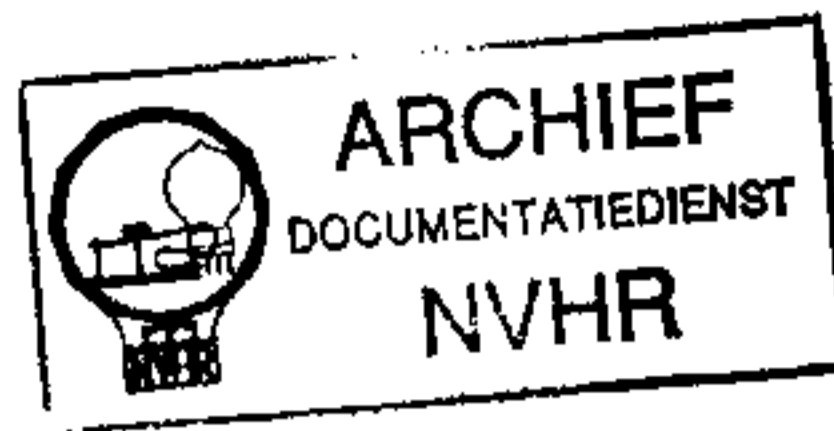
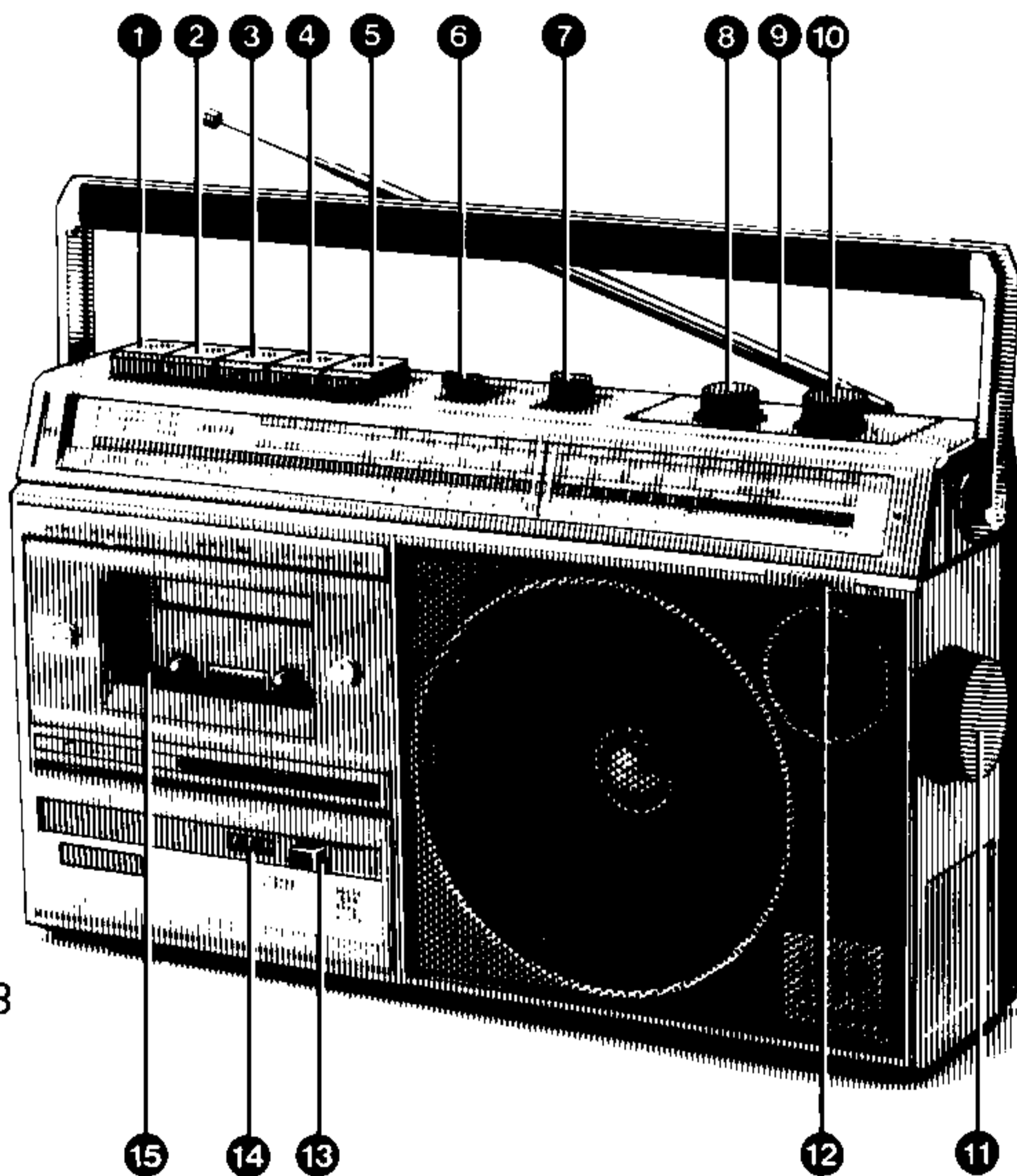


Service
Service
Service

Ned. Ver. v. Historie v/d Radio



Service Manual



26143

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 Servicio



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
















Subject to modification

4822 725 15106





Printed in The Netherlands

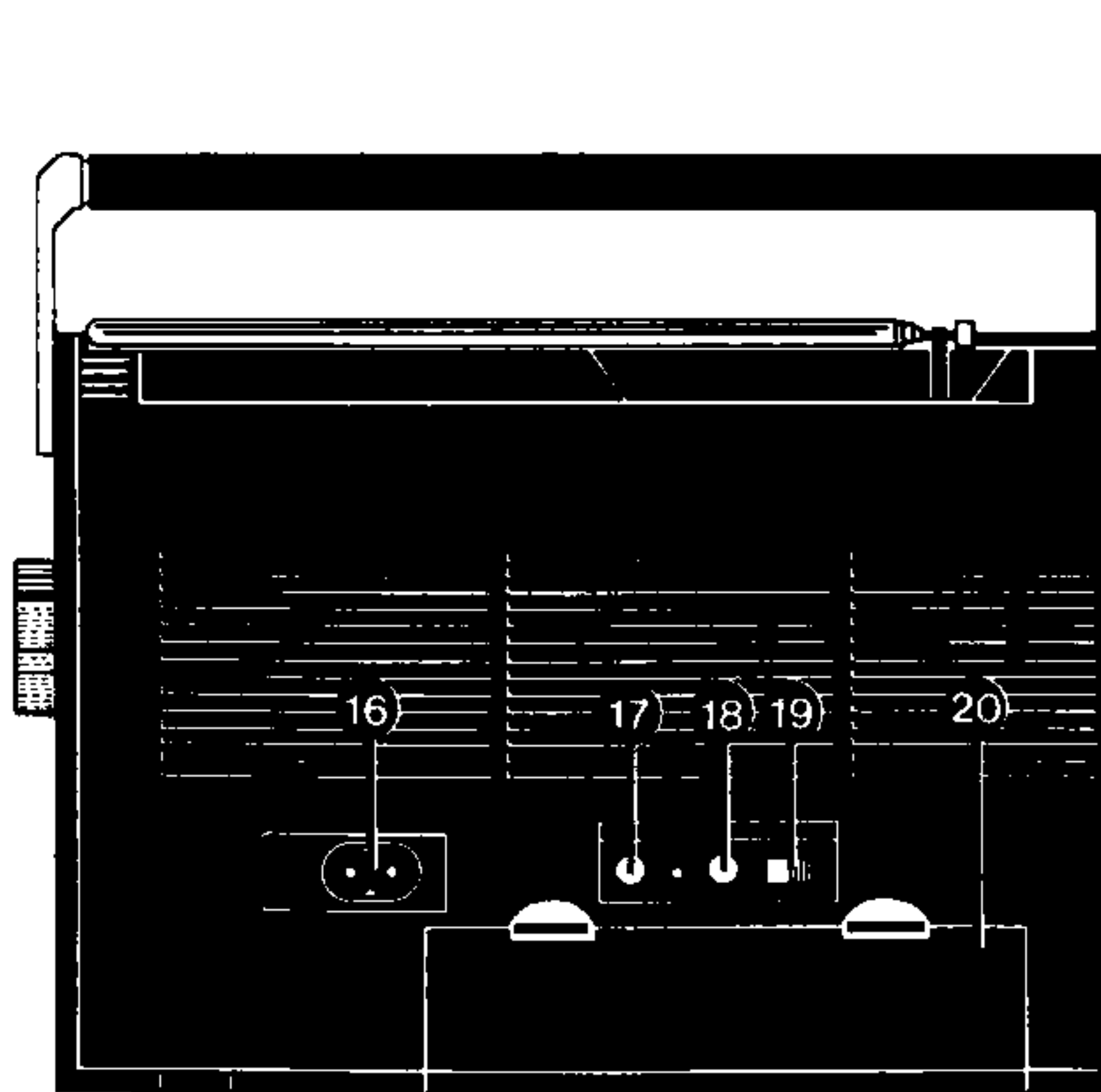
PHILIPS

CONNECTION AND CONTROLS

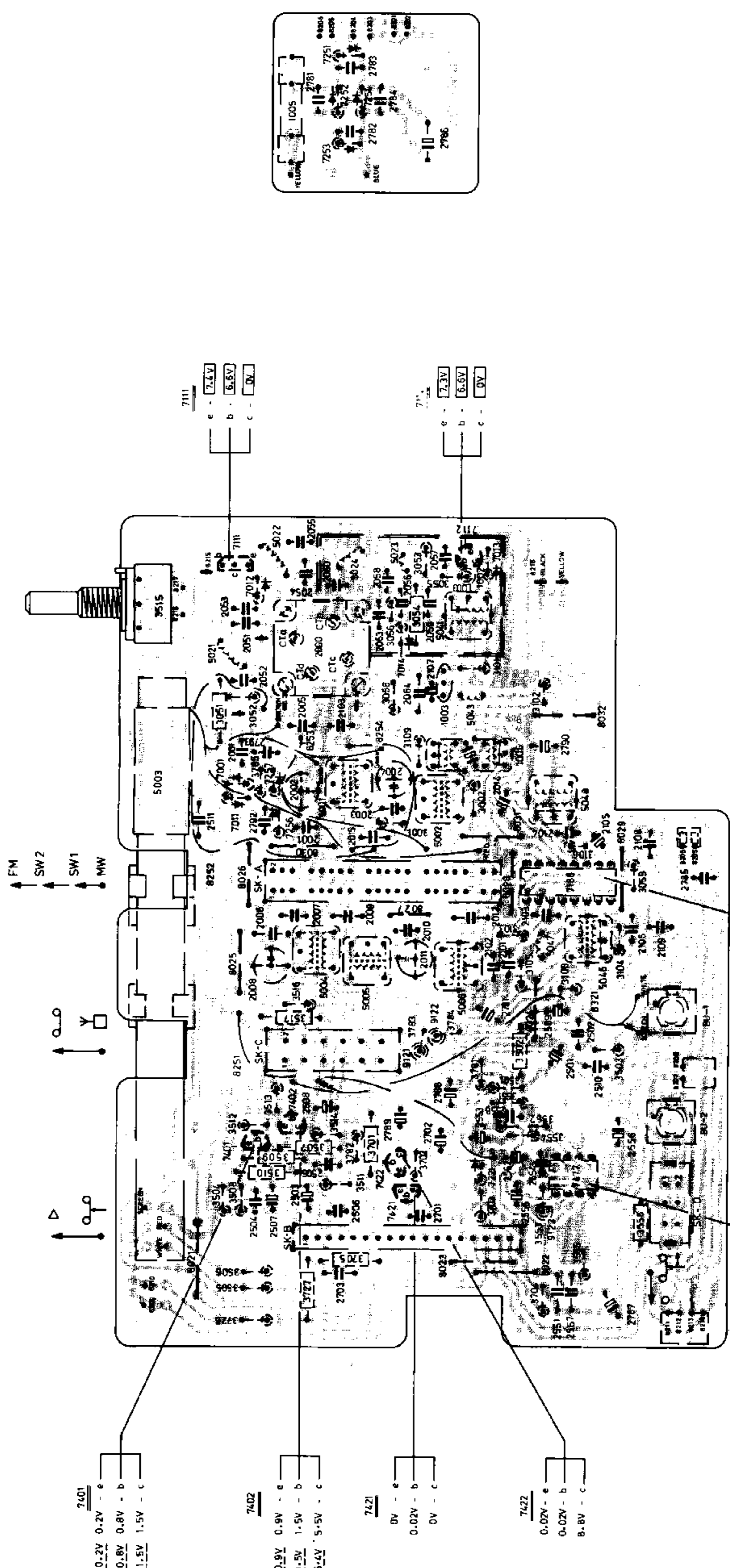
| | | | | | |
|----|------------|---|----|---------------|---|
| 1 | |  | 11 | 2000 |  |
| 2 | SK-E |  | 12 | 4001 |  |
| 3 | SK-E |  | 13 | Counter reset | |
| 4 | SK-E |  | 15 | Cass comp. | |
| 5 | SK-E, SK-B |  | 16 | SK-F |  |
| 6 | SK-C |  | 17 | BU-1 |  |
| 7 | SK-A | MW-SW1-SW2-FM | 18 | BU-2 |  |
| 8 | 3515 |  | 19 | SK-D |  |
| 10 | 3518 |  | 20 | Battery door |  |

SPECIFICATIONS

| | | | |
|--|---|-------------------------------|--|
|  | 9V (6 x R20) | Signal to noise ratio | $\geq 35\text{dB}$ (TC-R) |
|  | 110-127V/ 50Hz 220-240V | Frequency range (within 10dB) | 125-6300Hz /00-468KHz /10-455KHz |
|   | 1400mW $\pm 1\text{dB}$ 1000mW $\pm 1\text{dB}$ 4ohm (d=10%) | AM-IF | 10.7MHz |
| Tape speed | 4.76cm/sec $\pm 3\%$ | FM-IF | 520-1605KHz |
| Wow and flutter $\leq 0.4\%$ | | MW | 2.3-7.3MHz |
| | | SW1 | 9.5-21.75MHz |
| | | SW2 | 87.5-108MHz |
| | | FM | |



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Misc. | 8022 | 9123 | 7421 | 7221 | 7477 | 7402 | 9121 | 9122 | 5004 | 5046 | 5047 | 8026 | 8252 | 8031 | 7256 | 7001 | 8254 | 1003 | 7014 | 5021 | 5041 | 7012 | 7013 | 5023 | 7253 | 1005 | 7252 | 7251 |
| | 8023 | 8021 | SK B | 7422 | 7401 | 8U-2 | 8251 | 5006 | 5005 | 8024 | 8025 | 8027 | 7186 | 8030 | 7011 | 5048 | 7257 | 5043 | 8032 | 1003 | 7111 | 5022 | 1002 | 7112 | 7254 | | | |
| Cap. | 2551 | 2703 | 2507 | 2504 | 2552 | 2702 | 2508 | 2501 | 2509 | 2008 | 2102 | 2006 | 2012 | 2782 | 2015 | 2511 | 2002 | 2061 | 2052 | 2051 | 2053 | 2054 | 2060 | 2057 | 2782 | 2781 | 2783 | |
| | 2557 | 2701 | 2506 | 2556 | 2789 | 2553 | 2788 | 2502 | 2011 | 2001 | 2007 | 2103 | 2108 | 2104 | 2003 | 2014 | 2004 | 2013 | 2107 | 2000 | 2063 | 2056 | 2058 | 2055 | 2786 | 2784 | | |
| | 2787 | 2555 | 2503 | 2505 | 2558 | 2510 | 2109 | 2791 | 2106 | 2009 | 2785 | 2010 | 2792 | 2105 | 2790 | 2001 | 2064 | 2793 | 2059 | | | | | | | | | |
| Res. | 3726 | 3555 | 3506 | 3504 | 3510 | 3782 | 3512 | 3501 | 3502 | 3517 | 3516 | 3105 | 3103 | 3059 | 3001 | 3785 | 3109 | 3051 | 3101 | 3056 | 3515 | 3055 | 3053 | | | | | |
| | 3727 | 3505 | 3553 | 3703 | 3508 | 3509 | 3507 | 3552 | 3503 | 3551 | 3781 | 3108 | 3106 | 3002 | 3052 | 3058 | 3054 | | | | | | | | | | | |
| | 3704 | 3705 | 3556 | 3701 | 3702 | 3554 | 3511 | 3513 | 3514 | 3783 | 3784 | 3104 | | | | | | | | | | | | | | | | |



7401

| | | |
|------|------|-----|
| 0.2V | 0.2V | - e |
| 0.8V | 0.8V | - b |
| 1.5V | 1.5V | - c |

7402

| | | |
|------|------|-----|
| 0.9V | 0.9V | - e |
| 1.5V | 1.5V | - b |
| 5.4V | 5.4V | - c |

7421

| | | |
|-------|-------|-----|
| 0V | 0.02V | - e |
| 0.02V | 0.02V | - b |
| 0V | 0.02V | - c |

7422

| | | |
|-------|-------|-----|
| 0.02V | 0.02V | - e |
| 0.02V | 0.02V | - b |
| 8.8V | 8.8V | - c |

7477

| | |
|---|------|
| 1 | 0.7V |
| 2 | 0.6V |
| 3 | 0.1V |
| 4 | 0V |
| 5 | 4.3V |
| 6 | 9.0V |
| 7 | 8.8V |
| 8 | 5.8V |

7185

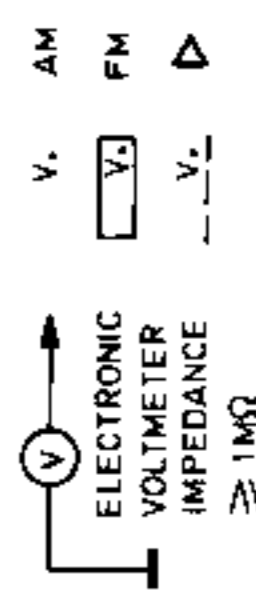
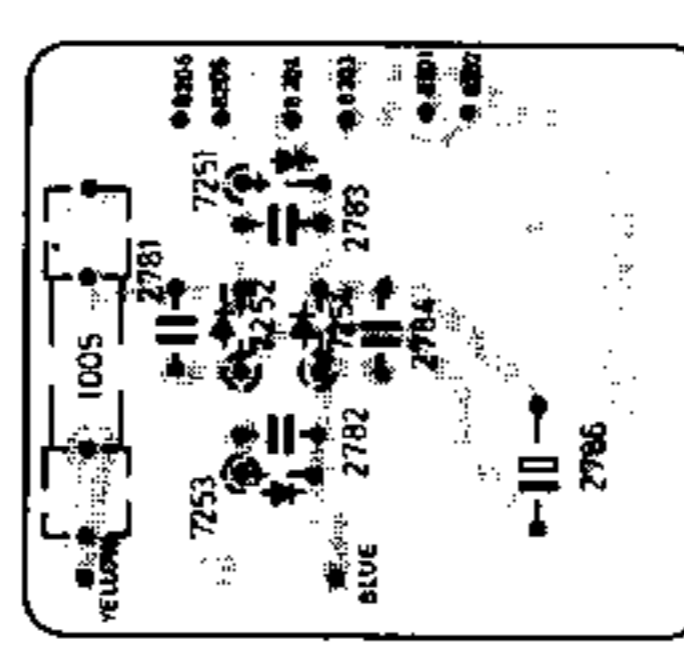
| | | |
|----|------|------|
| 1 | 8.4V | 7.4V |
| 2 | 1.3V | 1.3V |
| 3 | 8.4V | 8.0V |
| 4 | 1.3V | 0.4V |
| 5 | 1.3V | 0.4V |
| 6 | 8.4V | 8.0V |
| 7 | 8.4V | 8.0V |
| 8 | 0.7V | 0V |
| 9 | 2.0V | 2.3V |
| 10 | 8.4V | 8.0V |
| 11 | 0V | 0V |
| 12 | 0V | 8.0V |
| 13 | 0V | 8.0V |
| 14 | 8.0V | 7.1V |
| 15 | 8.0V | 7.1V |
| 16 | 8.0V | 7.1V |

7111

| | |
|---|------|
| e | 7.4V |
| b | 6.6V |
| c | 0V |

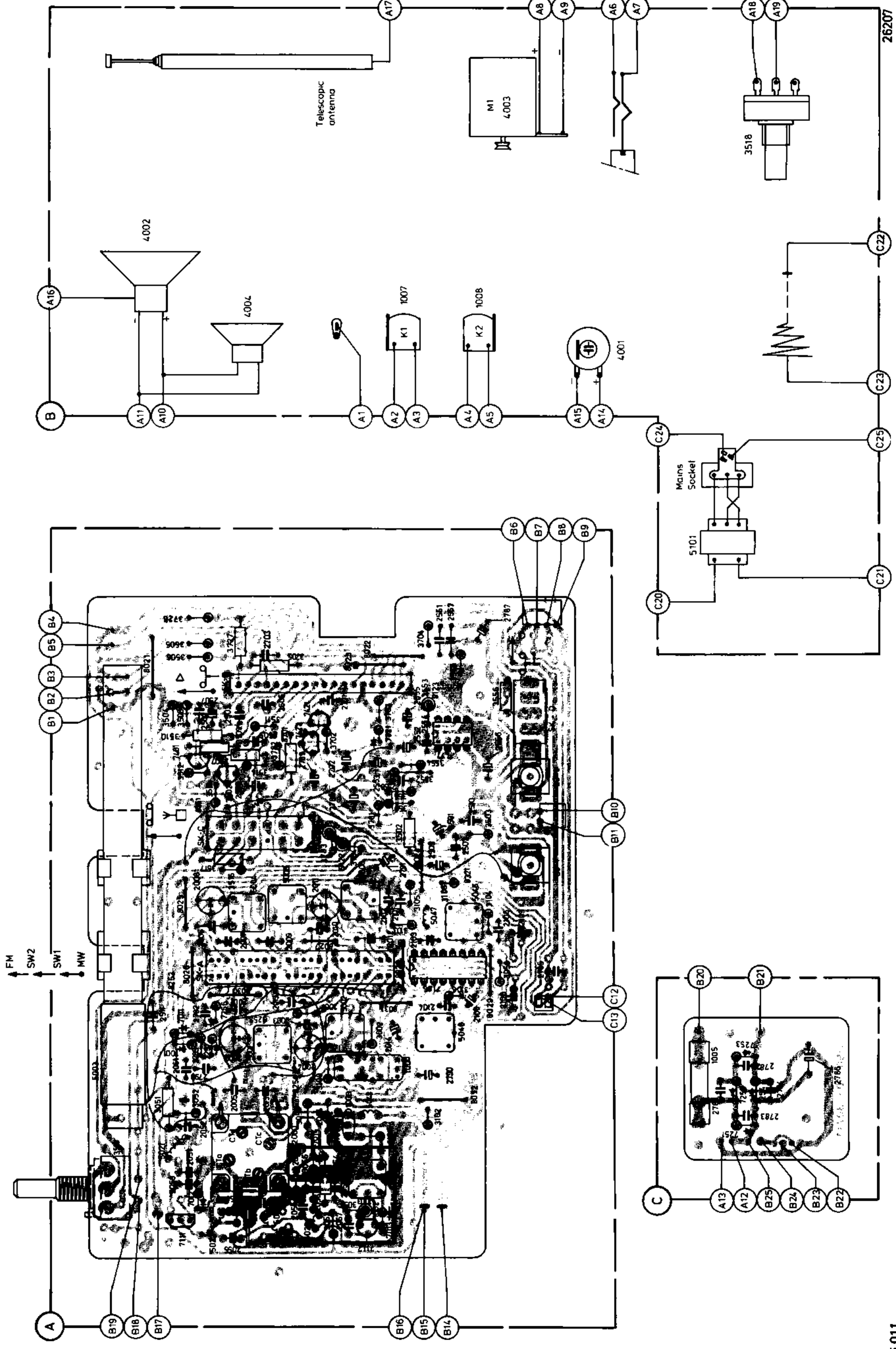
7112

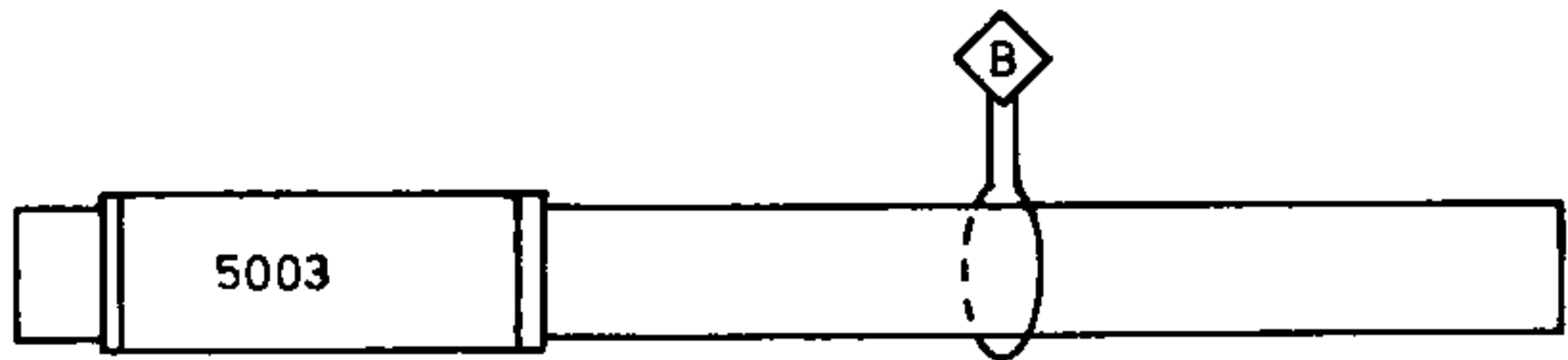
| | |
|---|------|
| e | 7.3V |
| b | 6.6V |
| c | 0V |



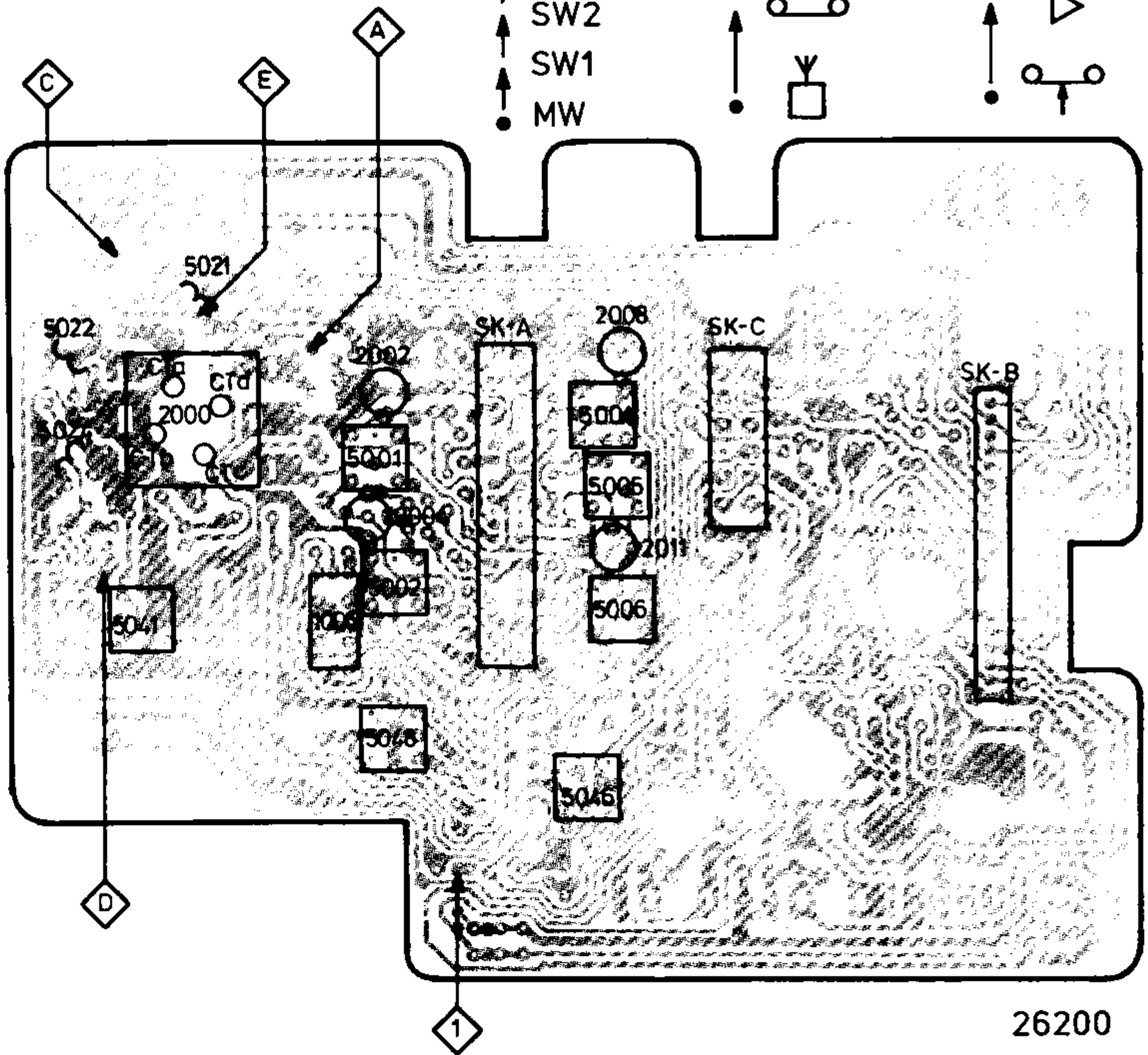
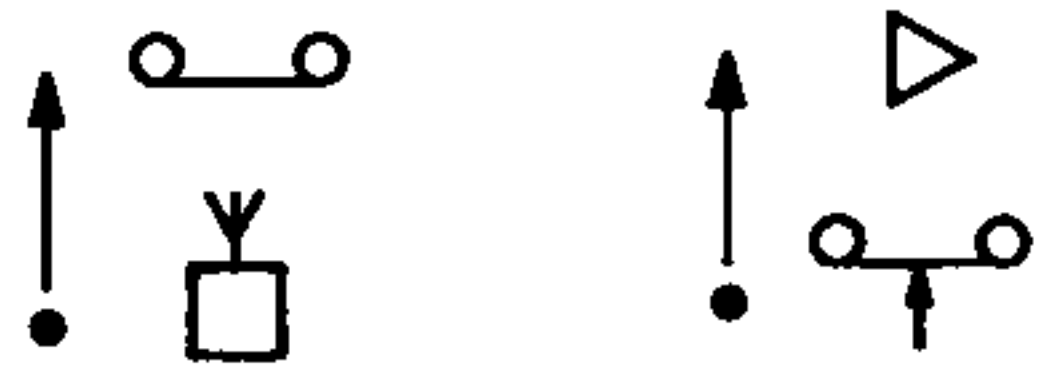
26208

| | |
|-------|--|
| Misc- | 5023 7013 7012 5041 5021 7014 1003 8254 7001 7256 8253 8252 8028 5047 5046 5004 8122 9121 7477 7221 8021 8022 5001 4001 4004 4002 3518 4003 |
| | 5022 7011 1003 7251 7252 5043 1005 5048 7011 8031 7186 8026 8027 8025 5005 5006 8251 7402 7401 7422 7421 9123 1007 1008 8032 7254 7253 5001 7257 5002 8030 8029 SK-A BU-1 8321 8024 SK-C BU-2 SK-D 8023 SK-B 8023 |
| Cap. | 2057 2060 2054 2051 2052 2005 2789 2061 2002 2511 2015 2782 2012 2006 2102 2008 2509 2501 2508 2702 2552 2504 2507 2703 2551 2055 2058 2056 2063 2000 2784 2013 2786 2014 2003 2104 2108 2103 2007 2101 2011 2502 2788 2553 2789 2556 2506 2701 2555 2557 2053 2059 2783 2781 2107 2064 2004 2790 2105 2792 2001 2785 2009 2106 2010 2109 2791 2510 2558 2505 2503 2554 2787 |
| Res. | 3053 3055 3056 3101 3051 3109 3785 1001 3059 3103 3105 3516 3517 3502 3501 3512 3782 3510 3504 3556 3555 3505 3726 3054 3058 3052 3102 3106 3108 3784 3503 3551 3552 3507 3508 3508 3511 3506 3727 3705 3104 3783 3781 3513 3514 3554 3702 3701 3703 3553 3704 |





↑ FM
 ↑ SW2
 ↑ SW1
 ● MW



| | | | | | | | | |
|-------------------------|--|--------------------------------------|------|------|--------------|------------|------|-------|
| SK-A | | | | | | | | |
| MW/PO 520-1605KHz | *468KHz $\Delta f=10KHz$ | via 33nF | min. | | 1006 5048 | ↑ ↓ | max. | symm. |
| | 512KHz | Mod=1KHz | max. | | 5006 | | | |
| | 1635KHz | | min. | | CTc | | | |
| | 600KHz 1400KHz | | | | 5003 CTd | | | |
| SW1/OC1 2.3-7.3MHz | 2.22MHz | Mod=1KHz via 9pF | max. | | 5005 | ↑ ↓ | max. | |
| | 7.45MHz | | min. | | 2011 | | | |
| | 2.5MHz | | | | 5002 | | | |
| | 7.2MHz | | | | 2004 | | | |
| SW2/OC2 9.5-21.75MHz | 9.3MHz | Mod=1KHz via 9pF | max. | | 5004 | ↑ ↓ | max. | |
| | 22.22MHz | | min. | | 2008 | | | |
| | 10MHz | | | | 5001 | | | |
| | 21MHz | | | | 2002 | | | |
| FM 87.5-108MHz | 10.7MHz $\Delta f=300KHz$ (50Hz) | via 22nF | min. | 5046 | | ↑ ↓ | | |
| | 86.5MHz | | | | | | | |
| | 109MHz | via 10nF + 15 ohm Mod=1KHz | max. | | 5024 5022 | ↑ ↓ | max. | |
| | | | min. | | CTb CTa | | | |
| | | | | | | | | |

↑ Repeat - Herhalen - Répéter - Wiederholen - Repetera - Ricominciare - Gentage - Ghentagelse - Toista

* /10 IF=455KHz

Cabinet, Fig. 3

- A. Remove the volume and tone knobs 402 and unscrew 5 screws from the rear cabinet 407.
- B. Place set on its front cabinet 433 and pull rear cabinet 407 carefully upwards at the bottom side before disconnecting power-supply wires from connector and aerial wire from tag.
- C. Detach the main pcb/deck unit by removing the 7 screws A, Fig. 1.
- D. Remove the two screws B, Fig. 1 if the tape deck is to be tilted.
- E. Unscrew 4 screws, remove tuning drum 419 and disengage pointer 421 before removing frame 501.
- F. The handle 437 can be detached by removing the fastener 439.
- G. The cassette door 441 can be removed by pressing the lugs of the door slightly inwards in the open position of the door.

Tape deck, Fig. 2

- H. *Remove pressure roller 68*
Remove plug 67, compression spring 69 and torsion spring 508.
- I. *Removing the head support bracket 52*
Remove tension spring 54.
Remove pressure roller 68.
By pushing the head support bracket slightly backwards it can be removed.
Remark. Mind the 2 balls 58, they now lie loose.
- J. *Removing the buttons 446, Fig. 3*
Bend the bracket retaining the relevant button upwards (see upper side of tape deck) and bend the button backwards.
For the recording button first remove the leaf spring ... by pushing it downwards.
- K. *Removing the buttons 59,62,63,64,66 (Fig. 2)*
Remove pressure roller 68.
Remove head support bracket 52.
Remove locking bracket 53 and switch bracket 56.
By pressing the locking tag of the relevant button slightly inwards this button is released and can be pushed from the chassis.
When doing this, mind pressure spring 61.
- L. *Removing switch SKE (111)*
This switch consists of 2 separate flat springs, directly fitted in the chassis.
Unsolder the two connecting wires and properly clean the soldering spots on the switch.
Remove circlip 87 so that reel disc 92 can be pushed upwards.
Remove lever 509 and unfasten the connection between brackets 91 and 93.
Unbend the locking tags of switch springs 111.
From the upper side the springs can be removed from the chassis.

ADJUSTMENTS AND CHECKS**Height of the recording/playback head K1, Fig. 2**

- Switch off the supply voltage.
- Slide adjusting jig 4822 402 60245 over the capstan while pressure roller 68 is slightly pulled back.
- The jig must be slid over the capstan to an extent that it is in line with the erase head guides.
- The R/P-head must now be so adjusted that the jig slides exactly between the tape guides of the two heads.

Azimuth adjustment recording/playback head K1, Fig. 2

The azimuth is adjustable with socket screw 71. For this adjustment the testcassette SBC133 (4822 397 30039); part with 8 kHz may be used. Set the volume control to the mid position. If necessary, readjust volume control so that the output voltage is well readable. In start position the 8 kHz signal must be adjusted for maximum output voltage at BU-2 (tape).

Fast-wind friction 92

The friction force can be measured with the friction measurement cassette 4822 395 30054 (811/CTM) in position "start".

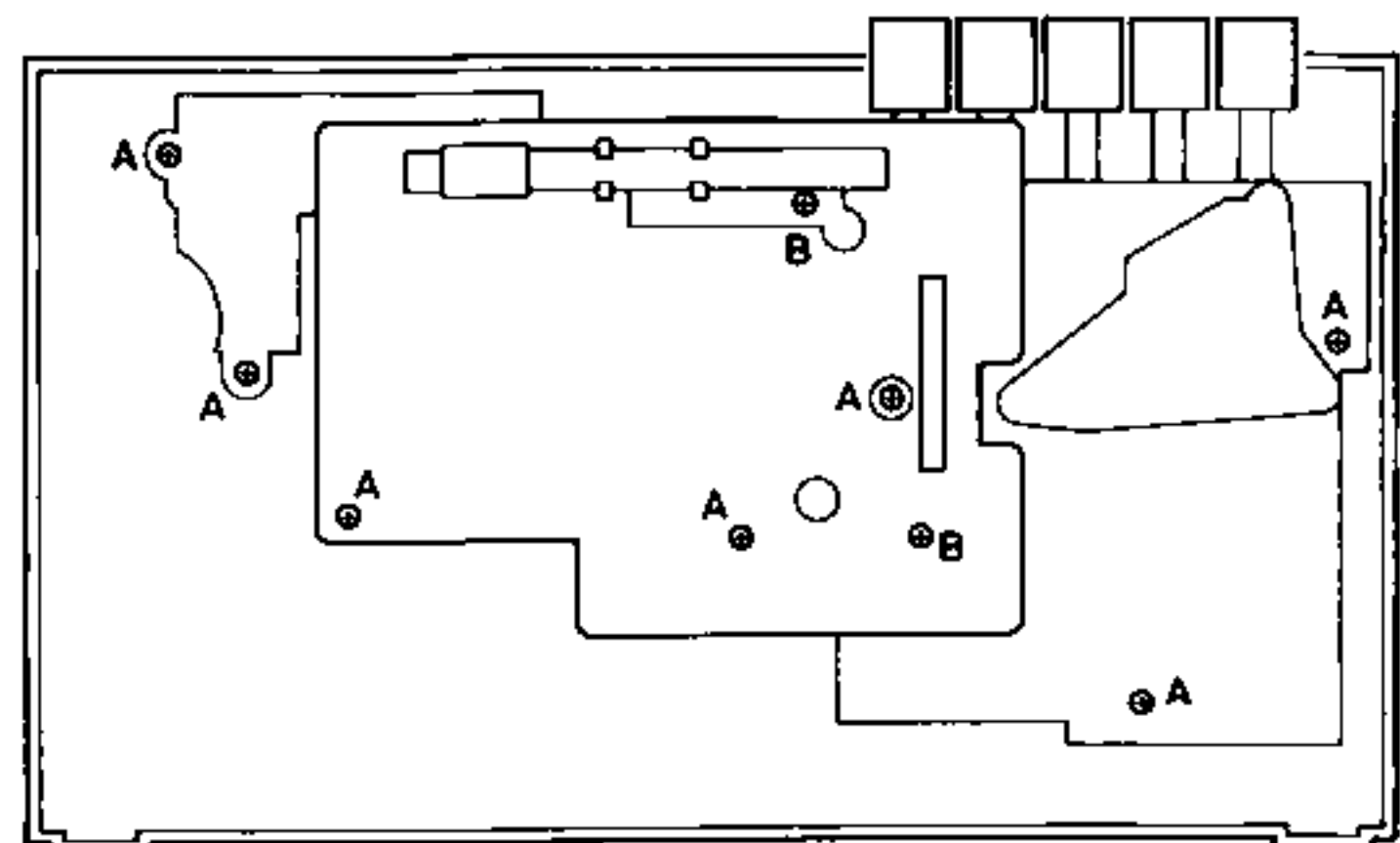
The measuring value must be:

- Fast-wind side 40-60 gcm. Permissible variation in between these values 10 gcm.
- Rewind side 4-8 gcm.
- The friction force is determined by the sloping up sides and the flat springs, Figs. 2A and B.
- The force is adjustable by catching the flat spring behind another stud.

Tape speed

With wow-and-flutter meter

- Connect the set to a wow-and-flutter meter (BU-2).
- Set in playback position, using the SBC133 testcassette and the part with 3150 Hz.
- Adjust the speed with the preset potentiometer (see hole at underside motor).
- Maximum permissible deviation $\pm 3\%$.
- Besides, the wow-and-flutter value can be read with this meter. It may be 0.4% maximum.

**Fig. 1**

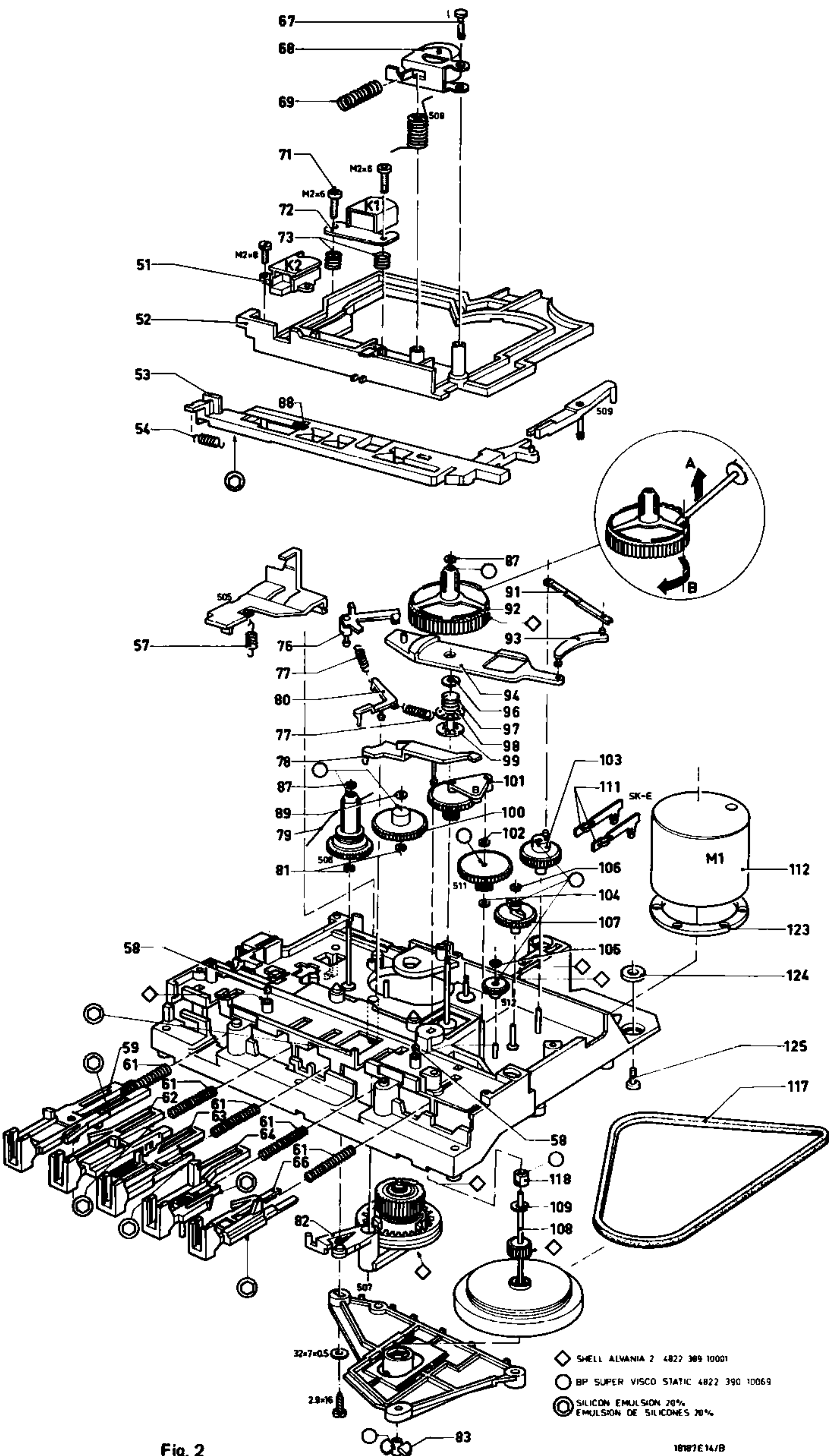


Fig. 2

18187E14/B

| | | | | | | | |
|----|----------------|----|----------------|-----|----------------|-----|----------------|
| 51 | 4822 249 40123 | 71 | 4822 502 11454 | 92 | 4822 528 20213 | 109 | 4822 532 50993 |
| 52 | 4822 403 51281 | 72 | 4822 249 10101 | 93 | 4822 403 51051 | 111 | 4822 290 80345 |
| 53 | 4822 417 50134 | 73 | 4822 492 51229 | 94 | 4822 403 51047 | 112 | 4822 361 20167 |
| 54 | 4822 492 31268 | 76 | 4822 403 51067 | 96 | 4822 532 51067 | 117 | 4822 358 30223 |
| 57 | 4822 492 31264 | 77 | 4822 492 62134 | 97 | 4822 492 51217 | 118 | 4822 520 30296 |
| 58 | 4822 520 40134 | 78 | 4822 403 51068 | 98 | 4822 532 51055 | 123 | 4822 466 80728 |
| 59 | 4822 403 10149 | 79 | 4822 492 62035 | 99 | 4822 520 10423 | 124 | 4822 530 80198 |
| 61 | 4822 492 51228 | 80 | 4822 403 51048 | 100 | 4822 522 31263 | 125 | 4822 502 11434 |
| 62 | 4822 403 30284 | 81 | 4822 532 50692 | 101 | 4822 403 51069 | | |
| 63 | 4822 403 30283 | 82 | 4822 528 70291 | 102 | 4822 532 51054 | | |
| 64 | 4822 403 30282 | 83 | 4822 522 31212 | 103 | 4822 522 31272 | | |
| 66 | 4822 403 10148 | 87 | 4822 532 51061 | 104 | 4822 532 51054 | | |
| 67 | 4822 462 71108 | 88 | 4822 492 51137 | 106 | 4822 532 50262 | | |
| 68 | 4822 403 51071 | 89 | 4822 532 50268 | 107 | 4822 522 31261 | | |
| 69 | 4822 492 51227 | 91 | 4822 403 51049 | 108 | 4822 520 10418 | | |

| | | | |
|-----|----------------|-----|----------------|
| 401 | 4822 321 30214 | 427 | 4822 520 20327 |
| 402 | 4822 528 80769 | 428 | 4822 492 40848 |
| 403 | 4822 492 40854 | 429 | 4822 267 40349 |
| 404 | 4822 303 30266 | 431 | 4822 450 60243 |
| 406 | 4822 413 41074 | 432 | 4822 459 40496 |
| 407 | 4822 443 61078 | 433 | 4822 443 60936 |
| 408 | 4822 423 40636 | 434 | 4822 403 40143 |
| 409 | 4822 502 11431 | 436 | 4822 502 10692 |
| 411 | 4822 492 51277 | 437 | 4822 498 40491 |
| 412 | 4822 492 51233 | 438 | 4822 498 50111 |
| 413 | 4822 443 60929 | 439 | 4822 462 70659 |
| 414 | 4822 290 80329 | 441 | 4822 443 60937 |
| 416 | 4822 502 11442 | 442 | 4822 492 62627 |
| 417 | 4822 466 70474 | 443 | 4822 532 80653 |
| 418 | 4822 528 80667 | 444 | 4822 403 51486 |
| 419 | 4822 413 51185 | 446 | 4822 410 40346 |
| 421 | 4822 450 80783 | 447 | 4822 492 62195 |
| 422 | 4822 403 51694 | 448 | 4822 358 30148 |
| 424 | 4822 462 71277 | 449 | 4822 349 50117 |
| 426 | 4822 403 51899 | | |

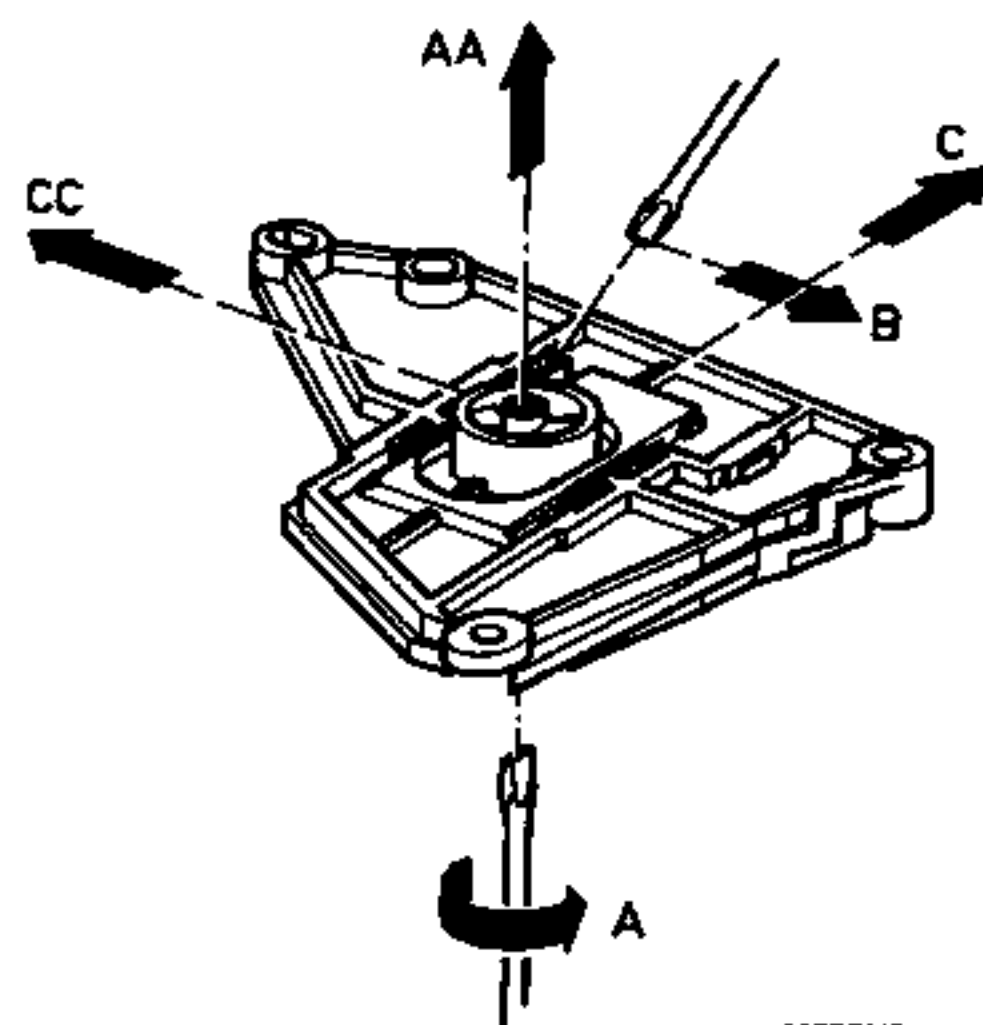
Checking the lace-up and the capstan adjustment

- Recorder in the position "playback" with the mirror cassette inserted.
- When the tape at the capstan moves upwards or downwards, adjust the capstan to be perpendicular by means of B on the flywheel pivot bearing (Fig. 4).
- The tape should be straight and smooth between the tape guides and along the capstan.
- Small deviations from this pattern are permissible, because they do not have an effect for normal cassettes.

Adjusting the flywheel play

- The flywheel play should be noticeable, but may not exceed 0.3 mm.

Adjust by turning A (Fig. 4).



16757A12

Fig. 4



| | | |
|-----------|----------------|----------------|
| 2000 | Varicon | 4822 125 20226 |
| 2001 | 43 pF 5% | 4822 122 40104 |
| 2002,2011 | Trimmer 10 pF | 4822 125 50062 |
| 2003 | 3 pF 50 V | 4822 122 31223 |
| 2004 | Trimmer 5,5 pF | 4822 125 50077 |
| 2005 | Trimmer 5 pF | 4822 125 50077 |
| 2006 | 2.2 nF 25 V | 4822 121 50415 |
| 2008 | 330 pF | 5322 121 54077 |
| 2008 | Trimmer 20 pF | 4822 125 50045 |
| 2009 | 1,5 nF 160 V | 4822 121 50432 |
| 2012 | 330 pF 630 V | 5322 121 54077 |
| 2015 | 25 pF 50 V | 4822 122 40134 |
| 2052 | 53 pF 50 V | 4822 122 40136 |
| 2054 | 20 pF 50 V | 4822 122 31226 |
| 2055,2058 | 4 pF 50 V | 4822 122 31043 |
| 2063 | 8 pF | 4822 122 40097 |
| 2064,2551 | 100 nF 25 V | 5322 122 30108 |
| 2557 | | |
| 2106,2109 | | |
| 2510,2511 | 40 nF 25 V | 4822 122 40114 |
| 2793 | | |



| | | |
|-----------|--------|----------------|
| 7011,7221 | CDG24 | 4822 130 30702 |
| 7251,7252 | | |
| 7012,7013 | CDG00 | 4822 130 30702 |
| 7014 | FV1043 | 4822 130 30845 |
| 7253-7256 | 1N4001 | 4822 130 30829 |



| | | |
|-----------|--------|----------------|
| 7111 | BF324 | 4822 130 41448 |
| 7112 | BF451 | 4822 130 41395 |
| 7401 | BC548B | 4822 130 40936 |
| 7402,7422 | 1402CD | 4822 130 40937 |
| 7421 | 1402DE | 4822 130 40937 |



| | | |
|------|----------|----------------|
| 7186 | TDA1220A | 4822 209 81108 |
| 7477 | TBA820MS | 4822 209 80708 |

| | | |
|------|------------|----------------|
| 3518 | Potm 100KD | 4822 101 30405 |
|------|------------|----------------|



| | | |
|-----------|--------------------|----------------|
| 5001 | SW Ant coil | 4822 156 30566 |
| 5002 | MW Ant coil | 4822 156 30565 |
| 5003 | SW Osc coil | 4822 157 50889 |
| 5004 | MW Osc coil | 4822 156 30919 |
| 5005 | | 4822 156 30918 |
| 5006 | | 4822 156 30917 |
| 5023,5043 | FE ind 0.7 μ H | 4822 157 50791 |
| 5041 | IFT FM org | 4822 156 30439 |
| 5046 | IFT FM blue | 4822 156 30442 |
| 5047 | Fe ind 22 μ H | 4822 158 10435 |
| 5048 | IFT AM blk | 4822 153 10232 |
| 5101 | Transfo | 4822 146 20728 |

-Miscellaneous-

| | | |
|-----------|------------|----------------|
| 1001 | Fe bar | 4822 526 10118 |
| 1002 | Bead core | 4822 526 10011 |
| 1004 | Cer filter | 4822 242 70249 |
| 1005 | 500 mAT | 4822 253 30017 |
| 1006 | Cer filter | 4822 242 70306 |
| 4001 | E-mic | 4822 242 10026 |
| 4002 | Speaker | 4822 240 50118 |
| 4004 | Buzzer | 4822 280 10142 |
| SK-A | | 4822 277 20591 |
| SK-B | | 4822 277 20594 |
| SK-C | | 4822 277 20589 |
| SK-D | | 4822 277 20245 |
| BU-1,BU-2 | | 4822 267 30263 |