

# Service Service Service

## RTV servis Horvat

Kešinci, 31402 Semeljci

031-856-139

031-856-637

098-788-319

rtv-servis-horvat@os.tel.hr

Croatia



For Servicing Information concerning the cassette mechanism refer to Service Manuals: "Tape transport RT-74, Tape transport RT-76".

For Servicing Information concerning the record player refer to Service Manual P284.

38 545 A12

# Service Manual

(GB)

## TECHNICAL DATA

Power supply voltages

Power consumption

Dimensions

Wave ranges

FM  
MW  
LW

Sensitivity

$\Delta f$  75 kHz FM

600 kHz AM

IF: FM

IF: AM

Aerial input

Output power (at 4  $\Omega$  load)

Output impedance

Output impedance of headphones

Cassette deck

Speed

Wow and flutter

Record player

Speed

Wow and flutter

(NL)

## SPECIFICATIES

Voedingsspanningen

Opgenomen vermogen

Afmetingen

Golfbereiken

FM  
MW  
LW

Gevoeligheid:

$\Delta f$  75 kHz FM

600 kHz AM

IF: FM

IF: AM

Antenne ingang

Uitgangsvermogen (4  $\Omega$ )

Uitgangsimpedantie

Uitgangsimpedantie hoofdtelefoon

Recorder

Snelheid

Wow en flutter

Platenspeler

Snelheid

Wow en flutter

(F)

## SPECIFICATIONS

Alimentation

Puissance absorbée

Dimensions

Gammes d'ondes

FM  
PO  
GO

Sensibilité

$\Delta f$  75 kHz FM

600 kHz AM

IF: AM

IF: AM

Impédance d'antenne

Puissance de sortie (4  $\Omega$ )

Impédance de sortie

Impédance de sortie écouteurs

Magnétophone

Vitesse

Pleurage et scintillement

Tourne-disque

Vitesse

Pleurage et scintillement

(D)

## TECHNISCHE DATEN

Versorgungsspannungen

Leistungsaufnahme

Abmessungen

Wellenbereiche:

UKW  
FM  
MW

Empfindlichkeit:

$\Delta f$  75 kHz FM

600 kHz AM

IF: FM

IF: AM

Antennen-Impedanz

Ausgangsleistung (4  $\Omega$ )

Ausgangsimpedanz

Kopfhörer-Ausgangs impedanz

Recorder

Geschwindigkeit

Gleichlaufschwankungen

Plattenspieler

Geschwindigkeit

Gleichlaufschwankungen

(I)

## DATI TECNICI

Tensioni d'alimentazione : 220 V (110, 127, 240 V Service solution) 50/60 Hz ~

Potenza assorbita :  $\leq$  55 W

Dimensioni : 340x360x320 (hxwxd)

Gamma d'onda

FM  
OM  
OL

Sensibilità:

$\Delta f$  75 kHz FM

600 kHz AM

IF: FM

IF: AM

Ingresso antenna

Potenza d'uscita (con carico 4  $\Omega$ ) : 2 x 7.5 W (1 kHz)  $D \leq$  10%

Impedenza d'uscita

Impedenza d'uscita per cuffia : 4-1000  $\Omega$

Piastra registratore

Velocità

: 4.76 cm/sec  $\pm$  0.5%

Wow e flutter

:  $\leq$  0.2%

Giradischi

Velocità

: 331/3-45 r.p.m.

Wow e flutter

:  $\leq$  0.3%



(GB)

(NL)

Subject to modification

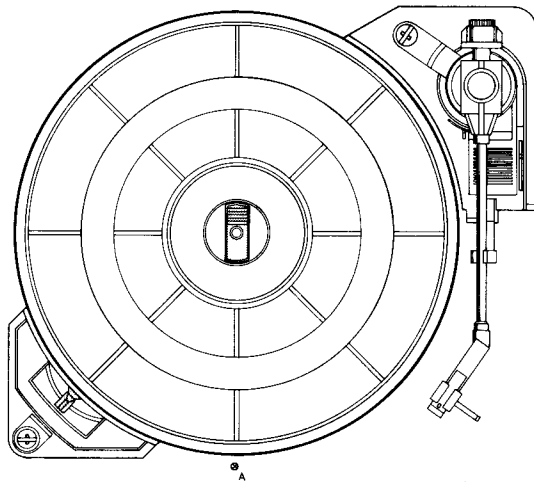
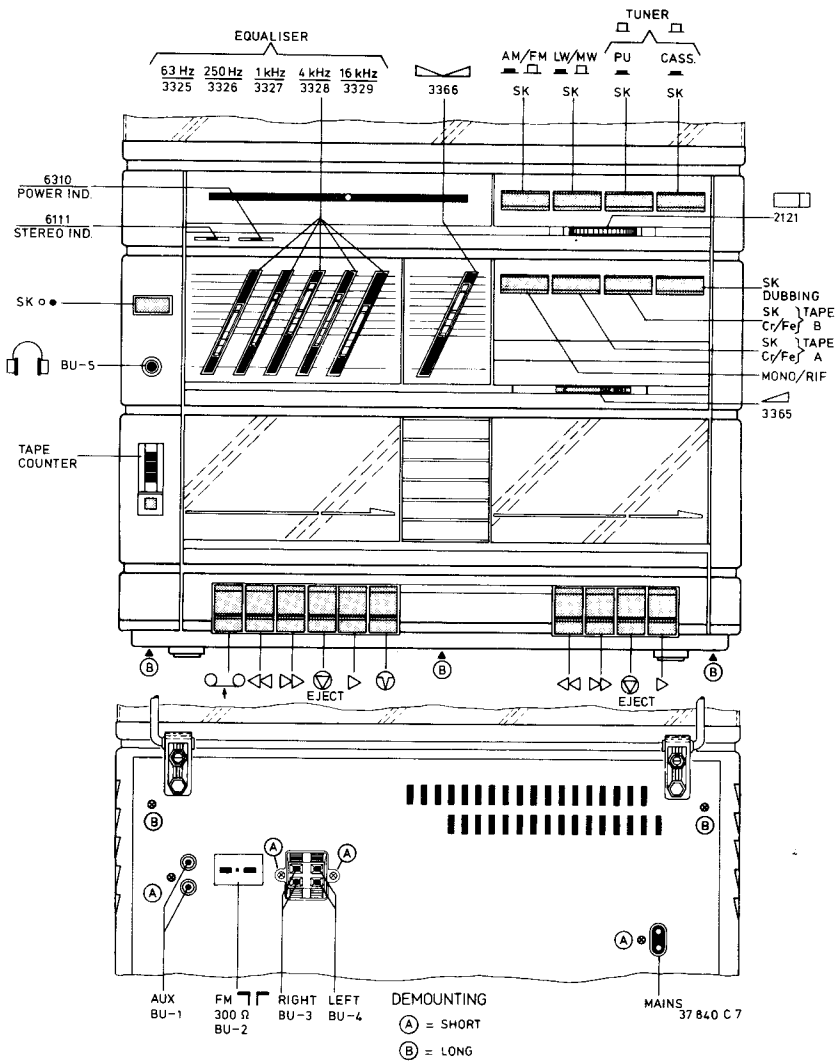
4822 725 20745

(F)

(D)

(I)

**PHILIPS**



**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.

**F**

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

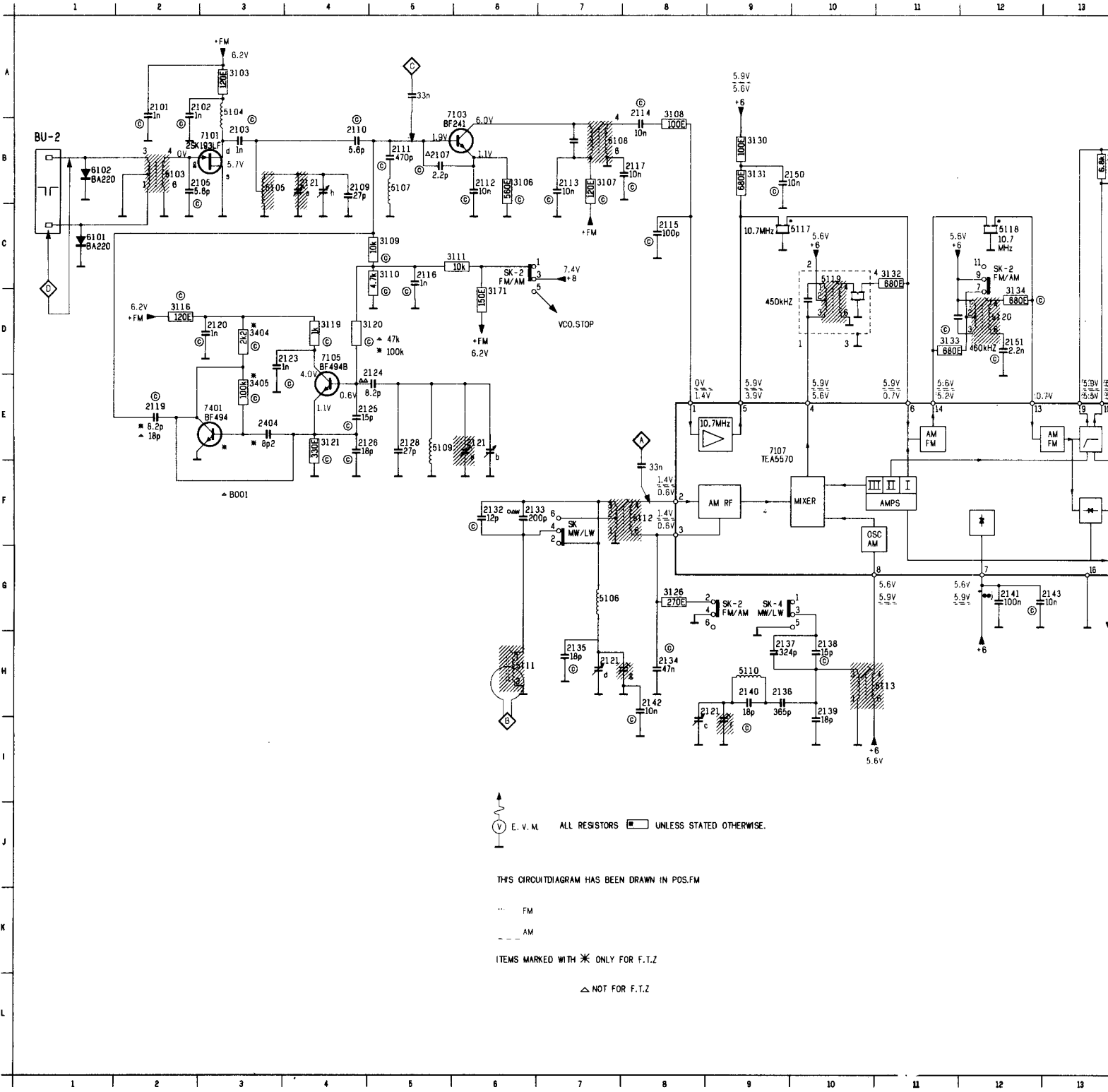
**D**

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

**I**

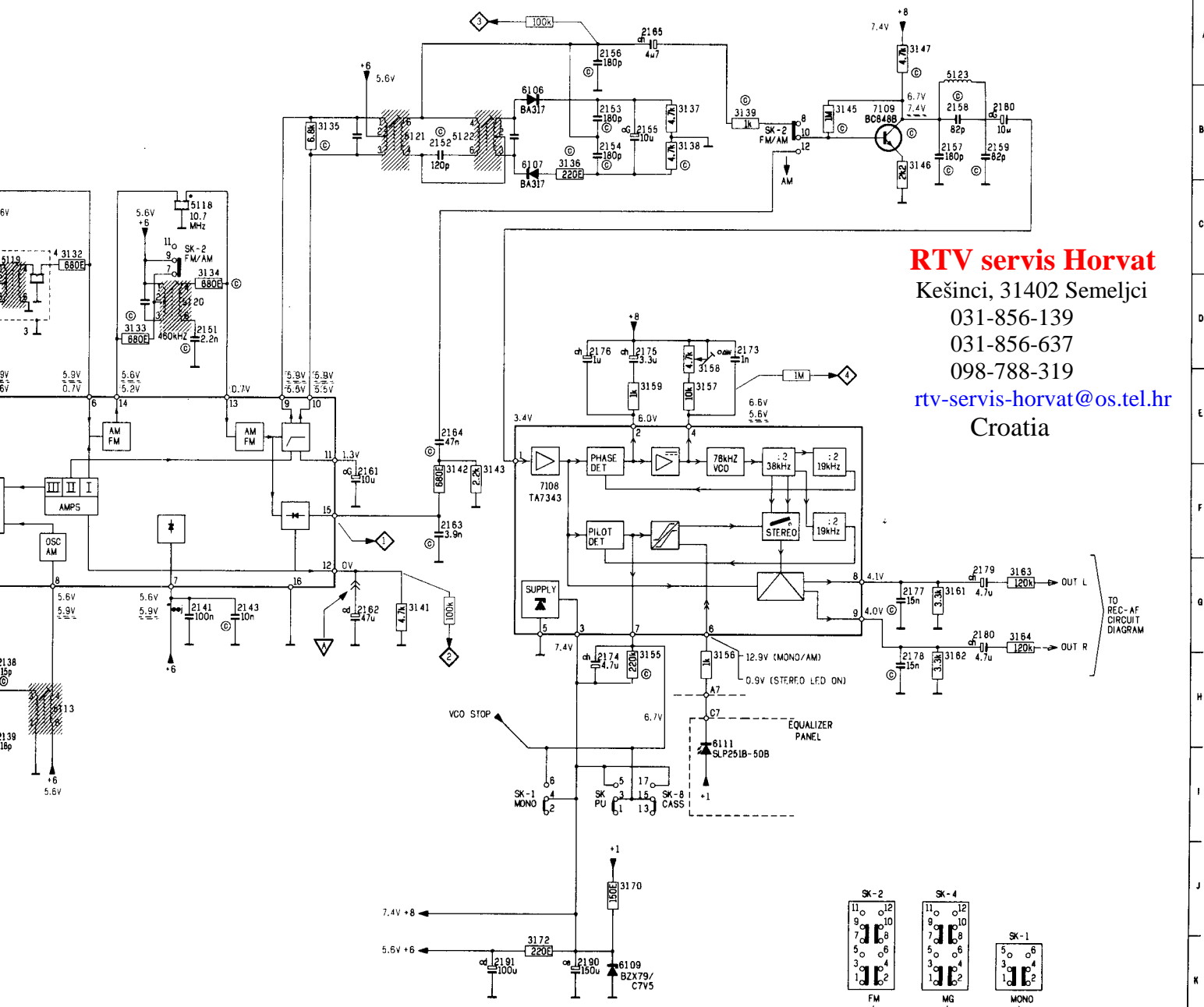
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

|      |     |      |     |      |     |      |     |      |     |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |     |      |      |      |      |      |      |      |
|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|-----|------|------|------|------|------|------|------|
| 2101 | A 2 | 2109 | B 4 | 2114 | A 8 | 2120 | D 3 | 2123 | D 4 | 2132 | F 6 | 2137 | H 9  | 2142 | H 8  | 2153 | B 16 | 2158 | B 20 | 2163 | F 15 | 2175 | D 17 | 2180 | G 20 | 3106 | B 6 | 3111 | C 6 | 3126 | G 8  | 3134 | D 12 | 3139 | B 10 | 3146 |
| 2102 | A 3 | 2110 | B 4 | 2115 | C 8 | 2121 | B 4 | 2124 | D 5 | 2133 | F 6 | 2138 | H 10 | 2143 | O 13 | 2154 | B 16 | 2159 | B 21 | 2164 | E 15 | 2176 | D 16 | 2190 | K 16 | 3107 | B 7 | 3116 | D 2 | 3130 | B 9  | 3135 | B 13 | 3141 | G 14 | 3147 |
| 2103 | B 3 | 2111 | B 5 | 2116 | C 5 | 2121 | E 6 | 2125 | E 5 | 2134 | H 8 | 2139 | H 10 | 2150 | B 10 | 2155 | B 17 | 2160 | B 21 | 2165 | A 17 | 2177 | G 20 | 2191 | K 15 | 3108 | A 8 | 3119 | D 4 | 3131 | B 9  | 3136 | B 16 | 3142 | F 15 | 3155 |
| 2105 | B 3 | 2112 | B 6 | 2117 | B 8 | 2121 | H 7 | 2126 | E 5 | 2135 | H 7 | 2140 | H 9  | 2151 | D 12 | 2156 | A 16 | 2161 | F 14 | 2173 | D 18 | 2178 | H 20 | 2404 | E 3  | 3109 | C 5 | 3120 | D 5 | 3132 | C 11 | 3137 | B 17 | 3143 | F 15 | 3155 |
| 2107 | B 5 | 2113 | B 7 | 2119 | E 2 | 2121 | H 9 | 2128 | E 5 | 2136 | H 9 | 2141 | G 12 | 2152 | B 15 | 2157 | B 20 | 2162 | G 14 | 2174 | H 16 | 2179 | G 20 | 3103 | A 3  | 3110 | C 5 | 3121 | E 4 | 3133 | D 11 | 3138 | B 17 | 3145 | B 19 | 3157 |

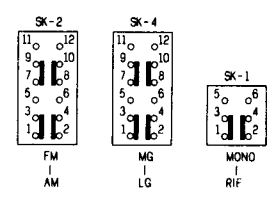


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|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| B 6 | 3111 | C 6 | 3126 | G 8 | 3134 | D12 | 3139 | B18 | 3146 | B20 | 3158 | E18 | 3164 | G21 | 3405 | E 3 | 5107 | B 5 | 5112 | F 8 | 5120 | D12 | 6102 | B 1 | 7101 | B 3 | 7109 | B19 |
| B 7 | 3116 | D 2 | 3130 | B 9 | 3135 | B13 | 3141 | G14 | 3147 | R20 | 3159 | E17 | 3170 | J17 | 5103 | B 2 | 5108 | B 7 | 5113 | H11 | 5121 | B14 | 6106 | B16 | 7103 | A 6 | 7401 | E 3 |
| A 8 | 3119 | D 4 | 3131 | B 9 | 3136 | B16 | 3142 | F15 | 3155 | H17 | 3161 | G20 | 3171 | D 6 | 5104 | A 3 | 5109 | E 5 | 5117 | C10 | 5122 | B15 | 6107 | B16 | 7105 | D 4 |      |     |
| C 5 | 3120 | D 5 | 3132 | C11 | 3137 | B17 | 3143 | F15 | 3156 | H18 | 3162 | H20 | 3172 | K16 | 5105 | B 3 | 5110 | H 9 | 5118 | C12 | 5123 | R20 | 6109 | K17 | 7107 | E 9 |      |     |
| C 5 | 3121 | E 4 | 3133 | D11 | 3138 | B17 | 3145 | B19 | 3157 | E18 | 3163 | G21 | 3404 | D 3 | 5106 | D 7 | 5111 | H 6 | 5119 | C10 | 6101 | C 1 | 6111 | H18 | 7108 | F16 |      |     |

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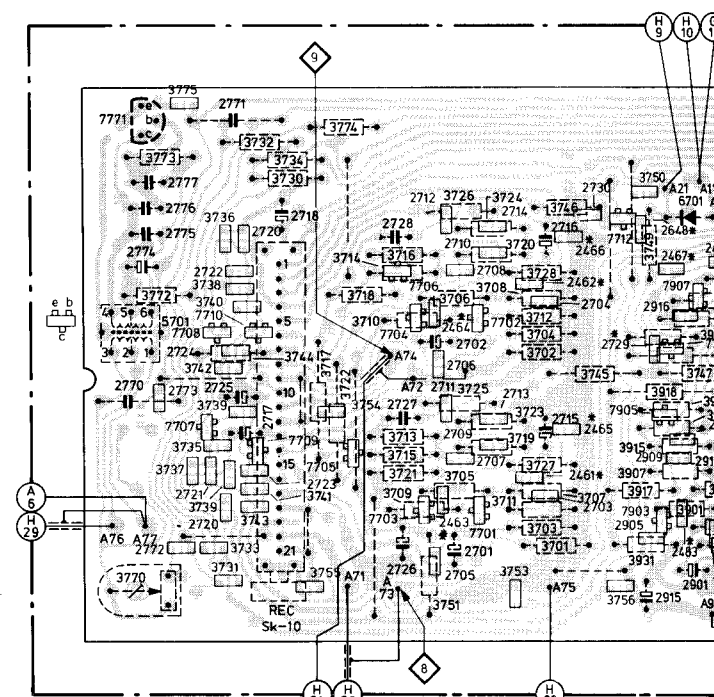
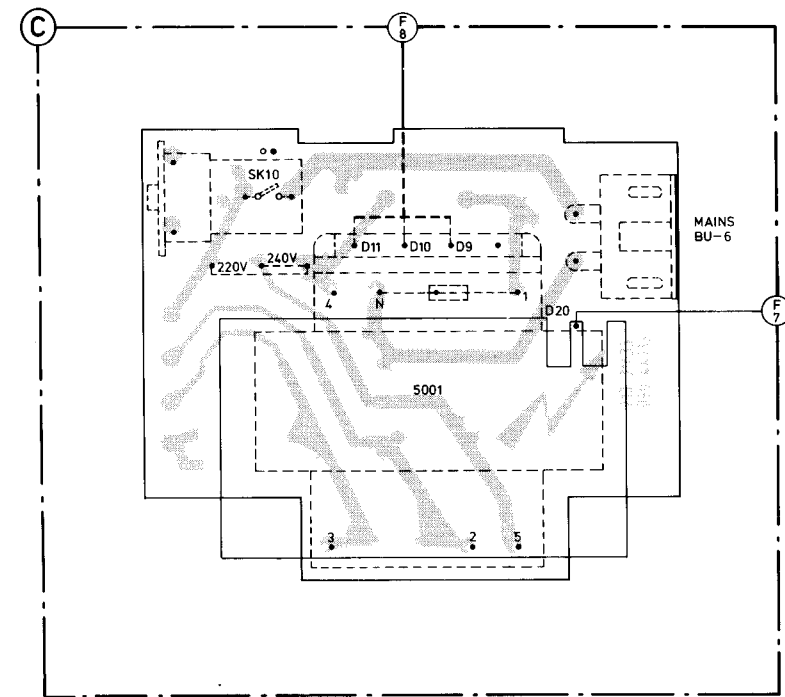
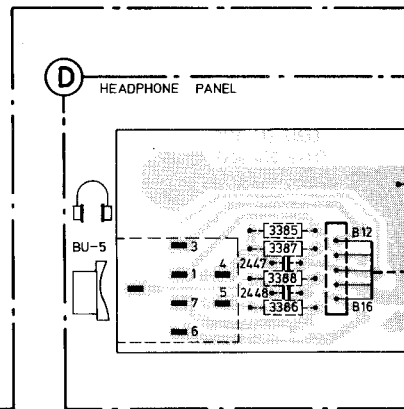
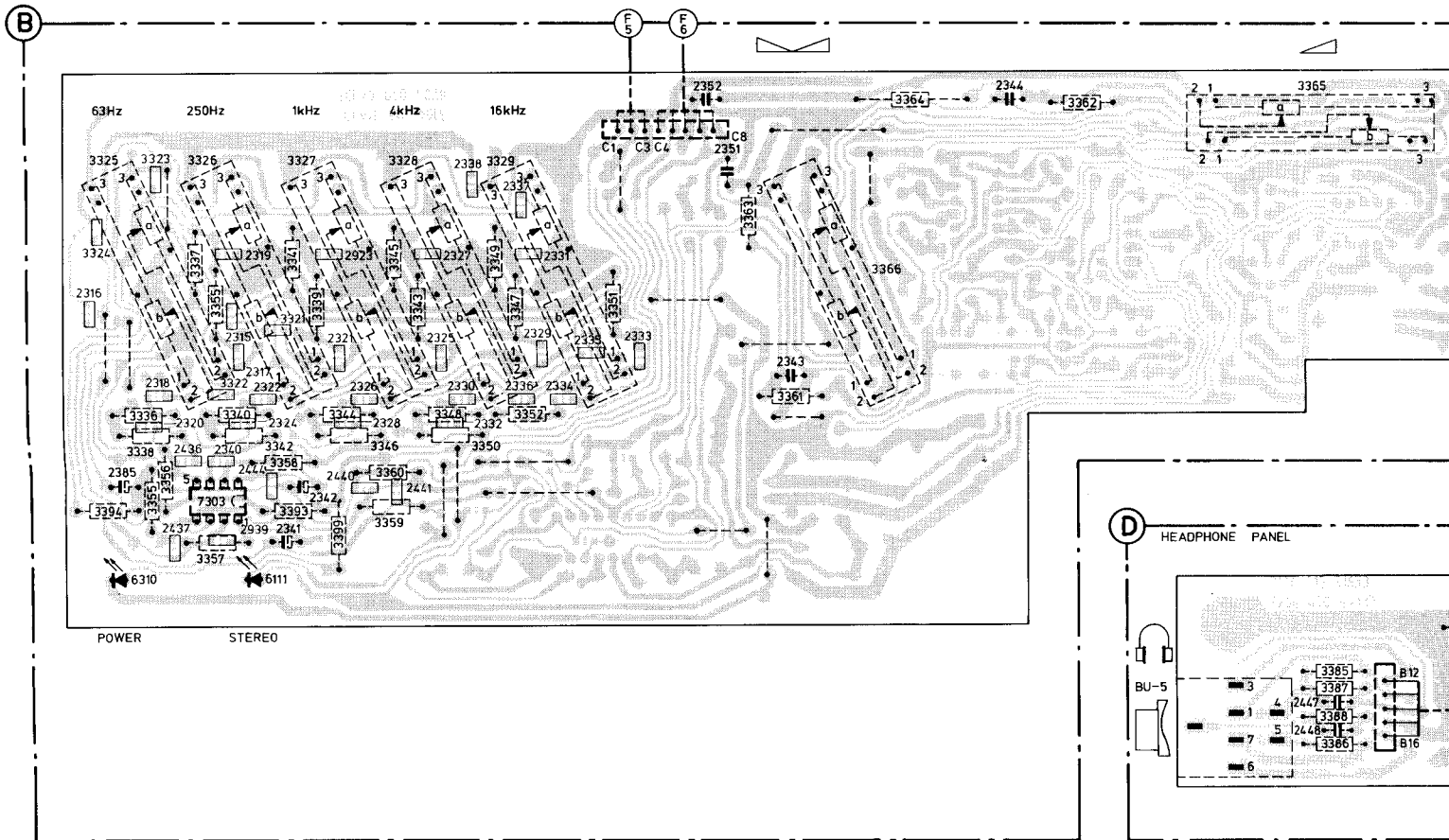
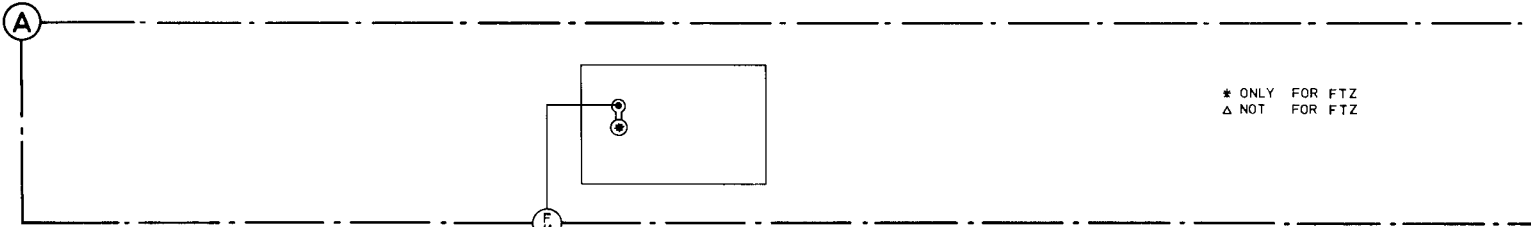
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 098-788-319  
[rtv-servis-horvat@os.tel.hr](mailto:rtv-servis-horvat@os.tel.hr)  
 Croatia



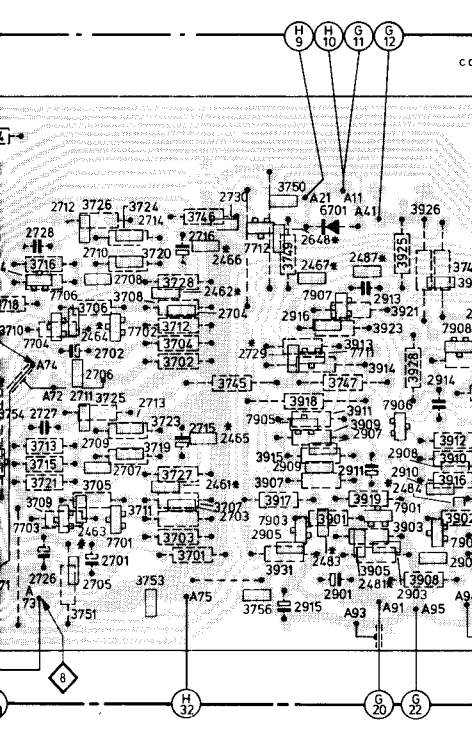
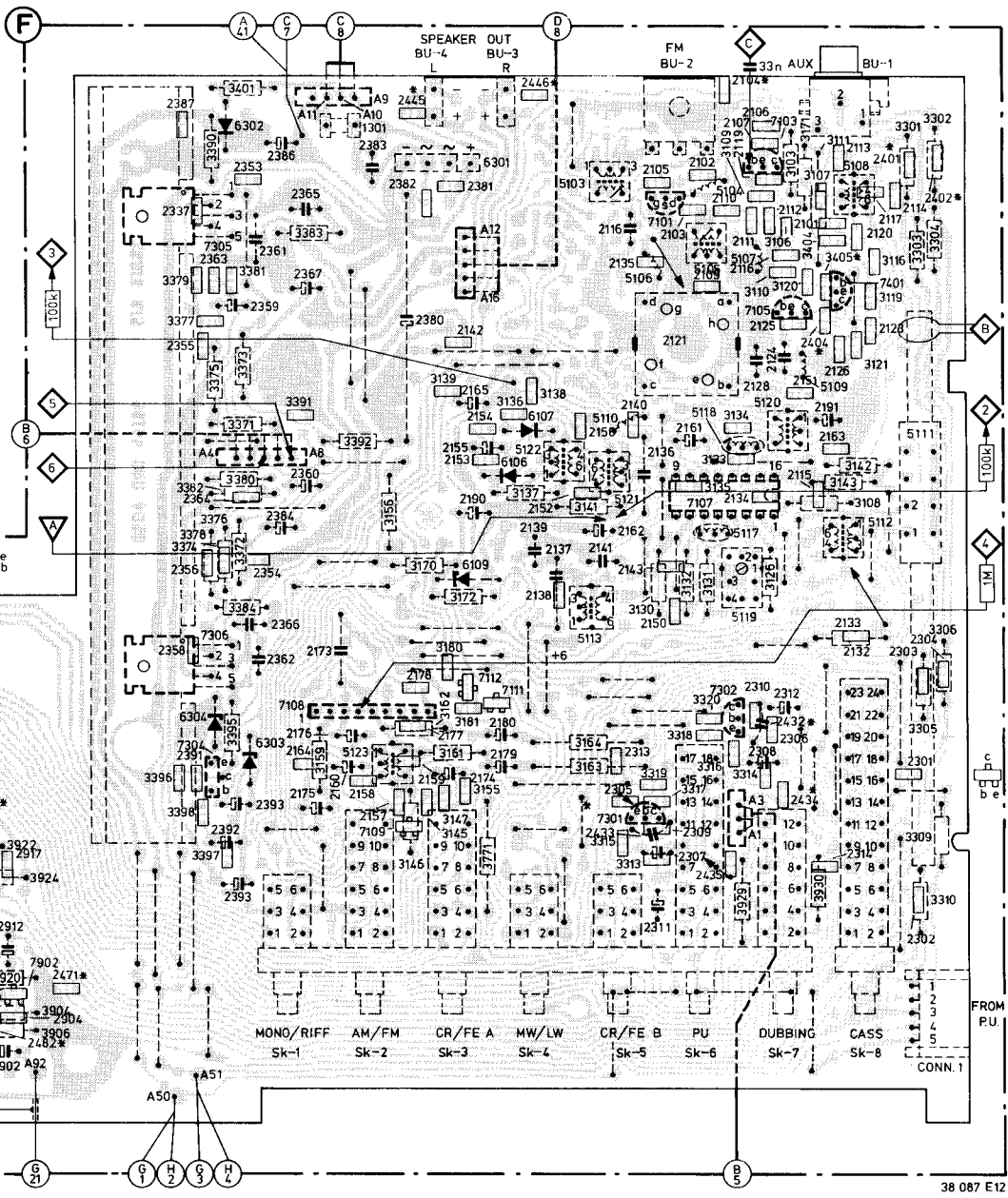
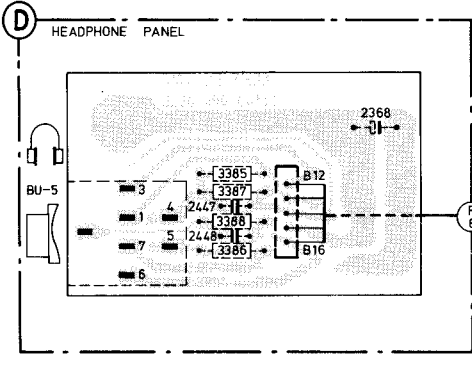
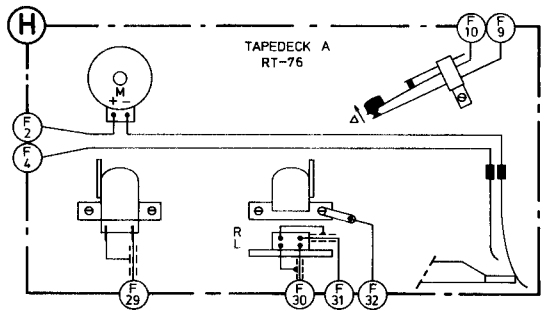
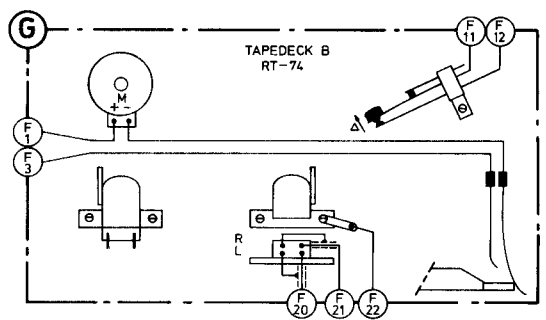
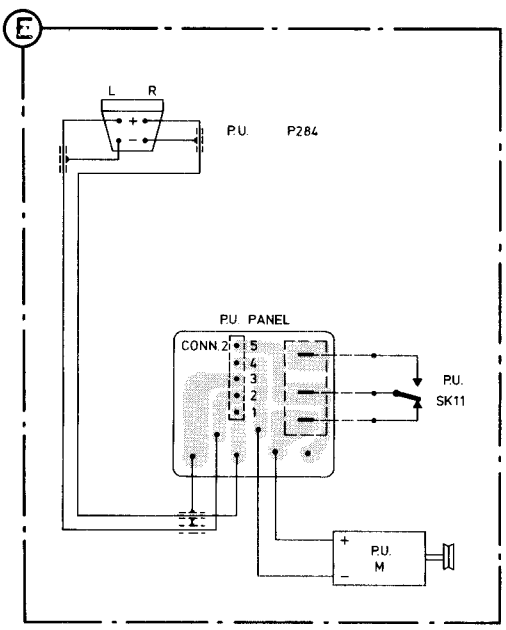
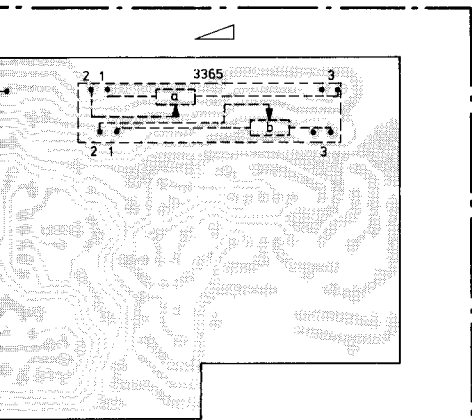
ALL SWITCHES DRAWN IN REST-POSITION

**RF PART**  
 PRS. 00482

10 11 12 13 14 15 16 17 18 19 20 21 22

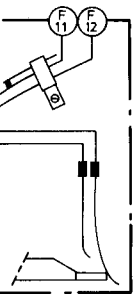


\* ONLY FOR FTZ  
 Δ NOT FOR FTZ



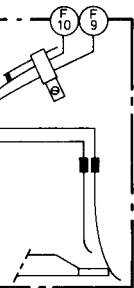
**7301/7302**

e = ⊥  
b = 0.6 V  
c = 5.7 V



**7303**

1 = 7.1 V  
2 = 7.1 V  
3 = 7.1 V  
4 = ⊥  
5 = 7.1 V  
6 = 7.1 V  
7 = 7.1 V  
8 = 14.4 V



**7105**

e = 1.4 V  
b = 0.6 V  
c = 4.0 V

**7304**

e = 14.4 V  
b = 15.6 V  
c = 30.6 V

**7101**

g = 0 V  
s = ⊥  
d = 5.7 V

**7103**

e = 1.1 V  
b = 1.9 V  
c = 6.0 V

**7703/7704**

e = 2.2 V  
b = 2.9 V  
c = 6.1 V

**7305/7306**

1 = 15 V  
2 = 15.4 V  
3 = ⊥  
4 = 15.4 V  
5 = 30.6 V

**7109**

e = 0.3 V  
b = 1.0 V  
c = 6.7 V

**7701/7702**

e = 0 V  
b = 0.6 V  
c = 2.9 V

**7905/7906**

e = 6.4 V F 6.1 V C  
b = 5.9 V F 5.4 V C  
c = 6.3 V F 6.1 V C

**7705/7706**

e = 6.2 V F 5.9 V C  
b = 5.8 V F 5.3 V C  
c = 6.1 V F 5.9 V C

**7901/7902**

e = 0 V  
b = 0.6 V  
c = 2.8 V

**7903/7904**

e = 2.1 V  
b = 2.8 V  
c = 6.1 V

**7107**

1 = 1.4 V  
2 = 0.6 V  
3 = 0.6 V  
4 = 5.6 V  
5 = 3.9 V  
6 = 0.7 V  
7 = 5.6 V  
8 = 5.6 V  
9 = 5.5 V  
10 = 5.5 V  
11 = 1.3 V  
12 = 0 V  
13 = 0.7 V  
14 = 5.2 V  
15 = 0 V  
16 = ⊥

**7108**

1 = 3.4 V  
2 = 6.0 V  
3 = 7.4 V  
4 = 6.6 V  
5 = ⊥  
6 = 12.9 V  
7 = 6.7 V  
8 = 4.1 V  
9 = 4.0 V

**7707/7708**

e = 0.4 V  
b = 0 V  
c = 14.5 V

**7711/7712**

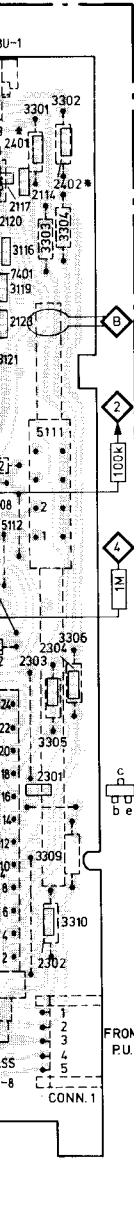
e = 0 V  
b = 0.2 V 0.6 V  
c = 0 V

**7709/7710**

e = 0 V  
b = 0.4 V  
c = 0 V

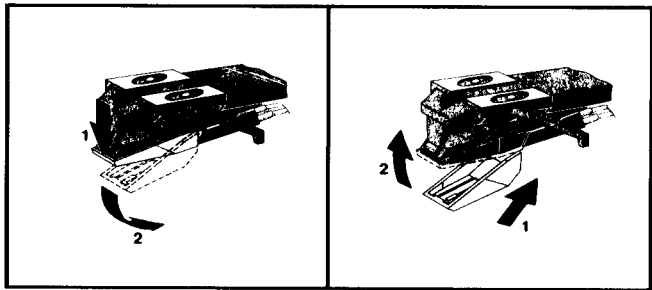
**7771**

e = 0.6 V  
b = 1.2 V  
c = 8.6 V

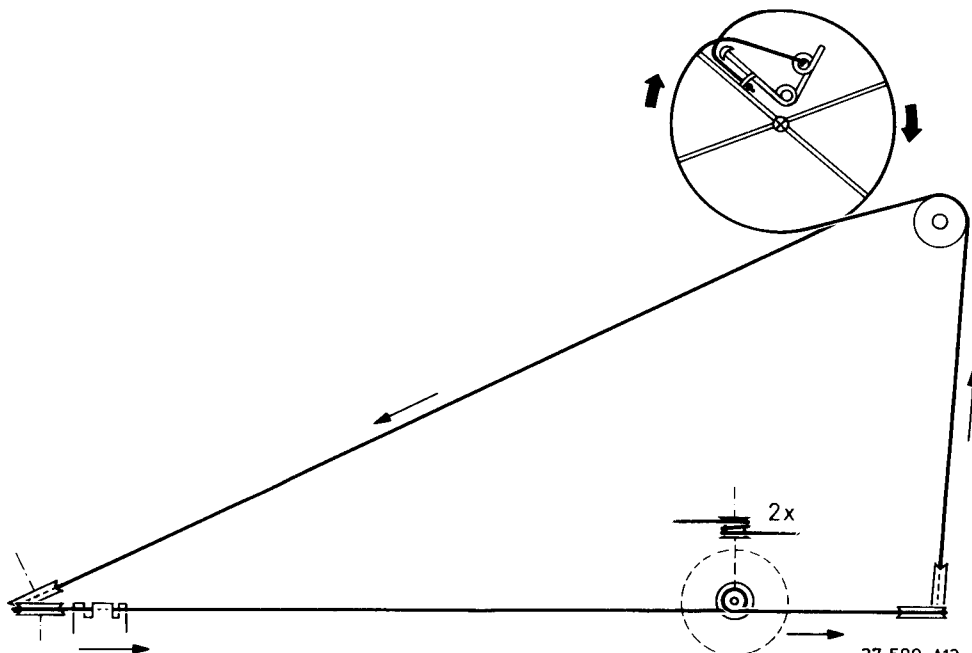


|       |    |    |
|-------|----|----|
|       | 15 | 16 |
| TUNER |    |    |
| PHONO |    |    |
| CASS  |    |    |
| AUX   |    |    |

38 216 A12



38 217 A12



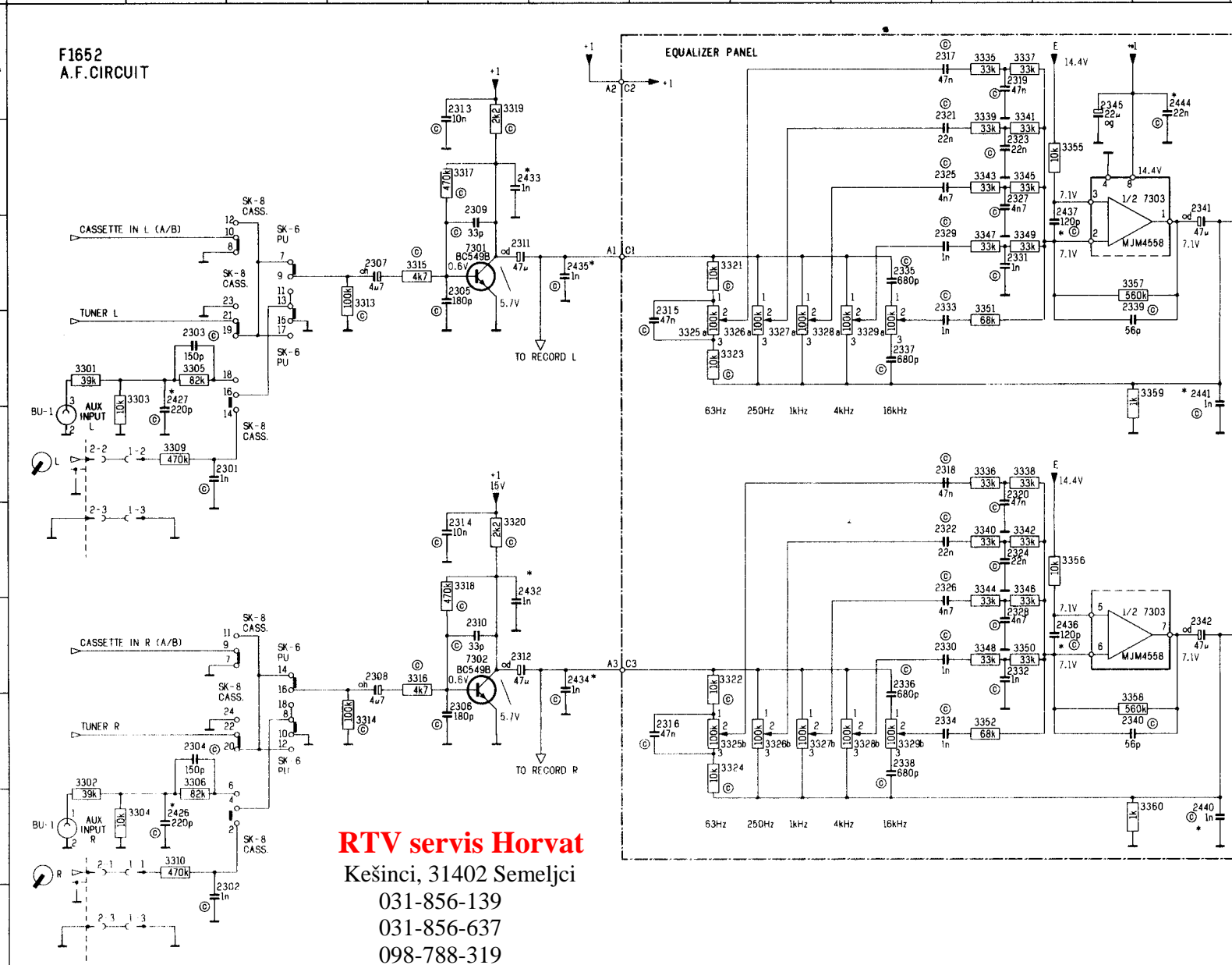
37 599 A12



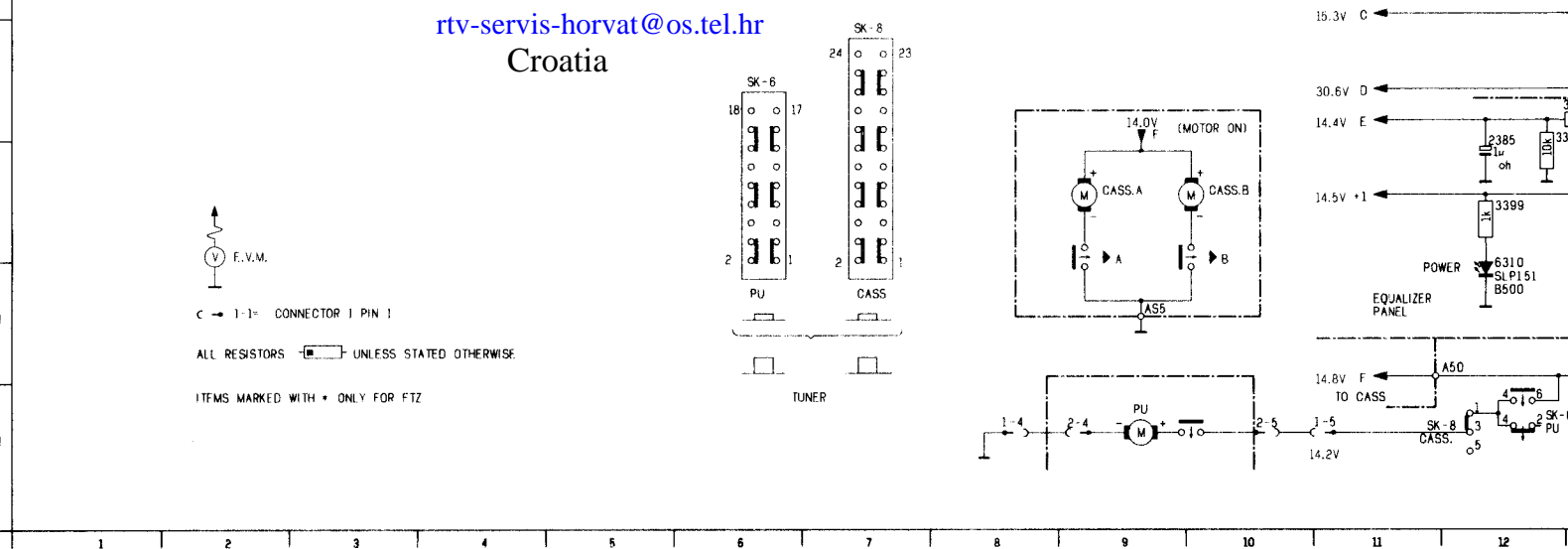


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|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| 1301 | K18 | 2307 | C 4 | 2314 | F 5 | 2321 | R10 | 2328 | G10 | 2335 | C 9 | 2342 | G12 | 2354 | G16 | 2361 | B18 | 2368 | G18 | 2386 | N13 | 2427 | D 2 | 2440 | I12 | 3301 | D 1 | 3310 | I 2 | 3319 | A 5 | 3325 | H 8 | 3329 | H 8 | 3329 |     |      |
| 2301 | E 3 | 2308 | G 4 | 2315 | O 7 | 2322 | F10 | 2329 | C10 | 2336 | G 9 | 2343 | D13 | 2355 | C16 | 2362 | F18 | 2380 | L16 | 2387 | N13 | 2432 | F 6 | 2441 | O12 | 3302 | H 1 | 3313 | C 4 | 3320 | F 5 | 3326 | D 8 | 3329 | H 8 | 3335 | H 8 | 3335 |
| 2302 | J 3 | 2309 | H 5 | 2316 | H 7 | 2323 | B10 | 2330 | G10 | 2337 | D 9 | 2344 | H13 | 2356 | H16 | 2363 | D17 | 2381 | L16 | 2390 | H16 | 2433 | B 6 | 2444 | R12 | 3303 | D 2 | 3314 | H 4 | 3321 | C 8 | 3326 | H 8 | 3329 | H 8 | 3336 | D 8 | 3336 |
| 2303 | D 2 | 2310 | O 5 | 2317 | R10 | 2324 | F10 | 2331 | C10 | 2338 | H 9 | 2345 | R11 | 2357 | D16 | 2364 | H17 | 2382 | L17 | 2391 | L15 | 2434 | B 6 | 2445 | B20 | 3304 | I 2 | 3315 | C 4 | 3322 | O 8 | 3327 | D 8 | 3329 | H 8 | 3337 | D 8 | 3337 |
| 2304 | H 2 | 2311 | C 5 | 2318 | E10 | 2325 | B10 | 2332 | G10 | 2339 | C12 | 2351 | C15 | 2358 | H16 | 2365 | O18 | 2383 | L18 | 2392 | H14 | 2435 | C 6 | 2446 | H20 | 3305 | O 2 | 3316 | G 4 | 3323 | H 8 | 3327 | H 8 | 3329 | H 8 | 3337 | D 8 | 3337 |
| 2305 | C 5 | 2312 | G 5 | 2319 | R10 | 2326 | F10 | 2333 | C10 | 2340 | H12 | 2352 | C15 | 2359 | E16 | 2366 | H18 | 2384 | K13 | 2393 | M13 | 2436 | G11 | 2447 | E20 | 3306 | H 2 | 3317 | B 5 | 3324 | H 8 | 3328 | D 8 | 3329 | H 8 | 3338 | D 8 | 3338 |
| 2306 | H 5 | 2313 | A 5 | 2320 | E10 | 2327 | B10 | 2334 | H10 | 2341 | B12 | 2353 | C16 | 2360 | I16 | 2367 | C18 | 2385 | L12 | 2426 | I 2 | 2437 | B11 | 2448 | F20 | 3309 | E 2 | 3318 | F 5 | 3325 | D 7 | 3328 | H 9 | 3329 | H 9 | 3338 | H 9 | 3338 |

1 2 3 4 5 6 7 8 9 10 11 12



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 Croatia

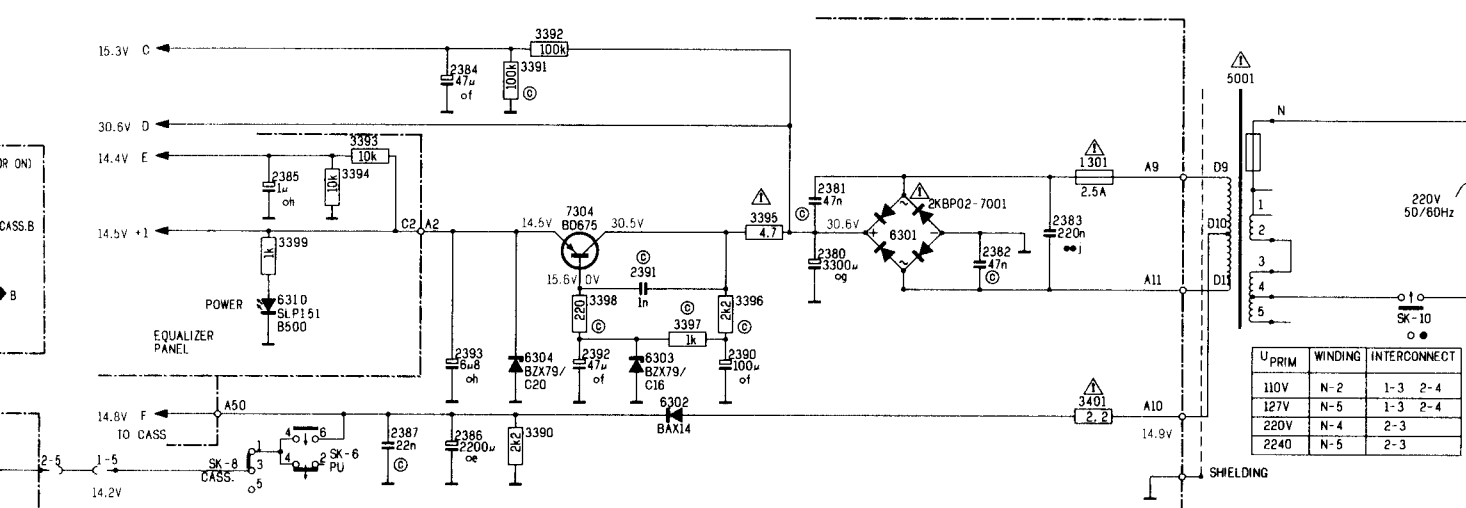
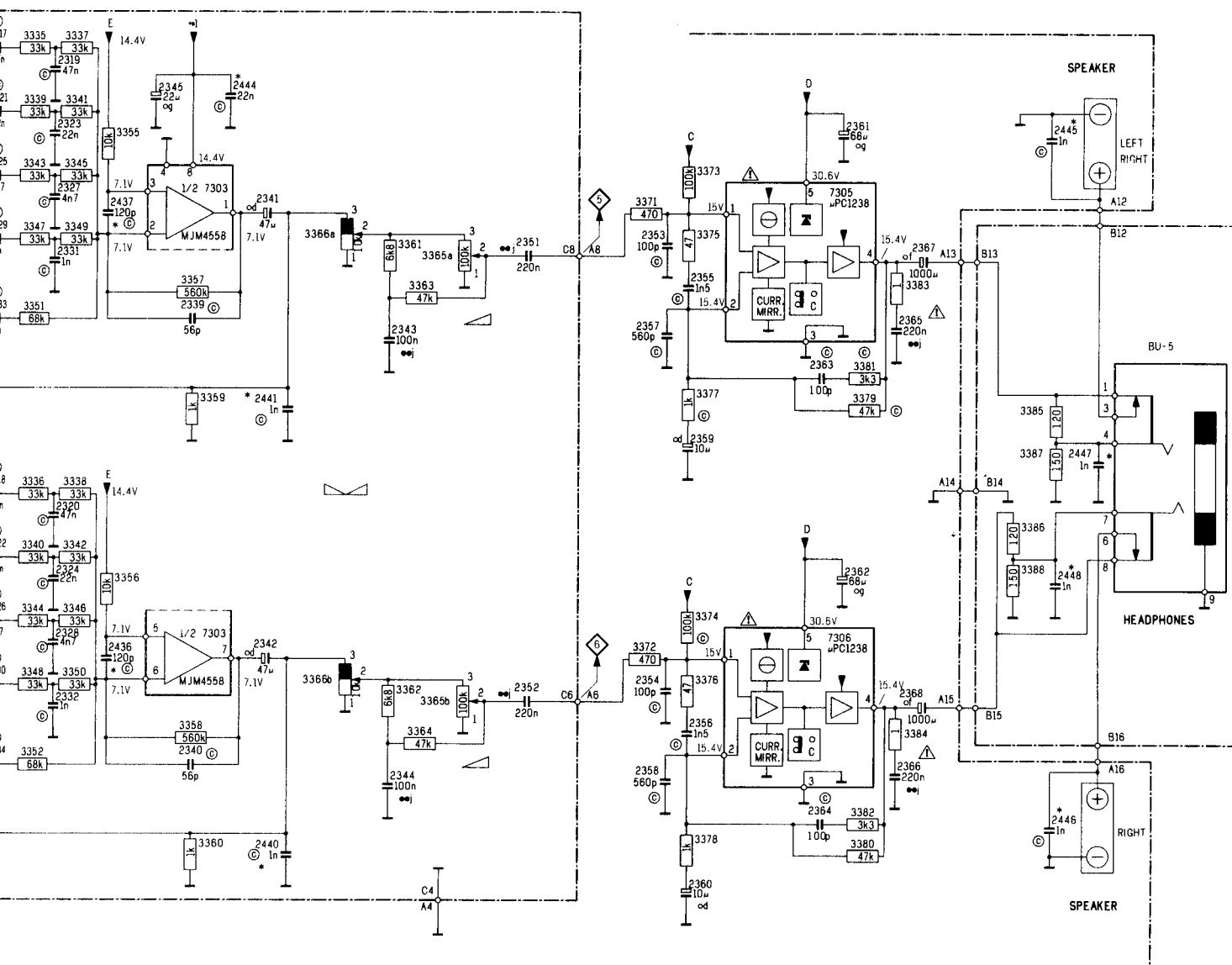


1 2 3 4 5 6 7 8 9 10 11 12

F.V.M.  
 C → 1-1= CONNECTOR 1 PIN 1  
 ALL RESISTORS UNLESS STATED OTHERWISE.  
 ITEMS MARKED WITH \* ONLY FOR FTZ

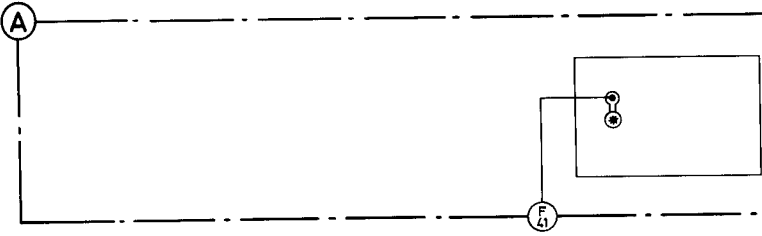
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 2 D 1 3313 C 4 3320 F 5 3326 D 8 3329 H 9 3341 A10 3348 G10 3357 C12 3364 H14 3373 B16 3380 I18 3387 E19 3395 L16 6301 L17 7304 L14  
 3 D 2 3314 H 4 3321 C 8 3326 H 8 3329 A10 3342 F10 3348 C10 3358 H12 3365 C14 3374 F16 3381 D18 3388 F19 3396 M16 6302 M17 7305 B17  
 4 I 2 3315 C 4 3322 D 8 3327 D 8 3336 E10 3343 B10 3350 C10 3359 D12 3365 G14 3375 C16 3382 H18 3390 N14 3397 M15 6303 M15 7306 G17  
 5 D 2 3316 G 4 3323 D 8 3327 H 8 3337 F10 3344 F10 3351 C10 3360 I12 3366 G13 3376 G16 3383 C18 3391 K14 3398 M14 6304 M14  
 6 H 2 3317 B 5 3324 H 8 3326 D 8 3338 E10 3345 B10 3352 H10 3361 C14 3366 G13 3377 D16 3384 H18 3392 J14 3399 L12 6310 M12  
 9 E 2 3318 F 5 3325 D 7 3328 H 9 3339 A10 3346 F10 3355 B11 3362 G14 3371 B16 3378 I16 3385 D19 3393 K13 3401 H18 7301 C 5

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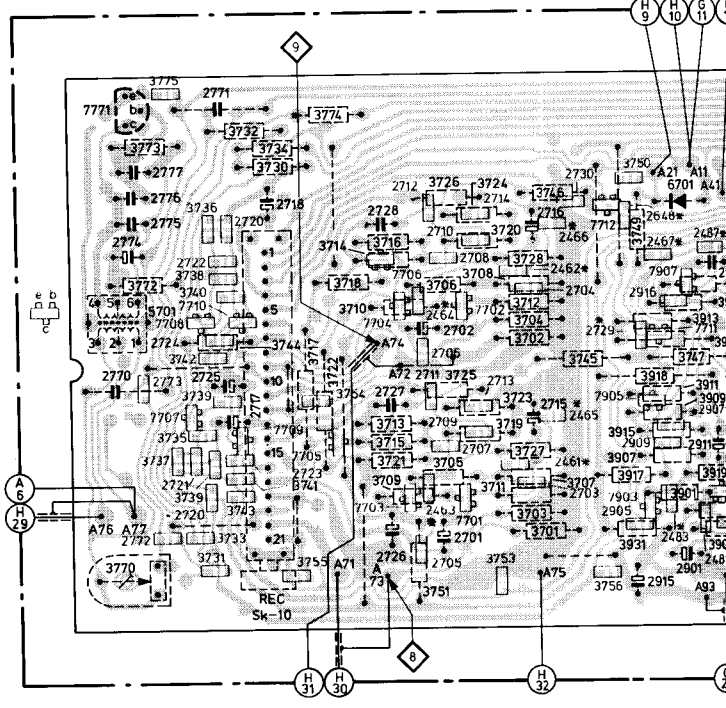
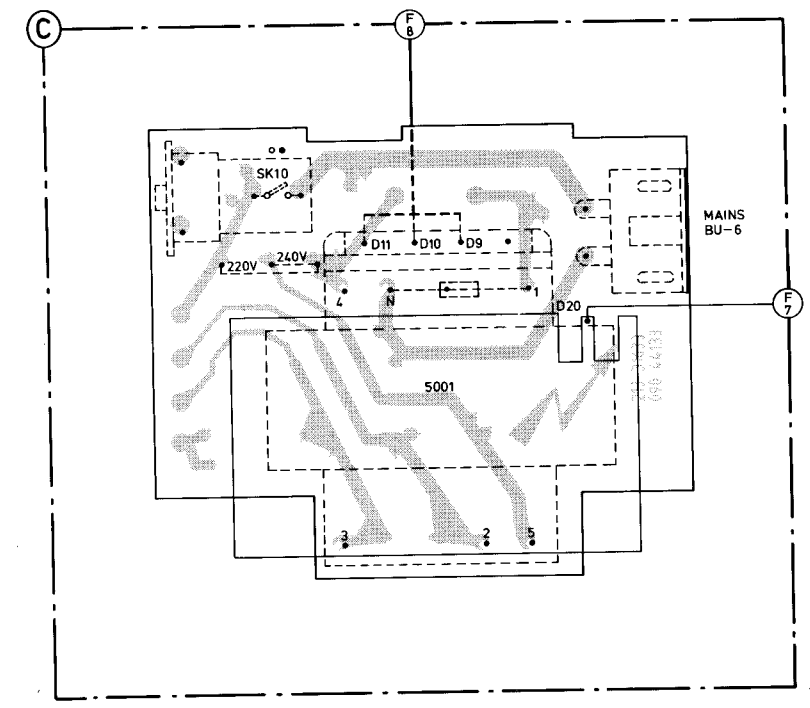
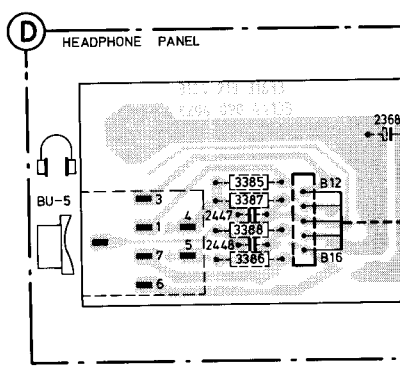
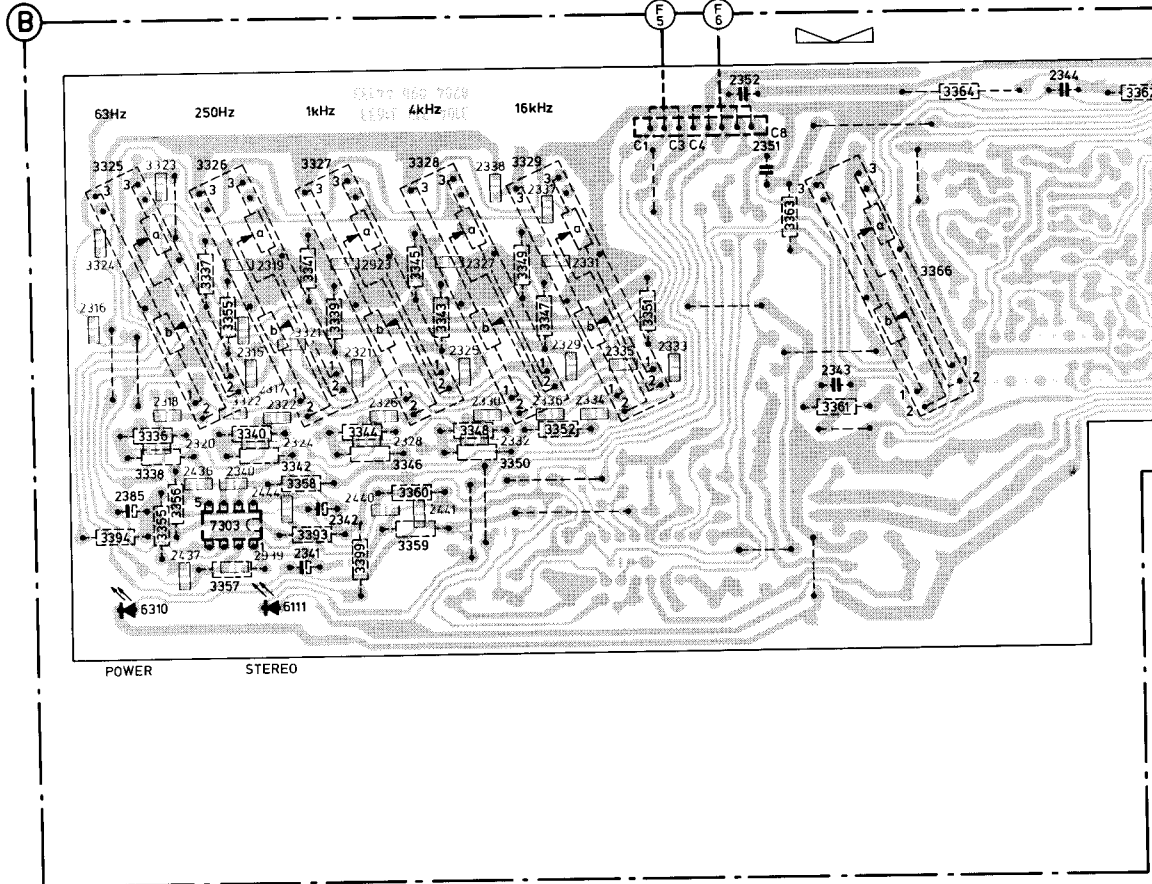


| U PRIM | WINDING | INTERCONNECT |
|--------|---------|--------------|
| 110V   | N-2     | 1-3 2-4      |
| 127V   | N-5     | 1-3 2-4      |
| 220V   | N-4     | 2-3          |
| 2240   | N-5     | 2-3          |

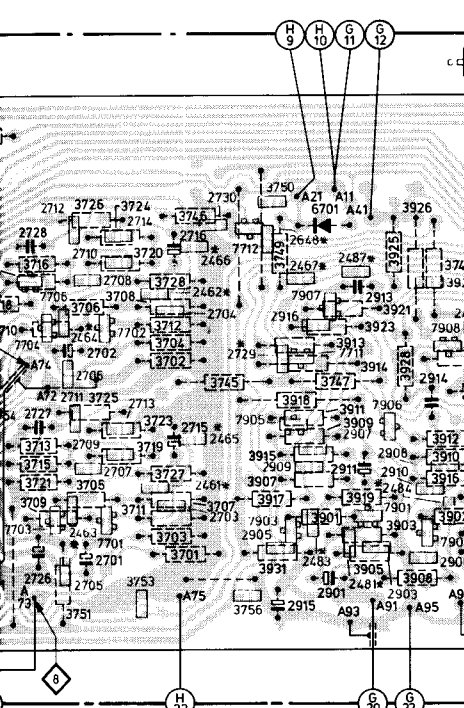
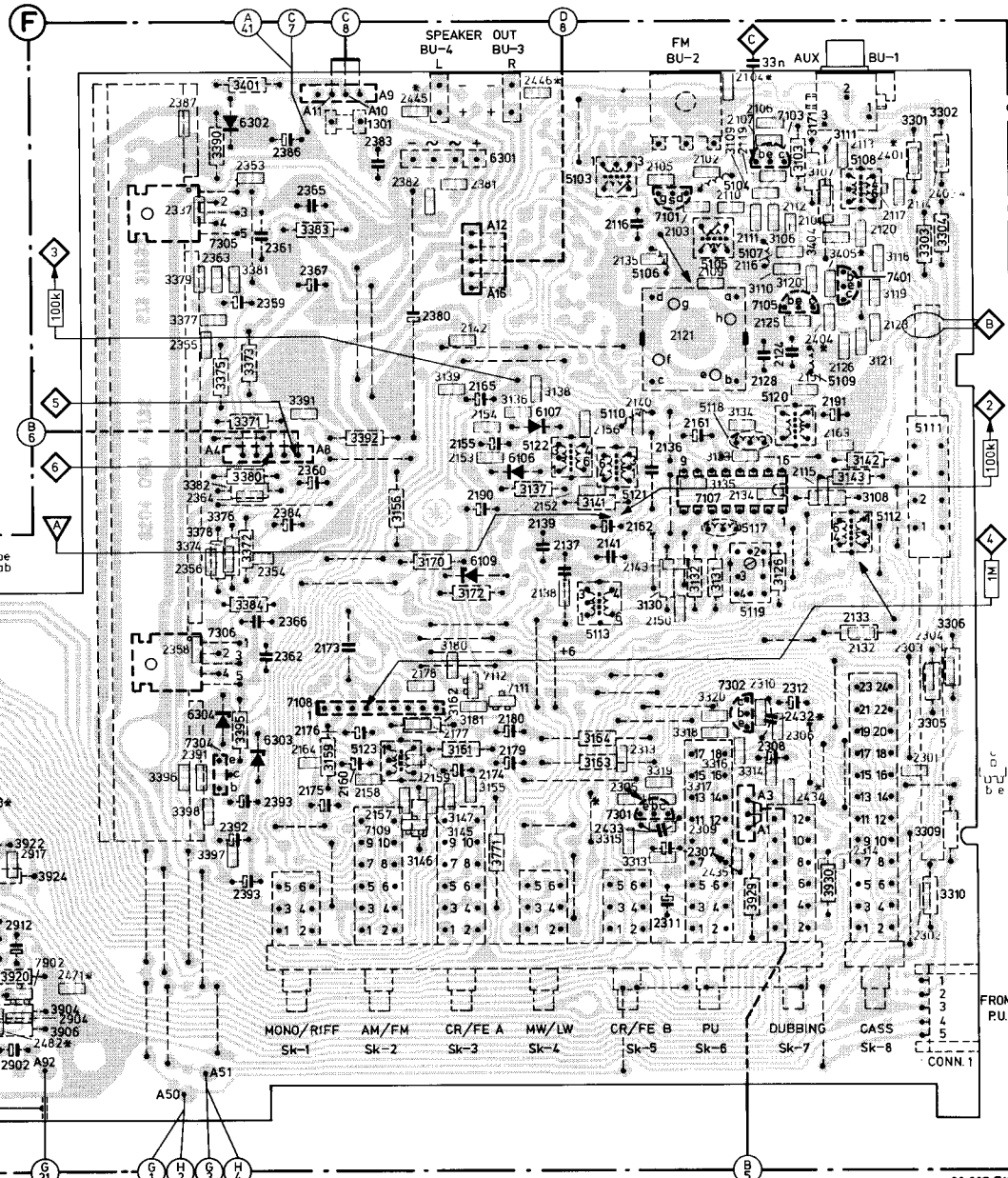
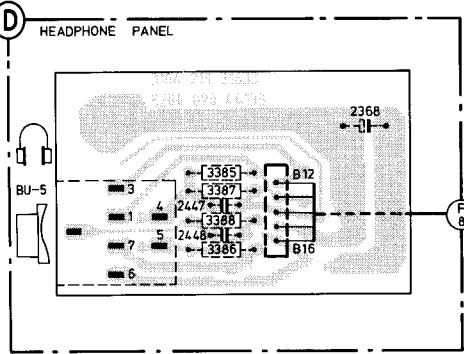
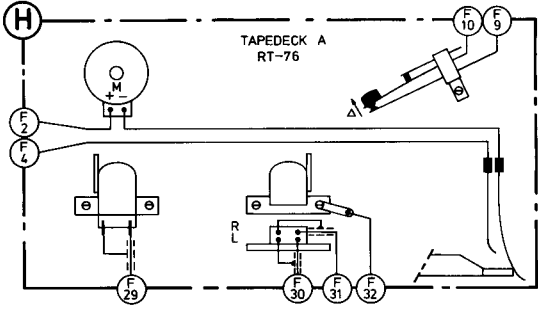
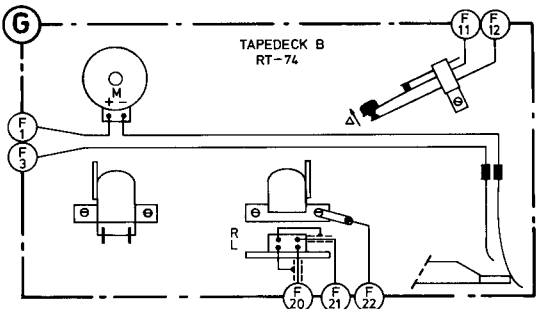
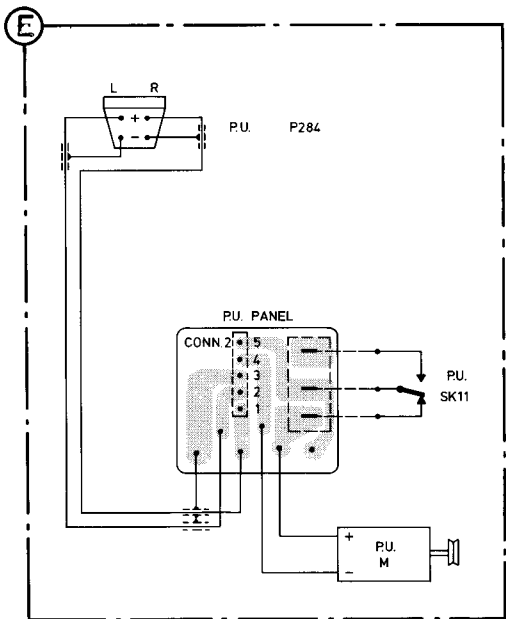
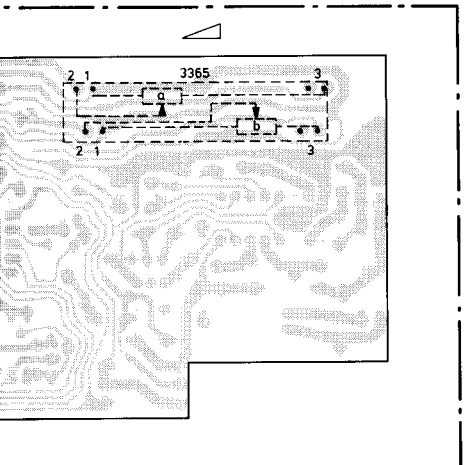
AF PART



\* ONLY FOR FTZ  
 Δ NOT FOR FTZ



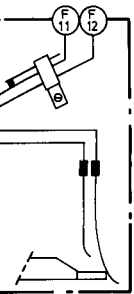
\* ONLY FOR FTZ  
 △ NOT FOR FTZ



MONO/RIFF Sk-1 AM/FM Sk-2 CR/FE A Sk-3 MW/LW Sk-4 CR/FE B Sk-5 PU Sk-6 DUBBING Sk-7 CASSETTE Sk-8 CONN 1

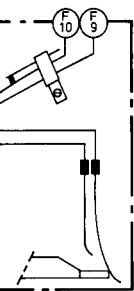
**7301/7302**

e =  $\perp$   
b = 0.6 V  
c = 5.7 V



**7303**

1 = 7.1 V  
2 = 7.1 V  
3 = 7.1 V  
4 =  $\perp$   
5 = 7.1 V  
6 = 7.1 V  
7 = 7.1 V  
8 = 14.4 V



**7105**

e = 1.4 V  
b = 0.6 V  
c = 4.0 V

**7304**

e = 14.4 V  
b = 15.6 V  
c = 30.6 V

**7101**

g = 0 V  
s =  $\perp$   
d = 5.7 V

**7103**

e = 1.1 V  
b = 1.9 V  
c = 6.0 V

**7703/7704**

e = (2.2 V)  
b = (2.9 V)  
c = (6.1 V)

**7305/7306**

1 = 15 V  
2 = 15.4 V  
3 =  $\perp$   
4 = 15.4 V  
5 = 30.6 V

**7109**

e = 0.3 V  
b = 1.0 V  
c = 6.7 V

**7701/7702**

e = (0 V)  
b = (0.6 V)  
c = (2.9 V)

**7905/7906**

e = (6.4 V | F | 6.1 V | C)  
b = (5.9 V | F | 5.4 V | C)  
c = (6.3 V | F | 6.1 V | C)

**7705/7706**

e = (6.2 V | F | 5.9 V | C)  
b = (5.8 V | F | 5.3 V | C)  
c = (6.1 V | F | 5.9 V | C)

**7901/7902**

e = 0 V  
b = 0.6 V  
c = 2.8 V

**7903/7904**

e = 2.1 V  
b = 2.8 V  
c = 6.1 V

**7107**

1 = 1.4 V  
2 = 0.6 V  
3 = 0.6 V  
4 = 5.6 V  
5 = 3.9 V  
6 = 0.7 V  
7 = 5.6 V  
8 = 5.6 V  
9 = 5.5 V  
10 = 5.5 V  
11 = 1.3 V  
12 = 0 V  
13 = 0.7 V  
14 = 5.2 V  
15 = 0 V  
16 =  $\perp$

**7108**

1 = 3.4 V  
2 = 6.0 V  
3 = 7.4 V  
4 = 6.6 V  
5 =  $\perp$   
6 = 12.9 V  
7 = 6.7 V  
8 = 4.1 V  
9 = 4.0 V

**7707/7708**

e = (0.4 V)  
b = (0 V)  
c = (14.5 V)

**7711/7712**

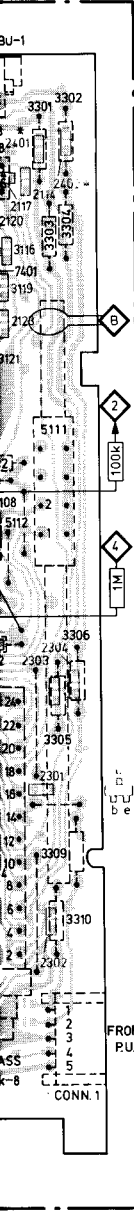
e = (0 V)  
b = (0.2 V) 0.6 V  
c = (0 V)

**7709/7710**

e = (0 V)  
b = (0.4 V)  
c = (0 V)

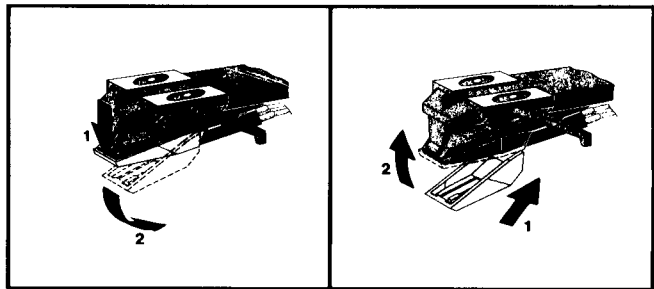
**7771**

e = 0.6 V  
b = 1.2 V  
c = 8.6 V

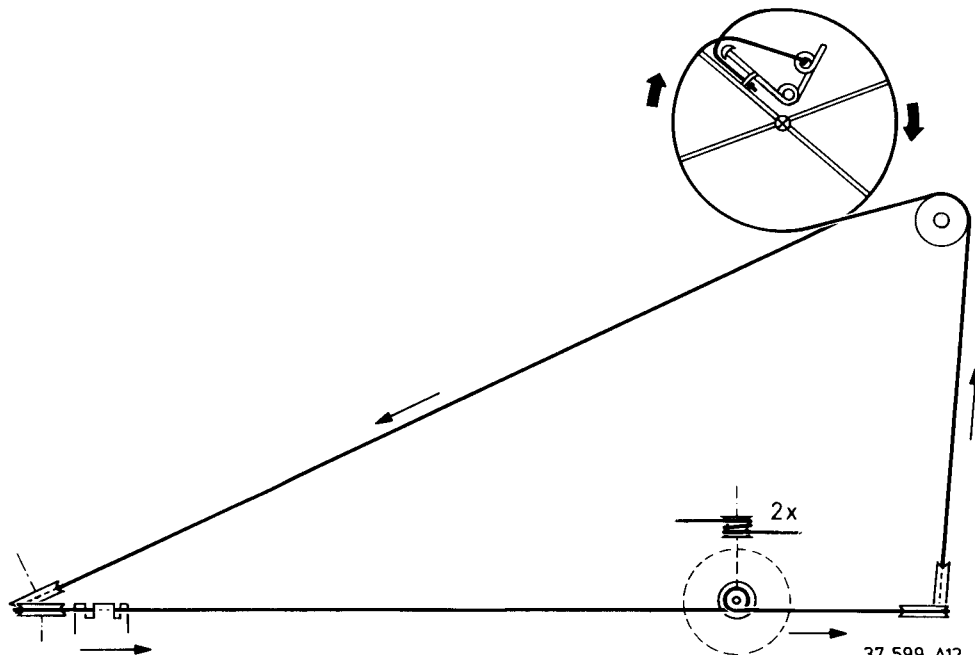


|       |    |    |
|-------|----|----|
|       | 15 | 16 |
| TUNER |    |    |
| PHONO |    |    |
| CASS  |    |    |
| AUX   |    |    |

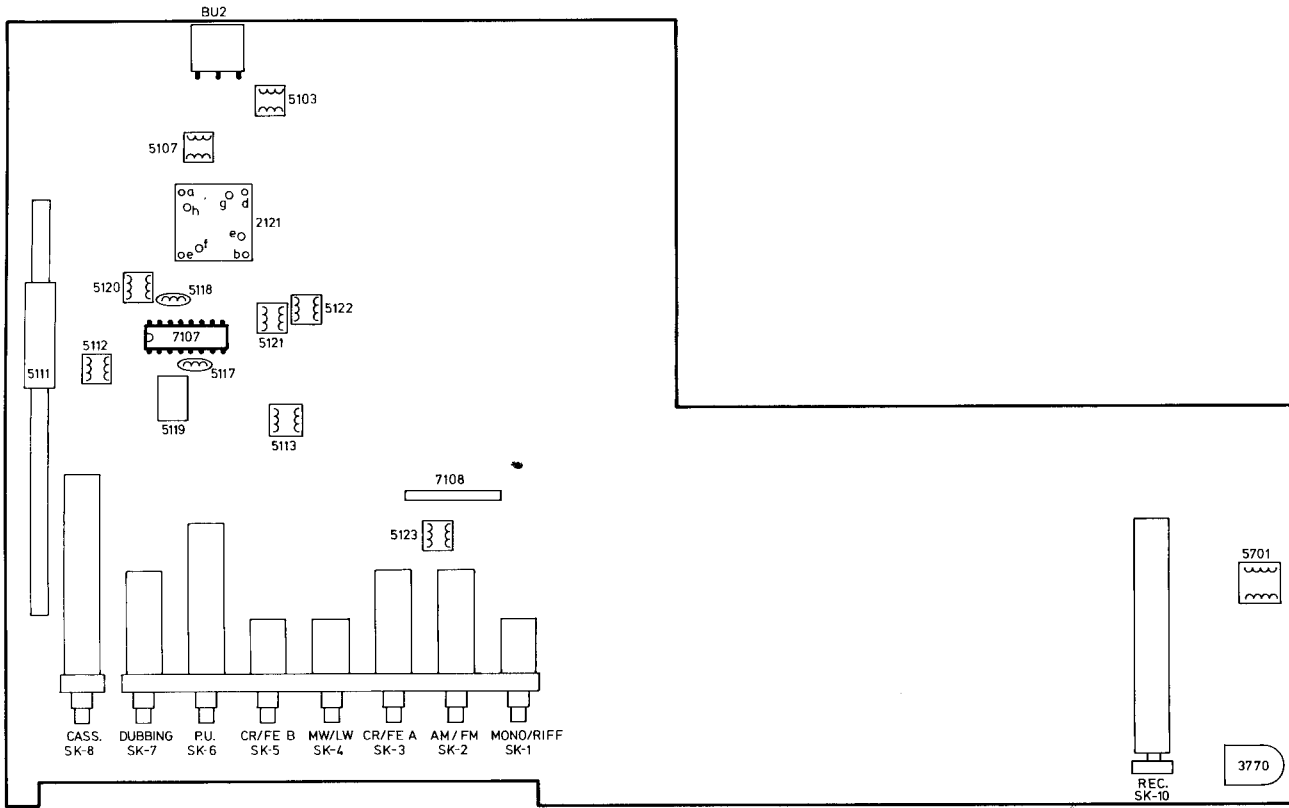
38 216 A12



38 217 A12



37 599 A12



38516C12

**ALIGNMENT**

**General**

- During the a signals as lo
- Alignment of
- For FM: App kHz at a fre
- For AM: App sweep of 10

## ALIGNMENT



















### General

- During the alignment, keep the levels of the injected signals as low as possible.
- Alignment of IF stages requires a sweep signal.  
For FM: Apply a 10.7 MHz signal with a sweep of 300 kHz at a frequency of 50 Hz.
- For AM: Apply a 450 kHz (468 kHz) signal with a sweep of 10 kHz at a frequency of 50 Hz.



### Equipment required

- RF generator
- Oscilloscope
- DC-millivoltmeter
- AC-millivoltmeter
- Frequency counter




### FM-IF

| SK<br>switch |  signal |  to |  tune in | DETUNE  |  adjust |  oscilloscope   |  DC mV meter |  |
|--------------|--|--|---|---|--|---|---|--|
| FM<br>SK-2   | 10.7 MHz<br>$\Delta f = 300$ kHz<br>(50 Hz)  |     |   |    |         |  <br>center |   |  |
|              | fo=f generator<br>$\Delta f = 10$ kHz<br>(50 Hz)   |  |   |   |  | 5108  |   |  <br>fo<br>symmetrical         |
|              | 10.7 MHz<br>$\Delta f = 300$ kHz<br>(50 Hz)<br>1 mV                                      |  |   |   |  | 5122<br>5121  |   |  <br>symmetrical           |
|              | 10.7 MHz<br>No sweep   |  |   |   |  | 5122  |   |  <br>DC<br>0 V $\pm$ 30 mV |
|              |  |  |   |  |  |   |   |  |


### FM-oscillator

|            |  |   |                   |  |       |  |  |
|------------|--|---|-------------------|--|-------|--|--|
| FM<br>SK-2 | 87.54 MHz<br>mod. 1 kHz<br>$\Delta f = 22.5$ kHz |  | max. cap.<br>2121 |  | 5109  |  |  |
|            | 108.3 MHz<br>mod. 1 kHz<br>$\Delta f = 22.5$ kHz |   | min. cap.         |  | 2121e |  |  |

### FM-RF antenna section


|      |  |   |   |  |       |  |  |
|------|--|---|---|--|-------|--|--|
| SK-2 | 87.54 MHz<br>mod. 1 kHz<br>$\Delta f = 22.5$ kHz |  |  |  | 5105  |  |  |
|      | 108.3 MHz<br>mod. 1 kHz<br>$\Delta f = 22.5$ kHz |   |   |  | 2121h |  |  |

### Stereo-decoder


|            |           |  |  |  |      |   |  |
|------------|-----------|--|--|--|------|---|--|
| FM<br>SK-2 | No signal |  |  |  | 3158 | Counter<br><br>76 kHz<br>$\pm 300$ Hz |  |
|------------|-----------|--|--|--|------|---|--|

 Repeat


**GB**

- 1 Place the peak of the band-pass curve in the middle of the picture by shifting the sweep frequency.
- 2 Adjust for maximum height and symmetry.
- 3 Adjust for linearity and symmetry of the S-curve.
- B Open solder bridge 


**NL**

- 1 De top van de doorlaat curve, door verschuiven van wobbelfrequentie, in het midden van het scherm plaatsen.
- 2 Afregelen op maximum hoogte en symmetrie.
- 3 Afregelen op lineariteit en symmetrie van de S-kurve.
- B Open soldeerbrug 

































**F**

- 1 En décalant la fréquence de wobulation, placer la crête de la courbe de réponse au centre de l'écran.
- 2 Ajuster pour avoir une courbe d'amplitude maximale et de bonne symétrie.
- 3 Ajuster pour avoir une courbe en S de bonne linéarité et de bonne symétrie.
- B Ouvrir le pontet 



**I**

- 1 Portare la cresta della curva di risposta al centro dello schermo per mezzo di scivolamento della frequenza di modulazione.
- 2 Regolare per altezza e simmetria massima.
- 3 Regolare per linearità e simmetria della curva ad S.
- B Aprire il ponticello 




**AM-IF**

| SK                       |  signal |  to |  tune in |  adjust  |  oscilloscope  |  DC mV meter |
|--------------------------|--|--|---|---|---|---|
| AM<br>SK-2<br>MW<br>SK-4 | 450 kHz<br>$\Delta f = 10$ kHz<br>(50 Hz)  |   | 2121<br>max. cap.   |  center | <br>fo  |   |
|                          | fo=f generator<br>$\Delta f = 10$ kHz<br>(50 Hz)   |  |   | 5119<br>5120  | symmetrical <br>MAX.                       |   |

**AM-RF-oscillator**

|                          |                               |   |                   |       |  |  |
|--------------------------|-------------------------------|---|-------------------|-------|--|--|
| AM<br>SK-2<br>LW<br>SK-4 | 147 kHz<br>mod: 1 kHz<br>30%  |  | 2121<br>max. cap. | 5113  |  |  max. ~ |
| AM<br>SK-2<br>MW<br>SK-4 | 1635 kHz<br>mod: 1 kHz<br>30% |   | 2121<br>min. cap. | 2121f |  |  |

**AM-RF-antenna section**

|                          |                               |   |   |       |  |  |
|--------------------------|-------------------------------|---|---|-------|--|--|
| AM<br>SK-2<br>MW<br>SK-4 | 560 kHz<br>mod: 1 kHz<br>30%  |  |  | 5103  |  |  max. ~ |
|                          | 1500 kHz<br>mod: 1 kHz<br>30% |   |   | 2121g |  |  |
| AM<br>SK-2<br>LW<br>SK-4 | 160 kHz<br>mod: 1 kHz<br>30%  |   |   | 5109  |  |  |



**D**

- 1 Die Spitze der Durchlasskurve in der Mitte des Bildes legen dadurch, dass man die Wobelfrequenz verschiebt.
- 2 Abgleichen auf Maximalhöhe und Symmetrie.
- 3 Abgleichen auf Linearität und Symmetrie der S-Kurve.

**GB Electrical measurements and adjustments "Recorder"**

- \*A. - The maximum permissible speed deviation is  $\pm 0.5\%$ .  
Moreover, the wow and flutter value can be read.  
- This value should not exceed 0.35%.
- \*B. - Connect the Service cassette set to the apparatus via one of the loudspeaker connectors.  
- Set the apparatus to the play back position with the 50 Hz cassette service set.  
- With R at the back of the motor, adjust for minimum variation of the indicator reading.
- \*C. - If the accuracy requirements are less stringent a high quality ferro (normal) cassette may be used as an alternative.
- \*D. - If the adjustment is correct the frequency response curve will be similar to curve b in Fig. 2 (distortion  $\leq 5\%$ ).

**F Mesurer electriques et reglages "Recorder"**

- \*A. - L'écart de vitesse maximum admissible est de  $\pm 0.5\%$ .  
La taux de pleurage pourra également être lu lors de cette mesure.  
- Cette valeur ne doit pas dépasser 0.35%.
- \*B. - Via een van de luidsprekerconnectors het Service-cassettedeel met het apparaat verbinden.  
- Zet het apparaat in de weergeefstand met de 50 Hz cassette uit het Service-cassettedeel.  
- Met R aan de achterzijde van de motor op minimale variatie van de indicatoraflezing instellen.
- \*C. - Als de nauwkeurigheidseisen minder streng zijn, kan als alternatief een ferro-cassette (normal) van hoge kwaliteit gebruikt worden.
- \*D. - Als de instelling juist is, zal de frekwentiekromme gelijk zijn aan kromme b in Fig. 2 (vervorming  $\leq 5\%$ ).

**I Misure e regolazione elettriche "Recorder"**

- \*A. - La deviazione massima di velocità è  $\pm 0.5\%$ .  
Inoltre, può essere rilevato il wow e flutter.  
- Questo valore non deve eccedere dello 0.35%.
- \*B. - Collegare lo strumento di servizio al connettore di uscita di una cassa acustica dell'apparecchio.  
- Posizionare l'apparecchio in riproduzione e usare la cassetta test a 50 Hz.  
- Regolare la velocità del motore (R), per la minima deviazione dello strumento.

**4** Lötbrücke  öffnen.

**"Bei notwendigem Abgleich ist das Gerät auf die gesetzlich vorgeschriebenen Eckfrequenzen abzugleichen".**  
**>87.2 MHz <108.5 MHz.**

**NL Elektrische metingen en instellingen "Recorder"**

- \*A. - De hoogst toelaatbare snelheidsafwijking bedraagt  $\pm 0.5\%$ .  
Tevens kan bij deze meting de jengelwaarde afgelezen worden.  
- Deze waarde mag niet hoger zijn dan 0.35%.
- \*B. - Via een van de luidsprekerconnectors het Service-cassettedeel met het apparaat verbinden.  
- Zet het apparaat in de weergeefstand met de 50 Hz cassette uit het Service-cassettedeel.  
- Met R aan de achterzijde van de motor op minimale variatie van de indicatoraflezing instellen.
- \*C. - Als de nauwkeurigheidseisen minder streng zijn, kan als alternatief een ferro-cassette (normal) van hoge kwaliteit gebruikt worden.
- \*D. - Als de instelling juist is, zal de frekwentiekromme gelijk zijn aan kromme b in Fig. 2 (vervorming  $\leq 5\%$ ).

**D Elektrische Messungen und Einstellungen "Recorder"**

- \*A. - Die höchstzulässige Geschwindigkeitsabweichung beträgt  $\pm 0.5\%$ .  
Auch lässt sich bei dieser Messung der Jaulwert ablesen.  
- Dieser Wert darf 0.35% nicht überschreiten.
- \*B. - Über einen der Lautsprecherkonnektoren den Service-Cassettenteil mit dem Gerät verbinden.  
- Mit dem 50-Hz-Cassette aus dem Service-Cassettenteil das Gerät in die Wiedergabestellung bringen.  
- Mit R auf der Rückseite des Motors auf mindest-Schwankungen der Anzeigerablesung einstellen.
- \*C. - Wenn die Genauigkeitsanforderungen weniger streng sind, kann als Alternative eine Hochleistungs-ferrocassette (Normal) benutzt werden.
- \*D. - Wenn die Einstellung richtig ist, wird der Frequenzgang gleich der Kurve b in Bild 2 (Verzerrung  $\leq 5\%$ ) sein.

- \*C. - Per necessità può essere una cassetta di alta qualità al ferro (normale).
- \*D. - Se la regolazione è corretta la curva di risposta in frequenza sarà simile alla curva b in Fig. 2 (distorione  $\leq 5\%$ ).

**ELECTRICAL RECORDER A**

**General cond**

- Prior to any running, heat and cleaned
- The measur left-hand ch
- The corresp for the right
- The voltage

**RECORDER A +**

| Recorder | Ad          |
|----------|-------------|
| A+B      | P<br>M<br>M |
| A+B      | A<br>R      |
| A+B      | P<br>se     |
| A        |             |
| A        |             |
| A+B      |             |

**RECORD PLAYER**

| Recorder | Ad |
|----------|----|
|          |    |



## ELECTRICAL MEASUREMENTS AND ADJUSTMENTS RECORDER AND RECORD PLAYER

### General conditions recorder

- Prior to any measurement or adjustment with the tape running, heads and tape guides should be degaussed and cleaned.
- The measurements and adjustments are related to the left-hand channel.
- The corresponding test points and adjusting elements for the right-hand channel are given in brackets.
- The voltages have been measured relative to earth.

### Required test equipment and test cassettes

- LF generator
- AC mV meter
- Wow and flutter meter
- Frequency counter
- Cassette service set 801CSS 4822 395 30078
- Universal test cassette SBC420Fe 4822 397 30071

### RECORDER A + B

| Recorder | Adjustment                                   | Cassette                          | Recorder in position SK      | Apply signal to | Measure on                  | Read on                     | Adjust with                             | Adjust to  |
|----------|--|-----------------------------------|------------------------------|-----------------|-----------------------------|-----------------------------|---|--|
| A+B      | Playback speed<br>Method 1<br>or<br>Method 2 | 3150 Hz part of SBC420Fe          | PLAY                         | -               | Loudspeaker output<br>⑤ (⑥) | Wow and flutter meter       | Trimpotmeter R at the back of the motor | *A   |
|          |  | Test cassette set 801/CSS         | PLAY                         | -               | Loudspeaker output BU3-4    | indicator on test set       | Trimpotmeter R at the back of the motor | *B   |
| A+B      | Azimuth R/P head                             | 8 kHz part of SBC420Fe            | PLAY                         | -               | ⑤ (⑥)                       | AC mV meter or oscilloscope | Left screw on R/P head                  | Max. output L+R                                    |
| A+B      | Playback sensitivity                         | 315 Hz-0 dB part of SBC420Fe      | PLAY                         | -               | ⑤ ⑥                         | AC mV meter                 | -                                       | 90 mV  |
| A        | BIAS   | SBC420Fe side-2 *C                | REC+PLAY                     | -               | ⑧ ⑨                         | AC mV meter                 | 3770                                    | 9 mV   |
| A        | Erase osc.                                   | Empty cassette                    | REC<br>PLAY<br>Cr<br>RIF OFF | -               | ⑩                           | Freq. counter               | 5751                                    | 53 kHz<br>± 5 kHz                                  |
|          |  |                                   | RIF ON                       | -               | ⑩                           | Freq. counter               | 5751                                    | fosc. +<br>8 kHz ± 4 kHz                           |
|          |  |                                   | RIF OFF<br>Normal            | -               | ⑩                           | DC mV meter                 | B -3 V<br>± 1 dBc                       |  |
|          |  |                                   | RIF OFF<br>Cr                | -               | ⑩                           | DC mV meter                 | 19 V ± 1 dB<br>=B                       |  |
| A+B      |  | Rewind recording made with deck A | PLAY                         | -               | ⑤ (⑥)                       | AC mV meter                 |   | See graph Fig. 1 if necessary repeat adjustment *D |

### RECORD PLAYER

| Recorder | Adjustment | Cassette | Recorder in position SK                    | Apply signal to | Measure on | Read on     | Adjust with               | Adjust to                          |
|----------|------------|----------|--|-----------------|------------|-------------|---------------------------|------------------------------------|
|          | Speed      |          | SK14<br>33 <sup>1</sup> / <sub>3</sub> rpm |                 |            | Stroboscope | Trimpotmeter inside motor | 33 <sup>1</sup> / <sub>3</sub> rpm |

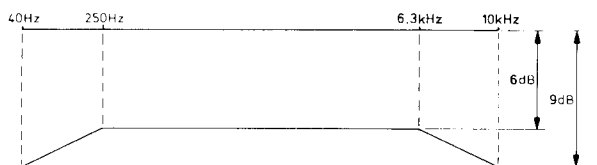


Fig. 1

23 742 A12/A

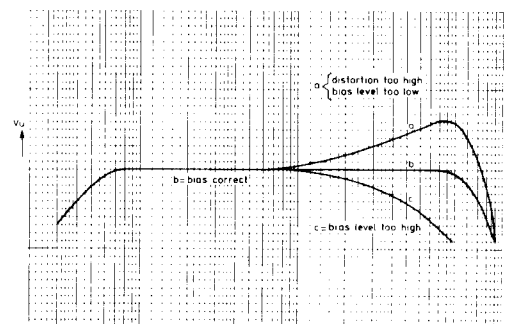
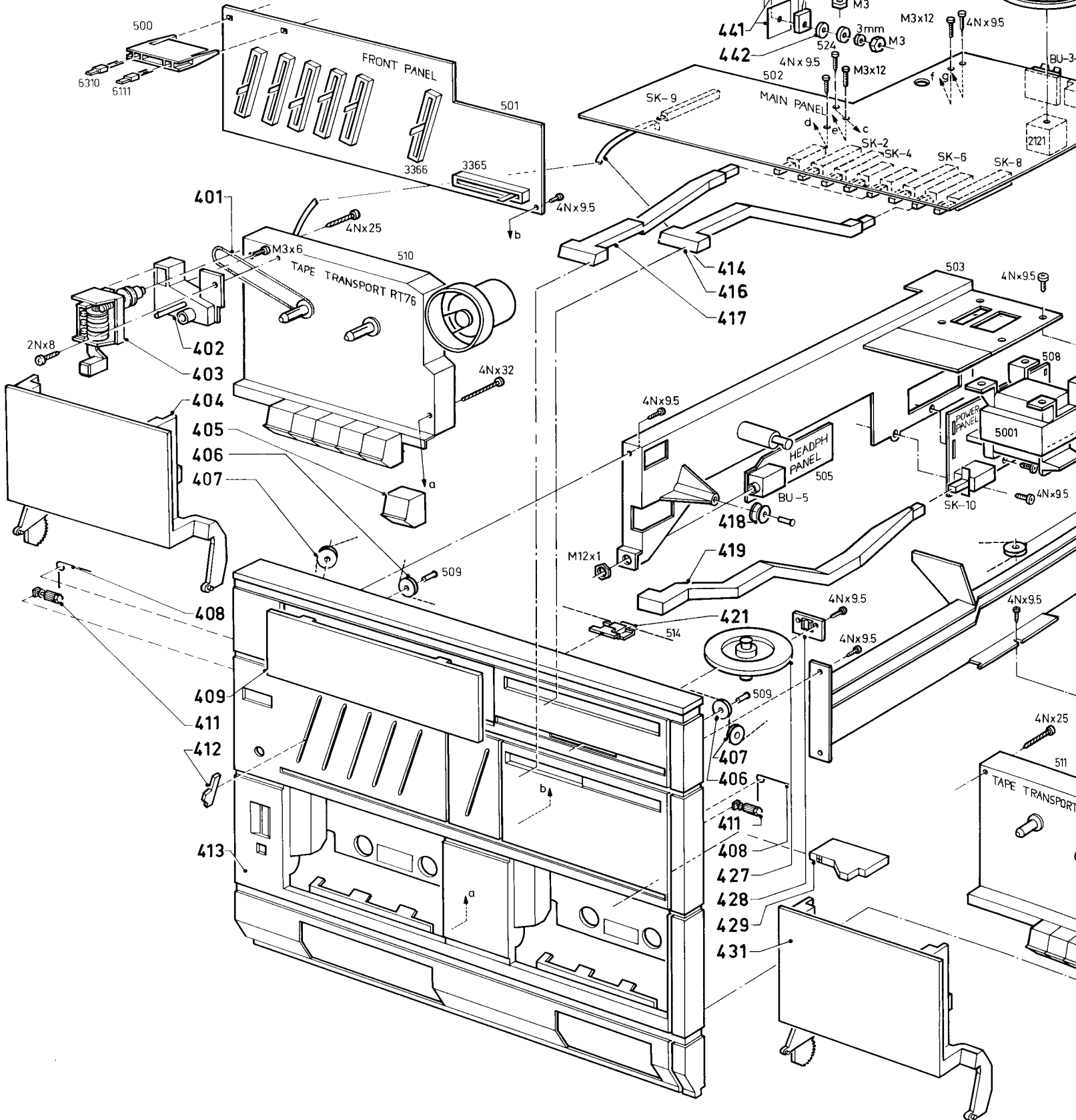
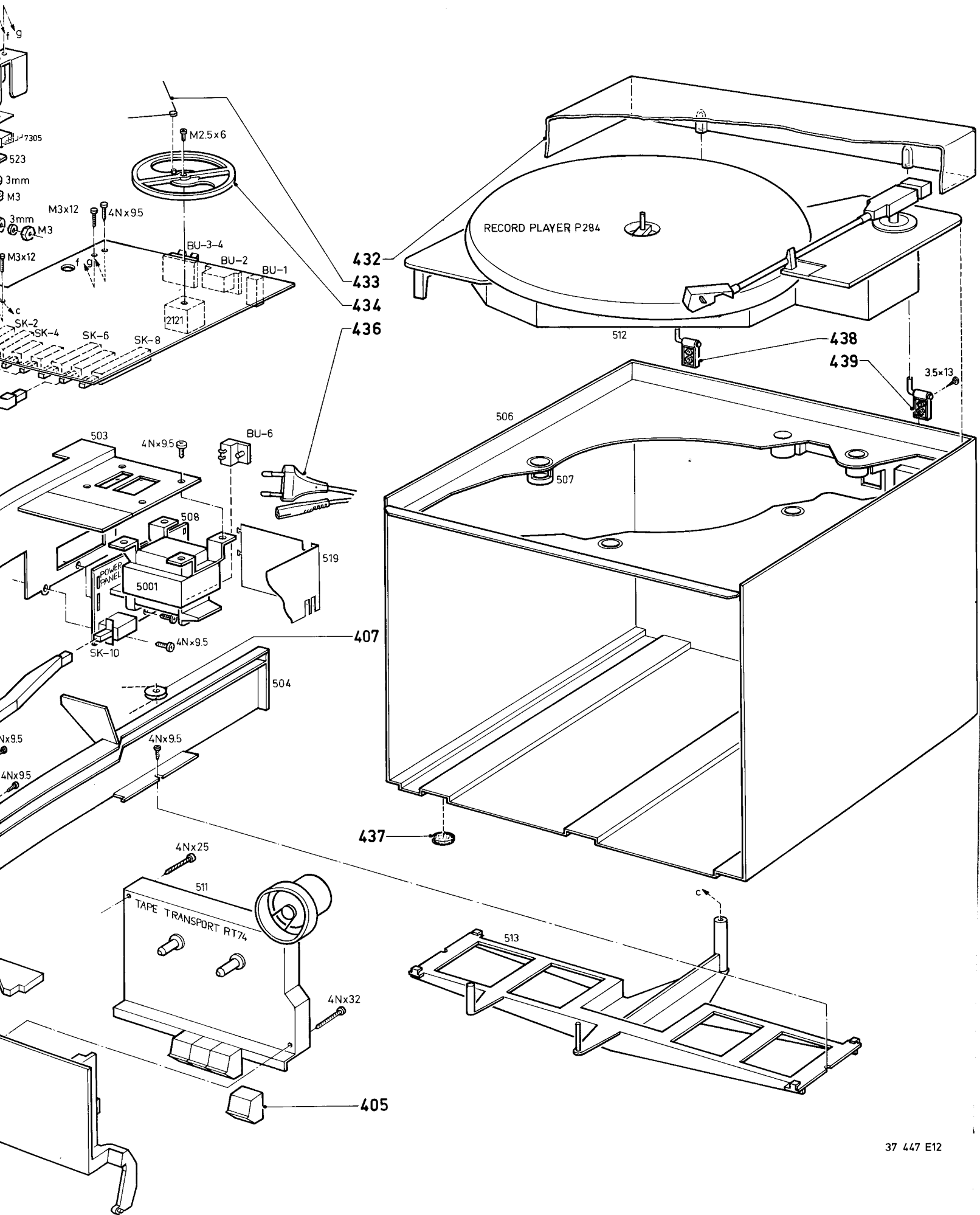


Fig. 2

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- |     |                |     |                |     |                       |
|-----|----------------|-----|----------------|-----|-----------------------|
| 401 | 4822 358 10087 | 414 | 4822 492 90088 | 436 | 4822 321 30214 /30/32 |
| 402 | 4822 256 90798 | 416 | 4822 410 30419 | 436 | 4822 321 30306 /35    |
| 403 | 4822 349 50209 | 417 | 4822 410 30421 | 437 | 4822 462 40683        |
| 404 | 4822 426 60329 | 419 | 4822 410 30422 | 438 | 4822 417 10631        |
| 405 | 4822 410 24248 | 421 | 4822 450 80955 | 439 | 4822 417 10631        |
| 406 | 4822 528 80802 | 427 | 4822 528 81042 |     |                       |
| 407 | 4822 528 50155 | 428 | 4822 256 90797 |     |                       |
| 408 | 4822 492 41091 | 429 | 4822 411 61137 |     |                       |
| 409 | 4822 333 30156 | 431 | 4822 426 60328 |     |                       |
| 411 | 4822 535 70528 | 432 | 4822 426 60327 |     |                       |
| 412 | 4822 411 61138 | 433 | 4822 492 31667 |     |                       |
| 413 | 4822 426 50728 | 434 | 4822 528 80915 |     |                       |





|             |             |                |                      |                         |                |
|-------------|-------------|----------------|----------------------|-------------------------|----------------|
|             |             |                |                      |                         |                |
| BAX14       |             | 4822 130 34193 | 2109                 | Chip 27 pF N220         | 4822 122 32564 |
| BA220       |             | 4822 130 34221 | 2121                 | Varco                   | 4822 125 50172 |
| BA317       |             | 4822 130 30847 | 2128                 | Cer. N330 27p           | 4822 122 32706 |
| BZX79/C16   |             | 4822 130 34268 | 2136                 | PS cap 365 p 630 V      | 4822 121 50803 |
| BZX79/C20   |             | 4822 130 34499 | 2137                 | PS cap foil 324 p 630 V | 4822 121 50542 |
| BZX79/C7V5  |             | 4822 130 30861 | 2139                 | 18 pF N1500 PM2         | 4822 122 32567 |
| SLP151B50C  |             | 4822 130 32323 | 2173                 | PS cap 1 nF 630 V PM1   | 4822 121 50591 |
| SLP251B50C  |             | 4822 130 32057 |                      |                         |                |
| 1N4148      |             | 4822 130 30621 |                      |                         |                |
| 2KBP02-7001 |             | 4822 130 50363 |                      |                         |                |
|             |             |                |                      |                         |                |
| BC548C      |             | 4822 130 44196 | 5001                 | Trafo mains             | 4822 146 21053 |
| BC549B      |             | 4822 130 40936 | 5103                 | Aerial trafo sym        | 4822 157 51233 |
| BC848B      | Chip marked | 5322 130 41982 | 5104                 | Absorb. coil            | 4822 156 10641 |
| BC849C      | Chip        | 4822 130 42614 | 5105                 | RF coil                 | 4822 157 51693 |
| BC858B      |             | 5322 130 41983 | 5106                 | Absorb. coil            | 4822 156 10641 |
| BD675       |             | 5322 130 44786 | 5107                 | Coil 0,4 µH             | 4822 157 50967 |
| BF241       |             | 4822 130 40898 | 5108                 | 10.7 MHz                | 4822 153 50206 |
| BF494B      |             | 4822 130 41376 | 5109                 | Osc. coil               | 4822 157 51618 |
| 2SK193L     |             | 4822 130 41813 | 5110                 | Absorb. coil            | 4822 156 10641 |
|             |             |                | 5111                 | Ferroceptor             | 4822 158 60514 |
|             |             |                | 5112                 | Aerial trafo LW         | 4822 156 30564 |
|             |             |                | 5133                 | Osc. coil AM            | 4822 157 51616 |
|             |             |                | 5117,5118            | Cer. res. 10.7 MHz      | 4822 242 70249 |
|             |             |                | 5119                 | IF filter 450 kHz       | 4822 242 71197 |
|             |             |                | 5120                 | IF coil AM 460 kHz      | 4822 157 51708 |
|             |             |                | 5121                 | FM ratio det. coil      | 4822 157 51615 |
|             |             |                | 5122                 | Det. coil FM 10.7       | 4822 153 50208 |
|             |             |                | 5123                 | Coil                    | 4822 157 51842 |
|             |             |                | 5751                 | Osc. coil               | 4822 156 20946 |
|             |             |                | <b>Miscellaneous</b> |                         |                |
|             |             |                | BU-1                 | Cinch plug plate        | 4822 267 30631 |
|             |             |                | BU-2                 | Antenna                 | 4822 267 20153 |
|             |             |                | BU-3-4               | Push terminal           | 4822 209 80609 |
|             |             |                | BU-5                 | Headph. socket          | 4822 267 30558 |
|             |             |                | BU-6                 | Mains                   | 4822 265 20262 |
|             |             |                | SK-1-7               | Switch assy             | 4822 276 40347 |
|             |             |                | SK-8                 | Switch assy             | 4822 276 40346 |
|             |             |                | SK-9                 | Slide SW rec 7p         | 4822 277 60232 |
|             |             |                | SK-10                | Power switch            | 4822 276 11567 |
|             |             |                | 1300                 | 2.5AT                   | 4822 253 20095 |

|  |                               |  |   |   |
|--|-------------------------------|--|---|---|
|  | Carbon film<br>0.2 W 70°C 5%  |  | Ceramic plate<br>Tuning ≤ 120 pF NP.0 2%<br>Others -20/+80% | *a = 2,5 V<br>b = 4 V<br>c = 6,3 V<br>d = 10 V<br>e = 16 V<br>f = 25 V<br>g = 40 V<br>h = 63 V<br>j = 100 V<br>l = 125 V<br>m = 150 V<br>n = 160 V<br>q = 200 V<br>r = 250 V<br>s = 300 V<br>t = 350 V<br>u = 400 V<br>v = 500 V<br>w = 630 V<br>x = 1000 V<br>A = 1,6 V<br>B = 6 V<br>C = 12 V<br>D = 15 V<br>E = 20 V<br>F = 35 V<br>G = 50 V<br>H = 75 V<br>I = 80 V |
|  | Carbon film<br>0.33 W 70°C 5% |  | Polyester flat foil 10%                                     |   |
|  | Metal film<br>0.33 W 70°C 5%  |  | Metalized polyester flat film 10%                           |   |
|  | Carbon film<br>0.5 W 70°C 5%  |  | Polyester flat foil small size (Mylar) 10%                  |   |
|  | Carbon film<br>0.67 W 70°C 5% |  | Polysterene film/foil 1%                                    |   |
|  | Carbon film<br>1.15 W 70°C 5% |  | Tubular ceramic   |   |
|  |                               |  | Miniature single  |   |
|  |                               |  | Subminiature tantalum ± 20%                                 |   |
|  | Chip component                |  |   |   |

| © — Chips 50 V NP0 S1206 |     |                | © — Chips 0,125 W S1206 |    |                | © — Chips 0,125 W S1206 |    |                |
|--------------------------|-----|----------------|-------------------------|----|----------------|-------------------------|----|----------------|
| 1 pF                     | 5%  | 4822 122 32279 | 6,8 E                   | 5% | 4822 111 90254 | 7,5 k                   | 2% | 4822 111 90276 |
| 1,5 pF                   | 5%  | 4822 122 31792 | 7,5 E                   | 5% | 4822 111 90396 | 8,2 k                   | 2% | 5322 111 90118 |
| 1,8 pF                   | 5%  | 4822 122 32087 | 8,2 E                   | 5% | 4822 111 90397 | 9,1 k                   | 2% | 4822 111 90373 |
| 3,3 pF                   | 5%  | 4822 122 32079 | 9,1 E                   | 5% | 4822 111 90398 | 10 k                    | 2% | 4822 111 90249 |
| 3,9 pF                   | 5%  | 4822 122 32081 | 10 E                    | 2% | 5322 111 90095 | 11 k                    | 2% | 4822 111 90337 |
| 4,7 pF                   | 5%  | 4822 122 32082 | 11 E                    | 2% | 4822 111 90338 | 12 k                    | 2% | 4822 111 90253 |
| 8,2 pF                   | 5%  | 4822 122 32083 | 12 E                    | 2% | 4822 111 90341 | 13 k                    | 2% | 4822 111 90509 |
| 10 pF                    | 5%  | 4822 122 31971 | 13 E                    | 2% | 4822 111 90343 | 15 k                    | 2% | 4822 111 90196 |
| 12 pF                    | 5%  | 4822 122 32139 | 15 E                    | 2% | 4822 111 90344 | 16 k                    | 2% | 4822 111 90346 |
| 18 pF                    | 5%  | 4822 122 31769 | 16 E                    | 2% | 4822 111 90347 | 18 k                    | 2% | 4822 111 90238 |
| 22 pF                    | 10% | 4822 122 31837 | 18 E                    | 2% | 5322 111 90139 | 20 k                    | 2% | 4822 111 90349 |
| 27 pF                    | 5%  | 4822 122 31966 | 20 E                    | 2% | 4822 111 90352 | 22 k                    | 2% | 4822 111 90251 |
| 33 pF                    | 5%  | 4822 122 31756 | 22 E                    | 2% | 4822 111 90186 | 24 k                    | 2% | 4822 111 90512 |
| 39 pF                    | 5%  | 4822 122 31972 | 24 E                    | 2% | 4822 111 90355 | 27 k                    | 2% | 4822 111 90542 |
| 47 pF                    | 5%  | 4822 122 31772 | 27 E                    | 2% | 5322 111 90375 | 30 k                    | 2% | 4822 111 90216 |
| 56 pF                    | 5%  | 4822 122 31774 | 30 E                    | 2% | 4822 111 90356 | 33 k                    | 2% | 5322 111 90267 |
| 68 pF                    | 5%  | 4822 122 32267 | 33 E                    | 2% | 4822 111 90357 | 36 k                    | 2% | 4822 111 90514 |
| 82 pF                    | 10% | 4822 122 31839 | 36 E                    | 2% | 4822 111 90359 | 39 k                    | 2% | 5322 111 90108 |
| 100 pF                   | 5%  | 4822 122 31765 | 39 E                    | 2% | 4822 111 90361 | 43 k                    | 2% | 4822 111 90363 |
| 120 pF                   | 5%  | 4822 122 31766 | 43 E                    | 2% | 5322 116 90125 | 47 k                    | 2% | 4822 111 90543 |
| 150 pF                   | 5%  | 4822 122 31767 | 47 E                    | 2% | 4822 111 90217 | 51 k                    | 2% | 5322 111 90274 |
| 180 pF                   | 2%  | 4822 122 31794 | 51 E                    | 2% | 4822 111 90365 | 56 k                    | 2% | 4822 111 90573 |
| 220 pF                   | 5%  | 4822 122 31965 | 56 E                    | 2% | 4822 111 90239 | 62 k                    | 2% | 5322 111 90275 |
| 270 pF                   | 5%  | 4822 122 32142 | 62 E                    | 2% | 4822 111 90367 | 68 k                    | 2% | 4822 111 90202 |
| 330 pF                   | 10% | 4822 122 31642 | 68 E                    | 2% | 4822 111 90203 | 75 k                    | 2% | 4822 111 90574 |
| 390 pF                   | 5%  | 4822 122 31771 | 75 E                    | 2% | 4822 111 90371 | 82 k                    | 2% | 4822 111 90575 |
| 470 pF                   | 5%  | 4822 122 31727 | 82 E                    | 2% | 4822 111 90124 | 91 k                    | 2% | 5322 111 90277 |
| 560 pF                   | 5%  | 4822 122 31773 | 91 E                    | 2% | 4822 111 90375 | 100 k                   | 2% | 4822 111 90214 |
| 680 pF                   | 5%  | 4822 122 31775 | 100 E                   | 2% | 5322 111 90091 | 110 k                   | 2% | 5322 111 90269 |
| 820 pF                   | 5%  | 4822 122 31974 | 110 E                   | 2% | 4822 111 90335 | 120 k                   | 2% | 4822 111 90568 |
| 1 nF                     | 10% | 5322 122 31647 | 120 E                   | 2% | 4822 111 90339 | 130 k                   | 2% | 4822 111 90511 |
| 1,2 nF                   | 5%  | 4822 122 31807 | 130 E                   | 2% | 4822 111 90164 | 150 k                   | 2% | 5322 111 90099 |
| 1,5 nF                   | 10% | 4822 122 31781 | 150 E                   | 2% | 5322 111 90098 | 160 k                   | 2% | 5322 111 90264 |
| 2,2 nF                   | 10% | 4822 122 31644 | 160 E                   | 2% | 4822 111 90345 | 180 k                   | 2% | 4822 111 90565 |
| 2,7 nF                   | 10% | 4822 122 31783 | 180 E                   | 2% | 5322 111 90242 | 200 k                   | 2% | 4822 111 90351 |
| 3,3 nF                   | 10% | 4822 122 31969 | 200 E                   | 2% | 4822 111 90348 | 220 k                   | 2% | 4822 111 90197 |
| 3,9 nF                   | 10% | 4822 122 32566 | 220 E                   | 2% | 4822 111 90178 | 240 k                   | 2% | 4822 111 90215 |
| 4,7 nF                   | 10% | 4822 122 31784 | 240 E                   | 2% | 4822 111 90353 | 270 k                   | 2% | 4822 111 90302 |
| 5,6 nF                   | 10% | 4822 122 31916 | 270 E                   | 2% | 4822 111 90154 | 300 k                   | 2% | 5322 111 90266 |
| 6,8 nF                   | 10% | 4822 122 31976 | 300 E                   | 2% | 4822 111 90156 | 330 k                   | 2% | 4822 111 90513 |
| 10 nF                    | 10% | 4822 122 31728 | 330 E                   | 2% | 5322 111 90106 | 360 k                   | 2% | 4822 111 90515 |
| 12 nF                    | 10% | 5322 122 31648 | 360 E                   | 1% | 4822 111 90288 | 390 k                   | 2% | 4822 111 90182 |
| 15 nF                    | 10% | 4822 122 31782 | 360 E                   | 2% | 4822 111 90358 | 430 k                   | 2% | 4822 111 90168 |
| 18 nF                    | 10% | 4822 122 31759 | 390 E                   | 2% | 5322 111 90138 | 470 k                   | 2% | 4822 111 90161 |
| 22 nF                    | 10% | 4822 122 31797 | 430 E                   | 2% | 4822 111 90362 | 510 k                   | 2% | 4822 111 90364 |
| 27 nF                    | 10% | 4822 122 32541 | 470 E                   | 2% | 5322 111 90109 | 560 k                   | 2% | 4822 111 90169 |
| 33 nF                    | 10% | 4822 122 31981 | 510 E                   | 2% | 4822 111 90245 | 620 k                   | 2% | 4822 111 90213 |
| 56 nF                    | 10% | 4822 122 32183 | 560 E                   | 2% | 5322 111 90113 | 680 k                   | 2% | 4822 111 90368 |
| 100 nF                   | 10% | 4822 122 31947 | 620 E                   | 2% | 4822 111 90366 | 750 k                   | 2% | 4822 111 90369 |
| © — Chips 0,125 W S1206  |     |                | 680 E                   | 2% | 4822 111 90162 | 820 k                   | 2% | 4822 111 90205 |
| 0 E jumper               |     | 4822 111 90163 | 750 E                   | 2% | 5322 111 90306 | 910 k                   | 2% | 4822 111 90374 |
| 1 E                      | 5%  | 4822 111 90184 | 820 E                   | 2% | 4822 111 90171 | 1 M                     | 2% | 4822 111 90252 |
| 1,1 E                    | 5%  | 4822 111 90377 | 910 E                   | 2% | 4822 111 90372 | 1,1 M                   | 5% | 4822 111 90408 |
| 1,2 E                    | 5%  | 4822 111 90378 | 1 k                     | 2% | 5322 111 90092 | 1,2 M                   | 5% | 4822 111 90409 |
| 1,3 E                    | 5%  | 4822 111 90379 | 1,1 k                   | 2% | 4822 111 90336 | 1,3 M                   | 5% | 4822 111 90411 |
| 1,5 E                    | 5%  | 4822 111 90381 | 1,2 k                   | 2% | 5322 111 90096 | 1,5 M                   | 5% | 4822 111 90412 |
| 1,6 E                    | 5%  | 4822 111 90382 | 1,3 k                   | 2% | 4822 111 90244 | 1,6 M                   | 5% | 4822 111 90413 |
| 1,8 E                    | 5%  | 4822 111 90383 | 1,5 k                   | 2% | 4822 111 90151 | 1,8 M                   | 5% | 4822 111 90414 |
| 2 E                      | 5%  | 4822 111 90384 | 1,6 k                   | 2% | 5322 111 90265 | 2 M                     | 5% | 4822 111 90415 |
| 2,2 E                    | 5%  | 5322 111 90104 | 1,8 k                   | 2% | 5322 111 90101 | 2,2 M                   | 5% | 4822 111 90185 |
| 2,4 E                    | 5%  | 4822 111 90385 | 2 k                     | 2% | 4822 111 90165 | 2,4 M                   | 5% | 4822 111 90416 |
| 2,7 E                    | 5%  | 4822 111 90386 | 2,2 k                   | 2% | 4822 111 90248 | 2,7 M                   | 5% | 4822 111 90417 |
| 3 E                      | 5%  | 4822 111 90387 | 2,4 k                   | 2% | 4822 111 90289 | 3 M                     | 5% | 4822 111 90418 |
| 3,3 E                    | 5%  | 4822 111 90338 | 2,7 k                   | 2% | 4822 111 90569 | 3,3 M                   | 5% | 4822 111 90191 |
| 3,6 E                    | 5%  | 4822 111 90389 | 3 k                     | 2% | 4822 111 90198 | 3,6 M                   | 5% | 4822 111 90419 |
| 3,9 E                    | 5%  | 4822 111 90391 | 3,3 k                   | 2% | 4822 111 90157 | 3,9 M                   | 5% | 4822 111 90421 |
| 4,3 E                    | 5%  | 4822 111 90392 | 3,6 k                   | 2% | 5322 111 90107 | 4,3 M                   | 5% | 4822 111 90422 |
| 4,7 E                    | 5%  | 5322 111 90376 | 3,9 k                   | 2% | 4822 111 90571 | 4,7 M                   | 5% | 4822 111 90423 |
| 5,1 E                    | 5%  | 4822 111 90393 | 4,3 k                   | 2% | 4822 111 90167 | 5,1 M                   | 5% | 4822 111 90424 |
| 5,6 E                    | 5%  | 4822 111 90394 | 4,7 k                   | 2% | 5322 111 90111 | 5,6 M                   | 5% | 4822 111 90425 |
| 6,2 E                    | 5%  | 4822 111 90395 | 5,1 k                   | 2% | 5322 111 90268 | 6,2 M                   | 5% | 4822 111 90426 |
|                          |     |                | 5,6 k                   | 2% | 4822 111 90572 | 6,8 M                   | 5% | 4822 111 90235 |
|                          |     |                | 6,2 k                   | 2% | 4822 111 90545 | 7,5 M                   | 5% | 4822 111 90427 |
|                          |     |                | 6,8 k                   | 2% | 4822 111 90544 | 8,2 M                   | 5% | 4822 111 90237 |
|                          |     |                |                         |    |                | 9,1 M                   | 5% | 4822 111 90428 |