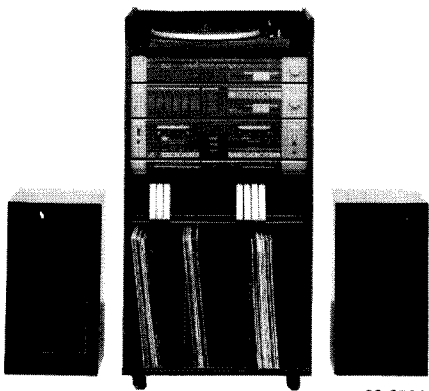


Service
Service
Service

For Servicing Information concerning the cassette mechanism refer to Service Manuals: "Recorder Tape Decks RT75, RT77 and RT1".

For Servicing Information concerning the record player refer to Service Manual F7046/00A.

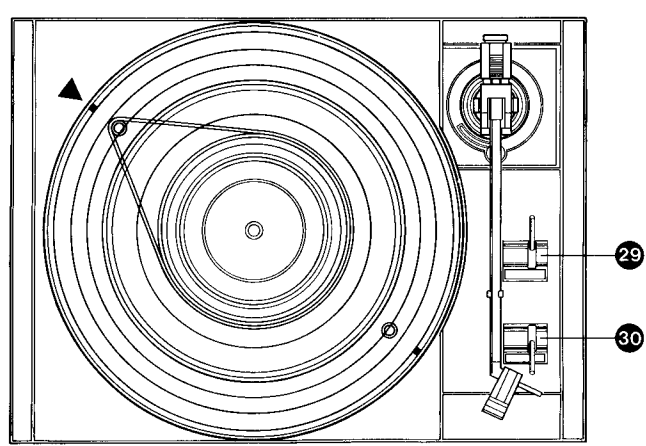
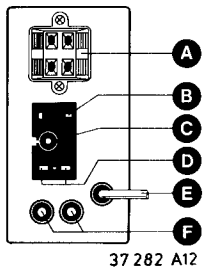
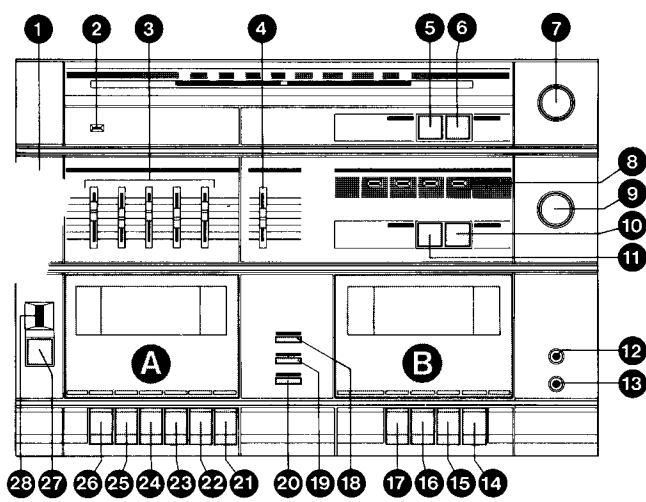


38 386A

Service Manual

GB	NL	F	D	I	
TECHNICAL DATA	SPECIFICATIES	SPECIFICATIONS	TECHNISCHE DATEN	DATI TECNICI	
Power supply voltages	Voedingsspanningen	Alimentation	Versorgungsspannungen	Tensioni d'alimentazione	: 110,127,220,240 V 50/60 Hz~
Power consumption	Opgenomen vermogen	Puissance absorbée	Leistungsaufnahme	Potenza assorbita	: ≤ 110 W/max.
Dimensions	Afmetingen	Dimensions	Abmessungen	Dimensioni	: 450×880×360 mm approx.
Wave ranges:	Golfbereiken:	Gammes d'ondes:	Wellenbereiche:	Gamme d'onda:	
FM	FM	FM	UKW	FM	: 87.5-108 MHz
MW	MW	PO	MW	OM	: 520-1605 kHz (577- 187 m)
LW	LW	GO	LW	OL	: 150- 255 kHz (2000-1177 m)
Sensitivity:	Gevoeligheid:	Sensibilité:	Empfindlichkeit:	Sensibilità:	
Δf 75 kHz FM	Δf 75 kHz FM	Δf 75 kHz FM	Δf 75 kHz FM	Δf 75 kHz FM	: (1.6 μV mono, 26 dB S/N) (50 μV stereo, 46 dB S/N) (100 μV for 26 dB S/N)
600 kHz AM	600 kHz AM	600 kHz AM	600 kHz AM	600 kHz AM	
Aerial input	Antenne ingang	Impédance d'antenne	Antennen-Impedanz	Ingresso antenna	: 75 Ω and 300 Ω
Output power (at 4 Ω load)	Uitgangsvermogen (4 Ω)	Puissance de sortie (4 Ω)	Ausgangsleistung (4 Ω)	Potenza d'uscita (con carico 4 Ω)	: 2× 13 W (1 kHz) D≤10%
Output impedance	Uitgangsimpedantie	Impédance de sortie	Ausgangsimpedanz	Impedenza d'uscita	: 4 Ω
Output impedance of headphones	Uitgangsimpedantie hoofdtelefoon	Impédance de sortie écouteurs	Kopfhörer-Ausgangs-impedanz	Impedenza d'uscita per cuffia	: 4-1000 Ω
Cassette deck	Recorder	Magnétophone	Recorder	Piastra registratore	
Speed	Snelheid	Vitesse	Geschwindigkeit	Velocità	: 4.76 cm/sec ± 2%
Wow and flutter	Wow en flutter	Pleurage et scintillement	Gleichlaufschwankungen	Wow e flutter	: ≤ 0.2%
Record player	Platenspeler	Tourne-disque	Plattenspieler	Giradischi	
Speed	Snelheid	Vitesse	Geschwindigkeit	Velocità	: 33 ¹ /3-45 r.p.m
Wow and flutter	Wow en flutter	Pleurage et scintillement	Gleichlaufschwankungen	Wow e flutter	: ≤ 0.25%
Pick up cartridge	Element	Cartouche pick-up	Tonabnehmersystem	Testina	: GP215





37 283 B12

GB

- | | | | |
|----|--|----------|-------|
| 1 | On/off switch | | SK1 |
| 2 | FM stereo indicator | | 6111 |
| 3 | Equalizer controls | 63 Hz | 3315 |
| | | 250 Hz | 3325 |
| | | 1 kHz | 3335 |
| | | 4 kHz | 3345 |
| | | 16 kHz | 3355 |
| 4 | Balance control | | 3370 |
| 5 | MW/LW selection button | | SK79 |
| 6 | AM/FM selection button | | SK78 |
| 7 | Tuning knob | | |
| 8 | Mode indicators | Phono | 6333 |
| | | Tuner | 6334 |
| | | CD/TV | 6331 |
| | | Cass. | 6332 |
| 9 | Volume control | | 3369 |
| 10 | Mono/Rif selection button | | SK76 |
| 11 | CD/TV function button | | SK77 |
| 12 | Terminal socket stereo headphone | | BU2 |
| | | 4-1000 Ω | |
| 13 | Terminal socket mono microphone | | BU1 |
| 14 | Play button | | |
| 15 | Stop/Eject button | | |
| 16 | Wind/Cue button | | |
| 17 | Rewind/Review button | | |
| 18 | Dubbing B → A button | | SK74 |
| 19 | Noise reduction button | | SK73 |
| 20 | Tape type button | | SK72 |
| 21 | Pause button | | |
| 22 | Play button | | |
| 23 | Stop/Eject button | | |
| 24 | Wind/Cue button | | |
| 25 | Rewind/Review button | | |
| 26 | Recording button | | |
| 27 | Zero reset button | | |
| 28 | Counter | | |
| 29 | Cue lever | | |
| 30 | Speed selector switch | | SK-H |
| A | Terminals for loudspeakers 4 Ω | | BU5-6 |
| B | Terminal sockets for AM aerial and earth | | BU4 |
| C | Terminal sockets for FM aerial, 75 Ω | | BU4 |
| D | Terminal sockets for FM aerial, 300 Ω | | BU4 |
| E | Mains lead | | |
| F | Terminal sockets for CD/TV | | BU3 |

NL

- | | | | |
|----|---|----------|-------|
| 1 | Aan/Uit schakelaar | | SK1 |
| 2 | FM stereo indicator | | 6111 |
| 3 | Klankkleurregelaars | 63 Hz | 3315 |
| | | 250 Hz | 3325 |
| | | 1 kHz | 3335 |
| | | 4 kHz | 3345 |
| | | 16 kHz | 3355 |
| 4 | Balanceregelaar | | 3370 |
| 5 | Keuzetoets MW/LW | | SK79 |
| 6 | Keuzetoets AM/FM | | SK78 |
| 7 | Afstemknop | | |
| 8 | Mode indicators | Phono | 6333 |
| | | Tuner | 6334 |
| | | CD/TV | 6331 |
| | | Cass. | 6332 |
| 9 | Geluidssterkteregelaar | | 3369 |
| 10 | Mono/Rif keuzetoets | | SK76 |
| 11 | CD/TV functietoets | | SK77 |
| 12 | Aansluitbus stereo hoofdtelefoon | | BU2 |
| | | 4-1000 Ω | |
| 13 | Aansluitbus mono microfoon | | BU1 |
| 14 | Weergeeftoets | | |
| 15 | Stop/Uitwerptoets | | |
| 16 | Snelspoeltoets Wind/Cue | | |
| 17 | Snelspoeltoets Rewind/Review | | |
| 18 | Toets Dubbing B → A | | SK74 |
| 19 | Ruisonderdrukkingstoets | | SK73 |
| 20 | Keuzetoets voor bandsoort | | SK72 |
| 21 | Pauzetoets | | |
| 22 | Weergeefknop | | |
| 23 | Stop/Uitwerptoets | | |
| 24 | Snelspoeltoets Wind/Cue | | |
| 25 | Snelspoeltoets Rewind/Review | | |
| 26 | Opneemtoets | | |
| 27 | Nulsteloets | | |
| 28 | Bandteller | | |
| 29 | Hefboom | | |
| 30 | Toerentalkeuze | | SK-H |
| A | Luidsprekeraansluitklemmen 4 Ω | | BU5-6 |
| B | Aansluitbussen voor AM-antenne en aarde | | BU4 |
| C | Aansluitbus voor FM-antenne, 75 Ω | | BU4 |
| D | Aansluitbus voor FM-antenne, 300 Ω | | BU4 |
| E | Netsnoer | | |
| F | Aansluitbussen CD/TV | | BU3 |

F

1	Commutateur Marche/Arrêt	SK1
2	Indicateur lumineux FM stéréo	6111
3	Egaliseur graphique 5 bandes	3315
	63 Hz	3315
	250 Hz	3325
	1 kHz	3335
	4 kHz	3345
	16 kHz	3355
4	Balans stéréo	3370
5	Sélecteur de gamme d'ondes PO/GO	SK79
6	Sélecteur de modulation AM/FM	SK78
7	Bouton d'accord	
8	Voyants lumineux par Signalisation des saurces	6333
	Phono	6334
	Tuner	6331
	CD/TV	6332
	Cass.	3369
9	Volume sonore	3369
10	Interrupteur Mono/Rif	SK76
11	Sélecteur CD/TV	SK77
12	Prise pour casque stéréo 4-1000 Ω	BU2
13	Prise pour microphone mono	BU1
14	Touche démarrage	
15	Touche d'arrêt/éjection	
16	Touche bobinage rapide avant	
17	Touche bobinage rapide arrière	
18	Bouton de duplication Dubbing B → A	SK74
19	Commutateur de réducteur du bruit	SK73
20	Commande sélection type de bande	SK72
21	Touche pause	
22	Touche démarrage	
23	Touche d'arrêt/éjection	
24	Touche bobinage rapide avant	
25	Touche bobinage rapide arrière	
26	Touche d'enregistrement	
27	Bouton de remise à zéro du compteur	
28	Compteur	
29	Lève bras	
30	Sélecteur de vitesse	SK-H
A	Prises pour haut-parleurs 4 Ω	BU5-6
B	Prise pour antenne extérieur AM et terre	BU4
C	Prise pour antenne extérieur FM, 75 Ω	BU4
D	Prise pour antenne FM, 300 Ω	BU4
E	Cordan secteur	
F	Prises d'entrées auxilliaires CD/TV	BU3

I

1	Interruttore acceso/spento	SK1
2	Indicatore FM stereo	6111
3	Controlli della tonalità	3315
	63 Hz	3315
	250 Hz	3325
	1 kHz	3335
	4 kHz	3345
	16 kHz	3355
4	Controllo del bilanciamento	3370
5	Selettore MW/LW	SK79
6	Selettore AM/FM	SK78
7	Manopola di sintonia	
8	Indicatori del modo	6333
	Phono	6334
	Tuner	6331
	CD/TV	6332
	Cass.	3369
9	Controllo del volume	3369
10	Selettore Mono/Rif	SK76
11	Selettore CD/TV	SK77
12	Pres a per cuffia stereo phones 4-1000 Ω	BU2
13	Pres a per microfono mono	BU1
14	Tasto di riproduzione	
15	Tasto di arresto/espulsione	

D

1	Netz-Ein/Aus-Schalter	SK1
2	FM stereo-Anzeige	6111
3	Klangfilter	3315
	63 Hz	3315
	250 Hz	3325
	1 kHz	3335
	4 kHz	3345
	16 kHz	3355
4	Balance	3370
5	MW/LW Wellenbereichsschalter	SK79
6	AM/FM Wählschalter	SK78
7	Tuning-Knopf	
8	Programmquellen-Anzeiger	6333
	Phono	6334
	Tuner	6331
	CD/TV	6332
	Cass.	3369
9	Lautstärke-Einsteller	3369
10	Mono/Rif Schalter	SK76
11	CD/TV Wiedergabe-Schalter	SK77
12	Anschluss für Stereokopfhörer 4-1000 Ω	BU2
13	Anschluss für ein Mono-Mikrofon	BU1
14	Wiedergabe-Schalter	
15	Stop/Eject Taste	
16	Wind/Cue schneller Bandvorlauf	
17	Rewind/Review schneller Bandrücklauf	
18	Dubbing B → A-Schalter	SK74
19	Noise Red-Schalter	SK73
20	Bandsorten-Einstellung	SK72
21	Pause-Schalter	
22	Wiedergabe/Start-Schalter	
23	Stop/Eject-Schalter	
24	Schneller Bandvorlauf	
25	Schneller Bandrücklauf	
26	Record-Schalter	
27	Rückstelltaste	
28	Zählwerk	
29	Tonarmlift	
30	U/min. Drehzahlwähler	SK-H
A	Lautsprecher-Ausgänge 4 Ω	BU5-6
B	Anschluss für eine AM-Antenne mit Erde	BU4
C	Anschluss für eine FM-Antenne, 75 Ω	BU4
D	Anschluss für eine FM-Antenne, 300 Ω	BU4
E	Netzanschlussleitung	
F	CD/TV-Anschlussbuchsen	BU3

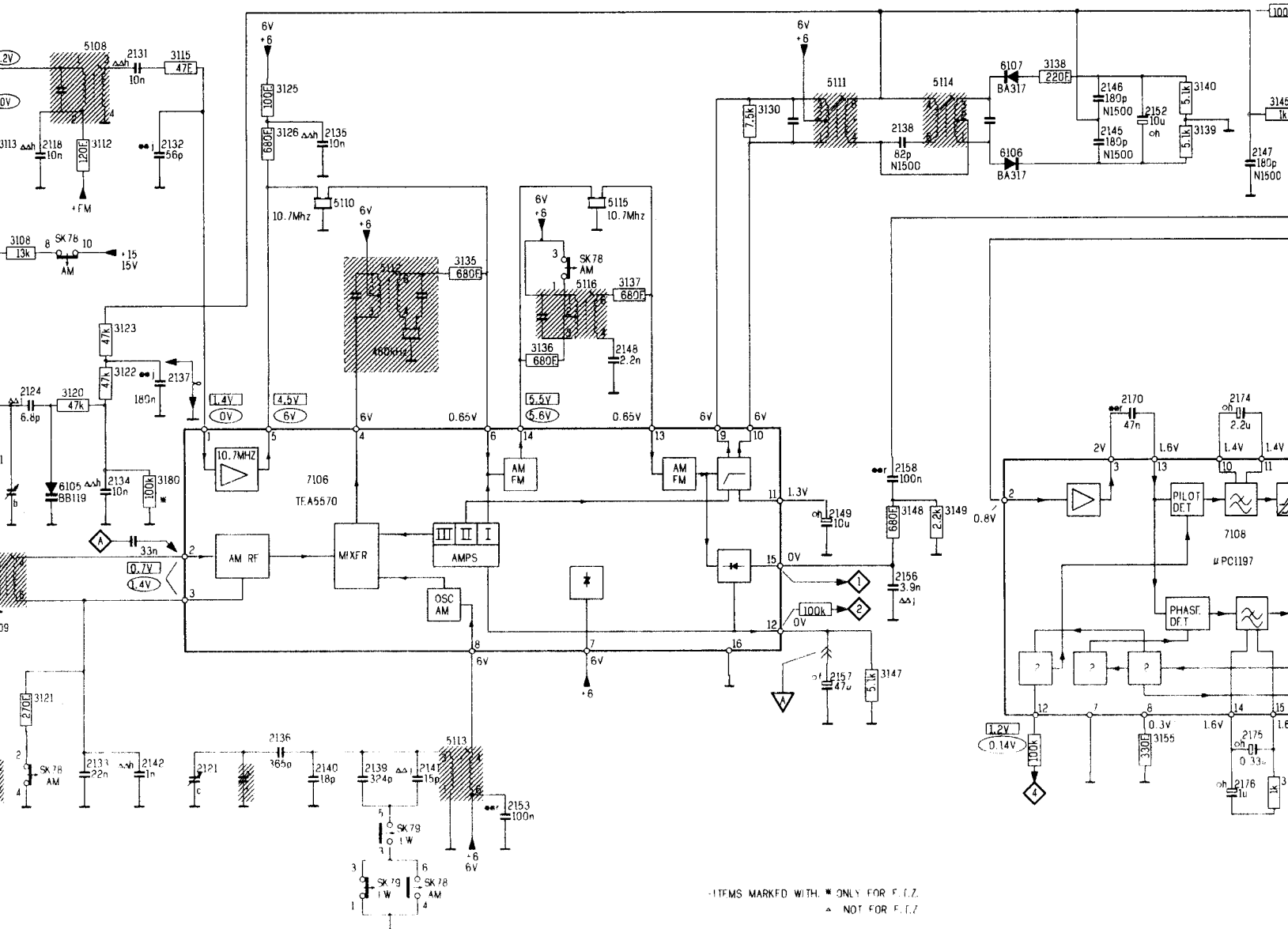
16	Tasto di avvolgimento rapido	
17	Tasto di riavvolgimento rapido	
18	Tasto di capiaturo Dubbing B → A	SK74
19	Tasto di soppressione del fruscio	SK73
20	Selettore del tipo di nastro	SK72
21	Tasto di pausa	
22	Tasto di riproduzione/avvolgimento	
23	Tasto di arresto/espulsione	
24	Tasto di avvolgimento rapido	
25	Tasto di avvolgimento rapido	
26	Tasto di registrazione	
27	Tasto di azzeramento	
28	Contanastro	
29	Leva	
30	Selettore dei giri	SK-H
A	Morsetti per casse acustiche 4 Ω	BU5-6
B	Prese per antenno AM e terro	BU4
C	Prese per antenna FM, 75 Ω	BU4
D	Prese per antenna FM, 300 Ω	BU4
E	Cordone di rete	
F	Prese CD/TV	BU3

1	2	3	4	5	6	7	8	9	10	11
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Service hint
Upon repair
player) A15-
with A13-re

CS 101 853

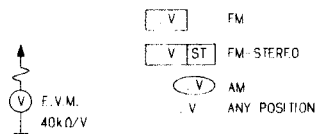
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7	2170	E18	2175	H19	2180	G23	2407	K 5	3104	F 6	3109	D 7	3115	B10	3125	B11	3137	D14	3147	G16	3156	E20	3163	F23	3172	I21	3398	G25	5104	B 4	5109	G 8	5116	F19
11	2171	E21	2176	H19	2181	K 7	2421	C 3	3105	F 5	3111	C 7	3120	E 9	3126	B11	3138	B17	3148	F16	3157	H21	3165	G21	3173	J 8	3399	F23	5105	C 5	5110	C11	5117	F19
12	2172	E23	2177	F22	2183	E21	2184	E22	3101	D 5	3107	D 6	3112	C 9	3121	H 8	3130	B19	3149	F17	3158	H21	3167	G23	3180	F 9	5101	C 2	5106	E 7	5111	B16	5118	F19
19	2173	H20	2178	G22	2184	E22	3102	E 5	3107	D 6	3113	C 8	3122	E 9	3135	D12	3140	B19	3150	K 6	3159	H20	3168	G23	3356	E24	5102	C 4	5107	C 7	5112	D11	5119	F19



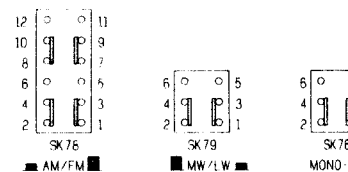
Service hint:

Upon repairing the T.A.C. (detached from the record-player) A15-grey (not phono selected) must be connected with A13-red (+12).

ITEMS MARKED WITH * ONLY FOR F.I.Z.
* NOT FOR F.I.Z.



VOLTAGE MEASURED WITHOUT SIGNAL
UNLESS STATED OTHERWISE ALL FIXED RESISTORS
ARE FILM RESISTORS SFR25 PMS
ALL SWITCHES DRAWN IN REST POSITION



RF part

+15 = 15 V
+FM = 6.5 V
+6 = 6 V

7101

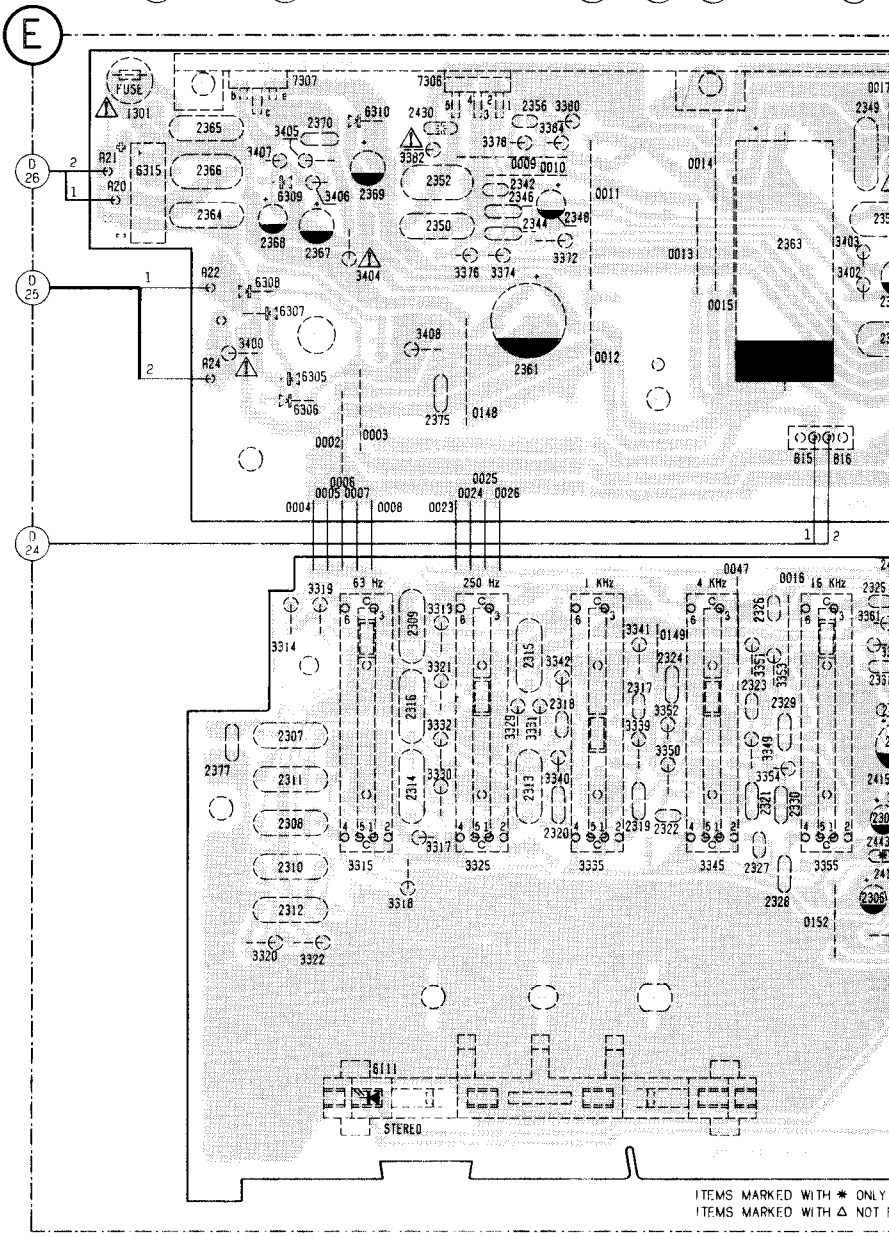
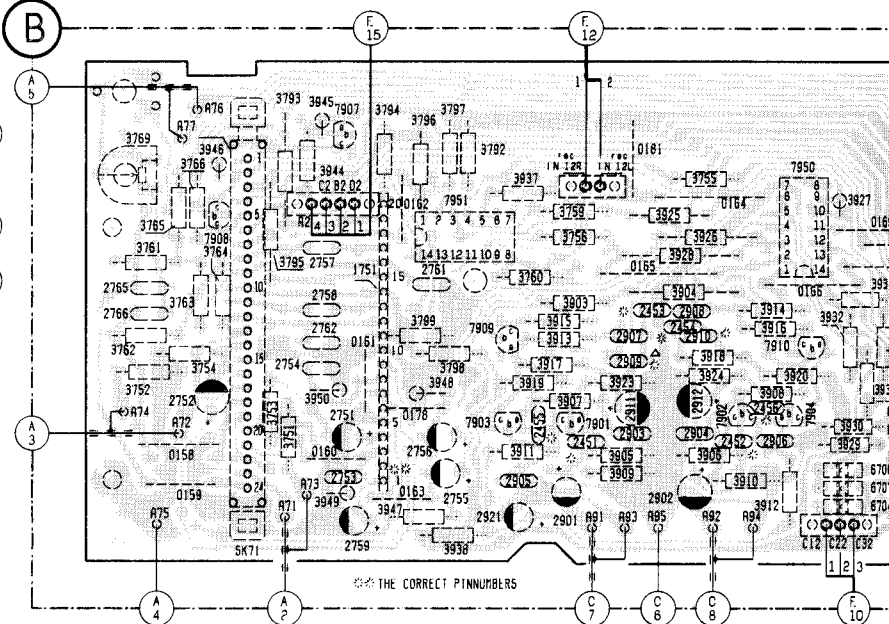
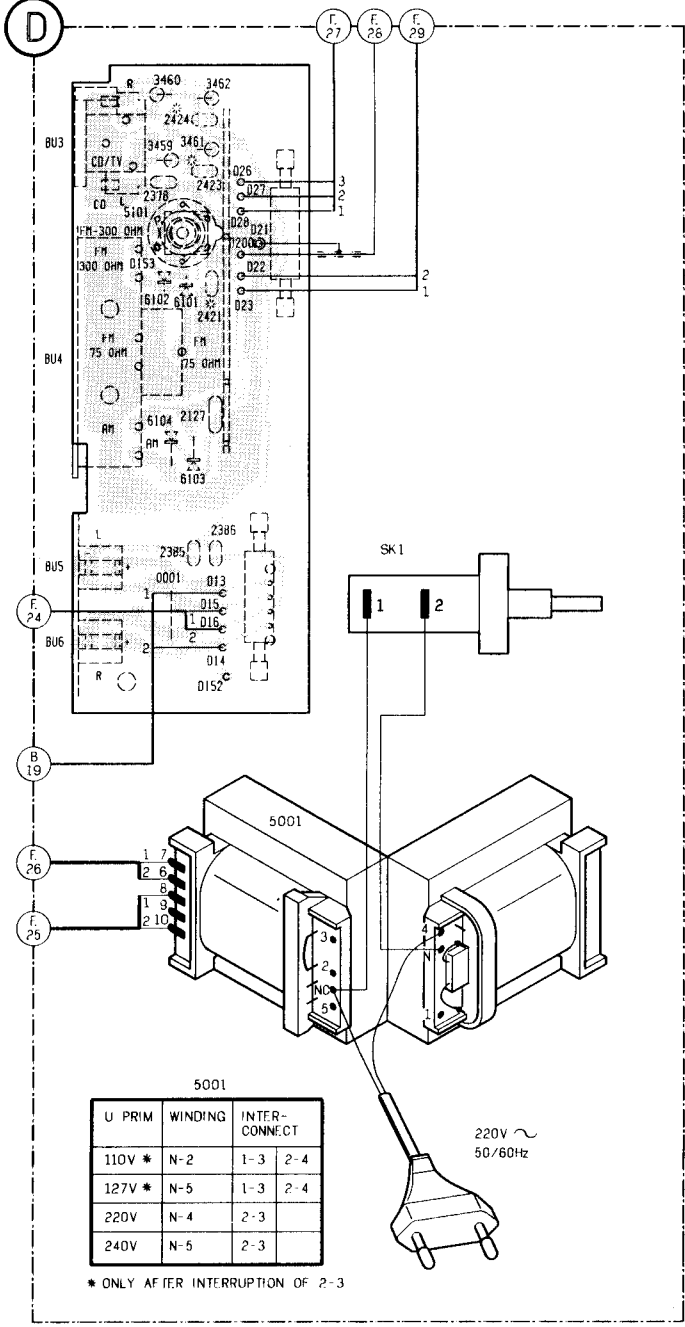
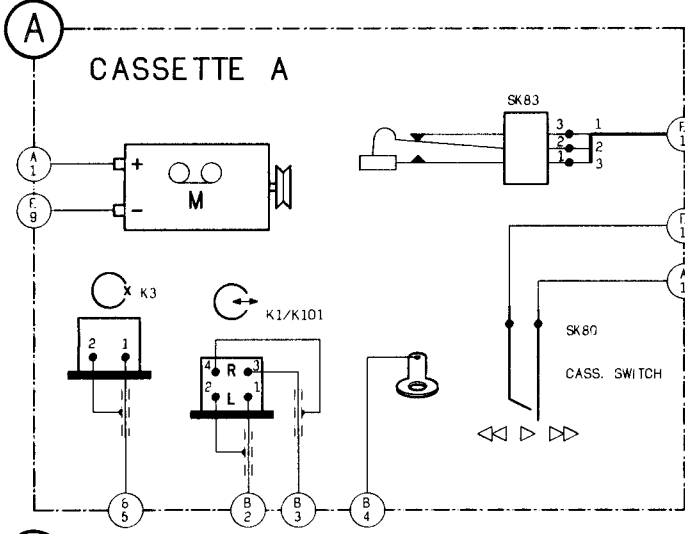
9 0 V
D 5.2 V 5.5
S 1

14	15	16	17	18	19	20	21	22	23	24	25
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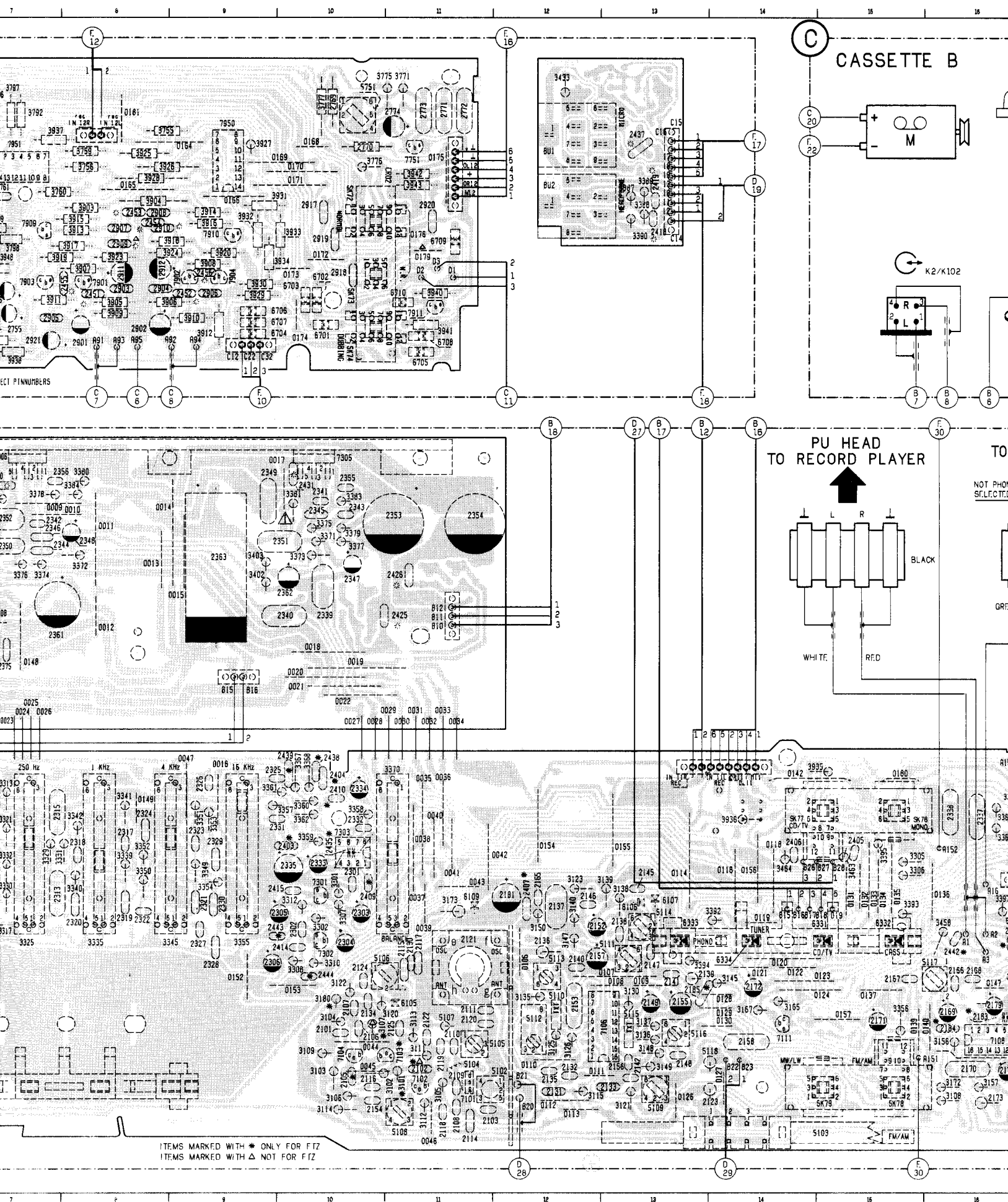


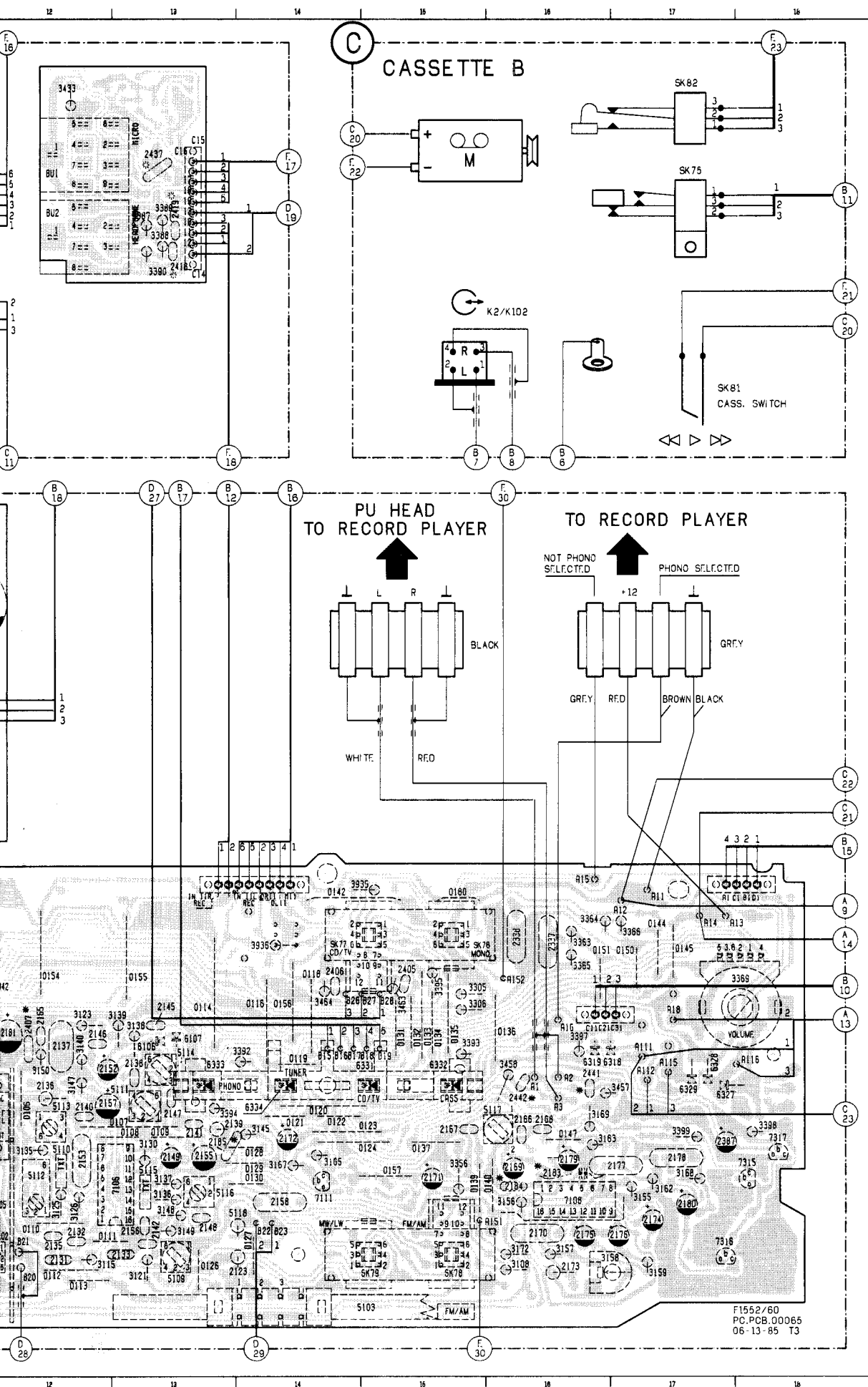
e	0.6 V
b	1.2 V
c	4 V

PRS.00296
T10



ITEMS MARKED WITH * ONLY
ITEMS MARKED WITH Δ NOT





A.F. CIRCUIT DIAGRAM

TO RECORDING
POINT 3-7951

FROM PU HEAD

FROM R.F.
3169

FROM RECORDING
3935

CD/TV

CD/TV

CD/TV

CD/TV

CD/TV

CD/TV

CD/TV

CD/TV

CD/TV

CD/TV

CD/TV

CD/TV

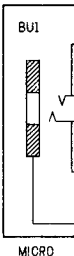
CD/TV

CD/TV

CD/TV

L

R



MICRO

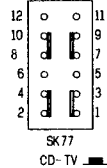
ITEMS MARKED WITH: * ONLY FOR F.T.Z.
▲ NOT FOR F.T.Z.



UNLESS STATED OTHERWISE ALL FIXED RESISTORS
ARE FILM RESISTORS SFR25 PM5
SWITCHES DRAWN IN REST POSITION

Service hint:

Upon repairing the T.A.C. (detached from the record-
player) A15-grey (not phono selected) must be connected
with A13-red (+12).



CD-TV

EQUALIZER

EQUALIZER

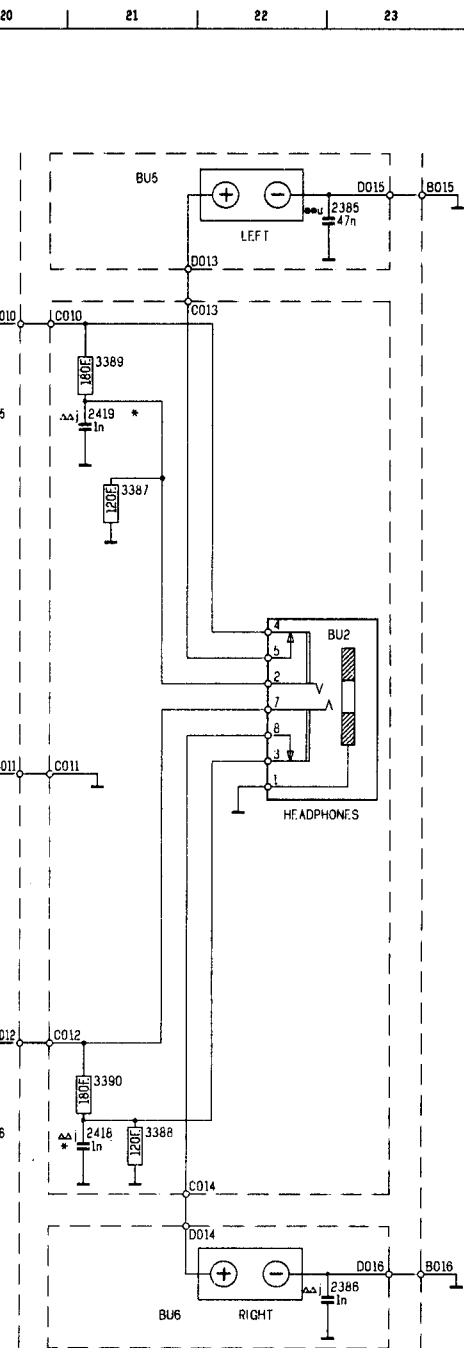
16.5V C

35V D

7.5V F

15V +15

12.5V +12



5001

U PRIM.	WINDING	INTERCONN.
* 110V	N-2	1-3 and 2-4
* 127V	N-5	1-3 and 2-4
220V	N-4	2-3
240V	N-5	2-3

* ONLY AFTER INTERRUPTION OF 2-3

PRS. 00295
T10

- 1301 K17 3368 H15
- 2301 D 6 3369 H15
- 2302 I 6 3369 B15
- 2303 C 5 3370 I15
- 2304 I 5 3370 C15
- 2305 C 7 3371 B16
- 2306 I 7 3372 H16
- 2307 D 7 3373 B17
- 2308 I 7 3374 H17
- 2309 A12 3375 B17
- 2310 G12 3376 H17
- 2311 A11 3377 D17
- 2312 F11 3378 I17
- 2313 A11 3379 D19
- 2314 G11 3380 J19
- 2315 B12 3381 C19
- 2316 G12 3382 I20
- 2317 C12 3383 D19
- 2318 H12 3384 I19
- 2319 B11 3387 D21
- 2320 H11 3388 I21
- 2321 C11 3389 C21
- 2322 I11 3390 I21
- 2323 C12 3400 H17
- 2324 I12 3402 K14
- 2325 D11 3403 K14
- 2326 J11 3404 H14
- 2327 C11 3405 H14
- 2328 I11 3406 H13
- 2329 D11 3407 H13
- 2330 I11 3408 D13
- 2331 C13 3433 F 5
- 2332 I13 3457 B 4
- 2333 B14 3458 I 4
- 2334 G14 3459 D 1
- 2335 L11 3460 K 1
- 2337 C15 3461 D 2
- 2338 I15 3462 K 2
- 2339 B16 3463 D 3
- 2340 H16 3464 K 3
- 2341 C17 5001 K18
- 2342 H17 6305 N15
- 2343 C17 6306 N14
- 2344 H17 6307 D15
- 2345 C17 6308 D14
- 2346 I17 6309 N13
- 2347 D17 6310 N12
- 2348 J17 6315 K15
- 2349 A18 7301 C 6
- 2350 G18 7302 I 6
- 2351 C19 7307 H13
- 2352 I19 BU1 F 3
- 2353 B19 BU2 E23
- 2354 H19 BU3 K 1
- 2355 D18 BU3 D 1
- 2356 I18 BU5 A21
- 2357 D12 BU6 J21
- 2358 K13 SK-1 H19
- 2359 L14 SK77 C 5
- 2364 L15 SK77 J 5
- 2365 K14 SK77 K 5
- 2366 K16 SK77 D 5
- 2367 N14
- 2368 N13
- 2369 N11
- 2370 H13
- 2375 D12
- 2377 D13
- 2378 K 2
- 2385 B23
- 2386 J23
- 2403 C14
- 2404 I14
- 2405 D 3
- 2406 K 3
- 2409 B13
- 2410 H13
- 2414 H 6
- 2415 C 6
- 2418 I21
- 2419 C21
- 2423 D 2
- 2424 K 2
- 2425 C20
- 2426 I20
- 2430 H19
- 2431 B19
- 2435 A14
- 2437 F 5
- 2438 J14
- 2439 E14
- 2441 B 4
- 2442 I 4
- 2443 D 6
- 2444 I 6
- 3301 C 6
- 3302 I 6
- 3305 D 5
- 3306 H 5
- 3307 B 6
- 3308 H 6
- 3310 H 6
- 3312 B 6
- 3313 D 8
- 3314 J 8
- 3315 J 7
- 3315 D 7
- 3317 C 8
- 3318 I 8
- 3319 A12
- 3320 F12
- 3321 A12
- 3322 F12
- 3325 J 8
- 3325 D 8
- 3329 A12
- 3330 G12
- 3331 A12
- 3332 G12
- 3335 J 9
- 3335 D 9
- 3339 B12
- 3340 H12
- 3341 D12
- 3342 H12
- 3345 D10
- 3345 J10
- 3349 C12
- 3350 I12
- 3351 C12
- 3352 I12
- 3353 D12
- 3354 I12
- 3355 J10
- 3355 D10
- 3357 C13
- 3358 H13
- 3359 A13
- 3360 G13
- 3361 L12
- 3362 L12
- 3363 B15
- 3364 H15
- 3365 C15
- 3366 I15
- 3367 B15

AF part

7301

- e 0.65 V
- b 7 V
- c 7 V

7302

- e 0.65 V
- b 7 V
- c 7 V

7303

- 1 7.5 V
- 2 6 V
- 3 7.3 V
- 4 15 V
- 5 7.3 V
- 6 6 V
- 7 7.5 V
- 8 15 V

7305

- 1 15 V
- 2 17 V
- 3 17 V
- 4 17 V
- 5 35 V

7306

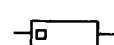
- 1 15 V
- 2 17 V
- 3 17 V
- 4 17 V
- 5 35 V

7307

- e 15 V
- b 16.5 V
- c 34 V



Carbon film
0.2 W 70°C 5%



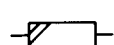
Carbon film
0.33 W 70°C 5%



Metal film
0.33 W 70°C 5%



Carbon film
0.5 W 70°C 5%



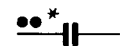
Carbon film
0.67 W 70°C 5%



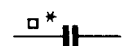
Carbon film
1.15 W 70°C 5%



Ceramic plate
Tuning ≤ 120 pF NP.0 2%
Others -20/+80%



Polyester flat foil 10%



Metalized polyester flat film 10%



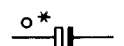
Polyester flat foil small size (Mylar) 10%



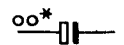
Polysterene film/foil 1%



Tubular ceramic

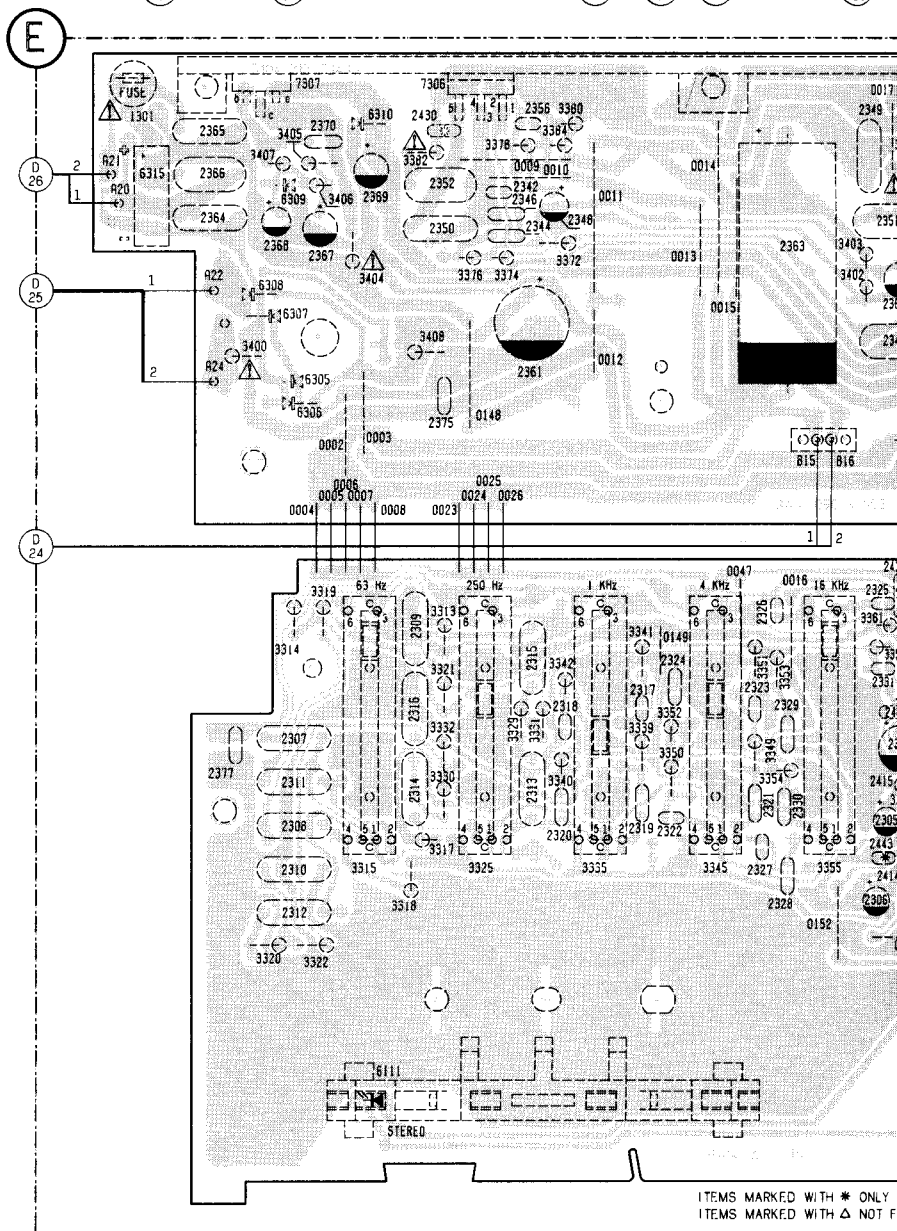
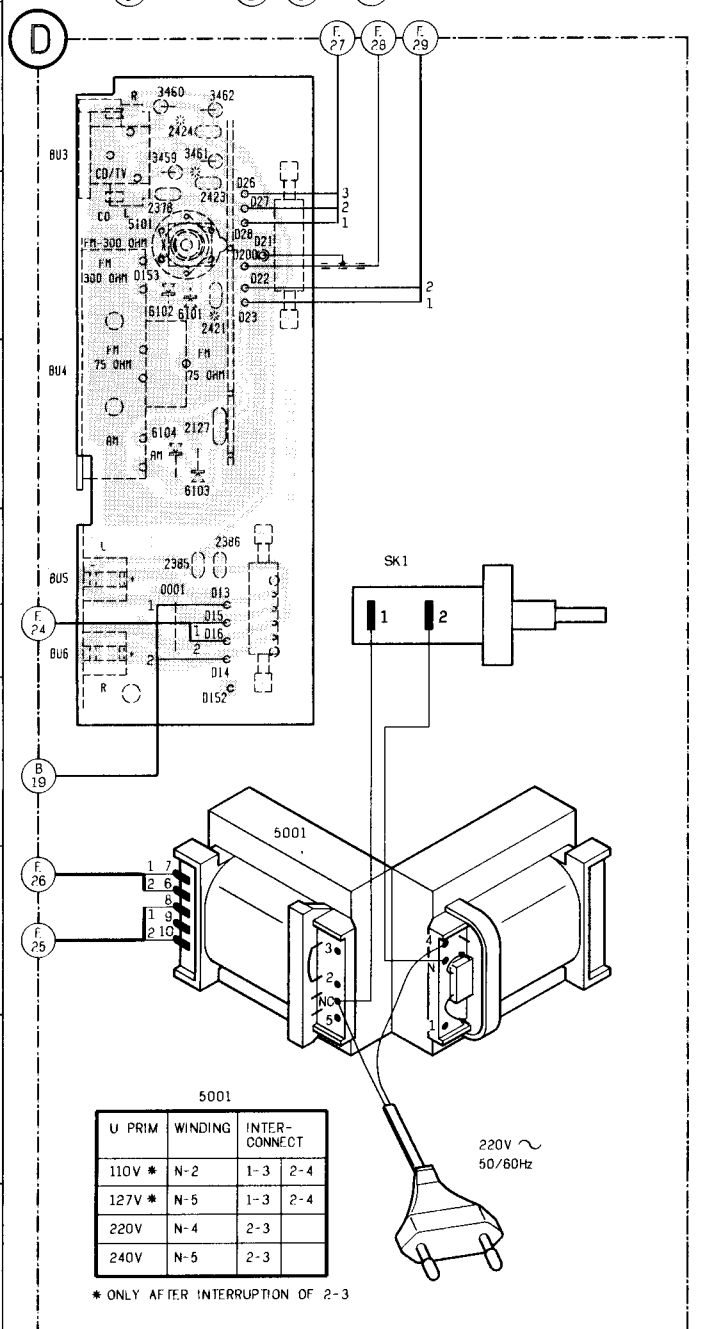
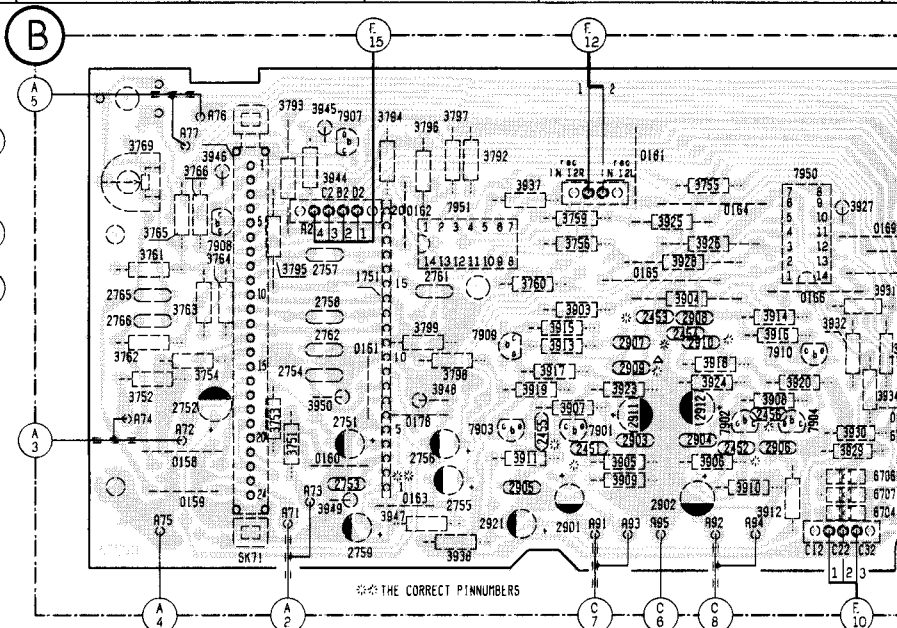
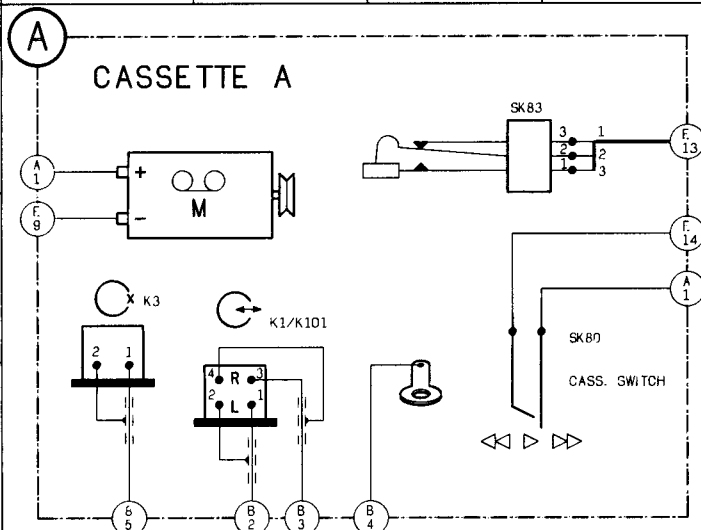


Miniature single



Subminiature tantalum ± 20%

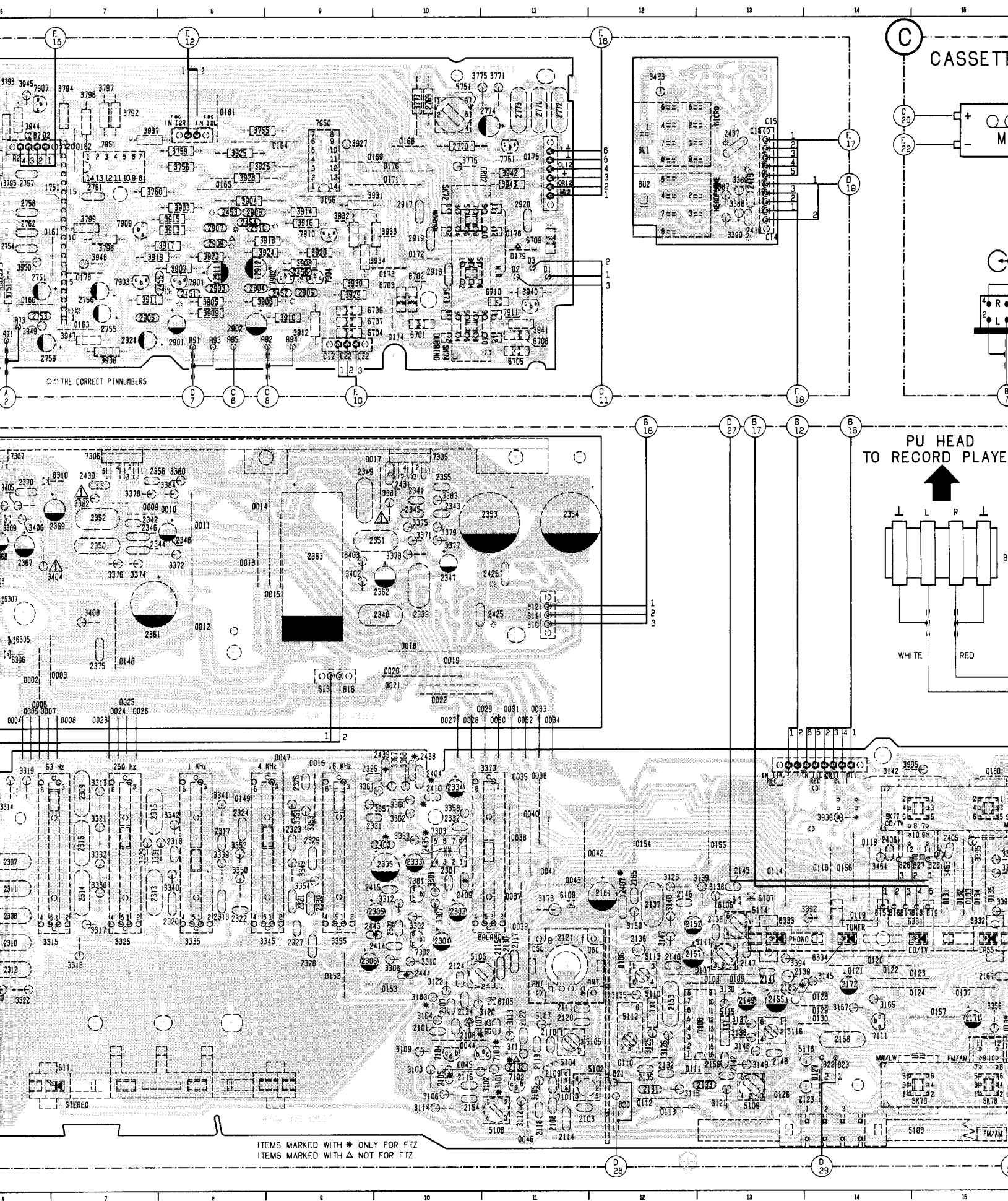
- *a = 2.5 V
- b = 4 V
- c = 6.3 V
- d = 10 V
- e = 16 V
- f = 25 V
- g = 40 V
- h = 63 V
- i = 100 V
- l = 125 V
- m = 150 V
- n = 160 V
- q = 200 V
- r = 250 V
- s = 300 V
- t = 350 V
- u = 400 V
- v = 500 V
- w = 630 V
- x = 1000 V
- A = 1.6 V
- B = 6 V
- C = 12 V
- D = 15 V
- E = 20 V
- F = 35 V
- G = 50 V
- H = 75 V
- I = 80 V

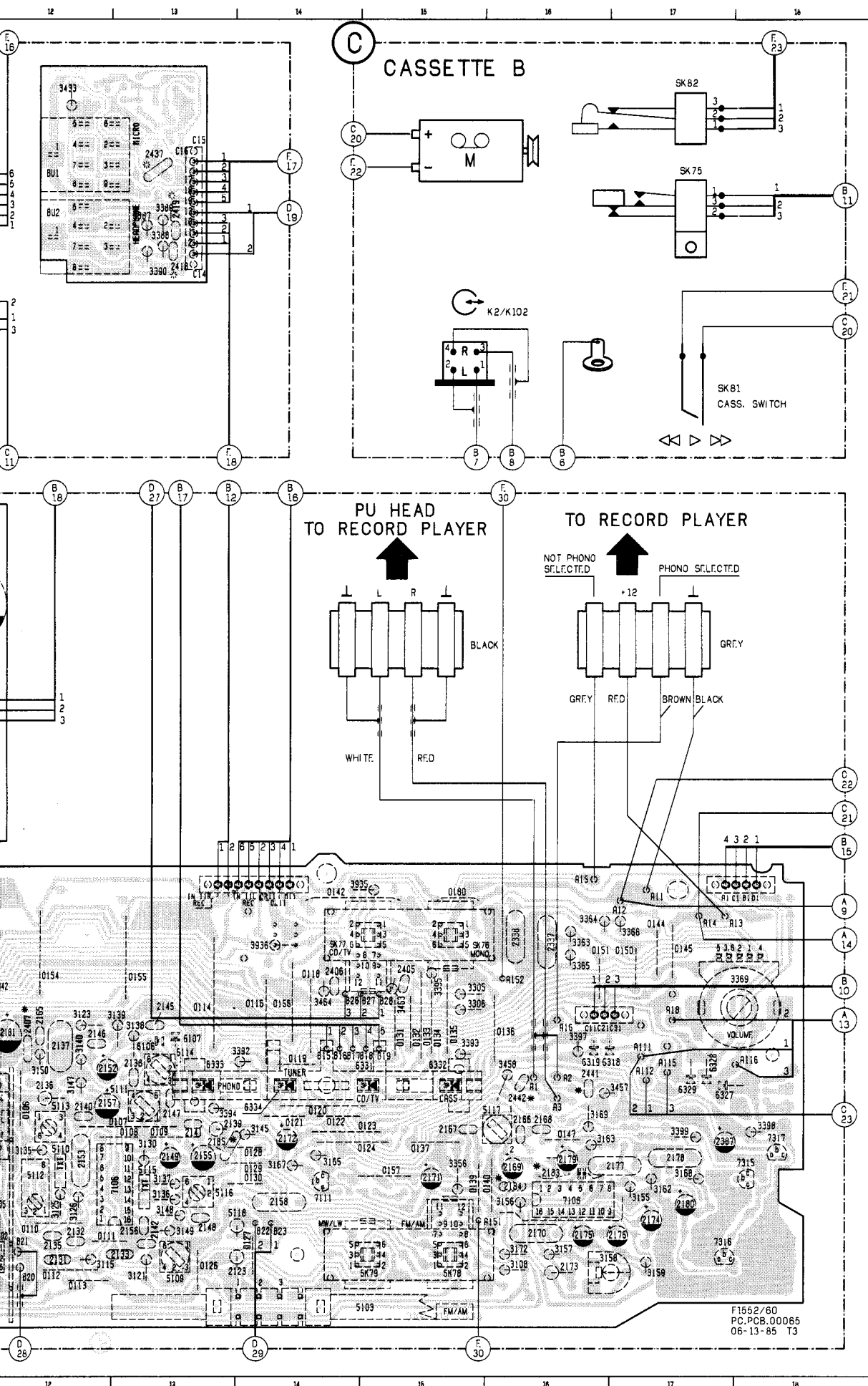


U PRIM	WINDING	INTER-CONNECT
110V *	N-2	1-3 2-4
127V *	N-5	1-3 2-4
220V	N-4	2-3
240V	N-5	2-3

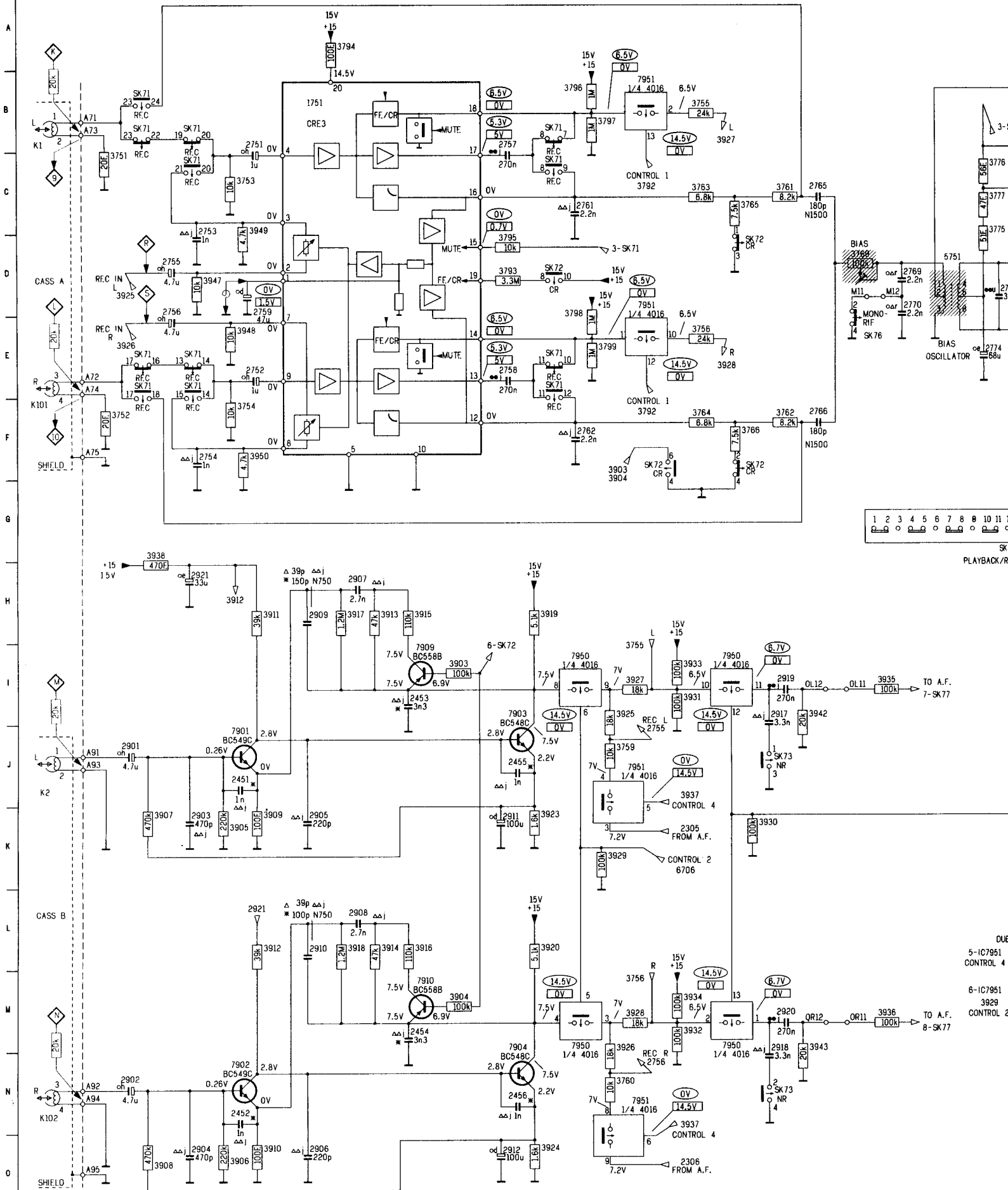
* ONLY AFTER INTERRUPTION OF 2-3

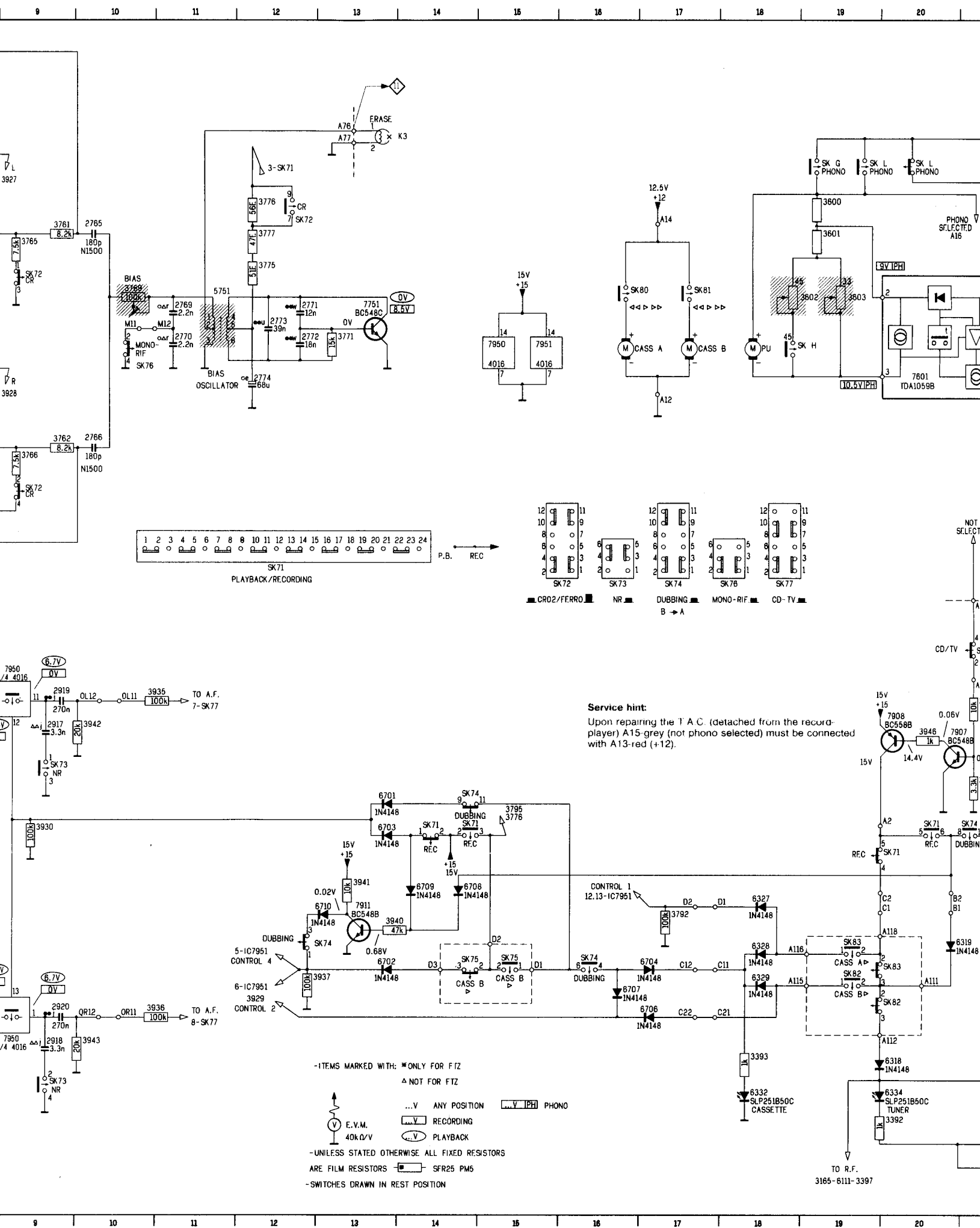
ITEMS MARKED WITH * ONLY
ITEMS MARKED WITH Δ NOT F

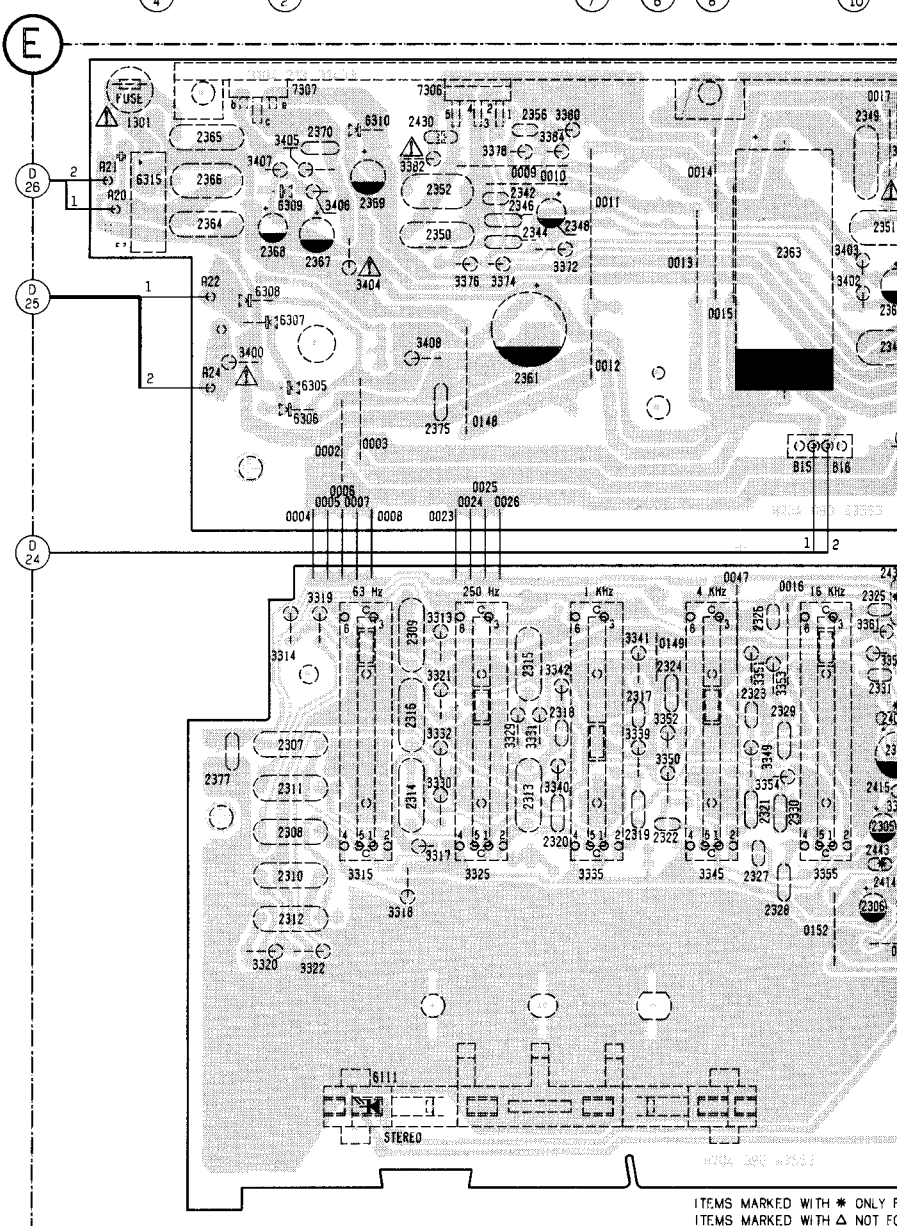
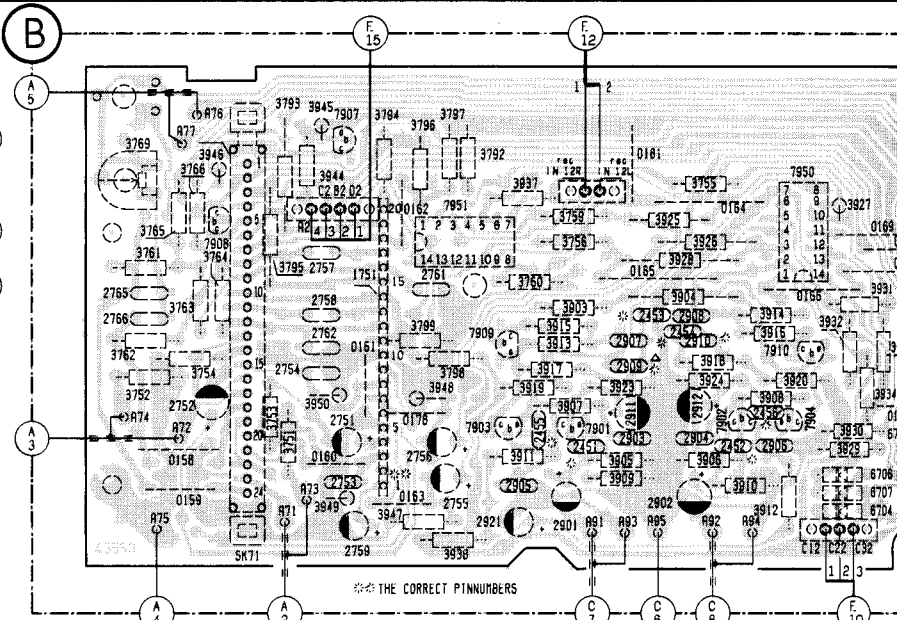
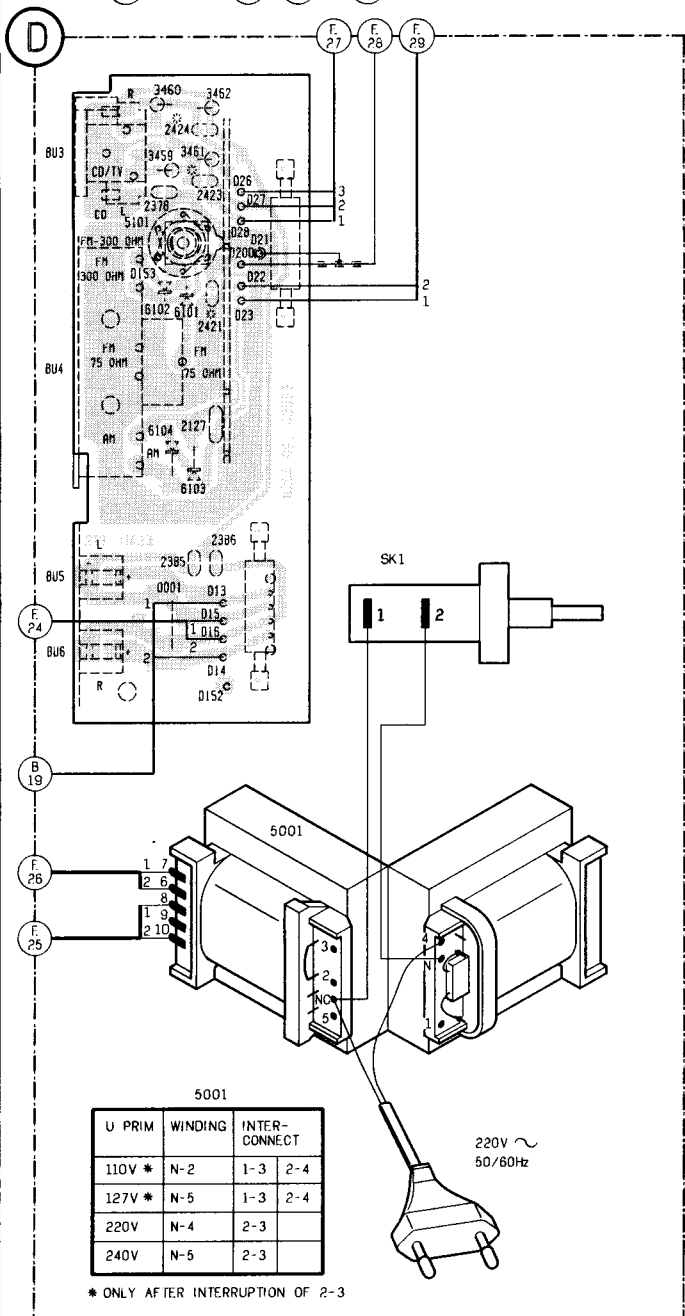
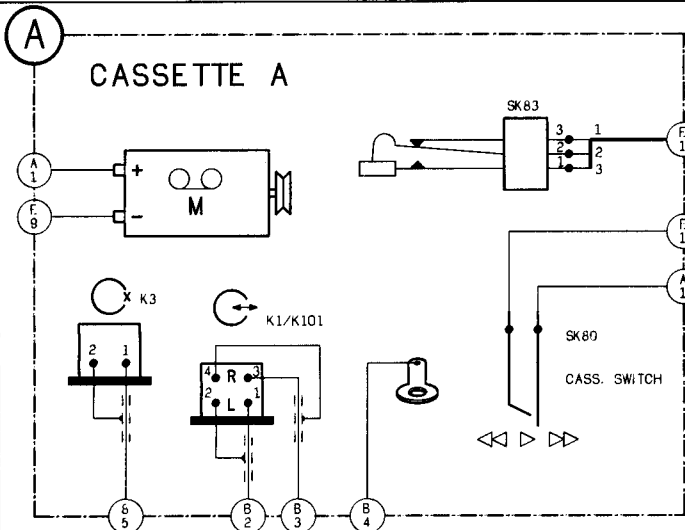




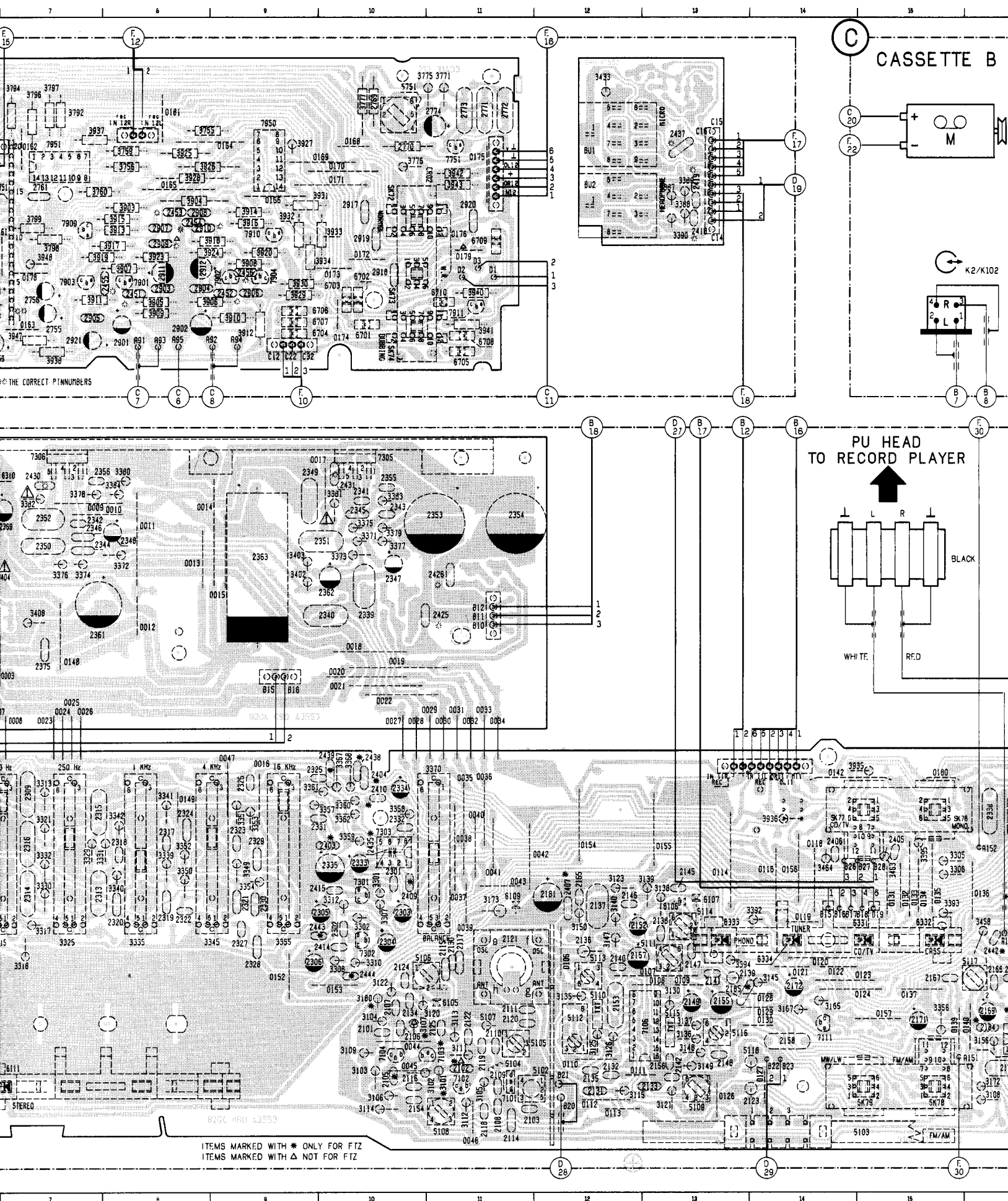
RECORDING-PHONO CIRCUIT DIAGRAM

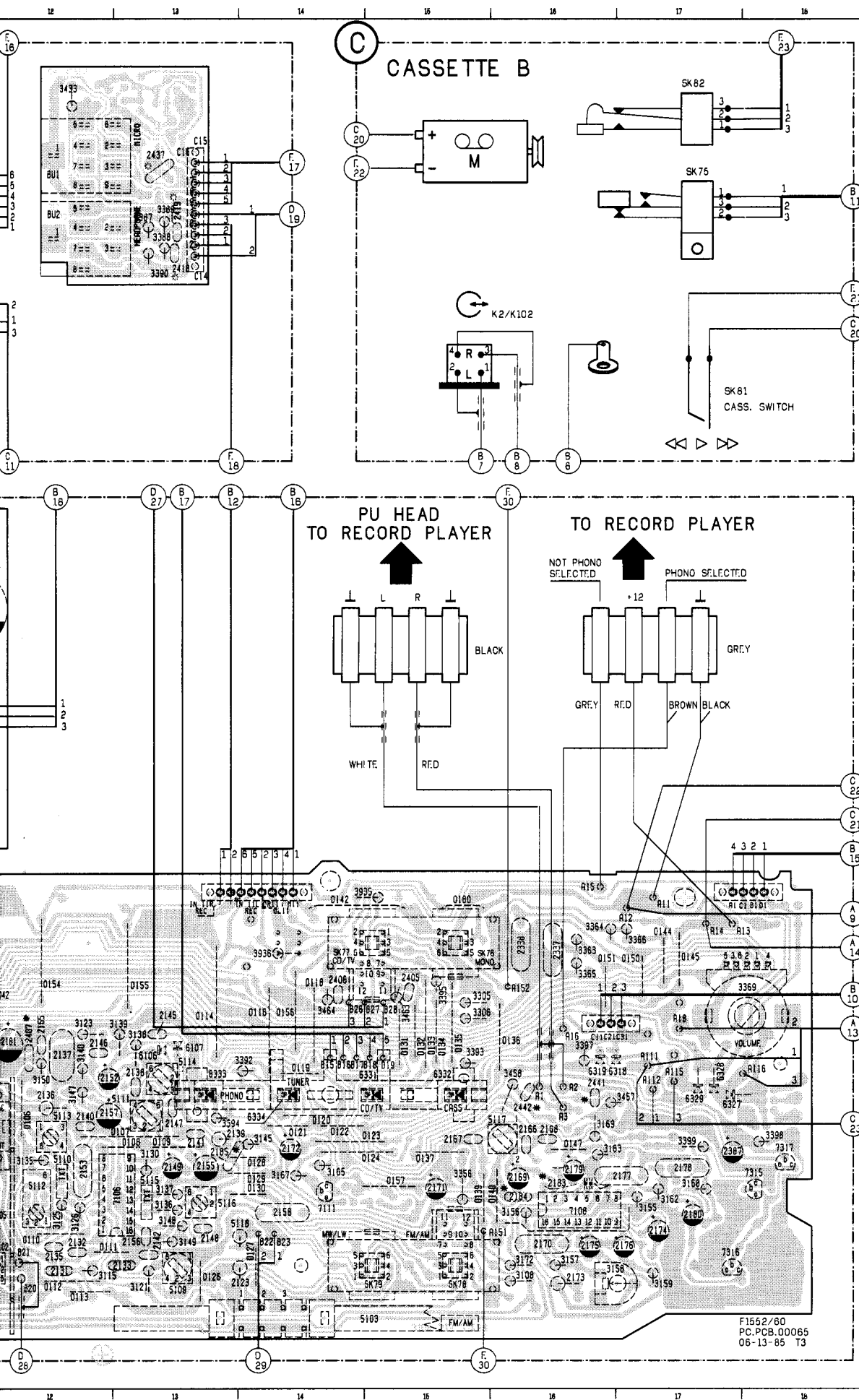






ITEMS MARKED WITH * ONLY FOR
ITEMS MARKED WITH Δ NOT FOR





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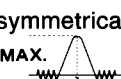
ALIGNMENT

General

- During the alignment, keep the levels of the injected signals as low as possible.
- Alignment of IF stages requires a sweep signal.
For FM: Apply a 10.7 MHz signal with a sweep of 300 kHz at a frequency of 50 Hz.
For AM: Apply a 450 kHz (468 kHz) signal with a sweep of 10 kHz at a frequency of 50 Hz.
- Switch SK76 position: stereo.

Equipment required

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

SK				DETUNE			
switch	signal	to	tune in		adjust	oscilloscope	DC mV meter
FM SK-78	10.7 MHz Δf 300 kHz (50 Hz)			A B		2 1 center 	
	fo=f generator Δf = 10 kHz (50 Hz)				5108	2 2 symmetrical MAX. 	
	10.7 MHz Δf 300 kHz (50 Hz) 1 mV				5114 5111	3 3 symmetrical 	
	10.7 MHz No sweep				5114		DC  0 V $\pm$ 30 mV
							

FM-oscillator							
FM SK-78	87.63 MHz mod. 1 kHz Δf 22.5 kHz		max. cap. 2121		5106	3 max. ~	
	108.0 MHz mod. 1 kHz Δf 22.5 kHz		min. cap. 2121		2121e		

FM-RF antenna section							
FM SK-78	87.63 MHz mod. 1 kHz Δf 22.5 kHz				5105	3 max. ~	
	108.0 MHz mod. 1 kHz Δf 22.5 kHz				2121h		
							

Stereo-decoder							
FM SK-78	No signal				3158	Counter  19 kHz $\pm$ 100 Hz	

GB

- 1 Place the peak of the band-pass curve in the middle of the picture by shifting the sweep frequency.
- 2 Adjust for maximum height and symmetry.
- 3 Adjust for linearity and symmetry of the S-curve.
- A Switch off A.F.C. by short-circuiting 2137.
- B Open solder bridge 

NL

- 1 De top van de doorlaat curve, door verschuiven van wobbelfrequentie, in het midden van het scherm plaatsen.
- 2 Afregelen op maximum hoogte en symmetrie.
- 3 Afregelen op lineariteit en symmetrie van de S-kurve.
- A A.F.C. uitschakelen door 2137 kort te sluiten.
- B Open soldeerbrug 

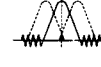
F

- 1 En décalant la fréquence de wobulation, placer la crête de la courbe de réponse au centre de l'écran.
- 2 Ajuster pour avoir une courbe d'amplitude maximale et de bonne symétrie.
- 3 Ajuster pour avoir une courbe en S de bonne linéarité et de bonne symétrie.
- A Mettre la C.A.F. hors service en court-circuitant, le condensateur 2137.
- B Ouvrir le pontet 

I

- 1 Portare la cresta della curva di risposta al centro dello schermo per mezzo di scivolamento della frequenza di modulazione.
- 2 Regolare per altezza e simmetria massima.
- 3 Regolare per linearità e simmetria della curva ad S.
- A Mettere il C.A.F. fuori funzionamento cortocircuitando il condensatore 2137.
- B Aprire il ponticello 

AM-IF

SK						
switch	signal	to	tune in	adjust	oscilloscope	AC mV meter
AM SK-78 MW SK-79	450 kHz Δf 10 kHz (50 Hz)		2121 max. cap.	 center  fo	   Symmetrical MAX.  	
	fo=f generator Δf = 10 kHz (50 Hz)			5112 5116		

AM-RF-oscillator

AM SK-78 LW SK-79	147 kHz mod: 1 kHz 30%		2121 max. cap.	5113		 max. ~
AM SK-78 MW SK-79	1635 kHz mod: 1 kHz 30%		2121 min. cap.	2121f		

AM-RF-antenna section

AM SK-78 MW SK-79	560 kHz mod: 1 kHz 30%			5103		 max. ~
	1500 kHz mod: 1 kHz 30%			2121g		
AM SK-78 LW SK-79	155 kHz mod: 1 kHz 30%			5109		

Repeat - Herhalen - Répéter - Wiederholen - Ricominciare

D

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

Abgleichen auf Linearität und Symmetrie der S-Kurve.

GB Electrical measurements and adjustments "Recorder"

- A**– The maximum permissible speed deviation is $\pm 2\%$. Moreover, the wow and flutter value can be read.
 - This value should not exceed 0.35%.
- B**– Connect the Service cassette set to the apparatus via one of the loudspeaker connectors.
 - Set the apparatus to the play back position with the 50 Hz cassette from the cassette service set.
 - With R at the back of the motor, adjust for minimum variation of the indicator reading.
- C**– If the accuracy requirements are less stringent a high quality ferro (normal) cassette may be used as an alternative.
- D**– If the adjustment is correct the frequency response curve will be similar to curve b in Fig. 2 (distortion $\leq 5\%$).
- E**– Switch off A.L.C. by short-circuiting electrolytic capacitor 2759.
- F**– Mount a resistor of 20E between point 2(4) of K2 (K102) and A93 (A94).

F Mesurer electriques et reglages "Recorder"

- A**– L'écart de vitesse maximum admissible est de $\pm 2\%$. Le taux de pleurage pourra également être lu lors de cette mesure.
 - Cette valeur ne doit pas dépasser 0,35%.
- B**– Relier par l'intermédiaire d'un des connecteurs de haut-parleur la section cassette Service à l'appareil.
 - Positionner en reproduction et faire passer une cassette 50 Hz de la section cassette Service.
 - Régler grâce à R à l'arrière du moteur pour que la variation sur l'indicateur soit minimum.
- C**– Si les exigences du point de précision, ne sont pas tellement élevées, une cassette au ferro (normale) de bonne qualité, pourra également convenir.
- D**– Si le réglage est correctement effectué, la courbe de fréquence devra être égale à la courbe b de la Fig. 2 (distorsion $\leq 5\%$).
- E**– Mettre la A.L.C. hors service en court-circuitant le condensateur chimique 2759.
- F**– Monter une résistance de 20E entre le point 2(4) de K2 (K102) et A93 (A94).

- A** A.F.C.-Regelung ausschalten durch kurzschluss von 2137.

- B** Lötbrücke  öffnen.

"Bei notwendigem Abgleich ist das Gerät auf die gesetzlich vorgeschriebenen Eckfrequenzen abzugleichen".

>87.2 MHz <108.5 MHz.

NL Elektrische metingen en instellingen "Recorder"

- A**– De hoogst toelaatbare snelheidsafwijking bedraagt $\pm 2\%$.
 - Tevens kan bij deze meting de jengelwaarde afgelezen worden.
 - Deze waarde mag niet hoger zijn dan 0.35%.
- B**– Via een van de luidsprekerconnectors het Service-cassettedeel met het apparaat verbinden.
 - Zet het apparaat in de weergeefstand met de 50 Hz cassette uit het Service-cassettedeel.
 - Met R aan de achterzijde van de motor op minimale variatie van de indicatoraflezing instellen.
- C**– Als de nauwkeurigheidseisen minder streng zijn, kan als alternatief een ferro-cassette (normal) van hoge kwaliteit gebruikt worden.
- D**– Als de instelling juist is, zal de frequentiekromme gelijk zijn aan kromme b in Fig. 2 (vervorming $\leq 5\%$).
- E**– A.L.C. regeling uitschakelen door elco 2759 kort te sluiten.
- F**– Plaats een weerstand van 20E tussen punt 2(4) van K2 (K102) en A93 (A94).

D Elektrische Messungen und Einstellungen "Recorder"

- A**– Die höchstzulässige Geschwindigkeitsabweichung beträgt $\pm 2\%$.
 - Auch lässt sich bei dieser Messung der Jaulwert ablesen.
 - Dieser Wert darf 0,35% nicht überschreiten.
- B**– Über einen der Lautsprecherkonnektoren den Service-Cassetten teil mit dem Gerät verbinden.
 - Mit dem 50-Hz-Cassette aus dem Service-Cassetten teil das Gerät in die Wiedergabestellung bringen.
 - Mit R auf der Rückseite des Motors auf Mindest-Schwankung der Anzeigerablesung einstellen.
- C**– Wenn die Genauigkeitsanforderungen weniger streng sind, kann als Alternative eine Hochleistungs-Ferrocassette (Normal) benutzt werden.
- D**– Wenn die Einstellung richtig ist, wird der Frequenzgang gleich der kurve b in Bild 2 (Verzerrung $\leq 5\%$) sein.
- E**– A.L.C. ausschalten durch Kurzschluss von Elko 2759.
- F**– Einer Widerstand von 20E zwischen Punkt 2(4) von K2 (K102) und A93 (A94) montieren.

I Misure e regolazioni elettriche "Recorder"

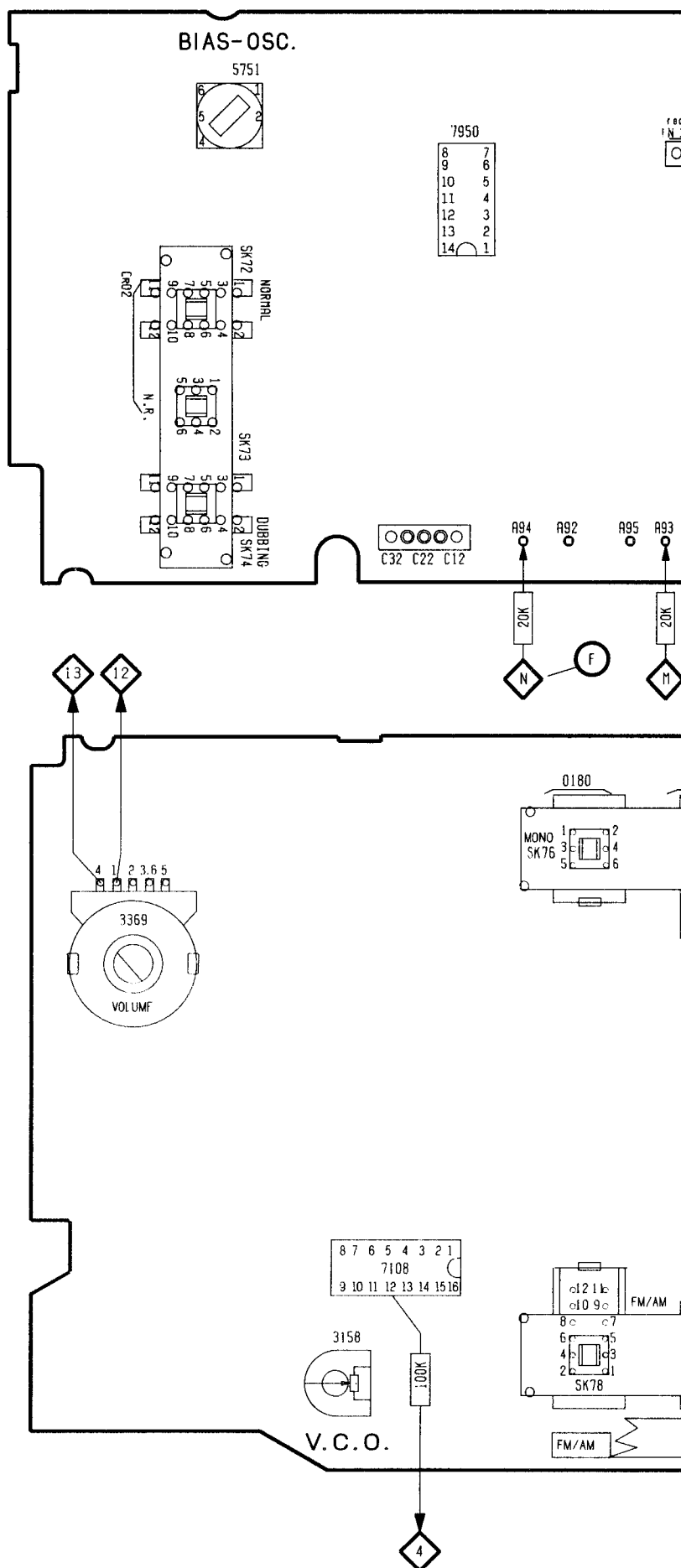
- (A)** – La deviazione massima di velocità è $\pm 2\%$. Inoltre, può essere rilevato il wow e flutter.
– Questo valore non deve eccedere dello 0,35%.
- (B)** – Collegare lo strumento di servizio al connettore di uscita di una cassa acustica dell'apparecchio.
– Posizionare l'apparecchio in riproduzione e usare la cassetta test a 50 Hz.
– Regolare la velocità del motore (R), per la minima deviazione dello strumento.
- (C)** – Per necessità può essere usata una cassetta di alta qualità al ferro (normale).
- (D)** – Se la regolazione è corretta la curva di risposta in frequenza sarà simile alla curva b in Fig. 2 (distorsione $\leq 5\%$).
- (E)** – Mettere il C.A. fuori funzionamento cortocircuitando il condensatore 2759.
- (F)** – Montare una resistenza di 20E fra il punto 2(4) di K2 (K102) e A93 (A94).

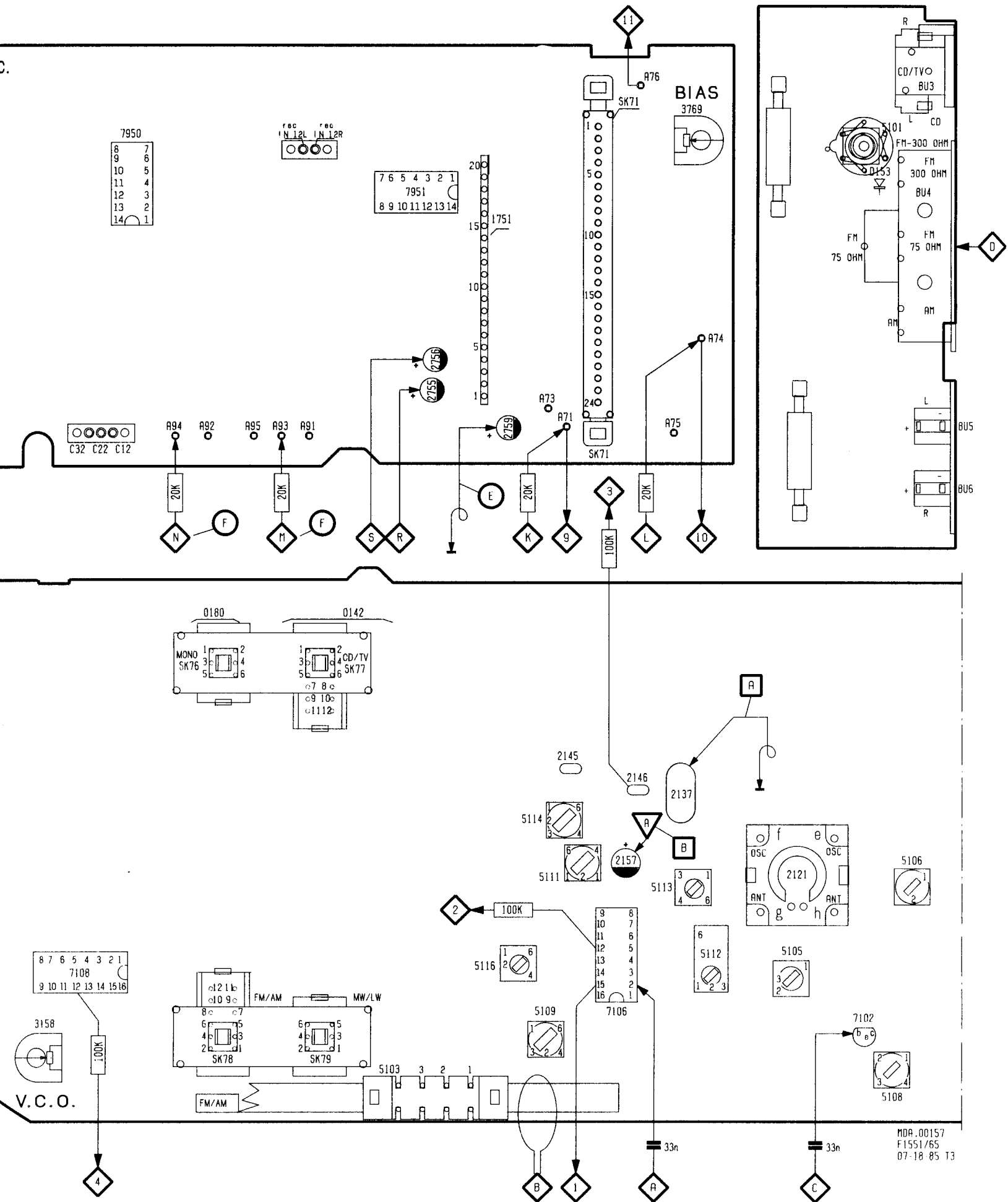
Recorder A and B

Adjustment	Cassette	Recorder in position SK..	Apply signal to	Measure on	Read on	Adjust with	Adjust to
Playback speed Method 1 or Method 2	3150 Hz part of SBC420Fe	PLAY	–	Loudspeaker output or  ()	Wow and flutter meter	Trimpotmeter R at the back of the motor	(A)
	Test cassette set 801/CCS	PLAY	–	Loudspeaker output	indicator on test set	Trimpotmeter R at the back of the motor	(B)
Azimuth R/P head	8 kHz part of SBC420Fe	PLAY	–	 ()	AC mV meter or oscilloscope	Left screw on R/P head	Max. output
Static playback	–	PLAY (F) only rec B	 () A  () B 170 mV-315 Hz via 20 k Ω	 ()	AC mV meter > 100 mV	–	
Playback sensitivity	315 Hz-0 dB part of SBC420Fe	PLAY	–	 ()	AC mV meter > 300 mV	–	
BIAS oscillator frequency only rec. A	Any cassette	RIF SK-76 OFF REC+PLAY	–		Frequency counter	5751	55 kHz
Target value BIAS only rec. A	SBC420Fe side-2 (C)	PLAY	–	 ()	AC mV meter	3769	9 mV
BIAS only rec. A	SBC420Fe side-2 (C)	REC+PLAY	1 kHz  () (E)		AC mV meter	LF generator	12 mV
			63 Hz 250 Hz 6.3 Hz 10 kHz	Record a number of frequencies (same input voltage)			
	Rewind recording made	PLAY		 ()	AC mV meter		See graph Fig. 1 if necessary repeat adjustment (D)

Record player

Adjustment	Service Manual	Record player position SK			Read on	Adjust with	Adjust to
Speed	F7046	SK-H 33 $\frac{1}{3}$ rpm 45 rpm			Stroboscope	R3603 R3602	33 $\frac{1}{3}$ rpm 45 rpm





1 2 3 4 5 6

μPC1197C
16 1 8

TEA5570
16 1 8

HEF4016B
14 1 7

SLP151B50C
SLP251B50C
k a

NJM4558CD
8 1 4

TDA2030VH
μPC1238V
2 1 3 4 5

2SK241GR
d 5 g

2KBP02
+ -

BD675
a b c

BZX79
k a

BF241
BF494
c b

BB119
BAX14
k a

VIOLET
BROWN
ORANGE
k a

BA317

BLACK
RED
RED
k a

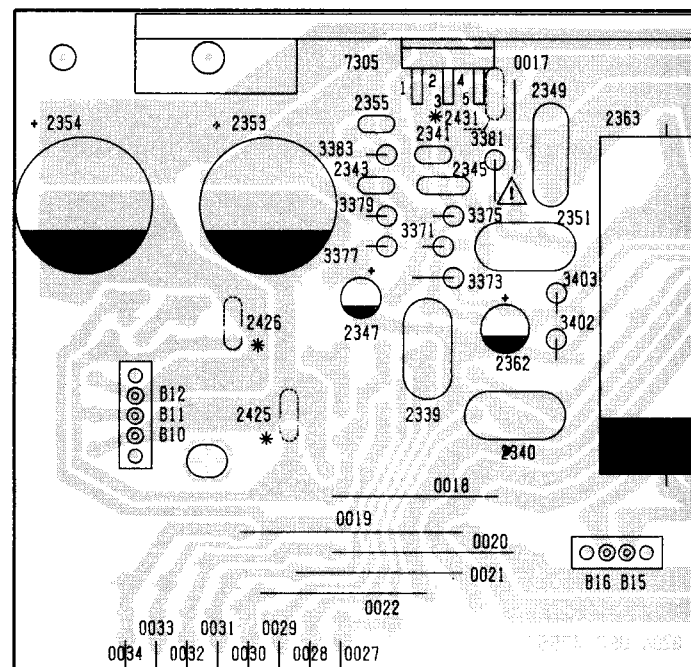
BA220

GREY
YELLOW
BROWN
YELLOW
k a

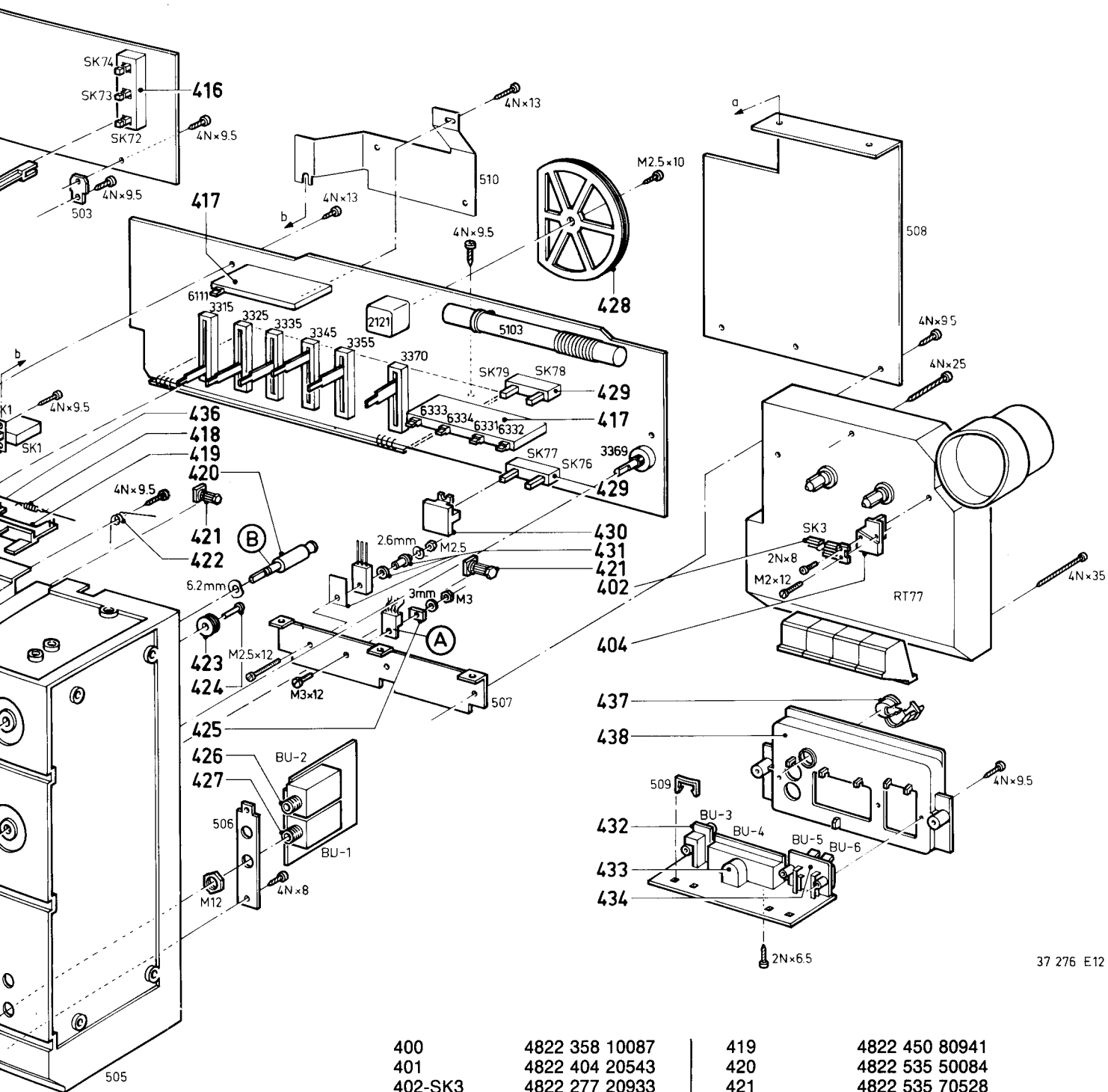
IN4148

3433

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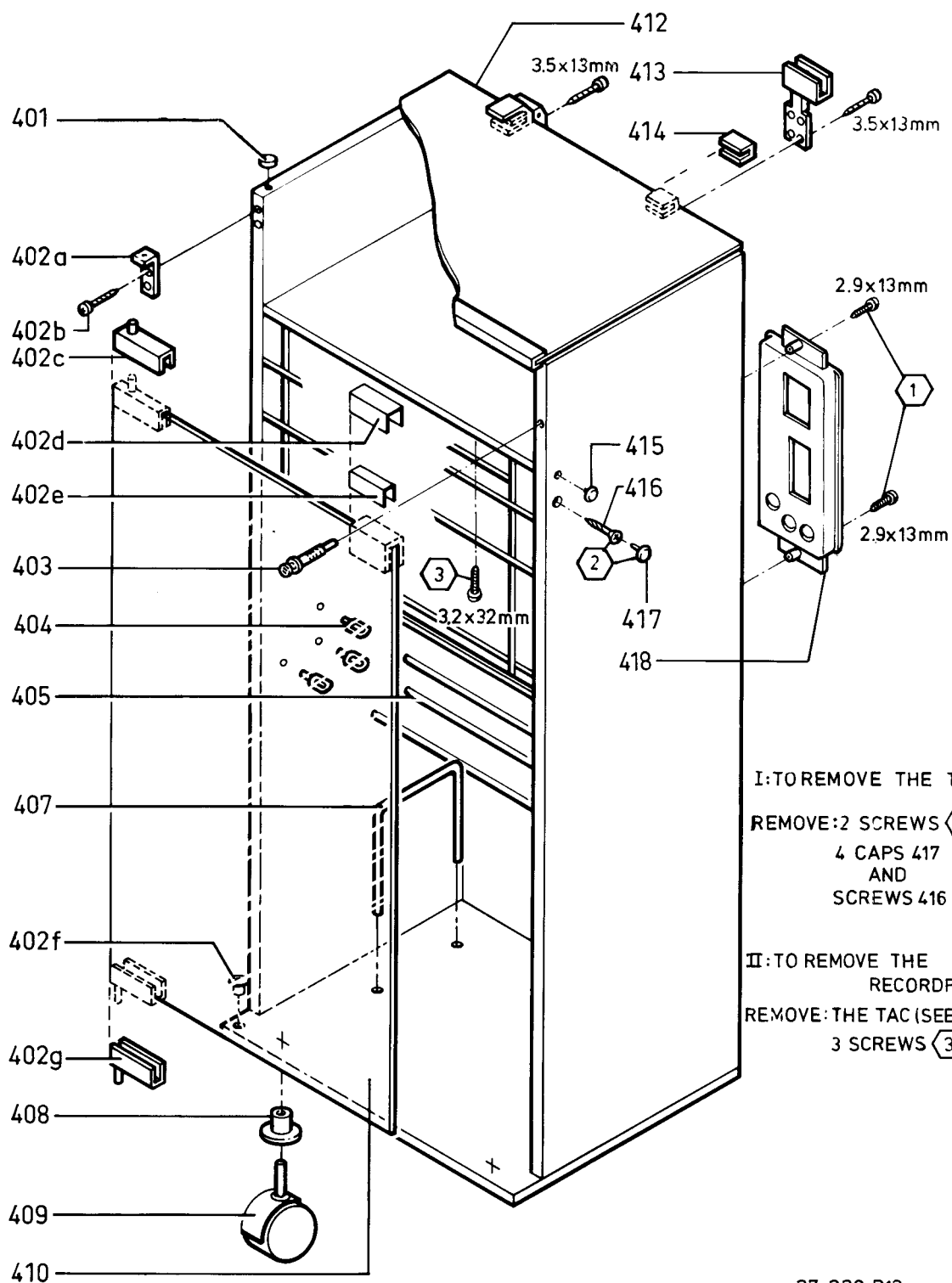
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ITEMS MARKED WITH * ONLY FOR
ITEMS MARKED WITH Δ NOT FOR



37 276 E12

400	4822 358 10087	419	4822 450 80941
401	4822 404 20543	420	4822 535 50084
402-SK3	4822 277 20933	421	4822 535 70528
403	4822 349 50209	422	4822 492 41091
404	4822 404 20549	423	4822 528 80802
405	4822 410 30369	424	4822 535 70457
406	4822 411 61105	425	4822 466 80671
407A	4822 426 60305	426-BU2	4822 267 30558
407B	4822 426 60304	427-BU1	4822 267 30561
408	4822 413 41147	428	4822 528 80888
409	4822 413 41229	429-SK76 ÷ 79	4822 276 20325
410-SK71	4822 277 30709	430	4822 410 24034
411	4822 404 20576	431	4822 310 30559
412	4822 410 30384	432-BU3	4822 267 30552
413	4822 410 30372	433-BU4	4822 265 40145
414	4822 146 21028	434-BU5,6	4822 290 80609
415-SK1	4822 276 11263	435	4822 492 63178
416-SK72 ÷ 74	4822 276 30325	436	4822 321 30213
417	4822 255 40374	437	4822 325 50125
418	4822 492 31495	438	4822 464 70341



37 230 B12

401 4822 462 71344
 402 4822 310 20347
 403 4822 417 41004
 404 4822 462 71359
 405 4822 535 91832

407 4822 404 20581
 408 4822 462 71345
 409 4822 528 70428
 410 4822 450 60515
 412 4822 450 60513

413 4822 417 10833
 414 4822 466 61049
 415 4822 462 71346
 416 4822 502 30367
 417 4822 462 71346

2117	Plate cap.	22 pF N470	4822 122 32076	BAX14		4822 130 34193																																																													
2120	Plate cap.	27 pF N330	4822 122 31234	BA220		4822 130 34221																																																													
2121	Varco		4822 125 50172	BA317		4822 130 30847																																																													
2136	Miopoco	365 pF 630 V	4822 121 50803	BB119		4822 130 31273																																																													
2138	Plate cap.	82 pF N1500	4822 122 31309	BZX79/C16		4822 130 34268																																																													
2139	Miopoco	324 pF 630 V	4822 121 50542	BZX79/C20		4822 130 34499																																																													
2140	Plate cap.	18 pF N1500	5322 122 34146	BZX79/C6V2		4822 130 34167																																																													
2145	Plate cap.	180 pF N1500	4822 122 32106	BZX79/C8V2		4822 130 34382																																																													
2146	Plate cap.	180 pF N1500	4822 122 32106	SLP151B50C red		4822 130 32323																																																													
2147	Plate cap.	180 pF N1500	4822 122 32106	SLP251B50C green		4822 130 32057																																																													
2166	Plate cap.	82 pF N1500	4822 122 31309	1N4148		4822 130 30621																																																													
2167	Plate cap.	180 pF N1500	4822 122 32106	2KBP02-7001		4822 130 50363																																																													
2168	Plate cap.	82 pF N1500	4822 122 31309																																																																
2341	Plate cap.	100 pF N1500	4822 122 31081	 <table><tr><td>BC548</td><td>4822 130 40938</td></tr><tr><td>BC548B</td><td>4822 130 40937</td></tr><tr><td>BC548C</td><td>4822 130 44196</td></tr><tr><td>BC549B</td><td>4822 130 40936</td></tr><tr><td>BC549C</td><td>4822 130 44246</td></tr><tr><td>BC558B</td><td>4822 130 44197</td></tr><tr><td>BD675</td><td>5322 130 44786</td></tr><tr><td>BF241</td><td>4822 130 40898</td></tr><tr><td>BF494</td><td>4822 130 44195</td></tr><tr><td>BF494B</td><td>4822 130 41376</td></tr><tr><td>2SK241GR+Y</td><td>4822 130 42217</td></tr></table>				BC548	4822 130 40938	BC548B	4822 130 40937	BC548C	4822 130 44196	BC549B	4822 130 40936	BC549C	4822 130 44246	BC558B	4822 130 44197	BD675	5322 130 44786	BF241	4822 130 40898	BF494	4822 130 44195	BF494B	4822 130 41376	2SK241GR+Y	4822 130 42217																																						
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2355	Plate cap.	100 pF N1500	4822 122 31081																																																																
2405	Plate cap.	150 pF N470	4822 122 32443																																																																
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3158	Potm. trimming	4k7 Lin	4822 100 10036	 <table><tr><td>5001</td><td>Mains transformer</td><td>4822 146 21028</td></tr><tr><td>5101</td><td>Aerial Trafo L-2M7-D</td><td>4822 148 80183</td></tr><tr><td>5102</td><td>Aerial Trafo Sym.</td><td>4822 157 51233</td></tr><tr><td>5103</td><td>Ferroceptor</td><td>4822 158 60515</td></tr><tr><td>5104</td><td>Coil</td><td>4822 156 10641</td></tr><tr><td>5105</td><td>Coil RF</td><td>4822 157 51693</td></tr><tr><td>5106</td><td>Coil Osc.</td><td>4822 157 51618</td></tr><tr><td>5107</td><td>Coil 0.47 µH</td><td>4822 157 50967</td></tr><tr><td>5108</td><td>Coil IF 10.7 MHz</td><td>4822 153 50206</td></tr><tr><td>5109</td><td>Aerial Trafo LW</td><td>4822 156 30564</td></tr><tr><td>5110</td><td>Res. cer. 10.7 MHz</td><td>4822 242 70249</td></tr><tr><td>5111</td><td>Coil FM</td><td>4822 157 51615</td></tr><tr><td>5112</td><td>Filter IF 450 kHz</td><td>4822 157 51617</td></tr><tr><td>5113</td><td>Coil Osc. AM</td><td>4822 157 51616</td></tr><tr><td>5114</td><td>Coil FM 10.7 MHz</td><td>4822 153 50208</td></tr><tr><td>5115</td><td>Res. Cer. 10.7 MHz</td><td>4822 242 70249</td></tr><tr><td>5116</td><td>Coil IF AM</td><td>4822 157 51708</td></tr><tr><td>5117</td><td>Coil</td><td>4822 157 51842</td></tr><tr><td>5118</td><td>Coil</td><td>4822 157 50964</td></tr><tr><td>5751</td><td>Coil Osc.</td><td>4822 156 20946</td></tr></table>				5001	Mains transformer	4822 146 21028	5101	Aerial Trafo L-2M7-D	4822 148 80183	5102	Aerial Trafo Sym.	4822 157 51233	5103	Ferroceptor	4822 158 60515	5104	Coil	4822 156 10641	5105	Coil RF	4822 157 51693	5106	Coil Osc.	4822 157 51618	5107	Coil 0.47 µH	4822 157 50967	5108	Coil IF 10.7 MHz	4822 153 50206	5109	Aerial Trafo LW	4822 156 30564	5110	Res. cer. 10.7 MHz	4822 242 70249	5111	Coil FM	4822 157 51615	5112	Filter IF 450 kHz	4822 157 51617	5113	Coil Osc. AM	4822 157 51616	5114	Coil FM 10.7 MHz	4822 153 50208	5115	Res. Cer. 10.7 MHz	4822 242 70249	5116	Coil IF AM	4822 157 51708	5117	Coil	4822 157 51842	5118	Coil	4822 157 50964	5751	Coil Osc.	4822 156 20946
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3325	Potm. trimming	100k Lin	4822 105 10578																																																																
3335	Potm. trimming	100k Lin	4822 105 10578																																																																
3345	Potm. trimming	100k Lin	4822 105 10578																																																																
3355	Potm. slide	100k Lin	4822 105 10578																																																																
3369	Potm.	100k volume	4822 101 20749																																																																
3370	Balance		4822 105 10579																																																																
3381	Fuse res.	1E NFR25	4822 111 30483																																																																
3382	Fuse res.	1E NFR25	4822 111 30483																																																																
3400	Fuse res.	1E NFR25	4822 111 30483																																																																
3404	Fuse res.	4E7 NFR30	4822 116 52448																																																																
3769	Potm. trimming	100k	4822 100 10052																																																																
HEF4016B		5322 209 14119	Miscellaneous <table><tr><td>1301</td><td>Fuse T 3.15A Wickman</td><td>4822 253 10048</td></tr><tr><td>1751</td><td>Cass. Rec. CRE-3</td><td>4822 218 10158</td></tr><tr><td>F</td><td>Thermal fuse for mains transformer</td><td>4822 252 20007</td></tr></table>					1301	Fuse T 3.15A Wickman	4822 253 10048	1751	Cass. Rec. CRE-3	4822 218 10158	F	Thermal fuse for mains transformer	4822 252 20007																																																			
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UPC1197C		4822 209 81544																																																																	

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.

GB

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NL

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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 i pezzi di ricambiaggio identici a quelli specificati.