Cassette Auto radio 22 AC 810

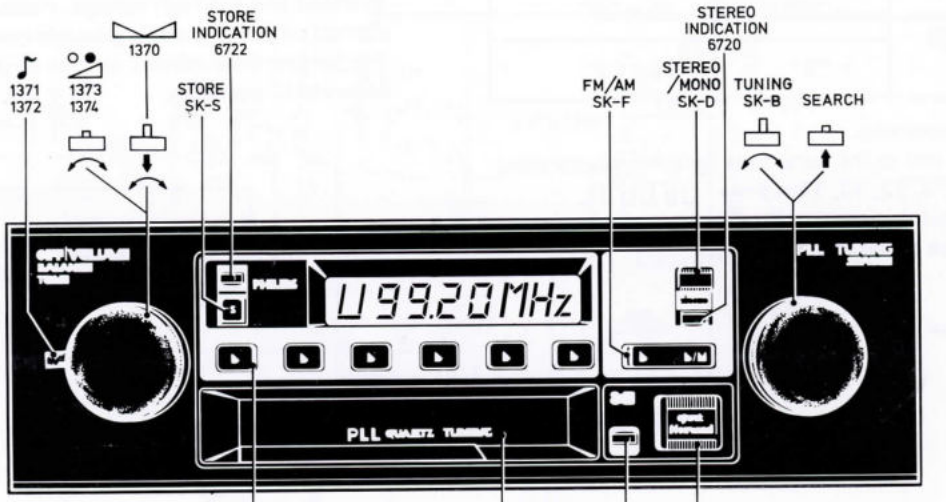
00/38/62

Service
Service
Service

For tape deck see Service Manual D1

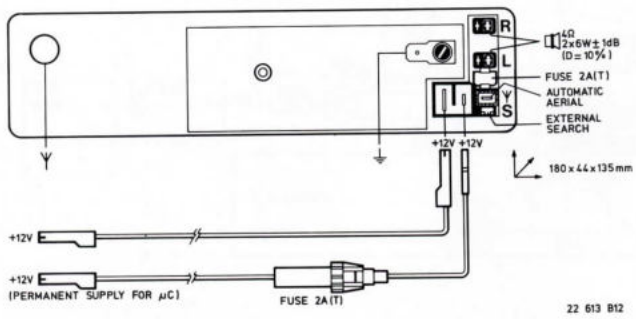
Service Manual

12 V



LW : 150–264kHz (2000–1136m)
MW: 522–1603kHz (575–187m)
FW: 87.5–104MHz
IF-AM : 468kHz
IF-FM : 10.7MHz

22 619 B12/A



22 613 B12

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

Subject to modification
GB 4822 725 14359
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PHILIPS

CHECK OF MICROCONTROLLER COP320L

1. Check supply voltage at pin 2 (5.3 V), pin 11 (5.0 V), "RESET" 4 (5.0 V) "1".
2. Check clock frequency at pin 3 (≈ 10 kHz)
3. Check I/O gates 12, 13, 14 and 15 ⎍⎍⎍⎍⎍

Service Test Programma

1. *Switch off apparatus*
   . Depress P5 and at the same time switch on apparatus.

To be measured	Result	Interconnection
7,14,22,27	= "0"	9 = "0"
	= "1"	9 = "1"
6,13,23,26	= "0"	10 = "0"
	= "1"	10 = "1"
8,15,21,28	= "0"	19 = "0"
	= "1"	19 = "1"
5,12,24,25	= "0"	20 = "0"
	= "1"	20 = "1"

2. *Switch off apparatus*
   . Depress P6 and at the same time switch on apparatus.
   . Pins 5, 6, 7, 8, 12, 13, 14, 15 → ⎍⎍⎍⎍⎍ (oscilloscope)
   . Pin 18: clock signal ≈ 40 - 60 kHz.

SERVICING HINTS

1. Power supply

During measurements and/or adjustments the tape deck should be switched on. Besides, an extra wire should be used for connection to earth of the main set and tape deck.

2. Display unit

Display unit 126a ÷ f will only be supplied as a complete unit, because uniting of the various constituent parts is very critical.
If, possibly, reassembling is required, proceed as shown in the Figures below.

Attention:
In assembly make sure that plate 126c perfectly covers display 126d.

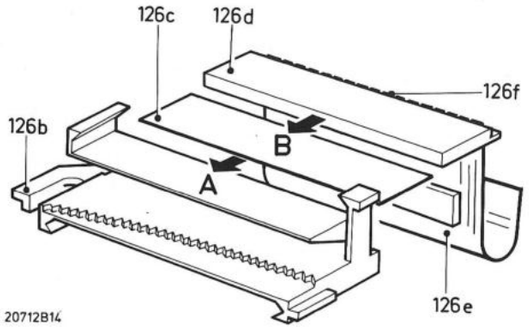
3. Tape deck

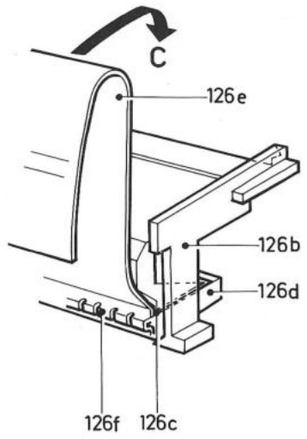
In order to prevent mechanical stresses, respect the following re-assembling sequence of tape deck:

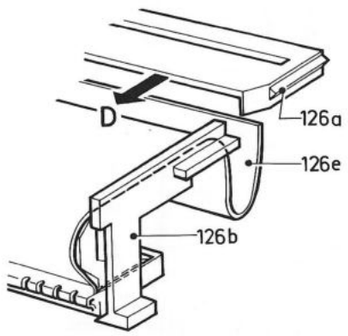
1. Front 2. Side 3. Rear

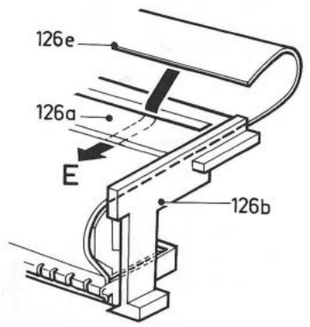
4. IC6450, 6455

Because, generally speaking, MOS IC's are very sensitive to overload and too high voltage, measurements should be carried out with greatest possible care.
For further instructions, see the directions enclosed in the separate IC-packages.









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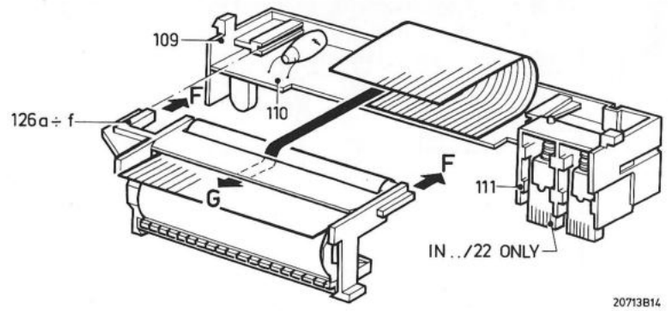


20713B14

2452	E6
2453	D6
2454	D7
2455	E,F7
2456	F6
2459	E,F7
2460	D7
2461	E6
2462	C5
2463	C5
2464	C5
2465	D7
2466	C6
2467	C7
2468	D7
2469	F3
2470	E6
2471	B6,7
2473	C1,2
2474	C1
2475	C2
2477	E2
2478	E2
2479	E2
2480	E2
2481	F2
2482	F2
2483	F2
2484	E,F3
2485	D2
2486	E3
2487	B4
2488	E3
2489	B4
2490	B4
2491	B4
2494	B4
2495	B5
2496	B4
2497	B5
2498	A5
2499	B5
2502	B4
2503	B5
2504	B5
2506	B5
2507	B6
2508	A5
2509	B5
2513	B4
2514	B4
2515	B4
2516	A3
2519	B3
2520	C2
2521	B2
2522	C3
2523	B3
2524	B1,2
2525	B2
2526	B2
2527	B3
2530	B3
2532	B2
2533	B1
2536	D7
2537	B6
2538	B6
2539	B1

3452	E6
3453	E6
3454	F6
3455	E6
3458	E7
3459	E7
3462	D6
3463	D6
3464	B4,5
3465	B5
3466	B6
3467	C5
3469	C5
3471	C5
3473	C5
3475	B6
3477	C7
3479	C6
3481	C6
3483	C6
3484	C6
3485	C6
3486	C6
3490	D3
3491	E3
3492	E3
3493	E3
3497	A1
3500	E6
3501	D6
3502	D7
3503	C7
3504	F3
3505	E3
3507	C3
3508	C3
3509	C3
3510	F4
3511	C2,3
3512	C3
3513	C3
3514	E6
3515	E6
3516	D6
3517	E6
3518	F6
3519	E5
3520	D5
3523	C2
3524	C2
3531	C3
3532	C3
3534	C3
3535	C3
3536	D2
3537	D2
3538	D2
3539	E2
3540	E2
3541	D2
3543	B5
3545	B6
3546	A4
3547	B4
3550	B4
3551	B4
3552	B4
3553	B4
3556	B4

3557	A4
3558	A5
3559	B5
3562	B4
3563	B5
3564	B5
3565	B5
3566	B5
3569	B5
3570	B5
3571	B5
3572	B5
3575	A,B4
3576	B3
3577	B3
3578	B3
3579	A3
3580	B3
3581	B3
3582	B2
3583	B2
3584	B3
3587	C1
3590	C2
3591	B2
3592	B3
3594	B2
3595	A3
3596	B3
3599	B4
3600	B3
3603	A1
3604	A1
3607	B1
3608	A6
3609	A6

5450	C6
5452	E2
5453	E2
5454	E2
5455	F2
5456	E2,3
5457	D2
5458	D7

6450	E3,4
6454	E6
6455	D6
6463	B5
6464	B2

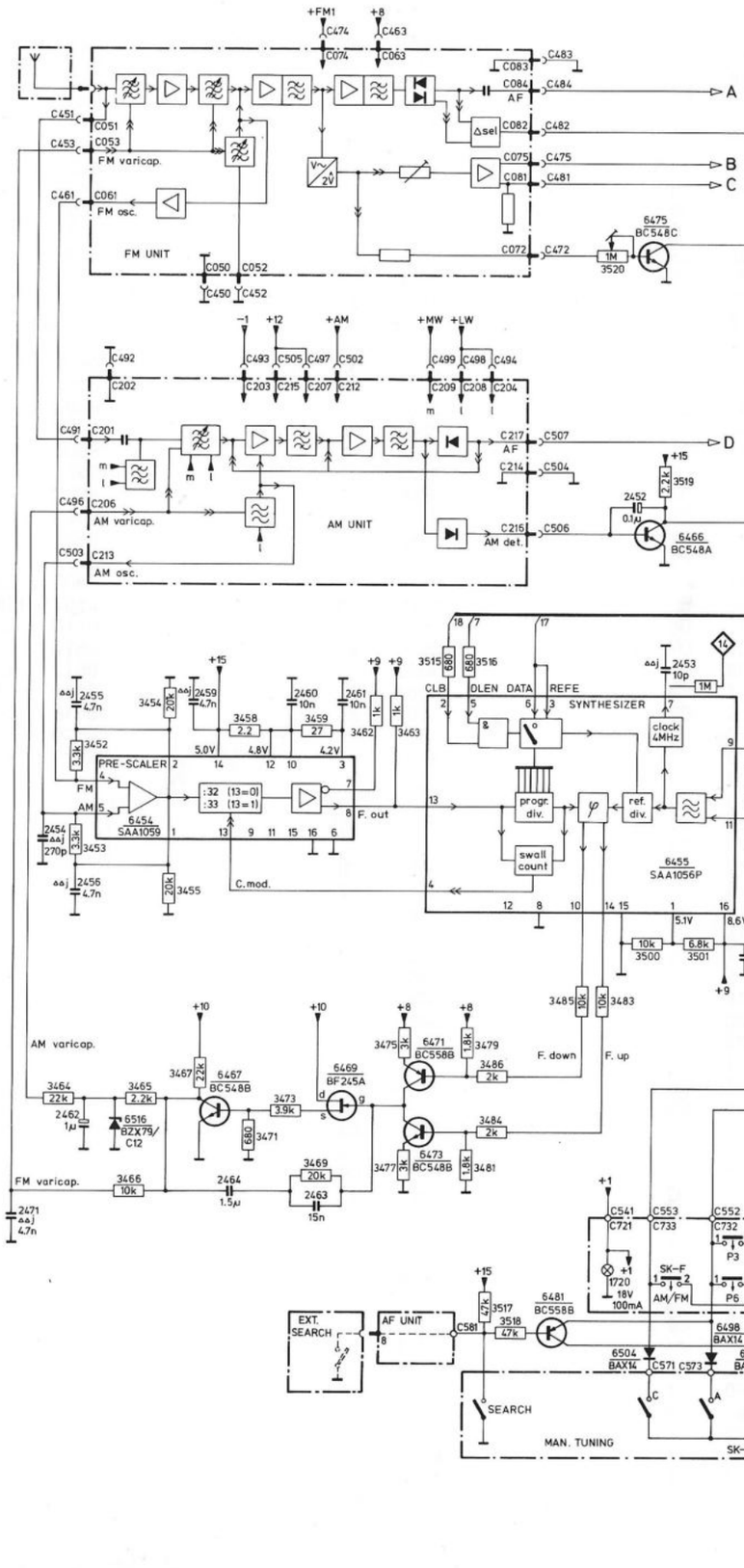
6466	D5
6467	C5
6469	C5
6471	C7
6473	C7
6475	D6
6476	D3
6477	D3

6478	F4
6479	F3
6481	E,F6
6483	C2
6484	C3
6486	C2
6487	C3
6489	C2
6490	C2
6491	C2
6492	E2
6494	B3
6495	A6

6496	E4
6497	F6
6498	F6
6499	E2
6500	E2
6501	A2
6502	B4
6503	B3
6504	F5
6505	B3
6506	C3
6507	E6
6510	E2
6511	B6
6512	E2
6516	C4
6518	E4
6520	E4
6521	E3,4

2488 100n.

MISC.	6516	6554	6467	6469	6471.6473	6481	1720.6504.6475.6466.6455.6496 ··· 6498.5450.6724.6521.6518	6520	1712	6751.6722.6476 ··· 6479	6510	5456.5457.6507.6720.6512.6752.6491.6489.6490	6483.6484	6486.6487	5453	6499.5454.5452.6492.6500.5455
R	3464 ··· 3467.3452 ··· 3455	3471	3473.3458.3469 . 3459	3462.3463.3475.3477.3515.3516.3479.3481.3483 ··· 3486.3517 ··· 3520.3500 ··· 3503						3505	3493	3504	3491	3490	3492.3514	3541.3538.3509.3511.3523.3524.3536.3507.3512	3537.3531.3508.3513	3532.3535	3534	3539.3540
C	2454 ··· 2456	2452	2464.2459.2463	2460	2461	2452	2453	2468.2465.2466.2467		2486	2484	2485	2488.2475	2470	2473	2474, 2469			2482.2479.2477.2478	2480.2481	2483



FOR ALL DIAGRAMS

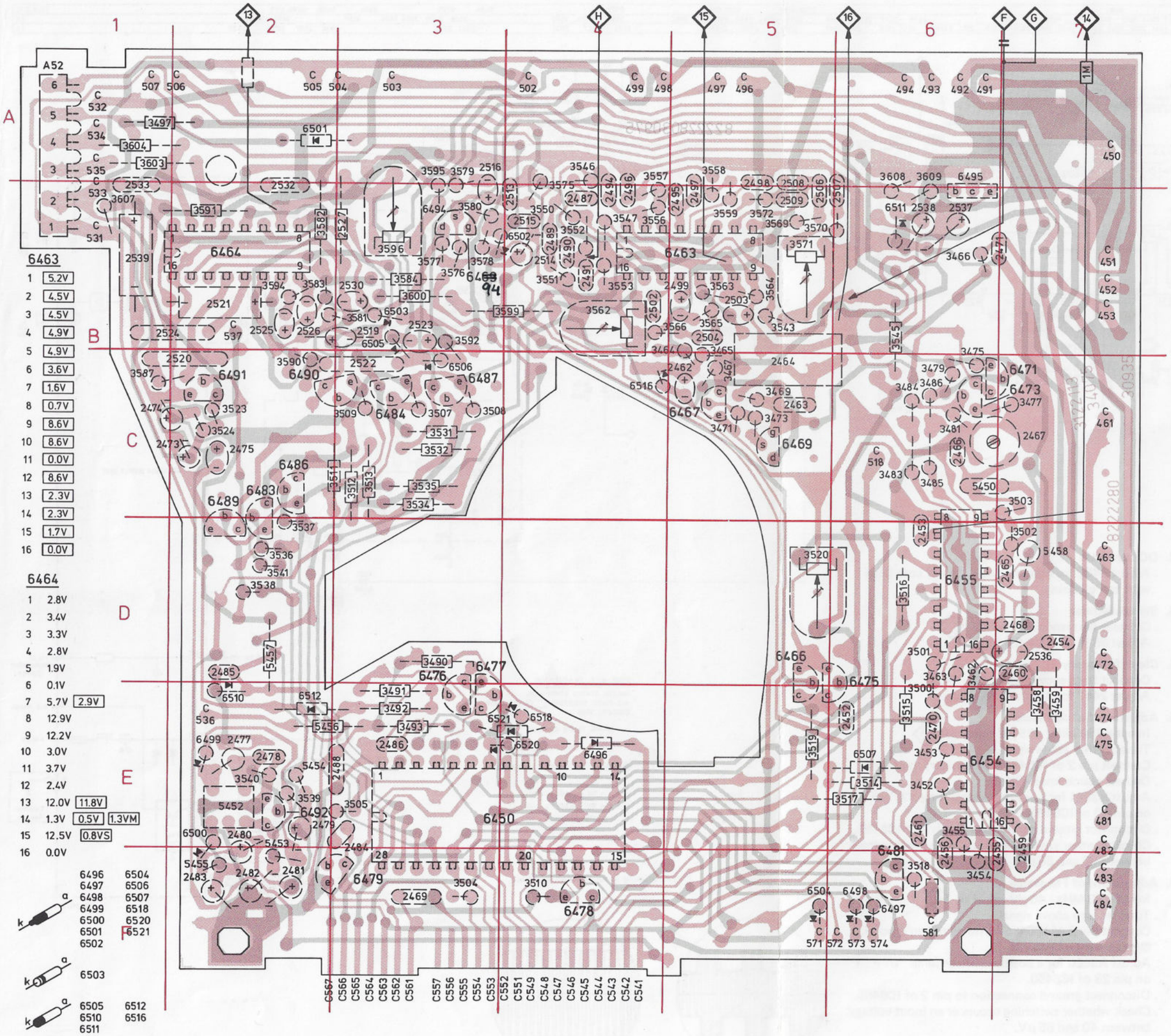
UNLESS STATED OTHERWISE,
ALL FIXED RESISTORS ▭, E24 SERIES 0.33W
EXCEPT 3483 ÷ 3485.3502 ▭, E12 SERIES 0.2W

PLATE CERAMIC
FLAT FOIL POLYESTER
MINIATURE ELECTROLYTIC
c = 6.3V
d = 10V
e = 16V
f = 25V
g = 40V
h = 63V
j = 100V
r = 250V
u = 400V
w = 630V

...V FM
...V LW
...V MW

ELECTRONIC VOLTMETER

22 223 E12/A



6463

1	5.2V
2	4.5V
3	4.5V
4	4.9V
5	4.9V
6	3.6V
7	1.6V
8	0.7V
9	8.6V
10	8.6V
11	0.0V
12	8.6V
13	2.3V
14	2.3V
15	1.7V
16	0.0V

6464

1	2.8V
2	3.4V
3	3.3V
4	2.8V
5	1.9V
6	0.1V
7	5.7V 2.9V
8	12.9V
9	12.2V
10	3.0V
11	3.7V
12	2.4V
13	12.0V 11.8V
14	1.3V 0.5V 1.3VM
15	12.5V 0.8VS
16	0.0V

6450

1 =	0.0V
2 =	5.3V
3 =	2.0V
4 =	5.0V

6454

3 =	4.2V
6 =	0.0V
12 =	4.8V
14 =	5.0V
16 =	0.0V

6455

1 =	5.1V
8 =	0.0V
15 =	0.0V
16 =	8.6V

6483

e = 0.0V
b = 0.6V 0.0V
c = 0.1V 8.6V

6484

e = 8.6V
b = 7.9V 8.6V
c = 8.6V −9.0V

6486

e = 0.0V
b = 0.0V 0.6V *
c = 8.6V 0.1V *

6487

e = 8.6V
b = 8.6V 7.9V *
c = −7.9V 8.6V * −9.0V

6489

e = 0.0V
b = 0.0V 0.6V
c = 8.6V 0.1V

6490

e = 8.6V
b = 8.6V 7.9V
c = 0.0V 8.6V

6491

e = 0.0V
b = 0.0V 0.6V
c = 5.8V 0.0V

6492

e = 0.0V
b = 0.7V
c = 7.8V

6494

s = 3.6V
g = 4.1V 0.03V
0.03V
d = 3.6V 3.5V

6495

e = 8.6V
b = 9.3V
c = 13.4V

ELECTRONIC VOLTMETER

---V PLAYBACK

---V FM

---V * MEASURED IN RELATING POSITION

---V AM

6496 6497 6498 6499 6500 6501 6502 6504 6506 6507 6518 6520 6521

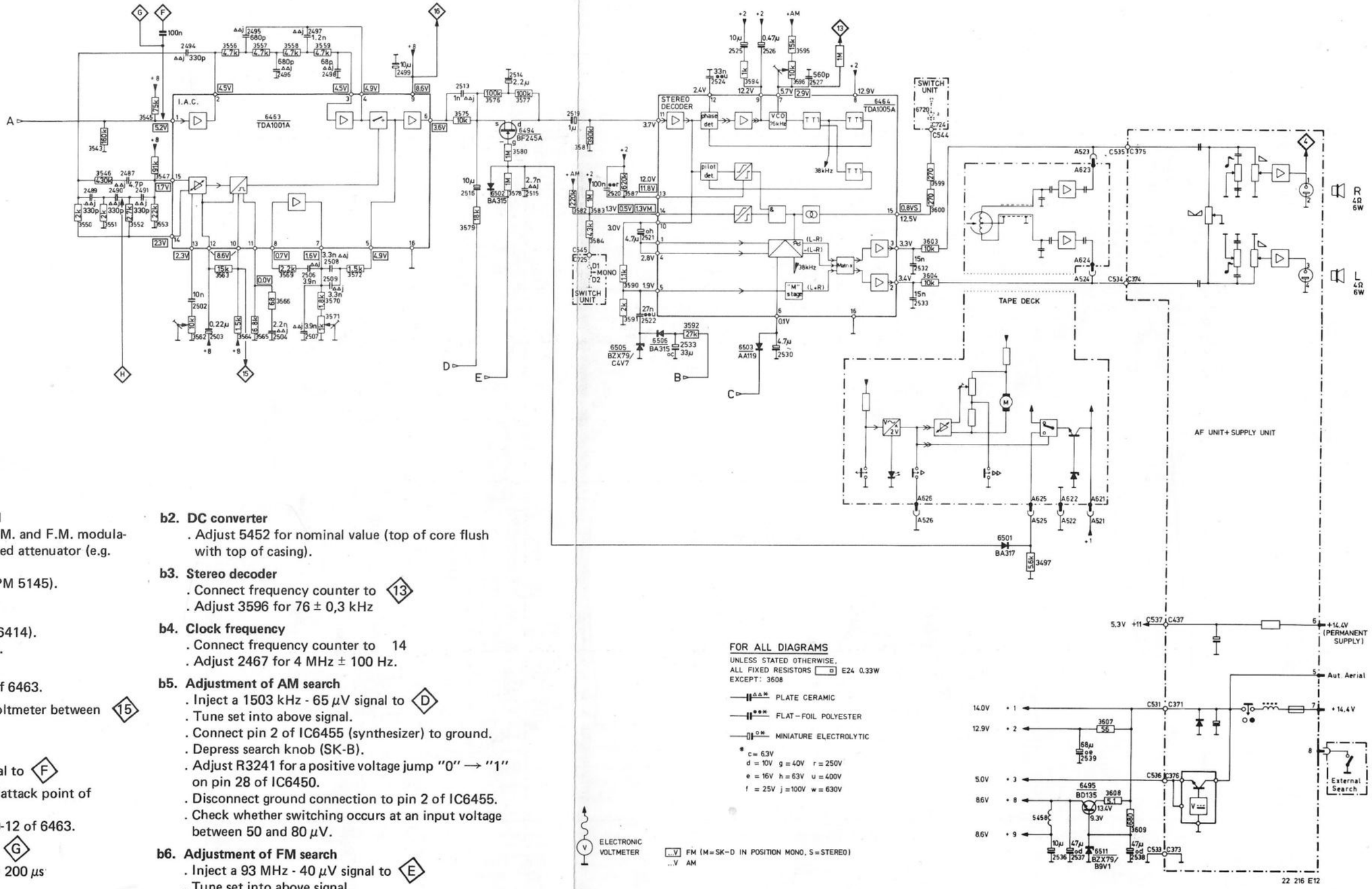
6503

6505 6510 6511 6512 6516

+1 = 14 V
+11 5,3
+13 13,6
+3 5,0 V.

CS 77 410

22 781 D12/A



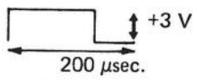
ALIGNMENT

a. Measuring equipment required

- R.F. signal generator with A.M. and F.M. modulation, R.F. sweep and calibrated attenuator (e.g. Radiometer RE101).
- Square-wave generator (e.g. PM 5145).
- Stereo coder (e.g. PM 6455).
- Oscilloscope (e.g. PM 3212).
- Frequency counter (e.g. PM 6414).
- DC voltmeter (e.g. PM 2430).

b.1. IAC

- Interconnect pins 9 and 12 of 6463.
- Connect a non-earthed DC voltmeter between ⟨15⟩ and ⟨16⟩
- Set 3562 to max. R.
- Apply 120 kHz - 60 mV signal to ⟨F⟩
- Set 3562 to switching point (attack point of circuit).
- Eliminante interconnection 9-12 of 6463.
- Apply 19 kHz pilot signal to ⟨G⟩
- Feed square-wave voltage T = 200 μs



- Adjust 3571 according to Fig. 1.
- Trigger the oscilloscope externally with the square-wave voltage, set time base to 20 μsec/cm. Adjust to minimal amplitude deviation.

b2. DC converter

- Adjust 5452 for nominal value (top of core flush with top of casing).

b3. Stereo decoder

- Connect frequency counter to ⟨13⟩
- Adjust 3596 for 76 ± 0,3 kHz

b4. Clock frequency

- Connect frequency counter to 14
- Adjust 2467 for 4 MHz ± 100 Hz.

b5. Adjustment of AM search

- Inject a 1503 kHz - 65 μV signal to ⟨D⟩
- Tune set into above signal.
- Connect pin 2 of IC6455 (synthesizer) to ground.
- Depress search knob (SK-B).
- Adjust R3241 for a positive voltage jump "0" → "1" on pin 28 of IC6450.
- Disconnect ground connection to pin 2 of IC6455.
- Check whether switching occurs at an input voltage between 50 and 80 μV.

b6. Adjustment of FM search

- Inject a 93 MHz - 40 μV signal to ⟨E⟩
- Tune set into above signal.
- Connect pin 2 of IC6455 (synthesizer) to ground. Depress search knob (SK-B).
- Adjust R3520 for a positive voltage jump "0" → "1" on pin 28 of IC6450.
- Disconnect ground connection to pin 2 of IC6455.
- Check whether switching occurs at an input voltage between 40 and 65 μV.

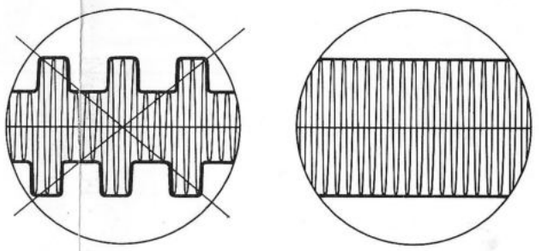
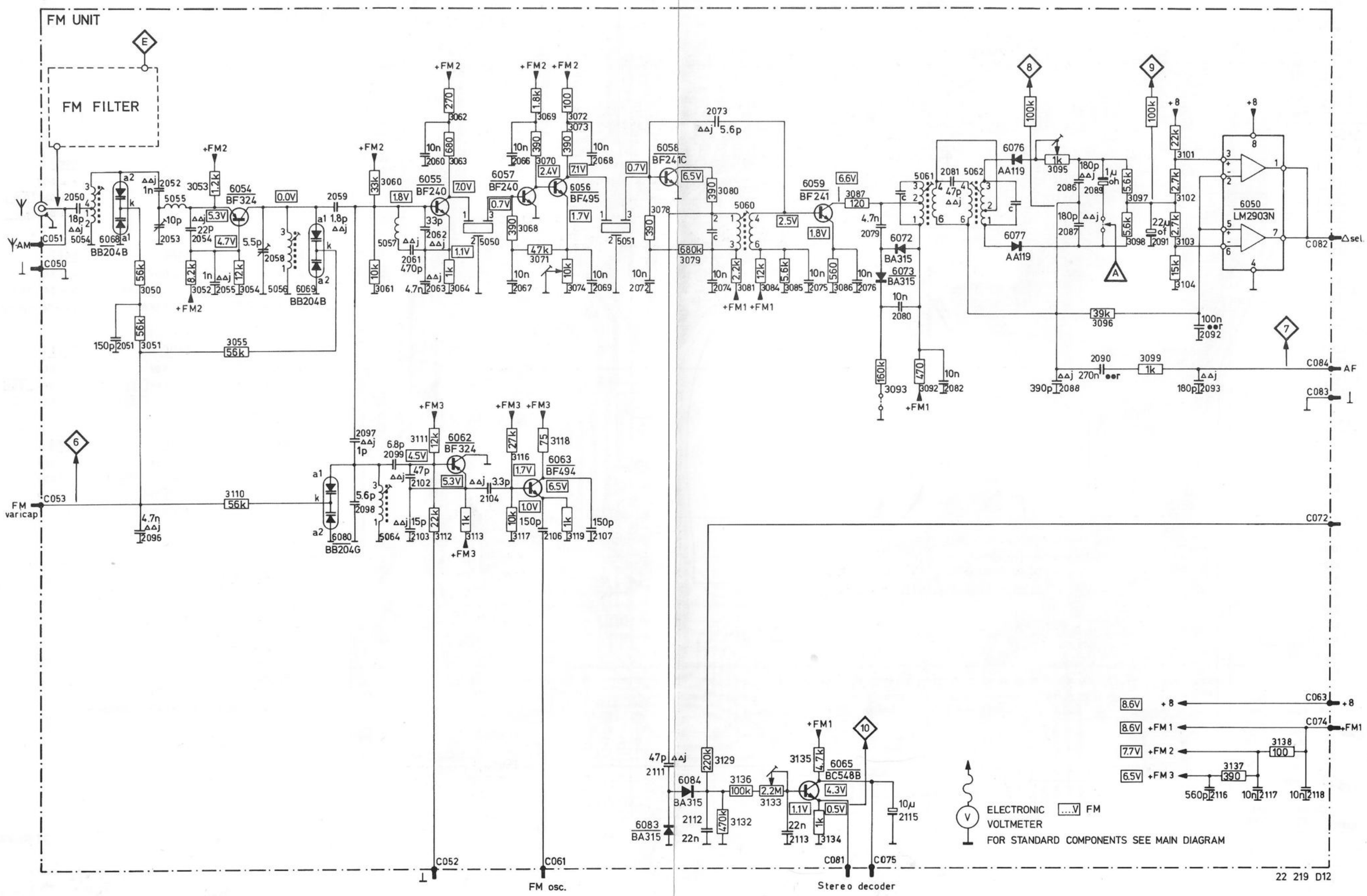


Fig. 1 6051A

D.IC.ETC	5054 6068	5055	6054	6053	5057	6055	5050. 6057	6056	5051	6058	5060	6059	6072. 5061. 5062. 6076. 6077	6050
			5056. 6069. 6080	5064	6062	6063	6083. 6084.	6065	6073					
R	3050. 3051. 3052 ··· 3054. 3055. 3110			3060. 3061. 3062 ··· 3064. 3111 ··· 3113. 3068 ··· 3074. 3116 ··· 3119. 3078 ··· 3081				3129. 3132 ··· 3136. 3084 ··· 3087	3093	3092	3095	3096 ··· 3099. 3101 ··· 3104	3137	3138
C	2050	2051. 2096. 2052 ··· 2055	2058. 2059	2097 ··· 2099. 2102	2103. 2060 ··· 2063. 2104 ··· 2107. 2066 ··· 2069. 2072 ··· 2074			2111 ··· 2113. 2075. 2076. 2115		2079 ··· 2082	2086 ··· 2090	2091. 2092. 2093	2116 ··· 2118	



CS 77 224

ALIGNMENT

a. Measuring equipment required

- R.F. signal generator with A.M. modulation and R.F. sweep (e.g. PM 5326).
- Oscilloscope with external trigger input (e.g. PM 3212)
- DC voltmeter (e.g. PM 2430).
- Multimeter (e.g. PM 2412A).
- AC voltmeter (e.g. PM 2454).

b. Determination of Intermediate Frequency

- Inject I.F. signal (approx. 468 kHz, A.M. modulated) to ⟨A⟩
- Connect multimeter to ⟨1⟩
- Vary frequency to obtain maximum reading on ⟨1⟩

c. I.F. circuits

- Connect oscilloscope to ⟨2⟩
- Trigger externally with R.F. sweep.
- Turn out the cores of 5209, 5210, 5211.
- Inject I.F. signal (see b), A.M. modulated, sweep 0-50 kHz, to:

⟨B⟩ : Adjust 5212 for maximum symmetry. Adjust 5211 for maximum height and symmetry

⟨C⟩ : Adjust 5210 for maximum height and symmetry

⟨A⟩ : Adjust 5209 for maximum height and symmetry

⟨D⟩ : Adjust 5208 for minimum height

d. Oscillator

- Connect DC voltmeter to ⟨3⟩
- **MW waveband**

  Tune to 980 kJz - $f_{I.F.}$ (see b).
  Adjust 5216 for a reading of 1.5 V.
  Tune to 2103 kHz - $f_{I.F.}$ (see b).
  Adjust 2252 for a reading of 9.0 V.
  Repeat.
- **LW waveband**

  Tune to 618 kHz - $f_{I.F.}$ (see b).
  Check: V = 1.5 V.
  Tune to 728 kHz - $f_{I.F.}$ (see b).
  Check: V = 9.0 V (if necessary, add C2256 = 18-22-33 pF).

e. R.F. circuits

- Inject signal to ⟨D⟩
- Tune car radio to frequency of signal generator.
- Connect AC voltmeter to ⟨4⟩ (LS-R).
- Adjust for max. reading.
- **MW waveband**

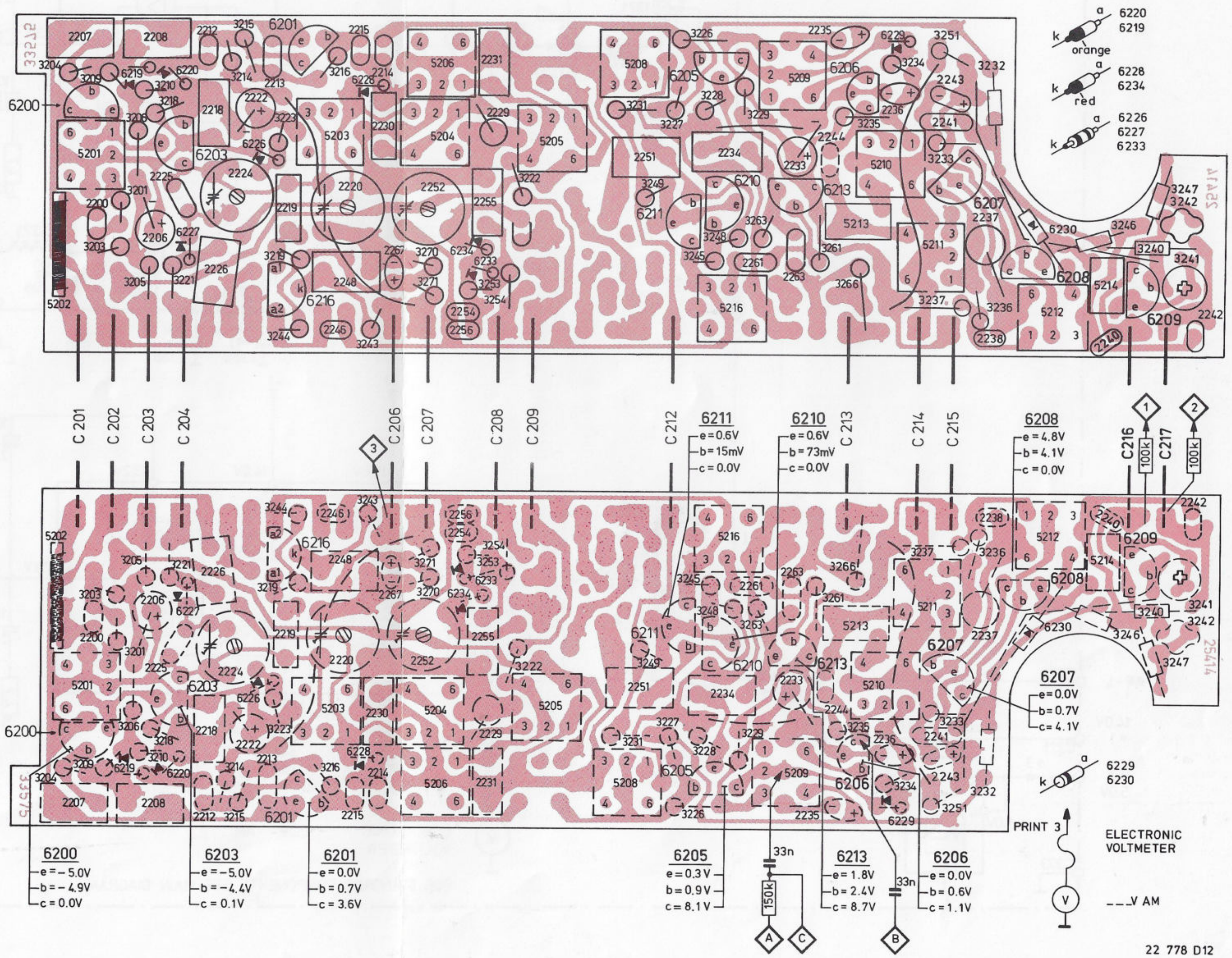
  Signal of 650 kHz. Adjust: 5203.
  Signal of 1500 kHz. Adjust: 2220.
  Repeat
- **LW waveband**

  Signal of 175 kHz. Adjust: 5204.
  Signal of 250 kHz. Adjust: 2224.

Note:
Adjustment of 5201, 5205 and 5206 is not required. The only function of these components is to serve as choke for DC voltage.

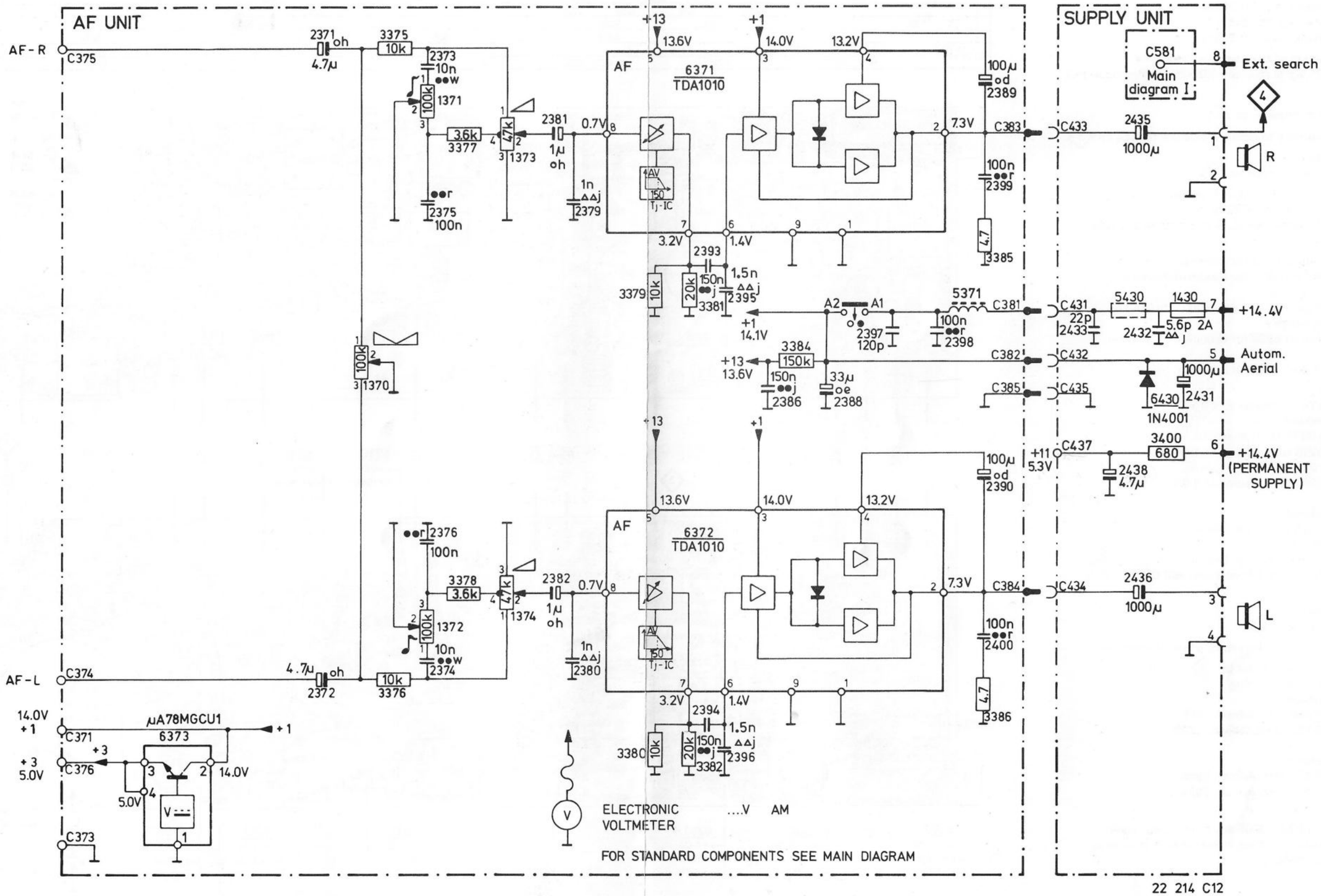
AM UNIT

R	3204 3209 3206 3221 3214 3219 3216 3270 3222 3227 3226 3229 3261 3235 3251 3246 3247
	3203 3201 3210 3215 3244 3243 3271 3254 3231 3228 3263 3266 3234 3239 3236 3242 3241 3240
	3205 3218 3223 3253 3249 3245 3248 3233 3237 3232
C	2207 2208 2212 2224 2246 2214 2254 2229 2234
	2200 2206 2218 2222 2248 2230 2256 2251 2233 2244 2241 2243 2240
	2225 2226 2213 2220 2267 2255 2261 2235 2237
	2219 2215 2252 2231 2263 2236 2238 2242
S	5202 5201 5203 5206 5216 5213 5211 5214
	5204 5205 5208 5209 5210 5212
TS/D	6200 6219 6220 6203 6226 6201 6228 6211 6205 6210 6213 6206 6229 6207 6230
	6227 6216 6234 6233 6208 6209



22 778 D12

D.IC.ETC	6373		6371.6372.		5371	5430.6430.1430
R		1370...1374. 3375...3378	3379...3382.	3384	3385. 3386.	3400
C	2371. 2372.	2373. 2375. 2374. 2376. 2381. 2382. 2379. 2380. 2393. 2394. 2395. 2396.			2386. 2388. 3397...2399. 2389. 2390. 2400. 2438. 2435. 2436. 2431...2433	



ALIGNMENT

a. Measuring equipment required

. R.F.-signal generator with A.M. and F.M. modulation R.F. sweep and calibrated attenuator (e.g. Radiometer RE101).
. Oscilloscope (e.g. PM 3212)
. Frequency counter (e.g. PM 6414)
. DC voltmeter (e.g. PM 2430)

b. Alignment

. Open bridge (A)
. Turn 2053, 2058, 3074 to mid-position (for R.F. and I.F. alignment only).

b.1 Oscillator

. Connect DC voltmeter to (6)
. Tune car radio to 93.00 MHz.
. Adjust 5064 for a reading of 3.75 V.

b.2 I.F. circuits

. Short-circuit points 1-3 of 5062 and 4-6 of 5061.
. Connect oscilloscope to (7)
. Inject R.F. signal (93 MHz - 10 μV, Δf = 200 kHz (50 Hz), F.M. modulated 1 kHz) to (E)
. Tune car radio.
. Adjust 5060 for maximum height.
. Remove short-circuit from 4-6 of 5601.
. Adjust 5061 for maximum height.
. Remove short-circuit from 1-3 of 5062.

b.3 S-curve

. Close bridge (A)
. Oscilloscope, R.F. signal and tuning see b.2.
. Adjust 5062 for optimally linear S-curve.
. Adjust 3095 for max. symmetrical S-curve.

b.4 R.F. circuits

. Connect oscilloscope to (7)
. Inject 88 MHz R.F. signal, F.M. modulated 1 kHz, to (E)
. Tune care radio.
. Adjust 5054 and 5056 for maximum height.
. Inject 100 MHz, R.F. signal, F.M. modulated 1 kHz
. Tune car radio.
. Adjust 2053 and 2058 for maximum height.
. Repeat.

b.5 S-curve

. Connect DC voltmeter between (8) and (9)
. Short-circuit input of dummy aerial (E) to earth.
. Adjust 5062 for a reading of 0 ± 5 mV.

b.6 A.M. rejection

. Connect DC voltmeter between (8) and (9)
. Connect oscilloscope to (7)
. Inject 93 MHz R.F. signal, unmodulated to (E)
. Tune car radio so that meter reading is 0 ± 5 mV.
. A.M. modulate signal (1 kHz - 30 %).
. Adjust 3095 for minimum.
. Switch off modulation. Meter must read 0 ± 30 mV, otherwise check alignment of S-curve (see b.5). If necessary, re-adjust and repeat adjustment of 3095.

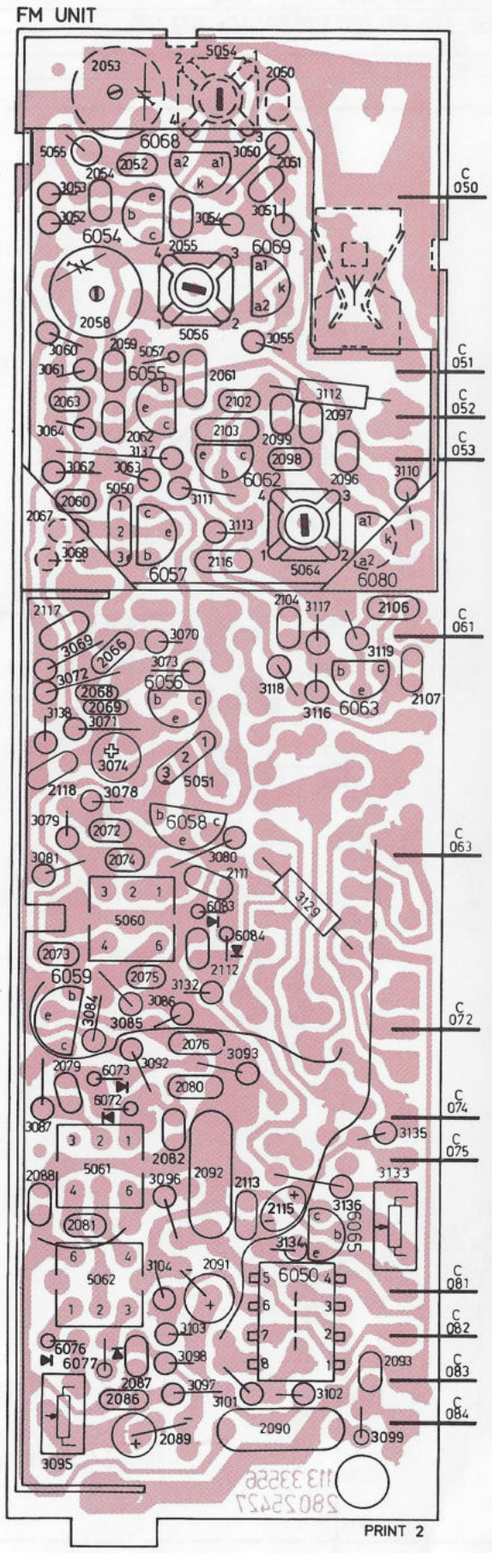
b.7 I.F. sensitivity

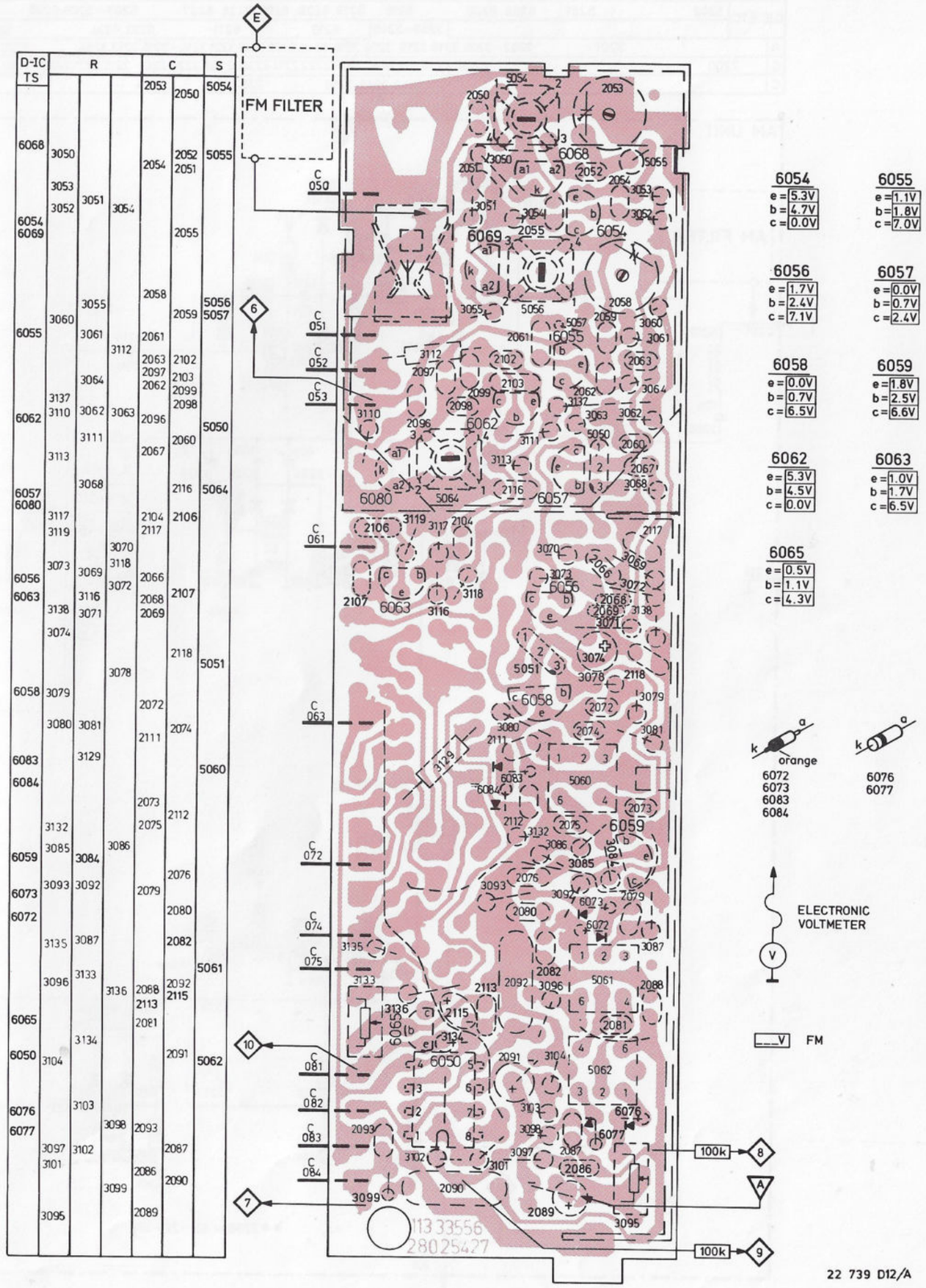
. Connect oscilloscope to (7)
. Inject 93 MHz/18 μV R.F. signal, F.M. modulated - 1 kHz, to (E).
. Adjust 3074 for max. height −3 dB.

b.8 SDS

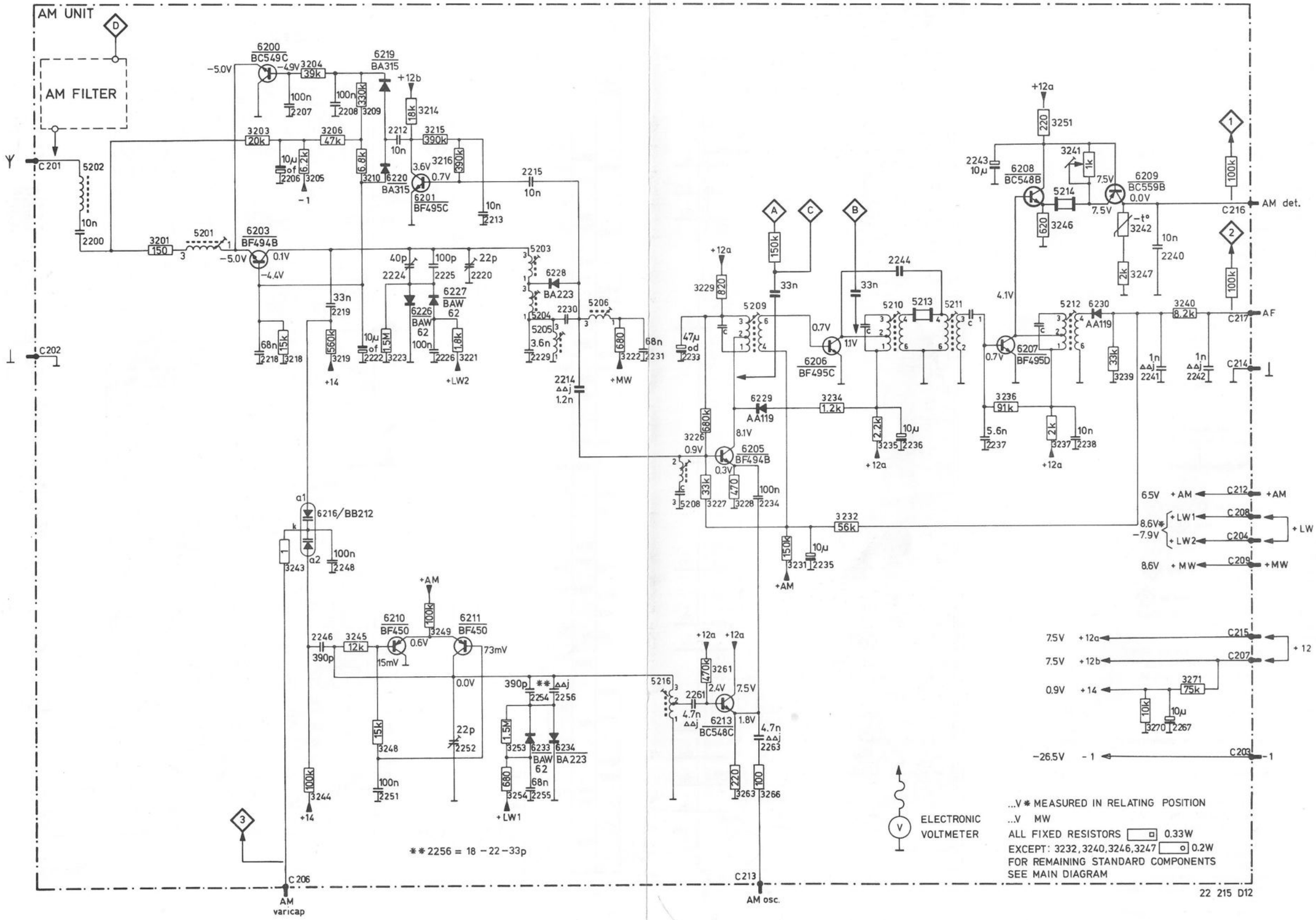
For adjustment of the sliding mono/stereo changeover the following procedure should be observed:

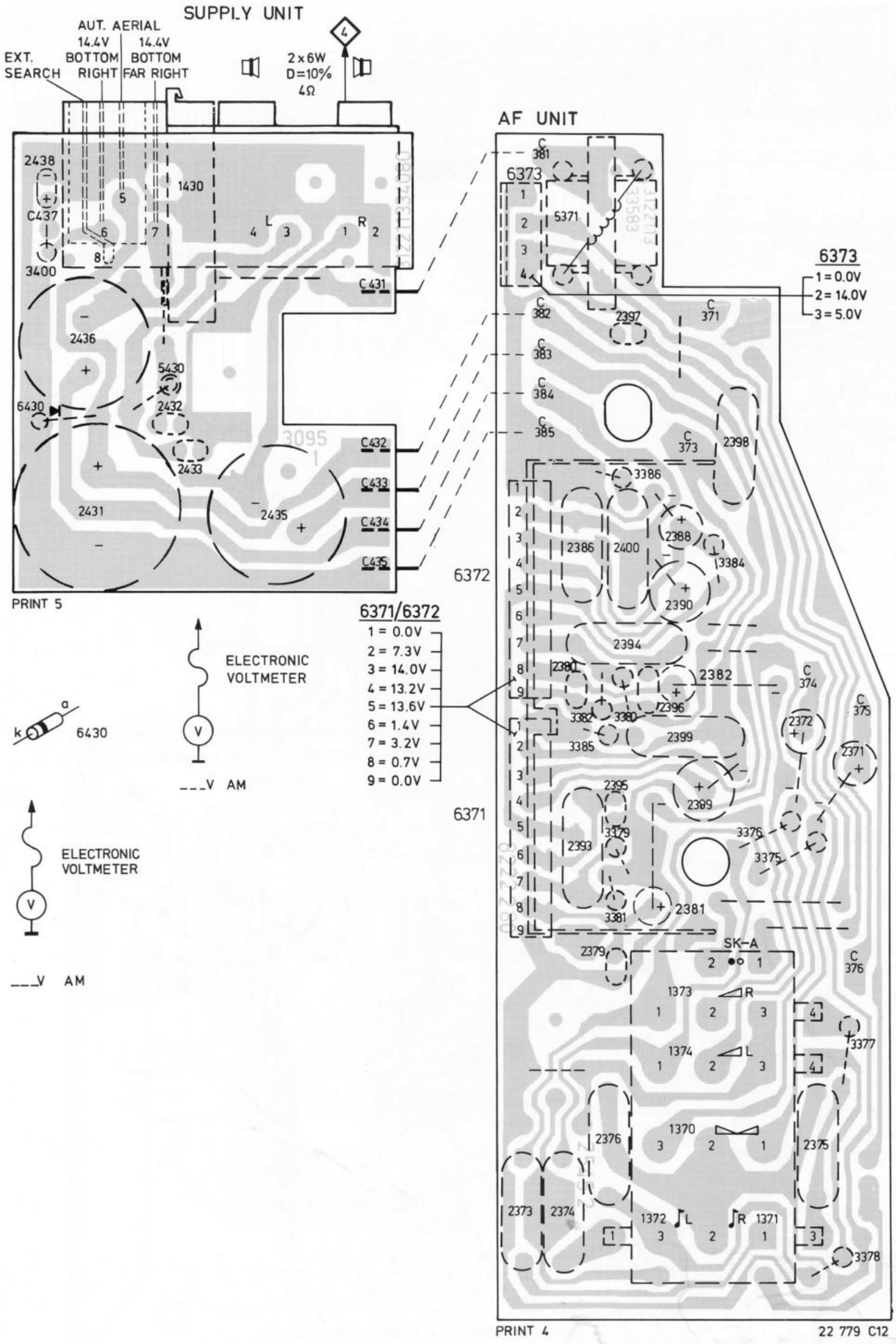
a. Connect AC millivoltmeters to the loudspeaker terminals.
b. Via a dummy aerial, inject a 96 MHz - 75 μV RF stereo signal (FM 1 kHz, Δf = 22,5 kHz).
c. Tune the set for maximum voltmeter reading.
d. Adjust the voltmeters for equal readings by means of the balance control.
e. Adjust the voltmeters for a 0 dB reading by means of the volume control.
f. Eliminate the R-signal from the injected stereo signal and adjust for a 10 dB difference between both voltmeters by means of 3111.
g. Check whether the 10 dB difference also exists when the L-signal is eliminated.



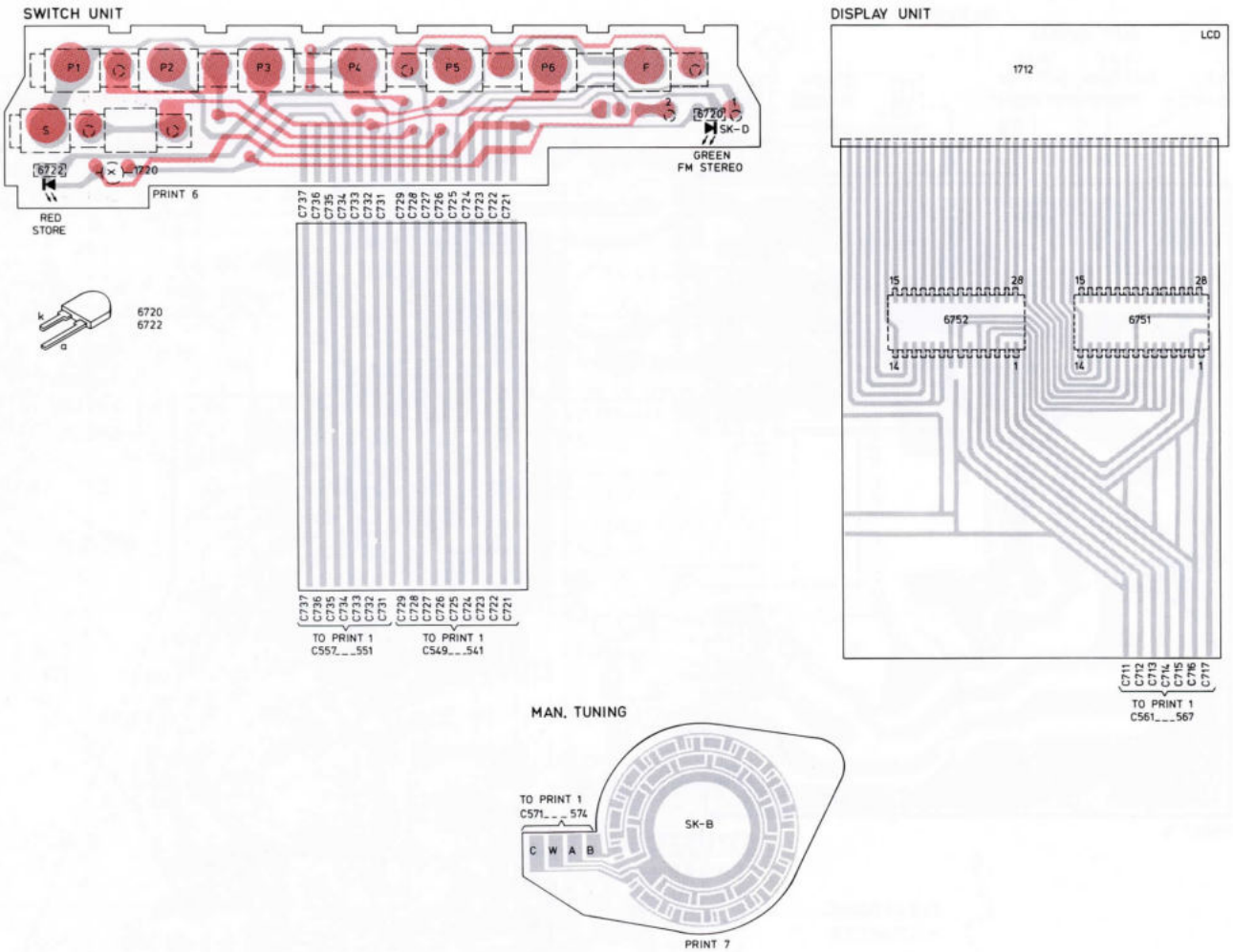


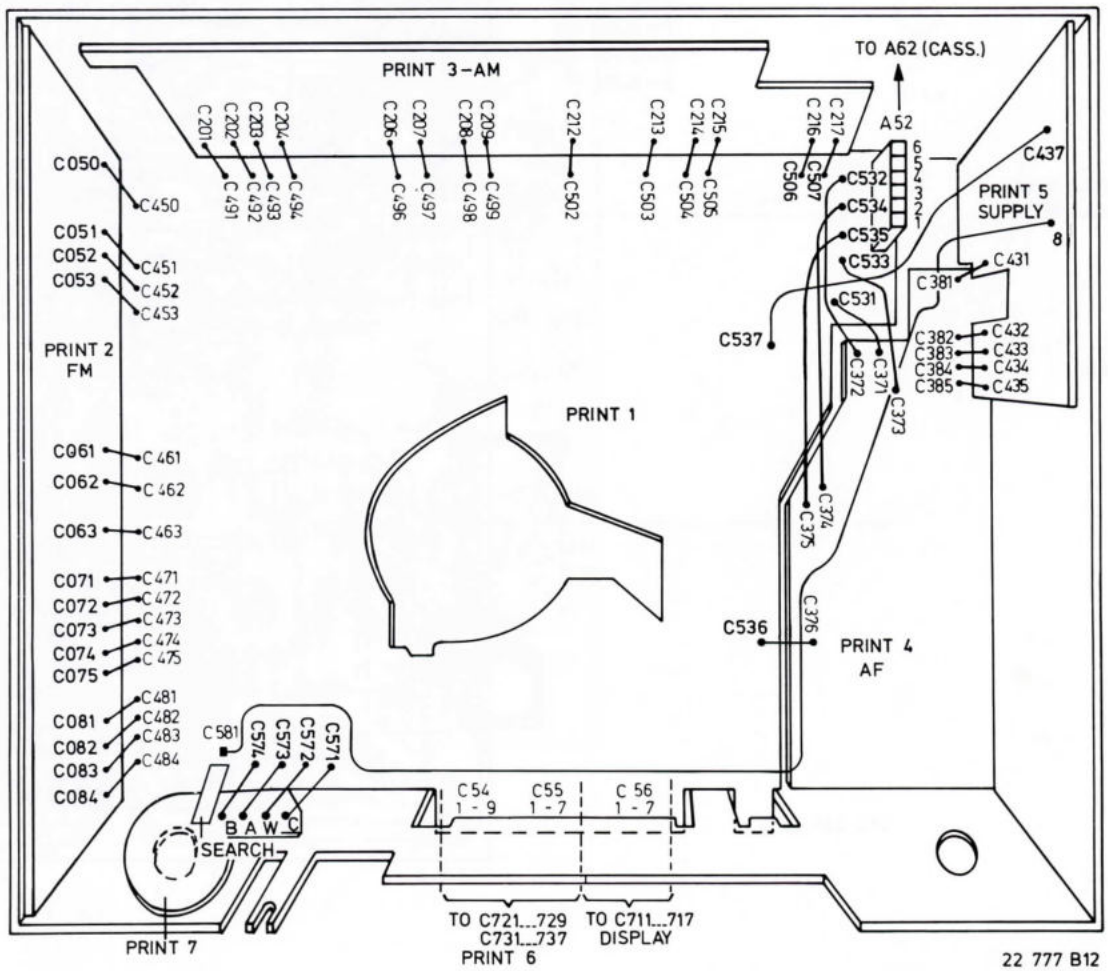
D.IC.ETC	5202	5201	6203.6200	6216	6219.6220.6201.6226.6227	5203···5206.6228	5209	5210 5213 5211	6208.5214	6209
			3243···3245	6210	6211	6233.6234	5216.5208.6213.6205.6229	6206	6207 5212 6230	
R	3201	3203···3206.3218.3219.3209.3210.3248.3223.3249.3221.3214··· 3216.3253.3254		3222	3226···3229.3261.3263.3266.3231.3234.3232.3235				3236.3251.3246.3237.3247.3239···3242.3270.3271	
C	2200	2218.2206···2208.2219.2222.2212.2224···2226.2220.2213···2215.2221.2229···2231			2233		2244	2243		2240···2242
C	2246.2248.2251	2252	2254		2259-2261 2263 2234	2235	2236	2237	2238	2267

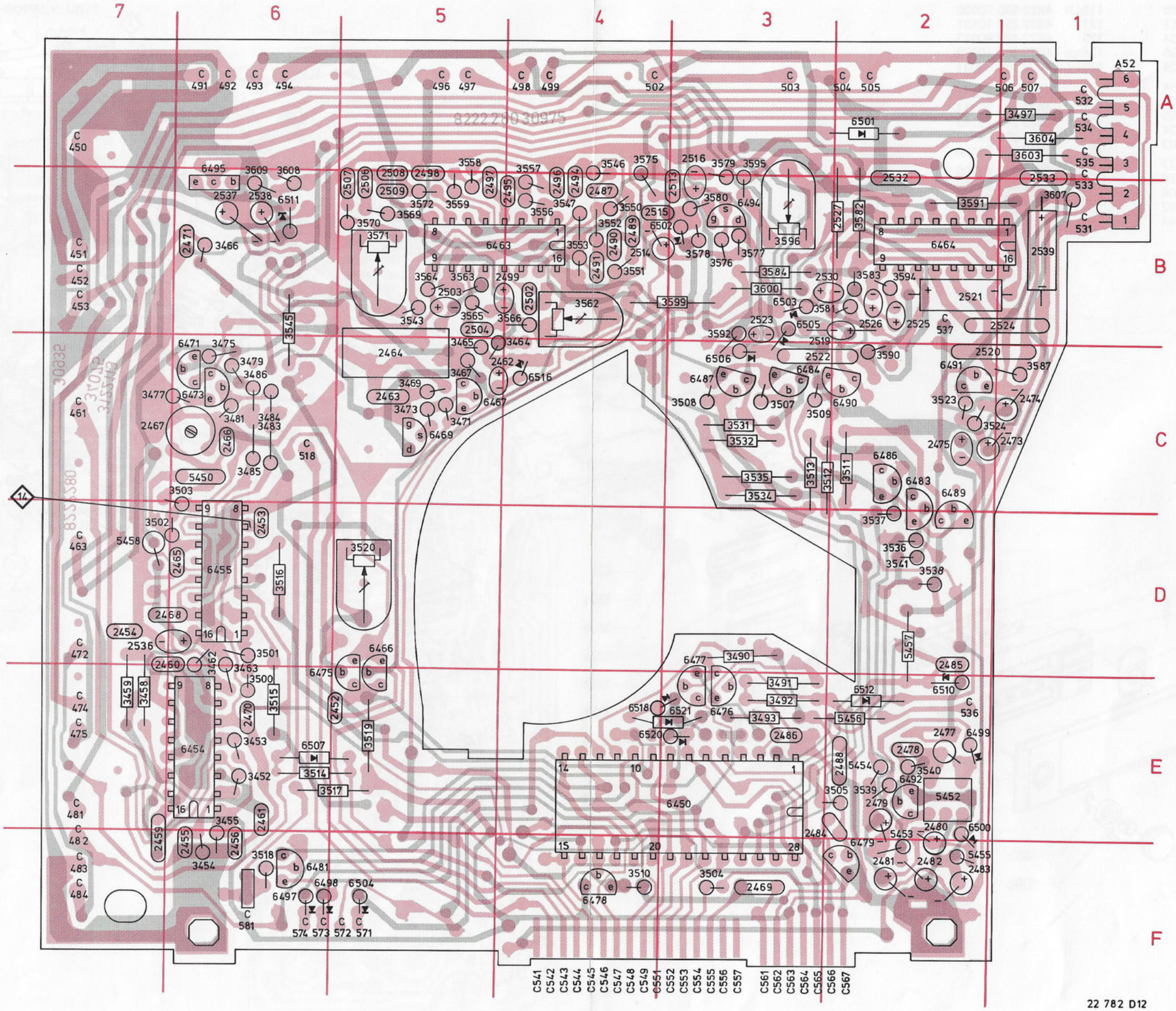



SUPPLY UNIT
AUT. AERIAL
14.4V BOTTOM RIGHT
14.4V BOTTOM FAR RIGHT
EXT. SEARCH
2x6W D=10% 4Ω
AF UNIT
PRINT 5
PRINT 4
6373
1 = 0.0V
2 = 14.0V
3 = 5.0V
6371/6372
1 = 0.0V
2 = 7.3V
3 = 14.0V
4 = 13.2V
5 = 13.6V
6 = 1.4V
7 = 3.2V
8 = 0.7V
9 = 0.0V
ELECTRONIC VOLTMETER
___V AM
6430
SK-A
22 779 C12

CS 77 415


SWITCH UNIT
P1
P2
P3
P4
P5
P6
F
S
6722
1720
6720
SK-D
GREEN
FM STEREO
RED
STORE
PRINT 6
C737 C736 C735 C734 C733 C732 C731
C729 C728 C727 C726 C725 C724 C723 C722 C721
TO PRINT 1
C557___551
TO PRINT 1
C549___541
6720
6722
DISPLAY UNIT
LCD
1712
6752
6751
15
28
14
1
C711 C712 C713 C714 C715 C716 C717
TO PRINT 1
C561___567
MAN. TUNING
TO PRINT 1
C571___574
SK-B
C W A B
PRINT 7

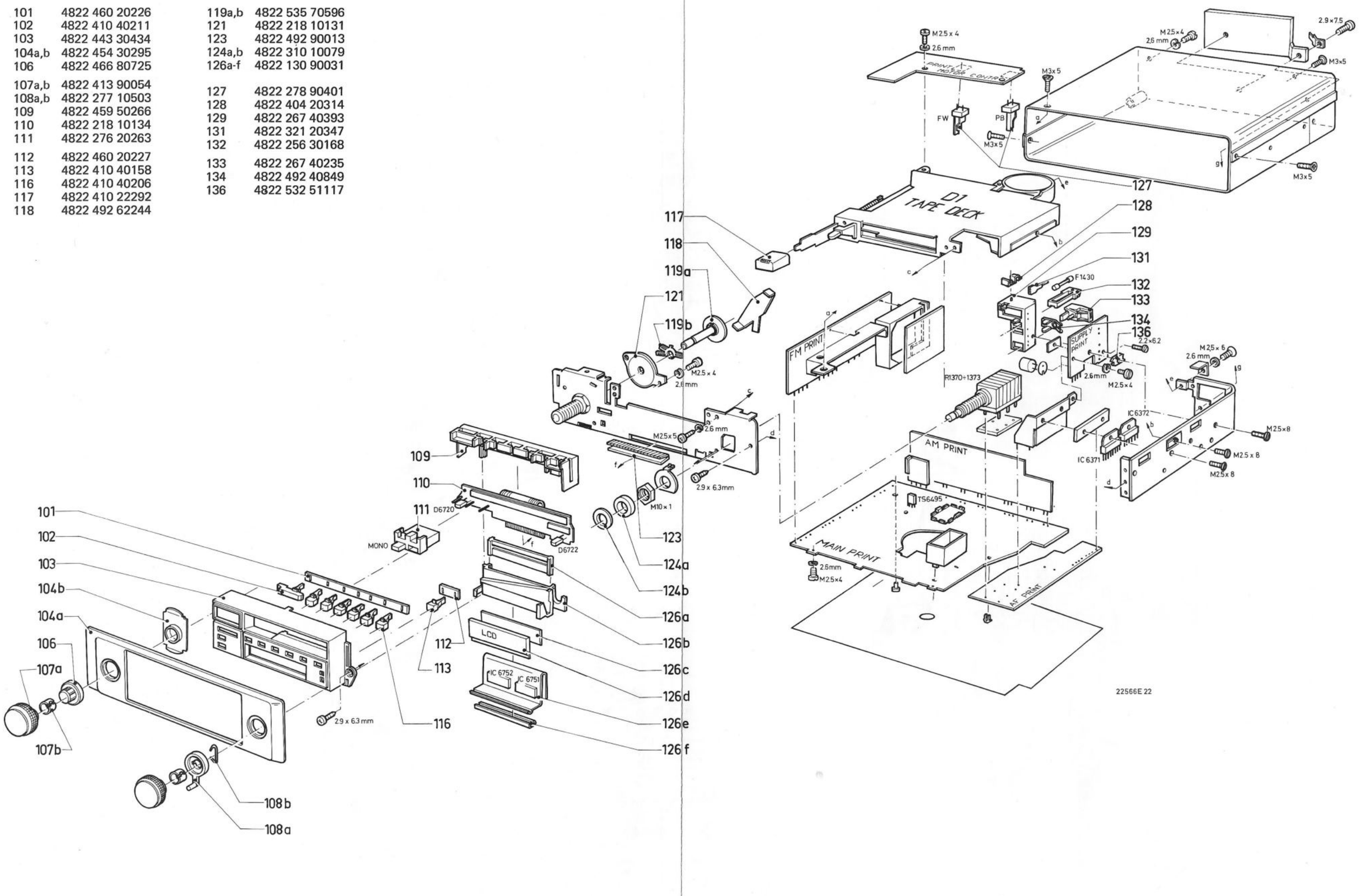

PRINT 3-AM
TO A62 (CASS.)
A52
C201 C202 C203 C204 C206 C207 C208 C209 C212 C213 C214 C215 C216 C217
C491 C492 C493 C494 C496 C497 C498 C499 C502 C503 C504 C505 C506 C507
C532
C534
C535
C533
C531
C537
C437
PRINT 5
SUPPLY
8
C431
C381
C382 C383 C384 C385
C432 C433 C434 C435
C371 C372 C373 C374 C375 C376
C536
PRINT 4
AF
PRINT 1
C050 C450
C051 C451
C052 C452
C053 C453
PRINT 2
FM
C061 C461
C062 C462
C063 C463
C071 C471
C072 C472
C073 C473
C074 C474
C075 C475
C081 C481
C082 C482
C083 C483
C084 C484
C581
C574 C573 C572 C571
B A W C
SEARCH
C54 1-9
C55 1-7
C56 1-7
TO C721...729
C731...737
PRINT 6
TO C711...717
DISPLAY
PRINT 7
22 777 B12



22 782 D12

CS 77 417

101	4822 460 20226	119a,b	4822 535 70596
102	4822 410 40211	121	4822 218 10131
103	4822 443 30434	123	4822 492 90013
104a,b	4822 454 30295	124a,b	4822 310 10079
106	4822 466 80725	126a-f	4822 130 90031
107a,b	4822 413 90054		
108a,b	4822 277 10503	127	4822 278 90401
109	4822 459 50266	128	4822 404 20314
110	4822 218 10134	129	4822 267 40393
111	4822 276 20263	131	4822 321 20347
112	4822 460 20227	132	4822 256 30168
113	4822 410 40158	133	4822 267 40235
116	4822 410 40206	134	4822 492 40849
117	4822 410 22292	136	4822 532 51117
118	4822 492 62244		



Main print

2460,2461, 2468,2502	10 nF - 80 % - 100 V	4822 122 30043
2462,2519	1 µF - 20% - 35 V	5322 124 14075
2463	15 nF - 10% - 630 V	4822 121 40406
2464	1.5 µF - 10% - 100 V	4822 121 40452
2467	40 pF - trimmer	4822 125 50092
2469	47 nF - 5 % - 63 V	4822 121 41376
2470	56 pF - 2 % - 100 V	4822 122 31457
2475,2530	4.7 µF - 20% - 25 V	5322 124 14064
2477	4.7 nF - 1% - 63 V	4822 121 50539
2499,2536	10 µF - 50% - 16 V	5322 124 14066
2503	220 nF - 20% - 35 V	5322 124 14074
2514	2.2 µF - 50% - 63 V	4822 124 20724
2516	10 µF - 20% - 10 V	5322 124 14108
2525	10 µF - 10% - 20 V	5322 124 10174
2526	470 nF - 20 % - 25 V	5322 124 14123
2527	560 pF - 1 % - 630 V	5322 121 54131
2532,2533	15 nF - 10 % - 630 V	4822 121 40406

3562	10 kΩ - lin.	4822 100 10035
3571	1 kΩ - lin.	4822 100 10037
3590	2.2 kΩ - lin.	4822 105 10404
3596	10 kΩ - lin.	4822 100 10035

5452		4822 157 51064
5453,5454, 5455,5457		4822 157 50975
5456,5458		4822 157 50964

6450	COP320L	4822 209 10119
6454	SAA1059	4822 209 80649
6455	SAA1056P	4822 209 80513
6463	TDA1001	4822 209 80284
6464	TDA1005A	4822 209 80514
6466,6483, 6486,6489 6491	BC548A	4822 130 40948
6467,6473	BC548B	4822 130 40937
6469,6494	BF245A	5322 130 44499
6471,6481, 6484,6487 6490	BC558B	4822 130 44197
6475	BC548C	4822 130 44196
6476-6479	BC548	4822 130 40938
6492	BC546B	4822 130 44461
6495	BD135	4822 130 40645
6496 (/00/..)	BA317	4822 130 30847
6496 (/38)	BAX14	4822 130 34193
6497,6498, 6501,6504	BA317	4822 130 30847
6499,6500	BAX16	4822 130 30273
6502,6506, 6517-6522	BA315	4822 130 30843
6503	AA119	4822 130 31012
6505	BZX-B4V7	4822 130 34174
6510 (/00/..)	BZX-B5V1	4822 130 34233
6510 (/38)	BZX-B4V3	4822 130 31346
6511	BZX-B9V1	4822 130 30862
6512	BZX-B6V2	4822 130 34167

FM-unit

2051,2106, 2107	150 pF - 2 % - 100 V	4822 122 31308
2053	10 pF - trimmer	4822 125 50062
2058	5.5 pF - trimmer	4822 125 50077
2060,2072, 2066,2069, 2074-2076, 2080-2082, 2117,2118	10 nF - 80 % - 100 V	4822 122 30043
2079	4.7 nF - 80 % - 63 V	4822 122 31125
2098	5.6 pF±0.25 pF - 100 V	4822 122 31427
2113	22 nF - 80 % - 100 V	4822 122 30103
2115	10 µF - 50 % - 16 V	5322 124 14066
2116	560 pF - 2 % - 100 V	4822 122 31425

3074	4.7 kΩ - lin.	4822 105 10396
3095	1 kΩ - lin.	4822 100 10021
3133	2.2 MΩ - lin.	4822 100 10164

5050,5051		4822 242 70282
5054		4822 157 51065
5055		4822 153 10296
5056,5064		4822 157 51066
5060		4822 153 60088
5061		4822 153 50108
5062		4822 153 50102

6050	LM2903N	4822 209 80635
6053,6065	BC548B	4822 130 40937
6054,6062	BF324	4822 130 41448
6055,6057	BF240	4822 130 40902
6056	BF495	4822 130 40947
6058	BF241C	4822 130 41308
6059	BF241	4822 130 40898
6063	BF494	4822 130 44195
6065	BC548B	4822 130 40937
6068,6069	BB204B	4822 130 34449
6072,6073, 6083,6084	BA315	4822 130 30843
6076,6077	2-AA119	4822 130 30312
6080	BB204G	5322 130 34825

AM-unit

2200,2212, 2213,2215, 2238,2240,	10 nF - 80 % - 100 V	4822 122 30043
2207,2208 2226,2234, 2248,2251 2218,2231, 2255	100 nF - 10 % - 250 V	4822 121 41161
	68 nF - 10 % - 250 V	4822 121 41156
2219,2230	33 nF - 10 % - 400 V	4822 121 40411
2220,2252	20 pF - trimmer	4822 125 50045
2224	40 pF - trimmer	4822 125 50092
2225	100 pF - 2 % - 100 V	4822 122 31316
2229	3.6 nF - 1 % - 63 V	4822 121 50088
2235,2236, 2243	10 µF - 50 % - 16 V	5322 124 14066
2237	5.6 nF - 1 % - 63 V	4822 121 50543
2246,2254	390 pF - 2 % - 100 V	4822 122 31426
2267	10 µF - 10 % - 20 V	5322 124 10174

3241	1 kΩ - lin.	4822 105 10399
3242	3.3 kΩ - NTC	4822 116 30194

5201		4822 157 51062
5202		4822 153 10292
5203		4822 157 51067
5204		4822 157 51059
5205,5206		4822 157 51061
5208,5211		4822 156 40646
5209		4822 153 20224
5210		4822 156 30654
5212		4822 153 20226
5216		4822 157 51068

6200	BC549C	4822 130 44246
6201,6206	BF495C	4822 130 40949
6203,6205	BF494B	4822 130 41376
6207	BF495D	4822 130 40949
6208	BC558B	4822 130 44197
6209	BC559	4822 130 40963
6210,6211	BF450	5322 130 44237
6213	BC548C	4822 130 44196
6216	BB212	4822 130 31129
6219,6220	BA315	4822 130 30843
6226,6227, 6233	BAW62	4822 130 30613
6228,6234	BA223	4822 130 31145
6229,6230	AA119	4822 130 31012

AF-unit

2397	120 pF - 2 % - 100 V	4822 122 31284
2431	1000 µF - 50 % - 16 V	4822 124 40201
2435,2436	1000 µF - 50 % - 10 V	4822 124 40184
2438	4.7 µF - 20 % - 25 V	5322 124 14064

1370-1374	100 kΩ + 2x100 kΩ + 2x47 kΩ	4822 100 20056

5371		4822 157 10096
5430		4822 526 10162

6371.6372	TDA1010	4822 209 80432
6373	µA78MGCU1	4822 209 80384
6430	BY206	4822 130 30829

Switch unit

6720	CQY73N	4822 130 31362
6722	CQY41N	4822 130 31361

Display unit

1710, 6751, 6752	See exploded view

Miscellaneous

1430	Fuse 2 A (T)	4822 253 30025
1720	Lamp 18 V - 100 mA	4822 134 40399
5050,5051	Ceramic filter 10.7 MHz	4822 242 70282
5213,5214	Ceramic resonator 468 kHz	4822 242 70344
5450	Quartz crystal 4 MHz	4822 242 70325

Cassette auto-radio 22 AC 810/..
22 AC 814/..

Service
Service
Service

Service Manual

12 V

GB

This supplement contains the electrical data of the D1 cassette tape deck built into 22AC810/.. and 22AC814/..

NL

Dit supplement bevat de elektrische gegevens van het D1 cassette deck van de 22AC810/.. en de 22AC814/..

F

Ce supplément comprend les données électriques de la mécanique du cassette D1 du 22AC810/.. et du 22AC814/..

D

Dieses Supplement enthält die elektrischen Daten des D1 Cassette Decks des 22AC810/.. und des 22AC814/..

I

Questo supplemento comprende le caratteristiche elettriche del meccanismo del cassette D1 dei 22AC810/.. e dei 22AC814/..

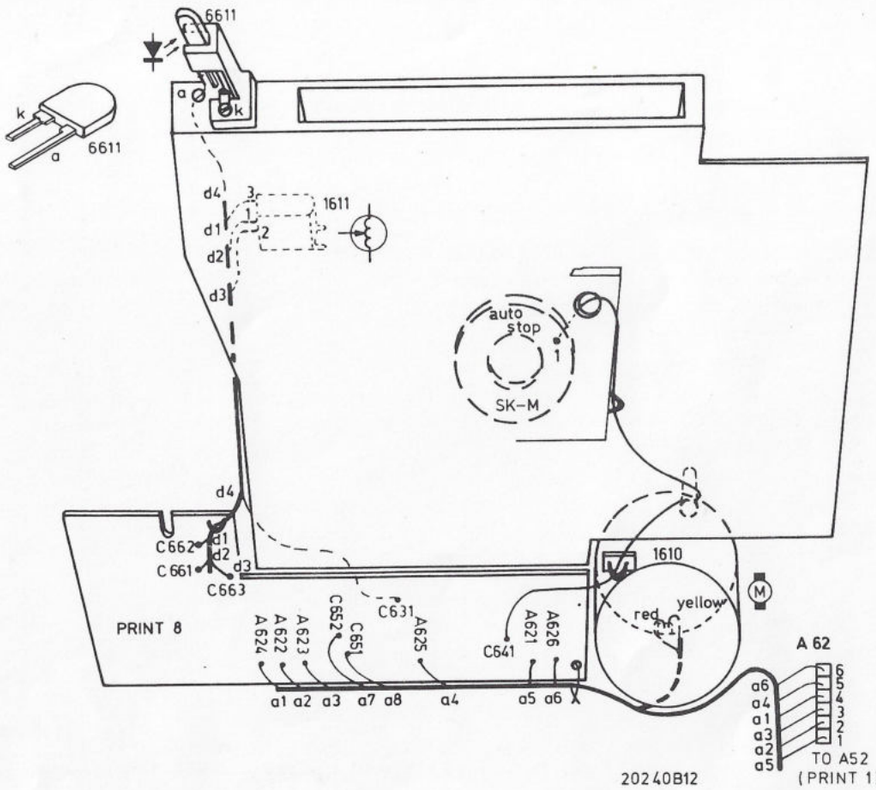
Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

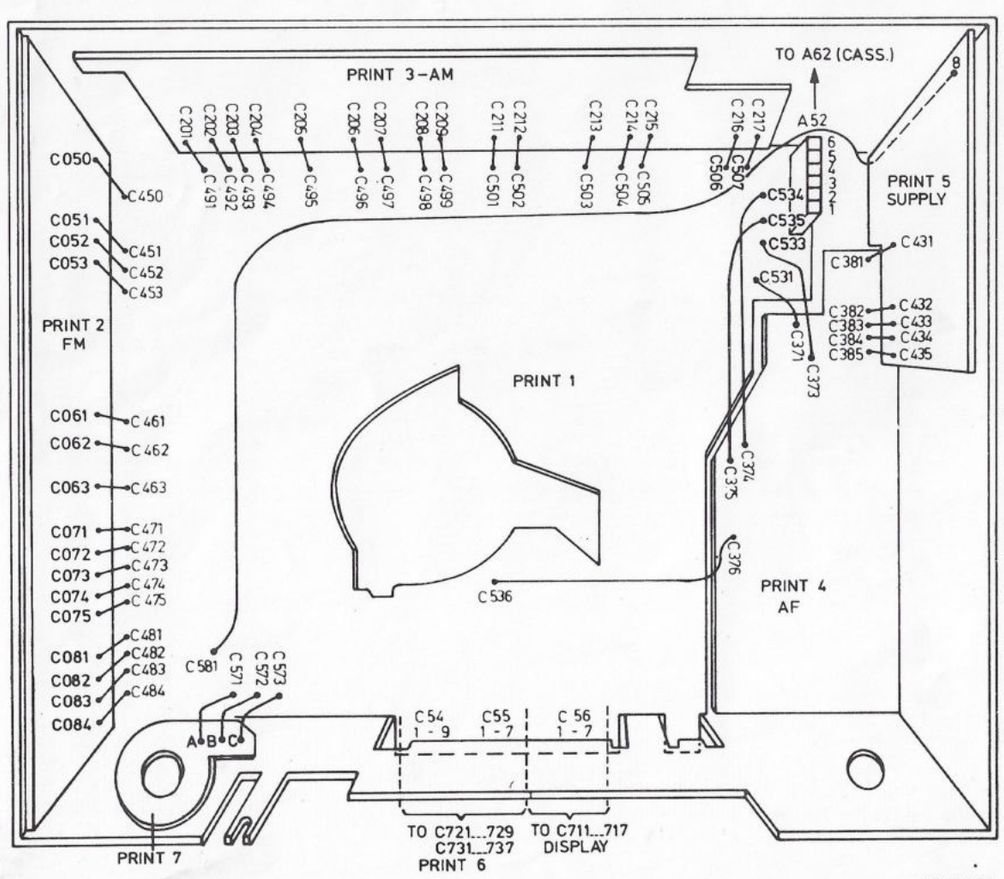
PHILIPS

Subject to modification
4822 725 14469
Printed in The Netherlands

PHILIPS

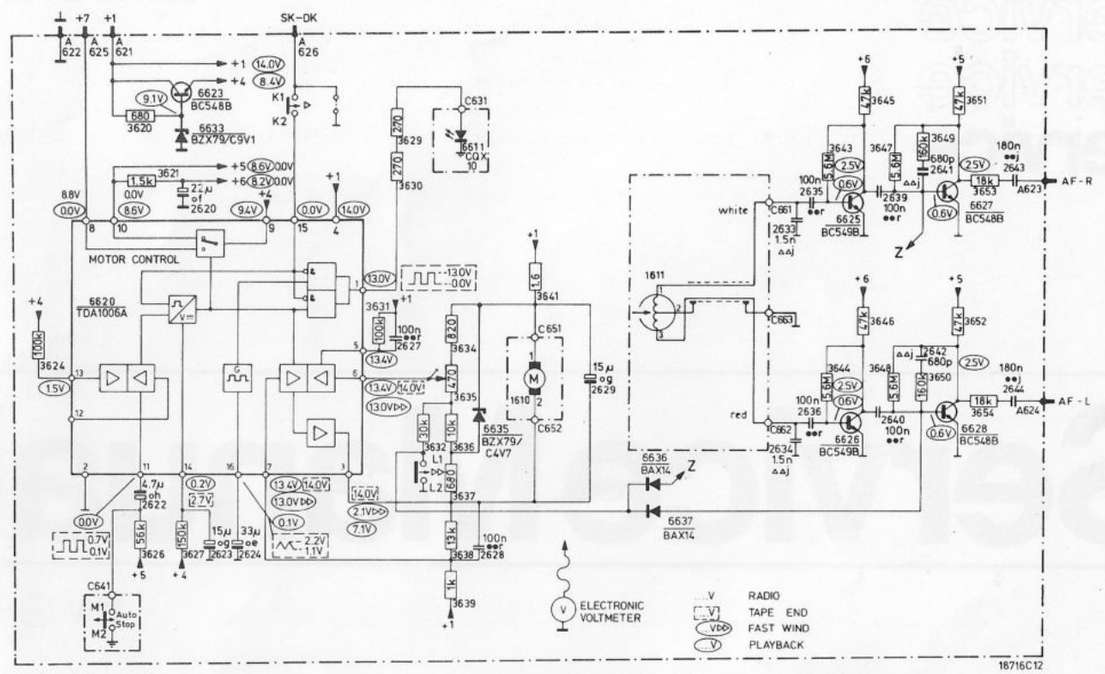
CS 78 076



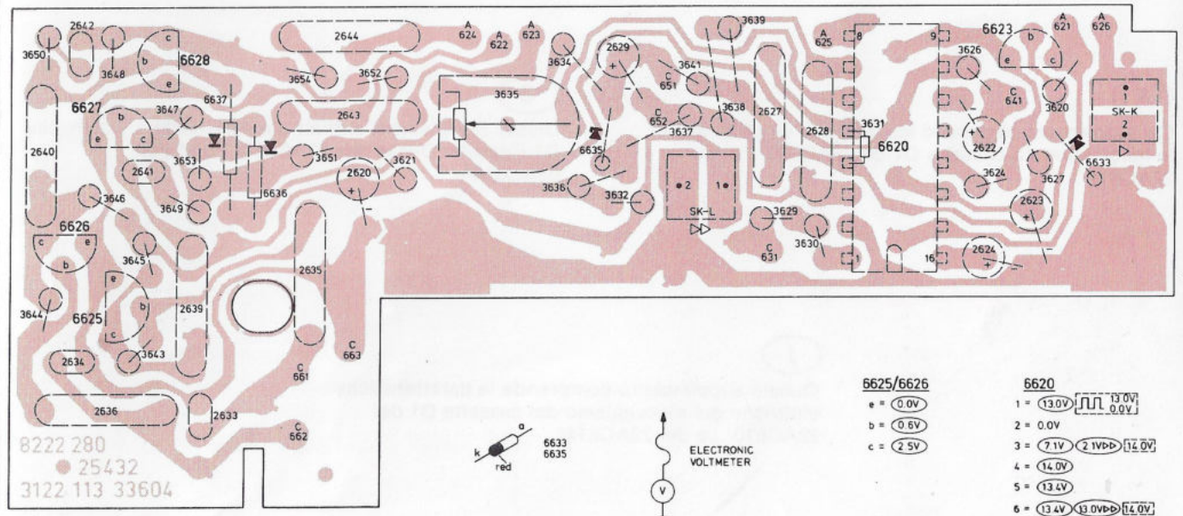


TAPE DECK

D.IC.ETC	6620	6623. 6633.	6611.6635. 1610.	1611. 6636. 3637	6625.6626.	6627.6628.
R	3624	3620. 3621. 3626. 3627.	3629 ··· 3632	3634 ··· 3639. 3641.	3643. 3644. 3645. 3646. 3647. 3648. 3649. 3650. 3651. 3652. 3653. 3654.	
C		2622. 2620. 2623. 2624.	2627	2628	2629	2633. 2634. 2635. 2636. 2639. 2640. 2641. 2642. 2643. 2644.



ALL FIXED RESISTORS □ EXCEPT 3641
REMAINING STANDARD COMPONENTS, SEE MAIN DIAGRAM



ALIGNMENT

Adjust the tape speed with 3635.
Refer to Service Manual D1

20237D12

Service
Service
Service Information

1982-03-23

Cassette Auto radio 22AC810
22AC814

A82-312

As a result of incorrect standardization, too large capacitors were supplied for the items mentioned below. The capacitors concerned were given following new code numbers:

2207,2208 2234 2248,2251	100 nF - 63 V 4822 121 41547
2218,2231 2255	68 nF - 63 V 4822 121 41548
2219,2230	33 nF - 63 V 4822 121 41549

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Service
Service
Service **Information**

1981-09-17

Cassette car radio 22AC810
22AC814

A81-336

It might occur that search tuning on FM does not stop at transmitters which are less than 100 kHz apart.
This is caused by the drift of the ratio detector due to temperature and humidity influences.
This drift directly affects the stop criterion of the search tuning.
To reduce this drift, measures have been taken in production (i.a. tempering and ageing prior to adjustment of the ratio detector).
Moreover, the values of R3102 and R3103 have been changed from 2,7 kΩ into 3,6 kΩ.

As a result the fault that the search tuning does not stop no longer occurs. At different resistance values this assurance cannot be given. However, now it might occur that the search tuning stops **twice** in case of a ratio-detector drift of approx 40 to 60 kHz. Here the reading on the display is sometimes correct and sometimes deviates 0,1 MHz.

The sets changed in production can be recognized by an "S" on the set and on the packaging.

Printed in the Netherlands