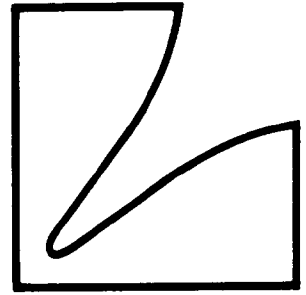


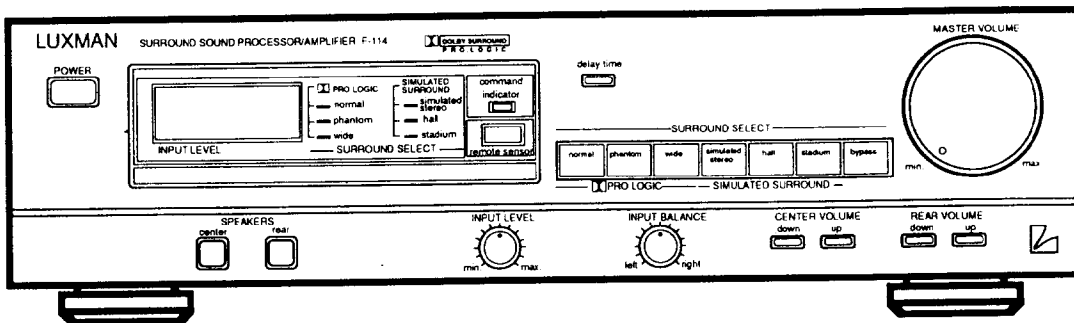
# SERVICE MANUAL



## Surround Sound Processor/Amplifier

# F-114

Disassembly Instructions  
Adjustment Procedures  
Adjustment Locations  
Block Diagram

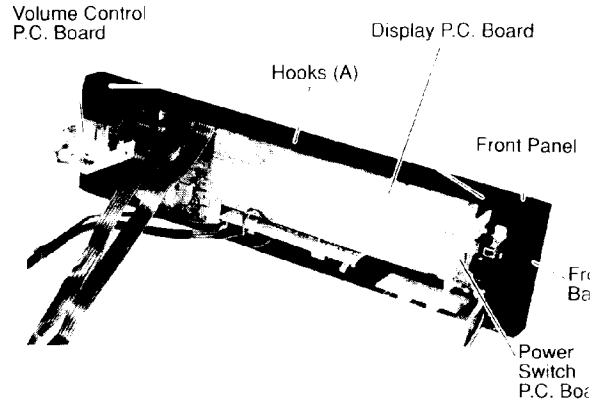


# Disassembly Instructions

## 1. Caution on Removing the Front Base

You cannot remove the Front Base unless you remove the Front Panel first. When you remove the Front Panel, follow the procedure given below.

- (1) Remove the four screws that fix the lower Part of the Front Panel. To remove the Front Panel, push the panel in the direction of arrow C as you press down Hooks (A) (located in three places) in the direction of arrow B using a minus (-) screwdriver (see Figures 1 and 2).

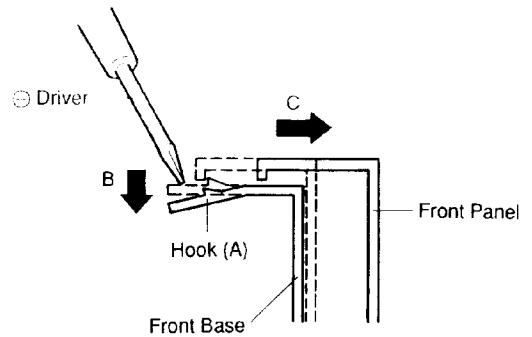


Figuer 1

## 2. Caution on Removing the Display P.C.Board

Remove the four screws fixing the Board. Remove the Display P.C.Board as you press Hooks (D) (located in six places) in the direction of arrow E using your fingers (see Figures 3 and 4).

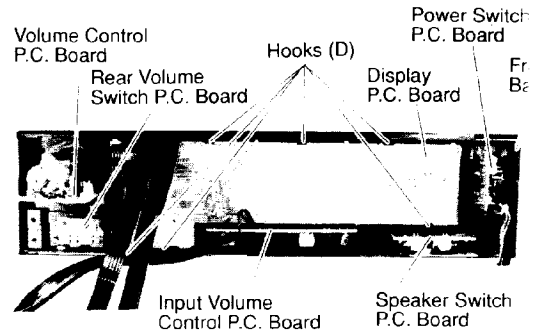
**Note:** Be careful when you handle Hooks (A) and (D). They may break easily.



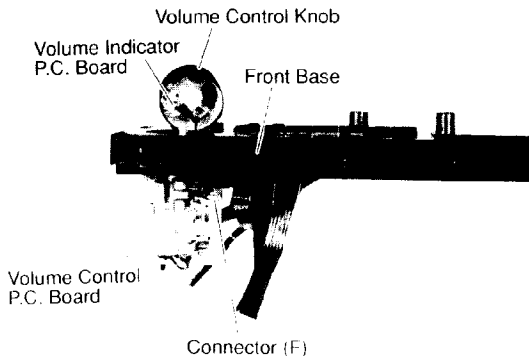
Figuer 2

## 3. Caution on Removing the Volume Control P.C.Board

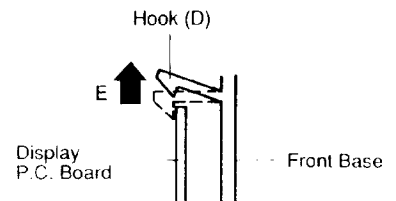
To prevent cutting off the Connector (F) which comes out from the Volume Indicator P.C.Board at the rear of the Volume Control Knob, disconnect the connector before removing the knob (see Figure 5).



Figuer 3



Figuer 5



Figuer 4

# Adjustment Procedures

## 1. Idling Adjustment

### (1) Connection

| Step | A     | B     |
|------|-------|-------|
| 1    | TP601 | TP603 |
| 2    | TP604 | TP602 |
| 3    | TP701 | TP702 |

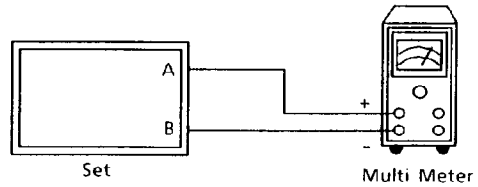


Figure 6

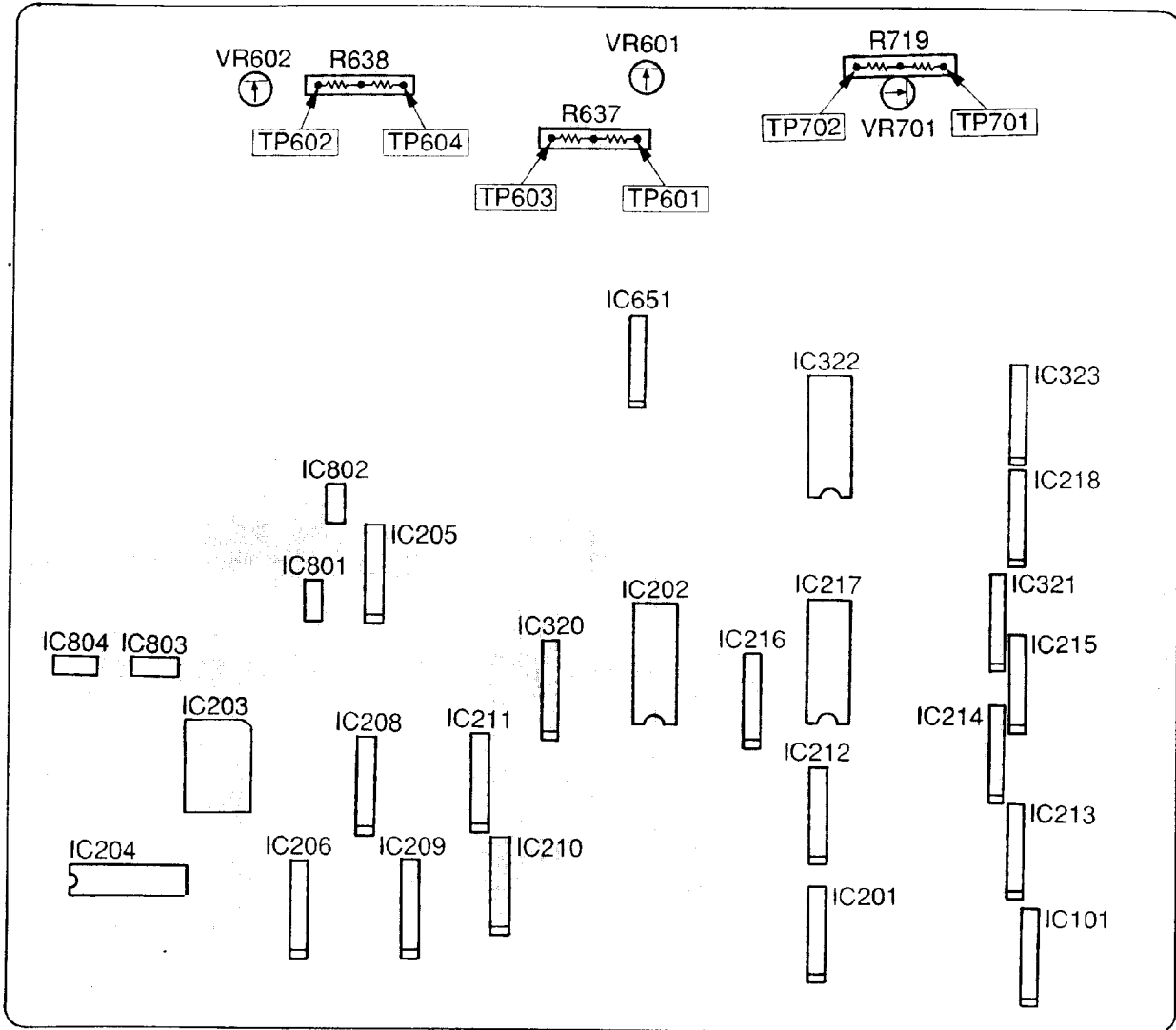
### (2) Control Settings

Volume Control ..... Minimum  
 Power Switch ..... ON  
 Others ..... OFF

### (3) Adjustment Procedures

| Step | Description       | Connection | Adjust Points    | Test Point            | Remarks  |
|------|-------------------|------------|------------------|-----------------------|--|
| 1    | Idling Adjustment | Figure 6   | VR601 (REAR - L) | TP601, 603 (REAR - L) | Power switch on and wait 5 minutes for warming-up Adjust to 5~7mV. |
| 2    |                   |            | VR602 (REAR - R) | TP602, 604 (REAR - R) |  |
| 3    |                   |            | VR701 (CENTER)   | TP701, 702 (CENTER)   |  |

# Adjustment Locations

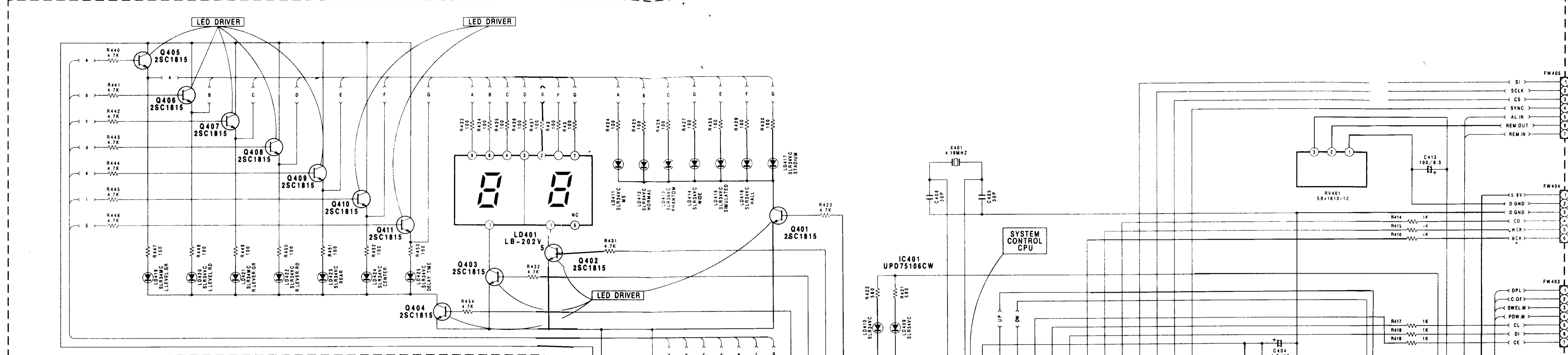


SURROUND MAIN P.C. Board (Top View)

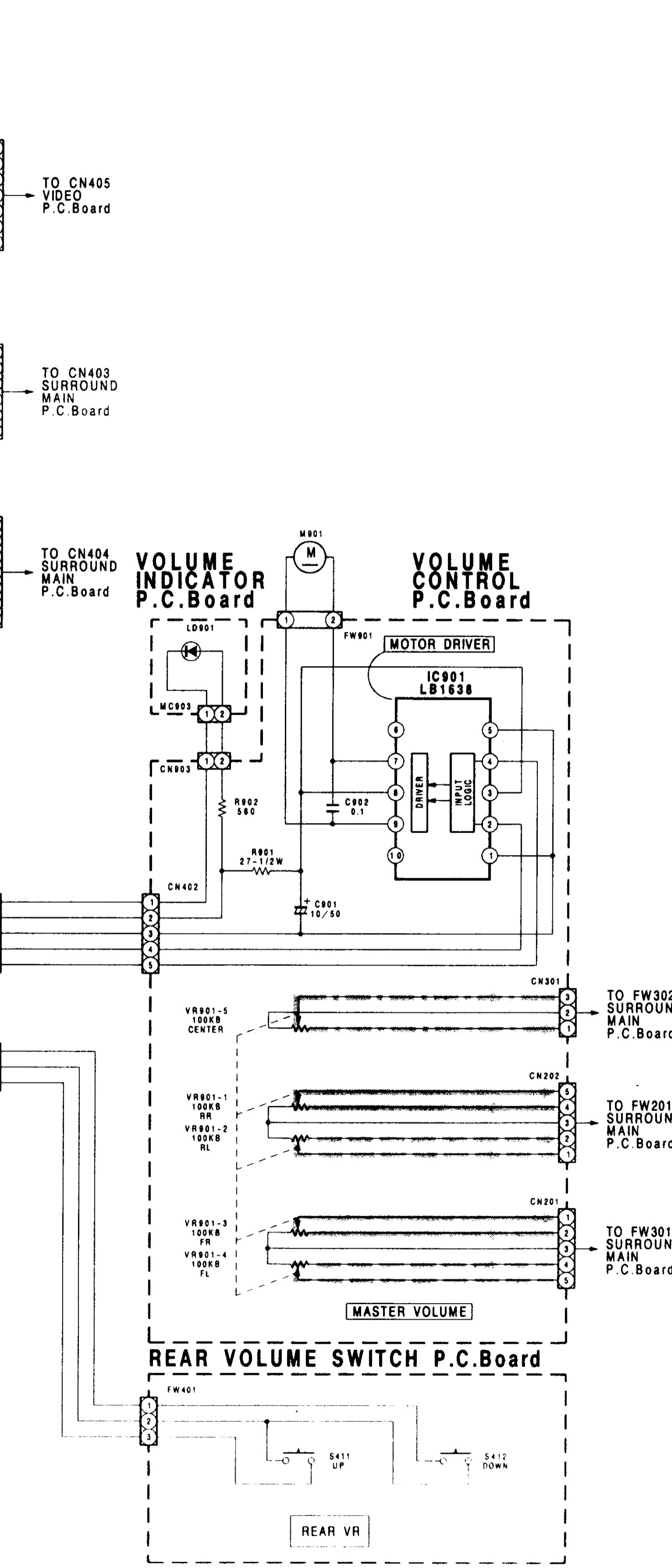
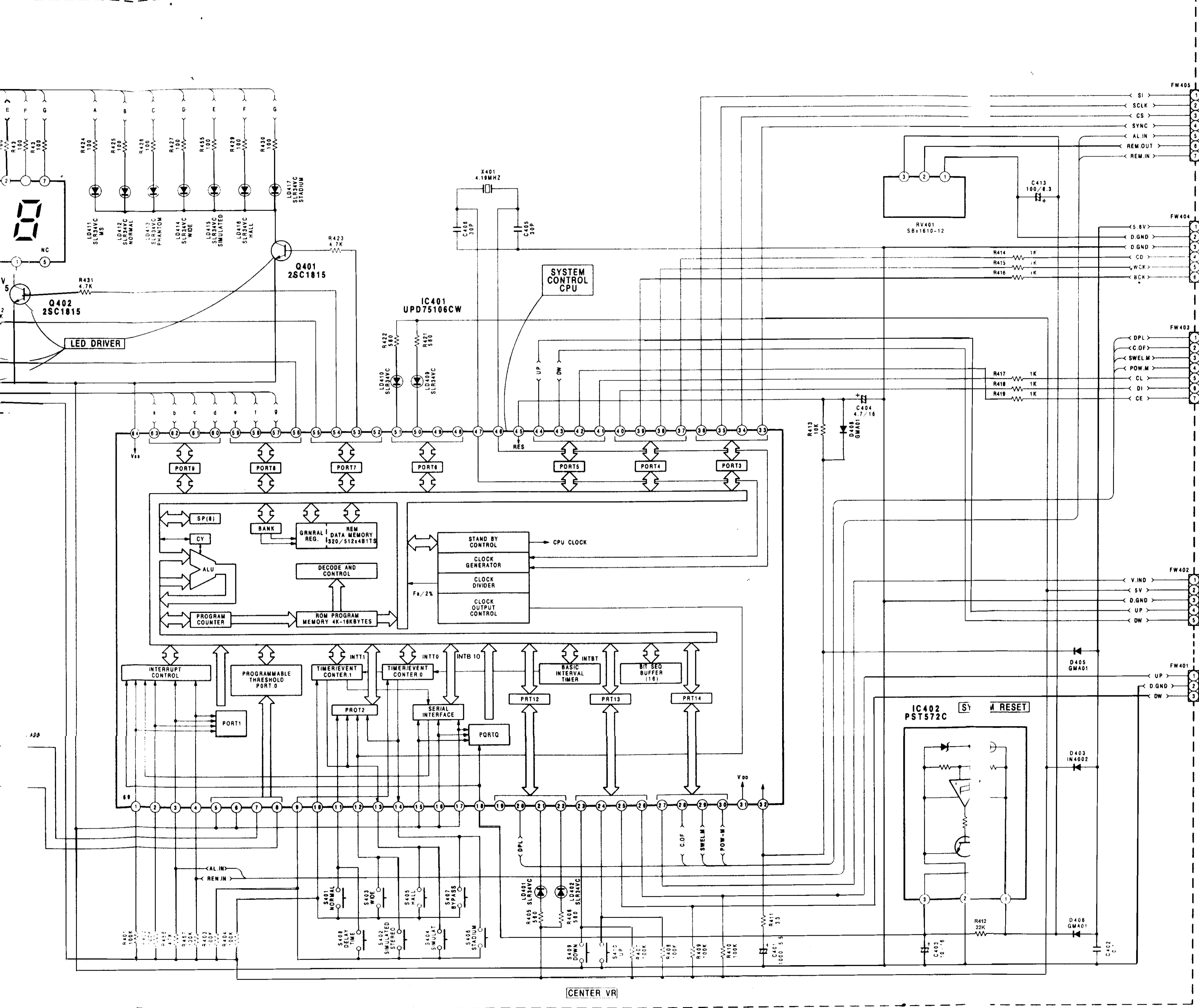
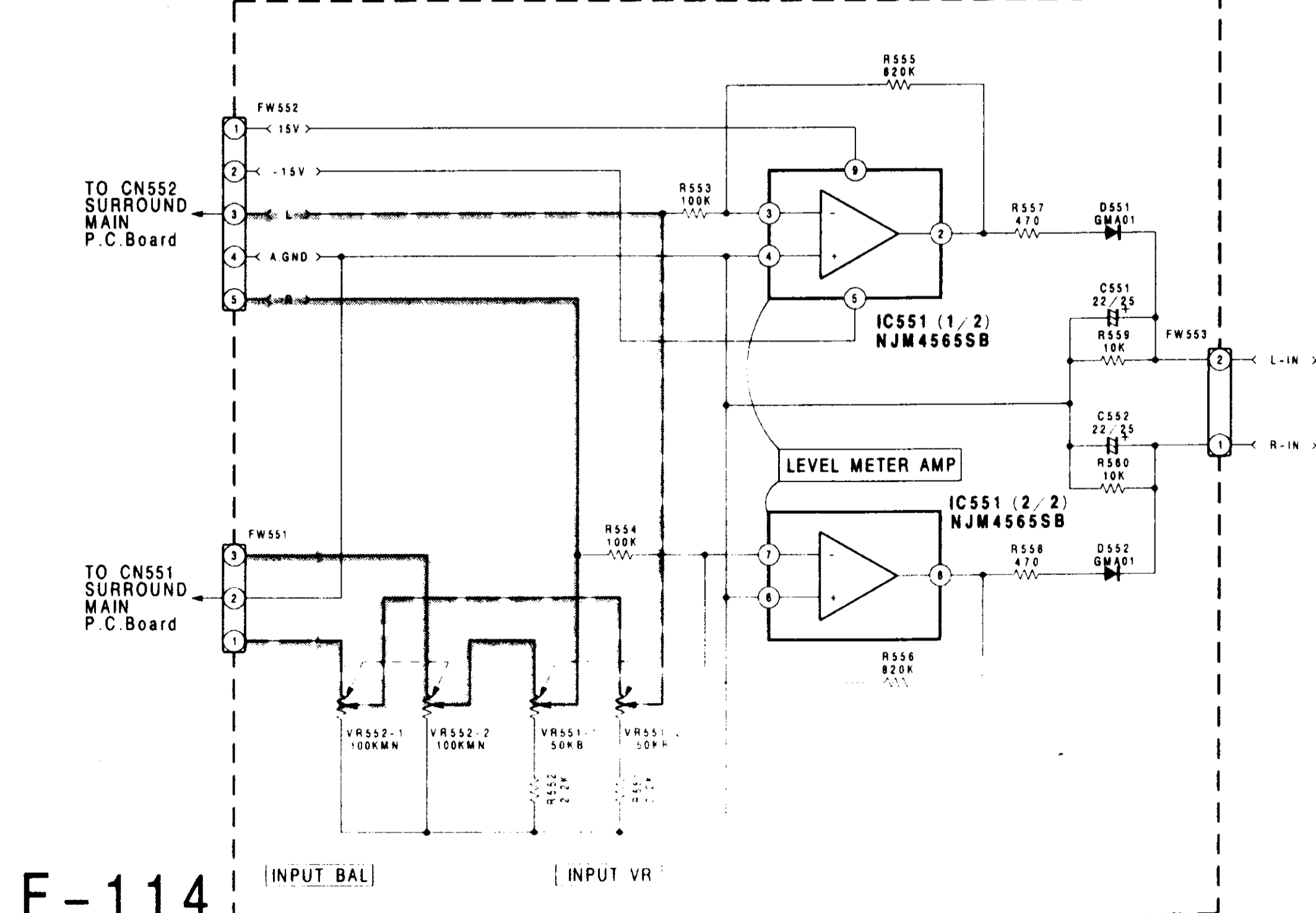
# Schematic Diagram (2/4)

| IC'S            | IC551 (1/2)<br>IC551 (2/2) |      |      |      |      |      |      |      | IC401 |      | IC402 |  | IC901 |  |  |
|-----------------|----------------------------|------|------|------|------|------|------|------|-------|------|-------|--|-------|--|--|
| TRANSISTORS (Q) | Q405                       | Q406 | Q407 | Q408 | Q409 | Q410 | Q411 | Q404 | Q403  | Q401 |       |  |       |  |  |

## DISPLAY P.C. Board



## INPUT VOLUME CONTROL P.C. Board

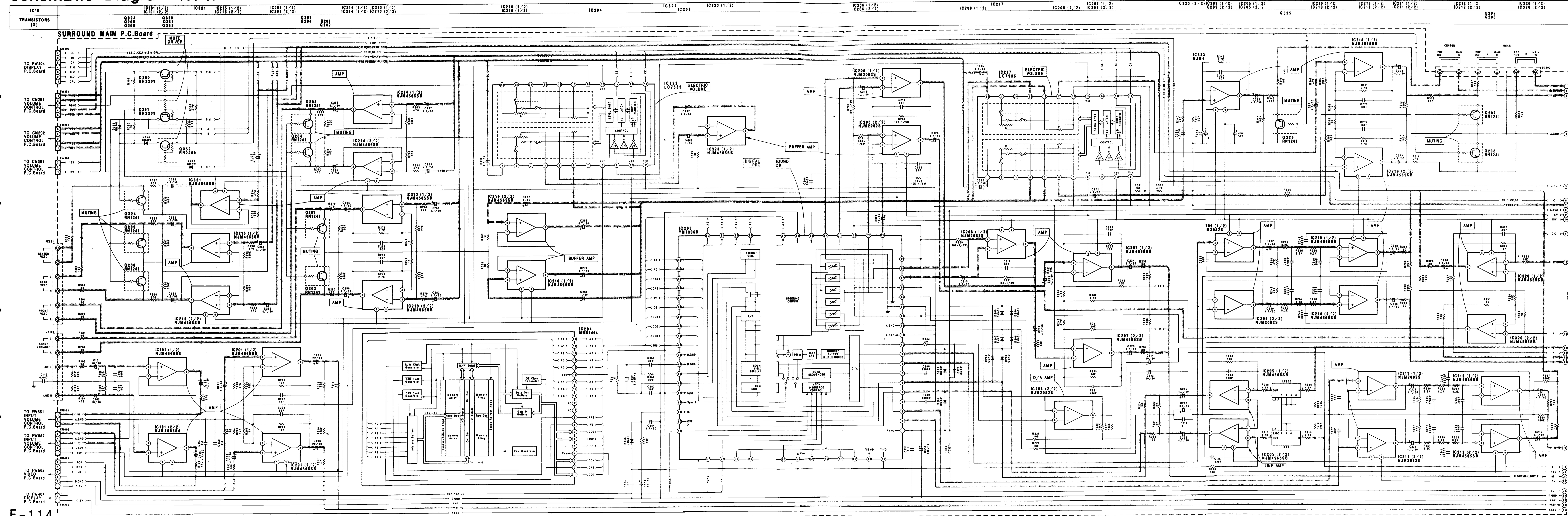


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A B C D F G H

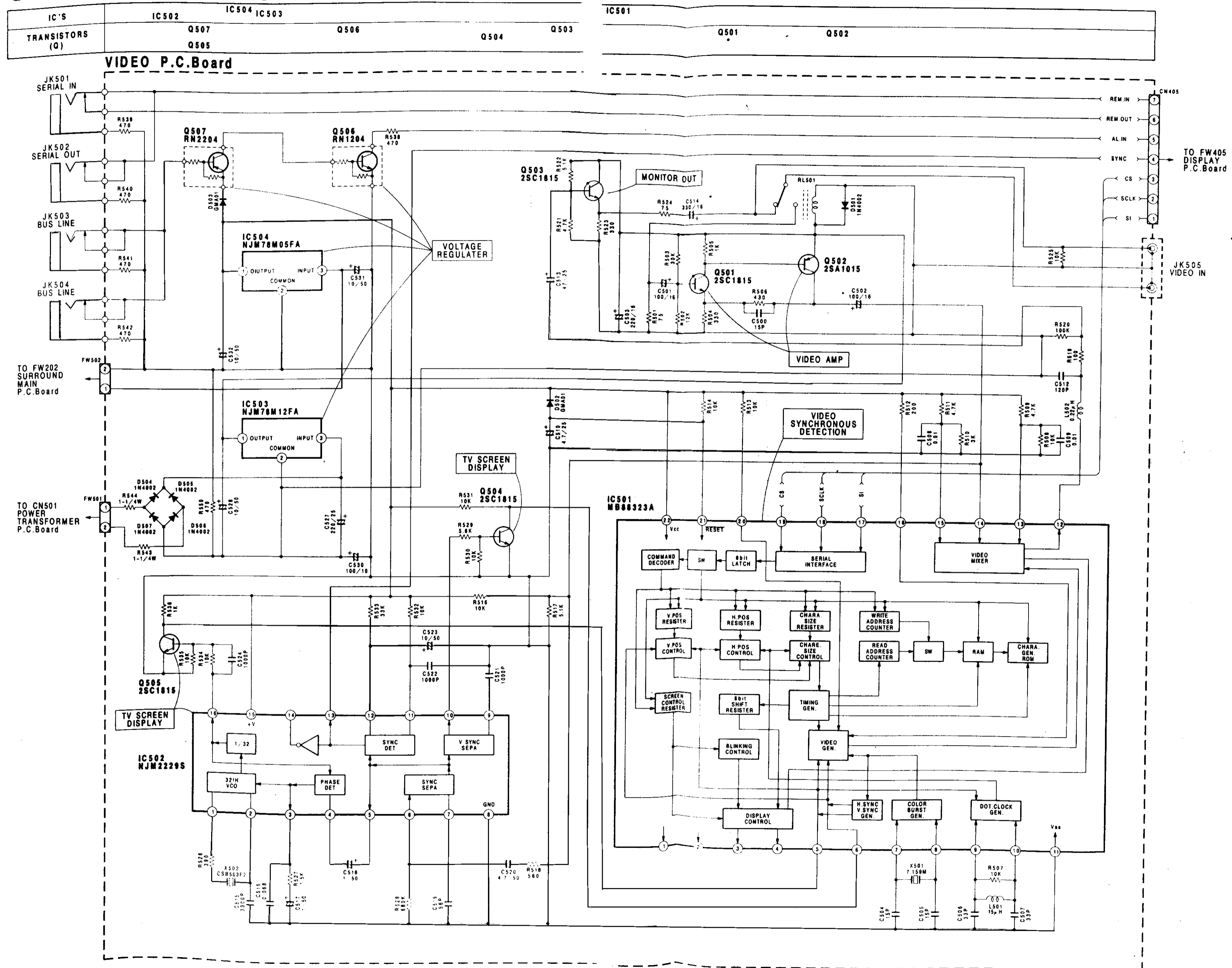


# Schematic Diagram (3/4)



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# Schematic Diagram (1/4)





|      | E     | C      | B     |
|------|-------|--------|-------|
| Q201 | 0V    | 0V     | -13V  |
| Q202 | 0V    | 0V     | -13V  |
| Q203 | 0V    | 0V     | -13V  |
| Q204 | 0V    | 0V     | -13V  |
| Q205 | 0V    | 0V     | -13V  |
| Q206 | 0V    | 0V     | -13V  |
| Q207 | 0V    | 0V     | -13V  |
| Q208 | 0V    | 0V     | -13V  |
| Q321 | 0V    | 0V     | 0.7V  |
| Q322 | 0V    | 0V     | 0.7V  |
| Q323 | 15V   | 15V    | 0V    |
| Q324 | 0V    | 0V     | -13V  |
| Q325 | 0V    | 0V     | -13V  |
| Q350 | 0.1V  | -13V   | 0V    |
| Q351 | 0.1V  | -13V   | 0V    |
| Q352 | 13V   | -13V   | 13V   |
| Q401 | 0V    | 2.5V   | 0.2V  |
| Q402 | 0V    | 2.5V   | 0.2V  |
| Q403 | 0V    | 2.5V   | 0.2V  |
| Q404 | 0V    | 2.5V   | 0.2V  |
| Q405 | 3.5V  | 5V     | 3.8V  |
| Q406 | 2V    | 5V     | 1.7V  |
| Q407 | PULSE | 5V     | 1V    |
| Q408 | 3.4V  | 5V     | 3.7V  |
| Q409 | 2V    | 5V     | 1.7V  |
| Q410 | PULSE | 5V     | 1V    |
| Q411 | 2.2V  | 5V     | 1.7V  |
| Q501 | 2.8V  | 11V    | 3.4V  |
| Q502 | 12V   | 6V     | 11V   |
| Q503 | 5V    | 12V    | 5.7V  |
| Q504 | 0V    | 0V     | 0.7V  |
| Q505 | 0V    | 4.6V   | 0V    |
| Q506 | 0V    | 5V     | 0V    |
| Q507 | 4.8V  | 0V     | 4.8V  |
| Q601 | 0.6V  | -43V   | 0.1V  |
| Q602 | 0.6V  | -43V   | 0.1V  |
| Q603 | 0.6V  | -43V   | 0V    |
| Q604 | 0.6V  | -43V   | 0V    |
| Q605 | -44V  | -43V   | -43V  |
| Q606 | -44V  | -43V   | -43V  |
| Q607 | 43V   | 1V     | 42V   |
| Q608 | 43V   | 1V     | 42V   |
| Q609 | -43V  | -1V    | -42V  |
| Q610 | -43V  | -1V    | -42V  |
| Q611 | -1V   | 1V     | -0.5V |
| Q612 | -1V   | 1V     | -0.5V |
| Q613 | 0.5V  | 44.5V  | 1.1V  |
| Q614 | 0.5V  | 44.5V  | 1.1V  |
| Q615 | -0.5V | -44.5V | -1.1V |
| Q616 | -0.5V | -44.5V | -1.1V |
| Q617 | 0V    | 44.5V  | 0.5V  |
| Q618 | 0V    | 44.5V  | 0.5V  |
| Q619 | 0V    | -44.5V | -0.5V |
| Q620 | 0V    | -44.5V | -0.5V |
| Q651 | 0V    | 43V    | 0V    |
| Q652 | 0V    | 43V    | 0V    |
| Q653 | 44.5V | 0.7V   | 44.5V |
| Q654 | 0V    | 43V    | 0.1V  |
| Q655 | 0V    | 0.15V  | 0.7V  |
| Q656 | 0V    | 0.15V  | 0.7V  |
| Q701 | 0.6V  | -43V   | 0.1V  |
| Q702 | 0.6V  | -43V   | 0V    |
| Q703 | -44V  | -43V   | -43V  |
| Q704 | 43V   | 1V     | 42V   |
| Q705 | -43V  | -1V    | -42V  |
| Q706 | -1V   | 1V     | -0.5V |
| Q707 | 0.5V  | 44.5V  | 1.1V  |
| Q708 | -0.5V | -44.5V | -1.1V |
| Q709 | 0V    | 44.5V  | 0.5V  |
| Q710 | 0V    | 44.5V  | -0.5V |
| Q751 | 0V    | 43V    | 0V    |

|   | IC101 | IC201 | IC205 | IC206 | IC207 | IC208 | IC209 | IC210 | IC211 | IC212 | IC213 | IC214 | IC215 | IC216 | IC218 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 2 | 0V    | 0V    | 0V    | 2.5V  | 0V    | 2.5V  | NC    | 0V    | 2.5V  | 0V    | 0V    | 0V    | 0V    | 0V    | 0V    |
| 3 | 0V    | 0V    | 0V    | 2.5V  | 0V    | 2.5V  | NC    | 0V    | 2.5V  | 0V    | 0V    | 0V    | 0V    | 0V    | 0V    |
| 4 | 0V    | 0V    | 0V    | 2.5V  | 0V    | 2.5V  | NC    | 0V    | 2.5V  | 0V    | 0V    | 0V    | 0V    | 0V    | 0V    |
| 5 | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  | -15V  |
| 6 | 0V    | 0V    | 0V    | 2.5V  | 0V    | 2.5V  | 2.5V  | 0V    | 2.5V  | 0V    | 0V    | 0V    | 0V    | 0V    | 0V    |
| 7 | 0V    | 0V    | 0V    | 2.5V  | 0V    | 2.5V  | 2.5V  | 0V    | 2.5V  | 0V    | 0V    | 0V    | 0V    | 0V    | 0V    |
| 8 | 0V    | 0V    | 0V    | 2.5V  | 0V    | 2.5V  | 2.5V  | 0V    | 2.5V  | 0V    | 0V    | 0V    | 0V    | 0V    | 0V    |
| 9 | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   | 15V   |

| IC202 |      |
|-------|------|
| 1     | 0V   |
| 2     | 0V   |
| 3     | 0V   |
| 4     | 0V   |
| 5     | 0V   |
| 6     | 0V   |
| 7     | 0V   |
| 8     | 0V   |
| 9     | 0V   |
| 10    | 0V   |
| 11    | 0V   |
| 12    | -15V |
| 13    | 0V   |
| 14    | 0V   |
| 15    | 0V   |
| 16    | 0V   |
| 17    | 0V   |
| 18    | 15V  |
| 19    | 15V  |
| 20    | 0V   |
| 21    | 0V   |
| 22    | 0V   |
| 23    | 0V   |
| 24    | 0V   |
| 25    | 0V   |
| 26    | 0V   |
| 27    | 0V   |
| 28    | 0V   |
| 29    | 0V   |
| 30    | 0V   |

| IC203 |       |    |       |
|-------|-------|----|-------|
| 1     | 5V    | 33 | PULSE |
| 2     | 2.5V  | 34 | PULSE |
| 3     | 2.5V  | 35 | PULSE |
| 4     | 2.5V  | 36 | PULSE |
| 5     | 2.5V  | 37 | PULSE |
| 6     | 2.5V  | 38 | PULSE |
| 7     | 2.5V  | 39 | PULSE |
| 8     | 2.5V  | 40 | PULSE |
| 9     | 2.5V  | 41 | PULSE |
| 10    | 2.5V  | 42 | PULSE |
| 11    | 0V    | 43 | 0V    |
| 12    | 0V    | 44 | 0V    |
| 13    | 2.5V  | 45 | 2.1V  |
| 14    | 2.5V  | 46 | 2V    |
| 15    | 2.5V  | 47 | 5V    |
| 16    | 2.5V  | 48 | NC    |
| 17    | 2.5V  | 49 | 5V    |
| 18    | 2.5V  | 50 | NC    |
| 19    | 2.5V  | 51 | 5V    |
| 20    | 2.5V  | 52 | 0V    |
| 21    | 2.5V  | 53 | 0V    |
| 22    | 2.5V  | 54 | NC    |
| 23    | 2.5V  | 55 | NC    |
| 24    | 2.5V  | 56 | NC    |
| 25    | 5V    | 57 | NC    |
| 26    | 5V    | 58 | 5V    |
| 27    | PULSE | 59 | NC    |
| 28    | PULSE | 60 | NC    |
| 29    | PULSE | 61 | NC    |
| 30    | PULSE | 62 | NC    |
| 31    | PULSE | 63 | 5V    |
| 32    | PULSE | 64 | 5V    |

| IC204 |       |
|-------|-------|
| 1     | PULSE |
| 2     | PULSE |
| 3     | PULSE |
| 4     | 0V    |
| 5     | PULSE |
| 6     | PULSE |
| 7     | PULSE |
| 8     | PULSE |
| 9     | PULSE |
| 10    | NC    |
| 11    | NC    |
| 12    | PULSE |
| 13    | PULSE |
| 14    | PULSE |
| 15    | 5V    |
| 16    | PULSE |
| 17    | PULSE |
| 18    | PULSE |
| 19    | PULSE |
| 20    | PULSE |

| IC217 | IC322 |      |
|-------|-------|------|
| 1     | 0V    | 0V   |
| 2     | NC    | NC   |
| 3     | NC    | NC   |
| 4     | 0V    | 0V   |
| 5     | 0V    | 0V   |
| 6     | 0V    | 0V   |
| 7     | 0V    | 0V   |
| 8     | 0V    | NC   |
| 9     | -15V  | -15V |
| 10    | 5V    | 5V   |
| 11    | 15V   | 15V  |
| 12    | 0V    | 0V   |
| 13    | 0V    | 0V   |
| 14    | 0V    | 0V   |
| 15    | 5V    | 5V   |
| 16    | 5V    | 5V   |
| 17    | 0V    | 0V   |
| 18    | 0V    | NC   |
| 19    | 0V    | NC   |
| 20    | NC    | NC   |
| 21    | NC    | NC   |
| 22    | 0V    | NC   |

| IC401 |      |    |      |
|-------|------|----|------|
| 1     | 4.9V | 33 | 0V   |
| 2     | 4.9V | 34 | 4.9V |
| 3     | 4.9V | 35 | 4.9V |
| 4     | 4.9V | 36 | 0V   |
| 5     | 4.9V | 37 | 0V   |
| 6     | 4.9V | 38 | 0V   |
| 7     | 0V   | 39 | 4.9V |
| 8     | 0V   | 40 | 0V   |
| 9     | 4.8V | 41 | 0V   |
| 10    | 4.8V | 42 | 0V   |
| 11    | 4.7V | 43 | 0V   |
| 12    | 4V   | 44 | 0V   |
| 13    | 4V   | 45 | 4.9V |
| 14    | 3V   | 46 | 2.6V |
| 15    | 5V   | 47 | 2.6V |
| 16    | 5V   | 48 | NC   |
| 17    | 5V   | 49 | NC   |
| 18    | 5V   | 50 | 4.9V |
| 19    | NC   | 51 | 4.9V |
| 20    | 0V   | 52 | NC   |
| 21    | 3.6V | 53 | 0V   |
| 22    | 3.6V | 54 | 0V   |
| 23    | 4.8V | 55 | 0V   |
| 24    | 4.8V | 56 | 0V   |
| 25    | 4.8V | 57 | 5V   |
| 26    | 4.8V | 58 | 0V   |
| 27    | 0.2V | 59 | 0V   |
| 28    | 13V  | 60 | 0V   |
| 29    | 0.1V | 61 | 0V   |
| 30    | 0.1V | 62 | 0V   |
| 31    | NC   | 63 | 0V   |
| 32    | 5V   | 64 | 0V   |

| IC501 | IC502 |      |
|-------|-------|------|
| 1     | NC    | 2.7V |
| 2     | NC    | 2.2V |
| 3     | NC    | 1.8V |
| 4     | NC    | 0V   |
| 5     | 4.6V  | 4.3V |
| 6     | 0V    | 2.7V |
| 7     | 2.5V  | 2V   |
| 8     | 2.5V  | 0V   |
| 9     | 2.3V  | 4.9V |
| 10    | 2.7V  | 4.2V |
| 11    | 0V    | 0.4V |
| 12    | 1.7V  | 5V   |
| 13    | 3.4V  | 0V   |
| 14    | 1.7V  | NC   |
| 15    | 2V    | 5V   |
| 16    | 3.9V  | 0.7V |
| 17    | 0.1V  |      |
| 18    | 4.9V  |      |
| 19    | 4.9V  |      |
| 20    | 5V    |      |
| 21    | 5V    |      |
| 22    | 5V    |      |

| IC320 | IC321 | IC323 | IC561 | IC651 |
|-------|-------|-------|-------|-------|
| 1     |       |       |       | -0.7V |
| 2     | 0V    | 0V    | 0V    | 0V    |
| 3     | 0V    | 0V    | 0V    | 0.1V  |
| 4     | 0V    | 0V    | 0V    | 0V    |
| 5     | -15V  | -15V  | -15V  | -0.8V |
| 6     | 0V    | 0V    | 0V    | 0.7V  |
| 7     | 0V    | 0V    | 0V    | 0V    |
| 8     | 0V    | 0V    | 0V    | 1.3V  |
| 9     | 15V   | 15V   | 15V   | 2.8V  |

| IC402 | IC503 | IC504 | IC801 | IC802 | IC803 | IC804 |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 1     | 5V    | 12V   | 5V    | 15V   | -15V  | 5V    | 5.6V  |
| 2     | 0V    | 0V    | 0V    | 0V    | -23V  | 0V    | 0V    |
| 3     | 5V    | 17V   | 13V   | 22.5V | 0V    | 14V   | 12.8V |