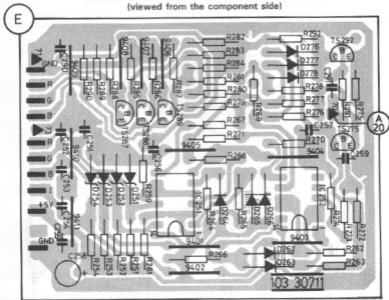


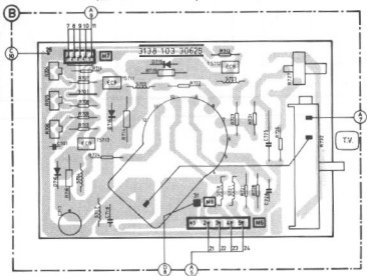
# RGB INTERFACE P.C. BOARD

(viewed from the component side)



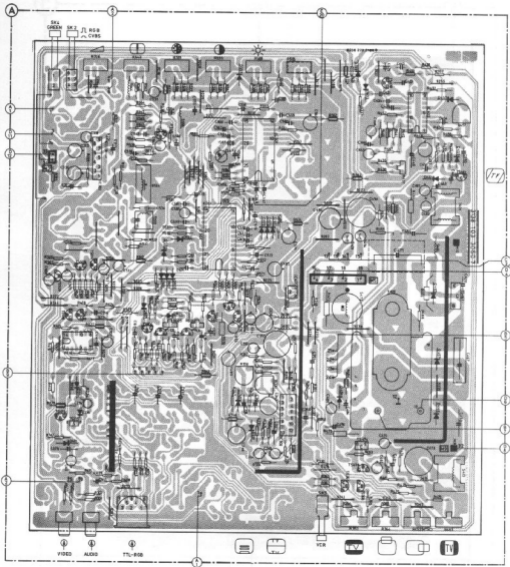
# CRT P.C. BOARD

(viewed from the component side)



# MAIN P.C. BOARD

(viewed from the component side)



## ADJUSTMENT PROCEDURES

### Adjustment Notes: *(unless otherwise specified:)*

1. An isolation transformer must be used when servicing this unit.
2. Line voltage maintained at 120VAC, 60Hz.
3. The unit should be allowed to warm up for at least 30 minutes prior to making any adjustments.
4. Voltages measured with respect to ground.
5. Signal injection point is the Video In Jack.

### Power Supply Adjustment

1. With the unit off, set the Volume Control (R316), Contrast Control (R585), and Brightness Control (R589) to minimum.
2. Preset R114 to mechanical center.
3. Connect a voltmeter across C494 and turn on the unit.
4. Adjust R114 for a reading of 125V on the meter.

### Horizontal Synchronization Adjustment

1. Inject a cross-hatch pattern signal and short C434.
2. Adjust the horizontal sync with R437.
3. Remove the short from C434.

### Vertical Synchronization Adjustment

1. Inject a cross-hatch pattern signal and short C434.
2. Adjust the vertical sync with R331.
3. Remove the short from C434.

### Horizontal Amplitude and Centering Adjustment

1. Inject a cross-hatch pattern signal and set the Brightness Control (R589) and Contrast Control (R585) to their mechanical centers.
2. Adjust R485 so that 14 blocks correspond to a width of 26cm.
3. Adjust R453 to center the display horizontally.

### Vertical Amplitude and Centering Adjustment

1. Inject a cross-hatch pattern signal and set the Brightness Control (R589) and Contrast Control (R585) to their mechanical centers.
2. Adjust R353 so that 10 blocks correspond to a height of 18.5cm.
3. Adjust R364 to center the display vertically.

### Chrominance Adjustment

1. Inject a color bar pattern signal and adjust the secondary controls for normal viewing. Place SK3 (not used in CM8562) in the off position.
2. Connect an oscilloscope to pin 15 of IC502 and adjust S533 for minimum amplitude of the chrominance signal that is present on the various brightness steps of the luminance signal.
3. Short pins 9 and 17 of IC501.
4. Adjust C567 to minimize the chroma as visible on the screen.
5. Remove the shorting clips from pins 9 and 17.

### Comb Filter Adjustment

1. Inject a color bar pattern signal and place the Comb Filter Switch (SK3) in the on position.
2. Connect an oscilloscope to the emitter of TS531 and adjust R523 and S515 for minimum amplitude of the chrominance signal. For optimum performance, repeat the adjustment.

### Focus Adjustment

1. Inject a cross-hatch pattern signal and set the Brightness Control (R589) to minimum and the Contrast Control (R585) to maximum.
2. Adjust R732 for optimum focus.

### X-Ray Protection Circuit Adjustment

1. Inject a color bar pattern signal and set the Brightness and Contrast Controls to minimum.
2. Connect a voltmeter between the wiper of R457 and ground.
3. Adjust R457 for a reading of 6.9V.

**NOTE:** The following adjustments need only be performed if the CRT has been replaced. Minor corrections for purity and convergence may be accomplished through the use of the Purity and Convergence Assembly located on the neck of the CRT.



### Dynamic Convergence Adjustment

1. Inject a cross-hatch pattern signal and turn off the green gun by disconnecting R723.
2. Tilt the yoke up and down to achieve the best convergence of the red and blue vertical lines at the 6 and 12 o'clock and the red and blue horizontal lines at the 3 and 9 o'clock positions (see Figure 2).
3. When the correct position has been found, place a rubber wedge between the yoke and CRT. If the yoke is tilted up, place wedge 1 as shown in Figure 3a; if it is tilted down, place wedge 1 as shown in Figure 4a.
4. Tilt the yoke to the left and right to find the point of best possible convergence of the red and blue lines at the edges, top, and bottom of the screen as shown in Figure 5.
5. When the correct position is located, place wedges 2 and 3 as shown in Figure 3b or 4b.
6. Remove wedge 1 and place it in the final position as shown in Figure 3c or 4c. Reconnect resistor R723 to turn on the green gun.

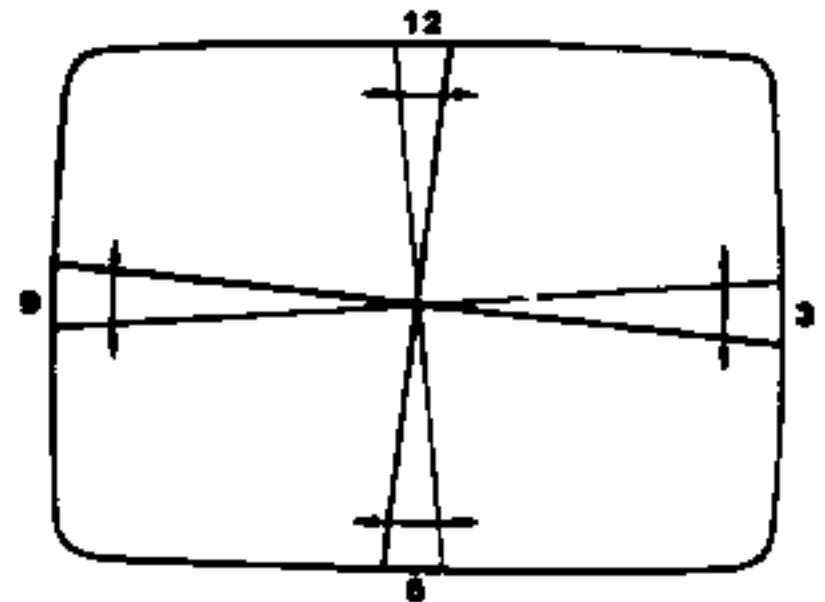


Figure 2 — Tilt yoke up or down to converge Red and Blue vertical lines at 6 and 12 o'clock positions, and Blue horizontal lines at 3 and 9 o'clock positions.

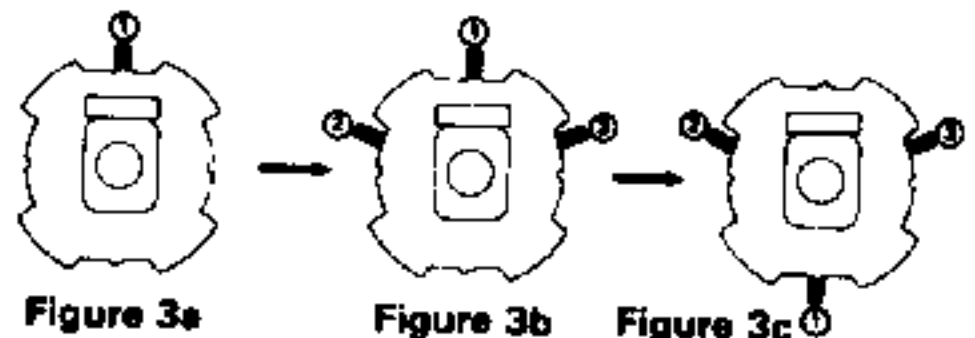


Figure 3a

Figure 3b

Figure 3c

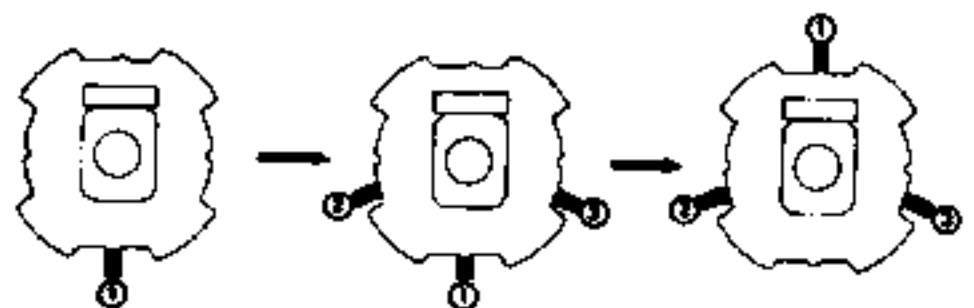


Figure 4a

Figure 4b

Figure 4c

### Static Convergence Adjustment

1. Inject a cross-hatch pattern signal and allow a 10 minute warm-up period.
2. Turn off the green gun by disconnecting R723. Turn locking ring (B) counterclockwise.
3. Slowly spread, and if necessary, rotate the 4-pole magnetic rings (C) to converge red and blue lines at the center of the screen.
4. Reconnect R723 to turn on the green gun and disconnect R724 to turn off the blue gun.
5. Slowly spread, and if necessary, rotate the 6-pole magnetic rings (D) to converge the red and green lines at the center of the screen.
6. Reconnect R724 to turn on the blue gun.
7. For optimum performance, repeat steps 1 through 6. Proceed to the Dynamic Convergence Adjustment.

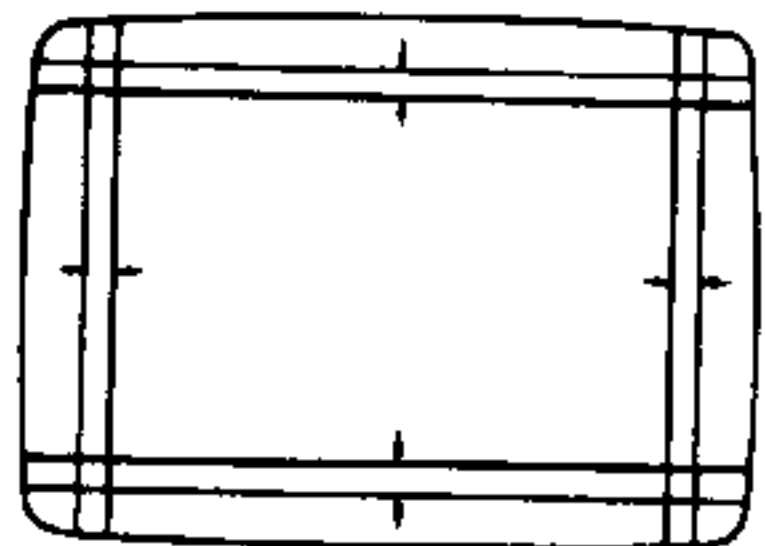



Figure 5 — Tilt yoke left or right to converge Red and Blue horizontal lines at the 6 and 12 o'clock positions, and Red and Blue vertical lines at the 3 and 9 o'clock positions.

# SCHEMATIC NOTES

UNLESS OTHERWISE SPECIFIED

1. ALL VOLTAGE AND WAVEFORMS TAKEN UNDER THE FOLLOWING CONDITIONS:
  - LINE VOLTAGE MAINTAINED AT 120VAC, 60Hz VIA AN ISOLATION TRANSFORMER.CUSTOMER CONTROLS SET AS FOLLOWS:
  - VOLUME CONTROL (R316) SET TO MINIMUM.
  - SHARPNESS CONTROL (R542) SET TO MAXIMUM.
  - COLOR CONTROL (R501) SET FOR 8.7VDC WIPER TO GROUND.
  - CONTRAST CONTROL (R585) SET FOR 8.7VDC WIPER TO GROUND.
  - BRIGHTNESS CONTROL (R589) SET FOR 5VDC WIPER TO GROUND.
  - HUE CONTROL (R565) SET FOR 6VDC WIPER TO GROUND.
  - SK2 IN CVBS POSITION.
  - SK3, SK4, & SK5 OFF.
2. VOLTAGES WITHOUT BRACKETS AND WAVEFORMS WERE TAKEN USING A 10 BAR GATED RAINBOW PATTERN SIGNAL SET TO DELIVER CHROMA BARS OF .5Vp-p AT THE VIDEO IN JACK. SIGNAL STRENGTH OF THE GENERATOR WAS MEASURED AT 10,000uV.
3. VOLTAGES WITHIN BRACKETS WERE TAKEN WITH NO SIGNAL APPLIED. THEY ARE LISTED ONLY WHERE AN APPRECIABLE CHANGE WAS NOTED OR CIRCUITRY MADE IT CONVENIENT.
4. ALL VOLTAGES ARE POSITIVE DC WITH RESPECT TO GROUND. BE IT THE ISOLATED (SIGNAL) GROUND OR THE AC (HOT) GROUND WHICHEVER IS PRESENT IN THAT AREA OF CIRCUITRY.
5. VOLTAGES MAY VARY DUE TO NORMAL PRODUCTION TOLERANCES. VOLTAGE SOURCES ARE ALSO NOMINAL.
6. FOR VOLTAGE, WATTAGE, AND TOLERANCE OF COMPONENTS. REFER TO THE REPLACEMENT PARTS LIST.
7. CAPACITANCE VALUES ARE LISTED IN MICROFARADS ( $\mu$ ), NANOFARADS (n), & PICOFARADS (p).  $.001\mu = 1n = 1000p$ .
8. CAPACITOR VOLTAGE RATINGS ARE CODED ON THE SCHEMATIC BY LETTER AS SHOWN BELOW:  
e = 16V, f = 25V, g = 40V, h = 63V, j = 100V, r = 250V, u = 400V, v = 500V, w = 630V.
9. REFER TO THE SYMBOL IDENTIFICATION CHART FOR AN EXPLANATION OF OTHER CAPACITOR, RESISTOR, AND IC SYMBOLS USED.

## WARNING

Critical components having special safety characteristics are identified with an **S** by the Ref. No. in the parts list and enclosed within a broken line\* along with the safety symbol  on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from the N. A. P. Consumer Electronics Corp. NAPCEC assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

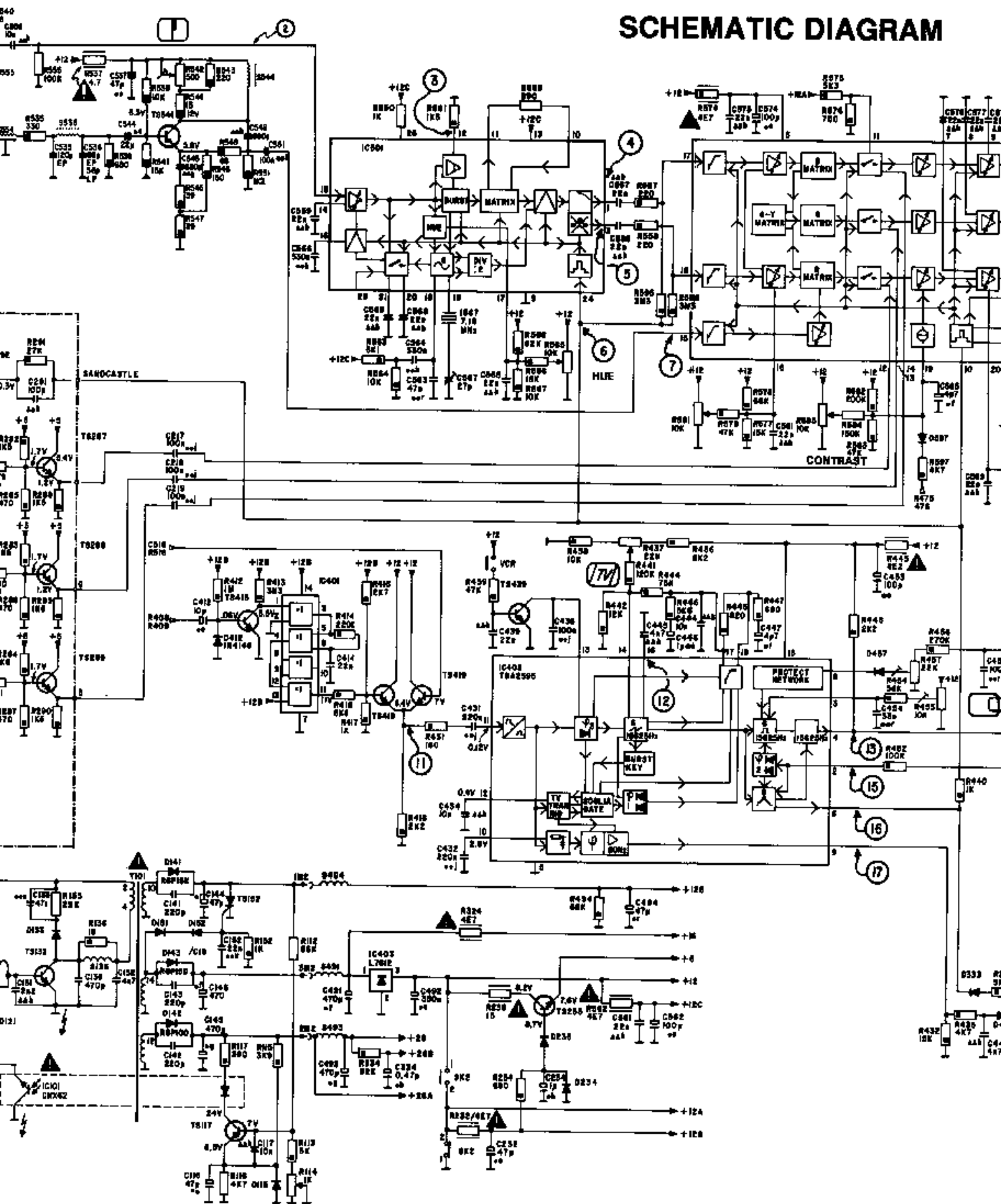
\* Broken line: 

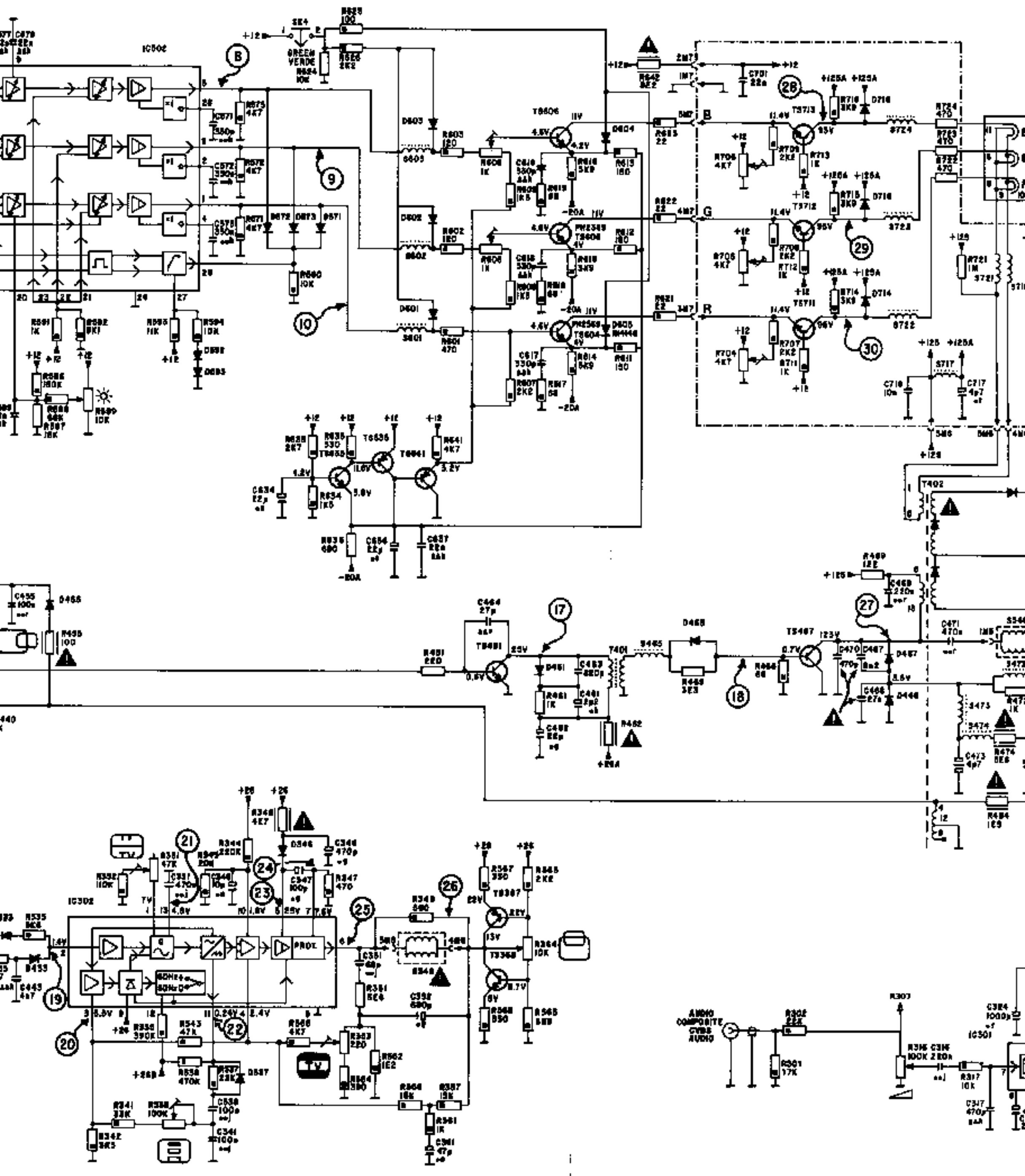






# SCHEMATIC DIAGRAM







# WAVEFORMS

## WAVEFORM NOTES

(UNLESS OTHERWISE SPECIFIED)

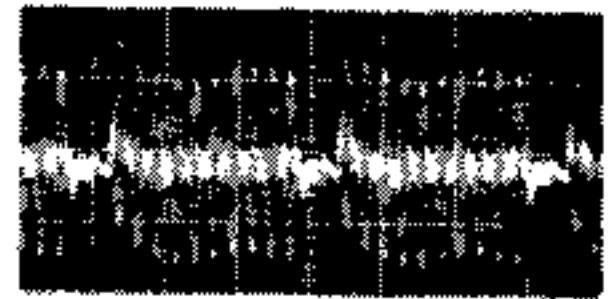
1. WAVEFORMS TAKEN UNDER THE CONDITIONS SPECIFIED IN THE SCHEMATIC NOTES.
2. SWEEP TIME/CM SETTINGS ARE SHOWN JUST BELOW PHOTOS. ALL PHOTOS WERE TAKEN WITH THE SWEEP TIME CONTROLS IN THE CALIBRATED POSITION. HORIZONTAL POSITIONING OF THE WAVEFORMS WAS ADJUSTED FOR MAXIMUM CLARITY.



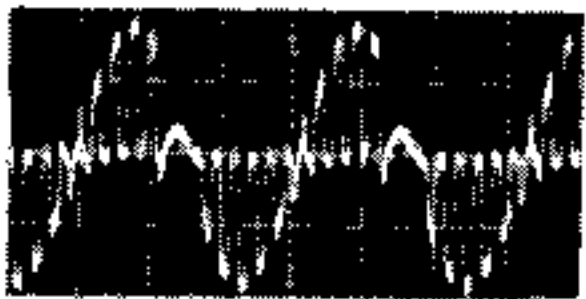
1.  $.7V_{p-p}$   
 $20\mu S$



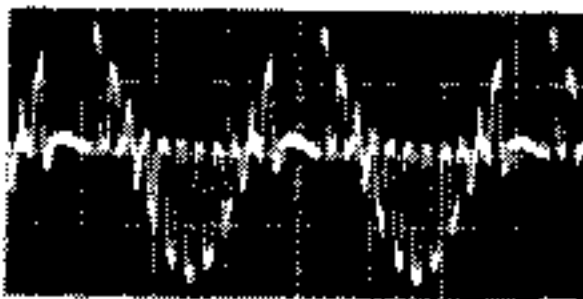
2.  $.1V_{p-p}$   
 $20\mu S$



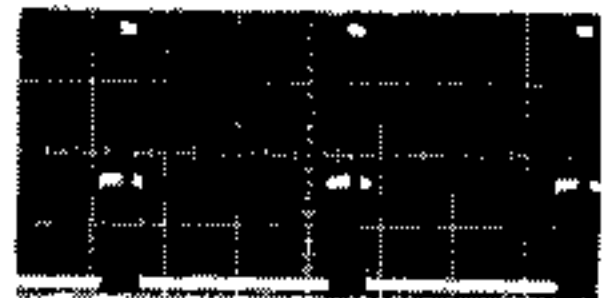
3.  $.65V_{p-p}$   
 $20\mu S$



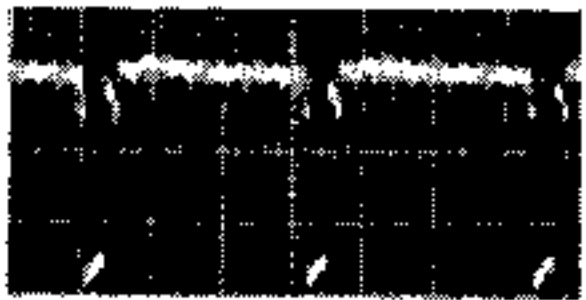
4.  $.45V_{p-p}$   
 $20\mu S$



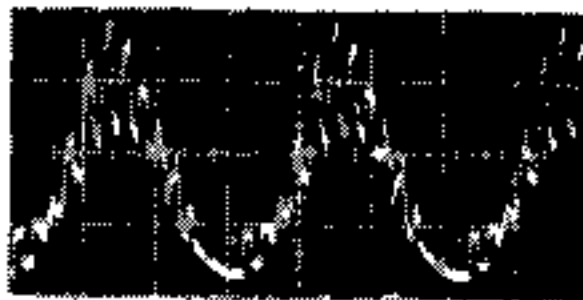
5.  $.7V_{p-p}$   
 $20\mu S$



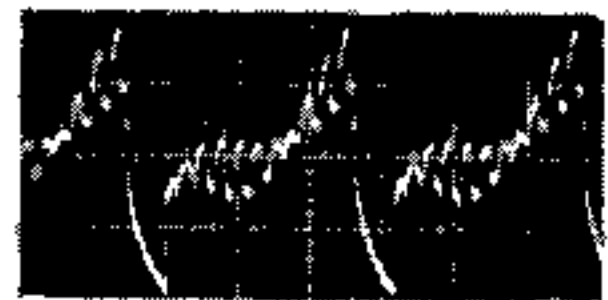
6.  $10.2V_{p-p}$   
 $20\mu S$



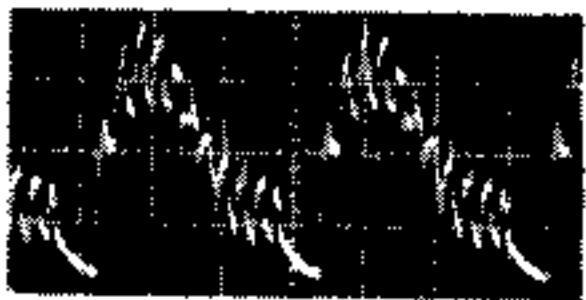
7.  $.25V_{p-p}$   
 $20\mu S$



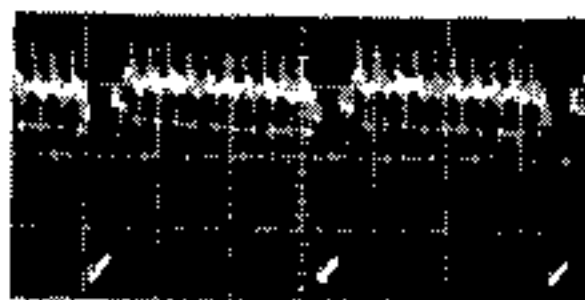
8.  $2.5V_{p-p}$   
 $20\mu S$



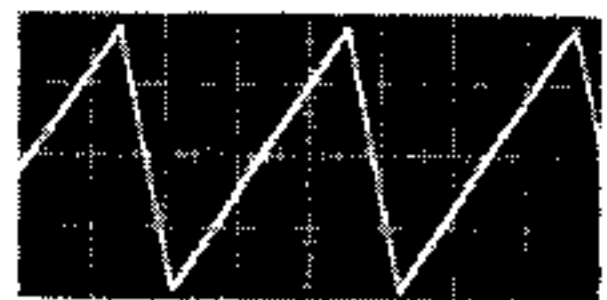
9.  $1.4V_{p-p}$   
 $20\mu S$



10.  $1.75V_{p-p}$   
 $20\mu S$



11.  $.8V_{p-p}$   
 $20\mu S$



12.  $3.2V_{p-p}$   
 $20\mu S$



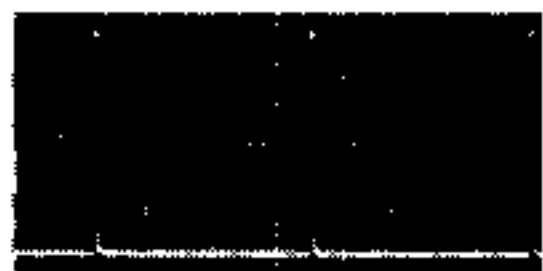
13. 1.7Vp-p  
20 $\mu$ S



14. 5.8Vp-p  
20 $\mu$ S



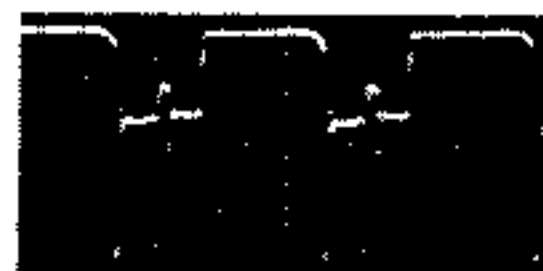
15. 10.3Vp-p  
20 $\mu$ S



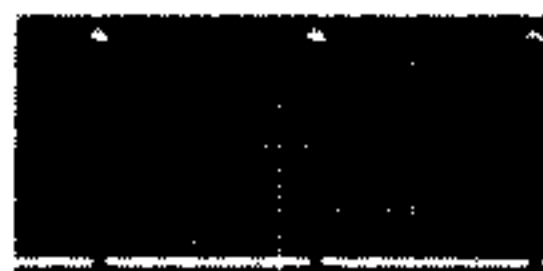
16. 10.2Vp-p  
5mS



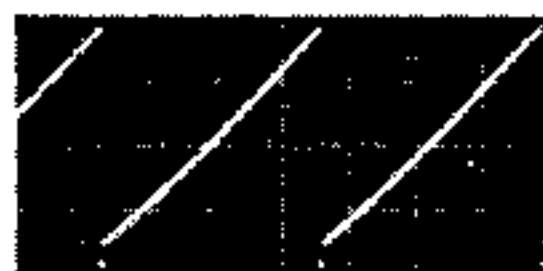
17. 48Vp-p  
20 $\mu$ S



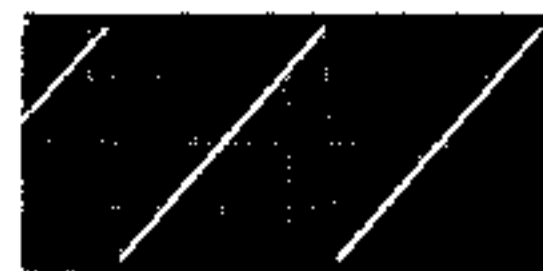
18. 11.5Vp-p  
20 $\mu$ S



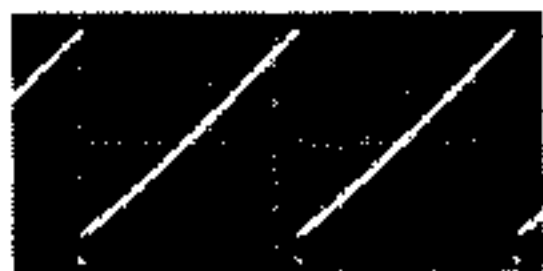
19. 19Vp-p  
5mS



20. 11Vp-p  
5mS



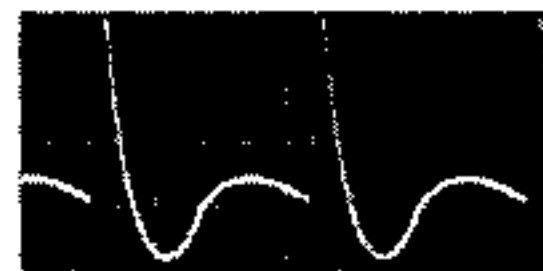
21. 2Vp-p  
5mS



22. 11.3Vp-p  
5mS



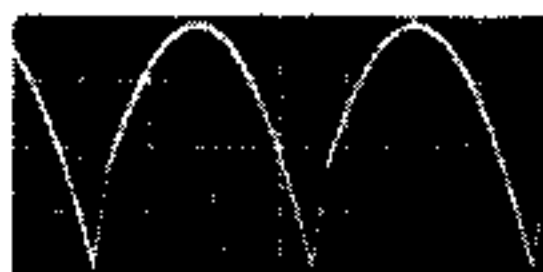
23. 24Vp-p  
5mS



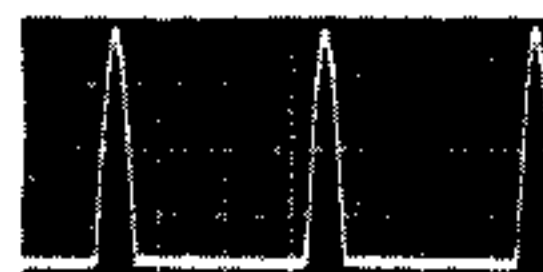
24. 1.9Vp-p  
5mS



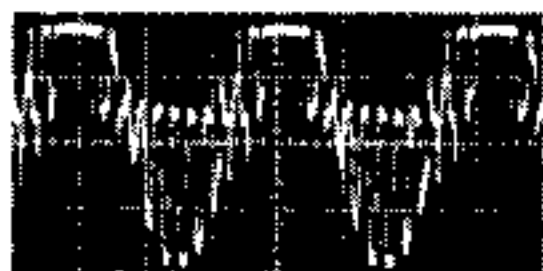
25. 47Vp-p  
5mS



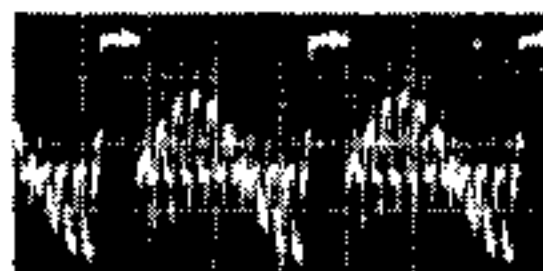
26. 4Vp-p  
5mS



27. 100Vp-p  
20 $\mu$ S



28. 65Vp-p  
20 $\mu$ S

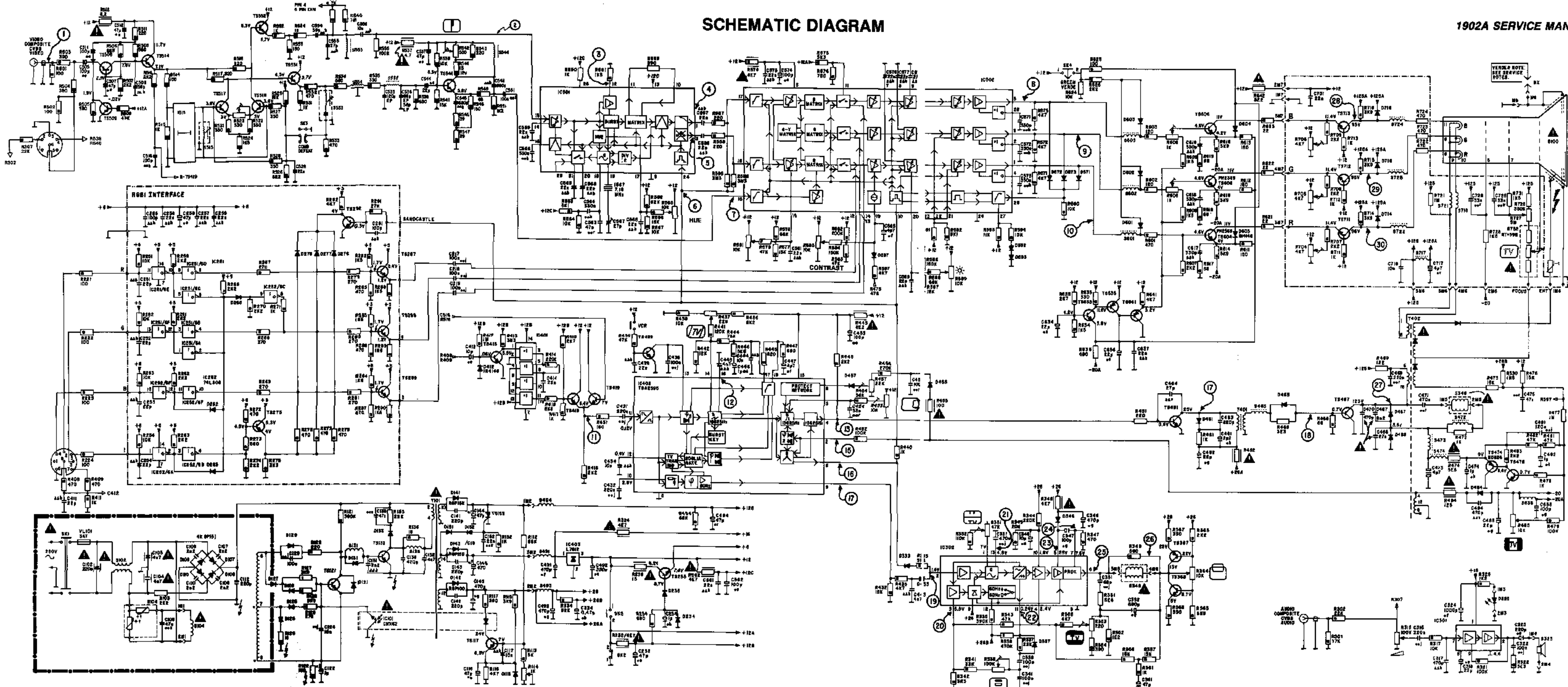


29. 44Vp-p  
20 $\mu$ S



30. 64Vp-p  
20 $\mu$ S

# SCHEMATIC DIAGRAM



Refer to WARNING and SCHEMATIC NOTES