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# CARVER

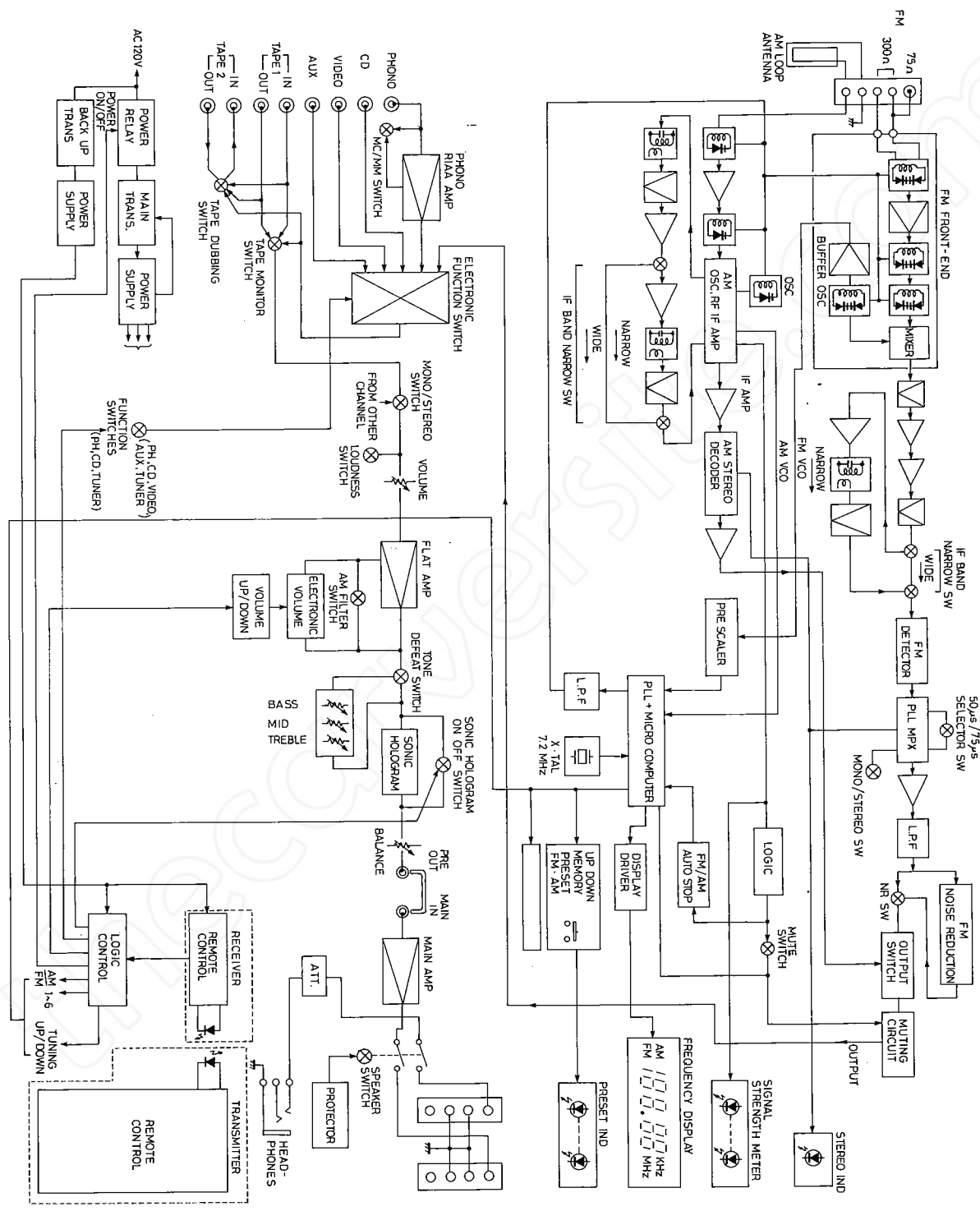
## THE CARVER RECEIVER 2000 SERVICE MANUAL

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2000 Carver

# BLOCK DIAGRAM



## SPECIFICATIONS

### PRE-AMPLIFIER & AMPLIFIER

|  |   |
|--|---|
| Minimum Audio Output Power at no more than 0.15% Total Harmonic Distortion into 8 ohms, over the audio spectrum 20-20,000 Hz | : 200 watts per channel (RMS power, both channels driven) |
| Frequency Response (20-20,000 Hz)  | : Flat  |
| IM Distortion  | : 0.05%   |
| Gain: PHONO  | : 35 dB MM  |
| AMPLIFIER  | : 26 dB   |
| AUX, TUNER, VIDEO/DAD  | : 17 dB   |
| TAPE IN 1, 2   | : 17 dB   |
| Tone Control Action BASS (100 Hz)  | : $\pm 8$ dB  |
| TREBLE (10 kHz)  | : $\pm 8$ dB  |
| MID RANGE (1.5 kHz)  | : $\pm 6$ dB  |
| AM Filter (10 kHz)   | : - 15 dB   |
| Signal-to-Noise Ratio  |   |
| PHONO  | : 82 dB MM  |
| AUX and TAPE IN 1, 2   | : 90 dB   |
| TAPE OUT 1, 2 Level  | : Maximum 4 volts   |
| FM TUNER   |   |
| Sensitivity (IHF)  | : 1.8 $\mu$ V   |
| Sensitivity for 50 dB Quieting Mono, Stereo  | : 3.1 $\mu$ V, 5.0 $\mu$ V                                |
| Limiting Sensitivity (- 3 dB)  | : 1.5 $\mu$ V   |
| Signal-to-Noise Ratio (1000 $\mu$ V)   | : 77 dB   |
| Image Rejection  | : 82 dB   |
| IF Rejection   | : 80 dB   |
| Capture Ratio  | : 1.0 dB  |
| Harmonic Distortion  |   |
| Mono   | : 0.15%   |
| Stereo   | : 0.2%  |
| AM Suppression   | : 80 dB   |
| Stereo Separation (1 kHz)  | : 40 dB   |
| AM TUNER   |   |
| Sensitivity Terminal   | : 20 $\mu$ V  |
| Radiated   | : 250 $\mu$ V/m for 20 dB S/N                             |
| Distortion (5mV/M)   | : 0.9%  |
| Selectivity  | : 42 dB   |
| Image Rejection  | : 45 dB   |
| IF Rejection   | : 34 dB   |
| AGC Figure of Merit  | : 50 dB   |
| AM Stereo Separation (1 KHz)   | : 30 dB   |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# ALIGNMENT PROCEDURES

## Amplifier

| Step                  | Set Condition   | Output Indicator<br>Connection (+/-)                        | Adjustment                   | Adjust for  |
|-----------------------|---|---|------------------------------|---|
| <b>VOLTAGE ADJUST</b> |   |   |                              |   |
| 1                     | Volume Control . . . MINIMUM<br>Speaker Load . . . 8 ohm dummy<br>Input . . . No signal | DC digital volt meter<br>D853/Chassis                       | SVR801                       | -69.0 ± 0.1V  |
| <b>IDLING</b>         |   |   |                              |   |
| 2                     | Same as step (1)  | DC digital volt meter<br>L ch: R767/R769<br>R ch: R768/R770 | L ch: SVR701<br>R ch: SVR702 | 3.5 ± 1.5mV<br>Preheat for 1 minute<br>4.5 ± 1.5mV<br>Preheat for 3 minutes |

## Tuner (AM)

### Condition

1. Tuning method: LOCK LED, ON
2. Modulation: 400Hz, 30%
3. TAPE OUT load: A 100kΩ resistor shunted by a 1000pF capacitor
4. Generator output: IRE Loop antenna 24" (60cm) spacing or through IHF dummy (200pF capacitor).
5. CH. STEP switch (SW317): US position
6. MUTE DEFEAT switch: ON position
7. Preheat: More than 1 minute

| Step                      | Signal, Sweep Generator            |                         | Reception Frequency       | Output Indicator<br>Connection                    | Adjustment                                 | Adjust for     |
|---------------------------|------------------------------------|-------------------------|---------------------------|---|--|----------------|
|                           | Connection                         | Frequency               |                           |   |  |                |
| <b>TUNING VOLTAGE</b>     |                                    |                         |                           |   |  |                |
| 1                         | No signal                          |                         | 520kHz                    | DC digital volt meter                             | T103                                       | 1.55 ± 0.1V    |
| 2                         |                                    |                         | 1710kHz                   | TP4   | TC103                                      | 24.2 ± 0.1V    |
| <b>IF</b>                 |                                    |                         |                           |   |  |                |
| 3                         | To TP5 through a 1μF capacitor     | 450 ± 0.5kHz            | Point of non-interference | IF sweep generator<br>TP6<br>(through a 1μF cap). | T104: IF BAND WIDE<br>T105: IF BAND NARROW | Flat and Max.  |
| <b>TRACKING</b>           |                                    |                         |                           |   |  |                |
| 4                         | To ant. terminal through IHF dummy | 600kHz                  | 600kHz                    | VTVM  | T101<br>T102                               | Maximum output |
| 5                         |                                    | 1400kHz                 | 1400kHz                   | TAPE OUT jacks                                    | TC101<br>TC102                             |                |
| <b>SIGNAL LEVEL METER</b> |                                    |                         |                           |   |  |                |
| 6                         | Same as step (4)                   | 1000kHz<br>(Input 75dB) | 1000kHz                   | SIGNAL STRENGTH METER                             | SVR101                                     | Full light up  |

## Tuner (FM)

### Condition

1. Tuning method: LOCK LED, ON
2. Generator: Mono . . . . Mod. 1kHz, 75kHz dev.  
Stereo . . . . Mod. 1kHz, 67.5kHz  
+6.75kHz dev.
3. TAPE OUT load: A 100kΩ resistor shunted by a 1000pF capacitor
4. Input level: 60dB (1mV)
5. CH. STEP switch (SW317): US position
6. De-Emphasis switch (SW051): 75μs position
7. MUTE DEFEAT switch: ON position
8. Preheat: More than 1 minute

| Step                           | Signal, Sweep Generator                              |  | Reception Frequency | Output Indicator<br>Connection     | Adjustment                                       | Adjust for                                      |
|--------------------------------|--|--|---------------------|------------------------------------|--|---|
|                                | Connection   | Frequency  |                     |                                    |  |   |
| <b>TUNING VOLTAGE</b>          |  |  |                     |                                    |  |   |
| 1                              | No signal  |  | 87.50MHz            | DC digital volt meter              | OSC-L (Front-end)                                | 2.5 ~ 3.1                                       |
| 2                              |  |  | 108.00MHz           | TP4                                | Check  | 19 ~ 23   |
| <b>IF (WIDE)</b>               |  |  |                     |                                    |  |   |
| 3                              | To 300 ohm antenna terminal through a matching dummy | 98.00MHz<br>(Input 7 ~ 9dB)                            | 98.00MHz            | VTVM<br>TAPE OUT jacks             | IFT (Front-end)                                  | Maximum output or Minimum THD                   |
| 4                              |  | 98.00MHz<br>(INPUT 60dB)                               | 98.00MHz            | DC digital volt meter<br>TP1 ~ TP2 | T002 (PRI)                                       | Less than 1mV                                   |
| 5                              |  | 98.00MHz   | 98.00MHz            | Distortion Meter<br>TAPE OUT jacks | T002 (SEC)                                       | Less than 0.09%                                 |
| <b>TRACKING</b>                |  |  |                     |                                    |  |   |
| 6                              | Same as step (3)                                     | 98.00MHz<br>(INPUT 7 ~ 9dB)                            | 98.00MHz            | Same as step (3)                   | ANT-L (Front-end)<br>RF1-L<br>RF2-L              | Maximum output                                  |
| <b>PLL REFERENCE FREQUENCY</b> |  |  |                     |                                    |  |   |
| 7                              | Set the IF BAND NARROW switch to the ON position.    |  |                     |                                    |  |   |
| 8                              | Same as step (3)                                     | 98.00MHz<br>(Input 9dB)                                | 98.00MHz            | Same as step (5)                   | TC301<br>T001                                    | Minimum THD                                     |
| <b>MUTING LEVEL</b>            |  |  |                     |                                    |  |   |
| 9                              | Set the MUTE DEFEAT switch to the OFF position.      |  |                     |                                    |  |   |
| 10                             | Same as step (3)                                     | 98.00MHz<br>(Input 30dB)                               | 98.00MHz            | Same as step (5)                   | SVR001   | Until output is developed                       |
| <b>SIGNAL LEVEL</b>            |  |  |                     |                                    |  |   |
| 11                             | Set the IF BAND NARROW switch to the ON position.    |  |                     |                                    |  |   |
| 12                             | Same as step (3)                                     | 98.00MHz<br>(Input 80dB)                               | 98.00MHz            | SIGNAL STRENGTH METER              | SVR002   | Full light up                                   |
| <b>SEPARATION</b>              |  |  |                     |                                    |  |   |
| 13                             | Same as step (3)                                     | 98.00MHz<br>Mod: Rch only<br>98.00MHz<br>Mod: Lch only | 98.00MHz            | Same as step (3)                   | SVR051/SVR052<br>IF BAND NARROW<br>switch OFF/ON | Minimum output, same separation in both channel |

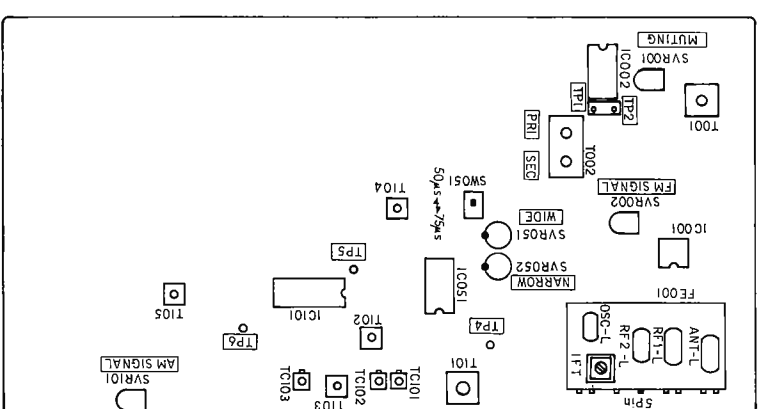
### Noise Reduction

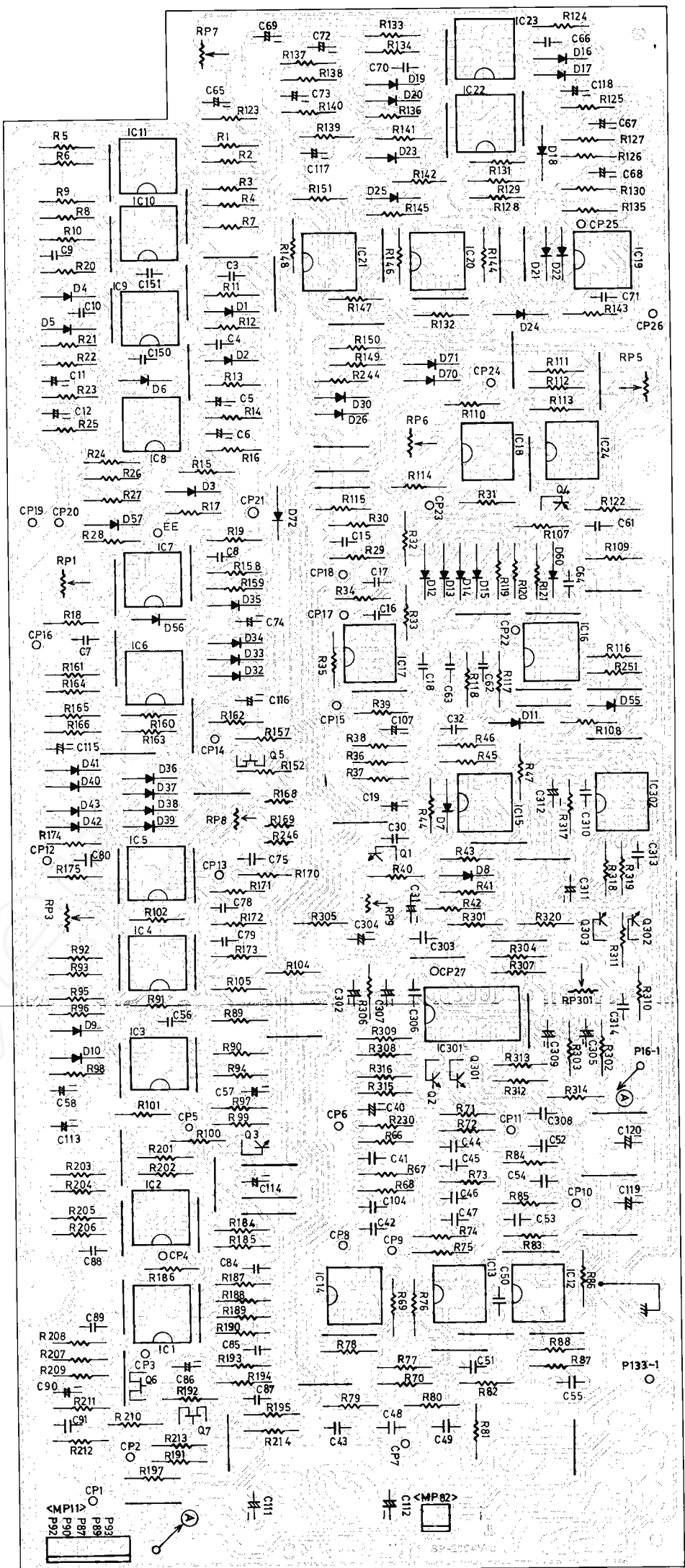
Unless otherwise stated the NR buttons are NOT engaged.

| STEP | INPUT SIGNAL   | TEST POINT   | REMARKS  |
|------|--|--|--|
| 1    | Both audio inputs driven                                 | ANTI ALIASING FILTER<br>IC17 pin 1 (CP17)                            | Ground junction of C15/R29 (CP18). Measure test point for Fe of 8kHz ± 1kHz.   |
| 2    | 800Hz, 100% modulation left or right channel only.       | LEADING EDGE DETECTOR<br>IC16 pin 1 (CP22)                           | Check for -10Vdc ± 1.0V  |
| 3    | 800Hz, 100% modulation left or right channel only.       | IC18 pin 1 (CP24)  | Adjust RP5 for minimum DC offset.  |
| 4    | 800Hz, 10% modulation left or right channel as required. | IC1 pin 1 (right) (CP3)<br>IC1 pin 7 (left) (CP4)                    | Adjust RP6 for best separation and left to right balance.  |
| 5    | Both audio inputs driven 150% modulation at 400Hz.       | DELAY IC<br>Junction of R312/R313 or (CP11)                          | Increase audio input level and adjust RP301 for symmetrical clipping. Less than 1V.  |
| 6    | Both audio inputs driven, 400Hz, 0.5V RMS.               | A: IC17 pin 7 (CP15)<br>B: Junction of R312/R313 or (CP11)           | The output level at point A should be within 1.5 DB of test point B ± 1 DB.  |
| 7    | Both audio inputs driven, 0.5V RMS                       | HIGH PASS FILTER<br>IC13 pin 1 (CP9)                                 | Short junction of C15/R29 (CP18) to ground. Fe is 2.6 KHz referenced to 8 KHz.   |
| 8    | Both audio inputs driven, 0.5V RMS.                      | LOW PASS FILTER<br>IC14 pin 1 (CP8)                                  | Short C15/R29 (CP18) to ground. Fe is 2.6 KHz referenced to 8 KHz.   |
| 9    | Signal input to junction of R76/C46 (CP7)                | CLOCK FILTER<br>IC12 pin 1 (CP10)                                    | Fe should be 16 KHz  |
| 10   | Both audio inputs driven 800 Hz, 0.5V RMS                | COMPRESSOR/EXPANDER<br>A: IC18 pin 7 (CP23)<br>B: IC3 pin 7 (CP5)    | Tracking between test point A and test point B adjust RP9 for ± 1 DB. Tracking between test point A and test point B should be within 2.5 DB as the input signal is reduced 50 DB in 10 DB steps. Adjust RP9 to correct tracking error at -30 DB.                          |
| 11   | Both CH Driven 400 Hz, 0.5V RMS                          | L-R/L+R LOG CIRCUIT<br>IC7 pin 7 (CP21)                              | Voltage should be -13V ± 1   |
| 12   |  |  | Reduce the Input Level of the Left or Right Ch 5 DB and Adjust RP1 for -4 Volts ± 100mV  |
| 13   | Left or Right CH Only 400 Hz 0.5V                        | L TO R LOG CIRCUIT<br>IC7 pin 7 (CP21)                               | Voltage should be -1 to -1.5V ± 0.5V   |
| 14   | Both Audio Inputs Driven 800Hz, 0.5V RMS                 | AGC AMPLIFIER<br>IC19 pin 1 (CP25)                                   | Adjust RP7 for 0V ± 10mV   |
| 15   |  | A: Left Audio Out (CP2)<br>B: Right Audio Out (CP1)                  | Reduce the Input Level to the Left Channel. The Left Ch Mute FET Should Switch On When the Left Input is Down 28 DB ± 3 DB. Repeat for Right Ch and Trim RP7 to Obtain Proper Balance  |
| 16   | Left or Right Ch Driven 800Hz, 0.5V RMS                  | IC5 pin 7 (CP13)   | Check Test Point for Zero Audio Output When Only One Ch is Driven  |
| 17   | Both Inputs Driven 600 Hz                                | AGC AMPLIFIER<br>IC5 pin 7 (CP13)                                    | 1. Note the Output Level at the Test Point.<br>2. Reduce the Left or Right Drive Signal 20 DB.<br>3. Compare the level to Step 1 and adjust RP8 for 14 ± 1 DB.   |
| 18   | Signal Side of R162 (CP14)                               | SPECTRAL SHAPE AMPLIFIER<br>IC5 pin 1 (CP12)                         | Check Response Against That Listed Below ± 1.5dB:<br>20 Hz -4.6DB<br>30 Hz -1.6DB<br>40 Hz -0.2DB<br>80 Hz +1.6DB<br>100 Hz +1.7DB<br>150 Hz +1.4DB<br>200 Hz +1.0DB<br>400 Hz 0 Freqs<br>1.5 KHz +0.1DB<br>2.5 KHz +2.2DB<br>4 KHz +5 DB<br>8 KHz +9 DB<br>10 KHz +10.1DB |
| 19   | Left or Right Audio Input                                | OUTPUT EQUALIZATION<br>A: Left Audio Output<br>B: Right Audio Output | MR Button MUST Be Engaged. Check Output Eq for +0.8DB at 10KHz, 0DB at 1KHz; +0.9DB at 20Hz ± 0.5DB.   |
| 20   | None   | CLOCK FREQUENCY<br>IC302 Pins 2 and 4                                | Clock Frequency is 20 KHz ± 1 KHz.   |
| 21   | None   | CLOCK GATING<br>IC302 Pin 2 or 4                                     | Check to See the Clock is Operating ONLY When Receiver is in the FM Mode.  |
| 22   | None   | NOISE MEASUREMENT<br>Audio Outputs                                   | Less than 500uV Excluding residual clock component.<br>Less than 800uV noise and clock noise.  |

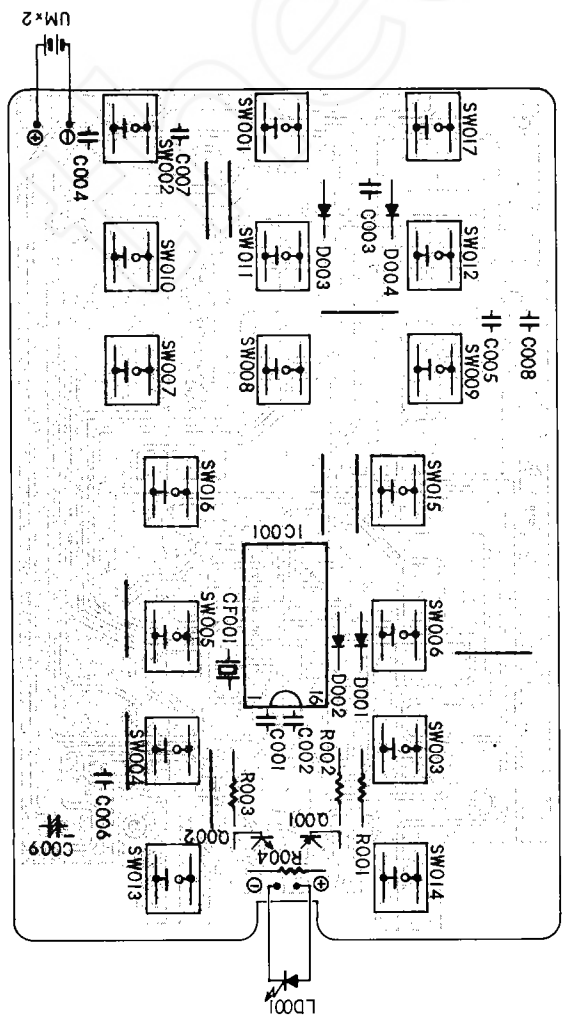
### ALIGNMENT POINTS

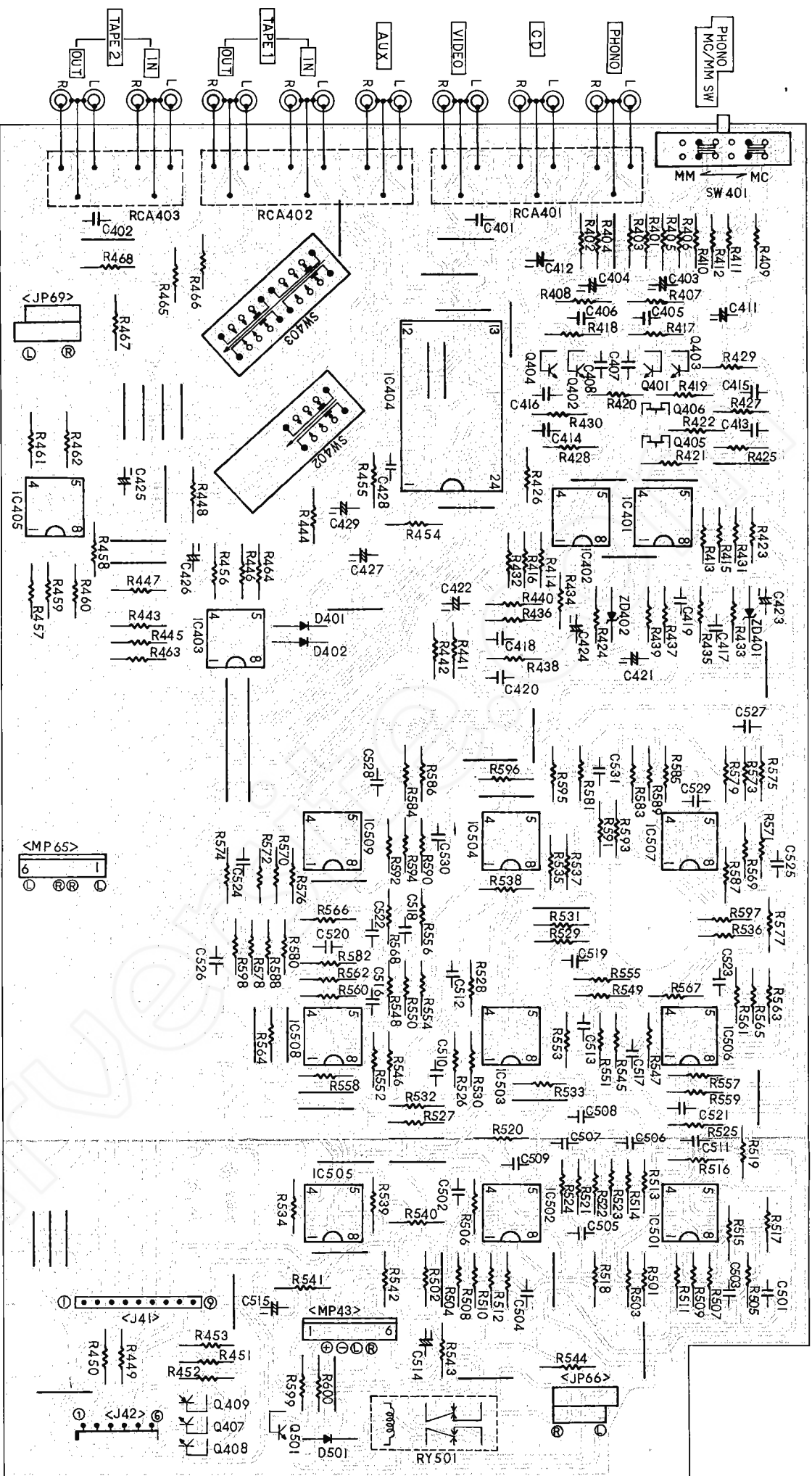
Tuner P.C. Board TIM-612B



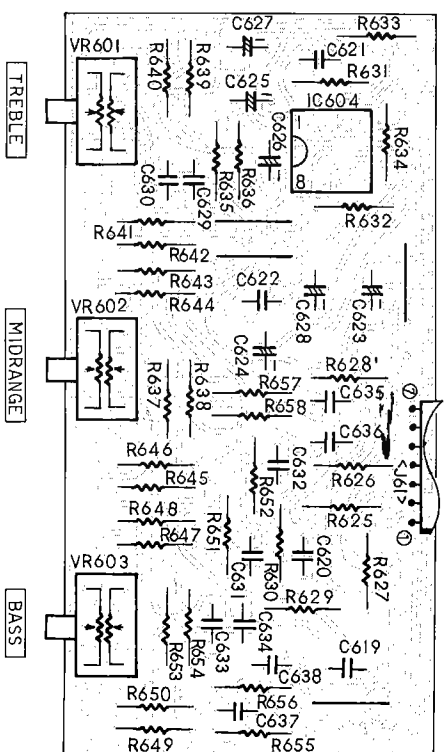
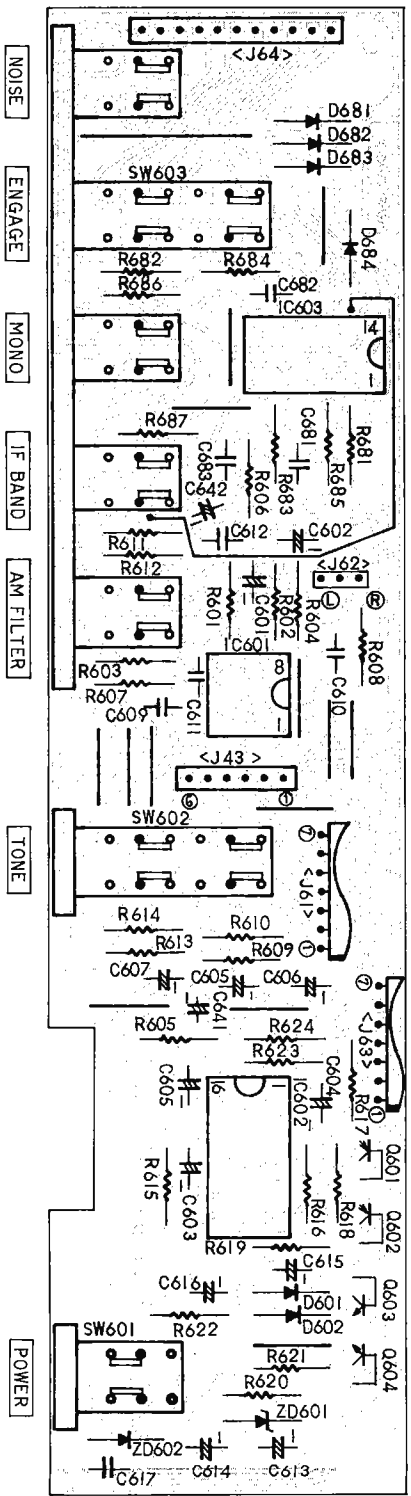


RMC-6111 Remote Control P.C. Board

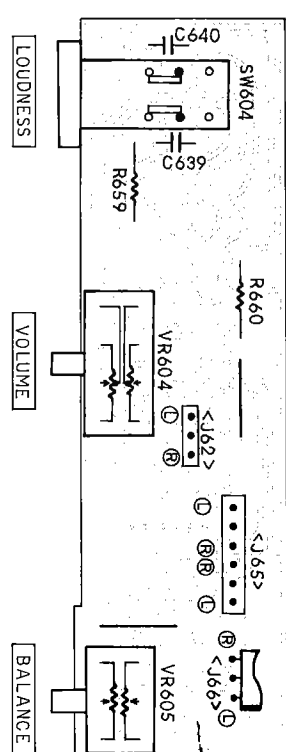




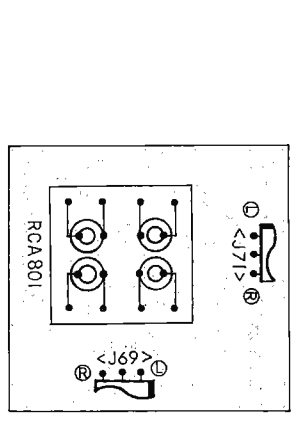
ASW-616A Audio Accessory Switch P.C. Board

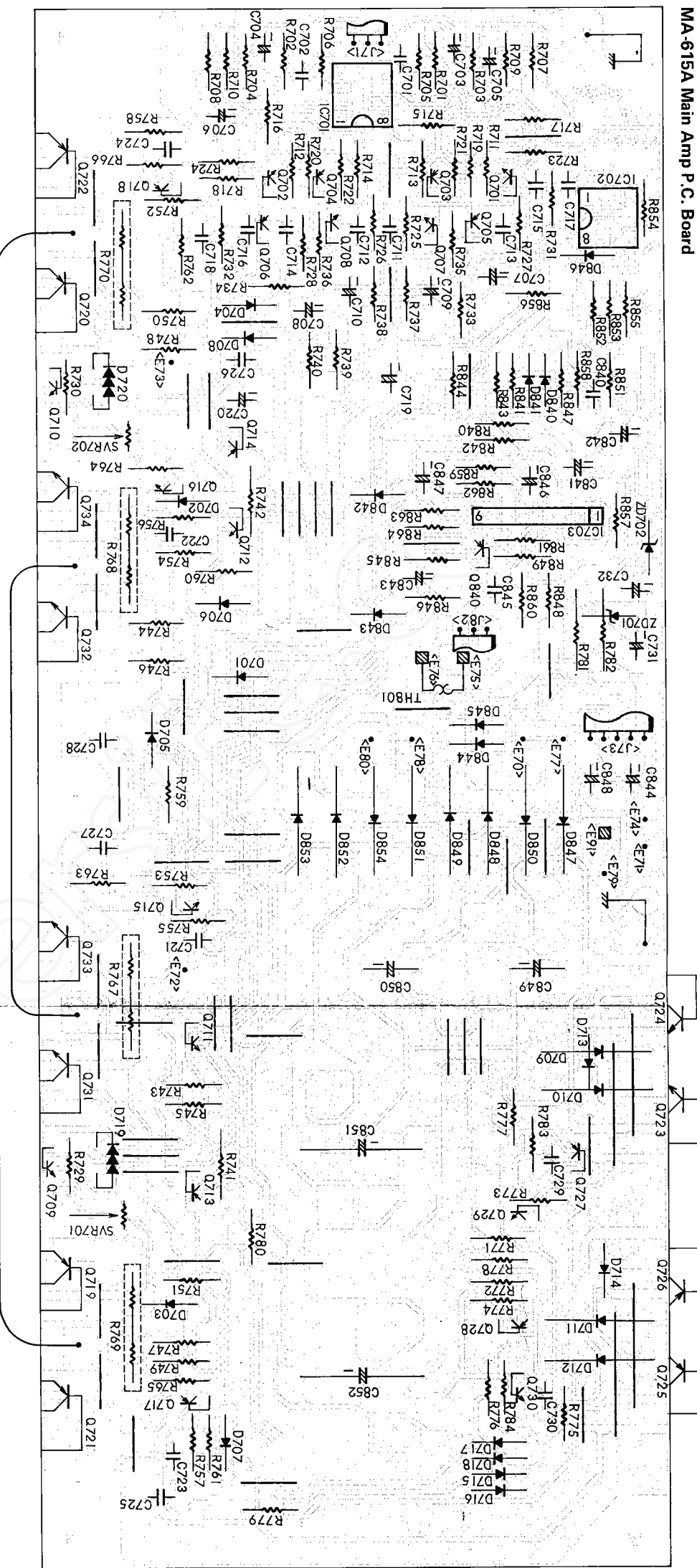


VR-616A Volume Control P.C. Board

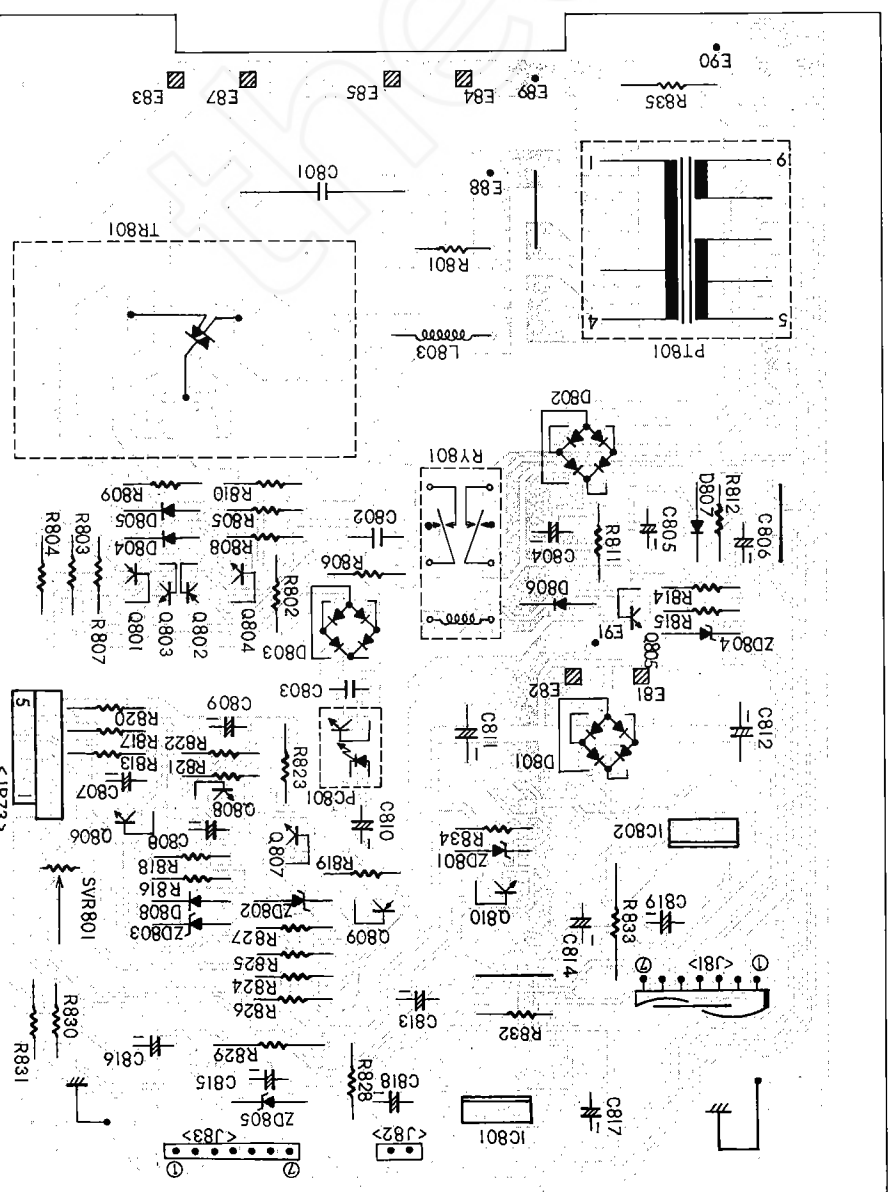


PMR-615A Pre-Main RCA Jack P.C. Board

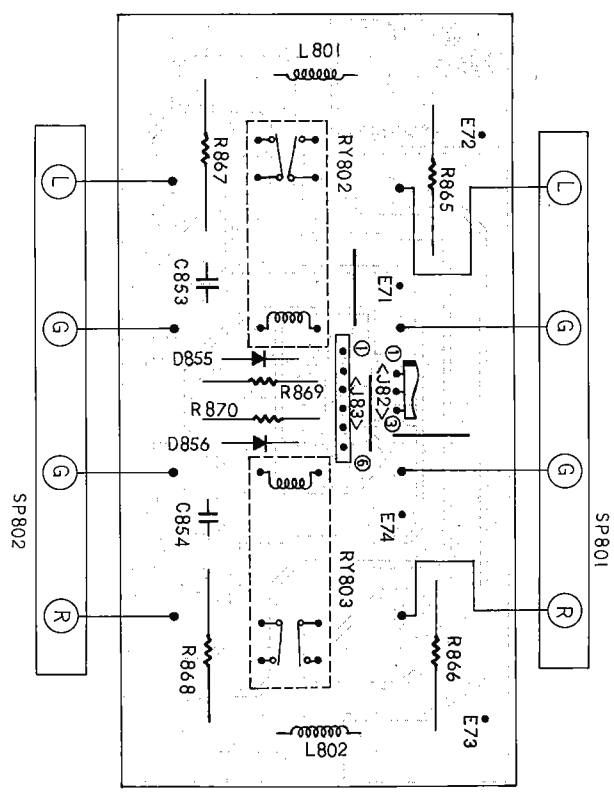


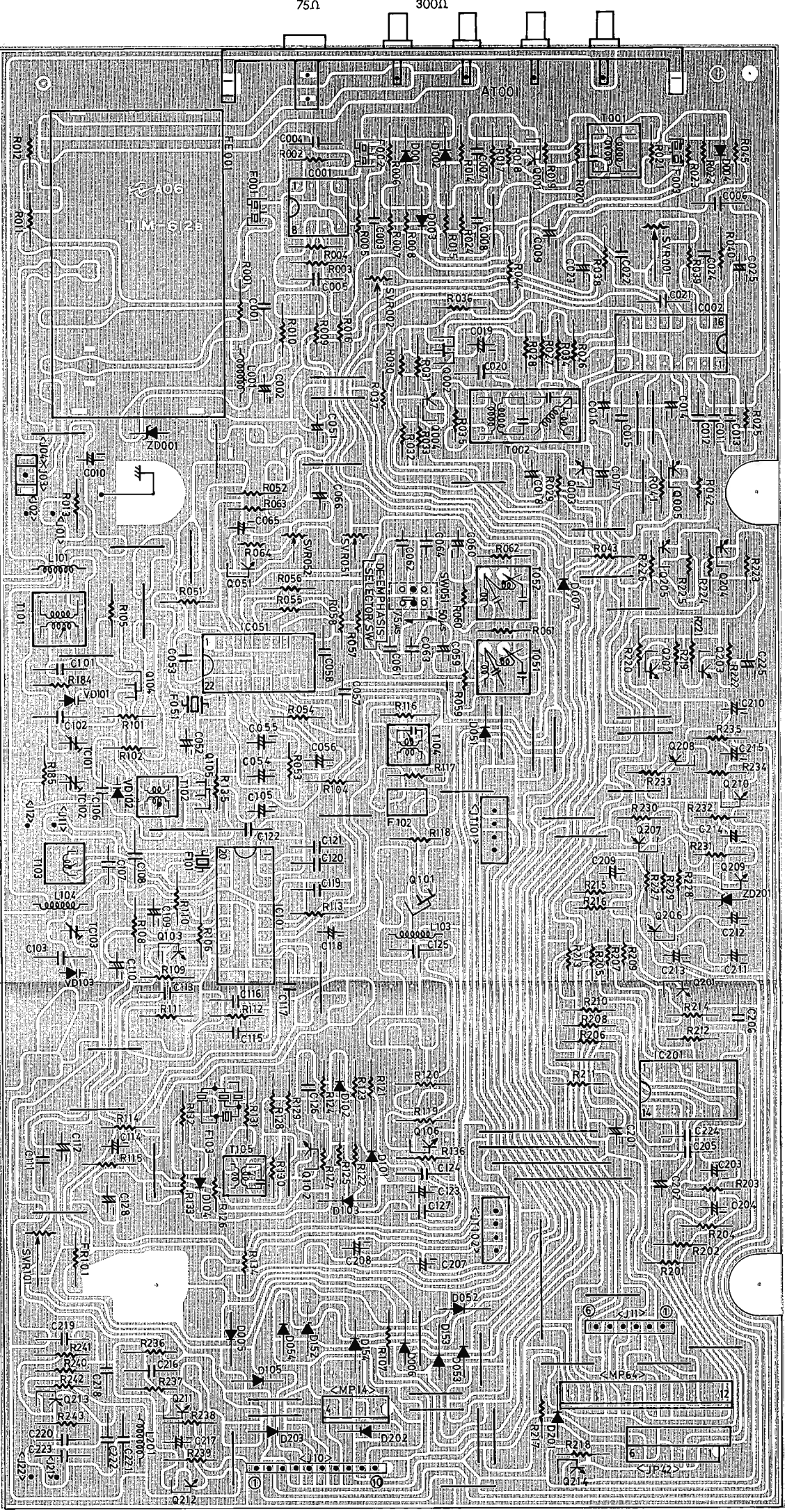


PS-615A Power Supply P.C. Board

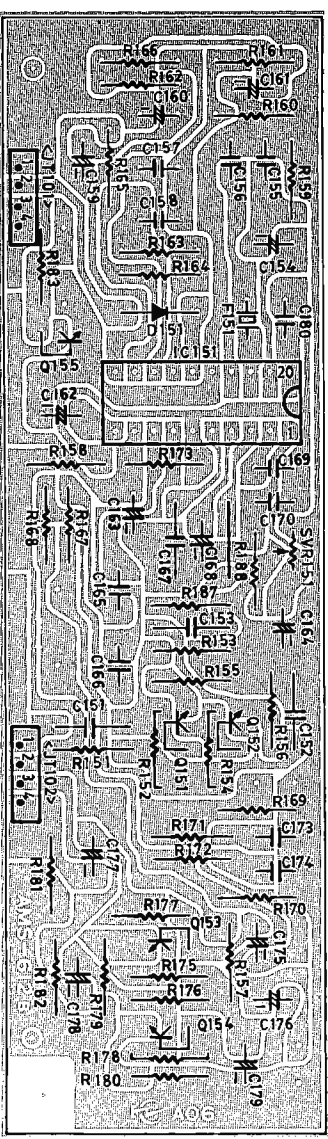


SP-615A Speaker Terminal P.C. Board

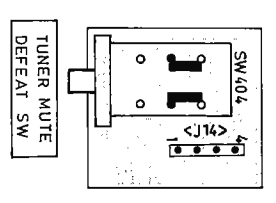


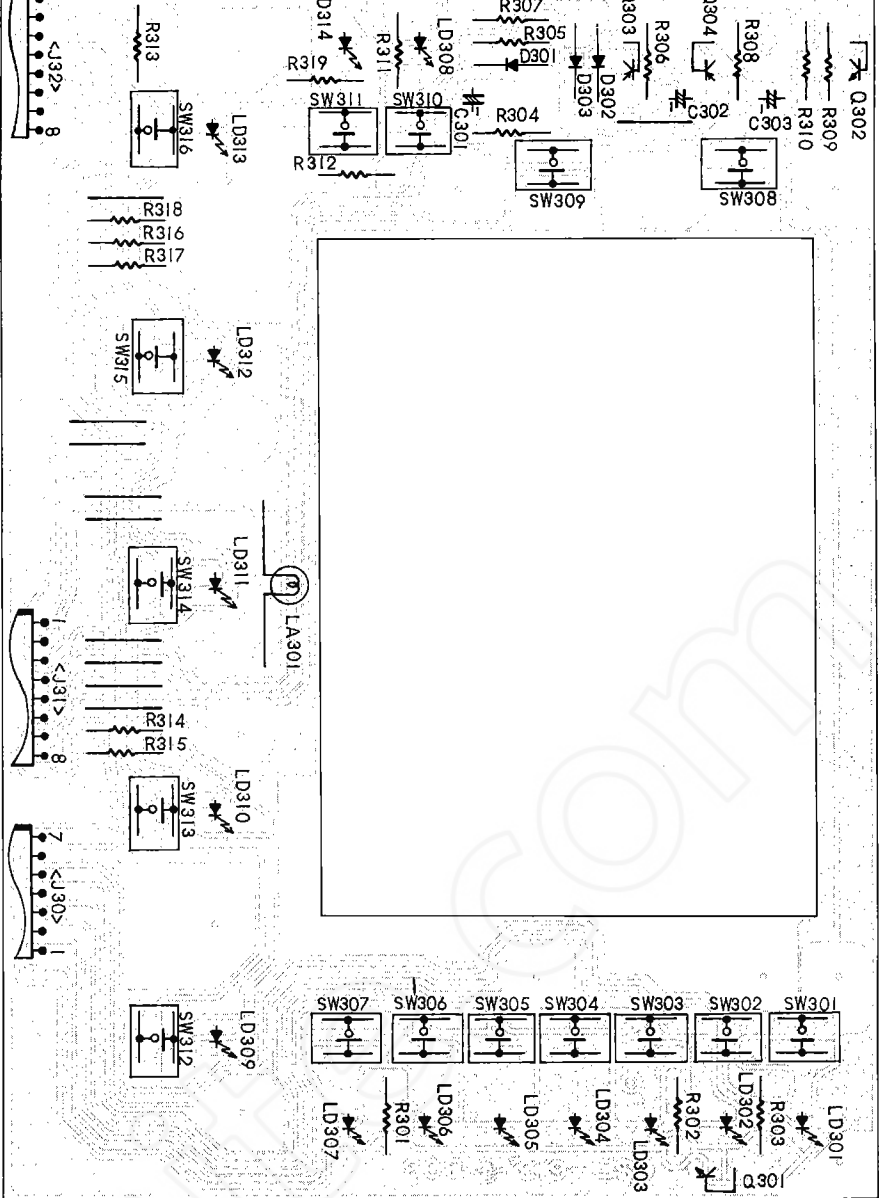


AMS-612B AM Stereo Decoder P.C. Board

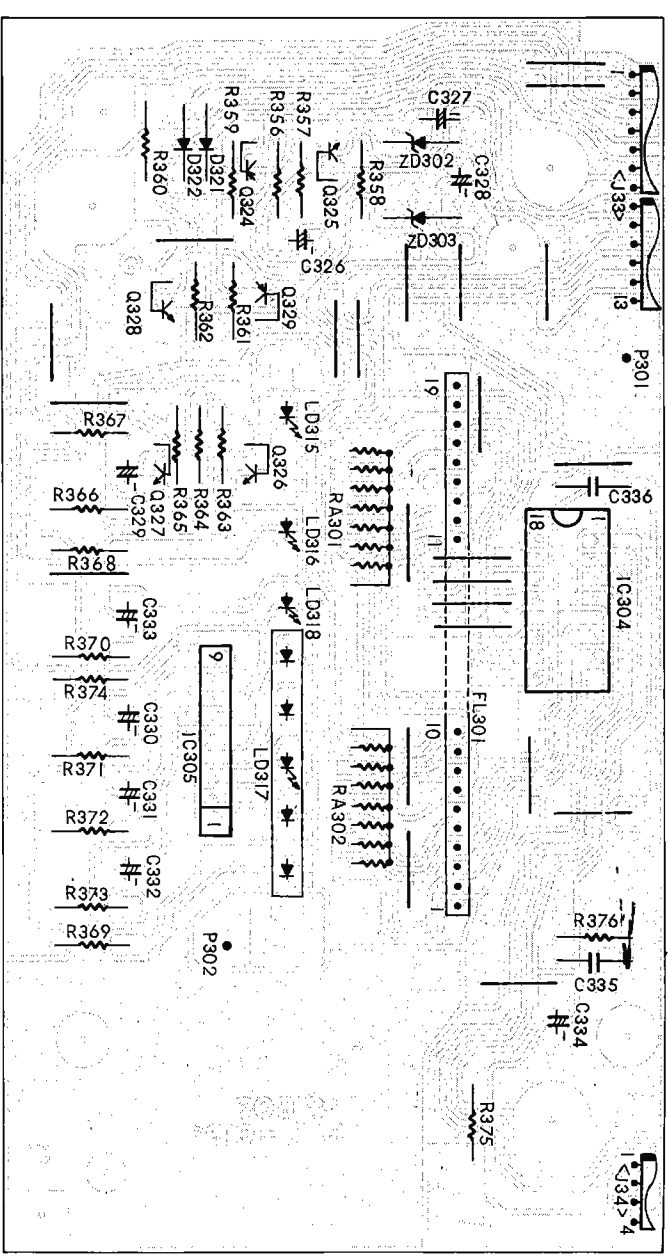
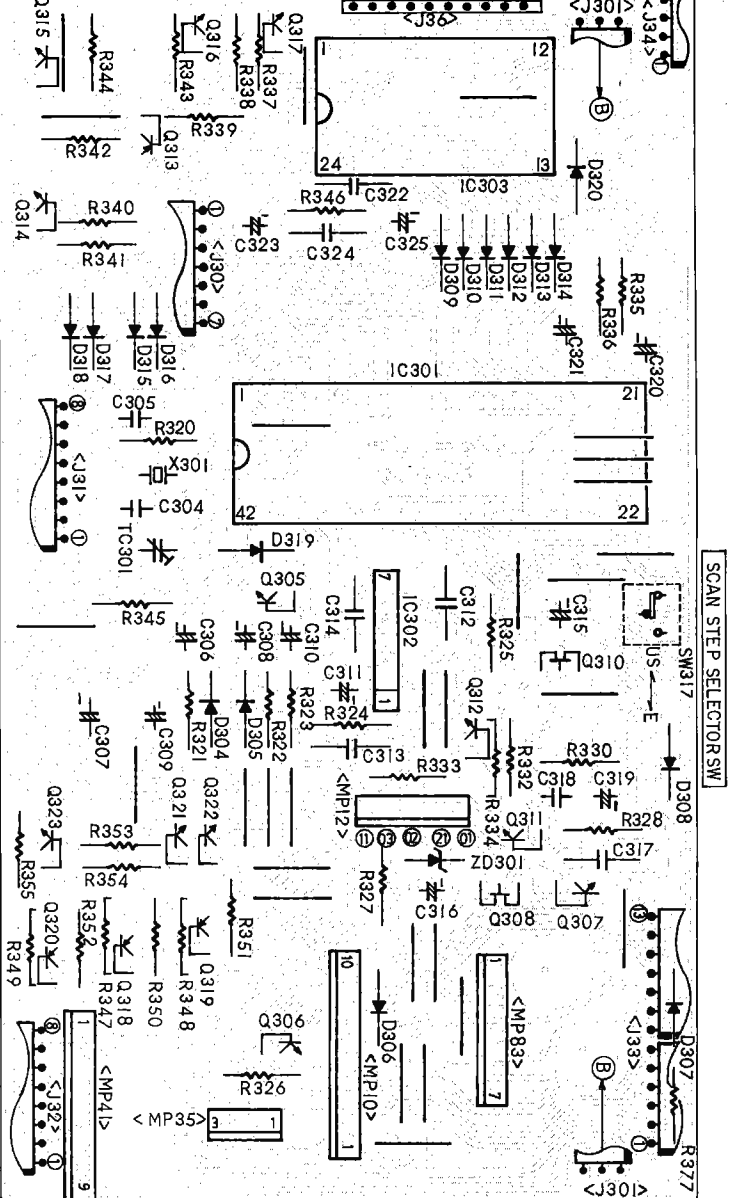


MSW-614 Mute Defeat Switch P.C. Board

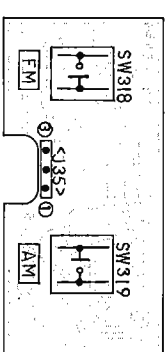




L-613A PLL P.C. Board

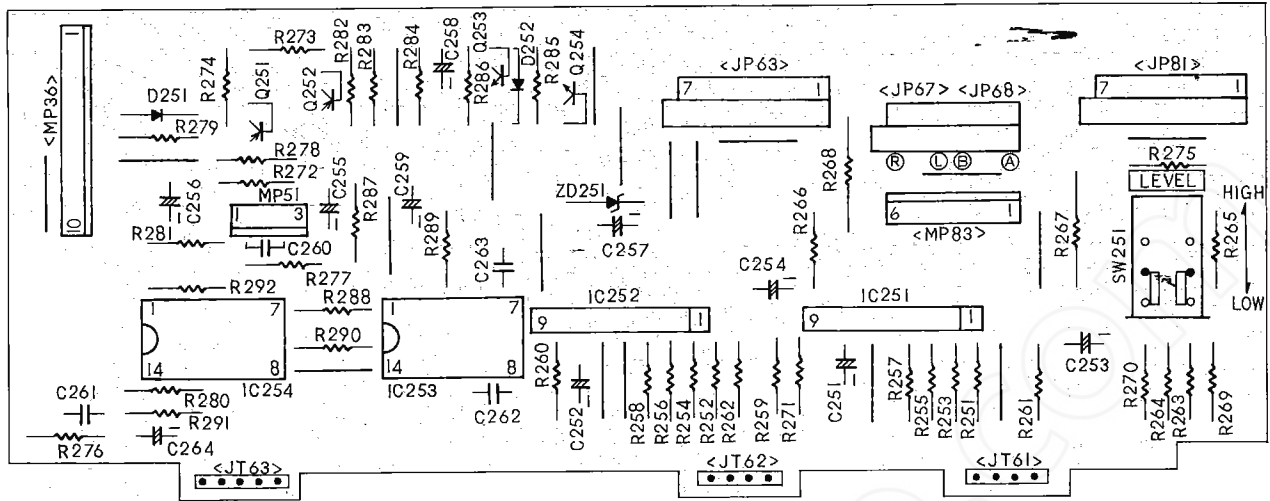


AF-616A Tuner Band Selector P.C. Board

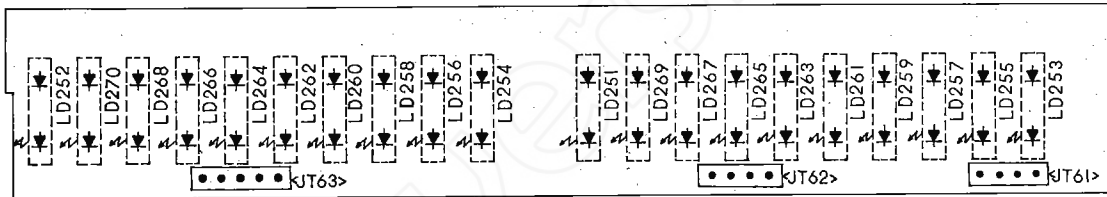


SLD-613A Shield P.C. Board

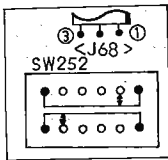
**PMD-615A Power Meter Driver P.C. Board**



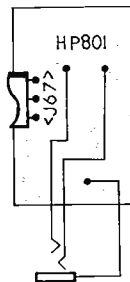
**PLD-615A Power Meter P.C. Board**



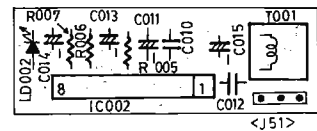
**SPS-615A  
Speaker Selector P.C. Board**



**HP-615A  
Headphone Jack P.C. Board**




**R-617  
Remote Control Receiver P.C. Board**



# PARTS LISTS

## 1. AF-616A P.C. Board Assembly

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No. | Description   |
|----------------------|------|-----------------|-------------------|---|
| <b>Switches</b>      |      |                 |                   |   |
| SW318,319            | 2    |                 | KHH10910          | Tact Switch  |
| <b>Miscellaneous</b> |      |                 |                   |   |
| J035                 | 1    |                 | MC03-389          | Micro Socket Ass'y  |

## 2. AMS-612A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description                 |
|-----------------------|------|-----------------|-------------------|-----------------------------|
| <b>Semiconductors</b> |      |                 |                   |                             |
| D151                  | 1    |                 | 1S1588            | Diode                       |
| Q151~155              | 5    |                 | 2SC1815-GR,Y      | Transistor                  |
| IC151                 | 1    |                 | MC13020P          | IC                          |
| <b>Capacitors</b>     |      |                 |                   |                             |
| C151                  | 1    |                 | TP125X103N        | Ceramic Capacitor           |
| C152                  | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C153                  | 1    |                 | TP125X103N        | Ceramic Capacitor           |
| C154                  | 1    |                 | LL-16TW470M       | Low Leak. Electrolytic Cap. |
| C155                  | 1    |                 | MY-50VS332K       | Mylar Capacitor             |
| C156                  | 1    |                 | HE60SJCH470K      | Ceramic Capacitor           |
| C157,158              | 2    |                 | ECQV1H474JZ       | Metallized Film Capacitor   |
| C159                  | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| C160                  | 1    |                 | NS-50TW2R2M       | Electrolytic Capacitor      |
| C161                  | 1    |                 | NS-25TW4R7M       | Electrolytic Capacitor      |
| C162                  | 1    |                 | LL-50TW2R2M       | Low Leak. Electrolytic Cap. |
| C163                  | 1    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C164                  | 1    |                 | NS-16TW101M       | Electrolytic Capacitor      |
| C165,166              | 2    |                 | MY-50VU823J       | Mylar Capacitor             |
| C167                  | 1    |                 | UP125B102K        | Ceramic Capacitor           |
| C168                  | 1    |                 | LL-16TW100M       | Low Leak. Electrolytic Cap. |
| C169,170              | 2    |                 | MY-50VS332K       | Mylar Capacitor             |
| C173,174              | 2    |                 | MY-50VU332J       | Mylar Capacitor             |
| C175,176              | 2    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C177,178              | 2    |                 | NS-25TW4R7M       | Electrolytic Capacitor      |
| C179                  | 1    |                 | NS-16TW221M       | Electrolytic Capacitor      |
| C180                  | 1    |                 | MY-50VS332K       | Mylar Capacitor             |
| C181                  | 1    |                 | UP125V222K        | Ceramic Capacitor           |
| <b>Resistors</b>      |      |                 |                   |                             |
| R151                  | 1    |                 | KA25ST221J        | Carbon Resistor             |
| R152                  | 1    |                 | KA25ST184J        | Carbon Resistor             |
| R153                  | 1    |                 | KA25ST183J        | Carbon Resistor             |
| R154                  | 1    |                 | KA25ST223J        | Carbon Resistor             |
| R155                  | 1    |                 | KA25ST222J        | Carbon Resistor             |
| R156                  | 1    |                 | KA25ST103J        | Carbon Resistor             |
| R157,158              | 2    |                 | KA25ST221J        | Carbon Resistor             |
| R159                  | 1    |                 | KA25ST271J        | Carbon Resistor             |
| R160                  | 1    |                 | KA25ST911J        | Carbon Resistor             |
| R161                  | 1    |                 | KA25ST392J        | Carbon Resistor             |
| R162                  | 1    |                 | KA25ST152J        | Carbon Resistor             |
| R163                  | 1    |                 | KA25ST224J        | Carbon Resistor             |
| R164                  | 1    |                 | KA25ST563J        | Carbon Resistor             |
| R165                  | 1    |                 | KA25ST272J        | Carbon Resistor             |
| R166                  | 1    |                 | KA25ST431J        | Carbon Resistor             |
| R167,168              | 2    |                 | KA25ST472J        | Carbon Resistor             |
| R169,170              | 2    |                 | KA25ST104J        | Carbon Resistor             |
| R171,172              | 2    |                 | KA25ST223J        | Carbon Resistor             |
| R173                  | 1    |                 | KA25ST334J        | Carbon Resistor             |
| R175,176              | 2    |                 | KA25ST822J        | Carbon Resistor             |
| R177,178              | 2    |                 | KA25ST185J        | Carbon Resistor             |
| R179,180              | 2    |                 | KA25ST152J        | Carbon Resistor             |
| R181,182              | 2    |                 | KA25ST104J        | Carbon Resistor             |
| R183                  | 1    |                 | KA25ST473J        | Carbon Resistor             |
| R187                  | 1    |                 | KA25ST106J        | Carbon Resistor             |
| <b>Miscellaneous</b>  |      |                 |                   |                             |
| F151                  | 1    |                 | KBR-3.6M1         | Ceramic Oscillator          |
| JT101,102             | 2    |                 | IMSA-1068-04D     | Mini Terminal Plate         |

### 3. ASW-616A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description                 |
|-----------------------|------|-----------------|-------------------|-----------------------------|
| <b>Semiconductors</b> |      |                 |                   |                             |
| D601,602              | 1    |                 | 1S1588            | Diode                       |
| D681~684              | 4    |                 | 1S1588            | Diode                       |
| Q601,602              | 2    |                 | 2SA1015-Y,GR      | Transistor                  |
| Q603,604              | 2    |                 | 2SC1815-Y,GR      | Transistor                  |
| IC601                 | 1    |                 | M5218PR           | IC                          |
|                       |      |                 | or NJM4560DX      | IC                          |
| IC602                 | 1    |                 | TC9155P           | IC                          |
| IC603                 | 1    |                 | MN4001B           | IC                          |
|                       |      |                 | or M4001B         | IC                          |
|                       |      |                 | or TC4001BP       | IC                          |
| ZD601,602             | 2    |                 | ZD50-060          | Zener Diode, 1/2W, 6.0V     |
| <b>Capacitors</b>     |      |                 |                   |                             |
| C601~608              | 8    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C609,610              | 2    |                 | HE40SJSL180K      | Ceramic Capacitor           |
| C611,612              | 2    |                 | MY-50VU102J       | Mylar Capacitor             |
| C613,614              | 2    |                 | NS-16TW470M       | Electrolytic Capacitor      |
| C615,616              | 2    |                 | NS-50TW100M       | Electrolytic Capacitor      |
| C617                  | 1    |                 | ECQV1H104JZ       | Metallized Film Capacitor   |
| C641,642              | 2    |                 | NS-25TW220M       | Electrolytic Capacitor      |
| C681,682              | 2    |                 | ECQV1H224JZ       | Metallized Film Capacitor   |
| C683                  | 1    |                 | MY-50VU223J       | Mylar Capacitor             |
| <b>Resistors</b>      |      |                 |                   |                             |
| R601,602              | 2    |                 | KA25ST221J        | Carbon Resistor             |
| R603,604              | 2    |                 | KA25ST104J        | Carbon Resistor             |
| R605,606              | 2    |                 | KA25ST433J        | Carbon Resistor             |
| R607,608              | 2    |                 | KA25ST474J        | Carbon Resistor             |
| R609~612              | 4    |                 | KA25ST473J        | Carbon Resistor             |
| R613,614              | 2    |                 | KA25ST271J        | Carbon Resistor             |
| R615,616              | 2    |                 | KA25ST302J        | Carbon Resistor             |
| R617,618              | 2    |                 | KA25ST473J        | Carbon Resistor             |
| R619,620              | 2    |                 | KA25ST104J        | Carbon Resistor             |
| R621                  | 1    |                 | KA25ST223J        | Carbon Resistor             |
| R622                  | 1    |                 | KA25ST683J        | Carbon Resistor             |
| R623,624              | 2    |                 | KA25ST102J        | Carbon Resistor             |
| R681~684              | 4    |                 | KA25ST103J        | Carbon Resistor             |
| R685,686              | 2    |                 | KA25ST225J        | Carbon Resistor             |
| R687                  | 1    |                 | KA25ST102J        | Carbon Resistor             |
| <b>Switches</b>       |      |                 |                   |                             |
| SW601                 | 1    |                 | SW-1100164        | Push Switch                 |
| SW602                 | 1    |                 | SW-1100165        | Push Switch                 |
| SW603                 | 1    |                 | SW-1500163        | Push Switch                 |
| <b>Miscellaneous</b>  |      |                 |                   |                             |
| J043                  | 2    |                 | 09-#18B01         | UL Type Tube                |
| J064                  | 1    |                 | MC06-395          | Micro Socket Ass'y          |
|                       | 1    |                 | MC12-400          | Micro Socket Ass'y          |

### 4. CNR-527D P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description |
|-----------------------|------|-----------------|-------------------|-------------|
| <b>Semiconductors</b> |      |                 |                   |             |
| ND001~026             | 26   |                 | 1S1588            | Diode       |
| ND030                 | 1    |                 | 1S1588            | Diode       |
| ND032~043             | 13   |                 | 1S1588            | Diode       |
| ND055,056             | 2    |                 | 1S1588            | Diode       |
| ND057                 | 1    |                 | 1N4004            | Diode       |
| ND060                 | 1    |                 | 1S1588            | Diode       |
| ND070~072             | 3    |                 | 1S1588            | Diode       |
| NQ001~003             | 3    |                 | 2SC1815-Y,GR      | Transistor  |
| NQ004                 | 1    |                 | 2SA1015-Y,GR      | Transistor  |
| NQ005~007             | 3    |                 | 2SK381-D          | Transistor  |
| NQ301~303             | 3    |                 | 2SC1815-Y,GR      | Transistor  |
| NIC001~023            | 23   |                 | M5218P            | IC          |
|                       |      |                 | or NJM4560D       | IC          |

## 4. CNR-527D P.C. Board Assembly (cont'd)

| Ref. No           | Q'ty | Carver Part No. | Supplier Part No.      | Description                 |
|-------------------|------|-----------------|------------------------|-----------------------------|
| NIC024            | 1    |                 | LM3080N<br>or RCA3080E | IC                          |
| NIC301            | 1    |                 | MN3010                 | IC                          |
| NIC302            | 1    |                 | MN3101                 | IC                          |
| <b>Capacitors</b> |      |                 |                        |                             |
| NC003             | 1    |                 | MY-50VU823K            | Mylar Capacitor             |
| NC004             | 1    |                 | MY-50VU102K            | Mylar Capacitor             |
| NC005,006         | 2    |                 | LL-16TW4R7M            | Low Leak. Electrolytic Cap. |
| NC007,008         | 2    |                 | HE50SJSL101K           | Ceramic Capacitor           |
| NC009             | 1    |                 | MY-50VU823K            | Mylar Capacitor             |
| NC010             | 1    |                 | MY-50VU102K            | Mylar Capacitor             |
| NC011,012         | 2    |                 | LL-16TW4R7M            | Low Leak. Electrolytic Cap. |
| NC015             | 1    |                 | MY-50VU222K            | Mylar Capacitor             |
| NC016             | 1    |                 | MY-50VU103K            | Mylar Capacitor             |
| NC017             | 1    |                 | HE95SJSL561K           | Ceramic Capacitor           |
| NC018             | 1    |                 | MY-50VU392K            | Mylar Capacitor             |
| NC019             | 1    |                 | LL-16TW100M            | Low Leak. Electrolytic Cap. |
| NC030             | 1    |                 | HE50SJSL101K           | Ceramic Capacitor           |
| NC031             | 1    |                 | LL-16TW4R7M            | Low Leak. Electrolytic Cap. |
| NC032             | 1    |                 | MY-50VU683K            | Mylar Capacitor             |
| NC040             | 1    |                 | LL-16TW4R7M            | Low Leak. Electrolytic Cap. |
| NC041             | 1    |                 | MY-50VU123K            | Mylar Capacitor             |
| NC042             | 1    |                 | MY-50VU333K            | Mylar Capacitor             |
| NC043             | 1    |                 | MY-50VU223K            | Mylar Capacitor             |
| NC044             | 1    |                 | MY-50VU822K            | Mylar Capacitor             |
| NC045~047         | 3    |                 | MY-50VU332K            | Mylar Capacitor             |
| NC048             | 1    |                 | MY-50VU272K            | Mylar Capacitor             |
| NC049             | 1    |                 | MY-50VU182K            | Mylar Capacitor             |
| NC050             | 1    |                 | MY-50VU472K            | Mylar Capacitor             |
| NC051             | 1    |                 | HE11SJSL681K           | Ceramic Capacitor           |
| NC052             | 1    |                 | MY-50VU472K            | Mylar Capacitor             |
| NC053             | 1    |                 | HE11SJSL681K           | Ceramic Capacitor           |
| NC054             | 1    |                 | MY-50VU122K            | Mylar Capacitor             |
| NC055             | 1    |                 | MY-50VU222K            | Mylar Capacitor             |
| NC056             | 1    |                 | MY-50VU683K            | Mylar Capacitor             |
| NC057             | 1    |                 | LL-16TW100M            | Low Leak. Electrolytic Cap. |
| NC058             | 1    |                 | LL-16TW4R7M            | Low Leak. Electrolytic Cap. |
| NC061             | 1    |                 | MY-50VU223K            | Mylar Capacitor             |
| NC062             | 1    |                 | ECQV1H224JZ            | Metallized Film Capacitor   |
| NC063,064         | 2    |                 | MY-50VU104K            | Mylar Capacitor             |
| NC065             | 1    |                 | LL-16TW4R7M            | Low Leak. Electrolytic Cap. |
| NC066             | 1    |                 | HE50SJSL121K           | Ceramic Capacitor           |
| NC067~069         | 3    |                 | LL-16TW4R7M            | Low Leak. Electrolytic Cap. |
| NC070             | 1    |                 | HE50SJSL121K           | Ceramic Capacitor           |
| NC071             | 1    |                 | HE50SJSL101K           | Ceramic Capacitor           |
| NC072,073         | 2    |                 | LL-16TW4R7M            | Low Leak. Electrolytic Cap. |
| NC074             | 1    |                 | LL-16TW100M            | Low Leak. Electrolytic Cap. |
| NC075             | 1    |                 | MY-50VU124K            | Mylar Capacitor             |
| NC078             | 1    |                 | MY-50VU473K            | Mylar Capacitor             |
| NC079             | 1    |                 | MY-50VU123K            | Mylar Capacitor             |
| NC080             | 1    |                 | MY-50VU682K            | Mylar Capacitor             |
| NC084             | 1    |                 | HE95SJSL561K           | Ceramic Capacitor           |
| NC085             | 1    |                 | MY-50VU393K            | Mylar Capacitor             |
| NC086             | 1    |                 | LL-16TW220M            | Low Leak. Electrolytic Cap. |
| NC087             | 1    |                 | MY-50VU102K            | Mylar Capacitor             |
| NC088             | 1    |                 | HE11SJSL751K           | Ceramic Capacitor           |
| NC089             | 1    |                 | MY-50VU393K            | Mylar Capacitor             |
| NC090             | 1    |                 | LL-16TW220M            | Low Leak. Electrolytic Cap. |
| NC091             | 1    |                 | MY-50VU102K            | Mylar Capacitor             |
| NC104             | 1    |                 | MY-50VU182K            | Mylar Capacitor             |
| NC107             | 1    |                 | LL-16TW100M            | Low Leak. Electrolytic Cap. |
| NC111,112         | 2    |                 | NS-16TW331M            | Electrolytic Capacitor      |
| NC113~120         | 8    |                 | NS-50TW2R2M            | Electrolytic Capacitor      |
| NC150,151         | 2    |                 | MY-50VU104K            | Mylar Capacitor             |
| NC302             | 1    |                 | NS-25TW470M            | Electrolytic Capacitor      |
| NC303             | 1    |                 | HE70SJYF103Z           | Ceramic Capacitor           |
| NC304             | 1    |                 | LL-50TW3R3M            | Low Leak. Electrolytic Cap. |
| NC305             | 1    |                 | NS-50TW100M            | Electrolytic Capacitor      |
| NC306             | 1    |                 | HE11SJSL681K           | Ceramic Capacitor           |
| NC307             | 1    |                 | LL-50TW3R3M            | Low Leak. Electrolytic Cap. |
| NC308             | 1    |                 | MY-50VU122K            | Mylar Capacitor             |
| NC309             | 1    |                 | NS-50TW2R2M            | Electrolytic Capacitor      |
| NC310             | 1    |                 | HE70SJYF103Z           | Ceramic Capacitor           |
| NC311             | 1    |                 | NS-50TW100M            | Electrolytic Capacitor      |

## 4. CNR-527D P.C. Board Assembly (cont'd)

| Ref. No          | Q'ty | Carver Part No. | Supplier Part No. | Description            |
|------------------|------|-----------------|-------------------|------------------------|
| NC312            | 1    |                 | NS-25TW470M       | Electrolytic Capacitor |
| NC313            | 1    |                 | HE12SJCH241J      | Ceramic Capacitor      |
| NC314            | 1    |                 | HE70SJYF103Z      | Ceramic Capacitor      |
| <b>Resistors</b> |      |                 |                   |                        |
| NR001            | 1    |                 | KA25ST513J        | Carbon Resistor        |
| NR002            | 1    |                 | KA25ST222J        | Carbon Resistor        |
| NR003,004        | 2    |                 | KA25ST103J        | Carbon Resistor        |
| NR005            | 1    |                 | KA25ST513J        | Carbon Resistor        |
| NR006            | 1    |                 | KA25ST222J        | Carbon Resistor        |
| NR007            | 1    |                 | KA25ST472J        | Carbon Resistor        |
| NR008,009        | 2    |                 | KA25ST103J        | Carbon Resistor        |
| NR010            | 1    |                 | KA25ST472J        | Carbon Resistor        |
| NR011            | 1    |                 | KA25ST223J        | Carbon Resistor        |
| NR012            | 1    |                 | KA25ST224J        | Carbon Resistor        |
| NR013,014        | 2    |                 | KA25ST222J        | Carbon Resistor        |
| NR015            | 1    |                 | KA25ST223J        | Carbon Resistor        |
| NR016            | 1    |                 | KA25ST104J        | Carbon Resistor        |
| NR017,018        | 2    |                 | KA25ST472J        | Carbon Resistor        |
| NR019,020        | 2    |                 | KA25ST223J        | Carbon Resistor        |
| NR021            | 1    |                 | KA25ST224J        | Carbon Resistor        |
| NR022,023        | 2    |                 | KA25ST222J        | Carbon Resistor        |
| NR024            | 1    |                 | KA25ST223J        | Carbon Resistor        |
| NR025            | 1    |                 | KA25ST104J        | Carbon Resistor        |
| NR026,027        | 2    |                 | KA25ST472J        | Carbon Resistor        |
| NR028            | 1    |                 | KA25ST203J        | Carbon Resistor        |
| NR029            | 1    |                 | KA25ST562J        | Carbon Resistor        |
| NR030            | 1    |                 | KA25ST203J        | Carbon Resistor        |
| NR031            | 1    |                 | KA25ST822J        | Carbon Resistor        |
| NR032~034        | 3    |                 | KA25ST113J        | Carbon Resistor        |
| NR035            | 1    |                 | KA25ST333J        | Carbon Resistor        |
| NR036            | 1    |                 | KA25ST153J        | Carbon Resistor        |
| NR037            | 1    |                 | KA25ST821J        | Carbon Resistor        |
| NR038            | 1    |                 | KA25ST302J        | Carbon Resistor        |
| NR039            | 1    |                 | KA25ST104J        | Carbon Resistor        |
| NR040            | 1    |                 | KA20ST103J        | Carbon Resistor        |
| NR041            | 1    |                 | KA25ST181J        | Carbon Resistor        |
| NR042            | 1    |                 | KA25ST224J        | Carbon Resistor        |
| NR043,044        | 2    |                 | KA25ST562J        | Carbon Resistor        |
| NR045            | 1    |                 | KA25ST224J        | Carbon Resistor        |
| NR046            | 1    |                 | KA25ST243J        | Carbon Resistor        |
| NR047            | 1    |                 | KA25ST565J        | Carbon Resistor        |
| NR066~068        | 3    |                 | KA25ST752J        | Carbon Resistor        |
| NR069            | 1    |                 | KA25ST202J        | Carbon Resistor        |
| NR070            | 1    |                 | KA25ST183J        | Carbon Resistor        |
| NR071,072        | 2    |                 | KA25ST202J        | Carbon Resistor        |
| NR073            | 1    |                 | KA25ST103J        | Carbon Resistor        |
| NR074            | 1    |                 | KA25ST683J        | Carbon Resistor        |
| NR075            | 1    |                 | KA25ST392J        | Carbon Resistor        |
| NR076            | 1    |                 | KA25ST202J        | Carbon Resistor        |
| NR077            | 1    |                 | KA25ST163J        | Carbon Resistor        |
| NR078            | 1    |                 | KA25ST203J        | Carbon Resistor        |
| NR079            | 1    |                 | KA25ST303J        | Carbon Resistor        |
| NR080            | 1    |                 | KA25ST392J        | Carbon Resistor        |
| NR081,82         | 2    |                 | KA25ST752J        | Carbon Resistor        |
| NR083            | 1    |                 | KA25ST272J        | Carbon Resistor        |
| NR084,85         | 2    |                 | KA25ST302J        | Carbon Resistor        |
| NR086            | 1    |                 | KA25ST183J        | Carbon Resistor        |
| NR087            | 1    |                 | KA25ST562J        | Carbon Resistor        |
| NR088            | 1    |                 | KA25ST203J        | Carbon Resistor        |
| NR089            | 1    |                 | KA25ST104J        | Carbon Resistor        |
| NR090            | 1    |                 | KA25ST302J        | Carbon Resistor        |
| NR091            | 1    |                 | KA25ST243J        | Carbon Resistor        |
| NR092            | 1    |                 | KA25ST335J        | Carbon Resistor        |
| NR093            | 1    |                 | KA25ST224J        | Carbon Resistor        |
| NR094            | 1    |                 | KA25ST333J        | Carbon Resistor        |
| NR095,96         | 2    |                 | KA25ST562J        | Carbon Resistor        |
| NR097            | 1    |                 | KA25ST153J        | Carbon Resistor        |
| NR098            | 1    |                 | KA25ST181J        | Carbon Resistor        |
| NR099            | 1    |                 | KA25ST821J        | Carbon Resistor        |
| NR100            | 1    |                 | KA25ST434J        | Carbon Resistor        |
| NR101            | 1    |                 | KA25ST224J        | Carbon Resistor        |
| NR102            | 1    |                 | KA25ST242J        | Carbon Resistor        |
| NR104            | 1    |                 | KA25ST183J        | Carbon Resistor        |
| NR105            | 1    |                 | KA25ST203J        | Carbon Resistor        |

## 4. CNR-527D P.C. Board Assembly (cont'd)

| Ref. No   | Q'ty | Carver Part No. | Supplier Part No. | Description     |
|-----------|------|-----------------|-------------------|-----------------|
| NR107,108 | 2    |                 | KA25ST912J        | Carbon Resistor |
| NR109     | 1    |                 | KA25ST101J        | Carbon Resistor |
| NR110     | 1    |                 | KA25ST752J        | Carbon Resistor |
| NR111,112 | 2    |                 | KA25ST470J        | Carbon Resistor |
| NR113     | 1    |                 | KA25ST104J        | Carbon Resistor |
| NR114     | 1    |                 | KA25ST103J        | Carbon Resistor |
| NR115     | 1    |                 | KA25ST202J        | Carbon Resistor |
| NR116     | 1    |                 | KA25ST124J        | Carbon Resistor |
| NR117     | 1    |                 | KA25ST102J        | Carbon Resistor |
| NR118     | 1    |                 | KA25ST113J        | Carbon Resistor |
| NR119     | 1    |                 | KA25ST134J        | Carbon Resistor |
| NR120     | 1    |                 | KA25ST515J        | Carbon Resistor |
| NR121     | 1    |                 | KA25ST102J        | Carbon Resistor |
| NR122     | 1    |                 | KA25ST433J        | Carbon Resistor |
| NR123     | 1    |                 | KA25ST102J        | Carbon Resistor |
| NR124     | 1    |                 | KA25ST563J        | Carbon Resistor |
| NR125,126 | 2    |                 | KA25ST242J        | Carbon Resistor |
| NR127     | 1    |                 | KA25ST912J        | Carbon Resistor |
| NR128     | 1    |                 | KA25ST106J        | Carbon Resistor |
| NR129     | 1    |                 | KA25ST223J        | Carbon Resistor |
| NR130     | 1    |                 | KA25ST912J        | Carbon Resistor |
| NR131     | 1    |                 | KA25ST123J        | Carbon Resistor |
| NR132     | 1    |                 | KA25ST104J        | Carbon Resistor |
| NR133     | 1    |                 | KA25ST562J        | Carbon Resistor |
| NR134     | 1    |                 | KA25ST563J        | Carbon Resistor |
| NR135     | 1    |                 | KA25ST433J        | Carbon Resistor |
| NR136     | 1    |                 | KA25ST242J        | Carbon Resistor |
| NR137     | 1    |                 | KA25ST912J        | Carbon Resistor |
| NR138     | 1    |                 | KA25ST242J        | Carbon Resistor |
| NR139     | 1    |                 | KA25ST106J        | Carbon Resistor |
| NR140     | 1    |                 | KA25ST912J        | Carbon Resistor |
| NR141     | 1    |                 | KA25ST223J        | Carbon Resistor |
| NR142,143 | 2    |                 | KA25ST123J        | Carbon Resistor |
| NR144,145 | 2    |                 | KA25ST393J        | Carbon Resistor |
| NR146,147 | 2    |                 | KA25ST203J        | Carbon Resistor |
| NR148     | 1    |                 | KA25ST104J        | Carbon Resistor |
| NR149,150 | 2    |                 | KA25ST203J        | Carbon Resistor |
| NR151     | 1    |                 | KA25ST104J        | Carbon Resistor |
| NR152     | 1    |                 | KA25ST225J        | Carbon Resistor |
| NR157     | 1    |                 | KA25ST124J        | Carbon Resistor |
| NR158     | 1    |                 | KA25ST561J        | Carbon Resistor |
| NR159     | 1    |                 | KA25ST104J        | Carbon Resistor |
| NR160,161 | 2    |                 | KA25ST223J        | Carbon Resistor |
| NR162     | 1    |                 | KA25ST103J        | Carbon Resistor |
| NR163,164 | 2    |                 | KA25ST133J        | Carbon Resistor |
| NR165,166 | 2    |                 | KA25ST392J        | Carbon Resistor |
| NR168     | 1    |                 | KA20ST682J        | Carbon Resistor |
| NR169     | 1    |                 | KA20ST103J        | Carbon Resistor |
| NR170     | 1    |                 | KA25ST123J        | Carbon Resistor |
| NR171     | 1    |                 | KA25ST223J        | Carbon Resistor |
| NR172,173 | 2    |                 | KA25ST183J        | Carbon Resistor |
| NR174     | 1    |                 | KA25ST222J        | Carbon Resistor |
| NR175     | 1    |                 | KA25ST113J        | Carbon Resistor |
| NR184     | 1    |                 | KA25ST512J        | Carbon Resistor |
| NR185     | 1    |                 | KA25ST103J        | Carbon Resistor |
| NR186     | 1    |                 | KA25ST512J        | Carbon Resistor |
| NR187     | 1    |                 | KA25ST243J        | Carbon Resistor |
| NR188     | 1    |                 | KA25ST753J        | Carbon Resistor |
| NR189     | 1    |                 | KA25ST243J        | Carbon Resistor |
| NR190     | 1    |                 | KA25ST203J        | Carbon Resistor |
| NR191     | 1    |                 | KA25ST104J        | Carbon Resistor |
| NR192     | 1    |                 | KA25ST121J        | Carbon Resistor |
| NR193     | 1    |                 | KA25ST222J        | Carbon Resistor |
| NR194     | 1    |                 | KA25ST183J        | Carbon Resistor |
| NR195     | 1    |                 | KA25ST472J        | Carbon Resistor |
| NR197     | 1    |                 | KA25ST621J        | Carbon Resistor |
| NR201     | 1    |                 | KA25ST512J        | Carbon Resistor |
| NR202     | 1    |                 | KA25ST303J        | Carbon Resistor |
| NR203     | 1    |                 | KA25ST103J        | Carbon Resistor |
| NR204     | 1    |                 | KA25ST512J        | Carbon Resistor |
| NR205     | 1    |                 | KA25ST243J        | Carbon Resistor |
| NR206     | 1    |                 | KA25ST473J        | Carbon Resistor |
| NR207     | 1    |                 | KA25ST243J        | Carbon Resistor |
| NR208     | 1    |                 | KA25ST203J        | Carbon Resistor |
| NR209     | 1    |                 | KA25ST222J        | Carbon Resistor |
| NR210     | 1    |                 | KA25ST121J        | Carbon Resistor |

4. CNR-527D P.C. Board Assembly (cont'd)

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No. | Description            |
|----------------------|------|-----------------|-------------------|------------------------|
| NR211                | 1    |                 | KA25ST183J        | Carbon Resistor        |
| NR212                | 1    |                 | KA25ST621J        | Carbon Resistor        |
| NR213                | 1    |                 | KA25ST104J        | Carbon Resistor        |
| NR214                | 1    |                 | KA25ST472J        | Carbon Resistor        |
| NR230                | 1    |                 | KA25ST303J        | Carbon Resistor        |
| NR244                | 1    |                 | KA25ST152J        | Carbon Resistor        |
| NR246                | 1    |                 | KA20ST242J        | Carbon Resistor        |
| NR251                | 1    |                 | KA25ST184J        | Carbon Resistor        |
| NR301                | 1    |                 | KA25ST510J-LP     | Carbon Resistor        |
| NR302,303            | 2    |                 | KA25ST242J        | Carbon Resistor        |
| NR304                | 1    |                 | KA25ST104J        | Carbon Resistor        |
| NR305                | 1    |                 | KA25ST102J        | Carbon Resistor        |
| NR306,307            | 2    |                 | KA25ST104J        | Carbon Resistor        |
| NR308,309            | 2    |                 | KA25ST562J        | Carbon Resistor        |
| NR310                | 1    |                 | KA25ST104J        | Carbon Resistor        |
| NR311                | 1    |                 | KA25ST513J        | Carbon Resistor        |
| NR312,312            | 2    |                 | KA25ST512J        | Carbon Resistor        |
| NR314                | 1    |                 | KA25ST513J        | Carbon Resistor        |
| NR315                | 1    |                 | KA25ST911J        | Carbon Resistor        |
| NR316                | 1    |                 | KA25ST202J        | Carbon Resistor        |
| NR317                | 1    |                 | KA25ST510J-LP     | Carbon Resistor        |
| NR318                | 1    |                 | KA25ST223J        | Carbon Resistor        |
| NR319,320            | 2    |                 | KA25ST513J        | Carbon Resistor        |
| NRP001               | 1    |                 | SVR-10T3B104CK    | Semi-Variable Resistor |
| NRP003               | 1    |                 | SVR-10T3B225CK    | Semi-Variable Resistor |
| NRP005               | 1    |                 | SVR-10T3B224CK    | Semi-Variable Resistor |
| NRP006               | 1    |                 | SVR-10T3B104CK    | Semi-Variable Resistor |
| NRP007               | 1    |                 | SVR-10T3B203CK    | Semi-Variable Resistor |
| NRP008               | 1    |                 | SVR-06T3B204CK    | Semi-Variable Resistor |
| NRP009               | 1    |                 | SVR-06T3B105CK    | Semi-Variable Resistor |
| NRP301               | 1    |                 | SVR-10T3B472CK    | Semi-Variable Resistor |
| <b>Miscellaneous</b> |      |                 |                   |                        |
| CP013,021            | 1    |                 | 59BS1692          | GND Lug                |
| MP011                | 2    |                 | RP-003            | Terminal Pin           |
| MP082                | 1    |                 | 171826-6          | Micro Plug             |
|                      | 1    |                 | 171826-2          | Micro Plug             |

5. CSF-613A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description            |
|-----------------------|------|-----------------|-------------------|------------------------|
| <b>Semiconductors</b> |      |                 |                   |                        |
| D301~303              | 3    |                 | 1S1588            | Diode                  |
| Q301,302              | 2    |                 | 2SC2021-R,S       | Transistor             |
| Q303,304              | 2    |                 | 2SA937-R,S        | Transistor             |
| LD301~306             | 6    |                 | TLR205            | LED                    |
| LD307                 | 1    |                 | TLY205            | LED                    |
| LD308~313             | 6    |                 | TLR205            | LED                    |
| LD314                 | 1    |                 | TLY205            | LED                    |
| <b>Capacitors</b>     |      |                 |                   |                        |
| C301                  | 1    |                 | NS-10TW101M       | Electrolytic Capacitor |
| C302,303              | 2    |                 | NS-16TW100M       | Electrolytic Capacitor |
| <b>Resistors</b>      |      |                 |                   |                        |
| R301                  | 1    |                 | KA25ST431J        | Carbon Resistor        |
| R302                  | 1    |                 | KA25ST102J        | Carbon Resistor        |
| R303                  | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R304                  | 1    |                 | KA25ST472J        | Carbon Resistor        |
| R305                  | 1    |                 | KA25ST223J        | Carbon Resistor        |
| R306                  | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R307                  | 1    |                 | KA25ST124J        | Carbon Resistor        |
| R308                  | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R309                  | 1    |                 | KA25ST473J        | Carbon Resistor        |
| R310                  | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R311                  | 1    |                 | KA25ST102J        | Carbon Resistor        |
| R312                  | 1    |                 | KA25ST682J        | Carbon Resistor        |
| R313                  | 1    |                 | KA25ST102J        | Carbon Resistor        |
| R314~318              | 4    |                 | KA25ST472J        | Carbon Resistor        |
| R319                  | 1    |                 | KA25ST182J        | Carbon Resistor        |

## 5. CSF-613A P.C. Board Assembly (cont'd)

| Ref. No              | Q'ty   | Carver Part No. | Supplier Part No.      | Description                      |
|----------------------|--------|-----------------|------------------------|----------------------------------|
| <b>Switches</b>      |        |                 |                        |                                  |
| SW301~316            | 16     |                 | KHH10910               | Tact Switch                      |
| <b>Miscellaneous</b> |        |                 |                        |                                  |
| LA301                | 1<br>1 |                 | N44377<br>BQ141-35853A | Shield Paper<br>Lamp, 12V, 0.07A |

## 6. FEQ-614 P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description                 |
|-----------------------|------|-----------------|-------------------|-----------------------------|
| <b>Semiconductors</b> |      |                 |                   |                             |
| D401,402              | 2    |                 | 1S1588            | Diode                       |
| D501                  | 1    |                 | 1S1588            | Diode                       |
| Q401~404              | 4    |                 | 2SC3329-GR        | Transistor                  |
| Q405,406              | 2    |                 | 2SK381-D          | Transistor                  |
| Q407,408              | 2    |                 | 2SC2878-A,B       | Transistor                  |
| Q409                  | 1    |                 | 2SA1015-Y,GR      | Transistor                  |
| Q501                  | 1    |                 | 2SC1815-GR,BL     | Transistor                  |
| IC401~403             | 3    |                 | M5218PR           | IC                          |
|                       |      |                 | or NJM4560DX      | IC                          |
| IC404                 | 1    |                 | TC9152P           | IC                          |
| IC405                 | 1    |                 | M5218PR           | IC                          |
|                       |      |                 | or NJM4560DX      | IC                          |
| IC501~509             | 9    |                 | M5218PR           | IC                          |
|                       |      |                 | or NJM4560DX      | IC                          |
| ZD401,402             | 2    |                 | ZD50-060          | Zener Diode, 1/2W, 6.0V     |
| <b>Capacitors</b>     |      |                 |                   |                             |
| C401,402              | 2    |                 | HC10SJZF473Z      | Ceramic Capacitor           |
| C403,404              | 2    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C405,406              | 2    |                 | HE50SJSL101K      | Ceramic Capacitor           |
| C407,408              | 2    |                 | MY-50VU222J       | Mylar Capacitor             |
| C411,412              | 2    |                 | NS-6R3TW222M      | Electrolytic Capacitor      |
| C413,414              | 2    |                 | MY-50VU563J       | Mylar Capacitor             |
| C415,416              | 2    |                 | MY-50VU183J       | Mylar Capacitor             |
| C417~420              | 4    |                 | MY-50VU473J       | Mylar Capacitor             |
| C421,422              | 2    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C423,424              | 2    |                 | NS-16TW470M       | Electrolytic Capacitor      |
| C425,426              | 2    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C427                  | 1    |                 | NS-16TW102M       | Electrolytic Capacitor      |
| C428                  | 1    |                 | MY-50VU683J       | Mylar Capacitor             |
| C429                  | 1    |                 | NS-16TW470M       | Electrolytic Capacitor      |
| C501~504              | 4    |                 | MY-50VU223J       | Mylar Capacitor             |
| C505                  | 1    |                 | MY-50VU272J       | Mylar Capacitor             |
| C506,507              | 2    |                 | MY-50VU122J       | Mylar Capacitor             |
| C508                  | 1    |                 | HE40SJYB681K      | Ceramic Capacitor           |
| C509                  | 1    |                 | ECQV1H124JZ       | Metallized Film Capacitor   |
| C510                  | 1    |                 | MY-50VU683J       | Mylar Capacitor             |
| C511                  | 1    |                 | MY-50VU823J       | Mylar Capacitor             |
| C512,513              | 2    |                 | MY-50VU562J       | Mylar Capacitor             |
| C514,515              | 2    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C516~531              | 16   |                 | MY-50VU102J       | Mylar Capacitor             |
| <b>Resistors</b>      |      |                 |                   |                             |
| R401,402              | 2    |                 | KA25ST100J        | Carbon Resistor             |
| R403,404              | 2    |                 | KA25ST104J        | Carbon Resistor             |
| R405,406              | 2    |                 | KA25ST101J        | Carbon Resistor             |
| R407,408              | 2    |                 | KA25ST104J        | Carbon Resistor             |
| R409,410              | 2    |                 | KA25ST4R3J        | Carbon Resistor             |
| R411,412              | 2    |                 | KA25ST820J        | Carbon Resistor             |
| R413~416              | 4    |                 | KA25ST242J        | Carbon Resistor             |
| R417,418              | 2    |                 | KA25ST181J        | Carbon Resistor             |
| R419,420              | 2    |                 | KA25ST332J        | Carbon Resistor             |
| R421,422              | 2    |                 | KA25ST561J        | Carbon Resistor             |
| R423,424              | 2    |                 | KA25ST432J        | Carbon Resistor             |
| R425,426              | 2    |                 | KA25ST101J        | Carbon Resistor             |
| R427,428              | 2    |                 | KA25ST513J        | Carbon Resistor             |
| R429,430              | 2    |                 | KA25ST392J        | Carbon Resistor             |
| R431,432              | 2    |                 | KA25ST391J        | Carbon Resistor             |
| R433,434              | 2    |                 | KA25ST513J        | Carbon Resistor             |

| Ref. No         | Q'ty | Carver Part No. | Supplier Part No. | Description     |
|-----------------|------|-----------------|-------------------|-----------------|
| R435,436        | 2    |                 | KA25ST104J        | Carbon Resistor |
| R437,438        | 2    |                 | KA25ST334J        | Carbon Resistor |
| R439,440        | 2    |                 | KA25ST271J        | Carbon Resistor |
| R441,442        | 2    |                 | KA25ST223J        | Carbon Resistor |
| R443,444        | 2    |                 | KA25ST561J        | Carbon Resistor |
| R445,446        | 2    |                 | KA25ST104J        | Carbon Resistor |
| R447,448        | 2    |                 | KA25ST220J        | Carbon Resistor |
| R449,450        | 2    |                 | KA25ST222J        | Carbon Resistor |
| R451~453        | 3    |                 | KA25ST103J        | Carbon Resistor |
| R454            | 1    |                 | KA25ST471J        | Carbon Resistor |
| R455            | 1    |                 | KA25ST104J        | Carbon Resistor |
| R456            | 1    |                 | KA25ST101J        | Carbon Resistor |
| R457,458        | 2    |                 | KA25ST102J        | Carbon Resistor |
| R459,460        | 2    |                 | KA25ST513J        | Carbon Resistor |
| R461,462        | 2    |                 | KA25ST621J        | Carbon Resistor |
| R463,464        | 2    |                 | KA25ST104J        | Carbon Resistor |
| R465~468        | 4    |                 | KA25ST222J        | Carbon Resistor |
| R501,502        | 2    |                 | KA25ST203J        | Carbon Resistor |
| R503,504        | 2    |                 | KA25ST362J        | Carbon Resistor |
| R505,506        | 2    |                 | KA25ST911J        | Carbon Resistor |
| R507,508        | 2    |                 | KA25ST362J        | Carbon Resistor |
| R509,510        | 2    |                 | KA25ST392J        | Carbon Resistor |
| R511,512        | 2    |                 | KA25ST273J        | Carbon Resistor |
| R513~517        | 5    |                 | KA25ST392J        | Carbon Resistor |
| R518            | 1    |                 | KA25ST622J        | Carbon Resistor |
| R519            | 1    |                 | KA25ST392J        | Carbon Resistor |
| R520            | 1    |                 | KA25ST112J        | Carbon Resistor |
| R521            | 1    |                 | KA25ST512J        | Carbon Resistor |
| R522            | 1    |                 | KA25ST103J        | Carbon Resistor |
| R523,524        | 2    |                 | KA25ST203J        | Carbon Resistor |
| R525            | 1    |                 | KA25ST183J        | Carbon Resistor |
| R526            | 1    |                 | KA25ST392J        | Carbon Resistor |
| R527            | 1    |                 | KA25ST362J        | Carbon Resistor |
| R528            | 1    |                 | KA25ST183J        | Carbon Resistor |
| R529,530        | 2    |                 | KA25ST392J        | Carbon Resistor |
| R531            | 1    |                 | KA25ST302J        | Carbon Resistor |
| R532,533        | 2    |                 | KA25ST162J        | Carbon Resistor |
| R534            | 1    |                 | KA25ST682J        | Carbon Resistor |
| R535            | 1    |                 | KA25ST392J        | Carbon Resistor |
| R536            | 1    |                 | KA25ST372J        | Carbon Resistor |
| R537            | 1    |                 | KA25ST392J        | Carbon Resistor |
| R538            | 1    |                 | KA25ST302J        | Carbon Resistor |
| R539            | 1    |                 | KA25ST682J        | Carbon Resistor |
| R540            | 1    |                 | KA25ST273J        | Carbon Resistor |
| R541,542        | 2    |                 | KA25ST470J        | Carbon Resistor |
| R543,544        | 2    |                 | KA25ST473J        | Carbon Resistor |
| R545,546        | 2    |                 | KA25ST512J        | Carbon Resistor |
| R547~550        | 4    |                 | KA25ST752J        | Carbon Resistor |
| R551,552        | 2    |                 | KA25ST203J        | Carbon Resistor |
| R553,554        | 2    |                 | KA25ST122J        | Carbon Resistor |
| R555,556        | 2    |                 | KA25ST361J        | Carbon Resistor |
| R557,558        | 2    |                 | KA25ST512J        | Carbon Resistor |
| R559~562        | 4    |                 | KA25ST752J        | Carbon Resistor |
| R563,564        | 2    |                 | KA25ST203J        | Carbon Resistor |
| R565,566        | 2    |                 | KA25ST122J        | Carbon Resistor |
| R567,568        | 2    |                 | KA25ST301J        | Carbon Resistor |
| R569,570        | 2    |                 | KA25ST512J        | Carbon Resistor |
| R571~574        | 4    |                 | KA25ST752J        | Carbon Resistor |
| R575,576        | 2    |                 | KA25ST203J        | Carbon Resistor |
| R577,578        | 2    |                 | KA25ST103J        | Carbon Resistor |
| R579,580        | 2    |                 | KA25ST122J        | Carbon Resistor |
| R581,582        | 2    |                 | KA25ST361J        | Carbon Resistor |
| R583,584        | 2    |                 | KA25ST512J        | Carbon Resistor |
| R585,586        | 2    |                 | KA25ST752J        | Carbon Resistor |
| R587,588        | 2    |                 | KA25ST103J        | Carbon Resistor |
| R589,590        | 2    |                 | KA25ST752J        | Carbon Resistor |
| R591,592        | 2    |                 | KA25ST203J        | Carbon Resistor |
| R593,594        | 2    |                 | KA25ST122J        | Carbon Resistor |
| R595,596        | 2    |                 | KA25ST361J        | Carbon Resistor |
| R597,598        | 2    |                 | KA25ST752J        | Carbon Resistor |
| R599            | 1    |                 | KA25ST473J        | Carbon Resistor |
| R600            | 1    |                 | KA25ST181J        | Carbon Resistor |
| <b>Switches</b> |      |                 |                   |                 |
| SW401           | 1    |                 | SW-5422161        | Slide Switch    |

## 6. FEQ-614 P.C. Board Assembly (cont'd)

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No. | Description        |
|----------------------|------|-----------------|-------------------|--------------------|
| SW402                | 1    |                 | SW-5230128        | Slide Switch       |
| SW403                | 1    |                 | SW-5430129        | Slide Switch       |
| <b>Miscellaneous</b> |      |                 |                   |                    |
| J041                 | 1    |                 | MC09-399          | Micro Socket Ass'y |
| JP066,069            | 2    |                 | W-D0603           | Connector          |
| MP043,065            | 2    |                 | 171825-6          | Micro Plug         |
| RY501                | 1    |                 | AG2333            | Relay              |
|                      |      |                 | or KX2-12K        | Relay              |
| RCA401               | 1    |                 | T6001-ABAA        | RCA Jack 6P        |
| RCA402               | 1    |                 | T5916-ABAA        | RCA Jack 6P        |
| RCA403               | 1    |                 | T5858-AB          | RCA Jack 4P        |

## 7. HP-615A P.C. Board Assembly

| Ref. No | Q'ty | Carver Part No. | Supplier Part No. | Description  |
|---------|------|-----------------|-------------------|--------------|
| HP801   | 1    |                 | N44376A           | Shield Plate |
|         | 1    |                 | HLJ0540-01-010    | H.P Jack     |

## 8. MA-615A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description                 |
|-----------------------|------|-----------------|-------------------|-----------------------------|
| <b>Semiconductors</b> |      |                 |                   |                             |
| D701~706              | 4    |                 | 1SS144            | Diode                       |
| D705~708              | 4    |                 | 1S1588            | Diode                       |
| D709~712              | 4    |                 | 30DF2FC           | Diode                       |
| D713,714              | 2    |                 | 1N4002            | Diode                       |
|                       |      |                 | or 1SR35-100A     | Diode                       |
| D715~718              | 4    |                 | 1SS144            | Diode                       |
| D719,720              | 2    |                 | KB362M            | Diode                       |
| D840,841              | 2    |                 | 1S1588            | Diode                       |
| D842,843              | 2    |                 | 1SS144            | Diode                       |
| D844,845              | 2    |                 | 1N4002            | Diode                       |
|                       |      |                 | or 1SR35-100A     | Diode                       |
| D846                  | 1    |                 | 1S1588            | Diode                       |
| D847~854              | 8    |                 | P300DL            | Diode                       |
|                       |      |                 | or 1N5402-F       | Diode                       |
| Q701,702              | 2    |                 | 2SC1815-GR,BL     | Transistor                  |
| Q703,704              | 2    |                 | 2SA1015-GR,BL     | Transistor                  |
| Q705,706              | 2    |                 | 2SA1360-O,Y       | Transistor                  |
| Q707,708              | 2    |                 | 2SC3423-O,Y       | Transistor                  |
| Q709,710              | 2    |                 | 2SC1815-GR,BL     | Transistor                  |
| Q711,712              | 2    |                 | 2SC3298-O,Y       | Transistor                  |
| Q713,714              | 2    |                 | 2SA1306-O,Y       | Transistor                  |
| Q715,716              | 2    |                 | 2SC1815-GR,BL     | Transistor                  |
| Q717,718              | 2    |                 | 2SA1015-GR,BL     | Transistor                  |
| Q719~722              | 4    |                 | 2SA1265-R,O       | Transistor                  |
| Q723,724              | 2    |                 | 2SC3181-R,O       | Transistor                  |
| Q725,726              | 2    |                 | 2SA1264-R,O       | Transistor                  |
| Q727                  | 1    |                 | 2SA1306-O,Y       | Transistor                  |
| Q728                  | 1    |                 | 2SA970-GR,BL      | Transistor                  |
| Q729                  | 1    |                 | 2SC2240-GR,BL     | Transistor                  |
| Q730                  | 1    |                 | 2SC3298-O,Y       | Transistor                  |
| Q731~734              | 4    |                 | 2SC3182-R,O       | Transistor                  |
| Q840                  | 1    |                 | 2SA970-GR,BL      | Transistor                  |
| IC701                 | 1    |                 | NJM072DE          | IC                          |
| IC702                 | 1    |                 | M5218P            | IC                          |
|                       |      |                 | or NJM4558D       | IC                          |
| IC703                 | 1    |                 | TA7317P           | IC                          |
| ZD701,702             | 2    |                 | ZD50-157          | Zener Diode, 1/2W, 15.7V    |
| <b>Capacitors</b>     |      |                 |                   |                             |
| C701,702              | 2    |                 | HE90SJSL471K      | Ceramic Capacitor           |
| C703,704              | 2    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C705,706              | 2    |                 | NS-10TW101M       | Electrolytic Capacitor      |
| C707~710              | 4    |                 | MS100TW1R0M       | Electrolytic Capacitor      |
| C711~714              | 4    |                 | HE40SJSL330K      | Ceramic Capacitor           |
| C715,716              | 2    |                 | HE40SJSL100K      | Ceramic Capacitor           |
| C717,718              | 2    |                 | HE40SJSL560K      | Ceramic Capacitor           |
| C719,720              | 2    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C721~724              | 4    |                 | HE70SJYF103Z      | Ceramic Capacitor           |

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No.                   | Description            |
|----------------------|------|-----------------|-------------------------------------|------------------------|
| C725~728             | 4    |                 | MY100VS473K                         | Mylar Capacitor        |
| C729,730             | 2    |                 | HM60SJYB102K                        | Ceramic Capcitor       |
| C731,732             | 2    |                 | NS-16TW470M                         | Electrolytic Capacitor |
| C840                 | 1    |                 | HE70SJYF103Z                        | Ceramic Capacitor      |
| C841                 | 1    |                 | NS-10TW101M                         | Electrolytic Capacitor |
| C842                 | 1    |                 | NS-16TW471M                         | Electrolytic Capacitor |
| C843                 | 1    |                 | NS-50TW100M                         | Electrolytic Capacitor |
| C844                 | 1    |                 | NS-50TW1R0M                         | Electrolytic Capacitor |
| C845                 | 1    |                 | HE13SJYF473Z                        | Ceramic Capacitor      |
| C846                 | 1    |                 | NS-50TWR47M                         | Electrolytic Capacitor |
| C847                 | 1    |                 | NS-25TW330M                         | Electrolytic Capacitor |
| C848                 | 1    |                 | NS-50TW1R0M                         | Electrolytic Capacitor |
| C849,850             | 2    |                 | BC50822MA50CC3                      | Electrolytic Capacitor |
| C851,852             | 2    |                 | BC71123MH63GH4<br>or BC71123YH60GH4 | Electrolytic Capacitor |
| <b>Resistors</b>     |      |                 |                                     |                        |
| R701,702             | 2    |                 | KA25ST102J                          | Carbon Resistor        |
| R703,704             | 2    |                 | KA25ST104J                          | Carbon Resistor        |
| R705,706             | 2    |                 | KA25ST473J                          | Carbon Resistor        |
| R707,708             | 2    |                 | KA25ST751J                          | Carbon Resistor        |
| R709,710             | 2    |                 | KA25ST393J                          | Carbon Resistor        |
| R711~714             | 4    |                 | KA25ST103J                          | Carbon Resistor        |
| R715,716             | 2    |                 | KA25ST102J                          | Carbon Resistor        |
| R717~724             | 8    |                 | KA25ST272J                          | Carbon Resistor        |
| R725~730             | 6    |                 | KA25ST102J                          | Carbon Resistor        |
| R731,732             | 2    |                 | MF25ST223J                          | Metal Film Resistor    |
| R733~736             | 4    |                 | FR25ST680J-LP                       | Flame Proof Resistor   |
| R737~740             | 4    |                 | FR25ST100J-LP                       | Flame Proof Resistor   |
| R741,742             | 2    |                 | FR50ST331J-LP                       | Flame Proof Resistor   |
| R743~750             | 8    |                 | FR25ST4R7J-LP                       | Flame Proof Resistor   |
| R751~754             | 4    |                 | KA25ST361J                          | Carbon Resistor        |
| R755~758             | 4    |                 | KA25ST111J                          | Carbon Resistor        |
| R759~762             | 4    |                 | KA25ST562J                          | Carbon Resistor        |
| R763~766             | 4    |                 | KA25ST151J                          | Carbon Resistor        |
| R767~770             | 4    |                 | MPC725R22KX2LF                      | Cement Resistor        |
| R771,772             | 2    |                 | KA25ST362J                          | Carbon Resistor        |
| R773~776             | 4    |                 | KA25ST103J                          | Carbon Resistor        |
| R777,778             | 2    |                 | KA25ST152J                          | Carbon Resistor        |
| R779,780             | 2    |                 | KA25ST101J                          | Carbon Resistor        |
| R781,782             | 2    |                 | SA-1WT222J-LP                       | Metal Oxide Resistor   |
| R783,784             | 2    |                 | KA25ST331J                          | Carbon Resistor        |
| R840,841             | 2    |                 | KA25ST102J                          | Carbon Resistor        |
| R842,843             | 2    |                 | KA25ST563J                          | Carbon Resistor        |
| R844                 | 1    |                 | KA25ST273J                          | Carbon Resistor        |
| R845,846             | 2    |                 | KA25ST153J                          | Carbon Resistor        |
| R847,848             | 2    |                 | KA25ST104J                          | Carbon Resistor        |
| R849                 | 1    |                 | KA25ST473J                          | Carbon Resistor        |
| R851                 | 1    |                 | KA25ST105J                          | Carbon Resistor        |
| R852                 | 1    |                 | KA25ST224J                          | Carbon Resistor        |
| R853,854             | 2    |                 | KA25ST104J                          | Carbon Resistor        |
| R855                 | 1    |                 | KA25ST123J                          | Carbon Resistor        |
| R856                 | 1    |                 | KA25ST103J                          | Carbon Resistor        |
| R857~859             | 3    |                 | KA25ST563J                          | Carbon Resistor        |
| R860                 | 1    |                 | KA25ST153J                          | Carbon Resistor        |
| R861                 | 1    |                 | KA25ST473J                          | Carbon Resistor        |
| R862                 | 1    |                 | KA25ST333J                          | Carbon Resistor        |
| R863                 | 1    |                 | KA25ST224J                          | Carbon Resistor        |
| R864                 | 1    |                 | KA25ST153J                          | Carbon Resistor        |
| SVR701,702           | 2    |                 | SVR-08T3B502                        | Semi-Variable Resistor |
| <b>Miscellaneous</b> |      |                 |                                     |                        |
|                      | 12   |                 | AC238                               | Mica                   |
|                      | 4    |                 | GT-M01W025                          | Glass Tube             |
|                      | 4    |                 | RP-003                              | Terminal Pin           |
|                      | 2    |                 | 59BS1692                            | GND Lug                |
| E075,076,091         | 3    |                 | RP-001                              | Terminal Pin           |
| TH801                | 1    |                 | UI2-10005-200A                      | Thermal Relay          |
| <b>Switches</b>      |      |                 |                                     |                        |
| SW404                | 1    |                 | SW-1100162                          | Push Switch            |

9. MSW-614 P.C. Board Assembly (cont'd)

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No. | Description        |
|----------------------|------|-----------------|-------------------|--------------------|
| <b>Miscellaneous</b> |      |                 |                   |                    |
| J014                 | 1    |                 | MC04-393          | Micro Socket Ass'y |

10. PLD-615A P.C. Board Assembly

| Ref. No                | Q'ty    | Carver Part No. | Supplier Part No.              | Description                                |
|------------------------|---------|-----------------|--------------------------------|--|
| <b>Semiconductors</b>  |         |                 |                                |  |
| LD251,252<br>LD253~270 | 2<br>18 |                 | SLP471D<br>SLP171D             | LED<br>LED                                 |
| <b>Miscellaneous</b>   |         |                 |                                |  |
| JT061,062<br>JT063     | 2<br>1  |                 | IMSA-1068-04D<br>IMSA-1068-05D | Mini Terminal Plate<br>Mini Terminal Plate |

11. PLF-613A P.C. Board Assembly

| Ref. No   | Q'ty   | Carver Part No. | Supplier Part No.  | Description   |
|---|--|-----------------|--|---|
| <b>Semiconductor</b>  |  |                 |  |   |
| D321,322<br>Q324<br>Q325~328<br>Q329<br>IC304<br>IC305<br>LD315,316<br>LD317<br>LD318<br>ZD302<br>ZD303   | 2<br>1<br>4<br>1<br>1<br>1<br>2<br>1<br>1<br>1<br>1  |                 | 1S1588<br>2SA937-R,S<br>2SC2021-R,S<br>2SA937-R,S<br>TC9158P<br>LB1423<br>TLR205<br>TLY205-5<br>TLR205<br>ZD50-035<br>ZD50-235   | Diode<br>Transistor<br>Transistor<br>Transistor<br>IC<br>IC<br>LED<br>LED<br>LED<br>Zener Diode, 1/2W, 3.5V<br>Zener Diode, 1/2W, 23.5V   |
| <b>Capacitors</b>   |  |                 |  |   |
| C326<br>C327<br>C328<br>C329<br>C330~332<br>C333<br>C334<br>C335<br>C336  | 1<br>1<br>1<br>1<br>3<br>1<br>1<br>1<br>1  |                 | NS-10TW220M<br>NS-16TW100M<br>NS-25TW470M<br>NS-10TW470M<br>NS-16TW100M<br>NS-16TW101M<br>NS6R3TW331M<br>UP125V332K<br>EP125Y223N  | Electrolytic Capacitor<br>Electrolytic Capacitor<br>Electrolytic Capacitor<br>Electrolytic Capacitor<br>Electrolytic Capacitor<br>Electrolytic Capacitor<br>Electrolytic Capacitor<br>Ceramic Capacitor<br>Ceramic Capacitor  |
| <b>Resistors</b>  |  |                 |  |   |
| R356<br>R357<br>R358<br>R359<br>R360<br>R361<br>R362<br>R363<br>R364<br>R365<br>R366<br>R367<br>R369<br>R370<br>R371<br>R372<br>R373<br>R374<br>R375<br>R376<br>RA301,302 | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>2 |                 | KA25ST223J<br>KA25ST104J<br>KA25ST223J<br>KA25ST103J<br>KA25ST473J<br>KA25ST104J<br>KA25ST103J<br>KA25ST222J<br>KA25ST104J<br>KA25ST103J<br>KA25ST223J<br>KA25ST152J<br>KA25ST181J<br>KA25ST681J<br>KA25ST103J<br>KA25ST223J<br>KA25ST473J<br>KA25ST470J<br>KA25ST223J<br>RA-IP-07104K | Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Networks Resistor |
| <b>Miscellaneous</b>  |  |                 |  |   |
|   | 4<br>1   |                 | KGLS-10R<br>N43748   | Spacer<br>Fittings (LED)  |

## 11. PLF-613A P.C. Board Assembly (cont'd)

| Ref. No | Q'ty   | Carver Part No. | Supplier Part No. | Description                 |
|---------|--------|-----------------|-------------------|-----------------------------|
| FL301   | 2<br>1 |                 | N43808<br>FG710E1 | Spacer<br>Fluorescence Lamp |

## 12. PLL-613A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description                 |
|-----------------------|------|-----------------|-------------------|-----------------------------|
| <b>Semiconductors</b> |      |                 |                   |                             |
| D304~320              | 17   |                 | 1S1588            | Diode                       |
| Q305~307              | 3    |                 | 2SC1815-Y,GR      | Transistor                  |
| Q308                  | 1    |                 | 2SK381-D,E        | Transistor                  |
| Q310                  | 1    |                 | 2SK222-E          | Transistor                  |
| Q311,312              | 2    |                 | 2SC1815-Y,GR      | Transistor                  |
| Q313                  | 1    |                 | 2SA1015-Y,GR      | Transistor                  |
| Q314~317              | 4    |                 | 2SC1815-Y,GR      | Transistor                  |
| Q318~320              | 3    |                 | 2SA1015-Y,GR      | Transistor                  |
| Q321~323              | 3    |                 | 2SC1815-Y,GR      | Transistor                  |
| IC301                 | 1    |                 | TC9147BP          | IC                          |
| IC302                 | 1    |                 | TD6104P           | IC                          |
| IC303                 | 1    |                 | TC9150P           | IC                          |
| ZD301                 | 1    |                 | ZD50-295          | Zener Diode, 1/2W, 29.5V    |
| <b>Capacitors</b>     |      |                 |                   |                             |
| C304                  | 1    |                 | HE40SJCH020D      | Ceramic Capacitor           |
| C305                  | 1    |                 | HE40SJCH220K      | Ceramic Capacitor           |
| C306                  | 1    |                 | NS-10TW101M       | Electrolytic Capacitor      |
| C307                  | 1    |                 | NS6R3TW102M       | Electrolytic Capacitor      |
| C308                  | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| C309                  | 1    |                 | NS-10TW101M       | Electrolytic Capacitor      |
| C310                  | 1    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C311                  | 1    |                 | NS-10TW470M       | Electrolytic Capacitor      |
| C312~314              | 3    |                 | TP125X103N        | Ceramic Capacitor           |
| C315,316              | 2    |                 | NS-35TW470M       | Electrolytic Capacitor      |
| C317                  | 1    |                 | TP125X103N        | Ceramic Capacitor           |
| C318                  | 1    |                 | ECQV1H104JZ       | Metallized Film Capacitor   |
| C319                  | 1    |                 | LL-50TWR47M       | Low Leak. Electrolytic Cap. |
| C320,321              | 2    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C322                  | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C323                  | 1    |                 | NS-10TW470M       | Electrolytic Capacitor      |
| C324                  | 1    |                 | UP125B102K        | Ceramic Capacitor           |
| C325                  | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| TC301                 | 1    |                 | CTC-6H-030        | Trimmer Capacitor           |
| <b>Resistors</b>      |      |                 |                   |                             |
| R320                  | 1    |                 | KA25ST223J        | Carbon Resistor             |
| R321                  | 1    |                 | KA25ST471J        | Carbon Resistor             |
| R322                  | 1    |                 | KA25ST472J        | Carbon Resistor             |
| R323                  | 1    |                 | KA25ST124J        | Carbon Resistor             |
| R324                  | 1    |                 | KA25ST470J        | Carbon Resistor             |
| R325                  | 1    |                 | KA25ST103J        | Carbon Resistor             |
| R326                  | 1    |                 | KA25ST102J        | Carbon Resistor             |
| R327                  | 1    |                 | KA25ST473J        | Carbon Resistor             |
| R328,330              | 2    |                 | KA25ST103J        | Carbon Resistor             |
| R332                  | 1    |                 | KA25ST471J        | Carbon Resistor             |
| R333,334              | 2    |                 | KA25ST222J        | Carbon Resistor             |
| R335                  | 1    |                 | KA25ST104J        | Carbon Resistor             |
| R336                  | 1    |                 | KA25ST473J        | Carbon Resistor             |
| R337,338              | 2    |                 | KA25ST103J        | Carbon Resistor             |
| R339                  | 1    |                 | KA25ST104J        | Carbon Resistor             |
| R340~342              | 3    |                 | KA25ST103J        | Carbon Resistor             |
| R343,344              | 2    |                 | KA25ST104J        | Carbon Resistor             |
| R345                  | 1    |                 | KA25ST471J        | Carbon Resistor             |
| R346                  | 1    |                 | KA25ST393J        | Carbon Resistor             |
| R347~349              | 3    |                 | KA25ST104J        | Carbon Resistor             |
| R350~355              | 6    |                 | KA25ST103J        | Carbon Resistor             |
| R368                  | 1    |                 | KA25ST182J        | Carbon Resistor             |
| R377                  | 1    |                 | KA25ST124J        | Carbon Resistor             |
| <b>Switches</b>       |      |                 |                   |                             |
| SW317                 | 1    |                 | SSS212A           | Slide Switch                |

12. PLL-613A P.C. Board Assembly (cont'd)

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No. | Description            |
|----------------------|------|-----------------|-------------------|------------------------|
| <b>Miscellaneous</b> |      |                 |                   |                        |
| J036                 | 1    |                 | MC10-401          | Micro Socket Ass'y     |
| X301                 | 1    |                 | EYX-TE725S17T     | Quartz Oscillator Unit |
| MP010                | 1    |                 | 171825-10         | Micro Plug             |
| MP012                | 1    |                 | 171825-5          | Micro Plug             |
| MP035                | 1    |                 | 171825-3          | Micro Plug             |
| MP041                | 1    |                 | 171825-9          | Micro Plug             |
| MP083                | 1    |                 | 171825-7          | Micro Plug             |

13. PMD-615A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description                 |
|-----------------------|------|-----------------|-------------------|-----------------------------|
| <b>Semiconductors</b> |      |                 |                   |                             |
| D251,252              | 2    |                 | 1S1588            | Diode                       |
| Q251                  | 1    |                 | 2SA1015-GR,BL     | Transistor                  |
| Q252                  | 1    |                 | 2SA1282-F,G       | Transistor                  |
| Q253,254              | 2    |                 | 2SC1815-GR,BL     | Transistor                  |
| IC251,252             | 2    |                 | LB1423            | IC                          |
| IC253                 | 1    |                 | MN4013B           | IC                          |
|                       |      |                 | or TC4013         | IC                          |
| IC254                 | 1    |                 | MN4011B           | IC                          |
|                       |      |                 | or M4011B         | IC                          |
|                       |      |                 | or TC4011BP       | IC                          |
| ZD251                 | 1    |                 | ZD50-053          | Zener Diode, 1/2W, 5.3V     |
| <b>Capacitors</b>     |      |                 |                   |                             |
| C251,252              | 2    |                 | NS-50TW100M       | Electrolytic Capacitor      |
| C253,254              | 2    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C255                  | 1    |                 | NS-16TW470M       | Electrolytic Capacitor      |
| C256                  | 1    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C257                  | 1    |                 | NS-10TW101M       | Electrolytic Capacitor      |
| C258                  | 1    |                 | NS-10TW221M       | Electrolytic Capacitor      |
| C259                  | 1    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C260,261              | 2    |                 | HE70SJYF103Z      | Ceramic Capacitor           |
| C262,263              | 2    |                 | HE50SJYB102K      | Ceramic Capacitor           |
| C264                  | 1    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| <b>Resistors</b>      |      |                 |                   |                             |
| R251~258              | 8    |                 | KA25ST102J        | Carbon Resistor             |
| R259,260              | 2    |                 | KA25ST153J        | Carbon Resistor             |
| R261,262              | 2    |                 | KA25ST473J        | Carbon Resistor             |
| R263,264              | 2    |                 | KA25ST392J        | Carbon Resistor             |
| R265,266              | 2    |                 | KA25ST124J        | Carbon Resistor             |
| R267,268              | 2    |                 | SA-1WT152J        | Metal Oxide Resistor        |
| R269,270              | 2    |                 | KA25ST561J        | Carbon Resistor             |
| R271,272              | 2    |                 | KA25ST102J        | Carbon Resistor             |
| R273,274              | 2    |                 | KA25ST103J        | Carbon Resistor             |
| R275                  | 1    |                 | KA25ST561J        | Carbon Resistor             |
| R276~278              | 3    |                 | KA25ST223J        | Carbon Resistor             |
| R279~281              | 3    |                 | KA25ST563J        | Carbon Resistor             |
| R282                  | 1    |                 | KA25ST103J        | Carbon Resistor             |
| R283                  | 1    |                 | KA25ST222J        | Carbon Resistor             |
| R284                  | 1    |                 | KA25ST154J        | Carbon Resistor             |
| R285                  | 1    |                 | KA25ST153J        | Carbon Resistor             |
| R286                  | 1    |                 | KA25ST220J        | Carbon Resistor             |
| R287                  | 1    |                 | KA25ST104J        | Carbon Resistor             |
| R288~290              | 3    |                 | KA25ST103J        | Carbon Resistor             |
| R291,292              | 2    |                 | KA25ST334J        | Carbon Resistor             |
| <b>Switches</b>       |      |                 |                   |                             |
| SW251                 | 1    |                 | SW-1100166        | Push Switch                 |
| <b>Miscellaneous</b>  |      |                 |                   |                             |
| JP063                 | 1    |                 | W-D0607           | Connector                   |
| JP067,068             | 2    |                 | W-D0606           | Connector                   |
| JP081                 | 1    |                 | W-D0607           | Connector                   |
| MP036                 | 1    |                 | 171825-10         | Micro Plug                  |
| MP051                 | 1    |                 | 171825-3          | Micro Plug                  |
| MP083                 | 1    |                 | 171825-6          | Micro Plug                  |

#### 14. PMR-615A P.C. Board Assembly

| Ref. No | Q'ty   | Carver Part No. | Supplier Part No.     | Description              |
|---------|--------|-----------------|-----------------------|--------------------------|
| RCA801  | 2<br>1 |                 | SK-501202<br>T5765-AB | Short Pin<br>RCA Jack 4P |

#### 15. PS-615A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description               |
|-----------------------|------|-----------------|-------------------|---------------------------|
| <b>Semiconductors</b> |      |                 |                   |                           |
| D801~803              | 3    |                 | 1B4B42            | Diode                     |
| D804~808              | 5    |                 | 1N4002            | Diode                     |
| Q801~808              | 8    |                 | or 1SR35-100A     | Diode                     |
| Q809                  | 1    |                 | 2SA1015-GR        | Transistor                |
| Q810                  | 1    |                 | 2SA970-GR,BL      | Transistor                |
| IC801                 | 1    |                 | 2SB1015-D,Y       | Transistor                |
| IC802                 | 1    |                 | AN78M12           | IC                        |
| PC801                 | 1    |                 | AN78M15           | IC                        |
| TR801                 | 1    |                 | TLP631            | Photo Coupler             |
| ZD801                 | 1    |                 | SM16GZ41          | Triac                     |
| ZD802                 | 1    |                 | ZD50-157          | Zener Diode, 1/2W, 15.7V  |
| ZD803                 | 1    |                 | ZD50-225          | Zener Diode, 1/2W, 22.5V  |
| ZD804,805             | 2    |                 | ZD50-100          | Zener Diode, 1/2W, 10.0V  |
|                       |      |                 | ZD50-122          | Zener Diode, 1/2W, 12.2V  |
| <b>Capacitors</b>     |      |                 |                   |                           |
| C801                  | 1    |                 | MMS104M           | Metalized Film Capacitor  |
| C802                  | 1    |                 | MY100VS184J       | Mylar Capacitor           |
| C803                  | 1    |                 | ECQV1H393JZ       | Metallized Film Capacitor |
| C804                  | 1    |                 | NS-25TW101M       | Electrolytic Capacitor    |
| C805                  | 1    |                 | NS-25TW471M       | Electrolytic Capacitor    |
| C806                  | 1    |                 | NS-16TW101M       | Electrolytic Capacitor    |
| C807                  | 1    |                 | NS-16TW470M       | Electrolytic Capacitor    |
| C808                  | 1    |                 | NS-50TW100M       | Electrolytic Capacitor    |
| C809                  | 1    |                 | NS-50TW4R7M       | Electrolytic Capacitor    |
| C810                  | 1    |                 | NS-25TW101M       | Electrolytic Capacitor    |
| C811,812              | 2    |                 | NS-25TW472M       | Electrolytic Capacitor    |
| C813                  | 1    |                 | NS-50TW1R0M       | Electrolytic Capacitor    |
| C814                  | 1    |                 | NS-50TW100M       | Electrolytic Capacitor    |
| C815                  | 1    |                 | NS-16TW470M       | Electrolytic Capacitor    |
| C816                  | 1    |                 | NS-50TW470M       | Electrolytic Capacitor    |
| C817~819              | 3    |                 | NS-16TW470M       | Electrolytic Capacitor    |
| <b>Resistors</b>      |      |                 |                   |                           |
| R801                  | 1    |                 | KA50XT180J        | Carbon Resistor           |
| R802                  | 1    |                 | KA25ST153J        | Carbon Resistor           |
| R803                  | 1    |                 | KA50XT823J        | Carbon Resistor           |
| R804                  | 1    |                 | KA50XT274J        | Carbon Resistor           |
| R805                  | 1    |                 | KA25ST273J        | Carbon Resistor           |
| R806                  | 1    |                 | KA25ST100J        | Carbon Resistor           |
| R807,808              | 2    |                 | KA25ST104J        | Carbon Resistor           |
| R809                  | 1    |                 | KA25ST4R7J        | Carbon Resistor           |
| R810                  | 1    |                 | KA25ST102J        | Carbon Resistor           |
| R811                  | 1    |                 | KA25ST331J        | Carbon Resistor           |
| R812                  | 1    |                 | KA25ST301J        | Carbon Resistor           |
| R813                  | 1    |                 | KA25ST223J        | Carbon Resistor           |
| R814                  | 1    |                 | KA25ST473J        | Carbon Resistor           |
| R815~817              | 3    |                 | KA25ST103J        | Carbon Resistor           |
| R818                  | 1    |                 | KA25ST224J        | Carbon Resistor           |
| R819                  | 1    |                 | KA25ST363J        | Carbon Resistor           |
| R820                  | 1    |                 | KA25ST122J        | Carbon Resistor           |
| R821,822              | 2    |                 | KA25ST101J        | Carbon Resistor           |
| R823                  | 1    |                 | KA25ST222J        | Carbon Resistor           |
| R824                  | 1    |                 | KA25ST274J        | Carbon Resistor           |
| R825,826              | 2    |                 | KA25ST363J        | Carbon Resistor           |
| R827                  | 1    |                 | KA50XT332J        | Carbon Resistor           |
| R828                  | 1    |                 | KA50XT330J-LP     | Carbon Resistor           |
| R829                  | 1    |                 | SA-1WT151J-LP     | Metal Oxide Resistor      |
| R830                  | 1    |                 | KA25ST222J-LP     | Carbon Resistor           |
| R831                  | 1    |                 | KA25ST561J-LP     | Carbon Resistor           |
| R832                  | 1    |                 | KA25ST223J        | Carbon Resistor           |
| R833                  | 1    |                 | SA-1WT150J-LP     | Metal Oxide Resistor      |
| R834                  | 1    |                 | KA25ST102J        | Carbon Resistor           |
| R835                  | 1    |                 | KA50XT335J        | Carbon Resistor           |
| SVR801                | 1    |                 | SVR-08T3B503      | Semi-variable Resistor    |

15. PS-615A P.C. Board Assembly (cont'd)

| Ref. No                                    | Q'ty                                      | Carver Part No. | Supplier Part No.   | Description   |
|--|---|-----------------|---|---|
| <b>Coils</b>                               |   |                 |   |   |
| L803<br>PT801                              | 1<br>1                                    |                 | SF-HP-6A-01<br>NPT-2014   | Choke Coil<br>Power Transformer   |
| <b>Miscellaneous</b>                       |   |                 |   |   |
| E081~087<br>J082<br>J083<br>JP073<br>RY801 | 1<br>3<br>5<br>2<br>7<br>1<br>1<br>1<br>1 |                 | N44372-40<br>SE-25-BSB<br>TSC+30X08-Y<br>59BS1692<br>RP-001<br>MC02-392<br>MC07-398<br>W-D0605<br>AG23339 | Heat Sink<br>Heat Sink<br>Tap Screw S, Washer Faced, Y<br>GND Lug<br>Terminal Pin<br>Micro Socket Ass'y<br>Micro Socket Ass'y<br>Connector<br>Relay |


16. R-617 P.C. Board Assembly

| Ref. No  | Q'ty                       | Carver Part No. | Supplier Part No.  | Description  |
|--|----------------------------|-----------------|--|--|
| <b>Semiconductors</b>                              |                            |                 |  |  |
| RIC002<br>RLD002                                   | 1<br>1                     |                 | BA6340<br>HP-5FR3<br>or TPS703A  | IC<br>Photo Diode<br>Photo Diode   |
| <b>Capacitors</b>                                  |                            |                 |  |  |
| RC010<br>RC011<br>RC012<br>RC013<br>RC014<br>RC015 | 1<br>1<br>1<br>1<br>1<br>1 |                 | MY-50VU332J<br>S7-16TW100M<br>MY-50VU103J<br>S7-25TW4R7M<br>S7-16TW100M<br>S7-10TW470M | Mylar Capacitor<br>Electrolytic Capacitor<br>Mylar Capacitor<br>Electrolytic Capacitor<br>Electrolytic Capacitor<br>Electrolytic Capacitor |
| <b>Resistors</b>                                   |                            |                 |  |  |
| RR005<br>RR006<br>RR007                            | 1<br>1<br>1                |                 | KA20ST274J<br>KA20ST220J<br>KA20ST102J   | Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor  |
| <b>Coils</b>                                       |                            |                 |  |  |
| RT001  | 1                          |                 | 4304-028   | Filter Coil  |
| <b>Miscellaneous</b>                               |                            |                 |  |  |
| J051   | 1<br>1<br>1                |                 | N44358<br>N44359<br>MC03-391   | Shield Cover<br>Shield Case<br>Micro Socket Ass'y  |

17. RMC-611 P.C. Board Assembly

| Ref. No   | Q'ty                  | Carver Part No. | Supplier Part No.  | Description  |
|---|-----------------------|-----------------|--|--|
| <b>Semiconductors</b>                           |                       |                 |  |  |
| RD001~004<br>RQ001<br>RQ002<br>RIC001<br>RLD001 | 4<br>1<br>1<br>1<br>1 |                 | 1S1588<br>2SA937-R,S<br>2SC2021-R,S<br>TC9148P<br>EL-1L2<br>or TLN105A | Diode<br>Transistor<br>Transistor<br>IC<br>LED<br>LED                    |
| <b>Capacitors</b>                               |                       |                 |  |  |
| RC001~008<br>RC009                              | 8<br>1                |                 | HE40SJYB101K<br>NS6R3TW101M  | Ceramic Capacitor<br>Electrolytic Capacitor                              |
| <b>Resistors</b>                                |                       |                 |  |  |
| RR001<br>RR002<br>RR003<br>RR004                | 1<br>1<br>1<br>1      |                 | KA25ST1R0J<br>KA25ST332J<br>KA25ST470J<br>KA25ST223J                   | Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor<br>Carbon Resistor |

## 17. RMC-611 P.C. Board Assembly (cont'd)

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No. | Description   |
|----------------------|------|-----------------|-------------------|---|
| <b>Switches</b>      |      |                 |                   |   |
| RSW001~017           | 17   |                 | KHH10910          | Tact Switch  |
| <b>Miscellaneous</b> |      |                 |                   |   |
| RCF001               | 1    |                 | KBR-455BA         | Ceramic Oscillator  |

## 18. SLD-613A P.C. Board Assembly

| Ref. No  | Q'ty | Carver Part No. | Supplier Part No. | Description  |
|----------|------|-----------------|-------------------|--------------|
| P301,302 | 2    |                 | MK-7095           | Terminal Pin |

## 19. SP-615A P.C. Board Assembly

| Ref. No               | Q'ty   | Carver Part No. | Supplier Part No.                                      | Description                                  |
|-----------------------|--------|-----------------|--|--|
| <b>Semiconductors</b> |        |                 |  |  |
| D855,856              | 2      |                 | 1N4002<br>or 1SR35-100A                                | Diode<br>Diode                               |
| <b>Capacitors</b>     |        |                 |  |  |
| C853,854              | 2      |                 | MY100VS473K  | Mylar Capacitor                              |
| <b>Resistors</b>      |        |                 |  |  |
| R865~868<br>R869,870  | 4<br>2 |                 | SA-2WT100J-LP<br>SA-1WT561J-LP                         | Metal Oxide Resistor<br>Metal Oxide Resistor |
| <b>Coils</b>          |        |                 |  |  |
| L801,802              | 2      |                 | 104001   | Air-core Coil                                |
| <b>Miscellaneous</b>  |        |                 |  |  |
| J083<br>RY802,803     | 1<br>2 |                 | MC06-403<br>AJR39040<br>or FBR623D024<br>or VB24MBU-UL | Micro Socket Ass'y<br>Relay<br>Relay         |
| SP801,802             | 2      |                 | YKD31-0214   | Relay<br>Socket 4P (S.P.)                    |

## 20. SPS-615A P.C. Board Assembly

| Ref. No         | Q'ty | Carver Part No. | Supplier Part No. | Description   |
|-----------------|------|-----------------|-------------------|---------------|
| <b>Switches</b> |      |                 |                   |               |
| SW252           | 1    |                 | SW-2246137        | Rotary Switch |

## 21. TIM-612A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No. | Description |
|-----------------------|------|-----------------|-------------------|-------------|
| <b>Semiconductors</b> |      |                 |                   |             |
| D001~007              | 7    |                 | 1S1588            | Diode       |
| D051~054              | 4    |                 | 1S1588            | Diode       |
| D101~105              | 5    |                 | 1S1588            | Diode       |
| D152~154              | 3    |                 | 1S1588            | Diode       |
| D201~203              | 3    |                 | 1S1588            | Diode       |
| Q001                  | 1    |                 | 2SC2668-D,Y       | Transistor  |
| Q002                  | 1    |                 | 2SK381-D,E        | Transistor  |
| Q003~5                | 3    |                 | 2SC1815-GR,Y      | Transistor  |
| Q051                  | 1    |                 | 2SC1815-GR,Y      | Transistor  |
| Q101                  | 1    |                 | 3SK107-F          | Transistor  |
| Q102,103              | 2    |                 | 2SC1815-GR,Y      | Transistor  |
| Q104                  | 1    |                 | 2SK161-GR         | Transistor  |
| Q201~205              | 5    |                 | 2SC1815-GR,Y      | Transistor  |
| Q206                  | 1    |                 | 2SC3242A-E,F,G    | Transistor  |
| Q207,208              | 2    |                 | 2SA1282A-E,F,G    | Transistor  |
| Q209~214              | 6    |                 | 2SC1815-GR,Y      | Transistor  |
| IC001                 | 1    |                 | LA1222            | IC          |
| IC002                 | 1    |                 | LA1235            | IC          |

| Ref. No           | Q'ty | Carver Part No. | Supplier Part No. | Description                 |
|-------------------|------|-----------------|-------------------|-----------------------------|
| IC051             | 1    |                 | LA3401            | IC                          |
| IC101             | 1    |                 | LA1247            | IC                          |
| IC201             | 1    |                 | MN4066B           | IC                          |
|                   |      |                 | or TC4066B        | IC                          |
| VD101~103         | 3    |                 | SVC333-A          | Diode                       |
| ZD001             | 1    |                 | ZD50-122          | Zener Diode, 1/2W, 12.2V    |
| ZD201             | 1    |                 | ZD50-062          | Zener Diode, 1/2W, 6.2V     |
| <b>Capacitors</b> |      |                 |                   |                             |
| C001              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C002              | 1    |                 | NS-16TW101M       | Electrolytic Capacitor      |
| C003~008          | 6    |                 | EP125Y223N        | Ceramic Capacitor           |
| C009              | 1    |                 | NS-16TW470M       | Electrolytic Capacitor      |
| C010              | 1    |                 | LL-50TW1R0M       | Low Leak. Electrolytic Cap. |
| C011~013          | 3    |                 | EP125Y223N        | Ceramic Capacitor           |
| C014              | 1    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C015              | 1    |                 | UP125SL560J       | Ceramic Capacitor           |
| C016              | 1    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C017              | 1    |                 | NS-50TWR47M       | Electrolytic Capacitor      |
| C018              | 1    |                 | NS-10TW101M       | Electrolytic Capacitor      |
| C019              | 1    |                 | NS-16TW221M       | Electrolytic Capacitor      |
| C020~022          | 3    |                 | EP125Y223N        | Ceramic Capacitor           |
| C023              | 1    |                 | NS-50TWR22M       | Electrolytic Capacitor      |
| C024              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C025              | 1    |                 | NS-50TW1R0M       | Electrolytic Capacitor      |
| C051              | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| C052              | 1    |                 | NS-16TW221M       | Electrolytic Capacitor      |
| C053              | 1    |                 | MY-50VS473K       | Mylar Capacitor             |
| C054              | 1    |                 | LL-50TW3R3M       | Low Leak. Electrolytic Cap. |
| C055              | 1    |                 | LL-50TWR22M       | Low Leak. Electrolytic Cap. |
| C056              | 1    |                 | LL-25TW4R7M       | Low Leak. Electrolytic Cap. |
| C057,058          | 2    |                 | EP125Y223N        | Ceramic Capacitor           |
| C059,060          | 2    |                 | NS-25TW4R7M       | Electrolytic Capacitor      |
| C061,062          | 2    |                 | MY-50VS102J       | Mylar Capacitor             |
| C063,064          | 2    |                 | HE95SJS1561J      | Ceramic Capacitor           |
| C065              | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| C066              | 1    |                 | LL-16TW100M       | Low Leak. Electrolytic Cap. |
| C101              | 1    |                 | UP125SL6R8K       | Ceramic Capacitor           |
| C102              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C103              | 1    |                 | UP125SL150J       | Ceramic Capacitor           |
| C104              | 1    |                 | UP125SL6R8K       | Ceramic Capacitor           |
| C105              | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| C106              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C107              | 1    |                 | ST-50VS481J       | Styrol Capacitor            |
| C108              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C109,110          | 2    |                 | NS-16TW220M       | Electrolytic Capacitor      |
| C111              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C112              | 1    |                 | NS-50TWR47M       | Electrolytic Capacitor      |
| C113              | 1    |                 | TP125X103N        | Ceramic Capacitor           |
| C114              | 1    |                 | NS-16TW101M       | Electrolytic Capacitor      |
| C115              | 1    |                 | UP125B102K        | Ceramic Capacitor           |
| C116,117          | 2    |                 | EP125Y223N        | Ceramic Capacitor           |
| C118              | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| C119,120          | 2    |                 | EP125Y223N        | Ceramic Capacitor           |
| C121              | 1    |                 | UP125B102K        | Ceramic Capacitor           |
| C122              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C123              | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| C124~127          | 4    |                 | EP125Y223N        | Ceramic Capacitor           |
| C128              | 1    |                 | NS-16TW101M       | Electrolytic Capacitor      |
| C201~204          | 4    |                 | NS-25TW4R7M       | Electrolytic Capacitor      |
| C205,206          | 2    |                 | TP125X103N        | Ceramic Capacitor           |
| C207,208          | 2    |                 | NS-25TW4R7M       | Electrolytic Capacitor      |
| C209              | 1    |                 | NS-10TW101M       | Electrolytic Capacitor      |
| C210              | 1    |                 | NS-16TW221M       | Electrolytic Capacitor      |
| C211              | 1    |                 | NS-16TW470M       | Electrolytic Capacitor      |
| C212              | 1    |                 | NS-10TW470M       | Electrolytic Capacitor      |
| C213              | 1    |                 | NS-10TW101M       | Electrolytic Capacitor      |
| C214,215          | 2    |                 | NS-10TW470M       | Electrolytic Capacitor      |
| C216              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C217              | 1    |                 | NS-16TW100M       | Electrolytic Capacitor      |
| C218              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C219              | 1    |                 | TP125X103N        | Ceramic Capacitor           |
| C220              | 1    |                 | EP125Y223N        | Ceramic Capacitor           |
| C221              | 1    |                 | UP125SL121J       | Ceramic Capacitor           |
| C222~224          | 3    |                 | EP125Y223N        | Ceramic Capacitor           |

| Ref. No          | Q'ty | Carver Part No. | Supplier Part No. | Description            |
|------------------|------|-----------------|-------------------|------------------------|
| C225             | 1    |                 | NS-10TW470M-RT    | Electrolytic Capacitor |
| TC101            | 1    |                 | CTC-6U-010        | Trimmer Capacitor      |
| TC102            | 1    |                 | CTC-6U-030        | Trimmer Capacitor      |
| TC103            | 1    |                 | CTZ51C135         | Trimmer Capacitor      |
| <b>Resistors</b> |      |                 |                   |                        |
| R001             | 1    |                 | KA25ST470J        | Carbon Resistor        |
| R002~005         | 4    |                 | KA25ST331J        | Carbon Resistor        |
| R006~008         | 3    |                 | KA25ST472J        | Carbon Resistor        |
| R009,010         | 2    |                 | KA25ST390J        | Carbon Resistor        |
| R011             | 1    |                 | KA25ST473J        | Carbon Resistor        |
| R012             | 1    |                 | KA25ST333J        | Carbon Resistor        |
| R013             | 1    |                 | KA25ST151J        | Carbon Resistor        |
| R014             | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R015             | 1    |                 | KA25ST182J        | Carbon Resistor        |
| R016             | 1    |                 | KA25ST221J        | Carbon Resistor        |
| R017,018         | 2    |                 | KA25ST473J        | Carbon Resistor        |
| R019             | 1    |                 | KA25ST331J        | Carbon Resistor        |
| R020             | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R021             | 1    |                 | KA25ST101J        | Carbon Resistor        |
| R022             | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R023             | 1    |                 | KA25ST182J        | Carbon Resistor        |
| R024             | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R025             | 1    |                 | KA25ST561J        | Carbon Resistor        |
| R026             | 1    |                 | KA25ST391J        | Carbon Resistor        |
| R027             | 1    |                 | KA25ST153J        | Carbon Resistor        |
| R028             | 1    |                 | KA25ST822J        | Carbon Resistor        |
| R029             | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R030             | 1    |                 | KA25ST333J        | Carbon Resistor        |
| R031             | 1    |                 | KA25ST225J        | Carbon Resistor        |
| R032,033         | 2    |                 | KA25ST473J        | Carbon Resistor        |
| R034             | 1    |                 | KA25ST472J        | Carbon Resistor        |
| R035             | 1    |                 | KA25ST222J        | Carbon Resistor        |
| R036,037         | 2    |                 | KA25ST680J        | Carbon Resistor        |
| R038             | 1    |                 | KA25ST333J        | Carbon Resistor        |
| R039             | 1    |                 | KA25ST102J        | Carbon Resistor        |
| R040             | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R041             | 1    |                 | KA25ST823J        | Carbon Resistor        |
| R042,043         | 2    |                 | KA25ST103J        | Carbon Resistor        |
| R044             | 1    |                 | KA25ST561J        | Carbon Resistor        |
| R045             | 1    |                 | KA25ST472J        | Carbon Resistor        |
| R051,052         | 2    |                 | KA25ST470J        | Carbon Resistor        |
| R053             | 1    |                 | KA25ST332J        | Carbon Resistor        |
| R054             | 1    |                 | KA25ST273J        | Carbon Resistor        |
| R055~058         | 4    |                 | KA25ST823J        | Carbon Resistor        |
| R059,060         | 2    |                 | KA25ST332J        | Carbon Resistor        |
| R061,062         | 2    |                 | KA25ST123J        | Carbon Resistor        |
| R063             | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R064             | 1    |                 | KA20ST473J        | Carbon Resistor        |
| R101,102         | 2    |                 | KA25ST104J        | Carbon Resistor        |
| R104             | 1    |                 | KA25ST101J        | Carbon Resistor        |
| R105             | 1    |                 | KA25ST105J        | Carbon Resistor        |
| R106             | 1    |                 | KA25ST102J        | Carbon Resistor        |
| R107             | 1    |                 | KS25ST104J        | Carbon Resistor        |
| R108,109         | 2    |                 | KA25ST103J        | Carbon Resistor        |
| R110             | 1    |                 | KA25ST820J        | Carbon Resistor        |
| R111             | 1    |                 | KA25ST101J        | Carbon Resistor        |
| R112             | 1    |                 | KA25ST391J        | Carbon Resistor        |
| R113             | 1    |                 | KA25ST152J        | Carbon Resistor        |
| R114,115         | 2    |                 | KA25ST121J        | Carbon Resistor        |
| R116             | 1    |                 | KA25ST473J        | Carbon Resistor        |
| R117             | 1    |                 | KA25ST102J        | Carbon Resistor        |
| R118             | 1    |                 | KA25ST472J        | Carbon Resistor        |
| R119             | 1    |                 | KA25ST224J        | Carbon Resistor        |
| R120             | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R121             | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R122             | 1    |                 | KA25ST123J        | Carbon Resistor        |
| R123             | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R124             | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R125             | 1    |                 | KA25ST822J        | Carbon Resistor        |
| R126             | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R127,128         | 2    |                 | KA25ST393J        | Carbon Resistor        |
| R129             | 1    |                 | KA25ST561J        | Carbon Resistor        |
| R130             | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R131             | 1    |                 | KA25ST222J        | Carbon Resistor        |

## 21. TIM-612A P.C. Board Assembly (cont'd)

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No. | Description            |
|----------------------|------|-----------------|-------------------|------------------------|
| R132                 | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R133                 | 1    |                 | KA25ST822J        | Carbon Resistor        |
| R134                 | 1    |                 | KA25ST221J        | Carbon Resistor        |
| R184,185             | 2    |                 | KA25ST333J        | Carbon Resistor        |
| R186                 | 1    |                 | KA25ST512J        | Carbon Resistor        |
| R201~212             | 12   |                 | KA25ST104J        | Carbon Resistor        |
| R213                 | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R214                 | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R215,216             | 2    |                 | KA25ST222J        | Carbon Resistor        |
| R217                 | 1    |                 | KA25ST472J        | Carbon Resistor        |
| R218~221             | 4    |                 | KA25ST473J        | Carbon Resistor        |
| R222                 | 1    |                 | KA25ST220J        | Carbon Resistor        |
| R223                 | 1    |                 | KA25ST224J        | Carbon Resistor        |
| R224                 | 1    |                 | KA25ST472J        | Carbon Resistor        |
| R225                 | 1    |                 | KA25ST473J        | Carbon Resistor        |
| R226                 | 1    |                 | KA25ST103J        | Carbon Resistor        |
| R227,228             | 2    |                 | KA25ST271J        | Carbon Resistor        |
| R229                 | 1    |                 | KA25ST122J        | Carbon Resistor        |
| R230                 | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R231,232             | 2    |                 | KA25ST103J        | Carbon Resistor        |
| R233                 | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R234,235             | 2    |                 | KA25ST103J        | Carbon Resistor        |
| R236                 | 1    |                 | KA25ST274J        | Carbon Resistor        |
| R237                 | 1    |                 | KA25ST473J        | Carbon Resistor        |
| R238                 | 1    |                 | KA25ST333J        | Carbon Resistor        |
| R239                 | 1    |                 | KA25ST272J        | Carbon Resistor        |
| R240                 | 1    |                 | KA25ST104J        | Carbon Resistor        |
| R241,242             | 2    |                 | KA25ST223J        | Carbon Resistor        |
| R243                 | 1    |                 | KA25ST222J        | Carbon Resistor        |
| FR101                | 1    |                 | FR25SX220J        | Fusible Resistor       |
| SVR001               | 1    |                 | SVR-08T3B502      | Semi-variable Resistor |
| SVR002               | 1    |                 | SVR-08T3B303      | Semi-variable Resistor |
| SVR051,052           | 2    |                 | SVR-10T3B104CM    | Semi-variable Resistor |
| SVR101               | 1    |                 | SVR-08T3B103      | Semi-variable Resistor |
| <b>Coils</b>         |      |                 |                   |                        |
| L001,101             | 2    |                 | LAL03100K         | Inductor               |
| L102                 | 1    |                 | LAL03102K         | Inductor               |
| L103                 | 1    |                 | LAL03471K         | Inductor               |
| L104,201             | 2    |                 | LAL03102K         | Inductor               |
| T001                 | 1    |                 | 141027            | FM IFT                 |
| T002                 | 1    |                 | 141026            | FM DET Coil            |
| T051,052             | 2    |                 | 184018            | Filter Block           |
| T101                 | 1    |                 | 126042            | MW ANT Coil            |
| T102                 | 1    |                 | 126041            | MW RF Coil             |
| T103                 | 1    |                 | 135020            | MW OSC Coil            |
| T104,105             | 2    |                 | 140048            | AM IFT                 |
| <b>Switches</b>      |      |                 |                   |                        |
| SW051                | 1    |                 | SW-5220157        | Slide Switch           |
| <b>Miscellaneous</b> |      |                 |                   |                        |
|                      | 1    |                 | U9-#07B07         | UL Tube                |
|                      | 4    |                 | U9-#18B01         | UL Type Tube           |
|                      | 1    |                 | 59BS1692          | GND Lug                |
| F001,002             | 2    |                 | SFE10.7MX-A       | Ceramic Filter         |
| F003                 | 1    |                 | SFE10.7MZ1-A      | Ceramic Filter         |
| F051                 | 1    |                 | KBR-457HS         | Ceramic Filter 457KHz  |
| F101                 | 1    |                 | KBR-450AH8        | Ceramic Filter 450KHz  |
| F102                 | 1    |                 | KBF-450P-10A      | Ceramic Filter 450KHz  |
| F103                 | 1    |                 | KBF-450P-6AS      | Ceramic Filter 450KHz  |
| J010                 | 1    |                 | MC10-402          | Micro Socket Ass'y     |
| J011                 | 1    |                 | MC06-397          | Micro Socket Ass'y     |
| J012                 | 1    |                 | MC05-394          | Micro Socket Ass'y     |
| AT001                | 1    |                 | YKD31-0201        | ANT. Terminal          |
| FE001                | 1    |                 | FE407-A12         | FM Front-end           |
| JP042                | 1    |                 | W-D0606           | Connector              |
| MP014                | 1    |                 | 171825-4          | Micro Plug             |
| MP064                | 1    |                 | 171825-12         | Micro Plug             |
| TP002                | 1    |                 | WE-2              | Terminal Pin           |
| TP003~006            | 4    |                 | RP-001            | Terminal Pin           |

## 22. TON-616A P.C. Board Assembly

| Ref. No               | Q'ty | Carver Part No. | Supplier Part No.       | Description                 |
|-----------------------|------|-----------------|-------------------------|-----------------------------|
| <b>Semiconductors</b> |      |                 |                         |                             |
| IC604                 | 1    |                 | M5218PR<br>or NJM4560DX | IC<br>IC                    |
| <b>Capacitors</b>     |      |                 |                         |                             |
| C619,620              | 2    |                 | ECQV1H334JZ             | Metallized Film Capacitor   |
| C621,622              | 2    |                 | HE70SJS221K             | Ceramic Capacitor           |
| C623~628              | 6    |                 | LL-25TW4R7M             | Low Leak. Electrolytic Cap. |
| C629,610              | 2    |                 | MY-50VU272J             | Mylar Capacitor             |
| C631~634              | 4    |                 | MY-50VU123J             | Mylar Capacitor             |
| C635,636              | 2    |                 | MY-50VU823J             | Mylar Capacitor             |
| C637,638              | 2    |                 | ECQV1H334JZ             | Metallied Film Capacitor    |
| <b>Resistors</b>      |      |                 |                         |                             |
| R625,626              | 2    |                 | KA25ST471J              | Carbon Resistor             |
| R627,628              | 2    |                 | KA25ST473J              | Carbon Resistor             |
| R629,630              | 2    |                 | KA25ST562J              | Carbon Resistor             |
| R631,632              | 2    |                 | KA25ST274J              | Carbon Resistor             |
| R633,634              | 2    |                 | KA25ST474J              | Carbon Resistor             |
| R635~638              | 4    |                 | KA25ST103J              | Carbon Resistor             |
| R639~650              | 12   |                 | KA25ST152J              | Carbon Resistor             |
| R651~656              | 6    |                 | KA25ST562J              | Carbon Resistor             |
| R657,658              | 2    |                 | KA25ST222J              | Carbon Resistor             |
| VR601~603             | 3    |                 | EWG-G0A337B24           | Potentiometer               |

## 23. VR-616A P.C. Board Assembly

| Ref. No              | Q'ty | Carver Part No. | Supplier Part No. | Description               |
|----------------------|------|-----------------|-------------------|---------------------------|
| <b>Capacitors</b>    |      |                 |                   |                           |
| C639,640             | 2    |                 | ECQV1H1543JZ      | Metallized Film Capacitor |
| <b>Resistors</b>     |      |                 |                   |                           |
| R659,660             | 2    |                 | KA25ST103J        | Carbon Resistor           |
| VR604                | 1    |                 | EWK-8JA337BC5     | Rotary Potentiometer      |
| VR605                | 1    |                 | EWG-H0A337751     | Potentiometer             |
| <b>Switches</b>      |      |                 |                   |                           |
| SW604                | 1    |                 | SW-1100162        | Push Switch               |
| <b>Miscellaneous</b> |      |                 |                   |                           |
| J065                 | 1    |                 | MC06-396          | Micro socket Ass'y        |


## 24. Remote Control Parts

| Ref. No | Q'ty | Carver Part No. | Supplier Part No. | Description             |
|---------|------|-----------------|-------------------|-------------------------|
| 45E26   | 2    |                 | UM-4              | Battery                 |
| 46E27   | 1    |                 | 26R1P18B          | P.C.Board Ass'y (R-617) |
| 10M1    | 1    |                 | N21270            | Top Panel (Remocon.)    |
| 10M2    | 1    |                 | N21271            | Bottom Case (Remocon.)  |
| 10M3    | 1    |                 | N44288            | Battery Cover           |
| 10M6    | 1    |                 | N21272-1          | Decoration Plate        |
| 10M8    | 1    |                 | N43769            | Filter                  |
| 10M11   | 1    |                 | N43770            | Battery Terminal 1      |
| 10M12   | 1    |                 | N43771            | Battery Terminal 2      |
| 10M13   | 1    |                 | N43772            | Battery Terminal 3      |
| 10M16   | 1    |                 | ZS+STR26X16-2B    | Tap Screw, Flat Head    |
| 10M21   | 1    |                 | N44361            | Label, Rating           |
| 10M23   | 1    |                 | N44130            | Tape, Packing Material  |
| 10M26   | 1    |                 | N42171            | Polyethylene Bag        |
| 10M28   | 1    |                 | N44261            | Packing Pad             |

## 25. Inner Construction Parts

| Ref. No      | Q'ty | Carver Part No. | Supplier Part No. | Description       |
|--------------|------|-----------------|-------------------|-------------------|
| <b>Coils</b> |      |                 |                   |                   |
| PT802        | 1    |                 | NPT-2024S         | Power Transformer |

## 25. Inner Construction Parts (cont't)

| Ref. No                   | Q'ty | Carver Part No. | Supplier Part No. | Description   |
|---------------------------|------|-----------------|-------------------|---|
| <b>Switches</b>           |      |                 |                   |   |
| SWC402                    | 1    |                 | SW-2X36135        | Rotary Switch  |
| SWC403                    | 1    |                 | SW-2X36136        | Rotary Switch   |
| <b>P.C.Board Assembly</b> |      |                 |                   |   |
| 24E29                     | 1    |                 | 26R1P13B          | P.C.Board Ass'y (CNR-527D)  |
| 46E1                      | 1    |                 | 26R1P17B          | P.C.Board Ass'y (RMC-611)   |
| 46E3                      | 1    |                 | 26R1P03B          | P.C.Board Ass'y (TIM-612B)  |
| 46E4                      | 1    |                 | 26R1P03B-1        | P.C.Board Ass'y (AMS-612B)  |
| 46E6                      | 1    |                 | 26R1P07B          | P.C.Board Ass'y (PLL-613A)  |
| 46E7                      | 1    |                 | 26R1P07B-1        | P.C.Board Ass'y (CSF-613A)  |
| 46E8                      | 1    |                 | 26R1P07B-2        | P.C.Board Ass'y (PLF-613A)  |
| 46E9                      | 1    |                 | 26R1P07B-3        | P.C.Board Ass'y (SLD-613A)  |
| 46E11                     | 1    |                 | 26R1P15B          | P.C.Board Ass'y (FEQ-614)   |
| 46E12                     | 1    |                 | 26R1P15B-1        | P.C.Board Ass'y (MSW-614)   |
| 46E14                     | 1    |                 | 26R1P01B          | P.C.Board Ass'y (MA-615B)   |
| 46E15                     | 1    |                 | 26R1P01B-1        | P.C.Board Ass'y (PS-615B)   |
| 46E16                     | 1    |                 | 26R1P01B-2        | P.C.Board Ass'y (SP-615B)   |
| 46E17                     | 1    |                 | 26R1P01B-3        | P.C.Board Ass'y (SPS-615B)  |
| 46E18                     | 1    |                 | 26R1P01B-4        | P.C.Board Ass'y (HP-615B)   |
| 46E19                     | 1    |                 | 26R1P01B-5        | P.C.Board Ass'y (PMD-615B)  |
| 46E20                     | 1    |                 | 26R1P01B-6        | P.C.Board Ass'y (PLD-615B)  |
| 46E21                     | 1    |                 | 26R1P01B-7        | P.C.Board Ass'y (PMR-615B)  |
| 46E22                     | 1    |                 | 26R1P05B          | P.C.Board Ass'y (TON-616A)  |
| 46E23                     | 1    |                 | 26R1P05B-1        | P.C.Board Ass'y (ASW-616A)  |
| 46E24                     | 1    |                 | 26R1P05B-2        | P.C.Board Ass'y (VR-616A)   |
| 46E25                     | 1    |                 | 26R1P05B-3        | P.C.Board Ass'y (AF-616A)   |
| <b>Miscellaneous</b>      |      |                 |                   |   |
| FH801                     | 1    |                 | FH-032C           | Fuse Holder   |
| FU801                     | 1    |                 | FU-621034T-C      | Fuse 250V 1A  |
| LF801                     | 1    |                 | ZCB2206-11        | Line Filter   |
| ACO801                    | 1    |                 | AC-T05SB09        | AC Outlet   |
| 34E5                      | 8    |                 | AC238             | Mica  |
| 34E6                      | 4    |                 | AC238             | Mica  |
| 35E13                     | 1    |                 | HLJ0999-01-480    | Snap Plate  |
| 35E14                     | 2    |                 | SK-501202         | Short Pin   |
| 41E13                     | 2    |                 | TB-1116           | Bush  |
| 3M1                       | 1    |                 | N21251A           | Front Chassis   |
| 3M2                       | 2    |                 | N21305            | Side Chassis  |
| 3M3                       | 1    |                 | N21252            | Center Chassis  |
| 3M5                       | 1    |                 | N30747A           | Support Chassis(P.T.)   |
| 3M6                       | 2    |                 | N21134            | Shield Box (ANGLE)  |
| 3M7                       | 1    |                 | N21134-1          | Shield Box (TOP)  |
| 3M9                       | 1    |                 | N44255            | Fittings (P.T.)   |
| 3M10                      | 1    |                 | N44254            | Fittings (HEADPHONE JACK)   |
| 3M11                      | 1    |                 | N30729B           | Angle L (P.C.B.)  |
| 3M12                      | 1    |                 | N30734B           | Angle R (P.C.B.)  |
| 3M15                      | 1    |                 | N43989            | Fittings S (HEAT SINK)  |
| 3M16                      | 1    |                 | N44256            | Fittings F (HEAT SINK)  |
| 3M17                      | 1    |                 | N44257            | Fittings R (HEAT SINK)  |
| 3M18                      | 1    |                 | N44376A           | Shield Plate  |
| 3M19                      | 1    |                 | N43748            | Fittings (LED)  |
| 3M20                      | 1    |                 | N42222            | Fittings (THERMAL RELAY)  |
| 3M21                      | 1    |                 | N44358            | Shield Cover  |
| 3M22                      | 1    |                 | N44359            | Shield Case   |
| 3M23                      | 4    |                 | N44258            | Stud 50   |
| 3M24                      | 3    |                 | N44259            | Stud 11.5   |
| 3M27                      | 1    |                 | N30825            | Heat Sink   |
| 3M28                      | 1    |                 | N30826            | Heat Sink   |
| 3M29                      | 1    |                 | N44372-40         | Heat Sink   |
| 4M1                       | 1    |                 | N43724A           | Glass Holder  |
| 4M6                       | 1    |                 | N44377            | Shield Paper  |
| 4M9                       | 1    |                 | N43852            | Shield Cushion  |
| 4M10                      | 1    |                 | N43850            | Cushion (P.T.)  |
| 4M14                      | 2    |                 | N43851            | Cushion (P.T.)  |
| 4M15                      | 2    |                 | N44148            | Spacer  |
| 4M16                      | 1    |                 | N44368            | Spacer  |
| 4M17                      | 2    |                 | N44375            | Insulation Fiber  |
| 4M18                      | 2    |                 | N43808            | Spacer  |
| 6M1                       | 1    |                 | ZS+STR26X08-1Y    | Tap Screw, Flat Head, Y   |
| 6M4~6                     | 9    |                 | TSS+30X06-Y       | Tap Screw S, Flat Head, Y   |

25. Inner Construction Parts (cont'd)

| Ref. No    | Q'ty | Carver Part No. | Supplier Part No. | Description                  |
|------------|------|-----------------|-------------------|------------------------------|
| 6M8~13     | 12   |                 | TSB+30X06-B       | Tap Screw S, Bind Head, B    |
| 6M18,21~30 | 22   |                 | TSB+30X06-Y       | Tap Screw S, Bind Head, Y    |
| 7M6~15     | 23   |                 | TSB+30X08-Y       | Tap Screw S, Bind Head, Y    |
| 7M20       | 2    |                 | TSB+30X08-B       | Tap Screw S, Bind Head, B    |
| 7M23,24    | 12   |                 | TBB+30X12-Y       | Tap Screw B, Bind Head, Y    |
| 7M28       | 4    |                 | TSB+40X12-Y       | Tap Screw S, Bind Head, Y    |
| 8M1        | 8    |                 | TSB+40X20-B       | Tap Screw S, Bind Head, B    |
| 8M6~15     | 25   |                 | TSC+30X06-Y       | Tap Screw S, Washer Faced, Y |
| 8M17,18    | 5    |                 | TSC+30X08-Y       | Tap Screw S, Washer Faced, Y |
| 8M20       | 4    |                 | TST+40X08-Y       | Tap Screw S, Truss, Y        |
| 8M24       | 4    |                 | TSP+40X16-Y       | Tap Screw S, Pan Head, Y     |
| 8M27~29    | 10   |                 | TPM+30X08-B       | Tap Screw P, Round Head, B   |
| 9M4~10     | 17   |                 | TPM+30X08-Y       | Tap Screw P, Round Head, Y   |
| 9M12       | 1    |                 | TPM+30X10-Y       | Tap Screw P, Round Head, Y   |
| 9M14       | 2    |                 | ZB+STR35X08-1B    | Tap Screw, Bind Head, B      |
| 9M15       | 4    |                 | TAP/D(42)BS       | Blind Rivet                  |
| 9M17~19    | 13   |                 | 2AWX0830-05-B     | Plain Washer, B              |
| 9M21       | 4    |                 | 2AWX0830-05-N     | Plain Washer, N              |
| 9M22       | 4    |                 | 2DSX40            | Spring Washer                |
| 9M26~30    | 7    |                 | 59BS1692          | GND Lug                      |

26. Appearance Parts

| Ref. No | Q'ty | Carver Part No. | Supplier Part No. | Description         |
|---------|------|-----------------|-------------------|---------------------|
| 41E4    | 1    |                 | ACC-022D5-4EE1    | Line Cord           |
| 41E5    | 1    |                 | SR-4N-4           | Cord Stopper        |
| 41E7    | 1    |                 | UB-0027           | Binding Post        |
| 1M1     | 1    |                 | N21248-1          | Front Panel         |
| 1M2     | 1    |                 | N30820            | SVB Panel           |
| 1M3     | 1    |                 | N43749            | Tinted Window       |
| 1M4     | 1    |                 | N43725            | Display Window      |
| 1M5     | 1    |                 | N43717            | AI.Display          |
| 1M6     | 1    |                 | N21107-1          | Display Frame       |
| 1M7     | 1    |                 | N43721A-7         | Push Button         |
| 1M8     | 1    |                 | N43722A           | Push Button         |
| 1M9     | 1    |                 | N43723A           | Push Button         |
| 1M10    | 1    |                 | N43774-1          | Push Button         |
| 1M12    | 7    |                 | N43866-T-BR       | Push Button         |
| 1M13    | 1    |                 | N43093-T-BR2      | Push Button         |
| 1M14    | 1    |                 | N30831            | Button Guide        |
| 1M16    | 1    |                 | N42819A-BR2       | Tuning Knob Guide   |
| 1M17    | 2    |                 | N42864            | Knob Base           |
| 1M18    | 2    |                 | N42865            | Knob Base           |
| 1M19    | 1    |                 | N44033-GY3-1      | Knob Cap (FM)       |
| 1M20    | 1    |                 | N44033-GY3-2      | Knob Cap (AM)       |
| 1M21    | 1    |                 | N44033-GY3-3      | Knob Cap (MUTE)     |
| 1M22    | 1    |                 | N44033-GY3-4      | Knob Cap (LOUDNESS) |
| 1M23    | 2    |                 | N44031            | Knob Spring         |
| 1M24    | 1    |                 | N21249A           | LED Frame           |
| 1M25    | 1    |                 | N44030            | Filter              |
| 1M26    | 4    |                 | N42797-BK1        | Decoration Screw    |
| 1M27    | 1    |                 | N44260            | Knob 12             |
| 1M28    | 3    |                 | N30733A           | Knob 19             |
| 1M29    | 3    |                 | N43720            | Knob 19             |
| 1M30    | 1    |                 | N43719            | Knob 38             |
| 2M2     | 1    |                 | N10355A-1         | Rear Panel          |
| 2M3     | 1    |                 | N30821            | Bottom Board        |
| 2M4     | 4    |                 | NO.7108           | Foot                |
| 2M6     | 2    |                 | N44091A-GY3       | Handle              |
| 2M7     | 4    |                 | N44092-GY3        | Handle Spacer       |
| 2M11    | 2    |                 | N30823A           | Side Wood           |
| 2M12    | 8    |                 | 390625901         | Bush                |
| 2M16    | 1    |                 | N21250-1          | Cabinet             |

27. Packing Parts

| Ref. No | Q'ty | Carver Part No. | Supplier Part No. | Description                     |
|---------|------|-----------------|-------------------|---------------------------------|
| L100    | 1    |                 | 171001            | Loop Antenna                    |
| 41E9    | 1    |                 | ANT-039           | AM Lead Antenna                 |
| 41E10   | 1    |                 | TANT-031          | FM Antenna (cord)               |
| 41E11   | 1    |                 | N1-461            | Ant. Holder Kit                 |
| 5M1     | 2    |                 | SL.1024           | Label, Serial No.               |
| 5M2     | 2    |                 | N44043            | Label, SA1965 (Lightning Flash) |
| 5M6     | 1    |                 | OM-555B           | Instruction Manual              |

27. Packing Parts (cont'd)

| Ref. No | Q'ty | Carver Part No. | Supplier Part No. | Description                    |
|---------|------|-----------------|-------------------|--------------------------------|
| 5M8     | 1    |                 | N44095A           | Card, Warranty Registration    |
| 5M9     | 1    |                 | N42235            | Sheet, Seial Number            |
| 5M13    | 1    |                 | N40612A-1         | Polyethylene Bag (Unit)        |
| 5M14    | 1    |                 | N40487            | Polyethylene Bag (Accessories) |
| 5M16    | 2    |                 | N21254A-1         | Packing Pad                    |
| 5M19    | 1    |                 | N44253            | Shipping Carton                |
| 5M20    | 1    |                 | N44252            | Packing Pad                    |
| 5M21    | 1    |                 | N44619            | Packing Pad (Front)            |

**Capacitors description**

• Electrolytic Capacitor

|    |     |    |     |   |
|----|-----|----|-----|---|
| NS | -16 | TW | 221 | M |
|----|-----|----|-----|---|

Tolerance (%);  
Value ( $\mu$ F);  
Voltage (V);

M =  $\pm 20$   
R22=0.22, 100=10, 1R0=1.0, 221=220, 3R3=3.3, 102=1000  
-16 = 16, 6R3 = 6.3

• Mylar Capacitor

|    |      |   |     |   |
|----|------|---|-----|---|
| MY | -50V | S | 223 | M |
|----|------|---|-----|---|

Tolerance (%);  
Value ( $\mu$ F);  
Voltage (V);

J = 5, K = 10, M = 20  
122 = 1200, 104 = 100000 = 0.1 ( $\mu$ F), 223 = 22000  
-50 = 50

• Ceramic Capacitor

|    |    |    |    |     |   |
|----|----|----|----|-----|---|
| HE | 90 | SJ | YF | 223 | Z |
|----|----|----|----|-----|---|

Tolerance (%);  
Value ( $\mu$ F);  
Voltage (V);

D =  $\pm 0.5\mu$ F, J =  $\pm 5$  (%), K =  $\pm 10$  (%), Z =  $\pm 20$  (%)  
050 = 5, 102 = 1000, 560 = 56, 223 = 22000, 821 = 820  
HC = 25, HE = 50, HK = 250, HM = 500, H = 100

**Resistors description**

• Fixed Resistors

|    |     |   |     |   |     |
|----|-----|---|-----|---|-----|
| KA | 25S | T | 473 | J | -LP |
|----|-----|---|-----|---|-----|

Tolerance (%);  
Value ( $\Omega$ );  
Wattage (W);  
Type;

D =  $\pm 0.5$ , F =  $\pm 1$ , G =  $\pm 2$ , J =  $\pm 5$   
2R2 = 2.2, 682 = 6.8k, 125 = 1.2M, 470 = 47, 473 = 47k,  
221 = 220, 394 = 390k  
25S = 1/4, 50S or 50X = 1/2, -2W = 2  
KA = Carbon, FR = Flame Proof, SA = Metal Oxide,  
RF = Fusible, MF = Metal Film

# VOLTAGE CONVERSION

## 220V/50Hz Version

### Bill of Materials

| Q'ty | Part No.     | Description                |
|------|--------------|----------------------------|
| 1    | 5117         | RCVR 2000 FINISHED GOODS   |
| 1    | 251-10117-03 | RES CFILM 91K 1/2W UNPREP  |
| 1    | 251-10128-03 | RES CFILM 270K 1/2W UNPREP |
| 1    | 315-10506-00 | FUSE AGC5                  |
| 1    | 530-10052-00 | LABEL FUSE AGC5            |
| 1    | 530-10053-00 | LABEL 240V AC 50HZ         |
| 1    | 530-10051-00 | LABEL VOLTAGE CONVERSION   |
| 1    | 530-10012-00 | LABEL MILITARY IMPORT DUTY |
| 1    | 530-10013-00 | LABEL MILITARY CONVERSION  |

### Directions for Change

1. Locate power supply circuit board from topview, board is in the center of unit on the left side.
  - A. Move orange wire from E87 terminal to E86.
  - B. Move black wire from E85 terminal to E86.
  - C. Change bare jumper wire from 120V to 230V.
  - D. Change R803 from 82K 1/2W to 91K 1/2W.
  - E. Change R804 from 270K 1/2W to 270K 1/2W.

### Power Supply P.C. Board PS-615A

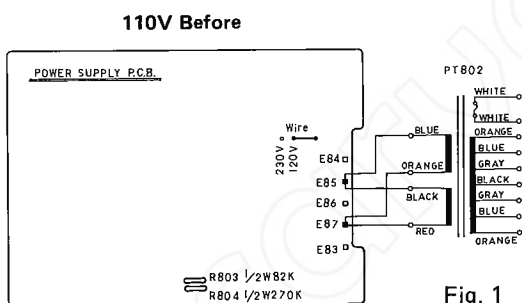


Fig. 1

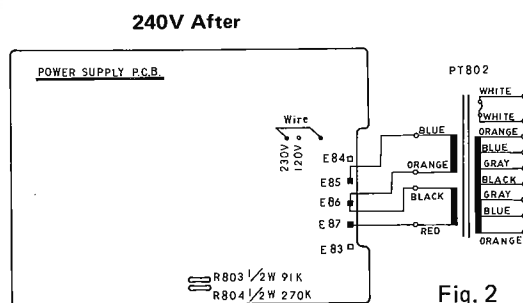


Fig. 2

2. Front controller P.C. Board (PLL P.C. Board PLL-613A) Set small slide switch SW317 to "E" for 240V Europe frequency stepping. (See Fig. 3)

### PLL P.C. Board PLL-613A

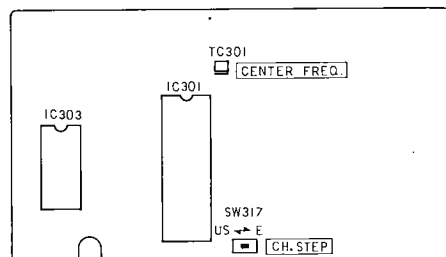


Fig. 3

3. AM/FM P.C. Board (Tuner P.C. Board TIM-612B) Set small slide switch SW051 to "50μs" for 240V de-emphasis. (See Fig. 4)

### Tuner P.C. Board TIM-612B

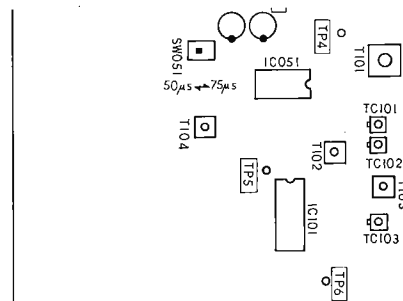
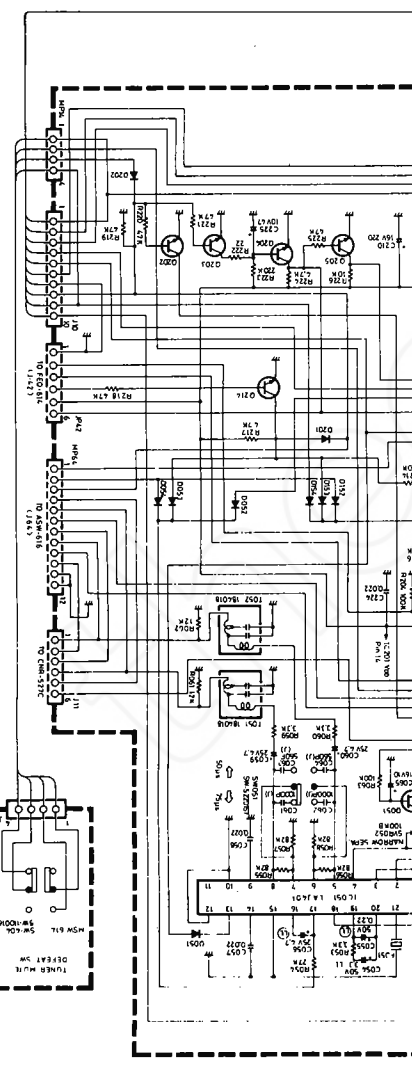
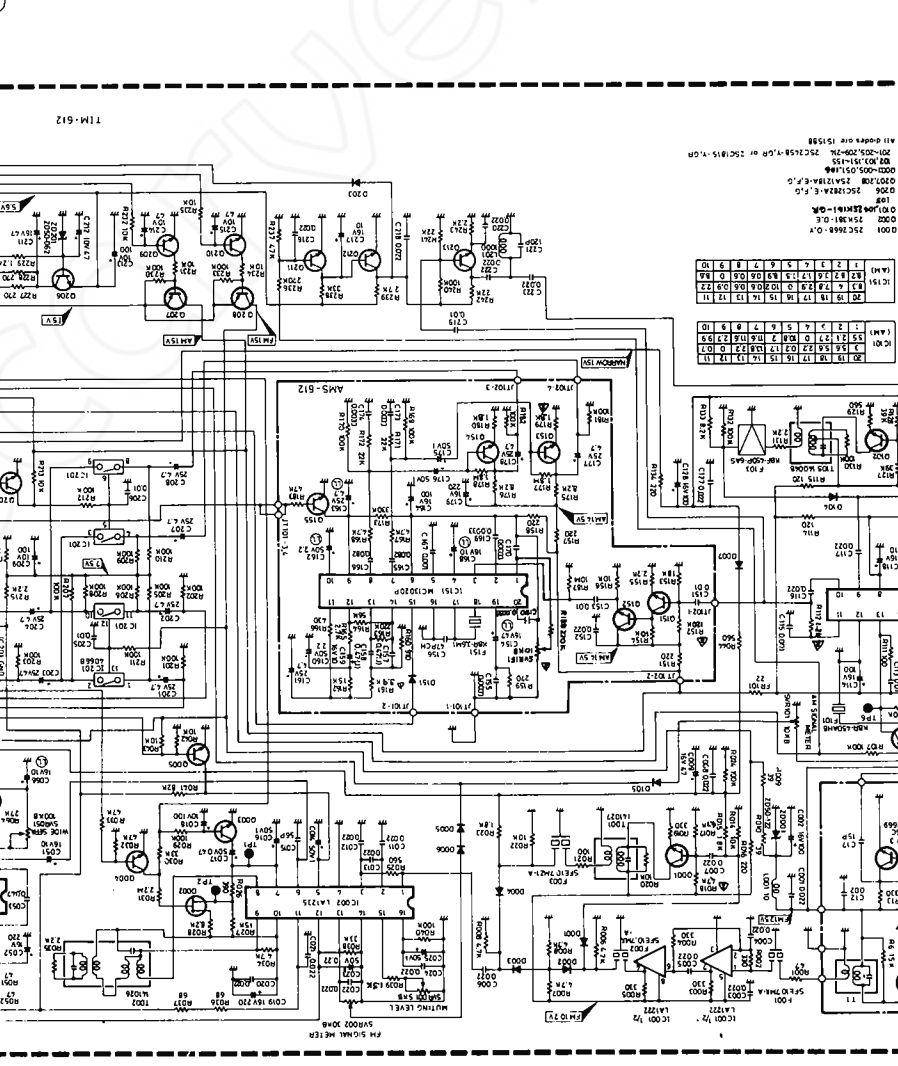
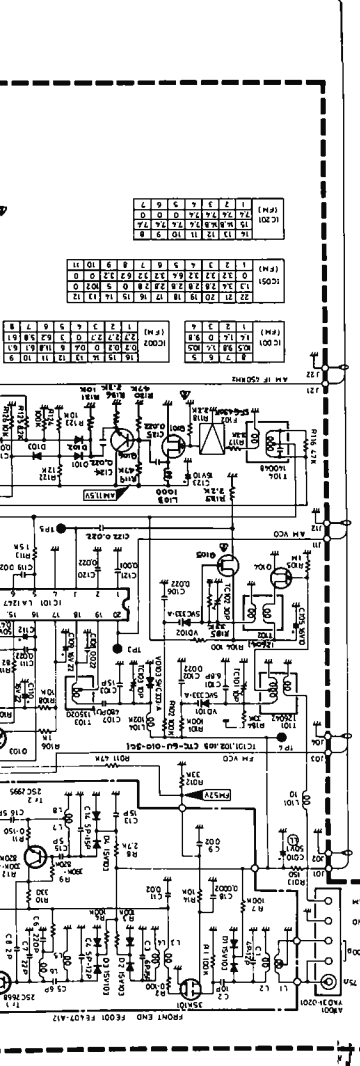
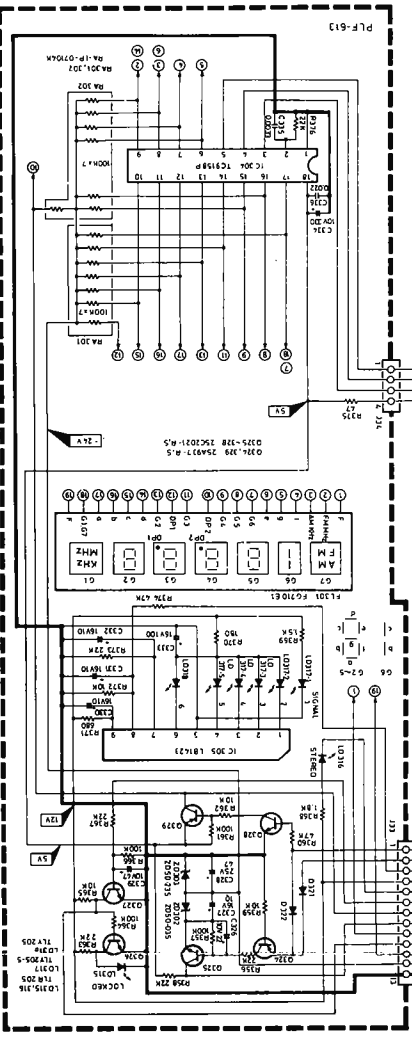
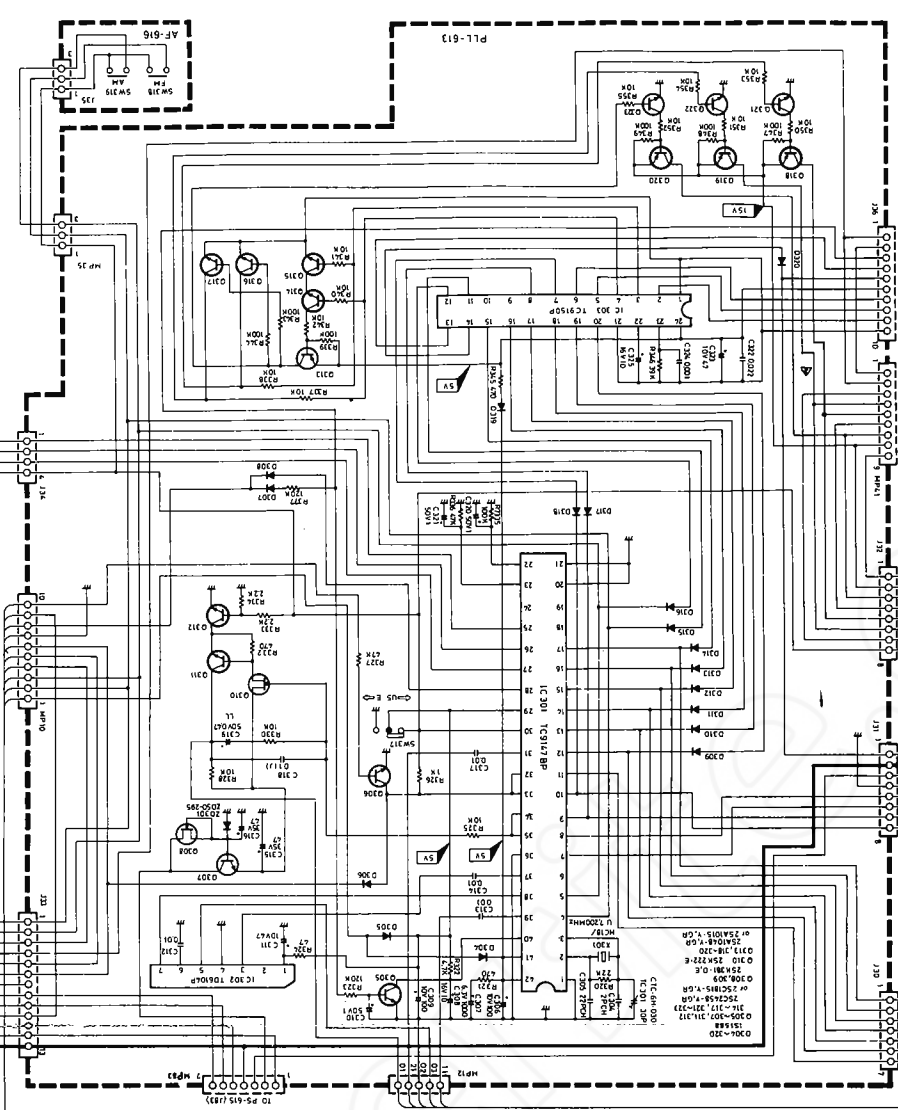
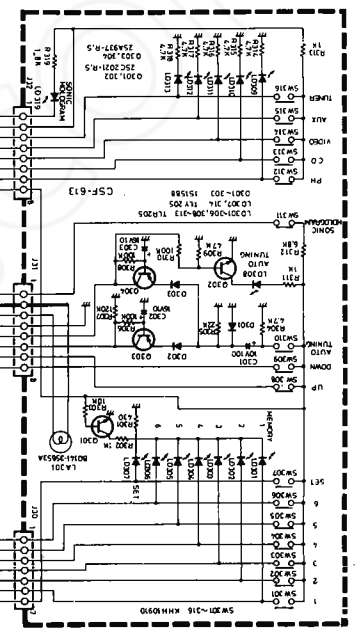
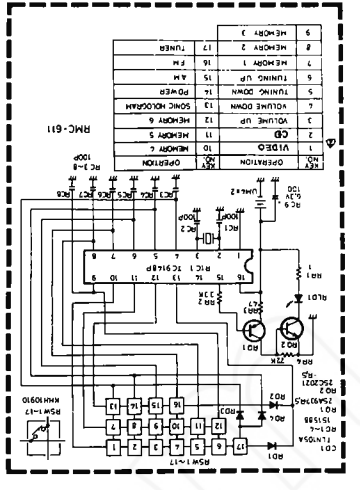


Fig. 4

4. Change fuse on back panel from AGC10 to AGC5.
5. Apply label 530-10052-00 (AGC5) in place of existing label AGE10.
6. Apply label 530-10055-00 (240V AC 50HZ) in place of existing label.
7. Using spray adhesive, mount label 530-10051-00 (VOLTAGE CONVERSION) to inside top cover.
8. Apply label 530-10012-00 (MILITARY IMPORT DUTY) and label 530-10013-00 (MILITARY CONVERSION) to bottom of unit.







EXPLODED VIEW

Front Panel and Remote Control

