HARRIS

STX-1B

AM Stereo Exciter

- **Generates the C-QUAM® AM Stereo signal**
- **Built-in audio peak limiter to maintain legal stereo modulation levels**
- **Separation corrector optimizes performance into the antenna system**
- **Separates selectable day and night system optimization controls for maximum performance into day or night antenna systems**
- **Standard left/right or matrix audio inputs**
- **Easy transmitter interface included**

C-QUAM® is a registered trademark of Motorola, Inc.

The Harris STX-1B exciter generates the C-QUAM® AM stereo signal to convert AM transmitters to stereo service. The Harris STX-1B includes several features which optimize stereo performance.

TRANSFORMERLESS AUDIO INPUT AND PEAK LIMITER

The STX-1B incorporates a solid-state transformerless input stage providing excellent transient response for faithful transmission of today's dynamic program material. A stereo audio peak limiter maintains Left, Right, (L+R), and (L−R) modulation levels within legal limits.

This built-in limiter includes automatic 125% asymmetrical switching to assure maximum modulation levels. For station operations with external audio processing, the entire limiter may be bypassed.

PATENTED SEPARATION CORRECTOR

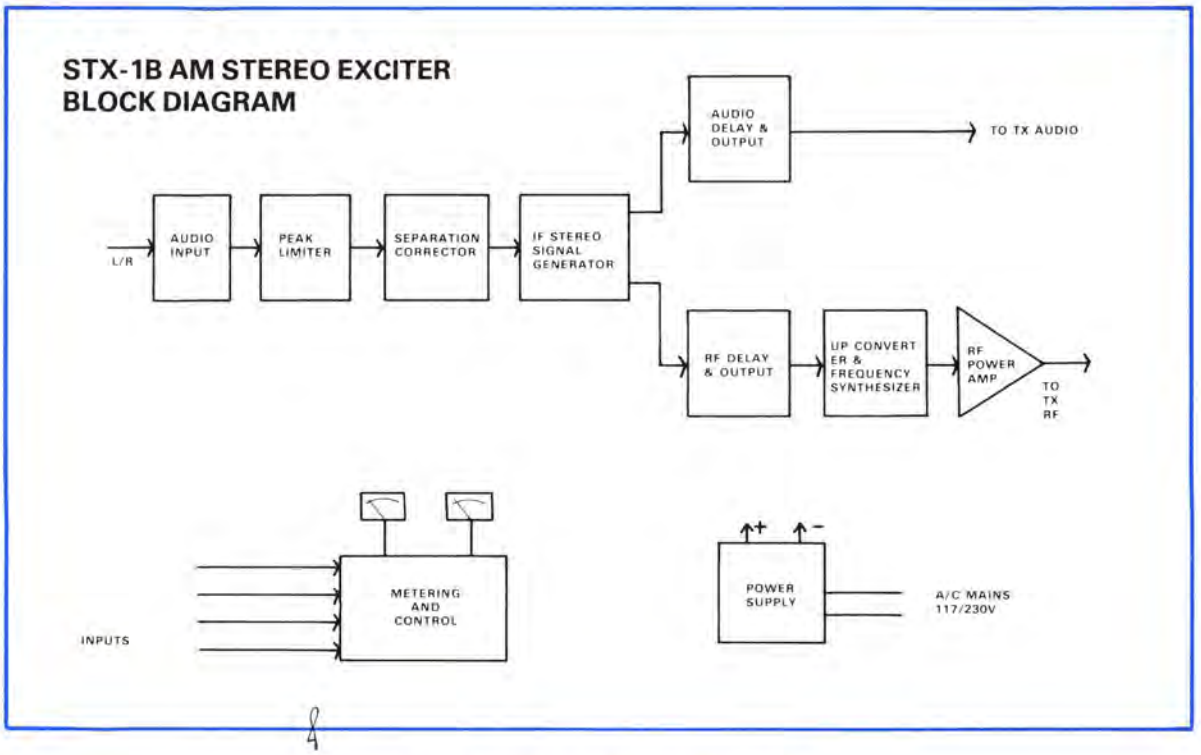
Older AM transmitters and narrow band systems can degrade stereo separation. The Harris STX-1B AM Stereo Exciter is designed with a patented correction circuit to optimize separation.

ADDITIONAL OPERATOR BENEFITS

A day and night operational mode is provided for stations switching power and/or antenna patterns. Independent adjustments are automatically selected for the two modes. Day/night and stereo/mono modes are selected locally or via remote control terminals.

A front panel peak reading modulation multimeter accurately monitors several selectable signals for easy setup and operation. These signals also appear on a front panel BNC test jack. A convenient multimeter allows quick AC, DC and RF level checks.

STX-1B AM STEREO EXCITER BLOCK DIAGRAM



STX-1B SPECIFICATIONS

FREQUENCY RANGE:
Synthesized operation from 535 kHz to 1710 kHz in 1 kHz increments.

FREQUENCY STABILITY:
±10 Hz or less over operating temperature range.

RF OUTPUT:
Adjustable from 0 to 4.0 watts into 50 ohms (0 to 14 volts RMS).

RF LOAD IMPEDANCE:
50 ohms at rated power (BNC output jack).

OPERATING TEMPERATURE RANGE:
0°C to 50°C (usable from −20°C to 50°C).

OPERATING ALTITUDE RANGE:
Up to 13,000 feet (4,000 meters).

AC POWER REQUIREMENTS:
100 to 130 volts or 200 to 260 volts, 50 or 60 Hz AC (125 watts maximum).

AUDIO INPUT IMPEDANCE:
Left and Right channels 600 ohms resistive, balanced, transformerless.

AUDIO INPUT LEVELS:
+10 dBm (±1 dB) for 100% envelope modulation at 400 Hz (Left and Right channels). Peak limiter gain begins at +0 dBm input. Switchable to +10 dBm or −10 dBm.

AUDIO DRIVE TO TRANSMITTER:
Adjustable to +16 dBm into 600 ohm balanced input.

MODULATION CAPABILITY:

LEFT OR RIGHT CHANNEL:
±80%

LEFT + RIGHT (L + R):
+135%/−100%

LEFT − RIGHT (L − R):
±100%

The following audio specifications represent typical performance that can be expected from the STX-1B exciter and a modern AM transmitter measured by a C-QUAM modulation monitor. Actual system performance will vary due to transmitter and antenna system performance.

SYSTEM FREQUENCY RESPONSE:
+0, −3 dB, 50 Hz to 12.5 kHz under modulation conditions of L+R, L, R at 25%, 50% and 75% modulation, also L+R to 95%.

The response of the system is limited to the adjustment of the internal left and right channel input filters which may be adjusted to optimize overall transmitter performance.

SYSTEM HARMONIC DISTORTION:

L+R (Mono): Less than 1% THD, 50 Hz to 12.5 kHz at 25%, 50%, 75% and 95% envelope modulation measured on an envelope detector.

Left Or Right Only (Stereo): Less than 3.0% THD, 50 Hz to 7500 Hz, 25%, 50%, 75% envelope modulation.

NOTE: The above harmonic distortion measurements made within a 20 Hz to 20 kHz bandwidth.

SYSTEM STEREO SEPARATION:
30 dB or better, left or right channel modulation at 25%, 50%, 75% modulation, from 50 Hz to 7500 Hz.

SYSTEM CROSSTALK:
30 dB or better (main into subchannel) or (subchannel into main) 50 Hz to 7500 Hz.

NOISE:
65 dB below 95% modulation of L+R main channel.
50 dB below 75% modulation left only or right only.

REAR CHASSIS CONNECTORS:
Barrier strip and BNC jacks.

SIZE:
10½"H × 19"W × 13.38"D.

WEIGHT:
30 lbs.

HARRIS MAINTAINS A CONTINUOUS PROGRAM OF PRODUCT IMPROVEMENT, AND THEREFORE RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

ORDERING INFORMATION

STX-1B AM Stereo Exciter **994-8730-008**

HARRIS CORPORATION BROADCAST TRANSMISSION DIVISION
P. O. BOX 4290, QUINCY, ILLINOIS 62305-4290 U.S.A. 217/222-8200

HARRIS

SERVICE BULLETIN

MAINTENANCE AND MODIFICATION DATA

Broadcast Group

Bulletin No. AM-205-MJL

Equipment: STX-1A AM Stereo Exciter

Date July 1985

Purpose:

Convert exciter from STX-1A to STX-1B C-Quam AM Stereo system.

Background:

Harris Corporation and Motorola, Inc. announced a licensing agreement whereby Harris Corporation's Broadcast Transmission Division will manufacture and market AM stereo exciters and monitors using Motorola's C-QUAM® AM Stereo System on a non-exclusive basis.

Tools and Test Equipment Required:

Small hand tools, low wattage soldering iron, audio generator, audio distortion analyzer, scope and a C-Quam stereo demodulator.

Time Required:

Approximately four hours for the conversion and exciter realignment. A full proof of performance is required after the conversion.

Procedure:

Audio Input Board - Part Number 992-6077-001

NOTE: If the unit is currently being operated in conjunction with a matrixed L+R, L-R audio processor, this part of the modification is already done. The modification consists of removing the All Pass Filter from the L+R channel and the 200Hz high pass filter from the L-R channel.

CAUTION: Always turn off the exciter before removing or replacing any printed circuit board.

1) Remove R18, R24, R48, C9, C21 and U5. These components will not be reinstalled.

2) Remove dip resistor R17, bend pins 1 and 4 away from the body and replace R17 in the socket.

Audio Input Board - Continued:

3) Remove U2, bend pin 7 away from the body and replace U2 the socket.

4) Solder jumper wire from U2-pin 14 to the circuit formerly connected to U2-pin 7 using PC pads for C9 (removed) and R24 (removed). (Bottom hole of C9 to bottom hole of R24.) Refer to Figure A and Figure 8-1.

5) Solder jumper wire from U4-pin 14 to U5 socket pin 1 using PC pads for C21 (removed) and R48 (removed). (Bottom hole of C21 to bottom hole of R48.) Refer to Figure A and Figure 8-1.

Quadrature Board - Part Number 992-6078-004

1) Remove the following components:

U7, U11, U12, U13, U28, U30, U31, U32, U33, U34, R21, R73, R84, R87, R92, C24, P2 (at J2), P3 (at J3) and P5. These components will not be reinstalled.

2) Solder jumper from center post of J3 to the center post of J4. Be careful not to fill the plug of J4. The preferred method is to wrap the jumper around the outside of the post and solder it.

3) Solder jumper from P5-46 (edge connector) feedthrough pad to C11 feedthrough pad. Refer to Figure B and Figure 8-2B (two sheets).

4) Insert jumper wire from pin 2 to pin 15 of XU32 socket.

5) Insert P1 into the upper two posts of J1. Insert P4 into the lower two posts of J4. Refer to Fig B.

This completes the modification to the STX-1A Exciter. Record the exciter serial number on the metal identifier plate (supplied with this Bulletin) and attach it to the back of the exciter.

Retuning the System:

1) Follow the instructions for "Tuning the Transmitter for Best Stereo Performance" and "Interfacing the STX-1 to the Transmitter" found in Appendix A of the technical manual.

Retuning the System - Continued:

NOTE: All references to applying audio modulation assume that matrix is being done on the audio input card in the STX-1 exciter. It is recommended that for alignment the audio tones be applied directly to the exciter audio input terminals with any processing equipment disconnected. If the audio input card has been modified for a matrixed audio processor, note that the left audio input is now the L+R input and the right audio input is the L-R input.

2) Check the Peak Limiter/Separation Corrector board for the following:

a) The limiter bypass switch (S2) should be switched to the IN position.

b) The separation corrector jumpers (J5) and (J6) in their upper position.

c) The negative modulation limit control (R211) set fully counterclockwise (CCW).

d) The recovery rate adjustment (R44) set mid-range.

3) Check the setting of the carrier adjust control (R14) located on the quadrature generator board. This should be done by monitoring the depth of modulation of the IF carrier on an oscilloscope. This signal can be viewed from the IF out BNC connector at the back of the exciter or the bottom of L2 on the quadrature board with a scope probe.

Switch the stereo exciter to mono and apply a 1 KHz audio signal to the left input of the exciter. The amplitude of this signal must be large enough (approximately +10dBM) to cause 5 to 10dB of gain reduction as read on the exciter multimeter with the function switch in the LIM GR position .

NOTE: R211 on the Peak Limiter card must be fully counter-clockwise (CCW) when the following adjustment is made.

Modulation of the IF carrier should be 100 percent displayed on the oscilloscope. Ensure that the IF is not being over-modulated on the negative peaks. The carrier adjust (R14) can be adjusted to provide 98 to 100 percent modulation of the IF. Remove the audio signal.

Retuning the System - Continued:

4) Preset the potentiometers on the audio output card as follows:

   a) Set the audio level controls (R54/R55) fully clockwise.

   b) Set all the other potentiometers to mid-range. These are 18 turn potentiometers with no mechanical stops. To approximate the mid-range setting, turn each control at least 18 full turns in one direction, then 9 turns in the opposite direction.

   NOTE: The controls on the audio output card are duplicated to provide adjustments for day and night patterns. The six potentiometers on the leading edge of the card are used when the exciter is switched for the day pattern. The other six potentiometers are for night pattern. Two rotary switches (S1 for day; S2 for night) are used for coarse audio delay.

5) Apply a 1 KHz audio signal to the left input of the exciter. The amplitude of this signal should be large enough to cause 5 to 10dB of gain reduction as before.

   Select the pattern to be aligned (day or night). The exciter should still be in mono. Turn the transmitter on and monitor the modulation level on a mono monitor or an oscilloscope.

   Set the audio level control (R54 day/R55 night) for 100 percent transmitter modulation. Switch the exciter to stereo and switch the pilot OFF. (The pilot should be OFF for alignment and whenever making performance measurements.) Ensure the stereo monitor is in the stereo position. With the stereo monitor connected to monitor the transmitter output, left channel modulation should be indicated with some amount of separation. If the right channel modulation appears higher than the left or very little separation is seen; the coarse delay rotary switch (S1 day/S2 night) may be adjusted to provide the proper indication.

   If this adjustment does not provide good results, the polarity of the audio lead between the exciter (AOT terminals) and the transmitter audio input may have to be reversed.

   NOTE: The Harris AM stereo monitor when modified for C-QUAM can no longer be used to monitor the IF from the exciter.

Retuning the System - Continued:

Measure the 1 KHz distortion at the left channel output of the stereo monitor. Null the distortion with the audio level control (R54 or R55). The control should require only slight adjustment.

Change the audio signal frequency to 2.5KHz. Ensure the amplitude is sufficient to cause 5 to 10dB of gain reduction.

Adjust the coarse delay rotary switch (S1 day/S2 night) for minimum distortion from the left channel output of the stereo monitor. Adjust the crossover control (R30 or R31) for minimum left channel distortion. Check the right channel distortion at 2.5KHz. Balance the distortion in the left and right channels with the crossover control (R30 or R31).

Change the audio signal frequency to 10 KHz. Modulate the left channel with an amplitude sufficient enough to cause 5 to 10dB of gain reduction. Measure the distortion again from the left channel output of the stereo monitor. Adjust the coarse delay rotary switch (S1 or S2) for lowest distortion.

In the following order adjust the high frequency equalization (R33 or R34), group delay (R28 or R29) and the fine delay (R8 or R9) potentiometers for a null in 10 KHz distortion.

Change the audio frequency back to 1 KHz and adjust the audio level control (R54 or R55) for minimum distortion.
Change the audio frequency to 2.5KHz, and check the crossover control for a balance in distortion in the left and right channels.

Change the audio frequency to 10KHz. Modulate the left channel with sufficient level to cause 5 to 10dB of gain reduction. Ensure that the rotary switch (S1 or S2), high frequency equalization (R33 or R34), group delay (R28 or R29), and fine delay (R8 or R9) are adjusted for minimum distortion (in that order).

Check the distortion in the left and right channels at 5 KHz and 10 kHz. Monitor the highest of these readings. Determine which of these controls (high frequency equalization or group delay) will provide the most improvement in distortion with only one turn of the control. Use that control to lower distortion.

Retuning the System - Continued:

A compromise must be reached between the four distortion readings. As one reading goes down, another may come up.

The low frequency equalization may now be adjusted for best distortion at 50 or 100 Hz.

NOTE: The audio level control should be used only for frequencies between 300HZ to 1KHz. The crossover control should be used around 2.5KHz. The coarse delay, fine delay, high frequency equalization, group delay and crossover should be used for frequencies above 1 KHz. The low frequency equalization controls the very low frequencies (50 to 100 Hz).

6) Check the stereo separation. If the separation is not acceptable, the controls on the audio board will effect separation at the sacrifice of some distorton. The Separation Corrector can improve separation with little effect on distortion.

To use the Separation Corrector move the jumpers (J5 and J6) on the Peak Limiter/Separation Corrector card to the lower position.

The 12 potentiometers at the lower front edge of the Peak Limit card will be adjusted to improve separation. The front six potentiometers are used for the day pattern, the back six potentiometers are for the night pattern.

The top three potentiometers on the front row will be used to adjust separation when modulating the right channel. The bottom three will adjust separation when the left channel is modulated.

To align the separation corrector, choose two audio frequencies. One should be a high frequency and the other a low frequency. As an example 7500 Hz and 750 Hz work well.

With the exciter switched to the day mode, modulate the right channel with the low frequency. Adjust the L-Day LF control (R145) for best separation.

Change to the high audio frequency. Adjust the L-Day SB control (R134) and the L-Day HF control(R146) for best separation.

Retuning the System - Continued:

Repeat the adjustments for the low, SB and high frequency controls several times as they interact with one another.

Check the separation at other frequencies modulating the right channel. Adjustment of the three right channel controls can be made to improve the separation at other frequencies.

Make the same adjustments for left channel modulation using the lower three controls on the front row. The six controls behind these are arranged in the same groups of three and should be used when the exciter is switched to night pattern.

The controls on the audio output board may be adjusted slightly to improve separation, but it should be remembered that they will also affect distortion.

If operation with the separation corrector proves to be unsatisfactory, it should be bypassed by moving the jumpers J5 and J6 on the Peak Limiter/Separation Corrector card to their upper position.

7) The audio response of the system is a result of alignment of the Audio Output card and the Separation Corrector if used.

The alignment of these controls adjusts the amplitude and delay of the main channel audio to match the RF information passing through the RF stages of the transmitter and antenna system.

There are problems that can result in the poor audio frequency response with any AM stereo system. Poor mono response of the transmitter alone, poor neutralization of any RF stages (a cause of incidental phase modulation), RF tuned circuits that are to narrowband and antenna systems which are to narrowband.

These problems should be solved as opposed to adjusting the controls on the Audio Output card for response.

Should you have any questions relative to the above material, please direct your inquiries to:

Harris Corporation
Radio Field Service
P.O. Box 4290
Quincy, IL 62305-4290

lkh:0217Y
Attachments: Pages 8 thru 13, 2 Proof Sheets and 7 Schematics.

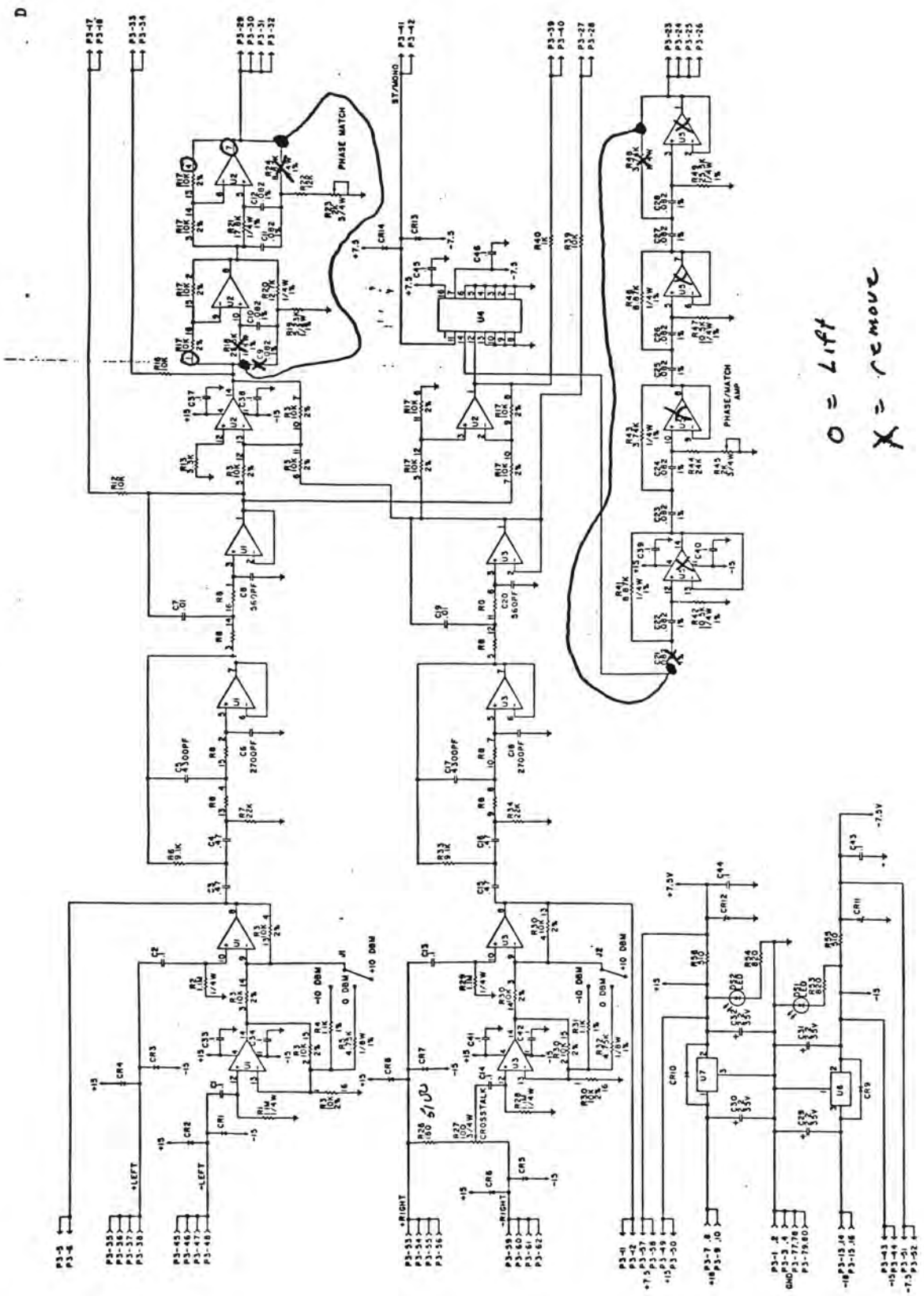


FIGURE 8-1. SCHEMATIC
AUDIO INPUT PC BOARD
839 6202 012

8-3/8-4

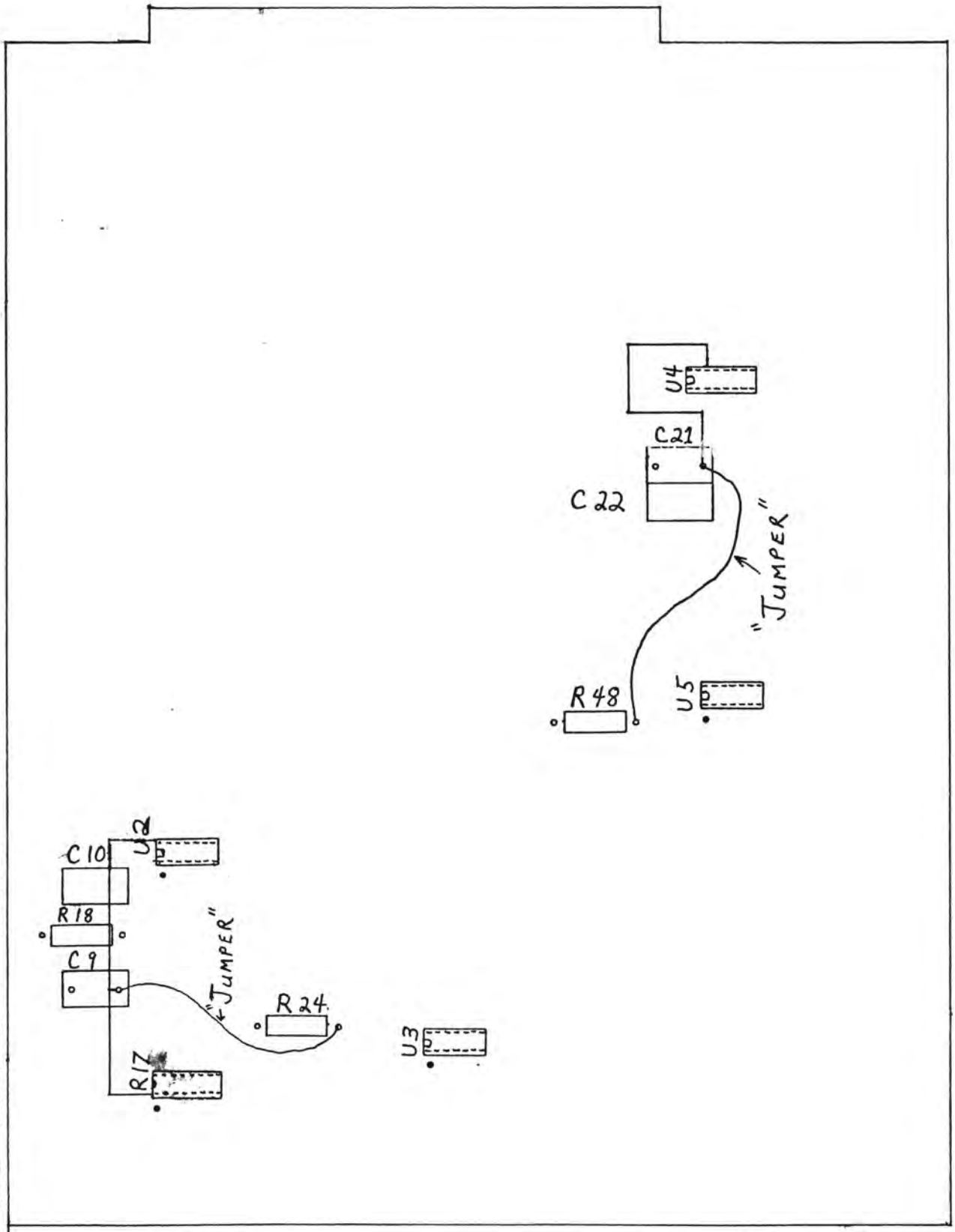


Fig. A

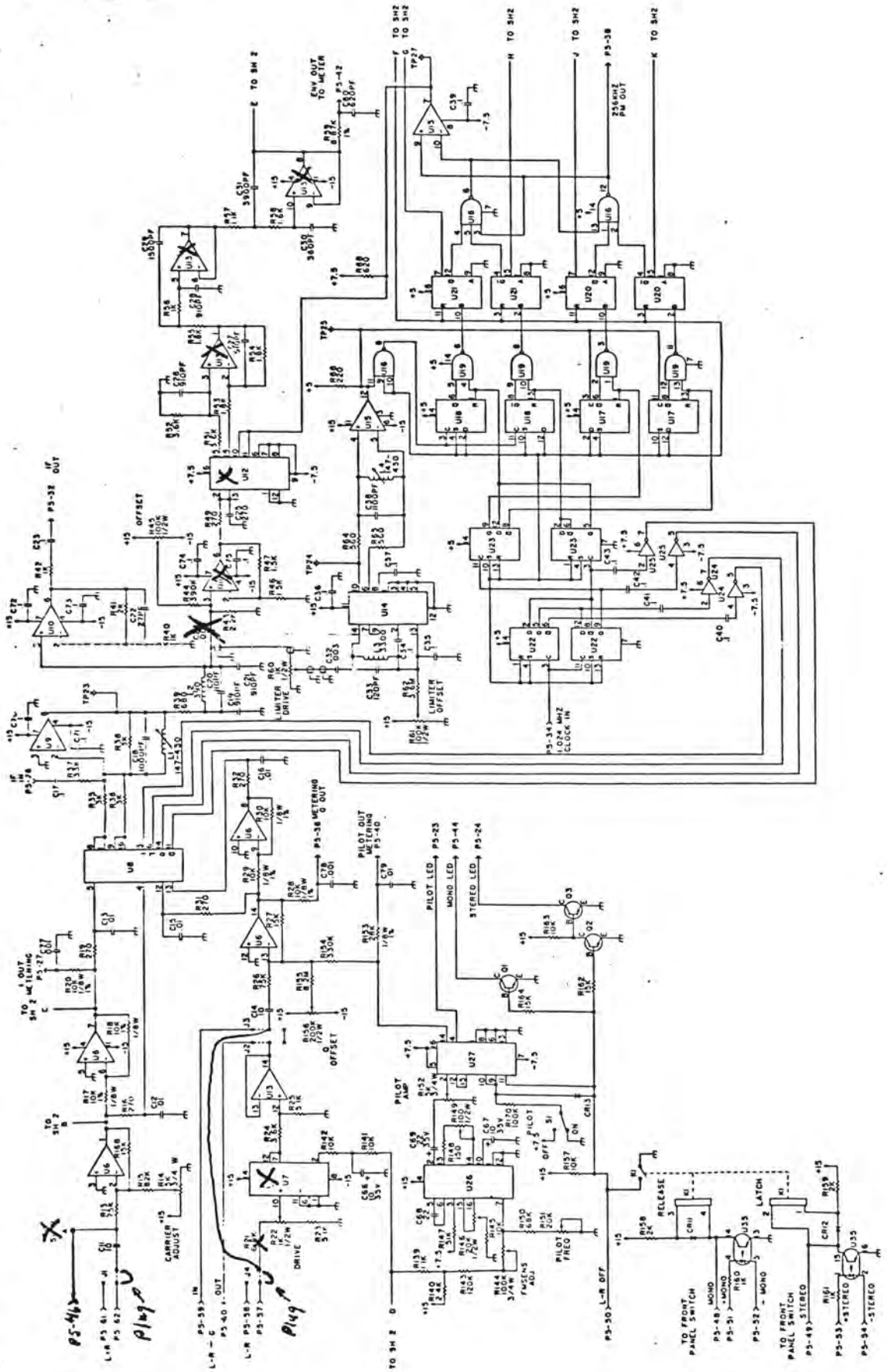


FIGURE 8-2B. SCHEMATIC
QUADRATURE GENERATOR PC BOARD
(992 6078 004)
(SHEET 1 OF 2)
839 6202 044

8-9/8-10

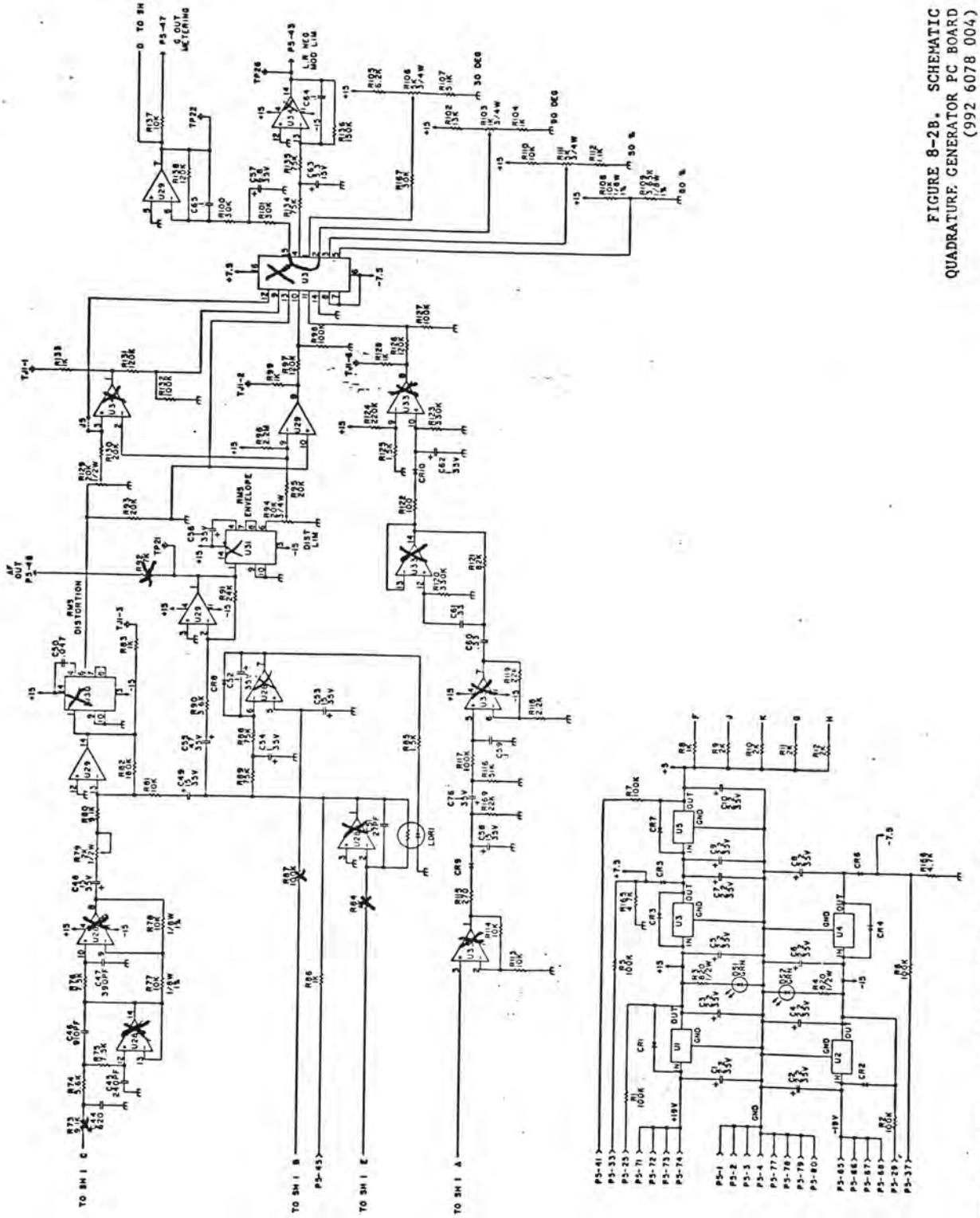


FIGURE 8-2B. SCHEMATIC
QUADRATURE GENERATOR PC BOARD
(992 6078 004)
(SHEET 2 OF 2)
839 6202 044

8-11/8-12

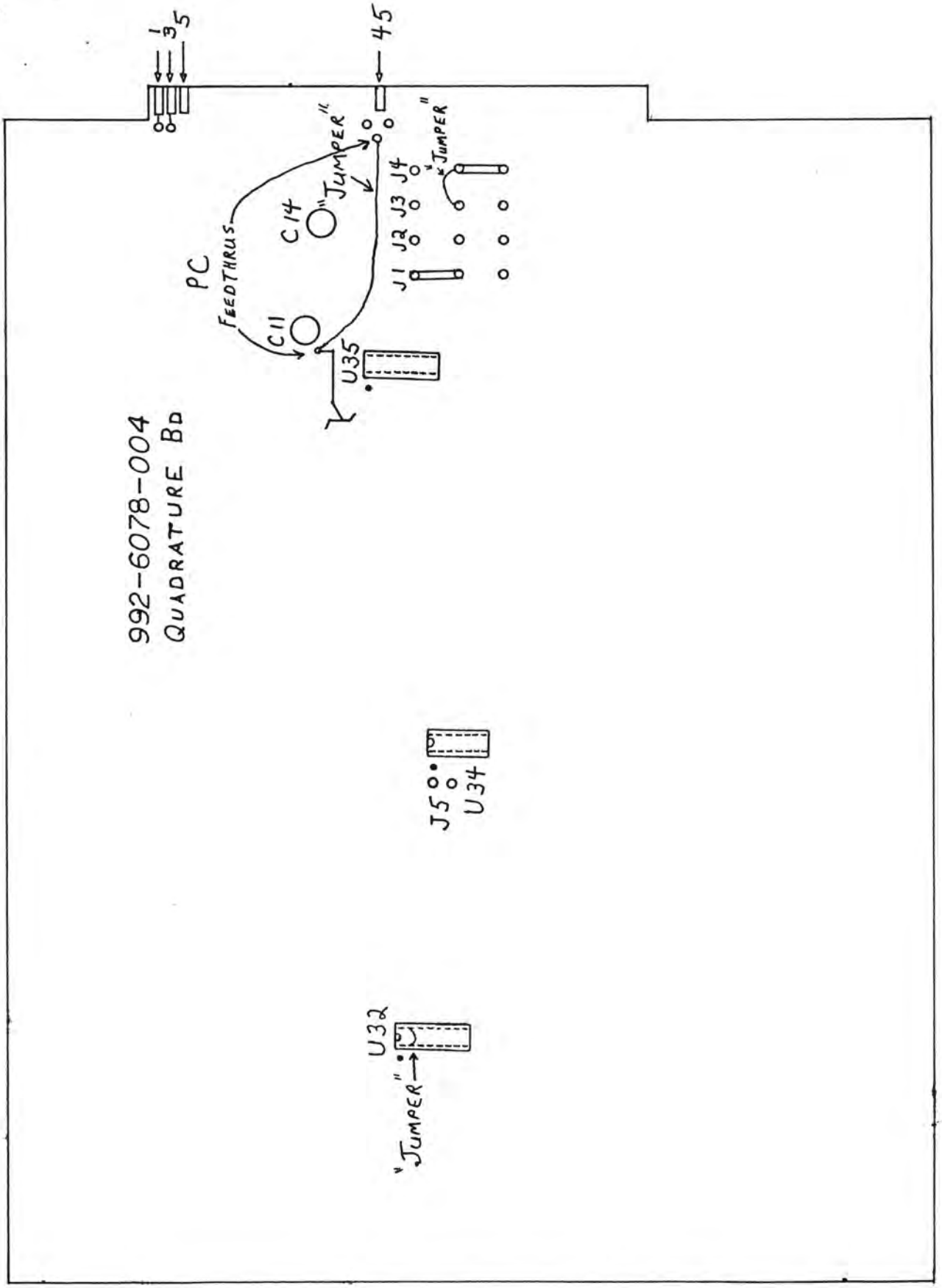
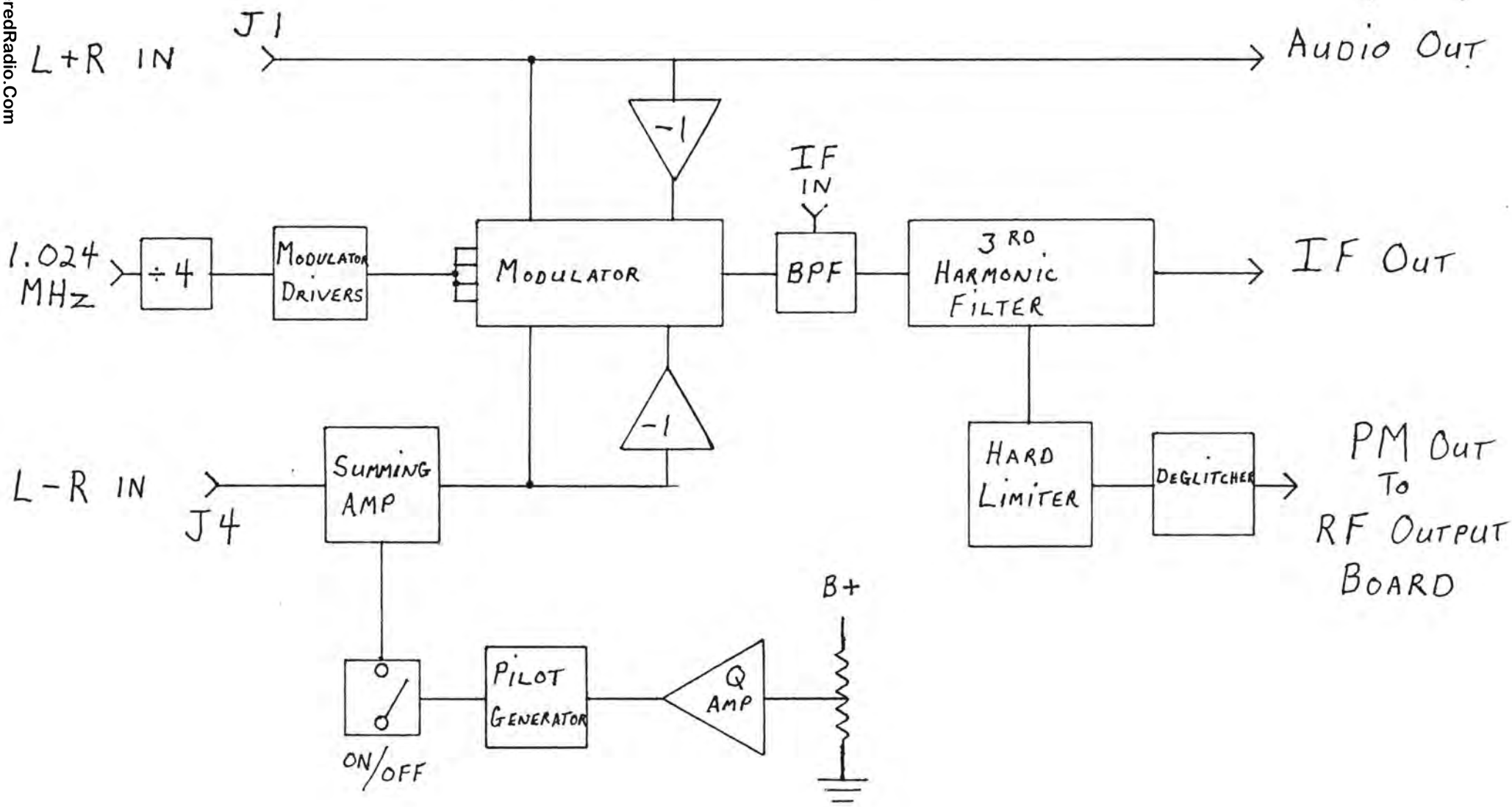


FIG. B

C-QUAM BLOCK DIAGRAM



INSTALLATION PROOFS

DISTORTION / SEPARATION		AUDIO FREQUENCY 50	100	200	400	1K	2K	3K	5K	7.5K	10K	12.5K	15K
L+R (MONO)	95%												
L–R (STEREO)	95%												
L+R	75%												
L	75%												
R	75%												
L+R	50%												
L	50%												
R	50%												
L+R	25%												
L	25%												
R	25%												

RESPONSE													
L+R	95%					0							
L–R	95%					0							
L+R	75%					0							
L	75%					0							
R	75%					0							
L+R	50%					0							
L	50%					0							
R	50%					0							
L+R	25%					0							
L	25%					0							
R	25%					0							
CROSSTALK L+R→L–R													
CROSSTALK L–R→L+R													
IPM													
CARRIER SHIFT													
PILOT FREQ., INS.													
OPERATING FREQUENCY													

OPTIONAL DIST. DIST. / SEP.

STATION CALL _____

FREQ. _____

DATE _____

WRITER _____

LOAD DUMMY ☐ ANT ☐

TRANSMITTER MAKE & MODEL _____

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_____

REMARKS _____

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INSTALLATION PROOFS

DISTORTION / SEPARATION		AUDIO FREQUENCY 50	100	200	400	1K	2K	3K	5K	7.5K	10K	12.5K	15K
L+R (MONO)	95%												
L–R (STEREO)	95%												
L+R	75%												
L	75%												
R	75%												
L+R	50%												
L	50%												
R	50%												
L+R	25%												
L	25%												
R	25%												

RESPONSE													
L+R	95%					0							
L–R	95%					0							
L+R	75%					0							
L	75%					0							
R	75%					0							
L+R	50%					0							
L	50%					0							
R	50%					0							
L+R	25%					0							
L	25%					0							
R	25%					0							
CROSSTALK L+R→L–R													
CROSSTALK L–R→L+R													
IPM													
CARRIER SHIFT													
PILOT FREQ., INS.													
OPERATING FREQUENCY													

OPTIONAL

DIST.

DIST. / SEP.

STATION CALL _____

FREQ. _____

DATE _____

WRITER _____

LOAD DUMMY ☐ ANT ☐

TRANSMITTER MAKE & MODEL _____

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REMARKS _____

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TECHNICAL MANUAL

AM STEREO EXCITER

994-8730-002

994-8730-004

994-8730-006

HARRIS

T.M. No. 888-2174-005

Printed: January 16, 1985

MANUAL REVISION HISTORY
STX-1A AM STEREO EXCITER
888-2174-xxx

REV. #	DATE	ECN	PAGES AFFECTED
002	05-18-84	29020	Replaced the following pages: Title Page and A-4 Added the Manual Revision History Page
003	08-08-84	29064	Replaced the following pages: Title Page and Manual Revision History Page 4-8, 4-12, 5-8, D-1, 7-53, 8-9/8-10, & 8-11/8-12
004	11-26-84	29093	Replaced the following pages: Title Page and Manual Revision History Page 7-1, 7-2, 7-64, 7-65, 7-66, 7-67, 8-2, i, vi, vii, viii, 8-31/8-32 with 8-31A/8-32 Added the following pages: 7-68, 7-69, 7-70, 8-31B/8-32, 8-47/8-48 and 8-49/8-50
005	01-16-85	29215	Replaced the following pages: Title Page and Manual Revision History Page 7-9, 7-10, 7-64, 8-3/8-4 and 8-25/8-26

WARNING

THE CURRENTS AND VOLTAGES IN THIS EQUIPMENT ARE DANGEROUS. PERSONNEL MUST AT ALL TIMES OBSERVE SAFETY REGULATIONS.

This manual is intended as a general guide for trained and qualified personnel who are aware of the dangers inherent in handling potentially hazardous electrical/electronic circuits. It is not intended to contain a complete statement of all safety precautions which should be observed by personnel in using this or other electronic equipment.

The installation, operation, maintenance and service of this equipment involves risks both to personnel and equipment, and must be performed only by qualified personnel exercising due care. HARRIS CORPORATION shall not be responsible for injury or damage resulting from improper procedures or from the use of improperly trained or inexperienced personnel performing such tasks.

During installation and operation of this equipment, local building codes and fire protection standards must be observed. The following National Fire Protection Association (NFPA) standards are recommended as references:

- Automatic Fire Detectors, No. 72E
- Installation, Maintenance, and Use of Portable Fire Extinguishers, No. 10
- Halogenated Fire Extinguishing Agent Systems, No. 12A

WARNING

ALWAYS DISCONNECT POWER BEFORE OPENING COVERS, DOORS, ENCLOSURES, GATES, PANELS OR SHIELDS. ALWAYS USE GROUNDING STICKS AND SHORT OUT HIGH VOLTAGE POINTS BEFORE SERVICING. NEVER MAKE INTERNAL ADJUSTMENTS, PERFORM MAINTENANCE OR SERVICE WHEN ALONE OR WHEN FATIGUED.

Do not remove, short-circuit or tamper with interlock switches on access covers, doors, enclosures, gates, panels or shields. Keep away from live circuits, know your equipment and don't take chances.

WARNING

IN CASE OF EMERGENCY ENSURE THAT POWER HAS BEEN DISCONNECTED.

WARNING

IF OIL FILLED OR ELECTROLYTIC CAPACITORS ARE UTILIZED IN YOUR EQUIPMENT, AND IF A LEAK OR BULGE IS APPARENT ON THE CAPACITOR CASE WHEN THE UNIT IS OPENED FOR SERVICE OR MAINTENANCE, ALLOW THE UNIT TO COOL DOWN BEFORE ATTEMPTING TO REMOVE THE DEFECTIVE CAPACITOR. DO NOT ATTEMPT TO SERVICE A DEFECTIVE CAPACITOR WHILE IT IS HOT DUE TO THE POSSIBILITY OF A CASE RUPTURE AND SUBSEQUENT INJURY.

WARNING: Disconnect primary power prior to servicing.

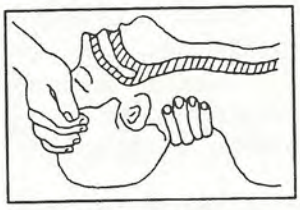
TREATMENT OF ELECTRICAL SHOCK

1. IF VICTIM IS NOT RESPONSIVE FOLLOW THE A-B-CS OF BASIC LIFE SUPPORT.

PLACE VICTIM FLAT ON HIS BACK ON A HARD SURFACE

(A) AIRWAY

IF UNCONSCIOUS.
OPEN AIRWAY



LIFT UP NECK
PUSH FOREHEAD BACK
CLEAR OUT MOUTH IF NECESSARY
OBSERVE FOR BREATHING

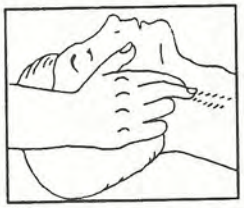
(B) BREATHING

IF NOT BREATHING.
BEGIN ARTIFICIAL BREATHING

TILT HEAD
PINCH NOSTRILS
MAKE AIRTIGHT SEAL
4 QUICK FULL BREATHS

REMEMBER MOUTH TO MOUTH RESUSCITATION MUST BE COMMENCED AS SOON AS POSSIBLE

CHECK
CAROTID PULSE



IF PULSE ABSENT.
BEGIN ARTIFICIAL CIRCULATION

(C) CIRCULATION

DEPRESS STERNUM 1 1/2 TO 2 INCHES

APPROX. RATE OF COMPRESSIONS --80 PER MINUTE
- ONE RESCUER
- 15 COMPRESSIONS
- 2 QUICK BREATHS

APPROX. RATE OF COMPRESSIONS --60 PER MINUTE
- TWO RESCUERS
- 5 COMPRESSIONS
- 1 BREATH

NOTE: DO NOT INTERRUPT RHYTHM OF COMPRESSIONS WHEN SECOND PERSON IS GIVING BREATH

CALL FOR MEDICAL ASSISTANCE AS SOON AS POSSIBLE.

2. IF VICTIM IS RESPONSIVE.

A. KEEP THEM WARM
B. KEEP THEM AS QUIET AS POSSIBLE
C. LOOSEN THEIR CLOTHING
D. A RECLINING POSITION IS RECOMMENDED

FIRST-AID

Personnel engaged in the installation, operation, maintenance or servicing of this equipment are urged to become familiar with first-aid theory and practices. The following information is not intended to be complete first-aid procedures, it is brief and is only to be used as a reference. It is the duty of all personnel using the equipment to be prepared to give adequate Emergency First Aid and thereby prevent avoidable loss of life.

Treatment of Electrical Burns

1. Extensive burned and broken skin

   a. Cover area with clean sheet or cloth. (Cleanest available cloth article.)
   b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply any salve or ointment.
   c. Treat victim for shock as required.
   d. Arrange transportation to a hospital as quickly as possible.
   e. If arms or legs are affected keep them elevated.

NOTE

If medical help will not be available within an hour and the victim is conscious and not vomiting, give him a weak solution of salt and soda: 1 level teaspoonful of salt and 1/2 level teaspoonful of baking soda to each quart of water (neither hot or cold). Allow victim to sip slowly about 4 ounces (a half of glass) over a period of 15 minutes. Discontinue fluid if vomiting occurs. (Do not give alcohol.)

2. Less severe burns - (1st & 2nd degree)

   a. Apply cool (not ice cold) compresses using the cleanest available cloth article.
   b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply salve or ointment.
   c. Apply clean dry dressing if necessary.
   d. Treat victim for shock as required.
   e. Arrange transportation to a hospital as quickly as possible.
   f. If arms or legs are affected keep them elevated.

REFERENCE: ILLINOIS HEART ASSOCIATION

AMERICAN RED CROSS STANDARD FIRST AID AND PERSONAL SAFETY MANUAL (SECOND EDITION)

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WARNING: Disconnect primary power prior to servicing.

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LIST OF ILLUSTRATIONS

SECTION I

GENERAL INFORMATION

1-1. INTRODUCTION

1-2. This technical manual contains all the information necessary to install and maintain the AM STEREO EXCITER. The various sections of this technical manual provide the following types of information.

a. SECTION I, GENERAL DESCRIPTION, provides an introduction to the technical manual contents. Please refer to brochure at front of manual for general description and specifications for the HARRIS STX-1A AM STEREO EXCITER.

b. SECTION II, INSTALLATION, provides information relative to incoming inspection, power requirements, input/output connections, component mounting instructions, and initial setup procedures.

c. SECTION III, OPERATION, provides identification and functions of panel or board mounted controls and indicators, along with information necessary to setup and operate the exciter on a daily basis.

d. SECTION IV, PRINCIPLES OF OPERATION, provides detailed theory of operation of the various sections of the exciter.

e. SECTION V, MAINTENANCE, provides preventive and corrective maintenance as well as tuning procedures (alignment procedures).

f. SECTION VI, TROUBLESHOOTING, provides troubleshooting procedures and guidelines.

g. SECTION VII, PARTS LIST, provides information on the replaceable parts available for the AM STEREO EXCITER.

h. SECTION VIII, DIAGRAMS, provides parts lists, diagrams, and component locators.

i. APPENDIX A, INSTALLATION ADDENDUM, provides instructions for the set up of the HARRIS STX-1A AM STEREO EXCITER.

j. APPENDIX B, TEST EQUIPMENT, provides a list of the test equipment required to perform maintenance on the exciter.

k. APPENDIX C, SYNTHESIZER SETUP, provides a list of switch positions for frequencies STX-1A can be used on.

1. APPENDIX D, MODIFICATIONS FOR MATRIXED AUDIO PROCESSING, provides information to modify the STX-1A for matrixed audio processing.

SECTION II

INSTALLATION

2-1. INTRODUCTION

2-2. This section of the manual describes the incoming inspection and unpacking procedures that should be followed when the HARRIS STX-1A AM STEREO EXCITER is received. Detailed installation instructions and initial turn on procedures are provided in the accompanying technical manual for the specific transmitter type to be fitted with the HARRIS STX-1A AM STEREO EXCITER. The HARRIS STX-1A AM STEREO EXCITER is designed to be mounted in a standard 19 inch cabinet.

2-3. INCOMING INSPECTION AND UNPACKING

2-4. The HARRIS STX-1A AM STEREO EXCITER is usually shipped via private carrier. Upon delivery, the shipping container should be examined for indications of possible mishandling. If damage has occurred, immediately notify the carrier and HARRIS CORPORATION (refer to paragraph 2-6, Returns and Exchanges).

2-5. When unpacking the shipping container, care should be exercised to prevent equipment damage. The control numbers on the Packing List should be checked to verify completeness of the shipment. Any discrepancy is to be reported immediately to HARRIS CORPORATION.

2-6. RETURNS AND EXCHANGES

2-7. Damaged or undamaged equipment should not be returned unless written approval and a Return Authorization is received from HARRIS CORPORATION, Broadcast Group. Special shipping instructions and coding will be provided to assure proper handling. Complete details regarding circumstances and reasons for return are to be included in the request for return. Custom equipment or special order equipment is not returnable. In those instances where return or exchange of equipment is at the request of the customer, or convenience of the customer, a restocking fee will be charged. All returns will be sent freight prepaid and properly insured by the customer. When communicating with HARRIS CORPORATION, Broadcast Group, specify the Factory Order Number or Invoice Number.

2-8. INSTALLATION OVERVIEW

2-9. Refer to the Technical Manual provided for particular transmitter to obtain detailed installation information. The following paragraphs offer an overview that addresses the changes that may be required for each particular transmitter. No specific information is given; that is to be obtained from the Technical Manual provided separately for particular transmitter.

2-10. An AM transmitter is a specialized, high power "analog multiplier". It takes the output of a crystal oscillator, amplifies it, and multiplies it by the program audio signal in its modulated stage. The purpose of a large

part of the exciter circuitry is to cause the transmitter to operate as a high power linear amplifier instead of a high power analog multiplier.

2-11. The AM stereo exciter generates a complete AM stereo signal at low power and at a low IF frequency of 256 kHz. The rest of the exciter is devoted to causing the AM transmitter to reproduce the low level signal accurately, but at the station operating frequency. This is done by separating the AM stereo signal into two special components: a RF drive signal, and an audio modulating signal. These two signals are applied to the transmitter. The audio signal is applied in place of the normal audio input. The RF signal, on the other hand, is substituted for the drive signal normally supplied by the transmitter's internal crystal oscillator.

2-12. No modification of the transmitter is required to apply the audio signal, since the audio is applied to the existing audio input terminals. But to apply the RF signal, a new RF input point must be created. This is usually a simple operation, consisting of either breaking the drive chain between stages to introduce the external RF drive, or converting the oscillator device to a buffer stage to accept external RF from the AM stereo exciter.

2-13. Converting the AM transmitter to stereo operation is similar to the process required in the 1950s and 1960s to convert black and white television transmitter for color: careful adjustment of the transmitter and addition of an exciter unit containing correction circuitry. The purpose of this circuitry is to improve performance in areas important to stereo operation, but irrelevant to mono.

2-14. If an AM transmitter is to properly reconstruct a stereo signal from the AF and RF signals presented to its inputs, and if no correction circuitry were supplied by the exciter, the transmitter would have to satisfy the following conditions:

a. Equal time delay through modulator and RF driver stages.

b. Uniform time delay (as a function of frequency) or linear phase in modulator and RF driver stages.

c. Wideband, flat amplitude response in modulator and RF driver stages.

d. DC coupling in modulator.

e. No incidental phase modulation.

f. Symmetrical amplitude and phase response in output tuning and matching circuits (and antenna system).

g. Low PM noise.

2-15. Although most existing transmitters do not satisfy all of these requirements, the correction circuitry included in the STX-1A allows the RF and AF signals to be precorrected to compensate for transmitter deficiencies. The bulk of the exciter adjustments are associated with the necessary transmitter compensation. Since no two transmitters (or antenna systems) are alike, these adjustments cannot be made at the factory. Transmitter compensation must be performed after the exciter is installed.

2-16. The transmitter compensation circuits included in the STX-1A AM Stereo Exciter include:

a. Differential delay adjustment to compensate for time delay variations between RF driver and modulator chains.

b. Group delay variation adjustment to compensate for nonuniform modulator group delay as a function of frequency.

c. Amplitude equalizers to compensate for low frequency and high frequency response irregularities.

d. AC coupling adaptor to remove DC component from the audio signal without distorting the AM stereo signal.

e. Separation corrector to compensate for a variety of problems, including incidental phase modulation and nonsymmetrical response in the output tuned circuits and antenna system.

f. PM feedback to correct for incidental phase modulation and restricted bandwidth RF driver tuned circuits.

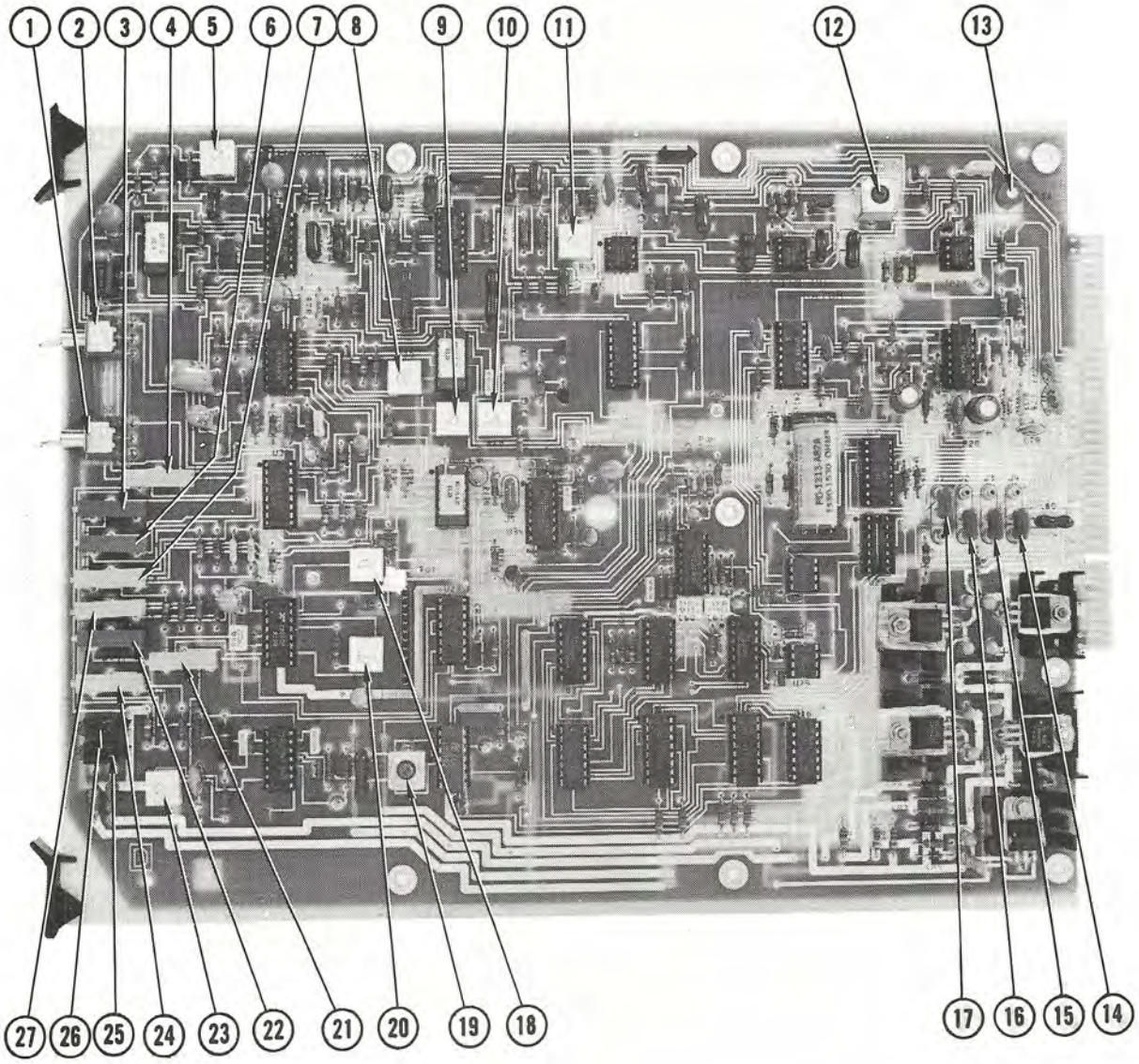

Figure 3-4. VCPM Generator (A5), Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-1. HARRIS STX-1A AM STEREO EXCITER
Controls and Indicators (Continued)

REF.	CONTROL/INDICATOR	FUNCTION
	Q	Indicates stereo channel modulation level.
	PILOT	Indicates pilot injection level.
	ENV	Indicates envelope modulation.
	AUDIO	Indicates audio level going to transmitter.
	PM CORR	Indicates phase error between RF sent to transmitter and feedback.
5	(-) LED (A1DS1)	Indicates the polarity of the voltage monitored by the multimeter. Illuminated when negative.
6	PEAK/AVG SWITCH (A1S3)	Selects peak or average responding circuitry for the modulation meter.
7	METER OUT BNC (A1J18)	Provides access to the signals monitored on the modulation meter.
8	RF PWR (A1R34)	Adjusts the RF level out of the exciter.
9	DAY LED (A1DS4)	Illuminates when in the day mode of operation.
10	NIGHT LED (A1DS3)	Illuminates when in the night mode of operation.
11	READY LED (A1DS2)	Indicates that the synthesizer is locked and that the RF level out of the exciter is acceptable.
12	DAY/NIGHT SWITCH (A1550	Switches the exciter between day and night operation for power or pattern changes.
13	PILOT LED (A1DS7)	Indicates the presence of the pilot when illuminated.

Table 3-3. Separation Corrector/Peak Limiter (A4), Controls and Indicators (Continued)

REF.	CONTROL/INDICATOR	FUNCTION
13	L-NITE LF (A4R143)	Improves low frequency separation when modulating the left channel in the night mode.
14	BYPASS SWITCH, S2	Allows bypassing of the gain reducing function of the peak limiter.
15	L-R GAIN CONTROL (A4R83)	Sets the peak limiter gain in the L-R channel.
16	L-R ASYMMETRY (A4R95)	Controls the L-R VCA asymmetry.
17 and 18	L+R IN/OUT JUMPERS (A4J1) (A4J3)	J1 up J3 down: L+R channel of peak limiter is enabled. J2 down J4 up: L+R channel of peak limiter is bypassed.
19 and 20	L-R IN/OUT JUMPERS (A4J2) (A4J4)	J2 up J4 down: L-R channel of peak limiter is enabled. J2 down J4 up: L-R channel of peak limiter is bypassed.
21	L+R ASYMMETRY CONTROL (A4R5)	Controls the L+R VCA asymmetry.
22	L+R GAIN CONTROL (A4R41)	Sets the peak limiter gain in the L+R channel.
23	NEGATIVE MODULATION Limit Control (A4R211)	Sets the negative modulation limit in the peak limiter.
24	SEPARATION CORRECTOR JUMPER (L+R)(A4J5)	In its upper position the L+R portion of the separation corrector is bypassed. In the lower position the corrector is connected.
25	SEPARATION CORRECTOR JUMPER (L-R)(A4J6)	In its upper position the L-R portion of the separation corrector is bypassed. In the lower position the separation corrector is connected.

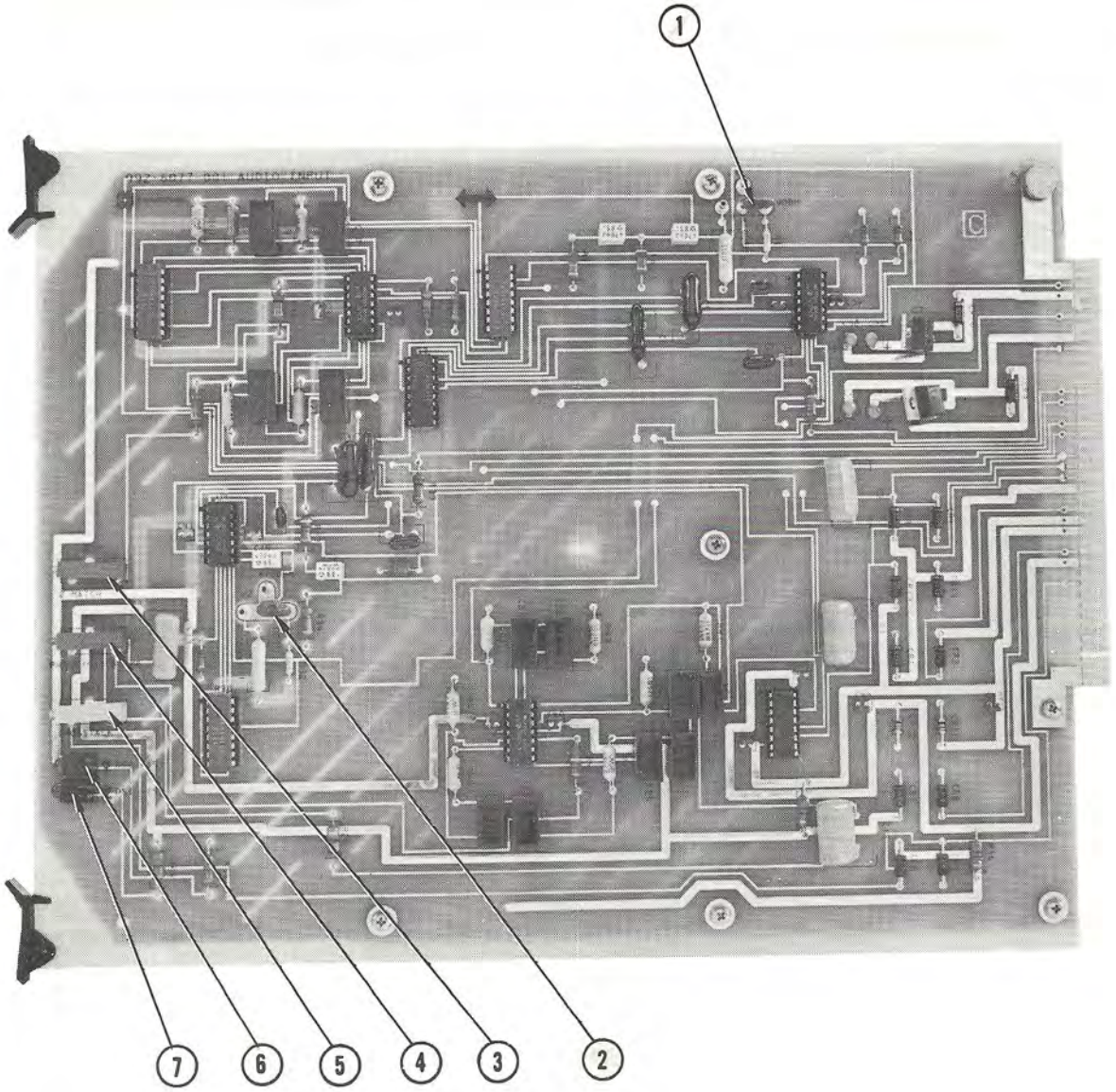

Figure 3-2. Audio Input (A3) Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

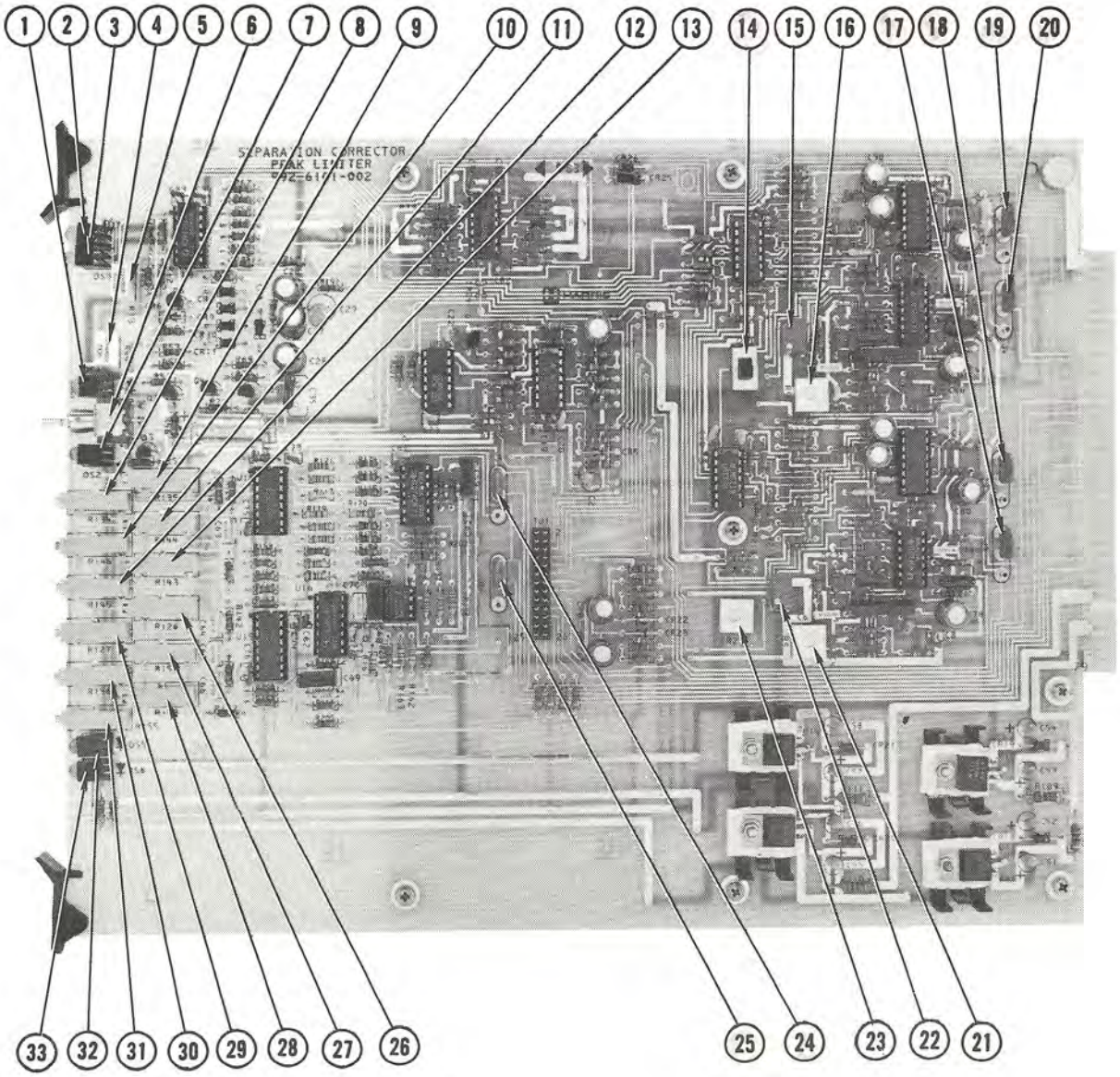

Figure 3-3. Separation Corrector/Peak Limiter (A4), Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

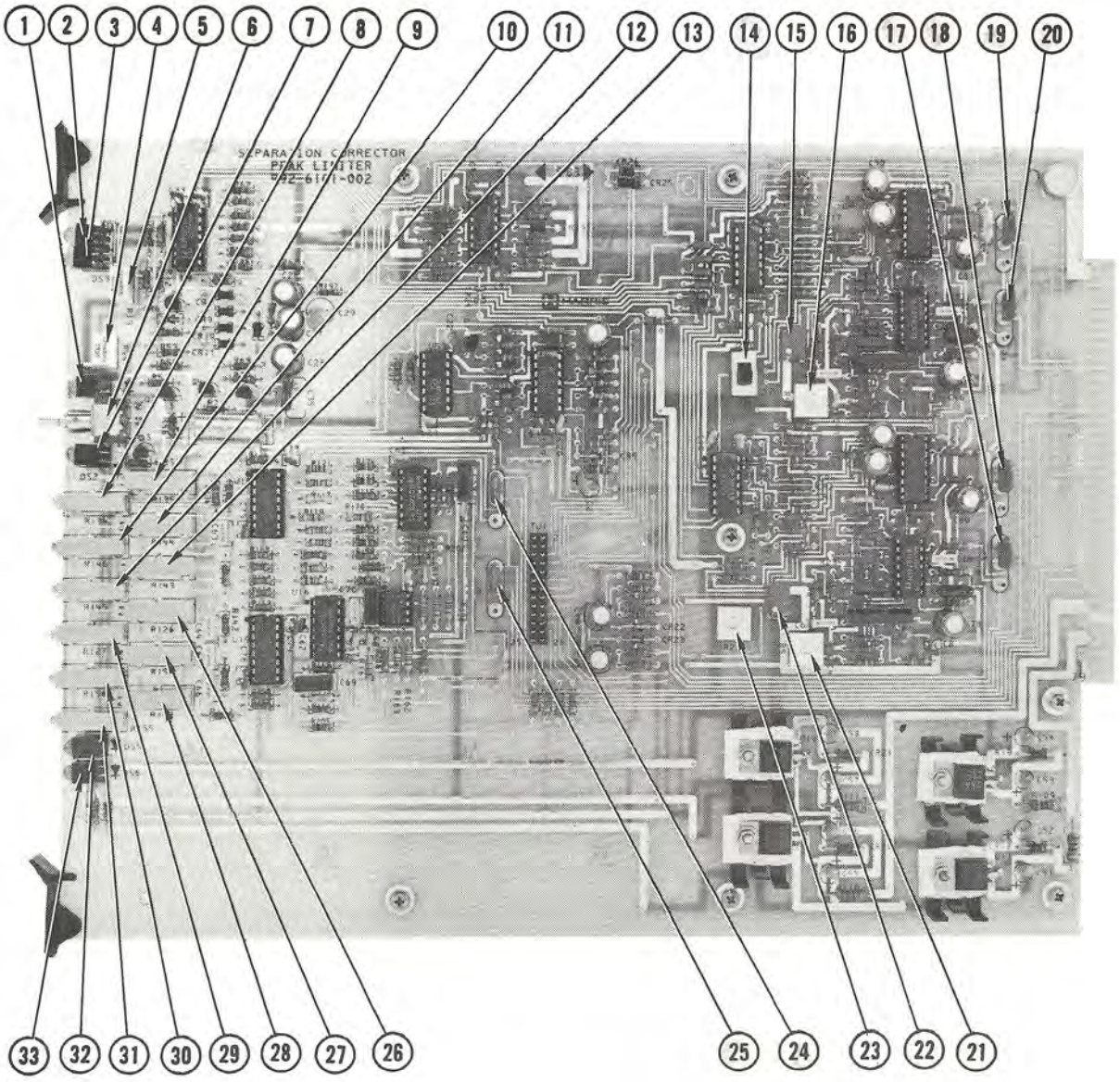

Figure 3-3. Separation Corrector/Peak Limiter (A4), Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

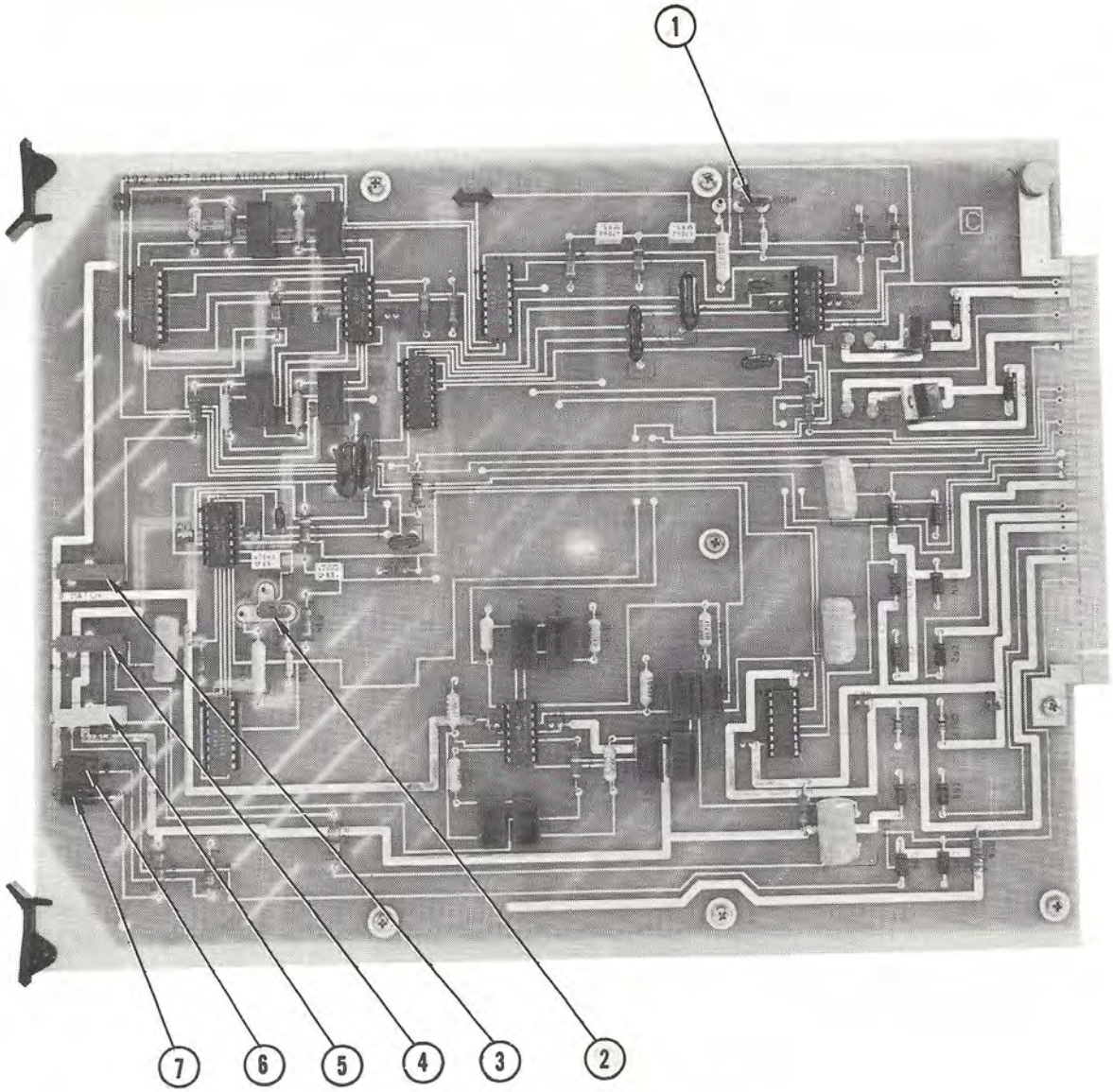

Figure 3-2. Audio Input (A3) Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-3. Separation Corrector/Peak Limiter (A4), Controls and Indicators (Continued)

REF.	CONTROL/INDICATOR	FUNCTION
13	L-NITE LF (A4R143)	Improves low frequency separation when modulating the left channel in the night mode.
14	BYPASS SWITCH, S2	Allows bypassing of the gain reducing function of the peak limiter.
15	L-R GAIN CONTROL (A4R83)	Sets the peak limiter gain in the L-R channel.
16	L-R ASYMMETRY (A4R95)	Controls the L-R VCA asymmetry.
17 and 18	L+R IN/OUT JUMPERS (A4J1) (A4J3)	J1 up J3 down: L+R channel of peak limiter is enabled. J2 down J4 up: L+R channel of peak limiter is bypassed.
19 and 20	L-R IN/OUT JUMPERS (A4J2) (A4J4)	J2 up J4 down: L-R channel of peak limiter is enabled. J2 down J4 up: L-R channel of peak limiter is bypassed.
21	L+R ASYMMETRY CONTROL (A4R5)	Controls the L+R VCA asymmetry.
22	L+R GAIN CONTROL (A4R41)	Sets the peak limiter gain in the L+R channel.
23	NEGATIVE MODULATION Limit Control (A4R211)	Sets the negative modulation limit in the peak limiter.
24	SEPARATION CORRECTOR JUMPER (L+R)(A4J5)	In its upper position the L+R portion of the separation corrector is bypassed. In the lower position the corrector is connected.
25	SEPARATION CORRECTOR JUMPER (L-R)(A4J6)	In its upper position the L-R portion of the separation corrector is bypassed. In the lower position the separation corrector is connected.

Table 3-1. HARRIS STX-1A AM STEREO EXCITER
Controls and Indicators (Continued)

REF.	CONTROL/INDICATOR	FUNCTION
	Q	Indicates stereo channel modulation level.
	PILOT	Indicates pilot injection level.
	ENV	Indicates envelope modulation.
	AUDIO	Indicates audio level going to transmitter.
	PM CORR	Indicates phase error between RF sent to transmitter and feedback.
5	(-) LED (A1DS1)	Indicates the polarity of the voltage monitored by the multimeter. Illuminated when negative.
6	PEAK/AVG SWITCH (A1S3)	Selects peak or average responding circuitry for the modulation meter.
7	METER OUT BNC (A1J18)	Provides access to the signals monitored on the modulation meter.
8	RF PWR (A1R34)	Adjusts the RF level out of the exciter.
9	DAY LED (A1DS4)	Illuminates when in the day mode of operation.
10	NIGHT LED (A1DS3)	Illuminates when in the night mode of operation.
11	READY LED (A1DS2)	Indicates that the synthesizer is locked and that the RF level out of the exciter is acceptable.
12	DAY/NIGHT SWITCH (A1550	Switches the exciter between day and night operation for power or pattern changes.
13	PILOT LED (A1DS7)	Indicates the presence of the pilot when illuminated.

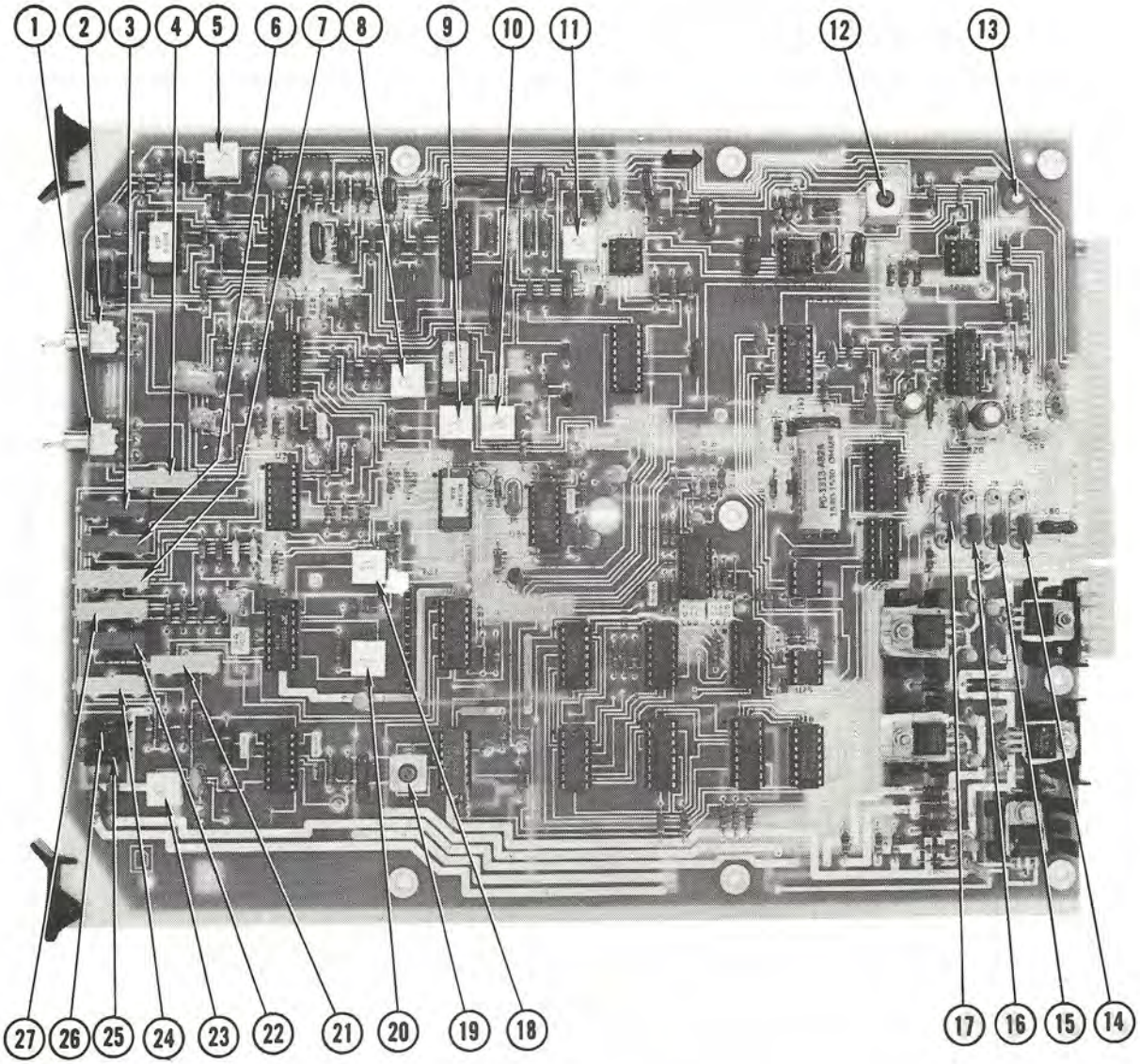

Figure 3-4. VCPM Generator (A5), Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-4. Quadrature Generator (A5), Controls and Indicators

REF.	CONTROL/INDICATOR	FUNCTION
1	SWITCH [redacted] A5S2	Removed or disabled.
2	PILOT ON/OFF SWITCH (A5S1)	Turns the pilot on or off in the stereo mode.
3	DIST LIM (A5R94)	Adjusts the maximum amount of envelope distortion allowed in the variable angle mode.
4	CARRIER ADJ [redacted] A5R14	Adjusts the I channel carrier level.
5	L-R DRIVE CONTROL (A5R22)	Controls the amount of drive to the VCA in the L-R channel.
6	90 DEGREE ADJ (A5R103)	Adjusts the gain in the Q channel.
7	50% MOD ADJ (A5R111)	Adjusts the peak limiter modulation limit to control envelope distortion.
8	DISTORTION NULL (A5R79)	Nulls the distortion output of a difference amplifier when L-R = 0.
9	ENVELOPE DISTORTION LIMIT CONTROLS (A5R129)	Sets the envelope distortion limit controlled by limiting single channel modulation.
10	LIMITER DRIVE (A5R60)	Sets the drive level to the hard limiter.
11	ENVELOPE OFFSET (A5R45)	Sets the dc level of the composite waveform into the envelope detector.
12	BANDPASS FILTER TUNE (A5L1)	Tunes the IF bandpass filter to the IF frequency.
13	Q OFFSET (A5R156)	Nulls the Q channel carrier through the modulator.

Table 3-4. Quadrature Generator (A5), Controls and Indicators (Continued)

REF.	CONTROL/INDICATOR	FUNCTION
14	L-R INPUT JUMPER (A5J4)	Up position: L-R audio comes from the audio input board. Down position: L-R audio comes from the peak limiter.
15 and 16	VCA OUTPUT JUMPERS (A5J2) (A5J3)	Both down: VCA output is routed through the separation corrector board. Both up: VCA output bypassed the separation corrector.
17	L+R INPUT JUMPER (A5J1)	Up position: L+R audio comes from the peak limiter. Down position: L+R audio comes from the audio input board.
18 and 20	PILOT DIST controls (A5R149) (A5R146)	Used to minimize pilot distortion.
19	LIMITER TUNE (A5L4)	Tunes the input of the hard limiter to the IF frequency.
21	PILOT AMP (A5R152)	Adjusts the pilot injection level.
22	PILOT FREQ (A5R151)	Adjusts the pilot frequency in the full quadrature mode.
23	LIMITER OFFSET (A5R61)	Nulls the dc offset of the limiter.
24	FM SENS ADJ (A5R144)	Adjusts the pilot frequency sensitivity in the variable angle mode.
25	-15V LED (A5DS2)	Illuminates to indicate the -15 volt regulator is operational.
26	+15V LED (A5DS1)	Illuminates to indicate that the +15 volt regulator is operational.
27	30 DEGREE ADJ (A5R106)	Adjusts the gain in the Q channel in the variable angle mode.

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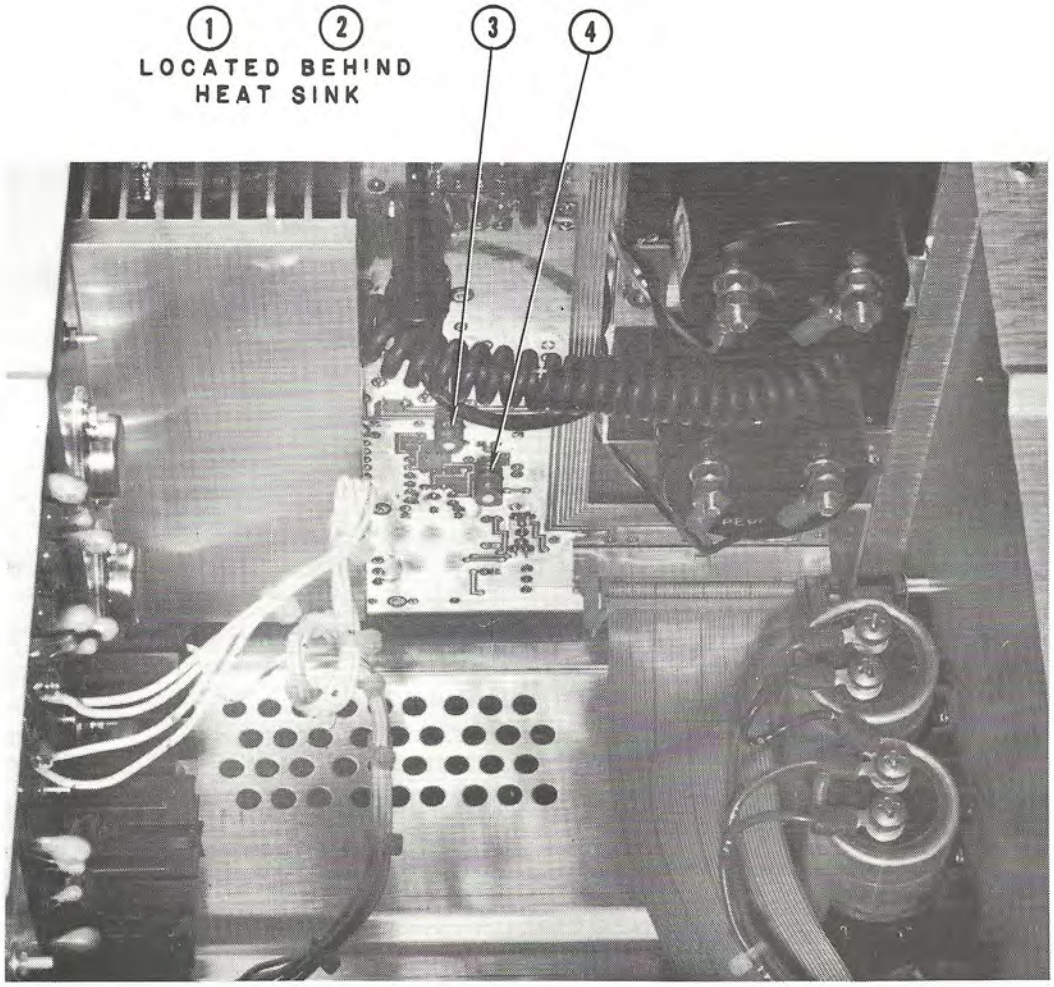

Figure 3-5. Meter Board (A1), Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-5. Meter Board (A1), Controls and Indicators

REF.	CONTROL/INDICATOR	FUNCTION
1	AVERAGE CALIBRATE (A1R38)	Sets the average reading equal to the peak.
2	METER CALIBRATE (A1R34)	Calibrates the meter sensitivity.
3	GAIN BALANCE (A1R16)	Balances the gain for the positive and negative peaks.
4	METER ZERO (A1R6)	Sets the meter to zero with no signal applied.

WARNING: Disconnect primary power prior to servicing.

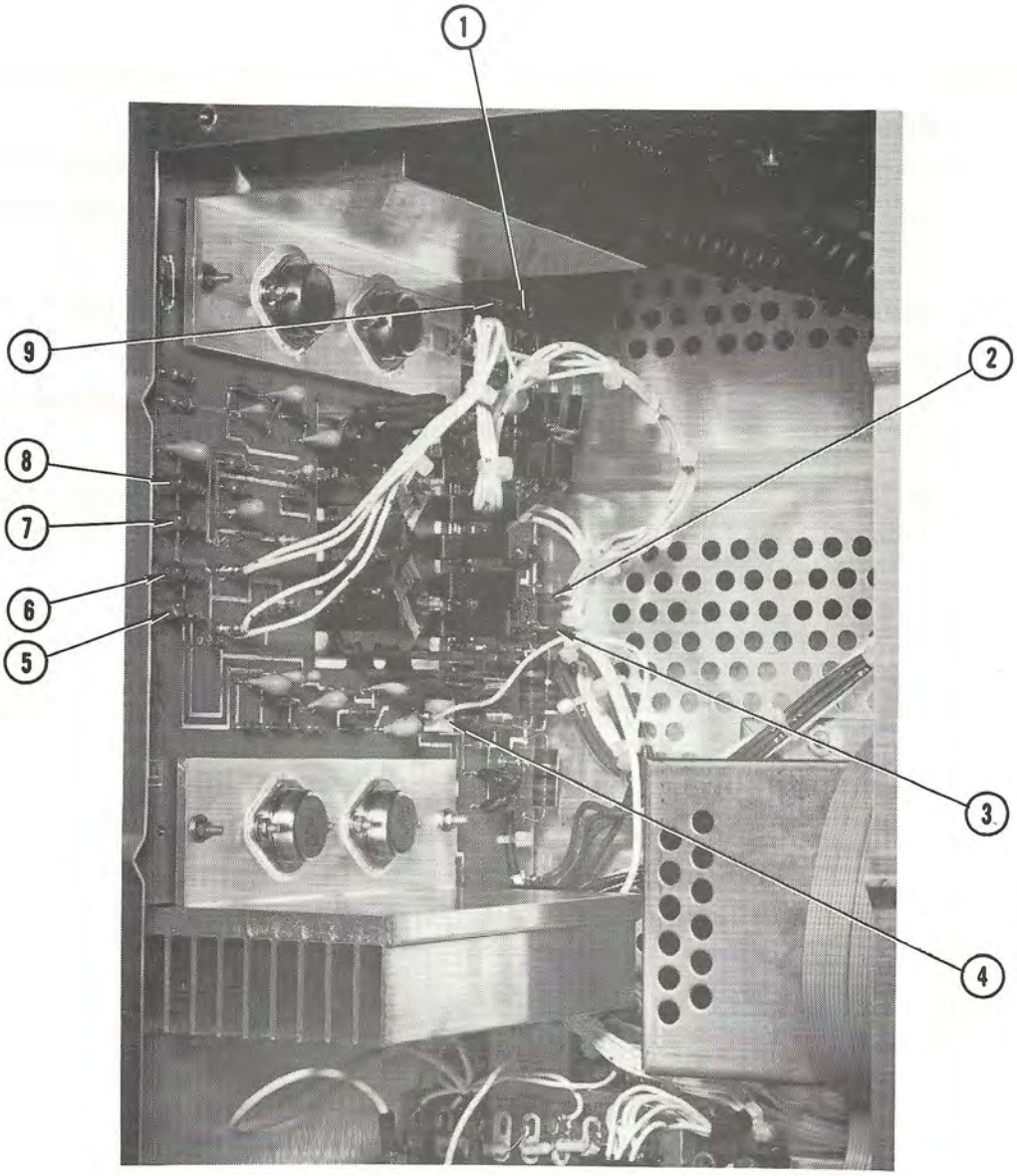

Figure 3-6. Power Supply, RF Amp, Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-6. Power Supply, RF Amp, Controls and Indicators

REF.	CONTROL/INDICATOR	FUNCTION
1	RF INPUT JUMPER (A9A1J1)	Directs the RF drive through or around the RF amplifier.
2	RF OUTPUT JUMPER (A9A1J3)	Connects the RF output to the amplifier output or to the amplifier input.
3	INTERNAL LOAD JUMPER (A9A1J2)	Connects an internal 51 load across the output of the RF amplifier.
4	RF METER CONTROL (A9A1R34)	Controls the RF level reading on the multimeter and the level required to illuminate the READY LED.
5	+19V LED (A9A1DS3)	Indicates that the +19 volt regulator is operational.
6	-19V LED (A9A1DS4)	Illuminates to indicated the -19 volt regulator is operational.
7	+15V LED (A9A1DS1)	Illuminates to indicate the +15 volt regulator is operational.
8	-15V LED (A0A1DS2)	Illuminates to indicate the -15 volt regulator is operational.
9	BIAS CONTROL (A9A1R16)	Controls the bias on the output transistors of the power amplifier.

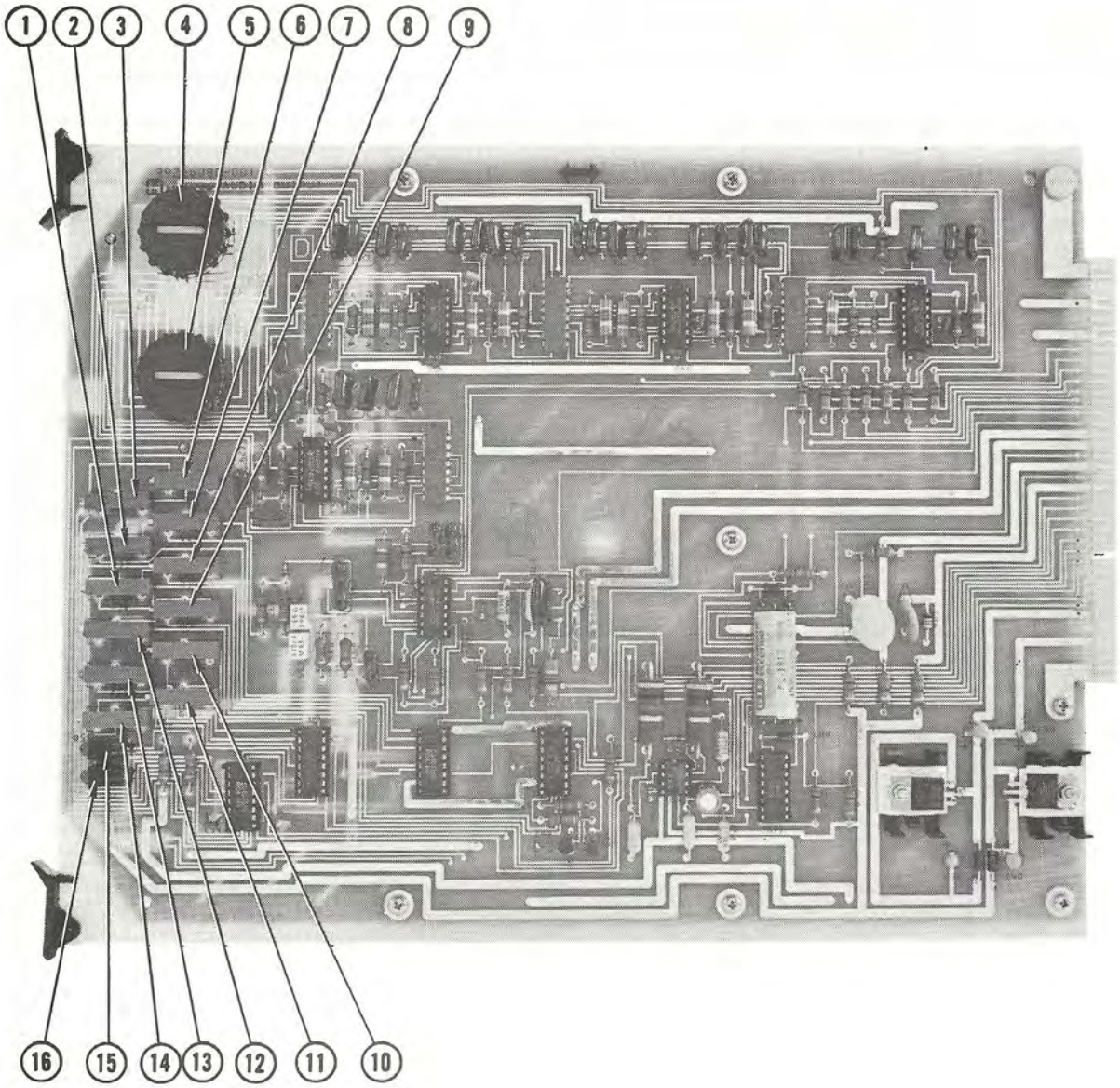

Figure 3-7. Audio Output Card (A6), Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-7. Audio Output Card (A6), Controls and Indicators

REF.	CONTROL/INDICATOR	FUNCTION
1	LF EQ DAY (A6R38)	Compensates for transmitter audio low frequency rolloff in the day mode.
2	HF EQ DAY (A6R33)	Compensates for transmitter audio high frequency rolloff in the day mode.
3	FINE DELAY DAY CONTROL (A6R8)	Provides a continuously variable time delay in the day mode.
4	COARSE DELAY DAY CONTROL (A6S1)	Adjusts the audio delay in 4.4 s increments in the day mode.
5	COARSE DELAY NIGHT CONTROL (A6S2)	Adjusts the audio delay in 4.4 s increments in the night mode.
6	FINE DELAY NIGHT CONTROL (A6R9)	Provides a continuously variable time delay in the night mode.
7	HF EQ NIGHT (A6R34)	Compensates for transmitter audio high frequency rolloff in the night mode.
8	LF EQ NIGHT (A6R39)	Compensates for transmitter audio low frequency rolloff in the night mode.
9	AUDIO LEVEL NIGHT (A6R55)	Adjusts the audio level for correct reconstruction of stereo signal in the night mode.
10	GROUP DELAY NIGHT (A6R29)	Compensates for non-uniform group delay through the transmitter in the night mode.
11	CROSSOVER NIGHT (A6R31)	Sets the high frequency crossover point in the night mode.
12	AUDIO LEVEL DAY (A6R54)	Adjust the audio level for correct reconstruction of the stereo signal in the day mode.
13	GROUP DELAY DAY (A6R28)	Compensates for non-uniform group delay through the transmitter in the day mode.

Table 3-7. Audio Output Card (A6), Controls and Indicators (Continued)

REF.	CONTROL/INDICATOR	FUNCTION
14	CROSSOVER DAY (A6R30)	Sets the high frequency crossover point in the day mode.
15	-15V LED (A6DS1)	Illuminates to indicate that the -15V regulator is operational.
16	+15V LED (A6DS2)	Illuminates to indicate that the +15V regulator is operational.

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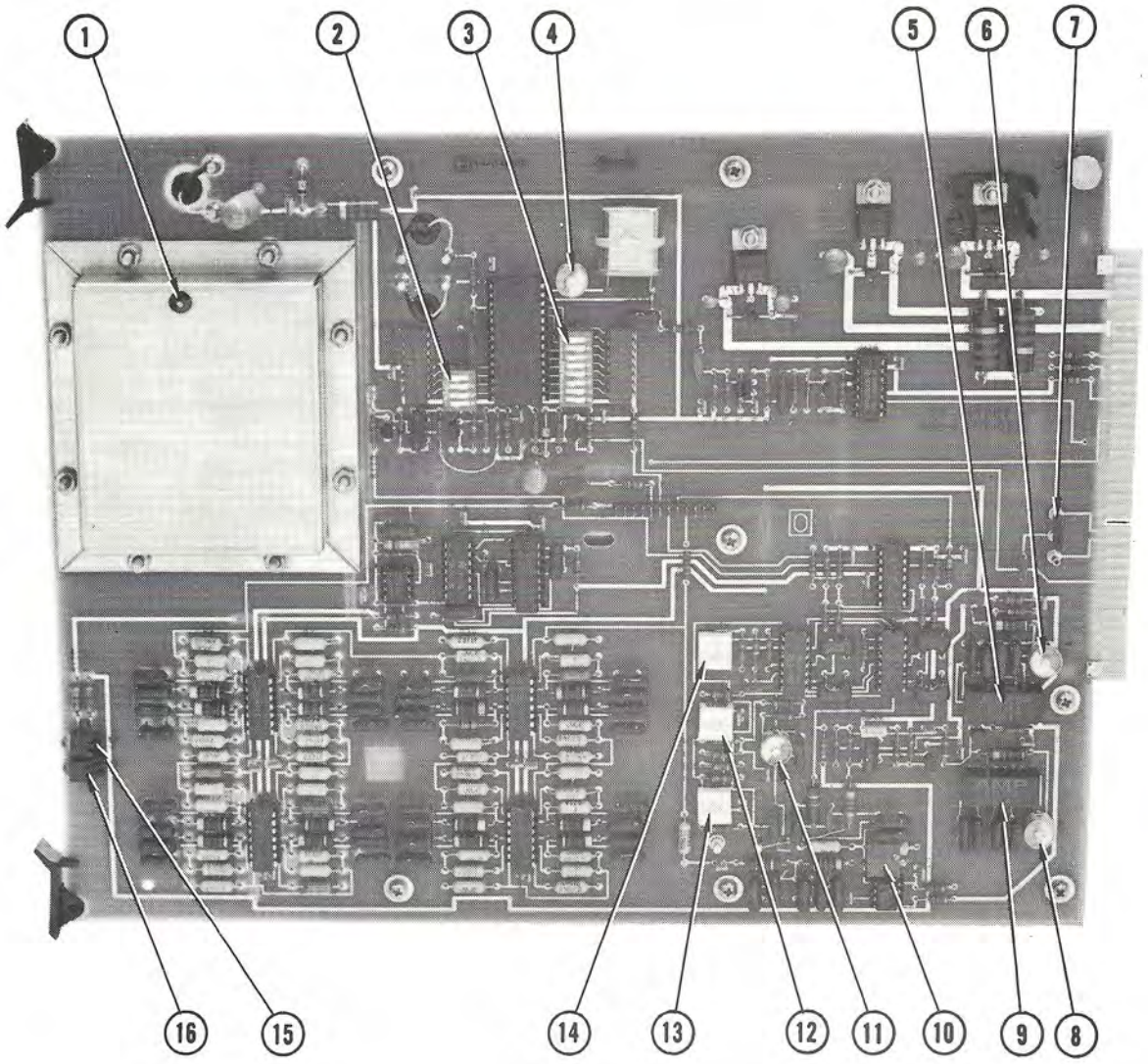


Figure 3-8A. RF Output Board (A7), (992 6079 002), Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-8A. RF Output Board (A7), (992 6079 002), Controls and Indicators

REF.	CONTROL/INDICATOR	FUNCTION
1	AFC VOLTAGE CONTROL	Sets the AFC voltage to approximately 4 volts.
2 and 3	FREQUENCY SELECT SWITCHES	Select the output carrier frequency (see Appendix C).
4	CRYSTAL TRIMMER	Fine tunes the crystal to 4.096 [redacted] MHZ.
5	PEAK FILTER CAPACITOR SELECT SWITCH	Selects the correct capacitor value for the desired channel frequency.
6	PEAK FILTER TRIM1	Trims the peak filter to the carrier frequency.
7	JUMPER	
8	NOTCH FILTER TRIM CAPACITOR	Trims the notch filter to the correct frequency.
9	NOTCH FILTER CAPACITOR SELECT SWITCH	Selects capacitors to tune the notch filter to an undesired frequency.
10	IF LEVEL CONTROL	Sets IF level into the imageless mixer.
11	IMAGE NULL CAPACITOR	Nulls the image frequency out of the mixer.
12 and 13	INJECTION NULL CONTROLS	Nulls the injection frequency out of mixer.
14	IMAGE NULL CONTROL	Nulls the image frequency out of the mixer.
15	+15V LED	Illuminates to indicate the +15 volt regulator is operational.
16	-15V LED	Illuminates to indicate the -15 volt regulator is operational.

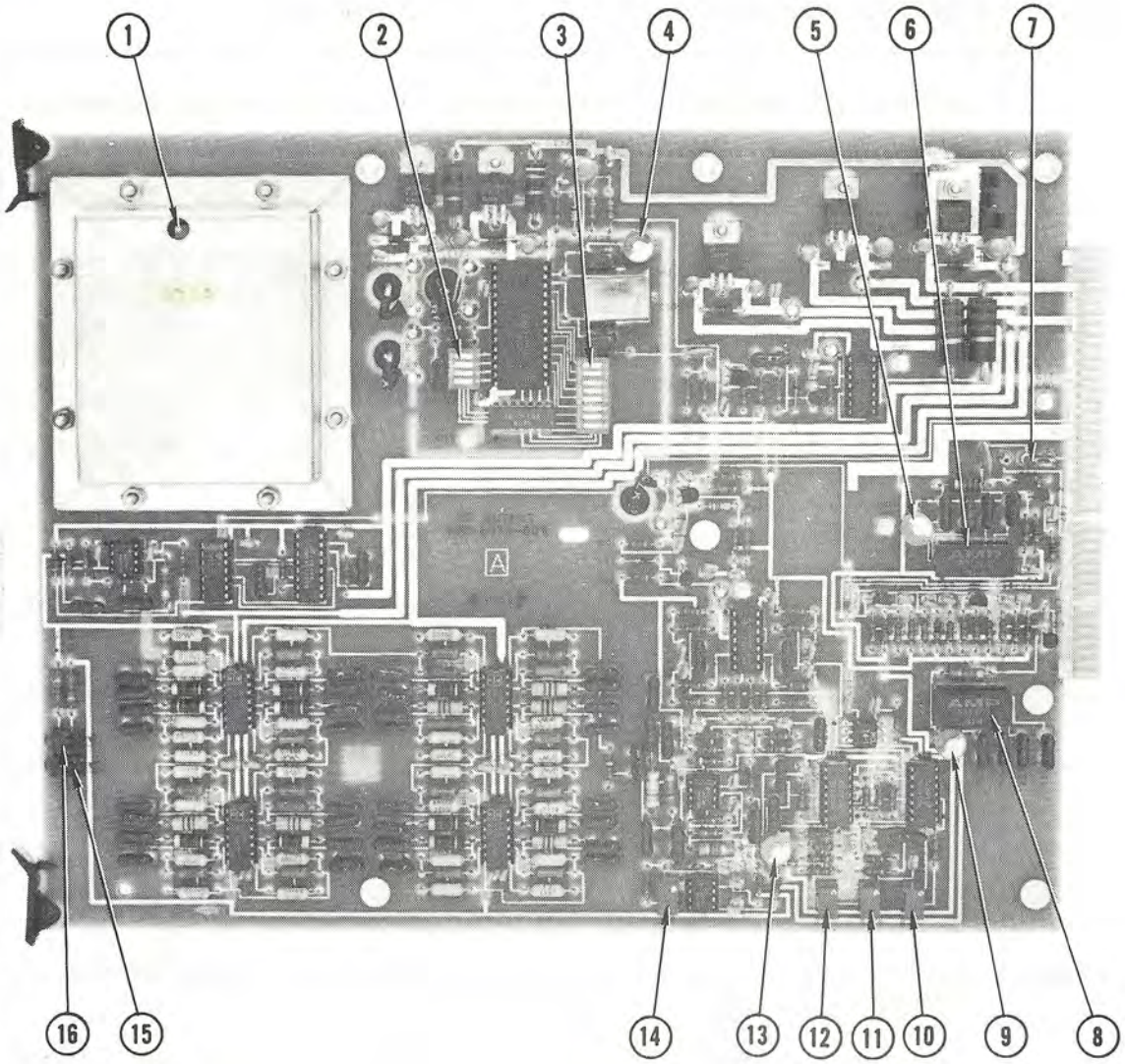


Figure 3-8B. RF Output Board (A7), (992 6079 003), Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-8B. RF Output Board (A7), (992 6079 003), Controls and Indicators

REF.	CONTROL/INDICATOR	FUNCTION
1	AFC VOLTAGE CONTROL (A7A1R1)	Sets the AFC voltage to approximately 4 volts.
2 and 3	FREQUENCY SELECT SWITCHES (A7S3)(A7S4)	Select the output carrier frequency (see Appendix C).
4	CRYSTAL TRIMMER (A7C127)	Fine tunes the crystal to 4.096 MHZ.
5	PEAK FILTER TRIM1 (A7C77)	Trims the peak filter to the carrier frequency.
6	PEAK FILTER CAPACITOR SELECT SWITCH (A7S2)	Selects the correct capacitor value for the desired channel frequency.
7	JUMPER J1	
8	NOTCH FILTER CAPACITOR SELECT SWITCH (A7S1)	Selects capacitors to tune the notch filter to an undesired frequency.
9	NOTCH FILTER TRIM CAPACITOR C70	Trims the notch filter to the correct frequency.
10	IMAGE NULL CONTROL (A7R121)	Nulls the image frequency out of the mixer.
11 and 12	INJECTION NULL CONTROLS (A7R110)(A7R116)	Nulls the injection frequency out of mixer.
13	IMAGE NULL CAPACITOR (A7C63)	Nulls the image frequency out of the mixer.
14	IF LEVEL CONTROL (A7R67)	Sets IF level into the imageless mixer.
15	-15V LED (A7DS2)	Illuminates to indicate the -15 volt regulator is operational.
16	+15V LED (A7DS1)	Illuminates to indicate the +15 volt regulator is operational.

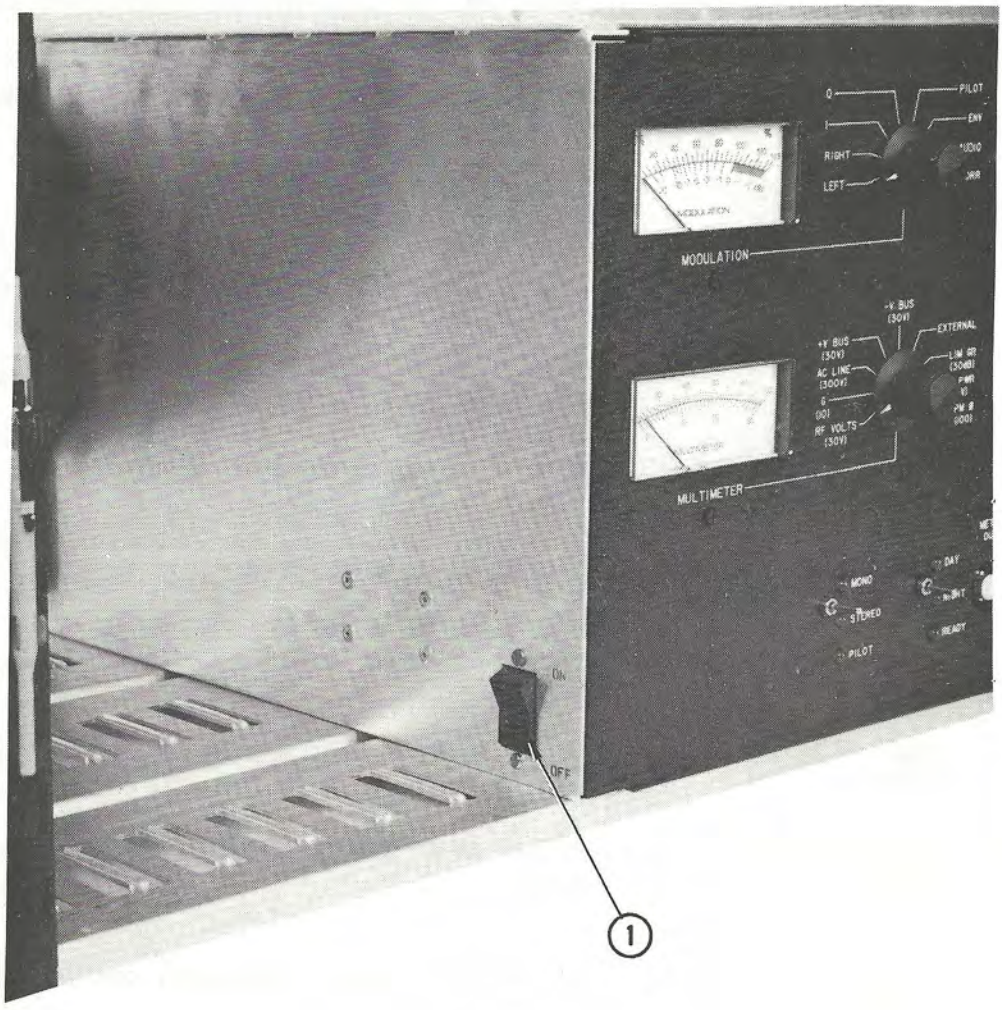


Figure 3-9. Interior of STX-1A, Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

Table 3-9. Interior of STX-1A, Controls and Indicators

REF.	CONTROL/INDICATOR	FUNCTION
1	POWER ON/OFF SWITCH (A9S1)	Controls primary power to the exciter power supply.

WARNING: Disconnect primary power prior to servicing.

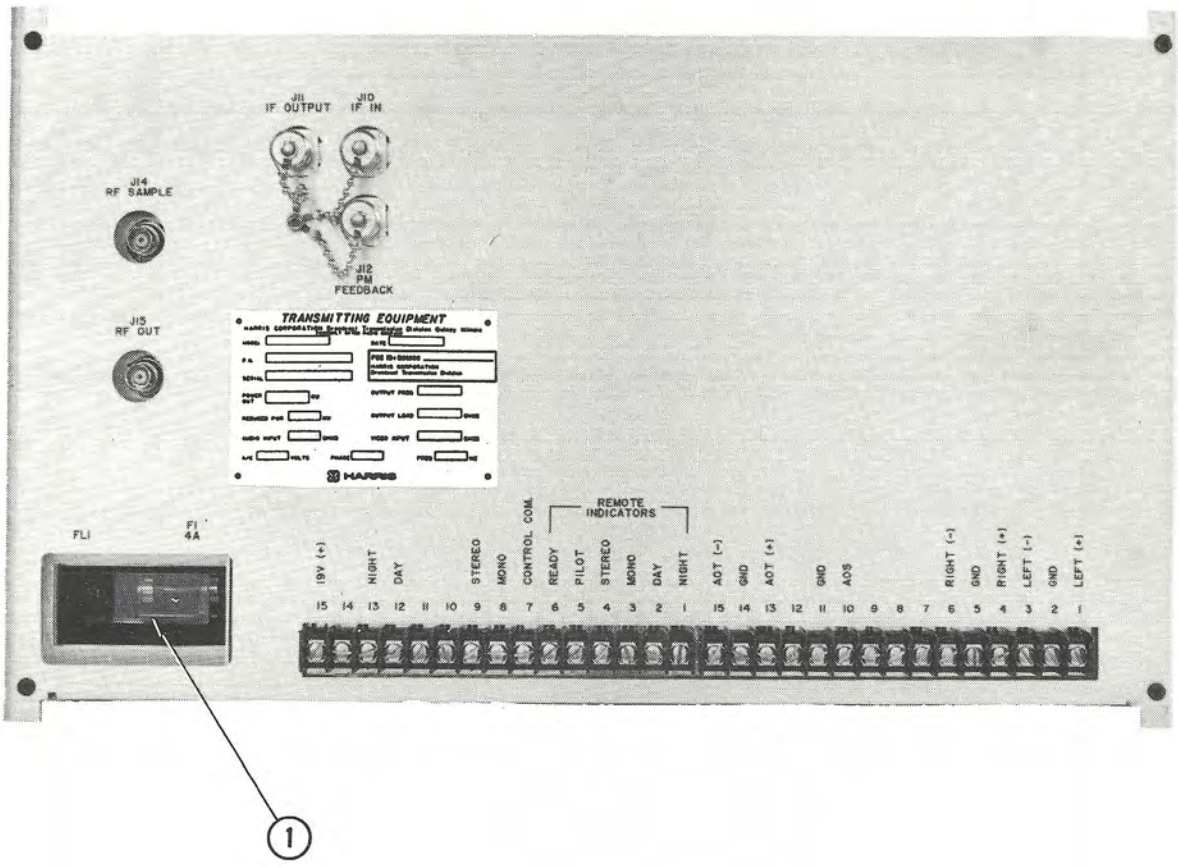


Figure 3-10. Rear View of STX-1A, Controls and Indicators

WARNING: Disconnect primary power prior to servicing.

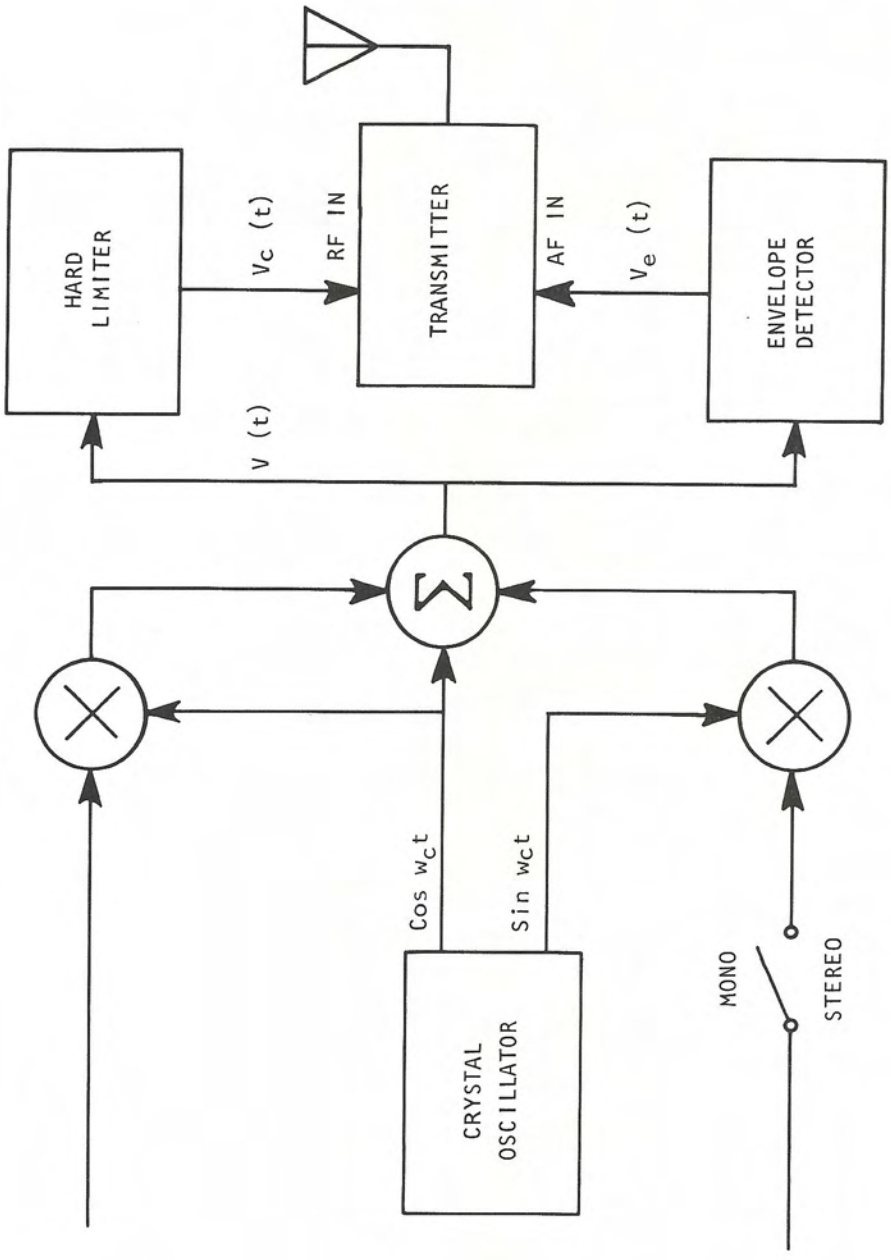


Figure 4-1. Conversion of a Standard AM Transmitter to a Quadrature AM (QAM) Transmitter

WARNING: Disconnect primary power prior to servicing.

b. Greatly improved stereo indicator response time (less than 100 msec.).

c. Reduced receiver microphonics due to faster PLL.

d. Makes possible non-PLL synchronous receivers using quartz crystal for carrier recovery.

4-11. Figure 4-1 shows the technique for converting a standard AM transmitter into a quadrature AM transmitter. A crystal oscillator and phase shift network generate the low level inphase carrier, cos $w_c t$ and quadrature carrier, sin $w_c t$. These carrier signals are multiplied (by balanced mixers) respectively by the I and Q audio signals. The carrier is added in to produce the low level quadrature signal, V(t).

$$V(t) = \cos w_c t + I \cos w_c t + Q \sin w_c t$$
$$= [1+I] \cos w_c t + Q \sin w_c t$$

4-12. It can be shown using trigonometric identities that

$$V(t) = V_e(t)\ V_c(t) \text{ where,}$$

$$V_e(t) = SQR[(1+I)^2 + Q^2] = \cos [w_c t - \arctan [Q/(1+I)]]$$

$V_e(t)$ is an audio frequency (AF) signal which can be recovered from V(t) by an envelope detector and be applied directly to the transmitter's AF input. $V_c(t)$ is a constant amplitude radio frequency (RF) signal which can be recovered from V(t) by using a limiter. $V_c(t)$ is applied to the transmitter's RF amplifier chain in place of the signal from the transmitter's carrier frequency oscillator. The transmitter's AF and RF amplifiers amplify $V_e(t)$ and $V_c(t)$ separately and multiply them together in the modulated stage to recreate the complete quadrature signal, V(t), at the desired level.

4-13. AUDIO INPUT BOARD

NOTE

For IC's with more than one device per package the individual devices will be referred to by the IC pin number which corresponds to the output of that particular device. For example an op amp in a TL074 package (U1) would be referred to as U1-1, U1-7, U1-8, or U1-14.

4-14. Refer to figures 4-2 and 8-1 for the following discussion. The audio input board accepts 600 ohm balanced audio inputs for the left and right channels. The board filters the left and right channel signals, matrixes them to form L+R and L-R, highpass filters L-R and allpass filters L+R, and outputs the filtered L+R and L-R signals to the peak limiter board.

SECTION IV

PRINCIPLES OF OPERATION

4-1. INTRODUCTION

4-2. This section of the maintenance manual will present the principles of operation for the AM STEREO EXCITER. Principles of operation discussions will be presented at a functional and at a detailed level.

4-3. OVERALL SYSTEM

4-4. The HARRIS system uses quadrature modulation to generate its AM stereo signal. Both the in phase and the quadrature carriers are modulated in the same manner with the L+R and the L-R signals respectively. Since both channels are amplitude modulated, the composite stereo signal contains only first order sidebands as in mono broadcasts. This simple modulating scheme, because of its linear nature, does not put additional constraints on antenna systems now in use. Also since the mono and stereo channels are modulated in the same manner, they can also be demodulated the same way.

4-5. If the programming material is such that envelope detector compatibility needs to be controlled, the STX-1A has circuitry to detect differences between the envelope and the L+R and to accordingly reduce single channel modulation so that this difference is acceptable. This single channel modulation limit is only to control negative peaks of modulation because it is only on these negative peaks that there may be a difference.

4-6. FUNCTIONAL DESCRIPTION

4-7. L and R are applied to a matrix which generates L+R and L-R. L-R is highpass filtered to reserve pilot spectrum below 200 Hz. As a result, no separation is transmitted below 200 Hz. It is well known that human hearing loses directionality below about 300 Hz. Thus, the tradeoff is against something which is inaudible. The effect of deleting the low frequency signals from L-R is not a loss of directionality.

4-8. The highpass filter (HPF) rejects low frequency L-R components. The allpass filter (APF) in L+R compensates for the phase shift due to the HPS. It is easy to make the gain reduction track within 0.1% between L+R and L-R, which corresponds to 66 dB stereo separation.

4-9. L+R and L-R from the Audio Input Board are applied to the Quadrature Generator

4-10. The higher frequency pilot at a higher injection, detected in a wider bandwidth, accomplishes the following:

a. Easier pilot detection (simpler filtering).

Table 3-11. AC METERING

MODULATION METER SWITCH POSITION	SIGNAL DISPLAYED
LEFT	Left channel audio input.
RIGHT	Right channel audio input.
I	I channel audio (L+R)
Q	Q channel audio. Left channel audio minus the right channel audio divided by G plus the pilot. (L-R/G + Pilot)
PILOT	Pilot signal before being added to the L-R/G.
ENVELOPE	Detected envelope of the composite stereo signal.
AUDIO	Compensated audio sent to the transmitter.
PM CORRECTOR	Amount of phase correction being done by the PM feedback board.

Table 3-12. DC METERING

MULTIMETER SWITCH POSITION	SIGNAL DISPLAYED
RF VOLTS	RMS Volts out into a 50 ohm load.
G	Always reads -2.5 volts.
+19 VOLTS	Preregulated +19 volts bus.
-19 VOLTS	Preregulated -19 volts bus.
EXTERNAL	Not used.
AC LINE	AC line voltage.
LIM GR	Peak limiter gain reduction in dB with a 3 dB offset.
FB PWR	RF feedback power.
PM	Phase of the RF feedback into exciter.

3-5. OPERATION

3-6. Exciter power ON/OFF switch is located behind the swing out door on the right wall of the card cage. The only adjustments required on a daily basis are the mode controls. All mode switching is remoteable from connections on the rear of the exciter.

3-7. MONITORING CAPACITY

3-8. The metering functions are contained within the modular DC and peak reading audio metering circuits. The metering functions are listed in Table 3-11 and 3-12.

3-9. MODE SWITCHING

3-10. The STX-1A can be used for DAY or NIGHT operation in either the MONO or STEREO modes. The DAY/NIGHT switching is to change power levels, patterns etc. for daytime and nighttime operations. The MONO mode allows stations which use stereophonic operation as a standard mode to broadcast in monaural if one audio channel fails during stereophonic operation. Indicators on the front panel illuminate to indicate the selected mode of operation.

3-11. REMOTE CONTROL AND MONITORING

3-12. External control ports are provided at terminal board TB2 on the rear of the STX-1A for remotely switching the exciter between day and night operation and between stereo and mono modes. The control ports are optically isolated from the internal circuitry of the exciter. Remote switching can be accomplished with the +19V supplied at terminal strip TB2-15 or with an external supply. To activate the remote switching function connect the plus supply voltage to the COMMON terminal TB2-7. A momentary ground at any of the control ports will cause the exciter to switch to that mode. Only momentary contact is required because the mode selected is remembered by latching relays inside the exciter.

3-13. The remote indicator ports are provided for DAY/NIGHT, MONO/STEREO, PILOT and READY indicators. The remote indicator outputs, when active, provide a path for current to flow to ground through some resistance. When active means when the respective LED on the exciter is illuminated. The maximum amount of current at each port is limited to between 3 and 10 mA. The outputs are open collector opto isolators with 600 ohms of resistance in series with each collector.

Table 3-10. Rear View of STX-1A, Controls and Indicators

REF.	CONTROL/INDICATOR	FUNCTION
1	FUSE F1	4 amp fuse to protect from an over current condition within the STX-1A.

WARNING: Disconnect primary power prior to servicing.

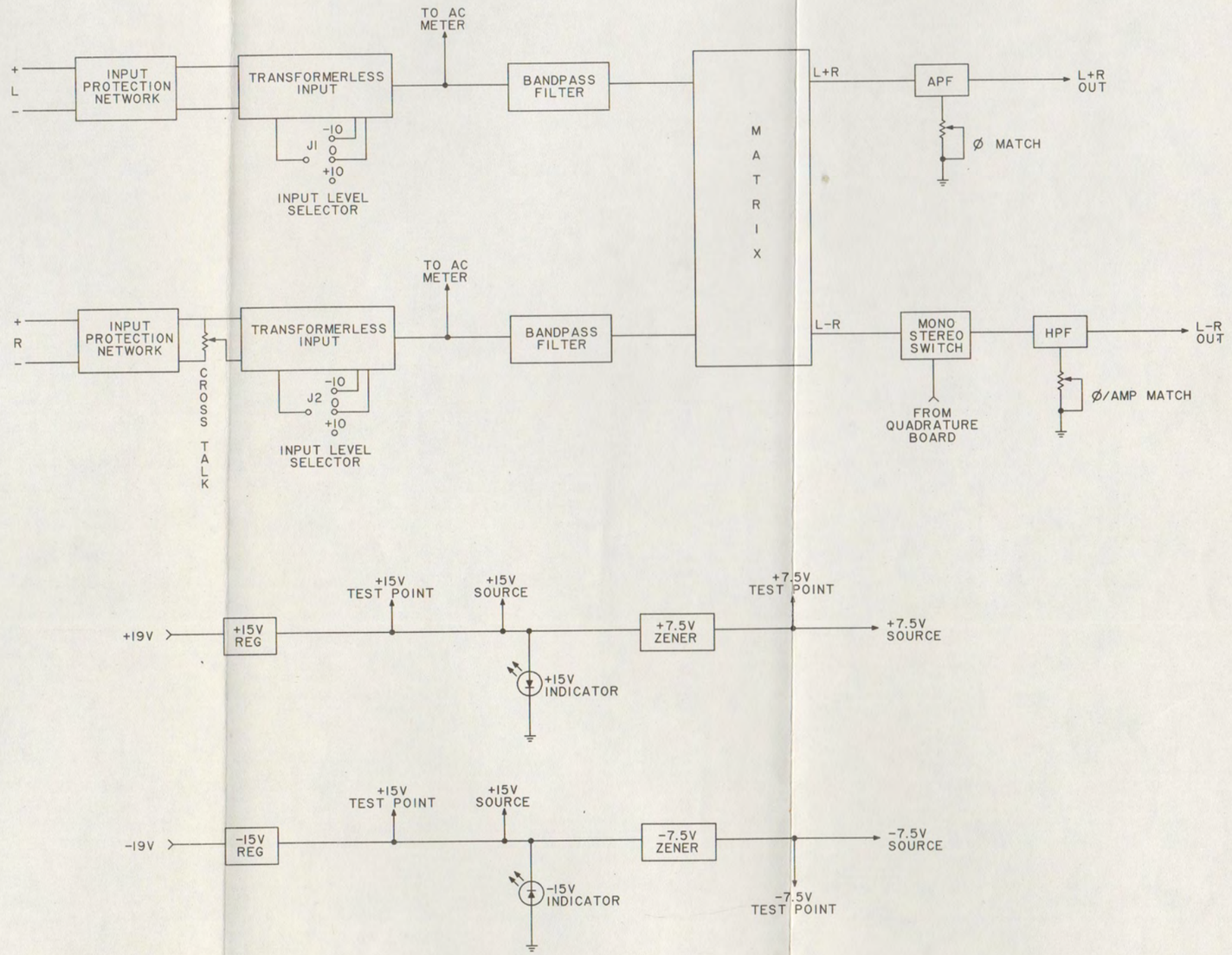


FIGURE 4-2. BLOCK DIAGRAM
AUDIO INPUT
839 6202 040

4-15. U1-14 and -8 and U3-14 and -8 are used as instrumentation-type amplifiers, used as transformerless balanced input stages. Jumpers J1 and J2 determine the input amplifier sensitivity.

4-16. It is necessary to match the frequency response of the exciter to that of the transmitter in use. For example, if the transmitter modulator cuts off sharply above 10 kHz, then the exciter should not have audio applied above 10 kHz. Similarly, if the transmitter low end response cuts off at 30 Hz, then there should be no audio components below 30 Hz at the exciter input. Unlike mono, where transmitter rolloff does not have any effect other than the rolloff itself, in AM stereo there will be an intermodulation distortion component in the transmitter output if the exciter frequency response exceeds that of the transmitter. For this reason, the STX-1A exciter supplies highpass and lowpass filtering of the left and right channel audio signals.

4-17. Highpass filtering consists of a two pole Chebychev 0.1 dB ripple filter with a cutoff of 45 Hertz. At 45 Hz, the cutoff is low enough so as not to affect the response of any AM radios, and high enough that it is above the cutoff of any AM transmitter.

4-18. Lowpass filtering consists of a four pole Chebychev 0.1 dB ripple filter with adjustable cutoff frequency. As supplied by the factory, the filter has a cutoff of 15 kHz. The cutoff frequency is determined by a resistor array (R8). If the transmitter has a cutoff significantly lower than 15 kHz, then a different resistor array value is given by the following table:

DIP Resistor Value	Lowpass Cutoff Frequency
3.0 k	20 kHz
3.9 k	15 kHz
4.7 k	12.5 kHz
6.2 k	10 kHz
8.2 k	7.5 kHz
12 k	5 kHz
13 k	4.5 kHz

NOTE

For IC's with more than one device per package, individual devices will be referred to by IC pin number that corresponds to the output pin of that particular device.

4-19. U2-1 and -14 matrix the filtered left and right channel signals to for L+R and L-R. U2-14 is an inverting summing amplifier, while U2-1 is configured as a difference amplifier.

4-20. In the HARRIS AM stereo system, the stereo pilot is located at 25 Hertz. To reserve spectrum for the pilot and to provide a guardband, L-R is highpass filtered at 200 Hz. Although this eliminates stereo separation below 200 Hz, it is a well known fact that human hearing loses directional perception below about 300 Hz; therefore, the effect is inaudible.

4-21. U5-1, -7, -8, and -14 comprise a double Butterworth highpass filter with a 200 Hz cutoff, to provide pilot protection. The filter provides a sharp cutoff, to allow high separation at frequencies just above 200 Hz while at the same time providing a high attenuation of signals which might interfere with the pilot.

4-22. U2-7 and -8 and associated components are used as an allpass filter. An allpass filter has flat amplitude response versus frequency, but has a phase shift which is frequency dependent. In this case, the allpass filter has the same phase shift as highpass filter U5. By matching the phase shifts of the highpass and allpass filters, it is possible to obtain an even sharper separation cutoff at 200 Hz.

4-23. U4, a CMOS multiplexer, is used to switch off L-R when the exciter is switched to the MONO mode.

4-24. PEAK LIMITER/SEPARATION CORRECTOR BOARD

4-25. PEAK LIMITER. Refer to figures 4-3 and 8-9 for the following discussion. The peak limiter holds the following modulation constraints on matrixed audio applied to its input:

L+R	+100	+130%
L-R	±100%	
L ONLY	±80%	+80, -50%
R ONLY	±80%	+80, -50%

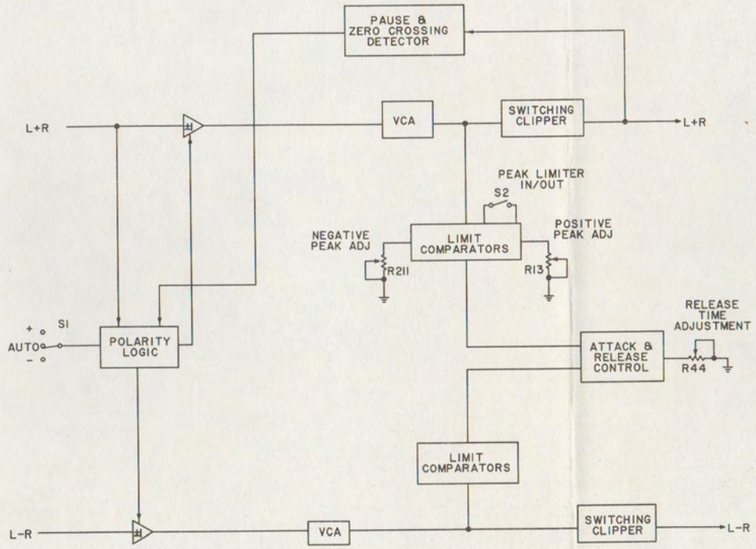
4-26. A clip-limit architecture with program dependent multiple release rates allows maximum modulation density when used alone or in combination with other processing equipment. Recovery rate and positive peaks are user adjustable. Limiter attack time is fixed at 1 msec.

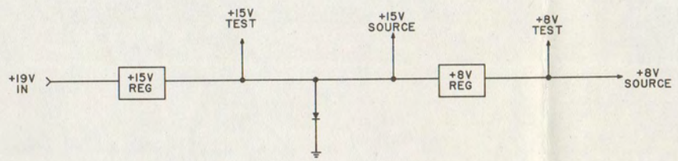
4-27. Since L+R and L-R signal paths are identical, only the L+R path will be described.

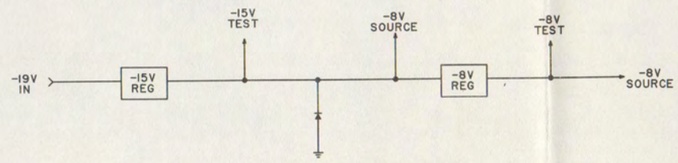
4-28. AC coupled L+R audio is applied to L+R phase inverter U1-8, which is configured as a gain buffer or inverter under control of the asymmetry detection circuitry.

4-29. The L+R audio output of U1-8 is AC coupled to the input of Voltage Controlled Amplifier (VCA) U2. The gain of U2 may be externally adjusted by applying a DC voltage to its control port. This DC voltage is generated by the limiter attack and release circuitry, which will be described later. The current output of VCA U2 is changed to a voltage output by current to voltage converter U1-7. The audio output of U1-7 is DC coupled to the L+R clipper and limiter control circuitry U4-13, U4-14, and U6.

PEAK LIMITER







SEPARATION CORRECTOR

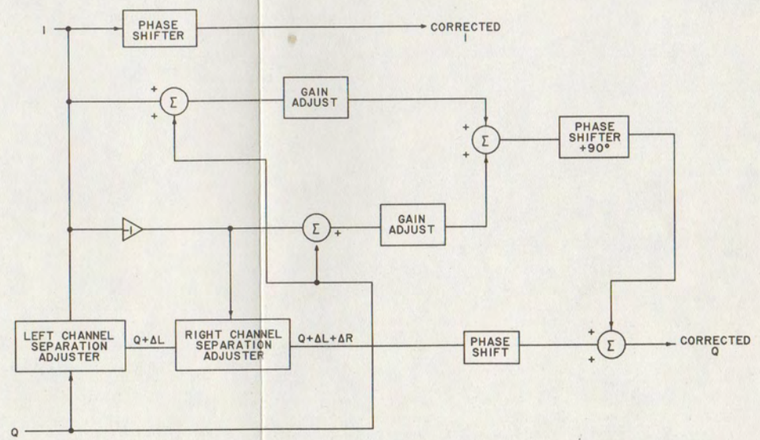


FIGURE 4-3. BLOCK DIAGRAM
PK LIM/SEP CORR
839 6202 039

4-30. Whenever the audio output voltage of U1-7 exceeds the voltage limit for positive modulation set by R12, R13, and R175 at the + input of comparator U4-13, the output of U4-13 will go low, simultaneously producing a limiter control voltage and switching U6 from the audio output of U1-7 to the positive modulation limit voltage, which is adjustable from +5V (+100%) to +7V (+140%). Likewise, whenever the audio output voltage of U1-7 exceeds the negative modulation voltage limit set by R17, R211, and R18 at the - input of comparator U4-14, the output of U4-14 will go low, simultaneously producing a limiter control voltage and switching U6 from the audio output of U1-7 to the negative modulation voltage limit, which is adjustable from -5V (-100%) to -3V (-60%).

4-31. The end result is an extremely fast, hard clipper which also produces a control voltage to operate the limiter attack/release circuitry for compatibility control.

4-32. Modulation constraints in L+R and L-R are set by the clipper/limiter control circuitry. In addition, L only and R only modulation is controlled by limiting overall L+R and L-R modulation. Left only modulation limits are sensed by comparators U8-1 and U8-2. Right only modulation limits are sensed by U9-14, U4-1, and U4-2. When L only or R only signal level exceeds +4 or -4 volts ($\pm$80%), one of the outputs of U4-1, U4-2 or U8-1, U8-2 will go low, producing a limiter control signal.

4-33. The outputs of all limiter control comparators (L+R - U4-12,U4-14; L-R U8-13,U8-14; L U8-1,U8-2, and R U4-1,U4-2) are wire-ored together to produce a common limiter control signal. Whenever any modulation constraint is exceeded, the limiter control line goes low to initiate limiting action.

4-34. Limiting control switch S2 breaks the limiting control line to disable the limiter attack and release circuitry when only clipping is desired.

4-35. When S2 is closed, PNP transistor Q4 will turn on whenever the limiting control line goes low. When Q4 turns on, capacitors C26, C27, C28 and C29 begin to charge in a negative direction through diodes CR9, CR10, CR11, and resistor R55, respectively. U9 and Q5 form a constant current source to provide a controlled rate of charge for C26-C29. This charging rate determines the attack time of the limiter, which is approximately 1 msec. The voltage across C28 is buffered through U9-7, whose output is fed to VCA drivers U1-1 and U7-1. The outputs of U1-1 and U7-1 are fed to the control inputs of the L+R and L-R VCA's. The gain of the L+R and L-R VCA's is reduced until their output voltage no longer violates any of the required modulation constraints. The voltage on C28 will remain constant assuming that the input level is not changed. If the input level increases, C28 will again charge negatively until sufficient control voltage is developed to reduce the gain of VCA's U2 and U10. If the input level decreases, constant current source U9-1 and Q6 will charge C26, C27, C28, and C29 through CR7, CR8, and R50. The rate of charge of these capacitors determine the recovery rate of the limiter in dB/sec.

4-36. Maximum positive modulation is insured by monitoring L+R audio asymmetry and changing the phase of U1-8 and U7-8 whenever negative asymmetry is observed.

4-37. The asymmetry of incoming L+R audio is constantly monitored by R24-R27, CR22, CR23 and C16, C17, which form two unipolar lossy integrators whose outputs are summed by R28, R29, and R30. The resulting DC voltage is applied to the non-inverting input of comparator U3-2. The inverting input of U3-2 is either positive or negative, depending on the previous state (+ or -) of the asymmetry flip-flop U5. Comparator U3-2 and transistor Q1 operate clocked R-S flip-flop U5. Phase flip-flop U5 acts as a memory device to determine the present state of L+R and L-R phase inverters U1-8 and U7-8. If comparator U3-2 detects symmetry or positive asymmetry, its output does not change. If comparator U3-2 detects negative asymmetry, its output changes state. Then, when a pause in program level and a zero crossing are detected by L+R pause detector U3-1, U3-13, and U3-14, the output of phase flip-flop U5 will toggle, changing the phase of U1-8 and U7-8 to provide positive asymmetry.

4-38. SEPARATION CORRECTOR. Refer to figures 4-3 and 8-9 for the following discussion. The separation corrector provides feedforward correction for transmission system deficiencies by adding controlled amounts of L or R into L-R. U15-14 forms an allpass filter which is used to equalize time delays in L+R and L-R channels. U15-1 and R126, R127 add controlled amounts of frequency independent right channel information to the L-R channel through summing amplifier U17-7, allpass filter U16-14, and summing amplifier U17-1. Likewise, U15-8, U15-7, R134 and R135 add controlled amounts of frequency independent left channel information to the L-R channel through summing amplifier U17-7, allpass filter U16-14, and summing amplifier U17-1. Frequency dependent RIGHT channel information is derived by U16-1, R143, R144, R145, R146 and applied to the L-R channel through allpass filter U16-8 and summing amplifier U17-1. Frequency dependent left channel information is derived by U15-8, U16-7, R153, R154, R155, R156 and applied to the L-R channel through allpass filter U16-8, and summing amplifier U17-1.

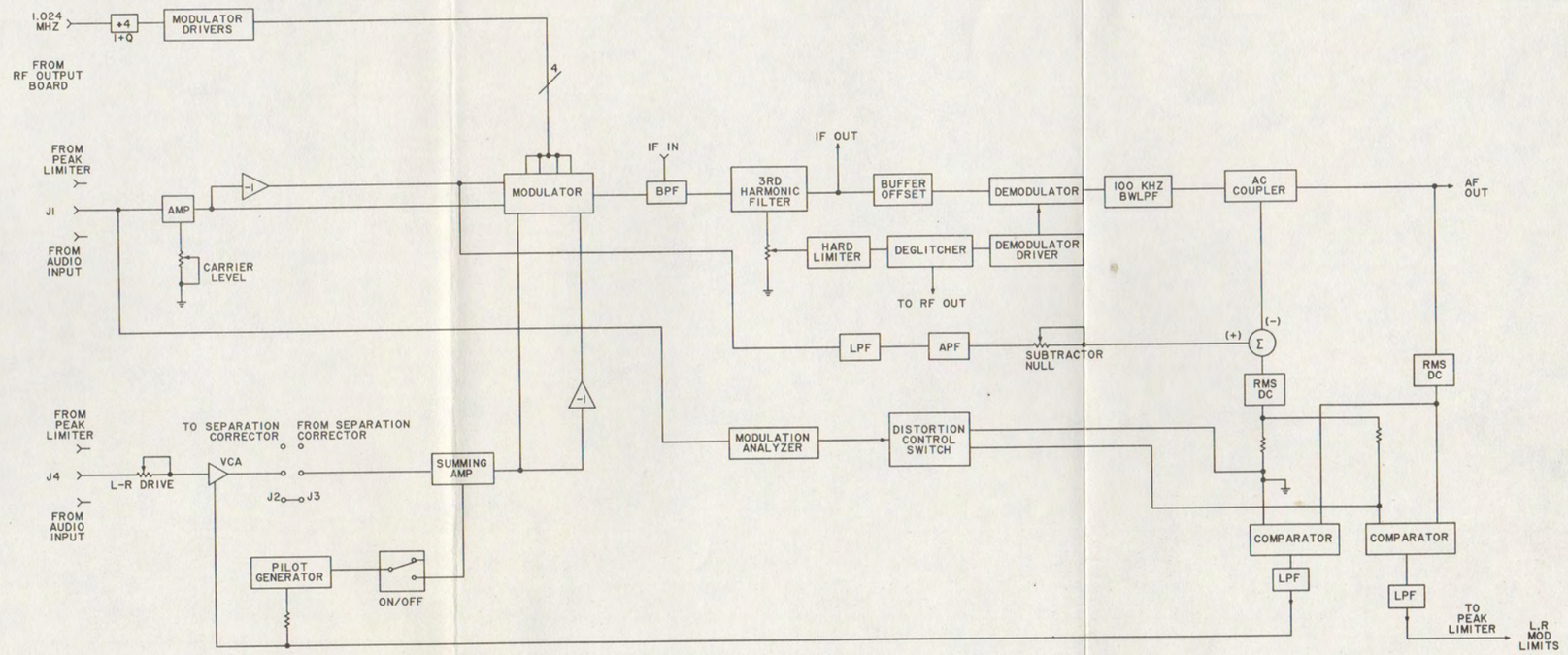
4-39. QUADRATURE GENERATOR BOARD

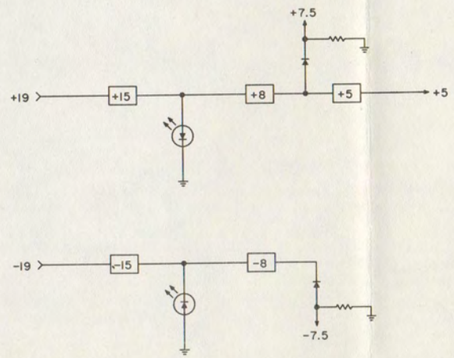
4-40. Refer to figures 4-4 and 8-2 for the following discussion. The Quadrature generator board is the heart of the AM stereo exciter. It is here that the AM stereo signal is generated. The Quadrature Generator accepts the peak limited L+R and L-R signals from the Peak Limiter board, modulates the I (in-phase) and Q (quadrature) components, generates the pilot, and separates the IF signal into its PM and envelope audio components.

4-41. U6-1 and -7 provide both polarities of 1+L+R. CARRIER ADJUST potentiometer R14 sets the carrier level, and therefore the modulation level. The two outputs are applied to modulator U8.

4-42. The pilot is produced by U26, a function generator IC. The pilot frequency is 25 Hz. The sinewave pilot from U26 is added into the Q channel via CMOS switch U27. U27 switches the pilot off during MONO transmission.

4-43. U6-8 and -14 provides both polarities of the Q channel modulation to modulator U8.





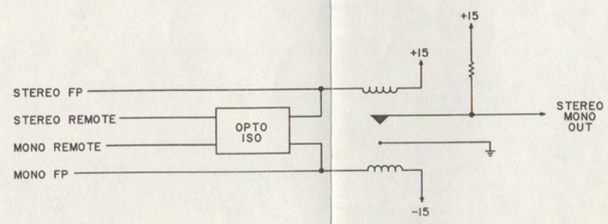


FIGURE 4-4. BLOCK DIAGRAM
QUADRATURE GENERATOR
839 6202 051

4-44. Modulator U8 consists of four DMOS switches configured as two SPDT switches. The switches are driven with the I and Q signals, and switched at the IF rate. U22, U24, and U25 provide 15 volt p-p squarewave drive to the gates of U8 at the IF frequency of 256 kHz.

4-45. The outputs of modulator U8 are summed and filtered by U9 and associated components. The complete IF AM stereo signal is present at R60, and is buffered by U10 for application to external test equipment. U14 is operated as a hard limiter; its purpose is to strip off the amplitude modulation from the IF signal and recover the phase modulation component. To improve the performance of the limiter on negative modulation peaks, a filtering and re-limiting process is used. A tank circuit formed by L4 and C38 is driven by U14, which in turn drives second limiter U15-12.

4-46. If the signal envelope is completely pinched off (zero signal), then no limiter can recover the PM component from a non-existent signal. Furthermore, if the RF drive were removed during negative modulation peaks at the IF, then some transmitters might overload or actually suffer damage. To guard against the possibility of RF loss at complete IF envelope pinch-off, a "deglitcher" circuit is included after second limiter U15-12.

4-47. The deglitcher comprises U15-7, [redacted] (U16), [redacted] (U17), [redacted] (U18), U19, U20, U21, and U23. Its purpose is to allow phase modulated signals of up to +/-180 degrees to pass unaffected, while filling in "holes" or oscillations with IF carrier. Regardless of the input signal from U15-12, the outputs from U16-6 and U15-7 will be 256 kHz phase modulated IF carrier. Thus, the deglitcher ensures that if the IF signal is pinched off, or if any of the preceding circuits fail, that there will still be an RF signal applied to the transmitter.

4-48. U11 buffers the IF signal and drives envelope detector U12. The PM signal taken from the deglitcher via U15-7 controls the switches in CMOS multiplexer U12. This results in U12 acting as an active rectifier. Since the PM signal zero crossings are coincident with those of the IF signal, it can be used as a multiplexer drive signal. This kind of envelope detector eliminates the problems of ordinary diode-type envelope detectors; namely, diode threshold distortion and diagonal clipping.

4-49. The fullwave rectified IF signal from U12 is lowpass filtered by U13-1, -7, and -8. These opamp sections are used as a fifth order 100 kHz Butterworth lowpass filter.

4-50. The resulting audio signal has its DC and subsonic components removed by AC coupling adapter U28-1 and -7. These two opamps divide the envelope signal in such a way that when it is recombined with the RF in an AC coupled transmitter, that there will be no distortion. Integrator U28-7 controls the gain of U28-1 via LDR1.

4-51. The AC coupled envelope signal, having been inverted by U28-1, is subtracted from the L+R signal in U29-14. U28-8 and -14 filter the L+R signal in such a way that the amplitude and phase shift match those of the

IF modulator/demodulator chain. U29-14 outputs the difference between the envelope and L+R, which is a distortion signal. RMS converter U30 produces a voltage corresponding to the root mean square of the distortion signal.

4-52. RMS converter U31 produces a voltage proportional to the root mean square of the AC coupled envelope signal from U29-1.

4-53. Envelope distortion is controlled by feeding a reference signal to the PEAK LIMITER. The reference signal is generated by U33 and U34.

4-54. AUDIO OUTPUT BOARD

4-55. Refer to figures 4-5 and 8-4 for the following discussion. The audio output board accepts the envelope audio from the Quadrature Generator, provides delay, amplitude equalization, and phase equalization, and audio drive to the transmitter.

4-56. The envelope audio signal buffered by U1-7, is applied to variable allpass filter U1-14, which provides zero to 5.4 microseconds delay. U1-14 drives a series of identical third order allpass sections (U1-8, U1-1, U2-8, U2-14, etc.) which each provide 4.4 microseconds delay. The delay line output is selected by switches S1 and S2, which determine how many 4.4 microsecond sections are in the signal path. Using the 4.4 microsecond steps provided by switches S1 and S2, and the continuously variable delay controlled by R8 and R9, any delay time (up to the maximum) may be selected.

4-57. The delay line has a constant time delay characteristic versus frequency. But some transmitters may have a nonuniform time delay characteristic. A delay line can correct for such a transmitter at only one frequency. Variable allpass filter U8-14 corrects for nonuniform time delay (nonlinear phase). By adjusting R28 or R29 (day and night controls), the time delay response can be made to increase with frequency, decrease with frequency, or to be flat.

4-58. U8-7 is an amplitude equalizer intended to correct for high and low frequency rolloff or rise. Controls are provided for low frequency boost/-cut, high frequency boost/cut, and high frequency crossover.

4-59. U8-8 sets the envelope audio drive level to the transmitter by means of R54 and R55. U14-1 and -7 is a 600 ohm line driver, providing balanced audio to the transmitter.

4-60. All adjustments on the AUDIO OUTPUT module are duplicated for independent DAY and NIGHT settings.

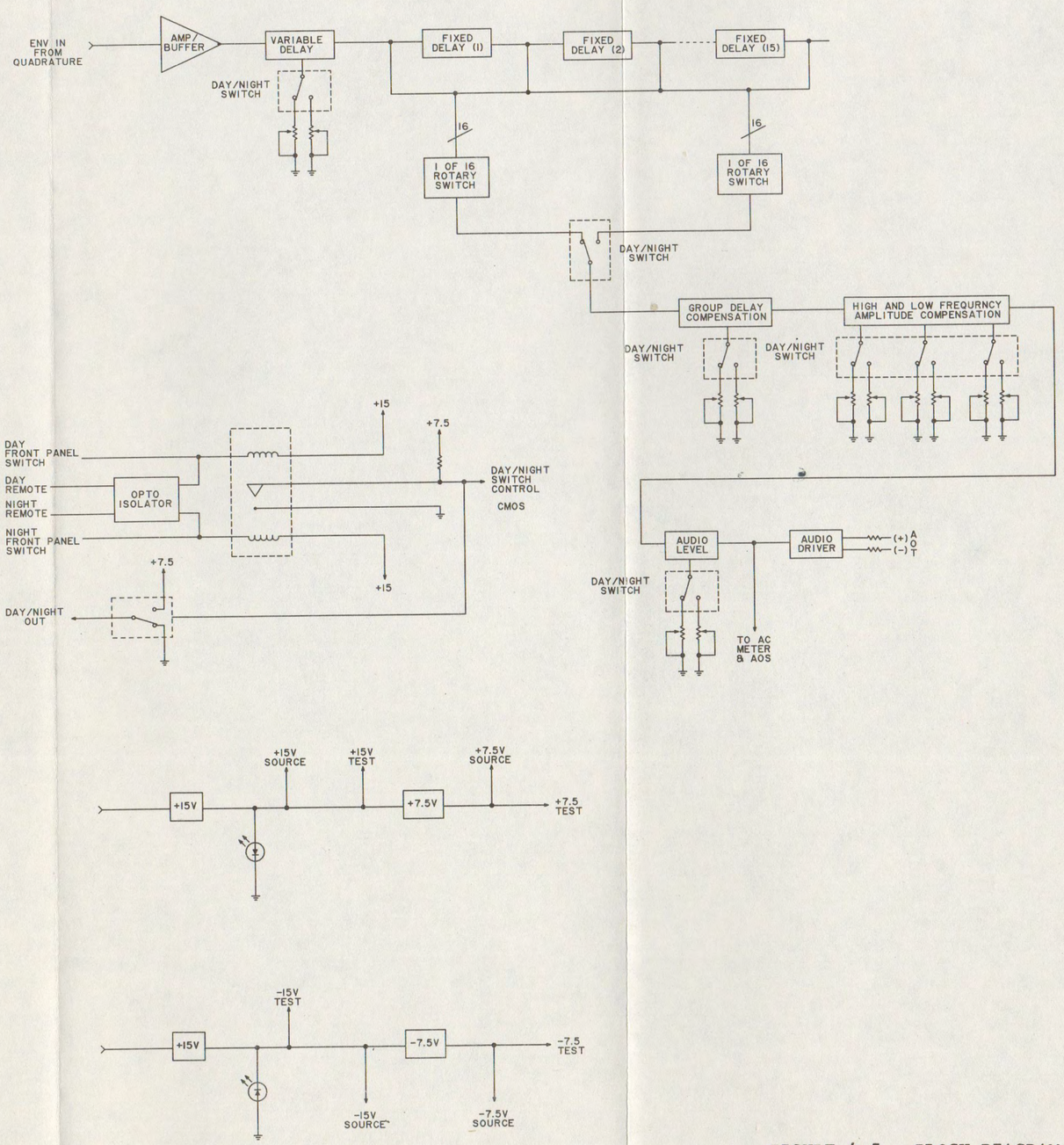


FIGURE 4-5. BLOCK DIAGRAM
AUDIO INPUT
839 6202 042

4-61. RF OUTPUT BOARD

4-62. Refer to figures 4-6 and 8-3 for the following discussion. The RF Output board accepts the IF PM signal from the Quadrature Generator, delays it, and up-converts it to the station operating frequency. The RF output is then applied to a power amplifier (not on this board) which drives the transmitter.

4-63. The IF frequency is applied as a TTL square wave signal to a logic network consisting of NAND gates U17-8 and -11 and monostables U16-4 and -9. This network controls the duty cycle of the input TTL signal. The duty cycle is forced to be within the 25% to 75% range. The duty cycle is controlled for the best performance of the following frequency multiplier.

4-64. The duty cycle controller feeds bandpass filter U1. The output of the bandpass filter in turn drives a 16 stage all pass filter delay line. Each section of the delay line delays a specific band of frequencies 63 us and all other frequencies an insignificant amount. All together the line has a 63 us delay from about 150 kHz to 350 kHz which is wide enough to provide a constant time delay to all the components of the phase modulated signal. The 16 stages of delay are made up of U2, U3, U4 and U5 and associated circuitry.

4-65. A ladder filter follows the delay line for suppression of harmonics of the IF. A bandpass filter and amplifiers U7 and U6 further filters and amplifies the phase modulated signal before up conversion.

4-66. U6 drives an "imageless mixer" using U10 and U11. The mixer uses 0 degree and 90 degree phases of IF and LO injection to cancel the unwanted sideband, which in this case is the upper sideband.

4-67. The LO drive is provided by a frequency synthesizer operating at four times the injection frequency. U8 is the frequency synthesizer IC, and contains reference oscillator, reference divider, programmable divider, and phase detector functions. A VCO assembly mounted on the board completes the PLL. The VCO output is converted to TTL by Q6 and Q7, and Q9 divides the VCO output by four to yield the injection frequency. U9 is connected as a Johnson counter to provide the required 0 degree and 90 degree phases to "imageless mixer" U10 and U11.

4-68. The output current of the mixer is increased by transformer T1 and is injected into the emitter of Q1. The signal is converted to a voltage at the collector of Q1. Q2, R76, L17, S1 and associated capacitors form a notch filter to filter out the largest of the undesired signals at this point. Q3, L18, R52, and associated capacitors form a bandpass filter to attenuate all but the desired signal and Q4 forms a buffer and output driver for the RF amplifier.

4-69. POWER SUPPLY & RF AMPLIFIER

4-70. The main power supply is pre-regulated to +/- 19 by U3 and U4 and are sent to the other printed circuit boards. Separate plus and minus 15 volt regulators (U1 and U2) on this board supply power for the RF amplifier.

4-71. LED's DS1, DS2, DS3, DS4, illuminate to indicate proper operation of the regulators.

4-72. The power amplifier accepts drive from the RF output board A7 and amplifies this to a maximum of 4 watts out. R35 varies the drive to the amplifier to change the power output. Q1 is a current amplifier which drives voltage amplifier Q2. The output drivers Q3 and Q4 are biased into a linear operation region by Q5 and Q6. A sample of the RF output is rectified and filtered to a dc voltage to give an indication of the RF output level.

4-73. METERING BOARD

4-74. The metering circuits allow monitoring of selected critical ac and dc functions. The dc parameters are displayed on the multimeter and selected by switch S2. These dc voltages represent actual dc voltages critical to the operation of the exciter or ac power levels The modulation meter allows the monitoring of important modulation levels selectable by switch S1. The modulation meter response characteristic is switchable between peak and average by S3.

4-75. MODULATION METER CIRCUITRY

4-76. The signal selected by S1 is applied to a precision full wave rectifier circuit consisting of U2, CR1, CR2, U3 and associated components. As CR1 and CR2 are enclosed in the U2 feedback loop the forward turn on voltage characteristic of each diode is compensated. The positive going half cycles appear across R11 and the negative going half cycles appear across R12 with no diode thresholds. Control R6 adjusts the offset voltage of U1 to zero. The rectified signal is applied from the anode of CR2 to the inverting of U3 and from the cathode of CR1 to the noninverting input of U3. Resistor R16 in the inverting input of U3 provides an adjustment to equalize the positive and negative inputs to U3.

4-77. The signal is peak detected and amplified by a peak detector comprising Q1, CR3, C7 and Q2. Negative dc feedback is obtained from the output of amplifier Q2 and applied to U3. This provides fast and accurate charging of capacitor C7 in response to voltage peaks.

4-78. The output of the rectifier charges and discharges C20 through R90 to provide a slower response to the multimeter.

4-79. The output amplifier acts as a meter compensation amplifier to improve the mechanical response characteristics of the meter. Resistor R34 provides a master gain control for the meter and resistor R50 provides circuit temperature compensation to maintain meter accuracy over the entire operating temperature range.

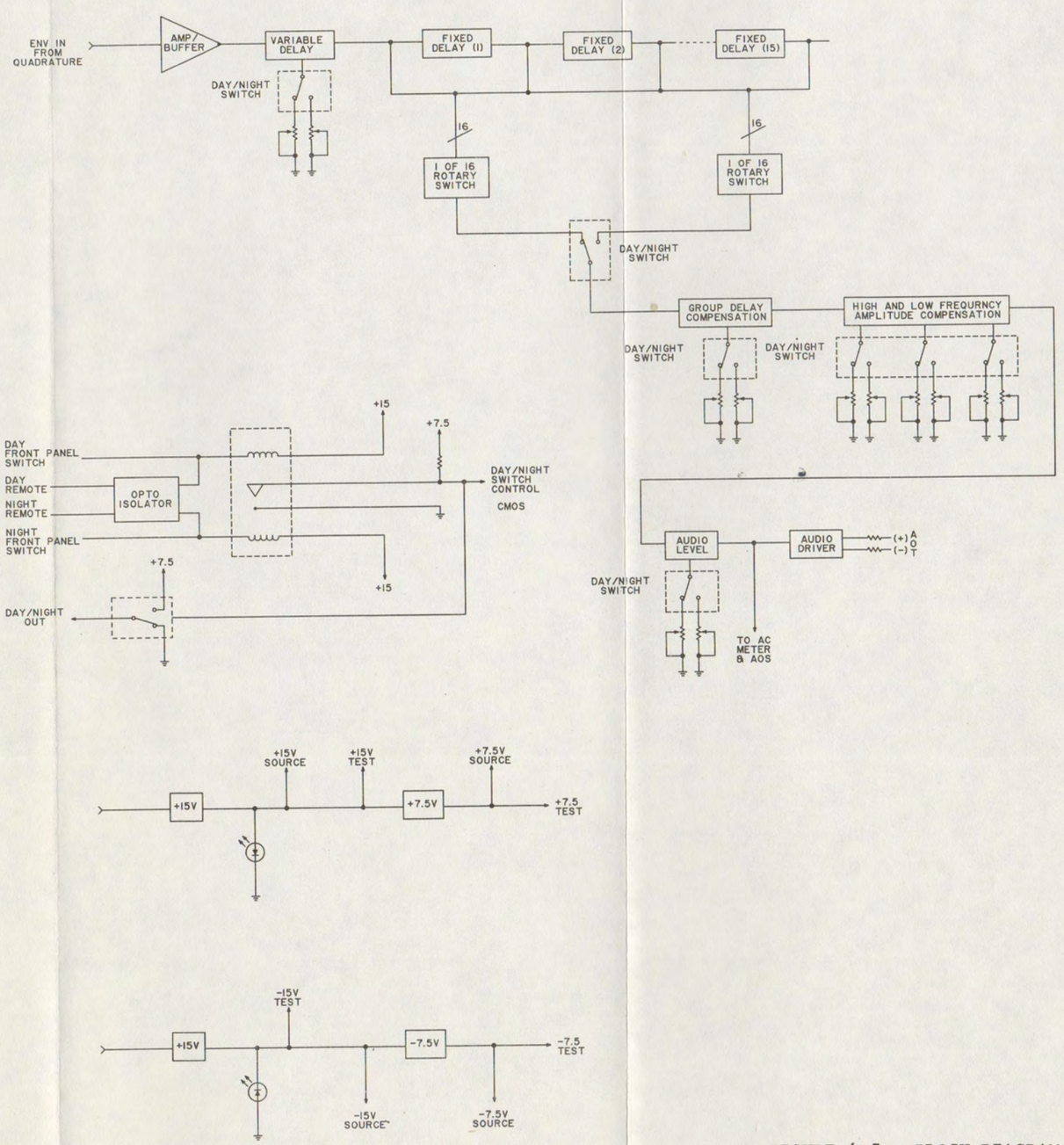


FIGURE 4-5. BLOCK DIAGRAM
AUDIO INPUT
839 6202 042

4-80. DC CIRCUITRY

4-81. The dc voltage selected by S2 is applied to an absolute value amplifier U6 so that regardless of the polarity of the input the output is always positive. If the input is negative Q3 conducts to illuminate DS1 to indicate the input voltage is negative.

4-82. The meter board also includes mode indicators and controls. LED's indicate MONO or STEREO operation DAY or NIGHT operation and indicates the presence of the pilot. Also there is an LED to indicate that the exciter synthesizer is locked and the RF level is acceptable for proper operation. This LED DS2 is labeled READY.

4-83. Plus and minus 15 volt regulators U4 and U5 supply power to the rest of the circuitry on board.

4-84. ACTIVE DEVICE FUNCTIONS

4-85. The following list contains the active devices and their function as they pertain to the HARRIS STX-1A AM STEREO EXCITER:

a. XR2206 Oscillator/pilot generator.

b. MC1496 Balanced Modulator. Up-converts the IF frequency to the transmitter frequency.

c. MC145151 Parallel input phase locked loop (PLL) frequency synthesizer. Generates the correct oscillator frequency to up-convert the IF to RF.

d. AD536 Determines rms distortion of envelope detected audio. (RMS to DC converter.)

e. TBA1205 Limiter. Strips the audio from the envelope waveform to recover the phase modulated IF.

4-86. FREQUENCY DETERMINING AND STABILIZING CIRCUITRY AND DEVICES

4-87. The following items are part of the frequency determining and stabilizing circuitry as used in the HARRIS STX-1A AM STEREO EXCITER:

a. MC145151, parallel input PLL frequency synthesizer with FET VCO. Frequency determining device is a 4.096 MHz fundamental parallel resonance crystal with a 32 pF load and a HC33/U case. The circuit is trimmed with a 10-60 pF capacitor.

SECTION V

MAINTENANCE

5-1. INTRODUCTION

5-2. This section provides preventive maintenance information and corrective maintenance procedures. The information contained in this section is to provide guidance for establishing a comprehensive maintenance program to promote operational readiness and eliminate downtime. Particular emphasis is placed on preventive maintenance and record-keeping functions.

5-3. STATION RECORDS

5-4. The importance of keeping station performance records cannot be overemphasized. Separate logbooks should be maintained by operation and maintenance activities. These records can provide data for predicting potential problem areas and analyzing equipment malfunctions.

5-5. MAINTENANCE LOGBOOK

5-6. The maintenance logbook should contain a complete description of all maintenance activities required to keep the equipment in operational status. A listing of maintenance information to be recorded and analyzed to provide a data base for a failure reporting system is as follows:

DISCREPANCY	Describe the nature of the malfunction including all observable symptoms and performance characteristics.
CORRECTIVE ACTION	Describe the repair procedure used to correct the malfunction.
DEFECTIVE PART(S)	List all parts and components replaced or repaired and include the following details: a. TIME IN USE b. PART NUMBER c. SCHEMATIC NUMBER d. ASSEMBLY NUMBER e. REFERENCE DESIGNATOR
SYSTEM ELAPSED TIME	Total time on equipment
NAME OF REPAIRMAN	Person who actually made the repair
STATION ENGINEER	Indicates Chief Engineer noted and approved the repair of the equipment

5-7. PREVENTIVE MAINTENANCE

5-8. Preventive maintenance is a systematic series of operations performed periodically on equipment. Because these procedures cannot be applied indiscriminately, specific instructions are necessary. Preventive maintenance consists of six operations: inspecting, feeling, tightening, cleaning, adjusting, and painting.

a. INSPECT. Inspection is the most important preventive maintenance operation because it determines the necessity for the others. Become thoroughly acquainted with normal operating conditions in order to recognize and identify abnormal conditions readily. Inspect for the following:

   1. Overheating, which is indicated by discoloration, bulging of parts, and peculiar odors.

   2. Oxidation.

   3. Dirt, corrosion, rust, mildew, and fungus growth.

b. FEEL. Use this operation to check parts for overheating, especially rotating parts such as blower motors. By this means, the need for lubrication, the lack of proper ventilation, or the existence of some defect can be detected and corrected before serious trouble occurs. Become familiar with operating temperatures in order to recognize deviations from the normal range.

c. TIGHTEN. Tighten loose screws, bolts, and nuts. Do not tighten indiscriminately as fittings that are tightened beyond the pressure for which they are designed may be damaged or broken.

d. CLEAN. Clean parts only when inspection shows that cleaning is required and only use approved cleaning solvent.

e. ADJUST. Make adjustments only when inspection shows that they are necessary to maintain normal operation.

f. PAINT. Paint surfaces with the original type of paint (using prime coat if necessary) whenever inspection shows rust, or worn or broken paint film.

5-9. MAINTENANCE OF COMPONENTS

5-10. The following paragraphs provide information necessary for the maintenance of components.

5-11. TRANSISTORS. Preventive maintenance of transistors is accomplished by performing the following steps:

a. Inspect the transistors and surrounding area for dirt as accumulations of dirt or dust could form leakage paths.

b. Use compressed dry air to remove dust from the area.

WARNING

ALWAYS WEAR SAFETY GOGGLES WHEN USING COMPRESSED AIR.

c. Examine all transistors for loose connections or corrosion.

5-12. INTEGRATED CIRCUITS. Preventive maintenance of integrated circuits is accomplished by performing the following steps:

CAUTION

USE CARE TO AVOID THE BUILDUP OF STATIC ELECTRICITY WHEN WORKING AROUND INTEGRATED CIRCUITS.

a. Inspect the integrated circuits and surrounding area for dirt as accumulations of dirt or dust could form leakage paths.

b. Use compressed dry air to remove dust from the area.

WARNING

ALWAYS WEAR SAFETY GOGGLES WHEN USING COMPRESSED AIR.

5-13. CAPACITORS. Preventive maintenance of capacitors is accomplished by performing the following steps:

a. Examine all capacitor terminals for loose connections or corrosion.

b. Ensure that component mountings are tight.

c. Examine the body of each capacitor for swelling, discoloration, or other evidence of breakdown.

d. Use standard practices to repair poor solder connections with a low-wattage soldering iron.

e. Clean cases and bodies of all capacitors.

5-14. FIXED RESISTORS. Preventive maintenance of fixed resistors is accomplished by performing the following steps:

a. When inspecting a chassis, printed-circuit board, or discrete component assembly, examine resistors for dirt or signs of overheating. Discolored, cracked, or chipped components indicate a possible overload.

b. When replacing a resistor, ensure that the replacement value corresponds to the component designated by the schematic diagram and parts list.

c. Clean dirty resistors with a small brush.

5-15. VARIABLE RESISTORS. Preventive maintenance of variable resistors is accomplished by performing the following steps:

a. Inspect the variable resistors and tighten all loose mountings, connections, and control knob setscrews (do not disturb knob alignment).

b. If necessary, clean component with a dry brush or a lint-free cloth.

c. When dirt is difficult to remove, clean component with a lint-free cloth moistened with an approved cleaning solvent.

5-16. FUSES. Preventive maintenance is accomplished by performing the following steps:

WARNING

ALWAYS REMOVE ALL POWER AND BEFORE TOUCHING ANY OF THE COMPONENTS IN THE FOLLOWING STEPS.

a. When a fuse blows, determine the cause before installing a replacement.

b. Inspect fuse caps and mounts for charring and corrosion.

c. Examine clips for dirt, improper tension, and loose connections.

d. If necessary, tighten fuse clips and connections to the clips. The tension of the fuse clips may be increased by pressing the clip sides closer together.

e. Clean fuses and clips with a small brush.

f. Remove corrosion with crocus cloth.

5-17. SWITCHES. Preventive maintenance of switches is accomplished by performing the following steps:

a. Inspect switch for defective mechanical action or looseness of mounting and connections.

b. Examine cases for chips or cracks. Do not disassemble switches.

c. Inspect accessible contact switches for dirt, corrosion, or looseness of mountings or connections.

d. Check contacts for pitting, corrosion, or wear.

e. Operate the switches to determine if they move freely and are positive in action. In gang and wafer switches, the movable blade should make good contact with the stationary member.

f. Tighten all loose connections and mountings.

5-18. INDICATORS AND INDICATOR SWITCHES. Preventive maintenance of indicator lamps and indicator switches is accomplished by performing the following steps:

a. Examine indicator sockets for corrosion, loose nuts, and condition of rubber grommets.

b. Remove indicator switch by pulling the plastic cover, indicator assembly, from the case and rotating the assembly 90 degrees.

c. Inspect indicator assemblies for broken or cracked covers, loose envelopes, loose mounting screws, and loose or dirty connections.

d. Tighten loose mounting screws. Solder loose connections. If connections are dirty or corroded, clean with crocus cloth before soldering.

e. Clean indicator covers, bases, and glass bulbs with a dry cloth.

f. Clean corroded socket contacts and connections with crocus cloth. Low operating voltages require clean contact and connections.

5-19. PRINTED-CIRCUIT BOARDS. Preventive maintenance of printed-circuit boards is accomplished by performing the following steps:

a. Inspect the printed-circuit boards for cracks or breaks.

b. Inspect the wiring for open circuits or raised foil.

c. Check components for breakage or discoloration due to overheating.

d. Clean off dust and dirt with a clean, dry lint-free cloth.

e. Use standard practices to repair poor solder connections with a low-wattage soldering iron.

5-20. CORRECTIVE MAINTENANCE

5-21. AUDIO INPUT CARD ALIGNMENT (A3)

5-22. These alignment procedures will be accomplished with the card extended on an extender card provided with the STX-1A.

a. Apply 400 Hz audio to the LEFT and RIGHT audio terminals on the back of the STX-1A. These signals should be equal in amplitude and at a level of 0 to +10 dBm

b. Switch the STX-1A to STEREO and monitor U2 pin 1 with an oscilloscope or an ac voltmeter with a frequency response greater than 400 Hz. Adjust R27 for minimum signal at this point.

c. Disconnect the RIGHT channel input from the STX-1A. Monitor U2 pin 7 and U5 pin 1 simultaneously. The signals should be of nearly the same amplitude and phase. R23 and R45 should be adjusted to match these two signals in amplitude and phase as closely as possible. An alternative way of doing this is by connecting the IF output of the STX-1A to the IF input of the STM-1 Modulation Monitor and flipping the STM-1 input switch to IF IN. Monitor separation at 400 Hz on the modulation monitor and adjust these two potentiometers for a maximum.

5-23. PEAK LIMITER CARD ALIGNMENT (A4)

5-24. The Peak Limiter alignment will be accomplished with the card (A4) extended on the extender card provided with the STX-1A.

a. Set jumper J2 to its upper position and J4 to its lower position. Set J1 to its upper position and J3 to its lower position. Set jumpers J5 and J6 to their upper positions.

b. Adjust R44 fully (CCW) counterclockwise. Switch the STX-1A to the stereo mode and connect a 1 kHz audio signal to the LEFT input at the back of the STX-1A. The level of the audio should be at near -10 dBm so that the limiter does not go into gain reduction. Measure the L+R input to the board at jumper J1. Now measure the L+R output at jumper J3 and adjust R41 for 20 dB of gain from input to output. Using a distortion analyzer, monitor the L+R output. Adjust R5 for minimum distortion. Measure the (L+R) input to the board at jumper J2. Measure the output at J4 and adjust R83 again for 20 dB of gain. Monitor the output with a distortion analyzer and adjust R95 for minimum distortion. Connect an ungrounded voltmeter from the L+R output (J3) to the L-R output (J4) and readjust R83 for a null on the meter. This null represents maximum separation.

c. Potentiometers R13, R44 and R211 are adjusted with the STX-1A hooked up to the transmitter with music or other program material being played.

1. R13 is adjusted to get the desired amount of positive peak modulation as read on an AM Envelope modulation monitor (not the STM-1). Asymmetrical modulation is only possible if the audio processor is capable of it.

R211

2. [redacted] is adjusted to control negative modulation peaks. It is adjusted for the desired amount of modulation while monitoring negative peaks on an oscilloscope or AM modulation monitor.

3. R44 controls the amount of limiting being done by the peak limiter. It is adjusted for the best sound. This will depend to a large degree, on the type of audio processing used before the STX-1A.

5-25. The rest of the potentiometers on this board are for separation correction. The adjustment procedure for these pots is contained in the paragraph STX-1A Set Up Procedure.

5-26. QUADRATURE CARD ALIGNMENT (A5)

5-27. The Quadrature card alignment will be accomplished with the card extended on the extender card provided with the STX-1A.

5-28. If the Audio Input card (A3) and the Peak Limiter card A4 are not aligned correctly the Quadrature alignment will not be correct. These cards should be aligned first, if necessary. R211 on card A4 should be turned fully counterclockwise (CCW).

a. Apply 400 Hz audio at about +10dBm to the LEFT audio input terminals at the back of the STX-1A. Switch the STX-1A to MONO. Monitor the bottom of L2 with an oscilloscope and adjust R14 to get a waveform like the one in Figure 5-1a. Adjust [redacted] to R156 obtain the sharpest pinchoff possible at the points where the waveform goes to zero. Correct and incorrect waveforms are shown in Figure 5-1. Set the audio generator to 10 kHz and adjust L1 to again obtain the best pinchoff. The oscilloscope may have to be triggered from the audio source to get a stable display.

b. With 10 kHz applied, readjust R14 so that the waveform monitored at the bottom of L2 is modulated right at 100%. On the other channel of the oscilloscope monitor the waveform at U14-10. The oscilloscope should be triggered on the audio and the audio frequency should be fine tuned so that the high frequency waveform appears to stop or to move slowly. Individual cycles should be visible. Notice that as R14 is adjusted through 100% modulation the waveform at U14-10 goes from a steady train of square waves to square waves that change phase at the point of carrier

pinchoff. Set R14 so that the square waves just start to change phase and then adjust R60 for cleanest waveform (or least amount of noise). Adjust R61 so that as the waveform changes phase the duty cycle remains constant (there should be no big holes at the top or bottom of the waveform). Figure 5-2 shows correct and incorrect displays at this point.

c. Turn the audio level down so that I channel modulation reads about 50%. Use one channel of the scope to monitor U14-10 and the other channel to monitor U15-12. Trigger the scope internally on the channel that is monitoring U15-12. Both of these points will have square waves present but they will be of different amplitudes. Adjust coil L4 so the square waves become equal in phase (they should line up one on top of the other). The scope used for this step must be capable of displaying phase differences. If coil L4 is tuned and has no affect on the phase difference it cannot be used.

d. Set audio generator to 10 kHz. Increase audio level to give 100% I channel modulation. Again adjust R14 to obtain a display similar to that of Figure 5-1a viewed at the bottom of L2. Connect the oscilloscope to U29-1. Adjust R45 to get the best looking waveform. The negative peaks will be affected the most with this adjustment. Figure 5-3 shows correct and incorrect displays. Reset audio generator to 1 kHz. Readjust R14 for 100% modulation display on the oscilloscope. The modulation meter should read 100% and the display at the bottom of L2 should show 100%.

e. Measure the dc voltage at U7-2 with an accurate dc voltmeter. Adjust R103 for -2.50 Vdc. Adjust R22 so that the I and Q levels out of the STM-1 Modulation Monitor are equal in amplitude.

f. Flip switch S1 on the Quadrature board upward. Connect a frequency counter to the front panel BNC labeled METER. Turn modulation meter knob to PILOT. Adjust R151 for a 25.0 Hz reading on the counter. Make sure there is -2.50 volts at U7-2. Also the pilot frequency meter on the STM-1 monitor should indicate that the pilot frequency is correct.

g. Switch the STX-1A to MONO and adjust R14 so that the display monitored at the bottom of L2 shows 100% modulation. Switch back to STEREO. Read pilot injection from the STM-1 and adjust R152 for 7.5%.

h. Monitor the pilot at the BNC connector labeled METER on the front of the STX-1A on a distortion analyzer. Adjust R146 and R149 for minimum pilot distortion. Pilot distortion should be less than .5% THD.

i. Switch the STX-1A to MONO. Monitor U29-14 with an oscilloscope or an ac voltmeter. Adjust R79 for a minimum voltage at this point.

j. Measure U32-3 with a dc voltmeter. Adjust R111 for +2.50 volts.

k. Measure U30-6 with a dc voltmeter and record this value. Measure the top of R130 and adjust R129 for a value 1/3 as large as recorded at U30-6.

l. Monitor the bottom of L2 with an oscilloscope. Switch the STX-1A to MONO and set audio level into the STX-1A at a level of +10 dBm at a frequency of 1 kHz. Adjust R14 so that the oscilloscope display is close to 100% modulated. Be careful not to over-modulate. Make sure that R211 on the Peak Limiter card (A4) is turned fully counterclockwise before making this adjustment. Also after R14 is set, R211 may have to be readjusted according to the Peak Limiter card alignment procedures.

5-29. RF OUTPUT CARD ALIGNMENT

5-30. The RF Output Card alignment will be accomplished with the card extended from the exciter on the extender card provided with the STX-1A.

a. Using a frequency counter, monitor the signal at the collector of Q9. Adjust C127 for an indication of 4.096 MHz.

b. Set the synthesizer dip switches to the desired positions according to the chart in Addendum C. Check the output at J1 to see that a signal of the desired frequency is present. If it is not, adjust R1 through the hole in the VCO cover until the synthesizer locks to the correct frequency.

NOTE

C1 on the VCO board (A6A1) should be removed for output frequencies above 900 kHz.

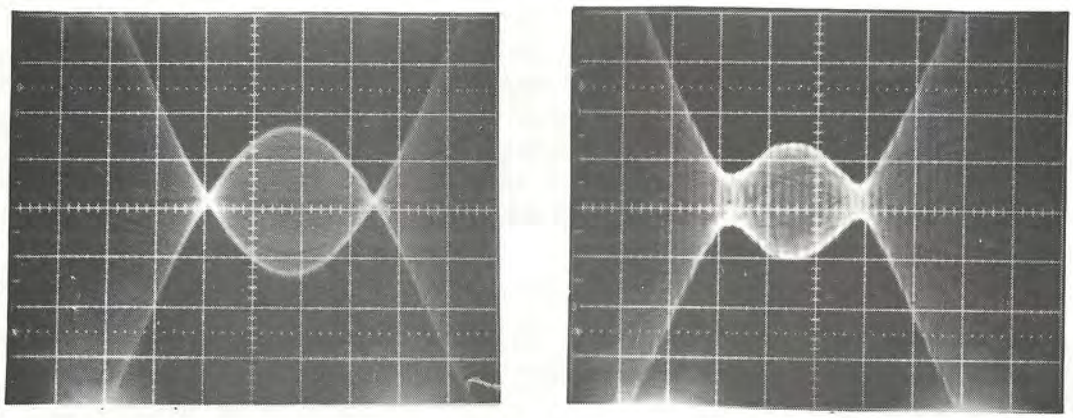
c. Switch through the 16 positions of switch S2 and stop at the position that gives a maximum output at the carrier frequency. Peak this desired signal with capacitor C77.

d. Adjust R67 for the cleanest spectrum as observed on a spectrum analyzer.

e. Adjust C63 along with R121 to null the mixer image frequency which will be 512 kHz above the desired frequency.

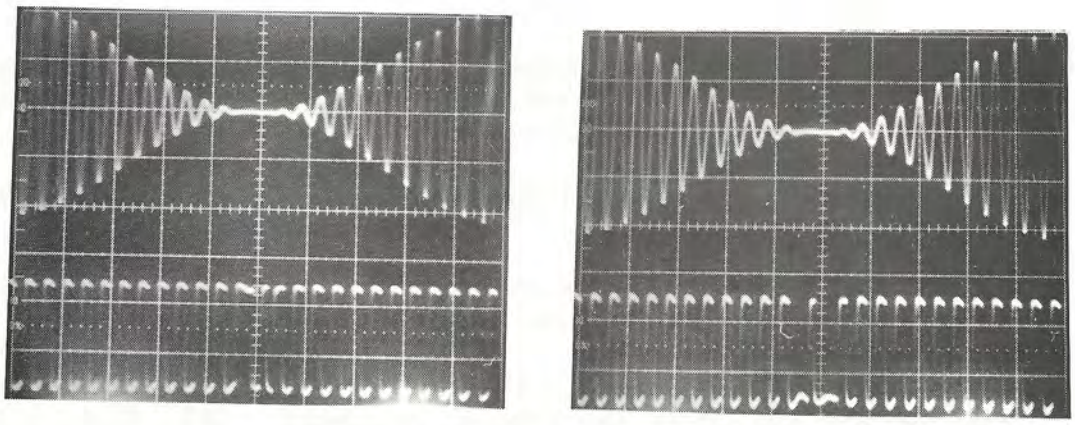
f. Adjust R110 and R116 to null the mixer injection frequency which will be 256 kHz above the desired frequency. C63, R121, R110, and R116 will interact slightly but nulls should be able to be made in a few interactions.

g. A notch can be placed over any remaining undesired signals by switching S1 to the desired range and fine tuning the notch with C70.



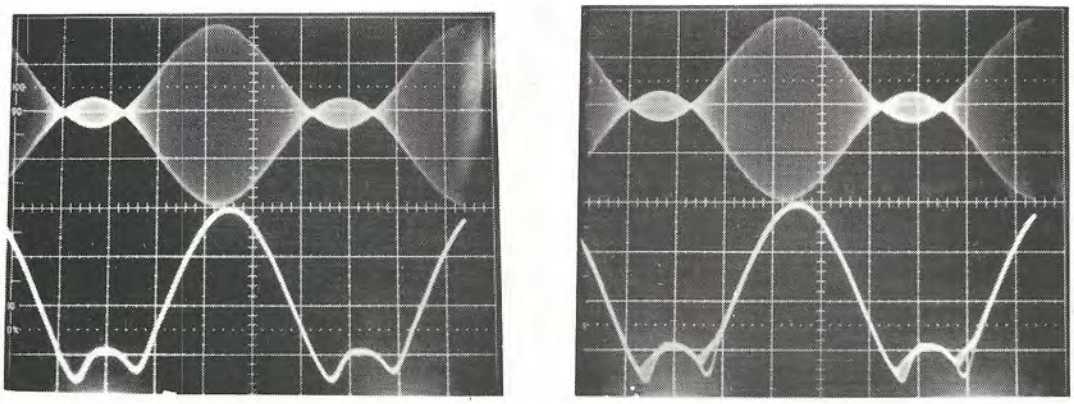
CORRECT INCORRECT

Figure 5-1. Correct and Incorrect Waveforms at Bottom of L2 for Pinchoff Adjustment



CORRECT INCORRECT

Figure 5-2. Correct and Incorrect Waveforms at Bottom of L2 for R14 Adjustment



CORRECT INCORRECT

Figure 5-3. Correct and Incorrect Displays at U29 pin 1

SECTION VI

TROUBLESHOOTING

6-1. INTRODUCTION

6-2. Most troubleshooting of the HARRIS AM STEREO EXCITER can be accomplished by carefully reading the principles of operation (Section IV of the technical manual) in conjunction with the diagrams contained in Section VIII, Diagrams. Corrective maintenance information is provided in Section V, Maintenance. If further assistance is required information on contacting HARRIS is provided below.

6-3. Prior to starting a troubleshooting procedure check all switches, power cord connections, connecting cables, and power fuses.

6-4. TECHNICAL ASSISTANCE

6-5. HARRIS Technical and Troubleshooting assistance is available from HARRIS Field Service during normal business hours (8:00 a.m - 5:00 p.m. Central Standard Time). Emergency service is available 24 hours a day. Telephone 217/222-8200 to contact the Field Service Department or address correspondence to Field Service Department, HARRIS CORPORATION, Broadcast Group, P.O. Box 4290, Quincy, Illinois 62305-4290, USA. The HARRIS factory may also be contacted through a TWX facility (910-246-3312) or a TELEX service (40-4347).

SECTION VII

PARTS LIST

7-1. INTRODUCTION

7-2. This section of the technical manual contains the information necessary to order replaceable parts for the AM STEREO EXCITER.

7-3. REPLACEABLE PARTS SERVICE

7-4. Replacement parts are available 24 hours a day, seven days a week from the HARRIS Service Parts Department. Telephone 217/222-8200 to contact the service parts department or address correspondence to Service Parts Department, HARRIS CORPORATION, Broadcast Transmission Division, P.O. Box 4290, Quincy, Illinois 62305-4290, USA. The HARRIS factory may also be contacted through a TWX facility (910-246-3312) or a TELEX service (40-4347).

Table 7-1. REPLACEABLE PARTS LIST INDEX

TABLE NO.	UNIT NOMENCLATURE	PART NO.	PAGE
7-2	STX-1A AM STEREO EXCITER	994 8730 002	7-3
7-3	BASIC AM STEREO EXCITER	994 8730 001	7-4
7-4	BASIC AM STEREO EXCITER	992 6088 001	7-5
7-5	METERING BOARD	992 6085 002	7-6
7-6	MOTHERBOARD	992 6084 001	7-9
7-7	AUDIO INPUT BOARD	992 6077 001	7-10
7-8	PEAK LIMITER/SEPARATION CORRECTOR	992 6101 001	7-12
	OR		
7-9	PEAK LIMITER/SEPERATION CORRECTOR	992 6101 002	7-18
7-10	QUADRATURE BOARD	992 6078 003	7-24
7-11	AUDIO OUTPUT BOARD	992 6080 001	7-30
7-12	RF OUTPUT BOARD	992 6079 002	7-33
7-13	VCO BOARD	992 6119 001	7-39
7-14	POWER SUPPLY BOARD	992 6086 001	7-40
7-15	STX-1A AM STEREO EXCITER	994 8730 004	7-42
7-16	BASIC AM STEREO EXCITER	994 8730 003	7-43
7-17	BASIC AM STEREO EXCITER	992 6088 002	7-44
7-5	METERING BOARD	992 6085 002	7-6
7-6	MOTHERBOARD	992 6084 001	7-9
7-7	AUDIO INPUT BOARD	992 6077 001	7-10
7-18	PEAK LIMITER/SEPERATION CORRECTOR	992 6101 003	7-46
7-19	QUADRATURE BOARD	992 6078 004	7-52
7-11	AUDIO OUTPUT BOARD	992 6080 001	7-30
7-20	RF OUTPUT BOARD	992 6079 003	7-58
7-13	VCO BOARD	992 6119 001	7-39
7-14	POWER SUPPLY BOARD	992 6086 001	7-40
7-21	STX-1A AM STEREO EXCITER	994 8730 006	7-64
7-22	BASIC AM STEREO EXCITER	994 8730 005	7-66
7-23	BASIC AM STEREO EXCITER	992 6088 003	7-67
7-5	METERING BOARD	992 6085 002	7-6
7-6	MOTHERBOARD	992 6084 001	7-9
7-7	AUDIO INPUT BOARD	992 6077 001	7-10
7-18	PEAK LIMITER/SEPERATION CORRECTOR	992 6101 003	7-46
7-19	QUADRATURE BOARD	992 6078 004	7-52
7-11	AUDIO OUTPUT BOARD	992 6080 001	7-30
7-20	RF OUTPUT BOARD	992 6079 003	7-58
7-13	VCO BOARD	992 6119 001	7-39
7-24	POWER SUPPLY BOARD	992 6086 002	7-69

Table 7-2. STX-1A AM STEREO EXCITER - 994 8730 002

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
	994 8730 001	BASIC AM STEREO EXCITER	1	

WARNING: Disconnect primary power prior to servicing.

Table 7-3. BASIC AM STEREO EXCITER - 994 8730 001

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
	054 0010 027	CB BX 24.75 X21 X17	1	
	250 0274 000	POWER CORD 7-1/2 FT	1.0	
	843 4035 002	FAMILY TREE	1.0	
	888 2174 001	TM STX-1A AM STEREO	1	
	992 6088 001	BASIC AM STEREO EXCITER	1.0	
	992 6116 001	CARD, EXTENDER	1	
	992 6267 001	PACKING CHECK LIST STX-1A	0	

WARNING: Disconnect primary power prior to servicing.

Table 7-4. BASIC AM STEREO EXCITER - 992 6088 001

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
A001	992 6085 002	METERING BOARD	1.0	
A002	992 6084 001	MOTHERBOARD	1.0	
A003	992 6077 001	AUDIO INPUT PC BD	1.0	
A004	992 6101 001	PK LIMITER/SEPARATION COR	1.0	
A004	992 6101 002	PEAK LIM/SEP CORR	1.0	
A005	992 6078 003	QUADRATURE BOARD	1.0	
A006	992 6080 001	AUDIO OUTPUT PC BD	1.0	
A007	992 6079 002	RF OUTPUT BOARD	1.0	
A008	000 0000 002	APPEARS ON HIGHER LEVEL	1.0	
A009	000 0000 004	SUB ASSY, P/O THIS BILL	1.0	
A02P10,A02P11	620 0417 000	CAP AND CHAIN BNC CW123/U		
A02P12			3.0	
A09S01	604 0868 000	SW, ROCKER DPDT	1.0	
A1M001	632 1039 000	METER, MODULATION	1.0	
A1M002	632 1040 000	MULTIMETER 0-100/0-30 SCL	1.0	
A9A001	992 6086 001	POWER SUPPLY PC BD	1.0	
A9C001,A9C002	524 0336 000	CAP 2900 UF 50V	2.0	
A9FL001	484 0296 000	FILTER, RFI POWER LINE	1.0	
A9F001	398 0086 000	FUSE SLOW CART 4A 125V	1.0	
A9R001	548 2008 000	RES 27.4K OHM 1/4W 1%	1.0	
A9R002	548 1407 000	RES 51.1K OHM 1/4W 1%	1.0	
A9R003	548 0315 000	RES 182K OHM 1/4W 1%	1.0	
A9R004	548 0325 000	RES 243K OHM 1/4W 1%	1.0	
A9TS001	614 0155 000	TERM STRIP 8 1&8 GND	1.0	
A9T001	472 1303 000	XFMR, POWER	1.0	
	402 0020 000	FUSE CLIP	2	
#A9C001,#A9C002	402 0175 000	CLIP, 1-3/8 DIA. COMPONEN	2	
	464 0169 000	TOOL, TRIMMER ADJUSTMENT	1	
	650 0028 000	KNOB RD SKIRT 1.135	2	
#A2	813 5084 024	SPACER 1/4 X 7/16	4	
#A1	813 5084 027	SPACER, ROUND	4	
	817 0493 001	CLIP FLAT	1	
	817 0494 001	CLIP RIGHT ANGLE	2	
	829 9002 011	HINGE	1	
#A9T001	829 9002 042	BOTTOM PLATE	1	
	839 6202 003	PANEL, DIVIDER	1	
	839 6202 007	PLATE,CONN.	1	
#T001	839 6202 011	ENCLOSURE,TRANSFORMER	1	
	843 4035 018	CHASSIS, BOTTOM	1	
	843 4035 020	CHASSIS, SIDE	1	
	843 4035 021	CHASSIS, SIDE	1	
	843 4035 039	PANEL, REAR	1	
	929 9002 045	CABLE, MAIN FRAME	1	
	939 5695 184	CABLE, RIBBON A2P1/A1P17	1	
	939 6202 006	COVER, ACCESS	1	
	939 6202 047	COVER, FRONT	1	
	943 4035 017	CHASSIS, TOP	1	
	943 4035 024	PANEL, METER	1	

TABLE 7-5. METERING BOARD - 992 6085 002

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001,CR002	384 0321 000	DIODE 5082-2800/1N5711		
CR003			3.0	
CR004,CR005	384 0205 000	DIODE SILICON 1N914	2.0	
CR006,CR007	384 0431 000	RECT. 1N4001	2.0	
CR008	384 0321 000	DIODE 5082-2800/1N5711	1.0	
CR009,CR010	384 0205 000	DIODE SILICON 1N914	2.0	
C001	526 0049 000	CAP 6.8UF 35V 20%	1.0	
C002	500 0813 000	CAP MICA 33UUF 500V	1.0	
C003	526 0049 000	CAP 6.8UF 35V 20%	1.0	
C004	500 0817 000	CAP MICA 47UUF 500V	1.0	
C005,C006	526 0049 000	CAP 6.8UF 35V 20%	2.0	
C007	526 0050 000	CAP 1 UF 35V 20%	1.0	
C008,C009	526 0049 000	CAP 6.8UF 35V 20%	2.0	
C010	516 0511 000	CAP 0.47UF 100V 20%	1.0	
C011	526 0342 000	CAP 2.7UF 35V 10%	1.0	
C015	526 0050 000	CAP 1 UF 35V 20%	1.0	
C016,C017	526 0318 000	CAP 10UF 35V 20%	2.0	
C018,C019	526 0050 000	CAP 1 UF 35V 20%	2.0	
C020	526 0311 000	CAP 2.2UF 35V 10%	1.0	
C021	500 0804 000	CAP, MICA 10PF 500V 5%	1.0	
C022	526 0342 000	CAP 2.7UF 35V 10%	1.0	
C023,C024	526 0049 000	CAP 6.8UF 35V 20%	2.0	
DS001,DS002	384 0611 000	LED, RED		
DS003,DS004				
DS005,DS006				
DS007			7.0	
J017	610 0854 000	HEADER, 40 PIN PC RIBBON	1.0	
J018	620 1677 000	RECEPTACLE PANEL BNC	1.0	
Q001,Q002	380 0319 000	TRANSISTOR MPS-A14	2.0	
Q003	380 0190 000	TRANSISTOR 2N3906	1.0	
R001	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R002	540 0978 000	RES 560.0K OHM 1/4W 5%	1.0	
R003	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R004	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R005	540 0967 000	RES 200.0K OHM 1/4W 5%	1.0	
R006	550 0930 000	POT 200K OHM 1/2W	1.0	
R007	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R008	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R009	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R010	540 0971 000	RES 300.0K OHM 1/4W 5%	1.0	
R011,R012	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R013	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R014	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R015	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R016	550 0935 000	POT 2K OHM 1/2W 10%	1.0	
R017	540 0932 000	RES 6.8K OHM 1/4W 5%	1.0	
R018,R019	540 0864 000	RES 10.0 OHM 1/4W 5%	2.0	
R020	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	

Table 7-5. METERING BOARD - 992 6085 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R021	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R022	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R023	540 0928 000	RES 4.7K OHM 1/4W 5%	1.0	
R024	540 0876 000	RES 33.0 OHM 1/4W 5%	1.0	
R025	540 0948 000	RES 33.0K OHM 1/4W 5%	1.0	
R026	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R027	540 1010 000	RES 12.0M OHM 1/4W 5%	1.0	
R028	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R029	540 0964 000	RES 150.0K OHM 1/4W 5%	1.0	
R030	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R031	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R032	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R033	540 0911 000	RES 910.0 OHM 1/4W 5%	1.0	
R034	550 0935 000	POT 2K OHM 1/2W 10%	1.0	
R035,R036	540 0916 000	RES 1.5K OHM 1/4W 5%	2.0	
R037	559 0043 000	THERMISTOR 2K OHM	1.0	
R038	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R039,R040,R041	540 0953 000	RES 51.0K OHM 1/4W 5%	3.0	
R042,R043	548 0997 000	RES 20K OHM 1/4W 1%	2.0	
R044	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R045	548 0558 000	RES 3320 OHM 1/4W 1%	1.0	
R046	540 0047 000	RES 820.0 OHM 1/2W 5%	1.0	
R047,R048	548 0997 000	RES 20K OHM 1/4W 1%	2.0	
R049	548 0932 000	RES 100K OHM 1/4W 1%	1.0	
R050,R051	000 0000 002	APPEARS ON HIGHER LEVEL	2.0	
R052	548 1364 000	RES 16.2K OHM 1/4W	1.0	
R053	548 0816 000	RES 10.5K OHM 1/4W 1%	1.0	
R054	548 1440 000	RES 25.5K OHM 1/4W 1%	1.0	
R055,R056	548 0607 000	RES 7500 OHM 1/4W 1%	2.0	
R057	548 1440 000	RES 25.5K OHM 1/4W 1%	1.0	
R058	548 1365 000	RES 16.9K OHM 1/4W	1.0	
R059,R060	548 0313 000	RES 4990 OHM 1/4W 1%	2.0	
R061,R062	000 0000 002	APPEARS ON HIGHER LEVEL	2.0	
R063	548 0313 000	RES 4990 OHM 1/4W 1%	1.0	
R064,R065	000 0000 002	APPEARS ON HIGHER LEVEL	2.0	
R066	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R067	548 0997 000	RES 20K OHM 1/4W 1%	1.0	
R068	548 1361 000	RES 10K OHM 1/4W 1%	1.0	
R069	548 0997 000	RES 20K OHM 1/4W 1%	1.0	
R070	548 1361 000	RES 10K OHM 1/4W 1%	1.0	
R071,R072,R073	540 1178 000	RES 750.0 OHM 1/2W 5%		
R074			4.0	
R075	540 1216 000	RES 330.0 OHM 1/2W 5%	1.0	
R076	540 1110 000	RES 68.0 OHM 1/2W 5%	1.0	
R077	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R078	548 1361 000	RES 10K OHM 1/4W 1%	1.0	
R079	548 0997 000	RES 20K OHM 1/4W 1%	1.0	
R082,R083	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R084	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	

Table 7-5. METERING BOARD - 992 6085 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R085	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R086	540 0971 000	RES 300.0K OHM 1/4W 5%	1.0	
R087	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R088	550 0935 000	POT 2K OHM 1/2W 10%	1.0	
R089	540 0953 000	RES 51.0K OHM 1/4W 5%	1.0	
R090	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
S001,S002	600 0601 000	SW, ROTARY 1 POLE 12 POS	2.0	
S003	604 0904 000	SWITCH, SPDT TOGGLE	1.0	
S004,S005	604 0903 000	SWITCH, SPDT, MOM OFF	2.0	
U001	382 0552 000	IC TL074CN3	1.0	
U002,U003	382 0472 000	IC LM318	2.0	
U004	382 0359 000	IC 7815	1.0	
U005	382 0360 000	IC 7915	1.0	
U006	382 0552 000	IC TL074CN3	1.0	
XDS1,XDS2,XDS3	358 2177 000	SPACER, LED MOUNT .380 LG		
XDS4,XDS5,XDS6				
XDS7			7.0	
XU001	404 0674 000	SOCKET, IC 14 CONT	1.0	
XU002,XU003	404 0673 000	SOCKET, IC 8 CONT	2.0	
XU006	404 0674 000	SOCKET, IC 14 CONT	1.0	

Table 7-6. MOTHERBOARD - 992 6084 001

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C001,C002	506 0232 000	CAP .01UF 63V 5%	2.0	
C005,C006,C007	506 0236 000	CAP .0047UF 63V 5%		
C008,C009,C010				
C011,C012,C013				
C014,C015,C016			12.0	
C029,C030,C033	506 0233 000	CAP .1UF 63V 5%		
C034,C035,C036				
C037,C038,C039				
C040,C041			11.0	
J1	610 0854 000	HEADER, 40 PIN PC RIBBON	1.0	
J2	610 0720 000	HEADER 9 PIN	1.0	
J003,J004,J005	612 1062 000	CONN, PC EDGE 80 CONT		
J006,J007,J008			6.0	
J010,J011,J012	620 1677 000	RECEPTACLE PANEL BNC	3.0	
J014	620 0515 000	RECP 50-051-0000	1.0	
L001,L003,L004	494 0419 000	CHOKE RF 1000.0UH		
L011,L012,L013				
L014			7.0	
R001,R002	540 1205 000	RES 1.2K OHM 1/2W 5%	2.0	
R003,R004,R005	540 1163 000	RES 300.0 OHM 1/2W 5%		
R006,R011,R012				
R013,R014,R015				
R016			10.0	
R017	540 1112 000	RES 510.0 OHM 1/2W 5%	1.0	
R018	540 1225 000	RES 82.0 OHM 1/2W 5%	1.0	
R019,R020	540 1112 000	RES 510.0 OHM 1/2W 5%	2.0	
R022	540 1170 000	RES 430.0 OHM 1/2W 5%	1.0	
R23,R24	542 0012 000	RES 40 OHM 5W	2.0	
R025	540 1116 000	RES 1.0K OHM 1/2W 5%	1.0	
R026	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R027	540 1165 000	RES 3.3K OHM 1/2W 5%	1.0	
R028	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R029	540 1165 000	RES 3.3K OHM 1/2W 5%	1.0	
R030	540 0601 000	RES 390.0 OHM 2W 5%	1.0	
R031	540 1116 000	RES 1.0K OHM 1/2W 5%	1.0	
R032	540 1102 000	RES 100.0 OHM 1/2W 5%	1.0	
R033,R034,R035	540 1163 000	RES 300.0 OHM 1/2W 5%		
R036,R037,R038				
R039,R040,R041				
R042			10.0	
R043,R044,R045	540 0329 000	RES 750.0 OHM 1W 5%		
R046,R047			5.0	
TB1,TB2	614 0749 000	TERM BOARD, 15 TERM	2.0	
U001	382 0440 000	IC 3083	1.0	
U2,U3	382 0510 000	IC OPTO ISOL	2.0	
XU001,XU002	404 0675 000	SOCKET, IC 16 CONT		
XU003			3.0	
#J003,#J004	358 2611 000	KEY, POLARIZING		
#J005,#J006				
#J007,#J008			6	

 WARNING: Disconnect primary power prior to servicing.

Table 7-7. AUDIO INPUT BOARD - 992 6077 001

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR1,CR2,CR3,CR4	384 0357 000	RECTIFIER 1N4004		
CR5,CR6,CR7,CR8				
CR9,CR10			10.0	
CR011,CR012	386 0186 000	ZENER 1N4737A 7.5V	2.0	
CR13,CR14	384 0357 000	RECTIFIER 1N4004	2.0	
C001,C002	508 0527 000	CAP .1UF 200V 5%	2.0	
C003,C004	506 0246 000	CAP .47UF 63V 5%	2.0	
C005	500 0899 000	CAP 4300PF 500V 5%	1.0	
C006	500 0903 000	CAP 2700PF 500V 5%	1.0	
C007	508 0414 000	CAP .01UF 50V 5%	1.0	
C008	500 1299 000	CAP 560PF 100V 5%	1.0	
C9,C10,C11,C12	506 0226 000	CAP 82,000 PF 50V 1%	4.0	
C013,C014	508 0527 000	CAP .1UF 200V 5%	2.0	
C015,C016	506 0246 000	CAP .47UF 63V 5%	2.0	
C017	500 0899 000	CAP 4300PF 500V 5%	1.0	
C018	500 0903 000	CAP 2700PF 500V 5%	1.0	
C019	508 0414 000	CAP .01UF 50V 5%	1.0	
C020	500 1299 000	CAP 560PF 100V 5%	1.0	
C21,C22,C23,C24	506 0226 000	CAP 82,000 PF 50V 1%		
C25,C26,C27,C28			8.0	
C29,C30,C31,C32	526 0311 000	CAP 2.2UF 35V 10%	4.0	
C033,C034,C037	516 0453 000	CAP .1UF 100V 20%		
C038,C039,C040				
C041,C042,C043				
C044,C045,C046			12.0	
DS1,DS2	384 0661 000	L.E.D. GREEN	2.0	
P001,P002	610 0679 000	PLUG, SHORTING	2.0	
R1,R2	540 0985 000	RES 1.1M OHM 1/4W 5%	2.0	
R003	540 1356 000	RES NETWORK 10K OHM 2%	1.0	
R004	548 0413 000	RES 1100 OHM 1/2W 1%	1.0	
R005	548 0262 000	RES 4.75K OHM 1/8W 1%	1.0	
R006	540 0072 000	RES 9.1K OHM 1/2W 5%	1.0	
R007	540 0081 000	RES 22.0K OHM 1/2W 5%	1.0	
R008	540 1353 000	RES NETWORK 4700 OHM 2%	1.0	
R012	540 1111 000	RES 10.0K OHM 1/2W 5%	1.0	
R13	540 1165 000	RES 3.3K OHM 1/2W 5%	1.0	
R016	540 1111 000	RES 10.0K OHM 1/2W 5%	1.0	
R017	540 1356 000	RES NETWORK 10K OHM 2%	1.0	
R018	548 1440 000	RES 25.5K OHM 1/4W 1%	1.0	
R19	548 0689 000	RES 5230 OHM 1/4W 1%	1.0	
R20	548 0382 000	RES 12.7K OHM 1/4W 1%	1.0	
R21	548 1400 000	RES 17.8K OHM 1/4W 1%	1.0	
R22	540 1171 000	RES 12.0K OHM 1/2W 5%	1.0	
R23	550 0317 000	POT 2000 OHM 3/4W 10%	1.0	
R24	548 0414 000	RES 8870 OHM 1/4W 1%	1.0	
R026	540 1192 000	RES 51.0 OHM 1/2W 5%	1.0	
R027	550 0354 000	POT 100 OHM 3/4W 10%	1.0	
R28,R29	540 0985 000	RES 1.1M OHM 1/4W 5%	2.0	

 WARNING: Disconnect primary power prior to servicing.

Table 7-7. AUDIO INPUT BOARD - 992 6077 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R030	540 1356 000	RES NETWORK 10K OHM 2%	1.0	
R031	548 0413 000	RES 1100 OHM 1/2W 1%	1.0	
R032	548 0262 000	RES 4.75K OHM 1/8W 1%	1.0	
R033	540 0072 000	RES 9.1K OHM 1/2W 5%	1.0	
R034	540 0081 000	RES 22.0K OHM 1/2W 5%	1.0	
R039	540 1111 000	RES 10.0K OHM 1/2W 5%	1.0	
R040	540 1116 000	RES 1.0K OHM 1/2W 5%	1.0	
R41	548 0414 000	RES 8870 OHM 1/4W 1%	1.0	
R42	548 0816 000	RES 10.5K OHM 1/4W 1%	1.0	
R43	548 0280 000	RES 3740 OHM 1/4W 1%	1.0	
R44	540 1143 000	RES 24.0K OHM 1/2W 5%	1.0	
R45	550 0317 000	POT 2000 OHM 3/4W 10%	1.0	
R46	548 0414 000	RES 8870 OHM 1/4W 1%	1.0	
R47	548 0816 000	RES 10.5K OHM 1/4W 1%	1.0	
R48	548 0280 000	RES 3740 OHM 1/4W 1%	1.0	
R049	548 1440 000	RES 25.5K OHM 1/4W 1%	1.0	
R053,R054	540 0047 000	RES 820.0 OHM 1/2W 5%	2.0	
R55,R56	540 1112 000	RES 510.0 OHM 1/2W 5%	2.0	
U1,U2,U3	382 0552 000	IC TL074CN3	3.0	
U4	382 0867 000	IC 4053BC	1.0	
U5	382 0552 000	IC TL074CN3	1.0	
U6	382 0360 000	IC 7915	1.0	
U007	382 0359 000	IC 7815	1.0	
XR003,XR004 XR008,XR017 XR030	404 0675 000	SOCKET, IC 16 CONT	5.0	
XU001,XU002 XU003,XU005	404 0674 000	SOCKET, IC 14 CONT	4.0	

WARNING: Disconnect primary power prior to servicing.

Table 7-8. PEAK LIMITER/SEPARATION CORRECTOR 992 6101 001

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001,CR002	384 0205 000	DIODE SILICON 1N914		
CR003,CR004				
CR005,CR006			6.0	
CR007,CR008	384 0431 000	RECT. 1N4001		
CR009,CR010				
CR011,CR012				
CR013			7.0	
CR014,CR015	384 0205 000	DIODE SILICON 1N914		
CR016,CR017			4.0	
CR018,CR019	384 0431 000	RECT. 1N4001		
CR020,CR021			4.0	
CR022,CR023	384 0205 000	DIODE SILICON 1N914		
CR024			3.0	
CR025	384 0256 000	DIODE MZ2361/AP2361	1.0	
CR026	384 0431 000	RECT. 1N4001	1.0	
C001,C002,C003	516 0453 000	CAP .1UF 100V 20%		
C004			4.0	
C005	500 0802 000	CAP MICA 3UUF 500V	1.0	
C006	506 0230 000	CAP .001UF 63V 5%	1.0	
C007,C008	516 0453 000	CAP .1UF 100V 20%	2.0	
C009	522 0524 000	CAP 10 UF 25V 20%	1.0	
C010,C011	516 0453 000	CAP .1UF 100V 20%	2.0	
C012	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C013	522 0524 000	CAP 10 UF 25V 20%	1.0	
C014	506 0230 000	CAP .001UF 63V 5%	1.0	
C015	516 0453 000	CAP .1UF 100V 20%	1.0	
C016,C017	522 0524 000	CAP 10 UF 25V 20%	2.0	
C018,C019,C020	516 0453 000	CAP .1UF 100V 20%	3.0	
C021	526 0050 000	CAP 1 UF 35V 20%	1.0	
C022,C023	516 0453 000	CAP .1UF 100V 20%	2.0	
C026,C027,C028	522 0524 000	CAP 10 UF 25V 20%	3.0	
C029	526 0047 000	CAP 220UF 10V 20%	1.0	
C030	522 0524 000	CAP 10 UF 25V 20%	1.0	
C031	516 0453 000	CAP .1UF 100V 20%	1.0	
C032	526 0119 000	CAP 100UF 20V 20%	1.0	
C033,C034	516 0453 000	CAP .1UF 100V 20%	2.0	
C035	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C036,C037	516 0453 000	CAP .1UF 100V 20%	2.0	
C038	500 0802 000	CAP MICA 3UUF 500V	1.0	
C039,C040	516 0453 000	CAP .1UF 100V 20%	2.0	
C041	522 0524 000	CAP 10 UF 25V 20%	1.0	
C042,C043	516 0453 000	CAP .1UF 100V 20%	2.0	
C044	506 0230 000	CAP .001UF 63V 5%	1.0	
C045,C046,C047	516 0453 000	CAP .1UF 100V 20%	3.0	
C048	522 0524 000	CAP 10 UF 25V 20%	1.0	
C049	516 0453 000	CAP .1UF 100V 20%	1.0	
C050	506 0230 000	CAP .001UF 63V 5%	1.0	

Table 7-8. PEAK LIMITER/SEPARATION CORRECTOR - 992 6101 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C051,C052,C053	526 0050 000	CAP 1 UF 35V 20%		
C054,C055,C056				
C057,C058			8.0	
C059	506 0221 000	CAP .01 UF 100V 1%	1.0	
C060,C061,C062	516 0453 000	CAP .1UF 100V 20%	3.0	
C063,C064,C065	506 0237 000	CAP .0068UF 63V 5%		
C066			4.0	
C067	516 0453 000	CAP .1UF 100V 20%	1.0	
C068,C069	506 0221 000	CAP .01 UF 100V 1%	2.0	
C070	506 0233 000	CAP .1UF 63V 5%	1.0	
C071,C072,C073	516 0453 000	CAP .1UF 100V 20%		
C074,C075,C076			6.0	
C077	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C078,C079,C080	522 0524 000	CAP 10 UF 25V 20%		
C081			4.0	
C082	516 0453 000	CAP .1UF 100V 20%	1.0	
DS001,DS002	384 0664 000	L.E.D. YELLOW	2.0	
DS003,DS004	384 0733 000	LED, BI-COLOR RED/GRN	2.0	
DS005,DS006	384 0661 000	L.E.D. GREEN	2.0	
J001,J002,J003	610 0679 000	PLUG, SHORTING		
J004,J005,J006			6.0	
Q001	380 0189 000	TRANSISTOR 2N3904	1.0	
Q002	380 0319 000	TRANSISTOR MPS-A14	1.0	
Q003	380 0196 000	TRANSISTOR MPS-A65	1.0	
Q004,Q005,Q006	380 0126 000	TRANSISTOR 2N4403	3.0	
R001	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R002,R003	540 0929 000	RES 5.1K OHM 1/4W 5%	2.0	
R004	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R005	550 0797 000	POT 50K OHM .5W 10%	1.0	
R006	540 0971 000	RES 300.0K OHM 1/4W 5%	1.0	
R007,R008	540 0943 000	RES 20.0K OHM 1/4W 5%	2.0	
R009	540 0881 000	RES 51.0 OHM 1/4W 5%	1.0	
R010	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R011	540 0927 000	RES 4.3K OHM 1/4W 5%	1.0	
R012	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R013	550 0842 000	POT 200 OHM 1/2W 10%	1.0	
R014	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R015	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R016	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R017,R018	540 0899 000	RES 300.0 OHM 1/4W 5%	2.0	
R019	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R020	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R021,R022	540 0915 000	RES 1.3K OHM 1/4W 5%	2.0	
R023	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R024	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R025,R026	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R027	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R028,R029	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R030	540 0968 000	RES 220.0K OHM 1/4W 5%	1.0	

Table 7-8. PEAK LIMITER/SEPARATION CORRECTOR - 992 6101 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R031	540 0969 000	RES 240.0K OHM 1/4W 5%	1.0	
R032	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R033	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R034	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R035	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R036	540 0976 000	RES 470.0K OHM 1/4W 5%	1.0	
R037	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R038	540 0941 000	RES 16.0K OHM 1/4W 5%	1.0	
R039	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R040	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R041	550 0961 000	POT 50K OHM 1/2W 10%	1.0	
R042	548 1094 000	RES 1000 OHM 1/4W 1%	1.0	
R043	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R044	550 0964 000	POT. 20K OHM .5W 10%	1.0	
R045	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R046	540 0911 000	RES 910.0 OHM 1/4W 5%	1.0	
R047	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R048	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R049	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R050	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R051	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R052	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R053	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R054	550 0841 000	POT 50 OHM 1/2W 10%	1.0	
R055	540 1351 000	RES 2.2 OHM 1/4W 5%	1.0	
R056	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R057,R058	540 0915 000	RES 1.3K OHM 1/4W 5%	2.0	
R059	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R060	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R061	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R062	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R063,R064	540 0933 000	RES 7.5K OHM 1/4W 5%	2.0	
R065	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R066	548 1094 000	RES 1000 OHM 1/4W 1%	1.0	
R067	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R068	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R069	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R070	540 0857 000	RES 5.1 OHM 1/4W 5%	1.0	
R071	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R072	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R073	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R074	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R075	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R076	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R077	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R078,R079	540 0943 000	RES 20.0K OHM 1/4W 5%	2.0	
R080,R081	540 0933 000	RES 7.5K OHM 1/4W 5%	2.0	
R082	548 0543 000	RES 56.2K OHM 1/8W 1%	1.0	
R083	550 0961 000	POT 50K OHM 1/2W 10%	1.0	

Table 7-8. PEAK LIMITER/SEPARATION CORRECTOR - 992 6101 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R084	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R085	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R086	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R087	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R088	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R089	540 0930 000	RES 5.6K OHM 1/4W 5%	1.0	
R090	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R091,R092	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R093,R094	540 0929 000	RES 5.1K OHM 1/4W 5%	2.0	
R095	550 0797 000	POT 50K OHM .5W 10%	1.0	
R096	540 0971 000	RES 300.0K OHM 1/4W 5%	1.0	
R097	540 0881 000	RES 51.0 OHM 1/4W 5%	1.0	
R098,R099,R100	540 0943 000	RES 20.0K OHM 1/4W 5%	3.0	
R101	540 0927 000	RES 4.3K OHM 1/4W 5%	1.0	
R102	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R103	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R104	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R105	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R106	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R107	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R108,R109,R110	540 1151 000	RES 10.0 OHM 1/2W 5%		
R111			4.0	
R112,R113	540 0928 000	RES 4.7K OHM 1/4W 5%	2.0	
R114	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R115,R116	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R117	548 1467 000	RES 1470 OHM 1/8W 1%	1.0	
R118	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R119,R120	548 1147 000	RES 4750 OHM 1/4W 1%	2.0	
R121,R122	548 1521 000	RES 8060 OHM 1/4W 1%	2.0	
R123,R124	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R125	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R126,R127	550 1013 000	POT 100K OHM 3/4W 10%	2.0	
R128	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R129,R130	548 1521 000	RES 8060 OHM 1/4W 1%	2.0	
R131,R132	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R133	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R134,R135	550 1013 000	POT 100K OHM 3/4W 10%	2.0	
R136	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R137,R138,R139	548 1521 000	RES 8060 OHM 1/4W 1%	3.0	
R140	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R141,R142	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R143,R144,R145	550 0313 000	POT 5K OHM 3/4W 10%		
R146			4.0	
R147	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R148,R149	548 1147 000	RES 4750 OHM 1/4W 1%	2.0	
R150	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R151,R152	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R153,R154,R155	550 0313 000	POT 5K OHM 3/4W 10%		
R156			4.0	

Table 7-8. PEAK LIMITER/SEPARATION CORRECTOR - 992 6101 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R157	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R158	548 1229 000	RES 11.5K OHM .125W	1.0	
R159,R160	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R161,R162,R163	548 1521 000	RES 8060 OHM 1/4W 1%	3.0	
R164	548 1467 000	RES 1470 OHM 1/8W 1%	1.0	
R165,R166	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R167	540 0899 000	RES 300.0 OHM 1/4W 5%	1.0	
R168	540 0904 000	RES 470.0 OHM 1/4W 5%	1.0	
R169	540 0871 000	RES 20.0 OHM 1/4W 5%	1.0	
R170	540 0857 000	RES 5.1 OHM 1/4W 5%	1.0	
R171	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R172	540 0941 000	RES 16.0K OHM 1/4W 5%	1.0	
R173,R174	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R175	540 0905 000	RES 510.0 OHM 1/4W 5%	1.0	
R176	548 0742 000	RES 10K OHM 1/4W 1%	1.0	
R177	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R179	548 0543 000	RES 56.2K OHM 1/8W 1%	1.0	
R180	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R181	540 0918 000	RES 1.8K OHM 1/4W 5%	1.0	
R182	548 0742 000	RES 10K OHM 1/4W 1%	1.0	
R183	540 0926 000	RES 3.9K OHM 1/4W 5%	1.0	
R184,R185,R186	540 0919 000	RES 2.0K OHM 1/4W 5%		
R187,R188,R190				
R191,R192,R193				
R194,R195,R196				
R197,R198,R199				
R200,R201,R202				
R203,R204,R205				
R206,R207			23.0	
R208,R209	540 0916 000	RES 1.5K OHM 1/4W 5%	2.0	
R210	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R211	550 0621 000	POT, 200 OHM .5W 10%	1.0	
R212	540 0931 000	RES 6.2K OHM 1/4W 5%	1.0	
R213	540 0921 000	RES 2.4K OHM 1/4W 5%	1.0	
R214	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R215,R216	540 0888 000	RES 100.0 OHM 1/4W 5%	2.0	
R217	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R218	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R219	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
S001	604 0981 000	SW, TOGGLE SPDT CTR OFF	1.0	
S002	604 0537 000	SW SLIDE SPDT	1.0	
TJ1	610 0747 000	HEADER ASSY 26 PIN	1.0	
U001	382 0552 000	IC TL074CN3	1.0	
U002	382 0881 000	IC 2150A	1.0	
U003,U004	382 0521 000	IC 339	2.0	
U005	382 0587 000	IC CD4011/MC14011	1.0	
U006	382 0443 000	IC CD4053BE	1.0	
U007	382 0552 000	IC TL074CN3	1.0	
U008	382 0521 000	IC 339	1.0	

Table 7-8. PEAK LIMITER/SEPARATION CORRECTOR - 992 6101 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
U009	382 0552 000	IC TL074CN3	1.0	
U010	382 0881 000	IC 2150A	1.0	
U011	382 0359 000	IC 7815	1.0	
U012	382 0273 000	IC LM340T-8/UA7808	1.0	
U013	382 0360 000	IC 7915	1.0	
U014	382 0385 000	IC 7908	1.0	
U015,U016	382 0552 000	IC TL074CN3	2.0	
U017	382 0593 000	IC TL072ACP	1.0	
U018,U019,U020	382 0443 000	IC CD4053BE	3.0	
U021	382 0552 000	IC TL074CN3	1.0	
XU001,XU003 XU004,XU005	404 0674 000	SOCKET, IC 14 CONT	4.0	
XU006	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU007,XU008 XU009,XU015 XU016	404 0674 000	SOCKET, IC 14 CONT	5.0	
XU017	404 0673 000	SOCKET, IC 8 CONT	1.0	
XU018,XU019 XU020	404 0675 000	SOCKET, IC 16 CONT	3.0	
XU021	404 0674 000	SOCKET, IC 14 CONT	1.0	

Table 7-9. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 002

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001,CR002	384 0205 000	DIODE SILICON 1N914		
CR003,CR004				
CR005,CR006			6.0	
CR007,CR008	384 0431 000	RECT. 1N4001		
CR009,CR010				
CR011,CR012				
CR013			7.0	
CR014,CR015	384 0205 000	DIODE SILICON 1N914		
CR016,CR017			4.0	
CR018,CR019	384 0431 000	RECT. 1N4001		
CR020,CR021			4.0	
CR022,CR023	384 0205 000	DIODE SILICON 1N914		
CR024			3.0	
CR025	384 0256 000	DIODE MZ2361/AP2361	1.0	
CR026	384 0431 000	RECT. 1N4001	1.0	
C001,C002,C003	516 0453 000	CAP .1UF 100V 20%		
C004			4.0	
C005	500 0802 000	CAP MICA 3UUF 500V	1.0	
C006	506 0230 000	CAP .001UF 63V 5%	1.0	
C007,C008	516 0453 000	CAP .1UF 100V 20%	2.0	
C009	522 0524 000	CAP 10 UF 25V 20%	1.0	
C010,C011	516 0453 000	CAP .1UF 100V 20%	2.0	
C012	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C013	522 0524 000	CAP 10 UF 25V 20%	1.0	
C014	506 0230 000	CAP .001UF 63V 5%	1.0	
C015	516 0453 000	CAP .1UF 100V 20%	1.0	
C016,C017	522 0524 000	CAP 10 UF 25V 20%	2.0	
C018,C019,C020	516 0453 000	CAP .1UF 100V 20%	3.0	
C021	526 0050 000	CAP 1 UF 35V 20%	1.0	
C022,C023	516 0453 000	CAP .1UF 100V 20%	2.0	
C026,C027,C028	522 0524 000	CAP 10 UF 25V 20%	3.0	
C029	526 0047 000	CAP 220UF 10V 20%	1.0	
C030	522 0524 000	CAP 10 UF 25V 20%	1.0	
C031	516 0453 000	CAP .1UF 100V 20%	1.0	
C032	526 0119 000	CAP 100UF 20V 20%	1.0	
C033,C034	516 0453 000	CAP .1UF 100V 20%	2.0	
C035	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C036,C037	516 0453 000	CAP .1UF 100V 20%	2.0	
C038	500 0802 000	CAP MICA 3UUF 500V	1.0	
C039,C040	516 0453 000	CAP .1UF 100V 20%	2.0	
C041	522 0524 000	CAP 10 UF 25V 20%	1.0	
C042,C043	516 0453 000	CAP .1UF 100V 20%	2.0	
C044	506 0230 000	CAP .001UF 63V 5%	1.0	
C045,C046,C047	516 0453 000	CAP .1UF 100V 20%	3.0	
C048	522 0524 000	CAP 10 UF 25V 20%	1.0	
C049	516 0453 000	CAP .1UF 100V 20%	1.0	
C050	506 0230 000	CAP .001UF 63V 5%	1.0	

Table 7-9. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C051,C052,C053	526 0050 000	CAP 1 UF 35V 20%		
C054,C055,C056				
C057,C058			8.0	
C059	506 0221 000	CAP .01 UF 100V 1%	1.0	
C060,C061,C062	516 0453 000	CAP .1UF 100V 20%	3.0	
C063,C064,C065	506 0237 000	CAP .0068UF 63V 5%		
C066			4.0	
C067	516 0453 000	CAP .1UF 100V 20%	1.0	
C068,C069	506 0221 000	CAP .01 UF 100V 1%	2.0	
C070	506 0233 000	CAP .1UF 63V 5%	1.0	
C071,C072,C073	516 0453 000	CAP .1UF 100V 20%		
C074,C075,C076			6.0	
C077	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C078,C079,C080	522 0524 000	CAP 10 UF 25V 20%		
C081			4.0	
C082	516 0453 000	CAP .1UF 100V 20%	1.0	
DS001,DS002	384 0664 000	L.E.D. YELLOW	2.0	
DS003,DS004	384 0733 000	LED, BI-COLOR RED/GRN	2.0	
DS005,DS006	384 0661 000	L.E.D. GREEN	2.0	
J001,J002,J003	610 0679 000	PLUG, SHORTING		
J004,J005,J006			6.0	
Q001	380 0189 000	TRANSISTOR 2N3904	1.0	
Q002	380 0319 000	TRANSISTOR MPS-A14	1.0	
Q003	380 0196 000	TRANSISTOR MPS-A65	1.0	
Q004,Q005,Q006	380 0126 000	TRANSISTOR 2N4403	3.0	
R001	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R002,R003	540 0929 000	RES 5.1K OHM 1/4W 5%	2.0	
R004	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R005	550 0797 000	POT 50K OHM .5W 10%	1.0	
R006	540 0971 000	RES 300.0K OHM 1/4W 5%	1.0	
R007,R008	540 0943 000	RES 20.0K OHM 1/4W 5%	2.0	
R009	540 0881 000	RES 51.0 OHM 1/4W 5%	1.0	
R010	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R011	540 0927 000	RES 4.3K OHM 1/4W 5%	1.0	
R012	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R013	550 0842 000	POT 200 OHM 1/2W 10%	1.0	
R014	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R015	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R016	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R017,R018	540 0899 000	RES 300.0 OHM 1/4W 5%	2.0	
R019	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R020	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R021,R022	540 0915 000	RES 1.3K OHM 1/4W 5%	2.0	
R023	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R024	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R025,R026	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R027	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R028,R029	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R030	540 0968 000	RES 220.0K OHM 1/4W 5%	1.0	

Table 7-9. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R031	540 0969 000	RES 240.0K OHM 1/4W 5%	1.0	
R032	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R033	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R034	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R035	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R036	540 0976 000	RES 470.0K OHM 1/4W 5%	1.0	
R037	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R038	540 0941 000	RES 16.0K OHM 1/4W 5%	1.0	
R039	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R040	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R041	550 0961 000	POT 50K OHM 1/2W 10%	1.0	
R042	548 1094 000	RES 1000 OHM 1/4W 1%	1.0	
R043	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R044	550 0964 000	POT. 20K OHM .5W 10%	1.0	
R045	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R046	540 0911 000	RES 910.0 OHM 1/4W 5%	1.0	
R047	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R048	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R049	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R050	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R051	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R052	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R053	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R055	540 1351 000	RES 2.2 OHM 1/4W 5%	1.0	
R056	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R057,R058	540 0915 000	RES 1.3K OHM 1/4W 5%	2.0	
R059	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R060	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R061	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R062	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R063,R064	540 0933 000	RES 7.5K OHM 1/4W 5%	2.0	
R065	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R066	548 1094 000	RES 1000 OHM 1/4W 1%	1.0	
R067	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R068	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R069	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R070	540 0857 000	RES 5.1 OHM 1/4W 5%	1.0	
R071	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R072	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R073	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R074	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R075	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R076	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R077	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R078,R079	540 0943 000	RES 20.0K OHM 1/4W 5%	2.0	
R080,R081	540 0933 000	RES 7.5K OHM 1/4W 5%	2.0	
R082	548 0543 000	RES 56.2K OHM 1/8W 1%	1.0	
R083	550 0961 000	POT 50K OHM 1/2W 10%	1.0	
R084	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	

Table 7-9. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R085	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R086	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R087	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R088	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R089	540 0930 000	RES 5.6K OHM 1/4W 5%	1.0	
R090	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R091,R092	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R093,R094	540 0929 000	RES 5.1K OHM 1/4W 5%	2.0	
R095	550 0797 000	POT 50K OHM .5W 10%	1.0	
R096	540 0971 000	RES 300.0K OHM 1/4W 5%	1.0	
R097	540 0881 000	RES 51.0 OHM 1/4W 5%	1.0	
R098,R099,R100	540 0943 000	RES 20.0K OHM 1/4W 5%	3.0	
R101	540 0927 000	RES 4.3K OHM 1/4W 5%	1.0	
R102	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R103	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R104	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R105	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R106	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R107	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R108,R109,R110	540 1151 000	RES 10.0 OHM 1/2W 5%		
R111			4.0	
R112,R113	540 0928 000	RES 4.7K OHM 1/4W 5%	2.0	
R114	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R115,R116	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R117	548 1467 000	RES 1470 OHM 1/8W 1%	1.0	
R118	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R119,R120	548 1147 000	RES 4750 OHM 1/4W 1%	2.0	
R121,R122	548 1521 000	RES 8060 OHM 1/4W 1%	2.0	
R123,R124	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R125	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R126,R127	550 1013 000	POT 100K OHM 3/4W 10%	2.0	
R128	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R129,R130	548 1521 000	RES 8060 OHM 1/4W 1%	2.0	
R131,R132	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R133	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R134,R135	550 1013 000	POT 100K OHM 3/4W 10%	2.0	
R136	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R137,R138,R139	548 1521 000	RES 8060 OHM 1/4W 1%	3.0	
R140	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R141,R142	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R143,R144,R145	550 0313 000	POT 5K OHM 3/4W 10%		
R146			4.0	
R147	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R148,R149	548 1147 000	RES 4750 OHM 1/4W 1%	2.0	
R150	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R151,R152	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R153,R154,R155	550 0313 000	POT 5K OHM 3/4W 10%		
R156			4.0	
R157	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	

Table 7-9. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R158	548 1229 000	RES 11.5K OHM .125W	1.0	
R159,R160	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R161,R162,R163	548 1521 000	RES 8060 OHM 1/4W 1%	3.0	
R164	548 1467 000	RES 1470 OHM 1/8W 1%	1.0	
R165,R166	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R167	540 0899 000	RES 300.0 OHM 1/4W 5%	1.0	
R168	540 0904 000	RES 470.0 OHM 1/4W 5%	1.0	
R169	540 0871 000	RES 20.0 OHM 1/4W 5%	1.0	
R170	540 0857 000	RES 5.1 OHM 1/4W 5%	1.0	
R171	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R172	540 0941 000	RES 16.0K OHM 1/4W 5%	1.0	
R173,R174	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R175	540 0905 000	RES 510.0 OHM 1/4W 5%	1.0	
R176	548 0742 000	RES 10K OHM 1/4W 1%	1.0	
R177	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R179	548 0543 000	RES 56.2K OHM 1/8W 1%	1.0	
R180	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R181	540 0918 000	RES 1.8K OHM 1/4W 5%	1.0	
R182	548 0742 000	RES 10K OHM 1/4W 1%	1.0	
R183	540 0926 000	RES 3.9K OHM 1/4W 5%	1.0	
R184,R185,R186	540 0919 000	RES 2.0K OHM 1/4W 5%		
R187,R188,R190				
R191,R192,R193				
R194,R195,R196				
R197,R198,R199				
R200,R201,R202				
R203,R204,R205				
R206,R207			23.0	
R208,R209	540 0916 000	RES 1.5K OHM 1/4W 5%	2.0	
R210	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R211	550 0621 000	POT, 200 OHM .5W 10%	1.0	
R214	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R215,R216	540 0888 000	RES 100.0 OHM 1/4W 5%	2.0	
R217	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R218	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R219	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
S001	604 0981 000	SW, TOGGLE SPDT CTR OFF	1.0	
S002	604 0537 000	SW SLIDE SPDT	1.0	
TJ001	610 0747 000	HEADER ASSY 26 PIN	1.0	
U001	382 0552 000	IC TL074CN3	1.0	
U002	382 0881 000	IC 2150A	1.0	
U003,U004	382 0521 000	IC 339	2.0	
U005	382 0587 000	IC CD4011/MC14011	1.0	
U006	382 0443 000	IC CD4053BE	1.0	
U007	382 0552 000	IC TL074CN3	1.0	
U008	382 0521 000	IC 339	1.0	
U009	382 0552 000	IC TL074CN3	1.0	
U010	382 0881 000	IC 2150A	1.0	
U011	382 0359 000	IC 7815	1.0	

Table 7-9. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
U012	382 0273 000	IC LM340T-8/UA7808	1.0	
U013	382 0360 000	IC 7915	1.0	
U014	382 0385 000	IC 7908	1.0	
U015,U016	382 0552 000	IC TL074CN3	2.0	
U017	382 0593 000	IC TL072ACP	1.0	
U018,U019,U020	382 0443 000	IC CD4053BE	3.0	
U021	382 0552 000	IC TL074CN3	1.0	
XU001,XU003	404 0674 000	SOCKET, IC 14 CONT		
XU004,XU005			4.0	
XU006	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU007,XU008	404 0674 000	SOCKET, IC 14 CONT		
XU009,XU015				
XU016			5.0	
XU017	404 0673 000	SOCKET, IC 8 CONT	1.0	
XU018,XU019	404 0675 000	SOCKET, IC 16 CONT		
XU020			3.0	
XU021	404 0674 000	SOCKET, IC 14 CONT	1.0	

Table 7-10. QUADRATURE BOARD - 992 6078 003

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001,CR002	384 0357 000	RECTIFIER 1N4004		
CR003,CR004			4.0	
CR005,CR006	384 0205 000	DIODE SILICON 1N914	2.0	
CR007	384 0357 000	RECTIFIER 1N4004	1.0	
CR008,CR009	384 0205 000	DIODE SILICON 1N914		
CR010			3.0	
CR011,CR012	384 0597 000	RECT 1N4002	2.0	
CR013	384 0205 000	DIODE SILICON 1N914	1.0	
C001,C002,C003	526 0311 000	CAP 2.2UF 35V 10%		
C004,C005,C006				
C007,C008,C009				
C010			10.0	
C011	522 0524 000	CAP 10 UF 25V 20%	1.0	
C012,C013	516 0375 000	CAP .01UF 50V	2.0	
C014	522 0524 000	CAP 10 UF 25V 20%	1.0	
C015,C016	516 0375 000	CAP .01UF 50V	2.0	
C017	506 0233 000	CAP .1UF 63V 5%	1.0	
C018	500 0844 000	CAP, MICA 1000PF 100V 5%	1.0	
C019	500 0843 000	CAP, MICA 910PF 100V 5%	1.0	
C020	500 0825 000	CAP, MICA 110PF 500V 5%	1.0	
C021	500 0843 000	CAP, MICA 910PF 100V 5%	1.0	
C022	500 0811 000	CAP MICA 27UUF 500V	1.0	
C023	516 0453 000	CAP .1UF 100V 20%	1.0	
C024	516 0067 000	CAP DISC .003UF 1KV 20%	1.0	
C025	500 0916 000	CAP 270PF 500VDC 1%	1.0	
C026,C027,C028	500 0843 000	CAP, MICA 910PF 100V 5%	3.0	
C029	500 0780 000	CAP 1500 PF 500V 5%	1.0	
C030	500 0935 000	CAP 360 PF 500VDC 5%	1.0	
C031	500 1007 000	CAP 3900PF 500V 5%	1.0	
C032	516 0067 000	CAP DISC .003UF 1KV 20%	1.0	
C033	500 0826 000	CAP, MICA 120PF 500V 5%	1.0	
C034,C035	506 0233 000	CAP .1UF 63V 5%	2.0	
C036,C037	516 0453 000	CAP .1UF 100V 20%	2.0	
C038	500 0991 000	CAP 1100PF 500V 5%	1.0	
C039,C040,C041	516 0453 000	CAP .1UF 100V 20%		
C042,C043			5.0	
C044	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
C045	500 0830 000	CAP MICA 240UUF 500V	1.0	
C046	500 0843 000	CAP, MICA 910PF 100V 5%	1.0	
C047	500 0833 000	CAP, MICA 390PF 500V 5%	1.0	
C048,C049	526 0093 000	CAP 15UF 35V 20%	2.0	
C050	506 0241 000	CAP .047UF 63V 5%	1.0	
C051	500 0811 000	CAP MICA 27UUF 500V	1.0	
C052	526 0325 000	CAP .1UF 35V 20%	1.0	
C053	526 0093 000	CAP 15UF 35V 20%	1.0	
C054	526 0050 000	CAP 1 UF 35V 20%	1.0	
C055	526 0097 000	CAP 47 UF 35V 20%	1.0	
C056	526 0050 000	CAP 1 UF 35V 20%	1.0	

Table 7-10. QUADRATURE BOARD - 992 6078 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C057	526 0049 000	CAP 6.8UF 35V 20%	1.0	
C058	526 0093 000	CAP 15UF 35V 20%	1.0	
C059	506 0233 000	CAP .1UF 63V 5%	1.0	
C060,C061	506 0245 000	CAP .33UF 63V 5%	2.0	
C062	526 0050 000	CAP 1 UF 35V 20%	1.0	
C063	526 0321 000	CAP 3.3UF 15V 20%	1.0	
C064,C065	506 0233 000	CAP .1UF 63V 5%	2.0	
C066,C067	526 0318 000	CAP 10UF 35V 20%	2.0	
C068	506 0244 000	CAP .22UF 63V 5%	1.0	
C069	526 0309 000	CAP, 22UF 35V 20%	1.0	
C070,C071,C072	516 0453 000	CAP .1UF 100V 20%		
C073,C074,C075			6.0	
C076	526 0050 000	CAP 1 UF 35V 20%	1.0	
C077,C078	516 0054 000	CAP, DISC .001UF 1KV 10%	2.0	
C079	516 0375 000	CAP .01UF 50V	1.0	
C080	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
DS001,DS002	384 0661 000	L.E.D. GREEN	2.0	
K001	574 0351 000	RLY LATCHING CC-69	1.0	
LDR001	670 0033 000	LED, LDR	1.0	
L001	492 0641 000	COIL, VAR 147-430UH	1.0	
L002	494 0414 000	CHOKE, RF 390UH	1.0	
L003	494 0190 000	CHOKE, RF 3300 UH 80 MA	1.0	
L004	492 0641 000	COIL, VAR 147-430UH	1.0	
P001,P002,P003	610 0679 000	PLUG, SHORTING		
P004,P005			5.0	
Q001,Q002,Q003	380 0189 000	TRANSISTOR 2N3904	3.0	
R001,R002	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R003,R004	540 0047 000	RES 820.0 OHM 1/2W 5%	2.0	
R005,R006,R007	540 0960 000	RES 100.0K OHM 1/4W 5%	3.0	
R008	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R009,R010,R011	540 0919 000	RES 2.0K OHM 1/4W 5%		
R012			4.0	
R013	540 0957 000	RES 75.0K OHM 1/4W 5%	1.0	
R014	550 0313 000	POT 5K OHM 3/4W 10%	1.0	
R015	540 0958 000	RES 82.0K OHM 1/4W 5%	1.0	
R016	540 0898 000	RES 270.0 OHM 1/4W 5%	1.0	
R017,R018	548 0531 000	RES 10K OHM 1/8W 1%	2.0	
R019	540 0898 000	RES 270.0 OHM 1/4W 5%	1.0	
R020	548 0531 000	RES 10K OHM 1/8W 1%	1.0	
R021	540 0932 000	RES 6.8K OHM 1/4W 5%	1.0	
R022	550 0622 000	POT 1K OHM .5W 10%	1.0	
R023	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R024	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R025	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R026	540 0957 000	RES 75.0K OHM 1/4W 5%	1.0	
R027	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R028,R029,R030	548 0531 000	RES 10K OHM 1/8W 1%	3.0	
R031,R032	540 0898 000	RES 270.0 OHM 1/4W 5%	2.0	
R035,R036	540 0923 000	RES 3.0K OHM 1/4W 5%	2.0	

WARNING: Disconnect primary power prior to servicing.

Table 7-10. QUADRATURE BOARD - 992 6078 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R037	540 0948 000	RES 33.0K OHM 1/4W 5%	1.0	
R038	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R039	540 0908 000	RES 680.0 OHM 1/4W 5%	1.0	
R040	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R041	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R042	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R043	540 0920 000	RES 2.2K OHM 1/4W 5%	1.0	
R044	540 0974 000	RES 390.0K OHM 1/4W 5%	1.0	
R045	550 0881 000	POT 100K OHM .5W 10%	1.0	
R046,R047	540 0916 000	RES 1.5K OHM 1/4W 5%	2.0	
R049	540 0898 000	RES 270.0 OHM 1/4W 5%	1.0	
R051,R052	540 0925 000	RES 3.6K OHM 1/4W 5%	2.0	
R053,R054,R055	540 0918 000	RES 1.8K OHM 1/4W 5%	3.0	
R056	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R057	540 0913 000	RES 1.1K OHM 1/4W 5%	1.0	
R058	540 0917 000	RES 1.6K OHM 1/4W 5%	1.0	
R059	548 0414 000	RES 8870 OHM 1/4W 1%	1.0	
R060	550 0622 000	POT 1K OHM .5W 10%	1.0	
R061	550 0881 000	POT 100K OHM .5W 10%	1.0	
R062	540 0997 000	RES 3.6M OHM 1/4W 5%	1.0	
R064,R065	540 0906 000	RES 560.0 OHM 1/4W 5%	2.0	
R066	540 0896 000	RES 220.0 OHM 1/4W 5%	1.0	
R068	540 0907 000	RES 620.0 OHM 1/4W 5%	1.0	
R073	540 0935 000	RES 9.1K OHM 1/4W 5%	1.0	
R074	540 0930 000	RES 5.6K OHM 1/4W 5%	1.0	
R075,R076	540 0933 000	RES 7.5K OHM 1/4W 5%	2.0	
R077,R078	548 0531 000	RES 10K OHM 1/8W 1%	2.0	
R079	550 0813 000	POT 2K OHM 1/2W 10%	1.0	
R080	540 0935 000	RES 9.1K OHM 1/4W 5%	1.0	
R081	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R082	540 0966 000	RES 180.0K OHM 1/4W 5%	1.0	
R083,R084	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R085	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R086	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R087	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R088,R089	540 0957 000	RES 75.0K OHM 1/4W 5%	2.0	
R090	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R091	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R092	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R093	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R094	550 1014 000	POT 20K OHM .75W 10%	1.0	
R095	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R096	540 0992 000	RES 2.2M OHM 1/4W 5%	1.0	
R097	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R098	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R099	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R100,R101	540 0947 000	RES 30.0K OHM 1/4W 5%	2.0	
R102	540 0939 000	RES 13.0K OHM 1/4W 5%	1.0	
R103	550 0312 000	POT 1K OHM 3/4W 10%	1.0	

Table 7-10. QUADRATURE BOARD - 992 6078 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R104	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R105	540 0931 000	RES 6.2K OHM 1/4W 5%	1.0	
R106	550 0313 000	POT 5K OHM 3/4W 10%	1.0	
R107	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R108	548 0531 000	RES 10K OHM 1/8W 1%	1.0	
R109	548 1293 000	RES 3.65K OHM 1/8 W	1.0	
R110	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R111	550 0313 000	POT 5K OHM 3/4W 10%	1.0	
R112	540 0913 000	RES 1.1K OHM 1/4W 5%	1.0	
R113,R114	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R115	540 0898 000	RES 270.0 OHM 1/4W 5%	1.0	
R116	540 0953 000	RES 51.0K OHM 1/4W 5%	1.0	
R117	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R118	540 0920 000	RES 2.2K OHM 1/4W 5%	1.0	
R119	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R120	500 0972 000	CAP 39PF 500V 2%	1.0	
R121	540 0958 000	RES 82.0K OHM 1/4W 5%	1.0	
R122	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R123	500 0972 000	CAP 39PF 500V 2%	1.0	
R124	540 0968 000	RES 220.0K OHM 1/4W 5%	1.0	
R125	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R126	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R127	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R128	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R129	550 0760 000	POT 20K OHM .5W 10%	1.0	
R130	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R131	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R132	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R133	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R134,R135	540 0957 000	RES 75.0K OHM 1/4W 5%	2.0	
R136	540 0964 000	RES 150.0K OHM 1/4W 5%	1.0	
R137	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R138	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R139	540 0913 000	RES 1.1K OHM 1/4W 5%	1.0	
R140	540 0921 000	RES 2.4K OHM 1/4W 5%	1.0	
R141,R142	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R143	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R144	550 1013 000	POT 100K OHM 3/4W 10%	1.0	
R145	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R146	550 0760 000	POT 20K OHM .5W 10%	1.0	
R147	540 0953 000	RES 51.0K OHM 1/4W 5%	1.0	
R148	540 0892 000	RES 150.0 OHM 1/4W 5%	1.0	
R149	550 0812 000	POT 100 OHM 1/2W 10%	1.0	
R150	540 0956 000	RES 68.0K OHM 1/4W 5%	1.0	
R151	550 1014 000	POT 20K OHM .75W 10%	1.0	
R152	550 0313 000	POT 5K OHM 3/4W 10%	1.0	
R153	548 1205 000	RES 28K OHM 1/8W 1%	1.0	
R154	500 0972 000	CAP 39PF 500V 2%	1.0	
R155	540 1006 000	RES 8.2M OHM 1/4W 5%	1.0	

Table 7-10. QUADRATURE BOARD - 992 6078 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R156	550 0930 000	POT 200K OHM 1/2W	1.0	
R157	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R158,R159	540 0919 000	RES 2.0K OHM 1/4W 5%	2.0	
R160,R161	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R162	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R163	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R164	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R165,R166	540 0928 000	RES 4.7K OHM 1/4W 5%	2.0	
R167	540 0947 000	RES 30.0K OHM 1/4W 5%	1.0	
R168	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R169	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R170	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
S001	604 0469 000	SW TOGGLE SPDT	1.0	
TJ001	610 0857 000	HEADER ASSY 12 PIN	1.0	
U001	382 0359 000	IC 7815	1.0	
U002	382 0360 000	IC 7915	1.0	
U003	382 0273 000	IC LM340T-8/UA7808	1.0	
U004	382 0385 000	IC 7908	1.0	
U005	382 0184 000	IC 340T-5/7805 +5V REG	1.0	
U006	382 0552 000	IC TL074CN3	1.0	
U007	382 0879 000	IC AD535JD	1.0	
U008	382 0664 000	IC SD5000N	1.0	
U009,U010,U011	382 0472 000	IC LM318	3.0	
U012	382 0443 000	IC CD4053BE	1.0	
U013	382 0552 000	IC TL074CN3	1.0	
U014	382 0880 000	IC TBA120S	1.0	
U015	382 0617 000	IC LM319	1.0	
U016	382 0597 000	IC 74LS10N	1.0	
U017,U018	382 0561 000	IC 74LS74	2.0	
U019	382 0070 000	IC 7400	1.0	
U020,U021	382 0564 000	IC 74LS221 TTL MONO	2.0	
U022	382 0363 000	IC 74S74	1.0	
U023	382 0561 000	IC 74LS74	1.0	
U024,U025	382 0726 000	IC DS0026J-8/MMH0026CP1	2.0	
U026	382 0538 000	IC XR2206CP	1.0	
U027	382 0443 000	IC CD4053BE	1.0	
U028,U029	382 0552 000	IC TL074CN3	2.0	
U030,U031	382 0631 000	IC AD536AJD	2.0	
U032	382 0443 000	IC CD4053BE	1.0	
U033,U034	382 0552 000	IC TL074CN3	2.0	
U035	382 0510 000	IC OPTO ISOL	1.0	
XU006,XU007	404 0674 000	SOCKET, IC 14 CONT	2.0	
XU008	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU009,XU010	404 0673 000	SOCKET, IC 8 CONT		
XU011			3.0	
XU012	404 0675 000	SOCKET, IC 16 CONT	1.0	

Table 7-10. QUADRATURE BOARD - 992 6078 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
XU013,XU014	404 0674 000	SOCKET, IC 14 CONT		
XU015,XU016				
XU017,XU018				
XU019			7.0	
XU020,XU021	404 0675 000	SOCKET, IC 16 CONT	2.0	
XU022,XU023	404 0674 000	SOCKET, IC 14 CONT	2.0	
XU024,XU025	404 0673 000	SOCKET, IC 8 CONT	2.0	
XU026,XU027	404 0675 000	SOCKET, IC 16 CONT	2.0	
XU028,XU029	404 0674 000	SOCKET, IC 14 CONT		
XU030,XU031			4.0	
XU032	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU033,XU034	404 0674 000	SOCKET, IC 14 CONT	2.0	
XU035	404 0675 000	SOCKET, IC 16 CONT	1.0	
	302 0460 000	SCREW 4-40 X 3/8	1	
	358 1881 000	EJECTOR KIT CARD	1	
	404 0513 000	HEAT SINK PA1-1CB	5	
#U002,#U004	410 0335 000	INSULATOR, SCREW	2	
#U002,#U004	410 0381 000	INSULATOR .562 X .812	2	

Table 7-11. AUDIO OUTPUT BOARD - 992 6080 001

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR1,CR2	384 0357 000	RECTIFIER 1N4004	2.0	
CR3,CR4	384 0597 000	RECT 1N4002	2.0	
CR5,CR6	386 0106 000	ZENER 1N4737 7.5V	2.0	
C001	500 0755 000	CAP, MICA 270PF 500V 5%	1.0	
C002	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C003	500 0830 000	CAP MICA 240UUF 500V	1.0	
C004	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C005	500 0830 000	CAP MICA 240UUF 500V	1.0	
C006	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C007	500 0830 000	CAP MICA 240UUF 500V	1.0	
C008	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C009	500 0830 000	CAP MICA 240UUF 500V	1.0	
C010	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C011	500 0830 000	CAP MICA 240UUF 500V	1.0	
C012	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C013	500 0830 000	CAP MICA 240UUF 500V	1.0	
C014	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C015	500 0830 000	CAP MICA 240UUF 500V	1.0	
C016	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C017	500 0830 000	CAP MICA 240UUF 500V	1.0	
C018	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C019	500 0830 000	CAP MICA 240UUF 500V	1.0	
C020	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C021	500 0830 000	CAP MICA 240UUF 500V	1.0	
C022	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C023	500 0830 000	CAP MICA 240UUF 500V	1.0	
C024	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C025	500 0830 000	CAP MICA 240UUF 500V	1.0	
C026	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C027	500 0830 000	CAP MICA 240UUF 500V	1.0	
C028	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C029	500 0830 000	CAP MICA 240UUF 500V	1.0	
C030	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C031	500 0830 000	CAP MICA 240UUF 500V	1.0	
C032,C033	500 0912 000	CAP 820 PF 500V 5%	2.0	
C034	500 0830 000	CAP MICA 240UUF 500V	1.0	
C035,C036	506 0246 000	CAP .47UF 63V 5%	2.0	
C037,C038,C039	526 0311 000	CAP 2.2UF 35V 10%		
C040			4.0	
C041,C042	516 0411 000	CAP .1UF 50V DISC	2.0	
C043	522 0524 000	CAP 10 UF 25V 20%	1.0	
C044,C045,C046	516 0453 000	CAP .1UF 100V 20%		
C047,C048,C049				
C050,C051,C052				
C053,C054,C055				
C056,C057,C058				
C059			16.0	
DS001,DS002	384 0661 000	L.E.D. GREEN	2.0	

Table 7-11. AUDIO OUTPUT BOARD - 992 6080 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
K1	574 0351 000	RLY LATCHING CC-69	1.0	
L001,L002,L003	494 0190 000	CHOKE, RF 3300 UH 80 MA		
L004,L005,L006				
L007,L008,L009				
L010,L011,L012				
L013,L014,L015			15.0	
L016	494 0454 000	CHOKE 15,000 UH	1.0	
Q001,Q002	380 0189 000	TRANSISTOR 2N3904	2.0	
R001	540 0073 000	RES 10.0K OHM 1/2W 5%	1.0	
R002	540 1207 000	RES 4.3K OHM 1/2W 5%	1.0	
R3,R4,R5,R6	540 1356 000	RES NETWORK 10K OHM 2%	4.0	
R007	540 0977 000	RES 510.0K OHM 1/4W 5%	1.0	
R008,R009	550 0314 000	POT 10K OHM 3/4W 10%	2.0	
R010	540 0166 000	RES 100.0 OHM 1/2W 5%	1.0	
R011,R012,R013	540 1138 000	RES 3.0K OHM 1/2W 5%		
R014,R015,R016				
R017,R018,R019				
R020,R021,R022				
R023,R024,R025			15.0	
R026	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R027	540 1119 000	RES 1.8K OHM 1/2W 5%	1.0	
R028,R029	550 1014 000	POT 20K OHM .75W 10%	2.0	
R030,R031	550 1015 000	POT 50K OHM .75W 10%	2.0	
R032	540 0066 000	RES 5.1K OHM 1/2W 5%	1.0	
R033,R034	550 0314 000	POT 10K OHM 3/4W 10%	2.0	
R035	540 0066 000	RES 5.1K OHM 1/2W 5%	1.0	
R36,R37	540 0078 000	RES 16.0K OHM 1/2W 5%	2.0	
R038,R039	550 1014 000	POT 20K OHM .75W 10%	2.0	
R040,R041	540 0047 000	RES 820.0 OHM 1/2W 5%	2.0	
R042,R043	540 0035 000	RES 270.0 OHM 1/2W 5%	2.0	
R044,R045,R046	540 0073 000	RES 10.0K OHM 1/2W 5%	3.0	
R047,R048	540 0056 000	RES 2.0K OHM 1/2W 5%	2.0	
R049,R050,R051	540 1116 000	RES 1.0K OHM 1/2W 5%	3.0	
R052,R053	540 0073 000	RES 10.0K OHM 1/2W 5%	2.0	
R054,R055	550 0314 000	POT 10K OHM 3/4W 10%	2.0	
R056,R057,R058	548 1361 000	RES 10K OHM 1/4W 1%		
R059			4.0	
R060,R061	540 0598 000	RES 300.0 OHM 2W 5%	2.0	
R062	548 0997 000	RES 20K OHM 1/4W 1%	1.0	
R063,R064,R065	540 0073 000	RES 10.0K OHM 1/2W 5%		
R066,R067,R068			6.0	
R069	540 1116 000	RES 1.0K OHM 1/2W 5%	1.0	
R070	548 1361 000	RES 10K OHM 1/4W 1%	1.0	
S1,S2	604 0979 000	SW, THUMBWHEEL 16 POS	2.0	
U1,U2,U3	382 0552 000	IC TL074CN3	3.0	
U4	382 0443 000	IC CD4053BE	1.0	
U5	382 0552 000	IC TL074CN3	1.0	
U6	382 0360 000	IC 7915	1.0	
U7	382 0279 000	IC 7815/340-15	1.0	

Table 7-11. AUDIO OUTPUT BOARD - 992 6080 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
U8	382 0552 000	IC TL074CN3	1.0	
U9,U10,U11	382 0443 000	IC CD4053BE	3.0	
U012	382 0510 000	IC OPTO ISOL	1.0	
U14	382 0749 000	IC NE5532AN	1.0	
XU1,XU2,XU3	404 0674 000	SOCKET, IC 14 CONT	3.0	
XU004	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU5,XU8	404 0674 000	SOCKET, IC 14 CONT	2.0	
XU009,XU010	404 0675 000	SOCKET, IC 16 CONT		
XU011,XU012			4.0	
XU014	404 0673 000	SOCKET, IC 8 CONT	1.0	
	302 0460 000	SCREW 4-40 X 3/8	1	
	358 1881 000	EJECTOR KIT CARD	1	
#U001,#U007	404 0513 000	HEAT SINK PA1-1CB	2	
#U001,#U007	410 0381 000	INSULATOR .562 X .812	2	

Table 7-12. RF OUTPUT BOARD - 992 6079 002

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
A001	992 6119 001	VCO BOARD	1.0	
CR001	384 0205 000	DIODE SILICON 1N914	1.0	
CR002	386 0123 000	ZENER 1N4732A 4.7V	1.0	
CR003	384 0205 000	DIODE SILICON 1N914	1.0	
CR004,CR005	384 0431 000	RECT. 1N4001		
CR006			3.0	
CR007	386 0181 000	ZENER 1N4739A 9.1V	1.0	
C001	500 0753 000	CAP MICA 56UUF	1.0	
C002	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
C003,C004	516 0453 000	CAP .1UF 100V 20%	2.0	
C005	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C006	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C007	500 0755 000	CAP, MICA 270PF 500V 5%	1.0	
C008	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C009	500 0841 000	CAP, MICA 750PF 300V 5%	1.0	
C010	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C011	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
C012	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C013	500 0834 000	CAP, MICA 430PF 500V 5%	1.0	
C014	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C015	500 0803 000	CAP MICA 5UUF 500V	1.0	
C016	500 0754 000	CAP, MICA 220PF 500V 5%	1.0	
C017	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C018	500 0756 000	CAP, MICA 330PF 500V 5%	1.0	
C019	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C020	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
C021	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C022	500 0838 000	CAP, MICA 560PF 300V 5%	1.0	
C023	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C024	500 0830 000	CAP MICA 240UUF 500V	1.0	
C025	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C026	500 0784 000	CAP 300PF 500V 5%	1.0	
C027	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C028	500 0842 000	CAP, MICA 820PF 300V 5%	1.0	
C029	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C030	500 0834 000	CAP, MICA 430PF 500V 5%	1.0	
C031	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C032	500 0756 000	CAP, MICA 330PF 500V 5%	1.0	
C033	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C034	500 0833 000	CAP, MICA 390PF 500V 5%	1.0	
C035	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C036	500 0840 000	CAP, MICA 680PF 300V 5%	1.0	
C037	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C038,C039,C040	516 0453 000	CAP .1UF 100V 20%		
C041,C042,C043				
C044,C045			8.0	
C046,C047	500 0835 000	CAP, MICA 470PF 500V 5%	2.0	
C048,C049,C050	516 0453 000	CAP .1UF 100V 20%	3.0	

WARNING: Disconnect primary power prior to servicing.

Table 7-12. RF OUTPUT BOARD - 992 6079 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C053	508 0413 000	CAP .015UF 50V 5%	1.0	
C062	500 0814 000	CAP MICA 36UUF 500V	1.0	
C064	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C065	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C066	500 0841 000	CAP, MICA 750PF 300V 5%	1.0	
C067	500 0784 000	CAP 300PF 500V 5%	1.0	
C068	500 0833 000	CAP, MICA 390PF 500V 5%	1.0	
C069,C070	516 0453 000	CAP .1UF 100V 20%	2.0	
C071	500 0826 000	CAP, MICA 120PF 500V 5%	1.0	
C072	516 0453 000	CAP .1UF 100V 20%	1.0	
C073	516 0054 000	CAP, DISC .001UF 1KV 10%	1.0	
C074	500 0814 000	CAP MICA 36UUF 500V	1.0	
C075	516 0453 000	CAP .1UF 100V 20%	1.0	
C076	516 0067 000	CAP DISC .003UF 1KV 20%	1.0	
C077	500 0819 000	CAP, MICA 51PF 500V 5%	1.0	
C078	518 0054 000	CAP VAR 15-60PF 200V	1.0	
C079	516 0453 000	CAP .1UF 100V 20%	1.0	
C080	500 0838 000	CAP, MICA 560PF 300V 5%	1.0	
C081	518 0054 000	CAP VAR 15-60PF 200V	1.0	
C082	500 0807 000	CAP MICA 18UUF 500V	1.0	
C083	500 0814 000	CAP MICA 36UUF 500V	1.0	
C084	500 0822 000	CAP, MICA 75PF 500V 5%	1.0	
C085	500 0761 000	CAP, MICA 150PF 500V 5%	1.0	
C086,C087	516 0453 000	CAP .1UF 100V 20%	2.0	
C088	518 0054 000	CAP VAR 15-60PF 200V	1.0	
C089	500 0807 000	CAP MICA 18UUF 500V	1.0	
C090	500 0814 000	CAP MICA 36UUF 500V	1.0	
C091	500 0822 000	CAP, MICA 75PF 500V 5%	1.0	
C092	500 0761 000	CAP, MICA 150PF 500V 5%	1.0	
C093	516 0453 000	CAP .1UF 100V 20%	1.0	
C094	516 0375 000	CAP .01UF 50V	1.0	
C095,C096,C097	516 0453 000	CAP .1UF 100V 20%		
C098			4.0	
C099	526 0057 000	CAP 100UF 20V 20%	1.0	
C100	518 0054 000	CAP VAR 15-60PF 200V	1.0	
C101	500 0822 000	CAP, MICA 75PF 500V 5%	1.0	
C102	516 0453 000	CAP .1UF 100V 20%	1.0	
C103	526 0097 000	CAP 47 UF 35V 20%	1.0	
C104	526 0311 000	CAP 2.2UF 35V 10%	1.0	
C105	516 0453 000	CAP .1UF 100V 20%	1.0	
C106	526 0311 000	CAP 2.2UF 35V 10%	1.0	
C107,C108	526 0318 000	CAP 10UF 35V 20%	2.0	
C109,C110	526 0050 000	CAP 1 UF 35V 20%	2.0	
C111,C112	516 0453 000	CAP .1UF 100V 20%	2.0	
C114	500 0844 000	CAP, MICA 1000PF 100V 5%	1.0	
C115,C116	516 0453 000	CAP .1UF 100V 20%	2.0	
C117	516 0375 000	CAP .01UF 50V	1.0	
C118	500 0844 000	CAP, MICA 1000PF 100V 5%	1.0	

Table 7-12. RF OUTPUT BOARD - 992 6079 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C119,C120,C121	516 0453 000	CAP .1UF 100V 20%		
C123,C124,C125				
C126			7.0	
C127,C128	500 0811 000	CAP MICA 27UUF 500V	2.0	
C129,C130	516 0453 000	CAP .1UF 100V 20%	2.0	
C131,C132	500 0811 000	CAP MICA 27UUF 500V	2.0	
C133	500 0844 000	CAP, MICA 1000PF 100V 5%	1.0	
C135	516 0375 000	CAP .01UF 50V	1.0	
DS001,DS002	384 0661 000	L.E.D. GREEN	2.0	
J001	610 0679 000	PLUG, SHORTING	1.0	
L001	494 0418 000	CHOKE RF 820.0UH	1.0	
L002,L003,L004	494 0419 000	CHOKE RF 1000.0UH		
L005,L006,L007				
L008,L009,L010				
L011,L012,L013			12.0	
L014	494 0415 000	CHOKE RF 470.0UH	1.0	
L015	494 0413 000	CHOKE RF 330.0UH	1.0	
L016	494 0190 000	CHOKE, RF 3300 UH 80 MA	1.0	
L017	494 0411 000	CHOKE RF 220.0UH	1.0	
L018,L019	494 0413 000	CHOKE RF 330.0UH	2.0	
L020	494 0414 000	CHOKE, RF 390UH	1.0	
L021,L022,L023	494 0419 000	CHOKE RF 1000.0UH		
L024			4.0	
Q007,Q008,Q009	380 0189 000	TRANSISTOR 2N3904	3.0	
Q010	380 0319 000	TRANSISTOR MPS-A14	1.0	
Q011,Q012,Q013	380 0189 000	TRANSISTOR 2N3904		
Q014			4.0	
R001	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R002	540 0939 000	RES 13.0K OHM 1/4W 5%	1.0	
R003,R004	540 0888 000	RES 100.0 OHM 1/4W 5%	2.0	
R005	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R006	548 2056 000	RES 422 OHM 1/4W 1%	1.0	
R007	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R008	548 0687 000	RES 1960 OHM 1/4W 1%	1.0	
R009	548 2054 000	RES 232 OHM 1/4W 1%	1.0	
R010	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R011	548 2057 000	RES 2150 OHM 1/4W 1%	1.0	
R012	548 0577 000	RES 499 OHM 1/4W 1%	1.0	
R013	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R014	548 0375 000	RES 2100 OHM 1/4W 1%	1.0	
R017	548 0856 000	RES 432 OHM 1% 1/4W	1.0	
R018	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R019	548 2057 000	RES 2150 OHM 1/4W 1%	1.0	
R020	548 0307 000	RES 511 OHM 1/4W 1%	1.0	
R021	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R022	548 0375 000	RES 2100 OHM 1/4W 1%	1.0	
R023	548 0406 000	RES 158 OHM 1/4W 1%	1.0	
R024	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R025	548 2057 000	RES 2150 OHM 1/4W 1%	1.0	

Table 7-12. RF OUTPUT BOARD - 992 6079 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R026	548 0859 000	RES 442 OHM 1/4W 1%	1.0	
R027	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R028	548 1436 000	RES 2370 OHM 1/4W	1.0	
R029	548 0871 000	RES 698 OHM 1/4W 1%	1.0	
R030	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R031	548 0777 000	RES 2320 OHM 1/4W 1%	1.0	
R032	548 0559 000	RES 825 OHM 1/4W 1%	1.0	
R033	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R034	548 1436 000	RES 2370 OHM 1/4W	1.0	
R035	548 2053 000	RES 178 OHM 1/4W 1%	1.0	
R036	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R037	548 2057 000	RES 2150 OHM 1/4W 1%	1.0	
R038	548 2055 000	RES 340 OHM 1/4W 1%	1.0	
R039	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R040	548 0837 000	RES 2050 OHM 1/4W 1%	1.0	
R041	548 0578 000	RES 267 OHM 1/4W 1%	1.0	
R042	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R043	548 2058 000	RES 2870 OHM 1/4W 1%	1.0	
R044	548 0865 000	RES 562 OHM 1/4W 1%	1.0	
R045	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R046	548 0310 000	RES 2430 OHM 1/4W 1%	1.0	
R047	548 0733 000	RES 412 OHM 1/4 1%	1.0	
R048	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R049	548 0687 000	RES 1960 OHM 1/4W 1%	1.0	
R050	548 0733 000	RES 412 OHM 1/4 1%	1.0	
R051	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R052	548 0687 000	RES 1960 OHM 1/4W 1%	1.0	
R053	548 0861 000	RES 487 OHM 1/4W 1%	1.0	
R054	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R055	548 2071 000	RES 2260 OHM 1/4W 1%	1.0	
R058,R059	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R060,R061	540 0911 000	RES 910.0 OHM 1/4W 5%	2.0	
R062,R063	540 0888 000	RES 100.0 OHM 1/4W 5%	2.0	
R064	540 0926 000	RES 3.9K OHM 1/4W 5%	1.0	
R065	540 0872 000	RES 22.0 OHM 1/4W 5%	1.0	
R066	540 0904 000	RES 470.0 OHM 1/4W 5%	1.0	
R067	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R068	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R069	540 0901 000	RES 360.0 OHM 1/4W 5%	1.0	
R070	540 0908 000	RES 680.0 OHM 1/4W 5%	1.0	
R071	540 0896 000	RES 220.0 OHM 1/4W 5%	1.0	
R072	540 0908 000	RES 680.0 OHM 1/4W 5%	1.0	
R073	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R074,R075	540 0921 000	RES 2.4K OHM 1/4W 5%	2.0	
R076	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R077	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R078	540 0909 000	RES 750.0 OHM 1/4W 5%	1.0	
R079	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	

Table 7-12. RF OUTPUT BOARD - 992 6079 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R080,R081,R082	540 0929 000	RES 5.1K OHM 1/4W 5%		
R083			4.0	
R084	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R085	550 0621 000	POT, 200 OHM .5W 10%	1.0	
R086	540 0921 000	RES 2.4K OHM 1/4W 5%	1.0	
R087,R088	540 0876 000	RES 33.0 OHM 1/4W 5%	2.0	
R089	550 0621 000	POT, 200 OHM .5W 10%	1.0	
R090	540 0921 000	RES 2.4K OHM 1/4W 5%	1.0	
R091	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R092	540 0904 000	RES 470.0 OHM 1/4W 5%	1.0	
R093	540 0928 000	RES 4.7K OHM 1/4W 5%	1.0	
R094	540 0896 000	RES 220.0 OHM 1/4W 5%	1.0	
R095	540 0308 000	RES 100.0 OHM 1W 5%	1.0	
R096	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R097,R098	540 0588 000	RES 110.0 OHM 2W 5%	2.0	
R099	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R100,R101	540 1356 000	RES NETWORK 10K OHM 2%	2.0	
R102	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R103	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R104	540 0881 000	RES 51.0 OHM 1/4W 5%	1.0	
R105	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R106,R107	540 0908 000	RES 680.0 OHM 1/4W 5%	2.0	
R108	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R109	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R110	540 0892 000	RES 150.0 OHM 1/4W 5%	1.0	
R111,R112	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R113	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R114	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R115	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R116	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R117	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R118,R119	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R120,R121	540 0047 000	RES 820.0 OHM 1/2W 5%	2.0	
R122	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R123	540 0920 000	RES 2.2K OHM 1/4W 5%	1.0	
R124	540 0908 000	RES 680.0 OHM 1/4W 5%	1.0	
R125	540 0880 000	RES 47.0 OHM 1/4W 5%	1.0	
R126	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R127	540 0892 000	RES 150.0 OHM 1/4W 5%	1.0	
R128,R129	540 0923 000	RES 3.0K OHM 1/4W 5%	2.0	
R130	550 0625 000	POT, 500 OHM .5W 10%	1.0	
R131	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R132	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
S001,S002	600 0579 000	SW, ROTARY 4PDT	2.0	
S003	604 0852 000	SWITCH, ROCKER DIP 4-SPST	1.0	
S004	604 0851 000	SWITCH 8PST	1.0	
TJ001	610 0857 000	HEADER ASSY 12 PIN	1.0	
U001	382 0472 000	IC LM318	1.0	

Table 7-12. RF OUTPUT BOARD - 992 6079 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
U002,U003,U004	382 0639 000	IC HA1-4605-5		
U005			4.0	
U007	382 0472 000	IC LM318	1.0	
U008	382 0868 000	IC MC145151P	1.0	
U009	382 0363 000	IC 74S74	1.0	
U010,U011	382 0365 000	IC 1496 MOD-DEMOD	2.0	
U012	382 0184 000	IC 340T-5/7805 +5V REG	1.0	
U013	382 0360 000	IC 7915	1.0	
U014	382 0359 000	IC 7815	1.0	
U015	382 0561 000	IC 74LS74	1.0	
U016	382 0564 000	IC 74LS221 TTL MONO	1.0	
U017	382 0070 000	IC 7400	1.0	
XS003	404 0673 000	SOCKET, IC 8 CONT	1.0	
XS004	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU001	404 0673 000	SOCKET, IC 8 CONT	1.0	
XU002,XU003	404 0674 000	SOCKET, IC 14 CONT		
XU004,XU005			4.0	
XU007	404 0673 000	SOCKET, IC 8 CONT	1.0	
XU008	404 0509 000	SOCKET, IC 28 PIN	1.0	
XU009,XU010	404 0674 000	SOCKET, IC 14 CONT		
XU011,XU015			4.0	
XU016	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU017	404 0674 000	SOCKET, IC 14 CONT	1.0	
Y001	444 2781 000	CRYSTAL 4.0960 MHZ	1.0	
	302 0460 000	SCREW 4-40 X 3/8	1	
#A001	335 0104 000	WASHER PLAIN .156 ID	4	
#A001	358 0477 000	NUT, WELL 6-32	4	
	358 1881 000	EJECTOR KIT CARD	1	
#U014	404 0513 000	HEAT SINK PA1-1CB	1	
#A001	424 0012 000	GROMMET 1/4 MTG DIA	6	
	829 9002 046	INSULATOR, STIFFNER	1	
#A001	829 9002 047	SHIELD, VCO	1	
#A001	839 6202 024	BOX, VCO	1	

Table 7-13. VCO BOARD - 992 6119 001

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001,CR002	384 0321 000	DIODE 5082-2800/1N5711	2.0	
CR003,CR004	528 0033 000	DIODE, VARACTOR MV1405	2.0	
C001	000 0000 003	FREQUENCY DETERMINED PART	1.0	
C002	500 0818 000	CAP MICA 50UUF 500V	1.0	
C003	516 0375 000	CAP .01UF 50V	1.0	
C004,C005	516 0453 000	CAP .1UF 100V 20%	2.0	
C006	516 0375 000	CAP .01UF 50V	1.0	
C007,C008,C009	516 0453 000	CAP .1UF 100V 20%	3.0	
L001	917 1278 006	COIL TOROID	1.0	
Q001,Q002	380 0622 000	TRANSISTOR U310	2.0	
R001	550 0949 000	POT 100K OHM 1/2W 10%	1.0	
R002	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R003	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R004	540 0904 000	RES 470.0 OHM 1/4W 5%	1.0	
R005	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R006	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R007	540 0904 000	RES 470.0 OHM 1/4W 5%	1.0	
T001	917 1278 005	XFMR, TOROID	1.0	

Table 7-14. POWER SUPPLY BOARD - 992 6086 001

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001	384 0259 000	RECT MDA970-A3	1.0	
CR002,CR003	384 0020 000	RECTIFIER IN4005		
CR004,CR005				
CR006,CR007				
CR008,CR009			8.0	
CR10	384 0205 000	DIODE SILICON 1N914	1.0	
CR011,CR012	384 0020 000	RECTIFIER IN4005	2.0	
C001,C002	000 0000 002	APPEARS ON HIGHER LEVEL	2.0	
C003	526 0351 000	CAP 6.8UF 50V 20%	1.0	
C004	526 0318 000	CAP 10UF 35V 20%	1.0	
C005,C006	526 0351 000	CAP 6.8UF 50V 20%	2.0	
C007,C008,C009	526 0318 000	CAP 10UF 35V 20%		
C010			4.0	
C011,C012,C013	526 0050 000	CAP 1 UF 35V 20%		
C014			4.0	
C015,C016	516 0453 000	CAP .1UF 100V 20%	2.0	
C017	526 0097 000	CAP 47 UF 35V 20%	1.0	
C018	526 0350 000	CAP 3.9 UF 35V 10%	1.0	
C019	526 0097 000	CAP 47 UF 35V 20%	1.0	
C020	500 1266 000	CAP 27PF 100V 5%	1.0	
C021	516 0375 000	CAP .01UF 50V	1.0	
C022	516 0509 000	CAP 2.2UF 50V 20%	1.0	
C023,C024	500 0912 000	CAP 820 PF 500V 5%	2.0	
C025	506 0241 000	CAP .047UF 63V 5%	1.0	
DS1,DS2,DS3,DS4	384 0610 000	LED, GREEN	4.0	
P001,P002,P003	610 0679 000	PLUG, SHORTING	3.0	
Q1	380 0189 000	TRANSISTOR 2N3904	1.0	
Q002,Q003	380 0586 000	TRANSISTOR MJE200	2.0	
Q004	380 0587 000	TRANSISTOR MJE210	1.0	
Q005,Q006	380 0586 000	TRANSISTOR MJE200	2.0	
R001,R002	540 1111 000	RES 10.0K OHM 1/2W 5%	2.0	
R003,R004	540 1201 000	RES 910.0 OHM 1/2W 5%	2.0	
R005,R006,R007	540 1116 000	RES 1.0K OHM 1/2W 5%		
R008			4.0	
R009	540 0033 000	RES 220.0 OHM 1/2W 5%	1.0	
R010	540 1165 000	RES 3.3K OHM 1/2W 5%	1.0	
R011	540 0033 000	RES 220.0 OHM 1/2W 5%	1.0	
R012	540 1165 000	RES 3.3K OHM 1/2W 5%	1.0	
R013	540 1114 000	RES 4.7K OHM 1/2W 5%	1.0	
R014	540 1154 000	RES 7.5K OHM 1/2W 5%	1.0	
R015	540 1129 000	RES 1.5K OHM 1/2W 5%	1.0	
R016	550 0621 000	POT, 200 OHM .5W 10%	1.0	
R017	540 0026 000	RES 110.0 OHM 1/2W 5%	1.0	
R018,R019	540 0584 000	RES 75.0 OHM 2W 5%	2.0	
R020	540 1151 000	RES 10.0 OHM 1/2W 5%	1.0	
R021	540 1239 000	RES 5.1 OHM 1/2W 5%	1.0	

Table 7-14. POWER SUPPLY BOARD - 992 6086 001 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R022,R023,R024	540 1248 000	RES 1.0 OHM.1/2W 5%		
R025,R026,R027				
R028,R029			8.0	
R030,R031	540 0580 000	RES 51.0 OHM 2W 5%	2.0	
R032	540 0603 000	RES 470.0 OHM 2W 5%	1.0	
R033	540 1116 000	RES 1.0K OHM 1/2W 5%	1.0	
R034	550 0626 000	POT, 10K OHM .5W 10%	1.0	
R035	550 0357 000	POT 500 OHM 3/4W 10%	1.0	
R036	540 1239 000	RES 5.1 OHM 1/2W 5%	1.0	
T001	000 0000 002	APPEARS ON HIGHER LEVEL	1.0	
T2	917 1278 001	COIL, TOROID	1.0	
U1	382 0475 000	IC 317	1.0	
U002	382 0874 000	IC LM337K	1.0	
U3	382 0475 000	IC 317	1.0	
U004	382 0874 000	IC LM337K	1.0	
#Q003,#Q004	404 0729 000	HEAT SINK FOR TO-220		
#Q005,#Q006			1	
#U001,#U002	410 0383 000	INSULATOR TO-3 MICA		
#U003,#U004			4	
#U001,#U002	410 0384 000	INSULATOR, #4 SCREW		
#U003,#U004			8	
	839 6202 005	HEAT SINK	2	
	839 6202 019	SCHEMATIC-POWER SUPPLY	0	
	943 4035 025	PWB, POWER SUPPLY	1	
	999 2174 001	HARDWARE LIST	1	
#Q002	404 0513 000	HEAT SINK PA1-1CB	2	
#Q002,#Q003	410 0381 000	INSULATOR .562 X .812		
#Q004,#Q005				
#Q006			5	
#XU001,#XU001A	612 0891 000	JACK, PC MT		
#XU002,#XU002A				
#XU003,#XU003A				
#XU004,#XU004A			8	

Table 7-15. STX-1A AM STEREO EXCITER - 994 8730 004

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
	994 8730 003	BASIC AM STEREO EXCITER	1	
A6A1C1 FREQ DET	500 0759 000	CAP, MICA 100PF 500V 5%	0	

Table 7-16. BASIC AM STEREO EXCITER - 994 8730 003

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
	054 0010 027	CB BX 24.75 X21 X17	1	
	250 0274 000	POWER CORD 7-1/2 FT	1	
	843 4035 002	FAMILY TREE	0	
	888 2174 001	TM STX-1A AM STEREO	1	
	992 6088 002	BASIC AM STEREO EXCITER	1	
	992 6116 001	CARD, EXTENDER	1	
	992 6267 002	STX-1 PACKING CHECK LIST	0	

Table 7-17. BASIC AM STEREO EXCITER - 992 6088 002

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
A001	992 6085 002	METERING BOARD	1.0	
A002	992 6084 001	MOTHERBOARD	1.0	
A003	992 6077 001	AUDIO INPUT PC BD	1.0	
A004	992 6101 003	PEAK LIM/SEP CORR	1.0	
A005	992 6078 004	QUADRATURE GENERATOR BOARD	1.0	
A006	992 6080 001	AUDIO OUTPUT PC BD	1.0	
A007	992 6079 003	RF OUTPUT BOARD	1.0	
A008	000 0000 002	APPEARS ON HIGHER LEVEL	1.0	
A009	000 0000 004	SUB ASSY, P/O THIS BILL	1.0	
A02P10,A02P11	620 0417 000	CAP AND CHAIN BNC CW123/U		
A02P12			3.0	
A09S01	604 0868 000	SW, ROCKER DPDT	1.0	
A1M001	632 1039 000	METER, MODULATION	1.0	
A1M002	632 1040 000	MULTIMETER 0-100/0-30 SCL	1.0	
A9A001	992 6086 001	POWER SUPPLY PC BD	1.0	
A9C001,A9C002	524 0336 000	CAP 2900 UF 50V	2.0	
A9FL001	484 0296 000	FILTER, RFI POWER LINE	1.0	
A9F001	398 0086 000	FUSE SLOW CART 4A 125V	1.0	
A9R001	548 2008 000	RES 27.4K OHM 1/4W 1%	1.0	
A9R002	548 1407 000	RES 51.1K OHM 1/4W 1%	1.0	
A9R003	548 0315 000	RES 182K OHM 1/4W 1%	1.0	
A9R004	548 0325 000	RES 243K OHM 1/4W 1%	1.0	
A9TS001	614 0155 000	TERM STRIP 8 1&8 GND	1.0	
A9T001	472 1303 000	XFMR, POWER	1.0	
	302 0586 000	SCREW 6-32 X 3/8	2	
	336 1214 000	SCREW 6-32 X 3/8	4	
	350 0058 000	RIVET, POP 1/8 D X .230L	2	
	402 0020 000	FUSE CLIP	2	
#A9C001,#A9C002	402 0175 000	CLIP, 1-3/8 DIA. COMPONEN	2	
	464 0169 000	TOOL, TRIMMER ADJUSTMENT	1	
	646 0665 000	PN PLT 827 3729 001	1	
	646 1078 000	NAMEPLATE, HARRIS	1	
	650 0028 000	KNOB RD SKIRT 1.135	2	
	813 5006 051	SPACER 1/4 HEX 6-32 X .39	2	
#A2	813 5084 024	SPACER 1/4 X 7/16	4	
#A1	813 5084 027	SPACER, ROUND	4	
	817 0493 001	CLIP FLAT	1	
	817 0494 001	CLIP RIGHT ANGLE	2	
	817 1278 009	RUNNING LIST MAINFRAME	0	
	829 9002 011	HINGE	1	
#A9T001	829 9002 042	BOTTOM PLATE	1	
	839 6202 003	PANEL, DIVIDER	1	
	839 6202 007	PLATE,CONN.	1	
#T001	839 6202 011	ENCLOSURE,TRANSFORMER	1	
	843 4035 018	CHASSIS, BOTTOM	1	
	843 4035 020	CHASSIS, SIDE	1	
	843 4035 021	CHASSIS, SIDE	1	
	843 4035 029	PANEL,REAR	1	

Table 7-17. BASIC AM STEREO EXCITER - 992 6088 002 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
	929 9002 045	CABLE, MAIN FRAME	1	
	939 5695 184	CABLE, RIBBON A2P1/A1P17	1	
	939 6202 006	COVER, ACCESS	1	
	939 6202 029	COVER, FRONT	1	
	943 4035 017	CHASSIS, TOP	1	
	943 4035 024	PANEL, METER	1	
	999 2175 001	WIRE/TUBING LIST	1	
	999 2176 001	HARDWARE LIST	1	

Table 7-18. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 003

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001,CR002	384 0205 000	DIODE SILICON 1N914		
CR003,CR004				
CR005,CR006			6.0	
CR007,CR008	384 0431 000	RECT. 1N4001		
CR009,CR010				
CR011,CR012				
CR013			7.0	
CR014,CR015	384 0205 000	DIODE SILICON 1N914		
CR016,CR017			4.0	
CR018,CR019	384 0431 000	RECT. 1N4001		
CR020,CR021			4.0	
CR022,CR023	384 0205 000	DIODE SILICON 1N914		
CR024			3.0	
CR025	384 0256 000	DIODE MZ2361/AP2361	1.0	
CR026	384 0431 000	RECT. 1N4001	1.0	
C001,C002,C003	516 0453 000	CAP .1UF 100V 20%		
C004			4.0	
C005	500 0802 000	CAP MICA 3UUF 500V	1.0	
C006	506 0230 000	CAP .001UF 63V 5%	1.0	
C007,C008	516 0453 000	CAP .1UF 100V 20%	2.0	
C009	522 0524 000	CAP 10 UF 25V 20%	1.0	
C010,C011	516 0453 000	CAP .1UF 100V 20%	2.0	
C012	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C013	522 0524 000	CAP 10 UF 25V 20%	1.0	
C014	506 0230 000	CAP .001UF 63V 5%	1.0	
C015	516 0453 000	CAP .1UF 100V 20%	1.0	
C016,C017	522 0524 000	CAP 10 UF 25V 20%	2.0	
C018,C019,C020	516 0453 000	CAP .1UF 100V 20%	3.0	
C021	526 0050 000	CAP 1 UF 35V 20%	1.0	
C022,C023	516 0453 000	CAP .1UF 100V 20%	2.0	
C026,C027,C028	522 0524 000	CAP 10 UF 25V 20%	3.0	
C029	526 0047 000	CAP 220UF 10V 20%	1.0	
C030	522 0524 000	CAP 10 UF 25V 20%	1.0	
C031	516 0453 000	CAP .1UF 100V 20%	1.0	
C032	526 0119 000	CAP 100UF 20V 20%	1.0	
C033,C034	516 0453 000	CAP .1UF 100V 20%	2.0	
C035	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C036,C037	516 0453 000	CAP .1UF 100V 20%	2.0	
C038	500 0802 000	CAP MICA 3UUF 500V	1.0	
C039,C040	516 0453 000	CAP .1UF 100V 20%	2.0	
C041	522 0524 000	CAP 10 UF 25V 20%	1.0	
C042,C043	516 0453 000	CAP .1UF 100V 20%	2.0	
C044	506 0230 000	CAP .001UF 63V 5%	1.0	
C045,C046,C047	516 0453 000	CAP .1UF 100V 20%	3.0	
C048	522 0524 000	CAP 10 UF 25V 20%	1.0	
C049	516 0453 000	CAP .1UF 100V 20%	1.0	
C050	506 0230 000	CAP .001UF 63V 5%	1.0	

Table 7-18. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C051,C052,C053	526 0050 000	CAP 1 UF 35V 20%		
C054,C055,C056				
C057,C058			8.0	
C059	506 0221 000	CAP .01 UF 100V 1%	1.0	
C060,C061,C062	516 0453 000	CAP .1UF 100V 20%	3.0	
C063,C064,C065	506 0237 000	CAP .0068UF 63V 5%		
C066			4.0	
C067	516 0453 000	CAP .1UF 100V 20%	1.0	
C068,C069	506 0221 000	CAP .01 UF 100V 1%	2.0	
C070	506 0233 000	CAP .1UF 63V 5%	1.0	
C071,C072,C073	516 0453 000	CAP .1UF 100V 20%		
C074,C075,C076			6.0	
C077	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C078,C079,C080	522 0524 000	CAP 10 UF 25V 20%		
C081			4.0	
C082	516 0453 000	CAP .1UF 100V 20%	1.0	
DS001,DS002	384 0664 000	L.E.D. YELLOW	2.0	
DS003,DS004	384 0733 000	LED, BI-COLOR RED/GRN	2.0	
DS005,DS006	384 0661 000	L.E.D. GREEN	2.0	
J001,J002,J003	610 0679 000	PLUG, SHORTING		
J004,J005,J006			6.0	
Q001	380 0189 000	TRANSISTOR 2N3904	1.0	
Q002	380 0319 000	TRANSISTOR MPS-A14	1.0	
Q003	380 0196 000	TRANSISTOR MPS-A65	1.0	
Q004,Q005,Q006	380 0126 000	TRANSISTOR 2N4403	3.0	
R001	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R002,R003	540 0929 000	RES 5.1K OHM 1/4W 5%	2.0	
R004	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R005	550 0797 000	POT 50K OHM .5W 10%	1.0	
R006	540 0971 000	RES 300.0K OHM 1/4W 5%	1.0	
R007,R008	540 0943 000	RES 20.0K OHM 1/4W 5%	2.0	
R009	540 0881 000	RES 51.0 OHM 1/4W 5%	1.0	
R010	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R011	540 0927 000	RES 4.3K OHM 1/4W 5%	1.0	
R012	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R013	550 0842 000	POT 200 OHM 1/2W 10%	1.0	
R014	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R015	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R016	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R017,R018	540 0899 000	RES 300.0 OHM 1/4W 5%	2.0	
R019	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R020	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R021,R022	540 0915 000	RES 1.3K OHM 1/4W 5%	2.0	
R023	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R024	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R025,R026	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R027	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R028,R029	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R030	540 0968 000	RES 220.0K OHM 1/4W 5%	1.0	

Table 7-18. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R031	540 0969 000	RES 240.0K OHM 1/4W 5%	1.0	
R032	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R033	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R034	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R035	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R036	540 0976 000	RES 470.0K OHM 1/4W 5%	1.0	
R037	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R038	540 0941 000	RES 16.0K OHM 1/4W 5%	1.0	
R039	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R040	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R041	550 0961 000	POT 50K OHM 1/2W 10%	1.0	
R042	548 1094 000	RES 1000 OHM 1/4W 1%	1.0	
R043	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R044	550 0964 000	POT. 20K OHM .5W 10%	1.0	
R045	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R046	540 0911 000	RES 910.0 OHM 1/4W 5%	1.0	
R047	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R048	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R049	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R050	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R051	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R052	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R053	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R055	540 1351 000	RES 2.2 OHM 1/4W 5%	1.0	
R056	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R057,R058	540 0915 000	RES 1.3K OHM 1/4W 5%	2.0	
R059	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R060	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R061	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R062	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R063,R064	540 0933 000	RES 7.5K OHM 1/4W 5%	2.0	
R065	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R066	548 1094 000	RES 1000 OHM 1/4W 1%	1.0	
R067	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R068	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R069	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R070	540 0857 000	RES 5.1 OHM 1/4W 5%	1.0	
R071	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R072	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R073	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R074	540 0984 000	RES 1.0M OHM 1/4W 5%	1.0	
R075	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R076	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R077	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R078,R079	540 0943 000	RES 20.0K OHM 1/4W 5%	2.0	
R080,R081	540 0933 000	RES 7.5K OHM 1/4W 5%	2.0	
R082	548 0543 000	RES 56.2K OHM 1/8W 1%	1.0	
R083	550 0961 000	POT 50K OHM 1/2W 10%	1.0	
R084	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	

Table 7-18. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R085	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R086	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R087	540 0938 000	RES 12.0K OHM 1/4W 5%	1.0	
R088	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R089	540 0930 000	RES 5.6K OHM 1/4W 5%	1.0	
R090	540 0924 000	RES 3.3K OHM 1/4W 5%	1.0	
R091,R092	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R093,R094	540 0929 000	RES 5.1K OHM 1/4W 5%	2.0	
R095	550 0797 000	POT 50K OHM .5W 10%	1.0	
R096	540 0971 000	RES 300.0K OHM 1/4W 5%	1.0	
R097	540 0881 000	RES 51.0 OHM 1/4W 5%	1.0	
R098,R099,R100	540 0943 000	RES 20.0K OHM 1/4W 5%	3.0	
R101	540 0927 000	RES 4.3K OHM 1/4W 5%	1.0	
R102	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R103	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R104	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R105	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R106	540 0933 000	RES 7.5K OHM 1/4W 5%	1.0	
R107	540 0915 000	RES 1.3K OHM 1/4W 5%	1.0	
R108,R109,R110	540 1151 000	RES 10.0 OHM 1/2W 5%		
R111			4.0	
R112,R113	540 0928 000	RES 4.7K OHM 1/4W 5%	2.0	
R114	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R115,R116	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R117	548 1467 000	RES 1470 OHM 1/8W 1%	1.0	
R118	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R119,R120	548 1147 000	RES 4750 OHM 1/4W 1%	2.0	
R121,R122	548 1521 000	RES 8060 OHM 1/4W 1%	2.0	
R123,R124	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R125	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R126,R127	550 0942 000	POT 100K OHM 1/2 W	2.0	
R128	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R129,R130	548 1521 000	RES 8060 OHM 1/4W 1%	2.0	
R131,R132	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R133	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R134,R135	550 0942 000	POT 100K OHM 1/2 W	2.0	
R136	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R137,R138,R139	548 1521 000	RES 8060 OHM 1/4W 1%	3.0	
R140	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R141,R142	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R143,R144,R145	550 0870 000	POT 5K OHM 1/2W 10%		
R146			4.0	
R147	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R148,R149	548 1147 000	RES 4750 OHM 1/4W 1%	2.0	
R150	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R151,R152	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R153,R154,R155	550 0870 000	POT 5K OHM 1/2W 10%		
R156			4.0	
R157	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	

Table 7-18. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R158	548 1229 000	RES 11.5K OHM .125W	1.0	
R159,R160	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R161,R162,R163	548 1521 000	RES 8060 OHM 1/4W 1%	3.0	
R164	548 1467 000	RES 1470 OHM 1/8W 1%	1.0	
R165,R166	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R167	540 0899 000	RES 300.0 OHM 1/4W 5%	1.0	
R168	540 0904 000	RES 470.0 OHM 1/4W 5%	1.0	
R169	540 0871 000	RES 20.0 OHM 1/4W 5%	1.0	
R170	540 0857 000	RES 5.1 OHM 1/4W 5%	1.0	
R171	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R172	540 0941 000	RES 16.0K OHM 1/4W 5%	1.0	
R173,R174	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R175	540 0905 000	RES 510.0 OHM 1/4W 5%	1.0	
R176	548 0742 000	RES 10K OHM 1/4W 1%	1.0	
R177	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R179	548 0543 000	RES 56.2K OHM 1/8W 1%	1.0	
R180	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R181	540 0918 000	RES 1.8K OHM 1/4W 5%	1.0	
R182	548 0742 000	RES 10K OHM 1/4W 1%	1.0	
R183	540 0926 000	RES 3.9K OHM 1/4W 5%	1.0	
R184,R185,R186	540 0919 000	RES 2.0K OHM 1/4W 5%		
R187,R188,R190				
R191,R192,R193				
R194,R195,R196				
R197,R198,R199				
R200,R201,R202				
R203,R204,R205				
R206,R207			23.0	
R208,R209	540 0916 000	RES 1.5K OHM 1/4W 5%	2.0	
R210	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R211	550 0621 000	POT, 200 OHM .5W 10%	1.0	
R214	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R215,R216	540 0888 000	RES 100.0 OHM 1/4W 5%	2.0	
R217	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
R218	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R219	540 0952 000	RES 47.0K OHM 1/4W 5%	1.0	
S001	604 0981 000	SW, TOGGLE SPDT CTR OFF	1.0	
S002	604 0537 000	SW SLIDE SPDT	1.0	
TJ001	610 0747 000	HEADER ASSY 26 PIN	1.0	
U001	382 0552 000	IC TL074CN3	1.0	
U002	382 0881 000	IC 2150A	1.0	
U003,U004	382 0521 000	IC 339	2.0	
U005	382 0587 000	IC CD4011/MC14011	1.0	
U006	382 0443 000	IC CD4053BE	1.0	
U007	382 0552 000	IC TL074CN3	1.0	
U008	382 0521 000	IC 339	1.0	
U009	382 0552 000	IC TL074CN3	1.0	
U010	382 0881 000	IC 2150A	1.0	
U011	382 0359 000	IC 7815	1.0	

Table 7-18. PEAK LIMITER/SEPERATION CORRECTOR - 992 6101 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
U012	382 0273 000	IC LM340T-8/UA7808	1.0	
U013	382 0360 000	IC 7915	1.0	
U014	382 0385 000	IC 7908	1.0	
U015,U016	382 0552 000	IC TL074CN3	2.0	
U017	382 0593 000	IC TL072ACP	1.0	
U018,U019,U020	382 0443 000	IC CD4053BE	3.0	
U021	382 0552 000	IC TL074CN3	1.0	
XU001,XU003	404 0674 000	SOCKET, IC 14 CONT		
XU004,XU005			4.0	
XU006	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU007,XU008	404 0674 000	SOCKET, IC 14 CONT		
XU009,XU015				
XU016			5.0	
XU017	404 0673 000	SOCKET, IC 8 CONT	1.0	
XU018,XU019	404 0675 000	SOCKET, IC 16 CONT		
XU020			3.0	
XU021	404 0674 000	SOCKET, IC 14 CONT	1.0	

Table 7-19. QUADRATURE BOARD - 992 6078 004

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001,CR002	384 0357 000	RECTIFIER 1N4004	4.0	
CR003,CR004			2.0	
CR005,CR006	384 0205 000	DIODE SILICON 1N914	1.0	
CR007	384 0357 000	RECTIFIER 1N4004	3.0	
CR008,CR009	384 0205 000	DIODE SILICON 1N914	1.0	
CR010			1.0	
CR011	382 0597 000	IC 74LS10N	1.0	
CR011	384 0597 000	RECT 1N4002	1.0	
CR012	382 0597 000	IC 74LS10N	1.0	
CR012	384 0597 000	RECT 1N4002	1.0	
CR013	384 0205 000	DIODE SILICON 1N914	1.0	
CR016	382 0597 000	IC 74LS10N	10.0	
C001,C002,C003	526 0311 000	CAP 2.2UF 35V 10%	1.0	
C004,C005,C006			2.0	
C007,C008,C009			1.0	
C010	522 0524 000	CAP 10 UF 25V 20%	2.0	
C011	516 0375 000	CAP .01UF 50V	1.0	
C012,C013	522 0524 000	CAP 10 UF 25V 20%	2.0	
C014	516 0375 000	CAP .01UF 50V	1.0	
C015,C016	506 0233 000	CAP .1UF 63V 5%	1.0	
C017	500 0844 000	CAP, MICA 1000PF 100V 5%	1.0	
C018	500 0843 000	CAP, MICA 910PF 100V 5%	1.0	
C019	500 0825 000	CAP, MICA 110PF 500V 5%	1.0	
C020	500 0843 000	CAP, MICA 910PF 100V 5%	1.0	
C021	500 0811 000	CAP MICA 27UUF 500V	1.0	
C022	516 0453 000	CAP .1UF 100V 20%	1.0	
C023	516 0067 000	CAP DISC .003UF 1KV 20%	1.0	
C024	500 0916 000	CAP 270PF 500VDC 1%	1.0	
C025	500 0843 000	CAP, MICA 910PF 100V 5%	3.0	
C026,C027,C028	500 0780 000	CAP 1500 PF 500V 5%	1.0	
C029	500 0935 000	CAP 360 PF 500VDC 5%	1.0	
C030	500 1007 000	CAP 3900PF 500V 5%	1.0	
C031	516 0067 000	CAP DISC .003UF 1KV 20%	1.0	
C032	500 0826 000	CAP, MICA 120PF 500V 5%	1.0	
C033	506 0233 000	CAP .1UF 63V 5%	2.0	
C034,C035	516 0453 000	CAP .1UF 100V 20%	2.0	
C036,C037	500 0991 000	CAP 1100PF 500V 5%	1.0	
C038	516 0453 000	CAP .1UF 100V 20%	5.0	
C039,C040,C041			1.0	
C042,C043	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
C044	500 0830 000	CAP MICA 240UUF 500V	1.0	
C045	500 0843 000	CAP, MICA 910PF 100V 5%	1.0	
C046	500 0833 000	CAP, MICA 390PF 500V 5%	2.0	
C047	526 0093 000	CAP 15UF 35V 20%	1.0	
C048,C049	506 0241 000	CAP .047UF 63V 5%	1.0	
C050	500 0811 000	CAP MICA 27UUF 500V	1.0	
C051	526 0325 000	CAP .1UF 35V 20%		
C052				

Table 7-19. QUADRATURE BOARD - 992 6078 004 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C053	526 0093 000	CAP 15UF 35V 20%	1.0	
C054	526 0050 000	CAP 1 UF 35V 20%	1.0	
C055	526 0097 000	CAP 47 UF 35V 20%	1.0	
C056	526 0050 000	CAP 1 UF 35V 20%	1.0	
C057	526 0049 000	CAP 6.8UF 35V 20%	1.0	
C058	526 0093 000	CAP 15UF 35V 20%	1.0	
C059	506 0233 000	CAP .1UF 63V 5%	1.0	
C060,C061	506 0245 000	CAP .33UF 63V 5%	2.0	
C062	526 0050 000	CAP 1 UF 35V 20%	1.0	
C063	526 0321 000	CAP 3.3UF 15V 20%	1.0	
C064,C065	506 0233 000	CAP .1UF 63V 5%	2.0	
C066,C067	526 0318 000	CAP 10UF 35V 20%	2.0	
C068	506 0246 000	CAP .47UF 63V 5%	1.0	
C069	526 0309 000	CAP, 22UF 35V 20%	1.0	
C070,C071,C072	516 0453 000	CAP .1UF 100V 20%		
C073,C074,C075			6.0	
C076	526 0050 000	CAP 1 UF 35V 20%	1.0	
C077,C078	516 0054 000	CAP, DISC .001UF 1KV 10%	2.0	
C079	516 0375 000	CAP .01UF 50V	1.0	
C080	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
DS001,DS002	384 0661 000	L.E.D. GREEN	2.0	
K001	574 0351 000	RLY LATCHING CC-69	1.0	
LDR001	670 0033 000	LED, LDR	1.0	
L001	492 0641 000	COIL, VAR 147-430UH	1.0	
L002	494 0414 000	CHOKE, RF 390UH	1.0	
L003	494 0190 000	CHOKE, RF 3300 UH 80 MA	1.0	
L004	492 0641 000	COIL, VAR 147-430UH	1.0	
P001,P002,P003	610 0679 000	PLUG, SHORTING		
P004,P005			5.0	
Q001,Q002,Q003	380 0189 000	TRANSISTOR 2N3904	3.0	
R001,R002	540 0960 000	RES 100.0K OHM 1/4W 5%	2.0	
R003,R004	540 0047 000	RES 820.0 OHM 1/2W 5%	2.0	
R005,R006,R007	540 0960 000	RES 100.0K OHM 1/4W 5%	3.0	
R008	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R009,R010,R011	540 0919 000	RES 2.0K OHM 1/4W 5%		
R012			4.0	
R013	540 0957 000	RES 75.0K OHM 1/4W 5%	1.0	
R014	550 0313 000	POT 5K OHM 3/4W 10%	1.0	
R015	540 0958 000	RES 82.0K OHM 1/4W 5%	1.0	
R016	540 0898 000	RES 270.0 OHM 1/4W 5%	1.0	
R017,R018	548 0531 000	RES 10K OHM 1/8W 1%	2.0	
R019	540 0898 000	RES 270.0 OHM 1/4W 5%	1.0	
R020	548 0531 000	RES 10K OHM 1/8W 1%	1.0	
R021	540 0932 000	RES 6.8K OHM 1/4W 5%	1.0	
R022	550 0622 000	POT 1K OHM .5W 10%	1.0	
R023	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R024	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R025	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R026	540 0957 000	RES 75.0K OHM 1/4W 5%	1.0	

Table 7-19. QUADRATURE BOARD - 992 6078 004 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R027	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R028,R029,R030	548 0531 000	RES 10K OHM 1/8W 1%	3.0	
R031,R032	540 0898 000	RES 270.0 OHM 1/4W 5%	2.0	
R035,R036	540 0923 000	RES 3.0K OHM 1/4W 5%	2.0	
R037	540 0948 000	RES 33.0K OHM 1/4W 5%	1.0	
R038	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R039	540 0908 000	RES 680.0 OHM 1/4W 5%	1.0	
R040	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R041	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R042	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R043	540 0920 000	RES 2.2K OHM 1/4W 5%	1.0	
R044	540 0974 000	RES 390.0K OHM 1/4W 5%	1.0	
R045	550 0881 000	POT 100K OHM .5W 10%	1.0	
R046,R047	540 0916 000	RES 1.5K OHM 1/4W 5%	2.0	
R049	540 0898 000	RES 270.0 OHM 1/4W 5%	1.0	
R051,R052	540 0925 000	RES 3.6K OHM 1/4W 5%	2.0	
R053,R054,R055	540 0918 000	RES 1.8K OHM 1/4W 5%	3.0	
R056	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R057	540 0913 000	RES 1.1K OHM 1/4W 5%	1.0	
R058	540 0917 000	RES 1.6K OHM 1/4W 5%	1.0	
R059	548 0414 000	RES 8870 OHM 1/4W 1%	1.0	
R060	550 0622 000	POT 1K OHM .5W 10%	1.0	
R061	550 0881 000	POT 100K OHM .5W 10%	1.0	
R062	540 0997 000	RES 3.6M OHM 1/4W 5%	1.0	
R064,R065	540 0906 000	RES 560.0 OHM 1/4W 5%	2.0	
R066	540 0896 000	RES 220.0 OHM 1/4W 5%	1.0	
R068	540 0907 000	RES 620.0 OHM 1/4W 5%	1.0	
R073	540 0935 000	RES 9.1K OHM 1/4W 5%	1.0	
R074	540 0930 000	RES 5.6K OHM 1/4W 5%	1.0	
R075,R076	540 0933 000	RES 7.5K OHM 1/4W 5%	2.0	
R077,R078	548 0531 000	RES 10K OHM 1/8W 1%	2.0	
R079	550 0813 000	POT 2K OHM 1/2W 10%	1.0	
R080	540 0935 000	RES 9.1K OHM 1/4W 5%	1.0	
R081	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R082	540 0966 000	RES 180.0K OHM 1/4W 5%	1.0	
R083,R084	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R085	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R086	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R087	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R088,R089	540 0957 000	RES 75.0K OHM 1/4W 5%	2.0	
R090	540 0925 000	RES 3.6K OHM 1/4W 5%	1.0	
R091	540 0945 000	RES 24.0K OHM 1/4W 5%	1.0	
R092	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R093	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R094	550 1014 000	POT 20K OHM .75W 10%	1.0	
R095	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R096	540 0992 000	RES 2.2M OHM 1/4W 5%	1.0	
R097	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R098	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	

Table 7-19. QUADRATURE BOARD - 992 6078 004 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R099	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R100,R101	540 0947 000	RES 30.0K OHM 1/4W 5%	2.0	
R102	540 0939 000	RES 13.0K OHM 1/4W 5%	1.0	
R103	550 0312 000	POT 1K OHM 3/4W 10%	1.0	
R104	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R105	540 0931 000	RES 6.2K OHM 1/4W 5%	1.0	
R106	550 0313 000	POT 5K OHM 3/4W 10%	1.0	
R107	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R108	548 0531 000	RES 10K OHM 1/8W 1%	1.0	
R109	548 1293 000	RES 3.65K OHM 1/8 W	1.0	
R110	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R111	550 0313 000	POT 5K OHM 3/4W 10%	1.0	
R112	540 0913 000	RES 1.1K OHM 1/4W 5%	1.0	
R113,R114	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R115	540 0898 000	RES 270.0 OHM 1/4W 5%	1.0	
R116	540 0953 000	RES 51.0K OHM 1/4W 5%	1.0	
R117	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R118	540 0920 000	RES 2.2K OHM 1/4W 5%	1.0	
R119	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R120	540 0972 000	RES 330.0K OHM 1/4W 5%	1.0	
R121	540 0958 000	RES 82.0K OHM 1/4W 5%	1.0	
R122	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R123	540 0972 000	RES 330.0K OHM 1/4W 5%	1.0	
R124	540 0968 000	RES 220.0K OHM 1/4W 5%	1.0	
R125	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R126	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R127	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R128	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R129	550 0760 000	POT 20K OHM .5W 10%	1.0	
R130	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R131	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R132	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
R133	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R134,R135	540 0957 000	RES 75.0K OHM 1/4W 5%	2.0	
R136	540 0964 000	RES 150.0K OHM 1/4W 5%	1.0	
R137	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R138	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R139	540 0913 000	RES 1.1K OHM 1/4W 5%	1.0	
R140	540 0921 000	RES 2.4K OHM 1/4W 5%	1.0	
R141,R142	540 0936 000	RES 10.0K OHM 1/4W 5%	2.0	
R143	540 0962 000	RES 120.0K OHM 1/4W 5%	1.0	
R144	550 1013 000	POT 100K OHM 3/4W 10%	1.0	
R145	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R146	550 0760 000	POT 20K OHM .5W 10%	1.0	
R147	540 0953 000	RES 51.0K OHM 1/4W 5%	1.0	
R148	540 0892 000	RES 150.0 OHM 1/4W 5%	1.0	
R149	550 0812 000	POT 100 OHM 1/2W 10%	1.0	
R150	540 0956 000	RES 68.0K OHM 1/4W 5%	1.0	
R151	550 1014 000	POT 20K OHM .75W 10%	1.0	

Table 7-19. QUADRATURE BOARD - 992 6078 004 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R152	550 0313 000	POT 5K OHM 3/4W 10%	1.0	
R153	548 1205 000	RES 28K OHM 1/8W 1%	1.0	
R154	540 0972 000	RES 330.0K OHM 1/4W 5%	1.0	
R155	540 1006 000	RES 8.2M OHM 1/4W 5%	1.0	
R156	550 0930 000	POT 200K OHM 1/2W	1.0	
R157	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R158,R159	540 0919 000	RES 2.0K OHM 1/4W 5%	2.0	
R160,R161	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R162	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R163	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R164	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R165,R166	540 0928 000	RES 4.7K OHM 1/4W 5%	2.0	
R167	540 0947 000	RES 30.0K OHM 1/4W 5%	1.0	
R168	540 0940 000	RES 15.0K OHM 1/4W 5%	1.0	
R169	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R170	540 0960 000	RES 100.0K OHM 1/4W 5%	1.0	
S001	604 0469 000	SW TOGGLE SPDT	1.0	
TJ001	610 0857 000	HEADER ASSY 12 PIN	1.0	
U001	382 0359 000	IC 7815	1.0	
U002	382 0360 000	IC 7915	1.0	
U003	382 0273 000	IC LM340T-8/UA7808	1.0	
U004	382 0385 000	IC 7908	1.0	
U005	382 0184 000	IC 340T-5/7805 +5V REG	1.0	
U006	382 0552 000	IC TL074CN3	1.0	
U007	382 0879 000	IC AD535JD	1.0	
U008	382 0664 000	IC SD5000N	1.0	
U009,U010,U011	382 0472 000	IC LM318	3.0	
U012	382 0443 000	IC CD4053BE	1.0	
U013	382 0552 000	IC TL074CN3	1.0	
U014	382 0880 000	IC TBA120S	1.0	
U015	382 0617 000	IC LM319	1.0	
U017,U018	382 0561 000	IC 74LS74	2.0	
U019	382 0070 000	IC 7400	1.0	
U020,U021	382 0564 000	IC 74LS221 TTL MONO	2.0	
U022	382 0363 000	IC 74S74	1.0	
U023	382 0561 000	IC 74LS74	1.0	
U024,U025	382 0726 000	IC DS0026J-8/MMH0026CP1	2.0	
U026	382 0538 000	IC XR2206CP	1.0	
U027	382 0443 000	IC CD4053BE	1.0	
U028,U029	382 0552 000	IC TL074CN3	2.0	
U030,U031	382 0631 000	IC AD536AJD	2.0	
U032	382 0443 000	IC CD4053BE	1.0	
U033,U034	382 0552 000	IC TL074CN3	2.0	
U035	382 0510 000	IC OPTO ISOL	1.0	
XU006,XU007	404 0674 000	SOCKET, IC 14 CONT	2.0	
XU008	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU009,XU010 XU011	404 0673 000	SOCKET, IC 8 CONT	3.0	
XU012	404 0675 000	SOCKET, IC 16 CONT	1.0	

Table 7-19. QUADRATURE BOARD - 992 6078 004 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
XU013,XU014	404 0674 000	SOCKET, IC 14 CONT		
XU015,XU016				
XU017,XU018				
XU019			7.0	
XU020,XU021	404 0675 000	SOCKET, IC 16 CONT	2.0	
XU022,XU023	404 0674 000	SOCKET, IC 14 CONT	2.0	
XU024,XU025	404 0673 000	SOCKET, IC 8 CONT	2.0	
XU026,XU027	404 0675 000	SOCKET, IC 16 CONT	2.0	
XU028,XU029	404 0674 000	SOCKET, IC 14 CONT		
XU030,XU031			4.0	
XU032	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU033,XU034	404 0674 000	SOCKET, IC 14 CONT	2.0	
XU035	404 0675 000	SOCKET, IC 16 CONT	1.0	
	302 0460 000	SCREW 4-40 X 3/8	1	
	358 1881 000	EJECTOR KIT CARD	1	
#U001,#U002	404 0513 000	HEAT SINK PA1-1CB		
#U003,#U004				
#U005			5	
#U002,#U004	410 0335 000	INSULATOR, SCREW	2	
#U002,#U004	410 0381 000	INSULATOR .562 X .812	2	

Table 7-20. RF OUTPUT BOARD - 992 6079 003

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
A001	992 6119 001	VCO BOARD	1.0	
CR001,CR002	384 0205 000	DIODE SILICON 1N914	2.0	
CR003	386 0123 000	ZENER 1N4732A 4.7V	1.0	
CR004,CR005	384 0431 000	RECT. 1N4001		
CR006,CR007				
CR008			5.0	
C001	500 0753 000	CAP MICA 56UUF	1.0	
C002	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
C003,C004	516 0453 000	CAP .1UF 100V 20%	2.0	
C005	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C006	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C007	500 0755 000	CAP, MICA 270PF 500V 5%	1.0	
C008	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C009	500 0841 000	CAP, MICA 750PF 300V 5%	1.0	
C010	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C011	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
C012	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C013	500 0834 000	CAP, MICA 430PF 500V 5%	1.0	
C014	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C016	500 0754 000	CAP, MICA 220PF 500V 5%	1.0	
C017	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C018	500 0756 000	CAP, MICA 330PF 500V 5%	1.0	
C019	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C020	500 0839 000	CAP, MICA 620PF 300V 5%	1.0	
C021	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C022	500 0838 000	CAP, MICA 560PF 300V 5%	1.0	
C023	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C024	500 0830 000	CAP MICA 240UUF 500V	1.0	
C025	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C026	500 0784 000	CAP 300PF 500V 5%	1.0	
C027	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C028	500 0842 000	CAP, MICA 820PF 300V 5%	1.0	
C029	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C030	500 0834 000	CAP, MICA 430PF 500V 5%	1.0	
C031	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C032	500 0756 000	CAP, MICA 330PF 500V 5%	1.0	
C033	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C034	500 0833 000	CAP, MICA 390PF 500V 5%	1.0	
C035	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C036	500 0840 000	CAP, MICA 680PF 300V 5%	1.0	
C037	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	
C038,C039,C040	516 0453 000	CAP .1UF 100V 20%		
C041,C042,C043				
C044,C045			8.0	
C046,C047	500 0835 000	CAP, MICA 470PF 500V 5%	2.0	
C048,C049	516 0453 000	CAP .1UF 100V 20%	2.0	
C050	500 0837 000	CAP, MICA 510PF 500V 5%	1.0	
C051	500 0759 000	CAP, MICA 100PF 500V 5%	1.0	

Table 7-20. RF OUTPUT BOARD - 992 6079 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C052	500 0841 000	CAP, MICA 750PF 300V 5%	1.0	
C053	500 0784 000	CAP 300PF 500V 5%	1.0	
C054	500 0833 000	CAP, MICA 390PF 500V 5%	1.0	
C055,C056	516 0453 000	CAP .1UF 100V 20%	2.0	
C057	500 0826 000	CAP, MICA 120PF 500V 5%	1.0	
C058,C059,C060	516 0453 000	CAP .1UF 100V 20%		
C061			4.0	
C062	500 0819 000	CAP, MICA 51PF 500V 5%	1.0	
C063	518 0054 000	CAP VAR 15-60PF 200V	1.0	
C064,C065,C066	516 0453 000	CAP .1UF 100V 20%		
C067,C068,C069			6.0	
C070	518 0054 000	CAP VAR 15-60PF 200V	1.0	
C071	500 0807 000	CAP MICA 18UUF 500V	1.0	
C072	500 0814 000	CAP MICA 36UUF 500V	1.0	
C073	500 0822 000	CAP, MICA 75PF 500V 5%	1.0	
C074	500 0761 000	CAP, MICA 150PF 500V 5%	1.0	
C075,C076	516 0453 000	CAP .1UF 100V 20%	2.0	
C077	518 0054 000	CAP VAR 15-60PF 200V	1.0	
C078	500 0807 000	CAP MICA 18UUF 500V	1.0	
C079	500 0814 000	CAP MICA 36UUF 500V	1.0	
C080	500 0822 000	CAP, MICA 75PF 500V 5%	1.0	
C081	500 0761 000	CAP, MICA 150PF 500V 5%	1.0	
C082,C083	516 0453 000	CAP .1UF 100V 20%	2.0	
C084	516 0375 000	CAP .01UF 50V	1.0	
C085	500 0838 000	CAP, MICA 560PF 300V 5%	1.0	
C086,C087,C088	516 0453 000	CAP .1UF 100V 20%		
C089,C090,C091			6.0	
C092	500 0811 000	CAP MICA 27UUF 500V	1.0	
C093,C094	516 0453 000	CAP .1UF 100V 20%	2.0	
C095	500 0811 000	CAP MICA 27UUF 500V	1.0	
C096,C097	516 0453 000	CAP .1UF 100V 20%	2.0	
C098	500 0811 000	CAP MICA 27UUF 500V	1.0	
C099,C100	516 0453 000	CAP .1UF 100V 20%	2.0	
C101	500 0811 000	CAP MICA 27UUF 500V	1.0	
C102,C103,C104	516 0453 000	CAP .1UF 100V 20%		
C105			4.0	
C106	500 0803 000	CAP MICA 5UUF 500V	1.0	
C107,C108	516 0453 000	CAP .1UF 100V 20%	2.0	
C109,C110	526 0311 000	CAP 2.2UF 35V 10%	2.0	
C111	516 0453 000	CAP .1UF 100V 20%	1.0	
C112,C113	526 0311 000	CAP 2.2UF 35V 10%	2.0	
C114,C115	526 0318 000	CAP 10UF 35V 20%	2.0	
C116,C117	516 0453 000	CAP .1UF 100V 20%	2.0	
C118	526 0108 000	CAP 4.7UF 35V 20%	1.0	
C119	526 0049 000	CAP 6.8UF 35V 20%	1.0	
C120	516 0453 000	CAP .1UF 100V 20%	1.0	
C121	526 0108 000	CAP 4.7UF 35V 20%	1.0	
C122	526 0049 000	CAP 6.8UF 35V 20%	1.0	
C123	506 0233 000	CAP .1UF 63V 5%	1.0	

Table 7-20. RF OUTPUT BOARD - 992 6079 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
C123,C124,C125	516 0453 000	CAP .1UF 100V 20%	3.0	
C126	526 0057 000	CAP 100UF 20V 20%	1.0	
C127	518 0058 000	CAP, VAR 5.5-18PF	1.0	
C128	500 0805 000	CAP MICA 12UUF 500V	1.0	
C129	500 0822 000	CAP, MICA 75PF 500V 5%	1.0	
C130	508 0413 000	CAP .015UF 50V 5%	1.0	
C131	516 0453 000	CAP .1UF 100V 20%	1.0	
C132	516 0375 000	CAP .01UF 50V	1.0	
C133	500 0844 000	CAP, MICA 1000PF 100V 5%	1.0	
C134,C135	516 0453 000	CAP .1UF 100V 20%	2.0	
C136	506 0233 000	CAP .1UF 63V 5%	1.0	
DS001,DS002	384 0661 000	L.E.D. GREEN	2.0	
J001	610 0679 000	PLUG, SHORTING	1.0	
L001	494 0418 000	CHOKE RF 820.0UH	1.0	
L002,L003,L004	494 0419 000	CHOKE RF 1000.0UH		
L005,L006,L007				
L008,L009,L010				
L011,L012,L013			12.0	
L014	494 0415 000	CHOKE RF 470.0UH	1.0	
L015	494 0413 000	CHOKE RF 330.0UH	1.0	
L016	494 0190 000	CHOKE, RF 3300 UH 80 MA	1.0	
L017,L018	494 0413 000	CHOKE RF 330.0UH	2.0	
L019,L020,L021	494 0419 000	CHOKE RF 1000.0UH		
L022			4.0	
Q001,Q002,Q003	380 0189 000	TRANSISTOR 2N3904		
Q004			4.0	
Q005	380 0319 000	TRANSISTOR MPS-A14	1.0	
Q006,Q007,Q008	380 0189 000	TRANSISTOR 2N3904		
Q009			4.0	
R001	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R002	540 0939 000	RES 13.0K OHM 1/4W 5%	1.0	
R003,R004	540 0888 000	RES 100.0 OHM 1/4W 5%	2.0	
R005	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R006	548 2056 000	RES 422 OHM 1/4W 1%	1.0	
R007	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R008	548 0687 000	RES 1960 OHM 1/4W 1%	1.0	
R009	548 2054 000	RES 232 OHM 1/4W 1%	1.0	
R010	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R011	548 2057 000	RES 2150 OHM 1/4W 1%	1.0	
R012	548 0577 000	RES 499 OHM 1/4W 1%	1.0	
R013	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R014	548 0375 000	RES 2100 OHM 1/4W 1%	1.0	
R017	548 0856 000	RES 432 OHM 1% 1/4W	1.0	
R018	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R019	548 2057 000	RES 2150 OHM 1/4W 1%	1.0	
R020	548 0307 000	RES 511 OHM 1/4W 1%	1.0	
R021	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R022	548 0375 000	RES 2100 OHM 1/4W 1%	1.0	
R023	548 0406 000	RES 158 OHM 1/4W 1%	1.0	

Table 7-20. RF OUTPUT BOARD - 992 6079 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R024	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R025	548 2057 000	RES 2150 OHM 1/4W 1%	1.0	
R026	548 0859 000	RES 442 OHM 1/4W 1%	1.0	
R027	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R028	548 1436 000	RES 2370 OHM 1/4W	1.0	
R029	548 0871 000	RES 698 OHM 1/4W 1%	1.0	
R030	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R031	548 0777 000	RES 2320 OHM 1/4W 1%	1.0	
R032	548 0559 000	RES 825 OHM 1/4W 1%	1.0	
R033	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R034	548 1436 000	RES 2370 OHM 1/4W	1.0	
R035	548 2053 000	RES 178 OHM 1/4W 1%	1.0	
R036	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R037	548 2057 000	RES 2150 OHM 1/4W 1%	1.0	
R038	548 2055 000	RES 340 OHM 1/4W 1%	1.0	
R039	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R040	548 0837 000	RES 2050 OHM 1/4W 1%	1.0	
R041	548 0578 000	RES 267 OHM 1/4W 1%	1.0	
R042	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R043	548 2058 000	RES 2870 OHM 1/4W 1%	1.0	
R044	548 0865 000	RES 562 OHM 1/4W 1%	1.0	
R045	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R046	548 0310 000	RES 2430 OHM 1/4W 1%	1.0	
R047	548 0733 000	RES 412 OHM 1/4 1%	1.0	
R048	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R049	548 0687 000	RES 1960 OHM 1/4W 1%	1.0	
R050	548 0733 000	RES 412 OHM 1/4 1%	1.0	
R051	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R052	548 0687 000	RES 1960 OHM 1/4W 1%	1.0	
R053	548 0861 000	RES 487 OHM 1/4W 1%	1.0	
R054	548 0279 000	RES 2000 OHM 1/4W 1%	1.0	
R055	548 2071 000	RES 2260 OHM 1/4W 1%	1.0	
R056,R057	540 0923 000	RES 3.0K OHM 1/4W 5%	2.0	
R058,R059	540 0911 000	RES 910.0 OHM 1/4W 5%	2.0	
R060,R061	540 0888 000	RES 100.0 OHM 1/4W 5%	2.0	
R062	540 0926 000	RES 3.9K OHM 1/4W 5%	1.0	
R063	540 0929 000	RES 5.1K OHM 1/4W 5%	1.0	
R064,R065	540 0888 000	RES 100.0 OHM 1/4W 5%	2.0	
R066	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R067	550 0858 000	POT 5K OHM .5W 10%	1.0	
R068	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R069	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R070	540 0892 000	RES 150.0 OHM 1/4W 5%	1.0	
R071	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R072	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R073	540 0901 000	RES 360.0 OHM 1/4W 5%	1.0	
R074	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R075	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R076	540 0892 000	RES 150.0 OHM 1/4W 5%	1.0	

Table 7-20. RF OUTPUT BOARD - 992 6079 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R077	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R078	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R079	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R080	540 0916 000	RES 1.5K OHM 1/4W 5%	1.0	
R081	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R082	540 0896 000	RES 220.0 OHM 1/4W 5%	1.0	
R083	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R084	540 0908 000	RES 680.0 OHM 1/4W 5%	1.0	
R085	540 0864 000	RES 10.0 OHM 1/4W 5%	1.0	
R086	540 0890 000	RES 120.0 OHM 1/4W 5%	1.0	
R087	540 0922 000	RES 2.7K OHM 1/4W 5%	1.0	
R088,R089	540 0908 000	RES 680.0 OHM 1/4W 5%	2.0	
R090	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R091	540 0953 000	RES 51.0K OHM 1/4W 5%	1.0	
R092	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R093	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R094	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R095,R096,R097	540 0912 000	RES 1.0K OHM 1/4W 5%	3.0	
R098	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R099,R100,R101	540 0912 000	RES 1.0K OHM 1/4W 5%	3.0	
R102	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R103,R104,R105	540 0912 000	RES 1.0K OHM 1/4W 5%	3.0	
R106	540 0888 000	RES 100.0 OHM 1/4W 5%	1.0	
R107,R108	540 0912 000	RES 1.0K OHM 1/4W 5%	2.0	
R109	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R110	550 0957 000	POT 500 OHM 1/2 W 10%	1.0	
R111	540 0912 000	RES 1.0K OHM 1/4W 5%	1.0	
R112	540 0921 000	RES 2.4K OHM 1/4W 5%	1.0	
R113,R114	540 0876 000	RES 33.0 OHM 1/4W 5%	2.0	
R115	540 0921 000	RES 2.4K OHM 1/4W 5%	1.0	
R116	550 0957 000	POT 500 OHM 1/2 W 10%	1.0	
R117	540 0923 000	RES 3.0K OHM 1/4W 5%	1.0	
R118	540 0932 000	RES 6.8K OHM 1/4W 5%	1.0	
R119,R120	540 0916 000	RES 1.5K OHM 1/4W 5%	2.0	
R121	550 0957 000	POT 500 OHM 1/2 W 10%	1.0	
R122	540 0909 000	RES 750.0 OHM 1/4W 5%	1.0	
R123	540 0904 000	RES 470.0 OHM 1/4W 5%	1.0	
R124	540 0928 000	RES 4.7K OHM 1/4W 5%	1.0	
R125	540 0896 000	RES 220.0 OHM 1/4W 5%	1.0	
R126	540 1331 000	RES NETWORK 1K OHM	1.0	
R127	540 0936 000	RES 10.0K OHM 1/4W 5%	1.0	
R128	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R129	540 0919 000	RES 2.0K OHM 1/4W 5%	1.0	
R130	540 0308 000	RES 100.0 OHM 1W 5%	1.0	
R131	540 0301 000	RES 51.0 OHM 1W 5%	1.0	
R132,R133	540 0588 000	RES 110.0 OHM 2W 5%	2.0	
R134,R135	540 1127 000	RES 820.0 OHM 1/2W 5%	2.0	
R136	540 0944 000	RES 22.0K OHM 1/4W 5%	1.0	
R137	540 0920 000	RES 2.2K OHM 1/4W 5%	1.0	

Table 7-20. RF OUTPUT BOARD - 992 6079 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R138	540 0908 000	RES 680.0 OHM 1/4W 5%	1.0	
R139	540 0880 000	RES 47.0 OHM 1/4W 5%	1.0	
R140	540 0943 000	RES 20.0K OHM 1/4W 5%	1.0	
R141	540 0892 000	RES 150.0 OHM 1/4W 5%	1.0	
S001,S002	600 0579 000	SW, ROTARY 4PDT	2.0	
S003	604 0852 000	SWITCH, ROCKER DIP 4-SPST	1.0	
S004	604 0851 000	SWITCH 8PST	1.0	
T001	478 0392 000	XFMR, RF MODEL T4-1	1.0	
U001	382 0472 000	IC LM318	1.0	
U002,U003,U004	382 0639 000	IC HA1-4605-5		
U005			4.0	
U006,U007	382 0472 000	IC LM318	2.0	
U008	382 0868 000	IC MC145151P	1.0	
U009	382 0363 000	IC 74S74	1.0	
U010,U011	382 0365 000	IC 1496 MOD-DEMOD	2.0	
U012	382 0184 000	IC 340T-5/7805 +5V REG	1.0	
U013	382 0360 000	IC 7915	1.0	
U014	382 0359 000	IC 7815	1.0	
U015	382 0561 000	IC 74LS74	1.0	
U016	382 0564 000	IC 74LS221 TTL MONO	1.0	
U017	382 0070 000	IC 7400	1.0	
U018,U019	382 0273 000	IC LM340T-8/UA7808	2.0	
XS001,XS002	404 0675 000	SOCKET, IC 16 CONT	2.0	
XU001	404 0673 000	SOCKET, IC 8 CONT	1.0	
XU002,XU003	404 0674 000	SOCKET, IC 14 CONT		
XU004,XU005			4.0	
XU006,XU007	404 0673 000	SOCKET, IC 8 CONT	2.0	
XU008	404 0509 000	SOCKET, IC 28 PIN	1.0	
XU009,XU010	404 0674 000	SOCKET, IC 14 CONT		
XU011			3.0	
XU014	404 0513 000	HEAT SINK PA1-1CB	1.0	
XU015	404 0674 000	SOCKET, IC 14 CONT	1.0	
XU016	404 0675 000	SOCKET, IC 16 CONT	1.0	
XU017	404 0674 000	SOCKET, IC 14 CONT	1.0	
Y001	444 2781 000	CRYSTAL 4.0960 MHZ	1.0	
	302 0460 000	SCREW 4-40 X 3/8	1	
	335 0104 000	WASHER PLAIN .156 ID	4	
	358 0477 000	NUT, WELL 6-32	4	
	358 1881 000	EJECTOR KIT CARD	1	
#U014	410 0335 000	INSULATOR, SCREW	1	
#U014	410 0381 000	INSULATOR .562 X .812	1	

 WARNING: Disconnect primary power prior to servicing.

Table 7-21. STX-1A AM STEREO EXCITER - 994 8730 006

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
	994 8730 005	BASIC AM STEREO EXCITER	1	
SEE FIG 8-11	817 1278 016	STX-1A FREQ DET CHART	0	
A9A1C26 FREQ DET	500 0753 000	CAP MICA 56UUF	1.0	
A9A1C26 FREQ DET	500 0754 000	CAP, MICA 220PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0755 000	CAP, MICA 270PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0761 000	CAP, MICA 150PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0787 000	CAP 200PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0799 000	CAP .00027UF 2500V 10%	1.0	
A9A1C26 FREQ DET	500 0809 000	CAP MICA 22UUF 500V	1.0	
A9A1C26 FREQ DET	500 0810 000	CAP MICA 24UUF 500V	1.0	
A9A1C26 FREQ DET	500 0811 000	CAP MICA 27UUF 500V	1.0	
A9A1C26 FREQ DET	500 0812 000	CAP, MICA 30PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0813 000	CAP MICA 33UUF 500V	1.0	
A9A1C26 FREQ DET	500 0814 000	CAP MICA 36UUF 500V	1.0	
A9A1C26 FREQ DET	500 0815 000	CAP MICA 39UUF 500V	1.0	
A9A1C26 FREQ DET	500 0816 000	CAP, MICA 43PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0817 000	CAP MICA 47UUF 500V	1.0	
A9A1C26 FREQ DET	500 0818 000	CAP MICA 50UUF 500V	1.0	
A9A1C26 FREQ DET	500 0819 000	CAP, MICA 51PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0820 000	CAP MICA 62UUF 500V	1.0	
A9A1C26 FREQ DET	500 0821 000	CAP MICA 68UUF 500V	1.0	
A9A1C26 FREQ DET	500 0822 000	CAP, MICA 75PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0823 000	CAP, MICA 82PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0824 000	CAP, MICA 91PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0825 000	CAP, MICA 110PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0826 000	CAP, MICA 120PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0827 000	CAP, MICA 130PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0828 000	CAP, MICA 160PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0829 000	CAP, MICA 180PF 500V 5%	1.0	
A9A1C26 FREQ DET	500 0830 000	CAP MICA 240UUF 500V	1.0	
A9A1C26 FREQ DET	500 0831 000	CAP MICA 250UUF 500V	1.0	
A9A1L02 FREQ DET	494 0188 000	CHOKE. RF 47UH	1.0	
A9A1L02 FREQ DET	494 0238 000	CHOKE, RF 39UH	1.0	
A9A1L02 FREQ DET	494 0392 000	CHOKE RF 4.70 UH	1.0	
A9A1L02 FREQ DET	494 0393 000	CHOKE RF 5.60 UH	1.0	
A9A1L02 FREQ DET	494 0394 000	CHOKE 6.80 UH	1.0	
A9A1L02 FREQ DET	494 0397 000	CHOKE RF 8.20UH	1.0	
A9A1L02 FREQ DET	494 0398 000	CHOKE RF 10.0UH	1.0	
A9A1L02 FREQ DET	494 0399 000	CHOKE RF 12.0UH	1.0	
A9A1L02 FREQ DET	494 0400 000	CHOKE RF 15.0UH	1.0	
A9A1L02 FREQ DET	494 0401 000	CHOKE RF 18.0UH	1.0	
A9A1L02 FREQ DET	494 0402 000	CHOKE RF 22.0UH	1.0	
A9A1L02 FREQ DET	494 0403 000	CHOKE RF 27.0UH	1.0	
A9A1L02 FREQ DET	494 0404 000	CHOKE RF 33.0UH	1.0	
A9A1L02 FREQ DET	494 0405 000	CHOKE RF 56.0UH	1.0	
A9A1L02 FREQ DET	494 0406 000	CHOKE RF 68.0UH	1.0	
FORMAT	994 8749 001	MW-50 STEREO MOD. KIT	1.0	
FORMAT	994 8750 001	MW-1 STEREO MOD KIT	1.0	

 WARNING: Disconnect primary power prior to servicing.

"Table 7-21. STX-1A AM STEREO EXCITER - 994 8730 006 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
FORMAT	994 8764 001	MW-5 STEREO MOD KIT	1.0	
FORMAT	994 8765 001	MWD-10 STEREO MOD KIT	1.0	
FORMAT	994 8768 001	MW-10 STEREO MOD KIT	1.0	
FORMAT	994 8769 001	MWD-20 STEREO MOD KIT	1.0	
FORMAT	994 8801 001	UNIVERSAL MOD KIT-AM STER	1.0	
FORMAT	994 8849 001	SX2.5/5 STEREO MOD KIT	1.0	
FORMAT	994 8849 002	SX-1 110V STEREO MOD KIT	1.0	
FORMAT	994 8849 003	SX-1 220V STEREO MOD KIT	1.0	
OPTION	994 8749 001	MW-50 STEREO MOD. KIT	1.0	
OPTION	994 8750 001	MW-1 STEREO MOD KIT	1.0	
OPTION	994 8764 001	MW-5 STEREO MOD KIT	1.0	
OPTION	994 8765 001	MWD-10 STEREO MOD KIT	1.0	
OPTION	994 8768 001	MW-10 STEREO MOD KIT	1.0	
OPTION	994 8769 001	MWD-20 STEREO MOD KIT	1.0	
OPTION	994 8801 001	UNIVERSAL MOD KIT-AM STER	1.0	
OPTION	994 8849 001	SX2.5/5 STEREO MOD KIT	1.0	
OPTION	994 8849 002	SX-1 110V STEREO MOD KIT	1.0	
OPTION	994 8849 003	SX-1 220V STEREO MOD KIT	1.0	

Table 7-22. BASIC AM STEREO EXCITER - 994 8730 005

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
	054 0010 027	CB BX 24.75 X21 X17	1	
	250 0274 000	POWER CORD 7-1/2 FT	1	
	888 2174 001	TM STX-1A AM STEREO	1	
	992 6088 003	BASIC AM STEREO EXCITER	1	
	992 6116 001	CARD, EXTENDER	1	
	992 6267 003	PACKING CHECK LIST STX-1A	0	

WARNING: Disconnect primary power prior to servicing.

Table 7-23. BASIC AM STEREO EXCITER - 992 6088 003

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
A001	992 6085 002	METERING BOARD	1.0	
A002	992 6084 001	MOTHERBOARD	1.0	
A003	992 6077 001	AUDIO INPUT PC BD	1.0	
A004	992 6101 003	PEAK LIM/SEP CORR	1.0	
A005	992 6078 004	QUADRATURE BOARD	1.0	
A006	992 6080 001	AUDIO OUTPUT PC BD	1.0	
A007	992 6079 003	RF OUTPUT BOARD	1.0	
A008	000 0000 002	APPEARS ON HIGHER LEVEL	1.0	
A009	000 0000 004	SUB ASSY, P/O THIS BILL	1.0	
A02P10,A02P11	620 0417 000	CAP AND CHAIN BNC CW123/U		
A02P12			3.0	
A09A001	992 6086 002	POWER SUPPLY PC BOARD	1.0	
A09S001	604 0868 000	SW, RKR DPDT	1.0	
A1M001	632 1039 000	METER, MODULATION	1.0	
A1M002	632 1040 000	MULTIMETER 0-100/0-30 SCL	1.0	
A9C001,A9C002	524 0336 000	CAP 2900 UF 50V	2.0	
A9FL001	484 0296 000	FILTER, RFI POWER LINE	1.0	
A9F001	398 0086 000	FUSE, SLOW CART 4A 125V	1.0	
A9R001	548 2008 000	RES 27.4K OHM 1/4W 1%	1.0	
A9R002	548 1407 000	RES 51.1K OHM 1/4W 1%	1.0	
A9R003	548 0315 000	RES 182K OHM 1/4W 1%	1.0	
A9R004	548 0325 000	RES 243K OHM 1/4W 1%	1.0	
A9TS001	614 0155 000	TERM STRIP 8 1&8 GND	1.0	
A9T001	472 1303 000	XFMR, PWR, BE19616-001	1.0	
	302 0586 000	SCREW 6-32 X 3/8	2	
	336 1214 000	SCREW 6-32 X 3/8	4	
	350 0058 000	RIVET, POP 1/8 D X .230L	2	
	402 0020 000	FUSE CLIP	2	
#A9C001,#A9C002	402 0175 000	CLIP, 1-3/8 DIA. COMPONEN	2	
	464 0169 000	TOOL, TRIMMER ADJUSTMENT	1	
	646 0665 000	PN PLT 827 3729 001	1	
	646 1078 000	NAMEPLATE, HARRIS	1	
	650 0028 000	KNOB RD SKIRT 1.135	2	
	813 5006 051	STDOFF 6-32X.392 1/4 HEX	2	
#A002	813 5084 024	SPACER 1/4 X 7/16	4	
#A001	813 5084 027	SPACER, ROUND	4	
	817 0493 001	CLIP FLAT	1	
	817 0494 001	CLIP RIGHT ANGLE	2	
	817 1278 009	RUNNING LIST MAINFRAME	0	
	829 9002 011	HINGE	1	
#A9T001	829 9002 042	BOTTOM PLATE	1	
	839 6202 003	PANEL, DIVIDER	1	
	839 6202 007	PLATE,CONN.	1	
#T001	839 6202 011	ENCLOSURE,TRANSFORMER	1	
	839 6202 023	SCHEMATIC	0	
	839 6494 001	DIAG, TEST EQUIP SET UP	0	
	843 4035 018	CHASSIS, BOTTOM	1	
	843 4035 020	CHASSIS, SIDE	1	

Table 7-23. BASIC AM STEREO EXCITER - 992 6088 003 (Continued)

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
	843 4035 021	CHASSIS, SIDE	1	
	843 4035 039	PANEL, REAR	1	
	929 9002 045	CABLE, MAIN FRAME	1	
	939 5695 184	CABLE, RIBBON A2P1/A1P17	1	
	939 6202 006	COVER, ACCESS	1	
	939 6202 047	COVER, FRONT	1	
	943 4035 017	CHASSIS, TOP	1	
	943 4035 024	PANEL, METER	1	
	999 2175 001	WIRE/TUBING LIST	1	
	999 2176 001	HARDWARE LIST	1	

Table 7-24. POWER SUPPLY, PC BOARD - 992 6086 002

REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
CR001	384 0259 000	RECT MDA970-A3	1.0	
CR002,CR003	384 0020 000	RECTIFIER IN4005		
CR004,CR005				
CR006,CR007				
CR008,CR009			8.0	
CR010	384 0205 000	DIODE SILICON 1N914	1.0	
CR011,CR012	384 0020 000	RECTIFIER IN4005	2.0	
C001,C002	000 0000 002	APPEARS ON HIGHER LEVEL	2.0	
C003	526 0351 000	CAP 6.8UF 50V 20%	1.0	
C004	526 0318 000	CAP 10UF 35V 20%	1.0	
C005,C006	526 0351 000	CAP 6.8UF 50V 20%	2.0	
C007,C008,C009	526 0318 000	CAP 10UF 35V 20%		
C010			4.0	
C011,C012,C013	526 0050 000	CAP 1 UF 35V 20%		
C014			4.0	
C015,C016	516 0453 000	CAP .1UF 100V 20%	2.0	
C017	526 0097 000	CAP 47 UF 35V 20%	1.0	
C018	526 0350 000	CAP 3.9 UF 35V 10%	1.0	
C019	526 0097 000	CAP 47 UF 35V 20%	1.0	
C020	500 1266 000	CAP 27PF 100V 5%	1.0	
C021	516 0375 000	CAP .01UF 50V	1.0	
C022	516 0509 000	CAP 2.2UF 50V 20%	1.0	
C023,C024	500 0912 000	CAP 820 PF 500V 5%	2.0	
C025	506 0241 000	CAP .047UF 63V 5%	1.0	
C026	000 0000 003	FREQUENCY DETERMINED PART	1.0	
C027	500 0878 000	CAP 1500 PF 500V 5%	1.0	
DS001,DS002	384 0610 000	LED, GREEN		
DS003,DS004			4.0	
L001	494 0414 000	CHOKE, RF 390UH	1.0	
L002	000 0000 003	FREQUENCY DETERMINED PART	1.0	
P001,P002,P003	610 0679 000	PLUG, SHORTING	3.0	
Q001	380 0189 000	XSTR, 2N3904	1.0	
Q002,Q003	380 0586 000	XSTR, MJE200	2.0	
Q004	380 0587 000	XSTR, MJE210	1.0	
Q005,Q006	380 0586 000	XSTR, MJE200	2.0	
R001,R002	540 1111 000	RES 10.0K OHM 1/2W 5%	2.0	
R003,R004	540 1201 000	RES 910.0 OHM 1/2W 5%	2.0	
R005,R006,R007	540 1116 000	RES 1.0K OHM 1/2W 5%		
R008			4.0	
R009	540 0033 000	RES 220.0 OHM 1/2W 5%	1.0	
R010	540 1165 000	RES 3.3K OHM 1/2W 5%	1.0	
R011	540 0033 000	RES 220.0 OHM 1/2W 5%	1.0	
R012	540 1165 000	RES 3.3K OHM 1/2W 5%	1.0	
R013	540 1114 000	RES 4.7K OHM 1/2W 5%	1.0	
R014	540 1154 000	RES 7.5K OHM 1/2W 5%	1.0	
R015	540 1129 000	RES 1.5K OHM 1/2W 5%	1.0	
R016	550 0621 000	POT, 200 OHM .5W 10%	1.0	
R017	540 0026 000	RES 110.0 OHM 1/2W 5%	1.0	

Table 7-24. POWER SUPPLY, PC BOARD - 992 6086 002 (Continued)

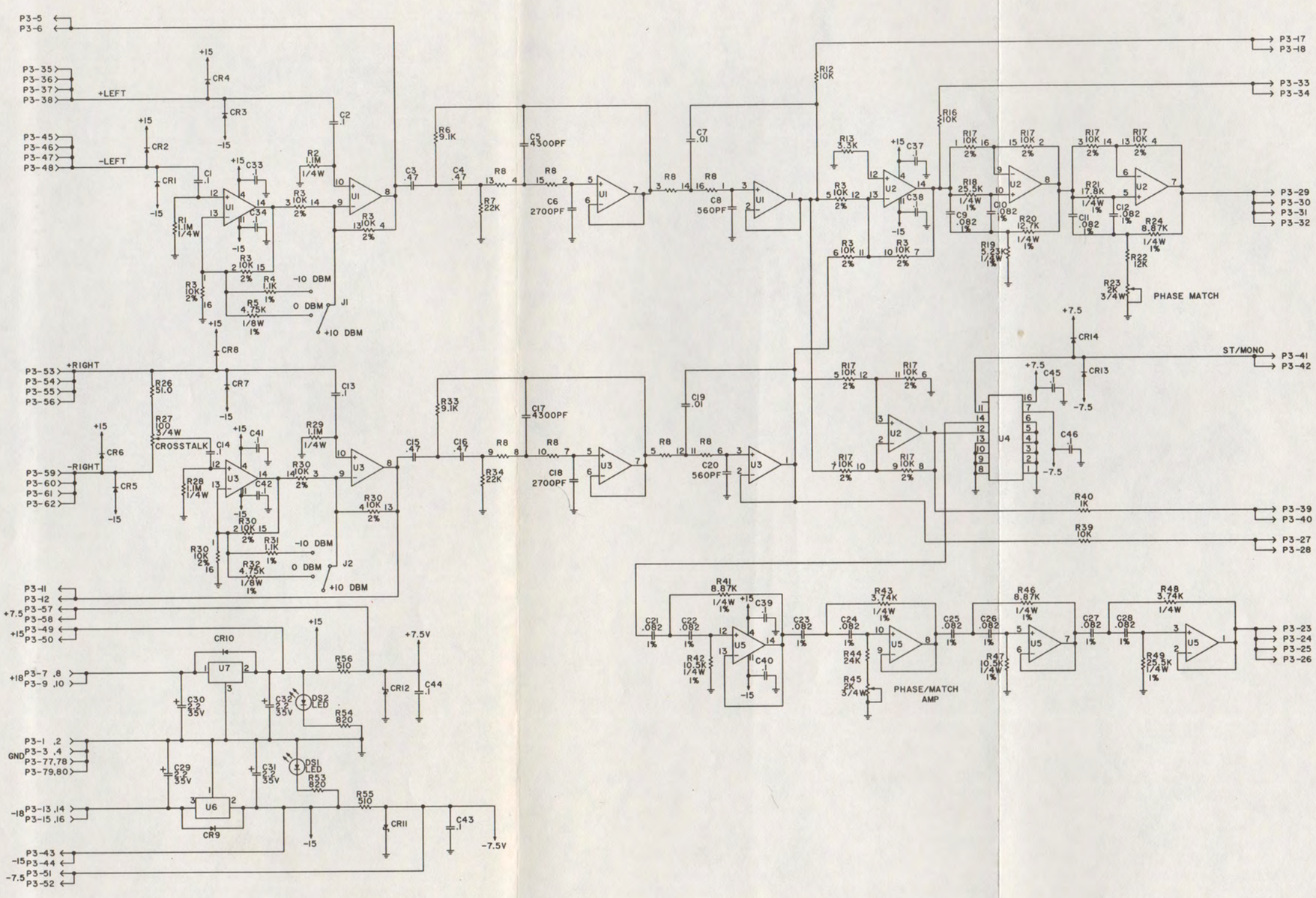
REF. SYMBOL	HARRIS PART NO.	DESCRIPTION	QTY	UM
R018,R019	540 0584 000	RES 75.0 OHM 2W 5%	2.0	
R020	540 1151 000	RES 10.0 OHM 1/2W 5%	1.0	
R021	540 1239 000	RES 5.1 OHM 1/2W 5%	1.0	
R022,R023,R024	540 1248 000	RES 1.0 OHM.1/2W 5%		
R025,R026,R027				
R028,R029			8.0	
R030,R031	540 0580 000	RES 51.0 OHM 2W 5%	2.0	
R032	540 0603 000	RES 470.0 OHM 2W 5%	1.0	
R033	540 1116 000	RES 1.0K OHM 1/2W 5%	1.0	
R034	550 0626 000	POT, 10K OHM .5W 10%	1.0	
R035	550 0357 000	POT 500 OHM 3/4W 10%	1.0	
R036	540 1239 000	RES 5.1 OHM 1/2W 5%	1.0	
T001	000 0000 002	APPEARS ON HIGHER LEVEL	1.0	
T002	917 1278 001	COIL, TOROID	1.0	
U001	382 0475 000	IC, 317	1.0	
U002	382 0874 000	IC, LM337K	1.0	
U003	382 0475 000	IC, 317	1.0	
U004	382 0874 000	IC, LM337K	1.0	
#Q002	404 0513 000	HEAT SINK PA1-1CB	2	
#Q003,#Q004	404 0729 000	HEAT SINK FOR TO-220		
#Q005,#Q006			1	
#Q002,#Q003	410 0381 000	INSULATOR .562 X .812		
#Q004,#Q005				
#Q006			5	
#U001,#U002	410 0383 000	INSULATOR TO-3 MICA		
#U003,#U004			4	
#U001,#U002	410 0384 000	INSULATOR, #4 SCREW		
#U003,#U004			8	
#XU001,#XU001A	612 0891 000	JACK, PC MT		
#XU002,#XU002A				
#XU003,#XU003A				
#XU004,#XU004A			8	
	839 6202 005	HEAT SINK	2	
	839 6202 054	SCHEMATIC, POWER SUPPLY	0	
	943 4035 041	PWB, POWER SUPPLY	1	
	999 2174 001	HARDWARE LIST	1	

SECTION VIII

DIAGRAMS

8-1. INTRODUCTION

8-2. This section of the technical manual for HARRIS STX-1A AM STEREO EXCITER contains schematics pertaining to the HARRIS STX-1A AM STEREO EXCITER and the printed circuit modules contained in the exciter.

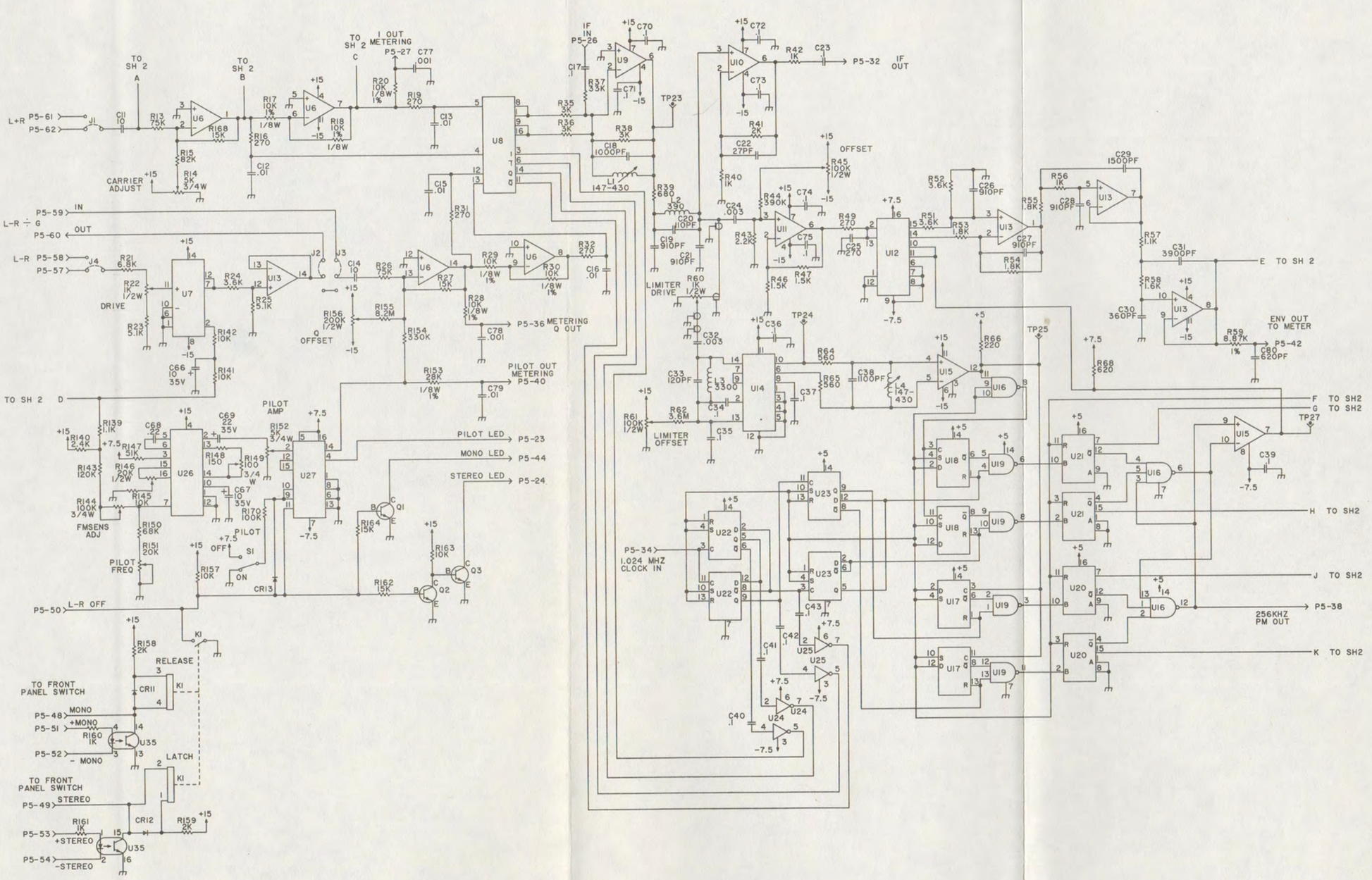


9. R8=4700 Ω 2%
8. U7=7815
7. U6=7915
6. U4=4053BC
5. U1-U3,U5=TL074CN3
4. CR11,CR12=IN4737A
3. CR1-CR10,CR13,CR14=IN4004
2. CAPACITANCE IN UF
1. RESISTANCE IN OHMS 1/2W 5%

UNLESS OTHERWISE NOTED

FIGURE 8-1. SCHEMATIC
AUDIO INPUT PC BOARD
839 6202 012-E

888-2174-005
8-3/8-4



5. Q1,Q2,Q3 = 2N3904
4. CRII,CRI2 = IN4002 CRI3 = IN914
3. INDUCTANCE IS IN UH
2. CAPACITANCE IS IN UF
1. RESISTORS ARE IN OHMS, 1/4 WATT, 5%

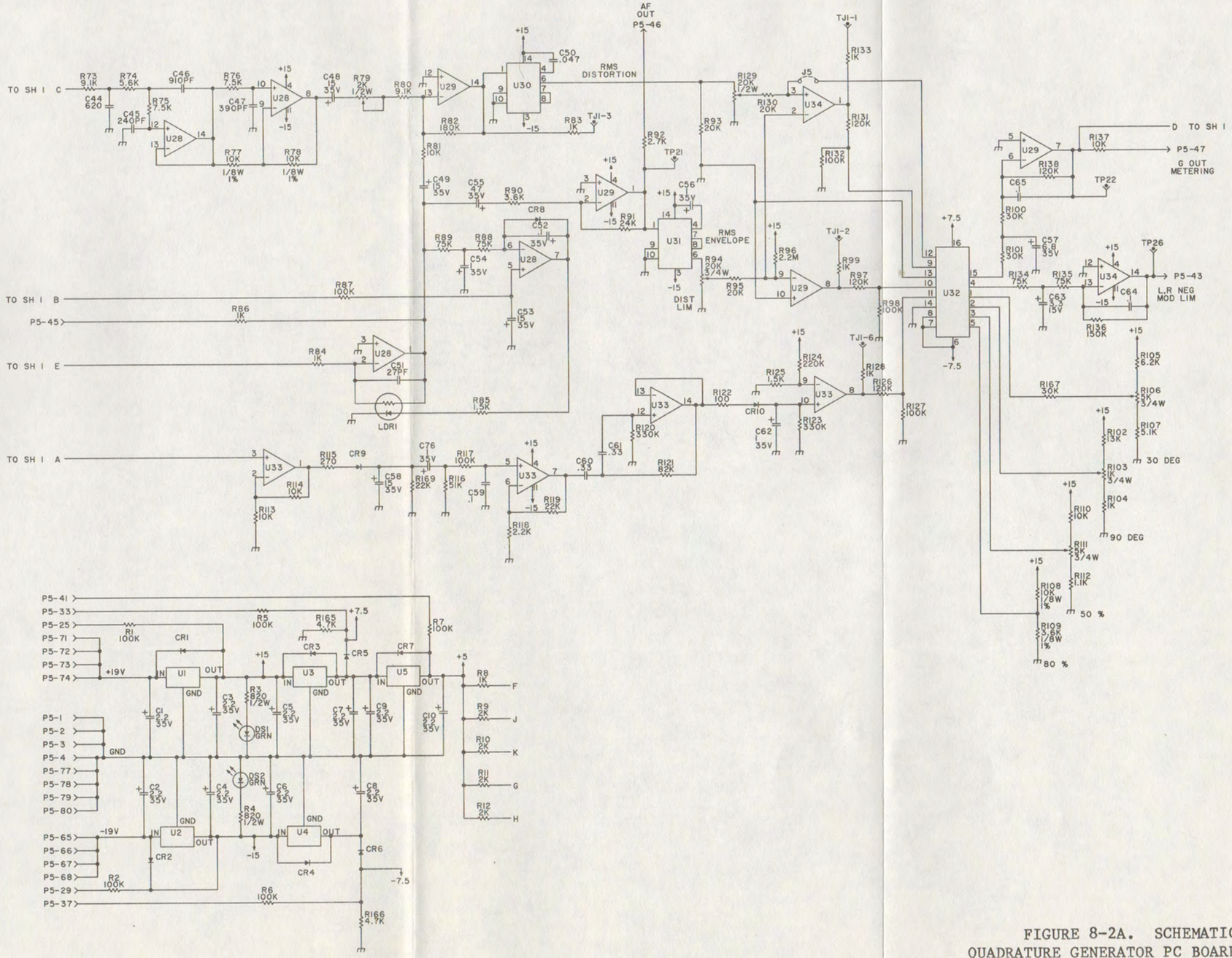
NOTES: UNLESS OTHERWISE NOTED

8 U5 = 340T-5/7805

7 U3 = LM340T-8/UA7808

6. U6,UI3 = TL074CN3 U7 = AD535JD U8 = SD5000N
U9,UI0,UII = LM318 UI2,U27 = CD-4053BE UI4 = TBAI20S
UI5 = LM319 UI6 = 74LS10N UI7,UI8,U23 = 74LS74
UI9 = 7400 U20,U2I = 74LS22I U22 = 74574
U24,U25 = DS0026J-8 U26 = XR2206 U35 = ILQ-74

FIGURE 8-2A. SCHEMATIC
QUADRATURE GENERATOR PC BOARD
(992 6078 003)
(SHEET 1 OF 2)
839 6202 043

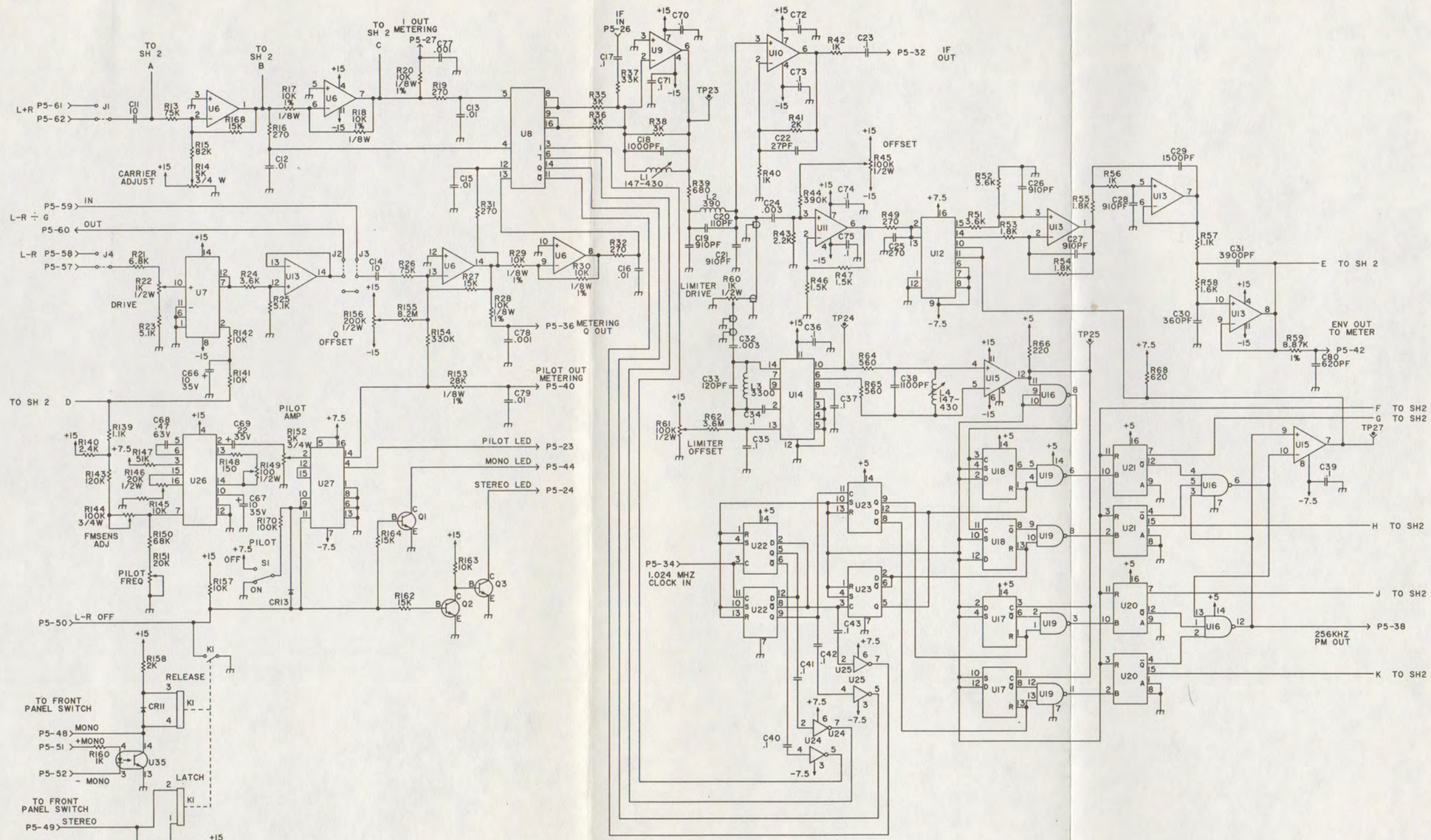


1. CR1,CR2,CR3,CR4,CR7 = IN4004
   CR5,CR6,CR8,CR9,CR10 = IN914

2. U1 = 7815 U2 = 7915 U3 = 7808 U4 = MC7908CT
   U5 = 7805 U28,U29,U33,U34 = TL074CN3
   U30,U31 = AD536 U32 = CD-4053BE

NOTES:

FIGURE 8-2A. SCHEMATIC
QUADRATURE GENERATOR PC BOARD
(992 6078 003)
(SHEET 2 OF 2)
839 6202 043



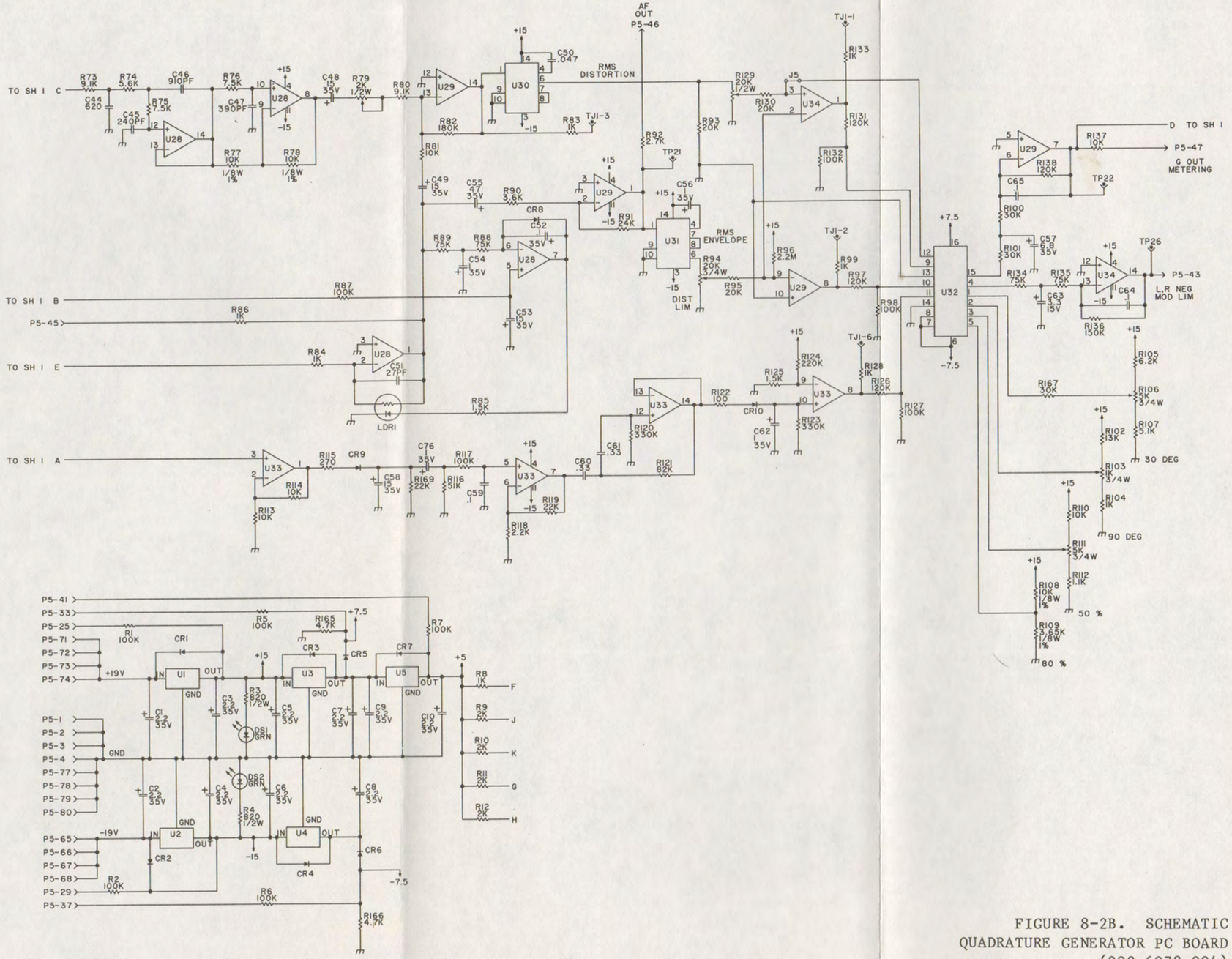
5. Q1,Q2,Q3 = 2N3904
4. CR11,CR12 = IN4002 CR13 = IN914
3. INDUCTANCE IS IN UH
2. CAPACITANCE IS IN UF
1. RESISTORS ARE IN OHMS, 1/4 WATT, 5%

NOTES: UNLESS OTHERWISE NOTED

6. U6,U13 = TLO74CN3 U7 = AD535JD U8 = SD5000N
U9,U10,U11 = LM318 U12,U27 = CD-4053BE U14 = TBA120S
U15 = LM319 U16 = 74LS10N U17,U18,U23 = 74LS74
U19 = 7400 U20,U21 = 74LS22I U22 = 74S74
U24,U25 = DS0026J-8 U26 = XR2206 U35 = ILQ-74

FIGURE 8-2B. SCHEMATIC
QUADRATURE GENERATOR PC BOARD
(992 6078 004)
839 6202 044-A
SHEET 1 OF 2

888-2174-003
8-9/8-10



1. CR1,CR2,CR3,CR4,CR7 = IN4004
   CR5,CR6,CR8,CR9,CR10 = IN914
2. U1 = 7815 U2 = 7915 U3 = 7808 U4 = MC7908CT
   U5 = 7805 U28,U29,U33,U34 = TL074CN3
   U30,U31 = AD536 U32 = CD-4053BE

NOTES:

FIGURE 8-2B. SCHEMATIC
QUADRATURE GENERATOR PC BOARD
(992 6078 004)
839 6202 044-A
SHEET 2 OF 2

888-2174-003
8-11/8-12

S1 - 5556 511

TO C72 SH2

18. CR4-CR6 ARE IN4001
17. CR1 AND CR3 ARE IN914
16. CR7 IS A IN4739A
15. CR2 IS A IN4732A
14. UI7 IS A7815
13. UI6 IS 74LS221
12. UI5 IS A 74LS74
11. UI4 IS A 7815
10. UI3 IS A 7915
9. UI2 IS A 340T-5/7805
8. UI0 AND UII ARE 1496
7. U9 IS A 74574/9S74
6. U8 IS AN MCI4515IP
5. U2,U3,U4,AND U5 ARE HAI-4505-5
4. UI AND U7 ARE LM318
3. ALL INDUCTORS ARE IN UH.
2. ALL CAPS ARE IN UF
1. ALL RESISTORS ARE 1/4W, 5%. UNLESS OTHERWISE NOTED:

20. QI5 IS AN MPS-AI4
19. Q7-Q9 AND QII-QI4 ARE 2N3904

FIGURE 8-3A. SCHEMATIC
RF OUTPUT PC BOARD
(992 6079 002)
(SHEET 1 OF 2)
839 6202 025

8-13/8-14

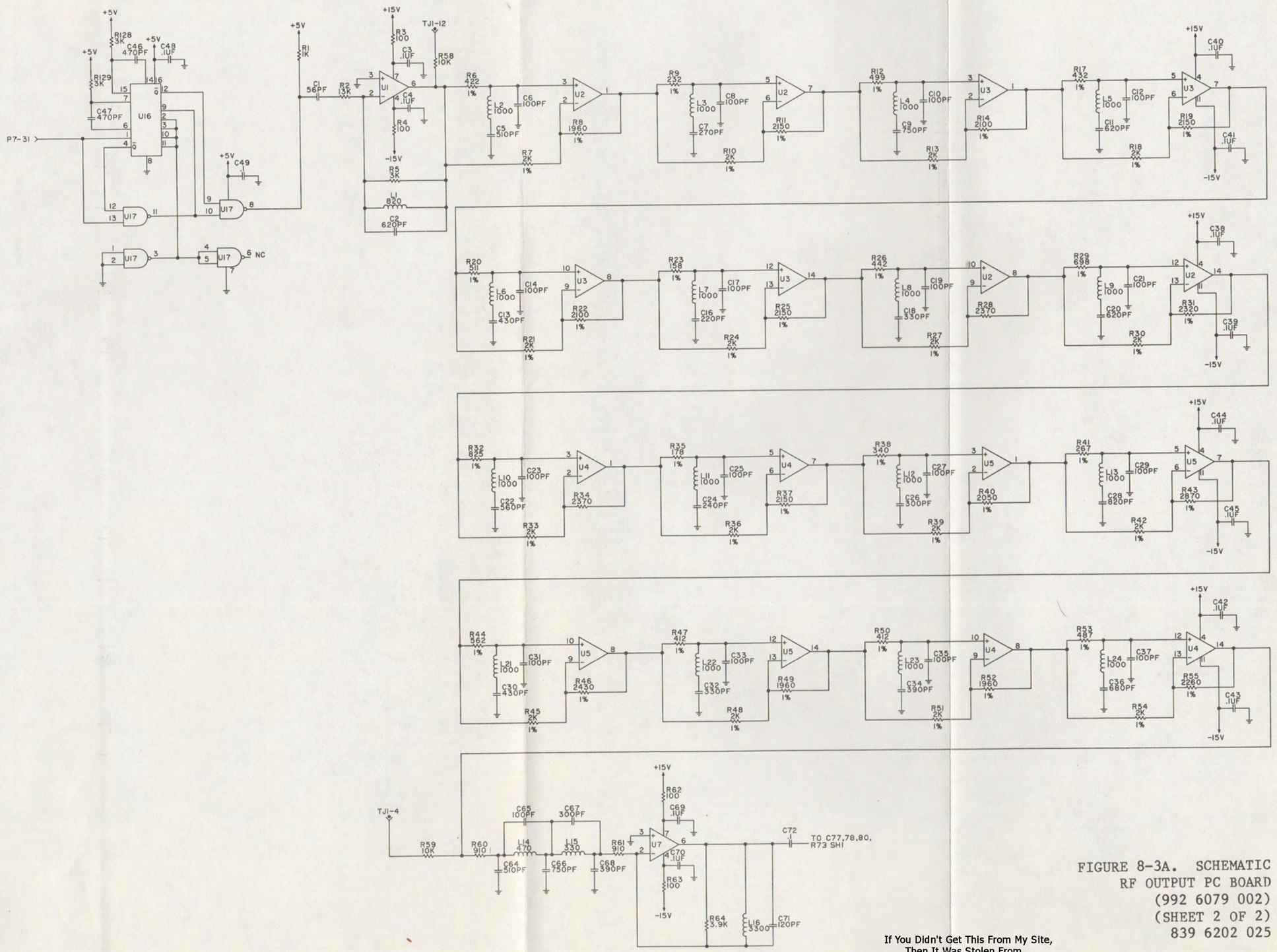
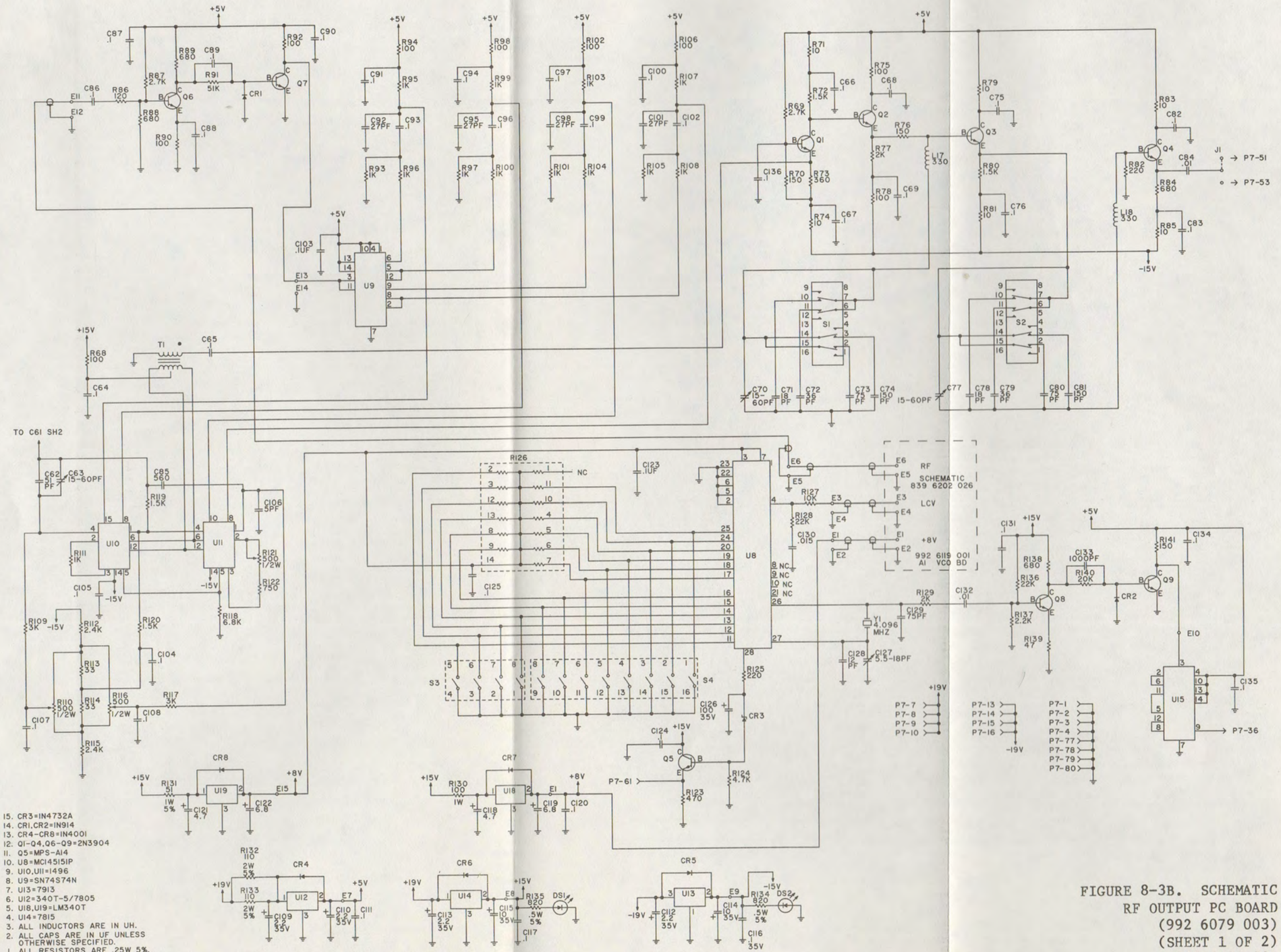


FIGURE 8-3A. SCHEMATIC
RF OUTPUT PC BOARD
(992 6079 002)
(SHEET 2 OF 2)
839 6202 025

8-15/8-16



15. CR3=IN4732A
14. CR1,CR2=IN914
13. CR4-CR8=IN4001
12. Q1-Q4,Q6-Q9=2N3904
11. Q5=MPS-A14
10. U8=MC14515IP
9. U10,U11=1496
8. U9=SN74S74N
7. U13=7913
6. U12=340T-5/7805
5. U18,U19=LM340T
4. U14=7815
3. ALL INDUCTORS ARE IN UH.
2. ALL CAPS ARE IN UF UNLESS OTHERWISE SPECIFIED.
1. ALL RESISTORS ARE .25W 5%.

NOTES

FIGURE 8-3B. SCHEMATIC
RF OUTPUT PC BOARD
(992 6079 003)
(SHEET 1 OF 2)
839 6202 031

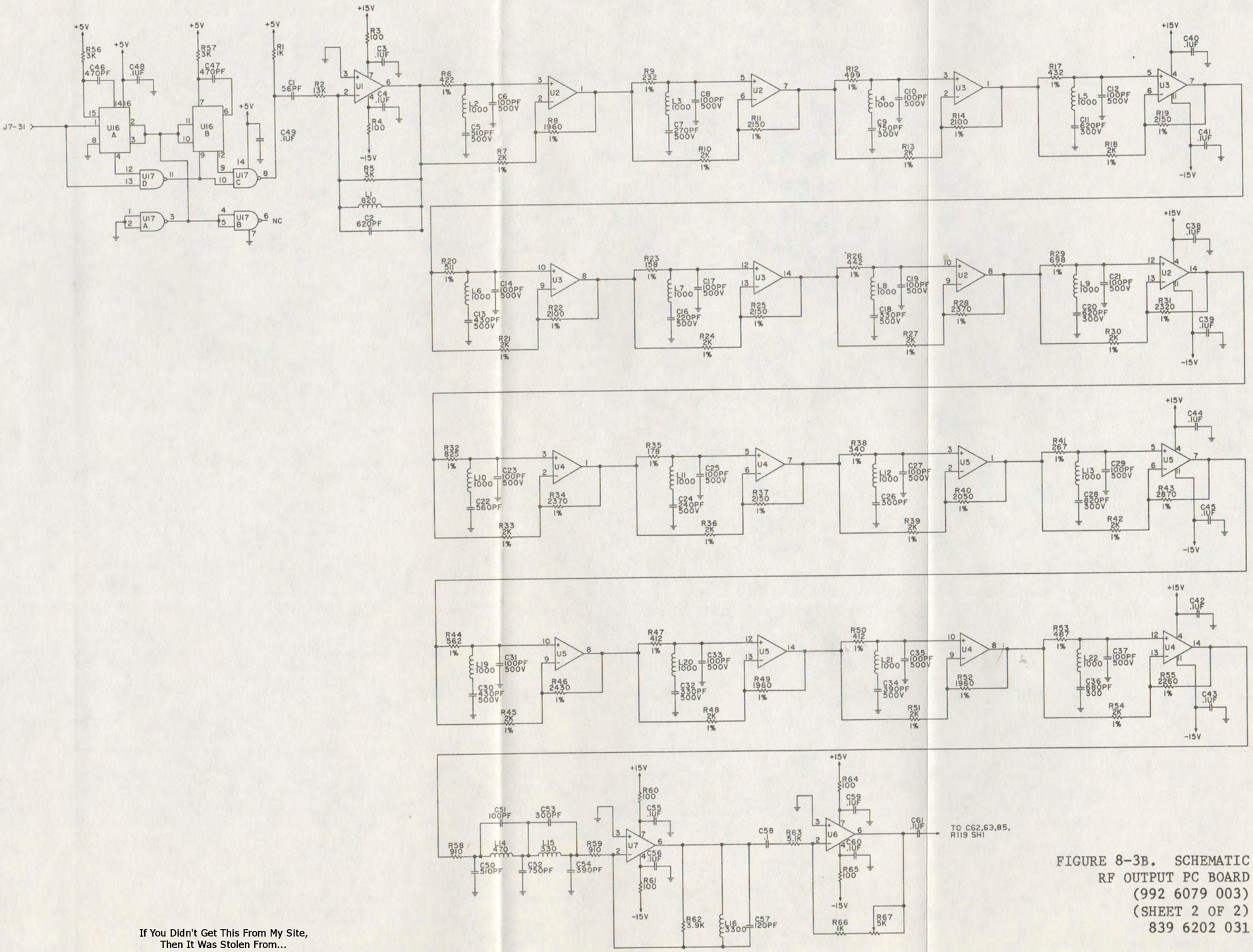
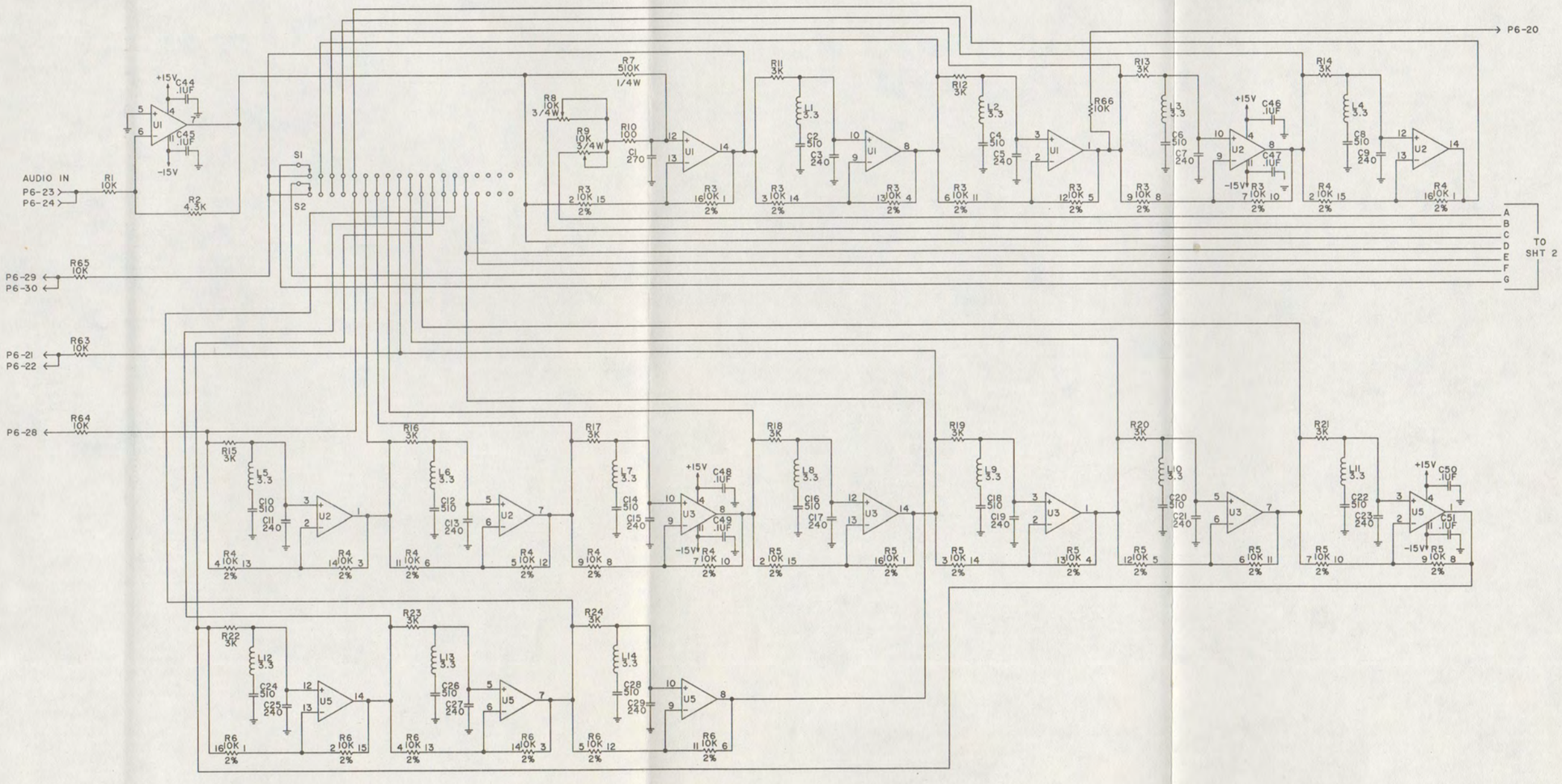


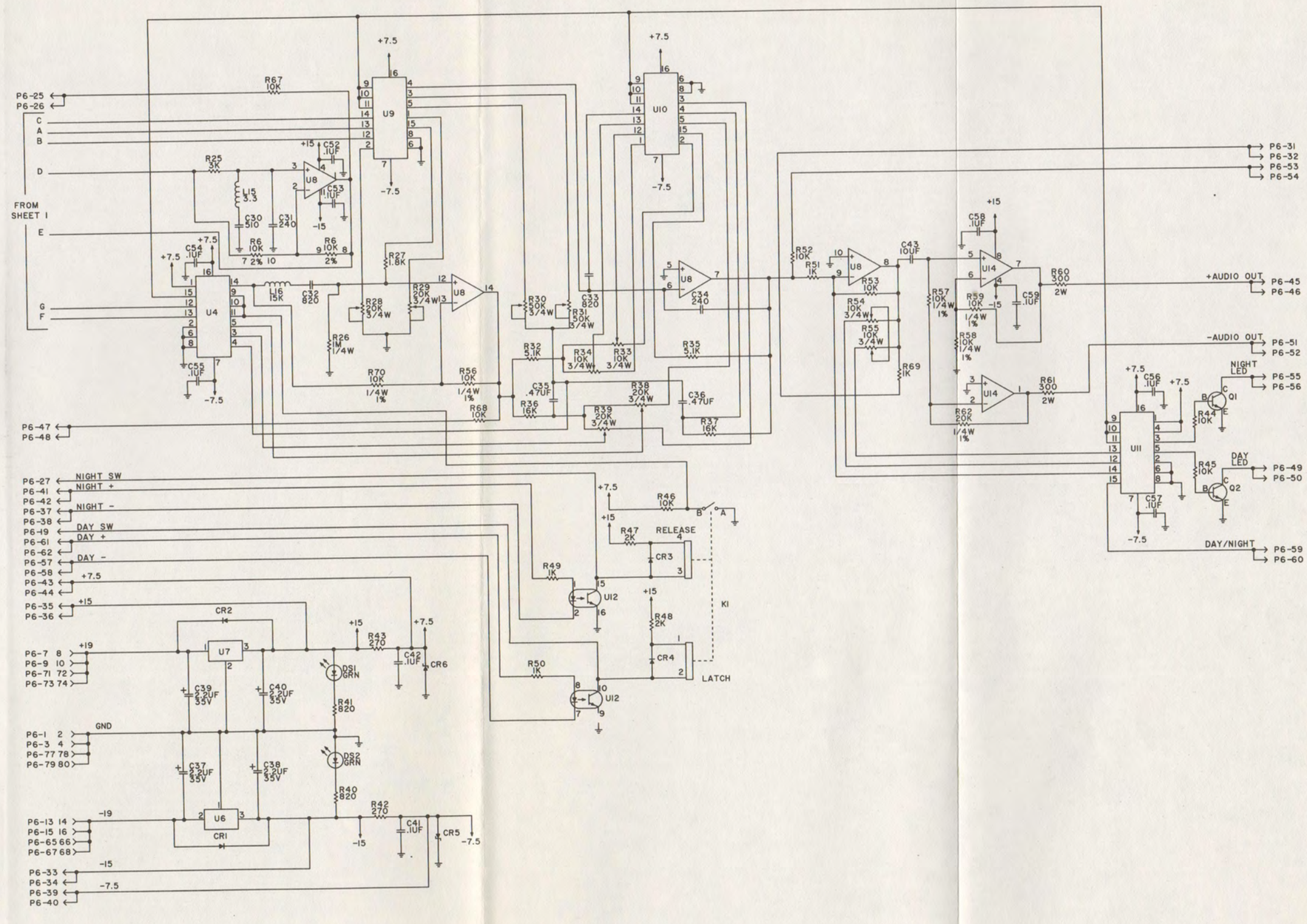
FIGURE 8-3B. SCHEMATIC
RF OUTPUT PC BOARD
(992 6079 003)
(SHEET 2 OF 2)
839 6202 031

8-19/8-20



4. U1-U3,U5=TL074CN3
3. ALL INDUCTANCE IN UH
2. CAPACITANCE IN PF
1. RESISTANCE IN OHMS 1/2W 5% UNLESS OTHERWISE NOTED

FIGURE 8-4. SCHEMATIC
AUDIO OUTPUT PC BOARD
(SHEET 1 OF 2)
839 6202 015

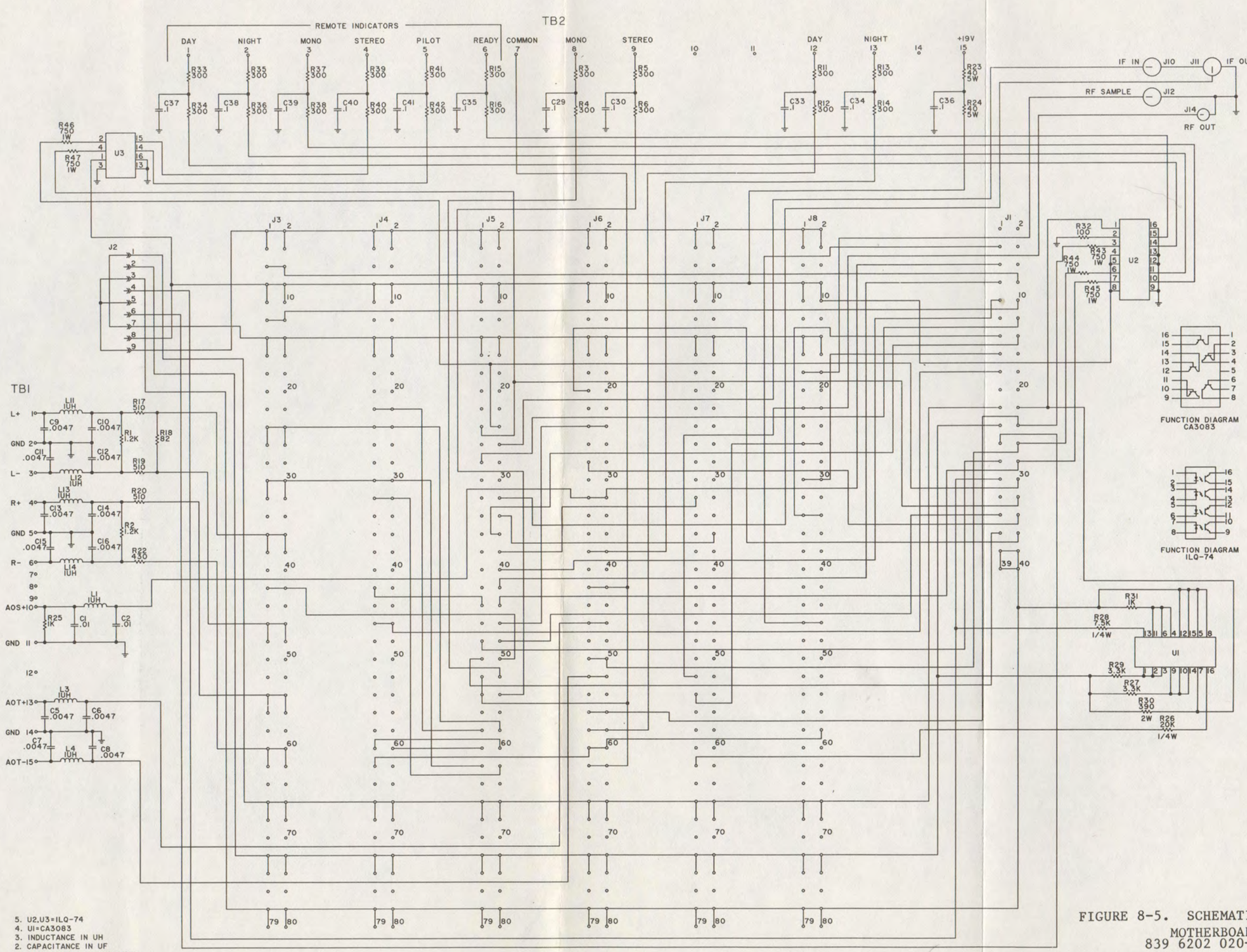


3. U4,U9-UII=CD-4053BE
   U8=TL074CN3
   UI4=NE5532AN,U6=7915
   U7=LM340T-15
   UI2=IL0-74
2. Q1,Q2=2N3904
1. CR1,CR2=IN4004
   CR3,CR4=IN4002
   CR5,CR6=IN4737

UNLESS OTHERWISE NOTED

FIGURE 8-4. SCHEMATIC
AUDIO OUTPUT PC BOARD
(SHEET 2 OF 2)
839 6202 015

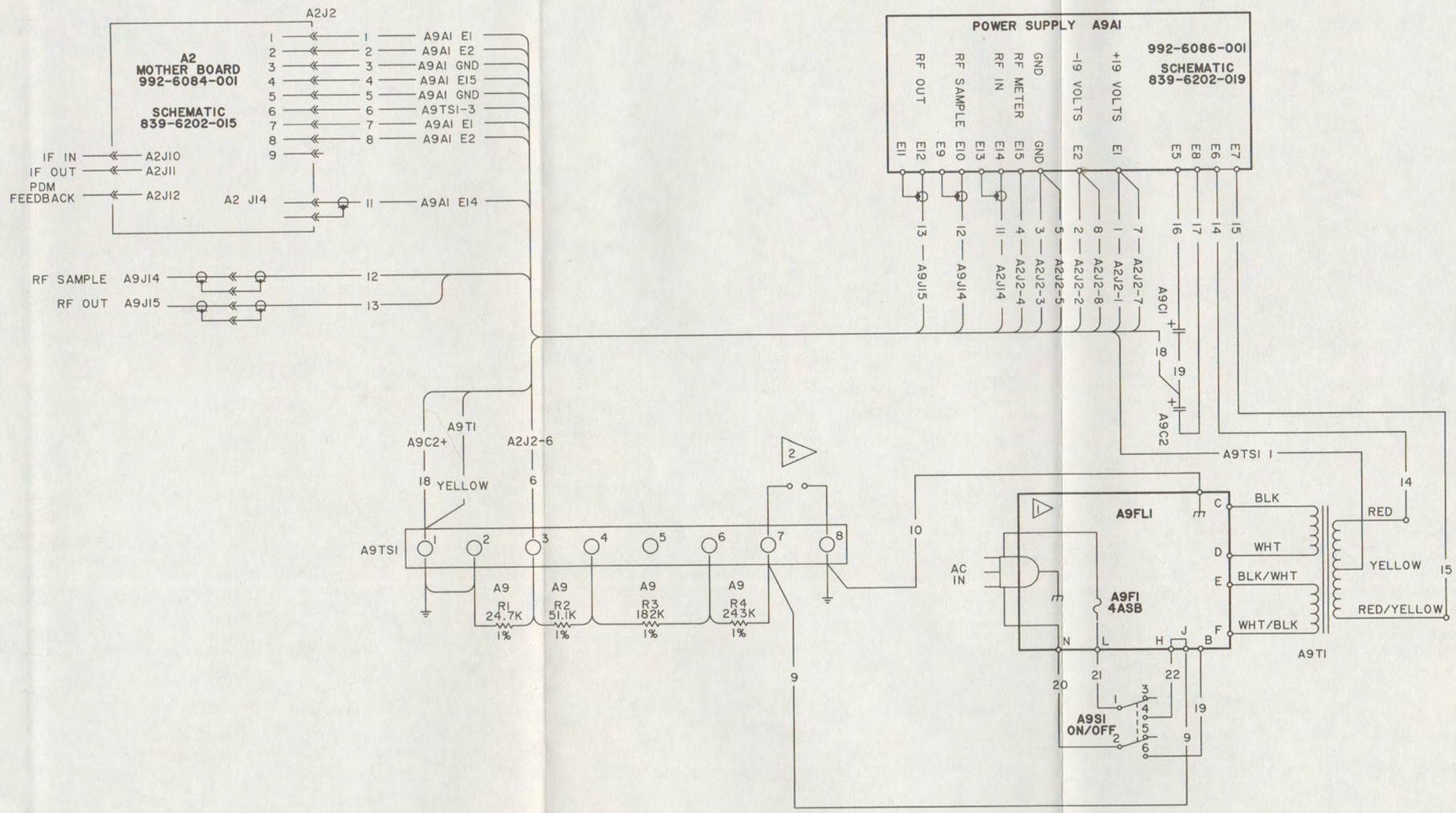
8-23/8-24



5. U2,U3=ILQ-74
4. U1=CA3083
3. INDUCTANCE IN UH
2. CAPACITANCE IN UF
1. RESISTANCE IN OHMS 1/2W
UNLESS OTHERWISE NOTED

FIGURE 8-5. SCHEMATIC
MOTHERBOARD
839 6202 020-G

888-2174-005
8-25/8-26



2 JUMPER FOR 220V OPERATION, CENTER TAP GND.

1 CHANGE CARD FOR 240V OPERATION. (SEE MANUFACTURE'S INSTRUCTIONS)

FIGURE 8-6. MAINFRAME WIRING, STX-1A
839 6202 023

8-27/8-28

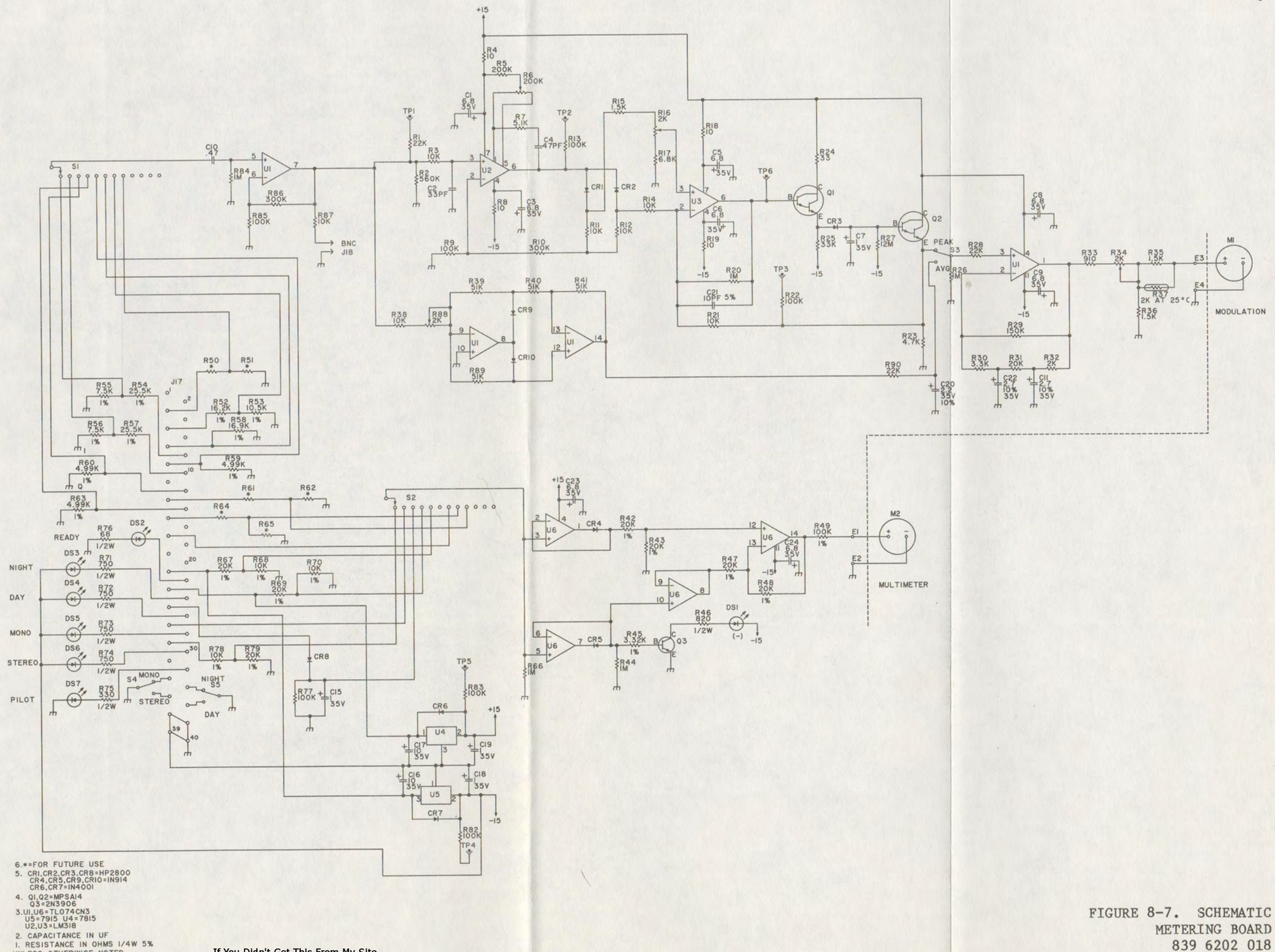
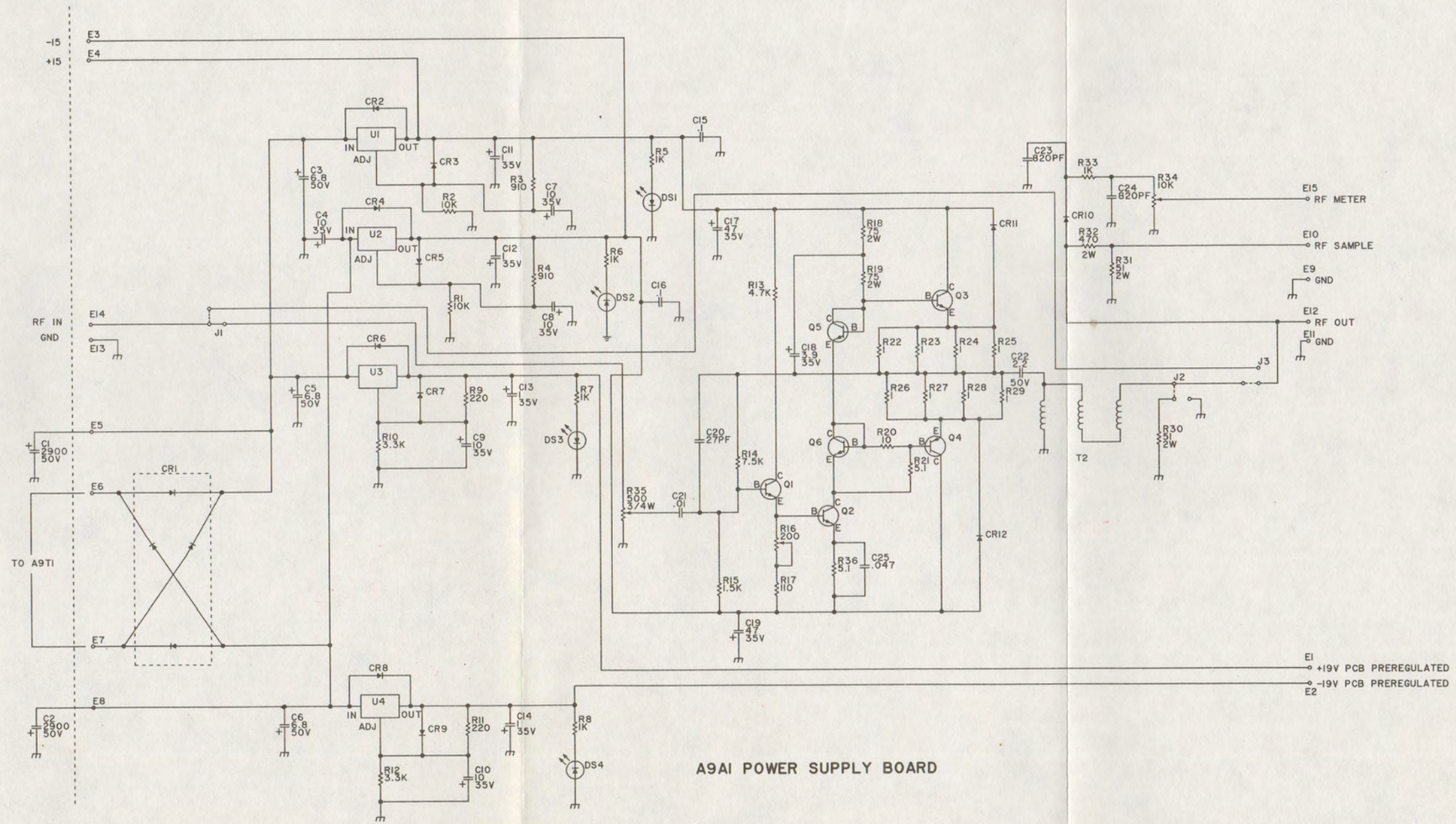


FIGURE 8-7. SCHEMATIC
METERING BOARD
839 6202 018



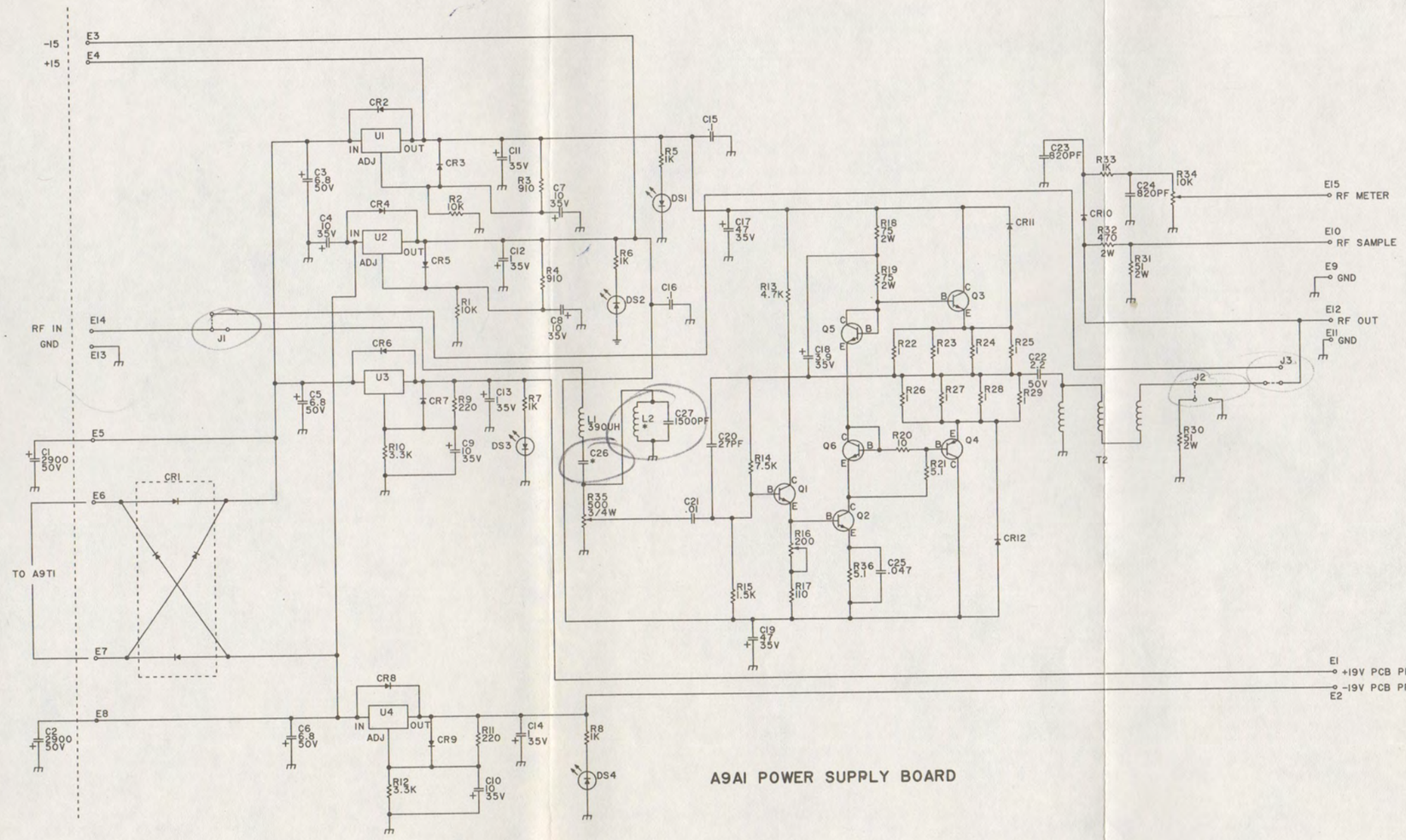
A9AI POWER SUPPLY BOARD

7. U2,U4=LM337K
   U1,U3=LM317K
6. Q4=MJE210
   Q1=2N3904
   Q2,Q3,Q5,Q6=MJE200
5. CR1=MDA970-A3
   CR10=IN914
   CR2-CR9,CR11,CR12=IN4005
4. U1-U4 SHOULD BE WITHIN 4" OF POWER SUPPLY FILTER CAPACITORS
3. J1-J5 MUST BE PROGRAMED FOR DESIRED OUTPUT RANGE
2. CAPACITANCE IN UF
1. RESISTANCE IN OHMS 1/2W 5%

UNLESS OTHERWISE NOTED

FIGURE 8-8A. AM STEREO
POWER SUPPLY AND RF AMPLIFIER
(992 6086 001)
839 6202 019-E

888-2174-004
8-31A/8-32



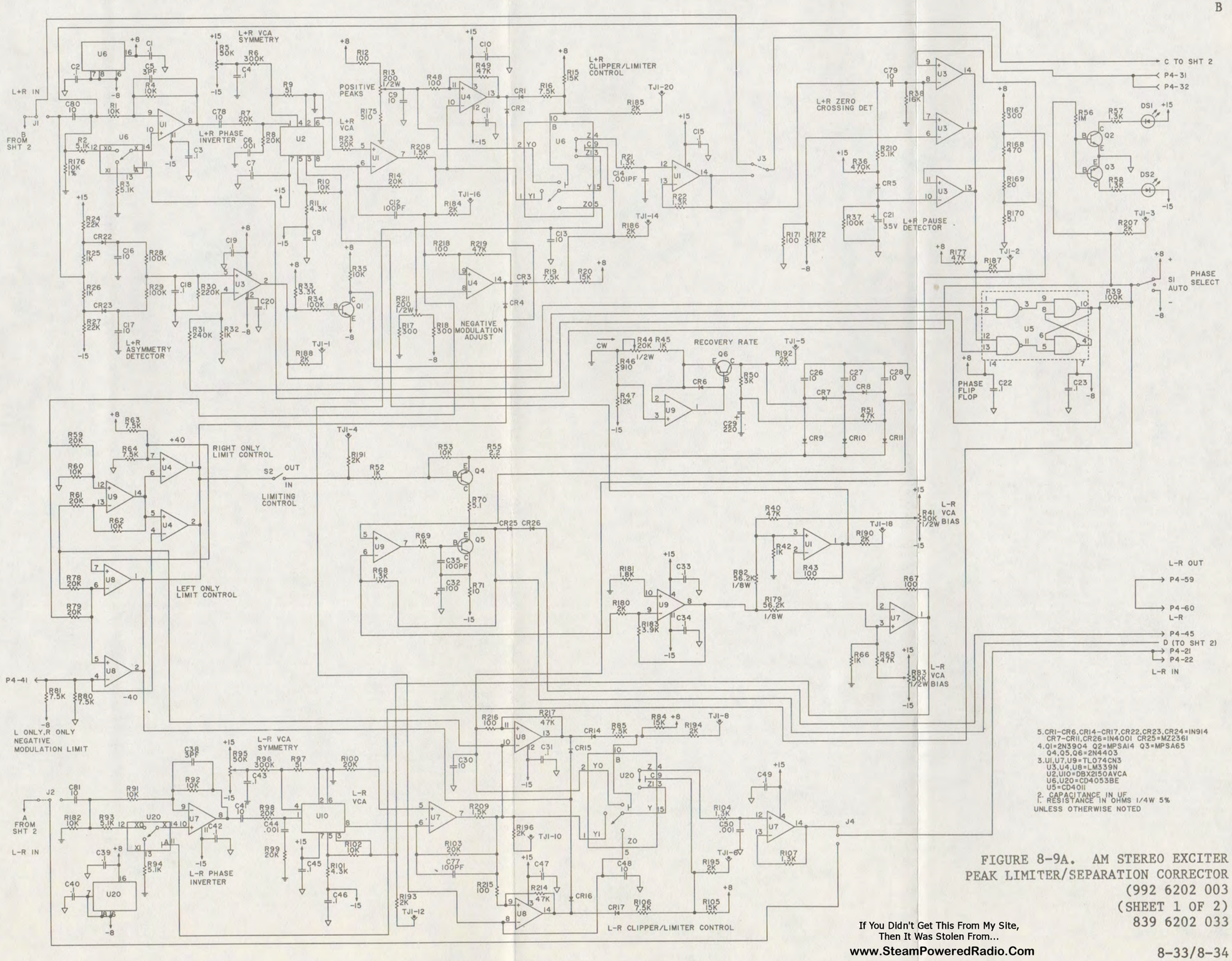
A9AI POWER SUPPLY BOARD

8. * = FREQUENCY DETERMINED COMPONENTS.
7. U2,U4=LM337K
   U1,U3=LM317K
6. Q4=MJE210
   Q1=2N3904
   Q2,Q3,Q5,Q6=MJE200
5. CR1=MDA970-A3
   CR10=1N914
   CR2-CR9,CR11,CR12=1N4005
4. U1-U4 SHOULD BE WITHIN 4" OF POWER SUPPLY FILTER CAPACITORS
3. J1-J5 MUST BE PROGRAMED FOR DESIRED OUTPUT RANGE
2. CAPACITANCE IN UF
1. RESISTANCE IN OHMS, 1/2W, 5%.

UNLESS OTHERWISE NOTED

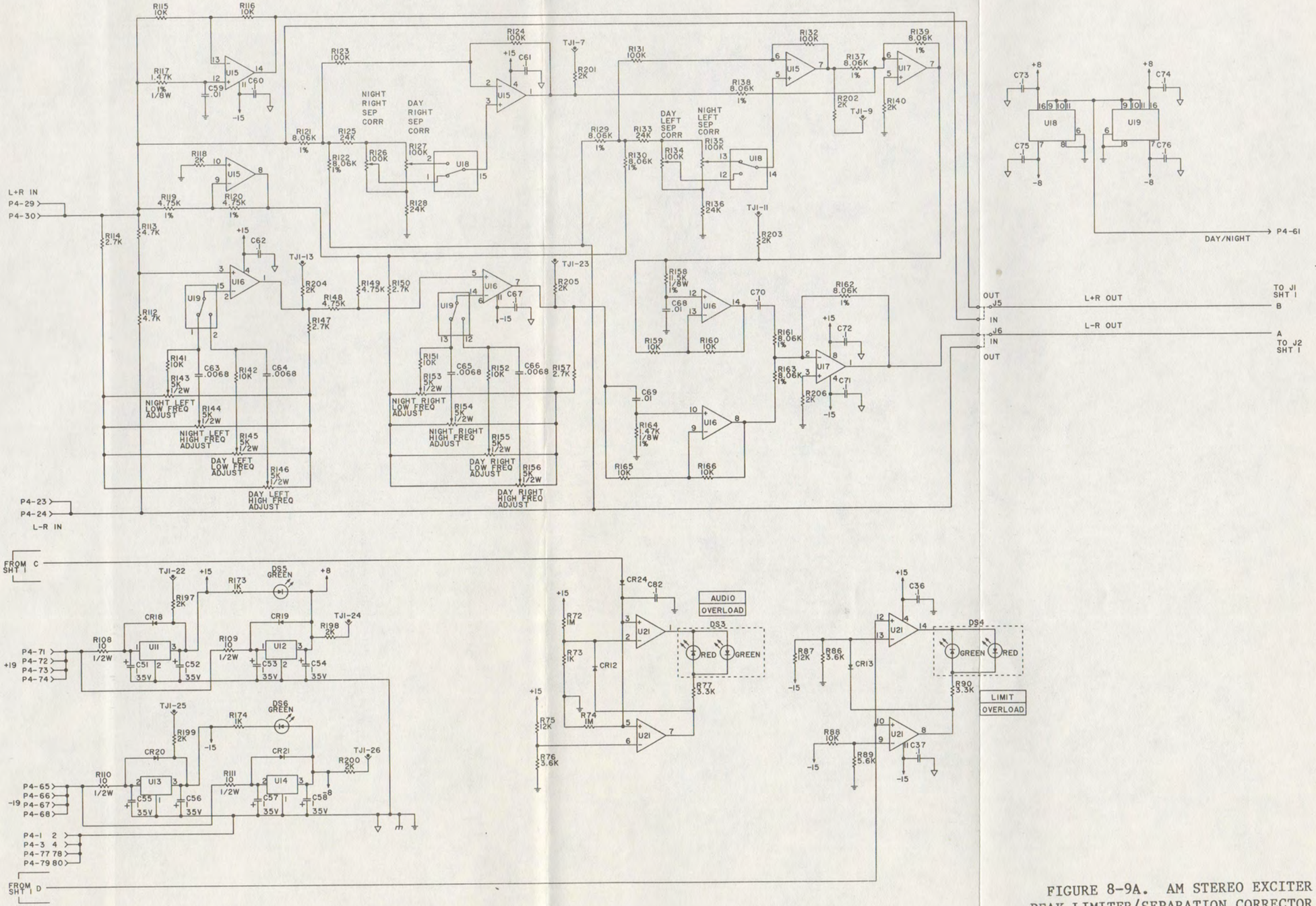
FIGURE 8-8B. AM STEREO
POWER SUPPLY AND RF AMPLIFIER
(992 6086 002)
839 6202 054-A

888-2174-004
8-31B/8-32



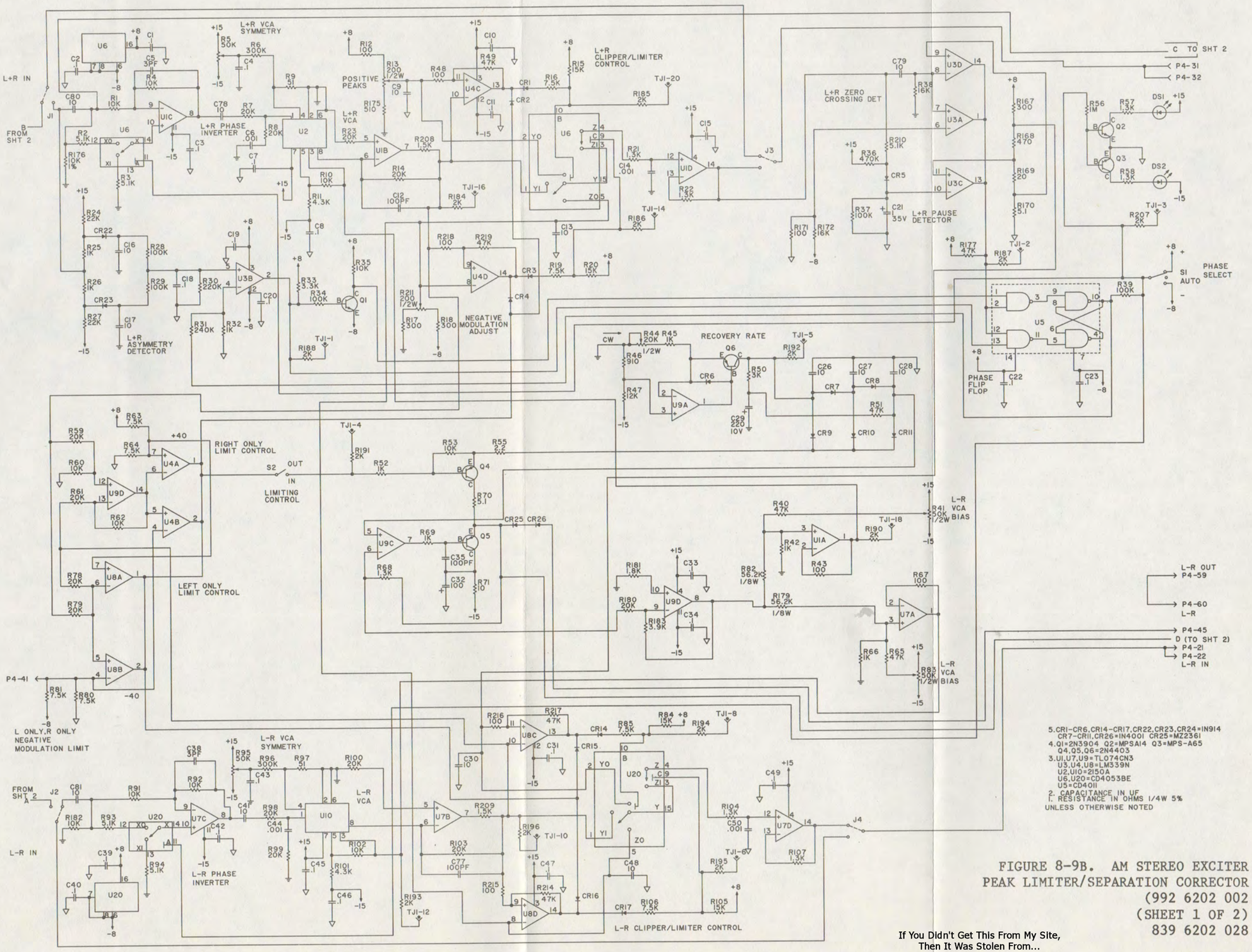
5.CRI-CR6,CRI4-CRI7,CR22,CR23,CR24=IN914
CR7-CRII,CR26=IN4001 CR25=MZ2361
4.QI=2N3904 Q2=MPSAI4 Q3=MPSA65
Q4,Q5,Q6=2N4403
3.UI,U7,U9=TL074CN3
U3,U4,U8=LM339N
U2,UI0=DBX2I50AVCA
U6,U20=CD4053BE
U5=CD40II
2. CAPACITANCE IN UF
I. RESISTANCE IN OHMS 1/4W 5%
UNLESS OTHERWISE NOTED

FIGURE 8-9A. AM STEREO EXCITER
PEAK LIMITER/SEPARATION CORRECTOR
(992 6202 003
(SHEET 1 OF 2)
839 6202 033



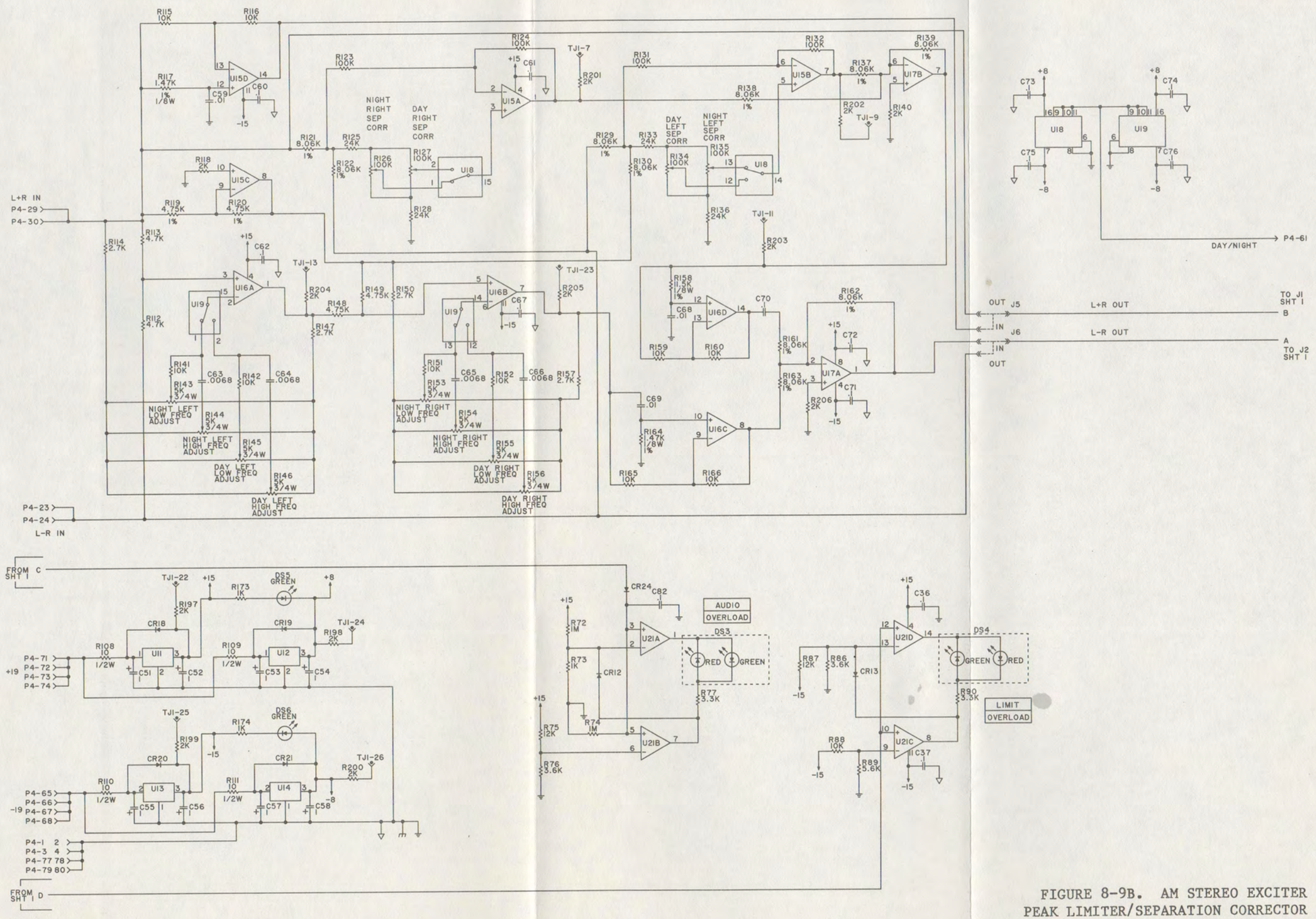
4. U15, U16, U21 = TL074CN3
U18, U19 = CD4053BE
U12 = LM340T-8, U11 = 7815
U17 = TL072, U13 = 7915, U14 = 7908
3. CR18-CR21, CR12, CR13 = IN4001, CR24 = IN914
2. CAPACITANCE IN UF
1. RESISTANCE IN OHMS 1/4W 5%
UNLESS OTHERWISE NOTED:

FIGURE 8-9A. AM STEREO EXCITER
PEAK LIMITER/SEPARATION CORRECTOR
(992 6202 003
(SHEET 2 OF 2)
839 6202 033



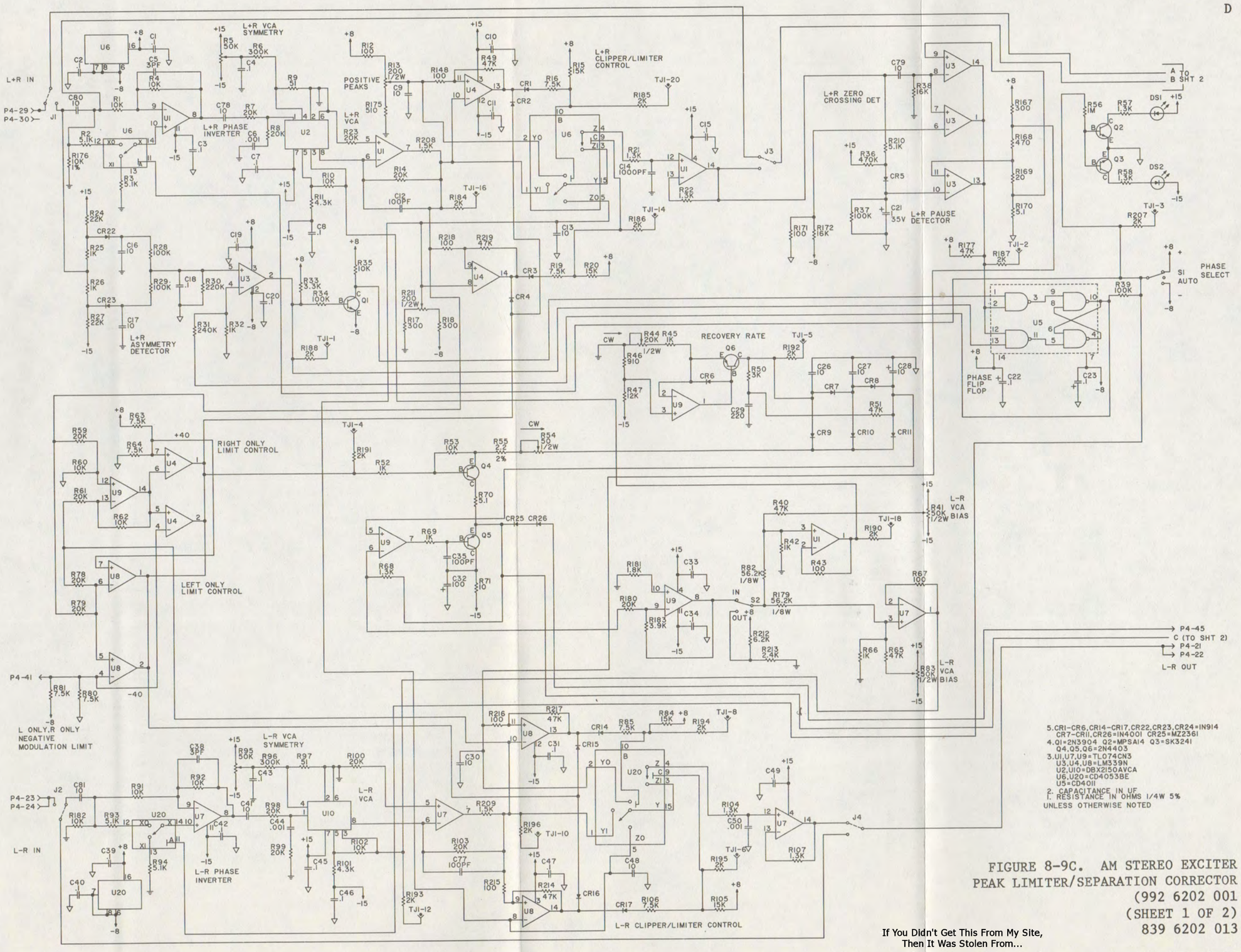
5. CR1-CR6, CR14-CR17, CR22, CR23, CR24 = IN914
   CR7-CR11, CR26 = IN4001 CR25 = MZ2361
4. Q1 = 2N3904 Q2 = MPSA14 Q3 = MPS-A65
   Q4, Q5, Q6 = 2N4403
3. U1, U7, U9 = TL074CN3
   U3, U4, U8 = LM339N
   U2, U10 = 2150A
   U6, U20 = CD4053BE
   U5 = CD4011
2. CAPACITANCE IN UF
1. RESISTANCE IN OHMS 1/4W 5%
UNLESS OTHERWISE NOTED

FIGURE 8-9B. AM STEREO EXCITER
PEAK LIMITER/SEPARATION CORRECTOR
(992 6202 002
(SHEET 1 OF 2)
839 6202 028



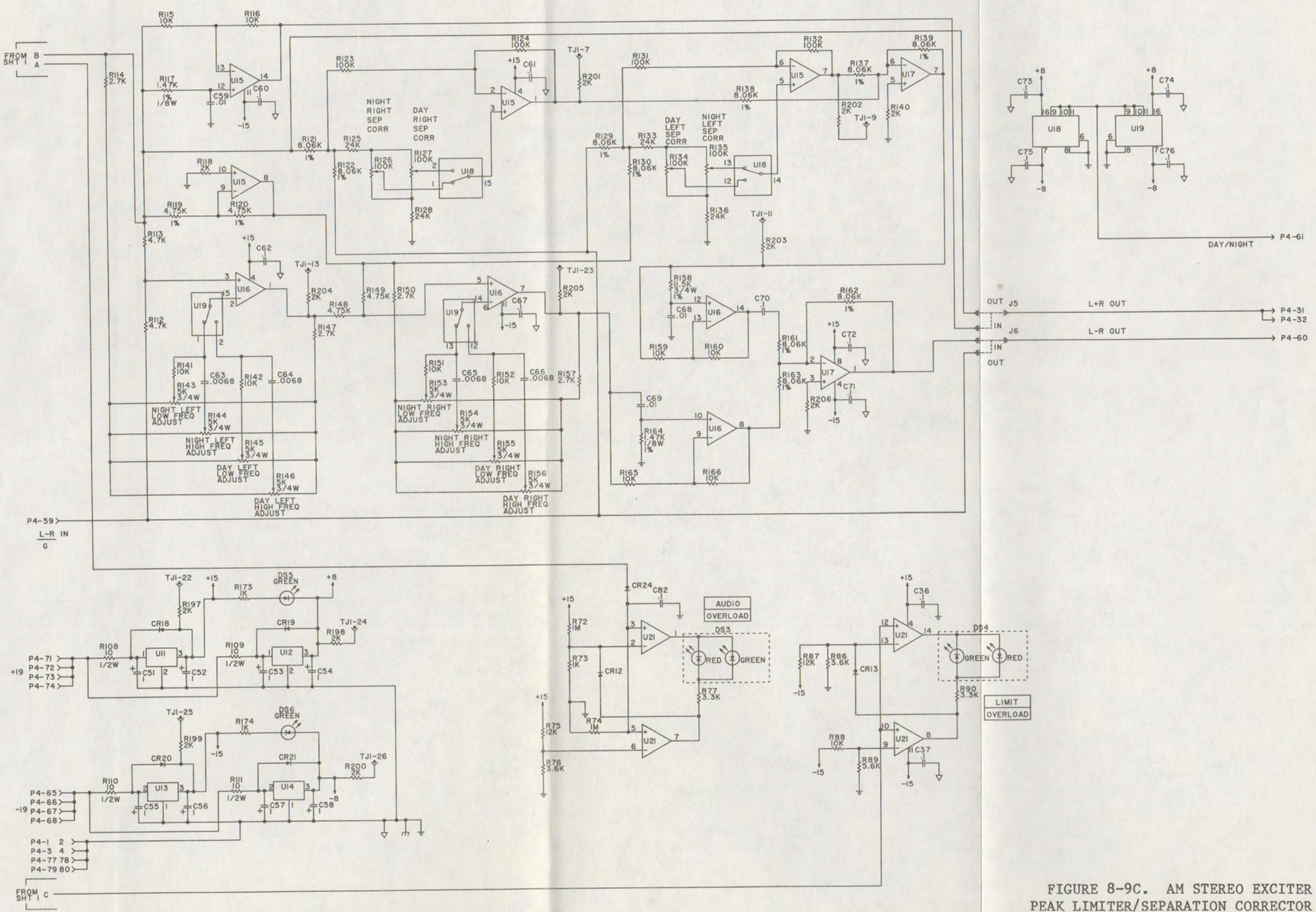
4.U15,U16,U21=TL074CN3
U18,U19=CD4053BE
U12=LM340T-8,U11=7815
U17=TL072,U13=7915,U14=7908
3.CR18-CR21,CR12,CR13=IN4001,CR24=IN914
2.CAPACITANCE IN UF
1.RESISTANCE IN OHMS 1/4W 5%
UNLESS OTHERWISE NOTED:

FIGURE 8-9B. AM STEREO EXCITER PEAK LIMITER/SEPARATION CORRECTOR (992 6202 002 (SHEET 2 OF 2) 839 6202 028



5. CR1-CR6, CR14-CR17, CR22, CR23, CR24 = IN914
   CR7-CR11, CR26 = IN4001 CR25 = MZ2361
4. Q1 = 2N3904 Q2 = MPSA14 Q3 = SK3241
   Q4, Q5, Q6 = 2N4403
3. U1, U7, U9 = TL074CN
   U3, U4, U8 = LM339N
   U2, U10 = DBX2150AVCA
   U6, U20 = CD4053BE
   U5 = CD4011
2. CAPACITANCE IN UF.
1. RESISTANCE IN OHMS 1/4W 5%
UNLESS OTHERWISE NOTED

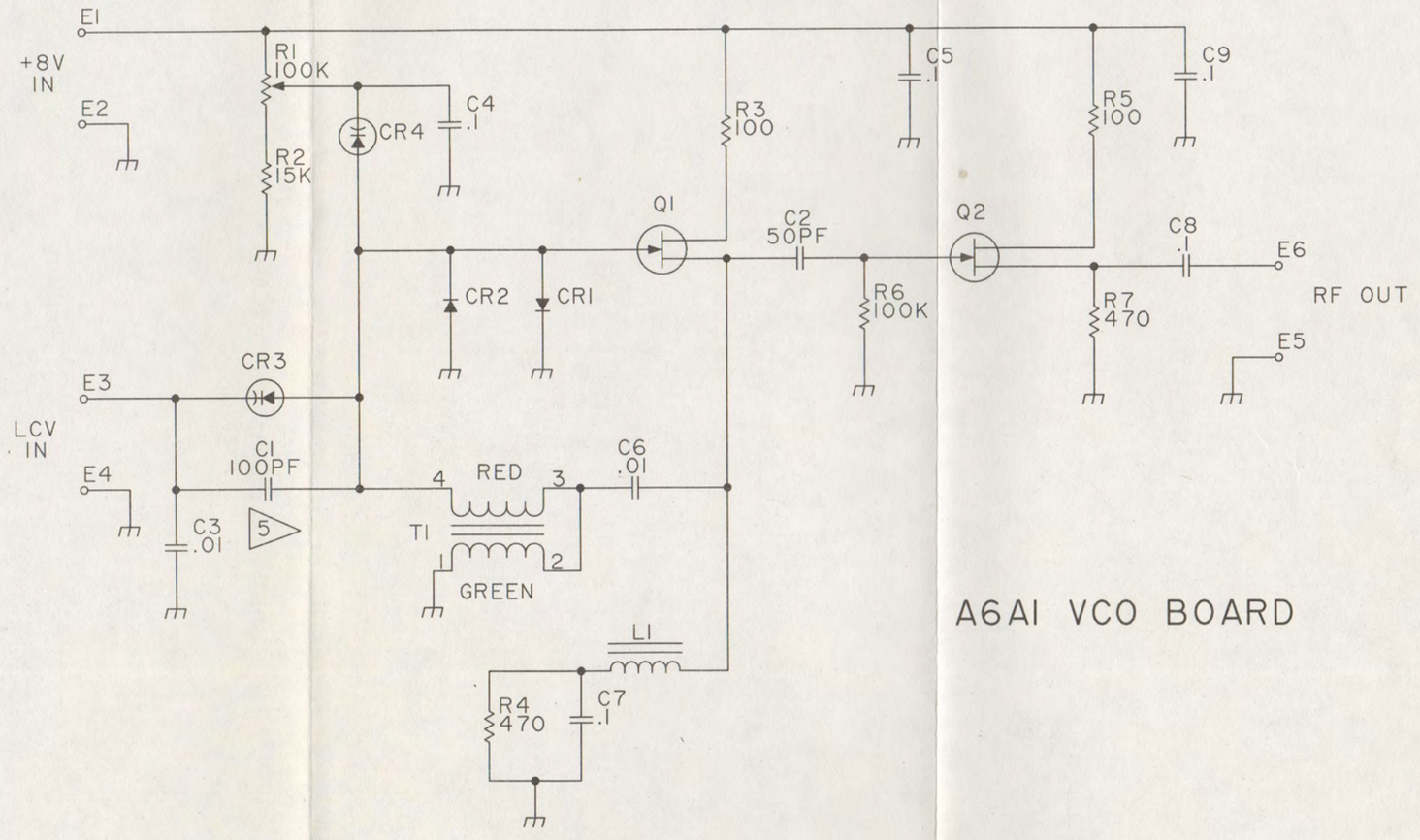
FIGURE 8-9C. AM STEREO EXCITER
PEAK LIMITER/SEPARATION CORRECTOR
(992 6202 001
(SHEET 1 OF 2)
839 6202 013



4.UI5,UI6,U21=TL074CN3
UI8,UI9=CD4053BE
UI2=LM340T-8,UII=78I5
UI7=TL072,UI3=79I5,UI4=7908
3.CRI8-CR21,CRI2,CRI3=IN4001,CR24=IN914
2.CAPACITANCE IN UF
1.RESISTANCE IN OHMS 1/4W 5%
UNLESS OTHERWISE NOTED:

FIGURE 8-9C. AM STEREO EXCITER
PEAK LIMITER/SEPARATION CORRECTOR
(992 6202 001
(SHEET 2 OF 2)
839 6202 013

8-43/8-44



5. C1 IS A FREQUENCY DETERMINING PART OMIT FROM 700 TO 1750 KHZ
4. Q1, Q2 = U310
3. CR3, CR4 = MV1405
   CR1, CR2 = HP2800
2. CAPACITANCE IN UF
1. RESISTANCE IN OHMS .25W 5%
   UNLESS OTHERWISE NOTED

A6A1 VCO BOARD

FIGURE 8-10. SCHEMATIC
VCO
839 6202 026

A9A1 PWR SUPPLY (992-6086-002) L2

FREQUENCY KHZ FROM	FREQUENCY KHZ TO	IND UH	HARRIS PART NUMBER	QTY	
500	519	68	494 0406 000	1	
520	559	56	494 0405 000	1	
560	629	47	494 0188 000	1	
630	669	39	494 0238 000	1	← old
670	739	33	494 0404 000	1	
740	819	27	494 0403 000	1	
820	889	22	494 0402 000	1	
890	989	18	494 0401 000	1	
990	1089	15	494 0400 000	1	
1090	1199	12	494 0399 000	1	
1200	1329	10	494 0398 000	1	
1330	1469	8.2	494 0397 000	1	
1470	1619	6.8	494 0394 000	1	← new
1620	1689	5.6	494 0393 000	1	
1690	1700	4.7	494 0392 000	1	

A6A1 VCO BOARD (992-6119-001) C1

FREQUENCY KHZ FROM	FREQUENCY KHZ TO	CAPACITOR QTY	CAPACITANCE	HARRIS PART NUMBER
500	699	1	100PF	500-0759-000
700	1700	NONE	NONE	NONE

FIGURE 8-11. STX-1A FREQUENCY DETERMINANT CHART (SHEET 1 OF 2) 817 1278 016

WARNING: Disconnect primary power prior to servicing.

A9A1 PWR SUPPLY BD (992-6086-002) C26

FREQUENCY KHZ FROM	FREQUENCY KHZ TO	CAP PF	HARRIS PART NUMBER	QTY
500	509	270	500 0755 000	1
510	519	250	500 0831 000	1
520	539	240	500 0830 000	1
540	569	220	500 0754 000	1
570	589	200	500 0787 000	1
590	629	180	500 0829 000	1
630	649	160	500 0828 000	1 add
650	689	150	500 0761 000	1
690	719	130	500 0827 000	1
720	759	120	500 0826 000	1
760	789	110	500 0825 000	1
790	829	100	500 0759 000	1
830	869	91	500 0824 000	1
870	919	82	500 0823 000	1
920	949	75	500 0822 000	1
950	999	68	500 0821 000	1
1000	1049	62	500 0820 000	1
1050	1099	56	500 0753 000	1
1100	1139	51	500 0819 000	1
1140	1159	50	500 0818 000	1
1160	1199	47	500 0817 000	1
1200	1259	43	500 0816 000	1
1260	1309	39	500 0815 000	1
1310	1369	36	500 0814 000	1
1370	1429	33	500 0813 000	1
1430	1499	30	500 0812 000	1
1500	1579	27	500 0811 000	1 ← new
1580	1659	24	500 0810 000	1
1660	1700	22	500 0809 000	1

FIGURE 8-11. STX-1A FREQUENCY DETERMINANT CHART (SHEET 2 OF 2) 817 1278 016

888-2174-004
8-49/8-50

WARNING: Disconnect primary power prior to servicing.

APPENDIX A

STX-1A INSTALLATION ADDENDUM

A-1. INTRODUCTION

A-2. This addendum contains instructions for the set up of the HARRIS STX-1A AM STEREO EXCITER. It includes pre-stereo transmitter tune-up, STX-1A transmitter interfacing, and system alignment procedures. All three sections should be read and understood before attempting installation.

SECTION I

TUNING THE TRANSMITTER FOR BEST STEREO PERFORMANCE

1-1. These steps should be taken before connecting the STX:

a. Make sure the transmitter is tuned properly. Measure and record distortion and response at 95% modulation at 100, 400, 1000, 5000, 7500, and 10kHz. Record noise reference to 400Hz at 100% modulation. Record these measurements on day and night patterns.

b. Minimize Incidental Quadrature Modulation (IQM)

1. Connect the AM stereo monitor to the modulation monitor sample from the transmitter. It is best to connect the stereo monitor in parallel with the station's conventional mono AM monitor (an envelope detector).

CAUTION

MAKE SURE THE RF INPUT TO THE STEREO MONITOR IS LESS THAN 20 VOLTS RMS.

2. The input switch on the back of the monitor should be up. With the multimeter switch in the RF IN position, set the RF IN adjustment for mid range indication on the multimeter. The yellow lock light should come on. Place the STEREO/MONO switch in AUTO and the VAR/90° switch in the 90° mode.

3. Monitor the Q channel output with a scope. If a 120Hz signal greater than 60 millivolts is present, additional power supply filtering may be needed. This unwanted PM noise should be reduced by improved filtering of the low voltage supplies to the low level RF stages.

4. Modulate the transmitter with a 400Hz tone to 80% modulation as indicated on a conventional mono AM monitor. The stereo monitor will indicate approximately 40% in left channel and 40% in right channel.

5. Measure the ratio of the I channel to Q channel on a scope. A good ratio would be approximately -35 to -40dB. The transmitter may be tuned to try and increase the ratio. Care should be taken, however, not to detune these circuits to a point that would cause instability or damage to the transmitter. Tuned circuits that can not be easily reset should have their tuning point marked or recorded.

The tuned circuits of the RF driver stage and neutralization of the transmitter may have an effect on this ratio. Refer to Installation Overview in Section II of the AM Stereo Exciter Technical Manual.

A strong attempt should be made to achieve a ratio of -30dB or more for good stereo performance.

$$20 \text{ Log } \frac{\text{Q Volts Peak to Peak}}{\text{I Volts Peak to Peak}} = \text{Ratio in dB}$$

Example:

$$20 \text{ Log } \frac{(1.8 \text{ volts Peak to Peak})}{(30 \text{ millivolts Peak to Peak})} = 35.56 \text{ dB}$$

SECTION II

INTERFACING THE STX-1A TO THE TRANSMITTER

2-1. There are two connections which must be made between the STX-1A and the transmitter: 1) the audio out to the transmitter (AOT terminals) and 2) the RF output. These are both located on the back of the AM STEREO EXCITER.

a. Audio cable should be used to connect the AOT terminals to the normal audio input of the transmitter. No audio processing should be done between the STX-1A and the transmitter.

b. The RF signal will be injected into the RF chain at some low level stage. External drive inputs are available on some transmitters. The signal level at some point in the RF chain should be measured and recorded. The RF output from the AM STEREO EXCITER can then be adjusted to provide the correct level of drive for the transmitter. This RF output level adjustment is located in the lower right corner of the front panel (RF power).

If the transmitter does not have external drive capability, a new RF input point must be created. This can be done by breaking the RF drive between stages to introduce the external RF drive, or by converting the oscillator to a buffer stage to accept external RF from the AM STEREO EXCITER.

The AM STEREO EXCITER is capable of 4 watts of RF output and can be driven into most any load impedance.

CAUTION

CARE SHOULD BE TAKEN NOT TO SHORT OUT
THE RF OUTPUT OF THE AM STEREO EXCITER.

In some cases, it may be necessary to provide more isolation between the AM STEREO EXCITER and the low level RF stages than is provided by a coupling capacitor. In this case, a circuit similar to the figure A-1 may be used.

2-2. Remote control functions and status indicators are also on the terminal strip at the rear of the AM STEREO EXCITER.

a. Control functions require that a jumper be added from the +19V terminal to the control common. Then a ground can be applied to any control function terminal to switch the AM STEREO EXCITER from MONO/STEREO or DAY/NIGHT.

b. Remote status indicators provide a low impedance path to ground (600 ohms) for DC voltages of less than 20V. The remote ready indicator provides this low impedance as long as RF is available at the AM STEREO EXCITER output. This indicator terminal could be used to de-energize the transmitter on a loss of drive from the AM STEREO EXCITER. A relay will be needed to interface this terminal to the transmitter control circuit. The opto-isolator in this circuit is rated at 20 volts and will pass a maximum of 7 milliamps of current.

2-3. The left and right audio inputs are also located at the rear of the AM STEREO EXCITER.

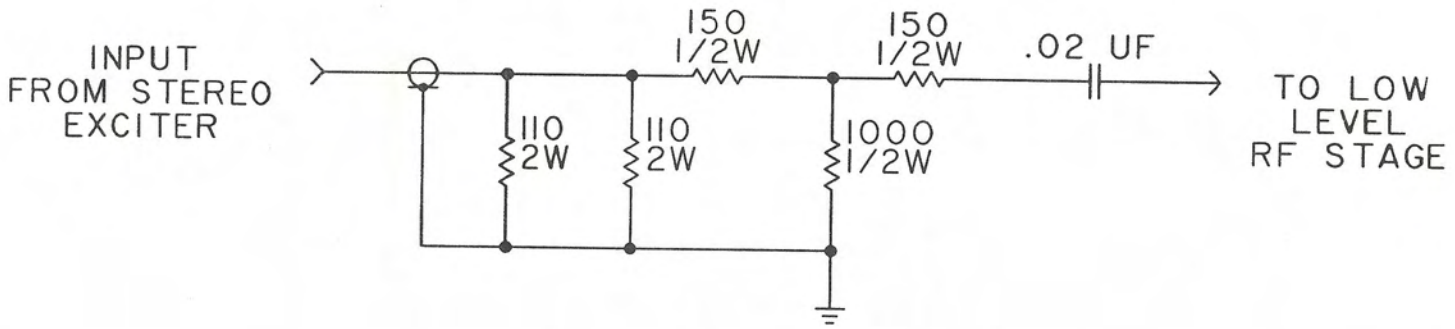


Figure A-1. Isolation Schematic (829 9354 001)

SECTION III

STX-1A SET UP PROCEDURE

3-1. Test Equipment Required:

Dual trace oscilloscope

Audio generator
(Must be low distortion type, capable of 50Hz to 20kHz sinewaves at +10dBm.)

Audio distortion analyzer

3-2. Test Equipment Set Up:

3-3. Refer to figure A-2 for Test Equipment Set Up.

3-4. The transmitter receives both audio and RF information from the STX-1A. The alignment procedure is necessary to assure that the two signals arrive at the correct time amplitude and phase to reconstruct the stereo signal. The antenna should be used rather than a dummy load because of its affect on the time amplitude and phase.

3-5. Connections to the STX-1A will be made on the back panel. Transmitter audio drive will be provided at the AOT+ and AOT terminals (audio output to transmitter). RF drive will be taken from the RF output BNC connector. All of these are labeled on the back panel.

3-6. Audio inputs to the AM STEREO EXCITER are made at the L+ and L- terminals for left channel audio and the R+ and Rterminals for right channel audio. A ground terminal is provided at all audio connections (inputs and outputs) and should be used when possible.

WARNING

ENSURE ALL POWER HAS BEEN REMOVED FROM TRANSMITTER AND AM STEREO EXCITER PRIOR TO PROCEEDING WITH THE FOLLOWING STEPS.

3-7. STEP 1

3-8. Hook up test equipment as shown in figure A-2. Pull out Peak Limiter card (A4) and move jumpers J5 and J6 to their uppermost position. Reinstall Peak Limiter card into AM STEREO EXCITER.

3-9. Turn STX-1A power switch on. Adjust RF power potentiometer R35 (RF power) so that the level out of the AM STEREO EXCITER is matched to the level that would be at the point of injection in the transmitter, under normal (MONO) operation. See TRANSMITTER MODIFICATION INSTRUCTIONS.

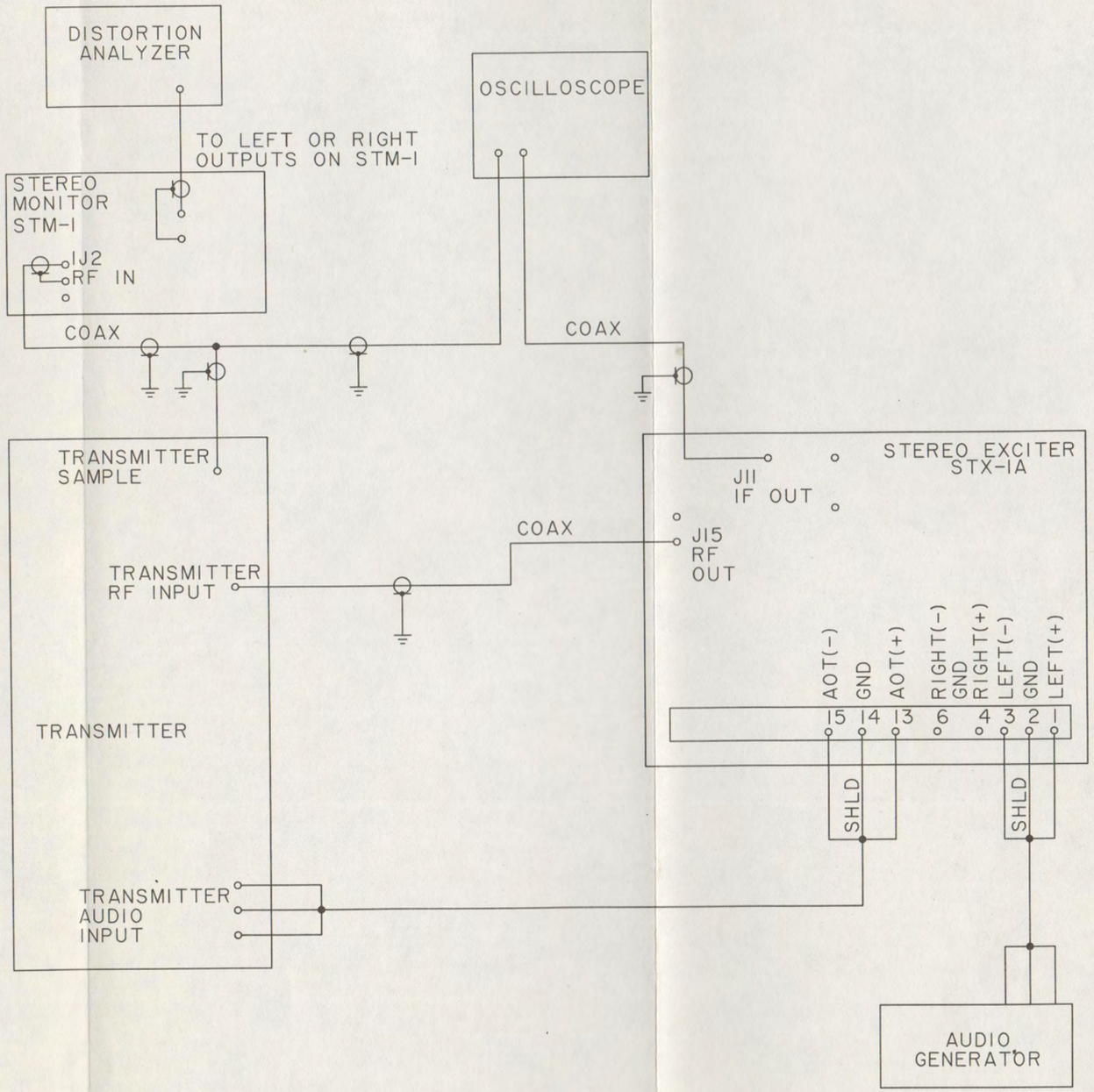


FIGURE A-2. DIAGRAM TEST EQUIPMENT SETUP 839 6494 001

3-10. Set STX-1A front panel DAY/NIGHT switch to desired pattern and the STEREO/MONO switch to MONO. Set A6 potentiometers R54 and R55 full (CW) clockwise and the rest of the potentiometers to mid range. These are 18 turn potentiometers with no mechanical stops.

3-11. SETUP PROCEDURE FOR AUDIO OUTPUT MODULE

3-12. Before the actual AM stereo alignment is performed, the Audio Output module should be pre-adjusted for best square wave response through the transmitter. This is done as follows:

a. Turn off the transmitter. Turn off the STX-1A and remove the Audio Output module.

b. Locate and unplug U4, a CD4053 CMOS multiplexer IC. Temporarily bend pin 14 away from the IC so that when it is plugged back into the socket, pin 14 will go over the side of the socket and will not make contact. Note that U4 is a 16 pin IC.

c. Apply a 1 kHz square wave from a function generator to the junction of R70 and L16 (this is a point which normally connects to U4 pin 14). The source impedance of the function generator should be low (either a voltage source or 50 ohms).

d. Reduce the output of the square wave generator to zero and turn on the transmitter. Observe the transmitter output envelope on an oscilloscope. Increase the output of the square wave until the transmitter is modulated about 50%. If the transmitter will not modulate, the AUDIO OUTPUT LEVEL control (R54 or R55) may be turned all the way down. Adjust the audio output level control for about 50% square wave modulation.

e. Increase the square wave frequency to the 3-5 kHz range. Adjust the HIGH FREQUENCY EQUALIZATION, CROSSOVER, and GROUP DELAY adjustments (R33/R34, R30,R31, and R28/R29) for best square wave response.

f. GROUP DELAY adjustment. Any ringing on the edges of the square wave should be symmetrical in time, distributed equally before and after the edge of the square wave. That is, the preshoot and overshoot of the square wave should be the same. Adjustment of preshoot/overshoot is affected mainly by the GROUP DELAY adjustment (R28/R29).

g. HIGH FREQUENCY EQUALIZATION and CROSSOVER adjustments. These two controls (R33/R34, R30/R31) are adjusted for best square wave appearance. DO NOT ADJUST THE HIGH FREQUENCY EQUALIZATION CONTROL TO MINIMIZE RINGING. If the equalization control is used to reduct the amount of ringing, an excessive high frequency rolloff will be introduced. The HIGH FREQUENCY EQUALIZATION adjustment should be set near the center of its range, providing a compromise between fast square wave risetime (high frequency boost) and less overshoot and ringing.

h. LOW FREQUENCY EQUALIZATION. Reduce the frequency of the square wave to 50 Hz and decrease the oscilloscope sweep time to permit observation of one or two cycles of the 50 Hz modulated envelope. Some "tilt" will probably be noticed in what is supposed to be the straight horizontal portion of the square wave. If the low frequency response of the equalizer/transmitter combination is deficient, the positive modulation portion of the square wave will "droop". If there is a low frequency rise, then the square wave will be tilted upward. Simply adjust R38/R39 for the flattest horizontal square waves, without "tilt".

3-13. This completes the pre-adjustment of the Audio Output module. Remove U4, bend pin 14 back into line with the rest of the pins and reinsert it in its socket, making sure that all of the pins make contact and that none of the pins are bent under the IC body.

3-14. During the remainder of the setup procedure, the HIGH FREQUENCY EQUALIZATION, CROSSOVER, and GROUP DELAY controls should require only slight adjustment. The LOW FREQUENCY EQUALIZATION control should require NO further adjustment.

3-15. STEP 2

3-16. Apply a 1kHz audio signal to the left input of the STX-1A at an amplitude large enough to cause 5 to 10dB of gain reduction as read on the STX-1A multimeter with the function switch in the LIM GR position.

3-17. Turn transmitter on. Adjust the audio level potentiometer (R54 or R55) to match the RF modulation to that of the IF as viewed on an oscilloscope. The display should show close to 100% modulation on both waveforms after the adjustment. The lock indicator should be illuminated on the STM-1 and the RF level should read about 1/2 scale.

3-18. STEP 3

3-19. Set front panel STEREO/MONO switch to STEREO. Turn the pilot off by flipping the top switch (S1) on the Quadrature board (A5) down. Flip the bottom switch (S2) down also.

3-20. Now proper polarity of the audio output of the STX-1A can be checked. Correct and incorrect oscilloscope displays are shown in figure A-3. If the polarity is incorrect, turn the transmitter and STX-1A off and reverse the AOT+ and AOT- leads at the AM STEREO EXCITER terminal board. Turn power back on and recheck for correct display.

3-21. STEP 4

3-22. Turn pilot switch on and see that the stereo lights on the STX-1A and the STM-1 are both illuminated. Some amount of separation should be observed on the STM-1. The audio level potentiometer should be readjusted to maximize this separation reading at 1kHz.

3-23. STEP 5

3-24. Set audio generator to 5kHz and rotate Coarse Delay switch S1 or S2 (S1 for DAY, S2 for NIGHT) for best separation.

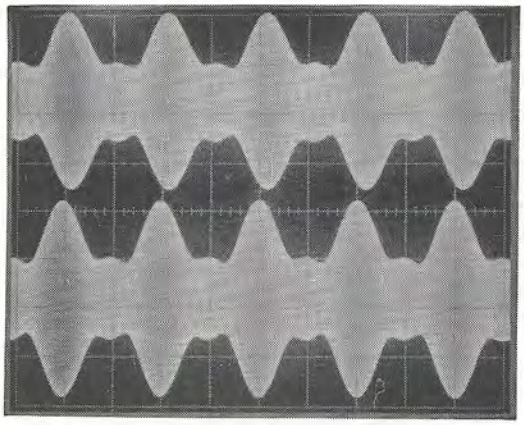
3-25. STEP 6

3-26. Set audio generator to 10kHz and adjust HF tone potentiometer (R33 or R34), group delay potentiometer (R28 or R29), fine delay potentiometer (R8 or R9), and crossover potentiometer (R30 or R31) for maximum separation at 10kHz.

3-27. STEP 7

3-28. Monitor separation and distortion and repeat steps 4, 5, and 6 for best compromise of distortion and separation throughout this band.

Correct Display - RF on top
- IF on bottom



Incorrect Display - RF on top
- IF on bottom

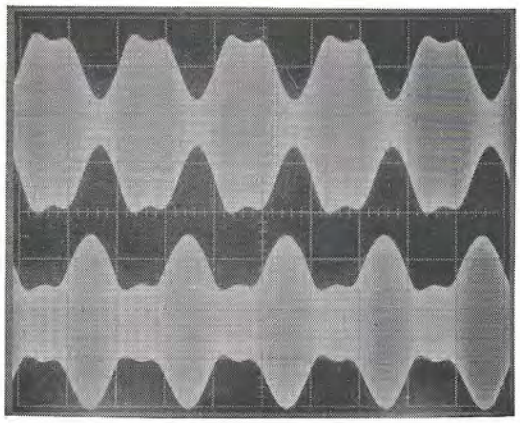


Figure A-3. Correct and Incorrect Displays for STEP 3

3-29. Next, turn off power to transmitter and STX-1A and connect right channel (disconnect left channel audio to STX-1A). Repeat Steps 4, 5, and 6 for best compromise between the left and right channel performance. Only very fine adjustments should be needed.

3-30. STEP 8

3-31. Switch AM STEREO EXCITER to MONO and again adjust audio level potentiometer (R54 or R55) to make sure that RF modulation matches IF modulation. The waveforms should be fairly close at this point and if they are not, then the alignment should be repeated.

3-32. STEP 9 SEPARATION CORRECTION

3-33. If stereo performance (separation) is not acceptable after the above steps have been completed, then turn power to the STX-1A and transmitter off and pull out the Peak Limiter card (A4). Move jumpers J5 and J6 to their lower positions and reinstall Peak Limiter card. Turn power back on.

3-34. Next, the 12 potentiometers at the front of the Peak Limiter card (A4) will be adjusted to improve separation. They are labeled according to whether they will affect day or night pattern, high or low frequencies, or left or right channel. The SB potentiometers should be adjusted at the same frequencies as the HF potentiometers (10kHz). The LF potentiometers should be adjusted around 400Hz.

3-35. The adjustment of these potentiometers should be done as follows:

a. Adjust appropriate HF potentiometer for maximum separation with 10kHz applied to the STX-1A. Adjust appropriate SB potentiometer for maximum separation at this frequency.

b. Adjust appropriate LF potentiometer for maximum separation at 400Hz.

c. Repeat steps a. and b. for best overall performance. Fine tuning of these potentiometers can be done at other frequencies to obtain more uniform results.

d. If stereo performance is not improved by steps a., b. and c. above, turn off power to STX-1A and transmitter and move jumpers J5 and J6 on Peak Limiter card A4 back to their uppermost positions.

APPENDIX B

TEST EQUIPMENT

B-1. INTRODUCTION

B-2. This section contains a list of test equipment required to maintain the HARRIS STX-1A AM STEREO EXCITER.

Dual Trace Oscilloscope	Tektronix 464 or equivalent
Audio Signal Generator and Distortion Analyzer	Soundtek 1710A or equivalent
Digital Volt Meter	Fluke 8020B or equivalent
Frequency Counter	HP 5245L or equivalent
Spectrum Analyzer	Tektronix 7L5 or equivalent

APPENDIX C

SYNTHESIZER SETUP

C-1. INTRODUCTION

C-2. This appendix provides information for setting switches S3 and S4 on the RF Output board of the STX-1A AM STEREO EXCITER. The following example shows how to use the table that follows:

For an RF carrier frequency of 500 Khz and a local oscillator frequency of 756 Khz proceed as follows;

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
500	756	0	0	1	0	1	1	1	1	0	1	0	0

Under first column (RF) locate 500

Immediately to the right of 500 find 756 the LO frequency

The next eight columns to the right (S1 thru S8) give the switch positions for S3 - in this case S1=0 so S3 switch number 1 should be switched to closed position (away from OPEN nomenclature on switch)

S2=0 so S3 switch position number 2 should be switched to closed position

S3=1 so S3 switch position number 3 should be switched to OPEN position

S4=0 so S3 switch position number 4 should be switched to closed position

S5, S6, S7, and S8 = 1 so S3 switch positions number 5, 6, 7, and 8 should be switched to OPEN position

The next four columns (S4 thru S1) give switch positions for S4

S4=0 so S4 switch position 4 should be switched to closed position

S3=1 so S4 switch position 3 should be switched to OPEN position

S2 and S1 = 0 so S4 switch positions 2 and 1 should be switched to closed position

NOTE

C1 on the VCO board (under the metal cover) should be removed for output frequencies above 900 kHz. This allows the VCO to operate in the correct range.

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
500	756	0	0	1	0	1	1	1	1	0	1	0	0
501	757	0	0	1	0	1	1	1	1	0	1	0	1
502	758	0	0	1	0	1	1	1	1	0	1	1	0
503	759	0	0	1	0	1	1	1	1	0	1	1	1
504	760	0	0	1	0	1	1	1	1	0	0	0	0
505	761	0	0	1	0	1	1	1	1	1	0	0	1
506	762	0	0	1	0	1	1	1	1	1	0	1	0
507	763	0	0	1	0	1	1	1	1	1	0	1	1
508	764	0	0	1	0	1	1	1	1	1	1	0	0
509	765	0	0	1	0	1	1	1	1	1	1	0	1
510	766	0	0	1	0	1	1	1	1	1	1	1	0
511	767	0	0	1	0	1	1	1	1	1	1	1	1
512	768	0	0	1	1	0	0	0	0	0	0	0	0
513	769	0	0	1	1	0	0	0	0	0	0	0	1
514	770	0	0	1	1	0	0	0	0	0	0	1	0
515	771	0	0	1	1	0	0	0	0	0	0	1	1
516	772	0	0	1	1	0	0	0	0	0	1	0	0
517	773	0	0	1	1	0	0	0	0	0	1	0	1
518	774	0	0	1	1	0	0	0	0	0	1	1	0
519	775	0	0	1	1	0	0	0	0	0	1	1	1
520	776	0	0	1	1	0	0	0	0	1	0	0	0
521	777	0	0	1	1	0	0	0	0	1	0	0	1
522	778	0	0	1	1	0	0	0	0	1	0	1	0
523	779	0	0	1	1	0	0	0	0	1	0	1	1
524	780	0	0	1	1	0	0	0	0	1	1	0	0
525	781	0	0	1	1	0	0	0	0	1	1	0	1
526	782	0	0	1	1	0	0	0	0	1	1	1	0
527	783	0	0	1	1	0	0	0	0	1	1	1	1
528	784	0	0	1	1	0	0	0	1	0	0	0	0
529	785	0	0	1	1	0	0	0	1	0	0	0	1
530	786	0	0	1	1	0	0	0	1	0	0	1	0
531	787	0	0	1	1	0	0	0	1	0	0	1	1
532	788	0	0	1	1	0	0	0	1	0	1	0	0
533	789	0	0	1	1	0	0	0	1	0	1	0	1
534	790	0	0	1	1	0	0	0	1	0	1	1	0
535	791	0	0	1	1	0	0	0	1	0	1	1	1
536	792	0	0	1	1	0	0	0	1	1	0	0	0
537	793	0	0	1	1	0	0	0	1	1	0	0	1
538	794	0	0	1	1	0	0	0	1	1	0	1	0
539	795	0	0	1	1	0	0	0	1	1	0	1	1
540	796	0	0	1	1	0	0	0	1	1	1	0	0
541	797	0	0	1	1	0	0	0	1	1	1	0	1
542	798	0	0	1	1	0	0	0	1	1	1	1	0
543	799	0	0	1	1	0	0	0	1	1	1	1	1
544	800	0	0	1	1	0	0	1	0	0	0	0	0
545	801	0	0	1	1	0	0	1	0	0	0	0	1
546	802	0	0	1	1	0	0	1	0	0	0	1	0
547	803	0	0	1	1	0	0	1	0	0	0	1	1
548	804	0	0	1	1	0	0	1	0	0	1	0	0
549	805	0	0	1	1	0	0	1	0	0	1	0	1
550	806	0	0	1	1	0	0	1	0	0	1	1	0
551	807	0	0	1	1	0	0	1	0	0	1	1	1
552	808	0	0	1	1	0	0	1	0	1	0	0	0
553	809	0	0	1	1	0	0	1	0	1	0	0	1
554	810	0	0	1	1	0	0	1	0	1	0	1	0
555	811	0	0	1	1	0	0	1	0	1	0	1	1
556	812	0	0	1	1	0	0	1	0	1	1	0	0
557	813	0	0	1	1	0	0	1	0	1	1	0	1
558	814	0	0	1	1	0	0	1	0	1	1	1	0
559	815	0	0	1	1	0	0	1	0	1	1	1	1
560	816	0	0	1	1	0	0	1	1	0	0	0	0
561	817	0	0	1	1	0	0	1	1	0	0	0	1
562	818	0	0	1	1	0	0	1	1	0	0	1	0
563	819	0	0	1	1	0	0	1	1	0	0	1	1
564	820	0	0	1	1	0	0	1	1	0	1	0	0
565	821	0	0	1	1	0	0	1	1	0	1	0	1
566	822	0	0	1	1	0	0	1	1	0	1	1	0
567	823	0	0	1	1	0	0	1	1	0	1	1	1
568	824	0	0	1	1	0	0	1	1	1	0	0	0
569	825	0	0	1	1	0	0	1	1	1	0	0	1
570	826	0	0	1	1	0	0	1	1	1	0	1	0
571	827	0	0	1	1	0	0	1	1	1	0	1	1
572	828	0	0	1	1	0	0	1	1	1	1	0	0
573	829	0	0	1	1	0	0	1	1	1	1	0	1
574	830	0	0	1	1	0	0	1	1	1	1	1	0
575	831	0	0	1	1	0	0	1	1	1	1	1	1
576	832	0	0	1	1	0	1	0	0	0	0	0	0
577	833	0	0	1	1	0	1	0	0	0	0	0	1
578	834	0	0	1	1	0	1	0	0	0	0	1	0
579	835	0	0	1	1	0	1	0	0	0	0	1	1
580	836	0	0	1	1	0	1	0	0	0	1	0	0
581	837	0	0	1	1	0	1	0	0	0	1	0	1
582	838	0	0	1	1	0	1	0	0	0	1	1	0
583	839	0	0	1	1	0	1	0	0	0	1	1	1
584	840	0	0	1	1	0	1	0	0	1	0	0	0
585	841	0	0	1	1	0	1	0	0	1	0	0	1
586	842	0	0	1	1	0	1	0	0	1	0	1	0
587	843	0	0	1	1	0	1	0	0	1	0	1	1
588	844	0	0	1	1	0	1	0	0	1	1	0	0
589	845	0	0	1	1	0	1	0	0	1	1	0	1
590	846	0	0	1	1	0	1	0	0	1	1	1	0
591	847	0	0	1	1	0	1	0	0	1	1	1	1
592	848	0	0	1	1	0	1	0	1	0	0	0	0
593	849	0	0	1	1	0	1	0	1	0	0	0	1
594	850	0	0	1	1	0	1	0	1	0	0	1	0
595	851	0	0	1	1	0	1	0	1	0	0	1	1
596	852	0	0	1	1	0	1	0	1	0	1	0	0
597	853	0	0	1	1	0	1	0	1	0	1	0	1
598	854	0	0	1	1	0	1	0	1	0	1	1	0
599	855	0	0	1	1	0	1	0	1	0	1	1	1

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
600	856	0	0	1	1	0	1	0	1	1	0	0	0
601	857	0	0	1	1	0	1	0	1	1	0	0	1
602	858	0	0	1	1	0	1	0	1	1	0	1	0
603	859	0	0	1	1	0	1	0	1	1	0	1	1
604	860	0	0	1	1	0	1	0	1	1	1	0	0
605	861	0	0	1	1	0	1	0	1	1	1	0	1
606	862	0	0	1	1	0	1	0	1	1	1	1	0
607	863	0	0	1	1	0	1	0	1	1	1	1	1
608	864	0	0	1	1	0	1	1	0	0	0	0	0
609	865	0	0	1	1	0	1	1	0	0	0	0	1
610	866	0	0	1	1	0	1	1	0	0	0	1	0
611	867	0	0	1	1	0	1	1	0	0	0	1	1
612	868	0	0	1	1	0	1	1	0	0	1	0	0
613	869	0	0	1	1	0	1	1	0	0	1	0	1
614	870	0	0	1	1	0	1	1	0	0	1	1	0
615	871	0	0	1	1	0	1	1	0	0	1	1	1
616	872	0	0	1	1	0	1	1	0	1	0	0	0
617	873	0	0	1	1	0	1	1	0	1	0	0	1
618	874	0	0	1	1	0	1	1	0	1	0	1	0
619	875	0	0	1	1	0	1	1	0	1	0	1	1
620	876	0	0	1	1	0	1	1	0	1	1	0	0
621	877	0	0	1	1	0	1	1	0	1	1	0	1
622	878	0	0	1	1	0	1	1	0	1	1	1	0
623	879	0	0	1	1	0	1	1	0	1	1	1	1
624	880	0	0	1	1	0	1	1	1	0	0	0	0
625	881	0	0	1	1	0	1	1	1	0	0	0	1
626	882	0	0	1	1	0	1	1	1	0	0	1	0
627	883	0	0	1	1	0	1	1	1	0	0	1	1
628	884	0	0	1	1	0	1	1	1	0	1	0	0
629	885	0	0	1	1	0	1	1	1	0	1	0	1
630	886	0	0	1	1	0	1	1	1	0	1	1	0
631	887	0	0	1	1	0	1	1	1	0	1	1	1
632	888	0	0	1	1	0	1	1	1	1	0	0	0
633	889	0	0	1	1	0	1	1	1	1	0	0	1
634	890	0	0	1	1	0	1	1	1	1	0	1	0
635	891	0	0	1	1	0	1	1	1	1	0	1	1
636	892	0	0	1	1	0	1	1	1	1	1	0	0
637	893	0	0	1	1	0	1	1	1	1	1	0	1
638	894	0	0	1	1	0	1	1	1	1	1	1	0
639	895	0	0	1	1	0	1	1	1	1	1	1	1
640	896	0	0	1	1	1	0	0	0	0	0	0	0
641	897	0	0	1	1	1	0	0	0	0	0	0	1
642	898	0	0	1	1	1	0	0	0	0	0	1	0
643	899	0	0	1	1	1	0	0	0	0	0	1	1
644	900	0	0	1	1	1	0	0	0	0	1	0	0
645	901	0	0	1	1	1	0	0	0	0	1	0	1
646	902	0	0	1	1	1	0	0	0	0	1	1	0
647	903	0	0	1	1	1	0	0	0	0	1	1	1
648	904	0	0	1	1	1	0	0	0	1	0	0	0
649	905	0	0	1	1	1	0	0	0	1	0	0	1
650	906	0	0	1	1	1	0	0	0	1	0	1	0
651	907	0	0	1	1	1	0	0	0	1	0	1	1
652	908	0	0	1	1	1	0	0	0	1	1	0	0
653	909	0	0	1	1	1	0	0	0	1	1	0	1
654	910	0	0	1	1	1	0	0	0	1	1	1	0
655	911	0	0	1	1	1	0	0	0	1	1	1	1
656	912	0	0	1	1	1	0	0	1	0	0	0	0
657	913	0	0	1	1	1	0	0	1	0	0	0	1
658	914	0	0	1	1	1	0	0	1	0	0	1	0
659	915	0	0	1	1	1	0	0	1	0	0	1	1
660	916	0	0	1	1	1	0	0	1	0	1	0	0
661	917	0	0	1	1	1	0	0	1	0	1	0	1
662	918	0	0	1	1	1	0	0	1	0	1	1	0
663	919	0	0	1	1	1	0	0	1	0	1	1	1
664	920	0	0	1	1	1	0	0	1	1	0	0	0
665	921	0	0	1	1	1	0	0	1	1	0	0	1
666	922	0	0	1	1	1	0	0	1	1	0	1	0
667	923	0	0	1	1	1	0	0	1	1	0	1	1
668	924	0	0	1	1	1	0	0	1	1	1	0	0
669	925	0	0	1	1	1	0	0	1	1	1	0	1
670	926	0	0	1	1	1	0	0	1	1	1	1	0
671	927	0	0	1	1	1	0	0	1	1	1	1	1
672	928	0	0	1	1	1	0	1	0	0	0	0	0
673	929	0	0	1	1	1	0	1	0	0	0	0	1
674	930	0	0	1	1	1	0	1	0	0	0	1	0
675	931	0	0	1	1	1	0	1	0	0	0	1	1
676	932	0	0	1	1	1	0	1	0	0	1	0	0
677	933	0	0	1	1	1	0	1	0	0	1	0	1
678	934	0	0	1	1	1	0	1	0	0	1	1	0
679	935	0	0	1	1	1	0	1	0	0	1	1	1
680	936	0	0	1	1	1	0	1	0	1	0	0	0
681	937	0	0	1	1	1	0	1	0	1	0	0	1
682	938	0	0	1	1	1	0	1	0	1	0	1	0
683	939	0	0	1	1	1	0	1	0	1	0	1	1
684	940	0	0	1	1	1	0	1	0	1	1	0	0
685	941	0	0	1	1	1	0	1	0	1	1	0	1
686	942	0	0	1	1	1	0	1	0	1	1	1	0
687	943	0	0	1	1	1	0	1	0	1	1	1	1
688	944	0	0	1	1	1	0	1	1	0	0	0	0
689	945	0	0	1	1	1	0	1	1	0	0	0	1
690	946	0	0	1	1	1	0	1	1	0	0	1	0
691	947	0	0	1	1	1	0	1	1	0	0	1	1
692	948	0	0	1	1	1	0	1	1	0	1	0	0
693	949	0	0	1	1	1	0	1	1	0	1	0	1
694	950	0	0	1	1	1	0	1	1	0	1	1	0
695	951	0	0	1	1	1	0	1	1	0	1	1	1
696	952	0	0	1	1	1	0	1	1	1	0	0	0
697	953	0	0	1	1	1	0	1	1	1	0	0	1
698	954	0	0	1	1	1	0	1	1	1	0	1	0
699	955	0	0	1	1	1	0	1	1	1	0	1	1

WARNING: Disconnect primary power prior to servicing.

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
700	956	0	0	1	1	1	0	1	1	1	1	0	0
701	957	0	0	1	1	1	0	1	1	1	1	0	1
702	958	0	0	1	1	1	0	1	1	1	1	1	0
703	959	0	0	1	1	1	0	1	1	1	1	1	1
704	960	0	0	1	1	1	1	0	0	0	0	0	0
705	961	0	0	1	1	1	1	0	0	0	0	0	1
706	962	0	0	1	1	1	1	0	0	0	0	1	0
707	963	0	0	1	1	1	1	0	0	0	0	1	1
708	964	0	0	1	1	1	1	0	0	0	1	0	0
709	965	0	0	1	1	1	1	0	0	0	1	0	1
710	966	0	0	1	1	1	1	0	0	0	1	1	0
711	967	0	0	1	1	1	1	0	0	0	1	1	1
712	968	0	0	1	1	1	1	0	0	1	0	0	0
713	969	0	0	1	1	1	1	0	0	1	0	0	1
714	970	0	0	1	1	1	1	0	0	1	0	1	0
715	971	0	0	1	1	1	1	0	0	1	0	1	1
716	972	0	0	1	1	1	1	0	0	1	1	0	0
717	973	0	0	1	1	1	1	0	0	1	1	0	1
718	974	0	0	1	1	1	1	0	0	1	1	1	0
719	975	0	0	1	1	1	1	0	0	1	1	1	1
720	976	0	0	1	1	1	1	0	1	0	0	0	0
721	977	0	0	1	1	1	1	0	1	0	0	0	1
722	978	0	0	1	1	1	1	0	1	0	0	1	0
723	979	0	0	1	1	1	1	0	1	0	0	1	1
724	980	0	0	1	1	1	1	0	1	0	1	0	0
725	981	0	0	1	1	1	1	0	1	0	1	0	1
726	982	0	0	1	1	1	1	0	1	0	1	1	0
727	983	0	0	1	1	1	1	0	1	0	1	1	1
728	984	0	0	1	1	1	1	0	1	1	0	0	0
729	985	0	0	1	1	1	1	0	1	1	0	0	1
730	986	0	0	1	1	1	1	0	1	1	0	1	0
731	987	0	0	1	1	1	1	0	1	1	0	1	1
732	988	0	0	1	1	1	1	0	1	1	1	0	0
733	989	0	0	1	1	1	1	0	1	1	1	0	1
734	990	0	0	1	1	1	1	0	1	1	1	1	0
735	991	0	0	1	1	1	1	0	1	1	1	1	1
736	992	0	0	1	1	1	1	1	0	0	0	0	0
737	993	0	0	1	1	1	1	1	0	0	0	0	1
738	994	0	0	1	1	1	1	1	0	0	0	1	0
739	995	0	0	1	1	1	1	1	0	0	0	1	1
740	996	0	0	1	1	1	1	1	0	0	1	0	0
741	997	0	0	1	1	1	1	1	0	0	1	0	1
742	998	0	0	1	1	1	1	1	0	0	1	1	0
743	999	0	0	1	1	1	1	1	0	0	1	1	1
744	1000	0	0	1	1	1	1	1	0	1	0	0	0
745	1001	0	0	1	1	1	1	1	0	1	0	0	1
746	1002	0	0	1	1	1	1	1	0	1	0	1	0
747	1003	0	0	1	1	1	1	1	0	1	0	1	1
748	1004	0	0	1	1	1	1	1	0	1	1	0	0
749	1005	0	0	1	1	1	1	1	0	1	1	0	1
750	1006	0	0	1	1	1	1	1	0	1	1	1	0
751	1007	0	0	1	1	1	1	1	0	1	1	1	1
752	1008	0	0	1	1	1	1	1	1	0	0	0	0
753	1009	0	0	1	1	1	1	1	1	0	0	0	1
754	1010	0	0	1	1	1	1	1	1	0	0	1	0
755	1011	0	0	1	1	1	1	1	1	0	0	1	1
756	1012	0	0	1	1	1	1	1	1	0	1	0	0
757	1013	0	0	1	1	1	1	1	1	0	1	0	1
758	1014	0	0	1	1	1	1	1	1	0	1	1	0
759	1015	0	0	1	1	1	1	1	1	0	1	1	1
760	1016	0	0	1	1	1	1	1	1	1	0	0	0
761	1017	0	0	1	1	1	1	1	1	1	0	0	1
762	1018	0	0	1	1	1	1	1	1	1	0	1	0
763	1019	0	0	1	1	1	1	1	1	1	0	1	1
764	1020	0	0	1	1	1	1	1	1	1	1	0	0
765	1021	0	0	1	1	1	1	1	1	1	1	0	1
766	1022	0	0	1	1	1	1	1	1	1	1	1	0
767	1023	0	0	1	1	1	1	1	1	1	1	1	1
768	1024	0	1	0	0	0	0	0	0	0	0	0	0
769	1025	0	1	0	0	0	0	0	0	0	0	0	1
770	1026	0	1	0	0	0	0	0	0	0	0	1	0
771	1027	0	1	0	0	0	0	0	0	0	0	1	1
772	1028	0	1	0	0	0	0	0	0	0	1	0	0
773	1029	0	1	0	0	0	0	0	0	0	1	0	1
774	1030	0	1	0	0	0	0	0	0	0	1	1	0
775	1031	0	1	0	0	0	0	0	0	0	1	1	1
776	1032	0	1	0	0	0	0	0	0	1	0	0	0
777	1033	0	1	0	0	0	0	0	0	1	0	0	1
778	1034	0	1	0	0	0	0	0	0	1	0	1	0
779	1035	0	1	0	0	0	0	0	0	1	0	1	1
780	1036	0	1	0	0	0	0	0	0	1	1	0	0
781	1037	0	1	0	0	0	0	0	0	1	1	0	1
782	1038	0	1	0	0	0	0	0	0	1	1	1	0
783	1039	0	1	0	0	0	0	0	0	1	1	1	1
784	1040	0	1	0	0	0	0	0	1	0	0	0	0
785	1041	0	1	0	0	0	0	0	1	0	0	0	1
786	1042	0	1	0	0	0	0	0	1	0	0	1	0
787	1043	0	1	0	0	0	0	0	1	0	0	1	1
788	1044	0	1	0	0	0	0	0	1	0	1	0	0
789	1045	0	1	0	0	0	0	0	1	0	1	0	1
790	1046	0	1	0	0	0	0	0	1	0	1	1	0
791	1047	0	1	0	0	0	0	0	1	0	1	1	1
792	1048	0	1	0	0	0	0	0	1	1	0	0	0
793	1049	0	1	0	0	0	0	0	1	1	0	0	1
794	1050	0	1	0	0	0	0	0	1	1	0	1	0
795	1051	0	1	0	0	0	0	0	1	1	0	1	1
796	1052	0	1	0	0	0	0	0	1	1	1	0	0
797	1053	0	1	0	0	0	0	0	1	1	1	0	1
798	1054	0	1	0	0	0	0	0	1	1	1	1	0
799	1055	0	1	0	0	0	0	0	1	1	1	1	1

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
800	1056	0	1	0	0	0	0	1	0	0	0	0	0
801	1057	0	1	0	0	0	0	1	0	0	0	0	1
802	1058	0	1	0	0	0	0	1	0	0	0	1	0
803	1059	0	1	0	0	0	0	1	0	0	0	1	1
804	1060	0	1	0	0	0	0	1	0	0	1	0	0
805	1061	0	1	0	0	0	0	1	0	0	1	0	1
806	1062	0	1	0	0	0	0	1	0	0	1	1	0
807	1063	0	1	0	0	0	0	1	0	0	1	1	1
808	1064	0	1	0	0	0	0	1	0	1	0	0	0
809	1065	0	1	0	0	0	0	1	0	1	0	0	1
810	1066	0	1	0	0	0	0	1	0	1	0	1	0
811	1067	0	1	0	0	0	0	1	0	1	0	1	1
812	1068	0	1	0	0	0	0	1	0	1	1	0	0
813	1069	0	1	0	0	0	0	1	0	1	1	0	1
814	1070	0	1	0	0	0	0	1	0	1	1	1	0
815	1071	0	1	0	0	0	0	1	0	1	1	1	1
816	1072	0	1	0	0	0	0	1	1	0	0	0	0
817	1073	0	1	0	0	0	0	1	1	0	0	0	1
818	1074	0	1	0	0	0	0	1	1	0	0	1	0
819	1075	0	1	0	0	0	0	1	1	0	0	1	1
820	1076	0	1	0	0	0	0	1	1	0	1	0	0
821	1077	0	1	0	0	0	0	1	1	0	1	0	1
822	1078	0	1	0	0	0	0	1	1	0	1	1	0
823	1079	0	1	0	0	0	0	1	1	0	1	1	1
824	1080	0	1	0	0	0	0	1	1	1	0	0	0
825	1081	0	1	0	0	0	0	1	1	1	0	0	1
826	1082	0	1	0	0	0	0	1	1	1	0	1	0
827	1083	0	1	0	0	0	0	1	1	1	0	1	1
828	1084	0	1	0	0	0	0	1	1	1	1	0	0
829	1085	0	1	0	0	0	0	1	1	1	1	0	1
830	1086	0	1	0	0	0	0	1	1	1	1	1	0
831	1087	0	1	0	0	0	0	1	1	1	1	1	1
832	1088	0	1	0	0	0	1	0	0	0	0	0	0
833	1089	0	1	0	0	0	1	0	0	0	0	0	1
834	1090	0	1	0	0	0	1	0	0	0	0	1	0
835	1091	0	1	0	0	0	1	0	0	0	0	1	1
836	1092	0	1	0	0	0	1	0	0	0	1	0	0
837	1093	0	1	0	0	0	1	0	0	0	1	0	1
838	1094	0	1	0	0	0	1	0	0	0	1	1	0
839	1095	0	1	0	0	0	1	0	0	0	1	1	1
840	1096	0	1	0	0	0	1	0	0	1	0	0	0
841	1097	0	1	0	0	0	1	0	0	1	0	0	1
842	1098	0	1	0	0	0	1	0	0	1	0	1	0
843	1099	0	1	0	0	0	1	0	0	1	0	1	1
844	1100	0	1	0	0	0	1	0	0	1	1	0	0
845	1101	0	1	0	0	0	1	0	0	1	1	0	1
846	1102	0	1	0	0	0	1	0	0	1	1	1	0
847	1103	0	1	0	0	0	1	0	0	1	1	1	1
848	1104	0	1	0	0	0	1	0	1	0	0	0	0
849	1105	0	1	0	0	0	1	0	1	0	0	0	1
850	1106	0	1	0	0	0	1	0	1	0	0	1	0
851	1107	0	1	0	0	0	1	0	1	0	0	1	1
852	1108	0	1	0	0	0	1	0	1	0	1	0	0
853	1109	0	1	0	0	0	1	0	1	0	1	0	1
854	1110	0	1	0	0	0	1	0	1	0	1	1	0
855	1111	0	1	0	0	0	1	0	1	0	1	1	1
856	1112	0	1	0	0	0	1	0	1	1	0	0	0
857	1113	0	1	0	0	0	1	0	1	1	0	0	1
858	1114	0	1	0	0	0	1	0	1	1	0	1	0
859	1115	0	1	0	0	0	1	0	1	1	0	1	1
860	1116	0	1	0	0	0	1	0	1	1	1	0	0
861	1117	0	1	0	0	0	1	0	1	1	1	0	1
862	1118	0	1	0	0	0	1	0	1	1	1	1	0
863	1119	0	1	0	0	0	1	0	1	1	1	1	1
864	1120	0	1	0	0	0	1	1	0	0	0	0	0
865	1121	0	1	0	0	0	1	1	0	0	0	0	1
866	1122	0	1	0	0	0	1	1	0	0	0	1	0
867	1123	0	1	0	0	0	1	1	0	0	0	1	1
868	1124	0	1	0	0	0	1	1	0	0	1	0	0
869	1125	0	1	0	0	0	1	1	0	0	1	0	1
870	1126	0	1	0	0	0	1	1	0	0	1	1	0
871	1127	0	1	0	0	0	1	1	0	0	1	1	1
872	1128	0	1	0	0	0	1	1	0	1	0	0	0
873	1129	0	1	0	0	0	1	1	0	1	0	0	1
874	1130	0	1	0	0	0	1	1	0	1	0	1	0
875	1131	0	1	0	0	0	1	1	0	1	0	1	1
876	1132	0	1	0	0	0	1	1	0	1	1	0	0
877	1133	0	1	0	0	0	1	1	0	1	1	0	1
878	1134	0	1	0	0	0	1	1	0	1	1	1	0
879	1135	0	1	0	0	0	1	1	0	1	1	1	1
880	1136	0	1	0	0	0	1	1	1	0	0	0	0
881	1137	0	1	0	0	0	1	1	1	0	0	0	1
882	1138	0	1	0	0	0	1	1	1	0	0	1	0
883	1139	0	1	0	0	0	1	1	1	0	0	1	1
884	1140	0	1	0	0	0	1	1	1	0	1	0	0
885	1141	0	1	0	0	0	1	1	1	0	1	0	1
886	1142	0	1	0	0	0	1	1	1	0	1	1	0
887	1143	0	1	0	0	0	1	1	1	0	1	1	1
888	1144	0	1	0	0	0	1	1	1	1	0	0	0
889	1145	0	1	0	0	0	1	1	1	1	0	0	1
890	1146	0	1	0	0	0	1	1	1	1	0	1	0
891	1147	0	1	0	0	0	1	1	1	1	0	1	1
892	1148	0	1	0	0	0	1	1	1	1	1	0	0
893	1149	0	1	0	0	0	1	1	1	1	1	0	1
894	1150	0	1	0	0	0	1	1	1	1	1	1	0
895	1151	0	1	0	0	0	1	1	1	1	1	1	1
896	1152	0	1	0	0	1	0	0	0	0	0	0	0
897	1153	0	1	0	0	1	0	0	0	0	0	0	1
898	1154	0	1	0	0	1	0	0	0	0	0	1	0
899	1155	0	1	0	0	1	0	0	0	0	0	1	1

WARNING: Disconnect primary power prior to servicing.

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
900	1156	0	1	0	0	1	0	0	0	0	1	0	0
901	1157	0	1	0	0	1	0	0	0	0	1	0	1
902	1158	0	1	0	0	1	0	0	0	0	1	1	0
903	1159	0	1	0	0	1	0	0	0	0	1	1	1
904	1160	0	1	0	0	1	0	0	0	1	0	0	0
905	1161	0	1	0	0	1	0	0	0	1	0	0	1
906	1162	0	1	0	0	1	0	0	0	1	0	1	0
907	1163	0	1	0	0	1	0	0	0	1	0	1	1
908	1164	0	1	0	0	1	0	0	0	1	1	0	0
909	1165	0	1	0	0	1	0	0	0	1	1	0	1
910	1166	0	1	0	0	1	0	0	0	1	1	1	0
911	1167	0	1	0	0	1	0	0	0	1	1	1	1
912	1168	0	1	0	0	1	0	0	1	0	0	0	0
913	1169	0	1	0	0	1	0	0	1	0	0	0	1
914	1170	0	1	0	0	1	0	0	1	0	0	1	0
915	1171	0	1	0	0	1	0	0	1	0	0	1	1
916	1172	0	1	0	0	1	0	0	1	0	1	0	0
917	1173	0	1	0	0	1	0	0	1	0	1	0	1
918	1174	0	1	0	0	1	0	0	1	0	1	1	0
919	1175	0	1	0	0	1	0	0	1	0	1	1	1
920	1176	0	1	0	0	1	0	0	1	1	0	0	0
921	1177	0	1	0	0	1	0	0	1	1	0	0	1
922	1178	0	1	0	0	1	0	0	1	1	0	1	0
923	1179	0	1	0	0	1	0	0	1	1	0	1	1
924	1180	0	1	0	0	1	0	0	1	1	1	0	0
925	1181	0	1	0	0	1	0	0	1	1	1	0	1
926	1182	0	1	0	0	1	0	0	1	1	1	1	0
927	1183	0	1	0	0	1	0	0	1	1	1	1	1
928	1184	0	1	0	0	1	0	1	0	0	0	0	0
929	1185	0	1	0	0	1	0	1	0	0	0	0	1
930	1186	0	1	0	0	1	0	1	0	0	0	1	0
931	1187	0	1	0	0	1	0	1	0	0	0	1	1
932	1188	0	1	0	0	1	0	1	0	0	1	0	0
933	1189	0	1	0	0	1	0	1	0	0	1	0	1
934	1190	0	1	0	0	1	0	1	0	0	1	1	0
935	1191	0	1	0	0	1	0	1	0	0	1	1	1
936	1192	0	1	0	0	1	0	1	0	1	0	0	0
937	1193	0	1	0	0	1	0	1	0	1	0	0	1
938	1194	0	1	0	0	1	0	1	0	1	0	1	0
939	1195	0	1	0	0	1	0	1	0	1	0	1	1
940	1196	0	1	0	0	1	0	1	0	1	1	0	0
941	1197	0	1	0	0	1	0	1	0	1	1	0	1
942	1198	0	1	0	0	1	0	1	0	1	1	1	0
943	1199	0	1	0	0	1	0	1	0	1	1	1	1
944	1200	0	1	0	0	1	0	1	1	0	0	0	0
945	1201	0	1	0	0	1	0	1	1	0	0	0	1
946	1202	0	1	0	0	1	0	1	1	0	0	1	0
947	1203	0	1	0	0	1	0	1	1	0	0	1	1
948	1204	0	1	0	0	1	0	1	1	0	1	0	0
949	1205	0	1	0	0	1	0	1	1	0	1	0	1
950	1206	0	1	0	0	1	0	1	1	0	1	1	0
951	1207	0	1	0	0	1	0	1	1	0	1	1	1
952	1208	0	1	0	0	1	0	1	1	1	0	0	0
953	1209	0	1	0	0	1	0	1	1	1	0	0	1
954	1210	0	1	0	0	1	0	1	1	1	0	1	0
955	1211	0	1	0	0	1	0	1	1	1	0	1	1
956	1212	0	1	0	0	1	0	1	1	1	1	0	0
957	1213	0	1	0	0	1	0	1	1	1	1	0	1
958	1214	0	1	0	0	1	0	1	1	1	1	1	0
959	1215	0	1	0	0	1	0	1	1	1	1	1	1
960	1216	0	1	0	0	1	1	0	0	0	0	0	0
961	1217	0	1	0	0	1	1	0	0	0	0	0	1
962	1218	0	1	0	0	1	1	0	0	0	0	1	0
963	1219	0	1	0	0	1	1	0	0	0	0	1	1
964	1220	0	1	0	0	1	1	0	0	0	1	0	0
965	1221	0	1	0	0	1	1	0	0	0	1	0	1
966	1222	0	1	0	0	1	1	0	0	0	1	1	0
967	1223	0	1	0	0	1	1	0	0	0	1	1	1
968	1224	0	1	0	0	1	1	0	0	1	0	0	0
969	1225	0	1	0	0	1	1	0	0	1	0	0	1
970	1226	0	1	0	0	1	1	0	0	1	0	1	0
971	1227	0	1	0	0	1	1	0	0	1	0	1	1
972	1228	0	1	0	0	1	1	0	0	1	1	0	0
973	1229	0	1	0	0	1	1	0	0	1	1	0	1
974	1230	0	1	0	0	1	1	0	0	1	1	1	0
975	1231	0	1	0	0	1	1	0	0	1	1	1	1
976	1232	0	1	0	0	1	1	0	1	0	0	0	0
977	1233	0	1	0	0	1	1	0	1	0	0	0	1
978	1234	0	1	0	0	1	1	0	1	0	0	1	0
979	1235	0	1	0	0	1	1	0	1	0	0	1	1
980	1236	0	1	0	0	1	1	0	1	0	1	0	0
981	1237	0	1	0	0	1	1	0	1	0	1	0	1
982	1238	0	1	0	0	1	1	0	1	0	1	1	0
983	1239	0	1	0	0	1	1	0	1	0	1	1	1
984	1240	0	1	0	0	1	1	0	1	1	0	0	0
985	1241	0	1	0	0	1	1	0	1	1	0	0	1
986	1242	0	1	0	0	1	1	0	1	1	0	1	0
987	1243	0	1	0	0	1	1	0	1	1	0	1	1
988	1244	0	1	0	0	1	1	0	1	1	1	0	0
989	1245	0	1	0	0	1	1	0	1	1	1	0	1
990	1246	0	1	0	0	1	1	0	1	1	1	1	0
991	1247	0	1	0	0	1	1	0	1	1	1	1	1
992	1248	0	1	0	0	1	1	1	0	0	0	0	0
993	1249	0	1	0	0	1	1	1	0	0	0	0	1
994	1250	0	1	0	0	1	1	1	0	0	0	1	0
995	1251	0	1	0	0	1	1	1	0	0	0	1	1
996	1252	0	1	0	0	1	1	1	0	0	1	0	0
997	1253	0	1	0	0	1	1	1	0	0	1	0	1
998	1254	0	1	0	0	1	1	1	0	0	1	1	0
999	1255	0	1	0	0	1	1	1	0	0	1	1	1

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
1000	1256	0	1	0	0	1	1	1	0	1	0	0	0
1001	1257	0	1	0	0	1	1	1	0	1	0	0	1
1002	1258	0	1	0	0	1	1	1	0	1	0	1	0
1003	1259	0	1	0	0	1	1	1	0	1	0	1	1
1004	1260	0	1	0	0	1	1	1	0	1	1	0	0
1005	1261	0	1	0	0	1	1	1	0	1	1	0	1
1006	1262	0	1	0	0	1	1	1	0	1	1	1	0
1007	1263	0	1	0	0	1	1	1	0	1	1	1	1
1008	1264	0	1	0	0	1	1	1	1	0	0	0	0
1009	1265	0	1	0	0	1	1	1	1	0	0	0	1
1010	1266	0	1	0	0	1	1	1	1	0	0	1	0
1011	1267	0	1	0	0	1	1	1	1	0	0	1	1
1012	1268	0	1	0	0	1	1	1	1	0	1	0	0
1013	1269	0	1	0	0	1	1	1	1	0	1	0	1
1014	1270	0	1	0	0	1	1	1	1	0	1	1	0
1015	1271	0	1	0	0	1	1	1	1	0	1	1	1
1016	1272	0	1	0	0	1	1	1	1	1	0	0	0
1017	1273	0	1	0	0	1	1	1	1	1	0	0	1
1018	1274	0	1	0	0	1	1	1	1	1	0	1	0
1019	1275	0	1	0	0	1	1	1	1	1	0	1	1
1020	1276	0	1	0	0	1	1	1	1	1	1	0	0
1021	1277	0	1	0	0	1	1	1	1	1	1	0	1
1022	1278	0	1	0	0	1	1	1	1	1	1	1	0
1023	1279	0	1	0	0	1	1	1	1	1	1	1	1
1024	1280	0	1	0	1	0	0	0	0	0	0	0	0
1025	1281	0	1	0	1	0	0	0	0	0	0	0	1
1026	1282	0	1	0	1	0	0	0	0	0	0	1	0
1027	1283	0	1	0	1	0	0	0	0	0	0	1	1
1028	1284	0	1	0	1	0	0	0	0	0	1	0	0
1029	1285	0	1	0	1	0	0	0	0	0	1	0	1
1030	1286	0	1	0	1	0	0	0	0	0	1	1	0
1031	1287	0	1	0	1	0	0	0	0	0	1	1	1
1032	1288	0	1	0	1	0	0	0	0	1	0	0	0
1033	1289	0	1	0	1	0	0	0	0	1	0	0	1
1034	1290	0	1	0	1	0	0	0	0	1	0	1	0
1035	1291	0	1	0	1	0	0	0	0	1	0	1	1
1036	1292	0	1	0	1	0	0	0	0	1	1	0	0
1037	1293	0	1	0	1	0	0	0	0	1	1	0	1
1038	1294	0	1	0	1	0	0	0	0	1	1	1	0
1039	1295	0	1	0	1	0	0	0	0	1	1	1	1
1040	1296	0	1	0	1	0	0	0	1	0	0	0	0
1041	1297	0	1	0	1	0	0	0	1	0	0	0	1
1042	1298	0	1	0	1	0	0	0	1	0	0	1	0
1043	1299	0	1	0	1	0	0	0	1	0	0	1	1
1044	1300	0	1	0	1	0	0	0	1	0	1	0	0
1045	1301	0	1	0	1	0	0	0	1	0	1	0	1
1046	1302	0	1	0	1	0	0	0	1	0	1	1	0
1047	1303	0	1	0	1	0	0	0	1	0	1	1	1
1048	1304	0	1	0	1	0	0	0	1	1	0	0	0
1049	1305	0	1	0	1	0	0	0	1	1	0	0	1
1050	1306	0	1	0	1	0	0	0	1	1	0	1	0
1051	1307	0	1	0	1	0	0	0	1	1	0	1	1
1052	1308	0	1	0	1	0	0	0	1	1	1	0	0
1053	1309	0	1	0	1	0	0	0	1	1	1	0	1
1054	1310	0	1	0	1	0	0	0	1	1	1	1	0
1055	1311	0	1	0	1	0	0	0	1	1	1	1	1
1056	1312	0	1	0	1	0	0	1	0	0	0	0	0
1057	1313	0	1	0	1	0	0	1	0	0	0	0	1
1058	1314	0	1	0	1	0	0	1	0	0	0	1	0
1059	1315	0	1	0	1	0	0	1	0	0	0	1	1
1060	1316	0	1	0	1	0	0	1	0	0	1	0	0
1061	1317	0	1	0	1	0	0	1	0	0	1	0	1
1062	1318	0	1	0	1	0	0	1	0	0	1	1	0
1063	1319	0	1	0	1	0	0	1	0	0	1	1	1
1064	1320	0	1	0	1	0	0	1	0	1	0	0	0
1065	1321	0	1	0	1	0	0	1	0	1	0	0	1
1066	1322	0	1	0	1	0	0	1	0	1	0	1	0
1067	1323	0	1	0	1	0	0	1	0	1	0	1	1
1068	1324	0	1	0	1	0	0	1	0	1	1	0	0
1069	1325	0	1	0	1	0	0	1	0	1	1	0	1
1070	1326	0	1	0	1	0	0	1	0	1	1	1	0
1071	1327	0	1	0	1	0	0	1	0	1	1	1	1
1072	1328	0	1	0	1	0	0	1	1	0	0	0	0
1073	1329	0	1	0	1	0	0	1	1	0	0	0	1
1074	1330	0	1	0	1	0	0	1	1	0	0	1	0
1075	1331	0	1	0	1	0	0	1	1	0	0	1	1
1076	1332	0	1	0	1	0	0	1	1	0	1	0	0
1077	1333	0	1	0	1	0	0	1	1	0	1	0	1
1078	1334	0	1	0	1	0	0	1	1	0	1	1	0
1079	1335	0	1	0	1	0	0	1	1	0	1	1	1
1080	1336	0	1	0	1	0	0	1	1	1	0	0	0
1081	1337	0	1	0	1	0	0	1	1	1	0	0	1
1082	1338	0	1	0	1	0	0	1	1	1	0	1	0
1083	1339	0	1	0	1	0	0	1	1	1	0	1	1
1084	1340	0	1	0	1	0	0	1	1	1	1	0	0
1085	1341	0	1	0	1	0	0	1	1	1	1	0	1
1086	1342	0	1	0	1	0	0	1	1	1	1	1	0
1087	1343	0	1	0	1	0	0	1	1	1	1	1	1
1088	1344	0	1	0	1	0	1	0	0	0	0	0	0
1089	1345	0	1	0	1	0	1	0	0	0	0	0	1
1090	1346	0	1	0	1	0	1	0	0	0	0	1	0
1091	1347	0	1	0	1	0	1	0	0	0	0	1	1
1092	1348	0	1	0	1	0	1	0	0	0	1	0	0
1093	1349	0	1	0	1	0	1	0	0	0	1	0	1
1094	1350	0	1	0	1	0	1	0	0	0	1	1	0
1095	1351	0	1	0	1	0	1	0	0	0	1	1	1
1096	1352	0	1	0	1	0	1	0	0	1	0	0	0
1097	1353	0	1	0	1	0	1	0	0	1	0	0	1
1098	1354	0	1	0	1	0	1	0	0	1	0	1	0
1099	1355	0	1	0	1	0	1	0	0	1	0	1	1

WARNING: Disconnect primary power prior to servicing.

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
1100	1356	0	1	0	1	0	1	0	0	1	1	0	0
1101	1357	0	1	0	1	0	1	0	0	1	1	0	1
1102	1358	0	1	0	1	0	1	0	0	1	1	1	0
1103	1359	0	1	0	1	0	1	0	0	1	1	1	1
1104	1360	0	1	0	1	0	1	0	1	0	0	0	0
1105	1361	0	1	0	1	0	1	0	1	0	0	0	1
1106	1362	0	1	0	1	0	1	0	1	0	0	1	0
1107	1363	0	1	0	1	0	1	0	1	0	0	1	1
1108	1364	0	1	0	1	0	1	0	1	0	1	0	0
1109	1365	0	1	0	1	0	1	0	1	0	1	0	1
1110	1366	0	1	0	1	0	1	0	1	0	1	1	0
1111	1367	0	1	0	1	0	1	0	1	0	1	1	1
1112	1368	0	1	0	1	0	1	0	1	1	0	0	0
1113	1369	0	1	0	1	0	1	0	1	1	0	0	1
1114	1370	0	1	0	1	0	1	0	1	1	0	1	0
1115	1371	0	1	0	1	0	1	0	1	1	0	1	1
1116	1372	0	1	0	1	0	1	0	1	1	1	0	0
1117	1373	0	1	0	1	0	1	0	1	1	1	0	1
1118	1374	0	1	0	1	0	1	0	1	1	1	1	0
1119	1375	0	1	0	1	0	1	0	1	1	1	1	1
1120	1376	0	1	0	1	0	1	1	0	0	0	0	0
1121	1377	0	1	0	1	0	1	1	0	0	0	0	1
1122	1378	0	1	0	1	0	1	1	0	0	0	1	0
1123	1379	0	1	0	1	0	1	1	0	0	0	1	1
1124	1380	0	1	0	1	0	1	1	0	0	1	0	0
1125	1381	0	1	0	1	0	1	1	0	0	1	0	1
1126	1382	0	1	0	1	0	1	1	0	0	1	1	0
1127	1383	0	1	0	1	0	1	1	0	0	1	1	1
1128	1384	0	1	0	1	0	1	1	0	1	0	0	0
1129	1385	0	1	0	1	0	1	1	0	1	0	0	1
1130	1386	0	1	0	1	0	1	1	0	1	0	1	0
1131	1387	0	1	0	1	0	1	1	0	1	0	1	1
1132	1388	0	1	0	1	0	1	1	0	1	1	0	0
1133	1389	0	1	0	1	0	1	1	0	1	1	0	1
1134	1390	0	1	0	1	0	1	1	0	1	1	1	0
1135	1391	0	1	0	1	0	1	1	0	1	1	1	1
1136	1392	0	1	0	1	0	1	1	1	0	0	0	0
1137	1393	0	1	0	1	0	1	1	1	0	0	0	1
1138	1394	0	1	0	1	0	1	1	1	0	0	1	0
1139	1395	0	1	0	1	0	1	1	1	0	0	1	1
1140	1396	0	1	0	1	0	1	1	1	0	1	0	0
1141	1397	0	1	0	1	0	1	1	1	0	1	0	1
1142	1398	0	1	0	1	0	1	1	1	0	1	1	0
1143	1399	0	1	0	1	0	1	1	1	0	1	1	1
1144	1400	0	1	0	1	0	1	1	1	1	0	0	0
1145	1401	0	1	0	1	0	1	1	1	1	0	0	1
1146	1402	0	1	0	1	0	1	1	1	1	0	1	0
1147	1403	0	1	0	1	0	1	1	1	1	0	1	1
1148	1404	0	1	0	1	0	1	1	1	1	1	0	0
1149	1405	0	1	0	1	0	1	1	1	1	1	0	1
1150	1406	0	1	0	1	0	1	1	1	1	1	1	0
1151	1407	0	1	0	1	0	1	1	1	1	1	1	1
1152	1408	0	1	0	1	1	0	0	0	0	0	0	0
1153	1409	0	1	0	1	1	0	0	0	0	0	0	1
1154	1410	0	1	0	1	1	0	0	0	0	0	1	0
1155	1411	0	1	0	1	1	0	0	0	0	0	1	1
1156	1412	0	1	0	1	1	0	0	0	0	1	0	0
1157	1413	0	1	0	1	1	0	0	0	0	1	0	1
1158	1414	0	1	0	1	1	0	0	0	0	1	1	0
1159	1415	0	1	0	1	1	0	0	0	0	1	1	1
1160	1416	0	1	0	1	1	0	0	0	1	0	0	0
1161	1417	0	1	0	1	1	0	0	0	1	0	0	1
1162	1418	0	1	0	1	1	0	0	0	1	0	1	0
1163	1419	0	1	0	1	1	0	0	0	1	0	1	1
1164	1420	0	1	0	1	1	0	0	0	1	1	0	0
1165	1421	0	1	0	1	1	0	0	0	1	1	0	1
1166	1422	0	1	0	1	1	0	0	0	1	1	1	0
1167	1423	0	1	0	1	1	0	0	0	1	1	1	1
1168	1424	0	1	0	1	1	0	0	1	0	0	0	0
1169	1425	0	1	0	1	1	0	0	1	0	0	0	1
1170	1426	0	1	0	1	1	0	0	1	0	0	1	0
1171	1427	0	1	0	1	1	0	0	1	0	0	1	1
1172	1428	0	1	0	1	1	0	0	1	0	1	0	0
1173	1429	0	1	0	1	1	0	0	1	0	1	0	1
1174	1430	0	1	0	1	1	0	0	1	0	1	1	0
1175	1431	0	1	0	1	1	0	0	1	0	1	1	1
1176	1432	0	1	0	1	1	0	0	1	1	0	0	0
1177	1433	0	1	0	1	1	0	0	1	1	0	0	1
1178	1434	0	1	0	1	1	0	0	1	1	0	1	0
1179	1435	0	1	0	1	1	0	0	1	1	0	1	1
1180	1436	0	1	0	1	1	0	0	1	1	1	0	0
1181	1437	0	1	0	1	1	0	0	1	1	1	0	1
1182	1438	0	1	0	1	1	0	0	1	1	1	1	0
1183	1439	0	1	0	1	1	0	0	1	1	1	1	1
1184	1440	0	1	0	1	1	0	1	0	0	0	0	0
1185	1441	0	1	0	1	1	0	1	0	0	0	0	1
1186	1442	0	1	0	1	1	0	1	0	0	0	1	0
1187	1443	0	1	0	1	1	0	1	0	0	0	1	1
1188	1444	0	1	0	1	1	0	1	0	0	1	0	0
1189	1445	0	1	0	1	1	0	1	0	0	1	0	1
1190	1446	0	1	0	1	1	0	1	0	0	1	1	0
1191	1447	0	1	0	1	1	0	1	0	0	1	1	1
1192	1448	0	1	0	1	1	0	1	0	1	0	0	0
1193	1449	0	1	0	1	1	0	1	0	1	0	0	1
1194	1450	0	1	0	1	1	0	1	0	1	0	1	0
1195	1451	0	1	0	1	1	0	1	0	1	0	1	1
1196	1452	0	1	0	1	1	0	1	0	1	1	0	0
1197	1453	0	1	0	1	1	0	1	0	1	1	0	1
1198	1454	0	1	0	1	1	0	1	0	1	1	1	0
1199	1455	0	1	0	1	1	0	1	0	1	1	1	1

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
1200	1456	0	1	0	1	1	0	1	1	0	0	0	0
1201	1457	0	1	0	1	1	0	1	1	0	0	0	1
1202	1458	0	1	0	1	1	0	1	1	0	0	1	0
1203	1459	0	1	0	1	1	0	1	1	0	0	1	1
1204	1460	0	1	0	1	1	0	1	1	0	1	0	0
1205	1461	0	1	0	1	1	0	1	1	0	1	0	1
1206	1462	0	1	0	1	1	0	1	1	0	1	1	0
1207	1463	0	1	0	1	1	0	1	1	0	1	1	1
1208	1464	0	1	0	1	1	0	1	1	1	0	0	0
1209	1465	0	1	0	1	1	0	1	1	1	0	0	1
1210	1466	0	1	0	1	1	0	1	1	1	0	1	0
1211	1467	0	1	0	1	1	0	1	1	1	0	1	1
1212	1468	0	1	0	1	1	0	1	1	1	1	0	0
1213	1469	0	1	0	1	1	0	1	1	1	1	0	1
1214	1470	0	1	0	1	1	0	1	1	1	1	1	0
1215	1471	0	1	0	1	1	0	1	1	1	1	1	1
1216	1472	0	1	0	1	1	1	0	0	0	0	0	0
1217	1473	0	1	0	1	1	1	0	0	0	0	0	1
1218	1474	0	1	0	1	1	1	0	0	0	0	1	0
1219	1475	0	1	0	1	1	1	0	0	0	0	1	1
1220	1476	0	1	0	1	1	1	0	0	0	1	0	0
1221	1477	0	1	0	1	1	1	0	0	0	1	0	1
1222	1478	0	1	0	1	1	1	0	0	0	1	1	0
1223	1479	0	1	0	1	1	1	0	0	0	1	1	1
1224	1480	0	1	0	1	1	1	0	0	1	0	0	0
1225	1481	0	1	0	1	1	1	0	0	1	0	0	1
1226	1482	0	1	0	1	1	1	0	0	1	0	1	0
1227	1483	0	1	0	1	1	1	0	0	1	0	1	1
1228	1484	0	1	0	1	1	1	0	0	1	1	0	0
1229	1485	0	1	0	1	1	1	0	0	1	1	0	1
1230	1486	0	1	0	1	1	1	0	0	1	1	1	0
1231	1487	0	1	0	1	1	1	0	0	1	1	1	1
1232	1488	0	1	0	1	1	1	0	1	0	0	0	0
1233	1489	0	1	0	1	1	1	0	1	0	0	0	1
1234	1490	0	1	0	1	1	1	0	1	0	0	1	0
1235	1491	0	1	0	1	1	1	0	1	0	0	1	1
1236	1492	0	1	0	1	1	1	0	1	0	1	0	0
1237	1493	0	1	0	1	1	1	0	1	0	1	0	1
1238	1494	0	1	0	1	1	1	0	1	0	1	1	0
1239	1495	0	1	0	1	1	1	0	1	0	1	1	1
1240	1496	0	1	0	1	1	1	0	1	1	0	0	0
1241	1497	0	1	0	1	1	1	0	1	1	0	0	1
1242	1498	0	1	0	1	1	1	0	1	1	0	1	0
1243	1499	0	1	0	1	1	1	0	1	1	0	1	1
1244	1500	0	1	0	1	1	1	0	1	1	1	0	0
1245	1501	0	1	0	1	1	1	0	1	1	1	0	1
1246	1502	0	1	0	1	1	1	0	1	1	1	1	0
1247	1503	0	1	0	1	1	1	0	1	1	1	1	1
1248	1504	0	1	0	1	1	1	1	0	0	0	0	0
1249	1505	0	1	0	1	1	1	1	0	0	0	0	1
1250	1506	0	1	0	1	1	1	1	0	0	0	1	0
1251	1507	0	1	0	1	1	1	1	0	0	0	1	1
1252	1508	0	1	0	1	1	1	1	0	0	1	0	0
1253	1509	0	1	0	1	1	1	1	0	0	1	0	1
1254	1510	0	1	0	1	1	1	1	0	0	1	1	0
1255	1511	0	1	0	1	1	1	1	0	0	1	1	1
1256	1512	0	1	0	1	1	1	1	0	1	0	0	0
1257	1513	0	1	0	1	1	1	1	0	1	0	0	1
1258	1514	0	1	0	1	1	1	1	0	1	0	1	0
1259	1515	0	1	0	1	1	1	1	0	1	0	1	1
1260	1516	0	1	0	1	1	1	1	0	1	1	0	0
1261	1517	0	1	0	1	1	1	1	0	1	1	0	1
1262	1518	0	1	0	1	1	1	1	0	1	1	1	0
1263	1519	0	1	0	1	1	1	1	0	1	1	1	1
1264	1520	0	1	0	1	1	1	1	1	0	0	0	0
1265	1521	0	1	0	1	1	1	1	1	0	0	0	1
1266	1522	0	1	0	1	1	1	1	1	0	0	1	0
1267	1523	0	1	0	1	1	1	1	1	0	0	1	1
1268	1524	0	1	0	1	1	1	1	1	0	1	0	0
1269	1525	0	1	0	1	1	1	1	1	0	1	0	1
1270	1526	0	1	0	1	1	1	1	1	0	1	1	0
1271	1527	0	1	0	1	1	1	1	1	0	1	1	1
1272	1528	0	1	0	1	1	1	1	1	1	0	0	0
1273	1529	0	1	0	1	1	1	1	1	1	0	0	1
1274	1530	0	1	0	1	1	1	1	1	1	0	1	0
1275	1531	0	1	0	1	1	1	1	1	1	0	1	1
1276	1532	0	1	0	1	1	1	1	1	1	1	0	0
1277	1533	0	1	0	1	1	1	1	1	1	1	0	1
1278	1534	0	1	0	1	1	1	1	1	1	1	1	0
1279	1535	0	1	0	1	1	1	1	1	1	1	1	1
1280	1536	0	1	1	0	0	0	0	0	0	0	0	0
1281	1537	0	1	1	0	0	0	0	0	0	0	0	1
1282	1538	0	1	1	0	0	0	0	0	0	0	1	0
1283	1539	0	1	1	0	0	0	0	0	0	0	1	1
1284	1540	0	1	1	0	0	0	0	0	0	1	0	0
1285	1541	0	1	1	0	0	0	0	0	0	1	0	1
1286	1542	0	1	1	0	0	0	0	0	0	1	1	0
1287	1543	0	1	1	0	0	0	0	0	0	1	1	1
1288	1544	0	1	1	0	0	0	0	0	1	0	0	0
1289	1545	0	1	1	0	0	0	0	0	1	0	0	1
1290	1546	0	1	1	0	0	0	0	0	1	0	1	0
1291	1547	0	1	1	0	0	0	0	0	1	0	1	1
1292	1548	0	1	1	0	0	0	0	0	1	1	0	0
1293	1549	0	1	1	0	0	0	0	0	1	1	0	1
1294	1550	0	1	1	0	0	0	0	0	1	1	1	0
1295	1551	0	1	1	0	0	0	0	0	1	1	1	1
1296	1552	0	1	1	0	0	0	0	1	0	0	0	0
1297	1553	0	1	1	0	0	0	0	1	0	0	0	1
1298	1554	0	1	1	0	0	0	0	1	0	0	1	0
1299	1555	0	1	1	0	0	0	0	1	0	0	1	1

WARNING: Disconnect primary power prior to servicing.

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
1300	1556	0	1	1	0	0	0	0	1	0	1	0	0
1301	1557	0	1	1	0	0	0	0	1	0	1	0	1
1302	1558	0	1	1	0	0	0	0	1	0	1	1	0
1303	1559	0	1	1	0	0	0	0	1	0	1	1	1
1304	1560	0	1	1	0	0	0	0	1	1	0	0	0
1305	1561	0	1	1	0	0	0	0	1	1	0	0	1
1306	1562	0	1	1	0	0	0	0	1	1	0	1	0
1307	1563	0	1	1	0	0	0	0	1	1	0	1	1
1308	1564	0	1	1	0	0	0	0	1	1	1	0	0
1309	1565	0	1	1	0	0	0	0	1	1	1	0	1
1310	1566	0	1	1	0	0	0	0	1	1	1	1	0
1311	1567	0	1	1	0	0	0	0	1	1	1	1	1
1312	1568	0	1	1	0	0	0	1	0	0	0	0	0
1313	1569	0	1	1	0	0	0	1	0	0	0	0	1
1314	1570	0	1	1	0	0	0	1	0	0	0	1	0
1315	1571	0	1	1	0	0	0	1	0	0	0	1	1
1316	1572	0	1	1	0	0	0	1	0	0	1	0	0
1317	1573	0	1	1	0	0	0	1	0	0	1	0	1
1318	1574	0	1	1	0	0	0	1	0	0	1	1	0
1319	1575	0	1	1	0	0	0	1	0	0	1	1	1
1320	1576	0	1	1	0	0	0	1	0	1	0	0	0
1321	1577	0	1	1	0	0	0	1	0	1	0	0	1
1322	1578	0	1	1	0	0	0	1	0	1	0	1	0
1323	1579	0	1	1	0	0	0	1	0	1	0	1	1
1324	1580	0	1	1	0	0	0	1	0	1	1	0	0
1325	1581	0	1	1	0	0	0	1	0	1	1	0	1
1326	1582	0	1	1	0	0	0	1	0	1	1	1	0
1327	1583	0	1	1	0	0	0	1	0	1	1	1	1
1328	1584	0	1	1	0	0	0	1	1	0	0	0	0
1329	1585	0	1	1	0	0	0	1	1	0	0	0	1
1330	1586	0	1	1	0	0	0	1	1	0	0	1	0
1331	1587	0	1	1	0	0	0	1	1	0	0	1	1
1332	1588	0	1	1	0	0	0	1	1	0	1	0	0
1333	1589	0	1	1	0	0	0	1	1	0	1	0	1
1334	1590	0	1	1	0	0	0	1	1	0	1	1	0
1335	1591	0	1	1	0	0	0	1	1	0	1	1	1
1336	1592	0	1	1	0	0	0	1	1	1	0	0	0
1337	1593	0	1	1	0	0	0	1	1	1	0	0	1
1338	1594	0	1	1	0	0	0	1	1	1	0	1	0
1339	1595	0	1	1	0	0	0	1	1	1	0	1	1
1340	1596	0	1	1	0	0	0	1	1	1	1	0	0
1341	1597	0	1	1	0	0	0	1	1	1	1	0	1
1342	1598	0	1	1	0	0	0	1	1	1	1	1	0
1343	1599	0	1	1	0	0	0	1	1	1	1	1	1
1344	1600	0	1	1	0	0	1	0	0	0	0	0	0
1345	1601	0	1	1	0	0	1	0	0	0	0	0	1
1346	1602	0	1	1	0	0	1	0	0	0	0	1	0
1347	1603	0	1	1	0	0	1	0	0	0	0	1	1
1348	1604	0	1	1	0	0	1	0	0	0	1	0	0
1349	1605	0	1	1	0	0	1	0	0	0	1	0	1
1350	1606	0	1	1	0	0	1	0	0	0	1	1	0
1351	1607	0	1	1	0	0	1	0	0	0	1	1	1
1352	1608	0	1	1	0	0	1	0	0	1	0	0	0
1353	1609	0	1	1	0	0	1	0	0	1	0	0	1
1354	1610	0	1	1	0	0	1	0	0	1	0	1	0
1355	1611	0	1	1	0	0	1	0	0	1	0	1	1
1356	1612	0	1	1	0	0	1	0	0	1	1	0	0
1357	1613	0	1	1	0	0	1	0	0	1	1	0	1
1358	1614	0	1	1	0	0	1	0	0	1	1	1	0
1359	1615	0	1	1	0	0	1	0	0	1	1	1	1
1360	1616	0	1	1	0	0	1	0	1	0	0	0	0
1361	1617	0	1	1	0	0	1	0	1	0	0	0	1
1362	1618	0	1	1	0	0	1	0	1	0	0	1	0
1363	1619	0	1	1	0	0	1	0	1	0	0	1	1
1364	1620	0	1	1	0	0	1	0	1	0	1	0	0
1365	1621	0	1	1	0	0	1	0	1	0	1	0	1
1366	1622	0	1	1	0	0	1	0	1	0	1	1	0
1367	1623	0	1	1	0	0	1	0	1	0	1	1	1
1368	1624	0	1	1	0	0	1	0	1	1	0	0	0
1369	1625	0	1	1	0	0	1	0	1	1	0	0	1
1370	1626	0	1	1	0	0	1	0	1	1	0	1	0
1371	1627	0	1	1	0	0	1	0	1	1	0	1	1
1372	1628	0	1	1	0	0	1	0	1	1	1	0	0
1373	1629	0	1	1	0	0	1	0	1	1	1	0	1
1374	1630	0	1	1	0	0	1	0	1	1	1	1	0
1375	1631	0	1	1	0	0	1	0	1	1	1	1	1
1376	1632	0	1	1	0	0	1	1	0	0	0	0	0
1377	1633	0	1	1	0	0	1	1	0	0	0	0	1
1378	1634	0	1	1	0	0	1	1	0	0	0	1	0
1379	1635	0	1	1	0	0	1	1	0	0	0	1	1
1380	1636	0	1	1	0	0	1	1	0	0	1	0	0
1381	1637	0	1	1	0	0	1	1	0	0	1	0	1
1382	1638	0	1	1	0	0	1	1	0	0	1	1	0
1383	1639	0	1	1	0	0	1	1	0	0	1	1	1
1384	1640	0	1	1	0	0	1	1	0	1	0	0	0
1385	1641	0	1	1	0	0	1	1	0	1	0	0	1
1386	1642	0	1	1	0	0	1	1	0	1	0	1	0
1387	1643	0	1	1	0	0	1	1	0	1	0	1	1
1388	1644	0	1	1	0	0	1	1	0	1	1	0	0
1389	1645	0	1	1	0	0	1	1	0	1	1	0	1
1390	1646	0	1	1	0	0	1	1	0	1	1	1	0
1391	1647	0	1	1	0	0	1	1	0	1	1	1	1
1392	1648	0	1	1	0	0	1	1	1	0	0	0	0
1393	1649	0	1	1	0	0	1	1	1	0	0	0	1
1394	1650	0	1	1	0	0	1	1	1	0	0	1	0
1395	1651	0	1	1	0	0	1	1	1	0	0	1	1
1396	1652	0	1	1	0	0	1	1	1	0	1	0	0
1397	1653	0	1	1	0	0	1	1	1	0	1	0	1
1398	1654	0	1	1	0	0	1	1	1	0	1	1	0
1399	1655	0	1	1	0	0	1	1	1	0	1	1	1

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
1400	1656	0	1	1	0	0	1	1	1	1	0	0	0
1401	1657	0	1	1	0	0	1	1	1	1	0	0	1
1402	1658	0	1	1	0	0	1	1	1	1	0	1	0
1403	1659	0	1	1	0	0	1	1	1	1	0	1	1
1404	1660	0	1	1	0	0	1	1	1	1	1	0	0
1405	1661	0	1	1	0	0	1	1	1	1	1	0	1
1406	1662	0	1	1	0	0	1	1	1	1	1	1	0
1407	1663	0	1	1	0	0	1	1	1	1	1	1	1
1408	1664	0	1	1	0	1	0	0	0	0	0	0	0
1409	1665	0	1	1	0	1	0	0	0	0	0	0	1
1410	1666	0	1	1	0	1	0	0	0	0	0	1	0
1411	1667	0	1	1	0	1	0	0	0	0	0	1	1
1412	1668	0	1	1	0	1	0	0	0	0	1	0	0
1413	1669	0	1	1	0	1	0	0	0	0	1	0	1
1414	1670	0	1	1	0	1	0	0	0	0	1	1	0
1415	1671	0	1	1	0	1	0	0	0	0	1	1	1
1416	1672	0	1	1	0	1	0	0	0	1	0	0	0
1417	1673	0	1	1	0	1	0	0	0	1	0	0	1
1418	1674	0	1	1	0	1	0	0	0	1	0	1	0
1419	1675	0	1	1	0	1	0	0	0	1	0	1	1
1420	1676	0	1	1	0	1	0	0	0	1	1	0	0
1421	1677	0	1	1	0	1	0	0	0	1	1	0	1
1422	1678	0	1	1	0	1	0	0	0	1	1	1	0
1423	1679	0	1	1	0	1	0	0	0	1	1	1	1
1424	1680	0	1	1	0	1	0	0	1	0	0	0	0
1425	1681	0	1	1	0	1	0	0	1	0	0	0	1
1426	1682	0	1	1	0	1	0	0	1	0	0	1	0
1427	1683	0	1	1	0	1	0	0	1	0	0	1	1
1428	1684	0	1	1	0	1	0	0	1	0	1	0	0
1429	1685	0	1	1	0	1	0	0	1	0	1	0	1
1430	1686	0	1	1	0	1	0	0	1	0	1	1	0
1431	1687	0	1	1	0	1	0	0	1	0	1	1	1
1432	1688	0	1	1	0	1	0	0	1	1	0	0	0
1433	1689	0	1	1	0	1	0	0	1	1	0	0	1
1434	1690	0	1	1	0	1	0	0	1	1	0	1	0
1435	1691	0	1	1	0	1	0	0	1	1	0	1	1
1436	1692	0	1	1	0	1	0	0	1	1	1	0	0
1437	1693	0	1	1	0	1	0	0	1	1	1	0	1
1438	1694	0	1	1	0	1	0	0	1	1	1	1	0
1439	1695	0	1	1	0	1	0	0	1	1	1	1	1
1440	1696	0	1	1	0	1	0	1	0	0	0	0	0
1441	1697	0	1	1	0	1	0	1	0	0	0	0	1
1442	1698	0	1	1	0	1	0	1	0	0	0	1	0
1443	1699	0	1	1	0	1	0	1	0	0	0	1	1
1444	1700	0	1	1	0	1	0	1	0	0	1	0	0
1445	1701	0	1	1	0	1	0	1	0	0	1	0	1
1446	1702	0	1	1	0	1	0	1	0	0	1	1	0
1447	1703	0	1	1	0	1	0	1	0	0	1	1	1
1448	1704	0	1	1	0	1	0	1	0	1	0	0	0
1449	1705	0	1	1	0	1	0	1	0	1	0	0	1
1450	1706	0	1	1	0	1	0	1	0	1	0	1	0
1451	1707	0	1	1	0	1	0	1	0	1	0	1	1
1452	1708	0	1	1	0	1	0	1	0	1	1	0	0
1453	1709	0	1	1	0	1	0	1	0	1	1	0	1
1454	1710	0	1	1	0	1	0	1	0	1	1	1	0
1455	1711	0	1	1	0	1	0	1	0	1	1	1	1
1456	1712	0	1	1	0	1	0	1	1	0	0	0	0
1457	1713	0	1	1	0	1	0	1	1	0	0	0	1
1458	1714	0	1	1	0	1	0	1	1	0	0	1	0
1459	1715	0	1	1	0	1	0	1	1	0	0	1	1
1460	1716	0	1	1	0	1	0	1	1	0	1	0	0
1461	1717	0	1	1	0	1	0	1	1	0	1	0	1
1462	1718	0	1	1	0	1	0	1	1	0	1	1	0
1463	1719	0	1	1	0	1	0	1	1	0	1	1	1
1464	1720	0	1	1	0	1	0	1	1	1	0	0	0
1465	1721	0	1	1	0	1	0	1	1	1	0	0	1
1466	1722	0	1	1	0	1	0	1	1	1	0	1	0
1467	1723	0	1	1	0	1	0	1	1	1	0	1	1
1468	1724	0	1	1	0	1	0	1	1	1	1	0	0
1469	1725	0	1	1	0	1	0	1	1	1	1	0	1
1470	1726	0	1	1	0	1	0	1	1	1	1	1	0
1471	1727	0	1	1	0	1	0	1	1	1	1	1	1
1472	1728	0	1	1	0	1	1	0	0	0	0	0	0
1473	1729	0	1	1	0	1	1	0	0	0	0	0	1
1474	1730	0	1	1	0	1	1	0	0	0	0	1	0
1475	1731	0	1	1	0	1	1	0	0	0	0	1	1
1476	1732	0	1	1	0	1	1	0	0	0	1	0	0
1477	1733	0	1	1	0	1	1	0	0	0	1	0	1
1478	1734	0	1	1	0	1	1	0	0	0	1	1	0
1479	1735	0	1	1	0	1	1	0	0	0	1	1	1
1480	1736	0	1	1	0	1	1	0	0	1	0	0	0
1481	1737	0	1	1	0	1	1	0	0	1	0	0	1
1482	1738	0	1	1	0	1	1	0	0	1	0	1	0
1483	1739	0	1	1	0	1	1	0	0	1	0	1	1
1484	1740	0	1	1	0	1	1	0	0	1	1	0	0
1485	1741	0	1	1	0	1	1	0	0	1	1	0	1
1486	1742	0	1	1	0	1	1	0	0	1	1	1	0
1487	1743	0	1	1	0	1	1	0	0	1	1	1	1
1488	1744	0	1	1	0	1	1	0	1	0	0	0	0
1489	1745	0	1	1	0	1	1	0	1	0	0	0	1
1490	1746	0	1	1	0	1	1	0	1	0	0	1	0
1491	1747	0	1	1	0	1	1	0	1	0	0	1	1
1492	1748	0	1	1	0	1	1	0	1	0	1	0	0
1493	1749	0	1	1	0	1	1	0	1	0	1	0	1
1494	1750	0	1	1	0	1	1	0	1	0	1	1	0
1495	1751	0	1	1	0	1	1	0	1	0	1	1	1
1496	1752	0	1	1	0	1	1	0	1	1	0	0	0
1497	1753	0	1	1	0	1	1	0	1	1	0	0	1
1498	1754	0	1	1	0	1	1	0	1	1	0	1	0
1499	1755	0	1	1	0	1	1	0	1	1	0	1	1

WARNING: Disconnect primary power prior to servicing.

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
1500	1756	0	1	1	0	1	1	0	1	1	1	0	0
1501	1757	0	1	1	0	1	1	0	1	1	1	0	1
1502	1758	0	1	1	0	1	1	0	1	1	1	1	0
1503	1759	0	1	1	0	1	1	0	1	1	1	1	1
1504	1760	0	1	1	0	1	1	1	0	0	0	0	0
1505	1761	0	1	1	0	1	1	1	0	0	0	0	1
1506	1762	0	1	1	0	1	1	1	0	0	0	1	0
1507	1763	0	1	1	0	1	1	1	0	0	0	1	1
1508	1764	0	1	1	0	1	1	1	0	0	1	0	0
1509	1765	0	1	1	0	1	1	1	0	0	1	0	1
1510	1766	0	1	1	0	1	1	1	0	0	1	1	0
1511	1767	0	1	1	0	1	1	1	0	0	1	1	1
1512	1768	0	1	1	0	1	1	1	0	1	0	0	0
1513	1769	0	1	1	0	1	1	1	0	1	0	0	1
1514	1770	0	1	1	0	1	1	1	0	1	0	1	0
1515	1771	0	1	1	0	1	1	1	0	1	0	1	1
1516	1772	0	1	1	0	1	1	1	0	1	1	0	0
1517	1773	0	1	1	0	1	1	1	0	1	1	0	1
1518	1774	0	1	1	0	1	1	1	0	1	1	1	0
1519	1775	0	1	1	0	1	1	1	0	1	1	1	1
1520	1776	0	1	1	0	1	1	1	1	0	0	0	0
1521	1777	0	1	1	0	1	1	1	1	0	0	0	1
1522	1778	0	1	1	0	1	1	1	1	0	0	1	0
1523	1779	0	1	1	0	1	1	1	1	0	0	1	1
1524	1780	0	1	1	0	1	1	1	1	0	1	0	0
1525	1781	0	1	1	0	1	1	1	1	0	1	0	1
1526	1782	0	1	1	0	1	1	1	1	0	1	1	0
1527	1783	0	1	1	0	1	1	1	1	0	1	1	1
1528	1784	0	1	1	0	1	1	1	1	1	0	0	0
1529	1785	0	1	1	0	1	1	1	1	1	0	0	1
1530	1786	0	1	1	0	1	1	1	1	1	0	1	0
1531	1787	0	1	1	0	1	1	1	1	1	0	1	1
1532	1788	0	1	1	0	1	1	1	1	1	1	0	0
1533	1789	0	1	1	0	1	1	1	1	1	1	0	1
1534	1790	0	1	1	0	1	1	1	1	1	1	1	0
1535	1791	0	1	1	0	1	1	1	1	1	1	1	1
1536	1792	0	1	1	1	0	0	0	0	0	0	0	0
1537	1793	0	1	1	1	0	0	0	0	0	0	0	1
1538	1794	0	1	1	1	0	0	0	0	0	0	1	0
1539	1795	0	1	1	1	0	0	0	0	0	0	1	1
1540	1796	0	1	1	1	0	0	0	0	0	1	0	0
1541	1797	0	1	1	1	0	0	0	0	0	1	0	1
1542	1798	0	1	1	1	0	0	0	0	0	1	1	0
1543	1799	0	1	1	1	0	0	0	0	0	1	1	1
1544	1800	0	1	1	1	0	0	0	0	1	0	0	0
1545	1801	0	1	1	1	0	0	0	0	1	0	0	1
1546	1802	0	1	1	1	0	0	0	0	1	0	1	0
1547	1803	0	1	1	1	0	0	0	0	1	0	1	1
1548	1804	0	1	1	1	0	0	0	0	1	1	0	0
1549	1805	0	1	1	1	0	0	0	0	1	1	0	1
1550	1806	0	1	1	1	0	0	0	0	1	1	1	0
1551	1807	0	1	1	1	0	0	0	0	1	1	1	1
1552	1808	0	1	1	1	0	0	0	1	0	0	0	0
1553	1809	0	1	1	1	0	0	0	1	0	0	0	1
1554	1810	0	1	1	1	0	0	0	1	0	0	1	0
1555	1811	0	1	1	1	0	0	0	1	0	0	1	1
1556	1812	0	1	1	1	0	0	0	1	0	1	0	0
1557	1813	0	1	1	1	0	0	0	1	0	1	0	1
1558	1814	0	1	1	1	0	0	0	1	0	1	1	0
1559	1815	0	1	1	1	0	0	0	1	0	1	1	1
1560	1816	0	1	1	1	0	0	0	1	1	0	0	0
1561	1817	0	1	1	1	0	0	0	1	1	0	0	1
1562	1818	0	1	1	1	0	0	0	1	1	0	1	0
1563	1819	0	1	1	1	0	0	0	1	1	0	1	1
1564	1820	0	1	1	1	0	0	0	1	1	1	0	0
1565	1821	0	1	1	1	0	0	0	1	1	1	0	1
1566	1822	0	1	1	1	0	0	0	1	1	1	1	0
1567	1823	0	1	1	1	0	0	0	1	1	1	1	1
1568	1824	0	1	1	1	0	0	1	0	0	0	0	0
1569	1825	0	1	1	1	0	0	1	0	0	0	0	1
1570	1826	0	1	1	1	0	0	1	0	0	0	1	0
1571	1827	0	1	1	1	0	0	1	0	0	0	1	1
1572	1828	0	1	1	1	0	0	1	0	0	1	0	0
1573	1829	0	1	1	1	0	0	1	0	0	1	0	1
1574	1830	0	1	1	1	0	0	1	0	0	1	1	0
1575	1831	0	1	1	1	0	0	1	0	0	1	1	1
1576	1832	0	1	1	1	0	0	1	0	1	0	0	0
1577	1833	0	1	1	1	0	0	1	0	1	0	0	1
1578	1834	0	1	1	1	0	0	1	0	1	0	1	0
1579	1835	0	1	1	1	0	0	1	0	1	0	1	1
1580	1836	0	1	1	1	0	0	1	0	1	1	0	0
1581	1837	0	1	1	1	0	0	1	0	1	1	0	1
1582	1838	0	1	1	1	0	0	1	0	1	1	1	0
1583	1839	0	1	1	1	0	0	1	0	1	1	1	1
1584	1840	0	1	1	1	0	0	1	1	0	0	0	0
1585	1841	0	1	1	1	0	0	1	1	0	0	0	1
1586	1842	0	1	1	1	0	0	1	1	0	0	1	0
1587	1843	0	1	1	1	0	0	1	1	0	0	1	1
1588	1844	0	1	1	1	0	0	1	1	0	1	0	0
1589	1845	0	1	1	1	0	0	1	1	0	1	0	1
1590	1846	0	1	1	1	0	0	1	1	0	1	1	0
1591	1847	0	1	1	1	0	0	1	1	0	1	1	1
1592	1848	0	1	1	1	0	0	1	1	1	0	0	0
1593	1849	0	1	1	1	0	0	1	1	1	0	0	1
1594	1850	0	1	1	1	0	0	1	1	1	0	1	0
1595	1851	0	1	1	1	0	0	1	1	1	0	1	1
1596	1852	0	1	1	1	0	0	1	1	1	1	0	0
1597	1853	0	1	1	1	0	0	1	1	1	1	0	1
1598	1854	0	1	1	1	0	0	1	1	1	1	1	0
1599	1855	0	1	1	1	0	0	1	1	1	1	1	1

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
1600	1856	0	1	1	1	0	1	0	0	0	0	0	0
1601	1857	0	1	1	1	0	1	0	0	0	0	0	1
1602	1858	0	1	1	1	0	1	0	0	0	0	1	0
1603	1859	0	1	1	1	0	1	0	0	0	0	1	1
1604	1860	0	1	1	1	0	1	0	0	0	1	0	0
1605	1861	0	1	1	1	0	1	0	0	0	1	0	1
1606	1862	0	1	1	1	0	1	0	0	0	1	1	0
1607	1863	0	1	1	1	0	1	0	0	0	1	1	1
1608	1864	0	1	1	1	0	1	0	0	1	0	0	0
1609	1865	0	1	1	1	0	1	0	0	1	0	0	1
1610	1866	0	1	1	1	0	1	0	0	1	0	1	0
1611	1867	0	1	1	1	0	1	0	0	1	0	1	1
1612	1868	0	1	1	1	0	1	0	0	1	1	0	0
1613	1869	0	1	1	1	0	1	0	0	1	1	0	1
1614	1870	0	1	1	1	0	1	0	0	1	1	1	0
1615	1871	0	1	1	1	0	1	0	0	1	1	1	1
1616	1872	0	1	1	1	0	1	0	1	0	0	0	0
1617	1873	0	1	1	1	0	1	0	1	0	0	0	1
1618	1874	0	1	1	1	0	1	0	1	0	0	1	0
1619	1875	0	1	1	1	0	1	0	1	0	0	1	1
1620	1876	0	1	1	1	0	1	0	1	0	1	0	0
1621	1877	0	1	1	1	0	1	0	1	0	1	0	1
1622	1878	0	1	1	1	0	1	0	1	0	1	1	0
1623	1879	0	1	1	1	0	1	0	1	0	1	1	1
1624	1880	0	1	1	1	0	1	0	1	1	0	0	0
1625	1881	0	1	1	1	0	1	0	1	1	0	0	1
1626	1882	0	1	1	1	0	1	0	1	1	0	1	0
1627	1883	0	1	1	1	0	1	0	1	1	0	1	1
1628	1884	0	1	1	1	0	1	0	1	1	1	0	0
1629	1885	0	1	1	1	0	1	0	1	1	1	0	1
1630	1886	0	1	1	1	0	1	0	1	1	1	1	0
1631	1887	0	1	1	1	0	1	0	1	1	1	1	1
1632	1888	0	1	1	1	0	1	1	0	0	0	0	0
1633	1889	0	1	1	1	0	1	1	0	0	0	0	1
1634	1890	0	1	1	1	0	1	1	0	0	0	1	0
1635	1891	0	1	1	1	0	1	1	0	0	0	1	1
1636	1892	0	1	1	1	0	1	1	0	0	1	0	0
1637	1893	0	1	1	1	0	1	1	0	0	1	0	1
1638	1894	0	1	1	1	0	1	1	0	0	1	1	0
1639	1895	0	1	1	1	0	1	1	0	0	1	1	1
1640	1896	0	1	1	1	0	1	1	0	1	0	0	0
1641	1897	0	1	1	1	0	1	1	0	1	0	0	1
1642	1898	0	1	1	1	0	1	1	0	1	0	1	0
1643	1899	0	1	1	1	0	1	1	0	1	0	1	1
1644	1900	0	1	1	1	0	1	1	0	1	1	0	0
1645	1901	0	1	1	1	0	1	1	0	1	1	0	1
1646	1902	0	1	1	1	0	1	1	0	1	1	1	0
1647	1903	0	1	1	1	0	1	1	0	1	1	1	1
1648	1904	0	1	1	1	0	1	1	1	0	0	0	0
1649	1905	0	1	1	1	0	1	1	1	0	0	0	1
1650	1906	0	1	1	1	0	1	1	1	0	0	1	0
1651	1907	0	1	1	1	0	1	1	1	0	0	1	1
1652	1908	0	1	1	1	0	1	1	1	0	1	0	0
1653	1909	0	1	1	1	0	1	1	1	0	1	0	1
1654	1910	0	1	1	1	0	1	1	1	0	1	1	0
1655	1911	0	1	1	1	0	1	1	1	0	1	1	1
1656	1912	0	1	1	1	0	1	1	1	1	0	0	0
1657	1913	0	1	1	1	0	1	1	1	1	0	0	1
1658	1914	0	1	1	1	0	1	1	1	1	0	1	0
1659	1915	0	1	1	1	0	1	1	1	1	0	1	1
1660	1916	0	1	1	1	0	1	1	1	1	1	0	0
1661	1917	0	1	1	1	0	1	1	1	1	1	0	1
1662	1918	0	1	1	1	0	1	1	1	1	1	1	0
1663	1919	0	1	1	1	0	1	1	1	1	1	1	1
1664	1920	0	1	1	1	1	0	0	0	0	0	0	0
1665	1921	0	1	1	1	1	0	0	0	0	0	0	1
1666	1922	0	1	1	1	1	0	0	0	0	0	1	0
1667	1923	0	1	1	1	1	0	0	0	0	0	1	1
1668	1924	0	1	1	1	1	0	0	0	0	1	0	0
1669	1925	0	1	1	1	1	0	0	0	0	1	0	1
1670	1926	0	1	1	1	1	0	0	0	0	1	1	0
1671	1927	0	1	1	1	1	0	0	0	0	1	1	1
1672	1928	0	1	1	1	1	0	0	0	1	0	0	0
1673	1929	0	1	1	1	1	0	0	0	1	0	0	1
1674	1930	0	1	1	1	1	0	0	0	1	0	1	0
1675	1931	0	1	1	1	1	0	0	0	1	0	1	1
1676	1932	0	1	1	1	1	0	0	0	1	1	0	0
1677	1933	0	1	1	1	1	0	0	0	1	1	0	1
1678	1934	0	1	1	1	1	0	0	0	1	1	1	0
1679	1935	0	1	1	1	1	0	0	0	1	1	1	1
1680	1936	0	1	1	1	1	0	0	1	0	0	0	0
1681	1937	0	1	1	1	1	0	0	1	0	0	0	1
1682	1938	0	1	1	1	1	0	0	1	0	0	1	0
1683	1939	0	1	1	1	1	0	0	1	0	0	1	1
1684	1940	0	1	1	1	1	0	0	1	0	1	0	0
1685	1941	0	1	1	1	1	0	0	1	0	1	0	1
1686	1942	0	1	1	1	1	0	0	1	0	1	1	0
1687	1943	0	1	1	1	1	0	0	1	0	1	1	1
1689	1944	0	1	1	1	1	0	0	1	1	0	0	0
1689	1945	0	1	1	1	1	0	0	1	1	0	0	1
1690	1946	0	1	1	1	1	0	0	1	1	0	1	0
1691	1947	0	1	1	1	1	0	0	1	1	0	1	1
1692	1948	0	1	1	1	1	0	0	1	1	1	0	0
1693	1949	0	1	1	1	1	0	0	1	1	1	0	1
1694	1950	0	1	1	1	1	0	0	1	1	1	1	0
1695	1951	0	1	1	1	1	0	0	1	1	1	1	1
1696	1952	0	1	1	1	1	0	1	0	0	0	0	0
1697	1953	0	1	1	1	1	0	1	0	0	0	0	1
1698	1954	0	1	1	1	1	0	1	0	0	0	1	0
1699	1955	0	1	1	1	1	0	1	0	0	0	1	1

WARNING: Disconnect primary power prior to servicing.

RF	LO	S1	S2	S3	S4	S5	S6	S7	S8	S4	S3	S2	S1
1700	1956	0	1	1	1	1	0	1	0	0	1	0	0
1701	1957	0	1	1	1	1	0	1	0	0	1	0	1
1702	1958	0	1	1	1	1	0	1	0	0	1	1	0
1703	1959	0	1	1	1	1	0	1	0	0	1	1	1
1704	1960	0	1	1	1	1	0	1	0	1	0	0	0
1705	1961	0	1	1	1	1	0	1	0	1	0	0	1
1706	1962	0	1	1	1	1	0	1	0	1	0	1	0
1707	1963	0	1	1	1	1	0	1	0	1	0	1	1
1708	1964	0	1	1	1	1	0	1	0	1	1	0	0
1709	1965	0	1	1	1	1	0	1	0	1	1	0	1
1710	1966	0	1	1	1	1	0	1	0	1	1	1	0
1711	1967	0	1	1	1	1	0	1	0	1	1	1	1
1712	1968	0	1	1	1	1	0	1	1	0	0	0	0
1713	1969	0	1	1	1	1	0	1	1	0	0	0	1
1714	1970	0	1	1	1	1	0	1	1	0	0	1	0
1715	1971	0	1	1	1	1	0	1	1	0	0	1	1
1716	1972	0	1	1	1	1	0	1	1	0	1	0	0
1717	1973	0	1	1	1	1	0	1	1	0	1	0	1
1718	1974	0	1	1	1	1	0	1	1	0	1	1	0
1719	1975	0	1	1	1	1	0	1	1	0	1	1	1
1720	1976	0	1	1	1	1	0	1	1	1	0	0	0
1721	1977	0	1	1	1	1	0	1	1	1	0	0	1
1722	1978	0	1	1	1	1	0	1	1	1	0	1	0
1723	1979	0	1	1	1	1	0	1	1	1	0	1	1
1724	1980	0	1	1	1	1	0	1	1	1	1	0	0
1725	1981	0	1	1	1	1	0	1	1	1	1	0	1
1726	1982	0	1	1	1	1	0	1	1	1	1	1	0
1727	1983	0	1	1	1	1	0	1	1	1	1	1	1
1728	1984	0	1	1	1	1	1	0	0	0	0	0	0
1729	1985	0	1	1	1	1	1	0	0	0	0	0	1
1730	1986	0	1	1	1	1	1	0	0	0	0	1	0
1731	1987	0	1	1	1	1	1	0	0	0	0	1	1
1732	1988	0	1	1	1	1	1	0	0	0	1	0	0
1733	1989	0	1	1	1	1	1	0	0	0	1	0	1
1734	1990	0	1	1	1	1	1	0	0	0	1	1	0
1735	1991	0	1	1	1	1	1	0	0	0	1	1	1
1736	1992	0	1	1	1	1	1	0	0	1	0	0	0
1737	1993	0	1	1	1	1	1	0	0	1	0	0	1
1738	1994	0	1	1	1	1	1	0	0	1	0	1	0
1739	1995	0	1	1	1	1	1	0	0	1	0	1	1
1740	1996	0	1	1	1	1	1	0	0	1	1	0	0
1741	1997	0	1	1	1	1	1	0	0	1	1	0	1
1742	1998	0	1	1	1	1	1	0	0	1	1	1	0
1743	1999	0	1	1	1	1	1	0	0	1	1	1	1
1744	2000	0	1	1	1	1	1	0	1	0	0	0	0
1745	2001	0	1	1	1	1	1	0	1	0	0	0	1
1746	2002	0	1	1	1	1	1	0	1	0	0	1	0
1747	2003	0	1	1	1	1	1	0	1	0	0	1	1
1748	2004	0	1	1	1	1	1	0	1	0	1	0	0
1749	2005	0	1	1	1	1	1	0	1	0	1	0	1
1750	2006	0	1	1	1	1	1	0	1	0	1	1	0

APPENDIX D

MODIFICATIONS FOR MATRIXED AUDIO PROCESSING

D-1. INTRODUCTION

D-2. This section contains instructions for field modification of the STX-1A for matrixed audio processing. These modifications, which bypass input filtering and the matrix in the STX-1A, yield 1 to 2 dB loudness increase.

D-3. MODIFICATIONS

D-4. On the Audio Input module, three wire jumpers are soldered onto the board, and two IC's are unplugged.

D-5. To modify the Audio Input module, unplug U2 and U5 and store them in a safe place (for instance tape them to the PC board). Then solder three wire jumpers to the Audio Input board, connecting the following points:

U1 pin 8 to U2 pin 7

U3 pin 8 to U2 pin 1

U4 pin 14 to U5 pin 1

D-6. These modifications bypass the input highpass/lowpass filtering, the matrix, and the 200 Hz L-R highpass/matching L+R allpass. The highpass/-allpass combination provides pilot (25 Hz) protection.

D-7. Although the system will work without L-R highpass filtering, stereo pilot recognition will be faster and more reliable with the filtering. HARRIS recommends that if the 200 Hz highpass/allpass is removed from the exciter, that a similar filter be incorporated in the audio processing, preferably after average control and before peak control circuitry.

D-8. On the Peak Limiter/Separation Corrector board (second from the left in the STX-1A), a 27 ohm 1/4 watt resistor is added in series with R55, a 2.2 ohm resistor which sets attack time. This will make the attack time of the limiter very slow. The effect is to lengthen the attack time of the compatibility control circuitry, allowing single channel modulation to go all the way to 100% on a short term basis. The Optimod 9100 and similar processors produce frequent 100% single channel modulation levels, even on program material with little L-R content. The modification results in a better match between a matrixed audio processor and the STX-1A, while retaining the compatibility control feature.

D-9. If the transmitter/STX-1A combination has already been set up for AM stereo, then the transmitter does not need to be turned on to make the modifications and adjustments for matrixed audio input. The adjustments may be made by observing the IF output of the exciter, and driving the IF input of the modulation monitor with the IF output from the exciter.

D-10. To set up the modulation level, first place the exciter in MONO. Use an oscilloscope to determine modulation level at the IF. Use program material to set modulation level. The negative peak control should be adjusted for maximum (-100%) negative peaks. Use the oscilloscope to view either the envelope, a trapezoid pattern, or the I channel output from the AM Stereo Modulation Monitor. If using the monitor, remember that there is a 1 volt DC level corresponding to the carrier. With the oscilloscope DC coupled, overmodulation is indicated by a negative output from the I channel. Make sure that the rear panel switch on the monitor is placed in the "IF" position and that there is a cable from the IF OUT port on the exciter to the IF IN connector on the monitor. Set the modulation level to whatever is desired, up to -100%. At this point, the processor should be set for symmetrical operation. If asymmetrical modulation is desired, turn up the positive peak control on the processor. Check the exciter to make sure the positive peaks are increasing and not the negative peaks. Set the three position polarity control switch to the setting (up or down; center is automatic) which gives greatest positive peaks.

D-11. Now that the mono modulation level is where desired, remove the program material and apply a 1 kHz tone to one channel of the processor. Put the exciter in STEREO. Adjust the processor's L-R output level control for maximum separation.

D-12. This completes the procedure. With the modification, the exciter Left channel meter position reads L+R, and the Right channel meter position reads L-R input level.

D-13. Normal stereo program material will produce only very slight movement of the limiter gain reduction meter. Since the attack time of the internal limiter is very long now, and since there are internal clippers on L+R and L-R, be careful not to overdrive the exciter. The negative limit control on the peak limiter should be turned all the way to -100%, and if running asymmetrical L+R, the positive peak control should be set for maximum positive peaks.