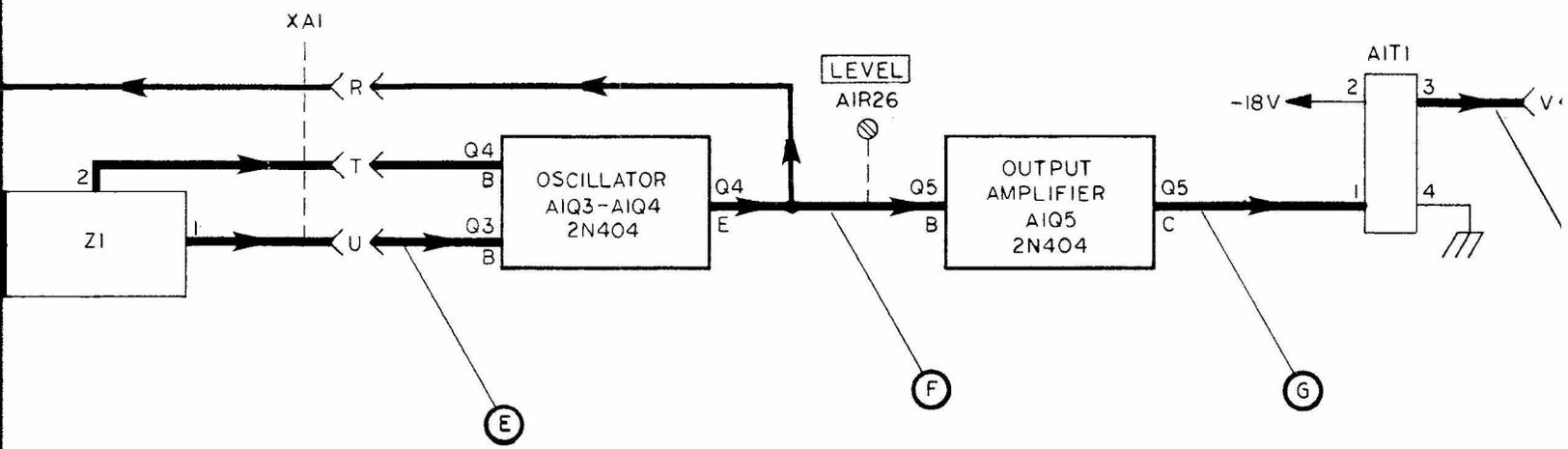
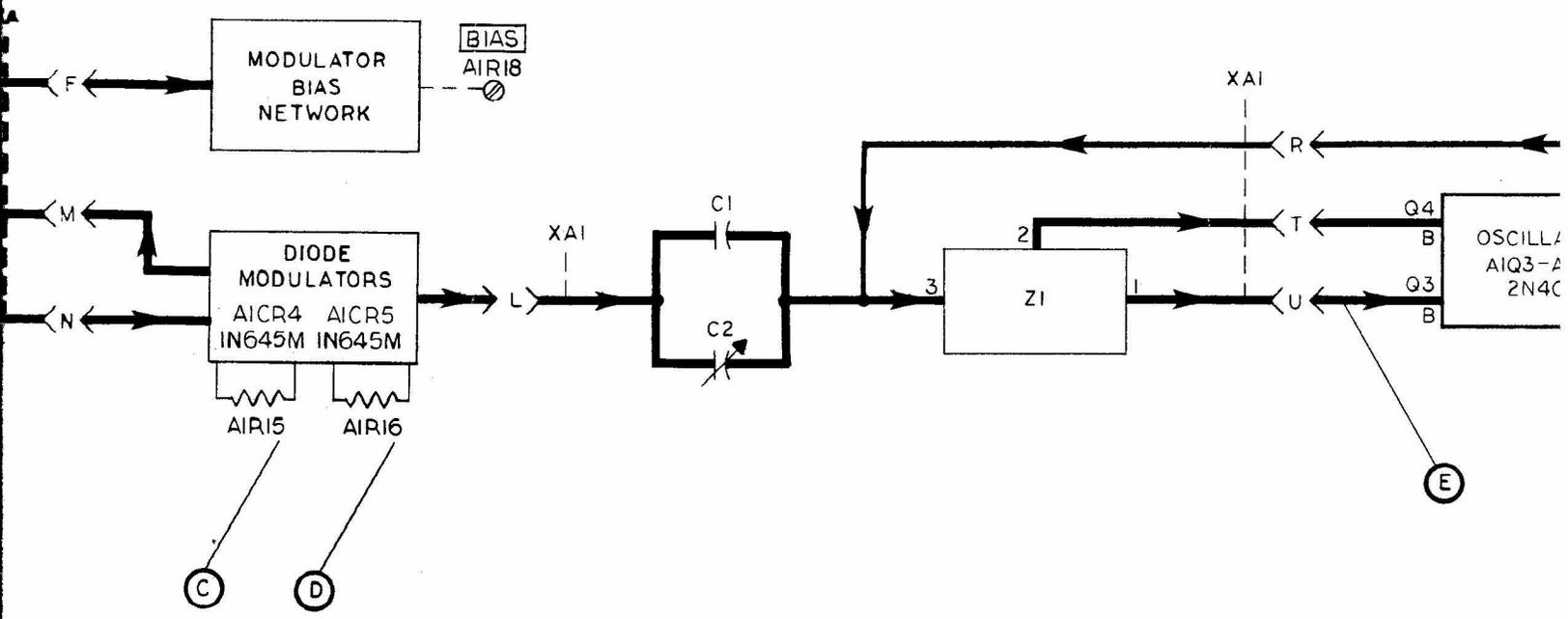
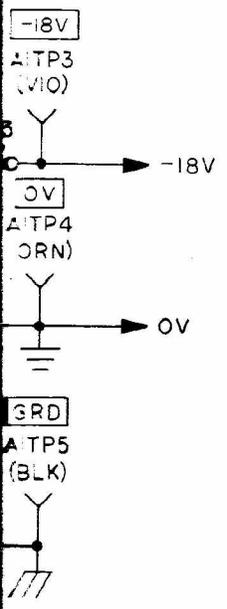
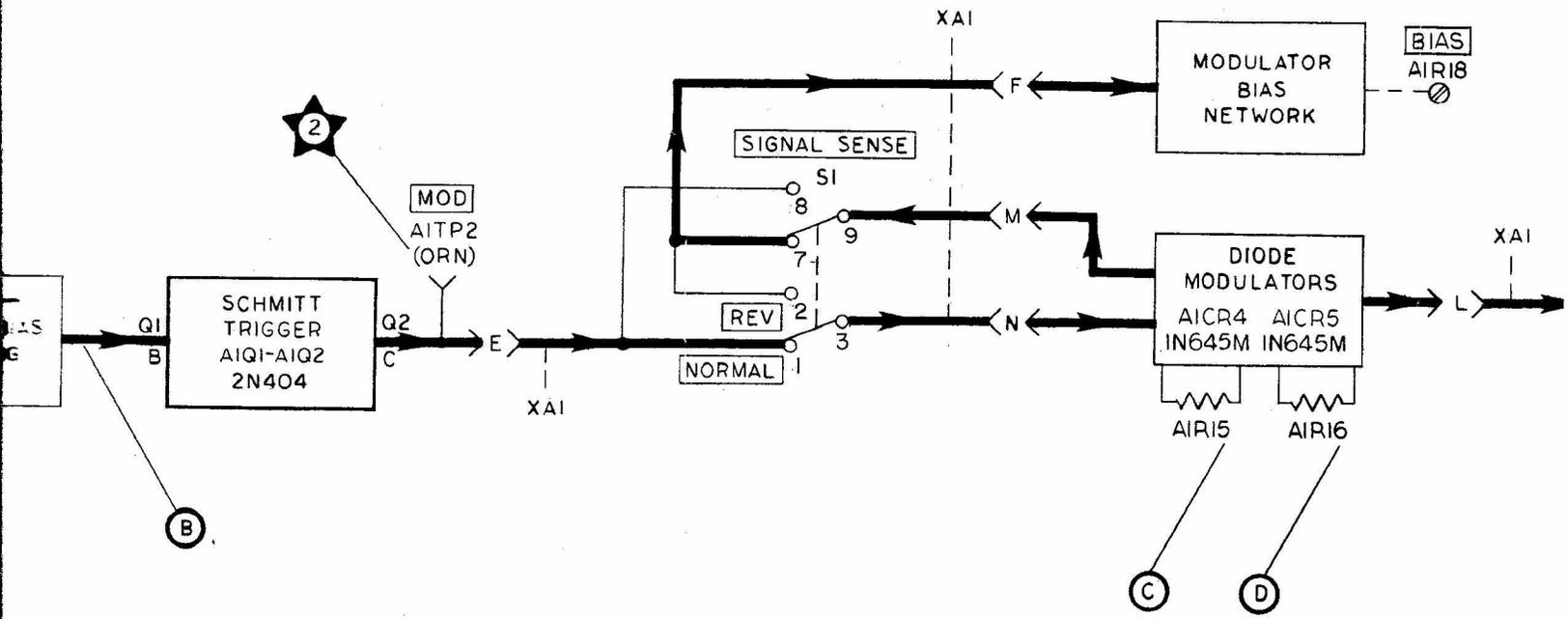


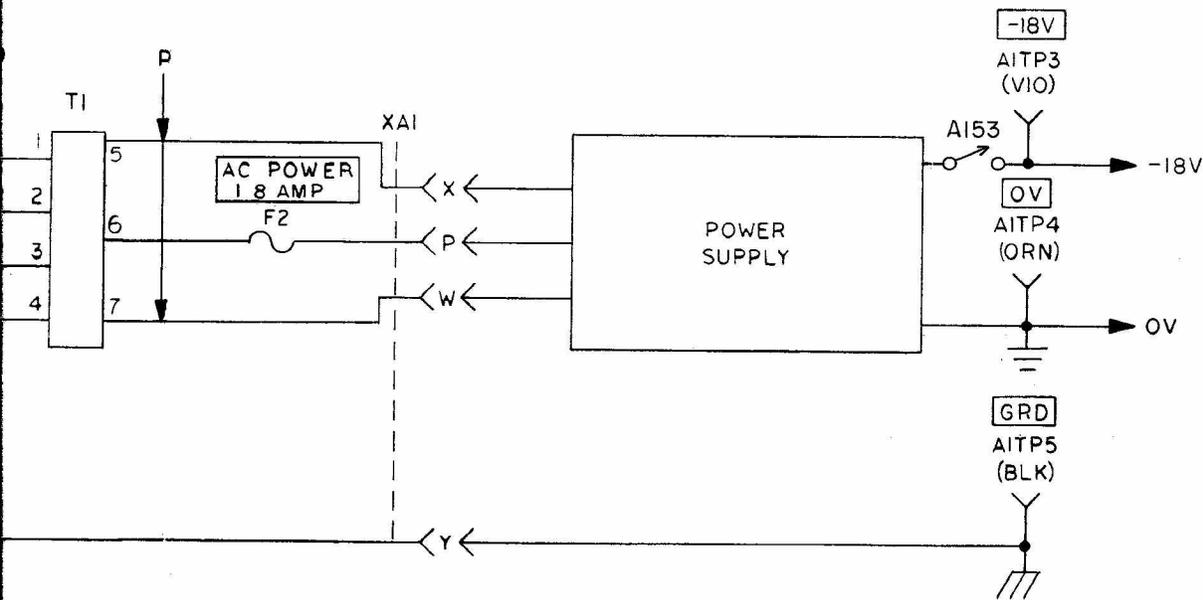
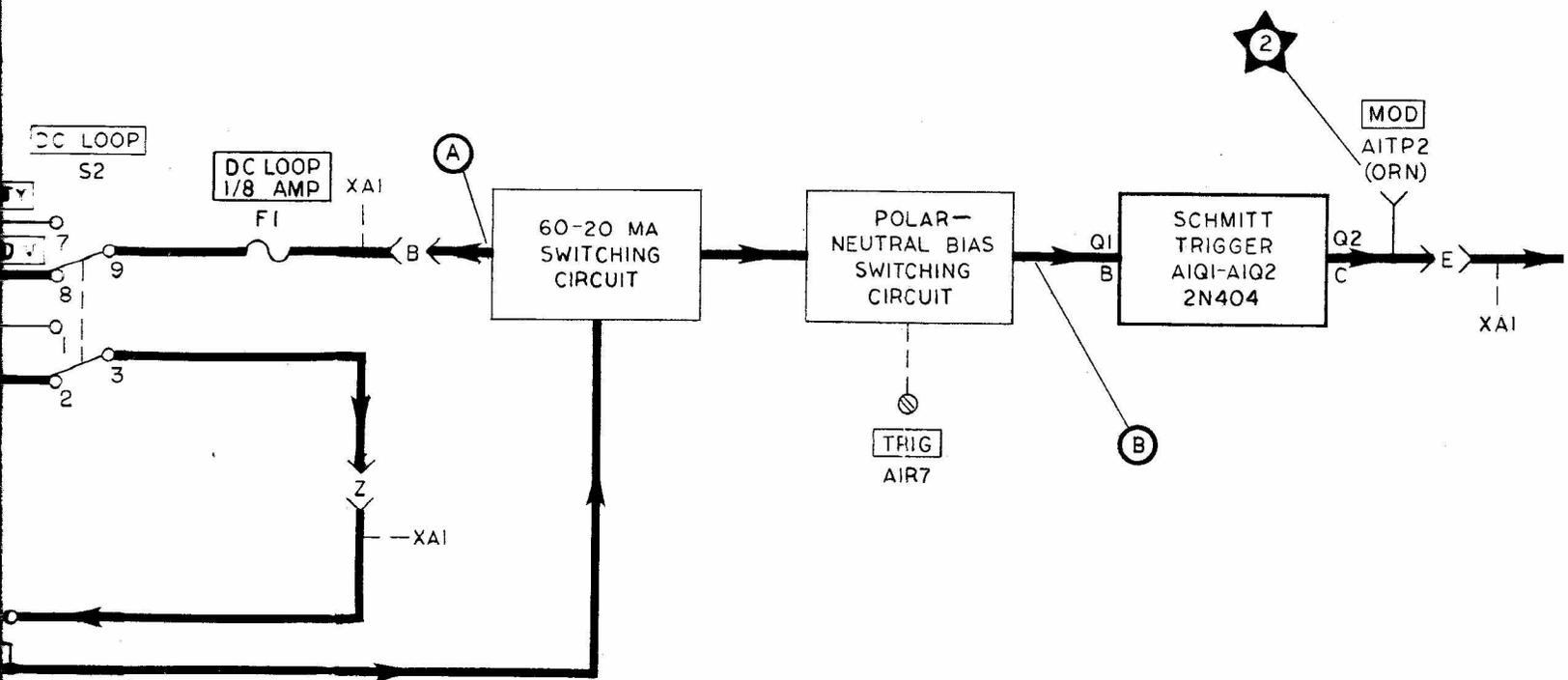
- NOTES:
1. HEAVY LINES INDICATE MAIN SIGNAL PATH. LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.
  2. LETTERS AND NUMBERS OUTSIDE TRANSISTOR BLOCKS INDICATE TRANSISTOR CONNECTIONS. NUMBERS ON TRANSFORMERS INDICATE TERMINAL NUMBER.
  3. DENOTES COMMON TIE POINT.
  4. DESIGNATES EQUIPMENT MARKING.
  5. FOR WAVEFORM 1 A STEADY-MARK SIGNAL WAS APPLIED FROM TEST SET TO KEYER. FOR ALL OTHER WAVEFORMS A 75 BAUD REVERSAL SIGNAL WAS APPLIED. SWITCHES WERE SET AS SHOWN.

Figure 4-2. Keyer, Frequency Shift, KY-490A(P)/UCC-1(V) Servicing Block Diagram

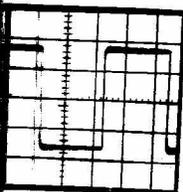




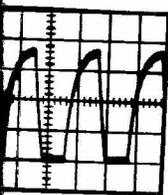




AN/UCC-1A(V)  
TROUBLESHOOTING



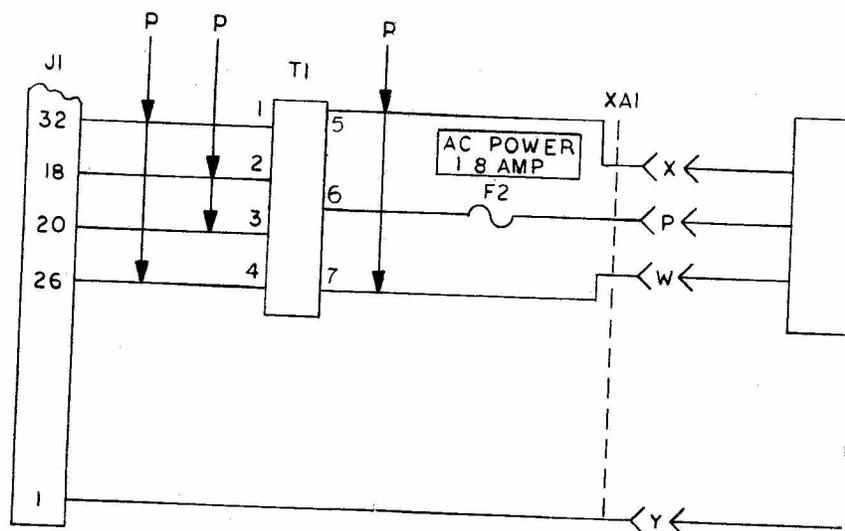
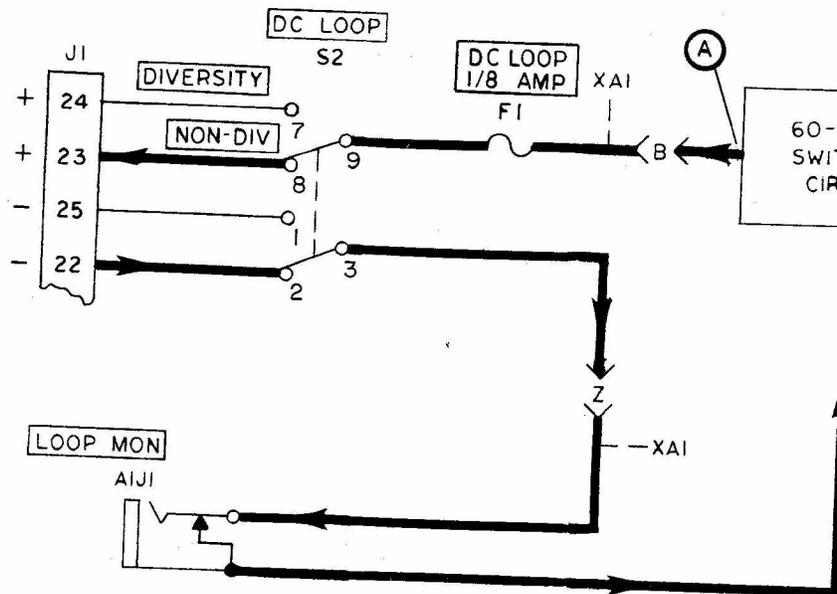
.2V/CM  
50 MS



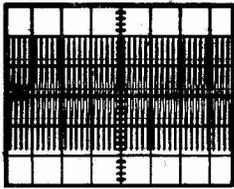
2V/CM  
10 MS



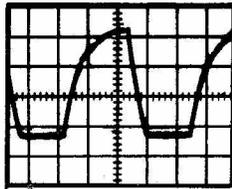
2V/CM  
5 MS



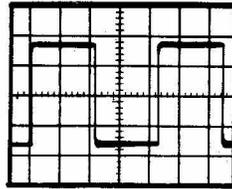
ORIGINAL



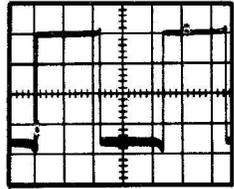
① 1V/CM  
5 MS



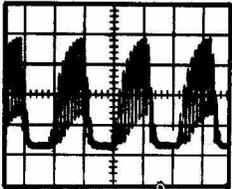
② 2V/CM  
5 MS



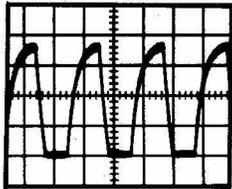
Ⓐ .2V/CM  
50 MS



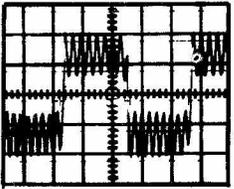
Ⓑ 1V/CM  
5 MS



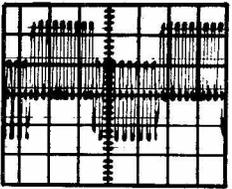
Ⓒ 2V/CM  
10 MS



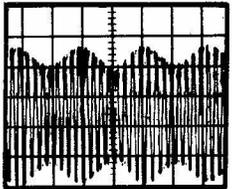
Ⓓ 2V/CM  
10 MS



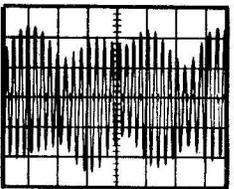
Ⓔ .1V/CM  
5 MS



Ⓕ 2V/CM  
5 MS



Ⓖ 2V/CM  
5 MS



Ⓖ 2V/CM  
5 MS

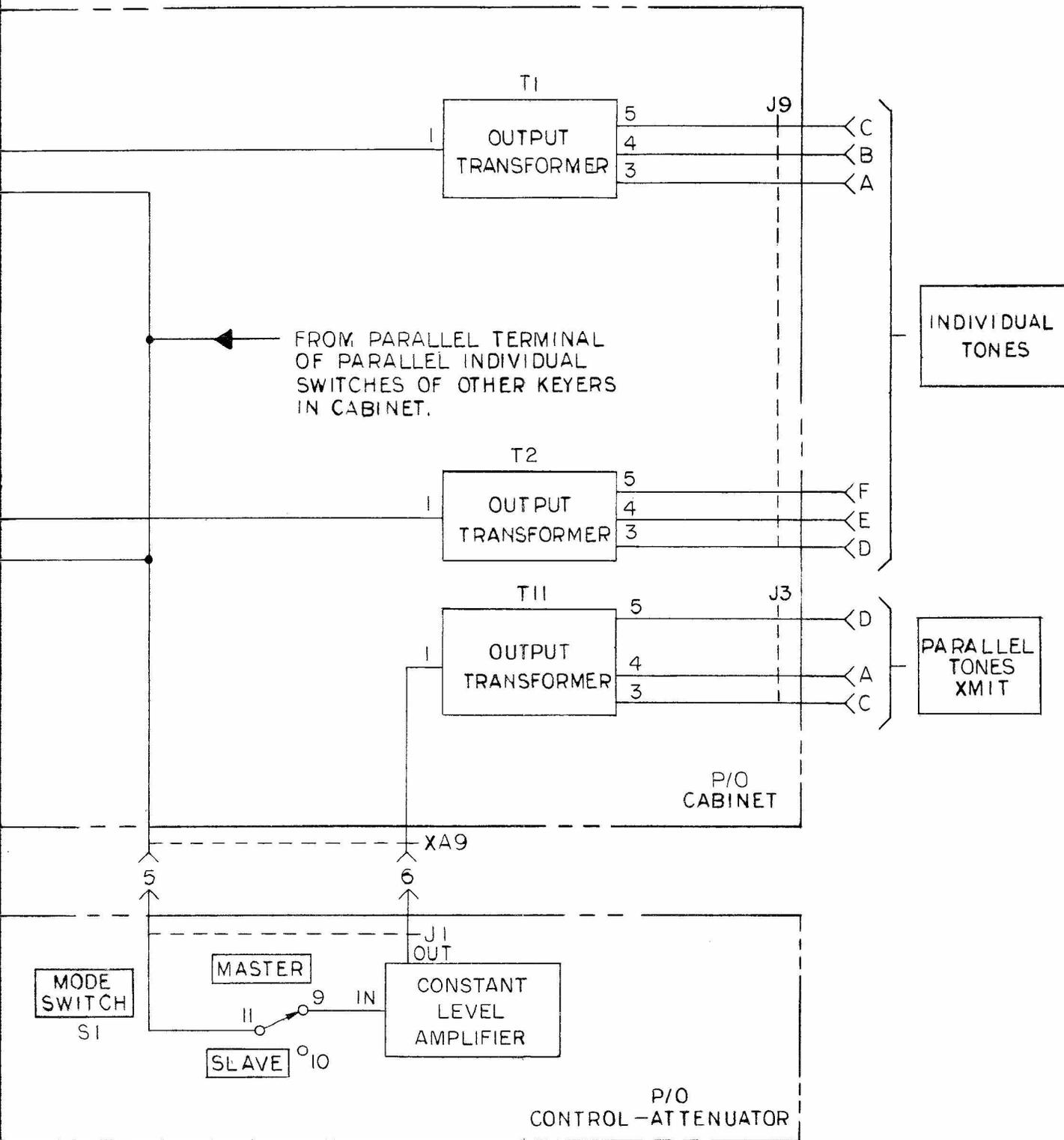
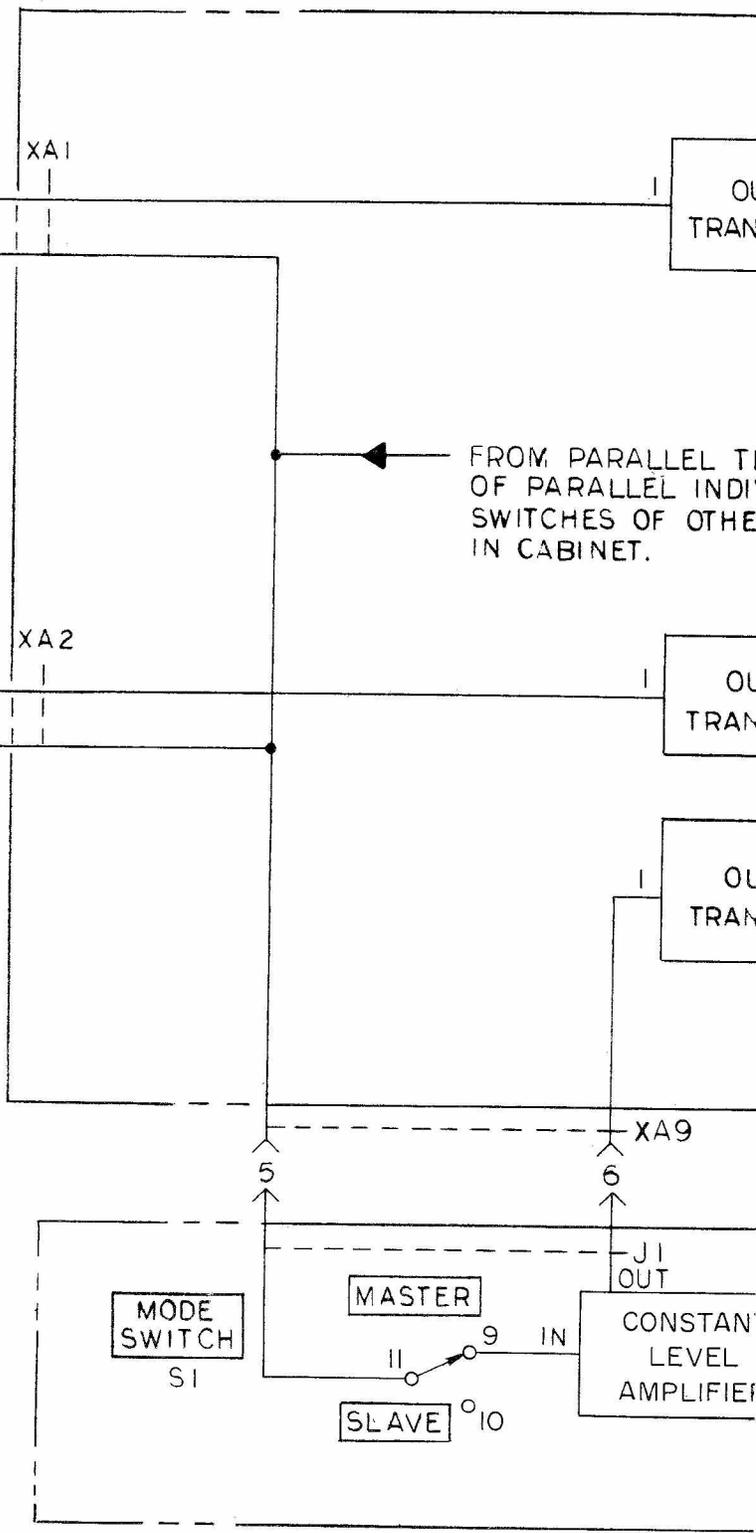
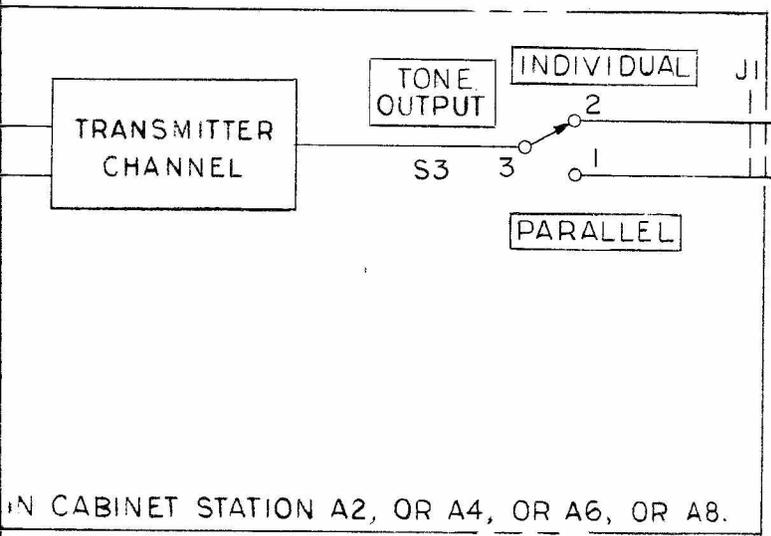
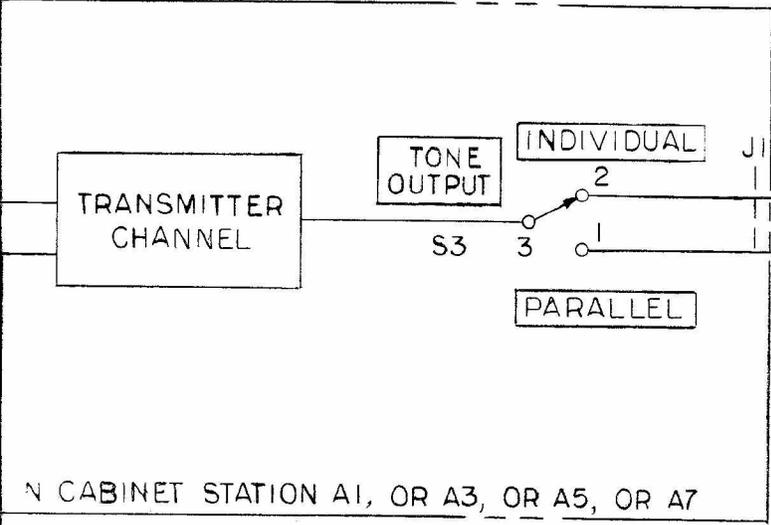
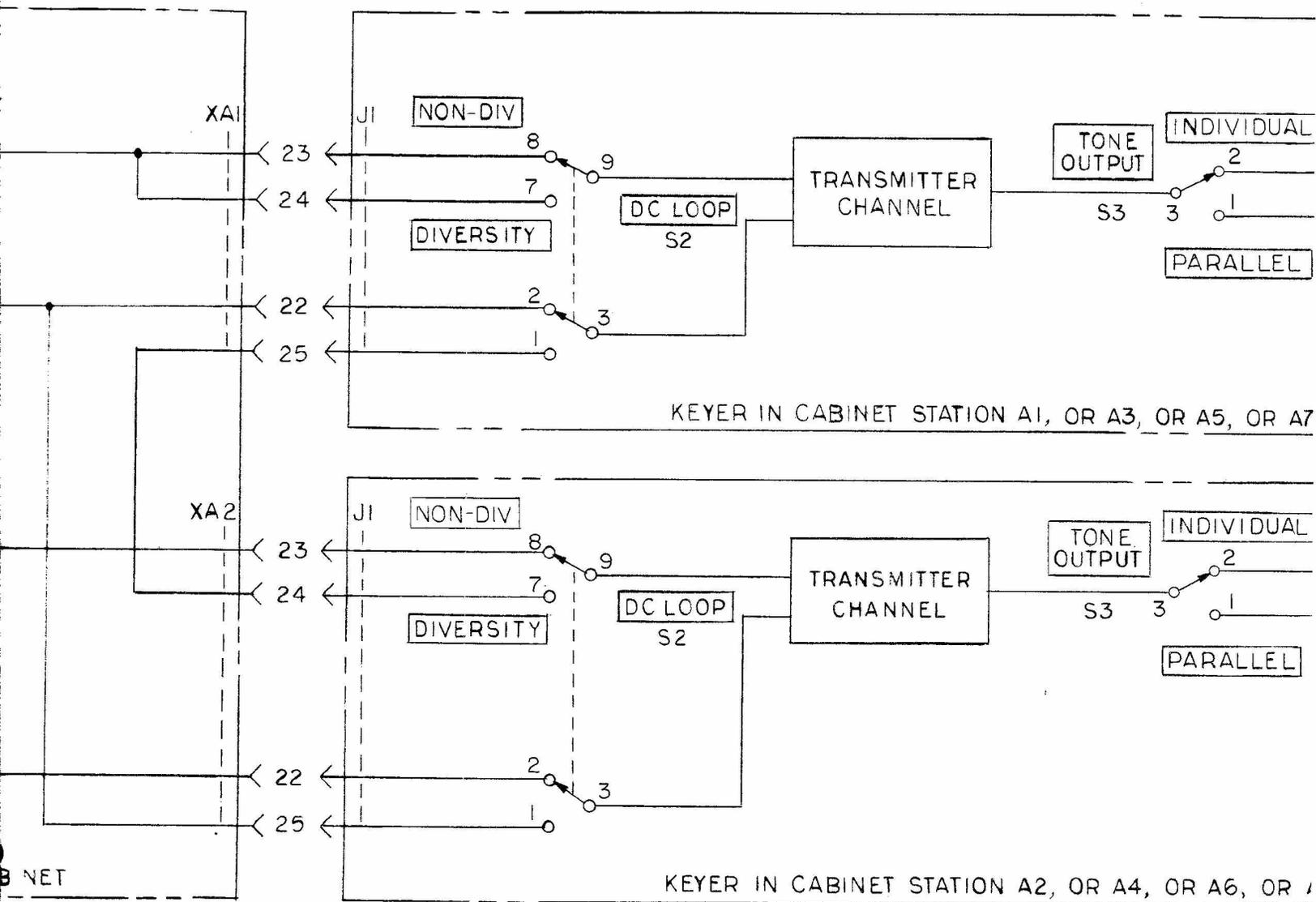
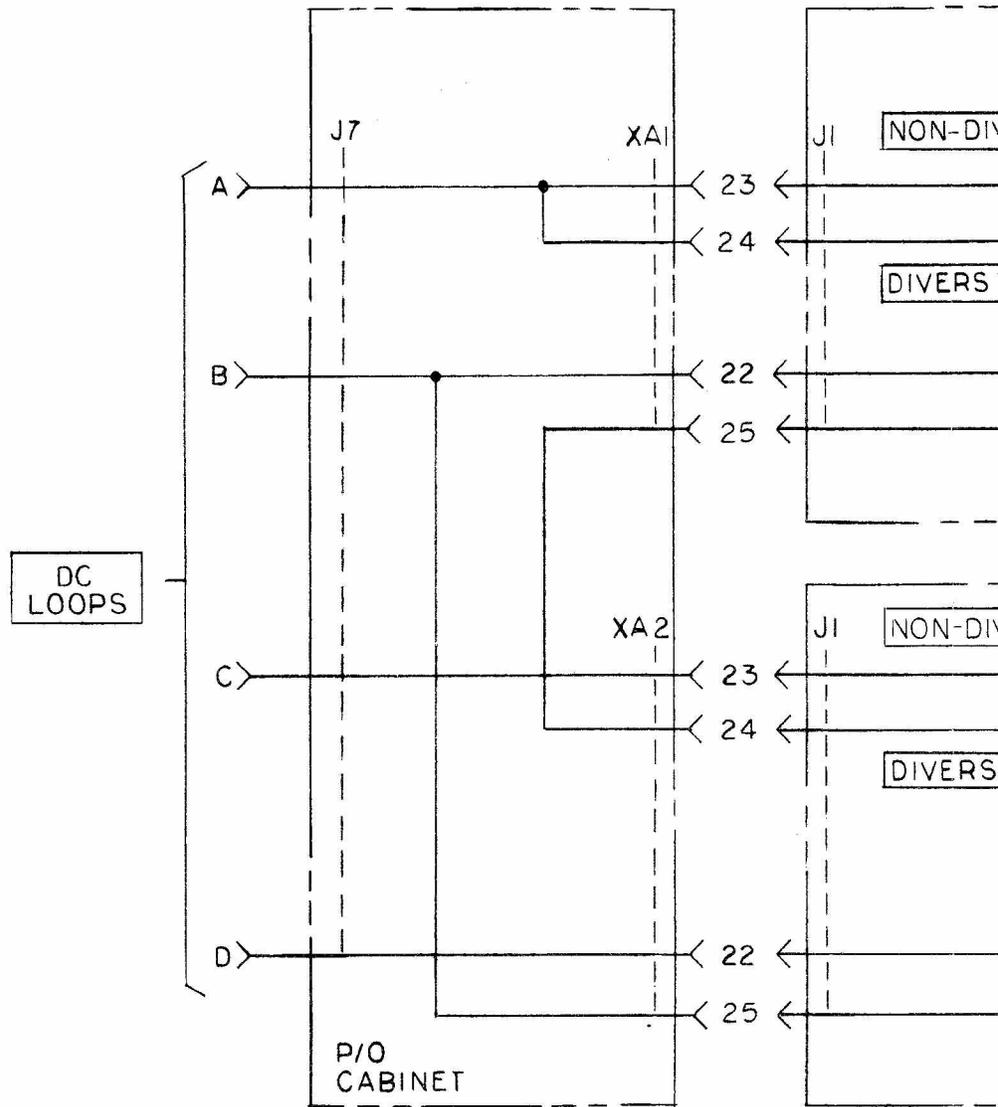


Figure 4-3. Keyer Diversity Combination Block Diagram





AN/UCC-1A(V)  
TROUBLESHOOTING



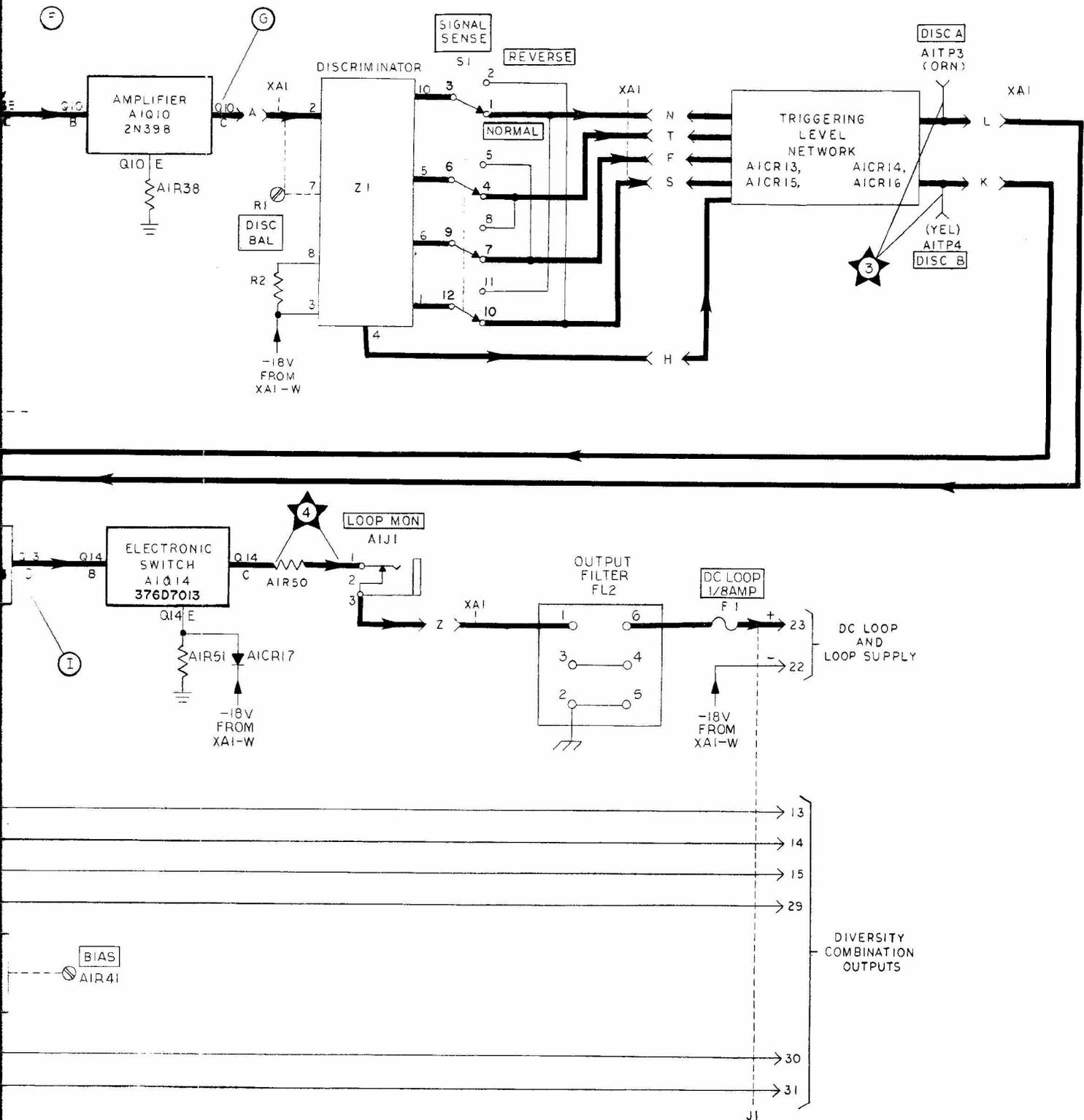
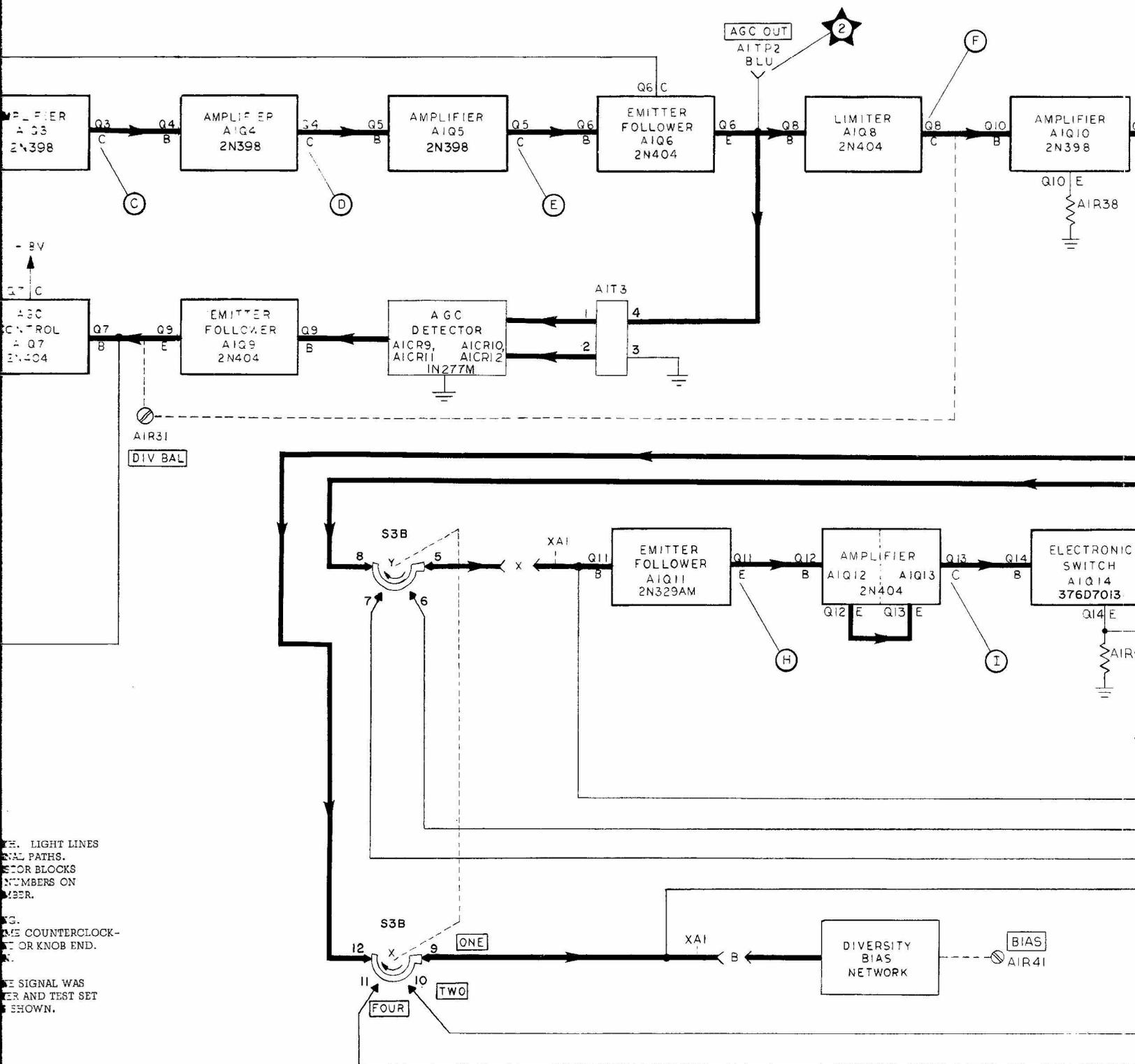
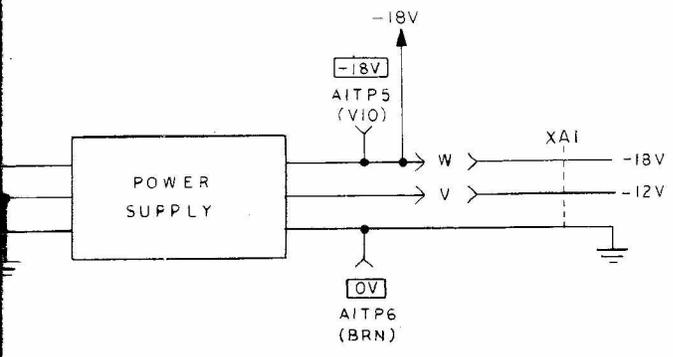
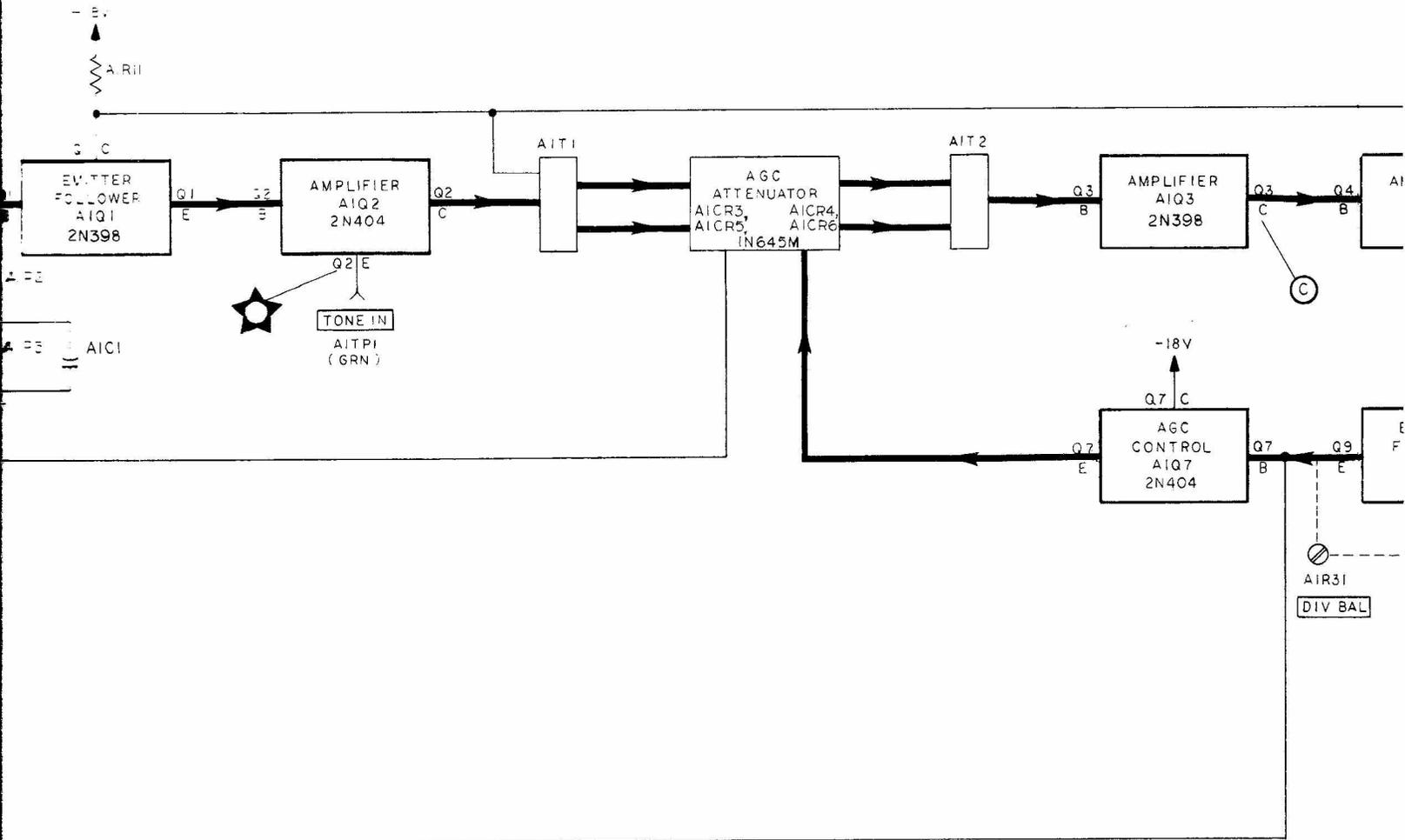


Figure 4-4. Converter, Frequency Shift, CV-1522A(P)/UCC-1(V) Servicing Block Diagram

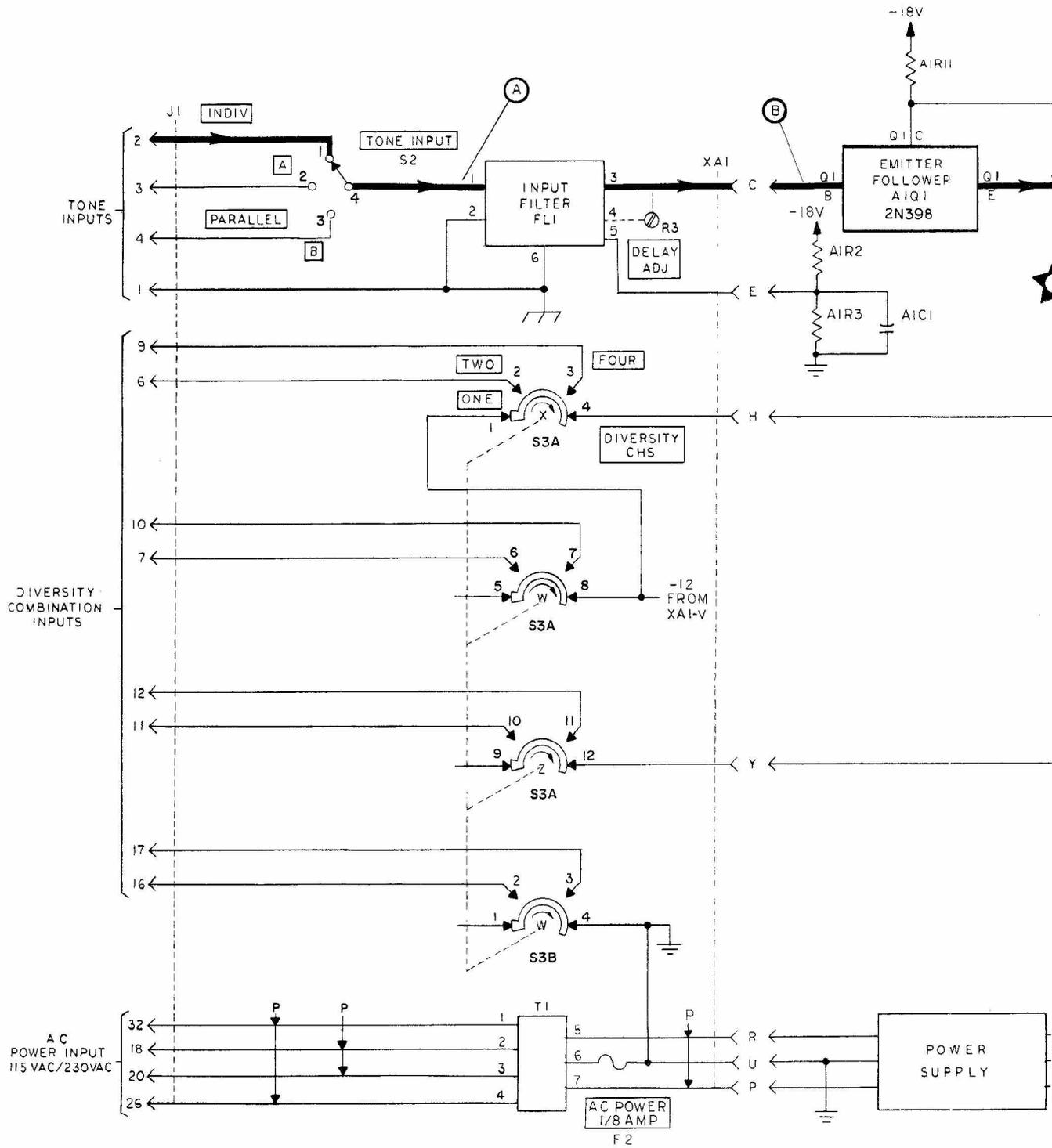


NOTE: LIGHT LINES  
 INDICATE SIGNAL PATHS.  
 SHADOWED BLOCKS  
 CONTAIN COMPONENTS  
 NUMBERS ON  
 COMPONENT NUMBER.  
 AGC CONTROL  
 NAME COUNTERCLOCK-  
 WISE OR KNOB END.  
 THE SIGNAL WAS  
 FROM THE TEST SET  
 AND IS SHOWN.

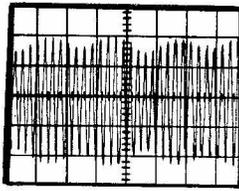


- NOTES:
1. HEAVY LINES INDICATE MAIN SIGNAL PATH. LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.
  2. LETTERS AND NUMBERS OUTSIDE TRANSISTOR BLOCKS INDICATE TRANSISTOR CONNECTIONS. NUMBERS ON TRANSFORMERS INDICATE TERMINAL NUMBER.
  3. ← DENOTES COMMON TIE POINT.
  4. [Symbol] DESIGNATES EQUIPMENT MARKING.
  5. ROTARY SWITCHES ARE SHOWN IN EXTREME COUNTERCLOCKWISE POSITION AND VIEWED FROM FRONT OR KNOB END. ARROW INDICATES CLOCKWISE ROTATION.
  6. P → DESIGNATES TWISTED PAIR.
  7. FOR ALL WAVEFORMS A 75 BAUD FSK TONE SIGNAL WAS APPLIED TO THE CONVERTER FROM A KEYSER AND TEST SET COMBINATION. SWITCHES WERE SET AS SHOWN.

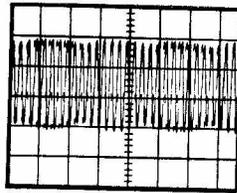
AN/UCC-1A(V)  
TROUBLESHOOTING



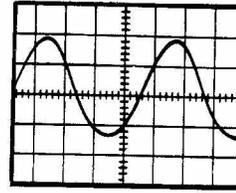
ORIGINAL



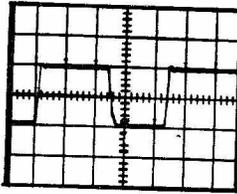
1  $.5V/CM$   
5 MS



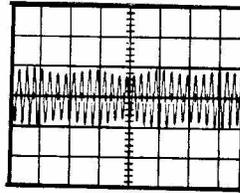
2  $2V/CM$   
5 MS



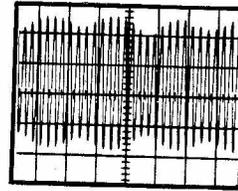
3  $1V/CM$   
5 MS



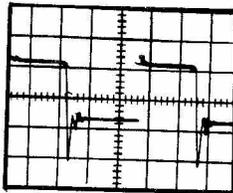
4  $1V/CM$   
5 MS



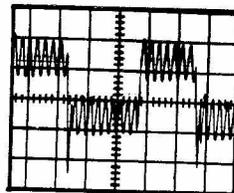
A  $2V/CM$   
5 MS



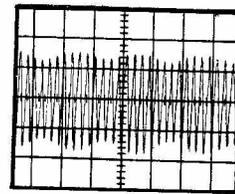
B  $5V/CM$   
MS



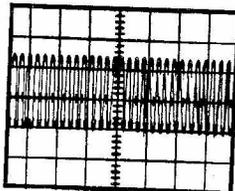
C  $5V/CM$   
5 MS



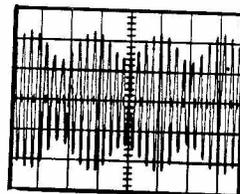
D  $5V/CM$   
5 MS



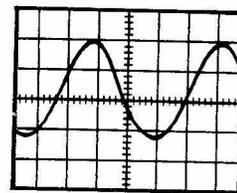
E  $2V/CM$   
5 MS



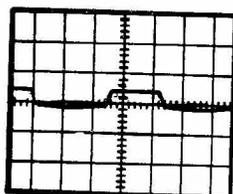
F  $.2V/CM$   
5 MS



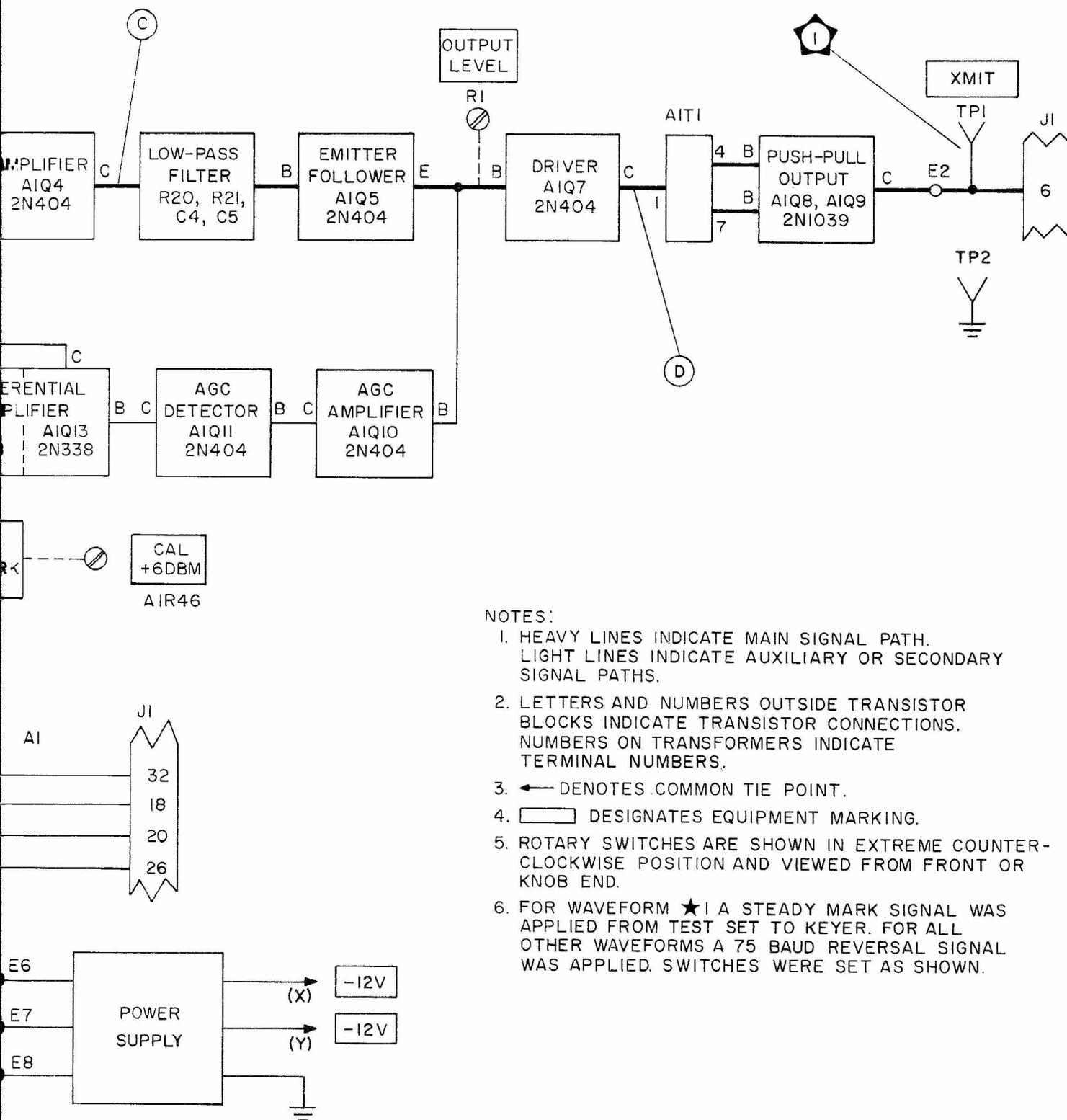
G  $2V/CM$   
5 MS



H  $1V/CM$   
5 MS



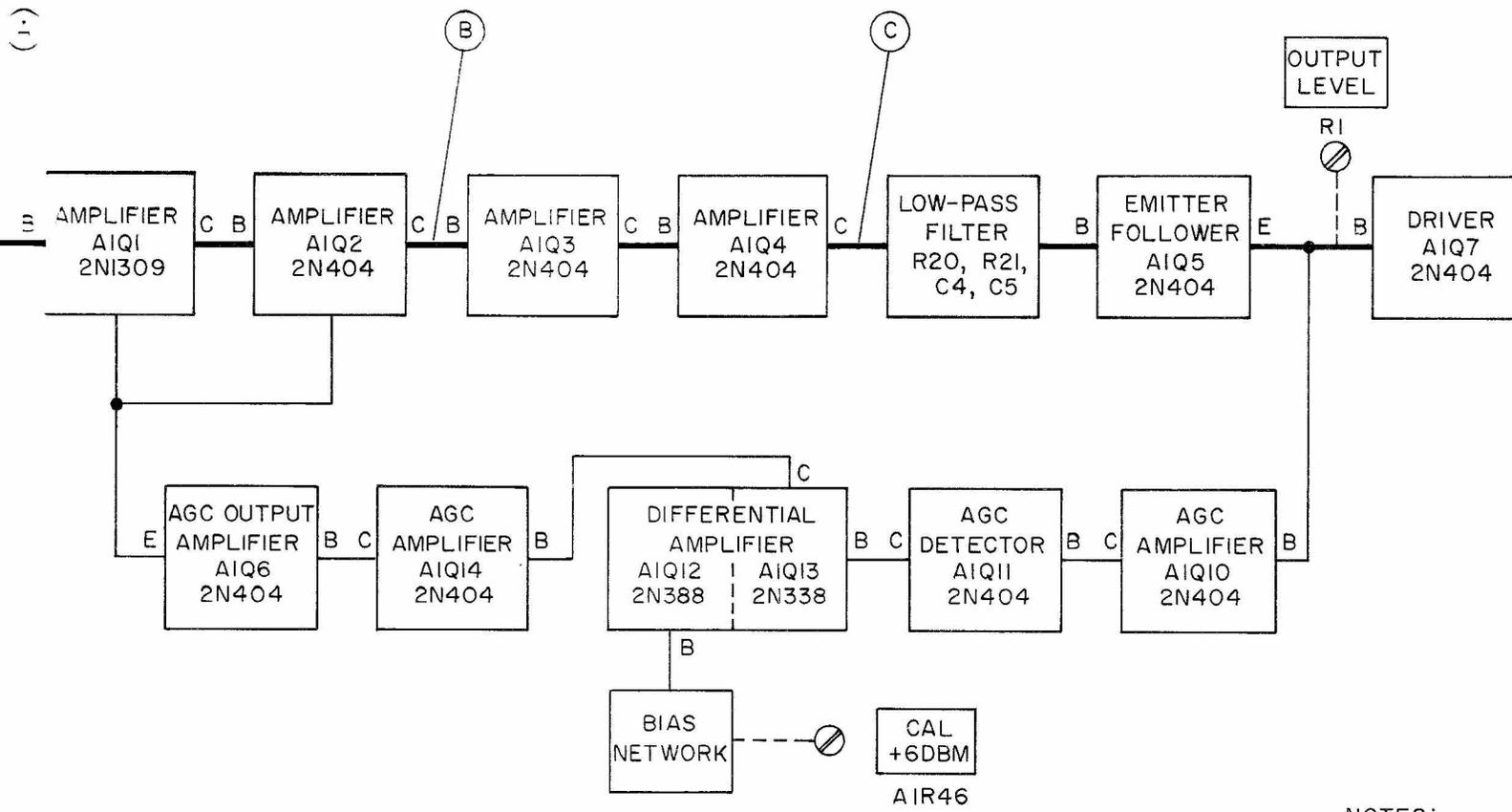
I  $.5V/CM$   
5 MS



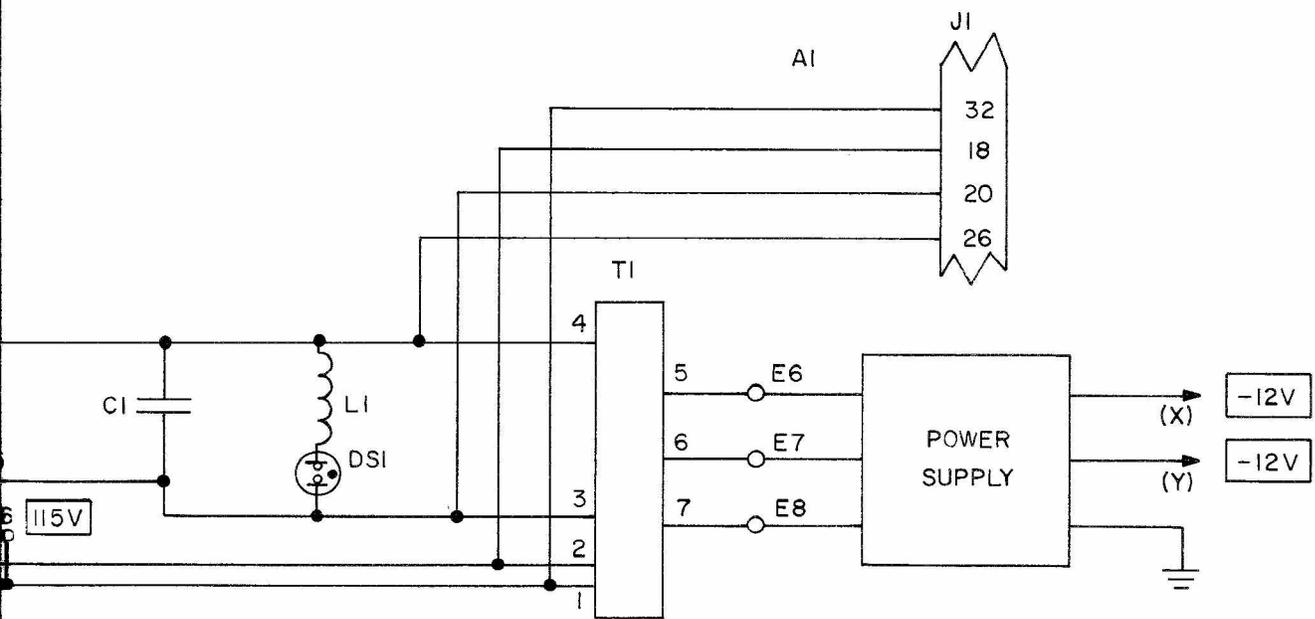
NOTES:

1. HEAVY LINES INDICATE MAIN SIGNAL PATH. LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.
2. LETTERS AND NUMBERS OUTSIDE TRANSISTOR BLOCKS INDICATE TRANSISTOR CONNECTIONS. NUMBERS ON TRANSFORMERS INDICATE TERMINAL NUMBERS.
3. ← DENOTES COMMON TIE POINT.
4. [RECTANGLE] DESIGNATES EQUIPMENT MARKING.
5. ROTARY SWITCHES ARE SHOWN IN EXTREME COUNTER-CLOCKWISE POSITION AND VIEWED FROM FRONT OR KNOB END.
6. FOR WAVEFORM ★ I A STEADY MARK SIGNAL WAS APPLIED FROM TEST SET TO KEYS. FOR ALL OTHER WAVEFORMS A 75 BAUD REVERSAL SIGNAL WAS APPLIED. SWITCHES WERE SET AS SHOWN.

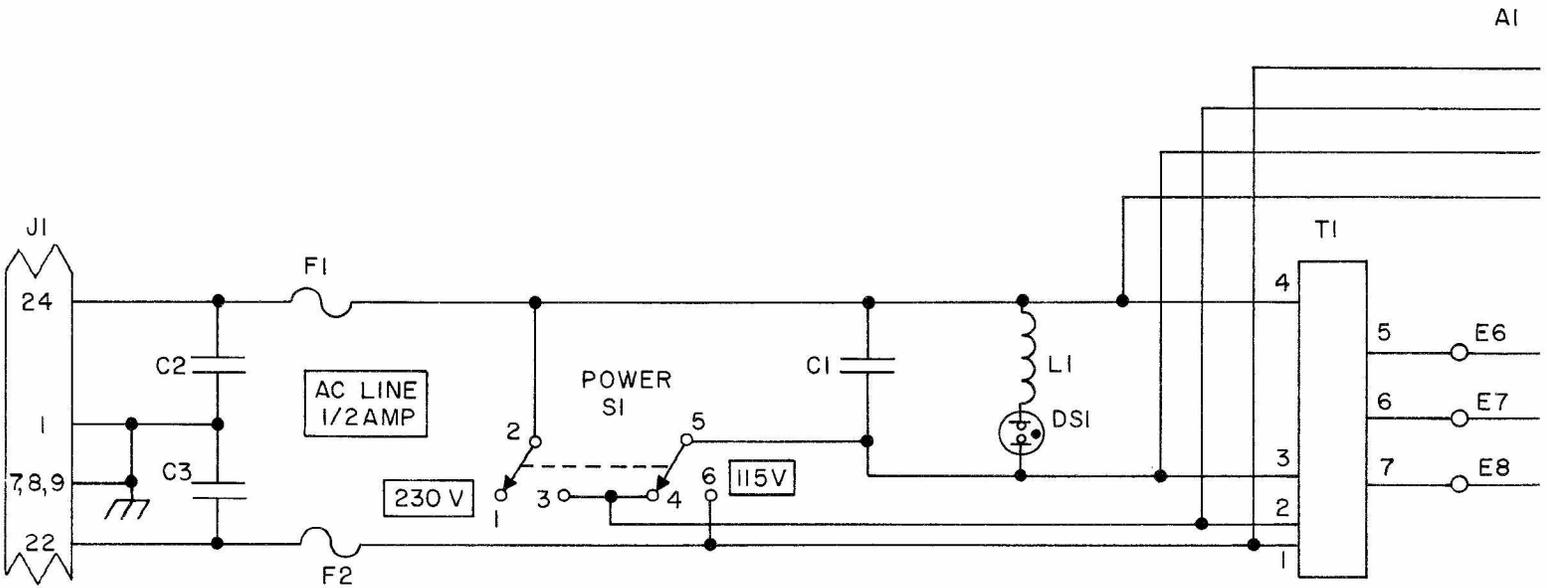
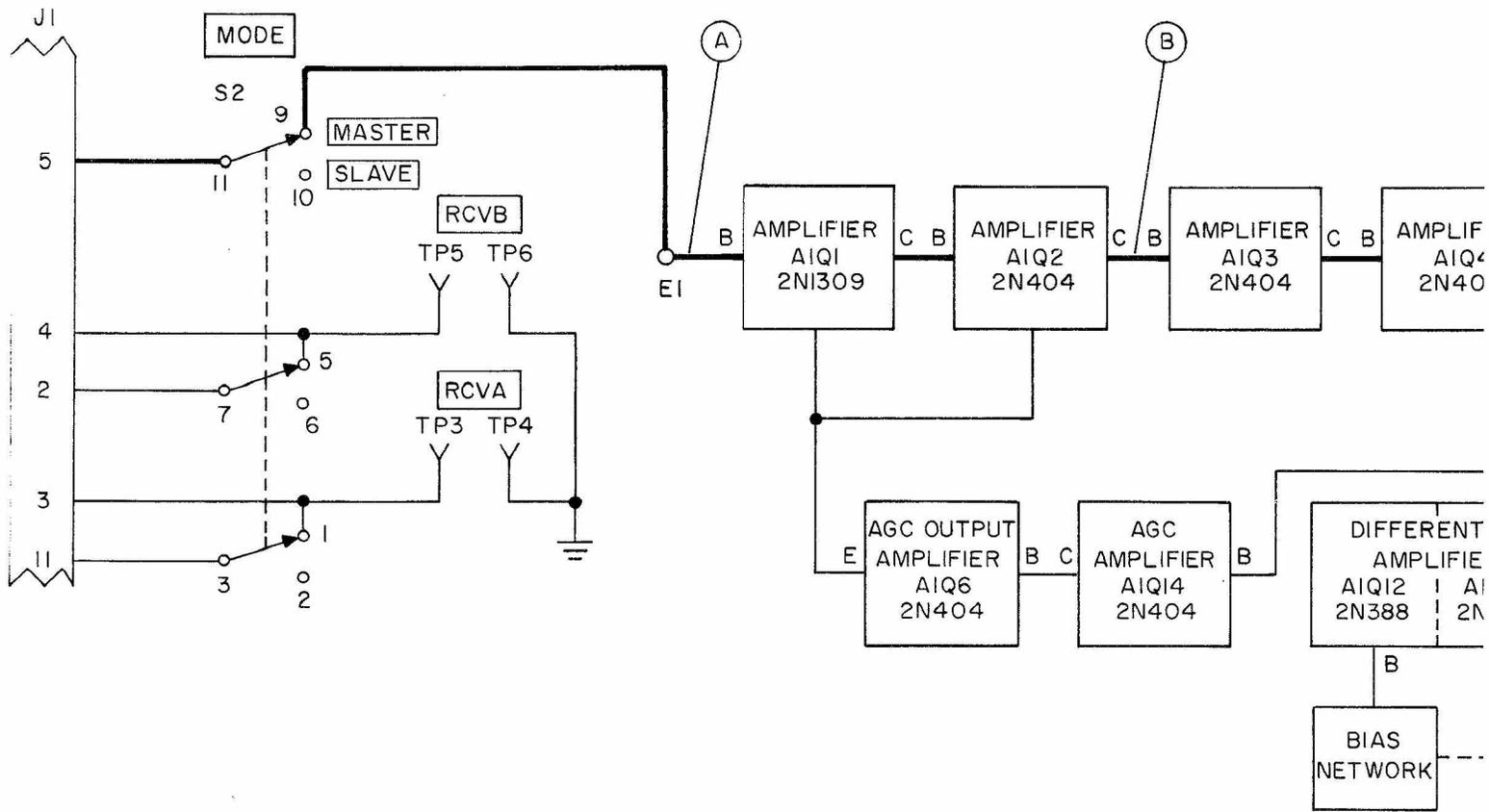
Figure 4-7. Control - Attenuator C-4702A/UCC-1(V) Servicing Block Diagram



- NOTES:
1. HEAVY LINE LIGHT LINE SIGNAL POINT
  2. LETTERS BLOCKS I NUMBERS TERMINAL
  3. ← DENOT
  4. [ ] DE
  5. ROTARY S CLOCKWIS KNOB END
  6. FOR WAVE APPLIED I OTHER W. WAS APPI



AN UCC-1A(V)  
TROUBLESHOOTING



ORIGINAL

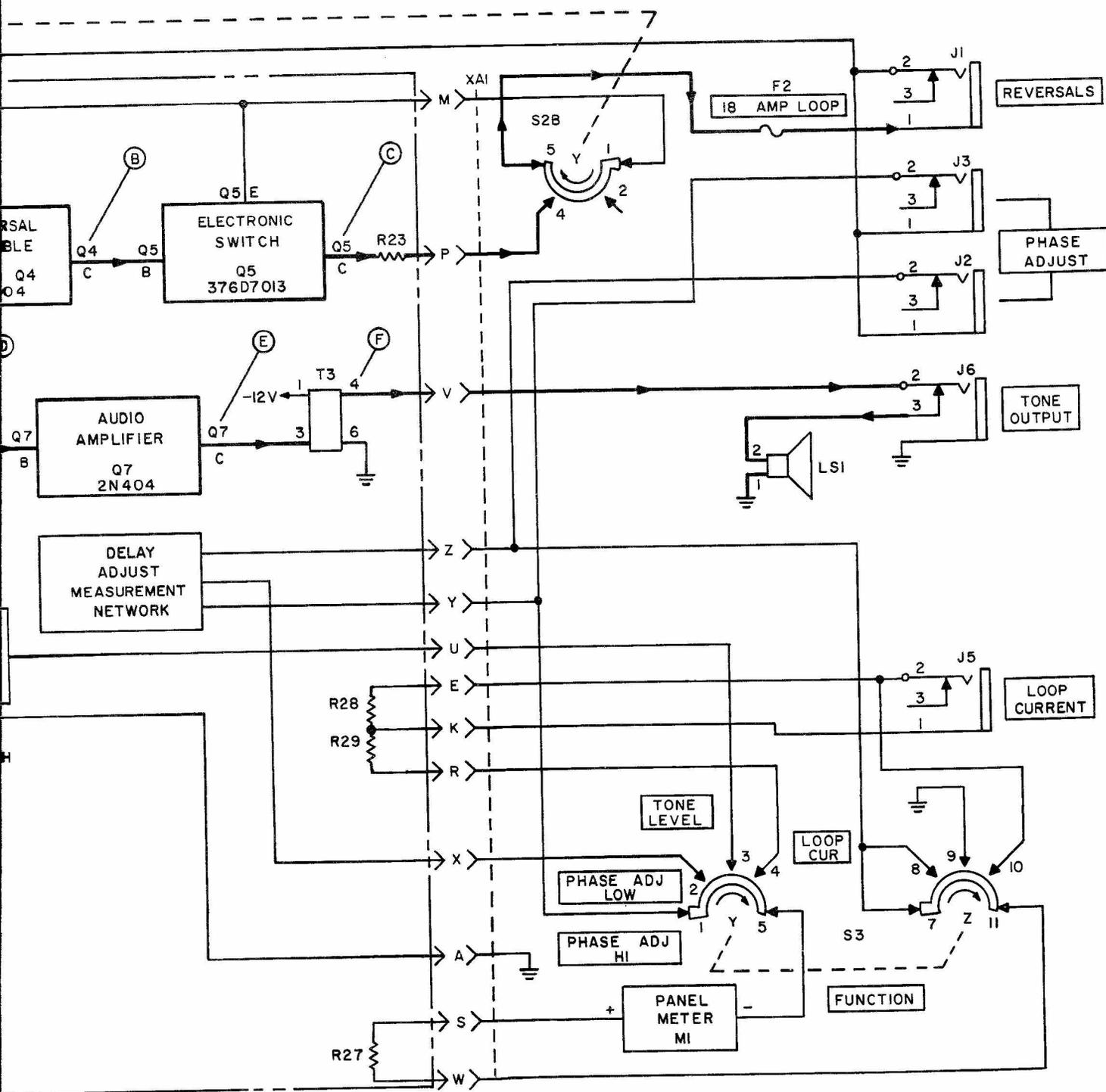
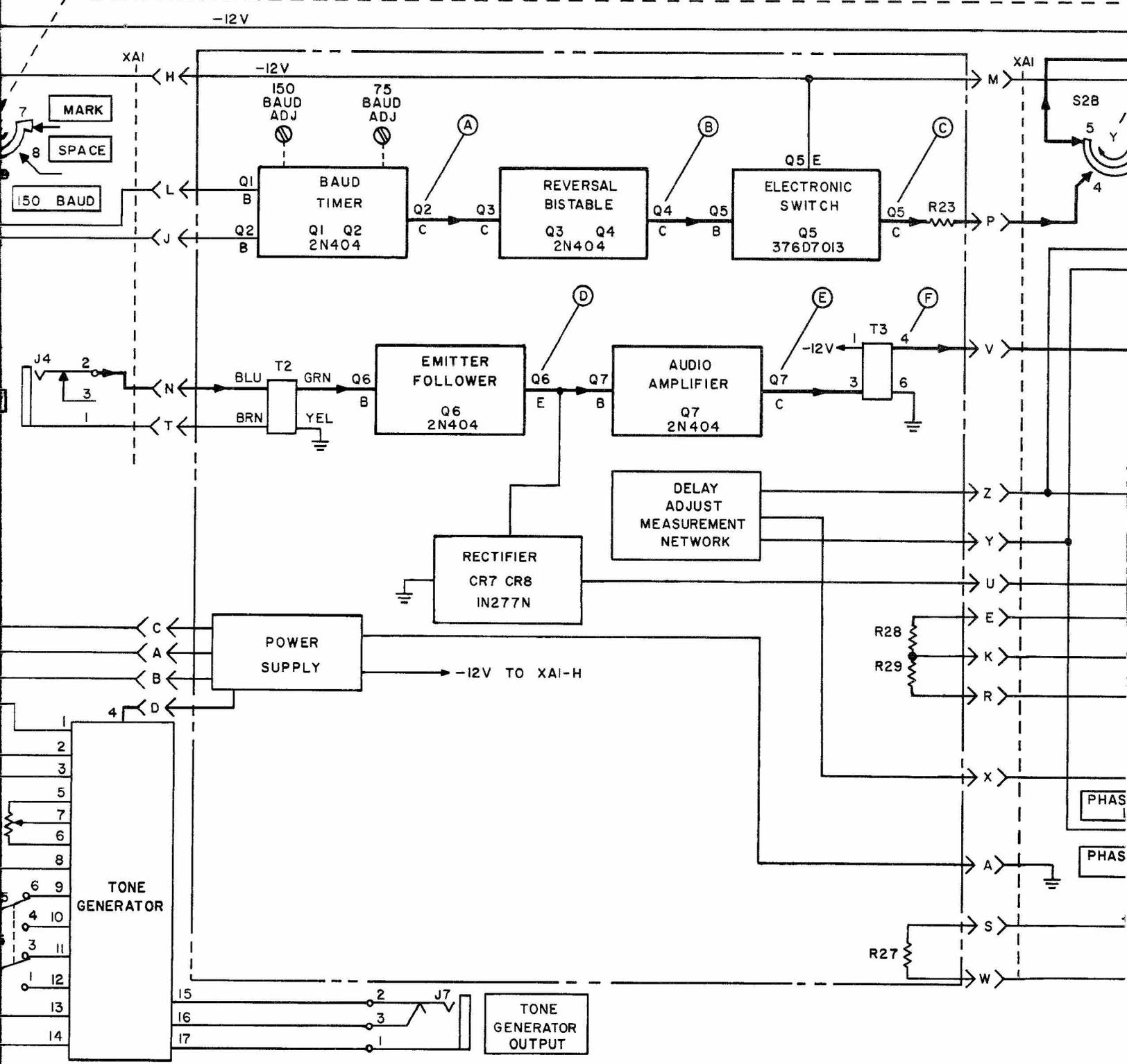
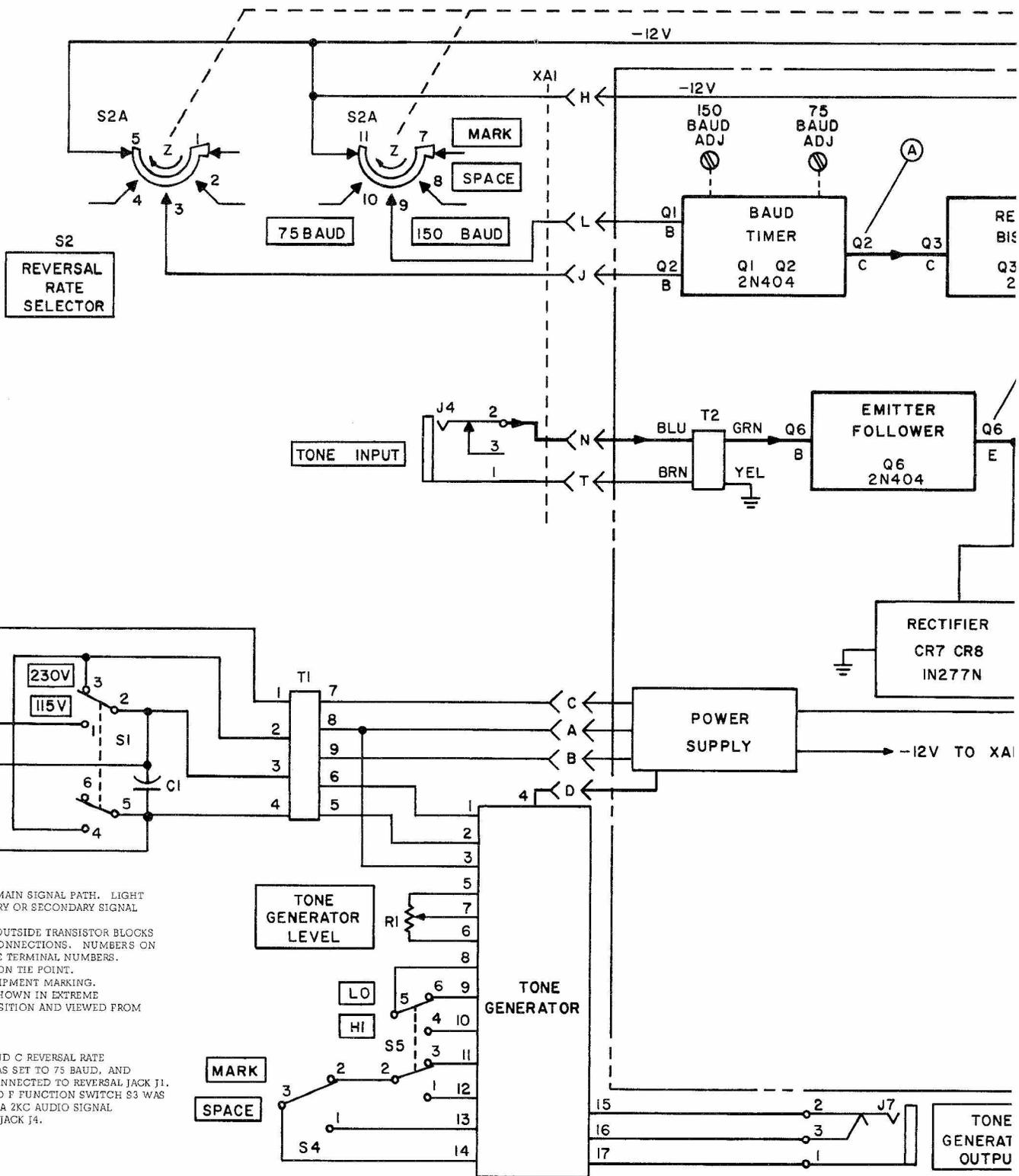


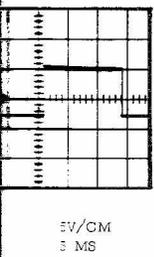
Figure 4-8. Test Set, Telegraph TS-1920A/UCC-1(V) Servicing Block Diagram



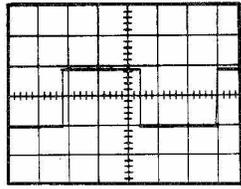


- NOTES:
1. HEAVY LINES INDICATE MAIN SIGNAL PATH. LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.
  2. LETTERS AND NUMBERS OUTSIDE TRANSISTOR BLOCKS INDICATE TRANSISTOR CONNECTIONS. NUMBERS ON TRANSFORMERS INDICATE TERMINAL NUMBERS.
  3. ← DENOTES COMMON TIE POINT.
  4. □ DESIGNATES EQUIPMENT MARKING.
  5. ROTARY SWITCHES ARE SHOWN IN EXTREME COUNTERCLOCKWISE POSITION AND VIEWED FROM FRONT OR KNOB END.
  6. FOR WAVEFORMS A, B, AND C REVERSAL RATE SELECTOR SWITCH S2 WAS SET TO 75 BAUD, AND A 20MA LOOP SUPPLY CONNECTED TO REVERSAL JACK J1.
  7. FOR WAVEFORMS D, E AND F FUNCTION SWITCH S3 WAS SET TO TONE LEVEL AND A 2KC AUDIO SIGNAL APPLIED TO TONE INPUT JACK J4.

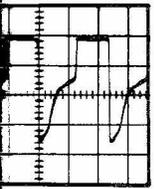
# AN/UCC-1A(V) TROUBLESHOOTING



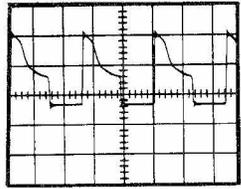
5V/CM  
5 MS



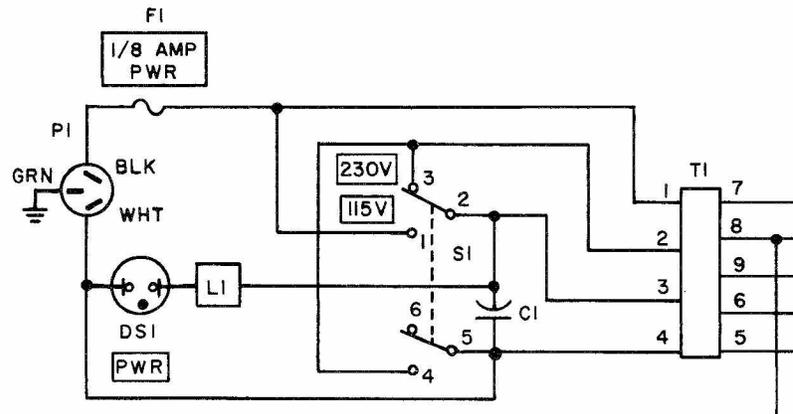
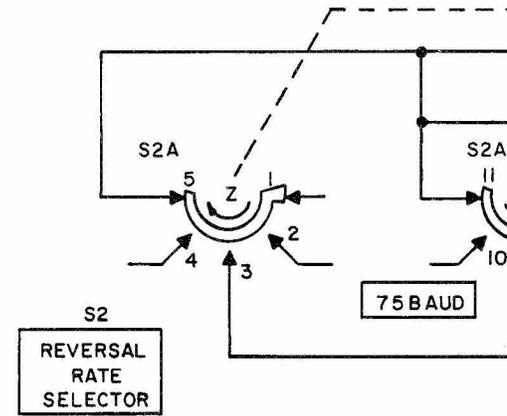
5V/CM  
5 MS



10V/CM  
200 μSEC

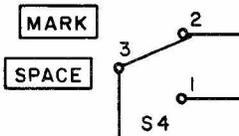


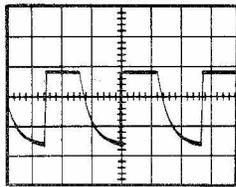
5V/CM  
200 μSEC



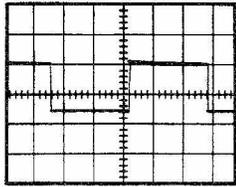
**NOTES:**

1. HEAVY LINES INDICATE MAIN SIGNAL PATH. LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.
2. LETTERS AND NUMBERS OUTSIDE TRANSISTOR BLOCKS INDICATE TRANSISTOR CONNECTIONS. NUMBERS ON TRANSFORMERS INDICATE TERMINAL NUMBERS.
3. ← DENOTES COMMON TIE POINT.
4. ▭ DESIGNATES EQUIPMENT MARKING.
5. ROTARY SWITCHES ARE SHOWN IN EXTREME COUNTERCLOCKWISE POSITION AND VIEWED FROM FRONT OR KNOB END.
6. FOR WAVEFORMS A, B, AND C REVERSAL RATE SELECTOR SWITCH S2 WAS SET TO 75 BAUD, AND A 20MA LOOP SUPPLY CONNECTED TO REVERSAL JACK J1.
7. FOR WAVEFORMS D E AND F FUNCTION SWITCH S3 WAS SET TO TONE LEVEL AND A 2KC AUDIO SIGNAL APPLIED TO TONE INPUT JACK J4.

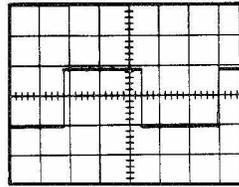




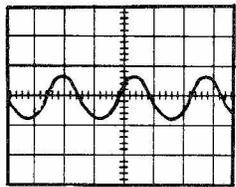
(A) 5 V/CM  
5 MS



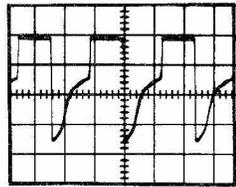
(B) 5V/CM  
5 MS



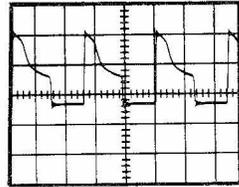
(C) 5V/CM  
5 MS



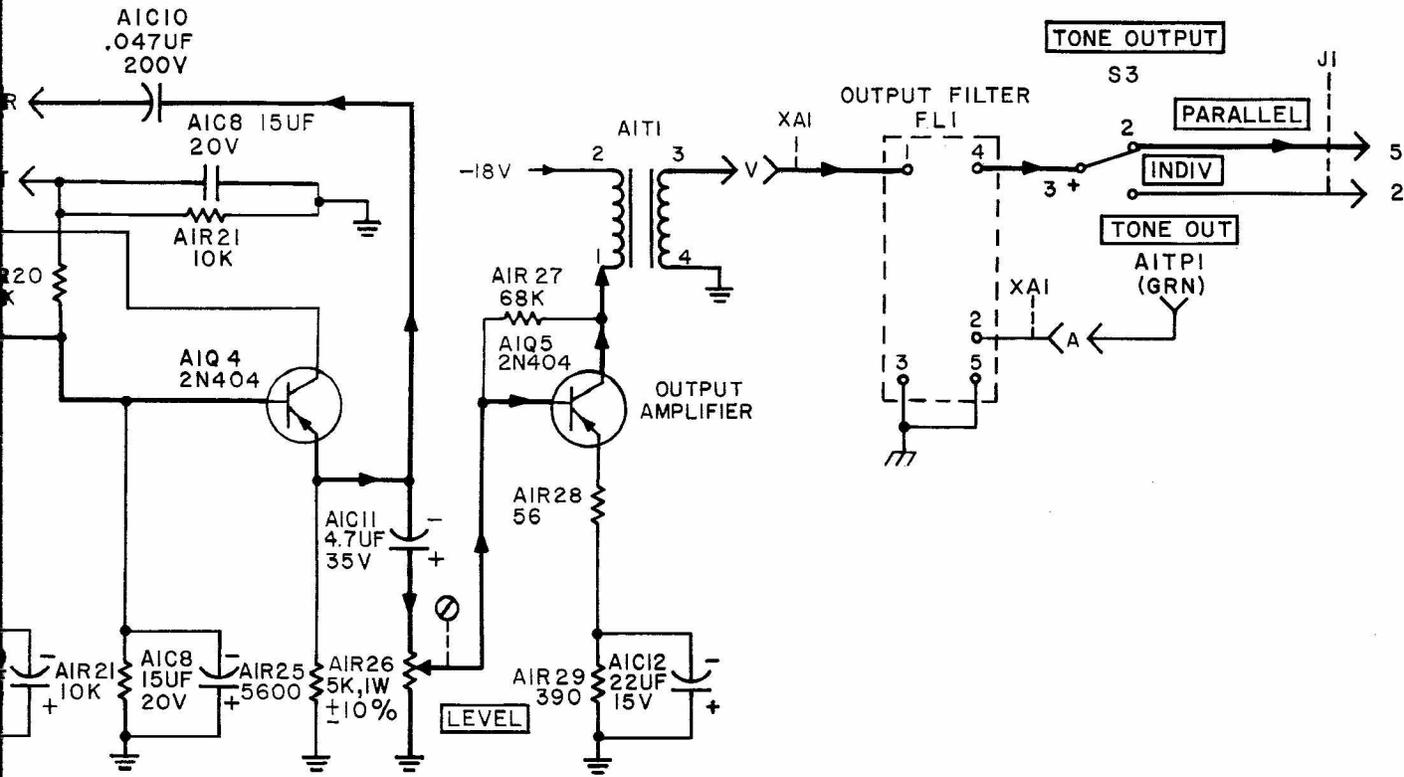
(D) 1V/CM  
200 μSEC



(E) 10V/CM  
200 μSEC



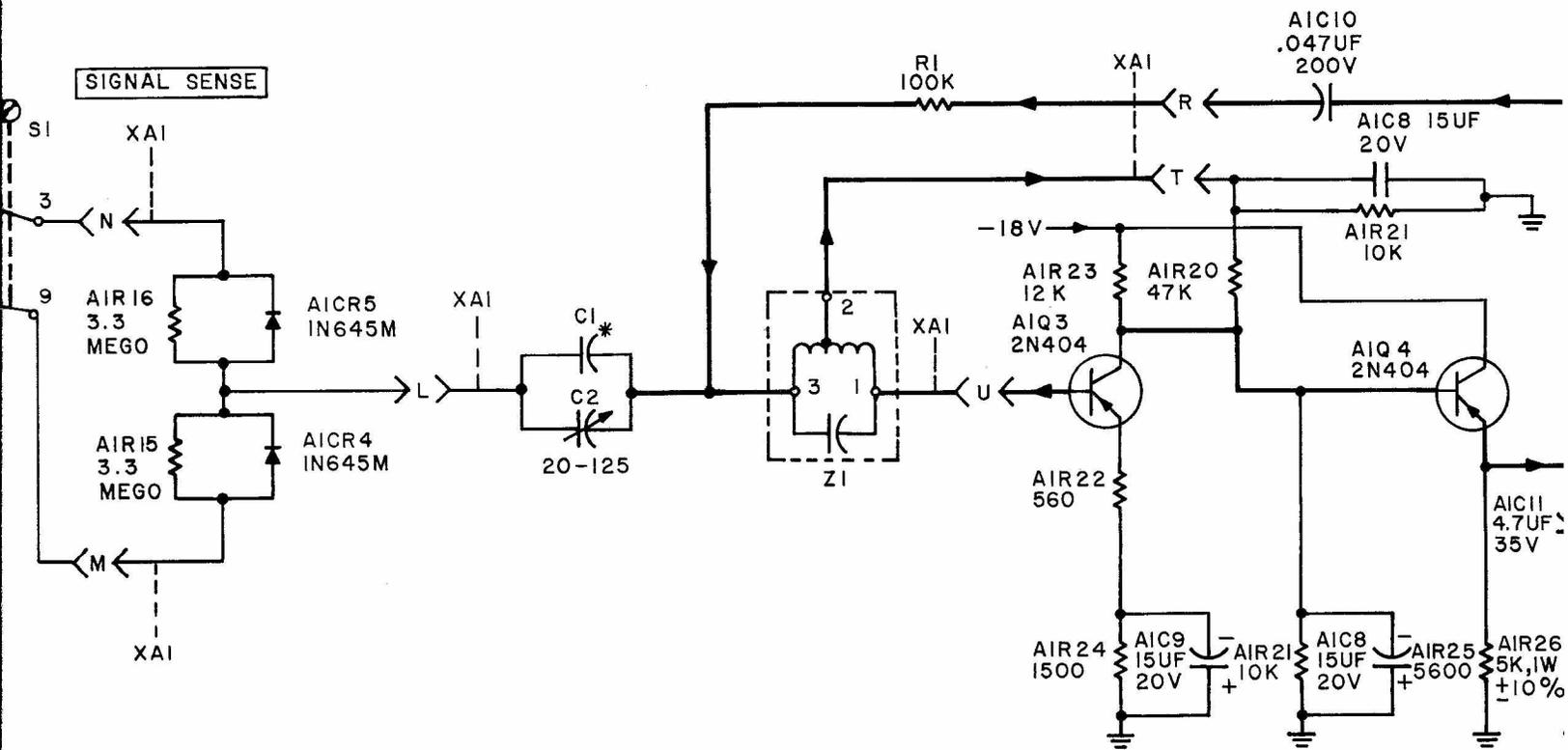
(F) 5V/CM  
200 μSEC

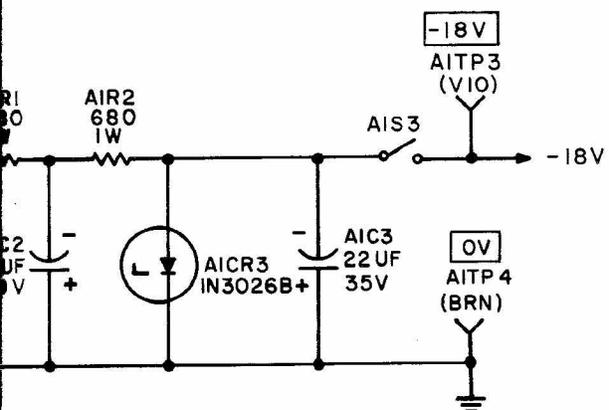
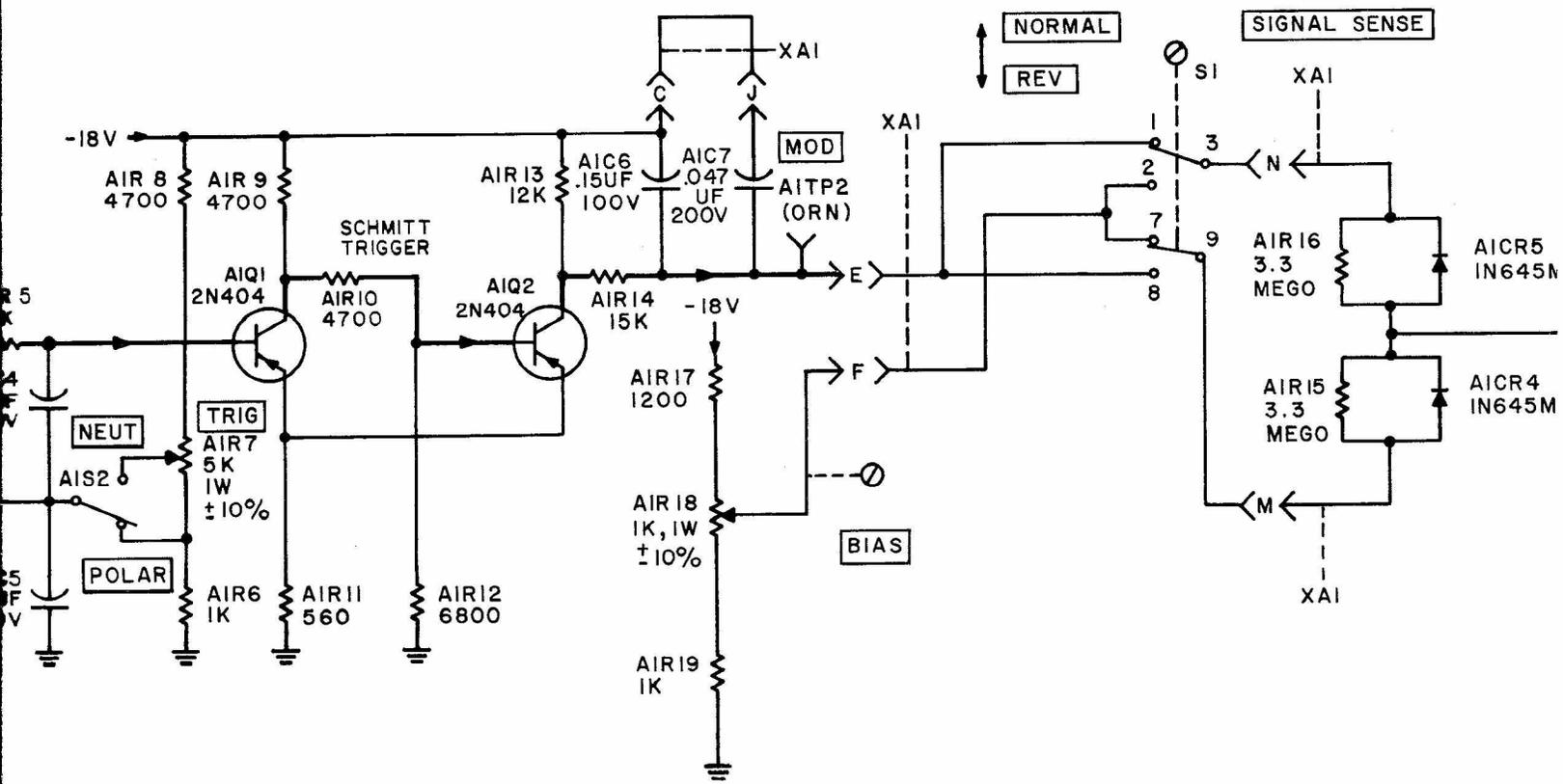


NOTES:

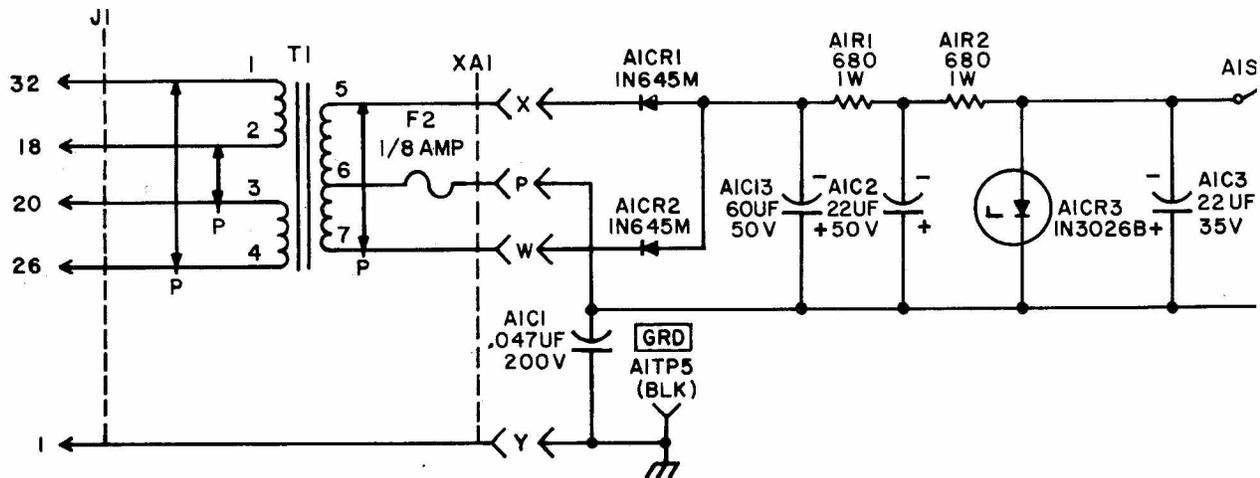
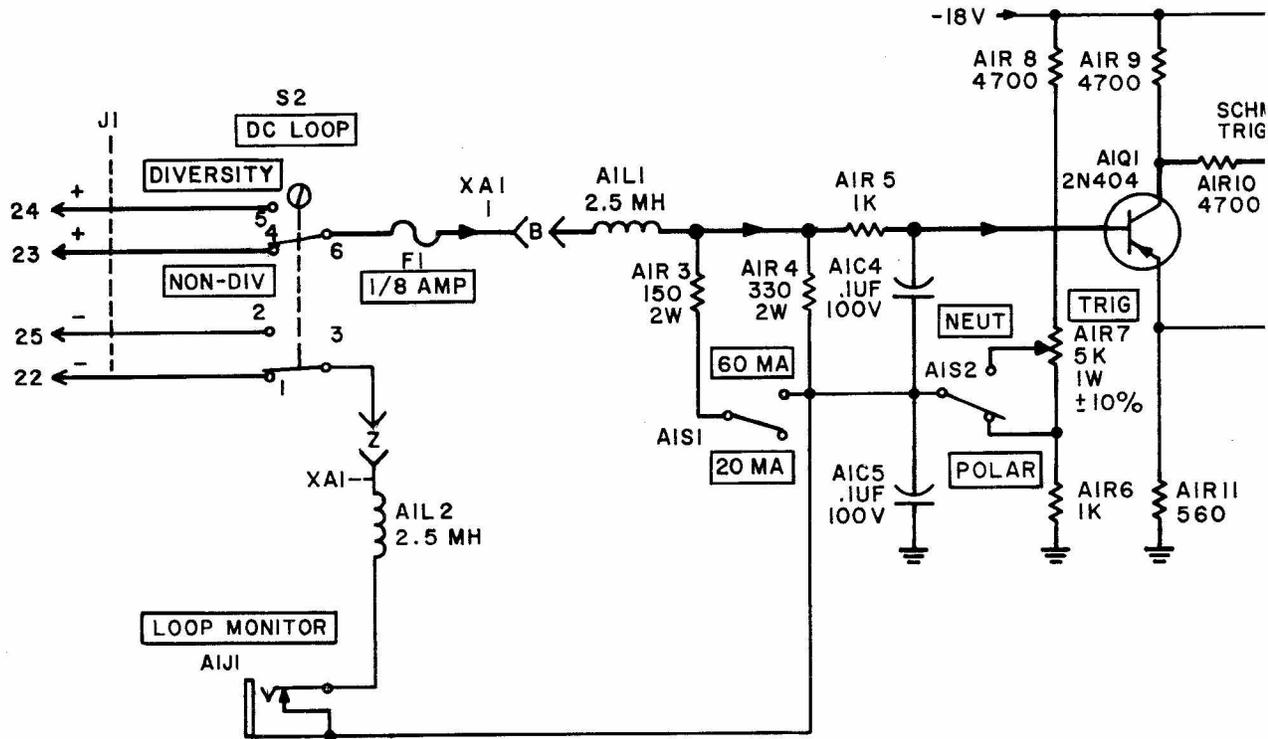
1. UNLESS OTHERWISE SPECIFIED ALL RESISTANCES ARE IN OHMS, 1/2 WATT, ±5% TOL., CAPACITANCES ARE IN PICO FARADS.
2.      DESIGNATES EQUIPMENT MARKING.
3. REFERENCE DESIGNATIONS ARE ABBREVIATED PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY NUMBER OR BOTH.
4. \* DESIGNATES FACTORY SELECTED COMPONENT.
5.  $\leftarrow P \rightarrow$  DESIGNATES TWISTED PAIR.
6. ALL TRANSISTORS ARE 2N404.
7. HEAVY LINES INDICATE MAIN SIGNAL PATH. LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.
8. NUMBERS ON TRANSFORMERS INDICATE TERMINAL NUMBERS.
9.  $\leftarrow$  DENOTES COMMON TIE POINT.

Figure 5-6. Keyer, Frequency Shift  
KY-490A(P)/UCC-1(V)  
Schematic Diagram





AN/UCC-1A(V)  
 MAINTENANCE



ORIGINAL

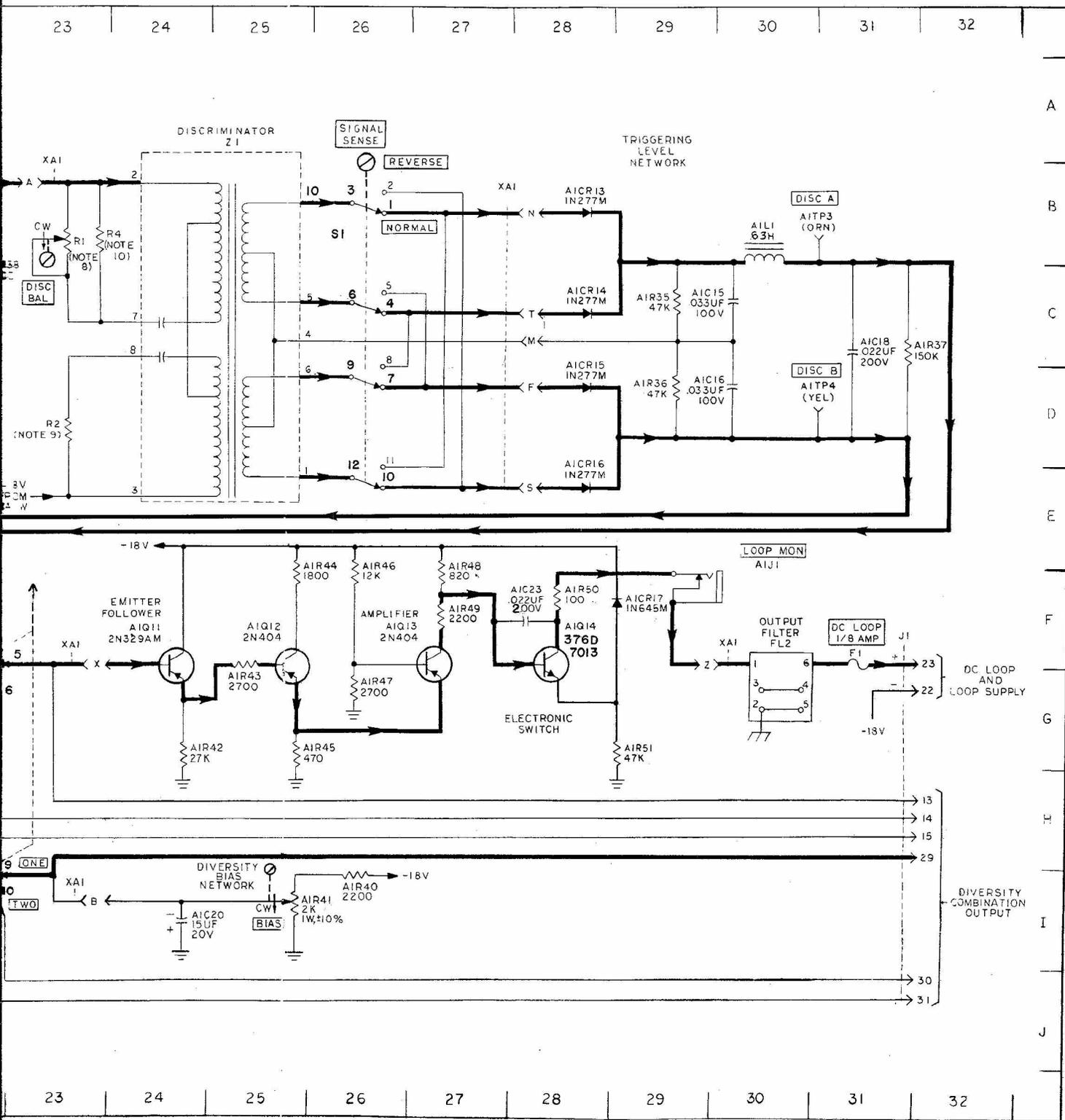
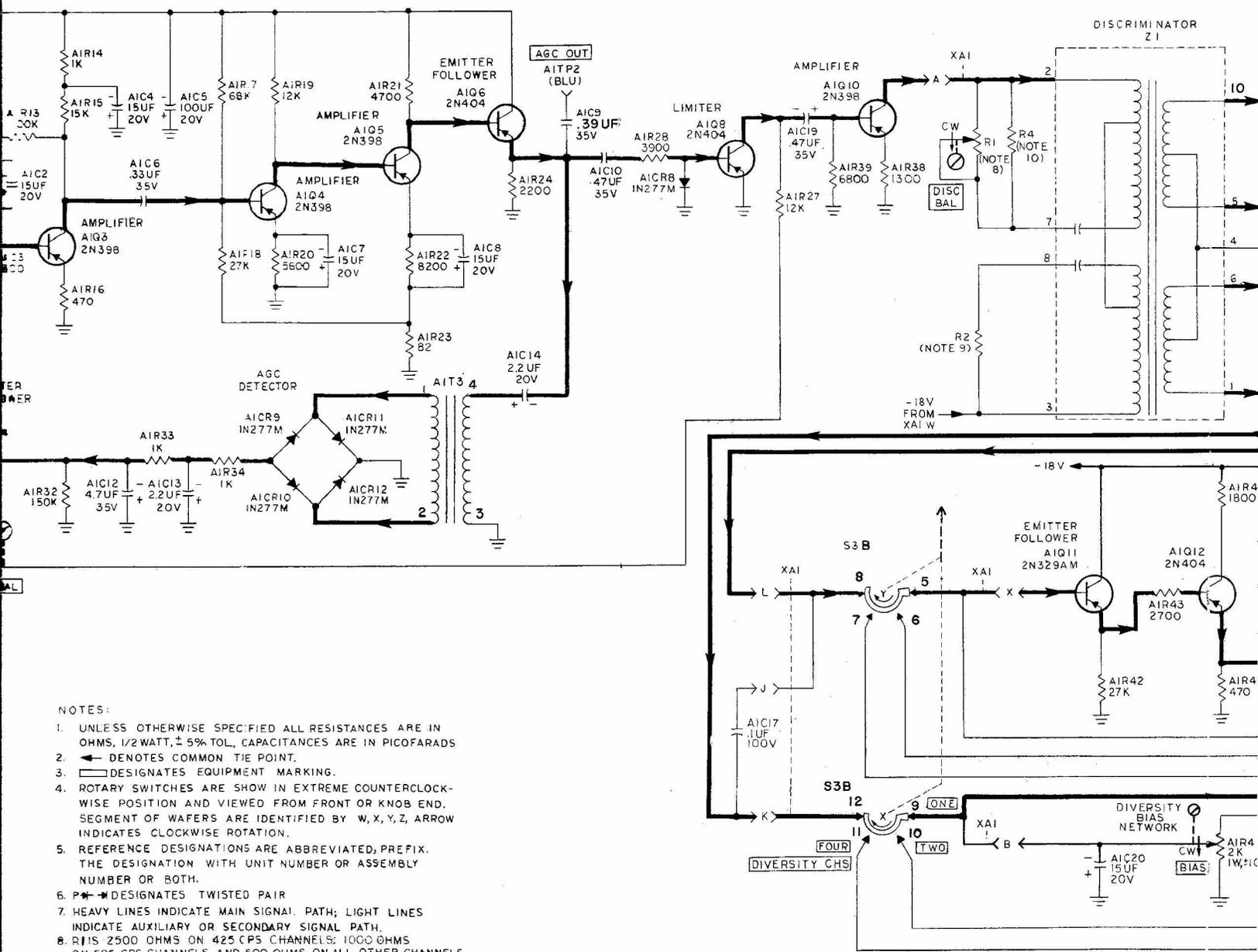
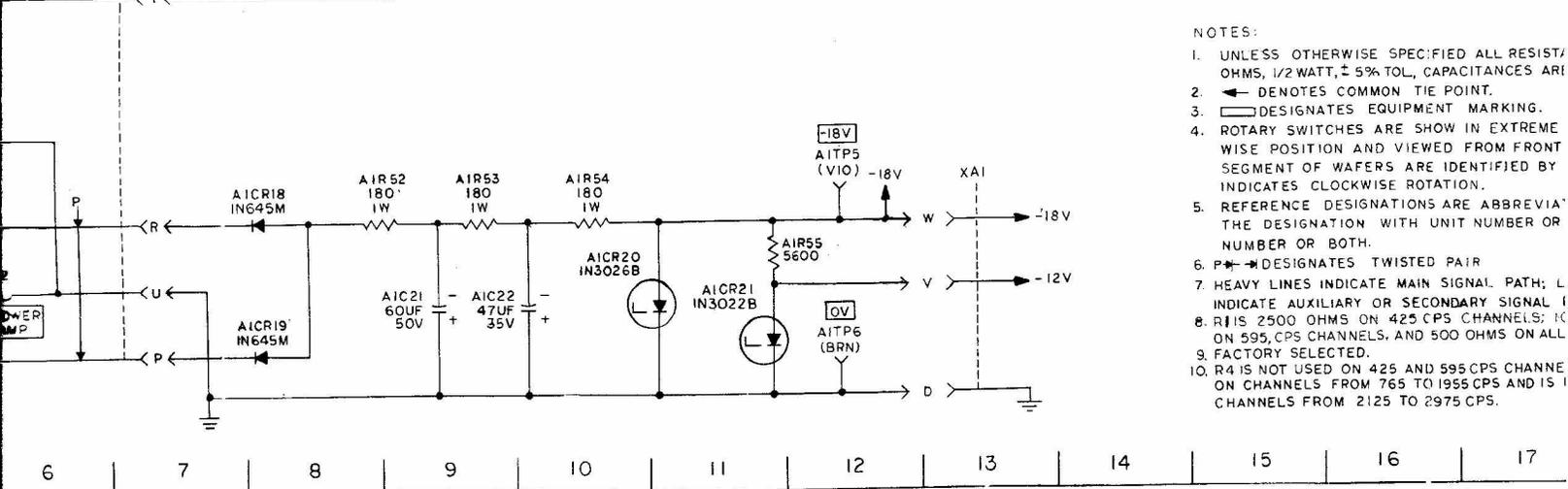
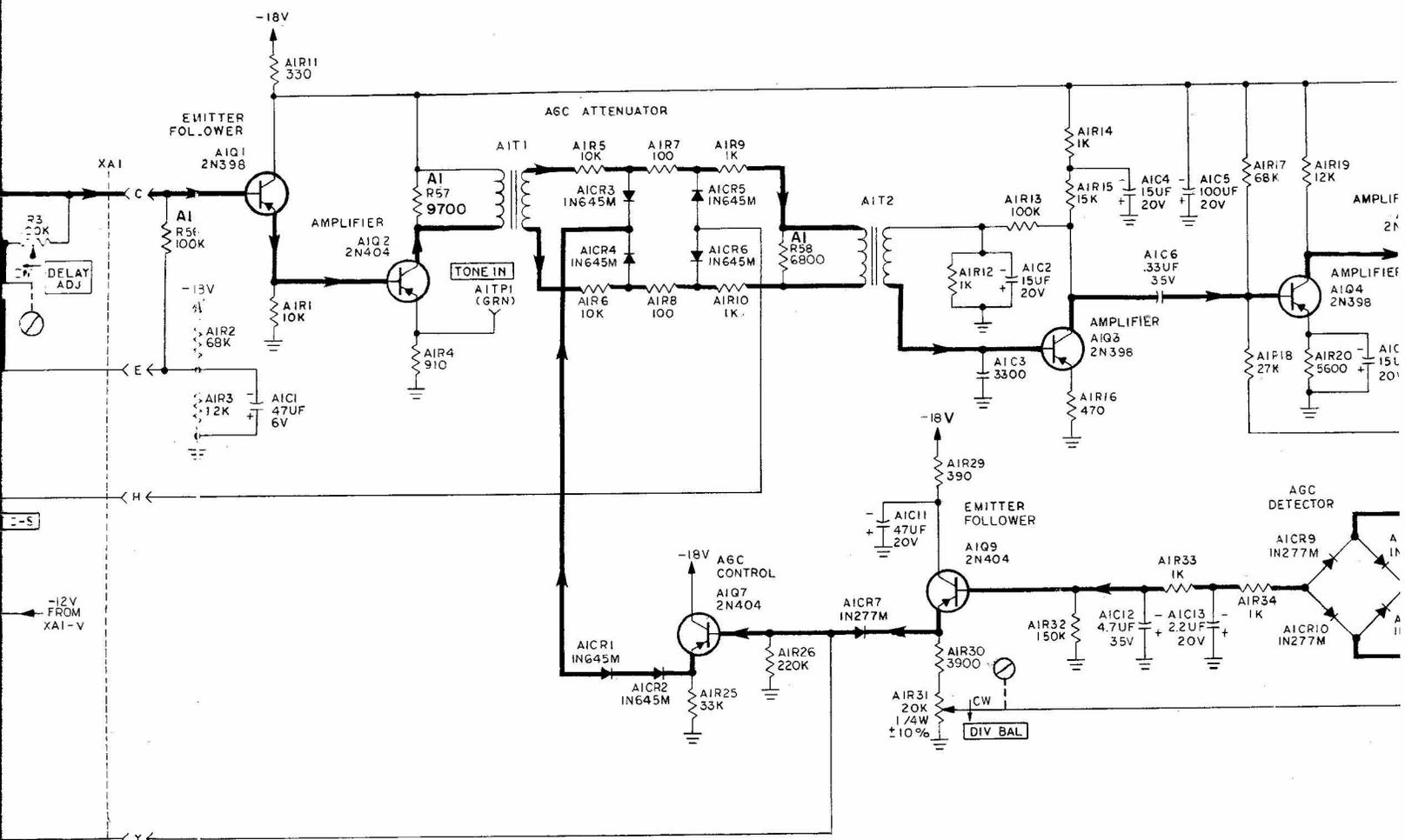


Figure 5-7. Converter, Frequency Shift CV-1522A(P)/UCC-1(V) Schematic Diagram

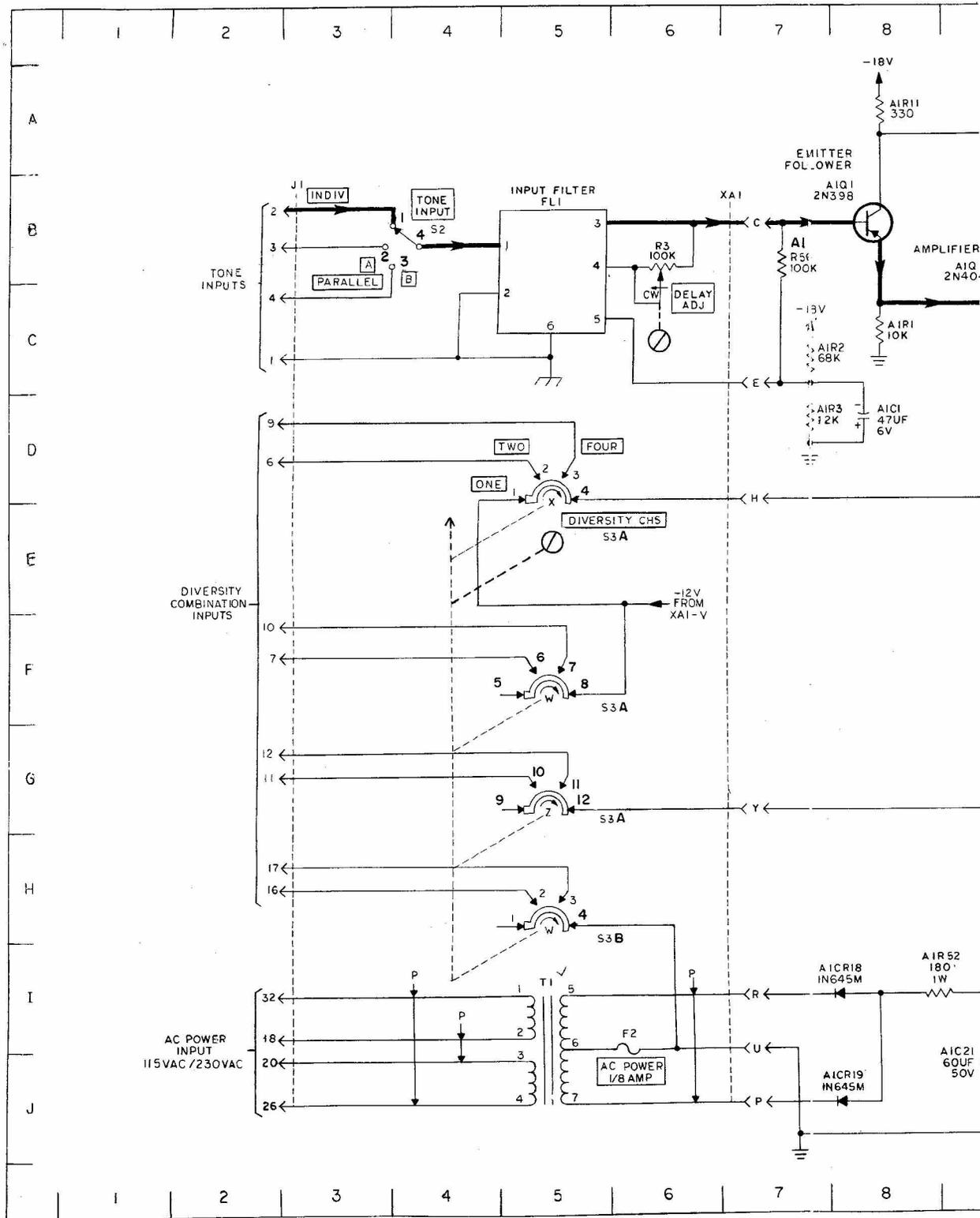


- NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL RESISTANCES ARE IN OHMS, 1/2 WATT, ±5% TOL., CAPACITANCES ARE IN PICO FARADS
  2. ← DENOTES COMMON TIE POINT.
  3. □ DESIGNATES EQUIPMENT MARKING.
  4. ROTARY SWITCHES ARE SHOWN IN EXTREME COUNTERCLOCKWISE POSITION AND VIEWED FROM FRONT OR KNOB END. SEGMENT OF WAFERS ARE IDENTIFIED BY W, X, Y, Z, ARROW INDICATES CLOCKWISE ROTATION.
  5. REFERENCE DESIGNATIONS ARE ABBREVIATED, PREFIX. THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY NUMBER OR BOTH.
  6. P\* → DESIGNATES TWISTED PAIR
  7. HEAVY LINES INDICATE MAIN SIGNAL PATH; LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATH.
  8. R1 IS 2500 OHMS ON 425 CPS CHANNELS; 1000 OHMS ON 595 CPS CHANNELS, AND 500 OHMS ON ALL OTHER CHANNELS.
  9. FACTORY SELECTED.
  10. R4 IS NOT USED ON 425 AND 595 CPS CHANNELS, IS 270 OHMS ON CHANNELS FROM 765 TO 1955 CPS AND IS 180 OHMS ON CHANNELS FROM 2125 TO 2975 CPS.



- NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE 1/2 WATT, ± 5% TOL., CAPACITANCES ARE ± 5% TOL.
  2. ← DENOTES COMMON TIE POINT.
  3. □ DENOTES EQUIPMENT MARKING.
  4. ROTARY SWITCHES ARE SHOWN IN EXTREME POSITION AND VIEWED FROM FRONT SEGMENT OF WAFERS ARE IDENTIFIED BY INDICATED CLOCKWISE ROTATION.
  5. REFERENCE DESIGNATIONS ARE ABBREVIATED THE DESIGNATION WITH UNIT NUMBER OR NUMBER OR BOTH.
  6. P → → DESIGNATES TWISTED PAIR
  7. HEAVY LINES INDICATE MAIN SIGNAL PATH; L INDICATE AUXILIARY OR SECONDARY SIGNAL
  8. R IS 2500 OHMS ON 425 CPS CHANNELS; K ON 595 CPS CHANNELS, AND 500 OHMS ON ALL OTHER CHANNELS.
  9. FACTORY SELECTED.
  10. R4 IS NOT USED ON 425 AND 595 CPS CHANNELS FROM 765 TO 1955 CPS AND IS USED ON CHANNELS FROM 2125 TO 2975 CPS.

# AN/UCC-1A(V) MAINTENANCE



ORIGINAL

CONVERTER  
PART LOCATION INDEX

REF DESIG	LOC	REF DESIG	LOC	REF DESIG	LOC
A1C1	8D	J1-11	2G	A1R21	18B
A1C2	14C	J1-12	2G	A1R22	18C
A1C3	14D	J1-13	32H	A1R24	19C
A1C4	15B	J1-14	32H	A1R25	11F
A1C5	16B	J1-15	32H	A1R26	12F
A1C6	15C	J1-16	2H	A1R27	21C
A1C7	17D	J1-17	2H	A1R28	20B
A1C8	18D	J1-18	2I	A1R29	13D
A1C9	19B	J1-20	2J	A1R30	13F
A1C10	20C	J1-22	32G	A1R31	13F
A1C11	13E	J1-23	32F	A1R32	15F
A1C12	15F	J1-26	2J	A1R33	15E
A1C13	16F	J1-30	32J	A1R34	16E
A1C14	19E	J1-31	32J	A1R35	29C
A1C15	30C	J1-32	2I	A1R36	29D
A1C16	30D	A1J1	29F	A1R37	31C
A1C17	21H	A1L1	30B	A1R38	22C
A1C18	31C	A1Q1	8B	A1R39	22C
A1C19	22B	A1Q2	9C	A1R40	26H
A1C20	24I	A1Q3	14C	A1R41	25I
A1C21	9J	A1Q4	16C	A1R42	24G
A1C22	10J	A1Q5	18C	A1R43	25G
A1C23	28F	A1Q6	19B	A1R44	25F
A1CR1	11F	A1Q7	11F	A1R45	25G
A1CR2	11F	A1Q8	21B	A1R46	26F
A1CR3	11B	A1Q9	14E	A1R47	26G
A1CR4	11C	A1Q10	22B	A1R48	27F
A1CR5	11B	A1Q11	24G	A1R49	27F
A1CR6	11C	A1Q12	25G	A1R50	28F
A1CR7	13F	A1Q13	27G	A1R51	28G
A1CR8	20C	A1Q14	28G	A1R52	8J
A1CR9	17E	R1	23C	A1R53	9J
A1CR10	17F	R2	23E	A1R54	10J
A1CR11	17E	R3	6B	A1R55	11J
A1CR12	17F	R4	23C	A1R56	7C
A1CR13	28B	A1R1	8C	A1R57	9B
A1CR14	28C	A1R2	7C	A1R58	12C
A1CR15	28D	A1R3	7D	S1	26B,C,D
A1CR16	28E	A1R4	9C	S2	4B
A1CR17	40B	A1R5	11B	S3A (w)	5H
A1CR18	8I	A1R6	11C	S3A (x)	33E
A1CR19	8J	A1R7	11B	S3B (w)	5F
A1CR20	11J	A1R8	11C	S3B (x)	5D
A1CR21	11J	A1R9	12B	S3B (y)	22G
FL1	31F	A1R10	12C	S3B (z)	5G
FL1	5B	A1R11	8A	T1	5I
FL2	30G	A1R12	14C	A1T1	10B
J1-1	2C	A1R13	14B	A1T2	13B
J1-2	2B	A1R14	15B	A1T3	18E
J1-3	2B	A1R15	15B	A1TP1	10C
J1-4	2C	A1R16	15D	A1TP2	19B
J1-6	2D	A1R17	16B	A1TP3	30B
J1-7	2F	A1R18	16C	A1TP4	30D
J1-9	2D	A1R19	17B	A1TP5	12I
J1-10	2F	A1R20	17C	A1TP6	12J
				Z1	25B,C,D



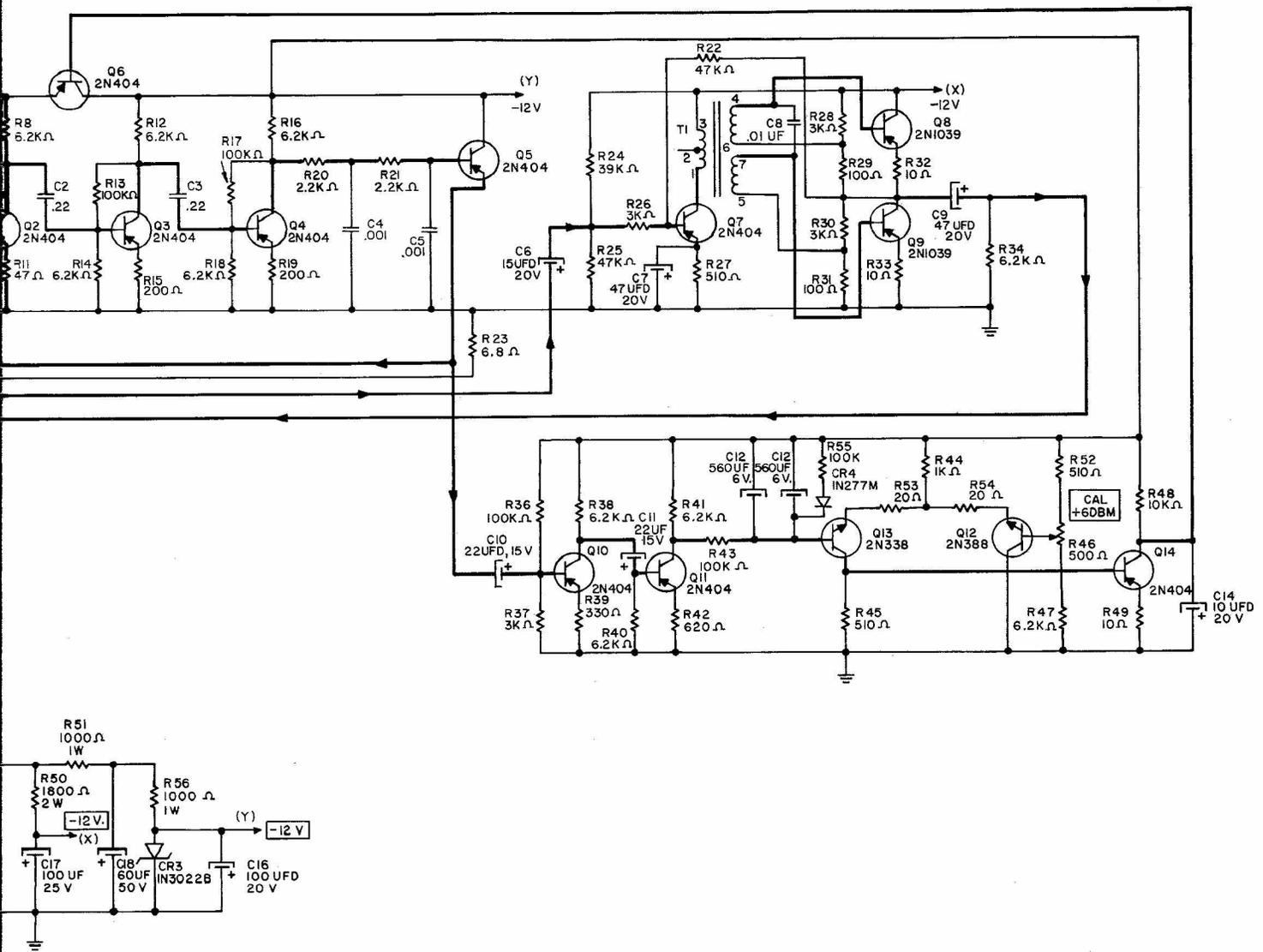
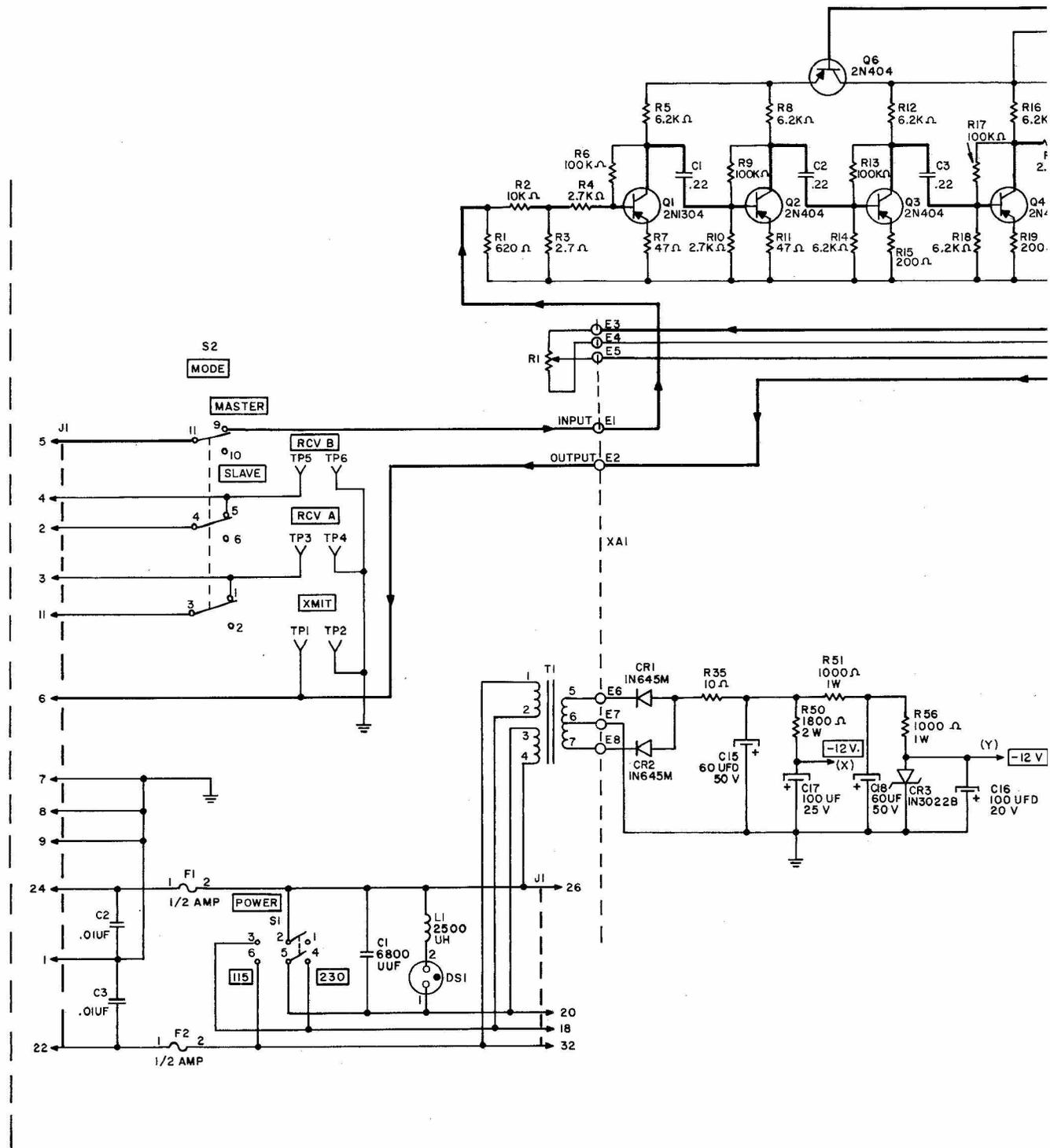


Figure 5-8. Control-Attenuator C-4702A/  
UCC-1(V) Schematic Diagram

AN/UCC-1A(V)  
MAINTENANCE



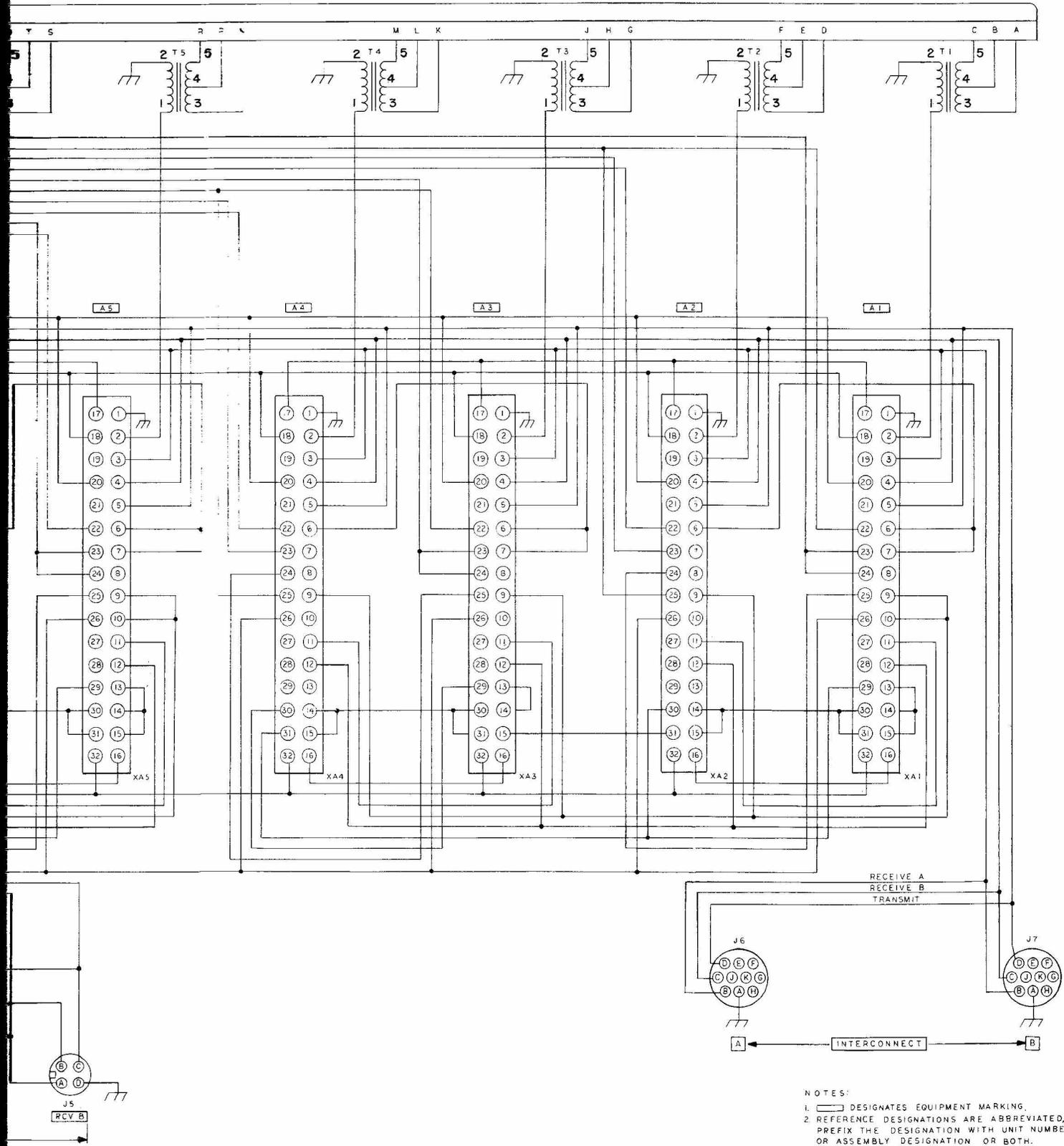
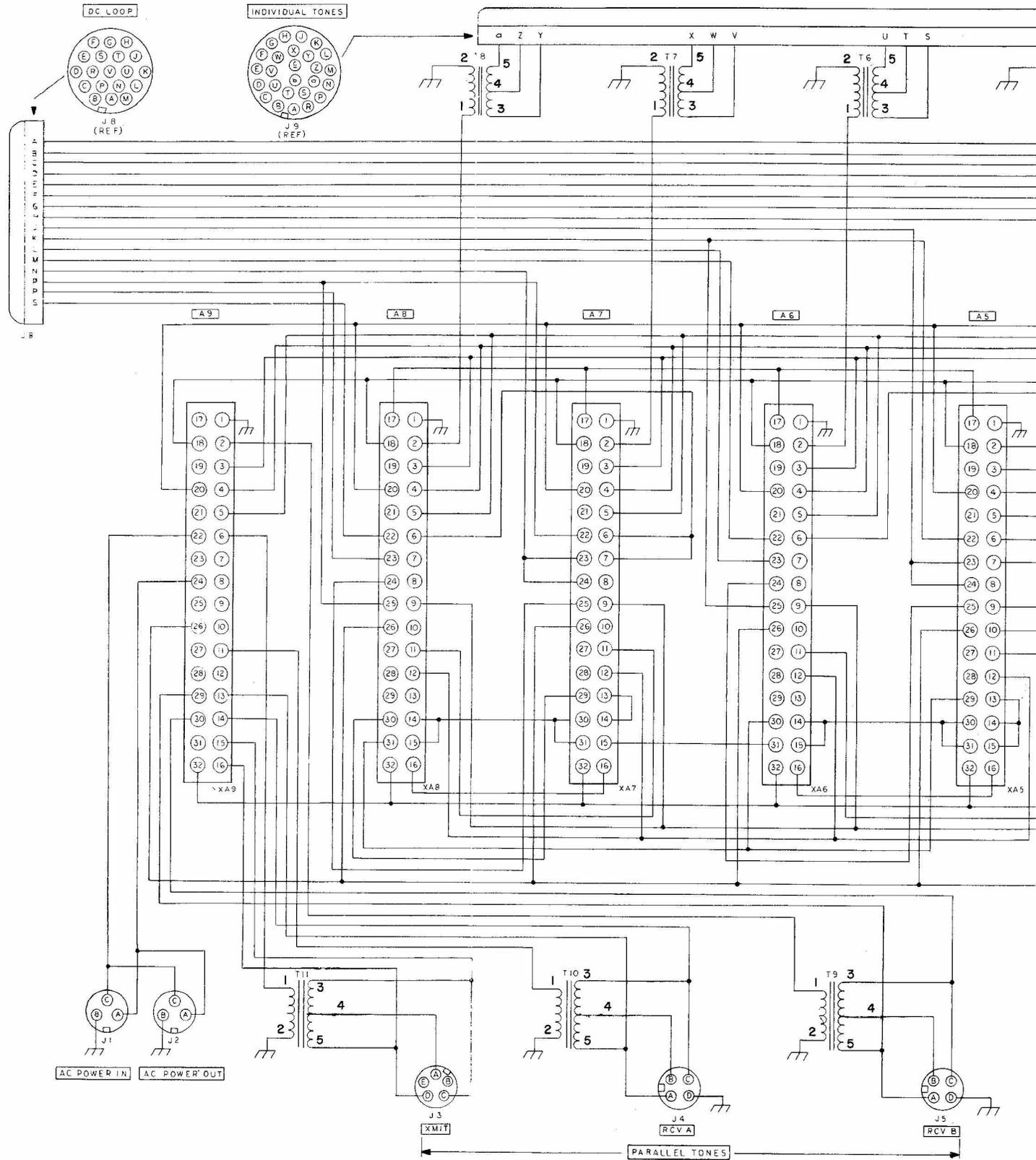
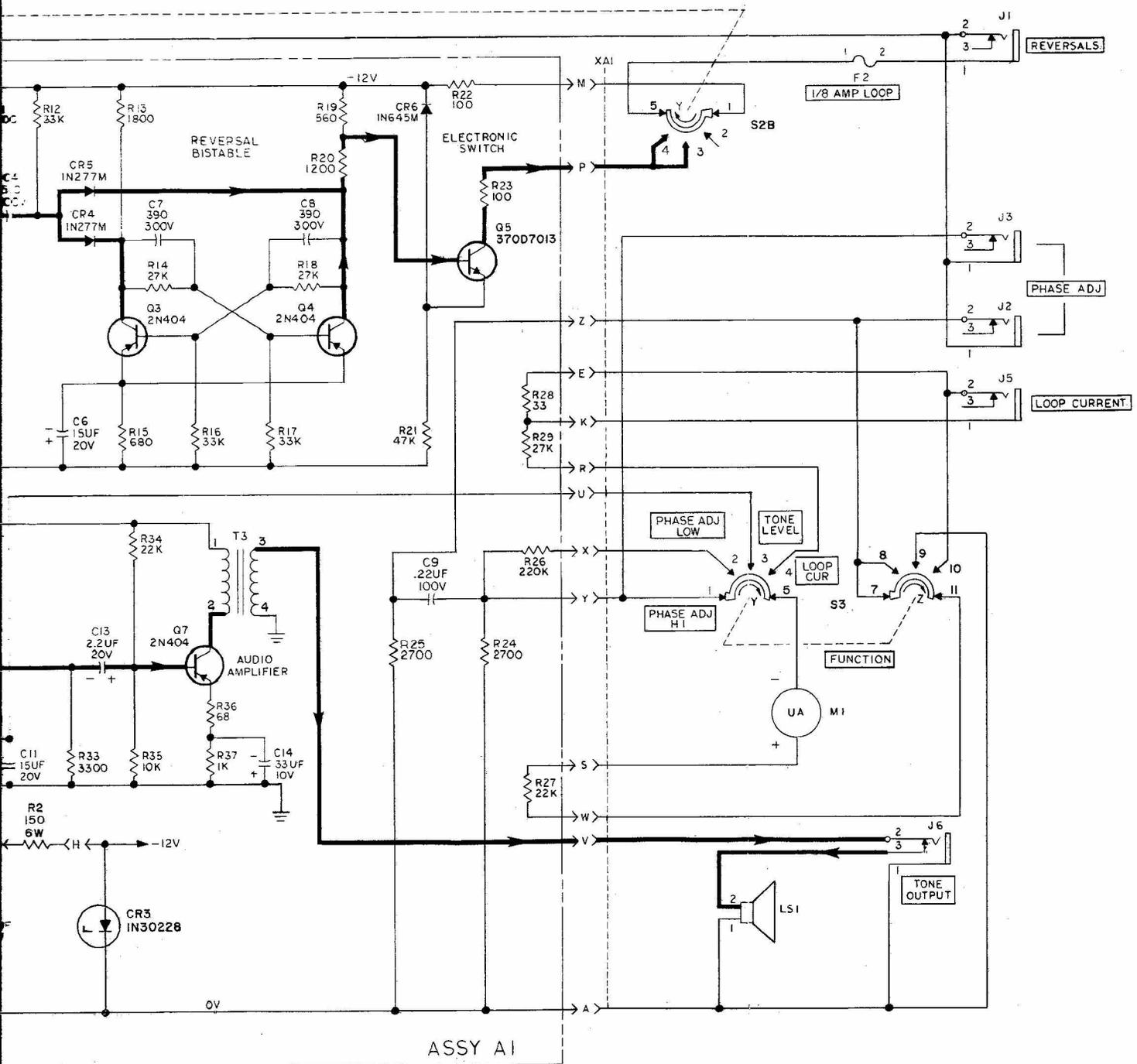


Figure 5-9. Cabinet, Electrical Equipment CY-3956/UCC-1(V), Schematic Diagram

# AN/UCC-1A(V) MAINTENANCE



ORIGINAL



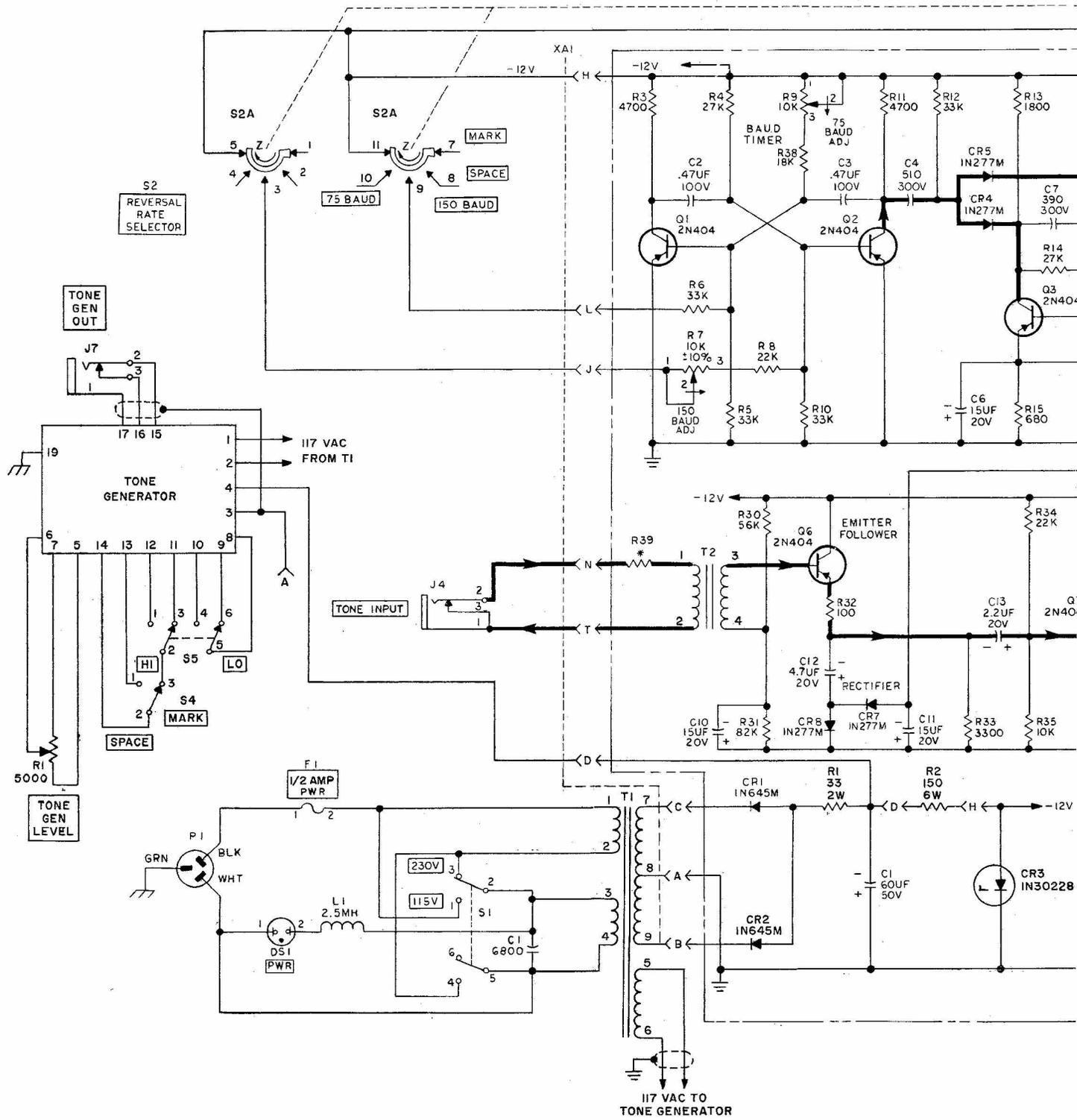
NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL RESISTANCES ARE IN OHMS, 1/2 WATT, ±5% TOL., CAPACITANCES ARE IN PICO FARADS.
2. ROTARY SWITCHES ARE SHOWN IN EXTREME COUNTER-CLOCKWISE POSITION, ARE VIEWED FROM FRONT OR KNOB END. SECTION A IS WAFER CLOSEST TO KNOB END. ARROW INDICATES CLOCKWISE ROTATION

3. □ DESIGNATES EQUIPMENT MARKING.
4. \* DESIGNATES FACTORY SELECTED COMPONENT.
5. ○ DENOTES COMMON TIE POINT OR VOLTAGE BUS.
6. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY NUMBER OR BOTH.
7. HEAVY LINES INDICATE MAIN SIGNAL PATHS, LIGHT LINES INDICATE AUXILIARY OR SECONDARY SIGNAL PATHS.

Figure 5-10. Test Set, Telegraph TS-1920A/UCC-1(V) Schematic Diagram

# AN UCC-1A(V) MAINTENANCE



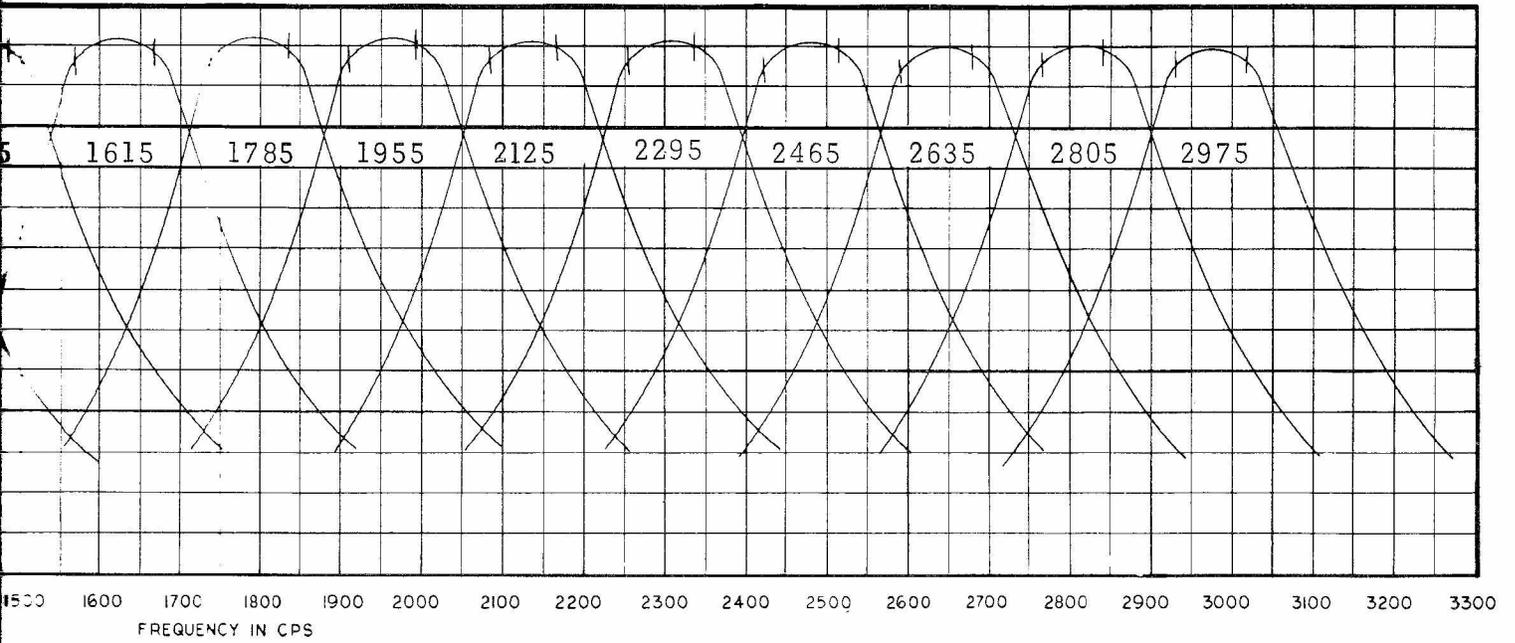


Figure 5-13. Narrow Band Keyer Filter Curves

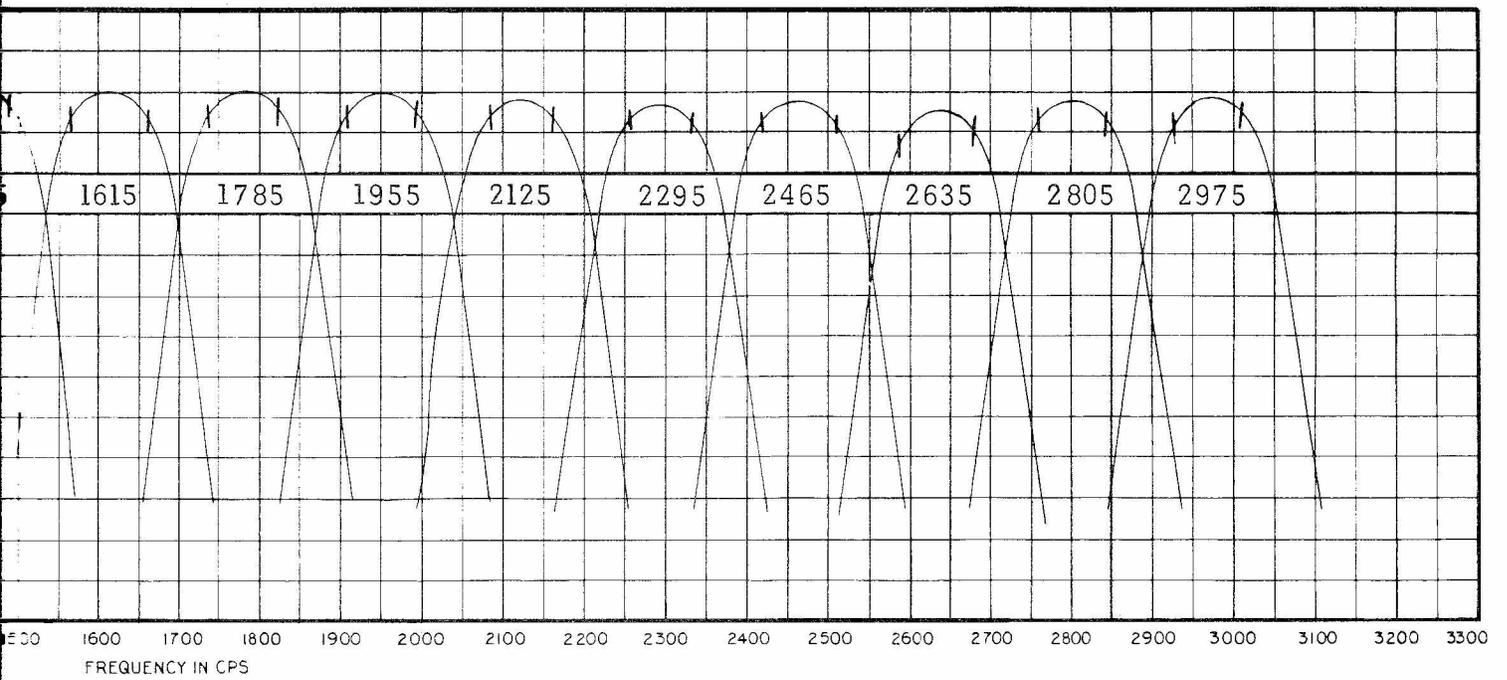
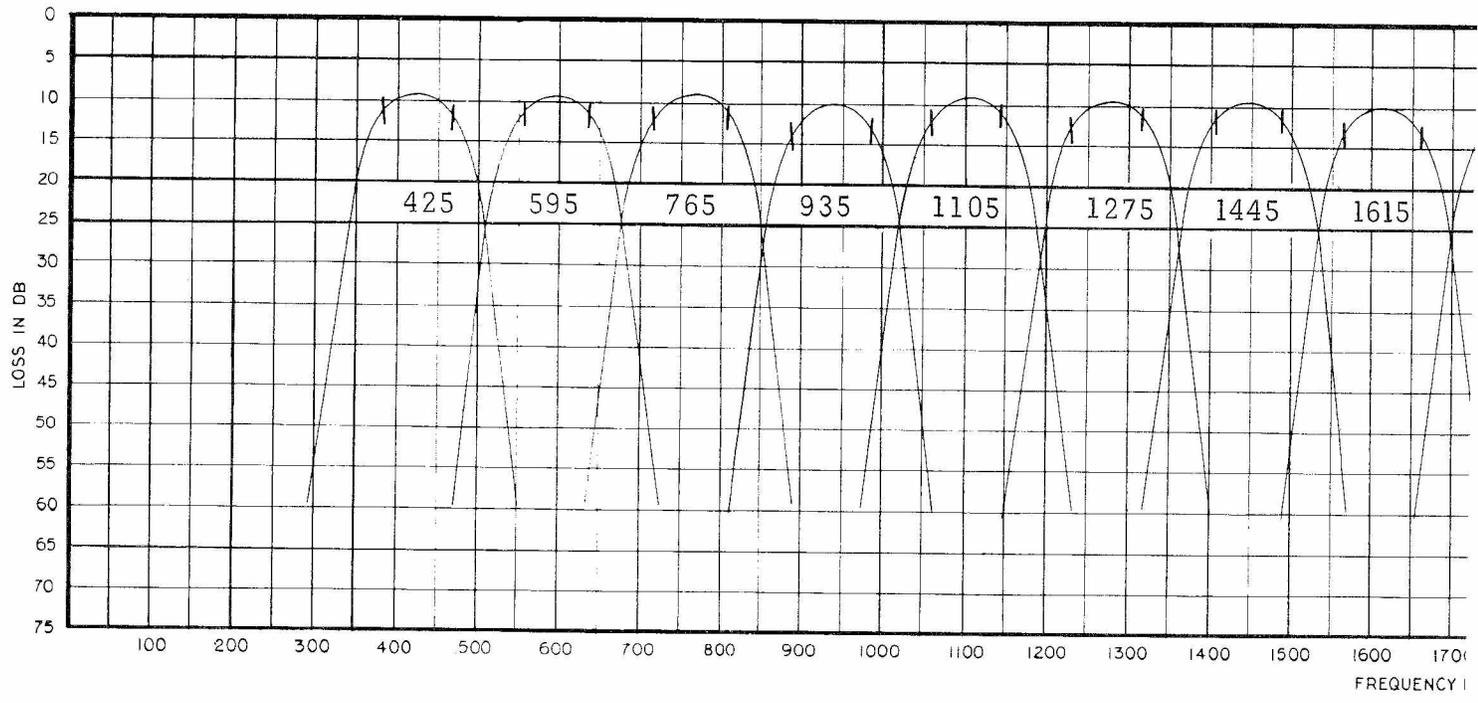
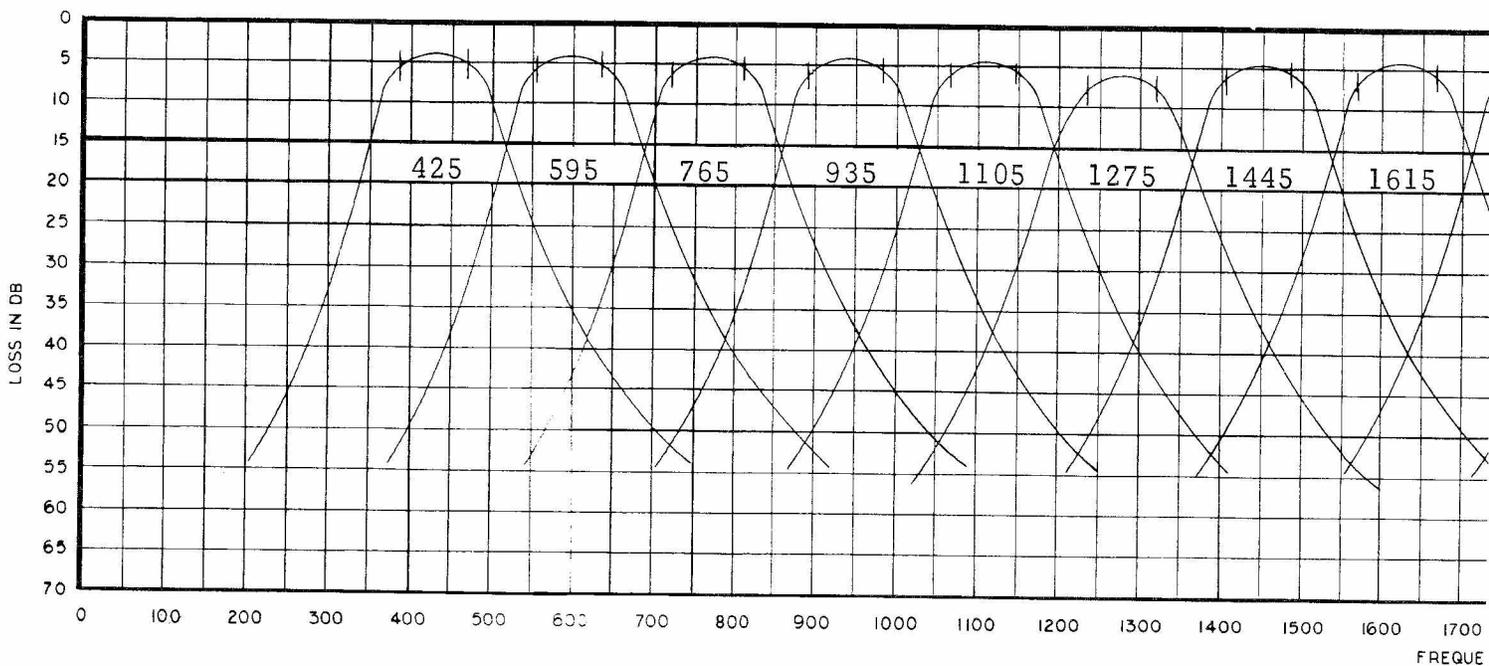


Figure 5-14. Narrow Band Converter Filter Curves

AN/UCC-1A(V)  
MAINTENANCE



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