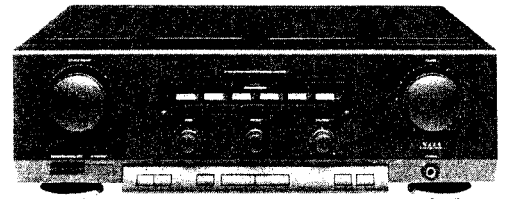


Service  
Service  
Service



# Service Manual

CONTENTS	PAGE
Specifications	2
Controls	3
Connections	4
Servicing hints	5
Electrical adjustments	6
Warnings	6
Wiring diagram	7-8
Front selector 1 diagram	9-11
Front selector 2 diagram	12-14
Front selector P.C.B	15-17
Power unit diagram	18-20
Power unit P.C.B	21-23
Digital selector diagram	24-25
Digital selector P.C.B	24-25
List of mechanical parts	26
Exploded view	27-28
List of electrical parts	29-35



## SPECIFICATION

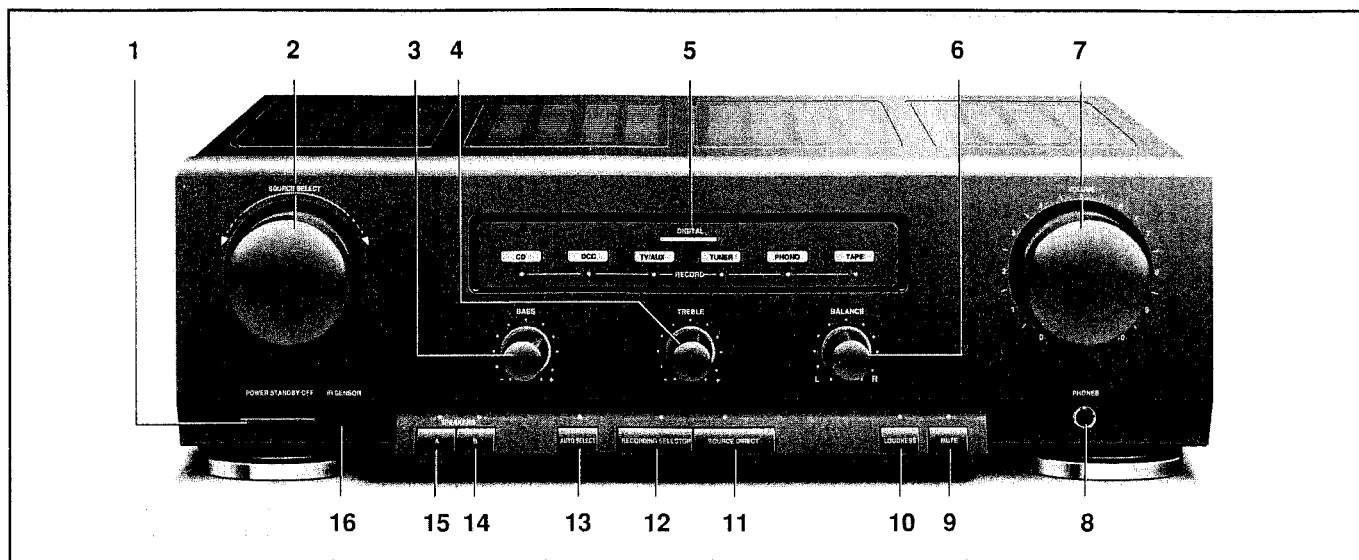
### General:

Mains voltage	:220V 50Hz for/00 :240V 50Hz for/05/10 :115/230V 50Hz for/01
Power consumption	:≤ 300W at 2x60W output power :≤ 20W at stand by
Dimensions:(wxhxd)	:435x124x300 mm

### Amplifier:

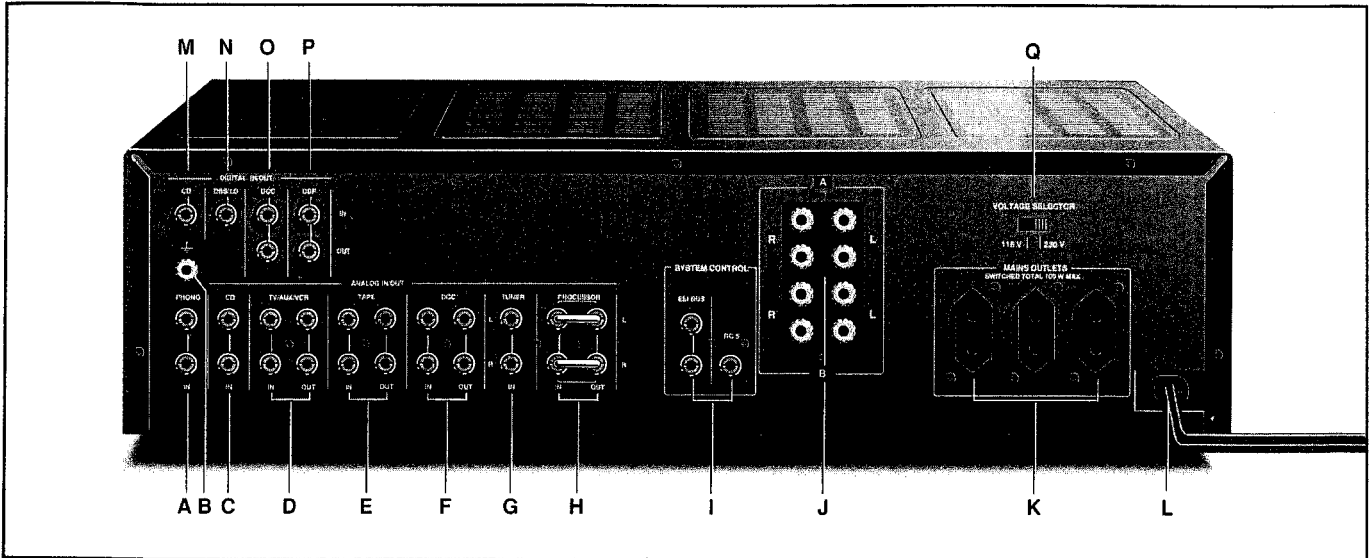
Output power & Distortion (D)	:2x60W at 8Ω D=≤0,7%(IEC) :2x55W at 8Ω D=≤0,03% (at 1kHz) :2x50W at 8Ω D=≤0,09% (20Hz...20kHz)
Music power	:2x160W
Sign.Noise:	
Phone input (5mv)	:≥83dB (A-curve weighted)
Other inputs (500mv)	:≥100dB (A-curve weighted)
Crosstalk :	
Between channels source	:≥60dB (100Hz.....10kHz) :≥65dB (100Hz.....10kHz)
Headphone	:6,3mm stereo jack
Output voltage	:≥ 5V EMF value
Output impedance	:120Ω ±10%
Frequency response	:20Hz -20kHz ≤1dB
Tone controle	:Bass +10dB to -10dB ±2dB at 80Hz :Treble +10dB to -10dB ±2dB at 10kHz :Loudness +6dB ±2dB volume ≤-40dB at 100Hz +4dB ±1,5dB volume ≤-40dB at10kHz
Input sensitivity	:Tuner 150mV Ri ≥ 20kΩ :TV/VCR 150mV Ri ≥ 20kΩ :CD 150mV Ri ≥ 20kΩ :Tape 150mV Ri ≥ 20kΩ :DCC 150mV Ri ≥ 20kΩ :Process 150mV Ri ≥ 20kΩ :Phone/MM 2,5mV Ri ≥ 47kΩ/220pf
Output voltage	:TV/VCR 150mV Ro < 2k5 :Tape 150mV Ro < 2k5 :DCC 150mV Ro < 2k5 :Process 150mV Ro < 2k5
Digital recorder selector:	
input	:impedance 75Ω :sensitivity 200 ...500mV peak-peak
output	:impedance 75Ω :level 500mV peak-peak
bitrate	:2...3MBit/sec
input type	:unbalanced
output type	:unbalanced

## CONTROLS



		Pos.nr.
1)	Standby + acknowledge led	D6648
	Power off/standby button	1525
2)	Source sel.knob + Mag.Touch	1605
3)	Bass knob	3651
4)	Treble knob	3652
5)	Display window and indication led	
	Digital source indication window	1620
	CD indication window	1624
	CD record source led (red)	D6642
	DCC indication window	1621
	DCC record source led (red)	D6643
	TV/AUX indication window	1626
	TV/AUX record source led (red)	D6644
	Tuner indication window	1623
	Tuner record source led (red)	D6645
	Phone indication window	1622
	Phone record source led (red)	D6646
	Tape indication window	1625
	Tape record source led (red)	D6647
6)	Balance knob	3603
7)	Volume knob	3601
8)	Headphone	1601
9)	Mute button + Red indic.led	1611 + D6640
10)	Loudness button + Red indic.led	1608 + D6635
11)	Source direct but. + Red indic.led	1606 + D6636
12)	Rec.sel.button + Red indic.led	1612 + D6641
13)	Auto-select button + Red indic.led	1607 + D6639
14)	Speakers B-button + Red indic.led	1609 + D6638
15)	Speakers A-button + Red indic.led	1610 + D6637
16)	IR-receiver eye	6700

## CONNECTIONS



	Pos.nr.
A) Phone input	1401
B) Phone ground	
C) CD input	1401
D) TV/AUX/VCR input	1401
AUX/VCR output	1401
E) Tape input	1402
Tape output	1402
F) DCC input	1402
DCC output	1402
G) Tuner input	1403
H) Processor in	1403
Processor out	1403
I) Easy link Bus	1261
RC 5 Bus	1262
J) Speaker system A Right	1264
Speaker system A Left	1264
Speaker system B Right	1263
Speaker system B Left	1263
K) Switched AC outlets	1926-27-28
L) Fixed mainscord	
M) CD digital input	1477
N) DBS/LD digital input	1477
O) DCC digital input	1475
DCC digital output	1475
P) DSP digital input	1475
DSP digital output	1475
Q) Voltage selector (for/01 only)	

## Service Test Program

### Processor Test

The test can be called up by pressing the keys Loudness and mute at the same time when the amplifier is switched on. The following lamps and leds will now be lit. Step A (fig 1)



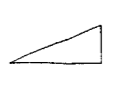


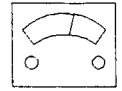
When any key is pressed the following lamps and leds will now lit. Step B (fig 1) Press again a key to step F and check every step. (fig 1)

When a key is pressed after step F the volume knob turns for about 4 seconds right and 4 seconds left. After the volume controls check a eeprom check is started. When after 0.2 seconds the magic touch is used to wake up the amplifier, the amplifier will come up with setting G (fig 1)

When setting G is wrong check eeprom!!

Steps	A	B	C	D	E	F	G
<b>Lamps</b>							
CD	on	off	off	off	off	off	off
DCC	off	on	off	off	off	off	off
TV/AUX	off	off	on	off	off	off	off
TUNER	off	off	off	on	off	off	off
PHONE	off	off	off	off	on	off	off
TAPE	off	off	off	off	off	on	on
<b>Rec.Leds</b>							
CD	off	off	off	off	off	on	off
DCC	off	off	off	off	on	off	off
TV/AUX	off	off	off	on	off	off	off
TUNER	off	off	on	off	off	off	off
PHONE	off	on	off	off	off	off	off
TAPE	on	off	off	off	off	off	on
<b>Source Leds</b>							
S/BY	on	off	on	off	on	off	off
Speak.A	off	on	off	on	off	on	on
Speak.B	on	off	on	off	on	off	off
Auto sel	off	on	off	on	off	on	on
Rec.sel	on	off	on	off	on	off	off
Sour.Dir.	off	on	off	on	off	on	on
Loudness	on	off	on	off	on	off	off
Mute	off	on	off	on	off	on	on

## Quiescent Current

SK.... SWITCH	 SIGNAL	 TO	 VOLUME	 ADJUST	 OSILLOSCOPE	 D.C.METER INDICATOR
STAND - BY				L ch R 3285		L ch. DC 6 mV
				R ch. R 3286		R ch. DC 6 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.
- Set volume position to minimum.
- Disconnect speakers or place the set on stand-by position.
- Trimpotmeter in clock wise position.
- The adjustment must be finished for both channels 20sec after power on.

### 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.

### ESD



### 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 hetzelfde potentiaal.

### 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.

### D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen 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 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.

### 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.

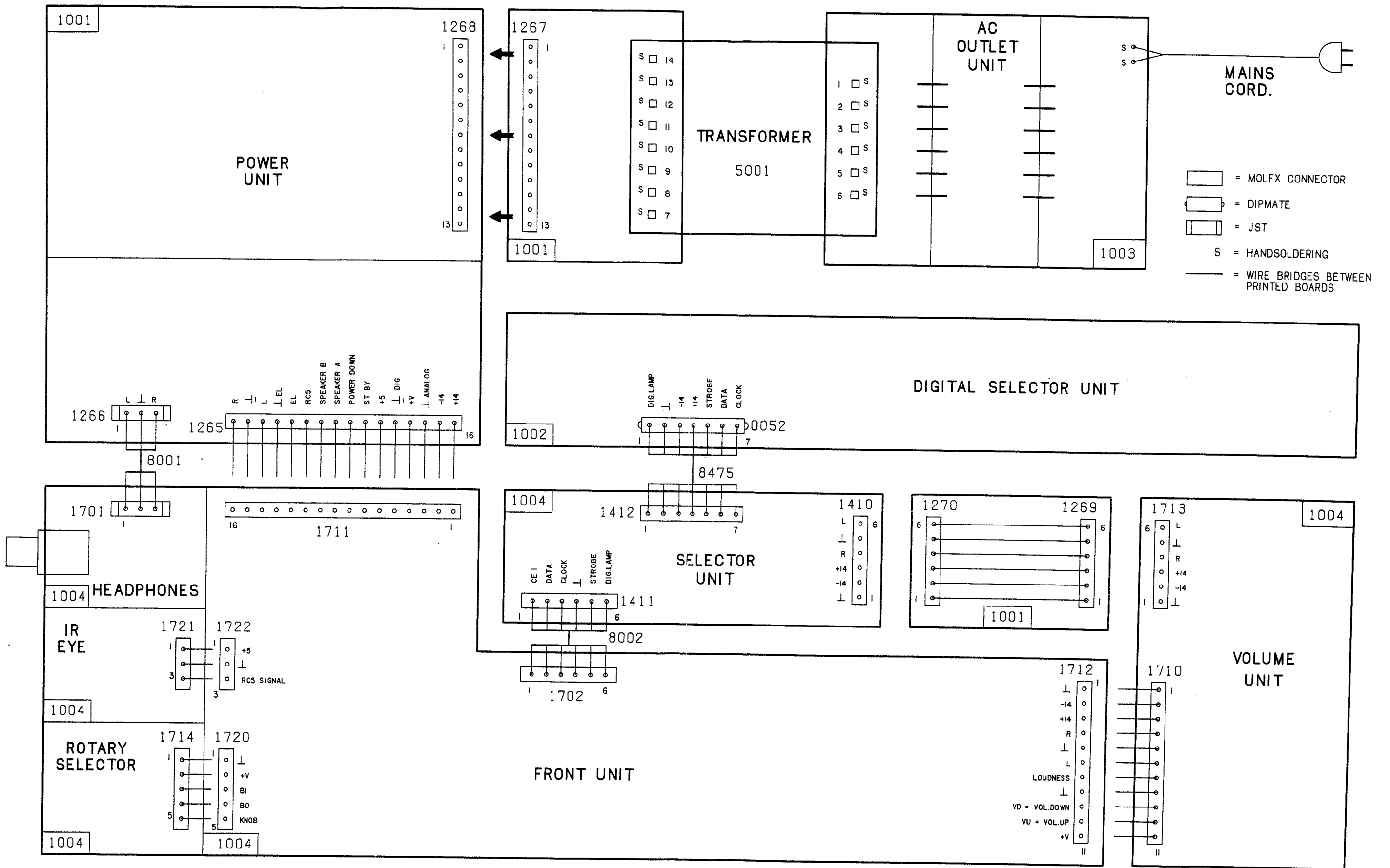
### I

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



## Service Test Program

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The test can be called up by pressing the keys Loudness and mute at the same time when the amplifier is switched on. The following lamps and leds will now be lit. Step A (fig 1)

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CD	on	off	off	off	off	off	off
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TV/AUX	off	off	on	off	off	off	off
TUNER	off	off	off	on	off	off	off
PHONE	off	off	off	off	on	off	off
TAPE	off	off	off	off	off	on	on
<b>Rec.Leds</b>							
CD	off	off	off	off	off	on	off
DCC	off	off	off	off	on	off	off
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Loudness	on	off	on	off	on	off	off
Mute	off	on	off	on	off	on	on

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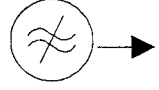
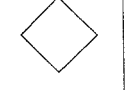


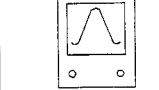


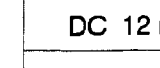


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STAND - BY			Min.	L ch R 3285		L ch.   DC 12 mV
				R ch. R 3284		R ch.   DC 12 mV

- 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.
- Set volume position to minimum.

- Place the set on stand-by position.
- Trimpotmeter in clock wise position.
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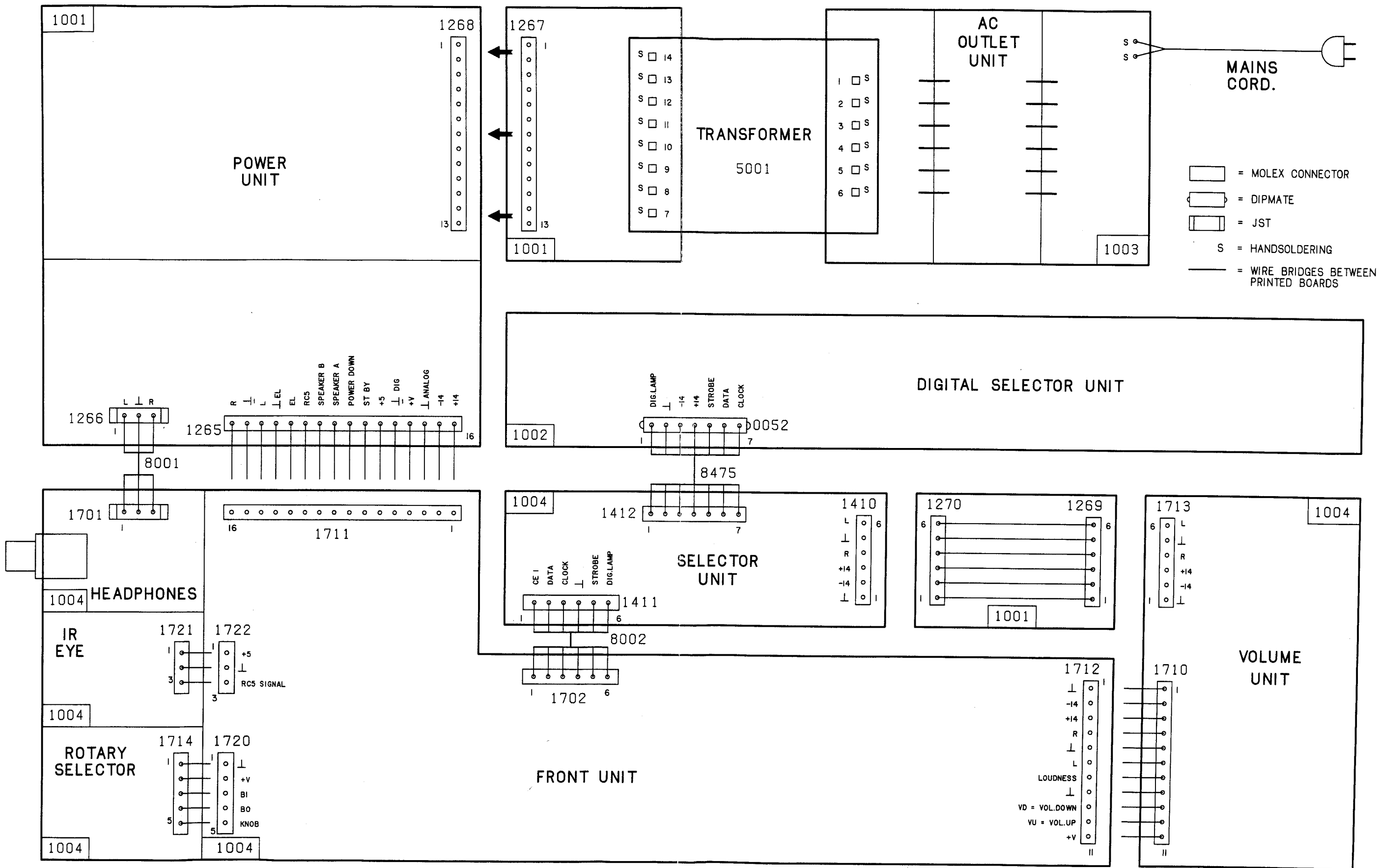
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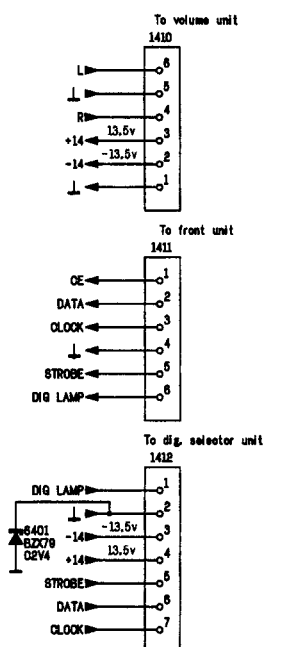
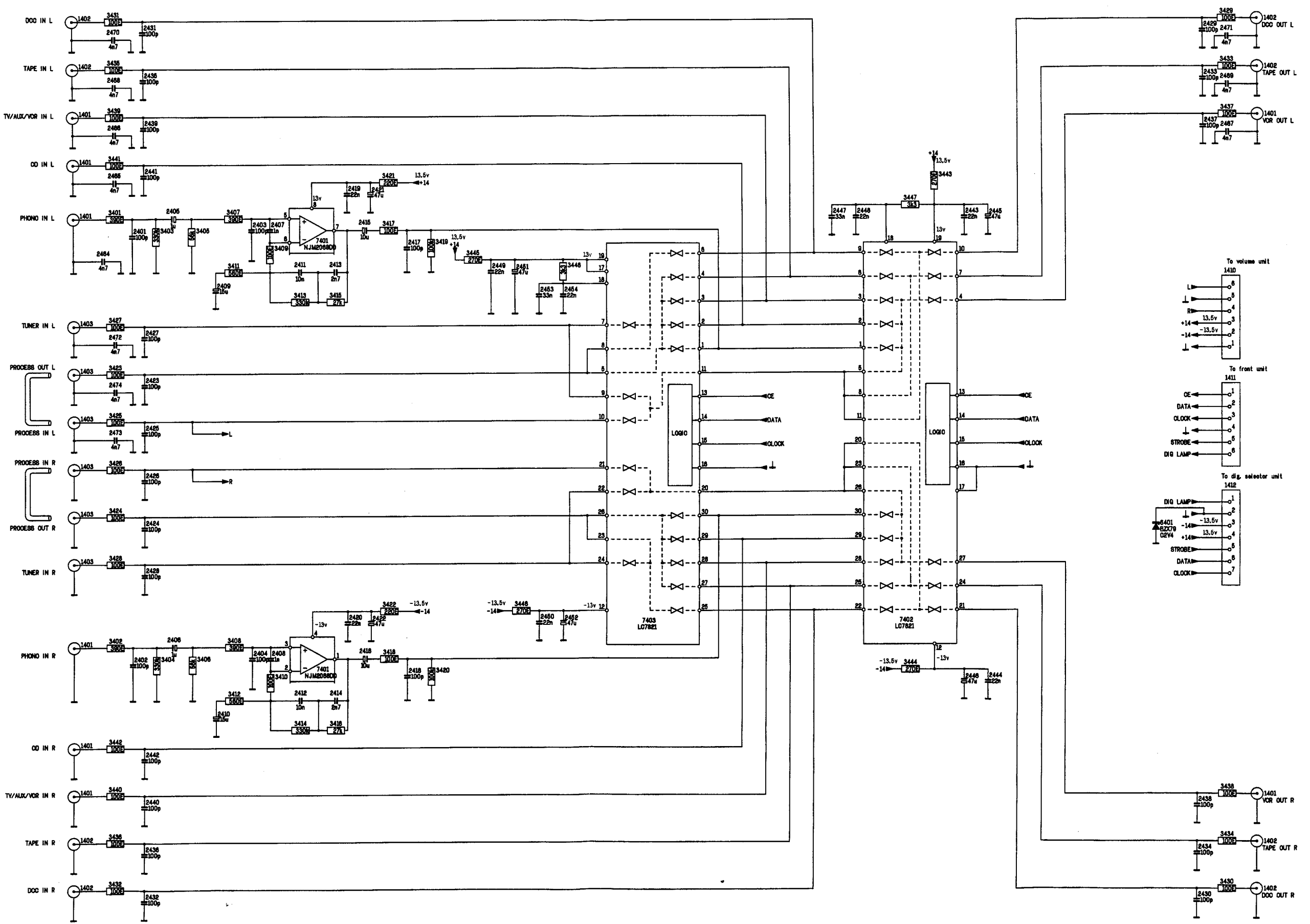
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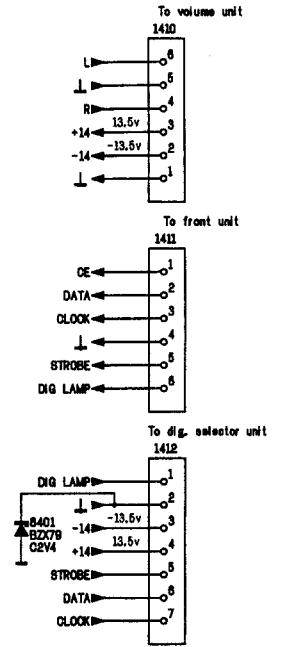
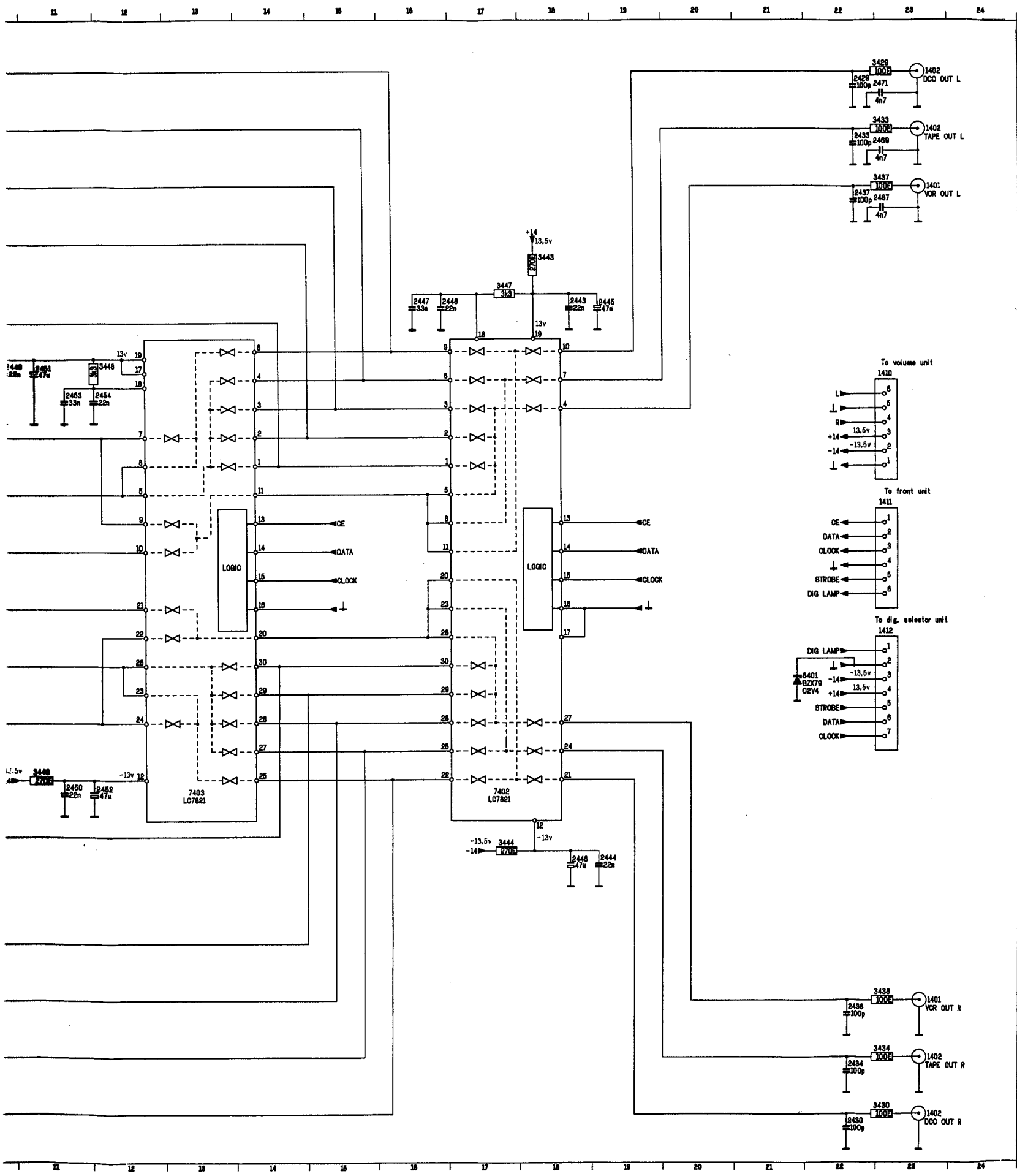


SELECTOR UNIT



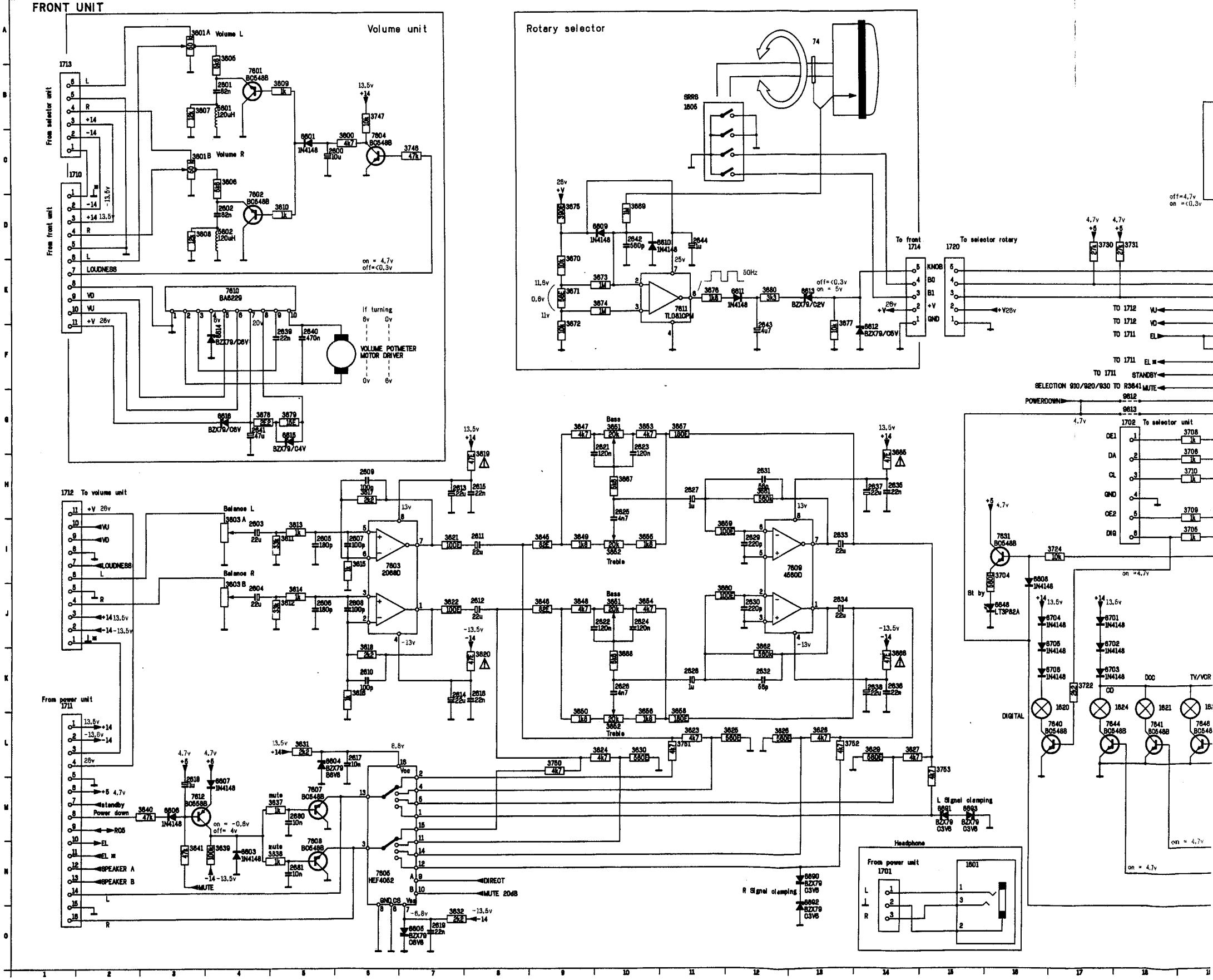
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2402	L 4
2403	L 6
2404	L 6
2405	D 5
2406	D 5
2407	E 5
2408	L 6
2409	F 6
2410	F 6
2411	E 7
2412	L 7
2413	E 8
2414	E 8
2415	E 8
2416	L 8
2417	L 8
2418	D 8
2419	L 8
2420	K 8
2421	K 8
2422	K 8
2423	O 4
2424	J 4
2425	F 3
2426	I 4
2427	F 4
2428	J 4
2429	H 3
2430	P 22
2431	R 4
2432	P 4
2433	R 22
2434	D 22
2435	B 4
2436	B 4
2437	C 22
2438	R 22
2439	C 4
2440	C 4
2441	D 4
2442	N 4
2443	D 18
2444	L 18
2445	D 18
2446	L 18
2447	D 18
2448	D 18
2449	K 11
2450	K 11
2451	E 11
2452	K 11
2453	F 11
2454	F 11
2455	E 4
2456	E 4
2457	C 23
2458	B 4
2459	R 4
2460	R 4
2461	R 23
2462	F 4
2463	H 4
2464	H 4
2465	I 4
2466	F 4
2467	R 23
2468	B 4
2469	B 4
2470	R 4
2471	R 23
2472	F 4
2473	H 4
2474	H 4
2475	H 4
2476	H 4
2477	H 4
2478	H 4
2479	H 4
2480	H 4
2481	H 4
2482	H 4
2483	H 4
2484	H 4
2485	H 4
2486	H 4
2487	H 4
2488	H 4
2489	H 4
2490	H 4
2491	H 4
2492	H 4
2493	H 4
2494	H 4
2495	H 4
2496	H 4
2497	H 4
2498	H 4
2499	H 4
2500	H 4



- P23
- 023
- 023
- 023
- A 823
- 823
- 1401 R23
- 1401 C23
- 1401 H 3
- 1401 M 3
- 1401 L 3
- 1401 D 3
- 1401 C 3
- B 1402 R23
- 1402 R23
- 1402 B23
- 1402 P23
- 1402 D 3
- 1402 P 3
- 1402 R 3
- 1402 I 3
- 1403 I 3
- 1403 H 3
- 1403 M 3
- 1403 F 3
- 1403 J 3
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- 1402 L 4
- 2403 E 6
- 2404 L 6
- 2405 O 6
- D 2406 L 5
- 2407 E 6
- 2408 F 6
- 2410 H 6
- 2411 E 7
- 2412 L 7
- 2413 E 8
- 2414 L 8
- E 2415 E 8
- 2416 E 8
- 2417 E 8
- 2418 L 8
- 2419 D 8
- 2420 D 8
- 2421 D 8
- 2422 K 8
- 2423 O 4
- F 2424 J 4
- 2425 H 4
- 2426 I 4
- 2427 I 4
- 2428 J 4
- 2429 R22
- 2430 P24
- 2431 R 4
- 2432 P 4
- 2433 B22
- 2434 C22
- B 2435 B 4
- 2436 O 4
- 2437 C22
- 2438 R22
- 2439 C 4
- 2440 K 4
- 2441 D 4
- 2442 M 4
- M 2443 D18
- 2444 L18
- 2445 D18
- 2446 L18
- 2447 D18
- 2448 D18
- 2449 E18
- 2450 K11
- 2451 E11
- 2452 K11
- I 2453 F11
- 2454 F11
- 2455 E 4
- 2456 D 4
- 2457 C 4
- 2458 B 4
- 2459 B23
- 2470 R 4
- 2471 R23
- J 2472 F 4
- 2473 H 4
- 2474 O 4
- 2401 D 4
- 2402 L 4
- 2403 E 5
- 2404 L 5
- 2405 L 5
- K 2407 D 6
- 2408 L 6
- 2409 L 7
- 2410 L 7
- 2411 E 6
- 2412 E 6
- 2413 F 7
- 2414 H 7
- 2415 F 8
- 2416 H 8
- L 2417 E 9
- 2418 L 9
- 2419 E 9
- 2420 D 9
- 2421 D 9
- 2422 K 9
- 2423 O 4
- 2424 I 4
- 2425 H 4
- 2426 I 4
- M 2427 F 4
- 2428 J 4
- 2429 R23
- 2430 P23
- 2431 R 4
- 2432 P 4
- N 2433 B23
- 2434 C23
- 2435 B 4
- 2436 O 4
- 2437 C23
- 2438 R23
- 2439 C 4
- 2440 H 4
- 2441 C 4
- 2442 R 4
- 2443 D18
- 2444 L17
- 2445 E18
- O 2446 K11
- 2447 D17
- 2448 E11
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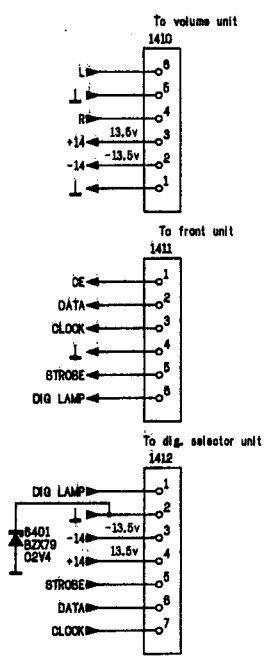
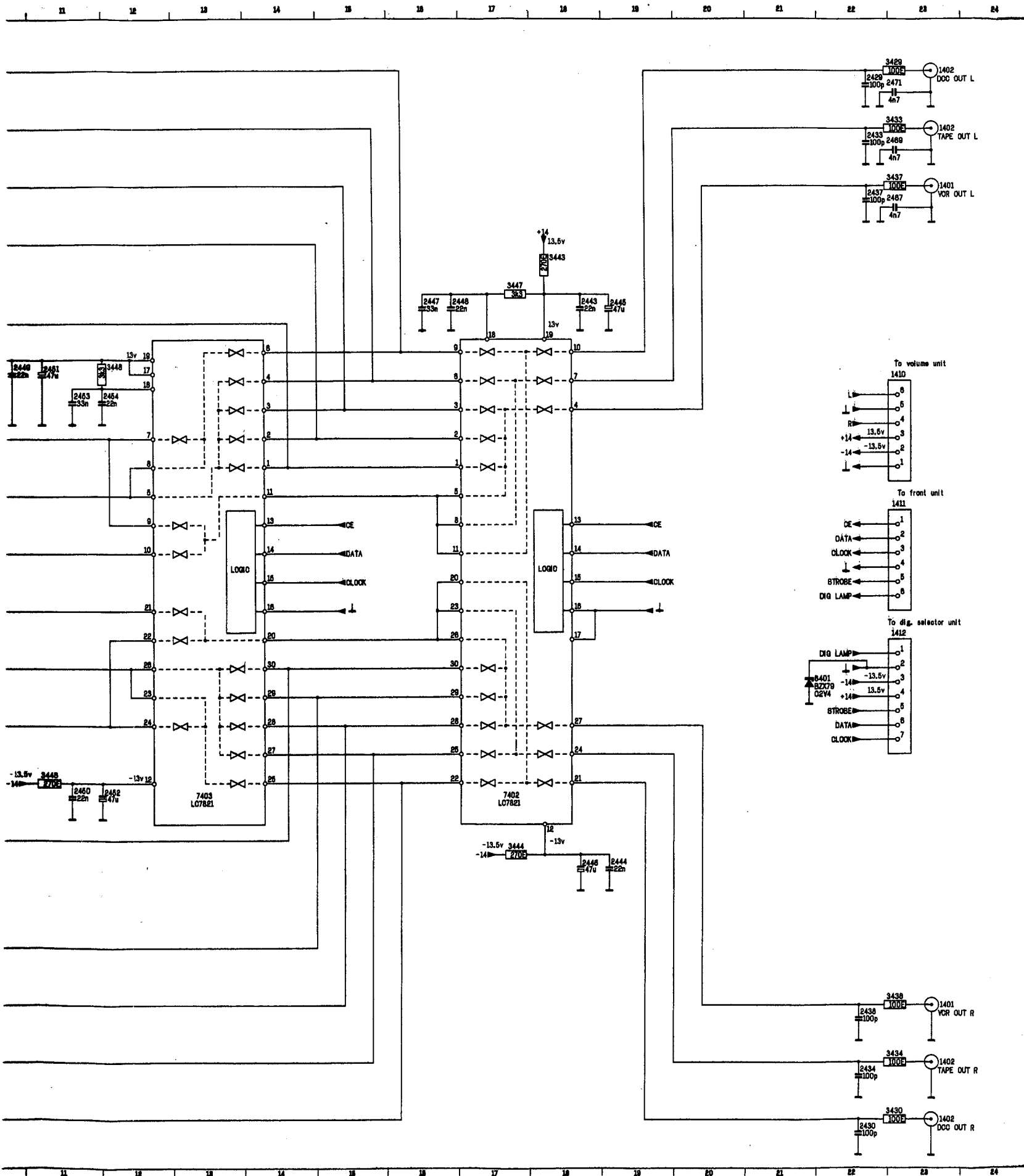
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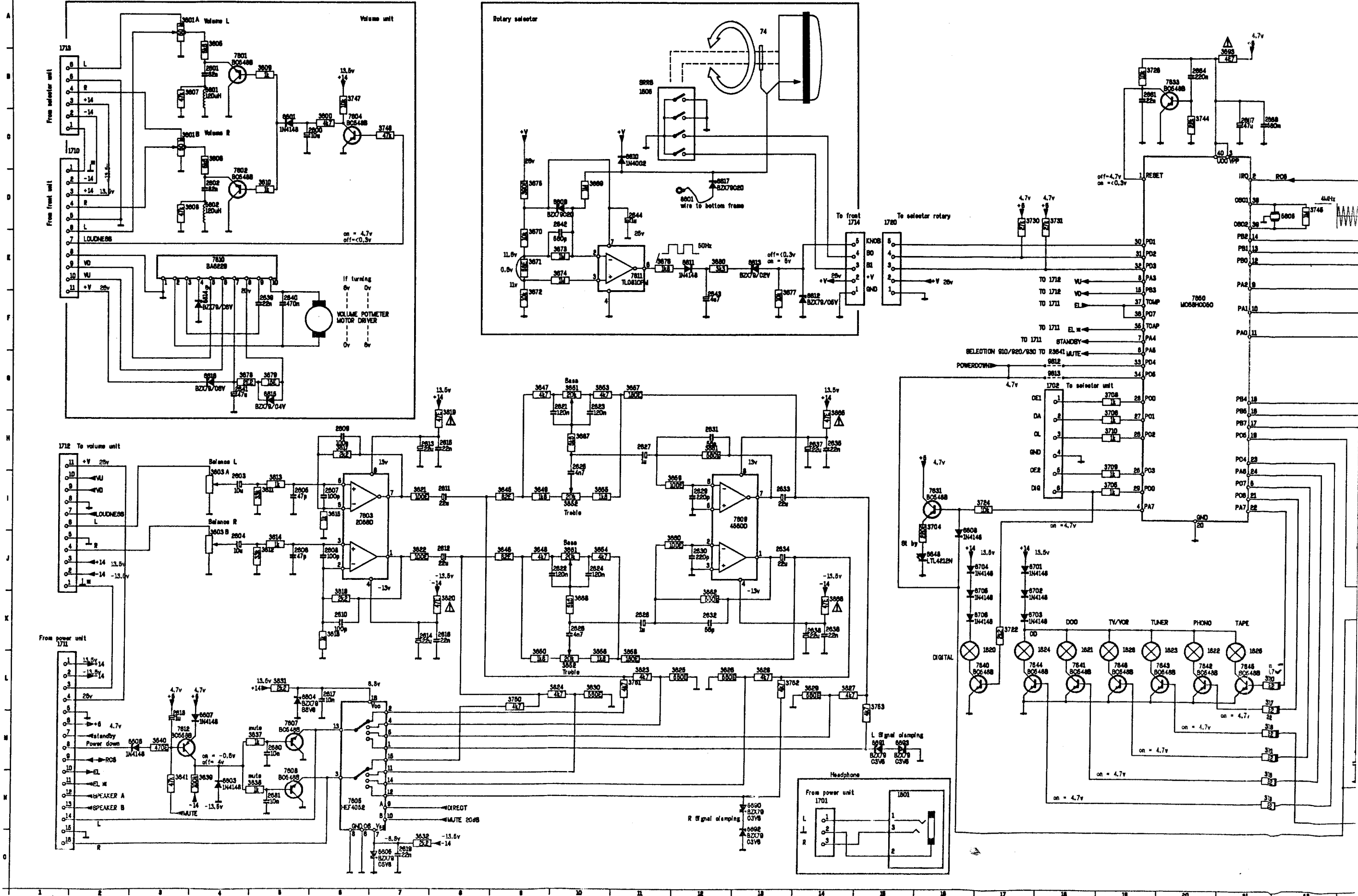


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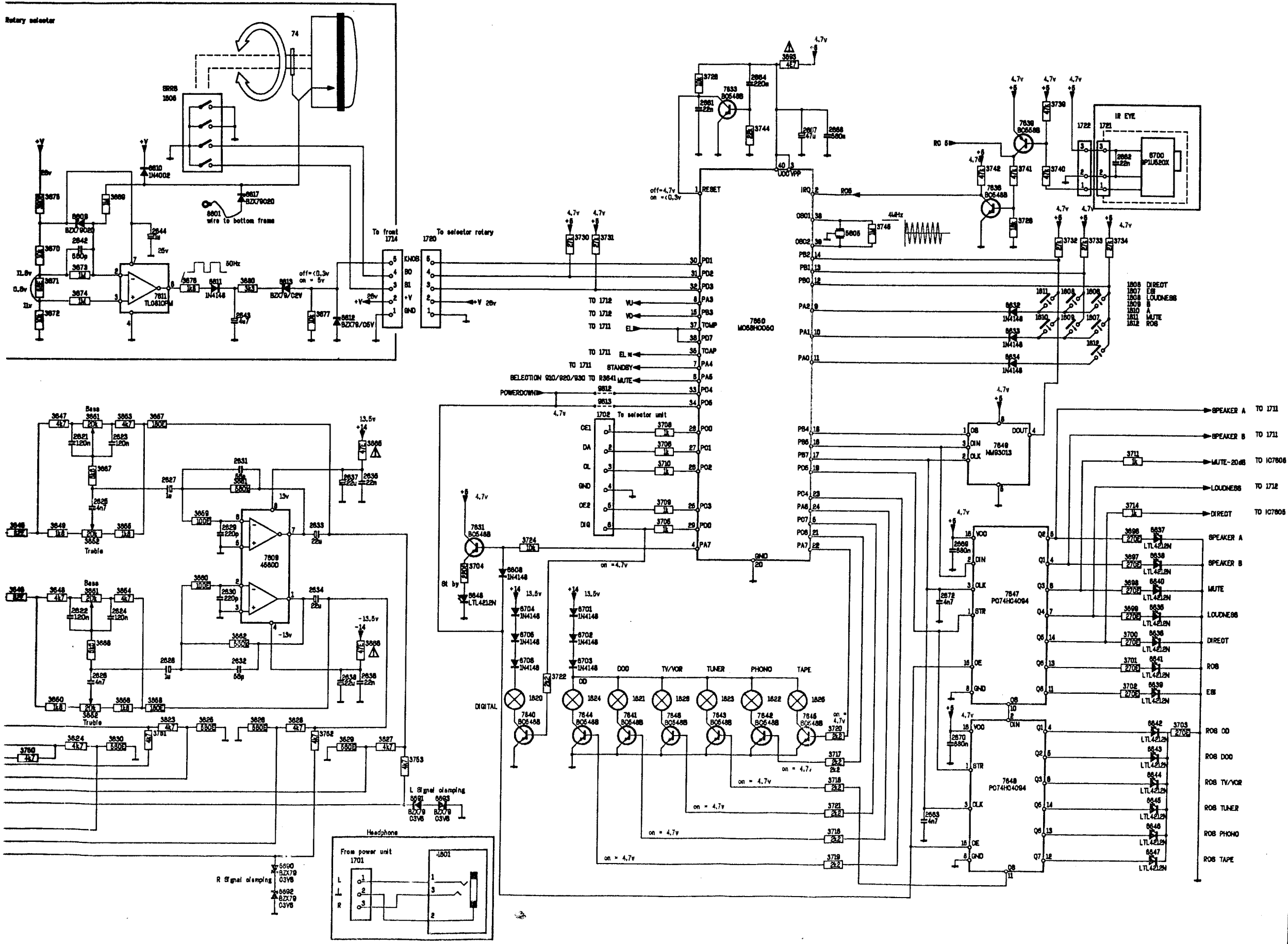
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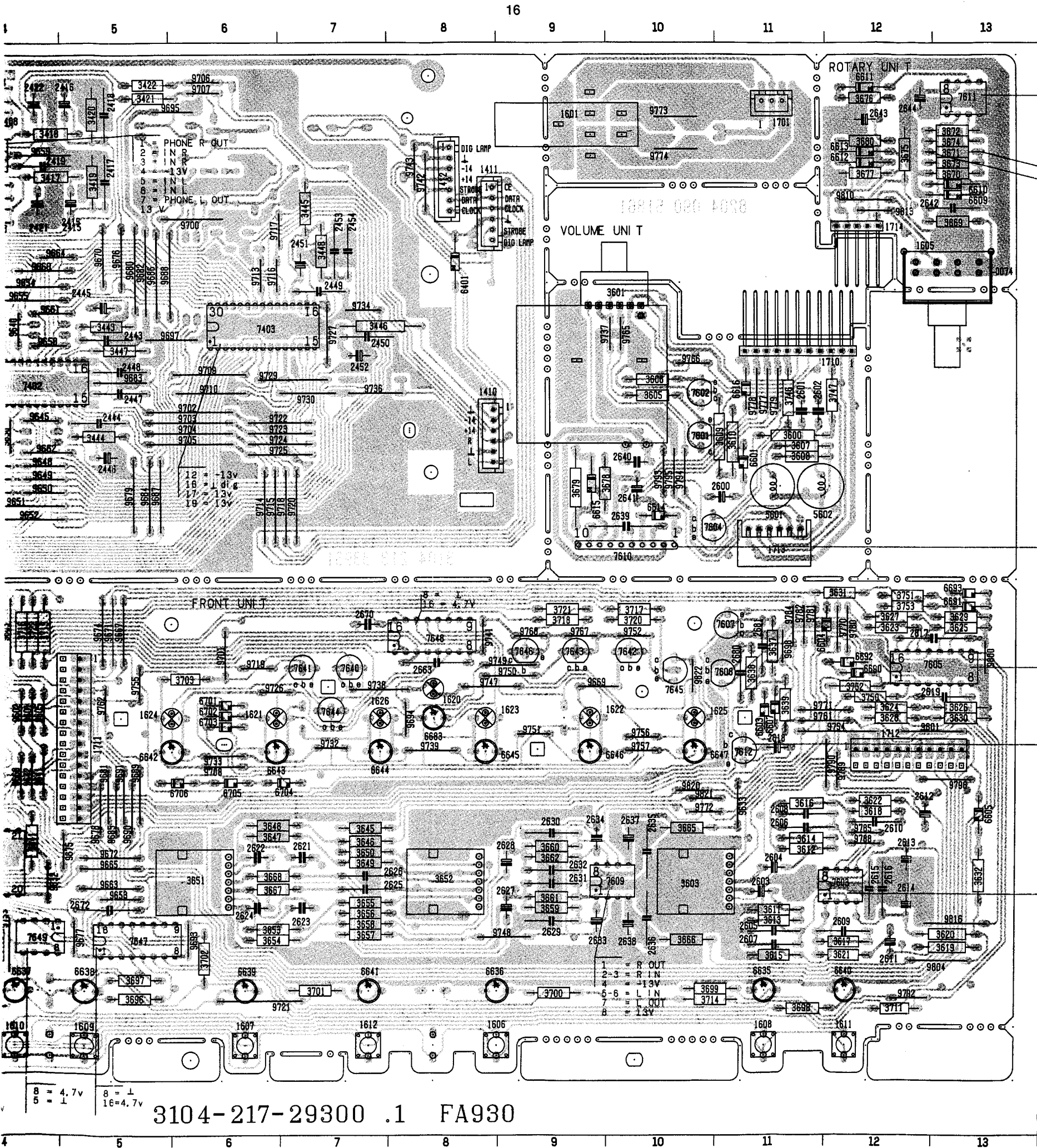


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C

D

E

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F

7 = -6.8v  
16 = 8.8v

G

e = 4v  
c = on = -0.6v  
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H

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I

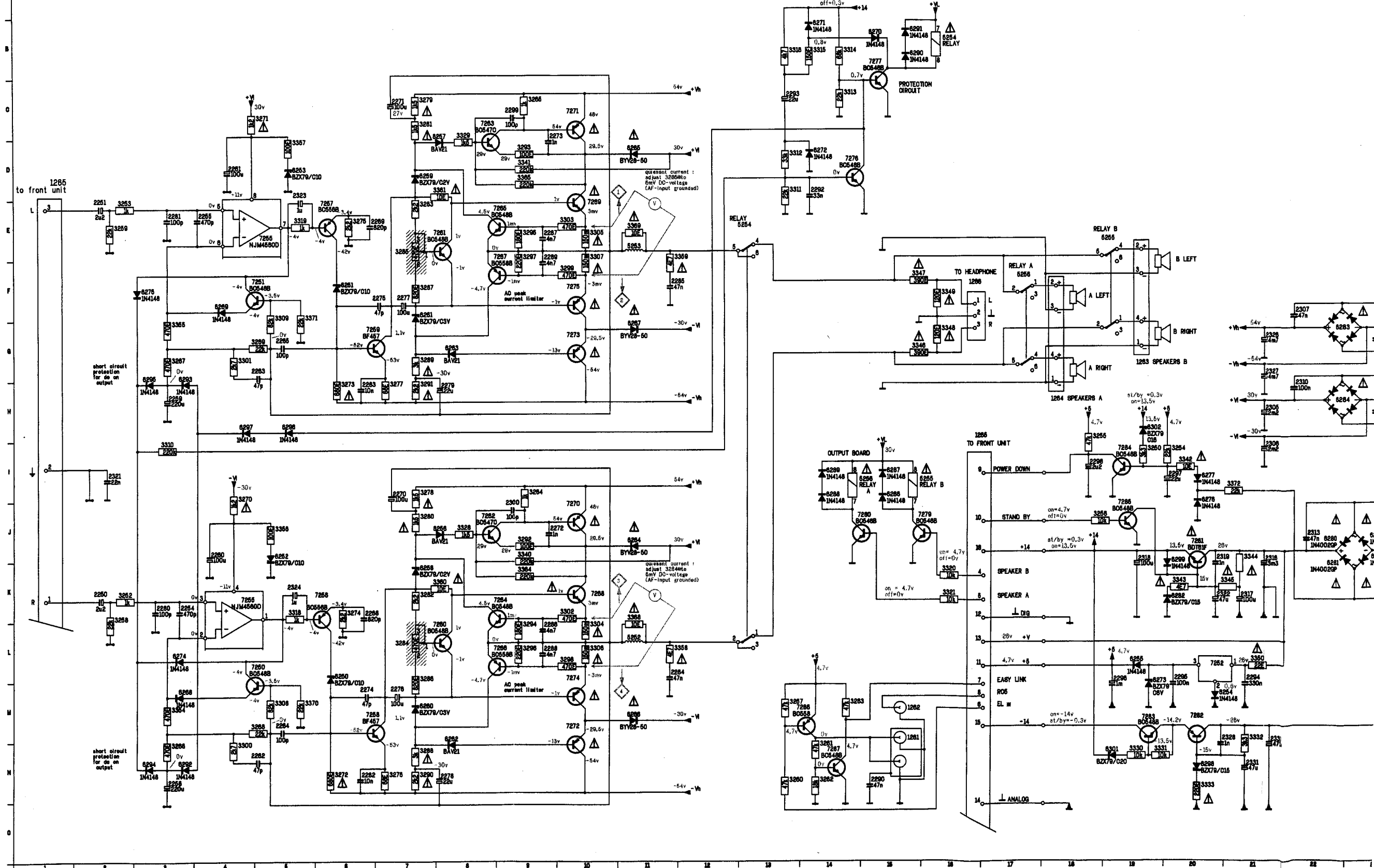
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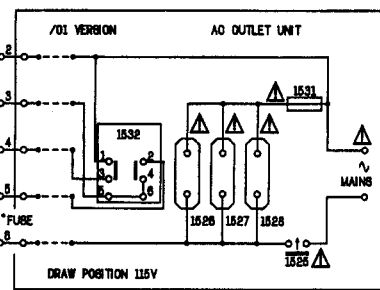
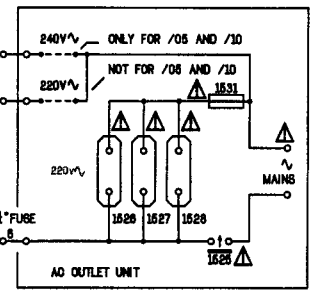
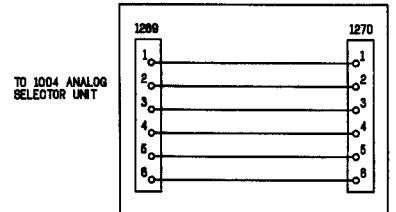
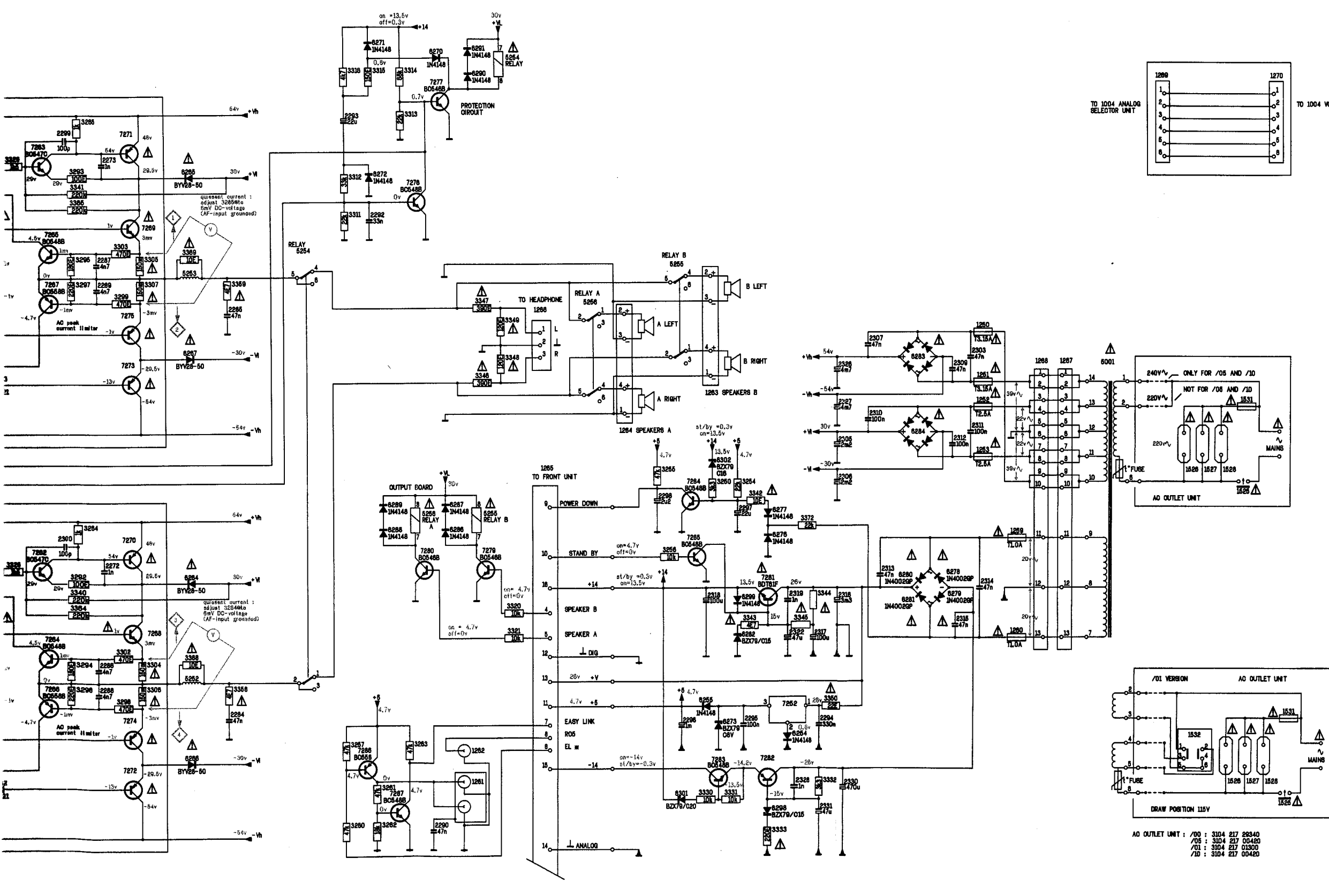
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1256	N24	1269	L28	2256	H5	2286	H5	2274	C9	2278	H7	2286	F11	2292	D14	2296	I19	2307	F22	2314	J23	2321	I2	2328	H20	2336	K24	3260	H13	3266	H3	3272	H6	3278	I7	3284	L7	3290	H7	3296	L9	3302	K10	3308	H5	3314	H14	3321	K18	3333	H20	3345	K21	3354	H3	3360	K8	3370	H5	3253	E11	6252	J5	6258	K7	6264	O8	6269	F4	6275	F3	6281	K		

# POWER UNIT



ES-UNIT BANLAY RED  
 3104-217-29270.SERV C.A.D. 91-10-09

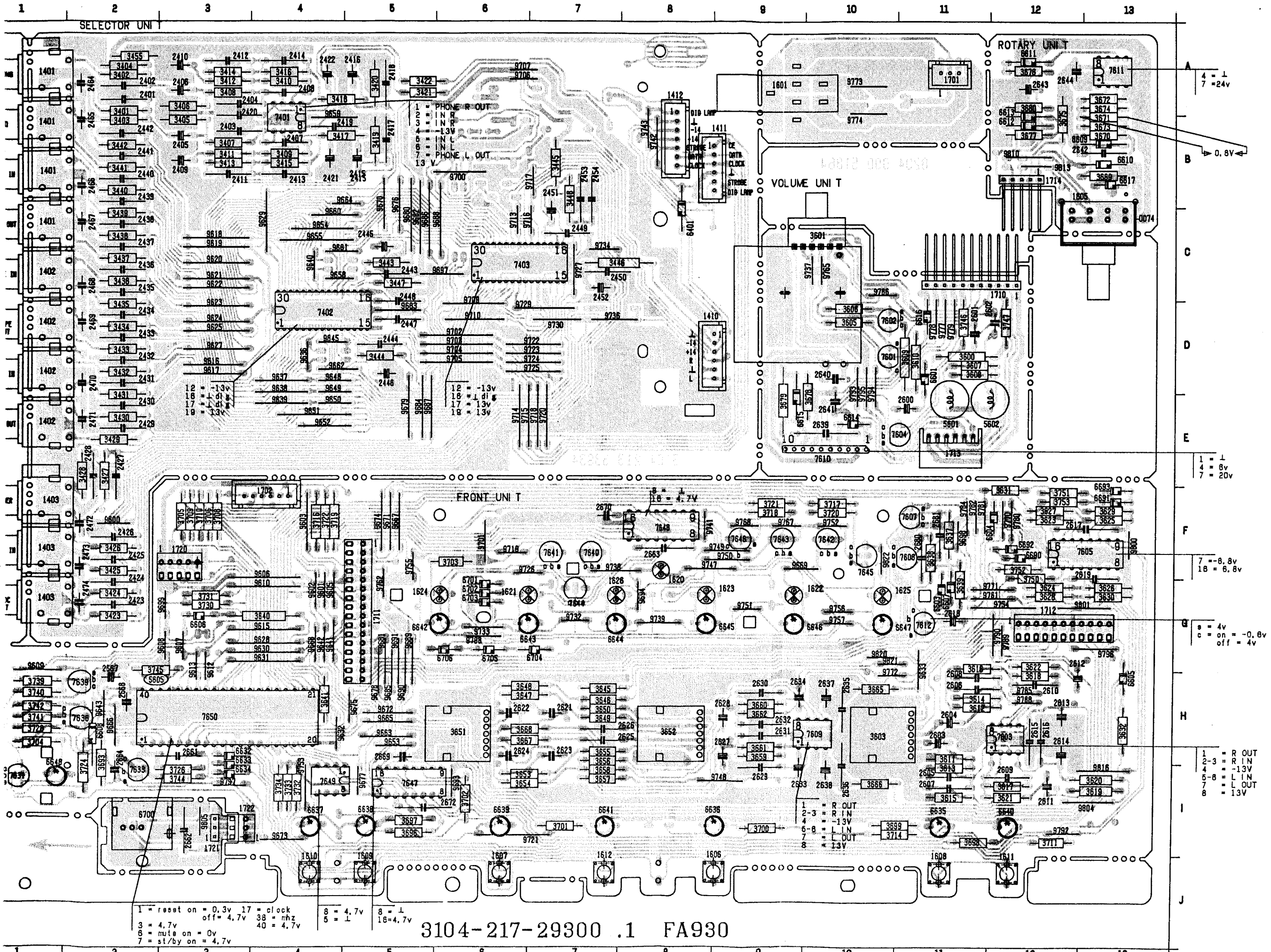
2292	N 5	2330	H 2	3255	H 10	3261	H 14	3267	D 3	3273	H 6	3279	C 7	3285	E 7	3291	H 7	3297	E 9	3303	E 10	3309	F 5	3315	B 14	3321	J 8	3340	J 8	3346	D 15	3352	G 9	3358	D 8	3371	F 5	3254	E 13	6253	D 5	6259	D 7	6265	D 11	6271	B 14	6277	I 20	6283	G 22	6290	B 15	6296	H 5	7250	L 5	7257	E 6	7263	C 6	7269	E 10	7275	F 10	7282	H 20
3298	D 5	3331	H 2	3356	H 18	3362	H 14	3368	H 5	3374	K 6	3380	J 7	3386	L 7	3392	J 9	3398	L 10	3404	L 10	3410	I 3	3416	B 13	3422	C 8	3441	D 9	3447	F 15	3453	J 5	3464	K 9	3472	I 2	5254	E 19	6254	H 20	6260	H 7	6266	H 11	6272	D 14	6278	J 23	6284	H 22	6291	B 15	6297	H 4	7251	F 5	7258	H 6	7264	K 9	7270	J 10	7276	D 14	7283	H 19
3384	K 5	3420	I 19	3427	H 13	3433	H 14	3439	G 5	3445	E 6	3451	C 7	3457	D 8	3463	F 10	3469	F 10	3475	E 10	3481	D 13	3487	K 5	3493	H 19	3499	K 20	3505	F 16	3511	L 11	3517	D 5	3523	K 9	5001	G 28	6255	L 19	6261	F 7	6267	D 11	6273	L 18	6279	J 23	6285	H 22	6292	H 3	6298	H 20	7252	L 20	7259	H 8	7265	E 9	7271	C 10	7277	B 15	7284	H 19
3495	H 2	3522	K 2	3528	E 2	3534	C 8	3540	I 9	3546	H 7	3552	K 7	3558	D 7	3564	E 8	3570	L 8	3576	C 14	3582	K 18	3588	H 21	3594	K 21	3599	L 21	3605	E 11	3611	K 8	3617	H 5	5253	E 11	6252	F 5	6258	K 7	6264	J 11	6270	B 15	6276	L 20	6282	K 20	6288	H 14	6294	G 3	6302	H 10	7256	K 6	7262	J 8	7268	K 10	7274	L 10	7281	J 20	7287	H 14
3564	H 2	3591	F 2	3597	E 2	3603	C 8	3609	H 3	3615	C 4	3621	H 7	3627	D 7	3633	L 9	3639	K 10	3645	H 5	3651	B 14	3657	K 18	3663	N 20	3669	K 21	3675	N 3	3681	K 8	3687	H 5	5252	E 11	6251	F 5	6257	C 8	6263	G 8	6269	F 4	6275	F 3	6281	K 23	6287	H 14	6293	G 3	6301	H 19	7255	K 4	7261	E 8	7267	E 8	7273	O 10	7279	J 15	7286	H 14



AO OUTLET UNIT : /00 : 3104 217 29340  
 /06 : 3104 217 03420  
 /01 : 3104 217 01500  
 /10 : 3104 217 00420

VOOR INBRENGEN VAN SERVICE INFORMATIE  
 ZIE PC.3104-217-28630.SERV.ES-UNIT





4 = 1  
7 = 24v

B → 0.8V

1 = 1  
4 = 8v  
7 = 20v

7 = -8.8v  
18 = 6.8v

9 = 4v  
c = on = -0.6v  
off = 4v

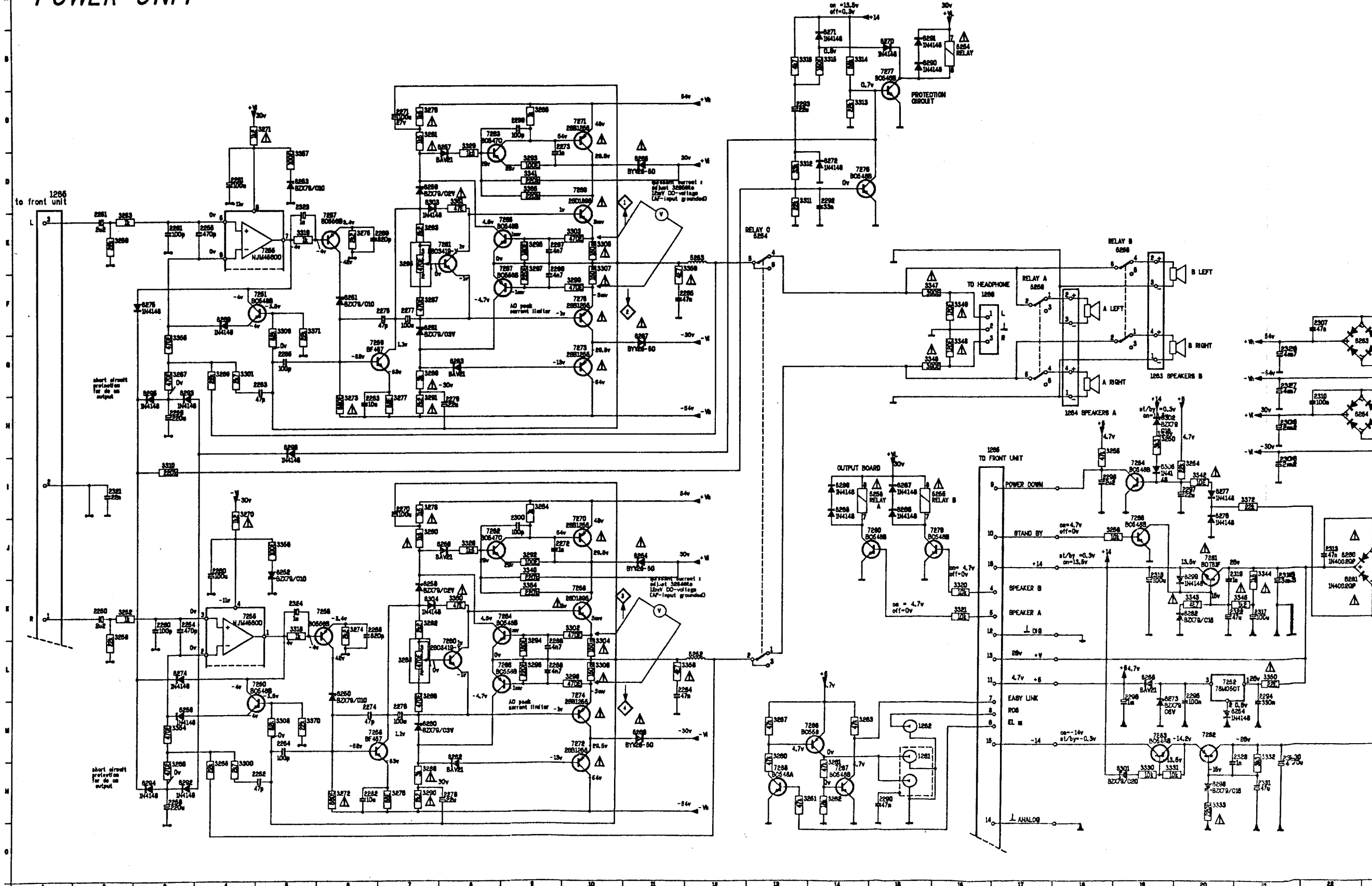
1 = R OUT  
2-3 = R IN  
4 = -13V  
5-8 = L IN  
7 = L OUT  
8 = 13V

1 = reset on = 0.3v 17 = clock  
off = 4.7v 38 = mhz  
3 = 4.7v  
6 = mute on = 0v  
7 = st/by on = 4.7v  
8 = 4.7v  
5 = 1  
8 = 1  
16 = 4.7v

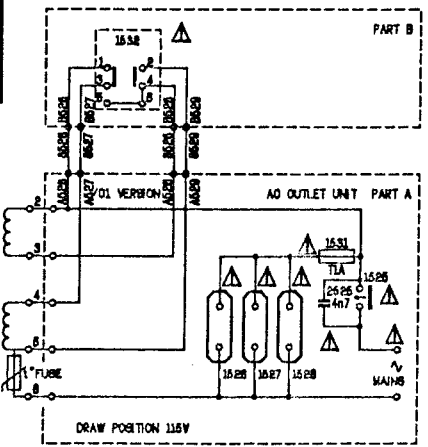
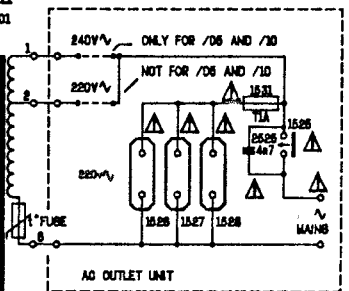
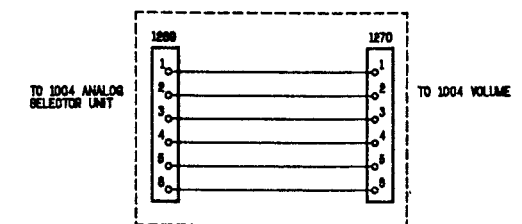
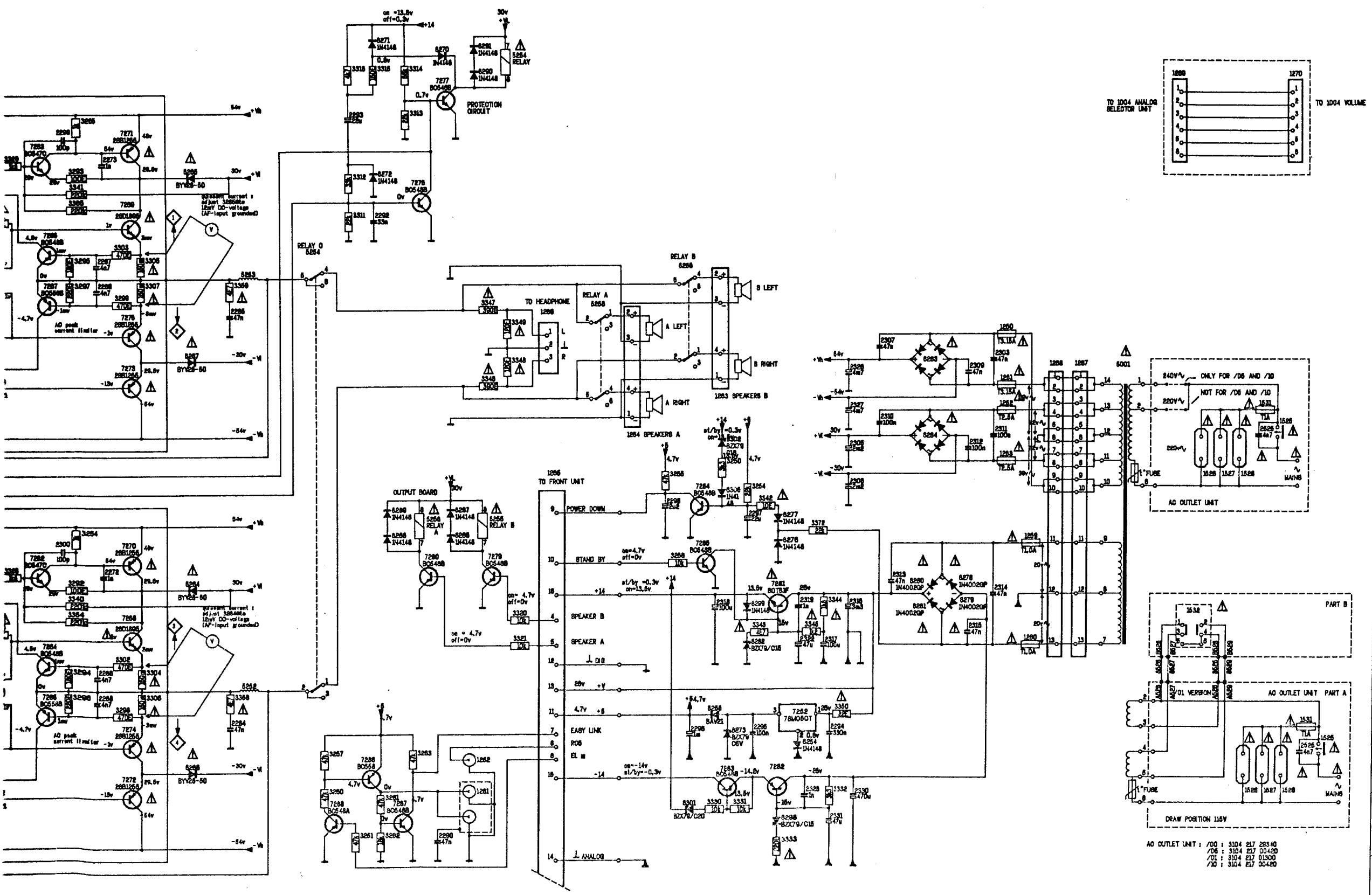
3104-217-29300 .1 FA930

1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

# POWER UNIT



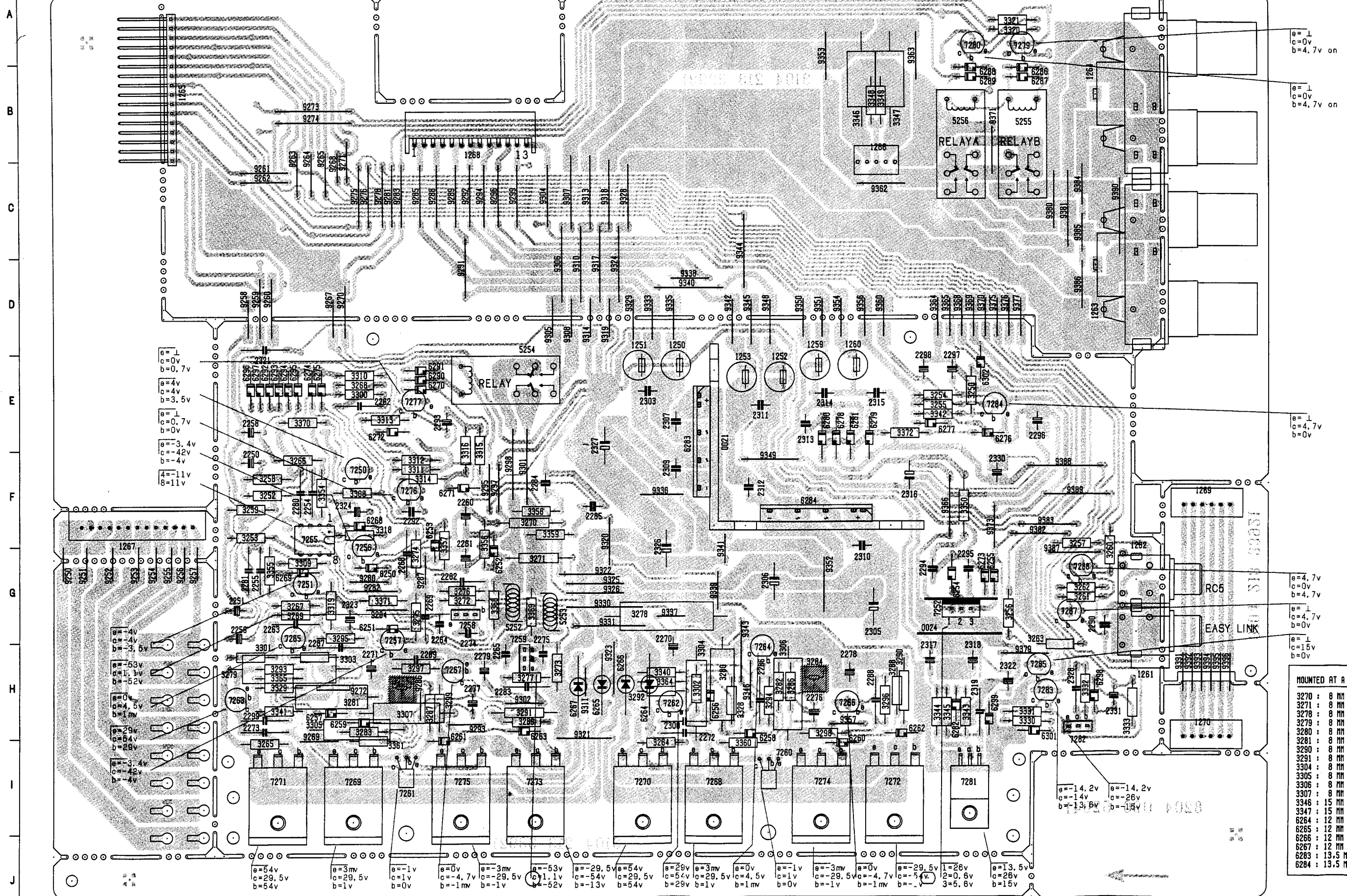
3281	3282	3283	3284	3285	3286	3287	3288	3289	3290	3291	3292	3293	3294	3295	3296	3297	3298	3299	3300	3301	3302	3303	3304	3305	3306	3307	3308	3309	3310	3311	3312	3313	3314	3315	3316	3317	3318	3319	3320	3321	3322	3323	3324	3325	3326	3327	3328	3329	3330	3331	3332	3333	3334	3335	3336	3337	3338	3339	3340	3341	3342	3343	3344	3345	3346	3347	3348	3349	3350	3351	3352	3353	3354	3355	3356	3357	3358	3359	3360	3361	3362	3363	3364	3365	3366	3367	3368	3369	3370	3371	3372	3373	3374	3375	3376	3377	3378	3379	3380	3381	3382	3383	3384	3385	3386	3387	3388	3389	3390	3391	3392	3393	3394	3395	3396	3397	3398	3399	3400
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AD OUTLET UNIT :  
 /00 : 3104 217 20340  
 /06 : 3104 217 00420  
 /01 : 3104 217 01500  
 /10 : 3104 217 00420



POWER UNIT



$\theta = 1$   
 $c = 0v$   
 $b = 0.7v$   
 $\theta = 4v$   
 $c = 4v$   
 $b = 3.5v$   
 $\theta = 1$   
 $c = 0.7v$   
 $b = 0v$   
 $\theta = -3.4v$   
 $c = -42v$   
 $b = -4v$   
 $\theta = -11v$   
 $b = -11v$

$\theta = -4v$   
 $c = -4v$   
 $b = -3.5v$   
 $\theta = -53v$   
 $c = 1.3v$   
 $b = -52v$   
 $\theta = 0v$   
 $c = 4.5v$   
 $b = 1mv$   
 $\theta = 29v$   
 $c = 64v$   
 $b = 29v$   
 $\theta = -3.4v$   
 $c = -42v$   
 $b = -4v$

$\theta = 54v$   
 $c = 29.5v$   
 $b = 54v$   
 $\theta = 3mv$   
 $c = 29.5v$   
 $b = 1v$   
 $\theta = -1v$   
 $c = 1v$   
 $b = 0v$   
 $\theta = 0v$   
 $c = -4.7v$   
 $b = -1mv$   
 $\theta = -3mv$   
 $c = -29.5v$   
 $b = -1v$   
 $\theta = -53v$   
 $c = 1.1v$   
 $b = -52v$   
 $\theta = -29.5v$   
 $c = -54v$   
 $b = -13v$   
 $\theta = 54v$   
 $c = 29.5v$   
 $b = 54v$   
 $\theta = 29v$   
 $c = 54v$   
 $b = 29v$   
 $\theta = 3mv$   
 $c = 29.5v$   
 $b = 1v$   
 $\theta = 0v$   
 $c = 4.5v$   
 $b = 1mv$   
 $\theta = -1v$   
 $c = 1v$   
 $b = 0v$   
 $\theta = -3mv$   
 $c = -29.5v$   
 $b = -1v$   
 $\theta = 0v$   
 $c = -4.7v$   
 $b = -1mv$   
 $\theta = -29.5v$   
 $c = -54v$   
 $b = -1v$   
 $\theta = 26v$   
 $c = 0.8v$   
 $b = 15v$

$\theta = 1$   
 $c = 0v$   
 $b = 4.7v$  on  
 $\theta = 1$   
 $c = 0v$   
 $b = 4.7v$  on

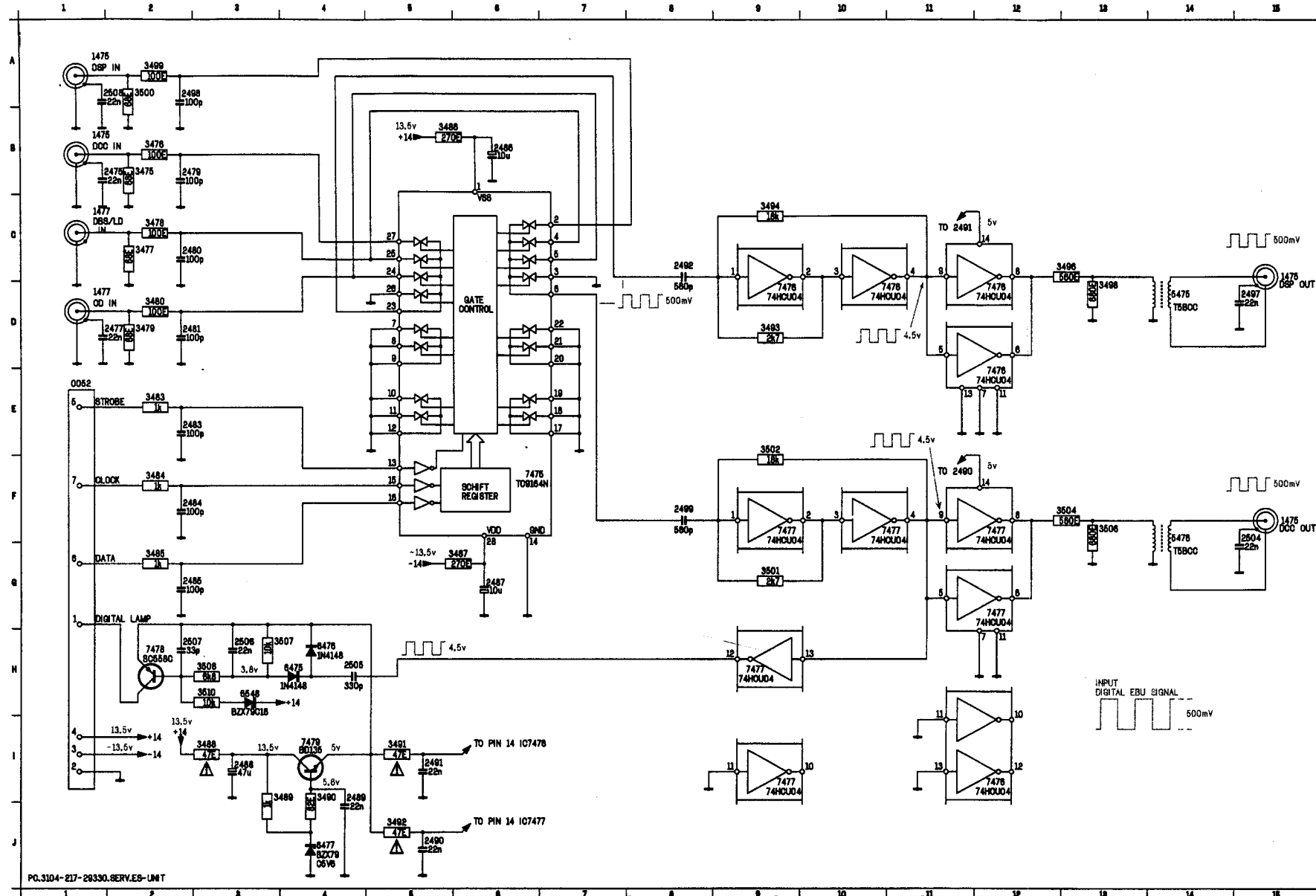
$\theta = 1$   
 $c = 4.7v$   
 $b = 0v$

$\theta = 4.7v$   
 $c = 0v$   
 $b = 4.7v$   
 $\theta = 1$   
 $c = 4.7v$   
 $b = 0v$   
 $\theta = 1$   
 $c = 15v$   
 $b = 0v$

MOUNTED AT A DISTANCE FROM PCB:

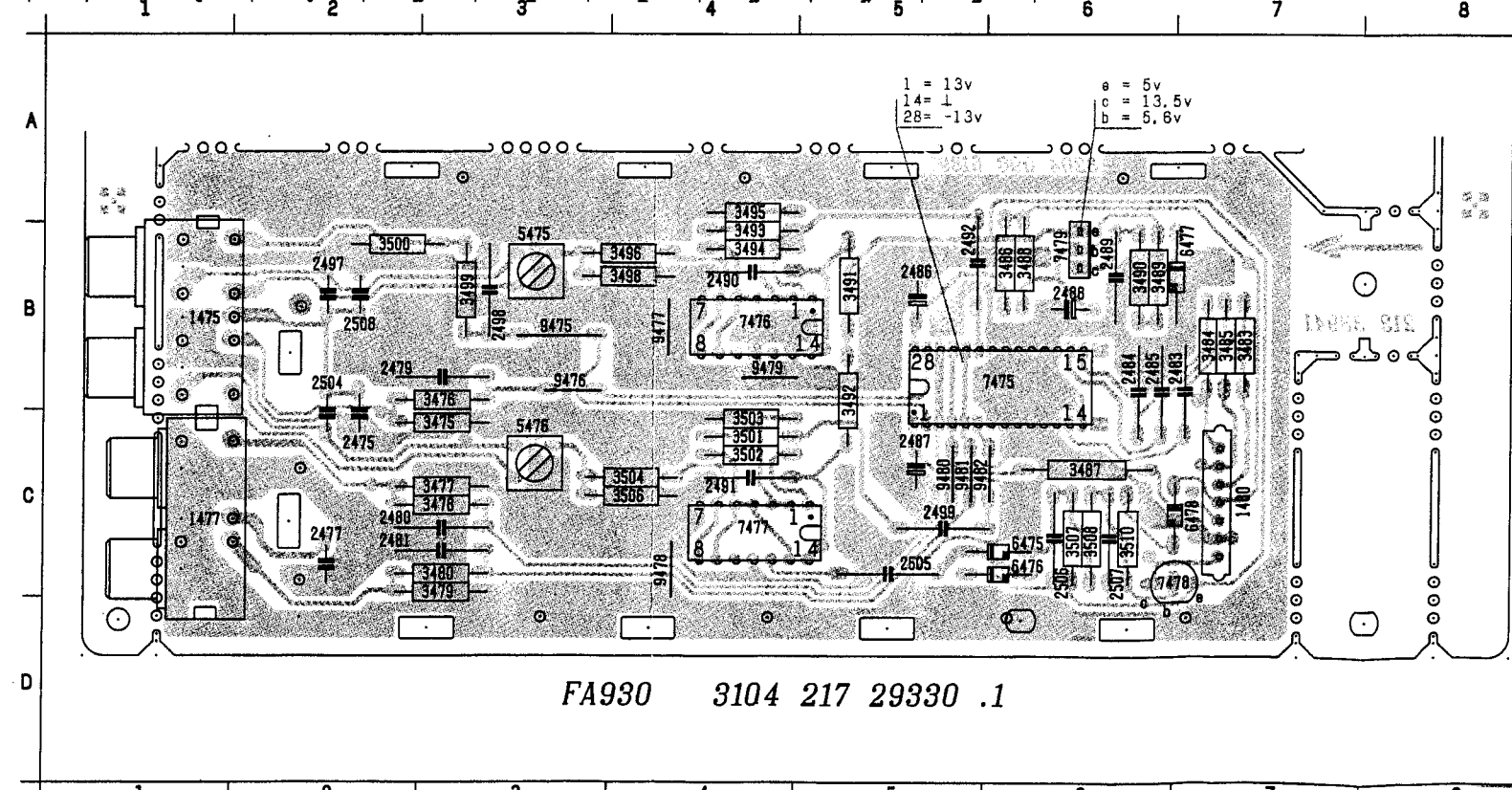
3270	8 MM
3271	8 MM
3278	8 MM
3279	8 MM
3280	8 MM
3281	8 MM
3290	8 MM
3291	8 MM
3304	8 MM
3305	8 MM
3306	8 MM
3307	8 MM
3346	15 MM
3347	15 MM
6264	12 MM
6265	12 MM
6266	12 MM
6267	12 MM
6283	13.5 MM
6284	13.5 MM





1475	C15
1475	F15
1475	H15
1475	I15
1477	C1
1477	C2
1477	C3
1477	C4
1477	C5
1477	C6
1477	C7
1477	C8
1477	C9
1477	C10
1477	C11
1477	C12
1477	C13
1477	C14
1477	C16
1477	C17
1477	C18
1477	C19
1477	C20
1477	C21
1477	C22
1477	C23
1477	C24
1477	C25
1477	C26
1477	C27
1477	C28
1477	C29
1477	C30
1477	C31
1477	C32
1477	C33
1477	C34
1477	C35
1477	C36
1477	C37
1477	C38
1477	C39
1477	C40
1477	C41
1477	C42
1477	C43
1477	C44
1477	C45
1477	C46
1477	C47
1477	C48
1477	C49
1477	C50
1477	C51
1477	C52
1477	C53
1477	C54
1477	C55
1477	C56
1477	C57
1477	C58
1477	C59
1477	C60
1477	C61
1477	C62
1477	C63
1477	C64
1477	C65
1477	C66
1477	C67
1477	C68
1477	C69
1477	C70
1477	C71
1477	C72
1477	C73
1477	C74
1477	C75
1477	C76
1477	C77
1477	C78
1477	C79
1477	C80
1477	C81
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1477	C83
1477	C84
1477	C85
1477	C86
1477	C87
1477	C88
1477	C89
1477	C90
1477	C91
1477	C92
1477	C93
1477	C94
1477	C95
1477	C96
1477	C97
1477	C98
1477	C99
1477	C100

ES-UNIT MAINWAY RED  
3104-217-29330.SERV.C.A.D. 91-10-09

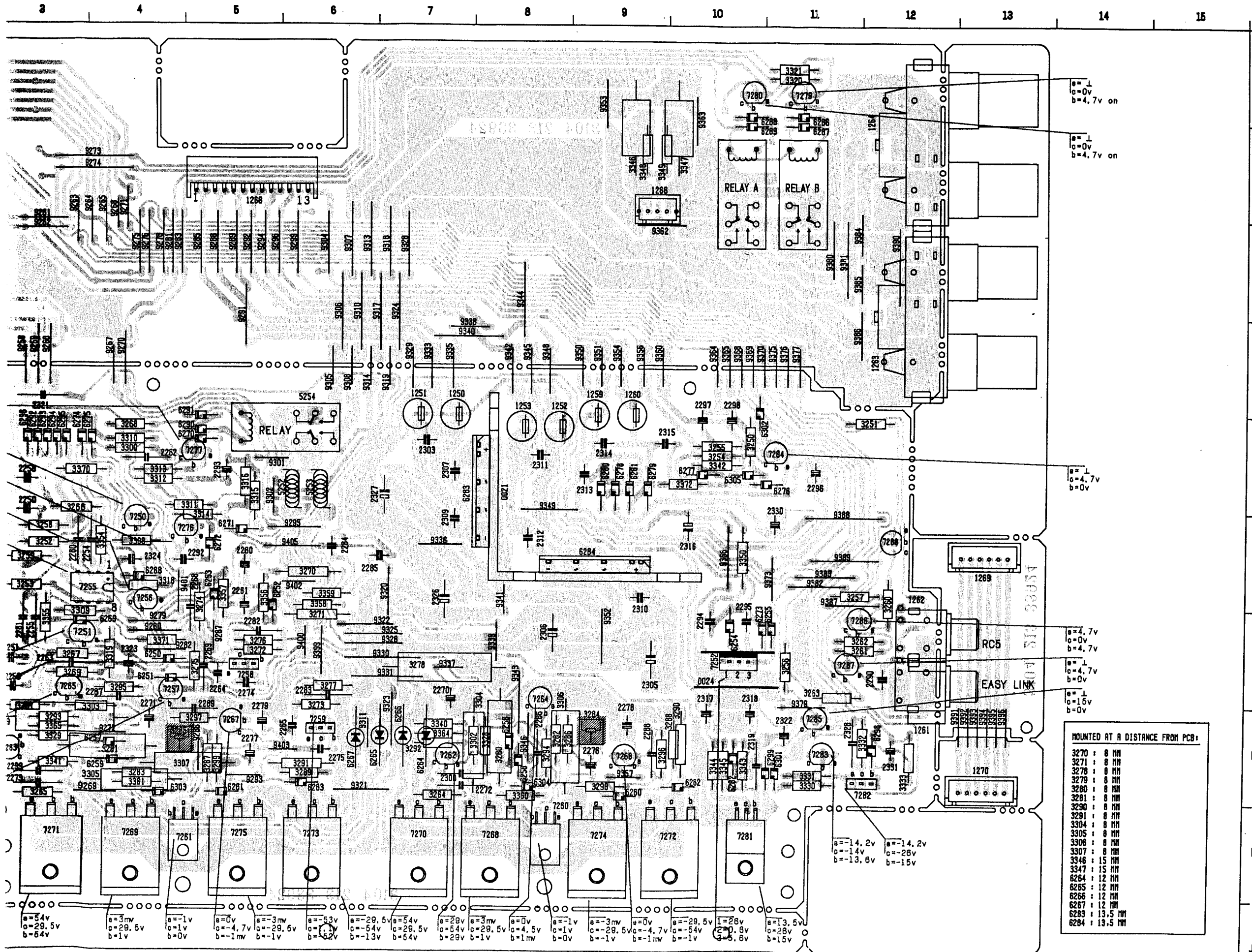


1475	B1	3494	B4
1477	C1	3495	B4
1480	C7	3496	B4
2475	C2	3498	B4
2477	C2	3499	B3
2479	B2	3500	B2
2480	C2	3501	C4
2481	C2	3502	C4
2483	B7	3503	C4
2484	B6	3504	C4
2485	B6	3506	C4
2486	B5	3507	C6
2487	C5	3508	C6
2488	B6	3510	C6
2489	B6	5475	B3
2490	B4	5476	C3
2491	C4	6475	C6
2492	B5	6476	C6
2497	B2	6477	B7
2498	B3	6478	C7
2499	C5	7475	B6
2504	B2	7476	B4
2505	C5	7477	C4
2506	C6	7478	C7
2507	C6	7479	B6
2508	B2	9475	B3
3475	C3	9476	B3
3476	B3	9477	B4
3477	C3	9478	C4
3478	C3	9479	B4
3479	D3	9480	C5
3480	C3	9481	C5
3483	B7	9482	C6
3484	B7		
3485	B7		
3486	B6		
3487	C6		
3488	B6		
3489	B6		
3490	B6		
3491	B5		
3492	B5		
3493	B4		

## MECHANICAL PARTS

401	4822 410 61699	KNOB SOURCE SEL.ASSY
402	4822 532 21449	RUBBER RING
403	4822 426 51524	FRONT ASSY
404	4822 413 41696	KNOB ASSY
405	4822 450 61831	IR-WINDOW
406	4822 413 51399	VOLUME KNOB ASSY
407	4822 426 60621	STRIP
408	4822 454 12791	PLATE ORNAMENTAL
409	4822 410 61698	BUTTON ASSY
410	4822 380 20425	LED REFLECTOR
412	4822 255 41247	LEDHOLDER
413	4822 450 61832	WINDOW
414	4822 466 70734	DIFFUSOR
415	4822 130 91065	DIG.REFLECTOR
416	4822 466 70733	LICHTSCREEN
417	4822 267 31453	HEADPHONE
418	4822 380 20424	REFLECTOR
419	4822 273 10237	ROTARY SWITCH
421	4822 404 21194	BRACKET
422	4822 462 71808	POWER CAP
425	4822 130 81254	IR EYE
426	4822 276 13224	POWER SWITCH
427	4822 146 31043	TRAFO
428	4822 462 41888	FOOT
429	4822 462 41887	FOOT VILT
431	4822 101 21175	VOLUME ASSY
432	4822 532 60948	BUSHING
433	4822 265 20544	MAINS OUTPUT
433	4822 265 20554	MAINS OUTPUT ONLY /05
434	4822 321 61478	CINCH CORD
435	4822 321 10789	MAINS CORD
436	4822 268 90449	JUMPER PLUG
437	4822 404 21195	TRANSISTOR BRACKET
438	4822 502 13921	PHONE GND SREW
	4822 218 10439	REMOTE CONTROL (RH6640/01)





a = 1  
o = 0v  
b = 4.7v on

a = 1  
o = 0v  
b = 4.7v on

a = 1  
o = 4.7v  
b = 0v

a = 4.7v  
o = 0v  
b = 4.7v

a = 1  
o = 4.7v  
b = 0v

a = 1  
o = 15v  
b = 0v

1. MOUNTED AT A DISTANCE FROM PCB:

3270	8 MM
3271	8 MM
3278	8 MM
3279	8 MM
3280	8 MM
3281	8 MM
3290	8 MM
3291	8 MM
3304	8 MM
3305	8 MM
3308	8 MM
3307	8 MM
3346	15 MM
3347	15 MM
6264	12 MM
6265	12 MM
6266	12 MM
6267	12 MM
6283	13.5 MM
6284	13.5 MM

a = -14.2v  
o = -14v  
b = -13.6v

a = -14.2v  
o = -26v  
b = -15v

a = 54v  
o = 29.5v  
b = 54v

a = 3mv  
o = 29.5v  
b = 1v

a = -1v  
o = 1v  
b = 0v

a = 0v  
o = -4.7v  
b = -1mv

a = -3mv  
o = -28.5v  
b = -1v

a = -63v  
o = 0v  
b = -62v

a = 29.5v  
o = -54v  
b = -13v

a = 54v  
o = 29.5v  
b = 64v

a = 29v  
o = 64v  
b = 29v

a = 3mv  
o = 28.5v  
b = 1v

a = 0v  
o = 4.5v  
b = 1mv

a = -1v  
o = 0v  
b = 0v

a = -3mv  
o = -28.5v  
b = -1v

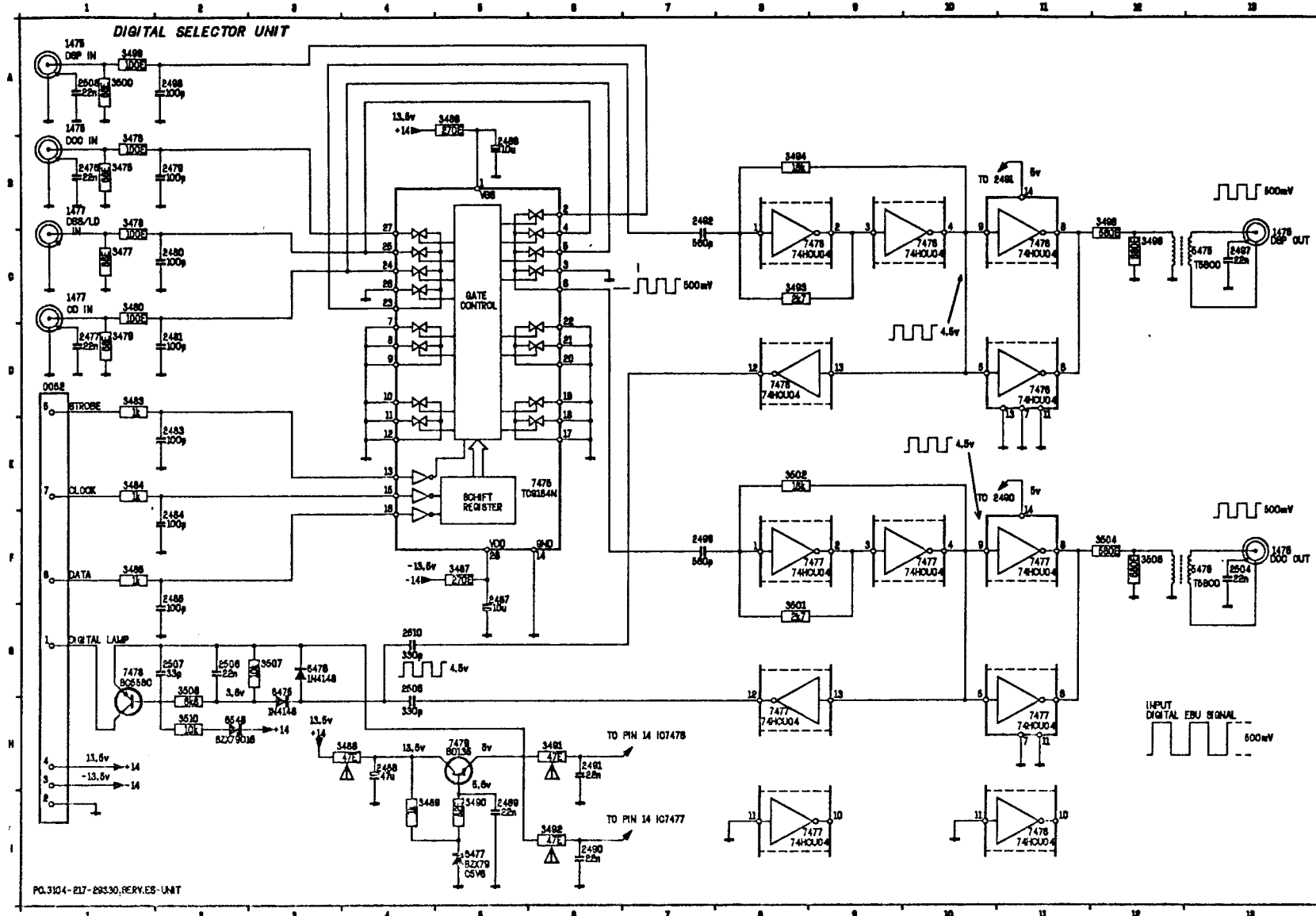
a = 0v  
o = -4.7v  
b = -1mv

a = -29.5v  
o = -54v  
b = -1v

a = 26v  
o = 0.8v  
b = 5.6v

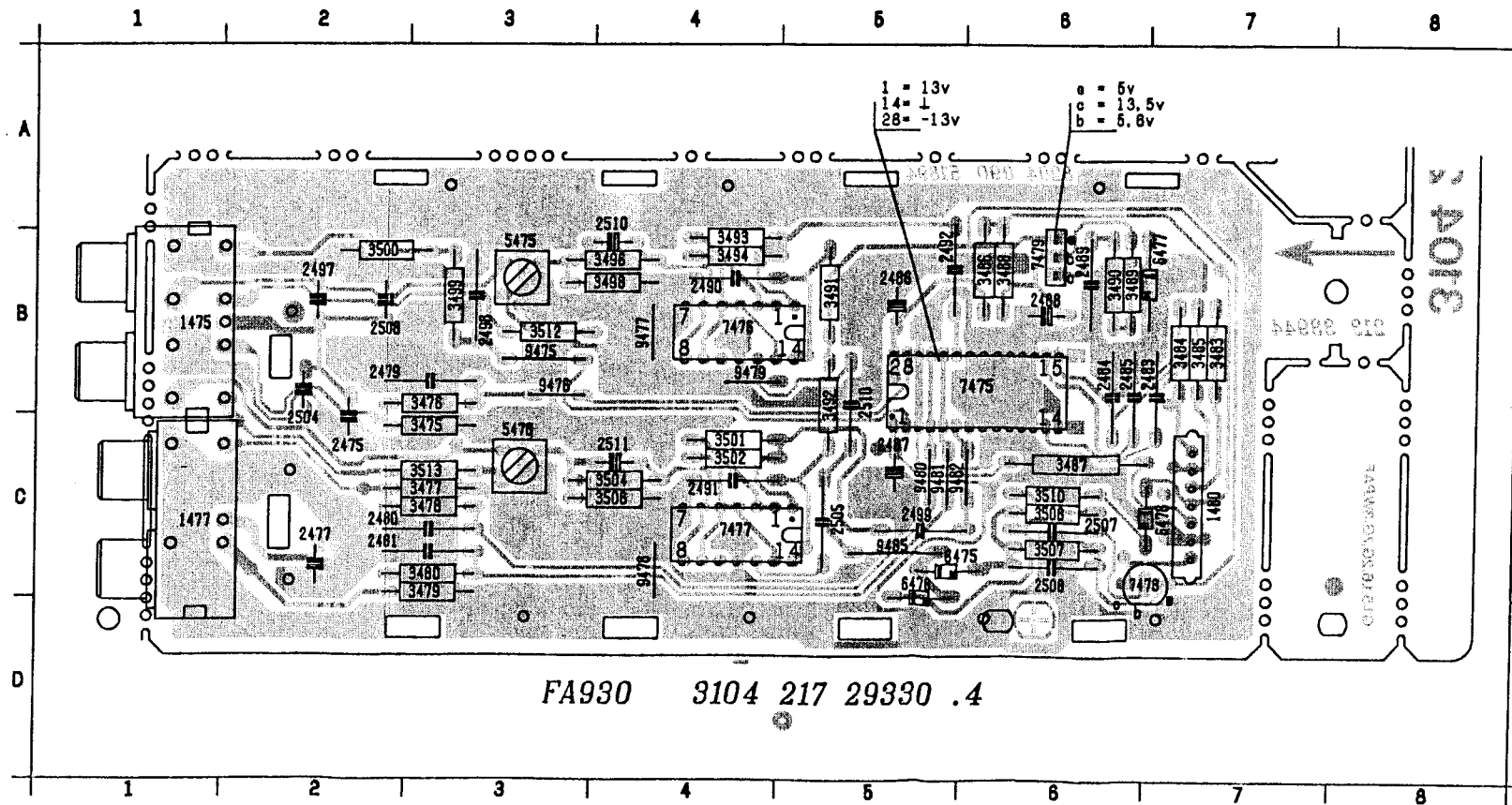
a = 13.5v  
o = 28v  
b = 15v

FA930 3104 217 29270 P-4



1475	R1
1475	R1
1475	C10
1475	F10
1477	R1
1477	C1
2475	R1
2477	D1
2478	R2
2480	C2
2481	D2
2483	E2
2484	F2
2485	F2
2486	R5
2487	R5
2488	H4
2489	I5
2490	I8
2491	H8
2492	B7
2493	C10
2498	R2
2498	F7
2504	F10
2505	R4
2508	R2
2507	R2
2508	R1
2510	R4
3475	R1
3478	B1
3477	C1
3478	B1
3478	D1
3480	C1
3483	D1
3484	E1
3485	F1
3486	R5
3487	F5
3488	H4
3489	I4
3490	I5
3491	H8
3492	I8
3493	C8
3494	R8
3498	B12
3498	C12
3498	R1
3500	R1
3501	R8
3502	E8
3504	F12
3504	F12
3507	R8
3508	R2
3510	H2
5475	C10
5478	F10
5475	R8
7478	C10
7478	C11
7478	C8
7478	D11
7478	D8
7478	I11
7477	F10
7477	F11
7477	F8
7477	H11
7477	H8
7477	I8
7478	O1
7478	H5

PG.3104-217-29330,REV.ES-UNIT

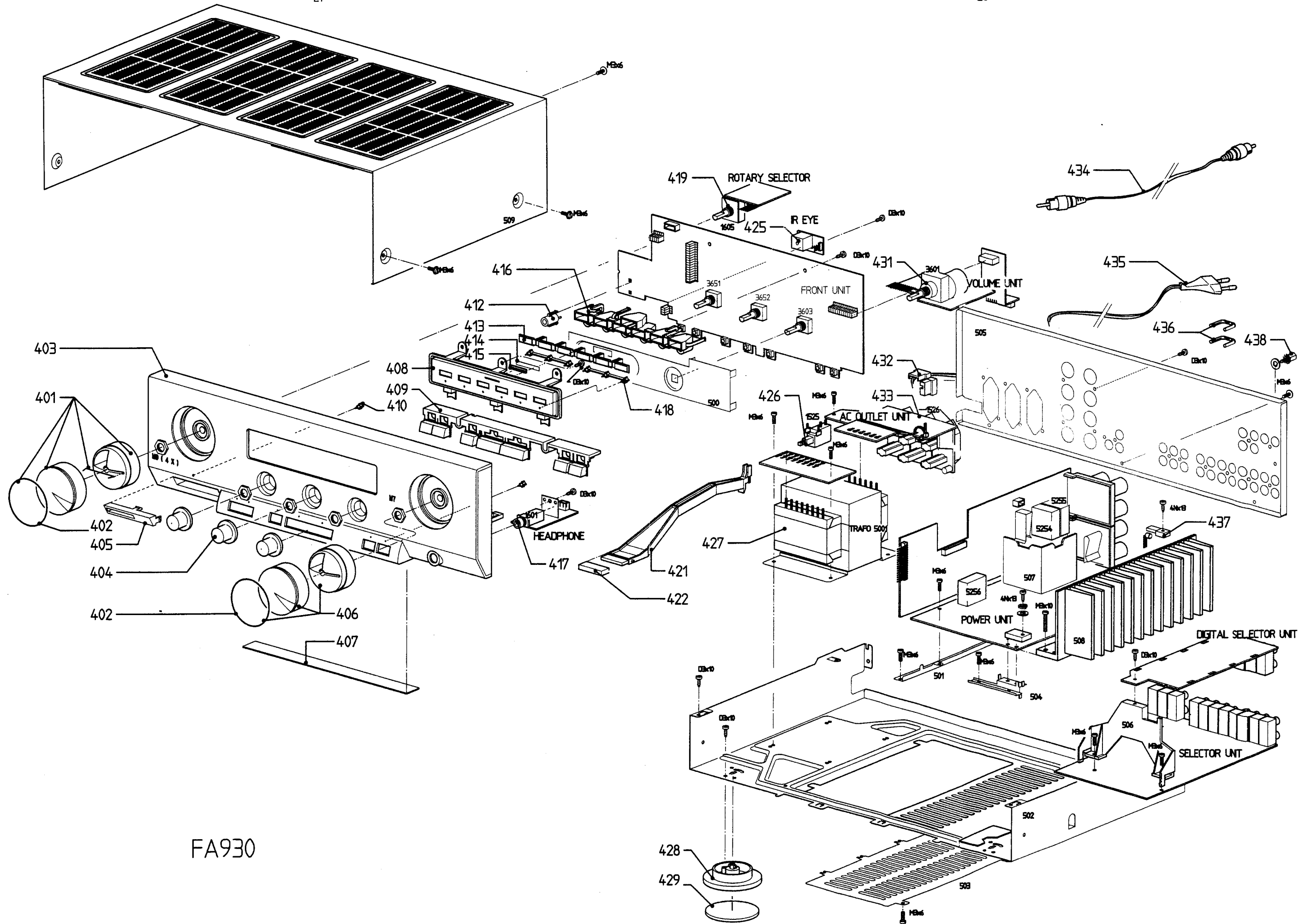


1475	B 1	3484	B 4
1477	C 1	3495	B 4
1480	C 7	3496	B 4
2475	C 2	3498	B 4
2477	C 2	3498	B 3
2479	B 2	3500	B 2
2480	C 2	3501	C 4
2481	C 2	3502	C 4
2483	B 7	3503	C 4
2484	B 6	3504	C 4
2485	B 6	3506	C 4
2486	B 5	3507	C 6
2487	C 5	3508	C 6
2488	B 6	3510	C 6
2489	B 6	3515	B 3
2490	B 4	3478	C 3
2491	C 4	3475	C 6
2492	B 5	3477	C 6
2497	B 2	3477	B 7
2498	B 3	3478	C 7
2499	C 5	3475	B 6
2504	B 2	3476	B 4
2505	C 5	3477	C 4
2506	C 6	3478	C 7
2507	C 6	3479	B 6
2508	B 2	3475	B 3
3475	C 3	3476	B 3
3476	B 3	3477	B 4
3477	C 3	3478	C 4
3478	C 3	3479	B 4
3479	D 3	3480	C 5
3480	C 3	3481	C 5
3483	B 7	3482	C 6
3484	B 7		
3485	B 7		
3486	B 6		
3487	C 6		
3488	B 6		
3489	B 6		
3490	B 6		
3491	B 5		
3492	B 5		
3493	B 4		

**MECHANICAL PARTS**

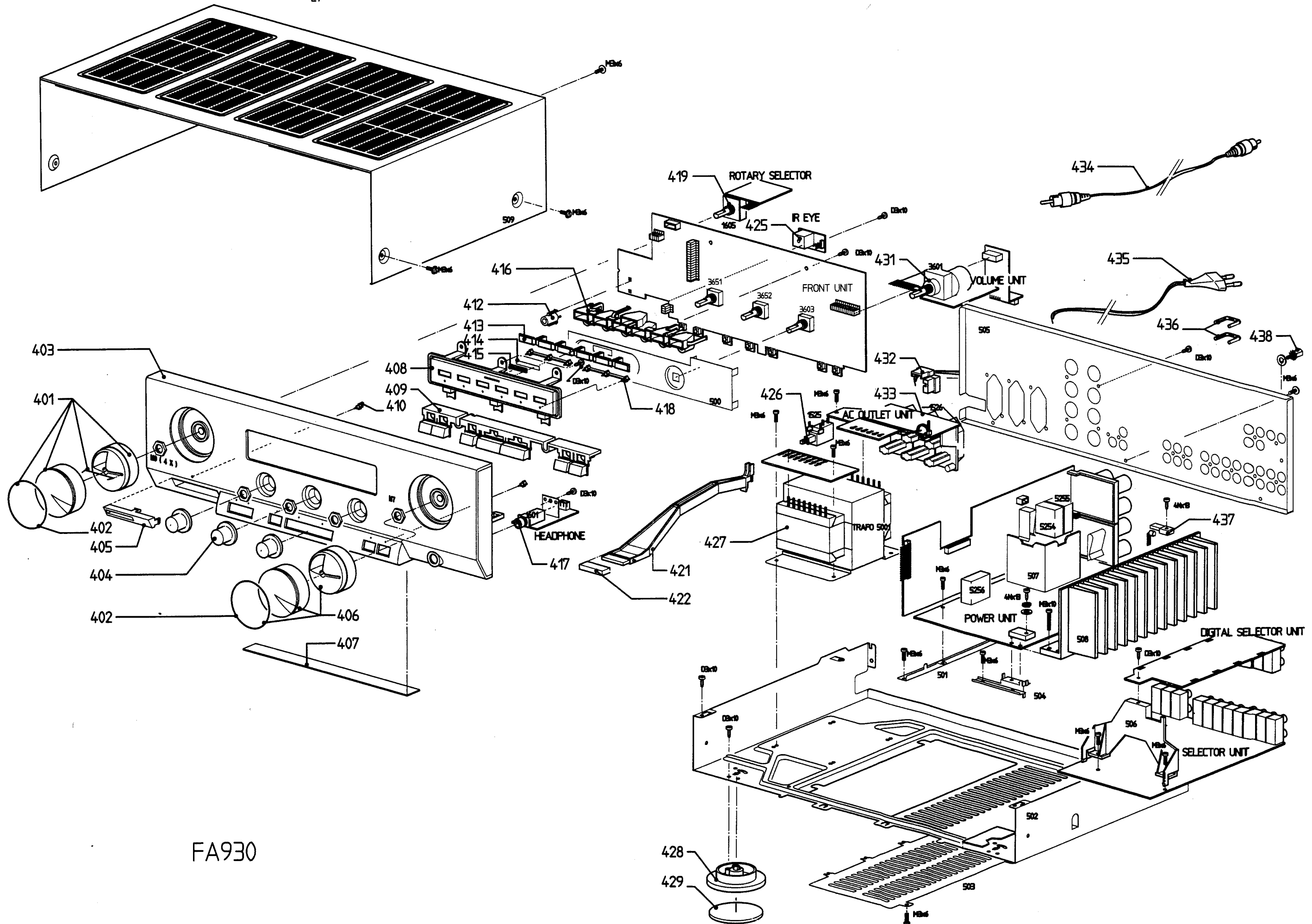
401	4822 410 61699	KNOB SOURCE SEL.ASSY
402	4822 532 21449	RUBBER RING
403	4822 426 51524	FRONT ASSY
404	4822 413 41696	KNOB ASSY
405	4822 450 61831	IR-WINDOW
406	4822 413 51399	VOLUME KNOB ASSY
407	4822 426 60621	STRIP
408	4822 454 12791	PLATE ORNAMENTAL
409	4822 410 61698	BUTTON ASSY
410	4822 380 20425	LED REFLECTOR
412	4822 255 41247	LEDHOLDER
413	4822 450 61832	WINDOW
414	4822 466 70734	DIFFUSOR
415	4822 130 91065	DIG.REFLECTOR
416	4822 466 70733	LIGHTSCREEN
417	4822 267 31453	HEADPHONE
418	4822 380 20424	REFLECTOR
419	4822 273 10237	ROTARY SWITCH
421	4822 404 21194	BRACKET
422	4822 462 71808	POWER CAP
425	4822 130 81254	IR EYE
426	4822 276 13224	POWER SWITCH
427	4822 146 31043	TRAFO
428	4822 462 41888	FOOT
429	4822 462 41887	FOOT FELT
431	4822 101 21175	VOLUME ASSY
432	4822 532 60948	BUSHING
433	4822 265 20544	MAINS OUTPUT
433	4822 265 20554	MAINS OUTPUT ONLY /05
434	4822 321 61478	CINCH CORD
435	4822 321 10789	MAINS CORD
436	4822 268 90449	JUMPER PLUG
437	4822 404 21195	TRANSISTOR BRACKET
438	4822 502 13921	PHONO GND SCREW
	4822 218 10439	REMOTE CONTROL (RH6640/01)





FA930





FA930



2624	4822 121 51409	120nF 5% 63V	3271	4822 053 10122	1k2 5% 1W
2625	4822 126 11311	4,7nF 50V	3272	4822 052 10681	680Ω 5% 0,33W
2626	4822 126 11311	4,7nF 50V	3273	4822 052 10681	680Ω 5% 0,33W
2627	4822 124 41969	1μF 20% 50V	3274	4822 050 22202	2k2 1% 0,6W
2628	4822 124 41969	1μF 20% 50V	3275	4822 050 22202	2k2 1% 0,6W
2629	4822 122 10183	100pF 5% 50V	3276	4822 050 16809	68Ω 1% 0,4W
2630	4822 122 10183	100pF 5% 50V	3277	4822 050 16809	68Ω 1% 0,4W
2631	4822 122 33997	56pF 5%NPO	3278	4822 112 41112	1k5 5% 5,8W
2632	4822 122 33997	56pF 5%NPO	3279	4822 112 41112	1k5 5% 5,8W
2633	4822 124 23176	22μF 20% 16V	3280	4822 053 12152	1k5 5% 3W
2634	4822 124 23176	22μF 20% 16V	3281	4822 053 12152	1k5 5% 3W
2635	4822 122 10166	22nF 30% 16V	3282	4822 050 22202	2k2 1% 0,6W
2636	4822 122 10166	22nF 30% 16V	3283	4822 050 22202	2k2 1% 0,6W
2637	4822 124 42368	22μF 35V	3284	4822 101 10927	470Ω
2638	4822 124 42368	22μF 35V	3285	4822 101 10927	470Ω
2639	4822 126 12018	22nF 30% 16V	3286	4822 050 28201	820Ω 1% 0,6W
2640	4822 121 51245	220nF 63V	3287	4822 050 28201	820Ω 1% 0,6W
2641	4822 124 22347	47μF 50V	3288	4822 053 10302	3k 5% 1W
2642	4822 122 31693	560pF 10% 50V	3289	4822 053 10302	3k 5% 1W
2643	4822 124 40246	4,7μF 20% 63V	3290	4822 053 10222	2k2 5% 1W
2644	4822 124 40242	1μF 20% 63V	3291	4822 053 10222	2k2 5% 1W
2661	4822 122 10166	22nF 30% 16V	3292	4822 051 10101	100Ω 2% 0,25W
2662	4822 122 10166	22nF 30% 16V	3293	4822 051 10101	100Ω 2% 0,25W
2663	4822 122 10158	1nF 10% 50V	3294	4822 050 21801	180Ω 1% 0,6W
2664	4822 121 51245	220nF 63V	3295	4822 050 21801	180Ω 1% 0,6W
2667	4822 124 23176	22μF 20% 16V	3296	4822 050 22201	220Ω 1% 0,6W
2668	4822 121 43041	560nF 10% 63V	3297	4822 050 22201	220Ω 1% 0,6W
2670	4822 121 41545	0,033μF 10% 250V	3298	4822 116 52224	470Ω 5% 0,5W
2672	4822 122 10177	10nF 20% 25V	3299	4822 116 52224	470Ω 5% 0,5W
2680	4822 122 10177	10nF 20% 25V	3300	4822 116 52263	2k7 5% 0,5W
2681	4822 122 10177	10nF 20% 25V	3301	4822 116 52263	2k7 5% 0,5W
<b>RESISTORS</b>			3302	4822 116 52224	470Ω 5% 0,5W
3250	4822 050 23302	3k3 1% 0,6W	3303	4822 116 52224	470Ω 5% 0,5W
3252	4822 050 21002	1k 1% 0,6W	3304	4822 113 80525	OR15 10% 3W
3253	4822 050 21002	1k 1% 0,6W	3305	4822 113 80525	OR15 10% 3W
3254	4822 050 22203	22k 1% 0,6W	3306	4822 113 80525	OR15 10% 3W
3255	4822 050 24703	47k 1% 0,6W	3307	4822 113 80525	OR15 10% 3W
3256	4822 050 21003	10k 1% 0,6W	3308	4822 050 28203	82k 1% 0,6W
3257	4822 050 24703	47k 1% 0,6W	3309	4822 050 28203	82k 1% 0,6W
3258	4822 050 22203	22k 1% 0,6W	3310	4822 050 22204	220k 1% 0,6W
3259	4822 050 22203	22k 1% 0,6W	3311	4822 050 22203	22k 1% 0,6W
3260	4822 050 24703	47k 1% 0,6W	3312	4822 050 13303	33k 1% 0,4W
3261	4822 050 24703	47k 1% 0,6W	3313	4822 050 22203	22k 1% 0,6W
3262	4822 050 21803	18k 1% 0,6W	3314	4822 050 26803	68k 1% 0,6W
3263	4822 050 24703	47k 1% 0,6W	3315	4822 050 21501	150Ω 1% 0,6W
3264	4822 050 21002	1k 1% 0,6W	3316	4822 050 24702	4k7 1% 0,6W
3265	4822 050 21002	1k 1% 0,6W	3318	4822 050 21002	1k 1% 0,6W
3266	4822 116 52224	470Ω 5% 0,5W	3319	4822 050 21002	1k 1% 0,6W
3267	4822 116 52224	470Ω 5% 0,5W	3320	4822 050 21003	10k 1% 0,6W
3268	4822 050 22203	22k 1% 0,6W	3321	4822 050 21003	10k 1% 0,6W
3269	4822 050 22203	22k 1% 0,6W	3328	4822 050 21502	1k5 1% 0,6W
3270	4822 053 10122	1k2 5% 1W	3329	4822 050 21502	1k5 1% 0,6W
			3330	4822 050 21003	10k 1% 0,6W
			3331	4822 050 21003	10k 1% 0,6W
			3332	4822 050 23302	3k3 1% 0,6W
			3333	4822 116 80564	220Ω 5%

3340	4822 050 22204	220k 1% 0,6W	3429	4822 051 10101	100Ω 2% 0,25W
3341	4822 050 22204	220k 1% 0,6W	3430	4822 051 10101	100Ω 2% 0,25W
3342	4822 116 80562	10Ω 5%	3431	4822 051 10101	100Ω 2% 0,25W
3343	4822 116 80311	4Q7 5%	3432	4822 051 10101	100Ω 2% 0,25W
3344	4822 050 21802	1k8 1% 0,6W	3433	4822 051 10101	100Ω 2% 0,25W
3345	4822 050 21202	1k2 1% 0,6W	3434	4822 051 10101	100Ω 2% 0,25W
3346	4822 053 12391	390Ω 5% 3W	3435	4822 051 10101	100Ω 2% 0,25W
3347	4822 053 12391	390Ω 5% 3W	3436	4822 051 10101	100Ω 2% 0,25W
3348	4822 050 21201	120Ω 1% 0,6W	3437	4822 051 10101	100Ω 2% 0,25W
3349	4822 050 21201	SFR25H	3438	4822 051 10101	100Ω 2% 0,25W
3350	4822 052 10229	22Ω 5% 0,33W	3439	4822 051 10101	100Ω 2% 0,25W
3354	4822 116 52224	470Ω 5% 0,5W	3440	4822 051 10101	100Ω 2% 0,25W
3355	4822 116 52224	470Ω 5% 0,5W	3441	4822 051 10101	100Ω 2% 0,25W
3356	4822 051 10101	100Ω 2% 0,25W	3442	4822 051 10101	100Ω 2% 0,25W
3357	4822 051 10101	100Ω 2% 0,25W	3443	4822 116 52217	270Ω 5% 0,5W
3358	4822 116 80311	4Q7 5%	3444	4822 116 52217	270Ω 5% 0,5W
3359	4822 116 80311	4Q7 5%	3445	4822 116 52217	270Ω 5% 0,5W
3360	4822 116 80562	10Ω 5%	3446	4822 116 52217	270Ω 5% 0,5W
3361	4822 116 80562	10Ω 5%	3447	4822 050 23302	3k3 1% 0,6W
3364	4822 050 22204	220k 1% 0,6W	3448	4822 050 23302	3k3 1% 0,6W
3365	4822 050 22204	220k 1% 0,6W	3455	4822 050 28209	82Ω 1% 0,6W
3368	4822 116 80562	10Ω 5%	3475	4822 050 16809	68Ω 1% 0,4W
3369	4822 116 80562	10Ω 5%	3476	4822 051 10101	100Ω 2% 0,25W
3370	4822 050 22203	22k 1% 0,6W	3477	4822 050 16809	68Ω 1% 0,4W
3371	4822 050 22203	22k 1% 0,6W	3478	4822 051 10101	100Ω 2% 0,25W
3372	4822 050 22203	22k 1% 0,6W	3479	4822 050 16809	68Ω 1% 0,4W
3401	4822 050 23901	390Ω 1% 0,6W	3480	4822 051 10101	100Ω 2% 0,25W
3402	4822 050 23901	390Ω 1% 0,6W	3483	4822 050 21002	1k 1% 0,6W
3403	4822 116 52272	330k 5% 0,5W	3484	4822 050 21002	1k 1% 0,6W
3404	4822 116 52272	330k 5% 0,5W	3485	4822 050 21002	1k 1% 0,6W
3405	4822 050 25603	56k 1% 0,6W	3486	4822 116 52217	270Ω 5% 0,5W
3406	4822 050 25603	56k 1% 0,6W	3487	4822 116 52217	270Ω 5% 0,5W
3407	4822 050 23901	390Ω 1% 0,6W	3488	4822 116 80335	47Ω
3408	4822 050 23901	390Ω 1% 0,6W	3489	4822 050 21002	1k 1% 0,6W
3409	4822 051 10101	100Ω 2% 0,25W	3490	4822 050 28209	82Ω 1% 0,6W
3410	4822 051 10101	100Ω 2% 0,25W	3491	4822 116 80335	47Ω
3411	4822 051 10561	560Ω 2% 0,25W	3492	4822 116 80335	47Ω
3412	4822 051 10561	560Ω 2% 0,25W	3493	4822 116 52263	2k7 5% 0,5W
3413	4822 116 52272	330k 5% 0,5W	3494	4822 050 21803	18k 1% 0,6W
3414	4822 116 52272	330k 5% 0,5W	3495	4822 050 21002	1k 1% 0,6W
3415	4822 116 52264	27k 5% 0,5W	3496	4822 051 10561	560Ω 2% 0,25W
3416	4822 116 52264	27k 5% 0,5W	3498	4822 050 26201	620Ω 1% 0,6W
3417	4822 051 10101	100Ω 2% 0,25W	3499	4822 051 10101	100Ω 2% 0,25W
3418	4822 051 10101	100Ω 2% 0,25W	3500	4822 050 16809	68Ω 1% 0,4W
3419	4822 116 52234	100k 5% 0,5W	3501	4822 116 52263	2k7 5% 0,5W
3420	4822 116 52234	100k 5% 0,5W	3502	4822 050 21803	18k 1% 0,6W
3421	4822 050 22201	220Ω 1% 0,6W	3503	4822 050 21002	1k 1% 0,6W
3422	4822 050 22201	220Ω 1% 0,6W	3504	4822 051 10561	560Ω 2% 0,25W
3423	4822 051 10101	100Ω 2% 0,25W	3506	4822 050 26201	620Ω 1% 0,6W
3424	4822 051 10101	100Ω 2% 0,25W	3507	4822 050 21003	10k 1% 0,6W
3425	4822 051 10101	100Ω 2% 0,25W	3508	4822 050 26802	6k8 1% 0,6W
3426	4822 051 10101	100Ω 2% 0,25W	3600	4822 050 24702	4k7 1% 0,6W
3427	4822 051 10101	100Ω 2% 0,25W	3601	4822 101 21175	50k
3428	4822 051 10101	100Ω 2% 0,25W	3603	4822 101 21176	100k

3605	4822 050 15602	5k6	1%	0,4W	3668	4822 050 15602	5k6	1%	0,4W
3606	4822 050 15602	5k6	1%	0,4W	3669	4822 050 21005	1M	1%	0,6W
3607	4822 050 21203	12k	1%	0,6W	3670	4822 050 21003	10k	1%	0,6W
3608	4822 050 21203	12k	1%	0,6W	3671	4822 116 52197	56Ω	5%	0,5W
3609	4822 050 21002	1k	1%	0,6W	3672	4822 050 21003	10k	1%	0,6W
3610	4822 050 21002	1k	1%	0,6W	3673	4822 050 21005	1M	1%	0,6W
3611	4822 050 13303	33k	1%	0,4W	3674	4822 050 21005	1M	1%	0,6W
3612	4822 050 13303	33k	1%	0,4W	3675	4822 050 23901	390Ω	1%	0,6W
3613	4822 050 21002	1k	1%	0,6W	3676	4822 051 10182	1k8	2%	0,25W
3614	4822 050 21002	1k	1%	0,6W	3677	4822 050 21003	10k	1%	0,6W
3615	4822 050 21002	1k	1%	0,6W	3678	4822 116 82366	2Ω		
3616	4822 050 21002	1k	1%	0,6W	3679	4822 053 11159	15Ω	5%	2W
3617	4822 050 22202	2k2	1%	0,6W	3680	4822 050 23302	3k3	1%	0,6W
3618	4822 050 22202	2k2	1%	0,6W	3681	4822 050 24703	47k	1%	0,6W
3619	4822 116 80335	47Ω			3682	4822 050 21003	10k	1%	0,6W
3620	4822 116 80335	47Ω			3693	4822 116 80311	4Ω	7%	5%
3621	4822 051 10101	100Ω	2%	0,25W	3696	4822 051 10561	560Ω	2%	0,25W
3622	4822 051 10101	100Ω	2%	0,25W	3697	4822 051 10561	560Ω	2%	0,25W
3623	4822 050 24702	4k7	1%	0,6W	3698	4822 051 10561	560Ω	2%	0,25W
3624	4822 050 24702	4k7	1%	0,6W	3699	4822 051 10561	560Ω	2%	0,25W
3625	4822 051 10561	560Ω	2%	0,25W	3700	4822 051 10561	560Ω	2%	0,25W
3626	4822 051 10561	560Ω	2%	0,25W	3701	4822 051 10561	560Ω	2%	0,25W
3627	4822 050 24702	4k7	1%	0,6W	3702	4822 051 10561	560Ω	2%	0,25W
3628	4822 050 24702	4k7	1%	0,6W	3703	4822 051 10561	560Ω	2%	0,25W
3629	4822 051 10561	560Ω	2%	0,25W	3704	4822 051 10561	560Ω	2%	0,25W
3630	4822 051 10561	560Ω	2%	0,25W	3705	4822 050 21002	1k	1%	0,6W
3631	4822 050 22202	2k2	1%	0,6W	3706	4822 050 21002	1k	1%	0,6W
3632	4822 050 22202	2k2	1%	0,6W	3708	4822 050 21002	1k	1%	0,6W
3636	4822 050 21002	1k	1%	0,6W	3709	4822 050 21002	1k	1%	0,6W
3637	4822 050 21002	1k	1%	0,6W	3710	4822 050 21002	1k	1%	0,6W
3639	4822 116 52234	100k	5%	0,5W	3711	4822 050 21002	1k	1%	0,6W
3640	4822 050 24703	47k	1%	0,6W	3714	4822 050 21002	1k	1%	0,6W
3641	4822 050 24703	47k	1%	0,6W	3716	4822 050 22202	2k2	1%	0,6W
3645	4822 050 28209	82Ω	1%	0,6W	3717	4822 050 22202	2k2	1%	0,6W
3646	4822 050 28209	82Ω	1%	0,6W	3718	4822 050 22202	2k2	1%	0,6W
3647	4822 050 24702	4k7	1%	0,6W	3719	4822 050 22202	2k2	1%	0,6W
3648	4822 050 24702	4k7	1%	0,6W	3720	4822 050 22202	2k2	1%	0,6W
3649	4822 051 10182	1k8	2%	0,25W	3721	4822 050 22202	2k2	1%	0,6W
3650	4822 051 10182	1k8	2%	0,25W	3722	4822 050 22202	2k2	1%	0,6W
3651	4822 101 21177	20k			3724	4822 050 21003	10k	1%	0,6W
3652	4822 101 21177	20k			3726	4822 050 21003	10k	1%	0,6W
3653	4822 050 24702	4k7	1%	0,6W	3728	4822 050 21803	18k	1%	0,6W
3654	4822 050 24702	4k7	1%	0,6W	3730	4822 116 52264	27k	5%	0,5W
3655	4822 051 10182	1k8	2%	0,25W	3731	4822 116 52264	27k	5%	0,5W
3656	4822 051 10182	1k8	2%	0,25W	3732	4822 116 52264	27k	5%	0,5W
3657	4822 050 21801	180Ω	1%	0,6W	3733	4822 116 52264	27k	5%	0,5W
3658	4822 050 21801	180Ω	1%	0,6W	3734	4822 116 52264	27k	5%	0,5W
3659	4822 051 10101	100Ω	2%	0,25W	3739	4822 050 24703	47k	1%	0,6W
3660	4822 051 10101	100Ω	2%	0,25W	3740	4822 050 24703	47k	1%	0,6W
3661	4822 050 25604	560k	1%	0,6W	3741	4822 050 24703	47k	1%	0,6W
3662	4822 050 25604	560k	1%	0,6W	3742	4822 050 24703	47k	1%	0,6W
3665	4822 116 80335	47Ω			3744	4822 050 22203	22k	1%	0,6W
3666	4822 116 80335	47Ω			3745	4822 116 52235	1M	5%	0,5W
3667	4822 050 15602	5k6	1%	0,4W	3750	4822 050 24702	4k7	1%	0,6W
					3751	4822 050 24702	4k7	1%	0,6W

3752	4822 050 24702	4k7 1% 0,6W	6286	4822 130 30621	1N4148
3753	4822 050 24702	4k7 1% 0,6W	6287	4822 130 30621	1N4148
<b>COILS</b>			6288	4822 130 30621	1N4148
5001	4822 146 31043	Mains Trafo	6289	4822 130 30621	1N4148
5252	4822 157 62255	Coil	6290	4822 130 30621	1N4148
5253	4822 157 62255	Coil	6291	4822 130 30621	1N4148
5254	4822 280 70368	Relay 36V	6292	4822 130 30621	1N4148
5255	4822 280 70368	Relay 36V	6293	4822 130 30621	1N4148
5256	4822 280 70368	Relay 36V	6294	4822 130 30621	1N4148
5475	4822 148 80281	Coil	6295	4822 130 30621	1N4148
5476	4822 148 80281	Coil	6296	4822 130 30621	1N4148
5601	4822 101 21178	Coil	6297	4822 130 30621	1N4148
5602	4822 101 21178	Coil	6298	4822 130 34281	BZX79-C15
5605	4822 242 72527	Resonator	6299	4822 130 30621	1N4148
<b>DIODES</b>			6301	4822 130 34499	BZX79-C20
6250	4822 130 61219	BZX79-C10	6302	4822 130 34268	BZX79-C16
6251	4822 130 61219	BZX79-C10	6401	4822 130 31253	BZX79-C2V4
6252	4822 130 61219	BZX79-C10	6475	4822 130 30621	1N4148
6253	4822 130 61219	BZX79-C10	6476	4822 130 30621	1N4148
6254	4822 130 30621	1N4148	6477	4822 130 34173	BZX79-C5V6
6255	4822 130 30621	1N4148	6601	4822 130 30621	1N4148
6256	4822 130 30842	BAV21	6603	4822 130 30621	1N4148
6257	4822 130 30842	BAV21	6604	4822 130 34278	BZX79-C6V8
6258	5322 130 34563	BZX79-C2V7	6605	4822 130 34278	BZX79-C6V8
6259	5322 130 34563	BZX79-C2V7	6606	4822 130 30621	1N4148
6260	4822 130 80235	BZX79-C3V3	6607	4822 130 30621	1N4148
6261	4822 130 80235	BZX79-C3V3	6608	4822 130 30621	1N4148
6262	4822 130 30842	BAV21	6609	4822 130 30621	1N4148
6263	4822 130 30842	BAV21	6610	4822 130 30621	1N4148
6264	4822 130 32213	BYV28-50	6611	4822 130 30621	1N4148
6265	4822 130 32213	BYV28-50	6612	4822 130 34233	BZX79-C5V1
6266	4822 130 32213	BYV28-50	6613	4822 130 31253	BZX79-C2V4
6267	4822 130 32213	BYV28-50	6614	4822 130 34167	BZX79-C6V2
6268	4822 130 30621	1N4148	6615	4822 130 34174	BZX79-C4V7
6269	4822 130 30621	1N4148	6616	4822 130 34167	BZX79-C6V2
6270	4822 130 30621	1N4148	6632	4822 130 30621	1N4148
6271	4822 130 30621	1N4148	6633	4822 130 30621	1N4148
6272	4822 130 30621	1N4148	6634	4822 130 30621	1N4148
6273	4822 130 34278	BZX79-C6V8	6635	4822 130 82911	LED
6274	4822 130 30621	1N4148	6636	4822 130 82911	LED
6275	4822 130 30621	1N4148	6637	4822 130 82911	LED
6276	4822 130 30621	1N4148	6638	4822 130 82911	LED
6277	4822 130 30621	1N4148	6639	4822 130 82911	LED
6278	5322 130 30684	1N4002GP	6640	4822 130 82911	LED
6279	5322 130 30684	1N4002GP	6641	4822 130 82911	LED
6280	5322 130 30684	1N4002GP	6642	4822 130 82911	LED
6281	5322 130 30684	1N4002GP	6643	4822 130 82911	LED
6282	4822 130 34281	BZX79-C15	6644	4822 130 82911	LED
6283	4822 130 82078	D5SBA20	6645	4822 130 82911	LED
6284	4822 130 82079	D3SBA20	6646	4822 130 82911	LED
			6647	4822 130 82911	LED
			6648	4822 130 82911	LED
			6690	5322 130 34834	BZX79-C3V6
			6691	5322 130 34834	BZX79-C3V6



2615	4822 122 10166	22nF 30% 16V	3260	4822 050 24703	47k 1% 0,6W
2616	4822 122 10166	22nF 30% 16V	3261	4822 050 24703	47k 1% 0,6W
2617	4822 122 10177	10nF 20% 25V	3262	4822 050 21803	18k 1% 0,6W
2618	4822 124 40242	1µF 20% 63V	3263	4822 050 24703	47k 1% 0,6W
2619	4822 122 10177	10nF 20% 25V	3264	4822 050 21002	1k 1% 0,6W
2621	4822 121 51409	120nF 5% 63V	3265	4822 050 21002	1k 1% 0,6W
2622	4822 121 51409	120nF 5% 63V	3266	4822 050 23301	MET FLM 330Ω
2623	4822 121 51409	120nF 5% 63V	3267	4822 050 23301	MET FLM 330Ω
2624	4822 121 51409	120nF 5% 63V	3268	4822 050 22203	22k 1% 0,6W
2625	4822 126 11311	4,7nF 50V	3269	4822 050 22203	22k 1% 0,6W
2626	4822 126 11311	4,7nF 50V	3270	4822 053 10122	1k2 5% 1W
2627	4822 124 41969	1µF 20% 50V	3271	4822 053 10122	1k2 5% 1W
2628	4822 124 41969	1µF 20% 50V	3272	4822 052 10681	680Ω 5% 0,33W
2629	4822 122 10183	100pF 5% 50V	3273	4822 052 10681	680Ω 5% 0,33W
2630	4822 122 10183	100pF 5% 50V	3274	4822 050 22202	2k2 1% 0,6W
2631	4822 122 33997	56pF 5%NPO	3275	4822 050 22202	2k2 1% 0,6W
2632	4822 122 33997	56pF 5%NPO	3276	4822 050 16809	68Ω 1% 0,4W
2633	4822 124 23176	22µF 20% 16V	3277	4822 050 16809	68Ω 1% 0,4W
2634	4822 124 23176	22µF 20% 16V	3278	4822 112 41112	1k5 5% 5,8W
2635	4822 122 10166	22nF 30% 16V	3279	4822 112 41112	1k5 5% 5,8W
2636	4822 122 10166	22nF 30% 16V	3280	4822 053 12152	1k5 5% 3W
2637	4822 124 42368	22µF 35V	3281	4822 053 12152	1k5 5% 3W
2638	4822 124 42368	22µF 35V	3282	4822 050 22202	2k2 1% 0,6W
2639	4822 122 10166	CERC TUB 22N	3283	4822 050 22202	2k2 1% 0,6W
2640	4822 121 42408	220nF 5% 63V	3284	4822 101 10927	470Ω
2641	4822 124 22347	47µF 50V	3285	4822 101 10927	470Ω
2642	4822 122 31693	560pF 10% 50V	3286	4822 116 52224	470Ω 5% 0,5W
2643	4822 124 40246	4,7µF 20% 63V	3287	4822 116 52224	470Ω 5% 0,5W
2644	4822 124 40242	1µF 20% 63V	3288	4822 053 10302	3k 5% 1W
2661	4822 122 10166	22nF 30% 16V	3289	4822 053 10302	3k 5% 1W
2662	4822 122 10166	22nF 30% 16V	3290	4822 053 10222	2k2 5% 1W
2663	4822 126 11311	CERAMIC 4N7	3291	4822 053 10222	2k2 5% 1W
2664	4822 121 42408	220nF 5% 63V	3292	4822 051 10101	100Ω 2% 0,25W
2667	4822 124 23176	22µF 20% 16V	3293	4822 051 10101	100Ω 2% 0,25W
2668	4822 121 51412	560nF 5% 63V	3294	4822 116 52217	270Ω 5% 0,5W
2669	5322 121 42498	POL 680N	3295	4822 116 52217	270Ω 5% 0,5W
2670	5322 121 42498	POL 680N	3296	4822 116 52217	270Ω 5% 0,5W
2672	4822 126 11311	CERAMIC 4N7	3297	4822 116 52217	270Ω 5% 0,5W
2680	4822 122 10177	10nF 20% 25V	3298	4822 116 52224	470Ω 5% 0,5W
2681	4822 122 10177	10nF 20% 25V	3299	4822 116 52224	470Ω 5% 0,5W
<b>RESISTORS</b>			3300	4822 116 52263	2k7 5% 0,5W
3250	4822 050 23302	3k3 1% 0,6W	3301	4822 116 52263	2k7 5% 0,5W
3251	4822 050 24703	47k 1% 0,6W	3302	4822 116 52224	470Ω 5% 0,5W
3252	4822 050 21002	1k 1% 0,6W	3303	4822 116 52224	470Ω 5% 0,5W
3253	4822 050 21002	1k 1% 0,6W	3304	4822 113 80525	OR15 10% 3W
3254	4822 050 22203	22k 1% 0,6W	3305	4822 113 80525	OR15 10% 3W
3255	4822 050 24703	47k 1% 0,6W	3306	4822 113 80525	OR15 10% 3W
3256	4822 050 21003	10k 1% 0,6W	3307	4822 113 80525	OR15 10% 3W
3257	4822 050 24703	47k 1% 0,6W	3308	4822 050 28203	82k 1% 0,6W
3258	4822 050 22203	22k 1% 0,6W	3309	4822 050 28203	82k 1% 0,6W
3259	4822 050 22203	22k 1% 0,6W	3310	4822 050 21204	120k 1% 0,6W
			3311	4822 050 22203	22k 1% 0,6W
			3312	4822 050 13303	33k 1% 0,4W
			3313	4822 050 22203	22k 1% 0,6W

3314	4822 050 26803	68k 1% 0,6W	3418	4822 051 10101	100Ω 2% 0,25W
3315	4822 050 21501	150Ω 1% 0,6W	3419	4822 116 52234	100k 5% 0,5W
3316	4822 050 24702	4k7 1% 0,6W	3420	4822 116 52234	100k 5% 0,5W
3318	4822 050 21002	1k 1% 0,6W	3421	4822 116 52217	270Ω 5% 0,5W
3319	4822 050 21002	1k 1% 0,6W	3422	4822 116 52217	270Ω 5% 0,5W
3320	4822 050 21003	10k 1% 0,6W	3423	4822 051 10101	100Ω 2% 0,25W
3321	4822 050 21003	10k 1% 0,6W	3424	4822 051 10101	100Ω 2% 0,25W
3328	4822 050 21502	1k5 1% 0,6W	3425	4822 051 10101	100Ω 2% 0,25W
3329	4822 050 21502	1k5 1% 0,6W	3426	4822 051 10101	100Ω 2% 0,25W
3330	4822 050 21003	10k 1% 0,6W	3427	4822 051 10101	100Ω 2% 0,25W
3331	4822 050 21003	10k 1% 0,6W	3428	4822 051 10101	100Ω 2% 0,25W
3332	4822 050 23302	3k3 1% 0,6W	3429	4822 051 10101	100Ω 2% 0,25W
3333	4822 052 10221	220Ω 5% 0,33W	3430	4822 051 10101	100Ω 2% 0,25W
3340	4822 050 22204	220k 1% 0,6W	3431	4822 051 10101	100Ω 2% 0,25W
3341	4822 050 22204	220k 1% 0,6W	3432	4822 051 10101	100Ω 2% 0,25W
3342	4822 052 10109	10Ω 5% 0,33W	3433	4822 051 10101	100Ω 2% 0,25W
3343	4822 052 10478	4Ω7 5% 0,33W	3434	4822 051 10101	100Ω 2% 0,25W
3344	4822 050 21802	1k8 1% 0,6W	3435	4822 051 10101	100Ω 2% 0,25W
3345	4822 050 21202	1k2 1% 0,6W	3436	4822 051 10101	100Ω 2% 0,25W
3346	4822 053 12391	390Ω 5% 3W	3437	4822 051 10101	100Ω 2% 0,25W
3347	4822 053 12391	390Ω 5% 3W	3438	4822 051 10101	100Ω 2% 0,25W
3348	4822 050 21201	120Ω 1% 0,6W	3439	4822 051 10101	100Ω 2% 0,25W
3349	4822 050 21201	120Ω 1% 0,6W	3440	4822 051 10101	100Ω 2% 0,25W
3359	4822 052 10229	22Ω 5% 0,33W	3441	4822 051 10101	100Ω 2% 0,25W
3354	4822 116 52224	470Ω 5% 0,5W	3442	4822 051 10101	100Ω 2% 0,25W
3355	4822 116 52224	470Ω 5% 0,5W	3443	4822 116 52217	270Ω 5% 0,5W
3356	4822 051 10101	100Ω 2% 0,25W	3444	4822 116 52217	270Ω 5% 0,5W
3357	4822 051 10101	100Ω 2% 0,25W	3445	4822 116 52217	270Ω 5% 0,5W
3358	4822 052 10478	4Ω7 5% 0,33W	3446	4822 116 52217	270Ω 5% 0,5W
3359	4822 052 10478	4Ω7 5% 0,33W	3447	4822 050 23302	3k3 1% 0,6W
3360	4822 052 10479	47Ω 5% 0,33W	3448	4822 050 23302	3k3 1% 0,6W
3361	4822 052 10479	47Ω 5% 0,33W	3455	4822 050 28209	82Ω 1% 0,6W
3364	4822 050 22204	220k 1% 0,6W	3475	4822 050 28209	FLMRST 82Ω
3365	4822 050 22204	220k 1% 0,6W	3476	4822 050 11009	FLMRST 10Ω
3370	4822 050 22203	22k 1% 0,6W	3477	4822 050 28209	FLMRST 82Ω
3371	4822 050 22203	22k 1% 0,6W	3478	4822 050 11009	FLMRST 10Ω
3372	4822 050 22203	22k 1% 0,6W	3479	4822 050 28209	FLMRST 82Ω
3401	4822 050 23901	390Ω 1% 0,6W	3480	4822 050 11009	FLMRST 10Ω
3402	4822 050 23901	390Ω 1% 0,6W	3483	4822 050 21002	1k 1% 0,6W
3403	4822 116 52272	330k 5% 0,5W	3484	4822 050 21002	1k 1% 0,6W
3404	4822 116 52272	330k 5% 0,5W	3485	4822 050 21002	1k 1% 0,6W
3405	4822 050 25603	56k 1% 0,6W	3486	4822 116 52217	270Ω 5% 0,5W
3406	4822 050 25603	56k 1% 0,6W	3487	4822 116 52217	270Ω 5% 0,5W
3407	4822 050 23901	390Ω 1% 0,6W	3488	4822 052 10479	47Ω 5% 0,33W
3408	4822 050 23901	390Ω 1% 0,6W	3489	4822 050 21002	1k 1% 0,6W
3409	4822 051 10101	100Ω 2% 0,25W	3490	4822 050 28209	82Ω 1% 0,6W
3410	4822 051 10101	100Ω 2% 0,25W	3491	4822 052 10479	47Ω 5% 0,33W
3411	4822 051 10561	560Ω 2% 0,25W	3492	4822 052 10479	47Ω 5% 0,33W
3412	4822 051 10561	560Ω 2% 0,25W	3493	4822 050 21002	1k 1% 0,6W
3413	4822 116 52272	330k 5% 0,5W	3494	4822 050 23302	3k3 1% 0,6W
3414	4822 116 52272	330k 5% 0,5W	3496	4822 051 10561	560Ω 2% 0,25W
3415	4822 116 52264	27k 5% 0,5W	3498	4822 050 26201	620Ω 1% 0,6W
3416	4822 116 52264	27k 5% 0,5W	3499	4822 050 11009	10Ω 1% 0,4W
3417	4822 051 10101	100Ω 2% 0,25W	3500	4822 050 28209	FLMRST 82Ω

3501	4822 050 21002	1k 1% 0,6W	3656	4822 051 10182	1k8 2% 0,25W
3502	4822 050 23302	3k3 1% 0,6W	3657	4822 050 21801	180Ω 1% 0,6W
3504	4822 051 10561	560Ω 2% 0,25W	3658	4822 050 21801	180Ω 1% 0,6W
3506	4822 050 26201	620Ω 1% 0,6W	3659	4822 051 10101	100Ω 2% 0,25W
3507	4822 050 21003	10k 1% 0,6W	3660	4822 051 10101	100Ω 2% 0,25W
3508	4822 050 26802	6k8 1% 0,6W	3661	4822 050 25604	560k 1% 0,6W
3510	4822 050 21003	10k 1% 0,6W	3662	4822 050 25604	560k 1% 0,6W
3600	4822 050 24702	4k7 1% 0,6W	3665	4822 052 10479	47Ω 5% 0,33W
3601	4822 101 21175	50k	3666	4822 052 10479	47Ω 5% 0,33W
3603	4822 101 21176	100k	3667	4822 050 15602	5k6 1% 0,4W
3605	4822 050 15602	5k6 1% 0,4W	3668	4822 050 15602	5k6 1% 0,4W
3606	4822 050 15602	5k6 1% 0,4W	3669	4822 050 21005	1M 1% 0,6W
3607	4822 050 24703	MET FLM RES 47k	3670	4822 050 21003	10k 1% 0,6W
3608	4822 050 24703	MET FLM RES 47k	3671	4822 116 52197	56Ω 5% 0,5W
3609	4822 050 21002	1k 1% 0,6W	3672	4822 050 21003	10k 1% 0,6W
3610	4822 050 21002	1k 1% 0,6W	3673	4822 050 21005	1M 1% 0,6W
3611	4822 050 13303	33k 1% 0,4W	3674	4822 050 21005	1M 1% 0,6W
3612	4822 050 13303	33k 1% 0,4W	3675	4822 050 23901	390Ω 1% 0,6W
3613	4822 050 21002	1k 1% 0,6W	3676	4822 051 10182	1k8 2% 0,25W
3614	4822 050 21002	1k 1% 0,6W	3677	4822 050 21003	10k 1% 0,6W
3615	4822 050 21002	1k 1% 0,6W	3678	4822 052 10228	2Ω 5% 0,33W
3616	4822 050 21002	1k 1% 0,6W	3679	4822 053 11159	15Ω 5% 2W
3617	4822 050 22202	2k2 1% 0,6W	3680	4822 050 23302	3k3 1% 0,6W
3618	4822 050 22202	2k2 1% 0,6W	3693	4822 052 10478	4Ω 5% 0,33W
3619	4822 052 10479	47Ω 5% 0,33W	3696	4822 116 52217	270Ω 5% 0,5W
3620	4822 052 10479	47Ω 5% 0,33W	3697	4822 116 52217	270Ω 5% 0,5W
3621	4822 051 10101	100Ω 2% 0,25W	3698	4822 116 52217	270Ω 5% 0,5W
3622	4822 051 10101	100Ω 2% 0,25W	3699	4822 116 52217	270Ω 5% 0,5W
3623	4822 050 24702	4k7 1% 0,6W	3700	4822 116 52217	270Ω 5% 0,5W
3624	4822 050 24702	4k7 1% 0,6W	3701	4822 116 52217	270Ω 5% 0,5W
3625	4822 051 10561	560Ω 2% 0,25W	3702	4822 116 52217	270Ω 5% 0,5W
3626	4822 051 10561	560Ω 2% 0,25W	3703	4822 116 52217	270Ω 5% 0,5W
3627	4822 050 24702	4k7 1% 0,6W	3704	4822 116 52263	2k7 5% 0,5W
3628	4822 050 24702	4k7 1% 0,6W	3705	4822 050 21002	1k 1% 0,6W
3629	4822 051 10561	560Ω 2% 0,25W	3706	4822 050 21002	1k 1% 0,6W
3630	4822 051 10561	560Ω 2% 0,25W	3708	4822 050 21002	1k 1% 0,6W
3631	4822 050 22202	2k2 1% 0,6W	3709	4822 050 21002	1k 1% 0,6W
3632	4822 050 22202	2k2 1% 0,6W	3710	4822 050 21002	1k 1% 0,6W
3637	4822 050 21002	1k 1% 0,6W	3711	4822 050 21002	1k 1% 0,6W
3638	4822 050 21002	1k 1% 0,6W	3714	4822 050 21002	1k 1% 0,6W
3639	4822 116 52234	100k 5% 0,5W	3716	4822 050 22202	2k2 1% 0,6W
3640	4822 116 52224	470Ω 5% 0,5W	3717	4822 050 22202	2k2 1% 0,6W
3641	4822 050 24703	47k 1% 0,6W	3718	4822 050 22202	2k2 1% 0,6W
3645	4822 050 28209	82Ω 1% 0,6W	3719	4822 050 22202	2k2 1% 0,6W
3646	4822 050 28209	82Ω 1% 0,6W	3720	4822 050 22202	2k2 1% 0,6W
3647	4822 050 24702	4k7 1% 0,6W	3721	4822 050 22202	2k2 1% 0,6W
3648	4822 050 24702	4k7 1% 0,6W	3722	4822 050 22202	2k2 1% 0,6W
3649	4822 051 10182	1k8 2% 0,25W	3724	4822 050 21003	10k 1% 0,6W
3650	4822 051 10182	1k8 2% 0,25W	3726	4822 050 21003	10k 1% 0,6W
3651	4822 101 21177	20k	3728	4822 050 21803	18k 1% 0,6W
3652	4822 101 21177	20k	3730	4822 116 52264	27k 5% 0,5W
3653	4822 050 24702	4k7 1% 0,6W	3731	4822 116 52264	27k 5% 0,5W
3654	4822 050 24702	4k7 1% 0,6W	3732	4822 116 52264	27k 5% 0,5W
3655	4822 051 10182	1k8 2% 0,25W	3733	4822 116 52264	27k 5% 0,5W

3734	4822 116 52264	27k 5% 0,5W	6271	4822 130 30621	1N4148
3739	4822 050 24703	47k 1% 0,6W	6272	4822 130 30621	1N4148
3740	4822 050 24703	47k 1% 0,6W	6273	4822 130 34278	BZX79-C6V8
3741	4822 050 24703	47k 1% 0,6W	6274	4822 130 30621	1N4148
3742	4822 050 24703	47k 1% 0,6W	6275	4822 130 30621	1N4148
3744	4822 050 22203	22k 1% 0,6W	6276	4822 130 30621	1N4148
3745	4822 116 52235	1M 5% 0,5W	6277	4822 130 30621	1N4148
3746	4822 050 24703	47k 1% 0,6W	6278	5322 130 30684	1N4002GP
3747	4822 050 21003	10k 1% 0,6W	6279	5322 130 30684	1N4002GP
3750	4822 050 24702	4k7 1% 0,6W	6280	5322 130 30684	1N4002GP
3751	4822 050 24702	4k7 1% 0,6W	6281	5322 130 30684	1N4002GP
3752	4822 050 24702	4k7 1% 0,6W	6282	4822 130 34281	BZX79-C15
3753	4822 050 24702	4k7 1% 0,6W	6283	4822 130 82078	D5SBA20
<b>COILS</b>					
5001	4822 146 31093	MAINS TRAFO/01	6284	4822 130 82079	D3SBA20
5001	4822 146 31043	MAINS TRAFO	6286	4822 130 30621	1N4148
5252	4822 157 62255	COIL			
5253	4822 157 62255	COIL	6287	4822 130 30621	1N4148
5254	4822 280 70368	RELAY	6288	4822 130 30621	1N4148
5255	4822 280 70368	RELAY	6289	4822 130 30621	1N4148
5256	4822 280 70368	RELAY	6290	4822 130 30621	1N4148
5475	4822 157 63873	EBU TRAFO	6291	4822 130 30621	1N4148
5476	4822 157 63873	EBU TRAFO			
5601	4822 101 21178	COIL	6292	4822 130 30621	1N4148
5602	4822 101 21178	COIL	6293	4822 130 30621	1N4148
5605	4822 242 72527	CST 4MHz	6294	4822 130 30621	1N4148
<b>DIODES</b>					
6250	4822 130 61219	BZX79-C10	6295	4822 130 30621	1N4148
6251	4822 130 61219	BZX79-C10	6296	4822 130 30621	1N4148
6252	4822 130 61219	BZX79-C10			
6253	4822 130 61219	BZX79-C10	6298	4822 130 34281	BZX79-C15
6254	4822 130 30621	1N4148	6299	4822 130 30621	1N4148
6255	4822 130 30842	BAV21	6301	4822 130 34499	BZX79-C20
6256	4822 130 30842	BAV21	6302	4822 130 34268	BZX79-C16
6257	4822 130 30842	BAV21	6303	4822 130 30621	1N4148
6258	5322 130 34563	BZX79-C2V7			
6259	5322 130 34563	BZX79-C2V7	6304	4822 130 30621	1N4148
6260	4822 130 80235	BZX79-C3V3	6305	4822 130 30621	1N4148
6261	4822 130 80235	BZX79-C3V3	6401	4822 130 31253	BZX79-C2V4
6262	4822 130 30842	BAV21	6475	4822 130 30621	1N4148
6263	4822 130 30842	BAV21	6476	4822 130 30621	1N4148
6264	4822 130 32213	BYV28-50			
6265	4822 130 32213	BYV28-50	6477	4822 130 34173	BZX79-C5V6
6266	4822 130 32213	BYV28-50	6478	4822 130 34268	BZX79-B16
6267	4822 130 32213	BYV28-50	6601	4822 130 30621	1N4148
6268	4822 130 30621	1N4148	6603	4822 130 30621	1N4148
6269	4822 130 30621	1N4148	6604	4822 130 34278	BZX79-C6V8
6270	4822 130 30621	1N4148			
			6605	4822 130 34278	BZX79-C6V8
			6606	4822 130 30621	1N4148
			6607	4822 130 30621	1N4148
			6608	4822 130 30621	1N4148
			6609	4822 130 34499	DIODE BZX79 C20
			6610	5322 130 30684	1N4002
			6611	4822 130 30621	1N4148
			6612	4822 130 34233	BZX79-C5V1
			6613	4822 130 31253	BZX79-C2V4
			6614	4822 130 34167	BZX79-C6V2
			6615	4822 130 34174	BZX79-C4V7
			6616	4822 130 34167	BZX79-C6V2
			6617	4822 130 34499	DIODE BZX79 C20
			6632	4822 130 30621	1N4148

6692	5322	130	34834	BZX79-C3V6	7479	4822	130	40823	BD135
6693	5322	130	34834	BZX79-C3V6	7601	4822	130	40937	BC548B
6700	4822	130	81254	GP1U520X	7602	4822	130	40937	BC548B
6701	4822	130	30621	1N4148	7603	4822	209	30941	NJM2068D
6702	4822	130	30621	1N4148	7604	4822	130	40937	BC548B
6703	4822	130	30621	1N4148	7605	4822	209	10263	HEF4052BP
6704	4822	130	30621	1N4148	7607	4822	130	40937	BC548B
6705	4822	130	30621	1N4148	7608	4822	130	40937	BC548B
6706	4822	130	30621	1N4148	7609	4822	209	83274	NJM4560D
<b>Transistors &amp; IC's</b>					7610	4822	209	63667	BA6229
7250	4822	130	40937	BC548B	7611	5322	130	42216	TL081CP
7251	4822	130	40937	BC548B	7612	4822	130	44197	BC558B
7252	4822	209	80891	MHz 78M05CT	7631	4822	130	40937	BC548B
7255	4822	209	83274	NJM4560D	7633	4822	130	40937	BC548B
7256	4822	130	41691	BC556B	7636	4822	130	40937	BC548B
7257	4822	130	41691	BC556B	7639	4822	130	44197	BC558B
7258	5322	130	44413	BF457	7640	4822	130	40937	BC548B
7259	5322	130	44413	BF457	7641	4822	130	40937	BC548B
7260	4822	130	40937	BC548B	7642	4822	130	40937	BC548B
7261	4822	130	40937	BC548B	7643	4822	130	40937	BC548B
7262	4822	130	44503	BC547C	7644	4822	130	40937	BC548B
7263	4822	130	44503	BC547C	7645	4822	130	40937	BC548B
7264	4822	130	40937	BC548B	7646	4822	130	40937	BC548B
7265	4822	130	40937	BC548B	7647	4822	209	61522	PC74HCT4094P
7266	4822	130	44197	BC558B	7648	4822	209	61522	PC74HCT4094P
7267	4822	130	44197	BC558B	7649	4822	209	30882	NM93C13BN
7268	4822	130	62954	2SD1895	7650	4822	209	30881	IC
7269	4822	130	62954	2SD1895					
7270	4822	130	62953	2SD1255					
7271	4822	130	62953	2SD1255					
7272	4822	130	62953	2SD1255					
7273	4822	130	62953	2SD1255					
7274	4822	130	62953	2SD1255					
7275	4822	130	62953	2SD1255					
7276	4822	130	40937	BC548B					
7277	4822	130	44461	BC546B					
7279	4822	130	44461	BC546B					
7280	4822	130	44461	BC546B					
7281	4822	130	62952	BDT61F					
7282	4822	130	40824	BD136					
7283	4822	130	40937	BC548B					
7284	4822	130	40937	BC548B					
7285	4822	130	40937	BC548B					
7286	4822	130	40941	BC558					
7287	4822	130	40937	BC548B					
7401	4822	209	73064	NJM2068D-D					
7402	4822	209	72748	LC7821					
7403	4822	209	72748	LC7821					
7475	4822	209	71339	TC9164N					
7476	5322	209	11323	PC74HCU04P					
7477	5322	209	11323	PC74HCU04P					
7478	4822	130	44196	BC548C					

6633	4822 130 30621	1N4148	7275	4822 130 62953	2SD1255
6634	4822 130 30621	1N4148	7276	4822 130 40937	BC548B
6635	4822 130 82978	LED	7277	4822 130 44461	BC546B
6636	4822 130 82978	LED	7279	4822 130 44461	BC546B
6637	4822 130 82978	LED	7280	4822 130 44461	BC546B
6638	4822 130 82978	LED	7281	4822 130 62952	BDT61F
6639	4822 130 82978	LED	7282	4822 130 40824	BD136
6640	4822 130 82978	LED	7283	4822 130 40937	BC548B
6641	4822 130 82978	LED	7284	4822 130 40937	BC548B
6642	4822 130 82978	LED	7285	4822 130 40937	BC548B
6643	4822 130 82978	LED	7286	4822 130 40941	BC558
6644	4822 130 82978	LED	7287	4822 130 40937	BC548B
6645	4822 130 82978	LED	7288	4822 130 60117	2SC3419
6646	4822 130 82978	LED	7401	4822 209 73064	NJM2068D-D
6647	4822 130 82978	LED	7402	4822 209 72748	LC7821
6648	4822 130 82978	LED	7403	4822 209 72748	LC7821
6690	5322 130 34834	BZX79-C3V6	7475	4822 209 71339	TC9164N
6691	5322 130 34834	BZX79-C3V6	7476	5322 209 11323	IC N74HCU04N
6692	5322 130 34834	BZX79-C3V6	7477	5322 209 11323	IC N74HCU04N
6693	5322 130 34834	BZX79-C3V6	7478	4822 130 44197	BC558B
6700	4822 214 52009	GP1U58XP	7479	4822 130 40823	BD139
6701	4822 130 30621	1N4148	7601	4822 130 40937	BC548B
6702	4822 130 30621	1N4148	7602	4822 130 40937	BC548B
6703	4822 130 30621	1N4148	7603	4822 209 30941	NJM2068D
6704	4822 130 30621	1N4148	7604	4822 130 40937	BC548B
6705	4822 130 30621	1N4148	7605	4822 209 10263	HEF4052BP
6706	4822 130 30621	1N4148	7607	4822 130 40937	BC548B
<b>TRANSISTORS &amp; IC's</b>			7608	4822 130 40937	BC548B
7250	4822 130 40937	BC548B	7609	4822 209 83274	NJM4560D
7251	4822 130 40937	BC548B	7610	4822 209 63667	BA6229
7252	4822 209 80891	78M05CT	7611	5322 130 42216	TL081CP
7255	4822 209 83274	NJM4560D	7612	4822 130 44197	BC558B
7256	4822 130 41691	BC556B	7631	4822 130 40937	BC548B
7257	4822 130 41691	BC556B	7633	4822 130 40937	BC548B
7258	4822 130 43283	2SC2705	7636	4822 130 40937	BC548B
7259	4822 130 43283	2SC2705	7639	4822 130 44197	BC558B
7260	4822 130 60117	2SC3419	7640	4822 130 40937	BC548B
7261	4822 130 60117	2SC3419	7641	4822 130 40937	BC548B
7262	4822 130 44503	BC547C	7642	4822 130 40937	BC548B
7263	4822 130 44503	BC547C	7643	4822 130 40937	BC548B
7264	4822 130 40937	BC548B	7644	4822 130 40937	BC548B
7265	4822 130 40937	BC548B	7645	4822 130 40937	BC548B
7266	4822 130 44197	BC558B	7646	4822 130 40937	BC548B
7267	4822 130 44197	BC558B	7647	5322 209 11532	IC 74HC4094P
7268	4822 130 62954	2SD1895	7648	5322 209 11532	IC 74HC4094P
7269	4822 130 62954	2SD1895	7649	4822 209 30882	NM93C13BN
7270	4822 130 62953	2SD1255	7650	4822 209 30881	IC
7271	4822 130 62953	2SD1255			
7272	4822 130 62953	2SD1255			
7273	4822 130 62953	2SD1255			
7274	4822 130 62953	2SD1255			



# SI

## Wichtig für die Werkstatt!

Sachgebiet: AC 51 HiFi

Nummer: 51081

Datum: 23.11.1994

### Service Information

Betrifft: HiFi-Verstärker 70FA930  
Reparatur der Endstufen

Verteiler:

INTERN und EXTERN

Um Endstufen-Ausfällen vorzubeugen, sind im Verlauf der Fertigung eine Reihe von Änderungen vorgenommen und mit Service Information mitgeteilt worden.

Unter anderem wurde in diesem Zusammenhang bei Geräten mit Fertigungsdatum ab KW9232 ein anderer Temperatur-Sensor auf einem neuen Print "Power Unit" eingeführt.

Mit dieser Information werden die für die Reparatur relevanten Hinweise zusammengefaßt.

Bei der Reparatur ausgefallener Endstufen ist - insbesondere bei Verstärkern mit Fertigungsdatum vor KW9232 - darauf zu achten, daß (sofern nicht bereits geschehen) die folgenden Maßnahmen durchgeführt werden:

- \* Temperatur-Sensor TS7260, 7261 (BC548B) ändern in 2SC3419-Y.  
7260, 7261                    2SC3419-Y                    4822 130 60117  
Der neue Transistor wird auf dem Kühlblock festgeschraubt.  
Achtung! Beim neuen Transistor sind gegenüber BC548 die  
Anschlüsse für Basis und Kollektor vertauscht!
- \* Zwischen Kollektor und Emitter der Transistoren 7260 und  
7261 - möglichst nah am Transistor - je einen Elko 100uF/10V  
einfügen (Plus des Elkos an Kollektor).  
2301, 2302                    100uF/10V                    4822 124 41584
- \* Zwischen Kollektor und Emitter der Transistoren 7272 und  
7273 je einen Kondensator 100pF/50V einfügen.  
100pF/50V                    4822 122 33195
- \* Bei Verstärkern, die mit einer defekten Endstufe zur Reparatur  
gegeben werden, stets im Rahmen der Reparatur auch die Tran-  
sistoren des (noch) fehlerfreien Kanals auswechseln.
- \* Beim Einbau der neuen Endtransistoren und des Temperatur-  
Sensors ist durch ausreichend Wärmeleitpaste für guten  
Temperatur-Kontakt zum Kühlblock zu sorgen.  
Wärmeleitpaste    DC340                    5322 390 20019

4812 829 51081

- \* Nur bei Anschluß von Lautsprechern mit ausgeprägt kapazitivem Verhalten:  
Je eine Brücke über die Spulen 5252 und 5253 legen.  
Anmerkung: Diese Maßnahme ist bei Anschluß "normaler" Lautsprecher, dazu gehören z.B. alle Philips-Boxen, nicht erforderlich.

Die vorübergehend zur Verbesserung der Wärmeleitung zwischen Kühlblock und Temperatur-Sensor eingebauten Andruckbleche (4822 466 82991) sind inzwischen fortgefallen; mit dem neuen Sensor 2SC3419-Y brauchen sie nicht mehr eingebaut zu werden.





# SI

## Wichtig für die Werkstatt!

Sachgebiet: AC 51

HIFI

Nummer: 51052

Datum: 25.02.1993

### Service Information

Hifi-Verstärker 70FA930

Betrifft:

Verteiler: INTERN UND EXTERN

1. Um zu verhindern, daß auf dem PCB "Volume Unit" die Z-Diode 6616 überlastet wird, ist diese bei Geräten mit Wochencode ab 9250 ersetzt worden durch eine Reihenschaltung von 3 Stück Z-Dioden BZX79C2V4.

BZX79C2V4

4822 130 31253

Bei Ausfall der Z-Diode 6616, ist die o. gen. Änderung im Rahmen der Reparatur wie folgt durchzuführen (s. Anhang):

6616 (BZX79C6V2) ersetzen durch BZX79C2V4.

Drahtbrücken 9762 und 9689 entfernen und stattdessen je eine Z-Diode BZX79C2V4 (6620 bzw. 6621) einsetzen.

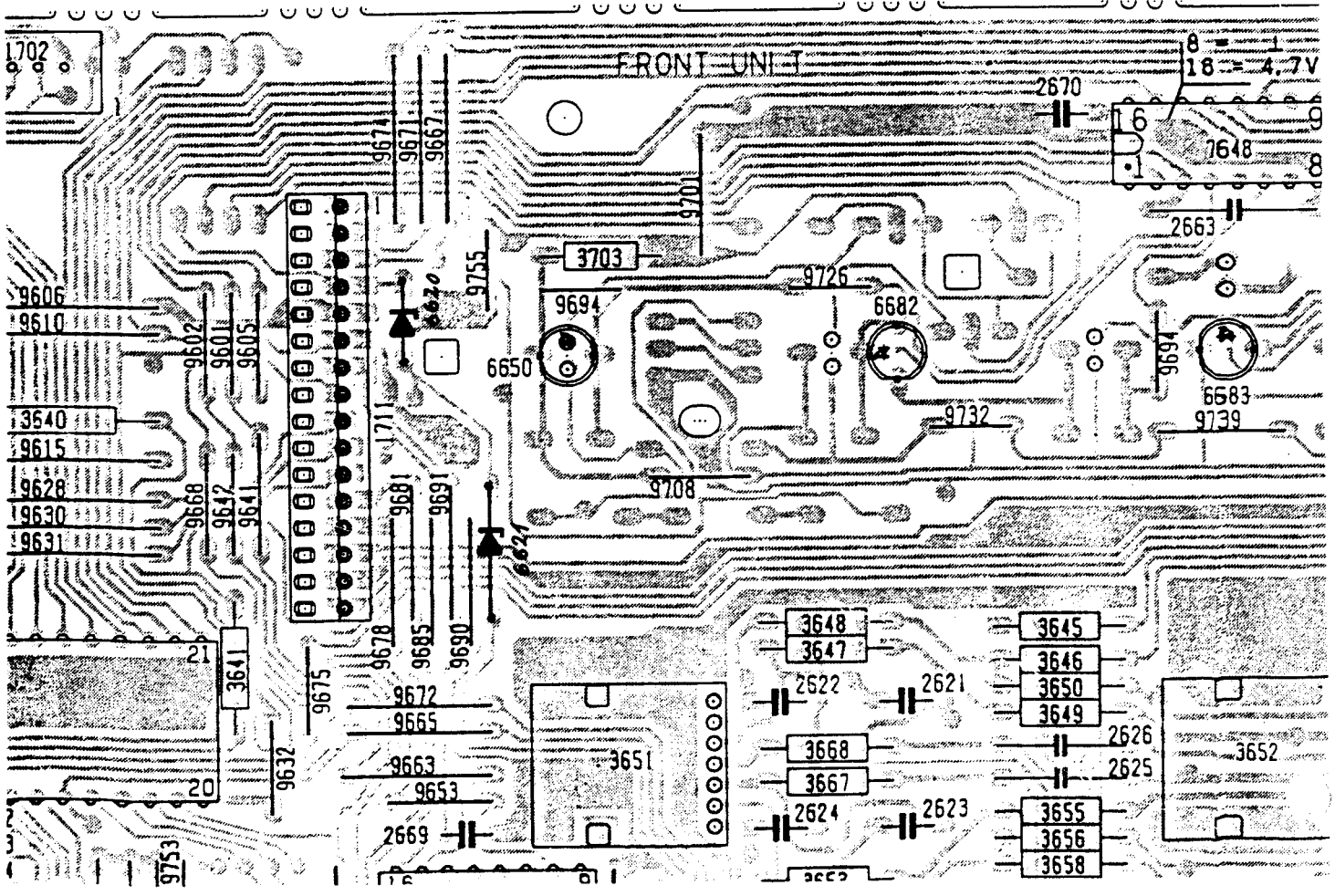
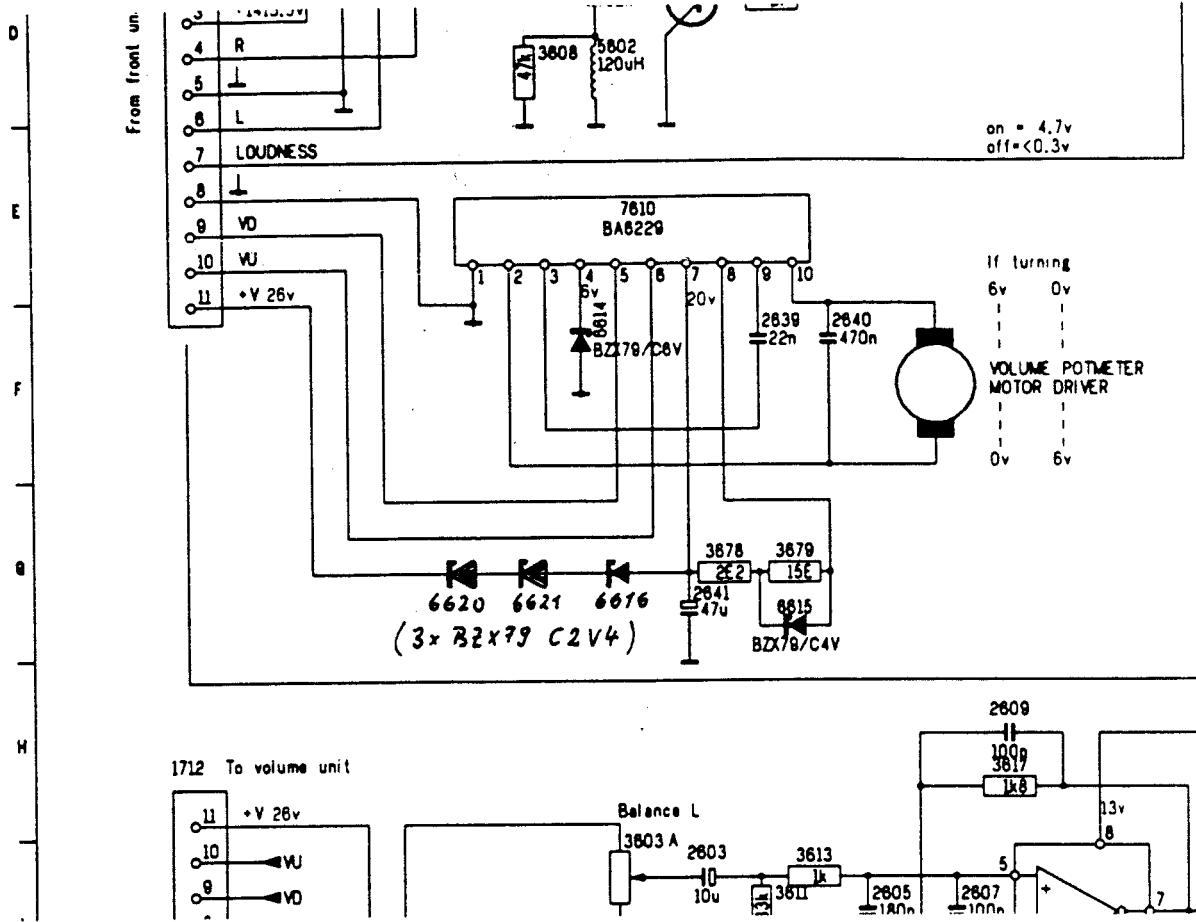
2. Bei besonderer Belastung kann es zum Unterbrechen der Thermo-sicherung im Netztransformator kommen.  
Für solche Fälle ist ein neuer Trafo 5001 mit einer Thermo-sicherung mit Auslösetemperatur 150 C lieferbar.

5001 mit Thermosich. 150 C

4822 146 31225

Bei Verstärkern mit Wochencode ab KW 9303 ist der neue Trans-formator bereits ab Fabrik eingebaut.

8412 829 51052



Service  
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Service

Product Service Group CE Audio

# Service Information

## 70FA930

In order to prevent early failure of powertransistors following changes are necessary :

-Add two electrolytic capacitors 100 $\mu$ F 10V (items 2301,2302) service codenumber 4822 124 41584 across **Collector** and **Emitter** of transistor 7260 (right channel) and 7261 (left channel) with the positive side of the capacitor connected to the collector. see fig. 1 or fig. 2

-\*The most practical way to connect the two capacitors is to mount them at the coppertrack side.

There are two versions of sensing transistor 7260,7261 :  
From production start the transistor is BC548B. see fig. 1

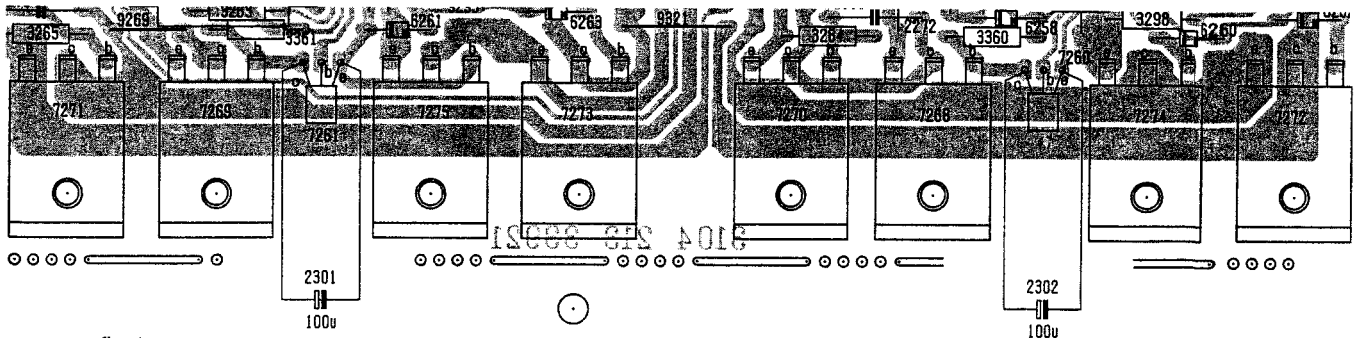


fig 1

From week 9232 another transistor type 2SC3419 is used. see fig. 2  
This transistor has a TO-126 housing and is screwed on the heatsink.

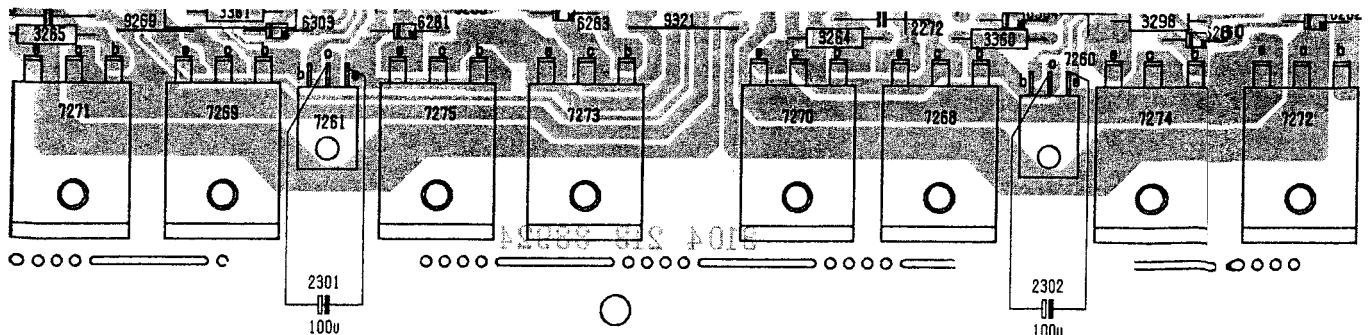
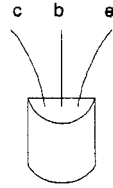
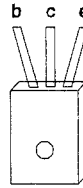


fig 2

The difference between both transistor versions is important for the connection of the capacitor on collector and emitter because the pinning of the transistors is different.



BC548



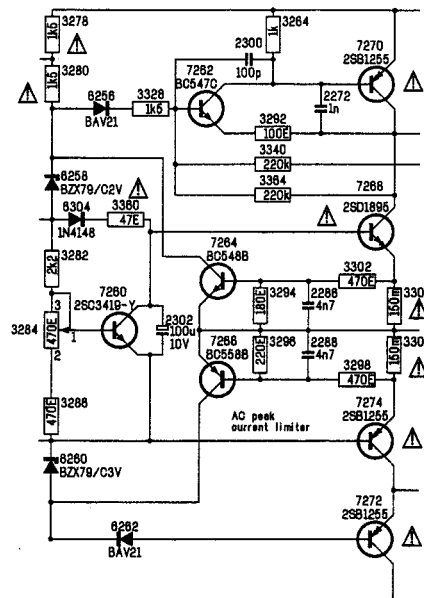
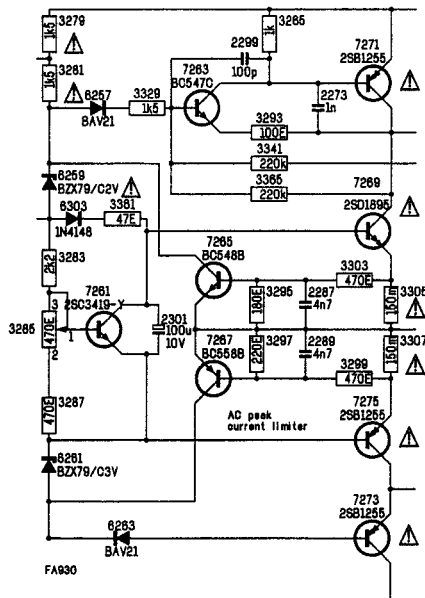
2SC3419

**Remarks:**

It is necessary that in **every** set which needs to be repaired, no matter the complaint, the above mentioned changes are introduced. If the repair is a defective powerendstage than it is also necessary that new powertransistors are soldered in both left and right channel.

The powertransistors to be replaced are:

items	Type	servicecodenumber
7268-7269	2SD1895	4822 130 62954
7270-7271	2SB1255	4822 130 62953
7272-7273	2SB1255	4822 130 62953
7274-7275	2SB1255	4822 130 62953



\*For sets produced in week 9313 and later both capacitors are already assembled.

\*For sets produced before week 9313 it is possible that these capacitors are already added in some service centres. This can be seen at the elco added between collector emitter of transistor 7260 and 7261 at the solderside of the power print.