UNCLASSIFIED

NAVELEX 0967-385-0020

VOLUME 2 OF 2

TECHNICAL MANUAL

for

RADIO RECEIVING SETS

AN/URR-64 (V) 1

AN/URR-64 (V) 2

AN/URR-64 (V) 3

VOLUME 2

DEPARTMENT OF THE NAVY

NAVAL ELECTRONIC SYSTEMS COMMAND

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Publication: 23 NOVEMBER 1970

LIST OF EFFECTIVE PAGES

VOLUME I NAVELEX 0967-385-0010

PAGE NUMBERS	CHANGE IN EFFECT	PAGE NUMBERS	CHANGE IN EFFECT
Title Page	Original	4-1 to 4-56	Original
ii ti ix	Original	6-1 to 6-109	Original
1-0 to 1-14	Original	i-0 to i- 4	Original
2-1 to 2-26	Original		

VOLUME II NAVELEX 0967-385-0020

PAGE NUMBERS	CHANGE IN EFFECT	PAGE NUMBERS	CHANGE IN EFFECT
ii to ix	Original	5-1 to 5-226	Original

OPERATORS HANDBOOK NAVELEX 0967-385-0030

PAGE NUMBERS	CHANGE IN EFFECT	PAGE NUMBERS	CHANGE IN EFFECT
Title Page	Original	3-1 to 3-14	Original
ii to ix	Original		

THE TECHNICAL MATERIEL CORPORATION
700 FENIMORE ROAD
MAMARONECK, NEW YORK 10543

CONTRACT N00039-66-C-0161

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SECTION 5

MAINTENANCE

5-1. FAILURE, PERFORMANCE AND OPERATIONAL REPORTS.

NOTE

The Naval Electronics System Command no longer requires the submission of failure reports for all equipments. Failure Reports and Performance and Operational Reports are accomplished for designated equipments (refer to Electronics Installation and Maintenance Book (NAVSHIPS 0967-000-0010) only to the extent required by existing directives. All failures shall be reported for those equipments requiring the use of Failure Reports.

5-2. PREVENTIVE MAINTENANCE.

a. MAINTENANCE STANDARDS. - For preventive maintenance standards, test equipment and schedules, refer to the Maintenance Standards Book for Radio Receiving Sets AN/URR-64 Series (NAVELEX 0967-385-0040).

(1) TEST EQUIPMENT AND SPECIAL TOOLS. - Test equipment and tools that are needed are listed in Table 1-5. Test equipment that is needed for each test/alignment will be listed as needed.

(2) SPECIAL JIGS. - There are no special test jigs used in the testing/alignment of this receiver.

5-3. PREALIGNMENT OF RF TUNER TN-512/URR, UNIT 1 AND/OR 5.

a. PREALIGNMENT INSTRUCTIONS. - This procedure is designed to align and adjust the circuits of RF Tuner TN-512/URR. The procedure may be followed sequentially, or individual circuit boards may be adjusted. In the case of individual non-sequential alignments, information is provided as to the other circuit boards which must be aligned and in place. A non inductor alignment tool must be used for all variable indicator alignments. Care should be taken with variable inductors; the slugs are brittle and should not be forced with metal tools. If the unit is bench aligned and not interconnected in a system, the following jacks on the rear apron should be terminated with resistive 50 ohm dummy loads:

J6: 1 mc OUT
J7: 250 kc OUT
J8: IF OUT
J10: IF MON

Stability of internally generated frequencies will depend on the time that power has been applied

b. LIST OF APPLICABLE FIGURES. -

Schematic Wiring Unit 1	Figure 5-4 (3 sheets)
Schematic Wiring, Frequency Readout	Figure 5-9 (2 sheets)

SECTION OR CARD	ASSEMBLY NUMBER	ASSY FIG.	SCHEMATIC FIG.
Power Supply 1A2	A4663	5-21	5-20
RF Amplifier Band 1 1A10A3A1	A4673	5-39	5-38
RF Amplifier Band 2 1A10A3A2	A4674	5-41	5-40
RF Amplifier Band 3 1A10A3A3	A4675	5-43	5-42
RF Amplifier Band 4 1A10A3A4	A4676	5-45	5-44
Input Standard 1A1A1	A4658	5-13	5-12
Phase Detector Driver 1A1A2	A4659	5-15	5-14
Gate Generator and Counting Register 1A1A4	A4661	5-19	5-18
Local Oscillator Offset and Band Divider 1A1A3	A4660	5-17	5-16
Sub-Synthesizer 1A6	A4669	5-27	5-26

SECTION OR CARD	ASSEMBLY NUMBER	ASSY FIG.	SCHEMATIC FIG.
Local Oscillator Divider 1A8	A4671	5-31	5-30
First IF 1A9	A4672	5-33	5-32
Second IF 1A7	A4670	5-29	5-28
Automatic Freq. Control 1A3	A4664	5-23	5-22
Phase Detector 1A5	A4668	5-25	5-24
AC Filter 1A13	A4794	5-37	5-36

c. TEST EQUIPMENT REQUIRED.
VOM: AN/PSM-4C, or equivalent
Signal Generator: HP-606B, or equivalent (2 required)
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
RF VTVM: ME-303/U, or equivalent
AC VTVM: AN/USM-106A, or equivalent

d. INITIAL CONTROL SETTINGS.
(1) TN-512/URR: Unit 1:
(a) POWER: ON
(b) FUNCTION: LOCAL
(c) RF GAIN: FULLY CCW (AGC)
(d) COUNTER MODE: REC
(e) SILENCER: off (down)
(f) BAND SWITCH: 2-4
(g) METER FUNCTION: RF HIGH
(h) INPUT ATTENUATOR: down (out)
(i) TUNE AND FINE TUNE: not significant at this time
(2) Other Units: all controls optional

5-4. POWER SUPPLY (1A2) (A4663) ALIGNMENT PROCEDURES (FIGURES 5-20, 5-21).

a. OTHER BOARDS REQUIRED. - None

NOTE

Under normal circumstances it is expected that ordinarily fixed items such as attenuator 1A11 and rf tuner/oscillator assembly 1A10 will be fixed in place and connected.

b. EQUIPMENT REQUIRED. - VOM: AN/PSM-4C, or equivalent.

c. ALIGNMENT AND ADJUSTMENT.
(1) Turn POWER switch to off position. Place 1A2 power supply card with extender into proper chassis slot.
(2) Turn R4, R13 and R22 maximum CCW.
(3) Turn POWER switch to ON position.
(4) Connect VOM on +50 volt dc range between TP-3 and TP-2. Adjust R8 for +24 volts dc.
(5) Connect VOM on +10 volt dc range from TP-6 to TP-5.
(6) Adjust R17 for +5 volts dc. If +5 volts cannot be obtained, leave R17 at about midrange.
(7) Connect VOM on -50 volt dc range from TP-9 to TP-8.
(8) Adjust R26 for -24 volts dc.
(9) Turn POWER switch to OFF position.
(10) Connect VOM on 10 amp range to TP-3 (+) and TP-2 (-). (Meter switch in +dc position.
(11) Turn POWER switch to ON position.
(12) Adjust R4 for 750 milliamperes.
(13) Turn POWER switch to OFF position.
(14) Connect VOM on 10 amp scale to TP-6 (+) and TP-5 (-). (VOM switch in +dc position.)
(15) Turn POWER switch to ON position. Adjust R13 for 1.5 amperes
(16) Turn POWER switch to OFF position.
(17) Connect VOM on 100 milliampere dc range, meter switch in (-) position, between TP-9 (+) and TP-8 (-). Turn POWER switch to ON position.
(18) Adjust R22 for 65 milliamperes.
(19) Turn POWER switch to OFF position. Remove VOM. Return VOM to +dc position.
(20) Turn POWER switch to ON position. Repeat setsp (3) through (19). All required voltages and currents should now be obtained.
(21) Turn POWER switch to OFF position. Remove VOM.
(22) Place 1A2 power supply card directly into proper chassis slot.

5-5. HF OSCILLATOR (1A10A1) ALIGNMENT PROCEDURES (FIGURE 5-91 (3) DETAIL "A").

NOTE

The hf oscillator should only be aligned if it is necessary to make gain, bandwidth, or tracking.

a. OTHER BOARDS REQUIRED. - 1A8, 1A2, and complete 1A1.

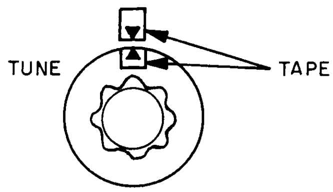
b. EQUIPMENT REQUIRED. - VTVM: ME-303/U, or equivalent.

c. ALIGNMENT AND ADJUSTMENT.
(1) Remove the top and bottom covers from the TN-512/URR, and place the 1A8 card into extender card and plug into the proper chassis slot.
(2) Set the following controls:
FUNCTION switch to LOCAL
COUNTER MODE switch to HIGH
POWER switch to ON
FINE TUNE control to mid-range

(3) With ME-303/U measure the dc voltage at C5. It should be +24 vdc.

(4) Rotate the TUNE control CCW until the rf assembly stops moving to the rear and the clutch slips.

(5) Attach a piece of tape to the front panel above the TUNE control and mark the tape with a calibration line. Attach a second piece of tape on the TUNE control and mark it with a calibration line as shown in the sketch below.



CAUTION

This arrangement will be termed: "zero turns". Do not, at any point in the alignment, rotate the TUNE control CCW below zero turns or CW above 60 turns.

(6) Connect a cable from COUNTER MODE INPUT jack to TP-1, 1A8 to allow the counter to read the hf oscillator frequency directly.

(7) Rotate the TUNE control CW exactly 5 turns, and adjust C9 for a counter reading of 21.000 mc.

(8) Rotate the TUNE control CW to 58 turns (53 above the 5 turns), and carefully adjust L2 for a counter reading of 38.500 mc.

CAUTION

L2 slug may be damaged if tuned carelessly.

(9) Repeat steps (7) and (8) until the frequencies at 5 turns and 58 turns are approximately 21.000 mc and 38.500 mc respectively.

(10) Connect ME-303/U (AC scale) to TP-1, 1A8.

(11) Rotate the TUNE control in five turn increments from 5 to 58 turns, and note the frequency and voltage at each five turn increment. The noted frequency readings should be within the ranges shown on the following chart. The noted voltage readings should fall within .25 to 1.0 vrms. The voltage readings shown on the following chart are typical measurements.

TURNS	LOW	DESIRED FREQ. MC	HIGH	VOLTS RMS
5	20.9	21.00	21.10	0.70
10	21.82	21.92	22.02	0.65
15	22.68	22.78	22.88	0.62
20	23.87	23.97	24.07	0.60
25	25.23	25.33	25.43	0.58
30	26.80	26.90	27.00	0.56
35	28.50	28.60	28.70	0.52
40	30.42	30.52	30.62	0.47
45	32.60	32.70	32.80	0.44
50	34.82	34.92	35.02	0.42
55	37.10	37.20	37.30	0.37
58	38.37	38.47	38.57	0.35

(12) If the frequency noted in step (11) is high, adjust the main oscillator core slightly into the coil and repeat steps (8) through (11). If the frequency noted in step (11) is low, adjust the main oscillator core slightly out of the coil and repeat steps (8) through (11).

(13) Repeat step (12) until all frequencies fall within the range specified in step (11).

(14) Secure main core by applying a suitable sealing compound (Glyptol Enamel) to the point at which the core enters the tuning block.

(15) Remove test equipment. Replace covers on 1A8 card and replace the card directly into its proper chassis slot.

5-6. RF TUNER (1A10A3) ALIGNMENT PROCEDURES (FIGURES 5-35A AND B, 5-38 THRU 5-45).

NOTE

The rf amplifier should only be aligned if it is necessary to make gain, bandwidth, or tracking. The rf section must have a minimum voltage gain of 30.0 db during all alignment, tracking and bandpass tests and adjustments. It is necessary that the HF oscillator alignment be checked and completed prior to the alignment of the rf tuner section. RF output voltage from RF P/C cards must be below 200 millivolts, add attenuation as necessary.

a. OTHER BOARDS REQUIRED.—1A2, 1A8 and complete 1A1.

b. EQUIPMENT REQUIRED.

Frequency Counter: AN/USM-207, or equivalent.
Signal Generator: HP-606B, or equivalent
VTVM: Millivac model 28B, or equivalent.
50 ohm step attenuator.

c. ALIGNMENT AND ADJUSTMENT.

(1) On the TN-512/URR, set the following controls:

POWER: ON
BAND: 16-32 (#4)
FUNCTION: LOCAL
COUNTER MODE: REC
INPUT ATTENUATOR: down (out)
METER FUNCTION: RF HIGH
RF GAIN: fully CW

(2) Adjust the TUNE control for a tuner readout indication of 16.0000 mc.

NOTE

Remove 1A8 circuit board for measuring rf output voltage. Connect a TEE connector to the signal generator output. To one arm connect the step attenuator. From the output of the step attenuator connect a cable to 1J1, the antenna input jack on the rear apron of the tuner. To the other arm of the signal generator TEE, connect the external frequency counter. The external frequency counter should be connected ONLY when the generator frequency is to be measured. It should be removed at all other times. Failure to remove the counter will result in erroneous gain measurements.

(3) Insert 40 db attenuation on the step attenuator.

(4) Set the signal generator to 16.000 mc, at 100 millivolt output.

(5) Disconnect the antenna connector at the rear apron of the tuner. To this cable connect a TEE connector, one arm of which the rf signal will be measured with the Millivac model 28B VTVM. Adjust the signal generator attenuator for a VTVM reading of 1 millivolt. Reconnect the signal generator to antenna connector at rear apron of the tuner.

NOTE

Whenever this procedure calls for a measurement of the rf input signal, use the method described in steps (2) through (5).

(6) Connect the VTVM to the RF OUTPUT terminals of rf band #4, tuner board (1A10A3A4). Use the adjacent ground. For VTVM readings throughout this procedure, do not use the iridited drawer housing as ground. Remove 1A8 for an accurate voltage reading. Adjust the four trimmer capacitors C1, C6, C12, C24 (input to output) for maximum VTVM indication.

CAUTION

If necessary, decrease signal generator output to keep rf output below 200 mvrms (46 db).

(7) Adjust the TUNE control for a front panel readout indication of 32.0000 mc. Set the signal generator to 32.0000 mc, at 100 mv. The step attenuator should have 40 db inserted. Insure that the input signal to antenna jack 1J1 is 1 millivolt.

(8) Check the rf output voltage on the card, if a gain of 30.0 db is indicated (1.0 millivolt in and 32.0 millivolts or more out) the above tuning is all that is necessary. If 30 db is not realized, tune L1, L2, L4 and L7 for maximum rf voltage and repeat steps (6) and (7) until no further peaking is realized. Check the gain every 2 mc from 16 mc to 32 mc. It may be necessary to repeat steps (6) and (7) until a 30 db gain is realized.

(9) ACTUAL TUNED TRACKING CHECK.

(a) Adjust the TUNE control for 16.0000 mc on the tuner readout.

(b) Set the signal generator for 16.0000 mc, at 1 millivolt input to 1J1.

(c) Record the VTVM reading. The reading must be a minimum of 32.0 millivolts. Carefully adjust the TUNE control for a peak on the VTVM. Record the front panel readout indicators corresponding to this peak. Keep output below 200 millivolts.

(d) Repeat steps (a), (b) and (c) at 18, 20, 22, 24, 26, 28, 30, and 32 mc.

(e) The deviation between the signal generator frequencies and the frequencies corresponding to the actual peaks found with the TUNE control must be within ±1%. At 16 mc the allowable deviation is ±160 kc.

(10) BANDPASS TEST.

(a) Adjust the TUNE control for a reading of 16.0000 mc on the tuner readout.

(b) Set the signal generator for 16.0000 mc, with 1 millivolt input at 1J1. Carefully vary the TUNE control above and below 16.0000 mc and record the readout frequencies at which the output falls to -3 db from 16 mc. The bandwidth must be at least ±8 kc; the actual bandwidth will normally be much higher.

(c) Repeat steps (a) and (b) at 18, 20, 22, 24, 26, 28, 30 and 32 mc.

(d) Repeat alignment procedures for bands #3 1A10A3A3, #2 1A10A3A2 and #1 1A10A3A1, using the appropriate signal generator and tuner readout indications and the corresponding capacitor and inductor on the appropriate PC Boards. On bands 3 and 2, the tracking, gain and bandwidth should be measured and recorded in increments of 1 mc. On band 1, these measurements should be recorded in 500 kc increments.

(e) If steps 9 and 10 are accomplished, no further tracking adjustments are necessary. Remove test equipment, and proceed to step (12) (e). If steps (9) and (10) have not been accomplished, tracking adjustments are necessary. Leave test equipment connected and proceed to step (11).

(11) TRACKING ADJUSTMENTS (REFERENCED TO BAND 4, 1A10A3A4).

(a) Adjust TUNE control for a frequency of 15.850 mc.

(b) Set signal generator for 16.000 mc. Adjust the signal generator output and step attenuator for a level of 1 mv into 1J1.

(c) Adjust C1, C6, C12, and C24 for maximum, beginning at the output stage (30 db gain required).

(d) Adjust the TUNE control for a frequency of 20.200 mc.

(e) Set signal generator for 20.000 mc. Adjust the signal generator output and step attenuator for a level of 1 mv into 1J1.

(f) Adjust the TUNE control for a peak indication at the output. The frequency should be between 20.000 mc and 20.200 mc. If the frequency is below this range, move each main rf slug (1A10A3L10, 11 and 12) slightly into the coil. If the frequency is above this range, move each slug slightly out of the coil.

(g) Repeat steps (a) through (f) until the deviation between the frequency at which the tuner peaks and the frequency of the signal generator meets the criteria outlined in those steps. As close a tolerance as possible should be maintained to achieve the proper gain. (30 db)

(h) Adjust the TUNE control to a frequency of 32.300 mc.

(i) Adjust the signal generator to 32.000 mc. Adjust the signal generator output and step attenuator for a level of 1 mv into 1J1.

(j) Peak the inductors (1A10A3A4L1, 2, 4 and 7) from input to output at least twice.

(k) Adjust the TUNE control for peak indication at the output. The frequency should be between 32.000 mc and 32.300 mc. If it is not, repeat tracking adjustments until this criteria is met, (steps (a) through (j)).

(12) TRACKING CHECK AFTER COMPLETE ALIGNMENT.

(a) Return TUNE control to 15.850 mc.

(b) Set signal generator for 16.000 mc. Adjust signal generator output and step attenuator for 1 mv into 1J1.

(c) Peak TUNE control for maximum and note deviation. It should be within ±1% of the desired frequency, 16.000 mc.

(d) Repeat steps (a) through (c) in 2 mc increments from 16.000 to 32.000 mc. When all frequencies meet the criteria of ±1%, tracking is complete for band 4.

(e) For bands 1 1A10A3A1, 2 1A10A3A2 and 3 1A10A3A3, the same procedure applies using the corresponding capacitors and inductors. The following frequencies should be used.

	BAND 3	BAND 2	BAND 1
TUNE Control	7.925 mc	3.970 mc	1.985 mc
Signal Generator	8.000 mc	4.000 mc	2.000 mc
TUNE Control	12.120 mc	5.050 mc	2.525 mc
Signal Generator	12.000 mc	5.000 mc	2.500 mc
TUNE Control	16.160 mc	8.080 mc	4.040 mc
Signal Generator	16.000 mc	8.000 mc	4.000 mc

A gain of 30 db must be realized at all frequencies. If this gain is less than 30 db during tracking alignment and bandpass tests, the gain test (steps (1) through (8) should be repeated.

(13) INPUT FILTER SWITCHING (1A10A4S3).

(a) With the tuner in the 16-32 band position, adjust TUNE control for a front panel readout of 26.6 mc. Note the distance the tuning block must travel to actuate the input filter micro-switch.

(b) Adjust TUNE control until an audible click is heard from the first microswitch. The first microswitch is located toward the front of the unit, the second microswitch is located in the middle and the third microswitch is located towards the rear.

(c) Note the frequency at which the click is heard. If properly adjusted, S1 should actuate at 26.6 mc ±400 kc when the TUNE control is tuned clockwise. S2 is to be set to actuate at 22.2 mc ±400 kc and S3 is to be set to actuate at 18.6 mc ±375 kc.

(d) If the frequency is not within the ranges specified in step (c), the metal block located beneath the respective switches should be adjusted by loosening the screw holding it to the block, and moving it so as to allow it to actuate the microswitch within these limits.

(14) BAND LIMIT SWITCH ADJUSTMENT (FIGURE 5-4).

(a) To adjust the limit switching, turn the TUNE control to the upper limits of band 1 (above 4.00 mc). When the audible click of the micro-switch is heard, (if the audible click cannot be heard, a difference of dc potential can be noted on card 4A9 to denote the point at which the microswitch activates; pin 20, low end and pin 18, high end) note the frequency. The frequency should be between 4.140 mc and 4.225 mc.

(b) If the frequency is not between the limits specified in step (a), bend the actuator spring with pliers in the appropriate direction until the microswitch energizes within the range.

CAUTION

The bending of the spring actuator must be accomplished in a very careful manner, as the springs are brittle and may snap if too much pressure is exerted.

(c) Turn the TUNE control to the lower limits of the band (below 2.00 mc). Adjust the other actuator spring to energize the microswitch between 1.8950 mc and 1.935 mc as read on the front panel.

(d) If it is impossible to accomplish the rf tuner alignment as outlined, within reasonable limits, the entire rf assembly must be returned to the factory for repair, overhaul and adjustment.

5-7. COUNTER INPUT STANDARD (1A1A1) (A4658) ALIGNMENT PROCEDURES (FIGURES 5-12, 5-13).

a. OTHER BOARDS REQUIRED.—1A2.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent.
Signal Generator: HP-606B, or equivalent.
Oscilloscope: AN/USM-281A, or equivalent.
Frequency Counter: AN/USM-207, or equivalent.
50 ohm resistor dummy load (BNC).

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to OFF position. Insert the 1A1A1 card into the A4A3 extender card and insert into the proper chassis slot.

(2) Set COUNTER MODE switch to REC, FUNCTION switch to LOCAL, and BAND SWITCH to 2-4 mc.

(3) Turn POWER switch to ON position.

(4) Use VOM to check the following dc voltages:

TP-6:	+5 volts dc
Pin 2:	+5 volts dc
Pin 26:	+24 volts dc

(5) Connect scope and counter to TP-4. A 1 mc sine wave at 4 to 6 volts p-p should be displayed.

(6) Connect scope and counter to pin 17, 1A1A1. Turn POWER switch to OFF position. (Unless otherwise specified, counter means external counter in this procedure.)

(7) Remove 1A8 card. Place A4A1 empty extender card in 1A8 socket. Connect a TEE connector to the rf output jack of the signal generator. Terminate one arm with a 50 ohm resistive load. With coax cable, connect the other arm of the TEE to pin 2 of the 1A4A1 extender, with ground lead to pin 1. Set the signal generator to 21 mc, 500 millivolts. Turn POWER switch to ON position.

(8) Adjust the signal generator until the external counter indicates 21.0000 mc at pin 17, 1A1A1.

(9) Connect scope and counter to TP-2. A 21.0000 mc signal, 2.8 to 4.2 volts p-p, should be observed.

(10) Connect scope and counter to TP-3. A 1.0500 mc signal, 3 to 4 volts p-p, should be observed.

(11) Disconnect the scope, counter and signal generator. Disconnect the 50 ohm termination at the signal generator.

(12) Connect the signal generator to the COUNTER input jack on front panel of TN-512/URR. Set signal generator for 100 kc, 250 millivolts.

(13) Place COUNTER MODE switch in HIGH position.

(14) Connect scope and counter to TP-1. Tune signal generator until the signal at TP-1 is exactly 100 kc. The amplitude will be about 5 volts p-p.

(15) Connect scope and counter to TP-2. A 100 kc signal, 2.8 to 4.2 volts p-p, should be displayed.

(16) Connect scope and counter to TP-3. A 5 kc signal, approximately 3 to 4 volts p-p, should be displayed.

(17) Connect scope and counter to TP-1 and tune the signal generator to 35.0000 mc. The signal generator output should be 250 millivolts. The scope amplitude will be about 5 volts p-p.

(18) Connect scope and counter to TP-2. A 35.0000 mc signal, 2.8 to 4.2 volts p-p, should be observed.

(19) Connect scope and counter to TP-3. A 1.7500 mc signal approximately 3 to 4 volts p-p, should be observed.

(20) Place COUNTER MODE switch in LOW position. A 17.50000 mc signal, 3 to 4 volts p-p, should be observed.

(21) Turn POWER switch to off position. Place 1A1A1 card directly into its proper chassis slot.

5-8. PHASE DETECTOR DRIVER (1A1A2) (A4659) ALIGNMENT PROCEDURES (FIGURES 5-14, 5-15).

a. OTHER BOARDS REQUIRED.—1A2

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Signal Generator: HP-606B, or equivalent (two)
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
50 ohm resistive dummy load.

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off position. Insert 1A1A2 card into 1A4A3 extender and insert into proper chassis slot.

(2) Turn POWER switch to ON position. Place FUNCTION switch to LOCAL. Place BAND SWITCH to 2-4 mc position.

(3) With VOM, measure dc voltage at following points:

TP-1: +5 volts dc
TP-7: +24 volts dc

(4) Connect scope and counter to TP-6. (Unless otherwise indicated, counter referred to is an external counter.) A 1 mc signal, 6 to 8 volts p-p, should be observed.

(5) Place FUNCTION switch to AFC. The signal indicated in step (4) should be observed.

(6) Place FUNCTION switch to SYN. There should be no signal at TP-6.

(7) Place FUNCTION switch to SYN. Connect one signal generator to 1J6 (EXT 1 MC IN) on rear apron. Set signal generator to 1 mc, 0.5 volts rms.

(8) With scope and counter at TP-6 a 1 mc signal, 6 to 8 volts p-p should be observed.

(9) Connect scope and counter to pin F. A 1 mc signal, 5 to 6 volts p-p, should be displayed.

(10) Repeat step (9) for pin 10.

(11) Repeat step (9) for pin R.

(12) Disconnect signal generator, scope and counter. Turn POWER switch to off position. Insert empty 1A4A1 extender card into 1A8 socket. Turn power ON.

(13) Connect a TEE connector to the signal generator output. One arm of the TEE, terminate with a 50 ohm load. From the other arm, connect a cable to pin 2 of the A4A1 extender card, with ground lead to pin 1.

(14) Set signal generator to 29 mc at 0.5 volts rms.

(15) Connect scope and counter to TP-2. Adjust signal generator carefully for a 362.5 kc square wave at TP-2. The amplitude should be between 3 and 4 volts p-p.

(16) Connect scope and counter to TP-3. Negative spikes at 362.5 kc approximately 5 volts p-p should be observed.

(17) Connect scope and counter to pin W. A 362.5 kc signal, 0.6 and 0.8 volts p-p, should be observed.

(18) Connect a second signal generator to 1J2 (SYN IN) on rear apron of tuner. Set generator for 2.4 mc, 1.0 volts rms.

(19) Connect scope and counter to TP-8 and adjust the signal generator for precisely 2.4000 mc at TP-8. The amplitude should be approximately 4.0 volts p-p.

(20) Connect scope and counter to TP-9. Rotate the BAND-SWITCH as indicated, for the resultant frequencies at TP-9:

BAND-SWITCH	FREQUENCY
2-4 mc	2.40000 mc
4-8 mc	1.20000 mc
8-16 mc	.60000 mc
16-32 mc	.30000 mc

(21) With the BAND-SWITCH at 16-32 mc, and both signal generators operating as previously directed, connect scope and counter to TP-11. A 300 kc signal, 150 and 250 millivolts p-p, should be seen.

(22) Slowly tune signal generator #1 (connected at pin 2 of extender card) lower in frequency until the signal at TP-11 drops sharply in amplitude. Then measure the signal generator frequency at that point. It should be approximately 24 mc.

(23) Turn POWER switch to OFF position. Remove signal generators, scope and counter. Place 1A1A2 card directly into its proper chassis slot.

5-9. GATE GENERATOR AND COUNTING REGISTER (1A1A4) (A4661) ALIGNMENT PROCEDURES (FIGURES 5-18, 5-19).

a. OTHER BOARDS REQUIRED.—1A2, 1A1A1, 1A1A2.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Signal Generator: HP-606B, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
50 ohm resistive load (BNC connector)

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off position. Insert 1A1A4 into the 1A4A2 and 1A4A3 extender cards and plug into 1A1A4 chassis slot.

(2) Set COUNTER MODE switch to REC. Set FUNCTION switch to LOCAL. Place BAND-SWITCH to 2-4 mc position.

(3) Turn POWER switch to ON position.

(4) With VOM, measure dc voltage at TP-6. It should be +5 volts dc.

(5) Connect scope and counter to TP-1. (Unless otherwise indicated, counter will mean external counter.) A 1 mc signal, 1.5 to 2 volts p-p, should be displayed.

(6) Connect signal generator to TP-5, with ground lead to TP-2.

(7) Set signal generator to 300 kc at 0.5 volts rms.

(8) Connect scope and counter to TP-5. Tune the signal generator for precisely 300,000 cycles, as indicated on the counter.

(9) Connect scope and counter to TP-3. Negative spikes, with a 225 millisecond period, at an amplitude of 3 to 4 volts p-p should be displayed.

(10) Connect scope and counter to TP-4. Positive spikes with a 225 millisecond period, 3 to 4 volts p-p, should be displayed.

(11) The counter readout on front panel of TN-512/URR should indicate 06.3600.

(12) Connect scope and counter to TP-5. Tune signal generator for 94.335 kc, as displayed on the external counter. The counter readout on the front panel of the TN-512/URR should read 02.0000.

(13) Slowly and carefully adjust the signal generator frequency while monitoring the readout on the front panel of TN-512/URR. Begin by watching the 100 cycles digit to insure that it reads out digits 0 to 9 as the signal generator frequency is changed. Check, sequentially, the 1 kc readout, 10 kc readout, 100 kc readout, and the 1 mc readout. Check the 10 mc readout for digits 0 to 3.

(14) Tune the signal generator to display 32.0000 on the front panel readout. The external counter should read 1,509,400 cycles at this time.

(15) Turn POWER switch to off position. Place 1A1A4 card directly into its proper chassis slot.

5-10. LOCAL OSCILLATOR OFFSET AND BAND DIVIDER (1A1A3) (A4660) ALIGNMENT PROCEDURES (FIGURES 5-16, 5-17).

a. OTHER BOARDS REQUIRED.—1A2, 1A1A1, 1A1A2, 1A1A4.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Signal Generators: HP-606B, or equivalent (two)
Oscilloscope: AN/USM-281A, or equivalent
50 ohm resistive load (BNC connector)
Frequency Counter: AN/USM-207, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to OFF position. Insert 1A1A3 card into the 1A4A2 extender and insert into 1A1A3 chassis slot.

(2) Set COUNTER MODE switch to REC. Set FUNCTION switch to LOCAL. Place BAND-SWITCH in 2-4 mc position. Turn power ON.

(3) With VOM, measure the voltage at TP-5. It should be +5 volts dc.

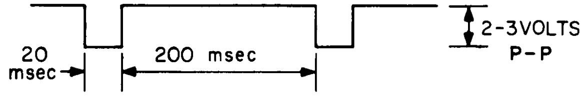
(4) Connect a TEE connector to the signal generator output. On one TEE arm, connect the 50 ohm dummy load. Connect the other arm to coax cable with test leads.

(5) Place empty 1A4A1 extender card into the 1A8 socket of TUNER TN-512/URR. Connect signal generator to pin 2 with ground lead to pin 1, of extender.

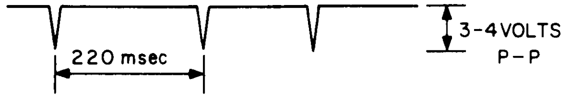
(6) Set signal generator to 21 mc at 500 millivolts rms.

(7) Connect scope and counter to TP-2, 1A1A3. (Unless otherwise indicated, counter means external counter.) Observe at TP-2 a square wave at a level of 3 to 4 volts p-p.

(8) Connect scope and counter to TP-1. The following waveform should be observed.



(9) Connect scope and counter to pin M: The following waveform should be observed.



(10) Connect scope and counter to TP-4. In each position of the BAND-SWITCH, a signal of approximately 3 volts p-p should be observed. Leave BAND-SWITCH in 2-4 mc position.

(11) Connect scope and counter to TP-2. Carefully adjust the signal generator for 1,050,000 cycles. The front panel readout should indicate 02.0000.

(12) Place BAND-SWITCH in 4-8 mc position. The front panel readout should indicate 04.0000.

(13) Place BAND-SWITCH in 8-16 mc position. The front panel readout should indicate 08.0000.

(14) Place BAND-SWITCH in 16-32 mc position. The front panel readout should indicate 16.0000.

(15) Connect the second signal generator to the COUNTER INPUT jack (BNC) on front panel of TN-512/URR. Set generator for 100 kc at .25 volt rms.

(16) Place COUNTER MODE switch to HIGH. The front panel readout should indicate 00.1000.

(17) Turn POWER switch to OFF position. Remove test equipment. Place 1A1A3 card directly into its proper chassis slot.

5-11. SUB-SYNTHESIZER (1A6) (A4669) ALIGNMENT PROCEDURES (FIGURES 5-26, 5-27.)

a. OTHER BOARDS REQUIRED.—A2, (A7 for loading)

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Low capacity alignment tool.

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to OFF position. Place 1A6 card into A4A1 extender and place in proper chassis slot. Turn POWER switch to ON position.

(2) Connect VOM to TP-8. The measurement should be +24 volts dc.

(3) Connect scope and counter to TP-1. A 1 mc signal, approximately 8 volts p-p, should be observed.

(4) Connect VOM to TP-3 on +50 volts dc scale. With the BAND-SWITCH in 2-4 mc position, the reading should be approximately +22 volts dc. Change the BAND-SWITCH to 4-8 mc, 8-16 mc and 16-32 mc. The voltage should drop to zero. Leave the BAND-SWITCH at 4-8 mc.

(5) Connect the VOM to TP-4. With the BAND-SWITCH in 4-8 position the reading should be approximately +22 volts dc. In all other positions the reading should be zero volts. Leave the BAND-SWITCH in 8-16 mc position.

(6) Connect the VOM to TP-5. With the BAND-SWITCH in 8-16 mc position the reading should be approximately +22 volts. In all other positions the reading should be zero volts. Leave the BAND-SWITCH in 16-32 mc position.

(7) Connect the VOM to TP-6. With the BAND-SWITCH in 16-32 mc position the reading should be approximately +22 volts. In all other positions the reading should be zero volts.

NOTE

In steps (4) through (7), under certain circumstances, +22 volts may appear at the appropriate test point in AUTO position of the BAND-SWITCH.

(8) Place the BAND-SWITCH to 2-4 mc position. Connect the scope and counter to TP-7. A square wave at 500 kc, at approximately 2.5 volts p-p, should be observed.

(9) Connect scope and counter to TP-13. Adjust C91 for maximum 7 mc signal, 4 to 5 volts p-p.

(10) Place BAND-SWITCH in 4-8 mc position. Connect scope and counter to TP-12. A 3 mc signal, 4 to 5 volts p-p, should be observed.

(11) Place BAND-SWITCH in 8-16 mc position. Connect scope and counter to TP-11. Adjust C32 for maximum 5.5 mc signal, 4 to 5 volts p-p.

(12) Place BAND-SWITCH in 16-32 mc position. Connect scope and counter to TP-10. Adjust C9 for maximum 10.5 mc signal, 4 to 5 volts p-p.

(13) Connect scope and counter to TP-19. Adjust the indicated controls for the desired voltage on the appropriate BAND-SWITCH positions as indicated below:

BAND SWITCH	CONTROL	FREQUENCY	AMPLITUDE
2-4	R110	875 kc	2.0 volts p-p
4-8	R79	1.5 mc	2.0 volts p-p
8-16	R45	2.75 mc	2.0 volts p-p
16-32	R20	5.25 mc	1.5 volts p-p

(14) Turn POWER switch to OFF position. Disconnect test equipment. Place 1A6 card directly into its proper chassis slot.

5-12. LOCAL OSCILLATOR DIVIDER (1A8) (A4671) ALIGNMENT PROCEDURES (FIGURES 5-30, 5-31).

a. OTHER BOARDS REQUIRED.—A2, (A9 for loading) counter cards 1A1A1, 1A1A2, 1A1A3, 1A1A4.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
RF VTVM: ME-303/U, or equivalent.

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to OFF position. Insert 1A8 card into extender and plug into proper chassis slot. Turn power switch to ON position.

(2) With VOM, measure the dc voltage at the following points:

TP-3: +24 volts dc
TP-17: +5 volts dc

(3) The front panel readout should be reading the frequency to which the TN-512/URR is tuned. Connect RF VTVM to TP-1, ground lead to TP-9. The voltage should be between 0.5 and 1.5 volts rms.

(4) Connect scope and counter to TP-7, ground leads to TP-6. Place BAND-SWITCH to 2-4 mc position. Adjust TN-512/URR TUNE control for a reading of 02.0000 on the front panel readout. At TP-7, a signal of 2.625 mc, 1.5 volts p-p, should be displayed.

(5) Place BAND-SWITCH to 4-8 mc position. Connect scope and counter to TP-10, with ground lead to TP-6. Adjust TUNE control for a reading of 04.0000 on front panel readout. At TP-10 a frequency of 5.25 mc, 1.5 volts p-p, should be observed.

(6) Place BAND-SWITCH to 8-16 mc position. Connect scope and counter to TP-16, with ground lead to TP-6. Adjust TUNE control for a reading of 08.0000 on the front panel readout. At TP-16 a frequency of 10.5 mc, 1.5 volts p-p, should be observed.

(7) Place BAND-SWITCH to 16-32 mc position. Adjust TUNE control for a reading of 16.0000 on front panel readout. Connect scope and counter to TP-20, with ground lead to TP-9. A signal at 21.0000 mc, 1.5 volts p-p, should be observed.

(8) Turn POWER switch to OFF position. Remove 1A1A1 counter card, and insert into 1A4A3 extender card. Plug assembly into the 1A1A1 chassis slot. Turn power switch to ON position.

(9) Connect external frequency counter to TP-1 of 1A1A1. Place BAND-SWITCH to 2-4 mc. Adjust TUNE control for a reading of 02.0000 on front panel readout. The external counter should read 21.0000 mc.

(10) Move the TUNE control clockwise so that the front panel readout increases from 02.0000 to 04.0000. The external counter should change from 21.0000 mc to 37.0000 mc.

NOTE

At any time, the external counter should read: (FRONT PANEL READOUT X 8) +5 mc.

(11) Without disturbing the final readings at 04.0000 and 37.0000 mc, remove the external counter and connect the RF VTVM to TP-2, 1A1A1. Adjust the TUNE control counterclockwise, decreasing the front panel readout from 04.0000 to 02.0000. The rf voltage at TP-2 should remain at approximately 1.5 volts rms.

(12) Turn POWER switch to OFF position. Remove test equipment. Insert 1A1A1 and 1A8 cards directly into their proper chassis slots.

5-13. FIRST MIXER-AMPLIFIER AND FIRST IF AMPLIFIER (1A9) (A4672) ALIGNMENT PROCEDURES (FIGURES 5-32, 5-33).

a. OTHER BOARDS REQUIRED. - A2, A7, A8, 1A1A1, 1A1A2, 1A1A3, 1A1A4. (A7 not necessarily aligned.)

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Signal Generator: HP-606B, or equivalent
Alignment screwdriver
Non-inductive alignment tool
VTVM: AN/USM-106A, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to OFF position. Place 1A9 card into extender and insert in proper chassis slot. Turn power ON.

(2) With VOM, check dc voltage at TP-1 (TP-7 GND). It should be +24 volts.

(3) Place BAND-SWITCH to 2-4 mc position. Connect scope and counter to TP-2. Adjust TUNE control for 03.0000 on front panel readout. Adjust R9 for maximum 3.625 mc signal, approximately 1.5 volts p-p.

(4) Place BAND-SWITCH to 4-8 mc position. Connect scope and counter to TP-4. Adjust TUNE control for 06.0000 on front panel readout. Adjust R33 for maximum 7.25 mc signal, approximately 1.5 volts p-p.

(5) Place BAND-SWITCH to 8-16 mc position. Connect scope and counter to TP-10. Adjust TUNE control for 12.0000 on front panel readout. Adjust R82 for maximum 14.5 mc signal, approximately 1.5 volts p-p.

(6) Place BAND-SWITCH to 16-32 mc position. Connect scope and counter to TP-8. Adjust TUNE control for 24.0000 on front panel readout. Adjust R58 for maximum 29 mc signal, approximately 1.0 volt p-p.

(7) Place BAND-SWITCH to 2-4 mc position. Adjust TUNE control for 03.0000 on front panel readout.

(8) Connect signal generator at 3,000,000 cycles, 300 uv, to receiver antenna jack. Connect AN/USM-106A and counter to TP-6.

(9) Adjust L2, L3 for maximum signal. When signal is sufficient to activate external counter, adjust generator for 625 kc at TP-6.

(10) Adjust L2, L3 for maximum 625 kc signal. The signal generator must be carefully adjusted to obtain 625 kc. Use R24 to adjust the signal amplitude as necessary. Keep the signal amplitude at 40 millivolts rms.

(11) Carefully vary the signal generator so that the signal at TP-6 varies from 615 kc to 635 kc (20 kc swing). The signal at TP-6 should remain constant within 0.5 db in amplitude. If it does not, repeat steps (10) and (11) until the required specification is met.

(12) Adjust R24 for 35 millivolts rms at TP-6.

(13) Set BAND-SWITCH to 4-8 mc. Adjust TUNE control for 06.0000 on front panel readout. Set the signal generator to 6.000 mc, 300 uv. Adjust L4 and L5 for maximum signal at TP-6.

When signal is sufficient to activate counter, adjust the signal generator for 1,250,000 cycles at TP-6.

(14) Adjust L4 and L5 for maximum 1.25 mc signal at TP-6. Use R47 as necessary to keep the signal amplitude at about 40 millivolts rms.

(15) Carefully vary the signal generator so that the signal at TP-6 varies from 1.24 mc to 1.26 mc. The signal at TP-6 should remain constant within 0.5 db in amplitude. If it does not, repeat steps (14) and (15) making slight alterations in the settings of L4 and L5 until the required specification is met.

(16) Adjust R47 for 35 millivolts rms at TP-6.

(17) Set BAND-SWITCH to 8-16 mc. Adjust TUNE control for 12 mc on the front panel readout. Set the signal generator to 12 mc, 300 uv. Adjust L8 and L9 for maximum signal at TP-6. When the signal is sufficient to activate the counter, adjust the signal generator for 2,500,000 cycles at TP-6. Use R96 to keep amplitude from exceeding 40 millivolts.

(18) Adjust L8, L9 for maximum signal. Carefully vary the signal generator so that the signal at TP-6 varies from 2.49 mc to 2.5 mc. The signal at TP-6 should remain constant within 0.5 db in amplitude. If it does not, repeat steps (17) and (18), making slight alterations in the settings of L8 and L9 until the required specification is met.

(19) Adjust R96 for 35 millivolts rms at TP-6.

(20) Set the BAND-SWITCH to 16-32 mc. Adjust the TUNE control for 24.0000 on the front panel readout.

(21) Set the signal generator for 24 mc at 300 uv. Use R72 to control the signal amplitude. When sufficient signal level has been reached to activate the counter, adjust the signal generator for 5,000,000 cycles at TP-6.

(22) Adjust L6 and L7 for maximum 5 mc signal at TP-6. Carefully vary the signal generator so that the signal at TP-6 varies from 4.99 mc to 5.01 mc. The signal at TP-6 should remain constant within 0.5 db in amplitude. If it does not, repeat steps (21) and (22), making slight alterations in the settings of L6 and L7 until the required specification is met.

(23) Adjust R72 for 35 millivolts rms at TP-6.

(24) Turn POWER switch to OFF position. Insert 1A9 card directly into its proper chassis slot.

5-14. SECOND MIXER AND IF (1A7) (A4670) ALIGNMENT PROCEDURES (FIGURES 5-28, 5-29).

a. OTHER BOARDS REQUIRED.—A2, A6, A8, A9, 1A1A1, 1A1A2, 1A1A3, 1A1A4. (A3 will be utilized later in the procedure.)

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Alignment screwdriver
Signal Generator: HP-606B, or equivalent
VTVM: AN/USM-106A, or equivalent

NOTE

Very slowly changing AGC and signal voltages are present. When the procedure indicates an unhurried adjustment, WAIT UNTIL AGC AND/OR SIGNAL HAS STABILIZED.

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to OFF position. Place SILENCER switch to OFF. Insure that RF GAIN control is full counterclockwise (AGC). Place 1A7 card into extender and plug into proper chassis slot. Turn power ON.

(2) With VOM, measure the dc voltages at these points:

TP-5: +24 volts dc
TP-22: -24 volts dc

(3) Place BAND-SWITCH to 2-4 mc position. Adjust TUNE control for 03.0000 on front panel readout.

(4) Connect scope and counter to TP-2. Adjust R4 for maximum 875 kc signal, 2 volts p-p.

(5) Connect a signal generator to the antenna input at 3.000 mc, 500 uv.

(6) Connect the VOM on -10 volt dc range to TP-20. Adjust R106 VERY SLOWLY until the voltage falls to zero on -2.5 volt scale. Remove VOM.

(7) Connect scope and counter to TP-1. Adjust the signal generator for a 250 kc signal at TP-1. The amplitude should be approximately 100 millivolts p-p.

(8) Reduce the signal generator output to 300 uv; the resultant should be approximately 84 millivolts p-p at TP-1. Record the amplitude at TP-1.

(9) Connect scope and counter to TP-3. Readjust R4 for maximum 250 kc signal, approximately 50 millivolts p-p.

(10) Connect scope and counter to TP-4. The signal should be 250 kc, 35 millivolts p-p.

(11) Connect VTVM to TP-6. Adjust R40 for minimum and R33 for 30 mv rms 250 kc signal at TP-6. Adjust R40 for 100 mv rms at TP-6.

(12) Set front panel attenuator switch up and down. In the up position, the signal at TP-6 should drop 20 db. Leave the attenuator switch down (out).

(13) Adjust the signal generator for 250 kc, 100 millivolts rms at TP-6. The 100 millivolts rms at TP-6 should be obtained with 500 uv or less from the signal generator.

(14) SLOWLY adjust R106, watching for the AGC action to "grab" the 250 kc signal at TP-6. Make this adjustment in small steps. The purpose of this adjustment is to cause the 250 kc signal at TP-6 to finally stabilize at 30 mv rms. or approximately 84 millivolts p-p.

NOTE

The 250 kc signal at TP-6 should remain within 4 db of 30 millivolts rms (84 millivolts p-p) when the signal generator output is changed from 500 uv to 30 millivolts. First, be assured that the signal at TP-6 is 250 kc, 84 millivolts p-p with 500 uv from the signal generator. Wait for conditions to stabilize, then record the amplitude at TP-6.

EXAMPLE

SIG GEN	TP-6
500 uv	30 mv rms, 84 mv p-p
30 mv	32 mv rms, 90 mv p-p

The db change in this case is +0.9. The maximum allowable signal at TP-6 with 30 mv from the signal generator is 133 mv p-p or 47 mv rms or +4 db.

(15) Return the signal generator to 500 uv. Turn power OFF. Insert 1A3 board if not already in place. Turn power ON.

(16) With scope and counter at TP-6 of 1A7, wait for signal to stabilize at 250 kc, 84 millivolts p-p. Then turn RF GAIN control maximum clockwise. The signal at TP-6 should be at least ten times 84 millivolts p-p, or 840 millivolts p-p. Return the RF GAIN control to maximum counterclockwise position.

(17) Connect scope and counter to TP-15 of A7. The signal should be 84 millivolts p-p, 250 kc.

(18) Connect scope and counter to TP-16 of A7. The signal should be 250 kc, approximately 200 millivolts p-p.

(19) Turn power OFF. Remove 1A3 card. Turn power ON.

(20) With the signal generator at 3 mc, 300 millivolts, connect scope and counter to TP-6. Adjust the generator for 250 kc at TP-6.

(21) Under the conditions of step (20) check, with the VOM, the dc voltage at TP-23. It should be -24 volts.

(22) SLOWLY adjust R130 until the voltage at TP-23 falls to zero. (CRITICAL ADJUSTMENT).

(23) Decrease the signal generator output to zero. Then SLOWLY increase the signal generator output in very small increments, watching the signal at TP-6 for AGC to "catch up." When the signal level from the generator reaches about 30 millivolts, the dc voltage at TP-23 should drop to zero.

(24) Remove VOM. Set METER FUNCTION switch to HIGH. Set the signal generator for 3 mc, 300 millivolts. Then adjust R131 for full scale reading at "HI" on RF/AFC LEVEL meter.

(25) Turn power OFF. Remove test equipment. Insert A7 card directly into its chassis slot.

5-15. AUTOMATIC FREQUENCY CONTROL (1A3) (A4664) ALIGNMENT PROCEDURES (FIGURES 5-22, 5-23).

a. OTHER BOARDS REQUIRED.—A2, A6, A7, A8, A9, 1A1A1, 1A1A2, 1A1A3, 1A1A4.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Counter: AN/USM-207, or equivalent
Alignment screwdriver
Signal Generator: HP-606B, or equivalent.

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn power OFF. Insert 1A3 card in extender and plug into proper chassis slot. Turn power ON.

(2) Set FUNCTION switch to AFC. Set METER FUNCTION switch to AFC CARRIER.

(3) Locate two 47,000 ohm resistors just below the two right hand relays (R66, R67). Ground the left side of the upper resistor. In lieu of this arrangement, pin 7 on the card or extender may be grounded. Listen for relay click when grounding.

(4) With VOM, check dc voltages as follows:

TP-1:	+24 volts dc
TP-19:	+10 volts dc
TP-20:	-10 volts dc

(5) Connect scope and counter to TP-6. Adjust R34 for 250,000 cycles, 0.5 v p-p.

(6) Connect scope and counter to TP-7. Signal should be 250 kc, 0.5 v p-p.

(7) Connect scope and counter to TP-8. Adjust R44, T-1, for maximum 250 kc signal. Then connect scope and counter to TP-3 and adjust R44 for zero signal. Recheck the signal at TP-8 for 2 to 3 volts p-p.

(8) Connect scope and counter to TP-10. Adjust R57, T2, for maximum 250 kc signal. Then connect scope and counter to TP-4 and adjust R57 for zero signal. Re-check signal at TP-10, for 2 to 3 volts p-p.

(9) Turn power OFF. Connect ohmmeter on RX1 scale between TP-16 and ground. Adjust R3 for maximum resistance. Remove ohmmeter. Turn power ON.

(10) Connect a signal generator between TP-16 and ground. Set generator to 250 kc ±10 cycles, 100 uv. Connect scope and counter to TP-2. Adjust L2, L3, L4, L5 for maximum signal. Change amplitude of the generator to avoid exceeding 5 v p-p at TP-2.

NOTE

Connect scope and counter to TP-10 and check frequency of 250,000 cycles per second; adjust oscillator if necessary.

(11) Remove signal generator from TP-16 and connect to antenna jack at 3.000 mc, 10 uv. Adjust TUNE control for 03.0000 mc on tuner front panel readout. Carefully adjust FINE TUNE control for a peak as displayed on scope and for a frequency of 250 kc ±10 cps at 1 v p-p at TP-2.

(12) Reduce the signal generator output to 1 uv. Disregard any apparent noise on the scope at TP-2. Adjust R78 until RF/AFC LEVEL meter reads between the red and green area on meter face.

(13) Increase signal generator output to 10 uv. Adjust carefully for 250 kc ±10 cps at TP-2.

(14) With junction of R66, R67 grounded, carefully adjust FINE TUNE control left and right. The PHASE DIFFERENCE meter should follow in the same direction, dropping back to zero at each extreme of the scale. If this condition is not met, adjust R44 in small increments, repeating the FINE TUNE adjustments after each change in R44 until the condition is achieved.

(15) Adjust R57 so that, under the conditions of step (14), the SYNC INDICATOR is illuminated when the PHASE DIFFERENCE meter is "on scale" and not illuminated when the PHASE DIFFERENCE meter drops back to zero after each extreme excursion to either side.

(16) Disconnect all test equipment. Turn power OFF. Place A3 card directly into its proper chassis slot. Turn power ON. Remove ground from R66, R67.

(17) Move FINE TUNE control fully clockwise. Depress AFC TUNE switch and adjust TUNE control carefully until RF/AFC LEVEL meter indicates in the green and the PHASE DIFFERENCE meter is at center scale. Record tuner counter indication. Release AFC TUNE switch.

(18) Carefully and slowly, in small increments, move the FINE TUNE control counterclockwise, allowing the PHASE DIFFERENCE meter to stabilize after each movment, until SYNC INDICATOR goes out. Depress AFC TUNE switch and record tuner counter readout. The second readout must be at least 1 kc below the first readout.

(19) Repeat steps (17) and (18) except that the FINE TUNE control should be moved clockwise during the measurements. The second counter readout should be at least 1 kc higher than the first readout.

(20) Turn power OFF. Insert 1A3 card directly into its proper chassis slot.

5-16. PHASE DETECTOR (1A5) (A4668) AND AC FILTER (1A13) (A4794) ALIGNMENT PROCEDURES (FIGURES 5-24, 5-25, 5-36, 5-37).

a. OTHER BOARDS REQUIRED.—ALL

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Counter: AN/USM-207, or equivalent
Alignment screwdriver
Signal generator: HP-606B, or equivalent (two)

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn power OFF. Place 1A5 card into extender and plug into proper chassis slot. Turn power ON.

(2) Assure that all other cards are in place.

(3) Place A5 card on A4A1 extender and place in A5 chassis slot.

(4) Turn FUNCTION switch to SYN position.

(5) Turn power ON.

(6) With VOM measure dc voltage at TP-1: +24 vdc. Turn FUNCTION switch to AFC and then LOCAL. Voltage at TP-1 should be 0 volts in both the AFC and LOCAL position. Return switch to SYN position

(7) With VOM, measure dc voltage at TP-2: -24 vdc.

(8) Connect one signal generator at 1 mc, 1 vrms, to 1J3 at rear of TN-512/URR. (If an 0-1511/URR Reference Signal Generator is available, its 1 mc output may be used.) Connect scope and counter to TP-16. A 1 mc signal at 5 to 6 vp-p should be observed.

(9) Connect second signal generator at 1J2 (rear of TN-512/URR) at 1 vrms, 300 kc. (If an 0-1511/URR Reference Signal Generator is available, its output may be used; if used, the 0-1511/URR frequency selectors should be set to 03.0000 mc.)

(10) Place BAND SWITCH to 2-4 mc position. Adjust TUNE control for a reading of 03.0000 mc on the tuner counter readout.

(11) Connect scope and counter to TP-4. A 362.5 kc signal, from .7 to 1.0 vp-p should be observed.

(12) Connect scope and counter to TP-5. A distorted signal of about 100 millivolts p-p, at a frequency of approximately 300 kc should be observed.

(13) Connect scope and counter to TP-12. A signal at 62.5 kc, 2.5 vp-p, should be observed.

(14) Adjust TUNE control for a reading of 02.5000 mc on tuner counter readout.

(15) Connect scope and counter to TP-7. Adjust T3 for maximum 62.5 kc signal (8 vp-p).

(16) Set scope to dc function, at 1 v per cm; adjust vertical control so that 0 v is center on scope screen. Connect scope to TP-10; adjust R20 until ±2.0 vdc is observed. The PHASE DIFFERENCE meter should go full scale to right and left. Adjust R20 for 0 vdc and the PHASE DIFFERENCE meter should indicate center scale.

(17) Connect scope and counter to TP-11, adjust T4 and R61 for maximum amplitude. A frequency of 62.500 kc at an amplitude of 6 to 8 vp-p should be observed.

(18) Adjust the TUNE control for a frequency of 03.0000 mc on the TN-512/URR counter.

(19) Remove the cable connected to 1J2.

(20) Connect the scope and counter to TP-6 and adjust R7 for a dip in the 362.5 kc signal.

(21) Reconnect signal generator (or O-1511/URR) at 300 kc, 1 v to 1J2.

(22) With scope and counter at TP-6, adjust R80 for 4 vp-p at 62.5 kc.

(23) Connect scope and counter to TP-8 and observe 62.5 kc, 4 to 5 vp-p.

(24) Connect scope and counter to TP-13 (R61) and observe 62.5 kc, 4 to 5 vp-p.

(25) With tuner at 03.0000 and 2 signal generators connected, move TUNE control slowly clockwise, then counterclockwise; PHASE DIFFERENCE meter should follow in same direction, then fall back toward center scale after each extreme. If this condition can be met, carefully adjust TUNE control for center scale on PHASE DIFFERENCE meter.

(26) Adjust R64 until SYN INDICATOR just lights.

(27) Then perform step (25), adjusting R61 until SYNC INDICATOR remains lit when PHASE DIFFERENCE meter drops back toward center after a full excursion to the left or right.

(28) Set scope to dc function 1 V/cm with 0 v at center of scope screen. Connect scope to pin 8. With tuner in sync, observe 0 v at pin 8 of extender card; with tuner out of sync, observe +1 v at pin 8 of extender card.

(29) Connect scope (20 V/cm) pin 3 or 7 or extender card and observe +24 v in sync, 0 v out of sync.

(30) The continuity between pins 1 and 2 on extender card, when checked with an ohmmeter (RX1), should be infinity in sync and 0 ohms out of sync.

(31) 1A13 AC filter and DC voltage into lA10Al C. 1.

(a) Connect scope, dc function, at 1 v/cm to 1A10A1C1.

(b) Observe dc voltage at 1A10A1C1 when TN-512/URR is in sync and PHASE DIFFERENCE meter is center scale, (0 vdc).

(c) Slowly detune TN-512/URR clockwise until PHASE DIFFERENCE meter indicates in the red area on the right. Listen for relay on 1A13 to energize and de-energize. Record the dc voltage at 1A10A1C1. It must be greater than +1 vdc.

(d) Slowly detine TN-512/URR counter clockwise until PHASE DIFFERENCE meter indicates in the red on the left. Listen for relay on 1A13 to energize and de-energize. Record the dc voltage at 1A10A1C1. It must be greater than -1.5 vdc.

(32) Disconnect all test equipment, turn power OFF. Insert 1A5 into chassis.

5-17. PREALIGNMENT OF DEMULTIPLEXER TD-915/URR.

a. PREALIGNMENT INSTRUCTIONS. - The purpose of this procedure is the complete alignment of the demultiplexer or of the individual alignment of a particular card or section in that unit. If a complete alignment is required, the procedure should be followed in sequence. The removal of all circuit boards from the chassis should precede complete unit alignment. The boards will be returned to the chassis as they are aligned and/or as required by the procedure. For individual alignment of a particular card, all cards should be removed from the chassis except those specified in "OTHER BOARDS REQUIRED" for that particular card. OTHER BOARDS REQUIRED for the individual alignment of a particular circuit board, must be in place for that alignment and must be, themselves, previously aligned.

All variable inductor and transformer alignments must be carrier out with a non-inductive alignment tool.

The following steps should precede alignment of the demultiplexer:

(1) Remove four screws holding the unit in the cabinet, and pull the unit out of the cabinet until the slide locks click.

(2) Remove the top cover to gain access to the circuit baords.

(3) Insure that the POWER switch is in the OFF position.

(4) Remove all circuit boards if a complete alignment is to be done. Remove all boards except those listed in "OTHER BOARDS REQUIRED" for individual alignment of a particular board.

(5) Remove all cables on the rear of demultiplexer except: 2J7 (1 MC IN), 2J11 (RF METER), 2J2 (POWER) and J19.

b. LIST OF APPLICABLE FIGURES. - Schematic Wiring Unit 2 Figure 5-46 (3 sheets)

SECTION OR CARD	ASSEMBLY NUMBER	ASSY FIG.	SCHEMATIC FIG.
Power Supply 2A1	A4627	5-52	5-51
Sub Carrier Generator 2A3	A4629	5-56	5-55
ISB IF Cards 2A7, 2A9, 2A10, 2A13	A4633	5-64	5-63
Symmetrical IF 2A5	A4631	5-60	5-59
ISB Audio Cards 2A6, 2A8, 2A10, 2A12	A4632	5-62	5-61
Symmetrical Demodulator 2A4	A4630	5-58	5-57
Monitor, Diversity 2A2	A4628	5-54	5-53

c. TEST EQUIPMENT REQUIRED.

AC VTVM: AN/USM-106A, or equivalent
Squarewave Generator: SG-299C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Signal Generator: HP-606B, or equivalent
Frequency Counter: AN/USM-207, or equivalent
VOM: AN/PSM-4C, or equivalent
Resistive Loads: 50 ohms, 600 ohms, and 4 ohms

d. INITIAL CONTROL SETTINGS.

(1) On the TN-512/URR:

(a) POWER switch to ON position.

(b) FUNCTION switch to SYN position.

(2) On the TD-915/URR:

(a) POWER switch to off (down) position.

(3) On the O-1511/URR:

(a) POWER switch to on (up) position.

5-18. POWER SUPPLY (2A1) (A4627) ALIGNMENT PROCEDURES (FIGURES 5-51, 5-52).

a. OTHER BOARDS REQUIRED. - None

b. EQUIPMENT REQUIRED. - VOM: AN/PSM-4C, or equivalent.

c. ALIGNMENT AND ADJUSTMENT

(1) Insert 2A1 card into extender and insert in proper chassis slot.

(2) Set R8, R17, R26 and R35 to mid-range.

(3) Set R4, R13, R22 and R31 fully counterclockwise.

(4) Turn POWER switch to ON position.

(5) Connect AN/PSM-4C (50 vdc range) between ground and the following test points, carefully observing polarity on the meter. At each test point, adjust the proper control for the indicated voltage as read on the meter.

TEST POINT	VOLTAGE CONTROL	VOLTAGE
TP-3	R8	+24 vdc
TP-6	R17	+15 vdc
TP-9	R26	+ 5 vdc
TP-12	R35	-24 vdc

(6) If the voltage cannot be set to its proper value, it may be necessary to turn the associated current limiting control (R4: +24, R13: +15, R22: +5, R31: -24) slightly clockwise and then attempt to set the voltage control.

(7) On the AN/PSM-4C select the proper current scales (500 ma or 10 amps) and the proper dc function (- or +, as required).

(8) Turn POWER switch to off (down) position and connect meter between ground and the indicated test points.

(9) Turn POWER switch to ON position and adjust the proper control for the indicated current as read on the AN/PSM-4C.

(10) Repeat steps (8) and (9) for each test point.

TEST POINT	CURRENT CONTROL	CURRENT
TP-3	R4	600 ma
TP-6	R13	230 ma
TP-9	R22	180 ma
TP-12	R31	50 ma

(11) Turn POWER switch to the off (down) position. Remove meter.

(12) Remove 2A1 board and extender card from chassis socket. Return 2A1 to its proper chassis socket.

5-19. SUB-CARRIER GENERATOR (2A3) (A4629) ALIGNMENT PROCEDURES (FIGURES 5-55, 5-56).

a. OTHER BOARDS REQUIRED.—2A1

b. EQUIPMENT REQUIRED.

Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Signal Generator: HP-606B, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Insure that the POWER switch is in the off (down) position, and insert the 2A3 card into extender and plug into proper chassis slot.

(2) Connect VERTICAL SIG OUT of scope to AC SIGNAL INPUT of counter.

(3) Turn POWER switch to ON position.

(4) Connect the scope probe between ground and TP-1; a 1 mc sine wave at approximately 2.8 vp-p should be displayed.

(5) Connect the scope probe between ground and TP-2. A 20 usec pulse occuring at a 10 kc rate should be displayed. The amplitude of the signal should be approximately 6 vp-p.

(6) Connect a low capacity scope probe between the junction of L5 and R21 and ground. Peak C11 for maximum level. The 6.29 mc signal displayed should be at approximately 10 vp-p.

(7) Once again connect scope probe between TP-2 and ground to verify that the pulse rate is still 10 kc. (It may be necessary to readjust C11 slightly to insure the proper waveform at TP-2.) Connect scope probe between TP-4 and ground. A 6.29 kc signal should be displayed at approximately 1 vp-p.

(8) Connect scope probe between pin 8 and ground. A 250 kc signal should be displayed at approximately 1 vp-p. Connect scope probe between pin L and ground. A 250 kc signal should be displayed at approximately 1 vp-p.

(9) With scope probe still connected to pin L, connect jumper between pin A and ground. The 250 kc signal display should disappear. Set the HP-606B signal generator for a frequency of 250 kc.

(10) Using a TEE connector on the RF OUTPUT of the signal generator, connect a 50 ohm load and an output cable.

(11) Connect the signal generator output cable to the 250 kc input , jack 2J8.

(12) A 250 kc signal at approximately 1 v p-p should once again be displayed at pin L. Remove jumper from pin A.

(13) Connect scope probe between TP-6 and ground. A 243.710 kc signal should be displayed at a minimum level of 0.5 vp-p.

(14) Connect scope probe between TP-7 and ground. A 256.290 kc signal should be displayed at a minimum of 0.5 vp-p. Remove scope probe and signal generator.

(15) Turn POWER switch to off (down) position.

(16) Remove 2A3 board and extender card from chassis socket. Return 2A3 board to its proper chassis socket.

5-20. ISB IF CARDS (2A7, 2A9, 2A11 AND 2A13) (A4633) ALIGNMENT PROCEDURES (FIGURES 5-63, 5-64).

a. OTHER BOARDS REQUIRED.—A1

b. EQUIPMENT REQUIRED.

Signal Generator: HP-606B, or equivalent
AC VTVM: AN/USM-106A, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
VOM: AN/PSM-4C, or equivalent
Squarewave Generator: SG-299C, or equivalent.

c. ALIGNMENT AND ADJUSTMENT.

(1) On the front panel of the demultiplexer set the AGC SOURCE switches to closed loop (i.e., A1 SOURCE in A1 position, A2 SOURCE in A2 position, etc.).

(2) Place MODE switch to ISB position. Place all AGC TIME CONSTANT switches in the MED position.

(3) On the A7 card, adjust R55 fully clockwise.

(4) On the A7 card, adjust the following controls to mid-range:

(a) R45
(b) R80
(c) R81
(d) R82
(e) R83
(f) R84
(g) R85

(5) Insuring that the POWER switch is in the off (down) position, insert 2A7 board with extender card into proper chassis socket.

(6) On the signal generator connect a TEE connector to the RF OUTPUT and connect a 50 ohm load and an output cable to the TEE connector.

(7) Connect signal generator output cable to IF INPUT, 2J9.

(8) Turn the POWER switch to ON position. Connect AN/PSM-4C VOM (+50 vdc scale) between ground and TP-14 of A7. Meter should indicate +24 vdc ±10 percent.

(9) With VOM still connected, place MODE switch in the following positions:

AM 2.5 KC
AM 6 KC
CW 2.5 KC
CW 6 KC

There should be no voltage indicated in these positions.

(10) Place the MODE switch to the ISB position and disconnect AN/PSM-4C.

(11) Connect oscilloscope probe between TP-5 and ground on A7.

(12) Set the signal generator output level for 30 millivolts rms and at a frequency of approximately 250 kc.

(13) Tune the signal generator to the approximate center of the filter passband under test, as indicated by a sine wave display on the oscilloscope (level approximately, 03 v p-p).

(14) Remove scope probe from TP-5.

(15) Connect AN/USM-106A VTVM probe between TP-9 and ground (TP-10).

(16) Readjust signal generator output level to 50 microvolts rms and adjust R45 for a level of 100 millivolts rms as indicated on the VTVM at TP-9.

(17) Set the AGC level by adjusting R55 to the point where the output level at TP-9 decreases to 80 millivolts rms, as indicated on the VTVM.

(18) Decrease the signal generator output level to 30 uv rms. Gradually increase the signal generator output level. As the level is increased, the level at TP-9 should also gradually increase. When the input level reaches 60 uv rms, the level at TP-9 should be holding at 80 millivolts rms. The level at TP-9 should remain within 2 db of 80 millivolts rms, as the signal generator level is further increased to 100 millivolts rms.

(19) Repeat step (18) with AGC TIME CONSTANT switch in the FAST position and also in the SLOW position.

(20) Place 50 ohm load on 2J3, B2 IF OUTPUT. Connect AN/USM-106A VTVM across 50 ohm load and ground.

(21) Output level should be a minimum of 1 millivolt rms as indicated on the meter. Disconnect meter.

(22) AGC Time Constant Alignment: The test setup for this alignment is identical to the setup in figure 4-12. The test should be carried out in accordance with this section.

(23) If attack time cannot be met as in table 4-2, the following controls should be adjusted for the following positions of the AGC TIME CONSTANT switches:

SWITCH POSITION	ATTACK TIME CONSTANT CONTROL
FAST	R80
MED	R83
SLOW	R85

(24) If decay time cannot be met as in 4-2, the following controls should be adjusted for the following positions of the AGC TIME CONSTANT switches:

SWITCH POSITION	DECAY TIME CONSTANT CONTROL
FAST	R81
MED	R82
SLOW	R84

NOTE

A single switch position should be checked at a time (i.e., FAST, MED, SLOW). The check and adjustment should be made so that both attack and decay time conditions are met simultaneously in that particular position. Then the test should be performed for the next position.

(25) Turn POWER switch to off position and remove test equipment.

(26) Remove 2A7 board and extender card from socket. Return 2A7 card to proper chassis socket.

(27) Complete alignment for 2A9 card is performed by repeating steps a. through c. (26) for that card.

(28) Complete alignment for 2A11 card is performed by repeating steps a. through c. (26) for that card.

(29) Complete alignment for 2A13 card is performed by repeating steps a. through c. (26) for that card.

NOTE

The following substitution should be made in step (20):

CHANNEL	CARD	JACK
B1	2A9	J4
A1	2A11	J5
A2	2A13	J6

5-21. SYMMETRICAL IF CARD (2A5) (A4631) ALIGNMENT PROCEDURES (FIGURES 5-59, 5-60).

a. OTHER BOARDS REQUIRED.—A1

b. EQUIPMENT REQUIRED.

Signal Generator: HP-606B, or equivalent

AC VTVM: AN/USM-106A, or equivalent

Oscilloscope: AN/USM-218A, or equivalent

VOM: AN/PSM-4C, or equivalent.

c. ALIGNMENT AND ADJUSTMENT.

(1) On the front panel of the demultiplexer set the SYM-B2 AGC SOURCE switch in the B2 position.

(2) Place MODE switch to AM 2.5 kc position.

(3) Place SYM-B2 AGC TIME CONSTANT switch in the MED position.

(4) On the A5 card, adjust R68 fully counterclockwise.

(5) On the A5 card, adjust the following controls mid-range:

(a) R58
(b) R93
(c) R94
(d) R95
(e) R96
(f) R97
(g) R98

(6) Insuring that POWER switch is in the off position, insert 2A5 board and extender card in proper chassis socket.

(7) On the signal generator, connect a TEE connector to the RF OUTPUT, and an output cable and a 50 ohm load to the TEE connector.

(8) Connect signal generator output cable to IF INPUT, 2J9.

(9) MODE SWITCH OPERATION.

(a) Connect AN/PSM-4C between ground and pin 13. (+DC, RX1.)

(b) Turn the MODE switch through all of its positions.

(c) The following indications should be read on the meter.

SWITCH POSITION	METER READING
AM 2.5 KC	infinity
AM 6 KC	0 ohms
CW 2.5 KC	infinity
CW 6 KC	0 ohms
ISB	infinity

(d) Connect AN/PSM-4C between ground and TP-3 (+DC, RX1).

(e) Turn the MODE switch through all of its positions.

(f) The following indications should be read on the meter.

SWITCH POSITION	METER READING
AM 2.5 KC	0 ohms
AM 6 KC	infinity
CW 2.5 KC	0 ohms
CW 6 KC	infinity
ISB	infinity

(g) Connect AN/PSM-4C between ground and TP-13 (+DC, 50V scale).

(h) Turn POWER switch to ON position.

(i) Turn the MODE switch through all of its positions.

(j) The following indications should be read on the AN/PSM-4C:

SWITCH POSITION	METER READING
AM 2.5 KC	+24 vdc ±10%
AM 6 KC	+24 vdc ±10%
CW 2.5 KC	+24 vdc ±10%
CW 6 KC	+24 vdc ±10%
ISB	0 vdc

(k) Disconnect AN/PSM-4C.

(l) Place MODE switch in AM 2.5 kc position.

(10) Connect oscilloscope probe between TP-4 and ground on A5.

(11) Set the signal generator output level for 30 mv rms and at a frequency of 250 kc.

(12) A sine wave at approximately .13 v p-p should be displayed.

(13) Remove scope probe from TP-4. Connect AN/USM-106A VTVM probe between TP-8 and ground (TP-9).

(14) Readjust signal generator output level to 50 microvolts rms and adjust R58 for a level of 100 millivolts rms as indicated on the VTVM meter at TP-8.

(15) Set the AGC level by adjusting R68 to the point where the output level at TP-9 decreases to 80 millivolts rms as indicated on the VTVM.

(16) Decrease the signal generator output level to 30 microvolts rms. Gradually increase the signal generator output level. As the level is increased, the level at TP-8 should also gradually increase. When the input level reaches 60 microvolts rms, the level at TP-8 should be holding at 80 millivolts rms. The level at TP-8 should remain within 2 db of 80 millivolts rms, as the signal generator is further increased to 100 millivolts rms.

(17) Repeat step (16) with SYM-B2, AGC TIME CONSTANT switch in both the FAST and SLOW positions.

(18) Repeat step (16) with the MODE switch in the CW 6 kc position.

(19) Connect AN/USM-106A VTVM across 50 ohm load and ground. Output level should be a minimum of 1 millivolt rms as indicated on the meter.

(20) AGC Time Constant Alignment: Follow procedure in steps 5-19b. (22), b. (23) and b. (24) of the procedure.

(21) Turn POWER switch to off position, and remove test equipment.

(22) Remove 2A5 board and extender card from chassis socket. Return 2A5 board to proper chassis socket.

5-22. ISB AUDIO CARDS (2A6, 2A8, 2A10 AND 2A12) (A4632) ALIGNMENT PROCEDURES (FIGURES 5-61, 5-62).

a. OTHER BOARDS REQUIRED.

FOR	REQUIRED
2A6	2A1, 2A7, 2A4, 2A3
2A8	2A1, 2A9, 2A4, 2A3
2A10	2A1, 2A11, 2A4, 2A3
2A12	2A1, 2A13, 2A4, 2A3

b. EQUIPMENT REQUIRED.

Signal Generator: HP-606B, or equivalent
AC VTVM: AN/USM-106A, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
VOM: AN/PSM-4C, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) On the front panel of the demultiplexer, set the MODE switch to ISB.

(2) Set the AGC SOURCE switches to closed loop (i.e., A1 SOURCE in A1 position, A2 SOURCE in A2 position).

(3) Place all AGC TIME CONSTANT switches in FAST position.

(4) Connect a TEE connector to the RF OUTPUT jack of the signal generator, and connect an output cable and a 50 ohm load to the TEE connector.

(5) Connect signal generator output to 2J9, IF IN.

(6) Connect a 600 ohm load across pins E and C of the AUDIO OUT jack for the channel card under test and connect pin D to chassis ground.

CHANNEL	CARD	JACK NUMBER
B2-SYM	A6	2J15
B1	A8	2J16
A1	A10	2J17
A2	A12	2J18

(7) Insert extender card in the proper socket of the demultiplexer chassis for the channel card under test, and insert the card under test in the extender card socket.

(8) Insert the 2A4, Symmetrical Demodulator Card in the 2A4 socket of the demultiplexer.

(9) Set METER SENSITIVITY switch to 0 position.

(10) Set all LINE LEVEL ADJUST controls fully counterclockwise.

(11) Place MONITOR SELECTOR switch in proper position for channel card under test (A6: B2 position, A8: B1 position, A10: A1 position, and A12: A2 position.

(12) Turn POWER switch to the ON position.

(13) Connect AN/PSM-4C VOM (+DC, 50V scale) between ground and TP-13. Meter should read +24 vdc ±10%. Disconnect VOM. Set signal generator frequency to approximately 250 kc.

(14) Set signal generator output level for 1 millivolt rms. Connect oscilloscope probe between ground and TP-3. Level should be at a minimum of 0.5 v p-p as displayed on the scope.

(15) Connect oscilloscope probe between ground and TP-1. Tune signal generator to the approximate center of the filter passband being applied to the audio card under test. Level should be approximately 0.2 v p-p as displayed on the scope.

(16) Connect scope probe between ground and TP-8, and tune the signal generator for a sine wave display of approximately 1 kc on the scope.

(17) Adjust R26 so that the level at TP-8 is 1 v p-p as displayed on the scope. Disconnect probe.

(18) Connect AN/USM-106A VTVM probe across ground and one end of the 600 ohm load on the proper AUDIO OUT jack.

(19) Adjust the proper LINE LEVEL ADJUST control for channel under test until a level of .39 v rms is indicated on the VTVM. Adjust R48 so that the LINE DBM meter on the demultiplexer reads 0 dbm.

(20) Place METER SENSITIVITY switch in the +10 position.

(21) Adjust the LINE LEVEL ADJUST (for the channel under test) until a level of 1.2 v rms is indicated on the AN/USM-106A. LINE DBM meter on the demultiplexer should read 0.

(22) Connect scope probe across TP-14 and ground. A clean sine wave should be displayed on the scope. Adjust LINE LEVEL ADJUST (for channel under test) until a level of .12 v rms is indicated on the AN/USM-106A meter.

(23) Place METER SENSITIVITY switch in the -10 position. Meter should read 0.

(24) Remove AN/USM-106A probe.

(25) Remove scope probe.

(26) Turn POWER switch to off (down) position, and remove test equipment.

(27) Remove audio card under test and extender card from chassis socket. Return audio card to proper chassis socket.

(28) Test outlined in paragraph 5-22 inclusive may be repeated for testing of any or all audio cards (2A6, 2A8, 2A10 or 2A12).

5-23. SYMMETRICAL DEMODULATOR CARD (2A4) (A4630) ALIGNMENT PROCEDURES (FIGURE 5-57, 5-58).

a. OTHER BOARDS REQUIRED.—All cards except 2A2.

b. EQUIPMENT REQUIRED.

Signal Generator: HP-606B, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
VOM: AN/PSM-4C, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Remove the 2A4 card from the demultiplexer chassis.

(2) Insert extender card in the 2A4 socket of the demultiplexer, and insert 2A4 card in the extender card socket.

(3) Set the following controls to midrange:

(a) R23
(b) R24
(c) R52
(d) R10

(4) Connect a TEE connector to the RF OUTPUT of the signal generator and a 50 ohm load and output cable to the TEE connector.

(5) Connect signal generator output cable to 2J9, IF IN.

(6) For SYM-B2 channel, set the AGC SOURCE switch to B2 position, the AGC TIME CONSTANT to MED, and LINE LEVEL ADJUST control fully counterclockwise. Set MODE switch to AM 2.5 kc position.

(7) Select SYM with MONITOR SELECTOR switch.

(8) Connect VERTICAL SIGNAL OUT of scope to AC SIGNAL INPUT of counter.

(9) Turn POWER switch to ON position.

(10) Connect AN/PSM-4C meter (+DC, 50V scale) between TP-18 on A4 and ground. Meter should read +24 vdc ±10%.

(11) Connect AN/PSM-4C meter (+DC, 50 V scale) between TP-15 and ground. Rotate the MODE switch through all positions. The meter should indicate as follows:

MODE SWITCH POSITION	AN/PSM-4C INDICATION
AM 2.5 kc	+24 vdc ±10%
AM 6 kc	+24 vdc ±10%
CW 2.5 kc	+24 vdc ±10%
CW 6 kc	+24 vdc ±10%
ISB	close to 0 vdc

(12) Connect AN/PSM-4C meter between ground and the cathode of CR9. Meter should indicate approximately +12 vdc.

(13) Turn POWER switch to off position.

(14) Connect AN/PSM-4C meter (+DC, RX1 scale) between ground and pin N. Rotate the MODE switch through all positions. The meter should indicate as follows:

MODE SWITCH POSITION	AN/PSM-4C INDICATION
AM 2.5 kc	0 ohms
AM 6 kc	0 ohms
CW 2.5 kc	infinity
CW 6 kc	infinity
ISB	infinity

(15) Connect AN/PSM-4C meter (+DC; RX1 scale) between ground and pin L. Rotate the MODE switch through all positions. The meter should indicate as follows:

MODE SWITCH POSITION	AN/PSM-4C INDICATION
AM 2.5 kc	infinity
AM 6 kc	infinity
CW 2.5 kc	0 ohms
CW 6 kc	0 ohms
ISB	infinity

(16) Disconnect AN/PSM-4C meter.

(17) Turn POWER switch to ON position.

(18) BFO ADJUSTMENT

(a) Connect scope probe to TP-8 (counter should be connected to VERTICAL SIGNAL OUT of scope).

(b) Place MODE switch to CW 2.5 kc position.

(c) Rotate SYM BFO control fully clockwise (+3 kc) and adjust R23 for a counter reading of 253.5 kc.

(d) Rotate SYM BFO control fully counterclockwise (-3 kc) and adjust R24 for counter reading of 246.5 kc.

(e) Repeat steps (c) and (d) alternately until both frequencies are on within a tolerance of ±500 cps.

(f) The amplitude of the signal at TP-8 should be approximately 8.0 v p-p.

(g) Remove scope probe.

(19) Set the signal generator for a frequency of 250 kc and at an amplitude of 30 millivolts rms.

(20) Connect scope probe between TP-1 and ground. A 250 kc sine wave should be displayed at an amplitude of approximately .2 v p-p.

(21) Connect scope probe between TP-10 and ground. Adjust SYM BFO control for a signal of approximately 1 kc.

(22) Disconnect scope probe.

(23) Connect AN/USM-106A meter between TP-10 and ground and adjust R52 for a level of 420 millivolts rms. Remove meter.

(24) Set METER SENSITIVITY switch to +10.

(25) Adjust SYM-B2, LINE LEVEL ADJUST clockwise until the LINE DBM meter reads full scale (+2 dbm)

(26) Connect AN/USM-106A meter between TP-13 and ground.

(27) The signal level should be 70 millivolts rms ±10%. Remove meter.

(28) Place MODE switch in AM 6 kc position.

(29) Modulate the signal generator internally with the 1 kc tone at 75%.

(30) Connect AN/USM-106A meter between TP-10 and ground. Adjust R10 for a level of 410 millivolts rms.

(31) LINE DBM meter should be indicating close to full scale.

(32) Turn SYM-B2, LINE LEVEL ADJUST fully counterclockwise. Disconnect AN/USM-106A meter.

(33) Turn POWER switch to off (down) position, and remove test equipment.

(34) Remove 2A4 board and extender card from chassis socket, and return 2A4 card to proper chassis socket.

5-24. MONITOR, DIVERSITY (2A2) (A4628) ALIGNMENT PROCEDURES (FIGURES 5-53, 5-54).

a. OTHER BOARDS REQUIRED.—All cards.

b. EQUIPMENT REQUIRED.

Signal Generator: HP-606B, or equivalent

Oscilloscope: AN/USM-281A, or equivalent

VOM: AN/PSM-4C, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Set meter FUNCTION switch on Unit 1 to RF LOW position.

(2) Preset the following controls on 2A2 to mid-range:

(a) R65

(b) R75

(c) R70

(3) Insert extender card in the 2A2 socket of the TD-915 and insert the 2A2 card in the extender card socket.

(4) Connect a TEE connector to the RF OUTPUT of the signal generator, and a 50 ohm load and an output cable to the TEE connector.

(5) Connect signal generator output cable to 2J9, IF IN on TD-915/URR.

(6) Connect 4 ohm load across pins B and E of J14 Speaker.

(7) On TD-915/URR, set all AGC SOURCE switches to closed loop (i.e., A1 Source in A1 position, A2 Source in A2 position, etc.).

(8) Place all AGC TIME CONSTANT switches in MED position.

(9) Set LOCAL GAIN fully counter-clockwise.

(10) Place MODE switch to AM 2.5 kc position.

(11) Place MONITOR SELECTOR switch to SYM.

(12) Set METER SENSITIVITY switch to +10 position.

(13) Turn SYM BFO control maximum clockwise.

(14) All LINE LEVEL ADJUST controls should be set to mid-range.

(15) Turn POWER switch on TD-915/URR to ON position.

(16) Connect AN/PSM-4C meter (+DC, 50V scale) between TP-21 and ground. Meter should read +24 vdc ±10%.

(17) Connect AN/PSM-4C meter (+DC, 50V scale) between TP-17 and ground. Meter should read +12 vdc ±10%.

(18) Connect AN/PSM-4C meter (-DC, 50V scale) between TP-18 and ground. Meter should read -12 vdc ±10%.

(19) Connect AN/PSM-4C meter (-DC, 50V scale) between TP-22 and ground. Meter should read -24 vdc ±10%.

(20) Disconnect AN/PSM-4C meter.

(21) Set signal generator to a frequency of 250 kc and internally modulate the signal generator with 1000 cps tone at 75%.

(22) Set signal generator output for an amplitude of 30 millivolts rms.

(23) Connect scope probe to TP-1 on A2 card and adjust LOCAL GAIN control for a signal at 500 millivolts p-p.

(24) Connect scope probe between TP-2 and ground. A sine wave should be displayed at approximately 4.4 v p-p.

(25) Connect scope probe between TP-4 and ground. A sine wave should be displayed at approximately 4.4 v p-p.

(26) Connect scope probe across 4 ohm load (ground lead of probe on pin B of J14, Speaker). Adjust LOCAL GAIN control for an output of 5.6 v p-p, 2 v rms on the scope. A sine wave should be displayed.

(27) Remove internal modulation from the signal generator by placing it in the CW mode.

(28) On TD-915/URR, place the MODE switch in the CW 6 kc position.

(29) Adjust LOCAL GAIN control for an output of 5.6 v p-p as displayed on the scope. A sine wave should be displayed.

(30) Place MODE switch in ISB position and MONITOR SELECTOR in B2 position.

(31) Tune signal generator for an output signal as indicated on the scope (still connected across load on the speaker jack).

(32) Adjust LOCAL GAIN for an output of 5.6 v p-p. A sine wave should be displayed on the scope.

(33) Repeat steps (30), (31), and (32) for channels B1, A1, and A2. Remove scope probe.

(34) Set the signal generator level to 1 millivolt rms and to an approximate frequency of 250 kc.

(35) With the MODE switch set in ISB and the MONITOR SELECTOR in the A2 position, tune the signal generator for an output in the A2 channel by monitoring the LINE DBM meter, on the TD-915. LINE LEVEL ADJUST and METER SENSITIVITY switch should be used as required.

(36) Adjust R75 on the A2 card so that RF/AFC LEVEL meter on Unit 1 reads slightly higher than mid-scale.

(37) Increase the signal generator output 10 db. The RF/AFC LEVEL meter should be slightly adjusted and steps (18) through (20) repeated until the RF LEVEL meter does indicate an approximate increase of 10 db.

(38) With the signal generator level set to 1 millivolt, adjust R75 so that the RF/AFC LEVEL meter reads 20 db above 1 uv.

(39) Select CW 2.5 kc with the MODE switch, select SYM with the MONITOR SELECTOR switch, and place SYM BFO mid-range.

(40) Tune the signal generator for an output in the approximate center of the symmetrical channel, by monitoring the LINE DBM meter on TD-915/URR, LINE LEVEL ADJUST and METER SENSITIVITY switch should be used as required.

(41) Adjust R65 for 20 db above 1 uv as indicated on the RF/AFC LEVEL meter.

(42) Turn POWER switch to off (down) position, and remove all test equipment.

(43) Remove 2A2 board and extender card from chassis socket and return 2A2 card to proper chassis socket.

(44) Reconnect Unit 2 into system.

5-25. PREALIGNMENT OF REFERENCE GENERATOR O-1511/URR UNIT 3 AND/OR 7.

a. PREALIGNMENT INSTRUCTIONS.—The purpose of the alignment section is the adjustment, tuning and peaking of the entire reference generator or any particular section. It is anticipated that the technician will have isolated trouble by means of the Functional Test Data and Servicing Block Diagrams in Section 4 of this manual. In any case, this procedure may be used to completely align a reference generator or to align and/or check individual cards. If a complete alignment is desired, follow the procedure in sequence. If an individual board is to be aligned, simply follow the directions for the particular section. Each particular section names the circuit boards in that reference generator which must be in place and aligned.

Observe polarity on the extender card. As the technician faces the front panel, numbers on the extender card are on the right, letters on the left. Only the 3A2 card components face right; on all other cards in the reference generator, the components face left.

All variable inductor and transformer alignments must be carried out with a non-inductive alignment tool. Extreme care should be taken with variable inductor slugs, which are brittle.

Absolute stability and accuracy of internally generated frequencies will depend on the time allowed for warmup of the internal 1 mc standard. For absolute measurements of phase comparison of the 1 mc standard, a 4-hour warmup period is required. For general alignment, a 2-hour warmup period will suffice.

Insert 50 ohm dummy load terminators in 3J3, 3J4, 3J6 and 3J7 whenever the 3A13 board is inserted, and when the reference generator is bench aligned, away from the receiver and not interconnected with it.

b. LIST OF APPLICABLE FIGURES.—Schematic Wiring Unit 3, Figure 5-65.

SECTION OR CARD	ASSEMBLY NUMBER	ASSY FIG.	SCHEMATIC FIG.
Power Supply 3A2	A4687	5-71	5-70
1 mc Distributor 3A3	A4688	5-73	5-72
1 mc Selector 3A4	A4689	5-75	5-74
100 kc Selector 3A5	A4690	5-77	5-76
Matrix Distributor 3A6, 3A7	A4691	5-79	5-78
Matrix Distributor 3A8	A4692	5-81	5-80
Mixer/Amplifier 3A9, 3A10, 3A11	A4693	5-83	5-82
Mixer/Amplifier 3A12	A4694	5-85	5-84
Final Mixer/Output 3A13	A4695	5-87	5-86

c. EQUIPMENT REQUIRED.
VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Signal Generator: HP-606B, or equivalent
Non-inductive alignment tool.

d. INITIAL CONTROL SETTINGS.—There are no initial control settings required.

5-26. POWER SUPPLY (3A2) (A4687) ALIGNMENT PROCEDURES (FIGURES 5-70, 5-71).

a. OTHER BOARDS REQUIRED.—None.

b. EQUIPMENT REQUIRED.—VOM: AN/PSM-4C, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off (down) position. Insert 3A2 card into extender and insert in proper chassis slot.

(2) Set R4, R13, R22 fully counterclockwise.

(3) Set R7, R16, R25 to approximately mid-range.

(4) Connect VOM to TP-2 on +50 volt dc range.

(5) Turn POWER switch to ON position.

(6) Adjust R7 for +25 volts dc.

(7) Connect the VOM to TP-5.

(8) Adjust R16 for +16 volts dc.

(9) Connect the VOM to TP-8 on +10 volts dc range.

(10) Adjust R25 for +5.4 volts dc, if no other cards are inserted. If all other cards are inserted, adjust R25 for +5 volts dc.

(11) Turn POWER switch to off (down) position.

(12) Connect the (+) lead of the VOM to TP-2, the (-) lead to TP-3. Set the meter for 10 amp function.

(13) Turn POWER switch to ON position.

(14) Adjust R4 for 800 ma.

(15) Turn POWER switch to off (down) position.

(16) Connect (+) lead of VOM to TP-8 and (-) lead to TP-9, with meter set for 10 amp function.

(17) Turn POWER switch to ON position.

(18) Adjust R22 for 1.3 amperes.

(19) Turn POWER switch to off (down) position.

(20) After removing the extender card and VOM, insert 3A2 board into chassis.

5-27. ONE MC DISTRIBUTOR (3A3) (A4688) ALIGNMENT PROCEDURES (FIGURES 5-72, 5-73).

a. OTHER BOARDS REQUIRED.—3A2

b. EQUIPMENT REQUIRED.

Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Signal Generator: HP-606B, or equivalent
Non-inductive alignment tool.

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off (down) position.

(2) Insert 3A3 card into extender and plug into proper chassis slot.

(3) Turn POWER switch to ON position.

(4) Connect scope and counter to TP-2. A 1 mc sine wave, 2.8 to 4.0 volts p-p, should be observed.

(5) Remove scope and counter. Turn POWER switch to off (down) position.

(6) Remove 3A3 temporarily from the extender. Carefully insulate pin 2 with thin electrical tape. Re-insert 3A3 into extender. Turn POWER switch to ON position.

(7) Connect signal generator to the left side of the 47 ohm resistor at pin 2 of 3A3. Set the generator to 1 mc ±10 cycles. Connect the scope and counter to TP-2. The signal generator level should be 700 millivolts rms. This corresponds to 2 volts p-p on the oscilloscope.

(8) Adjust R76 until the INTERNAL, STANDARD FAILURE lamp just lights.

(9) Slowly increase the signal generator output. The INTERNAL, STANDARD FAILURE lamp should extinguish at approximately 725 millivolts from the generator.

(10) Turn POWER switch to off (down) position. Remove tape from pin 2. Disconnect signal generator, scope and counter. Re-insert 3A3 card into extender. Turn POWER switch to ON position. INTERNAL, STANDARD FAILURE lamp should be out.

(11) Connect signal generator to 3J5, 1 mc IN. Connect scope and counter to TP-1. Adjust generator for 1 mc and 10 cps, 700 millivolts rms.

(12) Adjust R61 until EXTERNAL, STANDARD FAILURE lamp just goes out (about 650 millivolts from generator).

(13) With signal generator at 1 mc ±10 cps, set PHASE COMPARATOR/FREQ DIFFERENCE switch to FREQ DIFFERENCE position.

(14) Adjust R30 so that front panel meter oscillates about center scale.

(15) With signal generator at 1 mc ±5 cps, adjust R37 so that meter excursions just reach the RED area. Readjust R30 as necessary to keep the swing symmetrical about center scale.

(16) Move the signal generator approximately 50 cps from 1 mc. The meter needle should rest near center scale.

(17) Connect VOM on +10 volt dc range to TP-8. Adjust R48 for +4.5 vdc.

(18) Disconnect the signal generator from 3J5.

(19) Connect VOM on +10 vdc range to TP-21. Adjust R56 for +4.5 vdc. Remove VOM.

(20) Connect scope and counter to TP-14. A 1 mc rectangular waveform approximately 2.5 v p-p should be observed.

(21) Connect the scope and counter to TP-23. Adjust L11 for maximum 1 mc sine wave, approximately 1.5 v p-p.

(22) Connect the scope and counter to TP-15. Adjust R89 for a 2.8 v p-p, 1 mc signal.

(23) Verify with the scope and counter that a 1 mc sine wave is present at TP-16 and TP-17, approximately 1.5 v p-p.

(24) Remove test equipment. Turn POWER switch to off (down) position. Remove the 3A3 card from the extender and place it directly into its proper chassis slot.

5-28. 1 MC SELECTOR (3A4) (A4689) ALIGNMENT PROCEDURES (FIGURES 5-74, 5-75).

a. OTHER BOARDS REQUIRED.—3A2, 3A3

b. EQUIPMENT REQUIRED.

Oscilloscope: AN/USM-281A, or equivalent
VOM: AN/PSM-4C, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Non-inductive alignment tool.

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off (down) position.

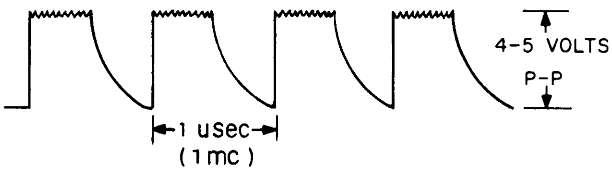
(2) Insert 3A4 card with extender into proper chassis slot.

(3) Turn POWER switch to ON position.

(4) With AN/PSM-4C, make the following dc voltage measurements:

TP-1: +15 vdc
TP-3: +5 vdc

(5) Connect the scope and counter to TP-5. The following waveform should be observed:



(6) Connect scope and counter to TP-6. Adjust L3, L4 for maximum 11 mc signal (0.7 to 1.0 v p-p).

(7) Connect scope and counter to TP-12. Adjust L19, L20 for maximum 17 mc signal (1.0 to 1.5 v p-p).

(8) Connect scope and counter to TP-11. Adjust L16, L17 for maximum 16 mc signal (1.0 to 1.5 v p-p).

(9) Connect scope and counter to TP-9. Adjust L9, L10 for maximum 10 mc signal (1.0 to 1.5 v p-p).

(10) Connect scope and counter to TP-10. Adjust L13, L14 for maximum 12 mc signal (1.0 to 1.5 v p-p).

(11) Connect scope and counter to TP-8. Rotate the 10 mc selector switch through its positions; a sine wave at an amplitude 0.6 to 1.5 v p-p should be observed, as follows:

10 MC SELECTOR	FREQUENCY
0	3 mc
1	4 mc
2	5 mc
3	6 mc

(12) Connect scope and counter to TP-13. Adjust L5, L6 for maximum 14 mc signal (1.5 to 2.0 v p-p).

(13) Connect scope and counter to TP-7. A clean sine wave should be observed at 1.4 mc (0.5 to 1.0 v p-p).

(14) Remove test equipment. Turn POWER switch to off (down) position. Insert 3A4 card directly into proper chassis slot.

5-29. 100 KC SELECTOR (3A5) (A4690) ALIGNMENT PROCEDURES (FIGURES 5-76, 5-77).

a. OTHER BOARDS REQUIRED.—3A2, 3A3.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Non-inductive alignment tool.

c. ALIGNMENT AND ADJUSTMENT.

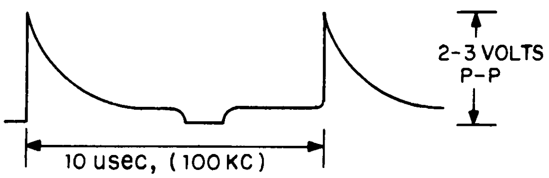
(1) Turn POWER switch to off (down) position.

(2) Insert 3A5 board with extender in proper chassis slot.

(3) Turn POWER switch to ON position.

(4) With VOM, measure the dc voltage at TP-2. It should be +15 vdc.

(5) Connect scope and counter to TP-5. The following waveform should be observed:



(6) Connect the scope and counter to the test points indicated below. Tune the designated inductors for maximum signal; the amplitude should be approximately 0.8 to 1.8 volts p-p.

TEST POINT	ADJUST	FREQUENCY
TP-6	L3, L4	16.2 mc
TP-7	L5, L6	16.6 mc
TP-8	L7, L8	16.9 mc
TP-9	L9, L10	16.4 mc
TP-10	L11, L12	16.1 mc
TP-11	L13, L14	16.5 mc
TP-12	L15, L16	16.8 mc
TP-13	L17, L18	16.3 mc
TP-14	L19, L20	16.7 mc

(7) Disconnect test equipment. Turn POWER switch to off (down) position. Insert 3A5 card directly into its proper chassis slot.

5-30. .1 KC AND 1 KC FREQUENCY SELECTION MATRIX (3A6) (A4691) ALIGNMENT PROCEDURES (FIGURES 5-78, 5-79).

a. OTHER BOARDS REQUIRED.—3A2, 3A3, 3A4, 3A5

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off (down) position.

(2) Insert 3A6 board with extender into proper chassis slot.

(3) Turn POWER switch to ON position.

(4) With VOM, measure the dc voltage at TP-1. It should be +5 volts dc.

(5) Connect scope and counter to TP-3. Rotate the .1 kc selector switch through its ten positions and observe the frequencies listed below. The minimum amplitude in any position should be 1.5 v p-p.

.1 KC SWITCH POSITION	FREQUENCY
0	16.0 mc
1	16.1 mc
2	16.2 mc
3	16.3 mc
4	16.4 mc
5	16.5 mc
6	16.6 mc
7	16.7 mc
8	16.8 mc
9	16.9 mc

Leave the .1kc selector switch in position 0.

(6) Connect the scope and counter to TP-4. Rotate the 1 kc selector switch through its ten positions, observing the frequencies indicated below. The minimum amplitude should be 1.5 v p-p.

1 KC SWITCH POSITION	FREQUENCY
0	16.0 mc
1	16.1 mc
2	16.2 mc
3	16.3 mc
4	16.4 mc
5	16.5 mc
6	16.6 mc
7	16.7 mc
8	16.8 mc
9	16.9 mc

Leave the 1kc selector switch in position 0.

(7) Turn POWER switch to off (down) position. Remove scope and counter. Insert 3A6 card directly into proper chassis slot.

5-31. 10 KC AND 100 KC MATRIX DISTRIBUTOR (3A7) (A4691) ALIGNMENT PROCEDURES (FIGURES 5-78, 5-79).

NOTE

3A7 and 3A6 are identical and interchangeable.

a. OTHER BOARDS REQUIRED.—3A2, 3A3, 3A4, 3A5.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off (down) position.

(2) Insert 3A7 card into extender and plug into proper chassis slot.

(3) Turn POWER switch to ON position.

(4) Measure, with VOM, the dc voltage at TP-1. It should be +5 volts dc.

(5) Connect scope and counter to TP-3. Rotate the 100 kc selector switch through its ten positions, and observe the frequencies indicated below. Minimum amplitude should be 1.5 v p-p.

100 KC SWITCH POSITION	FREQUENCY
0	16.0 mc
1	16.1 mc
2	16.2 mc
3	16.3 mc
4	16.4 mc
5	16.5 mc
6	16.6 mc
7	16.7 mc
8	16.8 mc
9	16.9 mc

Leave the 100 kc switch in position 0.

(6) Connect the scope and counter to TP-4. Rotate the 10 kc selector switch through its ten positions and observe the frequencies indicated below. Minimum amplitude should be 1.5 v p-p.

10 KC SWITCH POSITION	FREQUENCY
0	16.0 mc
1	16.1 mc
2	16.2 mc
3	16.3 mc
4	16.4 mc
5	16.5 mc
6	16.6 mc
7	16.7 mc
8	16.8 mc
9	16.9 mc

Leave the 10 kc switch in position 0.

(7) Turn POWER switch to off (down) position. Disconnect test equipment. Insert 3A7 card directly into proper chassis slot.

5-32. 1 MC MATRIX DISTRIBUTOR (3A8) (A4692) ALIGNMENT PROCEDURES (FIGURES 5-80, 5-81).

a. OTHER BOARDS REQUIRED.—3A2, 3A3, 3A4, 3A5.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off (down) position.

(2) Insert 3A8 card into extender and insert into proper chassis slot.

(3) Turn POWER switch to ON position.

(4) Measure, with VOM, the dc voltage at TP-3. It should be +5 volts dc.

(5) Measure, with VOM, the dc voltage at extender card pin D. It should be +15 volts dc.

(6) Connect scope and counter to TP-1. Rotate the 1 mc selector switch through its ten positions, observing the frequencies indicated below. The minimum amplitude should be 0.45 volts p-p.

1 MC SWITCH POSITION	FREQUENCY
0	17.0 mc
1	16.9 mc
2	16.8 mc
3	16.7 mc
4	16.6 mc
5	16.5 mc
6	16.4 mc
7	16.3 mc
8	16.2 mc
9	16.1 mc

Leave the 1 mc switch in position 0.

(7) Remove test equipment. Turn POWER switch to off (down) position. Insert 3A8 card directly into proper chassis slot.

5-33. MIXER/AMPLIFIER (3A9) (A4693) ALIGNMENT PROCEDURES (FIGURES 5-82, 5-83).

a. OTHER BOARDS REQUIRED.—3A2, 3A3, 3A4, 3A5, 3A6.

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Signal Generator: HP-606B, or equivalent
Non-inductive tuning tool.

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off (down) position.

(2) Insert 3A9 card with extender into proper chassis slot.

(3) Turn POWER switch to ON position.

(4) With VOM, measure dc voltage as follows:

TP-1: +15 volts dc
TP-2: +5 volts dc

(5) Connect scope and counter to TP-3. Adjust R1 for maximum signal. It should be 1.4 mc, 0.5 to 1.0 volts p-p.

(6) Connect scope and counter to TP-4. Adjust L1 for maximum 1.4 mc signal, approximately 1.0 volts p-p.

(7) Adjust R1 for minimum signal at TP-4.

(8) Connect scope and counter to TP-5. Adjust R13 for maximum 11.0 mc signal, 1.0 to 1.5 volts p-p.

(9) Connect scope and counter to TP-15. Adjust L5 and R11 for maximum 11 mc signal, approximately 1.0 to 1.5 volts p-p.

(10) Adjust R13 for zero signal at TP-15.

(11) Connect a signal generator at 12.4 mc from TP-6 to TP-22. Set the generator output initially at 50,000 microvolts. In no case exceed 100,000 microvolts.

(12) Connect scope and counter (highest sensitivity), from TP-8 to TP-21.

(13) Adjust carefully and slowly the following components, in the order indicated, for maximum 12.4 mc signal at TP-8: R37, R26, L2, C78, L3, L4. Initially, the signal amplitude may be extremely small. As the signal increases, reduce the signal generator output to keep the signal amplitude at TP-8 at about 0.5 volts p-p. Readjust L2, C78, L3, L4 at least twice. Disconnect signal generator from TP-6.

(14) Connect scope and counter to TP-4. Adjust R1 for 0.6 volts p-p, 1.4 mc, at TP-4.

(15) Connect scope and counter to TP-15. Adjust R13 for .35 volts p-p, 11 mc, at TP-15.

(16) Connect scope and counter to TP-8. Adjust T1, C11, C78, L2, L3, L4, R37, R11 for maximum 12.4 mc signal at TP-8.

(17) Repeat adjustment of T1, C11, C78, L2, L3, and L4 twice. Signal amplitude should be approximately 1.5 volts p-p.

(18) Adjust R11 for a dip in signal amplitude at TP-8. This is a small dip. If the pot has 360° rotation, do not adjust for zero signal. After dip, signal should be in excess of 1.2 volts p-p.

(19) Adjust R26 for zero signal at TP-8.

(20) Connect scope and counter to TP-23. Adjust R47 for maximum 1.6 mc signal at TP-23, at least 1.0 volts p-p. Then adjust R47 for zero signal at TP-23.

(21) Connect a signal generator at 14 mc, 100,000 microvolts, between TP-11 and TP-18. Connect scope and counter to TP-14.

(22) Adjust, in order, R56, R37, L6, C79, L7, L8 for maximum 14 mc signal. Reduce signal generator output as necessary to prevent exceeding 0.5 volt p-p at TP-14.

(23) Remove signal generator. Connect scope and counter to TP-8. Adjust R26 for 1.2 volts p-p at 12.4 mc.

(24) Connect scope and counter to TP-23. Adjust R47 for 0.8 volt p-p, 1.6 mc.

(25) Connect scope and counter to TP-14. Adjust R37, T2, C3, C79, L6, L7, L8 twice. The signal at TP-14 should be about 1.0 volt p-p.

(26) Adjust R37 for a dip in the signal at TP-14. The dip will be small. If the pot has 360° rotation, do not adjust for zero signal.

(27) Adjust R56 for 0.8 volt p-p at TP-14.

(28) Connect scope and counter to TP-13. Signal should be 0.8 volt p-p, 1-4 mc.

(29) Remove test equipment. Turn POWER switch to off (down) position. Insert 3A9 card directly into proper chassis slot.

5-34. MIXER/AMPLIFIER (3A10) (A4693) ALIGNMENT PROCEDURES (FIGURES 5-82, 5-83).

Use the same procedure as for 3A9 except that the following boards are required: 3A2, 3A3, 3A4, 3A5, 3A6, 3A9. Have 100 kc, 10 kc, 1 kc and .1 kc selector switches in position 0.

5-35. AMPLIFIER-MIXER (3A11) (A4693) ALIGNMENT PROCEDURES (FIGURES 5-82, 5-83).

Use the same procedure as for 3A9 except that the following boards are required: 3A2, 3A3, 3A4, 3A5, 3A6, 3A7, 3A9, 3A10. Have 100 kc, 10 kc, 1 kc and .1 kc selector switches in position 0.

5-36. BASIC MIXER-AMPLIFIER (3A12) (A4694) ALIGNMENT PROCEDURES (FIGURES 5-84, 5-85).

Use the same procedure as for 3A9, except that the following boards are required: 3A2, 3A3, 3A4, 3A5, 3A6, 3A7, 3A9, 3A10, 3A11. The output at TP-13 will be 14 mc.

5-37. FINAL MIXER/OUTPUT (3A13) (A4695) ALIGNMENT PROCEDURES (FIGURES 5-86, 5-87).

a. OTHER BOARDS REQUIRED.—All

b. EQUIPMENT REQUIRED.

VOM: AN/PSM-4C, or equivalent
Oscilloscope: AN/USM-281A, or equivalent
Frequency Counter: AN/USM-207, or equivalent
Four 50 ohm dummy loads, (BNC) connected at 3J3, 3J4, 3J6, 3J7.
Non-inductive tuning tool

c. ALIGNMENT AND ADJUSTMENT.

(1) Turn POWER switch to off (down) position. Insert 3A13 into proper chassis slot with extender card. Turn POWER switch to ON position.

(2) Turn all frequency selector switches to 0.

(3) With VOM, measure the dc voltage at the following test points:

TP-1:	+15 volts dc
TP-3:	+25 volts dc
TP-4:	+5 volts dc

(4) Connect VOM to TP-17 on +30 volt dc range. Turn 10 mc switch to 3. Adjust R80 for +18 volts dc. Leave VOM at TP-17.

(5) Turn 10 mc switch to 0. Adjust R86 for +4 volts dc.

(6) Repeat steps (4) and (5) until the prescribed voltages are obtained as the 10 mc switch is moved from 0 to 3.

(7) Connect scope and counter to TP-5. Adjust R1 for maximum signal (.5 to 10 volts p-p).

(8) Connect scope and counter to TP-6. Signal should be approximately 1.0 volts p-p, with frequency as follows:

10 MC SWITCH	FREQUENCY
0	3 mc
1	4 mc
2	5 mc
3	6 mc

(9) Adjust R1 for 0.4 volts p-p on the lowest signal amplitude obtained as the 10 mc switch is rotated through its four numbered positions.

(10) Connect scope and counter to TP-7. Adjust R66 for maximum 14 mc signal, approximately 1.0 volts p-p. Turn .1 kc, 10 kc and 100 kc selector switches to 9. Signal at TP-7 should increase to 14.09999 mc. Leave all frequency selector switches at 0.

(11) Connect scope and counter to TP-8. Adjust R12 and L2 for maximum 14 mc signal, it should be greater than 1.5 volts p-p.

(12) Adjust R66 for 1.5 volts p-p, 14 mc, at TP-8.

(13) Turn 10 mc selector switch to 3 (6 mc). Connect scope and counter to TP-9, highest sensitivity. Adjust T1, L3, R12 for maximum 20 mc signal.

(14) Connect scope and counter to TP-10. Adjust R20, L4, L5 for maximum 20 mc signal.

(15) Repeat adjustments of T1, L3, L4, L5.

(16) Turn 10 mc selector switch to 0 (3 mc).

(17) Connect VOM on +10 volt dc range to TP-17. Leave scope and counter at TP-10.

(18) Adjust R86 slightly for maximum signal at TP-10. The VOM should read about +3.75 vdc. Remove the VOM.

(19) Adjust C15, C16, C30, C31 for maximum 17 mc signal at TP-10.

(20) With 10 mc selector switch at 3, peak T1, L3, L4, L5. With 10 mc selector switch at 0, peak C15, C16, C31. Repeat until optimum amplitude has been reached in both positions.

(21) Connect VOM to TP-17, on +10 volt dc range. Turn 10 mc selector switch to 1. If 18 mc signal at TP-10 is not equal to amplitudes obtained in switch positions 0 and 3, adjust R85 for maximum signal. The dc voltage at TP-17 should be approximately +6.3 volts dc.

(22) Turn 10 mc selector switch to 2. If 19 mc signal at TP-10 is not equal to signal amplitudes obtained in positions 0, 1 and 3, adjust R87 for maximum 10 mc signal. The dc voltage at TP-7 should be approximately +11.0 volts dc.

NOTE

The signal amplitude at TP-10 in 10 mc selector switch positions 0, 1, 2 and 3, should be approximately 1.0 volt p-p.

(23) Adjust R12 for a dip (not zero) in the output signal. The dip is very small, and will appear near the point of maximum amplitude.

(24) Set front panel selector switches to 00.0000. Connect scope and counter to TP-11 (16 mc). Adjust R88 for maximum signal.

(25) Turn the 1 mc selector switch through its ten positions; the amplitude should be at least 0.6 volts p-p and the frequency should be as follows:

1 MC SWITCH	FREQUENCY
0	17.0 mc
1	16.9 mc
2	16.8 mc
3	16.7 mc
4	16.6 mc
5	16.5 mc
6	16.4 mc
7	16.3 mc
8	16.2 mc
9	16.1 mc

(26) Connect scope and counter to TP-12. Adjust R88 for a signal level of 150 millivolts p-p. The signal is not expected to be clean at this point.

(27) Connect scope and counter to TP-14. A clean sine wave in the range of 200 kc to 3.2 mc should be observed, at an amplitude of approximately 1 volt p-p. The frequency at this point is 1/10 of the frequency indicated by the front panel selectors. For example:

FRONT PANEL	FREQUENCY: TP-14
02.0000	200 kc
05.200	520 kc
10.9999	1.09999 mc
32.0000	3.2000 mc

NOTE

The range of the unit exceeds in actuality the range of 200 kc to 3.2 mc. This procedure is concerned only with the range indicated.

(28) Connect scope and counter to TP-15. Adjust R63 for a clean sine wave, in the range of .2 to 3.2 mc, at 2.8 volts p-p.

(29) Connect scope and counter to TP-16. A clean sine wave, in the range .2 to 3.2 mc, should be observed (2.8 volts p-p).

(30) Set front panel selector switches to 02.0000. Output frequency should be 200,000 cycles.

(31) Set front panel selector switches to 10.0000. Output frequency should be 1,000,000 cycles.

(32) Turn the .1 kc, 1 kc, 10 kc and 100 kc selector switches in order, to position 9. The output should change in steps to 1,999,990 cycles.

(33) Set the front panel selector switches to 31.0000. Output frequency should be 3,100,000 cycles. Turn the .1 kc, 10 kc and 100 kc selector switches to 31.9999. The output should change steps in to 3,199,990 cycles.

(34) Insert 3A13 card directly into proper chassis slot.

(35) Turn POWER switch to off (down) position.

5-38. EMERGENCY MAINTENANCE.

a. INTERCHANGEABLE SUBASSEMBLIES. - The following subassemblies may be interchanged and will perform the required function without requiring rewiring or replacement of component parts.

(1) UNITS 1 AND/OR UNIT 4 - TN-512/URR, RF TUNER

(a) A1A5DS1 and A1A5DS2

(b) A1A5DS3 through A1A5DS6

(2) UNIT 2 AND/OR UNIT 5 - TD-915/URR, DEMULTIPLEXER

(a) A6, A8, A10 and A12

(b) A15 through A18

(3) UNIT 3 AND/OR UNIT 6 - O-1511/URR, REFERENCE SIGNAL GENERATOR

(a) A6 and A7

(b) A9, A10 and A11

(c) A14 through A19

b. SPARE FUSES AND HOLDERS. —Each unit contains a spare fuse in the spare fuse holder. These fuses may be used to replace a blown fuse in that unit. The spare fuse holder may be used for a damaged active fuse holder on any unit.

c. AIR COOLING. —If it has been determined that a unit has or is failing due to external high temperature, the unit may be pulled out in its extended locked position and with the top cover removed cooled by an external fan or blower. This may also be done if the fan of a unit has failed.

d. 1 MC STANDARD. —When a receiver's 1 mc standard has failed, the standard from another O-1511/URR may be used to replace it or any external 1 mc standard from any source with a minimum amplitude of 0.7 volts rms may be inserted at the EXT 1 STD IN jack.

5-39. REPAIR.

a. INTRODUCTION. —These methods or procedures apply to assemblies or subassemblies whose removal, repair, and/or reassembly is not obvious.

There are no special tools required for the repair of this system. Standard type tuning tools are used for the tuning of tuned circuits.

CAUTION

Care should be taken in tuning coils as the slugs are brittle and may be damaged.

A good low wattage desoldering kit should be used for the removal of printed circuit board components. A low melting point solder such as 60/40% will decrease the possibility of damage to new components due to too much heat being applied.

b. TEST EQUIPMENT AND SPECIAL TOOLS. —For the repair, removal and replacement of units, subassemblies and components, special test equipment and tools are not required, although an adequate set of miniature solid state repair tools should be a part of the standard tool box.

c. REMOVAL REPLACEMENT AND REPAIR OF CHASSIS COMPONENTS AND WIRING.

(1) TRANSISTORS, LARGE POWER TYPE. - Power transistors are mounted on the chassis and heat sinks. When replacing these transistors, use a standard type thermal compound between the transistor and its mounting where the compound was used before.

CAUTION

Be careful in removing transistors from the chassis and heat sinks. Between the transistor and its mounting there may be a mica or other type insulator. The mica/insulator must be used and in position when a new transistor is remounted.

(2) REMOVAL OF 3Q1, 3Q2, OR 3Q3.

(a) Pull out drawer to full extent.

(b) Remove POWER plug from 3J1 on rear apron.

(c) Remove top cover.

(d) Tilt unit 90°, so that top faces front, and lock.

(e) Remove four corner screws on the rear apron; the entire rear apron can be tilted back, allowing work on 3Q1, 3Q2 or 3Q3.

(3) WIRING, REFER TO TABLES 5-1, 5-2, AND 5-3. - If it is determined that a wire is defective and it cannot be repaired, proceed as follows: Determine the origin of both ends of the wire. Disconnect or unsolder one end. With an AN/PSM-4C used as an ohmmeter, measure the resistance, from end to end. It should be 0 ohms. Unsolder or disconnect the other end and measure resistance again between both ends. If this wire is in a harness, remove it if possible. If the wire cannot be removed, insulate both ends. Replace the wire along the same path as the original wire and use the same color and type.

CAUTION

Use the same size wire or a size larger, if necessary. Bind the wire to the harness as before.

d. REMOVAL, REPAIR AND REPLACEMENT OF PARTS, SUBASSEMBLIES AND UNITS.

(1) PRINTED CIRCUIT BOARDS, REMOVAL AND REPLACEMENT.—The various boards in this receiver slide into the chassis on tracks and, when pushed down to the limit, engage female plugs and tension spring contacts. It is only necessary to grasp the board on both ends and apply pressure upward to disengage it. When plugging a board in, take care to engage the phenolic card in the guide slots and exert even pressure downward to seat the card firmly. Some boards cannot be removed by finger pressure alone. A tool is supplied to assist in disengaging these cards. In the case of the counter assembly boards in Unit 1, a very small screwdriver can be used in the holes at the corners of the cards to pry the ends of the cards up evenly.

(a) REPAIR.—Printed circuit board repair requires special techniques in order to prevent damage to the board and its associated components. Reference should be made to NAVSHIPS 0967-000-0120.

CAUTION

There are transistors mounted on Printed Circuit boards which require heat sinks. If any of these transistors are replaced, reinstall heat sinks.

(2) REMOVAL OF FUNCTION SWITCH, 1A12.—(Refer to figures 5-8, 5-4.)

(a) Slide out unit 1 or unit 4 to its full extend and lock.

(b) Remove POWER plug at J5.

(c) Remove top and bottom covers.

(d) Remove knob by loosening two allen screws.

(e) Remove cards A3, A4, A5, A6 and A7.

(f) Remove three screws opposite A5, A6, A7 toward the front, which hold the switch bracket.

(g) Remove the three screws (and nuts) opposite A5, A6, A7 toward the front, on the bottom of the same compartment.

(h) Grasp the FUNCTION switch assembly firmly toward the rear and exert pressure downward. The fit is tight but the assembly should come out without the use of excessive force.

(i) Loosen the three screws (on 1/4" spacers) holding the switch and PC board to the frame. The switch and PC board will now slide out easily.

(j) Reassemble in the reverse order of removal.

(3) REMOVAL OF MODE AND AGC TIME CONSTANT SWITCHES.

(a) Slide unit out to its fullest and lock.

(b) Remove POWER plug at J2.

(c) Remove top and bottom covers.

(d) Remove control knobs by loosening two allen set screws on each of the following switches: MODE, AGC TIME CONSTANTS B1, B2, A1 and A2. Tilt front of unit up 45 degrees.

(e) Remove front panel by removing four philip head screws in line with handles.

(f) Lift front panel up to clear switch shafts and let it hang on the cable harness.

(g) Remove desired switch assembly by loosening 3 slotted screws holding assembly to the frame, and with the slightest pressure upward remove assembly with the Printed Circuit board.

(h) Reassemble in the reverse order of removal.

(4) REMOVAL OF FREQUENCY SELECTOR SWITCH ASSEMBLIES, 3A14 THRU A19.

(a) Slide out unit to its full extent and lock.

(b) Remove plug from POWER jack J1.

(c) Remove top cover.

(d) Remove two screws at the extreme front end of switch assembly to be removed. Do nut disturb the shock mount assembly.

(e) Tilt unit 90° so that bottom faces technician, and lock.

(f) Remove bottom cover.

(g) Remove the two smaller screws at the extreme rear of switch bracket to be removed. Do not touch the two larger screws.

(h) Tilt and lock unit to horizontal position.

(i) Remove all six selector knobs on the front of unit by loosening allen screws.

(j) Remove four screws holding front panels which are located in line with the drawer handles.

(k) Remove four smaller screws holding front panel. These screws are located on a straight line on the lower half of the front panel.

(l) Have an assistant hold the panel away from the chassis, as the required frequency selector assembly is lifted out.

(m) Reassemble in the reverse order.

(5) REMOVAL OF COUNTER ASSEMBLY, 1A1 (Refer to Figure 5-91(1)).

(a) Slide out Unit 1 to its full extent.

(b) Remove POWER plug 1J5.

(c) Tilt and lock the unit so that the bottom faces the technician.

(d) Remove bottom cover.

(e) With a flat blade screwdriver, loosen 1P1 from 1A1J1 and P2 from 1A1J2.

(f) With a phillips screwdriver, loosen the ground connection at 1A1J1.

(g) Return and lock the unit to a horizontal position.

(h) Remove top cover.

(i) Remove the four screws surrounding the readout window.

(j) Lift the entire assembly straight up. Do not misplace the plastic window plate.

CAUTION

When replacing the counter assembly, be sure to connect 1P1 to 1A1J1 and 1P2 to 1A1J2.

(6) REMOVAL OF FILTER ASSEMBLY 1A13 (See Figure 5-91(3)).

(a) Turn POWER switch to off (down) position.

(b) Remove all rear interconnect cabling.

(c) Remove unit from cabinet and place on service bench.

(d) Remove top and bottom covers.

(e) Remove two screws in line with the right hand front panel handle.

(f) Remove three screws on a line on the rear apron which hold rear apron to the right side.

(g) Remove four large screws, two top, two bottom, toward the right hand side, which hold the tuner oscillator assembly.

(h) Remove right hand side, which should now be clear.

(i) Carefully mark and unsolder the connections on the 1A13 Filter Board:

2 coax cables with connectors
1 red
1 brown

(j) Remove the four screws holding the 1A13 board to the right side.

(k) Reassemble in reverse order.

(7) REMOVAL OF 1A11 ANTENNA/FILTER ASSEMBLY (See Figure 5-91(2), (4)).

(a) Carefully mark and unsolder four coax cables leading to the antenna inputs on the tuner circuit boards.

(b) Remove the two cable clamps on the bottom, rear, of the unit (under the removable printed circuit board compartment). This step will allow cable slack when rear apron is removed. Refer to Figure 5-91(3).

(c) Remove eight screws in a line on rear apron, at the extreme left side of the unit.

(d) Remove two screws on rear apron which hold the rear apron to the wall holding the side of the rf oscillator assembly opposite the right side. (Figure 5-91(2).)

(e) Remove four screws on the rear apron, holding the four corners of antenna/filter box 1A11. (Parts A of Figure 5-91(2).) Remove cover from 1A11.

(f) Lift the 1A11 assembly away (as far as possible) from rear apron. Carefully mark and unsolder the antenna input lead from the terminals in the 1A11 box. Do not unsolder at J1. Refer to Figure 5-91(4).

(g) Carefully mark and unsolder the following connections on 1A11:

C9
C8
C7
C6
C5
C4
C3
C2
C1

(h) Remove 1A11 assembly.

(i) Reassemble in reverse order.

(8) REMOVAL OF RF TUNER-OSCILLATOR ASSEMBLY 1A10. (Refer to Figure 5-91.)

(a) Turn POWER switch to off (down) position.

(b) Remove all rear interconnect cabling.

(c) Remove unit from cabinet and place on service bench.

(d) Remove top and bottom covers.

(e) Remove TUNE, FUNCTION and LOCK knobs.

(f) Remove printed circuit cards A2 through A9.

(g) Remove counter assembly as described in paragraph 5-39d(5).

(h) On band #1 printed circuit card, carefully mark all cables and wires leaving the card for identification when replacing. Unsolder in the following order:

ANTENNA (coax)
GROUND (black)
AGC (green)
RF OUTPUT and GROUND (coax)
GND (black)
+24 VOLTS (red)

(i) Repeat the same cable marking and unsoldering procedure for bands 2, 3 and 4 printed circuit cards.

(j) Remove two screws and nuts holding bracket for J14 and its associated plug, located on the right hand side, toward the front. Move this assembly out of the way.

(k) On the bottom of the unit, carefully mark and unsolder the following oscillator connections (Detail A of Figure 5-91(3)):

C5 (red)
C4 (coax)
C3 (coax)
C1 (coax)
C2 (3 ground leads)
CABLE ON STANDOFF between C2 and C4

(l) Remove ground clamp holding shielded cable on side of oscillator assembly.

(m) Unsolder shielded coax cable and ground from oscillator output at XA8.

(n) Remove two screws in line with right hand front panel handle, which hold front panel.

(o) Remove three screws in a line on rear apron, which hold rear apron to right side.

(p) Remove eight large screws, four top, 4 bottom, which hold tuner-oscillator assembly in place. Refer to Parts A on Figure 5-91(3).

(q) Lift up the right side, which should now be clear except for wiring to filter unit board 1A13.

(r) On filter board 1A13 on right side, carefully mark and unsolder:

1 brown lead
1 coax lead and ground
1 red lead

(s) Remove the entire RF-oscillator assembly, which should now be clear.

(t) Reassemble in reverse order.

(9) REMOVAL OF 1 MC STANDARD, 3A1.

(a) Disconnect all wiring from rear of unit.

(b) Slide out unit, unlock, and place on service bench.

(c) Remove top cover.

(d) Remove 3A2 Power Supply board.

(e) Remove pivot nut and screw from right hand track assembly, and expose two screws holding the 1 mc standard bracket. Remove these screws and nuts.

(f) Remove the two screws on the left side of the 1 mc standard which hold the 1 mc standard bracket.

(g) Slide the 1 mc standard out of its octal socket.

TABLE 5-1

WIRE RUN LIST FOR AN/URR-64(V)1, 2, 3

FROM TN-512/URR

JACK & PIN NO.	TO	JACK & PIN NO.
J1	INTERFACE PANEL	J8
J2	0-1511/URR	J4
J3	0-1511/URR	J6
J6	TD-915/URR	J7
J7	TD-915/URR	J8
J8	TD-915/URR	J9
J9A	TD-915/URR	J11A
J9B	TD-915/URR	J11B
J9C	TD-915/URR	J11C
J9D	TD-915/URR	J11D
J9E	Not Used	
J9F	Not Used	
J9H	Not Used	
J9J	Not Used	
J9K	Not Used	

FROM TD-915/URR

JACK & PIN NO.	TO	JACK & PIN NO.
J7	TN-512/URR	J6
J8	TN-512/URR	J7
J9	TN-512/URR	J8
J11A	TN-512/URR	J9A
J11B	TN-512/URR	J9B
J11C	TN-512/URR	J9C
J11D	TN-512/URR	J9D
J11E	Not Used	
J11F	Not Used	
J11H	Not Used	
J11J	Not Used	
J11K	Not Used	
J12A	Not Used	
J12B	INTERFACE PANEL	J6A
J12C	INTERFACE PANEL	J6B
J12D	INTERFACE PANEL	J6C
J12E	INTERFACE PANEL	J6D
J12F	Not Used	
J12H	Not Used	
J12J	Not Used	
J12K	Not Used	
J13A	Not Used	
J13B	Not Used	
J13C	Not Used	
J13D	Not Used	
J13E	Not Used	
J13F	INTERFACE PANEL	J6F
J13H	INTERFACE PANEL	J6G

FROM TD-915/URR (cont)

JACK & PIN NO.	TO	JACK & PIN NO.
J13J	INTERFACE PANEL	J6H
J13K	INTERFACE PANEL	J6I
J14A	Not Used	
J14B	INTERFACE PANEL	J5B
J14C	Not Used	
J14D	Not Used	
J14E	INTERFACE PANEL	J5A
J14F	Not Used	
J14H	Not Used	
J14J	Not Used	
J14K	Not Used	
J15A	Not Used	
J15B	Shield	
J15C	INTERFACE PANEL	J7C
J15D	INTERFACE PANEL	J7B
J15E	INTERFACE PANEL	J7A
J15F	Not Used	
J15H	Not Used	
J15J	Not Used	
J15K	Not Used	
J16A	Not Used	
J16B	Shield	
J16C	INTERFACE PANEL	J7G
J16D	INTERFACE PANEL	J7F
J16E	INTERFACE PANEL	J7E
J16F	Not Used	
J16H	Not Used	
J16J	Not Used	
J16K	Not Used	
J17A	Not Used	
J17B	Shield	
J17C	INTERFACE PANEL	J7M
J17D	INTERFACE PANEL	J7L
J17E	INTERFACE PANEL	J7K
J17F	Not Used	
J17H	Not Used	
J17J	Not Used	
J17K	Not Used	
J18A	Not Used	
J18B	Shield	
J18C	INTERFACE PANEL	J7Y
J18D	INTERFACE PANEL	J7X
J18E	INTERFACE PANEL	J7W
J18F	Not Used	
J18H	Not Used	
J18J	Not Used	
J18K	Not Used	

TABLE 5-1

WIRE RUN LIST FOR AN/URR-64(V)1, 2, 3 (cont)

FROM 0-1511/URR

JACK & PIN NO.	TO	JACK & PIN NO.
J4	TN-512	J2
J5	INTERFACE	J10
J6	TN-512	J3
J7	INTERFACE	J9
J5A	TD-915	J14E
J5B	TD-915	J14B
J5C	Ground & Shield	
J5D	Not Used	
J6A	TD-915	J12B
J6B	TD-915	J12C
J6C	TD-915	J12D
J6D	TD-915	J12E
J6E	Ground	
J6F	TD-915	J13F
J6G	TD-915	J13H
J6H	TD-915	J13J
J6I	TD-915	J13K
J6J	Not Used	
J6K	Not Used	
J6L	Not Used	
J6M	Not Used	
J6N	Not Used	
J7A	TD-915	J15E
J7B	TD-915	J15D
J7C	TD-915	J15C

FROM 0-1511/URR (cont)

JACK & PIN NO.	TO	JACK & PIN NO.
J7D	Shield	
J7E	TD-915	J16E
J7F	TD-915	J16D
J7G	TD-915	J16C
J7H	Shield	
J7J	Not Used	
J7K	TD-915	J17E
J7L	TD-915	J17D
J7M	TD-915	J17C
J7N	Shield	
J7P	Not Used	
J7Q	Not Used	
J7R	Not Used	
J7S	Not Used	
J7T	Not Used	
J7U	Not Used	
J7V	Not Used	
J7W	TD-915	J18F
J7X	TD-915	J18D
J7Y	TD-915	J18C
J7Z	Shield	
J8	TN-512	J1
J9	0-1511	J7
J10	0-1511	J5

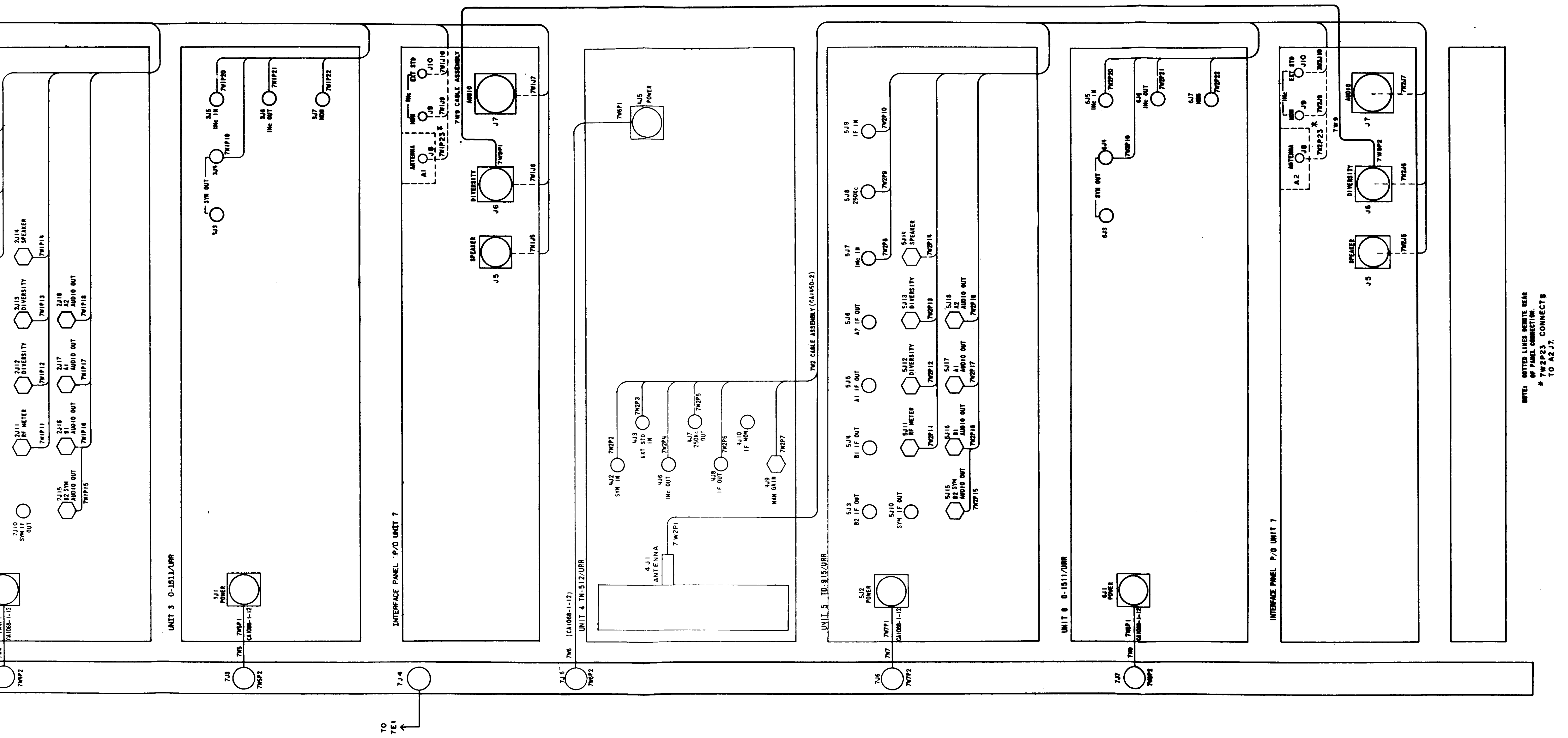
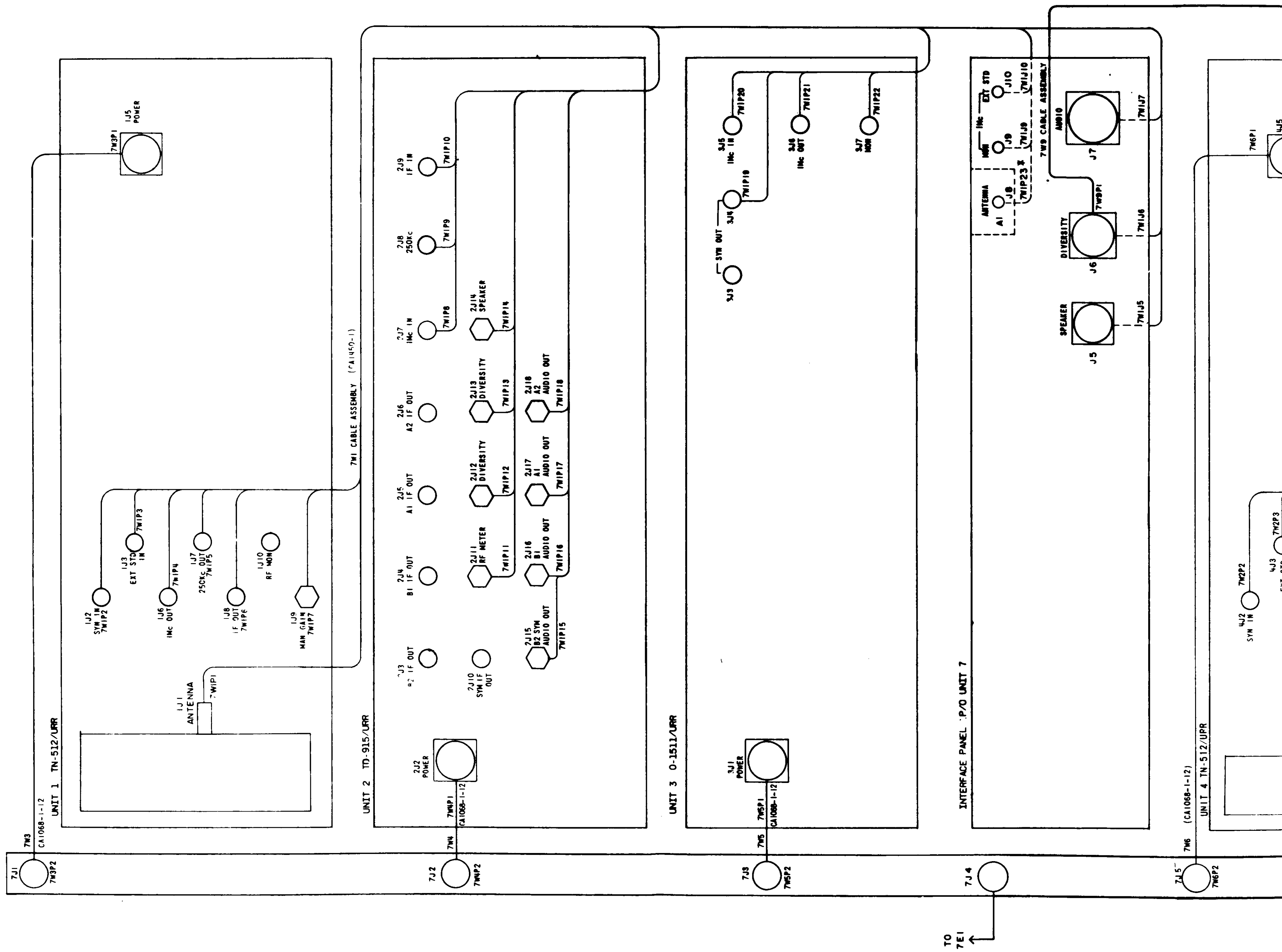


Figure 5-1. Rack Cabling Diagram, AN/URR-64(V)1 .


UNIT 1 TN-512/URR
UNIT 2 TD-915/URR
UNIT 3 O-1511/URR
INTERFACE PANEL P/O UNIT 7
UNIT 4 TN-512/UPR
7W1 CABLE ASSEMBLY
7W8 CABLE ASSEMBLY
1J1 ANTENNA
1J5 POWER
2J2 POWER
3J1 POWER
J5 SPEAKER
J6 DIVERSITY
J7 AUDIO
7J1
7J2
7J3
7J4
7J5
TO 7E1

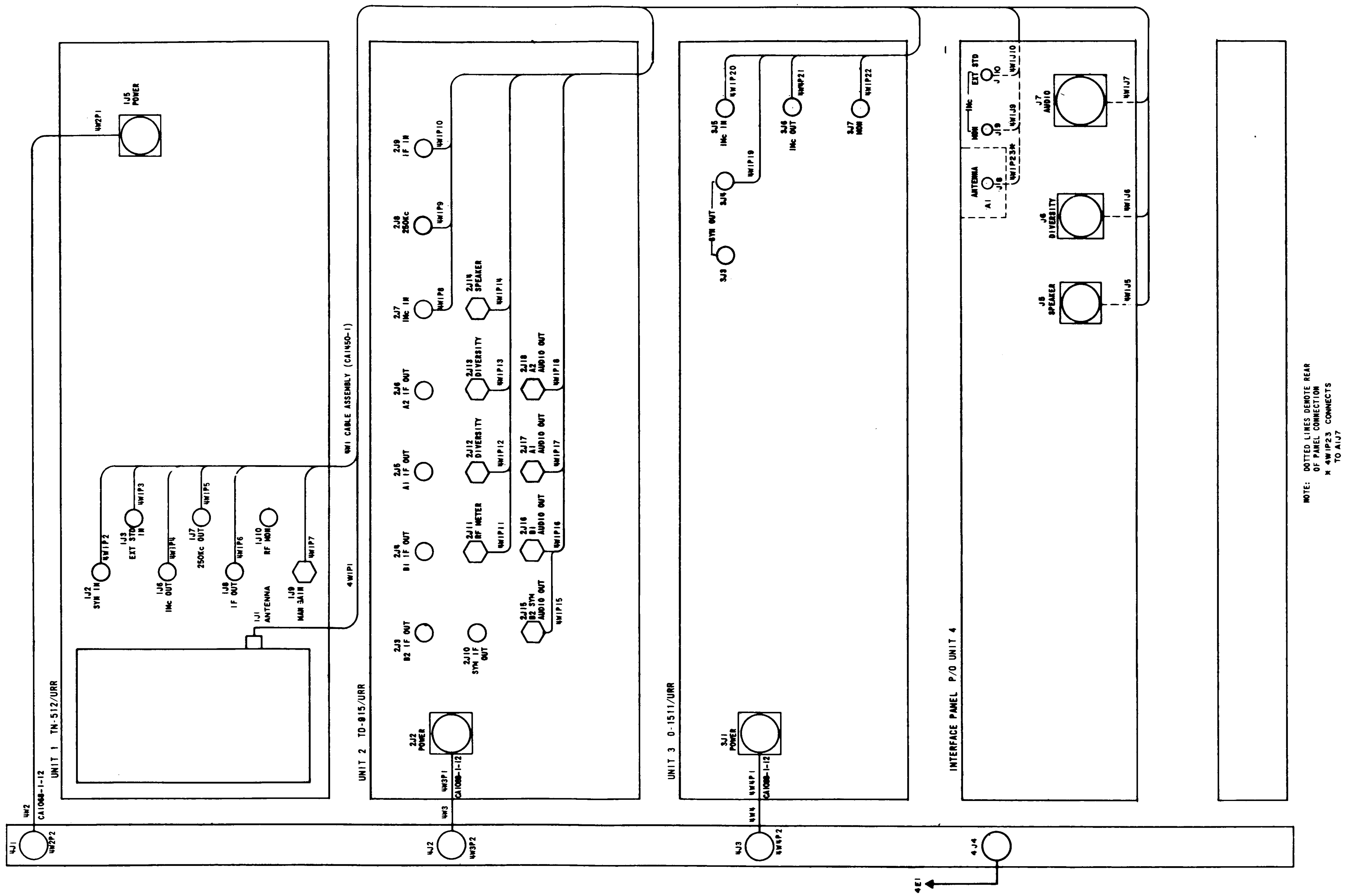


Figure 5-2. Rack Cabling Diagram, AN/URR-64(V)2.

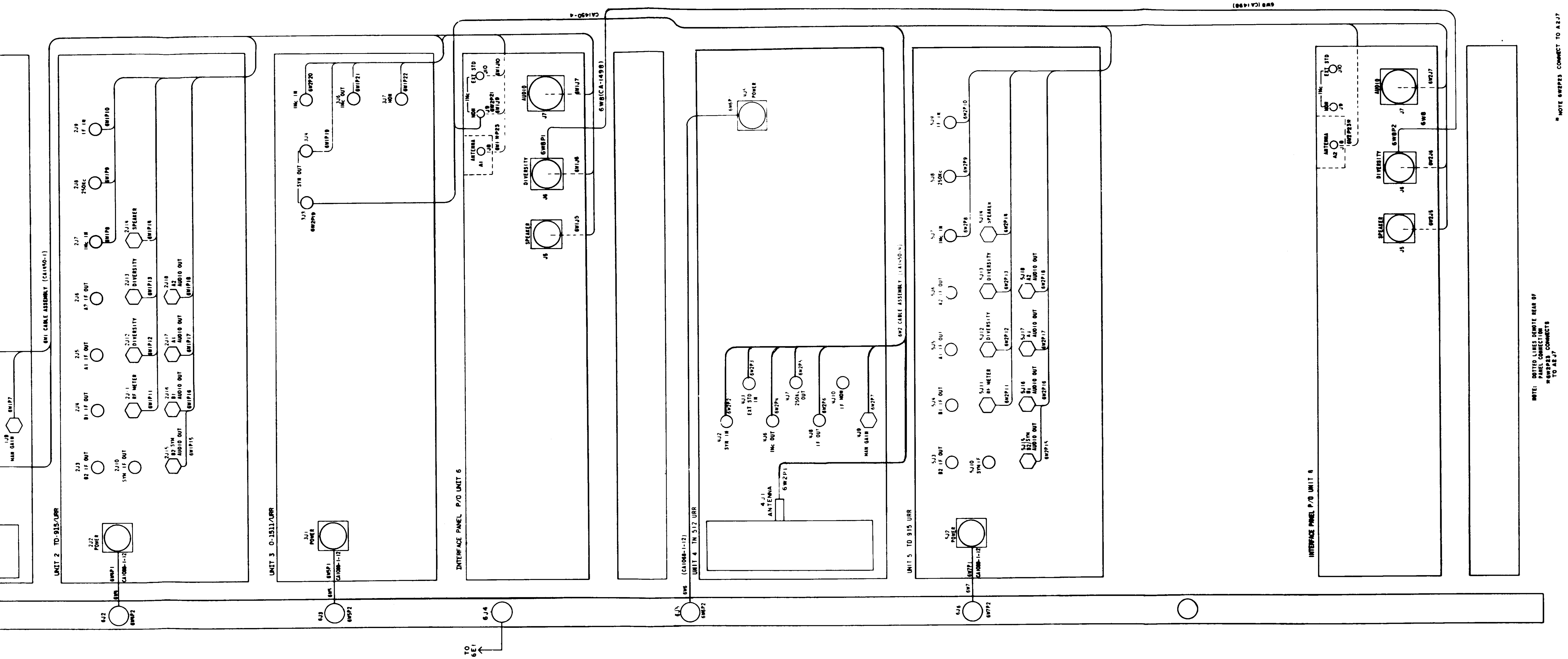
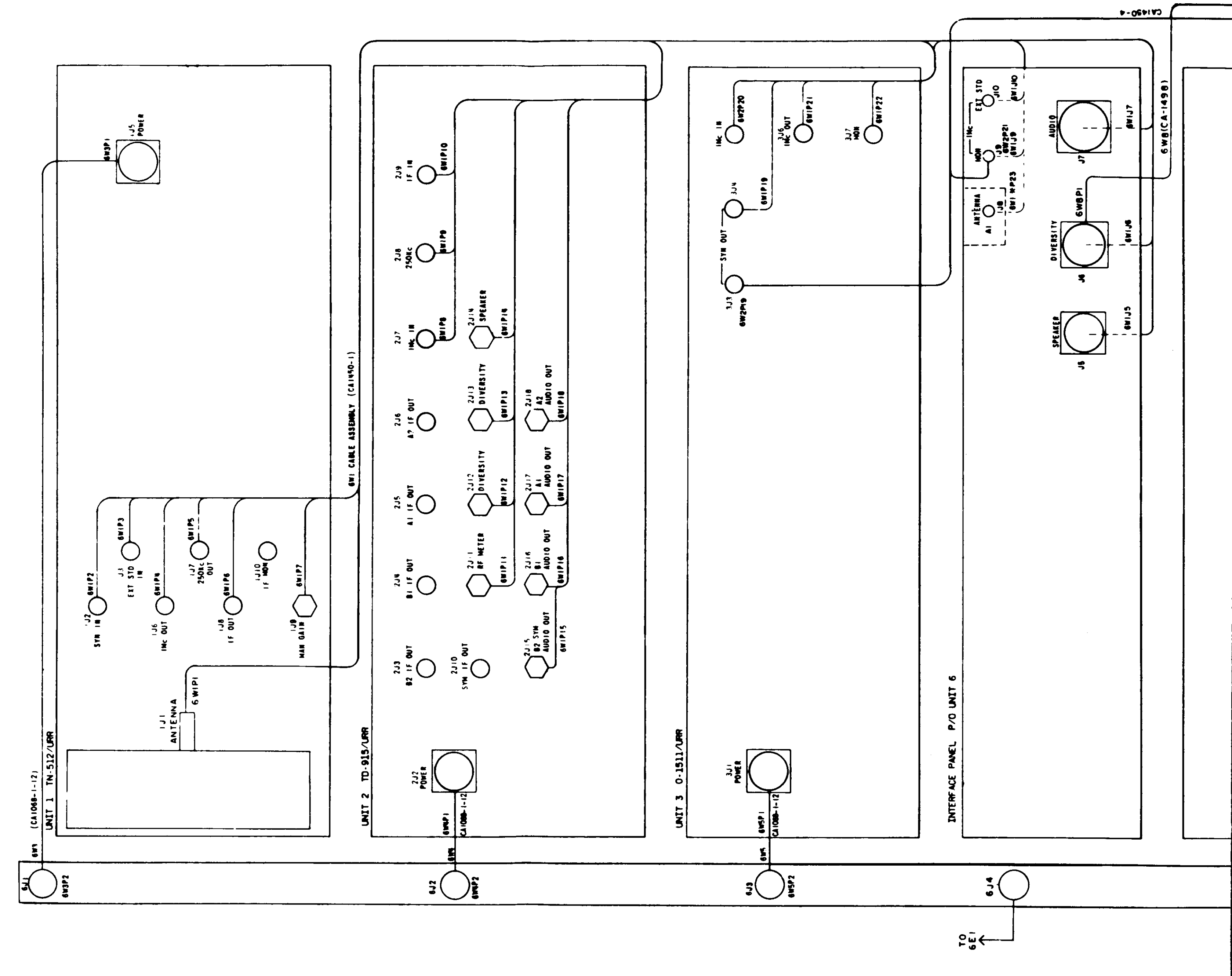


Figure 5-3. Rack Cabling Diagram, AN/URR-64(V)3.


UNIT 1 TN-512/URR
UNIT 2 TD-915/URR
UNIT 3 O-1511/URR
INTERFACE PANEL P/O UNIT 6
6W1 CABLE ASSEMBLY (CA1490-1)
6W8(CA-1498)
TO 6E1

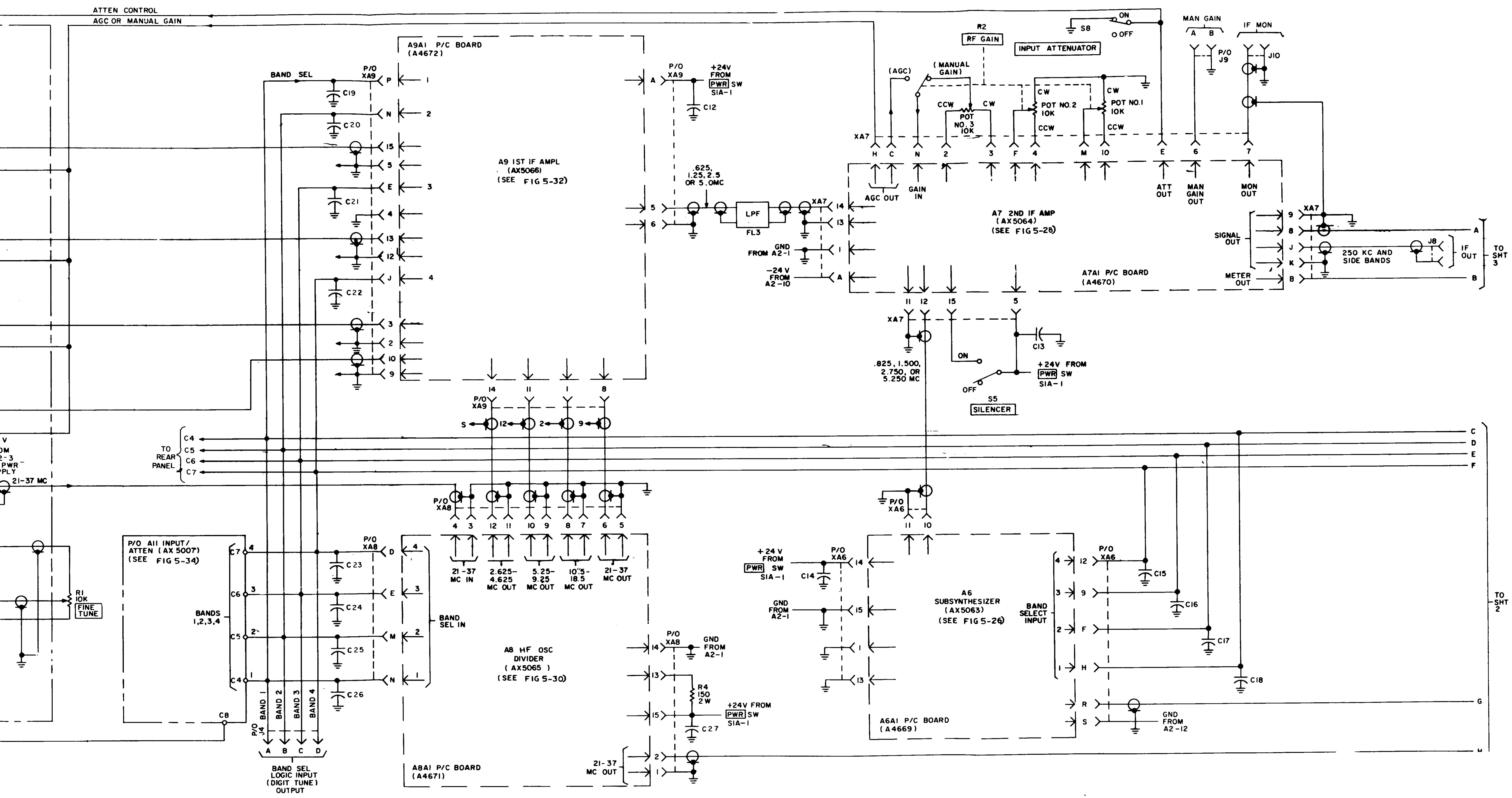
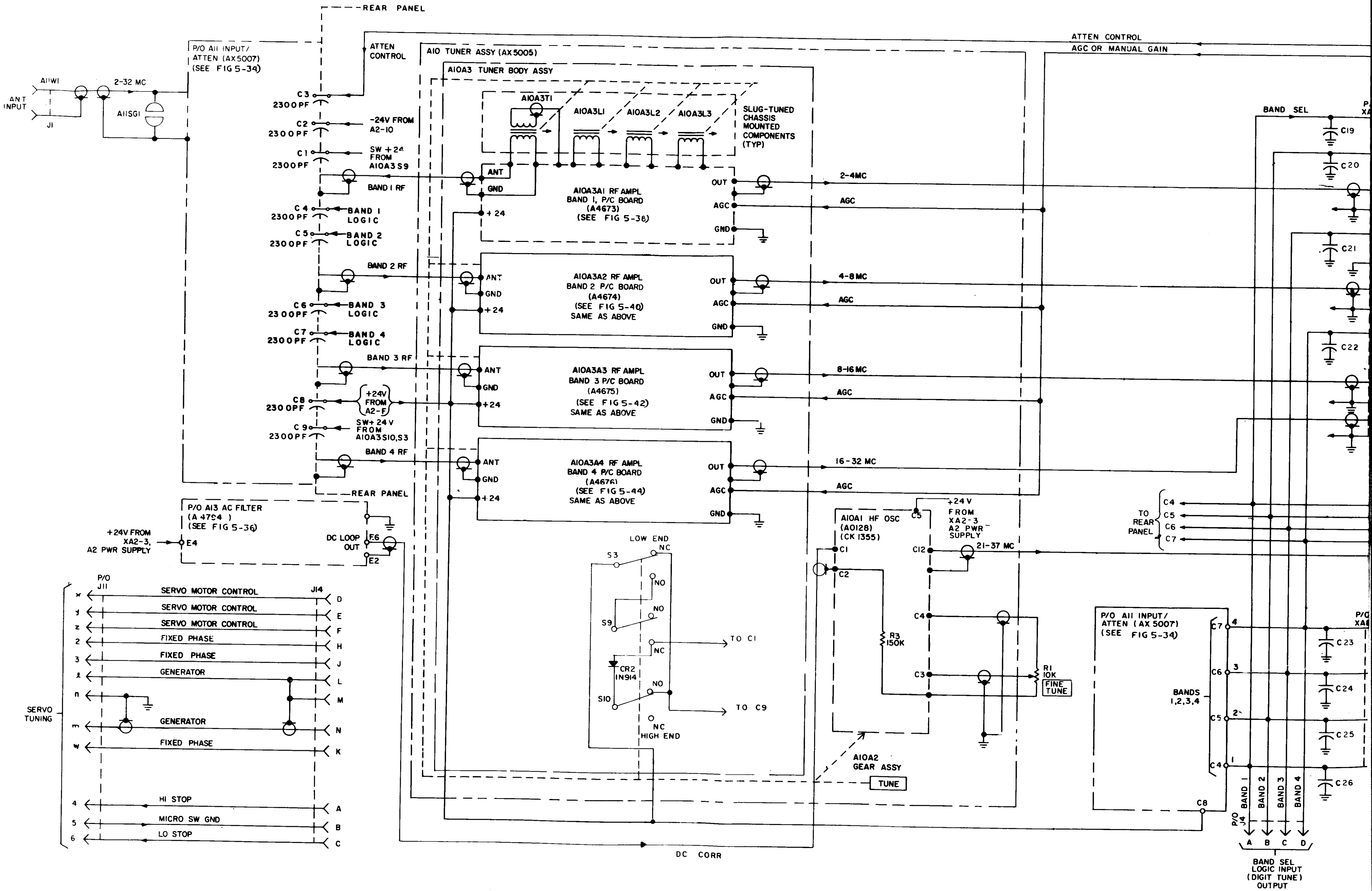


Figure 5-4. Schematic Wiring, Unit 1 (TN-512/URR) (Sheet 1 of 3).


REAR PANEL
P/O A11 INPUT/ ATTEN (AX5007) (SEE FIG 5-34)
ANT INPUT
A11W1
J1
2-32 MC
A11SG1
ATTEN CONTROL
C3 2300PF
C2 2300PF
-24V FROM A2-10
C1 2300PF
SW +24 FROM A10A3S9
BAND 1 RF
C4 2300PF
BAND 1 LOGIC
C5 2300PF
BAND 2 LOGIC
BAND 2 RF
C6 2300PF
BAND 3 LOGIC
C7 2300PF
BAND 4 LOGIC
BAND 3 RF
C8 2300PF
+24V FROM A2-F
C9 2300PF
SW+24V FROM A10A3S10,S3
BAND 4 RF
A10 TUNER ASSY (AX5005)
A10A3 TUNER BODY ASSY
A10A3T1
A10A3L1
A10A3L2
A10A3L3
SLUG-TUNED CHASSIS MOUNTED COMPONENTS (TYP)
A10A3A1 RF AMPL BAND 1, P/C BOARD (A4673) (SEE FIG 5-36)
A10A3A2 RF AMPL BAND 2 P/C BOARD (A4674) (SEE FIG 5-40) SAME AS ABOVE
A10A3A3 RF AMPL BAND 3 P/C BOARD (A4675) (SEE FIG 5-42) SAME AS ABOVE
A10A3A4 RF AMPL BAND 4 P/C BOARD (A4676) (SEE FIG 5-44) SAME AS ABOVE
ANT
GND
+24
OUT
AGC
2-4MC
4-8MC
8-16MC
16-32 MC
ATTEN CONTROL
AGC OR MANUAL GAIN
BAND SEL
C19
C20
C21
C22
P/O A11 AC FILTER (A 4794) (SEE FIG 5-36)
+24V FROM XA2-3, A2 PWR SUPPLY
E4
DC LOOP OUT
E6
E2
P/O J11
J14
SERVO MOTOR CONTROL
FIXED PHASE
GENERATOR
HI STOP
MICRO SW GND
LO STOP
SERVO TUNING
LOW END
NC
NO
S3
S9
S10
CR2 1N914
NC HIGH END
TO C1
TO C9
A10A1 HF OSC (A0128) (CK 1355)
+24V FROM XA2-3 A2 PWR SUPPLY
21-37 MC
C12
R3 150K
R1 10K
FINE TUNE
A10A2 GEAR ASSY
TUNE
DC CORR
TO REAR PANEL
P/O A11 INPUT/ ATTEN (AX 5007) (SEE FIG 5-34)
BANDS 1,2,3,4
C23
C24
C25
C26
BAND 1
BAND 2
BAND 3
BAND 4
P/O J4
BAND SEL LOGIC INPUT (DIGIT TUNE) OUTPUT

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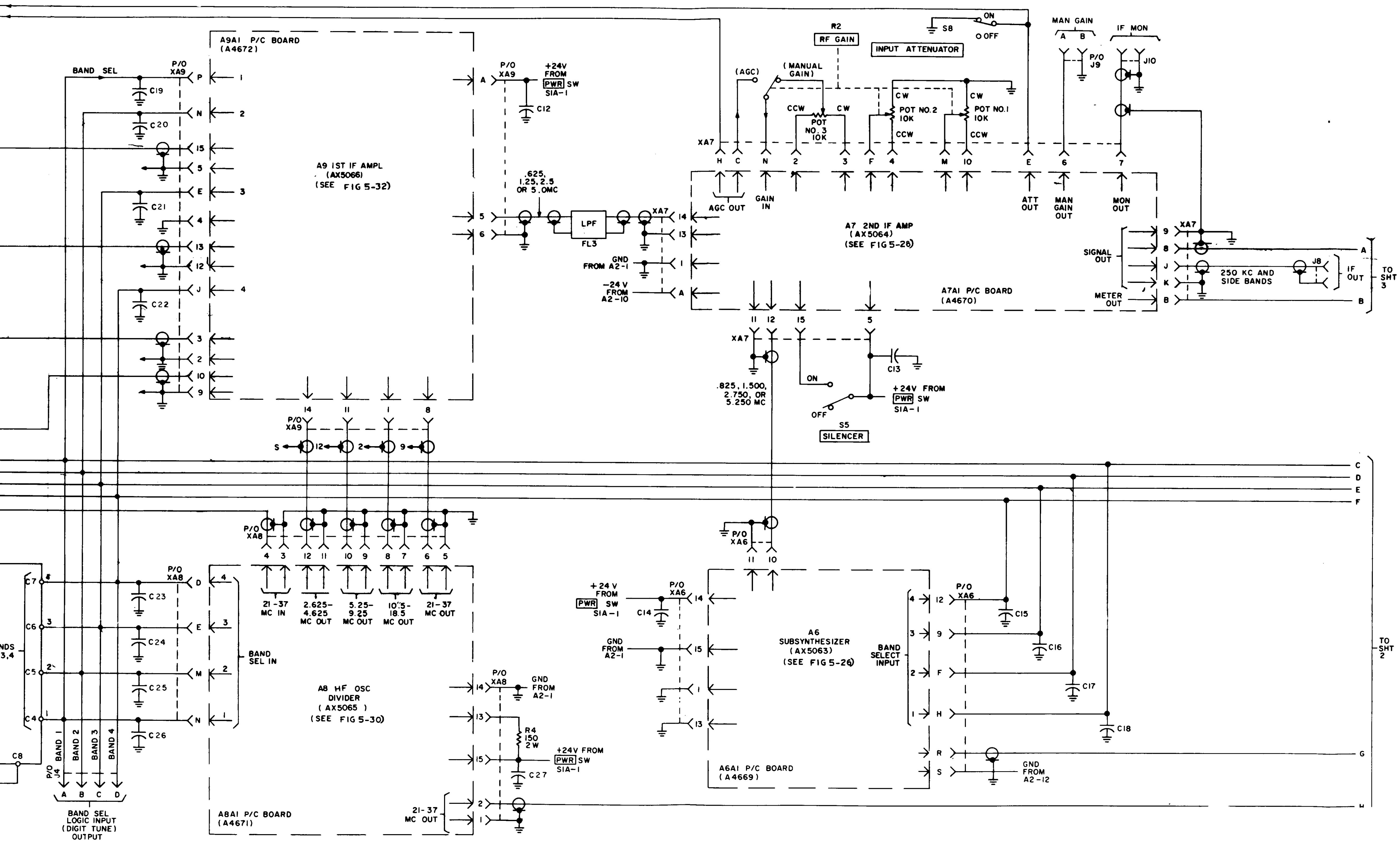
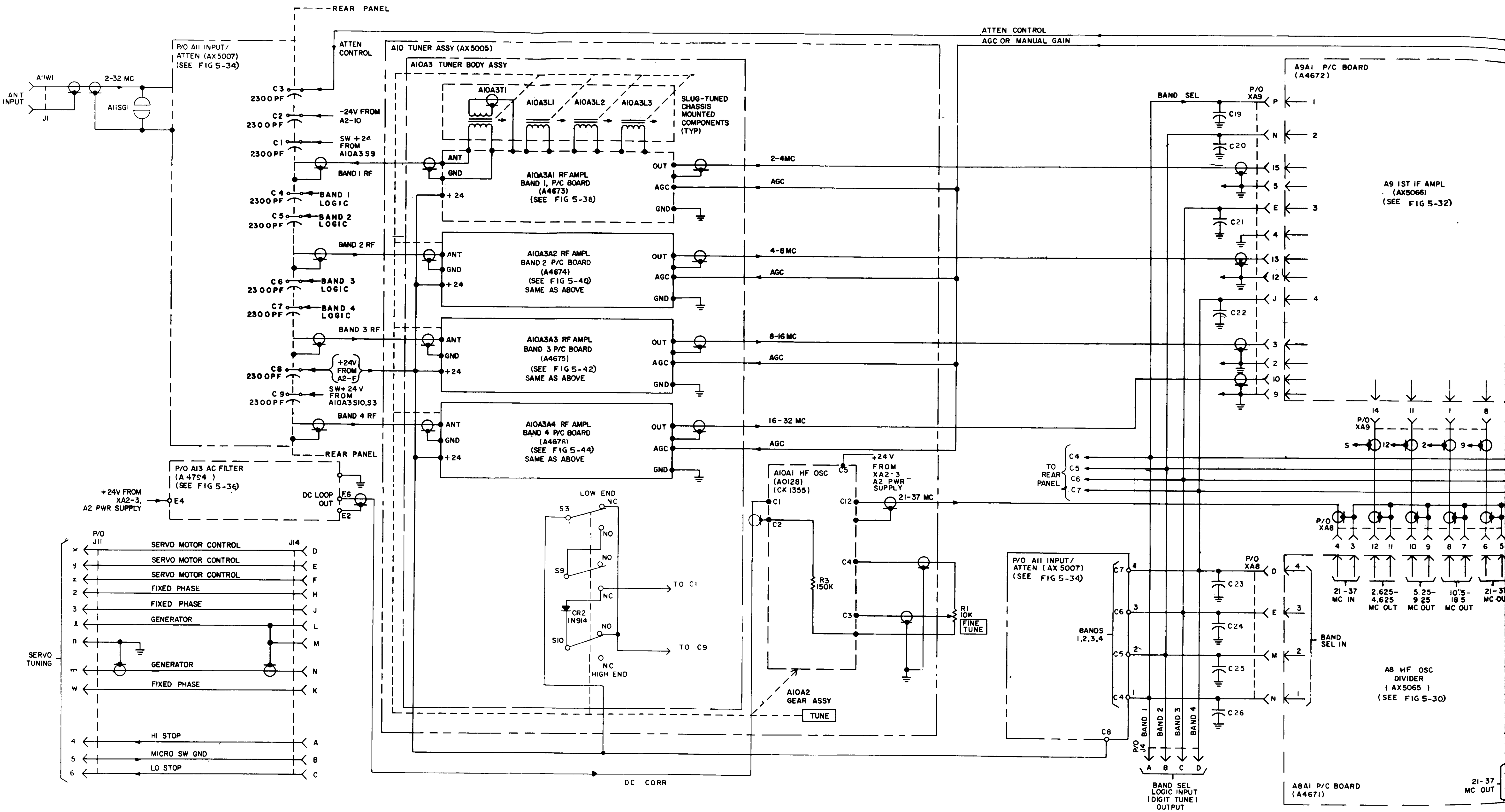


Figure 5-4. Schematic Wiring, Unit 1 (TN-512/URR) (Sheet 1 of 3).


REAR PANEL
ATTEN CONTROL
AGC OR MANUAL GAIN
ANT INPUT
A11W1
J1
2-32 MC
A11SG1
P/O A11 INPUT/ ATTEN (AX5007) (SEE FIG 5-34)
ATTEN CONTROL
A10 TUNER ASSY (AX5005)
A10A3 TUNER BODY ASSY
A10A3T1
A10A3L1
A10A3L2
A10A3L3
SLUG-TUNED CHASSIS MOUNTED COMPONENTS (TYP)
C3 2300PF
C2 2300PF
-24V FROM A2-10
C1 2300PF
SW +24 FROM A10A3S9
BAND 1 RF
C4 2300PF
BAND 1 LOGIC
C5 2300PF
BAND 2 LOGIC
BAND 2 RF
C6 2300PF
BAND 3 LOGIC
C7 2300PF
BAND 4 LOGIC
BAND 3 RF
C8 2300PF
+24V FROM A2-F
C9 2300PF
SW+24V FROM A10A3S10,S3
BAND 4 RF
A10A3A1 RF AMPL BAND 1, P/C BOARD (A4673) (SEE FIG 5-38)
A10A3A2 RF AMPL BAND 2 P/C BOARD (A4674) (SEE FIG 5-40) SAME AS ABOVE
A10A3A3 RF AMPL BAND 3 P/C BOARD (A4675) (SEE FIG 5-42) SAME AS ABOVE
A10A3A4 RF AMPL BAND 4 P/C BOARD (A4676) (SEE FIG 5-44) SAME AS ABOVE
ANT
GND
+24
OUT
AGC
GND
2-4MC
4-8MC
8-16MC
16-32 MC
AGC
P/O A13 AC FILTER (A 4794) (SEE FIG 5-36)
+24V FROM XA2-3, A2 PWR SUPPLY
E4
DC LOOP OUT
E6
E2
LOW END
NC
NO
S3
S9
S10
CR2 IN914
TO C1
TO C9
HIGH END
A10A1 HF OSC (A0128) (CK 1355)
C1
C2
C5
C12
C4
C3
+24V FROM XA2-3 A2 PWR SUPPLY
21-37 MC
R3 150K
R1 10K
FINE TUNE
A10A2 GEAR ASSY
TUNE
DC CORR
P/O J11
J14
SERVO MOTOR CONTROL
SERVO MOTOR CONTROL
SERVO MOTOR CONTROL
FIXED PHASE
FIXED PHASE
GENERATOR
GENERATOR
FIXED PHASE
HI STOP
MICRO SW GND
LO STOP
SERVO TUNING
BAND SEL
P/O XA9
C19
C20
C21
C22
A9A1 P/C BOARD (A4672)
A9 1ST IF AMPL (AX5066) (SEE FIG 5-32)
TO REAR PANEL
C4
C5
C6
C7
P/O XA8
21-37 MC IN
2.625-4.625 MC OUT
5.25-9.25 MC OUT
10.5-18.5 MC OUT
21-37 MC OUT
P/O A11 INPUT/ ATTEN (AX 5007) (SEE FIG 5-34)
BANDS 1,2,3,4
C8
C23
C24
C25
C26
BAND SEL IN
A8 HF OSC DIVIDER (AX5065) (SEE FIG 5-30)
BAND 1
BAND 2
BAND 3
BAND 4
P/O J4
BAND SEL LOGIC INPUT (DIGIT TUNE) OUTPUT
A8A1 P/C BOARD (A4671)

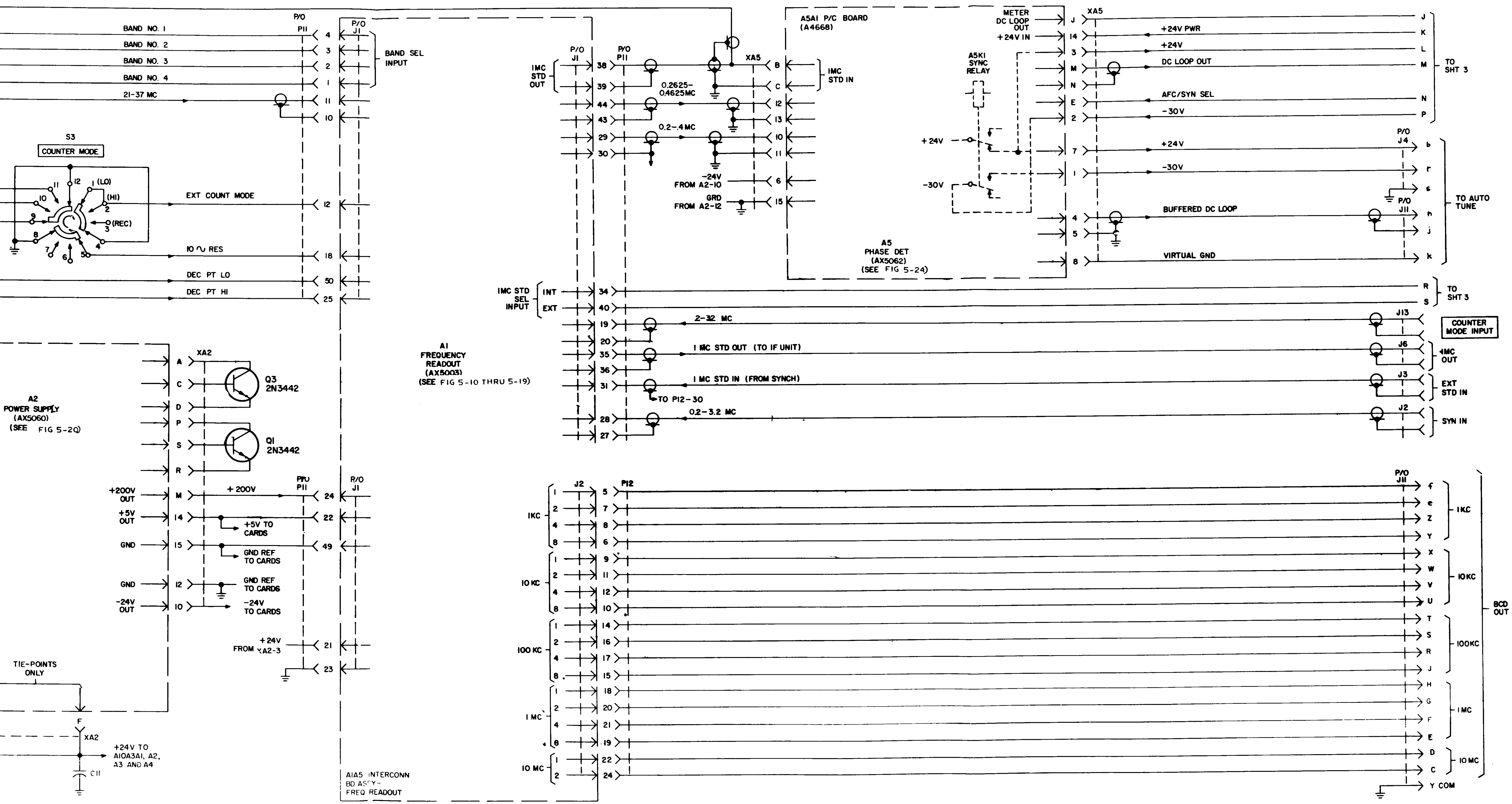
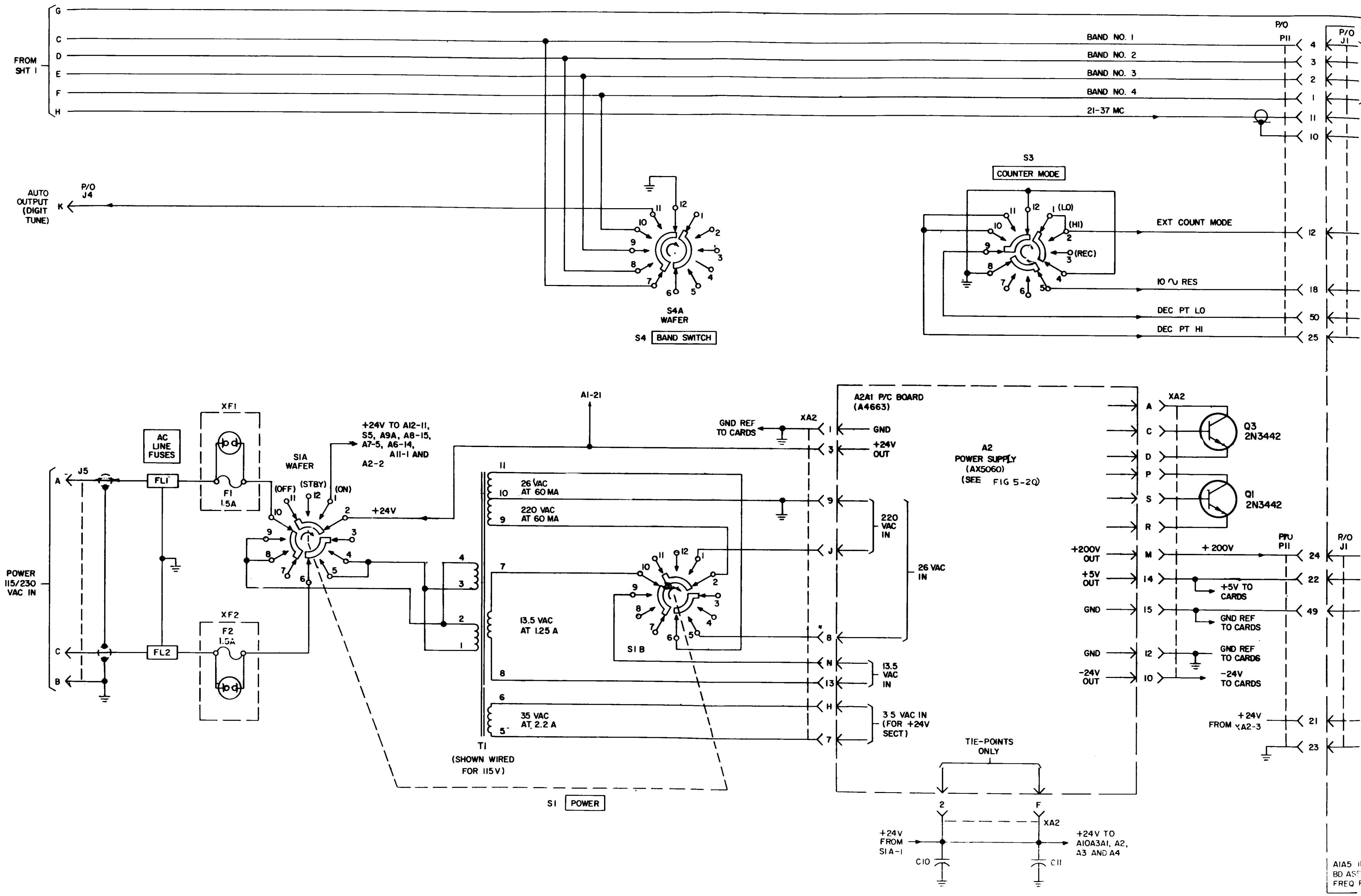


Figure 5-4. Schematic Wiring, Unit 1 (TN-512/URR) (Sheet 2 of 3).


FROM SHT 1
G
C
D
E
F
H
BAND NO. 1
BAND NO. 2
BAND NO. 3
BAND NO. 4
21-37 MC
P/O P11
P/O J1
AUTO OUTPUT (DIGIT TUNE)
P/O J4
K
S4A WAFER
S4 BAND SWITCH
S3
COUNTER MODE
1 (LO)
(HI)
(REC)
EXT COUNT MODE
10 ∿ RES
DEC PT LO
DEC PT HI
POWER 115/230 VAC IN
J5
AC LINE FUSES
FL1
FL2
XF1
F1 1.5A
XF2
F2 1.5A
S1A WAFER
(OFF)
(STBY)
(ON)
+24V TO A12-11, S5, A9A, A8-15, A7-5, A6-14, A11-1 AND A2-2
+24V
A1-21
GND REF TO CARDS
XA2
26 VAC AT 60 MA
220 VAC AT 60 MA
13.5 VAC AT 1.25 A
35 VAC AT 2.2 A
T1 (SHOWN WIRED FOR 115V)
S1 B
S1 POWER
A2A1 P/C BOARD (A4663)
GND
+24V OUT
220 VAC IN
26 VAC IN
13.5 VAC IN
3.5 VAC IN (FOR +24V SECT)
A2 POWER SUPPLY (AX5060) (SEE FIG 5-20)
TIE-POINTS ONLY
+24V FROM S1A-1
C10
C11
+24V TO A10A3A1, A2, A3 AND A4
+200V OUT
+5V OUT
-24V OUT
Q3 2N3442
Q1 2N3442
+ 200V
+5V TO CARDS
GND REF TO CARDS
-24V TO CARDS
+24V FROM XA2-3
P/O P11
R/O J1
A1A5 IN
BD ASSY
FREQ R

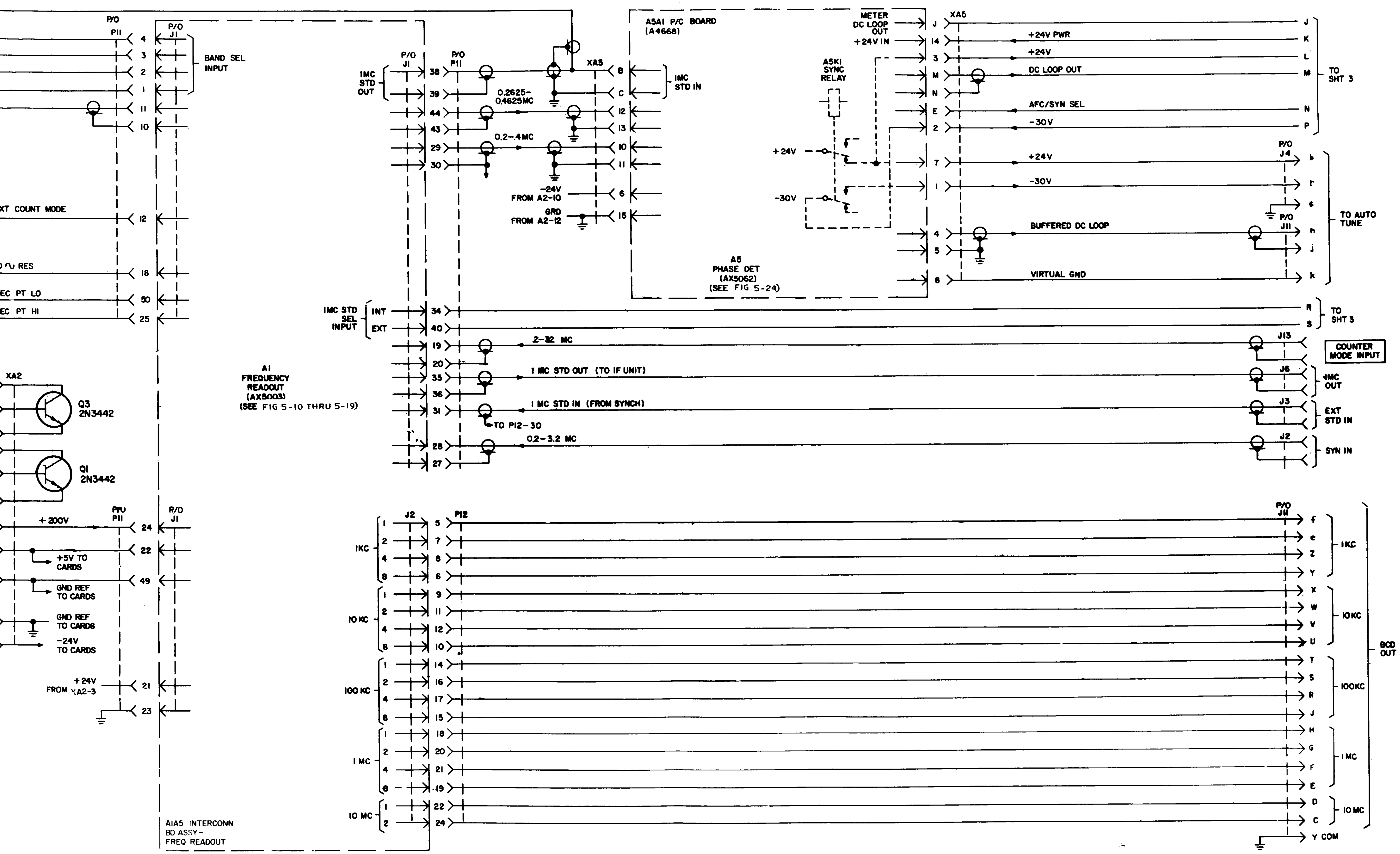
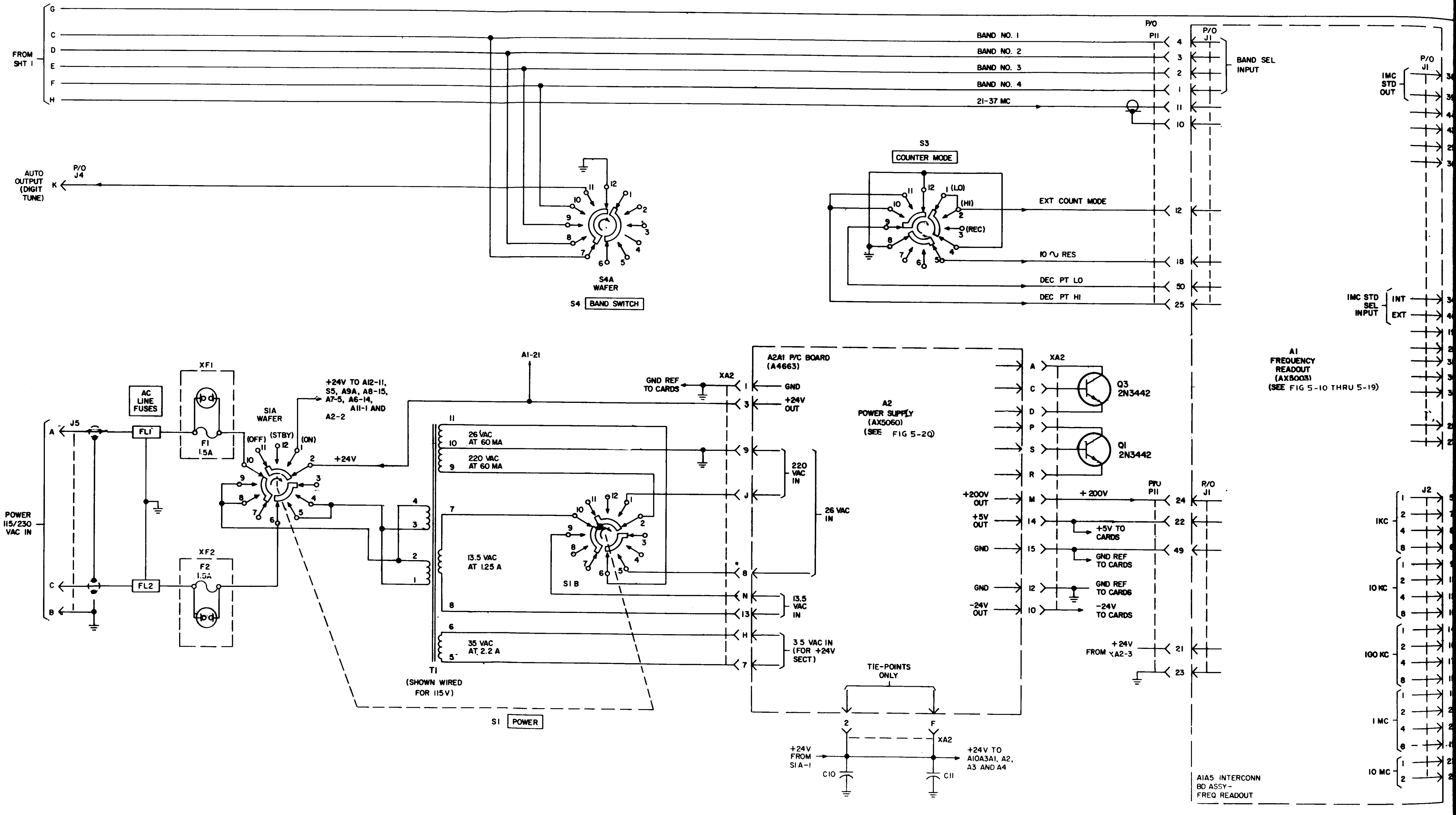


Figure 5-4. Schematic Wiring, Unit 1 (TN-512/URR) (Sheet 2 of 3).


FROM SHT 1
BAND NO. 1
BAND NO. 2
BAND NO. 3
BAND NO. 4
21-37 MC
P/O P11
P/O J1
BAND SEL INPUT
IMC STD OUT
AUTO OUTPUT (DIGIT TUNE)
P/O J4
S4A WAFER
S4 BAND SWITCH
S3
COUNTER MODE
(LO)
(HI)
(REC)
EXT COUNT MODE
10 ∿ RES
DEC PT LO
DEC PT HI
IMC STD SEL INPUT
INT
EXT
A1 FREQUENCY READOUT (AX5003) (SEE FIG 5-10 THRU 5-19)
AC LINE FUSES
XF1
F1 1.5A
XF2
F2 1.5A
FL1
FL2
J5
POWER 115/230 VAC IN
S1A WAFER
(OFF)
(STBY)
(ON)
+24V TO A12-11, S5, A9A, A8-15, A7-5, A6-14, A11-1 AND A2-2
+24V
A1-21
GND REF TO CARDS
XA2
26 VAC AT 60 MA
220 VAC AT 60 MA
13.5 VAC AT 1.25 A
35 VAC AT 2.2 A
T1 (SHOWN WIRED FOR 115V)
S1 B
S1 POWER
A2A1 P/C BOARD (A4663)
GND
+24V OUT
220 VAC IN
26 VAC IN
13.5 VAC IN
3.5 VAC IN (FOR +24V SECT)
A2 POWER SUPPLY (AX5060) (SEE FIG 5-20)
TIE-POINTS ONLY
+24V FROM S1A-1
C10
C11
+24V TO A10A3A1, A2, A3 AND A4
+200V OUT
+5V OUT
-24V OUT
Q3 2N3442
Q1 2N3442
+ 200V
+5V TO CARDS
GND REF TO CARDS
-24V TO CARDS
+24V FROM XA2-3
J2
IKC
10 KC
100 KC
1 MC
10 MC
A1A5 INTERCONN BD ASSY-FREQ READOUT

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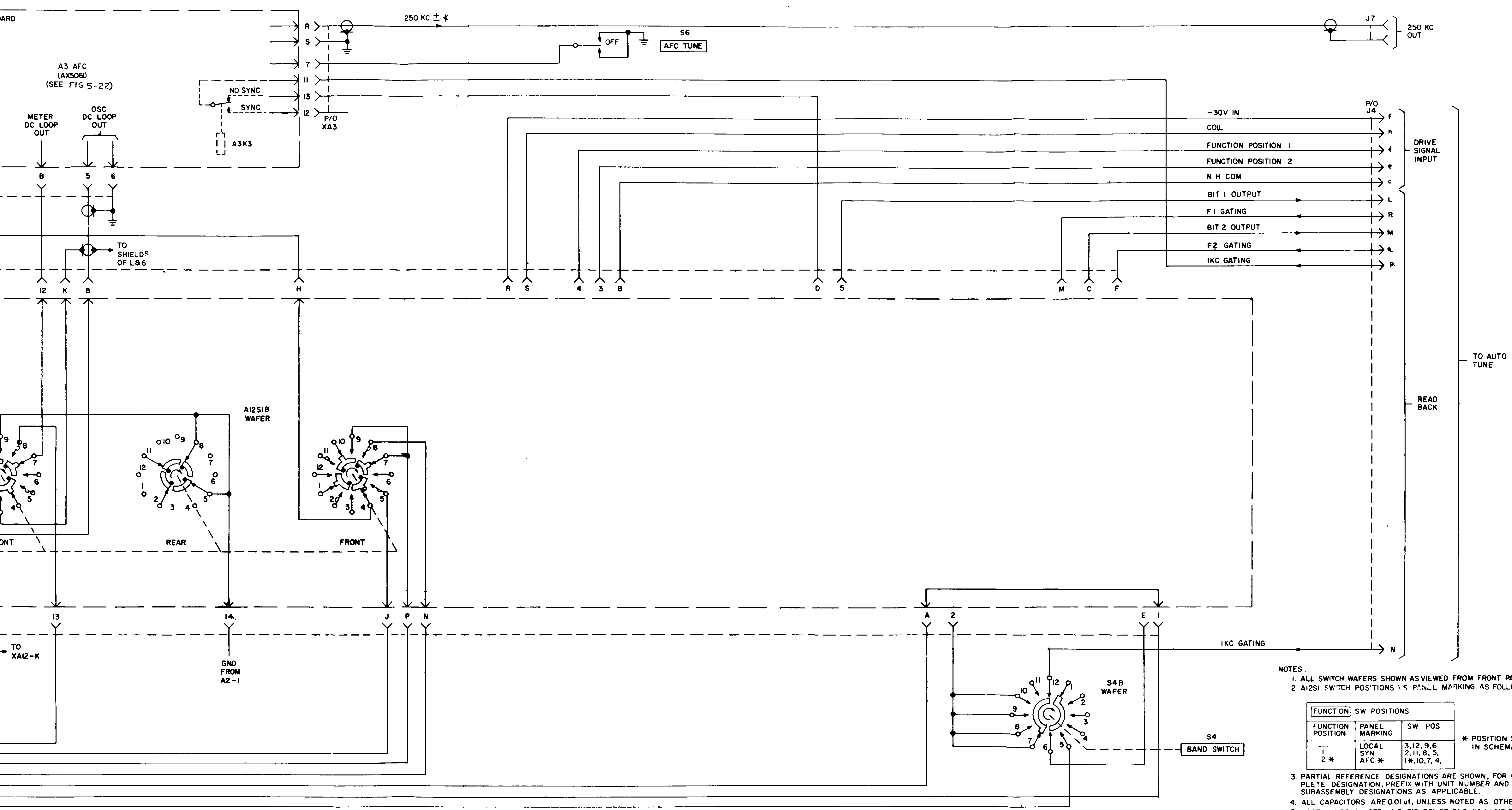
NAVELEX 0967-385-0020



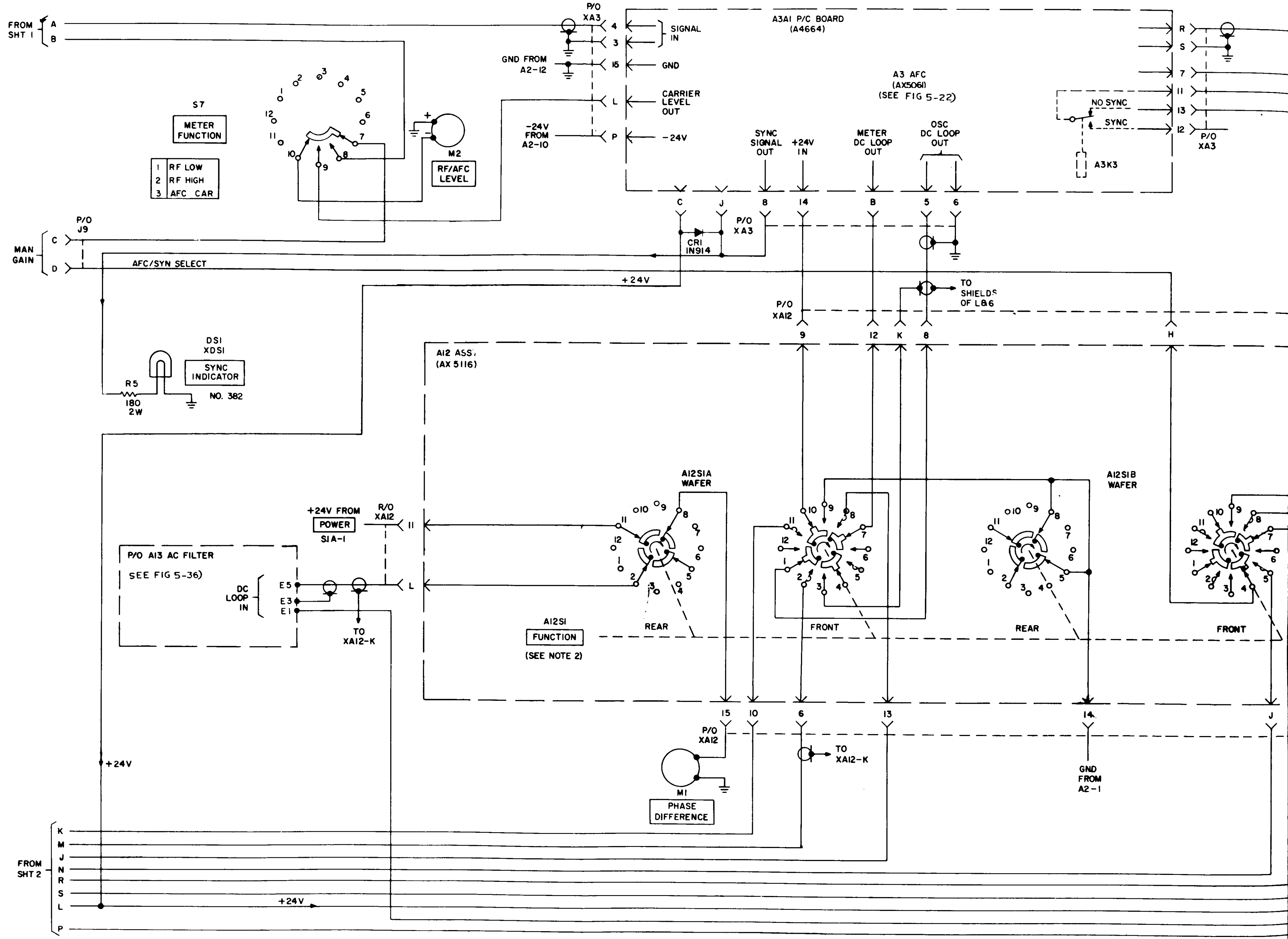
NOTES:
1. ALL SWITCH WAFERS SHOWN AS VIEWED FROM FRONT PANEL.
2. A12S1 SWITCH POSITIONS VS PANEL MARKING AS FOLLOWS.

FUNCTION	SW POSITIONS	
FUNCTION POSITION	PANEL MARKING	SW POS
—	LOCAL	3, 12, 9, 6
1	SYN	2, 11, 8, 5,
2 *	AFC *	1*, 10, 7, 4,

* POSITION SHOWN IN SCHEMATIC

3. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION, PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATIONS AS APPLICABLE.
4. ALL CAPACITORS ARE 0.01 uf, UNLESS NOTED AS OTHERWISE.
5. LAST SYMBOLS USED, A12, C19, DS1, F2, FL3, J14, L1, M2, P13, Q3, R5, S10, T1, XA12, XF2, XDS1, CR2
6. MISSING SYMBOLS, A4, J12, P1, P5, Q2, S2, XA1, XA10, XA11.

Figure 5-4. Schematic Wiring, Unit 1 (TN-512/URR) (Sheet 3 of 3).


FROM SHT 1
A
B
P/O XA3
SIGNAL IN
GND FROM A2-12
GND
CARRIER LEVEL OUT
-24V FROM A2-10
-24V
A3A1 P/C BOARD (A4664)
A3 AFC (AX5061) (SEE FIG 5-22)
SYNC SIGNAL OUT
+24V IN
METER DC LOOP OUT
OSC DC LOOP OUT
NO SYNC
SYNC
A3K3
P/O XA3
S7
METER FUNCTION
1 RF LOW
2 RF HIGH
3 AFC CAR
M2
RF/AFC LEVEL
P/O J9
MAN GAIN
AFC/SYN SELECT
CR1 IN914
+24V
TO SHIELDS OF L&6
P/O XA12
DS1
XDS1
SYNC INDICATOR
NO. 382
R5
180
2W
A12 ASSY (AX 5116)
A12S1A WAFER
A12S1B WAFER
+24V FROM POWER S1A-1
R/O XA12
P/O A13 AC FILTER
SEE FIG 5-36)
DC LOOP IN
E5
E3
E1
TO XA12-K
A12S1
FUNCTION
(SEE NOTE 2)
REAR
FRONT
REAR
FRONT
P/O XA12
TO XA12-K
GND FROM A2-1
M1
PHASE DIFFERENCE
+24V
FROM SHT 2
K
M
J
N
R
S
L
P
+24V

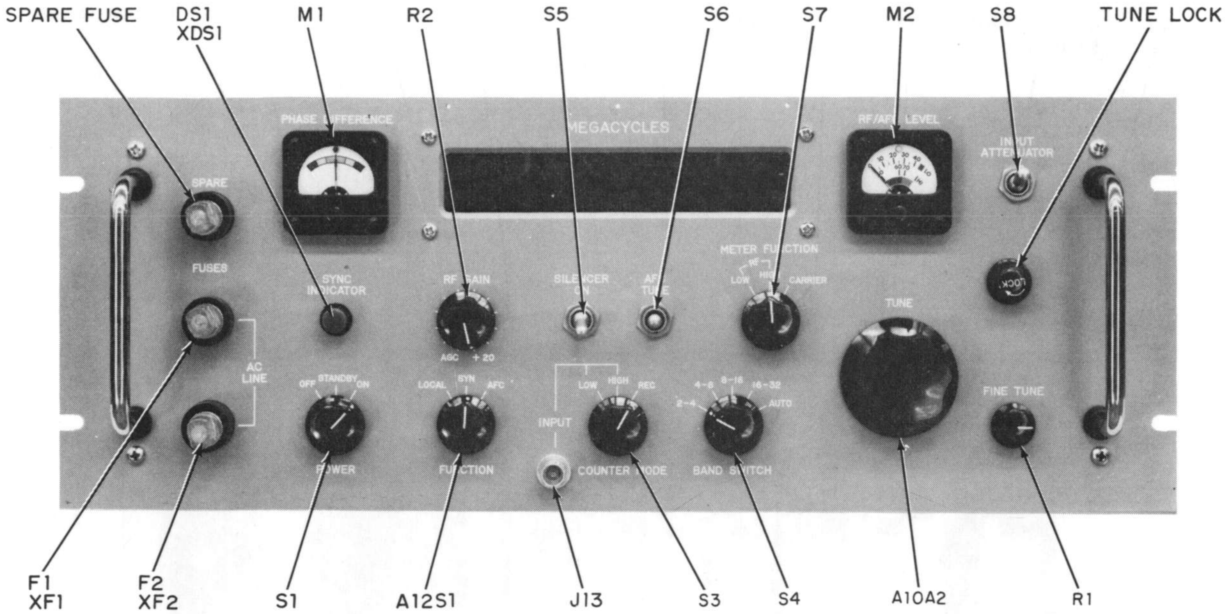


Figure 5-5. Major Component Locations, Front Panel of Unit 1
(TN-512/URR)

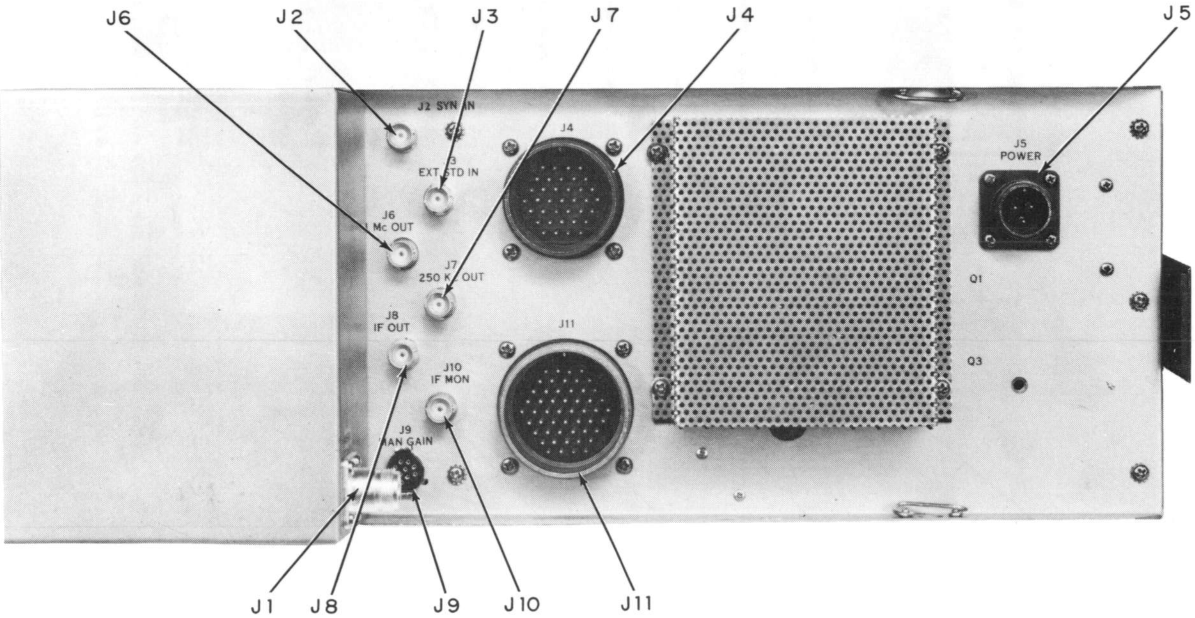


Figure 5-6. Major Component Locations, Rear Panel of Unit 1
(TN-512/URR)

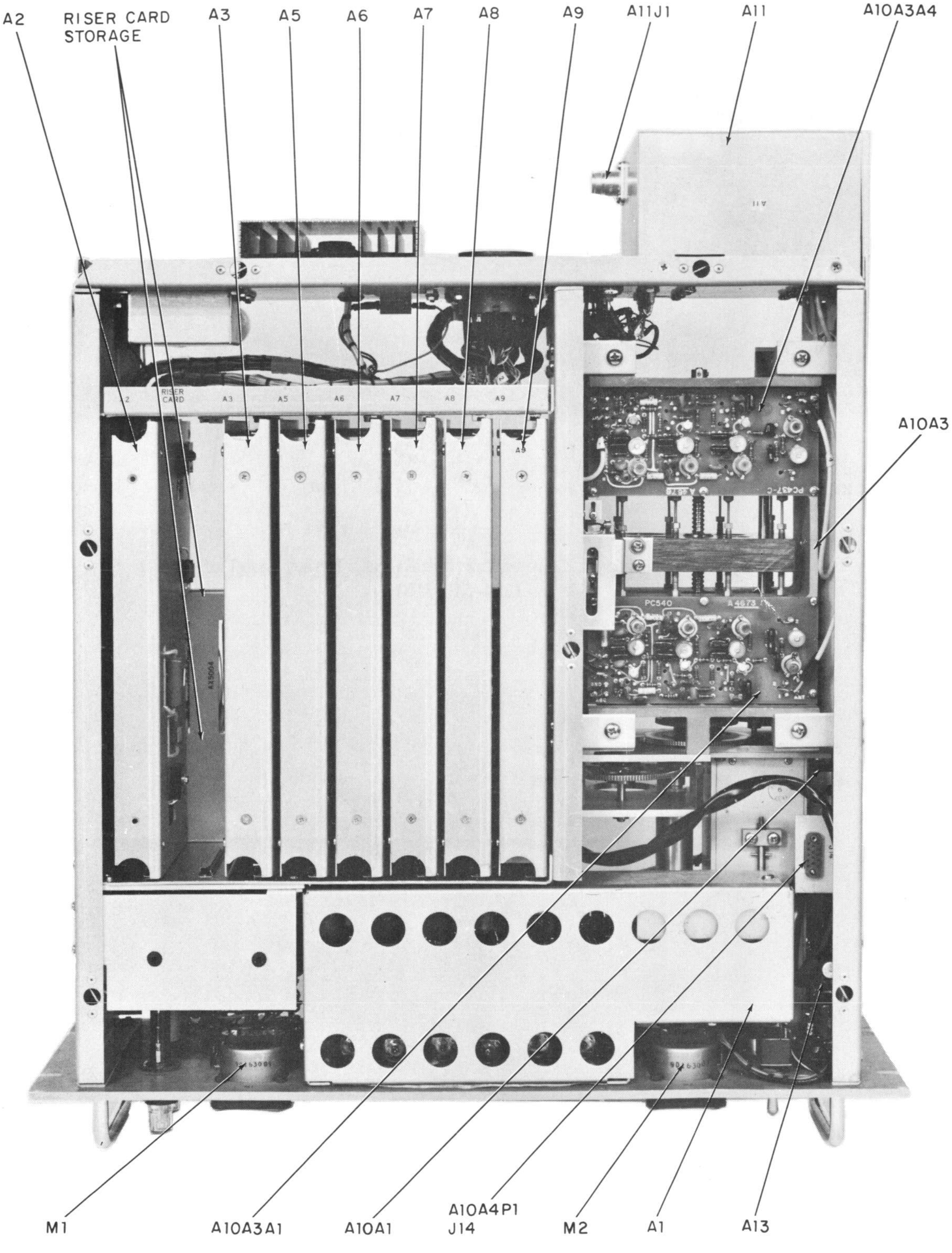


Figure 5-7. Major Component Locations, Top View of Unit 1
(TN-512/URR)

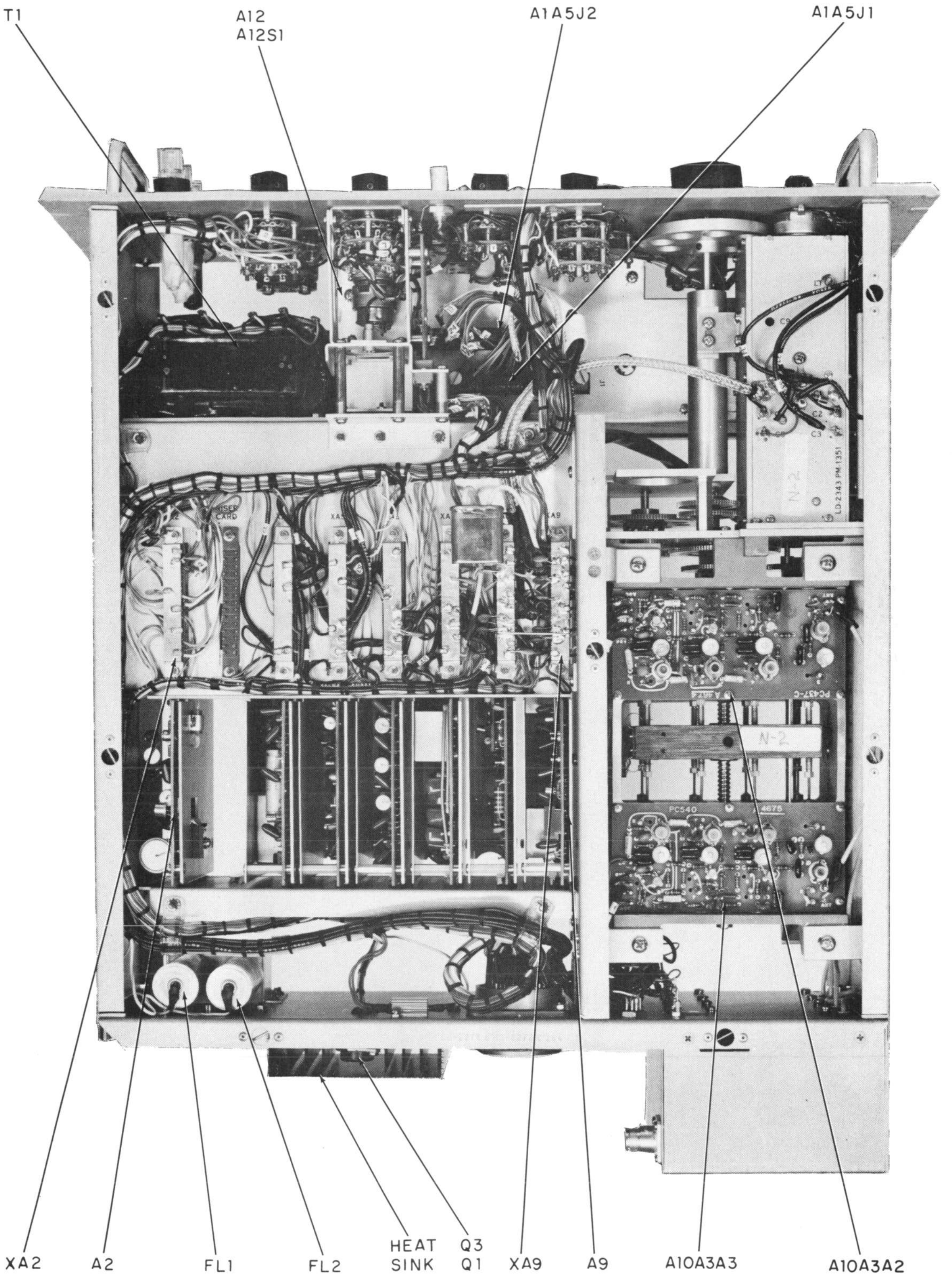


Figure 5-8. Major Component Locations, Bottom View of Unit 1
(TN-512/URR)

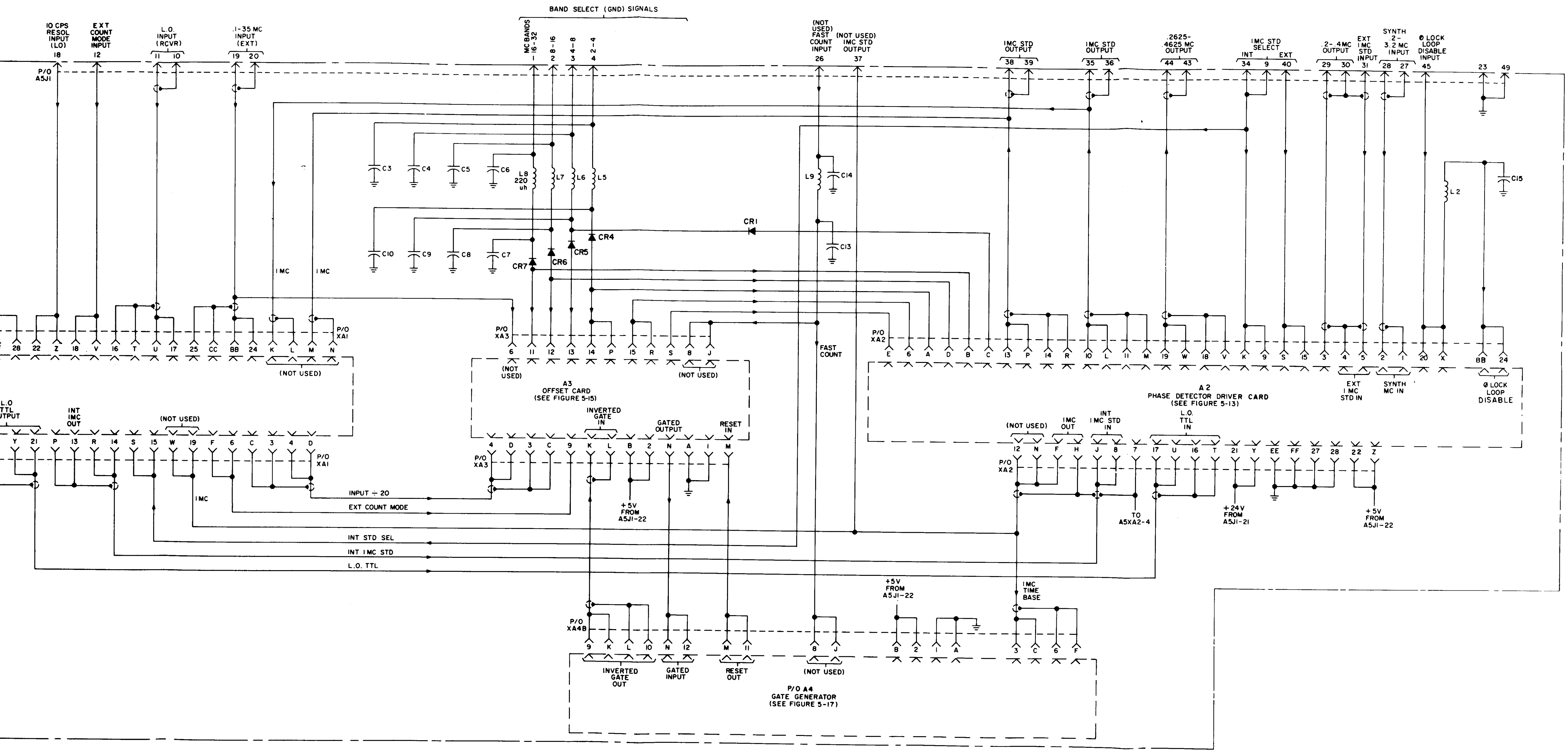
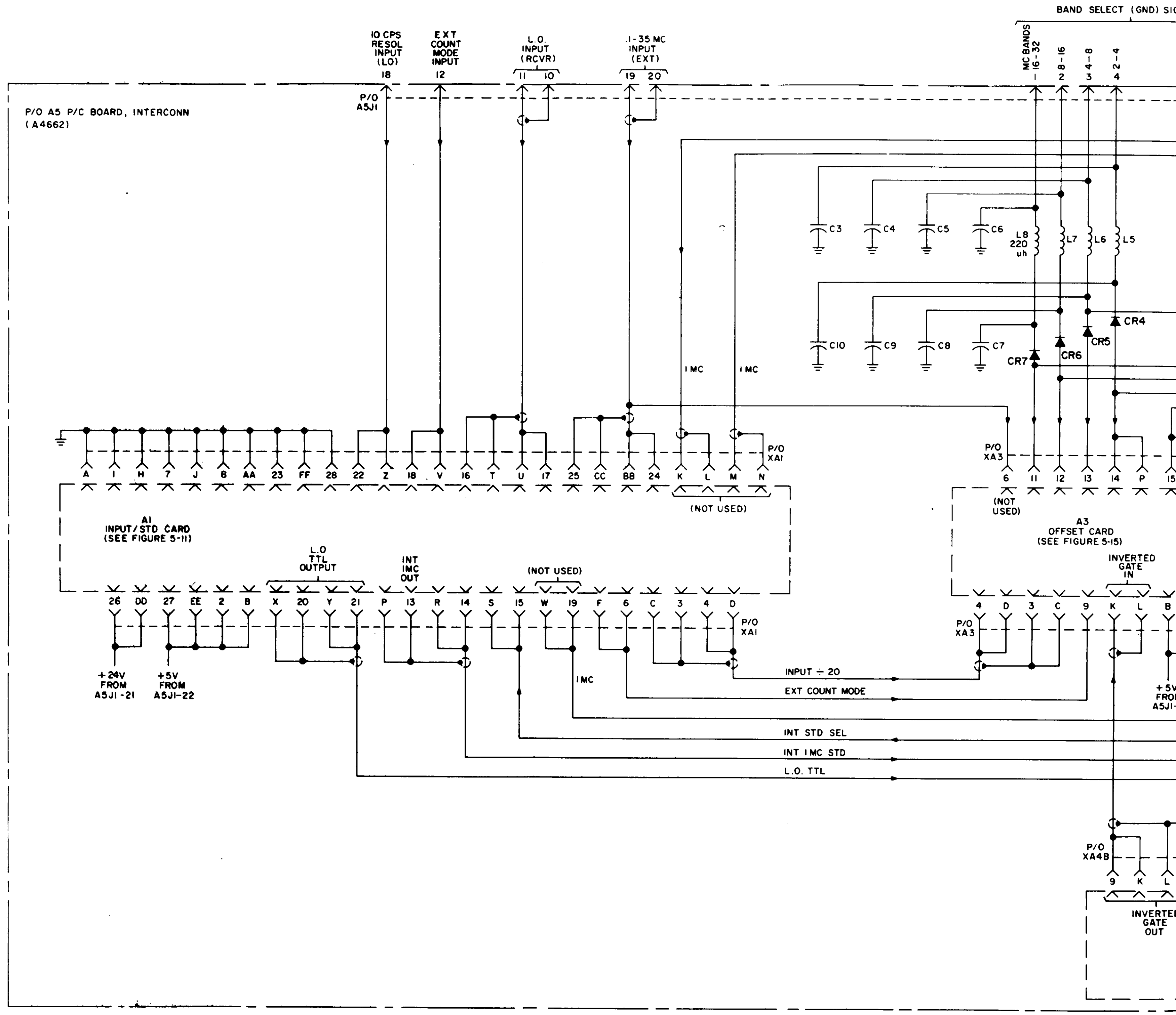


Figure 5-9. Schematic Wiring, Frequency Readout Assembly 1A1 (Sheet 1 of 3)


BAND SELECT (GND) SIG
MC BANDS
16-32
8-16
4-8
2-4
10 CPS
RESOL
INPUT
(LO)
EXT
COUNT
MODE
INPUT
L.O.
INPUT
(RCVR)
.1-35 MC
INPUT
(EXT)
P/O
A5J1
P/O A5 P/C BOARD, INTERCONN
(A4662)
C3
C4
C5
C6
L8
220
uh
L7
L6
L5
C10
C9
C8
C7
CR7
CR6
CR5
CR4
IMC
IMC
P/O
XA1
P/O
XA3
(NOT USED)
(NOT
USED)
A1
INPUT/STD CARD
(SEE FIGURE 5-11)
A3
OFFSET CARD
(SEE FIGURE 5-15)
INVERTED
GATE
IN
L.O
TTL
OUTPUT
INT
IMC
OUT
(NOT USED)
+24V
FROM
A5J1-21
+5V
FROM
A5J1-22
INPUT ÷ 20
EXT COUNT MODE
INT STD SEL
INT IMC STD
L.O. TTL
IMC
P/O
XA4B
INVERTED
GATE
OUT

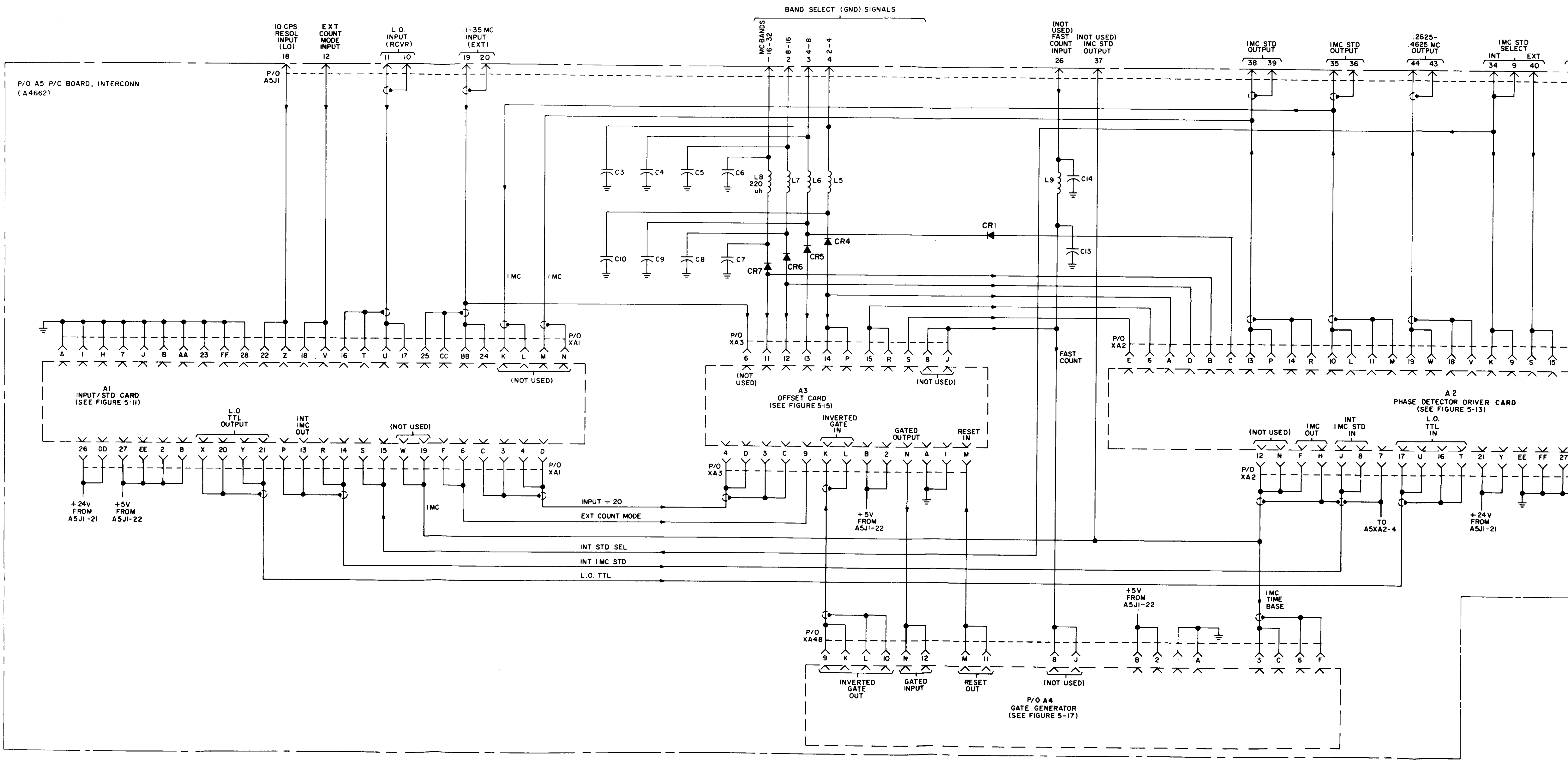


Figure 5-9. Schen
Readout Assembl

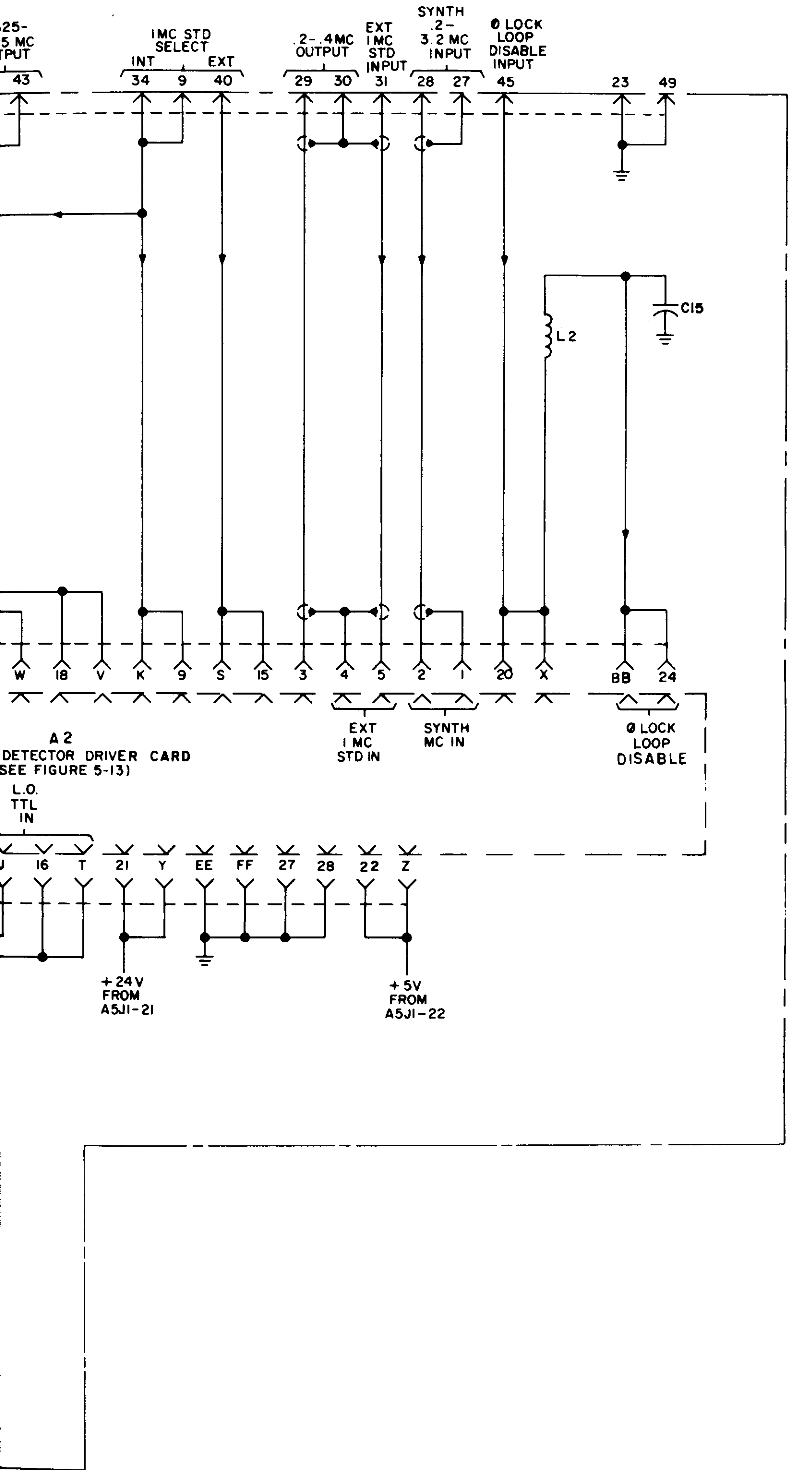
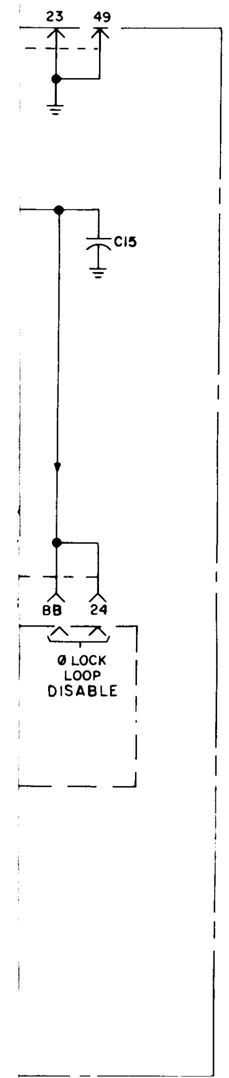


Figure 5-9. Schematic Wiring, Frequency Readout Assembly 1A1 (Sheet 1 of 3)

Figure
5-9



cy

5-47, 5-48

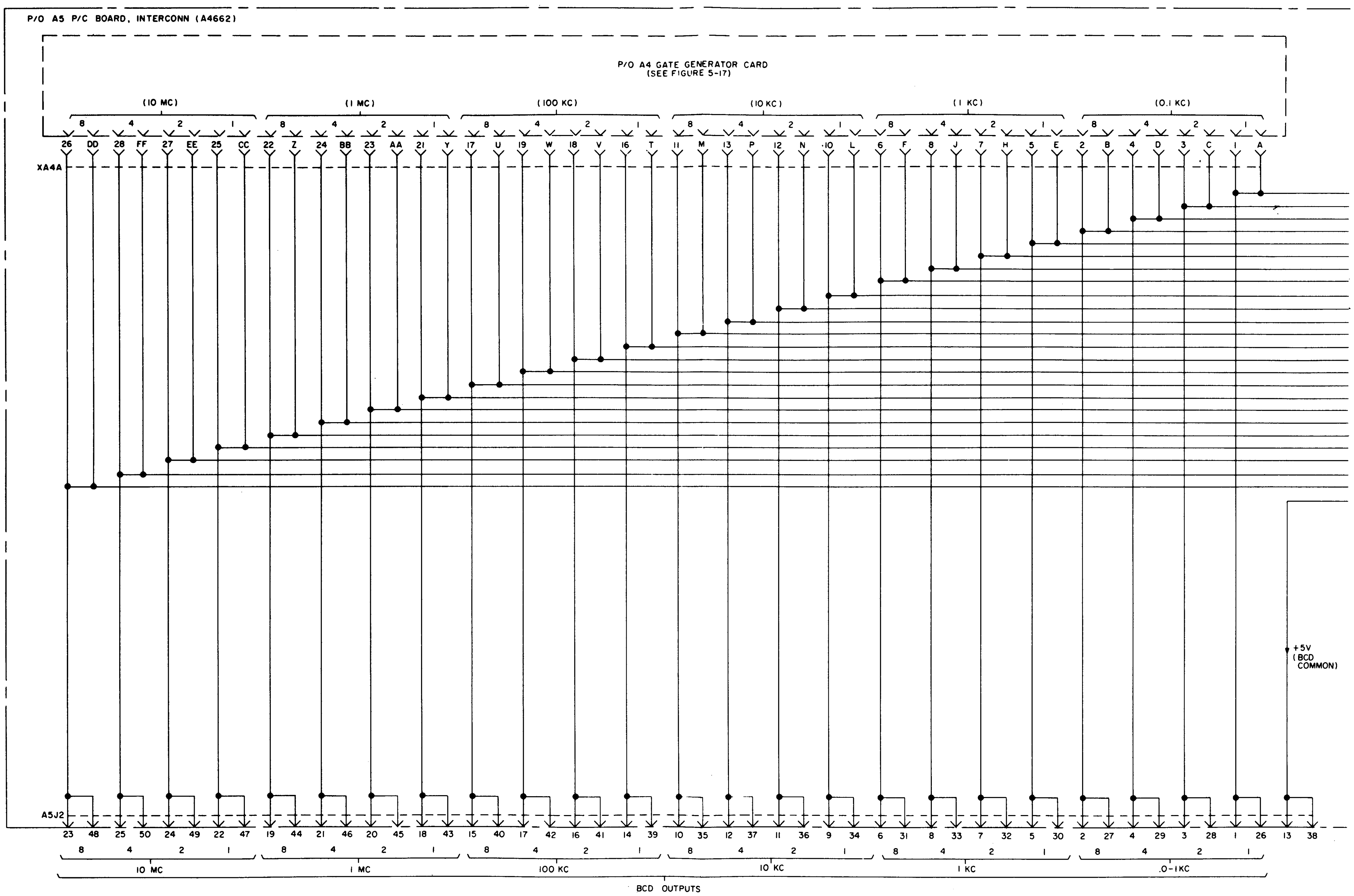


Figure 5-9. Schematic Wiring Frequency Readout Assembly 1A1 (Sheet 2 of 3)

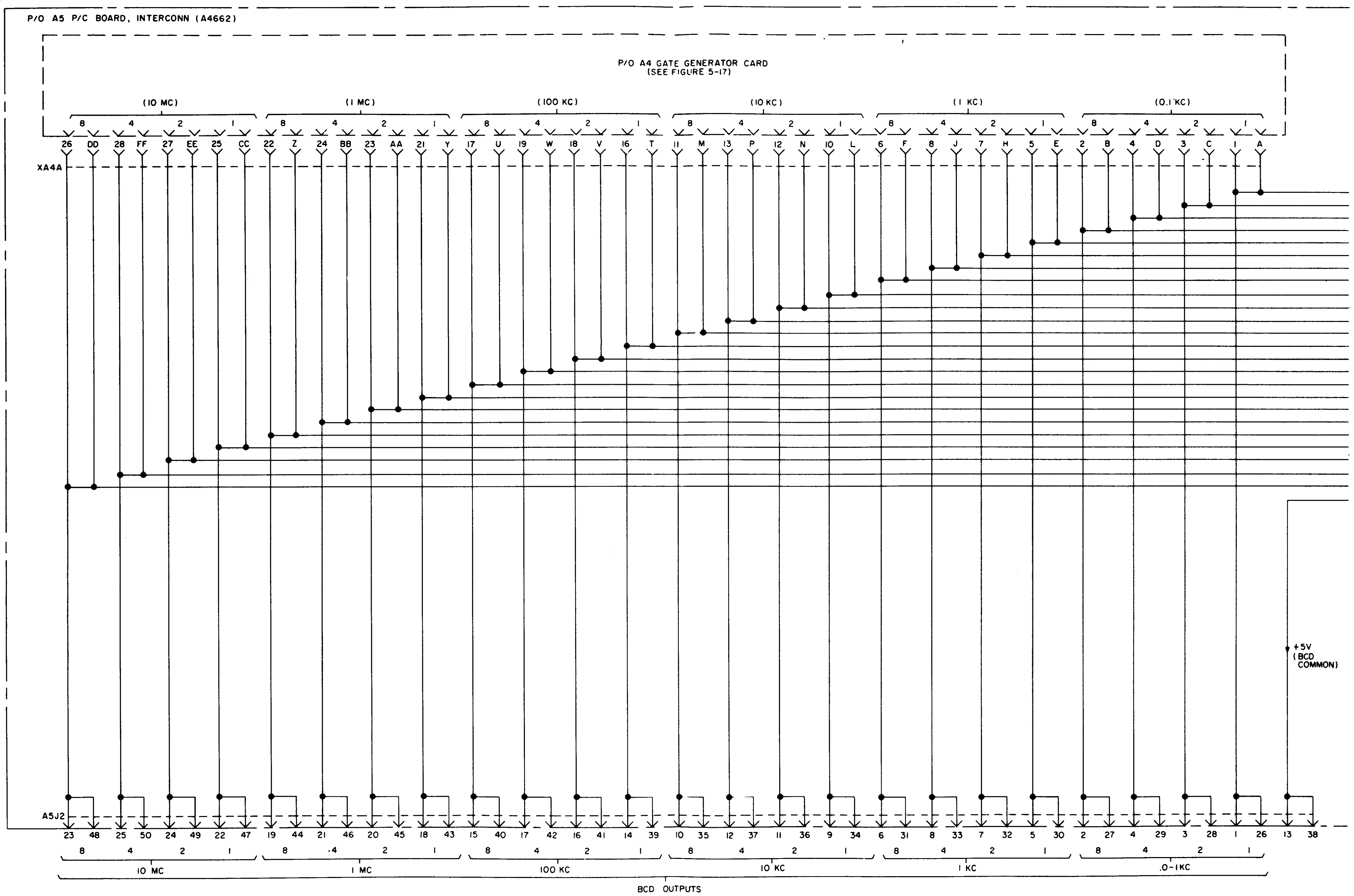
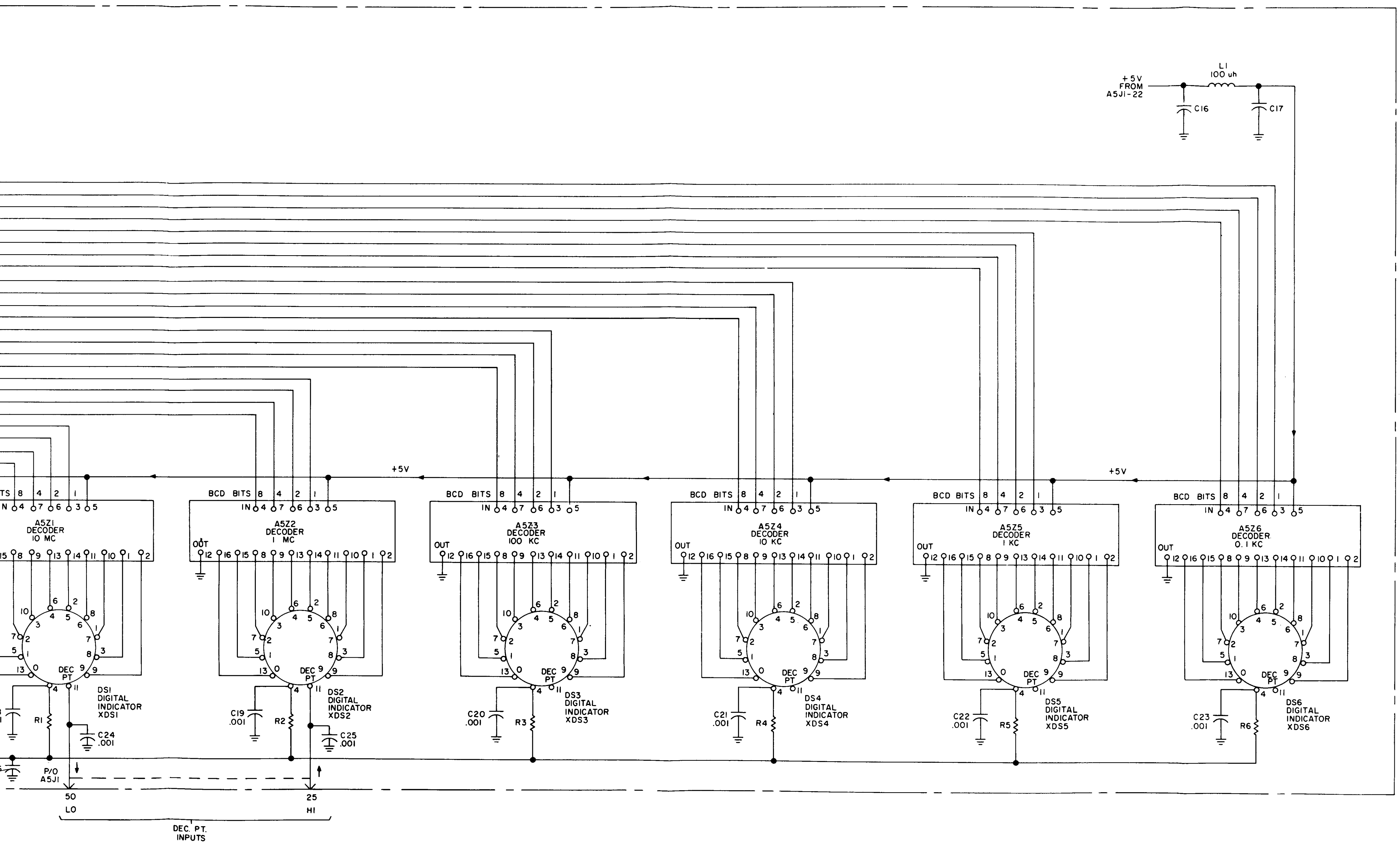


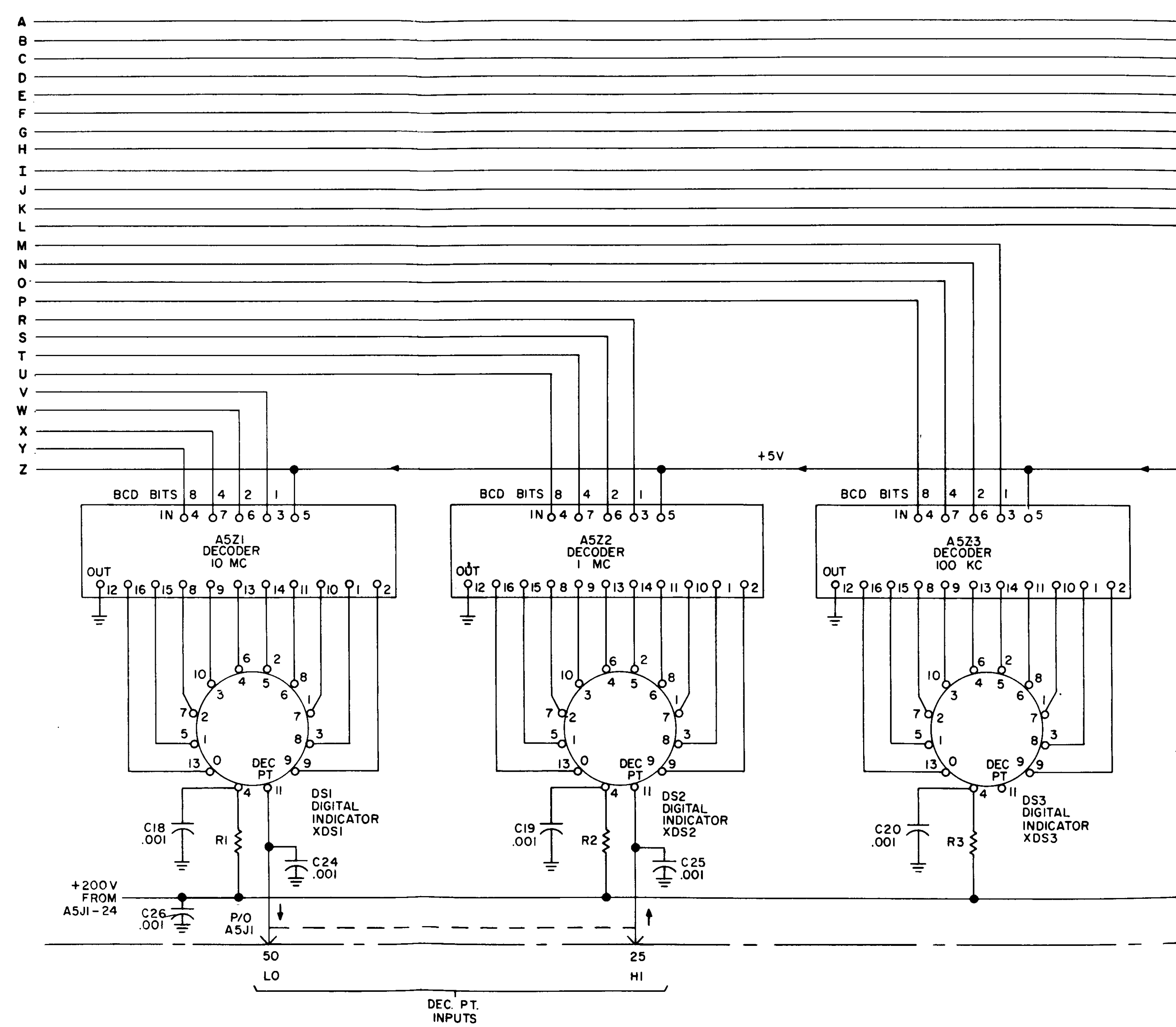
Figure 5-9. Schematic Wiring Frequency
Readout Assembly 1A1 (Sheet 2 of 3)



NOTES:

1. ALL CAPACITORS ARE .01uf, ALL COILS ARE 220 uh, ALL RESISTORS ARE 39K, & ALL DIODES ARE IN914 UNLESS SPECIFIED AS OTHERWISE.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION, PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATIONS AS APPLICABLE.
3. LAST SYMBOLS USED: A5, A5C26, A5CR7, A5L9, A5R6, A5XA4B, A5XDS6, A5Z6, DS6.
4. MISSING SYMBOLS: C1, C2, C11, C12, L3, L4 CR2, CR3

Figure 5-9. Schematic Wiring, Frequency Readout Assembly 1A1 (Sheet 3 of 3)


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
R
S
T
U
V
W
X
Y
Z
+5V
BCD BITS
IN
OUT
A5Z1
DECODER
10 MC
A5Z2
DECODER
1 MC
A5Z3
DECODER
100 KC
DEC PT
DS1
DIGITAL
INDICATOR
XDS1
DS2
DIGITAL
INDICATOR
XDS2
DS3
DIGITAL
INDICATOR
XDS3
C18
.001
C19
.001
C20
.001
C24
.001
C25
.001
C26
.001
R1
R2
R3
+200V
FROM
A5J1-24
P/O
A5J1
50
LO
25
HI
DEC PT.
INPUTS

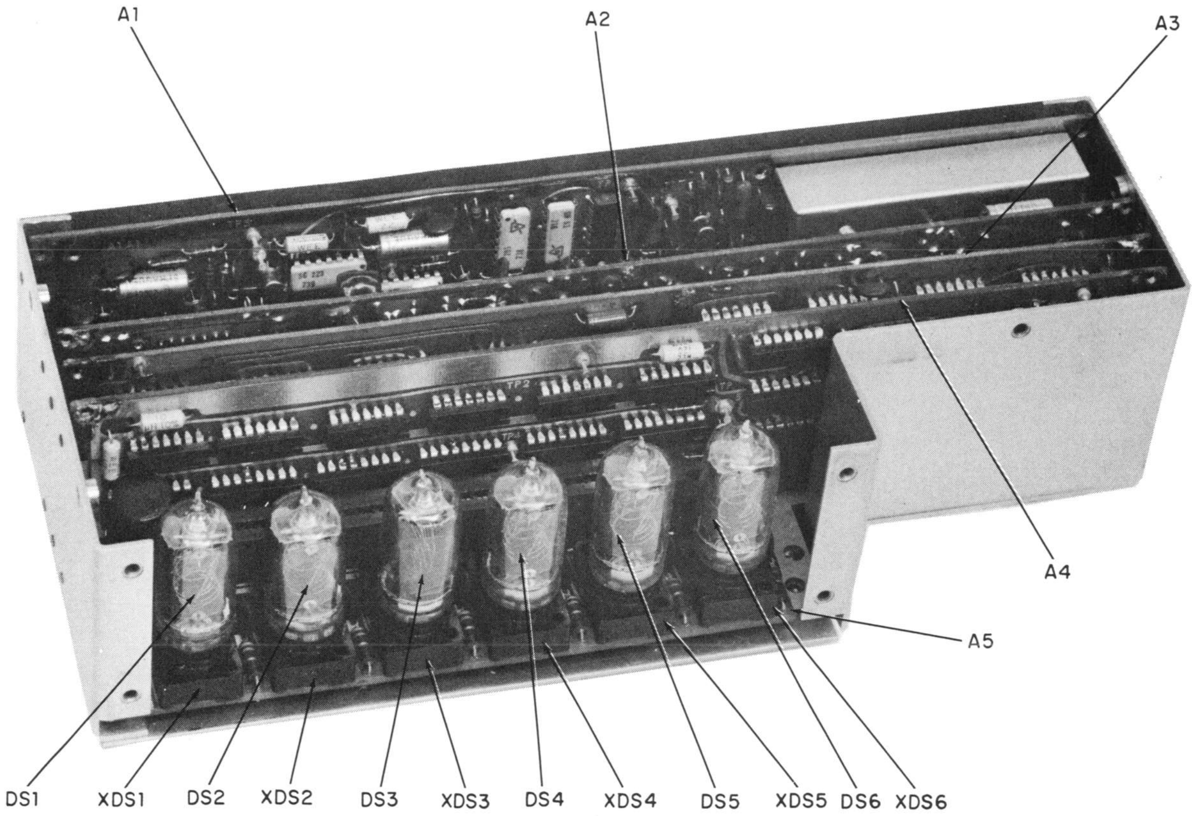


Figure 5-10. Major Component Locations, Top View of 1A1

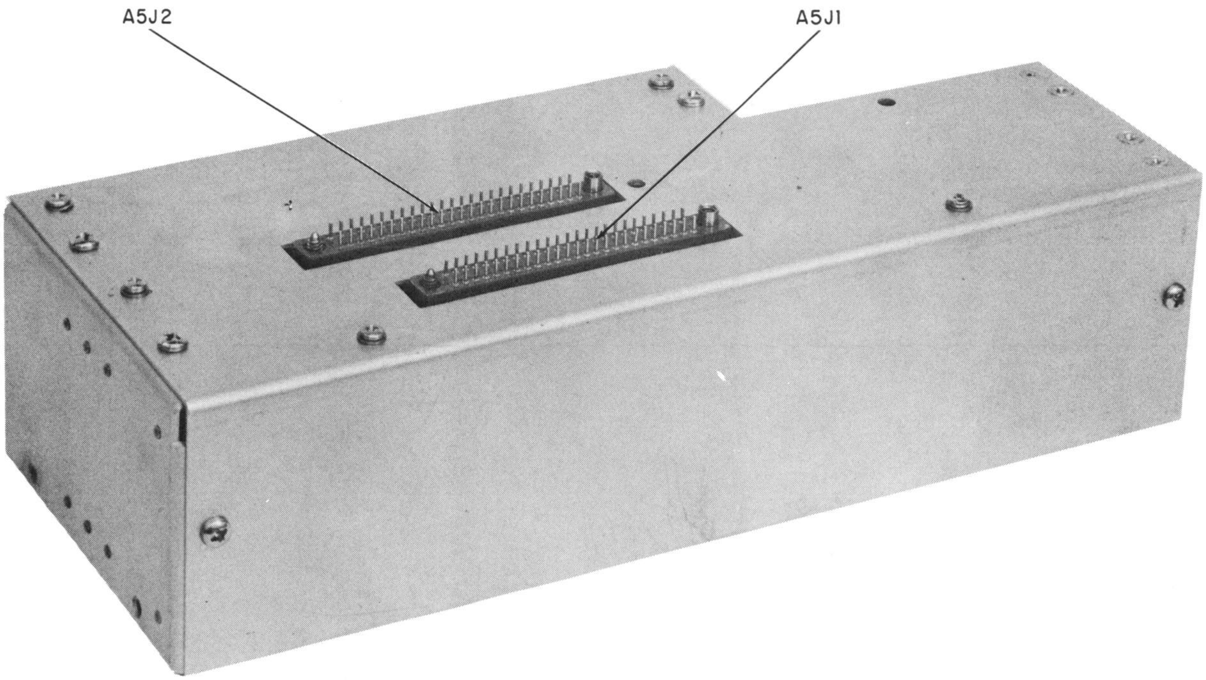
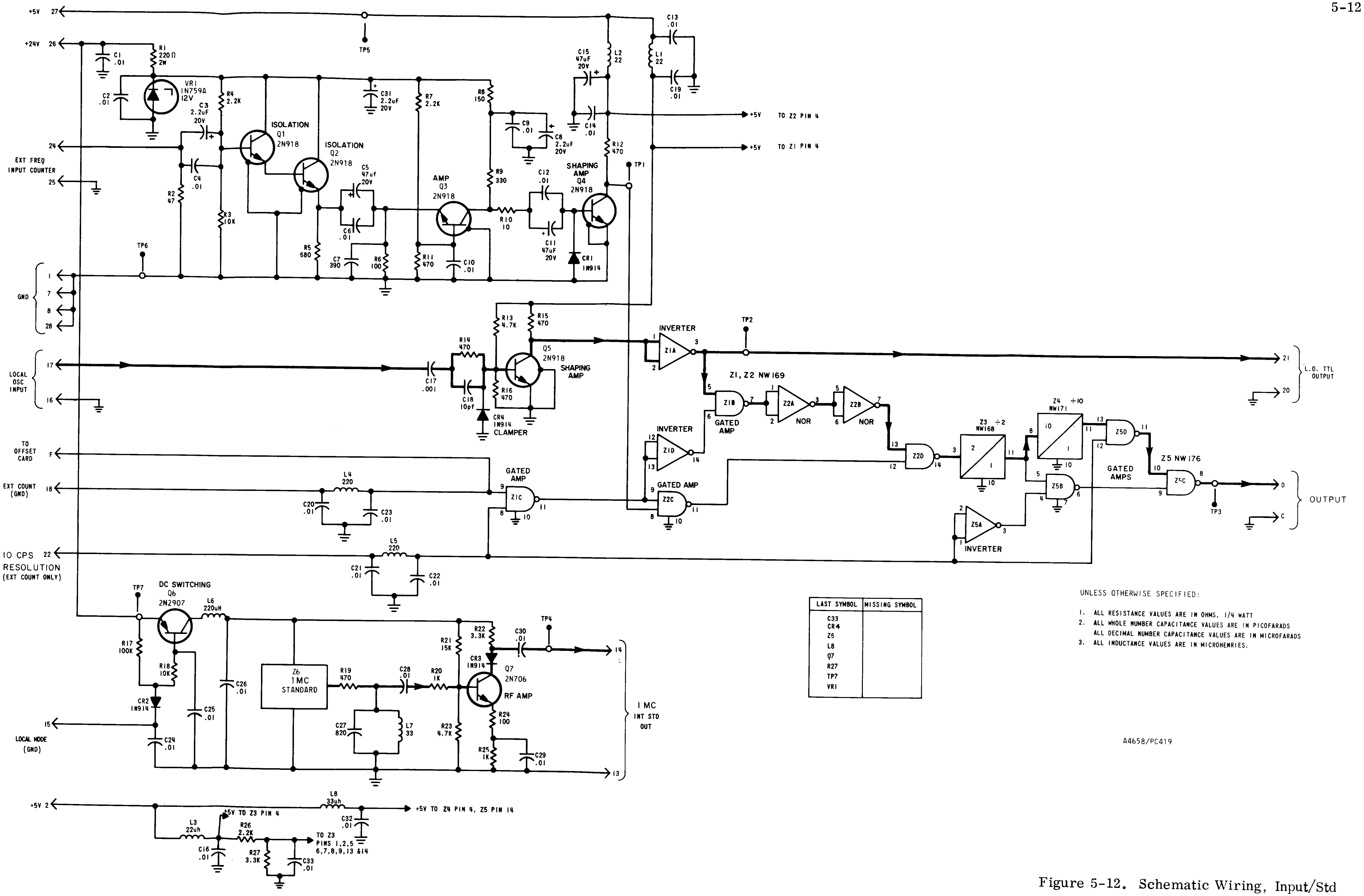


Figure 5-11. Major Component Locations, Bottom View of 1A1

NAVELEX 0967-385-0020

NAVELEX 0967-385-0020

NAVELEX 0967-385-0020



LAST SYMBOL	MISSING SYMBOL
C33	
CR4	
Z6	
L8	
Q7	
R27	
TP7	
VR1	

UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS. 1/4 WATT
2. ALL WHOLE NUMBER CAPACITANCE VALUES ARE IN PICOFARADS
   ALL DECIMAL NUMBER CAPACITANCE VALUES ARE IN MICROFARADS
3. ALL INDUCTANCE VALUES ARE IN MICROHENRIES.

A4658/PC419

Figure 5-12. Schematic Wiring, Input/Std 1A1A1

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C32	7D	R11	2E
C33	5D	R12	3D
CR1	3E	R13	5E
CR2	7E	R14	5E
CR3	7E	R15	5E
CR4	5E	R16	5E
L1	4D	R17	7E
L2	3D	R18	7E
L3	7E	R19	8E
L4	5E	R20	7E
L5	5E	R21	8E
L6	7E	R22	7E
L7	8D	R23	7D
L8	7D	R24	7D
Q1	2E	R25	7D
Q2	2E	R26	5D
Q3	2E	R27	5D
Q4	3E	TP1	3D
Q5	5E	TP2	4E
Q6	7E	TP3	6E
Q7	7E	TP4	6E
R1	2F	TP5	3D
R2	4E	TP6	7D
R3	2E	TP7	7D
R4	2E	VR1	1F
R5	2E	Z1	4E
R6	2E	Z2	4E
R7	2D	Z3	5D
R8	2D	Z4	6D
R9	3D	Z5	6D
R10	3E	Z6	9E

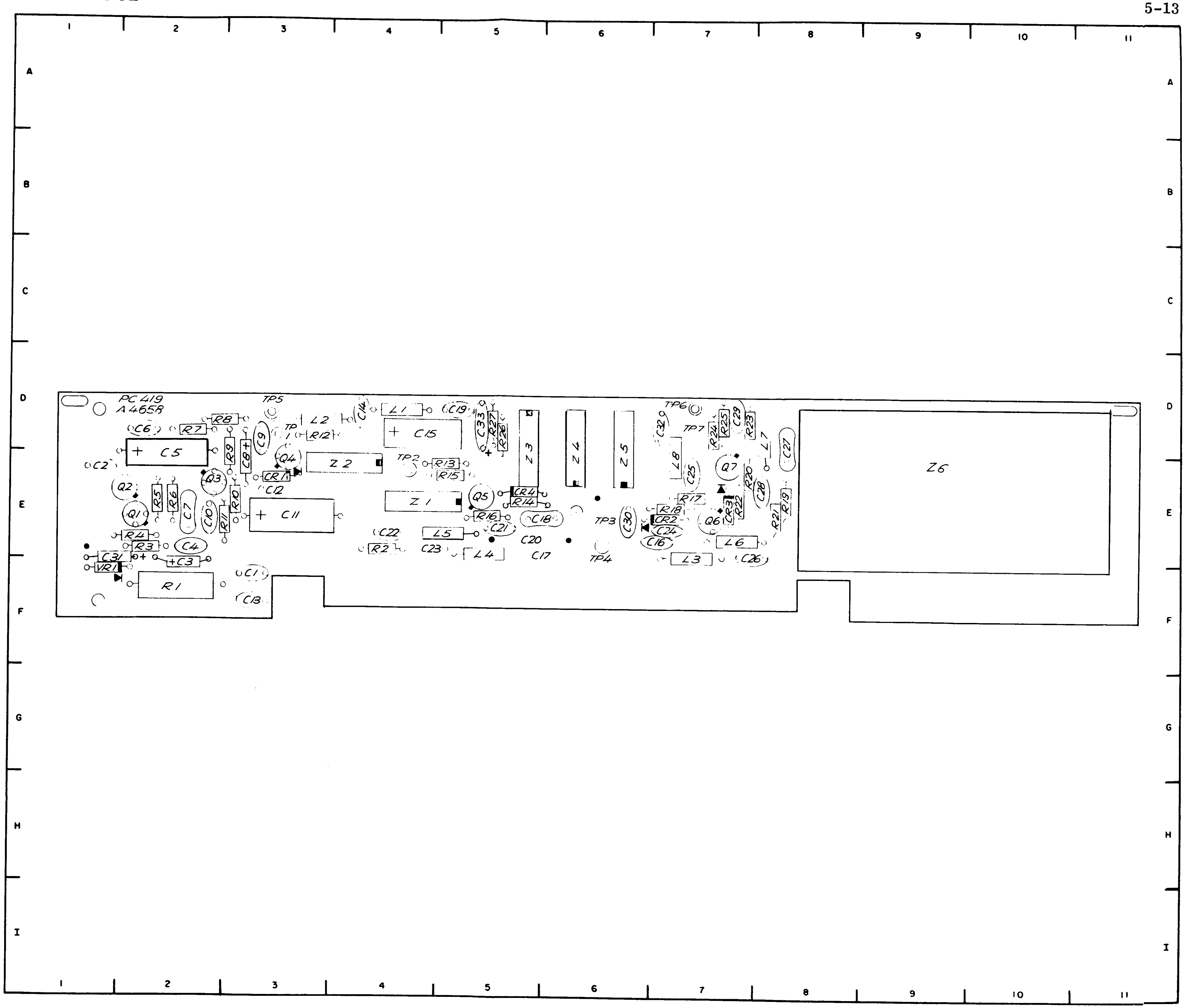
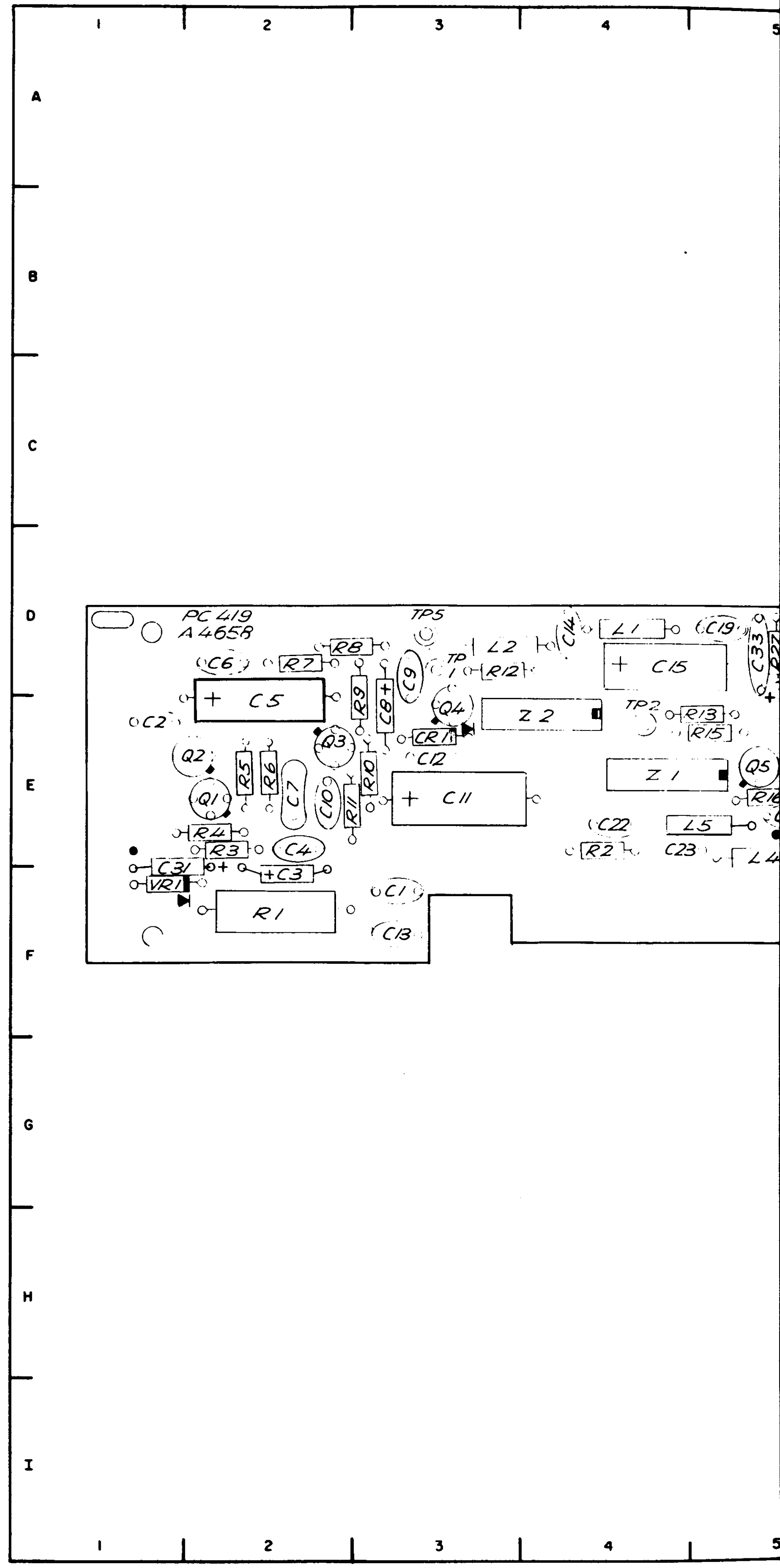


Figure 5-13. Component Locations, Input/Std 1A1A1

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	3F	C32	7D	R11	2E
C2	1E	C33	5D	R12	3D
C3	2F	CR1	3E	R13	5E
C4	2E	CR2	7E	R14	5E
C5	2E	CR3	7E	R15	5E
C6	2D	CR4	5E	R16	5E
C7	2E	L1	4D	R17	7E
C8	3E	L2	3D	R18	7E
C9	3D	L3	7E	R19	8E
C10	2E	L4	5E	R20	7E
C11	3E	L5	5E	R21	8E
C12	3E	L6	7E	R22	7E
C13	3F	L7	8D	R23	7D
C14	4D	L8	7D	R24	7D
C15	4D	Q1	2E	R25	7D
C16	7E	Q2	2E	R26	5D
C17	5E	Q3	2E	R27	5D
C18	5E	Q4	3E	TP1	3D
C19	5D	Q5	5E	TP2	4E
C20	5E	Q6	7E	TP3	6E
C21	5E	Q7	7E	TP4	6E
C22	4E	R1	2F	TP5	3D
C23	4E	R2	4E	TP6	7D
C24	7E	R3	2E	TP7	7D
C25	7E	R4	2E	VR1	1F
C26	7E	R5	2E	Z1	4E
C27	8D	R6	2E	Z2	4E
C28	8E	R7	2D	Z3	5D
C29	7D	R8	2D	Z4	6D
C30	6E	R9	3D	Z5	6D
C31	1E	R10	3E	Z6	9E



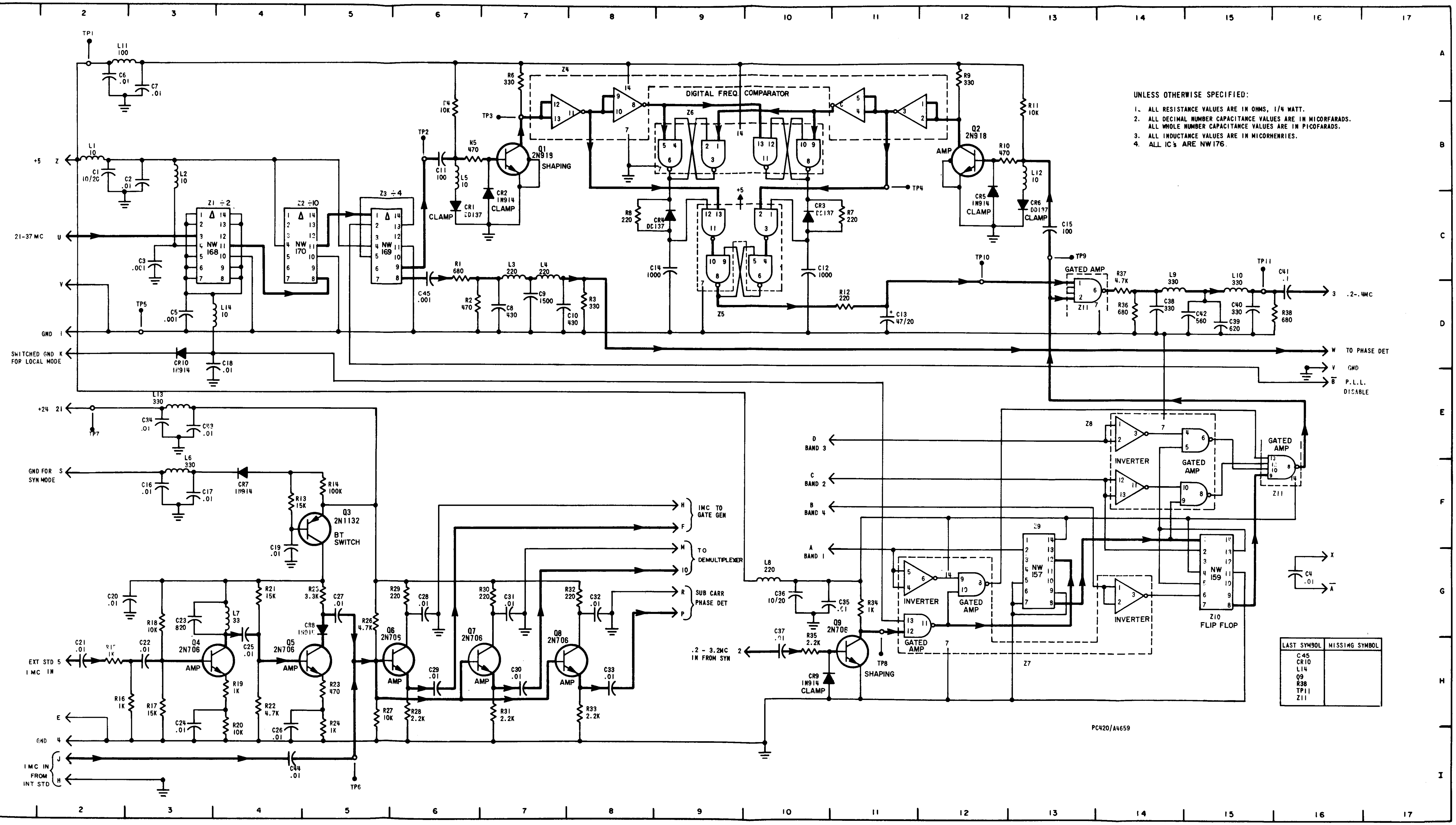


Figure 5-14. Schematic Wiring, Phase Detector Driver 1A1A2

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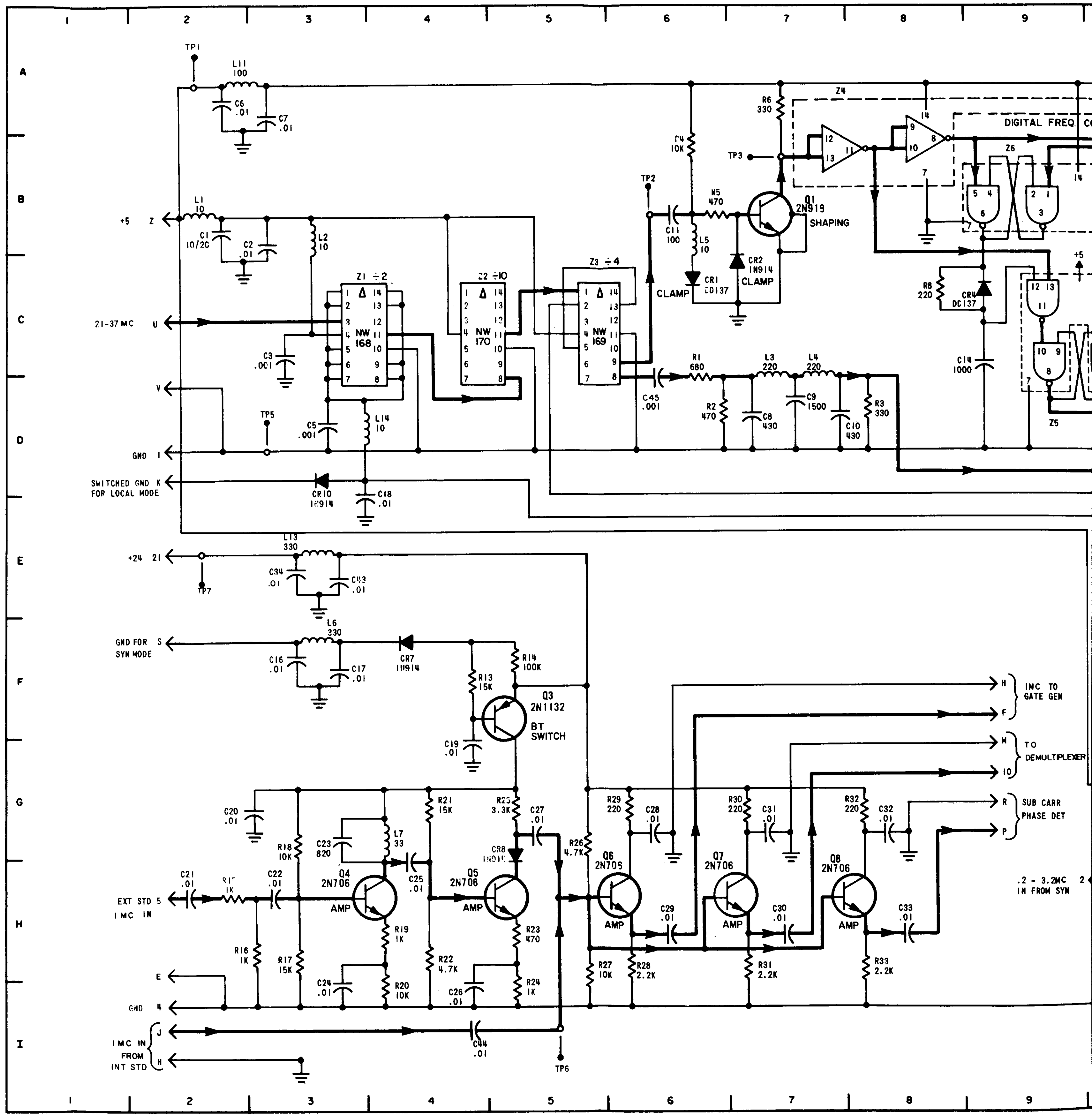
PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2B	C36	10G	Q2	12B	R27	5H
C2	2B	C37	10H	Q3	5F	R28	6H
C3	3C	C38	14D	Q4	3H	R29	6G
C4	16G	C39	15D	Q5	4H	R30	7G
C5	3D	C40	15D	Q6	6H	R31	7H
C6	2A	C41	16D	Q7	7H	R32	8G
C7	3A	C42	15D	Q8	8H	R33	8H
C8	7D	C43	3E	Q9	11H	R34	11G
C9	7D	C44	4I	R1	6C	R35	10H
C10	7D	C45	6D	R2	6D	R36	14D
C11	6B	CR1	6C	R3	8D	R37	14D
C12	10C	CR2	7C	R4	6B	R38	15D
C13	11D	CR3	10C	R5	6B	TP1	2A
C14	9C	CR4	9C	R6	7A	TP2	6B
C15	13C	CR5	12C	R7	11C	TP3	7B
C16	3F	CR6	13C	R8	8C	TP4	11B
C17	3F	CR7	4F	R9	12A	TP5	3D
C18	4E	CR8	5G	R10	12B	TP6	5I
C19	4G	CR9	10H	R11	13B	TP7	2E
C20	2G	CR10	3D	R12	11D	TP8	11H
C21	2H	L1	2B	R13	4F	TP9	13C
C22	3H	L2	3B	R14	5F	TP10	12C
C23	3G	L3	7C	R15	2H	TP11	15C
C24	3I	L4	7C	R16	2H	Z1	3C
C25	4H	L5	6B	R17	3H	Z2	4C
C26	4I	L6	3F	R18	3G	Z3	5C
C27	5G	L7	4G	R19	4H	Z4	7A
C28	6G	L8	10G	R20	4I	Z5	9D
C29	6H	L9	14D	R21	4G	Z6	9B
C30	7H	L10	15D	R22	4H	Z7	13H
C31	7G	L11	2A	R23	5H	Z8	13E
C32	8G	L12	13B	R24	5I	Z9	13F
C33	8H	L13	3E	R25	5G	Z10	15G
C34	3E	L14	4D	R26	5G	Z11	16F
C35	10G	Q1	7B				



NAVELEX 0967-385-0020

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C36	1D	Q2	10E	R27	4D
C37	5F	Q3	4E	R28	5D
C38	2F	Q4	3D	R29	5E
C39	1F	Q5	4D	R30	5E
C40	1E	Q6	5D	R31	5D
C41	5E	Q7	5D	R32	6E
C42	1F	Q8	6E	R33	6D
C43	5E	Q9	5F	R34	4E
C44	6F	R1	8E	R35	5F
C45	8D	R2	8E	R36	2F
CR1	9D	R3	8F	R37	2F
CR2	9D	R4	9D	R38	1E
CR3	9E	R5	9D	TP1	6D
CR4	9E	R6	9E	TP2	9E
CR5	11E	R7	9E	TP3	9E
CR6	11E	R8	9E	TP4	10D
CR7	6E	R9	11D	TP5	3D
CR8	4E	R10	11E	TP6	6E
CR9	5F	R11	11D	TP7	7E
CR10	5E	R12	11E	TP8	5E
L1	7E	R13	4E	TP9	2E
L2	7E	R14	4E	TP10	1D
L3	8E	R15	2E	TP11	2E
L4	8E	R16	2E	Z1	7D
L5	9D	R17	2D	Z2	8D
L6	7E	R18	3E	Z3	8E
L7	3E	R19	3D	Z4	10D
L8	2E	R20	3D	Z5	10E
L9	2E	R21	4D	Z6	10E
L10	2E	R22	3D	Z7	4E
L11	9E	R23	4D	Z8	3E
L12	11E	R24	4D	Z9	4E
L13	5E	R25	4E	Z10	3E
L14	6D	R26	5E	Z11	2E
Q1	9E				

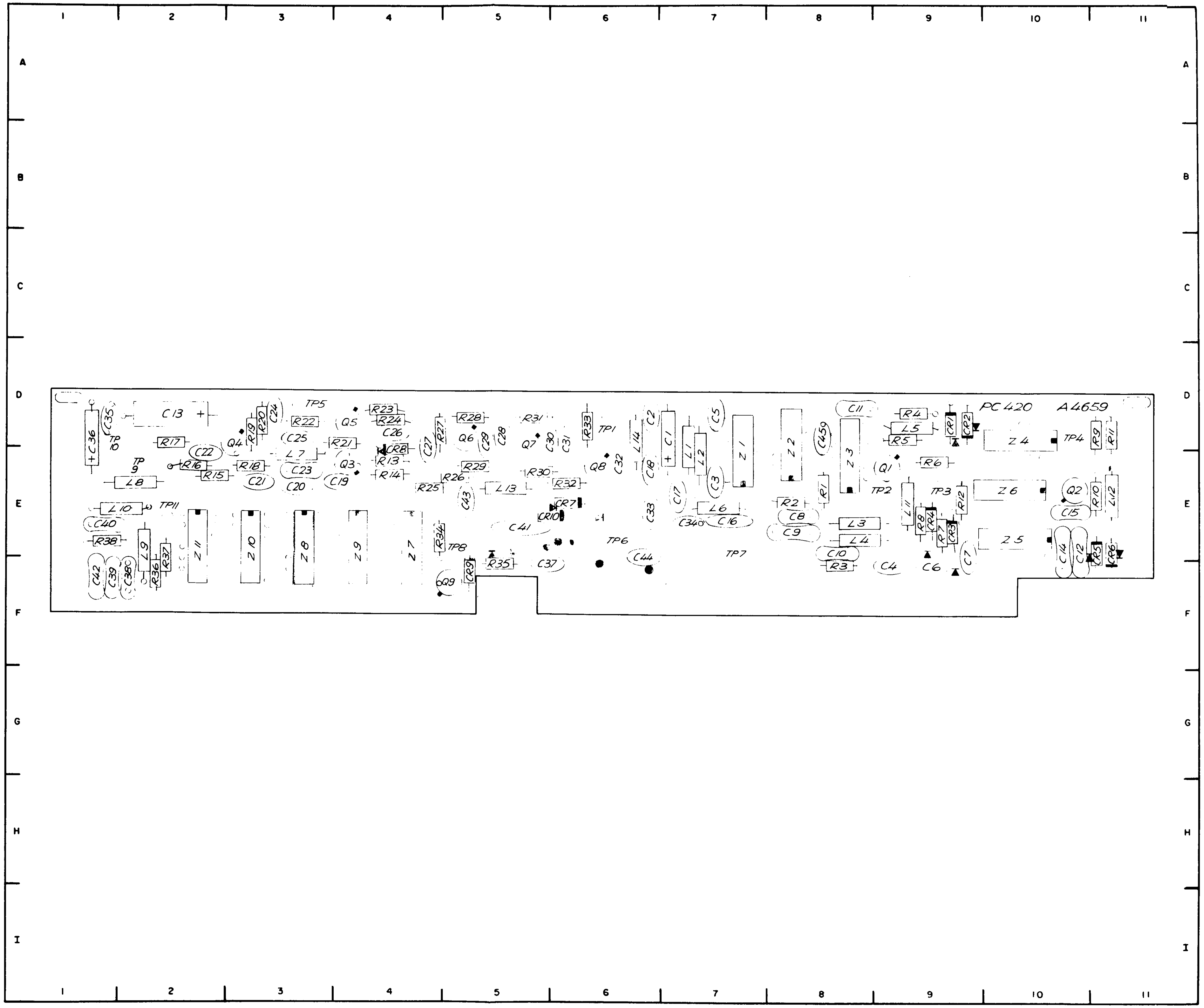
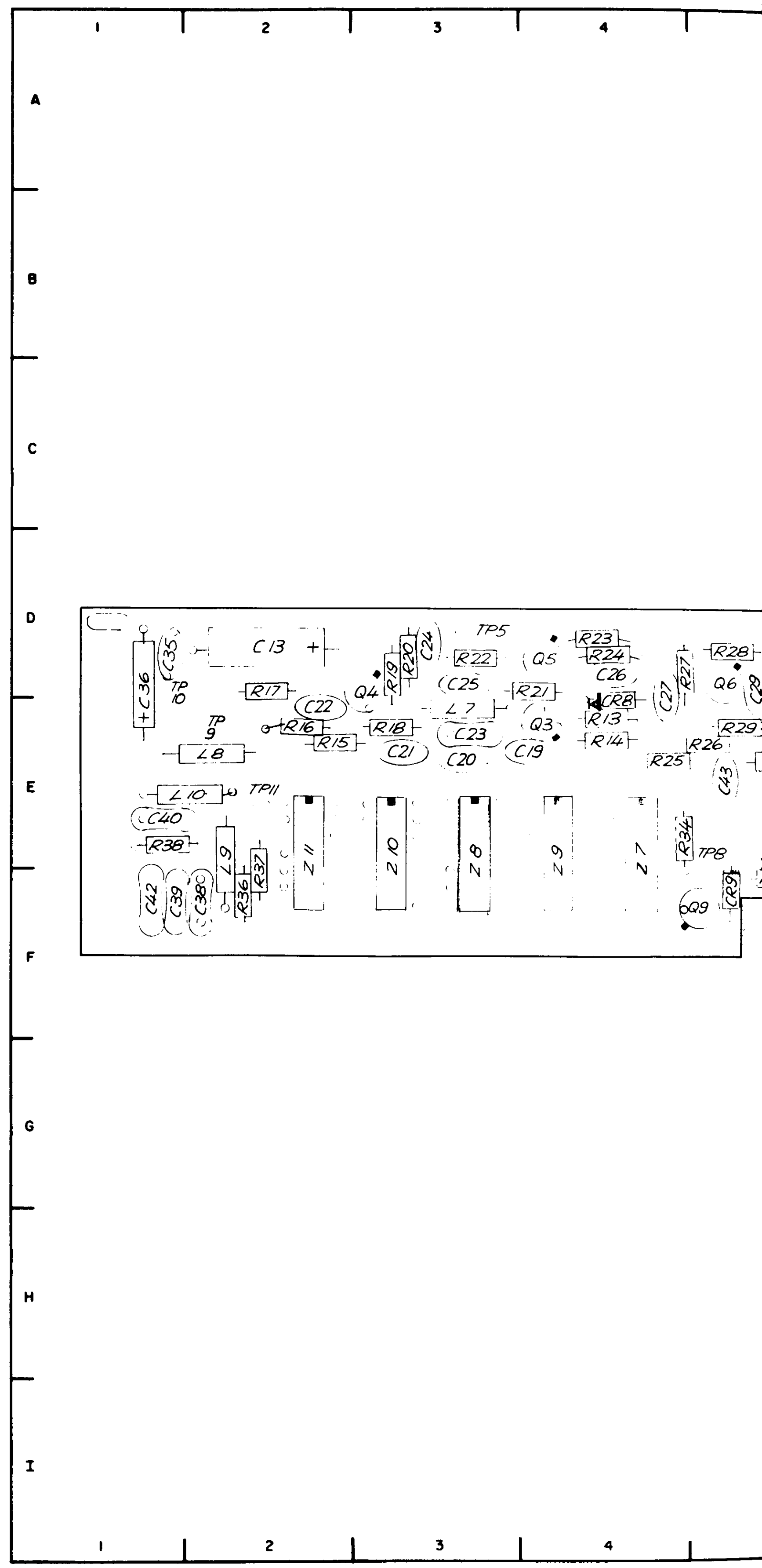
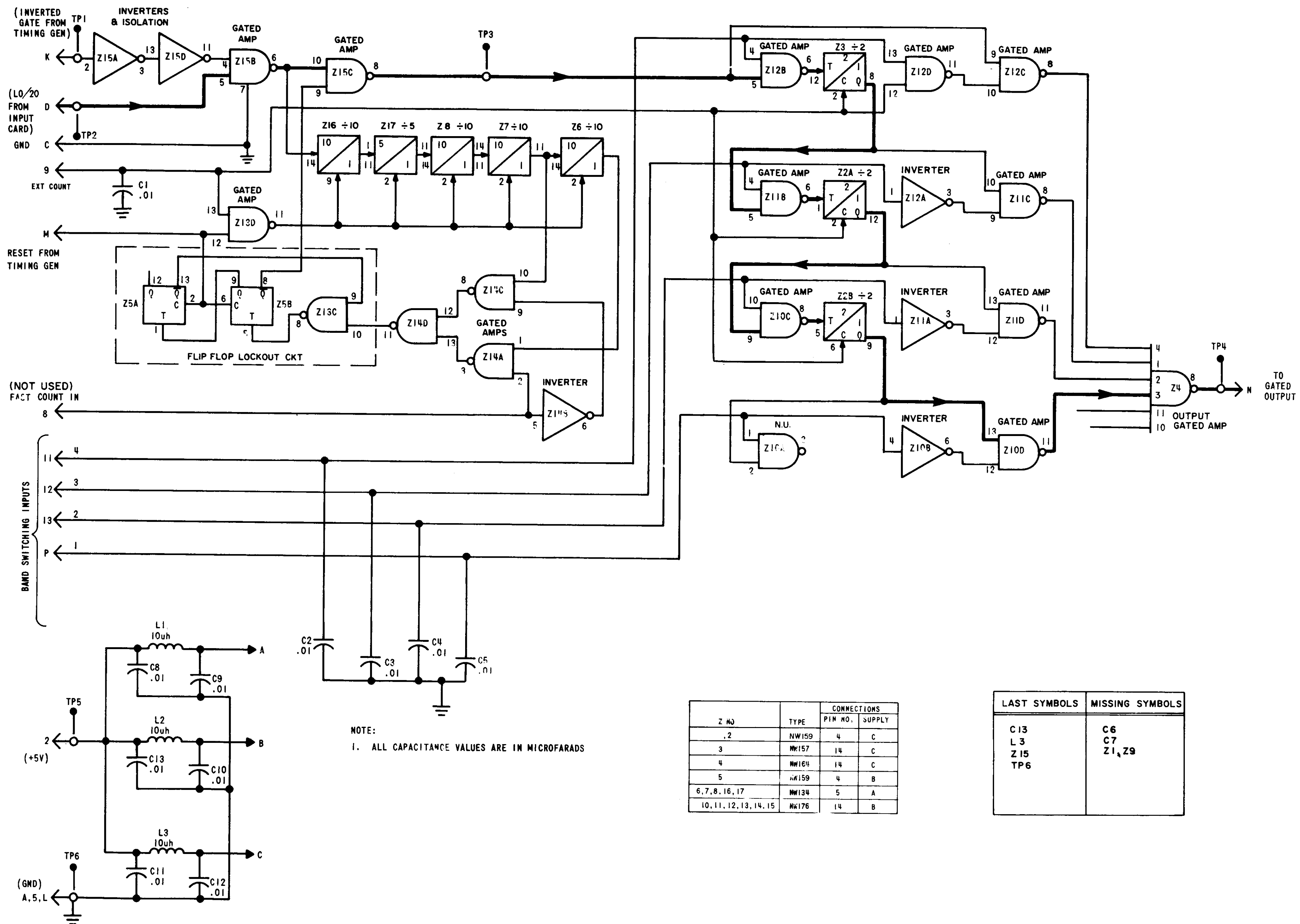


Figure 5-15. Component Locations, Phase Detector Driver 1A1A2

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	7D	C36	1D	Q2	10E	R27	4D
C2	6D	C37	5F	Q3	4E	R28	5D
C3	7E	C38	2F	Q4	3D	R29	5E
C4	9F	C39	1F	Q5	4D	R30	5E
C5	7D	C40	1E	Q6	5D	R31	5D
C6	9F	C41	5E	Q7	5D	R32	6E
C7	9E	C42	1F	Q8	6E	R33	6D
C8	8E	C43	5E	Q9	5F	R34	4E
C9	8E	C44	6F	R1	8E	R35	5F
C10	8E	C45	8D	R2	8E	R36	2F
C11	8D	CR1	9D	R3	8F	R37	2F
C12	10E	CR2	9D	R4	9D	R38	1E
C13	2D	CR3	9E	R5	9D	TP1	6D
C14	10E	CR4	9E	R6	9E	TP2	9E
C15	10E	CR5	11E	R7	9E	TP3	9E
C16	7E	CR6	11E	R8	9E	TP4	10D
C17	7E	CR7	6E	R9	11D	TP5	3D
C18	6E	CR8	4E	R10	11E	TP6	6E
C19	4E	CR9	5F	R11	11D	TP7	7E
C20	3E	CR10	5E	R12	11E	TP8	5E
C21	3E	L1	7E	R13	4E	TP9	2E
C22	2E	L2	7E	R14	4E	TP10	1D
C23	3E	L3	8E	R15	2E	TP11	2E
C24	3D	L4	8E	R16	2E	Z1	7D
C25	3D	L5	9D	R17	2D	Z2	8D
C26	4D	L6	7E	R18	3E	Z3	8E
C27	4D	L7	3E	R19	3D	Z4	10D
C28	5D	L8	2E	R20	3D	Z5	10E
C29	5D	L9	2E	R21	4D	Z6	10E
C30	5D	L10	2E	R22	3D	Z7	4E
C31	6D	L11	9E	R23	4D	Z8	3E
C32	6E	L12	11E	R24	4D	Z9	4E
C33	6E	L13	5E	R25	4E	Z10	3E
C34	7E	L14	6D	R26	5E	Z11	2E
C35	1D	Q1	9E				



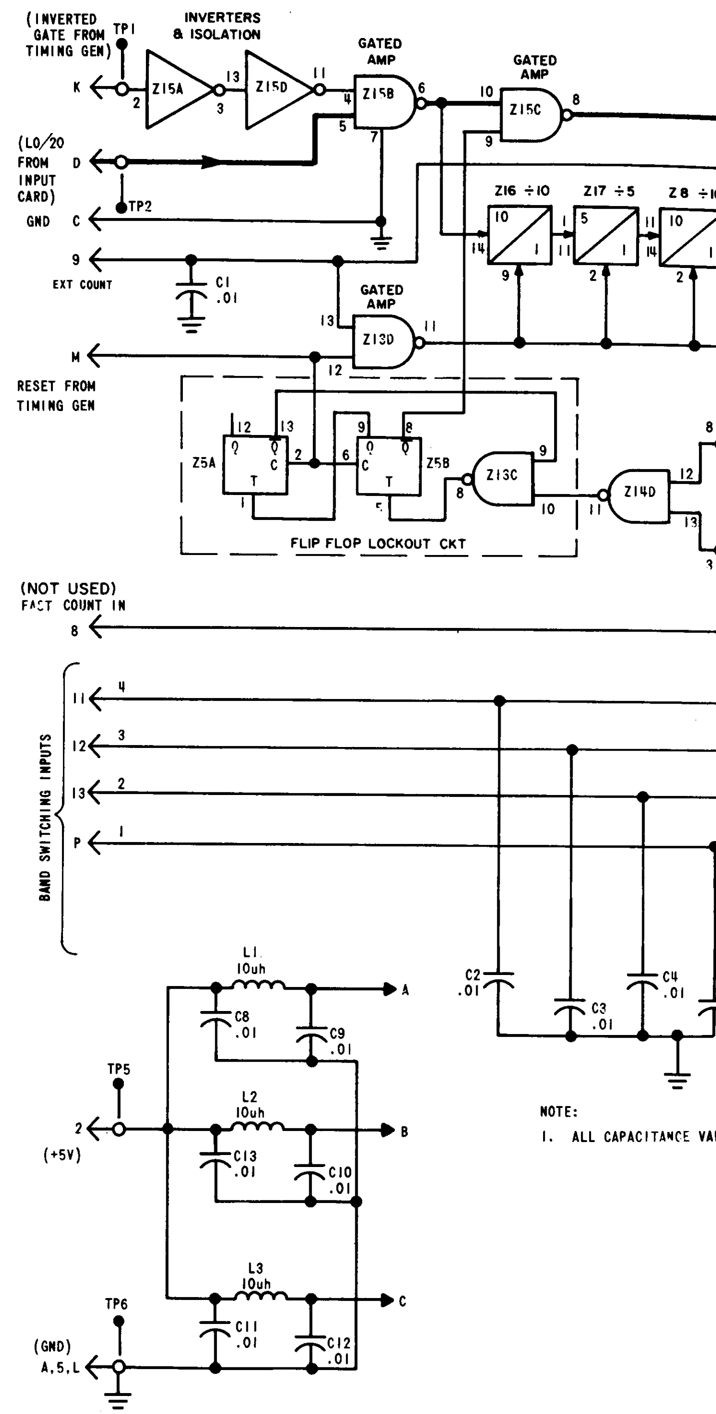


NOTE:
1. ALL CAPACITANCE VALUES ARE IN MICROFARADS

Z NO	TYPE	CONNECTIONS PIN NO.	CONNECTIONS SUPPLY
,2	NW159	4	C
3	NW157	14	C
4	NW164	14	C
5	NW159	4	B
6,7,8,16,17	NW134	5	A
10,11,12,13,14,15	NW176	14	B

LAST SYMBOLS	MISSING SYMBOLS
C13 L3 Z15 TP6	C6 C7 Z1, Z9

Figure 5-16. Schematic Wiring, L.O. Offset and Band Divider 1A1A3


(INVERTED GATE FROM TIMING GEN)
TP1
INVERTERS & ISOLATION
GATED AMP
Z15A
Z15D
Z15B
Z15C
(LO/20 FROM INPUT CARD)
GND
TP2
EXT COUNT
C1 .01
Z16 ÷10
Z17 ÷5
Z13D
RESET FROM TIMING GEN
Z5A
Z5B
Z13C
Z14D
FLIP FLOP LOCKOUT CKT
(NOT USED) FAST COUNT IN
BAND SWITCHING INPUTS
L1 10uh
L2 10uh
L3 10uh
C8 .01
C9 .01
C13 .01
C10 .01
C11 .01
C12 .01
TP5
(+5V)
TP6
(GND) A,5,L
C2 .01
C3 .01
C4 .01
NOTE:
1. ALL CAPACITANCE VAL

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C1	9E	TP5	11E
C2	5F	TP6	2D
C3	6F	Z2	3E
C4	3F	Z3	4E
C5	3F	Z4	5E
C8	11E	Z5	7D
C9	10E	Z6	8D
C10	9E	Z7	9D
C11	6D	Z8	10D
C12	6D	Z10	3E
C13	8D	Z11	4E
L1	11D	Z12	5E
L2	9D	Z13	6E
L3	6D	Z14	7E
TP1	8E	Z15	8E
TP2	9E	Z16	9E
TP3	6E	Z17	10E
TP4	5E		

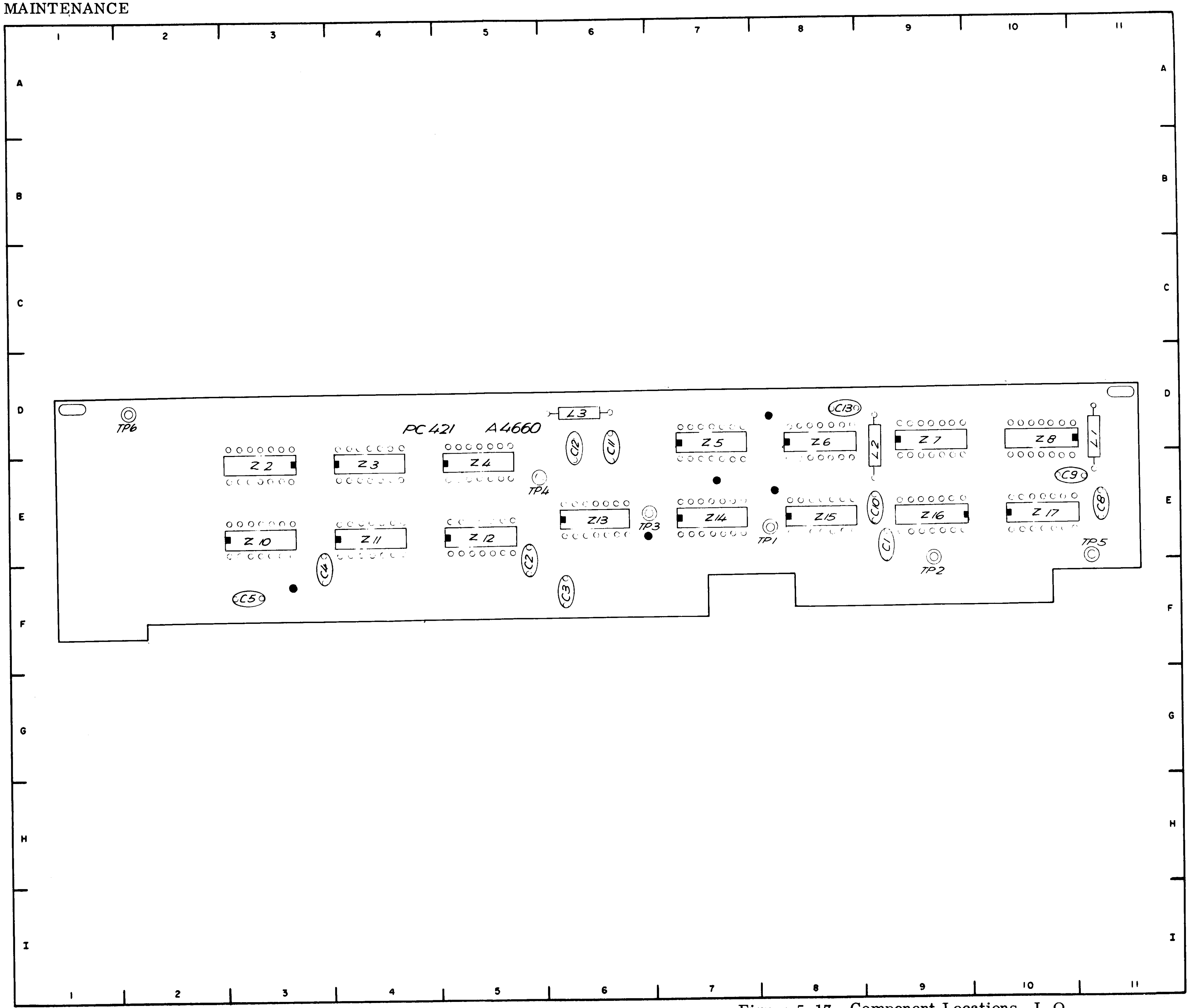
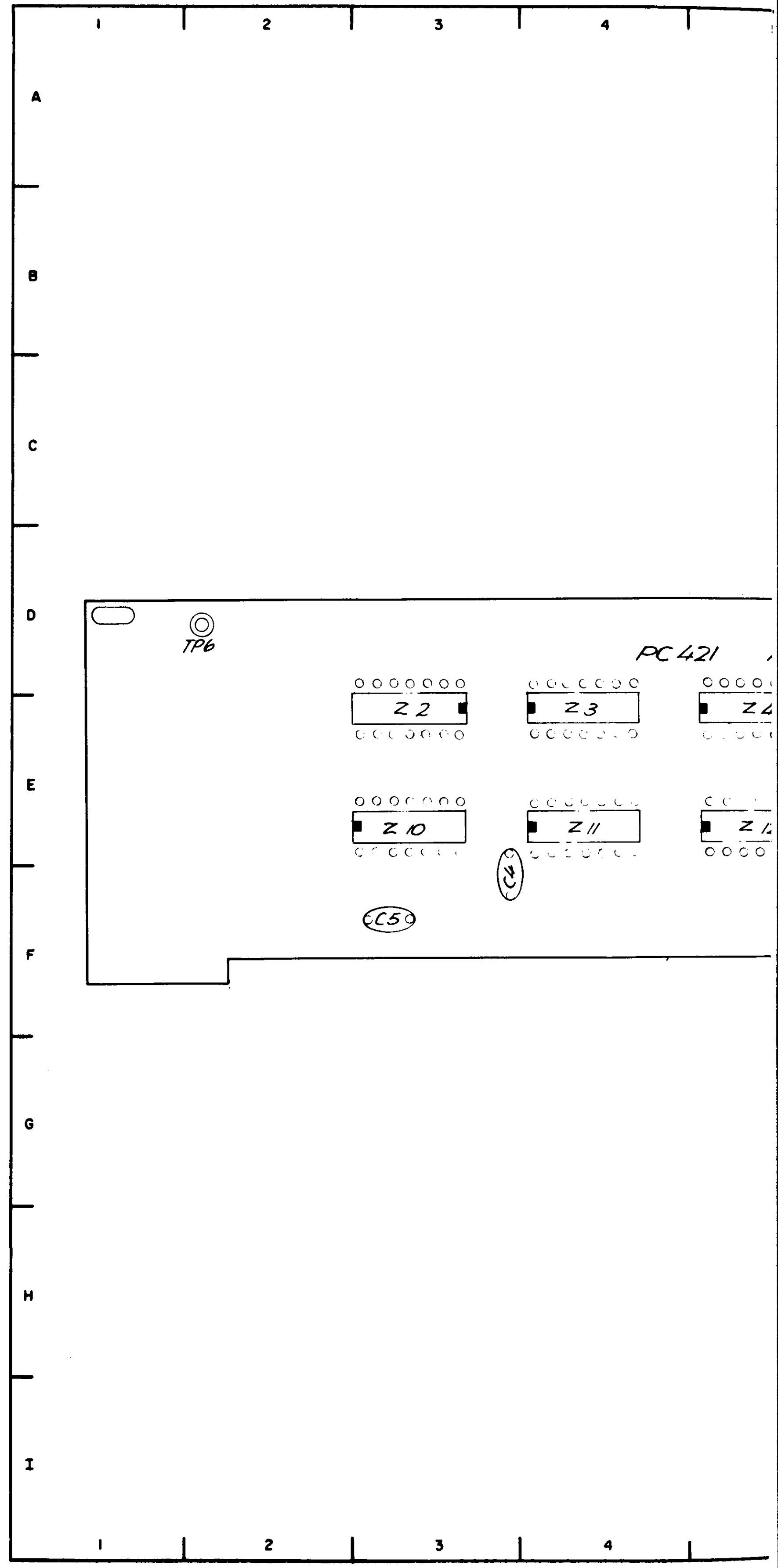
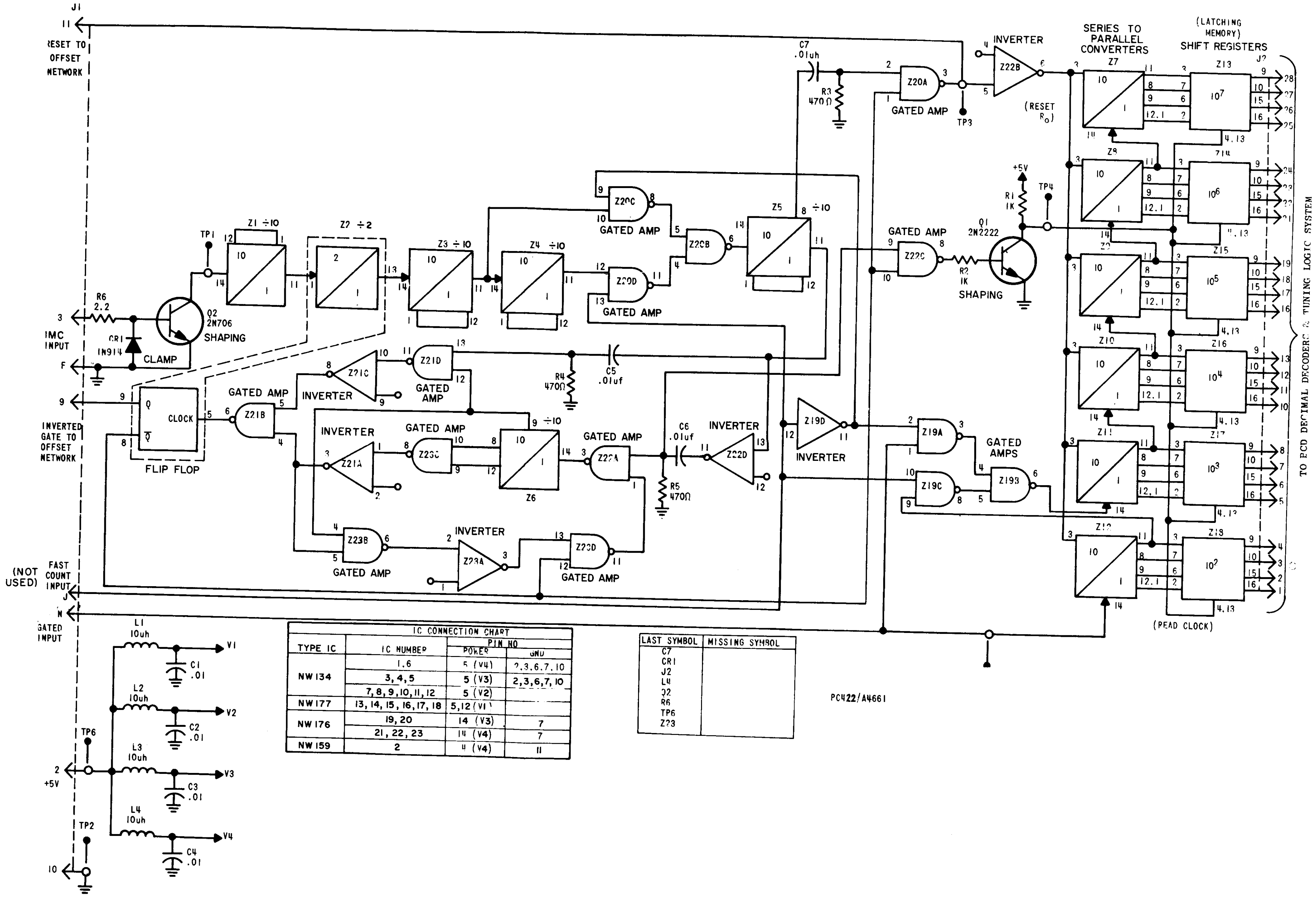


Figure 5-17. Component Locations, L.O. Offset and Band Divider 1A1A3

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C1	9E	TP5	11E
C2	5F	TP6	2D
C3	6F	Z2	3E
C4	3F	Z3	4E
C5	3F	Z4	5E
C8	11E	Z5	7D
C9	10E	Z6	8D
C10	9E	Z7	9D
C11	6D	Z8	10D
C12	6D	Z10	3E
C13	8D	Z11	4E
L1	11D	Z12	5E
L2	9D	Z13	6E
L3	6D	Z14	7E
TP1	8E	Z15	8E
TP2	9E	Z16	9E
TP3	6E	Z17	10E
TP4	5E		





IC CONNECTION CHART			
TYPE IC	IC NUMBER	PIN NO POWER	PIN NO GND
NW134	1,6	5 (V4)	2,3,6,7,10
	3,4,5	5 (V3)	2,3,6,7,10
	7,8,9,10,11,12	5 (V2)	
NW177	13,14,15,16,17,18	5,12 (V1)	
NW176	19,20	14 (V3)	7
	21,22,23	14 (V4)	7
NW159	2	4 (V4)	11

LAST SYMBOL	MISSING SYMBOL
C7	
CR1	
J2	
L4	
Q2	
R6	
TP6	
Z23	

Figure 5-18. Schematic Wiring, Gate Generator and Counting Register 1A1A4

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
1	1E	TP5	7E
2	2E	TP6	10D
3	7D	Z1	9E
4	11E	Z2	9E
5	8E	Z3	9E
6	8E	Z4	10E
7	11E	Z5	10E
R1	10E	Z6	9E
1	-	Z7	2E
2	-	Z8	3E
1	1E	Z9	4E
2	2D	Z10	4E
3	6D	Z11	5E
4	11E	Z12	6E
1	7E	Z13	2E
2	10E	Z14	3E
1	6E	Z15	4E
2	7F	Z16	4E
3	10D	Z17	5E
4	8E	Z18	6E
5	8D	Z19	7D
6	10F	Z20	9E
P1	10E	Z21	9E
P2	5D	Z22	7E
P3	8D	Z23	7E
P4	5E		

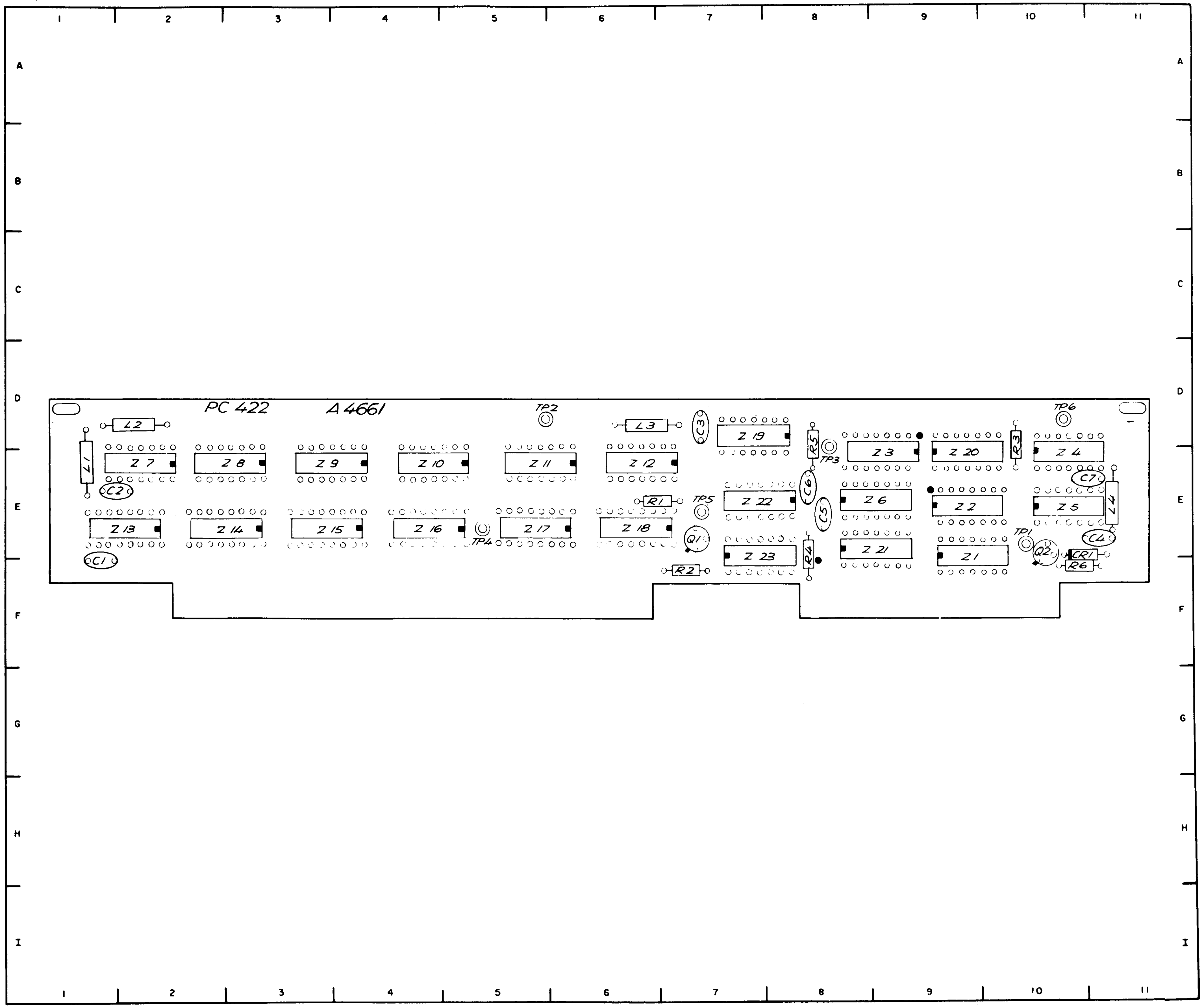
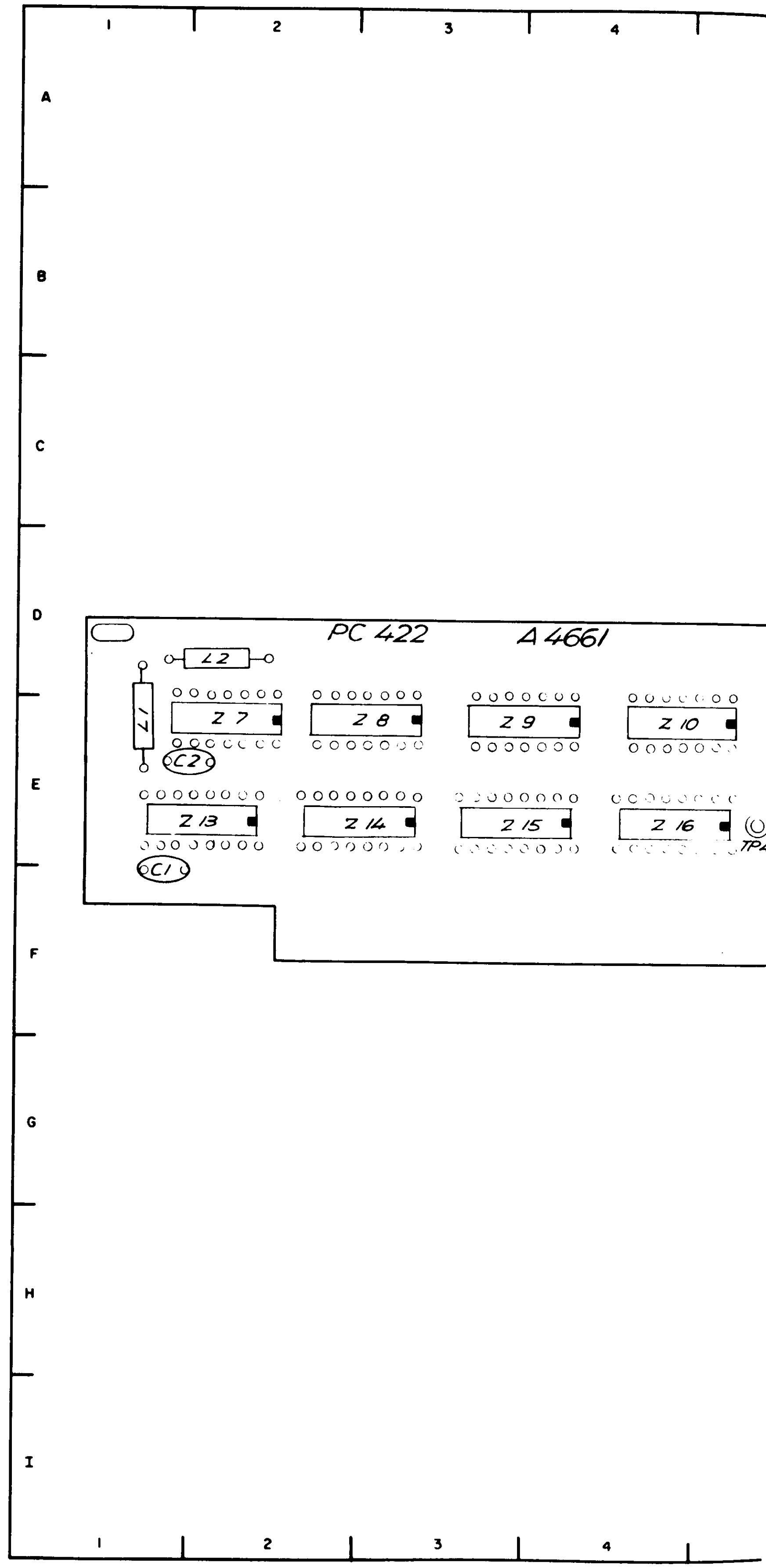
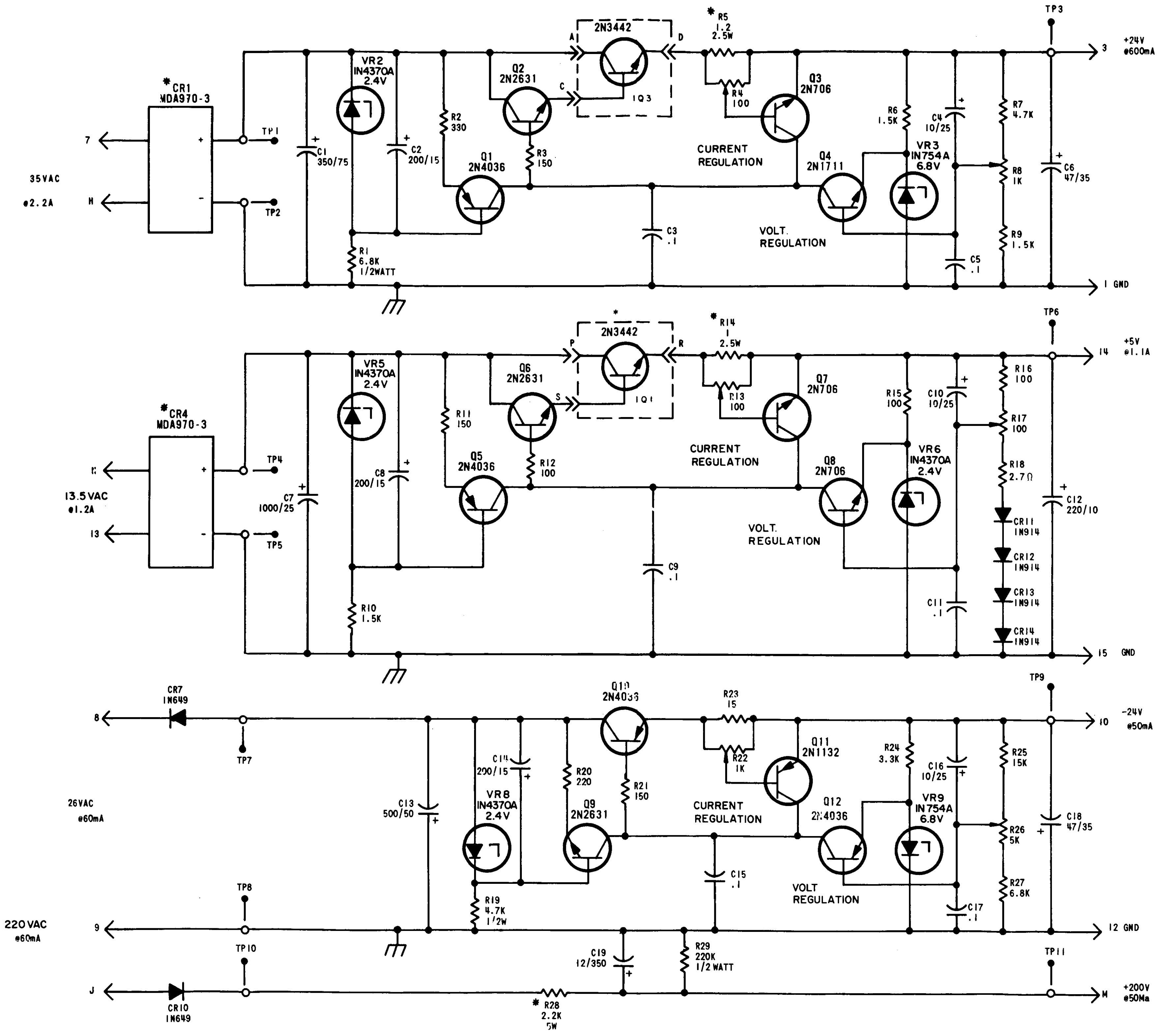


Figure 5-19. Component Locations, Gate Generator and Counting Register 1A1A4

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C1	1E	TP5	7E
C2	2E	TP6	10D
C3	7D	Z1	9E
C4	11E	Z2	9E
C5	8E	Z3	9E
C6	8E	Z4	10E
C7	11E	Z5	10E
CR1	10E	Z6	9E
J1	-	Z7	2E
J2	-	Z8	3E
L1	1E	Z9	4E
L2	2D	Z10	4E
L3	6D	Z11	5E
L4	11E	Z12	6E
Q1	7E	Z13	2E
Q2	10E	Z14	3E
R1	6E	Z15	4E
R2	7F	Z16	4E
R3	10D	Z17	5E
R4	8E	Z18	6E
R5	8D	Z19	7D
R6	10F	Z20	9E
TP1	10E	Z21	9E
TP2	5D	Z22	7E
TP3	8D	Z23	7E
TP4	5E		





LAST SYMBOL	MISSING SYMBOL
C19	
CR14	
Q12	
R29	
TP11	
VR9	

UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W
2. ALL DECIMAL CAPACITANCE VALUES ARE IN MICROFARADS. ALL WHOLE NUMBER CAPACITANCE VALUES ARE PICOFARADS.
3. * MOUNTED ON HEAT SINK.

A4663/PC424

Figure 5-20. Schematic Wiring, Power Supply 1A2

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
CR14	5G	R19	4E
Q1	10F	R20	4C
Q2	9C	R21	4C
Q3	9E	R22	5D
Q4	9E	R23	5D
Q5	3G	R24	5D
Q6	3F	R25	6C
Q7	4F	R26	6D
Q8	3G	R27	6D
Q9	4D	R28	7C
Q10	4C	R29	7F
Q11	5D	TP1	11B
Q12	5D	TP2	10B
R1	9F	TP3	9B
R2	10E	TP4	2B
R3	9D	TP5	1B
R4	9D	TP6	3B
R5	8C	TP7	4B
R6	8E	TP8	6B
R7	8E	TP9	5B
R8	8F	TP10	8B
R9	8G	TP11	6B
R10	2G	VR1	-
R11	2G	VR2	10E
R12	3F	VR3	9F
R13	4F	VR4	-
R14	5F	VR5	3G
R15	4G	VR6	3G
R16	5G	VR7	-
R17	4G	VR8	4C
R18	4G	VR9	5E

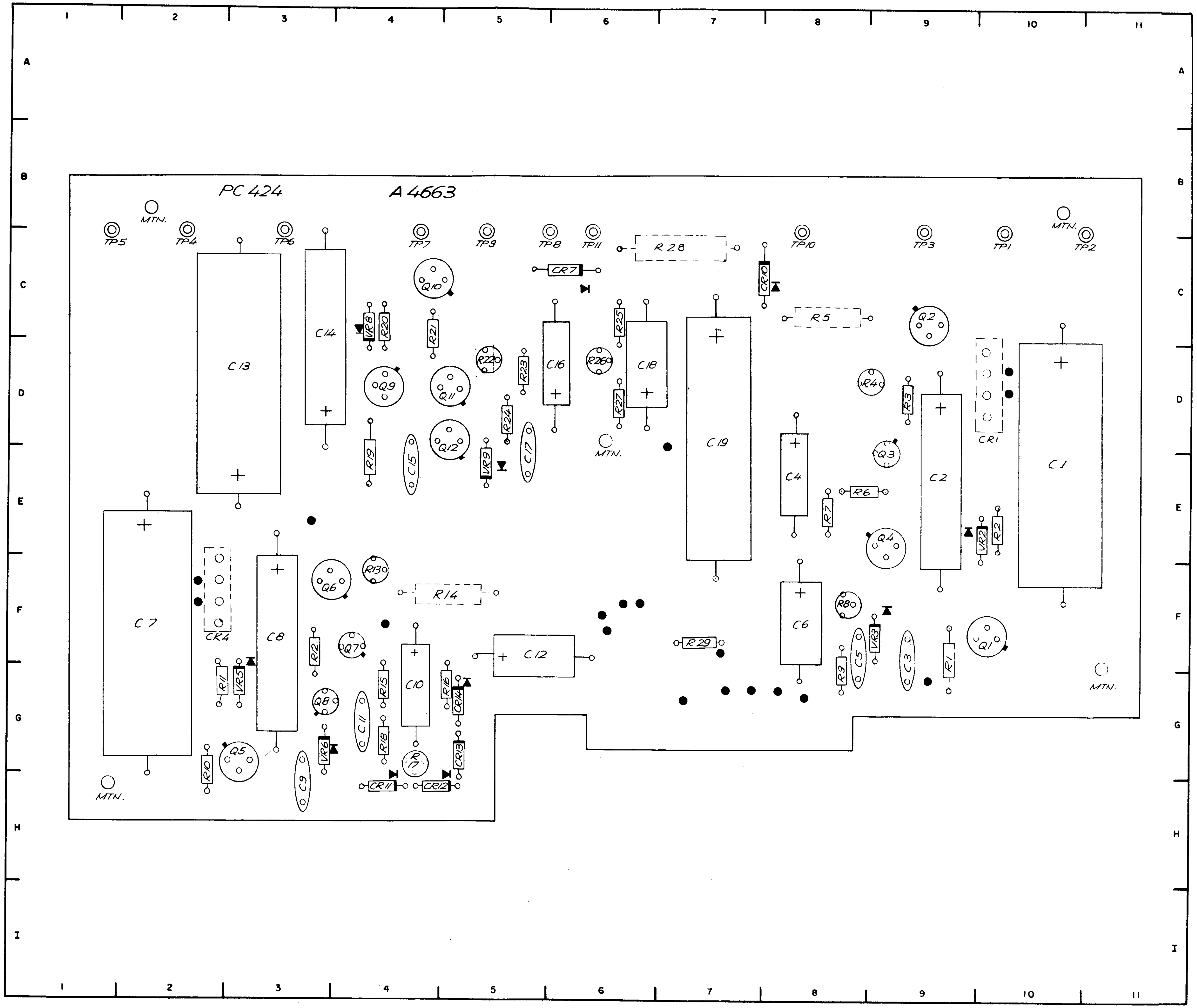
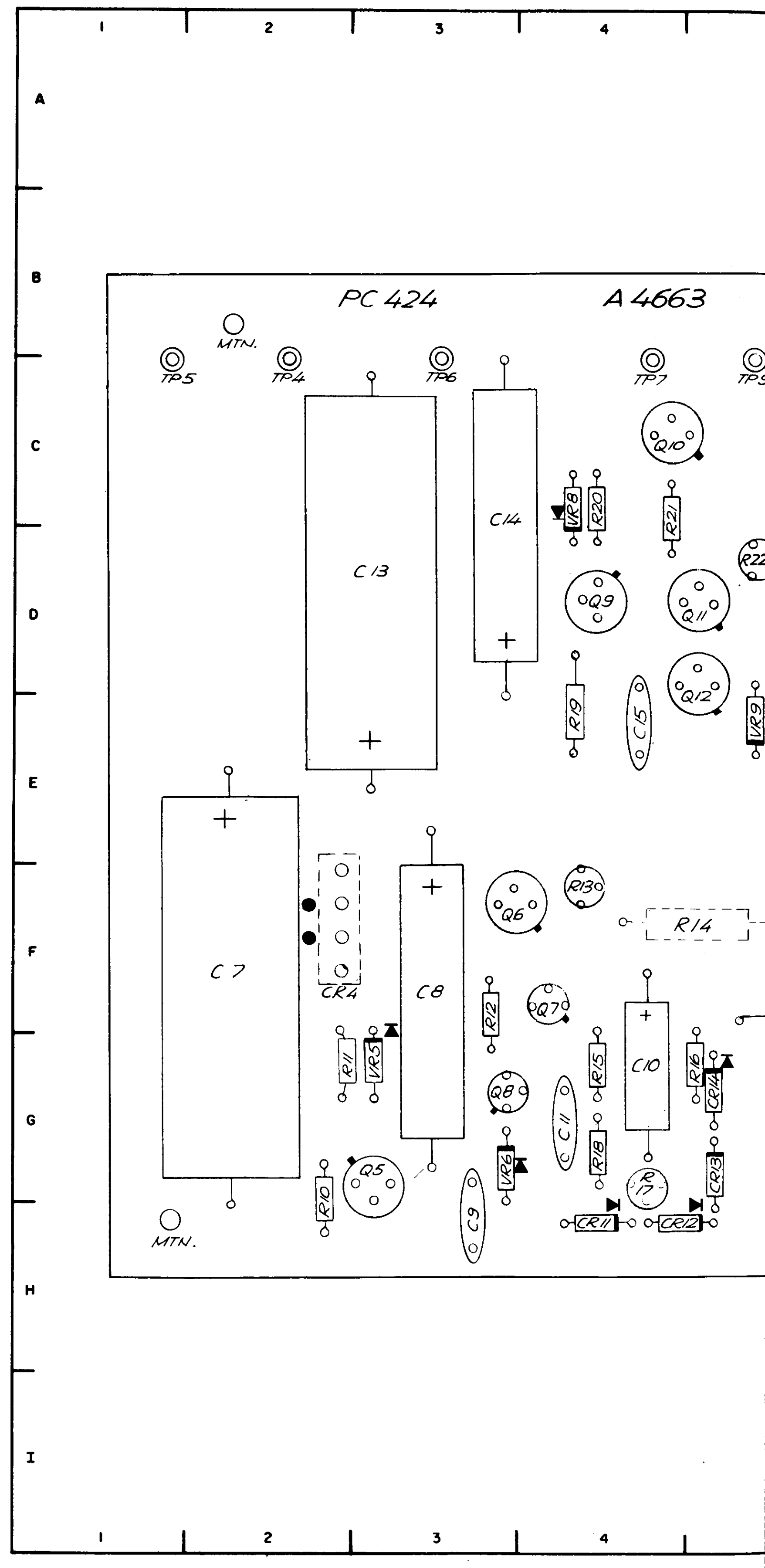


Figure 5-21. Component Locations, Power Supply 1A2

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	10E	CR14	5G	R19	4E
C2	9E	Q1	10F	R20	4C
C3	9F	Q2	9C	R21	4C
C4	8E	Q3	9E	R22	5D
C5	8F	Q4	9E	R23	5D
C6	8F	Q5	3G	R24	5D
C7	2F	Q6	3F	R25	6C
C8	3F	Q7	4F	R26	6D
C9	3H	Q8	3G	R27	6D
C10	4G	Q9	4D	R28	7C
C11	4G	Q10	4C	R29	7F
C12	5F	Q11	5D	TP1	11B
C13	3D	Q12	5D	TP2	10B
C14	3C	R1	9F	TP3	9B
C15	4E	R2	10E	TP4	2B
C16	6D	R3	9D	TP5	1B
C17	5D	R4	9D	TP6	3B
C18	6D	R5	8C	TP7	4B
C19	7D	R6	8E	TP8	6B
CR1	10D	R7	8E	TP9	5B
CR2	-	R8	8F	TP10	8B
CR3	-	R9	8G	TP11	6B
CR4	2F	R10	2G	VR1	-
CR5	-	R11	2G	VR2	10E
CR6	-	R12	3F	VR3	9F
CR7	6C	R13	4F	VR4	-
CR8	-	R14	5F	VR5	3G
CR9	-	R15	4G	VR6	3G
CR10	8C	R16	5G	VR7	-
CR11	4H	R17	4G	VR8	4C
CR12	4H	R18	4G	VR9	5E
CR13	5G				



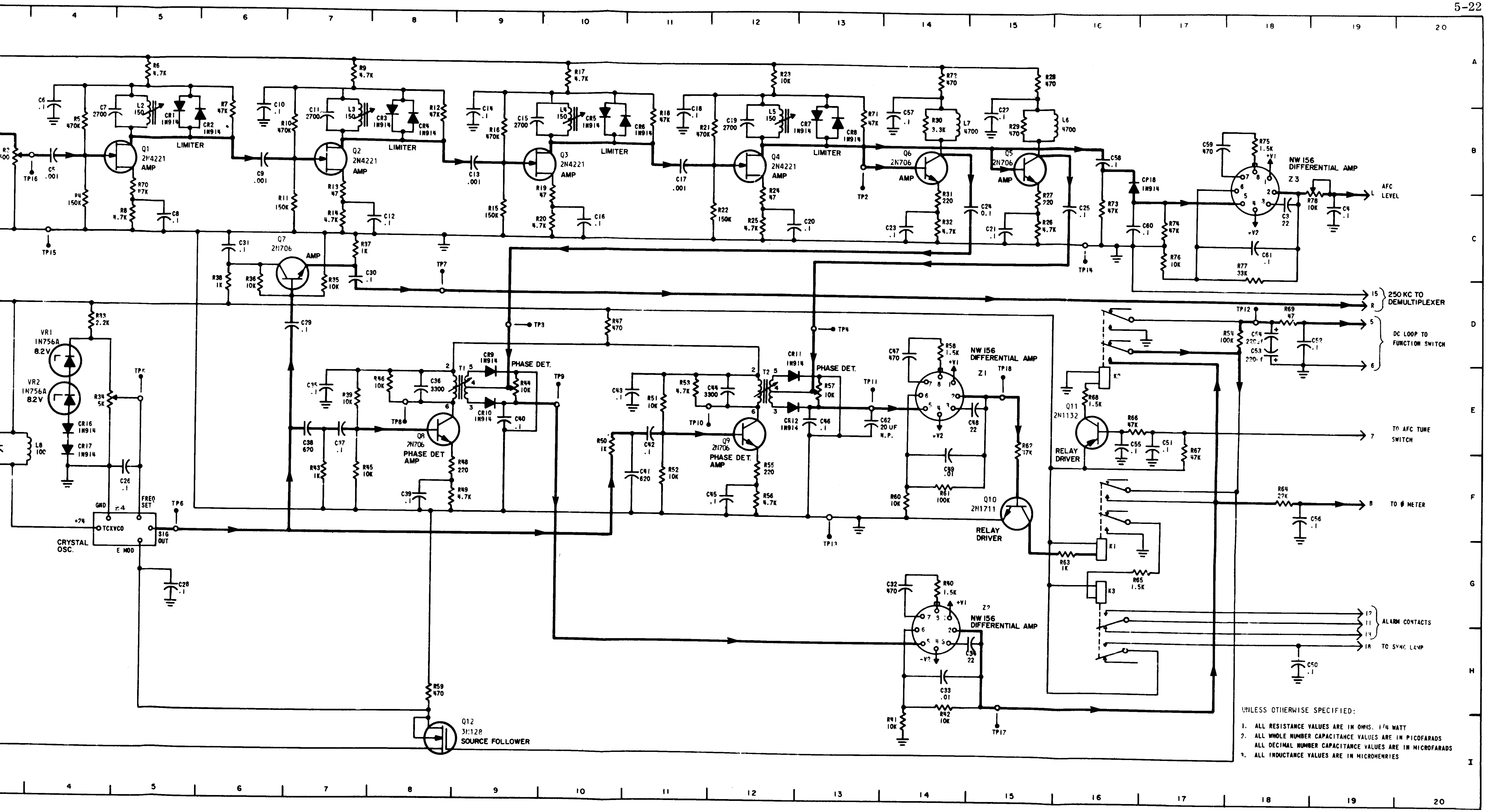
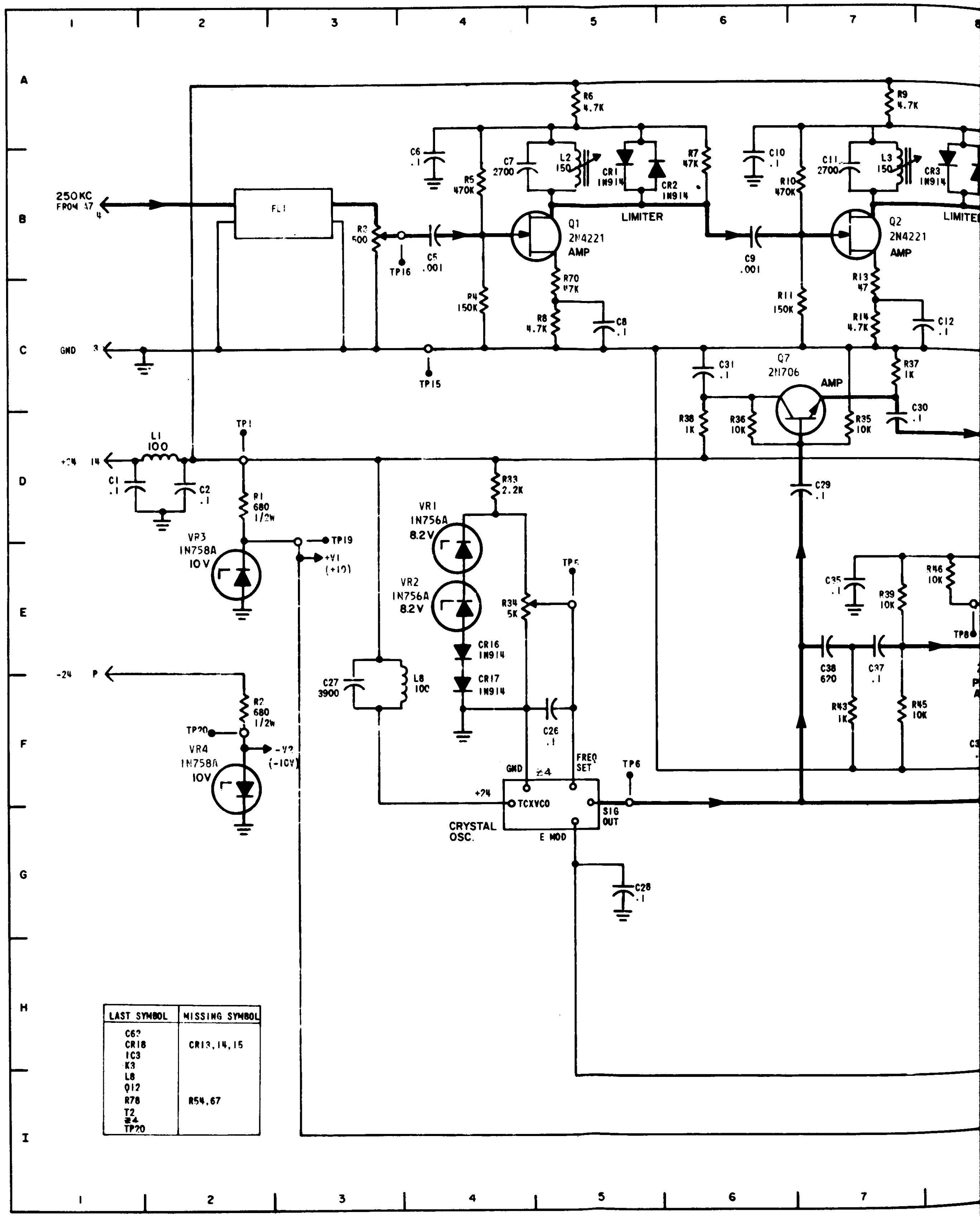


Figure 5-22. Schematic, Wiring AFC 1A3

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	1D	C42	11E	L3	7B	R23	12A	R64	18F
C2	2D	C43	11E	L4	10B	R24	12C	R65	17G
C3	18C	C44	12E	L5	12B	R25	12C	R66	16E
C4	19C	C45	12F	L6	15B	R26	15C	R68	16E
C5	4B	C46	13E	L7	14B	R27	15C	R69	18D
C6	4B	C47	14D	L8	4F	R28	15A	R70	5C
C7	4B	C48	15E	Q1	5B	R29	15B	R71	13B
C8	5C	C49	14F	Q2	7B	R30	14B	R72	14A
C9	6B	C50	18H	Q3	9B	R31	14C	R73	16C
C10	6B	C51	17E	Q4	12B	R32	14C	R74	17C
C11	7B	C52	18D	Q5	15B	R33	4D	R75	18B
C12	8C	C53	18D	Q6	14B	R34	4E	R76	17C
C13	9B	C54	18D	Q7	7D	R35	7D	R77	18C
C14	9B	C55	16E	Q8	8E	R36	6D	R78	19C
C15	9B	C56	18F	Q9	12E	R37	7C	T1	9E
C16	10C	C57	13B	Q10	15F	R38	6D	T2	12E
C17	11B	C58	16B	Q11	16E	R39	7E	TP1	2D
C18	11B	C59	17B	Q12	8I	R40	14G	TP2	13B
C19	12B	C60	16C	R1	2D	R41	14I	TP3	9D
C20	12C	C61	18C	R2	2F	R42	14H	TP4	13D
C21	15C	C62	13E	R3	3B	R43	7F	TP5	5E
C22	15B	CR1	5B	R4	4C	R44	9E	TP6	5F
C23	14C	CR2	5B	R5	4B	R45	7F	TP7	8C
C24	15C	CR3	8B	R6	5A	R46	8E	TP8	8E
C25	16C	CR4	8B	R7	6B	R47	10D	TP9	10E
C26	5F	CR5	10B	R8	5C	R48	8F	TP10	11E
C27	3F	CR6	10B	R9	7A	R49	8F	TP11	13E
C28	5G	CR7	13B	R10	7B	R50	10E	TP12	18D
C29	7D	CR8	13B	R11	7C	R51	11E	TP13	13F
C30	7D	CR9	9E	R12	8B	R52	11F	TP14	16C
C31	6C	CR10	9E	R13	7C	R53	11E	TP15	4C
C32	14G	CR11	12E	R14	7C	R55	12F	TP16	3B
C33	14H	CR12	12E	R15	9C	R56	12F	TP17	15H
C34	15H	CR16	4E	R16	9B	R57	13E	TP18	15E
C35	7E	CR17	4F	R17	10A	R58	14D	TP19	3D
C36	8E	CR18	15B	R18	11B	R59	8H	TP20	2F
C37	7E	K1	16G	R19	10C	R60	14F	Z1	15E
C38	7E	K2	16E	R20	10C	R61	14F	Z2	15G
C39	8F	K3	16G	R21	12B	R62	15E	Z3	18B
C40	9E	L1	2D	R22	12C	R63	16G	Z4	5F
C41	11F	L2	5B						



PART LOCATION INDEX

LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
D	L3	7C	R23	5B	R64	6G
E	L4	6C	R24	5D	R65	7F
E	L5	5C	R25	5D	R66	8F
D	L6	3C	R26	4C	R68	8F
F	L7	4C	R27	3C	R69	9G
G	L8	2B	R28	4B	R70	8C
F	Q1	9C	R29	3C	R71	5C
F	Q2	7C	R30	4C	R72	4B
G	Q3	6C	R31	4C	R73	6D
G	Q4	5C	R32	4C	R74	6D
G	Q5	4C	R33	2G	R75	6E
F	Q6	4C	R34	1F	R76	6D
G	Q7	2H	R35	2G	R77	5E
F	Q8	4E	R36	2G	R78	5F
G	Q9	3E	R37	3H	T1	4F
C	Q10	3G	R38	3G	T2	3E
C	Q11	8F	R39	4D	TP1	1B
E	Q12	4G	R40	5E	TP2	4B
E	R1	4G	R41	5F	TP3	4E
D	R2	4G	R42	5F	TP4	3E
G	R3	10C	R43	5D	TP5	2F
C	R4	9D	R44	4F	TP6	2G
C	R5	9C	R45	5D	TP7	3H
C	R6	9B	R46	4E	TP8	5E
C	R7	9C	R47	3C	TP9	4F
C	R8	9D	R48	5E	TP10	4E
C	R9	7B	R49	5D	TP11	3F
C	R10	8C	R50	3D	TP12	9G
C	R11	8D	R51	3D	TP13	2H
F	R12	8C	R52	3D	TP14	5D
F	R13	7D	R53	3E	TP15	11B
F	R14	7D	R55	4E	TP16	10B
F	R15	6D	R56	4D	TP17	5G
G	R16	6C	R57	3F	TP18	2F
G	R17	6B	R58	2F	TP19	5F
D	R18	6C	R59	4F	TP20	4G
E	R19	6D	R60	3F	Z1	2F
E	R20	6D	R61	3F	Z2	5E
E	R21	6C	R62	2G	Z3	5E
G	R22	6D	R63	4G	Z4	2D
C						

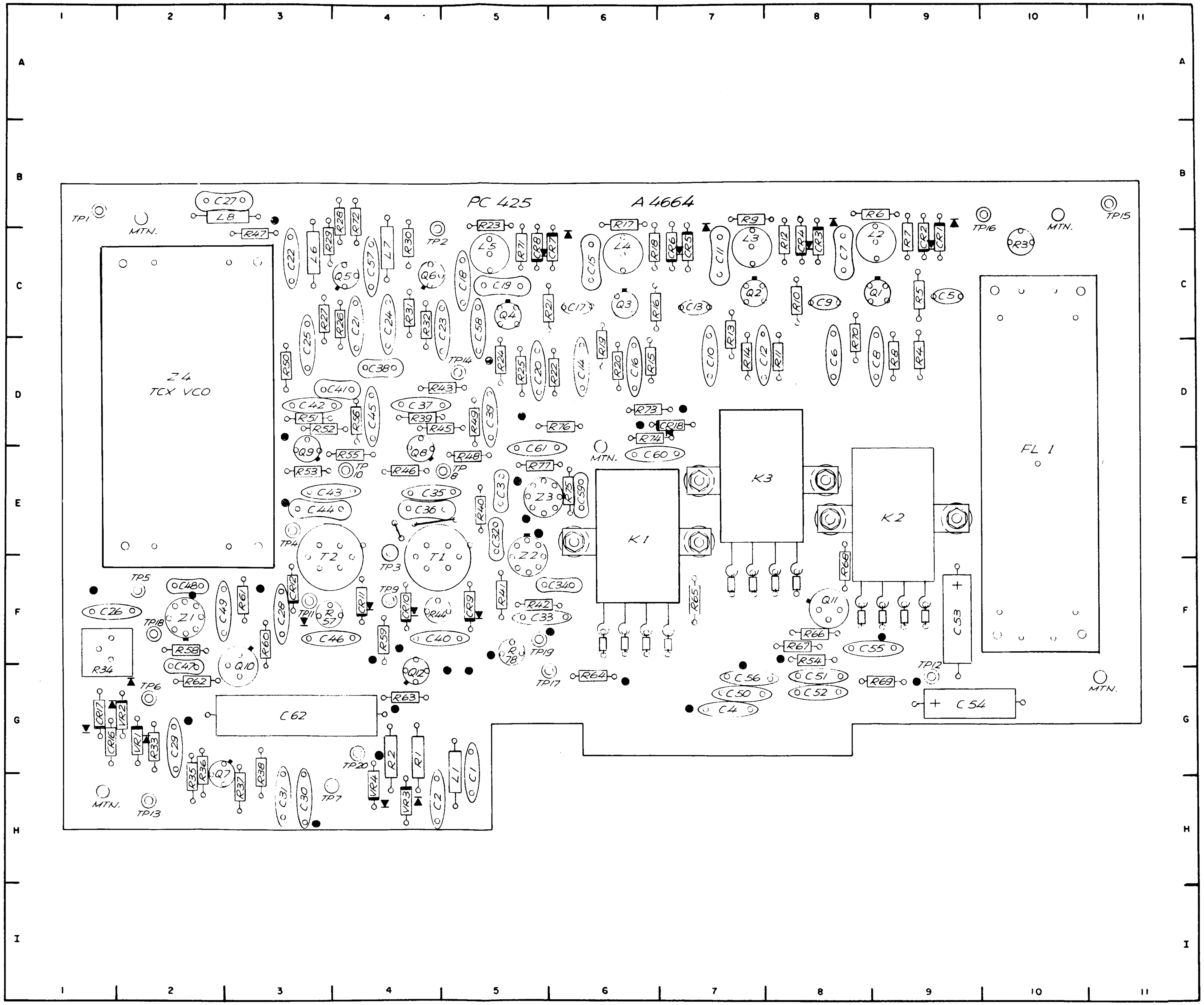
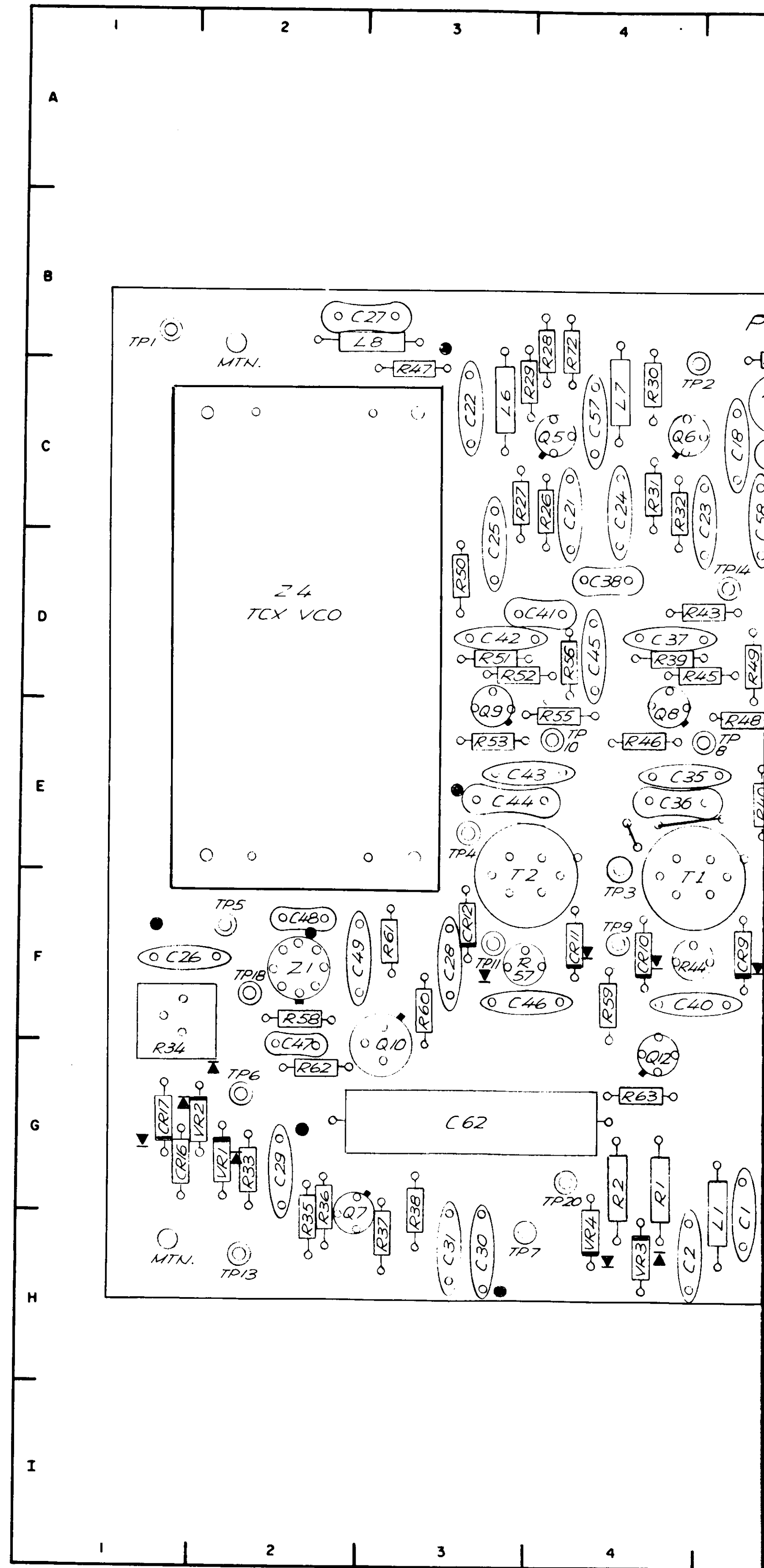


Figure 5-23. Component Locations, AFC 1A3

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5G	C42	3D	L3	7C	R23	5B	R64	6G
C2	4G	C43	3E	L4	6C	R24	5D	R65	7F
C3	5E	C44	3E	L5	5C	R25	5D	R66	8F
C4	7G	C45	4D	L6	3C	R26	4C	R68	8F
C5	9C	C46	3F	L7	4C	R27	3C	R69	9G
C6	8D	C47	2G	L8	2B	R28	4B	R70	8C
C7	8C	C48	2F	Q1	9C	R29	3C	R71	5C
C8	9D	C49	2F	Q2	7C	R30	4C	R72	4B
C9	8C	C50	7G	Q3	6C	R31	4C	R73	6D
C10	7D	C51	8G	Q4	5C	R32	4C	R74	6D
C11	7C	C52	8G	Q5	4C	R33	2G	R75	6E
C12	8D	C53	9F	Q6	4C	R34	1F	R76	6D
C13	7C	C54	9G	Q7	2H	R35	2G	R77	5E
C14	6D	C55	9F	Q8	4E	R36	2G	R78	5F
C15	6C	C56	7G	Q9	3E	R37	3H	T1	4F
C16	6D	C57	4C	Q10	3G	R38	3G	T2	3E
C17	6C	C58	5C	Q11	8F	R39	4D	TP1	1B
C18	5C	C59	6E	Q12	4G	R40	5E	TP2	4B
C19	5C	C60	7E	R1	4G	R41	5F	TP3	4E
C20	5D	C61	5D	R2	4G	R42	5F	TP4	3E
C21	4C	C62	3G	R3	10C	R43	5D	TP5	2F
C22	3C	CR1	9C	R4	9D	R44	4F	TP6	2G
C23	4C	CR2	9C	R5	9C	R45	5D	TP7	3H
C24	4C	CR3	8C	R6	9B	R46	4E	TP8	5E
C25	3D	CR4	8C	R7	9C	R47	3C	TP9	4F
C26	1F	CR5	7C	R8	9D	R48	5E	TP10	4E
C27	2B	CR6	7C	R9	7B	R49	5D	TP11	3F
C28	3F	CR7	6C	R10	8C	R50	3D	TP12	9G
C29	2G	CR8	5C	R11	8D	R51	3D	TP13	2H
C30	3H	CR9	5F	R12	8C	R52	3D	TP14	5D
C31	3H	CR10	4F	R13	7D	R53	3E	TP15	11B
C32	5E	CR11	4F	R14	7D	R55	4E	TP16	10B
C33	5F	CR12	3F	R15	6D	R56	4D	TP17	5G
C34	5F	CR16	1G	R16	6C	R57	3F	TP18	2F
C35	4E	CR17	1G	R17	6B	R58	2F	TP19	5F
C36	4E	CR18	7D	R18	6C	R59	4F	TP20	4G
C37	4D	K1	6E	R19	6D	R60	3F	Z1	2F
C38	4D	K2	9E	R20	6D	R61	3F	Z2	5E
C39	5D	K3	8E	R21	6C	R62	2G	Z3	5E
C40	4F	L1	5G	R22	6D	R63	4G	Z4	2D
C41	4D	L2	9C						



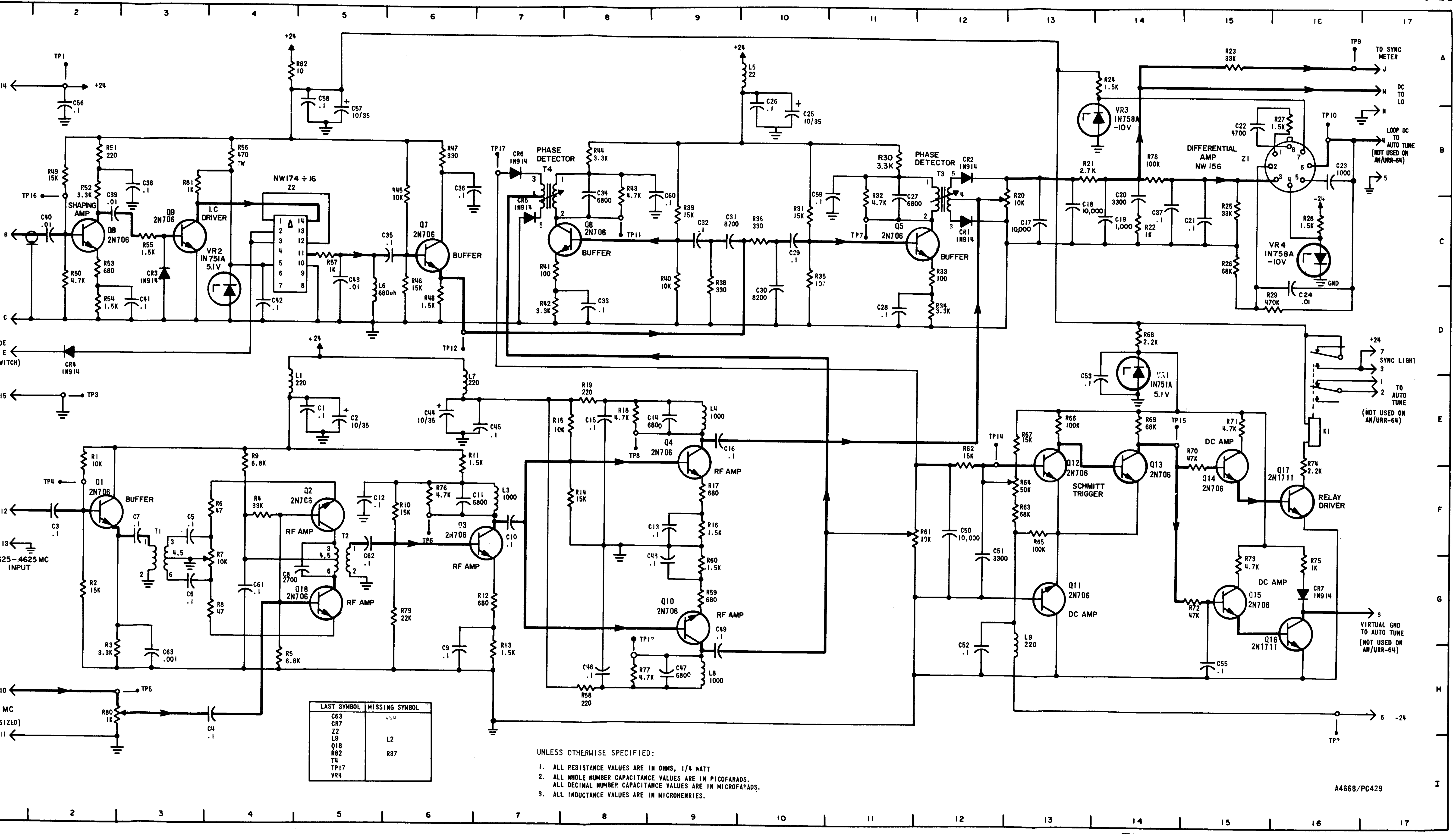
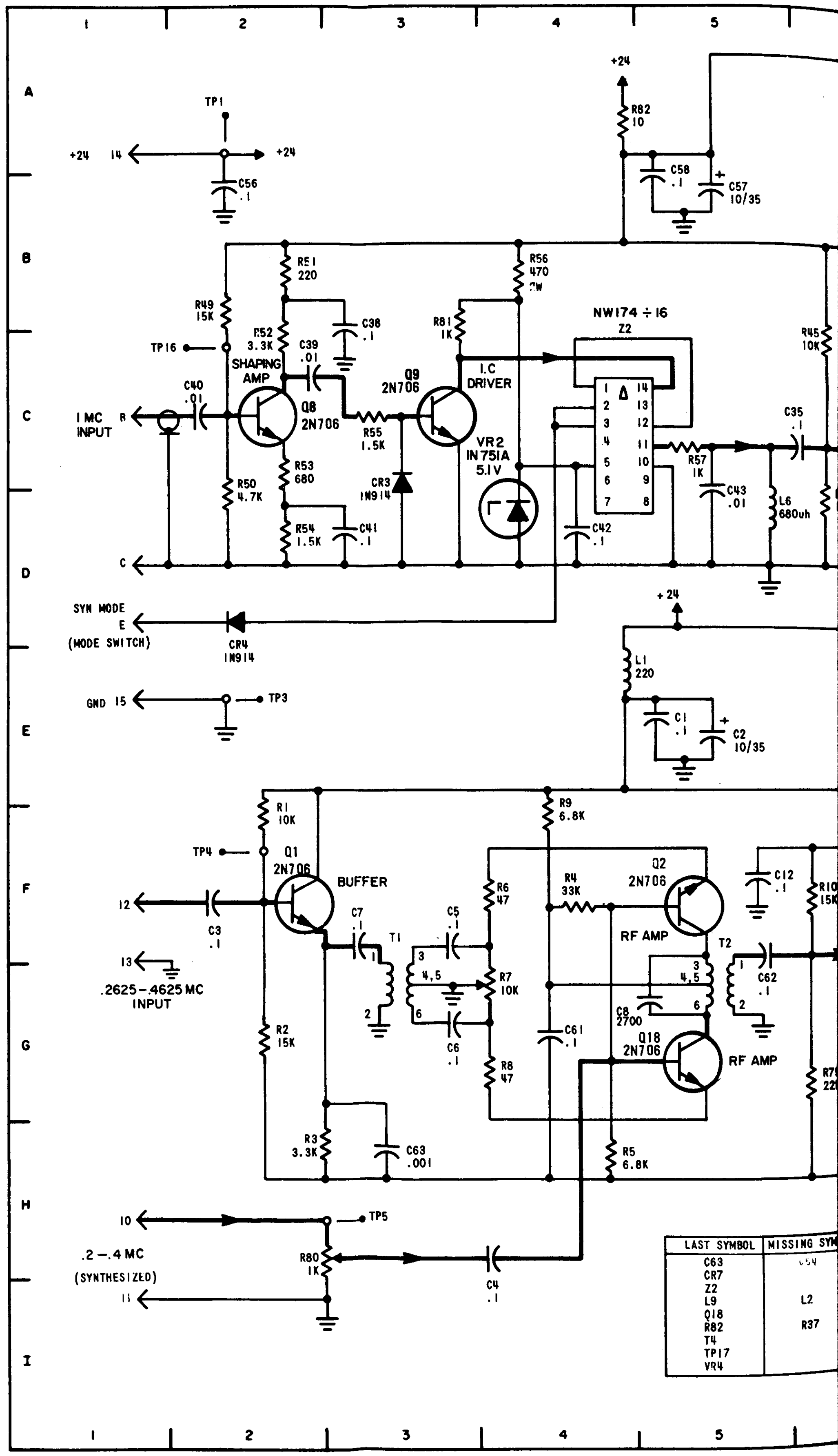


Figure 5-24. Schematic Wiring, Phase Detector 1A5

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5E	C42	4D	Q6	8C	R29	15D	R71	15E
C2	5E	C43	5C	Q7	6C	R30	11B	R72	15G
C3	2F	C44	6E	Q8	2C	R31	10C	R73	15G
C4	4H	C45	7E	Q9	3C	R32	11C	R74	16E
C5	3F	C46	8H	Q10	9G	R33	12C	R75	16G
C6	3G	C47	9H	Q11	13G	R34	12D	R76	6F
C7	3F	C48	9G	Q12	13E	R35	10C	R77	8H
C8	5G	C49	9G	Q13	14E	R36	10C	R78	14B
C9	6H	C50	12F	Q14	15F	R38	9C	R79	6G
C10	7F	C51	12F	Q15	15G	R39	9C	R80	2H
C11	6F	C52	12H	Q16	16G	R40	9C	R81	3B
C12	5F	C53	13D	Q17	16F	R41	7C	R82	4A
C13	9F	C55	15H	Q18	5G	R42	7D	T1	3F
C14	9E	C56	2B	R1	2E	R43	8B	T2	5F
C15	8E	C57	5B	R2	2G	R44	8B	T3	12B
C16	9E	C58	5A	R3	2H	R45	6C	T4	7B
C17	13C	C59	10B	R4	4F	R46	6D	TP1	2A
C18	13C	C60	9C	R5	4H	R47	6B	TP2	16I
C19	14C	C61	4G	R6	4F	R48	6D	TP3	2E
C20	14B	C62	5F	R7	4G	R49	2B	TP4	2F
C21	15C	C63	3H	R8	4G	R50	2C	TP5	3H
C22	15B	CR1	12C	R9	4F	R51	2B	TP6	6F
C23	16B	CR2	12B	R10	6F	R52	2B	TP7	11C
C24	16C	CR3	3C	R11	6F	R53	2C	TP8	8E
C25	10B	CR4	2D	R12	7G	R54	2D	TP9	16A
C26	10A	CR5	7C	R13	7H	R55	3C	TP10	16B
C27	11C	CR6	7B	R14	8F	R56	4B	TP11	8C
C28	11D	CR7	16G	R15	7E	R57	5C	TP12	6D
C29	10C	L1	4E	R16	9F	R58	8H	TP13	8G
C30	10D	L3	7F	R17	9F	R59	9G	TP14	12E
C31	9C	L4	2D	R18	8E	R60	9G	TP15	14E
C32	9C	L5	10A	R19	8E	R61	12F	TP16	2C
C33	8D	L6	5D	R20	13B	R62	12E	TP17	7B
C34	8C	L7	6E	R21	13B	R63	13F	VR1	14D
C35	6C	L8	9H	R22	14C	R64	13F	VR2	4D
C36	6B	L9	13G	R23	15A	R65	13F	VR3	14A
C37	14C	Q1	2F	R24	14A	R66	13E	VR4	16C
C38	3B	Q2	5F	R25	15C	R67	13E	Z1	15B
C39	2C	Q3	7F	R26	15C	R68	14D	Z2	4C
C40	2C	Q4	9E	R27	16B	R69	14E		
C41	3D	Q5	11C	R28	16C	R70	15E		



PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
Q6	5D	R29	8F	R70	7C
Q7	8D	R30	5E	R71	7D
Q8	10F	R31	6E	R72	7C
Q9	9E	R32	5E	R73	7C
Q10	3C	R33	6E	R74	8D
Q11	6B	R34	6E	R75	8C
Q12	6C	R35	6E	R76	3D
Q13	7C	R36	7E	R77	4D
Q14	8C	R38	6D	R78	7F
Q15	8C	R39	6D	R79	2D
Q16	8C	R40	6D	R80	3G
Q17	8C	R41	5D	R81	9E
Q18	2E	R42	5D	R82	8D
R1	3F	R43	5D	T1	2F
R2	2G	R44	4D	T2	2E
R3	2G	R45	9D	T3	5E
R4	3E	R46	8E	T4	5C
R5	1E	R47	8D	TP1	1C
R6	2E	R48	8E	TP2	7D
R7	2E	R49	9F	TP3	11C
R8	2F	R50	9F	TP4	3G
R9	3E	R51	9F	TP5	3F
R10	2D	R52	9F	TP6	2D
R11	2E	R53	9F	TP7	6E
R12	2D	R54	9F	TP8	4F
R13	2D	R55	9F	TP9	7G
R14	4E	R56	10E	TP10	8F
R15	4F	R57	9E	TP11	6D
R16	4E	R58	3D	TP12	8E
R17	4E	R59	3C	TP13	4C
R18	4F	R60	3C	TP14	6C
R19	4F	R61	5C	TP15	7C
R20	5F	R62	6C	TP16	9G
R21	7F	R63	6C	TP17	5B
R22	7E	R64	6C	VR1	7D
R23	7F	R65	6C	VR2	10E
R24	8D	R66	7C	VR3	8F
R25	7F	R67	6C	VR4	8G
R26	7F	R68	8D	Z1	7F
R27	8E	R69	7C	Z2	10E
R28	7F				

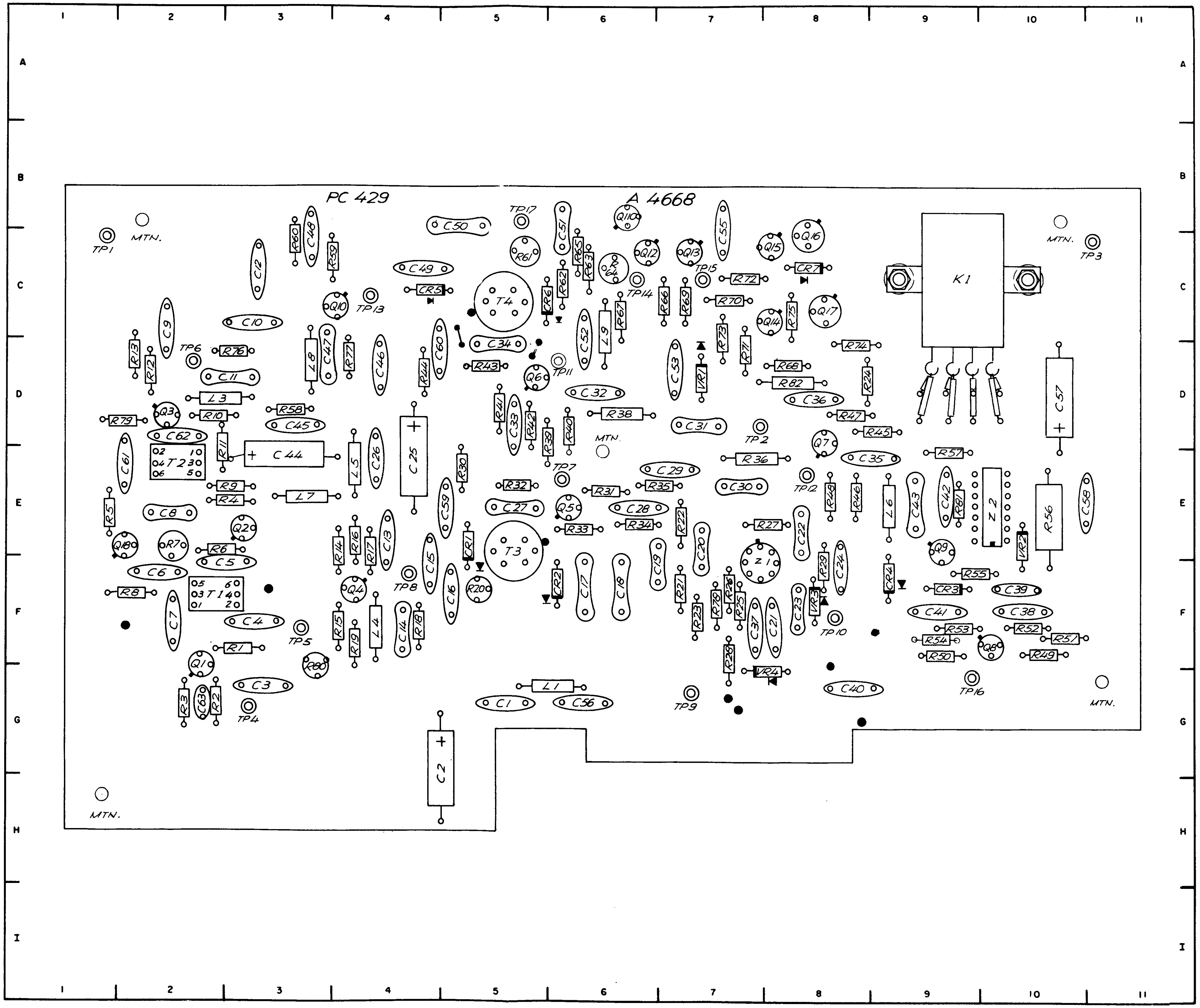
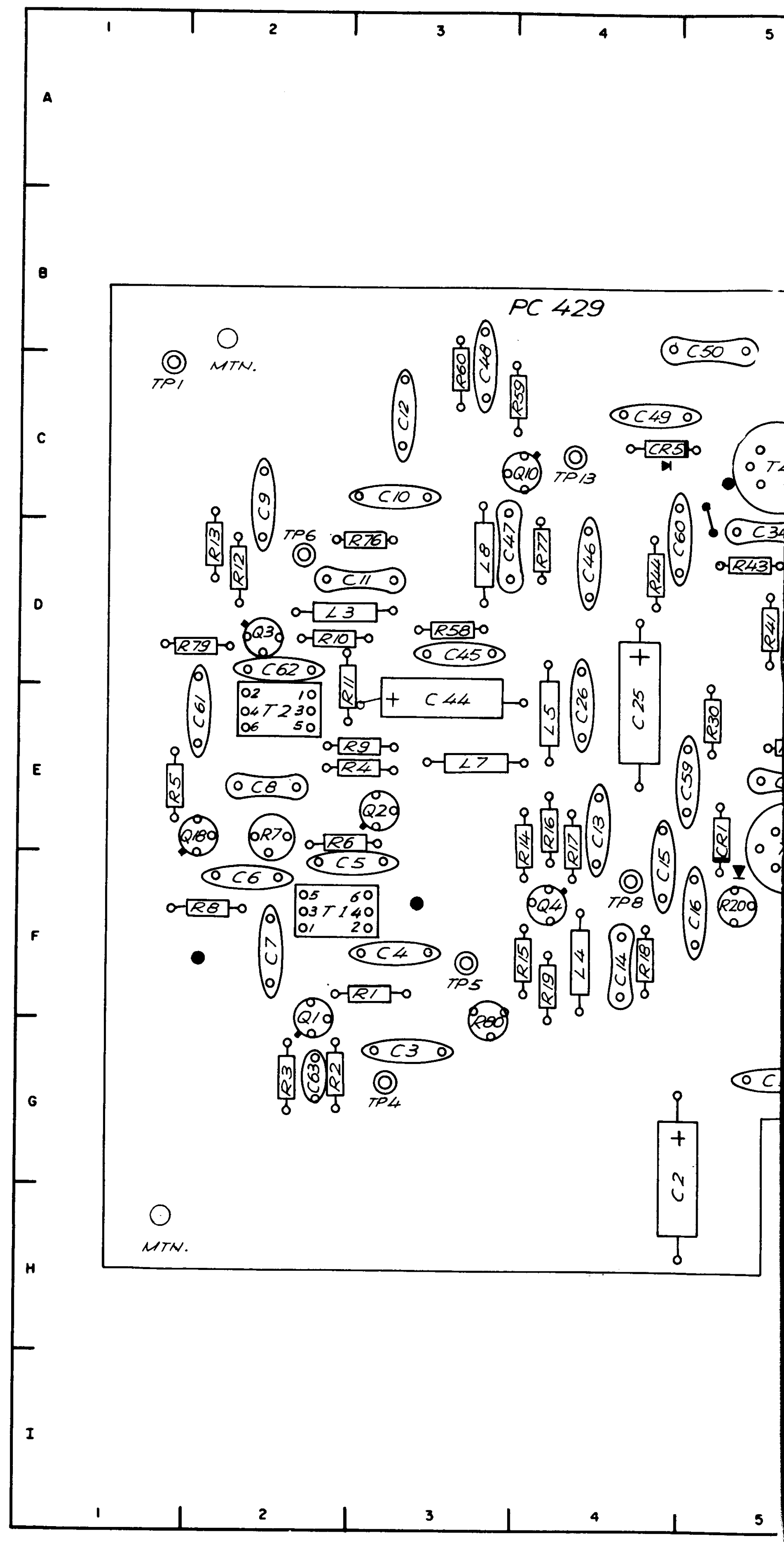


Figure 5-25. Component Locations, Phase Detector 1A5

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5G	C42	9E	Q6	5D	R29	8F	R70	7C
C2	4G	C43	9E	Q7	8D	R30	5E	R71	7D
C3	3G	C44	3E	Q8	10F	R31	6E	R72	7C
C4	3F	C45	3D	Q9	9E	R32	5E	R73	7C
C5	2F	C46	4D	Q10	3C	R33	6E	R74	8D
C6	2F	C47	3D	Q11	6B	R34	6E	R75	8C
C7	2F	C48	3C	Q12	6C	R35	6E	R76	3D
C8	2E	C49	4C	Q13	7C	R36	7E	R77	4D
C9	2C	C50	5B	Q14	8C	R38	6D	R78	7F
C10	3C	C51	6B	Q15	8C	R39	6D	R79	2D
C11	3D	C52	6C	Q16	8C	R40	6D	R80	3G
C12	3C	C53	7D	Q17	8C	R41	5D	R81	9E
C13	4E	C55	7B	Q18	2E	R42	5D	R82	8D
C14	4F	C56	6G	R1	3F	R43	5D	T1	2F
C15	4F	C57	10D	R2	2G	R44	4D	T2	2E
C16	5F	C58	10E	R3	2G	R45	9D	T3	5E
C17	6F	C59	5E	R4	3E	R46	8E	T4	5C
C18	6F	C60	4D	R5	1E	R47	8D	TP1	1C
C19	6F	C61	2E	R6	2E	R48	8E	TP2	7D
C20	7E	C62	2D	R7	2E	R49	9F	TP3	11C
C21	8F	C63	2G	R8	2F	R50	9F	TP4	3G
C22	8E	CR1	5E	R9	3E	R51	9F	TP5	3F
C23	8F	CR2	6F	R10	2D	R52	9F	TP6	2D
C24	8F	CR3	9F	R11	2E	R53	9F	TP7	6E
C25	4E	CR4	9F	R12	2D	R54	9F	TP8	4F
C26	4E	CR5	4C	R13	2D	R55	9F	TP9	7G
C27	5E	CR6	5C	R14	4E	R56	10E	TP10	8F
C28	6E	CR7	8C	R15	4F	R57	9E	TP11	6D
C29	7E	L1	6G	R16	4E	R58	3D	TP12	8E
C30	7E	L3	2D	R17	4E	R59	3C	TP13	4C
C31	7D	L4	4F	R18	4F	R60	3C	TP14	6C
C32	6D	L5	4E	R19	4F	R61	5C	TP15	7C
C33	5D	L6	9E	R20	5F	R62	6C	TP16	9G
C34	5D	L7	3E	R21	7F	R63	6C	TP17	5B
C35	8E	L8	3D	R22	7E	R64	6C	VR1	7D
C36	8D	L9	6C	R23	7F	R65	6C	VR2	10E
C37	7F	Q1	2G	R24	8D	R66	7C	VR3	8F
C38	10F	Q2	3E	R25	7F	R67	6C	VR4	8G
C39	10F	Q3	2D	R26	7F	R68	8D	Z1	7F
C40	8G	Q4	4F	R27	8E	R69	7C	Z2	10E
C41	9F	Q5	6E	R28	7F				



ORIGINAL

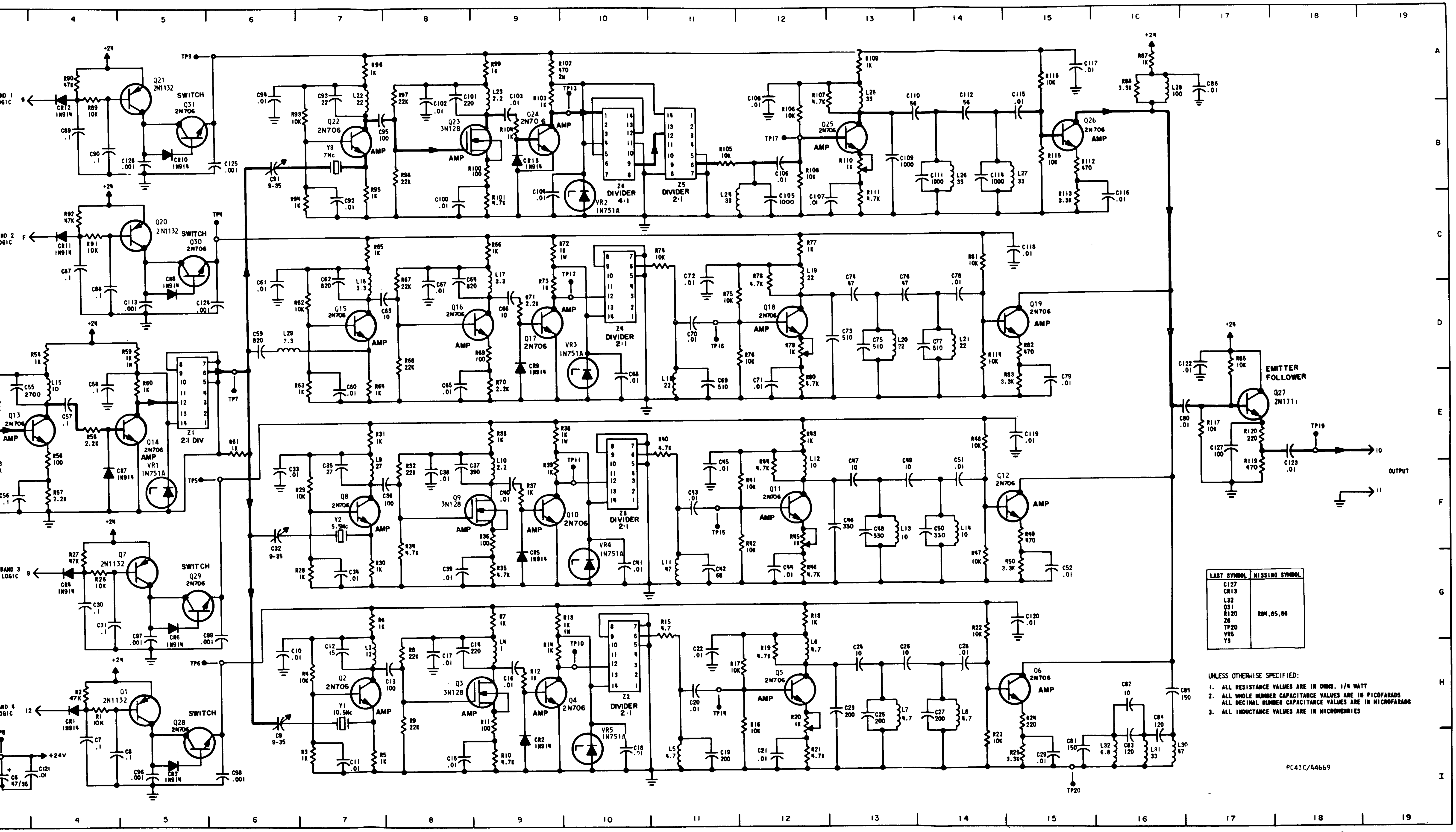
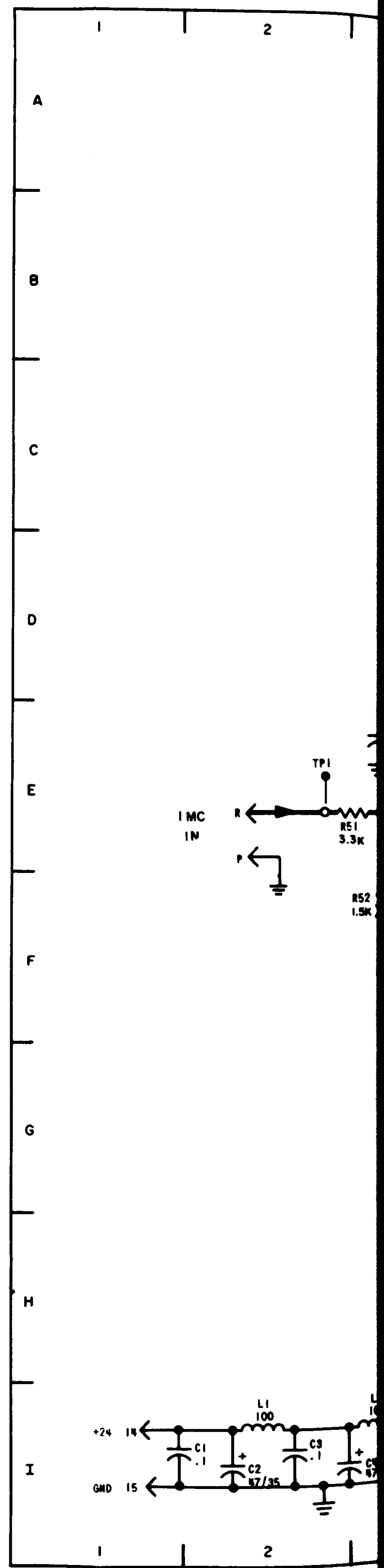


Figure 5-26. Schematic Wiring, Sub-synthesizer 1A6

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	1I	C41	10G	C81	15I	C121	3I	L20	13D	Q27	17E	R35	9G	R74	11C	R116	15A
C2	2I	C42	11G	C82	16H	C122	17D	L21	14D	Q28	5I	R36	9F	R75	12D	R117	17E
C3	2I	C43	11F	C83	16I	C123	18E	L22	7A	Q29	5G	R37	9F	R76	12D	R118	17E
C4	2I	C44	12F	C84	16I	C124	6D	L23	9A	Q30	5C	R38	9E	R77	12C	R119	17F
C5	3I	C45	11F	C85	16H	C125	6B	L24	11C	Q31	5B	R39	9F	R78	12C	R120	17E
C6	3I	C46	13F	C86	17A	C126	5B	L25	13A	R1	4H	R40	11E	R79	12D	TP1	2E
C7	4I	C47	13F	C87	4C	C127	17E	L26	14B	R2	4H	R41	12F	R80	12E	TP2	-
C8	4I	C48	13F	C88	4D	CR1	4H	L27	15B	R3	7I	R42	12F	R81	14C	TP3	6A
C9	6H	C49	13F	C89	4B	CR2	9I	L28	16A	R4	7H	R43	12E	R82	15D	TP4	6C
C10	6H	C50	14F	C90	4B	CR3	5I	L29	6D	R5	7I	R44	12F	R83	15E	TP5	6F
C11	7I	C51	14F	C91	6B	CR4	4G	L30	16I	R6	7G	R45	12F	R87	16A	TP6	6H
C12	7H	C52	15G	C92	7C	CR5	9G	L31	16I	R7	9G	R46	12G	R88	16A	TP7	6D
C13	8H	C53	3E	C93	7A	CR6	5G	L32	16I	R8	8H	R47	14G	R89	4A	TP8	3I
C14	8H	C54	3E	C94	6A	CR7	4F	Q1	5H	R9	8H	R48	14E	R90	4A	TP9	-
C15	8I	C55	3E	C95	7B	CR8	5D	Q2	7H	R10	9I	R49	15F	R91	4C	TP10	10H
C16	9H	C56	3F	C96	5I	CR9	9D	Q3	9H	R11	9H	R50	15G	R92	4C	TP11	10F
C17	8H	C57	4E	C97	5G	CR10	5B	Q4	9H	R12	9H	R51	3E	R93	7B	TP12	10D
C18	10I	C58	4E	C98	6I	CR11	4C	Q5	12H	R13	9G	R52	3F	R94	7C	TP13	10B
C19	11I	C59	6E	C99	6G	CR12	4A	Q6	15H	R14	9H	R53	3E	R95	7B	TP14	11H
C20	11H	C60	7E	C100	8C	CR13	9B	Q7	5G	R15	11G	R54	4D	R96	7A	TP15	11F
C21	12I	C61	6D	C101	8A	L1	2I	Q8	7F	R16	12H	R55	3E	R97	8A	TP16	11D
C22	11H	C62	7C	C102	8A	L2	3I	Q9	9F	R17	12H	R56	4E	R98	8B	TP17	12B
C23	13H	C63	7D	C103	9B	L3	7H	Q10	9F	R18	12G	R57	4F	R99	9A	TP18	-
C24	13H	C64	8C	C104	9C	L4	9H	Q11	12F	R19	12H	R58	4E	R100	9B	TP19	18E
C25	13H	C65	8E	C105	12C	L5	10I	Q12	15F	R20	12H	R59	5D	R101	9C	TP20	15I
C26	13H	C66	9D	C106	12B	L6	12H	Q13	4E	R21	12I	R60	5E	R102	9A	VR1	5F
C27	14H	C67	8D	C107	12C	L7	13H	Q14	5E	R22	14G	R61	6E	R103	9A	VR2	10C
C28	14H	C68	10E	C108	12A	L8	14H	Q15	7D	R23	14I	R62	7D	R104	9B	VR3	10D
C29	15I	C69	11E	C109	13B	L9	7F	Q16	9D	R24	15H	R63	7E	R105	11B	VR4	10G
C30	4G	C70	11D	C110	13B	L10	9F	Q17	9D	R25	15I	R64	7E	R106	12B	VR5	10I
C31	4G	C71	12E	C111	14B	L11	11G	Q18	12D	R26	4G	R65	7C	R107	12A	Y1	7H
C32	6F	C72	11C	C112	14B	L12	12F	Q19	15D	R27	4G	R66	9C	R108	12B	Y2	7F
C33	6F	C73	13D	C113	5D	L13	13F	Q20	5C	R28	7G	R67	8C	R109	13A	Y3	7B
C34	7G	C74	13D	C114	14B	L14	14F	Q21	5A	R29	7F	R68	8D	R110	13B	Z1	5E
C35	7F	C75	13D	C115	15B	L15	4E	Q22	7B	R30	7G	R69	9D	R111	13C	Z2	10H
C36	7F	C76	13D	C116	16C	L16	7C	Q23	9B	R31	7E	R70	9E	R112	15B	Z3	10F
C37	8F	C77	14D	C117	15A	L17	9C	Q24	9B	R32	8F	R71	9D	R113	15C	Z4	10D
C38	8F	C78	14D	C118	15C	L18	11E	Q25	13B	R33	9E	R72	9C	R114	14D	Z5	11B
C39	8G	C79	15E	C119	15E	L19	12C	Q26	15B	R34	8F	R73	9D	R115	15B	Z6	10B
C40	9F	C80	17E	C120	15G												



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R35	5D	R74	7E	R116	10E
R36	5D	R75	7D	R117	10G
R37	5D	R76	7E	R118	10G
R38	6C	R77	7D	R119	9G
R39	6D	R78	7D	R120	10F
R40	7D	R79	8E	TP1	5G
R41	8C	R80	8E	TP2	5G
R42	8D	R81	9D	TP3	3E
R43	7C	R82	10E	TP4	3D
R44	8D	R83	10E	TP5	3C
R45	8D	R87	10C	TP6	3C
R46	8D	R88	10C	TP7	3D
R47	10D	R89	2E	TP8	1B
R48	10C	R90	2E	TP9	11B
R49	10D	R91	2D	TP10	5C
R50	10D	R92	2D	TP11	6D
R51	4G	R93	4E	TP12	5E
R52	4G	R94	3F	TP13	6F
R53	3G	R95	3F	TP14	8C
R54	2G	R96	4E	TP15	8D
R55	2G	R97	4E	TP16	8E
R56	2G	R98	4F	TP17	8F
R57	2G	R99	4E	TP18	9C
R58	2F	R100	5F	TP19	8G
R59	3F	R101	5F	TP20	9F
R60	2G	R102	6E	VR1	2G
R61	2F	R103	6F	VR2	6F
R62	4D	R104	5F	VR3	5E
R63	3E	R105	7F	VR4	6D
R64	3E	R106	8E	VR5	6C
R65	4D	R107	8E	Y1	3B
R66	4D	R108	8F	Y2	3C
R67	4D	R109	8E	Y3	3E
R68	4E	R110	8F	Z1	2F
R69	5E	R111	8F	Z2	6C
R70	5E	R112	10E	Z3	6D
R71	5E	R113	10E	Z4	6E
R72	6E	R114	10E	Z5	7E
R73	5E	R115	10F	Z6	7F

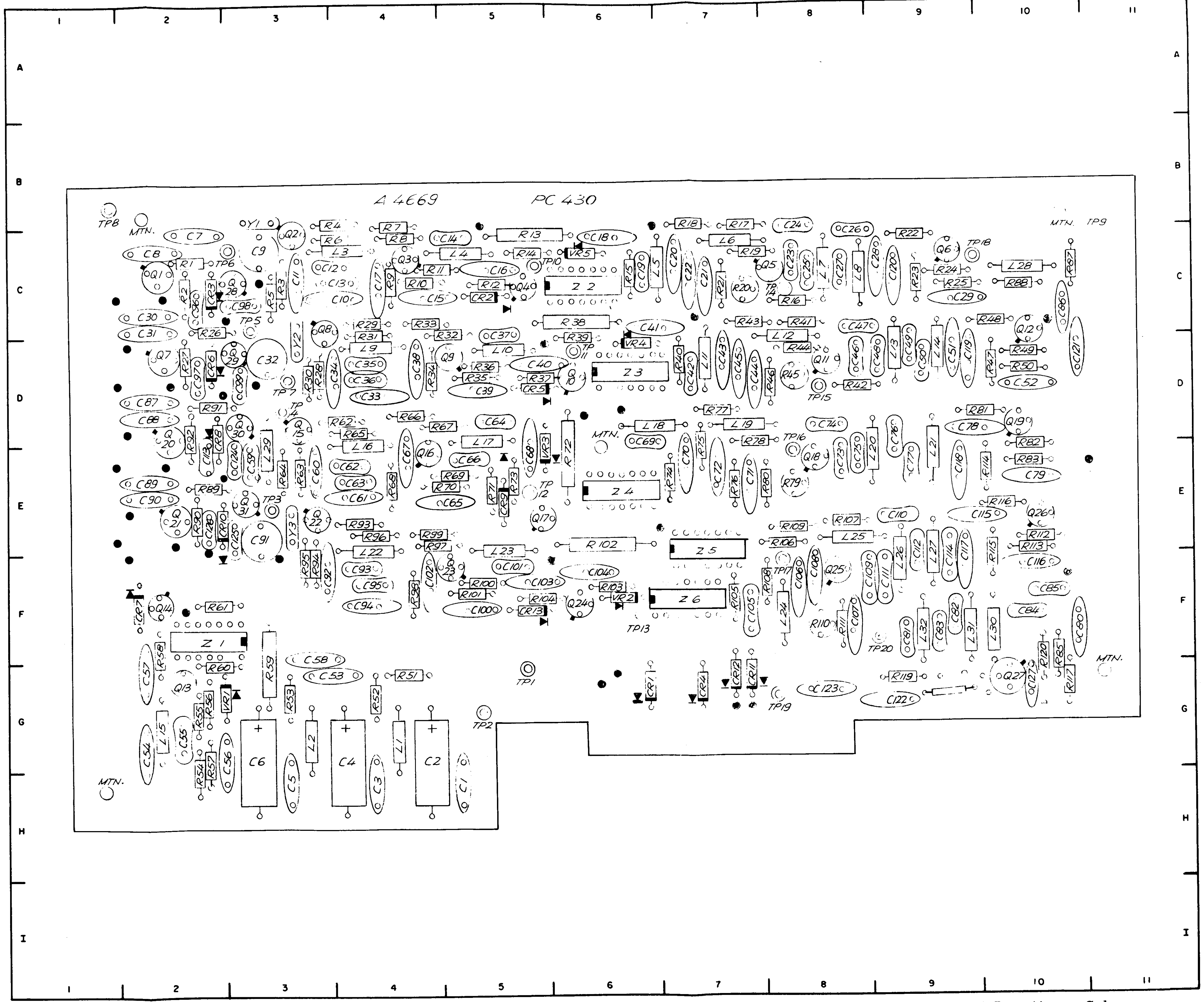

Figure 5-37. Component Locations, Sub-synthesizer 1A6

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	
C1	5H	C41	6C	C81	9F	C121	10D	L20	9E	Q27	10G	R35	5D	R74	7E	R116	
C2	4G	C42	7D	C82	9F	C122	9G	L21	9E	Q28	3C	R36	5D	R75	7D	R117	
C3	4H	C43	7D	C83	9F	C123	8G	L22	4E	Q29	3D	R37	5D	R76	7E	R118	
C4	4G	C44	7D	C84	10F	C124	3E	L23	5E	Q30	3D	R38	6C	R77	7D	R119	
C5	3H	C45	7D	C85	10F	C125	3E	L24	8F	Q31	3E	R39	6D	R78	7D	R120	
C6	3G	C46	8D	C86	10C	C126	2E	L25	8E	R1	2C	R40	7D	R79	8E	TP1	
C7	2C	C47	8C	C87	2D	C127	10G	L26	9F	R2	2C	R41	8C	R80	8E	TP2	
C8	2C	C48	9D	C88	2D	CR1	6G	L27	9E	R3	3C	R42	8D	R81	9D	TP3	
C9	3C	C49	9D	C89	2E	CR2	5C	L28	10C	R4	3B	R43	7C	R82	10E	TP4	
C10	3C	C50	9D	C90	2E	CR3	2C	L29	3E	R5	3C	R44	8D	R83	10E	TP5	
C11	3C	C51	9D	C91	3E	CR4	7G	L30	10F	R6	3C	R45	8D	R87	10C	TP6	
C12	3C	C52	10D	C92	3F	CR5	5D	L31	9F	R7	4B	R46	8D	R88	10C	TP7	
C13	4C	C53	3G	C93	4F	CR6	2D	L32	9F	R8	4C	R47	10D	R89	2E	TP8	
C14	5C	C54	2G	C94	4F	CR7	2F	Q1	2C	R9	4C	R48	10C	R90	2E	TP9	
C15	4C	C55	2G	C95	4F	CR8	2D	Q2	3C	R10	4C	R49	10D	R91	2D	TP10	
C16	5C	C56	2G	C96	2C	CR9	5E	Q3	4C	R11	4C	R50	10D	R92	2D	TP11	
C17	4C	C57	2G	C97	2D	CR10	2E	Q4	5C	R12	5C	R51	4G	R93	4E	TP12	
C18	6C	C58	3F	C98	3C	CR11	7G	Q5	8C	R13	5C	R52	4G	R94	3F	TP13	
C19	6C	C59	3E	C99	3D	CR12	7G	Q6	9C	R14	5C	R53	3G	R95	3F	TP14	
C20	7C	C60	3E	C100	5F	CR13	5F	Q7	2D	R15	6C	R54	2G	R96	4E	TP15	
C21	7C	C61	4E	C101	5F	L1	4G	Q8	3C	R16	8C	R55	2G	R97	4E	TP16	
C22	7C	C62	4E	C102	4F	L2	3G	Q9	5D	R17	7B	R56	2G	R98	4F	TP17	
C23	8C	C63	4E	C103	5F	L3	4C	Q10	6D	R18	7B	R57	2G	R99	4E	TP18	
C24	8B	C64	5D	C104	6F	L4	5C	Q11	8D	R19	7C	R58	2F	R100	5F	TP19	
C25	8C	C65	5E	C105	7F	L5	6C	Q12	10C	R20	7C	R59	3F	R101	5F	TP20	
C26	8C	C66	5E	C106	8F	L6	7C	Q13	2G	R21	7C	R60	2G	R102	6E	VR1	
C27	8C	C67	4E	C107	8F	L7	8C	Q14	2F	R22	9C	R61	2F	R103	6F	VR2	
C28	9C	C68	5D	C108	8F	L8	8C	Q15	3D	R23	9C	R62	4D	R104	5F	VR3	
C29	9C	C69	6D	C109	8F	L9	4D	Q16	4E	R24	9C	R63	3E	R105	7F	VR4	
C30	2C	C70	7E	C110	9E	L10	5D	Q17	5E	R25	9C	R64	3E	R106	8E	VR5	
C31	2C	C71	7E	C111	9F	L11	7D	Q18	8E	R26	2C	R65	4D	R107	8E	Y1	
C32	3D	C72	7E	C112	9E	L12	8C	Q19	10D	R27	2D	R66	4D	R108	8F	Y2	
C33	4D	C73	8E	C113	2E	L13	9D	Q20	2D	R28	3D	R67	4D	R109	8E	Y3	
C34	3D	C74	8D	C114	9E	L14	9D	Q21	2E	R29	4C	R68	4E	R110	8F	Z1	
C35	4D	C75	8E	C115	9E	L15	2G	Q22	3E	R30	3D	R69	5E	R111	8F	Z2	
C36	4D	C76	9D	C116	10F	L16	4D	Q23	5F	R31	4C	R70	5E	R112	10E	Z3	
C37	5C	C77	9E	C117	9F	L17	5D	Q24	6F	R32	5C	R71	5E	R113	10E	Z4	
C38	4D	C78	9D	C118	9E	L18	6D	Q25	8F	R33	4C	R72	6E	R114	10E	Z5	
C39	5D	C79	10E	C119	9D	L19	7D	Q26	10E	R34	4D	R73	5E	R115	10F	Z6	
C40	5D	C80	10F	C120	9C												

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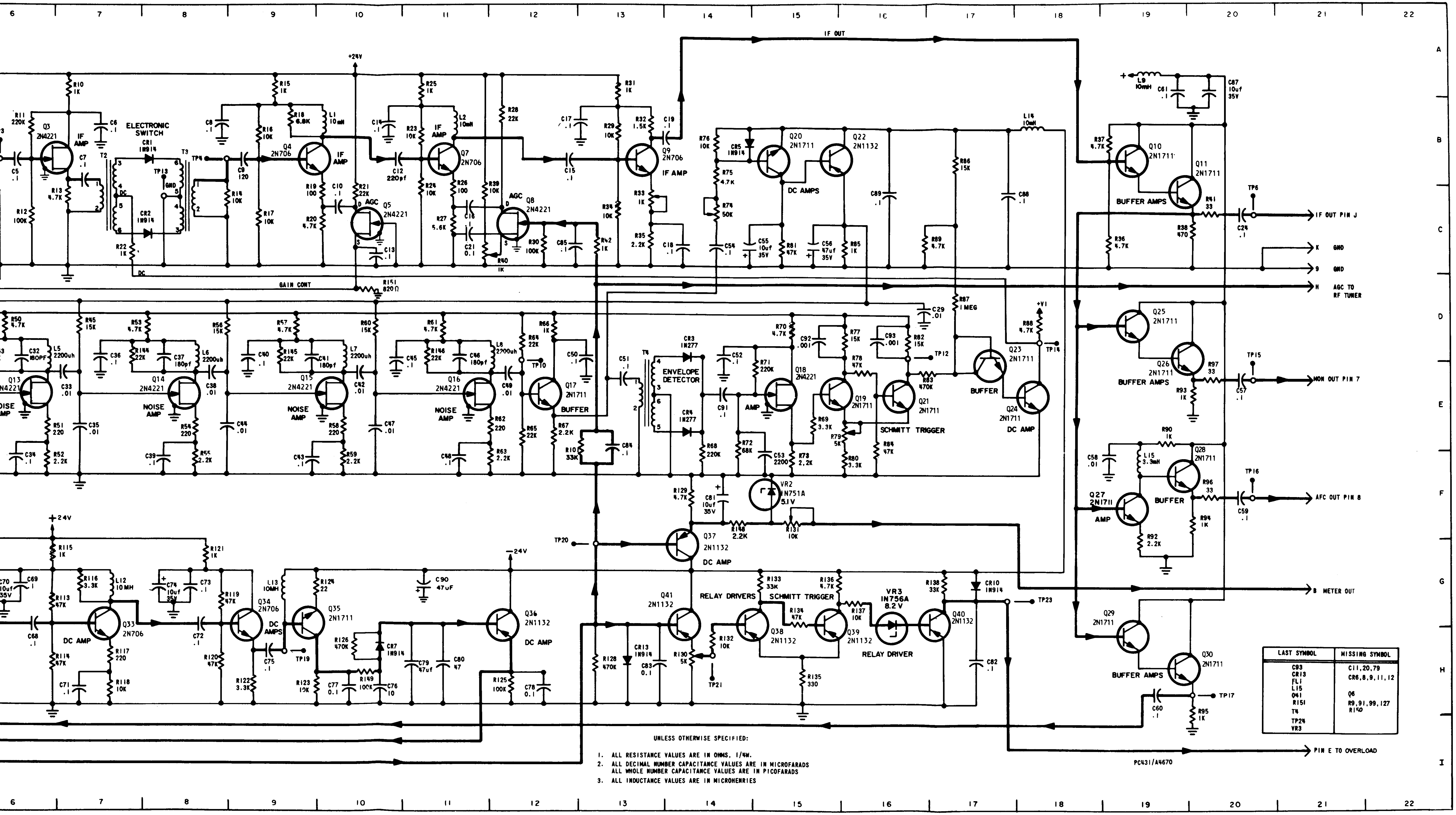
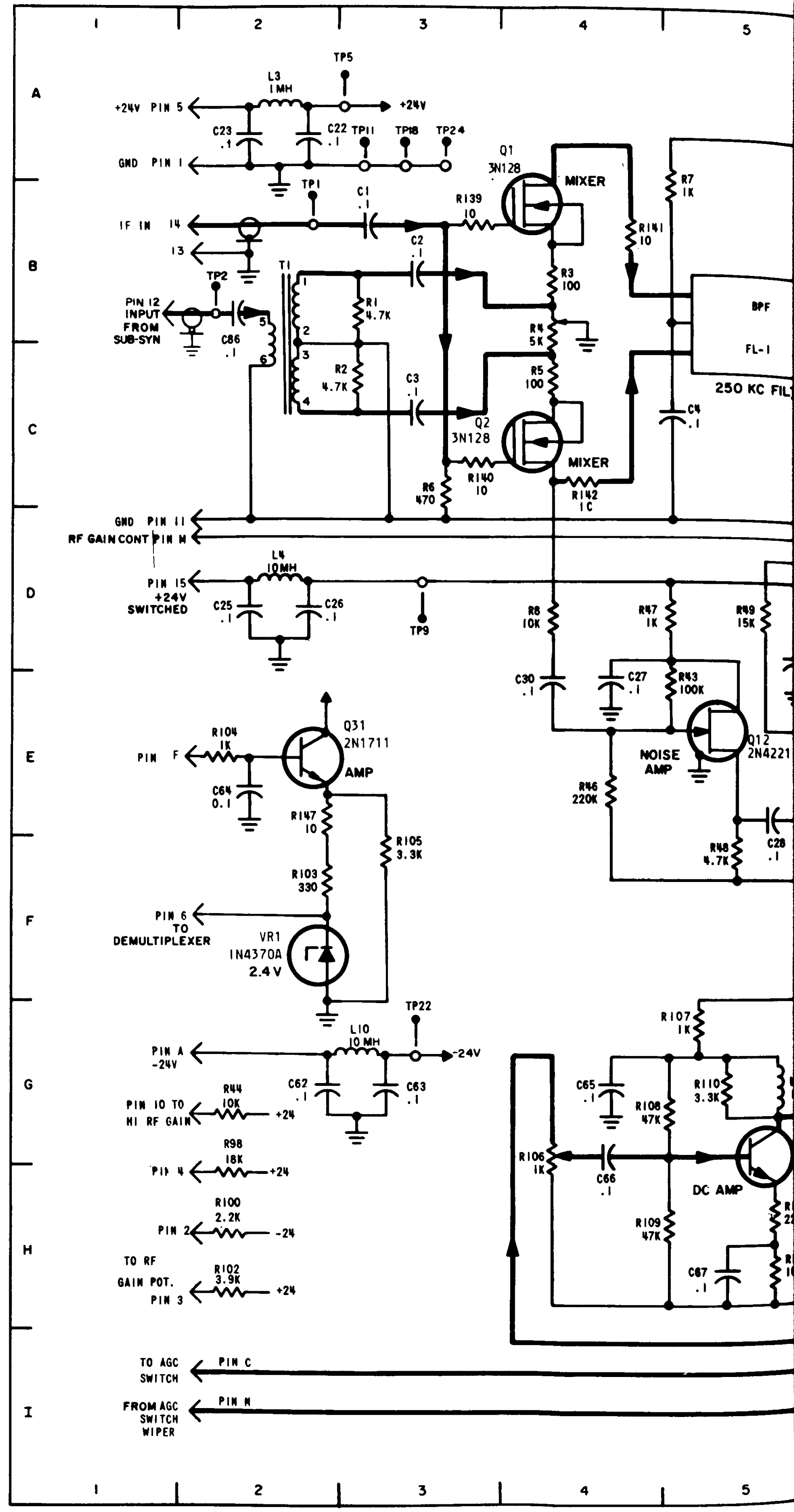


Figure 5-28. Schematic Wiring, Second IF Amplifier 1A7

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	3B	C45	10D	C88	17C	Q14	8E	R15	9A	R56	8D	R98	2H	R141	4B
C2	3B	C46	11D	C89	16C	Q15	10E	R16	9B	R57	9D	R100	2H	R142	4C
C3	3C	C47	10E	C90	11G	Q16	11E	R17	9C	R58	10E	R101	13E	R143	6D
C4	5C	C48	11F	C91	14E	Q17	12E	R18	9B	R59	10F	R102	2H	R144	7D
C5	6B	C49	12E	C92	15D	Q18	15E	R19	10C	R60	10D	R103	2F	R145	9D
C6	7B	C50	13D	C93	16D	Q19	15E	R20	10C	R61	11D	R104	2E	R146	11D
C7	7B	C51	13E	CR1	8B	Q20	15B	R21	10C	R62	11E	R105	3F	R147	2E
C8	8B	C52	14D	CR2	8C	Q21	16E	R22	7C	R63	11F	R106	4G	R148	14F
C9	9B	C53	15E	CR3	14D	Q22	15B	R23	11B	R64	12D	R107	5G	R149	10H
C10	10C	C54	14C	CR4	14E	Q23	17D	R24	11B	R65	12E	R108	5G	R151	10D
C12	10B	C55	14C	CR5	14B	Q24	18D	R25	11A	R66	12D	R109	5H	T1	2B
C13	10C	C56	15C	CR7	10H	Q25	19D	R26	11B	R67	12E	R110	5G	T2	7B
C14	10B	C57	20E	CR10	17G	Q26	19D	R27	11C	R68	14E	R111	5H	T3	8B
C15	12B	C58	19E	CR13	13H	Q27	19F	R28	12B	R69	15E	R112	5H	T4	13E
C16	11C	C59	20F	FL1	5B	Q28	19F	R29	13B	R70	15D	R113	6G	TP1	2B
C17	12B	C60	19H	L1	10B	Q29	19G	R30	12C	R71	15D	R114	6H	TP2	2B
C18	14C	C61	19A	L2	11B	Q30	19H	R31	13A	R72	14E	R115	6G	TP3	6B
C19	13B	C62	2G	L3	2A	Q31	2E	R32	13B	R73	15F	R116	7G	TP4	8B
C21	11C	C63	3G	L4	2D	Q32	5G	R33	13C	R74	14C	R117	7H	TP5	2A
C22	2A	C64	2E	L5	6D	Q33	7G	R34	13C	R75	14B	R118	7H	TP6	20C
C23	2A	C65	4G	L6	8D	Q34	9G	R35	13C	R76	14B	R119	8G	TP7	-
C24	20C	C66	4G	L7	10D	Q35	9G	R36	19C	R77	16D	R120	8H	TP8	5E
C25	2D	C67	5H	L8	12D	Q36	12G	R37	19B	R78	16E	R121	8G	TP9	3D
C26	2D	C68	6G	L9	19A	Q37	14F	R38	20C	R79	16E	R122	9H	TP10	12D
C27	4E	C69	6G	L10	3G	Q38	14G	R39	11C	R80	16F	R123	10H	TP11	3A
C28	5E	C70	6G	L11	5G	Q39	15G	R40	11C	R81	15C	R124	9G	TP12	16D
C29	16D	C71	7H	L12	7G	Q40	17G	R41	20C	R82	16D	R125	12H	TP13	8C
C30	4E	C72	8G	L13	9G	Q41	14G	R42	13C	R83	16E	R126	10H	TP14	18D
C31	5D	C73	8G	L14	18B	R1	3B	R43	5E	R84	16E	R128	13H	TP15	20E
C32	6D	C74	8G	L15	19E	R2	3C	R44	2G	R85	16C	R129	14F	TP16	20F
C33	7E	C75	9H	Q1	4B	R3	4B	R45	7D	R86	17B	R130	14H	TP17	20H
C34	6F	C76	10H	Q2	4C	R4	4B	R46	4E	R87	17D	R131	15F	TP18	3A
C35	7E	C77	10H	Q3	6B	R5	4C	R47	5D	R88	18D	R132	14H	TP19	9H
C36	7D	C78	12H	Q4	9B	R6	3C	R48	5F	R89	16C	R133	15G	TP20	13F
C37	8D	C80	11H	Q5	10C	R7	5A	R49	5D	R90	19E	R134	15G	TP21	14H
C38	8E	C81	14F	Q7	11B	R8	4D	R50	6D	R92	19F	R135	15H	TP22	3G
C39	8G	C82	17H	C8	12C	R10	7A	R51	6E	R93	20E	R136	15G	TP23	17G
C40	9D	C83	13H	Q9	13B	R11	6B	R52	6F	R94	20F	R137	16G	TP24	3A
C41	9D	C84	13E	Q10	19B	R12	6C	R53	8D	R95	20H	R138	17G	VR1	2F
C42	10E	C85	12C	Q11	19B	R13	7C	R54	8E	R96	20F	R139	3B	VR2	15F
C43	9F	C86	2B	Q12	5E	R14	8C	R55	8G	R97	20E	R140	3C	VR3	16G
C44	8E	C87	20A	Q13	6E										



REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
R56	3E	R98	8G	R141	3G
R57	2E	R100	8G	R142	3G
R58	3E	R101	8F	R143	2F
R59	3E	R102	8G	R144	2E
R60	3D	R103	9F	R145	2D
R61	2D	R104	9F	R146	2D
R62	3D	R105	9F	R147	9F
R63	3D	R106	6D	R148	9E
R64	2C	R107	6C	R149	8D
R65	2C	R108	6C	R151	7G
R66	2C	R109	6C	T1	2G
R67	2C	R110	7C	T2	5D
R68	3B	R111	6B	T3	5D
R69	4B	R112	6B	T4	2B
R70	3B	R113	7C	TP1	2H
R71	3B	R114	6B	TP2	2H
R72	3C	R115	7D	TP3	4D
R73	4C	R116	7C	TP4	5E
R74	3C	R117	7B	TP5	1B
R75	3C	R118	7B	TP6	8E
R76	4D	R119	8C	TP7	6E
R77	4B	R120	8B	TP8	2F
R78	4B	R121	8C	TP9	2D
R79	4C	R122	8C	TP10	2C
R80	4C	R123	8C	TP11	3D
R81	4C	R124	8D	TP12	5B
R82	4B	R125	9D	TP13	5D
R83	5C	R126	9C	TP14	5C
R84	5C	R128	8D	TP15	8E
R85	5C	R129	9E	TP16	7G
R86	5C	R130	9E	TP17	6D
R87	5C	R131	10E	TP18	10F
R88	6C	R132	9D	TP19	7D
R89	5C	R133	10D	TP20	8D
R90	8F	R134	10D	TP21	9D
R92	7F	R135	10C	TP22	9C
R93	7E	R136	10D	TP23	10C
R94	7F	R137	10C	TP24	11B
R95	6D	R138	10C	VR1	9F
R96	8F	R139	3G	VR2	9E
R97	7E	R140	3G	VR3	10C

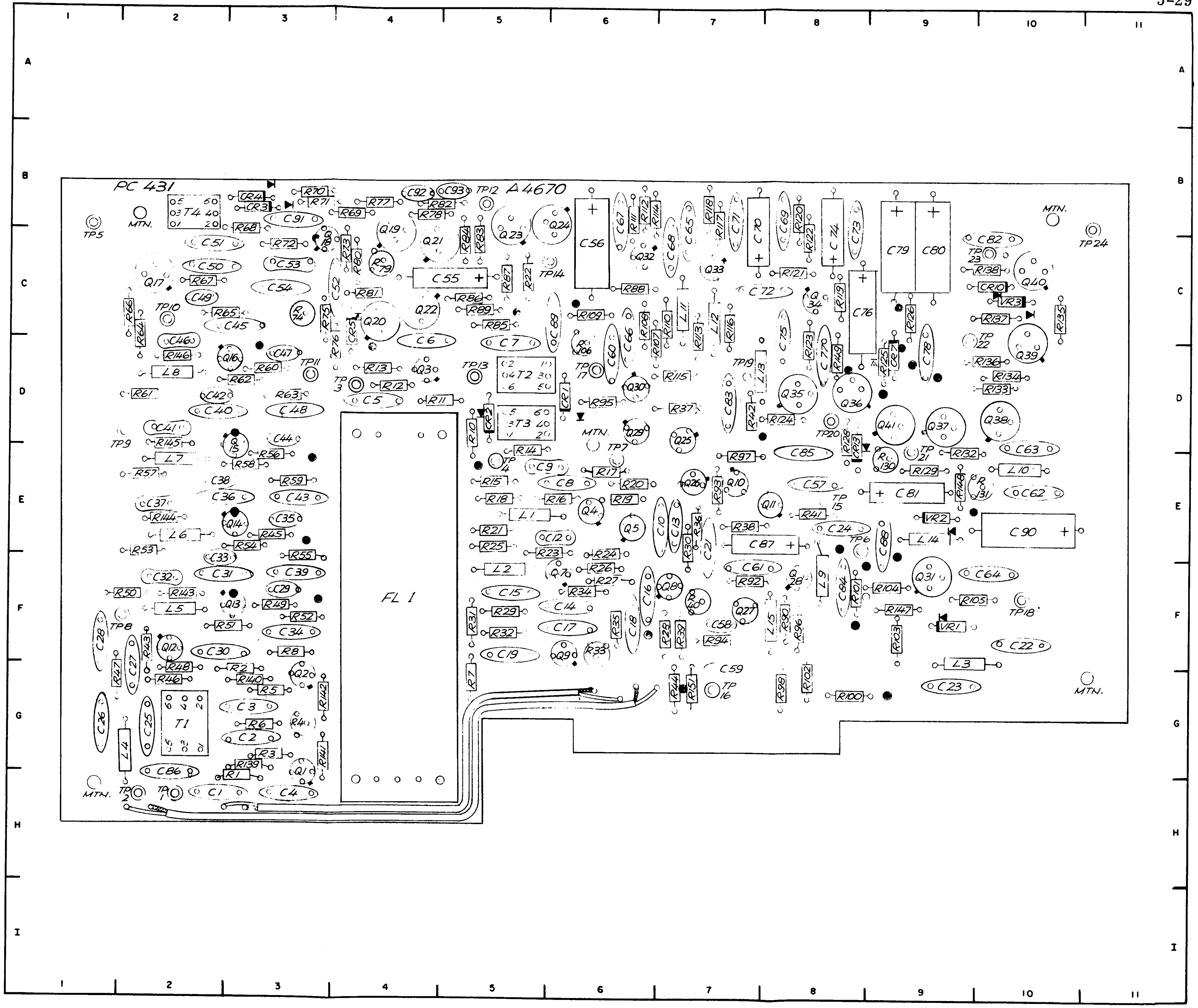
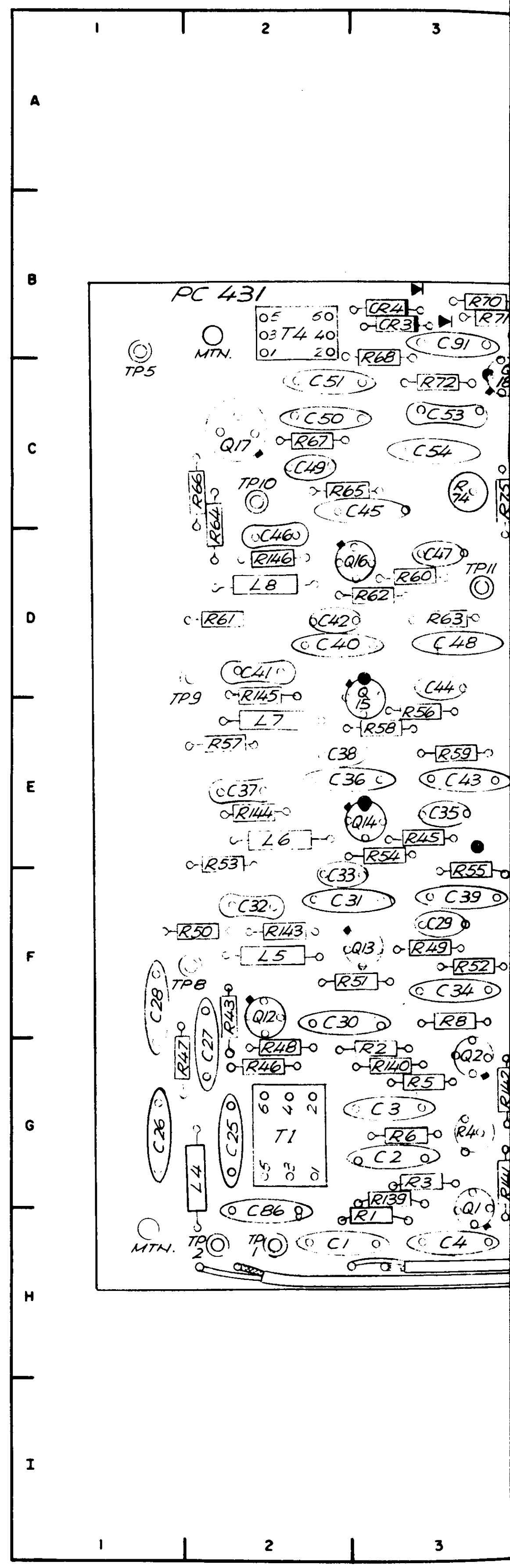
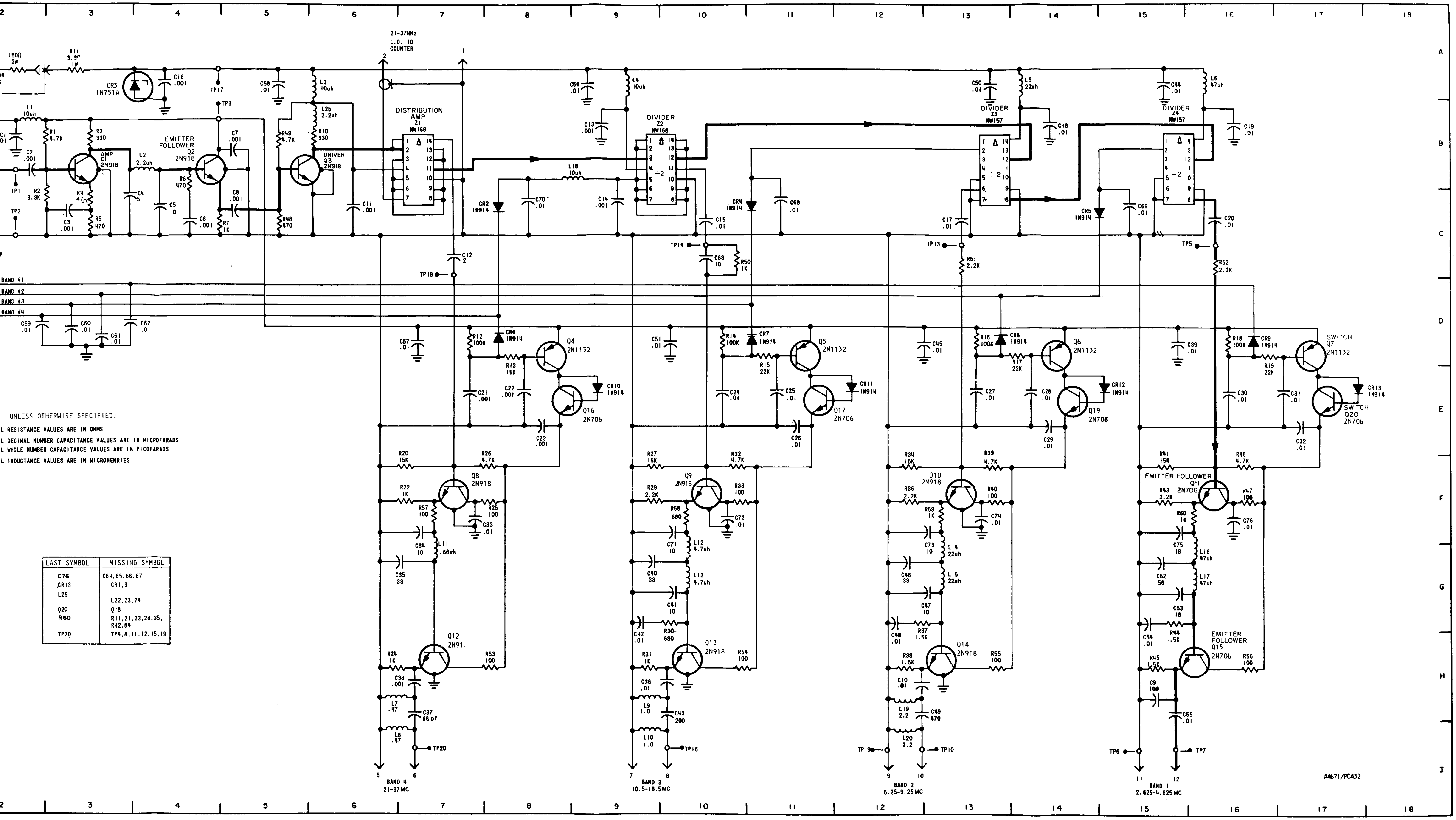


Figure 5-29. Component Locations, Second IF

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2H	C45	3C	C88	9E	Q14	3E	R15	5E	R56	3E	R98	8G	R141	3G
C2	3G	C46	2D	C89	6C	Q15	3D	R16	6E	R57	2E	R100	8G	R142	3G
C3	3G	C47	3D	C90	10E	Q16	2D	R17	6E	R58	3E	R101	8F	R143	2F
C4	3H	C48	3D	C91	3B	Q17	2C	R18	5E	R59	3E	R102	8G	R144	2E
C5	4D	C49	2C	C92	4B	Q18	3C	R19	6E	R60	3D	R103	9F	R145	2D
C6	4D	C50	2C	C93	5B	Q19	4B	R20	6E	R61	2D	R104	9F	R146	2D
C7	5D	C51	2C	CR1	6D	Q20	4C	R21	5E	R62	3D	R105	9F	R147	9F
C8	6E	C52	3C	CR2	5D	Q21	4C	R22	5C	R63	3D	R106	6D	R148	9E
C9	5E	C53	3C	CR3	3B	Q22	4C	R23	6E	R64	2C	R107	6C	R149	8D
C10	7E	C54	3C	CR4	3B	Q23	5B	R24	6E	R65	2C	R108	6C	R151	7G
C12	6E	C55	5C	CR5	4C	Q24	5B	R25	5E	R66	2C	R109	6C	T1	2G
C13	7E	C56	6C	CR7	9D	Q25	7D	R26	6F	R67	2C	R110	7C	T2	5D
C14	6F	C57	8E	CR10	10C	Q26	7E	R27	6F	R68	3B	R111	6B	T3	5D
C15	5F	C58	7F	CR13	8D	Q27	7F	R28	7F	R69	4B	R112	6B	T4	2B
C16	6F	C59	7G	FL1	4F	Q28	8F	R29	5F	R70	3B	R113	7C	TP1	2H
C17	6F	C60	6D	L1	5E	Q29	6D	R30	7E	R71	3B	R114	6B	TP2	2H
C18	6F	C61	7F	L2	5F	Q30	6D	R31	5F	R72	3C	R115	7D	TP3	4D
C19	5F	C62	10E	L3	9F	Q31	9F	R32	5F	R73	4C	R116	7C	TP4	5E
C21	7E	C63	10D	L4	2G	Q32	6C	R33	6F	R74	3C	R117	7B	TP5	1B
C22	10F	C64	10F	L5	2F	Q33	7C	R34	6F	R75	3C	R118	7B	TP6	8E
C23	9G	C65	7B	L6	2E	Q34	8C	R35	6F	R76	4D	R119	8C	TP7	6E
C24	8E	C66	6C	L7	2E	Q35	8D	R36	7E	R77	4B	R120	8B	TP8	2F
C25	2G	C67	6B	L8	2D	Q36	8D	R37	7D	R78	4B	R121	8C	TP9	2D
C26	1G	C68	7C	L9	8F	Q37	9D	R38	7E	R79	4C	R122	8C	TP10	2C
C27	2F	C69	8B	L10	10E	Q38	10D	R39	7F	R80	4C	R123	8C	TP11	3D
C28	1F	C70	7B	L11	7C	Q39	10C	R40	7F	R81	4C	R124	8D	TP12	5B
C29	3F	C71	7B	L12	7C	Q40	10C	R41	8E	R82	4B	R125	9D	TP13	5D
C30	2F	C72	7C	L13	7D	Q41	9D	R42	7D	R83	5C	R126	9C	TP14	5C
C31	2F	C73	8B	L14	9E	R1	3H	R43	2F	R84	5C	R128	8D	TP15	8E
C32	2F	C74	8B	L15	8F	R2	3G	R44	7G	R85	5C	R129	9E	TP16	7G
C33	2F	C75	8C	Q1	3H	R3	3G	R45	3E	R86	5C	R130	9E	TP17	6D
C34	3F	C76	8C	Q2	3G	R4	3G	R46	2G	R87	5C	R131	10E	TP18	10F
C35	3E	C77	8D	Q3	4D	R5	3G	R47	1G	R88	6C	R132	9D	TP19	7D
C36	2E	C78	9D	Q4	6E	R6	3G	R48	2G	R89	5C	R133	10D	TP20	8D
C37	2E	C80	9B	Q5	6E	R7	5G	R49	3F	R90	8F	R134	10D	TP21	9D
C38	2E	C81	9E	Q7	6F	R8	3F	R50	2F	R92	7F	R135	10C	TP22	9C
C39	3F	C82	10B	Q8	7F	R10	5D	R51	2F	R93	7E	R136	10D	TP23	10C
C40	2D	C83	7D	Q9	6F	R11	4D	R52	3F	R94	7F	R137	10C	TP24	11B
C41	2D	C84	8F	Q10	7E	R12	4D	R53	2E	R95	6D	R138	10C	VR1	9F
C42	2D	C85	8D	Q11	8E	R13	4D	R54	3E	R96	8F	R139	3G	VR2	9E
C43	3E	C86	2H	Q12	2F	R14	5E	R55	3E	R97	7E	R140	3G	VR3	10C
C44	3D	C87	7E	Q13	3F										





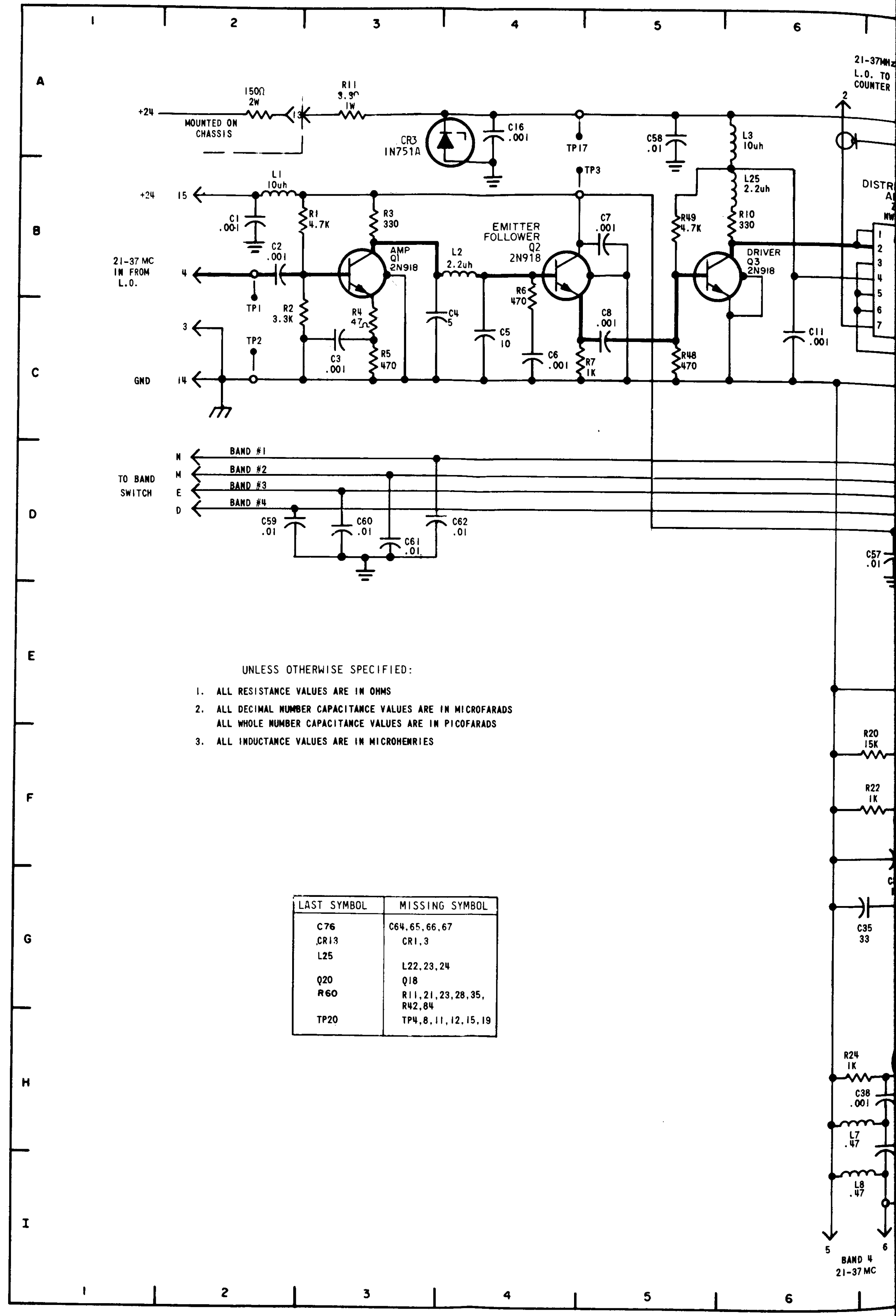
UNLESS OTHERWISE SPECIFIED:
L RESISTANCE VALUES ARE IN OHMS
L DECIMAL NUMBER CAPACITANCE VALUES ARE IN MICROFARADS
L WHOLE NUMBER CAPACITANCE VALUES ARE IN PICOFARADS
L INDUCTANCE VALUES ARE IN MICROHENRIES

LAST SYMBOL	MISSING SYMBOL
C76	C64,65,66,67
CR13	CR1,3
L25	L22,23,24
Q20	Q18
R60	R11,21,23,28,35, R42,84
TP20	TP4,8,11,12,15,19

Figure 5-30. Schematic Wiring, Local Oscillator Divider 1A8

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2B	C40	9G	CR9	16D	Q12	7H	R36	12F
C2	2B	C41	10G	CR10	9E	Q13	10H	R37	12G
C3	3C	C42	9G	CR11	12E	Q14	13H	R38	12H
C4	3C	C43	10H	CR12	15E	Q15	11D	R39	13F
C5	4C	C44	15A	CR13	17E	Q16	8E	R40	13F
C6	4C	C45	12D	L1	2B	Q17	11E	R41	15F
C7	5B	C46	12G	L2	4B	Q19	14E	R43	15F
C8	5C	C47	13G	L3	6A	Q20	17E	R44	15G
C9	15H	C48	12G	L4	9A	R1	3B	R45	15H
C10	12H	C49	12H	L5	14A	R2	2C	R46	16F
C11	6C	C50	13A	L6	16A	R3	3B	R47	16F
C12	7C	C51	10D	L7	6H	R4	3C	R48	5C
C13	9B	C52	15G	L8	6H	R5	3C	R49	5B
C14	9C	C53	15G	L9	9H	R6	4B	R50	10C
C15	10C	C54	15G	L10	9I	R7	4C	R51	13D
C16	4A	C55	15H	L11	7G	R8	-	R52	16C
C17	13C	C56	9A	L12	10G	R9	-	R53	8H
C18	14B	C57	7D	L13	10G	R10	6B	R54	10H
C19	16B	C58	5A	L14	13G	R12	7D	R55	13H
C20	16C	C59	2D	L15	13G	R13	8D	R56	16H
C21	7E	C60	3D	L16	16G	R14	10D	R57	7F
C22	8E	C61	3D	L17	16G	R15	11D	R58	10F
C23	8E	C62	3D	L18	8B	R16	13D	R59	13F
C24	10E	C63	10C	L19	12H	R17	14D	R60	15F
C25	11E	C68	11C	L20	12I	R18	16D	TP1	2B
C26	11E	C69	15C	L21	-	R19	16D	TP2	2C
C27	13E	C70	8C	L25	6B	R20	7F	TP3	4B
C28	14E	C71	10F	Q1	3B	R22	7F	TP5	16C
C29	14E	C72	10F	Q2	4B	R24	6H	TP6	15I
C30	16E	C73	13F	Q3	6B	R25	8F	TP7	15I
C31	17E	C74	13F	Q4	8D	R26	8F	TP9	12I
C32	17E	C75	15F	Q5	11D	R27	9F	TP10	12I
C33	7F	C76	16F	Q6	12D	R29	9F	TP13	13C
C34	7F	CR2	8C	Q7	17D	R30	10G	TP14	10C
C35	7G	CR4	11C	Q8	7F	R31	9H	TP16	10I
C36	9H	CR5	14C	Q9	10F	R32	10F	TP17	4A
C37	7H	CR6	8D	Q10	13F	R33	10F	TP18	7D
C38	7H	CR7	11D	Q11	16F	R34	12F	TP20	7I
C39	15D	CR8	13D						



PART LOCATION INDEX

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CR9	3C	Q12	8E	R36	5E
CR10	8D	Q13	6F	R37	5E
CR11	6D	Q14	4F	R38	4F
CR12	5D	Q15	3F	R39	4D
CR13	3D	Q16	8D	R40	4E
L1	4G	Q17	6D	R41	2D
L2	10D	Q19	4D	R43	3E
L3	10C	Q20	3D	R44	3E
L4	8C	R1	10E	R45	2F
L5	6C	R2	9E	R46	2D
L6	4C	R3	10E	R47	2E
L7	8F	R4	9E	R48	9D
L8	8F	R5	9E	R49	10D
L9	6F	R6	9D	R50	6D
L10	6F	R7	9D	R51	5D
L11	8E	R8	-	R52	3D
L12	6E	R9	-	R53	7E
L13	6E	R10	10C	R54	6E
L14	5E	R12	8C	R55	4E
L15	5E	R13	7D	R56	2E
L16	3E	R14	6D	R57	8E
L17	3E	R15	6D	R58	6E
L18	7E	R16	5D	R59	5E
L19	5F	R17	4D	R60	3E
L20	5F	R18	3C	TP1	9F
L21	-	R19	2D	TP2	10B
L25	10C	R20	7D	TP3	1B
Q1	9E	R22	8E	TP5	3D
Q2	9D	R24	8E	TP6	-
Q3	9D	R25	7E	TP7	3F
Q4	8D	R26	7D	TP9	8F
Q5	6D	R27	6D	TP10	-
Q6	4D	R29	6E	TP13	5D
Q7	3D	R30	6E	TP14	7D
Q8	8E	R31	6F	TP16	6F
Q9	6E	R32	6D	TP17	2C
Q10	4E	R33	6E	TP18	8D
Q11	3E	R34	4D	TP20	8F

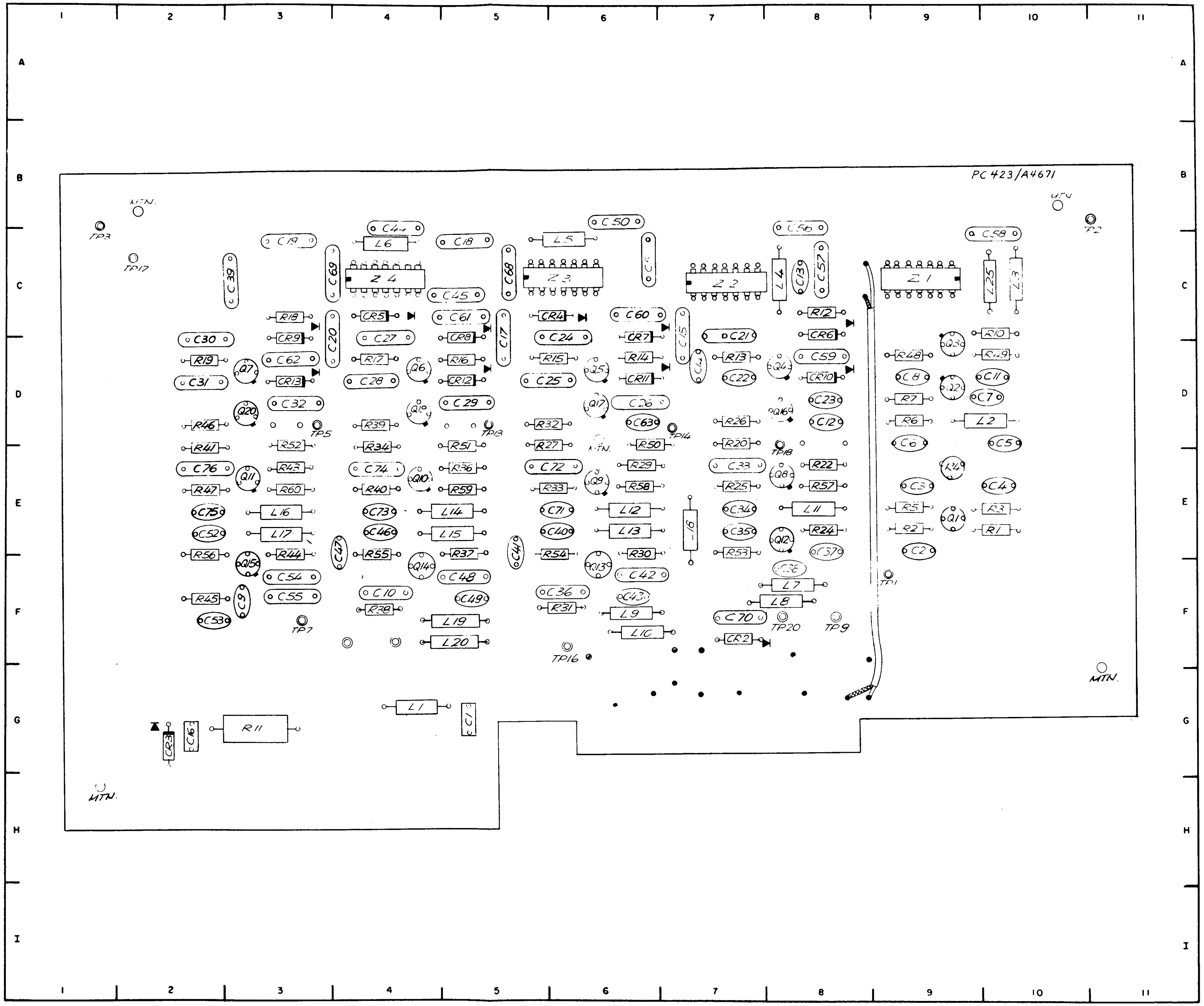
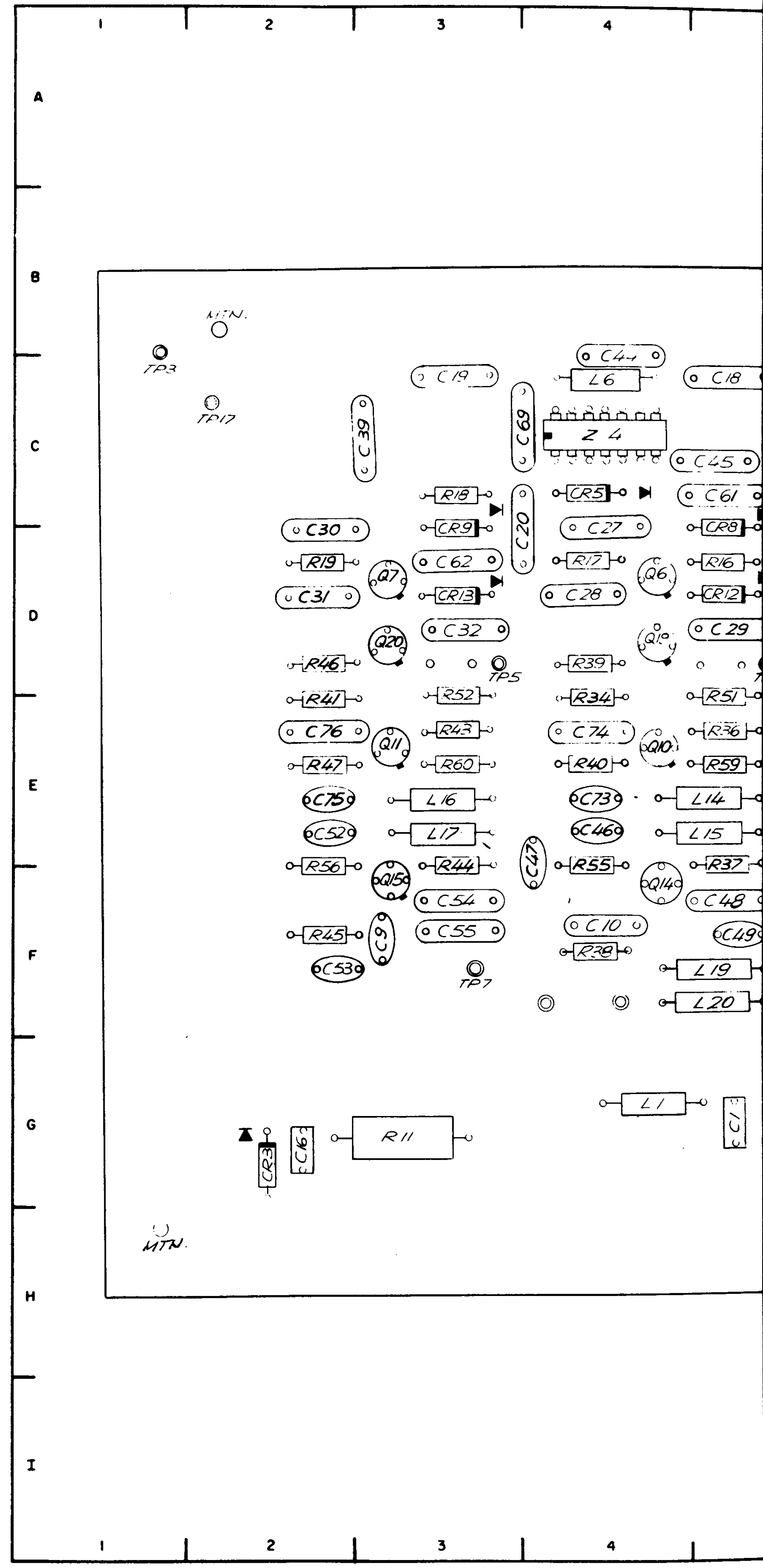


Figure 5-31. Component Locations, Local Oscillator Divider 1A8

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5G	C40	6E	CR9	3C	Q12	8E	R36	5E
C2	9E	C41	5E	CR10	8D	Q13	6F	R37	5E
C3	9E	C42	6F	CR11	6D	Q14	4F	R38	4F
C4	10E	C43	6F	CR12	5D	Q15	3F	R39	4D
C5	10D	C44	4B	CR13	3D	Q16	8D	R40	4E
C6	9D	C45	5C	L1	4G	Q17	6D	R41	2D
C7	10D	C46	4E	L2	10D	Q19	4D	R43	3E
C8	9D	C47	4E	L3	10C	Q20	3D	R44	3E
C9	3F	C48	5F	L4	8C	R1	10E	R45	2F
C10	4F	C49	5F	L5	6C	R2	9E	R46	2D
C11	10D	C50	6B	L6	4C	R3	10E	R47	2E
C12	8D	C51	6C	L7	8F	R4	9E	R48	9D
C13	8C	C52	2E	L8	8F	R5	9E	R49	10D
C14	7D	C53	2F	L9	6F	R6	9D	R50	6D
C15	7C	C54	3F	L10	6F	R7	9D	R51	5D
C16	2G	C55	3F	L11	8E	R8	-	R52	3D
C17	5C	C56	8B	L12	6E	R9	-	R53	7E
C18	5C	C57	8C	L13	6E	R10	10C	R54	6E
C19	3C	C58	10C	L14	5E	R12	8C	R55	4E
C20	3C	C59	8D	L15	5E	R13	7D	R56	2E
C21	7C	C60	6C	L16	3E	R14	6D	R57	8E
C22	7D	C61	5C	L17	3E	R15	6D	R58	6E
C23	8D	C62	3D	L18	7E	R16	5D	R59	5E
C24	6C	C63	6D	L19	5F	R17	4D	R60	3E
C25	5D	C68	5C	L20	5F	R18	3C	TP1	9F
C26	6D	C69	3C	L21	-	R19	2D	TP2	10B
C27	4B	C70	7F	L25	10C	R20	7D	TP3	1B
C28	4B	C71	6E	Q1	9E	R22	8E	TP5	3D
C29	5D	C72	6E	Q2	9D	R24	8E	TP6	-
C30	2C	C73	4E	Q3	9D	R25	7E	TP7	3F
C31	2D	C74	4E	Q4	8D	R26	7D	TP9	8F
C32	3D	C75	2E	Q5	6D	R27	6D	TP10	-
C33	7E	C76	2E	Q6	4D	R29	6E	TP13	5D
C34	7E	CR2	7F	Q7	3D	R30	6E	TP14	7D
C35	7E	CR4	6C	Q8	8E	R31	6F	TP16	6F
C36	6F	CR5	4C	Q9	6E	R32	6D	TP17	2C
C37	8E	CR6	8C	Q10	4E	R33	6E	TP18	8D
C38	8F	CR7	6D	Q11	3E	R34	4D	TP20	8F
C39	3C	CR8	5C						



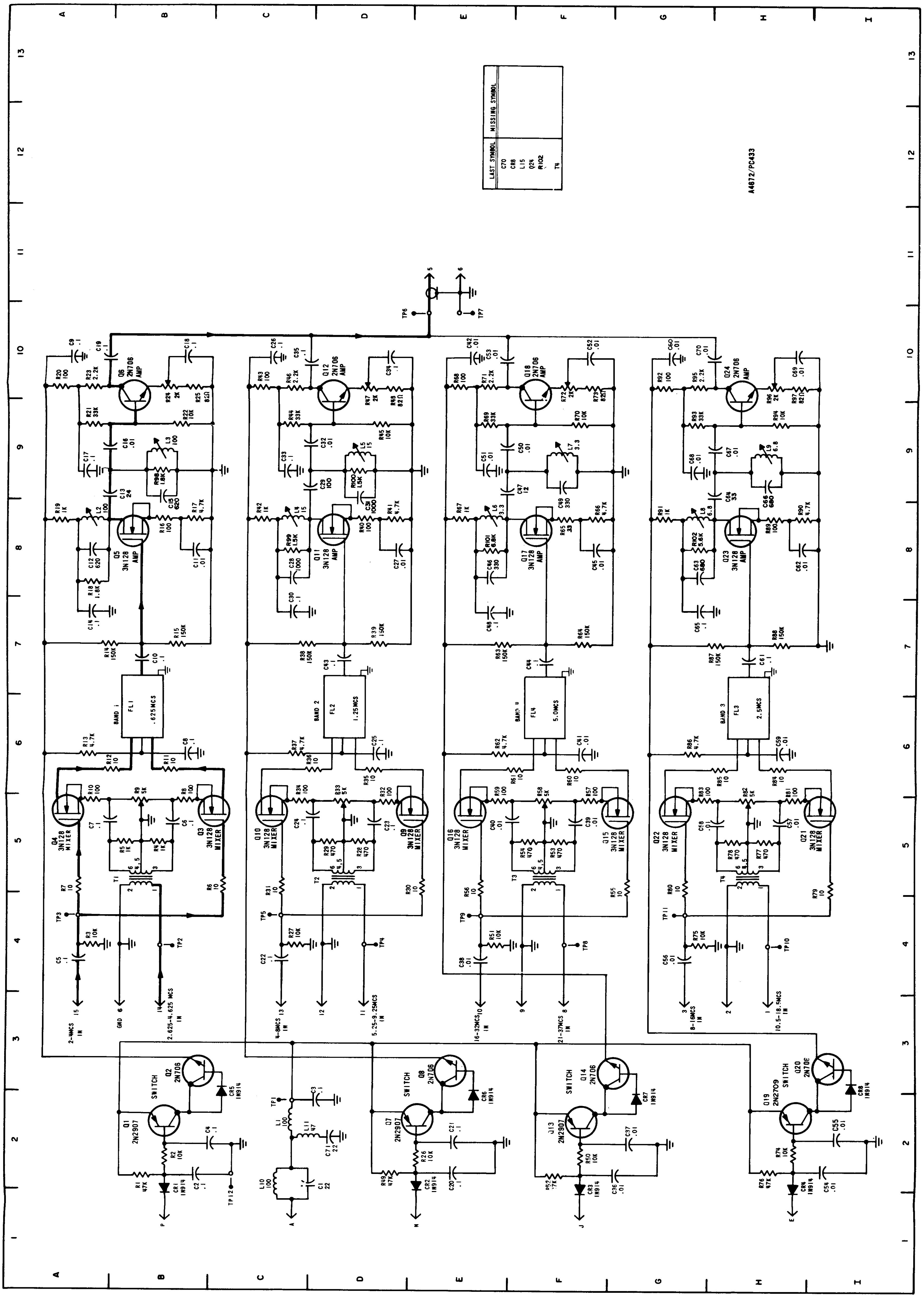


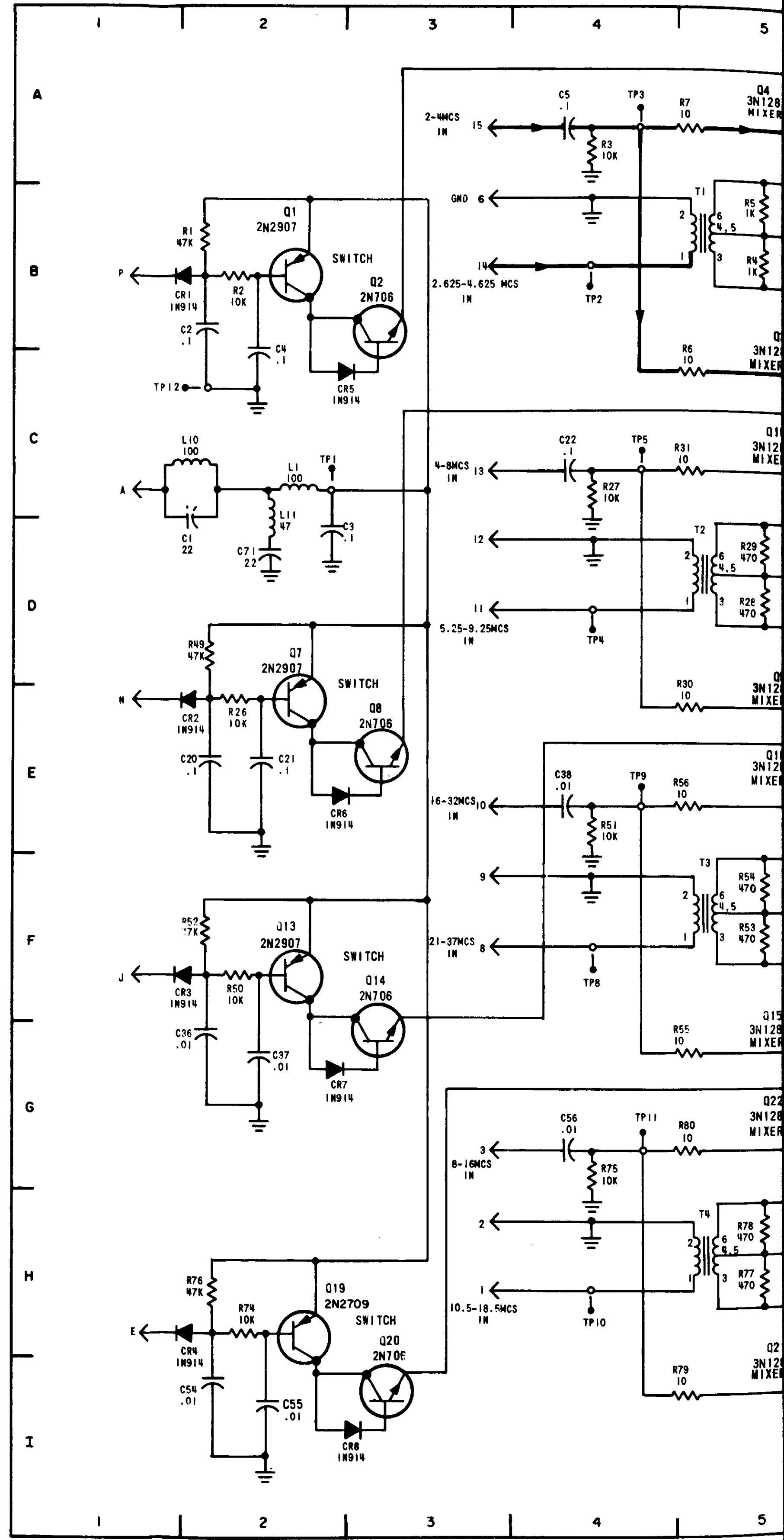
Figure 5-32. Schematic Wiring, First IF Amplifier 1A9

5-95, 5-96

REF DESIG	LOC	REF DESIG	LOC
R35	6D	R71	10E
R36	6C	R72	10F
R37	6C	R73	10F
R38	7C	R74	2H
R39	7D	R75	4G
R40	8D	R76	2H
R41	8D	R77	5H
R42	8C	R78	5H
R43	10C	R79	5I
R44	9C	R80	5G
R45	9D	R81	5H
R46	10C	R82	5H
R47	10D	R83	5G
R48	10D	R84	6H
R49	2D	R85	6H
R50	2F	R86	6G
R51	4E	R87	7G
R52	2F	R88	7H
R53	5F	R89	8H
R54	5F	R90	8H
R55	5G	R91	8G
R56	5E	R92	10G
R57	5F	R93	9G
R58	5F	R94	9H
R59	5E	R95	10G
R60	6F	R96	10H
R61	6E	R97	10H
R62	6E	R98	9B
R63	7E	R99	8C
R64	7F	R100	9D
R65	8F	R101	8E
R66	8F	R102	8G
R67	8E	T1	5B
R68	10E	T2	5D
R69	9E	T3	5F
R70	9F	T4	5H

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2C	C38	4E	CR5	2C	Q23	8H	R35	6D	R71	10E
C2	2B	C39	5F	CR6	2E	Q24	10H	R36	6C	R72	10F
C3	2D	C40	5E	CR7	2G	R1	2B	R37	6C	R73	10F
C4	2B	C41	6F	CR8	3I	R2	2B	R38	7C	R74	2H
C5	4A	C42	10E	L1	2C	R3	4A	R39	7D	R75	4G
C6	5B	C43	7D	L2	8A	R4	5B	R40	8D	R76	2H
C7	5A	C44	7F	L3	9B	R5	5B	R41	8D	R77	5H
C8	6B	C45	8F	L4	8C	R6	5C	R42	8C	R78	5H
C9	10A	C46	8E	L5	9D	R7	5A	R43	10C	R79	5I
C10	7B	C47	9E	L6	8E	R8	5B	R44	9C	R80	5G
C11	8B	C48	7E	L7	9F	R9	5B	R45	9D	R81	5H
C12	8A	C49	9F	L8	8G	R10	5A	R46	10C	R82	5H
C13	9A	C50	9E	L9	9H	R11	6B	R47	10D	R83	5G
C14	7A	C51	9E	L10	2C	R12	6A	R48	10D	R84	6H
C15	9B	C52	10F	L11	2C	R13	6A	R49	2D	R85	6H
C16	9A	C53	10E	Q1	2B	R14	7A	R50	2F	R86	6G
C17	9A	C54	2I	Q2	3B	R15	7B	R51	4E	R87	7G
C18	10B	C55	2I	Q3	5B	R16	8B	R52	2F	R88	7H
C19	10A	C56	4G	Q4	5A	R17	8B	R53	5F	R89	8H
C20	2E	C57	5H	Q5	8B	R18	8A	R54	5F	R90	8H
C21	2E	C58	5H	Q6	9B	R19	8A	R55	5G	R91	8G
C22	4C	C59	6H	Q7	2E	R20	10A	R56	5E	R92	10G
C23	5D	C60	10G	Q8	3E	R21	9A	R57	5F	R93	9G
C24	5C	C61	7H	Q9	5D	R22	9B	R58	5F	R94	9H
C25	6D	C62	8H	Q10	5C	R23	10A	R59	5E	R95	10G
C26	10C	C63	8G	Q11	8D	R24	10B	R60	6F	R96	10H
C27	8D	C64	9G	Q12	10D	R25	10B	R61	6E	R97	10H
C28	8C	C65	7G	Q13	2F	R26	2E	R62	6E	R98	9B
C29	9C	C66	9H	Q14	3G	R27	4C	R63	7E	R99	8C
C30	7C	C67	9G	Q15	5G	R28	5D	R64	7F	R100	9D
C31	9D	C68	9G	Q16	5E	R29	5D	R65	8F	R101	8E
C32	9C	C69	10H	Q17	8F	R30	5E	R66	8F	R102	8G
C33	9C	C70	10G	Q18	10F	R31	5C	R67	8E	T1	5B
C34	10D	CR1	1B	Q19	2H	R32	5D	R68	10E	T2	5D
C35	10C	CR2	2E	Q20	3I	R33	5D	R69	9E	T3	5F
C36	2G	CR3	2F	Q21	5I	R34	5C	R70	9F	T4	5H
C37	2G	CR4	2H	Q22	5G						



RT LOCATION INDEX

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4E	Q24	9C	R36	6F	R72	7B
6E	R1	3F	R37	4F	R73	6C
9E	R2	3F	R38	4D	R74	9F
9F	R3	3G	R39	4D	R75	9F
2C	R4	2G	R40	4E	R76	9F
3C	R5	3H	R41	4E	R77	10F
4D	R6	2G	R42	3D	R78	10G
4D	R7	3G	R43	3D	R79	9F
6D	R8	1G	R44	4C	R80	10F
7D	R9	2G	R45	4C	R81	9F
9D	R10	3G	R46	4C	R82	10F
9D	R11	1G	R47	4B	R83	10F
8G	R12	3G	R48	4C	R84	9F
9G	R13	3F	R49	4F	R85	10F
3F	R14	2C	R50	6F	R86	8F
3E	R15	2C	R51	6F	R87	9D
2H	R16	1C	R52	7F	R88	9D
3H	R17	1D	R53	7F	R89	9E
1C	R18	2C	R54	7G	R90	9E
3C	R19	2C	R55	7F	R91	9D
4E	R20	3E	R56	8F	R92	8E
4E	R21	2C	R57	7F	R93	9C
5F	R22	2C	R58	8F	R94	9C
6F	R23	3C	R59	8F	R95	9C
4D	R24	3B	R60	7F	R96	9B
4C	R25	3C	R61	8F	R97	9C
6E	R26	4F	R62	6F	R98	3C
6E	R27	4F	R63	6D	R99	3D
7F	R28	4G	R64	7D	R100	4D
8F	R29	6G	R65	6E	R101	6C
6E	R30	5F	R66	6E	R102	8C
6C	R31	5F	R67	6D	T1	2H
9F	R32	5F	R68	6E	T2	5F
9E	R33	5F	R69	6C	T3	8F
9F	R34	6F	R70	6C	T4	10G
10G						

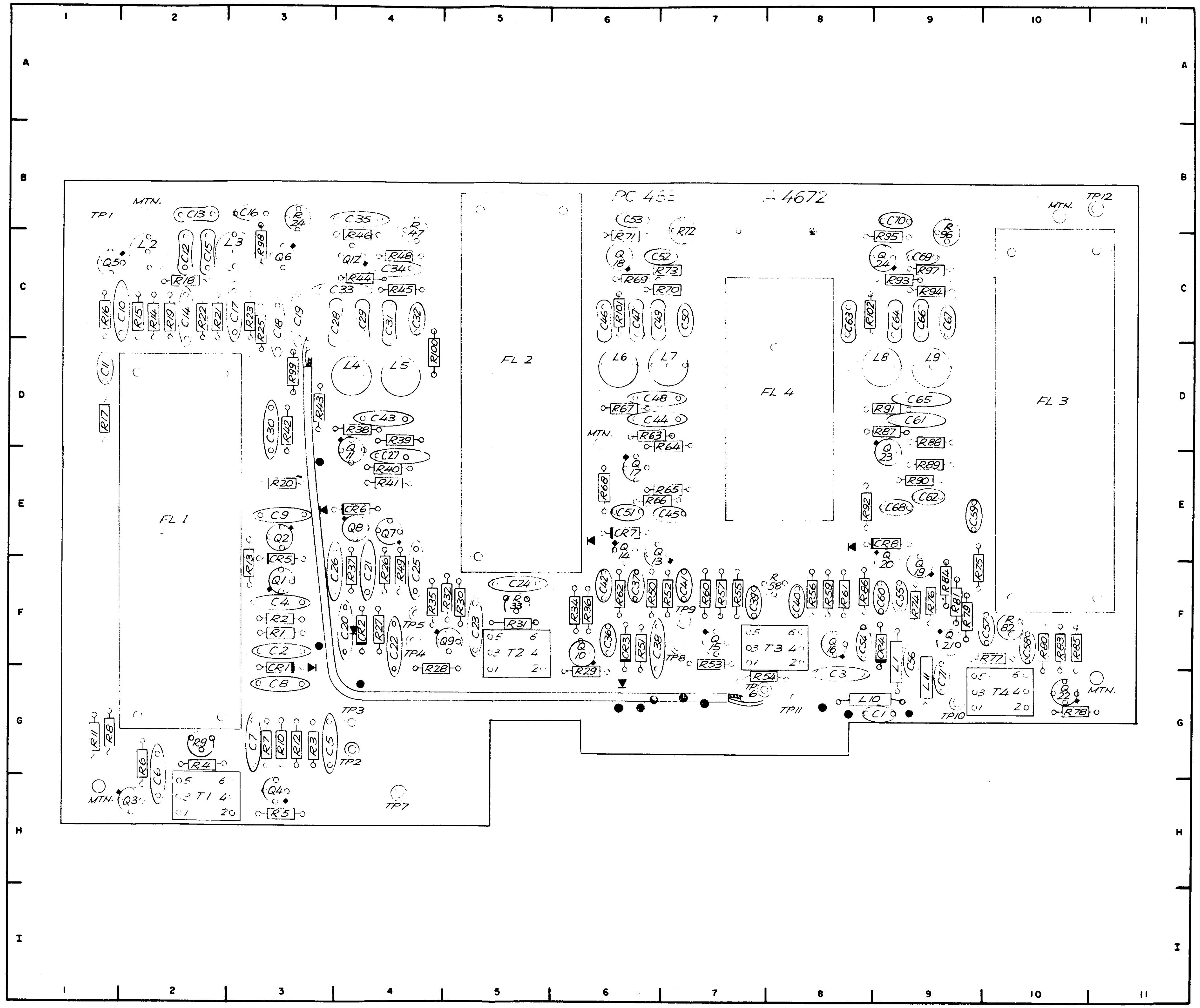

Figure 5-33. Component Locations, First IF Amplifier 1A9

PART LOCATION INDEX

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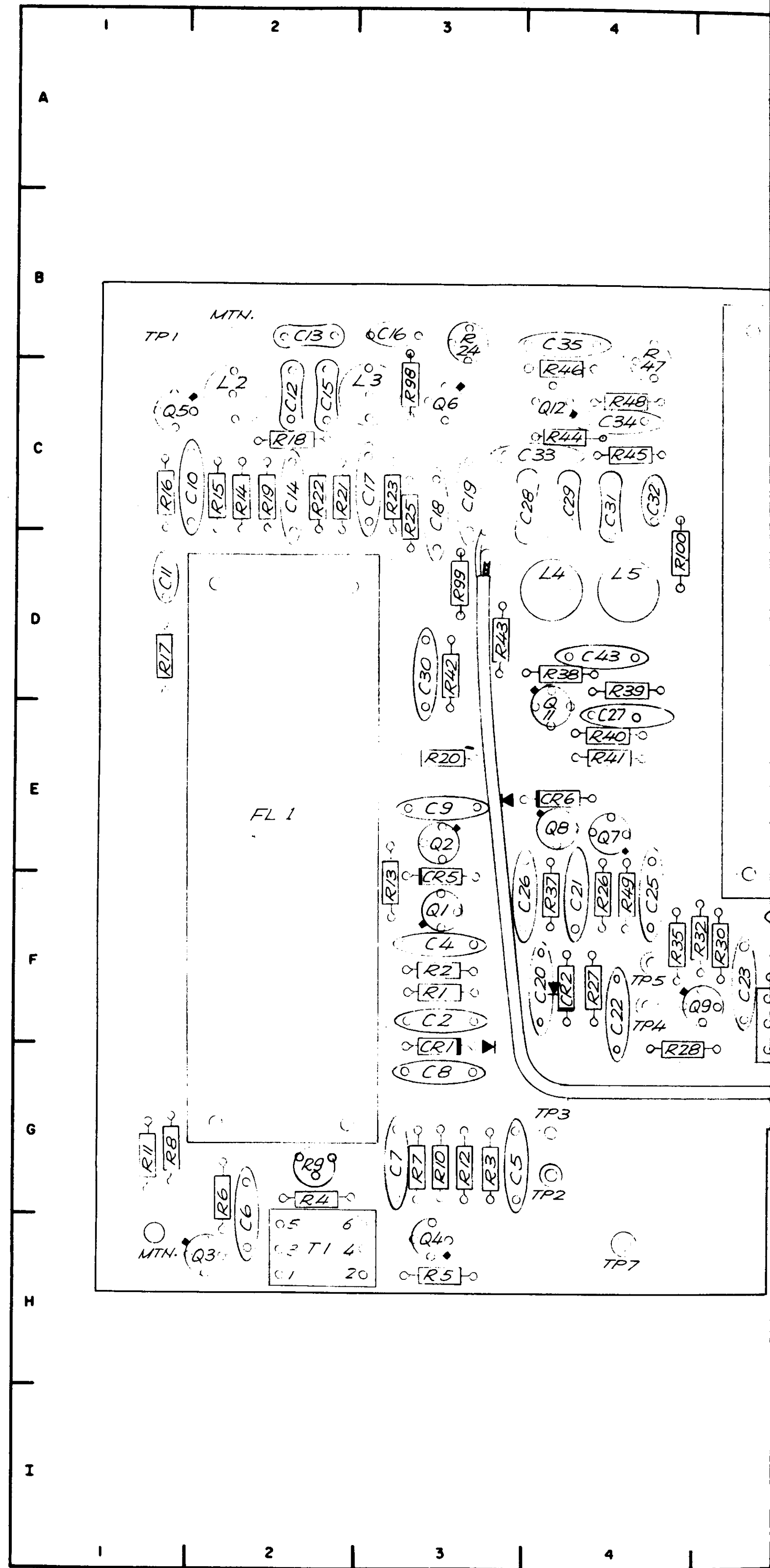
C1	9G	C38	6F	CR5	3F	Q23	9D	R35	4F	R71	6C
C2	3F	C39	7F	CR6	4E	Q24	9C	R36	6F	R72	7B
C3	8G	C40	8F	CR7	6E	R1	3F	R37	4F	R73	6C
C4	3F	C41	7F	CR8	9E	R2	3F	R38	4D	R74	9F
C5	3G	C42	6F	L1	9F	R3	3G	R39	4D	R75	9F
C6	2H	C43	4D	L2	2C	R4	2G	R40	4E	R76	9F
C7	3G	C44	6D	L3	3C	R5	3H	R41	4E	R77	10F
C8	3G	C45	7E	L4	4D	R6	2G	R42	3D	R78	10G
C9	3E	C46	6C	L5	4D	R7	3G	R43	3D	R79	9F
C10	1C	C47	6C	L6	6D	R8	1G	R44	4C	R80	10F
C11	1D	C48	6D	L7	7D	R9	2G	R45	4C	R81	9F
C12	2C	C49	6C	L8	9D	R10	3G	R46	4C	R82	10F
C13	2B	C50	7C	L9	9D	R11	1G	R47	4B	R83	10F
C14	2C	C51	6E	L10	8G	R12	3G	R48	4C	R84	9F
C15	2C	C52	6C	L11	9G	R13	3F	R49	4F	R85	10F
C16	3B	C53	6B	Q1	3F	R14	2C	R50	6F	R86	8F
C17	3C	C54	8F	Q2	3E	R15	2C	R51	6F	R87	9D
C18	3C	C55	9F	Q3	2H	R16	1C	R52	7F	R88	9D
C19	3C	C56	9F	Q4	3H	R17	1D	R53	7F	R89	9E
C20	4F	C57	10F	Q5	1C	R18	2C	R54	7G	R90	9E
C21	4F	C58	10F	Q6	3C	R19	2C	R55	7F	R91	9D
C22	4F	C59	9E	Q7	4E	R20	3E	R56	8F	R92	8E
C23	5F	C60	9F	Q8	4E	R21	2C	R57	7F	R93	9C
C24	5F	C61	9D	Q9	5F	R22	2C	R58	8F	R94	9C
C25	4F	C62	9E	Q10	6F	R23	3C	R59	8F	R95	9C
C26	4F	C63	8C	Q11	4D	R24	3B	R60	7F	R96	9B
C27	4E	C64	9C	Q12	4C	R25	3C	R61	8F	R97	9C
C28	4C	C65	9D	Q13	6E	R26	4F	R62	6F	R98	3C
C29	4C	C66	9C	Q14	6E	R27	4F	R63	6D	R99	3D
C30	3D	C67	9C	Q15	7F	R28	4G	R64	7D	R100	4D
C31	4C	C68	9E	Q16	8F	R29	6G	R65	6E	R101	6C
C32	4C	C69	9C	Q17	6E	R30	5F	R66	6E	R102	8C
C33	4C	C70	9B	Q18	6C	R31	5F	R67	6D	T1	2H
C34	4C	CR1	3G	Q19	9F	R32	5F	R68	6E	T2	5F
C35	4B	CR2	4F	Q20	9E	R33	5F	R69	6C	T3	8F
C36	6F	CR3	6F	Q21	9F	R34	6F	R70	6C	T4	10G
C37	6F	CR4	9F	Q22	10G						



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76	10F
77	6H
78	6H
79	8G
80	9G
81	10G
82	8H
83	9H
84	10H
85	6G
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90	2D
91	2C
92	2E
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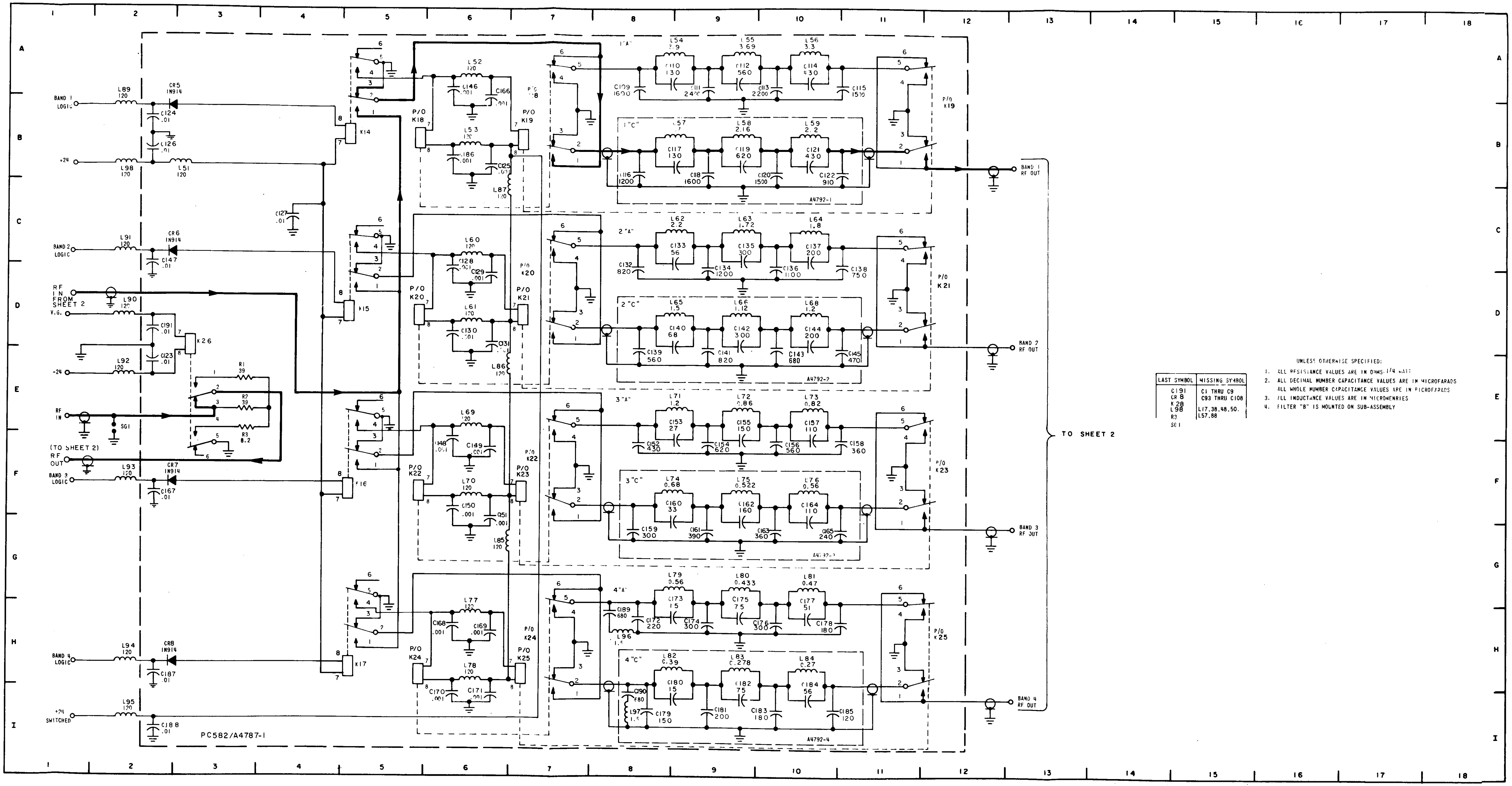

Figure 5-34. Schematic Wiring, Input Attenuator 1A11 (Sheet 1 of 2)

PART LOCATION INDEX

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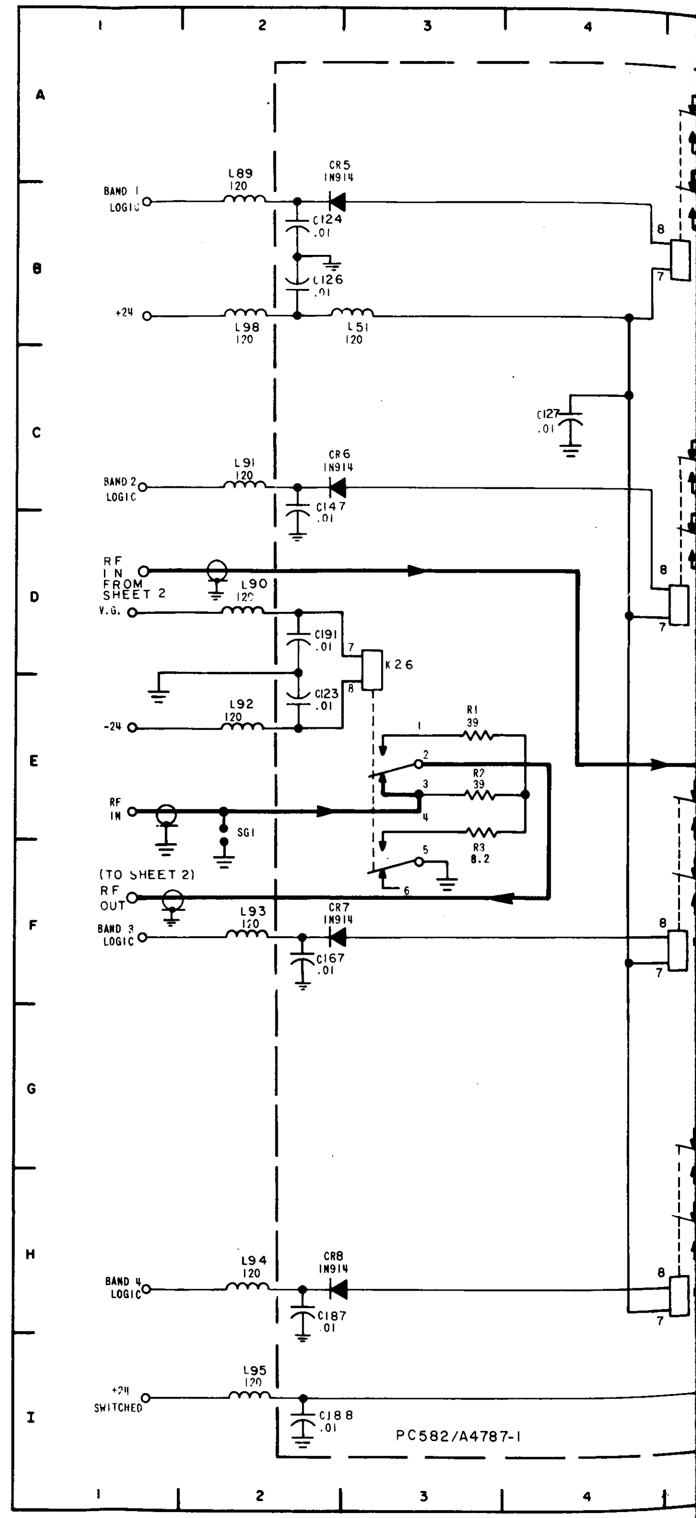
C10	26A	C48	24F	C86	24B	C139	8E	C176	10H	K14	5B	L24	26F	L65	8D
C11	27A	C49	24F	C87	20H	C140	9D	C177	10G	K15	5D	L25	27F	L66	9D
C12	27A	C50	24F	C88	20I	C141	9E	C178	10H	K16	5F	L26	28F	L67	10D
C13	28A	C51	24F	C89	26H	C142	9D	C179	8I	K17	5H	L27	24H	L68	6E
C14	28A	C52	26F	C90	26I	C143	10E	C180	9H	K18	5B	L28	24H	L69	6F
C15	29A	C53	26E	C91	-	C144	10D	C181	9I	K19	7B	L29	26G	L70	6F
C16	26B	C54	27F	C92	26A	C145	11E	C182	9H	K20	5D	L30	27G	L71	9E
C17	26B	C55	27E	C109	8A	C146	6A	C183	10I	K21	7D	L31	28G	L72	9E
C18	27B	C56	28F	C110	8A	C147	2C	C184	10H	K22	5F	L32	26H	L73	10E
C19	27B	C57	28E	C111	9A	C148	6F	C185	11I	K23	7F	L33	27H	L74	9F
C20	28B	C58	29F	C112	9A	C149	6F	C186	6B	K24	5H	L34	28H	L75	9F
C21	28B	C59	26G	C113	10A	C150	6F	C187	2I	K25	7H	L35	24G	L76	10F
C22	28B	C60	26F	C114	10A	C151	6F	C188	2I	K26	3D	L36	24E	L77	6H
C23	20E	C61	27G	C115	11A	C152	8F	C189	8H	K27	15E	L37	24C	L78	6H
C24	20B	C62	27F	C116	8B	C153	9E	C190	8I	K28	14G	L39	20A	L79	8G
C25	24B	C63	28G	C117	8B	C154	9F	C191	2D	L1	21B	L40	-	L80	9G
C26	20B	C64	28F	C118	9B	C155	9E	CR1	20A	L2	24A	L41	20C	L81	10G
C27	22C	C65	28G	C119	9B	C156	10F	CR2	20C	L3	24B	L42	20E	L82	8H
C28	24C	C66	24A	C120	10B	C157	10E	CR3	20F	L4	26A	L43	20F	L83	9H
C29	24D	C67	20F	C121	10B	C158	11F	CR4	20H	L5	27A	L44	20H	L84	10H
C30	24D	C68	24H	C122	10B	C159	8G	CR5	2B	L6	28A	L45	20I	L85	6G
C31	24D	C69	24H	C123	2E	C160	8F	CR6	2C	L7	26B	L46	26H	L86	6E
C32	26D	C70,	24I	C124	2B	C161	9G	CR7	2F	L8	27B	L47	26I	L87	6C
C33	26D	C71	24I	C125	6B	C162	9F	CR8	2H	L9	28B	L49	20B	L89	2A
C34	27D	C72	26H	C126	2B	C163	10G	K1	23B	L10	24C	L51	3B	L90	2D
C35	27C	C73	26G	C127	4C	C164	10F	K2	23D	L11	24D	L52	6A	L91	2C
C36	28D	C74	27H	C128	6C	C165	10G	K3	23F	L12	27C	L53	6B	L92	2E
C37	28C	C75	27G	C129	6D	C166	6A	K4	23H	L13	27C	L54	9A	L93	2F
C38	28D	C76	28H	C130	6D	C167	2F	K5	23B	L14	28C	L55	9A	L94	2H
C39	26E	C77	28G	C131	6D	C168	6H	K6	25B	L15	27D	L56	10A	L95	2I
C40	26D	C78	28G	C132	8C	C169	6H	K7	23D	L16	27D	L58	9B	L96	8H
C41	27E	C79	26I	C133	8C	C170	6I	K8	25D	L18	28D	L59	10B	L97	8I
C42	27D	C80	26H	C134	9C	C171	6I	K9	23F	L19	24E	L60	6C	L98	2B
C43	28E	C81	27I	C135	9C	C172	8H	K10	25F	L20	24F	L61	6D	R1	3E
C44	28D	C82	27H	C136	10C	C173	9G	K11	23H	L21	26E	L62	8C	R2	3E
C45	28E	C83	28I	C137	10C	C174	9H	K12	25H	L22	27E	L63	9C	R3	3F
C46	24F	C84	28H	C138	10C	C175	9G	K13	21D	L23	28E	L64	10C	SG1	2E
C47	20C	C85	28I												



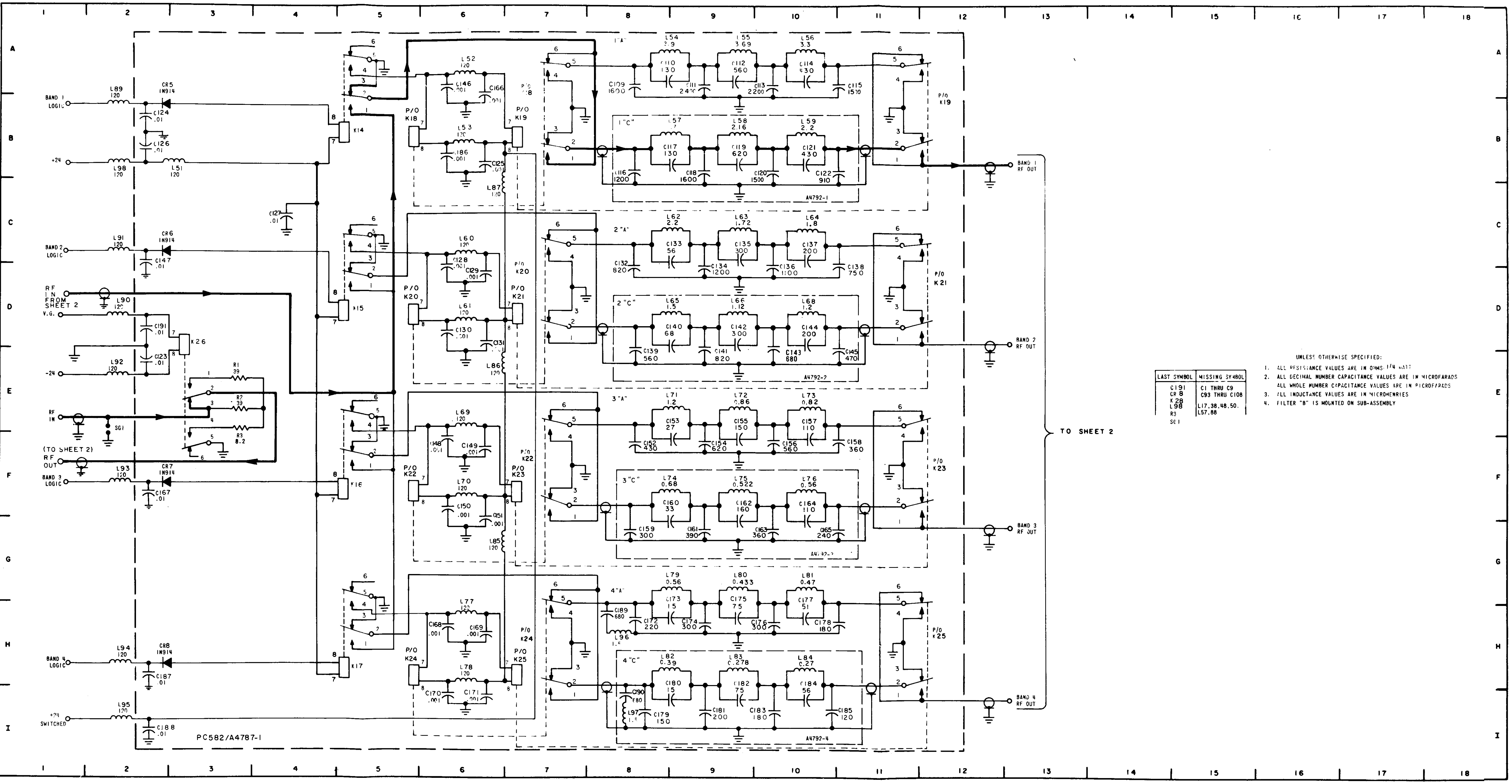
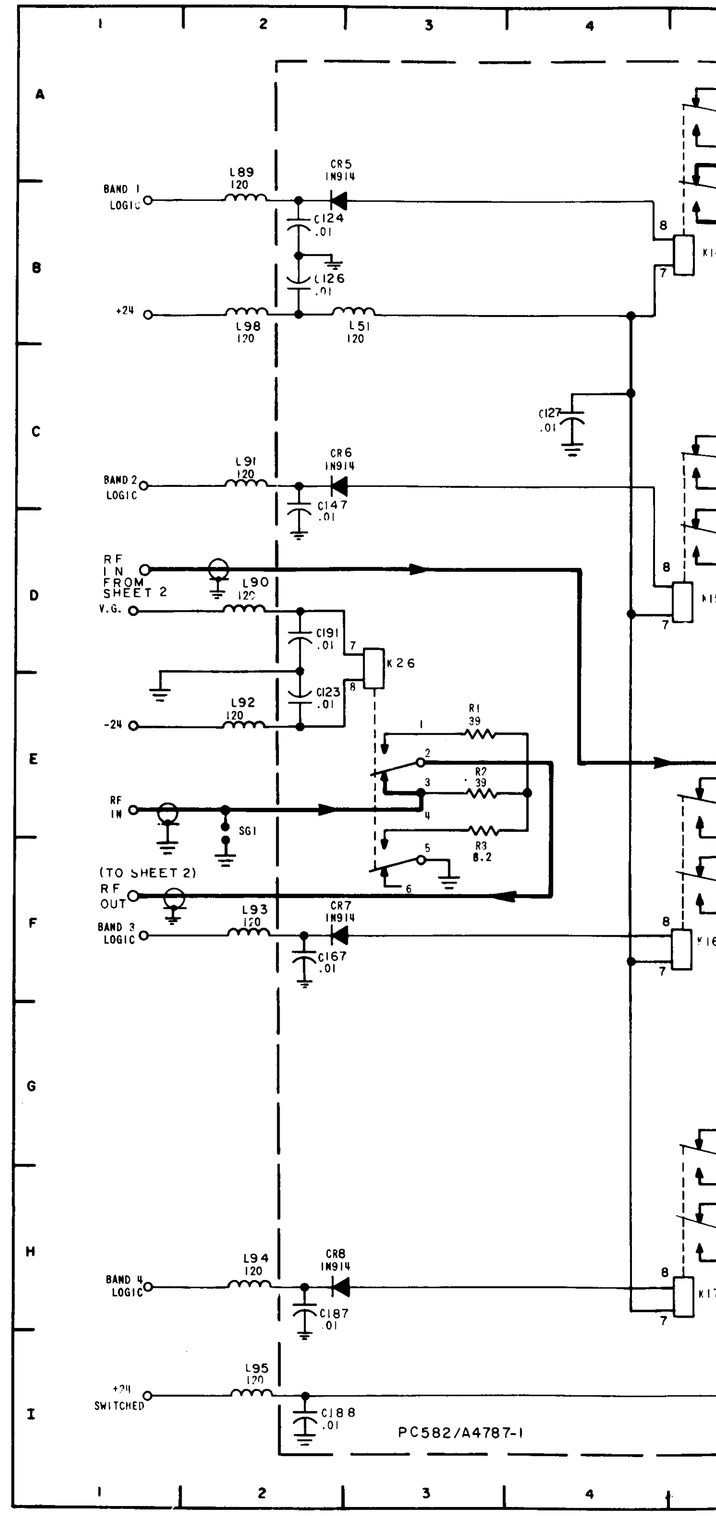


Figure 5-34. Schematic Wiring, Input Attenuator 1A11 (Sheet 1 of 2)

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C10	26A	C48	24F	C86	24B	C139	8E	C176	10H	K14	5B	L24	26F	L65	8D
C11	27A	C49	24F	C87	20H	C140	9D	C177	10G	K15	5D	L25	27F	L66	9D
C12	27A	C50	24F	C88	20I	C141	9E	C178	10H	K16	5F	L26	28F	L67	10D
C13	28A	C51	24F	C89	26H	C142	9D	C179	8I	K17	5H	L27	24H	L68	6E
C14	28A	C52	26F	C90	26I	C143	10E	C180	9H	K18	5B	L28	24H	L69	6F
C15	29A	C53	26E	C91	-	C144	10D	C181	9I	K19	7B	L29	26G	L70	6F
C16	26B	C54	27F	C92	26A	C145	11E	C182	9H	K20	5D	L30	27G	L71	9E
C17	26B	C55	27E	C109	8A	C146	6A	C183	10I	K21	7D	L31	28G	L72	9E
C18	27B	C56	28F	C110	8A	C147	2C	C184	10H	K22	5F	L32	26H	L73	10E
C19	27B	C57	28E	C111	9A	C148	6F	C185	11I	K23	7F	L33	27H	L74	9F
C20	28B	C58	29F	C112	9A	C149	6F	C186	6B	K24	5H	L34	28H	L75	9F
C21	28B	C59	26G	C113	10A	C150	6F	C187	2I	K25	7H	L35	24G	L76	10F
C22	28B	C60	26F	C114	10A	C151	6F	C188	2I	K26	3D	L36	24E	L77	6H
C23	20E	C61	27G	C115	11A	C152	8F	C189	8H	K27	15E	L37	24C	L78	6H
C24	20B	C62	27F	C116	8B	C153	9E	C190	8I	K28	14G	L39	20A	L79	8G
C25	24B	C63	28G	C117	8B	C154	9F	C191	2D	L1	21B	L40	-	L80	9G
C26	20B	C64	28F	C118	9B	C155	9E	CR1	20A	L2	24A	L41	20C	L81	10G
C27	22C	C65	28G	C119	9B	C156	10F	CR2	20C	L3	24B	L42	20E	L82	8H
C28	24C	C66	24A	C120	10B	C157	10E	CR3	20F	L4	26A	L43	20F	L83	9H
C29	24D	C67	20F	C121	10B	C158	11F	CR4	20H	L5	27A	L44	20H	L84	10H
C30	24D	C68	24H	C122	10B	C159	8G	CR5	2B	L6	28A	L45	20I	L85	6G
C31	24D	C69	24H	C123	2E	C160	8F	CR6	2C	L7	26B	L46	26H	L86	6E
C32	26D	C70	24I	C124	2B	C161	9G	CR7	2F	L8	27B	L47	26I	L87	6C
C33	26D	C71	24I	C125	6B	C162	9F	CR8	2H	L9	28B	L49	20B	L89	2A
C34	27D	C72	26H	C126	2B	C163	10G	K1	23B	L10	24C	L51	3B	L90	2D
C35	27C	C73	26G	C127	4C	C164	10F	K2	23D	L11	24D	L52	6A	L91	2C
C36	28D	C74	27H	C128	6C	C165	10G	K3	23F	L12	27C	L53	6B	L92	2E
C37	28C	C75	27G	C129	6D	C166	6A	K4	23H	L13	27C	L54	9A	L93	2F
C38	28D	C76	28H	C130	6D	C167	2F	K5	23B	L14	28C	L55	9A	L94	2H
C39	26E	C77	28G	C131	6D	C168	6H	K6	25B	L15	27D	L56	10A	L95	2I
C40	26D	C78	28G	C132	8C	C169	6H	K7	23D	L16	27D	L58	9B	L96	8H
C41	27E	C79	26I	C133	8C	C170	6I	K8	25D	L18	28D	L59	10B	L97	8I
C42	27D	C80	26H	C134	9C	C171	6I	K9	23F	L19	24E	L60	6C	L98	2B
C43	28E	C81	27I	C135	9C	C172	8H	K10	25F	L20	24F	L61	6D	R1	3E
C44	28D	C82	27H	C136	10C	C173	9G	K11	23H	L21	26E	L62	8C	R2	3E
C45	28E	C83	28I	C137	10C	C174	9H	K12	25H	L22	27E	L63	9C	R3	3F
C46	24F	C84	28H	C138	10C	C175	9G	K13	21D	L23	28E	L64	10C	SG1	2E
C47	20C	C85	28I												



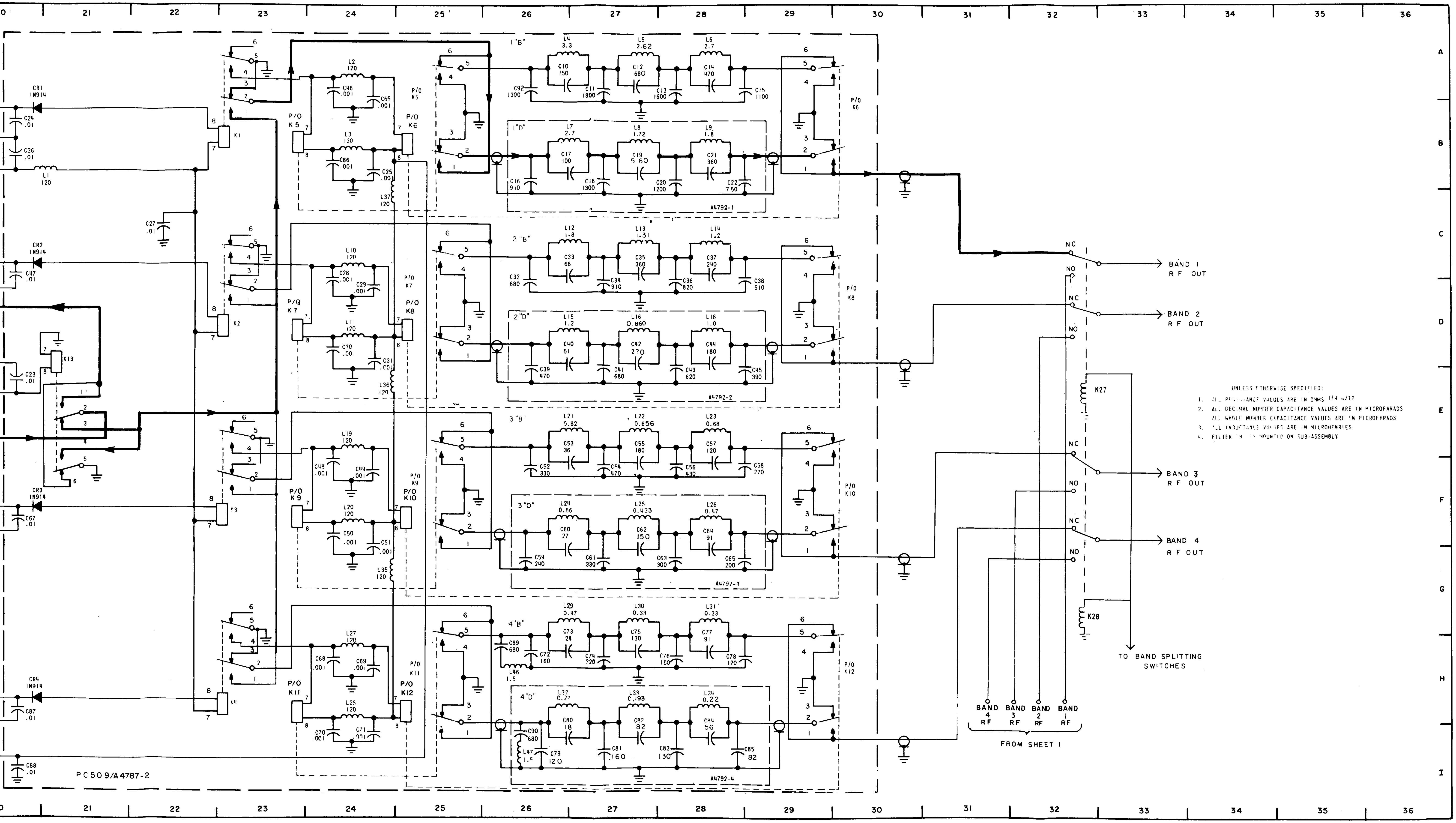
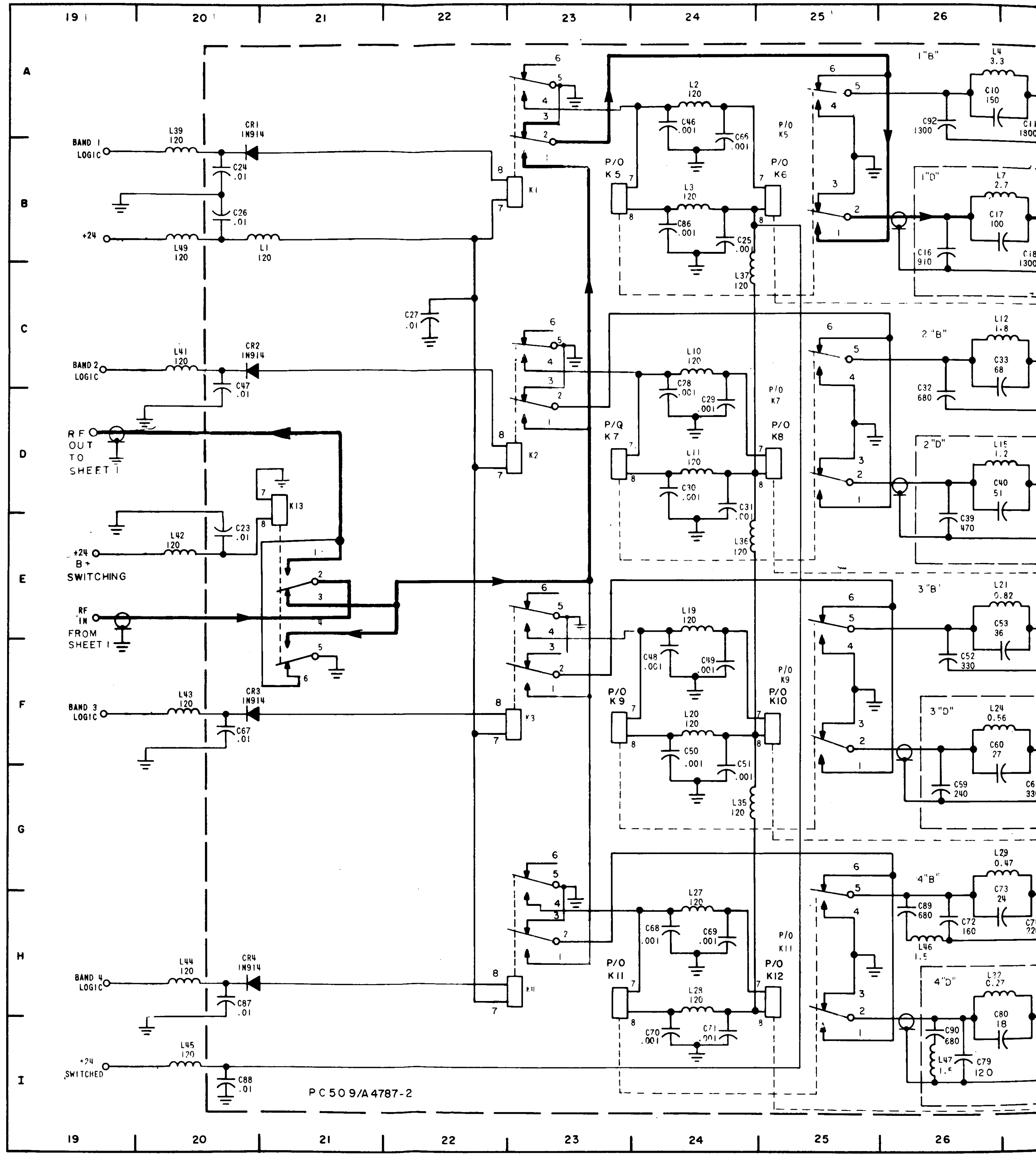
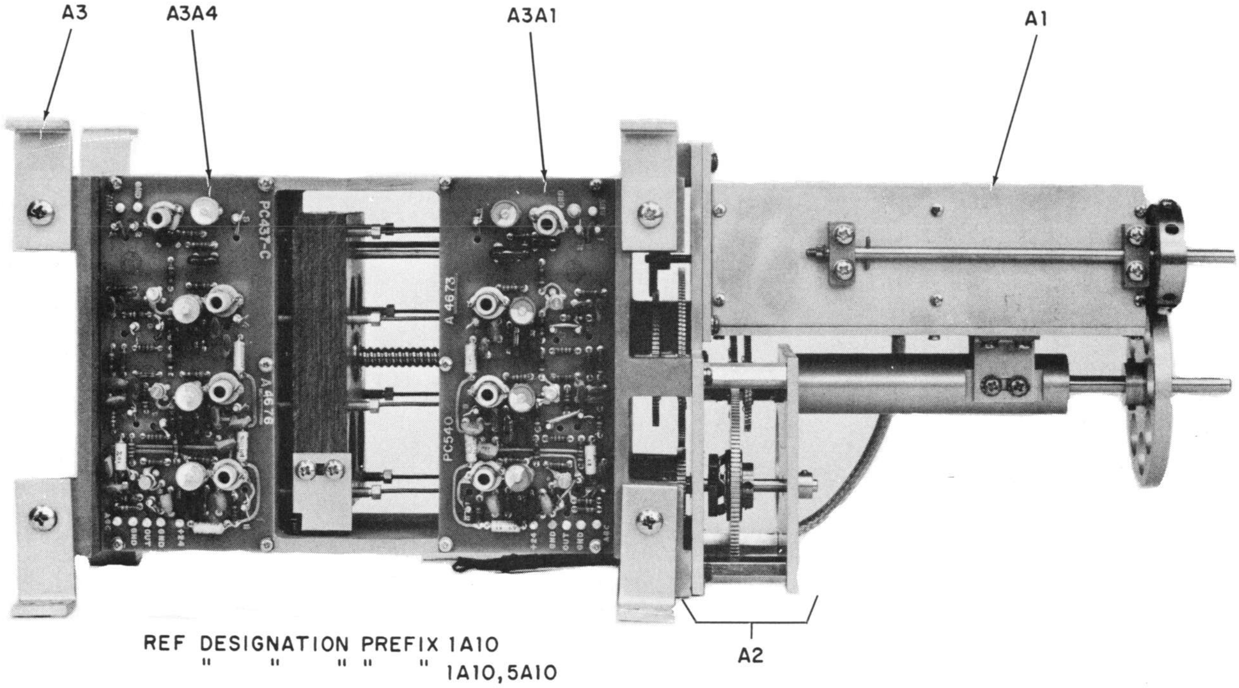


Figure 5-34. Schematic Wiring, Input Attenuator 1A11 (Sheet 2 of 2)

NAVELEX 0967-385-0020





TOP VIEW

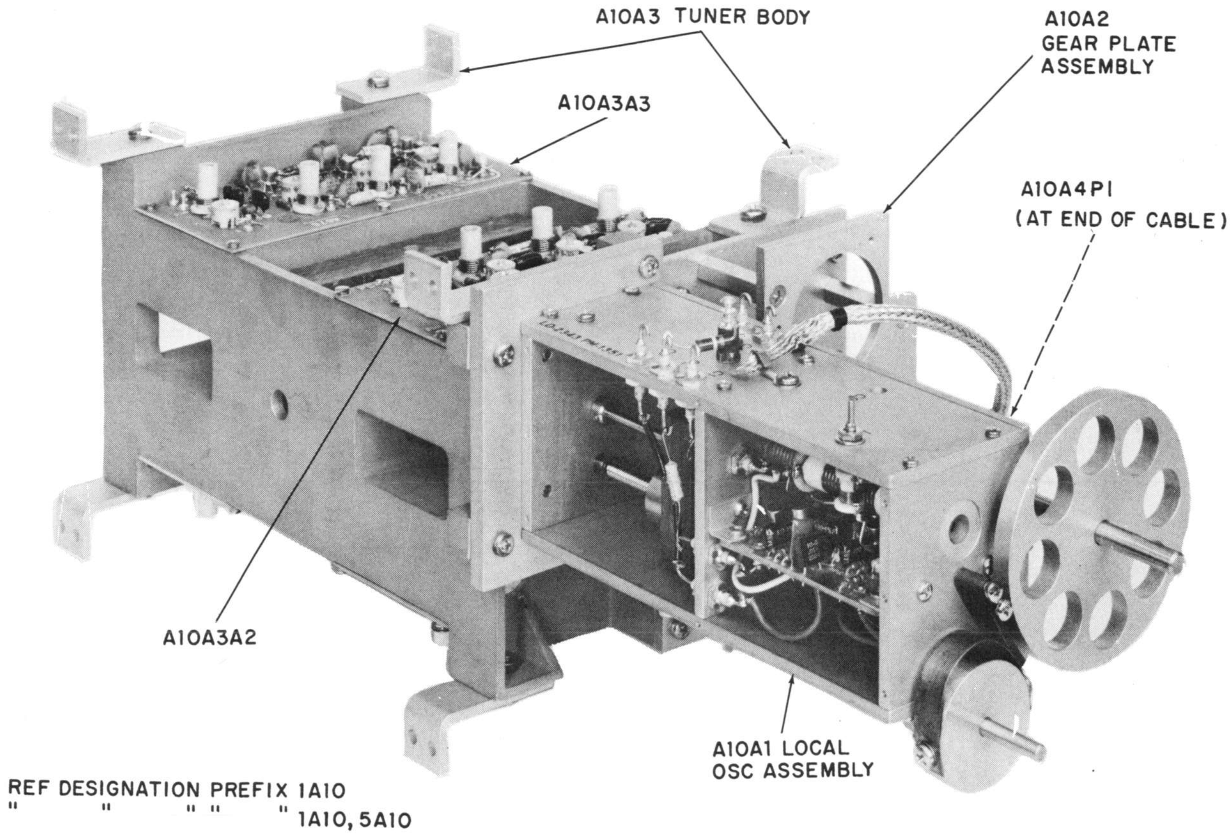
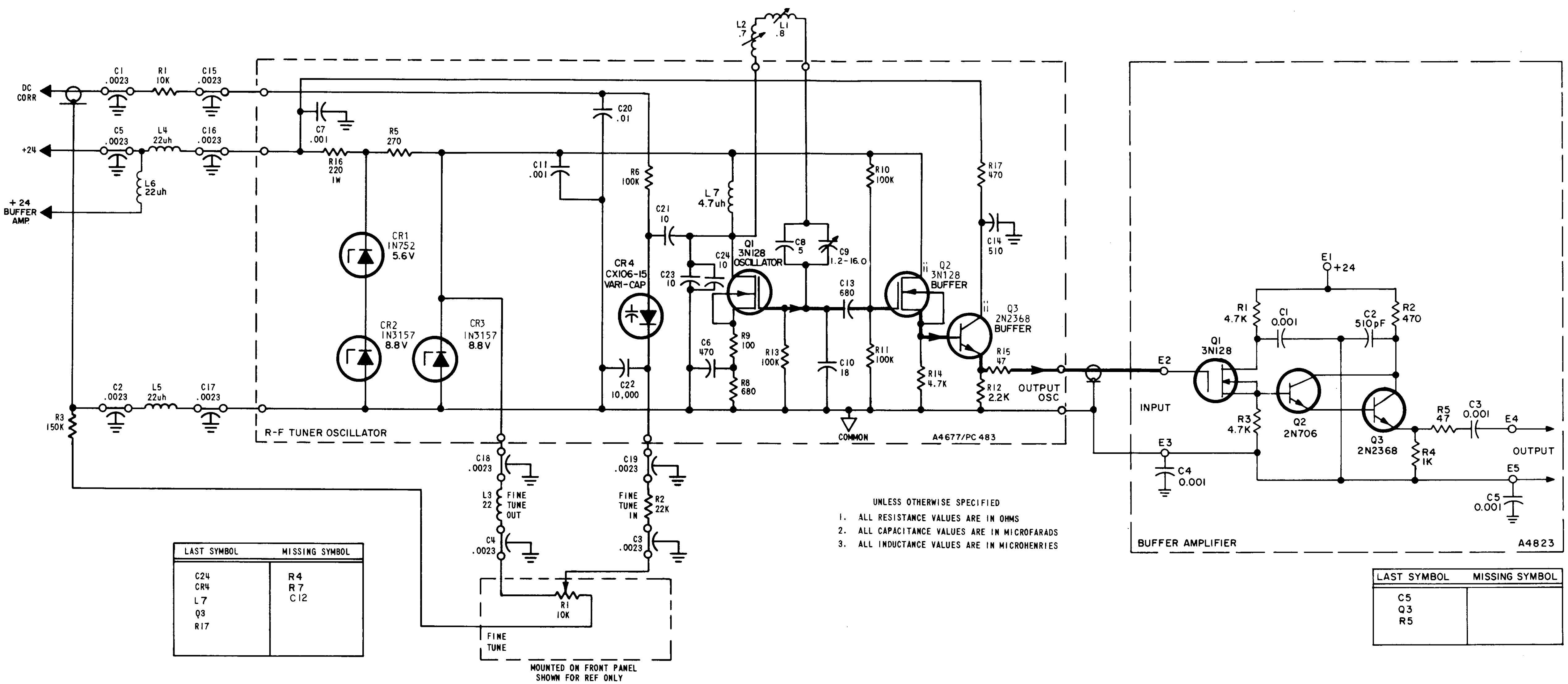


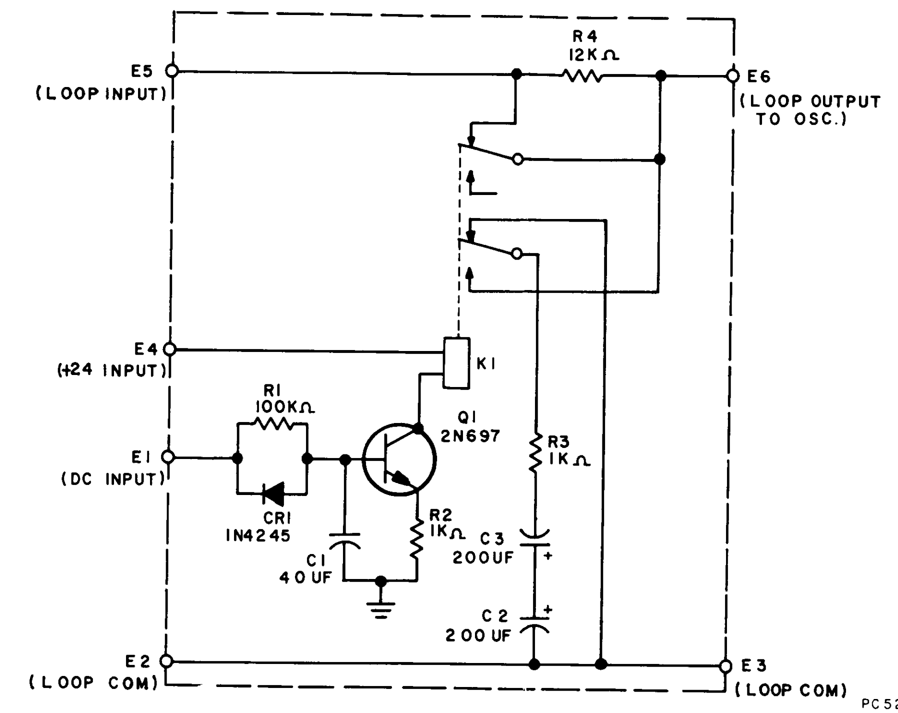
Figure 5-35. Major Component Locations, Tuner Assembly 1A10



LAST SYMBOL	MISSING SYMBOL
C24	R4
CR4	R7
L7	C12
Q3	
R17	

LAST SYMBOL	MISSING SYMBOL
C5	
Q3	
R5	

Figure 5-35A. Schematic Wiring, H. F. Oscillator 1A10A1



LAST SYMBOL	MISSING SYMBOL
C3 CR1 E6 K1 Q1 R4	

Figure 5-36. Schematic Wiring, A-C Filter
1A13

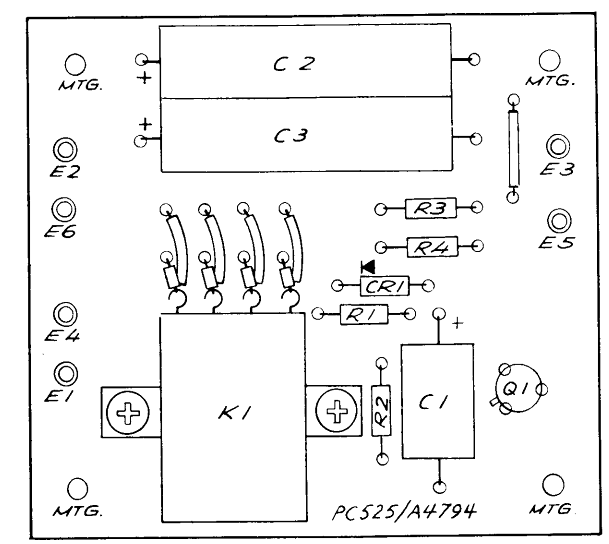
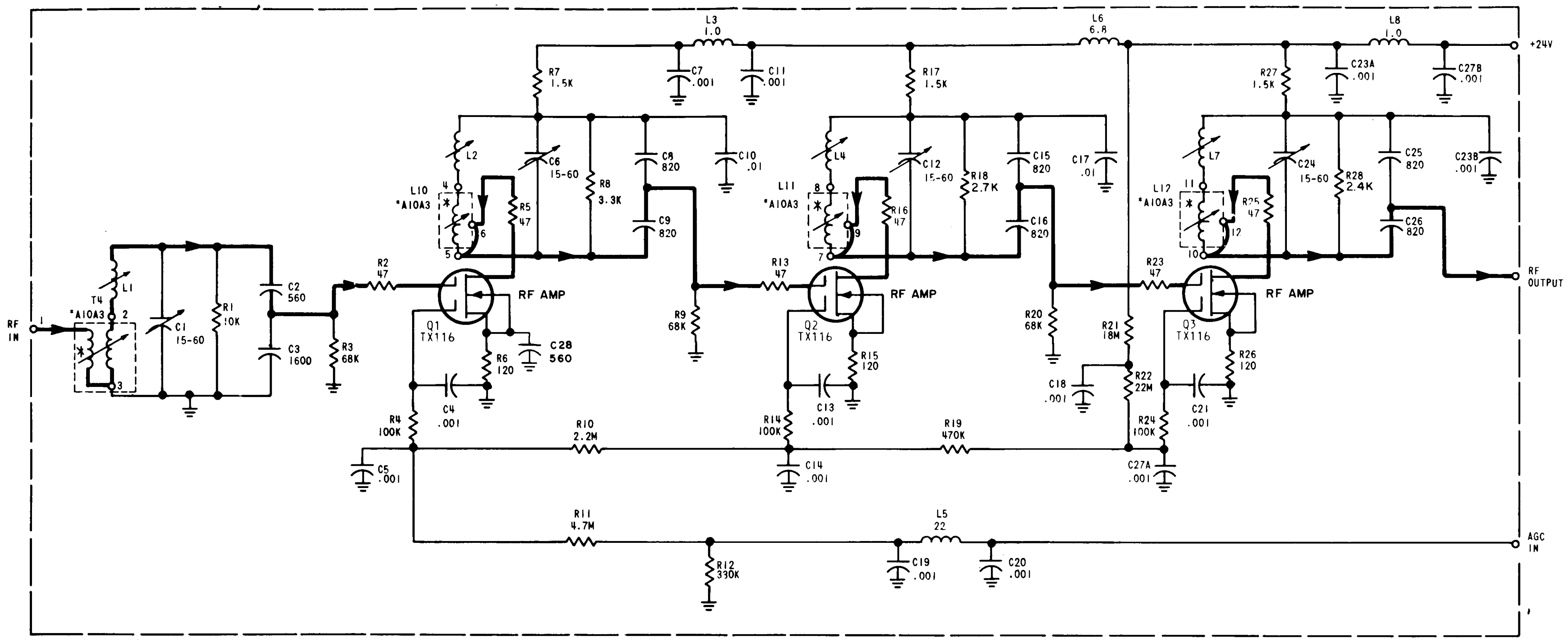


Figure 5-37. Component Locations,
A-C Filter 1A13



UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4 WATT.
2. ALL DECIMAL NUMBER CAPACITANCE VALUES ARE IN MICROFARADS
   ALL WHOLE NUMBER CAPACITANCE VALUES ARE IN PICOFARADS.
3. ALL INDUCTANCE VALUES ARE IN MICROHENRIES.
4. * ITEMS A10A3 ARE NOT MOUNTED ON PRINTED CIRCUIT BOARD

LAST SYMBOL	MISSING SYMBOL
C28	C22
L8	
R28	
Q3	

Figure 5-38. Schematic Wiring, RF Amplifier, Band 1

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C1	3E	L7	6F
C2	3E	L8	7E
C3	3E	Q1	4E
C4	4D	Q2	5E
C5	4D	Q3	6D
C6	4E	R1	3E
C7	4E	R2	3E
C8	4E	R3	3E
C9	4E	R4	4D
C10	4E	R5	4E
C11	5F	R6	4D
C12	5E	R7	4E
C13	5D	R8	4E
C14	5D	R9	4D
C15	5E	R10	4D
C16	5E	R11	4D
C17	5E	R12	5D
C18	6E	R13	4E
C19	5D	R14	5D
C20	6D	R15	5D
C21	6D	R16	5E
C23	6E	R17	5E
C24	6E	R18	5E
C25	6E	R19	6D
C26	6E	R20	6D
C27	6E	R21	6F
C28	3D	R22	6D
L1	3E	R23	6E
L2	4F	R24	6D
L3	4F	R25	6E
L4	5F	R26	6D
L5	6D	R27	6E
L6	6F	R28	6E

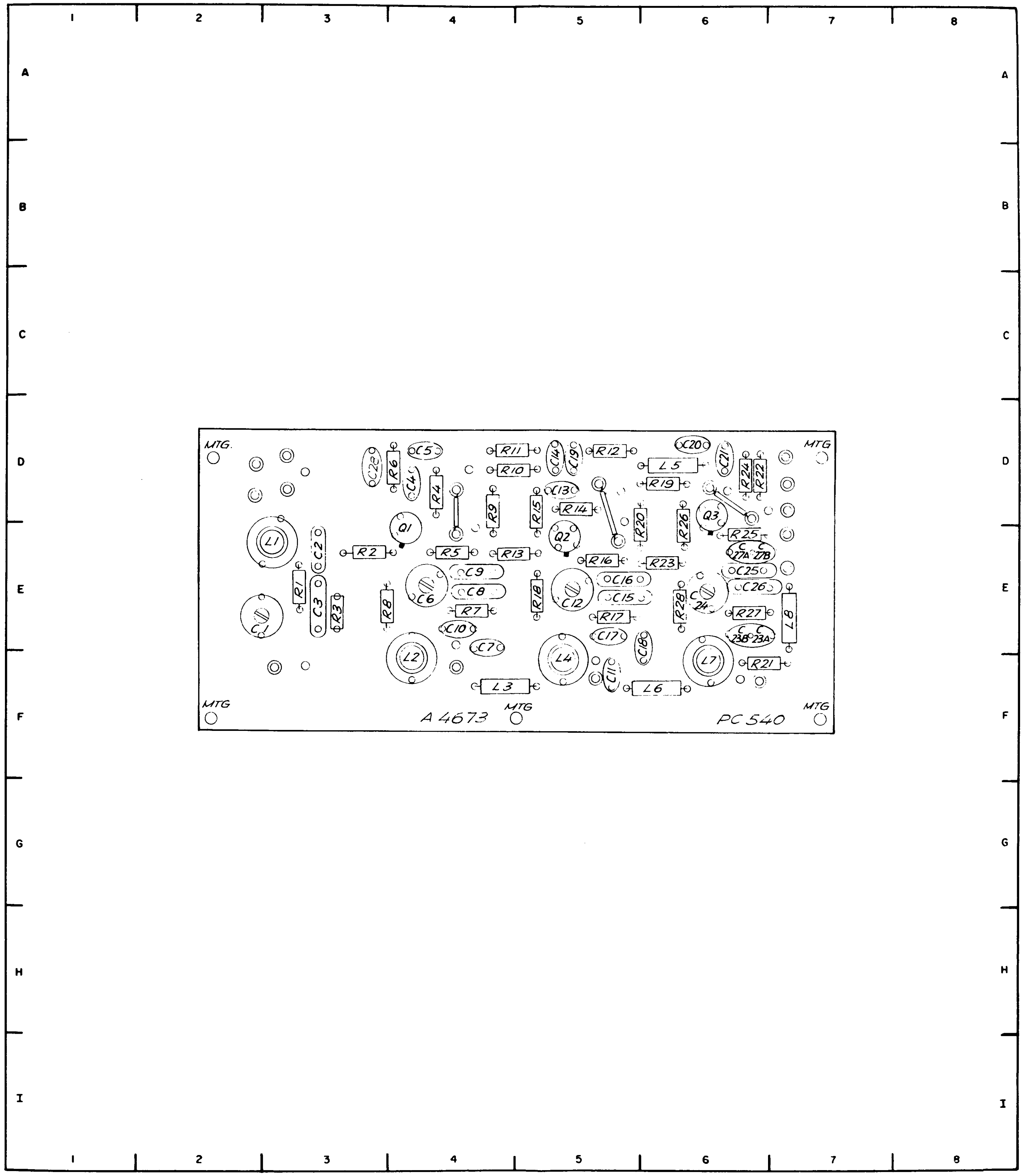
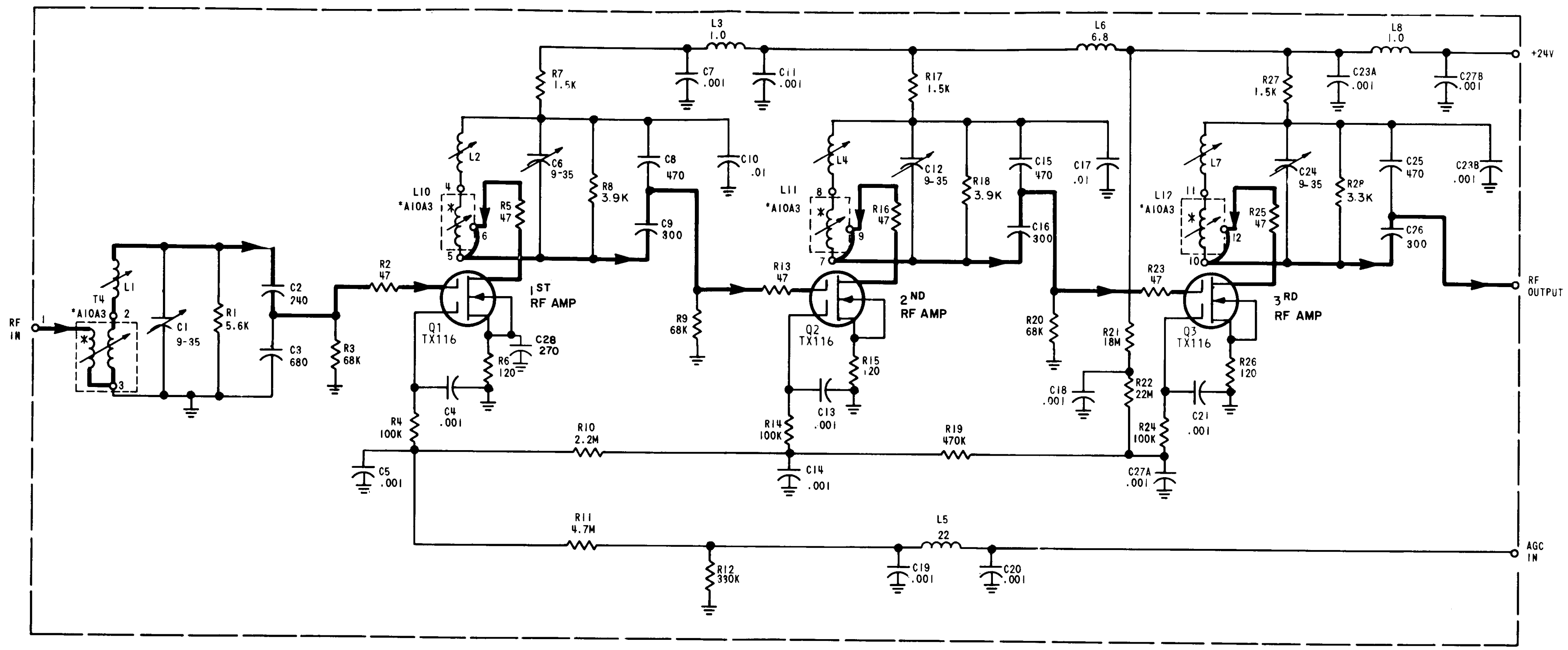


Figure 5-39. Component Locations, RF Amplifier Band 1



UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4 WATT.
2. ALL DECIMAL NUMBER CAPACITANCE VALUES ARE IN MICROFARADS
   ALL WHOLE NUMBER CAPACITANCE VALUES ARE IN PICOFARADS.
3. ALL INDUCTANCE VALUES ARE IN MICROHENRIES.
4. * ITEMS A10A3 ARE NOT MOUNTED ON PRINTED CIRCUIT BOARD

LAST SYMBOL	MISSING SYMBOL
C28	C22
L8	
R28	
Q3	

Figure 5-40. Schematic Wiring, RF Amplifier Band 2

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C1	7E	L7	3F
C2	6E	L8	2E
C3	6E	Q1	5E
C4	5D	Q2	4E
C5	5D	Q3	3D
C6	5E	R1	6E
C7	5F	R2	6E
C8	5E	R3	6E
C9	5E	R4	5D
C10	5E	R5	5E
C11	4F	R6	5D
C12	4E	R7	5E
C13	4D	R8	6E
C14	4D	R9	5D
C15	4E	R10	5D
C16	4E	R11	5D
C17	4E	R12	4D
C18	4E	R13	5E
C19	4D	R14	4D
C20	3D	R15	4D
C21	3D	R16	4E
C23	3E	R17	4E
C24	3E	R18	4E
C25	3E	R19	3D
C26	3E	R20	4E
C27	3E	R21	3F
C28	6D	R22	3D
L1	6E	R23	3E
L2	5F	R24	3D
L3	5F	R25	3E
L4	4F	R26	3E
L5	3D	R27	3E
L6	3F	R28	3E

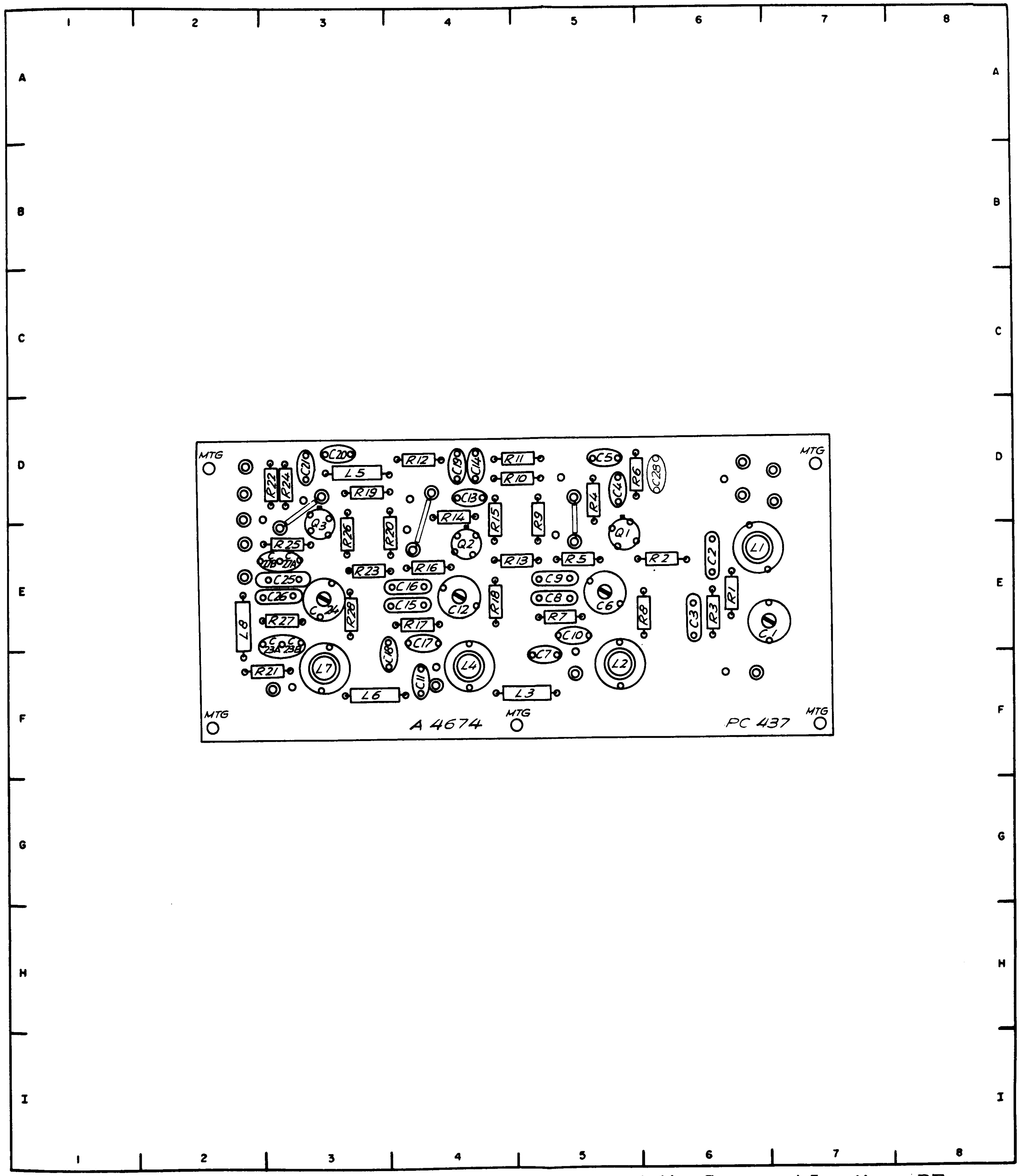
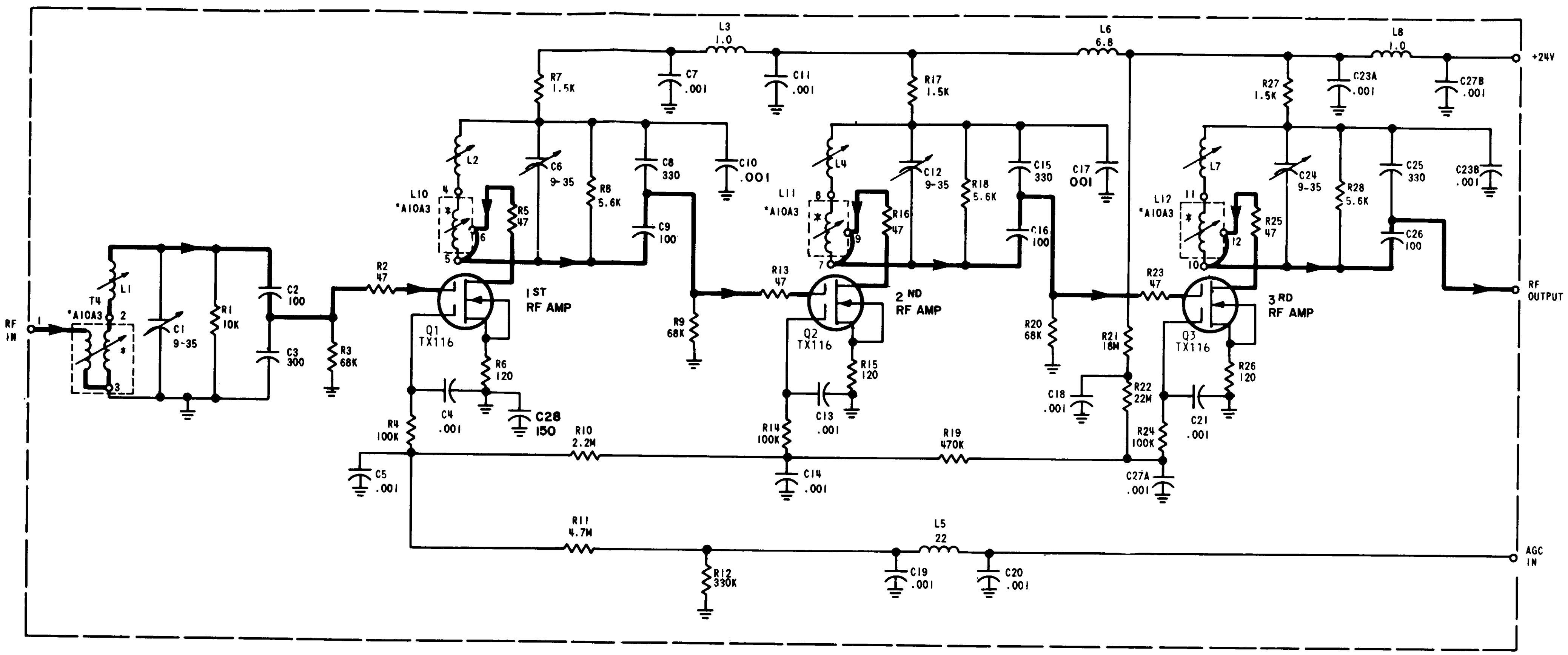


Figure 5-41. Component Locations, RF Amplifier Band 2



UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4 WATT.
2. ALL DECIMAL NUMBER CAPACITANCE VALUES ARE IN MICROFARADS
   ALL WHOLE NUMBER CAPACITANCE VALUES ARE IN PICOFARADS.
3. ALL INDUCTANCE VALUES ARE IN MICROHENRIES.
4. * ITEMS A10A3 ARE NOT MOUNTED ON PRINTED CIRCUIT BOARD

LAST SYMBOL	MISSING SYMBOL
C28	C22
L8	
R28	
Q3	

Figure 5-42. Schematic Wiring, RF Amplifier Band 3

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C1	2E	L7	6F
C2	3E	L8	7E
C3	3E	Q1	4E
C4	4D	Q2	5E
C5	4D	Q3	6D
C6	4E	R1	3E
C7	4E	R2	3E
C8	4E	R3	3E
C9	4E	R4	4D
C10	4E	R5	4E
C11	5F	R6	3D
C12	5E	R7	4E
C13	5D	R8	3E
C14	5D	R9	4D
C15	5E	R10	4D
C16	5E	R11	4D
C17	5E	R12	5D
C18	5E	R13	4E
C19	5D	R14	5D
C20	6D	R15	5D
C21	6D	R16	5E
C23	6E	R17	5E
C24	6E	R18	5E
C25	6E	R19	6D
C26	6E	R20	5E
C27	6E	R21	6F
C28	3D	R22	6D
L1	3E	R23	6E
L2	4F	R24	6D
L3	4F	R25	6E
L4	5F	R26	6D
L5	6D	R27	6E
L6	6F	R28	6E

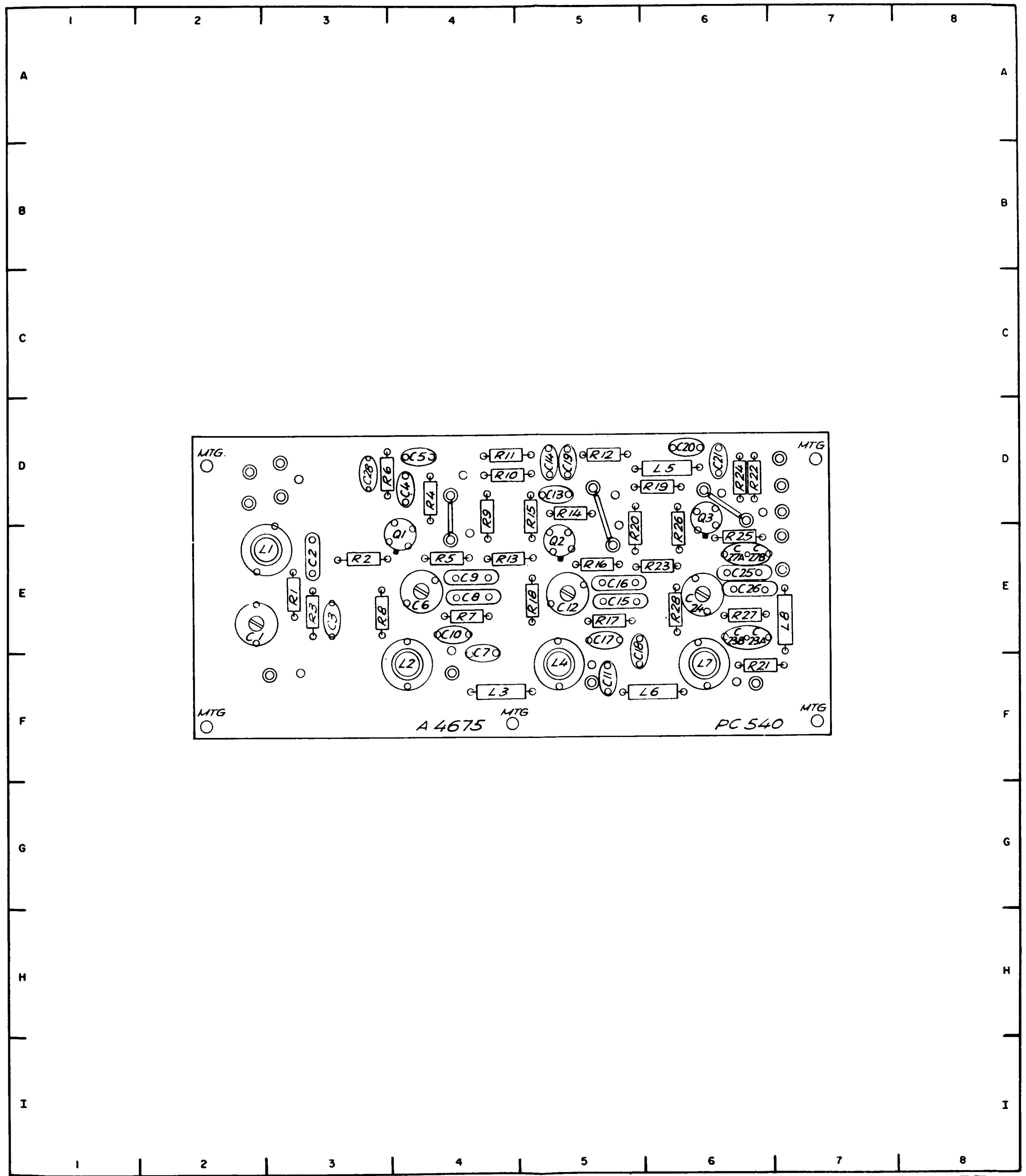
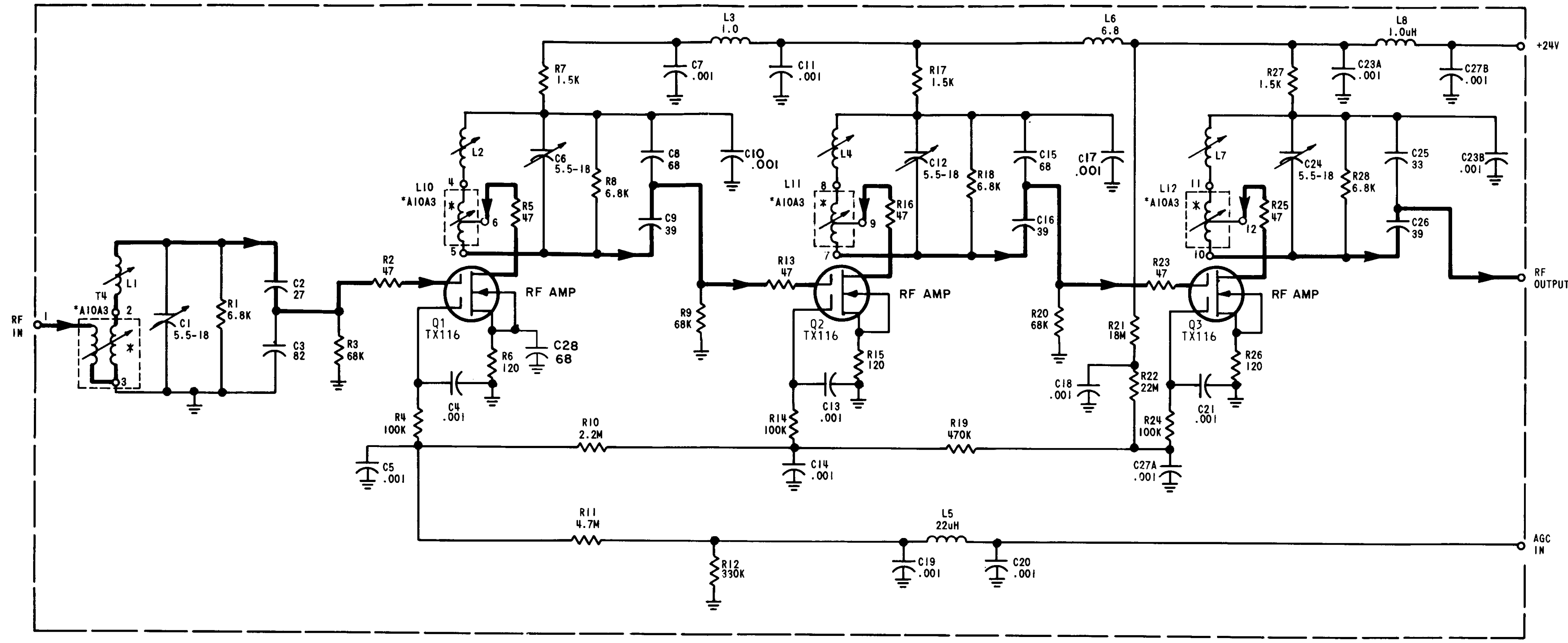


Figure 5-43. Component Locations, RF Amplifier Band 3



PC437/A4676

UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4 WATT.
2. ALL DECIMAL NUMBER CAPACITANCE VALUES ARE IN MICROFARADS
   ALL WHOLE NUMBER CAPACITANCE VALUES ARE IN PICOFARADS.
3. ALL INDUCTANCE VALUES ARE IN MICROHENRIES.
4. * ITEMS A10A3 ARE NOT MOUNTED ON PRINTED CIRCUIT BOARD

LAST SYMBOL	MISSING SYMBOL
C28	C22
L8	
R28	
Q3	

Figure 5-44. Schematic Wiring, RF Amplifier Band 4

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C1	6E	L7	3F
C2	6E	L8	2E
C3	6E	Q1	5E
C4	5D	Q2	4E
C5	5D	Q3	3D
C6	5E	R1	6E
C7	5E	R2	6E
C8	5E	R3	6E
C9	5E	R4	5D
C10	5E	R5	5E
C11	4F	R6	5D
C12	4E	R7	5E
C13	4D	R8	6E
C14	4D	R9	5D
C15	4E	R10	5D
C16	4E	R11	5D
C17	4E	R12	4D
C18	3E	R13	4E
C19	4D	R14	4D
C20	3D	R15	4D
C21	3D	R16	4E
C23	3E	R17	4E
C24	3E	R18	4E
C25	3E	R19	3D
C26	3E	R20	4E
C27	3E	R21	3F
C28	6D	R22	3D
L1	6E	R23	3E
L2	5F	R24	3D
L3	5F	R25	3E
L4	4F	R26	3D
L5	3D	R27	3E
L6	3F	R28	3E

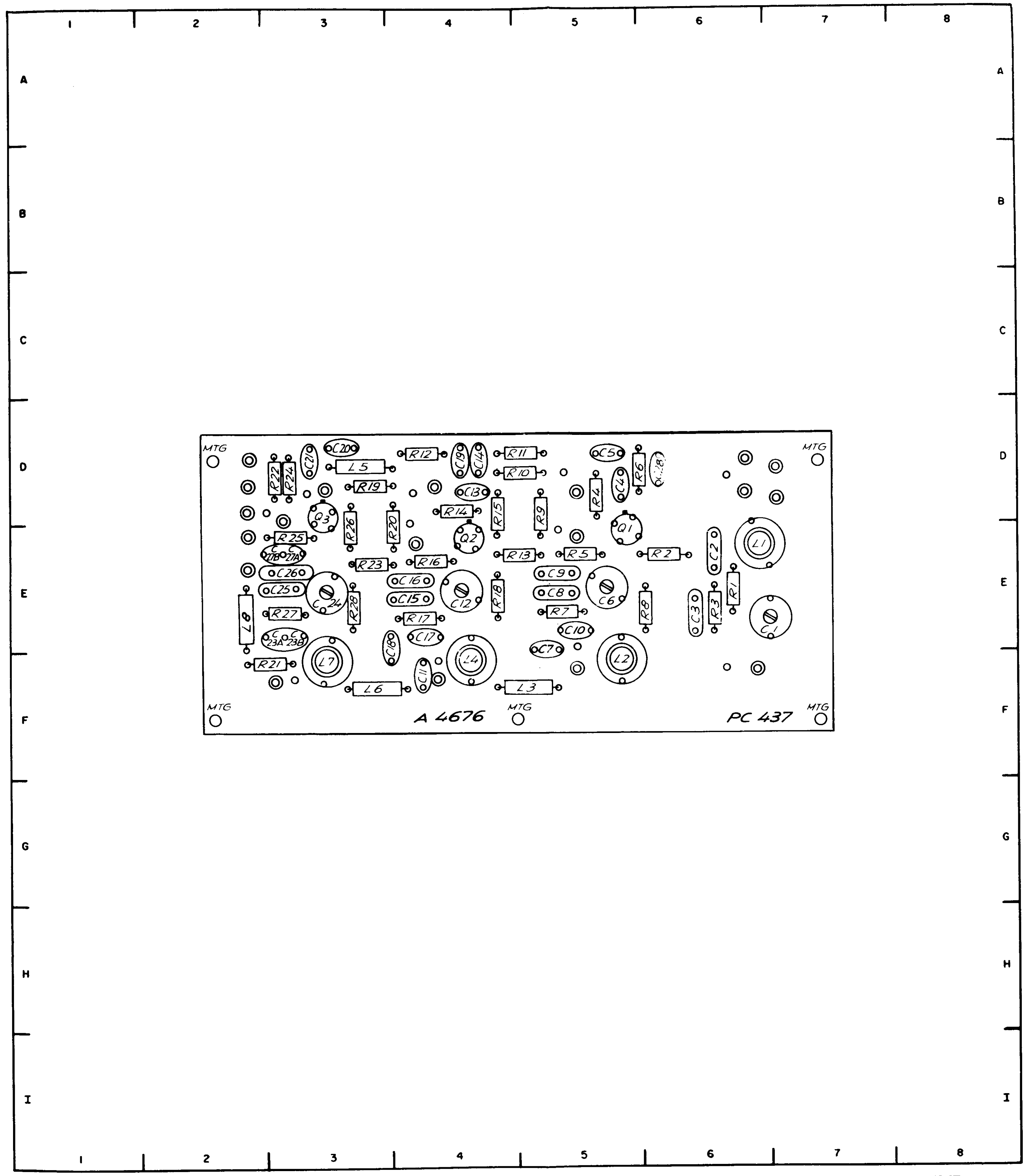


Figure 5-45. Component Locations, RF Amplifier Band 4

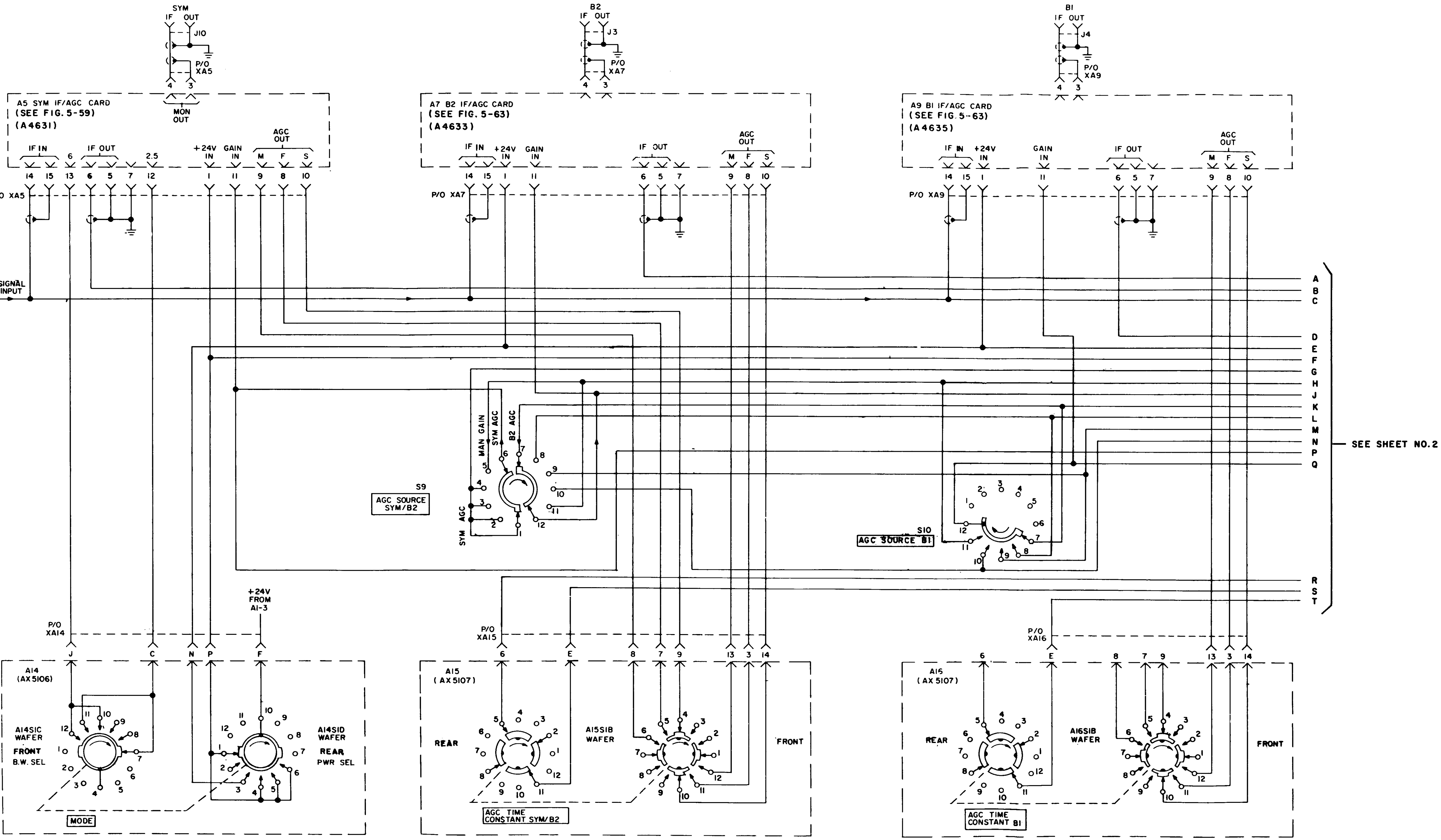
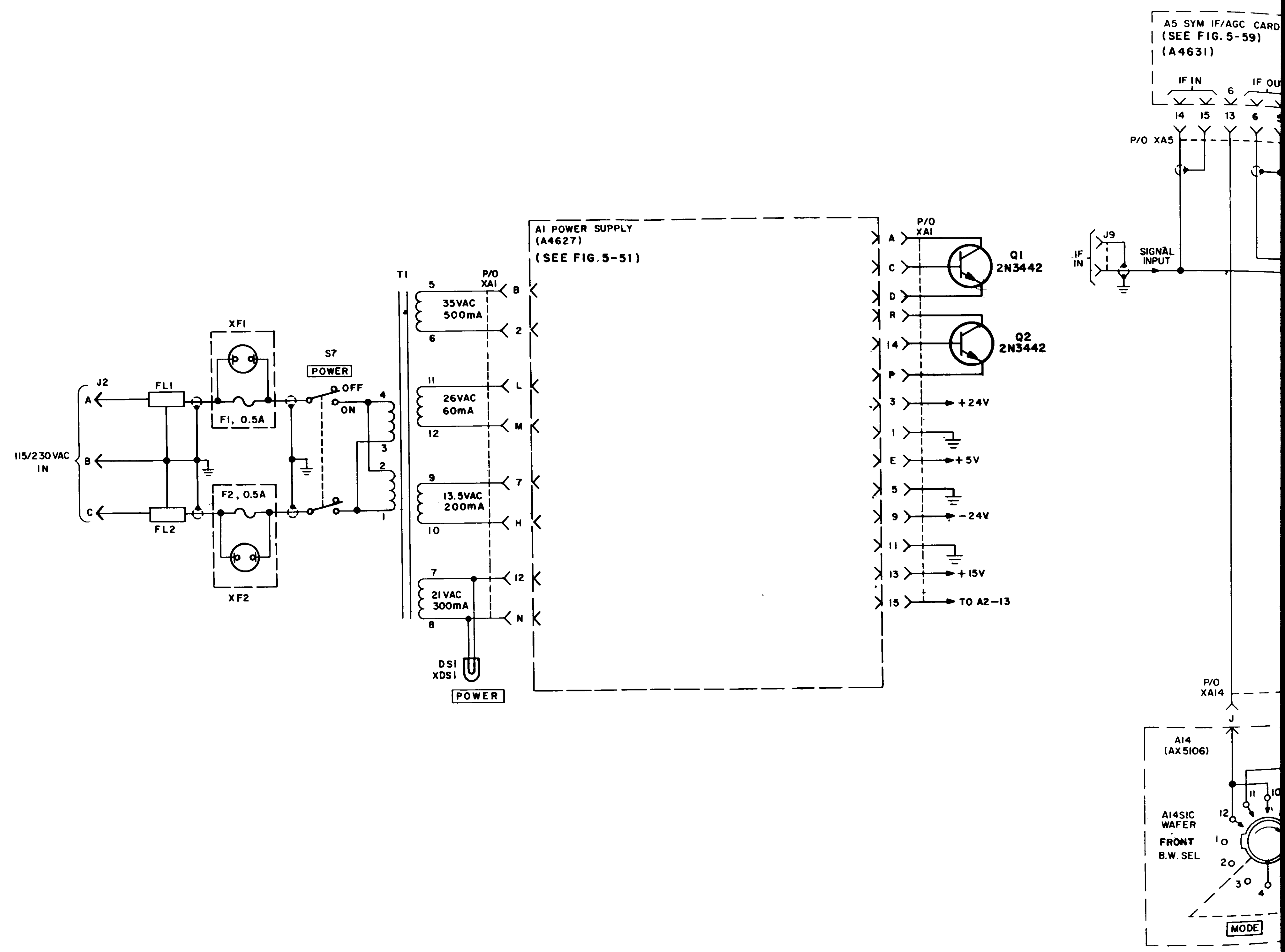


Figure 5-46. Schematic Wiring, Unit 2 (TD-915/URR) (Sheet 1 of 3).


A5 SYM IF/AGC CARD
(SEE FIG. 5-59)
(A4631)
IF IN
IF OU
P/O XA5
J9
IF IN
SIGNAL INPUT
A1 POWER SUPPLY
(A4627)
(SEE FIG. 5-51)
P/O XA1
Q1 2N3442
Q2 2N3442
+24V
+5V
-24V
+15V
TO A2-13
T1
35VAC 500mA
26VAC 60mA
13.5VAC 200mA
21VAC 300mA
DS1
XDS1
POWER
S7
POWER
OFF
ON
XF1
F1, 0.5A
F2, 0.5A
XF2
J2
FL1
FL2
115/230VAC IN
P/O XA14
A14
(AX5106)
A14S1C WAFER
FRONT
B.W. SEL
MODE

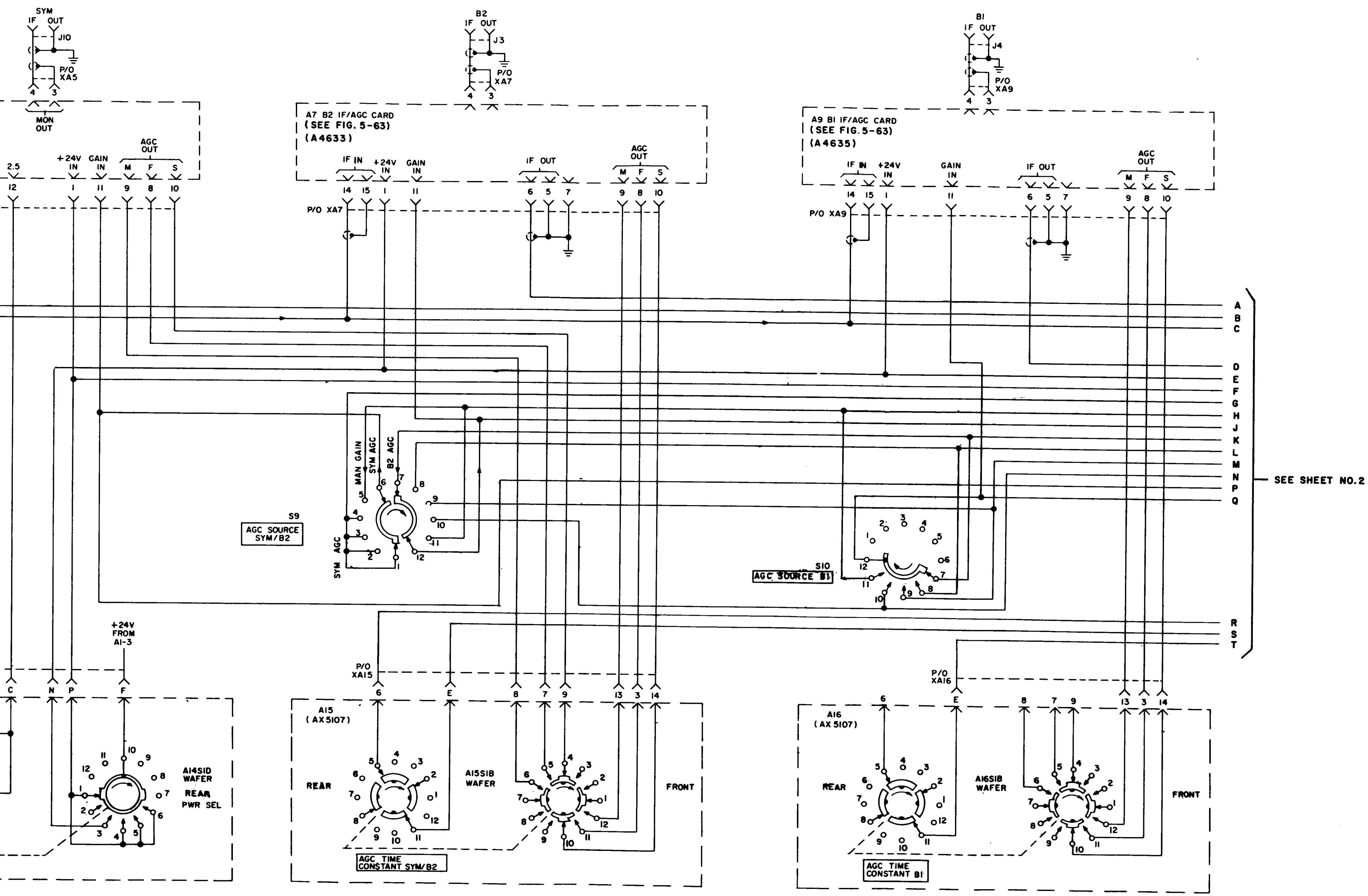
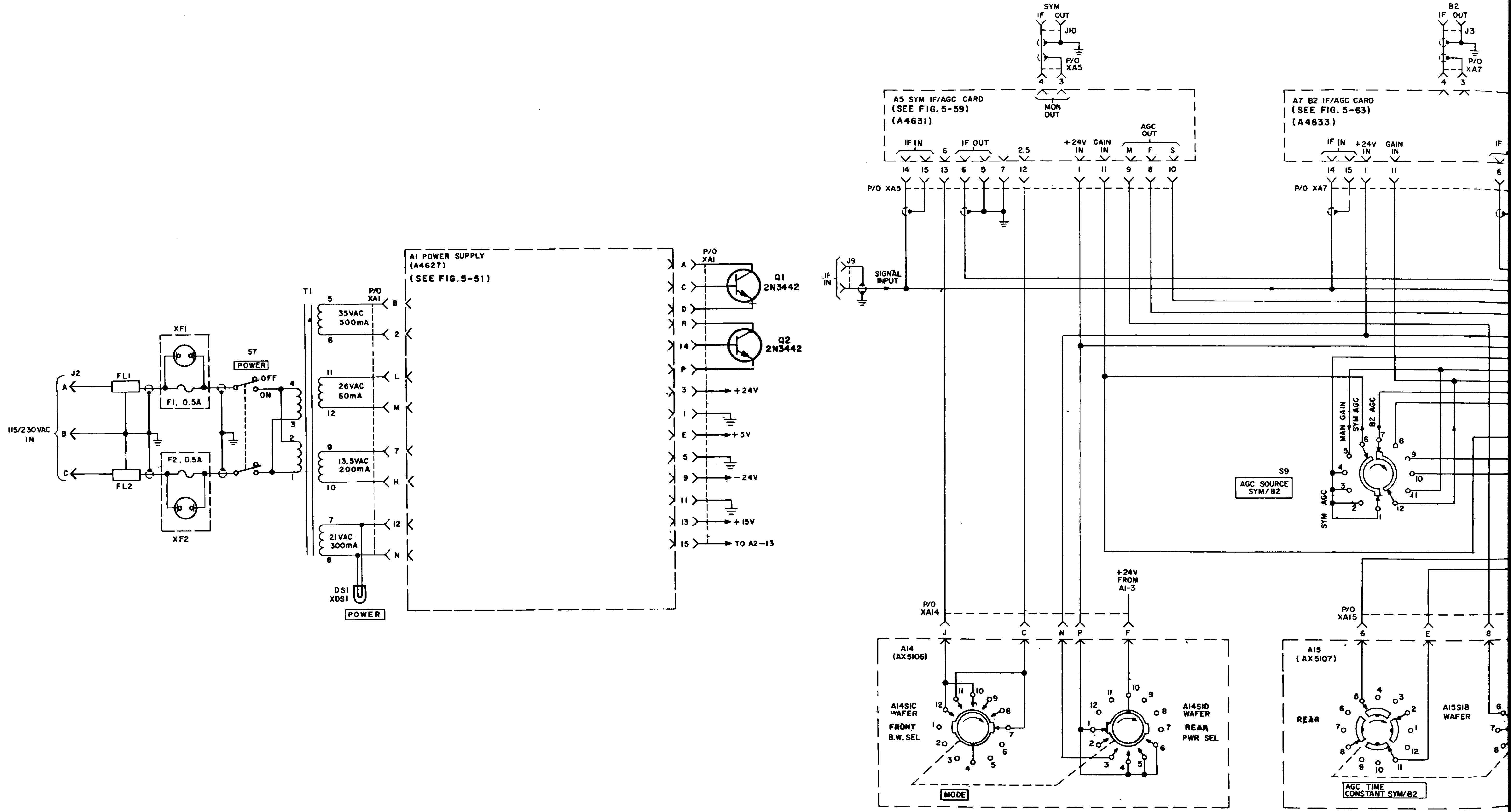
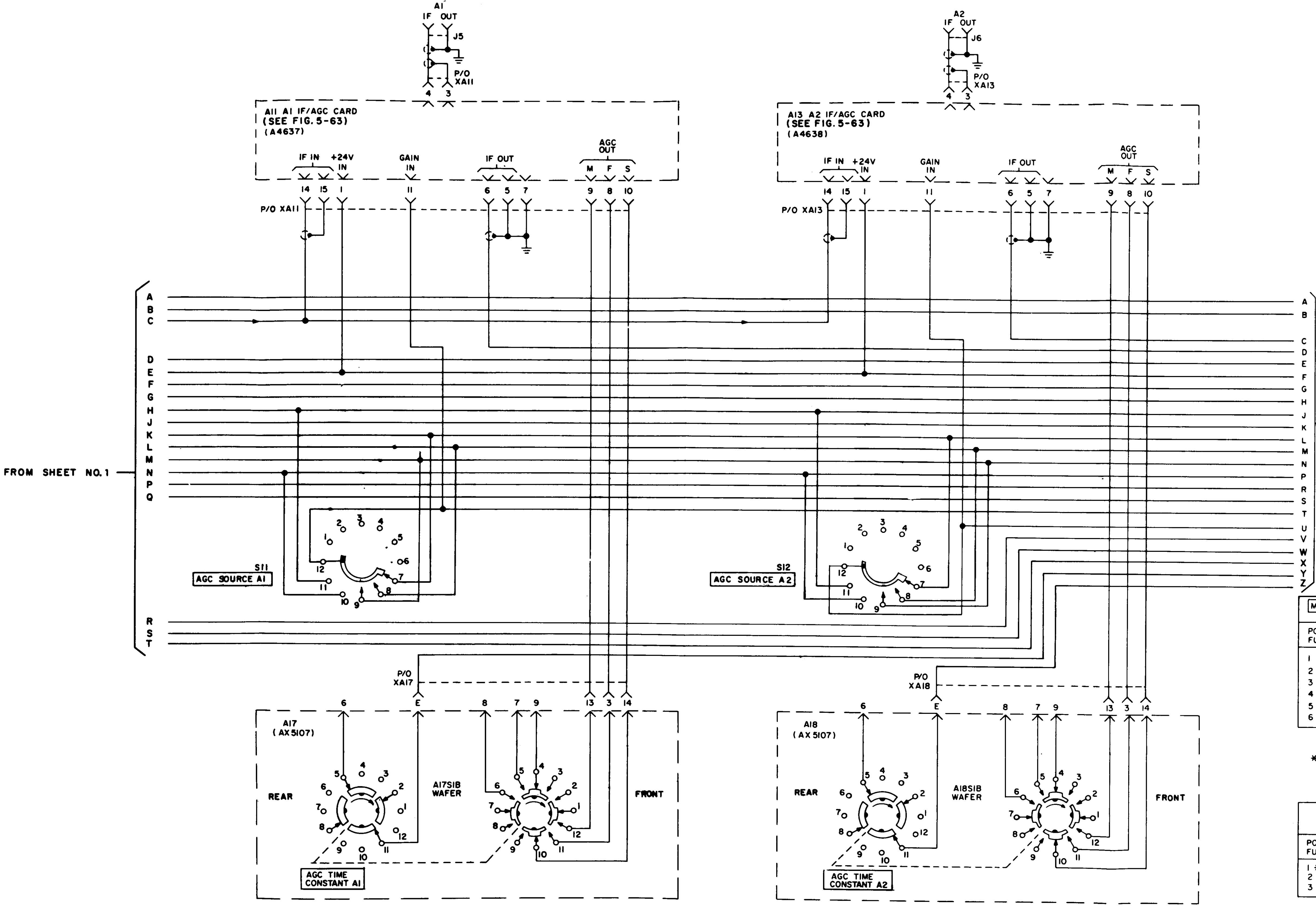


Figure 5-46. Schematic Wiring, Unit 2 (TD-915/URR) (Sheet 1 of 3).


115/230VAC IN
J2
FL1
FL2
XF1
F1, 0.5A
F2, 0.5A
XF2
S7
POWER
OFF
ON
T1
35VAC 500mA
26VAC 60mA
13.5VAC 200mA
21VAC 300mA
P/O XA1
DS1 XDS1
POWER
A1 POWER SUPPLY (A4627) (SEE FIG. 5-51)
Q1 2N3442
Q2 2N3442
+24V
+5V
-24V
+15V
TO A2-13
SYM IF OUT
J10
P/O XA5
MON OUT
A5 SYM IF/AGC CARD (SEE FIG. 5-59) (A4631)
IF IN
IF OUT
+24V IN
GAIN IN
AGC OUT
J9
IF IN
SIGNAL INPUT
B2 IF OUT
J3
P/O XA7
A7 B2 IF/AGC CARD (SEE FIG. 5-63) (A4633)
MAN GAIN
SYM AGC
B2 AGC
S9
AGC SOURCE SYM/B2
+24V FROM A1-3
P/O XA14
A14 (AX5106)
A14S1C WAFER
FRONT B.W. SEL
MODE
A14S1D WAFER
REAR PWR SEL
P/O XA15
A15 (AX5107)
REAR
A15S1B WAFER
AGC TIME CONSTANT SYM/B2



AGC SOURCE

SWITCH POSITIONS	
PANEL MARKING	SW POS
B2	1,7 *
B1	2,8
A1	3,9
A2	4,10
MAN	5,11

MODE SWITCH POSITIONS

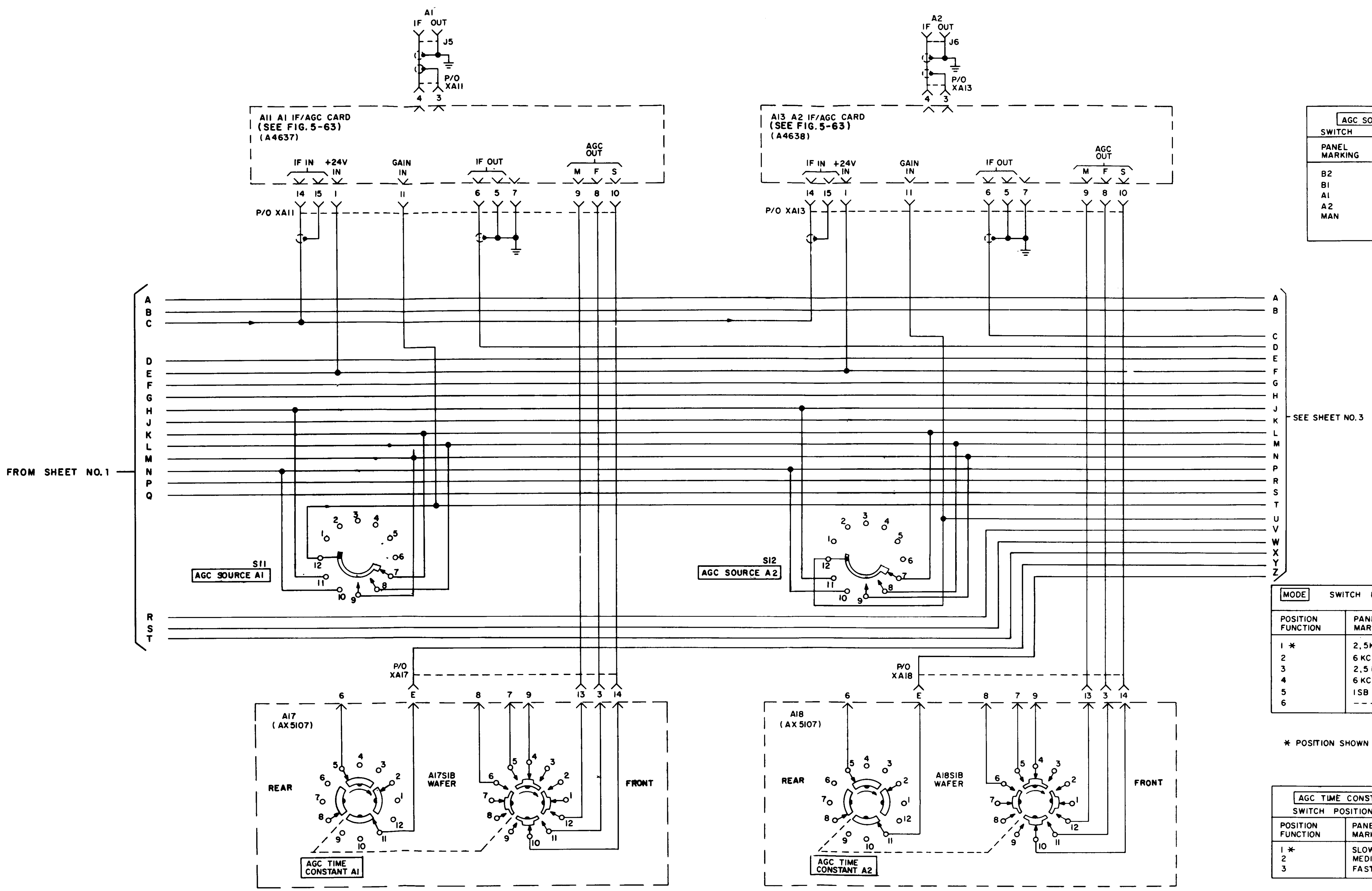
POSITION FUNCTION	PANEL MARKING	SW POS
1 *	2.5KC AM	1,7
2	6 KC AM	6,12
3	2.5 KC CW	5,11
4	6 KC CW	4,10
5	ISB	3,9
6	----	2,8

* POSITION SHOWN IN SCHEMATIC

AGC TIME CONSTANT
SWITCH POSITIONS

POSITION FUNCTION	PANEL MARKING	SW POS
1 *	SLOW	4,10
2	MEDIUM	6,12
3	FAST	5,11

Figure 5-46. Schematic Wiring, Unit 2 (TD-915/URR) (Sheet 2 of 3)



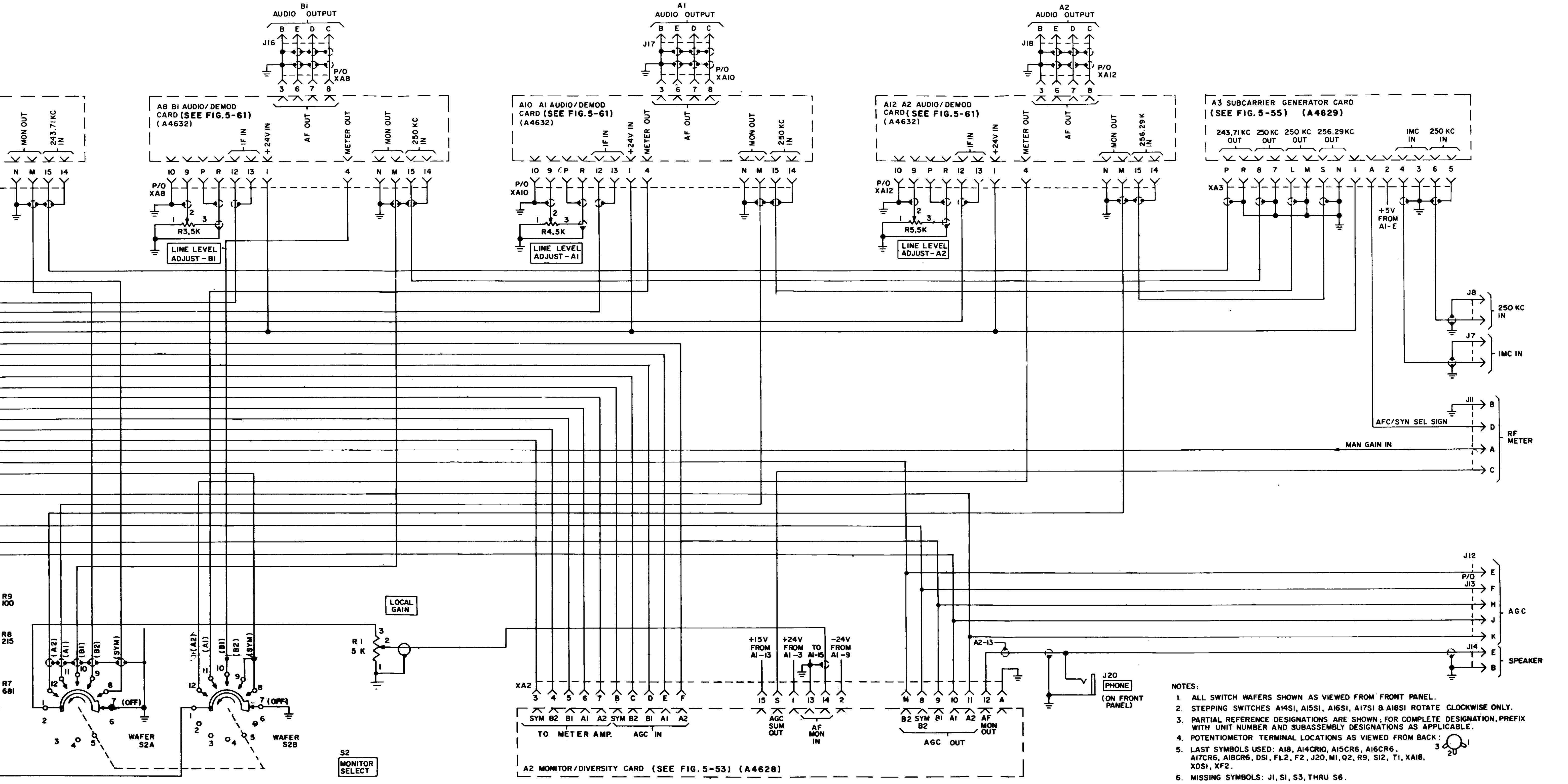
AGC SOURCE SWITCH POSITIONS	
PANEL MARKING	SW POS
B2	1,7 *
B1	2,8
A1	3,9
A2	4,10
MAN	5,11

MODE SWITCH POSITIONS		
POSITION FUNCTION	PANEL MARKING	SW POS
1 *	2.5KC AM	1,7
2	6 KC AM	6,12
3	2.5 KC CW	5,11
4	6 KC CW	4,10
5	ISB	3,9
6	----	2,8

* POSITION SHOWN IN SCHEMATIC

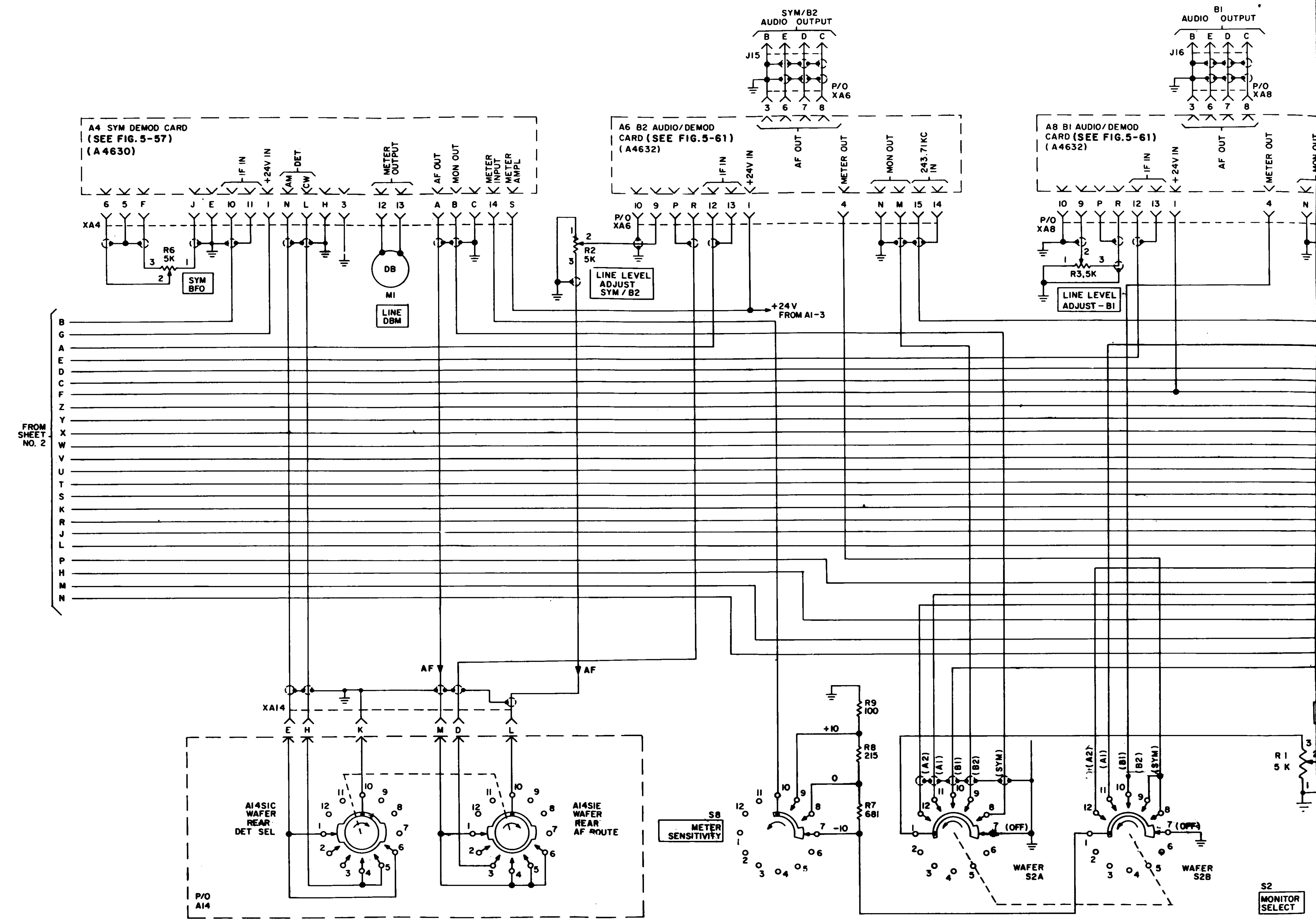
AGC TIME CONSTANT SWITCH POSITIONS		
POSITION FUNCTION	PANEL MARKING	SW POS
1 *	SLOW	4,10
2	MEDIUM	6,12
3	FAST	5,11

Figure 5-46. Schematic Wiring, Unit 2 (TD-915/URR) (Sheet 2 of 3)



NOTES:
1. ALL SWITCH WAFERS SHOWN AS VIEWED FROM FRONT PANEL.
2. STEPPING SWITCHES A14S1, A15S1, A16S1, A17S1 & A18S1 ROTATE CLOCKWISE ONLY.
3. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATIONS AS APPLICABLE.
4. POTENTIOMETOR TERMINAL LOCATIONS AS VIEWED FROM BACK:
5. LAST SYMBOLS USED: A18, A14CR10, A15CR6, A16CR6, A17CR6, A18CR6, DS1, FL2, F2, J20, M1, Q2, R9, S12, T1, XA18, XDS1, XF2.
6. MISSING SYMBOLS: J1, S1, S3, THRU S6.

Figure 5-46. Schematic Wiring, Unit 2 (TD-915/URR) (Sheet 3 of 3)


A4 SYM DEMOD CARD (SEE FIG. 5-57) (A4630)
A6 B2 AUDIO/DEMOD CARD (SEE FIG. 5-61) (A4632)
A8 B1 AUDIO/DEMOD CARD (SEE FIG. 5-61) (A4632)
SYM/B2 AUDIO OUTPUT
B1 AUDIO OUTPUT
J15
J16
P/O XA6
P/O XA8
XA4
IF IN
+24V IN
DET
AM
CW
METER OUTPUT
AF OUT
MON OUT
METER INPUT
METER AMPL
METER OUT
243.71KC IN
R6 5K
SYM BFO
DB
M1
LINE DBM
R2 5K
LINE LEVEL ADJUST SYM/B2
R3,5K
LINE LEVEL ADJUST - B1
+24V FROM A1-3
FROM SHEET NO. 2
AF
XA14
A14S1C WAFER REAR DET SEL
A14S1E WAFER REAR AF ROUTE
P/O A14
R9 100
R8 215
R7 681
+10
0
-10
S8 METER SENSITIVITY
(A2)
(A1)
(B1)
(B2)
(SYM)
(OFF)
WAFER S2A
WAFER S2B
R1 5 K
S2 MONITOR SELECT

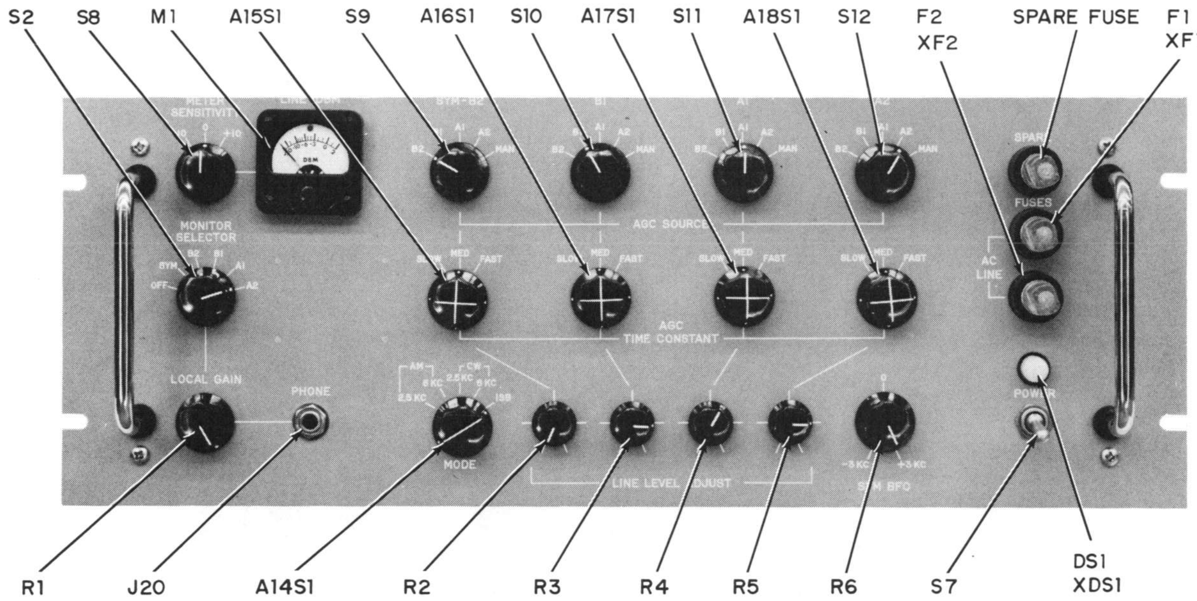


Figure 5-47. Major Component Locations, Front Panel of Unit 2
TD-915/URR

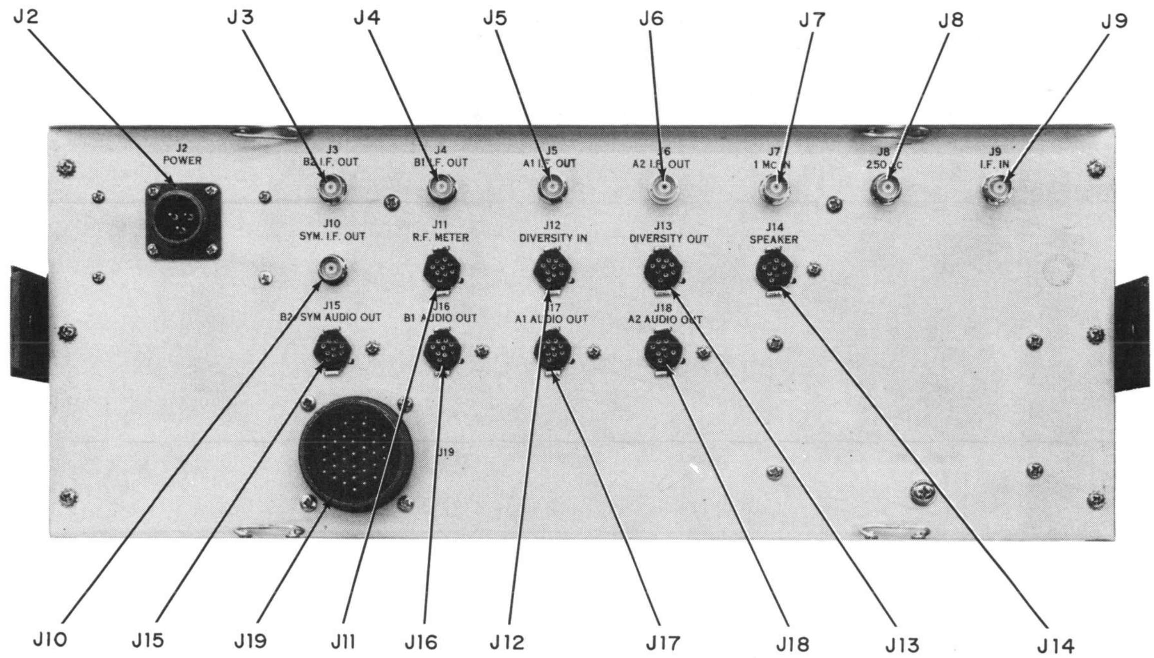


Figure 5-48. Major Component Locations, Rear Panel of Unit 2
TD-915/URR

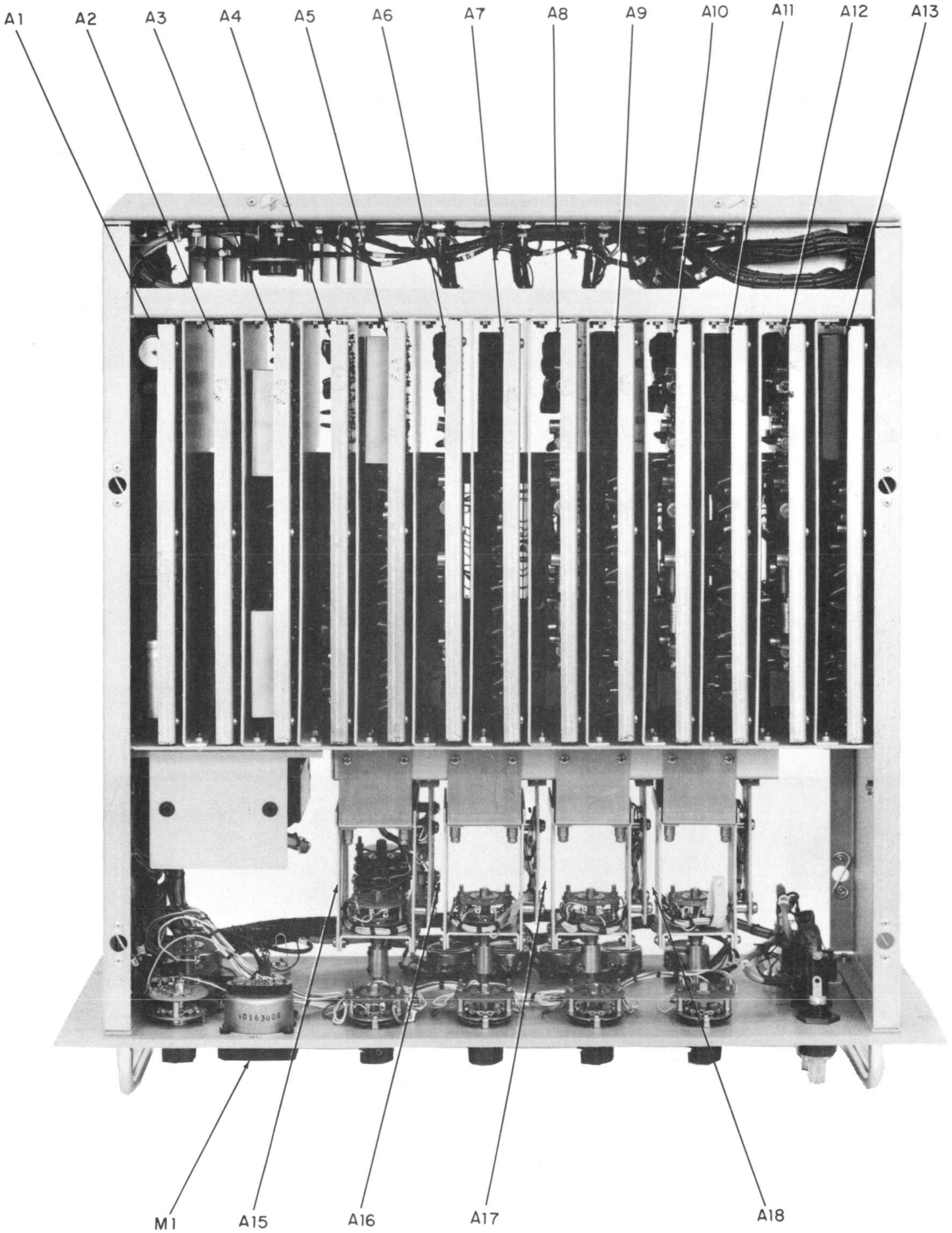


Figure 5-49. Major Component Locations, Top View of Unit 2
TD-915/URR

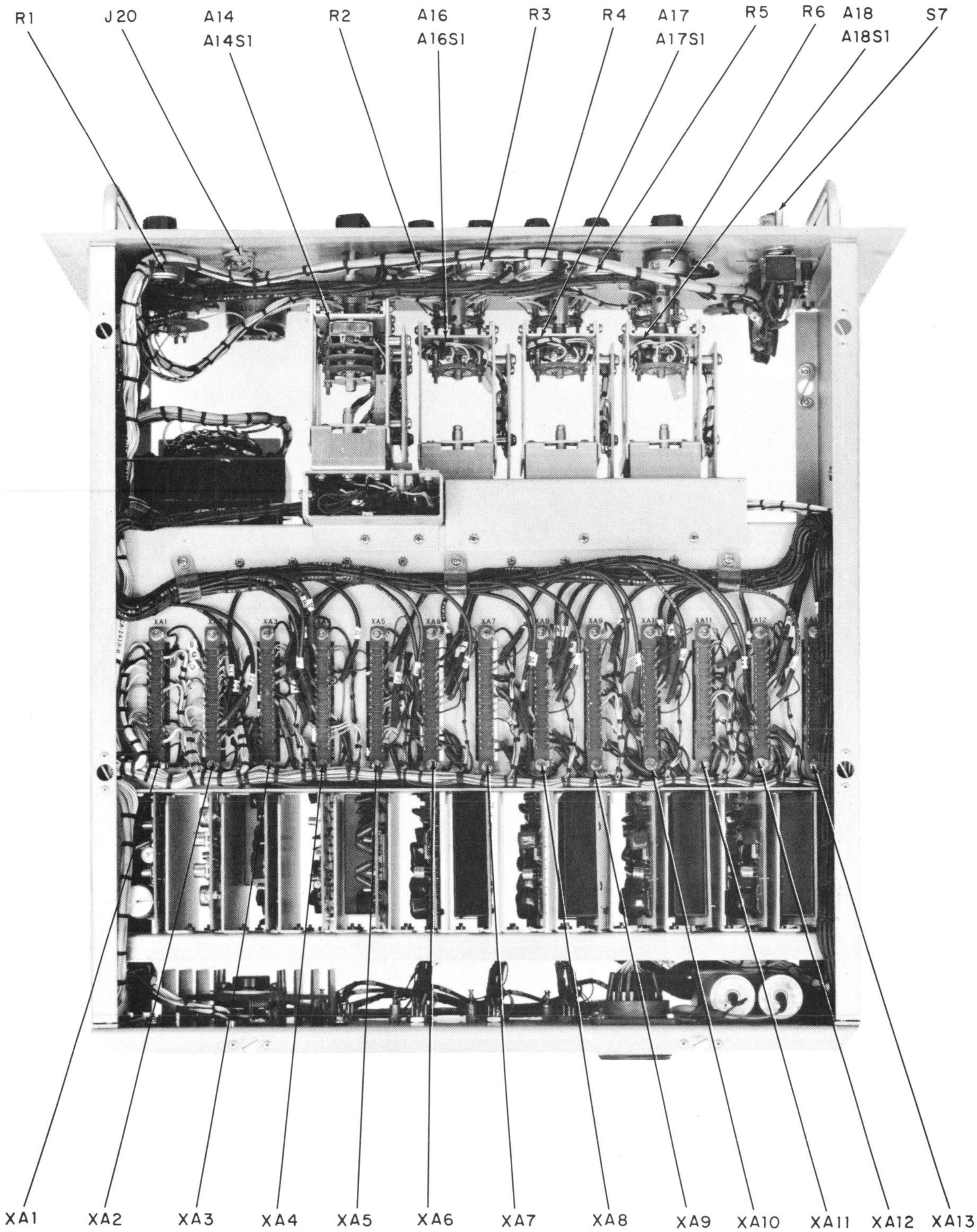


Figure 5-50. Major Component Locations, Bottom View of Unit 2
TD-915/URR

REF DESIG	LOC
R31	6I
R32	6H
R33	7H
R34	8H
R35	8H
R36	8I
Q1	4B
Q2	5A
Q3	6B
Q4	7B
Q5	4D
Q6	5D
Q7	6E
Q8	7D
Q9	4F
Q10	5F
Q11	5E
Q12	6G
Q13	7G
Q14	4H
Q15	5H
Q16	6I
Q17	7H
TP1	3A
TP2	3C
TP3	8A
TP4	3D
TP5	3E
TP6	8D
TP7	3F
TP8	3G
TP9	8F
TP10	3H
TP11	3I
TP12	8H

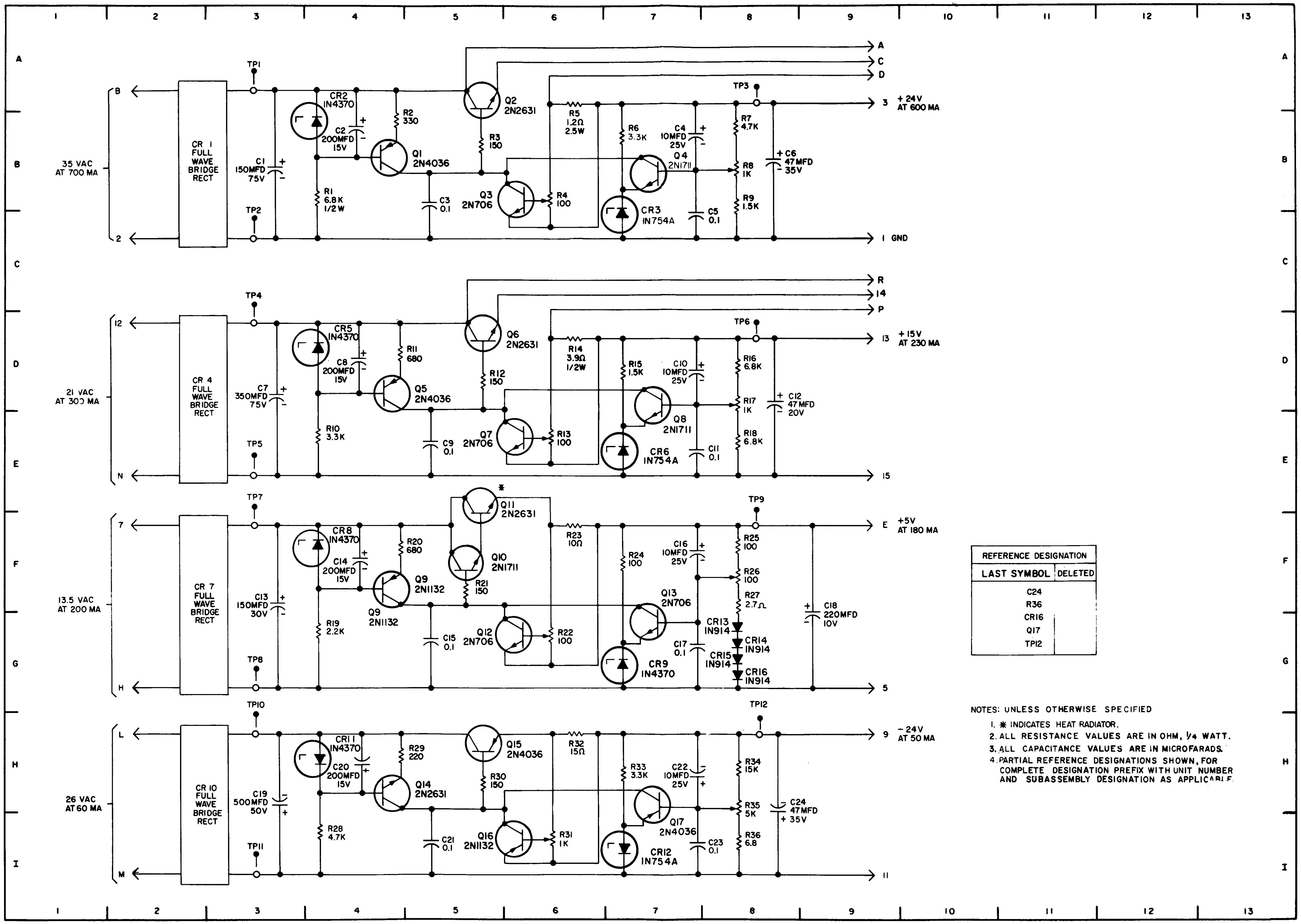
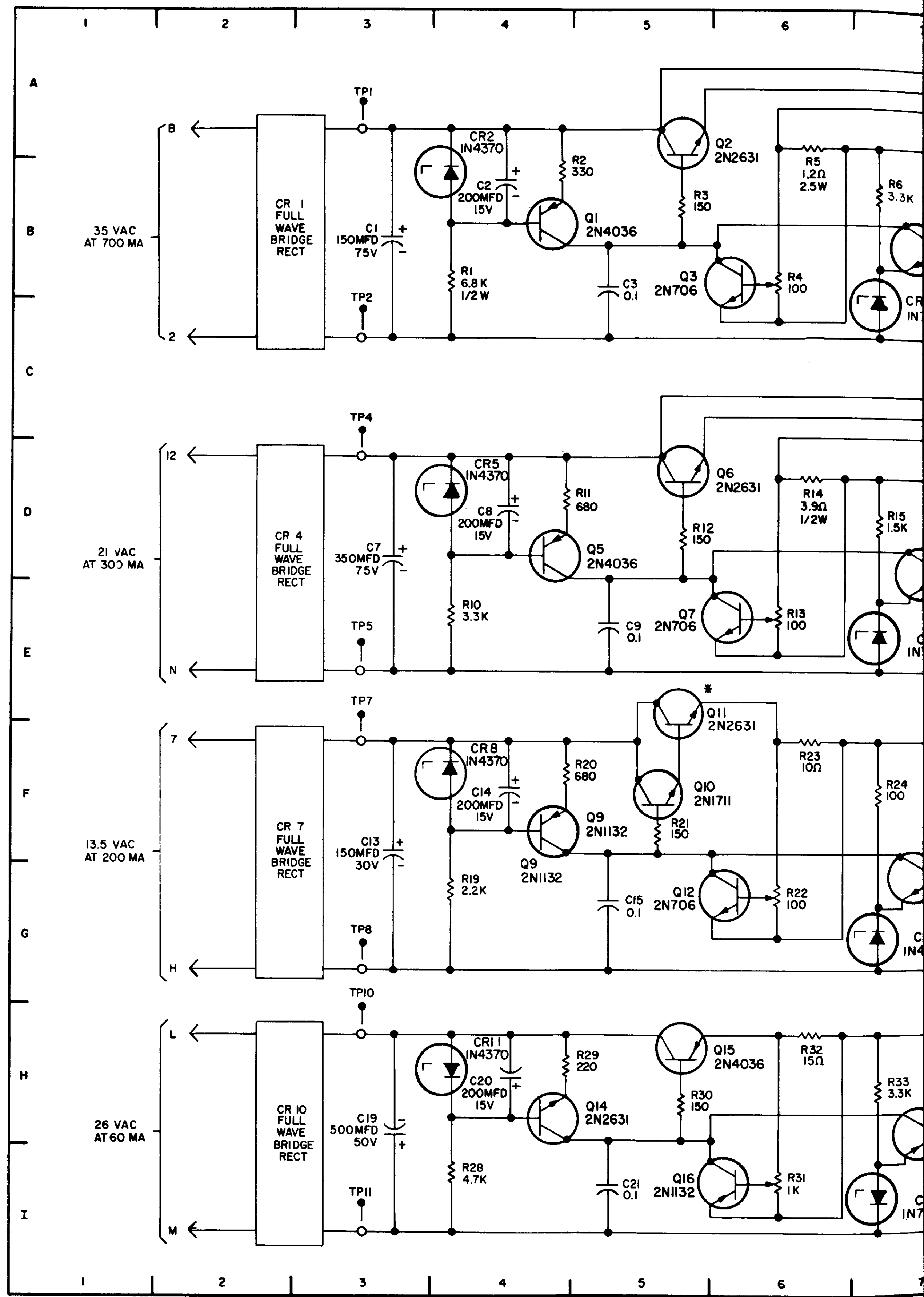


Figure 5-51. Schematic Wiring, Power Supply 2A1

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	3B	CR12	7I	R31	6I
C2	4B	CR13	8G	R32	6H
C3	5B	CR14	8G	R33	7H
C4	7B	CR15	8G	R34	8H
C5	7C	CR16	8G	R35	8H
C6	8B	R1	4B	R36	8I
C7	3D	R2	4B	Q1	4B
C8	4D	R3	5B	Q2	5A
C9	5E	R4	6B	Q3	6B
C10	7D	R5	6A	Q4	7B
C11	7E	R6	7B	Q5	4D
C12	8D	R7	8B	Q6	5D
C13	3F	R8	8B	Q7	6E
C14	4F	R9	8B	Q8	7D
C15	5G	R10	4E	Q9	4F
C16	7F	R11	4D	Q10	5F
C17	7G	R12	5D	Q11	5E
C18	9G	R13	6E	Q12	6G
C19	3H	R14	6D	Q13	7G
C20	4H	R15	7D	Q14	4H
C21	5I	R16	8D	Q15	5H
C22	7H	R17	8D	Q16	6I
C23	7I	R18	8E	Q17	7H
C24	8H	R19	4G	TP1	3A
CR1	2B	R20	4F	TP2	3C
CR2	4B	R21	5F	TP3	8A
CR3	7C	R22	6G	TP4	3D
CR4	2D	R23	6F	TP5	3E
CR5	4D	R24	7F	TP6	8D
CR6	7E	R25	8F	TP7	3F
CR7	2F	R26	8F	TP8	3G
CR8	4F	R27	8F	TP9	8F
CR9	7G	R28	4I	TP10	3H
CR10	2H	R29	4H	TP11	3I
CR11	4H	R30	5H	TP12	8H



PART LOCATION INDEX

LOC	REF DESIG	LOC	REF DESIG	LOC
9F	CR12	4E	R31	4D
8F	CR13	6C	R32	4D
9G	CR14	7C	R33	4D
7E	CR15	7D	R34	5D
8G	CR16	7D	R35	5D
7F	R1	9G	R36	5E
2G	R2	9F	Q1	9F
3G	R3	8F	Q2	8F
3H	R4	8E	Q3	8F
4F	R5	8E	Q4	8F
4G	R6	8F	Q5	2G
5H	R7	7F	Q6	3G
9C	R8	8F	Q7	3G
8C	R9	7G	Q8	4F
9C	R10	2H	Q9	9C
6D	R11	2G	Q10	9D
7D	R12	3G	Q11	9D
6E	R13	3F	Q12	8D
2D	R14	3F	Q13	7D
4C	R15	4F	Q14	2D
3E	R16	5F	Q15	3D
5D	R17	5F	Q16	4E
4E	R18	5G	Q17	4D
6E	R19	9C	TP1	8E
9E	R20	9C	TP2	10E
9F	R21	9D	TP3	4C
8G	R22	8D	TP4	3E
2F	R23	8D	TP5	2E
2G	R24	8D	TP6	3C
4G	R25	6C	TP7	6C
7C	R26	2F	TP8	6C
7D	R27	6D	TP9	5C
7D	R28	2E	TP10	3C
2C	R29	2D	TP11	2C
3D	R30	3D	TP12	4C

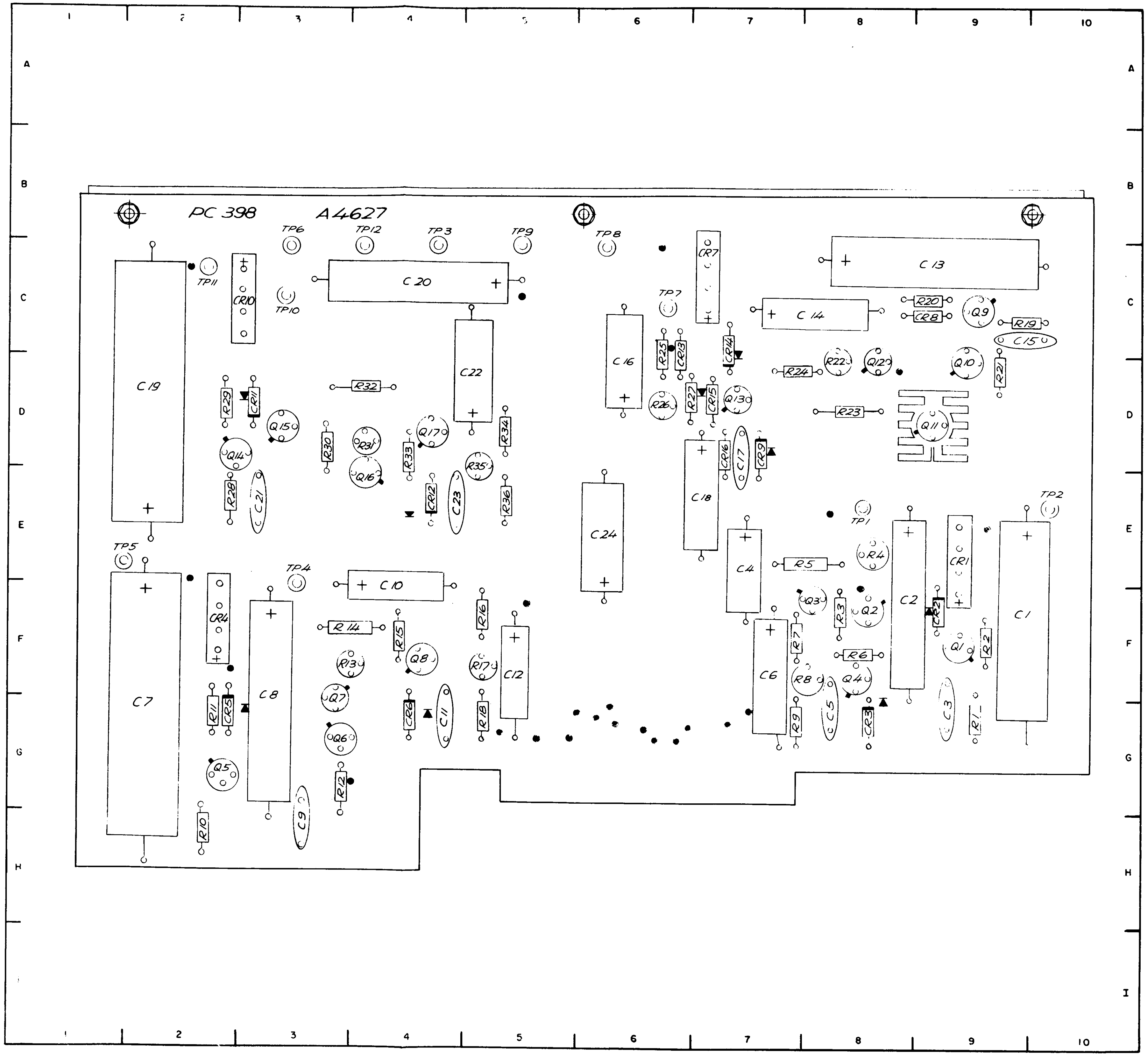
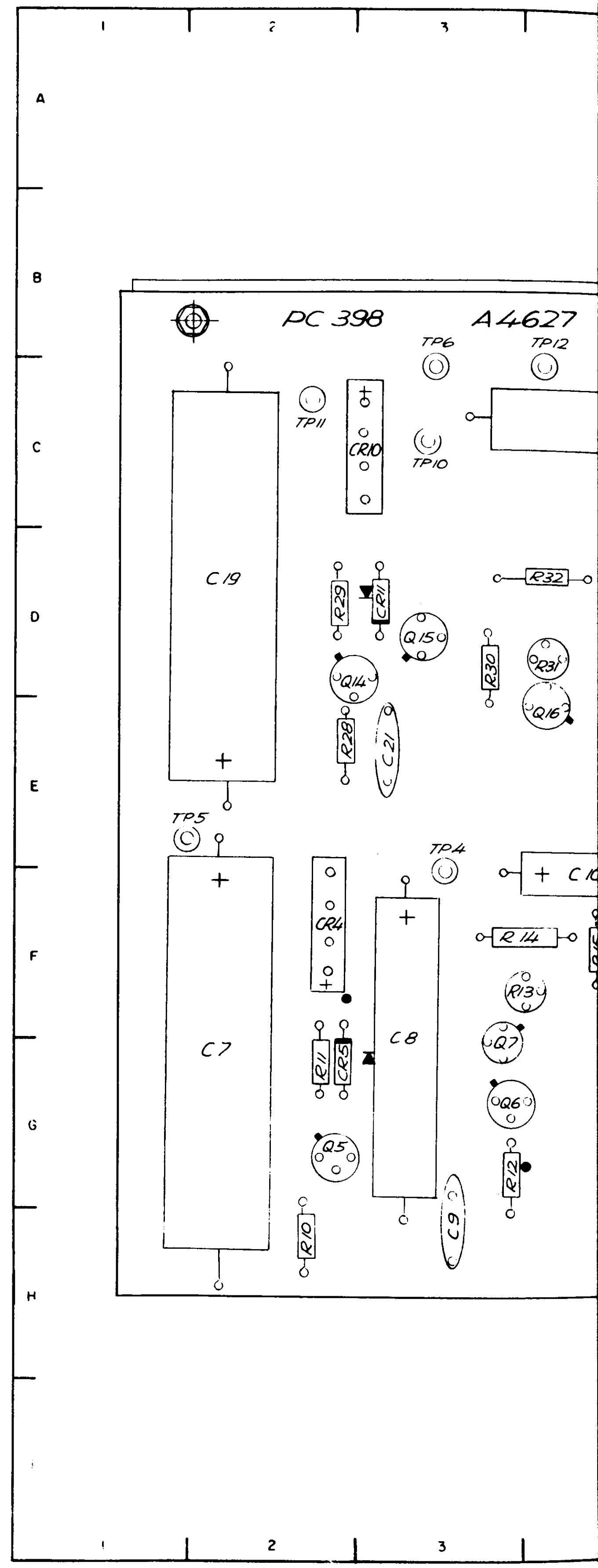


Figure 5-52. Component Locations, Power Supply 2A1

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	9F	CR12	4E	R31	4D
C2	8F	CR13	6C	R32	4D
C3	9G	CR14	7C	R33	4D
C4	7E	CR15	7D	R34	5D
C5	8G	CR16	7D	R35	5D
C6	7F	R1	9G	R36	5E
C7	2G	R2	9F	Q1	9F
C8	3G	R3	8F	Q2	8F
C9	3H	R4	8E	Q3	8F
C10	4F	R5	8E	Q4	8F
C11	4G	R6	8F	Q5	2G
C12	5H	R7	7F	Q6	3G
C13	9C	R8	8F	Q7	3G
C14	8C	R9	7G	Q8	4F
C15	9C	R10	2H	Q9	9C
C16	6D	R11	2G	Q10	9D
C17	7D	R12	3G	Q11	9D
C18	6E	R13	3F	Q12	8D
C19	2D	R14	3F	Q13	7D
C20	4C	R15	4F	Q14	2D
C21	3E	R16	5F	Q15	3D
C22	5D	R17	5F	Q16	4E
C23	4E	R18	5G	Q17	4D
C24	6E	R19	9C	TP1	8E
CR1	9E	R20	9C	TP2	10E
CR2	9F	R21	9D	TP3	4C
CR3	8G	R22	8D	TP4	3E
CR4	2F	R23	8D	TP5	2E
CR5	2G	R24	8D	TP6	3C
CR6	4G	R25	6C	TP7	6C
CR7	7C	R26	2F	TP8	6C
CR8	7D	R27	6D	TP9	5C
CR9	7D	R28	2E	TP10	3C
CR10	2C	R29	2D	TP11	2C
CR11	3D	R30	3D	TP12	4C



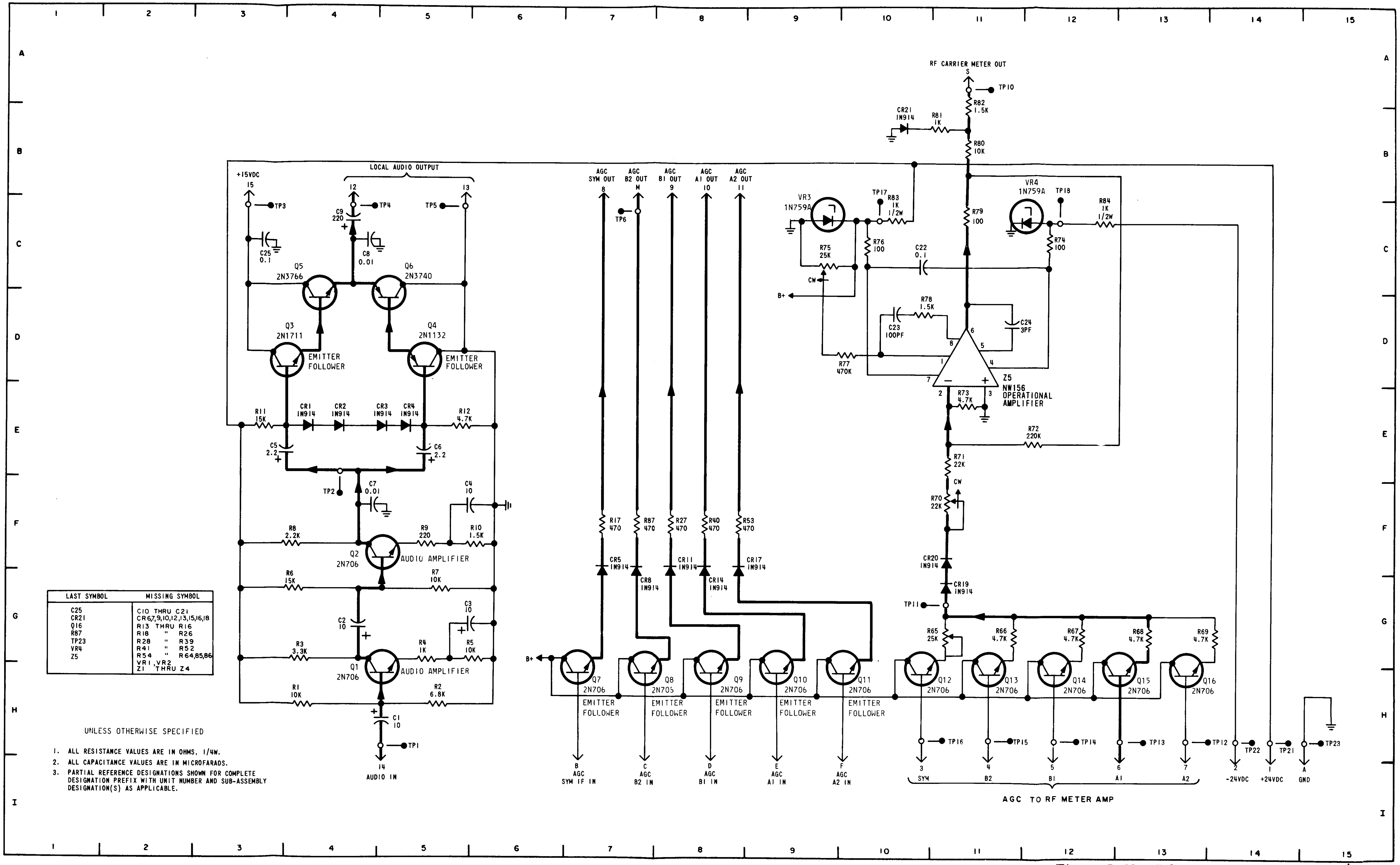
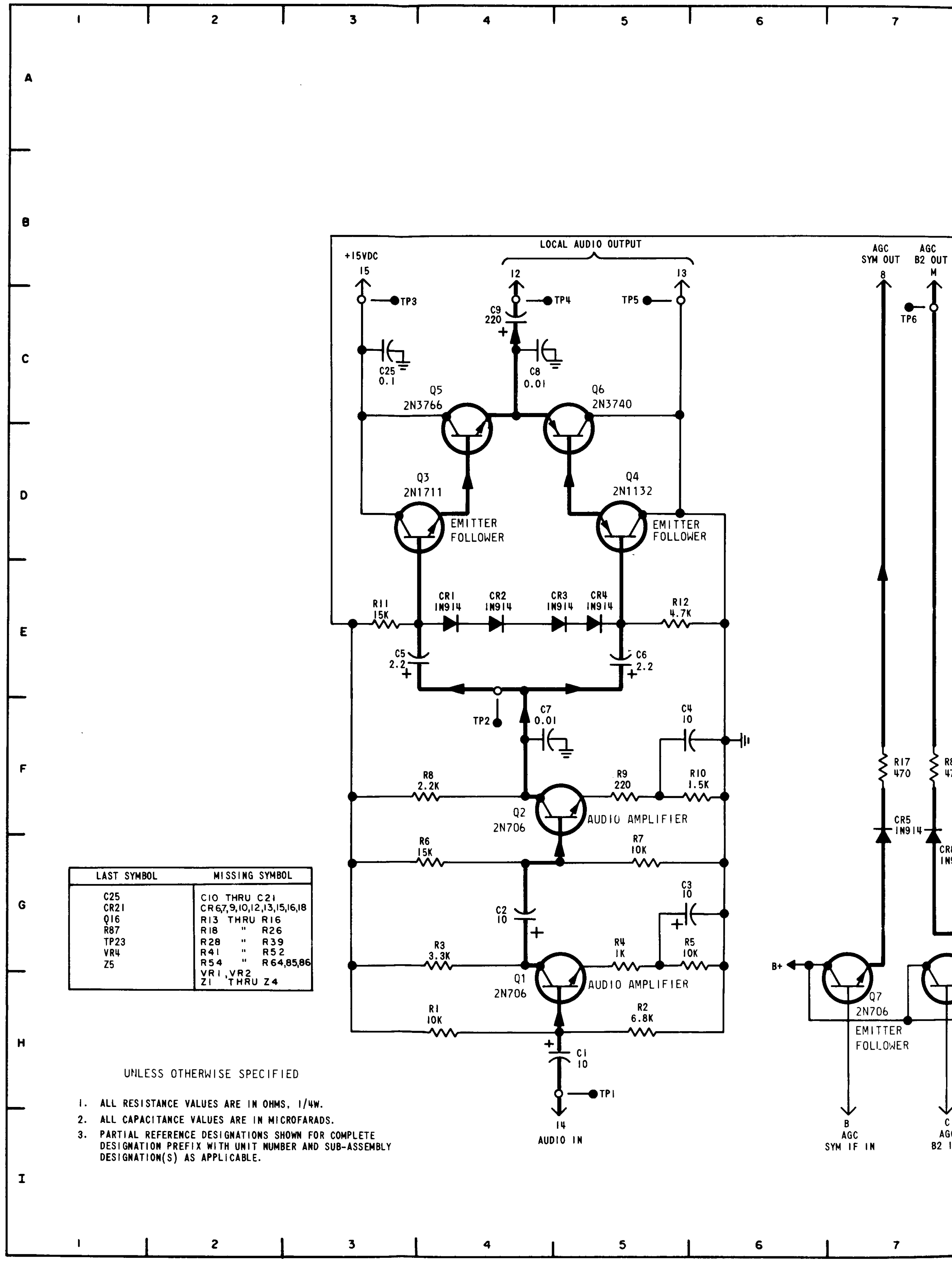


Figure 5-53. Schematic Wiring, Monitor/ Diversity 2A2

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5H	Q11	10H	R78	10D
C2	4G	Q12	10H	R79	11C
C3	5G	Q13	11H	R80	11B
C4	5F	Q14	12H	R81	11B
C5	3E	Q15	12H	R82	11A
C6	5E	Q16	13H	R83	10C
C7	4F	R1	4H	R84	12C
C8	4C	R2	5H	R87	7F
C9	4C	R3	4G	TP1	5H
C22	10C	R4	5G	TP2	4F
C23	10D	R5	5G	TP3	3C
C24	11C	R6	4G	TP4	4C
C25	3C	R7	5G	TP5	5C
CR1	4E	R8	4F	TP6	7C
CR2	4E	R9	5F	TP7	-
CR3	5E	R10	6F	TP8	-
CR4	5E	R11	3E	TP9	-
CR5	7F	R12	5E	TP10	11A
CR8	7G	R17	7F	TP11	10G
CR11	8F	R27	8F	TP12	13H
CR14	8G	R40	8F	TP13	13H
CR17	9F	R53	8F	TP14	12H
CR19	11G	R65	11G	TP15	11H
CR20	11F	R66	11G	TP16	11H
CR21	10B	R67	12G	TP17	10C
Q1	5H	R68	13G	TP18	12C
Q2	5F	R69	14G	TP19	-
Q3	4D	R70	11F	TP20	-
Q4	5D	R71	11E	TP21	14H
Q5	4C	R72	12E	TP22	14H
Q6	5D	R73	11E	TP23	15H
Q7	7H	R74	12C	VR3	9C
Q8	7H	R75	9C	VR4	12C
Q9	8H	R76	10C	Z5	11D
Q10	9H	R77	10D		



NAVELEX 0967-385-0020

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	4F	Q11	7E	R78	4D
C2	3F	Q12	2E	R79	4D
C3	3F	Q13	2E	R80	5D
C4	2F	Q14	2D	R81	5E
C5	3G	Q15	2D	R82	5E
C6	2G	Q16	2D	R83	4C
C7	2G	R1	4F	R84	5C
C8	2G	R2	4F	R87	9E
C9	4F	R3	4F	TP1	5F
C22	4D	R4	3F	TP2	3G
C23	4D	R5	3F	TP3	4G
C24	4D	R6	3F	TP4	5F
C25	5G	R7	3F	TP5	4F
CR1	3G	R8	3G	TP6	6E
CR2	3G	R9	2F	TP7	6E
CR3	3G	R10	2F	TP8	5E
CR4	2G	R11	3G	TP9	5E
CR5	7F	R12	3H	TP10	5E
CR8	7F	R17	6G	TP11	3D
CR11	7E	R27	6G	TP12	1C
CR14	7E	R40	6G	TP13	2D
CR17	7E	R53	6G	TP14	2D
CR19	3D	R65	2E	TP15	2D
CR20	3D	R66	2E	TP16	2E
CR21	4E	R67	2D	TP17	3C
Q1	3F	R68	2D	TP18	5D
Q2	3F	R69	2D	TP19	6C
Q3	3H	R70	3D	TP20	6C
Q4	2H	R71	4D	TP21	9C
Q5	4G	R72	4D	TP22	8C
Q6	2G	R73	4D	TP23	4C
Q7	7F	R74	5D	VR3	4C
Q8	7F	R75	4C	VR4	5D
Q9	7F	R76	4D	Z5	4D
Q10	7E	R77	4D		

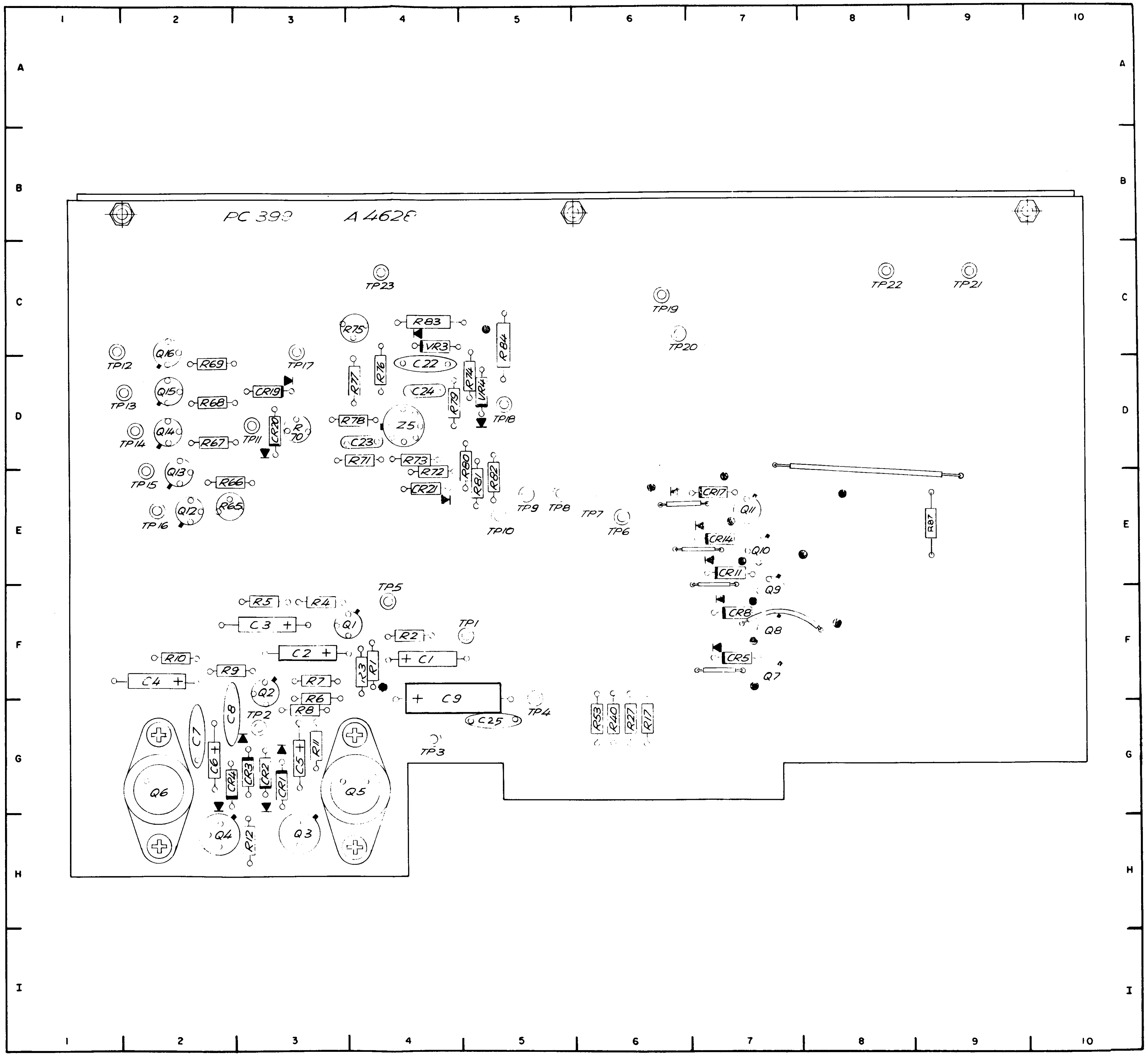
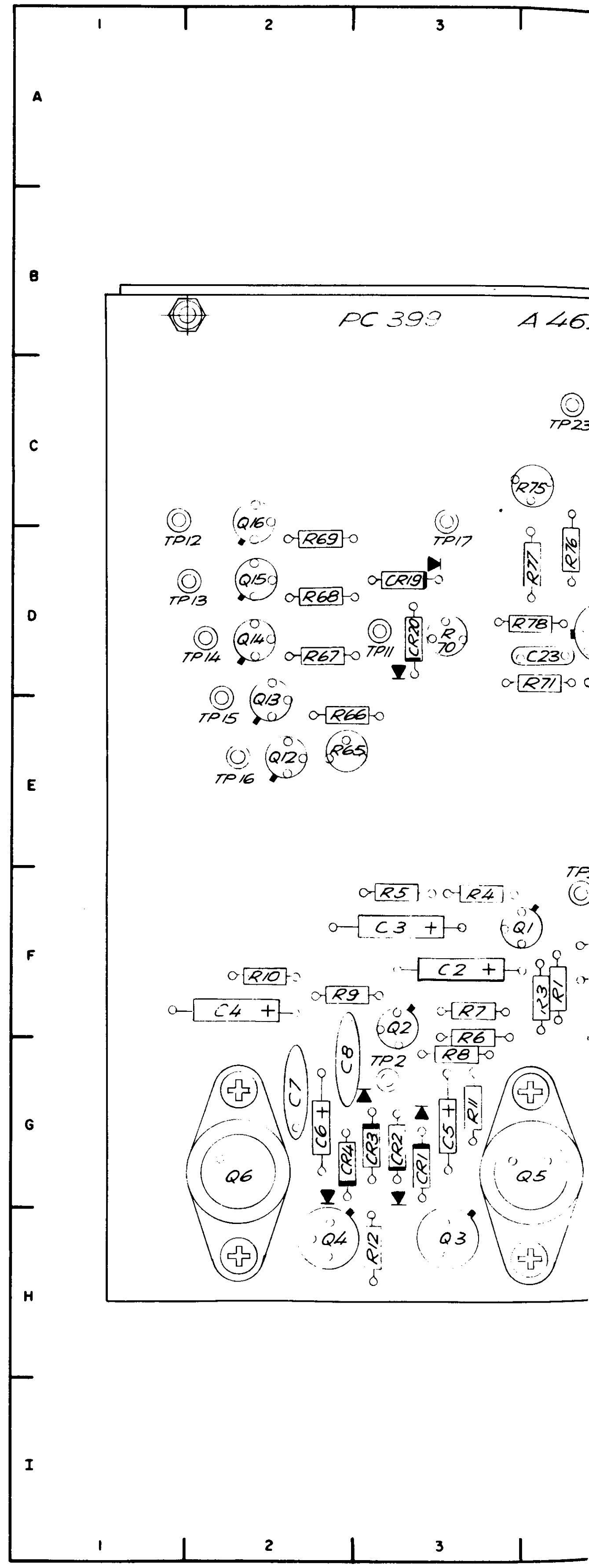


Figure 5-54. Component Locations, Monitor/
Diversity 2A2

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	4F	Q11	7E	R78	4D
C2	3F	Q12	2E	R79	4D
C3	3F	Q13	2E	R80	5D
C4	2F	Q14	2D	R81	5E
C5	3G	Q15	2D	R82	5E
C6	2G	Q16	2D	R83	4C
C7	2G	R1	4F	R84	5C
C8	2G	R2	4F	R87	9E
C9	4F	R3	4F	TP1	5F
C22	4D	R4	3F	TP2	3G
C23	4D	R5	3F	TP3	4G
C24	4D	R6	3F	TP4	5F
C25	5G	R7	3F	TP5	4F
CR1	3G	R8	3G	TP6	6E
CR2	3G	R9	2F	TP7	6E
CR3	3G	R10	2F	TP8	5E
CR4	2G	R11	3G	TP9	5E
CR5	7F	R12	3H	TP10	5E
CR8	7F	R17	6G	TP11	3D
CR11	7E	R27	6G	TP12	1C
CR14	7E	R40	6G	TP13	2D
CR17	7E	R53	6G	TP14	2D
CR19	3D	R65	2E	TP15	2D
CR20	3D	R66	2E	TP16	2E
CR21	4E	R67	2D	TP17	3C
Q1	3F	R68	2D	TP18	5D
Q2	3F	R69	2D	TP19	6C
Q3	3H	R70	3D	TP20	6C
Q4	2H	R71	4D	TP21	9C
Q5	4G	R72	4D	TP22	8C
Q6	2G	R73	4D	TP23	4C
Q7	7F	R74	5D	VR3	4C
Q8	7F	R75	4C	VR4	5D
Q9	7F	R76	4D	Z5	4D
Q10	7E	R77	4D		



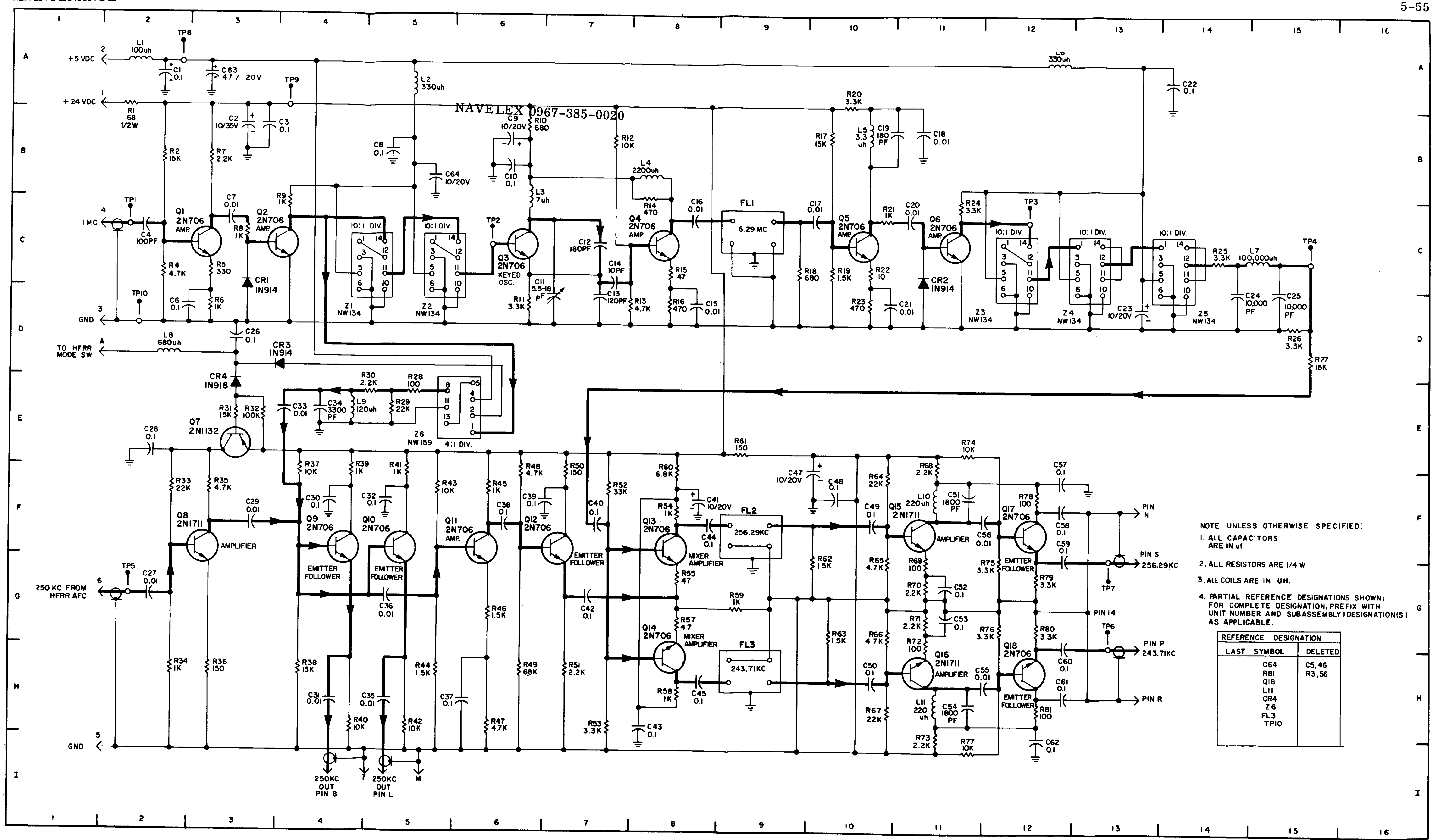
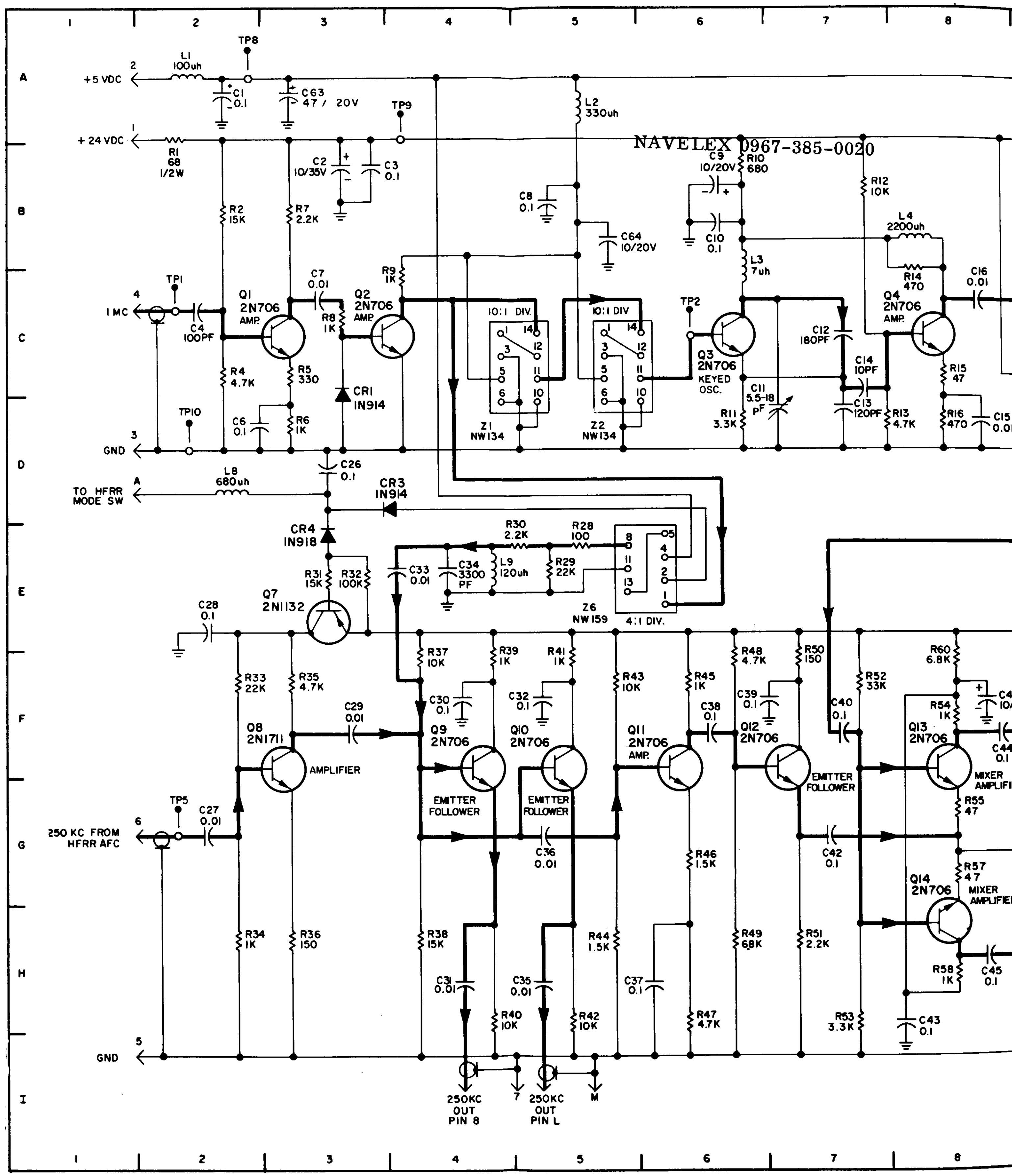


Figure 5-55. Schematic Wiring, Subcarrier Generator 2A3

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2A	C41	8F	L10	11F	R21	10C	R60	8F
C2	3B	C42	7G	L11	11H	R22	10C	R61	9E
C3	3B	C43	8H	Q1	3C	R23	10D	R62	10G
C4	2C	C44	8F	Q2	4C	R24	11C	R63	10G
C6	2D	C45	8H	Q3	6C	R25	14C	R64	10F
C7	3C	C47	10F	Q4	8C	R26	15D	R65	10G
C8	5B	C48	10F	Q5	10C	R27	15D	R66	10G
C9	6B	C49	10F	Q6	11C	R28	5E	R67	10H
C10	6B	C50	10H	C7	3E	R29	5E	R68	11E
C11	7D	C51	11F	C8	3F	R30	5E	R69	11G
C12	7C	C52	11G	C9	4F	R31	3E	R70	11G
C13	7D	C53	11G	Q10	5F	R32	3E	R71	11G
C14	7C	C54	11H	Q11	6F	R33	2F	R72	11G
C15	8D	C55	11H	Q12	7E	R34	2H	R73	11I
C16	8C	C56	11F	Q13	8F	R35	3F	R74	11E
C17	10C	C57	12F	Q14	8H	R36	3H	R75	12G
C18	11B	C58	12F	Q15	11F	R37	4F	R76	12G
C19	10B	C59	12F	Q16	11H	R38	4H	R77	11I
C20	11C	C60	12H	Q17	12F	R39	4F	R78	12F
C21	10D	C61	12H	Q18	12H	R40	4H	R79	12G
C22	14A	C62	12I	R1	2A	R41	5F	R80	12G
C23	13D	C63	3A	R2	2B	R42	5H	R81	12H
C24	14D	C64	5B	R4	2C	R43	5F	TP1	2C
C25	15D	CR1	3C	R5	3C	R44	5H	TP2	6C
C26	3D	CR2	11C	R6	3D	R45	6F	TP3	12C
C27	2G	CR3	4D	R7	3B	R46	6G	TP4	15C
C28	2E	CR4	3E	R8	3C	R47	6H	TP5	2G
C29	3F	FL1	9C	R9	4C	R48	6F	TP6	13G
C30	4F	FL2	9F	R10	6B	R49	6H	TP7	13F
C31	4H	FL3	9H	R11	6D	R50	7E	TP8	2A
C32	5F	L1	2A	R12	7B	R51	7H	TP9	4A
C33	4E	L2	5A	R13	7D	R52	7E	TP10	2D
C34	4E	L3	6B	R14	8B	R53	7H	Z1	4C
C35	5H	L4	8B	R15	8C	R54	8F	Z2	5C
C36	5G	L5	10B	R16	8D	R55	8G	Z3	12C
C37	6H	L6	12A	R17	10B	R57	8G	Z4	13C
C38	6F	L7	15C	R18	9C	R58	8H	Z5	14C
C39	6F	L8	2D	R19	10C	R59	9G	Z6	6E
C40	7E	L9	4E	R20	10A				



PART LOCATION LIST

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C41	5C	L10	2D	R21	7D	R60	5D
C42	5E	L11	3F	R22	7D	R61	2C
C43	5C	Q1	7E	R23	7D	R62	2C
C44	4D	Q2	8E	R24	6D	R63	2E
C45	4D	Q3	8E	R25	6D	R64	2D
C47	1C	Q4	8D	R26	5D	R65	2D
C48	2C	Q5	7D	R27	5D	R66	2E
C49	2C	Q6	7E	R28	9F	R67	2E
C50	3E	Q7	8G	R29	9F	R68	1E
C51	1D	Q8	7F	R30	9F	R69	2D
C52	2D	Q9	6F	R31	8F	R70	2D
C53	4E	Q10	5F	R32	8G	R71	4E
C54	3E	Q11	5F	R33	7G	R72	3E
C55	3E	Q12	6E	R34	7F	R73	2E
C56	2E	Q13	5C	R35	7G	R74	2F
C57	2E	Q14	5D	R36	7F	R75	2F
C58	2G	Q15	2D	R37	6F	R76	4E
C59	3G	Q16	3E	R38	6F	R77	3F
C60	4F	Q17	2F	R39	6F	R78	2F
C61	4F	Q18	4F	R40	6G	R79	2F
C62	3F	R1	8G	R41	5F	R80	3F
C63	10F	R2	7F	R42	5G	R81	3F
C64	9E	R4	7E	R43	6F	TP1	7G
CR1	7E	R5	7E	R44	5F	TP2	9E
CR2	7E	R6	7E	R45	6F	TP3	6E
CR3	9F	R7	7F	R46	5F	TP4	5E
CR4	8F	R8	7E	R47	5F	TP5	6G
FL1	8C	R9	8E	R48	6E	TP6	4F
FL2	3C	R10	10D	R49	5E	TP7	3G
FL3	3D	R11	8D	R50	6E	TP8	7B
L1	9G	R12	9D	R51	5E	TP9	6B
L2	9F	R13	8D	R52	5C	TP10	6B
L3	9D	R14	9D	R53	5D	Z1	8E
L4	9D	R15	8D	R54	5D	Z2	9E
L5	7C	R16	8D	R55	5D	Z3	6E
L6	6C	R17	7C	R57	5D	Z4	6D
L7	5D	R18	8D	R58	5D	Z5	6C
L8	8G	R19	7D	R59	5E	Z6	8E
L9	9F	R20	7C				

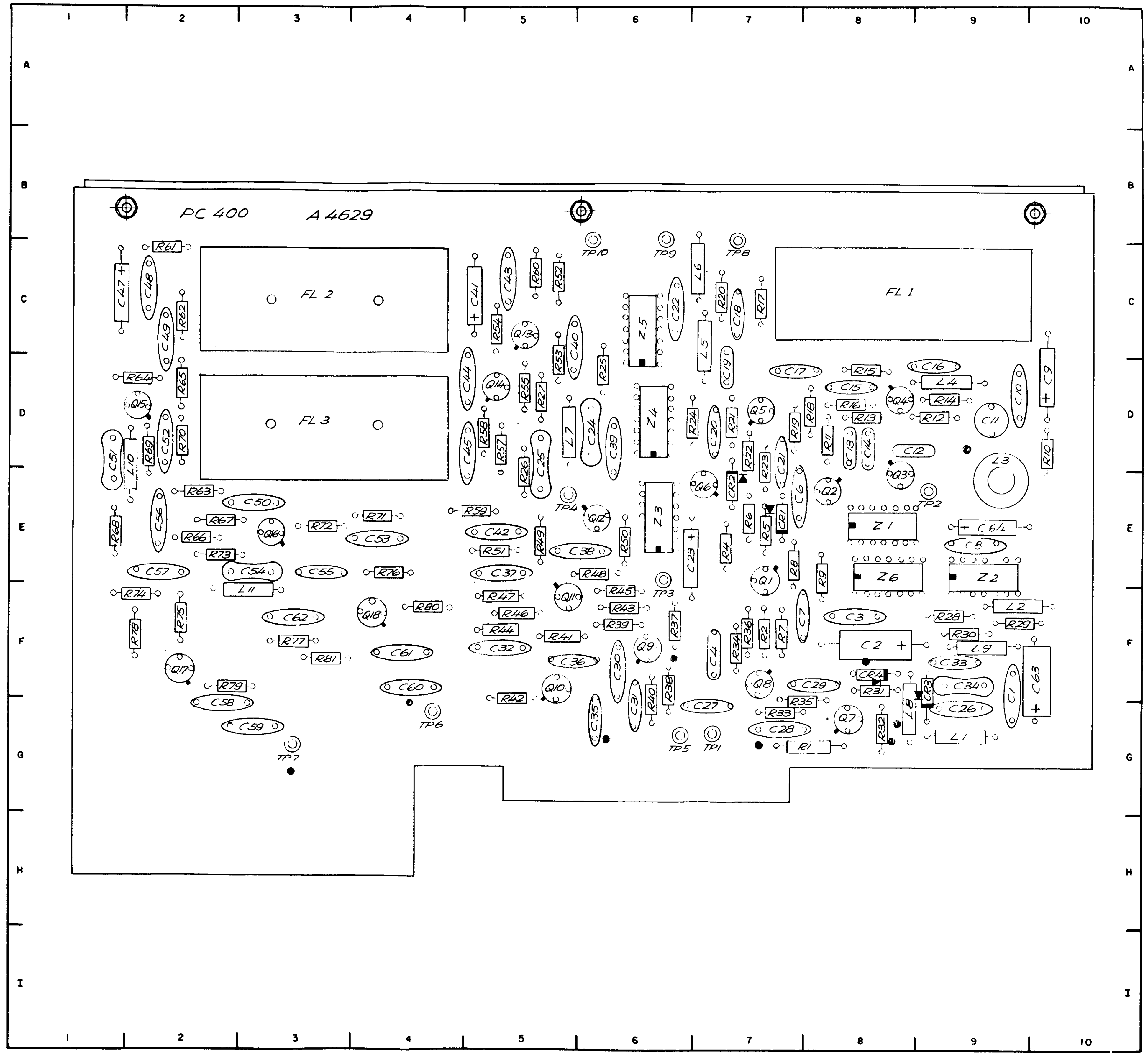
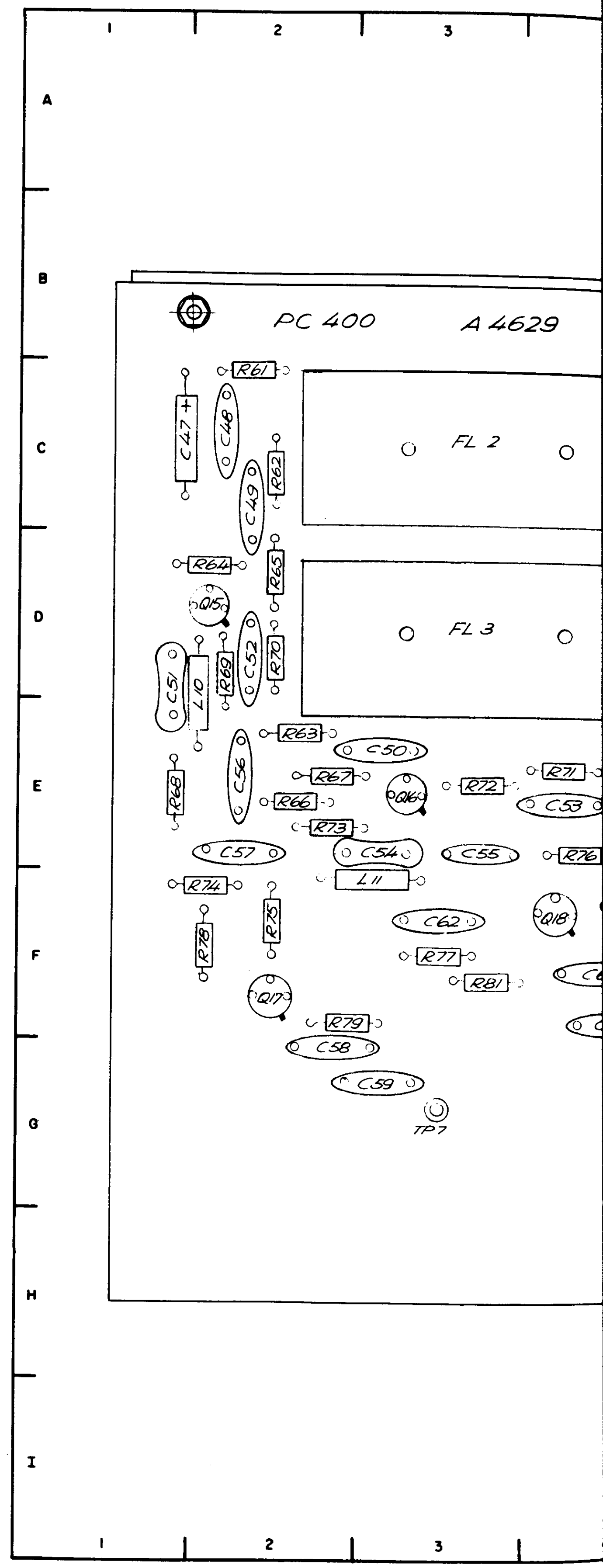


Figure 5-56. Component Locations, Subcarrier Generator 2A3

PART LOCATION LIST

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	9F	C41	5C	L10	2D	R21	7D	R60	5D
C2	8F	C42	5E	L11	3F	R22	7D	R61	2C
C3	8F	C43	5C	Q1	7E	R23	7D	R62	2C
C4	7F	C44	4D	Q2	8E	R24	6D	R63	2E
C6	7E	C45	4D	Q3	8E	R25	6D	R64	2D
C7	7F	C47	1C	Q4	8D	R26	5D	R65	2D
C8	9E	C48	2C	Q5	7D	R27	5D	R66	2E
C9	10D	C49	2C	Q6	7E	R28	9F	R67	2E
C10	9D	C50	3E	Q7	8G	R29	9F	R68	1E
C11	9D	C51	1D	Q8	7F	R30	9F	R69	2D
C12	8D	C52	2D	Q9	6F	R31	8F	R70	2D
C13	8D	C53	4E	Q10	5F	R32	8G	R71	4E
C14	8D	C54	3E	Q11	5F	R33	7G	R72	3E
C15	8D	C55	3E	Q12	6E	R34	7F	R73	2E
C16	9D	C56	2E	Q13	5C	R35	7G	R74	2F
C17	7D	C57	2E	Q14	5D	R36	7F	R75	2F
C18	7C	C58	2G	Q15	2D	R37	6F	R76	4E
C19	7D	C59	3G	Q16	3E	R38	6F	R77	3F
C20	7D	C60	4F	Q17	2F	R39	6F	R78	2F
C21	7D	C61	4F	Q18	4F	R40	6G	R79	2F
C22	6C	C62	3F	R1	8G	R41	5F	R80	3F
C23	6E	C63	10F	R2	7F	R42	5G	R81	3F
C24	6D	C64	9E	R4	7E	R43	6F	TP1	7G
C25	5D	CR1	7E	R5	7E	R44	5F	TP2	9E
C26	9G	CR2	7E	R6	7E	R45	6F	TP3	6E
C27	7G	CR3	9F	R7	7F	R46	5F	TP4	5E
C28	7G	CR4	8F	R8	7E	R47	5F	TP5	6G
C29	8F	FL1	8C	R9	8E	R48	6E	TP6	4F
C30	6F	FL2	3C	R10	10D	R49	5E	TP7	3G
C31	6G	FL3	3D	R11	8D	R50	6E	TP8	7B
C32	5F	L1	9G	R12	9D	R51	5E	TP9	6B
C33	9F	L2	9F	R13	8D	R52	5C	TP10	6B
C34	9F	L3	9D	R14	9D	R53	5D	Z1	8E
C35	6G	L4	9D	R15	8D	R54	5D	Z2	9E
C36	5F	L5	7C	R16	8D	R55	5D	Z3	6E
C37	5E	L6	6C	R17	7C	R57	5D	Z4	6D
C38	5E	L7	5D	R18	8D	R58	5D	Z5	6C
C39	6D	L8	8G	R19	7D	R59	5E	Z6	8E
C40	5C	L9	9F	R20	7C				



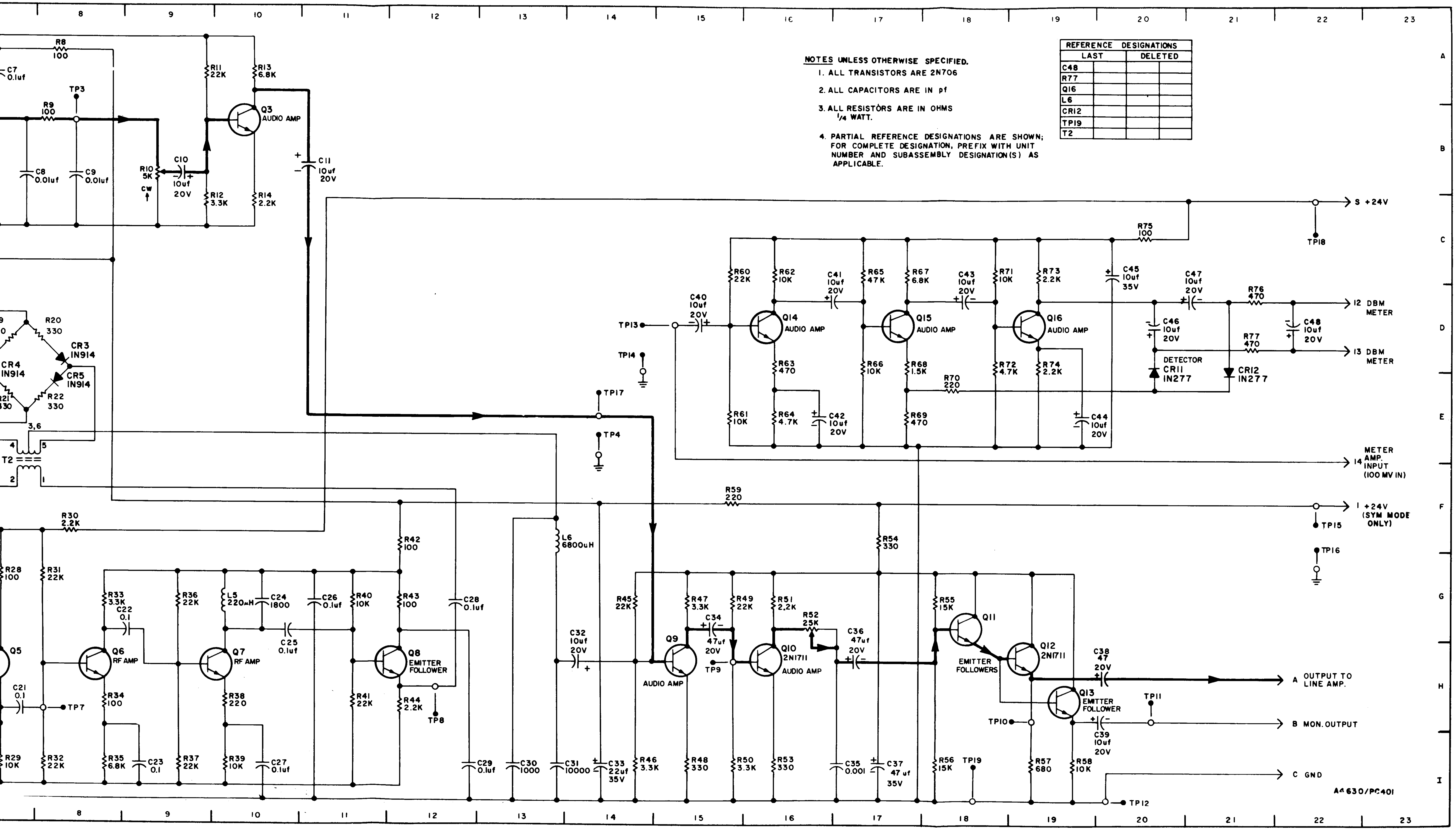


Figure 5-57. Schematic Wiring, Symmetrical Demodulator 2A4

PART LOCATION INDEX

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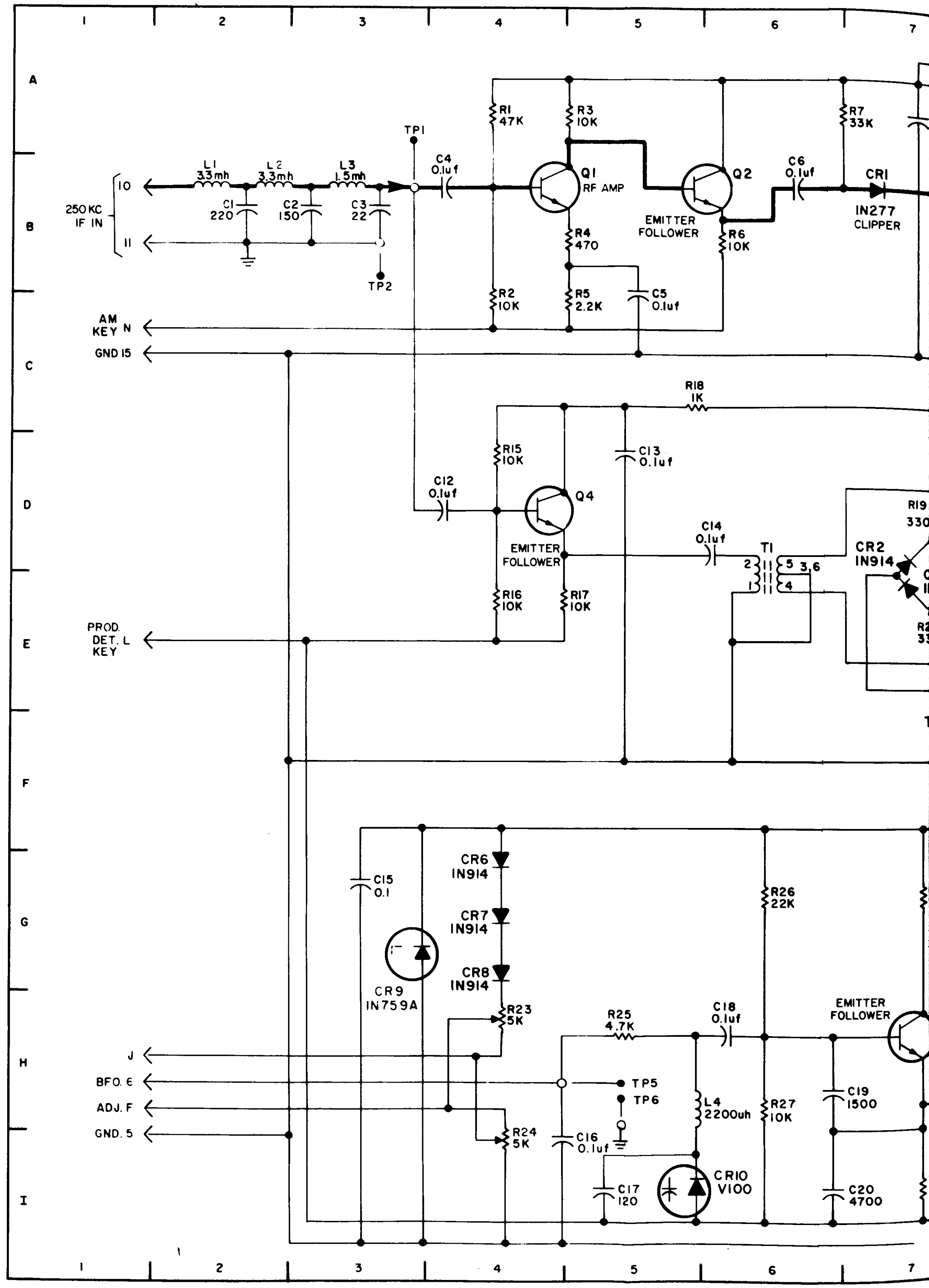
C1	2B	C37	17I	Q7	10H	R27	6H	R63	16D
C2	3B	C38	20H	Q8	12H	R28	7G	R64	16E
C3	3B	C39	20H	Q9	15H	R29	7H	R65	17C
C4	4B	C40	15D	Q10	16H	R30	8F	R66	17D
C5	5C	C41	17D	Q11	18G	R31	8G	R67	17C
C6	6B	C42	16E	Q12	19H	R32	8I	R68	17D
C7	7A	C43	18D	Q13	19H	R33	8G	R69	17E
C8	7B	C44	19D	Q14	16D	R34	8H	R70	18E
C9	8B	C45	20C	Q15	17D	R35	8I	R71	18C
C10	9B	C46	20D	Q16	19D	R36	9G	R72	18D
C11	11B	C47	21D	R1	4A	R37	9I	R73	19C
C12	4D	C48	22D	R2	4C	R38	10H	R74	19D
C13	5D	CR1	7B	R3	5A	R39	10I	R75	20C
C14	6D	CR2	7D	R4	5B	R40	11G	R76	21D
C15	3G	CR3	8D	R5	5C	R41	11H	R77	21D
C16	5I	CR4	7E	R6	6B	R42	12F	T1	6D
C17	5I	CR5	8E	R7	6A	R43	12G	T2	7F
C18	6H	CR6	4G	R8	8A	R44	12H	TP1	3B
C19	6H	CR7	4G	R9	8B	R45	14G	TP2	3B
C20	6I	CR8	4G	R10	9B	R46	14I	TP3	8B
C21	7H	CR9	3G	R11	9A	R47	15G	TP4	14E
C22	9G	CR10	5I	R12	9C	R48	15I	TP5	4H
C23	9I	CR11	20D	R13	10A	R49	15G	TP6	5H
C24	10G	CR12	21D	R14	10C	R50	15I	TP7	8H
C25	10G	L1	2B	R15	4D	R51	16G	TP8	12H
C26	11G	L2	2B	R16	4E	R52	16G	TP9	15H
C27	10I	L3	3B	R17	4E	R53	16I	TP10	19H
C28	12G	L4	5H	R18	5C	R54	17F	TP11	20H
C29	12I	L5	10G	R19	7D	R55	18G	TP12	20I
C30	13I	L6	13F	R20	8D	R56	18I	TP13	15D
C31	13I	Q1	4B	R21	7E	R57	19I	TP14	14D
C32	14H	Q2	6B	R22	8E	R58	19I	TP15	22F
C33	14I	Q3	10B	R23	4H	R59	15F	TP16	22G
C34	15G	Q4	4D	R24	4I	R60	15C	TP17	14E
C35	17I	Q5	7H	R25	5H	R61	15E	TP18	22C
C36	17H	Q6	8H	R26	6G	R62	16C	TP19	18I



ORIGINAL

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C37	7F	Q7	7D	R27	7E	R63	2G
C38	8G	Q8	8C	R28	6D	R64	2H
C39	7G	Q9	9E	R29	7E	R65	3F
C40	4G	Q10	8F	R30	7D	R66	2H
C41	3G	Q11	9F	R31	6E	R67	2F
C42	2G	Q12	9G	R32	7E	R68	1F
C43	2F	Q13	8G	R33	8E	R69	1E
C44	2E	Q14	3G	R34	6E	R70	4E
C45	2D	Q15	2F	R35	7E	R71	2F
C46	3E	Q16	2E	R36	7D	R72	1E
C47	3E	R1	2D	R37	7D	R73	2F
C48	4F	R2	2C	R38	7C	R74	1E
CR1	3C	R3	2D	R39	7C	R75	3E
CR2	6C	R4	2C	R40	8C	R76	3E
CR3	6C	R5	2C	R41	8C	R77	3F
CR4	6C	R6	2C	R42	8D	T1	5D
CR5	6C	R7	3D	R43	9C	T2	7C
CR6	6D	R8	3D	R44	8C	TP1	5F
CR7	6D	R9	3C	R45	9D	TP2	4E
CR8	6F	R10	3C	R46	9D	TP3	3D
CR9	6D	R11	4C	R47	8D	TP4	5C
CR10	8E	R12	4C	R48	9E	TP5	6F
CR11	4F	R13	4C	R49	8D	TP6	6G
CR12	3E	R14	4C	R50	8D	TP7	6E
L1	5F	R15	5D	R51	8F	TP8	7C
L2	5F	R16	5E	R52	8F	TP9	8E
L3	5F	R17	5E	R53	9F	TP10	9G
L4	7F	R18	4D	R54	7F	TP11	8F
L5	8D	R19	6C	R55	9G	TP12	8F
L6	9D	R20	6C	R56	9G	TP13	4F
Q1	2D	R21	6C	R57	9G	TP14	4F
Q2	2D	R22	6C	R58	7F	TP15	9C
Q3	4C	R23	6F	R59	8D	TP16	10C
Q4	4D	R24	6F	R60	3G	TP17	5C
Q5	6E	R25	6F	R61	4H	TP18	5B
Q6	6E	R26	7D	R62	3G	TP19	10F

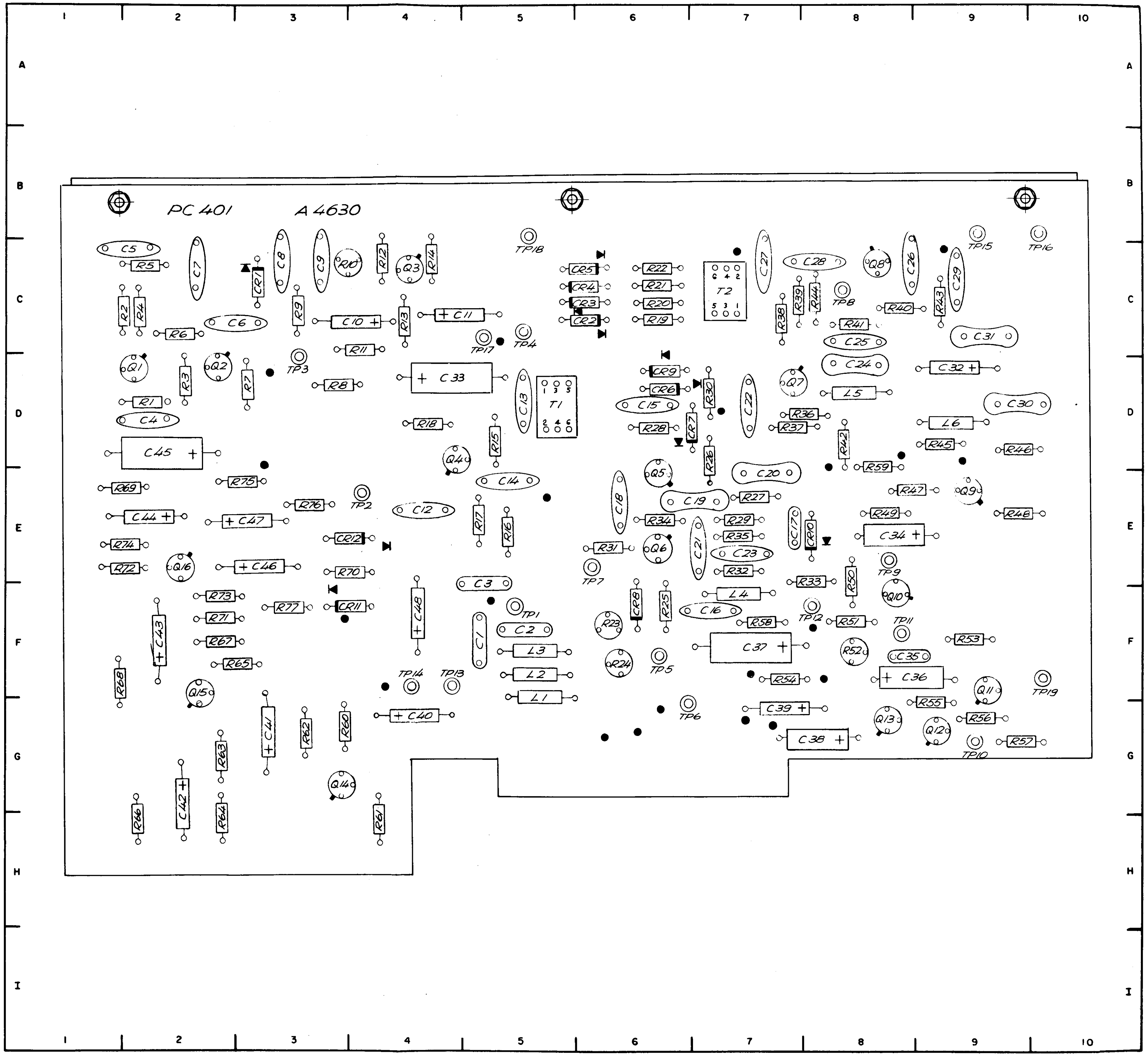
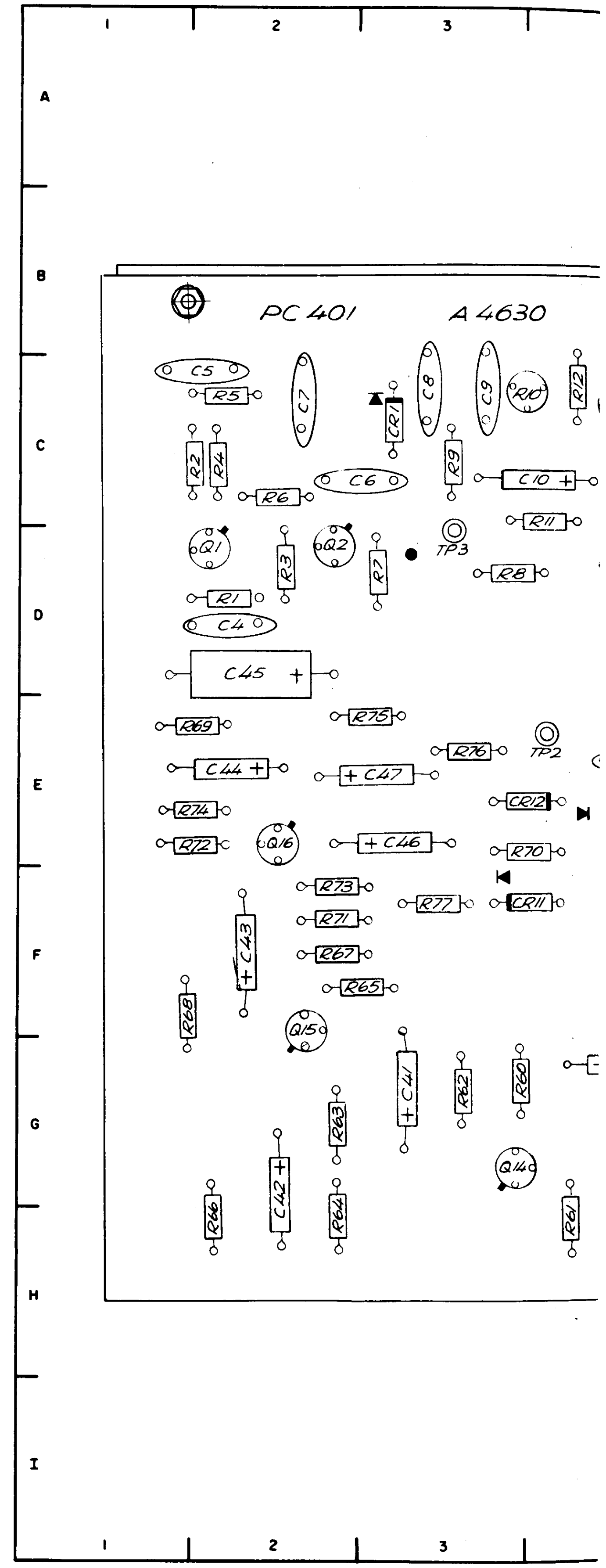


Figure 5-58. Component Locations, Symmetrical Demodulator 2A4

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5F	C37	7F	Q7	7D	R27	7E	R63	2G
C2	5F	C38	8G	Q8	8C	R28	6D	R64	2H
C3	5E	C39	7G	Q9	9E	R29	7E	R65	3F
C4	2D	C40	4G	Q10	8F	R30	7D	R66	2H
C5	2C	C41	3G	Q11	9F	R31	6E	R67	2F
C6	2C	C42	2G	Q12	9G	R32	7E	R68	1F
C7	2C	C43	2F	Q13	8G	R33	8E	R69	1E
C8	3C	C44	2E	Q14	3G	R34	6E	R70	4E
C9	3C	C45	2D	Q15	2F	R35	7E	R71	2F
C10	4C	C46	3E	Q16	2E	R36	7D	R72	1E
C11	4C	C47	3E	R1	2D	R37	7D	R73	2F
C12	4E	C48	4F	R2	2C	R38	7C	R74	1E
C13	5D	CR1	3C	R3	2D	R39	7C	R75	3E
C14	5E	CR2	6C	R4	2C	R40	8C	R76	3E
C15	6D	CR3	6C	R5	2C	R41	8C	R77	3F
C16	7F	CR4	6C	R6	2C	R42	8D	T1	5D
C17	7E	CR5	6C	R7	3D	R43	9C	T2	7C
C18	6E	CR6	6D	R8	3D	R44	8C	TP1	5F
C19	6E	CR7	6D	R9	3C	R45	9D	TP2	4E
C20	7E	CR8	6F	R10	3C	R46	9D	TP3	3D
C21	7E	CR9	6D	R11	4C	R47	8D	TP4	5C
C22	7D	CR10	8E	R12	4C	R48	9E	TP5	6F
C23	7E	CR11	4F	R13	4C	R49	8D	TP6	6G
C24	8D	CR12	3E	R14	4C	R50	8D	TP7	6E
C25	8C	L1	5F	R15	5D	R51	8F	TP8	7C
C26	8C	L2	5F	R16	5E	R52	8F	TP9	8E
C27	7C	L3	5F	R17	5E	R53	9F	TP10	9G
C28	8C	L4	7F	R18	4D	R54	7F	TP11	8F
C29	9C	L5	8D	R19	6C	R55	9G	TP12	8F
C30	9D	L6	9D	R20	6C	R56	9G	TP13	4F
C31	9C	Q1	2D	R21	6C	R57	9G	TP14	4F
C32	9D	Q2	2D	R22	6C	R58	7F	TP15	9C
C33	4D	Q3	4C	R23	6F	R59	8D	TP16	10C
C34	8E	Q4	4D	R24	6F	R60	3G	TP17	5C
C35	8F	Q5	6E	R25	6F	R61	4H	TP18	5B
C36	8F	Q6	6E	R26	7D	R62	3G	TP19	10F



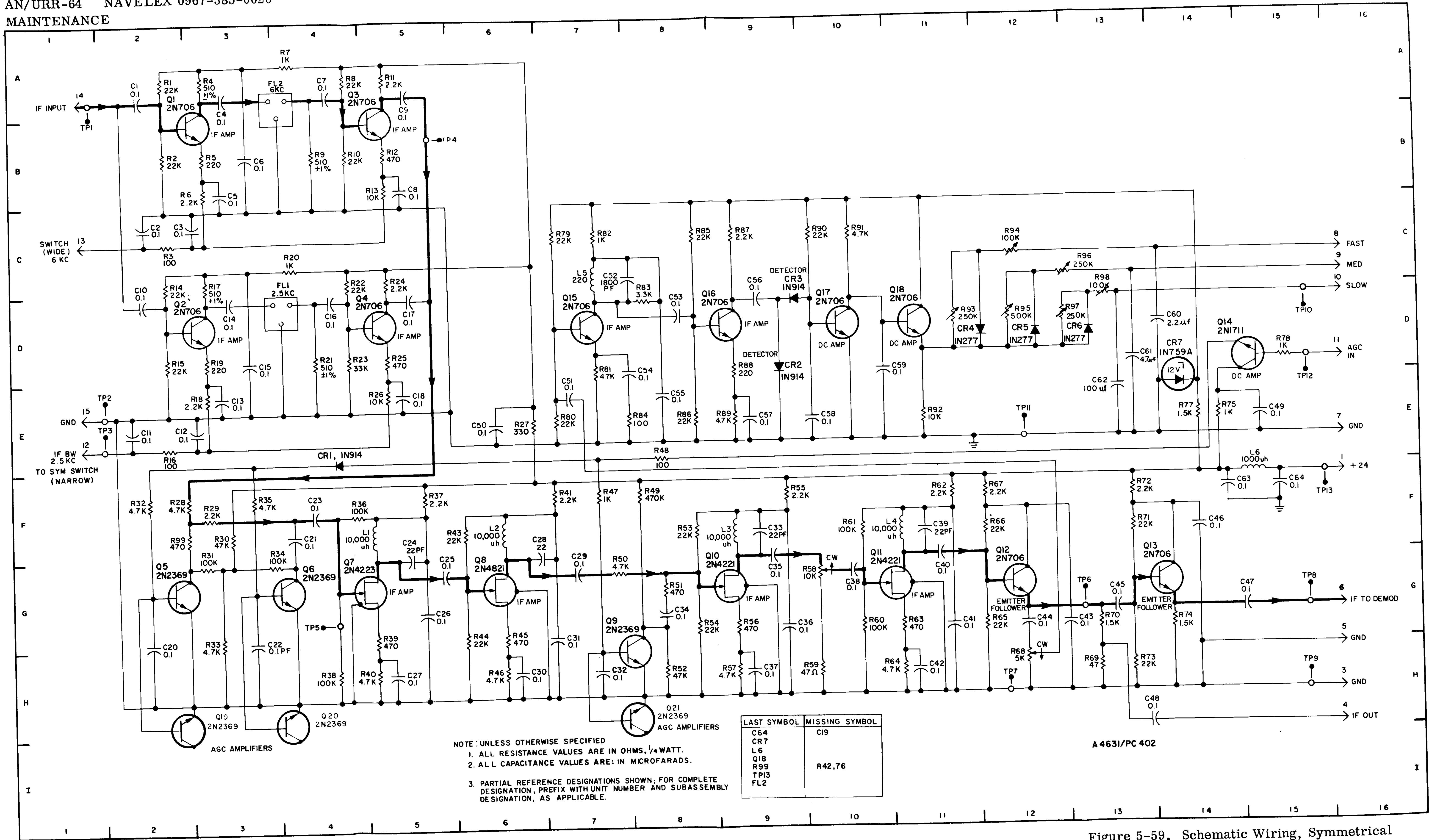


Figure 5-59. Schematic Wiring, Symmetrical IF/AGC 2A5

PART LOCATION INDEX

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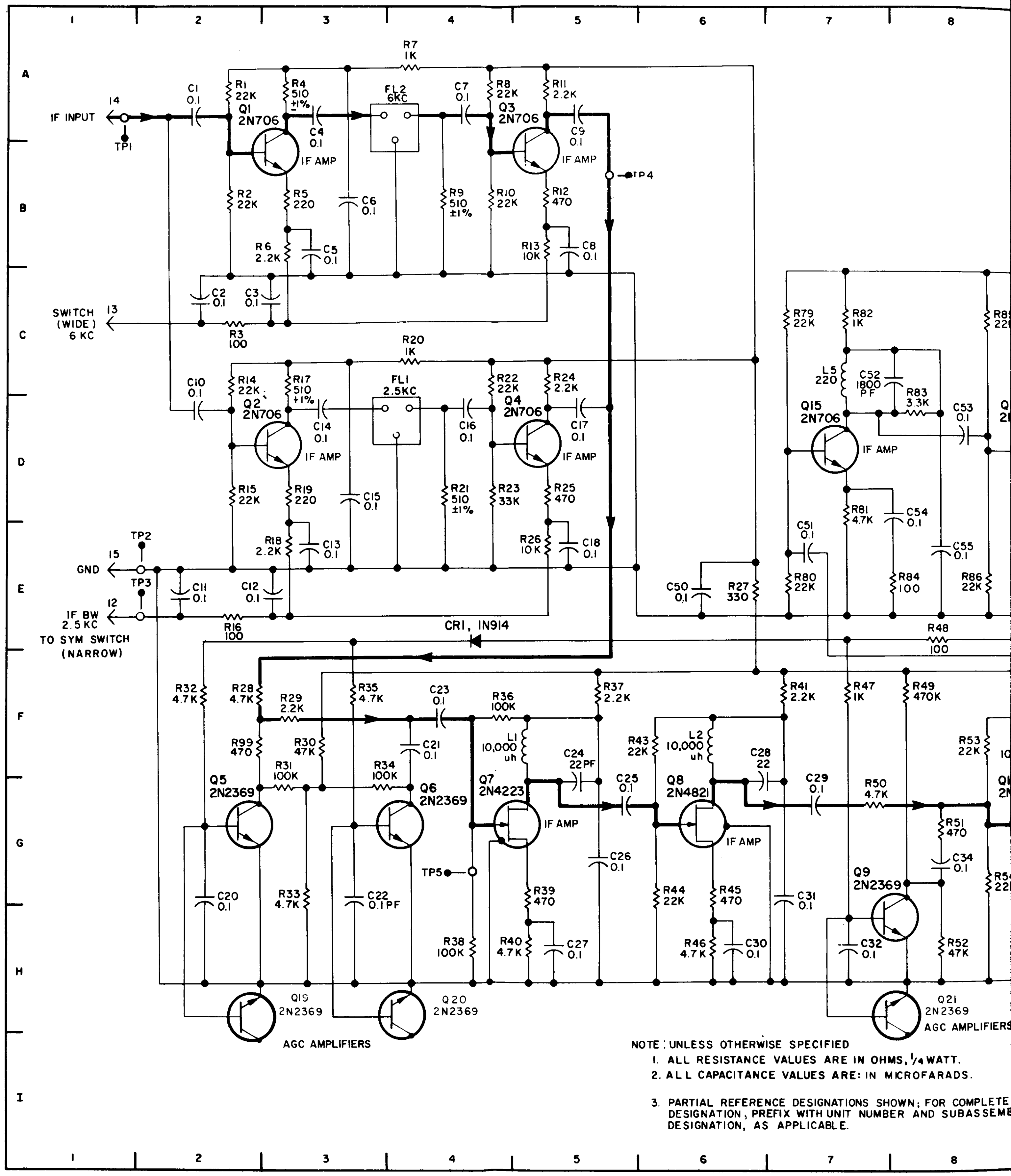
C1	2A	C43	13G	Q6	4G	R29	3F	R71	13F
C2	2C	C44	12G	Q7	5G	R30	3F	R72	13F
C3	3C	C45	13G	Q8	6G	R31	3G	R73	13H
C4	3A	C46	14F	Q9	7G	R32	2F	R74	14G
C5	3B	C47	15G	Q10	9G	R33	3G	R75	14E
C6	3B	C48	14H	Q11	11G	R34	3G	R77	14E
C7	4A	C50	6E	Q12	12G	R35	3F	R78	15D
C8	5B	C51	7E	Q13	14G	R36	4F	R79	7C
C9	5A	C52	8C	Q14	15D	R37	5F	R80	7E
C10	2D	C53	8D	Q15	7D	R38	4H	R81	7D
C11	2E	C54	8D	Q16	9D	R39	5G	R82	7C
C12	3E	C55	8E	Q17	10D	R40	5H	R83	8D
C13	3E	C56	9D	Q18	11D	R41	7F	R84	8E
C14	3D	C57	9E	R1	2A	R43	6F	R85	8C
C15	3D	C58	10E	R2	2B	R44	6G	R86	8D
C16	4D	C59	11D	R3	2C	R45	6G	R87	9C
C17	5D	C60	14D	R4	3A	R46	6H	R88	9D
C18	5E	C61	13D	R5	3B	R47	7F	R89	9E
C20	2G	C62	13E	R6	3B	R48	8E	R90	10C
C21	4F	C63	14F	R7	4A	R49	8F	R91	10C
C22	3G	C64	15F	R8	4A	R50	7G	R92	11E
C23	4F	CR1	4E	R9	4B	R51	8G	R93	11D
C24	5F	CR2	9D	R10	4B	R52	8H	R94	12C
C25	5G	CR3	10D	R11	5A	R53	8F	R95	12D
C26	5G	CR4	12D	R12	5B	R54	8G	R96	13C
C27	5H	CR5	12D	R13	5B	R55	9F	R97	13D
C28	7F	CR6	13D	R14	2C	R56	9G	R98	13D
C29	7G	CR7	14D	R15	2D	R57	9H	R99	2F
C30	6H	FL1	4D	R16	2E	R58	10G	TP1	1A
C31	7G	FL2	4A	R17	3C	R59	10H	TP2	2E
C32	7H	L1	5F	R18	3E	R60	10G	TP3	2E
C33	9F	L2	6F	R19	3D	R61	10G	TP4	6B
C34	8G	L3	9F	R20	4C	R62	11F	TP5	4G
C35	9F	L4	11F	R21	4D	R63	11H	TP6	13G
C36	9G	L5	7C	R22	4C	R64	11G	TP7	12H
C37	9H	L6	15F	R23	4D	R65	12G	TP8	15G
C38	10G	Q1	2A	R24	5C	R66	12F	TP9	15H
C39	11F	Q2	3D	R25	5D	R67	12F	TP10	15D
C40	11F	Q3	5A	R26	5E	R68	12H	TP11	12E
C41	11G	Q4	5D	R27	6E	R69	13H	TP12	15D
C42	11H	Q5	2G	R28	3F	R70	13G	TP13	15F



PART LOCATION INDEX

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C45	9F	Q8	7C	R31	5C	R73	9F
C46	9F	Q9	7D	R32	5C	R74	9F
C47	9F	Q10	8C	R33	5D	R75	8E
C48	9F	Q11	9C	R34	5D	R77	8E
C50	5D	Q12	9E	R35	6D	R78	5F
C51	9E	Q13	9F	R36	6C	R79	8E
C52	8F	Q14	8E	R37	6D	R80	8E
C53	7F	Q15	8F	R38	6C	R81	8F
C54	8F	Q16	7F	R39	6D	R82	8F
C55	8F	Q17	6F	R40	6C	R83	8F
C56	7F	Q18	6E	R41	7D	R84	8F
C57	7E	R1	2G	R43	7D	R85	7E
C58	6E	R2	2H	R44	6C	R86	7E
C59	6E	R3	4G	R45	7C	R87	7E
C60	6F	R4	2G	R46	7C	R88	7E
C61	6F	R5	2G	R47	7D	R89	7E
C62	6F	R6	2H	R48	8E	R90	6E
C63	9D	R7	3G	R49	8C	R91	6E
C64	9G	R8	4D	R50	7C	R92	6E
CR1	7D	R9	4D	R51	7D	R93	5F
CR2	7E	R10	4C	R52	8D	R94	6F
CR3	6E	R11	5D	R53	8C	R95	5F
CR4	5E	R12	5C	R54	7C	R96	6F
CR5	5E	R13	4C	R55	8D	R97	5G
CR6	5E	R14	3G	R56	8C	R98	6G
CR7	7E	R15	3H	R57	8C	R99	5C
FL1	3E	R16	4G	R58	8C	TP1	2H
FL2	3C	R17	3G	R59	8C	TP2	1G
L1	6D	R18	3G	R60	9C	TP3	5F
L2	7D	R19	3G	R61	9C	TP4	5D
L3	8D	R20	4F	R62	9D	TP5	6C
L4	9D	R21	4E	R63	9C	TP6	9E
L5	7D	R22	4F	R64	9C	TP7	9C
L6	9D	R23	5E	R65	9D	TP8	9G
Q1	2G	R24	5F	R66	9E	TP9	10F
Q2	2G	R25	5E	R67	9D	TP10	6G
Q3	5C	R26	5F	R68	9E	TP11	7F
Q4	5F	R27	6D	R69	9F	TP12	5G
Q5	5C	R28	5D	R70	9E	TP13	10C

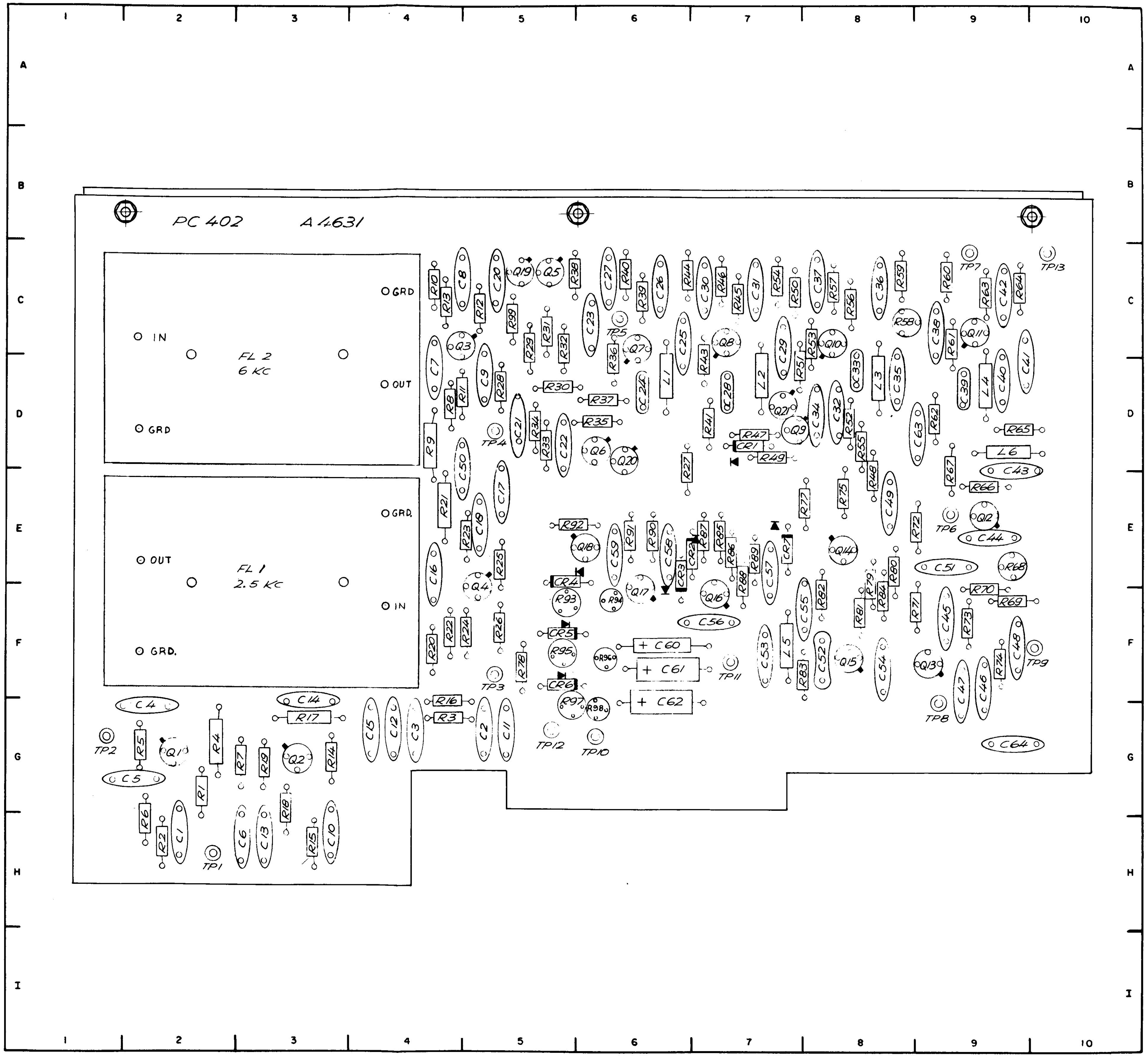
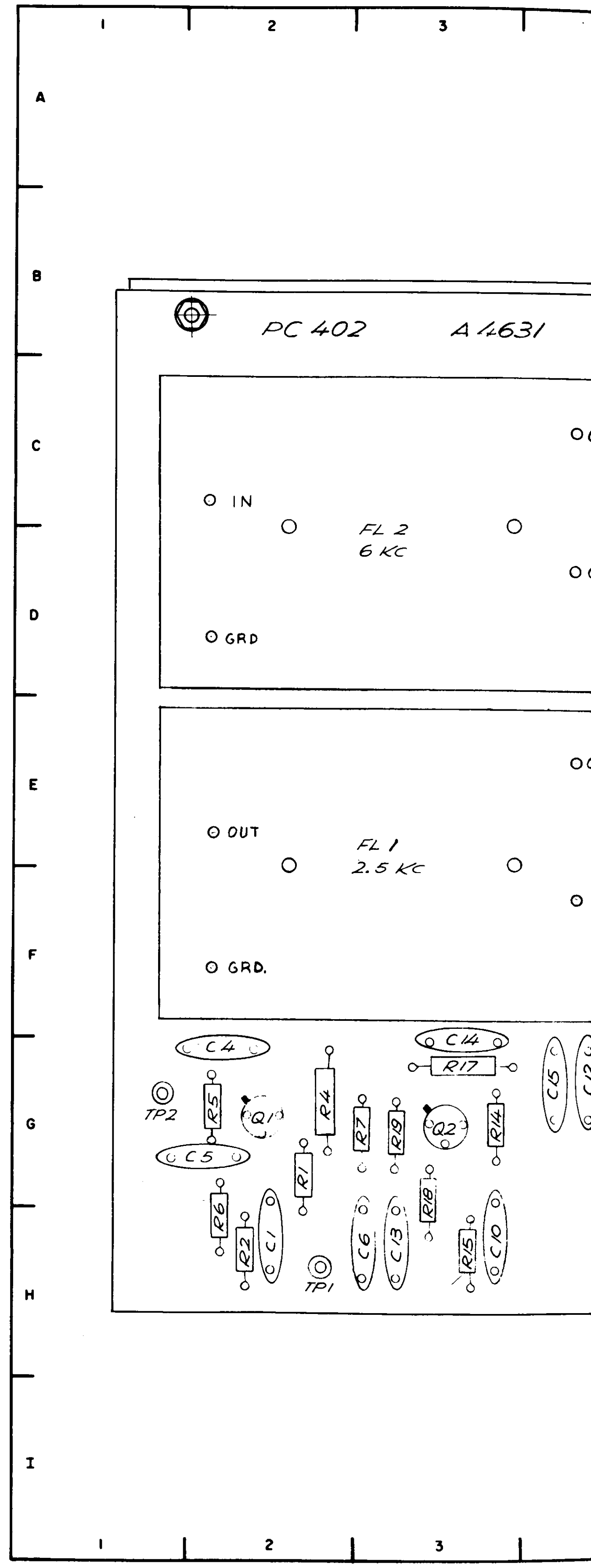


Figure 5-60. Component Locations, Symmetrical IF/AGC 2A5

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2H	C43	9D	Q6	6D	R29	5C	R71	9F
C2	5G	C44	9E	Q7	6C	R30	5D	R72	9E
C3	4G	C45	9F	Q8	7C	R31	5C	R73	9F
C4	2G	C46	9F	Q9	7D	R32	5C	R74	9F
C5	2G	C47	9F	Q10	8C	R33	5D	R75	8E
C6	3H	C48	9F	Q11	9C	R34	5D	R77	8E
C7	4D	C50	5D	Q12	9E	R35	6D	R78	5F
C8	5C	C51	9E	Q13	9F	R36	6C	R79	8E
C9	5D	C52	8F	Q14	8E	R37	6D	R80	8E
C10	3H	C53	7F	Q15	8F	R38	6C	R81	8F
C11	5G	C54	8F	Q16	7F	R39	6D	R82	8F
C12	4G	C55	8F	Q17	6F	R40	6C	R83	8F
C13	3H	C56	7F	Q18	6E	R41	7D	R84	8F
C14	3F	C57	7E	R1	2G	R43	7D	R85	7E
C15	4G	C58	6E	R2	2H	R44	6C	R86	7E
C16	4E	C59	6E	R3	4G	R45	7C	R87	7E
C17	5E	C60	6F	R4	2G	R46	7C	R88	7E
C18	5E	C61	6F	R5	2G	R47	7D	R89	7E
C20	5C	C62	6F	R6	2H	R48	8E	R90	6E
C21	5D	C63	9D	R7	3G	R49	8C	R91	6E
C22	5D	C64	9G	R8	4D	R50	7C	R92	6E
C23	6C	CR1	7D	R9	4D	R51	7D	R93	5F
C24	6D	CR2	7E	R10	4C	R52	8D	R94	6F
C25	6C	CR3	6E	R11	5D	R53	8C	R95	5F
C26	6C	CR4	5E	R12	5C	R54	7C	R96	6F
C27	6C	CR5	5E	R13	4C	R55	8D	R97	5G
C28	7D	CR6	5E	R14	3G	R56	8C	R98	6G
C29	7C	CR7	7E	R15	3H	R57	8C	R99	5C
C30	7C	FL1	3E	R16	4G	R58	8C	TP1	2H
C31	7C	FL2	3C	R17	3G	R59	8C	TP2	1G
C32	8D	L1	6D	R18	3G	R60	9C	TP3	5F
C33	8D	L2	7D	R19	3G	R61	9C	TP4	5D
C34	8D	L3	8D	R20	4F	R62	9D	TP5	6C
C35	8D	L4	9D	R21	4E	R63	9C	TP6	9E
C36	8C	L5	7D	R22	4F	R64	9C	TP7	9C
C37	8C	L6	9D	R23	5E	R65	9D	TP8	9G
C38	9C	Q1	2G	R24	5F	R66	9E	TP9	10F
C39	9D	Q2	2G	R25	5E	R67	9D	TP10	6G
C40	9D	Q3	5C	R26	5F	R68	9E	TP11	7F
C41	10C	Q4	5F	R27	6D	R69	9F	TP12	5G
C42	9C	Q5	5C	R28	5D	R70	9E	TP13	10C



LOC	REF DESIG	LOC
4D	R49	8H
4E	R50	8I
5D	R51	9H
5E	R52	10G
7E	R53	10G
7D	R54	9F
7E	T1	4C
7E	T2	5D
8D	T3	9G
8E	TP1	3C
8D	TP2	4C
8E	TP3	2D
9D	TP4	5E
9D	TP5	6D
9E	TP6	8D
10E	TP7	9D
10E	TP8	11E
11E	TP9	3G
12E	TP10	4F
3F	TP11	6G
3H	TP12	7G
4G	TP13	9F
4H	TP14	10G
3H	TP15	10G
3I	TP16	9G
3I	TP17	10H
4H	TP18	11H
5H	CR1	5B
6F	CR2	5C
6G	CR3	6B
6H	CR4	6C
7G	CR5	6G
8G	CR6	6G

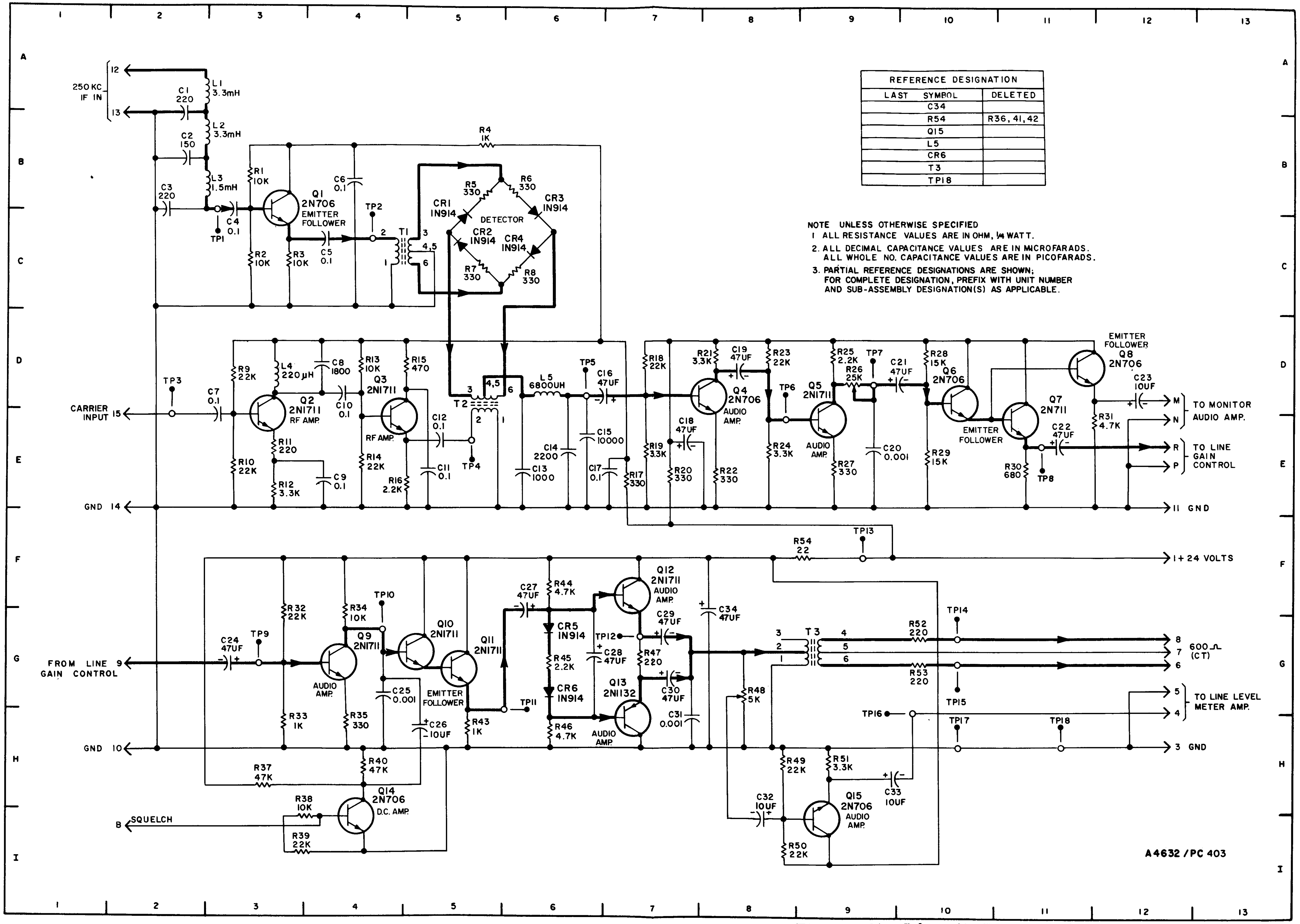
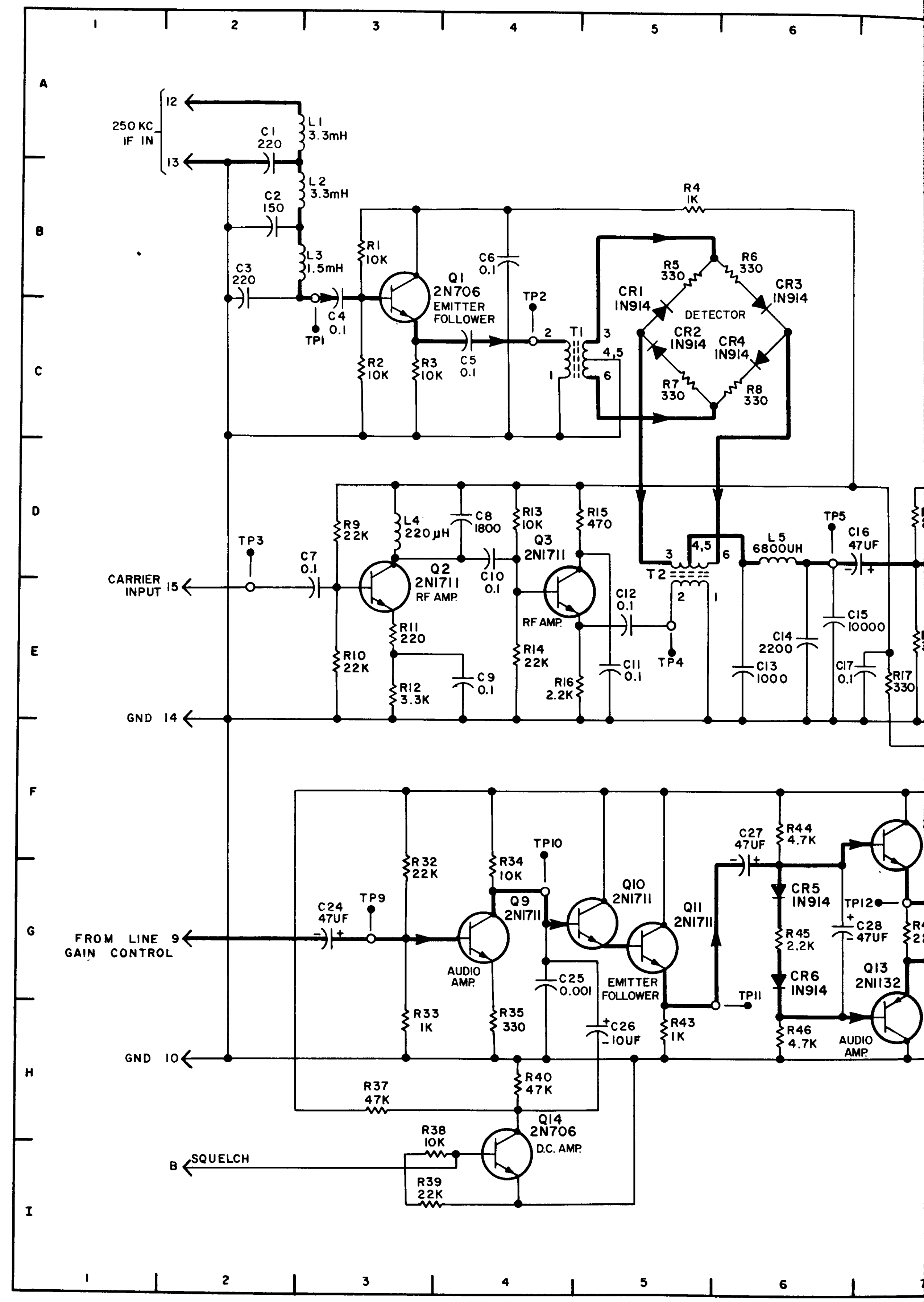


Figure 5-61. Schematic Wiring, Audio Demodulator, ISB, 2A6, 2A8, 10, 12

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2A	C34	8F	R13	4D	R49	8H
C2	2B	L1	3A	R14	4E	R50	8I
C3	2B	L2	3B	R15	5D	R51	9H
C4	3B	L3	3B	R16	5E	R52	10G
C5	4C	L4	3D	R17	7E	R53	10G
C6	4B	L5	6D	R18	7D	R54	9F
C7	3D	Q1	4B	R19	7E	T1	4C
C8	4D	Q2	3E	R20	7E	T2	5D
C9	4E	Q3	4D	R21	8D	T3	9G
C10	4D	Q4	8D	R22	8E	TP1	3C
C11	5E	Q5	9D	R23	8D	TP2	4C
C12	5E	Q6	10D	R24	8E	TP3	2D
C13	6E	Q7	11D	R25	9D	TP4	5E
C14	6E	Q8	12D	R26	9D	TP5	6D
C15	6E	Q9	4G	R27	9E	TP6	8D
C16	7D	Q10	5G	R28	10E	TP7	9D
C17	7E	Q11	5G	R29	10E	TP8	11E
C18	7E	Q12	7F	R30	11E	TP9	3G
C19	8D	Q13	7H	R31	12E	TP10	4F
C20	9E	Q14	4H	R32	3F	TP11	6G
C21	10D	Q15	9H	R33	3H	TP12	7G
C22	11E	R1	3B	R34	4G	TP13	9F
C23	12D	R2	3C	R35	4H	TP14	10G
C24	3G	R3	3C	R37	3H	TP15	10G
C25	4G	R4	5B	R38	3I	TP16	9G
C26	5H	R5	5B	R39	3I	TP17	10H
C27	6F	R6	6B	R40	4H	TP18	11H
C28	7G	R7	5C	R43	5H	CR1	5B
C29	7F	R8	6C	R44	6F	CR2	5C
C30	7G	R9	3D	R45	6G	CR3	6B
C31	7H	R10	3E	R46	6H	CR4	6C
C32	8I	R11	3E	R47	7G	CR5	6G
C33	9H	R12	3E	R48	8G	CR6	6G



PART LOCATION INDEX

LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
5F	C34	9E	R13	3G	R49	9E
5F	L1	5F	R14	2G	R50	9E
5F	L2	5F	R15	3F	R51	9E
4F	L3	5F	R16	2F	R52	9D
5E	L4	3G	R17	6D	R53	9D
4E	L5	2E	R18	2D	R54	9C
3H	Q1	5E	R19	2C	T1	4F
3G	Q2	2G	R20	6C	T2	3F
2G	Q3	2F	R21	2D	T3	9C
2G	Q4	2D	R22	2C	TP1	5F
2F	Q5	7F	R23	3D	TP2	4E
2F	Q6	4D	R24	3C	TP3	4G
2E	Q7	5D	R25	3D	TP4	2F
2E	Q8	5C	R26	4D	TP5	2E
2E	Q9	8F	R27	3C	TP6	3D
2D	Q10	7D	R28	4D	TP7	4D
3E	Q11	7D	R29	4C	TP8	4D
5C	Q12	8D	R30	5D	TP9	7F
3D	Q13	6C	R31	5C	TP10	8E
4C	Q14	8E	R32	8F	TP11	6D
4C	Q15	9E	R33	6F	TP12	8C
5E	R1	5E	R34	8F	TP13	10C
5E	R2	4F	R35	7F	TP14	9F
6F	R3	4F	R37	8E	TP15	9F
7E	R4	3E	R38	8E	TP16	9F
8F	R5	3F	R39	7E	TP17	6E
7D	R6	3F	R40	8E	TP18	9C
7C	R7	3E	R43	6D	CR1	3F
8C	R8	3E	R44	8D	CR2	3F
8C	R9	3G	R45	7C	CR3	3F
8C	R10	2H	R46	6E	CR4	3E
9D	R11	2G	R47	7C	CR5	8C
9F	R12	2G	R48	9C	CR6	7C

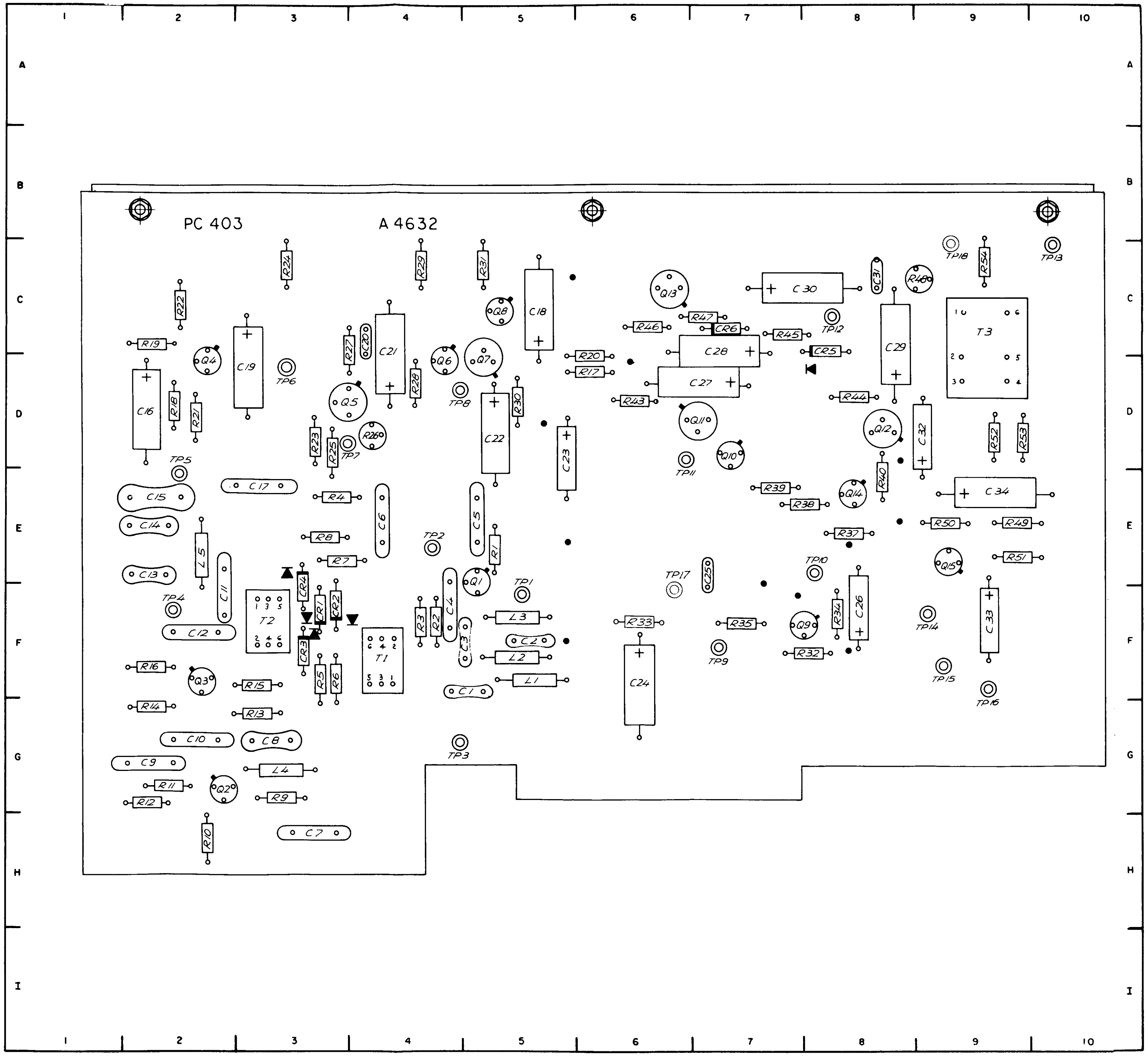
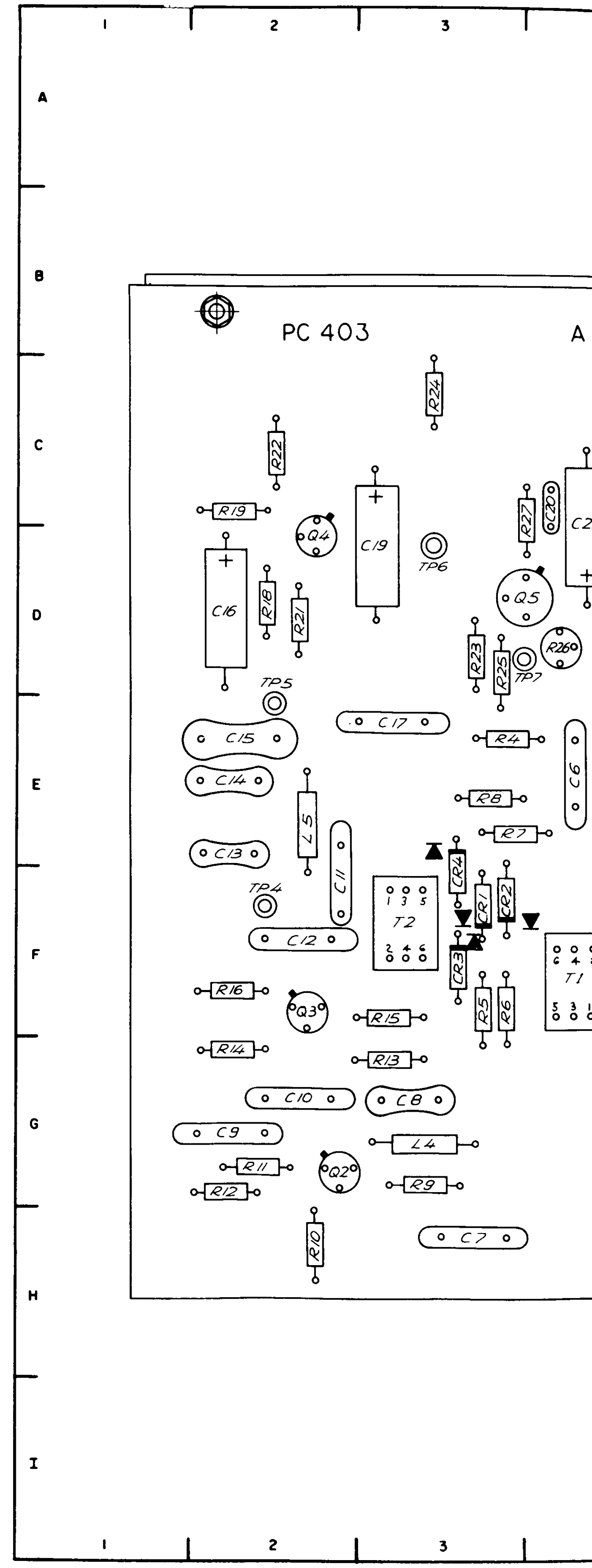
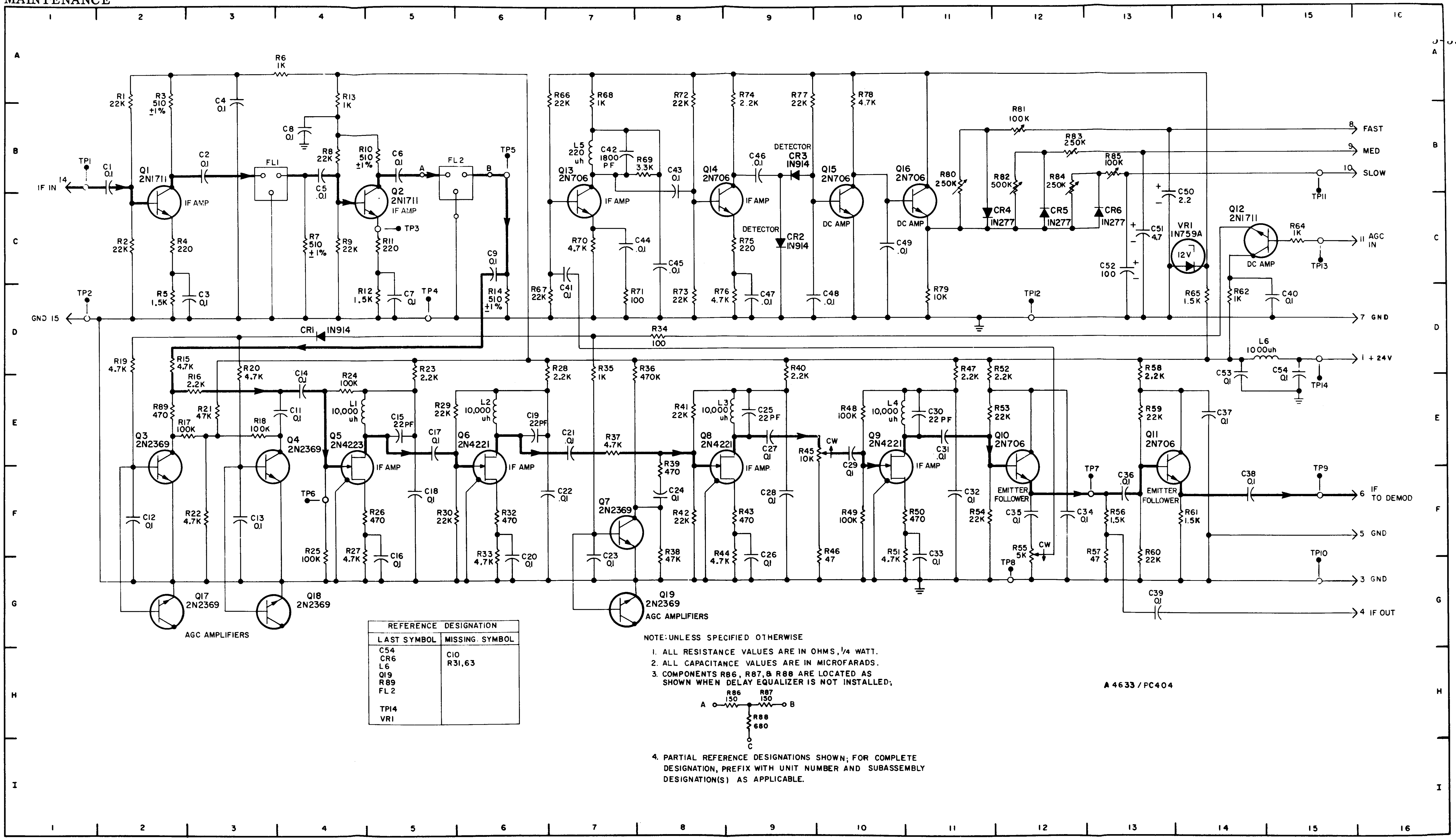


Figure 5-62. Component Locations, Audio/
Demodulator, ISB, 2A6, 8, 10, 12

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5F	C34	9E	R13	3G	R49	9E
C2	5F	L1	5F	R14	2G	R50	9E
C3	5F	L2	5F	R15	3F	R51	9E
C4	4F	L3	5F	R16	2F	R52	9D
C5	5E	L4	3G	R17	6D	R53	9D
C6	4E	L5	2E	R18	2D	R54	9C
C7	3H	Q1	5E	R19	2C	T1	4F
C8	3G	Q2	2G	R20	6C	T2	3F
C9	2G	Q3	2F	R21	2D	T3	9C
C10	2G	Q4	2D	R22	2C	TP1	5F
C11	2F	Q5	7F	R23	3D	TP2	4E
C12	2F	Q6	4D	R24	3C	TP3	4G
C13	2E	Q7	5D	R25	3D	TP4	2F
C14	2E	Q8	5C	R26	4D	TP5	2E
C15	2E	Q9	8F	R27	3C	TP6	3D
C16	2D	Q10	7D	R28	4D	TP7	4D
C17	3E	Q11	7D	R29	4C	TP8	4D
C18	5C	Q12	8D	R30	5D	TP9	7F
C19	3D	Q13	6C	R31	5C	TP10	8E
C20	4C	Q14	8E	R32	8F	TP11	6D
C21	4C	Q15	9E	R33	6F	TP12	8C
C22	5E	R1	5E	R34	8F	TP13	10C
C23	5E	R2	4F	R35	7F	TP14	9F
C24	6F	R3	4F	R37	8E	TP15	9F
C25	7E	R4	3E	R38	8E	TP16	9F
C26	8F	R5	3F	R39	7E	TP17	6E
C27	7D	R6	3F	R40	8E	TP18	9C
C28	7C	R7	3E	R43	6D	CR1	3F
C29	8C	R8	3E	R44	8D	CR2	3F
C30	8C	R9	3G	R45	7C	CR3	3F
C31	8C	R10	2H	R46	6E	CR4	3E
C32	9D	R11	2G	R47	7C	CR5	8C
C33	9F	R12	2G	R48	9C	CR6	7C



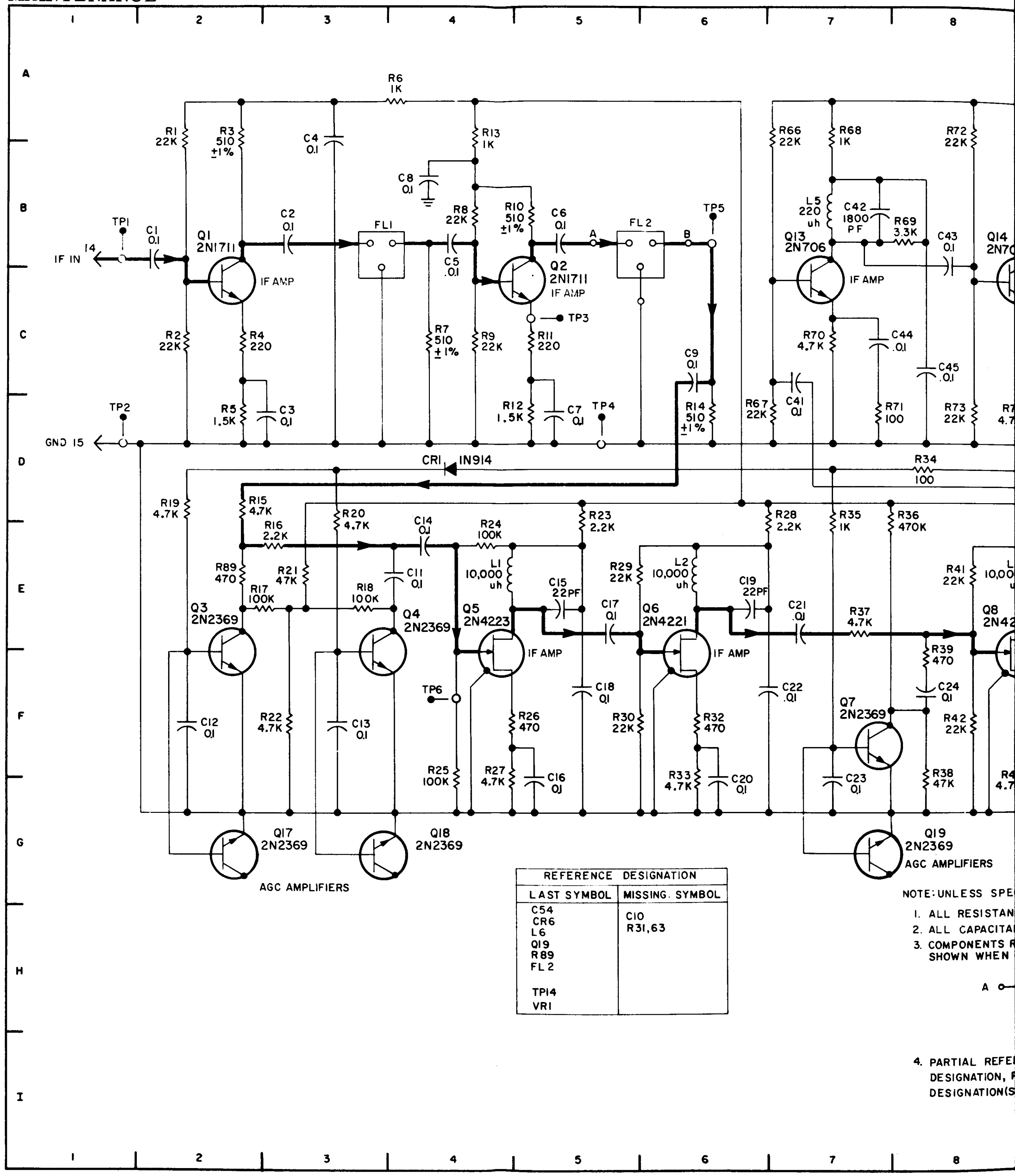


REFERENCE DESIGNATION	
LAST SYMBOL	MISSING. SYMBOL
C54 CR6 L6 Q19 R89 FL2 TP14 VR1	C10 R31,63

Figure 5-63. Schematic Wiring, IF/AGC, ISB 2A7, 9, 11, 13

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2B	C40	15D	R10	5B	R49	10F	R87	9H
C2	3B	C41	7D	R11	5C	R50	10F	R88	9H
C3	3D	C42	7B	R12	5D	R51	10F	R89	2E
C4	4B	C43	8B	R13	4B	R52	11D	Q1	2B
C5	4B	C44	7C	R14	6D	R53	11E	Q2	5B
C6	5B	C45	8C	R15	2D	R54	11F	Q3	2E
C7	5D	C46	9B	R16	3E	R55	12F	Q4	4E
C8	4B	C47	9D	R17	2E	R56	13F	Q5	4E
C9	6C	C48	10D	R18	3E	R57	13F	Q6	6E
C11	4E	C49	10C	R19	2D	R58	13D	Q7	7F
C12	2F	C50	13B	R20	3D	R59	13E	Q8	8E
C13	3F	C51	13B	R21	3E	R60	13F	Q9	10E
C14	4E	C52	13C	R22	3F	R61	14E	Q10	12E
C15	5E	C53	14D	R23	5D	R62	14D	Q11	13E
C16	5G	C54	15D	R24	4E	R64	15C	Q12	14C
C17	5E	CR1	4D	R25	4F	R65	14D	Q13	7B
C18	5F	CR2	9C	R26	4F	R66	7A	Q14	8B
C19	6E	CR3	9B	R27	4F	R67	7D	Q15	10B
C20	6F	CR4	11C	R28	6D	R68	7A	Q16	11B
C21	7E	CR5	12C	R29	5E	R69	8B	Q17	2G
C22	6F	CR6	13C	R30	5F	R70	7C	Q18	3G
C23	7F	FL1	3B	R32	6F	R71	7D	Q19	7G
C24	8F	FL3	6B	R33	6F	R72	8A	TP1	1B
C25	9E	L1	4E	R34	8D	R73	8D	TP2	1D
C26	9F	L2	6E	R35	7D	R74	9A	TP3	5C
C27	9E	L3	8E	R36	7D	R75	9C	TP4	5D
C28	9F	L4	10E	R37	7E	R76	9D	TP5	6B
C29	10F	L5	7B	R38	8F	R77	9A	TP6	4F
C30	11E	L6	14D	R39	8E	R78	10A	TP7	13F
C31	11E	R1	2A	R40	9D	R79	11D	TP8	12G
C32	11F	R2	2C	R41	8E	R80	11B	TP9	15F
C33	11F	R3	2A	R42	8F	R81	12B	TP10	15G
C34	12F	R4	2C	R43	9F	R82	12B	TP11	15B
C35	12F	R5	2D	R44	9F	R83	12B	TP12	12C
C36	13F	R6	4A	R45	9E	R84	12B	TP13	15C
C37	14E	R7	4C	R46	10F	R85	13B	TP14	15E
C38	14F	R8	4B	R47	11D	R86	9H	VR1	14C
C39	13G	R9	4C	R48	10F				



PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C40	8E	R10	3E	R49	9C	R88	3C
C41	9F	R11	2E	R50	9C	R89	5C
C42	7F	R12	2E	R51	9C	Q1	3F
C43	7F	R13	3E	R52	9D	Q2	2E
C44	8F	R14	4C	R53	9E	Q3	5C
C45	7E	R15	4D	R54	9D	Q4	5C
C46	6F	R16	5C	R55	9E	Q5	6C
C47	7E	R17	5C	R56	9E	Q6	7C
C48	6E	R18	5D	R57	9F	Q7	7D
C49	5E	R19	5C	R58	9E	Q8	8C
C50	6F	R20	5C	R59	9F	Q9	9C
C51	6F	R21	5D	R60	9F	Q10	9E
C52	6F	R22	5D	R61	9F	Q11	9F
C53	5D	R23	6D	R62	8E	Q12	8E
C54	10G	R24	6D	R64	5F	Q13	8F
CR1	7D	R25	6C	R65	8E	Q14	6F
CR2	6E	R26	6C	R66	8F	Q15	6E
CR3	6E	R27	6C	R67	8E	Q16	5E
CR4	5E	R28	7D	R68	8E	Q17	5C
CR5	5F	R29	7C	R69	7F	Q18	5C
CR6	5F	R30	7C	R70	8F	Q19	7D
FL1	3G	R32	7C	R71	8F	TP1	5F
FL2	3C	R33	7C	R72	6E	TP2	5F
L1	6D	R34	8D	R73	7E	TP3	2E
L2	7D	R35	7D	R74	6E	TP4	1E
L3	8D	R36	7D	R75	7E	TP5	4C
L4	9D	R37	7C	R76	7E	TP6	6C
L5	7F	R38	8D	R77	6E	TP7	9E
L6	9D	R39	7C	R78	6E	TP8	9C
R1	4E	R40	8D	R79	5E	TP9	9G
R2	4G	R41	8C	R80	5E	TP10	10F
R3	3E	R42	7C	R81	5E	TP11	6G
R4	4F	R43	8C	R82	5F	TP12	7F
R5	4F	R44	8C	R83	5F	TP13	5G
R6	4E	R45	8C	R84	5F	TP14	10C
R7	2F	R46	8C	R85	6F	VR1	7E
R8	2F	R47	9D	R86	3D		
R9	2F	R48	9C	R87	2D		

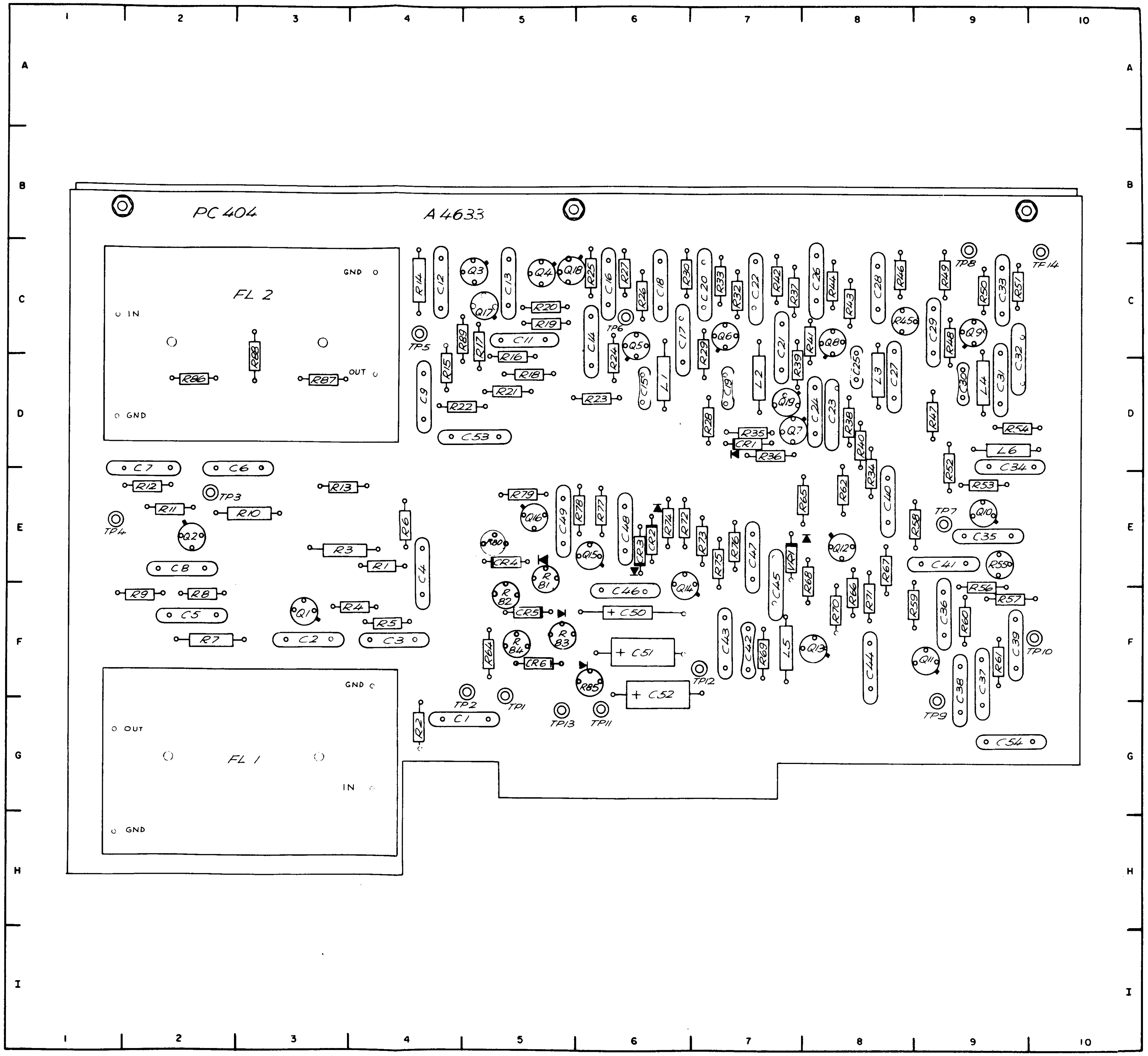
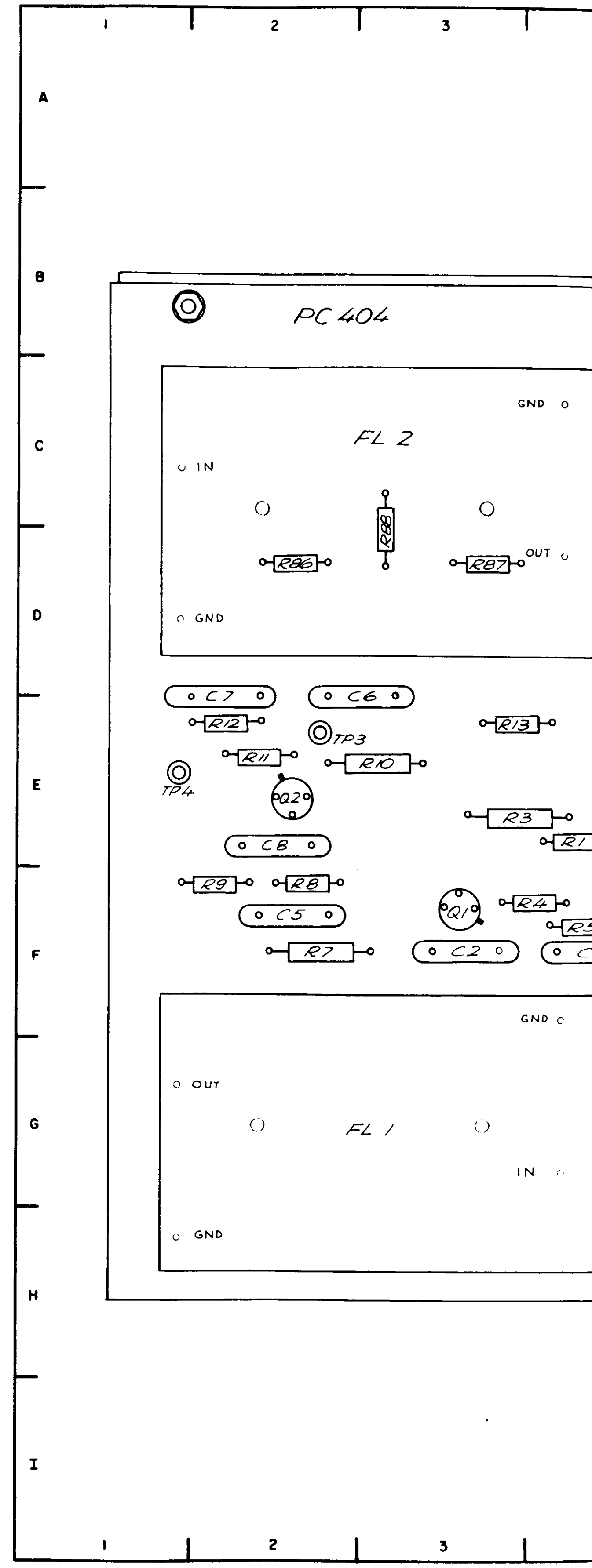


Figure 5-64. Component Locations, IF/AGC, ISB, 2A7, 9, 11, 13

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5G	C40	8E	R10	3E	R49	9C	R88	3C
C2	3F	C41	9F	R11	2E	R50	9C	R89	5C
C3	4F	C42	7F	R12	2E	R51	9C	Q1	3F
C4	4E	C43	7F	R13	3E	R52	9D	Q2	2E
C5	2F	C44	8F	R14	4C	R53	9E	Q3	5C
C6	3D	C45	7E	R15	4D	R54	9D	Q4	5C
C7	2D	C46	6F	R16	5C	R55	9E	Q5	6C
C8	2E	C47	7E	R17	5C	R56	9E	Q6	7C
C9	4D	C48	6E	R18	5D	R57	9F	Q7	7D
C11	5C	C49	5E	R19	5C	R58	9E	Q8	8C
C12	4C	C50	6F	R20	5C	R59	9F	Q9	9C
C13	5C	C51	6F	R21	5D	R60	9F	Q10	9E
C14	6C	C52	6F	R22	5D	R61	9F	Q11	9F
C15	6D	C53	5D	R23	6D	R62	8E	Q12	8E
C16	6C	C54	10G	R24	6D	R64	5F	Q13	8F
C17	6C	CR1	7D	R25	6C	R65	8E	Q14	6F
C18	6C	CR2	6E	R26	6C	R66	8F	Q15	6E
C19	7D	CR3	6E	R27	6C	R67	8E	Q16	5E
C20	7C	CR4	5E	R28	7D	R68	8E	Q17	5C
C21	7C	CR5	5F	R29	7C	R69	7F	Q18	5C
C22	7C	CR6	5F	R30	7C	R70	8F	Q19	7D
C23	8D	FL1	3G	R32	7C	R71	8F	TP1	5F
C24	8D	FL2	3C	R33	7C	R72	6E	TP2	5F
C25	8D	L1	6D	R34	8D	R73	7E	TP3	2E
C26	8C	L2	7D	R35	7D	R74	6E	TP4	1E
C27	8D	L3	8D	R36	7D	R75	7E	TP5	4C
C28	8C	L4	9D	R37	7C	R76	7E	TP6	6C
C29	9C	L5	7F	R38	8D	R77	6E	TP7	9E
C30	9D	L6	9D	R39	7C	R78	6E	TP8	9C
C31	9D	R1	4E	R40	8D	R79	5E	TP9	9G
C32	9C	R2	4G	R41	8C	R80	5E	TP10	10F
C33	9C	R3	3E	R42	7C	R81	5E	TP11	6G
C34	9D	R4	4F	R43	8C	R82	5F	TP12	7F
C35	9E	R5	4F	R44	8C	R83	5F	TP13	5G
C36	9F	R6	4E	R45	8C	R84	5F	TP14	10C
C37	9F	R7	2F	R46	8C	R85	6F	VR1	7E
C38	9F	R8	2F	R47	9D	R86	3D		
C39	9F	R9	2F	R48	9C	R87	2D		



ORIGINAL

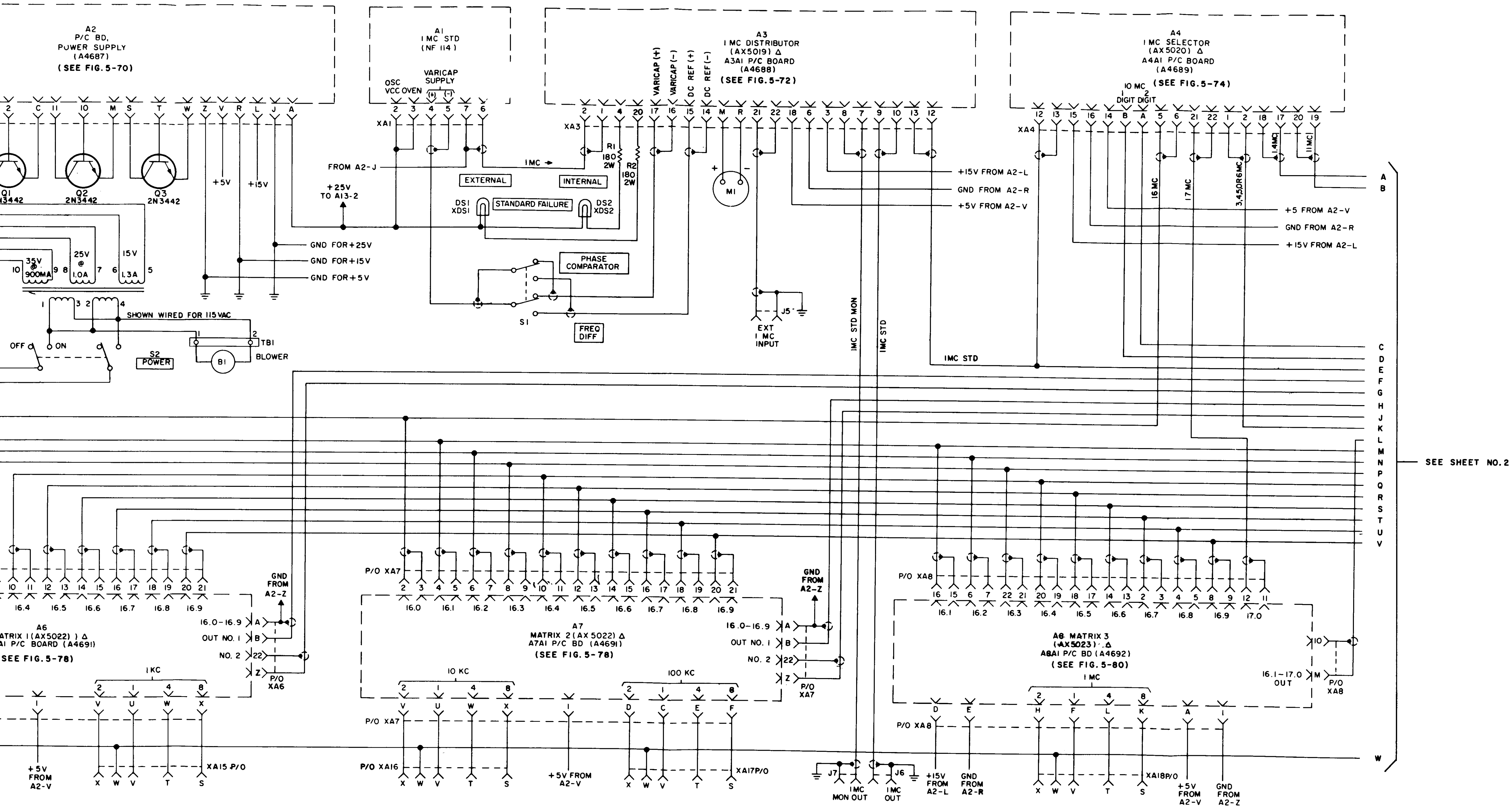
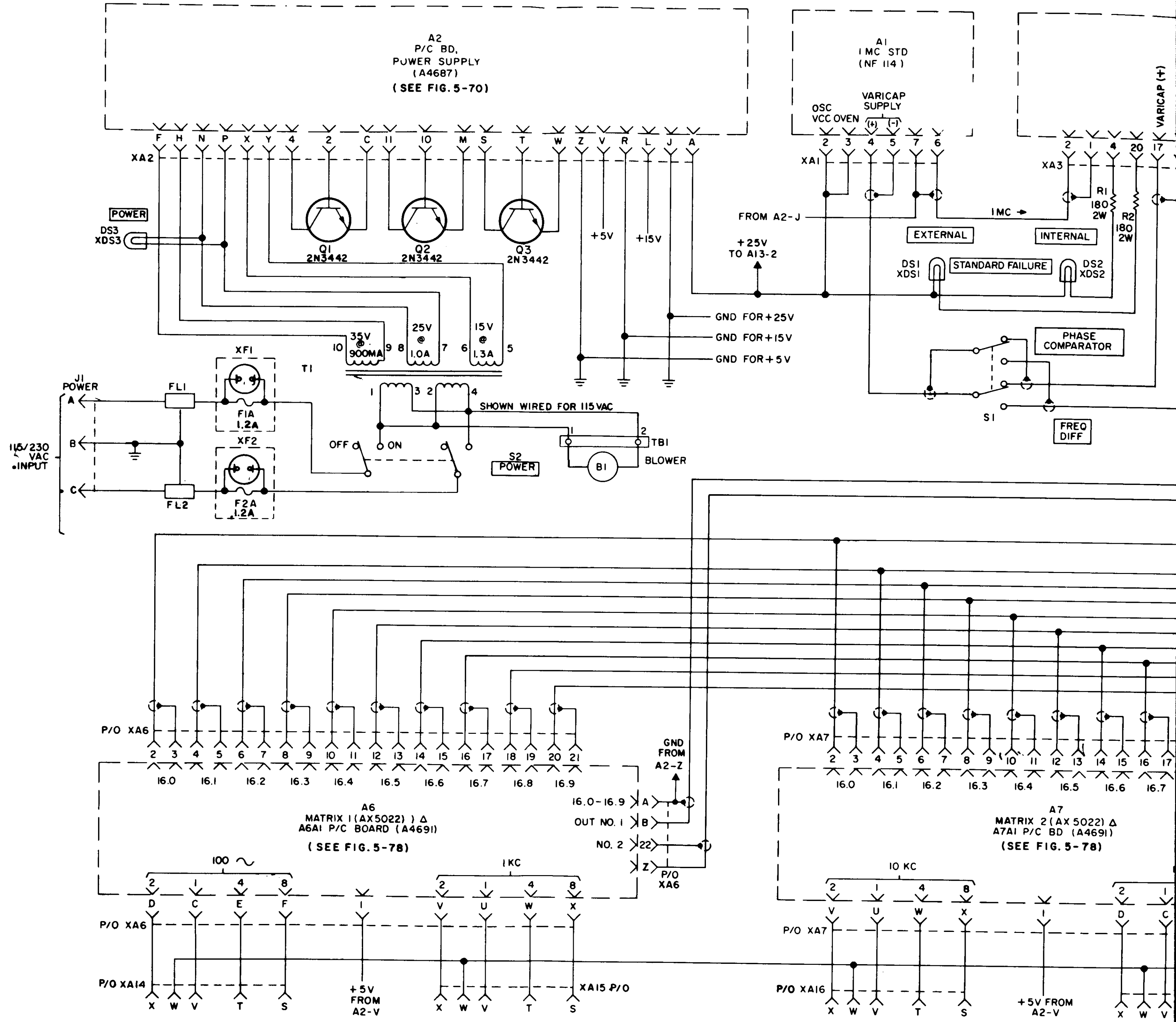


Figure 5-65. Schematic Wiring, Unit 3 (O-1511/URR) (Sheet 1 of 4)


A2
P/C BD,
POWER SUPPLY
(A4687)
(SEE FIG. 5-70)
A1
1 MC STD
(NF 114)
OSC
VCC OVEN
VARICAP
SUPPLY
VARICAP (+)
XA2
XA1
XA3
POWER
DS3
XDS3
Q1
2N3442
Q2
2N3442
Q3
2N3442
+5V
+15V
FROM A2-J
+25V
TO A13-2
IMC
R1
180
2W
R2
180
2W
EXTERNAL
INTERNAL
DS1
XDS1
STANDARD FAILURE
DS2
XDS2
GND FOR +25V
GND FOR +15V
GND FOR +5V
PHASE
COMPARATOR
S1
FREQ
DIFF
35V
@
900MA
25V
@
1.0A
15V
@
1.3A
T1
XF1
F1A
1.2A
XF2
F2A
1.2A
J1
POWER
FL1
FL2
115/230
VAC
INPUT
OFF
ON
SHOWN WIRED FOR 115VAC
TB1
S2
POWER
B1
BLOWER
P/O XA6
16.0
16.1
16.2
16.3
16.4
16.5
16.6
16.7
16.8
16.9
A6
MATRIX 1 (AX5022) Δ
A6A1 P/C BOARD (A4691)
(SEE FIG. 5-78)
GND
FROM
A2-Z
16.0-16.9
OUT NO. 1
NO. 2
P/O
XA6
100 ~
1 KC
P/O XA14
+5V
FROM
A2-V
XA15 P/O
P/O XA7
A7
MATRIX 2 (AX 5022) Δ
A7A1 P/C BD (A4691)
(SEE FIG. 5-78)
10 KC
P/O XA16
+5V FROM
A2-V

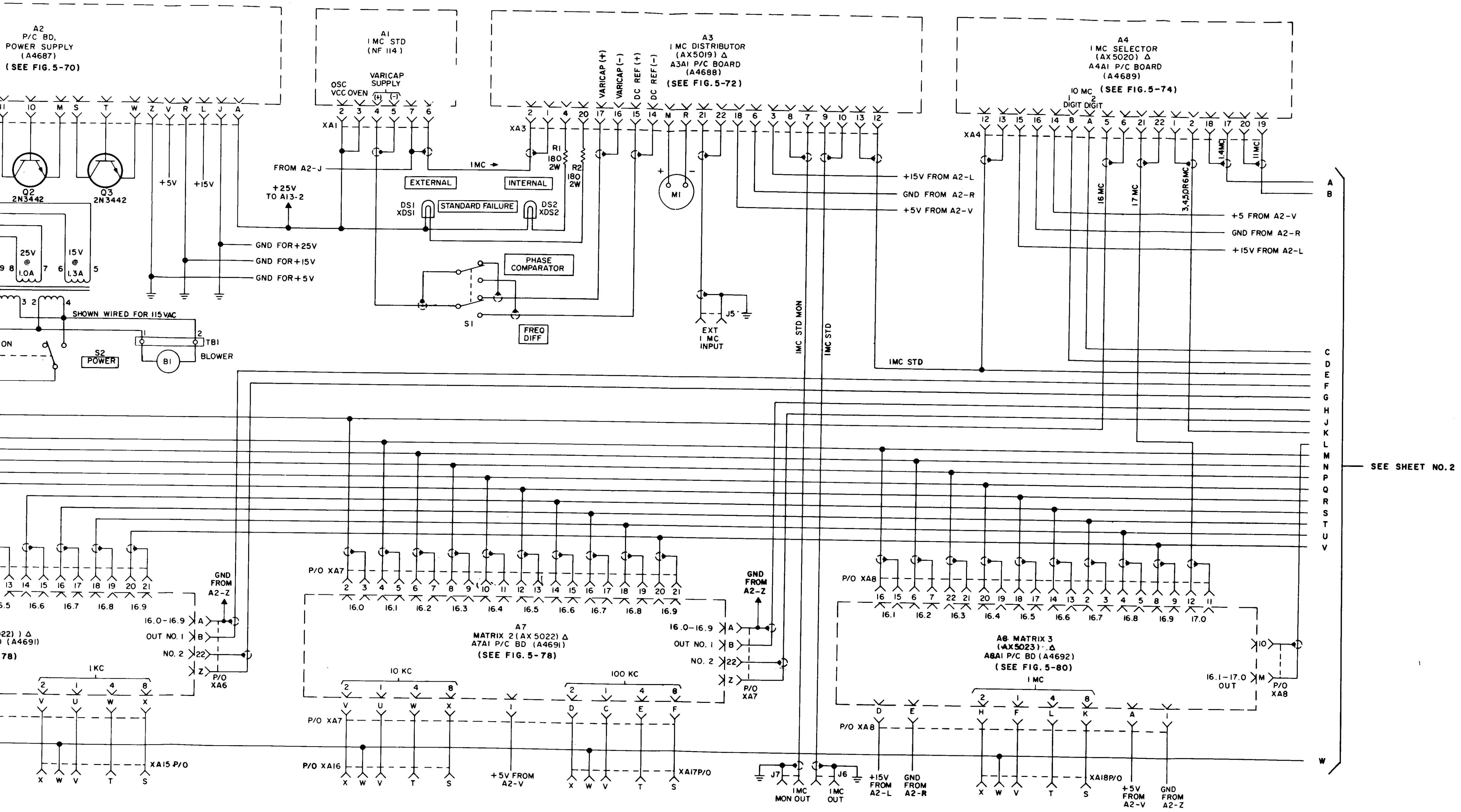


Figure 5-65. Schematic Wiring, Unit 3 (O-1511/URR) (Sheet 1 of 4)

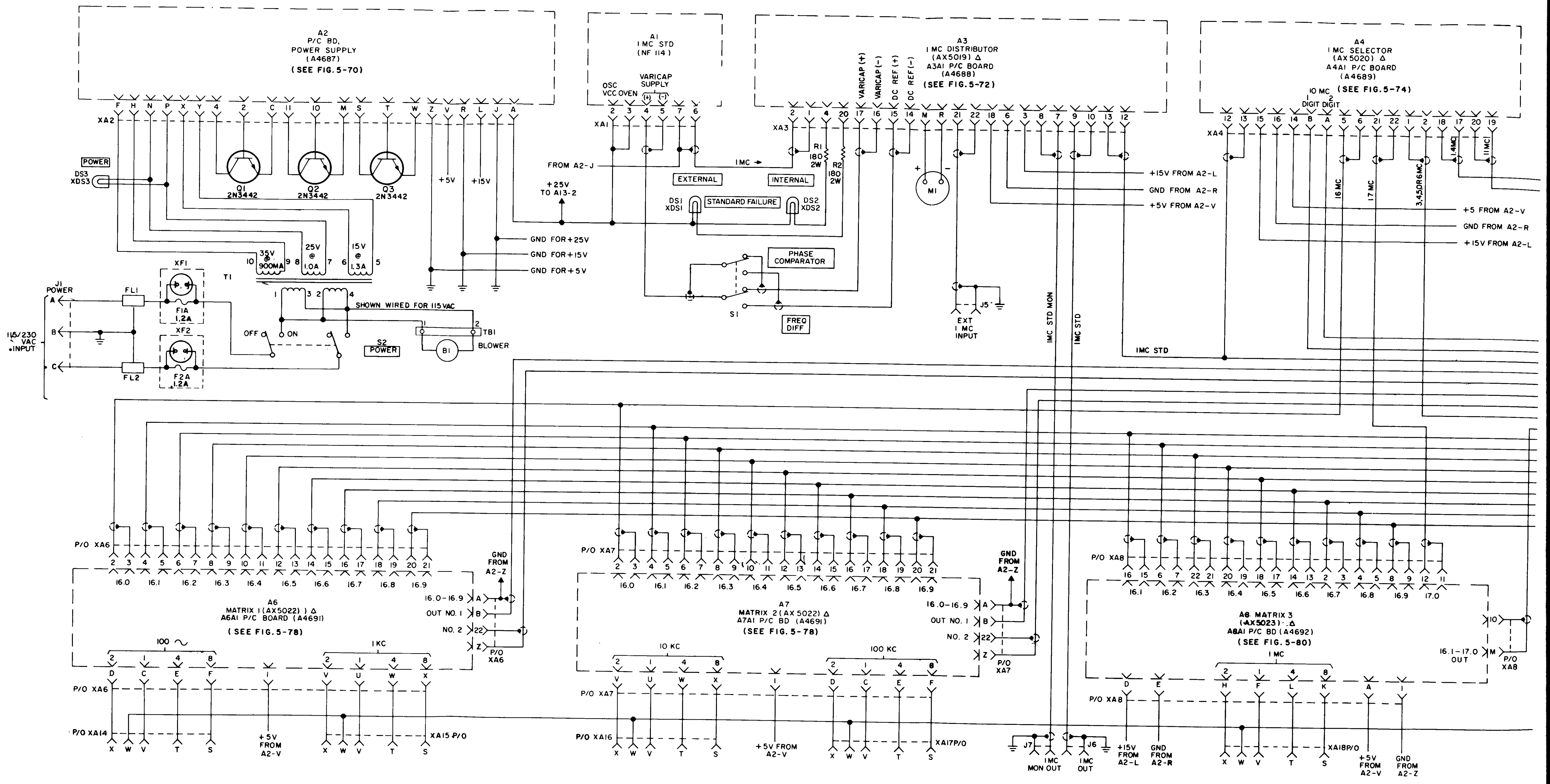


Figure 5-65. Schematic Wir

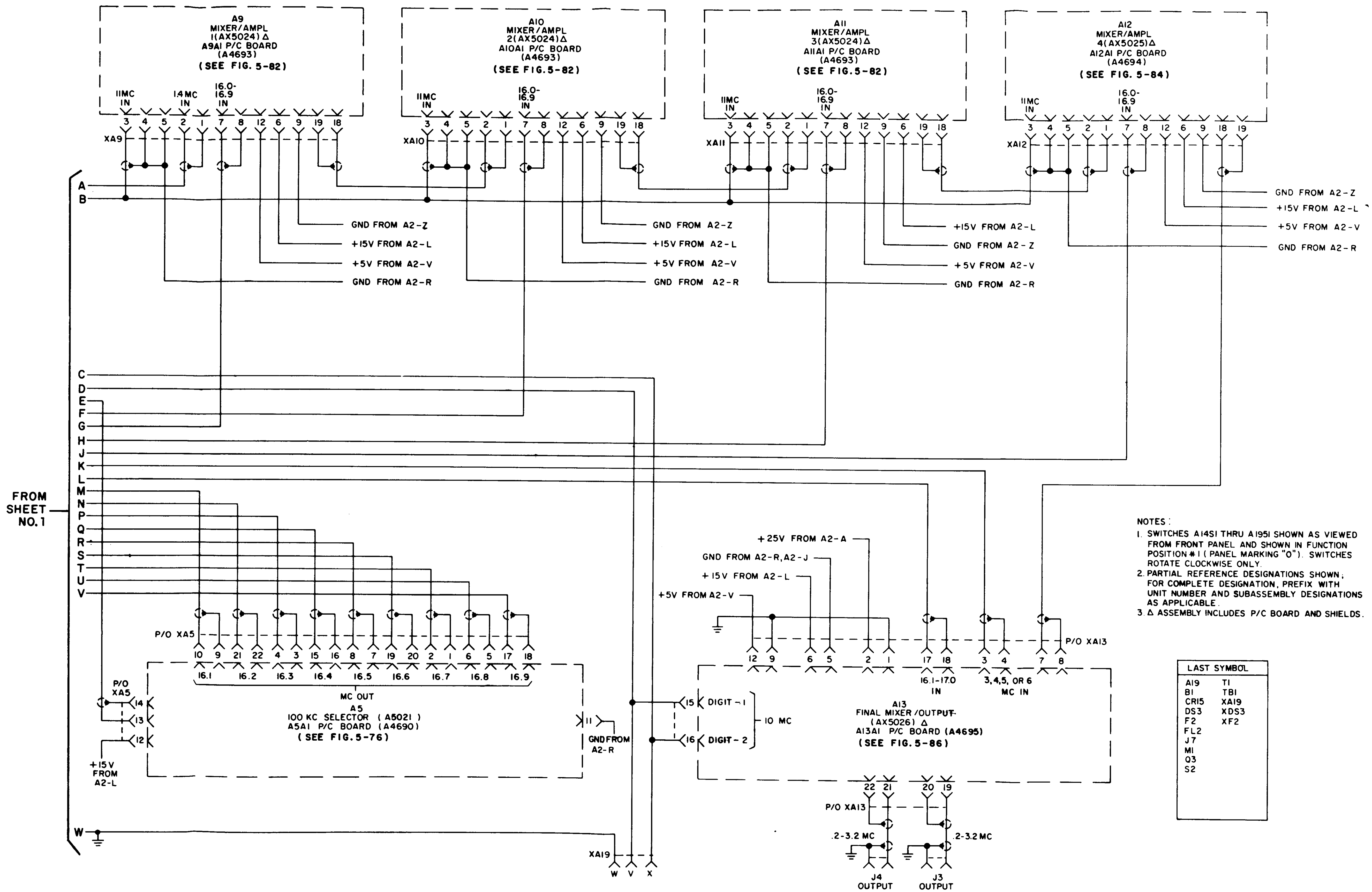
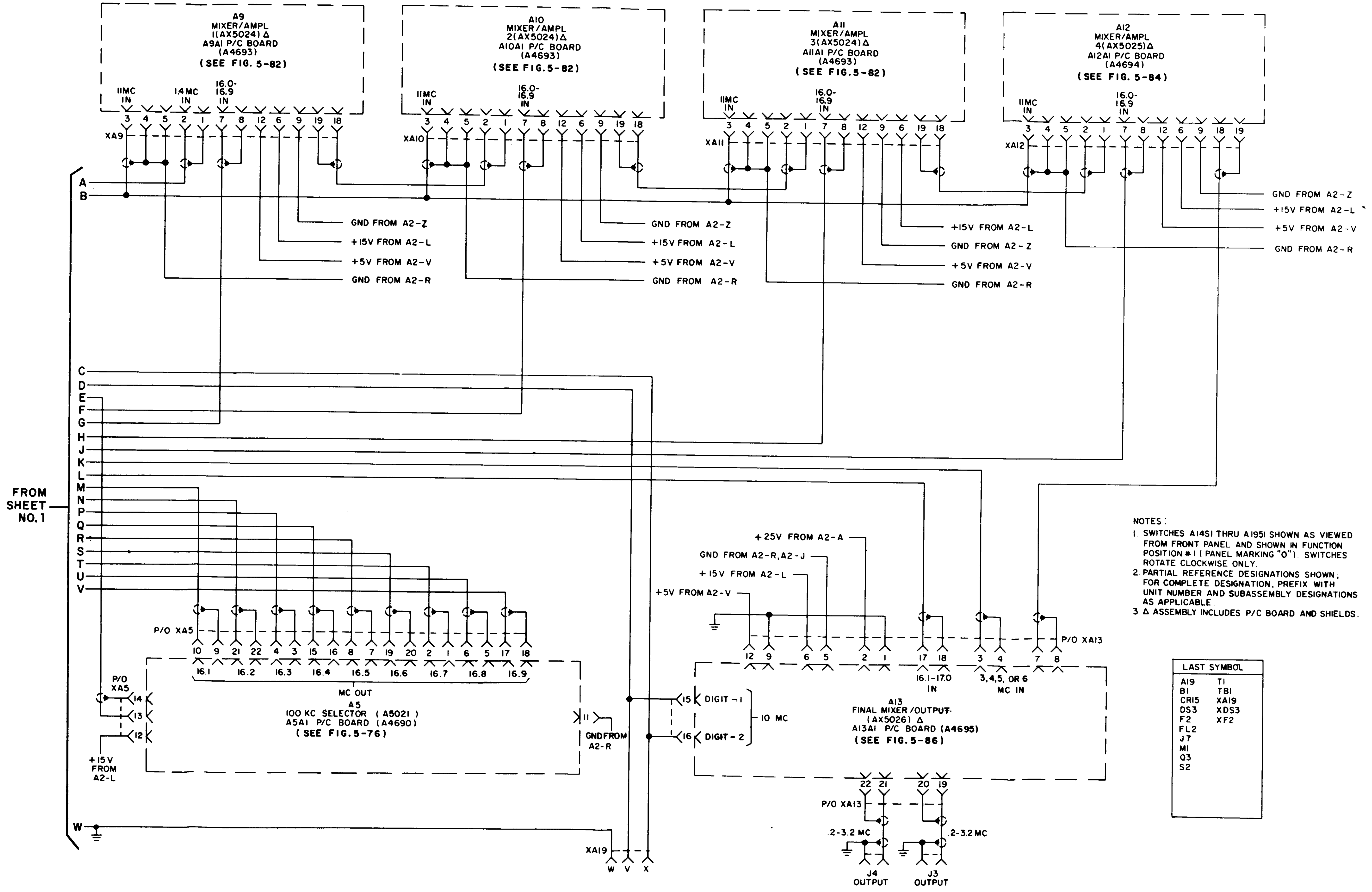


Figure 5-65. Schematic Wiring, Unit 3 (O-1511/URR) (She t 2 of 4)

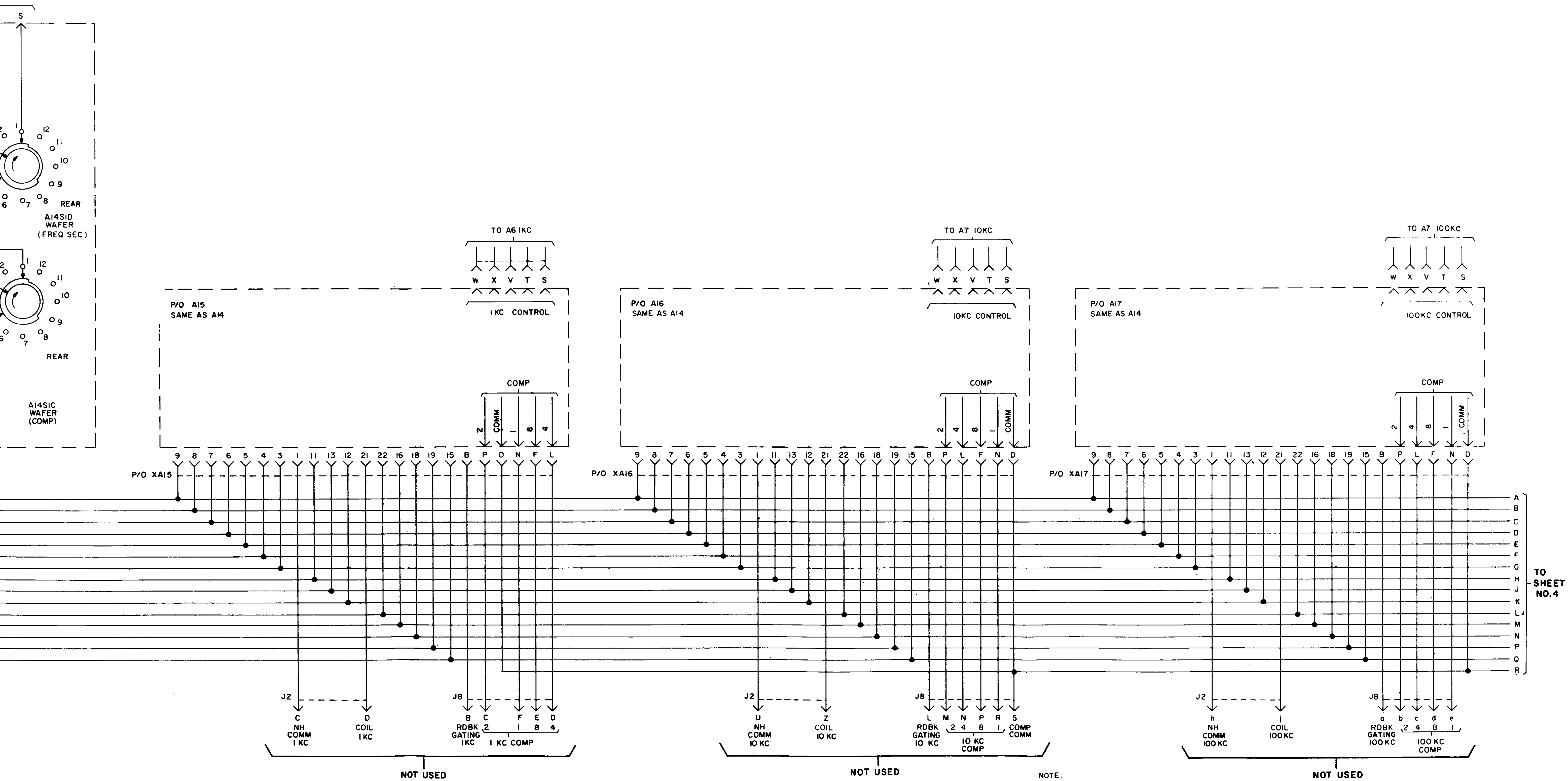
NAVELEX 0967-385-0020



NOTES:
1. SWITCHES A14S1 THRU A19S1 SHOWN AS VIEWED FROM FRONT PANEL AND SHOWN IN FUNCTION POSITION #1 (PANEL MARKING "O"). SWITCHES ROTATE CLOCKWISE ONLY.
2. PARTIAL REFERENCE DESIGNATIONS SHOWN; FOR COMPLETE DESIGNATION, PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATIONS AS APPLICABLE.
3. Δ ASSEMBLY INCLUDES P/C BOARD AND SHIELDS.

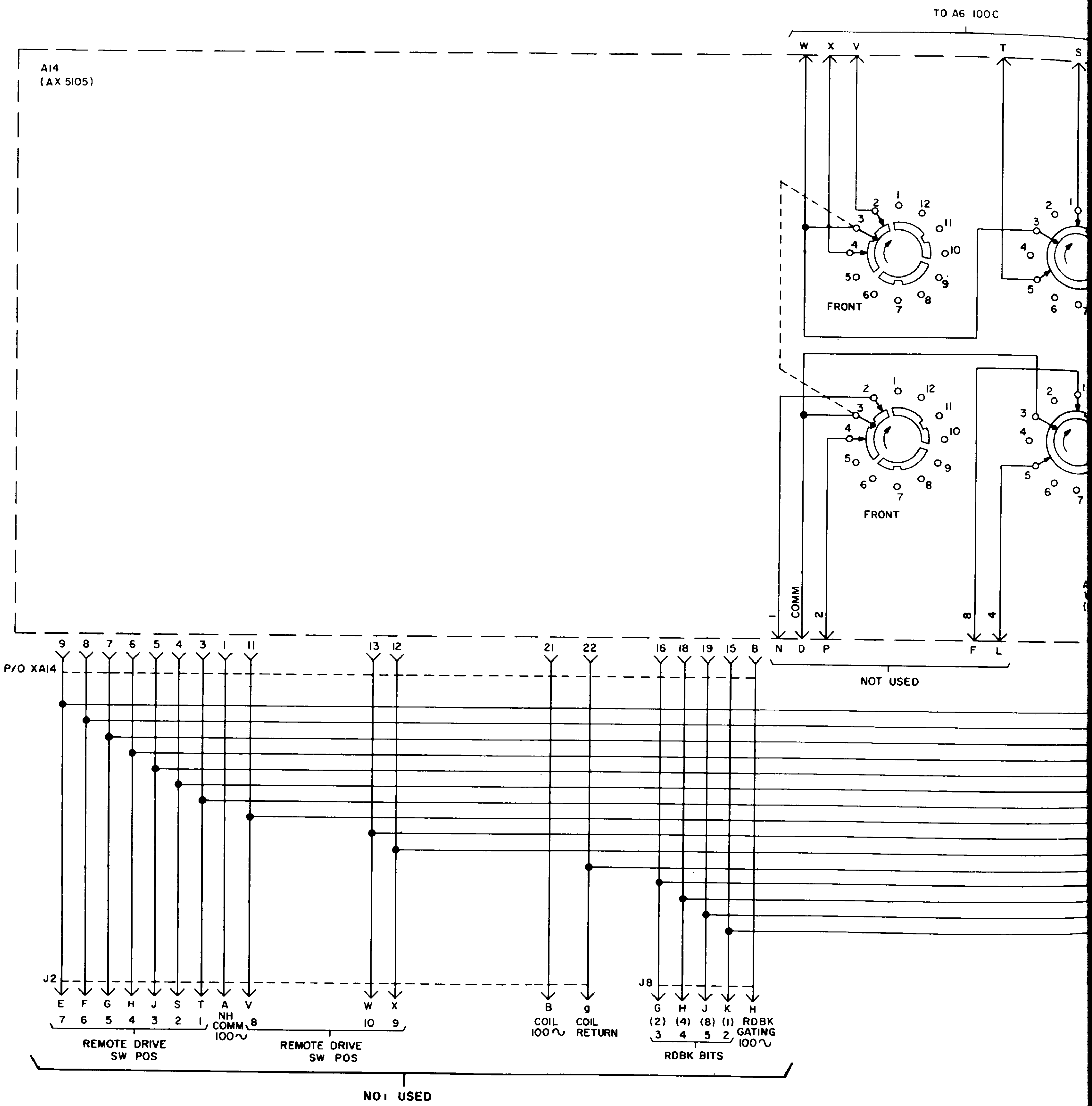
LAST SYMBOL	
A19	T1
B1	TB1
CR15	XA19
DS3	XDS3
F2	XF2
FL2	
J7	
M1	
Q3	
S2	

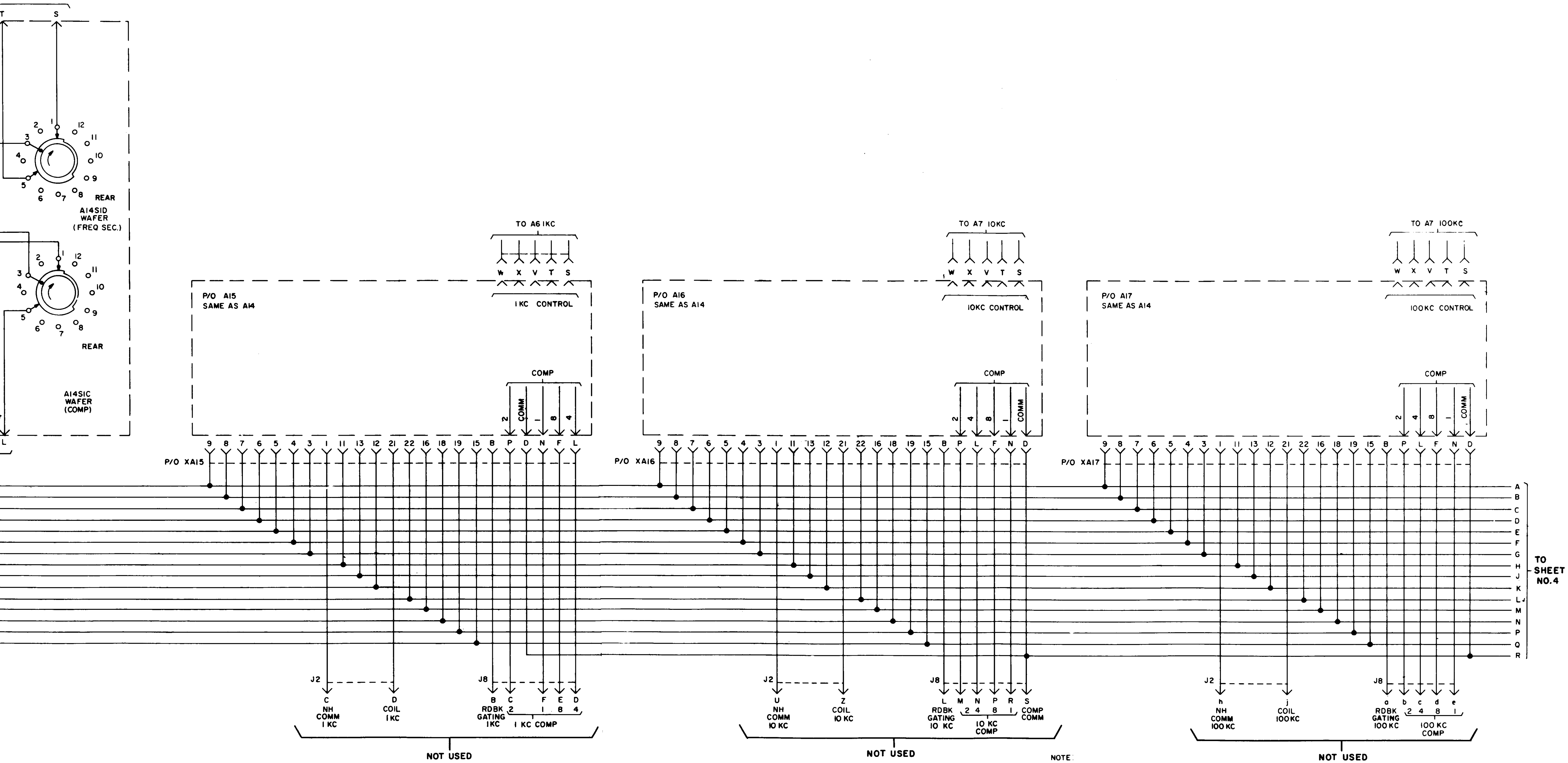
Figure 5-65. Schematic Wiring, Unit 3 (O-1511/URR) (She t 2 of 4)



NOTE
PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATIONS AS APPLICABLE.

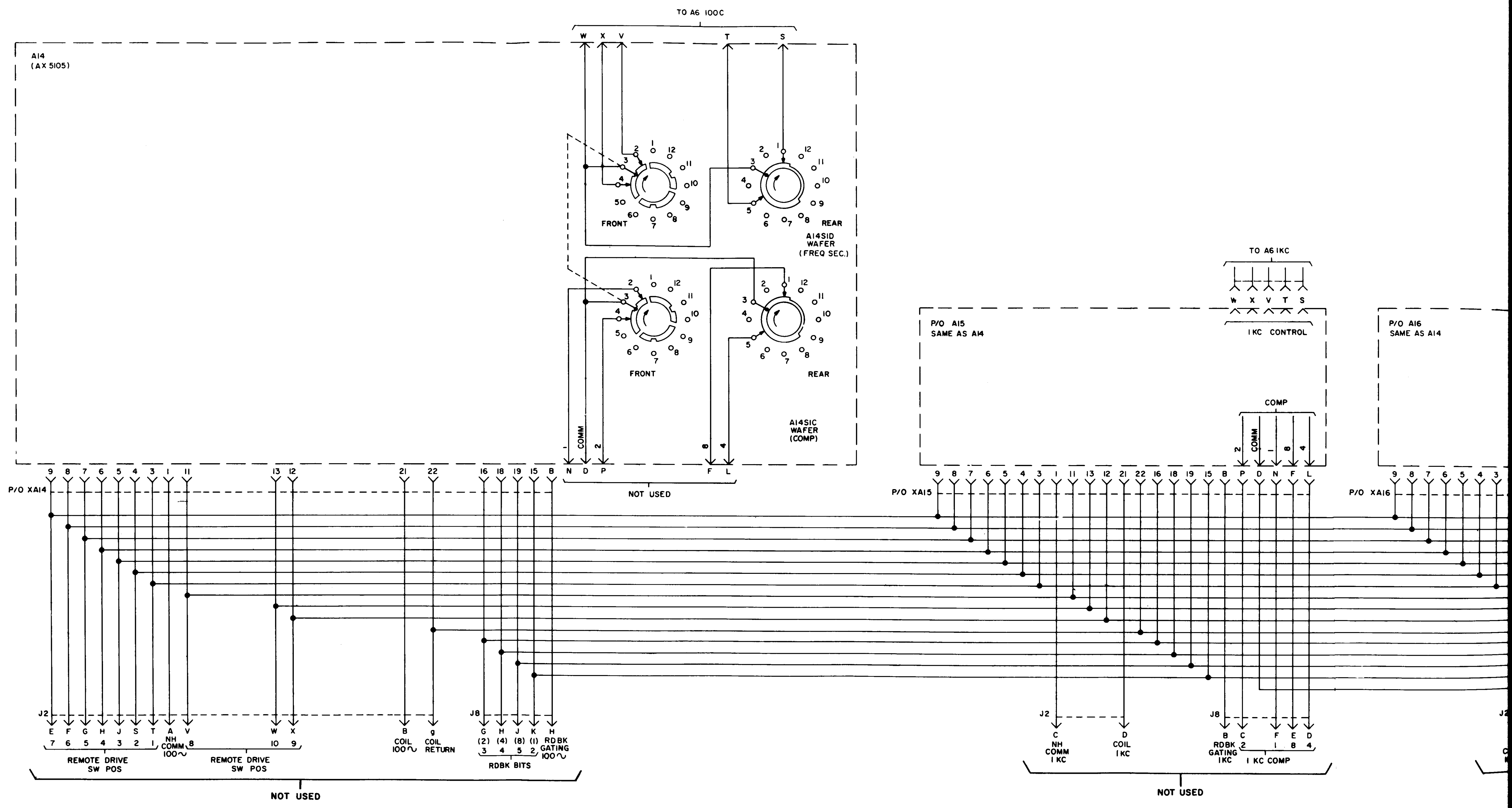
Figure 5-65. Schematic Wiring, Unit 3 (O-1511/URR) (Sheet 3 of 4)

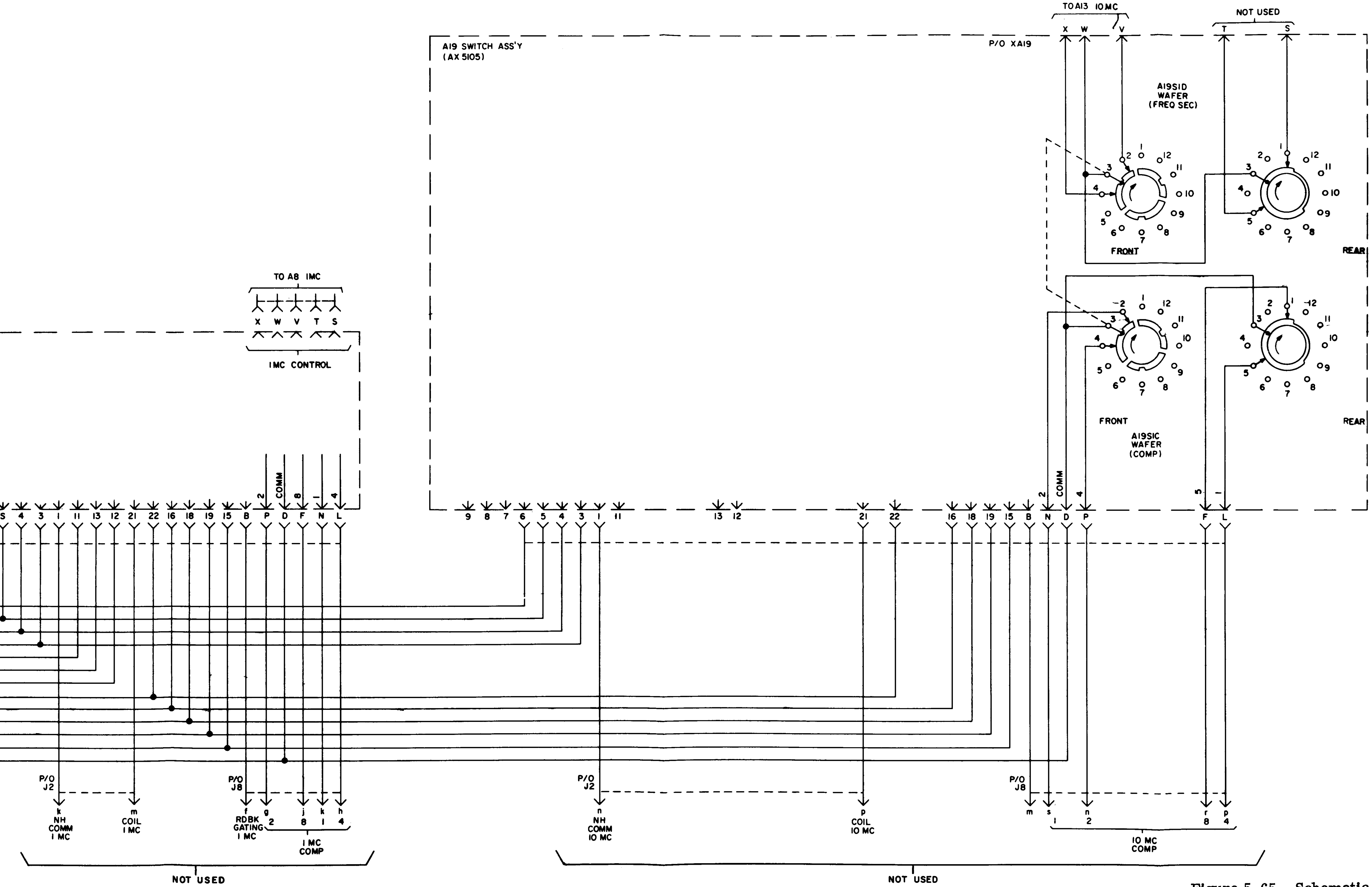

TO A6 100C
A14
(AX 5105)
FRONT
FRONT
COMM
NOT USED
P/O XA14
J2
J8
REMOTE DRIVE
SW POS
NH
COMM
100∿
REMOTE DRIVE
SW POS
COIL
100∿
COIL
RETURN
RDBK
GATING
100∿
RDBK BITS
NOT USED



NOTE:
PARTIAL REFERENCE DESIGNATIONS ARE SHOWN, FOR COMPLETE DESIGNATION PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATIONS AS APPLICABLE.

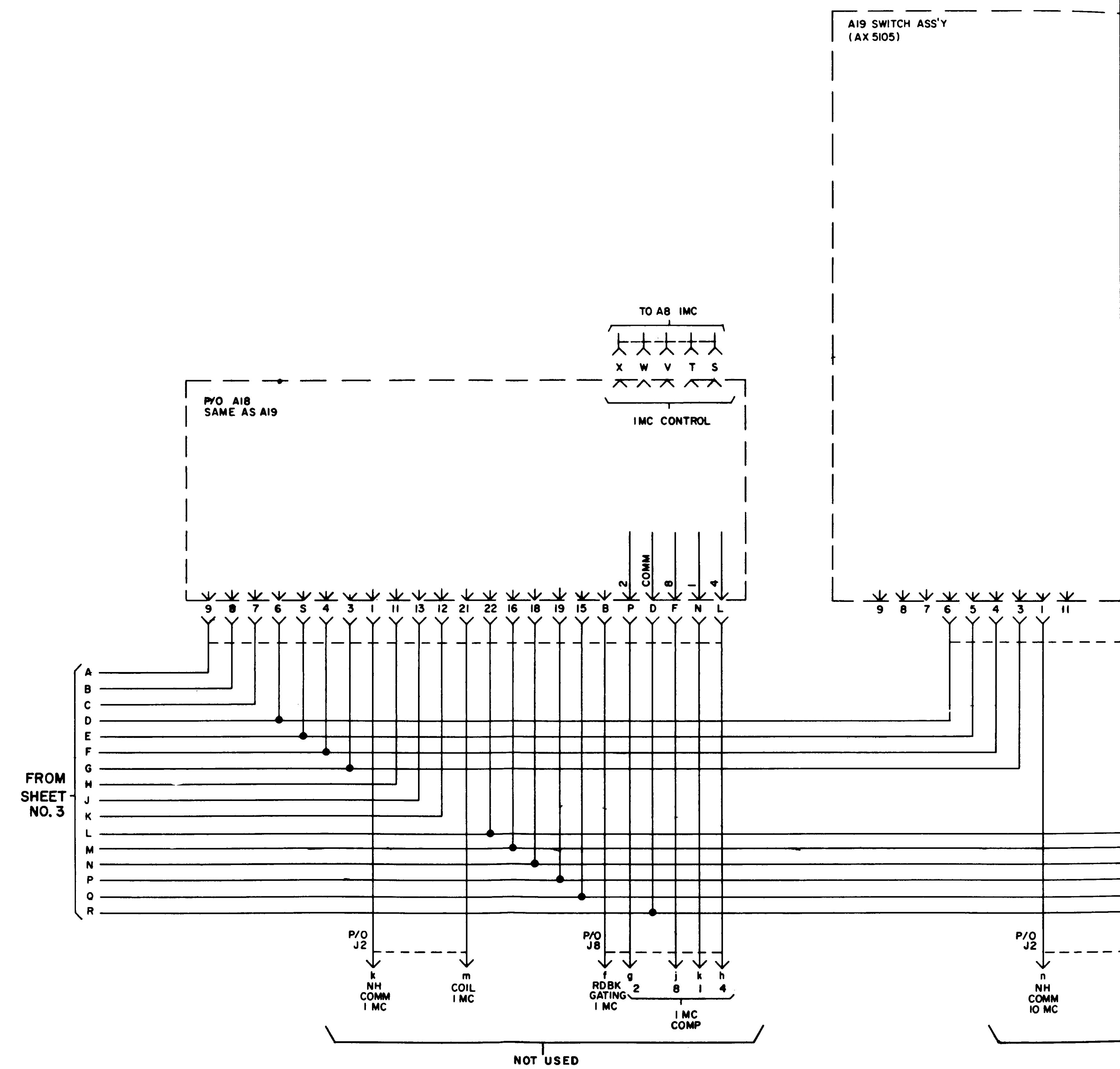
Figure 5-65. Schematic Wiring, Unit 3 (O-1511/URR) (Sheet 3 of 4)


TO A6 100C
A14
(AX 5105)
FRONT
REAR
A14S1D
WAFER
(FREQ SEC.)
A14S1C
WAFER
(COMP)
COMM
NOT USED
P/O XA14
J2
J8
REMOTE DRIVE
SW POS
NH
COMM
100~
COIL
100~
COIL
RETURN
RDBK BITS
RDBK
GATING
100~
TO A6 1KC
1KC CONTROL
P/O A15
SAME AS A14
COMP
P/O XA15
NH
COMM
1KC
COIL
1KC
RDBK
GATING
1KC
1 KC COMP
P/O A16
SAME AS A14
P/O XA16



MEGACYCLE SWITCH POSITION		
FUNCTION POSITION	PANEL MARKING A14S1 - A18S1	PANEL MARKING A19S1
1	0	0
2	1	1
3	2	2
4	3	3
5	4	—
6	5	—
7	6	—
8	7	—
9	8	—
10	9	—
11	—	—
12	—	—

Figure 5-65. Schematic Wiring, Unit 3 (O-1511/URR) (Sheet 4 of 4)


A19 SWITCH ASS'Y
(AX 5105)
P/O A18
SAME AS A19
TO A8 IMC
IMC CONTROL
FROM
SHEET
NO. 3
A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
P/O
J2
NH
COMM
1 MC
COIL
1 MC
P/O
J8
RDBK
GATING
1 MC
1 MC
COMP
NOT USED
NH
COMM
10 MC

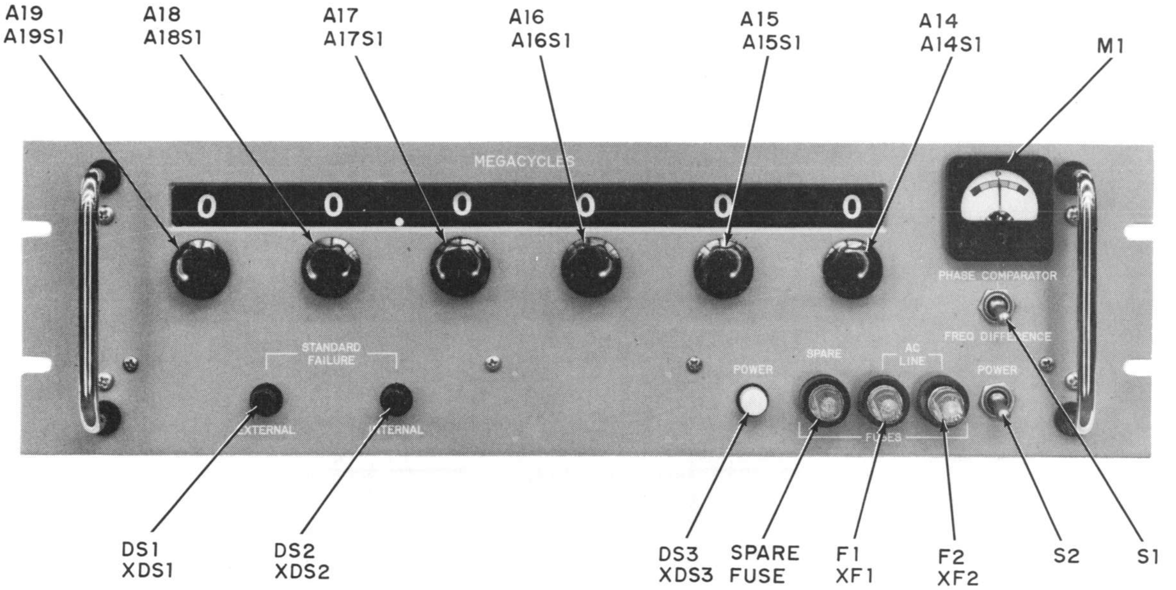


Figure 5-66. Major Component Locations, Front Panel of Unit 3 (0-1511/URR)

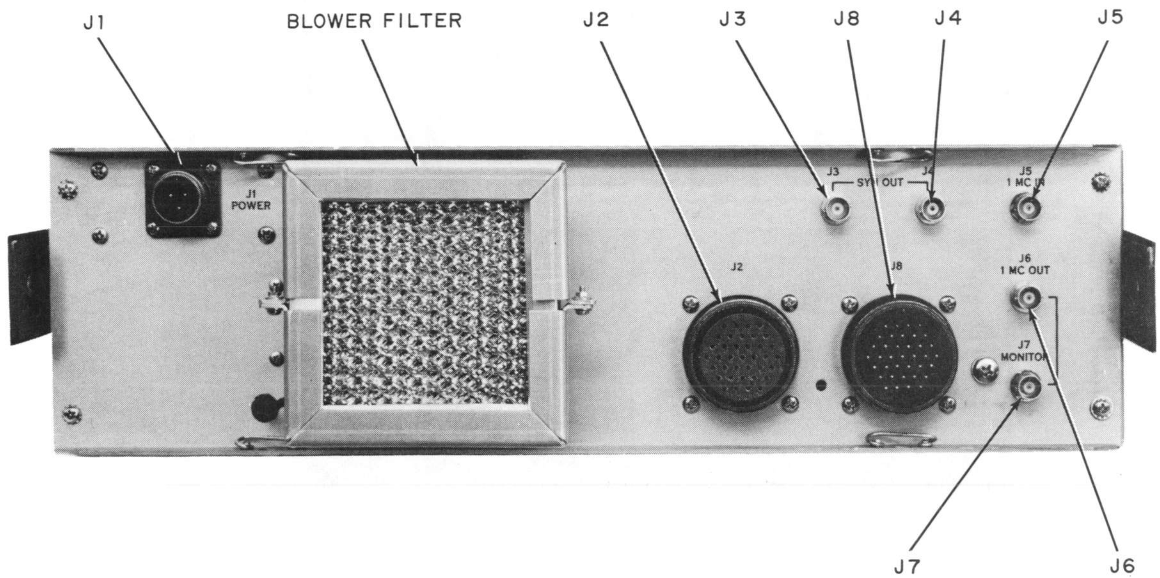


Figure 5-67. Major Component Locations, Rear Panel of Unit 3 (0-1511/URR)

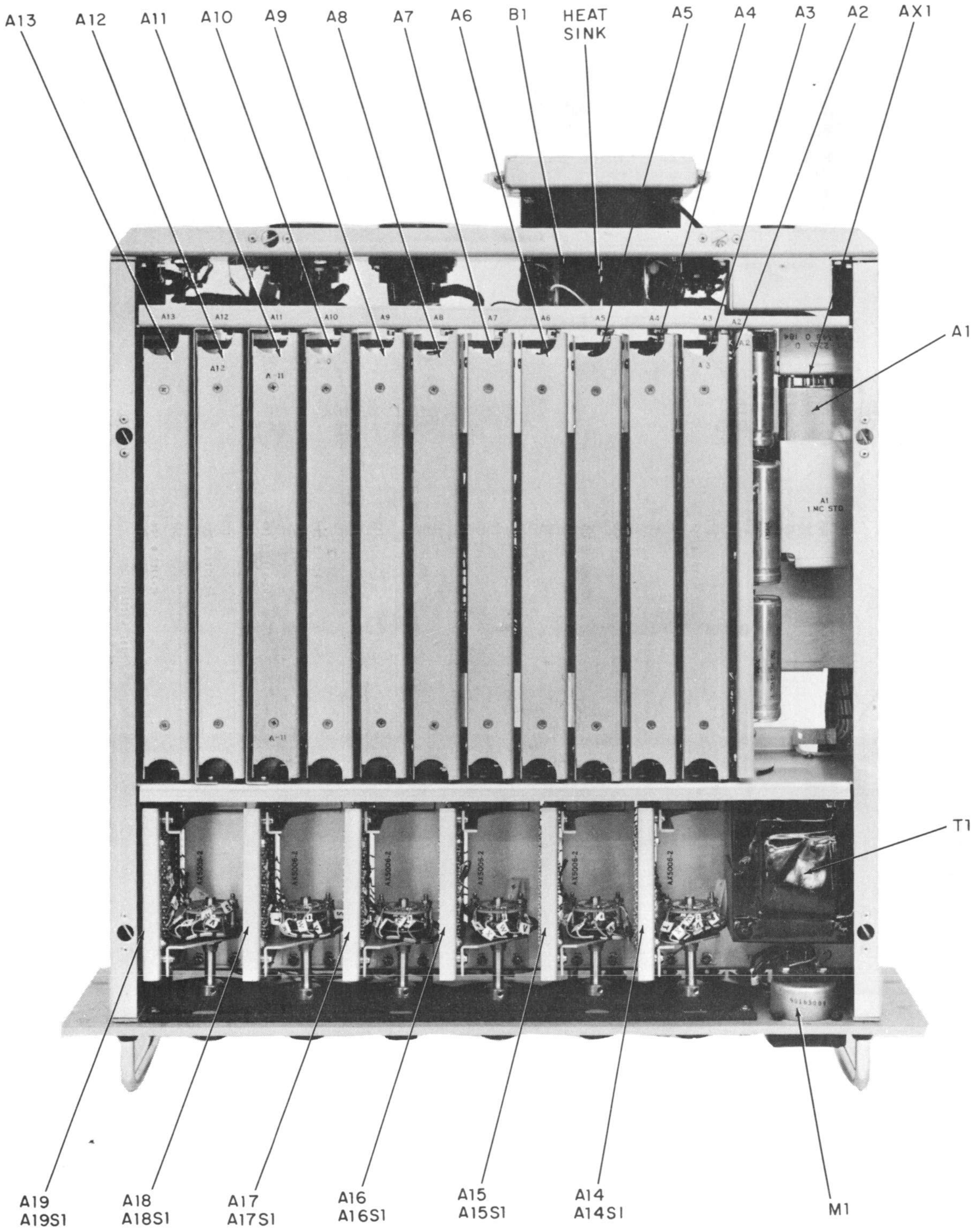


Figure 5-68. Major Component Locations, Top View of Unit 3 (0-1511/URR)

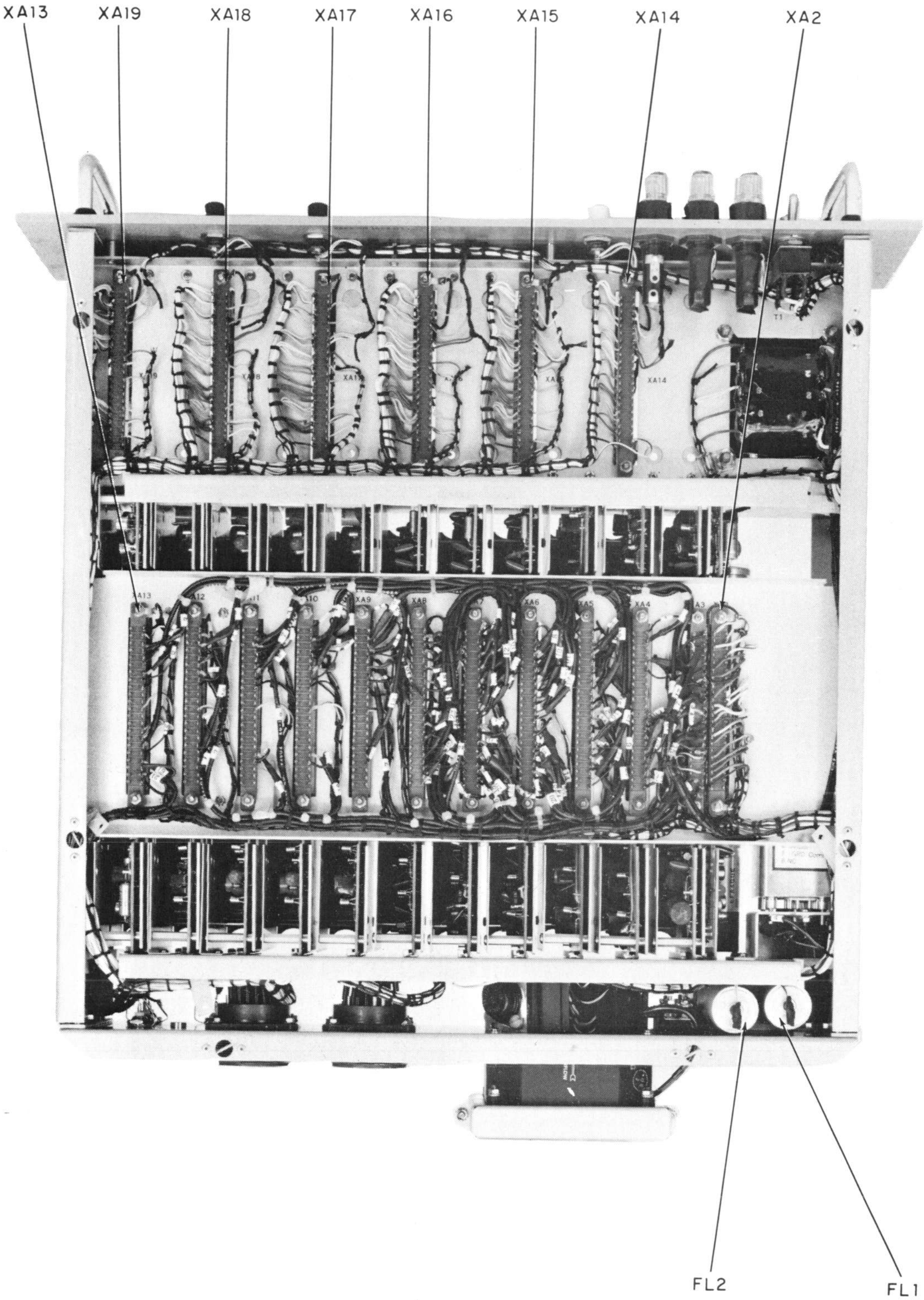
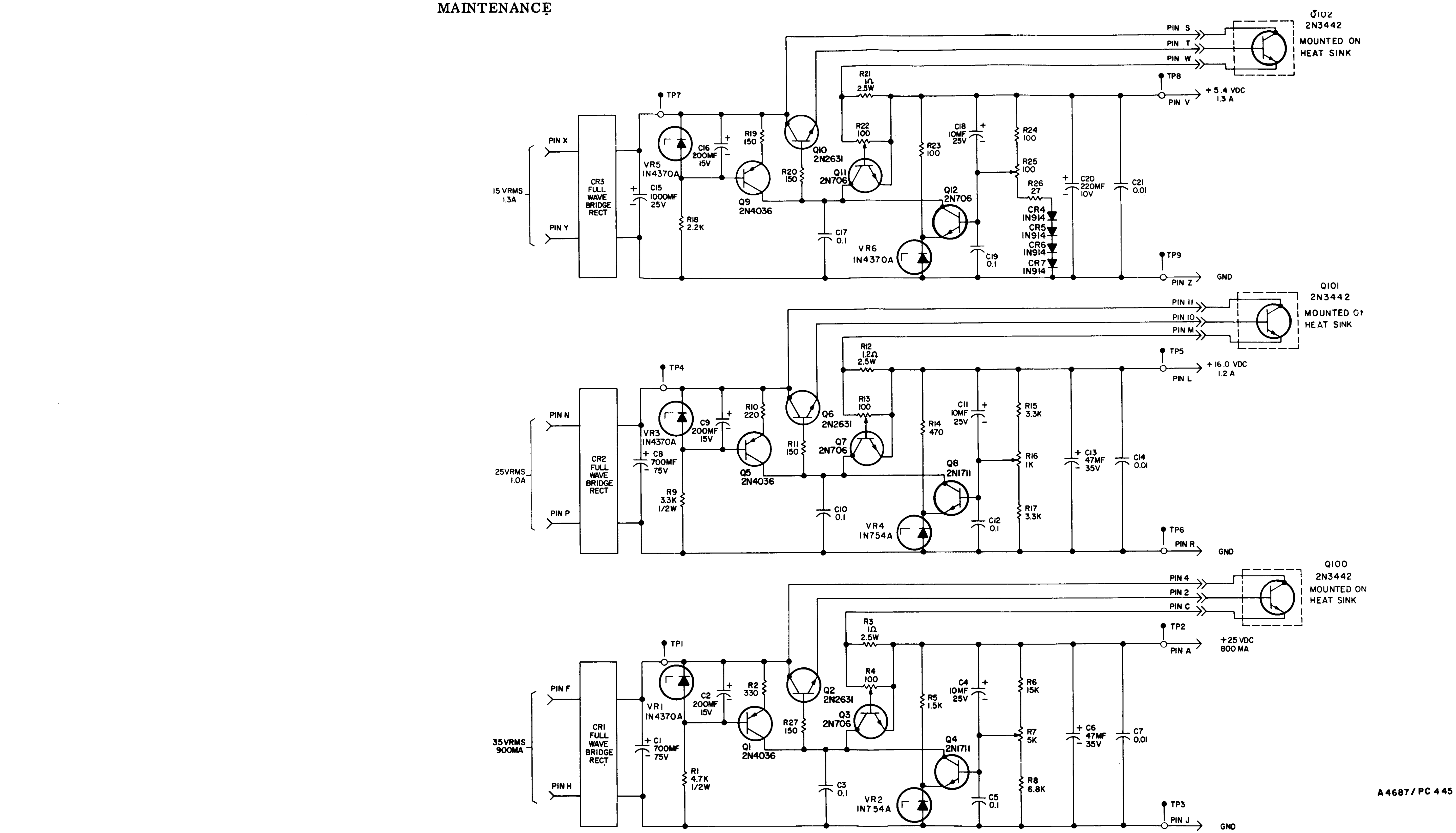


Figure 5-69. Major Component Locations, Bottom View of Unit 3
(0-1511/URR)



NOTE UNLESS OTHERWISE SPECIFIED
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4 WATT.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. PARTIAL REFERENCE DESIGNATIONS SHOWN, FOR COMPLETE DESIGNATION PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATION(S) AS APPLICABLE.

Figure 5-70. Schematic Wiring, Power Supply 3A2

PART LOCATION INDEX

…F …IG	LOC	REF DESIG	LOC
	4D	R3	3F
	2D	R4	2F
	3E	R5	2F
	1D	R6	1F
	2E	R7	2E
	2G	R8	2E
	2G	R9	7E
	7D	R10	6D
	7C	R11	5E
	7E	R12	5E
	4E	R13	6E
	5E	R14	3E
	4E	R15	4E
	3E	R16	4E
	9D	R17	4E
	9C	R18	10E
	10E	R19	10E
	8E	R20	9E
	9E	R21	10F
	8E	R22	10F
	7E	R23	9E
	3D	R24	8E
	7E	R25	8E
	10E	R26	8E
	8E	R27	2E
	8E	TP1	3C
	8E	TP2	2C
	8D	TP3	3C
	3E	TP4	4C
	2E	TP5	4C
	2F	TP6	4C
	2F	TP7	6C
	6E	TP8	5C
	6E	TP9	5C
	6E	VR1	3E
	5E	VR2	2F
	10E	VR3	6E
	9E	VR3	6E
	10F	VR4	5E
	9E	VR5	10E
	3E	VR6	9E
	3D		

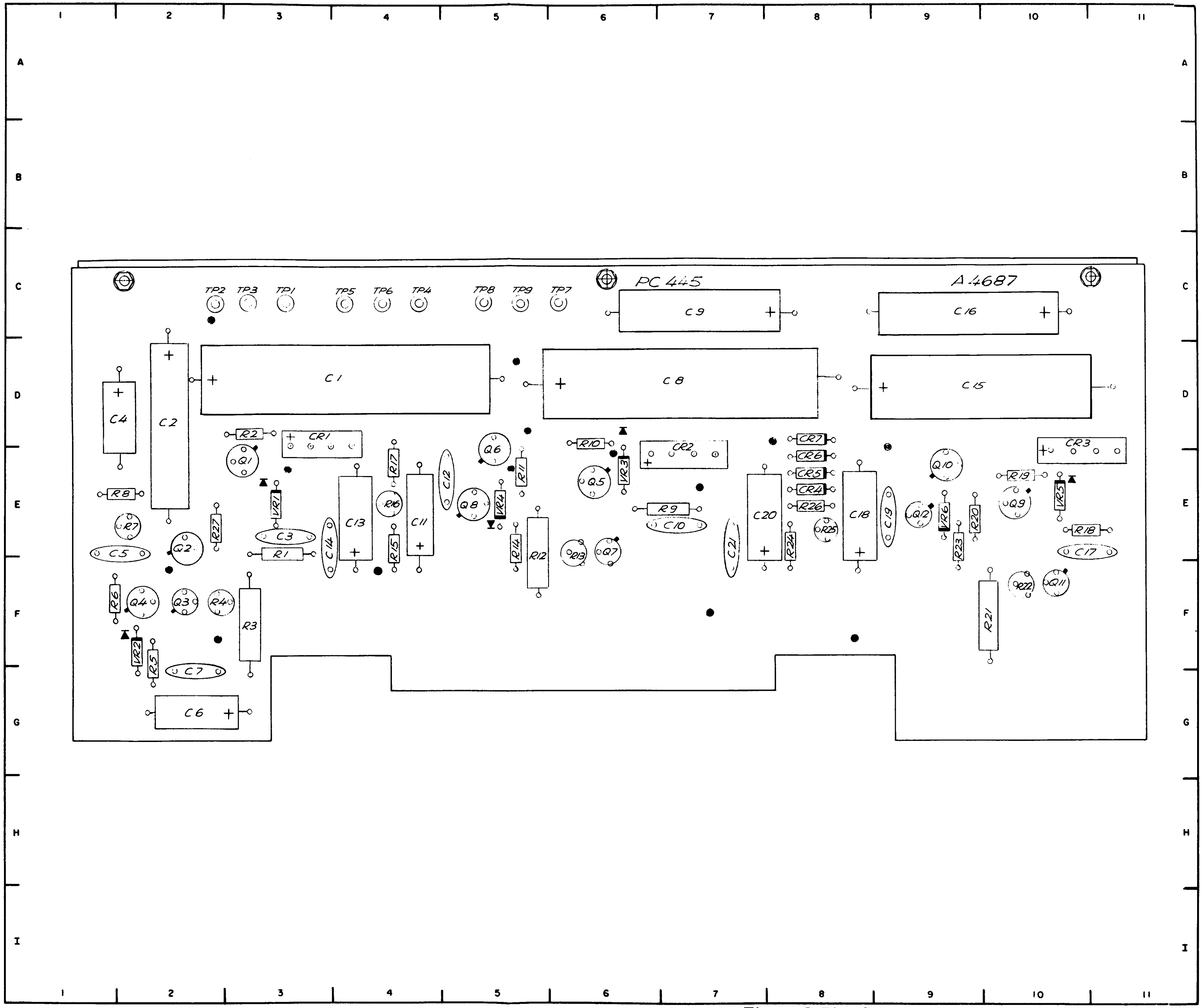
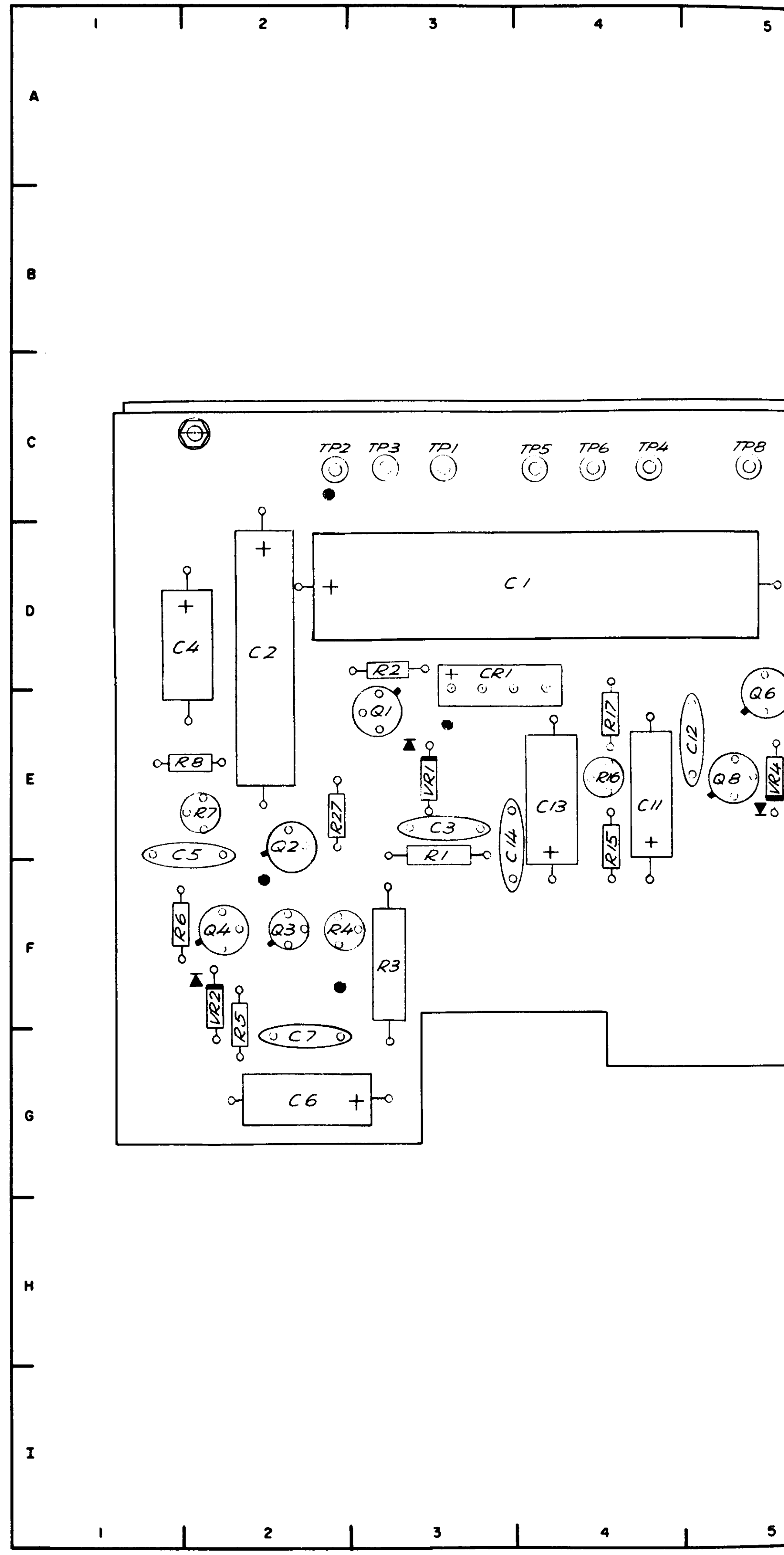


Figure 5-71. Component Locations, Power Supply 3A2

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC
C1	4D	R3	3F
C2	2D	R4	2F
C3	3E	R5	2F
C4	1D	R6	1F
C5	2E	R7	2E
C6	2G	R8	2E
C7	2G	R9	7E
C8	7D	R10	6D
C9	7C	R11	5E
C10	7E	R12	5E
C11	4E	R13	6E
C12	5E	R14	3E
C13	4E	R15	4E
C14	3E	R16	4E
C15	9D	R17	4E
C16	9C	R18	10E
C17	10E	R19	10E
C18	8E	R20	9E
C19	9E	R21	10F
C20	8E	R22	10F
C21	7E	R23	9E
CR1	3D	R24	8E
CR2	7E	R25	8E
CR3	10E	R26	8E
CR4	8E	R27	2E
CR5	8E	TP1	3C
CR6	8E	TP2	2C
CR7	8D	TP3	3C
Q1	3E	TP4	4C
Q2	2E	TP5	4C
Q3	2F	TP6	4C
Q4	2F	TP7	6C
Q5	6E	TP8	5C
Q6	6E	TP9	5C
Q7	6E	VR1	3E
Q8	5E	VR2	2F
Q9	10E	VR3	6E
Q10	9E	VR3	6E
Q11	10F	VR4	5E
Q12	9E	VR5	10E
R1	3E	VR6	9E
R2	3D		



REF DESIG	LOC
TP3	7C
TP4	7C
TP5	9C
TP6	9A
TP7	11D
TP8	10C
TP9	7C
TP10	4F
TP11	6F
TP12	4G
TP13	5G
TP14	10F
TP15	11F
TP16	13F
TP17	14F
TP18	4A
TP20	4A
TP21	12D
TP22	12D
TP23	14E
VR1	12E
Z1A	6E
Z1B	7E
Z1C	7E
Z1D	6B
Z2A	6G
Z2B	7G
Z2C	7F
Z2D	6C
Z3	9F
Z4A	8F
Z4B	9F
Z5A	7C
Z5D	8E
Z6A	7C
Z6B	7B
Z7	8B
Z8	10D
Z9	12B

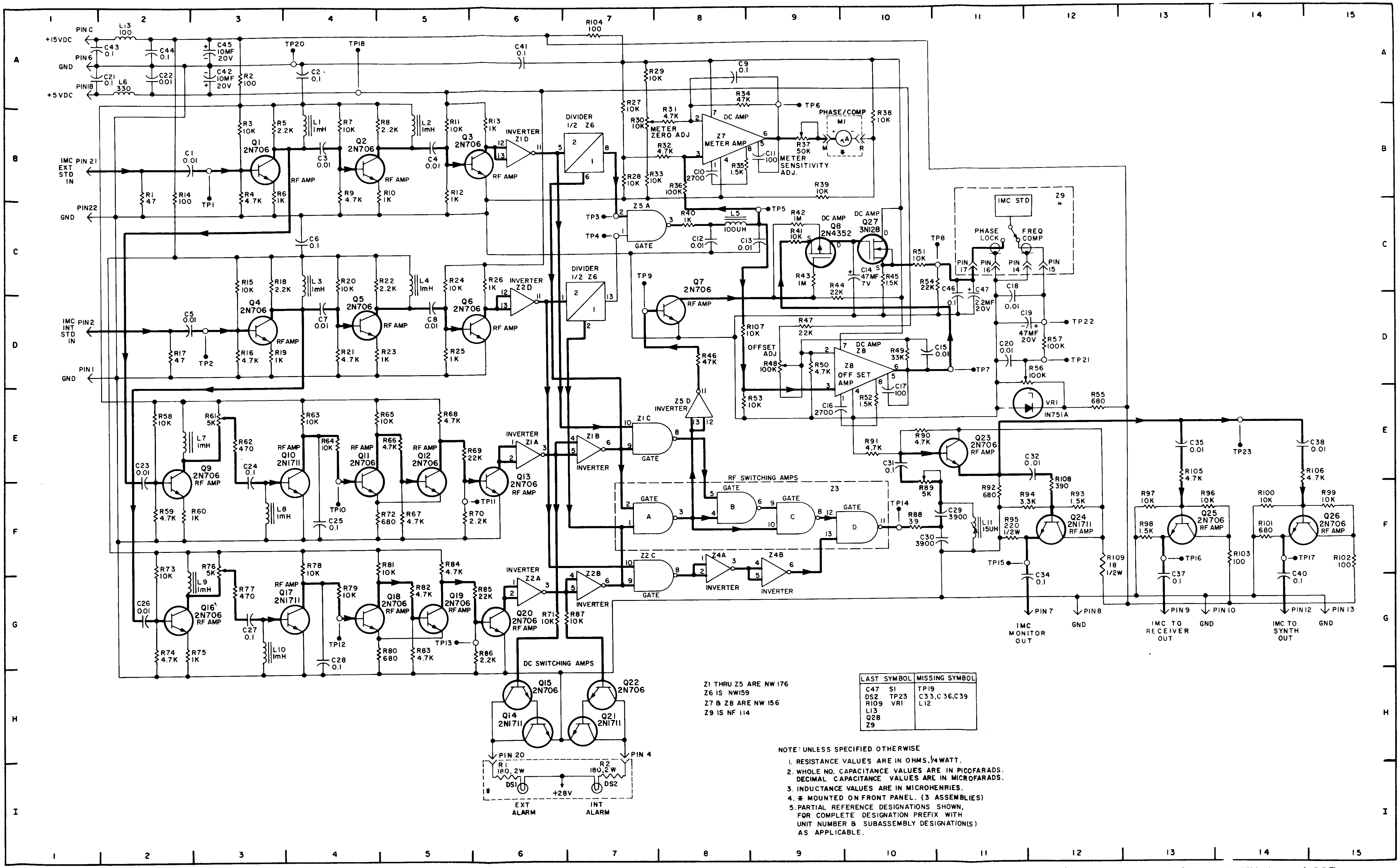
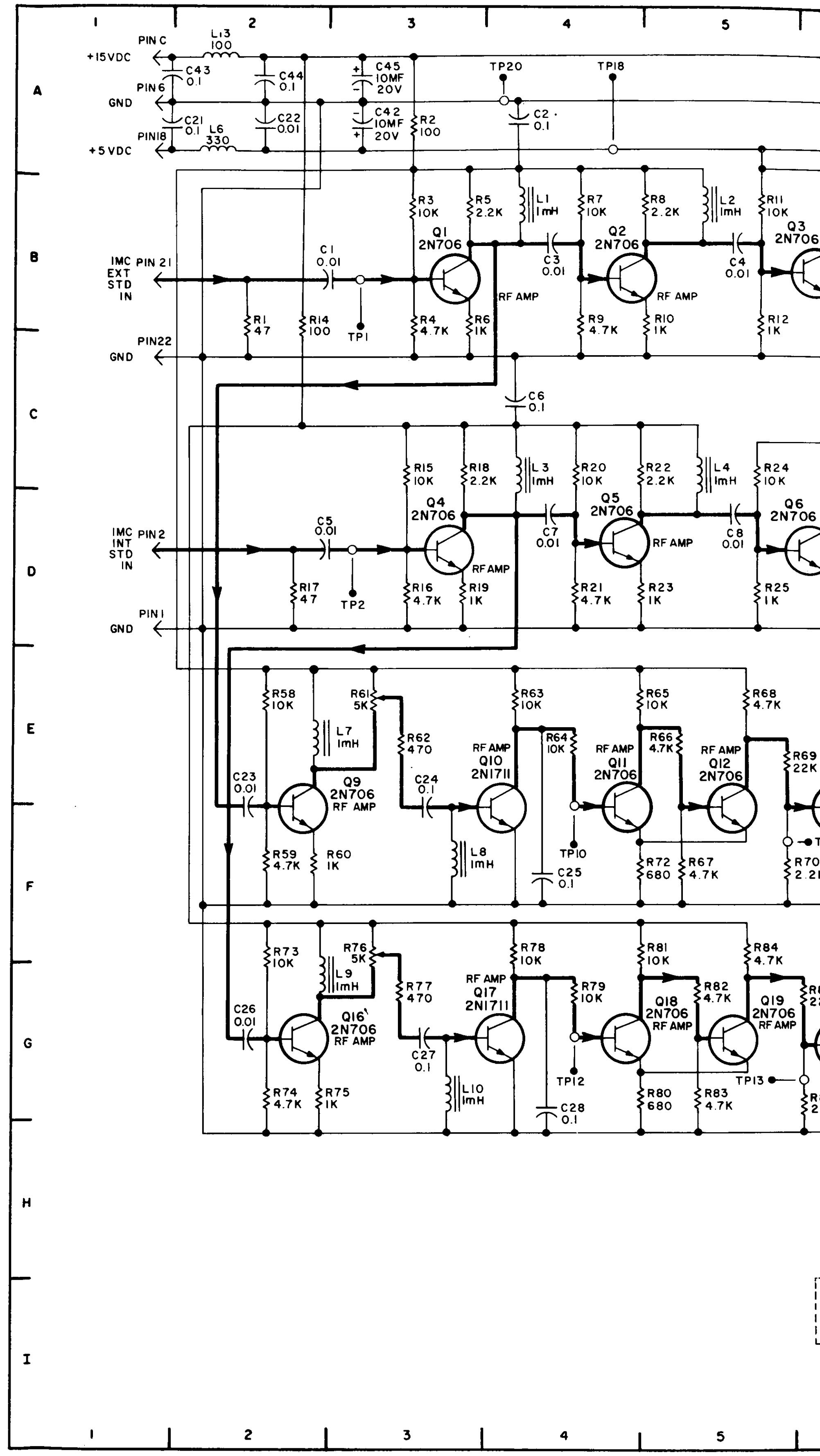


Figure 5-72. Schematic Wiring, 1 MC Distributor 3A3

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	3B	C44	2A	Q23	11E	R35	8B	R74	2G	TP3	7C
C2	4A	C45	3A	Q24	12F	R36	8B	R75	2G	TP4	7C
C3	4B	C46	11C	Q25	13F	R37	9B	R76	3F	TP5	9C
C4	5B	C47	11C	Q26	15F	R38	10B	R77	3G	TP6	9A
C5	2D	DS1	6I	Q27	10C	R39	9B	R78	4F	TP7	11D
C6	4C	DS2	7I	Q28	-	R40	8C	R79	4G	TP8	10C
C7	4D	L1	4B	R1	2B	R41	9C	R80	4G	TP9	7C
C8	5D	L2	5B	R2	3A	R42	9C	R81	5F	TP10	4F
C9	8A	L3	4C	R3	3B	R43	9C	R82	5G	TP11	6F
C10	8B	L4	5C	R4	3B	R44	9D	R83	5G	TP12	4G
C11	9B	L5	8C	R5	3B	R45	10C	R84	5F	TP13	5G
C12	8C	L6	2A	R6	3B	R46	8D	R85	6G	TP14	10F
C13	9C	L7	2E	R7	4B	R47	9D	R86	6G	TP15	11F
C14	10C	L8	3F	R8	5B	R48	9D	R87	7G	TP16	13F
C15	11D	L9	3G	R9	4B	R49	10D	R88	10F	TP17	14F
C16	9E	L10	3G	R10	5B	R50	9D	R89	10F	TP18	4A
C17	10E	L11	11F	R11	5B	R51	10C	R90	10E	TP20	4A
C18	11D	L13	2A	R12	5B	R52	10E	R91	10E	TP21	12D
C19	11D	Q1	3B	R13	6B	R53	9E	R92	10F	TP22	12D
C20	11D	Q2	4B	R14	2B	R54	10C	R93	12F	TP23	14E
C21	2A	Q3	6B	R15	3C	R55	12E	R94	11F	VR1	12E
C22	2A	Q4	3D	R16	3D	R56	12D	R95	11F	Z1A	6E
C23	2E	Q5	4D	R17	2D	R57	12D	R96	13F	Z1B	7E
C24	3E	Q6	5D	R18	3C	R58	2E	R97	13F	Z1C	7E
C25	4F	Q7	8D	R19	3D	R59	2F	R98	13F	Z1D	6B
C26	2G	Q8	9C	R20	4C	R60	2F	R99	15F	Z2A	6G
C27	3G	Q9	3E	R21	4D	R61	3E	R100	14F	Z2B	7G
C28	4G	Q10	4E	R22	5C	R62	3E	R101	14F	Z2C	7F
C29	11F	Q11	4E	R23	5D	R63	4E	R102	15F	Z2D	6C
C30	11F	Q12	5E	R24	5C	R64	4E	R103	14F	Z3	9F
C31	10E	Q13	6E	R25	5D	R65	5E	R104	7A	Z4A	8F
C32	12E	Q14	6H	R26	6C	R66	5E	R105	13E	Z4B	9F
C34	12G	Q15	6H	R27	7A	R67	5F	R106	15E	Z5A	7C
C35	13E	Q16	3G	R28	7B	R68	5E	R107	8D	Z5D	8E
C37	13G	Q17	4G	R29	8A	R69	5E	R108	12E	Z6A	7C
C38	14E	Q18	5G	R30	7B	R70	5F	R109	12F	Z6B	7B
C40	14G	Q19	5G	R31	8B	R71	6G	S1	-	Z7	8B
C41	6A	Q20	6G	R32	8B	R72	5F	TP1	3B	Z8	10D
C42	3A	Q21	7H	R33	7B	R73	2F	TP2	3D	Z9	12B
C43	2A	Q22	7H	R34	8A						



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REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
R29	5D	R67	2D	R105	6E
R30	6D	R68	3D	R106	6E
R31	6D	R69	3D	R107	4D
R32	5D	R70	2D	R108	7E
R33	6D	R71	3D	R109	7F
R34	5D	R72	2D	S1	-
R35	5D	R73	10E	TP1	2G
R36	6C	R74	10E	TP2	10G
R37	5D	R75	9E	TP3	7D
R38	5E	R76	10E	TP4	7D
R39	5E	R77	10E	TP5	6C
R40	6D	R78	10D	TP6	5D
R41	4D	R79	10D	TP7	4D
R42	5D	R80	9D	TP8	4F
R43	5D	R81	10D	TP9	6D
R44	5E	R82	10D	TP10	2E
R45	4E	R83	9D	TP11	3D
R46	6D	R84	10D	TP12	10D
R47	4D	R85	10D	TP13	10D
R48	4D	R86	9D	TP14	8D
R49	4C	R87	9C	TP15	7F
R50	4D	R88	9E	TP16	7E
R51	4E	R89	8E	TP17	6F
R52	3D	R90	8E	TP18	3D
R53	4D	R91	7E	TP20	1C
R54	4E	R92	8E	TP21	5F
R55	4E	R93	7E	TP22	5F
R56	5E	R94	7E	TP23	7D
R57	5F	R95	7F	VR1	4E
R58	3F	R96	6E	Z1A	3C
R59	3F	R97	7E	Z2A	9C
R60	3E	R98	7E	Z3	8C
R61	3E	R99	6E	Z4A	8D
R62	3E	R100	6E	Z5A	7D
R63	3E	R101	6E	Z6A	7C
R64	2E	R102	6F	Z7	5C
R65	3D	R103	6F	Z8	4C
R66	3D	R104	5E		

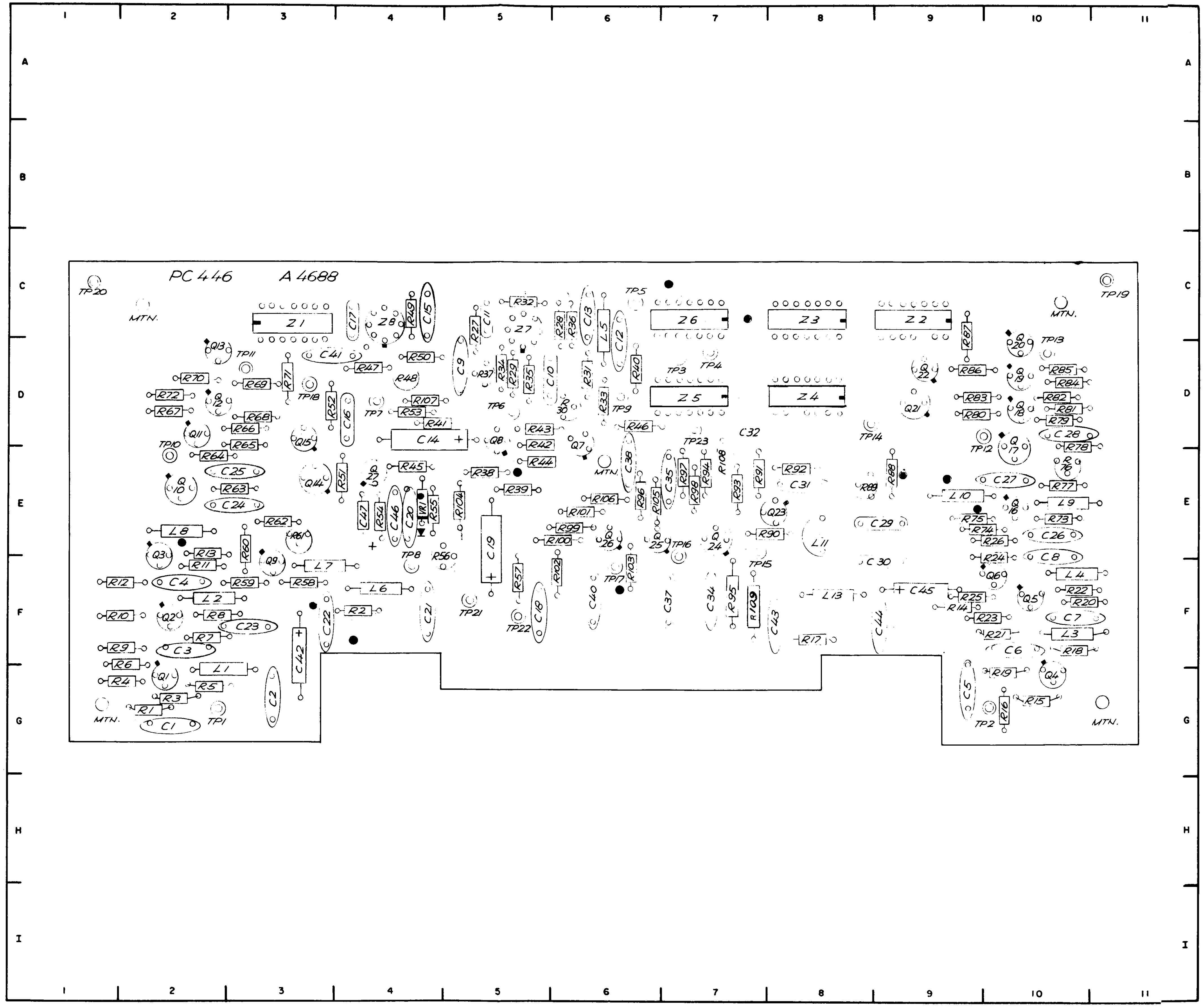
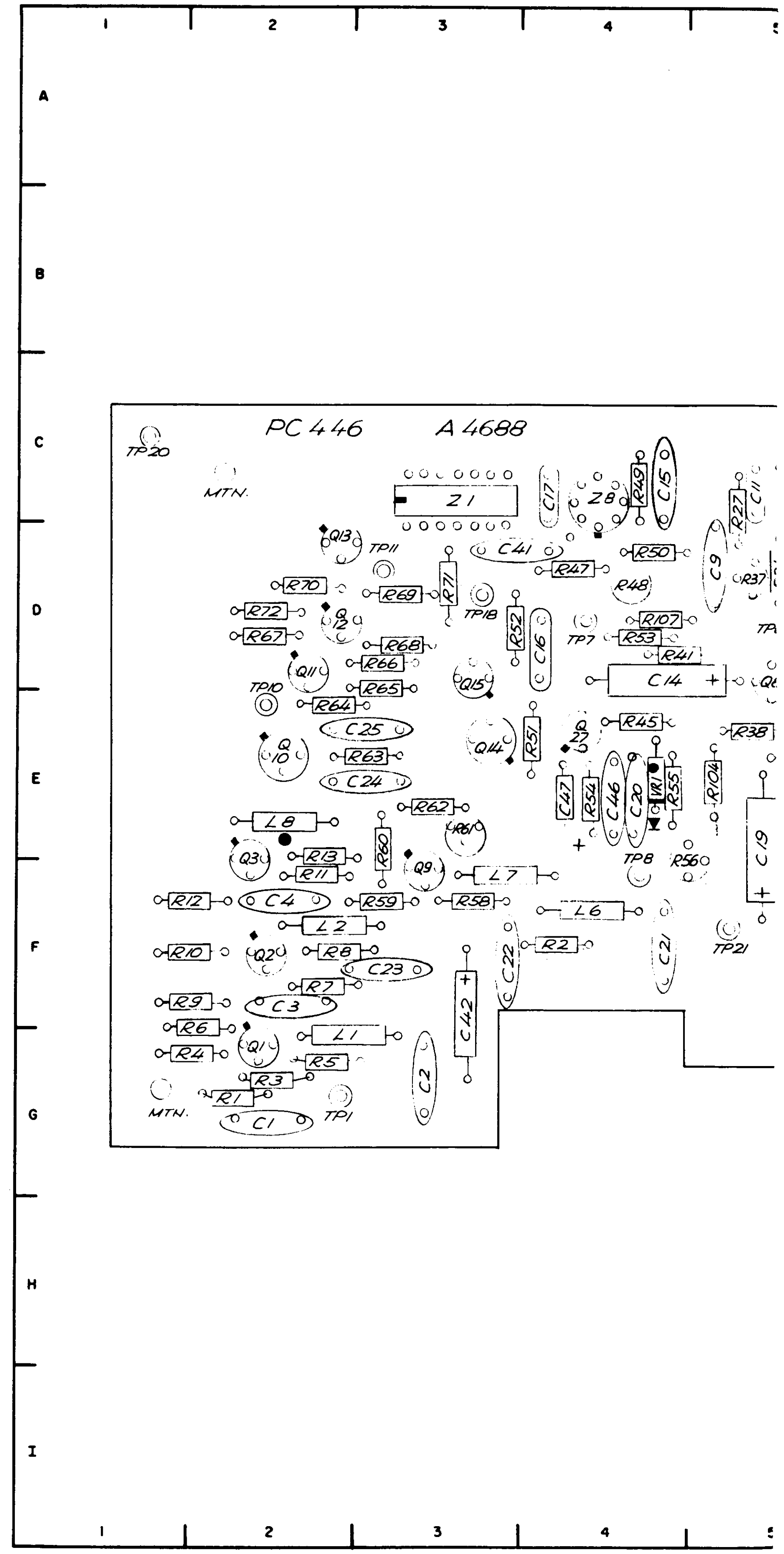


Figure 5-73. Component Locations, 1 MC Distributor 3A3

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2G	C42	3F	Q19	10D	R29	5D	R67	2D	R105	6E
C2	3G	C43	8E	Q20	10D	R30	6D	R68	3D	R106	6E
C3	2F	C44	9F	Q21	9D	R31	6D	R69	3D	R107	4D
C4	2F	C45	9F	Q22	9D	R32	5D	R70	2D	R108	7E
C5	9G	C46	4E	Q23	8E	R33	6D	R71	3D	R109	7F
C6	10F	C47	4E	Q24	7E	R34	5D	R72	2D	S1	-
C7	10F	DS1	-	Q25	6E	R35	5D	R73	10E	TP1	2G
C8	10E	DS2	-	Q26	6E	R36	6C	R74	10E	TP2	10G
C9	5D	L1	2G	Q27	4E	R37	5D	R75	9E	TP3	7D
C10	6D	L2	2F	Q28	-	R38	5E	R76	10E	TP4	7D
C11	5C	L3	10F	R1	2G	R39	5E	R77	10E	TP5	6C
C12	6D	L4	10F	R2	4F	R40	6D	R78	10D	TP6	5D
C13	6C	L5	9C	R3	2G	R41	4D	R79	10D	TP7	4D
C14	4D	L6	4F	R4	2G	R42	5D	R80	9D	TP8	4F
C15	4C	L7	3F	R5	2G	R43	5D	R81	10D	TP9	6D
C16	4D	L8	4F	R6	2F	R44	5E	R82	10D	TP10	2E
C17	4C	L9	10E	R7	2F	R45	4E	R83	9D	TP11	3D
C18	5F	L10	9E	R8	2F	R46	6D	R84	10D	TP12	10D
C19	5E	L11	8E	R9	2F	R47	4D	R85	10D	TP13	10D
C20	4E	L13	8F	R10	2F	R48	4D	R86	9D	TP14	8D
C21	4F	Q1	2G	R11	2F	R49	4C	R87	9C	TP15	7F
C22	3F	Q2	2F	R12	1F	R50	4D	R88	9E	TP16	7E
C23	3F	Q3	2F	R13	2F	R51	4E	R89	8E	TP17	6F
C24	3E	Q4	10G	R14	9F	R52	3D	R90	8E	TP18	3D
C25	3E	Q5	10F	R15	10G	R53	4D	R91	7E	TP20	1C
C26	10E	Q6	10F	R16	10G	R54	4E	R92	8E	TP21	5F
C27	10E	Q7	6D	R17	8F	R55	4E	R93	7E	TP22	5F
C28	10D	Q8	5D	R18	10F	R56	5E	R94	7E	TP23	7D
C29	9E	Q9	3F	R19	10G	R57	5F	R95	7F	VR1	4E
C30	9F	Q10	2E	R20	10F	R58	3F	R96	6E	Z1A	3C
C31	10E	Q11	2D	R21	10F	R59	3F	R97	7E	Z2A	9C
C32	7D	Q12	2D	R22	10F	R60	3E	R98	7E	Z3	8C
C34	7F	Q13	2D	R23	10F	R61	3E	R99	6E	Z4A	8D
C35	7E	Q14	3E	R24	10E	R62	3E	R100	6E	Z5A	7D
C37	7F	Q15	3E	R25	9F	R63	3E	R101	6E	Z6A	7C
C38	6E	Q16	10E	R26	10E	R64	2E	R102	6F	Z7	5C
C40	6F	Q17	10E	R27	5C	R65	3D	R103	6F	Z8	4C
C41	3D	Q18	10D	R28	6C	R66	3D	R104	5E		



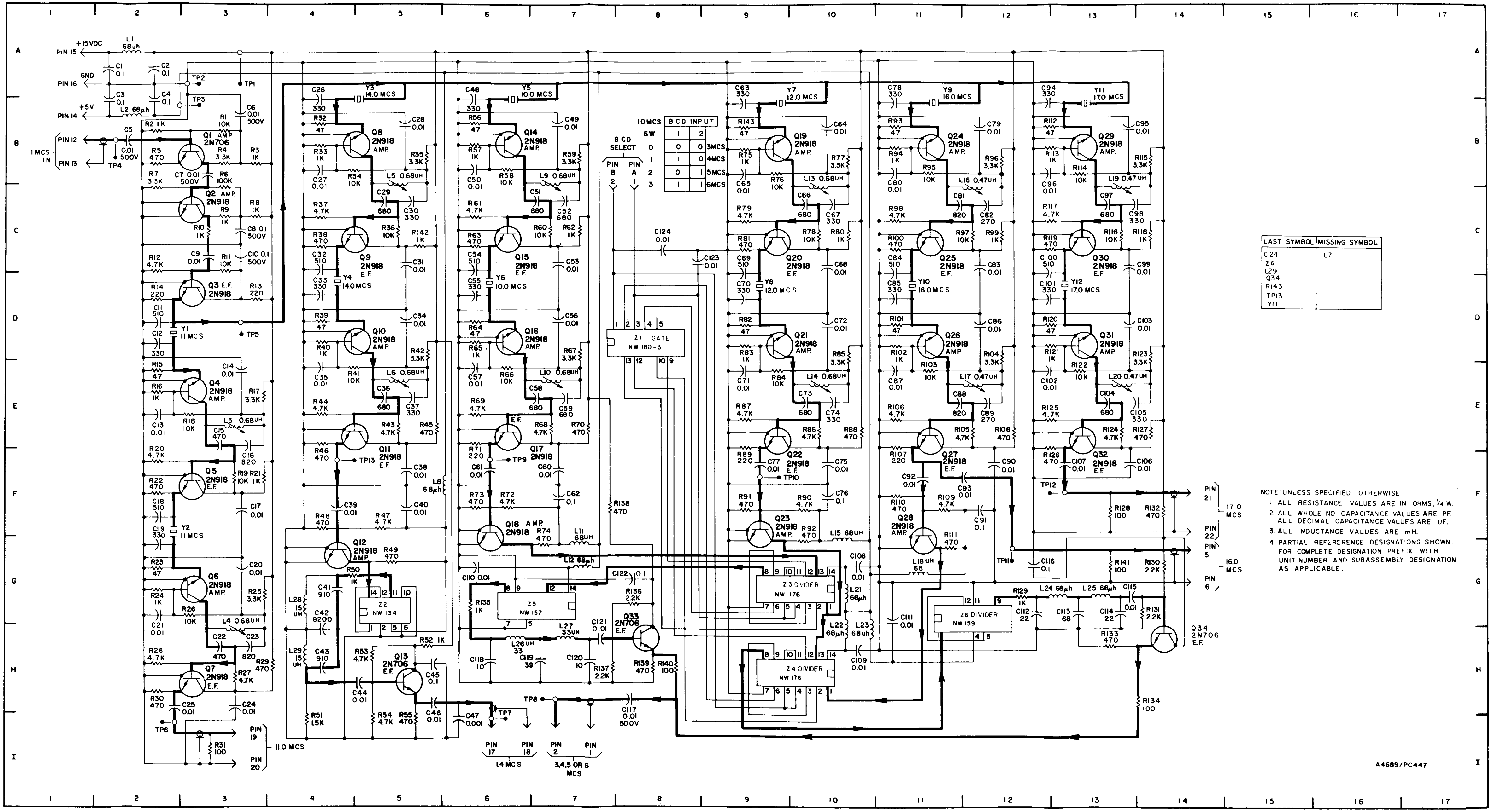
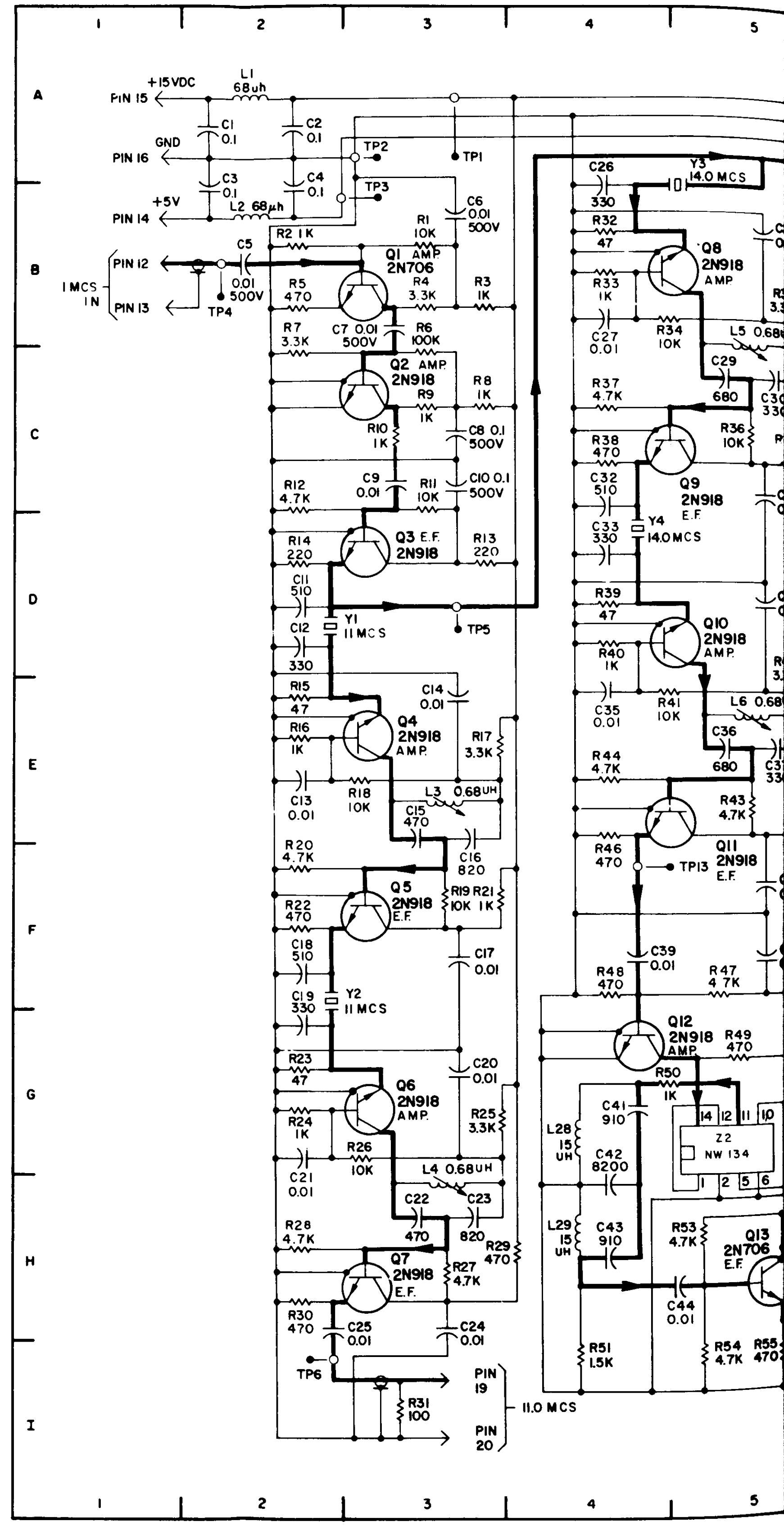


Figure 5-74. Schematic Wiring, 1 MC Selector 3A4

PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2A	C52	7C	C103	13D	Q2	3C	R19	3F	R70	7E	R121	12D
C2	2A	C53	7C	C104	13E	Q3	3D	R20	2F	R71	6F	R122	13E
C3	2B	C54	6C	C105	13E	Q4	3E	R21	3F	R72	6F	R123	14D
C4	2B	C55	6D	C106	13F	Q5	3F	R22	2F	R73	6F	R124	13E
C5	2B	C56	7D	C107	13F	Q6	3G	R23	2G	R74	6F	R125	12E
C6	3B	C57	6E	C108	10G	Q7	3H	R24	2G	R75	9C	R126	12F
C7	3B	C58	7E	C109	10H	Q8	5B	R25	3G	R76	9C	R127	14E
C8	3C	C59	7E	C110	6G	Q9	5C	R26	3G	R77	10B	R128	13F
C9	3C	C60	7F	C111	11G	Q10	5D	R27	3H	R78	10C	R129	12G
C10	3C	C61	6F	C112	12G	Q11	5E	R28	2H	R79	9C	R130	14G
C11	2D	C62	7F	C113	13G	Q12	4G	R29	3H	R80	10C	R131	14G
C12	2D	C63	9B	C114	13G	Q13	5H	R30	2H	R81	9C	R132	14F
C13	2E	C64	10B	C115	13G	Q14	6B	R31	3I	R82	9D	R133	13H
C14	3E	C65	9B	C116	12G	Q15	6C	R32	4B	R83	9D	R134	14H
C15	3E	C66	10C	C117	8H	Q16	6D	R33	4B	R84	9E	R135	6G
C16	3E	C67	10C	C118	6H	Q17	6E	R34	4B	R85	10D	R136	8G
C17	3F	C68	10C	C119	7H	Q18	6F	R35	5B	R86	10E	R137	7H
C18	2F	C69	9C	C120	7H	Q19	9B	R36	5C	R87	9E	R138	7F
C19	2F	C70	9D	C121	7H	Q20	9C	R37	4C	R88	10E	R139	8H
C20	3G	C71	9E	C122	8G	Q21	9D	R38	4C	R89	9F	R140	8H
C21	2G	C72	10D	C123	8C	Q22	9E	R39	4D	R90	10F	R141	13G
C22	3H	C73	10E	C124	8C	Q23	9F	R40	4D	R91	9F	R142	5C
C23	3H	C74	10E	L1	2A	Q24	11B	R41	4E	R92	10F	R143	9B
C24	3H	C75	10F	L2	2B	Q25	11C	R42	5D	R93	11B	TP1	3A
C25	2H	C76	10F	L3	3E	Q26	11D	R43	5E	R94	11B	TP2	3A
C26	4A	C77	9F	L4	3A	Q27	11E	R44	4E	R95	11B	TP3	3B
C27	4B	C78	11B	L5	5B	Q28	11F	R45	5E	R96	12B	TP4	2B
C28	5B	C79	12B	L6	5E	Q29	13B	R46	4F	R97	12C	TP5	3D
C29	5C	C80	11B	L8	6F	Q30	13C	R47	5F	R98	11C	TP6	2I
C30	5C	C81	11C	L9	7B	Q31	13D	R48	4F	R99	12C	TP7	6I
C31	5C	C82	12C	L10	7E	Q32	13E	R49	5G	R100	11C	TP8	7H
C32	4C	C83	12C	L11	7G	Q33	8H	R50	4G	R101	11D	TP9	6F
C33	4D	C84	11C	L12	7G	Q34	14H	R51	4I	R102	11D	TP10	9F
C34	5D	C85	11D	L13	10C	R1	3B	R52	5H	R103	11E	TP11	12G
C35	4E	C86	12D	L14	10E	R2	2B	R53	5H	R104	12D	TP12	12F
C36	5E	C87	11E	L15	10G	R3	3B	R54	5I	R105	12E	TP13	4F
C37	5E	C88	11E	L16	12C	R4	3B	R55	5H	R106	11E	Y1	2D
C38	5F	C89	12E	L17	12E	R5	2B	R56	6B	R107	11F	Y2	2F
C39	4F	C90	12F	L18	11G	R6	3B	R57	6B	R108	12E	Y3	5A
C40	5F	C91	12F	L19	13C	R7	2B	R58	6B	R109	11F	Y4	4D
C41	4G	C92	11F	L20	13E	R8	3C	R59	7B	R110	11F	Y5	6A
C42	4H	C93	12F	L21	10G	R9	3C	R60	7C	R111	11F	Y6	6D
C43	4H	C94	12B	L22	10H	R10	3C	R61	6C	R112	12B	Y7	9B
C44	5H	C95	13B	L23	10H	R11	3C	R62	7C	R113	12B	Y8	9D
C45	5H	C96	12B	L24	13G	R12	2C	R63	6C	R114	13B	Y9	11B
C46	5H	C97	13C	L25	13G	R13	3D	R64	6D	R115	14B	Y10	11D
C47	6I	C98	13C	L26	6H	R14	2D	R65	6D	R116	13C	Y11	13B
C48	6A	C99	13C	L27	7H	R15	2E	R66	6E	R117	12B	Z1	8D
C49	7B	C100	12C	L28	4G	R16	2E	R67	7D	R118	14C	Z2	5G
C50	6B	C101	12D	L29	4H	R17	3E	R68	7E	R119	12C	Z3	10G
C51	7C	C102	12E	Q1	3B	R18	3E	R69	6E	R120	12D	Z4	10H
												Z5	7G
												Z6	12H



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7C	R96	7E	R136	10F
7C	R97	8E	R137	10F
7C	R98	8E	R138	10F
7C	R99	8E	R139	9F
8C	R100	8E	R140	9F
7D	R101	9E	R141	8F
7C	R102	9E	R142	4D
8C	R103	9E	R143	7D
8C	R104	9E	TP1	11C
8D	R105	10E	TP2	2C
8C	R106	9F	TP3	6E
8C	R107	10E	TP4	7F
9C	R108	9E	TP5	6C
9D	R109	10E	TP6	3F
9D	R110	10E	TP7	5F
9C	R111	10E	TP8	8F
9C	R112	2D	TP9	9C
9D	R113	2D	TP10	10D
10C	R114	2D	TP11	8F
7D	R115	3D	TP12	2G
7D	R116	3E	TP13	4F
7D	R117	2D	Y1	3C
8D	R118	3D	Y2	3E
8E	R119	2E	Y3	4C
7D	R120	2E	Y4	4E
8D	R121	2F	Y5	6C
8D	R122	2F	Y6	8C
9D	R123	3E	Y7	7D
9D	R124	3F	Y8	7E
9D	R125	2F	Y9	7E
9D	R126	2F	Y10	8E
9E	R127	3F	Y11	2D
9D	R128	2G	Z1	11D
10D	R129	11F	Z2	5E
10D	R130	10F	Z3	10D
10D	R131	10G	Z4	11D
10D	R132	10F	Z5	11E
7E	R133	10G	Z6	11F

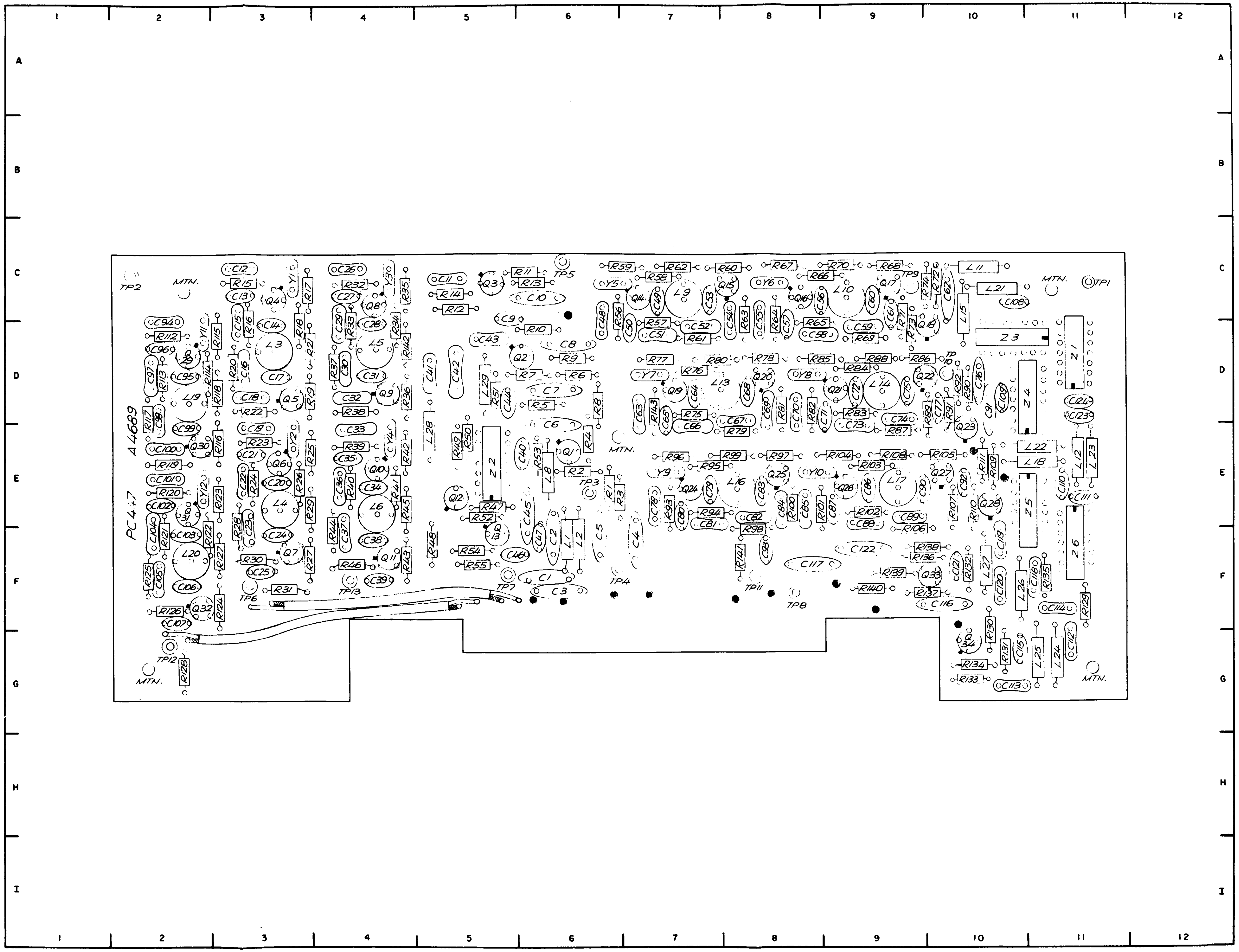

Figure 5-75. Component Locations, 1 MC Selector 3A4

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	6F	C41	5D	C80	7E	C120	10F	Q8	4C	R14	5C	R54	5F	R94	7E	R134	10G
C2	6F	C42	5D	C81	7E	C121	10F	Q9	4D	R15	3C	R55	5F	R95	7E	R135	11F
C3	6F	C43	5D	C82	8E	C122	9F	Q10	4E	R16	3D	R56	7C	R96	7E	R136	10F
C4	7F	C43	5D	C83	8E	C123	11D	Q11	4F	R17	3C	R57	7C	R97	8E	R137	10F
C5	6F	C44	5D	C84	8E	C124	11D	Q12	5E	R18	3D	R58	7C	R98	8E	R138	10F
C6	6E	C45	6E	C85	8E	L1	6F	Q13	5F	R19	3D	R59	7C	R99	8E	R139	9F
C7	6E	C46	6F	C86	9E	L2	6F	Q14	7C	R20	3D	R60	8C	R100	8E	R140	9F
C8	6D	C47	6F	C87	9E	L3	3D	Q15	8C	R21	3D	R61	7D	R101	9E	R141	8F
C9	5C	C48	6C	C88	9E	L4	3E	Q16	8C	R22	3D	R62	7C	R102	9E	R142	4D
C10	6C	C49	7C	C89	9E	L5	4D	Q17	9C	R23	3E	R63	8C	R103	9E	R143	7D
C11	5C	C50	7D	C90	9E	L6	4E	Q18	10D	R24	3E	R64	8C	R104	9E	TP1	11C
C12	3C	C51	7D	C91	10D	L8	6E	Q19	7D	R25	3E	R65	8D	R105	10E	TP2	2C
C13	3C	C52	7D	C92	10E	L9	7C	Q20	8D	R26	3E	R66	8C	R106	9F	TP3	6E
C14	3D	C53	7C	C93	8F	L10	9C	Q21	9D	R27	3F	R67	8C	R107	10E	TP4	7F
C15	3D	C54	8C	C94	2D	L11	10C	Q22	10D	R28	3F	R68	9C	R108	9E	TP5	6C
C16	3D	C55	8C	C95	2D	L12	11E	Q23	10E	R29	3E	R69	9D	R109	10E	TP6	3F
C17	3D	C56	8C	C96	2D	L13	8D	Q24	7E	R30	3F	R70	9D	R110	10E	TP7	5F
C18	3D	C57	8D	C97	2D	L14	9D	Q25	8E	R31	3F	R71	9C	R111	10E	TP8	8F
C19	3E	C58	9D	C98	2D	L15	10C	Q26	9E	R32	4C	R72	9C	R112	2D	TP9	9C
C20	3E	C59	9D	C99	2E	L16	8E	Q27	10E	R33	4D	R73	9D	R113	2D	TP10	10D
C21	3E	C60	9C	C100	2E	L17	9E	Q28	10E	R34	4C	R74	10C	R114	2D	TP11	8F
C22	3E	C61	9C	C101	2E	L18	11E	Q29	2D	R35	4C	R75	7D	R115	3D	TP12	2G
C23	3E	C62	10C	C102	2E	L19	2D	Q30	2E	R36	4D	R76	7D	R116	3E	TP13	4F
C24	3F	C63	7D	C103	2F	L20	2F	Q31	2E	R37	4D	R77	7D	R117	2D	Y1	3C
C25	3F	C64	7D	C104	2F	L21	10C	Q32	2F	R38	4D	R78	8D	R118	3D	Y2	3E
C26	4C	C65	8D	C105	2F	L22	11E	Q33	10F	R39	4E	R79	8E	R119	2E	Y3	4C
C27	4C	C66	7E	C106	2F	L23	11E	Q34	10G	R40	4E	R80	7D	R120	2E	Y4	4E
C28	4D	C67	8D	C107	2F	L24	11G	R1	6E	R41	4E	R81	8D	R121	2F	Y5	6C
C29	4D	C68	8D	C108	10C	L25	11G	R2	6E	R42	4E	R82	8D	R122	2F	Y6	8C
C30	4D	C69	8D	C109	10D	L26	10F	R3	7E	R43	4F	R83	9D	R123	3E	Y7	7D
C31	4D	C70	8D	C110	11E	L27	10F	R4	6E	R44	4F	R84	9D	R124	3F	Y8	7E
C32	4D	C71	9D	C111	11E	L28	5E	R5	6D	R45	4E	R85	9D	R125	2F	Y9	7E
C33	4E	C72	9D	C112	11G	L29	5D	R6	6D	R46	4F	R86	9D	R126	2F	Y10	8E
C34	4E	C73	9D	C113	10G	Q1	6E	R7	6D	R47	5E	R87	9E	R127	3F	Y11	2D
C35	4E	C74	9D	C114	11F	Q2	6D	R8	6D	R48	5F	R88	9D	R128	2G	Z1	11D
C36	4E	C75	9D	C115	10F	Q3	5C	R9	6D	R49	5E	R89	10D	R129	11F	Z2	5E
C37	4E	C76	10D	C116	10F	Q4	3C	R10	6D	R50	5E	R90	10D	R130	10F	Z3	10D
C38	4F	C77	10D	C117	8F	Q5	3D	R11	6C	R51	5D	R91	10D	R131	10G	Z4	11D
C39	4F	C78	7E	C118	11F	Q6	3E	R12	5C	R52	5E	R92	10D	R132	10F	Z5	11E
C40	6E	C79	7E	C119	10F	Q7	3F	R13	6C	R53	6E	R93	7E	R133	10G	Z6	11F

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NAVELEX 0967-385-0020

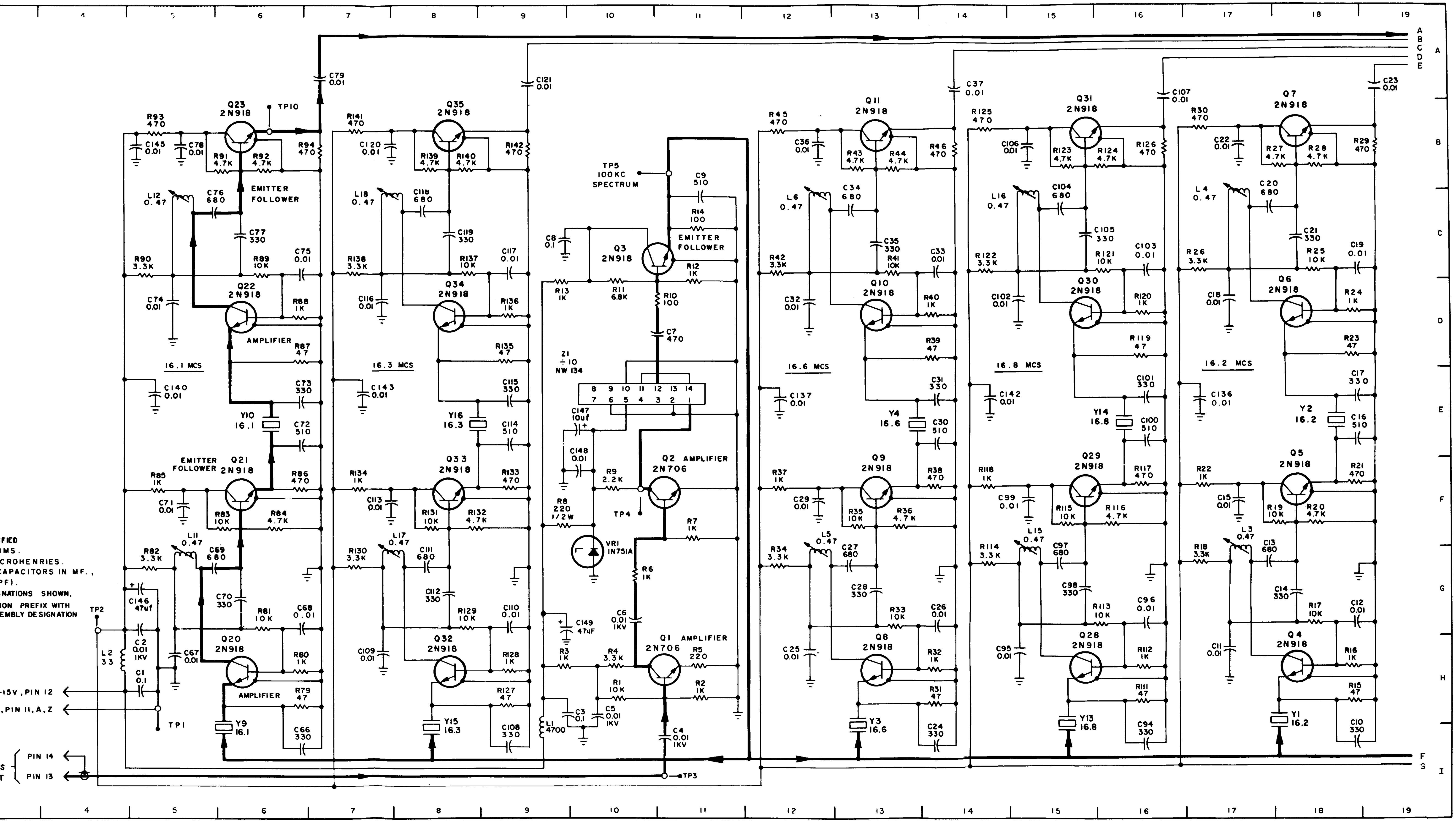

Figure 5-76. Schematic Wiring, 100 KC Selector 3A5 (Sheet 1 of 2)

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5H	C42	28G	C83	23G	C124	27G	L17	17F	Q38	26D	R40	14D	R81	6G	R122	14C	R162	31E
C2	5H	C43	28F	C84	24G	C125	26G	L18	7C	Q39	26B	R41	13C	R82	5G	R123	15B	R163	31A
C3	9H	C44	29E	C85	23F	C126	26G	L19	25G	R1	10H	R42	12C	R83	5F	R124	16B	R164	31F
C4	11I	C45	29E	C86	24E	C127	25F	L20	25C	R2	11H	R43	13B	R84	6F	R125	14B	R165	31D
C5	10H	C46	28D	C87	24E	C128	27E	Q1	10H	R3	9H	R44	13B	R85	5F	R126	16B	R166	31B
C6	10H	C47	29C	C88	23D	C129	27E	Q2	11F	R4	10H	R45	12B	R86	6F	R127	9H	R167	31G
C7	10D	C48	28C	C89	24C	C130	25D	Q3	10C	R5	11H	R46	14B	R87	6D	R128	9H	TP1	5I
C8	9C	C49	28C	C90	23C	C131	27C	Q4	18H	R6	10G	R47	29H	R88	6D	R129	8G	TP2	4G
C9	11B	C50	28B	C91	24C	C132	26C	Q5	18F	R7	11F	R48	29H	R89	6C	R130	7G	TP3	11I
C10	18I	C51	29B	C92	23B	C133	26C	Q6	18E	R8	9F	R49	29G	R90	5C	R131	8F	TP4	10F
C11	17H	C52	22I	C93	24B	C134	25B	Q7	18B	R9	10F	R50	27G	R91	5B	R132	8F	TP5	10B
C12	18G	C53	20H	C94	10I	C135	27B	Q8	13H	R10	10D	R51	28F	R92	6B	R133	9F	TP6	31D
C13	17G	C54	22G	C95	14H	C136	12E	Q9	13F	R11	10D	R52	29F	R93	5B	R134	9D	TP7	31B
C14	18G	C55	2G	C96	16G	C137	12E	Q10	13D	R12	11D	R53	29F	R94	7B	R135	9D	TP8	31G
C15	17G	C56	21G	C97	15G	C138	28E	Q11	13B	R13	9D	R54	27F	R95	24H	R136	9D	TP9	31E
C16	18E	C57	20F	C98	15G	C139	20E	Q12	28H	R14	11C	R55	29D	R96	24H	R137	8C	TP10	6B
C17	18E	C58	22E	C99	14F	C140	5E	Q13	28F	R15	18H	R56	29D	R97	24G	R138	7C	TP11	31F
C18	18E	C59	22E	C100	16E	C141	23E	Q14	28D	R16	18H	R57	29C	R98	22G	R139	8B	TP12	31C
C19	18C	C60	20D	C101	16E	C142	14E	Q15	28B	R17	8G	R58	27C	R99	23F	R140	8B	TP13	31B
C20	17C	C61	22C	C102	14D	C143	7E	Q16	21H	R18	17G	R59	28B	R100	24F	R141	7B	TP14	31F
C21	18C	C62	22C	C103	16C	C144	25E	Q17	21F	R19	17F	R60	29B	R101	24F	R142	9B	VR1	10G
C22	17B	C63	21G	C104	15C	C145	5B	Q18	21D	R20	18F	R61	29B	R102	24D	R143	27H	Y1	18I
C23	19A	C64	2B	C105	16C	C146	5G	Q19	21B	R21	18F	R62	27B	R103	24D	R144	27H	Y2	18E
C24	14H	C65	22B	C106	15B	C147	10E	Q20	6H	R22	17F	R63	22H	R104	24D	R145	26G	Y3	13I
C25	12H	C66	6I	C107	16B	C148	10F	Q21	6F	R23	18D	R64	22H	R105	24C	R146	25G	Y4	13E
C26	14H	C67	5H	C108	9I	L1	9I	Q22	6D	R24	18D	R65	21G	R106	23C	R147	26F	Y5	28I
C27	13G	C68	6G	C109	7H	L2	4H	Q23	6B	R25	18D	R66	20G	R107	23B	R148	26F	Y6	29I
C28	13G	C69	5G	C110	9G	L3	17G	Q24	24H	R26	17C	R67	21F	R108	24B	R149	27F	Y7	21I
C29	12F	C70	6G	C111	8G	L4	17C	Q25	24F	R27	17B	R68	21F	R109	23B	R150	25F	Y8	21E
C30	14E	C71	5F	C112	8G	L5	12F	Q26	24D	R28	18B	R69	20F	R110	24B	R151	28F	Y9	6I
C31	14E	C72	6E	C113	7F	L6	12C	Q27	24B	R29	19B	R70	22F	R111	16H	R152	29F	Y10	6E
C32	12D	C73	6E	C114	9E	L7	28G	Q28	15H	R30	17B	R71	22D	R112	16H	R153	26C	Y11	24I
C33	14C	C74	5D	C115	9E	L8	27C	Q29	15F	R31	14H	R72	22D	R113	15G	R154	25C	Y12	24E
C34	13C	C75	6C	C116	7D	L9	21F	Q30	15D	R32	14H	R73	21C	R114	14G	R155	26B	Y13	15I
C35	13C	C76	6C	C117	9C	L10	20C	Q31	15B	R33	13G	R74	20C	R115	15F	R156	26B	Y14	15E
C36	12B	C77	6C	C118	8C	L11	5F	Q32	8H	R34	12G	R75	21B	R116	16F	R157	25B	Y15	8I
C37	14A	C78	5B	C119	8C	L12	5C	Q33	8F	R35	13F	R76	21B	R117	16F	R158	27B	Y16	8E
C38	29I	C79	7A	C120	7B	L13	23F	Q34	8D	R36	13F	R77	20B	R118	14F	R159	31D	Y17	26I
C39	28H	C80	24I	C121	9A	L14	23C	Q35	8B	R37	12F	R78	22B	R119	16D	R160	31C	Y18	26E
C40	29G	C81	23H	C122	27I	L15	15G	Q36	26H	R38	14F	R79	6H	R120	16D	R161	31H	Z1	9D
C41	28G	C82	24G	C123	25H	L16	14C	Q37	26F	R39	14D	R80	6H	R121	15C				

NOTES: UNLESS OTHERWISE S
1. ALL RESISTORS IN
2. ALL INDUCTORS IN
3. ALL DECIMAL VALU
ALL OTHERS IN MMF
4. PARTIAL REFERENCE D
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UNIT NUMBER AND SUB
AS APPLICABLE.

LAST SYMBOL	MISSING SYMBOL
C148 Z1 VR1 L20 Q39 R167 TP14 Y18	

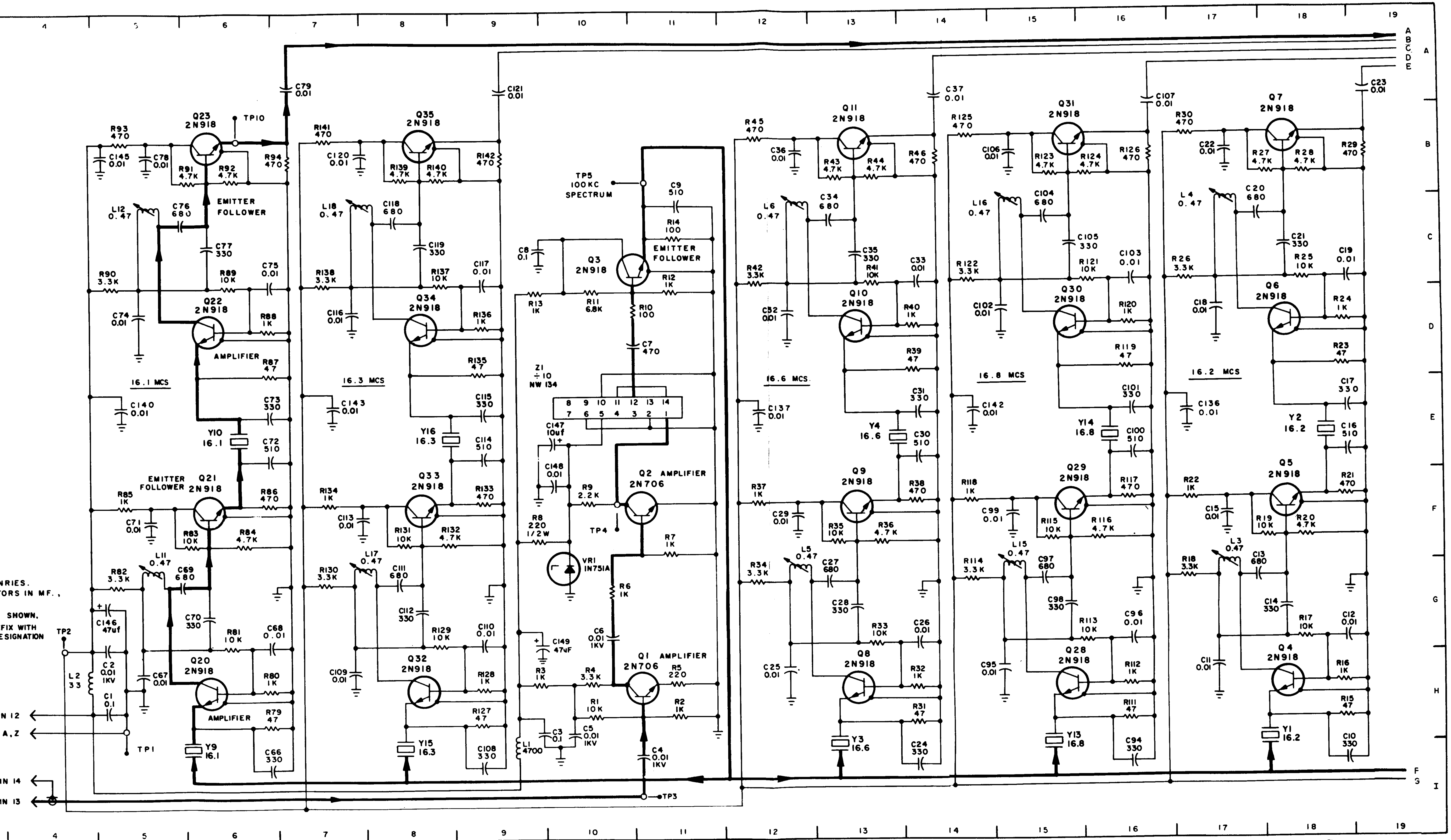

Figure 5-76. Schematic Wiring, 100 KC
Selector 3A5 (Sheet 1 of 2)

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	5H	C42	28G	C83	23G	C124	27G	L17	17F	Q38	26D	R40	14D	R81	6G	R122	14C	R162	31E
C2	5H	C43	28F	C84	24G	C125	26G	L18	7C	Q39	26B	R41	13C	R82	5G	R123	15B	R163	31A
C3	9H	C44	29E	C85	23F	C126	26G	L19	25G	R1	10H	R42	12C	R83	5F	R124	16B	R164	31F
C4	11I	C45	29E	C86	24E	C127	25F	L20	25C	R2	11H	R43	13B	R84	6F	R125	14B	R165	31D
C5	10H	C46	28D	C87	24E	C128	27E	Q1	10H	R3	9H	R44	13B	R85	5F	R126	16B	R166	31B
C6	10H	C47	29C	C88	23D	C129	27E	Q2	11F	R4	10H	R45	12B	R86	6F	R127	9H	R167	31G
C7	10D	C48	28C	C89	24C	C130	25D	Q3	10C	R5	11H	R46	14B	R87	6D	R128	9H	TP1	5I
C8	9C	C49	28C	C90	23C	C131	27C	Q4	18H	R6	10G	R47	29H	R88	6D	R129	8G	TP2	4G
C9	11B	C50	28B	C91	24C	C132	26C	Q5	18F	R7	11F	R48	29H	R89	6C	R130	7G	TP3	11I
C10	18I	C51	29B	C92	23B	C133	26C	Q6	18E	R8	9F	R49	29G	R90	5C	R131	8F	TP4	10F
C11	17H	C52	22I	C93	24B	C134	25B	Q7	18B	R9	10F	R50	27G	R91	5B	R132	8F	TP5	10B
C12	18G	C53	20H	C94	10I	C135	27B	Q8	13H	R10	10D	R51	28F	R92	6B	R133	9F	TP6	31D
C13	17G	C54	22G	C95	14H	C136	12E	Q9	13F	R11	10D	R52	29F	R93	5B	R134	9D	TP7	31B
C14	18G	C55	2G	C96	16G	C137	12E	Q10	13D	R12	11D	R53	29F	R94	7B	R135	9D	TP8	31G
C15	17G	C56	21G	C97	15G	C138	28E	Q11	13B	R13	9D	R54	27F	R95	24H	R136	9D	TP9	31E
C16	18E	C57	20F	C98	15G	C139	20E	Q12	28H	R14	11C	R55	29D	R96	24H	R137	8C	TP10	6B
C17	18E	C58	22E	C99	14F	C140	5E	Q13	28F	R15	18H	R56	29D	R97	24G	R138	7C	TP11	31F
C18	18E	C59	22E	C100	16E	C141	23E	Q14	28D	R16	18H	R57	29C	R98	22G	R139	8B	TP12	31C
C19	18C	C60	20D	C101	16E	C142	14E	Q15	28B	R17	8G	R58	27C	R99	23F	R140	8B	TP13	31B
C20	17C	C61	22C	C102	14D	C143	7E	Q16	21H	R18	17G	R59	28B	R100	24F	R141	7B	TP14	31F
C21	18C	C62	22C	C103	16C	C144	25E	Q17	21F	R19	17F	R60	29B	R101	24F	R142	9B	VR1	10G
C22	17B	C63	21G	C104	15C	C145	5B	Q18	21D	R20	18F	R61	29B	R102	24D	R143	27H	Y1	18I
C23	19A	C64	2B	C105	16C	C146	5G	Q19	21B	R21	18F	R62	27B	R103	24D	R144	27H	Y2	18E
C24	14H	C65	22B	C106	15B	C147	10E	Q20	6H	R22	17F	R63	22H	R104	24D	R145	26G	Y3	13I
C25	12H	C66	6I	C107	16B	C148	10F	Q21	6F	R23	18D	R64	22H	R105	24C	R146	25G	Y4	13E
C26	14H	C67	5H	C108	9I	L1	9I	Q22	6D	R24	18D	R65	21G	R106	23C	R147	26F	Y5	28I
C27	13G	C68	6G	C109	7H	L2	4H	Q23	6B	R25	18D	R66	20G	R107	23B	R148	26F	Y6	29I
C28	13G	C69	5G	C110	9G	L3	17G	Q24	24H	R26	17C	R67	21F	R108	24B	R149	27F	Y7	21I
C29	12F	C70	6G	C111	8G	L4	17C	Q25	24F	R27	17B	R68	21F	R109	23B	R150	25F	Y8	21E
C30	14E	C71	5F	C112	8G	L5	12F	Q26	24D	R28	18B	R69	20F	R110	24B	R151	28F	Y9	6I
C31	14E	C72	6E	C113	7F	L6	12C	Q27	24B	R29	19B	R70	22F	R111	16H	R152	29F	Y10	6E
C32	12D	C73	6E	C114	9E	L7	28G	Q28	15H	R30	17B	R71	22D	R112	16H	R153	26C	Y11	24I
C33	14C	C74	5D	C115	9E	L8	27C	Q29	15F	R31	14H	R72	22D	R113	15G	R154	25C	Y12	24E
C34	13C	C75	6C	C116	7D	L9	21F	Q30	15D	R32	14H	R73	21C	R114	14G	R155	26B	Y13	15I
C35	13C	C76	6C	C117	9C	L10	20C	Q31	15B	R33	13G	R74	20C	R115	15F	R156	26B	Y14	15E
C36	12B	C77	6C	C118	8C	L11	5F	Q32	8H	R34	12G	R75	21B	R116	16F	R157	25B	Y15	8I
C37	14A	C78	5B	C119	8C	L12	5C	Q33	8F	R35	13F	R76	21B	R117	16F	R158	27B	Y16	8E
C38	29I	C79	7A	C120	7B	L13	23F	Q34	8D	R36	13F	R77	20B	R118	14F	R159	31D	Y17	26I
C39	28H	C80	24I	C121	9A	L14	23C	Q35	8B	R37	12F	R78	22B	R119	16D	R160	31C	Y18	26E
C40	29G	C81	23H	C122	27I	L15	15G	Q36	26H	R38	14F	R79	6H	R120	16D	R161	31H	Z1	9D
C41	28G	C82	24G	C123	25H	L16	14C	Q37	26F	R39	14D	R80	6H	R121	15C				

NOTES: UNLESS OTHERWISE SPEC
1. ALL RESISTORS IN OH
2. ALL INDUCTORS IN MI
3. ALL DECIMAL VALUE C
ALL OTHERS IN MMF (
4. PARTIAL REFERENCE DESIG
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UNIT NUMBER AND SUBASS
AS APPLICABLE.

LAST SYMBOL	MISSING SYMBOL
C148 Z1 VR1 L20 Q39 R167 TP14 Y18	

GND

1 MC
INPU

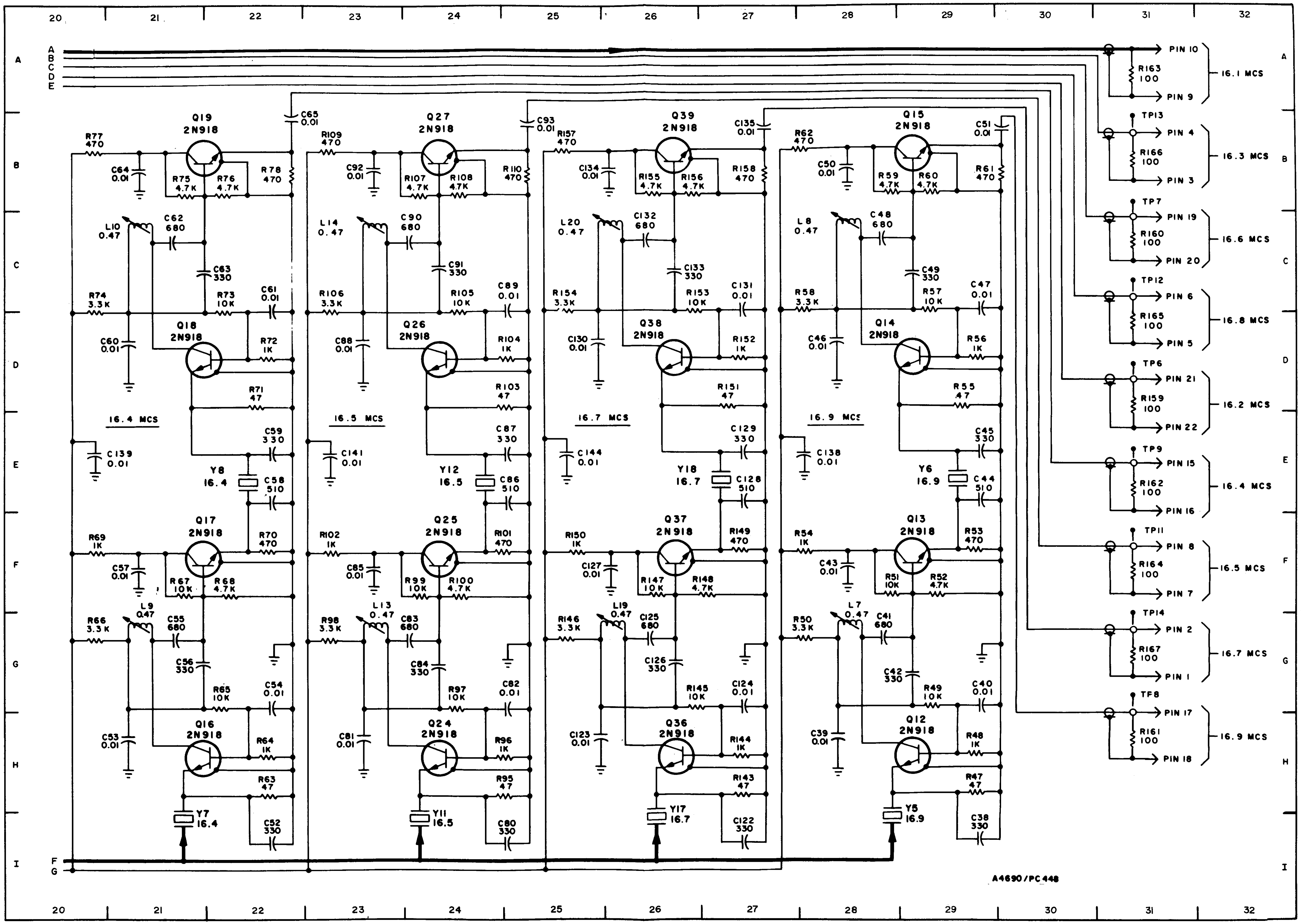


Figure 5-76. Schematic Wiring, 100 KC
Selector 3A5 (Sheet 2 of 2)

LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
3E	R81	7C	R122	9E	R162	5F
3E	R82	7C	R123	9F	R163	6F
3E	R83	7D	R124	8E	R164	7F
3F	R84	6D	R125	9E	R165	9F
2F	R85	7D	R126	8F	R166	10F
3E	R86	7E	R127	9C	R167	11G
3F	R87	7E	R128	9D	TP1	1C
4C	R88	7E	R129	10D	TP2	11C
4D	R89	7E	R130	10C	TP3	6F
4D	R90	7E	R131	10D	TP4	6D
4C	R91	8F	R132	9D	TP5	6C
4D	R92	6F	R133	9D	TP6	2G
3D	R93	7E	R134	10D	TP7	3F
4D	R94	7F	R135	9E	TP8	4F
4D	R95	8C	R136	9E	TP9	5F
4E	R96	7D	R137	10E	TP10	7F
4E	R97	8D	R138	10E	TP11	7F
4E	R98	8C	R139	10F	TP12	9F
4E	R99	8C	R140	9F	TP13	10F
4F	R100	7D	R141	10E	TP14	11G
3F	R101	8E	R142	9F	VR1	6D
3F	R102	8D	R143	10D	Y1	2D
4E	R103	8E	R144	10D	Y2	2E
5C	R104	8E	R145	11D	Y3	3C
5C	R105	8E	R146	11D	Y4	3E
5D	R106	8E	R147	10E	Y5	4C
5C	R107	8F	R148	10E	Y6	4E
5D	R108	7F	R149	10E	Y7	5D
4D	R109	8E	R150	11D	Y8	5E
5D	R110	7F	R151	10E	Y9	7C
4D	R111	8C	R152	10F	Y10	7E
4E	R112	8D	R153	11F	Y11	8C
4E	R113	9D	R154	11E	Y12	8E
5E	R114	9C	R155	11F	Y13	9C
5E	R115	9D	R156	10F	Y14	9E
5F	R116	8D	R157	11F	Y15	11C
4F	R117	8D	R158	10F	Y16	10E
5E	R118	9D	R159	2G	Y17	11D
5F	R119	8E	R160	3F	Y18	11E
7C	R120	9E	R161	3F	Z1	6D
7D	R121	9E				

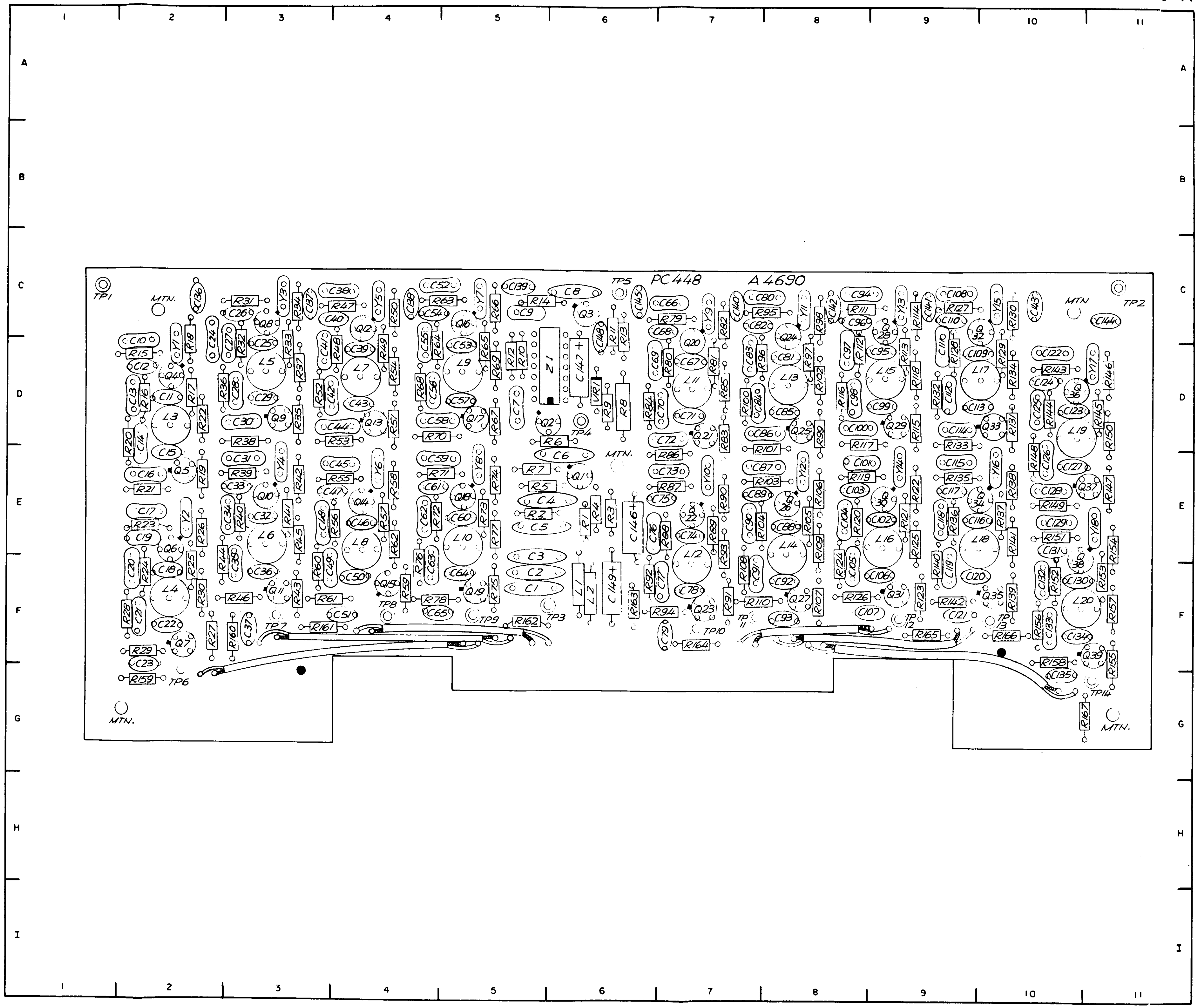
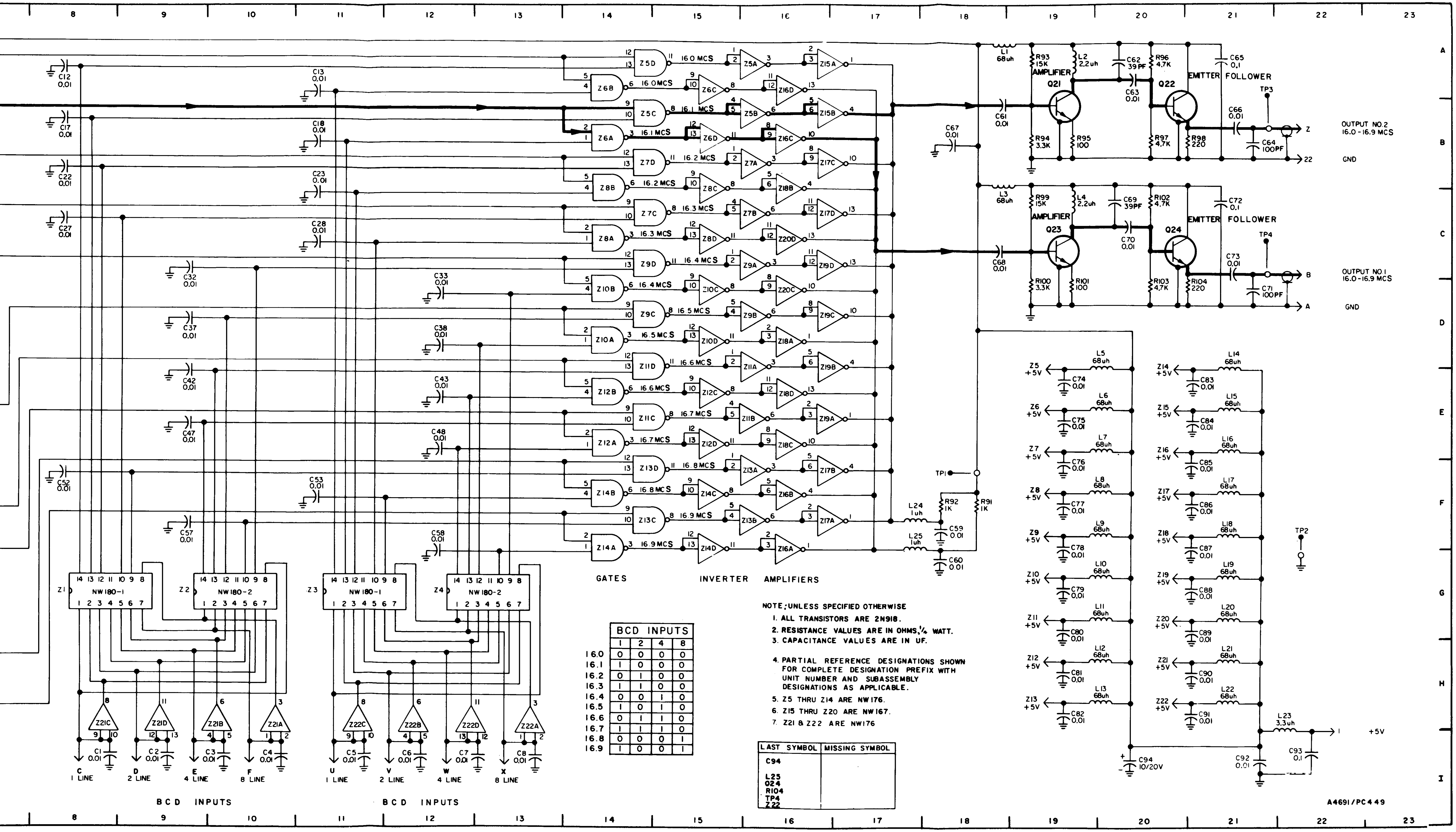


Figure 5-77. Component Locations, 100 KC Selector 3A5

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG
C1	5F	C42	4D	C83	7D	C124	10D	L17	10D	Q38	10E	R40	3E	R81	7C	R122	9E	R162
C2	5F	C43	4D	C84	7D	C125	10D	L18	10E	Q39	11F	R41	3E	R82	7C	R123	9F	R163
C3	5E	C44	4D	C85	8D	C126	10E	L19	10D	R1	6E	R42	3E	R83	7D	R124	8E	R164
C4	6E	C45	4E	C86	8D	C127	10E	L20	10F	R2	5E	R43	3F	R84	6D	R125	9E	R165
C5	5E	C46	4E	C87	8E	C128	10E	Q1	6E	R3	6E	R44	2F	R85	7D	R126	8F	R166
C6	6E	C47	4E	C88	8E	C129	10E	Q2	5D	R4	6E	R45	3E	R86	7E	R127	9C	R167
C7	5D	C48	3E	C89	7E	C130	10F	Q3	6C	R5	5E	R46	3F	R87	7E	R128	9D	TP1
C8	6C	C49	4F	C90	7E	C131	10E	Q4	2D	R6	6D	R47	4C	R88	7E	R129	10D	TP2
C9	5C	C50	4F	C91	7F	C132	10F	Q5	2E	R7	5E	R48	4D	R89	7E	R130	10C	TP3
C10	2D	C51	4F	C92	8F	C133	10F	Q6	2E	R8	6D	R49	4D	R90	7E	R131	10D	TP4
C11	2D	C52	5C	C93	8F	C134	10F	Q7	2F	R9	6D	R50	4C	R91	8F	R132	9D	TP5
C12	2D	C53	5D	C94	8C	C135	10G	Q8	3C	R10	5D	R51	4D	R92	6F	R133	9D	TP6
C13	2D	C54	4C	C95	9D	C136	2C	Q9	3D	R11	6C	R52	3D	R93	7E	R134	10D	TP7
C14	2D	C55	4D	C96	8C	C137	3C	Q10	3E	R12	5D	R53	4D	R94	7F	R135	9E	TP8
C15	2E	C56	4D	C97	8D	C138	4C	Q11	3F	R13	6C	R54	4D	R95	8C	R136	9E	TP9
C16	2E	C57	5D	C98	8D	C139	5C	Q12	4C	R14	5C	R55	4E	R96	7D	R137	10E	TP10
C17	2E	C58	5D	C99	8D	C140	7C	Q13	4D	R15	2D	R56	4E	R97	8D	R138	10E	TP11
C18	2F	C59	5E	C100	8D	C141	9C	Q14	4E	R16	2D	R57	4E	R98	8C	R139	10F	TP12
C19	2E	C60	5E	C101	8E	C142	8C	Q15	4F	R17	2D	R58	4E	R99	8C	R140	9F	TP13
C20	2F	C61	4E	C102	9E	C143	10C	Q16	5C	R18	2D	R59	4F	R100	7D	R141	10E	TP14
C21	2F	C62	4E	C103	8E	C144	11C	Q17	5D	R19	2E	R60	3F	R101	8E	R142	9F	VR1
C22	2F	C63	4F	C104	8E	C145	6C	Q18	5E	R20	2D	R61	3F	R102	8D	R143	10D	Y1
C23	2G	C64	5F	C105	8F	C146	6E	Q19	5F	R21	2E	R62	4E	R103	8E	R144	10D	Y2
C24	2D	C65	5F	C106	9F	C147	6F	Q20	7D	R22	2D	R63	5C	R104	8E	R145	11D	Y3
C25	3D	C66	7C	C107	9F	C148	6C	Q21	7D	R23	2E	R64	5C	R105	8E	R146	11D	Y4
C26	3C	C67	7D	C108	9C	L1	6F	Q22	7E	R24	2F	R65	5D	R106	8E	R147	10E	Y5
C27	3D	C68	7C	C109	9D	L2	6F	Q23	7F	R25	2F	R66	5C	R107	8F	R148	10E	Y6
C28	3D	C69	6D	C110	9C	L3	2D	Q24	8C	R26	2E	R67	5D	R108	7F	R149	10E	Y7
C29	3D	C70	7D	C111	9D	L4	2F	Q25	8D	R27	2F	R68	4D	R109	8E	R150	11D	Y8
C30	3D	C71	7D	C112	9D	L5	3D	Q26	8E	R28	2F	R69	5D	R110	7F	R151	10E	Y9
C31	3E	C72	7D	C113	9D	L6	3E	Q27	8F	R29	2F	R70	4D	R111	8C	R152	10F	Y10
C32	3E	C73	7E	C114	9D	L7	4D	Q28	9C	R30	2F	R71	4E	R112	8D	R153	11F	Y11
C33	3E	C74	7E	C115	9E	L8	4E	Q29	9D	R31	3C	R72	4E	R113	9D	R154	11E	Y12
C34	3E	C75	7E	C116	9E	L9	5D	Q30	9E	R32	3D	R73	5E	R114	9C	R155	11F	Y13
C35	3F	C76	6E	C117	9E	L10	5E	Q31	9F	R33	3D	R74	5E	R115	9D	R156	10F	Y14
C36	3F	C77	7F	C118	9E	L11	7D	Q32	10C	R34	3C	R75	5F	R116	8D	R157	11F	Y15
C37	3F	C78	7F	C119	9E	L12	7E	Q33	10D	R35	3D	R76	4F	R117	8D	R158	10F	Y16
C38	4C	C79	7F	C120	9F	L13	8D	Q34	10E	R36	2D	R77	5E	R118	9D	R159	2G	Y17
C39	4D	C80	8C	C121	9F	L14	8E	Q35	10F	R37	3D	R78	5F	R119	8E	R160	3F	Y18
C40	4C	C81	8D	C122	10D	L15	9D	Q36	10D	R38	3D	R79	7C	R120	9E	R161	3F	Z1
C41	3D	C82	7C	C123	10D	L16	9E	Q37	10E	R39	3E	R80	7D	R121	9E			



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16.4	0	0	1	0
16.5	1	0	1	0
16.6	0	1	1	0
16.7	1	1	1	0
16.8	0	0	0	1
16.9	1	0	0	1

NOTE: UNLESS SPECIFIED OTHERWISE

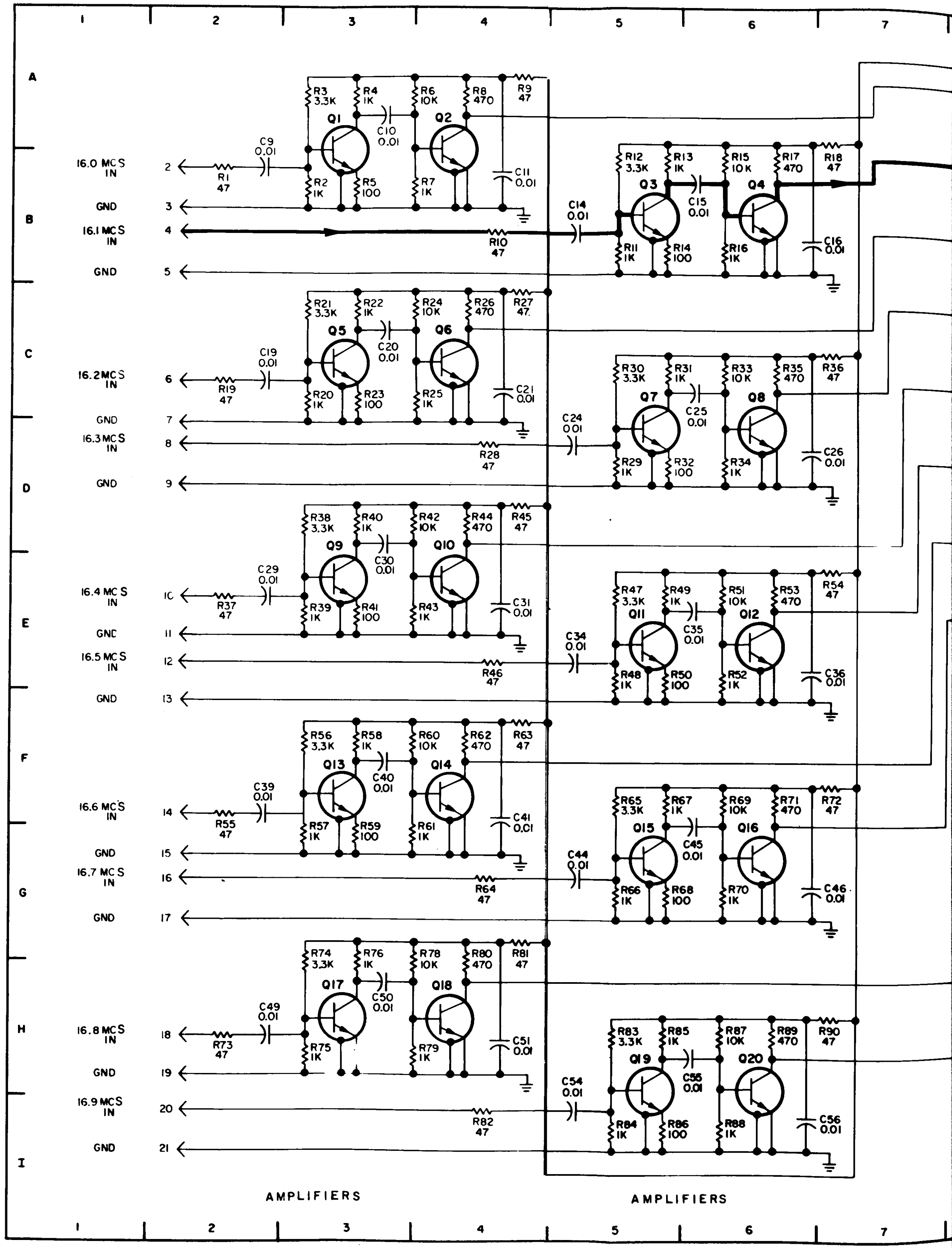
1. ALL TRANSISTORS ARE 2N918.
2. RESISTANCE VALUES ARE IN OHMS, 1/4 WATT.
3. CAPACITANCE VALUES ARE IN UF.
4. PARTIAL REFERENCE DESIGNATIONS SHOWN FOR COMPLETE DESIGNATION PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATIONS AS APPLICABLE.
5. Z5 THRU Z14 ARE NW176.
6. Z15 THRU Z20 ARE NW167.
7. Z21 & Z22 ARE NW176

LAST SYMBOL	MISSING SYMBOL
C94	
L25	
Q24	
R104	
TP4	
Z22	

Figure 5-78. Schematic Wiring, Matrix Distributor 3A6, 7

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	8I	C50	3H	L5	20D	R5	3B	R54	7E	R103	20C	Z12c	15E
C2	9F	C51	3H	L6	20E	R6	4A	R55	2F	R104	21D	Z12d	15E
C3	10I	C52	8F	L7	20E	R7	4B	R56	3F	TP1	18F	Z13	19H
C4	10I	C53	11F	L8	20F	R8	4A	R57	3F	TP2	22F	Z13a	16F
C5	11I	C54	5H	L9	20F	R9	4A	R58	3F	TP3	21A	Z13b	16F
C6	12I	C55	6H	L10	20G	R10	4B	R59	3F	TP4	21C	Z13c	14F
C7	12I	C56	6I	L11	20G	R11	5B	R60	3F	Z1	8G	Z13d	14F
C8	13I	C57	9F	L12	20H	R12	5A	R61	3F	Z2	9G	Z14	20D
C9	2A	C58	9F	L13	20H	R13	5A	R62	4F	Z3	11G	Z14a	14E
C10	3A	C59	18F	L14	21D	R14	5B	R63	4F	Z4	12G	Z14b	14F
C11	4B	C60	18H	L15	21H	R15	6A	R64	4G	Z5	19D	Z14c	15F
C12	8A	C61	18B	L16	21H	R16	6B	R65	5F	Z5a	16A	Z14d	15F
C13	11A	C62	20A	L17	21F	R17	6A	R66	5G	Z5b	16B	Z15	20E
C14	5B	C63	20A	L18	21F	R18	7A	R67	5F	Z5c	14B	Z15a	16A
C15	6B	C64	21B	L19	21G	R19	2C	R68	5G	Z5d	14A	Z15b	16B
C16	7B	C65	21A	L20	21G	R20	3C	R69	6F	Z6	19A	Z16	20E
C17	8B	C66	21B	L21	21H	R21	3C	R70	6G	Z6a	14B	Z16a	16F
C18	11B	C67	18B	L22	21H	R22	3C	R71	6F	Z6b	14A	Z16b	16F
C19	2C	C68	18C	L23	22H	R23	3C	R72	7F	Z6c	15A	Z16c	16B
C20	3C	C69	20C	L24	17F	R24	4C	R73	2H	Z6d	15B	Z16d	16A
C21	4C	C70	20C	L25	17F	R25	4C	R74	3G	Z7	19E	Z17	20F
C22	8C	C71	21D	Q1	3A	R26	4C	R75	3H	Z7a	16B	Z17a	16F
C23	11C	C72	21C	Q2	4A	R27	4C	R76	3G	Z7b	16C	Z17b	16F
C24	5D	C73	21C	Q3	5B	R28	4D	R77	3H	Z7c	14C	Z17c	16B
C25	6C	C74	19E	Q4	6B	R29	5D	R78	3G	Z7d	14B	Z17d	16C
C26	7D	C75	19E	Q5	3C	R30	5C	R79	3H	Z8	19F	Z18	20F
C27	8C	C76	19E	Q6	4C	R31	5C	R80	4G	Z8a	14C	Z18a	16D
C28	11C	C77	19F	Q7	5C	R32	5D	R81	4G	Z8b	14B	Z18b	16B
C29	2E	C78	19F	Q8	6C	R33	6C	R82	4I	Z8c	15B	Z18c	16E
C30	3D	C79	19G	Q9	3E	R34	6D	R83	5H	Z8d	15C	Z18d	16E
C31	4E	C80	19G	Q10	4E	R35	6C	R84	5I	Z9	19F	Z19	20G
C32	9C	C81	19H	Q11	5E	R36	7C	R85	5H	Z9a	16C	Z19a	16E
C33	12D	C82	19H	Q12	6E	R37	2E	R86	5I	Z9b	16D	Z19b	16D
C34	5E	C83	21E	Q13	3F	R38	3D	R87	6H	Z9c	14D	Z19c	16D
C35	6E	C84	21E	Q14	4F	R39	3E	R88	6I	Z9d	14C	Z19d	16C
C36	7E	C85	21E	Q15	5G	R40	3D	R89	6H	Z10	19G	Z20	20C
C37	9D	C86	21F	Q16	6G	R41	3E	R90	7H	Z10a	14D	Z20c	16D
C38	12D	C87	21F	Q17	3H	R42	3D	R91	18F	Z10b	14D	Z20d	16C
C39	2F	C88	21G	Q18	4H	R43	3E	R92	18F	Z10c	15D	Z21	20H
C40	3F	C89	21G	Q19	5H	R44	4D	R93	19A	Z10d	15D	Z21a	10H
C41	4F	C90	21H	Q20	6H	R45	4D	R94	19B	Z11	19G	Z21b	10H
C42	9D	C91	21H	Q21	19A	R46	4E	R95	19B	Z11a	16D	Z21c	8H
C43	12E	C92	21I	Q22	20A	R47	5E	R96	20A	Z11b	16E	Z21d	9H
C44	5G	C93	22I	Q23	19C	R48	5E	R97	20B	Z11c	14E	Z22	20H
C45	6G	C94	20I	Q24	20C	R49	5E	R98	21B	Z11d	14D	Z22a	13H
C46	6G	L1	18A	R1	2B	R50	5E	R99	19C	Z12	19H	Z22b	12H
C47	9E	L2	18B	R2	3B	R51	6E	R100	19C	Z12a	14E	Z22c	11H
C48	12E	L3	18C	R3	3A	R52	6E	R101	19C	Z12b	14E	Z22d	12H
C49	2H	L4	18D	R4	3A	R53	6E	R102	20C				



ORIGINAL

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R56	5E	TP1	11C	Z13	4D
R57	5F	TP2	1C	Z13a	-
R58	5E	TP3	2G	Z13b	-
R59	4F	TP4	10F	Z13c	-
R60	5E	Z1	10E	Z13d	-
R61	4E	Z2	10E	Z14	4C
R62	5E	Z3	3C	Z14a	-
R63	5E	Z4	3D	Z14b	-
R64	5F	Z5	8D	Z14c	-
R65	4E	Z5a	-	Z14d	-
R66	4F	Z5b	-	Z15	2D
R67	4E	Z5c	-	Z15a	-
R68	4E	Z5d	-	Z15b	-
R69	4E	Z6	8C	Z16	9C
R70	4E	Z6a	-	Z16a	-
R71	4E	Z6b	-	Z16b	-
R72	4E	Z6c	-	Z16c	-
R73	4F	Z6d	-	Z16d	-
R74	4E	Z7	7D	Z17	3D
R75	3F	Z7a	-	Z17a	-
R76	3E	Z7b	-	Z17b	-
R77	3F	Z7c	-	Z17c	-
R78	3E	Z7d	-	Z17d	-
R79	3E	Z8	7C	Z18	9D
R80	3E	Z8a	-	Z18a	-
R81	4E	Z8b	-	Z18b	-
R82	3F	Z8c	-	Z18c	-
R83	3E	Z8d	-	Z18d	-
R84	2F	Z9	6D	Z19	2D
R85	3E	Z9a	-	Z19a	-
R86	2F	Z9b	-	Z19b	-
R87	3E	Z9c	-	Z19c	-
R88	2E	Z9d	-	Z19d	-
R89	3E	Z10	6C	Z20	10D
R90	3E	Z10a	-	Z20c	-
R91	10D	Z10b	-	Z20d	-
R92	2E	Z10c	-	Z21	10F
R93	1F	Z10d	-	Z21a	-
R94	1E	Z11	5D	Z21b	-
R95	1E	Z11a	-	Z21c	-
R96	2F	Z11b	-	Z21d	-
R97	2F	Z11c	-	Z22	2C
R98	2F	Z11d	-	Z22a	-
R99	10E	Z12	5C	Z22b	-
R100	10D	Z12a	-	Z22c	-
R101	10D	Z12b	-	Z22d	-
R102	10F				

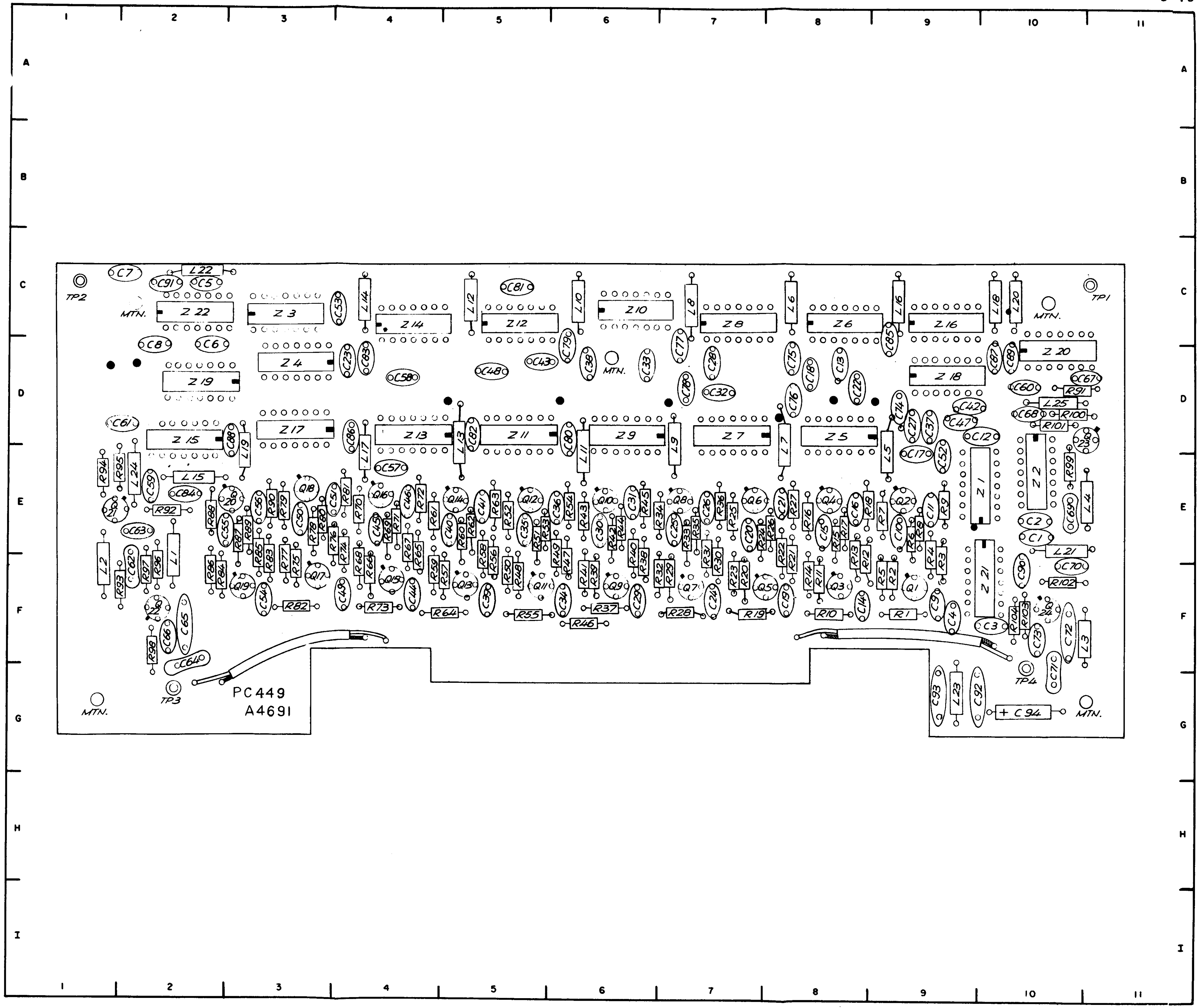
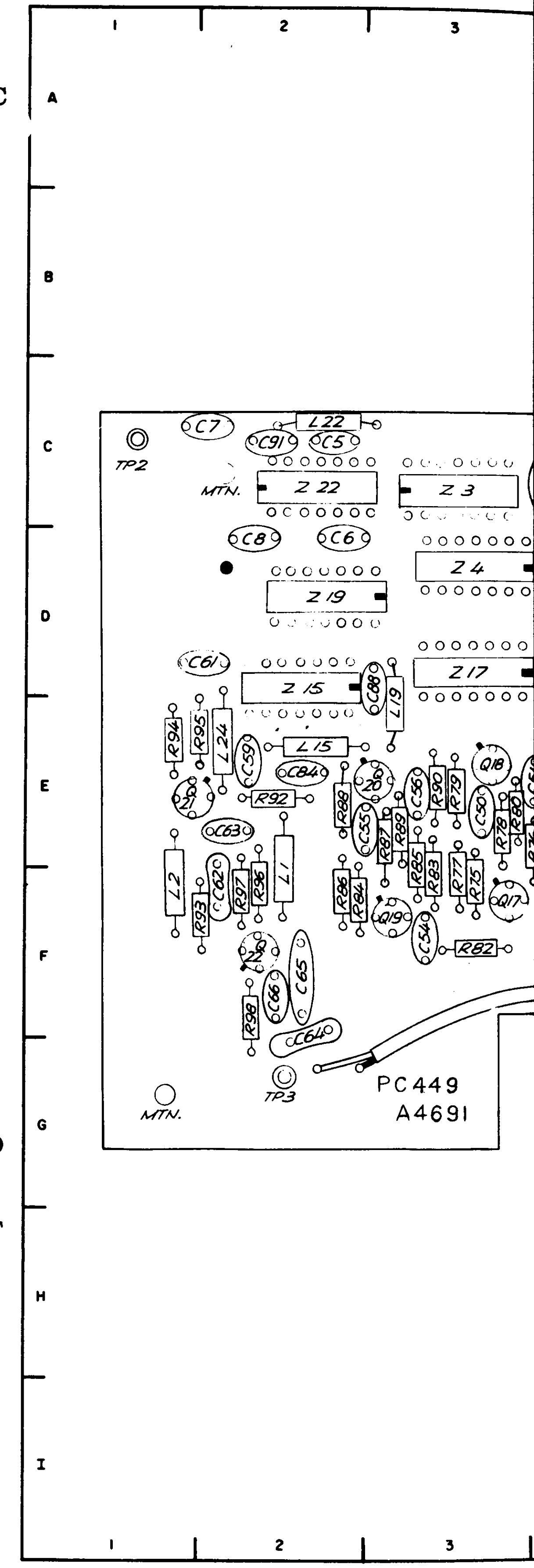
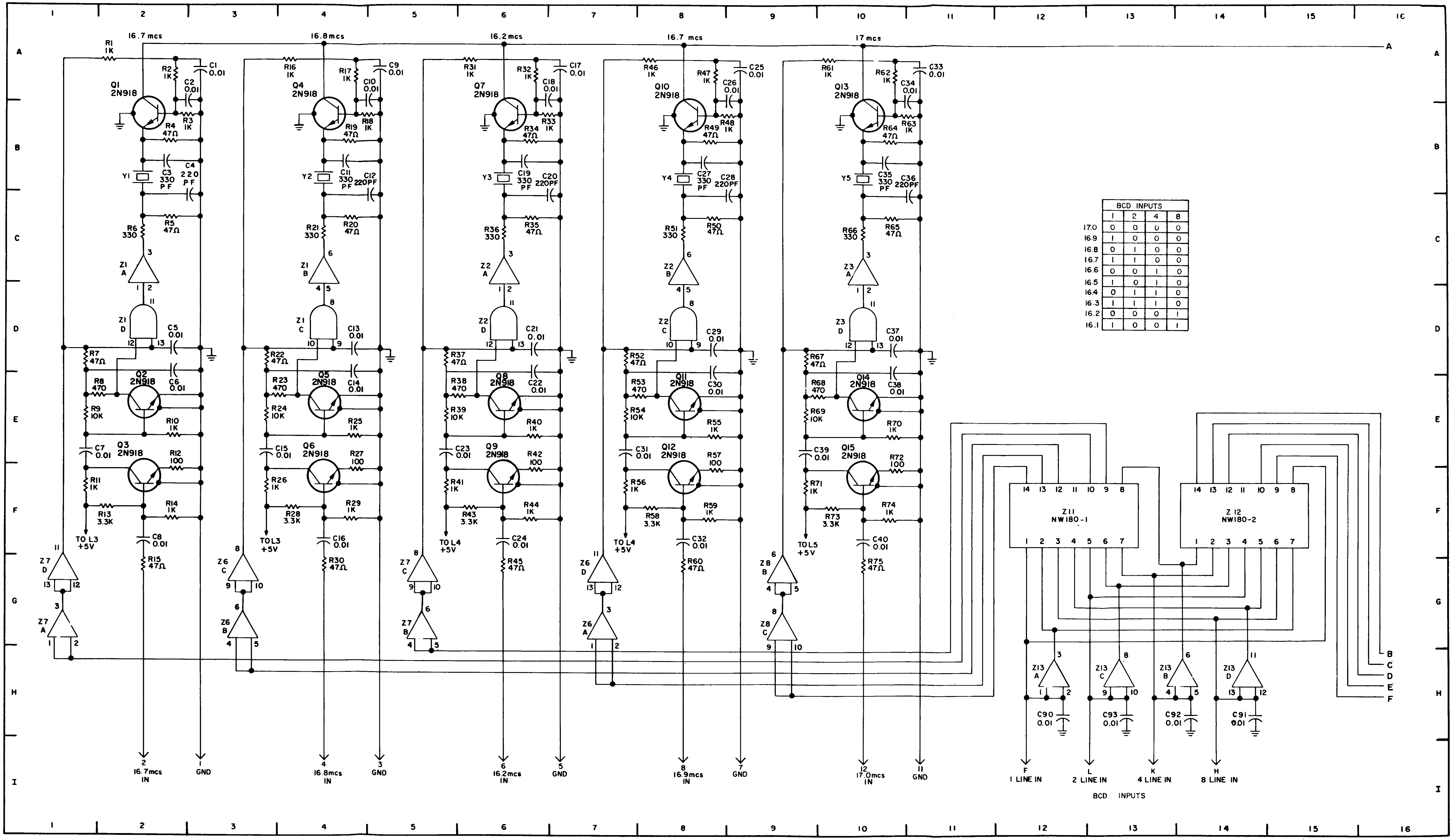


Figure 5-79. Component Locations, Matrix Distributor 3A6, 7

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	10E	C50	3E	L5	9E	R5	9F	R54	6E	R103	10F	Z12c	-
C2	10E	C51	3E	L6	8C	R6	9E	R55	5F	R104	10F	Z12d	-
C3	10F	C52	3E	L7	8D	R7	9E	R56	5E	TP1	11C	Z13	4D
C4	9F	C53	4C	L8	7C	R8	9E	R57	5F	TP2	1C	Z13a	-
C5		C54	3E	L9	7D	R9	9E	R58	5E	TP3	2G	Z13b	-
C6	2C	C55	2E	L10	6C	R10	8F	R59	4F	TP4	10F	Z13c	-
C7	2C	C56	3E	L11	6D	R11	8F	R60	5E	Z1	10E	Z13d	-
C8	2C	C57	4E	L12	5C	R12	8E	R61	4E	Z2	10E	Z14	4C
C9	9F	C58	4D	L13	5D	R13	8E	R62	5E	Z3	3C	Z14a	-
C10	9E	C59	2E	L14	4C	R14	8F	R63	5E	Z4	3D	Z14b	-
C11	9E	C60	10D	L15	4D	R15	8E	R64	5F	Z5	8D	Z14c	-
C12	10D	C61	2D	L16	9C	R16	8E	R65	4E	Z5a	-	Z14d	-
C13	8D	C62	2F	L17	4E	R17	8E	R66	4F	Z5b	-	Z15	2D
C14	8F	C63	2E	L18	10C	R18	8E	R67	4E	Z5c	-	Z15a	-
C15	8E	C64	2F	L19	3E	R19	7F	R68	4E	Z5d	-	Z15b	-
C16	8E	C65	2F	L20	10C	R20	7F	R69	4E	Z6	8C	Z16	9C
C17	9E	C66	2F	L21	10E	R21	8E	R70	4E	Z6a	-	Z16a	-
C18	8D	C67	10D	L22	2C	R22	8E	R71	4E	Z6b	-	Z16b	-
C19	8F	C68	10D	L23	9G	R23	7E	R72	4E	Z6c	-	Z16c	-
C20	7E	C69	10E	L24	2E	R24	7E	R73	4F	Z6d	-	Z16d	-
C21	8E	C70	10F	L25	10D	R25	7E	R74	4E	Z7	7D	Z17	3D
C22	8D	C71	10F	Q1	9F	R26	8E	R75	3F	Z7a	-	Z17a	-
C23	4D	C72	10F	Q2	9E	R27	8E	R76	3E	Z7b	-	Z17b	-
C24	7F	C73	10F	Q3	8F	R28	7F	R77	3F	Z7c	-	Z17c	-
C25	7E	C74	9D	Q4	8E	R29	7F	R78	3E	Z7d	-	Z17d	-
C26	7E	C75	8D	Q5	8F	R30	7E	R79	3E	Z8	7C	Z18	9D
C27	9D	C76	8D	Q6	7E	R31	7E	R80	3E	Z8a	-	Z18a	-
C28	7D	C77	7D	Q7	7F	R32	7F	R81	4E	Z8b	-	Z18b	-
C29	6F	C78	7D	Q8	7E	R33	7E	R82	3F	Z8c	-	Z18c	-
C30	6E	C79	6D	Q9	6F	R34	7E	R83	3E	Z8d	-	Z18d	-
C31	6E	C80	6D	Q10	6E	R35	7E	R84	2F	Z9	6D	Z19	2D
C32	7D	C81	5F	Q11	5F	R36	7E	R85	3E	Z9a	-	Z19a	-
C33	6D	C82	5D	Q12	5E	R37	6F	R86	2F	Z9b	-	Z19b	-
C34	6F	C83	4D	Q13	5F	R38	6E	R87	3E	Z9c	-	Z19c	-
C35	5E	C84	21E	Q14	5E	R39	6F	R88	2E	Z9d	-	Z19d	-
C36	6E	C85	9C	Q15	4F	R40	6E	R89	3E	Z10	6C	Z20	10D
C37	9D	C86	4D	Q16	4E	R41	6F	R90	3E	Z10a	-	Z20c	-
C38	6D	C87	10C	Q17	3F	R42	6E	R91	10D	Z10b	-	Z20d	-
C39	5F	C88	3D	Q18	3E	R43	6E	R92	2E	Z10c	-	Z21	10F
C40	5E	C89	10C	Q19	3F	R44	6E	R93	1F	Z10d	-	Z21a	-
C41	5E	C90	10E	Q20	3E	R45	6E	R94	1E	Z11	5D	Z21b	-
C42	9D	C91	2C	Q21	1E	R46	6F	R95	1E	Z11a	-	Z21c	-
C43	5D	C92	9G	Q22	2F	R47	6E	R96	2F	Z11b	-	Z21d	-
C44	4F	C93	9G	Q23	10D	R48	5F	R97	2F	Z11c	-	Z22	2C
C45	4E	C94	10G	Q24	10F	R49	6E	R98	2F	Z11d	-	Z22a	-
C46	4E	L1	2F	R1	9F	R50	5F	R99	10E	Z12	5C	Z22b	-
C47	9D	L2	1F	R2	9F	R51	5E	R100	10D	Z12a	-	Z22c	-
C48	5D	L3	10F	R3	9E	R52	5E	R101	10D	Z12b	-	Z22d	-
C49	4F	L4	10E	R4	9E	R53	5E	R102	10F				





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16.6	0	0	1	0
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16.4	0	1	1	0
16.3	1	1	1	0
16.2	0	0	0	1
16.1	1	0	0	1

Figure 5-80. Schematic Wiring, Matrix Distributor 3A8 (Sheet 1 of 2)

PART LOCATION INDEX.

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
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C2	2A	C42	19B	C82	28B	Q12	7E	R21	4C	R61	10A	R100	21E	R139	27B	Z3A	10C
C3	2B	C43	19B	C83	28B	Q13	10A	R22	3D	R62	10A	R101	20F	R140	27C	Z3B	18C
C4	2B	C44	19B	C84	28C	Q14	10E	R23	3E	R63	10B	R102	21F	R141	26C	Z3C	18D
C5	2D	C45	19D	C85	28C	Q15	10F	R24	3E	R64	10B	Rp03	20F	R142	26D	Z3D	10D
C6	2D	C46	19E	C86	28C	Q16	18B	R25	4E	R65	10C	R104	21F	R143	26E	Z4A	20C
C7	1E	C47	18E	C87	29C	Q17	18E	R26	3F	R66	10C	R105	20G	R144	26E	Z4B	22C
C8	2F	C48	19F	C88	29D	Q18	18F	R27	4F	R67	9D	R106	22A	R145	27E	Z4C	22D
C9	5A	C49	21A	C89	29E	Q19	20B	R28	4F	R68	9E	R107	23A	R146	26F	Z4D	20D
C10	5A	C50	21B	C90	12H	Q20	20E	R29	4F	R69	9E	R108	23B	R147	27F	Z5A	24C
C11	4B	C51	21B	C91	14H	Q21	20F	R30	4G	R70	10E	R109	23B	R148	26F	Z5B	26C
C12	5B	C52	21B	C92	14H	Q22	22B	R31	6A	R71	9F	R110	23C	R149	27F	Z5C	26D
C13	4D	C53	21D	C93	13H	Q23	22E	R32	6A	R72	10F	R111	22C	R150	26G	Z5D	24D
C14	4D	C54	21E	C94	34G	Q24	22F	R33	6B	R73	10F	R112	22D	R151	29A	Z6A	7G
C15	3E	C55	20E	C95	31G	Q25	24B	R34	6B	R74	10F	R113	22E	R152	28A	Z6B	3G
C16	4F	C56	20F	C96	31G	Q26	24E	R35	6C	R75	10G	R114	22E	R153	29B	Z6C	3G
C17	7A	C57	23A	C97	31G	Q27	24F	R36	6C	R76	18A	R115	23F	R154	29B	Z6D	7G
C18	7A	C58	23B	C98	30G	Q28	26B	R37	5D	R77	19A	R116	22F	R155	28B	Z7A	1G
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C21	6D	C61	23D	C101	30H	Q31	28B	R40	6E	R80	19C	R119	23F	TP2	30G	Z7D	1G
C22	6E	C62	23E	C102	32G	R1	1A	R41	5F	R81	18C	R120	22G	TP3	29E	Z8A	17G
C23	5E	C63	22E	L1	21A	R2	1A	R42	6F	R82	18D	R121	24A	Y1	2B	Z8B	9G
C24	6F	C64	22F	L2	21D	R3	2A	R43	6F	R83	18E	R122	25A	Y2	4B	Z8C	9G
C25	9A	C65	25A	L3	30E	R4	2B	R44	6F	R84	18E	R123	25B	Y3	6B	Z8D	17G
C26	9A	C66	25B	L4	5F	R5	2B	R46	8A	R85	19E	R124	25B	Y4	8B	Z9A	19G
C27	8B	C67	25B	L5	30F	R6	2C	R47	8A	R86	18F	R125	25C	Y5	10B	Z9B	21G
C28	8B	C68	25B	L6	30F	R7	2C	R48	8B	R87	19F	R126	24C	Y6	18B	Z9C	21G
C29	8D	C69	25D	L7	30G	R8	1E	R49	8B	R88	18F	R127	24D	Y7	20B	Z9D	19G
C30	8D	C70	25E	L8	29H	R9	1E	R50	8C	R89	19F	R128	24E	Y8	22B	Z10A	25G
C31	7E	C71	24E	Q1	2B	R10	2E	R51	8C	R90	18G	R129	24E	Y9	24B	Z10B	23G
C32	8F	C72	24F	Q2	2E	R11	1F	R52	7D	R91	20A	R130	25E	Y10	26B	Z10C	23G
C33	11A	C73	27A	Q3	2E	R12	2F	R53	7D	R92	21A	R131	24F	Z1A	2C	Z10D	25G
C34	11A	C74	27B	Q4	4A	R13	2F	R54	8E	R93	21B	R132	25F	Z1B	4C	Z11	12F
C35	10B	C75	27B	Q5	4E	R14	2F	R55	8E	R94	21B	R133	24F	Z1C	4D	Z12	14F
C36	11C	C76	27B	Q6	4E	R15	2G	R56	7F	R95	21C	R134	25F	Z1D	2D	Z13A	12H
C37	10D	C77	27D	Q7	6A	R16	4A	R57	8F	R96	20C	R135	25G	Z2A	6C	Z13B	13H
C38	10E	C78	27E	Q8	6E	R17	4A	R58	8F	R97	20D	R136	26A	Z2B	8C	Z13C	13H
C39	9E	C79	26E	Q9	6E	R18	4B	R59	8F	R98	20E	R137	27A	Z2C	8D	Z13D	14H
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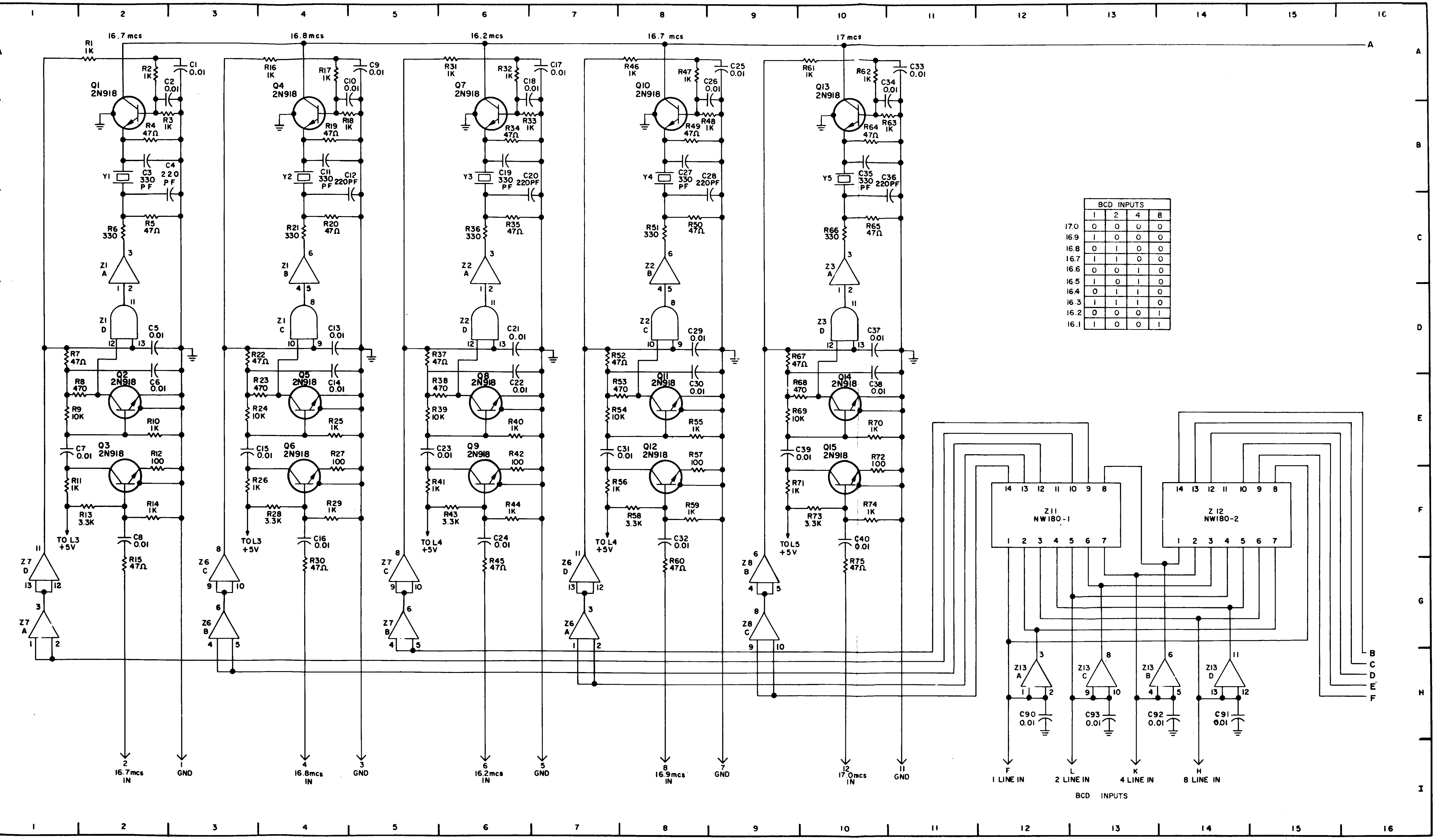

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Figure 5-80. Schematic Wiring, Matrix Distributor 3A8 (Sheet 1 of 2)

PART LOCATION INDEX

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C3	2B	C43	19B	C83	28B	Q13	10A	R22	3D	R62	10A	R101	20F	R140	27C	Z3B	18C
C4	2B	C44	19B	C84	28C	Q14	10E	R23	3E	R63	10B	R102	21F	R141	26C	Z3C	18D
C5	2D	C45	19D	C85	28C	Q15	10F	R24	3E	R64	10B	Rp03	20F	R142	26D	Z3D	10D
C6	2D	C46	19E	C86	28C	Q16	18B	R25	4E	R65	10C	R104	21F	R143	26E	Z4A	20C
C7	1E	C47	18E	C87	29C	Q17	18E	R26	3F	R66	10C	R105	20G	R144	26E	Z4B	22C
C8	2F	C48	19F	C88	29D	Q18	18F	R27	4F	R67	9D	R106	22A	R145	27E	Z4C	22D
C9	5A	C49	21A	C89	29E	Q19	20B	R28	4F	R68	9E	R107	23A	R146	26F	Z4D	20D
C10	5A	C50	21B	C90	12H	Q20	20E	R29	4F	R69	9E	R108	23B	R147	27F	Z5A	24C
C11	4B	C51	21B	C91	14H	Q21	20F	R30	4G	R70	10E	R109	23B	R148	26F	Z5B	26C
C12	5B	C52	21B	C92	14H	Q22	22B	R31	6A	R71	9F	R110	23C	R149	27F	Z5C	26D
C13	4D	C53	21D	C93	13H	Q23	22E	R32	6A	R72	10F	R111	22C	R150	26G	Z5D	24D
C14	4D	C54	21E	C94	34G	Q24	22F	R33	6B	R73	10F	R112	22D	R151	29A	Z6A	7G
C15	3E	C55	20E	C95	31G	Q25	24B	R34	6B	R74	10F	R113	22E	R152	28A	Z6B	3G
C16	4F	C56	20F	C96	31G	Q26	24E	R35	6C	R75	10G	R114	22E	R153	29B	Z6C	3G
C17	7A	C57	23A	C97	31G	Q27	24F	R36	6C	R76	18A	R115	23F	R154	29B	Z6D	7G
C18	7A	C58	23B	C98	30G	Q28	26B	R37	5D	R77	19A	R116	22F	R155	28B	Z7A	1G
C19	6B	C59	23B	C99	30G	Q29	26E	R38	5E	R78	19B	R117	23F	R156	28B	Z7B	5G
C20	7B	C60	23C	C100	30H	Q30	26F	R39	5E	R79	19B	R118	22F	TP1	28E	Z7C	5G
C21	6D	C61	23D	C101	30H	Q31	28B	R40	6E	R80	19C	R119	23F	TP2	30G	Z7D	1G
C22	6E	C62	23E	C102	32G	R1	1A	R41	5F	R81	18C	R120	22G	TP3	29E	Z8A	17G
C23	5E	C63	22E	L1	21A	R2	1A	R42	6F	R82	18D	R121	24A	Y1	2B	Z8B	9G
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C25	9A	C65	25A	L3	30E	R4	2B	R44	6F	R84	18E	R123	25B	Y3	6B	Z8D	17G
C26	9A	C66	25B	L4	5F	R5	2B	R46	8A	R85	19E	R124	25B	Y4	8B	Z9A	19G
C27	8B	C67	25B	L5	30F	R6	2C	R47	8A	R86	18F	R125	25C	Y5	10B	Z9B	21G
C28	8B	C68	25B	L6	30F	R7	2C	R48	8B	R87	19F	R126	24C	Y6	18B	Z9C	21G
C29	8D	C69	25D	L7	30G	R8	1E	R49	8B	R88	18F	R127	24D	Y7	20B	Z9D	19G
C30	8D	C70	25E	L8	29H	R9	1E	R50	8C	R89	19F	R128	24E	Y8	22B	Z10A	25G
C31	7E	C71	24E	Q1	2B	R10	2E	R51	8C	R90	18G	R129	24E	Y9	24B	Z10B	23G
C32	8F	C72	24F	Q2	2E	R11	1F	R52	7D	R91	20A	R130	25E	Y10	26B	Z10C	23G
C33	11A	C73	27A	Q3	2E	R12	2F	R53	7D	R92	21A	R131	24F	Z1A	2C	Z10D	25G
C34	11A	C74	27B	Q4	4A	R13	2F	R54	8E	R93	21B	R132	25F	Z1B	4C	Z11	12F
C35	10B	C75	27B	Q5	4E	R14	2F	R55	8E	R94	21B	R133	24F	Z1C	4D	Z12	14F
C36	11C	C76	27B	Q6	4E	R15	2G	R56	7F	R95	21C	R134	25F	Z1D	2D	Z13A	12H
C37	10D	C77	27D	Q7	6A	R16	4A	R57	8F	R96	20C	R135	25G	Z2A	6C	Z13B	13H
C38	10E	C78	27E	Q8	6E	R17	4A	R58	8F	R97	20D	R136	26A	Z2B	8C	Z13C	13H
C39	9E	C79	26E	Q9	6E	R18	4B	R59	8F	R98	20E	R137	27A	Z2C	8D	Z13D	14H
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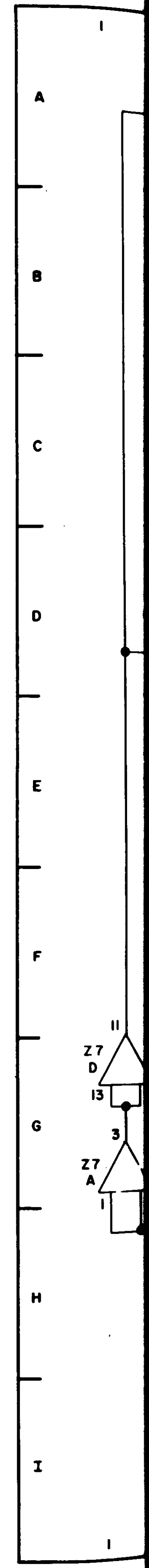


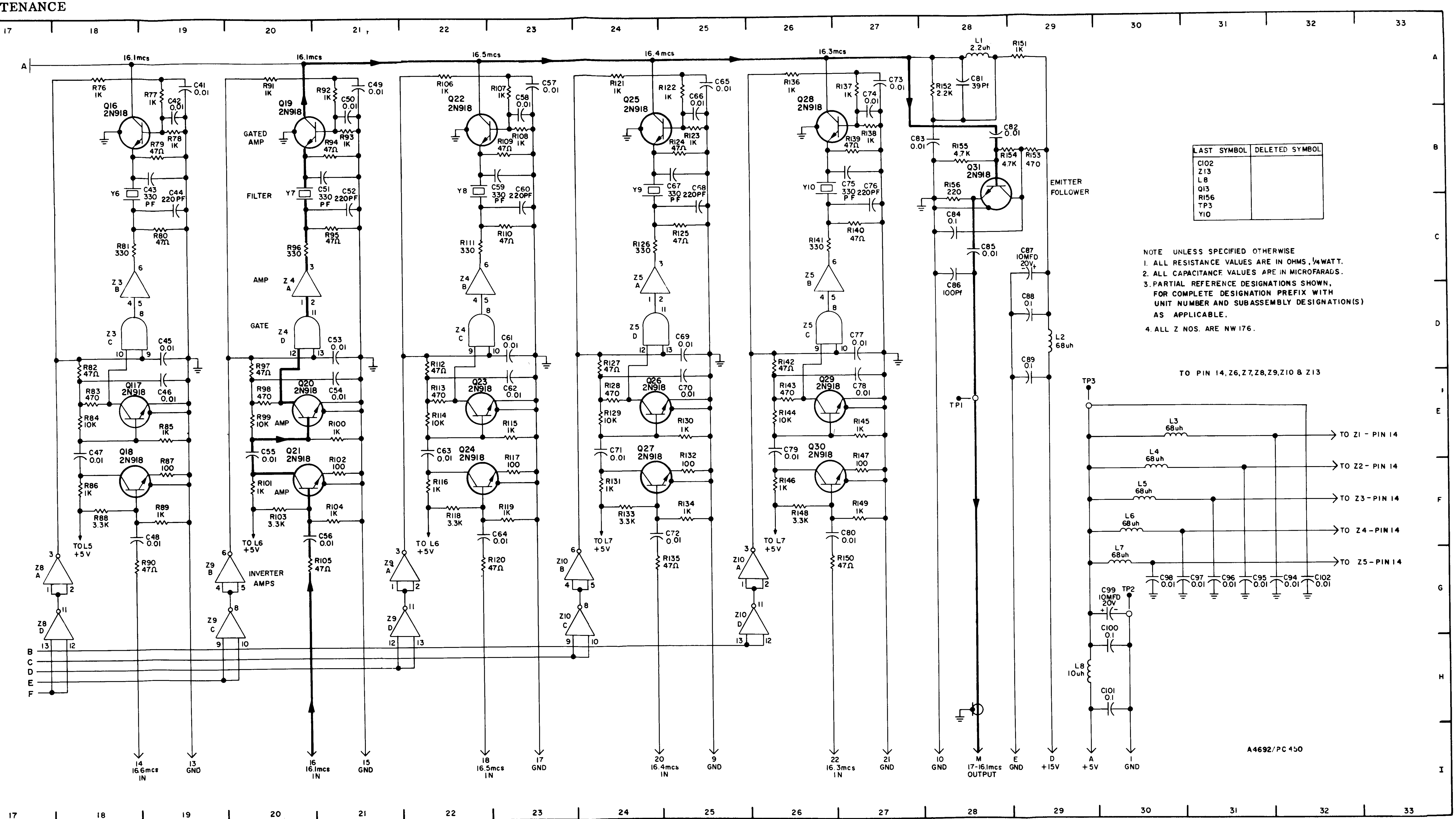
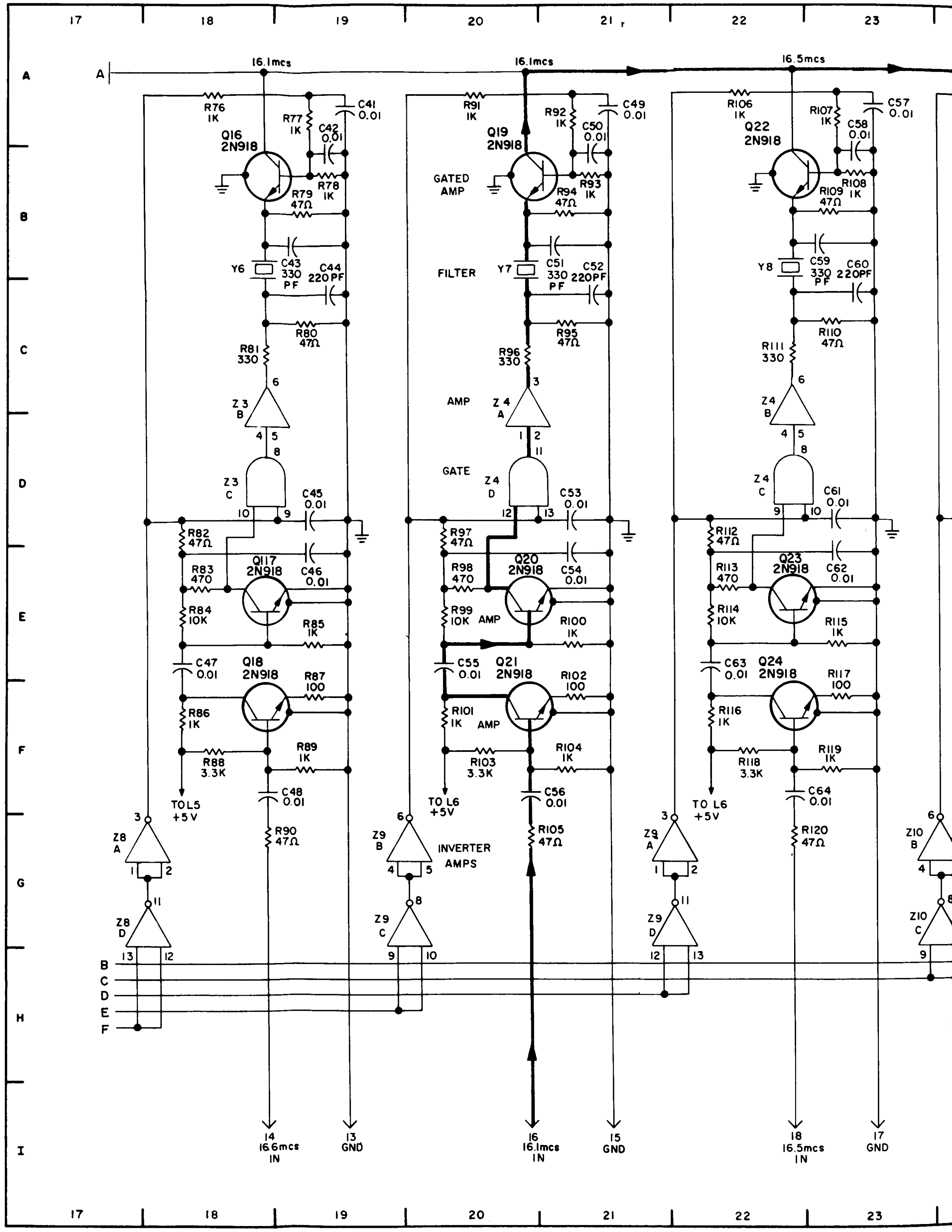


Figure 5-80. Schematic Wiring, Matrix Distributor 3A8 (Sheet 2 of 2)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Q20 2N918
Q21 2N918
Q23 2N918
Q24 2N918
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TO L6 +5V
TO L6 +5V
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13 GND
16 16.1mcs IN
15 GND
18 16.5mcs IN
17 GND

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R67	5E	R107	3C	R147	1F
R68	5E	R108	3C	R148	2F
R69	5E	R109	3C	R149	1F
R70	5E	R110	3D	R150	2F
R71	5E	R111	3D	R151	7C
R72	5E	R112	3E	R152	7C
R73	5E	R113	3E	R153	7C
R74	5E	R114	3E	R154	7D
R75	5F	R115	3E	R155	6D
R76	5C	R116	3E	R156	7D
R77	5C	R117	3E	TP1	6D
R78	5C	R118	3E	TP2	1C
R79	5C	R119	3E	TP3	11C
R80	5D	R120	4F	Y1	10D
R81	5D	R121	2D	Y2	9D
R82	5E	R122	2C	Y3	9D
R83	5E	R123	2C	Y4	8D
R84	4E	R124	2C	Y5	5D
R85	5E	R125	3D	Y6	4D
R86	5E	R126	2D	Y7	4D
R87	4E	R127	3E	Y8	3D
R88	5E	R128	2E	Y9	2D
R89	4E	R129	2E	Y10	1D
R90	5F	R130	2E	Z1A	9D
R91	4D	R131	2E	Z2A	8D
R92	4C	R132	2F	Z3A	5D
R93	4C	R133	3E	Z4A	3D
R94	4C	R134	2F	Z5A	2E
R95	4D	R135	3F	Z6A	7D
R96	4D	R136	1D	Z7A	7E
R97	4E	R137	2D	Z8A	6E
R98	4E	R138	2C	Z9A	6D
R99	4E	R139	2D	Z10A	6C
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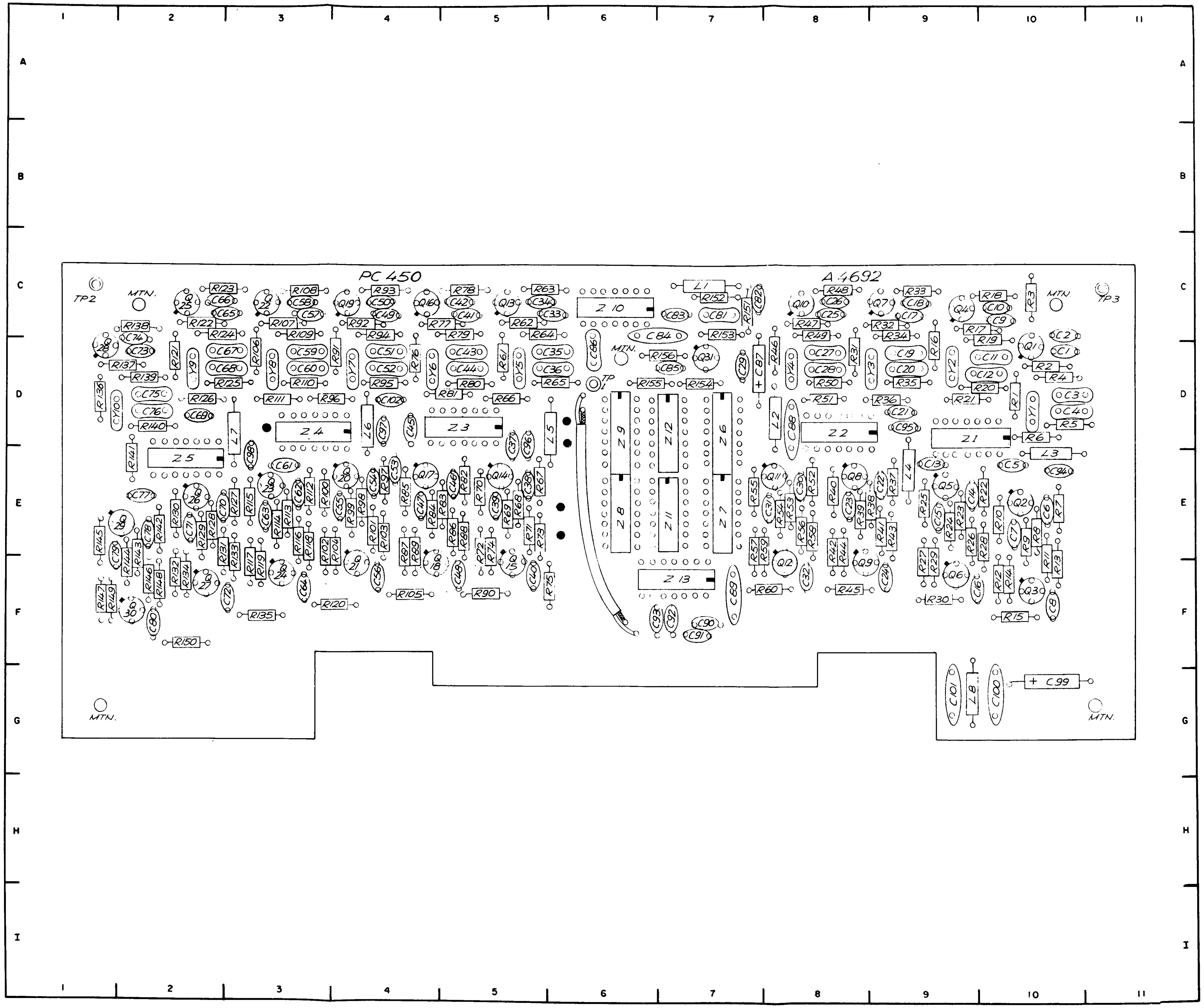

Figure 5-81. Component Locations, Matrix Distributor 3A8

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C3	10D	C44	5D	C85	6D	Q15	5F	R24	9E	R65	5D	R105	4F	R145	1E
C4	10D	C45	4D	C86	6D	Q16	4C	R25	9E	R66	5D	R106	4F	R146	2F
C5	10E	C46	5E	C87	7D	Q17	4E	R26	9E	R67	5E	R107	3C	R147	1F
C6	10E	C47	4E	C88	8D	Q18	4F	R27	9F	R68	5E	R108	3C	R148	2F
C7	10E	C48	4E	C89	7F	Q19	4C	R28	10E	R69	5E	R109	3C	R149	1F
C8	10F	C49	4C	C90	7F	Q20	4E	R29	9F	R70	5E	R110	3D	R150	2F
C9	10C	C50	4C	C91	7F	Q21	4F	R30	9F	R71	5E	R111	3D	R151	7C
C10	10C	C51	4D	C92	7F	Q22	3C	R31	8D	R72	5E	R112	3E	R152	7C
C11	10D	C52	4D	C93	6F	Q23	3E	R32	9C	R73	5E	R113	3E	R153	7C
C12	10D	C53	4E	C94	10E	Q24	3F	R33	9C	R74	5E	R114	3E	R154	7D
C13	9E	C54	4E	C95	9D	Q25	2C	R34	9C	R75	5F	R115	3E	R155	6D
C14	9E	C55	4E	C96	5D	Q26	2E	R35	9D	R76	5C	R116	3E	R156	7D
C15	9E	C56	4F	C97	4D	Q27	2F	R36	9D	R77	5C	R117	3E	TP1	6D
C16	9F	C57	3C	C98	3E	Q28	1D	R37	9E	R78	5C	R118	3E	TP2	1C
C17	9C	C58	3C	C99	10G	Q29	1E	R38	8E	R79	5C	R119	3E	TP3	11C
C18	9C	C59	3D	C100	10G	Q30	2F	R39	8E	R80	5D	R120	4F	Y1	10D
C19	9D	C60	3D	C101	9G	Q31	7D	R40	8E	R81	5D	R121	2D	Y2	9D
C20	9D	C61	3E	C102	4D	R1	10D	R41	9E	R82	5E	R122	2C	Y3	9D
C21	9D	C62	3E	L1	7C	R2	10D	R42	8E	R83	5E	R123	2C	Y4	8D
C22	9E	C63	3E	L2	8D	R3	10C	R43	9E	R84	4E	R124	2C	Y5	5D
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C39	5E	C80	2F	Q11	8E	R20	10D	R61	5D	R101	4E	R141	2E	Z12	7D
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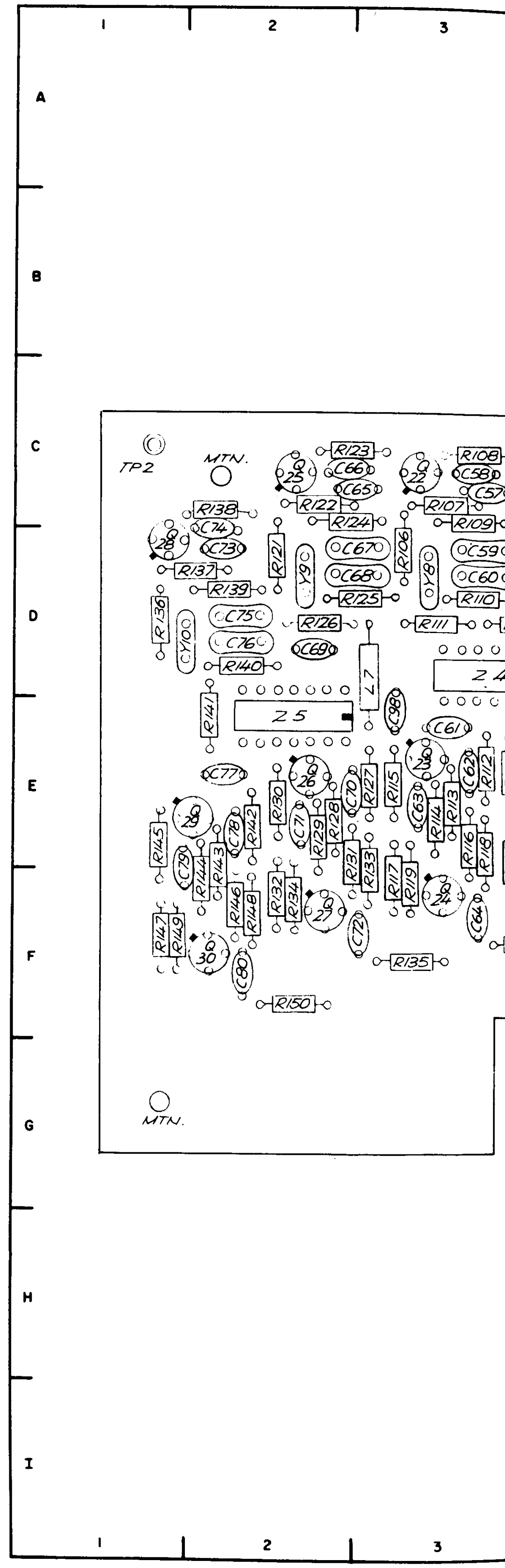

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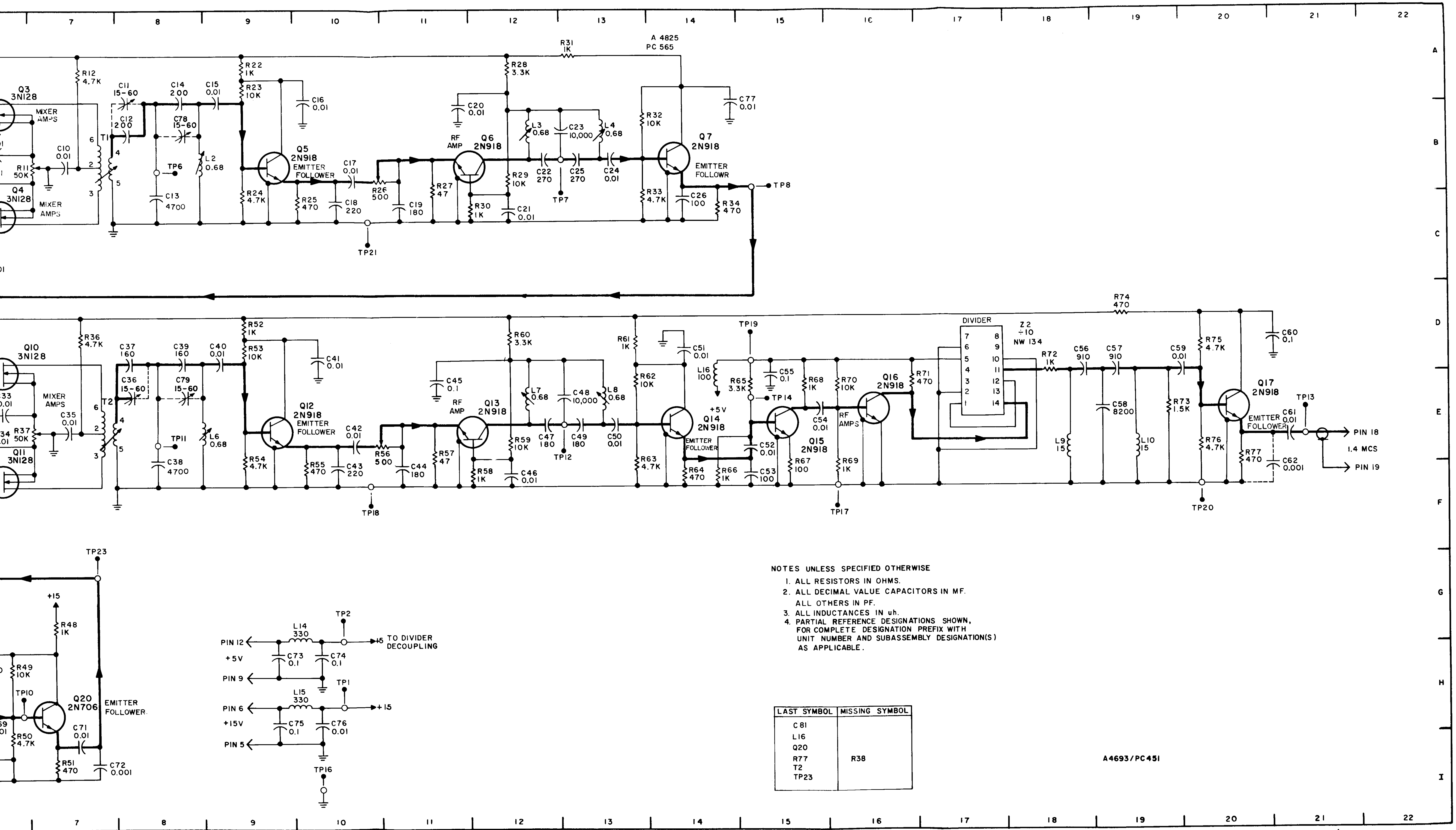
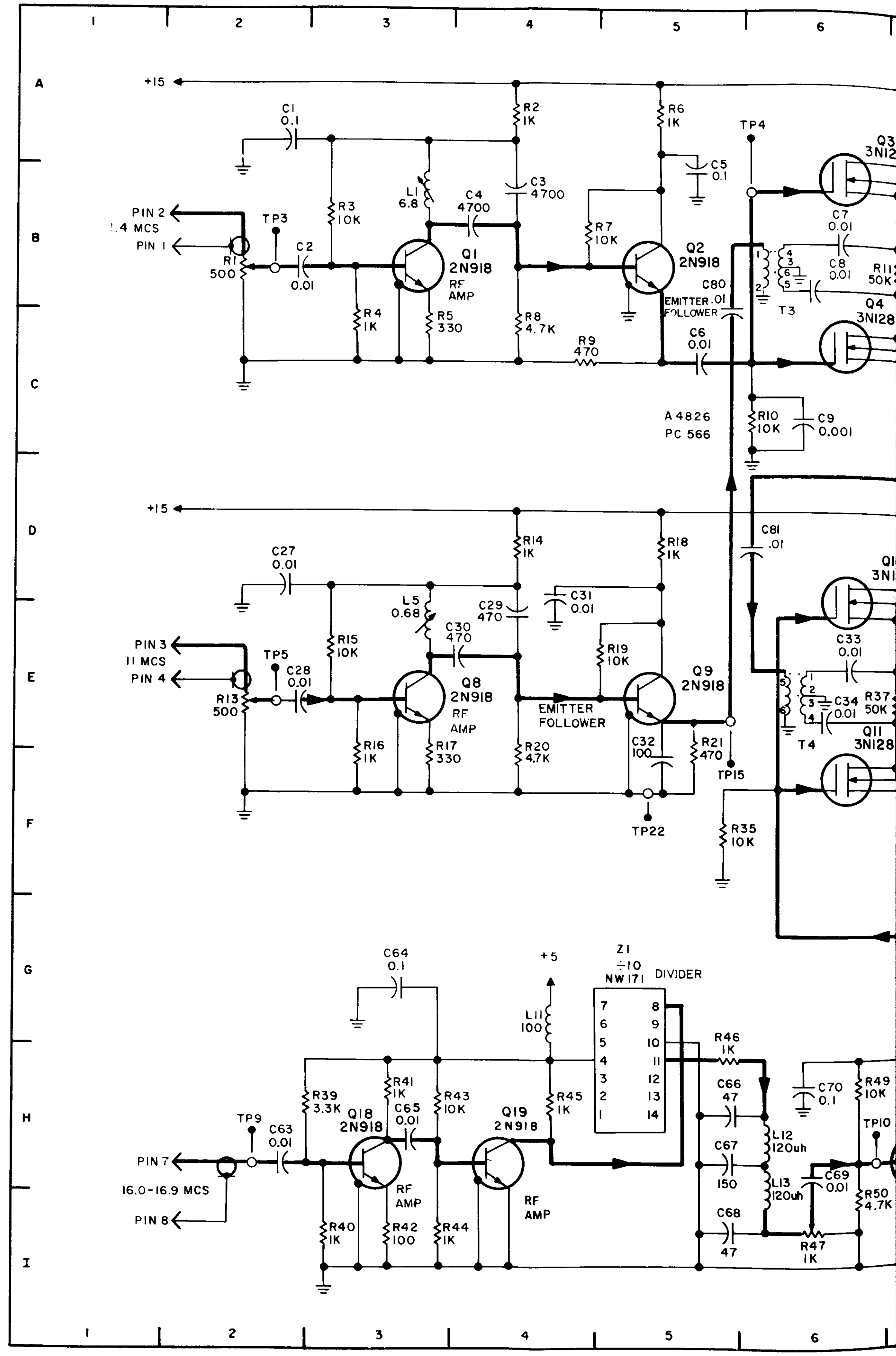


Figure 5-82. Schematic Wiring, Mixer/ Amplifier 3A9, 10, 11

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2A	C45	11E	L8	13E	R16	3E	R60	12D
C2	2B	C46	12F	L9	18E	R17	3E	R61	13D
C3	4B	C47	12E	L10	19E	R18	5D	R62	13E
C4	4B	C48	13E	L11	4G	R19	5E	R63	13E
C5	5B	C49	13E	L12	6H	R20	4E	R64	14F
C6	5C	C50	13E	L13	6H	R21	5E	R65	15E
C7	6B	C51	14D	L14	10G	R22	9A	R66	14F
C8	6B	C52	15E	L15	10H	R23	9A	R67	15F
C9	6B	C53	15F	L16	14D	R24	9C	R68	15E
C10	7B	C54	15E	Q1	4B	R25	10C	R69	16F
C11	8A	C55	15D	Q2	5B	R26	10C	R70	16E
C12	8B	C56	18D	Q3	6B	R27	11B	R71	16E
C13	8C	C57	19D	Q4	6C	R28	12A	R72	18D
C14	8A	C58	19E	Q5	9B	R29	12B	R73	19E
C15	9A	C59	20D	Q6	12B	R30	12C	R74	19D
C16	10A	C60	21D	Q7	14B	R31	13A	R75	20D
C17	10B	C61	21E	Q8	3E	R32	14B	R76	20E
C18	10C	C62	21E	Q9	5E	R33	13C	R77	20E
C19	11C	C63	2H	Q10	6E	R34	14C	T1	7B
C20	12A	C64	3G	Q11	6F	R35	5F	T2	7E
C21	12C	C65	3H	Q12	9E	R36	7D	TP1	10G
C22	12B	C66	5H	Q13	12E	R37	8D	TP2	10H
C23	13B	C67	5H	Q14	14E	R39	3H	TP3	2B
C24	13B	C68	5I	Q15	15E	R40	3I	TP4	6A
C25	13B	C69	6H	Q16	16E	R41	3H	TP5	2E
C26	14B	C70	6H	Q17	20E	R42	3I	TP6	8B
C27	2D	C71	7H	Q18	3H	R43	3H	TP7	13B
C28	2E	C72	7I	Q19	5H	R44	3I	TP8	15B
C29	4E	C73	9H	Q20	7H	R45	4H	TP9	2H
C30	4E	C74	10H	R1	2B	R46	5H	TP10	6H
C31	4D	C75	9H	R2	4A	R47	6I	TP11	8E
C32	5E	C76	10H	R3	3B	R48	7G	TP12	13E
C33	6E	C77	14A	R4	3C	R49	6H	TP13	21E
C34	6E	C78	8B	R5	3C	R50	6I	TP14	15E
C35	5F	C79	8E	R6	5A	R51	7I	TP15	5E
C36	8E	C80	5B	R7	4B	R52	9D	TP16	9I
C37	8D	C81	6D	R8	4C	R53	9D	TP17	16F
C38	8E	L1	3B	R9	4C	R54	9F	TP18	10F
C39	8D	L2	9B	R10	6C	R55	10F	TP19	15D
C40	9D	L3	12B	R11	7B	R56	10E	TP20	20F
C41	10D	L4	13B	R12	7B	R57	11E	TP21	10C
C42	10E	L5	3E	R13	2E	R58	12E	TP22	5F
C43	10F	L6	9E	R14	4D	R59	12E	TP23	7G
C44	11F	L7	12E	R15	3E				



PART LOCATION INDEX

LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
3E	L8	3F	R16	8F	R60	2E
3E	L9	4E	R17	8F	R61	2F
2E	L10	4E	R18	9F	R62	2F
3E	L11	7F	R19	9E	R63	3F
2F	L12	6E	R20	8E	R64	3F
2F	L13	6E	R21	8D	R65	4F
2F	L14	6F	R22	7C	R66	3F
3G	L15	8F	R23	8C	R67	3F
3G	L16	5F	R24	8D	R68	4F
3F	Q1	10F	R25	7D	R69	3F
4F	Q2	10D	R26	7D	R70	4F
3E	Q3	9D	R27	7D	R71	4F
4E	Q4	10C	R28	7C	R72	3E
4D	Q5	8D	R29	7C	R73	4E
5E	Q6	6D	R30	7D	R74	5F
4E	Q7	5D	R31	5C	R75	5E
5F	Q8	9F	R32	5C	R76	5E
5F	Q9	9D	R33	5D	R77	5E
7F	Q10	4D	R34	5D	T1	9D
7E	Q11	5C	R35	5D	T2	10D
7F	Q12	2D	R36	4D	TP1	11C
6E	Q13	2E	R37	4D	TP2	6F
6E	Q14	2G	R39	7F	TP3	10F
6E	Q15	3F	R40	8F	TP4	10D
5E	Q16	3F	R41	7F	TP5	9F
5E	Q17	5F	R42	7F	TP6	9C
5D	Q18	7F	R43	7F	TP7	6C
5D	Q19	7E	R44	8E	TP8	5D
7F	Q20	7F	R45	7E	TP9	7F
6F	R1	10F	R46	7E	TP10	5E
8F	R2	10F	R47	5E	TP11	3C
5E	R3	10F	R48	6D	TP12	2E
5E	R4	10F	R49	5E	TP13	6F
8C	R5	10F	R50	5E	TP14	3G
3C	R6	10E	R51	5E	TP15	9D
9D	R7	10E	R52	2C	TP16	1C
4D	R8	9E	R53	3C	TP17	3F
10F	R9	10D	R54	3D	TP18	3D
8D	R10	9E	R55	2D	TP19	4F
6C	R11	9D	R56	2D	TP20	5F
6D	R12	10C	R57	3D	TP21	7D
9E	R13	8F	R58	3E	TP22	8E
3D	R14	9F	R59	2E	TP23	5C
2E	R15	9F				

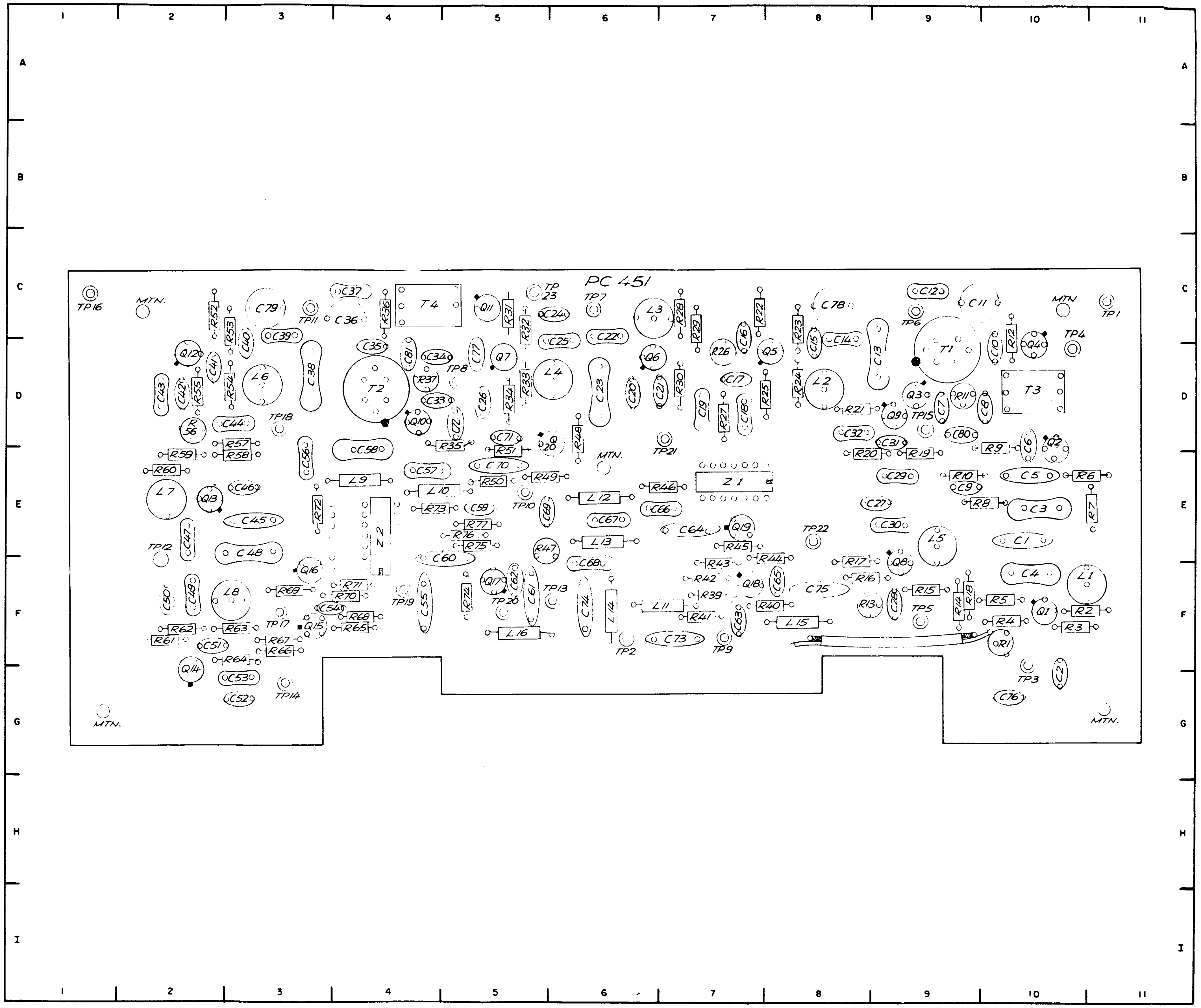
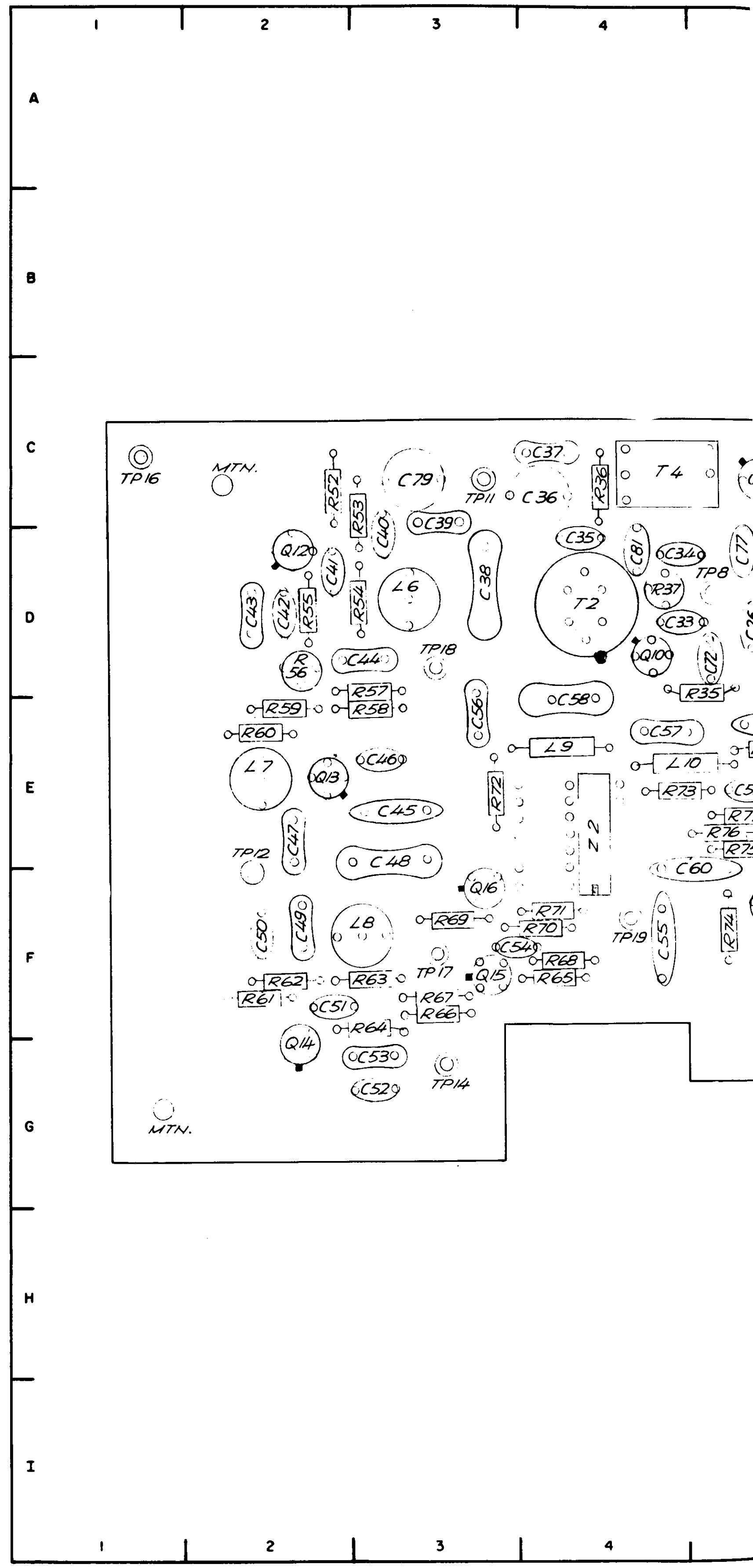
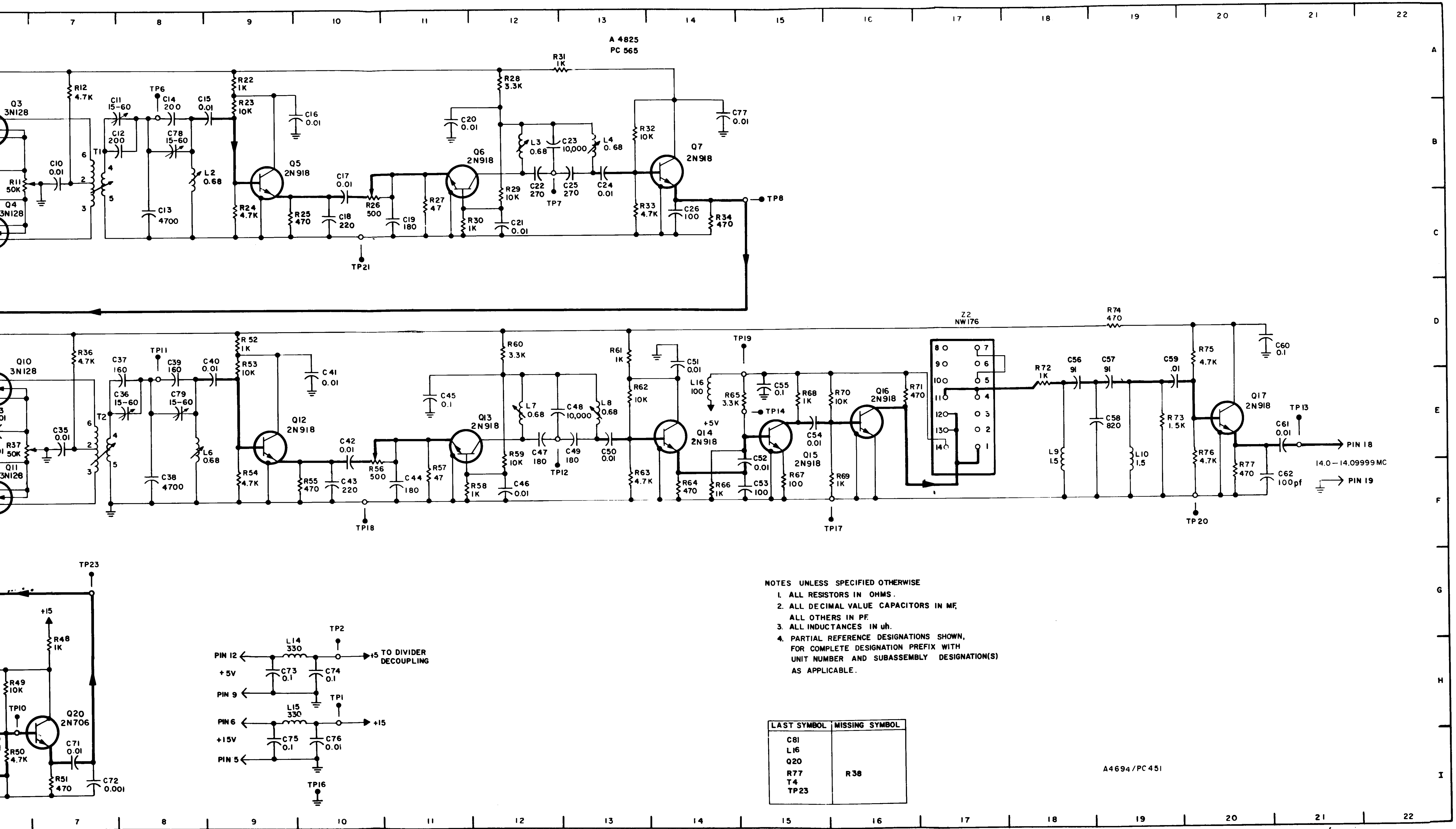


Figure 5-83. Component Locations, Mixer/ Amplifier 3A9, 10, 11

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	10E	C45	3E	L8	3F	R16	8F	R60	2E
C2	10G	C46	3E	L9	4E	R17	8F	R61	2F
C3	10E	C47	2E	L10	4E	R18	9F	R62	2F
C4	10F	C48	3E	L11	7F	R19	9E	R63	3F
C5	10E	C49	2F	L12	6E	R20	8E	R64	3F
C6	10D	C50	2F	L13	6E	R21	8D	R65	4F
C7	9D	C51	2F	L14	6F	R22	7C	R66	3F
C8	9D	C52	3G	L15	8F	R23	8C	R67	3F
C9	9E	C53	3G	L16	5F	R24	8D	R68	4F
C10	9C	C54	3F	Q1	10F	R25	7D	R69	3F
C11	9C	C55	4F	Q2	10D	R26	7D	R70	4F
C12	9C	C56	3E	Q3	9D	R27	7D	R71	4F
C13	8D	C57	4E	Q4	10C	R28	7C	R72	3E
C14	8D	C58	4D	Q5	8D	R29	7C	R73	4E
C15	8D	C59	5E	Q6	6D	R30	7D	R74	5F
C16	7C	C60	4E	Q7	5D	R31	5C	R75	5E
C17	7D	C61	5F	Q8	9F	R32	5C	R76	5E
C18	7D	C62	5F	Q9	9D	R33	5D	R77	5E
C19	7D	C63	7F	Q10	4D	R34	5D	T1	9D
C20	6D	C64	7E	Q11	5C	R35	5D	T2	10D
C21	6D	C65	7F	Q12	2D	R36	4D	TP1	11C
C22	6C	C66	6E	Q13	2E	R37	4D	TP2	6F
C23	6D	C67	6E	Q14	2G	R39	7F	TP3	10F
C24	5C	C68	6E	Q15	3F	R40	8F	TP4	10D
C25	5C	C69	5E	Q16	3F	R41	7F	TP5	9F
C26	5D	C70	5E	Q17	5F	R42	7F	TP6	9C
C27	8E	C71	5D	Q18	7F	R43	7F	TP7	6C
C28	9F	C72	5D	Q19	7E	R44	8E	TP8	5D
C29	9E	C73	7F	Q20	7F	R45	7E	TP9	7F
C30	9E	C74	6F	R1	10F	R46	7E	TP10	5E
C31	8D	C75	8F	R2	10F	R47	5E	TP11	3C
C32	9D	C76	5E	R3	10F	R48	6D	TP12	2E
C33	4D	C77	5E	R4	10F	R49	5E	TP13	6F
C34	4D	C78	8C	R5	10F	R50	5E	TP14	3G
C35	4D	C79	3C	R6	10E	R51	5E	TP15	9D
C36	4C	C80	9D	R7	10E	R52	2C	TP16	1C
C37	4C	C81	4D	R8	9E	R53	3C	TP17	3F
C38	4C	L1	10F	R9	10D	R54	3D	TP18	3D
C39	3C	L2	8D	R10	9E	R55	2D	TP19	4F
C40	3D	L3	6C	R11	9D	R56	2D	TP20	5F
C41	2D	L4	6D	R12	10C	R57	3D	TP21	7D
C42	2D	L5	9E	R13	8F	R58	3E	TP22	8E
C43	2D	L6	3D	R14	9F	R59	2E	TP23	5C
C44	2D	L7	2E	R15	9F				





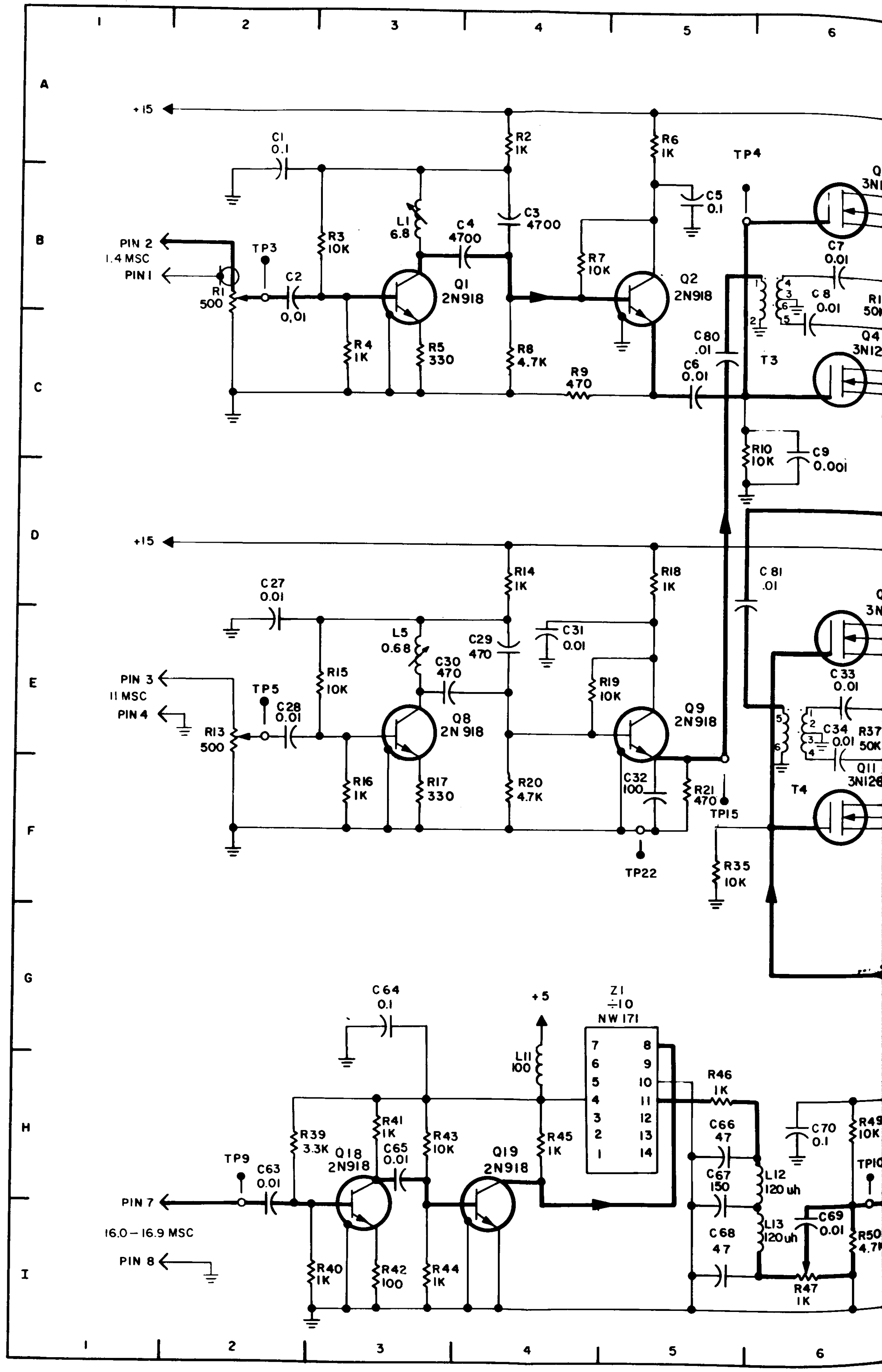
NOTES UNLESS SPECIFIED OTHERWISE
1. ALL RESISTORS IN OHMS.
2. ALL DECIMAL VALUE CAPACITORS IN MF, ALL OTHERS IN PF.
3. ALL INDUCTANCES IN uh.
4. PARTIAL REFERENCE DESIGNATIONS SHOWN, FOR COMPLETE DESIGNATION PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATION(S) AS APPLICABLE.

LAST SYMBOL	MISSING SYMBOL
C81	
L16	
Q20	
R77	R38
T4	
TP23	

Figure 5-84. Schematic Wiring, Mixer/ Amplifier 3A12

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	2A	C45	11E	L8	13E	R16	3F	R61	13D
C2	2B	C46	12F	L9	18E	R17	3F	R62	13E
C3	4B	C47	12E	L10	19E	R18	5D	R63	13F
C4	4B	C48	12E	L11	4H	R19	4E	R64	14F
C5	5B	C49	13E	L12	6H	R20	4F	R65	15E
C6	5C	C50	13E	L13	6I	R21	5E	R66	14F
C7	6B	C51	14D	L14	9G	R22	9A	R67	15F
C8	6B	C52	15E	L15	9H	R23	9A	R68	15E
C9	6C	C53	15F	L16	14E	R24	9C	R69	16F
C10	7B	C54	15E	Q1	3B	R25	9C	R70	16E
C11	8A	C55	15E	Q2	5B	R26	10C	R71	16E
C12	8B	C56	18D	Q3	6B	R27	11C	R72	18E
C13	8C	C57	19D	Q4	6C	R28	12A	R73	19E
C14	8B	C58	19E	Q5	9B	R29	12B	R74	19D
C15	9B	C59	19D	Q6	12B	R30	11C	R75	20D
C16	10B	C60	20D	Q7	14B	R31	12A	R76	20E
C17	10B	C61	21E	Q8	3E	R32	13B	R77	20F
C18	10C	C62	21F	Q9	5E	R33	13C	T1	7B
C19	11C	C63	2H	Q10	6D	R34	14C	T2	7E
C20	11B	C64	3G	Q11	6F	R35	15F	T3	6C
C21	12C	C65	3H	Q12	9E	R36	7D	T4	6F
C22	12B	C66	5H	Q13	12E	R37	6E	TP1	10H
C23	13B	C67	5H	Q14	14E	R39	2H	TP2	10G
C24	13B	C68	5H	Q15	15E	R40	3I	TP3	2B
C25	13B	C69	6I	Q16	16E	R41	3H	TP4	5A
C26	14C	C70	6H	Q17	20E	R42	3I	TP5	2E
C27	2E	C71	7I	Q18	3H	R43	3H	TP6	8A
C28	2E	C72	7I	Q19	4H	R44	3I	TP7	12C
C29	4E	C73	9H	Q20	7H	R45	4H	TP8	15C
C30	3E	C74	10H	R1	2B	R46	5H	TP9	2H
C31	4E	C75	9I	R2	4A	R47	6I	TP10	6H
C32	5F	C76	10I	R3	3B	R48	7G	TP11	8D
C33	6E	C77	14B	R4	3C	R49	6H	TP12	12E
C34	6E	C78	8B	R5	3C	R50	6I	TP13	21E
C35	7E	C79	8E	R6	5A	R51	7I	TP14	15E
C36	8E	C80	5C	R7	4B	R52	9D	TP15	5F
C37	8D	C81	6D	R8	4C	R53	9D	TP16	10I
C38	8F	L1	3B	R9	4C	R54	9F	TP17	16F
C39	8E	L2	8B	R10	5C	R55	10F	TP18	10F
C40	9E	L3	12B	R11	6B	R56	10E	TP19	15D
C41	10D	L4	13B	R12	7A	R57	11F	TP20	20F
C42	10E	L5	3E	R13	2E	R58	11F	TP21	10C
C43	10F	L6	8E	R14	4D	R59	12E	TP22	5F
C44	11F	L7	12E	R15	3E	R60	12D	TP23	7G



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Q16	3F	R33	5D	R70	3F
Q17	5F	R34	5D	R71	3F
Q18	7F	R35	4D	R72	3E
Q19	7E	R36	4C	R73	4E
Q20	5D	R37	4D	R74	4F
R1	9F	R39	7F	R75	5E
R2	10F	R40	7F	R76	5E
R3	10F	R41	7F	R77	5E
R4	9F	R42	7F	T1	9C
R5	9F	R43	7E	T2	4D
R6	10E	R44	7E	T3	10D
R7	10E	R45	7E	T4	4C
R8	9E	R46	6F	TP1	10C
R9	9D	R47	5E	TP2	6F
R10	9E	R48	6D	TP3	10G
R11	9D	R49	5E	TP4	10C
R12	10C	R50	5E	TP5	9F
R13	8F	R51	5D	TP6	9C
R14	9F	R52	2C	TP7	6C
R15	9F	R53	2C	TP8	4D
R16	8F	R54	2D	TP9	7F
R17	8E	R55	2D	TP10	5E
R18	9F	R56	2D	TP11	3C
R19	9D	R57	2D	TP12	2E
R20	8D	R58	2D	TP13	5F
R21	8D	R59	2D	TP14	3G
R22	7C	R60	2E	TP15	9D
R23	8C	R61	2F	TP16	1C
R24	8D	R62	2F	TP17	3F
R25	7D	R63	2F	TP18	3D
R26	7D	R64	2F	TP19	4F
R27	7D	R65	3F	TP20	5F
R28	6C	R66	3F	TP21	6D
R29	7C	R67	3F	TP22	8E
R30	6D	R68	3F	TP23	5C
R31	5C				

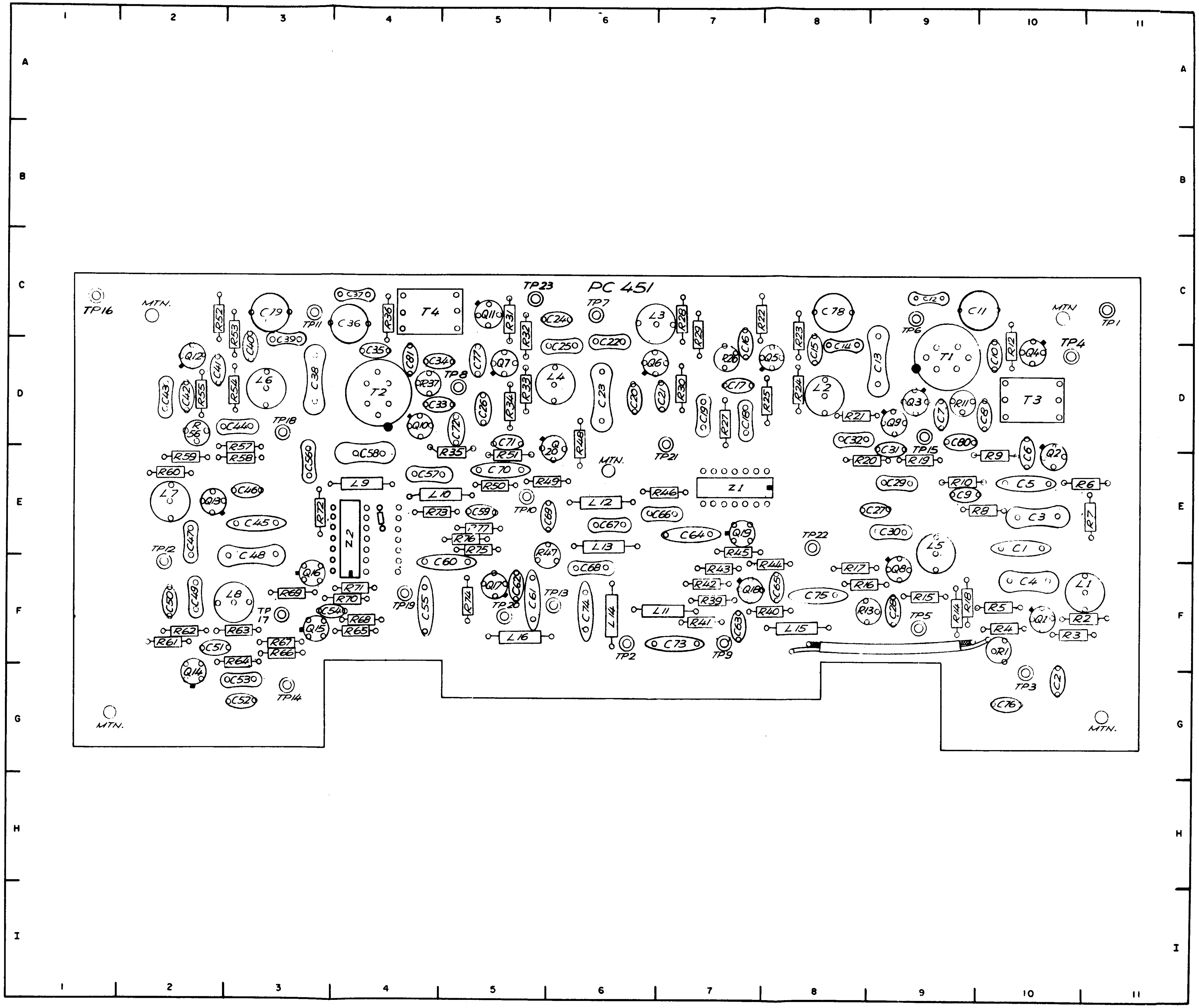
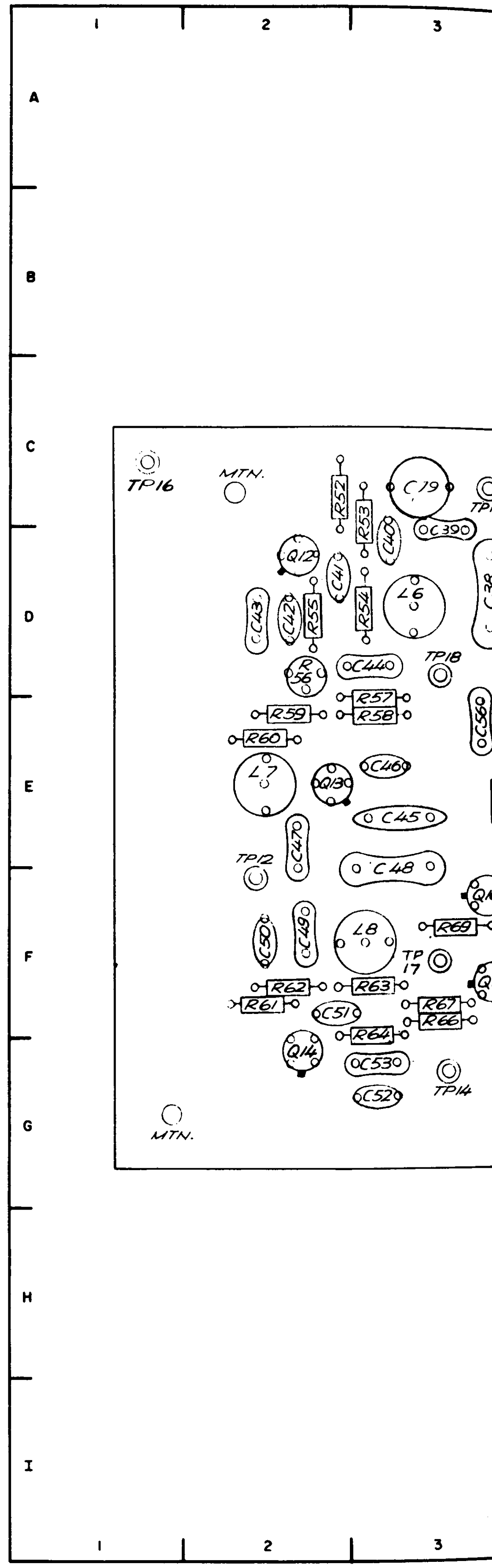


Figure 5-85. Component Locations, Mixer/
Amplifier 3A12

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	10E	C38	3D	C75	8F	Q15	3F	R32	5C	R69	3F
C2	10G	C39	7F	C76	9G	Q16	3F	R33	5D	R70	3F
C3	10E	C40	7F	C77	5D	Q17	5F	R34	5D	R71	3F
C4	10F	C41	7F	C78	8C	Q18	7F	R35	4D	R72	3E
C5	10E	C42	2D	C79	3C	Q19	7E	R36	4C	R73	4E
C6	10F	C43	2D	C80	9D	Q20	5D	R37	4D	R74	4F
C7	9D	C44	2D	C81	4D	R1	9F	R39	7F	R75	5E
C8	9D	C45	3E	L1	10F	R2	10F	R40	7F	R76	5E
C9	9E	C46	2E	L2	8D	R3	10F	R41	7F	R77	5E
C10	9D	C47	2E	L3	6C	R4	9F	R42	7F	T1	9C
C11	9C	C48	3E	L4	5D	R5	9F	R43	7E	T2	4D
C12	9C	C49	2F	L5	9E	R6	10E	R44	7E	T3	10D
C13	8D	C50	2F	L6	3D	R7	10E	R45	7E	T4	4C
C14	8C	C51	2F	L7	2E	R8	9E	R46	6F	TP1	10C
C15	8C	C52	2G	L8	2F	R9	9D	R47	5E	TP2	6F
C16	7C	C53	2G	L9	3E	R10	9E	R48	6D	TP3	10G
C17	7D	C54	3F	L10	4E	R11	9D	R49	5E	TP4	10C
C18	7D	C55	4F	L11	6F	R12	10C	R50	5E	TP5	9F
C19	7D	C56	3D	L12	6E	R13	8F	R51	5D	TP6	9C
C20	6D	C57	4E	L13	6E	R14	9F	R52	2C	TP7	6C
C21	6D	C58	4D	L14	6F	R15	9F	R53	2C	TP8	4D
C22	6C	C59	5E	L15	8F	R16	8F	R54	2D	TP9	7F
C23	6D	C60	4E	L16	5F	R17	8E	R55	2D	TP10	5E
C24	5C	C61	5F	Q1	10F	R18	9F	R56	2D	TP11	3C
C25	5C	C62	5F	Q2	10D	R19	9D	R57	2D	TP12	2E
C26	5D	C63	7F	Q3	9D	R20	8D	R58	2D	TP13	5F
C27	8E	C64	7E	Q4	11C	R21	8D	R59	2D	TP14	3G
C28	8F	C65	7F	Q5	7D	R22	7C	R60	2E	TP15	9D
C29	8E	C66	6E	Q6	6D	R23	8C	R61	2F	TP16	1C
C30	8E	C67	6E	Q7	5D	R24	8D	R62	2F	TP17	3F
C31	5C	C68	6E	Q8	9E	R25	7D	R63	2F	TP18	3D
C32	5C	C69	5E	Q9	8D	R26	7D	R64	2F	TP19	4F
C33	4D	C70	5E	Q10	4D	R27	7D	R65	3F	TP20	5F
C34	4D	C71	5D	Q11	5C	R28	6C	R66	3F	TP21	6D
C35	4C	C72	4D	Q12	2D	R29	7C	R67	3F	TP22	8E
C36	4C	C73	7F	Q13	2E	R30	6D	R68	3F	TP23	5C
C37	3C	C74	6F	Q14	2F	R31	5C				



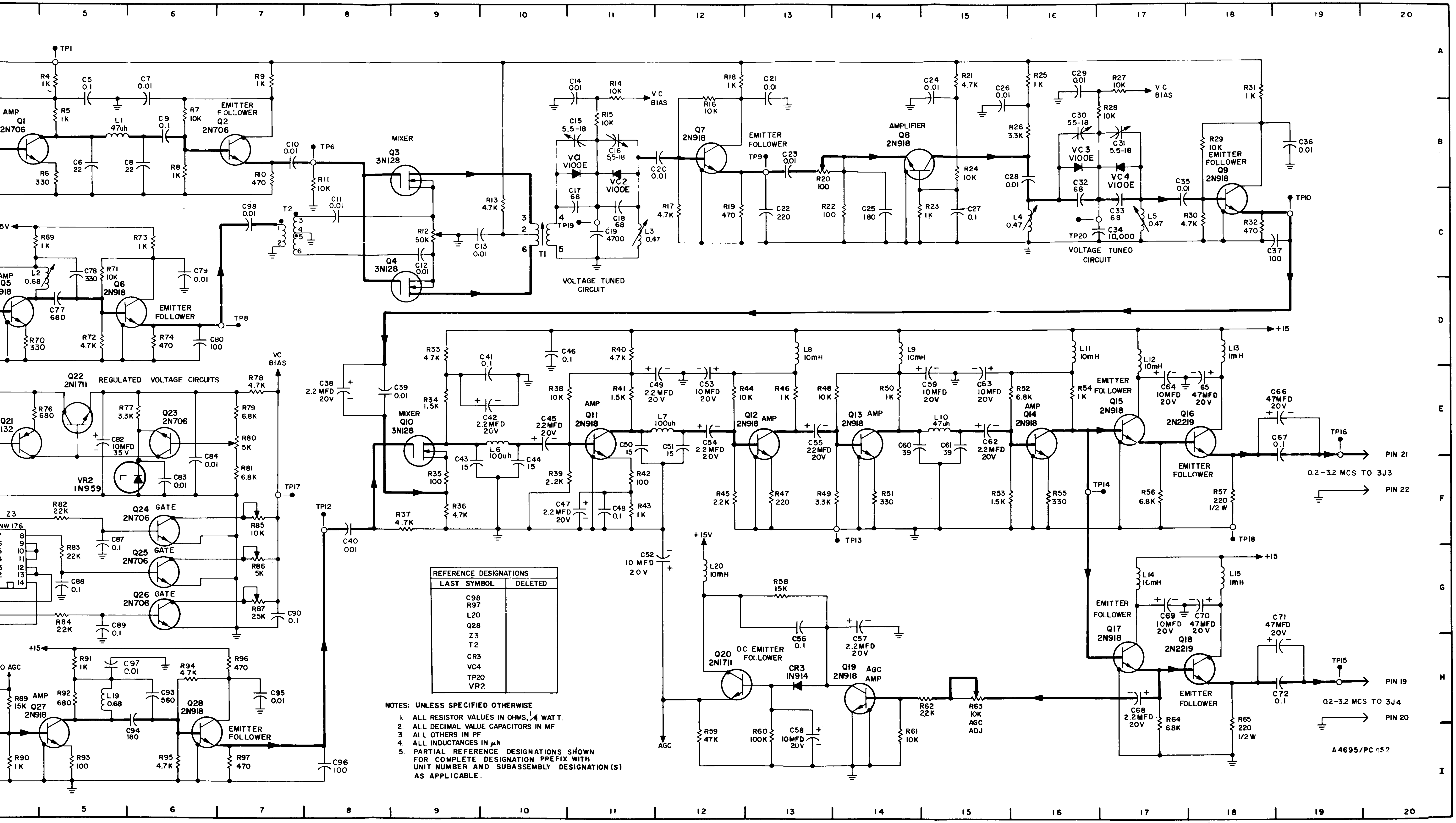
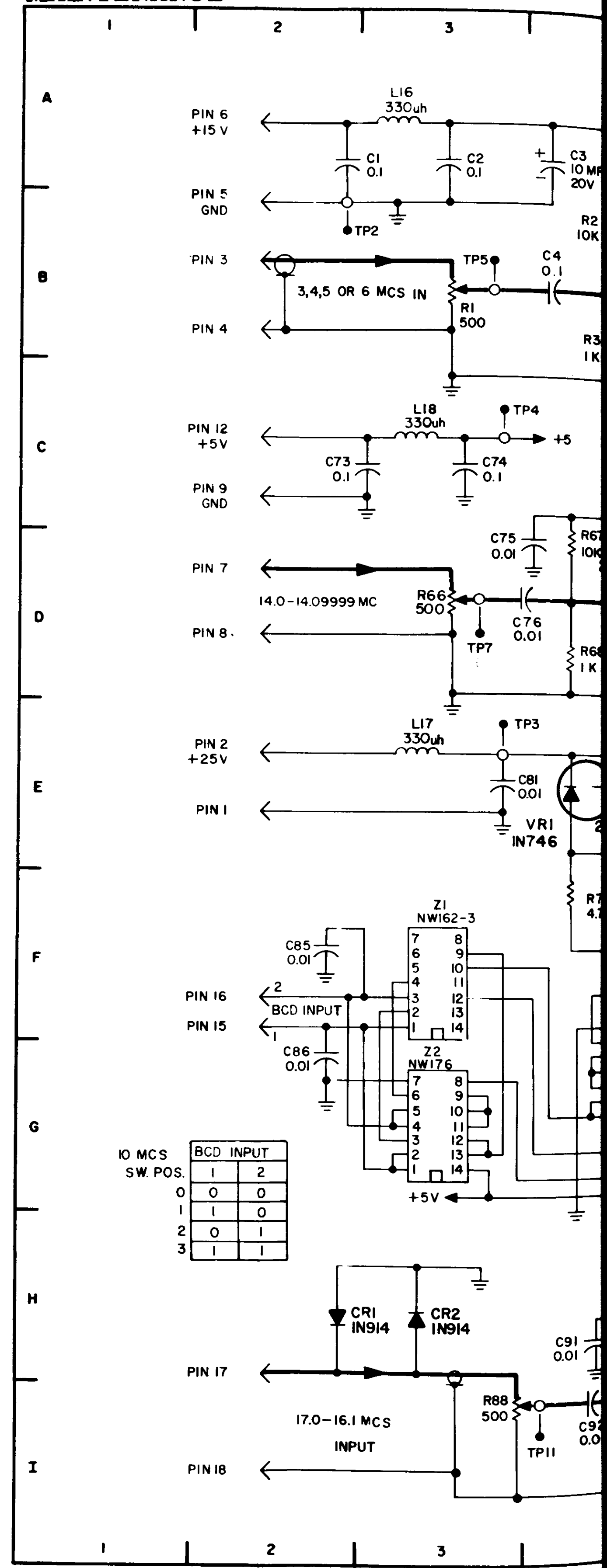


Figure 5-86. Schematic Wiring, Final Mixer/Output 3A13

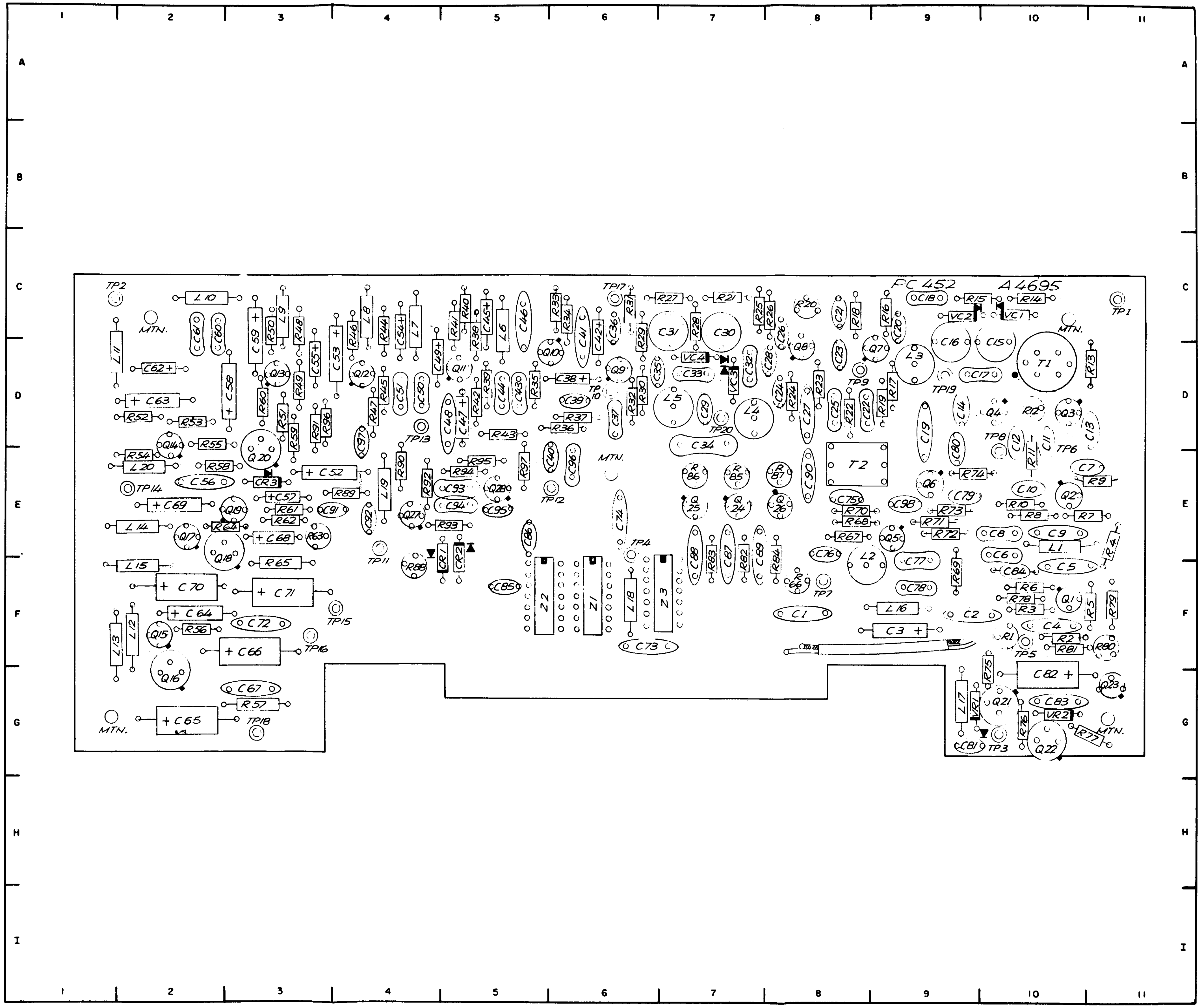
PARTS LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	3A	C47	10F	C93	6H	Q18	18F	R36	9F	R82	5F
C2	3A	C48	11F	C94	6H	Q19	14H	R37	9F	R83	5G
C3	4A	C49	12E	C95	7H	Q20	12H	R38	10E	R84	5G
C4	4B	C50	11E	C96	8I	Q21	4E	R39	10F	R85	7F
C5	5A	C51	12E	C97	6H	Q22	5E	R40	11E	R86	7G
C6	5B	C52	11G	C98	7C	Q23	6E	R41	11E	R87	7G
C7	6A	C53	12E	CR 1	3H	Q24	6F	R42	11F	R88	3I
C8	6B	C54	12E	CR 2	3H	Q25	6G	R43	11F	R89	4H
C9	6B	C55	13E	CR 3	13H	Q26	6G	R44	12E	R90	4I
C10	7B	C56	13G	L1	5B	Q27	5I	R45	12F	R91	5H
C11	8C	C57	14G	L2	5C	Q28	6I	R36	13E	R92	5H
C12	9C	C58	13I	L3	11C	R1	3B	R47	13F	R93	5I
C13	9C	C59	12I	L4	16C	R2	4B	R48	14E	R94	6H
C14	11A	C60	13I	L5	17C	R3	4B	R49	14F	R95	6I
C15	11B	C61	14I	L6	10E	R4	5A	R50	14E	R96	7H
C16	11B	C62	15H	L7	12E	R5	5B	R51	15F	R97	7I
C17	11C	C63	15H	L8	13D	R6	5B	R52	16E	T1	10C
C18	11C	C64	17E	L9	14D	R7	6B	R53	15F	T2	7C
C19	11C	C65	18E	L10	15E	R8	6B	R54	16E	TP1	5A
C20	12B	C66	19E	L11	16D	R9	7A	R55	16F	TP2	2B
C21	13A	C67	19E	L12	17D	R10	7B	R56	17F	TP3	3E
C22	13C	C68	17H	L13	18D	R11	8B	R57	18F	TP4	3C
C23	13B	C69	17G	L14	17G	R12	9C	R58	13G	TP5	3B
C24	15A	C70	18G	L15	18G	R13	10C	R59	12I	TP6	8B
C25	14C	C71	19G	L16	3A	R14	11A	R60	13I	TP7	3D
C26	15A	C72	19H	L17	3E	R15	11B	R61	14I	TP8	7D
C27	15C	C73	2C	L18	3C	R16	12A	R62	15H	TP9	13B
C28	16B	C74	3C	L19	5H	R17	12C	R63	15H	TP10	19C
C29	16A	C75	3D	L20	12G	R18	12A	R64	17H	TP11	4I
C30	16B	C76	3D	Q1	4B	R19	12C	R65	18H	TP12	8F
C31	17B	C77	5D	Q2	7B	R20	13B	R66	3D	TP13	14F
C32	16B	C78	5C	Q3	9B	R21	15A	R67	4C	TP14	17F
C33	17C	C79	6C	Q4	9D	R22	14C	R68	4D	TP15	19H
C34	17C	C80	6D	Q5	4D	R23	14C	R69	5C	TP16	19E
C35	17B	C81	4E	Q6	6D	R24	15B	R70	4D	TP17	7F
C36	19B	C82	5E	Q7	12B	R25	16A	R71	5C	TP18	18F
C37	19C	C83	6F	Q8	14B	R26	16B	R72	5D	TP19	11C
C38	8E	C84	6F	Q9	18C	R27	17A	R73	6D	TP20	16C
C39	8E	C85	2F	Q10	9F	R28	17B	R74	6D	VC1	11B
C40	8F	C86	2G	Q11	11F	R29	18B	R75	4F	VC2	11B
C41	10E	C87	5F	Q12	13F	R30	18C	R76	4E	VC3	16B
C42	10E	C88	5G	Q13	14F	R31	18A	R77	6E	VC4	17B
C43	9F	C89	5G	Q14	16F	R32	18C	R78	7E	VR1	4E
C44	10F	C90	7G	Q15	17F	R33	9D	R79	7E	VR2	5F
C45	10E	C91	4H	Q16	18F	R34	9E	R80	7E	Z1	3F
C46	10D	C92	4I	Q17	17H	R35	9F	R81	7F	Z2	3G
										Z3	4F



NDEX

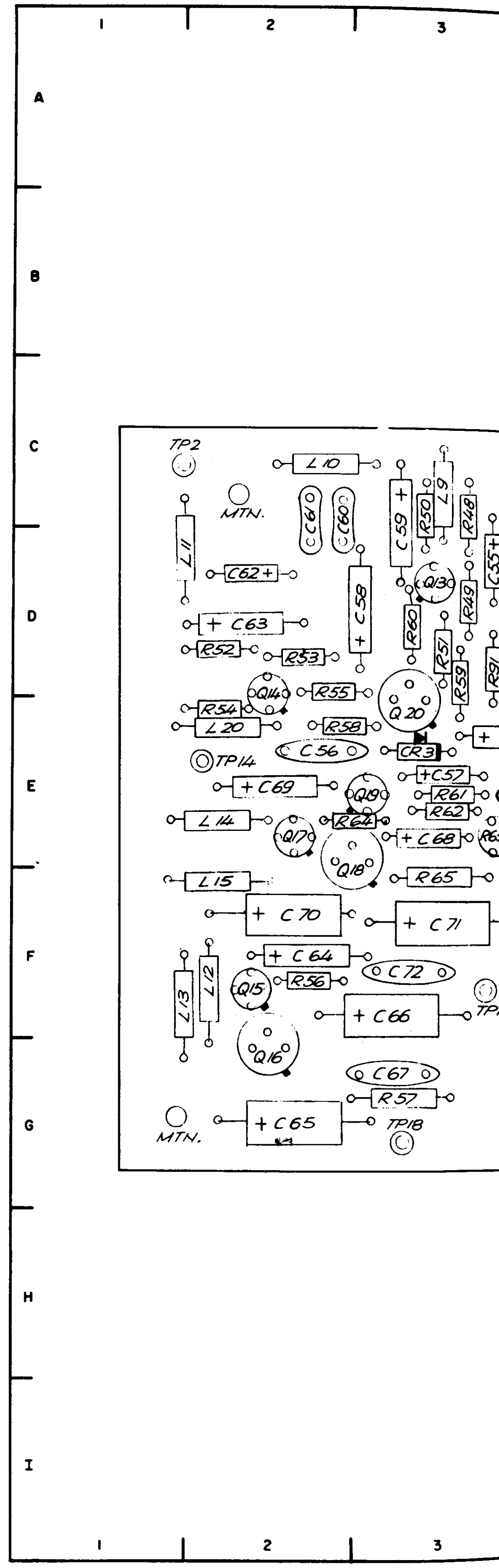
REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
R12	10D	R51	3D	R90	4E
R13	10D	R52	2D	R91	3D
R14	10C	R53	2D	R92	4E
R15	9G	R54	2E	R93	5E
R16	9C	R55	2E	R94	5E
R17	9D	R56	2F	R95	5E
R18	8C	R57	3G	R96	3D
R19	9D	R58	2E	R97	5E
R20	8C	R59	3D	T1	10D
R21	7C	R60	3D	T2	8E
R22	8D	R61	3E	TP1	11C
R23	8D	R62	3E	TP2	1C
R24	8D	R63	3E	TP3	10G
R25	7C	R64	2E	TP4	6E
R26	7C	R65	3F	TP5	10F
R27	7C	R66	8F	TP6	10E
R28	7C	R67	8E	TP7	8F
R29	6D	R68	8E	TP8	10D
R30	6D	R69	9F	TP9	8D
R31	6C	R70	8E	TP10	6D
R32	6D	R71	9E	TP11	4F
R33	5C	R72	9E	TP12	5E
R34	6C	R73	9E	TP13	4D
R35	5D	R74	9E	TP14	2E
R36	6D	R75	9G	TP15	3F
R37	6D	R76	10G	TP16	3F
R38	5D	R77	10G	TP17	9D
R39	5D	R78	10F	TP18	3G
R40	5C	R79	11F	TP19	9D
R41	5C	R80	11F	TP20	7D
R42	5D	R81	10F	VC1	10C
R43	5D	R82	7F	VC2	10C
R44	4C	R83	7F	VC3	7D
R45	4D	R84	8F	VC4	7D
R46	4D	R85	7E	VR1	9G
R47	4D	R86	7E	VR2	10G
R48	3C	R87	8E	Z1	6F
R49	3D	R88	4F	Z2	5F
R50	3C	R89	4E	Z3	6F



Figur 5-87. Component Locations, Final Mixer/Output 3A13

PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
C1	8F	C41	6D	C81	9G	L20	2E	R12	10D	R51	3D	R90	4E
C2	9F	C42	5D	C82	7F	Q1	10F	R13	10D	R52	2D	R91	3D
C3	9F	C43	5D	C83	7F	Q2	10E	R14	10C	R53	2D	R92	4E
C4	10F	C44	5D	C84	10F	Q3	10D	R15	9G	R54	2E	R93	5E
C5	10F	C45	5C	C85	5F	Q4	10D	R16	9C	R55	2E	R94	5E
C6	10F	C46	5C	C86	5E	Q5	9E	R17	9D	R56	2F	R95	5E
C7	10E	C47	5D	C87	7F	Q6	9E	R18	8C	R57	3G	R96	3D
C8	10E	C48	4D	C88	7F	Q7	8D	R19	9D	R58	2E	R97	5E
C9	10E	C49	4D	C89	7F	Q8	8D	R20	8C	R59	3D	T1	10D
C10	10E	C50	4D	C90	8E	Q9	6D	R21	7C	R60	3D	T2	8E
C11	10E	C51	4D	C91	3E	Q10	5D	R22	8D	R61	3E	TP1	11C
C12	10E	C52	3E	C92	4E	Q11	5D	R23	8D	R62	3E	TP2	1C
C13	10D	C53	3D	C93	5E	Q12	4D	R24	8D	R63	3E	TP3	10G
C14	9D	C54	4C	C94	5E	Q13	3D	R25	7C	R64	2E	TP4	6E
C15	10D	C55	3D	C95	3E	Q14	2E	R26	7C	R65	3F	TP5	10F
C16	9D	C56	2E	C96	6E	Q15	2F	R27	7C	R66	8F	TP6	10E
C17	9D	C57	3E	C97	4D	Q16	2G	R28	7C	R67	8E	TP7	8F
C18	9C	C58	2E	C98	9E	Q17	2E	R29	6D	R68	8E	TP8	10D
C19	9D	C59	3D	CR1	4F	Q18	2F	R30	6D	R69	9F	TP9	8D
C20	9C	C60	2D	CR2	5F	Q19	3E	R31	6C	R70	8E	TP10	6D
C21	8C	C61	2D	CR3	3E	Q20	3E	R32	6D	R71	9E	TP11	4F
C22	8D	C62	2D	L1	10E	Q21	10G	R33	5C	R72	9E	TP12	5E
C23	8D	C63	2D	L2	8F	Q22	10G	R34	6C	R73	9E	TP13	4D
C24	8D	C64	2F	L3	9D	Q23	11G	R35	5D	R74	9E	TP14	2E
C25	8D	C65	2G	L4	7D	Q24	7E	R36	6D	R75	9G	TP15	3F
C26	8D	C66	3F	L5	7D	Q25	7E	R37	6D	R76	10G	TP16	3F
C27	8D	C67	3G	L6	5D	Q26	8E	R38	5D	R77	10G	TP17	9D
C28	7D	C68	3E	L7	4C	Q27	4E	R39	5D	R78	10F	TP18	3G
C29	7D	C69	2E	L8	4C	Q28	5E	R40	5C	R79	11F	TP19	9D
C30	7D	C70	2F	L9	3C	R1	10F	R41	5C	R80	11F	TP20	7D
C31	7D	C71	3F	L10	2C	R2	10F	R42	5D	R81	10F	VC1	10C
C32	7D	C72	3F	L11	1D	R3	10F	R43	5D	R82	7F	VC2	10C
C33	7D	C73	6F	L12	2F	R4	11E	R44	4C	R83	7F	VC3	7D
C34	7E	C74	6E	L13	1F	R5	10F	R45	4D	R84	8F	VC4	7D
C35	6D	C75	8E	L14	2E	R6	10F	R46	4D	R85	7E	VR1	9G
C36	6C	C76	8F	L15	2F	R7	10E	R47	4D	R86	7E	VR2	10G
C37	6D	C77	9F	L16	9F	R8	10E	R48	3C	R87	8E	Z1	6F
C38	6D	C78	9F	L17	9G	R9	11E	R49	3D	R88	4F	Z2	5F
C39	6D	C79	9E	L18	6F	R10	10E	R50	3C	R89	4E	Z3	6F
C40	5E	C80	9E	L19	4E	R11	10E						



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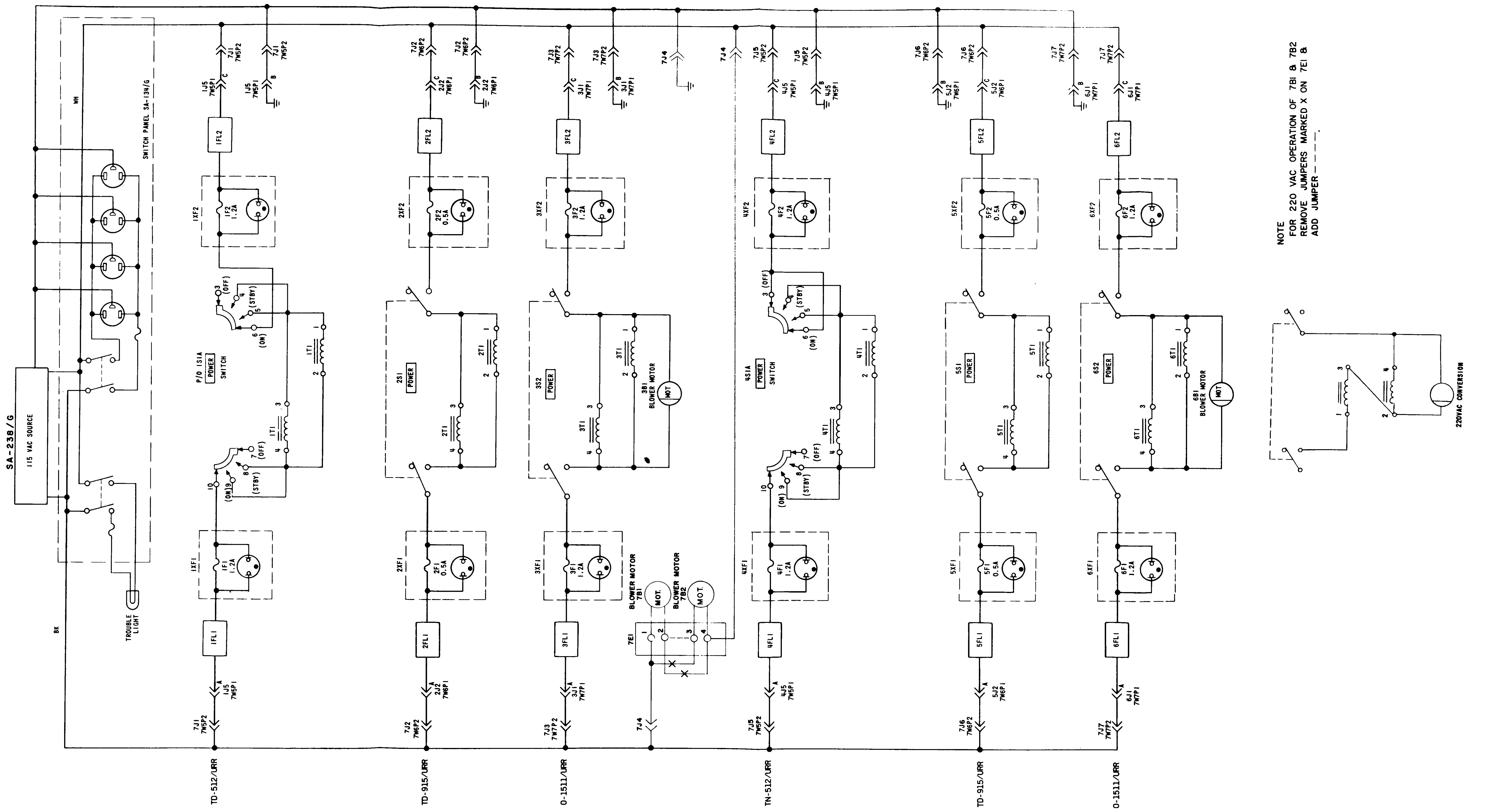
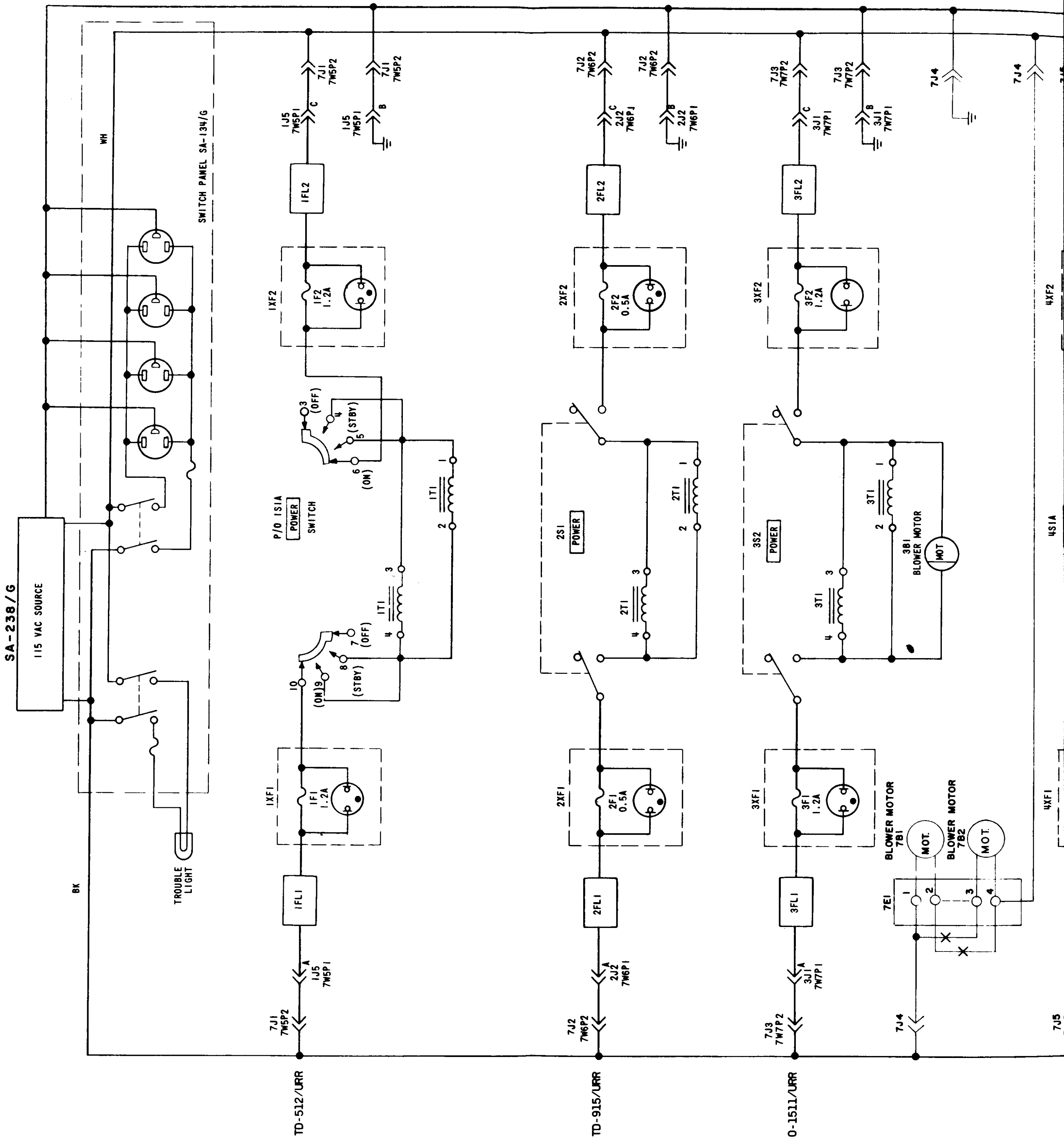


Figure 5-88. AC Power Distribution Diagram, AN/URR-64(V)1


SA-238/G
115 VAC SOURCE
SWITCH PANEL SA-134/G
TROUBLE LIGHT
WH
BK
P/O 1S1A
POWER
SWITCH
2S1
3S2
BLOWER MOTOR 3B1
BLOWER MOTOR 7B1
BLOWER MOTOR 7B2
MOT
7E1
1T1
2T1
3T1
1XF1
1XF2
2XF1
2XF2
3XF1
3XF2
4XF1
4XF2
4S1A
1F1 1.2A
1F2 1.2A
2F1 0.5A
2F2 0.5A
3F1 1.2A
3F2 1.2A
1FL1
1FL2
2FL1
2FL2
3FL1
3FL2
TD-512/URR
TD-915/URR
O-1511/URR
7J1 7W5P2
1J5 7W5P1
7J2 7W6P2
2J2 7W6P1
7J3 7W7P2
3J1 7W7P1
7J4
7J5
(OFF)
(STBY)
(ON)

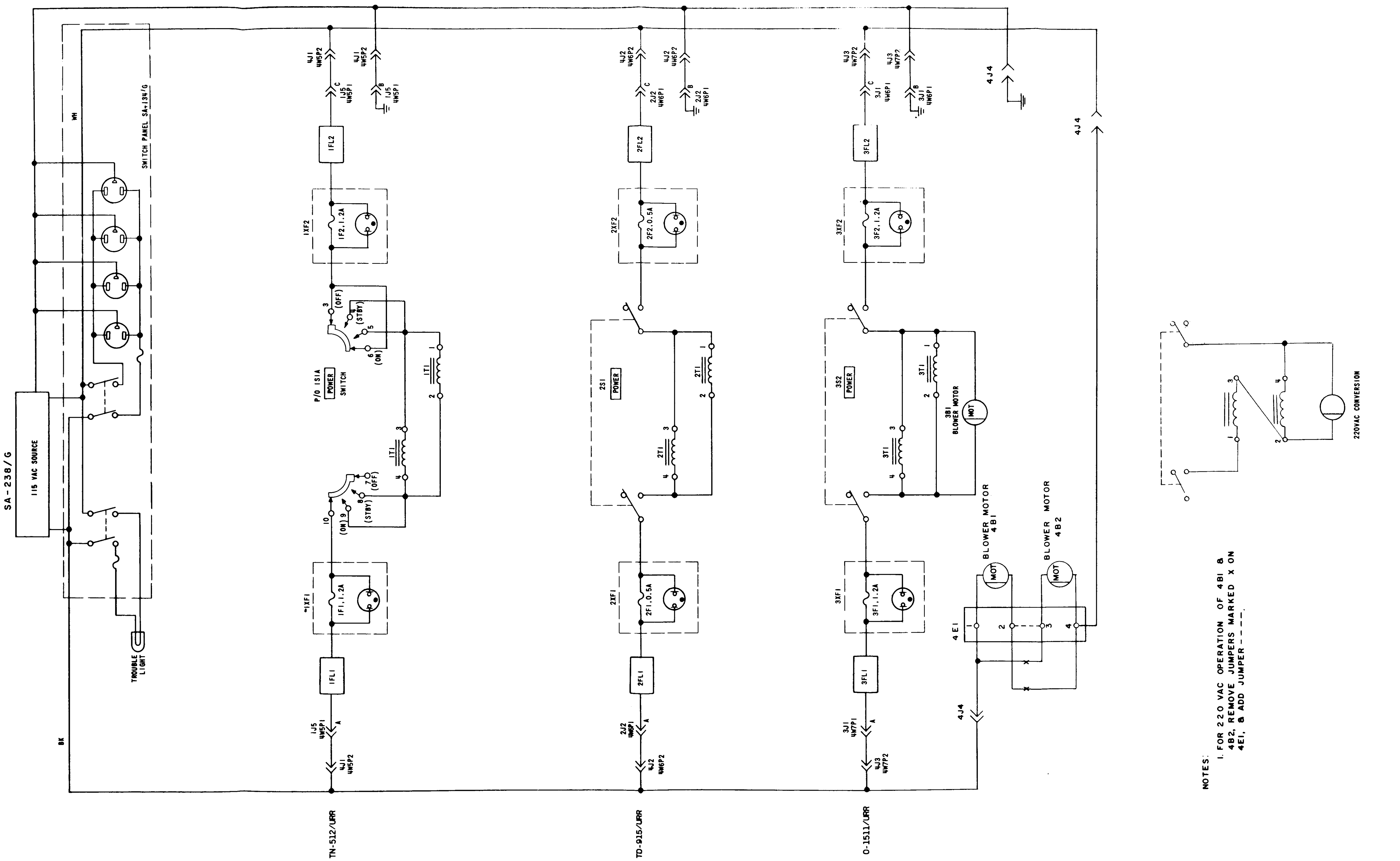


Figure 5-89. AC Power Distribution Diagram, AN/URR-64(V)2

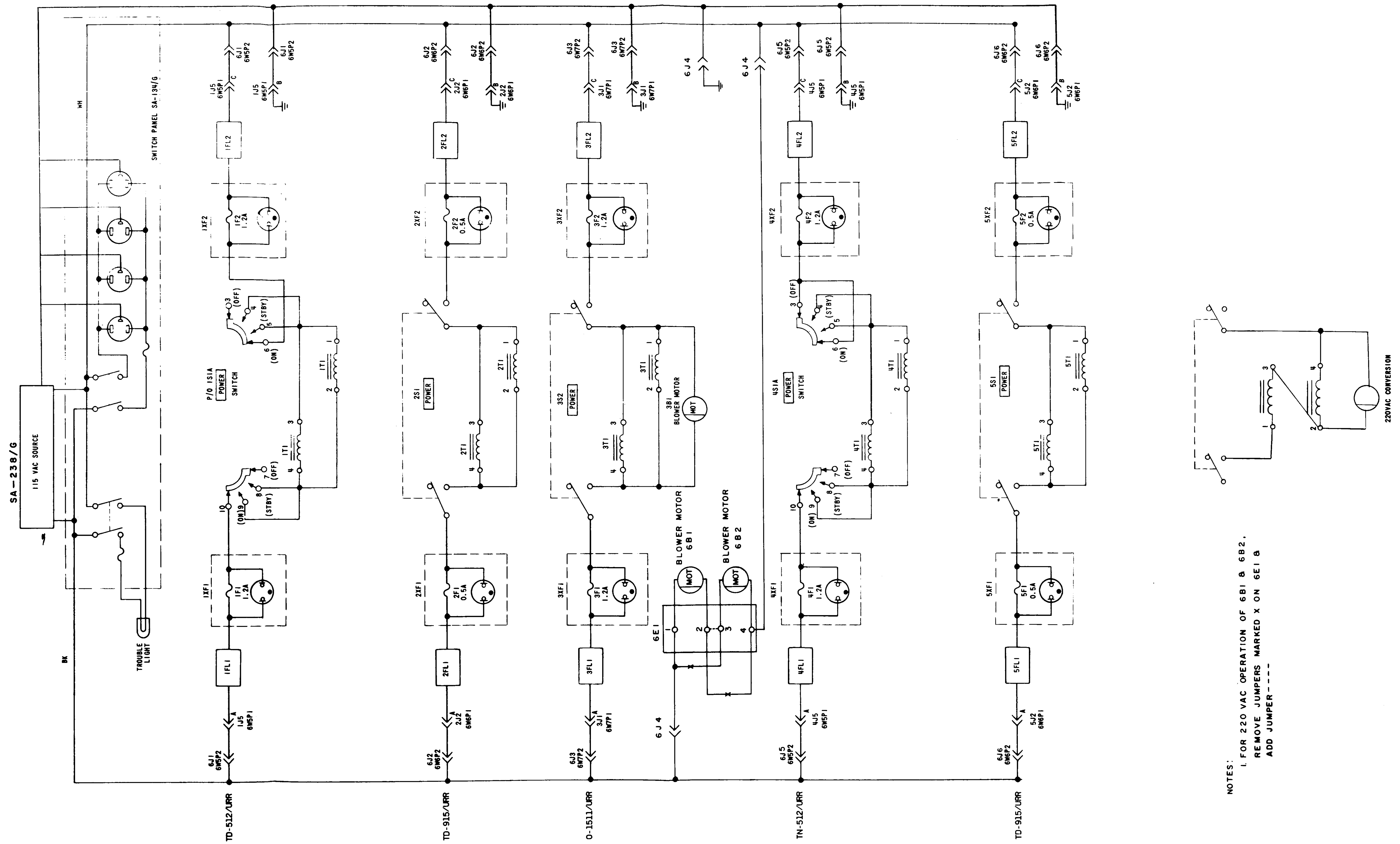
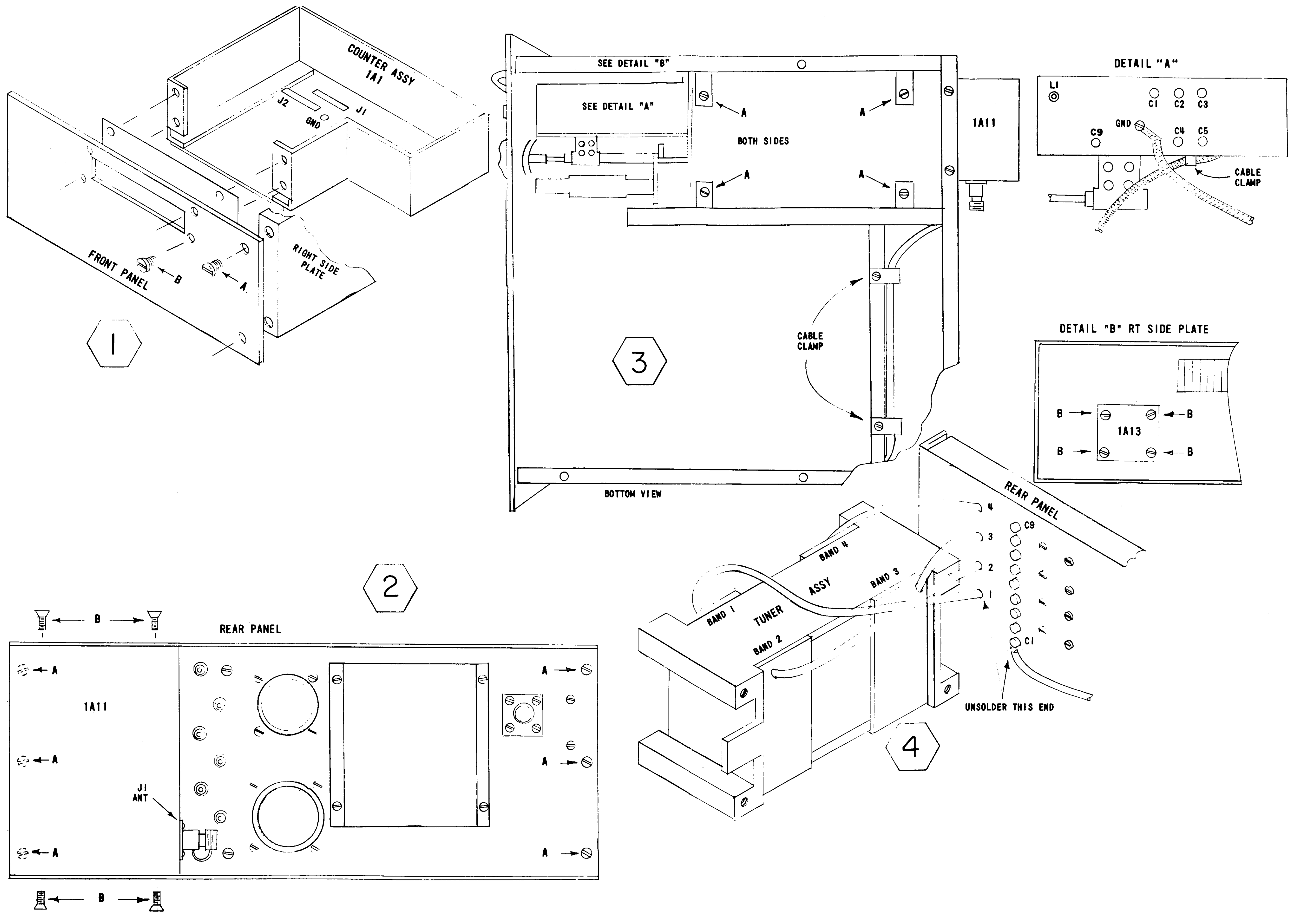


Figure 5-90. AC Power Distribution Diagram, AN/URR-64(V)3



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