

Service  
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# Service Manual

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## SPECIFICATION

### General:

|                            |                                                    |              |
|----------------------------|----------------------------------------------------|--------------|
| Mains voltage              | :230V $\pm 10\%$ 50Hz                              | for/00/02/14 |
|                            | :240V $\pm 10\%$ 50Hz                              | for/05       |
|                            | :120/230V $\pm 15\%$ 50Hz/60Hz                     | for/01       |
|                            | :230V $\pm 15\%$ 50Hz                              | for/14       |
|                            | :230V-240V $\pm 10\%$ 50Hz                         | for/10       |
|                            | :120V $\pm 10\%$ 60Hz                              | for/17       |
| Power consumption          | :≤ 150W at 2x30W output power                      |              |
|                            | :≤ 20W at stand by                                 |              |
| External supply            | :For CCD60                                         |              |
| Timer setting              | :Timer / clock                                     |              |
| Remarks time setting       | :AM/PM/24 hours                                    |              |
| Slumber time setting       | :10 - 30 - 60 minutes                              |              |
| Volume control wake signal | :Yes                                               |              |
| Mains breakdown buffer     | :4,5V for 1 year                                   |              |
| Alarm                      | :Tuner/CD/Cassette/DCC/Buzzer                      |              |
| Alarm setting              | :2 + News (only for Tuner)                         |              |
| Battery                    | :3 x R6                                            |              |
| Dimensions:(wxhxd)         | :260x172,5x254 mm                                  |              |
| Special features           | :1 x 5 band spectrum analyser in FTD display       |              |
|                            | :1 x 5 band equaliser: -5 free memories in presets |              |
|                            | -5 fixed (classic-vocal-rock-jazz-disco)           |              |
|                            | -1 flat                                            |              |
|                            | :Surround switch                                   |              |

### Amplifier:

|                                  |                                      |                     |
|----------------------------------|--------------------------------------|---------------------|
| Output power &                   | :≥2X30W at 6Ω D≤10% (EIAJ)           | ±0,5dB for/01/10/14 |
| Distortion (D)                   | :2x22W at 8Ω D=≤0,7%(IEC)            |                     |
| Sign.Noise:                      |                                      |                     |
| Phone input                      | :≥73dB (A-curve weighted)            |                     |
| (IEC at Prated and Rsource=2k2)  |                                      |                     |
| Other inputs                     | :≥75dB (A-curve weighted)            |                     |
| (IEC at Prated and Rsource=22k)  |                                      |                     |
| Crosstalk :                      |                                      |                     |
| Between stereo channels          | :≥50dB (100Hz.....10kHz)             |                     |
| source                           | :≥50dB (100Hz.....10kHz)             |                     |
| Headphone                        | :3,5mm stereo jack                   |                     |
| Output voltage                   | :5V EMF at 22W/8Ω ±1dB               |                     |
| Output impedance                 | :120Ω ±10%                           |                     |
| Frequency response:              |                                      |                     |
| linear inputs                    | :40Hz -20kHz ±3dB                    |                     |
| phone                            | :40Hz -18kHz ±3dB                    |                     |
| Tone controle:                   |                                      |                     |
| Equaliser 2x5 band               | :160Hz - 400Hz -1kHz -2,5kHz -6,3kHz |                     |
|                                  | +10dB to -10dB in steps of ±2dB      |                     |
| DBB(volume ≤-40dB ±2dB at 100Hz) | :+10dB (±2dB)                        |                     |
| Input sensitivity                |                                      |                     |
| for 22W/8Ω ±1dB                  | :AUX 250mV Ri ≥ 20kΩ                 |                     |
|                                  | :CD 350mV Ri ≥ 20kΩ                  |                     |
|                                  | :Tape 350mV Ri ≥ 20kΩ                |                     |
|                                  | :DCC 500mV Ri ≥ 20kΩ                 |                     |
|                                  | :Phone/MM 2,5mV Ri ≥ 47kΩ/220pf      |                     |
| Output voltage                   | :Tape 250mV Ro < 2k5                 |                     |
|                                  | :DCC 250mV Ro < 2k5                  |                     |

**Tuner: FM Part**

Tuning range : 87,5MHz to 108MHz  
 : 65,81MHz to 74MHz and 87,7MHz to 108MHz only/14  
 : 76MHz to 90MHz only/06

Aerial input : 75Ω coaxial

IF : 10,7MHz ±25kHz

Sensitivity mono : 1,1μV 26dB S/R  
 stereo : 30 μV 50dB S/R

Selectivity : 50 dB at 300kHz

Channel separation : 40 dB (1kHz Mod.)

Distortion THD mono : 0,5 %  
 stereo : 0,7 %

Signal/noise mono : 72 dB IEC weighted  
 ratio stereo : 68 dB " "

**AM PART**

Tuning range MW : 522kHz to 1611kHz  
 : 522kHz to 1629kHz only/06  
 : 530kHz to 1710kHz only/17  
 LW : 530kHz to 1710kHz or 522kHz to 1611kHz only/01  
 : 153kHz to 279kHz

Aerial input : Frame aerial

IF : 450kHz ±1kHz

FM Search Scan : 2 switcheable levels

Sensitivity MW 558kHz : 2mV/m  
 for 26dB S/R 1494kHz : 1,5mV/m  
 LW 155kHz : 4mV/m  
 270kHz : 2,5mV/m

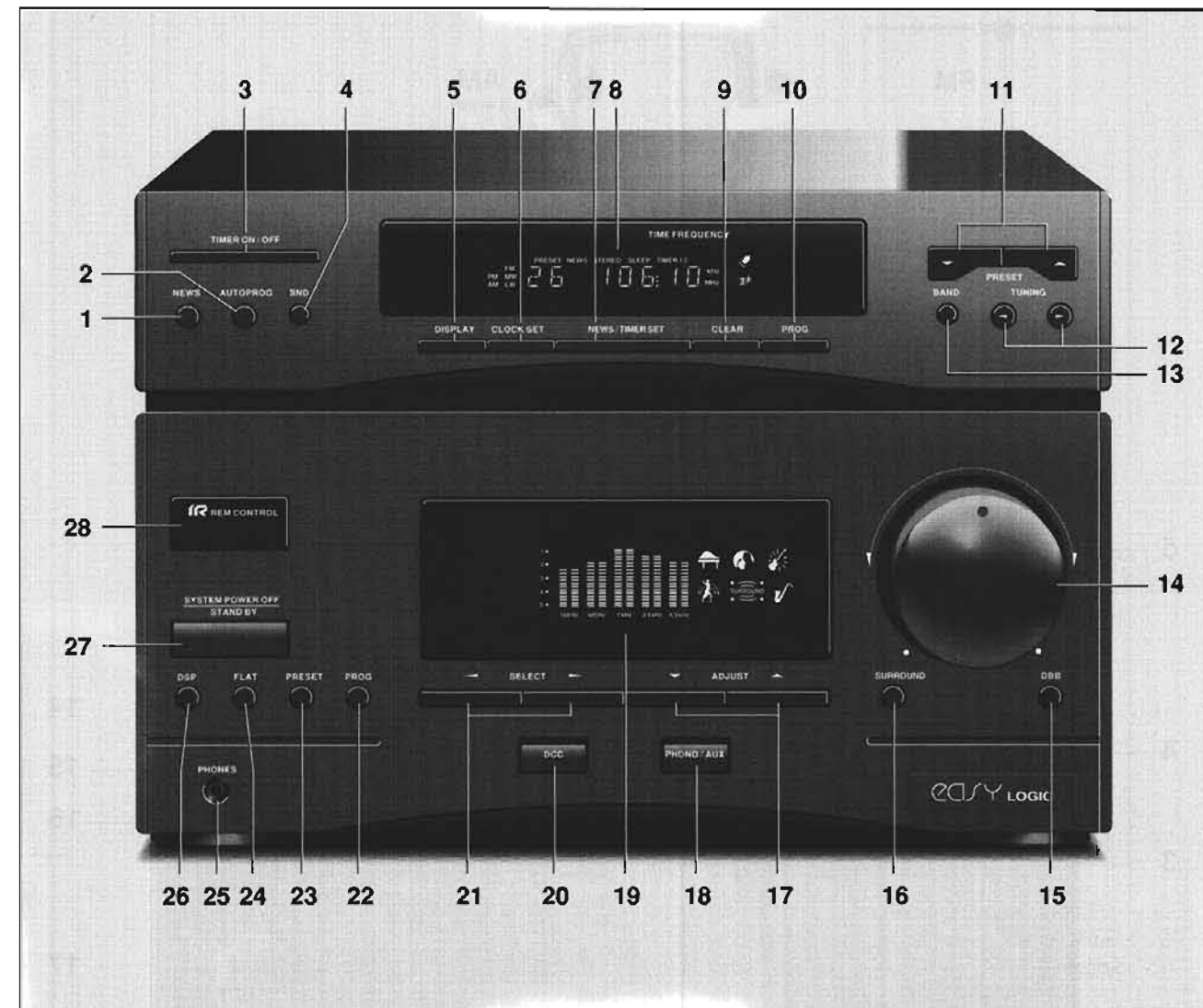
Selectivity : 30dB at 9kHz

Suppression IF : 60dB

**Digital Part**

Switcheable FM : 50kHz  
 : 100kHz only/06/17  
 : 30kHz or 50kHz only/14  
 MW : 9kHz  
 : 10kHz only/17  
 : 9kHz (Range 522-1611) only/14  
 : 10kHz (Range 530-1710) only/14  
 LW : 3kHz

Presets FM/MW/LW : 30 random

**CONTROLS**

|                          | Pos nr. |                           | Pos nr. |
|--------------------------|---------|---------------------------|---------|
| 1 News Button            | 1664    | 15 DBB Button             | 1666    |
| 2 Autoprogram Button     | 1663    | 16 Surround Button        | 1667    |
| 3 Timer ON/OFF Button    | 1665    | 17 Adjust Up Button       | 1669    |
| 4 Prog Button            | 1662    | Down Button               | 1670    |
| 5 Display Button         | 1661    | 18 Aux/Phono Button       | 1668    |
| 6 Clock Set Button       | 1660    | 19 Display amplifier      | 1682    |
| 7 News/Timer Set Button  | 1659    | 20 DCC Button             | 1678    |
| 8 Display Tuner          | 1681    | 21 Select Right Button    | 1672    |
| 9 Mono Button            | 1657    | Left Button               | 1671    |
| 10 Clear Button          | 1656    | 22 Program Button (Equal) | 1677    |
| 11 Preset Up Button      | 1650    | 23 Preset Button (Equal)  | 1675    |
| Down Button              | 1654    | 24 Flat Button            | 1674    |
| 12 Tune Search UP Button | 1651    | 25 Headphone socket       | 1710    |
| DOWN Button              | 1652    | 26 SFC Button             | 1676    |
| 13 Band Button           | 1653    | 27 System OFF/STANDBY     | 1271    |
| 14 Volume Knob           | 3790    | 28 IR Eye                 | 6652    |

### DISMANTLING OF SOURCE SELECTOR

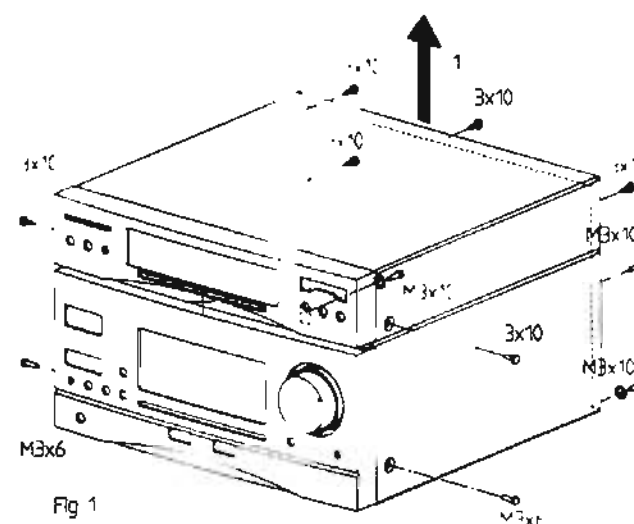


Fig 1

- 

Fig 2

- 

Fig. 3

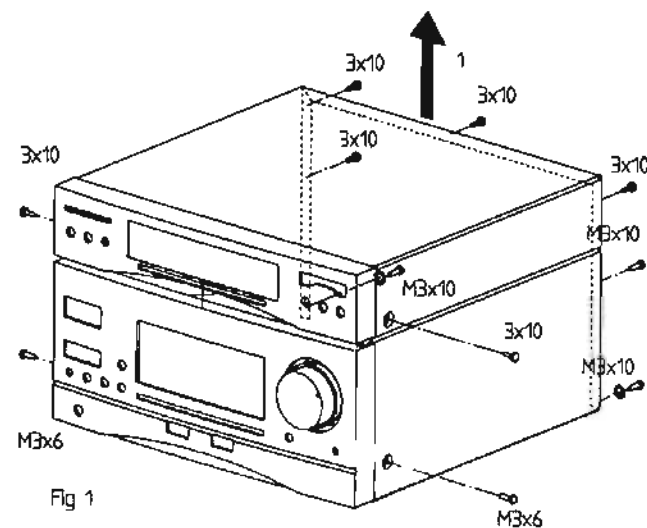
- 

Fig 4

- |                    | Pos nr. |                        | Pos nr. |
|--------------------|---------|------------------------|---------|
| 3 CD In Digital    | 1463    | 11 CD/Tape In/Out      | 1458    |
| 4 Phono Ground     |         | 12 Voltage Selector    |         |
| 5 FM Aerial        | 1110    | 13 Battery Compartment |         |
| 6 Phono In         | 1551    | 14 RC-5 Bus            | 1462    |
| 7 Aux In           | 1551    | 15 Mains Socket        | 1270    |
| 8 DCC In/Out       | 1551    | 16 Easy Logic Bus      | 1462    |
| 9 DCC Out Digital  | 1463    | 17 Speakers            | 1261    |
| 10 AM Frame aerial | 1111    |                        |         |

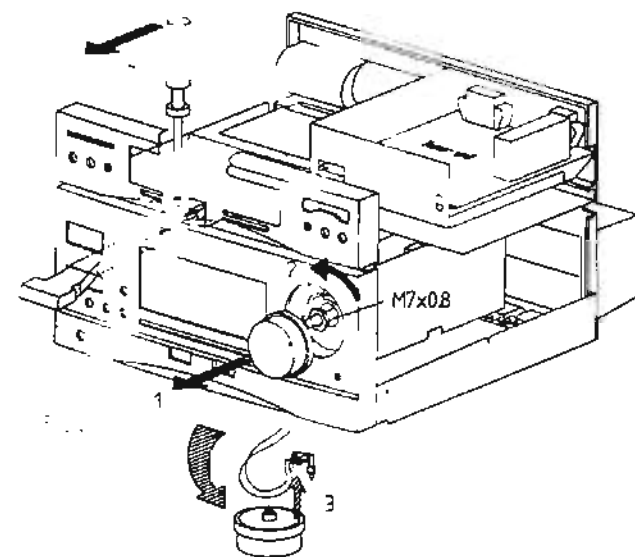
# DISMANTLING OF FRONT & PCB

7



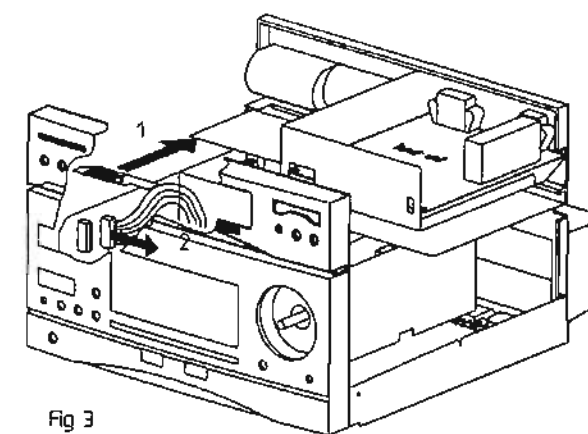
- 1 Remove 2x M3X6 screws  
6x 3X10 screws  
2x M3X10 screws with ring  
1x M3X10 screw
- 2 Remove cover as shown in fig 1 arrow 1

see fig 1

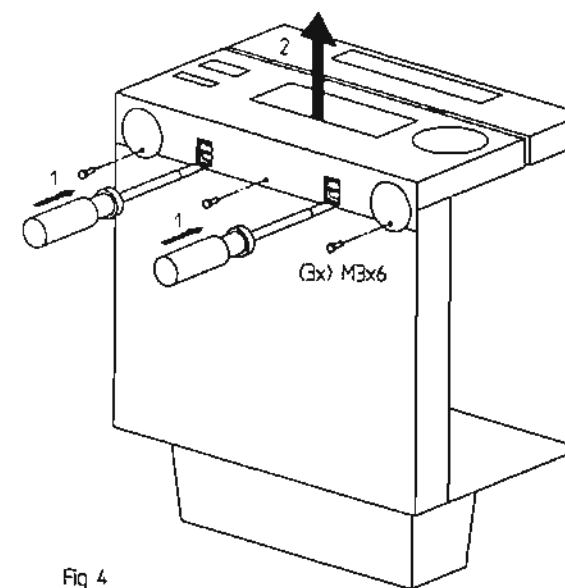


- 3 Remove power rod as shown in fig 2 arrow 4
- 4 Remove volume knob as shown in fig 2 arrow 1
- 5 Remove volume led as shown in fig 2 arrow 3  
(puch snaps a littel open)
- 6 Remove nut M7X0.8 as shown in fig 2 arrow 2

8

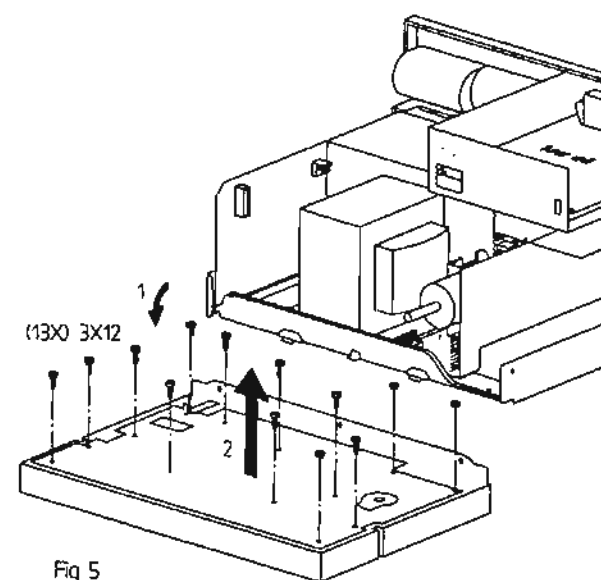


- 7 Remove lead assy as shown in fig 3 arrow 1 - 2



- 8 Remove 3x M3X6 screws
- 9 Remove front as shown in fig 4 arrow 1 - 2

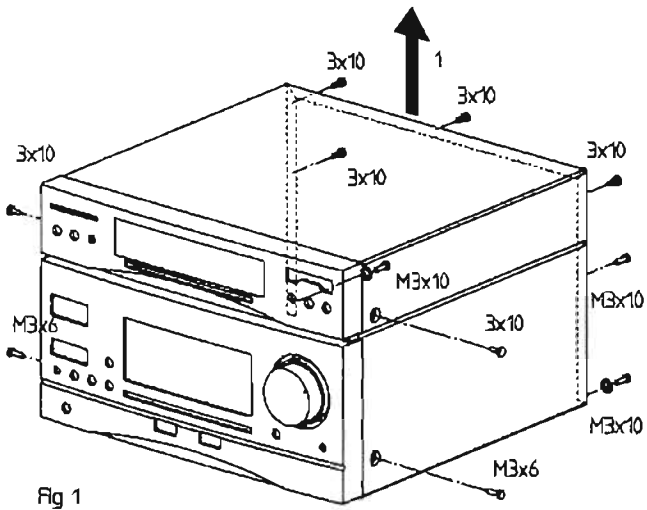
see fig 4



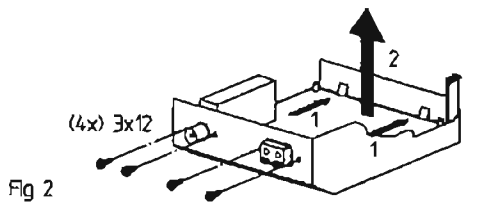
- 10 Tipp down front as shown in fig 5 arrow 1
- 11 Remove 13x 3X12 screws
- 12 Remove PCB as shown in fig 5 arrow 2

see fig 5

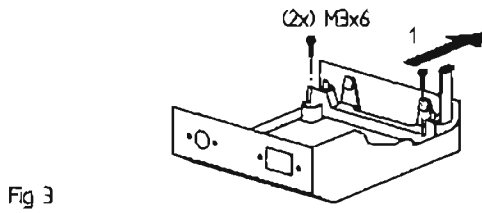
DISMANTLING OF POWER PCB



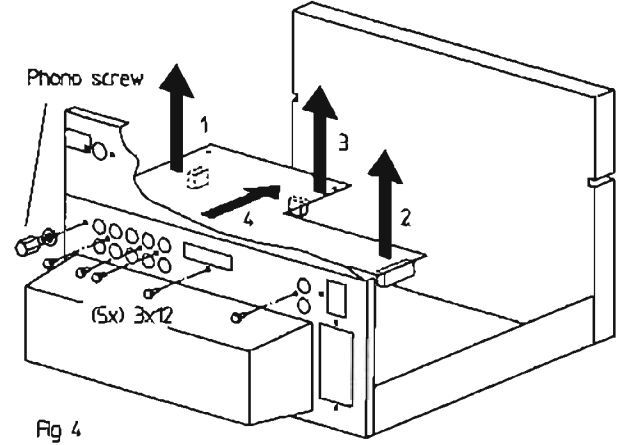
- 1 Remove 2x M3X6 screws  
6x 3X10 screws  
2x M3X10 screws with ring  
1x M3X10 screw see fig 1
- 2 Remove cover as shown in fig 1 arrow 1



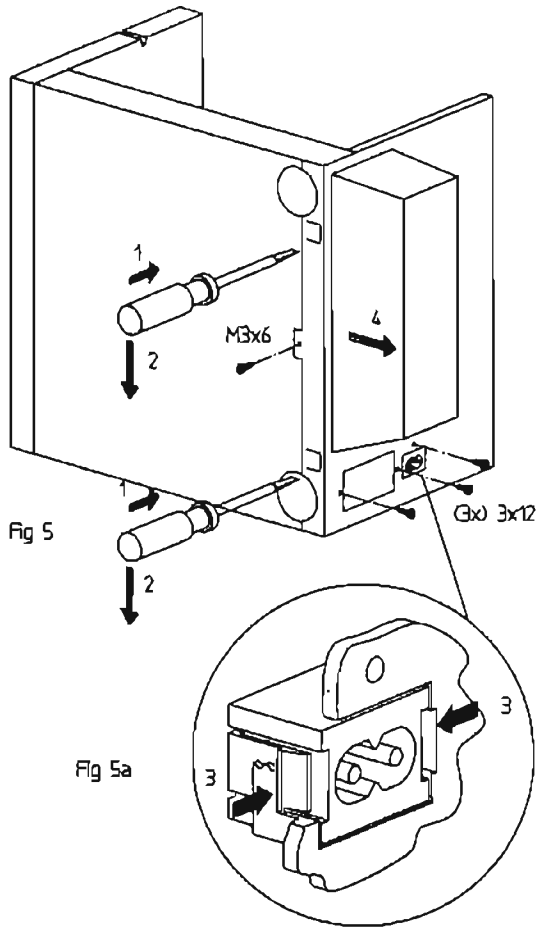
- 3 Remove 4x 3X12 screws see fig 2
- 4 Remove Tuner PCB as shown in fig 2 arrow 1-2



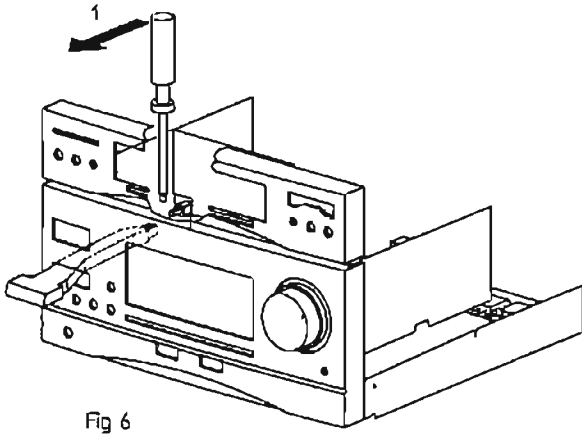
- 5 Remove 2x M3X6 screws see fig 3
- 6 Remove cover as shown in fig 3 arrow 1



- 7 Remove 5x 3X12 screws  
1x Phono ground screw see fig 4
- 8 Remove PCB as shown in fig 4 arrow 1 - 2 - 3



- 9 Remove 1x M3X6 screw  
3x 3X12 screws see fig 5
- 10 Remove backcover as shown in fig 5 arrow 1-2  
To remove mainslet push snaps to inner side as shown fig 5a arrow 3
- 11 Remove backcover as shown in fig 5 arrow 4



- 12 Remove power rod as shown in fig 6 arrow 1

11

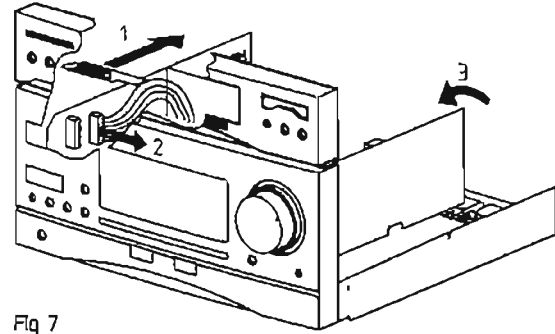


Fig 7

- 13 Remove lead assy as shown in fig 7 arrow 1 - 2  
14 Make volume panel loose as shown in fig 7 arrow 3

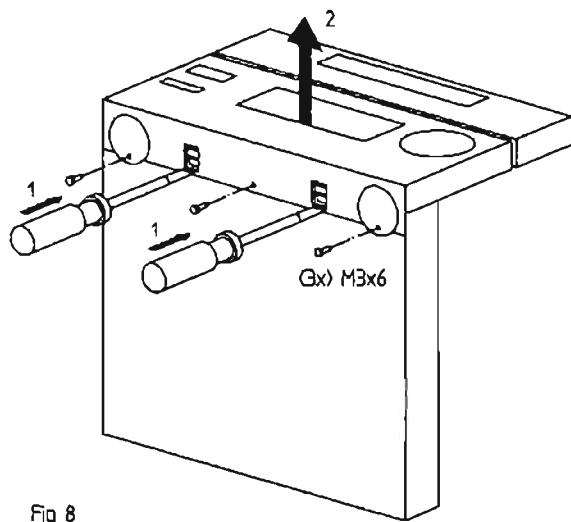


Fig 8

- 15 Remove 3x M3X6 screws see fig 8  
16 Remove front as shown in fig 8 arrow 1 - 2

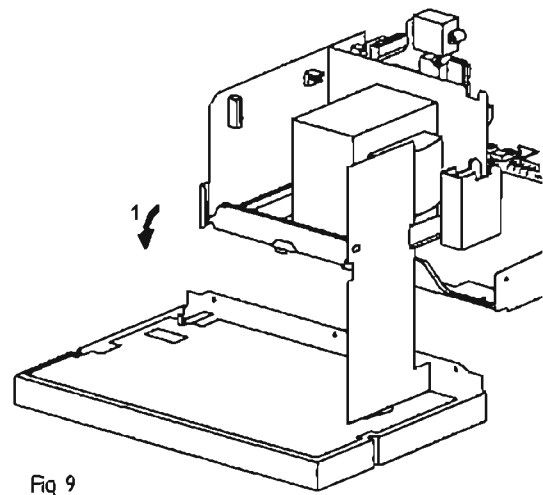


Fig 9

- 17 Tipp down front as show in fig 9 arrow 1

12

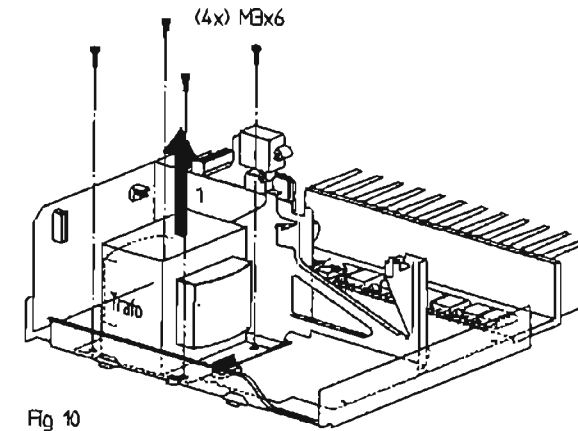


Fig 10

- 18 Remove 4x M3X6 screw see fig 10  
19 Remove trafo as shown in fig 10 arrow 1

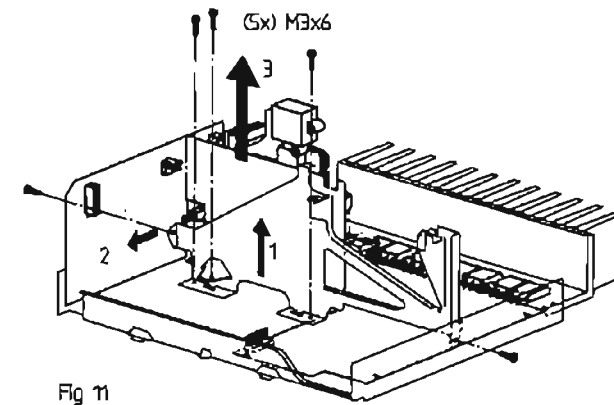


Fig 11

- 20 Remove 5x M3X6 screw see fig 11  
21 Remove frame as shown in fig 11 arrow 1 - 2 - 3

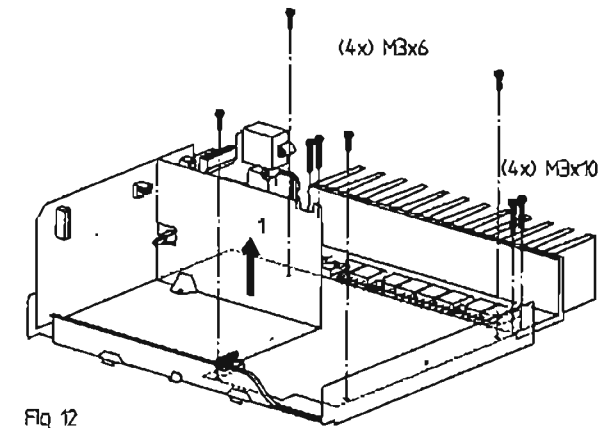


Fig 12

- 22 Remove 4x M3X10 screw see fig 12  
23 Remove power PCB as shown in fig 12 arrow 1

## SERVICE TEST PROGRAM

## GENERAL

With this testprogramm the following parts can be checked.

- |               |                     |
|---------------|---------------------|
| 1 Clock 8MHz  | 7 Spectrum          |
| 2 Clock 32kHz | 8 Eeprom clear      |
| 3 Key         | 9 Eeprom            |
| 4 Display     | 10 Source selection |
| 5 Balance     | 11 Easylink         |
| 6 Volume      |                     |

To go in test mode press **DBB** and the **PHONO/AUX** switch at the same time when amplifier is switched on. The display shows for 2 sec.the loaded versions from the  $\mu$  processor, and then **SERVICE**. **AUX** are selected

## 1 CLOCK 8MHz TEST :

-Press the **SFC** button to start this testprogram.

A signal of 3.9kHz is put on the buzzer output (IC7883 pin 4 port13).The display shows 8MHz

-To leave this test press **SFC** again,the display shows now **SERVICE**

## 2 CLOCK 32kHz TEST :

-Press the **CLOCK SET** button to start this testprogram.

A signal of 8 kHz is put on the buzzer output (IC7883 pin 4 port13).The display shows 32kHz

-To leave this test press **CLOCK SET** again,the display shows now **SERVICE**

## 3 KEY TEST :

-Press the **FLAT** button to start this testprogram.

| Press Button   | Display Shows |
|----------------|---------------|
| SPC            | KEY 17        |
| PRESET         | KEY 0E        |
| PROGRAM        | KEY 06        |
| SELECT <       | KEY 1E        |
| SELECT >       | KEY 1F        |
| ADJUST DOWN    | KEY 1B        |
| ADJUST UP      | KEY 1C        |
| SURROUND       | KEY 1A        |
| DBB            | KEY 19        |
| DCC            | KEY 07        |
| PHONO/AUX      | KEY 1D        |
| NEWS           | KEY 14        |
| AUTOPROG       | KEY 13        |
| PROG           | KEY 12        |
| TIMER ON/OFF   | KEY 15        |
| DISPLAY        | KEY 11        |
| CLOCK SET      | KEY 0D        |
| NEWS/TIMER SET | KEY 0C        |
| MONO           | KEY 0A        |
| CLEAR          | KEY 09        |
| BAND           | KEY 04        |
| TUNER <        | KEY 03        |
| TUNER >        | KEY 02        |
| PRESET DOWN    | KEY 05        |
| PRESET UP      | KEY 01        |

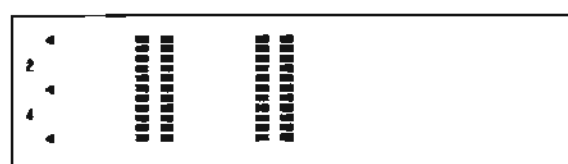
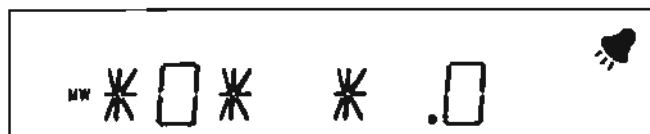
-Press **FLAT** again, when the test is OK the display shows Key OK, otherwise Key \*\*.

-To leave this test press **FLAT** again,the display shows now **SERVICE**.

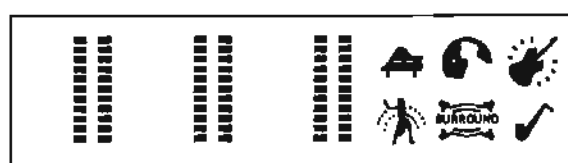
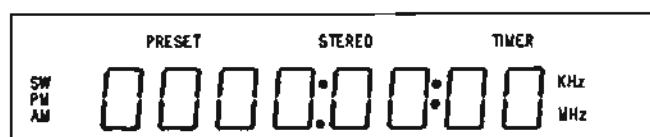
## 4 DISPLAY TEST :

-Press the **PRESET** button to start this testprogram. The display shows now **DISPLAY**.

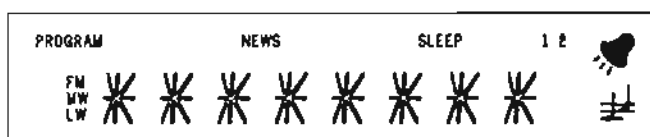
--Press **ADJUST UP** button.The display shows



--Press again **ADJUST UP** button,the display shows now:



--Press again **ADJUST UP** button,the display shows now:



+ DBB Led light

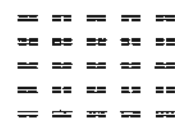
--Press again **ADJUST UP** button,the display light complitly up.

-To leave this test press **PRESET** button again,the display shows now **SERVICE**

## 5 BALANCE TEST :

-Press the **PROGAM** button to start this testprogram. The display shows now **DISPLAY**:

## BALANCE



--Press **ADJUST UP** button,after 8 times pressing this button the display shows :see fig a.

--Press **ADJUST DOWN** button,after 8 times pressing this button the display shows :see fig b.

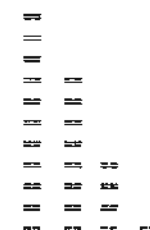
Fig a

## BALANCE



Fig b

## BALANCE



-To leave this test press **PROGRAM** button again,the display shows now **SERVICE**

## 6 VOLUME TEST :

-Press the **SELECT <** button to start this testprogram.

The display shows now **VOLUME**.

--Press **ADJUST UP** button the volume turns clockwise

--Press **ADJUST DOWN** button the volume turns counter-clockwise

-To leave this test press **SELECT <** again,the display shows now **SERVICE**.

## 7 SPECTRUM TEST :

-Press the **SELECT >** button to start this testprogram.

The display shows now **SPECTRUM**.

--Press **ADJUST UP** button, one frequency band is select and this band is shows on display. SP - 6300 . Press again on the **ADJUST UP** button to scroll through this test.The display shows SP - 2500 SP - 1000

SP - 400 SP - 160

The first bar lights with  $\pm 3$ mV on the aux input.

The 7 th bar lights with  $\pm 20$  mV on th aux input.

The 11 th bar lights with  $\pm 100$ mV on the aux input

-To leave this test press **SELECT >** again,the display shows now **SERVICE**.

## 8 EEPROM CLEAR :

-Press the **ADJUST DOWN** button , the display shows CLR - PROM for 2 sec.With this test the eeprom is cleared automaticcally.

## 9 EEPROM TEST :

-Press the **ADJUST UP** button , the display shows PROM - OK for 2 sec. The eeprom is tested with an automatic write and read sequence.If a fault is found the display shows PROM - DEF .

## 10 SOURCE SELECTION TEST :

-Press the **DCC** button to start this testprogram.

The display shows now **SOURCE**.

--Press **ADJUST UP** button to select out the next source TUNER TAPE CD PHONO AUX DCC

-To leave this test press **DCC** again,the display shows now **SERVICE**.

## 11 EASYLINK TEST :

-With this test the following are test:

--if both easylink IN and OUT are high

---if not the display shown **EAS-CON**

--the EasOut\* port is put low and the EasIn\* must follow

---if not the display shown **EAS-LOW**

--the EasOut\* port is put High and the EasIn\* must follow

---if not the display shown **EAS-HIGH**

\*EasOut port=P50 pin75 IC7683

\*EasIn port=P11 pin 2 IC7683

-Press the **TIMER ON/OFF** button to start this test:

The Easylink test is completed if the display shown after 2sec **EAS-OK**

## SERVICE HINTS:

When the source selector panel is removed the power unit doesn't work anymore.

This can by helped in two ways.

-Make a shortcircuit over diode 6282 (power unit)

or

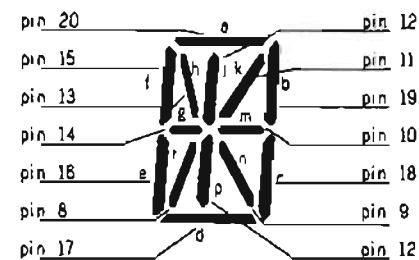
-Connect the voltage +14V /massa/ -14V (plug 1280 power unit)back on the source selector panel(plug 1454 selector)

## Trade Mode:

When through same reasen the trade mode is working it can be switched off as following

Switch power off.

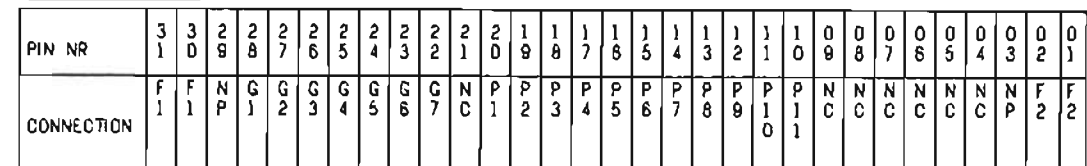
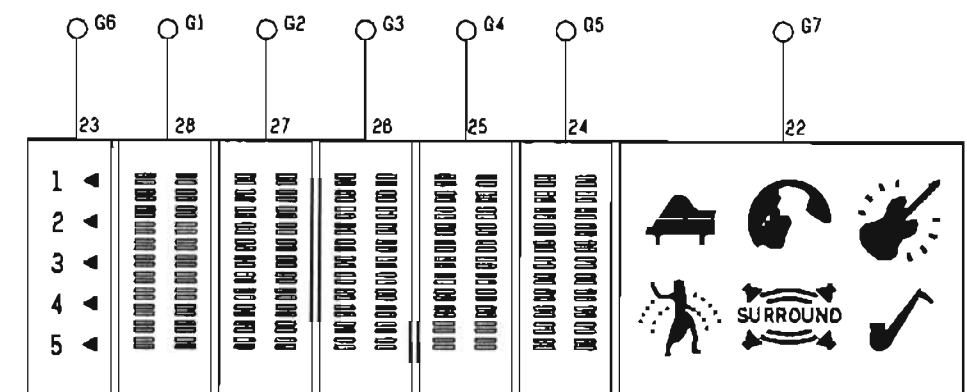
Press **DCC** button and **AUX/Phone** button at the same time when you switch the power on.



|            |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |        |        |        |        |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| PIN NR     | 3<br>8 | 3<br>7 | 3<br>6 | 3<br>5 | 3<br>4 | 3<br>3 | 3<br>2 | 3<br>1 | 3<br>0 | 2<br>9 | 2<br>8 | 2<br>7 | 2<br>6 | 2<br>5 | 2<br>4 | 2<br>3 | 2<br>2 | 2<br>1 | 2<br>0 | 1<br>9 | 1<br>8 | 1<br>7 | 1<br>6 | 1<br>5 | 1<br>4 | 1<br>3 | 1<br>2 | 1<br>1  | 1<br>0  | 0<br>9  | 0<br>8  | 0<br>7  | 0<br>6  | 0<br>5  | 0<br>4 | 0<br>3 | 0<br>2 | 0<br>1 |
| CONNECTION | F<br>2 | F<br>2 | N<br>P | N<br>P | N<br>C | 2<br>G | 3<br>G | 4<br>G | 5<br>G | 6<br>G | 7<br>G | 8<br>G | 9<br>G | 1<br>G | N<br>C | N<br>C | N<br>C | N<br>C | P<br>1 | P<br>2 | P<br>3 | P<br>4 | P<br>5 | P<br>6 | P<br>7 | P<br>8 | P<br>9 | P<br>10 | P<br>11 | P<br>12 | P<br>13 | P<br>14 | P<br>15 | P<br>16 | N<br>P | N<br>P | F<br>1 | F<br>1 |

ANODE CONNECTION

|     | 9G  | 8G  | 7G  | 6G  | 5G  | 4G  | 3G  | 2G  | 1G                                                                                   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------------------------------------------------------------------------------|
| P1  | a   | a   | a   | a   | a   | a   | a   | a   | AM                                                                                   |
| P2  | b   | b   | b   | b   | b   | b   | b   | b   | PM                                                                                   |
| P3  | c   | c   | c   | c   | c   | c   | c   | c   | SW                                                                                   |
| P4  | d   | d   | d   | d   | d   | d   | d   | d   | PROGRAM                                                                              |
| P5  | e   | e   | e   | e   | e   | e   | e   | e   | PRESET                                                                               |
| P6  | f   | f   | f   | f   | f   | f   | f   | f   | NEWS                                                                                 |
| P7  | g   | g   | g   | g   | g   | g   | g   | g   | STEREO                                                                               |
| P8  | h   | h   | h   | h   | h   | h   | h   | h   | SLEEP                                                                                |
| P9  | i-p | i-p | i-p | i-p | i-p | i-p | i-p | i-p | TIMER                                                                                |
| P10 | k   | k   | k   | k   | k   | k   | k   | k   | 1                                                                                    |
| P11 | m   | m   | m   | m   | m   | m   | m   | m   | 2                                                                                    |
| P12 | n   | n   | n   | n   | n   | n   | n   | n   |  |
| P13 | r   | r   | r   | r   | r   | r   | r   | r   |  |
| P14 | FM  | -   | -   | -   | -   | -   | -   | kHz | -                                                                                    |
| P15 | MW  | -   | -   | -   | -   | -   | -   | MHz | -                                                                                    |
| P16 | LW  | -   | -   | -   | -   | -   | -   | -   | -                                                                                    |



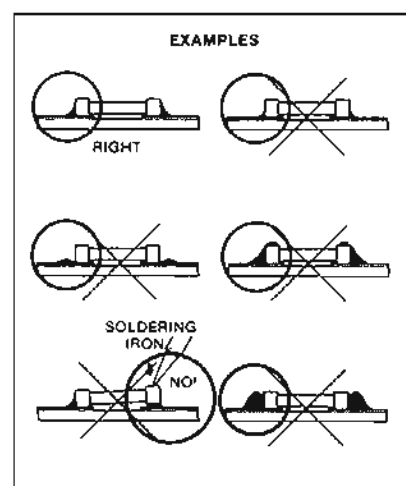
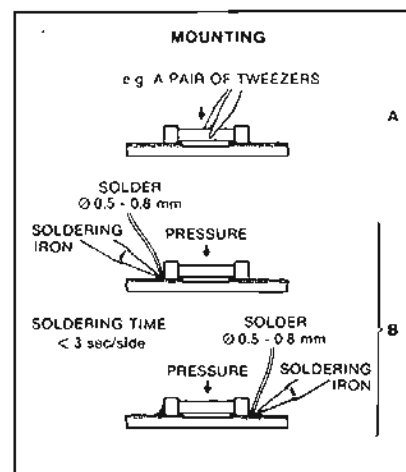
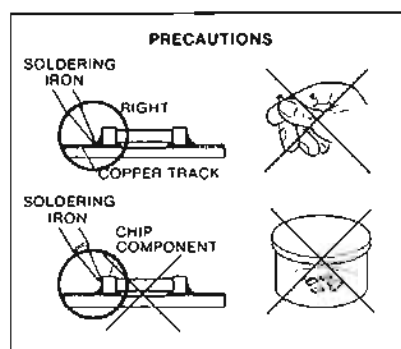
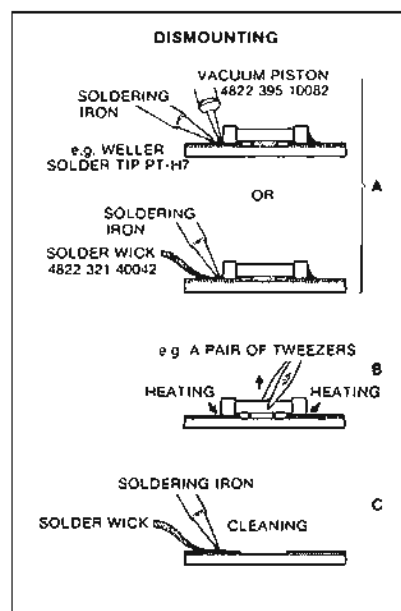
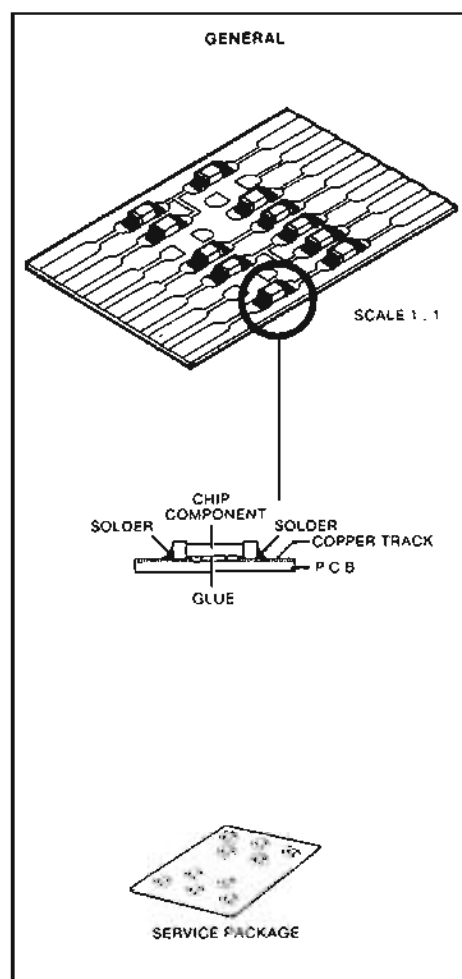
ANODE CONNECTION

|     | 1G  | 2G  | 3G  | 4G  | 5G  | 8G   | 7G                                                                                    |
|-----|-----|-----|-----|-----|-----|------|---------------------------------------------------------------------------------------|
| P1  | B1  | B1  | B1  | B1  | B1  | 1    |  |
| P2  | B2  | B2  | B2  | B2  | B2  | 2    |  |
| P3  | B3  | B3  | B3  | B3  | B3  | 3    |  |
| P4  | B4  | B4  | B4  | B4  | B4  | 4    |  |
| P5  | B5  | B5  | B5  | B5  | B5  | 5    |  |
| P6  | B6  | B6  | B6  | B6  | B6  | <(1) |  |
| P7  | B7  | B7  | B7  | B7  | B7  | <(2) | -                                                                                     |
| P8  | B8  | B8  | B8  | B8  | B8  | <(3) | -                                                                                     |
| P9  | B9  | B9  | B9  | B9  | B9  | <(4) | -                                                                                     |
| P10 | B10 | B10 | B10 | B10 | B10 | <(5) | -                                                                                     |
| P11 | B11 | B11 | B11 | B11 | B11 | -    | -                                                                                     |

## Quiescent Current

|                  |  |  |  |                 |  |                  |
|------------------|--|--|--|-----------------|--|------------------|
| SK....<br>SWITCH |  |  |  |                 |  |                  |
|                  |  |  |  | L ch<br>R 3285  |  | L ch.<br>DC 8 mV |
| STAND - BY       |  |  |  | R ch.<br>R 3284 |  | R ch.<br>DC 8 mV |

- Check for good thermal contact between power transistor and heatsink.
- Mains Voltage 220V /00 240V /05 5%
- Ambient temperature =20° 5° and heatsink must be at ambient temperature.
- Place the set on stand-by position.
- Trimpotmeter in clock wise position.
- The adjustment must be finished for both channels 20sec after power on.



27 012C12

## GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

## NL

Veiligheidsbepalingen vereisen dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

## D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

## WARNINGS

## GB WARNING

All ICs and many other semi conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

## NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat U tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op dit zelfde potentiaal.

## D WARNUNG

Alle IC's und viele andere Halbleiter sind empfindlich gegenüber electrostatischen Entladungen (ESD). Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes. Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

## I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiaggio identici a quelli specificati.

## F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

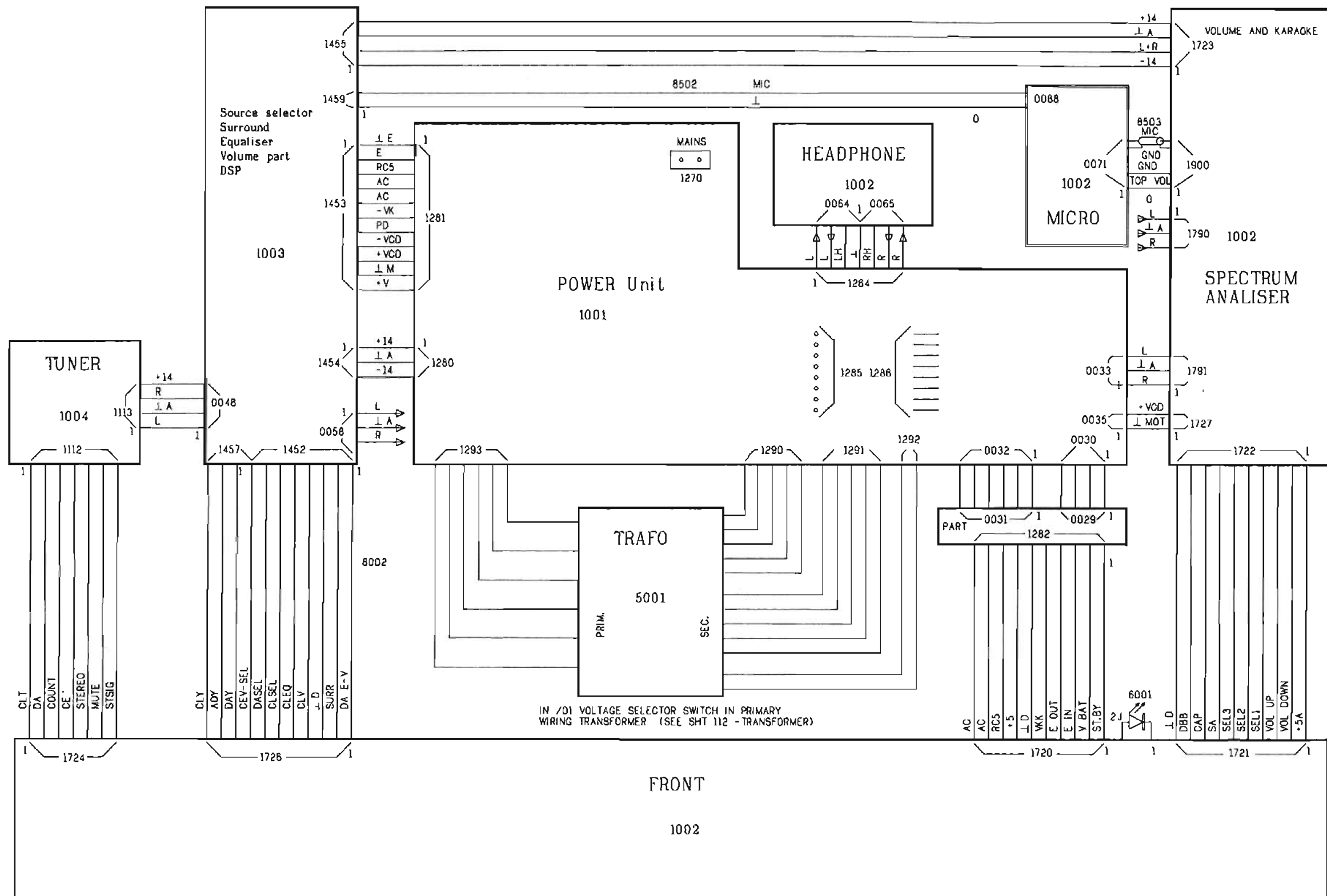
Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne.

## F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilier le bracelet serti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

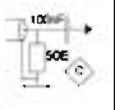
## I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche. (ESD) La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cautela alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.



AP.3104-219-00710.SERV-MAN update 29-10-92

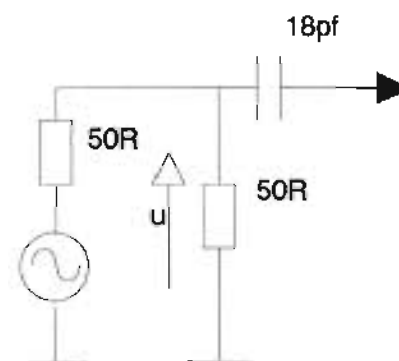
## TUNER Adjustment table

| Waverange                                  | Input frequency                                                     | Input                                                                               | Set tuned to | Adjust | Output | Scope / Voltmeter                 |
|--------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------|--------|--------|-----------------------------------|
| VARICAP ALIGNMENT                          |                                                                     |                                                                                     |              |        |        |                                   |
| FM /00/01/02/05<br>/10/17<br>87.5 - 108MHz |                                                                     |                                                                                     | 108 MHz      | check  | 6      | 7....9V                           |
|                                            |                                                                     |                                                                                     | 87.5MHz      | check  |        | 1.3....2V                         |
| FM /14<br>65 - 108MHz                      |                                                                     |                                                                                     | 108 MHz      | check  |        | 7...10,5V                         |
|                                            |                                                                     |                                                                                     | 65 MHz       | check  |        | 1,5....3V                         |
| FM /06<br>76 - 90MHz                       |                                                                     |                                                                                     | 90MHz        | check  |        | 7....9V                           |
|                                            |                                                                     |                                                                                     | 76MHz        | check  |        | 1.3....2V                         |
| AM /01/06/17<br>530 - 1710kHz              |                                                                     |                                                                                     | 1710kHz      | 5108   |        | 8.5V $\pm$ 0.1V                   |
|                                            |                                                                     |                                                                                     | 530kHz       | check  |        | 1V $\pm$ 0.3V                     |
| LW /00/02/05/10<br>/14<br>153 - 279kHz     |                                                                     |                                                                                     | 279kHz       | 5108   |        | 8.5V $\pm$ 0.1V                   |
|                                            |                                                                     |                                                                                     | 153kHz       | check  |        | 1V $\pm$ 0.1V                     |
| MW /00/02/05/10<br>/14<br>522 - 1611kHz    |                                                                     |                                                                                     | 1611kHz      | 2142   |        | 8.5V $\pm$ 0.1V                   |
|                                            |                                                                     |                                                                                     | 522kHz       | check  |        | 1.1V $\pm$ 0.3V                   |
| SW /00+SW<br>5,9 - 18,1MHz                 |                                                                     |                                                                                     | 18,1MHz      | 5123   |        | 8.5V $\pm$ 0.1V                   |
|                                            |                                                                     |                                                                                     | 5,9MHz       | check  |        | 1.1V $\pm$ 0.3V                   |
| SW /01+SW<br>3,9 - 12,1MHz                 |                                                                     |                                                                                     | 12,1MHz      | 5123   |        | 8.5V $\pm$ 0.1V                   |
|                                            |                                                                     |                                                                                     | 3,9MHz       | check  |        | 1.1V $\pm$ 0.3V                   |
| FM IF                                      |                                                                     |                                                                                     |              |        |        |                                   |
| FM                                         | 98 MHz 1mVrf<br>mod = 1kHz<br>$\Delta f$ = 75kHz<br>85 MHz /06      | A                                                                                   | 98MHz        | 5105   | 1<br>2 | 0V $\pm$ 20mV                     |
| STEREO CROSTALK                            |                                                                     |                                                                                     |              |        |        |                                   |
| FM                                         | 98 MHz 1mVrf<br>90% L +<br>9% pilot<br>85 MHz /06                   | A                                                                                   | 98MHz        | check  | 3      | low < 1V                          |
|                                            |                                                                     |                                                                                     |              | 3131   | 4      | R min. out                        |
| SEARCH SENSITIVITY                         |                                                                     |                                                                                     |              |        |        |                                   |
| FM                                         | 98 MHz 15 $\mu$ V<br>mod = 1kHz<br>$\Delta f$ = 75kHz<br>85 MHz /06 | A                                                                                   | 98MHz        | 3125   | 5      | Switches just<br>from High to Low |
| AM - IF                                    |                                                                     |                                                                                     |              |        |        |                                   |
| MW                                         | 1494kHz<br>$\Delta f$ = 10kHz<br>low as posible                     |  | 1494kHz      | 5104   | 7      | symmetrical and<br>max height     |

## TUNER Adjustment table

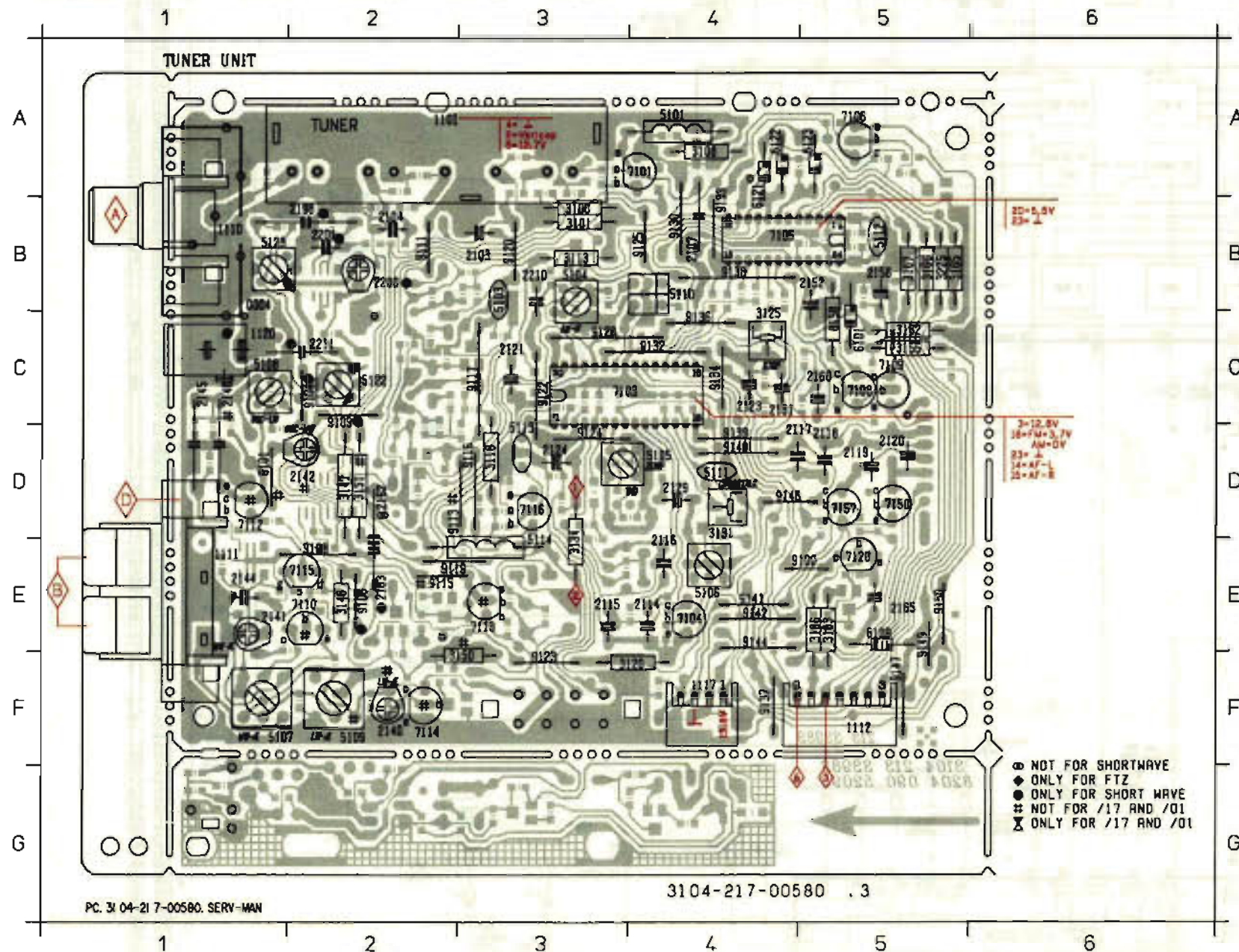
| Waverange                                      | Input frequency | Input | Set tuned to | Adjust | Output | Scope / Voltmeter  |
|------------------------------------------------|-----------------|-------|--------------|--------|--------|--------------------|
| AM - RF                                        |                 |       |              |        |        |                    |
| MW /00/02/05<br>/10/14<br>mod= 1 kHz<br>30% AM | 558kHz          | B     | 558kHz       | 5107   | 7      | MAX $\updownarrow$ |
|                                                | 1494kHz         |       | 1494kHz      | 2141   |        |                    |
| MW /01/06/17<br>mod= 1 kHz<br>30% AM           | 560kHz          |       | 560kHz       | 5107   |        | MAX $\updownarrow$ |
|                                                | 1600kHz         |       | 1600kHz      | 2141   |        |                    |
| LW<br>mod= 1 kHz<br>30% AM                     | 155kHz          | D     | 155kHz       | 5109   |        | MAX $\updownarrow$ |
|                                                | 270kHz          |       | 270kHz       | 2140   |        |                    |
| SW /00+SW<br>mod= 1 kHz<br>30% AM              | 5,9MHz          |       | 5,9MHz       | 5122   |        | MAX $\updownarrow$ |
|                                                | 18,1MHz         |       | 18,1MHz      | 2200   |        |                    |
| SW /00+SW<br>mod= 1 kHz<br>30% AM              | 3,9MHz          |       | 3,9MHz       | 5122   |        | MAX $\updownarrow$ |
|                                                | 12,1MHz         |       | 12,1MHz      | 2200   |        |                    |

\* Sw measured via aerial capacitor 18pF

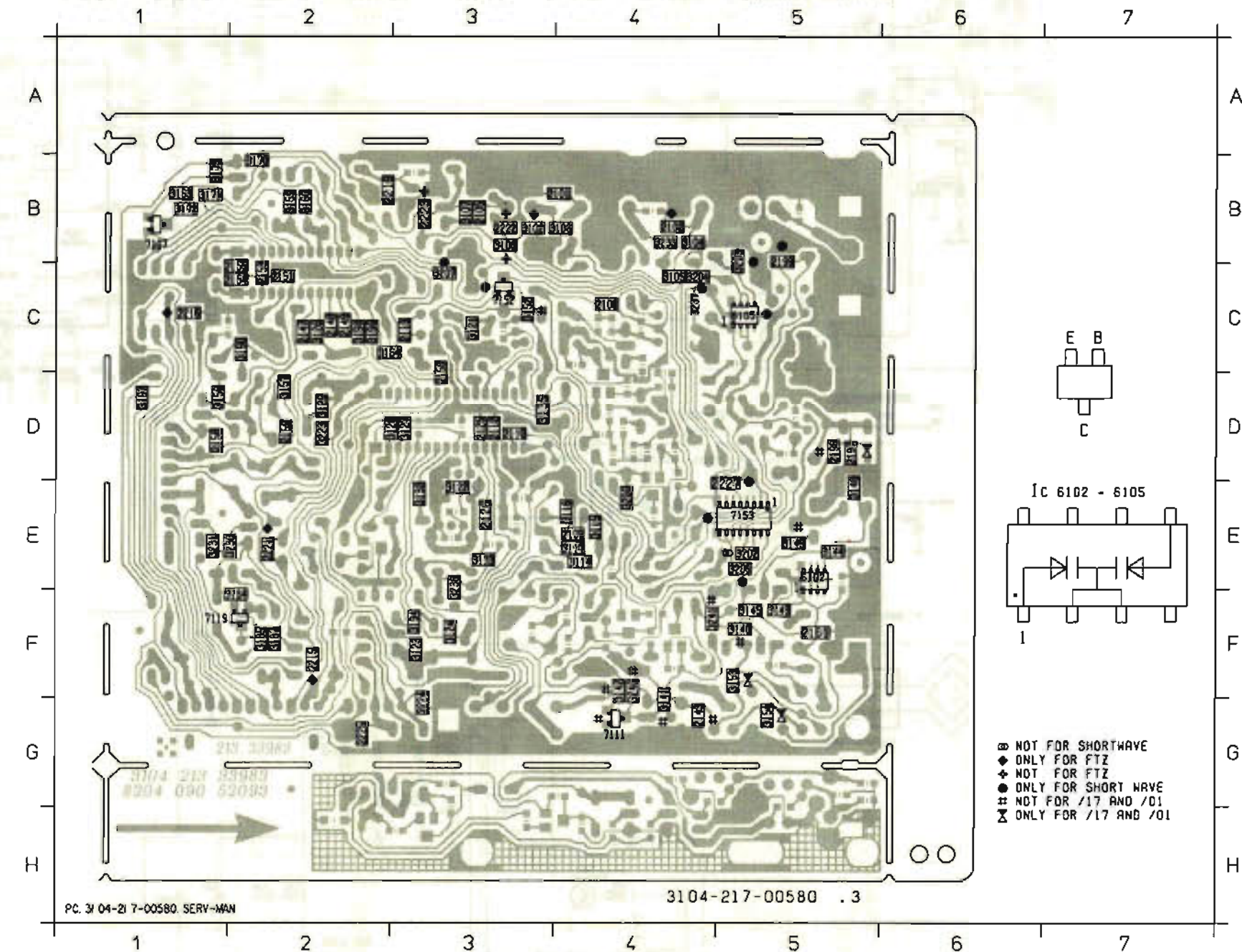




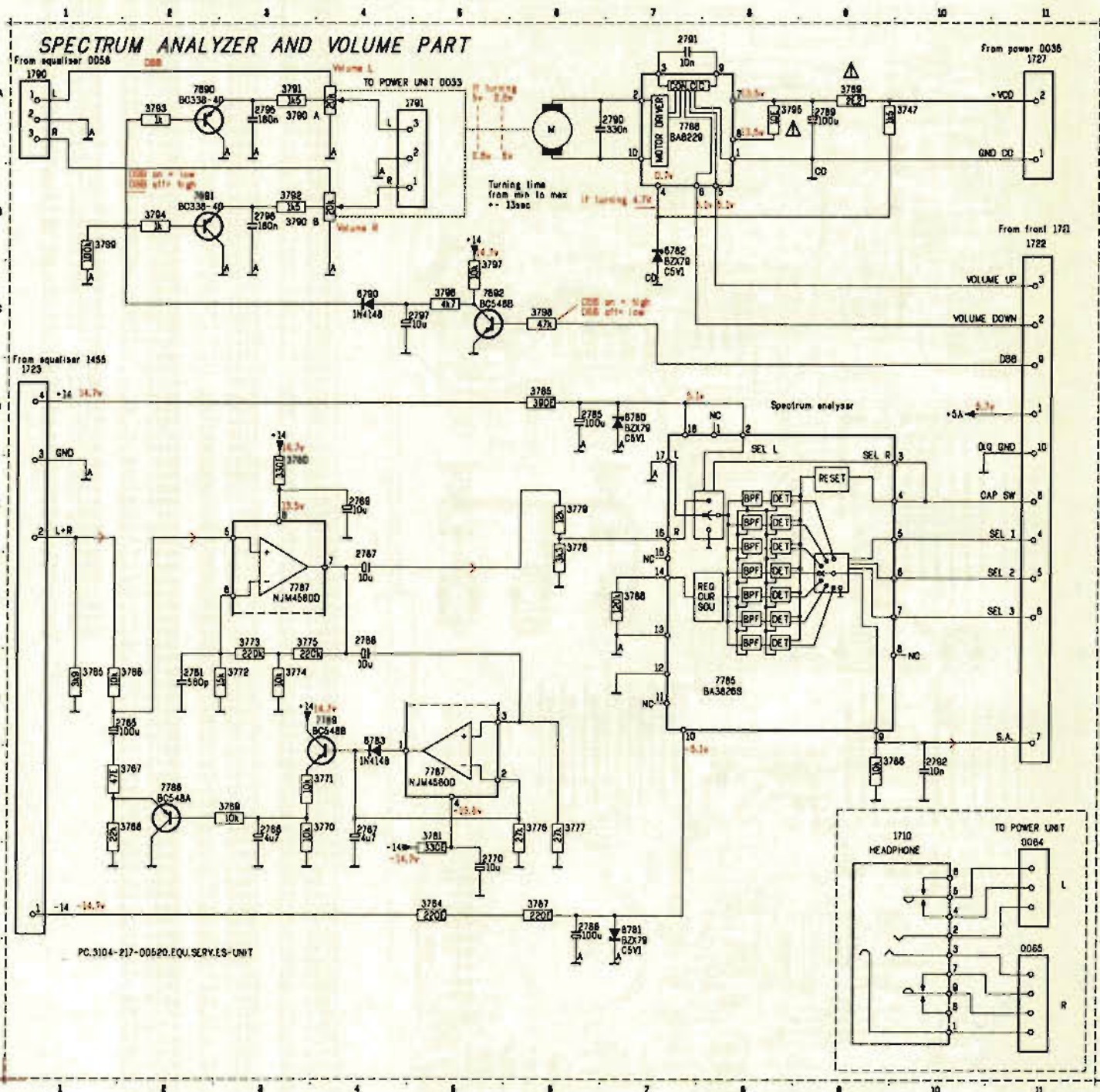
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|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0004 B1 | 2118 E4 | 2142 D2 | 2201 B2 | 3148 E2 | 3225 B5 | 5113 D3 | 7105 B4 | 7157 D5 | 9119 E2 | 9137 F4 |
| 1101 A2 | 2117 D5 | 2144 E1 | 2210 B3 | 3147 D2 | 5101 A4 | 5114 E3 | 7106 A5 | 9100 E5 | 9120 B3 | 9138 B4 |
| 1110 B1 | 2118 D5 | 2145 C1 | 2211 D2 | 3150 F3 | 5103 B3 | 5122 C2 | 7108 C5 | 9101 D1 | 9122 C3 | 9139 D4 |
| 1111 E1 | 2119 D5 | 2146 C1 | 3100 B3 | 3151 D2 | 5104 B3 | 5123 B1 | 7109 C5 | 9104 C2 | 9123 F3 | 9140 D4 |
| 1112 F6 | 2120 D5 | 2152 B5 | 3101 B3 | 3155 C5 | 5105 D4 | 5101 C5 | 7110 E2 | 9106 E2 | 9124 D3 | 9141 E4 |
| 1117 F4 | 2121 C3 | 2156 B5 | 3108 A4 | 3158 C5 | 5108 E4 | 5109 E6 | 7112 D1 | 9108 E2 | 9125 B4 | 9142 E4 |
| 1120 C1 | 2123 C4 | 2160 C5 | 3113 B3 | 3162 C5 | 5107 F1 | 5121 A4 | 7113 E3 | 9109 D2 | 9128 C3 | 9144 E4 |
| 2103 B3 | 2124 C3 | 2162 D2 | 3118 D3 | 3166 B5 | 5108 F1 | 5122 A4 | 7114 F2 | 9111 B2 | 9130 B4 | 9148 D4 |
| 2104 B2 | 2129 D4 | 2163 E2 | 3120 F4 | 3168 B5 | 5109 F2 | 5123 A6 | 7115 E2 | 9113 D2 | 9132 C4 | 9147 F5 |
| 2107 B4 | 2131 C4 | 2166 E6 | 3126 C4 | 3167 B5 | 5110 B4 | 7101 A4 | 7118 D3 | 9115 E2 | 9133 B4 | 9148 E5 |
| 2114 E4 | 2140 F2 | 2198 B2 | 3131 D4 | 3183 E6 | 5111 D4 | 7103 C3 | 7120 E5 | 9118 D3 | 9134 D4 | 9150 E5 |
| 2115 E3 | 2141 E1 | 2200 B2 | 3134 E3 | 3186 E6 | 5112 B5 | 7104 E4 | 7160 D6 | 9117 C3 | 9136 C4 |         |



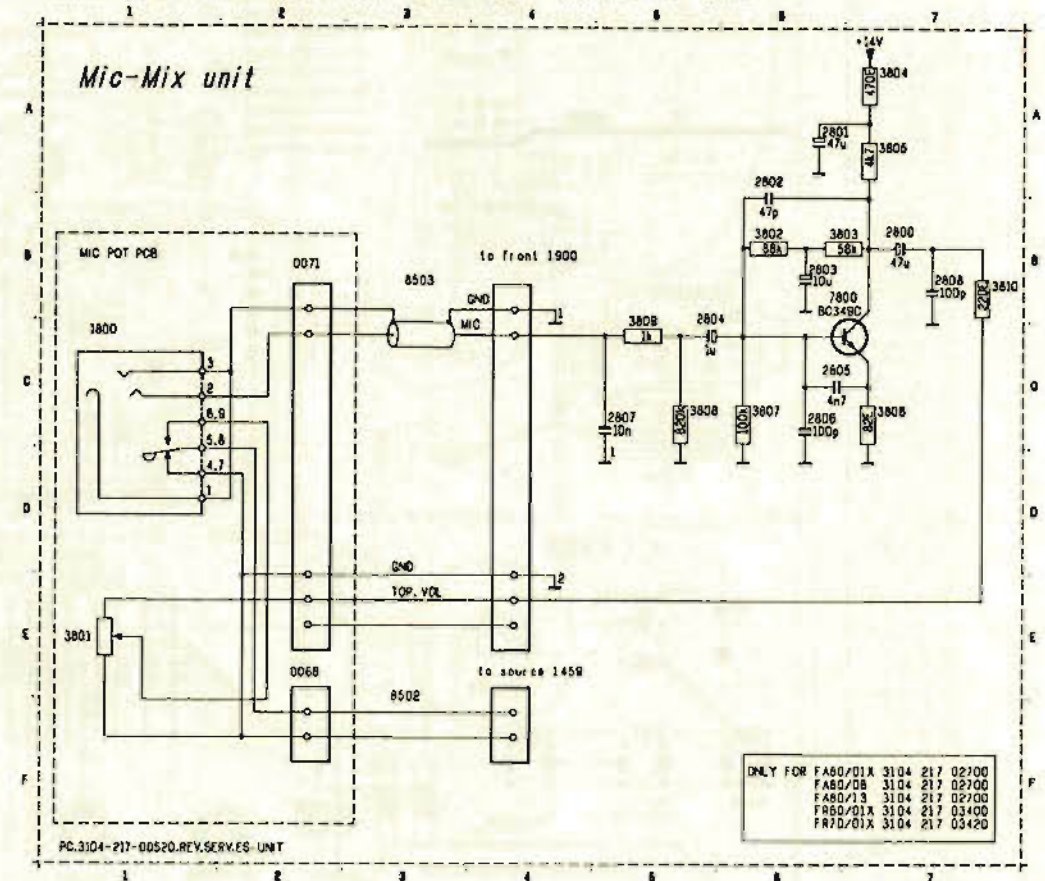
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|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2101 B4 | 2147 C2 | 2188 D5 | 2227 E5 | 3121 C3 | 3140 F6 | 3158 D1 | 3185 F2 | 3206 E5 | 5105 C6 |
| 2102 B4 | 2148 C2 | 2197 D5 | 3102 B3 | 3122 E3 | 3141 D4 | 3157 D2 | 3187 F2 | 3207 C3 | 7107 B1 |
| 2105 B3 | 2149 C2 | 2199 C5 | 3103 B3 | 3123 F3 | 3142 F4 | 3159 B2 | 3180 C2 | 3223 D2 | 7111 B4 |
| 2108 C4 | 2150 D3 | 2216 F2 | 3104 B4 | 3124 F3 | 3143 F6 | 3160 B2 | 3184 F3 | 3230 E2 | 7119 F1 |
| 2109 E4 | 2151 C2 | 2218 C1 | 3105 C4 | 3128 C2 | 3144 E6 | 3163 B1 | 3186 C2 | 3231 E1 | 7152 C3 |
| 2110 D3 | 2153 C2 | 2219 B2 | 3106 B4 | 3127 D3 | 3145 F6 | 3164 C2 | 3187 D1 | 3233 B4 | 7163 E5 |
| 2112 D3 | 2154 C2 | 2221 E2 | 3107 B3 | 3128 D3 | 3148 E5 | 3170 B2 | 3188 C2 | 3238 E3 |         |
| 2113 C3 | 2155 C2 | 2222 B3 | 3114 E4 | 3129 D2 | 3149 E6 | 3171 B1 | 3200 E4 | 3237 D4 |         |
| 2125 D3 | 2158 D1 | 2223 B3 | 3115 E4 | 3132 E3 | 3152 C3 | 3172 B1 | 3202 E5 | 3240 F4 |         |
| 2128 E3 | 2159 D2 | 2224 C3 | 3116 E4 | 3133 E3 | 3153 F6 | 3173 B1 | 3203 B5 | 3241 F4 |         |
| 2143 D4 | 2181 F6 | 2226 D2 | 3117 E4 | 3135 D3 | 3154 C5 | 3184 F2 | 3204 C4 | 5102 E5 |         |



0064 J11 1790 A1 2768 F4 2788 R8 2797 C4 3768 H2 3774 G3 3780 E3 3788 A9 3794 B2 8780 D7 7691 B2 7788 H2  
 0065 J01 1791 A5 2769 E4 2790 R6 3747 A10 3763 H3 3775 F3 3781 H5 3790 A4 3795 R9 6781 I7 7692 C5 7789 G4  
 1710 H10 2761 D2 2770 I5 2791 K7 3764 I5 3770 H4 3776 H6 3785 D6 3790 B4 3798 C5 6782 B7 7785 D6  
 1722 H11 2765 D1 2785 D6 2792 H10 3765 G1 3771 H4 3777 H6 3786 F7 3791 B3 3797 C5 6783 B4 7786 R7  
 1723 D1 2768 H3 2787 F4 2795 R3 3768 D2 3772 G3 3778 E8 3787 I6 3792 B3 3798 C6 6790 E4 7787 F3  
 1727 A11 2767 H4 2786 I6 2796 B3 3767 H2 3773 F3 3779 E6 3786 H8 3793 R2 3799 B1 7690 R2 7787 H5

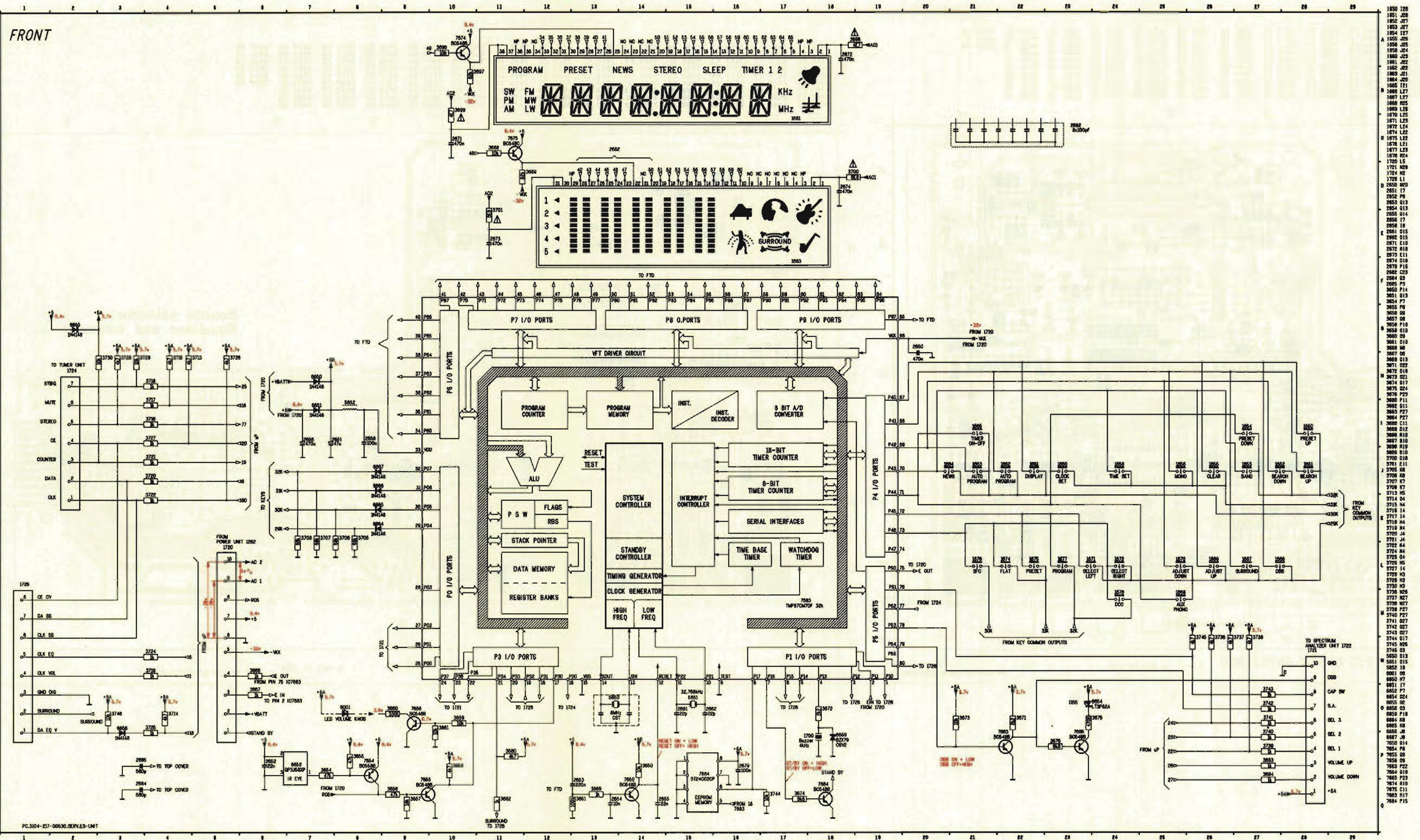


1800 C1 2801 A6 2803 B6 2805 C6 2807 C5 3801 E1 3803 B7 3805 A7 3807 C6 3809 C5 7800 B7  
 2800 B7 2802 A6 2804 C5 2806 C6 2808 B7 3802 B5 3804 A7 3806 C7 3808 C6 3810 B7

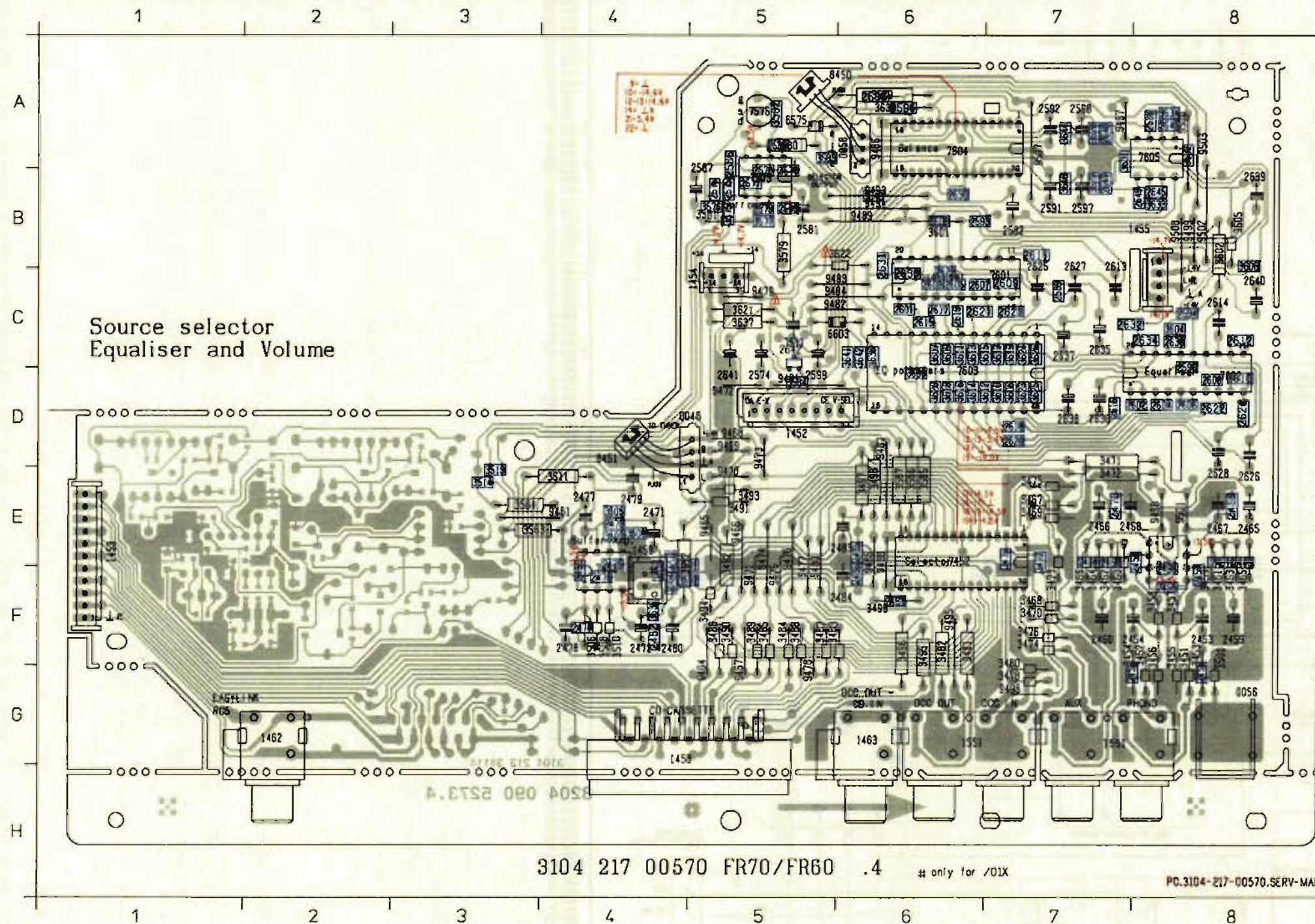




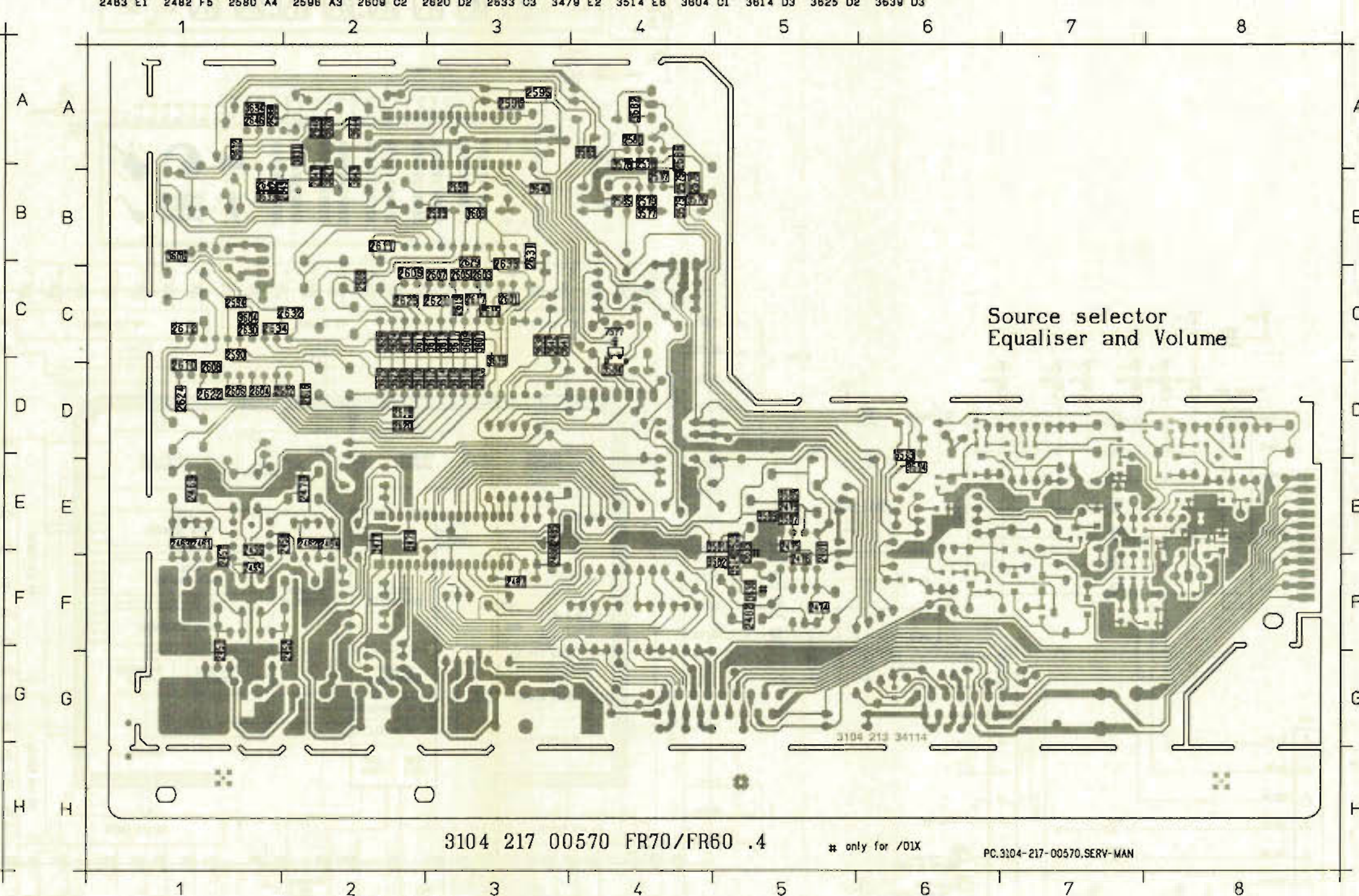
FRONT



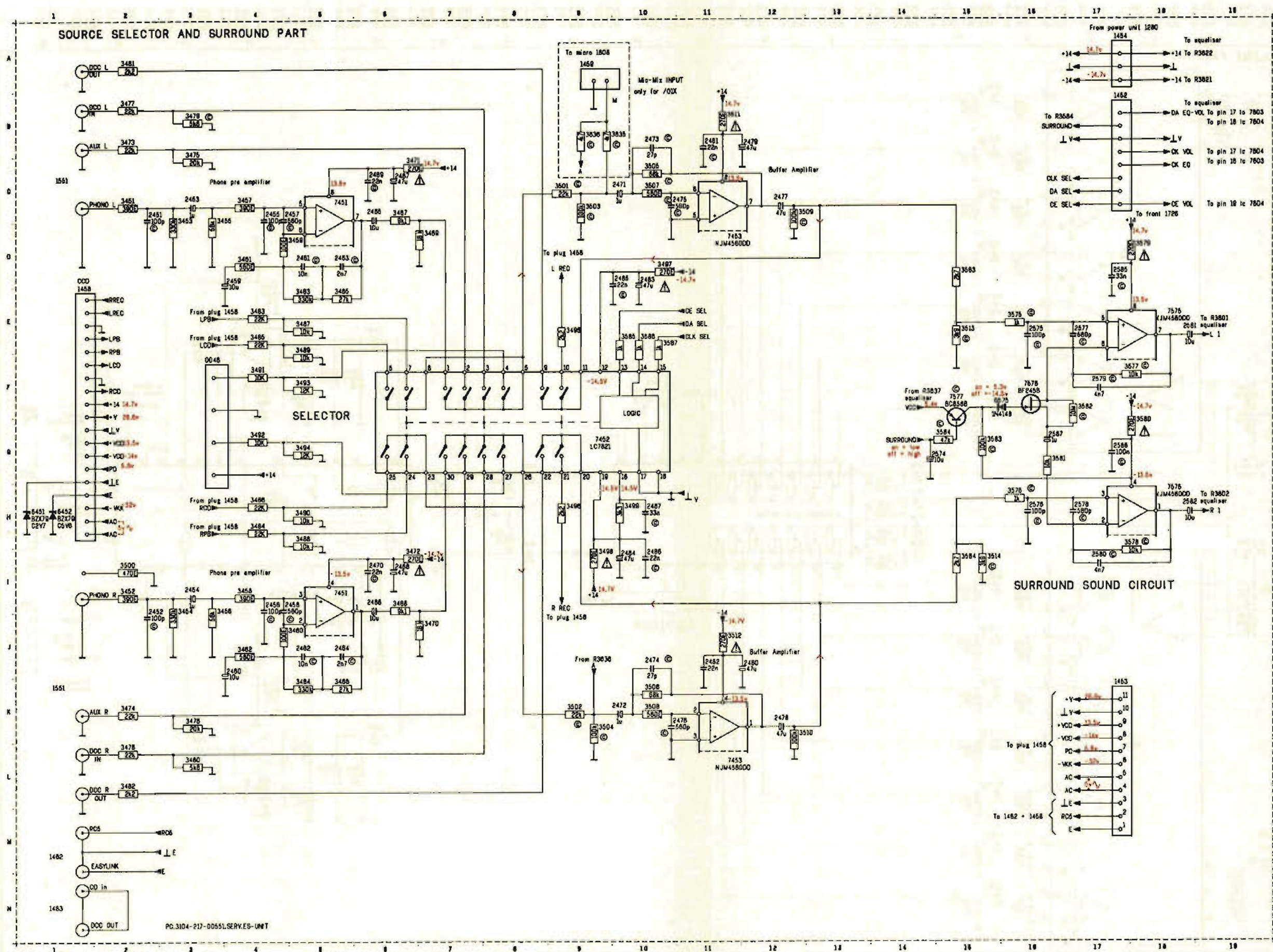
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|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0048 D5 | 1551 G8 | 2472 F4 | 2587 A5 | 2627 C7 | 3451 F8 | 3481 F8 | 3471 D7 | 3483 F6 | 3493 E5 | 3510 F4 | 3587 E8 | 6603 C6 | 7605 A8 | 9470 E5 | 9480 E5 | 9483 B6 | 9503 A8 |
| 0056 G8 | 2453 F8 | 2477 E4 | 2591 B7 | 2626 E8 | 3452 F8 | 3482 F7 | 3472 E7 | 3484 F6 | 3494 F6 | 3511 E4 | 3601 B6 | 7451 F8 | 8450 A8 | 9471 F5 | 9481 D6 | 9484 B6 | 9507 A7 |
| 0058 A6 | 2454 F8 | 2478 F4 | 2592 A7 | 2635 C7 | 3453 F8 | 3483 F8 | 3473 F7 | 3485 F6 | 3495 F8 | 3512 E5 | 3602 B8 | 7452 E6 | 8451 D4 | 9472 D5 | 9482 C5 | 9485 F6 | 9508 B8 |
| 1452 D5 | 2459 F8 | 2479 F4 | 2597 B7 | 2636 D7 | 3454 F7 | 3484 F7 | 3474 F7 | 3486 F6 | 3496 F8 | 3513 E5 | 3603 B8 | 7453 F4 | 8451 E4 | 9473 D6 | 9483 C5 | 9486 G7 |         |
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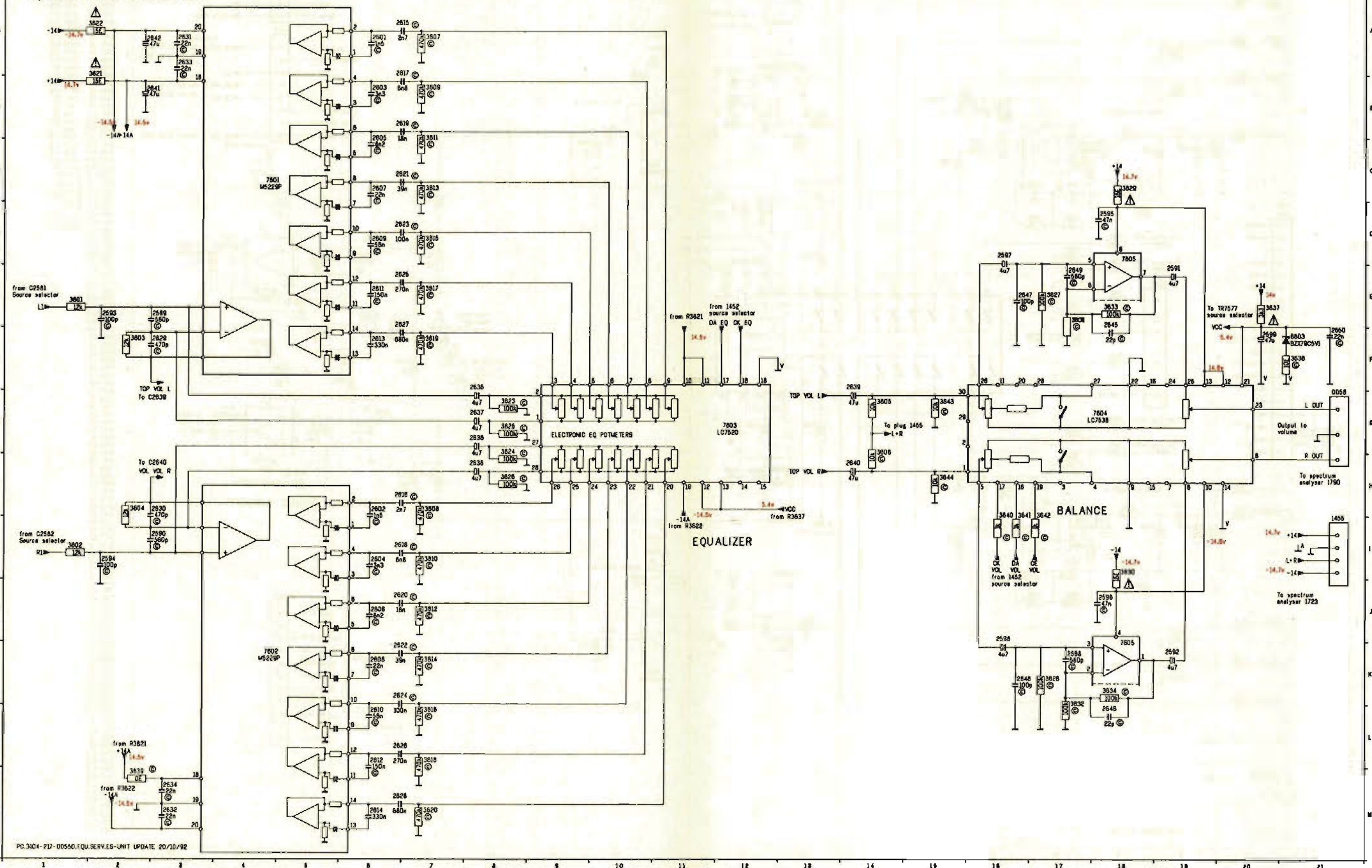
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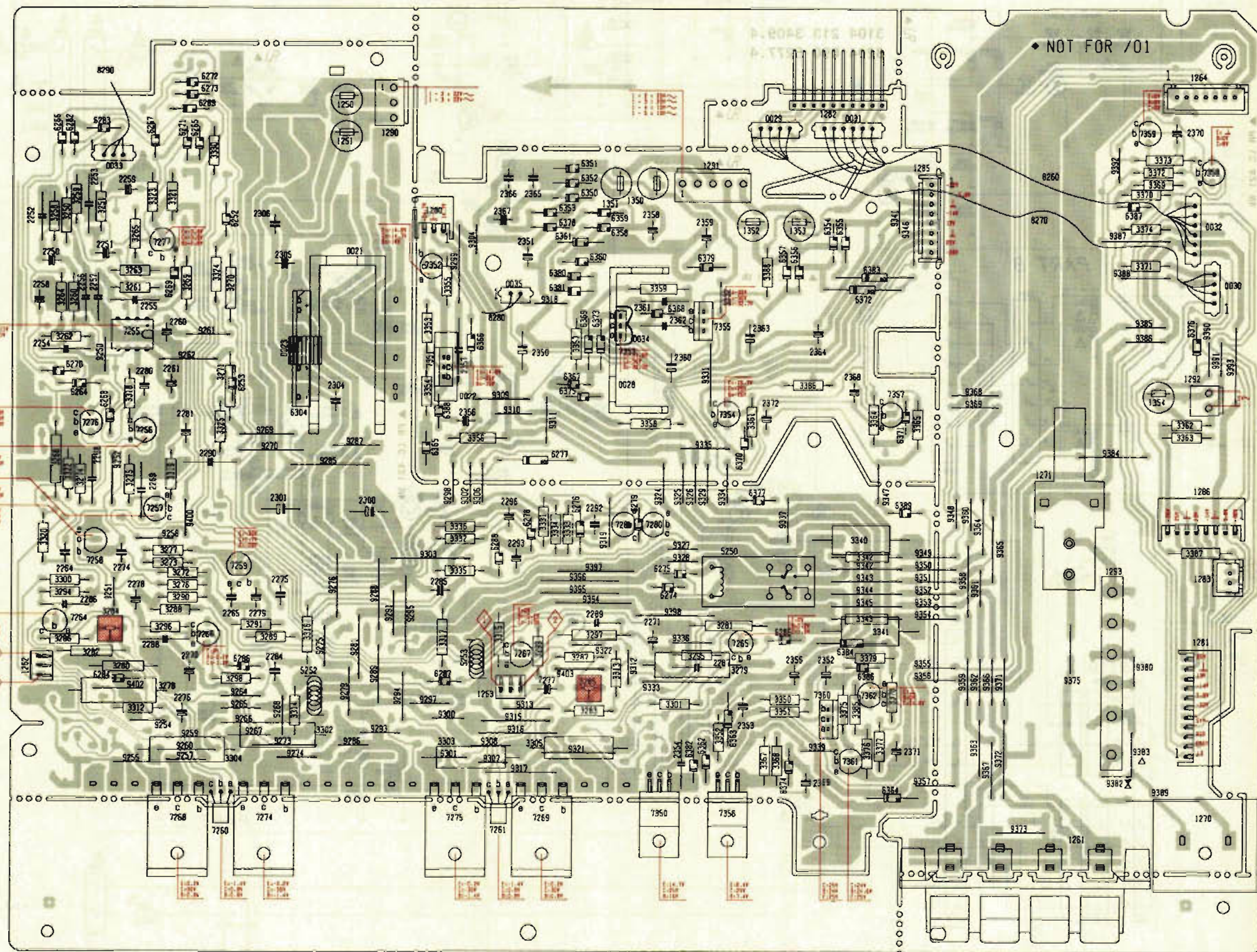
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| 100x E17 | 2590 I3 | 2593 E2 | 2596 J18 | 2599 F20 | 2603 06 | 2606 J6 | 2609 D6 | 2612 L6 | 2615 H6 | 2618 I6 | 2621 K6 | 2624 K6 | 2627 E6 | 2630 H3 | 2633 H3 | 2636 06 | 2639 F14 | 2642 A2 | 2647 I16 | 2650 F21 | 2653 F2 | 2656 H14 | 2659 07 | 2612 J7 | 2615 07 | 2618 L7 | 2621 02 | 2624 H9 | 2627 E17 | 2630 I18 | 2633 E18 | 2636 F21 | 2639 I16 | 2642 I16 | 2645 I16 | 2648 I16 | 2651 E1 | 2654 H14 | 2657 07 | 2660 I7 | 2663 I7 | 2666 I7 | 2669 I7 | 2672 I7 | 2675 I7 | 2678 I7 | 2681 I7 | 2684 I7 | 2687 I7 | 2690 I7 | 2693 I7 | 2696 I7 | 2699 I7 | 2702 I7 | 2705 I7 | 2708 I7 | 2711 I7 | 2714 I7 | 2717 I7 | 2720 I7 | 2723 I7 | 2726 I7 | 2729 I7 | 2732 I7 | 2735 I7 | 2738 I7 | 2741 I7 | 2744 I7 | 2747 I7 | 2750 I7 | 2753 I7 | 2756 I7 | 2759 I7 | 2762 I7 | 2765 I7 | 2768 I7 | 2771 I7 | 2774 I7 | 2777 I7 | 2780 I7 | 2783 I7 | 2786 I7 | 2789 I7 | 2792 I7 | 2795 I7 | 2798 I7 | 2801 I7 | 2804 I7 | 2807 I7 | 2810 I7 | 2813 I7 | 2816 I7 | 2819 I7 | 2822 I7 | 2825 I7 | 2828 I7 | 2831 I7 | 2834 I7 | 2837 I7 | 2840 I7 | 2843 I7 | 2846 I7 | 2849 I7 | 2852 I7 | 2855 I7 | 2858 I7 | 2861 I7 | 2864 I7 | 2867 I7 | 2870 I7 | 2873 I7 | 2876 I7 | 2879 I7 | 2882 I7 | 2885 I7 | 2888 I7 | 2891 I7 | 2894 I7 | 2897 I7 | 2900 I7 | 2903 I7 | 2906 I7 | 2909 I7 | 2912 I7 | 2915 I7 | 2918 I7 | 2921 I7 | 2924 I7 | 2927 I7 | 2930 I7 | 2933 I7 | 2936 I7 | 2939 I7 | 2942 I7 | 2945 I7 | 2948 I7 | 2951 I7 | 2954 I7 | 2957 I7 | 2960 I7 | 2963 I7 | 2966 I7 | 2969 I7 | 2972 I7 | 2975 I7 | 2978 I7 | 2981 I7 | 2984 I7 | 2987 I7 | 2990 I7 | 2993 I7 | 2996 I7 | 2999 I7 | 3002 I7 | 3005 I7 | 3008 I7 | 3011 I7 | 3014 I7 | 3017 I7 | 3020 I7 | 3023 I7 | 3026 I7 | 3029 I7 | 3032 I7 | 3035 I7 | 3038 I7 | 3041 I7 | 3044 I7 | 3047 I7 | 3050 I7 | 3053 I7 | 3056 I7 | 3059 I7 | 3062 I7 | 3065 I7 | 3068 I7 | 3071 I7 | 3074 I7 | 3077 I7 | 3080 I7 | 3083 I7 | 3086 I7 | 3089 I7 | 3092 I7 | 3095 I7 | 3098 I7 | 3101 I7 | 3104 I7 | 3107 I7 | 3110 I7 | 3113 I7 | 3116 I7 | 3119 I7 | 3122 I7 | 3125 I7 | 3128 I7 | 3131 I7 | 3134 I7 | 3137 I7 | 3140 I7 | 3143 I7 | 3146 I7 | 3149 I7 | 3152 I7 | 3155 I7 | 3158 I7 | 3161 I7 | 3164 I7 | 3167 I7 | 3170 I7 | 3173 I7 | 3176 I7 | 3179 I7 | 3182 I7 | 3185 I7 | 3188 I7 | 3191 I7 | 3194 I7 | 3197 I7 | 3200 I7 | 3203 I7 | 3206 I7 | 3209 I7 | 3212 I7 | 3215 I7 | 3218 I7 | 3221 I7 | 3224 I7 | 3227 I7 | 3230 I7 | 3233 I7 | 3236 I7 | 3239 I7 | 3242 I7 | 3245 I7 | 3248 I7 | 3251 I7 | 3254 I7 | 3257 I7 | 3260 I7 | 3263 I7 | 3266 I7 | 3269 I7 | 3272 I7 | 3275 I7 | 3278 I7 | 3281 I7 | 3284 I7 | 3287 I7 | 3290 I7 | 3293 I7 | 3296 I7 | 3299 I7 | 3302 I7 | 3305 I7 | 3308 I7 | 3311 I7 | 3314 I7 | 3317 I7 | 3320 I7 | 3323 I7 | 3326 I7 | 3329 I7 | 3332 I7 | 3335 I7 | 3338 I7 | 3341 I7 | 3344 I7 | 3347 I7 | 3350 I7 | 3353 I7 | 3356 I7 | 3359 I7 | 3362 I7 | 3365 I7 | 3368 I7 | 3371 I7 | 3374 I7 | 3377 I7 | 3380 I7 | 3383 I7 | 3386 I7 | 3389 I7 | 3392 I7 | 3395 I7 | 3398 I7 | 3401 I7 | 3404 I7 | 3407 I7 | 3410 I7 | 3413 I7 | 3416 I7 | 3419 I7 | 3422 I7 | 3425 I7 | 3428 I7 | 3431 I7 | 3434 I7 | 3437 I7 | 3440 I7 | 3443 I7 | 3446 I7 | 3449 I7 | 3452 I7 | 3455 I7 | 3458 I7 | 3461 I7 | 3464 I7 | 3467 I7 | 3470 I7 | 3473 I7 | 3476 I7 | 3479 I7 | 3482 I7 | 3485 I7 | 3488 I7 | 3491 I7 | 3494 I7 | 3497 I7 | 3500 I7 | 3503 I7 | 3506 I7 | 3509 I7 | 3512 I7 | 3515 I7 | 3518 I7 | 3521 I7 | 3524 I7 | 3527 I7 | 3530 I7 | 3533 I7 | 3536 I7 | 3539 I7 | 3542 I7 | 3545 I7 | 3548 I7 | 3551 I7 | 3554 I7 | 3557 I7 | 3560 I7 | 3563 I7 | 3566 I7 | 3569 I7 | 3572 I7 | 3575 I7 | 3578 I7 | 3581 I7 | 3584 I7 | 3587 I7 | 3590 I7 | 3593 I7 | 3596 I7 | 3599 I7 | 3602 I7 | 3605 I7 | 3608 I7 | 3611 I7 | 3614 I7 | 3617 I7 | 3620 I7 | 3623 I7 | 3626 I7 | 3629 I7 | 3632 I7 | 3635 I7 | 3638 I7 | 3641 I7 | 3644 I7 | 3647 |
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### EQUALISER AND VOLUME PART





## Power unit



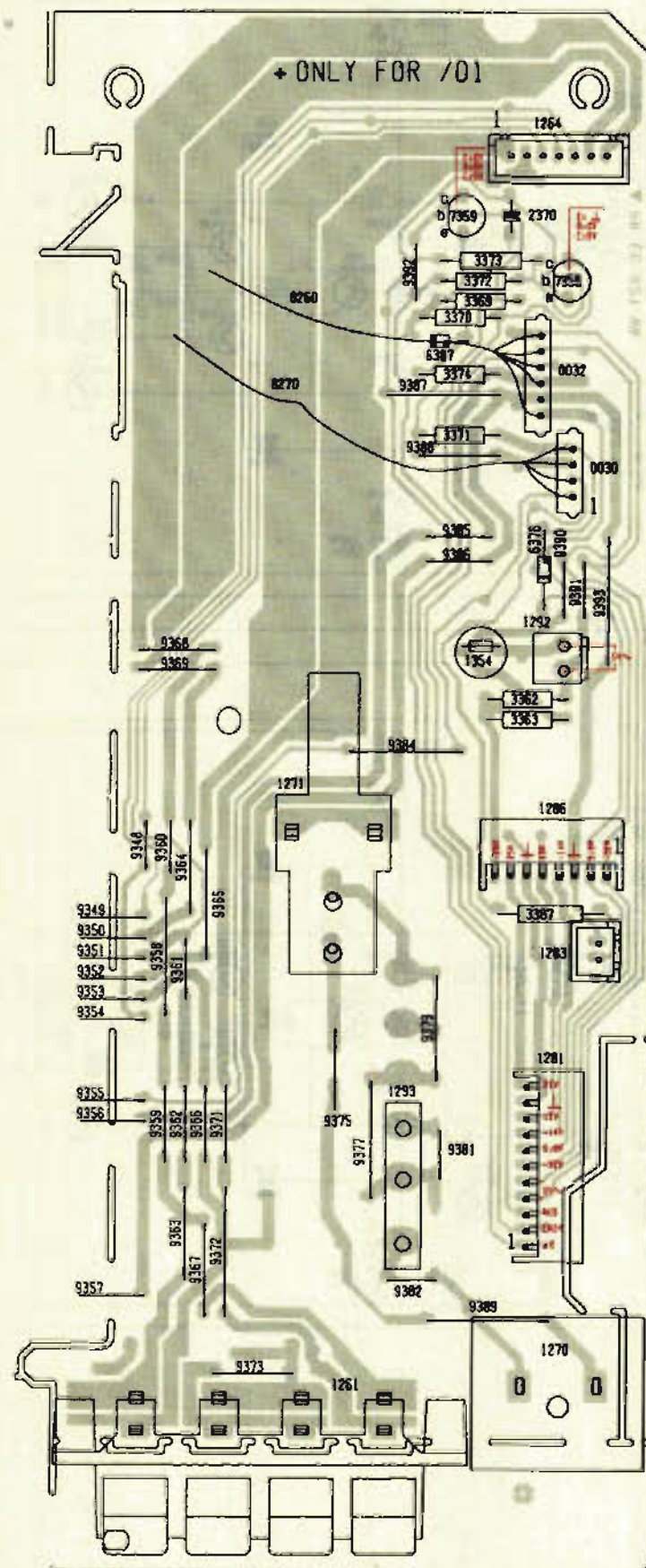
PC 3104-217-00500.SERV-MAN

FR60 3104 217 00500 .4

♦ ONLY FOR /01 △ ONLY FOR /05  
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♦ NOT FOR /01

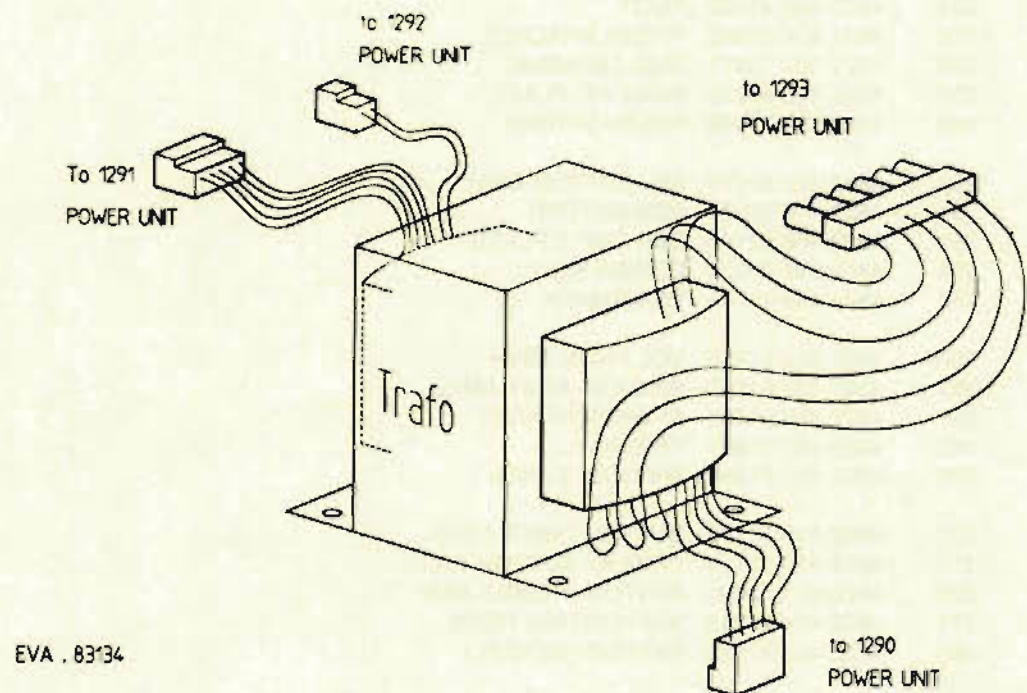
♦ ONLY FOR /01



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| 0028 F6  | 3270 E3  | 6279 G6  | 9291 I4  | 9390 E15 |
| 0029 B7  | 3271 F3  | 6282 B1  | 9293 J4  | 9391 E11 |
| 0030 E11 | 3272 H2  | 6283 B2  | 9294 J4  | 9391 E16 |
| 0031 B8  | 3274 G1  | 6285 I8  | 9297 J4  | 9392 C14 |
| 0032 D11 | 3275 G2  | 6286 I3  | 9296 G6  | 9393 F11 |
| 0032 D15 | 3276 H2  | 6287 J5  | 9299 D6  | 9393 F15 |
| 0033 G8  | 3277 H2  | 6288 H5  | 9300 I4  | 9394 I8  |
| 0034 E6  | 3278 J2  | 6289 F3  | 9301 K5  | 9395 I8  |
| 0035 E5  | 3279 J7  | 6304 F3  | 9302 G6  | 9396 H6  |
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| 1251 C4  | 3281 I7  | 6351 G6  | 9304 G6  | 9398 I7  |
| 1261 L10 | 3282 I2  | 6362 G6  | 9306 G6  | 9400 H2  |
| 1261 L14 | 3283 J6  | 6363 G6  | 9307 K5  | 9400 H2  |
| 1262 J5  | 3284 I2  | 6354 G6  | 9308 J5  | 9403 J6  |
| 1263 J5  | 3285 J6  | 6365 G6  | 9309 F5  |          |
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| 1264 B16 | 3287 I6  | 6367 G6  | 9311 F6  |          |
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| 1270 K15 | 3289 I3  | 6369 G6  | 9313 J5  |          |
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| 1271 G14 | 3291 I3  | 6361 G6  | 9316 J6  |          |
| 1280 D5  | 3294 I1  | 6362 J7  | 9317 K5  |          |
| 1281 I11 | 3295 J7  | 6363 J7  | 9318 F6  |          |
| 1281 I15 | 3296 I2  | 6364 K8  | 9319 H6  |          |
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| 1283 H11 | 3298 J3  | 6366 E5  | 9322 I6  |          |
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| 1291 C7  | 3304 K3  | 6372 E8  | 9329 G7  |          |
| 1292 F11 | 3305 J5  | 6373 E6  | 9331 F7  |          |
| 1292 F15 | 3312 J2  | 6374 K8  | 9332 E7  |          |
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| 1353 D6  | 3318 F2  | 6379 G7  | 9339 K8  |          |
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| 1354 F15 | 3320 H1  | 6381 E6  | 9342 H6  |          |
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| 2286 I2  | 3362 F15 | 7351 F4  | 9359 J9  |          |
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| 2301 G3  | 3370 G11 | 7359 G11 | 9363 H13 |          |
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| 2357 F5  | 3376 K8  | 8290 G2  | 9369 F9  |          |
| 2358 D6  | 3377 J8  | 9251 H2  | 9371 J13 |          |
| 2359 D7  | 3378 J9  | 9252 G2  | 9371 J9  |          |
| 2360 F7  | 3379 I8  | 9254 J2  | 9372 K13 |          |
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| 2375 D1  | 6269 E2  | 9274 K3  | 9385 E14 |          |
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| 2377 E1  | 6271 B2  | 9276 H4  | 9386 E14 |          |
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| 2384 E1  | 6275 H7  | 9286 J4  | 9388 D14 |          |



MAINS TRAF0 DIAGRAM



| TUNER PART    |                |                    |           |                |                   |
|---------------|----------------|--------------------|-----------|----------------|-------------------|
| MISCELLANEOUS |                |                    |           |                |                   |
| 1101          | 4822 210 10491 | TUNER FEE337-A05   | 2150      | 5322 122 32654 | 22nF 10% 63V      |
| 1101          | 4822 210 10492 | TUNER FE415-G11/02 | 2151      | 5322 122 34099 | 470pF 10% 63V     |
| 1110          | 4822 267 10283 | FM ANT SOCKET      | 2152      | 4822 124 40242 | 1µF 20% 63V       |
| 1111          | 4822 267 31505 | AM ANT SOCKET      | 2153      | 5322 122 34099 | 470pF 10% 63V     |
|               |                |                    | 2154      | 5322 122 32481 | 15pF 5% 50V       |
| CAPACITORS    |                |                    | 2155      | 5322 122 32965 | 18pF 5%NPO 50V    |
| 2101          | 5322 122 34099 | 470pF 10% 63V      | 2156      | 4822 124 40433 | 47µF 20% 25V      |
| 2102          | 5322 122 32268 | 470pF 10% 50V /02  | 2158      | 5322 126 10223 | 4,7nF 10% 63V     |
| 2103          | 4822 124 40433 | 47µF 20% 25V       | 2159      | 5322 126 10223 | 4,7nF 10% 63V     |
| 2104          | 4822 121 42408 | 220nF 5% 63V       | 2160      | 4822 124 41631 | 1,5µF 50V         |
| 2105          | 5322 122 32287 | 4,7pF 5% 50V       | 2161      | 4822 122 32927 | 220nF             |
| 2105          | 5322 122 32965 | 18pF 5%NPO 50V /02 | 2162      | 4822 122 10166 | 22nF 30% 16V      |
| 2107          | 4822 122 10225 | 82pF 5% 50V        | 2165      | 4822 124 40433 | 47µF 20% 25V      |
| 2107          | 4822 122 31385 | 22pF 50V /02       | 2196      | 5322 122 32448 | 10pF 5% 50V       |
| 2108          | 5322 122 32654 | 22nF 10% 63V       | 2197      | 4822 122 33804 | 27pF 5% 50V /17   |
| 2109          | 5322 122 32654 | 22nF 10% 63V       | 2210      | 4822 124 41643 | 100µF 20% 16V     |
| 2110          | 5322 122 32654 | 22nF 10% 63V       | 2215      | 5322 122 32268 | 470pF 10% 50V /02 |
| 2112          | 5322 122 32654 | 22nF 10% 63V       | 2216      | 5322 122 32268 | 470pF 10% 50V /02 |
| 2113          | 5322 122 32661 | 56pF 5% 50V        | 2219      | 4822 122 32927 | 220nF             |
| 2114          | 5322 124 41431 | 22µF 20% 35V       | 2221      | 5322 122 32268 | 470pF 10% 50V /02 |
| 2115          | 4822 124 40239 | 0,47µF 20% 63V     | 2222      | 5322 122 32268 | 470pF 10% 50V     |
| 2116          | 5322 121 42386 | 100nF 5% 63V       | 2223      | 4822 122 32927 | 220nF             |
| 2117          | 4822 121 41935 | 12nF 5% 250V       | 2224      | 4822 122 32575 | 220pF 10% 500V    |
| 2117          | 4822 121 43179 | 18nF 5% 250V /17   | 2225      | 4822 122 32575 | 220pF 10% 500V    |
| 2118          | 4822 121 41935 | 12nF 5% 250V       | RESISTORS |                |                   |
| 2118          | 4822 121 43179 | 18nF 5% 250V /17   | 3100      | 4822 050 21501 | 150Ω 1% 0,6W      |
| 2119          | 4822 124 40244 | 2,2µF 20% 63V      | 3101      | 4822 050 21501 | 150Ω 1% 0,6W      |
| 2120          | 4822 124 40244 | 2,2µF 20% 63V      | 3102      | 4822 051 20224 | 220k 5% 0,1W /02  |
| 2121          | 4822 124 40196 | 220µF 20% 16V      | 3103      | 4822 051 20008 | 0Ω 5% 0,1W        |
| 2123          | 4822 124 40246 | 4,7µF 20% 63V      | 3104      | 4822 051 20008 | 0Ω 5% 0,1W        |
| 2124          | 4822 124 40246 | 4,7µF 20% 63V      | 3104      | 4822 051 20154 | 150k 5% 0,1W /02  |
| 2125          | 4822 122 33177 | 10nF 20% 50V       | 3105      | 4822 051 20562 | 5k6 5% 0,1W       |
| 2126          | 4822 122 31782 | 15000pF 10% 50V    | 3106      | 4822 051 20829 | 82Ω 5% 0,1W       |
| 2129          | 4822 124 40242 | 1µF 20% 63V        | 3107      | 4822 051 20104 | 100k 5% 0,1W      |
| 2131          | 4822 124 40435 | 10µF 20% 50V       | 3108      | 4822 050 24701 | 470Ω 1% 0,6W      |
| 2140          | 4822 125 60102 | TRIMMER 30pF       | 3113      | 4822 053 10221 | 220Ω 5% 1W        |
| 2141          | 4822 125 60101 | TRIMMER 10pF       | 3114      | 4822 051 20472 | 4k7 5% 0,1W       |
| 2142          | 4822 125 60102 | TRIMMER 30pF       | 3115      | 4822 051 20391 | 390Ω 5% 0,1W      |
| 2143          | 5322 122 32269 | 6,8pF 5% 50V       | 3116      | 4822 051 20478 | 4Ω7 5% 0,1W       |
| 2144          | 4822 121 42408 | 220nF 5% 63V       | 3117      | 4822 051 20331 | 330Ω 5% 0,1W      |
| 2145          | 4822 121 51263 | 510pF 1% 400V      | 3118      | 4822 116 52215 | 220Ω 5% 0,5W      |
| 2145          | 4822 121 51381 | 560pF 5% 400V /17  | 3120      | 4822 052 10339 | 33Ω 5% 0,33W      |
| 2146          | 4822 121 70082 | 430pF 1% 400V      | 3121      | 4822 051 20272 | 2k7 5% 0,1W       |
| 2147          | 5322 122 32654 | 22nF 10% 63V       | 3122      | 4822 051 20562 | 5k6 5% 0,1W       |
| 2148          | 5322 122 32452 | 47pF 5% 63V        | 3123      | 4822 051 20223 | 22k 5% 0,1W       |
| 2149          | 4822 122 33177 | 10nF 20% 50V       | 3124      | 4822 051 20103 | 10k 5% 0,1W       |
|               |                |                    | 3125      | 4822 100 11213 | TRIMMER 22k 30%   |
|               |                |                    | 3126      | 4822 051 20123 | 12k 5% 0,1W       |
|               |                |                    | 3127      | 4822 051 20562 | 5k6 5% 0,1W       |
|               |                |                    | 3128      | 4822 051 20562 | 5k6 5% 0,1W       |

| 3129               | 4822 051 20103 | 10k 5% 0,1W        |  |
|--------------------|----------------|--------------------|--|
| 3131               | 4822 100 11319 | TRIMMER 4k7        |  |
| 3132               | 4822 051 20103 | 10k 5% 0,1W        |  |
| 3133               | 4822 051 20008 | 0Ω 5% 0,1W         |  |
| 3134               | 4822 050 15602 | 5k6 1% 0,4W        |  |
| 3135               | 4822 051 10008 | 0Ω 5% 0,25W        |  |
| 3140               | 4822 051 20821 | 820Ω 5% 0,1W       |  |
| 3141               | 4822 051 20182 | 1k8 5% 0,1W        |  |
| 3142               | 4822 051 20472 | 4k7 5% 0,1W        |  |
| 3143               | 4822 051 20821 | 820Ω 5% 0,1W       |  |
| 3144               | 4822 051 20331 | 330Ω 5% 0,1W       |  |
| 3145               | 4822 051 20271 | 270Ω 5% 0,1W       |  |
| 3146               | 4822 053 10151 | 150Ω 5% 1W         |  |
| 3147               | 4822 050 15602 | 5k6 1% 0,4W        |  |
| 3148               | 4822 051 20104 | 100k 5% 0,1W       |  |
| 3149               | 4822 051 20472 | 4k7 5% 0,1W        |  |
| 3150               | 4822 050 25601 | 560Ω 1% 0,6W       |  |
| 3151               | 4822 050 24702 | 4k7 1% 0,6W        |  |
| 3152               | 4822 051 20103 | 10k 5% 0,1W        |  |
| 3153               | 4822 051 20008 | 0Ω 5% 0,1W /17     |  |
| 3154               | 4822 051 20008 | 0Ω 5% 0,1W /17     |  |
| 3155               | 4822 050 22201 | 220Ω 1% 0,6W       |  |
| 3156               | 4822 051 20153 | 15k 5% 0,1W        |  |
| 3157               | 4822 051 20472 | 4k7 5% 0,1W        |  |
| 3158               | 4822 050 24702 | 4k7 1% 0,6W        |  |
| 3159               | 4822 051 20104 | 100k 5% 0,1W       |  |
| 3160               | 4822 051 20104 | 100k 5% 0,1W       |  |
| 3162               | 4822 050 23901 | 390Ω 1% 0,6W       |  |
| 3163               | 4822 051 20103 | 10k 5% 0,1W        |  |
| 3164               | 4822 051 20473 | 47k 5% 0,1W        |  |
| 3165               | 4822 050 21002 | 1k 1% 0,6W         |  |
| 3166               | 4822 050 21002 | 1k 1% 0,6W         |  |
| 3167               | 4822 050 21002 | 1k 1% 0,6W         |  |
| 3170               | 4822 051 20223 | 22k 5% 0,1W        |  |
| 3171               | 4822 051 20103 | 10k 5% 0,1W        |  |
| 3172               | 4822 051 20472 | 4k7 5% 0,1W        |  |
| 3173               | 4822 051 20223 | 22k 5% 0,1W        |  |
| 3183               | 4822 050 21003 | 10k 1% 0,6W        |  |
| 3184               | 4822 051 20332 | 3k3 5% 0,1W        |  |
| 3185               | 4822 051 20103 | 10k 5% 0,1W        |  |
| 3186               | 4822 050 21003 | 10k 1% 0,6W        |  |
| 3187               | 4822 051 20103 | 10k 5% 0,1W        |  |
| 3190               | 4822 051 20479 | 47Ω 5% 0,1W        |  |
| 3194               | 4822 051 20472 | 4k7 5% 0,1W        |  |
| 3196               | 4822 051 20008 | 0Ω 5% 0,1W         |  |
| 3197               | 4822 051 20008 | 0Ω 5% 0,1W         |  |
| 3198               | 4822 051 20103 | 10k 5% 0,1W        |  |
| 3200               | 4822 051 20008 | 0Ω 5% 0,1W         |  |
| 3202               | 4822 051 20008 | 0Ω 5% 0,1W         |  |
| 3223               | 4822 051 20474 | 470k 5% 0,1W       |  |
| 3225               | 4822 050 21002 | 1k 1% 0,6W         |  |
| 3230               | 4822 051 20223 | 22k 5% 0,1W        |  |
| 3231               | 4822 051 20223 | 22k 5% 0,1W        |  |
| 3233               | 4822 051 10102 | 1k 2% 0,25W        |  |
| 3236               | 4822 051 20008 | 0Ω 5% 0,1W         |  |
| 3240               | 4822 051 20182 | 1k8 5% 0,1W        |  |
| 3241               | 4822 051 20008 | 0Ω 5% 0,1W         |  |
| COILS              |                |                    |  |
| 5101               | 4822 157 53192 | 0,22µH 20%         |  |
| 5103               | 4822 242 81249 | CER TER 10,7MHz    |  |
| 5104               | 4822 157 63029 | IFT AM             |  |
| 5105               | 4822 157 63904 | DET COIL           |  |
| 5106               | 4822 157 63802 | BIRDY TER          |  |
| 5107               | 4822 157 63799 | MW AERIAL COIL     |  |
| 5107               | 4822 157 63835 | MW AERIAL COIL /17 |  |
| 5108               | 4822 157 63912 | AM OSC             |  |
| 5108               | 4822 157 63836 | AM OSC /17         |  |
| 5109               | 4822 157 63801 | LW AERIAL COIL     |  |
| 5110               | 4822 242 71878 | CER TER 450kHz     |  |
| 5111               | 4822 242 81248 | CER RES 19kHz      |  |
| 5112               | 4822 242 72976 | X'TAL RES 7,2MHz   |  |
| 5113               | 4822 242 81249 | SFE10,7MS3GH-A     |  |
| 5114               | 4822 152 20699 | 560µH              |  |
| DIODES             |                |                    |  |
| 6101               | 4822 130 34174 | BZX79-C4V7         |  |
| 6102               | 4822 130 83075 | HN1V02H            |  |
| 6109               | 4822 130 30621 | 1N4148             |  |
| 6121               | 4822 130 30621 | 1N4148 /17         |  |
| 6123               | 4822 130 30621 | 1N4148 /17         |  |
| TRANSISTORS & IC's |                |                    |  |
| 7101               | 4822 130 60163 | 2SC1047            |  |
| 7103               | 4822 209 31001 | LA1851N            |  |
| 7104               | 5322 130 60068 | BC558C             |  |
| 7105               | 4822 209 30178 | LC7218             |  |
| 7106               | 5322 130 60068 | BC558C             |  |
| 7107               | 5322 130 41982 | BC848B             |  |
| 7108               | 4822 130 44196 | BC548C             |  |
| 7109               | 4822 130 44196 | BC548C             |  |
| 7110               | 5322 130 44779 | BC338-40           |  |
| 7111               | 5322 130 41982 | BC848B             |  |
| 7112               | 4822 130 60163 | 2SC1047            |  |
| 7113               | 4822 130 44196 | BC548C             |  |
| 7114               | 5322 130 44779 | BC338-40           |  |
| 7115               | 4822 130 41024 | BF245B             |  |
| 7116               | 4822 130 60163 | 2SC1047            |  |
| 7119               | 5322 130 41983 | BC858B             |  |
| 7120               | 4822 130 44196 | BC548C             |  |
| 7150               | 5322 130 44779 | BC338-40           |  |
| 7157               | 5322 130 44779 | BC338-40           |  |

| MISCELLANEOUS |                |                       | CAPACITORS |                |                |
|---------------|----------------|-----------------------|------------|----------------|----------------|
| 23            | 4822 492 70583 | CLAMPING SPRING       | 2250       | 4822 124 40242 | 1μF 20% 63V    |
| 34            | 4822 255 40128 | CLIP                  | 2251       | 4822 124 40242 | 1μF 20% 63V    |
| 56            | 4822 290 81515 | TERMINAL              | 2252       | 4822 122 10183 | 100pF 5% 50V   |
| 61            | 4822 256 91974 | HOLDER                | 2253       | 4822 122 10183 | 100pF 5% 50V   |
| 1250          | 4822 071 53152 | FUSE T3.15A           | 2254       | 4822 122 10183 | 100pF 5% 50V   |
| 1251          | 4822 071 53152 | FUSE T3.15A           | 2255       | 4822 122 10183 | 100pF 5% 50V   |
| 1261          | 4822 267 20432 | TERMINAL 4X2P         | 2256       | 4822 122 31435 | 470pF 10% 50V  |
| 1270          | 4822 265 31015 | MAINS SOCKET          | 2257       | 4822 122 31435 | 470pF 10% 50V  |
| 1271          | 4822 276 13277 | POWER SWITCH          | 2258       | 4822 124 40196 | 220μF 20% 16V  |
| 1291          | 4822 265 31001 | SOCKET                | 2259       | 4822 124 40196 | 220μF 20% 16V  |
| 1350          | 4822 071 51602 | FUSE T1.6A            | 2260       | 4822 124 41643 | 100μF 20% 16V  |
| 1351          | 4822 071 51602 | FUSE T1.6A            | 2261       | 4822 124 41643 | 100μF 20% 16V  |
| 1352          | 4822 071 51602 | FUSE T1.6A            | 2264       | 4822 126 11307 | 180pF 10% 500V |
| 1353          | 4822 071 51602 | FUSE T1.6A            | 2265       | 4822 126 11307 | 180pF 10% 500V |
| 1354          | 4822 071 56301 | FUSE T630MA           | 2268       | 4822 122 10173 | 820pF 10% 50V  |
| 1458          | 4822 267 60331 | CONNECTOR 19P         | 2269       | 4822 122 10173 | 820pF 10% 50V  |
| 1462          | 4822 267 31503 | PIN JACK 2F.          | 2270       | 4822 124 41525 | 100μF 20% 25V  |
| 1463          | 4822 267 31504 | PIN JACK 2F.          | 2271       | 4822 124 41525 | 100μF 20% 25V  |
| 1551          | 4822 267 51159 | PIN JACK 8F.          | 2274       | 4822 126 11308 | 47pF 5% 500V   |
| 1650          | 4822 276 13114 | TACT SWITCH           | 2275       | 4822 126 11308 | 47pF 5% 500V   |
| 1651          | 4822 276 13114 | TACT SWITCH           | 2276       | 4822 124 41584 | 100μF 20% 10V  |
| 1652          | 4822 276 13114 | TACT SWITCH           | 2277       | 4822 124 41584 | 100μF 20% 10V  |
| 1653          | 4822 276 13114 | TACT SWITCH           | 2278       | 4822 124 41596 | 22μF 20% 50V   |
| 1654          | 4822 276 13114 | TACT SWITCH           | 2279       | 4822 124 41596 | 22μF 20% 50V   |
| 1655          | 4822 276 13106 | TACT SWITCH           | 2280       | 4822 124 40242 | 1μF 20% 63V    |
| 1656          | 4822 276 13106 | TACT SWITCH           | 2281       | 4822 124 40242 | 1μF 20% 63V    |
| 1658          | 4822 276 13106 | TACT SWITCH           | 2284       | 4822 121 43526 | 47nF 5% 100V   |
| 1660          | 4822 276 13106 | TACT SWITCH           | 2285       | 4822 121 43526 | 47nF 5% 100V   |
| 1661          | 4822 276 13106 | TACT SWITCH           | 2286       | 4822 122 10176 | 4.7nF 10% 50V  |
| 1662          | 4822 276 13114 | TACT SWITCH           | 2287       | 4822 122 10176 | 4.7nF 10% 50V  |
| 1663          | 4822 276 13114 | TACT SWITCH           | 2288       | 4822 122 10176 | 4.7nF 10% 50V  |
| 1664          | 4822 276 13114 | TACT SWITCH           | 2289       | 4822 122 10176 | 4.7nF 10% 50V  |
| 1665          | 4822 276 13114 | TACT SWITCH           | 2290       | 4822 122 10166 | 22nF 30% 16V   |
| 1666          | 4822 276 13106 | TACT SWITCH           | 2292       | 5322 121 42386 | 100nF 5% 63V   |
| 1667          | 4822 276 13106 | TACT SWITCH           | 2293       | 4822 124 40435 | 10μF 20% 50V   |
| 1668          | 4822 276 13106 | TACT SWITCH           | 2296       | 4822 124 40239 | 0.47μF 20% 63V |
| 1669          | 4822 276 13106 | TACT SWITCH           | 2300       | 4822 124 42117 | 4700μF 20% 50V |
| 1670          | 4822 276 13106 | TACT SWITCH           | 2301       | 4822 124 42117 | 4700μF 20% 50V |
| 1671          | 4822 276 13106 | TACT SWITCH           | 2304       | 4822 121 43526 | 47nF 5% 100V   |
| 1672          | 4822 276 13106 | TACT SWITCH           | 2305       | 4822 121 43526 | 47nF 5% 100V   |
| 1674          | 4822 276 13106 | TACT SWITCH           | 2306       | 4822 121 43526 | 47nF 5% 100V   |
| 1675          | 4822 276 13106 | TACT SWITCH           | 2350       | 4822 124 42121 | 4700μF 35V     |
| 1676          | 4822 276 13106 | TACT SWITCH           | 2351       | 4822 124 41334 | 470μF 20% 35V  |
| 1677          | 4822 276 13106 | TACT SWITCH           | 2352       | 5322 124 21189 | 100μF 20% 40V  |
| 1678          | 4822 276 13106 | TACT SWITCH           | 2353       | 4822 124 40433 | 47μF 20% 25V   |
| 1681          | 4822 130 91122 | DISPLAY TUNER         | 2354       | 4822 122 10158 | 1nF 10% 50V    |
| 1683          | 4822 130 91153 | DISPLAY AMPL.         | 2355       | 4822 124 41525 | 100μF 20% 25V  |
| 1700          | 4822 280 10261 | BUZZER                | 2356       | 4822 124 40433 | 47μF 20% 25V   |
| 1710          | 4822 267 31519 | HEADPHONE SOCKET      | 2357       | 4822 122 10158 | 1nF 10% 50V    |
| 1800          | 4822 267 31607 | PHONE SOCKET only/01X | 2358       | 4822 124 41334 | 470μF 20% 35V  |

|      |                |                |      |                |               |
|------|----------------|----------------|------|----------------|---------------|
| 2359 | 4822 124 41334 | 470μF 20% 35V  | 2575 | 5322 122 32531 | 100pF 5% 50V  |
| 2360 | 4822 124 80194 | 470μF 20% 100V | 2576 | 5322 122 32531 | 100pF 5% 50V  |
| 2361 | 4822 122 10158 | 1nF 10% 50V    | 2577 | 5322 116 80853 | 560pF 5% 63V  |
| 2362 | 4822 122 10158 | 1nF 10% 50V    | 2578 | 5322 116 80853 | 560pF 5% 63V  |
| 2363 | 4822 124 42119 | 4700μF 20% 25V | 2579 | 5322 126 10223 | 4.7nF 10% 63V |
| 2364 | 4822 124 42118 | 1000μF 20% 25V | 2580 | 5322 126 10223 | 4.7nF 10% 63V |
| 2365 | 4822 121 43526 | 47nF 5% 100V   | 2581 | 4822 124 40435 | 10μF 20% 50V  |
| 2366 | 4822 121 43526 | 47nF 5% 100V   | 2582 | 4822 124 40435 | 10μF 20% 50V  |
| 2367 | 4822 121 43526 | 47nF 5% 100V   | 2585 | 4822 122 33342 | 33nF 10% 63V  |
| 2368 | 4822 124 40244 | 2.2μF 20% 63V  | 2586 | 4822 122 33496 | 100nF 10% 63V |
| 2369 | 4822 124 40177 | 47μF 20% 10V   | 2587 | 4822 124 40242 | 1μF 20% 63V   |
| 2370 | 4822 124 40177 | 47μF 20% 10V   | 2588 | 5322 116 80853 | 560pF 5% 63V  |
| 2371 | 4822 124 40242 | 1μF 20% 63V    | 2589 | 5322 116 80853 | 560pF 5% 63V  |
| 2372 | 4822 124 41584 | 100μF 20% 10V  | 2590 | 5322 116 80853 | 560pF 5% 63V  |
| 2451 | 5322 122 32531 | 100pF 5% 50V   | 2591 | 4822 124 40246 | 4.7μF 20% 63V |
| 2452 | 5322 122 32531 | 100pF 5% 50V   | 2592 | 4822 124 40246 | 4.7μF 20% 63V |
| 2453 | 4822 124 40242 | 1μF 20% 63V    | 2593 | 5322 122 32531 | 100pF 5% 50V  |
| 2454 | 4822 124 40242 | 1μF 20% 63V    | 2594 | 5322 122 32531 | 100pF 5% 50V  |
| 2455 | 5322 122 32531 | 100pF 5% 50V   | 2595 | 4822 122 32542 | 47nF 10% 63V  |
| 2456 | 5322 122 32531 | 100pF 5% 50V   | 2596 | 4822 122 32542 | 47nF 10% 63V  |
| 2457 | 5322 116 80853 | 560pF 5% 63V   | 2597 | 4822 124 40246 | 4.7μF 20% 63V |
| 2458 | 5322 116 80853 | 560pF 5% 63V   | 2598 | 4822 124 40246 | 4.7μF 20% 63V |
| 2459 | 4822 124 40435 | 10μF 20% 50V   | 2599 | 4822 124 40433 | 47μF 20% 25V  |
| 2460 | 4822 124 40435 | 10μF 20% 50V   | 2601 | 5322 122 31865 | 1.5nF 10% 63V |
| 2461 | 4822 122 33177 | 10nF 20% 50V   | 2602 | 5322 122 31865 | 1.5nF 10% 63V |
| 2462 | 4822 122 33177 | 10nF 20% 50V   | 2603 | 4822 122 33891 | 3.3nF 10% 63V |
| 2463 | 5322 126 10223 | 4.7nF 10% 63V  | 2604 | 4822 122 33891 | 3.3nF 10% 63V |
| 2464 | 5322 126 10223 | 4.7nF 10% 63V  | 2605 | 4822 122 33336 | 8.2nF 10% 50V |
| 2465 | 4822 124 40435 | 10μF 20% 50V   | 2606 | 4822 122 33336 | 8.2nF 10% 50V |
| 2466 | 4822 124 40435 | 10μF 20% 50V   | 2607 | 5322 122 32654 | 22nF 10% 63V  |
| 2467 | 4822 124 40433 | 47μF 20% 25V   | 2608 | 5322 122 32654 | 22nF 10% 63V  |
| 2468 | 4822 124 40433 | 47μF 20% 25V   | 2609 | 4822 122 33105 | 56nF 10% 63V  |
| 2469 | 5322 122 32654 | 22nF 10% 63V   | 2610 | 4822 122 33105 | 56nF 10% 63V  |
| 2470 | 5322 122 32654 | 22nF 10% 63V   | 2611 | 4822 126 11691 | 150nF         |
| 2471 | 4822 124 40242 | 1μF 20% 63V    | 2612 | 4822 126 11691 | 150nF         |
| 2471 | 5322 124 41431 | 22μF only/01X  | 2613 | 5322 121 42661 | 330nF 5% 63V  |
| 2472 | 4822 124 40242 | 1μF 20% 63V    | 2614 | 5322 121 42661 | 330nF 5% 63V  |
| 2472 | 5322 124 41431 | 22μF only/01X  | 2615 | 5322 126 10223 | 4.7nF 10% 63V |
| 2473 | 5322 122 31946 | 27pF 10% 50V   | 2616 | 5322 126 10223 | 4.7nF 10% 63V |
| 2474 | 5322 122 31946 | 27pF 10% 50V   | 2617 | 5322 122 31866 | 6.8nF 10% 63V |
| 2475 | 5322 116 80853 | 560pF 5% 63V   | 2618 | 5322 122 31866 | 6.8nF 10% 63V |
| 2476 | 5322 116 80853 | 560pF 5% 63V   | 2619 | 4822 122 33893 | 18nF 10% 63V  |
| 2477 | 4822 124 40433 | 47μF 20% 25V   | 2620 | 4822 122 33893 | 18nF 10% 63V  |
| 2478 | 4822 124 40433 | 47μF 20% 25V   | 2621 | 4822 122 33608 | 39nF 10% 63V  |
| 2479 | 4822 124 40433 | 47μF 20% 25V   | 2622 | 4822 122 33608 | 39nF 10% 63V  |
| 2480 | 4822 124 40433 | 47μF 20% 25V   | 2623 | 4822 122 33496 | 100nF 10% 63V |
| 2481 | 5322 122 32654 | 22nF 10% 63V   | 2624 | 4822 122 33496 | 100nF 10% 63V |
| 2482 | 5322 122 32654 | 22nF 10% 63V   | 2625 | 4822 121 41738 | 270nF 5% 63V  |
| 2483 | 4822 124 40433 | 47μF 20% 25V   | 2626 | 4822 121 41738 | 270nF 5% 63V  |
| 2484 | 4822 124 40433 | 47μF 20% 25V   | 2627 | 5322 121 42498 | 680nF 5% 63V  |
| 2485 | 5322 122 32654 | 22nF 10% 63V   | 2628 | 5322 121 42498 | 680nF 5% 63V  |
| 2486 | 5322 122 32654 | 22nF 10% 63V   | 2629 | 5322 122 34099 | 470pF 10% 63V |
| 2487 | 4822 122 33342 | 33nF 10% 63V   | 2630 | 5322 122 34099 | 470pF 10% 63V |
| 2574 | 4822 124 40435 | 10μF 20% 50V   | 2631 | 4822 122 31797 | 22nF 10% 63V  |

|      |                |               |                  |                |                  |
|------|----------------|---------------|------------------|----------------|------------------|
| 2632 | 4822 122 31797 | 22nF 10% 63V  | 2802             | 4822 122 33848 | 47pF only/01X    |
| 2633 | 4822 122 31797 | 22nF 10% 63V  | 2803             | 4822 124 40435 | 10μF only/01X    |
| 2634 | 4822 122 31797 | 22nF 10% 63V  | 2804             | 4822 124 40242 | 1μF only/01X     |
| 2635 | 4822 124 40246 | 4,7μF 20% 63V | 2805             | 4822 126 11714 | 4N7 only/01X     |
| 2636 | 4822 124 40246 | 4,7μF 20% 63V | 2806             | 4822 122 33195 | 100pF only/01X   |
|      |                |               |                  |                |                  |
| 2637 | 4822 124 40246 | 4,7μF 20% 63V | 2807             | 4822 121 51387 | 10nF only/01X    |
| 2638 | 4822 124 40246 | 4,7μF 20% 63V | 2808             | 4822 122 33195 | 100pF only/01X   |
| 2639 | 4822 124 40433 | 47μF 20% 25V  | <b>RESISTORS</b> |                |                  |
| 2640 | 4822 124 40433 | 47μF 20% 25V  |                  |                |                  |
| 2641 | 4822 124 40433 | 47μF 20% 25V  |                  |                |                  |
|      |                |               |                  |                |                  |
| 2642 | 4822 124 40433 | 47μF 20% 25V  | 3250             | 4822 116 52303 | 8k2 5% 0,5W      |
| 2645 | 5322 122 32658 | 22pF 5% 50V   | 3251             | 4822 116 52303 | 8k2 5% 0,5W      |
| 2646 | 5322 122 32658 | 22pF 5% 50V   | 3258             | 4822 050 22203 | 22k 1% 0,6W      |
| 2647 | 5322 122 32531 | 100pF 5% 50V  | 3259             | 4822 050 22203 | 22k 1% 0,6W      |
| 2648 | 5322 122 32531 | 100pF 5% 50V  | 3260             | 4822 050 21002 | 1k 1% 0,6W       |
|      |                |               |                  |                |                  |
| 2649 | 5322 116 80853 | 560pF 5% 63V  | 3261             | 4822 050 21002 | 1k 1% 0,6W       |
| 2650 | 5322 122 32654 | 22nF 10% 63V  | 3262             | 4822 116 52224 | 470Ω 5% 0,5W     |
| 2650 | 4822 121 51252 | 470nF 5% 63V  | 3263             | 4822 116 52224 | 470Ω 5% 0,5W     |
| 2651 | 4822 124 23178 | 47μF 20% 16V  | 3264             | 4822 116 52217 | 270Ω 5% 0,5W     |
| 2652 | 4822 126 11585 | 22nF          | 3265             | 4822 116 52217 | 270Ω 5% 0,5W     |
|      |                |               |                  |                |                  |
| 2653 | 4822 121 42408 | 220nF 5% 63V  | 3268             | 4822 050 22203 | 22k 1% 0,6W      |
| 2654 | 4822 121 51387 | 10nF 20% 16V  | 3269             | 4822 050 22203 | 22k 1% 0,6W      |
| 2655 | 4822 126 11585 | 22nF          | 3270             | 4822 053 10122 | 1k2 5% 1W        |
| 2656 | 4822 124 80195 | 470μF 20% 10V | 3271             | 4822 053 10122 | 1k2 5% 1W        |
| 2658 | 5322 121 42386 | 100nF 5% 63V  | 3272             | 4822 050 26801 | 680Ω 1% 0,6W     |
|      |                |               |                  |                |                  |
| 2661 | 4822 122 33191 | 22pF 5% 50V   | 3273             | 4822 050 26801 | 680Ω 1% 0,6W     |
| 2662 | 4822 122 33191 | 22pF 5% 50V   | 3274             | 4822 050 22202 | 2k2 1% 0,6W      |
| 2671 | 4822 121 51252 | 470nF 5% 63V  | 3275             | 4822 050 22202 | 2k2 1% 0,6W      |
| 2672 | 4822 121 51252 | 470nF 5% 63V  | 3276             | 4822 050 16809 | 68Ω 1% 0,4W      |
| 2673 | 4822 121 51252 | 470nF 5% 63V  | 3277             | 4822 050 16809 | 68Ω 1% 0,4W      |
|      |                |               |                  |                |                  |
| 2674 | 4822 121 51252 | 470nF 5% 63V  | 3278             | 4822 053 12152 | 1k5 5% 3W        |
| 2679 | 5322 121 42386 | 100nF 5% 63V  | 3279             | 4822 053 12152 | 1k5 5% 3W        |
| 2682 | 4822 122 90099 | 8X100pF       | 3280             | 4822 050 21502 | 1k5 1% 0,6W      |
| 2684 | 4822 122 10459 | 560pF 10% 50V | 3281             | 4822 050 21502 | 1k5 1% 0,6W      |
| 2685 | 4822 122 10459 | 560pF 10% 50V | 3282             | 4822 050 23302 | 3k3 1% 0,6W      |
|      |                |               |                  |                |                  |
| 2761 | 4822 122 10459 | 560pF 10% 50V | 3283             | 4822 050 23302 | 3k3 1% 0,6W      |
| 2765 | 4822 124 41525 | 100μF 20% 25V | 3284             | 4822 100 11677 | 470Ω 30%LIN 0.2W |
| 2766 | 4822 124 40246 | 4,7μF 20% 63V | 3285             | 4822 100 11677 | 470Ω 30%LIN 0.2W |
| 2767 | 4822 124 40246 | 4,7μF 20% 63V | 3286             | 4822 050 21002 | 1k 1% 0,6W       |
| 2768 | 4822 124 40435 | 10μF 20% 50V  | 3287             | 4822 050 21002 | 1k 1% 0,6W       |
|      |                |               |                  |                |                  |
| 2769 | 4822 124 40435 | 10μF 20% 50V  | 3288             | 4822 050 23002 | 3k 1% 0,6W       |
| 2770 | 4822 124 40435 | 10μF 20% 50V  | 3289             | 4822 050 23002 | 3k 1% 0,6W       |
| 2785 | 4822 124 41525 | 100μF 20% 25V | 3290             | 4822 053 10222 | 2k2 5% 1W        |
| 2787 | 4822 124 40435 | 10μF 20% 50V  | 3291             | 4822 053 10222 | 2k2 5% 1W        |
| 2788 | 4822 124 41525 | 100μF 20% 25V | 3294             | 4822 116 52217 | 270Ω 5% 0,5W     |
|      |                |               |                  |                |                  |
| 2789 | 4822 124 41525 | 100μF 20% 25V | 3295             | 4822 116 52217 | 270Ω 5% 0,5W     |
| 2790 | 5322 121 42661 | 330nF 5% 63V  | 3296             | 4822 116 52217 | 270Ω 5% 0,5W     |
| 2791 | 4822 121 51387 | 10nF 20% 16V  | 3297             | 4822 116 52217 | 270Ω 5% 0,5W     |
| 2792 | 4822 121 51387 | 10nF 20% 16V  | 3298             | 4822 116 52224 | 470Ω 5% 0,5W     |
| 2795 | 4822 121 51356 | 180nF 10% 63V | 3299             | 4822 116 52224 | 470Ω 5% 0,5W     |
|      |                |               |                  |                |                  |
| 2796 | 4822 121 51356 | 180nF 10% 63V | 3300             | 4822 116 52224 | 470Ω 5% 0,5W     |
| 2797 | 4822 124 40435 | 10μF 20% 50V  | 3301             | 4822 116 52224 | 470Ω 5% 0,5W     |
| 2800 | 4822 124 40433 | 47μF only/01X | 3302             | 4822 113 80598 | 0Ω22 5% 3W       |
| 2801 | 4822 124 40433 | 47μF only/01X |                  |                |                  |

|      |                |               |      |                |              |
|------|----------------|---------------|------|----------------|--------------|
| 3303 | 4822 113 80598 | 0Ω22 5% 3W    | 3378 | 4822 050 21003 | 10k 1% 0,6W  |
| 3304 | 4822 113 80598 | 0Ω22 5% 3W    | 3379 | 4822 050 22202 | 2k2 1% 0,6W  |
| 3305 | 4822 113 80598 | 0Ω22 5% 3W    | 3385 | 4822 050 22203 | 22k 1% 0,6W  |
| 3312 | 4822 052 10279 | 27Ω 5% 0,33W  | 3386 | 4822 052 10688 | 6Ω8 5% 0,33W |
| 3313 | 4822 052 10279 | 27Ω 5% 0,33W  | 3387 | 4822 050 21002 | 1k 1% 0,6W   |
|      |                |               |      |                |              |
| 3314 | 4822 052 10109 | 10Ω 5% 0,33W  | 3388 | 4822 052 10688 | 6Ω8 5% 0,33W |
| 3315 | 4822 052 10109 | 10Ω 5% 0,33W  | 3451 | 4822 050 23901 | 390Ω 1% 0,6W |
| 3316 | 4822 052 10478 | 4Ω7 5% 0,33W  | 3452 | 4822 050 23901 | 390Ω 1% 0,6W |
| 3317 | 4822 052 10478 | 4Ω7 5% 0,33W  | 3453 | 4822 050 13304 | 330k 1% 0,4W |
| 3318 | 4822 050 21002 | 1k 1% 0,6W    | 3454 | 4822 050 13304 | 330k 1% 0,4W |
|      |                |               |      |                |              |
| 3319 | 4822 050 21002 | 1k 1% 0,6W    | 3455 | 4822 050 15603 | 56k 1% 0,4W  |
| 3320 | 4822 116 52234 | 100k 5% 0,5W  | 3456 | 4822 050 15603 | 56k 1% 0,4W  |
| 3321 | 4822 116 52234 | 100k 5% 0,5W  | 3457 | 4822 050 23901 | 390Ω 1% 0,6W |
| 3322 | 4822 050 22203 | 22k 1% 0,6W   | 3458 | 4822 050 23901 | 390Ω 1% 0,6W |
| 3323 | 4822 050 22203 | 22k 1% 0,6W   | 3459 | 4822 050 21001 | 100Ω 1% 0,6W |
|      |                |               |      |                |              |
| 3324 | 4822 051 10101 | 100Ω 2% 0,25W | 3460 | 4822 050 21001 | 100Ω 1% 0,6W |
| 3325 | 4822 051 10101 | 100Ω 2% 0,25W | 3461 | 4822 050 25601 | 560Ω 1% 0,6W |
| 3330 | 4822 116 52234 | 100k 5% 0,5W  | 3462 | 4822 050 25601 | 560Ω 1% 0,6W |
| 3331 | 4822 050 26803 | 68k 1% 0,6W   | 3463 | 4822 050 13304 | 330k 1% 0,4W |
| 3332 | 4822 050 22203 | 22k 1% 0,6W   | 3464 | 4822 050 13304 | 330k 1% 0,4W |
|      |                |               |      |                |              |
| 3333 | 4822 050 21501 | 150Ω 1% 0,6W  | 3465 | 4822 050 12703 | 27k 1% 0,4W  |
| 3334 | 4822 050 24702 | 4k7 1% 0,6W   | 3466 | 4822 050 12703 | 27k 1% 0,4W  |
| 3335 | 4822 050 24703 | 47k 1% 0,6W   | 3467 | 4822 116 52306 | 9k1 5% 0,5W  |
| 3336 | 4822 050 22203 | 22k 1% 0,6W   | 3468 | 4822 116 52306 | 9k1 5% 0,5W  |
| 3340 | 4822 113 80607 | 330Ω 5%       | 3469 | 4822 116 52247 | 16k 5% 0,5W  |
|      |                |               |      |                |              |
| 3341 | 4822 113 80607 | 330Ω 5%       | 3470 | 4822 116 52247 | 16k 5% 0,5W  |
| 3342 | 4822 050 21801 | 180Ω 1% 0,6W  | 3471 | 4822 116 52217 | 270Ω 5% 0,5W |
| 3343 | 4822 050 21801 | 180Ω 1% 0,6W  | 3472 | 4822 116 52217 | 270Ω 5% 0,5W |
| 3350 | 4822 050 21802 | 1k8 1% 0,6W   | 3473 | 4822 050 22203 | 22k 1% 0,6W  |
| 3351 | 4822 050 21202 | 1k2 1% 0,6W   | 3474 | 4822 050 22203 | 22k 1% 0,6W  |
|      |                |               |      |                |              |
| 3352 | 4822 052 10479 | 47Ω 5% 0,33W  | 3475 | 4822 050 22003 | 20k 1% 0,6W  |
| 3353 | 4822 050 22202 | 2k2 1% 0,6W   | 3476 | 4822 050 22003 | 20k 1% 0,6W  |
| 3354 | 4822 052 10478 | 4Ω7 5% 0,33W  | 3477 | 4822 051 20223 | 22k 5% 0,1W  |
| 3355 | 4822 050 21003 | 10k 1% 0,6W   | 3478 | 4822 050 22203 | 22k 1% 0,6W  |
| 3356 | 4822 050 24702 | 4k7 1% 0,6W   | 3479 | 4822 051 20562 | 5k6 5% 0,1W  |
|      |                |               |      |                |              |
| 3357 | 4822 050 23302 | 3k3 1% 0,6W   | 3480 | 4822 051 20562 | 5k6 5% 0,1W  |
| 3358 | 4822 052 10479 | 47Ω 5% 0,33W  | 3481 | 4822 116 52256 | 2k2 5% 0,5W  |
| 3359 | 4822 050 21502 | 1k5 1% 0,6W   | 3482 | 4822 116 52256 | 2k2 5% 0,5W  |
| 3361 | 4822 050 26802 | 6k8 1% 0,6W   | 3483 | 4822 116 52257 | 22k 5% 0,5W  |
| 3362 | 4822 053 10229 | 22Ω 5% 1W     | 3484 | 4822 116 52257 | 22k 5% 0,5W  |
|      |                |               |      |                |              |
| 3363 | 4822 053 10229 | 22Ω 5% 1W     | 3485 | 4822 116 52257 | 22k 5% 0,5W  |
| 3364 | 4822 050 21003 | 10k 1% 0,6W   | 3486 | 4822 116 52257 | 22k 5% 0,5W  |
| 3365 | 4822 050 23903 | 39k 1% 0,6W   | 3487 | 4822 050 21003 | 10k 1% 0,6W  |
| 3367 | 4822 050 25602 | 5k6 1% 0,6W   | 3488 | 4822 050 21003 | 10k 1% 0,6W  |
| 3368 | 4822 052 10229 | 22Ω 5% 0,33W  | 3489 | 4822 050 21003 | 10k 1% 0,6W  |
|      |                |               |      |                |              |
| 3369 | 4822 050 24703 | 47k 1% 0,6W   | 3490 | 4822 050 21003 | 10k 1% 0,6W  |
| 3370 | 4822 050 24702 | 4k7 1% 0,6W   | 3491 | 4822 116 52233 | 10k 5% 0,5W  |
| 3371 | 4822 050 24703 | 47k 1% 0,6W   | 3492 | 4822 116 52233 | 10k 5% 0,5W  |
| 3372 | 4822 050 24703 | 47k 1% 0,6W   | 3493 | 4822 050 21203 | 12k 1% 0,6W  |
| 3373 | 4822 050 21803 | 18k 1% 0,6W   | 3494 | 4822 050 21203 | 12k 1% 0,6W  |
|      |                |               |      |                |              |
| 3374 | 4822 051 10101 | 100Ω 2% 0,25W | 3495 | 4822 116 52256 | 2k2 5% 0,5W  |
| 3375 | 4822 050 21003 | 10k 1% 0,6W   | 3496 | 4822 116 52256 | 2k2 5% 0,5W  |
| 3376 | 4822 050 26802 | 6k8 1% 0,6W   | 3497 | 4822 116 52217 | 270Ω 5% 0,5W |
| 3377 | 4822 050 22203 | 22k 1% 0,6W   | 3498 | 4822 116 52217 | 270Ω 5% 0,5W |

3499 4822 116 52269 3k3 5% 0,5W  
 3500 4822 050 24701 470Ω 1% 0,6W  
 3501 4822 051 20223 22k 5% 0,1W  
 3502 4822 051 20223 22k 5% 0,1W  
 3503 4822 051 20104 100k 5% 0,1W

3504 4822 051 20104 100k 5% 0,1W  
 3505 4822 051 20683 68k 5% 0,1W  
 3506 4822 050 26803 68k 1% 0,6W  
 3507 4822 051 20561 560Ω 5% 0,1W  
 3508 4822 050 25601 560Ω 1% 0,6W

3509 4822 051 20104 100k 5% 0,1W  
 3510 4822 111 50521 100k 5%  
 3511 4822 116 52217 270Ω 5% 0,5W  
 3512 4822 116 52217 270Ω 5% 0,5W  
 3513 4822 051 20392 3k9 5% 0,1W

3514 4822 051 20392 3k9 5% 0,1W  
 3563 4822 116 52263 2k7 5% 0,5W  
 3564 4822 116 52263 2k7 5% 0,5W  
 3575 4822 051 10102 1k 2% 0,25W  
 3576 4822 051 10102 1k 2% 0,25W

3577 4822 051 20103 10k 5% 0,1W  
 3578 4822 051 20103 10k 5% 0,1W  
 3579 4822 116 52217 270Ω 5% 0,5W  
 3580 4822 116 52217 270Ω 5% 0,5W  
 3581 4822 050 21003 10k 1% 0,6W

3582 4822 051 10106 10M 5% 0,25W  
 3583 4822 051 20104 100k 5% 0,1W  
 3584 4822 051 20473 47k 5% 0,1W  
 3585 4822 050 21002 1k 1% 0,6W  
 3586 4822 050 21002 1k 1% 0,6W

3587 4822 050 21002 1k 1% 0,6W  
 3601 4822 116 52238 12k 5% 0,5W  
 3602 4822 116 52238 12k 5% 0,5W  
 3603 4822 051 20123 12k 5% 0,1W  
 3604 4822 051 20123 12k 5% 0,1W

3605 4822 050 21003 10k 1% 0,6W  
 3606 4822 051 20103 10k 5% 0,1W  
 3607 4822 051 20474 470k 5% 0,1W  
 3608 4822 051 20474 470k 5% 0,1W  
 3609 4822 051 20474 470k 5% 0,1W

3610 4822 051 20474 470k 5% 0,1W  
 3611 4822 051 20474 470k 5% 0,1W  
 3612 4822 051 20474 470k 5% 0,1W  
 3613 4822 051 20474 470k 5% 0,1W  
 3614 4822 051 20474 470k 5% 0,1W

3615 4822 051 20474 470k 5% 0,1W  
 3616 4822 051 20474 470k 5% 0,1W  
 3617 4822 051 20474 470k 5% 0,1W  
 3618 4822 051 20474 470k 5% 0,1W  
 3619 4822 051 20474 470k 5% 0,1W

3620 4822 051 20474 470k 5% 0,1W  
 3621 4822 052 10159 15Ω 5% 0,33W  
 3622 4822 052 10159 15Ω 5% 0,33W  
 3623 4822 051 20104 100k 5% 0,1W

3624 4822 051 20104 100k 5% 0,1W  
 3625 4822 051 20104 100k 5% 0,1W  
 3626 4822 051 20104 100k 5% 0,1W  
 3627 4822 051 20104 100k 5% 0,1W  
 3628 4822 051 20104 100k 5% 0,1W

3629 4822 052 10159 15Ω 5% 0,33W  
 3630 4822 052 10159 15Ω 5% 0,33W  
 3631 4822 051 20104 100k 5% 0,1W  
 3632 4822 051 20104 100k 5% 0,1W  
 3633 4822 051 20104 100k 5% 0,1W

3634 4822 051 20104 100k 5% 0,1W  
 3635 4822 051 20222 2k2 only/01X  
 3636 4822 051 20222 2k2 only/01X  
 3637 4822 116 52269 3k3 5% 0,5W  
 3638 4822 051 20109 10Ω 5% 0,1W

3639 4822 051 20008 0Ω 5% 0,1W  
 3640 4822 051 10102 1k 2% 0,25W  
 3641 4822 051 10102 1k 2% 0,25W  
 3642 4822 051 10102 1k 2% 0,25W  
 3643 4822 051 20103 10k 5% 0,1W

3644 4822 051 20103 10k 5% 0,1W  
 3650 4822 116 52233 10k 5% 0,5W  
 3651 4822 116 52234 100k 5% 0,5W  
 3654 4822 116 52284 47k 5% 0,5W  
 3655 4822 116 52284 47k 5% 0,5W

3656 4822 116 52284 47k 5% 0,5W  
 3657 4822 116 52251 18k 5% 0,5W  
 3658 4822 116 52283 4k7 5% 0,5W  
 3659 4822 116 52233 10k 5% 0,5W  
 3660 4822 116 52219 330Ω 5% 0,5W

3661 4822 116 52233 10k 5% 0,5W  
 3666 4822 050 11002 1k 1% 0,4W  
 3667 4822 050 11002 1k 1% 0,4W  
 3668 4822 050 21003 10k only/01X  
 3669 4822 050 11002 1k 1% 0,4W

3671 4822 116 52256 2k2 5% 0,5W  
 3672 4822 116 52256 2k2 5% 0,5W  
 3673 4822 116 52233 10k 5% 0,5W  
 3674 4822 116 52296 6k8 5% 0,5W  
 3675 4822 116 52224 470Ω 5% 0,5W

3676 4822 050 16802 6k8 1% 0,4W  
 3680 4822 050 24702 4k7 1% 0,6W  
 3682 4822 050 11002 1k 1% 0,4W  
 3683 4822 050 11002 1k 1% 0,4W  
 3684 4822 050 11002 1k 1% 0,4W

3688 4822 116 52233 10k 5% 0,5W  
 3689 4822 116 52304 82k 5% 0,5W  
 3696 4822 116 52233 10k 5% 0,5W  
 3697 4822 116 52304 82k 5% 0,5W  
 3698 4822 052 10478 4Ω7 5% 0,33W

3699 4822 052 10478 4Ω7 5% 0,33W  
 3700 4822 052 10688 6Ω8 5% 0,33W  
 3701 4822 052 10688 6Ω8 5% 0,33W  
 3705 4822 116 52297 68k 5% 0,5W

3706 4822 116 52297 68k 5% 0,5W  
 3707 4822 116 52297 68k 5% 0,5W  
 3708 4822 116 52297 68k 5% 0,5W  
 3713 4822 050 24702 4k7 1% 0,6W  
 3714 4822 116 52283 4k7 5% 0,5W

3715 4822 050 24702 4k7 1% 0,6W  
 3716 4822 050 21002 1k 1% 0,6W  
 3717 4822 050 21002 1k 1% 0,6W  
 3718 4822 050 21002 1k 1% 0,6W  
 3719 4822 050 11002 1k 1% 0,4W

3720 4822 050 21002 1k 1% 0,6W  
 3721 4822 050 11002 1k 1% 0,4W  
 3722 4822 050 21002 1k 1% 0,6W  
 3724 4822 050 21002 1k 1% 0,6W  
 3725 4822 050 21002 1k 1% 0,6W

3726 4822 050 24702 4k7 1% 0,6W  
 3727 4822 050 11002 1k 1% 0,4W  
 3728 4822 116 52283 4k7 5% 0,5W  
 3729 4822 116 52233 10k 5% 0,5W  
 3730 4822 116 52233 10k 5% 0,5W

3736 4822 116 52283 4k7 5% 0,5W  
 3737 4822 116 52283 4k7 5% 0,5W  
 3738 4822 116 52283 4k7 5% 0,5W  
 3739 4822 050 21002 1k 1% 0,6W  
 3740 4822 050 11002 1k 1% 0,4W

3741 4822 050 11002 1k 1% 0,4W  
 3742 4822 050 21002 1k 1% 0,6W  
 3743 4822 050 21002 1k 1% 0,6W  
 3744 4822 116 52233 10k 5% 0,5W  
 3745 4822 116 52283 4k7 5% 0,5W

3746 4822 116 52233 10k 5% 0,5W  
 3747 4822 116 52243 1k5 5% 0,5W  
 3764 4822 050 22201 220Ω 1% 0,6W  
 3765 4822 050 23902 3k9 1% 0,6W  
 3766 4822 116 52233 10k 5% 0,5W

3767 4822 116 52195 47Ω 5% 0,5W  
 3768 4822 116 52257 22k 5% 0,5W  
 3769 4822 116 52233 10k 5% 0,5W  
 3770 4822 116 52233 10k 5% 0,5W  
 3771 4822 116 52233 10k 5% 0,5W

3772 4822 116 52244 15k 5% 0,5W  
 3773 4822 116 52258 220k 5% 0,5W  
 3774 4822 116 52233 10k 5% 0,5W  
 3775 4822 116 52258 220k 5% 0,5W  
 3776 4822 116 52264 27k 5% 0,5W

3777 4822 116 52264 27k 5% 0,5W  
 3778 4822 116 52269 3k3 5% 0,5W  
 3779 4822 116 52238 12k 5% 0,5W  
 3780 4822 050 23301 330Ω 1% 0,6W  
 3781 4822 050 23301 330Ω 1% 0,6W

3785 4822 050 23901 390Ω 1% 0,6W  
 3786 4822 116 52239 120k 5% 0,5W  
 3787 4822 050 22201 220Ω 1% 0,6W  
 3788 4822 116 52233 10k 5% 0,5W

3789 4822 052 10228 2Ω2 5% 0,33W  
 3790 4822 102 10414 20kX2 20% 0,05W  
 3791 4822 116 52243 1k5 5% 0,5W  
 3792 4822 116 52243 1k5 5% 0,5W  
 3793 4822 050 11002 1k 1% 0,4W

3794 4822 050 11002 1k 1% 0,4W  
 3795 4822 052 10109 10Ω 5% 0,33W  
 3796 4822 116 52283 4k7 5% 0,5W  
 3797 4822 116 52233 10k 5% 0,5W  
 3798 4822 116 52284 47k 5% 0,5W

3799 4822 116 52234 100k 5% 0,5W  
 3801 4822 101 11245 POTM 10k only/01X  
 3802 4822 116 52297 68k only/01X  
 3803 4822 116 52291 56k only/01X  
 3804 4822 116 52224 470Ω only/01X

3805 4822 116 52283 4k7 only/01X  
 3806 4822 116 52202 82Ω only/01X  
 3807 4822 116 52234 100k only/01X  
 3808 4822 116 52305 820k only/01X  
 3809 4822 050 11002 1k only/01X

3810 4822 116 52215 220Ω only/01X

#### COILS

5001 4822 146 31161 TRAFO  
 5001 4822 146 31156 TRAFO only/01/01X  
 5001 4822 146 31158 TRAFO only/10  
 5250 4822 280 70368 RELAY  
 5252 4822 157 62255 COIL

5253 4822 157 62255 COIL  
 5650 5322 242 73697 CST 8 Mc  
 5651 4822 242 81016 CST 32 Mc  
 5652 4822 157 60147 COIL2,2μH

#### DIODES

6001 4822 130 83077 LED  
 6252 4822 130 61219 BZX79-C10  
 6253 4822 130 61219 BZX79-C10  
 6264 4822 130 30621 1N4148  
 6265 4822 130 30621 1N4148

6266 4822 130 30621 1N4148  
 6267 4822 130 30621 1N4148  
 6268 4822 130 30621 1N4148  
 6269 4822 130 30621 1N4148  
 6270 4822 130 30621 1N4148

6271 4822 130 30621 1N4148  
 6272 4822 130 30621 1N4148  
 6273 4822 130 30621 1N4148  
 6274 4822 130 30621 1N4148  
 6275 4822 130 30621 1N4148

6276 4822 130 30621 1N4148  
 6277 4822 130 30621 1N4148  
 6278 4822 130 30621 1N4148  
 6279 4822 130 30621 1N4148  
 6282 4822 130 30621 1N4148

6283 4822 130 30621 1N4148  
 6284 4822 130 30621 1N4148  
 6285 4822 130 30621 1N4148  
 6286 4822 130 30621 1N4148  
 6287 4822 130 30621 1N4148

6288 4822 130 30621 1N4148  
 6289 4822 130 30621 1N4148  
 6304 4822 130 82079 D3SBA20  
 6350 5322 130 30684 1N4002GP  
 6351 4822 130 31982 BYV27-100

6352 4822 130 31982 BYV27-100  
 6353 5322 130 30684 1N4002GP  
 6354 5322 130 30684 1N4002GP  
 6355 5322 130 30684 1N4002GP  
 6356 5322 130 32184 BYV27-50

6357 5322 130 32184 BYV27-50  
 6358 5322 130 30684 1N4002GP  
 6359 5322 130 30684 1N4002GP  
 6360 5322 130 30684 1N4002GP  
 6361 5322 130 30684 1N4002GP

6362 4822 130 34268 BZX79-C16  
 6363 4822 130 30621 1N4148  
 6364 4822 130 34382 BZX79-C8V2  
 6365 4822 130 34281 BZX79-C15  
 6366 4822 130 31024 BZX79-C18

6367 4822 130 34195 BZX79-C13  
 6368 4822 130 30621 1N4148  
 6369 4822 130 34174 BZX79-C4V7  
 6370 4822 130 34328 BZX79-B30  
 6371 4822 130 30621 1N4148

6372 4822 130 30621 1N4148  
 6373 4822 130 30621 1N4148  
 6374 4822 130 30861 BZX79-C7V5  
 6376 4822 130 61219 BZX79-B10  
 6376 4822 130 30621 1N4148

6377 4822 130 30621 1N4148  
 6378 5322 130 30684 1N4002GP  
 6379 5322 130 30684 1N4002GP  
 6380 5322 130 30684 1N4002GP  
 6381 5322 130 30684 1N4002GP

6382 4822 130 30621 1N4148  
 6383 4822 130 30621 1N4148  
 6384 4822 130 31024 BZX79-C18  
 6386 4822 130 30621 1N4148  
 6387 4822 130 30621 1N4148

6388 4822 130 30621 1N4148  
 6389 4822 130 30621 1N4148  
 6451 5322 130 34563 BZX79-C2V7  
 6452 4822 130 34173 BZX79-B5V6

6575 4822 130 30621 1N4148  
 6603 4822 130 34233 BZX79-C5V1  
 6650 4822 130 30621 1N4148  
 6651 4822 130 30621 1N4148  
 6652 4822 214 52009 GP1U58XP

6654 4822 130 81007 LT3P82A  
 6655 4822 130 30621 1N4148  
 6656 4822 130 30621 1N4148  
 6659 4822 130 34167 BZX79-C6V2  
 6664 4822 130 30621 1N4148

6665 4822 130 30621 1N4148  
 6666 4822 130 30621 1N4148  
 6667 4822 130 30621 1N4148  
 6780 4822 130 34233 BZX79-C5V1  
 6781 4822 130 34233 BZX79-C5V1

6782 4822 130 34233 BZX79-C5V1  
 6783 4822 130 30621 1N4148  
 6790 4822 130 30621 1N4148

#### TRANSISTORS & IC's

7255 4822 209 70157 NJM4560DD  
 7256 4822 130 41691 BC556B  
 7257 4822 130 41691 BC556B  
 7258 4822 130 42607 BF483  
 7259 4822 130 42607 BF483

7260 4822 130 40937 BC548B  
 7261 4822 130 40937 BC548B  
 7264 4822 130 40937 BC548B  
 7265 4822 130 40937 BC548B  
 7266 4822 130 44197 BC558B

7267 4822 130 44197 BC558B  
 7268 4822 130 63073 2SD1894  
 7269 4822 130 63073 2SD1894  
 7274 4822 130 63073 2SB1254  
 7275 4822 130 63073 2SB1254

7276 4822 130 40937 BC548B  
 7277 4822 130 40937 BC548B  
 7280 4822 130 44461 BC546B  
 7281 4822 130 40937 BC548B  
 7350 4822 130 62952 ON4772

7351 4822 130 60542 BD244B  
 7352 5322 130 61677 BC875  
 7353 5322 130 60206 BD680  
 7354 4822 130 41344 BC337-40  
 7355 4822 130 60542 BD244B

7356 4822 130 62952 ON4772  
 7357 4822 130 40937 BC548B  
 7358 4822 130 40937 BC548B  
 7359 4822 130 44197 BC558B  
 7360 4822 130 62284 BDT60C

7361 4822 130 44197 BC558B  
 7362 4822 130 40937 BC548B

7451 4822 209 70157 NJM4560DD  
 7452 4822 209 72748 LC7821  
 7453 4822 209 70157 NJM4560DD  
 7575 4822 209 70157 NJM4560DD  
 7576 4822 130 41024 BF245B

7577 5322 130 41983 BC858B  
 7601 4822 209 71301 M5229P  
 7602 4822 209 71301 M5229P  
 7603 4822 209 30372 LC7520  
 7604 4822 209 31618 LC7536

7605 4822 209 70157 NJM4560DD  
 7650 4822 130 40937 BC548B  
 7654 4822 130 44197 BC558B  
 7655 4822 130 40937 BC548B  
 7656 4822 130 40937 BC548B

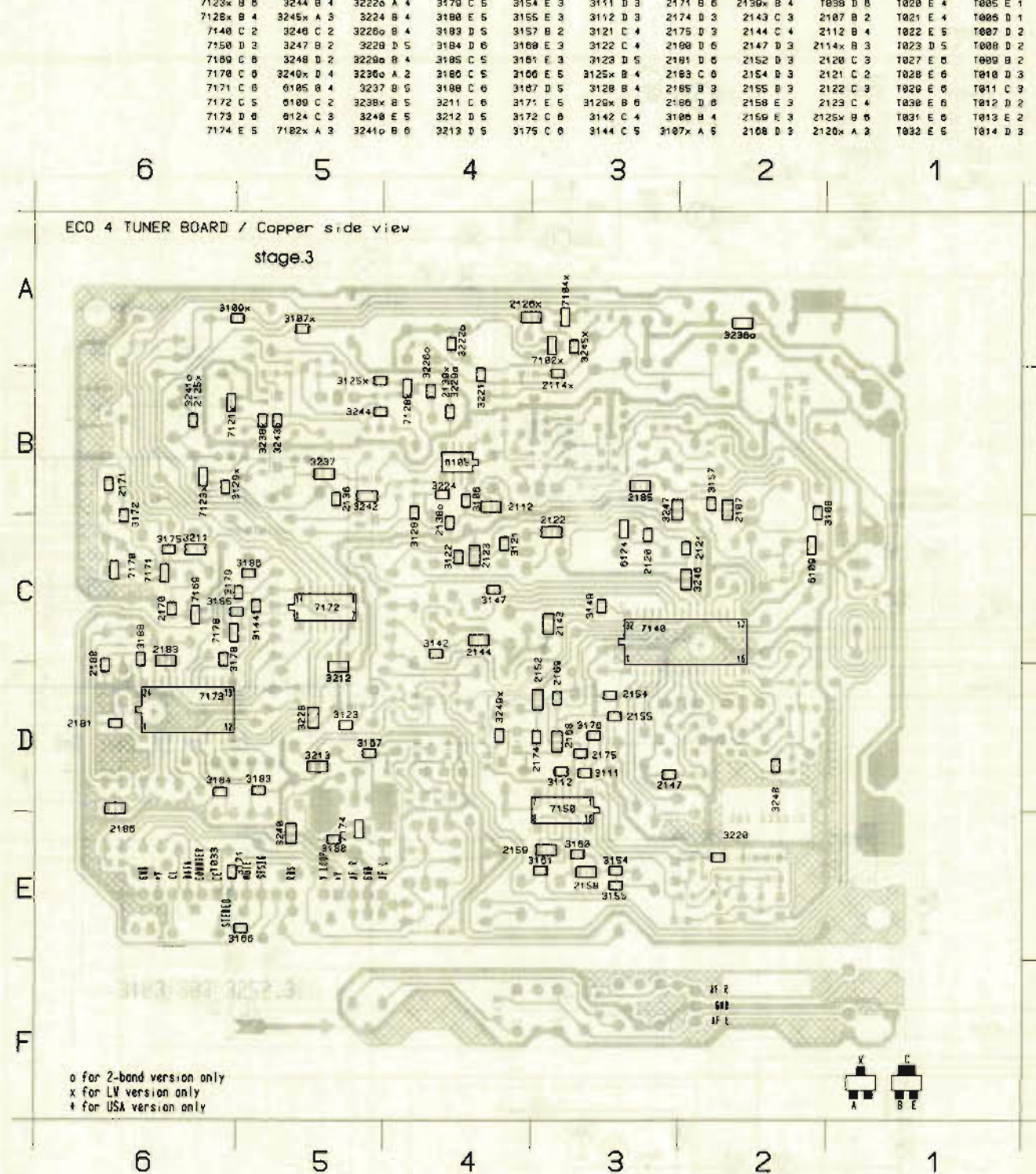
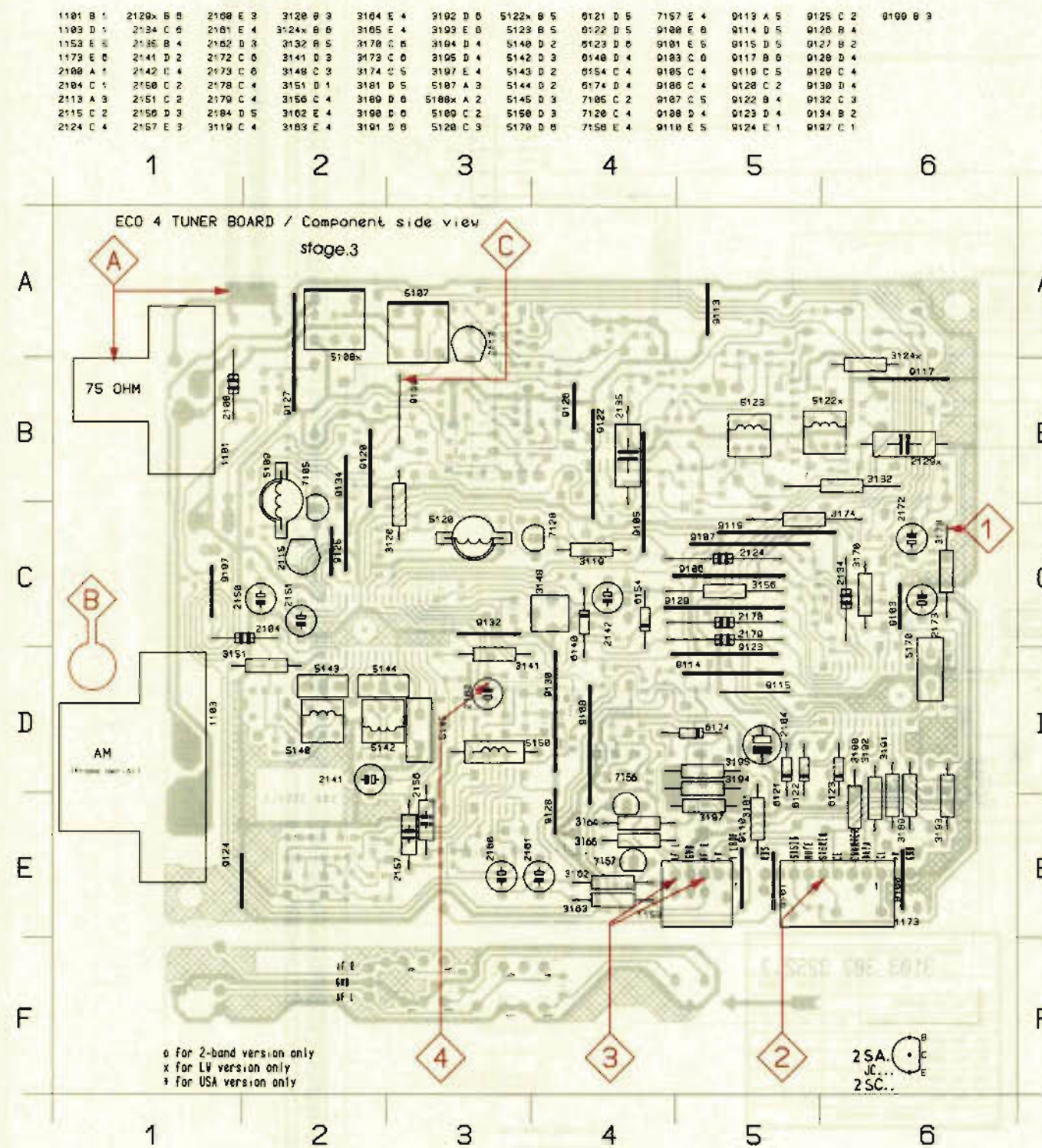
7663 4822 130 40937 BC548B  
 7664 4822 130 40937 BC548B  
 7665 4822 130 40937 BC548B  
 7674 4822 130 40937 BC548B  
 7675 4822 130 40937 BC548B

7683 4822 209 31591 TMP87CH70F...  
 7684 4822 209 62098 ST24C02AB1  
 7690 5322 130 44779 BC338-40  
 7691 5322 130 44779 BC338-40  
 7692 4822 130 40937 BC548B

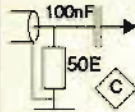
7785 4822 209 31502 BA3826S  
 7786 4822 209 63667 BA6229  
 7787 4822 209 83274 NJM4560D  
 7788 4822 130 40948 BC548A  
 7789 4822 130 40937 BC548B

7800 4822 130 44246 BC549C only/01X





TUNER Adjustment table ( ECO 4 FM/MW- and FM/MW/LW - versions )

| Waverange                                    | Input frequency                            | Input                                                                                 | Set tuned to | Adjust       | Output | Scope / Voltmeter             |
|----------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------|--------------|--------------|--------|-------------------------------|
| VARICAP ALIGNMENT                            |                                            |                                                                                       |              |              |        |                               |
| FM /00/01/05/10/17                           |                                            |                                                                                       | 108 MHz      | 5120         | 1      | 8 ± 0.2V                      |
| 87.5 - 108MHz                                |                                            |                                                                                       | 87.5MHz      | check        |        | 4.1 ± 0.5V                    |
| FM /14 East Europe                           |                                            |                                                                                       | 108 MHz      | 5120         |        | 8V ± 0.2V                     |
| 65.81 - 108MHz                               |                                            |                                                                                       | 65.81 MHz    | check        |        | 0.8 ± 0.4V                    |
| MW /01/17<br>2-band version<br>530 - 1710kHz |                                            |                                                                                       | 1710kHz      | 5123         |        | 9V ± 0.1V                     |
|                                              |                                            |                                                                                       | 530kHz       | check        |        | 1V ± 0.4V                     |
| LW /00/05/10/14                              |                                            |                                                                                       | 279kHz       | 5122         |        | 8V ± 0.2V                     |
| 153 - 279kHz                                 |                                            |                                                                                       | 153kHz       | check        |        | 1V ± 0.4V                     |
| MW /00/05/10/14                              |                                            |                                                                                       | 1611kHz      | 5123         |        | 8V ± 0.1V                     |
| 522 - 1611kHz                                |                                            |                                                                                       | 522kHz       | check        |        | 1V ± 0.4V                     |
| FM - RF                                      |                                            |                                                                                       |              |              |        |                               |
| FM /00/01/05/10/17                           | 108MHz                                     | A<br>mod=1kHz<br>Δf=22.5kHz                                                           | 108MHz       | 2115         | 3      | MAX                           |
|                                              | 87.5MHz                                    |                                                                                       | 87.5MHz      | 5109         |        |                               |
| FM /14<br>East Europe                        | 108MHz                                     |                                                                                       | 108MHz       | 2115         |        |                               |
|                                              | 65.81MHz                                   |                                                                                       | 65.81MHz     | 5109         |        |                               |
| VCO                                          |                                            |                                                                                       |              |              |        |                               |
| FM                                           | 98 MHz, 1mV<br>continuous wave             | A                                                                                     | 98MHz        | 3148         | 2      | 152 ± 1 kHz                   |
| AM - IF                                      |                                            |                                                                                       |              |              |        |                               |
| MW                                           | 540kHz<br>Δf = 10kHz<br>as low as possible |  | 540kHz       | 5142<br>5140 | 4      | symmetrical and<br>max height |
| AM - RF                                      |                                            |                                                                                       |              |              |        |                               |
| LW                                           | 198kHz                                     | B<br>mod=1kHz<br>30% AM                                                               | 198kHz       | 5108         | 4      | MAX                           |
| MW /00/05/10/14<br>3-band version            | 1494kHz                                    |                                                                                       | 1494kHz      | 2113         |        | MAX                           |
|                                              | 549kHz                                     |                                                                                       | 549kHz       | 5107         |        |                               |
| MW /01/17<br>2-band version                  | 1500kHz                                    |                                                                                       | 1500kHz      | 2113         |        |                               |
|                                              | 550kHz                                     |                                                                                       | 550kHz       | 5107         |        |                               |

\* Use Service Test Program. By selecting the TUNER TEST test frequencies will be stored as preset frequ. automatically.

repeat



## ECO - 4 TUNER

## TUNER PART

## MISCELLANEOUS

|      |                |                         |
|------|----------------|-------------------------|
| 1101 | 4822 267 10283 | SOCKET COAX IEC 75Ω     |
| 1101 | 4822 265 20598 | F-CONNECT. COAX 75Ω /17 |
| 1103 | 4822 267 31505 | SOCKET 2P CLICKFIT      |

## CAPACITORS

|      |                |               |
|------|----------------|---------------|
| 2100 | 4822 122 33195 | 100pF 10% 50V |
| 2104 | 4822 122 33195 | 100pF 10% 50V |
| 2107 | 4822 122 31746 | 1000pF 2% 63V |
| 2112 | 4822 122 33496 | 100nF 10% 63V |
| 2113 | 4822 125 60101 | 10 pF         |

|      |                |                     |
|------|----------------|---------------------|
| 2114 | 5322 122 32531 | 100pF 5% 50V /00/14 |
| 2115 | 4822 125 60101 | 10 pF               |
| 2120 | 5322 122 32268 | 470pF 10% 50V       |
| 2121 | 5322 122 32481 | 15pF 5% 50V         |
| 2122 | 4822 122 31746 | 1000pF 2% 63V       |

|      |                |                      |
|------|----------------|----------------------|
| 2123 | 4822 122 31746 | 1000pF 2% 63V        |
| 2124 | 4822 121 51387 | 10nF 20% 16V         |
| 2125 | 5322 122 31946 | 27pF 10% 50V /00/14  |
| 2126 | 4822 122 33496 | 100nF 10% 63V /00/14 |
| 2129 | 4822 121 43705 | 390pF 1% 160V /00/14 |

|      |                |                      |
|------|----------------|----------------------|
| 2134 | 4822 122 33197 | 1nF 10% 50V          |
| 2135 | 4822 121 70245 | 560pF 1% 160V        |
| 2136 | 5322 122 31946 | 27pF 10% 50V         |
| 2138 | 5322 122 32658 | 22pF 5% 50V          |
| 2139 | 4822 122 33175 | 2,2nF 20% 50V /00/14 |

|      |                |               |
|------|----------------|---------------|
| 2141 | 4822 124 40244 | 2,2μF 20% 63V |
| 2142 | 4822 124 40242 | 1μF 20% 63V   |
| 2143 | 4822 122 33325 | 470nF 16V     |
| 2144 | 4822 122 33325 | 470nF 16V     |
| 2147 | 4822 122 33177 | 10nF 20% 50V  |

|      |                |               |
|------|----------------|---------------|
| 2150 | 4822 124 40435 | 10μF 20% 50V  |
| 2151 | 4822 124 40435 | 10μF 20% 50V  |
| 2152 | 4822 122 33496 | 100nF 10% 63V |
| 2154 | 4822 122 33175 | 2,2nF 20% 50V |
| 2155 | 4822 122 33175 | 2,2nF 20% 50V |

|      |                |                   |
|------|----------------|-------------------|
| 2156 | 5322 126 10181 | 100nF 25V         |
| 2157 | 5322 126 10181 | 100nF 25V         |
| 2158 | 4822 122 31775 | 680pF 2% 63V      |
| 2158 | 4822 122 31746 | 1000pF 2% 63V /17 |
| 2159 | 4822 122 31775 | 680pF 2% 63V      |

|      |                |                   |
|------|----------------|-------------------|
| 2159 | 4822 122 31746 | 1000pF 2% 63V /17 |
| 2160 | 4822 124 40242 | 1μF 20% 63V       |
| 2161 | 4822 124 40242 | 1μF 20% 63V       |
| 2162 | 4822 124 40242 | 1μF 20% 63V       |
| 2168 | 4822 122 33481 | 1N8 5%            |

|      |                |               |
|------|----------------|---------------|
| 2169 | 5322 122 31863 | 330pF 5% 50V  |
| 2170 | 5322 126 10223 | 4,7nF 10% 63V |
| 2171 | 5322 126 10223 | 4,7nF 10% 63V |
| 2172 | 4822 124 41631 | 1,5μF 50V     |
| 2173 | 4822 124 40433 | 47μF 20% 25V  |

|      |                |               |
|------|----------------|---------------|
| 2174 | 5322 116 80853 | 560P 5%       |
| 2175 | 5322 122 32531 | 100P 5%       |
| 2178 | 4822 122 33197 | 1nF 10% 50V   |
| 2179 | 4822 122 33195 | 100pF 10% 50V |
| 2180 | 5322 122 31946 | 27pF 10% 50V  |

|      |                |               |
|------|----------------|---------------|
| 2181 | 4822 122 32139 | 12pF 2% 63V   |
| 2183 | 4822 122 33496 | 100nF 10% 63V |
| 2184 | 4822 124 41584 | 100μF 20% 10V |
| 2185 | 4822 122 33496 | 100nF 10% 63V |
| 2186 | 4822 122 31746 | 1000pF 2% 63V |

## RESISTORS

|      |                |                    |
|------|----------------|--------------------|
| 3106 | 4822 051 20104 | 100k 5% 0,1W       |
| 3107 | 4822 051 20222 | 2k2 5% 0,1W /00/14 |
| 3108 | 4822 051 20104 | 100k 5% 0,1W       |
| 3109 | 4822 051 20222 | 2k2 5% 0,1W /00/14 |
| 3111 | 4822 051 20153 | 15k 5% 0,1W        |

|      |                |              |
|------|----------------|--------------|
| 3112 | 4822 051 20223 | 22k 5% 0,1W  |
| 3119 | 4822 116 52224 | 470Ω 5% 0,5W |
| 3120 | 4822 050 15602 | 5k6 1% 0,4W  |
| 3121 | 4822 051 20104 | 100k 5% 0,1W |
| 3122 | 4822 051 20471 | 470Ω 5% 0,1W |

|      |                |                    |
|------|----------------|--------------------|
| 3123 | 4822 051 20223 | 22k 5% 0,1W        |
| 3124 | 4822 050 22202 | 2k2 1% 0,6W /00/14 |
| 3125 | 4822 051 20472 | 4k7 5% 0,1W /00/14 |
| 3128 | 4822 051 20222 | 2k2 5% 0,1W        |
| 3129 | 4822 051 20472 | 4k7 5% 0,1W /00/14 |

|      |                |              |
|------|----------------|--------------|
| 3132 | 4822 050 24702 | 4k7 1% 0,6W  |
| 3141 | 4822 050 22201 | 220Ω 1% 0,6W |
| 3142 | 4822 051 20222 | 2k2 5% 0,1W  |
| 3144 | 4822 051 20473 | 47k 5% 0,1W  |
| 3147 | 4822 051 20184 | 180k 5% 0,1W |

|      |                |                 |
|------|----------------|-----------------|
| 3148 | 4822 100 11682 | 47k 30%LIN 0.2W |
| 3149 | 4822 051 20823 | 82k 5% 0,1W     |
| 3151 | 4822 050 21502 | 1k5 1% 0,6W     |
| 3154 | 4822 051 20333 | 33k 5% 0,1W     |
| 3155 | 4822 051 20333 | 33k 5% 0,1W     |

|      |                |             |
|------|----------------|-------------|
| 3156 | 4822 050 21003 | 10k 1% 0,6W |
| 3157 | 4822 051 20473 | 47k 5% 0,1W |
| 3159 | 4822 051 20103 | 10k 5% 0,1W |
| 3160 | 4822 051 20823 | 82k 5% 0,1W |
| 3161 | 4822 051 20823 | 82k 5% 0,1W |

|      |                |              |
|------|----------------|--------------|
| 3162 | 4822 050 21002 | 1k 1% 0,6W   |
| 3163 | 4822 050 21002 | 1k 1% 0,6W   |
| 3164 | 4822 050 24702 | 4k7 1% 0,6W  |
| 3165 | 4822 050 24702 | 4k7 1% 0,6W  |
| 3166 | 4822 051 20101 | 100Ω 5% 0,1W |

|      |                |              |
|------|----------------|--------------|
| 3167 | 4822 051 20008 | 0Ω 5% 0,1W   |
| 3170 | 4822 050 24702 | 4k7 1% 0,6W  |
| 3171 | 4822 051 20101 | 100Ω 5% 0,1W |
| 3172 | 4822 051 20472 | 4k7 5% 0,1W  |
| 3173 | 4822 116 52244 | 15k 5% 0,5W  |

|      |                |              |
|------|----------------|--------------|
| 3174 | 4822 050 21003 | 10k 1% 0,6W  |
| 3175 | 4822 051 20104 | 100k 5% 0,1W |
| 3176 | 4822 051 20104 | 100k 5% 0,1W |
| 3178 | 4822 051 20104 | 100k 5% 0,1W |
| 3179 | 4822 051 20223 | 22k 5% 0,1W  |

|      |                |              |
|------|----------------|--------------|
| 3180 | 4822 051 20104 | 100k 5% 0,1W |
| 3181 | 4822 116 52234 | 100k 5% 0,5W |
| 3183 | 4822 051 20223 | 22k 5% 0,1W  |
| 3184 | 4822 051 20223 | 22k 5% 0,1W  |
| 3185 | 4822 051 20104 | 100k 5% 0,1W |

|      |                |              |
|------|----------------|--------------|
| 3186 | 4822 051 20104 | 100k 5% 0,1W |
| 3188 | 4822 051 10102 | 1k 2% 0,25W  |
| 3189 | 4822 050 21802 | 1k8 1% 0,6W  |
| 3190 | 4822 050 21802 | 1k8 1% 0,6W  |
| 3191 | 4822 050 21802 | 1k8 1% 0,6W  |

|      |                |              |
|------|----------------|--------------|
| 3192 | 4822 050 21802 | 1k8 1% 0,6W  |
| 3193 | 4822 116 52224 | 470Ω 5% 0,5W |
| 3194 | 4822 050 24701 | 470Ω MRS25   |
| 3195 | 4822 050 24701 | 470Ω MRS25   |
| 3197 | 4822 050 24701 | 470Ω MRS25   |

|      |                |             |
|------|----------------|-------------|
| 3211 | 4822 051 10008 | 0Ω 5% 0,25W |
| 3212 | 4822 051 10008 | 0Ω 5% 0,25W |
| 3213 | 4822 051 10008 | 0Ω 5% 0,25W |
| 3220 | 4822 051 20008 | 0Ω 5% 0,1W  |
| 3221 | 4822 051 20008 | 0Ω 5% 0,1W  |

|      |                |                   |
|------|----------------|-------------------|
| 3222 | 4822 051 20008 | 0Ω 5% 0,1W /01/17 |
| 3224 | 4822 051 20008 | 0Ω 5% 0,1W        |
| 3226 | 4822 051 20008 | 0Ω 5% 0,1W        |
| 3228 | 4822 051 10008 | 0Ω 5% 0,25W       |
| 3229 | 4822 051 20008 | 0Ω 5% 0,1W /01/17 |

|      |                |                    |
|------|----------------|--------------------|
| 3236 | 4822 051 10008 | 0Ω 5% 0,25W /01/17 |
| 3237 | 4822 051 10008 | 0Ω 5% 0,25W        |
| 3238 | 4822 051 20008 | 0Ω 5% 0,1W /00/14  |
| 3240 | 4822 051 10008 | 0Ω 5% 0,25W        |
| 3241 | 4822 051 20008 | 0Ω 5% 0,1W /01/17  |

|      |                |                   |
|------|----------------|-------------------|
| 3242 | 4822 051 10008 | 0Ω 5% 0,25W       |
| 3243 | 4822 051 20008 | 0Ω 5% 0,1W /01/17 |
| 3244 | 4822 051 20008 | 0Ω 5% 0,1W        |
| 3245 | 4822 051 20008 | 0Ω 5% 0,1W /00/14 |
| 3246 | 4822 051 10008 | 0Ω 5% 0,25W       |

|      |                |             |
|------|----------------|-------------|
| 3247 | 4822 051 10008 | 0Ω 5% 0,25W |
| 3248 | 4822 051 20008 | 0Ω 5% 0,1W  |
| 3249 | 4822 051 20821 | 820Ω        |

## COILS

|      |                |                       |
|------|----------------|-----------------------|
| 5107 | 4822 157 63799 | MW AERIAL COIL /00/14 |
| 5107 | 4822 157 63835 | MW AERIAL COIL /01/17 |

|      |                |                       |
|------|----------------|-----------------------|
| 5108 | 4822 157 63801 | LW AERIAL COIL /00/14 |
| 5109 | 4822 156 30947 | RF COIL 1,5T          |
| 5120 | 4822 156 30947 | RF COIL 1,5T          |
| 5122 | 4822 157 60517 | 110μH /00/14          |
| 5123 | 4822 157 60517 | 110μH                 |

|      |                |                    |
|------|----------------|--------------------|
| 5140 | 4822 158 60511 | AM-IF COIL         |
| 5142 | 4822 157 70302 | AM-IF COIL         |
| 5143 | 4822 242 70665 | CER. TER 10,7MHz   |
| 5144 | 4822 242 70665 | CER. TER 10,7MHz   |
| 5145 | 4822 242 81362 | CER. DISCRIMINATOR |

|      |                |                  |
|------|----------------|------------------|
| 5150 | 4822 157 50975 | 1 mH             |
| 5170 | 4822 242 72976 | CER. RES. 7,2MHz |

## DIODES

|      |                |               |
|------|----------------|---------------|
| 6105 | 4822 130 83075 | HN1V02H       |
| 6109 | 4822 130 82833 | 1SV228        |
| 6121 | 4822 130 30621 | 1N4148 /14/17 |
| 6122 | 4822 130 30621 | 1N4148 /01/14 |
| 6123 | 4822 130 30621 | 1N4148 /14/17 |

|      |                |            |
|------|----------------|------------|
| 6124 | 4822 130 82833 | 1SV228     |
| 6140 | 4822 130 30621 | 1N4148     |
| 6154 | 4822 130 30621 | 1N4148     |
| 6155 | 4822 130 30621 | 1N4148     |
| 6174 | 4822 130 34233 | BZX79-F5V1 |

## TRANSISTORS &amp; IC's

|      |                |                 |
|------|----------------|-----------------|
| 7102 | 4822 130 42615 | BC817-40 /00/14 |
| 7104 | 5322 130 42136 | BC848C /00/14   |
| 7105 | 4822 130 60093 | 2SA838B         |
| 7120 | 4822 130 60163 | 2SC1047         |
| 7121 | 5322 130 42136 | BC848C /00/14   |

|      |                |                      |
|------|----------------|----------------------|
| 7123 | 5322 130 42136 | BC848C /00/14        |
| 7128 | 5322 130 42136 | BC848C /00/14        |
| 7140 | 4822 209 32011 | TEA5712T/N1 (RF-IC)  |
| 7150 | 5322 209 14482 | HEF4069UBT(INVERTER) |
| 7156 | 4822 130 63199 | JC337-40.            |
|      | 4822 130 41344 | BC337-40.            |

|      |                |           |
|------|----------------|-----------|
| 7157 | 4822 130 63199 | JC337-40. |
|      | 4822 130 41344 | BC337-40. |
| 7169 | 5322 130 41983 | BC858B    |
| 7170 | 5322 130 42136 | BC848C    |
| 7171 | 5322 130 42136 | BC848C    |

|      |                |                      |
|------|----------------|----------------------|
| 7172 | 4822 209 30606 | MM74HCU04M(INVERTER) |
| 7173 | 4822 209 31998 | LC7218M SYNTHESIZER  |
| 7174 | 5322 130 41983 | BC858B               |
| 7178 | 5322 130 41983 | BC858B               |

# Service Service Service

Product Service Group CE Audio

# Service Information

## GB

To adapt the service manual the following sheets have been added/changed.

## F

Afin de pouvoir adapter le "manual service" les feuillets suivants ont été soit modifiés, soit ajoutés.

## NL

Voor het aanpassen van de service manual zijn de onderstaande pagina's toegevoegd/gewijzigd.

## D

Zür anpassung des Service Manual sind die nachstehenden Seiten hinzugefügt/geändert.

## I

Le seguenti pagine sono state cambiate/aggiunte allo scopo di adattare il Manuale di Servizio.

|                             | Page    | Reason                       |
|-----------------------------|---------|------------------------------|
| Front Page                  |         | ECO-4 Tuner + /00U/01X added |
| Wiring diagram              | 19a-20a | /01X added                   |
| Micro-Mix Diagram           | 30      | /01X added                   |
| Front PCB                   | 31a-32a | Update /01X added            |
| Front Diagram               | 33a-35a | Update                       |
| Source Selector PCB         | 36a-38a | Update + /01X added          |
| Source Selector Diagram     | 39a-40a | Update + /01X added          |
| Equaliser Diagram           | 41a-42a | Update                       |
| Power Diagram               | 43a-45a | Update                       |
| Power PCB                   | 46a-48a | Update                       |
| List of mechanical Parts    | 51a     | Update + /00U/01X added      |
| List of electrical Parts    | 54a-62a | Update + /00U/01X added      |
| ECO-4 Tuner Diagram         | 63 -65  | Added                        |
| ECO-4 Tuner PCB             | 66 -67  | Added                        |
| Adjustments ECO-4 Tuner     | 68      | Added                        |
| ECO-4 Tuner PCB.2           | 69      | Added                        |
| List of electr. Parts ECO-4 | 70 -71  | Added                        |

The 70FR060 the version /00U /01X has been introduced.

The 70FR060 /00U version is with ECO-4 Tuner

The 70FR060 /01X version is with Micro - Mix circuit and with ECO-4 Tuner

We refer to the Service manual 70FR060 codnr.4822 725 23914 ,except the following changes:

| Position | Codenummer     | Description             |
|----------|----------------|-------------------------|
| 200      | 4822 426 51616 | FRONT ASSY only/01X     |
| 203      | 4822 426 20233 | BACKSIDE only/01/01X    |
| 295      | 4822 410 62431 | KNOB only/01X           |
| 2471     | 5322 124 41431 | 22μF only/01X           |
| 2472     | 5322 124 41431 | 22μF only/01X           |
| 3635     | 4822 051 20222 | 2k2 only/01X            |
| 3636     | 4822 051 20222 | 2k2 only/01X            |
| 5001     | 4822 146 31156 | MAINS TRAFO only/01/01X |

**Micro - Mix circuit : only /01X**

| Position | Codenummer     | Description   |
|----------|----------------|---------------|
| 1800     | 4822 267 31607 | MICRO SOCKET  |
| 2800     | 4822 124 40433 | 47μF 20% 25V  |
| 2801     | 4822 124 40433 | 47μF 20% 25V  |
| 2802     | 4822 122 33848 | 47pF 5% 50V   |
| 2803     | 4822 124 40435 | 10μF 20% 50V  |
| 2804     | 4822 124 40242 | 1μF 20% 63V   |
| 2805     | 4822 126 11714 | 4n7 20%       |
| 2806     | 4822 122 33195 | 100pF 10% 50V |
| 2807     | 4822 121 51387 | 10nF 20% 16V  |
| 2808     | 4822 122 33195 | 100pF 10% 50V |
| 3668     | 4822 050 21003 | 10k 1% 0,6W   |
| 3801     | 4822 101 11245 | POTM. 10k     |
| 3802     | 4822 116 52297 | 68k 5% 0,5W   |
| 3803     | 4822 116 52291 | 56k 5% 0,5W   |
| 3804     | 4822 116 52224 | 470E 5% 0,5W  |
| 3805     | 4822 116 52283 | 4k7 5% 0,5W   |
| 3806     | 4822 116 52202 | 82E 5% 0,5W   |
| 3807     | 4822 116 52234 | 100k 5% 0,5W  |
| 3808     | 4822 116 52305 | 820k 5% 0,5W  |
| 3809     | 4822 050 11002 | 1k 1% 0,4W    |
| 3810     | 4822 116 52215 | 220E 5% 0,5W  |
| 7800     | 4822 130 44246 | BC549C        |