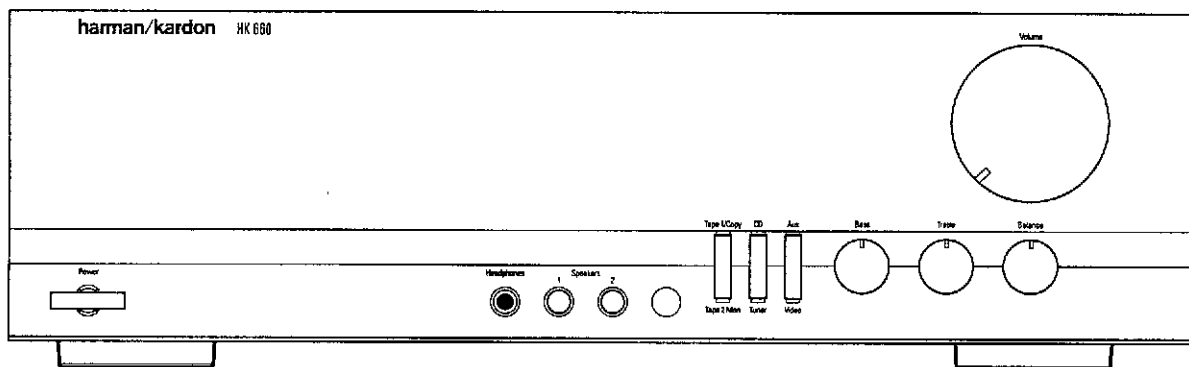


The Harman Kardon Model HK640/HK660 INTEGRATED AMPLIFIER

Manual 198A

Technical Manual



The following marks found in the parts list of this manual identify the models as follows:

- HK640/HK660 **IB** : International model Black version
- HK640/HK660 **I** : International model
- HK640 **WB** : Asia/Oceania model Black version

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harman/kardon

Parts and Service Office
80 Crossways Park West, Woodbury, N.Y. 11797
1112-HK640-A A9502 300 Printed in Japan

SPECIFICATIONS

| | Nominal | Limit | | Nominal | Limit | |
|-------------------------------|---------------|---------------------------|----------------|------------------------------|----------------------|---------------------|
| RMS Output Power | | | | | | |
| 8 Ω, 1kHz THD 0.1% | 62.3W | ≥ 55W | (Model: HK640) | Damping Factor (at 1Hz): | 94.3 | ≥ 85 (Model: HK640) |
| 8 Ω, 1kHz THD 0.1% | 75.6W | ≥ 65W | (Model: HK660) | | 90.1 | ≥ 85 (Model: HK660) |
| 4 Ω, 1kHz THD 0.3% | 91.2W | ≥ 75W | (Model: HK640) | Phono-Overload | | |
| 4 Ω, 1kHz THD 0.3% | 117.2W | ≥ 90W | (Model: HK660) | Option Phono (MM): | 109mV | |
| High-instantaneous Current | | | | Option Phono (MC): | 5.6mV | |
| Capability (HCC) | 40A | ≥ 35A | (Model: HK640) | Tone Control Characteristics | | |
| | 38.4A | ≥ 35A | (Model: HK660) | Bass (at 50Hz) | Boost | 10dB ± 2dB |
| Half Power Bandwidth | | | | | Cut | 10dB ± 2dB |
| (THD 0.1%) | <10Hz-82kHz | <10Hz-70kHz | (Model: HK640) | Treble (at 10kHz) | Boost | 10dB ± 2dB |
| | <10Hz-80kHz | <10Hz-70kHz | (Model: HK660) | | Cut | 10dB ± 2dB |
| Frequency Response | | | | DC Output Voltage (at 8Ω) | | |
| (at -3dB down) | 0.17Hz-105kHz | <1Hz-≥90kHz | (Model: HK640) | L channel | 0mV ± 60mV | |
| | 0.20Hz-108kHz | <1Hz-≥90kHz | (Model: HK660) | R channel | 0mV ± 60mV | |
| Input Sensitivity | | | | Idling Current (at 8Ω) | 75mA ± 5mA | |
| (at 55W output) Tuner/CD: | 140mV | > 140mV ± 25mV/17kΩ ± 3kΩ | | Dimensions | 17.4" × 5.3" × 14.1" | (Model: HK640) |
| Option Phono (MM): | 2.4mV/49kohm | | | (W × H × D) | (443 × 134 × 359 mm) | |
| Option Phono (MC): | 131μV/56Ω | | | | 17.4" × 5.3" × 14.4" | (Model: HK660) |
| Signal to Noise Ratio | | | | | (443 × 134 × 366 mm) | |
| Tuner/CD: | 84.0dB | ≥ 74dB | (Model: HK640) | Weight | 19.4 lbs./8.8kg | (Model: HK640) |
| | 83.6dB | ≥ 74dB | (Model: HK660) | Power Supply | 21.6 lbs./9.8kg | (Model: HK660) |
| Option Phono (MM): | 79dB | | | Power Consumption | AC 230V, 50/60Hz | |
| Option Phono (MC): | 75dB | | | | 230W | (Model: HK640) |
| Channel Separation (at 10kHz) | 60.0dB | ≥ 45dB | | | 240W | (Model: HK660) |
| Option Phono (MM): | 65dB | | | | | |
| Option Phono (MC): | 65dB | | | | | |
| IM Distortion Ratio (at 1W): | 0.027% | ≤ 0.1% | | | | |

These specifications are service target specs.

Specifications and components are subject to change without notice.
Overall performance will be maintained or improved.

DISASSEMBLY PROCEDURES (REFER TO PAGES 4 AND 15)

1 CABINET TOP (131) REMOVAL

Remove 6 screws (A) and then remove the Cabinet Top (131).

2 FRONT PANEL ASS'Y (AA) REMOVAL

1. Remove the Cabinet Top (131), referring to the previous step 1.
2. Pull out 3 Rotary Knobs (151).
3. Remove 5 screws (B) and then remove the Front Panel Ass'y (AA).

3 MAIN P.C. BOARD (PCB-1) REMOVAL

1. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
2. Disconnect the Connector (CW703) from 1 Connector (CN703) on the CPU P.C. Board (PCB-5).
3. Pull out the Rotary Knob (150) and 2 Push Buttons (146).
4. Disconnect the 3 Connectors (JL501, CW704 and W-502) from 3 Connectors (CN502, CN704 and CN503) on the VR P.C. Board (PCB-10).
5. Disconnect the Jumper Lead (JL702) from Connector (CN702B) on the Main P.C. Board (PCB-1).
6. Remove 3 hexagon nuts (C).
7. Remove 4 screws (D) and then remove the Metal Fitting (166).
8. Remove 8 screws (E) and then remove the Chassis (161) with CPU P.C. Board (PCB-5), Power LED P.C. Board (PCB-7), VR P.C. Board (PCB-10) and SP SW P.C. Board (PCB-2).
9. Remove 13 screws (F) and then remove the Main P.C. Board (PCB-1).
If necessary unsolder the lead wire.

4 CPU P.C. BOARD (PCB-5) REMOVAL

1. Remove the Cabinet Top (131), referring to the previous step 1.
2. Disconnect the Jumper Lead (JL702) from Connector (CN702A) on the CPU P.C. Board (PCB-5).
3. Disconnect the Connector (CW703) from Connector (CN703) on the CPU P.C. Board (PCB-5).
4. Disconnect the Connector (CW282) from Connector (CN282) on the I/O P.C. Board (PCB-6).
5. Remove 5 screws (G) and then remove CPU P.C. Board (PCB-5).
If necessary unsolder the lead wire.

5 VOLUME P.C. BOARD (PCB-10) REMOVAL

1. Remove the Front Panel Ass'y (AA), referring to the previous step 2.
2. Disconnect the Connector (CW703) from Connector (CN703) on the CPU P.C. Board (PCB-5).
3. Disconnect 3 Connectors (JL501, CW704 and W-502) from 3 Connectors (CN502, CN704 and CN503) on the Volume P.C. Board (PCB-10).
4. Remove hexagon nut (H) and then remove the Volume P.C. Board (PCB-10).

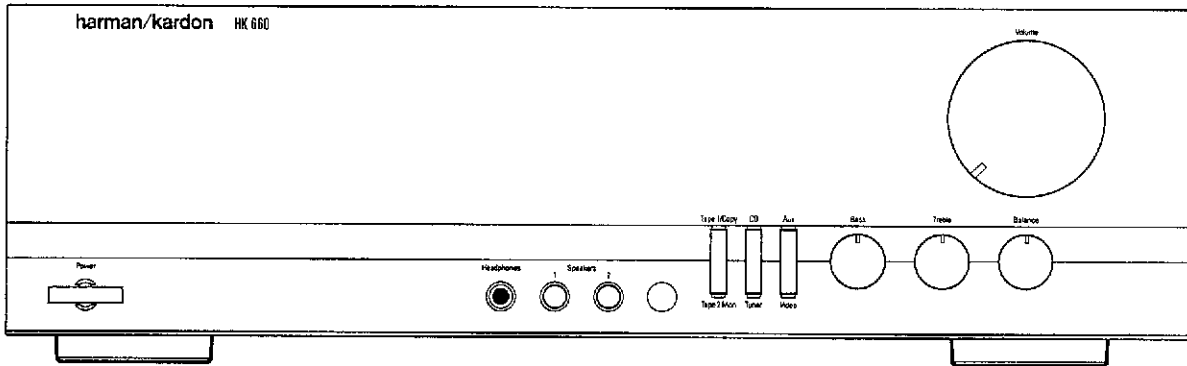
6 I/O P.C. BOARD (PCB-6) REMOVAL

1. Remove the Cabinet Top (131), referring to the previous step 1.
2. Remove 2 screws (I) and then remove SP Terminal P.C. Board (PCB-4).
3. Disconnect 2 Connectors (CW281 and CW282) from 2 Connectors (CN281 and CN282) on the I/O P.C. Board (PCB-6).
4. Remove 2 screws (J) and then remove I/O P.C. Board (PCB-6).

7 OPTION PHONO P.C. BOARD (PCB-101) REMOVAL

1. Remove the Cabinet Top (131), referring to the previous step 1.
2. Remove 1 rivet (K) and 4 screws (D) and then remove the Metal Fitting (166).
3. Remove 1 screw (199) and then disconnect 2 Connectors (CW602 and W601) from 2 Connectors (CN102 and CN101) on the Main P.C. Board (PCB-1).

CONTROLS AND FUNCTIONS



Power Switch

Press to turn the unit on and off.

Headphone Jack

Plug in headphones if desired. (With both Speakers 1 and 2 switches in Off position, output is supplied only to headphones.)

Speakers Switches

Push in to select either of two sets of speakers, or both, or neither (headphone output only).

Function Selector Buttons

Select desired input source by pressing the corresponding button.

Bass Control

Turn to increase or decrease the proportion of low frequency sound.

Treble Control

Turn to increase or decrease the proportion of high frequency sound.

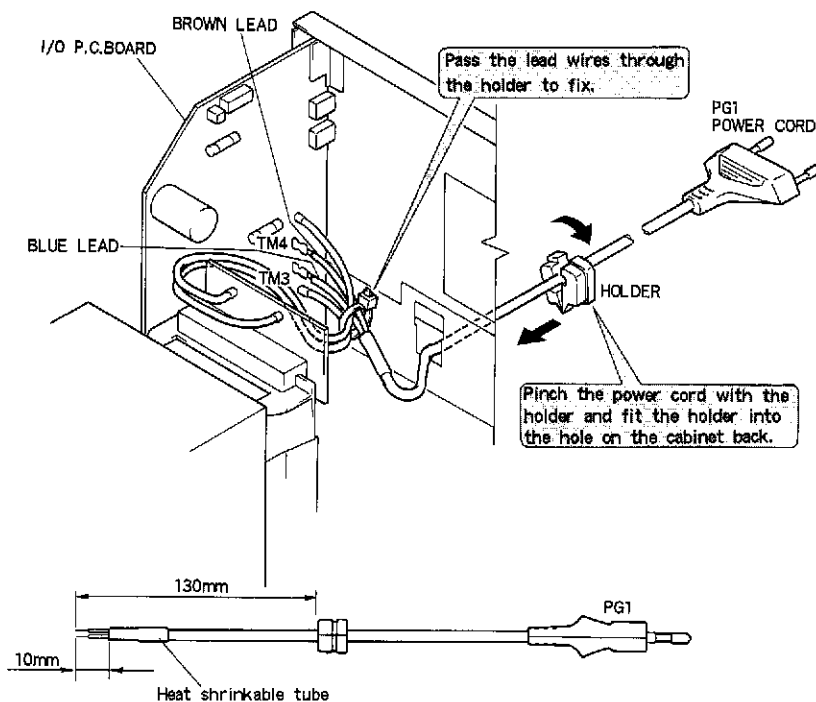
Balance Control

Turn to adjust relative output level of left and right speakers.

Volume Control

Turn to raise or lower output volume.

POWER CORD REPLACEMENT



ALIGNMENT PROCEDURES (REFER TO PAGES 6,7AND18)

- **Conditions :**
- Set the Function selector to the "CD" position.
 - Set the Volume control to minimum.
 - Make the adjustment at a room temperature of 77°F (25°C).

■ DC BALANCE CONFIRMATION

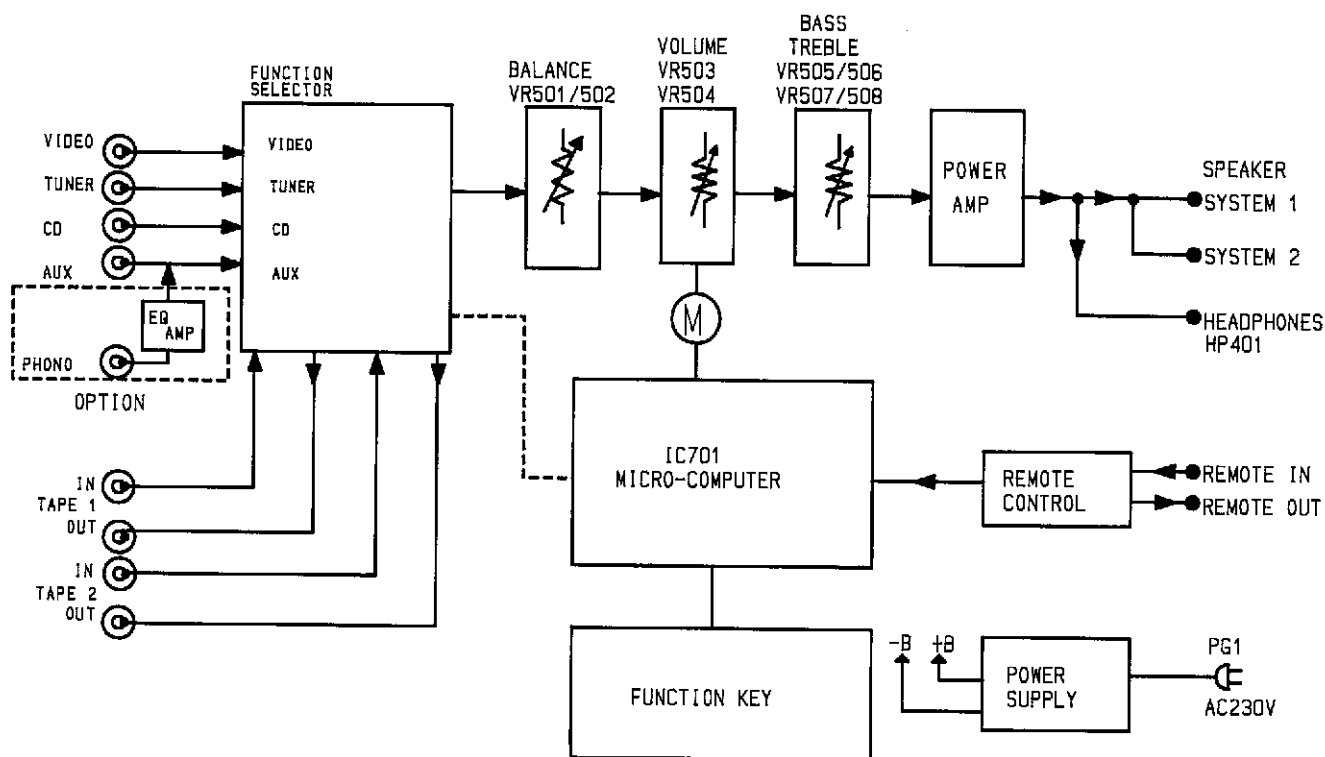
| Step | Connection Equipments | Adjustment | For |
|------|--|------------|---------------------|
| 1 | Connect the Digital Volt Meter to Speaker output (L ch). | | $0 \pm 60\text{mV}$ |
| 2 | Connect the Digital Volt Meter to Speaker output (R ch). | | $0 \pm 60\text{mV}$ |

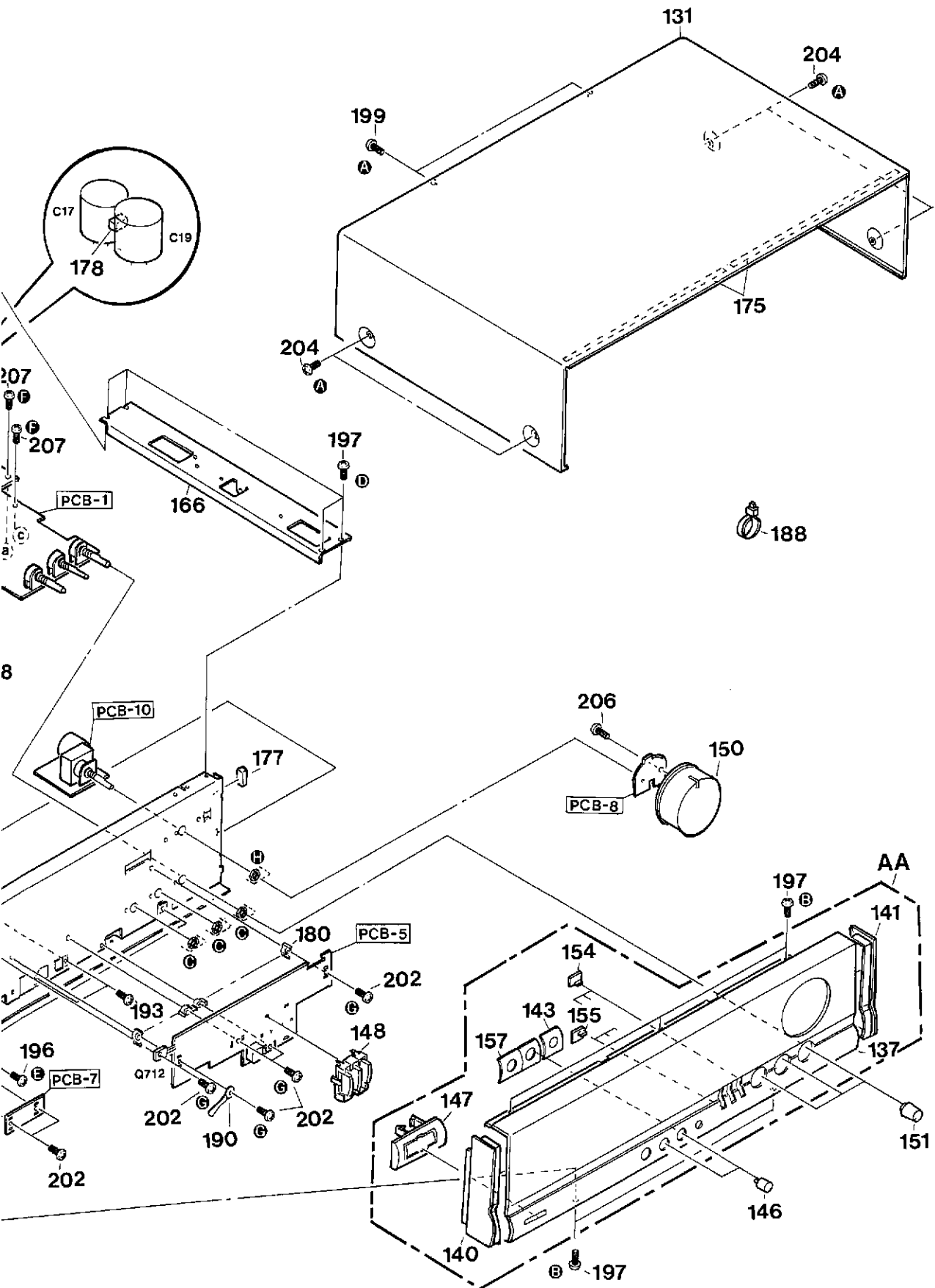
■ IDLING CURRENT ADJUSTMENT

| Step | Connection Equipments | Adjustment | For |
|------|--|------------|------------------------------|
| 1 | Connect the Digital Volt Meter to TP401 and TP403. | VR401 | $33\text{mV} \pm 2\text{mV}$ |
| 2 | Connect the Digital Volt Meter to TP402 and TP404. | VR402 | $33\text{mV} \pm 2\text{mV}$ |

- After the above adjustment, leave the unit with its power on for longer than 15 minutes and then repeat the same adjustment.

BLOCK DIAGRAM





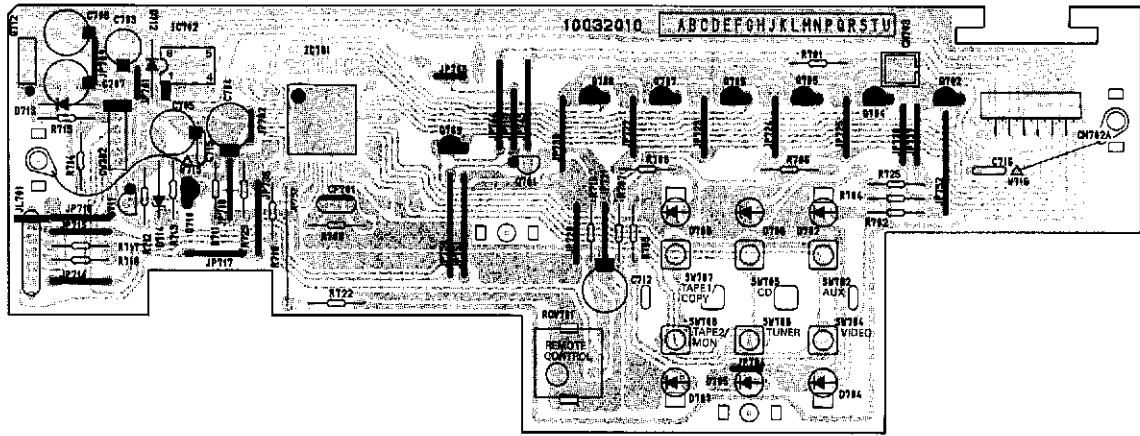
GENERAL UNIT PARTS LIST

| Ref. No. | Part No. | Description | Ref. No. | Part No. | Description |
|----------|--------------|---|----------|---------------|--|
| AA | A443-HK6440A | FRONT PANEL ASSEMBLY (Model: HK640) IB WB | 176 | 2224-7134 | INSULATOR, POWER Tr (x4) (Model: HK640) |
| AA | A443-HK6440B | FRONT PANEL ASSEMBLY (Model: HK640) I | 176 | 2224-7148 | INSULATOR, POWER Tr (x4) (Model: HK660) |
| AA | A443-HK6660A | FRONT PANEL ASSEMBLY (Model: HK660) IB | 177 | 2112-11809 | SPONGE, CHASSIS SIDE (x2) |
| AA | A443-HK6660B | FRONT PANEL ASSEMBLY (Model: HK660) I | 178 | 2112-11806 | SPONGE, MAIN PCB C17, C19 |
| AB | A319-HK6440A | LEG ASSEMBLY | 179 | 2360-7017 | BOSS, SPE, PCB (x4) |
| 131 | 1414-17601 | CABINET TOP | 180 | 2360-7026 | BOSS, SPE (x6) |
| 133 | 1424-38201 | CABINET BACK, BOTTOM | 182 | 1756-R01TL101 | LABEL, FUSE LABEL (Model: HK660) |
| 135 | 1424-38301 | CABINET BACK, REAR (Model: HK640) IB I | 184 | 2402-0374 | WASHER, PLASTIC (x2) (Model: HK640) |
| 135 | 1424-38302 | CABINET BACK, REAR (Model: HK640) WB | 184 | 2402-0374 | WASHER, PLASTIC (x3) (Model: HK660) |
| 135 | 1424-38401 | CABINET BACK, REAR (Model: HK660) | 185 | 2459-3003511 | RIVET, PLASTIC |
| 137 | 1443-15001 | FRONT PANEL (Model: HK640) IB WB | 187 | 2240-364 | HOLDER, AC CORD |
| 137 | 1443-15002 | FRONT PANEL (Model: HK640) I | 188 | 2240-R0101 | HOLDER, WIRING (x18) |
| 137 | 1443-15003 | FRONT PANEL (Model: HK660) IB | 189 | 2218-7011 | BRACKET, FIX (Model: HK660) |
| 137 | 1443-15004 | FRONT PANEL (Model: HK660) I | 190 | 2218-R0130 | BRACKET, FIX (x2) |
| 140 | 1562-09602 | FRAME, L (Model: HK640) IB WB | 191 | 2459-3004511 | RIVET, PLASTIC (x8) |
| 140 | 1562-09601 | FRAME, L (Model: HK640/660) I | 193 | 2327-R0130062 | SCREW, BND+ (3x6 mm) (x2) |
| 141 | 1562-09702 | FRAME, R (Model: HK640) IB WB | 196 | 2347-R0130062 | SCREW, BND T+ (3x6 mm) (x11) |
| 141 | 1562-09701 | FRAME, R (Model: HK640/660) I | 197 | 2347-R0130062 | SCREW, BND T+ (3x6 mm) (x10) |
| 143 | 1532-22801 | WINDOW, REMOTE SENSOR | 198 | 2347-R0130062 | SCREW, BND T+ (3x6 mm) (x7) |
| 144 | 1511-23601 | PLATE, EQ | 199 | 2347-R0130084 | SCREW, BND T+ (3x8 mm) (x19) |
| 146 | 1662-67202 | PUSH BUTTON, SPEAKERS (x2) (Model: HK640) IB WB | 202 | 2347-R0130084 | SCREW, BND T+ (3x8 mm) (x21) (Model: HK640) |
| 146 | 1662-67201 | PUSH BUTTON, SPEAKERS (x2) (Model: HK640/660) I | 203 | 2347-R0130102 | SCREW, BND T+ (3x10 mm) (x7) (Model: HK660) |
| 147 | 1660-02302 | PUSH BUTTON, POWER BUTTON/INDICATOR (Model: HK640) IB WB | 204 | 2347-401027 | SCREW, BND T+ (4x10 mm) (x4) |
| 147 | 1660-02301 | PUSH BUTTON, POWER BUTTON/INDICATOR (Model: HK640/660) I | 204 | 2347-R0140064 | SCREW, BND T+ (4x6 mm) (x4) |
| 148 | 1662-71902 | PUSH BUTTON, TAPE 1/COPY/TAPE 2 MON/CD/TUNER/AUX/VIDEO (Model: HK640) IB WB | 206 | 2347-R0126082 | SCREW, BND T+ (2.6x8 mm) |
| 148 | 1662-71901 | PUSH BUTTON, TAPE 1/COPY/TAPE 2 MON/CD/TUNER/AUX/VIDEO (Model: HK660) IB | 207 | 2347-R0130162 | SCREW, BND T+ (3x16 mm) (x4) |
| 150 | 1630-05002 | ROTARY KNOB, VOLUME (Model: HK640) IB WB | 210 | 2557-F301426 | SCREW, B SPW+ (3x14 mm) (x9) (Model: HK640) |
| 150 | 1630-05001 | ROTARY KNOB, VOLUME (Model: HK660) IB | 210 | 2557-F301426 | SCREW, B SPW+ (3x14 mm) (x10) (Model: HK660) |
| 151 | 1632-20702 | ROTARY KNOB, BASS, TREBLE, BALANCE (x3) (Model: HK640) IB WB | 213 | 2412-4022 | WASHER, SPRG (x4) |
| 151 | 1632-20701 | ROTARY KNOB, BASS, TREBLE, BALANCE (x3) (Model: HK660) IB | 214 | 2401-0472 | WASHER, METAL (x4) |
| 154 | 1732-09801 | INDICATOR, TAPE1/COPY, CD, AUX (x3) | | | |
| 155 | 1732-09901 | INDICATOR, TAPE2 MON, TUNER, VIDEO (x3) | | | |
| 157 | 1742-09402 | ORNAMENT, SPEAKERS 1/2 BUTTON (Model: HK640) IB WB | | | |
| 157 | 1742-09401 | ORNAMENT, SPEAKERS 1/2 BUTTON (Model: HK660) IB | | | |
| 159 | 1319-04303 | LEG (x4) | | | |
| 160 | 1319-04601 | LEG, SPONGE (x4) | | | |
| 161 | 2211-7330 | CHASSIS | | | |
| 164 | 2219-8422 | METAL FITTG, HEAT SINK | | | |
| 166 | 2219-8424 | METAL FITTG, R SIDE TOP | | | |
| 168 | 2219-8349 | METAL FITTG, POWER IN SIDE | | | |
| 169 | 2219-8390 | METAL FITTG, POWER IN | | | |
| 170 | 2216-7210 | SHIELD PLATE | | | |
| 173 | 2222-7342 | HEAT SINK (Model: HK640) | | | |
| 173 | 2222-7341 | HEAT SINK (Model: HK660) | | | |
| 175 | 2224-146 | INSULATOR, TOP COVER (x2) | | | |

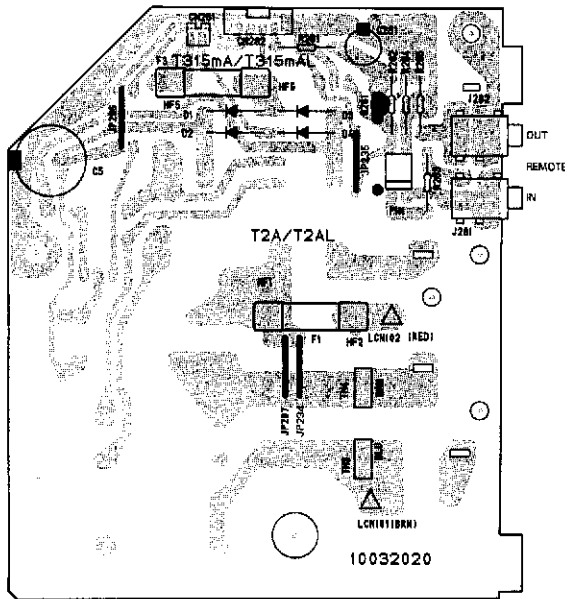
P.C. BOARDS

1
2
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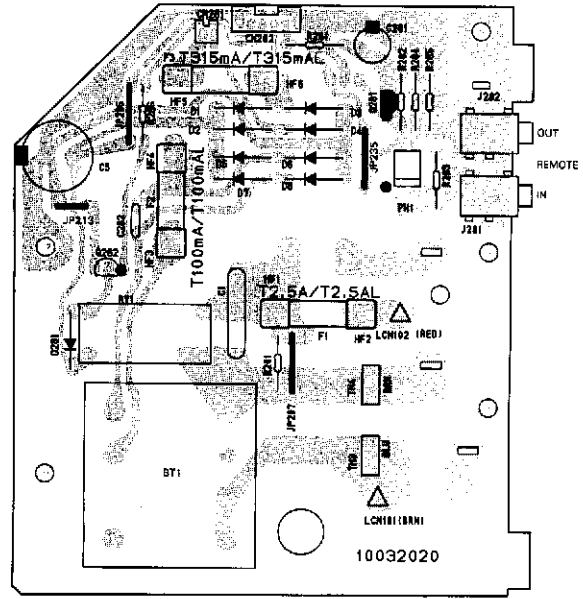
PCB-5 CPU P.C.BOARD



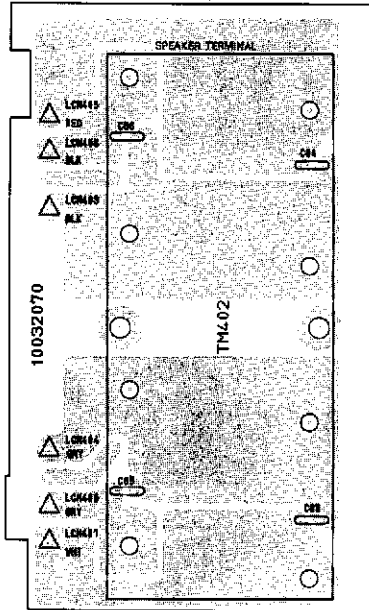
PCB-6 I/O P.C. BOARD (MODEL: HK640)



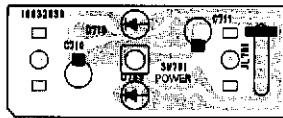
PCB-6 I/O P.C. BOARD (MODEL: HK660)



PCB-4 SP TERMINAL P.C. BOARD (MODEL: HK660)



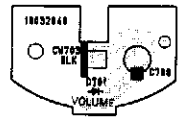
PCB-7 POWER INDICATOR P.C. BOARD



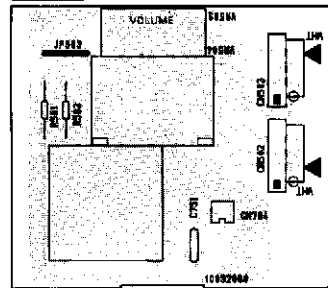
PCB-9 POWER TRANS P.C. BOARD (MODEL: HK640)



PCB-8 VOLUME INDICATOR P.C. BOARD

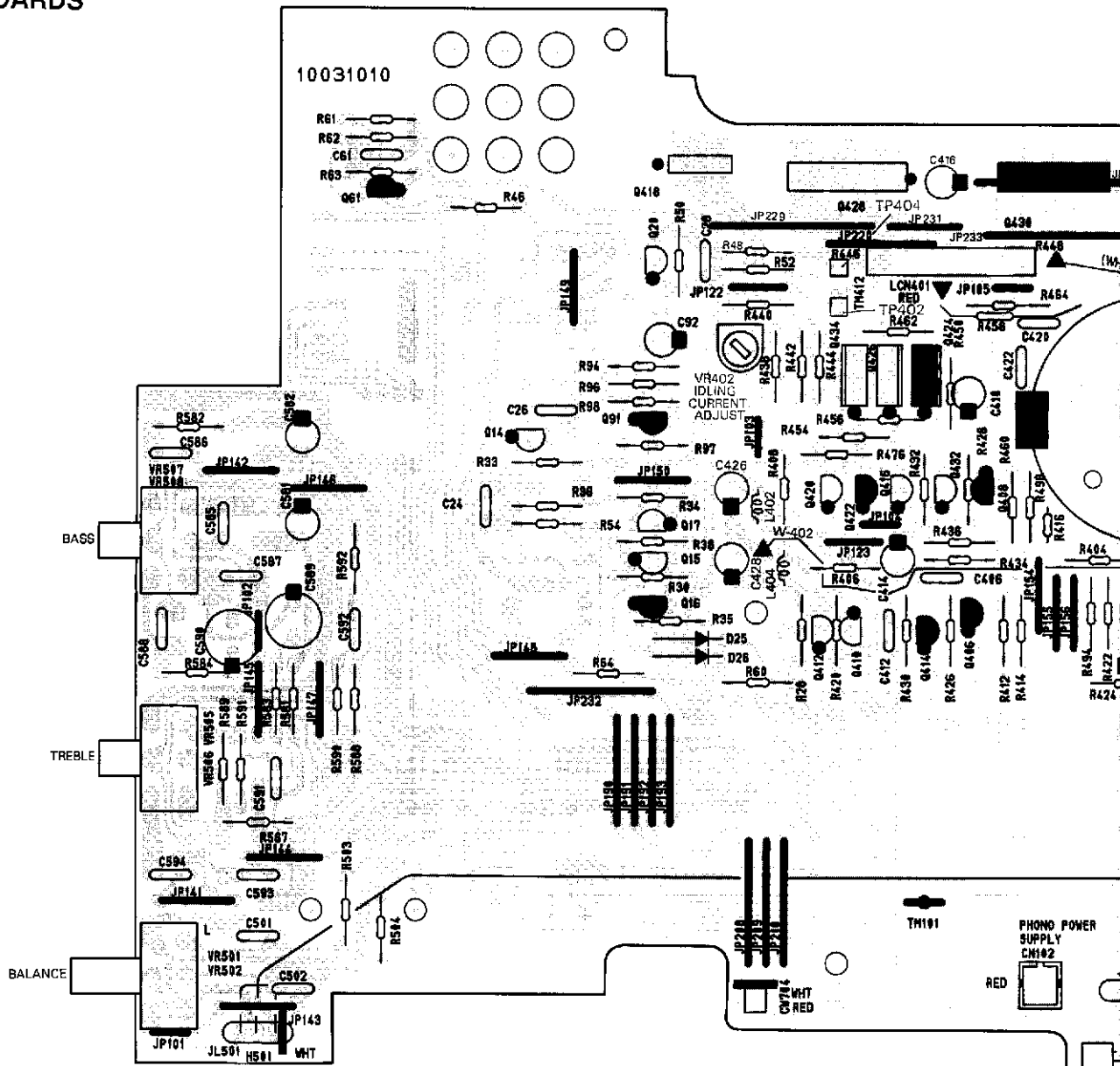


PCB-10 VOLUME P.C. BOARD

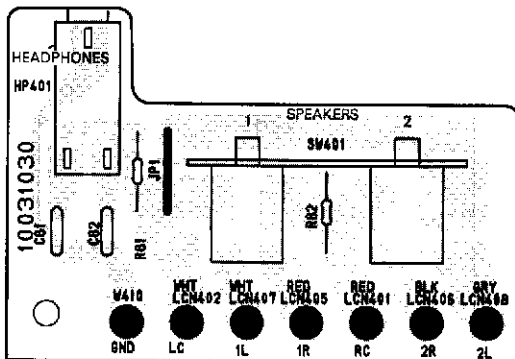


P.C. BOARDS

PCB-1 MAIN P.C. BOARD

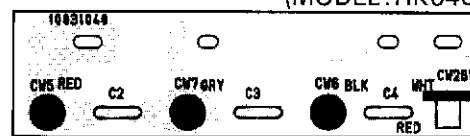


PCB-2 SP SW P.C. BOARD

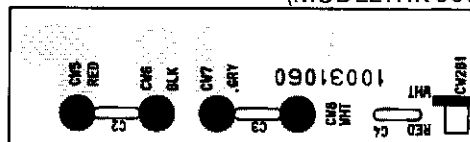


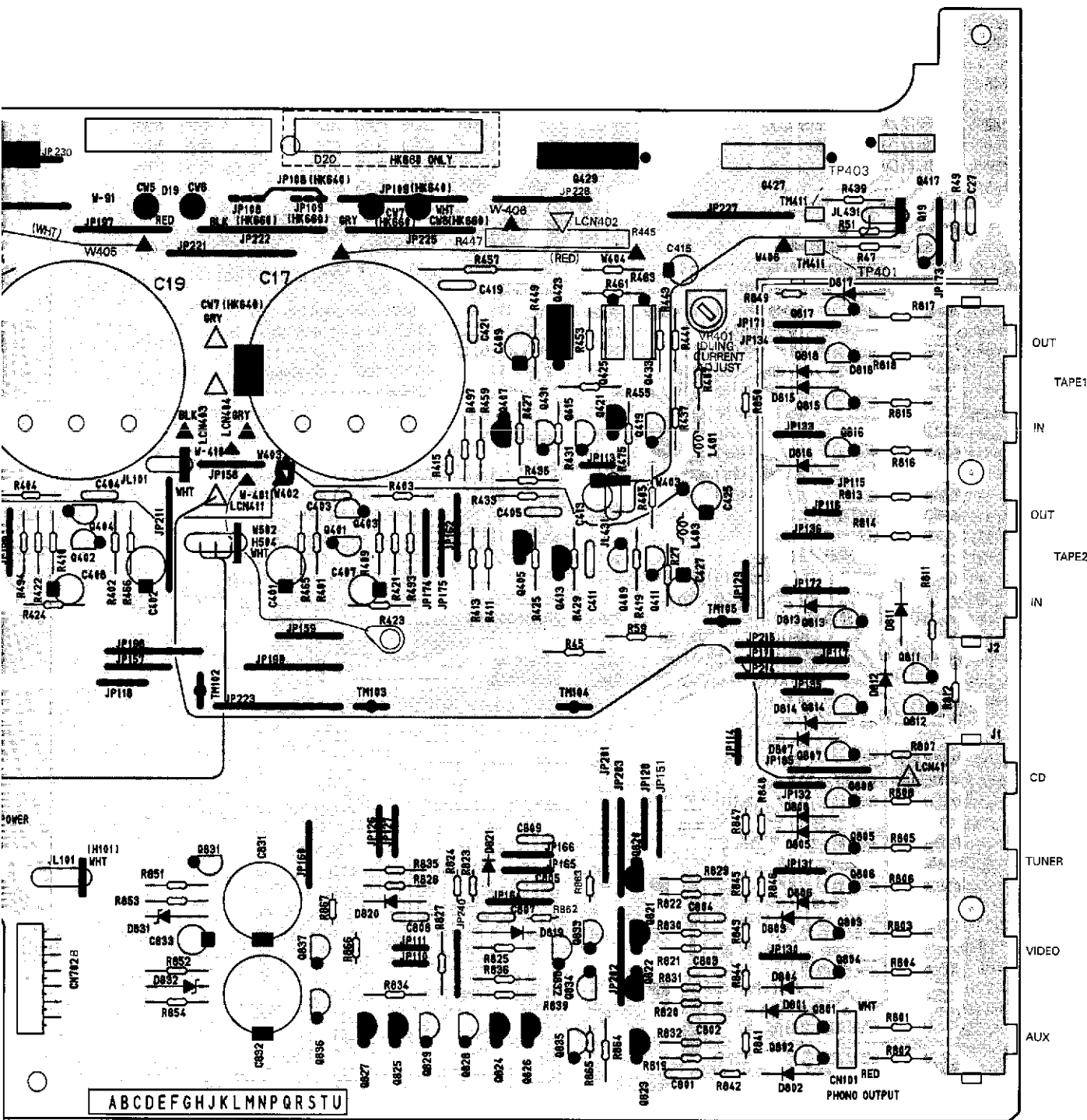
PCB-3 SECOND P.C. BOARD

(MODEL: HK640)



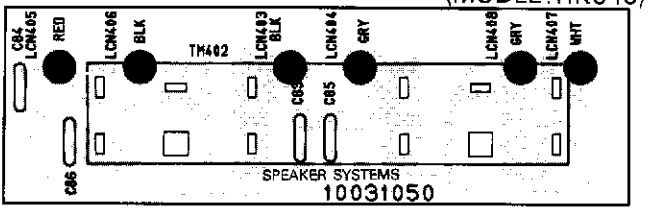
(MODEL: HK660)



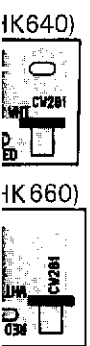


OUT TAPE1
IN TAPE2
OUT TAPE2
IN CD
TUNER
VIDEO
AUX

PCB-4 SP TERMINAL P.C.BOARD (MODEL:HK640)



SPEAKER SYSTEMS
10031050



ELECTRICAL PARTS LIST

| Ser. No. | Ref. No. | Part No. | Description |
|------------------------------|----------|---------------|------------------------------------|
| PCB - MAIN P.C. BOARD | | | |
| CAPACITORS | | | |
| 724 | △ C17 | 5341-S45GM159 | CAP, ELE 15000U/63V (Model: HK640) |
| 724 | △ C17 | 5341-S45GM189 | CAP, ELE 18000U/63V (Model: HK660) |
| 724 | △ C19 | 5341-S45GM159 | CAP, ELE 15000U/63V (Model: HK640) |
| 724 | △ C19 | 5341-S45GM189 | CAP, ELE 18000U/63V (Model: HK660) |
| 691 | C24 | 5354-104593 | CAP, MYL .1U |
| 693 | C26 | 5354-104593 | CAP, MYL .1U |
| 692 | C27 | 5354-124593 | CAP, MYL .12U |
| 692 | C28 | 5354-124593 | CAP, MYL .12U |
| 701 | C61 | 5359-S010J332 | CAP, PPP 3300P |
| 694 | C92 | 5345-476F041 | CAP, MINI ELE 47U/50V |
| 601 | C401 | 5345-S29AM227 | CAP, MINI ELE 220U/6.3V |
| 601 | C402 | 5345-S29AM227 | CAP, MINI ELE 220U/6.3V |
| 610 | C403 | 5359-S010K221 | CAP, PPP 220P |
| 610 | C404 | 5359-S010K221 | CAP, PPP 220P |
| 602 | C405 | 5353-020933 | CAP, MCA 2P |
| 602 | C406 | 5353-020933 | CAP, MCA 2P |
| 603 | C407 | 5345-S29BM107 | CAP, MINI ELE 100U/10V |
| 603 | C408 | 5345-S29BM107 | CAP, MINI ELE 100U/10V |
| 607 | C409 | 5345-S29FM106 | CAP, MINI ELE 10U/50V |
| 607 | C410 | 5345-S29FM106 | CAP, MINI ELE 10U/50V |
| 606 | C411 | 5353-070933 | CAP, MCA 7P |
| 606 | C412 | 5353-070933 | CAP, MCA 7P |
| 604 | C413 | 5345-S29CM106 | CAP, MINI ELE 10U/16V |
| 604 | C414 | 5345-S29CM106 | CAP, MINI ELE 10U/16V |
| 609 | C415 | 5345-S25JM106 | CAP, MINI ELE 10U/100V |
| 609 | C416 | 5345-S25JM106 | CAP, MINI ELE 10U/100V |
| 605 | C419 | 5354-224593 | CAP, MYL .22U |
| 605 | C420 | 5354-224593 | CAP, MYL .22U |
| 605 | C421 | 5354-224593 | CAP, MYL .22U |
| 605 | C422 | 5354-224593 | CAP, MYL .22U |
| 608 | C425 | 5345-S29GM105 | CAP, MINI ELE 1U/63V |
| 608 | C426 | 5345-S29GM105 | CAP, MINI ELE 1U/63V |
| 608 | C427 | 5345-S29GM105 | CAP, MINI ELE 1U/63V |
| 608 | C428 | 5345-S29GM105 | CAP, MINI ELE 1U/63V |
| 670 | C501 | 5359-4715851 | CAP, PPP 470P |
| 670 | C502 | 5359-4715851 | CAP, PPP 470P |
| 661 | C581 | 5345-S29BM476 | CAP, MINI ELE 47U/10V |
| 661 | C582 | 5345-S29BM476 | CAP, MINI ELE 47U/10V |
| 669 | C585 | 5354-823593 | CAP, MYL .082U |
| 669 | C586 | 5354-823593 | CAP, MYL .082U |
| 663 | C587 | 5354-334593 | CAP, MYL .33U |
| 663 | C588 | 5354-334593 | CAP, MYL .33U |
| 664 | C589 | 5345-S29AM227 | CAP, MINI ELE 220U/6.3V |
| 664 | C590 | 5345-S29AM227 | CAP, MINI ELE 220U/6.3V |
| 666 | C591 | 5359-8225851 | CAP, PPP 8200P |
| 666 | C592 | 5359-8225851 | CAP, PPP 8200P |
| 668 | C593 | 5354-563593 | CAP, MYL .056U |
| 668 | C594 | 5354-563593 | CAP, MYL .056U |
| 877 | C801 | 5352-S110J104 | CAP, MTL .1U |
| 877 | C802 | 5352-S110J104 | CAP, MTL .1U |
| 877 | C803 | 5352-S110J104 | CAP, MTL .1U |
| 877 | C804 | 5352-S110J104 | CAP, MTL .1U |
| 879 | C805 | 5352-S110J224 | CAP, MTL .22U |
| 879 | C807 | 5352-S110J224 | CAP, MTL .22U |
| 879 | C808 | 5352-S110J224 | CAP, MTL .22U |
| 877 | C809 | 5352-S110J104 | CAP, MTL .1U |
| 880 | C831 | 5345-S25GM337 | CAP, MINI ELE 330U/63V |
| 880 | C832 | 5345-S25GM337 | CAP, MINI ELE 330U/63V |
| 878 | C833 | 5345-107D041 | CAP, MINI ELE 100U/25V |

| Ser. No. | Ref. No. | Part No. | Description |
|------------------|----------|---------------|--------------------|
| RESISTORS | | | |
| 702 | R27 | 5130-R030J104 | RES, CBN 1/2P 100K |
| 702 | R28 | 5130-R030J104 | RES, CBN 1/2P 100K |
| 706 | R30 | 5130-R030J683 | RES, CBN 1/2P 68K |
| 702 | R33 | 5130-R030J104 | RES, CBN 1/2P 100K |
| 704 | R34 | 5130-R030J472 | RES, CBN 1/2P 4.7K |
| 705 | R35 | 5130-R030J223 | RES, CBN 1/2P 22K |
| 705 | R36 | 5130-R030J223 | RES, CBN 1/2P 22K |
| 706 | R38 | 5130-R030J683 | RES, CBN 1/2P 68K |

| Ser. No. | Ref. No. | Part No. | Description |
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| 709 | R45 | 5130-R030J682 | RES, CBN 1/2P 6.8K |
| 709 | R46 | 5130-R030J682 | RES, CBN 1/2P 6.8K |
| 710 | R47 | 5130-R030J222 | RES, CBN 1/2P 2.2K (Model: HK640) |
| 710 | R47 | 5130-R030J272 | RES, CBN 1/2P 2.7K (Model: HK660) |
| 710 | R48 | 5130-R030J222 | RES, CBN 1/2P 2.2K (Model: HK640) |
| 710 | R48 | 5130-R030J272 | RES, CBN 1/2P 2.7K (Model: HK660) |
| 711 | R49 | 5130-R030J821 | RES, CBN 1/2P 820 |
| 711 | R50 | 5130-R030J821 | RES, CBN 1/2P 820 |
| 710 | R51 | 5130-R030J222 | RES, CBN 1/2P 2.2K (Model: HK640) |
| 710 | R51 | 5130-R030J272 | RES, CBN 1/2P 2.7K (Model: HK660) |
| 710 | R52 | 5130-R030J222 | RES, CBN 1/2P 2.2K (Model: HK640) |
| 710 | R52 | 5130-R030J272 | RES, CBN 1/2P 2.7K (Model: HK660) |
| 705 | R54 | 5130-R030J223 | RES, CBN 1/2P 22K |
| 712 | R59 | 5130-R030J123 | RES, CBN 1/2P 12K |
| 712 | R60 | 5130-R030J123 | RES, CBN 1/2P 12K |
| 715 | R61 | 5130-R030J152 | RES, CBN 1/2P 1.5K |
| 716 | R62 | 5130-R030J473 | RES, CBN 1/2P 47K |
| 717 | R63 | 5130-R030J223 | RES, CBN 1/2P 22K |
| 718 | R64 | 5130-R030J103 | RES, CBN 1/2P 10K |
| 714 | R94 | 5130-R030J104 | RES, CBN 1/2P 100K |
| 704 | R96 | 5130-R030J472 | RES, CBN 1/2P 4.7K |
| 705 | R97 | 5130-R030J223 | RES, CBN 1/2P 22K |
| 713 | R98 | 5130-R030J333 | RES, CBN 1/2P 33K |
| 631 | R401 | 5130-R030J683 | RES, CBN 1/2P 68K |
| 631 | R402 | 5130-R030J683 | RES, CBN 1/2P 68K |
| 627 | R403 | 5130-R030J562 | RES, CBN 1/2P 5.6K |
| 627 | R404 | 5130-R030J562 | RES, CBN 1/2P 5.6K |
| 643 | △ R405 | 5102-3R35116 | RES, FUSE 3.3 |
| 643 | △ R406 | 5102-3R35116 | RES, FUSE 3.3 |
| 643 | △ R407 | 5102-3R35116 | RES, FUSE 3.3 |
| 643 | △ R408 | 5102-3R35116 | RES, FUSE 3.3 |
| 633 | R409 | 5130-R030J473 | RES, CBN 1/2P 47K |
| 633 | R410 | 5130-R030J473 | RES, CBN 1/2P 47K |
| 634 | △ R411 | 5102-1025116 | RES, FUSE 1K |
| 634 | △ R412 | 5102-1025116 | RES, FUSE 1K |
| 632 | △ R413 | 5102-1024715 | RES, FUSE 1K |
| 632 | △ R414 | 5102-1024715 | RES, FUSE 1K |
| 629 | △ R415 | 5102-S081J470 | RES, FUSE 47 |
| 629 | △ R416 | 5102-S081J470 | RES, FUSE 47 |
| 635 | R419 | 5130-R030J271 | RES, CBN 1/2P 270 |
| 635 | R420 | 5130-R030J271 | RES, CBN 1/2P 270 |
| 636 | R421 | 5130-R030J224 | RES, CBN 1/2P 220K |
| 636 | R422 | 5130-R030J224 | RES, CBN 1/2P 220K |
| 637 | R423 | 5130-R030J121 | RES, CBN 1/2P 120 (Model: HK640) |
| 637 | R423 | 5130-R030J111 | RES, CBN 1/2P 110 (Model: HK660) |
| 637 | R424 | 5130-R030J121 | RES, CBN 1/2P 120 (Model: HK640) |
| 637 | R424 | 5130-R030J111 | RES, CBN 1/2P 110 (Model: HK660) |
| 645 | △ R425 | 5102-8205116 | RES, FUSE 82 |
| 645 | △ R426 | 5102-8205116 | RES, FUSE 82 |
| 648 | △ R427 | 5102-6805116 | RES, FUSE 68 |
| 648 | △ R428 | 5102-6805116 | RES, FUSE 68 |
| 645 | △ R429 | 5102-8205116 | RES, FUSE 82 |
| 645 | △ R430 | 5102-8205116 | RES, FUSE 82 |
| 645 | △ R431 | 5102-8205116 | RES, FUSE 82 |
| 645 | △ R432 | 5102-8205116 | RES, FUSE 82 |
| 638 | R433 | 5130-R030J183 | RES, CBN 1/2P 18K |
| 638 | R434 | 5130-R030J183 | RES, CBN 1/2P 18K |
| 638 | R435 | 5130-R030J183 | RES, CBN 1/2P 18K |
| 638 | R436 | 5130-R030J183 | RES, CBN 1/2P 18K |
| 656 | R437 | 5130-R030J182 | RES, CBN 1/2P 1.8K |
| 656 | R438 | 5130-R030J182 | RES, CBN 1/2P 1.8K |
| 640 | R439 | 5130-R030J681 | RES, CBN 1/2P 680 |
| 640 | R440 | 5130-R030J681 | RES, CBN 1/2P 680 |
| 639 | R441 | 5130-R030J122 | RES, CBN 1/2P 1.2K |
| 639 | R442 | 5130-R030J122 | RES, CBN 1/2P 1.2K |
| 655 | R443 | 5130-R030J122 | RES, CBN 1/2P 1.2K |
| 655 | R444 | 5130-R030J122 | RES, CBN 1/2P 1.2K |
| 650 | R445 | 5275-S040JR22 | RES, CEM 5P .22 |
| 650 | R446 | 5275-S040JR22 | RES, CEM 5P .22 |
| 650 | R447 | 5275-S040JR22 | RES, CEM 5P .22 |
| 650 | R448 | 5275-S040JR22 | RES, CEM 5P .22 |
| 646 | △ R449 | 5102-2214715 | RES, FUSE 220 |
| 646 | △ R450 | 5102-2214715 | RES, FUSE 220 |

| Ser. No. | Ref. No. | Part No. | Description | Ser. No. | Ref. No. | Part No. | Description |
|----------|----------|---------------|--------------------|----------|----------|--------------------|-----------------------------------|
| 644 | △ R453 | 5102-1014715 | RES, FUSE 100 | 903 | △ R851 | 5102-2205116 | RES, FUSE 22 |
| 644 | △ R454 | 5102-1014715 | RES, FUSE 100 | 906 | R852 | 5130-R030J392 | RES, CBN 1/2P 3.9K (Model: HK640) |
| 644 | △ R455 | 5102-1014715 | RES, FUSE 100 | 906 | R852 | 5130-R030J472 | RES, CBN 1/2P 4.7K (Model: HK660) |
| 644 | △ R456 | 5102-1014715 | RES, FUSE 100 | 904 | R853 | 5130-R030J103 | RES, CBN 1/2P 10K |
| 652 | R457 | 5173-3R3583 | RES, MTL 2P 3.3 | 905 | R854 | 5130-R030J222 | RES, CBN 1/2P 2.2K |
| 652 | R458 | 5173-3R3583 | RES, MTL 2P 3.3 | 895 | R862 | 5130-R010J102 | RES, CBN 1/6P 1K |
| 641 | R459 | 5130-R030J332 | RES, CBN 1/2P 3.3K | 895 | R863 | 5130-R010J102 | RES, CBN 1/6P 1K |
| 641 | R460 | 5130-R030J332 | RES, CBN 1/2P 3.3K | 894 | R864 | 5130-R030J102 | RES, CBN 1/2P 1K |
| 649 | △ R461 | 5102-4R75116 | RES, FUSE 4.7 | 895 | R865 | 5130-R010J102 | RES, CBN 1/6P 1K |
| 649 | △ R462 | 5102-4R75116 | RES, FUSE 4.7 | 895 | R866 | 5130-R010J102 | RES, CBN 1/6P 1K |
| 649 | △ R463 | 5102-4R75116 | RES, FUSE 4.7 | 895 | R867 | 5130-R010J102 | RES, CBN 1/6P 1K |
| 649 | △ R464 | 5102-4R75116 | RES, FUSE 4.7 | | | | |
| 642 | R465 | 5130-R030J331 | RES, CBN 1/2P 330 | | | TRANSISTORS | |
| 642 | R466 | 5130-R030J331 | RES, CBN 1/2P 330 | 696 | Q14 | 5613-1740S(S) | XISTOR, NPN R |
| 647 | △ R475 | 5102-3914715 | RES, FUSE 390 | 696 | Q15 | 5613-1740S(S) | XISTOR, NPN R |
| 647 | △ R476 | 5102-3914715 | RES, FUSE 390 | 697 | Q16 | 5611-933S(S) | XISTOR, PNP R |
| 642 | R493 | 5130-R030J331 | RES, CBN 1/2P 330 | 696 | Q17 | 5613-1740S(S) | XISTOR, NPN R |
| 642 | R494 | 5130-R030J331 | RES, CBN 1/2P 330 | 698 | Q19 | 5613-2240(BL) | XISTOR, NPN R |
| 633 | R497 | 5130-R030J473 | RES, CBN 1/2P 47K | 698 | Q20 | 5613-2240(BL) | XISTOR, NPN R |
| 633 | R498 | 5130-R030J473 | RES, CBN 1/2P 47K | 699 | Q61 | 5611-970(BL) | XISTOR, PNP R |
| 671 | R503 | 5130-R030J102 | RES, CBN 1/2P 1K | 697 | Q91 | 5611-933S(S) | XISTOR, PNP R |
| 671 | R504 | 5130-R030J102 | RES, CBN 1/2P 1K | 613 | Q401 | 5613-1775(F) | XISTOR, NPN R |
| 672 | R581 | 5130-R030J822 | RES, CBN 1/2P 8.2K | 613 | Q402 | 5613-1775(F) | XISTOR, NPN R |
| 672 | R582 | 5130-R030J822 | RES, CBN 1/2P 8.2K | 613 | Q403 | 5613-1775(F) | XISTOR, NPN R |
| 673 | R583 | 5130-R030J152 | RES, CBN 1/2P 1.5K | 613 | Q404 | 5613-1775(F) | XISTOR, NPN R |
| 673 | R584 | 5130-R030J152 | RES, CBN 1/2P 1.5K | 614 | Q405 | 5612-646A(C) | XISTOR, PNP A |
| 674 | R587 | 5130-R030J271 | RES, CBN 1/2P 270 | 614 | Q406 | 5612-646A(C) | XISTOR, PNP A |
| 674 | R588 | 5130-R030J271 | RES, CBN 1/2P 270 | 614 | Q407 | 5612-646A(C) | XISTOR, PNP A |
| 675 | R589 | 5130-R030J335 | RES, CBN 1/2P 3.3M | 614 | Q408 | 5612-646A(C) | XISTOR, PNP A |
| 675 | R590 | 5130-R030J335 | RES, CBN 1/2P 3.3M | 615 | Q409 | 5613-2240(BL) | XISTOR, NPN R |
| 676 | R591 | 5130-R030J122 | RES, CBN 1/2P 1.2K | 615 | Q410 | 5613-2240(BL) | XISTOR, NPN R |
| 676 | R592 | 5130-R030J122 | RES, CBN 1/2P 1.2K | 615 | Q411 | 5613-2240(BL) | XISTOR, NPN R |
| 896 | R801 | 5130-R030J102 | RES, CBN 1/2P 1K | 615 | Q412 | 5613-2240(BL) | XISTOR, NPN R |
| 896 | R802 | 5130-R030J102 | RES, CBN 1/2P 1K | 614 | Q413 | 5612-646A(C) | XISTOR, PNP A |
| 896 | R803 | 5130-R030J102 | RES, CBN 1/2P 1K | 614 | Q414 | 5612-646A(C) | XISTOR, PNP A |
| 896 | R804 | 5130-R030J102 | RES, CBN 1/2P 1K | 616 | Q415 | 5614-666A(C) | XISTOR, NPN A |
| 896 | R805 | 5130-R030J102 | RES, CBN 1/2P 1K | 616 | Q416 | 5614-666A(C) | XISTOR, NPN A |
| 896 | R806 | 5130-R030J102 | RES, CBN 1/2P 1K | 617 | Q417 | 5613-3423(Y) | XISTOR, NPN R |
| 896 | R807 | 5130-R030J102 | RES, CBN 1/2P 1K | 617 | Q418 | 5613-3423(Y) | XISTOR, NPN R |
| 896 | R808 | 5130-R030J102 | RES, CBN 1/2P 1K | 618 | Q419 | 5614-667A(C) | XISTOR, NPN A |
| 896 | R811 | 5130-R030J102 | RES, CBN 1/2P 1K | 618 | Q420 | 5614-667A(C) | XISTOR, NPN A |
| 896 | R812 | 5130-R030J102 | RES, CBN 1/2P 1K | 619 | Q421 | 5612-647A(C) | XISTOR, PNP A |
| 896 | R813 | 5130-R030J102 | RES, CBN 1/2P 1K | 619 | Q422 | 5612-647A(C) | XISTOR, PNP A |
| 897 | R814 | 5130-R030J102 | RES, CBN 1/2P 1K | 620 | Q423 | 5611-1837(Y) | XISTOR, PNP R |
| 897 | R815 | 5130-R030J102 | RES, CBN 1/2P 1K | 620 | Q424 | 5611-1837(Y) | XISTOR, PNP R |
| 897 | R816 | 5130-R030J102 | RES, CBN 1/2P 1K | 621 | Q425 | 5613-4793(Y) | XISTOR, NPN R |
| 897 | R817 | 5130-R030J102 | RES, CBN 1/2P 1K | 621 | Q426 | 5613-4793(Y) | XISTOR, NPN R |
| 897 | R818 | 5130-R030J102 | RES, CBN 1/2P 1K | 623 | Q427 | 5613-3907(O) | XISTOR, NPN R (Model: HK640) |
| 901 | R819 | 5130-R030J225 | RES, CBN 1/2P 2.2M | 623 | Q427 | 5613-3281(O) | XISTOR, NPN R (Model: HK660) |
| 901 | R820 | 5130-R030J225 | RES, CBN 1/2P 2.2M | 623 | Q428 | 5613-3907(O) | XISTOR, NPN R (Model: HK640) |
| 901 | R821 | 5130-R030J225 | RES, CBN 1/2P 2.2M | 623 | Q428 | 5613-3281(O) | XISTOR, NPN R (Model: HK660) |
| 901 | R822 | 5130-R030J225 | RES, CBN 1/2P 2.2M | 624 | Q429 | 5611-1516(O) | XISTOR, PNP R (Model: HK640) |
| 893 | R823 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 624 | Q429 | 5611-1302(O) | XISTOR, PNP R (Model: HK660) |
| 898 | R824 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 624 | Q430 | 5611-1516(O) | XISTOR, PNP R (Model: HK640) |
| 899 | R825 | 5130-R030J155 | RES, CBN 1/2P 1.5M | 624 | Q430 | 5611-1302(O) | XISTOR, PNP R (Model: HK660) |
| 899 | R826 | 5130-R030J155 | RES, CBN 1/2P 1.5M | 612 | Q431 | 5613-1775(F) | XISTOR, NPN R |
| 901 | R827 | 5130-R030J225 | RES, CBN 1/2P 2.2M | 612 | Q432 | 5613-1775(F) | XISTOR, NPN R |
| 900 | R829 | 5130-R030J104 | RES, CBN 1/2P 100K | 617 | Q433 | 5613-3423(Y) | XISTOR, NPN R |
| 900 | R830 | 5130-R030J104 | RES, CBN 1/2P 100K | 617 | Q434 | 5613-3423(Y) | XISTOR, NPN R |
| 900 | R831 | 5130-R030J104 | RES, CBN 1/2P 100K | 887 | Q801 | 5616-2SK364BL | FET, N-CH |
| 900 | R832 | 5130-R030J104 | RES, CBN 1/2P 100K | 887 | Q802 | 5616-2SK364BL | FET, N-CH |
| 900 | R834 | 5130-R030J104 | RES, CBN 1/2P 100K | 887 | Q803 | 5616-2SK364BL | FET, N-CH |
| 900 | R835 | 5130-R030J104 | RES, CBN 1/2P 100K | 887 | Q804 | 5616-2SK364BL | FET, N-CH |
| 900 | R836 | 5130-R030J104 | RES, CBN 1/2P 100K | 887 | Q805 | 5616-2SK364BL | FET, N-CH |
| 900 | R839 | 5130-R030J104 | RES, CBN 1/2P 100K | 887 | Q806 | 5616-2SK364BL | FET, N-CH |
| 902 | R841 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 887 | Q807 | 5616-2SK364BL | FET, N-CH |
| 902 | R842 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 887 | Q808 | 5616-2SK364BL | FET, N-CH |
| 902 | R843 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 887 | Q811 | 5616-2SK364BL | FET, N-CH |
| 902 | R844 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 887 | Q812 | 5616-2SK364BL | FET, N-CH |
| 902 | R845 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 889 | Q813 | 5616-2SK364(V) | FET, N-CH |
| 902 | R846 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 889 | Q814 | 5616-2SK364(V) | FET, N-CH |
| 902 | R847 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 887 | Q815 | 5616-2SK364BL | FET, N-CH |
| 902 | R848 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 888 | Q816 | 5616-2SK364BL | FET, N-CH |
| 902 | R849 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 888 | Q817 | 5616-2SK364BL | FET, N-CH |
| 902 | R850 | 5130-R010J225 | RES, CBN 1/6P 2.2M | 888 | Q818 | 5616-2SK364BL | FET, N-CH |

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|----------------------|-----------------|-----------------|---|-----------------|-----------------|-----------------|--|
| 890 | Q820 | 5611-R01D4747 | XISTOR, PNP R, RN2204 or DTA144ES or UN4113 | 792 | CW5 | 4163-0135025 | CONNECTOR W/W, 1 PIN (Model: HK640) |
| 890 | Q821 | 5611-R01D4747 | XISTOR, PNP R, RN2204 or DTA144ES or UN4113 | 792 | CW5 | 4163-0140025 | CONNECTOR W/W, 1 PIN (Model: HK660) |
| 890 | Q822 | 5611-R01D4747 | XISTOR, PNP R, RN2204 or DTA144ES or UN4113 | 793 | CW6 | 4163-0135024 | CONNECTOR W/W, 1 PIN (Model: HK640) |
| 890 | Q823 | 5611-R01D4747 | XISTOR, PNP R, RN2204 or DTA144ES or UN4113 | 793 | CW6 | 4163-0140024 | CONNECTOR W/W, 1 PIN (Model: HK660) |
| 890 | Q824 | 5611-R01D4747 | XISTOR, PNP R, RN2204 or DTA144ES or UN4113 | 794 | CW7 | 4163-0135026 | CONNECTOR W/W, 1 PIN (Model: HK640) |
| 890 | Q825 | 5611-R01D4747 | XISTOR, PNP R, RN2204 or DTA144ES or UN4113 | 794 | CW7 | 4163-0140026 | CONNECTOR W/W, 1 PIN (Model: HK660) |
| 890 | Q826 | 5611-R01D4747 | XISTOR, PNP R, RN2204 or DTA144ES or UN4113 | 795 | CW8 | 4163-0140027 | CONNECTOR W/W, 1 PIN (Model: HK660) |
| 890 | Q827 | 5611-R01D4747 | XISTOR, PNP R, RN2204 or DTA144ES or UN4113 | 796 | CW704 | 4163-S0202151 | CONNECTOR W/W, 2 PIN |
| 891 | Q828 | 5613-R01D4747 | XISTOR, NPN R, RN1204 or DTC144ES or UN4213 | 813 | J1 | 4489-04303008 | PIN JACK, MLT, AUX/VIDEO/TUNER/CD |
| 891 | Q829 | 5613-R01D4747 | XISTOR, NPN R, RN1204 or DTC144ES or UN4213 | 813 | J2 | 4489-04303008 | PIN JACK, MLT, TAPE 1/TAPE 2 IN/OUT |
| 885 | Q831 | 5613-2320L(F) | XISTOR, NPN R | 799 | JL101 | 4242-R0503101 | JUMPER LEAD, 3 WIRE |
| 892 | Q832 | 5613-R01D4747 | XISTOR, NPN R, RN1204 or DTC144ES or UN4213 | 787 | JL431 | 4132-R0202101 | CORD, 2C, 2 WIRE |
| 892 | Q833 | 5613-R01D4747 | XISTOR, NPN R, RN1204 or DTC144ES or UN4213 | 779 | JL501 | 4242-R0503141 | JUMPER LEAD, 3 WIRE |
| 892 | Q834 | 5613-R01D4747 | XISTOR, NPN R, RN1204 or DTC144ES or UN4213 | 628 | L401 | 5597-45502 | CORE, BEADS |
| 892 | Q835 | 5613-R01D4747 | XISTOR, NPN R, RN1204 or DTC144ES or UN4213 | 628 | L402 | 5597-45502 | CORE, BEADS |
| 892 | Q836 | 5613-R01D4747 | XISTOR, NPN R, RN1204 or DTC144ES or UN4213 | 628 | L403 | 5597-45502 | CORE, BEADS |
| 892 | Q837 | 5613-R01D4747 | XISTOR, NPN R, RN1204 or DTC144ES or UN4213 | 628 | L404 | 5597-45502 | CORE, BEADS |
| | | | | 763 | LCN401 | 4163-0140025 | CONNECTOR W/W, 1 PIN |
| | | | | 764 | LCN402 | 4163-0140027 | CONNECTOR W/W, 1 PIN |
| | | | | 761 | LCN403 | 4163-0140024 | CONNECTOR W/W, 1 PIN |
| | | | | 762 | LCN404 | 4163-0140026 | CONNECTOR W/W, 1 PIN |
| | | | | 810 | LCN411 | 4163-0117024 | CONNECTOR W/W, 1 PIN |
| | | | | 782 | TM101 | 4214-262 | TERMINAL |
| | | | | 782 | TM102 | 4214-262 | TERMINAL |
| | | | | 782 | TM103 | 4214-262 | TERMINAL |
| | | | | 782 | TM104 | 4214-262 | TERMINAL |
| | | | | 782 | TM105 | 4214-262 | TERMINAL |
| | | | | 784 | TM411 | 4214-11022 | TERMINAL |
| | | | | 784 | TM412 | 4214-11022 | TERMINAL |
| | | | | 769 | W401 | 4122-00320900 | WIRE (Model: HK640) |
| | | | | 769 | W401 | 4122-00310900 | WIRE (Model: HK660) |
| | | | | 770 | W402 | 4122-00280121 | WIRE |
| | | | | 770 | W403 | 4122-00280121 | WIRE |
| | | | | 771 | W404 | 4122-00322121 | WIRE |
| | | | | 772 | W405 | 4122-00320121 | WIRE |
| | | | | 773 | W406 | 4122-00280700 | WIRE |
| | | | | 798 | W410 | 4122-00280401 | WIRE |
| | | | | 800 | W502 | 4142-00151351 | SHLD WIRE, 2C |
| | | | | 774 | | 4211-4 | LUG, (W401) |
| | | | | 780 | | 2240-Z032 | HOLDER, H101(JL101) H501(JL501) |
| | | | | 781 | | 2240-Z031 | HOLDER, H504(W-502) |
| | | | | | | | |
| | | | | | | | CAPACITORS |
| | | | | 758 | C81 | 5359-1015851 | CAP, PPP 100P |
| | | | | 758 | C82 | 5359-1015851 | CAP, PPP 100P |
| | | | | | | | RESISTORS |
| | | | | 760 | R81 | 5130-R030J471 | RES, CBN 1/2P 470 |
| | | | | 760 | R82 | 5130-R030J471 | RES, CBN 1/2P 470 |
| | | | | | | | MISCELLANEOUS |
| | | | | 829 | HP401 | 4451-51501 | JACK, 1P, HEADPHONES |
| | | | | 765 | LCN405 | 4163-0140025 | CONNECTOR W/W, 1 PIN |
| | | | | 767 | LCN406 | 4163-0140024 | CONNECTOR W/W, 1 PIN |
| | | | | 766 | LCN407 | 4163-0140027 | CONNECTOR W/W, 1 PIN |
| | | | | 768 | LCN408 | 4163-0140026 | CONNECTOR W/W, 1 PIN |
| | | | | 817 | SW401 | 4431-S0319204 | SWITCH, PUSH, SPEAKERS 1/2 |
| DIODES | | | | | | | |
| 725 | △ D19 | 5685-D5SB20 | SILICON, BRIG | | | | |
| 725 | △ D20 | 5685-D5SB20 | SILICON, BRIG (Model: HK660) | | | | |
| 695 | D25 | 5631-1S2473 | DIODE, DET | | | | |
| 695 | D26 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D801 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D802 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D803 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D804 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D805 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D806 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D807 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D808 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D811 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D812 | 5631-1S2473 | DIODE, DET | | | | |
| 882 | D813 | 5631-1S2473 | DIODE, DET | | | | |
| 883 | D814 | 5631-1S2473 | DIODE, DET | | | | |
| 883 | D815 | 5631-1S2473 | DIODE, DET | | | | |
| 883 | D816 | 5631-1S2473 | DIODE, DET | | | | |
| 883 | D817 | 5631-1S2473 | DIODE, DET | | | | |
| 883 | D818 | 5631-1S2473 | DIODE, DET | | | | |
| 883 | D819 | 5631-1S2473 | DIODE, DET | | | | |
| 883 | D820 | 5631-1S2473 | DIODE, DET | | | | |
| 886 | D821 | 5631-1SS133 | DIODE, DET | | | | |
| 884 | D831 | 5635-HZ20-2L | DIODE, ZENER | | | | |
| 884 | D832 | 5635-HZ20-2L | DIODE, ZENER | | | | |
| CONTROLS | | | | | | | |
| 654 | VR401 | 5101-S0801301 | RES, SEMI FIX 300, IDLING CURRENT | | | | |
| 654 | VR402 | 5101-S0801301 | RES, SEMI FIX 300, IDLING CURRENT | | | | |
| 824 | VR501/ | 5113-S2005104 | RES, V CBN 16 100K, BALANCE | | | | |
| | | 502 | | | | | |
| 822 | VR505/ | 5113-S2101503 | RES, V CBN 16 50K, TREBLE | | | | |
| | | 506 | | | | | |
| 820 | VR507/ | 5113-S2102104 | RES, V CBN 16 100K, BASS | | | | |
| | | 508 | | | | | |
| MISCELLANEOUS | | | | | | | |
| 805 | CN101 | 4443-030185 | CONNECTOR, 3 PIN | | | | |
| 783 | CN102 | 4443-0201140 | CONNECTOR, 2 PIN | | | | |
| 809 | CN702B | 4443-05501013 | CONNECTOR, 13 PIN | | | | |

| Ser. No. | Ref. No. | Part No. | Description |
|--------------------------------|----------|---------------|--------------|
| PCB-3 SECOND P.C. BOARD | | | |
| CAPACITORS | | | |
| 721 | C2 | 5352-S060K104 | CAP, MTL .1U |
| 721 | C3 | 5352-S060K104 | CAP, MTL .1U |
| 722 | C4 | 5354-104593 | CAP, MYL .1U |

| Ser. No. | Ref. No. | Part No. | Description |
|----------------------|----------|---------------|----------------------|
| MISCELLANEOUS | | | |
| 790 | CW281 | 4163-S0202301 | CONNECTOR W/W, 2 PIN |

| Ser. No. | Ref. No. | Part No. | Description |
|-------------------------------------|----------|---------------|---------------|
| PCB-4 SP TERMINAL P.C. BOARD | | | |
| CAPACITORS | | | |
| 657 | C83 | 5359-S010K151 | CAP, PPP 150P |
| 657 | C84 | 5359-S010K151 | CAP, PPP 150P |
| 657 | C85 | 5359-S010K151 | CAP, PPP 150P |
| 657 | C86 | 5359-S010K151 | CAP, PPP 150P |

| Ser. No. | Ref. No. | Part No. | Description |
|----------------------|----------|----------|--|
| MISCELLANEOUS | | | |
| 812 | TM402 | 4214-239 | TERMINAL, SPEAKER SYSTEM 1/2 (Model: HK640) |
| 812 | TM402 | 4214-221 | TERMINAL, SPEAKER SYSTEM 1/2 (Model: HK660) |

| Ser. No. | Ref. No. | Part No. | Description |
|-----------------------------|----------|---------------|------------------------|
| PCB-5 CPU P.C. BOARD | | | |
| CAPACITORS | | | |
| 841 | C703 | 5345-S35BM107 | CAP, MINI ELE 100U/10V |
| 842 | C704 | 5345-S35BM107 | CAP, MINI ELE 100U/10V |
| 841 | C705 | 5345-S35BM107 | CAP, MINI ELE 100U/10V |
| 844 | C706 | 5345-S35BM227 | CAP, MINI ELE 220U/10V |
| 844 | C707 | 5345-S35BM227 | CAP, MINI ELE 220U/10V |
| 842 | C712 | 5345-S35BM107 | CAP, MINI ELE 100U/10V |
| 845 | C715 | 5354-104593 | CAP, MYL .1U |
| 845 | C716 | 5354-104593 | CAP, MYL .1U |

| Ser. No. | Ref. No. | Part No. | Description |
|------------------|----------|---------------|--------------------|
| RESISTORS | | | |
| 861 | R701 | 5130-R030J331 | RES, CBN 1/2P 330 |
| 862 | R702 | 5130-R030J471 | RES, CBN 1/2P 470 |
| 862 | R704 | 5130-R030J471 | RES, CBN 1/2P 470 |
| 862 | R705 | 5130-R030J471 | RES, CBN 1/2P 470 |
| 862 | R706 | 5130-R030J471 | RES, CBN 1/2P 470 |
| 863 | R707 | 5130-R030J561 | RES, CBN 1/2P 560 |
| 862 | R708 | 5130-R030J471 | RES, CBN 1/2P 470 |
| 864 | R709 | 5130-R030J105 | RES, CBN 1/2P 1M |
| 866 | R711 | 5130-R030J103 | RES, CBN 1/2P 10K |
| 862 | R712 | 5130-R030J471 | RES, CBN 1/2P 470 |
| 867 | R713 | 5130-R030J102 | RES, CBN 1/2P 1K |
| 868 | R714 | 5102-4R75116 | RES, FUSE 4.7 |
| 869 | R715 | 5130-R030J392 | RES, CBN 1/2P 3.9K |
| 865 | R716 | 5130-R030J101 | RES, CBN 1/2P 100 |
| 862 | R717 | 5130-R030J471 | RES, CBN 1/2P 470 |
| 862 | R718 | 5130-R030J471 | RES, CBN 1/2P 470 |
| 867 | R719 | 5130-R030J102 | RES, CBN 1/2P 1K |
| 849 | R722 | 5130-R030J103 | RES, CBN 1/2P 10K |
| 866 | R723 | 5130-R030J103 | RES, CBN 1/2P 10K |
| 847 | R725 | 5130-R030J104 | RES, CBN 1/2P 100K |

| Ser. No. | Ref. No. | Part No. | Description |
|----------------------------|----------|---------------|-------------|
| INTEGRATED CIRCUITS | | | |
| 855 | IC701 | 5654-T7C2BF-1 | IC, DIGITAL |
| 856 | IC702 | 5653-LB1639 | IC, LINEAR |

| Ser. No. | Ref. No. | Part No. | Description |
|--------------------|----------|---------------|---|
| TRANSISTORS | | | |
| 850 | Q701 | 5613-R01D1000 | XISTOR, NPN R, RN1211 or DTC114TS or UN4215 |
| 857 | Q702 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN411L |
| 857 | Q704 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN411L |

| Ser. No. | Ref. No. | Part No. | Description |
|----------|----------|---------------|---|
| 857 | Q705 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN411L |
| 857 | Q706 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN411L |
| 857 | Q707 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN411L |
| 857 | Q708 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN411L |
| 857 | Q709 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN411L |
| 858 | Q710 | 5611-R01D1010 | XISTOR, PNP R, RN2202 or DTA114ES or UN4111 |
| 859 | Q711 | 5613-1740S(S) | XISTOR, NPN R |
| 860 | Q712 | 5614-2012 | XISTOR, NPN A |

| Ser. No. | Ref. No. | Part No. | Description |
|---------------|----------|---------------|------------------|
| DIODES | | | |
| 832 | D702 | 5637-S2410E6A | LED, AUX |
| 831 | D704 | 5637-S2410E1A | LED, VIDEO |
| 831 | D705 | 5637-S2410E1A | LED, TUNER |
| 832 | D706 | 5637-S2410E6A | LED, CD |
| 833 | D707 | 5637-S2210S1 | LED, TAPE 2 MON |
| 832 | D708 | 5637-S2410E6A | LED, TAPE 1/COPY |
| 852 | D712 | 5631-1S2473 | DIODE, DET |
| 853 | D713 | 5635-HZ6A2L | DIODE, ZENER |
| 854 | D714 | 5635-HZ3B2 | DIODE, ZENER |

| Ser. No. | Ref. No. | Part No. | Description |
|----------------------|----------|---------------|------------------------------|
| MISCELLANEOUS | | | |
| 846 | CF701 | 5693-FC4004A4 | OSC, CER |
| 808 | CN702A | 4443-05401013 | CONNECTOR, 13 PIN |
| 807 | CN703 | 4443-0201140 | CONNECTOR, 2 PIN |
| 791 | CW282 | 4163-S0206451 | CONNECTOR W/W, 6 PIN |
| 802 | JL701 | 4242-R0505141 | JUMPER LEAD, 5 WIRE |
| 870 | RCV701 | 6143-00804 | RECEIVER UNIT, REMOTE SENSOR |
| 818 | SW702 | 4437-01301 | SWITCH, PU-TC, AUX |
| 818 | SW704 | 4437-01301 | SWITCH, PU-TC, VIDEO |
| 818 | SW705 | 4437-01301 | SWITCH, PU-TC, CD |
| 818 | SW706 | 4437-01301 | SWITCH, PU-TC, TUNER |
| 818 | SW707 | 4437-01301 | SWITCH, PU-TC, TAPE 1/COPY |
| 818 | SW708 | 4437-01301 | SWITCH, PU-TC, TAPE 1 MON |
| 851 | W715 | 4122-00220550 | WIRE, LUG (Model: HK640) |
| 851 | W715 | 4122-00270550 | WIRE, LUG (Model: HK660) |
| 851 | W716 | 4122-00220550 | WIRE, LUG (Model: HK640) |
| 851 | W716 | 4122-00270550 | WIRE, LUG (Model: HK660) |
| 840 | | 4211-4 | LUG, (W715, 716) (x2) |
| 871 | | 2240-Z052 | HOLDER, H701 |

PCB-6 I/O P.C. BOARD (MODEL: HK640)

| Ser. No. | Ref. No. | Part No. | Description |
|-------------------|----------|---------------|-------------------------|
| CAPACITORS | | | |
| 733 | C5 | 5345-S25DM108 | CAP, MINI ELE 1000U/25V |
| 739 | C281 | 5345-476D041 | CAP, MINI ELE 47U/25V |
| RESISTORS | | | |
| 747 | R281 | 5130-R030J470 | RES, CBN 1/2P 47 |
| 748 | R282 | 5130-R030J392 | RES, CBN 1/2P 3.9K |
| 749 | R283 | 5130-R030J271 | RES, CBN 1/2P 270 |
| 750 | R284 | 5130-R030J473 | RES, CBN 1/2P 47K |
| 747 | R285 | 5130-R030J470 | RES, CBN 1/2P 47 |

| Ser. No. | Ref. No. | Part No. | Description |
|-------------------|----------|---------------|---|
| TRANSISTOR | | | |
| 744 | Q281 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN411L |

| Ser. No. | Ref. No. | Part No. | Description |
|---------------|----------|-------------|-------------|
| DIODES | | | |
| 734 | △ D1 | 5632-S5566B | DIODE, RECT |
| 734 | △ D2 | 5632-S5566B | DIODE, RECT |
| 734 | △ D3 | 5632-S5566B | DIODE, RECT |
| 734 | △ D4 | 5632-S5566B | DIODE, RECT |

| Ser. No. | Ref. No. | Part No. | Description |
|----------------------|----------|---------------|---------------------|
| MISCELLANEOUS | | | |
| 803 | CN281 | 4443-0201140 | CONNECTOR, 2 PIN |
| 804 | CN282 | 4443-0601140 | CONNECTOR, 6 PIN |
| 727 | △ F1 | 5732-01601202 | FUSE, T2A/T2AL 250V |

| Ser. No. | Ref. No. | Part No. | Description |
|----------|----------|---------------|---------------------------|
| 728 | △ F3 | 5732-01601311 | FUSE, T315mA/T315mAL 250V |
| 729 | △ HF1 | 4472-04901 | HOLDER, FUSE, F1 |
| 729 | △ HF2 | 4472-04901 | HOLDER, FUSE, F1 |
| 729 | △ HF5 | 4472-04901 | HOLDER, FUSE, F3 |
| 729 | △ HF6 | 4472-04901 | HOLDER, FUSE, F3 |
| 814 | J281 | 4451-00184 | JACK, 1P, REMOTE IN |
| 814 | J282 | 4451-00184 | JACK, 1P, REMOTE OUT |
| 788 | LCN101 | 4163-S5101150 | CONNECTOR W/W, 1 PIN |
| 789 | LCN102 | 4163-S5201150 | CONNECTOR W/W, 1 PIN |
| 743 | PH1 | 5624-PC817 | PHOTO COUPLR |
| 785 | △ TM3 | 4214-245 | TERMINAL |
| 785 | △ TM4 | 4214-245 | TERMINAL |

PCB-6 I/O P.C. BOARD (MODEL: HK660)

| CAPACITORS | | | |
|---------------|----------|---------------|---|
| 730 | △ C1 | 5352-1030958 | CAP, MTL .01U |
| 733 | C5 | 5345-S25DM108 | CAP, MINI ELE 1000U/25V |
| 739 | C281 | 5345-476D041 | CAP, MINI ELE 47U/25V |
| 740 | C282 | 5354-104593 | CAP, MYL .1U |
| RESISTORS | | | |
| 732 | △ R201 | 5130-R030J335 | RES, CBN 1/2P 3.3M |
| 747 | R281 | 5130-R030J470 | RES, CBN 1/2P 47 |
| 748 | R282 | 5130-R030J392 | RES, CBN 1/2P 3.9K |
| 749 | R283 | 5130-R030J271 | RES, CBN 1/2P 270 |
| 750 | R284 | 5130-R030J473 | RES, CBN 1/2P 47K |
| 747 | R285 | 5130-R030J470 | RES, CBN 1/2P 47 |
| 751 | R286 | 5130-R030J102 | RES, CBN 1/2P 1K |
| TRANSISTORS | | | |
| 744 | Q281 | 5611-R01D0505 | XISTOR, PNP R, RN2201 or DTA143ES or UN4215 |
| 745 | Q282 | 5613-3246(H) | XISTOR, NPN R |
| DIODES | | | |
| 734 | △ D1 | 5632-S5566B | DIODE, RECT |
| 734 | △ D2 | 5632-S5566B | DIODE, RECT |
| 734 | △ D3 | 5632-S5566B | DIODE, RECT |
| 734 | △ D4 | 5632-S5566B | DIODE, RECT |
| 734 | △ D5 | 5632-S5566B | DIODE, RECT |
| 734 | △ D6 | 5632-S5566B | DIODE, RECT |
| 734 | △ D7 | 5632-S5566B | DIODE, RECT |
| 734 | △ D8 | 5632-S5566B | DIODE, RECT |
| 741 | D281 | 5631-1S2473 | DIODE, DET |
| MISCELLANEOUS | | | |
| 736 | △ BT1 | 5584-T1101 | XFORMER, SUB POWER |
| 803 | CN281 | 4443-0201140 | CONNECTOR, 2 PIN |
| 804 | CN282 | 4443-0601140 | CONNECTOR, 6 PIN |
| 727 | △ F1 | 5732-01601252 | FUSE, T2.5A/T2.5AL 250V |
| 726 | △ F2 | 5732-01601101 | FUSE, T100mA/T100mAL 250V |
| 728 | △ F3 | 5732-01601311 | FUSE, T315mA/T315mAL 250V |
| 729 | △ HF1 | 4472-04901 | HOLDER, FUSE, F1 |
| 729 | △ HF2 | 4472-04901 | HOLDER, FUSE, F1 |
| 729 | △ HF3 | 4472-04901 | HOLDER, FUSE, F2 |
| 729 | △ HF4 | 4472-04901 | HOLDER, FUSE, F2 |
| 729 | △ HF5 | 4472-04901 | HOLDER, FUSE, F3 |
| 729 | △ HF6 | 4472-04901 | HOLDER, FUSE, F3 |
| 814 | J281 | 4451-00184 | JACK, 1P, REMOTE IN |
| 814 | J282 | 4451-00184 | JACK, 1P, REMOTE OUT |
| 788 | △ LCN101 | 4163-S4901170 | CONNECTOR W/W, 1 PIN |
| 789 | △ LCN102 | 4163-S5001170 | CONNECTOR W/W, 1 PIN |
| 743 | PH1 | 5624-PC817 | PHOTO COUPLR |
| 731 | △ RY1 | 4331-02601 | RELAY, DC |
| 785 | △ TM3 | 4214-245 | TERMINAL |
| 785 | △ TM4 | 4214-245 | TERMINAL |

| Ser. No. | Ref. No. | Part No. | Description |
|----------------------------|----------|---------------|-----------------------|
| PCB-7 POWER IND P.C. BOARD | | | |
| CAPACITORS | | | |
| 848 | C710 | 5345-S35CM106 | CAP, MINI ELE 10U/16V |
| 848 | C711 | 5345-S35CM106 | CAP, MINI ELE 10U/16V |
| DIODES | | | |
| 837 | D709 | 5637-S2410E1A | LED, POWER |
| 837 | D710 | 5637-S2410E1A | LED, POWER |
| MISCELLANEOUS | | | |
| 816 | SW701 | 4437-00704 | SWITCH, PU-TC, POWER |

PCB-8 VR IND P.C. BOARD

| CAPACITOR | | | |
|---------------|-------|---------------|-----------------------|
| 843 | C708 | 5345-S35CM106 | CAP, MINI ELE 10U/16V |
| DIODE | | | |
| 835 | D701 | 5637-SLR33MC3 | LED, VOLUME |
| MISCELLANEOUS | | | |
| 786 | CW703 | 4163-01524002 | CONNECTOR W/W, 2 PIN |

PCB-10 VR P.C. BOARD

| CAPACITOR | | | |
|---------------|-----------|---------------|--------------------------------------|
| 828 | C751 | 5354-104593 | CAP, MYL .1U |
| RESISTORS | | | |
| 830 | R501 | 5130-R030J152 | RES, CBN 1/2P 1.5K |
| 830 | R502 | 5130-R030J152 | RES, CBN 1/2P 1.5K |
| CONTROLS | | | |
| 826 | VR503/504 | 6161-00902 | VR BLOCK, 30K, VOLUME (MOTOR DRIVER) |
| MISCELLANEOUS | | | |
| 778 | CN502 | 4443-030185 | CONNECTOR, 3 PIN |
| 778 | CN503 | 4443-030185 | CONNECTOR, 3 PIN |
| 797 | CN704 | 4443-0201140 | CONNECTOR, 2 PIN |

CHASSIS MISCELLANEOUS

| MISCELLANEOUS | | | |
|---------------|-------|---------------|-------------------------------|
| 801 | JL702 | 4242-S0313251 | JUMPER LEAD, 13 WIRE |
| 811 | △ PG1 | 4161-09801192 | CORD W/PLUG |
| 723 | △ PT1 | 5584-T4403 | XFORMER, POWER (Model: HK640) |
| 723 | △ PT1 | 5584-T4504 | XFORMER, POWER (Model: HK660) |
| 924 | PCB-9 | 4551-10032050 | P.C. BOARD, PR |

PACKING PARTS LIST

| | | | |
|-----|---------------|---------------------------------|----------------|
| 021 | 1756-23601 | LABEL, (CH) LABEL, CARTON BOX | IB |
| 108 | 1111-1620J152 | OWNER GUIDE | |
| 116 | 1756-03108 | LABEL, (I) LABEL, CARTON | IB I |
| 116 | 1756-03101 | LABEL, (W) LABEL, CARTON | WB |
| 120 | 1241-R0160601 | POLYETHY BAG, SET | |
| 121 | 1241-R0123351 | POLYETHY BAG, IB | |
| 124 | 1221-867167 | CARTON BOX | (Model: HK640) |
| 124 | 1221-857167 | CARTON BOX | (Model: HK660) |
| 126 | 1222-7331 | CUSHION, L | |
| 127 | 1222-7332 | CUSHION, R | |
| 128 | 1223-R0420055 | SOFT SHEET, SET | |
| 909 | 6142-08101 | CONT BLOCK, REMOTE CONTROL | |
| 910 | 4191-0355 | BATTERY, DRY | |
| 911 | 4161-08201102 | CORD W/PLUG, REMOTE IN/OUT (x3) | |

ABBREVIATIONS IN PARTS LIST

CAPACITORS

CAP, MINI ELE : Electrolytic
CAP, CER : Ceramic
CAP, PPP : Polypropylene
CAP, MYL : Mylar
CAP, MCA : Mica
CAP, MINI BP : Bipolar
CAP, ELE BP : Electrolytic Bipolar
470U : 470 μ F
6800P : 6800pF
.047U : 0.047 μ F

RESISTORS

RES, CBN 1/6P : Carbon 1/6W
RES, FUSE : Fuse
RES, CEM 5P : Cement 5W
RES, MTL 1P : Metal 1W
2.2k : 2.2k Ω
220 : 220 Ω

TRANSISTORS

XISTOR : Transistor
FET : Field Effect Transistor

CONTROLS

RES, V CBN : Variable Carbon Resistor
RES, SEMI FIX : Semi-fixed Resistor

NOTE



SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

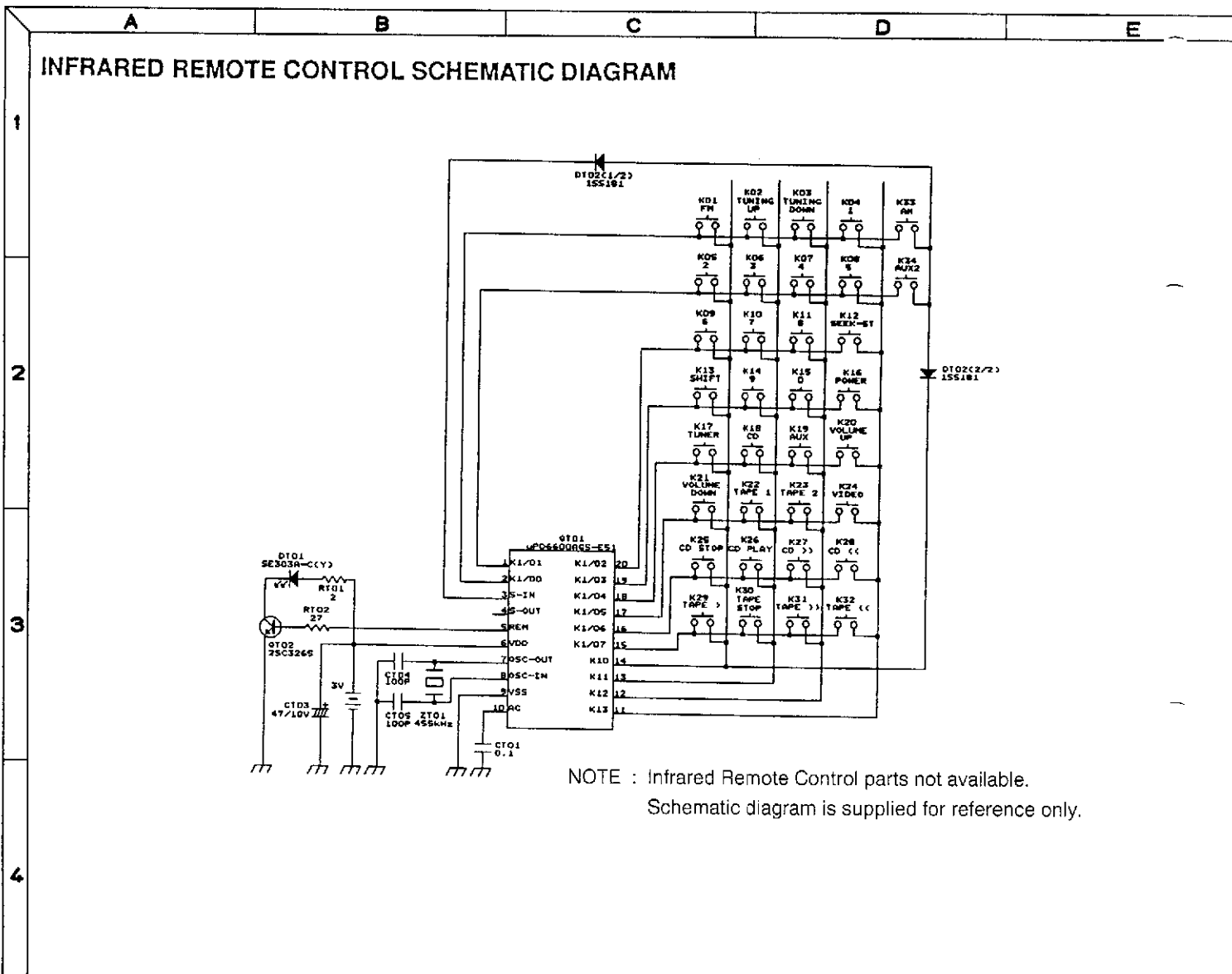
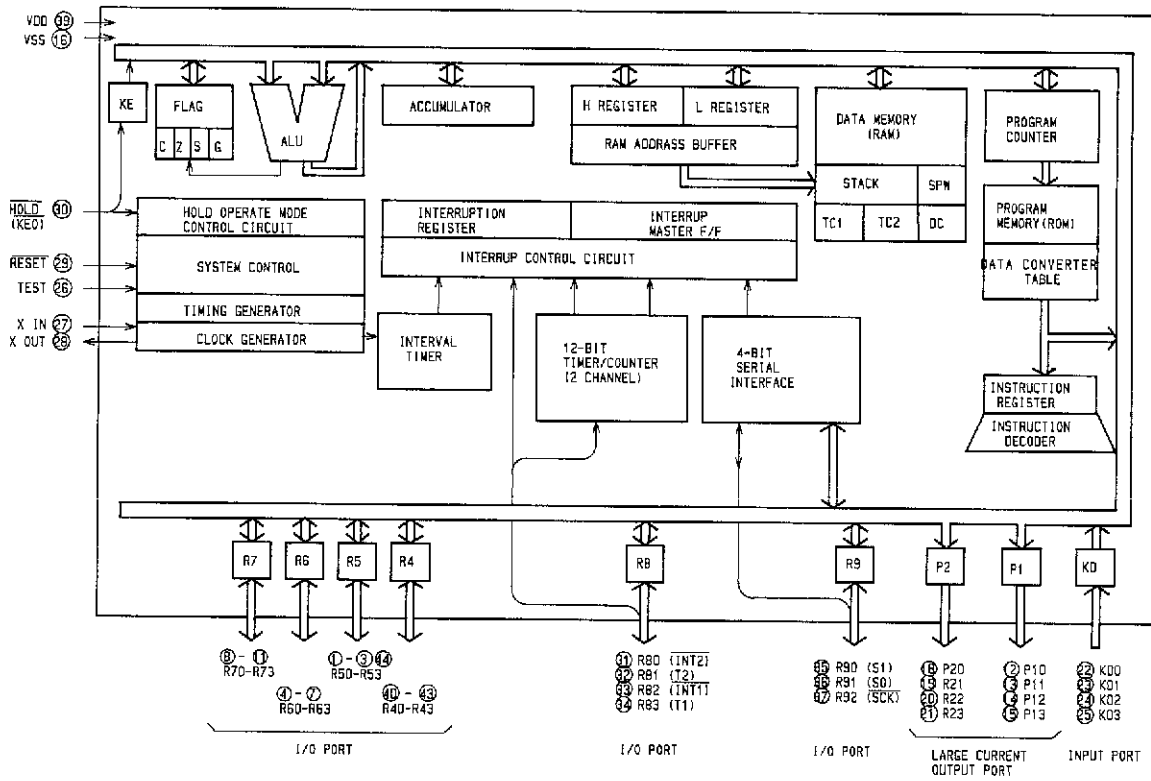
IC TERMINAL FUNCTION

IC701: TMP47C200BF

| Pin No. | Pin Name | I/O | Function |
|---------|-----------|-----|---|
| 1 | R51 | I/O | 4-bit w/latch input/output port |
| 2 | R52 | I/O | 4-bit w/latch input/output port |
| 3 | R53 | I/O | 4-bit w/latch input/output port |
| 4 | R60 | I/O | 4-bit w/latch input/output port |
| 5 | R61 | I/O | 4-bit w/latch input/output port |
| 6 | R62 | I/O | 4-bit w/latch input/output port |
| 7 | R63 | I/O | 4-bit w/latch input/output port |
| 8 | R70 | I/O | 4-bit w/latch input/output port |
| 9 | R71 | I/O | 4-bit w/latch input/output port |
| 10 | R72 | I/O | 4-bit w/latch input/output port |
| 11 | R73 | I/O | 4-bit w/latch input/output port |
| 12 | P10 | O | 4-bit w/latch output port |
| 13 | P11 | O | 4-bit w/latch output port |
| 14 | P12 | O | 4-bit w/latch output port |
| 15 | P13 | O | 4-bit w/latch output port |
| 16 | VSS | I | 0V (GND) |
| 17 | N.C. | - | Non connect |
| 18 | P20 | O | 4-bit w/latch output port |
| 19 | P21 | O | 4-bit w/latch output port |
| 20 | P22 | O | 4-bit w/latch output port |
| 21 | P23 | O | 4-bit w/latch output port |
| 22 | K00 | I | 4-bit input port |
| 23 | K01 | I | 4-bit input port |
| 24 | K02 | I | 4-bit input port |
| 25 | K03 | I | 4-bit input port |
| 26 | TEST | I | Test point terminal |
| 27 | XIN | I | Crystal oscillator input |
| 28 | XOUT | O | Crystal oscillator output |
| 29 | RESET | I | Reset signal input |
| 30 | HOLD(KEO) | I | Sens input |
| 31 | R80(INT2) | I/O | External interruption 2 input |
| 32 | R81(T2) | I/O | Timer/counter 2 input |
| 33 | R82(INT1) | I/O | External interruption 1 input |
| 34 | R83(T1) | I/O | 4-bit w/latch input/output, timer/counter input |
| 35 | R90(SI) | I | Serial data input |
| 36 | R91(SO) | O | Serial data output |
| 37 | R92(SCK) | I/O | Serial clock input/output |
| 38 | N.C. | - | Non connect |
| 39 | VDD | I | +5V Power supply |
| 40 | R40 | I/O | 4-bit input/output port |
| 41 | R41 | I/O | 4-bit input/output port |
| 42 | R42 | I/O | 4-bit input/output port |
| 43 | R43 | I/O | 4-bit input/output port |
| 44 | R50 | I/O | 4-bit input/output port |

IC BLOCK DIAGRAM

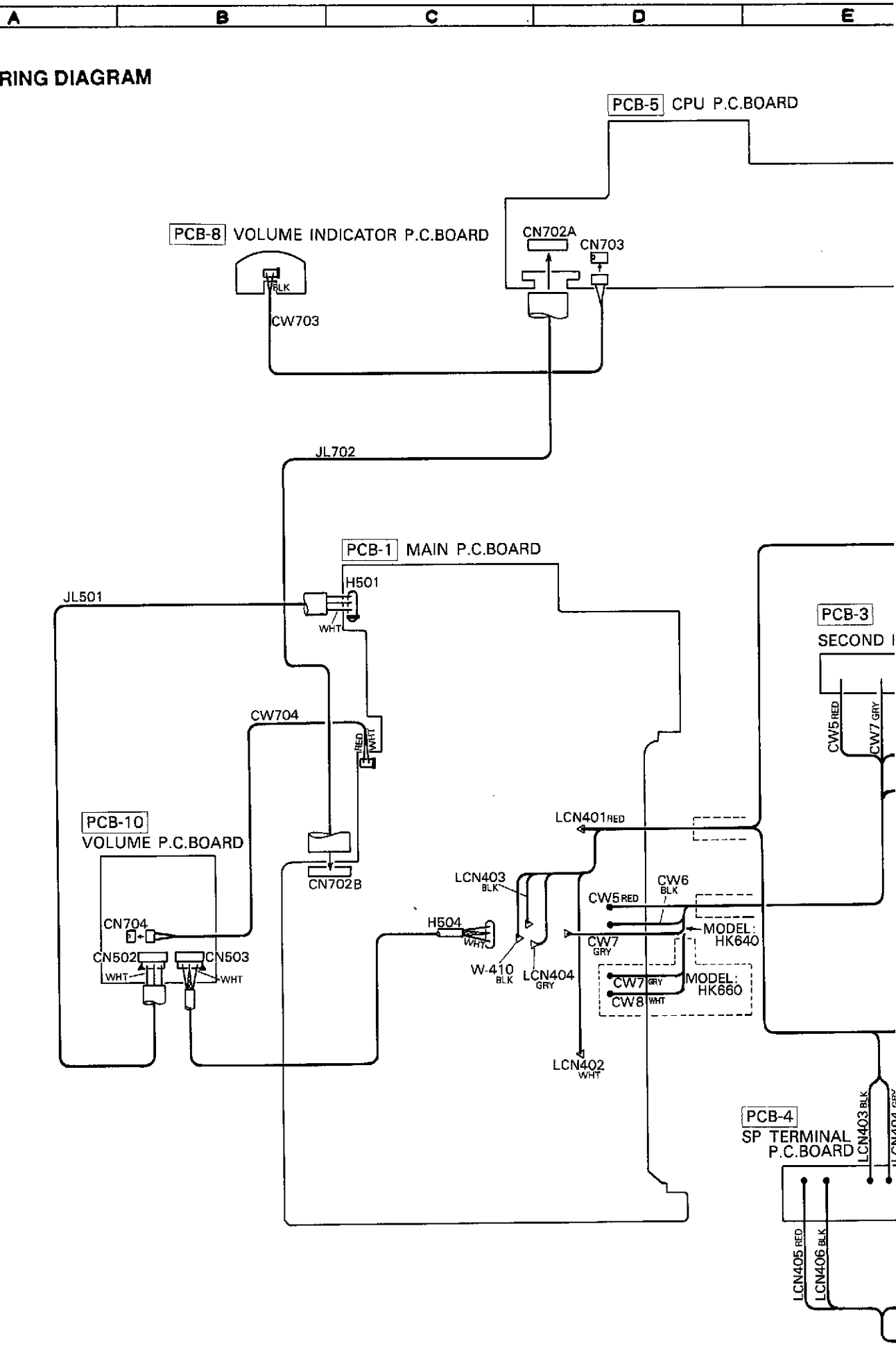
IC701: TMP47C200BF



NOTE : Infrared Remote Control parts not available.
Schematic diagram is supplied for reference only.

WIRING DIAGRAM

1
2
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7



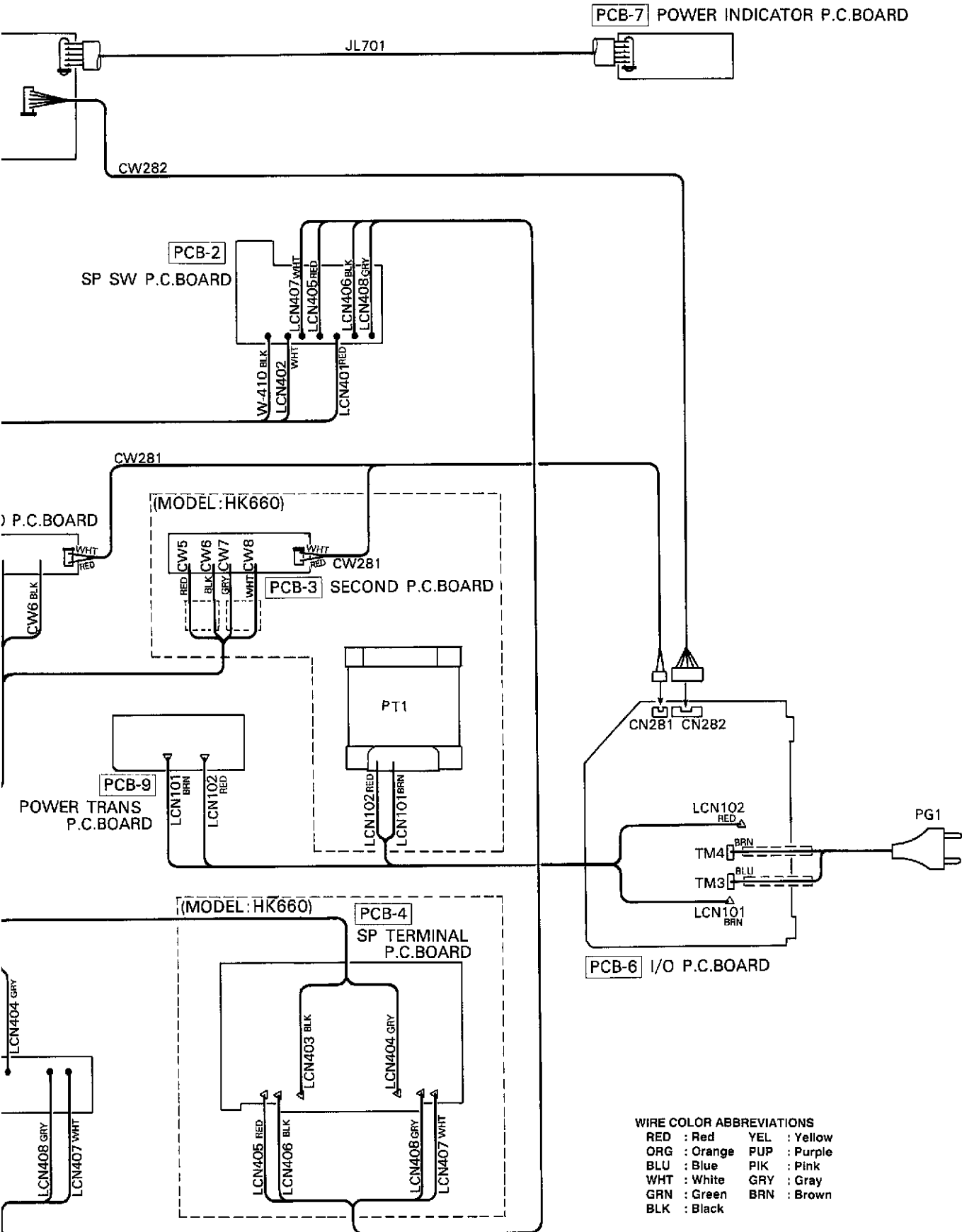
F

G

H

I

J



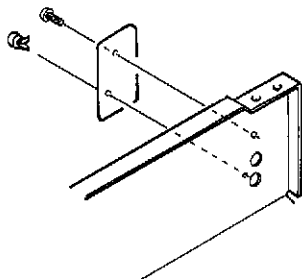
PH600 Phono PCB Option:

When this option is installed, MM or MC turntables can be connected to the RCA jacks on the Phono PCB. To use the Phono input, the function selector switch on the front panel must be set to the AUX position. Please note that when the Phono PCB option is installed, signal wires shall not be connected to the AUX RCA connectors. Signal applied to the AUX input with the Phono option installed, will be attenuated and may be distorted. Installation of Optional Phono PCB (PH600):

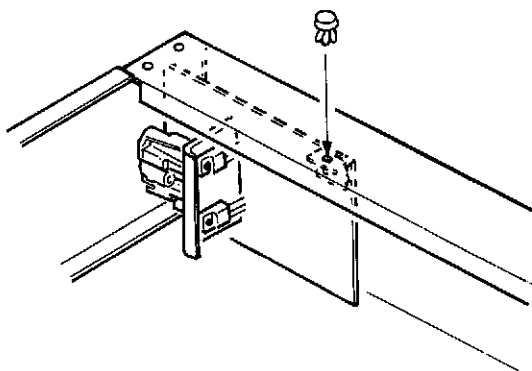
(Please re-print the information from information sheet you already prepared.)

HOW TO INSTALL

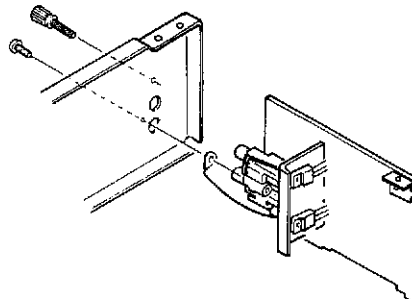
- ① Remove 6 screws and then remove the Top Cover.
- ② Remove a screw and a rivet and then remove the plate.



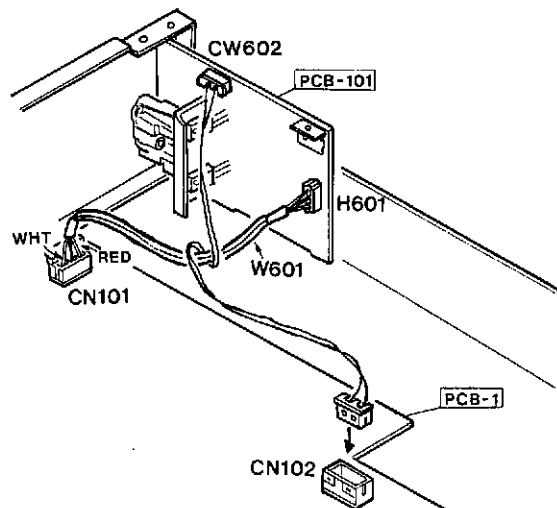
- ③ Secure PH600 with a rivet removed from the plate.



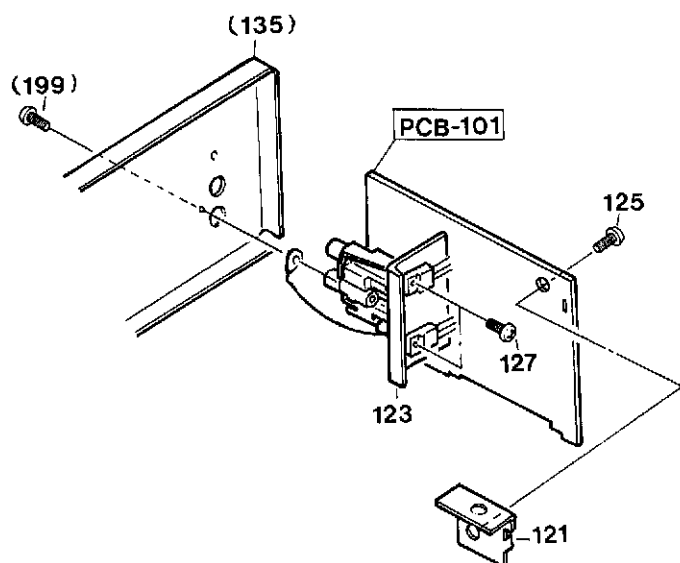
- ④ Secure the screw removed from the plate and the ground terminal screw (included).



- ⑤ Connect the 2 cables precisely as shown in the illustration.



GENERAL UNIT



GENERAL UNIT PARTS LIST

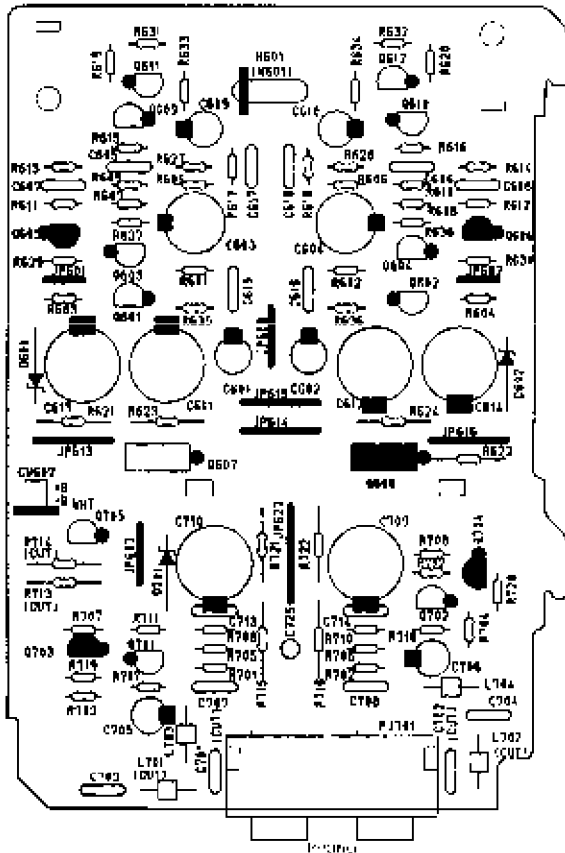
| Ser. No. | Ref. No. | Part No. | Description |
|----------|---------------|-----------------------------|-------------|
| 121 | 2219-8350 | METAL FITTING | |
| 123 | 2222-7179 | HEAT SINK | |
| 125 | 2347-R0130062 | SCREW, BND T+ (3×6 mm) | |
| 127 | 2347-R0130082 | SCREW, BND T+ (3×8 mm) (×2) | |

P.C. BOARD

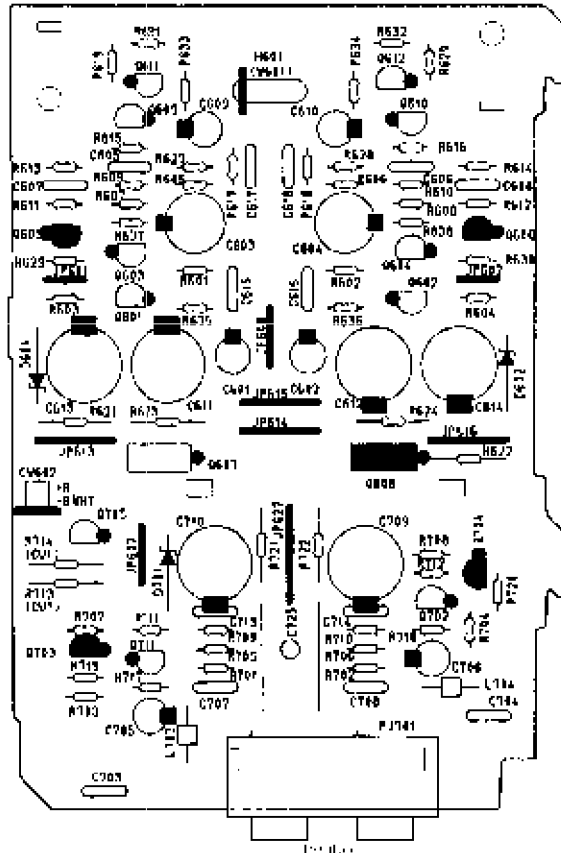
The PH600 is set at the factory as a high gain MC EQ amplifier. It can easily be converted to a MM EQ amplifier by making these changes:

1. Remove L701 and L702 (bare wires with ferrite beads).
2. Remove C701 and C702 (0.022 μ F capacitors, marked 223J).
3. Remove R715 and R716 (1k Ω resistors), and
4. Add 2 jumper wires (JP) along the dotted lines on the circuit board (near the location of R715 and R716).

PCB-101 MC VERSION (Factory setting)

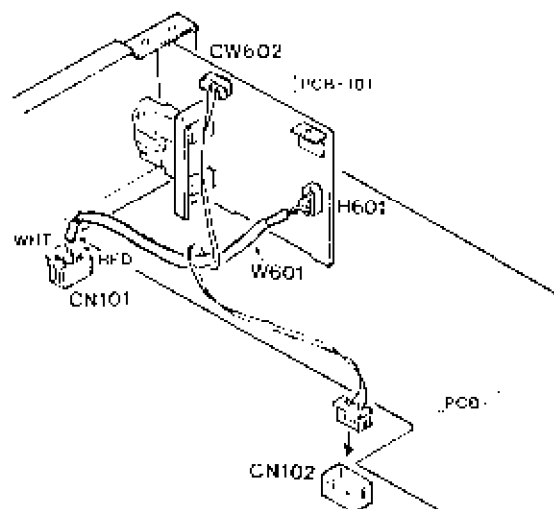


PCB-101 MM VERSION



- C701, L702 —————> Delete
 C703, C702 —————> Delete
 R715, R716 —·····> Delete
 Add 2 jumper wires (JP) along dotted lines

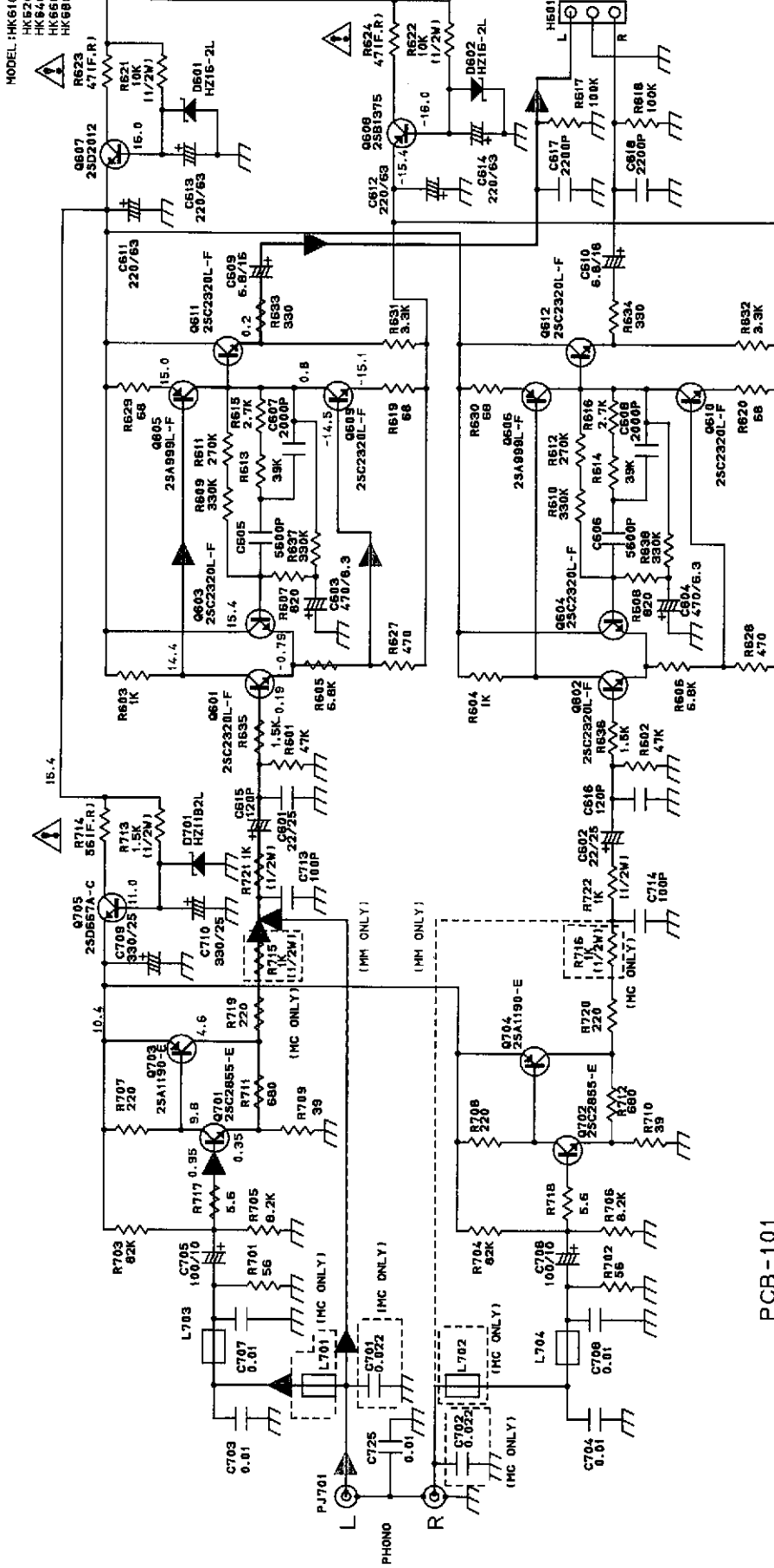
WIRING DIAGRAM



SCHEMATIC DIAGRAM

MODEL: HK610 -36.5V
 HK520 -36.4V
 HK840 -43.5V
 HK660 -46.5V
 HK680 -51.7V
 CV802

MODEL: HK610 -36.5V
 HK520 -36.4V
 HK840 -43.5V
 HK660 -46.5V
 HK680 -51.7V



PCB-101
PHONO P.C. BOARD

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and 18

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ELECTRICAL PARTS LIST

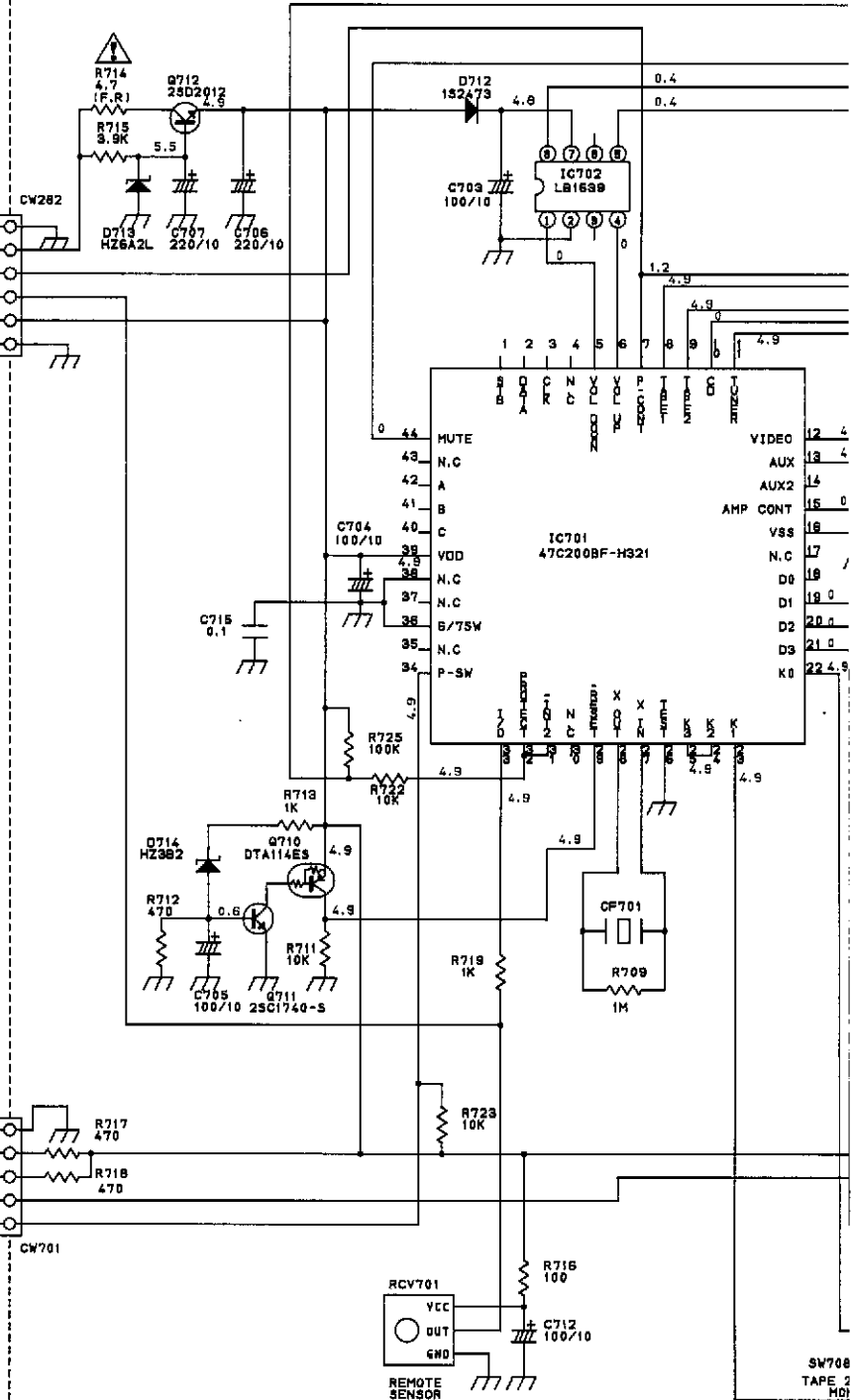
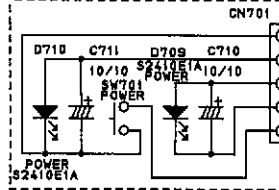
| Ser. No. | Ref. No. | Part No. | Description | Ser. No. | Ref. No. | Part No. | Description |
|---------------------------------|----------|---------------|-------------------------|--------------------------------|----------|---------------|-----------------------------|
| PCB 101 PHONO P.C. BOARD | | | | | | | |
| CAPACITORS | | | | | | | |
| 400 | C601 | 5345-S29DM226 | CAP, MINI ELE 22U/25V | 417 | R638 | 5178-334381 | RES, MTL 1/6P 330K |
| 400 | C602 | 5345-S29DM226 | CAP, MINI ELE 22U/25V | 450 | R701 | 5130-R010J560 | RES, CBN 1/6P 56 |
| 401 | C603 | 5345-S29AD477 | CAP, MINI ELE 470U/6.3V | 450 | R702 | 5130-R010J560 | RES, CBN 1/6P 56 |
| 401 | C604 | 5345-S29AD477 | CAP, MINI ELE 470U/6.3V | 456 | R703 | 5130-R010J823 | RES, CBN 1/6P 82K |
| 402 | C605 | 5359-5625851 | CAP, PPP 5600P | 456 | R704 | 5130-R010J823 | RES, CBN 1/6P 82K |
| 402 | C606 | 5359-5625851 | CAP, PPP 5600P | 451 | R705 | 5130-R010J822 | RES, CBN 1/6P 8.2K |
| 403 | C607 | 5359-2025851 | CAP, PPP 2000P | 451 | R706 | 5130-R010J822 | RES, CBN 1/6P 8.2K |
| 403 | C608 | 5359-2025851 | CAP, PPP 2000P | 458 | R707 | 5130-R010J221 | RES, CBN 1/6P 220 |
| 404 | C609 | 5345-685C0951 | CAP, MINI ELE 6.8U/16V | 458 | R708 | 5130-R010J221 | RES, CBN 1/6P 220 |
| 404 | C610 | 5345-685C0951 | CAP, MINI ELE 6.8U/16V | 452 | R709 | 5178-390381 | RES, MTL 1/6P 39 |
| 405 | C611 | 5345-S25GM227 | CAP, MINI ELE 220U/63V | 452 | R710 | 5178-390381 | RES, MTL 1/6P 39 |
| 405 | C612 | 5345-S25GM227 | CAP, MINI ELE 220U/63V | 453 | R711 | 5178-681381 | RES, MTL 1/6P 680 |
| 405 | C613 | 5345-S25GM227 | CAP, MINI ELE 220U/63V | 453 | R712 | 5178-681381 | RES, MTL 1/6P 680 |
| 405 | C614 | 5345-S25GM227 | CAP, MINI ELE 220U/63V | 454 | R713 | 5130-R030J152 | RES, CBN 1/2P 1.5K |
| 406 | C615 | 5359-1215851 | CAP, PPP 120P | 457 | △ R714 | 5102-5604713 | RES, FUSE 56 |
| 406 | C616 | 5359-1215851 | CAP, PPP 120P | 459 | R715 | 5130-R030J102 | RES, CBN 1/2P 1K |
| 430 | C617 | 5359-2225851 | CAP, PPP 2200P | 459 | R716 | 5130-R030J102 | RES, CBN 1/2P 1K |
| 430 | C618 | 5359-2225851 | CAP, PPP 2200P | 440 | R717 | 5130-R010J5R6 | RES, CBN 1/6P 5.6 |
| 441 | C701 | 5359-S010J223 | CAP, PPP .022U | 440 | R718 | 5130-R010J5R6 | RES, CBN 1/6P 5.6 |
| 441 | C702 | 5359-S010J223 | CAP, PPP .022U | 458 | R719 | 5130-R010J221 | RES, CBN 1/6P 220 |
| 442 | C703 | 5359-S010J103 | CAP, PPP .01U | 458 | R720 | 5130-R010J221 | RES, CBN 1/6P 220 |
| 442 | C704 | 5359-S010J103 | CAP, PPP .01U | 459 | R721 | 5130-R030J102 | RES, CBN 1/2P 1K |
| 443 | C705 | 5345-S29BM107 | CAP, MINI ELE 100U/10V | 459 | R722 | 5130-R030J102 | RES, CBN 1/2P 1K |
| 443 | C706 | 5345-S29BM107 | CAP, MINI ELE 100U/10V | TRANSISTORS | | | |
| 442 | C707 | 5359-S010J103 | CAP, PPP .01U | 409 | Q601 | 5613-2320L(F) | XISTOR, NPN R |
| 442 | C708 | 5359-S010J103 | CAP, PPP .01U | 409 | Q602 | 5613-2320L(F) | XISTOR, NPN R |
| 444 | C709 | 5345-S25DM337 | CAP, MINI ELE 330U/25V | 409 | Q603 | 5613-2320L(F) | XISTOR, NPN R |
| 444 | C710 | 5345-S25DM337 | CAP, MINI ELE 330U/25V | 409 | Q604 | 5613-2320L(F) | XISTOR, NPN R |
| 438 | C713 | 5359-S010K101 | CAP, PPP 100P | 410 | Q605 | 5611-999L(F) | XISTOR, PNP R |
| 438 | C714 | 5359-S010K101 | CAP, PPP 100P | 410 | Q606 | 5611-999L(F) | XISTOR, PNP R |
| 439 | C725 | 5359-S010J103 | CAP, PPP .01U | 411 | Q607 | 5614-2012 | XISTOR, NPN A |
| RESISTORS | | | | | | | |
| 413 | R601 | 5130-R010J473 | RES, CBN 1/6P 47K | 412 | Q608 | 5612-1375 | XISTOR, PNP A |
| 413 | R602 | 5130-R010J473 | RES, CBN 1/6P 47K | 426 | Q609 | 5613-2320L(F) | XISTOR, NPN R |
| 414 | R603 | 5130-R010J102 | RES, CBN 1/6P 1K | 426 | Q610 | 5613-2320L(F) | XISTOR, NPN R |
| 414 | R604 | 5130-R010J102 | RES, CBN 1/6P 1K | 426 | Q611 | 5613-2320L(F) | XISTOR, NPN R |
| 415 | R605 | 5130-R010J682 | RES, CBN 1/6P 6.8K | 426 | Q612 | 5613-2320L(F) | XISTOR, NPN R |
| 415 | R606 | 5130-R010J682 | RES, CBN 1/6P 6.8K | 447 | Q701 | 5613-2855(E) | XISTOR, NPN R |
| 416 | R607 | 5178-821381 | RES, MTL 1/6P 820 | 447 | Q702 | 5613-2855(E) | XISTOR, NPN R |
| 416 | R608 | 5178-821381 | RES, MTL 1/6P 820 | 448 | Q703 | 5611-1190(E) | XISTOR, PNP R |
| 417 | R609 | 5178-334381 | RES, MTL 1/6P 330K | 448 | Q704 | 5611-1190(E) | XISTOR, PNP R |
| 417 | R610 | 5178-334381 | RES, MTL 1/6P 330K | 449 | Q705 | 5614-667A(C) | XISTOR, NPN A |
| 418 | R611 | 5178-274381 | RES, MTL 1/6P 270K | DIODES | | | |
| 418 | R612 | 5178-274381 | RES, MTL 1/6P 270K | 408 | D601 | 5635-HZ16-2L | DIODE, ZENER |
| 419 | R613 | 5178-393381 | RES, MTL 1/6P 39K | 408 | D602 | 5635-HZ16-2L | DIODE, ZENER |
| 419 | R614 | 5178-393381 | RES, MTL 1/6P 39K | 445 | D701 | 5635-HZ11B2L | DIODE, ZENER |
| 420 | R615 | 5178-272381 | RES, MTL 1/6P 2.7K | MISCELLANEOUS | | | |
| 420 | R616 | 5178-272381 | RES, MTL 1/6P 2.7K | 407 | CW602 | 4163-S0202201 | CONNECTOR W/W, 2 PIN |
| 421 | R617 | 5130-R010J104 | RES, CBN 1/6P 100K | 446 | PJ701 | 4489-04006002 | PIN JACK, MLT, PHONO |
| 421 | R618 | 5130-R010J104 | RES, CBN 1/6P 100K | 455 | L701 | 5597-3 | CORE, BEADS |
| 428 | R619 | 5130-R010J680 | RES, CBN 1/6P 68 | 455 | L702 | 5597-3 | CORE, BEADS |
| 428 | R620 | 5130-R010J680 | RES, CBN 1/6P 68 | 455 | L703 | 5597-3 | CORE, BEADS |
| 422 | R621 | 5130-R030J103 | RES, CBN 1/2P 10K | 455 | L704 | 5597-3 | CORE, BEADS |
| 422 | R622 | 5130-R030J103 | RES, CBN 1/2P 10K | 431 | W601 | 4142-00151241 | SHLD WIRE, 2C |
| 423 | △ R623 | 5102-4705116 | RES, FUSE 47 | 437 | | 4211-4 | LUG, C725 |
| 423 | △ R624 | 5102-4705116 | RES, FUSE 47 | 432 | | 2240-Z031 | HOLDER, H601(W601) |
| 429 | R627 | 5130-R010J471 | RES, CBN 1/6P 470 | CHASSIS MISCELLANEOUS | | | |
| 429 | R628 | 5130-R010J471 | RES, CBN 1/6P 470 | MISCELLANEOUS | | | |
| 428 | R629 | 5130-R010J680 | RES, CBN 1/6P 68 | 460 | | 4214-168 | TERMINAL, GND |
| 428 | R630 | 5130-R010J680 | RES, CBN 1/6P 68 | PACKING UNIT PARTS LIST | | | |
| 427 | R631 | 5130-R010J332 | RES, CBN 1/6P 3.3K | MISCELLANEOUS | | | |
| 427 | R632 | 5130-R010J332 | RES, CBN 1/6P 3.3K | 107 | | 1111-1780J152 | OWNER GUIDE |
| 424 | R633 | 5130-R010J331 | RES, CBN 1/6P 330 | 109 | | 1231-00401 | GIFT BOX |
| 424 | R634 | 5130-R010J331 | RES, CBN 1/6P 330 | 113 | | 1241-00501 | POLYETHY BAG, SET |
| 433 | R635 | 5130-R010J152 | RES, CBN 1/6P 1.5K | 115 | | 1756-00307 | LABEL, OPTIONAL PHONO BOARD |
| 433 | R636 | 5130-R010J152 | RES, CBN 1/6P 1.5K | | | | |
| 417 | R637 | 5178-334381 | RES, MTL 1/6P 330K | | | | |

SCHEMATIC DIAGRAM (1)

PCB-5 CPU P.C. BOARD

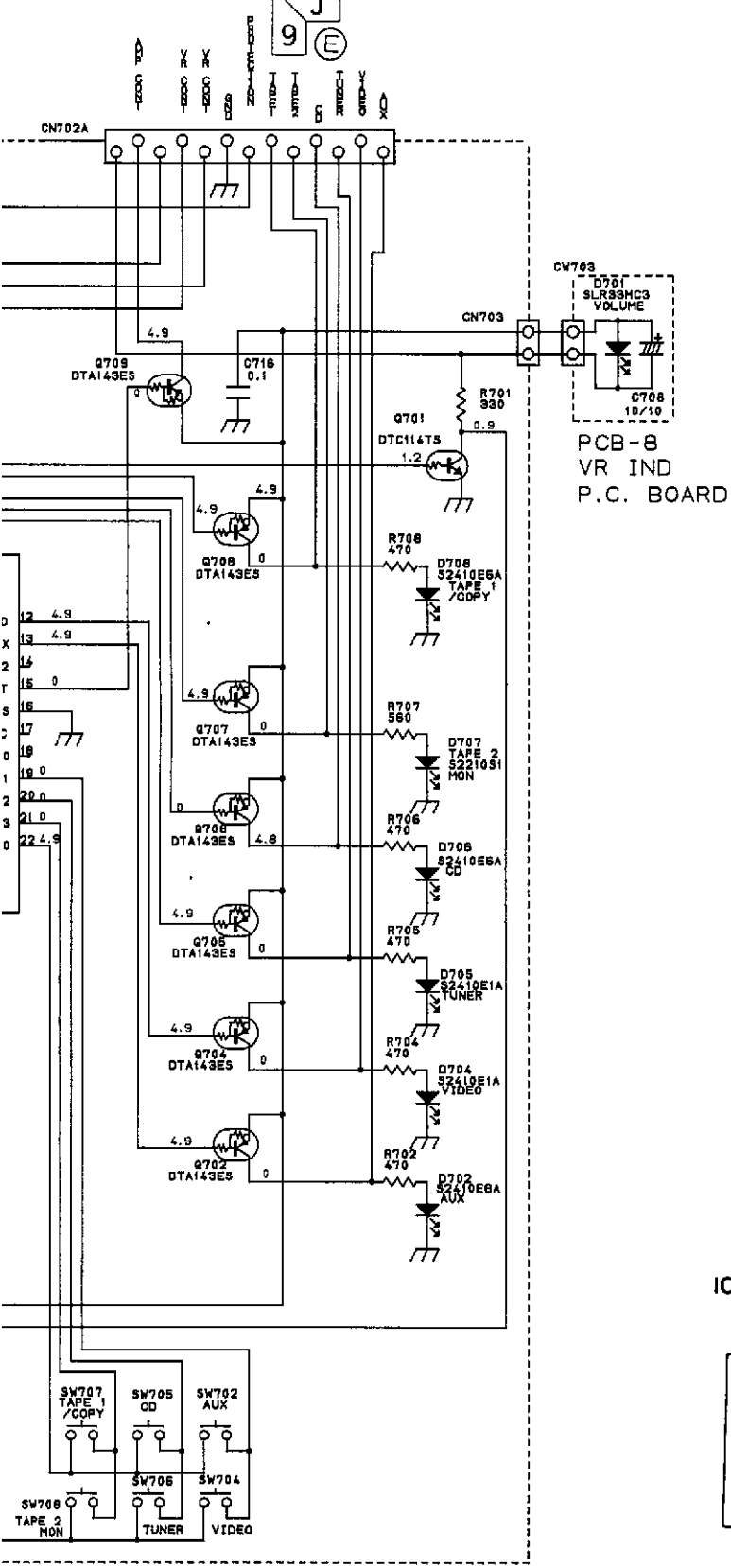
Page 17
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PCB-7
POWER IND
P.C. BOARD

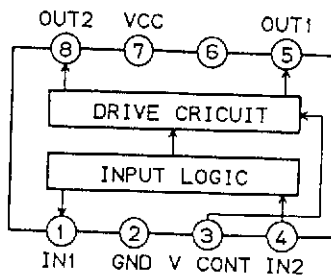


SW708
TAPE 2
Hd

Page 17 and 18



IC702: LB1639 Volume Motor Driver



SCHEMATIC DIAGRAM (2)

MODEL:HK640

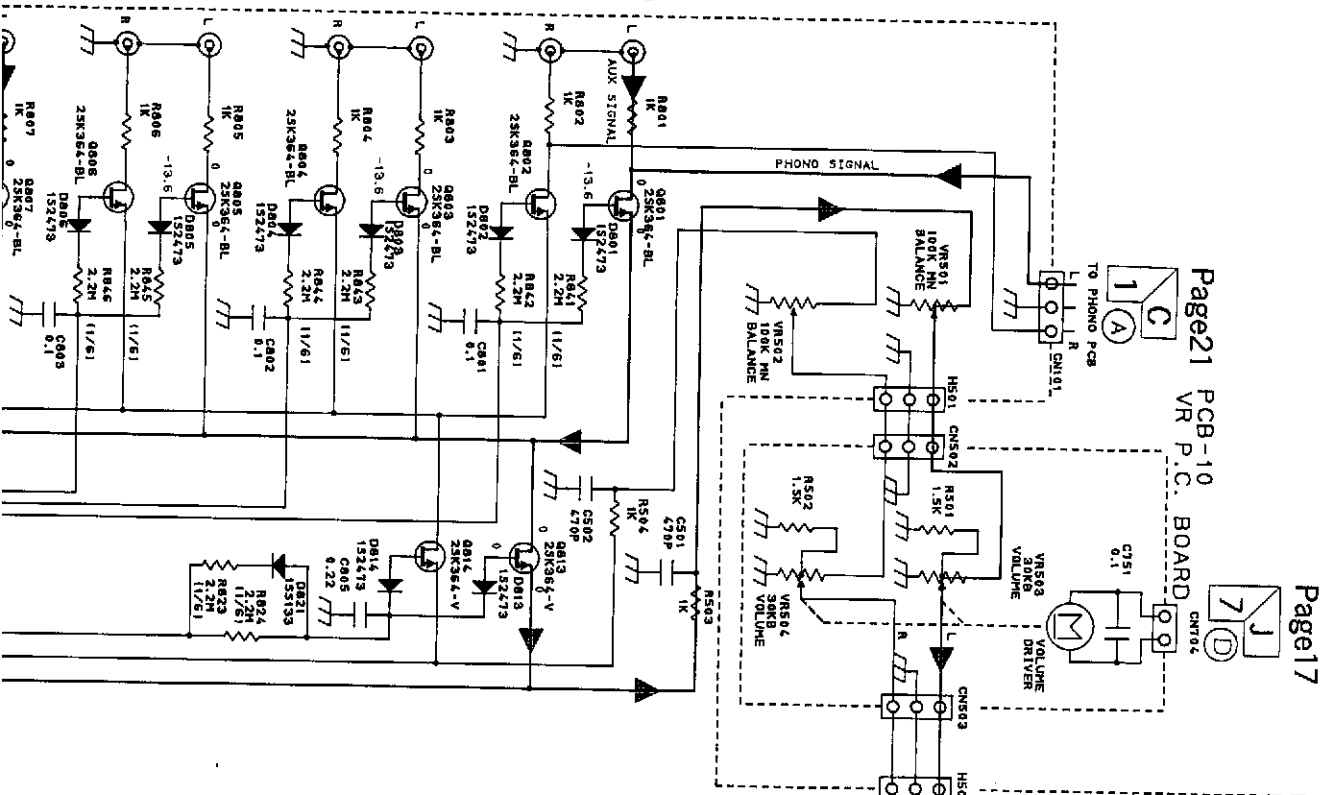
A B C D E F G

TUNER

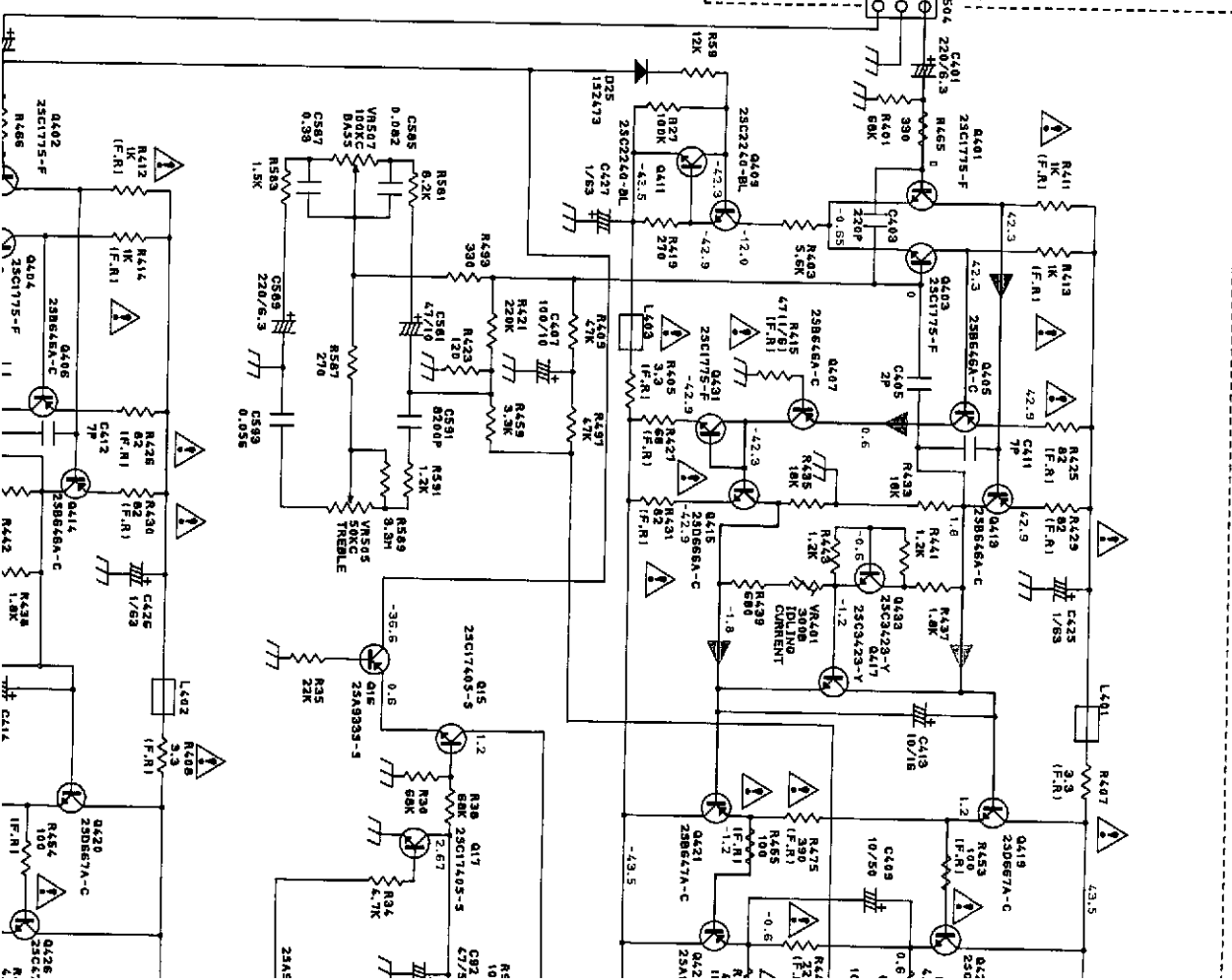
VIDEO

AUX

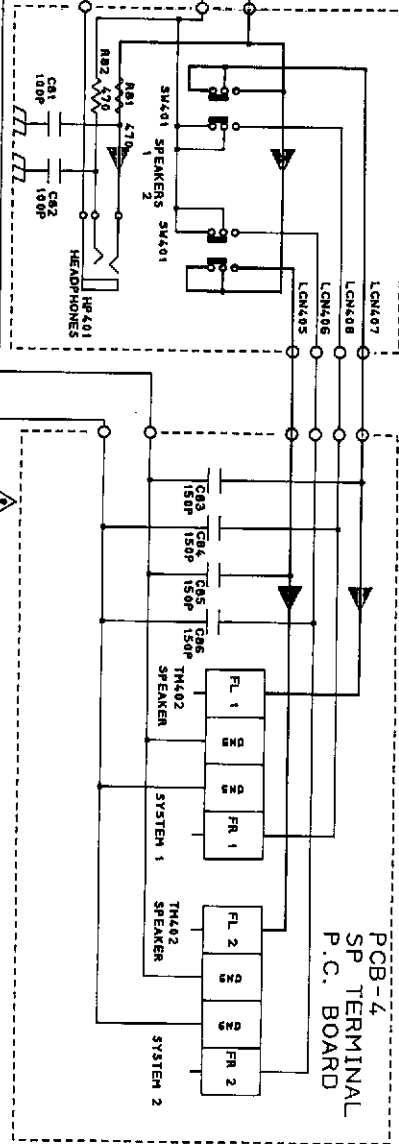
J1



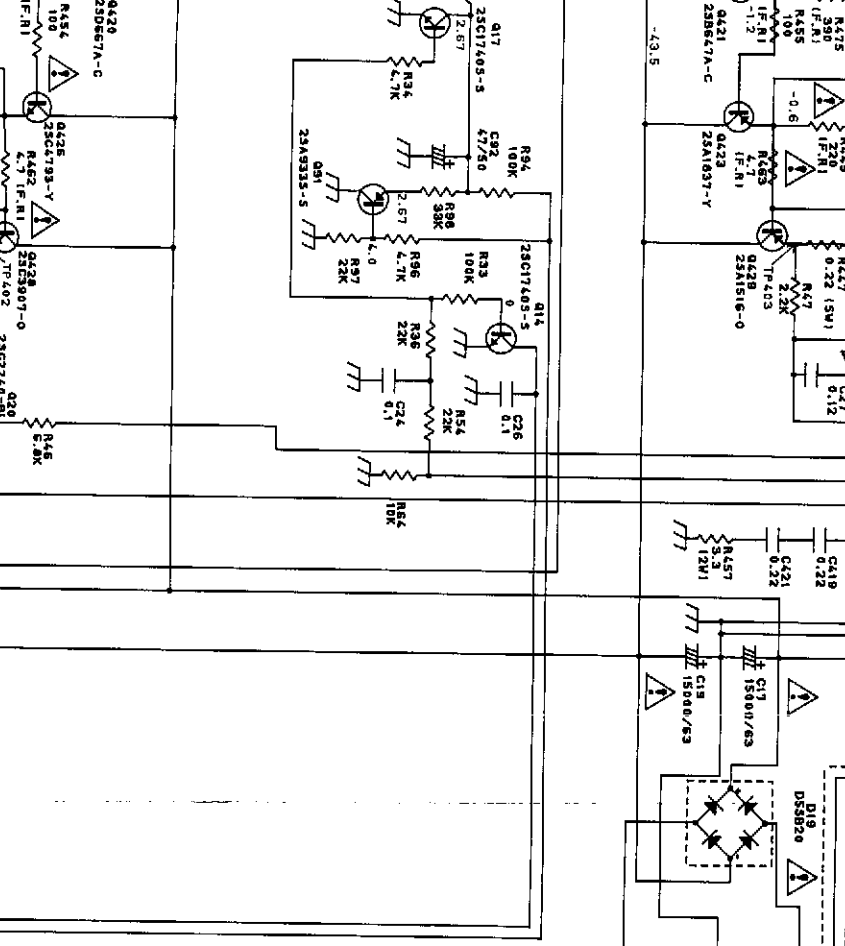
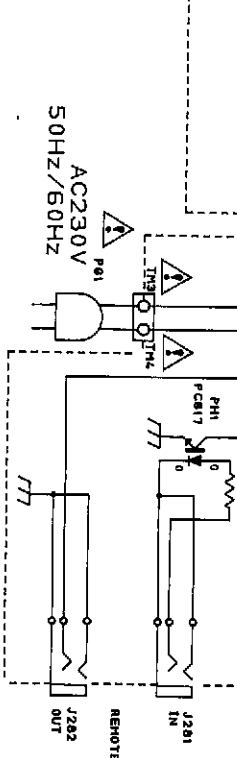
PCB-1
MAIN P.C. BOARD

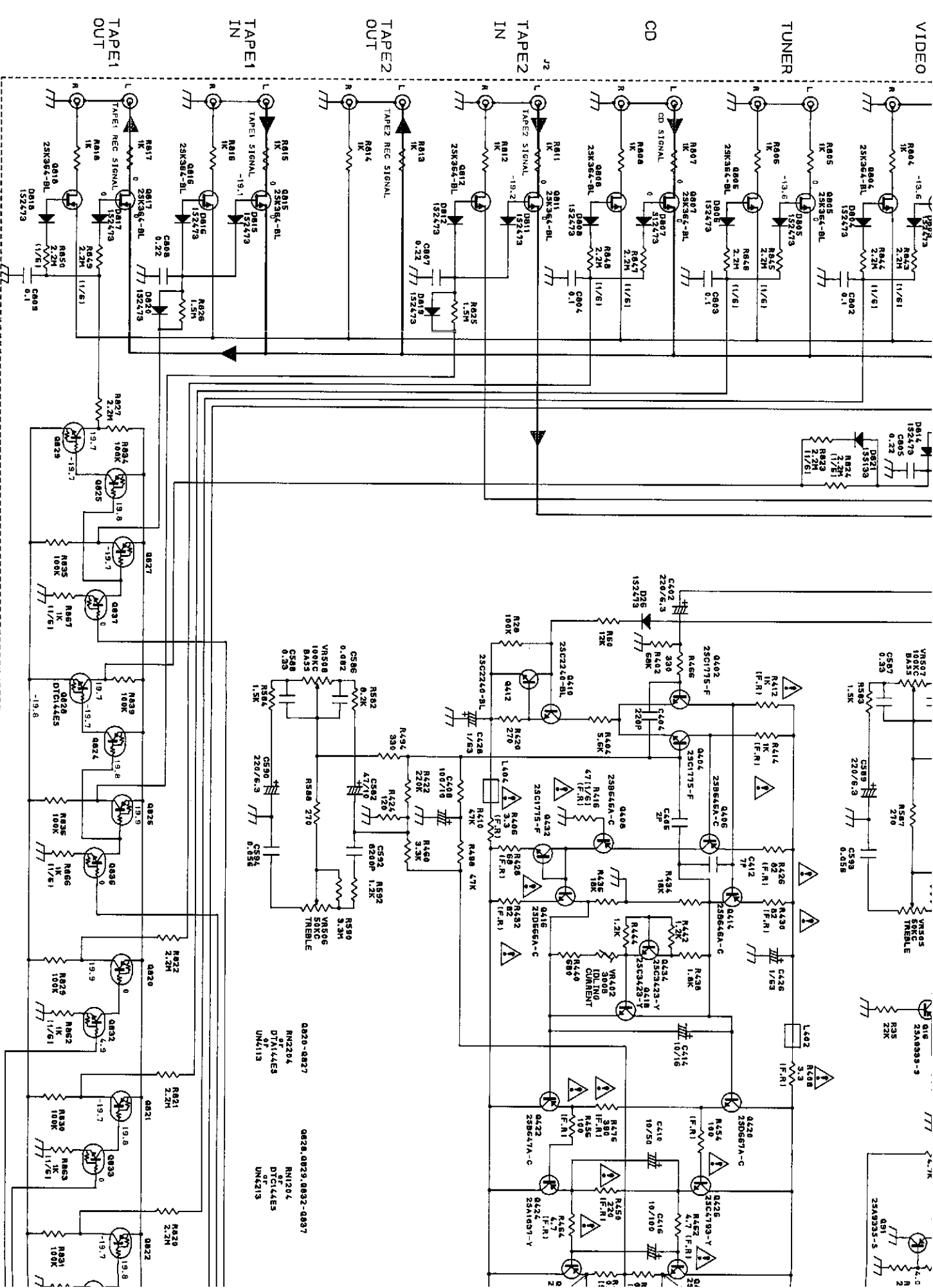


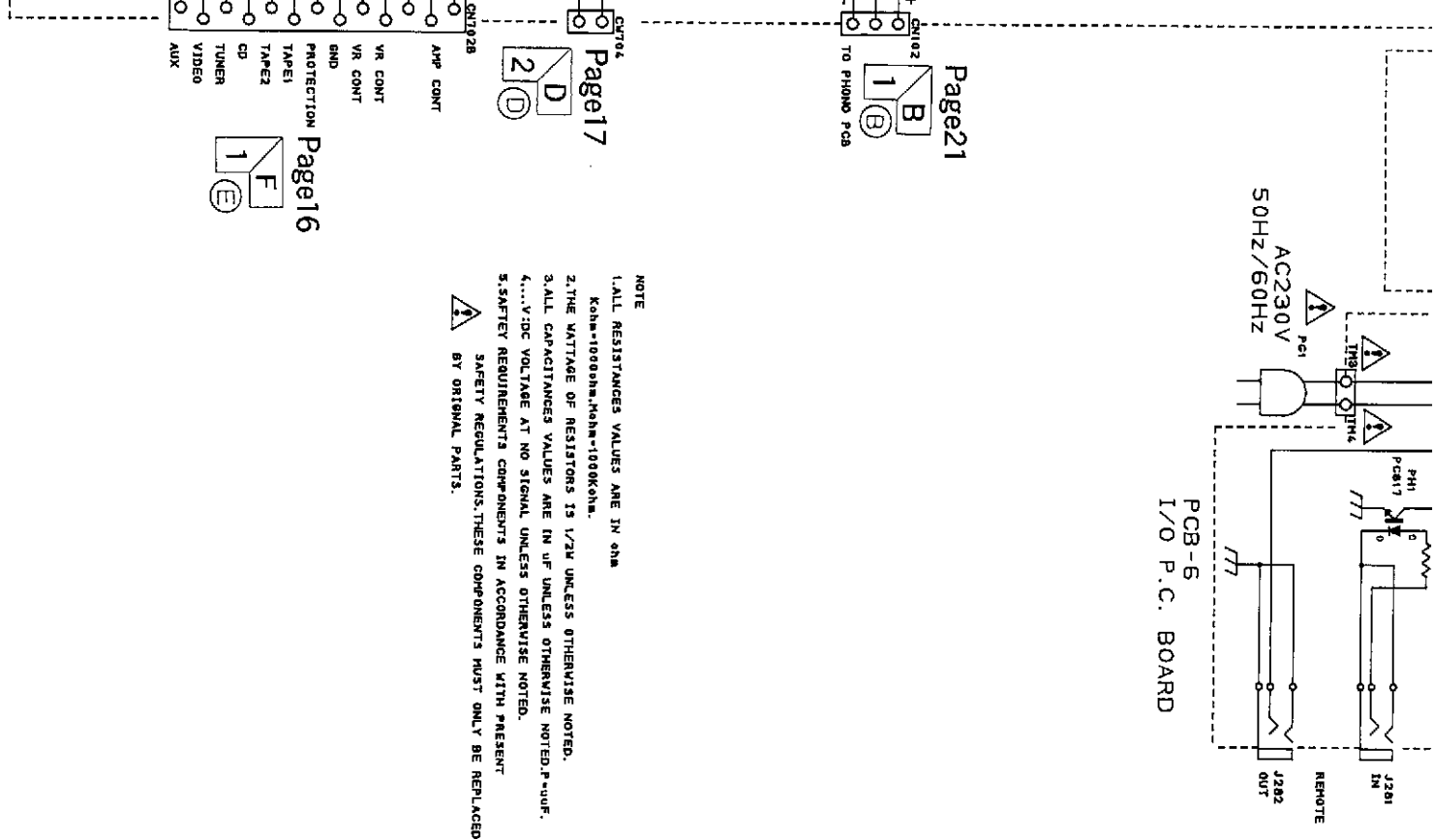
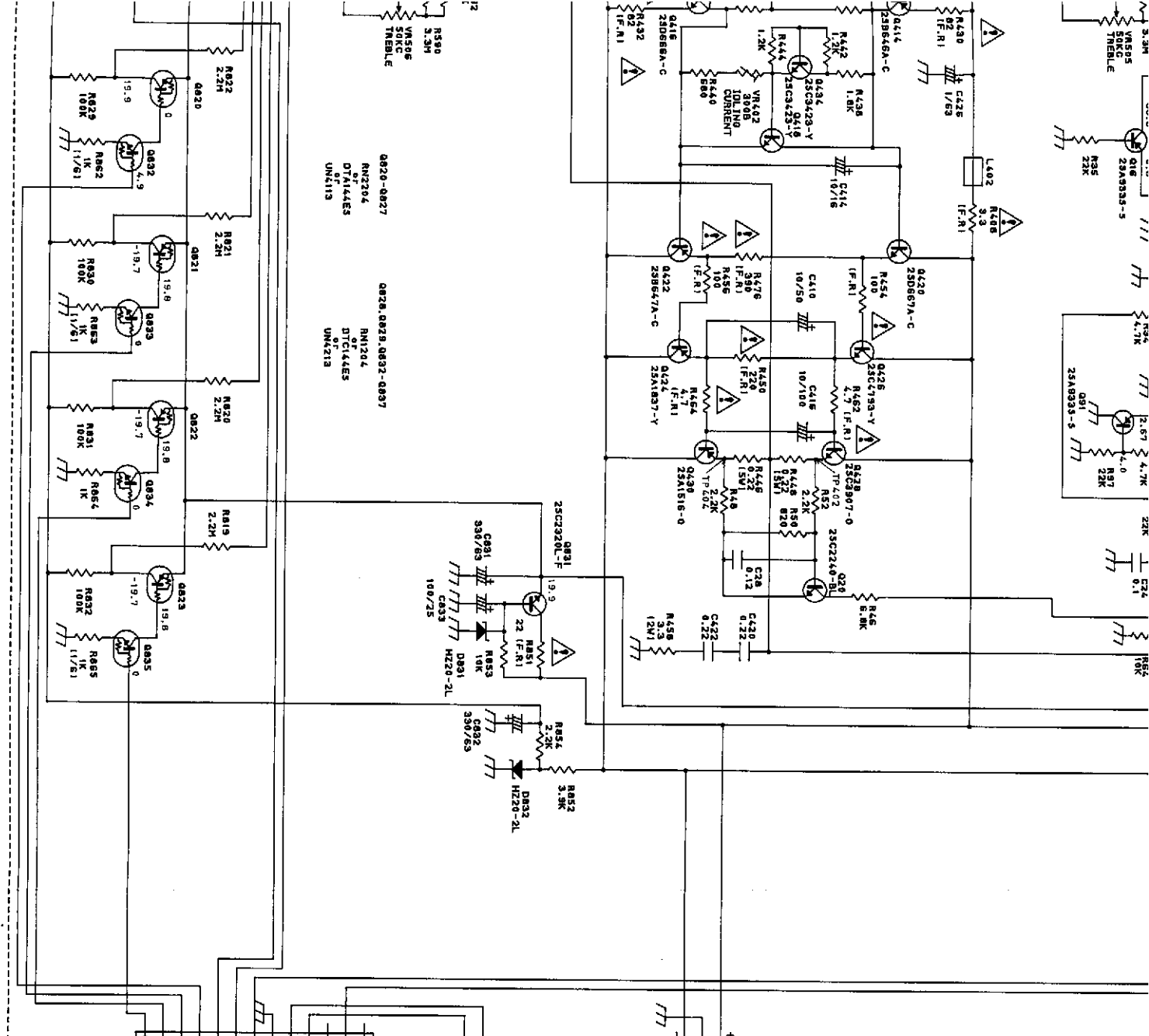
PCB-2
SP SW P.C. BOARD



PCB-3
SECOND
P.C. BOARD







NOTE

1. ALL RESISTANCE VALUES ARE IN Ω UNLESS OTHERWISE NOTED.
2. THE VOLTAGE OF RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCE VALUES ARE IN μ F UNLESS OTHERWISE NOTED.
4. VDC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

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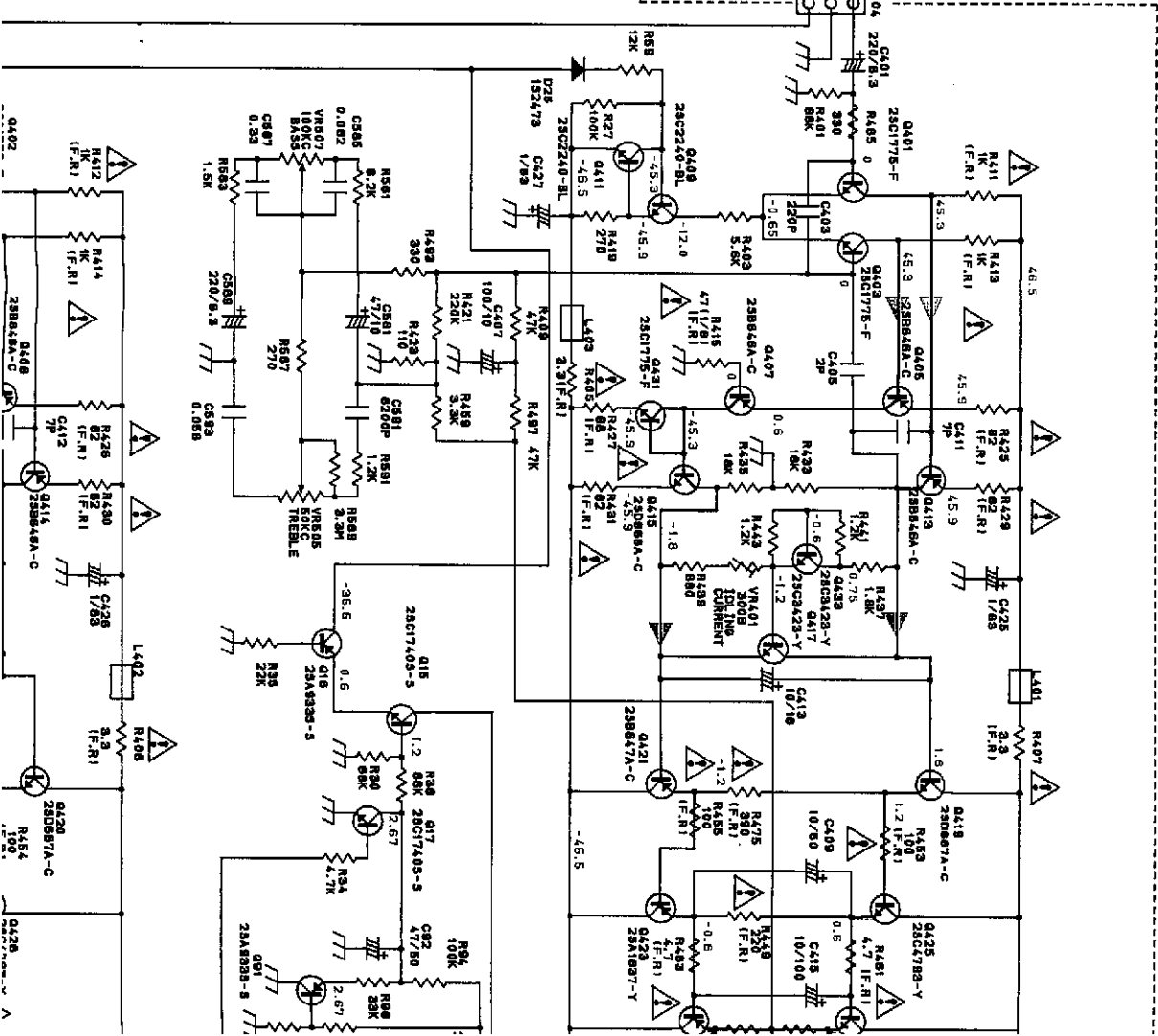
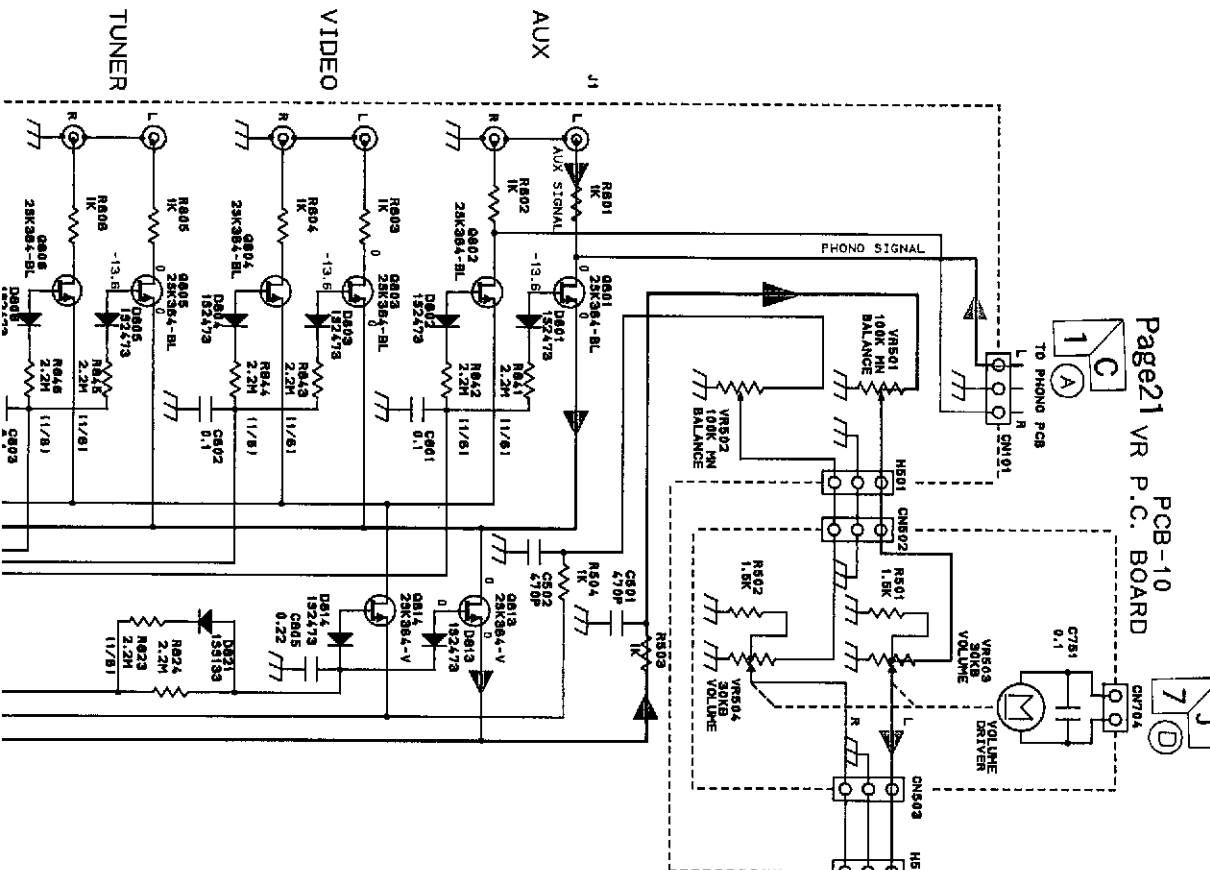
SCHEMATIC DIAGRAM (3)

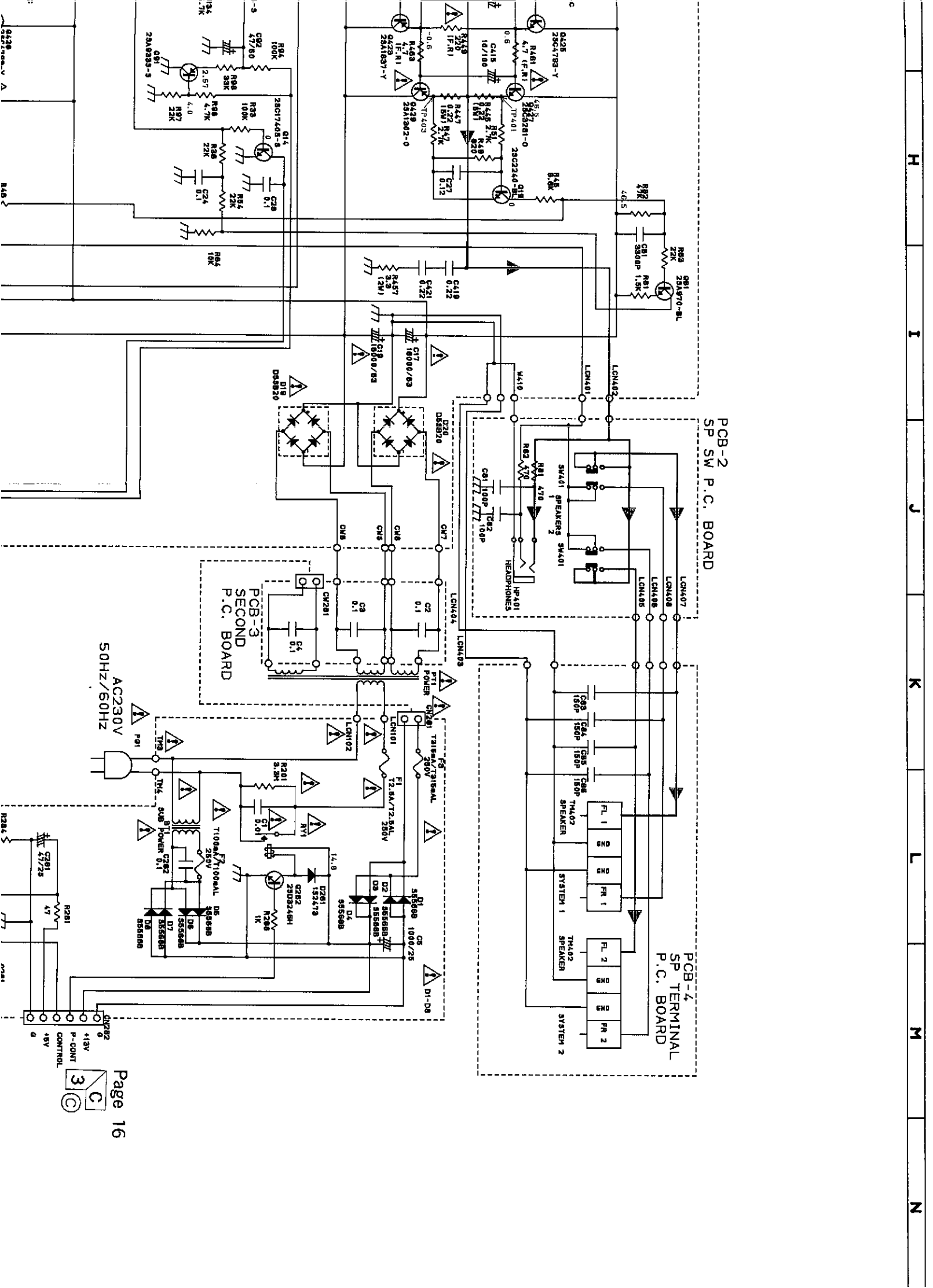
MODEL: HK660

PCB-1 MAIN P.C. BOARD

Page21 VR P.C. BOARD

Page17





PCB-2
SP SW P.C. BOARD

PCB-3
SECOND
P.C. BOARD

PCB-4
SP TERMINAL
P.C. BOARD

AC230V
50HZ/60HZ



