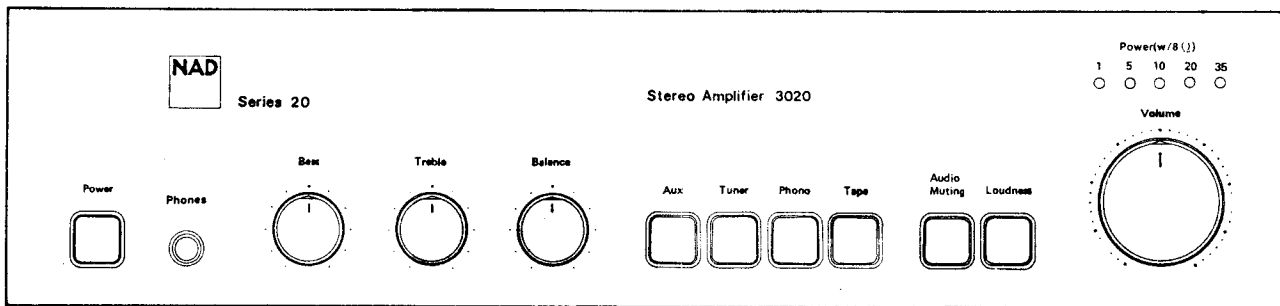


SERVICE MANUAL

NAD MODEL 3020

STEREO AMPLIFIER

STARTING AT SERIAL NO : A3205011



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SPECIFICATION

3020 * measurements identified by an asterisk are taken in accordance with the new IHF A-202 amplifier measurement standard.

Power Amplifier Section

| | |
|--------------------------------------------------------------------------------------------|------------------|
| * Continuous average power output at 8 ohm 20-20K Hz both channel driven Rated distortion. | > 20W < 0.02% |
| * Clipping headroom at 8 ohm | +1.5dB |
| Clipping power at 8 ohm /4 ohm /2 ohm | 28W/37W/42W |
| Dynamic headroom at 8 ohm | +2.9dB |
| Dynamic power at 8 ohm /4 ohm /2 ohm | 39W/58W/72W |
| * Reactive load rating | +1.7dB |
| * Transient Overload Recovery Time | < 1uSec |
| * Slew Factor | > 50 |
| Slew Rate | 15V/usec |
| Damping factor at 50 Hz (Ref. 8 ohm) | > 55 |
| T.H.D 20-20K Hz From 250mV to 20W | < 0.02% |
| S.M.P.T.E I.M.D(60Hz + 7K Hz, 4:1) From 250mW to 20W | < 0.02% |
| I.H.F I.M.D (19K Hz + 20K Hz) at 20W | < 0.02% |
| T.I.M (15K Hz Sine + 3.18K Hz Square Wave) at 20W | < 0.02% |
| Frequency Response, 20–20K Hz (From Lab. IN) | ± 0.5 dB |
| Frequency Response Range± 3 dB | 10–70K Hz |

Preamplifier Section

| | |
|--------------------------------------------------------|---------------|
| * Input Impedance Resistance/Capacitance | 47K Ω/47pF |
| Input Sensitivity (1K Hz) * For 1 Watt out/20 Watt out | 0.5mV/2.5mV |
| Input Overload at 20Hz/1K Hz/20K Hz | 27mV/270mV/2V |
| T.H.D (20–20K Hz) and IMD at + 30 dBinput level | < 0.02 % |
| RIAA Response Accuracy | ± 0.3 dB |
| Signal to Noise Ratio A Weighted | |
| (a) With phono cartridge connected Ref 10mV/*Ref 5mV | 80 dB/75 dB |
| (b) With short-circuit input Ref 10mV | 84 dB |

High Level Input

| | |
|----------------------------------------------------|-------------|
| * Input impedance Resistance/Capacitance | 20K Ω/100pF |
| Input Sensitivity * For 1 Watt out/For 20 Watt out | 30mV/150mV |
| Signal to Noise Ratio, A–Weighted * Ref 1 Watt out | > 80 dB |
| Ref 20 Watt out | > 110 dB |
| * Maximum input signal | Infinite |
| Frequency Response, 20–20K Hz | ± 0.5 dB |

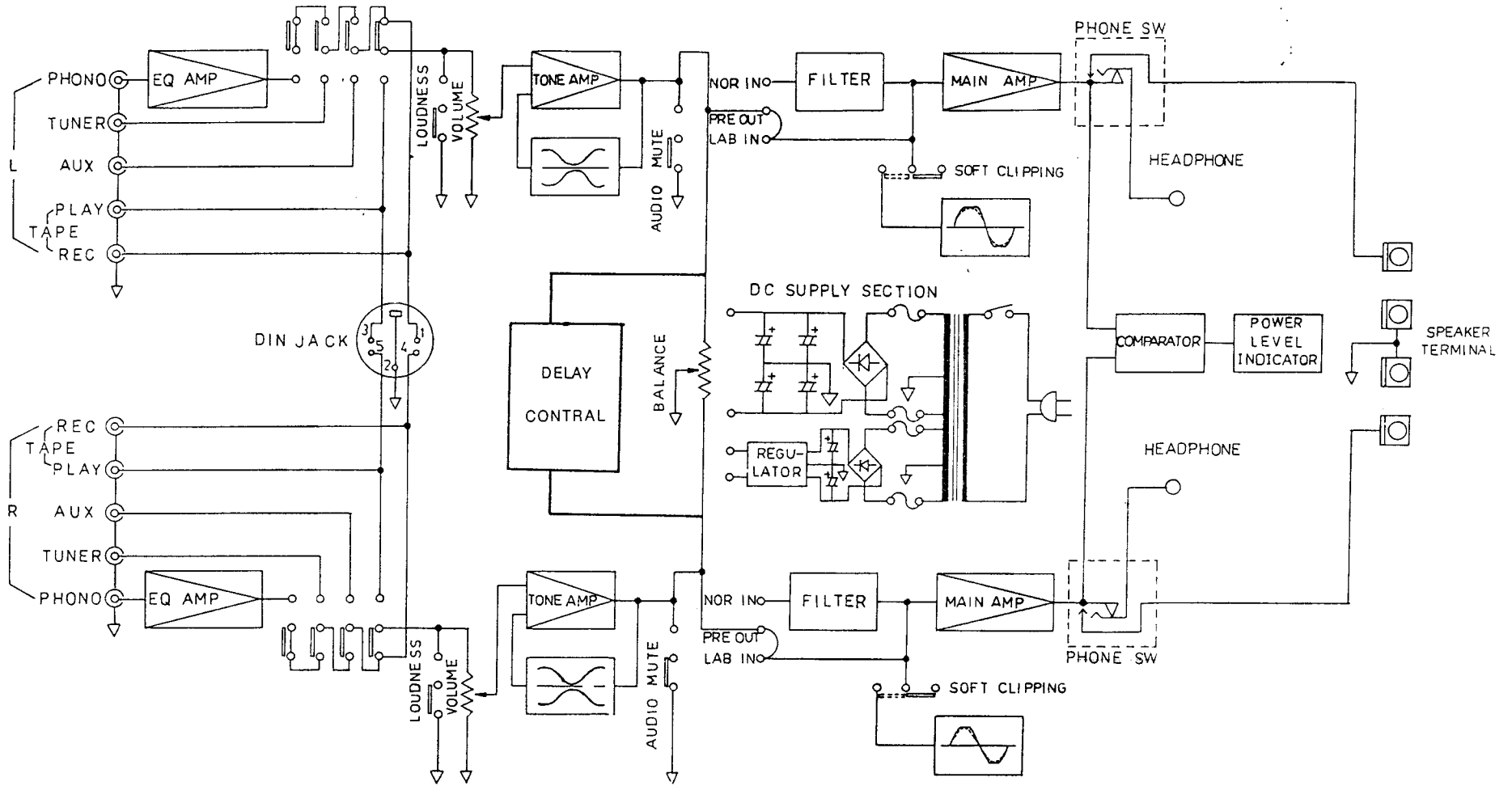
Controls

| | |
|--------------------------------------------------------|---------|
| Bass control range at 50 Hz | ± 10 dB |
| Treble control range at 10K Hz | ± 7 dB |
| Infrasonic filter Turn Over frequency (From Normal IN) | 15 Hz |
| Slope (dB/octave) | 12 |

Power Consumption

| | |
|---------------------------------------|------------|
| Weight | 150 VA |
| Dimension Height x Width x Depth (mm) | 5.26 Kg |
| | 96x420x240 |

BLOCK DIAGRAM



3020

ALIGNMENT PROCEDURE & INSIDE VIEW

IDLE CURRENT ALIGNMENT

1. 5 Minutes minimum pre-heating is necessary.
2. Set the volume control at minimum position.
3. Connect DC milli-voltmeter across R654 for right channel and across R653 for left channel. The meter sensitivity should be set for 30–100mV full scale deflection.
4. RX2 (right channel) and RX1 (left channel). insert 560 ohm carbon resistor to connect in parallel with R646 (right channel) and R645 (left channel).
5. After insert 560 ohm. if the reading of meter were between 30 mV and 60 mV then the alignment is completed.
6. If the reading were less than 30mV then the value of RX1 or RX2 should be reduced till the reading is between 30mV and 60mV.
7. If the reading were more than 60mV. then the value of RX1 or RX2 should be increase till the reading is between 30mV and 60mV.

DC OFF-SET ALIGNMENT

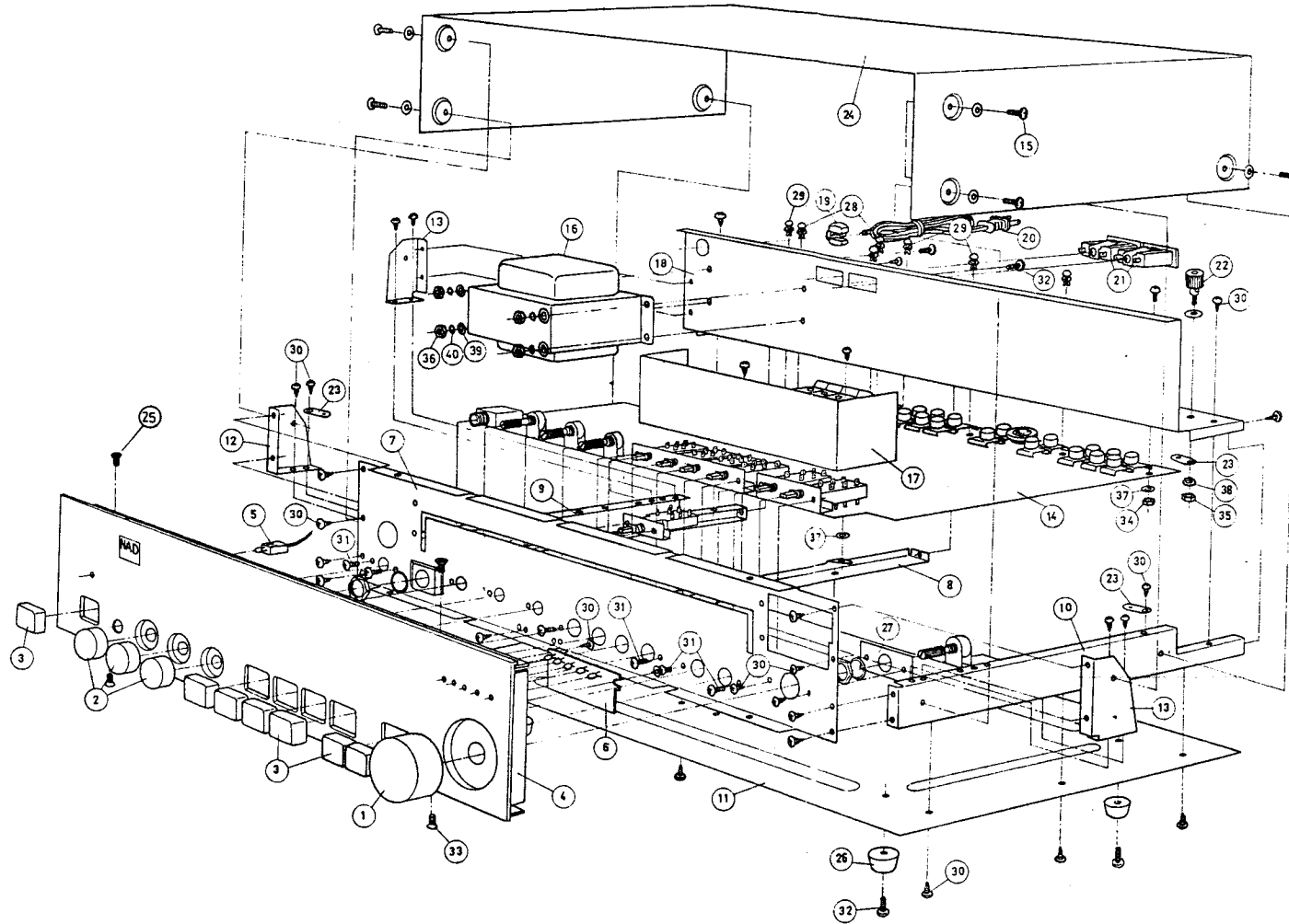
1. 5 Minutes minimum pre heating is necessary.
2. Set volume control at minimum position.
3. Connect a DC milli-voltmeter to the speaker terminals of each channel. The meter sensitivity should be set for 100-300mV full scale deflection. The positive input of the meter should be connected to the red (+) speaker terminal.
4. Adjust VR5 (for left channel) and VR6 (for right channel) till the meter reading is zero.

INSIDE VIEW

- 1 I/P & TAPE IN. OUT JACK
- 2 PHONO AMP
- 3 TONE AMP
- 4 POWER LED DRIVER
- 5 LOUDNESS & MUTE
- 6 FUNCTION SW
- 7 DELAY CKT
- 8 TONE NETWORK
- 9 POWER AMP
- 10 PHONE JACK
- 11 PRE OUT. MAIN IN
- 12 SOFTING CLIPPING SW
- 13 SPEAKER TML
- 14 POWER X'FORMER
- 15 GND SCREW
- 16 REGULATOR

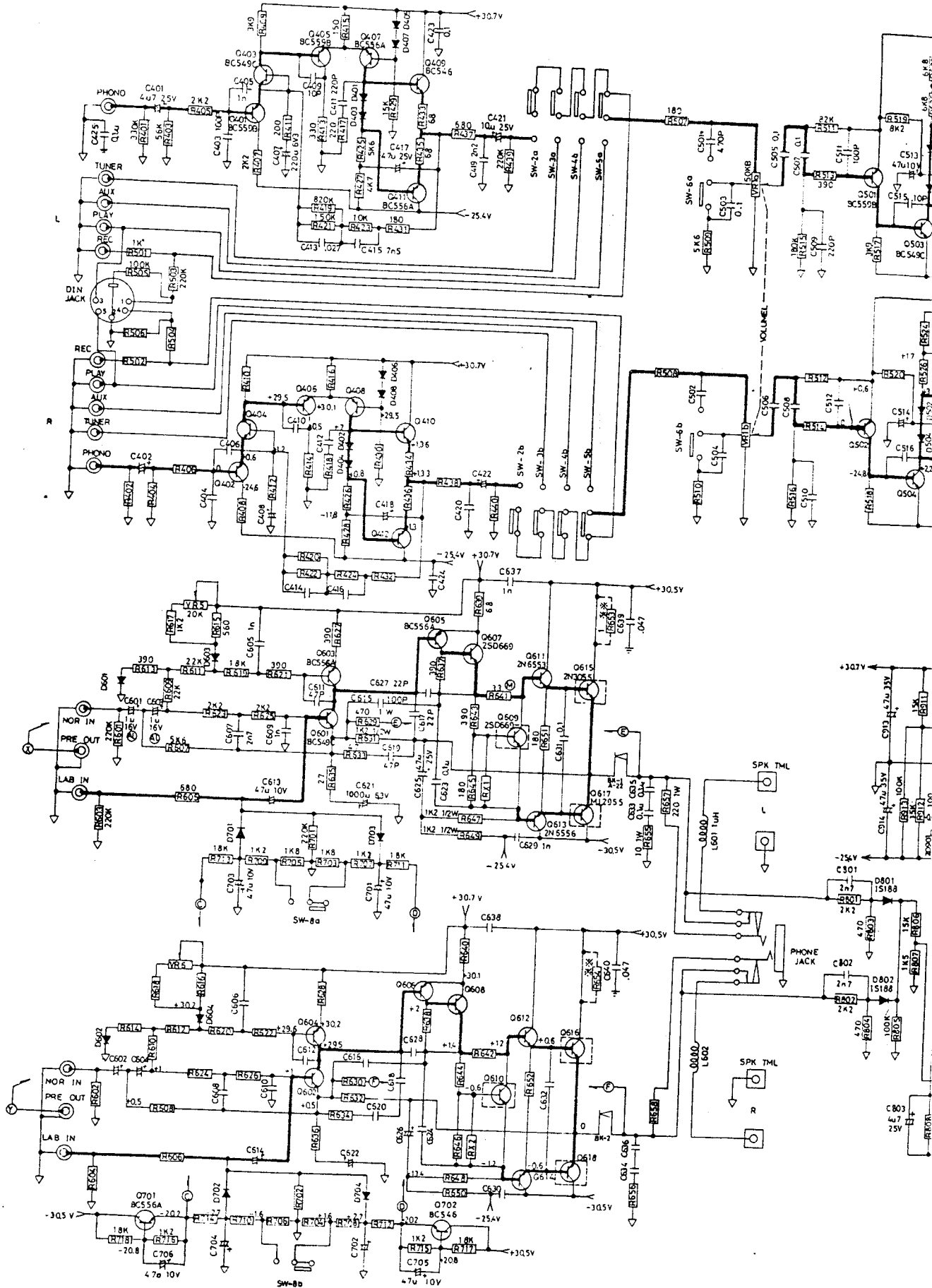
(SEE RIGHT FIG)

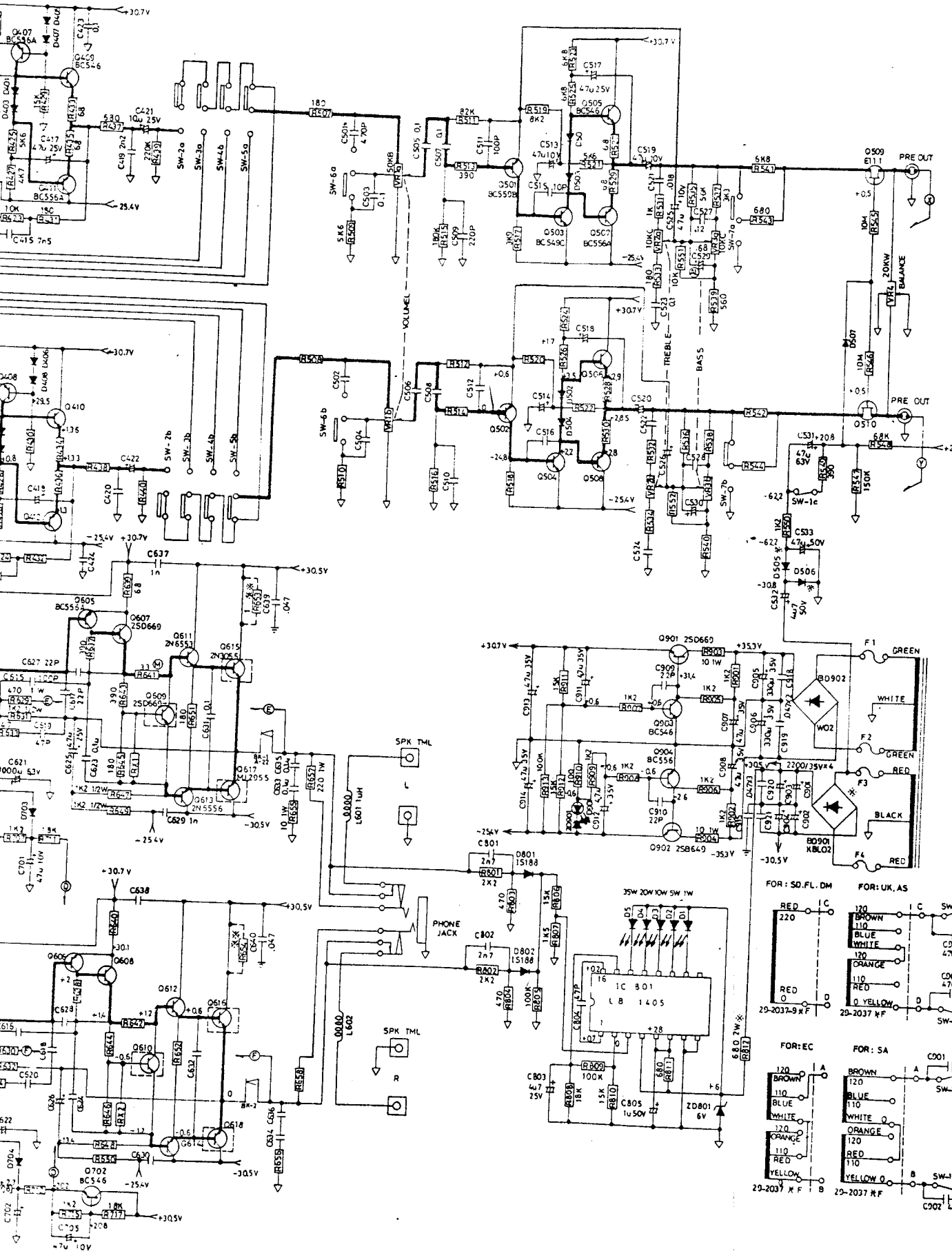
ASSEMBLY DIAGRAM



| Item | Number | Name | Qty |
|------|---------------|---------------------------|-----|
| 1 | 12-3036 | Volume Knob | 1 |
| 2 | 12-3038 | Control Knob | 3 |
| 3 | 12-3039 | Push Knob | 7 |
| 4 | 11-8066 | Front Panel | 1 |
| 5 | 14-4003 | Wire Assembly | 1 |
| 6 | 19-1095 | L.E.D. Driver | 1 |
| 7 | 11-6046 | Front Chassis | 1 |
| 8 | 11-6044 | Center Chassis | 1 |
| 9 | 11-6040 | Auxiliary Chassis (left) | 1 |
| 10 | 11-6039 | Auxiliary Chassis (right) | 1 |
| 11 | 11-6089 | Bottom Chassis | 1 |
| 12 | 11-2113 | Bracket (left) | 1 |
| 13 | 11-2112 | Bracket (right) | 1 |
| 14 | 90-1095 | P.C.B. Assembly | 1 |
| 15 | 15-2051 | Special Screw | 6 |
| 16 | 29-2037 | Power Transformer | 1 |
| 17 | 11-5037 | Heat Sink | 1 |
| 18 | 11-8072 | Back Panel | 1 |
| 19 | 14-5005 | Cord Bushing | 1 |
| 20 | 14-5013 | Power Cord | 1 |
| 21 | 12-2006 | A.C. Outlet | 2 |
| 22 | 15-2037 | Ground Screw | 1 |
| 23 | 11-3026 | Lug (Ground) | 3 |
| 24 | 50-1015 | Cabinet | 1 |
| 25 | SSBC3-106SL-2 | Triangle Screw 3*6 | 2 |
| 26 | 28-1029 | Rubber Feet | 4 |
| 27 | 11-2123 | Bracket for Volume | 1 |
| 28 | 15-2048 | Plastic Screw 3*5.5 | 2 |
| 29 | 15-2047 | Plastic Screw 3*4.5 | 5 |
| 30 | SSBC3-108SL-2 | Triangle Screw 3*8 | 34 |
| 31 | S1B03-106SL-2 | Machine Screw 3*6 | 7 |
| 32 | S1B04-105SL-2 | Machine Screw 4*10 | 8 |
| 33 | S1E03-108S2-2 | Flate Machine Screw 3*8 | 0 |
| 34 | N03B55102S2 | Nut 3*5.5*2 | 1 |
| 35 | N35B06128S2 | Nut 3.5*6*2.8 | 1 |
| 36 | N04B07132S2 | Nut 4*7*3 | 4 |
| 37 | A03A08F05 | Fiber Washer 3*8*0.5 | 3 |
| 38 | A35107S201 | Gear Washer 3.5*7*1 | 1 |
| 39 | A06A10SL01 | Washer 4*10*1 | 4 |
| 40 | A06G07SL01 | Spring Washer 4*7*1 | 4 |

CIRCUIT DIAGRAM

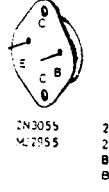




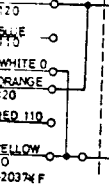
- NOTES 1:
 1 ALL RESISTOR
 2 ALL DIODES A
 3 CAPACITANCE
 4 * MEANS RES
 5 □ MEANS MO
 6 * MEANS R
 7 THE VOLTAGE S
 8 ALL SW ARE AT

- NOTES 2:
 1 SW-1a,b,c,d: PC
 2 SW-2a,b: PH
 3 SW-3a,b: TU
 4 SW-4a,b: AU
 5 SW-5a,b: TA
 6 SW-6a,b: LO
 7 SW-7a,b: AU
 8 SW-8a,b: SO

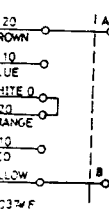
- NOTES 3:



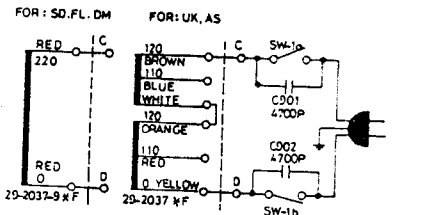
2N3055
 M2955



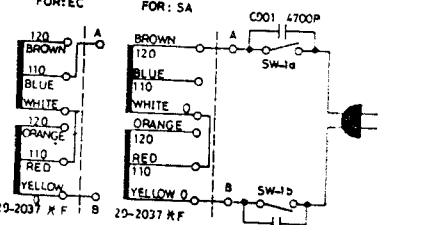
FOR: UL



FOR: 51



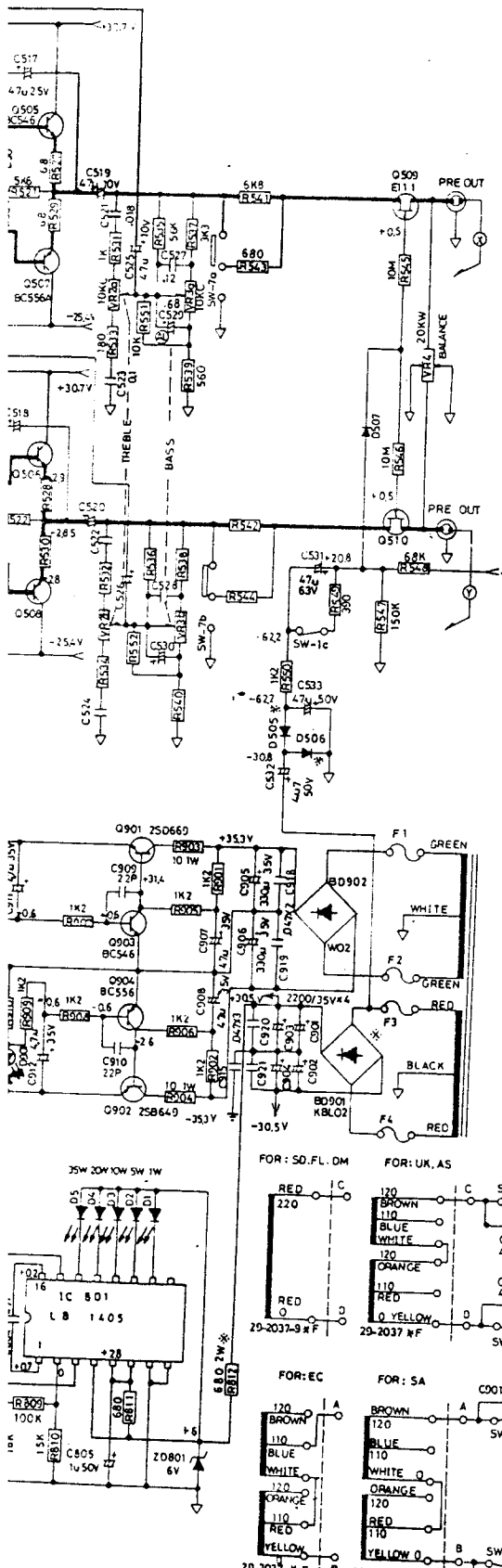
FOR: SD, FL, DM



FOR: UK, AS



FOR: EC



NOTES 1

- 1 ALL RESISTORS ARE 1/4W±5%, CARBON UNLESS OTHERWISE SPECIFIED.
- 2 ALL DIODES ARE BAW62 UNLESS OTHERWISE SPECIFIED.
- 3 CAPACITANCE ARE IN µF UNLESS OTHERWISE SPECIFIED.
- 4 * MEANS RESISTOR WITH CERAMIC TUBE STAND UP ON THE PCB.
- 5 □ MEANS MOUNT ON COMMON HEAT SINK.
- 6 * MEANS R653 R654 WILL BE SHORTED AFTER IDLE CURRENT ALIGNMENT.
- 7 THE VOLTAGE SHOWN AT EACH POINTS ARE TESTED ON STATIC CONDITION.
- 8 ALL SW ARE AT 'OFF' POSITION.

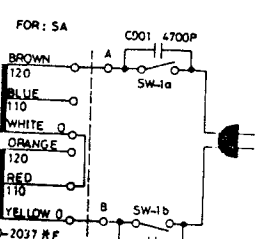
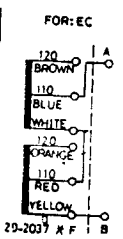
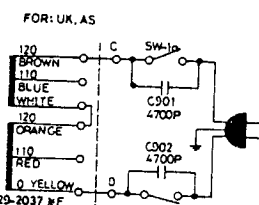
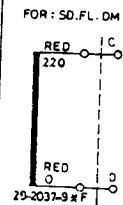
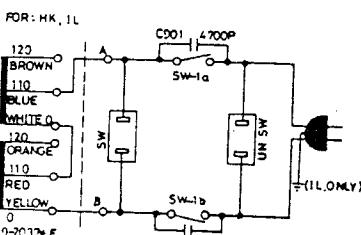
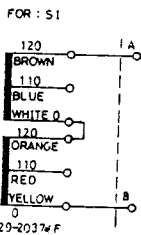
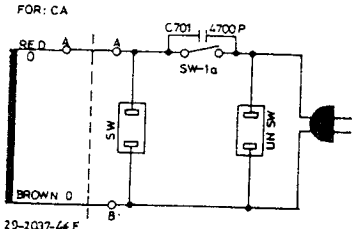
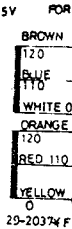
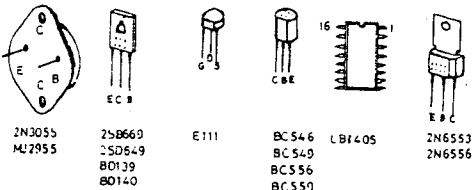
NOTES 2:

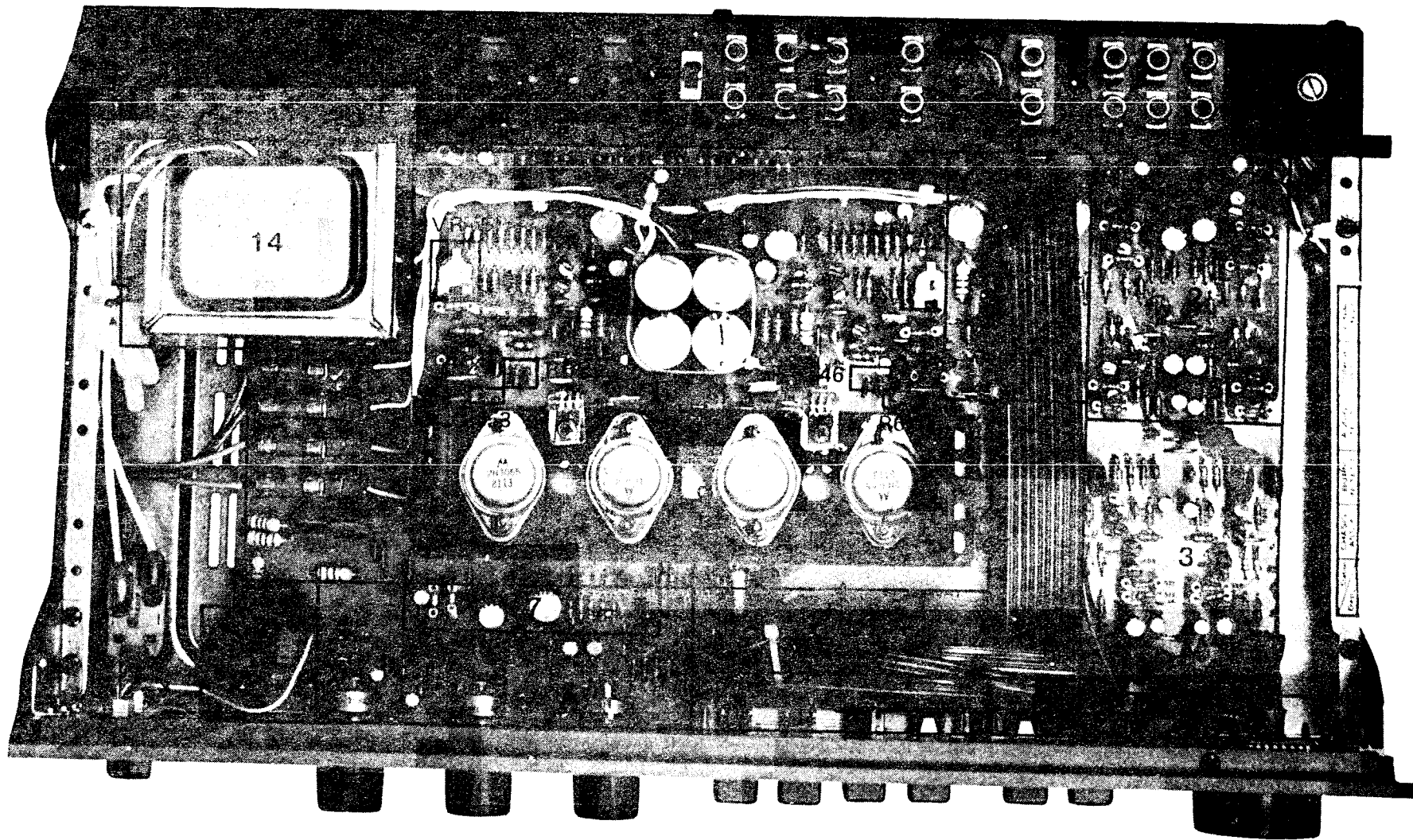
- 1 SW-1a,b,c,d: POWER SW.
- 2 SW-2a,b: PHONO SW.
- 3 SW-3a,b: TUNER SW.
- 4 SW-4a,b: AUX SW.
- 5 SW-5a,b: TAPE MONITOR SW.
- 6 SW-6a,b: LOUDNESS SW.
- 7 SW-7a,b: AUDIO MUTE SW.
- 8 SW-8a,b: SOFT CLIPPING.

NOTE 4: FUSES RATING

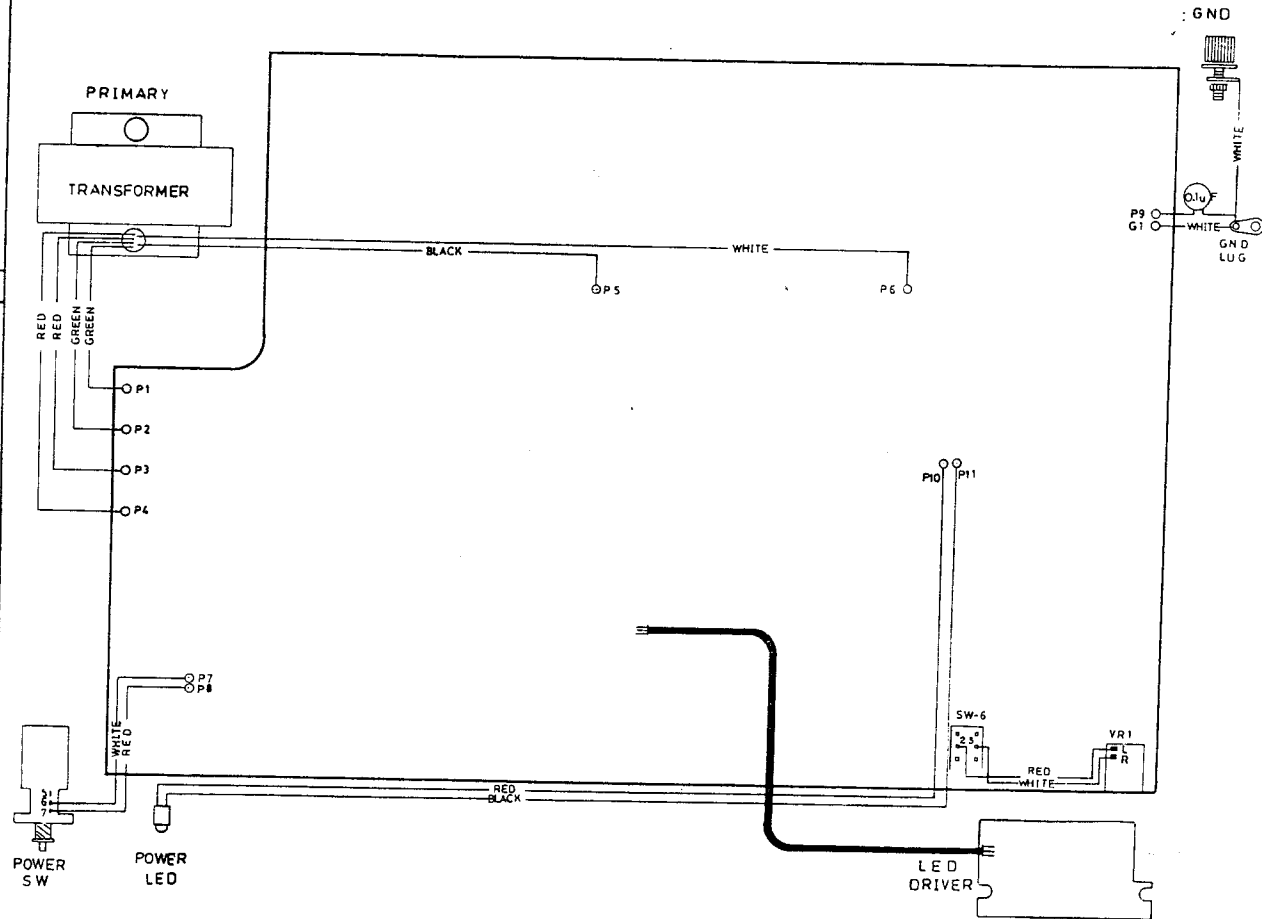
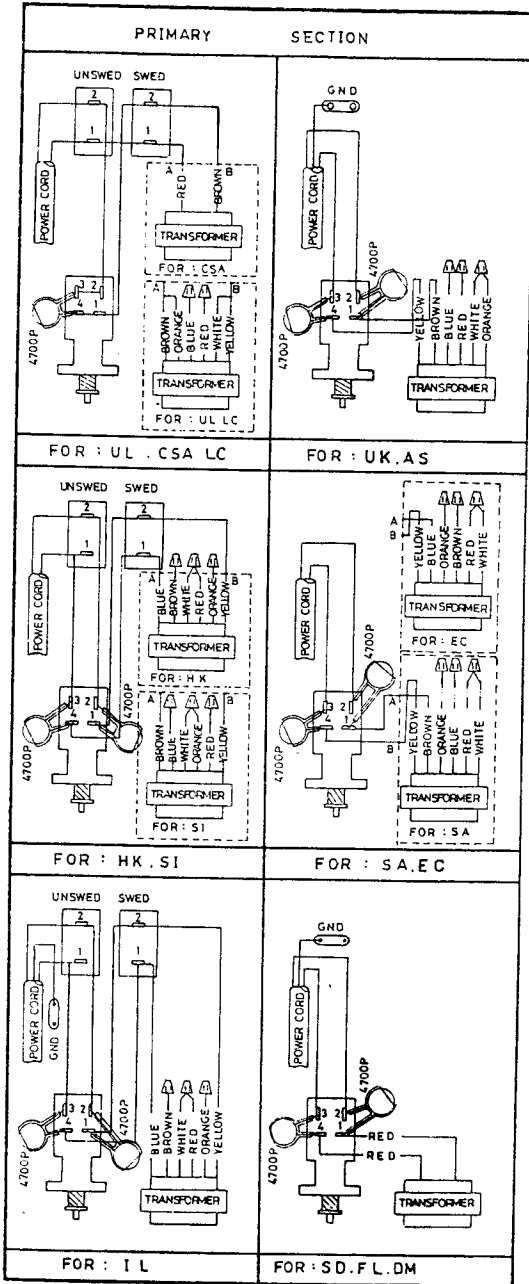
| | |
|------------------|------------|
| UL, CA | SD, FL, DM |
| FOR: SI, HK, | UK, AS, IL |
| EC, SA, | |
| F1, F2: 1A/250V | T1A/250V |
| F3, F4: T3A/250V | T315A/250V |

NOTES 3:





WIRING DIAGRAM



PART LIST

| SYMBOL NO. | PART NO. | DESCRIPTION | REF |
|------------|------------|---------------------------|------|
| R401, R402 | 16-¼CR334J | Carbon res 330K ± 5%¼W | 1.70 |
| R403, R404 | 16-¼CR563J | Carbon res 56K ± 5%¼W | 1.70 |
| R405, R406 | 16-¼CA222J | Carbon res 2K2 ± 5%¼W | 1.70 |
| R407, R408 | 16-¼CA222J | Carbon res 2K2 ± 5%¼W | 1.70 |
| R409, R410 | 16-¼CA392J | Carbon res 3K9 ± 5%¼W | 1.70 |
| R411, R412 | 16-¼CA201J | Carbon res 200 ± 5%¼W | 1.70 |
| R413, R414 | 16-¼MA331J | Metal Film res 330 ± 5%¼W | 2.40 |
| R415, R416 | 16-¼MA151J | Metal Film res 150 ± 5%¼W | 2.40 |
| R417, R418 | 16-¼CA221J | Carbon res 220 ± 5%¼W | 1.70 |
| R419, R420 | 16-¼CA824J | Carbon res 820K. ± 5%¼W | 1.70 |
| R421, R422 | 16-¼CA154J | Carbon res 150K ± 5%¼W | 1.70 |
| R423, R424 | 16-¼CA103J | Carbon res 10K ± 5%¼W | 1.70 |
| R425, R426 | 16-¼CA562J | Carbon res 5K6 ± 5%¼W | 1.70 |
| R427, R428 | 16-¼CA472J | Carbon res 4K7 ± 5%¼W | 1.70 |
| R429, R430 | 16-¼CA153J | Carbon res 15K ± 5%¼W | 1.70 |
| R431, R432 | 16-¼CA181J | Carbon res 180 ± 5%¼W | 1.70 |
| R433, R434 | 16-¼MA680J | Metal Film res 68 ± 5%¼W | 2.40 |
| R435, R436 | 16-¼MA680J | Metal Film res 68 ± 5%¼W | 2.40 |
| R437, R438 | 16-¼CA681J | Carbon res 680 ± 5%¼W | 1.70 |
| R439, R440 | 16-¼CA224J | Carbon res 220K ± 5%¼W | 1.70 |
| R501, R502 | 16-¼CR102J | Carbon res 1K ± 5%¼W | 1.70 |
| R503, R504 | 16-¼CR224J | Carbon res 220K ± 5%¼W | 1.70 |
| R505, R506 | 16-¼CR104J | Carbon res 100K ± 5%¼W | 1.70 |
| R507, R508 | 16-¼CA181J | Carbon res 180 ± 5%¼W | 1.70 |
| R509, R510 | 16-¼CA562J | Carbon res 5K6 ± 5%¼W | 1.70 |
| R511, R512 | 16-¼CA823J | Carbon res 82K ± 5%¼W | 1.70 |
| R513, R514 | 16-¼CA391J | Carbon res 390 ± 5%¼W | 1.70 |
| R515, R516 | 16-¼CA184J | Carbon res 180K ± 5%¼W | 1.70 |
| R517, R518 | 16-¼CA392J | Carbon res 3K9 ± 5%¼W | 1.70 |
| R519, R520 | 16-¼CA822J | Carbon res 8K2 ± 5%¼W | 1.70 |
| R521, R522 | 16-¼CA562J | Carbon res 5K6 ± 5%¼W | 1.70 |
| R523, R524 | 16-¼CA682J | Carbon res 6K8 ± 5%¼W | 1.70 |
| R525, R526 | 16-¼CA682J | Carbon res 6K8 ± 5%¼W | 1.70 |
| R527, R528 | 16-¼MA680J | Metal Film res 68 ± 5%¼W | 2.40 |
| R529, R530 | 16-¼MA680J | Metal Film res 68 ± 5%¼W | 2.40 |
| R531, R532 | 16-¼CA102J | Carbon res 1K ± 5%¼W | 1.70 |
| R533, R534 | 16-¼CA181J | Carbon res 180 ± 5%¼W | 1.70 |
| R535, R536 | 16-¼CA563J | Carbon res 56K ± 5%¼W | 1.70 |
| R537, R538 | 16-¼CA332J | Carbon res 3K3 ± 5%¼W | 1.70 |
| R539, R540 | 16-¼CA561J | Carbon res 560 ± 5%¼W | 1.70 |
| R541, R542 | 16-¼CA682J | Carbon res 6K8 ± 5%¼W | 1.70 |
| R543, R544 | 16-¼CA681J | Carbon res 680 ± 5%¼W | 1.70 |
| R545, R546 | 16-¼CA106J | Carbon res 10M ± 5%¼W | 1.70 |
| R547 | 16-¼CA154J | Carbon res 150K ± 5%¼W | 1.70 |
| R548 | 16-¼CA683J | Carbon res 68K ± 5%¼W | 1.70 |
| R549 | 16-¼CA391J | Carbon res 390 ± 5%¼W | 1.70 |
| R550 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |
| R551, R552 | 16-¼CR103J | Carbon res 10K ± 5%¼W | 1.70 |
| R601, R602 | 16-¼CA224J | Carbon res 220K ± 5%¼W | 1.70 |
| R603, R604 | 16-¼CA224J | Carbon res 220K ± 5%¼W | 1.70 |

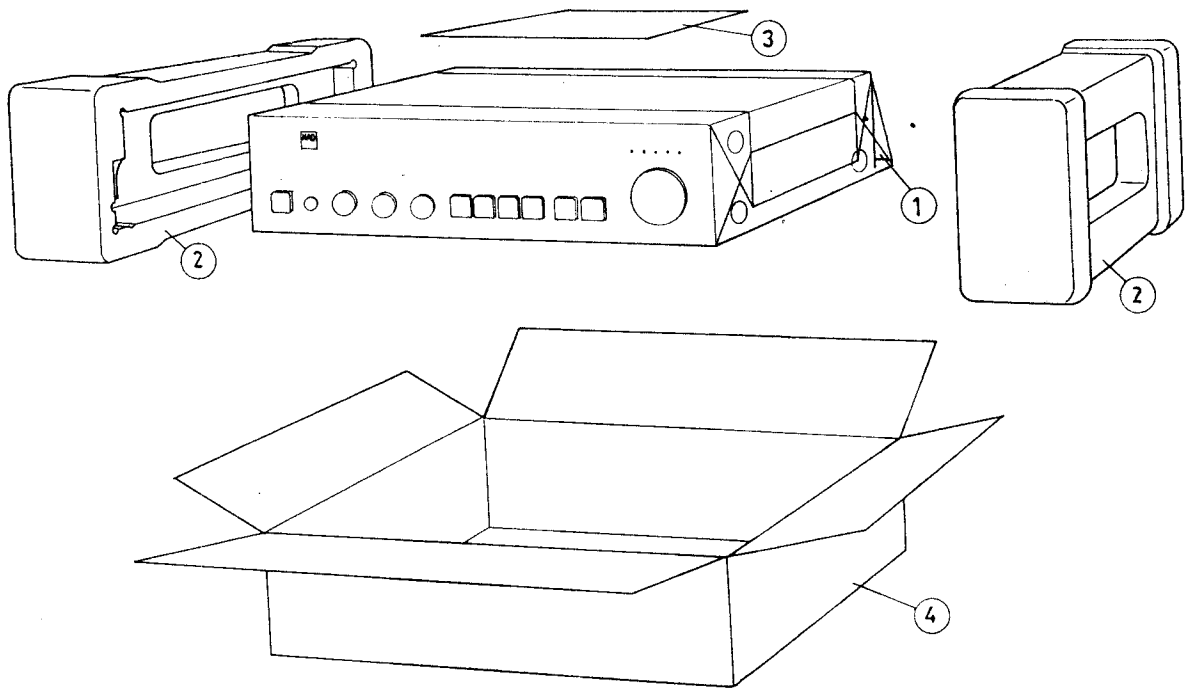
| SYMBOL NO. | PART NO. | DESCRIPTION | REF |
|------------|-------------|---------------------------|------|
| R605, R606 | 16-¼CA681J | Carbon res 680 ± 5%¼W | 1.70 |
| R607, R608 | 16-¼CA562J | Carbon res 5K6 ± 5%¼W | 1.70 |
| R609, R610 | 16-¼CA223J | Carbon res 22K ± 5%¼W | 1.70 |
| R611, R612 | 16-¼CA223J | Carbon res 22K ± 5%¼W | 1.70 |
| R613, R614 | 16-¼CA391J | Carbon res 390 ± 5%¼W | 1.70 |
| R615, R616 | 16-¼CA561J | Carbon res 560 ± 5%¼W | 1.70 |
| R617, R618 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |
| R619, R620 | 16-¼CA183J | Carbon res 18K ± 5%¼W | 1.70 |
| R621, R622 | 16-¼CA391J | Carbon res 390 ± 5%¼W | 1.70 |
| R623, R624 | 16-¼CA222J | Carbon res 2K2 ± 5%¼W | 1.70 |
| R625, R626 | 16-¼CA222J | Carbon res 2K2 ± 5%¼W | 1.70 |
| R627, R628 | 16-¼CA391J | Carbon res 390 ± 5%¼W | 1.70 |
| R629, R630 | 16- 1A471J | Metal Film res 470 ± 5%1W | 7.50 |
| R631, R632 | 16-½CA122J | Carbon res 1K2 ± 5%½W | 7.00 |
| R633, R634 | 16-¼CA470J | Carbon res 47 ± 5%¼W | 1.70 |
| R635, R636 | 16-¼CA270J | Carbon res 27 ± 5%¼W | 1.70 |
| R637, R638 | 16-¼CA391J | Carbon res 390 ± 5%¼W | 1.70 |
| R639, R640 | 16-¼MA680J | Metal Film res 68 ± 5%¼W | 2.40 |
| R641, R642 | 16-¼MA330J | Metal Film res 33 ± 5%¼W | 2.40 |
| R643, R644 | 16-¼CA391J | Carbon res 390 ± 5%¼W | 1.70 |
| R645, R646 | 16-¼CA181J | Carbon res 180 ± 5%¼W | 1.70 |
| R647, R648 | 16-½CA122J | Carbon res 1K2 ± 5%½W | 7.00 |
| R649, R650 | 16-½CA122J | Carbon res 1K2 ± 5%½W | 7.00 |
| R651, R652 | 16-¼MA181J | Metal Film res 180 ± 5%¼W | 2.40 |
| R653, R654 | 16-¼CR 1R0J | Carbon res 1 ± 5%¼W | 1.70 |
| R655, R656 | 16- 1A100J | Metal Film res 10 ± 5%1W | 7.50 |
| R657, R658 | 16- 1A221J | Metal Film res 220 ± 5%1W | 7.50 |
| R701, R702 | 16-¼CA224J | Carbon res 220K ± 5%¼W | 1.70 |
| R703, R704 | 16-¼CA182J | Carbon res 1K8 ± 5%¼W | 1.70 |
| R705, R706 | 16-¼CA182J | Carbon res 1K8 ± 5%¼W | 1.70 |
| R707, R708 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |
| R707, R710 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |
| R711, R712 | 16-¼CA183J | Carbon res 18K ± 5%¼W | 1.70 |
| R713, R714 | 16-¼CA183J | Carbon res 18K ± 5%¼W | 1.70 |
| R715, R716 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |
| R717, R718 | 16-¼CA182J | Carbon res 1K8 ± 5%¼W | 1.70 |
| R801, R802 | 16-¼CA222J | Carbon res 2K2 ± 5%¼W | 1.70 |
| R803, R804 | 16-¼CA471J | Carbon res 470 ± 5%¼W | 1.70 |
| R805 | 16-¼CA104J | Carbon res 100K ± 5%¼W | 1.70 |
| R806 | 16-¼CA153J | Carbon res 15K ± 5%¼W | 1.70 |
| R807 | 16-¼CA152J | Carbon res 1K5 ± 5%¼W | 1.70 |
| R808 | 16-¼CA183J | Carbon res 18K ± 5%¼W | 1.70 |
| R809 | 16-¼CA104J | Carbon res 100K ± 5%¼W | 1.70 |
| R810 | 16-¼CA153J | Carbon res 15K ± 5%¼W | 1.70 |
| R811 | 16-¼CA681J | Carbon res 680 ± 5%¼W | 1.70 |
| R812 | 16- 2A681J | Metal Film res 680 ± 5%2W | 9.00 |
| R901, R902 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |
| R903, R904 | 16- 1A100J | Metal Film res 10 ± 5%1W | 7.50 |
| R905, R906 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |
| R907, R908 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |

| SYMBOL NO. | PART NO. | DESCRIPTION | REF |
|------------|----------------|-------------------------------|-------|
| R909 | 16-¼CA122J | Carbon res 1K2 ± 5%¼W | 1.70 |
| R910 | 16-¼CA101J | Carbon res 100 ± 5%¼W | 1.70 |
| R911, R912 | 16-¼CA153J | Carbon res 15K ± 5%¼W | 1.70 |
| R913 | 16-¼CA104J | Carbon res 100K ± 5%¼W | 1.70 |
| C401, C402 | 17-2.5ER475Y | CAPA ELEC 4.7UF/25V+15-10% | 8.00 |
| C403, C404 | 17-5DR101MSL | CAPA CER 100PF50V ± 20%SL | 3.50 |
| C405, C406 | 17-5FR102J | CAPA MY 1000PF 50V ±5% | 6.50 |
| C407, C408 | 17--0.63ER227Y | CAPA ELEC 220UF 6.3V +50-10% | 14.00 |
| C409, C410 | 17-5DR100DSL | CAPA CER 10PF 50V ±0.2PSL | 3.50 |
| C411, C412 | 17-5DR221M | CAPA CER 220PF 50V ±20% | 4.00 |
| C413, C414 | 17-5FR273J | CAPA MY 0.027UF 50V ± 5% | 8.90 |
| C415, C416 | 17-5FR752J | CAPA MY 7500PF 50V ± 5% | 6.50 |
| C417, C418 | 17-2.5ER476Y | CAPA ELEC 47UF 25V +50-10% | 14.00 |
| C421, C422 | 17-5FR222J | CAPA MY 2200PF 50V ± 5% | 6.50 |
| C423, C424 | 17-5D104M | CAPA CER 0.1UF 50V ±20% | 10.00 |
| C425, | 17-5D104M | CAPA CER 0.1UF 50V ±20% | 10.00 |
| C501, C502 | 17-5DR471KSL | CAPA CER 470PF 50V ±10% | 4.00 |
| C503, C504 | 17-5F104J | CAPA MY 0.1UF 50V ±5% | 13.00 |
| C505, C506 | 17-5F104J | CAPA MY 0.1UF 50V ±5% | 13.00 |
| C507, C508 | 17-5F104J | CAPA MY 0.1UF 50V ±5% | 13.00 |
| C509, C510 | 17-5DR221M | CAPA CER 220PF 50V ±20% | 4.00 |
| C511, C512 | 17-5DR101MSL | CAPA CER 100PF 50V ±20%SL | 3.50 |
| C513, C514 | 17-IER476Y | CAPA ELEC 47UF10V ±50-10% | 9.00 |
| C515, C516 | 17-5DR100DSL | CAPA CER 10PF 50V ±0.2PFSL | 3.50 |
| C517, C518 | 17-2.5ER476Y | CAPA ELEC 47UF 25V +50-10% | 14.00 |
| C519, C520 | 17-IER476Y | CAPA ELEC 47UF10V +50-10% | 9.00 |
| C521, C522 | 17-5FR183J | CAPA MY 0.018 F50V ±5% | 8.90 |
| C523, C524 | 17-5F104J | CAPA MY 0.1UF 50V ±5% | 13.00 |
| C525, C526 | 17-IER476Y | CAPA ELEC 47UF 10V +50-10% | 9.00 |
| C527, C528 | 17-5F124J | CAPA MY 0.12UF 50V ±5% | 13.00 |
| C529, C530 | 17-2.5R684K | CAPA AL 0.68 UF 25V ±10% | 25.00 |
| C531 | 17-6.3E476Y | CAPA ELEC 47UF 63V +50-10% | 25.00 |
| C532 | 17-5E475Y | CAPA ELEC 4.7UF 50V +75-10% | 8.00 |
| C533. | 17-5E476Y | CAPA ELEC 47UF 50V +50-10% | 18.80 |
| C601, C602 | 17-2.5R105K | CAPA AL 1UF 25V ±10% | 25.00 |
| C603, C604 | 17-2.5R105K | CAPA AL 1UF 25V ±10% | 25.00 |
| C605, C606 | 17-5FR102J | CAPA MY 1000PF 50V ±5% | 6.50 |
| C607, C608 | 17-5FR272J | CAPA MY 2700PF 50V ±5% | 6.50 |
| C609, C610 | 17-5FR102J | CAPA MY 1000PF 50V ±5% | 6.50 |
| C611, C612 | 17-5DR470MSL | CAPA CER 47PF 50V ±20%SL | 3.50 |
| C613, C614 | 17-IER476Y | CAPA ELEC 47UF 10V +50-10% | 9.00 |
| C615, C616 | 17-5DR101MSL | CAPA CER 100PF 50V ±20%SL | 3.50 |
| C617, C618 | 17-5DR220MSL | CAPA CER 22PF 50V ±20%SL | 3.50 |
| C619, C620 | 17-5DR470MSL | CAPA CER 47PF 50V ±20%SL | 3.50 |
| C621, C622 | 17-0.63ER108Y | CAPA ELEC 1000 UF 6.3V+50-10% | 32.50 |
| C623, C624 | 17-5F 104J | CAPA MY 0.1UF 50V ±5% | 13.00 |
| C625, C626 | 17-2.5ER476Y | CAPA ELEC 47UF 25V +50-10% | 14.00 |
| C627, C628 | 17-5DR220MSL | CAPA CER 22PF 50V ±20%SL | 3.50 |
| C629, C630 | 17-5FR102J | CAPA MY 1000PF 50V ±5% | 6.50 |
| C631, C632 | 17-5F 104J | CAPA MY 0.1UF 50V ±5% | 13.00 |

| SYMBOL NO. | PART NO. | DESCRIPTION | REF |
|------------|--------------|-------------------------------|--------|
| C633, C634 | 17-5D104M | CAPA CER 0.1 UF 50V ±20% | 10.00 |
| C635, C636 | 17-5D104M | CAPA CER 0.1 UF 50V ±20% | 10.00 |
| C637, C638 | 17-5FR102J | CAPA MY 1000PF 50V ±5% | 6.50 |
| C639, C640 | 17-5DR473Z | CAPA CER 0.047UF 50V+80-20% | 5.00 |
| C641, C642 | 17-5DR472Z | CAPA CER 4700PF 50V +80-20% | 4.00 |
| C701, C702 | 17-1ER476Y | CAPA ELEC 47UF 10V +50-10% | 9.00 |
| C703, C704 | 17-1ER476Y | CAPA ELEC 47UF 10V +50-10% | 9.00 |
| C705, C706 | 17-1ER476Y | CAPA ELEC 47UF 10V +50-10% | 9.00 |
| C801, C802 | 17-5FR272J | CAPA MY 2700PF 50V ±5% | 6.50 |
| C803 | 17-2.5ER475Y | CAPA ELEC 4.7UF25V +75-10% | 8.00 |
| C804 | 17-5DR470MSL | CAPA CER 47PF 50V ±20%SL | 3.50 |
| C805 | 17-5E105Y | CAPA ELEC 1UF 50V +50-10% | 8.00 |
| C901, C902 | 17-3.5E 228Y | CAPA ELEC 2200 UF 35V +50-10% | 120.00 |
| C903, C904 | 17-3.5E228Y | CAPA ELEC 2200 UF 35V+ 50-10% | 120.00 |
| C905, C906 | 17-3.5E337Y | CAPA ELEC 330UF 35V+ 50-10% | 33.50 |
| C907, C908 | 17-3.5ER476Y | CAPA ELEC 47UF 35V+ 50-10% | 14.00 |
| C909, C910 | 17-5DR220MSL | CAPA CER 22PF 50V ± 20%SL | 3.50 |
| C911, C912 | 17-3.5ER475Y | CAPA ELEC 4.7UF35V+ 75-10% | 8.00 |
| C913, C914 | 17-3.5ER476Y | CAPA ELEC 4.7UF 35V+ 50-10% | 14.00 |
| C915 | 17-5DR473Z | CAPA CER 0.047 UF 50V+80-20% | 5.00 |
| C918, C919 | 17-5DR473Z | CAPA CER 0.047 UF 50V+80-20% | 5.00 |
| C920, C921 | 17-5DR473Z | CAPA CER 0.047 UF 50V+80-20% | 5.00 |
| Q401, Q402 | 30-2085-2 | Transistor BC559B | 22.80 |
| Q403, Q404 | 30-2084-3 | Transistor BC549C | 22.80 |
| Q405, Q406 | 30-2085-2 | Transistor BC559B | 22.80 |
| Q407, Q408 | 30-2096 | Transistor BC556A | 24.70 |
| Q409, Q410 | 30-2090 | Transistor BC546 | 24.70 |
| Q411, Q412 | 30-2096 | Transistor BC556A | 24.70 |
| Q501, Q502 | 30-2085-2 | Transistor BC559B | 22.80 |
| Q503, Q504 | 30-2084-3 | Transistor BC549C | 22.80 |
| Q505, Q506 | 30-2090 | Transistor BC546 | 24.70 |
| Q507, Q508 | 30-2096 | Transistor BC556A | 24.70 |
| Q509, Q510 | 30-2265 | FET J111 | 57.00 |
| Q601, Q602 | 30-2084-3 | Transistor BC549C | 22.80 |
| Q603, Q604 | 30-2096 | Transistor BC556A | 24.70 |
| Q605, Q606 | 30-2096 | Transistor BC556A | 24.70 |
| Q607, Q608 | 30-2260 | Transistor 2SD669 | 74.10 |
| Q609, Q610 | 30-2260 | Transistor 2SD669 | 74.10 |
| Q611, Q612 | 30-2260 | Transistor 2SD669 | 74.10 |
| Q613, Q614 | 30-2259 | Transistor 2SB649 | 74.10 |
| Q615, Q616 | 30-2004 | Transistor 2N3055 | 152.00 |
| Q617, Q618 | 30-2114 | Transistor MT2955 | 152.00 |
| Q701 | 30-2096 | Transistor BC556A | 24.70 |
| Q702 | 30-2090 | Transistor BC546 | 24.70 |
| Q901 | 30-2260 | Transistor 2SD669 | 74.10 |
| Q902 | 30-2259 | Transistor 2SB649 | 74.10 |
| Q903 | 30-2090 | Transistor BC546 | 24.70 |
| Q904 | 30-2096 | Transistor BC 556A | 24.70 |
| D401, D402 | 30-1019 | Diode BAW62 | 11.00 |
| D403, D404 | 30-1019 | Diode BAW62 | 11.00 |

| SYMBOL NO. | PART NO. | DESCRIPTION | REF |
|------------|------------|----------------------|--------|
| D405, D406 | 30-1019 | Diode BAW62 | 11.00 |
| D407, D408 | 30-1019 | Diode BAW62 | 11.00 |
| D501, D502 | 30-1019 | Diode BAW62 | 11.00 |
| D503, D504 | 30-1019 | Diode BAW62 | 11.00 |
| D601, D602 | 30-1019 | Diode BAW62 | 11.00 |
| D603, D604 | 30-1019 | Diode BAW62 | 11.00 |
| D701, D702 | 30-1019 | Diode BAW62 | 11.00 |
| D703, D704 | 30-1019 | Diode BAW62 | 11.00 |
| D801, D802 | 30-1010-1 | Diode IS188 | 10.40 |
| D1-D5 | 30-1105 | LED LT211CRD | 22.00 |
| BD901 | 30-1049 | Diode KBL02 | 102.60 |
| BD902 | 30-1040 | Diode W02 | 88.00 |
| D901 | 30-1105 | LED LTZ11CRD | 22.00 |
| ZD901 | 30-1016 | Zener Diode 23V 0.5W | 20.00 |
| VR1 | 29-4097F | Volume 50KBx2 | 200.00 |
| VR2, VR3 | 29-4075F | Treble 10KC | 180.00 |
| VR4 | 29-4076F | Balance | 180.00 |
| VR5, VR6 | 29-4023-1F | Smefixed RES 20K | 18.00 |
| IC801 | 30-3038 | LB1405 | 190.00 |
| L601, L602 | 29-1040 | Inductor 1 H | 25.00 |
| TB1, TB2 | 35-3011 | Breaker A-22 | 88.00 |

PACKING DIAGRAM



| Item | Number | Name |
|------|---------|-----------------------|
| 1 | 26-0002 | Poly Paper |
| 2 | 34-1033 | Polylone |
| 3 | | Accesory Ports |
| 4 | CT-5100 | Inner Carton Parts |

P. C. B. PARTS LOCATION

