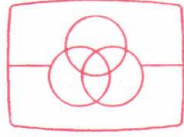


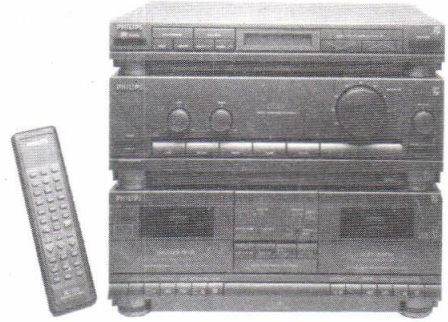
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# Service Manual

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

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Serviço



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

Subject to modification

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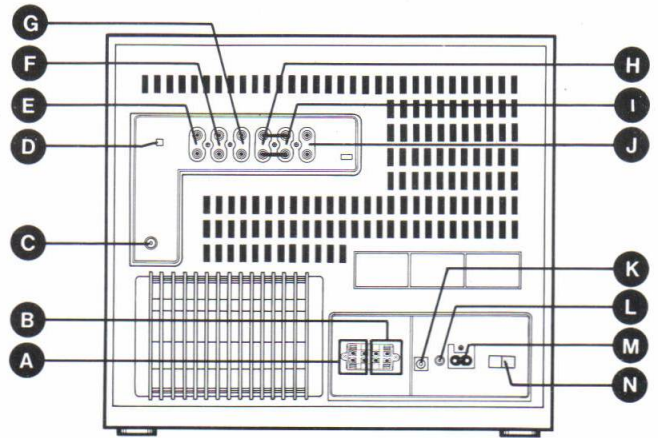
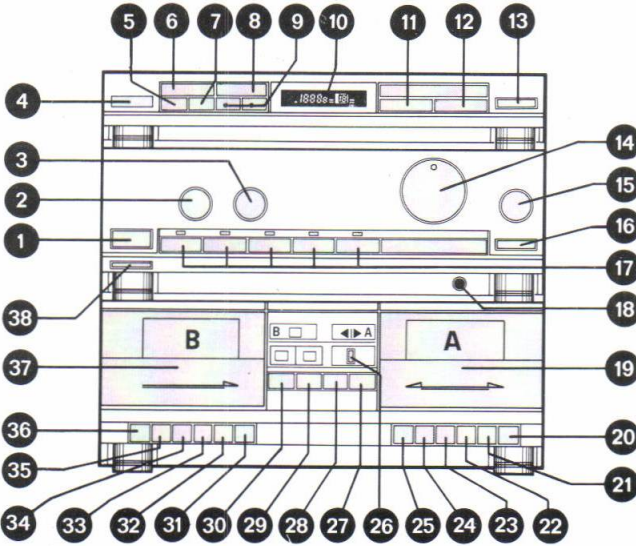
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# PHILIPS

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Service Consumer Electronics

CS 25 171

**CONNECTIONS AND CONTROLS**



**CONTROLS**

1	<b>STAND BY</b> button	0279
2	<b>BASS</b> control	3523
3	<b>TREBLE</b> control	3529
4	<b>SENSOR</b> – IR–remote control	6415
5	<b>MONO</b> button	0275
6	<b>AUTO PROGRAM</b> button	0273
7	<b>MEMO</b> button	0276
8	<b>AUTO SCAN</b> button	0274
9	<b>PRESET DOWN</b> button	0277
	<b>PRESET UP</b> button	0278
10	<b>DISPLAY ( LCD )</b>	6400
11	<b>TUNING DOWN</b> button	0280
12	<b>TUNING UP</b> button	0281
13	<b>WAVERANGE</b> button(FM,MW,LW)	0282
14	<b>VOLUME</b> control	3507
15	<b>BALANCE</b> control	3501
16	<b>Dynamic Bass Boost</b> button	0299
17	<b>SOURCE SELECTORS</b>	
	<b>TAPE</b> .....	0283
	<b>CD/CDV</b> .....	0284
	<b>PHONO</b> .....	0285
	<b>TUNER</b> .....	0286
	<b>TV/VCR</b> .....	0287
18	<b>PHONES</b> socket	0322
19	<b>CASSETTE HOLDER deck A</b>	
20	<b>PAUSE</b> button <b>deck A</b>	
21	<b>STOP/EJECT</b> button <b>deck A</b>	
22	<b>WIND</b> button <b>deck A</b>	
23	<b>REWIND</b> button <b>deck A</b>	
24	<b>PLAY</b> button <b>deck A</b>	
25	<b>DIRECTION</b> button <b>deck A</b>	
26	<b>REVERSE MODE</b> button <b>deck A</b>	
27	<b>REC.MUTE</b> button	
28	<b>FE I/CrO<sub>2</sub></b> button	
29	<b>DOLBY NR</b> button	
30	<b>HIGH SPEED DUBBING</b> button	
31	<b>PAUSE</b> button <b>deck B</b>	
32	<b>STOP/EJECT</b> button <b>deck B</b>	
33	<b>WIND</b> button <b>deck B</b>	
34	<b>REWIND</b> button <b>deck B</b>	
35	<b>PLAY</b> button <b>deck B</b>	
36	<b>RECORD</b> button <b>deck B</b>	
37	<b>CASSETTE HOLDER deck B</b>	
38	<b>SURROUND SOUND</b> button	0302

**CONNECTIONS**

A	<b>LS output front</b>	0323
B	<b>LS output rear(surround)</b>	0323
C	<b>FM – antenna</b> socket 75 Ohm	
D	<b>GRID SELECTOR</b> optional	0391
E	<b>PHONO MD</b> input	0351/0352
F	<b>TV/AUX.</b> input	0351/0352
G	<b>CD/CDV</b> input	0351/0352
H	<b>EQUALIZER</b> input	0351/0352
I	<b>EQUALIZER</b> output	0351/0352
J	<b>LINE</b> output	0351/0352
K	<b>PHONO SUPPLY</b> output	0313
L	<b>REMOTE RC 5</b> in/out socket	0314
M	<b>MAINS</b> socket	0312

**SPECIFICATION****GENERAL**

Mains voltage	220 V 50/60 Hz ( 240 V for /05 )
Power consumption	120 W max. 11 W stand by

**TUNER**

	<b>FM</b>	<b>MW</b>	<b>LW</b>
Tuning range	85.5 – 108 MHz	522 – 1611 kHz	148 – 284 kHz
Aerial input	50 $\Omega$ coaxial		
IF	10.7 MHz	450 kHz	450 kHz
Sensitivity S/N = 26dB	4 $\mu$ V	1700 $\mu$ V/m	4000 $\mu$ V/m
Image rejection ratio	30 dB	30 dB	34 dB

**AMPLIFIER**

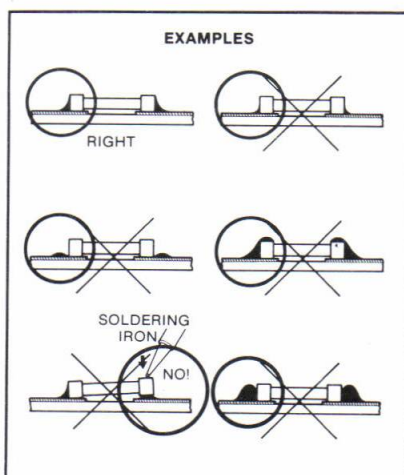
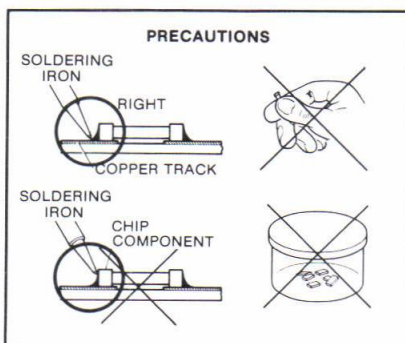
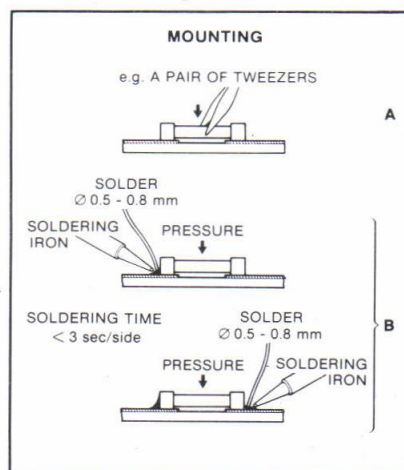
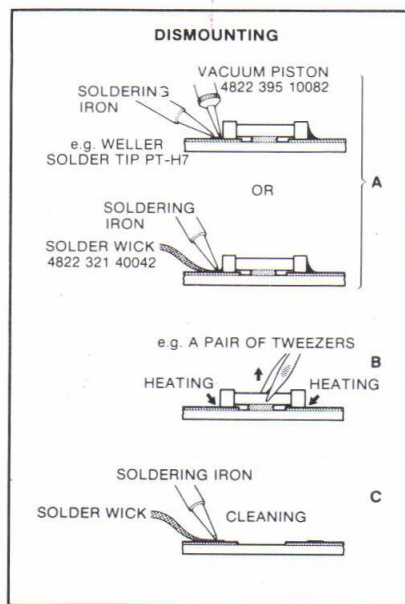
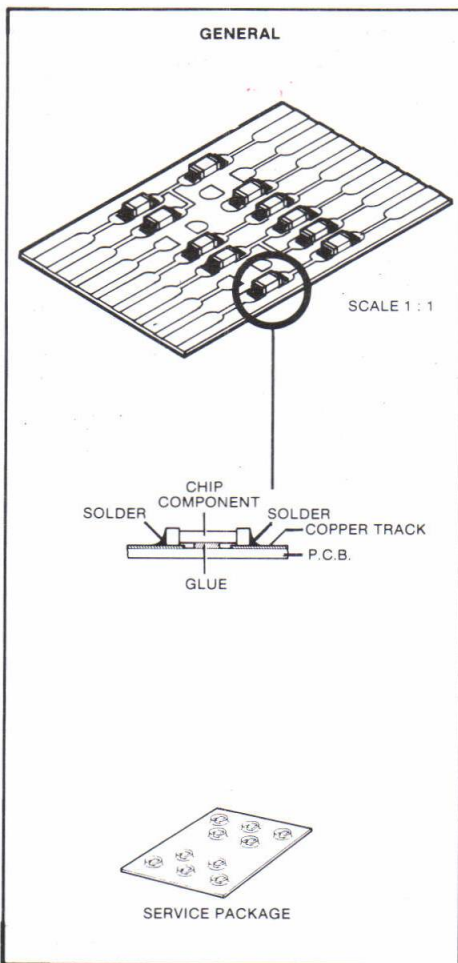
Output power (D=10 %)	2 x 30 W rms	
Speaker impedance	8 $\Omega$	
Headphone	8 – 1000 $\Omega$	
Frequency response ( within $\pm$ 3 dB )	10 Hz – 20 kHz	
Tone control	bass	$\pm$ 10 dB at 40 Hz
	treble	$\pm$ 10 dB at 16 kHz
<b>DBB</b>	+ 8 dB at 63 Hz	

	<b>Equ.in</b>	<b>Phono</b>	<b>Aux/TV</b>	<b>CD</b>	<b>Tuner</b>
Input sensitivity	190 mV	3.9 mV	250 mV	440 mV	
Line out voltage(nom.)		150 mV	150 mV	150 mV	150 mV

**CASSETTE RECORDER**

Tape speed	4.76 cm/s $\pm$ 2% 9.5 cm/s typ. on HS dubbing			
Wow and flutter	$\leq$ 0.3 % WRMS			
Fast winding time	$\leq$ 140 s C60			
Noise reduction system	Dolby B			
Erase/bias – system	AC 80 kHz			
	<b>IEC I</b>	<b>IEC II</b>	<b>IEC I Dubb.</b>	<b>IEC I HSD</b>
Rec/Pb frequency response(-7dB)	125–12500 Hz	125–12500 Hz	125–12500 Hz	
S/N – ratio	50 dB	50 dB	48 dB	48 dB
Noise reduction	8.5 dB	8.5 dB		

HANDLING CHIP COMPONENTS



27 012C12

	Carbon film 0.2 W 70°C 5%
	Carbon film 0.33 W 70°C 5%
	Metal film 0.33 W 70°C 5%
	Carbon film 0.5 W 70°C 5%
	Carbon film 0.67 W 70°C 5%
	Carbon film 1.15 W 70°C 5%

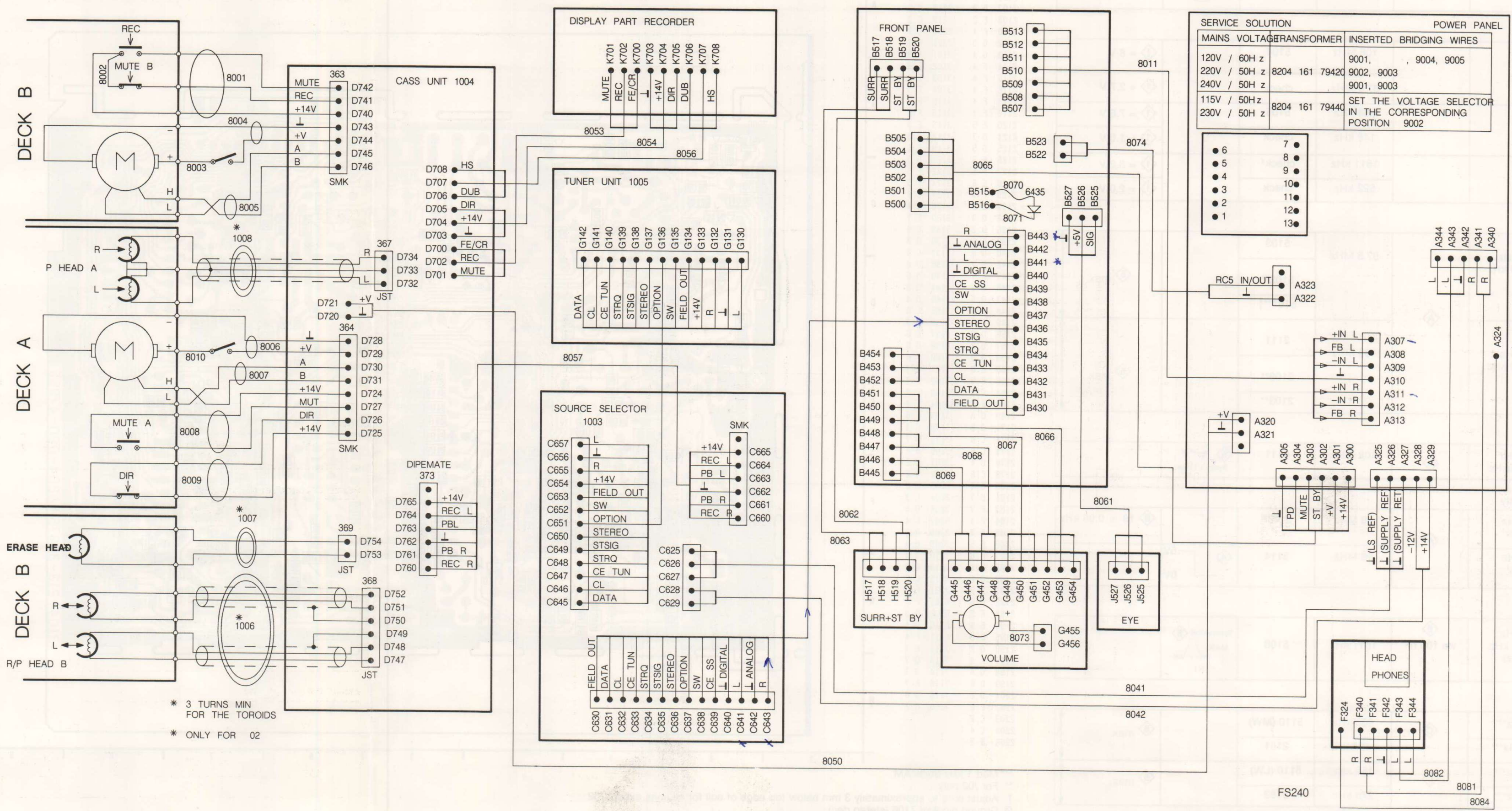
	Ceramic plate Tuning ≤ 120 pF NP.0 2% Others -20/+80%
	Polyester flat foil 10%
	Metalized polyester flat film 10%
	Polyester flat foil small size (Mylar) 10%
	Polysterene film/foil 1%
	Tubular ceramic
	Miniature single
	Subminiature tantalum ± 20%

- \*a = 2,5 V
- b = 4 V
- c = 6,3 V
- d = 10 V
- e = 16 V
- f = 25 V
- g = 40 V
- h = 63 V
- j = 100 V
- l = 125 V
- m = 150 V
- n = 160 V
- q = 200 V
- r = 250 V
- s = 300 V
- t = 350 V
- u = 400 V
- v = 500 V
- w = 630 V
- x = 1000 V
- A = 1,6 V
- B = 6 V
- C = 12 V
- D = 15 V
- E = 20 V
- F = 35 V
- G = 50 V
- H = 75 V
- I = 80 V

© Chip component

27 037A/C

SET WIRING DIAGRAM



SERVICE SOLUTION		POWER PANEL	
MAINS VOLTAGE TRANSFORMER		INSERTED BRIDGING WIRES	
120V / 60Hz	8204 161 79420	9001, 9004, 9005	
220V / 50Hz		9002, 9003	
240V / 50Hz		9001, 9003	
115V / 50Hz	8204 161 79440	SET THE VOLTAGE SELECTOR IN THE CORRESPONDING POSITION 9002	
230V / 50Hz			

\* 3 TURNS MIN FOR THE TOROIDS  
 \* ONLY FOR 02

**TUNER: ADJUSTMENT TABLE**

**FM-MW-LW**

SK						
----	--	--	--	--	--	--

**Varicap alignment**

FM 87.5 - 108 MHz			108 MHz	5104	= 8 V
			87.5 MHz	check	
LW 148 - 284 kHz			284 kHz	5105	= 7.8 V
			148 kHz	check	
MW 522 - 1611 kHz			1611 kHz	check*	= 8.2 V
			522 kHz	check	

**FM-RF**

FM	87.5 MHz $\Delta f = 500 \text{ kHz}$		87.5 MHz	5103	max.	
			5102**			
				5101**†		
FM	108 MHz $\Delta f = 500 \text{ kHz}$		108 MHz	2111	max.	
				2109**		
				2103**		

**FM-IF**

FM	108 MHz $\Delta f = 500 \text{ kHz}$		108 MHz	5111	
----	---	--	---------	------	--

**Stereo decoder/Search sensitivity**

FM	98 MHz carrier		98 MHz	3145 $\emptyset$	19 ± 0.05 kHz
	98 MHz 12 $\mu\text{V}$		98 MHz	3114	

**AM-IF**

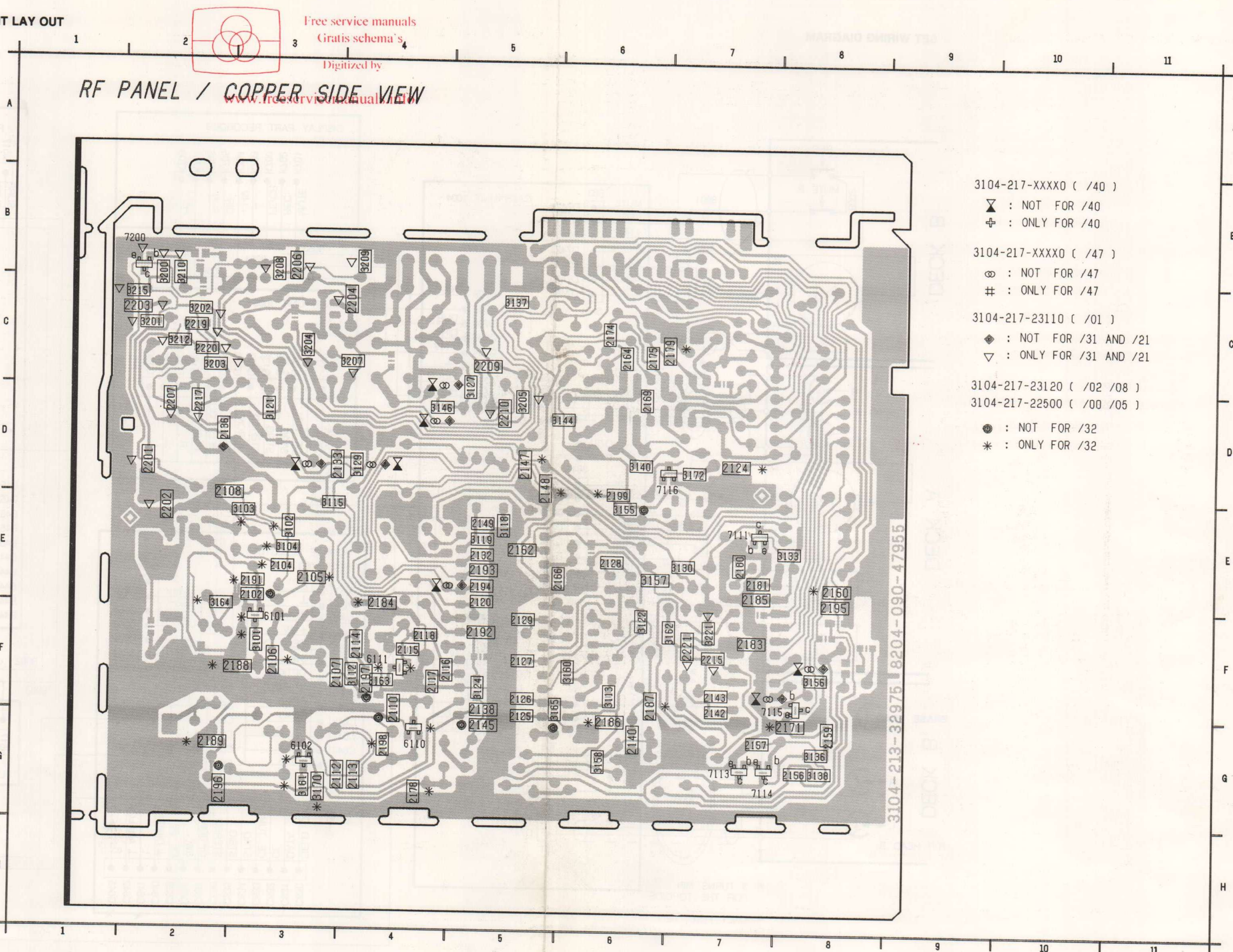
MW	450 kHz $\Delta f = 10 \text{ kHz}$ (50 Hz)		via 100 nF	1611 kHz	5108	
----	---	--	------------	----------	------	--

**AM-RF (begin with MW)**

MW	603 kHz***		603 kHz	5110 (MW)	max.
	1494 kHz***		1494 kHz	2151	
LW	155 kHz***		155 kHz	5110 (LW)	max.
	275 kHz***		275 kHz	2153	

**TUNER: CHIP COMPONENT LAY OUT**

2102	E 3	2207	D 2
2104	E 3	2209	C 5
2105	E 3	2210	D 5
2106	F 3	2215	F 7
2107	F 3	2217	D 2
2108	E 2	2219	C 2
2110	F 4	2220	C 2
2112	G 3	2221	F 7
2113	G 4	3101	F 3
2114	F 4	3102	E 3
2115	F 4	3103	E 3
2116	F 4	3104	E 3
2117	F 4	3112	F 4
2118	F 4	3113	F 6
2120	E 5	3115	E 3
2124	D 7	3118	E 5
2125	G 5	3119	E 5
2126	F 5	3121	D 3
2127	F 5	3122	F 6
2128	E 6	3124	F 5
2129	F 5	3127	C 5
2132	E 5	3129	D 4
2133	D 3	3130	E 7
2136	D 2	3133	E 8
2138	F 5	3136	G 8
2140	G 6	3137	C 5
2142	F 7	3138	G 8
2143	F 7	3140	D 6
2145	G 5	3144	D 6
2147	D 5	3146	D 4
2148	D 5	3155	E 6
2149	E 5	3156	F 8
2156	G 8	3157	E 6
2157	G 7	3158	G 6
2159	G 8	3160	F 6
2160	E 8	3161	G 3
2162	E 5	3162	F 7
2164	C 6	3163	F 4
2166	E 5	3164	F 2
2169	D 6	3165	F 5
2171	G 8	3170	G 3
2174	C 6	3172	D 7
2175	C 6	3200	B 2
2178	G 4	3201	C 2
2179	C 6	3202	C 2
2180	E 7	3203	C 2
2181	E 7	3204	C 3
2183	F 7	3205	D 5
2184	F 4	3207	C 4
2185	E 7	3208	B 3
2186	G 6	3209	B 4
2187	F 6	3210	B 2
2188	F 3	3212	C 2
2189	G 2	3215	C 2
2191	E 3	3221	F 7
2192	F 5	6101	F 3
2193	E 5	6102	G 3
2194	E 5	6110	G 4
2195	E 8	6111	F 4
2196	G 2	7111	E 7
2197	F 4	7113	G 7
2198	G 4	7114	G 7
2199	D 6	7115	F 7
2201	D 2	7116	D 6
2202	E 2	7200	B 2
2203	C 2		
2204	C 4		
2206	B 3		



\*\*\* Mod 1 kHz 30 % AM

\*\* For /02 only

† Adjust core to approximately 3 mm below top edge of coil for all units except /02

$\emptyset$  Ground pin 9 of 7106 (stereo dec)

\* If  $V_{tune} > 8.5 \text{ V}$  readjust 5105 at 1611 kHz to  $V_{tune} = 8.5 \text{ V}$  and check if  $V_{tune} \geq 0.7 \text{ V}$  at 148 kHz.

‡ Repeat -Herhalen - Répéter - Wiederholen - Ricominciare - Repetera - Gentage - Gjentagelse - Toista

**Service test program TMP47C421AF**

With the service test program of the  $\mu$ P following parts can be tested:  
 EEROM  
 RAM  
 Display  
 I/O-parts

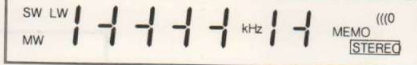
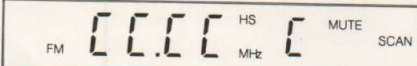
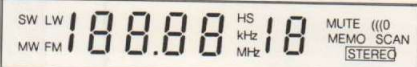
Operating sequence	Display check	Remark
Hold 'memory'- and 'preset up' - key depressed during switching on (plugging in mains cord) the set to get into test program.	pattern 1 	Before pattern one will be showed EEROM is automatically loaded with frequencies as shown in table 3.
Press any key	pattern 2 	RAM-test If failure in RAM is detected, next step will not be reached => Exchange $\mu$ P.
Press any key	pattern 3 	Before switching over from pattern 3 to key detection "timer interrupt" check will be carried out automatically. If one of them is detected wrong pattern 3 remains on display. => Exchange $\mu$ P
Key detection	number on display	
Press Power Tuner CD/CDV Phono Tape TV/VCR Auto progr. Auto scan Mono Memory Preset down Preset up Wave band Tuning down Tuning up	0 ((0) 1 ((0) 2 ((0) 3 ((0) 4 ((0) 5 ((0) 6 ((0) 7 ((0) 8 ((0) 9 ((0) 10 ((0) 11 ((0) 13 ((0) 14 ((0) 15 ((0)	Also, RC5 interrupt will be tested automatically. If it is detected wrong blank display remains. => Check if pin 19 of $\mu$ P is high. If yes, exchange $\mu$ P. If no check remote circuit.
To get back in normal working mode O "reset" has to be given by switching off the set (plugging off mains cord)		

table 1

**Test Remote Functions**

In "Key detection part" of the service testprogram for TMP47C421AF also the remote-functions can be tested. If a source key will be depressed the source will also be selected and the corresponding LED lights up.

Numbers for Remote Keys:

Key depressed	Number on display
preset 0	0
preset 1	1
preset 2	2
preset 3	3
preset 4	4
preset 5	5
preset 6	6
preset 7	7
preset 8	8
preset 9	9
search down	14
search up	15
stand by	16
volume up	17
volume down	18
clear (+ 10)	19

Source selection	Display shows
CD	CD
Cassette	CASS
Phono	PHO
TV/Aux.	Add
Tuner	display is blanked

To get back in normal working mode O "reset" has to be given by switching off the set (plugging off mains cord).

Table 2

**EEROM-loading**

During switching over to the service test program of TMP47C421AF (see table 1) the EEROM is automatically loaded with the following frequencies:

preset	frequency
<b>FM</b>	
last tuned	93,70
0	87,50
1	93.70
2	97.00
3	98.00
4	99.00
5	108.00
<b>MW</b>	
6	522
7	567
8	603
9	1278
10	1494
11	1611
<b>LW</b>	
12	148
13	155
14	275
15	284
16-19	87,50

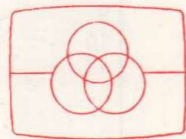
Table 3

For checking the frequencies reset the system by switching off the set (plugging off mains cord).

SOURCE SELECTOR COMPONENT LAY OUT

0351	E15	2628	H13	2636	H11	2648	G 5	2657	E 3	3627	G13	3637	F11	3645	G11	3654	G 4	3680	H 5	3688	C13	3696	E13	9002	H 2	9010	H 5	9020	F 6	9028	F 8	9038	F11	C625	G 9	C633	H 2	C641	G 2	C650	H 9	C660	F 9		
0352	D15	2629	G13	2637	F10	2649	F 4	2658	G 3	3628	G13	3638	H11	3646	G11	3657	F 3	3681	F13	3689	H10	3697	F 7	9003	F 2	9011	G 5	9021	G 7	9029	G 8	9039	H12	C626	G 9	C634	H 2	C642	G 2	C651	H 9	C661	F 9		
0353	G 9	2630	G13	2638	G11	2651	F 4	2659	F 3	3629	G12	3639	F11	3647	F 5	3658	F 2	3682	F13	3690	H10	3698	G 7	9004	H 2	9012	H 5	9022	F 7	9030	G 8	9044	D13	C627	G 9	C635	G 2	C643	F 2	C652	H 9	C662	F 9		
0355	F 2	2631	G11	2639	F12	2652	G 2	2660	F 2	3630	G12	3640	H11	3648	G 5	3661	G 3	3683	C13	3691	F 7	5601	C10	9005	F 3	9015	F 5	9023	F 7	9031	G 8	9045	B13	C628	G 9	C636	G 2	C645	H 9	C653	H10	C663	F 9		
0356	H 9	2632	G12	2640	H12	2653	F 4	2661	F 4	3633	F12	3641	F11	3649	F 5	3662	G 3	3684	C13	3692	G 7	7625	G11	9006	G 4	9016	G 5	9024	F 7	9032	G 8	9046	D13	C629	G 9	C637	G 2	C646	H 9	C654	H10	C664	F 9		
2625	F13	2633	F12	2641	G11	2654	F 2	2662	G 4	3634	H12	3642	H11	3651	F 5	3663	F 5	3685	D13	3693	F 6	7647	G 6	9007	G 4	9017	F 6	9025	H 7	9033	G10	9047	D13	C630	H 2	C638	G 2	C647	H 9	C655	H10	C665	F10		
2626	G13	2634	H12	2642	G13	2655	G 4	3625	F13	3635	F12	3643	G13	3652	G 4	3664	H 4	3686	D13	3694	G 6	7650	F 2	9008	G 4	9018	H 6	9026	G 7	9034	G10	9048	D13	C631	H 2	C639	G 2	C648	H 9	C656	H10				
2627	F13	2635	F11	2647	F 5	2656	F 2	3626	G13	3636	H12	3644	G13	3653	F 4	3679	F 5	3687	C13	3695	E13	9001	H 2	9009	G 4	9019	F 6	9027	G 8	9035	G11	9049	D13	C632	H 2	C640	G 2	C649	H 9	C657	H10				

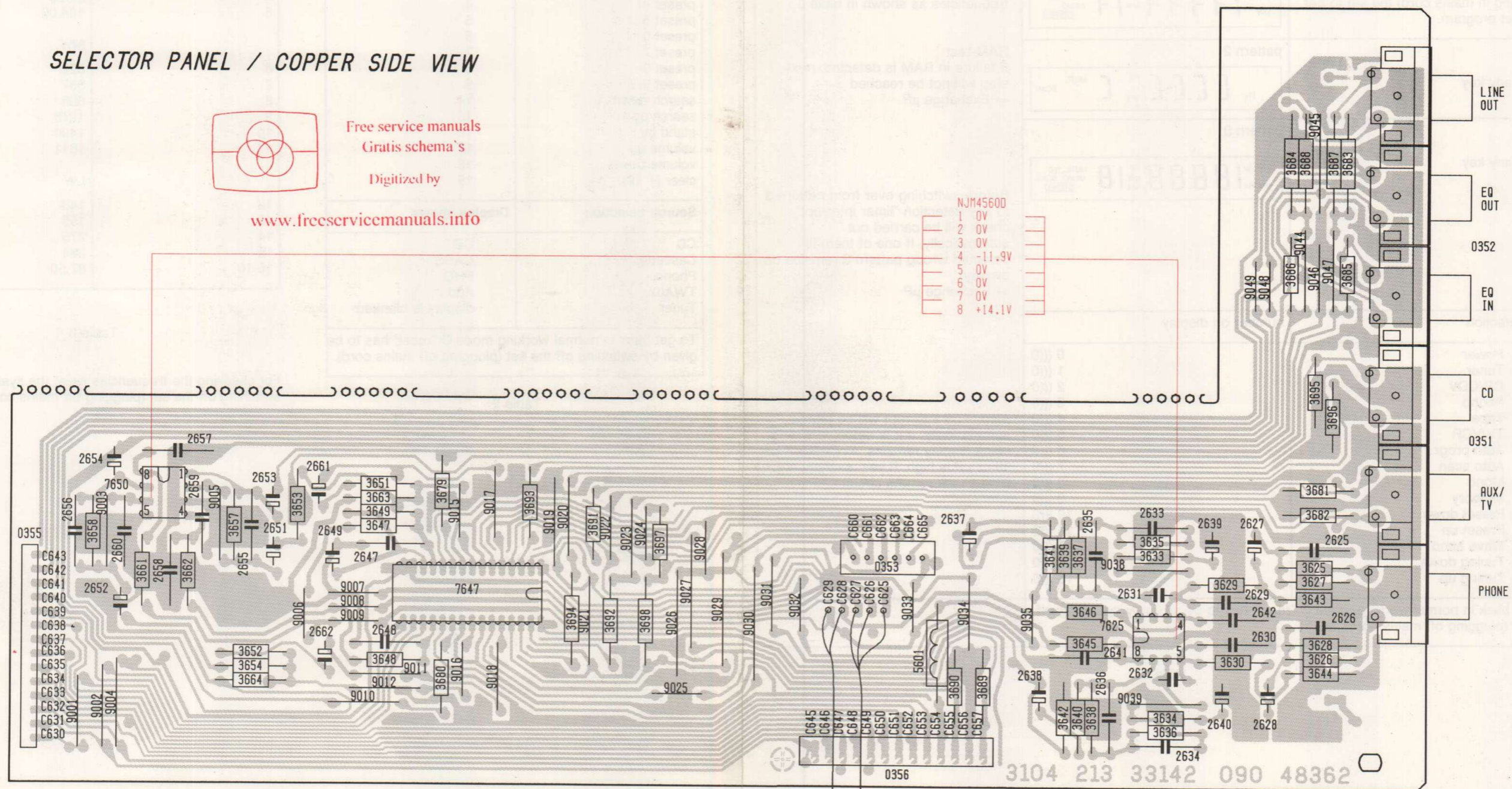
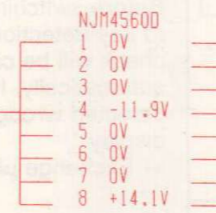
SELECTOR PANEL / COPPER SIDE VIEW



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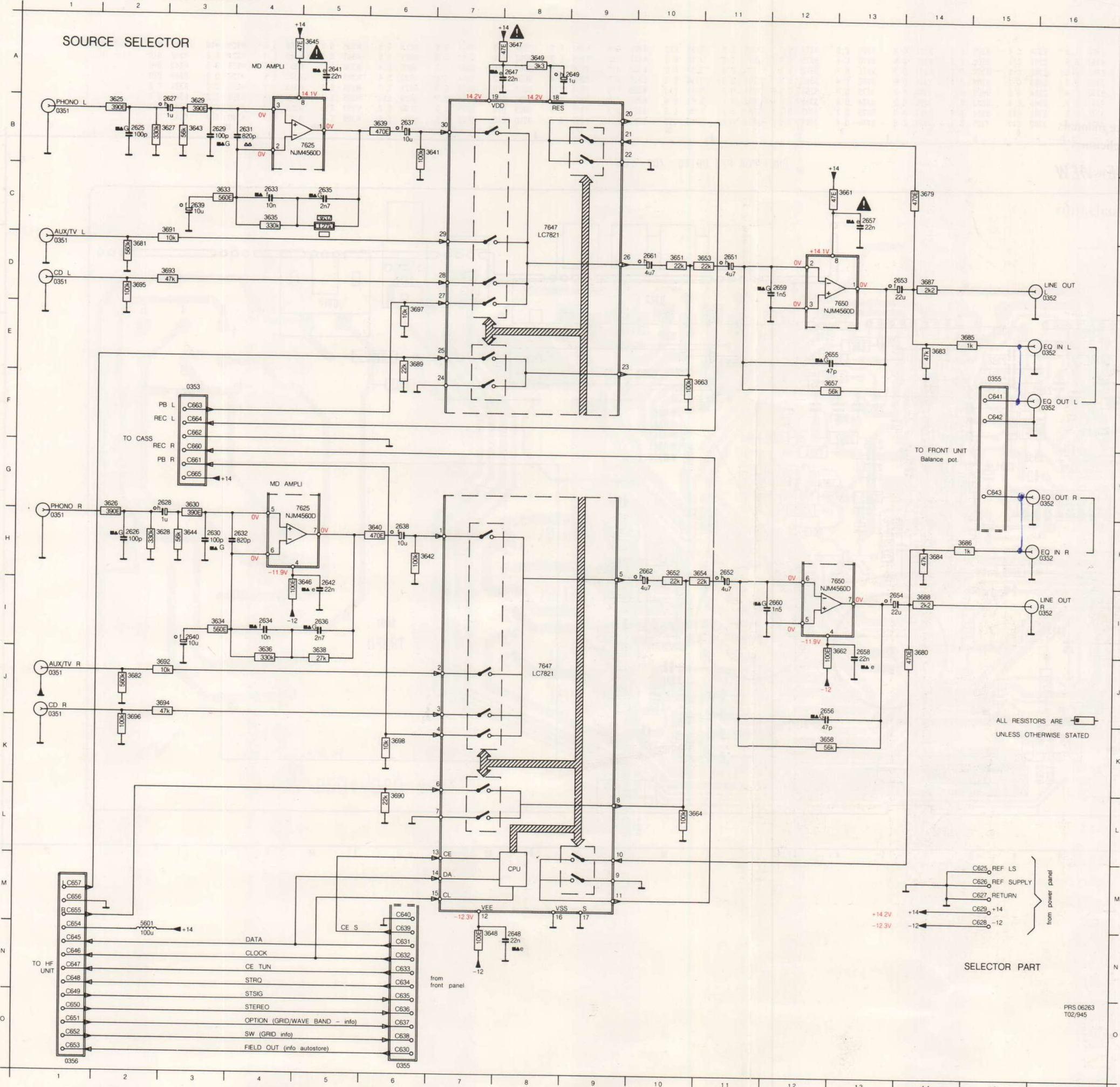
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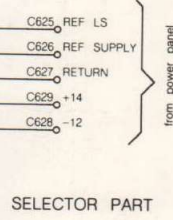


# SOURCE SELECTOR CIRCUIT DIAGRAM



- 2625 B 2
- 2626 H 2
- 2627 B 3
- 2628 G 3
- 2629 B 3
- 2630 H 3
- 2631 B 4
- 2632 H 4
- 2633 C 4
- 2634 I 4
- 2635 C 5
- 2636 I 5
- 2637 B 6
- 2638 H 6
- 2639 C 3
- 2640 I 3
- 2641 A 5
- 2642 I 5
- 2647 A 8
- 2648 N 8
- 2649 A 9
- 2651 D11
- 2652 H11
- 2653 D13
- 2654 I13
- 2655 E12
- 2656 J12
- 2657 C13
- 2658 I13
- 2659 D12
- 2660 I12
- 2661 D10
- 2662 H10
- 2665 B 2
- 2666 G 2
- 2667 B 3
- 2668 H 3
- 2669 B 3
- 2670 G 3
- 2671 C 3
- 2672 I 3
- 2673 C 4
- 2674 J 4
- 2675 C 5
- 2676 H 5
- 2677 B 6
- 2678 H 6
- 2679 C 7
- 2680 I 7
- 2681 B 8
- 2682 J 2
- 2683 E14
- 2684 H14
- 2685 E14
- 2686 H14
- 2687 D14
- 2688 I14
- 2689 E 6
- 2690 L 6
- 2691 C 3
- 2692 J 3
- 2693 D 3
- 2694 J 3
- 2695 D 2
- 2696 K 2
- 2697 E 6
- 2698 K 6
- 2699 N 2
- 2700 B 5
- 2701 G 5
- 2702 C 8
- 2703 J 8
- 2704 D13
- 2705 H13

ALL RESISTORS ARE UNLESS OTHERWISE STATED



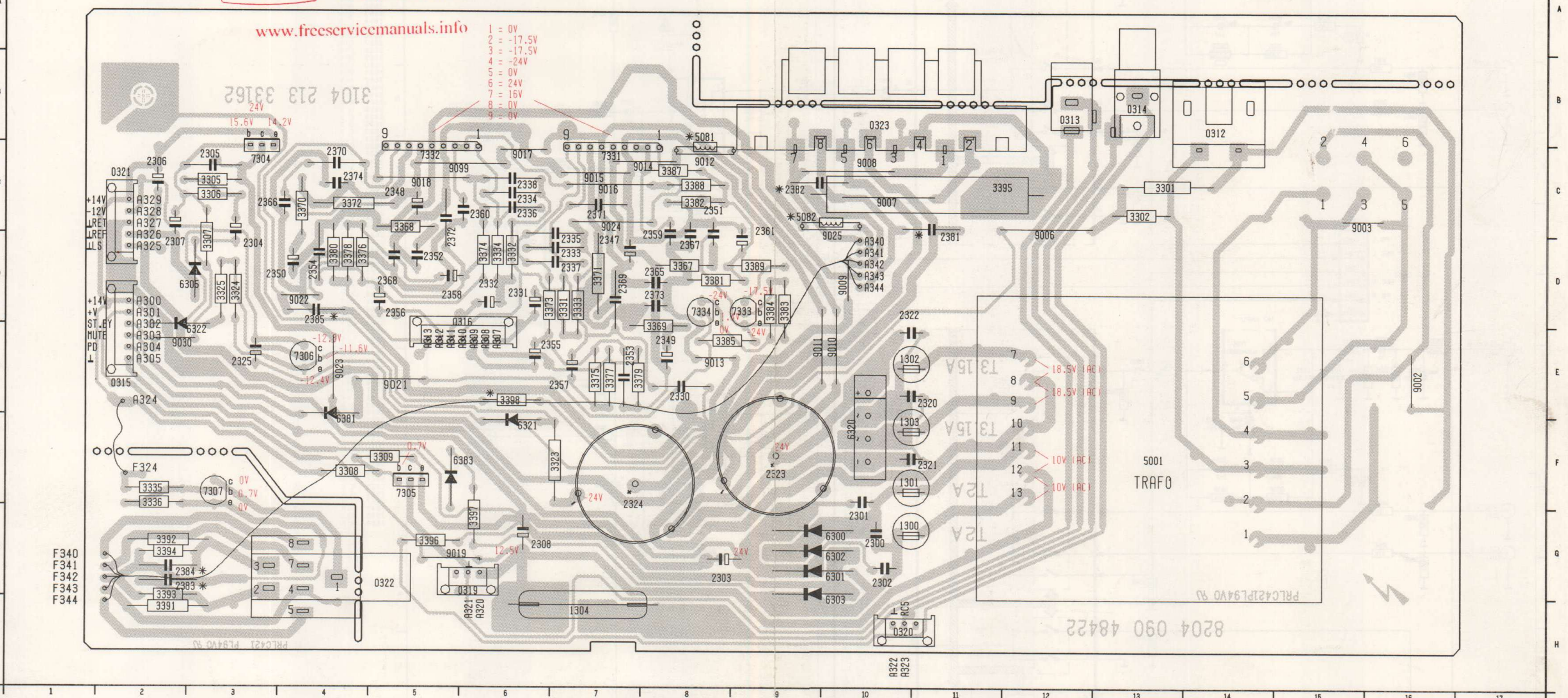
PRS 06263  
102/945

COMPONENT LAY OUT POWER UNIT

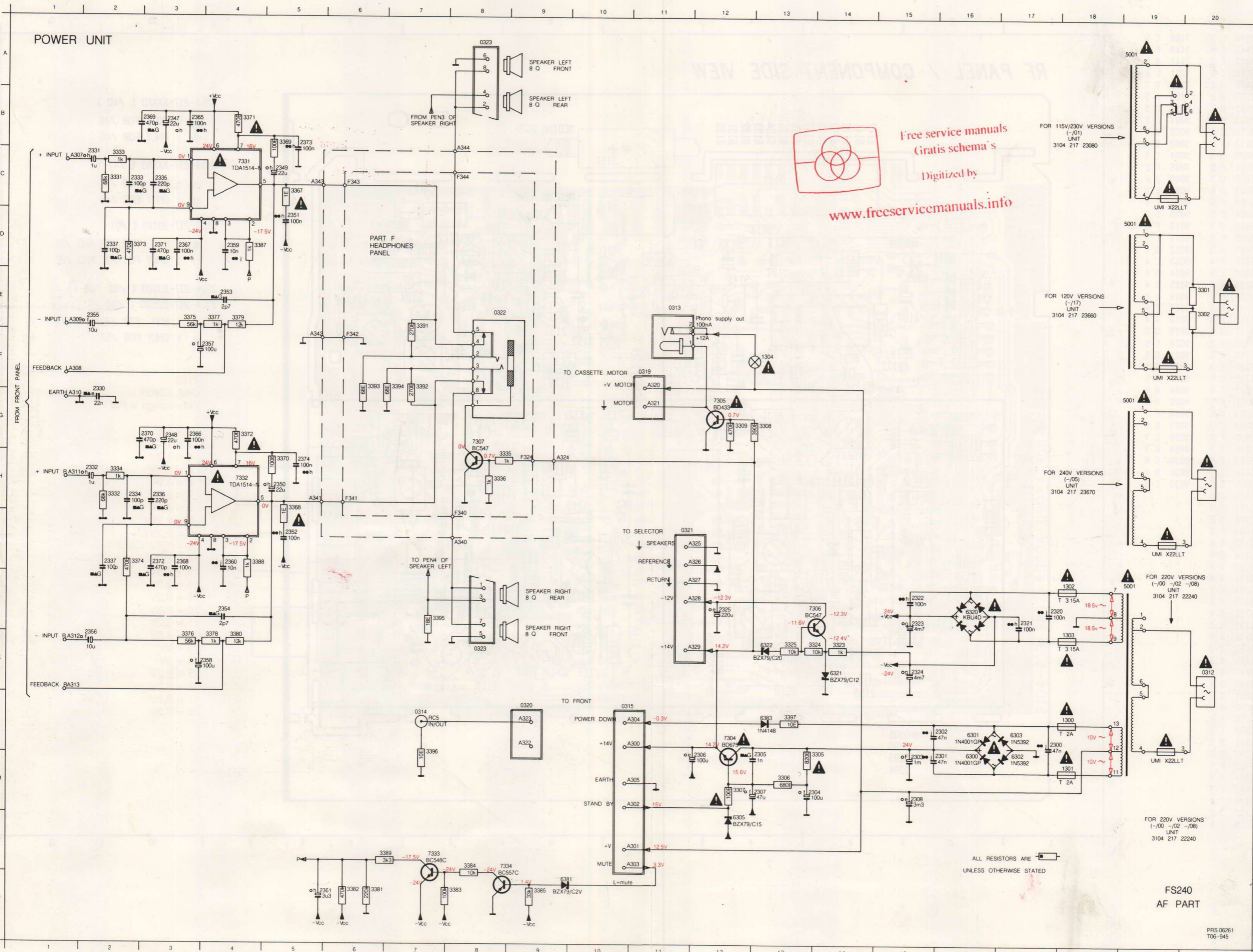
0312 B14	0321 C 2	2300 G10	2308 G 6	2331 D 6	2347 D 7	2355 E 7	2366 C 3	2374 C 4	3305 C 3	3331 D 7	3369 E 8	3377 E 7	3385 E 8	3395 C12	6301 G10	6383 F 5	7334 D 8	9011 E 9	9019 G 5	A300 D 2	A309 E 6	A323 H10	A341 D10	F343 G 1
0313 B12	0322 G 5	2301 G10	2320 E11	2332 D 6	2348 C 5	2356 D 5	2367 D 8	2381 D11	3306 C 3	3332 D 6	3370 C 4	3378 D 4	3387 C 8	3396 G 5	6302 G10	7304 C 3	9002 E16	9012 C 8	9021 E 5	A301 D 2	A310 E 6	A324 E 2	A342 D10	F344 H 1
0314 B13	1300 G10	2303 G 8	2322 D10	2334 C 6	2350 D 3	2358 D 5	2369 D 7	2383 G 2	3308 F 4	3334 D 6	3372 C 4	3380 D 4	3389 D 9	3398 E 6	6303 H10	7305 F 5	9003 C15	9013 C 8	9022 D 4	A302 E 2	A311 E 5	A325 D 2	A343 D10	
0315 E 2	1301 F10	2304 D 3	2323 F 9	2335 D 7	2351 C 8	2359 D 8	2370 C 4	2384 G 2	3309 F 5	3335 F 2	3373 D 7	3381 D 8	3391 H 2	5001 F13	6320 F10	7307 F 3	9007 C10	9015 C 7	9024 C 7	A304 E 2	A313 E 5	A327 C 2	F324 F 2	
0316 E 6	1302 E10	2305 C 3	2324 G 7	2336 C 6	2352 D 5	2360 C 6	2371 C 7	2385 E 4	3323 F 7	3336 G 2	3374 D 6	3382 C 8	3392 G 2	5081 B 8	6321 F 6	7331 C 7	9008 C10	9016 C 7	9025 D10	A305 E 2	A320 H 6	A328 C 2	F340 G 1	
0319 G 6	1303 F10	2306 C 2	2325 E 3	2337 D 7	2353 E 7	2361 C 9	2372 D 8	2386 E 4	3324 D 3	3367 D 8	3375 E 7	3383 D 9	3393 H 2	5082 C 9	6322 E 3	7332 C 5	9009 D10	9017 C 6	9030 E 2	A307 E 6	A321 H 6	A329 C 2	F341 G 1	
0320 H10	1304 H 7	2307 D 2	2330 E 6	2338 C 6	2354 D 4	2365 D 8	2373 D 8	2387 D 8	3325 D 3	3368 C 5	3376 D 4	3384 D 9	3394 G 2	6300 G10	6381 F 4	7333 D 9	9010 E10	9018 C 5	9099 C 5	A308 E 6	A322 H10	A340 D10	F342 G 1	

POWER PANEL / COPPER SIDE VIEW

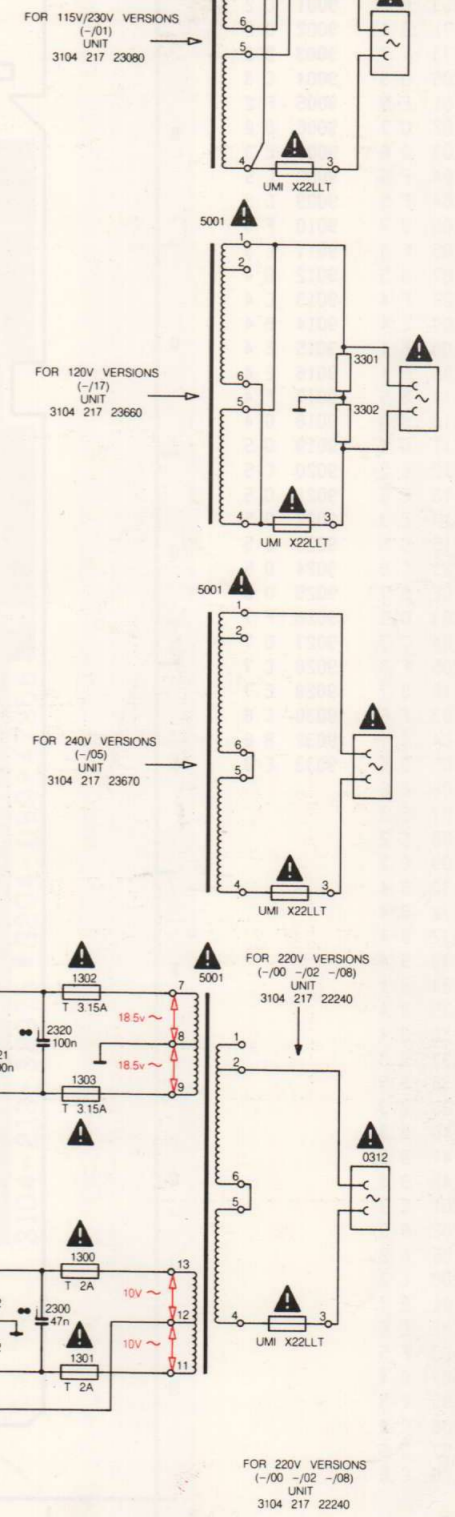
\* ONLY FOR FTZ UNITS /02 /08



POWER UNIT



Free service manuals  
Gratis schema's  
Digitized by  
www.freeservicemanuals.info



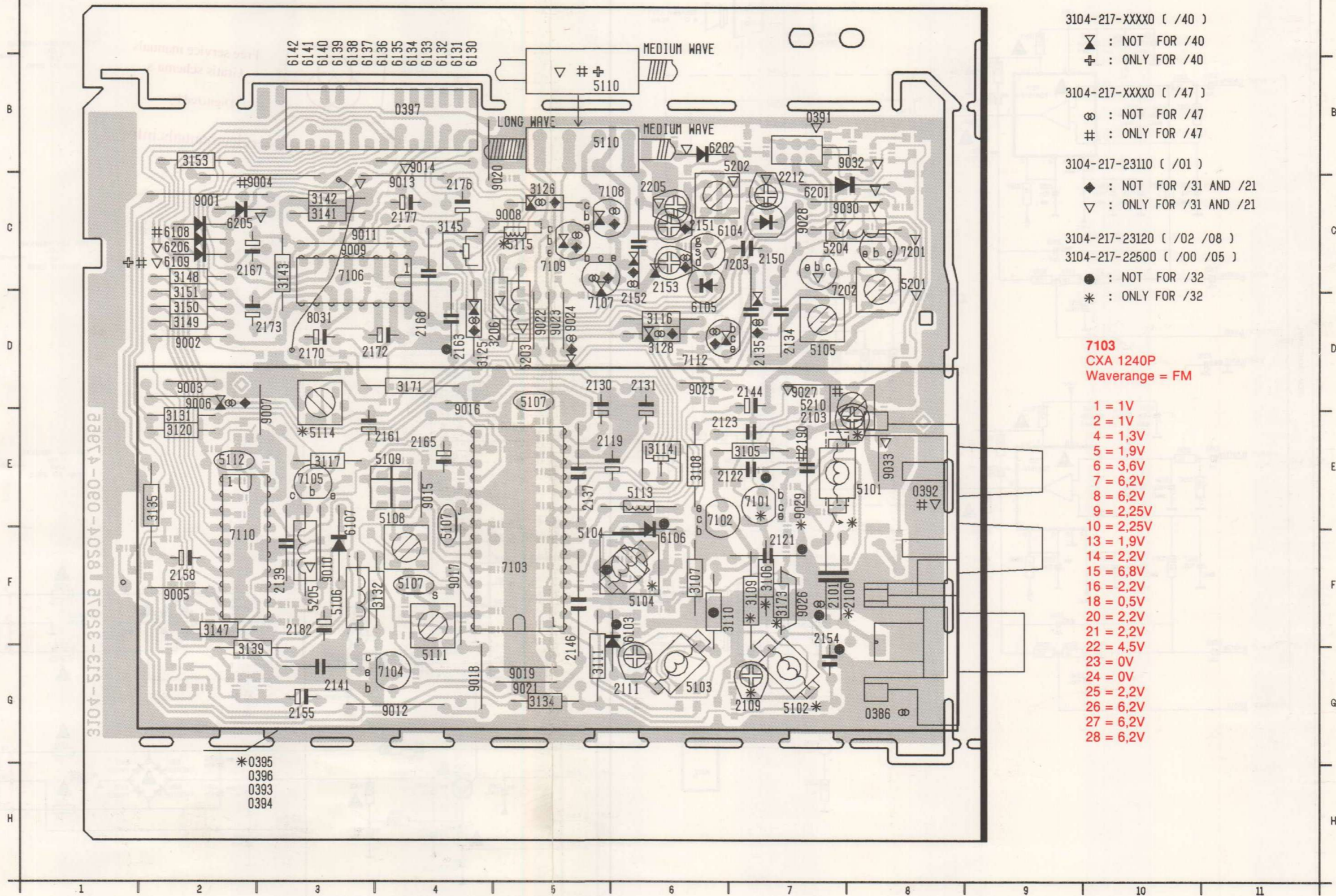
- 0312 K20
- 0313 E11
- 0314 J 7
- 0322 E 8
- 1300 L18
- 1301 M8
- 1302 J18
- 1303 J18
- 1304 F13
- 2300 L17
- 2301 L16
- 2302 L16
- 2303 L15
- 2304 M4
- 2305 L13
- 2306 L12
- 2307 M3
- 2308 M5
- 2320 J17
- 2321 J17
- 2322 J15
- 2323 J15
- 2324 K15
- 2325 J12
- 2330 G 2
- 2331 C 2
- 2332 H 2
- 2333 C 2
- 2334 H 2
- 2335 C 3
- 2336 H 3
- 2337 D 2
- 2337 I 2
- 2347 B 3
- 2348 G 3
- 2349 C 5
- 2350 H 5
- 2351 D 5
- 2352 I 5
- 2353 E 4
- 2354 J 4
- 2355 E 2
- 2356 K 2
- 2357 F 4
- 2358 K 4
- 2359 D 4
- 2360 I 4
- 2361 O 6
- 2365 B 3
- 2366 G 3
- 2367 D 3
- 2368 G 3
- 2369 H 5
- 2370 G 3
- 2371 D 3
- 2372 I 3
- 2373 B 5
- 2374 H 5
- 3301 E20
- 3302 E20
- 3305 L14
- 3306 M3
- 3307 M2
- 3308 G1
- 3309 G12
- 3323 K14
- 3324 K14
- 3325 K13
- 3331 C 2
- 3332 H 2
- 3333 C 2
- 3334 H 2
- 3335 H 8
- 3336 H 8
- 3337 C 5
- 3368 H 5
- 3369 B 5
- 3370 H 5
- 3371 B 4
- 3372 G 4
- 3373 D 2
- 3374 I 2
- 3375 E 3
- 3376 K 3
- 3377 E 4
- 3378 K 4
- 3379 E 4
- 3380 K 4
- 3381 O 6
- 3382 O 6
- 3383 O 8
- 3384 N 8
- 3385 O 9
- 3387 D 4
- 3388 I 4
- 3389 N 7
- 3391 E 7
- 3392 F 7
- 3393 F 6
- 3394 F 7
- 3395 J 7
- 3396 L 7
- 3397 L13
- 5001 G19
- 5001 D19
- 5001 A19
- 5001 J19
- 6300 L16
- 6301 L16
- 6302 L17
- 6303 L12
- 6305 N12
- 6320 K14
- 6321 K14
- 6322 K13
- 6381 O 9
- 6383 L13
- 7304 L12
- 7305 G12
- 7306 J14
- 7307 G 8
- 7331 C 4
- 7332 H 4
- 7333 N 7
- 7334 N 8

ALL RESISTORS ARE  
UNLESS OTHERWISE STATED

FS240  
AF PART

0386	G 8	3143	C 3	7109	C 5
0391	B 7	3145	C 4	7110	F 2
0392	E 8	3147	F 2	7112	D 6
0393	H 2	3148	C 2	7201	C 8
0394	H 2	3149	D 2	7202	D 7
0395	G 2	3150	D 2	7203	C 7
0396	H 2	3151	D 2	8031	D 3
0397	B 4	3153	B 2	9001	C 2
2100	F 8	3171	D 4	9002	D 2
2101	F 7	3173	F 7	9003	D 2
2103	E 7	3206	D 5	9004	C 3
2109	G 7	5101	E 8	9005	F 2
2111	G 6	5102	G 7	9006	D 2
2119	E 6	5103	G 6	9007	E 3
2121	F 7	5104	F 6	9008	C 5
2122	E 7	5104	F 5	9009	C 3
2123	E 6	5105	D 7	9010	F 3
2130	D 5	5106	F 3	9011	C 3
2131	D 6	5107	D 5	9012	G 4
2134	D 7	5107	F 4	9013	C 4
2135	D 7	5107	E 4	9014	B 4
2137	E 5	5108	E 4	9015	E 4
2139	F 3	5109	E 4	9016	E 4
2141	G 3	5110	B 5	9017	F 4
2144	D 7	5110	B 5	9018	G 4
2146	G 5	5111	G 4	9019	G 5
2150	C 7	5112	E 2	9020	C 5
2151	C 6	5113	E 6	9021	G 5
2152	D 6	5114	E 3	9022	D 5
2153	D 6	5115	C 5	9023	D 5
2154	F 7	5201	C 8	9024	D 5
2155	G 3	5202	B 7	9025	D 6
2158	F 2	5203	D 5	9026	F 7
2161	E 4	5204	C 7	9027	D 7
2163	D 4	5205	F 3	9028	C 7
2165	E 4	5210	D 7	9029	E 7
2167	C 2	6103	F 6	9030	C 8
2168	D 4	6104	C 7	9032	B 8
2170	D 3	6105	D 6	9033	E 8
2172	D 4	6106	F 6		
2173	D 3	6107	E 3		
2176	C 4	6108	C 2		
2177	C 4	6109	C 2		
2182	F 3	6130	B 4		
2190	E 7	6131	B 4		
2205	C 6	6132	B 4		
2212	C 7	6133	B 4		
3105	E 7	6134	B 4		
3106	F 7	6135	B 4		
3107	F 6	6136	B 4		
3108	E 6	6137	B 3		
3109	F 7	6138	B 3		
3110	F 7	6139	B 3		
3111	G 5	6140	B 3		
3114	E 6	6141	B 3		
3116	D 6	6142	B 3		
3117	E 3	6201	C 7		
3120	E 2	6202	B 6		
3125	D 4	6205	C 2		
3126	C 5	6206	C 2		
3128	D 6	7101	E 7		
3131	E 2	7102	E 6		
3132	F 4	7103	F 5		
3134	G 5	7104	G 4		
3135	E 2	7105	E 3		
3139	G 2	7106	C 3		
3141	C 3	7107	D 5		
3142	C 3	7108	C 6		

### RF PANEL / COMPONENT SIDE VIEW



3104-217-XXXX0 ( /40 )  
 ∆ : NOT FOR /40  
 ⊕ : ONLY FOR /40

3104-217-XXXX0 ( /47 )  
 ∞ : NOT FOR /47  
 # : ONLY FOR /47

3104-217-23110 ( /01 )  
 ◆ : NOT FOR /31 AND /21  
 ▽ : ONLY FOR /31 AND /21

3104-217-23120 ( /02 /08 )  
 3104-217-22500 ( /00 /05 )

● : NOT FOR /32  
 \* : ONLY FOR /32

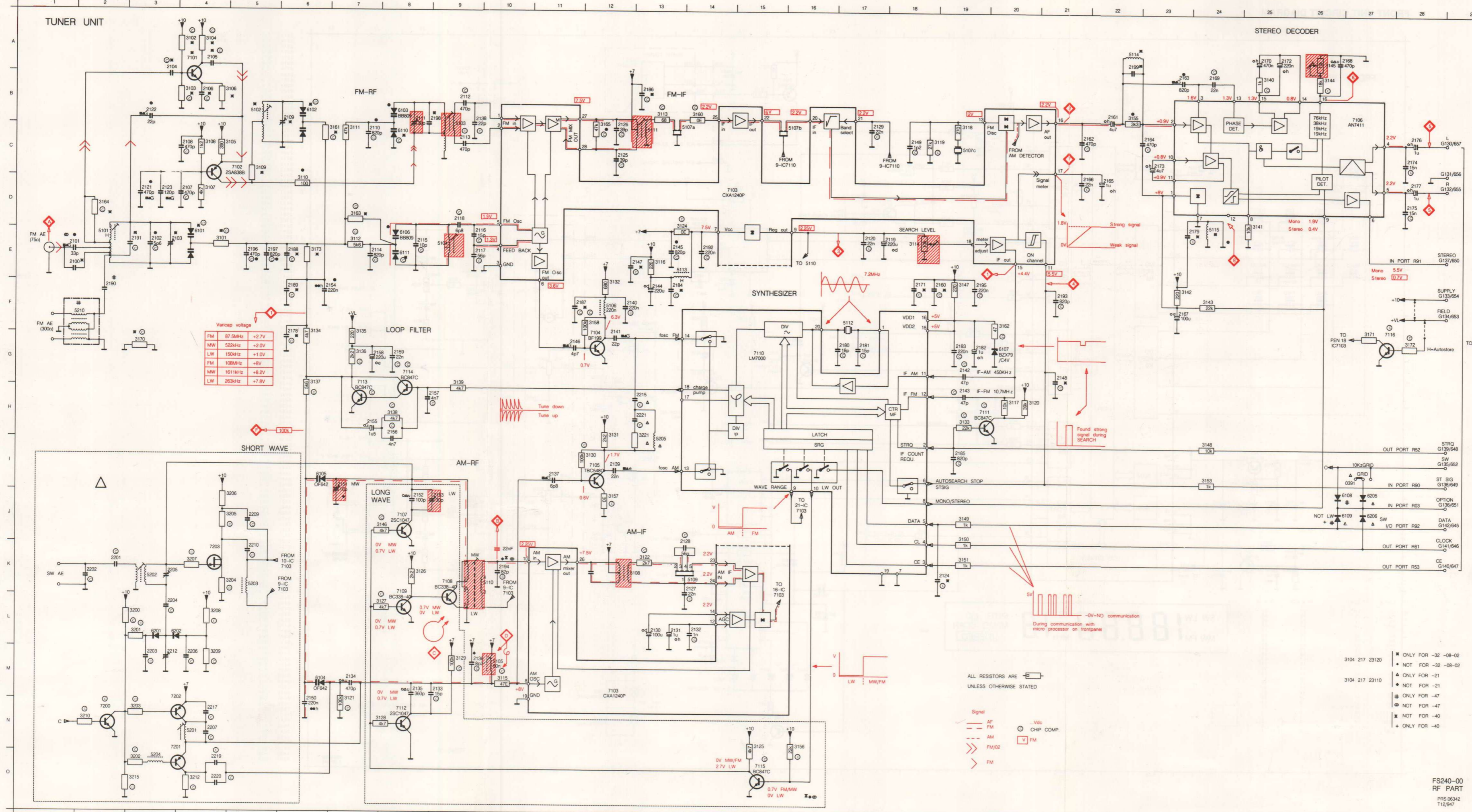
**7103**  
**CXA 1240P**  
**Waverange = FM**

- 1 = 1V
- 2 = 1V
- 4 = 1,3V
- 5 = 1,9V
- 6 = 3,6V
- 7 = 6,2V
- 8 = 6,2V
- 9 = 2,25V
- 10 = 2,25V
- 13 = 1,9V
- 14 = 2,2V
- 15 = 6,8V
- 16 = 2,2V
- 18 = 0,5V
- 20 = 2,2V
- 21 = 2,2V
- 22 = 4,5V
- 23 = 0V
- 24 = 0V
- 25 = 2,2V
- 26 = 6,2V
- 27 = 6,2V
- 28 = 6,2V

3104-513-35812 19504-030-1382

\*0395  
 0396  
 0393  
 0394

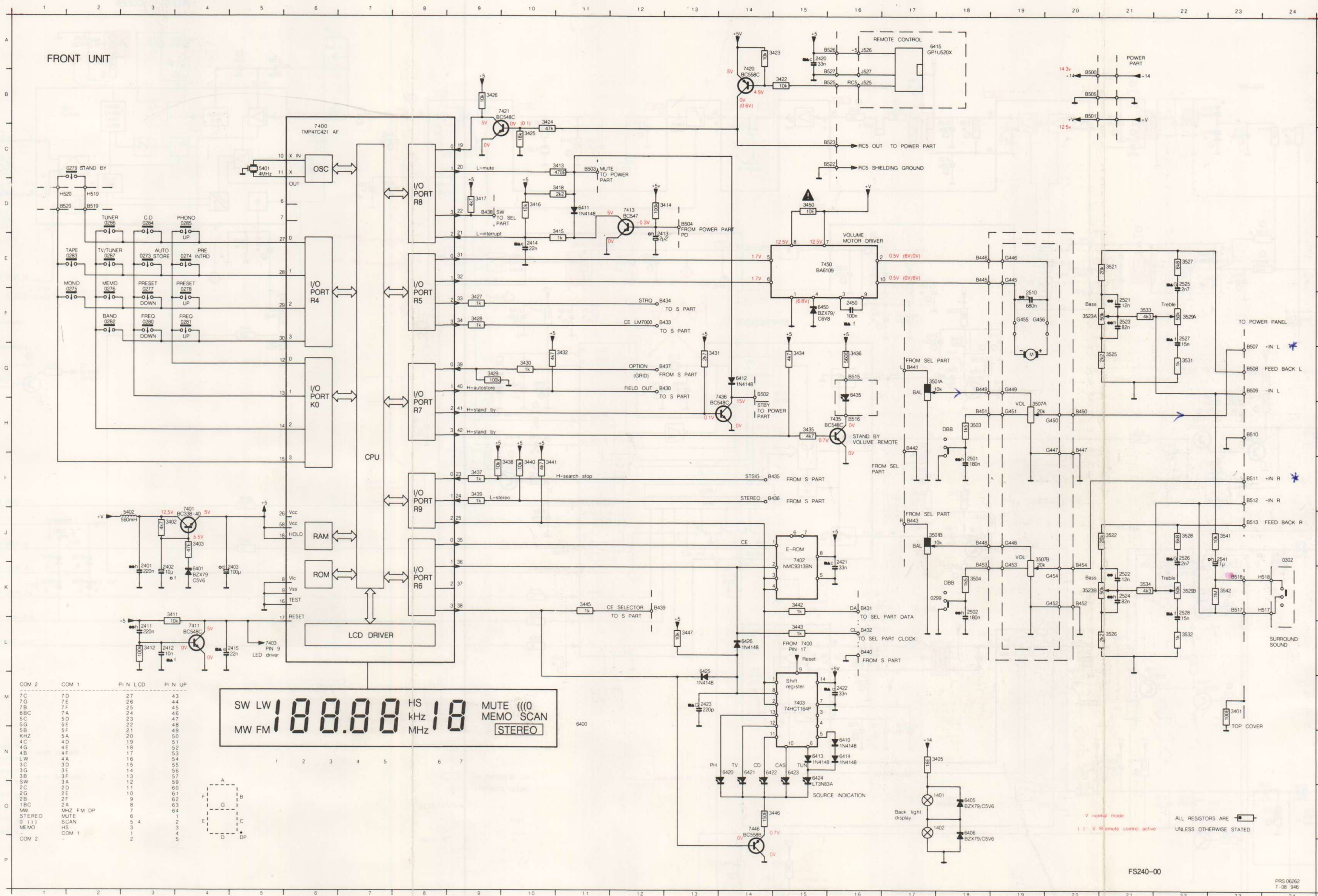
TUNER CIRCUIT DIAGRAM



2100	E 1	3137	G 6
2101	E 1	3138	H 8
2102	E 3	3139	G 9
2103	E 4	3140	B25
2104	A 3	3141	B26
2105	A 4	3142	F23
2106	B 4	3143	F24
2107	D 4	3144	B26
2108	C 4	3145	A26
2109	B 6	3146	J 8
2110	C 7	3147	F19
2111	B 8	3148	I 24
2112	B 9	3149	J19
2113	C 9	3150	N16
2114	E 7	3151	K19
2115	E 8	3152	I 24
2116	E 0	3153	B22
2117	E 10	3154	B22
2118	D 9	3157	J12
2119	E 18	3158	F12
2120	E 17	3159	F12
2121	D 3	3161	C 7
2122	B 3	3162	F20
2123	D 3	3163	D 7
2124	K19	3164	D 2
2125	C12	3165	B12
2126	B12	3170	G 3
2127	K14	3171	J 27
2128	J14	3172	G28
2129	B17	3173	E 6
2130	L13	3200	K 3
2131	L13	3201	L 3
2132	L14	3202	O 3
2133	M 8	3203	N 3
2134	M 7	3204	K 5
2135	M 8	3205	J 5
2136	M 0	3206	F 5
2137	I 11	3207	K 4
2138	B10	3208	L 4
2139	E 12	3209	M 4
2140	F12	3210	F12
2141	F12	3212	O 4
2142	G19	3215	O 3
2143	G11	3216	F 5
2144	F13	5101	E 2
2145	E13	5102	B 5
2146	G11	5103	C 3
2147	E13	5104	E 9
2148	G21	5105	M10
2149	C18	5106	F12
2150	M 6	5108	K13
2151	I 7	5109	K14
2152	J 8	5110	K10
2153	H 9	5111	C13
2154	F 7	5112	F17
2155	H 7	5113	E13
2156	H 8	5114	A22
2157	H 9	5115	D24
2158	G 8	5201	N 4
2159	B22	5204	O 3
2160	C21	5205	H13
2161	A23	5210	F 2
2162	C23	6101	E 4
2163	C22	6102	B 6
2164	C21	6103	B 8
2165	F23	6104	M 6
2166	A27	6105	I 6
2167	A24	6106	B 8
2168	F18	6108	I 27
2169	A25	6109	J27
2170	C23	6110	C 8
2171	F18	6111	E 8
2172	D28	6201	L 3
2173	C28	6202	L 4
2174	D28	6205	I 27
2175	F 6	6206	J27
2176	D24	7101	A 4
2177	G17	7102	C 5
2178	G17	7103	D14
2179	G19	7103	M2
2180	G19	7104	F12
2181	F13	7105	I 12
2182	F12	7108	K 9
2183	F12	7108	K 9
2184	F12	7108	K 9
2185	I 9	7106	B27
2186	B13	7107	J 8
2187	F12	7108	K 9
2188	E 6	7109	K 8
2189	F 6	7110	G 8
2190	F 2	7111	H19
2191	E 3	7112	N 8
2192	E14	7113	G 7
2193	F21	7113	G 8
2194	K10	7115	O15
2195	F19	7116	F27
2196	E 5	7200	N 2
2197	E 5	7201	N 4
2198	B 9	7202	M 4
2199	A22	7203	K 4
2201	K 2		C19
2202	K 2		
2203	M 3		
2204	L 3		
2205	K 3		
2206	M 4		
2207	N 4		
2208	J 5		
2209	J 5		
2210	K 5		
2211	M 3		
2212	M 3		
2213	H13		
2214	N 4		
2215	N 4		
2216	N 4		
2217	N 4		
2218	N 4		
2219	N 4		
2220	O 4		
2221	H13		
2222	E 4		
2223	E 4		
2224	E 4		
2225	A 4		
2226	A 4		
2227	C 5		
2228	D 4		
2229	D 4		
2230	C 5		
2231	D 6		
2232	C 7		
2233	C 7		
2234	B13		
2235	B13		
2236	E18		
2237	M 0		
2238	E13		
2239	H20		
2240	B19		
2241	C19		
2242	H20		
2243	M 7		
2244	K13		
2245	D13		
2246	N15		
2247	K 8		
2248	L 8		
2249	N 8		
2250	M 9		
2251	I 12		
2252	H12		
2253	H19		
2254	F 6		
2255	F 7		
2256	G 7		

FS240-00  
RF PART  
PRS 06342  
T12/947

# FRONT UNIT CIRCUIT DIAGRAM

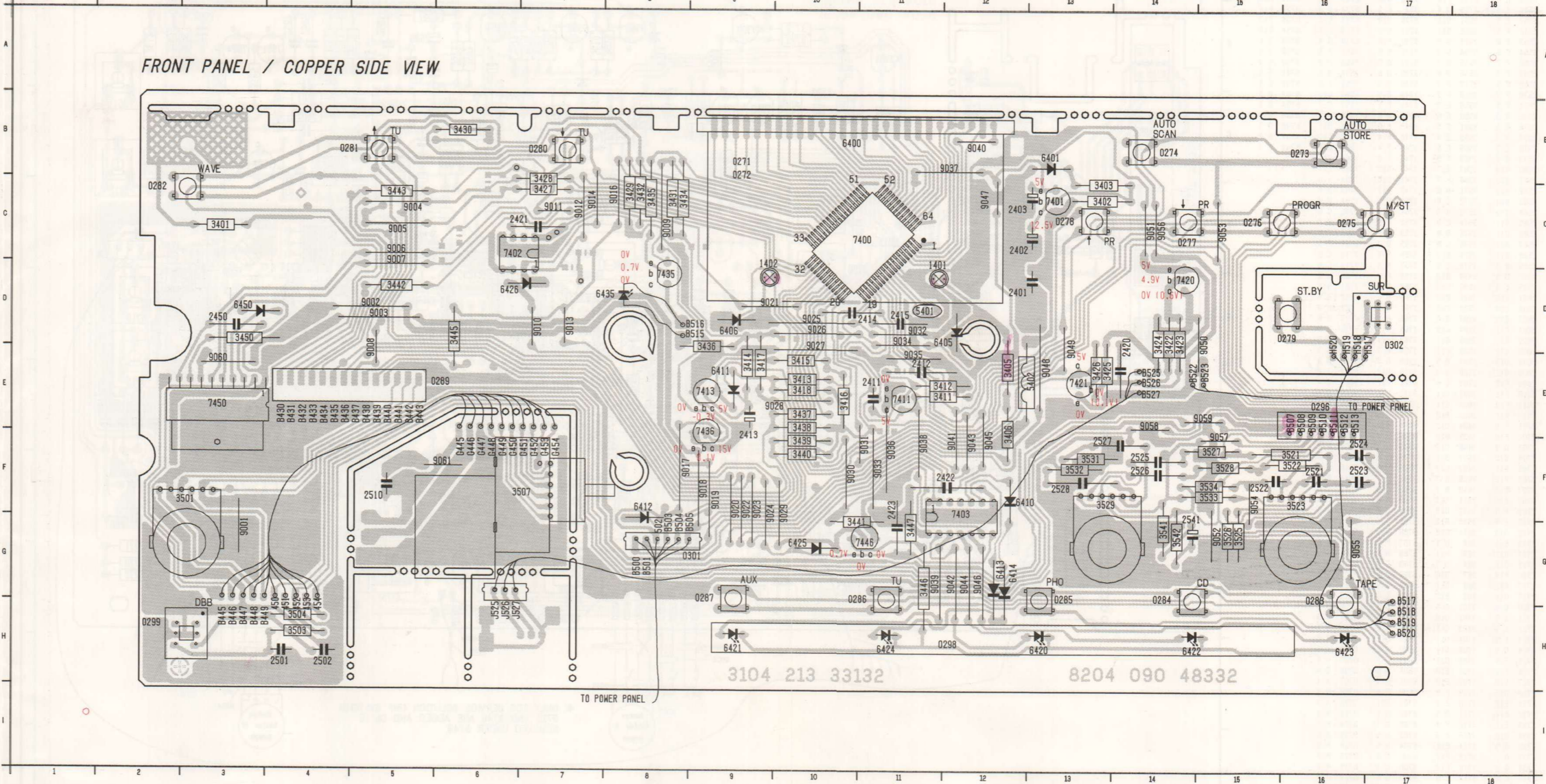


COM 2	COM 1	PI N LCD	PI N UP
7C	7D	27	43
7G	7E	28	44
7B	7F	25	45
6BC	7A	24	46
5C	5D	23	47
5G	5E	22	48
5B	5F	21	49
4HZ	5A	20	50
4C	4D	19	51
4G	4E	18	52
4B	4F	17	53
3W	3A	16	54
3C	3D	15	55
3G	3E	14	56
3B	3F	13	57
2W	2A	12	59
2C	2D	11	60
2G	2E	10	61
2B	2F	9	62
1BC	1A	8	64
MW	MHZ F M DP	7	64
STEREO	MUTE	6	1
0 (111)	SIGAN	5	2
MEMO	HS	3	3
COM 2	COM 1	1	4
		2	5

- 0273 E 3
- 0274 E 4
- 0275 F 2
- 0277 F 3
- 0278 F 4
- 0279 C 2
- 0280 F 3
- 0281 F 4
- 0282 F 2
- 0283 E 2
- 0284 D 3
- 0285 D 4
- 0286 D 2
- 0287 E 2
- 0289 K18
- 0302 J24
- 1401 O17
- 1402 O17
- 2401 K 3
- 2402 K 3
- 2403 K 4
- 2411 L 3
- 2412 L 3
- 2413 D12
- 2414 E10
- 2415 L 4
- 2420 A15
- 2421 J16
- 2422 M16
- 2423 M13
- 2450 F16
- 2501 I18
- 2502 K18
- 2510 F19
- 2521 F21
- 2522 K21
- 2523 F21
- 2524 K21
- 2525 E22
- 2526 J22
- 2527 F22
- 2528 K22
- 2541 J23
- 3401 M23
- 3402 J 3
- 3403 J 4
- 3405 N17
- 3411 K 3
- 3412 L 3
- 3413 C11
- 3414 D12
- 3415 D11
- 3416 D10
- 3417 D 9
- 3418 D11
- 3422 B15
- 3423 A14
- 3424 B10
- 3425 C10
- 3426 B 9
- 3427 F 9
- 3428 F 9
- 3429 G 9
- 3430 G10
- 3431 G13
- 3432 G10
- 3434 G15
- 3435 H15
- 3436 G16
- 3437 I 9
- 3438 I 9
- 3439 I 9
- 3440 I10
- 3441 I10
- 3442 K15
- 3443 L15
- 3445 K11
- 3446 O14
- 3447 L13
- 3450 D13
- 3503 H18
- 3504 K18
- 3521 E21
- 3522 J21
- 3523 F21
- 3523 K21
- 3525 Q21
- 3526 L21
- 3527 E22
- 3528 J22
- 3529 F22
- 3529 K22
- 3531 G22
- 3532 L22
- 3533 F21
- 3534 K21
- 3541 J23
- 3542 K23
- 5401 C 5
- 5402 J 3
- 6400 M11
- 6401 K 4
- 6405 O18
- 6406 O18
- 6410 N16
- 6411 D11
- 6412 G14
- 6413 N15
- 6414 N16
- 6415 A17
- 6420 N14
- 6421 N14
- 6422 N14
- 6423 N15
- 6424 N15
- 6425 L13
- 6426 L14
- 6435 G16
- 6450 F15
- 7400 C 6
- 7401 J 4
- 7402 J15
- 7403 M15
- 7411 L 4
- 7413 D12
- P420 A14
- 7421 B10
- 7435 H16
- 7436 G14

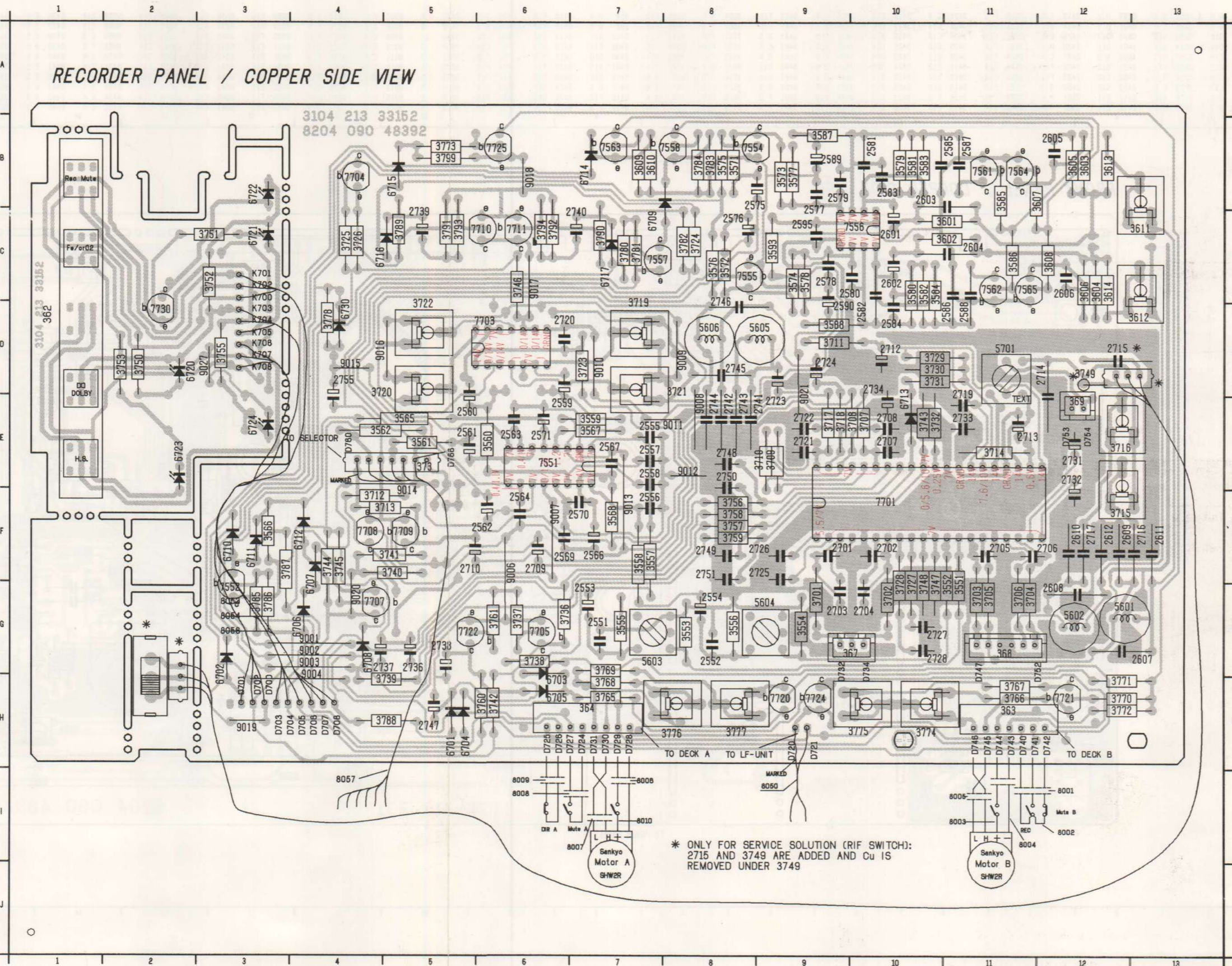
FRONT PANEL COMPONENT LAY OUT

0271 B 9	0281 B 4	0299 H 2	2413 F 9	2510 F 5	3401 C 3	3416 E10	3429 C 8	3440 F10	3504 H 4	3531 F13	454 H 4	6412 F 8	6435 D 8	7435 D 8	9007 C 5	9018 F 9	9028 E10	9038 F11	9048 E13	9058 E14	B436 E 4	B447 H 3	B509 E16	B520 H17	O449 F 6	J525 H 6
0272 B 9	0282 C 2	0301 G 9	2414 D11	2521 F16	3402 C13	3417 E 9	3430 B 6	3441 D10	3507 F 7	3532 F13	502 G 8	6413 D12	6450 D 3	7436 E 9	9008 E 5	9019 F 9	9029 F10	9039 G11	9049 D13	9059 E15	B437 E 5	B448 H 3	B510 E16	B522 E14	O450 F 6	J526 H 6
0273 B16	0283 D16	0302 D17	2415 D11	2522 F15	3403 C13	3418 E10	3431 C 8	3442 D 5	3521 F16	3533 F15	5401 D11	6414 D12	7400 C11	7446 G11	9009 C 8	9020 F 9	9030 F10	9040 B12	9050 D15	9060 E 3	B438 E 5	B449 H 4	B511 E16	B523 E15	O451 F 7	J527 H 7
0274 B14	0284 D14	1402 D 9	2420 D14	2523 F16	3405 E12	3422 D14	3432 C 8	3443 C 5	3522 F16	3534 F15	5402 E13	6420 H13	7401 C13	7450 E 3	9010 D 7	9021 D 9	9031 F11	9041 F12	9051 C14	9061 F 6	B439 E 5	B500 G 8	B512 E16	B525 E14	O452 F 7	
0275 C16	0285 D13	1402 D 9	2421 C 6	2524 F16	3406 E12	3423 D14	3434 C 8	3445 D 6	3523 F16	3541 G14	6400 B10	6421 H 9	7402 C 6	9001 G 3	9011 C 7	9022 F 9	9032 D11	9042 G12	9052 G15	B430 E 4	B440 E 5	B501 G 8	B513 E16	B526 E14	O453 F 7	
0276 C15	0286 H11	2401 D12	2422 F12	2525 F14	3411 E12	3424 D14	3435 C 8	3446 G11	3525 G15	3542 G14	6401 B13	6422 H14	7403 F12	9002 D 5	9012 C 7	9023 F 9	9033 F11	9043 F12	9053 C15	B431 E 4	B441 E 5	B503 G 8	B515 D 9	B527 E14	O454 F 7	
0277 C14	0287 H 9	2402 C12	2423 F11	2526 F14	3412 E12	3425 E13	3436 D 9	3447 G11	3526 G15	450 H 4	6405 D12	6423 H16	7411 E11	9003 D 5	9013 D 7	9024 F 9	9034 D11	9044 G12	9054 F15	B432 E 4	B442 E 5	B504 G 8	B516 D 9	B527 E14	O454 F 7	
0278 C13	0289 E 6	2403 C12	2450 D 3	2527 F13	3413 E10	3426 E13	3437 E10	3450 D 3	3527 F15	451 H 4	6406 D 9	6424 H11	7413 E 9	9004 C 5	9014 C 7	9025 D10	9035 E11	9045 F12	9055 D16	B433 E 4	B443 E 5	B505 G 9	B517 D17	B528 E14	O455 F 7	
0279 D16	0296 E16	2411 E11	2501 H 4	2528 F13	3414 E 9	3427 C 7	3438 E10	3501 F 3	3528 F15	452 H 4	6410 F12	6425 G10	7420 D14	9005 C 5	9016 C 8	9026 D10	9036 F11	9046 G12	9056 C14	B434 E 4	B444 H 3	B507 E16	B518 H17	B529 E14	O456 F 7	
0280 B 7	0298 H12	2412 E11	2502 H 4	2541 F14	3415 E10	3428 C 7	3439 F10	3503 H 4	3529 F13	453 H 4	6411 E 9	6426 D 6	7421 E13	9006 C 5	9017 F 8	9027 D10	9037 B12	9047 C12	9057 F15	B435 E 4	B446 H 3	B508 E16	B519 H17	B520 D16	O457 F 7	



REC PANEL COMPONENT LAY OUT

2551	G 7	2743	E 8	3721	D 8	6711	F 3	0734	H10
2552	G 8	2744	E 8	3722	D 5	6712	F 4	0740	H11
2553	G 7	2745	D 8	3723	D 7	6713	E10	0741	H12
2554	G 8	2746	C 8	3724	C 8	6714	B 7	0742	H12
2555	E 7	2747	H 5	3725	C 4	6715	B 5	0743	H11
2556	F 7	2748	E 8	3726	C 4	6716	C 4	0744	H11
2557	E 7	2749	F 8	3727	G10	6717	C 7	0745	H11
2558	E 7	2750	E 8	3728	G10	6720	D 2	0746	H11
2559	E 6	2751	F 8	3729	D10	6721	C 3	0747	H11
2560	E 5	2755	D 4	373	E 5	6722	B 3	0752	H12
2561	E 5	3551	G11	3730	D10	6723	E 2	0753	E12
2562	F 6	3552	G11	3731	D10	6724	C 3	0754	E12
2563	E 6	3553	G 8	3732	E10	6730	D 4	0760	E 4
2564	F 6	3554	G 9	3736	G 6	7551	E 6	0766	E 5
2566	F 7	3555	G 7	3737	G 6	7552	G 3	K700	C 3
2567	E 7	3556	G 8	3738	G 6	7554	B 8	K701	C 3
2569	F 6	3557	F 7	3739	H 5	7555	C 8	K702	C 3
2570	F 7	3558	F 7	3740	F 5	7556	C10	K703	D 3
2571	E 6	3559	E 7	3741	F 5	7557	C 7	K704	D 3
2575	B 8	3560	E 6	3742	H 6	7558	B 8	K705	D 3
2576	C 8	3561	E 5	3743	E10	7561	B11	K706	D 3
2577	B 9	3562	E 4	3744	F 4	7562	C11	K707	D 3
2578	C 9	3565	E 5	3745	F 4	7563	B 7	K708	D 3
2579	B 9	3566	F 3	3746	C 6	7564	B11		
2580	C10	3567	E 7	3747	G10	7565	C11		
2581	B10	3568	F 7	3748	G10	7701	F10		
2582	D10	3571	B 8	3749	D12	7703	D 6		
2583	B10	3572	C 8	3750	D 2	7704	B 4		
2584	D10	3573	B 9	3751	C 3	7705	G 6		
2585	B11	3574	C 9	3752	C 3	7707	G 4		
2586	D11	3575	B 8	3753	D 2	7708	F 4		
2587	B11	3576	C 8	3755	C 3	7709	F 5		
2588	D11	3577	B 9	3756	F 8	7710	C 6		
2589	B 9	3578	C 9	3757	F 8	7711	C 6		
2590	D 9	3579	B10	3758	F 8	7720	H 9		
2595	C 9	3580	C10	3759	F 8	7721	H12		
2601	C10	3581	B10	3760	H 6	7722	G 5		
2602	C10	3582	C10	3761	G 6	7724	H 9		
2603	D10	3583	B10	3765	H 7	7725	B 6		
2604	C11	3584	C10	3766	H11	7730	D 2		
2605	B12	3585	B11	3767	H11	8053	G 3		
2606	C12	3586	C11	3768	H 7	8054	G 3		
2607	G13	3587	B 9	3769	D 7	8056	G 3		
2608	G12	3588	D 9	3770	H12	8057	I 4		
2609	F12	3593	C 9	3771	H12	9001	G 4		
2610	F12	3601	C11	3772	H12	9002	G 4		
2611	F13	3602	C11	3773	B 5	9003	G 4		
2612	F12	3603	B12	3774	H10	9004	G 4		
2701	F 9	3604	C12	3775	H10	9006	F 6		
2702	F10	3605	B12	3776	H 8	9007	F 6		
2703	G 9	3606	C12	3777	H 8	9008	E 8		
2704	G10	3607	B11	3778	D 4	9009	D 8		
2705	F11	3608	C12	3780	C 7	9010	D 7		
2706	F12	3609	B 7	3781	C 7	9011	E 8		
2707	E10	3610	B 7	3782	C 8	9012	E 8		
2708	E10	3611	C13	3783	B 8	9013	F 7		
2709	F 6	3612	D13	3784	B 8	9014	F 5		
2710	F 5	3613	B12	3785	G 3	9015	D 4		
2712	D10	3614	C12	3786	G 3	9016	D 4		
2713	E11	362	D 1	3787	F 3	9017	C 6		
2714	D12	363	H11	3788	H 5	9018	B 6		
2715	D12	364	H 7	3789	C 5	9019	H 3		
2716	F13	367	G10	3790	C 7	9020	G 4		
2717	F12	368	G11	3791	C 5	9021	D 9		
2719	D11	369	E12	3792	C 6	9022	D 3		
2720	D 6	3701	G 9	3793	C 5	0700	H 3		
2721	E 9	3702	G10	3794	C 6	0701	H 3		
2722	E 9	3703	G11	3799	B 5	0702	H 3		
2723	E 9	3704	G11	5601	G12	0703	H 3		
2724	D 9	3705	G11	5602	G12	0704	H 4		
2725	F 9	3706	G11	5603	G 7	0705	H 4		
2726	F 9	3707	E10	5604	G 9	0706	H 4		
2727	G10	3708	E10	5605	D 9	0707	H 4		
2728	G10	3709	E 9	5606	D 8	0708	H 4		
2731	E12	3710	E 9	5701	D11	0720	H 9		
2732	E12	3711	D 9	6701	H 5	0721	H 9		
2733	E11	3712	F 4	6702	G 3	0724	H 7		
2734	D10	3713	F 5	6703	H 6	0725	H 6		
2736	G 5	3714	E11	6704	H 5	0726	H 6		
2737	G 5	3715	F12	6705	H 6	0727	H 7		
2738	G 5	3716	E12	6706	G 4	0728	H 7		
2739	C 5	3717	E 9	6707	G 4	0729	H 7		
2740	C 7	3718	E 9	6708	G 4	0730	H 7		
2741	E 9	3719	C 7	6709	C 7	0731	H 7		
2742	E 8	3720	D 4	6710	F 3	0732	H 9		



Adjustment	Cassette	Recorder	Measure on	Read on	with	Adjust to
Motor speed	SBC 420 3150 Hz	play A	Line out 0351/0352	frequency counter	3776	6300 Hz ±3%
High speed		play B			3774	6300 Hz ±3%
Normal speed		play A		Wow and flutter-meter	3777	0 ±1%
		play B			3775	0 ±1%
Wow and Flutter	SBC 420 3150 Hz	play A play B	Line out 0351/0352	Wow and flutter-meter		check if ≤0,3%
Azimuth	SBC 420 10kHz	play A				Left hand screw (normal direction) Right hand screw (reverse direction) Left hand screw
		play B	line out 0351/0352	mV-meter		max. output left= right

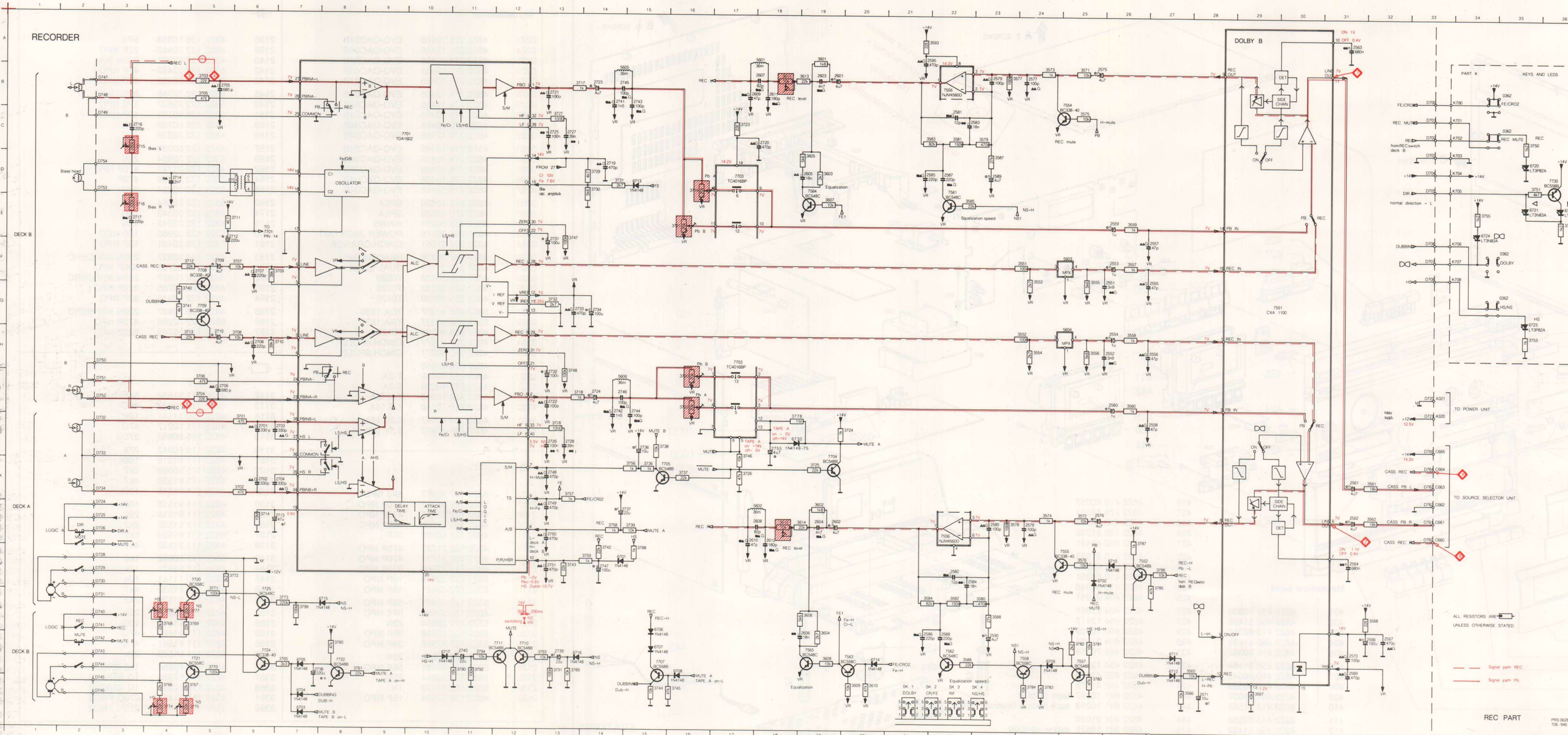
Adjustment	Source	Recorder	Measure on	Read on	with	Adjust to
Play back- sensitivity	Dolby reference level- cassette	Play A	left Ⓛ	mV-meter	3719	775mV ±0,5 dB
			right Ⓜ		3722	775mV ±0,5 dB
		Play B	left Ⓛ	mV-meter	3721	775mV ±0,5 dB
			right Ⓜ		3720	775mV ±0,5 dB
Recording- sensitivity	Dolby off Cr-position	Rec. B	3703 left Ⓛ ↔ Ⓞ 3704 right Ⓟ ↔ Ⓠ	mV-meter	3611 left 3612 right	1,8 mV* 1,8 mV*
Bias	Dolby off Cr-position	Rec. B	3703 left Ⓛ ↔ Ⓞ 3704 right Ⓟ ↔ Ⓠ	mV-meter	3715 left 3716 right	12 mV + 12 mV +
Erase oscillator		Rec. B	Erase head D753/D754	mV-meter frequency counter		check: Cr 16 V ±2,5 V Fe 10 V ±2 V f=76 ±6 kHz

\* Make a record and check if recorded signal gives 775 mV ±0,5 dB on Ⓛ and Ⓜ in play back. Distortion ≤0,3 %.

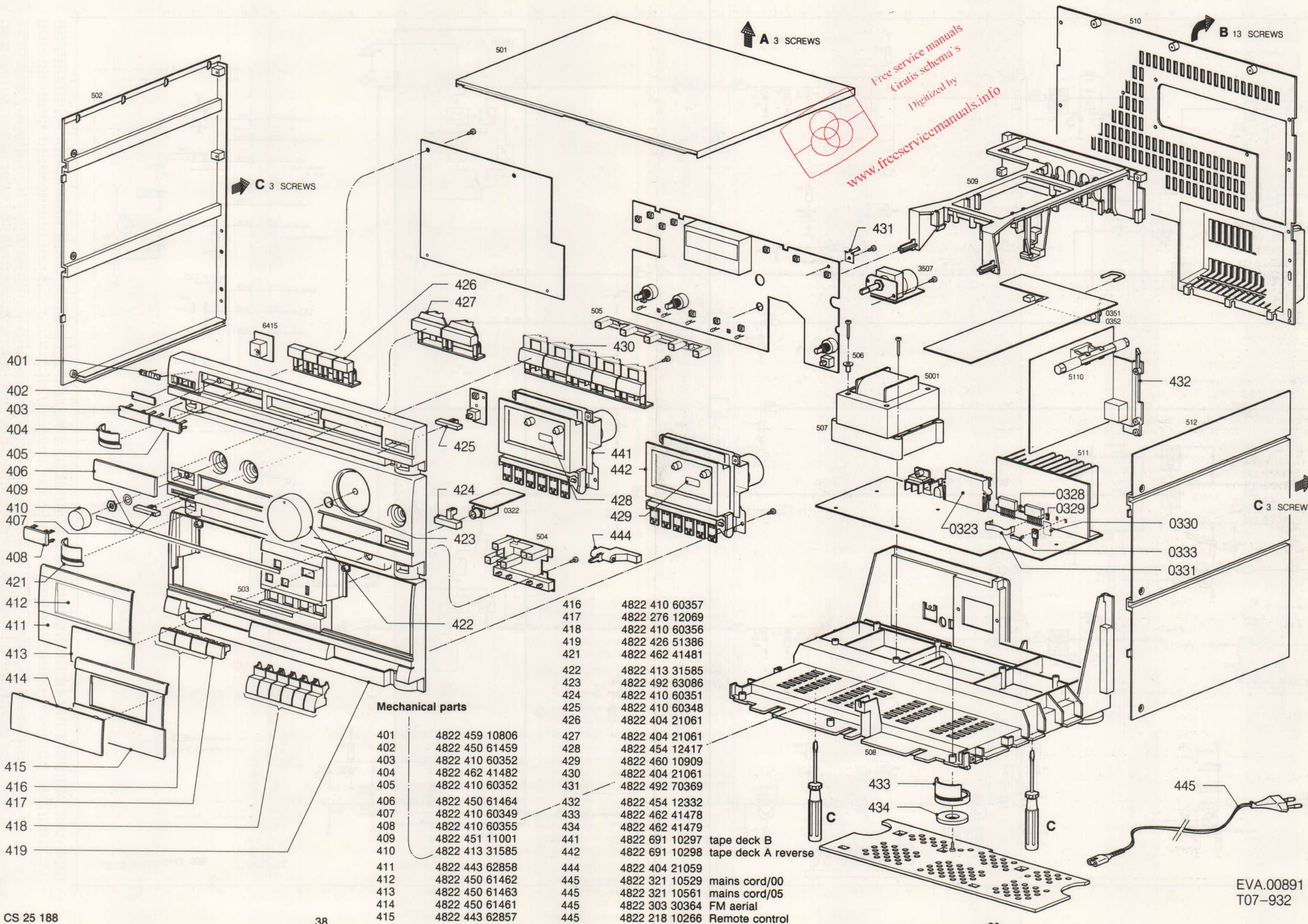
+ If sensitivity, distortion or frequency response are wrong, then readjust recording sensitivity and/or bias and check again.



REC UNIT CIRCUIT DIAGRAM



2551	F36	3712	F 4
2552	H26	3713	H 4
2553	F26	3714	L 6
2554	H26	3715	C 3
2555	F27	3716	E 3
2556	H27	3717	B13
2557	E27	3718	I 13
2558	J27	3719	D16
2559	E28	3720	I 16
2560	I26	3721	E16
2561	K31	3722	I 16
2562	L31	3723	C 16
2563	A31	3724	J20
2564	M31	3725	K 16
2565	N32	3726	K17
2566	N32	3727	C17
2567	N32	3728	C13
2568	O31	3729	K18
2569	O31	3730	D14
2570	O31	3731	D14
2571	P32	3732	O13
2572	L25	3733	O13
2573	R34	3734	K15
2574	L24	3735	K16
2575	B23	3736	J15
2576	B23	3737	G 4
2577	B23	3738	G 4
2578	M22	3739	G 4
2579	M22	3740	G 4
2580	M22	3741	G 4
2581	C23	3742	M4
2582	M23	3743	M3
2583	O22	3744	P15
2584	N22	3745	P16
2585	O22	3746	P17
2586	N22	3747	E13
2587	O23	3748	H13
2588	O23	3749	H13
2589	O23	3750	C35
2590	A22	3751	D35
2591	A22	3752	E36
2592	L19	3753	H35
2593	L19	3754	H35
2594	B19	3755	E34
2595	L19	3756	K15
2596	D19	3757	K13
2597	N19	3758	L14
2598	B18	3759	M14
2599	L18	3760	O 8
2600	B17	3761	N 8
2601	L17	3762	O 7
2602	L18	3763	P 4
2603	L18	3764	N 4
2604	L18	3765	N 4
2605	L18	3766	N 4
2606	L18	3767	N 4
2607	L18	3768	N 4
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2612	L18	3773	N 5
2613	L18	3774	N 5
2614	L18	3775	N 5
2615	L18	3776	N 5
2616	L18	3777	N 5
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2618	L18	3779	N 5
2619	L18	3780	O25
2620	L18	3781	O25
2621	L18	3782	O25
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2637	L18	3798	O13
2638	L18	3799	N 7
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2640	L18	3801	A18
2641	L18	3802	L18
2642	L18	3803	F25
2643	L18	3804	O25
2644	L18	3805	B14
2645	L18	3806	B14
2646	L18	3807	D 5
2647	L18	3808	D 5
2648	L18	3809	M4
2649	L18	3810	M4
2650	L18	3811	M4
2651	L18	3812	M4
2652	L18	3813	M4
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2797	L18	3958	M4
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2799	L18	3960	M4
2800	L18	3961	M4



ELECTRICAL PARTS

Miscellaneous







0273	4822 276 12465	EVQ-QAC04B
0274	4822 276 12465	EVQ-QAC04B
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0280	4822 276 12465	EVQ-QAC04B
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0284	4822 276 12465	EVQ-QAC04B
0285	4822 276 12465	EVQ-QAC04B
0286	4822 276 12465	EVQ-QAC04B
0287	4822 276 12465	EVQ-QAC04B
0299	4822 276 12639	SPEA
0302	4822 276 12639	SPEA
0312	4822 265 20291	mAINS
0313	4822 264 30175	POWER JACK OUT
0314	4822 267 31051	CINCH.ORANGE
0322	4822 264 30236	HEADPHONE
0323	4822 267 31107	DUAL LOCK
0328	4822 325 20133	T0220
0329	4822 325 20133	T0220
0330	4822 255 40133	T0126
0331	5322 255 40397	TDA 1520
0332	5322 255 40397	TDA 1520
0333	4822 255 40128	T0126
0351	4822 267 40877	CINCH.6FOLD
0352	4822 267 40877	CINCH.6FOLD
0362	4822 276 12659	
1300	4822 253 10039	T-2A
1301	4822 253 10039	T-2A
1302	4822 253 10048	T-3.15A
1303	4822 253 10048	T-3.15A
1401	4822 134 40967	6.3V 150mA
1402	4822 134 40967	6.3V 150mA

II

2136	4822 126 10388	5P6
2138	4822 122 32482	22P NPO
2140	4822 122 32927	220N 50V
2142	5322 122 32452	47P NPO
2143	5322 122 32452	47P NPO
2145	4822 122 32765	820P NPO
2149	5322 122 33537	1P2 NPO
2151	4822 125 60101	10P N450
2153	4822 125 60102	30P
2156	4822 122 33339	4N7
2157	4822 122 33339	4N7
2159	5322 122 32654	22N
2162	4822 122 31727	470P NPO
2164	5322 122 34099	470P
2166	5322 122 32654	22N
2169	5322 122 32654	22N
2174	4822 122 33543	15N
2175	4822 122 33543	15N
2180	5322 122 32965	18P NPO
2181	5322 122 32481	15P NPO
2183	4822 122 32927	220N 50V CERC
2185	4822 122 32765	820P NPO
2192	4822 122 32927	220N 50V CERC
2193	4822 122 32765	820P NPO
2194	4822 122 33515	82P NPO
2195	4822 122 32927	220N 50V CERC
2196	5322 122 32268	470P NPO
2197	4822 122 32765	820P NPO

□

3112	4822 111 91534	5k6
3113	4822 116 80887	68Ω
3114	4822 100 11141	10k
3115	4822 111 90217	47Ω
3118	4822 116 80882	270Ω
3119	4822 116 90342	27k
3121	4822 111 91518	100k
3122	4822 111 90569	2k7
3127	4822 111 91532	4k7
3129	4822 111 91518	100k
3130	4822 111 91518	100k
3133	4822 111 91518	22k
3136	4822 111 91522	2k2
3137	4822 111 91534	5k6
3138	4822 111 91532	4k7
3140	5322 111 90092	1k0
3144	4822 111 91521	18k
3145	4822 100 11141	10k
3146	4822 111 91532	4k7
3155	4822 111 91526	3k3
3156	4822 111 90251	22k
3158	4822 111 91518	100k
3162	4822 111 91652	47Ω
3165	4822 111 91661	47k
3172	4822 111 91523	22k
3323	4822 116 82054	1k0 PRO1
3367	4822 116 52385	1Ω SFR25H
3368	4822 116 52385	1Ω SFR25H
3391	4822 116 81402	270Ω PRO2
3392	4822 116 81402	270Ω PRO2

 <p>3395 4822 112 31061 18Ω AC10  3405 4822 116 82143 nFR25 18Ω  3450 4822 116 80562 nFR25 10Ω  3501 4822 102 10413 BALANCE 2X10k  3507 4822 102 10414 VOLUME 2X20k  3523 4822 102 10412 BASS-TREBBLE 2X50k  3529 4822 102 10412 BASS-TREBBLE 2X50k  3611 4822 100 20166 10k  3612 4822 100 20166 10k  3645 4822 116 80335 nFR25 47Ω  3647 4822 116 80335 nFR25 47Ω  3661 4822 116 80335 nFR25 47Ω  3711 4822 116 52858 SFR25H 4Ω7  3715 4822 100 11163 100k  3716 4822 100 11163 100k  3719 4822 100 20589 20k  3720 4822 100 20589 20k  3721 4822 100 20589 20k  3722 4822 100 20589 20k  3723 5322 116 53479 SFR25H 22Ω  3774 4822 100 20589 20k  3775 4822 100 20589 20k  3776 4822 100 20589 20k  3777 4822 100 20589 20k</p>	 <p>5322 130 31504 BZX79C20  4822 130 34174 BZX79C4V7  4822 130 34278 BZX79C6V8  4822 130 81678 GL2PR6 RED  4822 130 81254 GP1U520X  4822 130 80305 KBU4D  4822 130 81008 LT3N83A GREEN  4822 130 81007 LT3N83A GRREN  4822 130 81007 LT3P82A RED  4822 130 32227 OF 642  4822 130 31438 1N4001GP  4822 130 30621 1N4148-75</p>
 <p>5001 4822 146 30817 mAINS  5101 4822 156 30947  5103 4822 156 30947  5104 4822 157 60284  5105 4822 156 10459 AM-OSC.  5106 4822 157 53192 0.22μH  5107 4822 242 72096 PACKAGE  5108 4822 158 60511 AM  5109 4822 242 71878 SFZ450A4  5110 4822 526 10466 AL-2ZA120  5111 4822 157 52734 FM  5112 4822 303 50034 7.2MHz  5401 4822 242 72457 4MHz  5402 4822 152 20699 560μH  5601 4822 156 20811 TOKO 35mH  5601 4822 157 53123 200μH  5602 4822 156 20811 TOKO 35mH  5603 4822 242 71144 MPX  5604 4822 242 71144 MPX  5605 4822 156 20811 TOKO 35mH  5606 4822 156 20811 TOKO 35mH  5701 4822 156 20946 OSCILLATOR 100kHz</p>	<p><b>Rest semi-conductors</b></p> <p>4822 130 90734 LP-1776-C</p>
	 <p>5322 130 44779 BC338-40  5322 130 44779 BC338-40  4822 130 44257 BC547  4822 130 40938 BC548  4822 130 40937 BC548B  4822 130 44196 BC548C  4822 130 42231 BC557C  4822 130 44197 BC558B  5322 130 60068 BC558C  4822 130 61207 BC848  5322 130 41982 BC848B  4822 130 40982 BD433  5322 130 44786 BD675  4822 130 44154 BF199  4822 130 60093 2SA838  4822 130 60163 2SC1047</p>
 <p>5322 130 31684 BB 809  4822 130 34281 BZX59C15  4822 130 34173 BZX79 C5V6  4822 130 80233 BZX79C12  4822 130 31253 BZX79C2V4</p>	 <p>4822 209 71321 AN7411  4822 209 82059 BA 6109  4822 209 72749 CXA 1100  4822 209 72744 CXA 1240P HERA II  4822 209 72748 LC7821  4822 209 71331 LM 7000  4822 209 83274 NJM4560D  4822 209 83274 NJM4560D  4822 209 60502 NMHz9313BN  5322 209 11268 PCF74HCT164P  4822 209 71636 TC4016BP  4822 209 61576 TDA 1514N7  4822 209 61548 TDA1602N2A  4822 209 72254 TMP47C421AF</p>

# Service Service Service

Product Service Group CE Audio

# Service Information

## CORRECTIONS TO THE MANUAL

### \* Partlist:

- Correct code number for pos. 7400  $\mu$ P TMP 47C421 AF-8811 4822 209 62933  
pos. 418 tape deck keys 4822 410 61389

- When pos. 410 or 422 (knob for potmeter) is ordered a set of knobs containing 3 x pos. 422 and 1 x pos 410 will be delivered.

### \* Tuner - circuit diagram and Front - circuit diagram

At connection G134 (field) of tuner and pin 40 of  $\mu$ P 7400 of front a wrong level for 'autostore' is stated.  
correct is: Low = Autostore

## COMPONENTS ADDED TO THE PARTSLIST

### \* Power board

2323, 2324	4700 $\mu$ F 35 V	4822 124 42121
	Power service unit	4822 214 51821
	Equalizer bridge wire	4822 404 21141

### \* Tuner board

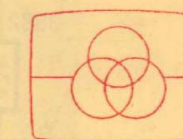
5114	Birdy filter	4822 158 60509
6101, 6102	Cap. Diode BB 804	4822 130 81643

### \* Tape transport YM 47CX-81 (deck B 4822 691 10297)

REC/Pb - head	4822 249 10425
Pressure roller	4822 403 40463
Erase Head	4822 249 40276
Main belt	4822 358 31116
Sub belt	4822 358 31118
Motor assy	4822 361 21416

### \* Tape transport LDR 47 C-18 (deck A reverse 4822 691 10298)

REC/Pb head assy	4822 249 10426
Pressure roller	4822 528 70718
Main belt	4822 358 31119
Sub belt	4822 358 31117
Motor	4822 361 21418
Pulley	4822 528 81438



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1991-11-31

4822 725 23718

CS 45 646

### 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.

### I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).  
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione 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.

### D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).  
Unvorsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern. Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

### 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 enfiler 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.

### 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 utilisées 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 pezzi di ricambio identici a quelli specificati.

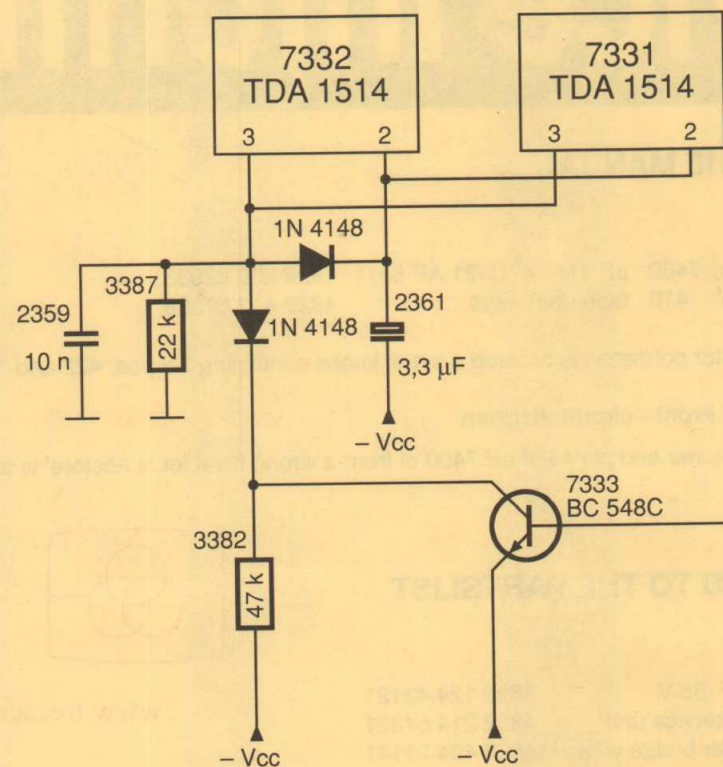
SERVICE HINTS:

\* When the set is in the FM-stereo mode a whistling tone of 16-18 kHz might be audible. This problem can be solved by changing R 3136 from 2 k 2 to 15 k

\* Adjustment of tape speed for High Speed To obtain High Speed during playback connect Base of 7725 to ground.

CHANGES IN COURSE OF PRODUCTION (FS 240)

\* To reduce switching plops as provisional solution following change has been built in from mid December 1989 onwards:



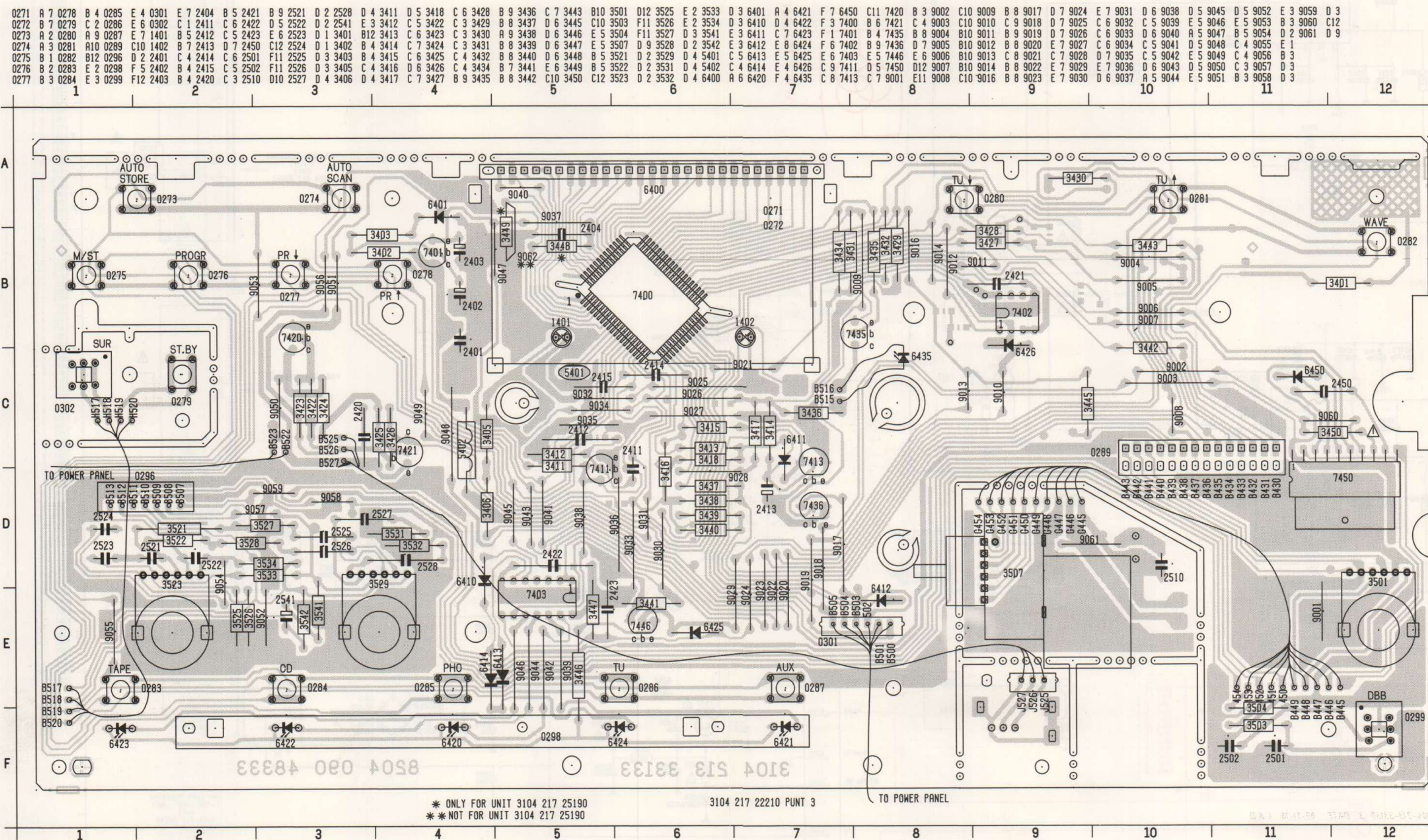
\* As final solution against strong switch on - plops an additional electronic circuit (Power service unit) has been built in from week 9026 onwards.

This electronic circuit is available for service purposes as board assy 4822 214 51821. How to assemble this board assy and for additional changes necessary see sheet 'POWER SERVICE UNIT' in annex.

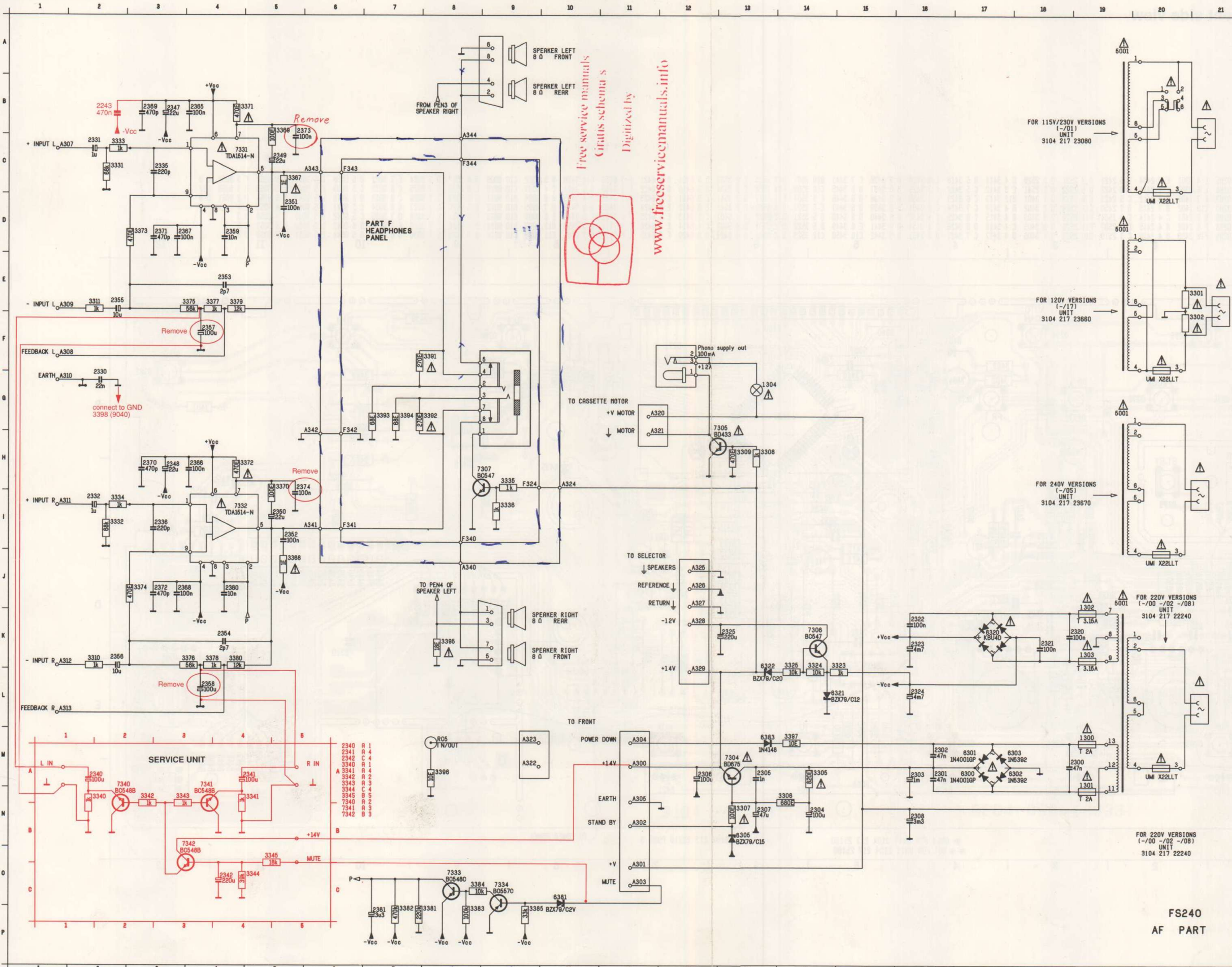
Remark: This solution replaces provisional change mentioned above.

\* Lay out of printed circuit boards has been changed. For last stage see additional sheets.

FRONT PANEL / Component side view



POWER UNIT



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1300	M19
1301	M19
1302	J19
1303	K19
1304	G13
2300	M18
2301	M16
2302	M16
2303	M16
2304	M14
2305	M13
2306	M12
2307	M13
2308	M16
2309	M16
2310	M18
2311	M18
2312	K16
2313	M16
2314	M12
2315	K12
2316	G2
2317	C2
2318	I2
2319	C2
2320	I2
2321	I2
2322	I2
2323	M16
2324	M16
2325	M16
2326	M16
2327	M16
2328	M16
2329	M16
2330	M16
2331	M16
2332	M16
2333	M16
2334	M16
2335	M16
2336	M16
2337	M16
2338	M16
2339	M16
2340	M16
2341	M16
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2343	M16
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2346	M16
2347	M16
2348	M16
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2380	M16
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2385	M16
2386	M16
2387	M16
2388	M16
2389	M16
2390	M16
2391	M16
2392	M16
2393	M16
2394	M16
2395	M16
2396	M16
2397	M16
2398	M16
2399	M16
2400	M16

FOR 115V/230V VERSIONS  
 (-/01)  
 UNIT  
 3104 217 23080

FOR 120V VERSIONS  
 (-/17)  
 UNIT  
 3104 217 23660

FOR 240V VERSIONS  
 (-/05)  
 UNIT  
 3104 217 23670

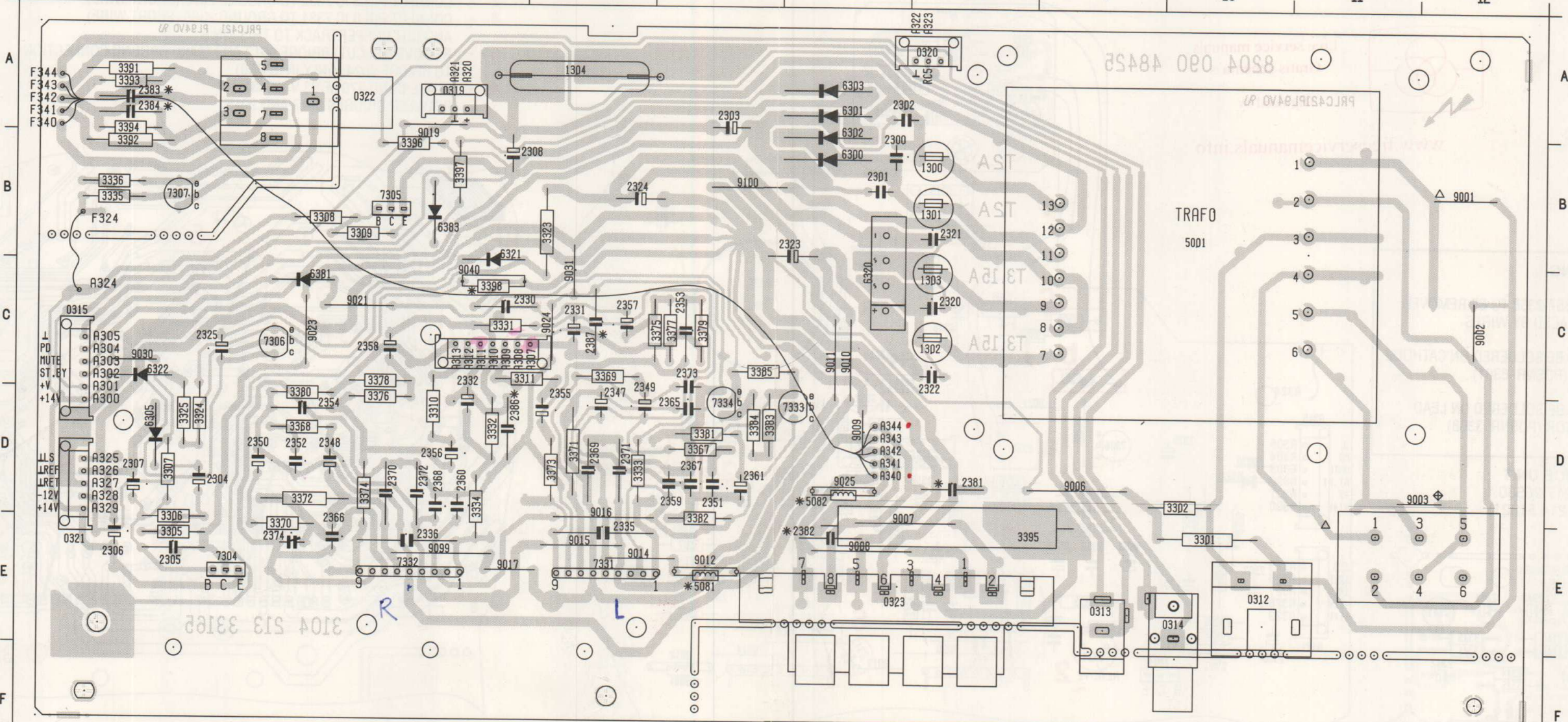
FOR 220V VERSIONS  
 (-/00 -/02 -/08)  
 UNIT  
 3104 217 22240

FOR 220V VERSIONS  
 (-/00 -/02 -/08)  
 UNIT  
 3104 217 22240

FS240  
 AF PART

POWER PANEL / Component side view

0312	E10	0320	A 8	1301	B 8	2301	B 7	2306	E 1	2322	C 8	2331	C 5	2348	D 3	2353	C 6	2358	C 3	2366	E 3	2371	D 5	2382	E 7	3301	E10	3308	B 3	3324	D 2	3334	D 4	3369	C 5	3374	D 3	3379	C 6	3384	D 6	3394	B 1	5001	B10	6302	B 7	6322	C 2	7306	C 3	7334	D 6	9007	E 7	9012	E 6	9019	B 4	9030	C 2
0313	E 9	0321	E 1	1302	C 8	2302	A 7	2307	D 1	2323	B 7	2332	C 4	2349	D 5	2354	D 3	2359	D 6	2367	D 6	2372	D 4	2383	A 2	3302	D10	3309	B 3	3325	D 2	3335	B 1	3370	E 3	3375	C 6	3380	D 3	3385	C 6	3395	E 8	5081	E 6	6303	A 7	6381	C 3	7307	B 2	9001	B12	9008	E 7	9014	E 5	9021	C 3	9031	C 5
0314	E10	0322	A 3	1303	C 8	2303	A 6	2308	B 5	2324	B 5	2335	E 5	2350	D 2	2355	D 5	2360	D 4	2368	D 4	2373	C 6	2384	A 2	3305	E 2	3310	D 4	3331	C 4	3336	B 1	3371	D 5	3376	D 3	3381	D 6	3391	A 1	3396	B 4	5082	D 7	6305	D 2	6383	B 4	7331	E 5	9002	C12	9009	D 7	9015	E 5	9023	C 3	9040	C 4
0315	C 1	0323	E 7	1304	A 5	2304	D 2	2320	C 8	2325	C 2	2336	E 4	2351	D 6	2356	D 4	2361	D 6	2369	D 5	2374	E 3	2386	D 4	3306	E 2	3311	C 5	3332	D 4	3367	D 6	3372	D 3	3377	C 6	3382	E 6	3392	B 1	3397	B 4	6300	B 7	6320	C 7	7304	E 2	7332	E 4	9003	D12	9010	C 7	9016	D 5	9024	C 5	9099	E 4
0319	A 4	1300	B 8	2300	B 7	2305	E 2	2321	B 8	2330	C 4	2347	D 5	2352	D 3	2357	C 5	2365	D 6	2370	D 3	2381	D 8	2387	C 5	3307	D 2	3323	B 5	3333	D 5	3368	D 3	3373	D 5	3378	C 3	3383	D 6	3393	A 1	3398	C 4	6301	A 7	6321	B 4	7305	B 3	7333	D 7	9006	D 9	9011	C 7	9017	E 4	9025	D 7	9100	B 6

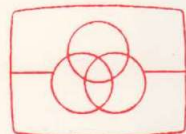


\* ONLY FOR FTZ UNITS /02 /08 : UNIT 3104-217-24120

3104-217-22240 PUNT 5

△ ONLY FOR 3104-217-23080 /01 POS : 9001, VOLTAGE SELECTOR  
 ◆ NOT FOR 3104-217-23080 /01 POS : 9003

POWER / SERVICE UNIT

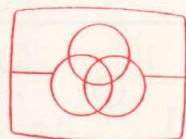


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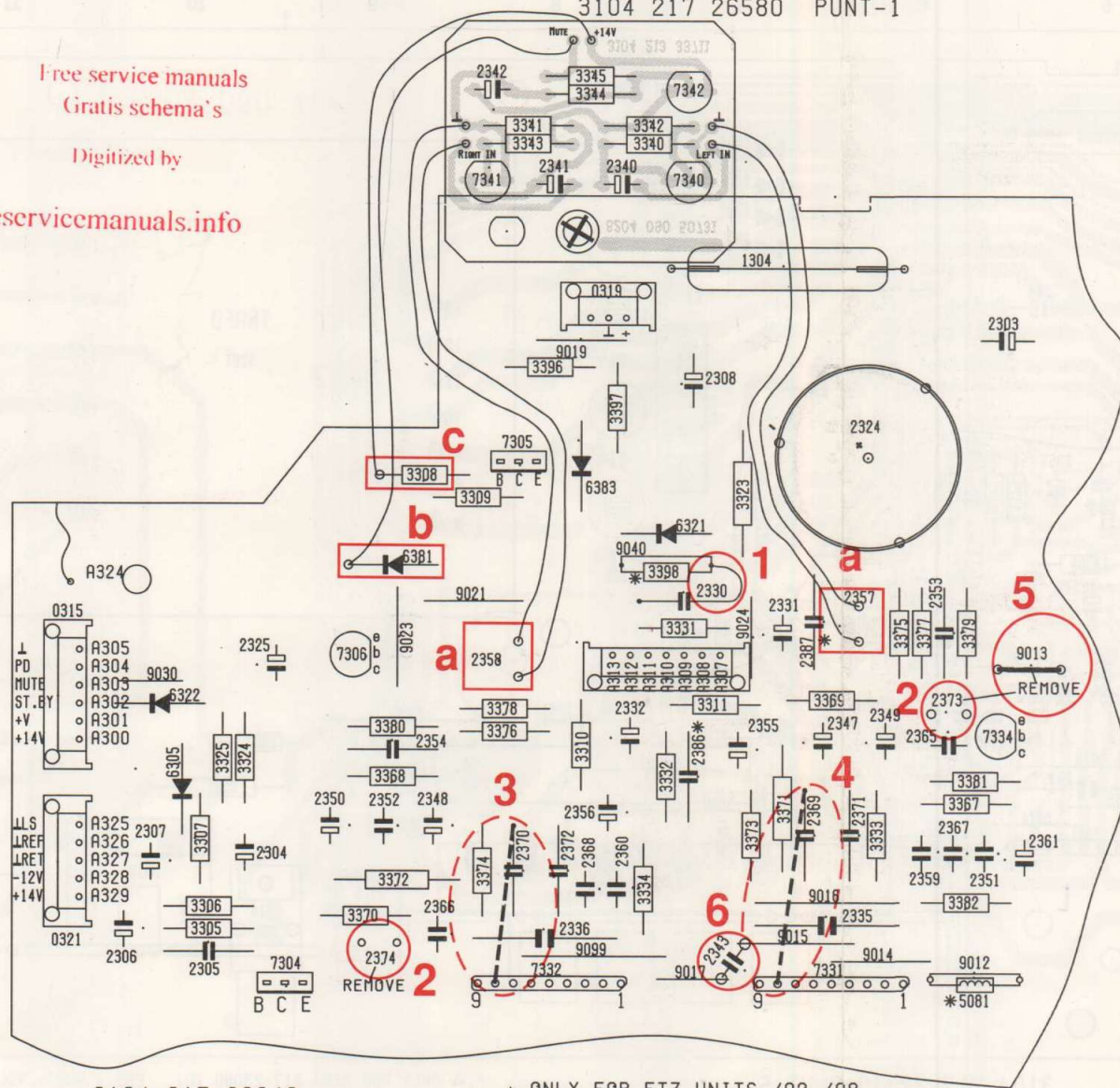


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3104 217 26580 PUNT-1

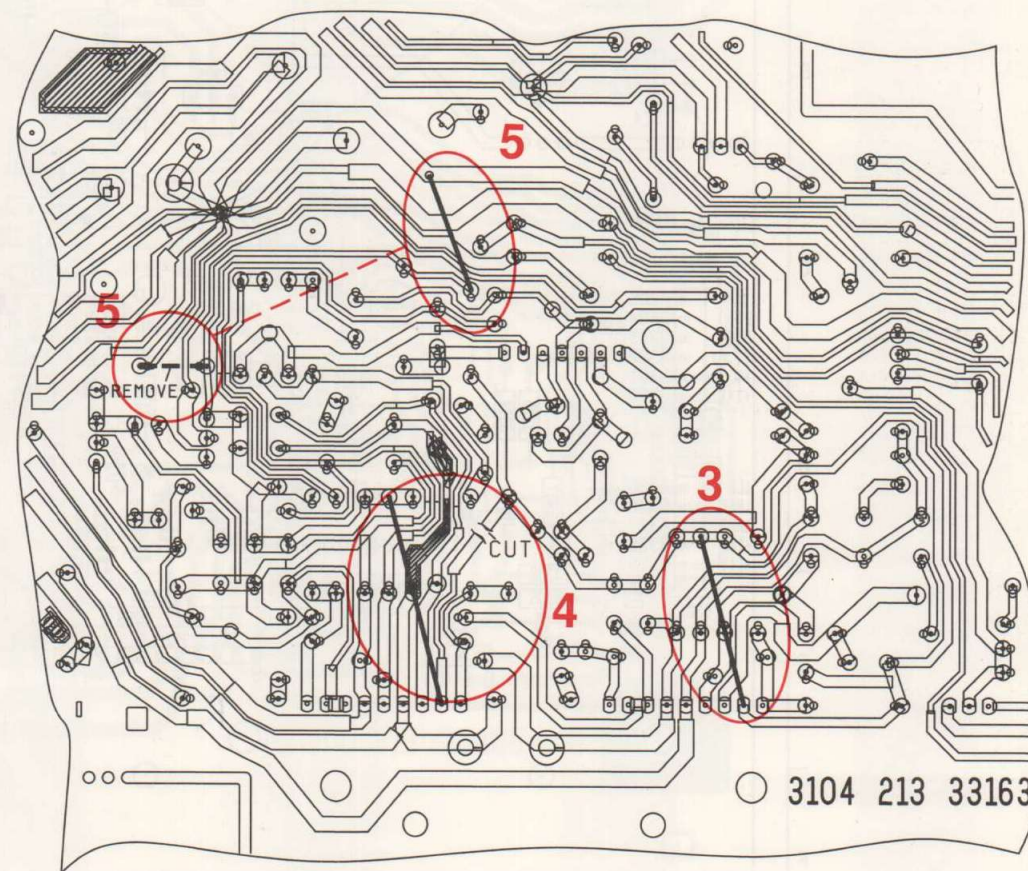


3104 217 22240

\* ONLY FOR FTZ UNITS /02 /08

ADDITIONAL ADAPPTIONS

- 1 ( \* ) CONNECT 2330 (22 nF) AS SHOWN (ONLY IN .3 PCB)
- 2 \* REMOVE 2373-2374
- 3 \* CONNECT PIN 8 IC 7332 TO GROUND 2370 (SHORT WIRE)
- 4 \* CONNECT PIN 8 IC 7331 TO GROUND 2369 (SHORT WIRE) AND CUT COPPERTRACK TO THIS PIN 8
- 5 ( \* ) REMOVE (OR CUT) BRIDGE 9013 AND MAKE GROUND CONNECTION TO BRIDGE 9024 (ONLY IN .3 PCB)
- 6 \* PLACE COND 470 nF/63 V (2343) BETWEEN BRIDGES 9017 AND 9015



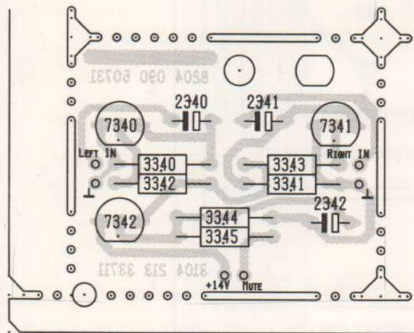
3104 213 33163

MOUNTING

- a - POSNR. 2357-2358 TO BE REMOVED AND REPLACED BY WIRES
- b - 'MUTE' TO BE SOLDERED ON CATHODE OF DIODE (POSNR. 6381)
- c - '+14 V' TO BE SOLDERED ON LEAD OF RESISTOR (POSNR. 3308)

SERVICE UNIT

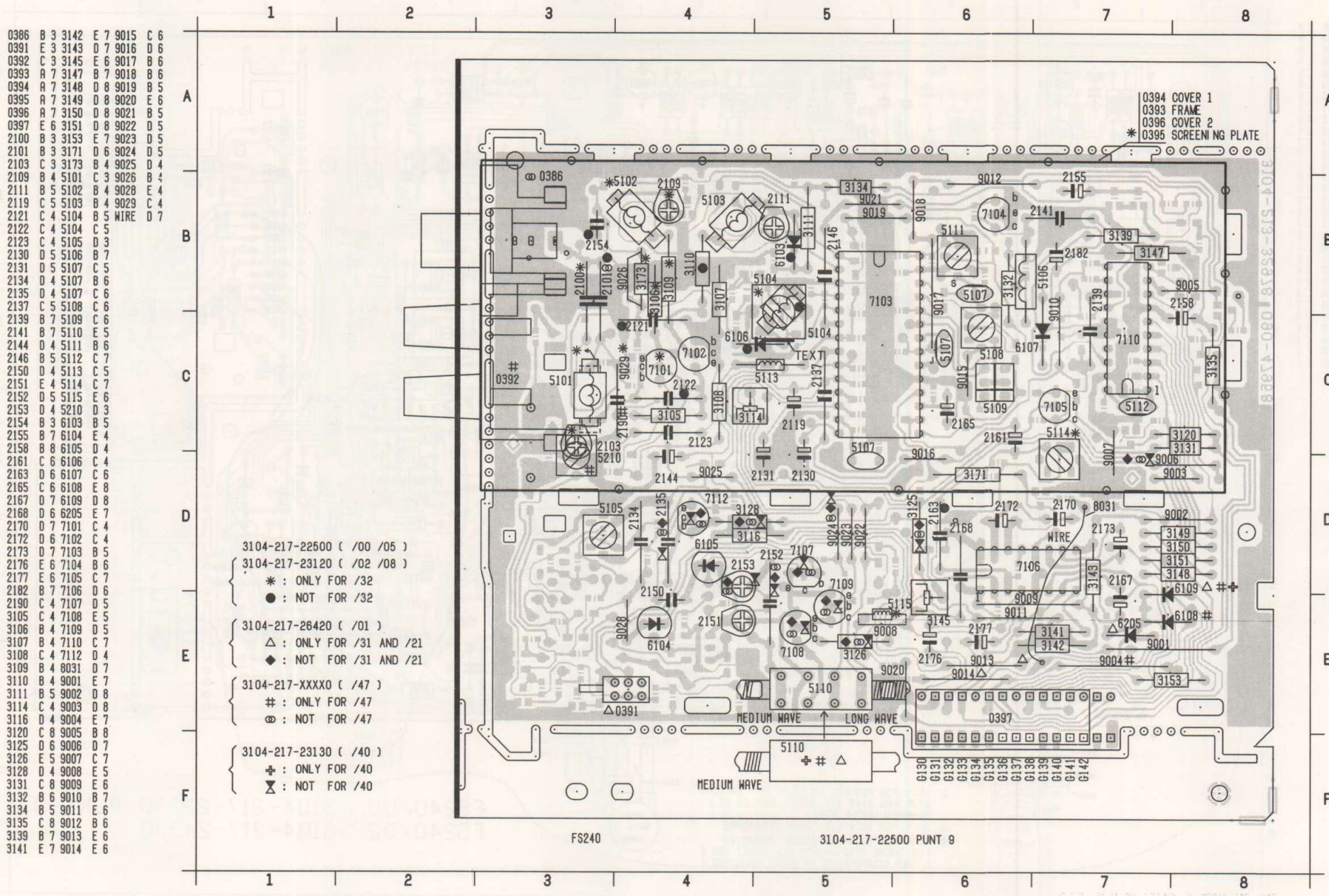
3104 217 26580.1  
(4822 214 51821)





TUNER PANEL

Component side view



Copper side view

