRCUIT BOARD	7001-0877 1780-1302	CUSHMAN CUSHMAN	
	CAPACITORS			
C1	CAP-33PF 10% 50V NPO	1012-0025	JOHANSON	50OR15N330KA
C2	CAP-1.8PF .5PF 50V NPO	1012-0008		
C3	CAP-33PF 10% 50V NPO	1012-0025	JOHANSON	50OR15N330KA
C4	CAP-4700PF 5% 50V Z7R	1012-0031	VARADYNE	3BRO50S472JS
	INDUCTOR			
L1	ASSY-COIL .004UH 1/2T	1596-6301		
	TRANSISTOR			
Q1	XSTR-HXTR3101 NPN SI	1272-0129		
	RESISTORS			
R1	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R2	RES-39 OHM 5% 1/8W CC	1065-3905	ALLEN BRADLEY	BB3905



- (POLARIZING) J1-3
- 12V J1-11
- STEERING P32002-11 J1-12
- GND J1-10
- K1 DRIVE P32001-2 J1-8
- N/C J1-4
- N/C J1-5
- N/C J1-6
- SWEEP P32002-12 J1-7

- J2-1 } C7 FM COIL
- J2-12 } C8
- J2-2 } C6,11 +10V
- J2-10 } +10V
- J2-9 } GND
- J2-7 } C10
- J2-6 } MAIN COIL
- J2-8 } C9
- J2-11 (POLARIZING)
- J2-3 N/C
- J2-4 N/C
- J2-5 N/C

1	2	3	4	5	6
12	11	10	9	8	7

J1 AND J2 TOP VIEW

- NOTE:
1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.

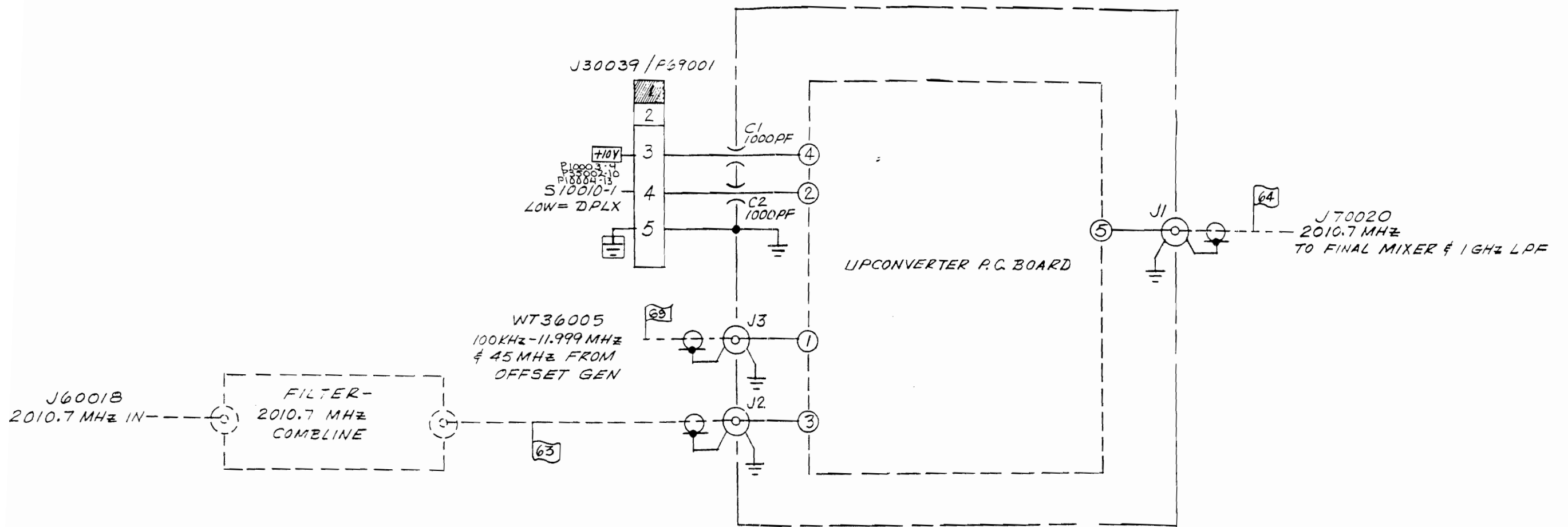
CIRCUIT REFERENCE SERIES: 67000

CIRCUIT REFERENCE USED:							
CC	1-	CC	6	QC	1-	QC	2
CR	1-	CR	8	RC	1-	RC	8
				SC		SC	
K	1-	K		TC		TC	
U	1-	U		YC		YC	
L		L		J		J	

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
67000	PCB ASSY-YIG MN COIL DRVR PRINTED CIRCUIT BOARD	7001-0774 1780-1278	CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	NOT USED			
C5	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C6	CAP-470UF+100-10% 6.3V	1013-0043	PANASONIC	ECEADJY471S
DIODE				
CR1	DIO-1N3064 SI SW D07	1281-0013	FAIRCHILD	IN3064
FUSES				
F1	FU-1/4A/125V MINTR F B	1955-0036		
F2	FU-1/4A/125V MINTR F B	1955-0036		
CONNECTORS				
J1	CONN-12(2X6)PIN STR P	2535-0151	BERG	65610-412
J2	CONN-12(2X6)PIN STR P	2535-0151	BERG	65610-412
RELAY				
K1	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
TRANSISTORS				
Q1	XSTR-E108 SI R187	1272-0101		
Q2	XSTR-D44C8 NPN SI B22	1272-0056		
RESISTORS				
R1	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R2	RES-510 OHM 5% 1/4W CC	1066-5115	ALLEN BRADLEY	CB5115
R3	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R4	RES-6.49K 1% 100PPM	1075-0211	CAT. LIST	55-100
R5	RES-200 OHM 10% 1/4W L	1200-0016		
R6	RES-3.16K 1% 100PPM	1074-1016	CAT. LIST	55-100
R7	RES-750 OHM 1% 100PPM	1075-0043	CAT. LIST	55-100
R8	RES-56.2 OHM 1% 1W 2PP	1157-0001	JORDAN	5-190-OR-2PPM 1%

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
INTEGRATED CIRCUIT				
U1	IC-356B 8PIN DIP OP AMP	2025-0278	NATIONAL	LM356B

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
68000	OSC ASSY - 2.1-3.1 GHz	7041-0040	CUSHMAN	
	OSC-2.1-3.1GHZ YIG	2001-0007	CUSHMAN	



69000

OFFSET GENERATOR HOUSING
(7060-0035)

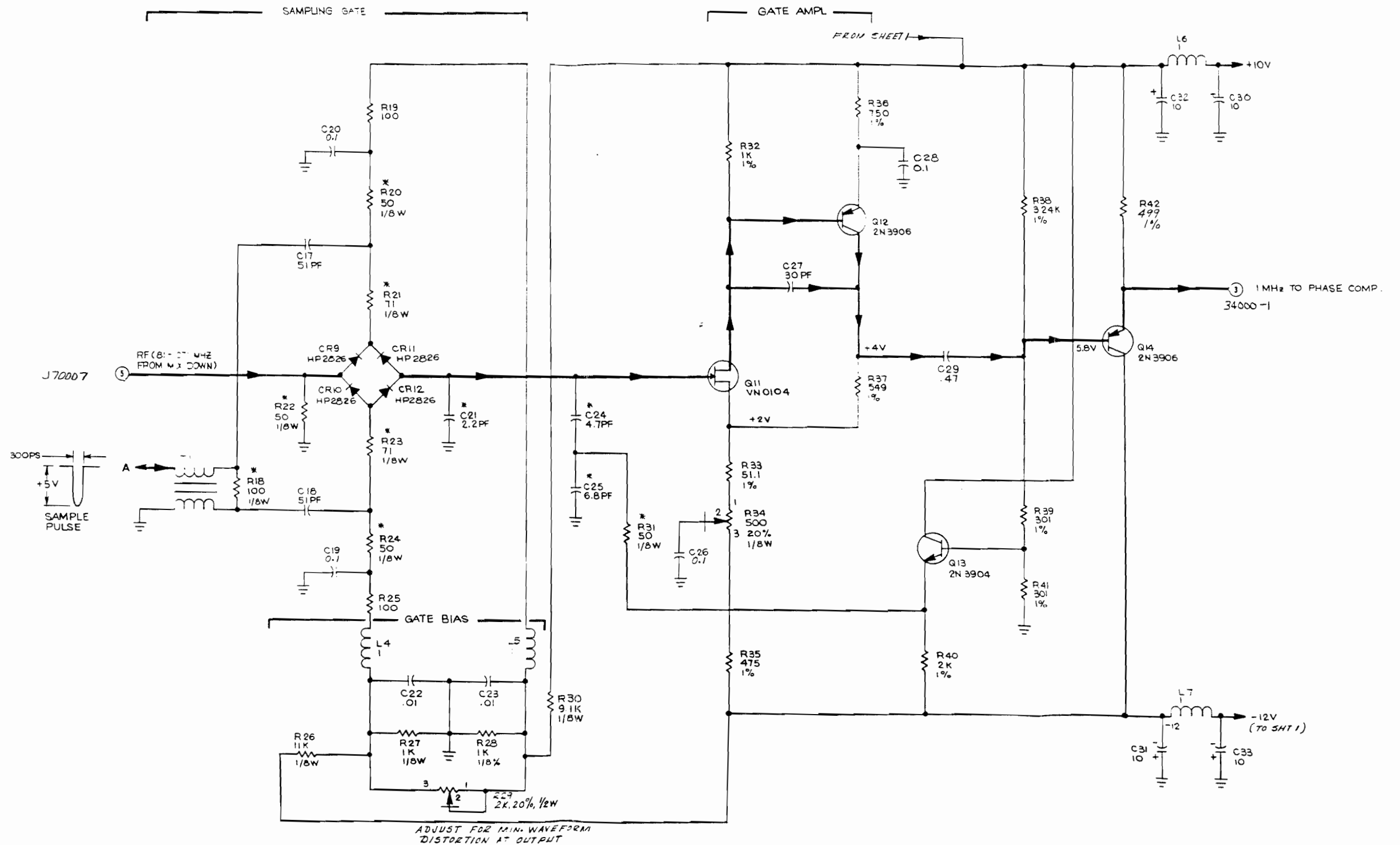
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
69000	MLD ASSY-OFFSET GENERATOR	7060-0035	CUSHMAN	
	PCB ASSY			
69000	PCB ASSY-UPCONVERTER	7001-0713	CUSHMAN	
	CAPACITORS			
C1	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
C2	CAP-1000PF GMV/20% 500V	1005-0107	ERIE	321-010-X540-102M
	CONNECTORS			
J1	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J2	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
J3	CONN-SMB 50 OHM STR JK	2536-0084	AMERICON	5158-0000-09
	CABLE ASSY			
	HARN ASSY-OFFSET GEN	7030-0301	CUSHMAN	

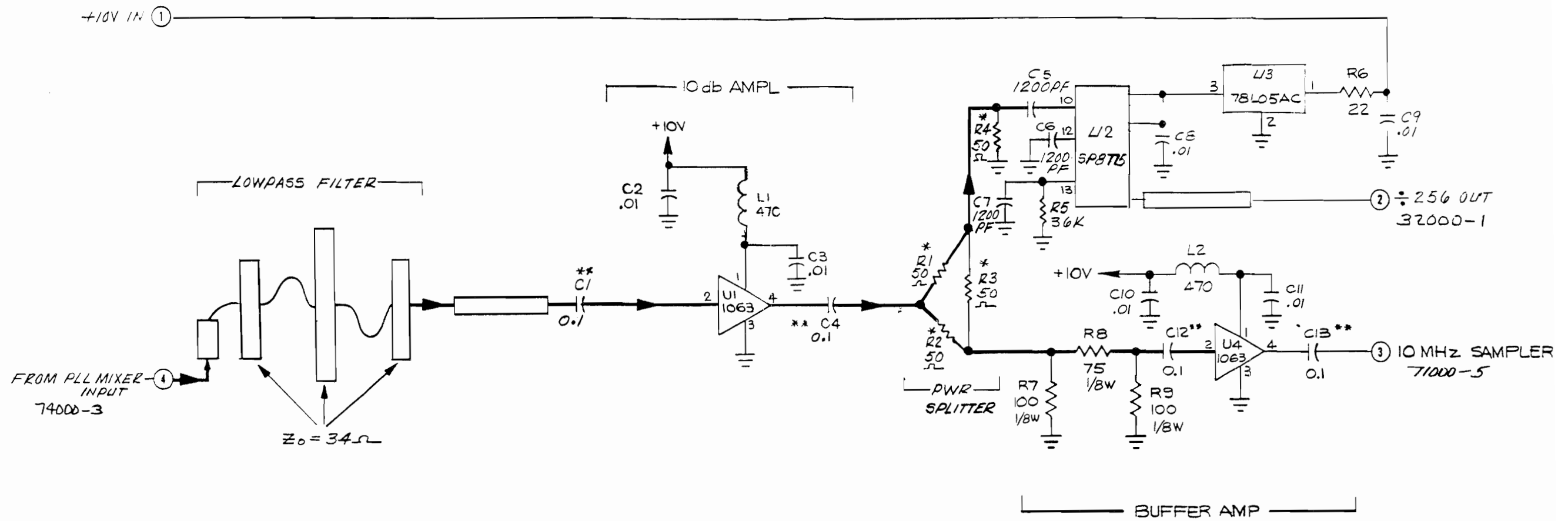
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
69000	PCB ASSY-UPCONVERTER PRINTED CIRCUIT BOARD	7001-0713 1780-0996	CUSHMAN CUSHMAN	
	CAPACITORS			
C1	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C2	CAP-5-20PF 25V NPO	1001-0025	TUSONIX	513-012A 3.5-20PF
C3	CAP-5-20PF 25V NPO	1001-0025	TUSONIX	513-012A 3.5-20PF
C4	NOT USED			
C5	CAP-5-20PF 25V NPO	1001-0025	TUSONIX	513-012A 3.5-20PF
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	NOT USED			
C8	CAP-5-20PF 25V NPO	1001-0025	TUSONIX	513-012A 3.5-20PF
C9	CAP-1.3PF .25PF 50V NPO	1012-0034	JOHANSON	500R16N143CB
C10	CAP-5.6PF .5PF 50V NPO	1012-0011		
C11	CAP-2.2PF .5PF 50V NPO	1012-0003	KEMET	C0805C229D5GHH
C12	CAP-1UF 20% 50V RDL	1011-0013	KEMET	T368A105M050AS
C13	CAP-2.7PF .25PF 50V NPO	1012-0032	NOR CAL ASSOC	3BP050S2R7CS
C14	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C15	CAP-5.6PF .5PF 50V NPO	1012-0011		
C16	CAP-2.2PF .5PF 50V NPO	1012-0003	KEMET	C0805C229D5GHH
C17	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
	DIODES			
CR1	DIO-HP2826 HOT CARR	1283-0005	HP	5082-2826
CR2	DIO-HP2826 HOT CARR	1283-0005	HP	5082-2826
	INDUCTOR			
L1	ASSY-COIL AIR CORE	1596-0068		
	TRANSISTORS			
Q1	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELEC	NE57835
Q2	XSTR-NE57835 NPN SI	1272-0086	NIPPON ELEC	NE57835
	RESISTORS			
R1	RES-2.4K 5% 1/8W CC	1065-2425	ALLEN BRADLEY	BB2425
R2	RES-150 OHM 5% 1/8W CC	1065-1515	ALLEN BRADLEY	BB1515
R3	RES-36 OHM 5% 1/8W CC	1065-3605	ALLEN BRADLEY	BB3605
R4	RES-150 OHM 5% 1/8W CC	1065-1515	ALLEN BRADLEY	BB1515
R5	RES-36K 5% 1/8W CC	1065-3635	ALLEN BRADLEY	BB3635
R6	RES-2K 5% 1/8W CC	1065-2025	ALLEN BRADLEY	BB2025
R7	RES-5.6K 5% 1/8W CC	1065-5625	ALLEN BRADLEY	BB5625
R8	RES-330 OHM 5% 1/8W CC	1065-3315	ALLEN BRADLEY	BB3315

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
71000	PCB ASSY-10 MHz SAMPLER PRINTED CIRCUIT BOARD	7001-0759 1780-1259	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C2	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C3	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C4	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C5	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C9	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C10	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C11	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C12	CAP-470PF 10% 50V X7R	1005-0105	TUSONIX	8111-050-X7R-471K
C13	CAP-22PF 5% 50V NPO	1012-0007	VARADYNE	3BN050S220JS
C14	CAP-4.7PF .25PF 50V NPO	1012-0009		
C15	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C16	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C17	CAP-51PF 5% 50V PORC	1012-0016		
C18	CAP-51PF 5% 50V PORC	1012-0016		
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C20	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-2.2PF .5PF 50V NPO	1012-0003	KEMET	C0805C229D5GHH
C22	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C23	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C24	CAP-4.7PF .25PF 50V NPO	1012-0009		
C25	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BN05056R8CS
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-30PF 5% 50V DIP	1004-0010	CORNELL DUB	CD10ED300J
C28	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C29	CAP-.47UF 10% 50V MLD	1005-0092	AEROVOX	CK06BX474K
C30	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C31	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C32	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C33	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
DIODES				
CR1	DIO-HP2811 SI HOT CARR	1283-0004	HP	5082-2811
CR2	DIO-HP2811 SI HOT CARR	1283-0004	HP	5082-2811
CR3	NOT USED			
CR4	DIO-HP2826 HOT C 1.2PF	1283-0005	HP	5082-2826
CR5	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	1N914B
CR6	DIO-HP0833 SI STEP RCV	1282-0020		
CR7	DIO-HP2826 HOT C 1.2PF	1283-0005	HP	5082-2826
CR8	DIO-HP2826 HOT C 1.2PF	1283-0005	HP	5082-2826
CR9	DIO-HP2826 HOT C 1.2PF	1283-0005	HP	5082-2826

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
CR10	DIO-HP2826 HOT C 1.2PF	1283-0005	HP	5082-2826
CR11	DIO-HP2826 HOT C 1.2PF	1283-0005	HP	5082-2826
CR12	DIO-HP2826 HOT C 1.2PF	1283-0005	HP	5082-2826
INDUCTORS				
L1	CH-1UH 10% RF MLD AXL	1585-0091		
L2	CH-1UH 10% RF MLD AXL	1585-0091		
L3	CH-1UH 10% RF MLD AXL	1585-0091		
L4	CH-1UH 10% RF MLD AXL	1585-0091		
L5	CH-1UH 10% RF MLD AXL	1585-0091		
L6	CH-1UH 10% RF MLD AXL	1585-0091		
L7	CH-1UH 10% RF MLD AXL	1585-0091		
TRANSISTORS				
Q1	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q4	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q5	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q6	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q7	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q8	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q9	XSTR-2N5109 NPN SI T039	1272-0110	MOTOROLA	2N5109
Q10	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q11	XSTR-VN0104 SI T092	1272-0132	MOTOROLA	2N3904
Q12	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q13	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q14	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
RESISTORS				
R1	RES-51 OHM 5% 1/8S CC	1065-5105	ALLEN BRADLEY	BB5105
R2	RES-1K 5% 1/8W CC	1065-1025	ALLEN BRADLEY	BB1025
R3	RES-7.5K 5% 1/8W CC	1065-7525	ALLEN BRADLEY	BB7525
R4	RES-7.5K 5% 1/8W CC	1065-7525	ALLEN BRADLEY	BB7525
R5	RES-620 OHM 5% 1/8W CC	1065-6215	ALLEN BRADLEY	BB6215
R6	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R7	RES-20 OHM 5% 1/8W CC	1065-2005	ALLEN BRADLEY	BB2005
R8	RES-20 OHM 5% 1/8W CC	1065-2005	ALLEN BRADLEY	BB2005
R9	RES-200 OHM 1% 100PPM	1075-0082	CAT. LIST	55-100
R10	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R11	RES-4.53K 1% 100PPM	1075-0053	CAT. LIST	55-100
R12	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R13	RES-5.6 OHM 5% 1/8W CC	1065-0001	ALLEN BRADLEY	BB0001
R14	RES-130 OHM 5% 1W CC	1068-1315	ALLEN BRADLEY	GB1315
R15	RES-1K 5% 1/8W CC	1065-1025	ALLEN BRADLEY	BB1025

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R9	RES-13K 5% 1/8W CC	1065-1335	ALLEN BRADLEY	BB1335
R10	RES-4.7K 5% 1/8W CC	1065-4725	ALLEN BRADLEY	BB4725
R11	RES-2K 5% 1/8W CC	1065-2025	ALLEN BRADLEY	BB2025
R12	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R13	RES-30 OHM 5% 1/8W CC	1065-3005	ALLEN BRADLEY	BB3005
R14	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	BB1025



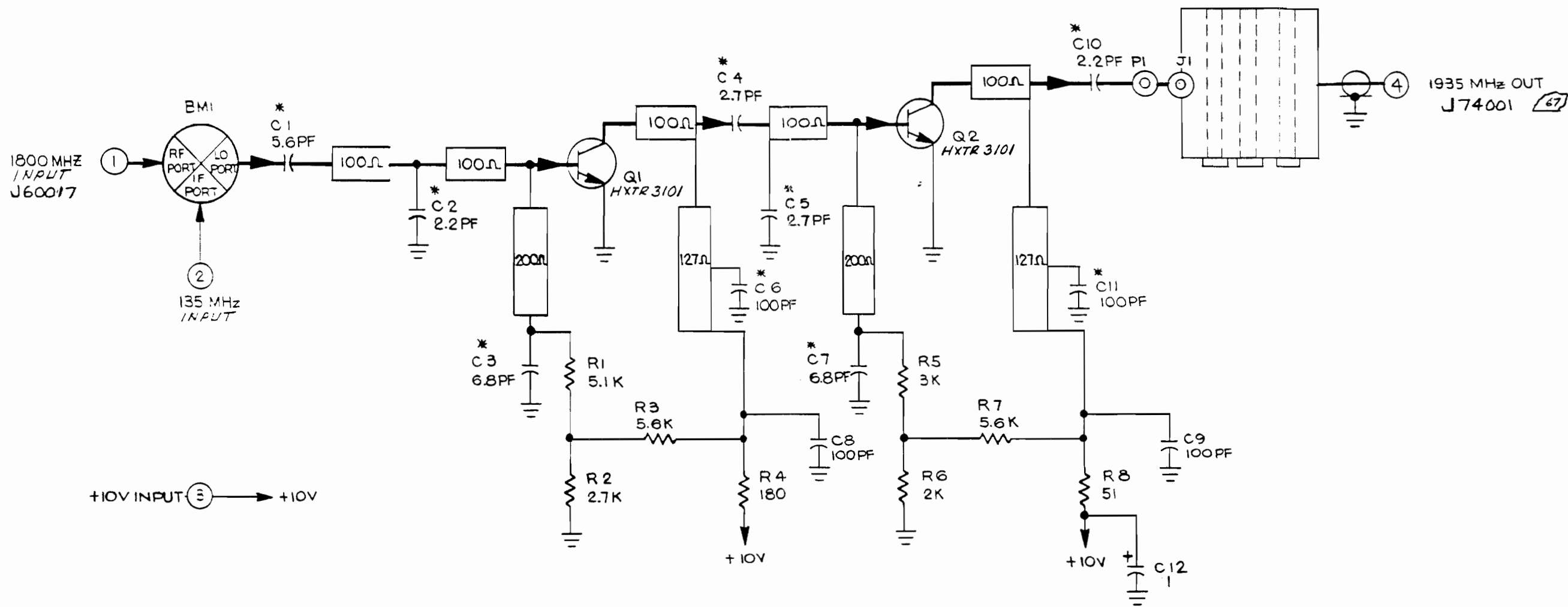


** = CHIP CAPACITORS
 * = CHIP RESISTORS

NOTE:

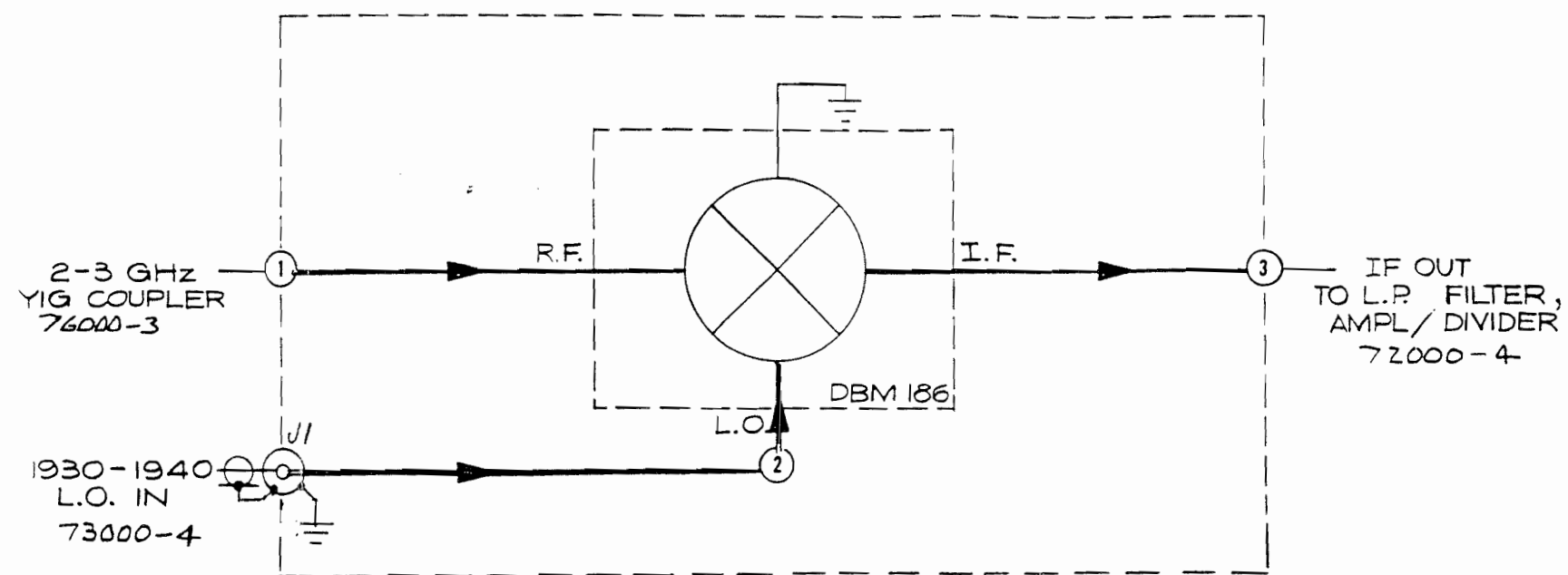
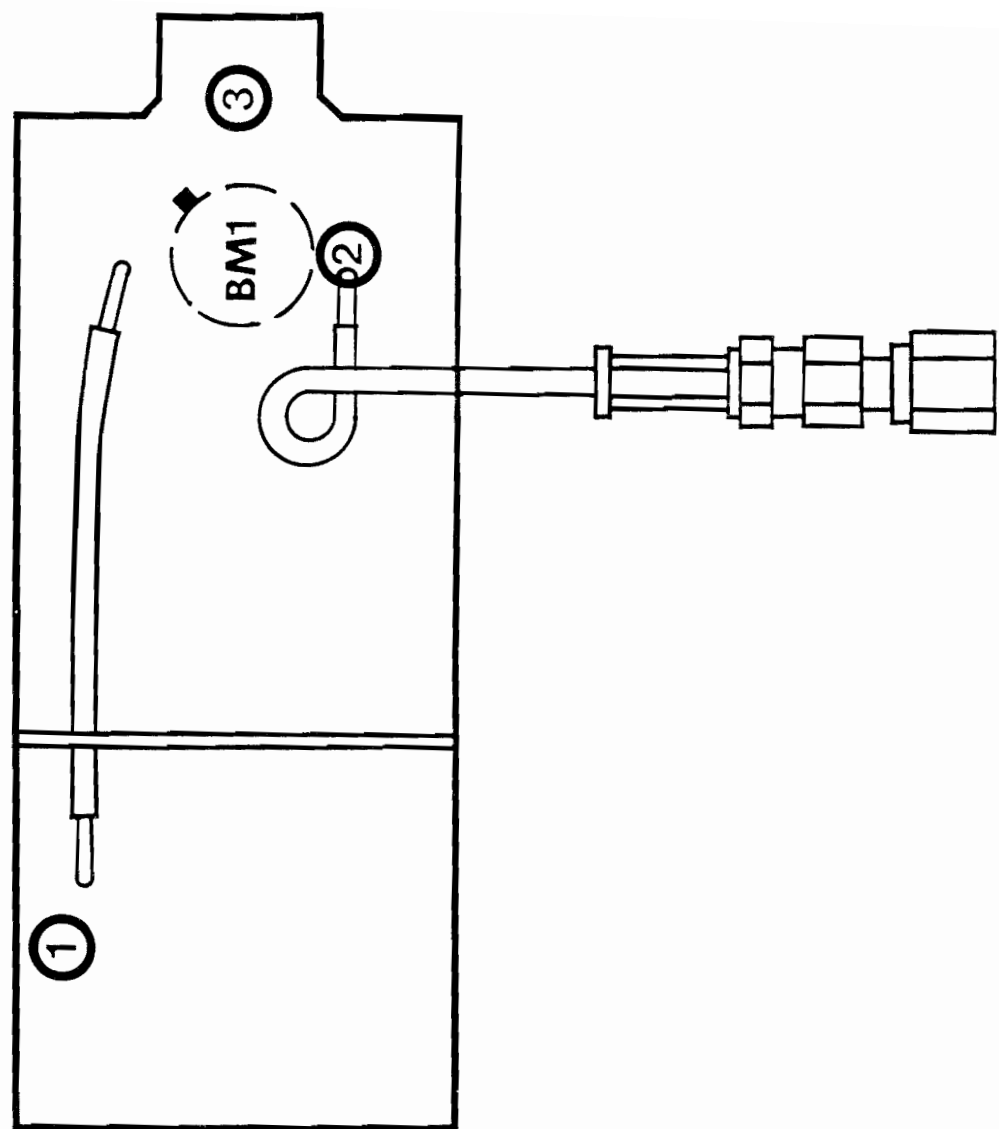
1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.
2. CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
3. INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
4. *FACTORY SELECT. TYPICAL VALUE SHOWN.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
72000	PCB ASSY-HI FREQ DIVIDER PRINTED CIRCUIT BOARD	7001-0760 1780-1285	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V BX	1012-0042		
C2	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C3	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C4	CAP-.1UF 20% 50V BX	1012-0042		
C5	CAP-1200PF 5% 100V NPO	1005-0127	CENTRE ENGR	200-100-NPO-122J
C6	CAP-1200PF 5% 100V NPO	1005-0127	CENTRE ENGR	200-100-NPO-122J
C7	CAP-1200PF 5% 100V NPO	1005-0127	CENTRE ENGR	200-100-NPO-122J
C8	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C9	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C10	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C11	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C12	CAP-.1UF 20% 50V BX	1012-0042		
C13	CAP-.1UF 20% 50V BX	1012-0042		
INDUCTORS				
L1	CH-470UH 10% RF MLD	1585-0086	DELEVAN	1025-84
L2	CH-470UH 10% RF MLD	1585-0086	DELEVAN	1025-84
RESISTORS				
R1	RES-50 OHM 5% 1/8W 100	1130-0006		
R2	RES-50 OHM 5% 1/8W 100	1130-0006		
R3	RES-50 OHM 5% 1/8W 100	1130-0006		
R4	RES-50 OHM 5% 1/8W 100	1130-0006		
R5	RES-36K 5% 1/8W CC	1065-3635	ALLEN BRADLEY	BB3635
R6	RES-22 OHM 5% 1/4W CC	1066-2205	ALLEN BRADLEY	CB2205
R7	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R8	RES-75 OHM 5% 1/8W CC	1065-7505	ALLEN BRADLEY	BB7505
R9	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
INTEGRATED CIRCUITS				
U1	IC-1063 TO12 CASC AMP	2025-0280	AVANTEK	GPD-1063
U2	IC-8775 14PIN DIP UHF	2025-0307		
U3	IC-78L05A TO92 5V 5%	2025-0230		
U4	IC-1063 TO12 CASC AMP	2025-0280	AVANTEK	GPD-1063



NOTE:
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 * - FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

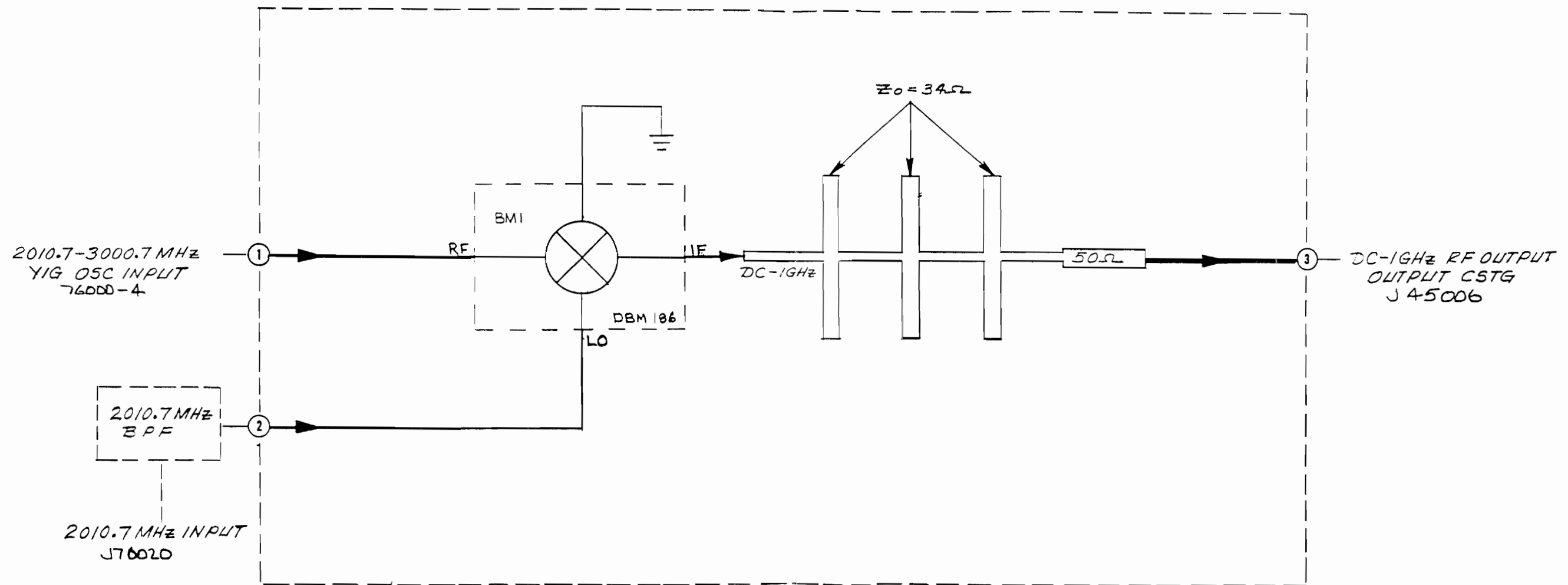
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
73000	PCB ASSY-1935 MHz UPCONV PRINTED CIRCUIT BOARD	7301-0761 1780-1260	CUSHMAN CUSHMAN	
	MIXER			
BM1	MXR-DBL BAL T08	2010-0012		
	CAPACITORS			
C1	CAP-5.6PF .5PF 50V NPO	1012-0011		
C2	CAP-2.2PF .5PF 50V NPO	1012-0003	KEMET	C0805C229D5GHH
C3	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BN05056R8CS
C4	CAP-2.7PF .25PF 50V NPO	1012-0032	NOR CAL ASSOC	3BP050S2R7CS
C5	CAP-2.7PF .25PF 50V NPO	1012-0032	NOR CAL ASSOC	3BP050S2R7CS
C6	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C7	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BN05056R8CS
C8	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C9	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C10	CAP-2.2PF .5PF 50V NPO	1012-0003	KEMET	C0805C229D5GHH
C11	CAP-100PF 10% 50V NPO	1012-0004	NOVACAP	0805N101K500A
C12	CAP-1UF -10+50% 50V	1013-0047	PANASONIC	ECEA1HV010S
	FILTER			
	FLTR ASSY-1935MHZ COMB	7041-0044	CUSHMAN	
	CONNECTOR			
P1	CONN-SMB 50 OHM RTANG	2536-0100		
	TRANSISTORS			
Q1	XSTR-HXTR3101 NPN SI	1272-0129		
Q2	XSTR-HXTR3101 NPN SI	1272-0129		
	RESISTORS			
R1	RES-5.1K 5% 1/8W CC	1065-5125	ALLEN BRADLEY	BB5125
R2	RES-2.7K 5% 1/8W CC	1065-2725	ALLEN BRADLEY	BB2725
R3	RES-5.6K 5% 1/8W CC	1065-5625	ALLEN BRADLEY	BB5625
R4	RES-180 OHM 5% 1/8W CC	1065-1815	ALLEN BRADLEY	BB1815
R5	RES-3K 5% 1/8W CC	1065-3025	ALLEN BRADLEY	BB3025
R6	RES-2K 5% 1/8W CC	1065-2025	ALLEN BRADLEY	BB2025
R7	RES-5.6K 5% 1/8W CC	1065-5625	ALLEN BRADLEY	BB5625
R8	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105



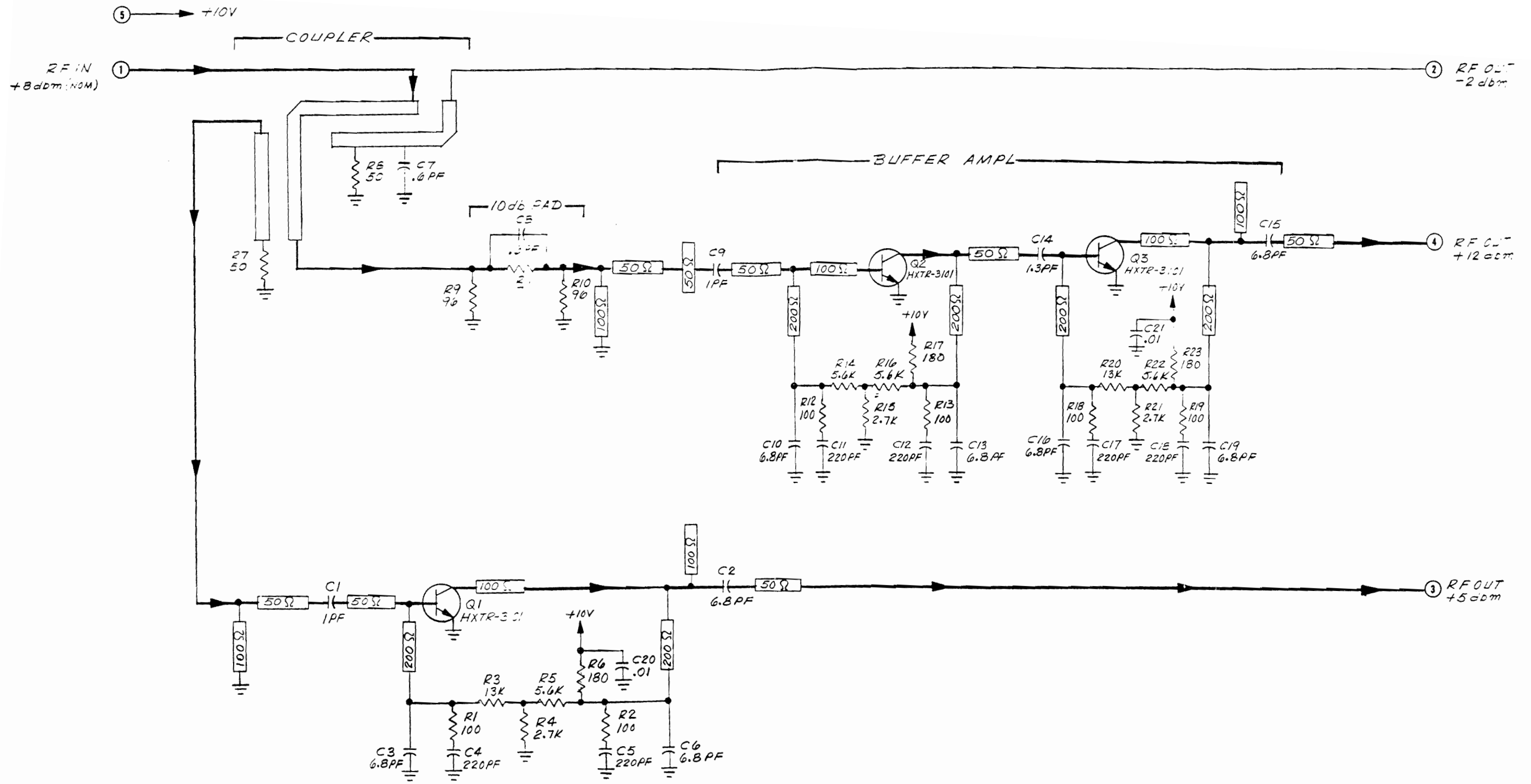
74000 YIG PLL MIXER

(7001-0762)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
74000	PCE ASSY-YIG PLL MIXER PRINTED CIRCUIT BOARD	7001-0762 1780-1262	CUSHMAN CUSHMAN	
	MIXER			
BM1	MXR-DEM186 DBL BAL	2010-0013		



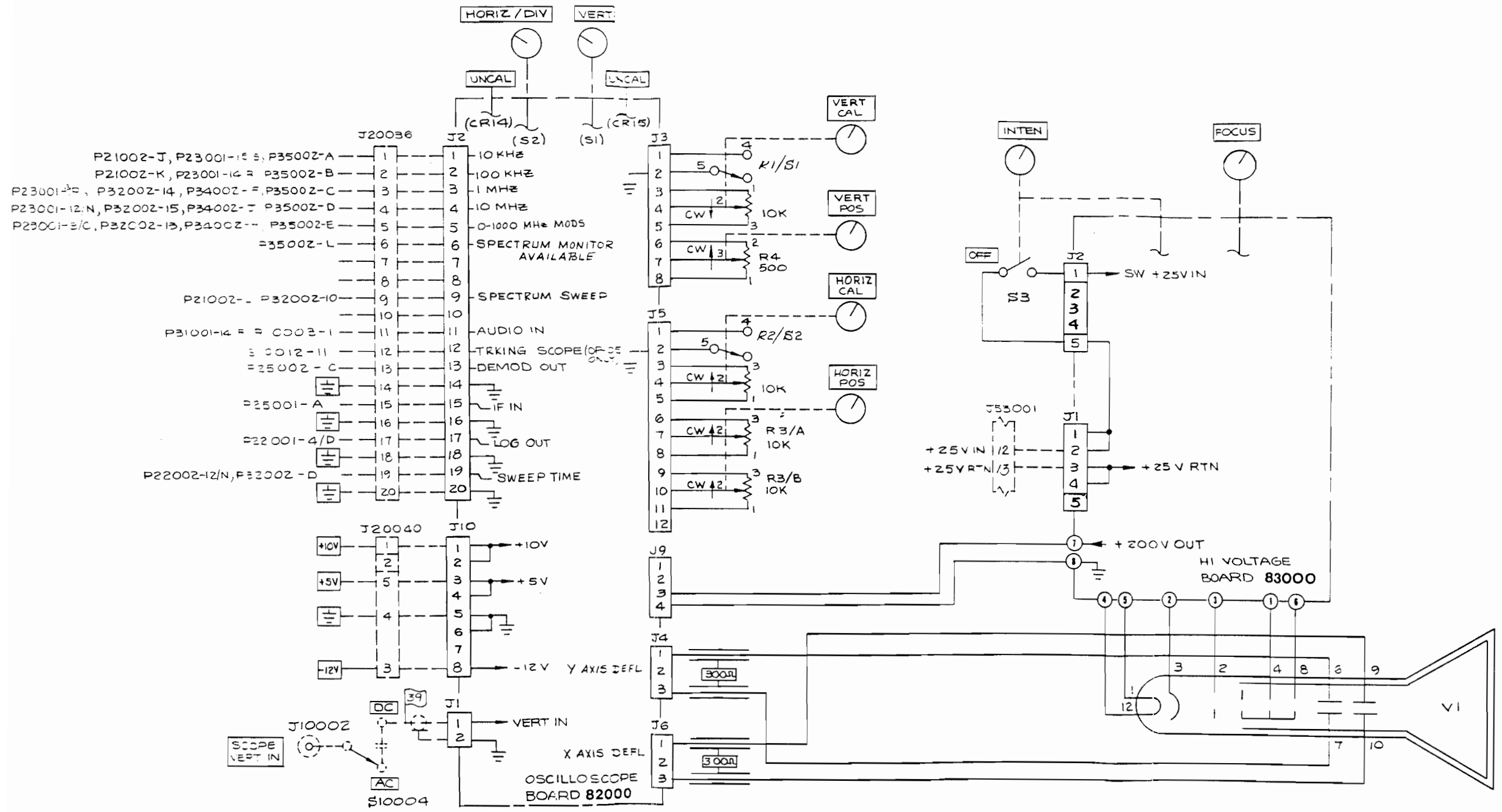
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
75000	PCB ASSY-FINAL MIX/1.1 GHz PRINTED CIRCUIT BOARD	7001-0808 1780-1276	CUSHMAN CUSHMAN	
	MIXER			
BM1	MXR-DBM186 DBL BAL 708	2010-0013		



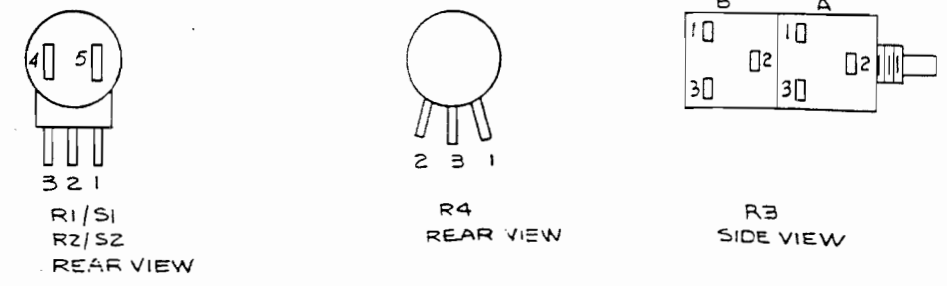
- NOTE:
1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
 3. INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
76000	PCB ASSY-DIR CPLR/BUF AMP PRINTED CIRCUIT BOARD	7001-0763 1780-1088	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-1PF 50V MIN HI Q	1012-0027	JOHANSON	251R12Q1ROBP
C2	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BNO5056R8CS
C3	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BNO5056R8CS
C4	CAP-220PF 10% 50V NPO	1012-0033		
C5	CAP-220PF 10% 50V NPO	1012-0033		
C6	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BNO5056R8CS
C7	CAP-.6PF .25PF 50V NPO	1012-0021		
C8	CAP-.6PF .25PF 50V NPO	1012-0021		
C9	CAP-1PF 50V MIN HI Q	1012-0027	JOHANSON	251R12Q1ROBP
C10	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BNO5056R8CS
C11	CAP-220PF 10% 50V NPO	1012-0033		
C12	CAP-220PF 10% 50V NPO	1012-0033		
C13	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BNO5056R8CS
C14	CAP-1.3PF .25PF 50V NPO	1012-0034	JOHANSON	50OR16N143CB
C15	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BNO5056R8CS
C16	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BNO5056R8CS
C17	CAP-220PF 10% 50V NPO	1012-0033		
C18	CAP-220PF 10% 50V NPO	1012-0033		
C19	CAP-6.8PF .5PF 50V NPO	1012-0012	VARADYNE	30BNO5056R8CS
C20	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C21	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
TRANSISTORS				
Q1	XSTR-HXTR3101 NPN SI	1272-0129		
Q2	XSTR-HXTR3101 NPN SI	1272-0129		
Q3	XSTR-HXTR3101 NPN SI	1272-0129		
RESISTORS				
R1	RES-100 OHM 5% 1/8W 100	1130-0005		
R2	RES-100 OHM 5% 1/8W 100	1130-0005		
R3	RES-13K 5% 1/8W CC	1065-1335	ALLEN BRADLEY	BB1335
R4	RES-2.7K 5% 1/8W CC	1065-2725	ALLEN BRADLEY	BB2725
R5	RES-5.6K 5% 1/8W CC	1065-5625	ALLEN BRADLEY	BB5625
R6	RES-180 OHM 5% 1/8W CC	1065-1815	ALLEN BRADLEY	BB1815
R7	RES-50 OHM 5% 1/8W 100	1130-0006		
R8	RES-50 OHM 5% 1/8W 100	1130-0006		
R9	RES-96 OHM 5% 1/8W 100	1130-0008		
R10	RES-96 OHM 5% 1/8W 100	1130-0008		
R11	RES-71 OHM 5% 1/8W 100	1130-0007		
R12	RES-100 OHM 5% 1/8W 100	1130-0005		
R13	RES-100 OHM 5% 1/8W 100	1130-0005		
R14	RES-13K 5% 1/8W CC	1065-1335	ALLEN BRADLEY	BB1335

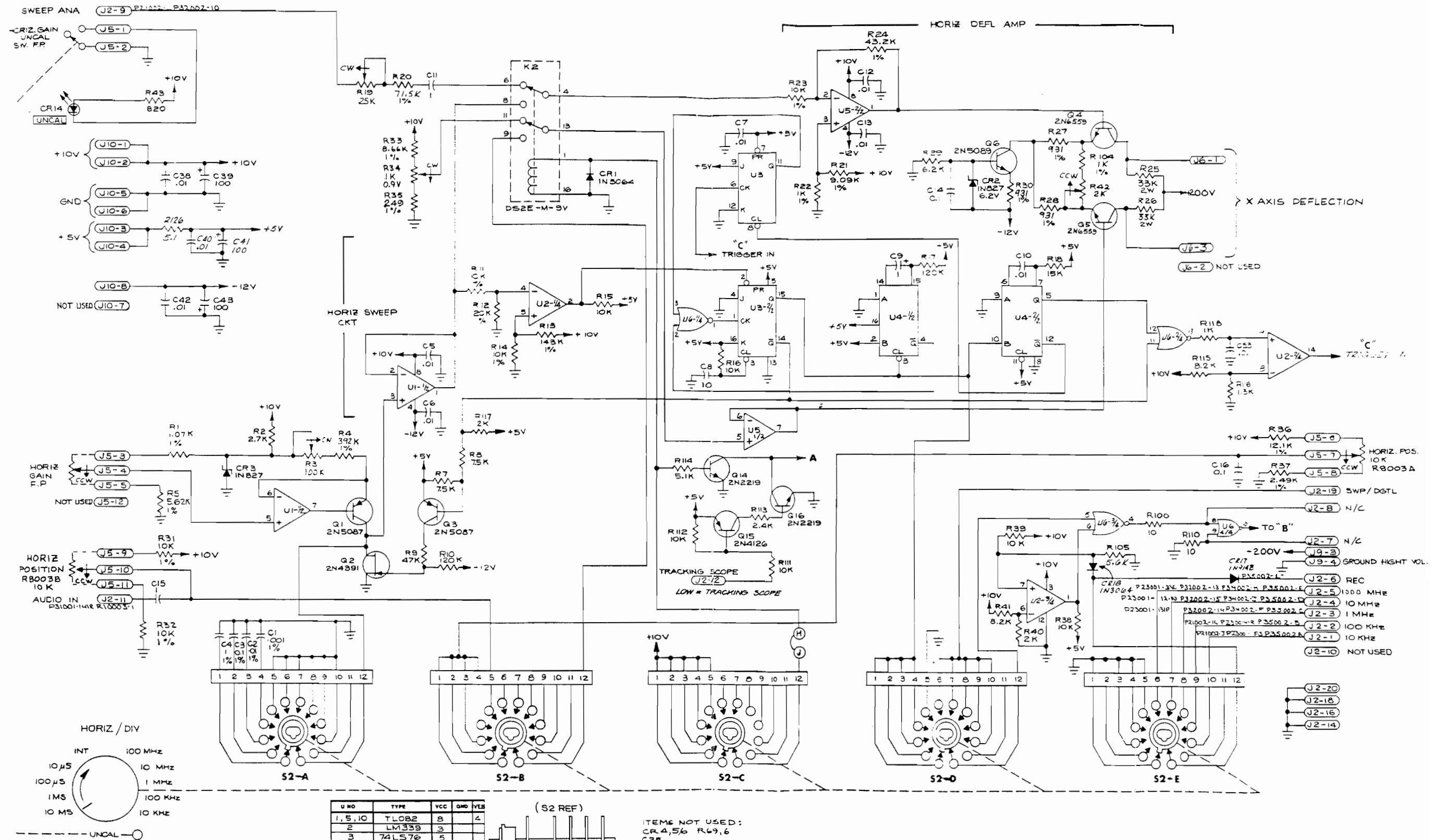
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R15	RES-2.7K 5% 1/8W CC	1065-2725	ALLEN BRADLEY	BB2725
R16	RES-5.6K 5% 1/8W CC	1065-5625	ALLEN BRADLEY	BB5625
R17	RES-180 OHM 5% 1/8W CC	1065-1815	ALLEN BRADLEY	BB1815
R18	RES-100 OHM 5% 1/8W 100	1130-0005		
R19	RES-100 OHM 5% 1/8W 100	1130-0005		
R20	RES-13K 5% 1/8W CC	1065-1335	ALLEN BRADLEY	BB1335
R21	RES-2.7K 5% 1/8W CC	1065-2725	ALLEN BRADLEY	BB2725
R22	RES-5.6K 5% 1/8W CC	1065-5625	ALLEN BRADLEY	BB5625
R23	RES-180 OHM 5% 1/8W CC	1065-1815	ALLEN BRADLEY	BB1815



- NOTE:
1. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN uF UNLESS OTHERWISE NOTED.
 3. INDUCTORS - VALUES IN uH UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT, TYPICAL VALUE SHOWN.
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.

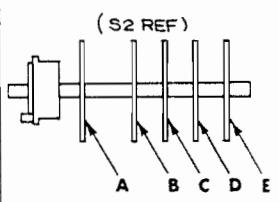


CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
E0000	MODULE ASSY-OSCILLOSCOPE	7060-0028	CUSHMAN	
	PCB			
82000	PCB ASSY-OSCILLOSCOPE	7001-0768	CUSHMAN	
83000	PCB ASSY-HI VOLT PWR SPLY	7001-0829	CUSHMAN	
	RESISTORS			
R1	POT-10K 10% 1/2W LIN	1203-0094	ALLEN BRADLEY	WRS1G056S103UA
R2	POT-10K 10% 1/2W LIN	1203-0094		
R3	POT-10K/10K 10% 1/2W	1203-0131		
R4	POT-500 OHM 10% 2W LIN	1203-0087		
	SWITCH			
S1	P/O PCB 82000			
S2	P/O PCB 82000			
S3	SW ASSY-SCOPE INTENSTY	7011-0041	CUSHMAN	
	TUBE			
V1	TUBE 3RP1A 3 IN RD CRT	1279-0019		



NOTE: 1. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 2. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μH UNLESS OTHERWISE NOTED.
 4. CAPACITORS - VALUES IN μF UNLESS OTHERWISE NOTED.
 5. RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

U NO	TYPE	VCC	GND	YEL
1, 5, 10	T10B2	8		4
2	LM339	3		
3	74LS76	5		
4	74LS123	16	6	
6	74LS02			
7	CA3029	13	2	6
8, 9	LF356	7		4



ITEMS NOT USED:
 CR4, 5, 6 R69, 6
 C35

REF NO	APPROX LOCATION	CIRCUIT REFERENCE SERIES: 82000
R105	NEAR U2	CR 31 - CR 35
CR15	NEAR R71	CR 36 - CR 40
R126	NEAR C40	CR 41 - CR 45

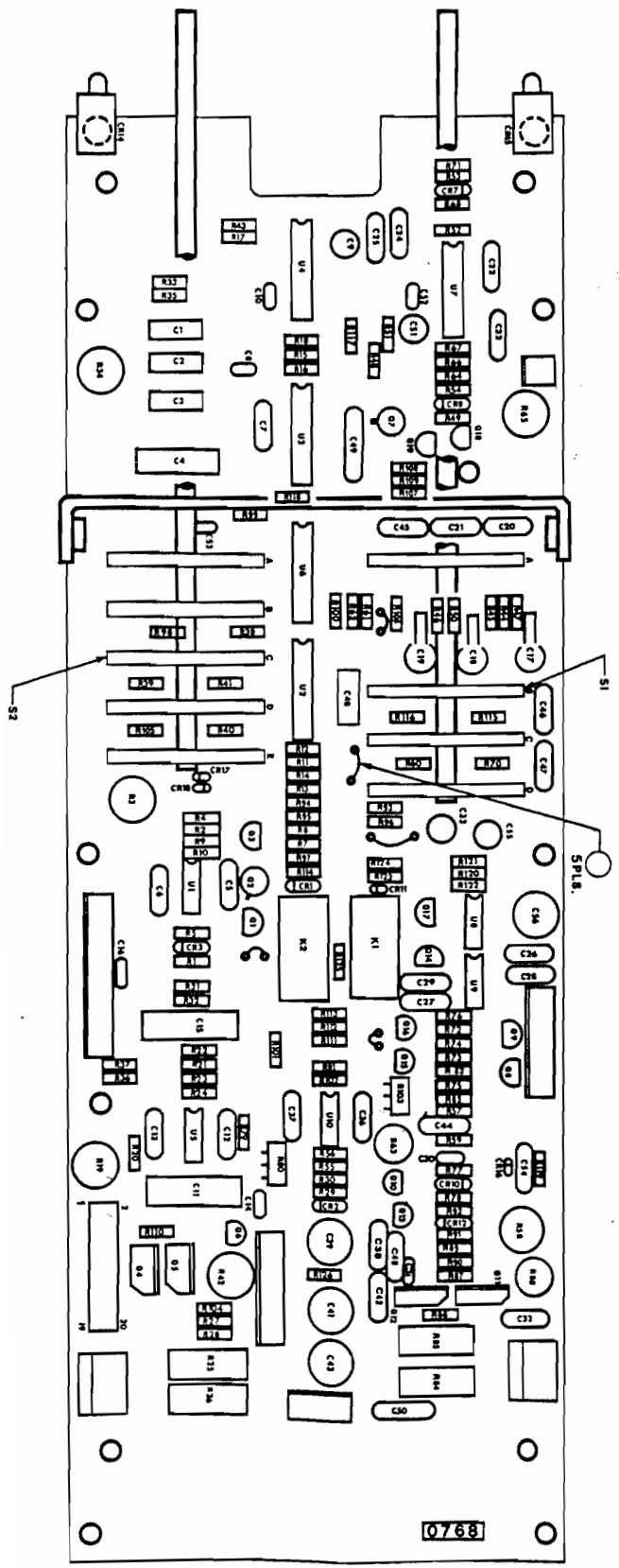
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
82000	PCB ASSY-OSCILLOSCOPE PRINTED CIRCUIT BOARD	7001-0768 1780-1294	CUSEMAN CUSEMAN	
CAPACITORS				
C1	CAP-.001UF 1% 50V AXL	1008-0117		
C2	CAP-.01UF 1% 50V AXL	1008-0116		
C3	CAP-.1UF 1% 50V AXL	1008-0115		
C4	CAP-1UF 1% 50V AXL	1008-0118		
C5	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C6	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C7	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C8	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C9	CAP-1UF -10+50% 50V	1013-0047	PANASONIC	ECEA1HV010S
C10	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C11	CAP-1UF 10% 100V RDL	1008-0100	PLESSEY	60H105K100
C12	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C13	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C14	CAP-.1UF 20% 50V MINTP	1005-0097	ERIE	8121-050-651-104M
C15	CAP-1UF 10% 100V RDL	1008-0100	PLESSEY	60H105K100
C16	CAP-.1UF 20% 50V MINTP	1005-0097	ERIE	8121-050-651-104M
C17	CAP-1.2-10PF 250V N075	1001-0020	STETT.-TRUSH	311505S1.2/10 N075
C18	CAP-1.2-10PF 250V N075	1001-0020	STETT.-TRUSH	311505S1.2/10 N075
C19	CAP-1.2-10PF 250V N075	1001-0020	STETT.-TRUSH	311505S1.2/10 N075
C20	CAP-24PF 5% 500V DIP	1002-0051	ELMENCO	DM15-E-240J
C21	CAP-27PF 5% 500V DIP	1002-0008	ELMENCO	DM15-E-270J
C22	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C23	CAP-27PF 5% 500V DIP	1002-0008	ELMENCO	DM15-E-270J
C24	CAP-27PF 5% 500V DIP	1002-0008	ELMENCO	DM15-E-270J
C25	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C26	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C27	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C28	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C29	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C30	CAP-.1UF 20% 50V MINTP	1005-0097	ERIE	8121-050-651-104M
C31	CAP-.1UF 20% 50V MINTP	1005-0097	ERIE	8121-050-651-104M
C32	CAP-360PF 5% 500V DIP	1002-0040	ELMENCO	DM15-F-361J
C33	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C34	NOT USED			
C35	NOT USED			
C36	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C37	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C38	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C39	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C40	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C41	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C42	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C43	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
C44	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C45	CAP-27PF 5% 500V DIP	1002-0008	ELMENCO	DM15-E-270J
C46	CAP-30PF 5% 500V DIP	1002-0043	ELMENCO	DM15-E-300J

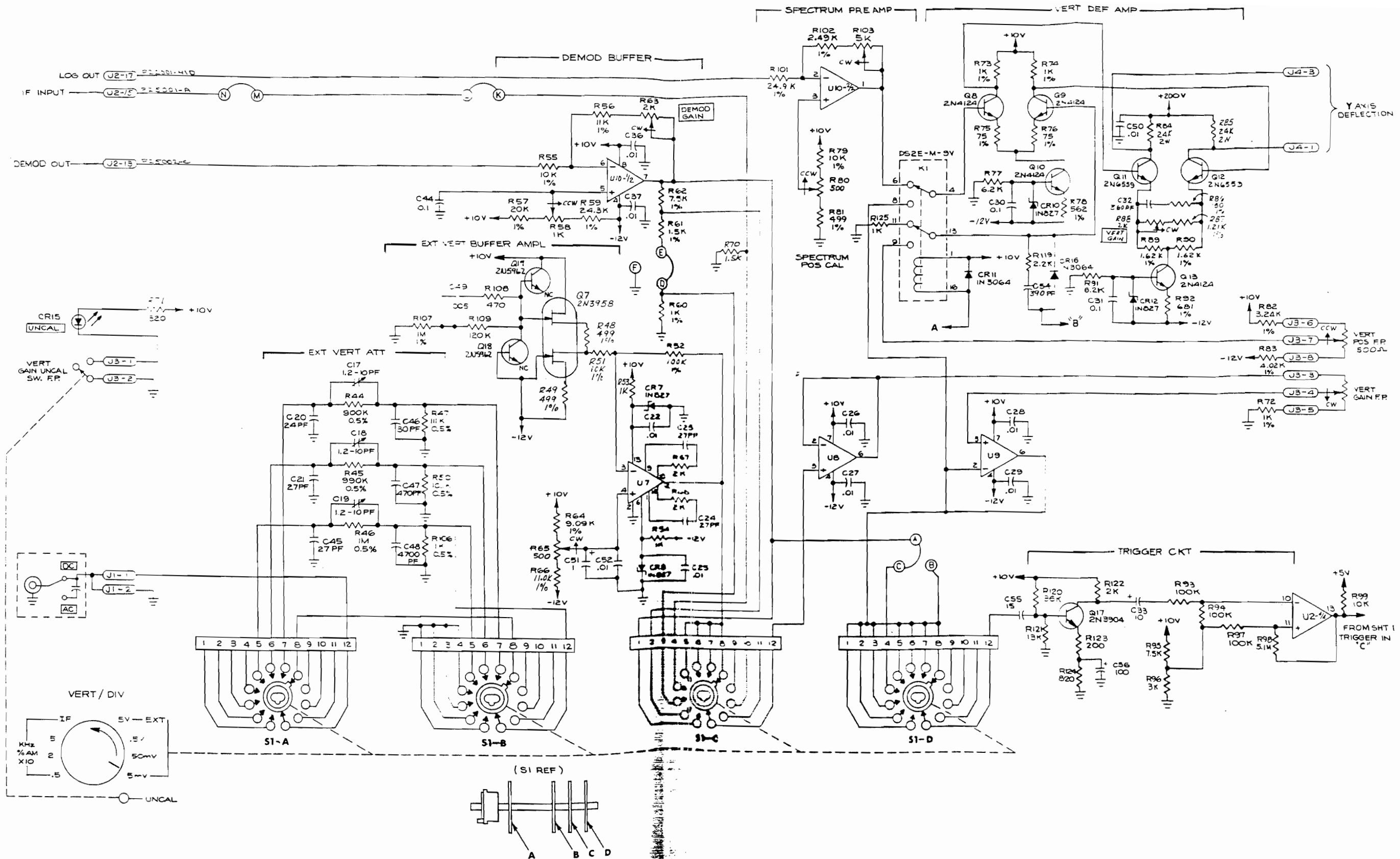
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C47	CAP-470PF 5% 500V DIP	1002-0035	ELMENCO	DM15-F-471J
C48	CAP-.0047UF 2% 200V AXL	1008-0088	IMB	DV2C472G
C49	CAP-.005UF GMV 1KV Z5U	1005-0009		
C50	CAP-.01UF +80-20% 500V	1005-0094		
C51	CAP-1UF -10+50% 50V	1013-0047	PANASONIC	ECEA1HV010S
C52	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C53	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C54	CAP-390PF 5% 100V DIP	1004-0017		
C55	CAP-15UF +100-10% 25V	1013-0042	ALLINS IND	CSR-NP15-25-1
C56	CAP-100UF -10+75% 16V	1013-0033	PANASONIC	ECEA1CV101S
DIODES				
CR1	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR2	DIO-1N827 SI ZENER	1281-0104		
CR3	DIO-1N827 SI ZENER	1281-0104		
CR4	NOT USED			
CR5	NOT USED			
CR6	NOT USED			
CR7	DIO-1N827 SI ZENER	1281-0104		
CR8	DIO-1N827 SI ZENER	1281-0104		
CR9	NOT USED			
CR10	DIO-1N827 SI ZENER	1281-0104		
CR11	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR12	DIO-1N827 SI ZENER	1281-0104		
CR13	NOT USED			
CR14	DIO-LT EMIT W ANG&GROM	1281-0073		
CR15	DIO-LT EMIT W ANG&GROM	1281-0073		
CR16	DIO-1N3064 SI SW D07/35	1281-0013		
CR17	DIO-1N914B SI SW D07	1281-0112	MOTOROLA	IN914B
CR18	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CONNECTORS				
J1	CONN-2PIN .1SP STR LKG	2535-0142	MOLEX INC	22-27-2021
J2	CONN-20 CONT DBL ROW	2535-0092		
J3	CONN-8PIN .1SP STR UCG	2535-0141	METHODE	1100-8-108-01
J4	CONN-3PIN REC MINI HOU	2535-0044		
J5	CONN-12PIN .1SP ST LKGG	2535-0213		
J6	CONN-3PIN REC MINI HOU	2535-0044		
J7	NOT USED			
J8	NOT USED			
J9	CONN-4PIN .1SP STR LKG	2535-0144	MOLEX INC	22-27-2041
J10	CONN-8PIN .1SP STR UCG	2535-0141	METHODE	1100-8-108-01
RELAYS				
K1	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
K2	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N

CKT. REF.	
	TRA
Q1	XST
Q2	XST
Q3	XST
Q4	2N6
Q5	2N6
Q6	XST
Q7	XST
Q8	XST
Q9	XST
Q10	XST
Q11	2N6
Q12	2N6
Q13	XST
Q14	XST
Q15	XST
Q16	XST
Q17	XST
Q18	XST
Q19	XST
RES	
R1	RES
R2	RES
R3	POT
R4	RES
R5	RES
R6	NOT
R7	RES
R8	RES
R9	RES
R10	RES
R11	RES
R12	RES
R13	RES
R14	RES
R15	RES
R16	RES
R17	RES
R18	RE
R19	POT
R20	RES
R21	RE
R22	RE
R23	RES
R24	RE
R25	RE
R26	RES
R27	RES

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
TRANSISTORS				
Q1	XSTR-2N5087 PNP SI T092	1272-0038	MOTOROLA	2N5087
Q2	XSTR-2N4391 DI T018	1272-0042	TELEDYNE	2N4391
Q3	XSTR-2N5087 PNP SI T092	1272-0038	MOTOROLA	2N5087
Q4	2N6559 NPN SI T0202AC	1272-0137		
Q5	2N6559 NPN SI T0202AC	1272-0137		
Q6	XSTR-2N5089 NPN SI T092	1272-0031	MOTOROLA	2N5089
Q7	XSTR-2N3958 SI T071	1272-0127	NATIONAL	2N3958
Q8	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q9	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q10	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q11	2N6559 NPN SI T0202AC	1272-0137		
Q12	2N6559 NPN SI T0202AC	1272-0137		
Q13	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q14	XSTR-2N2219 NPN SI T05	1272-0036	FAIRCHILD	2N2219
Q15	XSTR-2N4126 PNP SI T092	1272-0090	FAIRCHILD	2N4126
Q16	XSTR-2N2219 NPN SI T05	1272-0036	FAIRCHILD	2N2219
Q17	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q18	XSTR-2N5962 NPN SI T092	1272-0059	FAIRCHILD	2N5962
Q19	XSTR-2N5962 NPN SI T092	1272-0059	FAIRCHILD	2N5962
RESISTORS				
	RES-1.07K 1% 100PPM	1075-0166	CAT. LIST	55-100
R2	RES-2.7K 5% 1/4W CC	1066-2725	ALLEN BRADLEY	CB2725
R3	POT-100K 20% 1/2W 1T	1215-0046	BECKMAN	91AR100K
R4	RES-292K 1% 100PPM	1075-0193	CAT. LIST	55-100
R5	RES-5.62K 1% 100PPM	1075-0013	CAT. LIST	55-100
R6	NOT USED			
R7	RES-75K 5% 1/4W CC	1066-7535	ALLEN BRADLEY	CB7535
R8	RES-75K 5% 1/4W CC	1066-7535	ALLEN BRADLEY	CB7535
R9	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R10	RES-120K 5% 1/4W CC	1066-1245	ALLEN BRADLEY	CB1245
R11	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R12	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R13	RES-143K 1% 100PPM	1075-0050	CAT. LIST	55-100
R14	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R15	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R16	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R17	RES-120K 5% 1/4W CC	1066-1245	ALLEN BRADLEY	CB1245
R18	RES-15K 5% 1/4W CC	1066-1535	ALLEN BRADLEY	CB1535
R19	POT-25K 1/2W 1T	1215-0045	BECKMAN	91AR25K
R20	RES-71.5K 1% 100PPM	1075-0139	CAT. LIST	55-100
R21	RES-9.09K 1% 100PPM	1075-1019	CAT. LIST	55-100
R22	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R23	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R24	RES-43.2K 1% 100PPM	1075-0117	CAT. LIST	55-100
R25	RES-33K 5% 2W CC	1069-3335	ALLEN BRADLEY	HB3335
	RES-33K 5% 2W CC	1069-3335	ALLEN BRADLEY	HB3335
R27	RES-931 OHM 1% 100PPM	1074-0103	CAT. LIST	55-100

6-178 A

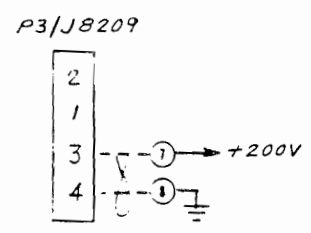
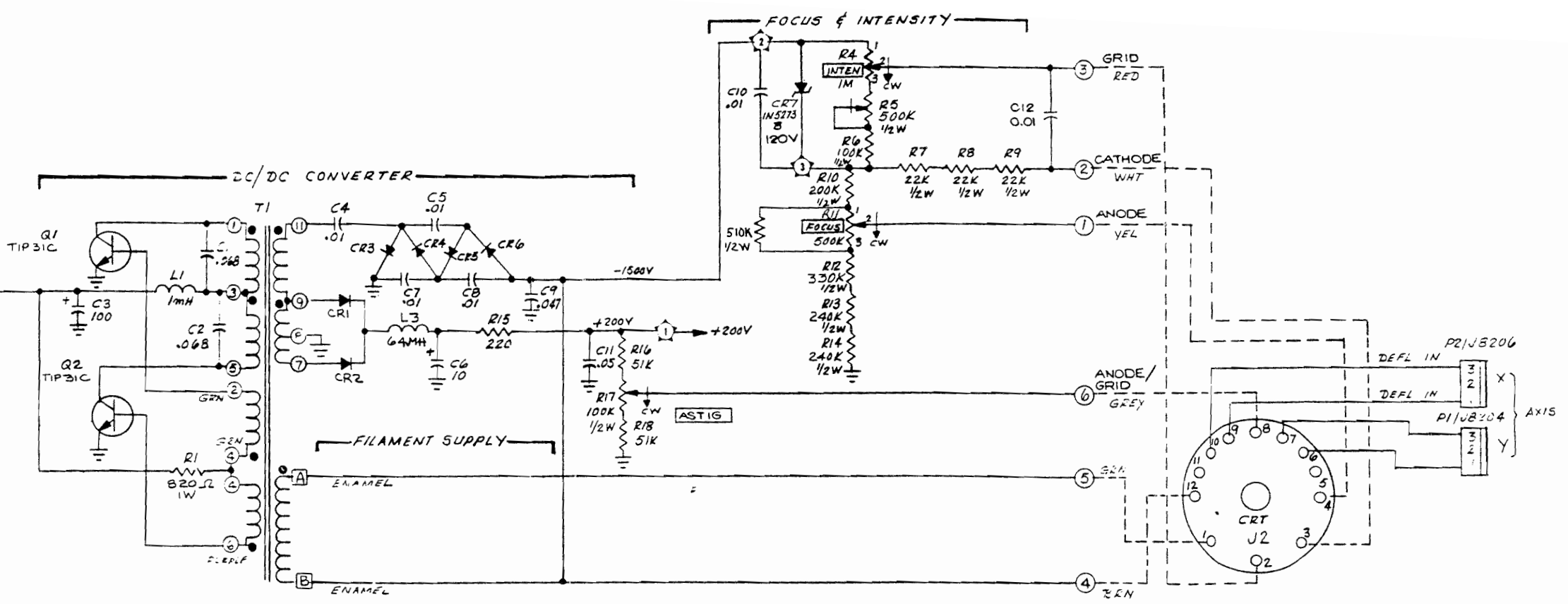
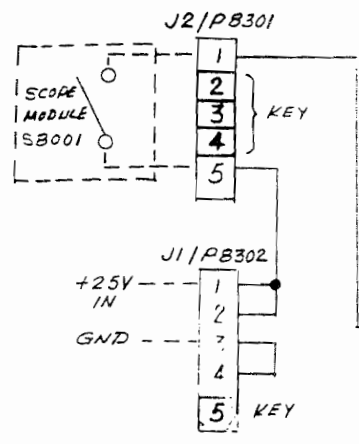




CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R28	RES-931 OHM 1% 100PPM	1074-0103	CAT. LIST	55-100
R29	RES-6.2K 5% 1/4W CC	1066-6225	ALLEN BRADLEY	CB6225
R30	RES-931 OHM 1% 100PPM	1074-0103	CAT. LIST	55-100
R31	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R32	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R33	RES-8.66K 1% 100PPM	1075-0184	CAT. LIST	55-100
R34	POT-1K 20% 1/2W 1T	1215-0058	BECKMAN	91AR1K
R35	RES-249 OHM 1% 100PPM	1074-0098	CAT. LIST	55-100
R36	RES-12.1K 1% 100PPM	1075-0011	CAT. LIST	55-100
R37	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R38	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R39	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R40	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R41	RES-8.2K 5% 1/4W CC	1066-8225	ALLEN BRADLEY	CB8225
R42	POT-2K 1/2W 1T	1203-0072	BECKMAN	91AR2K
R43	RES-820 OHM 5% 1/4W CC	1066-8215	ALLEN BRADLEY	CB8215
R44	RES-900K .5% 100PPM	1075-0178		
R45	RES-990K .5% 100PPM	1075-0179		
R46	RES-1MEG .5% 100PPM	1075-0180		
R47	RES-111K .5% 100PPM	1075-0177		
R48	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R49	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R50	RES-10.1K .5% 100PPM	1075-0176		
R51	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R52	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R53	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R54	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R55	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R56	RES-11K 1% 100PPM	1074-0106	CAT. LIST	55-100
R57	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R58	POT-1K 20% 1/2W 1T	1215-0058	BECKMAN	91AR1K
R59	RES-24.3K 1% 100PPM	1075-0097	CAT. LIST	55-100
R60	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R61	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R62	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R63	POT-5K 20% 1/2W 4T	1203-0054		
R64	RES-9.09K 1% 100PPM	1075-1019	CAT. LIST	55-100
R65	POT-500 OHM 20% 1/2W 1T	1215-0042	BECKMAN	91AR500
R66	RES-11K 1% 100PPM	1074-0106	CAT. LIST	55-100
R67	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R68	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R69	NOT USED			
R70	RES-1.5K 5% 1/4W CC	1066-1525	ALLEN BRADLEY	CB1525
R71	RES-820 OHM 5% 1/4W CC	1066-8215	ALLEN BRADLEY	CB8215
R72	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R73	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R74	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R75	RES-75 OHM 1% 100PPM	1075-0035	CAT. LIST	55-100
R76	RES-75 OHM 1% 100PPM	1075-0035	CAT. LIST	55-100
R77	RES-6.2K 5% 1/4W CC	1066-6225	ALLEN BRADLEY	CB6225
R78	RES-562 OHM 1% 100PPM	1075-0041	CAT. LIST	55-100

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R79	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R80	POT-500 OHM 20% 1/2W 1T	1215-0042	BECKMAN	91AR500
R81	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R82	RES-3.24K 1% 100PPM	1075-0092	CAT. LIST	55-100
R83	RES-4.02K 1% 100PPM	1075-0094	CAT. LIST	55-100
R84	RES-24K 5% 2W CC	1069-2435	ALLEN BRADLEY	HB2435
R85	RES-24K 5% 2W CC	1069-2435	ALLEN BRADLEY	HB2435
R86	RES-150 OHM 1% 100PPM	1075-0125	CAT. LIST	55-100
R87	RES-1.21K 1% 100PPM	1075-0042	CAT. LIST	55-100
R88	POT-2K 1/2W 1T	1203-0072	BECKMAN	91AR2K
R89	RES-1.62K 1% 100PPM	1075-0104	CAT. LIST	55-100
R90	RES-1.62K 1% 100PPM	1075-0104	CAT. LIST	55-100
R91	RES-6.2K 5% 1/4W CC	1066-6225	ALLEN BRADLEY	CB6225
R92	RES-681 OHM 1% 100PPM	1075-1064	CAT. LIST	55-100
R93	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R94	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R95	RES-7.5K 5% 1/4W CC	1066-7525	ALLEN BRADLEY	CB7525
R96	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R97	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R98	RES-5.1MEG 5% 1/4W CC	1066-5155	ALLEN BRADLEY	CB5155
R99	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R100	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R101	RES-24.9K 1% 100PPM	1075-0242	CAT. LIST	55-100
R102	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R103	POT-5K 20% 1/2W 1T	1203-0071	BECKMAN	91AR5K
R104	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R105	RES-5.6K 5% 1/4W CC	1066-5625	ALLEN BRADLEY	CB5625
R106	RES-1K .5% 100PPM	1075-0175		
R107	RES-1MEG 1% 150PPM	1074-1039	CAT. LIST	55-100
R108	RES-470 OHM 5% 1/4W CC	1066-4715	ALLEN BRADLEY	CB4715
R109	RES-120K 5% 1/4W CC	1066-1245	ALLEN BRADLEY	CB1245
R110	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R111	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R112	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R113	RES-2.4K 5% 1/4W CC	1066-2425	ALLEN BRADLEY	CB2425
R114	RES-5.1K 5% 1/4W CC	1066-5125	ALLEN BRADLEY	CB5125
R115	RES-8.2K 5% 1/4W CC	1066-8225	ALLEN BRADLEY	CB8225
R116	RES-1.3K 5% 1/4W CC	1066-1325	ALLEN BRADLEY	CB1325
R117	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R118	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R119	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R120	RES-36K 5% 1/4W CC	1066-3635	ALLEN BRADLEY	CB3635
R121	RES-13K 5% 1/4W CC	1066-1335	ALLEN BRADLEY	CB1335
R122	RES-2K 5% 1/4W CC	1066-2025	ALLEN BRADLEY	CB2025
R123	RES-200 OHM 5% 1/4W CC	1066-2015	ALLEN BRADLEY	CB2015
R124	RES-820 OHM 5% 1/4W CC	1066-8215	ALLEN BRADLEY	CB8215
R125	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R126	RES-5.1 OHM 5% 1/4W CC	1066-0002	ALLEN BRADLEY	CB51G5

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
SWITCHES				
S1	SW-RTRY 3POLE 8 POSN	1851-0141		
S2	SW-RTRY 6POLE 11 POSN	1851-0142		
INTEGRATED CIRCUITS				
U1	IC-TL082 8PIN DIP OP AMP	2025-0192	TEXAS INSTS	TL082CP
U2	IC-339 14PIN DIP QUAD	2025-0201	MOTOROLA	MLM339P
U3	IC-74LS76 16PIN DIP	2025-0185	TEXAS INSTS	SN74LS76N
U4	IC-74LS123 16PIN DIP	2025-0186	TEXAS INSTS	SN74LS123N
U5	IC-TL082 8PIN DIP OP AMP	2025-0192	TEXAS INSTS	TL082CP
U6	IC-SN74LS02N QUAD 2	2025-0108	TEXAS INSTS	SN74LS02N
U7	IC-3029 14PIN DIP OP AMP	2025-2025		
U8	IC-356B 8PIN DIP OP A	2025-0278	NATIONAL	LM356B
U9	IC-356B 8PIN DIP OP A	2025-0278	NATIONAL	LM356B
U10	IC-TL082 8PIN DIP OP A	2025-0192	TEXAS INSTS	TL082CP



NOTE:
 6. ALL DIODES ARE 1N494B UNLESS OTHERWISE NOTED.
 5. ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
 4. *FACTORY SELECT. TYPICAL VALUE SHOWN.
 3. INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
 2. CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
 1. RESISTORS - 1/4W. 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

U NO	TYPE	VCC	GND

REF DES DELETE:
 U1, Q5, Q6, R19, 20, 21, 22, 23
 CR8, 9, Z2, L2

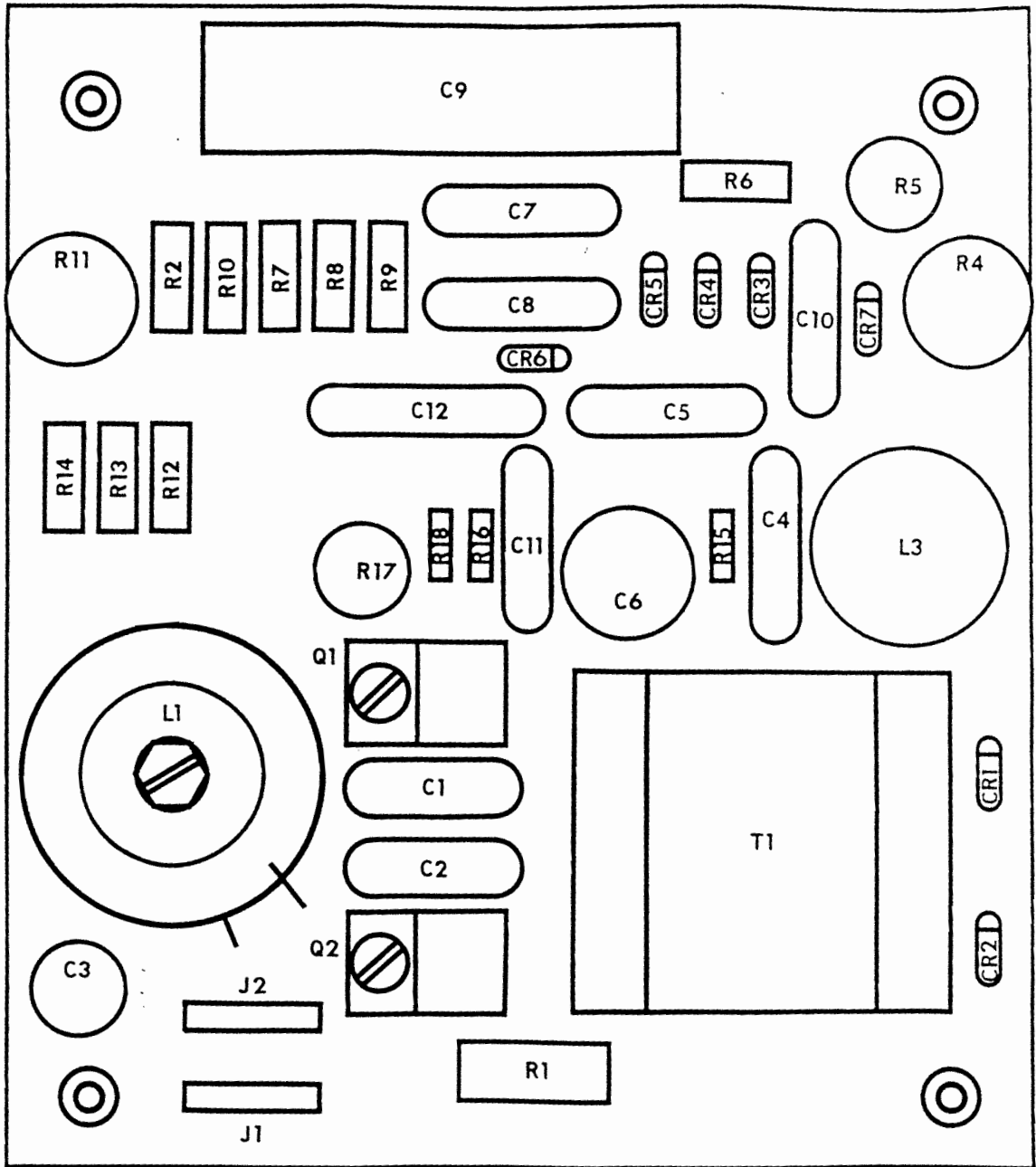
OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 8300 (4000)	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
		CC) / - CC) 3	QC) / - QC) 4
		CR) / - CR)	RC) / - RC) 25
		DS) / - DS)	SC) / - SC)
		FC) / - FC)	TC) / - TC)
		UC) / - UC)	YC) / - YC)
		LC) / - LC) 3	ZC) / - ZC)

83000

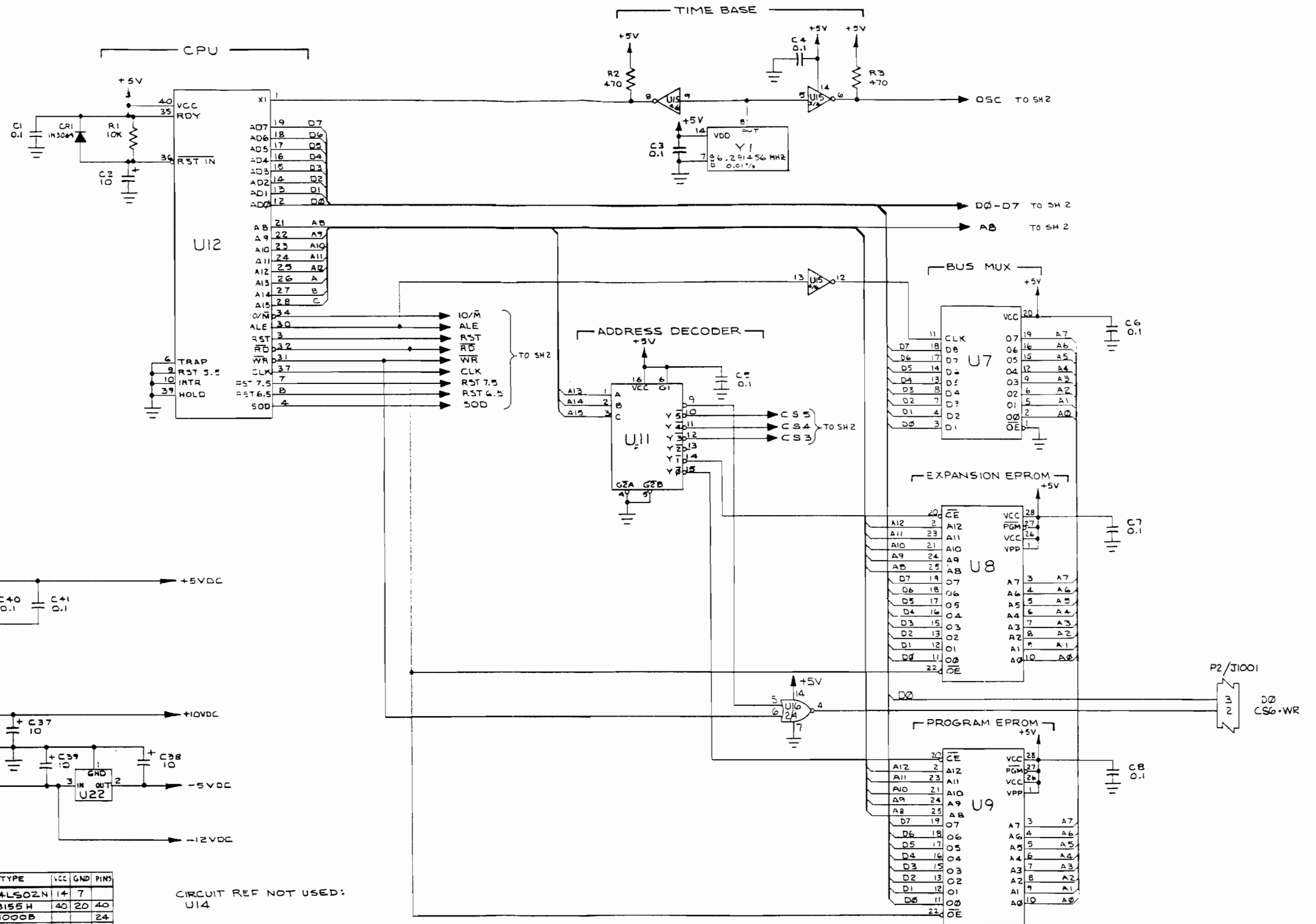
HI VOLTAGE PWR SPLY
 (7001-0829)

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
83000	PCB ASSY-HI VOLT PWR SPLY PRINTED CIRCUIT BOARD	7001-0829 1780-1290	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.068UF 10% 100V RDL	1008-0036		
C2	CAP-.068UF 10% 100V RDL	1008-0036		
C3	CAP-100UF -100-10% 50V	1013-0036		
C4	CAP-.01UF 20% 1.4KV	1005-0051	SPRAGUE	125L-S10
C5	CAP-.01UF 20% 1.4KV	1005-0051	SPRAGUE	125L-S10
C6	CAP-10UF -50-10% 250V	1013-0051	SPRAGUE	125L-S10
C7	CAP-.01UF 20% 1.4KV	1005-0051	SPRAGUE	125L-S10
C8	CAP-.01UF 20% 1.4KV	1005-0051	SPRAGUE	125L-S10
C9	CAP-.047UF 10% 4KV AXL	1008-0083		
C10	CAP-.01UF 20% 1.4KV	1005-0051	SPRAGUE	125L-S10
C11	CAP-.05UF -80-20% 500V	1005-0052	SPRAGUE	5HK-S50
C12	CAP-.01UF 20% 35V Z5U	1005-0069	SPRAGUE	30GA-S/10
DIODES				
CR1	DIO-1N4948 SI F RCVY	1282-0019	CODI SEMICON	MRF1000
CR2	DIO-1N4948 SI F RCVY	1282-0019	CODI SEMICON	MRF1000
CR3	DIO-1N4948 SI F RCVY	1282-0019	CODI SEMICON	MRF1000
CR4	DIO-1N4948 SI F RCVY	1282-0019	CODI SEMICON	MRF1000
CR5	DIO-1N4948 SI F RCVY	1282-0019	CODI SEMICON	MRF1000
CR6	DIO-1N4948 SI F RCVY	1282-0019	CODI SEMICON	MRF1000
CR7	DIO-1N52733 SI ZENER	1281-0077		
INDUCTORS				
L1	COIL-TOROIDAL 1MH	1595-0004	MINI-MAGNETIC	C/E DWG
L2	NOT USED			
L3	INDCTR-PCT CORE 18X11	1596-0266		
CONNECTORS				
J1	CONN-5PIN .025SQ .1SP	2535-0171	SEAELECTRO	51-051-0000
J2	CONN-5PIN .025SQ .1SP	2535-0171	SEAELECTRO	51-051-0000
TRANSISTORS				
Q1	XSTR-TIP31C NPN SI B1	1272-0146	TEXAS INSTS	TIP31C
Q2	XSTR-TIP31C NPN SI B1	1272-0146	TEXAS INSTS	TIP31C

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
RESISTORS				
R1	RES-820 OHM 5% 1W CC	1068-8215	ALLEN BRADLEY	GB8215
R2	RES-510K 5% 1/2W CC	1067-5145	ALLEN BRADLEY	EB5145
R3	NOT USED			
R4	RES-1MEG 10% 1/2W LIN	1203-0122		
R5	POT-500K 20% 1/2W 1T	1215-0062		
R6	RES-100K 5% 1/2W CC	1067-1045	ALLEN BRADLEY	EB1045
R7	RES-22K 5% 1/2W CC	1067-2235	ALLEN BRADLEY	EB2235
R8	RES-22K 5% 1/2W CC	1067-2235	ALLEN BRADLEY	EB2235
R9	RES-22K 5% 1/2W CC	1067-2235	ALLEN BRADLEY	EB2235
R10	RES-200K 5% 1/2W CC	1067-2045	ALLEN BRADLEY	EB2045
R11	POT-500K 10% 1/2W LIN	1203-0121		
R12	RES-330K 5% 1/2W CC	1067-3345	ALLEN BRADLEY	EB3345
R13	RES-240K 5% 1/2W CC	1067-2445	ALLEN BRADLEY	EB2445
R14	RES-240K 5% 1/2W CC	1067-2445	ALLEN BRADLEY	EB2445
R15	RES-220 OHM 5% 1/4W CC	1066-2215	ALLEN BRADLEY	CB2215
R16	RES-51K 5% 1/4W CC	1066-5135	ALLEN BRADLEY	CB5135
R17	POT-100K 20% 1/2W 1T	1215-0046	BECKMAN	91AR100K
R18	RES-51K 5% 1/4W CC	1066-5135	ALLEN BRADLEY	CB5135
TRANSFORMER				
T1	XFMR-POT CORE 32X30	1575-0080		



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
6408	MODEL 6408 SIGNAL CENTER		CUSHMAN	
	CAPACITORS			
	CAP-1000PF +100-0% 300V	1005-0077	SPECTRUM	54-802-002 W/SLDR
	CAP-1000PF +100-0% 300V	1005-0077	SPECTRUM	54-802-002 W/SLDR
	CAP-1000PF +100-0% 300V	1005-0077	SPECTRUM	54-802-002 W/SLDR
	CAP-1000PF +100-0% 300V	1005-0077	SPECTRUM	54-802-002 W/SLDR
	CAP-1000PF +100-0% 300V	1005-0077	SPECTRUM	54-802-002 W/SLDR
	CAP-1000PF +100-0% 300V	1005-0077	SPECTRUM	54-802-002 W/SLDR
	CONNECTORS			
	JK-7PIN AUDIO PNL MT	2586-0035		
	KNOBS			
	KNOB-.5DIA BLK .125SFT	2780-0068		
	MODULES			
	PCB ASSY-KEY PAD CONT	7001-0853	CUSHMAN	
	PCB ASSY-MAIN LOGIC	7001-0859	CUSHMAN	
	SHPNG PKG-MODEL 6408	7015-0074	CUSHMAN	
	SWITCH			
S1	SW-RTRY 1 POLE 9 POSN	1851-0158		
	CABLE ASSY			
	CA-ASSY-7 CNDCT AUDIO	7033-0120		



U NO	TYPE	VCC	GND	PINS
1, 2, 5	145B			8
3	DAC 08			16
4, 17	4066			14
6	2912 A			16
7	74LS374	20	10	20
8, 9	2764-4	28	14	28
10	8748H	40	20	40
11	74LS138	16	8	16
12	8085A	40	20	40
13	8279-5	40	20	40
15	74LS04			

CIRCUIT REF NOT USED:
U14

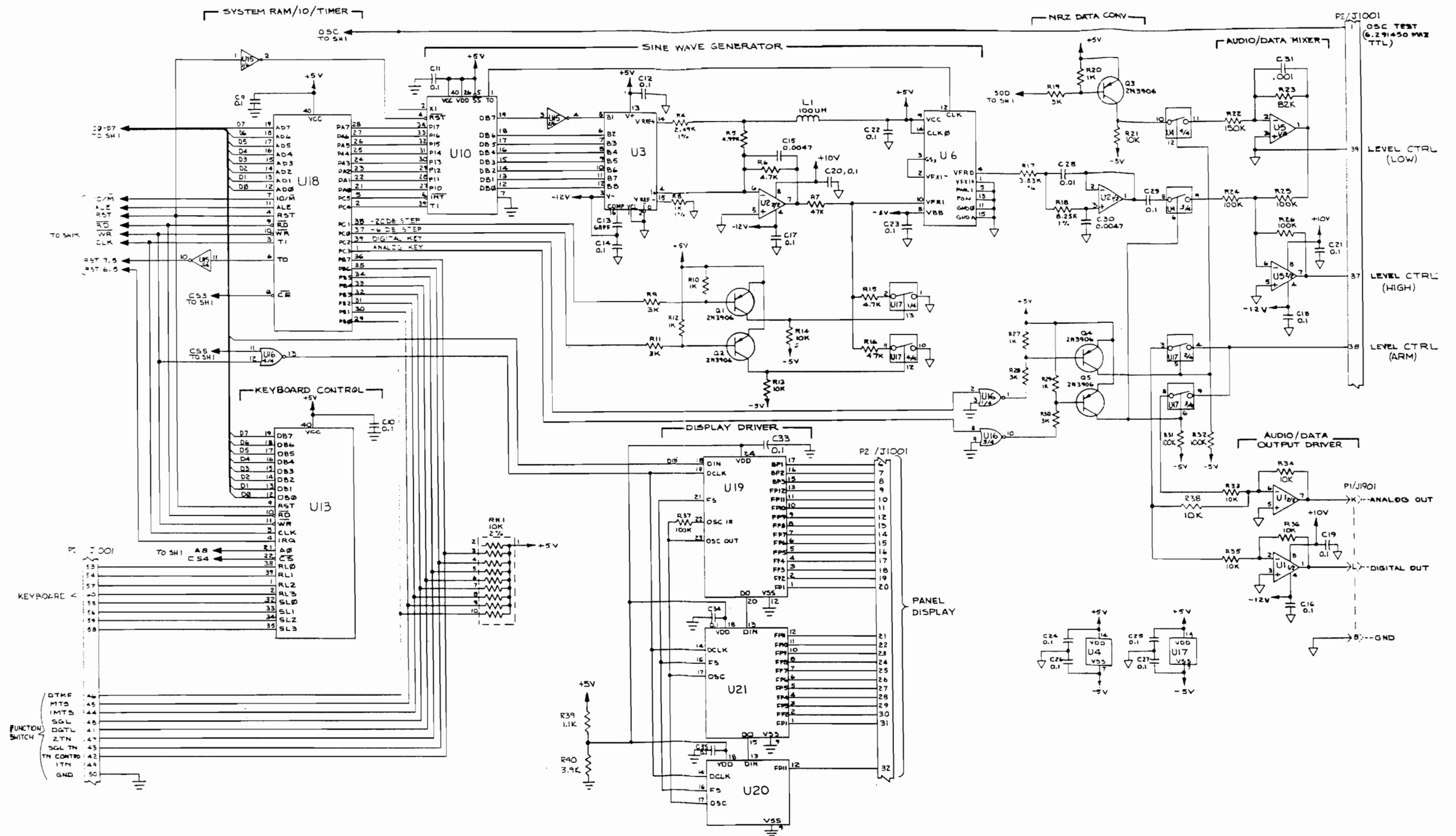
OUT OF SEQUENCE TABLE		CIRCUIT REFERENCE SERIES: 2000	
REF NO	APPROX LOCATION	CIRCUIT REFERENCE USED:	
CC	11 - CC	141	11 - CC
CR	11 - CR	11	11 - CR
DSC	11 - DSC	11	11 - DSC
FC	11 - FC	11	11 - FC
UC	11 - UC	22	11 - UC
LC	11 - LC	11	11 - LC

- ALL VOLTAGES ARE DC UNLESS OTHERWISE NOTED.
- *FACTORY SELECT. TYPICAL VALUE SHOWN.
- INDUCTORS - VALUES IN μ H UNLESS OTHERWISE NOTED.
- CAPACITORS - VALUES IN μ F UNLESS OTHERWISE NOTED.
- RESISTORS - 1/4W, 5% VALUES IN OHMS UNLESS OTHERWISE NOTED.

NOTE:

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
	PCB ASSY-MAIN LOGIC PRINTED CIRCUIT BOARD	7001-0859 1780-1159	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C2	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C3	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C4	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C5	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C6	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C7	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C8	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C10	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C11	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C12	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C13	CAP-68PF 5% 500V DIP	1002-0013	ELMENCO	DM15-F-680J
C14	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C15	CAP-.0047UF 10% 100V	1008-0085	SPRAGUE	225P47291WD3
C16	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C17	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C18	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C19	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C21	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C22	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C23	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C24	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C25	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C26	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C27	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C28	CAP-.01UF 10% 600V RDL	1008-0099	PLESSEY	60103K630
C29	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C30	CAP-.0047UF 10% 100V	1008-0085	SPRAGUE	225P47291WD3
C31	CAP-1000PF 5% 100V DIP	1002-0015		
C32	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C33	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C34	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C35	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C36	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C37	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C38	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C39	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C40	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C41	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
DIODE				
CR1	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064

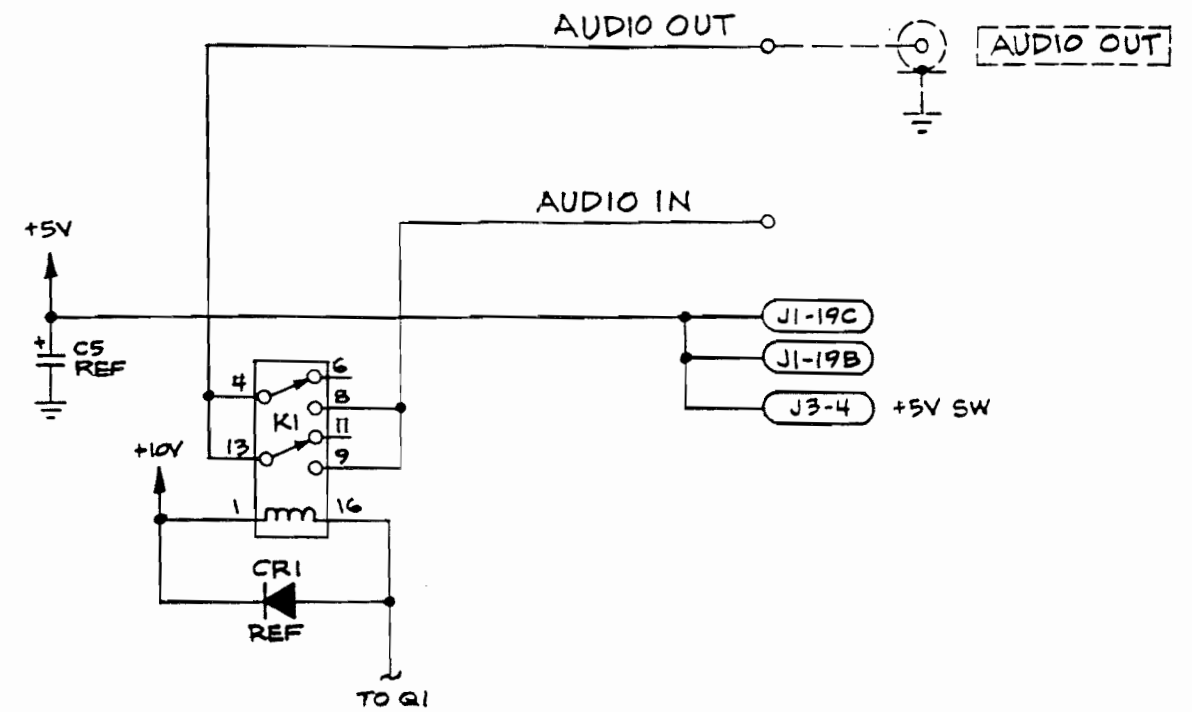
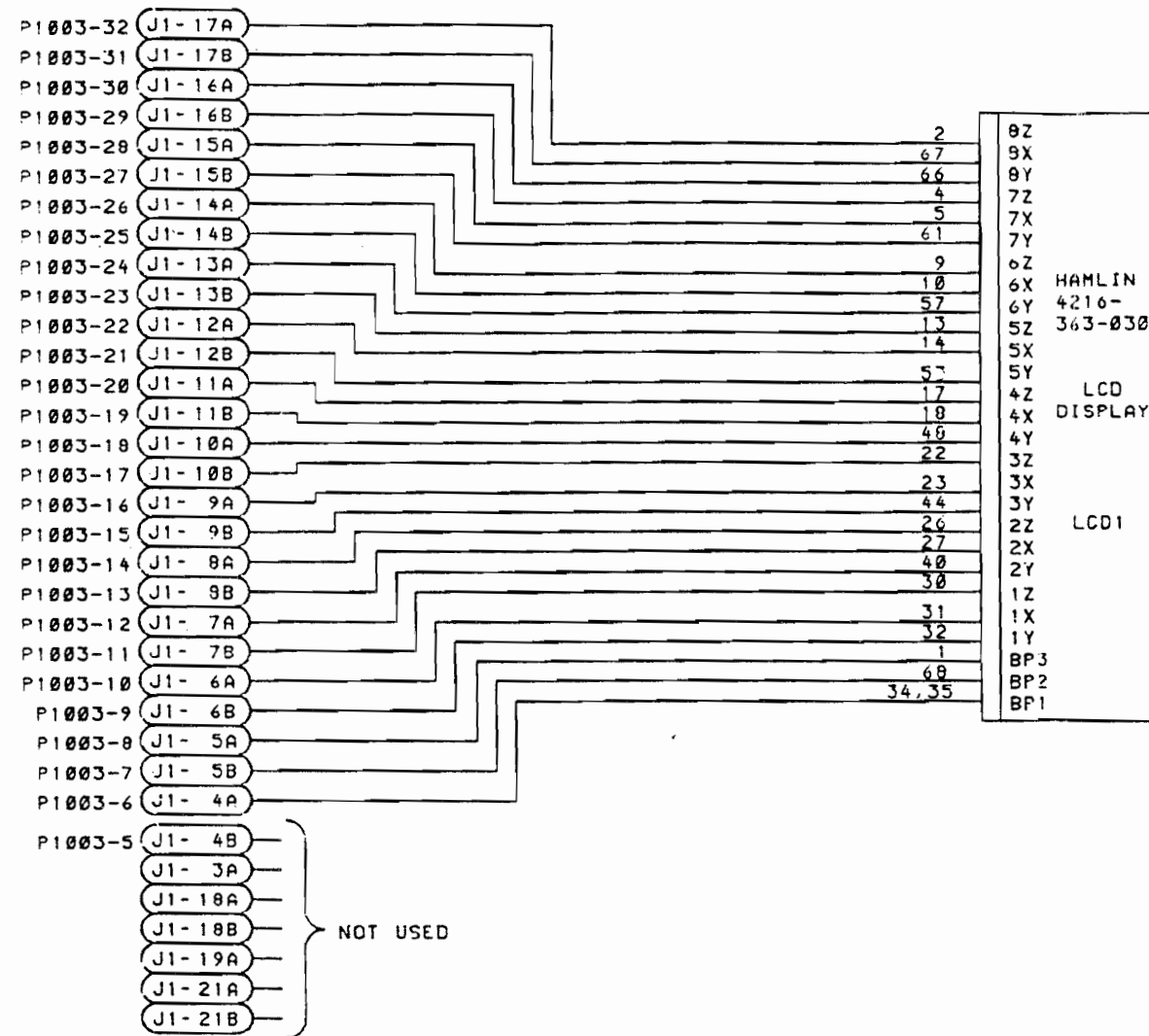
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
CONNECTOR				
J1	CONN-60(2X30)PIN.1X.1SP	2535-0212		
INDUCTOR				
L1	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
TRANSISTORS				
Q1	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q4	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q5	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
RESISTORS				
R1	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R2	RES-470 OHM 5% 1/4W CC	1066-4715	ALLEN BRADLEY	CB4715
R3	RES-470 OHM 5% 1/4W CC	1066-4715	ALLEN BRADLEY	CB4715
R4	RES-2.49K 1% 100PPM	1075-0027	CAT. LIST	55-100
R5	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R6	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R7	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R8	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R9	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R10	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R11	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R12	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R13	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R14	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R15	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R16	RES-47K 5% 1/4W CC	1066-4735	ALLEN BRADLEY	CB4735
R17	RES-3.83K 1% 100PPM	1075-0052	CAT. LIST	55-100
R18	RES-8.25K 1% 100PPM	1075-0014	CAT. LIST	55-100
R19	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R20	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R21	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R22	RES-150K 5% 1/4W CC	1066-1545	ALLEN BRADLEY	CB1545
R23	RES-82K 5% 1/4W CC	1066-8235	ALLEN BRADLEY	CB8235
R24	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R25	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R26	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R27	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R28	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R29	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R30	RES-3K 5% 1/4W CC	1066-3025	ALLEN BRADLEY	CB3025
R31	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045



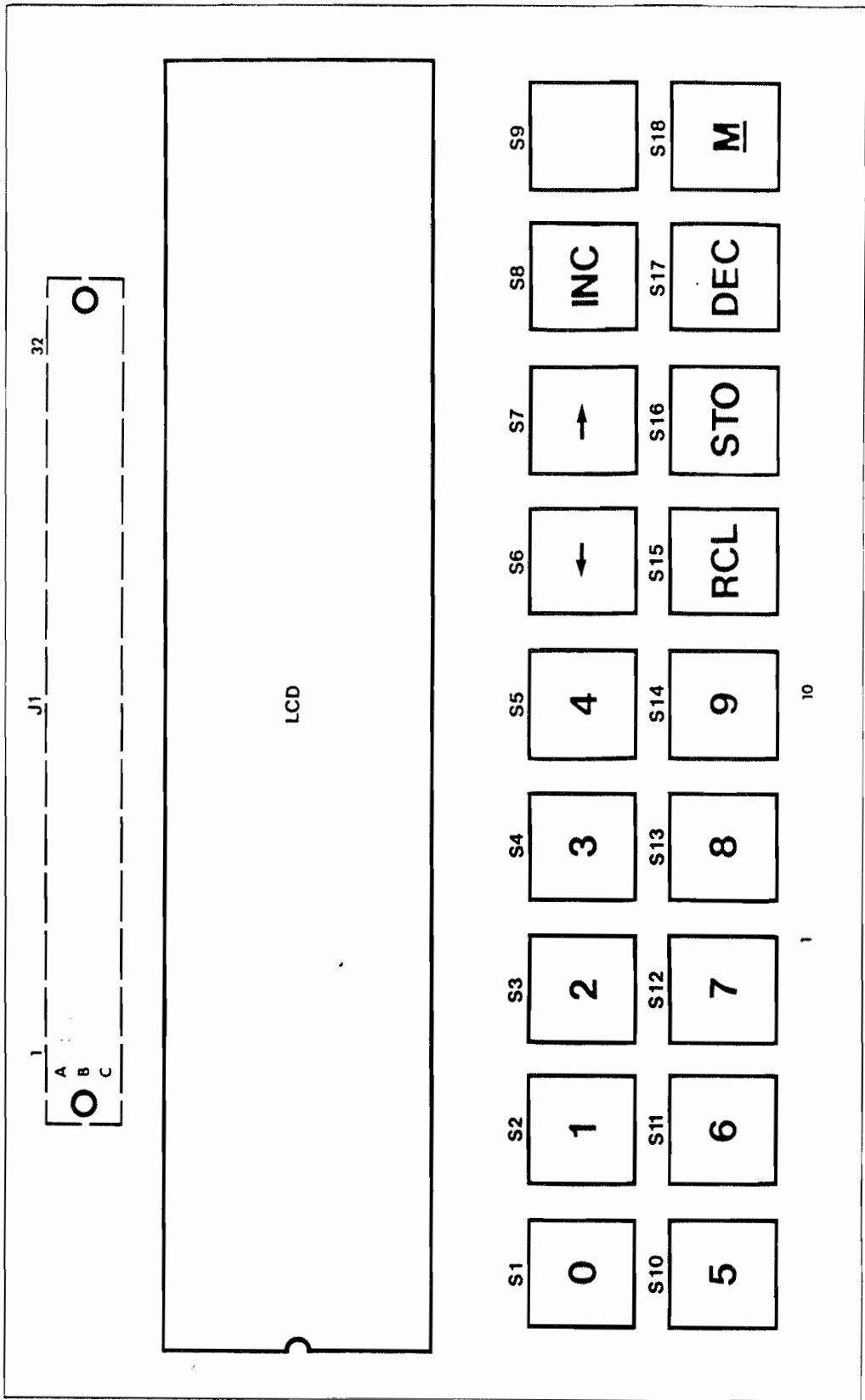
6408/6409 SIG CENTER MAIN LOGIC (7001-0859)

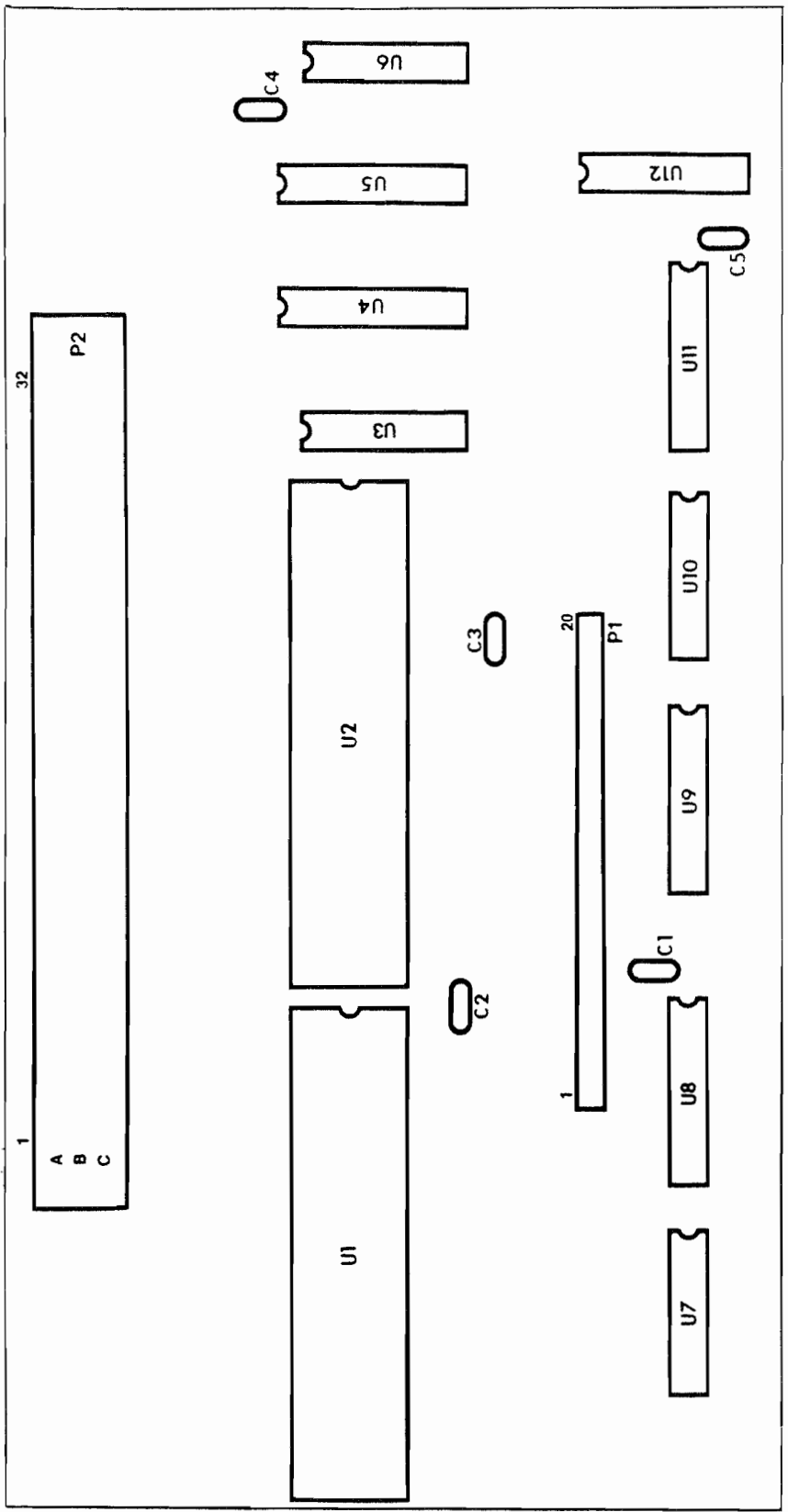
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
	PCB ASSY-KEY PAD CONT/LCD PRINTED CIRCUIT BOARD	7001-0853 1780-1300	CUSHMAN CUSHMAN	
CAPACITORS				
C1	CAP-.1UF 10% 100V MLD	1005-0064	AEROVOX	CKO6BX104K
C2	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C3	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C4	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
C5	CAP-10UF +100-10% 25V	1013-0035	ILLINOIS CAP	10PC25
DIODES				
CR1	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CR2	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	1N3064
CONNECTOR				
J1	CONN-96(3X32)PIN.1X.1SP	2535-0199		
RELAY				
K1	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
DISPLAY				
LCD1	DSPLY-LIQ XTAL .5 HI	2030-0007		
TRANSISTOR				
Q1	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
RESISTORS				
R1	RES-51K 5% 1/4W CC	1066-5135	ALLEN BRADLEY	CB5135
R2	RES-51K 5% 1/4W CC	1066-5135	ALLEN BRADLEY	CB5135
SWITCHES				
S1	SW-PB SPST MOM PCB MT	1852-0042		
S2	SW-PB SPST MOM PCB MT	1852-0042		
S3	SW-PB SPST MOM PCB MT	1852-0042		
S4	SW-PB SPST MOM PCB MT	1852-0042		
S5	SW-PB SPST MOM PCB MT	1852-0042		

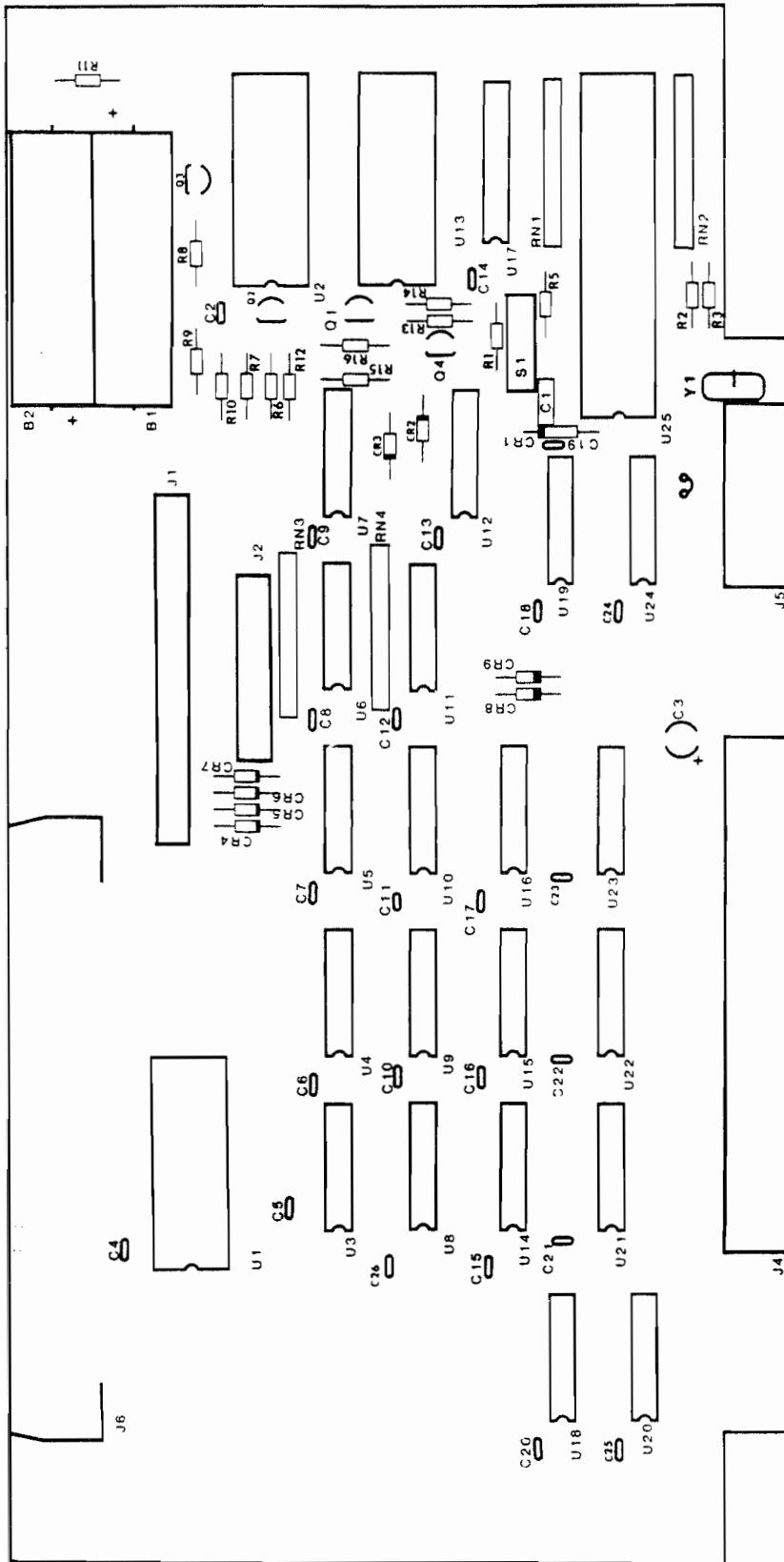
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
S6	SW-PB SPST MOM PCB MT	1852-0042		
S7	SW-PB SPST MOM PCB MT	1852-0042		
S8	SW-PB SPST MOM PCB MT	1852-0042		
S9	SW-PB SPST MOM PCB MT	1852-0042		
S10	SW-PB SPST MOM PCB MT	1852-0042		
S11	SW-PB SPST MOM PCB MT	1852-0042		
S12	SW-PB SPST MOM PCB MT	1852-0042		
S13	SW-PB SPST MOM PCB MT	1852-0042		
S14	SW-PB SPST MOM PCB MT	1852-0042		
S15	SW-PB SPST MOM PCB MT	1852-0042		
S16	SW-PB SPST MOM PCB MT	1852-0042		
S17	SW-PB SPST MOM PCB MT	1852-0042		
S18	SW-PB SPST MOM PCB MT	1852-0042		
SWITCH CAPS				
SW1	CAP-12.7MM SQ BLK "7"	2584-1207		
SW2	CAP-12.7MM SQ BLK "8"	2584-1208		
SW3	CAP-12.7MM SQ BLK "9"	2584-1209		
SW4	CAP-12.7MM SQ L/G "STO"	2584-1102		
SW5	CAP-12.7MM SQ BLK "4"	2584-1204		
SW6	CAP-12.7MM SQ BLK "5"	2584-1205		
SW7	CAP-12.7MM SQ BLK "6"	2584-1206		
SW8	CAP-12.7MM SQ L/G "RCL"	2584-1101		
SW9	CAP-12.7MM SQ BLK "1"	2584-1201		
SW10	CAP-12.7MM SQ BLK "2"	2584-1202		
SW11	CAP-12.7MM SQ BLK "3"	2584-1203		
SW12	CAP-12.7MM SQ L/G "CLR"	2584-1103		
SW13	CAP-12.7MM SQ BLU "2ND"	2584-1501		
SW14	CAP-12.7MM SQ BLK "O"	2584-1210		
SW15	CAP-12.7MM SQ "PERIOD"	2584-1211		
SW16	CAP-12.7MM SQ L/G "SND"	2584-1104		
SW17	CAP-12.7MM SQ D/G "ON"	2584-1005		
SW18	CAP-12.7MM SQ D/G "OFF"	2584-1006		
INTEGRATED CIRCUITS				
U1	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U2	IC-7660 8PIN DIP DC-DC	2025-0378		
U3	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
CABLE ASSY				
	CA-28GA 10 CNDCT .05	3120-0049	CUSHMAN	



CONFIGURATION FOR 6409 ONLY







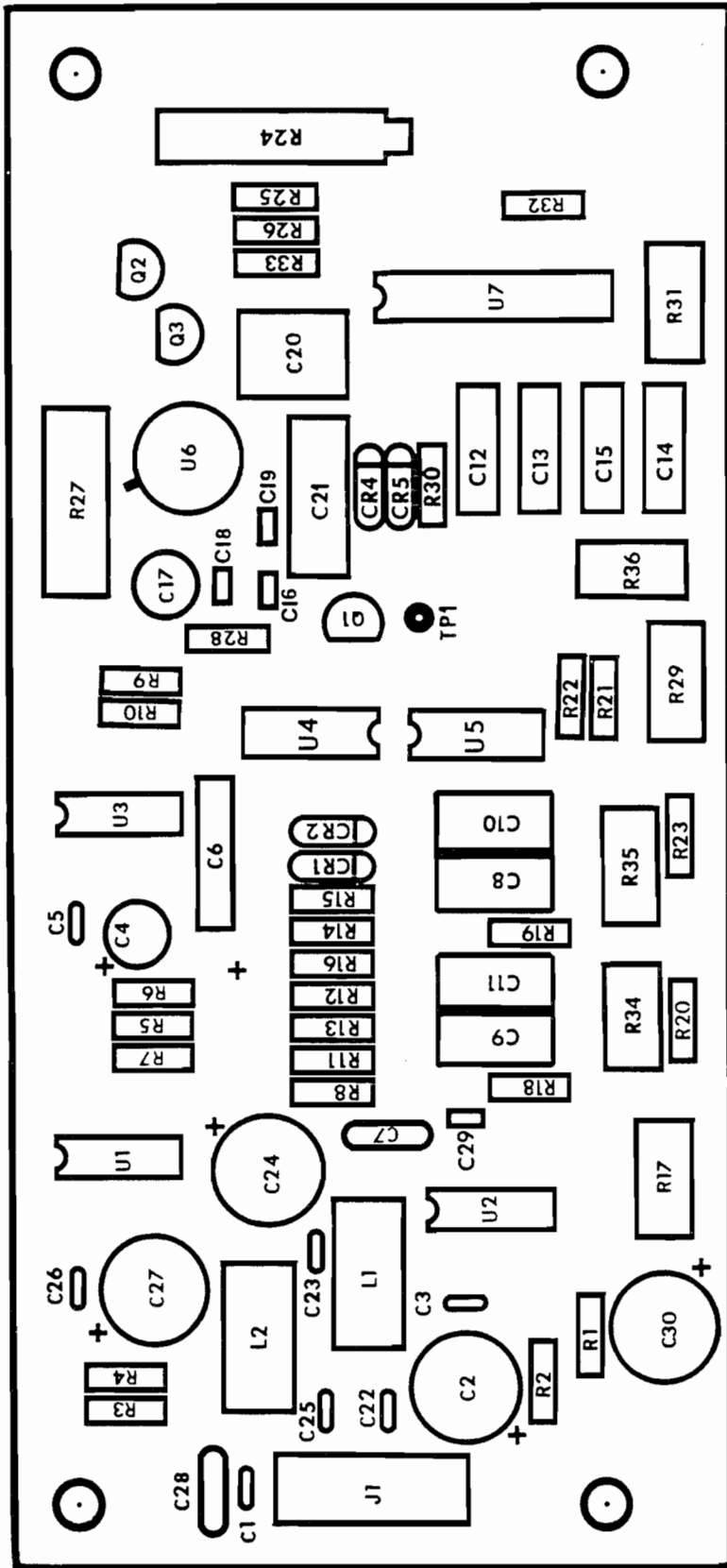
**7001-0832
(6020/6030)**

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
U4	IC-74HC32 14PIN DIP 4/2	2025-0362		
U5	IC-4082B 14PIN DIP DUAL	2025-0354		
U6	IC-4503B 16PIN DIP HEX	2025-0243		
U7	IC-74HC113 14PIN DIP D	2025-0364		
U8	IC-74HC138 16PIN DIP	2025-0365		
U9	IC-74HC04 14PIN DIP HEX	2025-0360		
U10	IC-74HC138 16PIN DIP	2025-0365		
U11	IC-4503B 16PIN DIP HEX	2025-0243		
U12	IC-74HC74 14PIN DIP D	2025-0363		
U13	IC-ERS PROM 2732/2028	2028-0003		
U14	IC-4099B 16PIN DIP 8 B	2025-0294		
U15	IC-4099B 16PIN DIP 8 B	2025-0294		
U16	IC-4099B 16PIN DIP 8 B	2025-0294		
U17	IC-74HC373 20PIN DIP O	2025-0368		
U18	IC-4099B 16PIN DIP 8 B	2025-0294		
U19	IC-40174B 16PIN DIP HEX	2025-0355		
U20	IC-4099B 16PIN DIP 8 B	2025-0294		
U21	IC-4099B 16PIN DIP 8 B	2025-0294		
U22	IC-4099B 16PIN DIP 8 B	2025-0294		
U23	IC-4099B 16PIN DIP 8 B	2025-0294		
U24	IC-4020B 16PIN DIP 14 B	2025-0291		
U25	IC-80C85A 40PIN DIP 8 B	2025-0345		

CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R33	RES-240K 5% 1/4W CC	1066-2445	ALLEN BRADLEY	CB2445
R34	POT-100 OHM 20% 1/2W 1T	1215-0054	BECKMAN	91AR100
R35	POT-100 OHM 20% 1/2W 1T	1215-0054	BECKMAN	91AR100
R36	POT-100 OHM 20% 1/2W 1T	1215-0054	BECKMAN	91AR100

INTEGRATED CIRCUITS

J1	IC-3080 8PIN OP TRANS AMP	2025-0275	RCA	CA3080E
J2	IC-1458 DUAL OP AMP	2025-0058	RAYTHEON	RC1458NB
J3	IC-3130 8PIN DIP OP AMP	2025-0269	RCA	CA3130E
J4	IC-TL082 8PIN BIFET OP AMP	2025-0192	TEXAS INSTS	TL082CP
J5	IC-1458 DUAL OP AMP	2025-0058	RAYTHEON	RC1458NB
J6	IC-636J TRUE RMS CONV.	2025-0283		
J7	IC-CA3046 XSTR/DIO ARRAY	2025-0171	RCA	CA3046



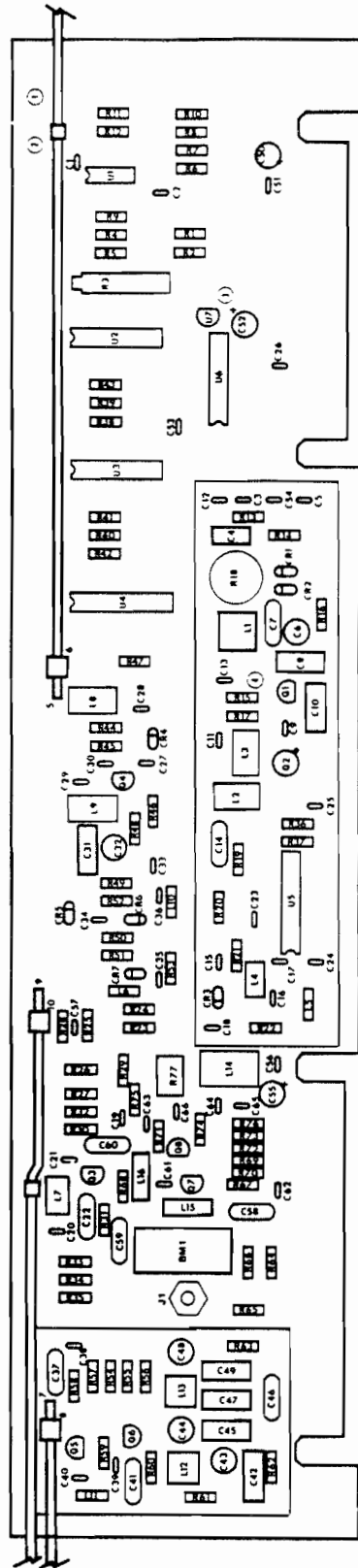
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
L6	CH-.12UH 10% RF MLD AXL	1585-0068		
L7	CH-64NH 22GA/5.5T	1585-1003		
L8	CH-79NH 22GA/6.5T	1585-1001		
L9	CH-44NH 22GA/3.5T	1585-1006		
L10	CH-.56UH 10% RF MLD AXL	1585-0076		
L11	CH-.56UH 10% RF MLD AXL	1585-0076		
L12	COIL-AIR CORE .128DIA	1596-0319		
L13	COIL-AIR CORE .128DIA	1596-0319		
L14	CH-2 1/2 TURN WIDEBAND	1586-0003		
L15	CH-1.8UH 10% RF MLD AXL	1585-0072		

TRANSISTORS

Q1	XSTR-J310 SI T092	1272-0130		
Q2	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q3	XSTR-NE73432E NPN SI	1272-0112		
Q4	XSTR-NE73432E NPN SI	1272-0112		
Q5	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q6	XSTR-NE73432E NPN SI	1272-0112		
Q7	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q8	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904

RESISTORS

R1	RES-130K 1% 100PPM FLM	1075-0114	CAT. LIST	55-100
R2	RES-562 OHM 1% 100PPM	1075-0041	CAT. LIST	55-100
R3	POT-500 OHM 10% 3/4W	1215-0011	HELITRIM	89WR
R4	RES-20K 1% 100PPM FILM	1075-0096	CAT. LIST	55-100
R5	RES-2.2K 1% 100PPM FLM	1075-0010	CAT. LIST	55-100
R6	RES-2K 1% 100PPM FILM	1075-0103	CAT. LIST	55-100
R7	RES-10K 1% 100PPM FILM	1075-0009	CAT. LIST	55-100
R8	RES-8.25K 1% 100PPM	1075-0014	CAT. LIST	55-100
R9	RES-10K 1% 100PPM FILM	1075-0009	CAT. LIST	55-100
R10	RES-20K 1% 100PPM FILM	1075-0096	CAT. LIST	55-100
R11	RES-4.75K 1% 100PPM	1075-0038	CAT. LIST	55-100
R12	RES-10K 1% 100PPM FILM	1075-0009	CAT. LIST	55-100
R13	RES-1K 1/5 100PPM FILM	1075-0037	CAT. LIST	55-100
R14	RES-14.7K 1% 150PPM	1074-1020	CAT. LIST	55-100
R15	RES-750 OHM 5% 1/4W CC	1066-7515	ALLEN BRADLEY	CB7515
R16	RES-3.24K 1% 100PPM	1075-0092	CAT. LIST	55-100
R17	RES-3.3K 5% 1/4W CC	1066-3325	ALLEN BRADLEY	CB3325
R18	POT-2K 20% 1/2W 1T	1203-0072	BECKMAN	91A-R2K
R19	RES-75 OHM 1% 100PPM	1075-0035	CAT. LIST	55-100
R20	RES-18.2 OHM 1% 100PPM	1075-0157	CAT. LIST	55-100
R21	RES-301 OHM 1% 110PPM	1075-0048	CAT. LIST	55-100
R22	RES-681 OHM 1% 100PPM	1075-0164	CAT. LIST	55-100
R23	RES-49.9 OHM 1% 150PPM	1074-1038	CAT. LIST	55-100
R24	RES-49.9 OHM 1% 150PPM	1074-1038	CAT. LIST	55-100
R25	RES-49.9 OHM 1% 150PPM	1074-1038	CAT. LIST	55-100



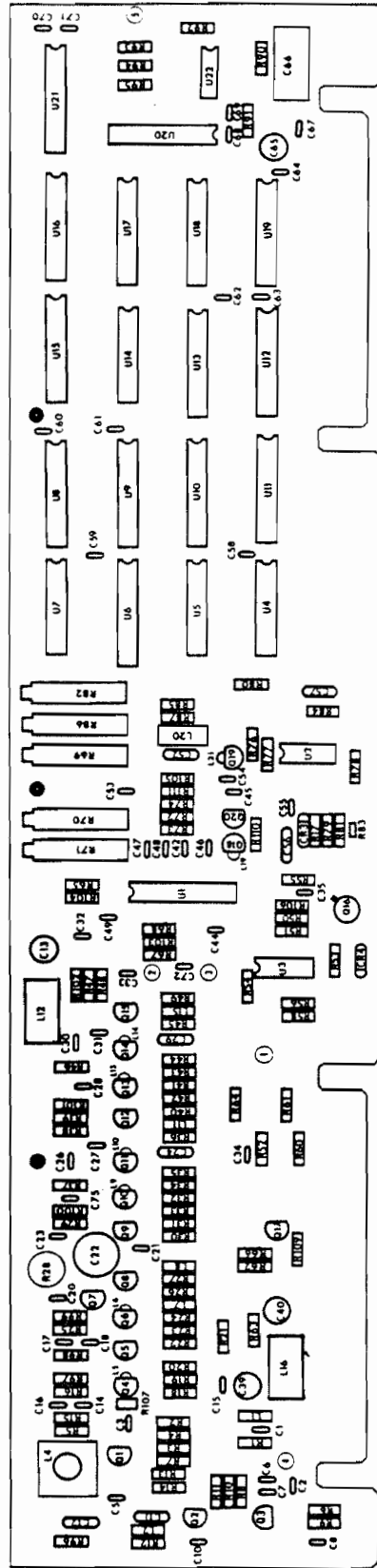
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
L10	CH-.047X.138X.118 FER	1586-0004	FERROXCUBE	56-590-65/4B
L11	CH-100UH 10% RF MLD	1585-0054	DELEVAN	1025-68
L12	CH-2 1/2TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L13	CH-.047X.138X.118 FER	1586-0004	FERROXCUBE	56-590-65/4B
L14	CH-.047X.138X.118 FER	1586-0004	FERROXCUBE	56-590-65/4B
L15	CH-100UH 10% RF MLD	1585-0054	DELEVAN	1025-68
L16	CH-2 1/2TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L17	NOT USED			
L18	NOT USED			
L19	CH-.047X.138X.118 FER	1586-0004	FERROXCUBE	56-590-65/4B
L20	CH-4.7UH 10% RF MLD	1585-0055	DELEVAN	1641-472
L21	CH-.047X.138X.118 FER	1586-0004	FERROXCUBE	56-590-65/4B

TRANSISTORS

Q1	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q2	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q3	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q4	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q5	XSTR-2N3563 NPN SI R110	1272-0022	FAIRCHILD	2N3563
Q6	XSTR-2N3563 NPN SI R110	1272-0022	FAIRCHILD	2N3563
Q7	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q8	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q9	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q10	XSTR-2N3563 NPN SI R110	1272-0022	FAIRCHILD	2N3563
Q11	XSTR-2N3563 NPN SI R110	1272-0022	FAIRCHILD	2N3563
Q12	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q13	XSTR-2N3563 NPN SI R110	1272-0022	FAIRCHILD	2N3563
Q14	XSTR-2N3563 NPN SI R110	1272-0022	FAIRCHILD	2N3563
Q15	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q16	XSTR-2N4393 SI T018	1272-0055	TELEDYNE	2N4393
Q17	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q18	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q19	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124
Q20	XSTR-2N4124 NPN SI T092	1272-0091	FAIRCHILD	2N4124

RESISTORS

R1	RES-511 OHM 1% 150PPM	1074-1008	CAT. LIST	55-100
R2	RES-6.19K 1% 100PPM	1075-0109	CAT. LIST	55-100
R3	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R4	RES-4.75K 1% 100PPM	1075-0038	CAT. LIST	55-100
R5	RES-30.1K 1% 25PPM	1074-0107	CAT. LIST	55-025
R6	RES-3.24K 1% 100PPM	1075-0092	CAT. LIST	55-100
R7	RES-5.1 OHM 5% 1/4W CC	1066-0002	ALLEN BRADLEY	CB51G5
R8	RES-51.1 OHM 1% 100PPM	1075-0077	CAT. LIST	55-100
R9	RES-232 OHM 1% 100PPM	1074-0097	CAT. LIST	55-100
R10	RES-51.1 OHM 1% 100PPM	1075-0077	CAT. LIST	55-100
R11	RES-5.1 OHM 5% 1/4W CC	1066-0002	ALLEN BRADLEY	CB51G5



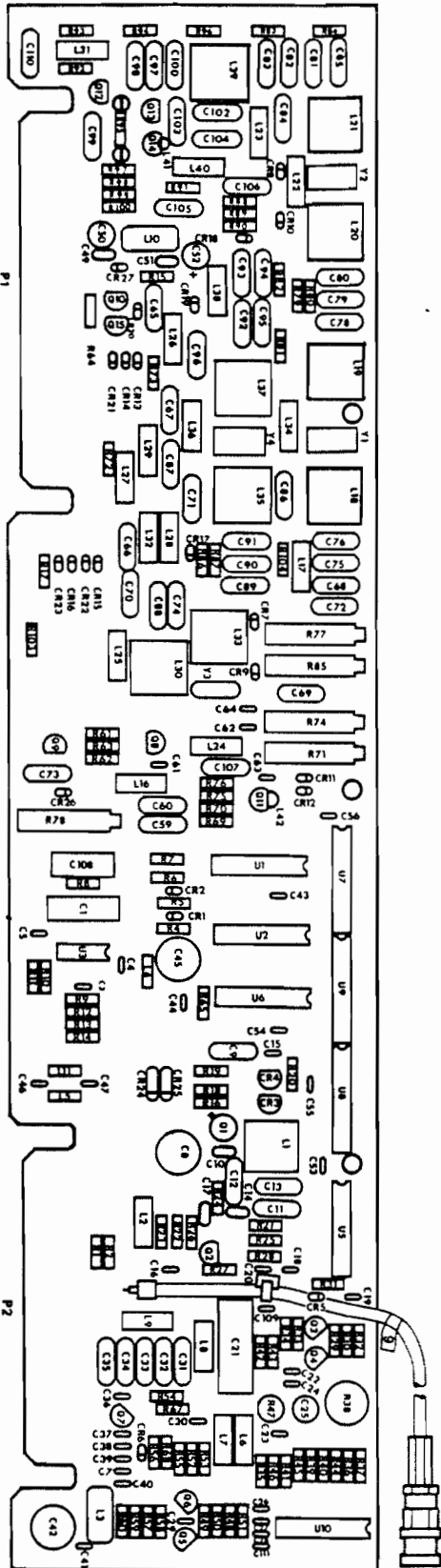
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
C98	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C99	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C100	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C101	NOT USED			
C102	CAP-180PF 5% 500V MICA	1002-0005	ELMENCO	DM15-F-181J
C103	CAP-5PF .5PF 500V MICA	1002-0028	ELMENCO	DM15-C-050D
C104	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C105	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C106	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C107	CAP-.01UF +80-20% 25V	1005-0013	TUSONIX	5835-512-Y5U-103Z
C108	CAP-1UF 10% 100V RDL	1008-0113	SPRAGUE	451P105X9100J
C109	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C110	CAP-180PF 5% 500V MICA	1002-0005	ELMENCO	DM15-F-181J
C111	CAP-1000PF 10% 100V W5R	1005-0081	TUSONIX	8111-100-X7R0-102K

DIODES

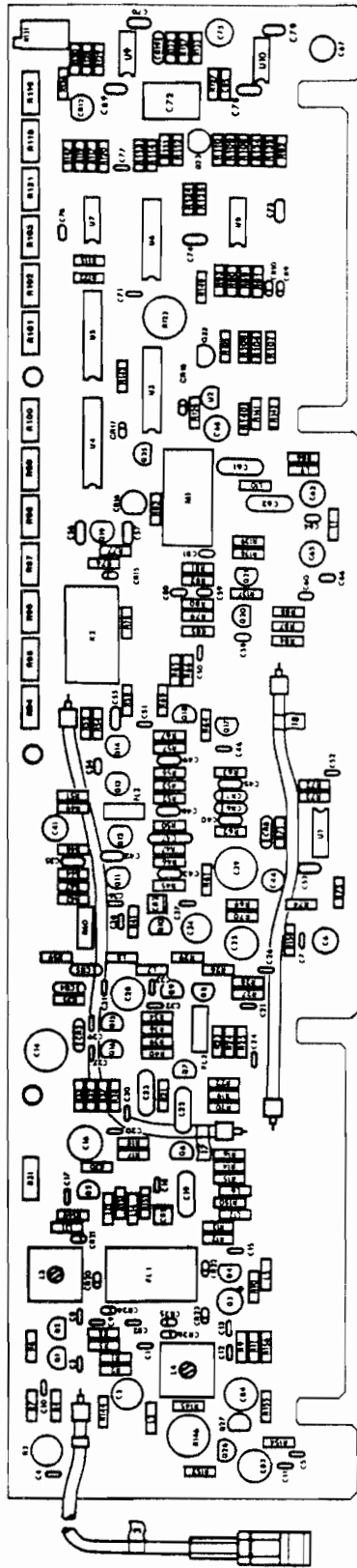
CR1	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR2	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR3	DIO-MV209 SI ZENER	1281-0064	MOTOROLA	MV109
CR4	DIO-MV209 SI ZENER	1281-0064	MOTOROLA	MV109
CR5	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR6	DIO-1N3062 S1 SW	1281-0080	ITT	IN3062
CR7	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR8	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR9	DIO-1N3062 S1 SW	1281-0080	ITT	IN3062
CR10	DIO-1N3062 S1 SW	1281-0080	ITT	IN3062
CR11	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR12	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR13	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR14	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR15	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR16	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR17	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR18	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR19	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR20	DIO-1N747A SI ZENER	1281-0076	FAIRCHILD	IN747A
CR21	DIO-1N747A SI ZENER	1281-0076	FAIRCHILD	IN747A
CR22	DIO-1N747A SI ZENER	1281-0076	FAIRCHILD	IN747A
CR23	DIO-1N747A SI ZENER	1281-0076	FAIRCHILD	IN747A
CR24	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR25	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR26	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064
CR27	DIO-1N3064 SI SW	1281-0013	FAIRCHILD	1N3064

INDUCTORS

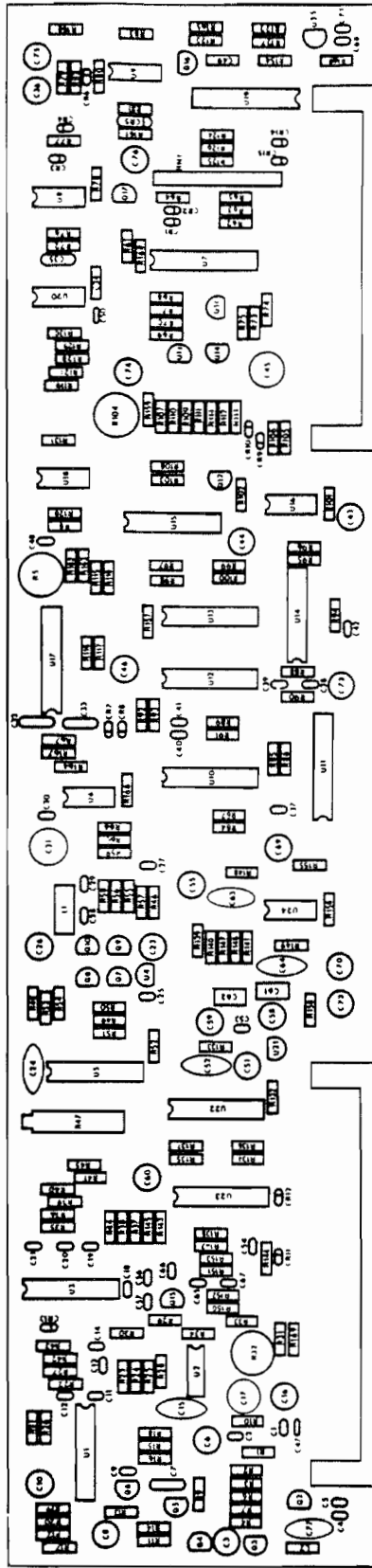
L1	COIL-VAR IF L45-6/28GA	1596-0313		
L2	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76



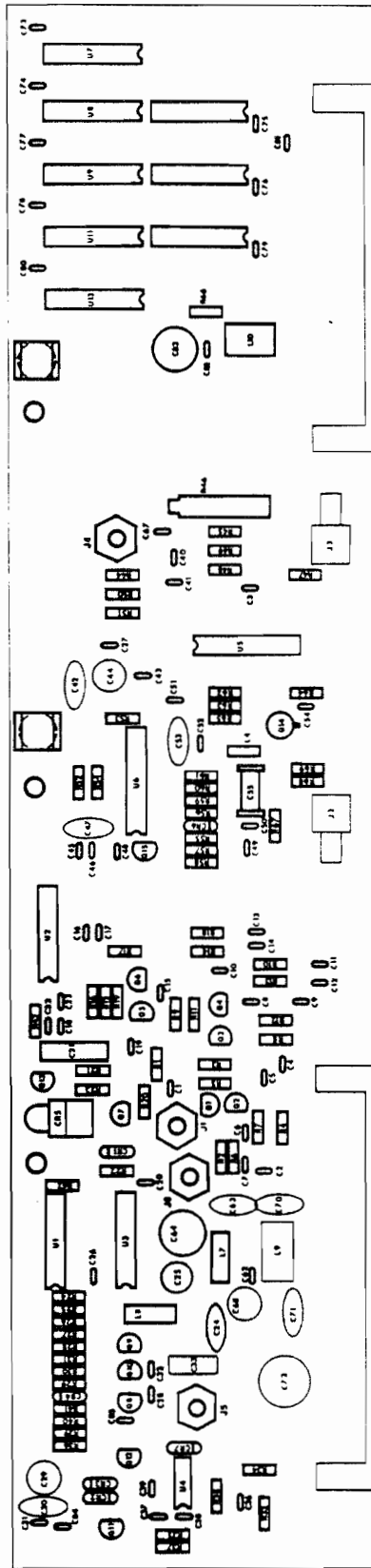
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
CR3	DIO-1N270 GE SIG D07	1282-0016		
CR4	DIO-1N270 GE SIG D07	1282-0016		
CR5	DIO-1N270 GE SIG D07	1282-0016		
CR6	DIO-1N270 GE SIG D07	1282-0016		
CR7	DIO-1N270 GE SIG D07	1282-0016		
CR8	DIO-1N270 GE SIG D07	1282-0016		
CR9	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR10	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR11	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR12	DIO-LT EMIT GRN 2V	1281-0096	CHICAGO MIN	CM4-384B
CR13	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR14	NOT USED			
CR15	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR16	DIO-LT EMIT RED 1.6V	1281-0137	HP	5082-4484
CR17	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR18	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR19	DIO-1N914B SI SW	1281-0112		
CR20	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR21	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR22	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR23	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR24	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR25	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
CR26	DIO-IN3064 SI SW	1281-0013	FAIRCHILD	IN3064
FILTERS				
FL1	FLTR-XTAL 10.7MHZ 3DB	1040-0041	PIEZO	C/E DWG
FL2	FLTR-CER 10.7 MHZ 3DB	1040-0043	MURATA CORP	10.70MHz RED ONLY
FL3	FLTR-CER 10.7 MHZ 3DB	1040-0043	MURATA CORP	10.70MHz RED ONLY
RELAY				
K1	NOT USED			
K2	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
INDUCTORS				
L1	CH-10UH 10% RF MLD AXL	1585-0064	DELEVAN	1025-44
L2	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L3	COIL-3.9 MHZ	1596-0104		
L4	COIL-3.9 MHZ	1596-0104		
L5	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L6	CH-470UH 10% RF MLD AXL	1585-0086	DELEVAN	1025-84
L7	CH-100UH 10% RF MLD AXL	1585-0054	DELEVAN	1025-68
L8	CH-470UH 10% RF MLD AXL	1585-0086	DELEVAN	1025-84
L9	CH-10UH 10% RF MLD AXL	1585-0064	DELEVAN	1025-44
L10	CH-10UH 10% RF MLD AXL	1585-0064	DELEVAN	1025-44



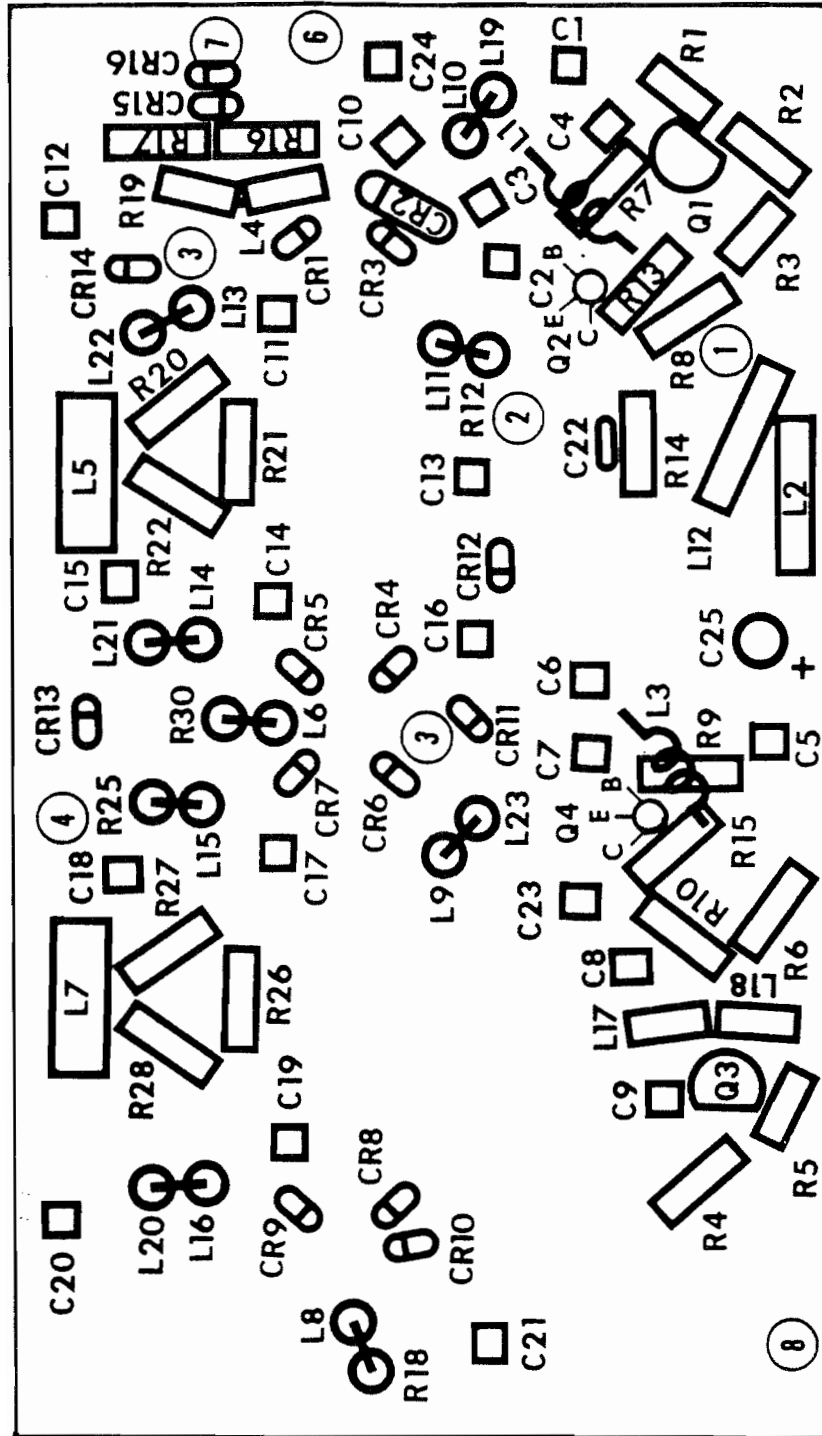
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
INDUCTORS				
L1	CH-4700UH 10% RF MLD	1585-0082		
L2	CH-100UH 10% RF MLD	1585-0054	DELEVAN	1025-68
TRANSISTORS				
Q1	NOT USED			
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q4	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q5	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q6	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q7	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q8	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q9	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q10	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q11	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q12	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q13	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q14	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q15	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q16	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q17	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
RESISTORS				
R1	RES-68 OHM 5% 1/4W CC	1066-6805	ALLEN BRADLEY	CB6805
R2	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R3	RES-200 OHM 5% 1/4W CC	1066-2015	ALLEN BRADLEY	CB2015
R4	RES-1.62K 1% 100PPM	1075-0104	CAT. LIST	55-100
R5	POT-10K 20% 1/2W 1T	1215-0043	BECKMAN	91AR10K
R6	RES-174 OHM 1% 100PPM	1075-0036	CAT. LIST	55-100
R7	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R8	RES-2.26K 1% 100PPM	1075-0183	CAT. LIST	55-100
R9	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R10	RES-2400HM 5% 1/4W CC	1066-2415	ALLEN BRADLEY	CB2415
R11	RES-5.6K 5% 1/4W CC	1066-5625	ALLEN BRADLEY	CB5625
R12	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R13	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R14	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R15	RES-182 OHM 1% 150PPM	1074-1014	CAT. LIST	55-100
R16	RES-3.01K 1% 100PPM	1075-0127	CAT. LIST	55-100
R17	RES-3.32K 1% 100PPM	1075-0213	CAT. LIST	55-100
R18	RES-3.32K 1% 100PPM	1075-0181	CAT. LIST	55-100
R19	RES-6.2K 5% 1/4W CC	1066-6225	ALLEN BRADLEY	CB6225
R20	RES-300 OHM 5% 1/4W CC	1066-3015	ALLEN BRADLEY	CB3015
R21	RES-6.2K 5% 1/4W CC	1066-6225	ALLEN BRADLEY	CB6225
R22	RES-2K 1% 25PPM	1075-0079	CAT. LIST	55-025



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
CONNECTORS				
J1	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000
J2	CONN-SMB 50 OHM RTANG	2536-0060	CABLEWAVE	700214NP
J3	CONN-SMB 50 OHM RTANG	2536-0060	CABLEWAVE	700214NP
J4	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000
J5	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000
J6	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000
INDUCTORS				
L1	NOT USED			
L2	NOT USED			
L3	NOT USED			
L4	CH-.33UH 5% RF MLD AXL	1585-0053		
L5	NOT USED			
L6	NOT USED			
L7	CH-3.3UH 10% RF MLD AXL	1585-0037	DELEVAN	1537-24
L8	CH-3.3UH 10% RF MLD AXL	1585-0037	DELEVAN	1537-24
L9	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L10	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
TRANSISTORS				
Q1	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q4	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q5	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q6	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q7	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q8	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q9	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q10	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q11	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q12	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q13	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q14	XSTR-2N5179 NPN SI T072	1272-0060	MOTOROLA	2N5179
Q15	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
RESISTORS				
R1	RES-49.9 OHM 1% 100PPM	1075-0141	CAT. LIST	55-100
R2	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R3	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R4	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100
R5	RES-681 OHM 1% 100PPM	1075-0164	CAT. LIST	55-100
	RES-137 OHM 1% 100PPM	1075-0026	CAT. LIST	55-100



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R1	RES-5.1K 5% 1/8W CC	1065-5125	ALLEN BRADLEY	BB5125
R17	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R18	RES-1K 5% 1/8W CC	1065-1025	ALLEN BRADLEY	BB1025
R19	RES-1K 5% 1/8W CC	1065-1025	ALLEN BRADLEY	BB1025
R20	RES-60.4 OHM 1% 100PPM	1074-0115	CAT. LIST	55-100
R21	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R22	RES-59 OHM 1% 100PPM	1075-0067	CAT. LIST	55-100
R23	NOT USED			
R24	NOT USED			
R25	RES-68 OHM 1/8W CC	1065-6805	ALLEN BRADLEY	BB6805
R26	RES-243 OHM 1% 100PPM	1074-0114	CAT. LIST	55-100
R27	RES-59 OHM 1% 100PPM	1075-0067	CAT. LIST	55-100
R28	RES-59 OHM 1% 100PPM	1075-0067	CAT. LIST	55-100
R29	NOT USED			
R30	RES-510 OHM 5% 1/8W CC	1065-5115	ALLEN BRADLEY	BB5115



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
--------------	-------------	-----------------	--------------	---------

R.	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R25	RES-51 OHM 5% 1/8W CC	1065-5105	ALLEN BRADLEY	BB5105
R26	RES-91 OHM 5% 1/8W CC	1065-9105	ALLEN BRADLEY	BB9105
R27	RES-82 OHM 5% 1/8W CC	1065-8205	ALLEN BRADLEY	BB8205
R28	RES-91 OHM 5% 1/8W CC	1065-9105	ALLEN BRADLEY	BB9105

TRANSFORMER

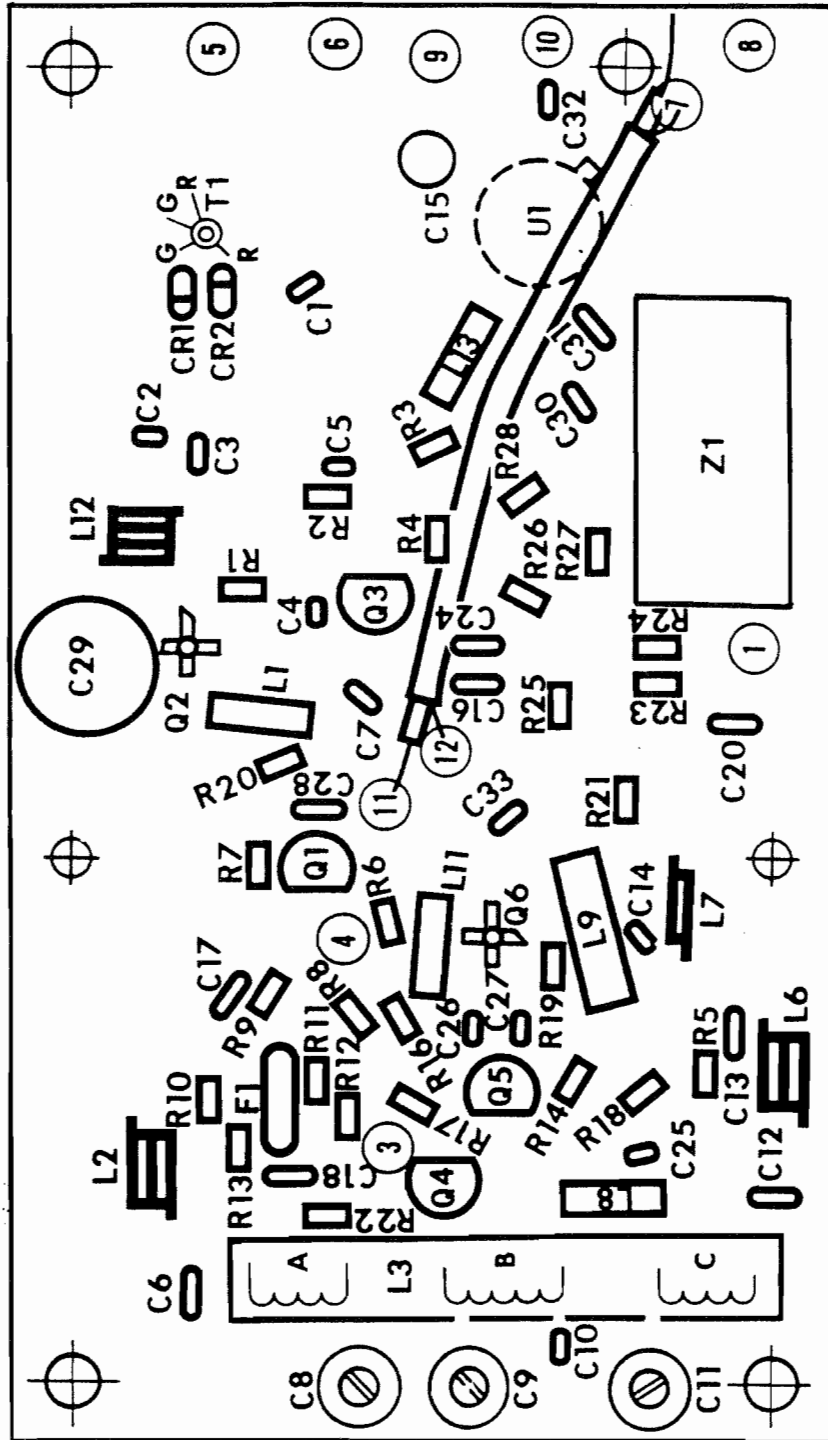
T1	XFMR-TOROIDIAL BIFILAR	1579-0042		
----	------------------------	-----------	--	--

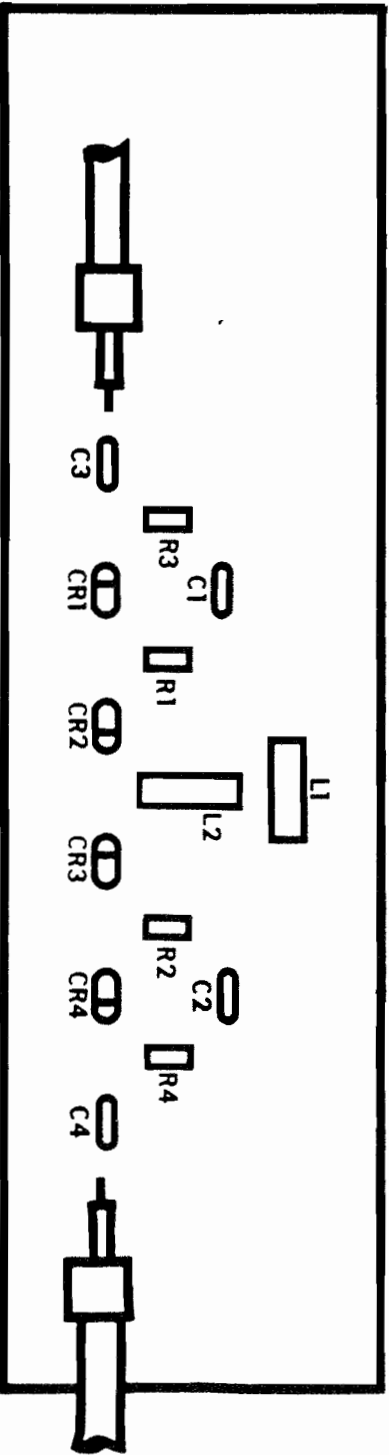
INTEGRATED CIRCUIT

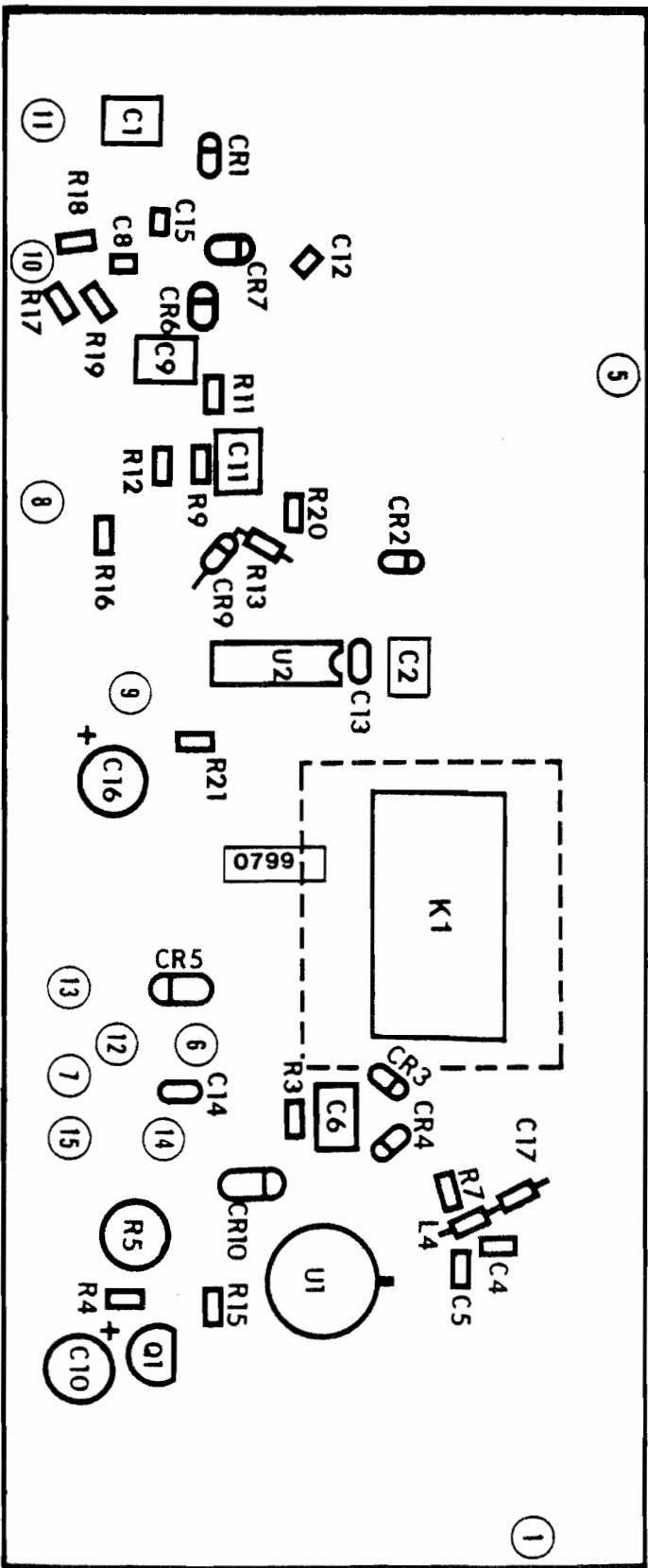
U1	IC-462 T012 CASCADABLE AMP	2025-0298		
----	----------------------------	-----------	--	--

MIXER

Z1	MXR- DBL BAL 1-500MHz	2010-0009	MINI-CKTS LAB	SBL-1
----	-----------------------	-----------	---------------	-------



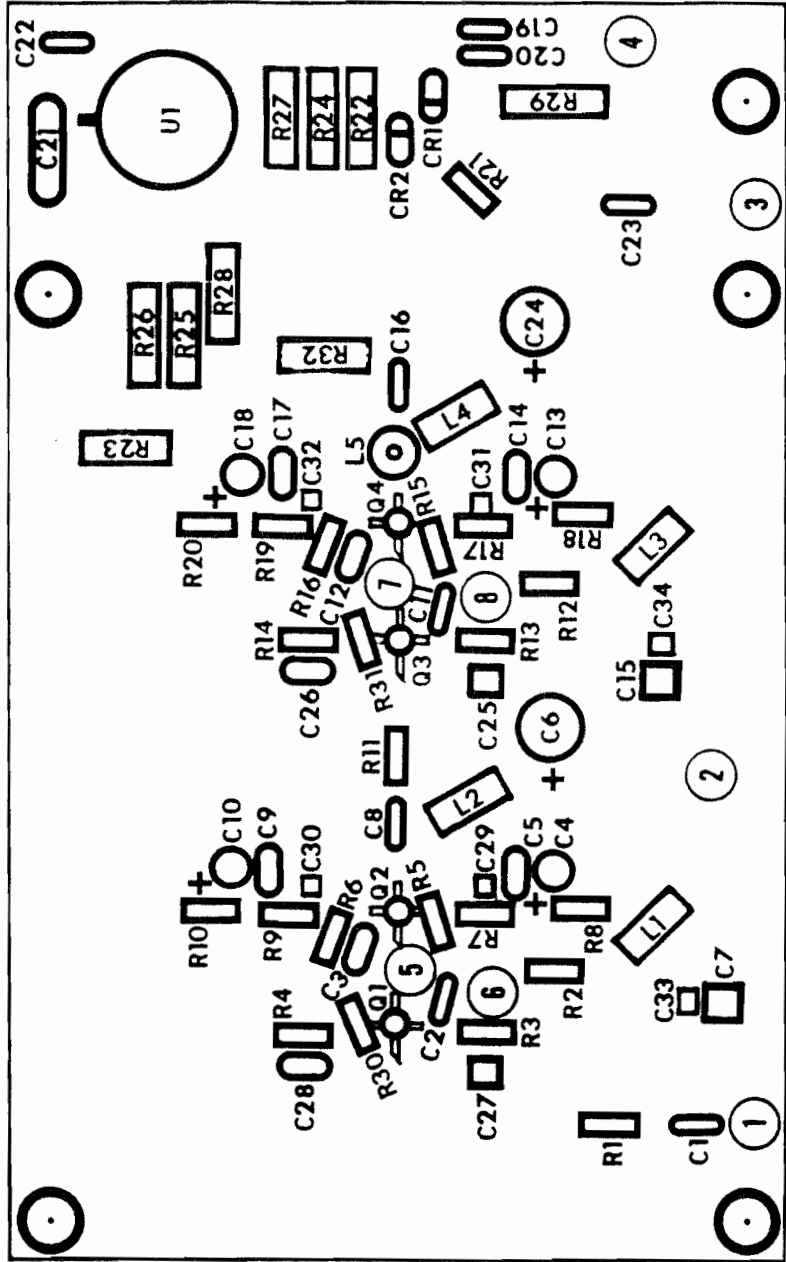




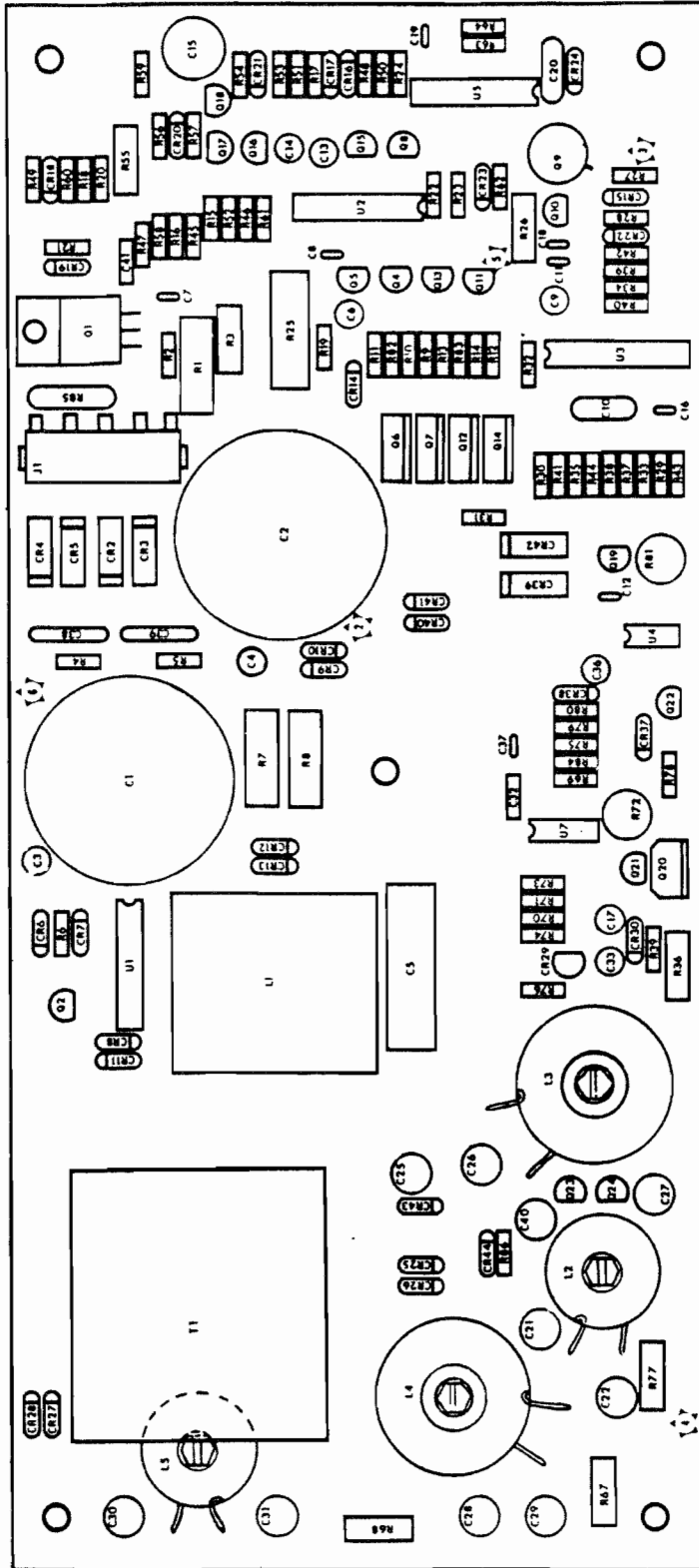
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
--------------	-------------	-----------------	--------------	---------

INTEGRATED CIRCUIT

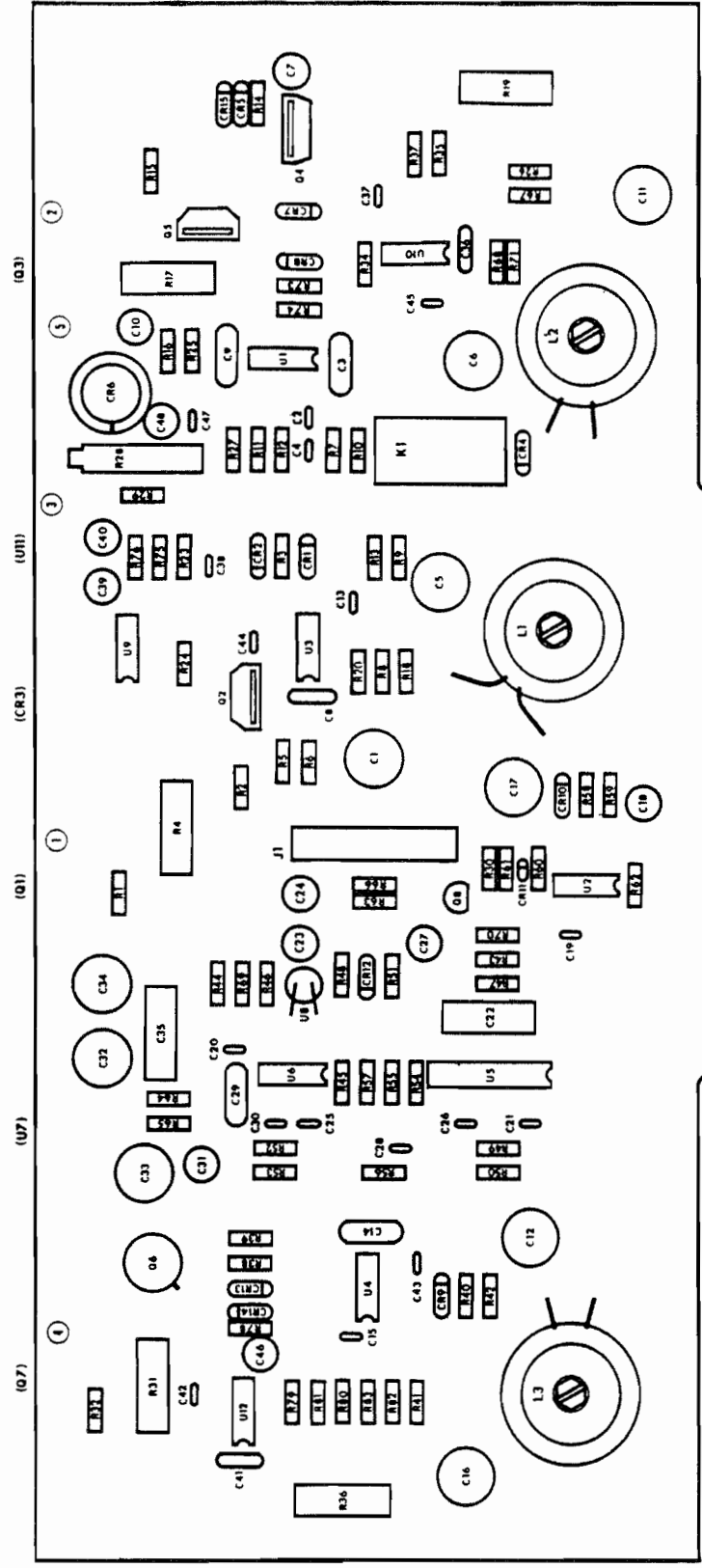
U1	IC-CA3130T OP AMPL	2025-0161	RCA	CA3130T
----	--------------------	-----------	-----	---------



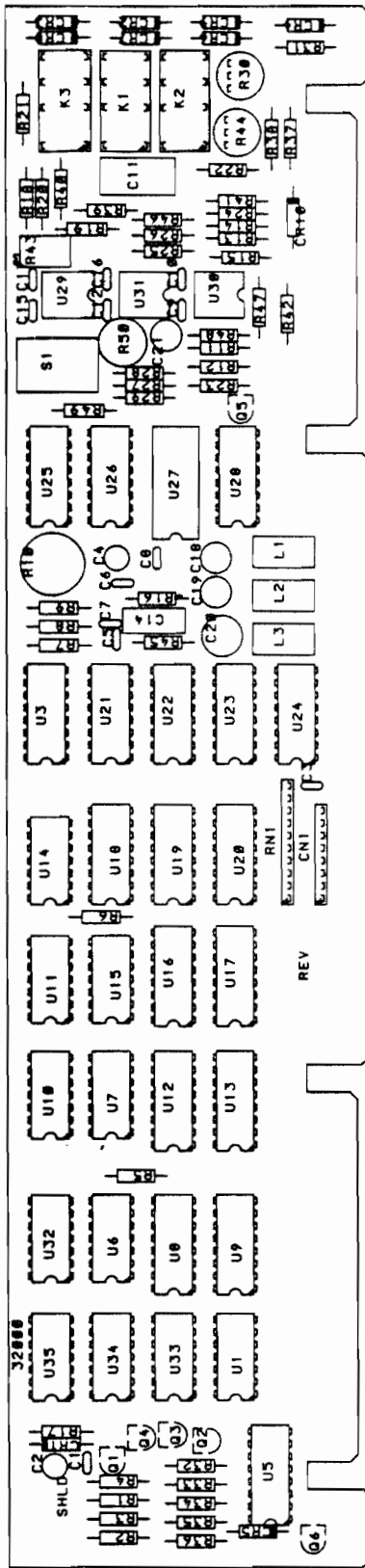
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
44	DIO-1N914B SI SW DO7	1281-0112	MOTOROLA	1N914B
CR45	DIO-1N6298A SI ZENER	1281-0176		
Z1	DIO-1535CT DUAL RECT	1281-0178		
Z2	DIO-1535CT DUAL RECT	1281-0178		
CONNECTOR				
J1	CONN-4PIN .084DIA PCB	2535-0181		
INDUCTORS				
L1	INDCTR-POT CORE 26X25	1596-0325		
L2	COIL-TOROIDAL 40UH/.60D	1595-0007		
L3	COIL-TOROIDAL 15UH/.90D	1595-0006		
L4	COIL-TOROIDAL 15UH/.90D	1595-0006		
L5	COIL-TOROIDAL 40UH/.60D	1595-0007		
TRANSISTORS				
Q1	XSTR-MAC15A 400V 15AMP	1272-0141		
Q2	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
	XSTR-2P45 SI T0220AB	1272-0142		
Q4	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q5	XSTR-VN1306 SI T092	1272-0143		
Q6	XSTR-1RF721 SI T0220AB	1272-0140		
Q7	XSTR-1RF721 SI T0220AB	1272-0140		
Q8	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q9	XSTR-2N3439 NPN SI T05	1272-0144		
Q10	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q11	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q12	XSTR-1RF721 SI T0220AB	1272-0140		
Q13	XSTR-VN1306 SI T092	1272-0143		
Q14	XSTR-1RF721 SI T0220AB	1272-0140		
Q15	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q16	XSTR-VN1306 SI T092	1272-0143		
Q17	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q18	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q19	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3
Q20	XSTR-MPS-U55 PNP SI B18	1272-0074	MOTOROLA	MPSU55
Q21	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q22	XSTR-2N4126 PNP SI T092	1272-0090	FAIRCHILD	2N4126
Q23	NOT USED			
Q24	XSTR-VN0104 SI T092	1272-0132	SUPERTEX INC	VN0104N3



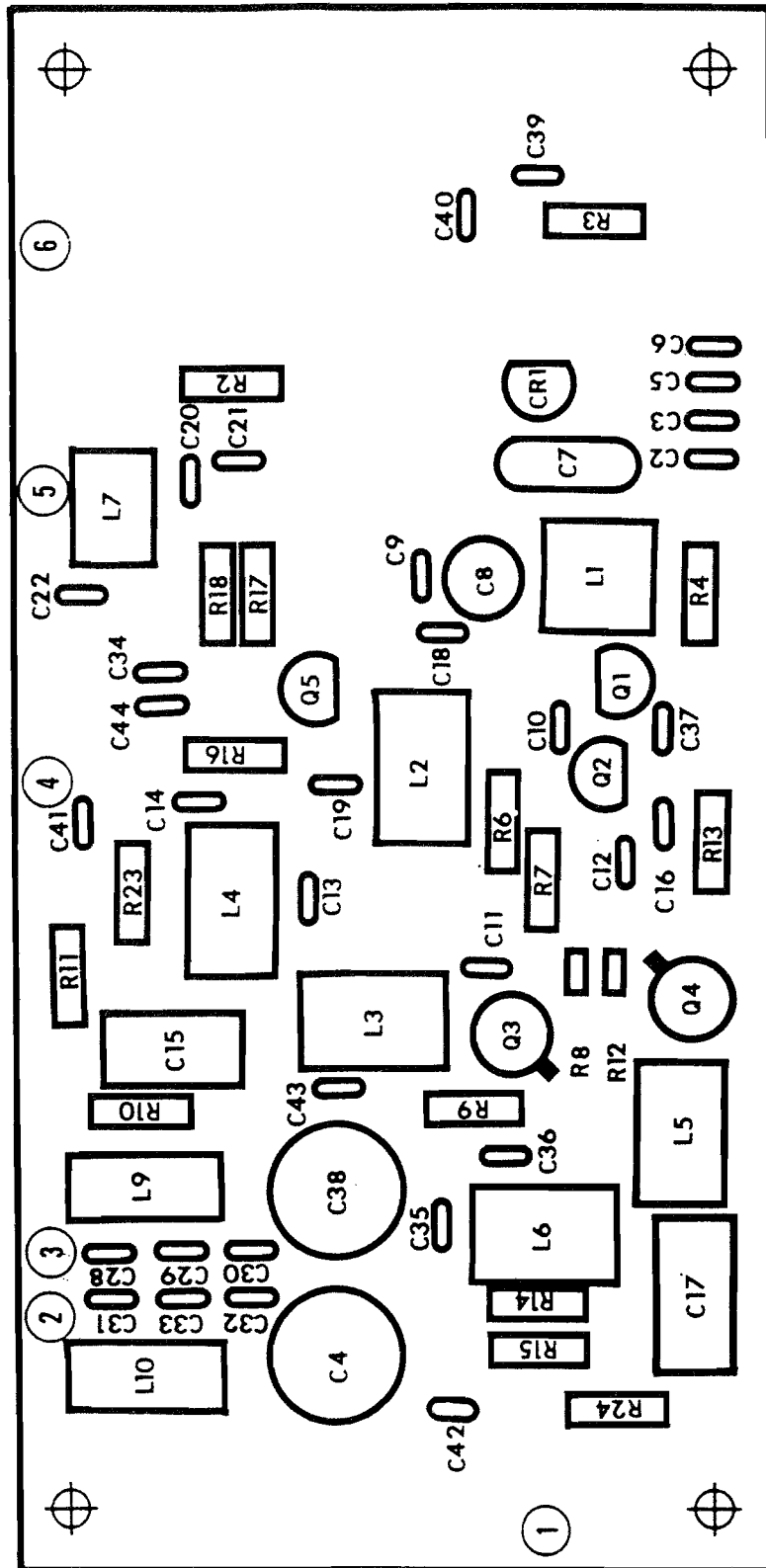
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
RESISTORS				
R1	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R2	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R3	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R4	RES-.1 OHM 3% 3W 90PPM	1159-0010		
R5	RES-6.81K 1% 100PPM	1075-0140	CAT. LIST	55-100
R6	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R7	RES-2.4K 5% 1/4W CC	1066-2425	ALLEN BRADLEY	CB2425
R8	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R9	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R10	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R11	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R12	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R13	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R14	RES-390 OHM 5% 1/4W XX	1066-3915	ALLEN BRADLEY	CB3915
R15	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R16	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R17	RES-62 OHM 5% 1W CC	1068-6205	ALLEN BRADLEY	GB6205
R18	RES-2MEG 5% 1/4W CC	1066-2055	ALLEN BRADLEY	CB2055
R19	RES-.1 OHM 3% 3W 90PPM	1159-0010		
R20	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R21	NOT USED			
R22	NOT USED			
R23	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R24	RES-15K 1% 100PPM	1075-0081	CAT. LIST	55-100
R	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R26	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R27	RES-1.62K 1% 25PPM	1075-0070	CAT. LIST	55-025
R28	POT-1K 10% 3/4W 15T	1215-0013	HELITRIM	89WR1K
R29	RES-4.5K 1% 25PPM	1075-0066	CAT. LIST	55-025
R30	NOT USED			
R31	RES-130 OHM 5% 1W CC	1068-1315	ALLEN BRADLEY	GB1315
R32	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R33	NOT USED			
R34	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R35	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R36	RES-.1 OHM 3% 3W 90PPM	1159-0010		
R37	RES-18.7K 1% 150PPM	1074-1022	CAT. LIST	55-100
R38	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R39	RES-5.62K 1% 100PPM	1075-0013	CAT. LIST	55-100
R40	RES-12.1K 1% 100PPM	1075-0011	CAT. LIST	55-100
R41	RES-10 OHM 5% 1/4W CC	1066-1005	ALLEN BRADLEY	CB1005
R42	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R43	RES-200K 5% 1/4W CC	1066-2045	ALLEN BRADLEY	CB2045
R44	RES-4.7K 5% 1/4W CC	1066-4725	ALLEN BRADLEY	CB4725
R45	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R46	RES-1MEG 5% 1/4W CC	1066-1055	ALLEN BRADLEY	CB1055
R47	RES-1.8MEG 5% 1/4W CC	1066-1855	ALLEN BRADLEY	CB1855
R48	RES-220 OHM 5% 1/4W CC	1066-2215	ALLEN BRADLEY	CB2215
R49	RES-360K 5% 1/4W CC	1066-3645	ALLEN BRADLEY	CB3645
P	RES-36K 5% 1/4W CC	1066-3635	ALLEN BRADLEY	CB3635



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
7	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
K28	RES-61.9K 1% 100PPM	1075-0018	CAT. LIST	55-100
R29	RES-20K 1% 100PPM	1075-0096	CAT. LIST	55-100
R30	POT-200 OHM 20% 1/2W 1T	1215-0055	BECKMAN	91AR200
R31	RES-8.87K 1% 100PPM	1075-0232	CAT. LIST	55-100
R32	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R33	RES-75K 5% 1/4W CC	1066-7535	ALLEN BRADLEY	CB7535
R34	RES-75K 5% 1/4W CC	1066-7535	ALLEN BRADLEY	CB7535
R35	RES-75K 5% 1/4W CC	1066-7535	ALLEN BRADLEY	CB7535
R36	RES-75K 5% 1/4W CC	1066-7535	ALLEN BRADLEY	CB7535
R37	RES-2.7K 5% 1/4W CC	1066-2725	ALLEN BRADLEY	CB2725
R38	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R39	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R40	RES-82.5K 1% 100PPM	1075-0064	CAT. LIST	55-100
R41	RES-2.2K 5% 1/4W CC	1066-2225	ALLEN BRADLEY	CB2225
R42	RES-39 OHM 5% 1/4W CC	1066-3905	ALLEN BRADLEY	CB3905
R43	POT 20K 10% 1/2W 25T	1215-0048	BOURNS	3299X-1-203
R44	POT-5K 20% 1/2W 1T	1203-0071	BECKMAN	91AR5K
R45	RES-100 OHM 5% 1/4W CC	1066-1015	ALLEN BRADLEY	CB1015
R46	RES-182K 1% 100PPM	1075-0146	CAT. LIST	55-100
R47	RES-18K 5% 1/4W CC	1066-1835	ALLEN BRADLEY	CB1835
R48	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R49	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R50	POT 20K 20% 1/2 W 1T	1215-0044	BECKMAN	91AR20K
R51	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
RESISTOR NETWORK				
RN1	RNET-9/10 2% 100PPM 10P	1115-0005	DALE	MSP10C01103G
SWITCH				
S1	SW-SLIDE DPDT 1A@125V	1850-0047		
INTEGRATED CIRCUITS				
U1	IC-SN7404N HEX INV	2025-0048	TEXAS INSTS	SN7404N
U2	NOT USED			
U3	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U4	NOT USED			
U5	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U6	IC-74LS10 14PIN DIP	2025-0215	NATIONAL	DM74LS10N
U7	IC-SN74LSOON TTL NAND G	2025-0114	TEXAS INSTS	SN74LSOON
U8	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U9	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U10	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U11	IC-SN74LSO2N QUAD 2	2025-0108	TEXAS INSTS	SN74LSO2N
U12	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U13	IC-74LS163 16PIN DIP	2025-0223	TEXAS INSTS	SN74LS163N



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R23	RES-150 OHM 1% 100PPM	1075-0125	CAT. LIST	55-100
R24	RES-16.2 OHM 1% 100PPM	1075-0068	CAT. LIST	55-100

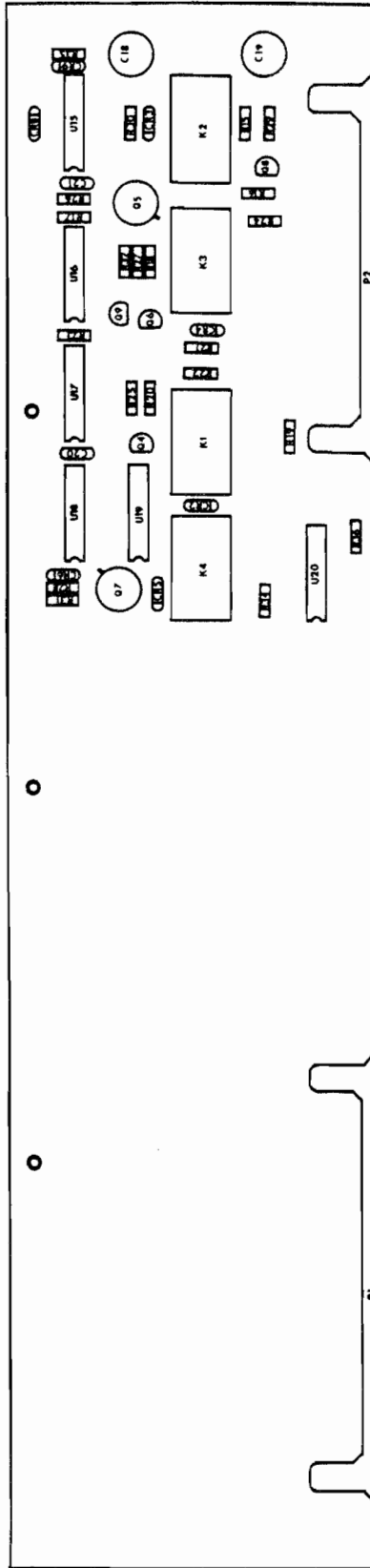


CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R17	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R18	RES-2K 1% 100PPM	1075-0103	CAT. LIST	55-100
R19	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R20	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R21	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R22	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R23	RES-620 OHM 5% 1/4W CC	1066-6215	ALLEN BRADLEY	CB6215
R24	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R25	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R26	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R27	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R28	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R29	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R30	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R31	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R32	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R33	RES-18K 5% 1/4W CC	1066-1835	ALLEN BRADLEY	CB1835
R34	RES-75K 1% 100PPM	1075-0135	CAT. LIST	55-100
R35	RES-10K 1% 100PPM	1075-0009	CAT. LIST	55-100
R36	RES-4.02K 1% 100PPM	1075-0094	CAT. LIST	55-100
R37	RES-5.9K 1% 100PPM	1075-0110	CAT. LIST	55-100
R38	RES-560 OHM 5% 1/4W CC	1066-5615	ALLEN BRADLEY	CB5615
R39	RES-68 OHM 5% 1/4W CC	1066-6805	ALLEN BRADLEY	CB6805
R40	RES-68 OHM 5% 1/4W CC	1066-6805	ALLEN BRADLEY	CB6805
1	RES-560 OHM 5% 1/4W CC	1066-5615	ALLEN BRADLEY	CB5615
R42	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R43	RES-9.1K 5% 1/4W CC	1066-9125	ALLEN BRADLEY	CB9125
R44	RES-12K 5% 1/4W CC	1066-1235	ALLEN BRADLEY	CB1235
R45	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R46	RES-1K 5% 1/4W CC	1066-1025	ALLEN BRADLEY	CB1025
R47	RES-100K 1% 100PPM	1075-0105	CAT. LIST	55-100
R48	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R49	RES-330K 5% 1/4W CC	1066-3345	ALLEN BRADLEY	CB3345
R50	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
RESISTOR NETWORKS				
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01182G
RN2	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01182G
RN3	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01182G
INTEGRATED CIRCUITS				
U1	IC-SN74167N SYN DECADE	2025-0097		
U2	IC-SN74167N SYN DECADE	2025-0097		
U3	IC-SN74167N SYN DECADE	2025-0097		
U4	IC-SN74167N SYN DECADE	2025-0097		
U5	IC-74LS74 DUAL D POS	2025-0124	TEXAS INSTS	SN74LS74N
U	IC-74LS27 14PIN DIP	2025-0217		

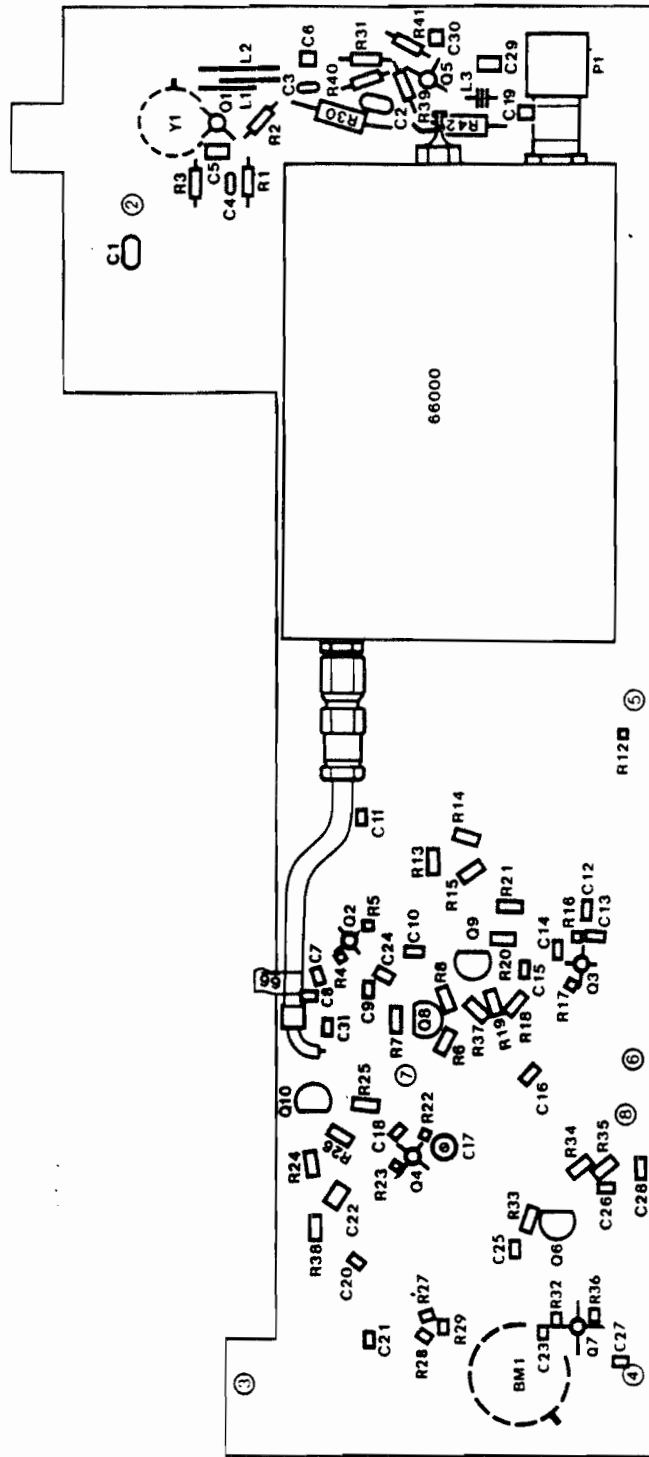
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
--------------	-------------	-----------------	--------------	---------

INTEGRATED CIRCUITS

U1	NOT USED			
U2	NOT USED			
U3	NOT USED			
U4	NOT USED			
U5	NOT USED			
U6	NOT USED			
U7	NOT USED			
U8	NOT USED			
U9	NOT USED			
U10	NOT USED			
U11	NOT USED			
U12	NOT USED			
U13	NOT USED			
U14	NOT USED			
U15	IC-4001 14PIN DIP QUAD	2025-0202	MOTOROLA	MC14001
U16	IC-4011 14PIN DIP QUAD	2025-0203	MOTOROLA	MC14011BCP
U17	IC-4073B 14PIN DIP TPL	2025-0247		
U18	IC-4071B 14PIN DIP QUAD	2025-0210		
U19	IC-4001 14PIN DIP QUAD	2025-0202	MOTOROLA	MC14001
U20	IC-4011 14PIN DIP QUAD	2025-0203	MOTOROLA	MC14011BCP



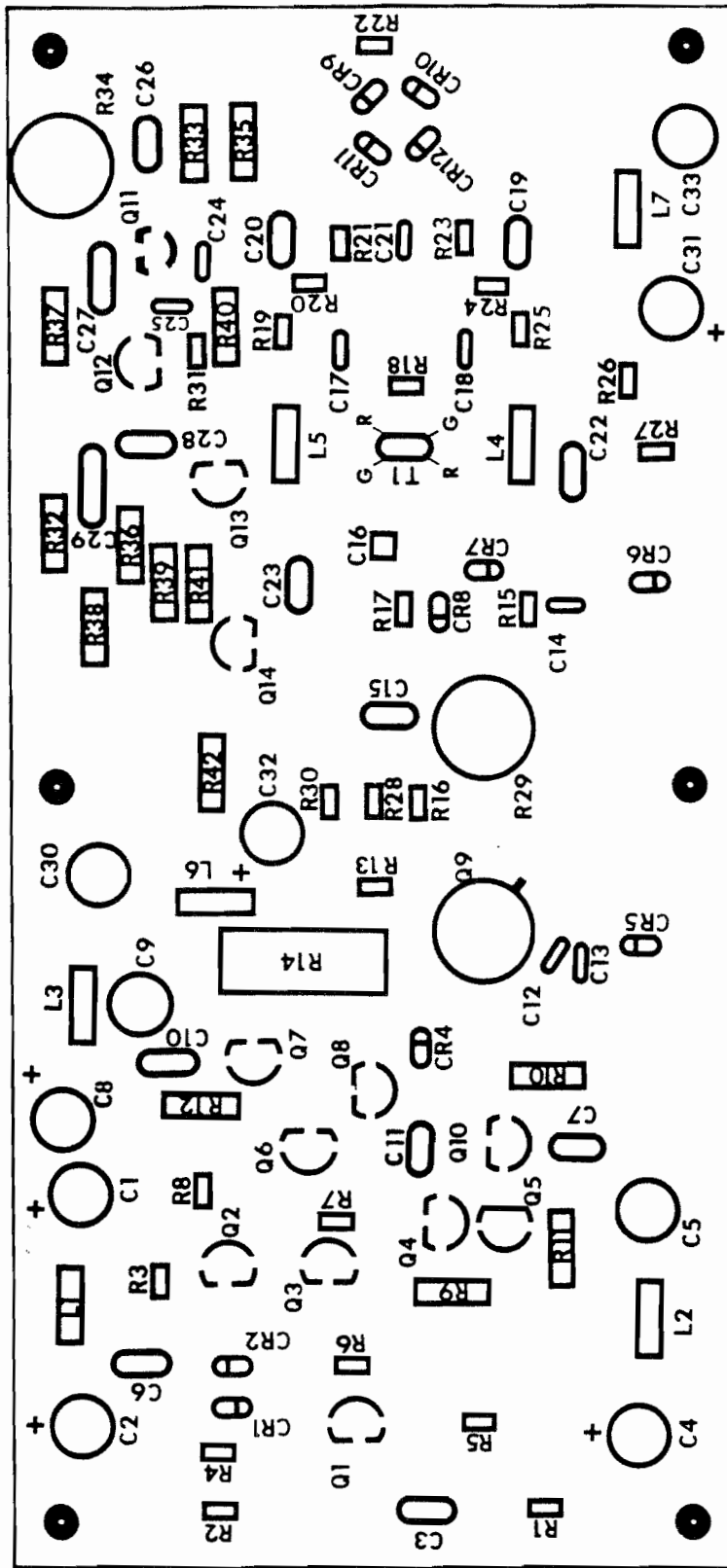
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R32	RES-96 OHM 5% 1/8W 100	1130-0008		
R33	RES-51K 5% 1/8W CC	1065-5135	ALLEN BRADLEY	BB5135
R34	RES-10K 5% 1/8W CC	1065-1035	ALLEN BRADLEY	BB1035
R35	RES-68 OHM 5% 1/8W CC	1065-6805	ALLEN BRADLEY	BB6805
R36	RES-96 OHM 5% 1/8W 100	1130-0008		
R37	RES-120 OHM 1/8W CC	1065-1215	ALLEN BRADLEY	BB1215
R38	RES-75 OHM 5% 1/8W CC	1065-7505	ALLEN BRADLEY	BB7505
R39	RES-820 OHM 5% 1/8W CC	1065-8215	ALLEN BRADLEY	BB8215
R40	RES-300 OHM 5% 1/8W CC	1065-3015	ALLEN BRADLEY	BB3015
R41	RES-82 OHM 5% 1/8W CC	1065-8205	ALLEN BRADLEY	BB8205
R42	RES-20 OHM 5% 1/4W CC	1066-2005	ALLEN BRADLEY	CB2005
CRYSTAL				
Y1	XTAL-600.175 MHZ	2035-0049		
PCB				
66000	MDL ASSY-600MHZ MULT	7060-0054	CUSHMAN	

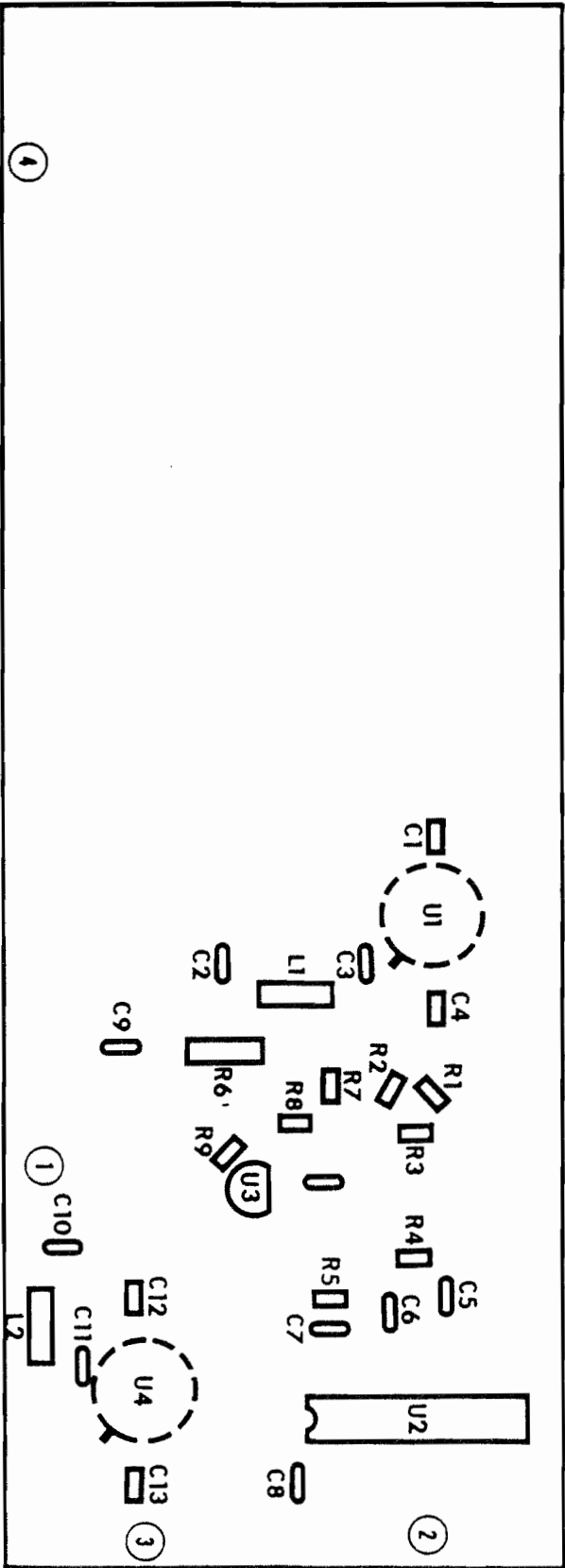


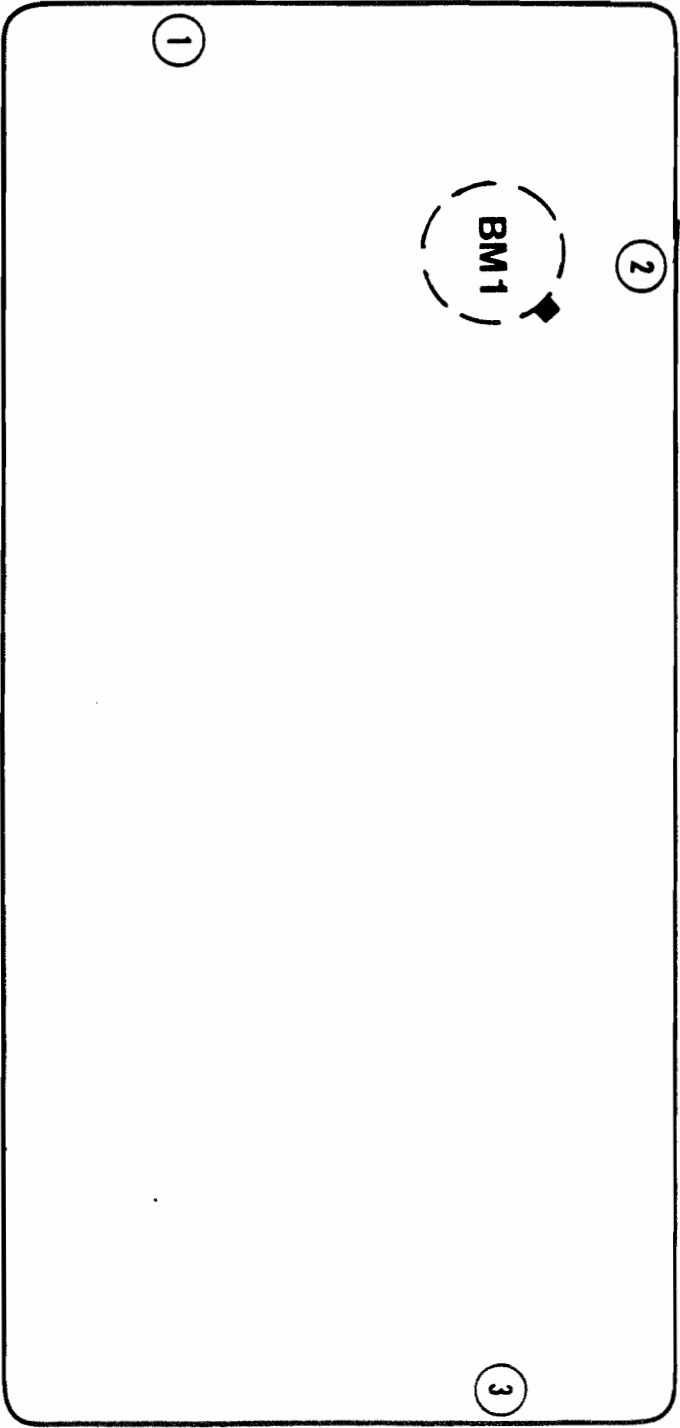
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
R16	RES-360 OHM 5% 1/8W CC	1065-3615	ALLEN BRADLEY	BB3615
R17	RES-1K 5% 1/8W CC	1065-1025	ALLEN BRADLEY	BB1025
R18	RES-100 OHM 5% 1/8W 100	1130-0005		
R19	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R20	RES-50 OHM 5% 1/8W 100	1130-0006		
R21	RES-71 OHM 5% 1/8W 100	1130-0007		
R22	RES-50 OHM 5% 1/8W 100	1130-0006		
R23	RES-71 OHM 5% 1/8W 100	1130-0007		
R24	RES-50 OHM 5% 1/8W 100	1130-0006		
R25	RES-100 OHM 5% 1/8W CC	1065-1015	ALLEN BRADLEY	BB1015
R26	RES-11K 5% 1/8W CC	1065-1135	ALLEN BRADLEY	BB1135
R27	RES-1K 5% 1/8W CC	1065-1025	ALLEN BRADLEY	BB1025
R28	RES-1K 5% 1/8W CC	1065-1025	ALLEN BRADLEY	BB1025
R29	POT-2K 20% 1/2W 1T	1203-0072	BECKMAN	91AR2K
R30	RES-9.1K 5% 1/8W CC	1065-9125	ALLEN BRADLEY	BB9125
R31	RES-50 OHM 5% 1/8W 100	1130-0006		
R32	RES-1K 1% 100PPM	1075-0037	CAT. LIST	55-100
R33	RES-51.1 OHM 1% 100PPM	1075-0077	CAT. LIST	55-100
R34	POT-500 OHM 20% 1/2W	1215-0042	BECKMAN	91AR500
R35	RES-475 OHM 1% 100PPM	1075-0023	CAT. LIST	55-100
R36	RES-750 OHM 1% 100PPM	1075-0043	CAT. LIST	55-100
R37	RES-549 OHM 1% 100PPM	1075-0225	CAT. LIST	55-100
R38	RES-3.24K 1% 100PPM	1075-0092	CAT. LIST	55-100
R39	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
)	RES-2K 1% 25PPM	1075-0079	CAT. LIST	55-025
R41	RES-301 OHM 1% 100PPM	1075-0048	CAT. LIST	55-100
R42	RES-499 OHM 1% 100PPM	1075-0008	CAT. LIST	55-100

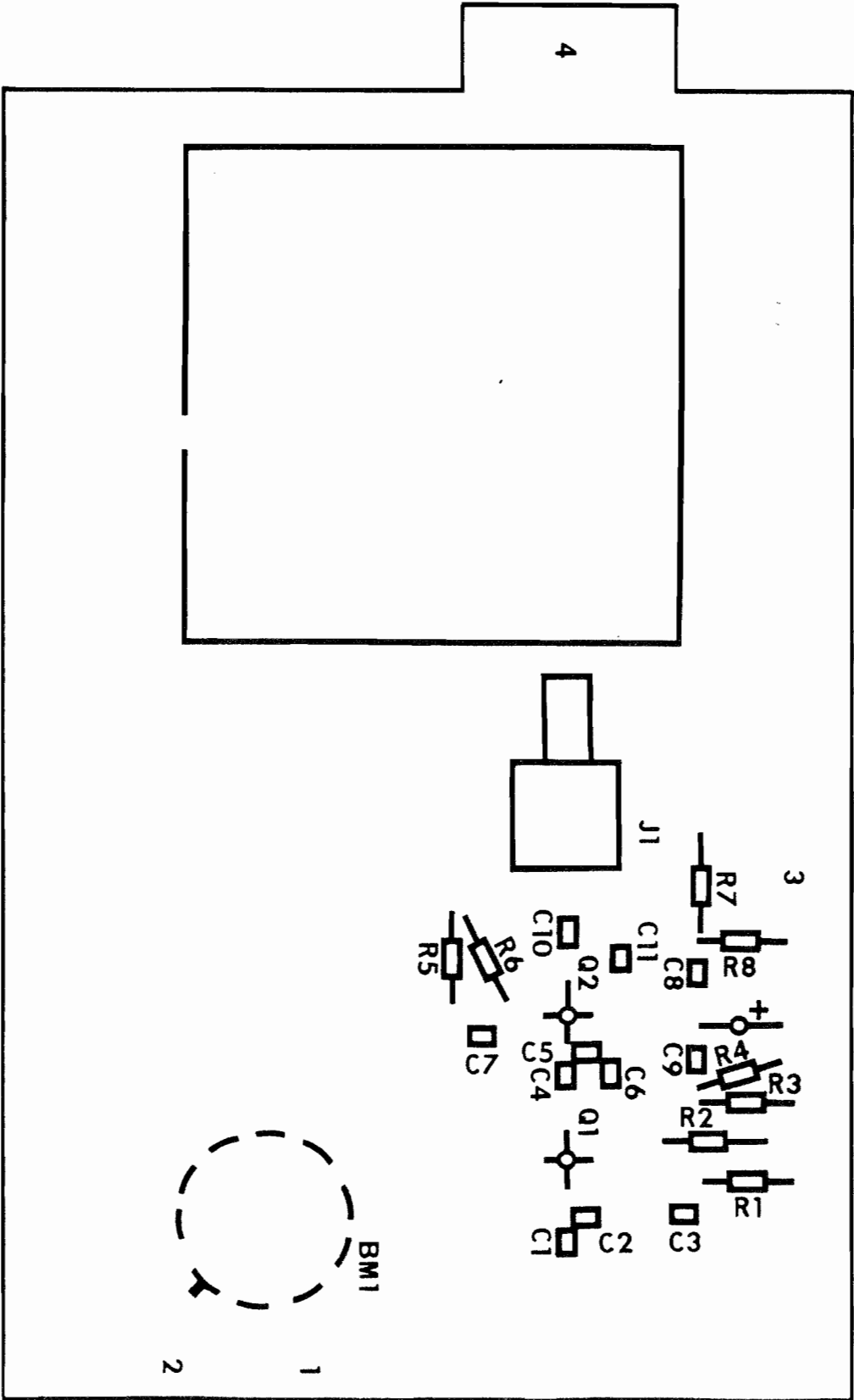
TRANSFORMER

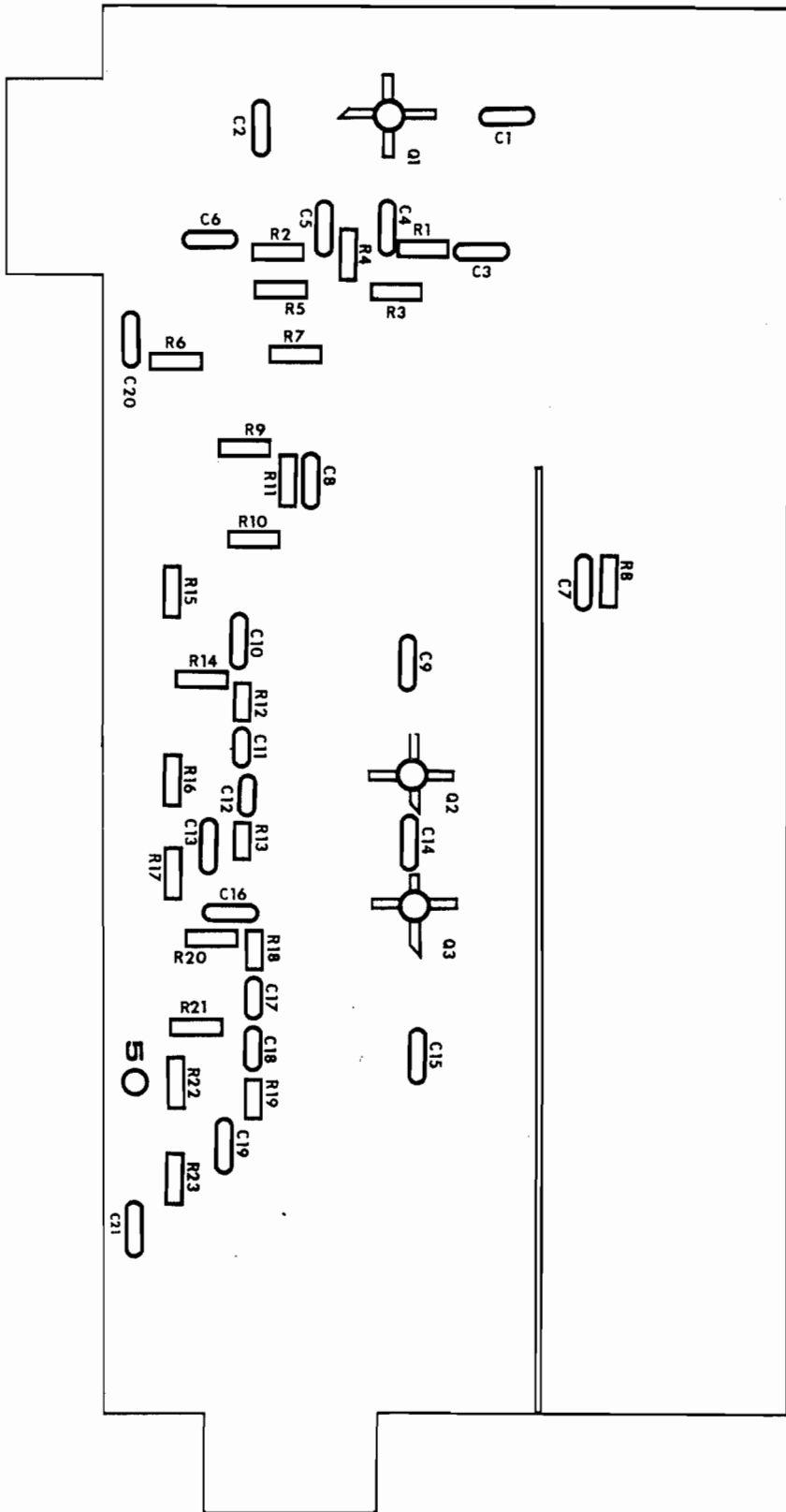
T1	XFMR-TOROIDAL BIFILAR	1579-0055		
----	-----------------------	-----------	--	--

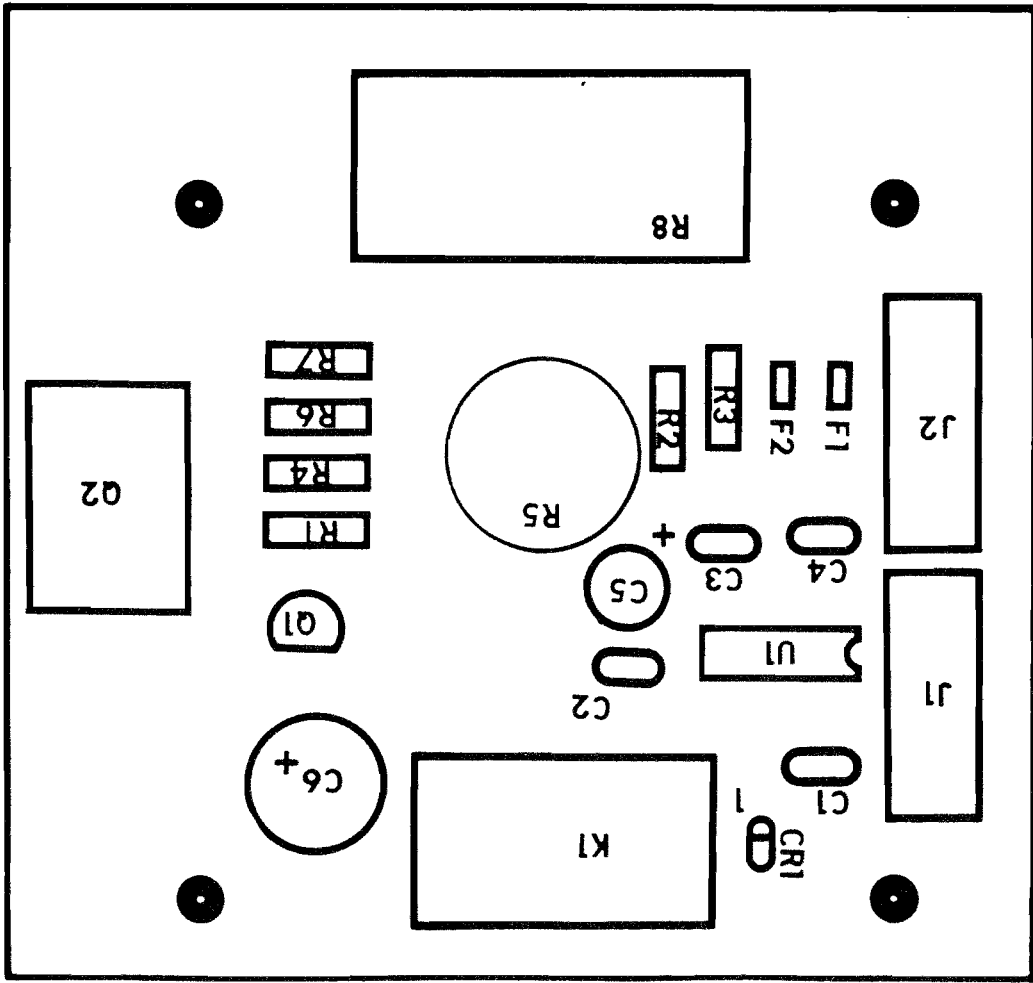




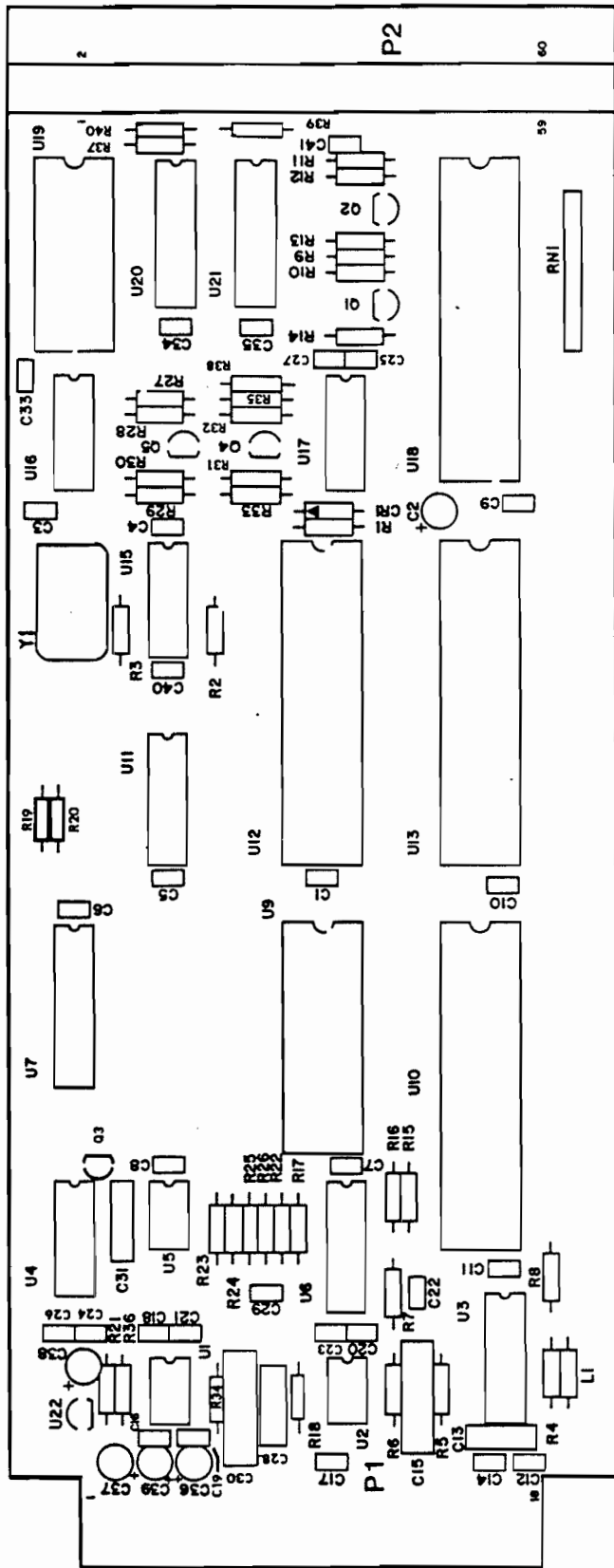








CKT.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R32	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R33	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R34	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R35	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R36	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R37	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R38	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R39	RES-1.1K 5% 1/4W CC	1066-1125	ALLEN BRADLEY	CB1125
R40	RES-3.9K 5% 1/4W CC	1066-3925	ALLEN BRADLEY	CB3925
RESISTOR NETWORK				
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
INTEGRATED CIRCUITS				
U1	IC-1458 DUAL OP AMP	2025-0058	RAYTHEON	RC1458NB
U2	IC-1458 DUAL OP AMP	2025-0058	RAYTHEON	RC1458NB
U3	IC-08 16PIN DIP D/A	2025-0188	SIGNETICS	NE5008
U4	IC-4066B 14PIN DIP Q	2025-0193	MOTOROLA	MC14066BCP
	IC-1458 DUAL OP AMP	2025-0058	RAYTHEON	RC1458NB
U5	IC-2912A 16PIN DIP PCM	2025-0331		
U7	IC-74LS374 20PIN DIP OC	2025-0337		
U8	NOT USED			
U9	IC-ERS PROM 2764/2028	2028-0203		
U10	IC-ERS PROM 8748H/2028	2028-0001		
U11	IC-74LS138 DECODE/DEMUX	2025-0130		
U12	IC-8086AH 40PIN DIP SGL	2025-0338		
U13	IC-8279 40PIN DIP HYBD	2025-0335		
U14	NOT USED			
U15	IC-SN74LS04N HEX INV	2025-0084	TEXAS INSTS	SN74LS04N
U16	IC-SN74LS02N QUAD 2-INPUT	2025-0108	TEXAS INSTS	SN74LS02N
U17	IC-4066B 14PIN DIP QUAD	2025-0193	MOTOROLA	MC14066BCP
U18	IC-8155H 40PIN DIP RAM	2025-0334		
U19	IC-5000B 24PIN DIP MSTR	2025-0332		
U20	IC-5001B 18PIN DIP SLVE	2025-0333		
U21	IC-5001B 18PIN DIP SLVE	2025-0333		
U22	IC-79L05A T092 3-TERM	2025-0305		
OSCILLATOR				
Y1	OSC-6.291456MHZ 0.01%	2001-0016		



P2

60

59

RNI

C9

C2

+

U18

R2

R3

R4

C25

C27

R38

R35

R37

R31

R33

R34

R32

R36

R39

R40

C33

U19

R37

R40

U20

U21

R11

R12

R13

R14

R15

R16

R17

R18

R19

R20

R21

R22

R23

R24

R25

R26

R27

R28

R29

R30

R31

R32

R33

R34

R35

R36

R37

R38

R39

R40

C33

U19

R37

R40

U20

U21

R11

R12

R13

R14

R15

R16

R17

R18

R19

R20

R21

R22

R23

R24

R25

R26

R27

R28

R29

R30

R31

R32

R33

R34

R35

R36

R37

R38

R39

R40

C33

U19

R37

R40

U20

U21

R11

R12

R13

R14

R15

R16

R17

R18

R19

R20

R21

R22

R23

R24

R25

R26

R27

R28

R29

R30

R31

R32

R33

R34

R35

R36

R37

R38

R39

R40

C33

U19

R37

R40

U20

U21

R11

R12

R13

R14

R15

R16

R17

R18

R19

R20

R21

R22

R23

R24

R25

R26

R27

R28

R29

R30

R31

R32

R33

R34

R35

R36

R37

R38

R39

R40

C33

U19

R37

R40

U20

U21

R11

R12

R13

R14

R15

R16

R17

R18

R19

R20

R21

R22

R23

R24

R25

R26

R27

R28

R29

R30

R31

R32

R33

R34

R35

R36

R37

R38

R39

R40

C33

U19

R37

R40

U20

U21

R11

R12

R13

R14

R15

R16

R17

R18

R19

R20

R21

R22

R23

R24

R25

R26

R27

R28

R29

R30

R31

R32

R33

R34

R35

R36

R37

R38

R39

R40

C33

U19

R37

R40

U20

U21

R11

R12

R13

R14

R15

R16

R17

R18

R19

R20

R21

R22

R23

R24

R25

R26

R27

R28

R29

R30

R31

R32

R33

R34

R35

R36

R37

R38

R39

R40

C33

U19

R37

R40

U20

U21

R11

R12

R13

R14

R15

R16

R17

R18

R19

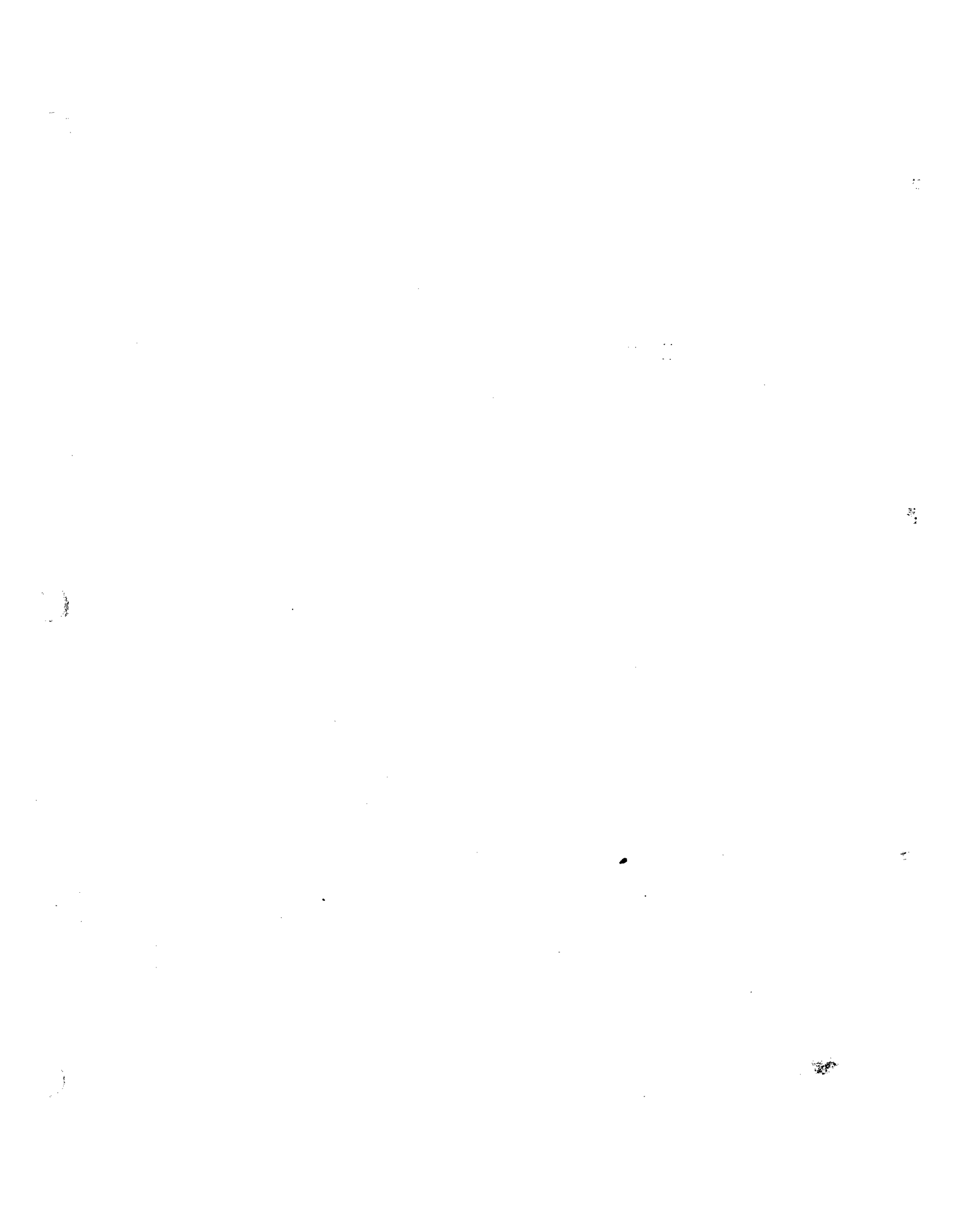
R20

R21

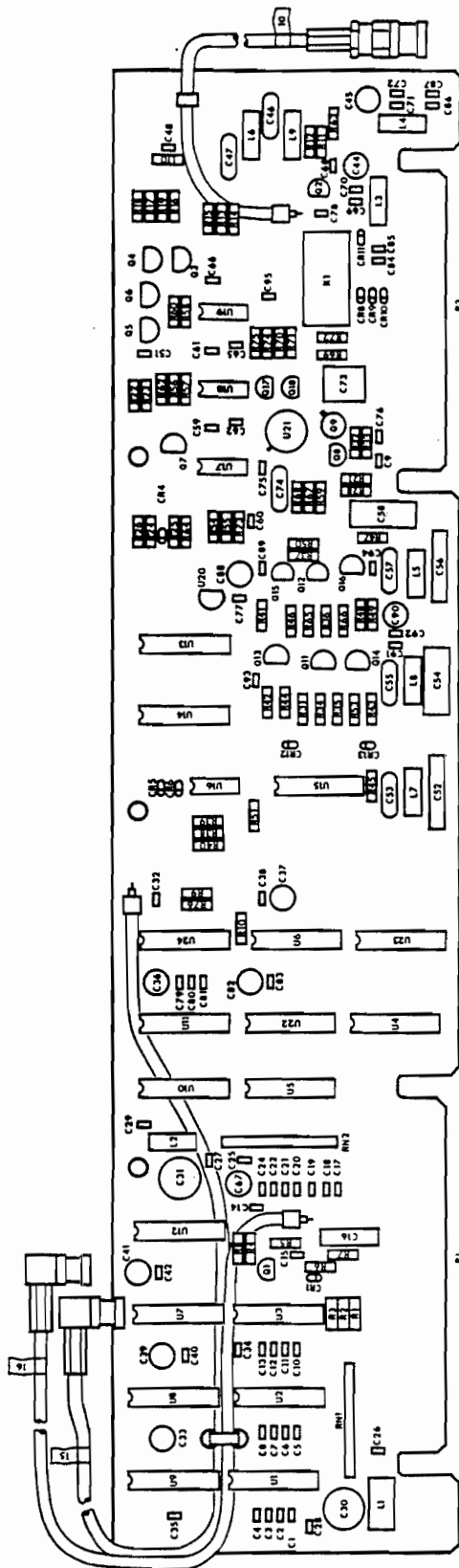
R22

R23

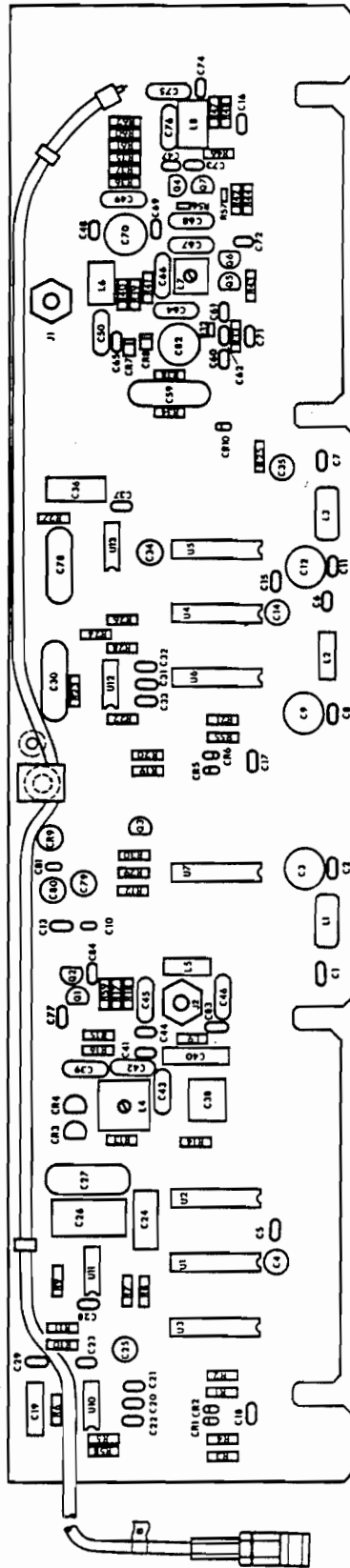
R24



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
DIODES				
CR1	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR2	NOT USED			
CR3	NOT USED			
CR4	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR5	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR6	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR7	NOT USED			
CR8	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR9	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR10	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR11	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR12	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
CR13	DIO-1N3064 SI SW D07/35	1281-0013	FAIRCHILD	IN3064
RELAY				
K1	RLY-DPDT 9VOC COIL 2C	1313-0033	AROMAT	DS2E-M-DC9N
INDUCTORS				
L1	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L2	CH-3.3UH 10% RF MLD AXL	1585-0037	DELEVAN	1537-24
L3	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L4	CH-100UH 5% RF MLD AXL	1585-0017	DELEVAN	1537-76
L5	CH-33UH 5% RF MLD AXL	1585-0022	DELEVAN	1537-52
L6	CH-33UH 5% RF MLD AXL	1585-0022	DELEVAN	1537-52
L7	CH-47UH 5% RF MLD AXL	1585-0010	DELEVAN	1537-60
L8	CH-43UH 5% RF MLD AXL	1585-0060		
L9	CH-33UH 5% RF MLD AXL	1585-0022	DELEVAN	1537-52
L10	CH-100UH 10% RF LMD AXL	1585-0054	DELEVAN	1025-68
TRANSISTORS				
Q1	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q2	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q3	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q4	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q5	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q6	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q7	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q8	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
Q9	XSTR-2N4393 SI T018	1272-0055	TELEDYNE	2N4393
Q10	NOT USED			
Q11	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906
2	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q13	XSTR-2N3906 PNP SI T092	1272-0037	MOTOROLA	2N3906



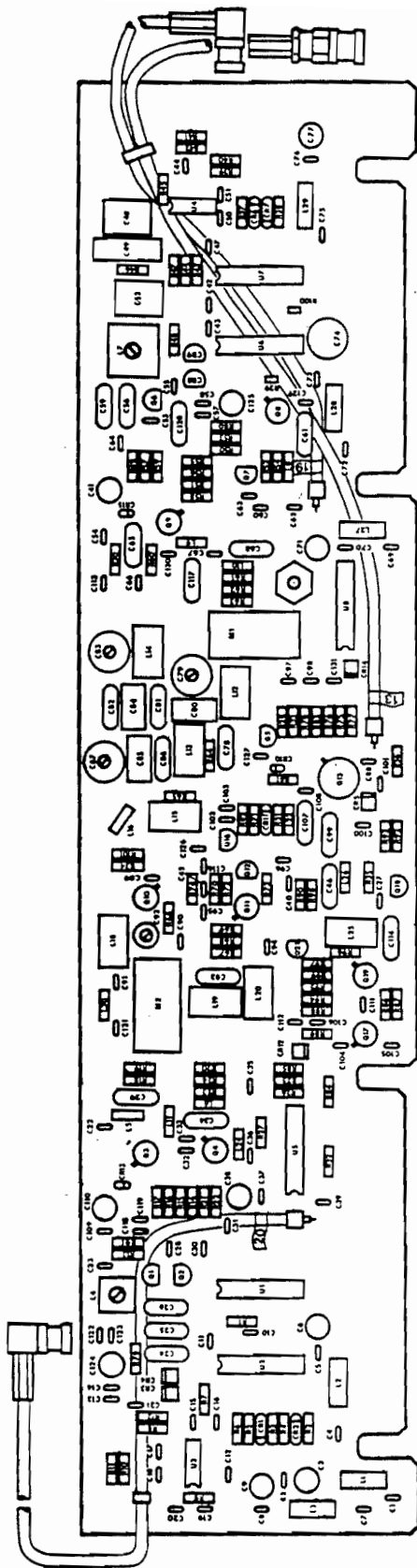
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR.NO.
CONNECTORS				
J1	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000
J2	CONN-SMB 50 OHM STR JK	2536-0071	SEAELECTRO	51-051-0000
INDUCTORS				
L1	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L2	CH-3.3UF 10% RF MLD	1585-0037	DELEVAN	1537-24
L3	CH-2 1/2 TURN WIDEBAND	1586-0003	FERROXCUBE	VK20020/4B
L4	COIL-VAR IF L45-6/28GA	1596-0318	CUSHMAN	
L5	CH-1.5UH 10% RF MLD	1585-0038		
L6	CH-79NH 22GA/6.5T BLU	1585-1001		
L7	COIL-VAR IF .30X.30SQ	1596-3502	CUSHMAN	
L8	CH-79NH 22GA/6.5T BLU	1585-1001		
L9	CH-3.3UH 10% RF MLD	1585-0080		
TRANSISTORS				
Q1	XSTR-J310 SI T092 J-FET	1272-0130		
Q2	XSTR-J310 SI T092 J-FET	1272-0130		
Q3	XSTR-2N3904 NPN SI T092	1272-0032	MOTOROLA	2N3904
Q4	XSTR-J310 SI T092 J-FET	1272-0130		
Q5	XSTR-J310 SI T092 J-FET	1272-0130		
Q6	XSTR-J310 SI T092 J-FET	1272-0130		
Q7	XSTR-J310 SI T092 J-FET	1272-0130		
RESISTORS				
R1	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R2	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R3	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R4	RES-4.99K 1% 100PPM	1075-0095	CAT. LIST	55-100
R5	RES-49.9K 1% 100PPM	1075-0230	CAT. LIST	55-100
R6	RES-75K 1% 100PPM	1075-0135	CAT. LIST	55-100
R7	RES-11.3K 1% 100PPM	1075-0034	CAT. LIST	55-100
R8	RES-24.3K 1% 100PPM	1075-0097	CAT. LIST	55-100
R9	RES-61.9K 1% 100PPM	1075-0018	CAT. LIST	55-100
R10	RES-2.49K 1% 100PPM	1075 0027	CAT. LIST	55-100
R11	RES-7.5K 1% 100PPM	1075-0158	CAT. LIST	55-100
R12	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R13	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R14	RES-10K 1% 25PPM	1074-1029	CAT. LIST	55-025
R15	RES-49.9 OHM 1% 150PPM	1074-1038	CAT. LIST	55-100
R16	RES-1.5K 1% 100PPM	1075-0039	CAT. LIST	55-100
R17	RES-680 OHM 5% 1/4W CC	1066-6815	ALLEN BRADLEY	CB6815
R18	RES-1.2K 5% 1/4W CC	1066-1225	ALLEN BRADLEY	CB1225
R19	RES-26.1K 1% 100PPM	1075-0182	CAT. LIST	55-100
R20	RES-26.1K 1% 100PPM	1075-0182	CAT. LIST	55-100



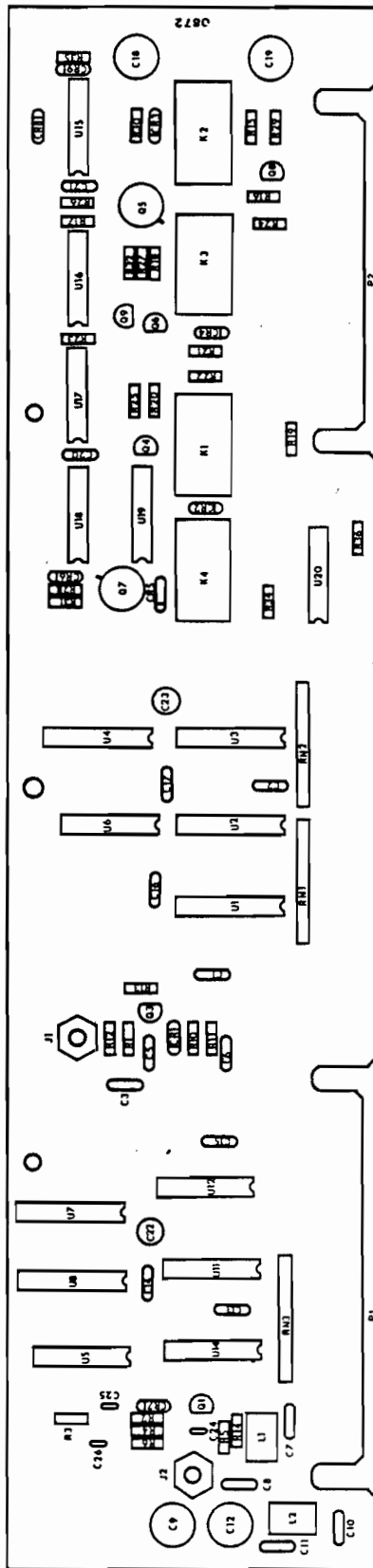
CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
C92	CAP-2.8-10PF 250V V ADJ	1001-0021	SPRAGUE	GRU10000
C93	CAP-300PF 5% 500V DIP	1002-0059	ELMenco	DM15-F-301J
C94	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C95	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C96	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C97	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C98	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C99	CAP-62PF 5% 500V DIP	1002-0057	ELMenco	DM15-F-620J
C100	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C101	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C102	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C103	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C104	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C105	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C106	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C107	CAP-10PF 5% 500V DIP	1002-0016	ELMenco	DM15-C-100J
C108	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C109	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C110	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C111	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C112	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C113	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C114	CAP-18PF 5% 500V DIP	1002-0014	ELMenco	DM15-C-180J
C115	NOT USED			
16	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C117	CAP-160PF 5% 500V DIP	1002-0091	ELMenco	DM15-F-161J
C118	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C119	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C120	NOT USED			
C121	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C122	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C123	CAP-1000PF 10% 100V	1005-0081	TUSONIX	8111-100-X7RO-102K
C124	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C125	CAP-10UF 20% 35V RDL	1013-0044	NICHICON	35UKB10M
C126	CAP-.1UF 20% 50V MINTR	1005-0097	ERIE	8121-050-651-104M
C127	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M
C128	CAP-75PF 5% 500V DIP	1002-0025	ELMenco	DM15-F-750J
C129	CAP-15PF 10% 100V NPO	1005-0123	TUSONIX	8111-100-COG0-150K
C130	CAP-15PF 10% 100V NPO	1005-0123	TUSONIX	8111-100-COG0-150K
C131	CAP-.01UF 20% 100V Y5P	1005-0100	ERIE	8121-100-651-103M

DIODES

CR1	DIO-1N3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035)
CR2	DIO-1N3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035)
CR3	DIO-MV209 SI VARICAP	1281-0064	MOTOROLA	MV209
CR4	DIO-MV209 SI VARICAP	1281-0064	MOTOROLA	MV209
CR5	DIO-MPN3401 SI PIN SW	1281-0050	MOTOROLA	MPN3401
CR6	DIO-1N3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035)
C	DIO-1N3064 SI SW D035	1281-0105	FAIRCHILD	IN3064 (D035)



CKT. REF.	DESCRIPTION	CE STOCK NO.	MANUFACTURER	MFR. NO.
R24	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R25	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R26	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R27	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R28	RES-4.3K 5% 1/4W CC	1066-4325	ALLEN BRADLEY	CB4325
R29	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R30	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R31	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R32	RES-20K 5% 1/4W CC	1066-2035	ALLEN BRADLEY	CB2035
R33	NOT USED			
R34	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
R35	RES-100K 5% 1/4W CC	1066-1045	ALLEN BRADLEY	CB1045
R36	RES-10K 5% 1/4W CC	1066-1035	ALLEN BRADLEY	CB1035
RESISTOR NETWORKS				
RN1	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN2	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
RN3	RNET-9/10K 2% 100PPM	1115-0005	DALE	MSP10C01103G
INTEGRATED CIRCUITS				
J1	IC-74LS160A 16PIN DECADE	2025-0262	TEXAS INSTS	SN74LS160A
U2	IC-74LS160A 16PIN DECADE	2025-0262	TEXAS INSTS	SN74LS160A
U3	IC-74LS160A 16PIN DECADE	2025-0262	TEXAS INSTS	SN74LS160A
U4	IC-74LS160A 16PIN DECADE	2025-0262	TEXAS INSTS	SN74LS160A
U5	IC-SN74LS32N QUAD 2 INPUT	2025-0085	TEXAS INSTS	SN74LS32N
U6	IC-74LS20 14PIN DIP	2025-0216	NATIONAL	DM74LS20N
U7	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U8	IC-74LS160A 16PIN DIP	2025-0262	TEXAS INSTS	SN74LS160A
U9	NOT USED			
U10	NOT USED			
U11	IC-4561B 14PIN DIP 9's	2025-0324		
U12	IC-4081B 14PIN DIP Q	2025-0244		
U13	NOT USED			
U14	IC-SN74LS00N TTL NAND	2025-0114	TEXAS INSTS	SN74LS00N
U15	IC-4001 14PIN DIP QUAD	2025-0202	MOTOROLA	MC14001BCP
U16	IC-4011 14PIN DIP QUAD	2025-0203	MOTOROLA	MC14011BCP
U17	IC-4073B 14PIN DIP TPL	2025-0247		
U18	IC-4071B 14PIN DIP QUAD	2025-0210		
U19	IC-4001 14PIN DIP QUAD	2025-0202	MOTOROLA	MC14001BCP
U20	IC-4011 14PIN DIP QUAD	2025-0203	MOTOROLA	MC14011BCP



1 1

