

WATKINS-JOHNSON

SECTION VI

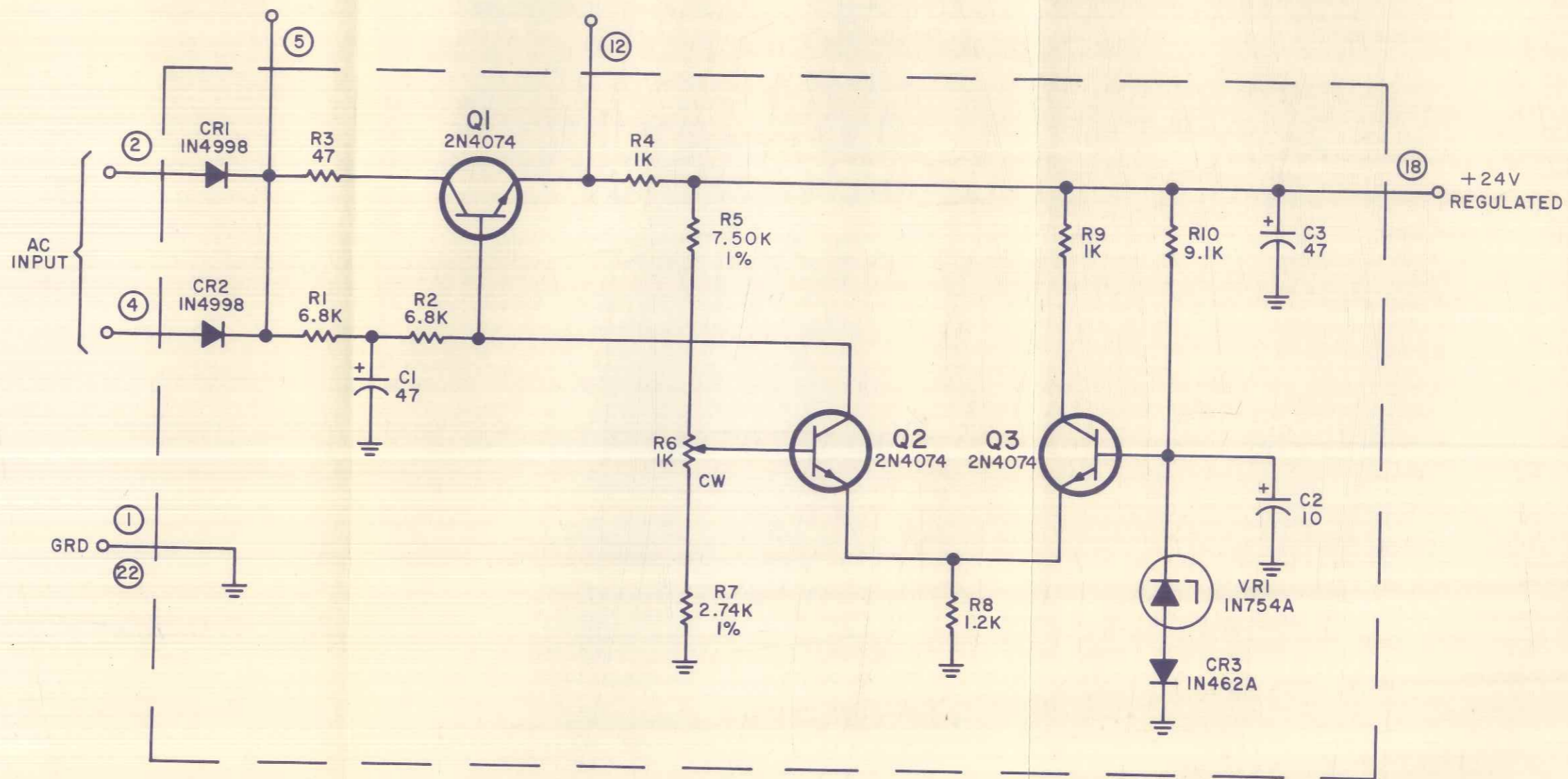
SCHEMATIC DIAGRAMS

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TYPES DM-112 / DM-112-1

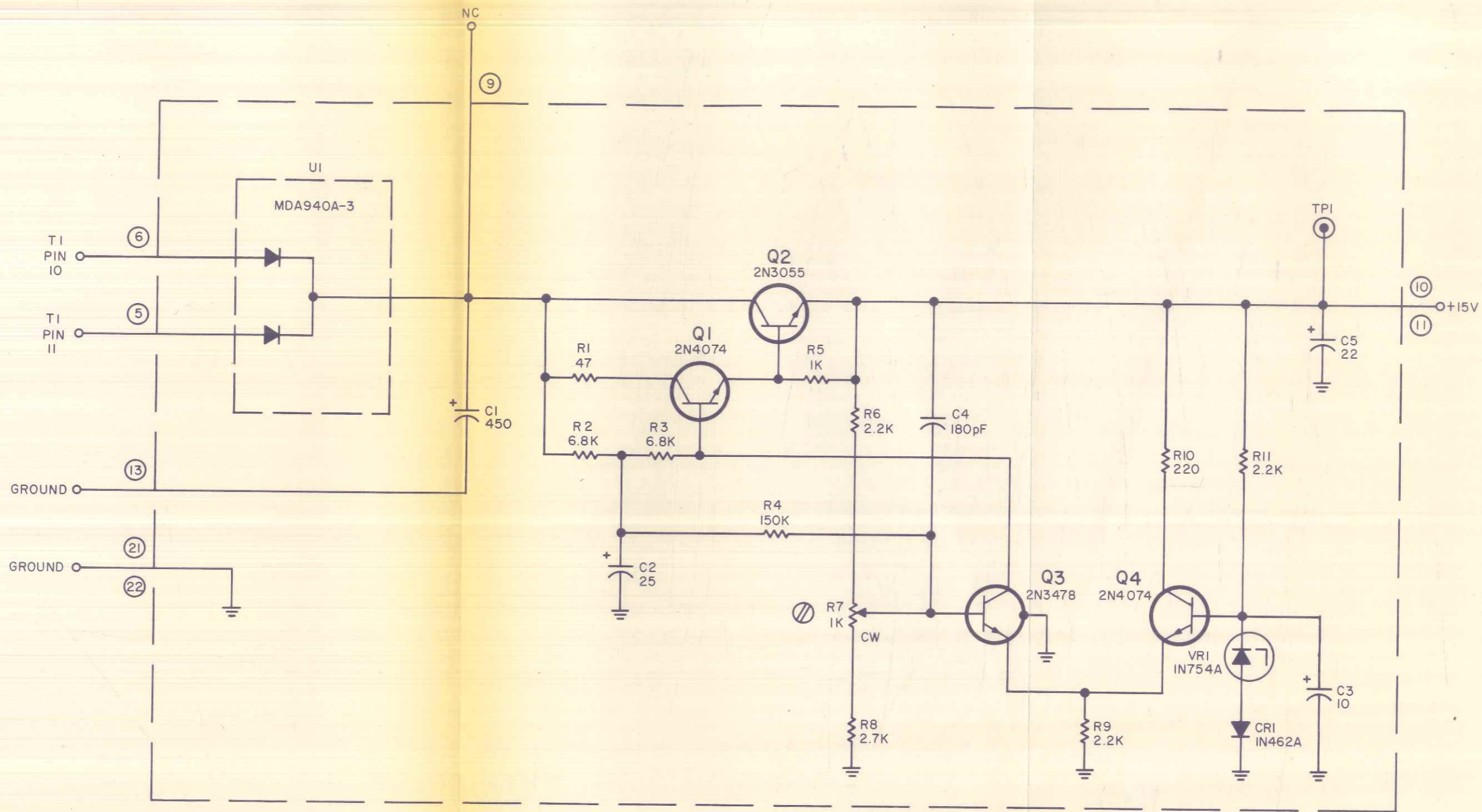
DEMODULATORS

SECTION VI
SCHEMATIC DIAGRAMS



NOTES:
 1. UNLESS OTHERWISE SPECIFIED:
 a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 b) CAPACITANCE IS MEASURED IN μF .
 2. ON POTENTIOMETERS CW INDICATES CLOCKWISE ROTATION OF ACTUATOR.

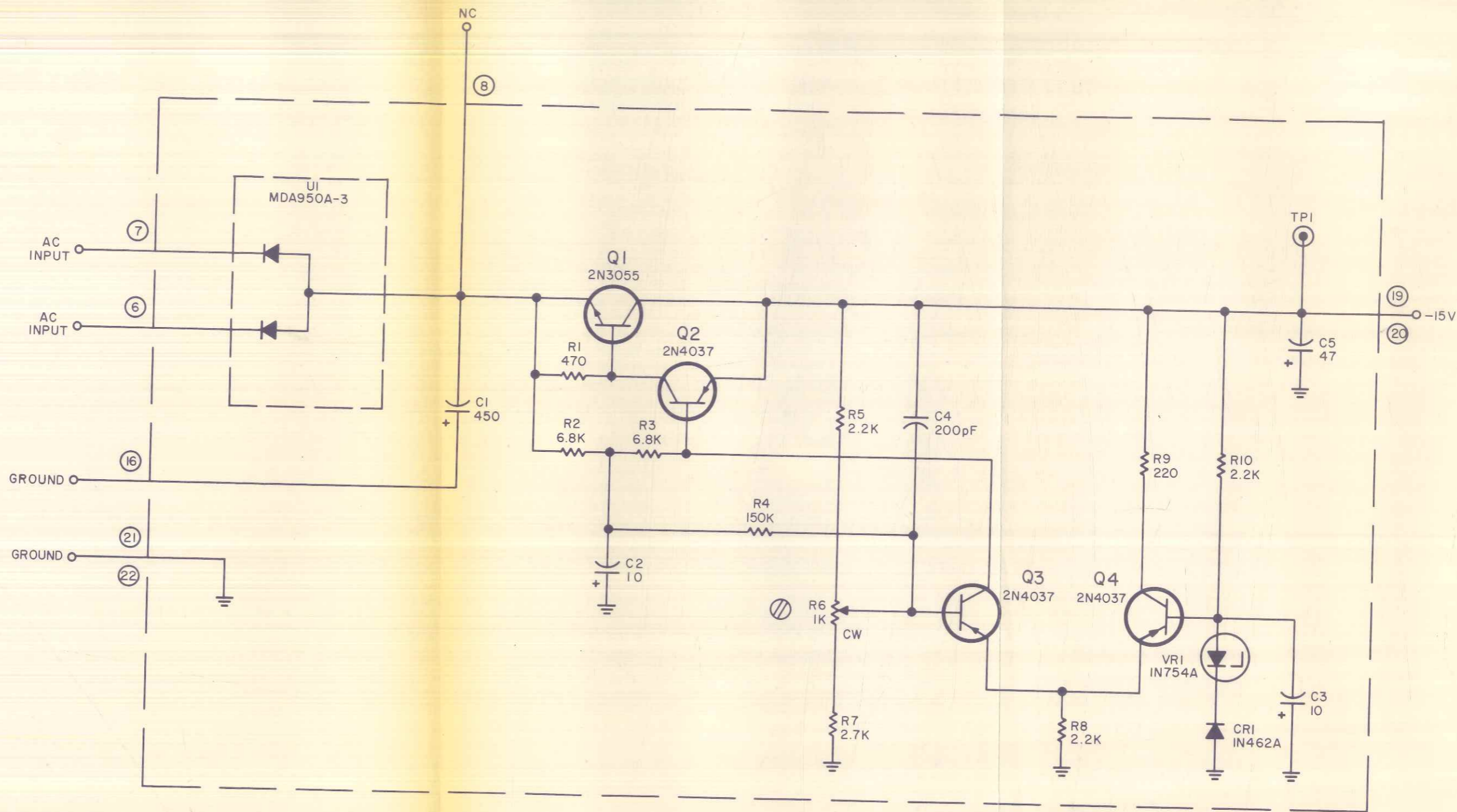
Figure 6-1. Type 76194 +24V Power Supply Regulator (A1), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN μF .
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
 - a) INDICATES SCREWDRIVER ADJUSTMENT.
 - b) CW INDICATES CLOCKWISE ROTATION.

Figure 6-2. Type 76185 +15V Power Supply Regulator (A3), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN μF .
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
 - a) CW INDICATES CLOCKWISE ROTATION.
 - b) INDICATES SCREWDRIVER ADJUSTMENT.

Figure 6-3. Type 76186 -15V Power Supply Regulator (A4), Schematic Diagram

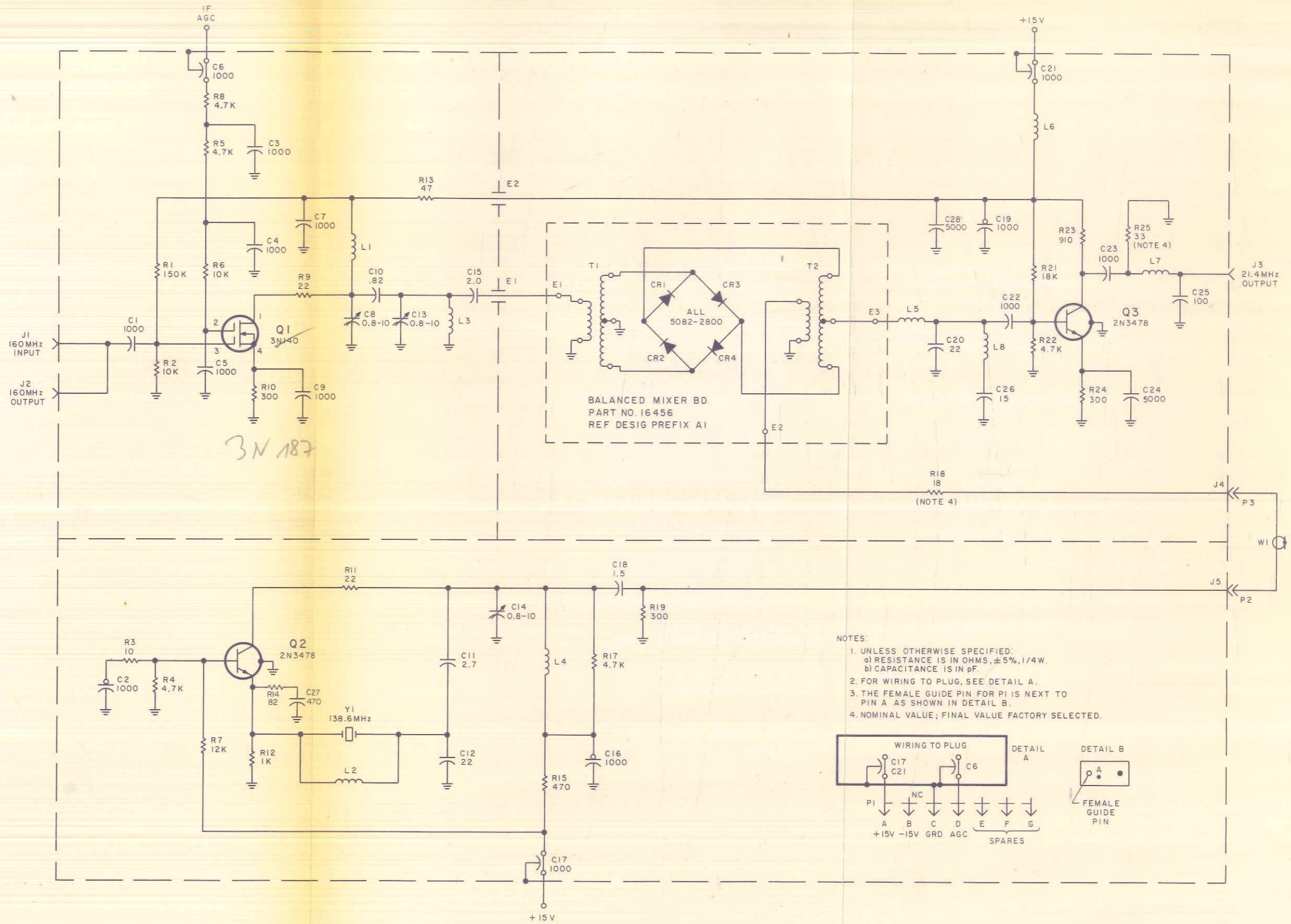
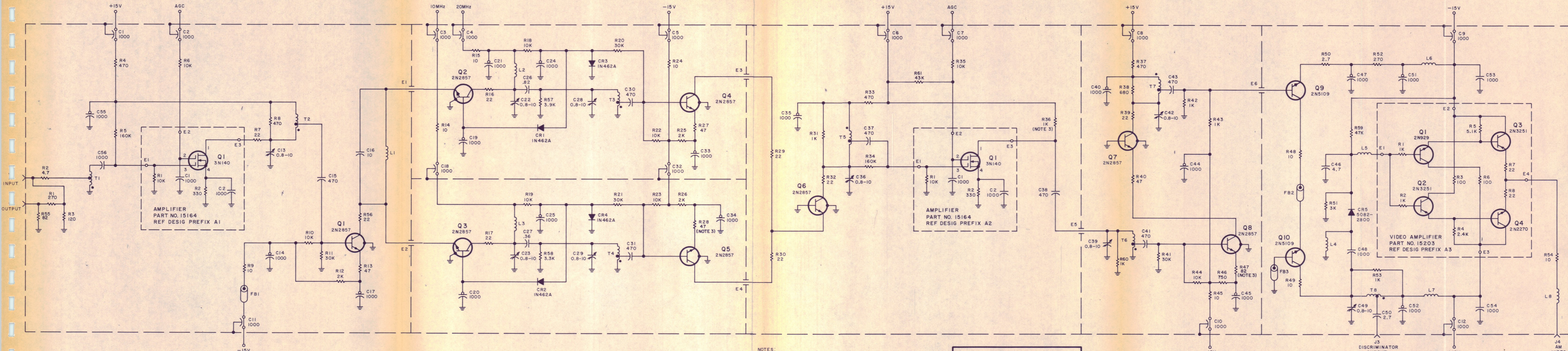


Figure 6-4. Type 71285 160/21.4 MHz Converter (A5), Schematic Diagram



- NOTES:
1. UNLESS OTHERWISE SPECIFIED:
 a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 b) CAPACITANCE IS MEASURED IN pF.
 2. FOR WIRING TO PLUG, SEE DETAIL A.
 3. NOMINAL VALUE, FINAL VALUE TO BE FACTORY SELECTED
 4. DIFFERENCE BETWEEN TYPES IS MECHANICAL.

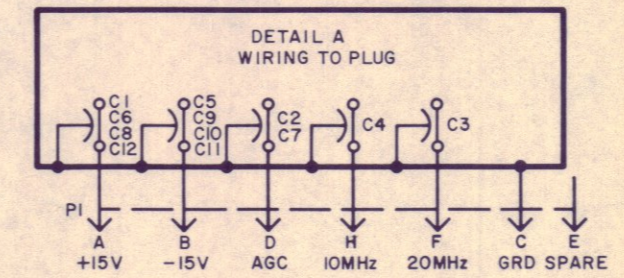
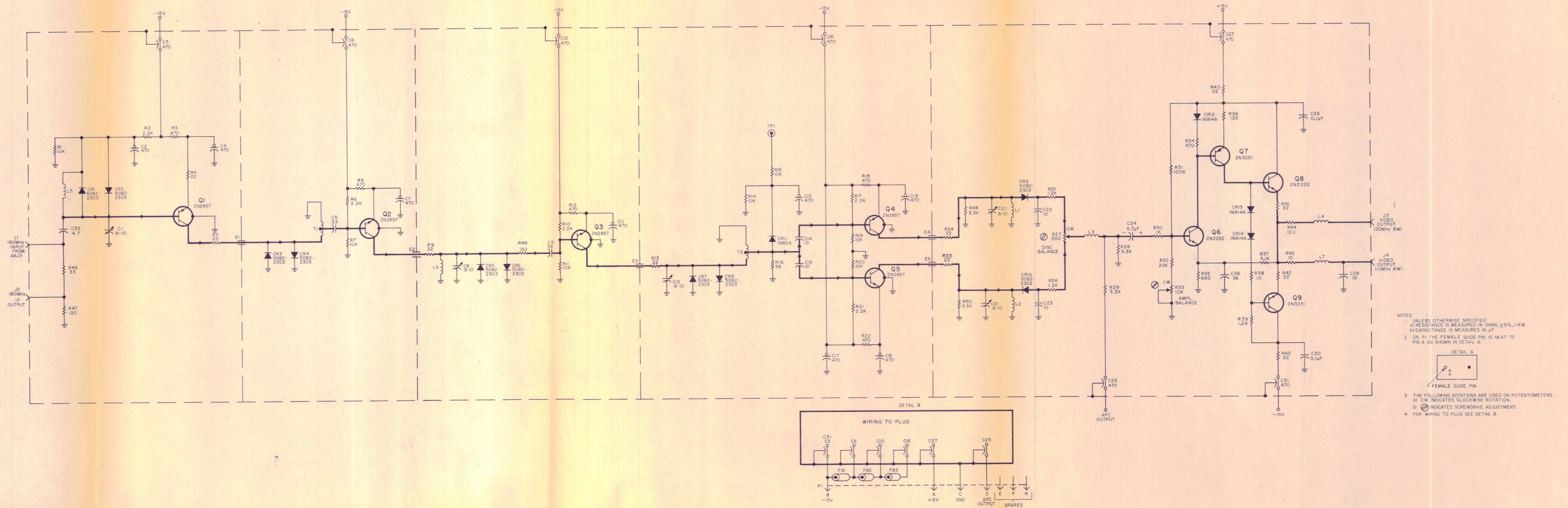


Figure 6-5. Type 72304-1 160 MHz IF Amplifier (10-20 MHz BW) (A6), Schematic Diagram



- NOTES:
1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, ±5%, 1/4W.
 - b) CAPACITANCE IS MEASURED IN pF.
 2. ON P1 THE FEMALE GUIDE PIN IS NEXT TO PIN A AS SHOWN IN DETAIL A.
 3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
 - a) CW INDICATES CLOCKWISE ROTATION.
 - b) ⊕ INDICATES SCREWDRIVE ADJUSTMENT.
 4. FOR WIRING TO PLUG SEE DETAIL B.

Figure 6-6. Type 79640 160 MHz Limiter/Discriminator (A7), Schematic Diagram

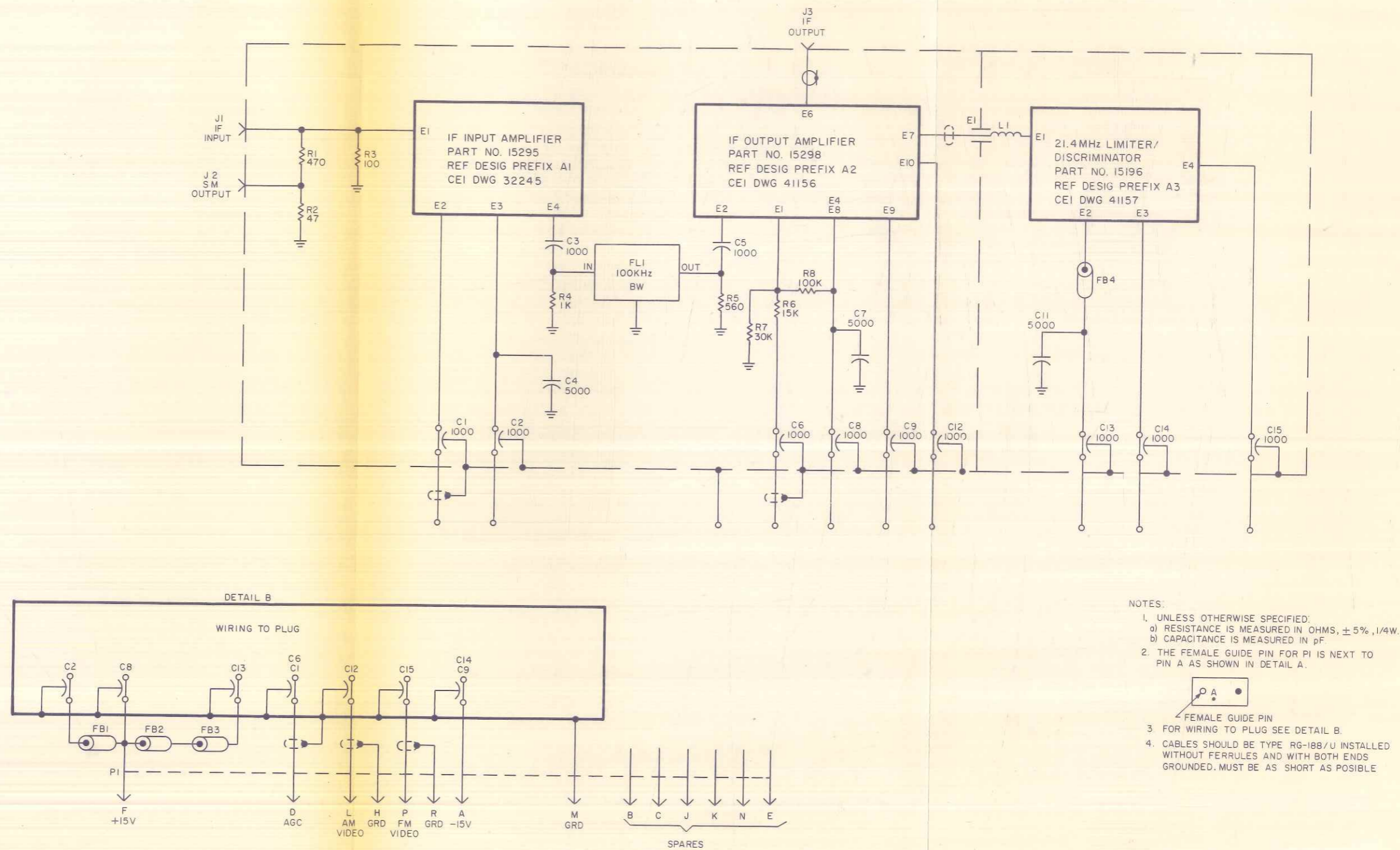
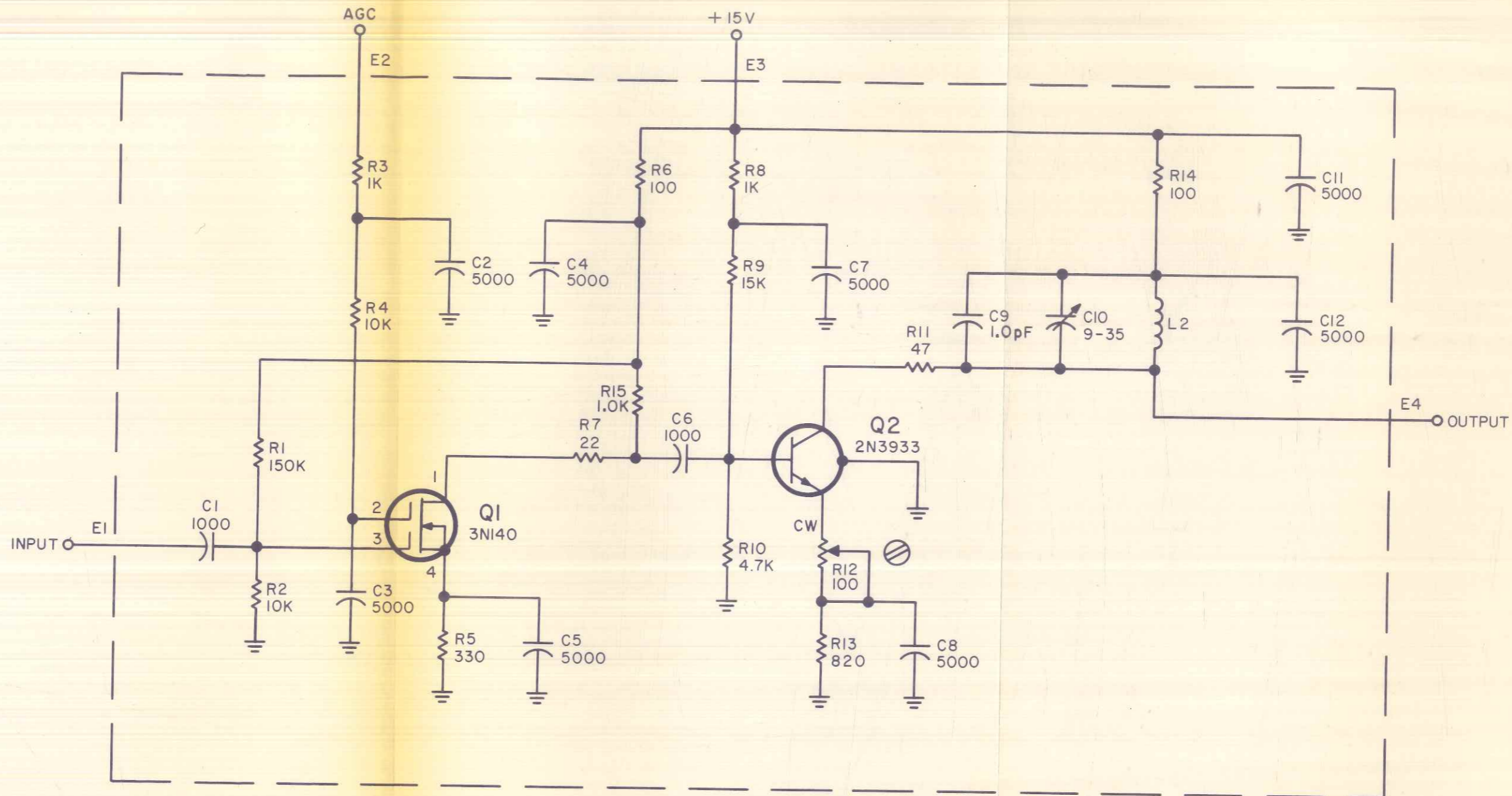


Figure 6-7. Type 72295 21.4 MHz IF Amplifier (100 kHz BW) (A8), Schematic Diagram



NOTES:


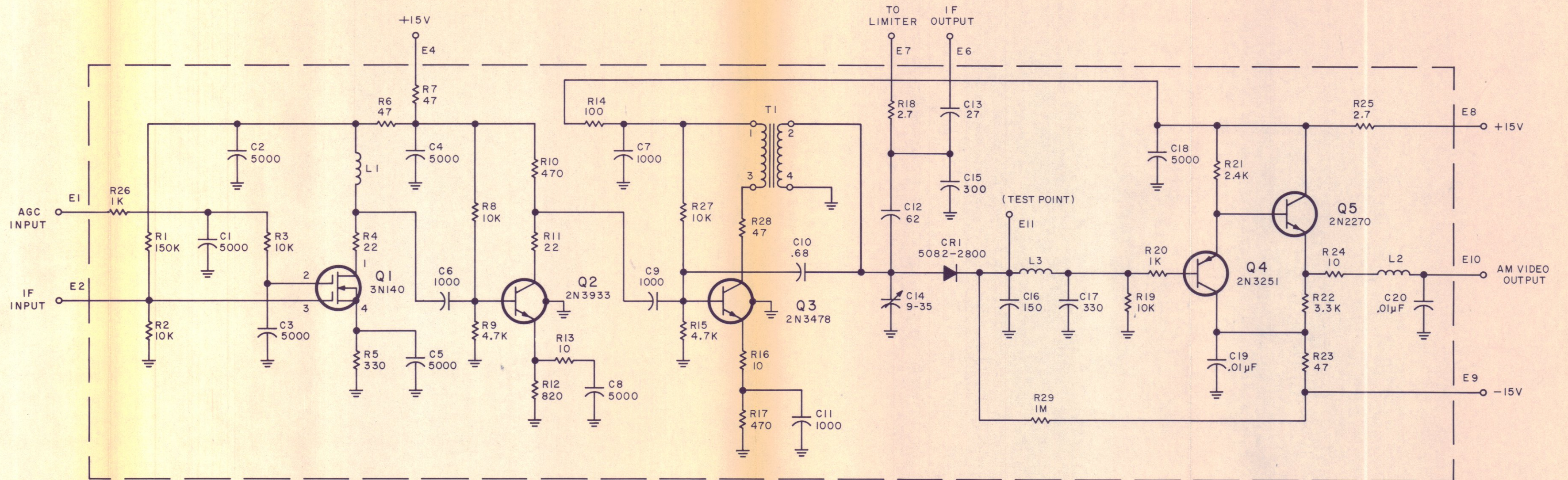
1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN μF .
2. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
 - a) CW INDICATES CLOCKWISE ROTATION.
 - b)  INDICATES SCREWDRIVER ADJUSTMENT.

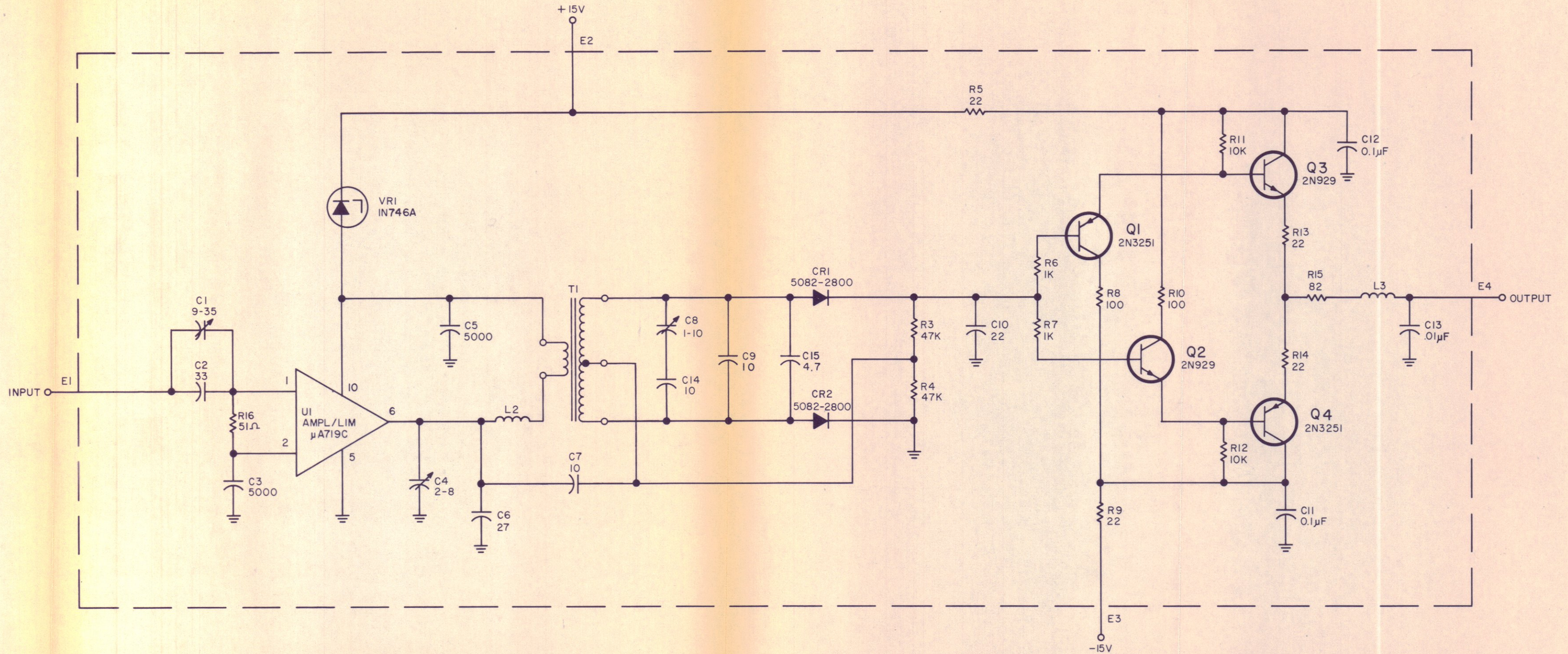
Figure 6-8. Part 15295 IF Input Amplifier (100 kHz BW) (A8A1), Schematic Diagram



NOTES:

- I. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN pF.

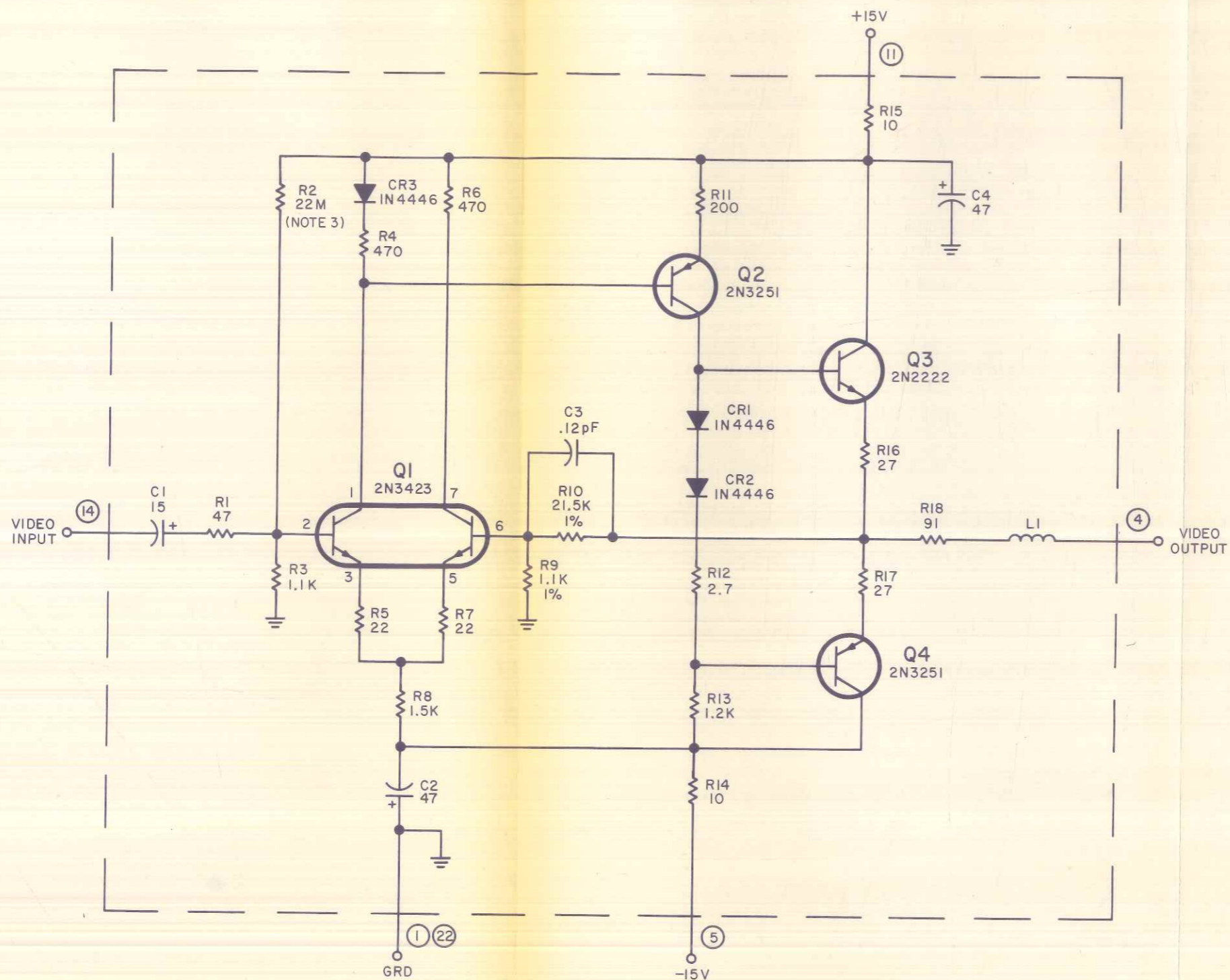
Figure 6-9. Part 15298 IF Output Amplifier (100 kHz BW) (A8A2), Schematic Diagram



NOTES

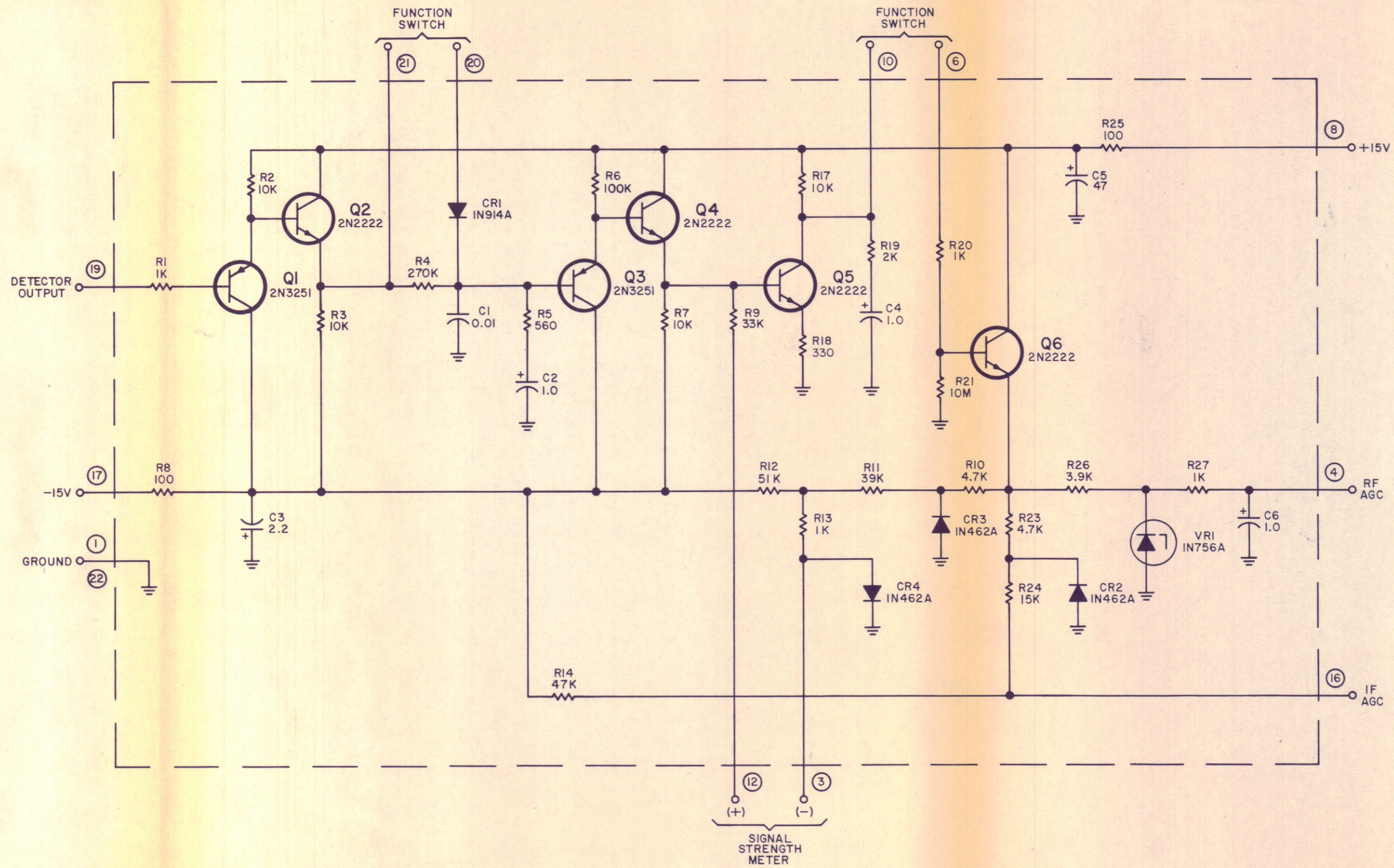
- I. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN pF.

Figure 6-10. Part 15196 21.4 MHz FM Limiter/Discriminator (100 kHz BW) (A8A3), Schematic Diagram



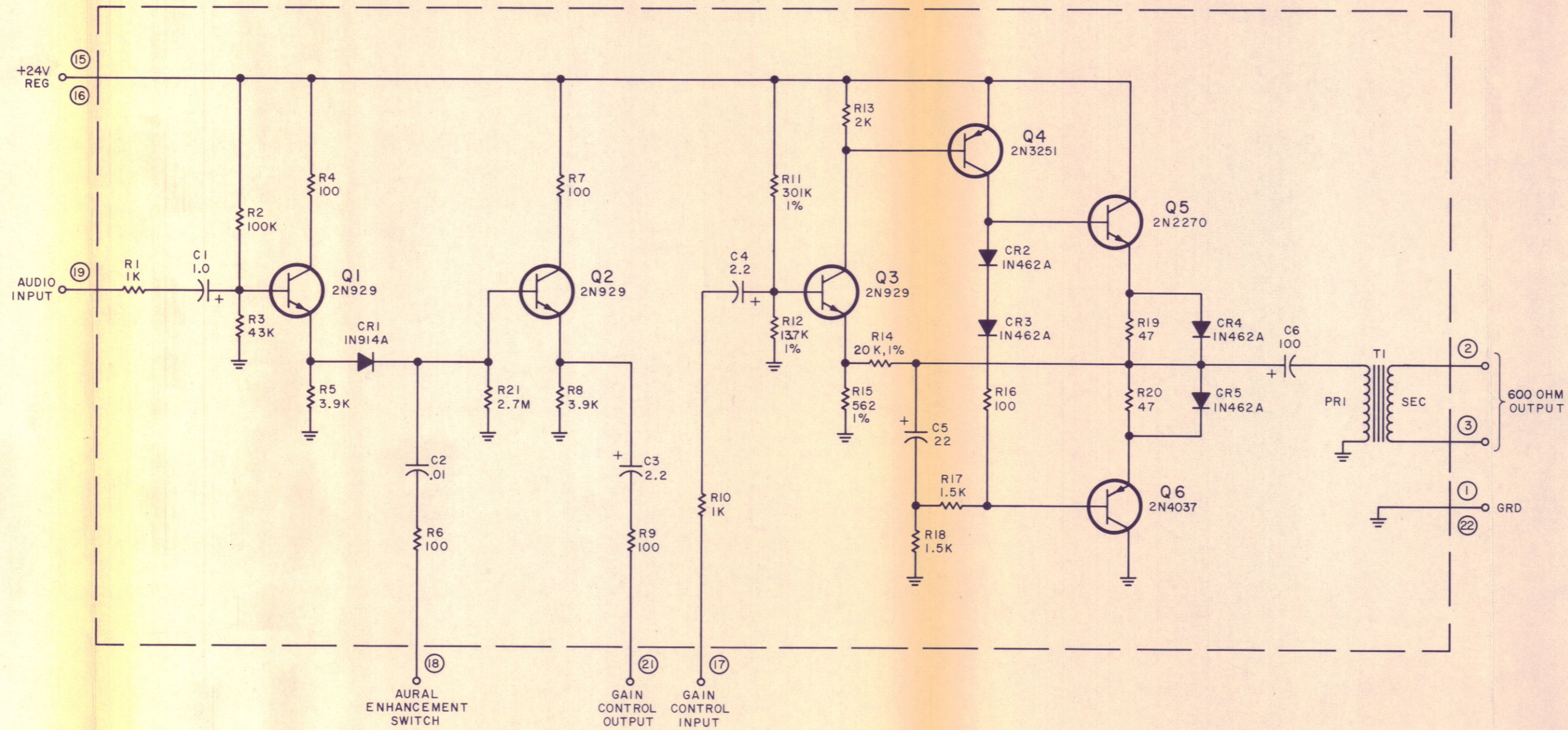
- NOTES:
- 1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN μF .
 - 2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
 - 3. NOMINAL VALUE; FINAL VALUE FACTORY SELECTED.

Figure 6-11. Type 7361 Video Amplifier (A9), Schematic Diagram



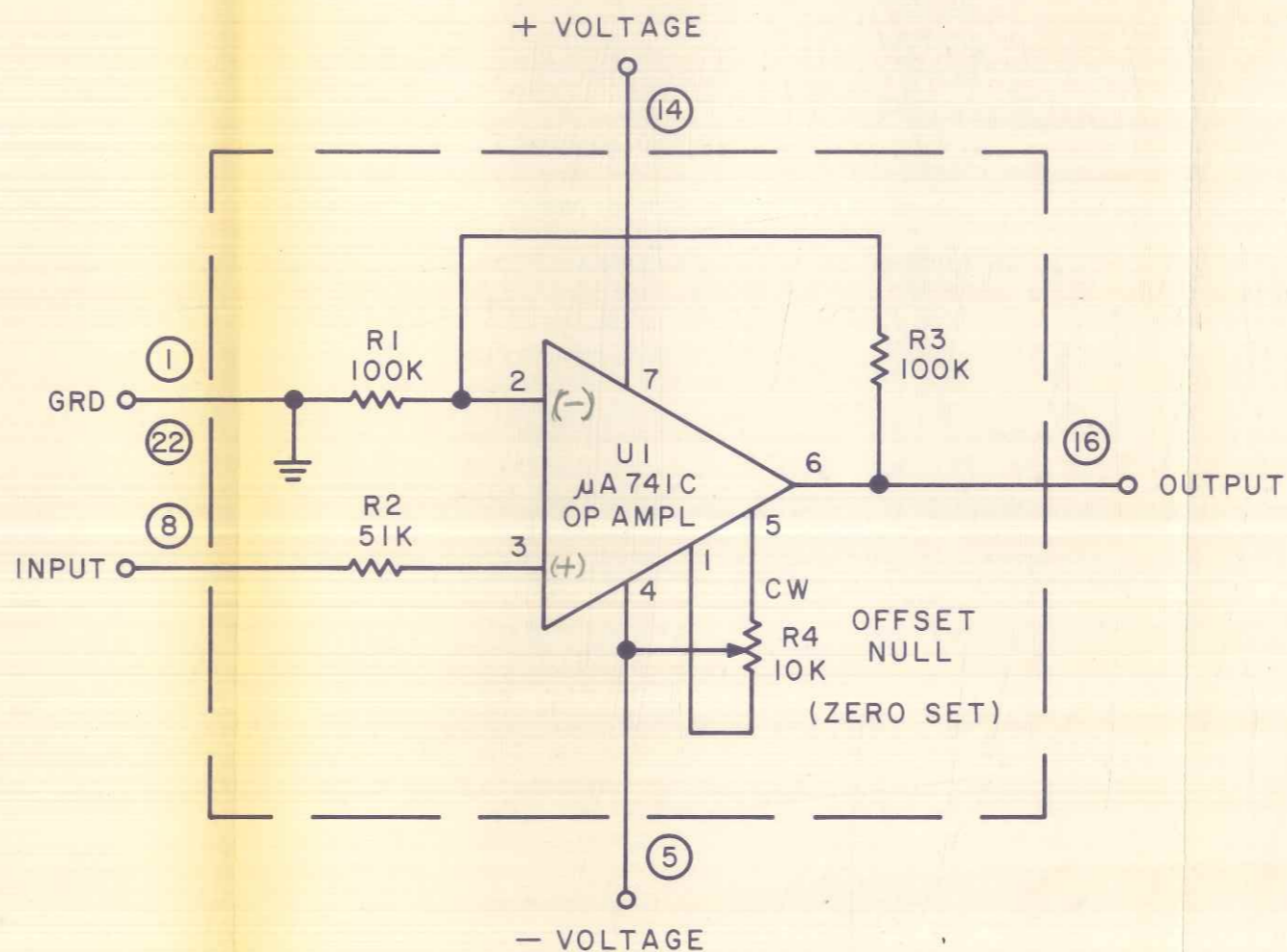
NOTES:
 1. UNLESS OTHERWISE SPECIFIED:
 a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 b) CAPACITANCE IS MEASURED IN μF .
 2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.

Figure 6-12. Type 7866 AGC Amplifier (A10), Schematic Diagram



NOTES:
 1. UNLESS OTHERWISE SPECIFIED:
 a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W
 b) CAPACITANCE IS MEASURED IN μF
 2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.

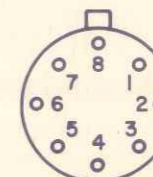
Figure 6-13. Type 7444 Audio Amplifier (A11), Schematic Diagram



NOTES:

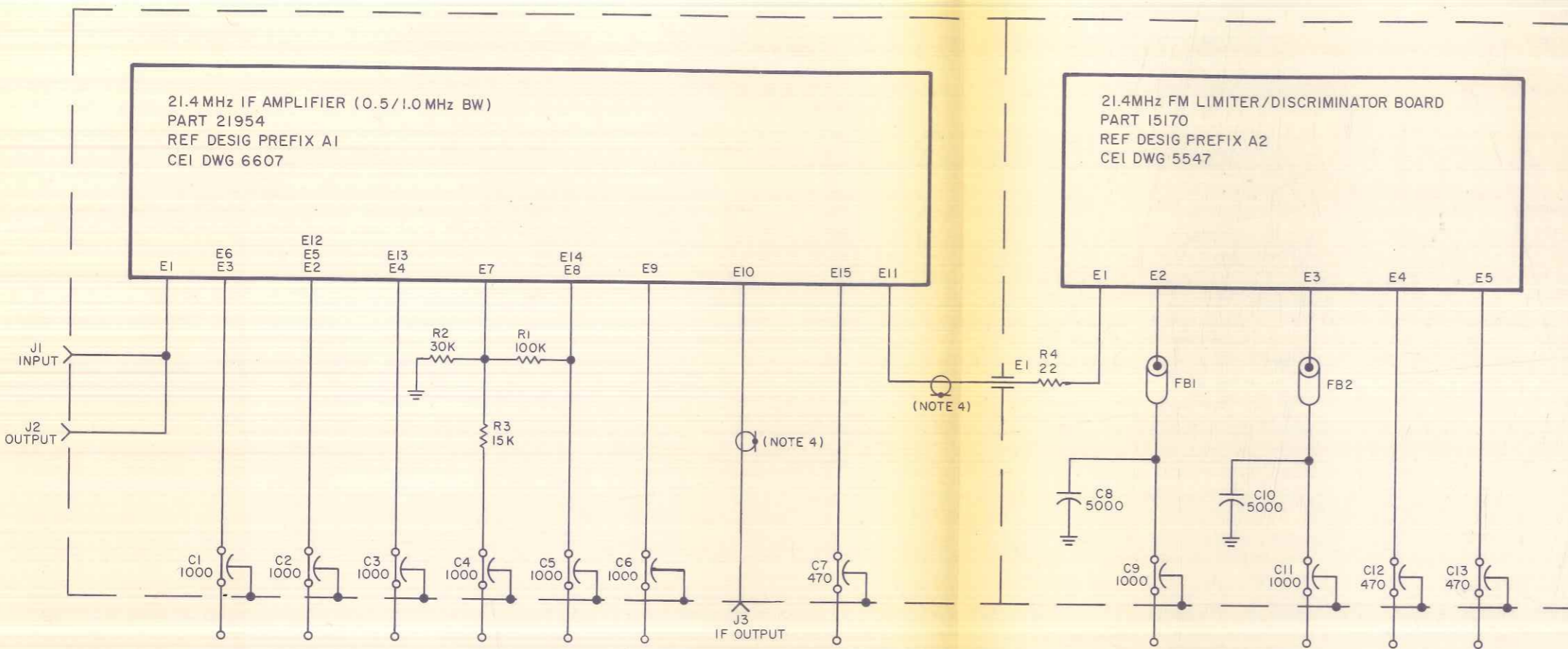
1. RESISTANCE IS IN OHMS, $\pm 5\%$, 1/4W.
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. CW ON R4 INDICATES CLOCKWISE ROTATION OF ACTUATOR.
4. FOR U1 PIN ARRANGEMENT, SEE DETAIL A.

DETAIL A

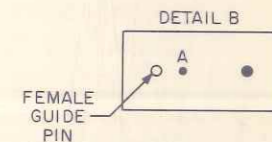


BOTTOM VIEW

Figure 6-14. Type 79973 AFC Amplifier (A12), Schematic Diagram



- NOTES:
1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN pF.
 2. FOR WIRING TO PLUG SEE DETAIL A.
 3. THE FEMALE GUIDE PIN FOR P1 IS NEXT TO PIN A AS SHOWN IN DETAIL B.



4. CABLES SHOULD BE TYPE RG-188/U INSTALLED WITHOUT FERRULES AND WITH BOTH ENDS GROUNDED. THE GROUND MUST BE AS SHORT AS POSSIBLE

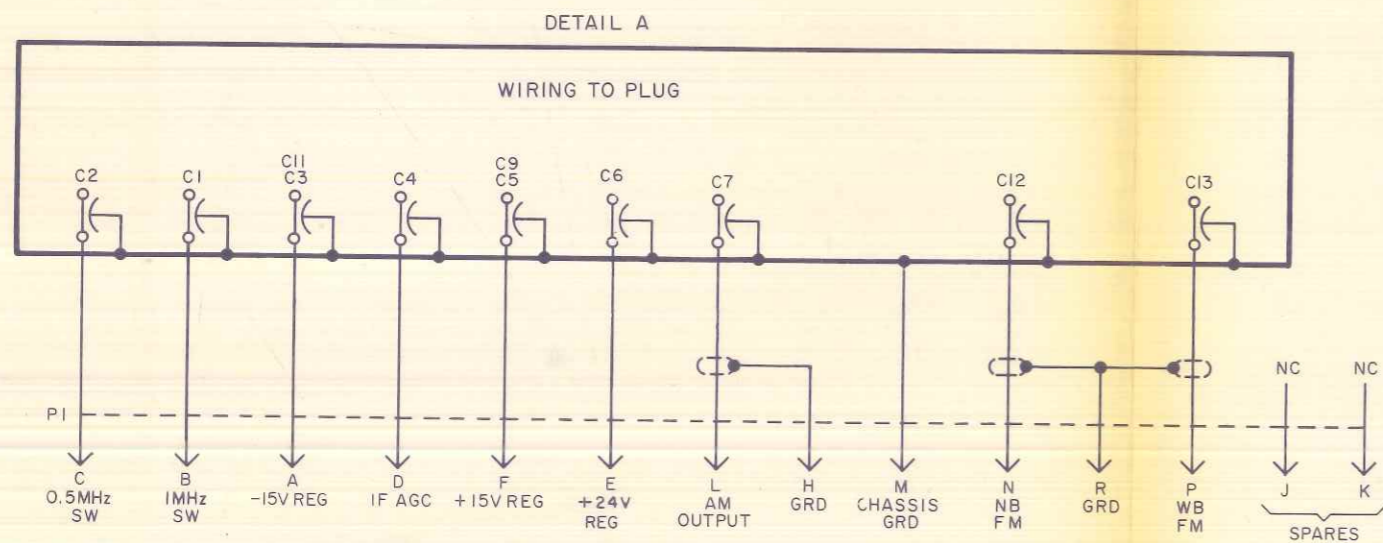
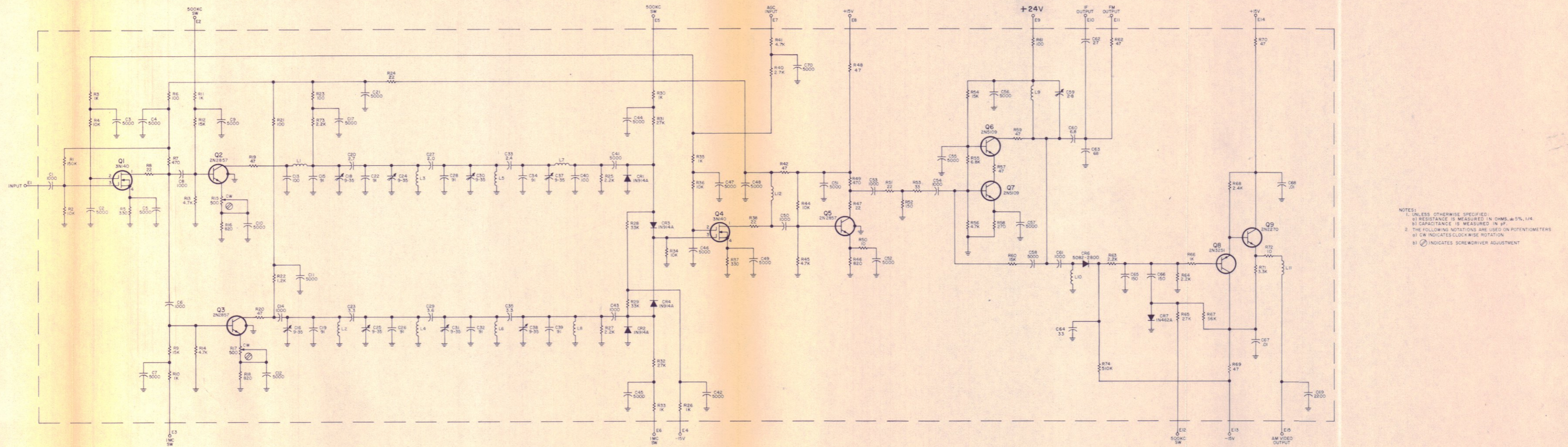
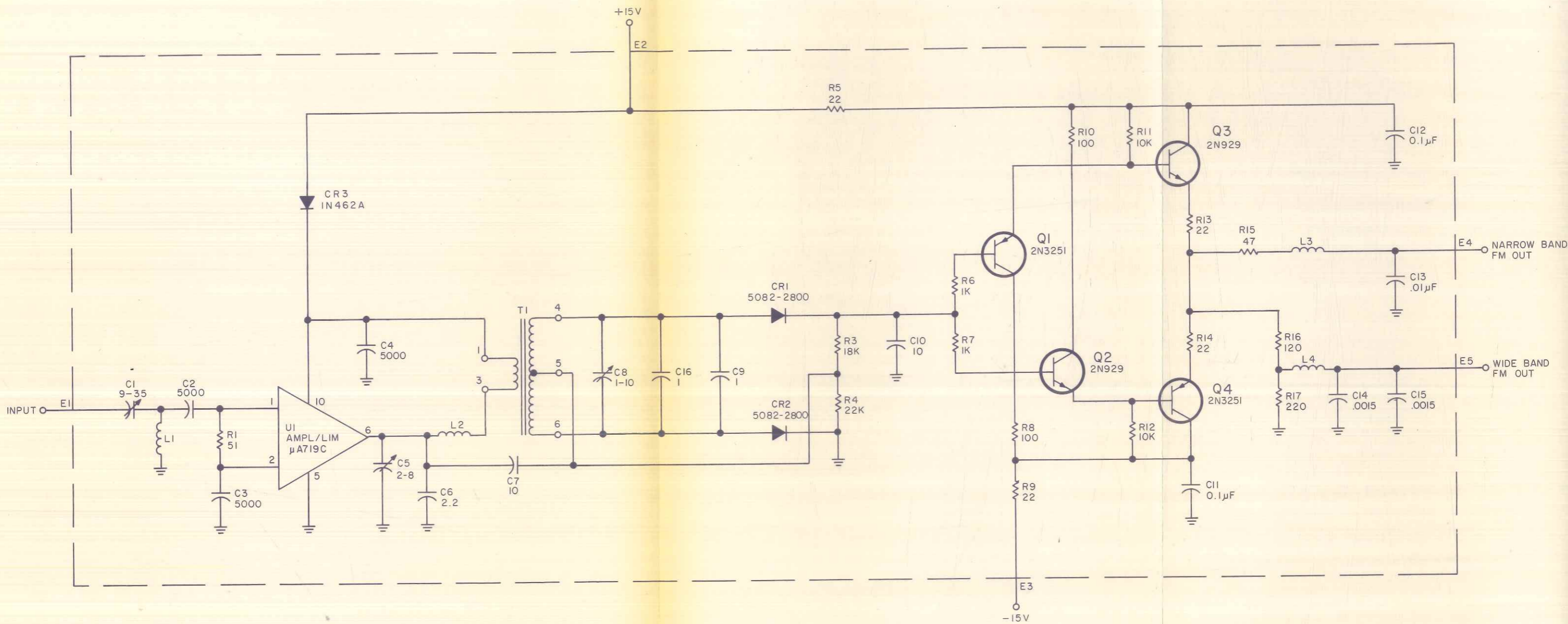


Figure 6-15. Type 72299 21.4 MHz IF Amplifier (500 kHz/1 MHz BW) (A13), Schematic Diagram



NOTES:
 1. UNLESS OTHERWISE SPECIFIED,
 a) RESISTANCE IS MEASURED IN OHMS, ±5%, 1/4.
 b) CAPACITANCE IS MEASURED IN pF.
 2. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS
 a) CW INDICATES CLOCKWISE ROTATION
 b) ⚙ INDICATES SCREWDRIIVER ADJUSTMENT

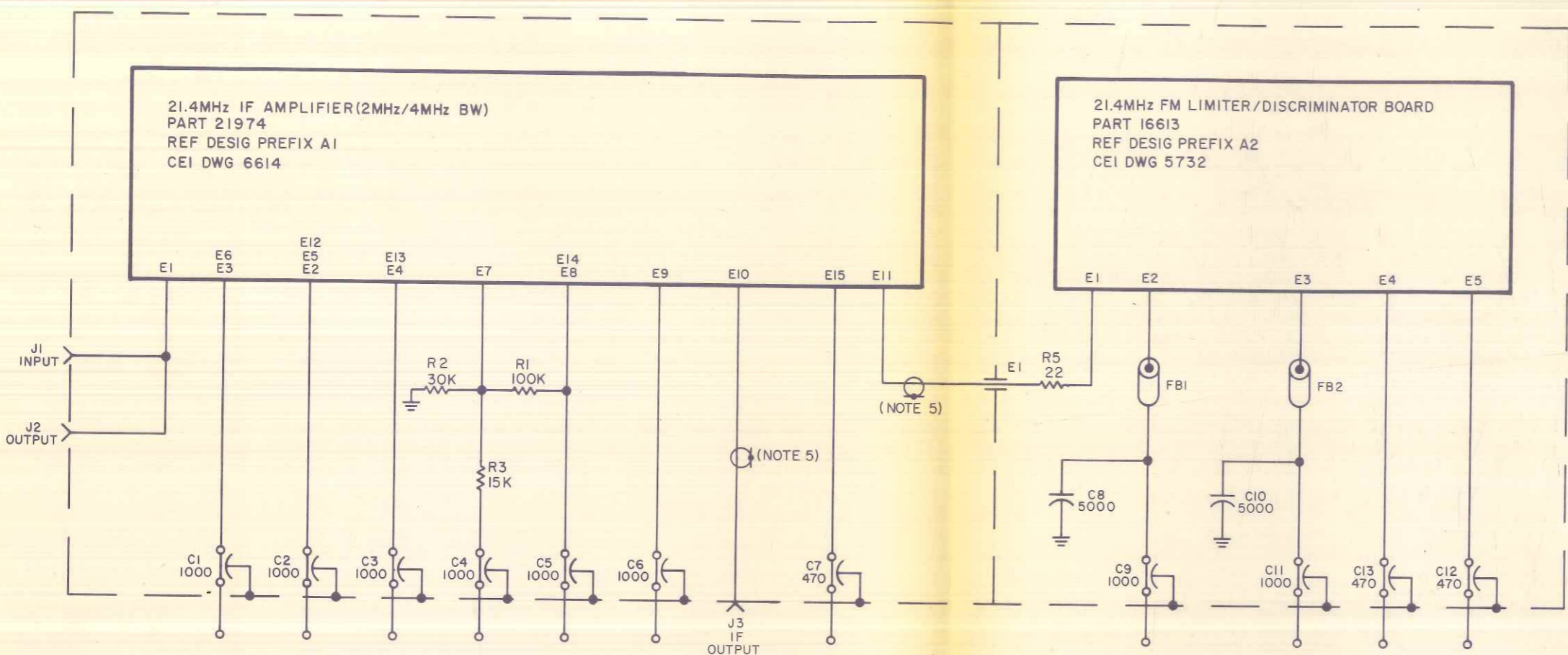
Figure 6-16. Part 21954 21.4 MHz IF Amplifier (500 kHz/1 MHz BW) (A13A1), Schematic Diagram



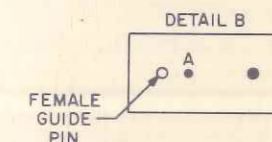
NOTES:

1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN pF.

Figure 6-17. Part 15170 21.4 MHz FM Limiter/Discriminator (A13A2), Schematic Diagram



- NOTES:
1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN pF.
 2. FOR WIRING TO PLUG SEE DETAIL A.
 3. THE FEMALE GUIDE PIN FOR PI IS NEXT TO PIN A AS SHOWN IN DETAIL B.



4. REF DESIG W1 IS ASSIGNED TO THE CABLE TERMINATING AT PI.
5. CABLES SHOULD BE TYPE RG-188/U INSTALLED WITHOUT FERRULES AND WITH BOTH ENDS GROUNDED. THE GROUND MUST BE AS SHORT AS POSSIBLE.
6. CABLES SHOULD BE TYPE RG-174/U FOR WIRING TO PLUG FOR C7, C12 & C13.

DETAIL A

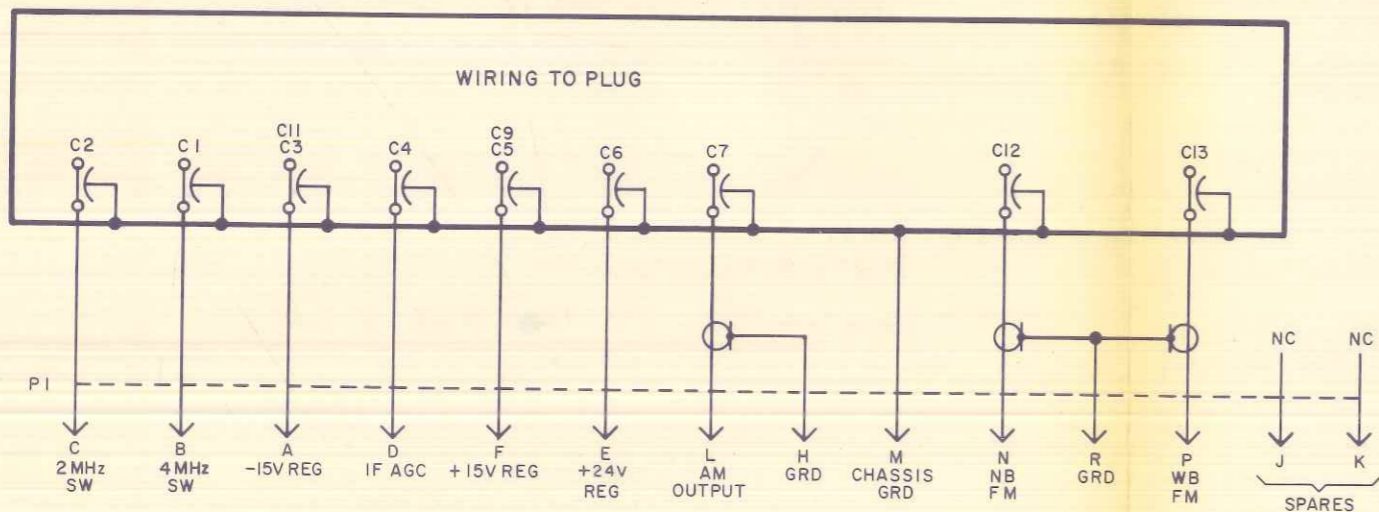
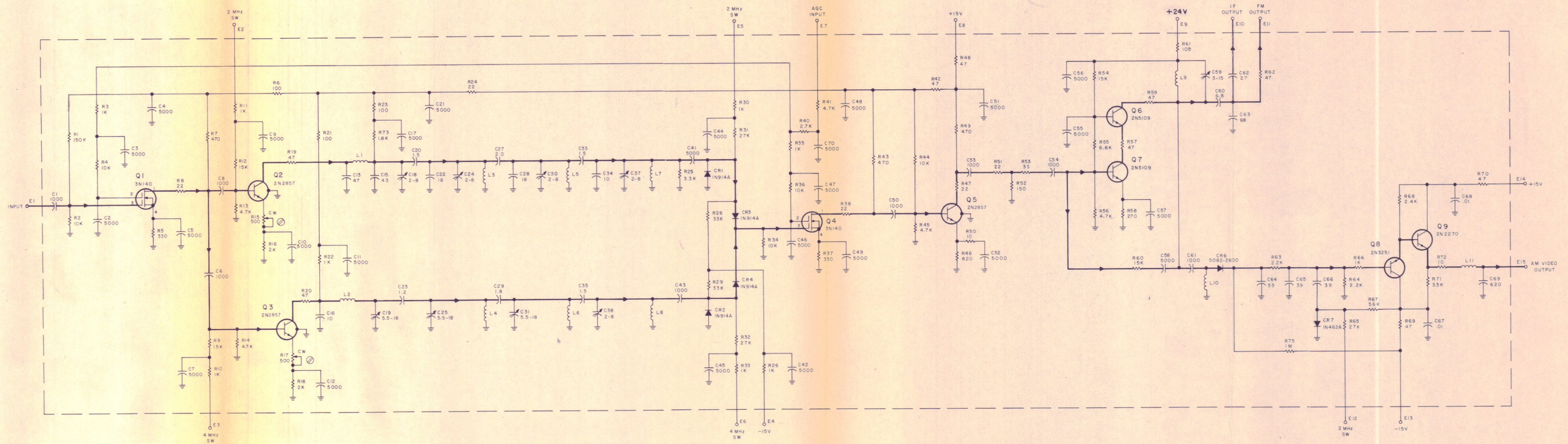


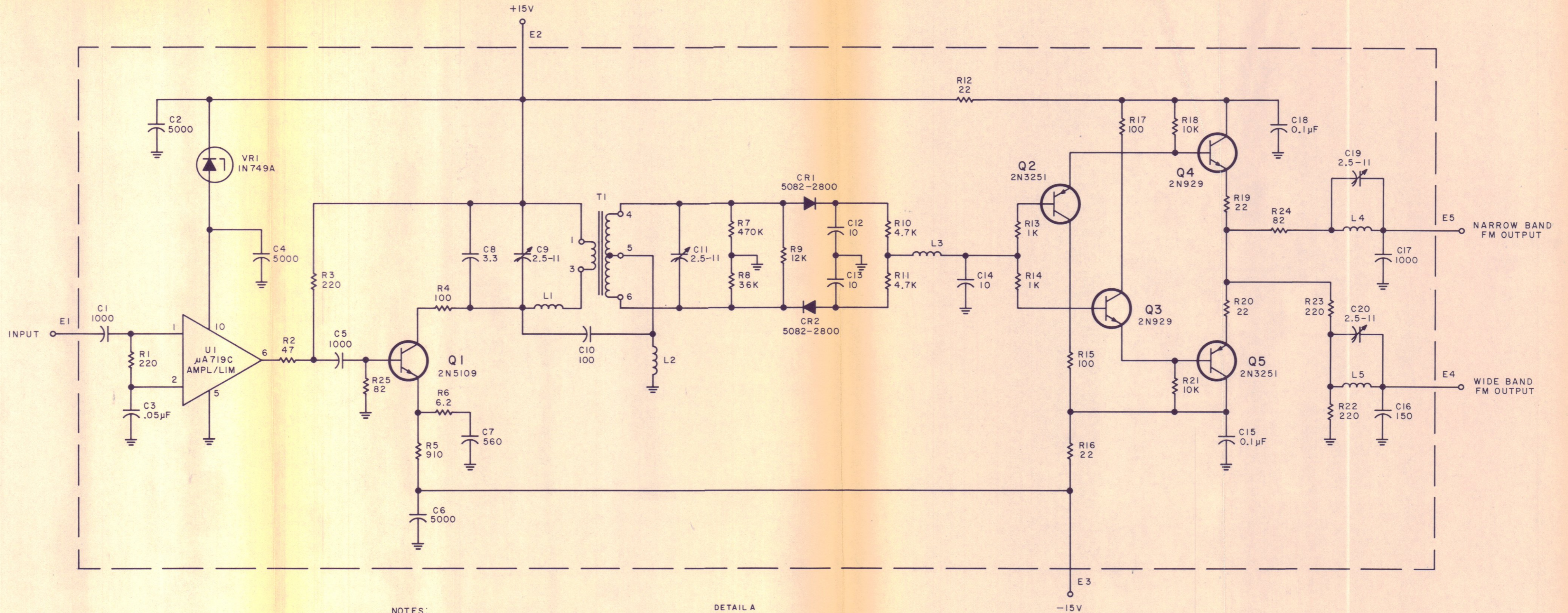
Figure 6-18. Type 72301 21.4 MHz IF Amplifier (2 MHz/4 MHz BW) (A13), Schematic Diagram



- NOTES:
- UNLESS OTHERWISE SPECIFIED:
 - RESISTANCE IS IN OHMS, ± 5%, 1/4W
 - CAPACITANCE IS IN PF.
 - THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
 - CW INDICATES CLOCKWISE ROTATION OF CONTROL KNOB.
 - ⊗ INDICATES SCREWDRIVER ADJUSTMENT.
 - HEAVY LINE DENOTES MAIN SIGNAL PATH.

| HIGHEST REF DESIG USED | REF DESIG NOT USED |
|------------------------|------------------------------|
| C70 | C14, C26, C32, C36, C39, C40 |
| R75 | R27, R39, R74 |
| Q9 | --- |
| L11 | --- |
| CR7 | CR5 |

Figure 6-19. Part 21974 21.4 MHz IF Amplifier (2 MHz/4 MHz BW) (A13A1), Schematic Diagram



NOTES:
1. UNLESS OTHERWISE SPECIFIED:
a) RESISTANCE IS IN OHMS, ±5%, 1/4 W.
b) CAPACITANCE IS IN pF.
2. FOR U1 PIN ARRANGEMENT, SEE DETAIL A.

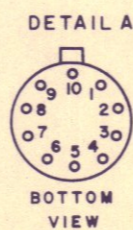
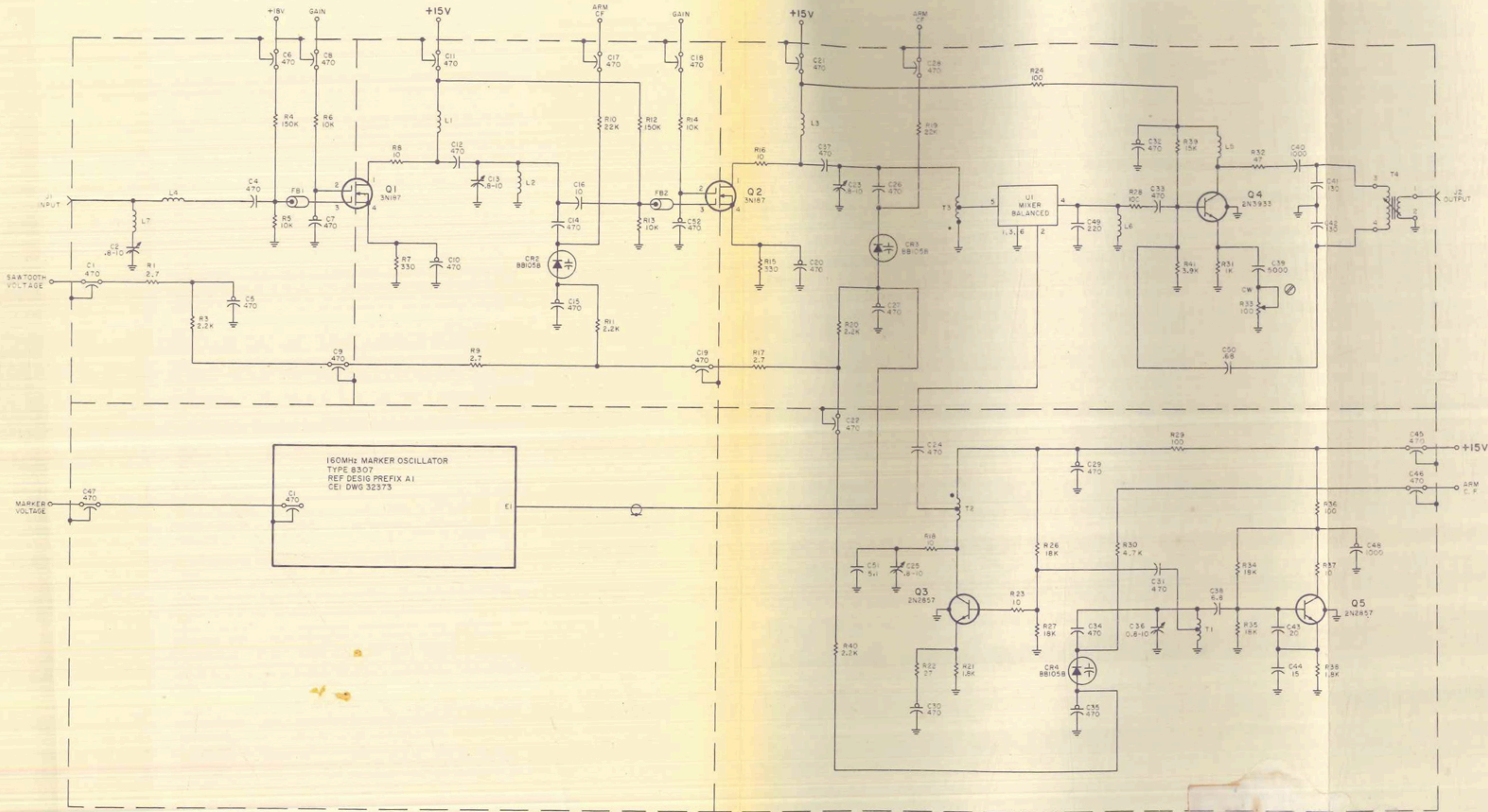
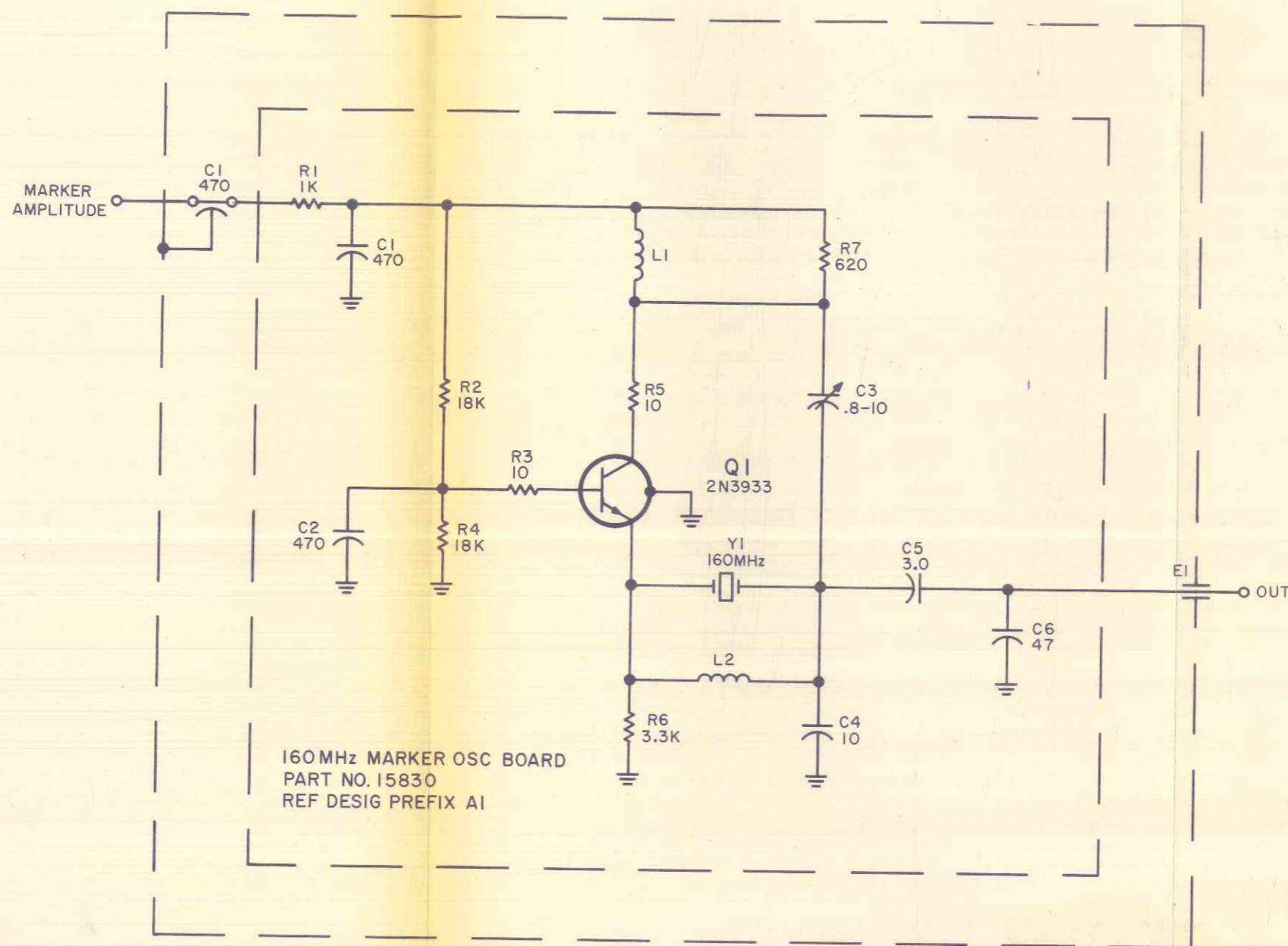


Figure 6-20. Part 16613 21.4 MHz FM Limiter/Discriminator (2 MHz/4 MHz BW) (A13A2), Schematic Diagram



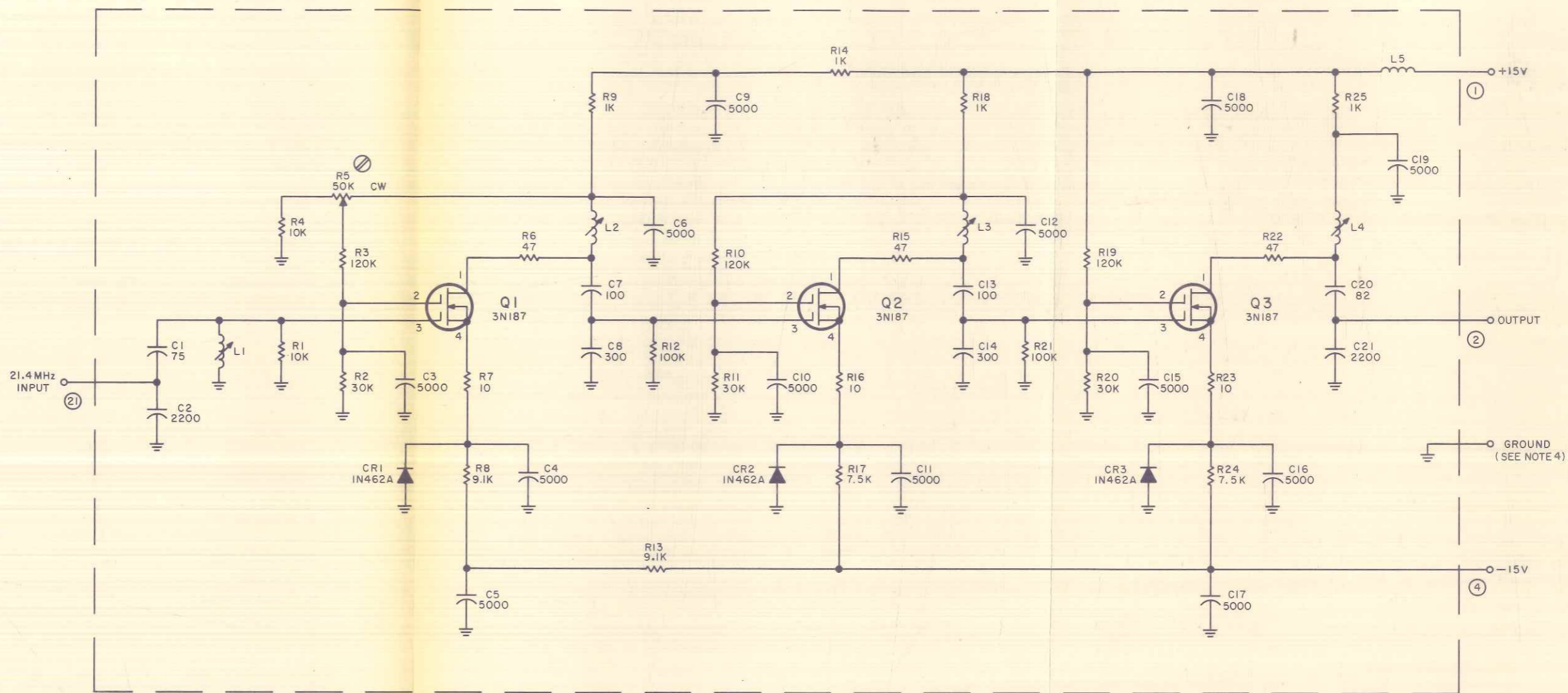
NOTES
1. UNLESS OTHERWISE SPECIFIED
a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
b) CAPACITANCE IS MEASURED IN PF.
2. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
a) CW INDICATES CLOCKWISE ROTATION.
b) INDICATES SCREWDRIVER ADJUSTMENT.

Figure 6-21. Type 71290 160 MHz Tuner (A14), Schematic Diagram



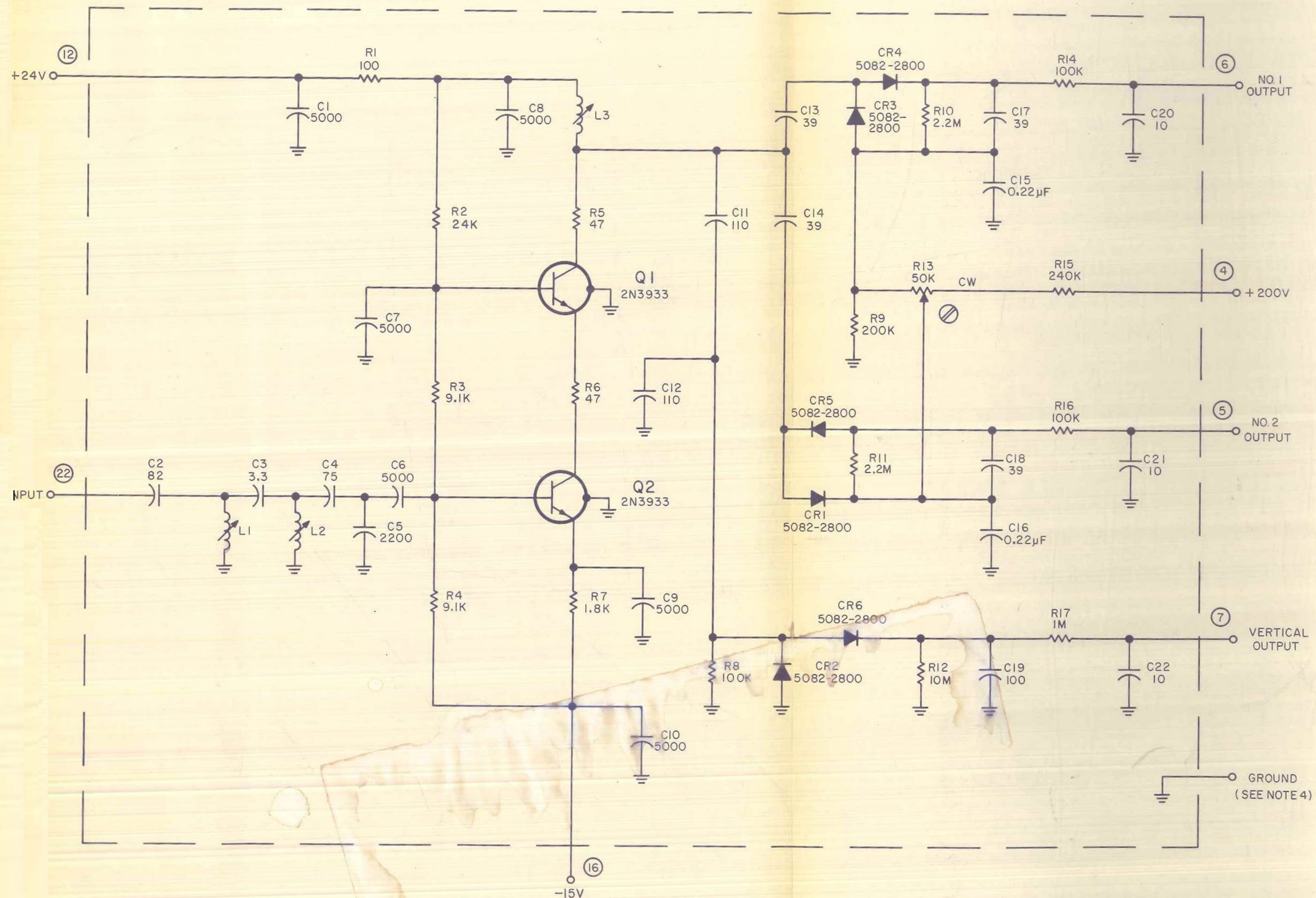
NOTES:
1. UNLESS OTHERWISE SPECIFIED:
a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
b) CAPACITANCE IS MEASURED IN pF.

Figure 6-22. Type 8307 160 MHz Marker Oscillator (A14A1), Schematic Diagram



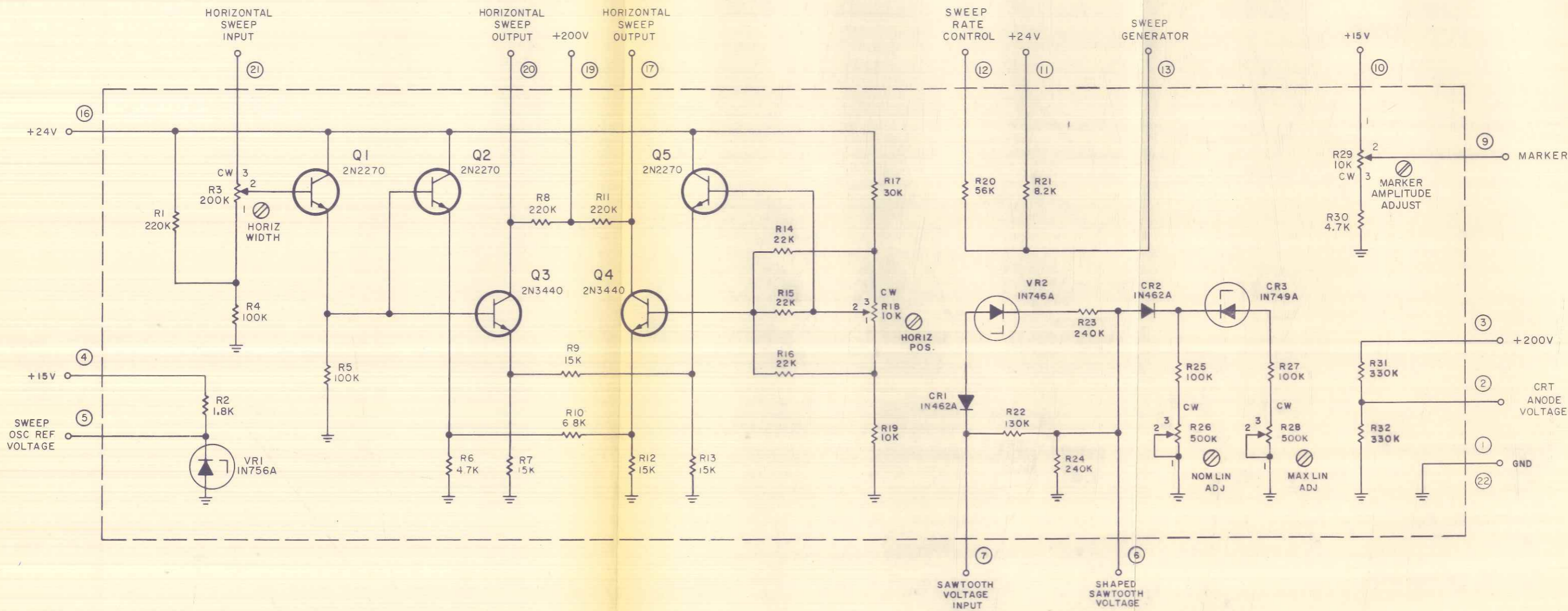
- NOTES:
1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN pF.
 2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
 3. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
 - a) CW INDICATES CLOCKWISE ROTATION.
 - b) INDICATES SCREWDRIVER ADJUSTMENT.
 4. GROUND PINS FOR P.C BOARD ARE AS FOLLOWS: 3, 7, 8, 9, 14, 15 & 22.

Figure 6-23. Type 8026 IF Amplifier (A15), Schematic Diagram



- NOTES:
1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 - b) CAPACITANCE IS MEASURED IN pF.
 2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
 3. THE FOLLOWING SYMBOLS ARE USED ON POTENTIOMETER:
 - a) CW INDICATES CLOCKWISE ROTATION.
 - b) INDICATES SCREWDRIVER ADJUSTMENT.
 4. GROUND PINS FOR P.C. BOARD ARE AS FOLLOWS: 1, 2, 8 THRU 11, 13, 14, 15, 19, 20 & 21.

Figure 6-24. Type 8138 Output Amplifier (A16), Schematic Diagram




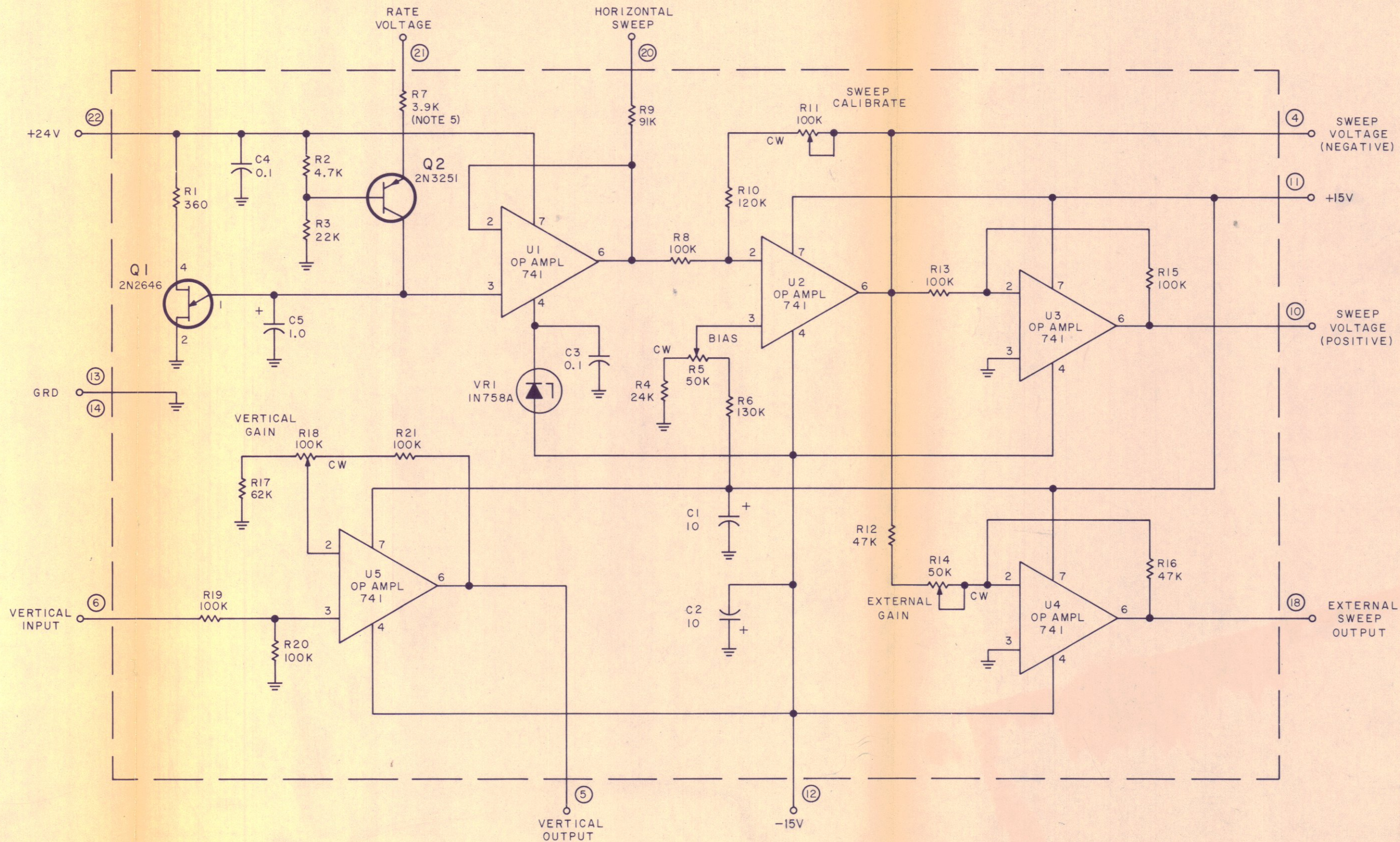
NOTES:
 1. RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
 3. FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS
 a) CW INDICATES CLOCKWISE ROTATION
 b)  INDICATES SCREWDRIVER ADJUSTMENT

Figure 6-25. Type 8241 Horizontal Amplifier (A17), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
 a) RESISTANCE IS MEASURED IN OHMS, $\pm 5\%$, 1/4W.
 b) CAPACITANCE IS MEASURED IN μF .
2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
3. CW ON POTENTIOMETERS INDICATES CLOCKWISE ROTATION OF ACTUATOR.
4. FOR U1 THRU U5 LEAD ARRANGEMENT, SEE DETAIL A.

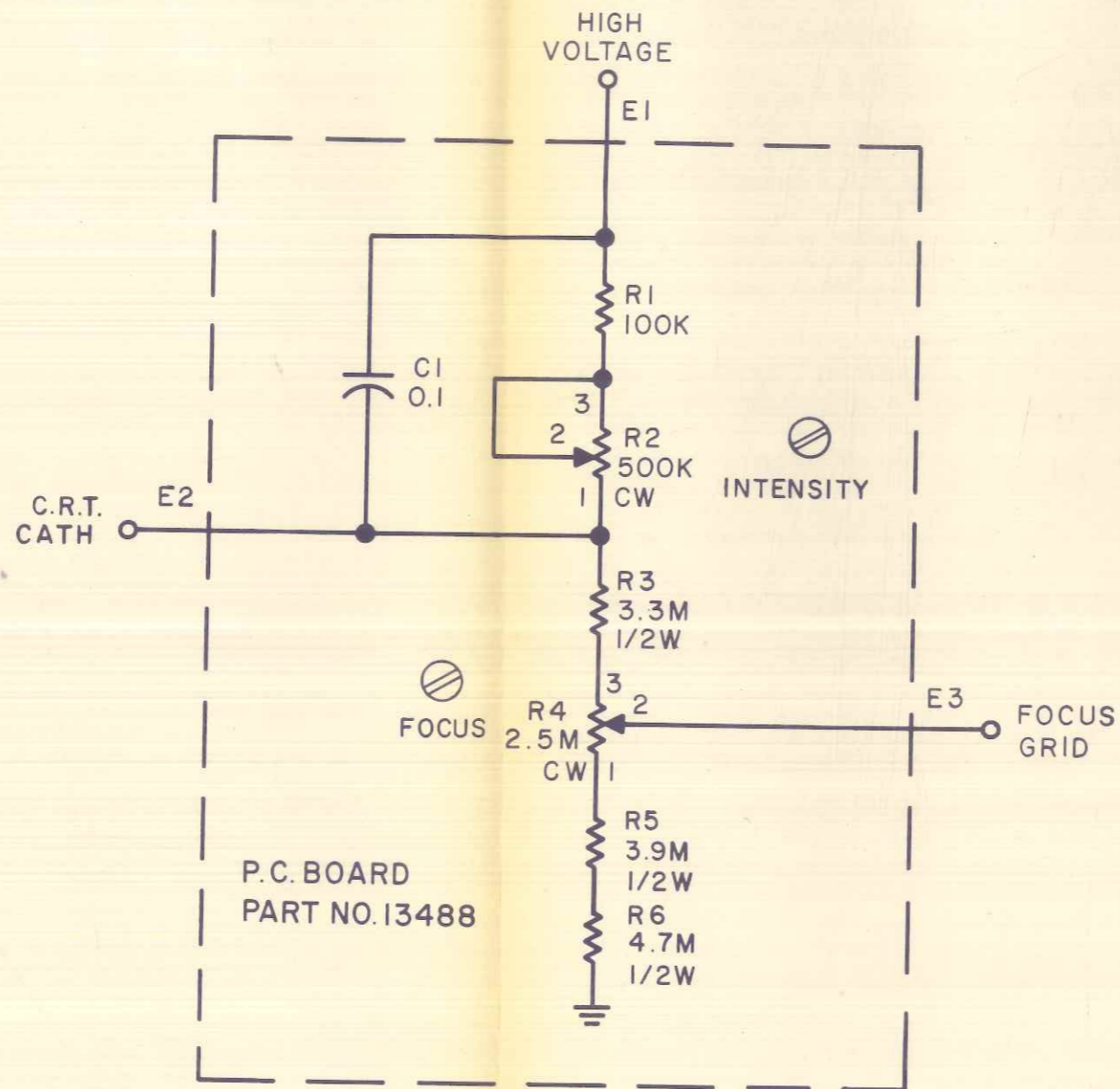
DETAIL A



BOTTOM VIEW

5. NOMINAL VALUE; FINAL VALUE FACTORY SELECTED.

Figure 6-26. Type 8243 Sweep Generator (A18), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
 - a) RESISTANCE IS MEASURED IN OHMS, 5%, 1/4 W
 - b) CAPACITANCE IS MEASURED IN μF
2. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
 - a) CW INDICATES CLOCKWISE ROTATION OF CONTROL KNOB
 - b) INDICATES SCREWDRIVER ADJUST
3. PARTIAL REFERENCE DESIGNATIONS SHOWN. FOR COMPLETE DESIGNATION PREFIX PART NUMBER WITH A5.

Figure 6-27. Part 13488 Focus and Intensity Board (A19), Schematic Diagram

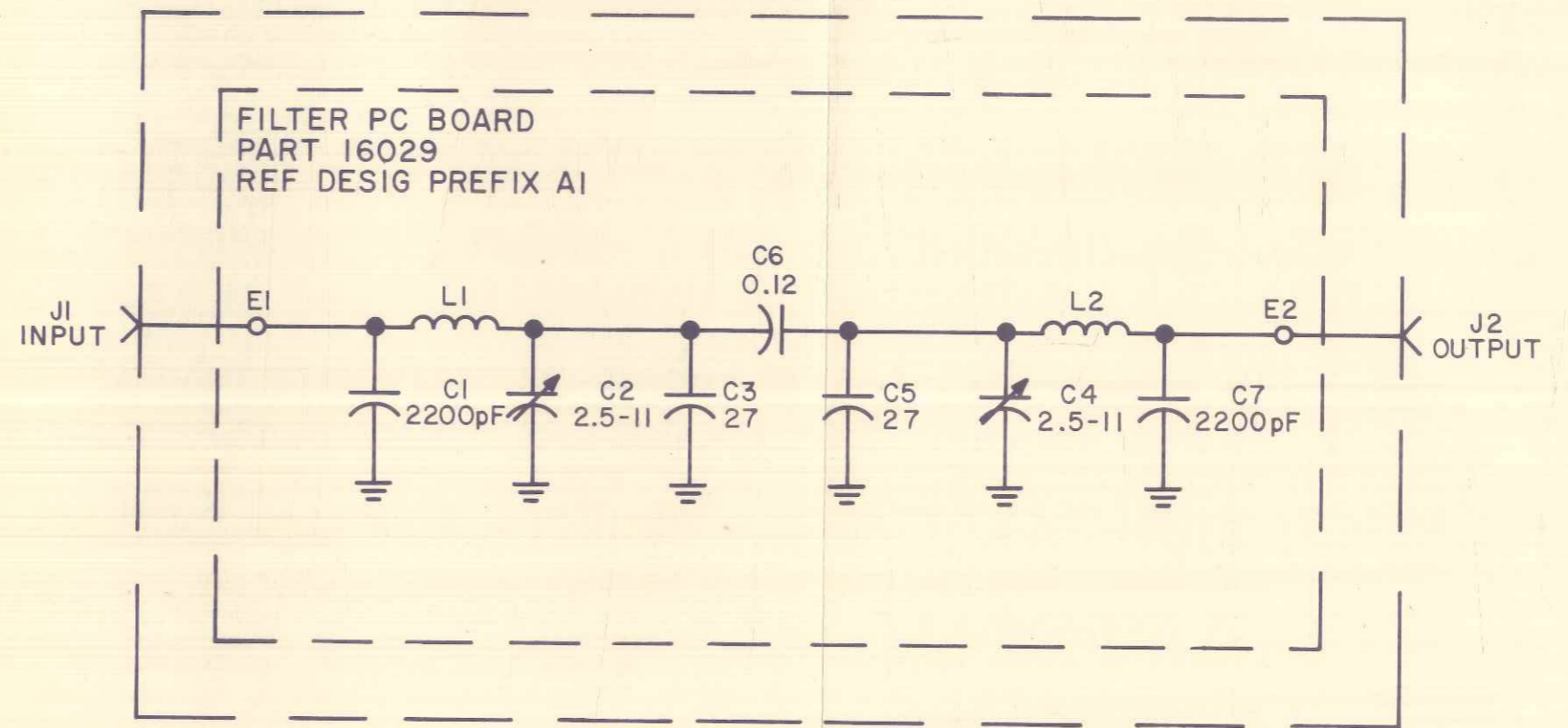


Figure 6-28. Type 7975 Bandpass Filter (A20), Schematic Diagram

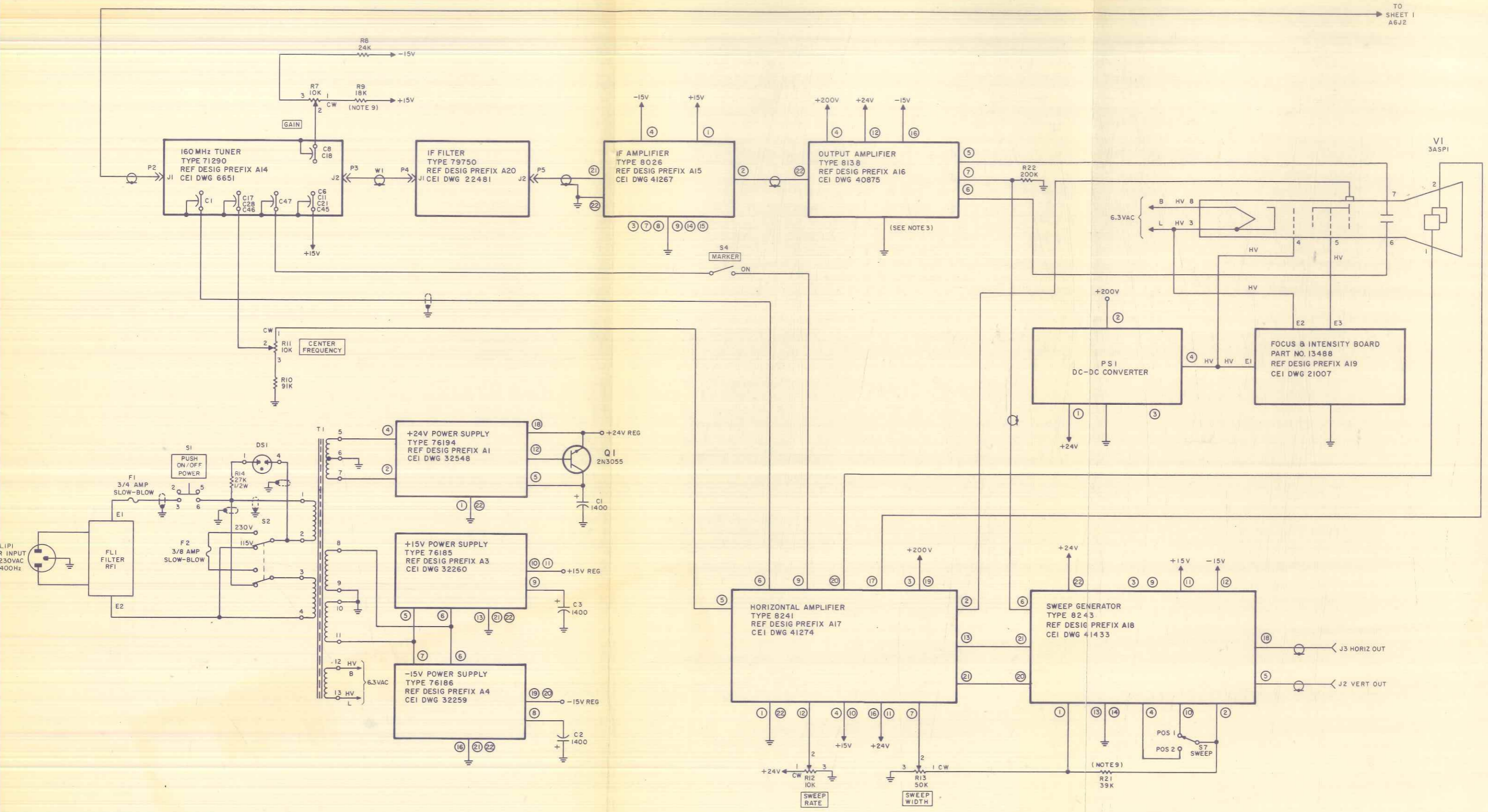
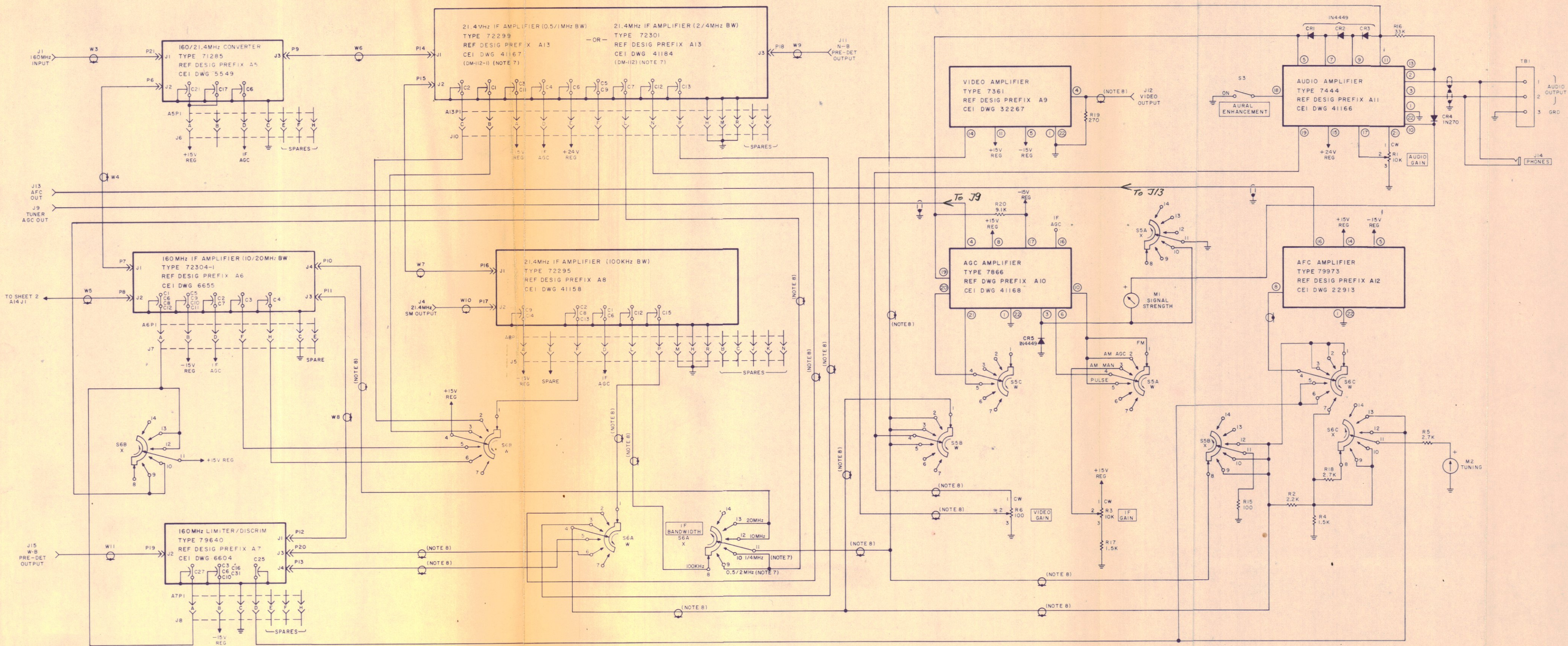


Figure 6-29. Types DM-112 and DM-112-1 Demodulator, Main Chassis Schematic Diagram




- NOTES
1. UNLESS OTHERWISE SPECIFIED:
 a) RESISTANCE IS MEASURED IN OHMS $\pm 5\%$, 1/4W
 b) CAPACITANCE IS MEASURED IN μ F
 2. ENCIRCLED NUMBERS ARE MODULE PIN NUMBERS.
 3. GROUND PINS FOR A16 ARE 1, 2, 8, 9, 10, 11, 13, 14, AND 15, 19, 20, 21.
 4. THE FOLLOWING NOTATIONS ARE USED ON POTENTIOMETERS:
 a) CW INDICATES CLOCKWISE ROTATION OF CONTROL KNOB
 b) \square INDICATES FRONT PANEL CONTROL
 5. SWITCHES S4, S5, AND S6 ARE SHOWN IN EXTREME CCW POSITION AND ARE VIEWED FROM END OPPOSITE CONTROL KNOB. SECTION A IS NEAREST CONTROL KNOB. ARROW INDICATES CW ROTATION OF CONTROL KNOB. LETTERS W, X OR FRONT, DENOTE SEGMENTS OF WAFER.
 6. THE MALE GUIDE PIN FOR JACKS J5 THRU J10 IS LOCATED NEXT TO PIN A AS SHOWN BELOW.
- 
 PIN A
7. DIFFERENCE BETWEEN TYPES IS AT A13.
 8. CABLE SHOULD BE TYPE RG-174/U.
 9. NOMINAL VALUE. FINAL VALUE FACTORY SELECTED.

Figure 6-30. Types DM-112 and DM-112-1 Demodulator, Main Chassis Schematic Diagram

