

**KUNDENDIENST**

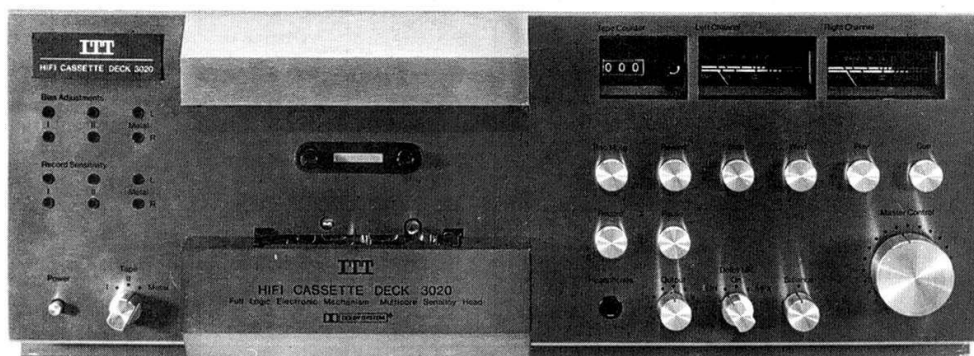


**Graetz**

**S E R V I C E**

# MANUAL HIFI 3020

**TB  
118  
1983**



HIFI 3020: 5553 61 88

Herausgegeben von:  
Standard Elektrik Lorenz Aktiengesellschaft  
Kundendienst für die Marken ITT Schaub-Lorenz und Graetz  
7530 Pforzheim, Östliche 132, Postfach 1526

Änderungen vorbehalten  
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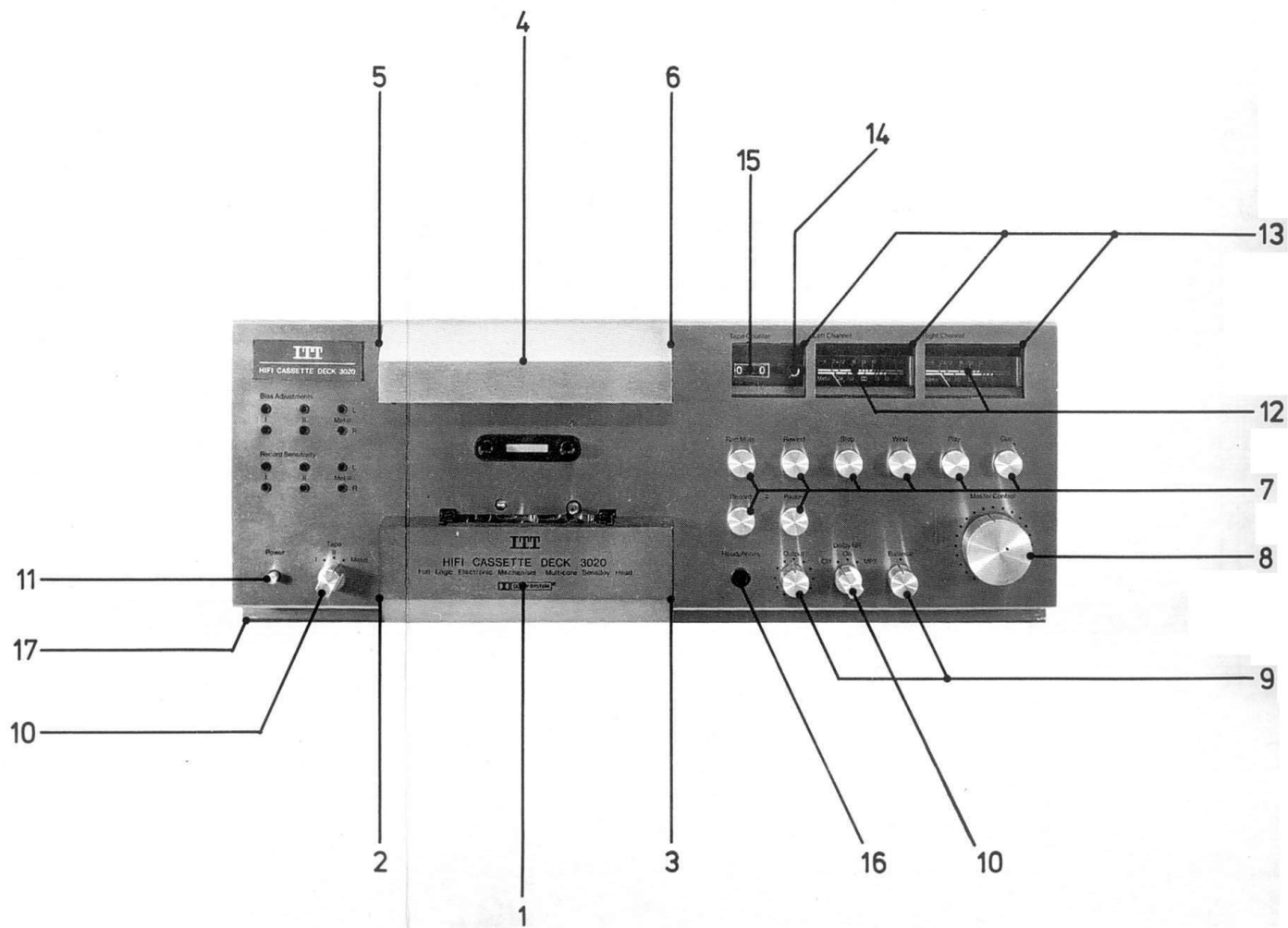
|                                           |               |                                                        |               |                                    |                                       |                                                                             |                                        |
|-------------------------------------------|---------------|--------------------------------------------------------|---------------|------------------------------------|---------------------------------------|-----------------------------------------------------------------------------|----------------------------------------|
|                                           |               |                                                        |               |                                    |                                       |                                                                             |                                        |
|                                           |               |                                                        | Line Out L, R | 3150 Hz<br>PLAY                    | Capstan motor                         | 3103–3197 Hz                                                                |                                        |
|                                           | Line Out L, R |                                                        |               | 10 kHz<br>PLAY                     |                                       | max. (L)<br>max. (R)                                                        |                                        |
|                                           |               | U 101, Pin 2,<br>                                      |               | 400 Hz Dolby *)<br>PLAY            | R 114                                 | 580 mV $\approx$<br>$\pm 10$ mV                                             | TAPE „I“<br>DOLBY „OFF“                |
|                                           |               |                                                        |               | "                                  | R 308                                 | – 2 dB<br>LEFT Instrument                                                   | OUTPUT<br>control<br>max.              |
|                                           |               | U 201, Pin 2<br>                                       |               | "                                  | R 214                                 | 580 mV $\approx$<br>$\pm 10$ mV                                             | MASTER<br>CONTROL<br>max.              |
|                                           |               |                                                        |               | "                                  | R 408                                 | – 2 dB<br>RIGHT Instrument                                                  |                                        |
| 19,00 kHz<br>Line In (L, R)               |               | R 370 $\bullet$ C 361<br><br>R 470 $\bullet$ C 461<br> |               | RECORD                             | L 102 (L)<br>L 202 (R)                | min. $\approx$<br>"                                                         | TAPE „I“<br>DOLBY „MPX“                |
|                                           |               | "                                                      |               | RECORD                             | L 351 (L)<br>L 451 (R)                | min. $\approx$<br>"                                                         | TAPE „METAL“<br>MASTER CONTROL<br>min. |
| 333 Hz/15 kHz<br>150 mV<br>Line In (L, R) |               | Line Out L, R                                          |               | RECORD (30 sec.)<br>REWIND<br>PLAY | R 381 (L)<br>BIAS<br>R 481 (R)        | $\pm 1$ dB/15 kHz<br>(PLAY)<br>"                                            | TAPE „I“<br>DOLBY „OFF“                |
| "                                         |               | "                                                      |               | "                                  | R 382 (L)<br>BIAS<br>R 482 (R)        | "<br>"                                                                      | TAPE „II“<br>DOLBY „OFF“               |
| "                                         |               | "                                                      |               | "                                  | R 383 (L)<br>BIAS<br>R 483 (R)        | "<br>"                                                                      | TAPE „METAL“<br>DOLBY „OFF“            |
| 333 Hz/150 mV<br>Line In (L, R)           |               | U 101 Pin 2 (L)<br><br>U 201 Pin 2 (R)<br>             |               | RECORD                             | MASTER CONTROL<br>BALANCE CONTROL     | 580 mV $\approx$ (L)<br>$\pm 5$ mV (R)                                      | TAPE „I“<br>DOLBY „OFF“                |
| "                                         |               | "                                                      |               | RECORD (30 sec.)<br>REWIND<br>PLAY | R 377 (L)<br>SENSITIVITY<br>R 477 (R) | 580 mV $\approx \pm 20$ mV<br>(PLAY)<br>"                                   | "                                      |
| "                                         |               | "                                                      |               | "                                  | R 378 (L)<br>SENSITIVITY<br>R 478 (R) | "<br>"                                                                      | TAPE „II“<br>DOLBY „OFF“               |
| "                                         |               | "                                                      |               | "                                  | R 379 (L)<br>SENSITIVITY<br>R 479 (R) | "<br>"                                                                      | TAPE „METAL“<br>DOLBY „OFF“            |
| 333 Hz/20 kHz<br>150 mV<br>Line In (L, R) |               | "                                                      |               | RECORD                             | MASTER CONTROL<br>BALANCE CONTROL     | 39 mV $\approx$ (L)<br>(580 mV – 23,4 dB)<br>" (R)                          | TAPE „II“<br>DOLBY „OFF“               |
| "                                         |               | Line Out L, R                                          |               | RECORD (30 sec.)<br>REWIND<br>PLAY | R 374 (L)<br>R 474 (R)                | $\pm 1,5$ dB/20 kHz (L)<br>$\updownarrow$ (PLAY)<br>$\pm 1,5$ dB/20 kHz (R) | "                                      |
| "                                         |               | U 101 Pin 2 (L)<br>U 201 Pin 2 (R)                     |               | RECORD                             | MASTER CONTROL<br>BALANCE CONTROL     | 70 mV $\approx$ (L)<br>(580 mV – 18,4 dB)<br>" (R)                          | TAPE „METAL“<br>DOLBY „OFF“            |
| "                                         |               | Line Out L, R                                          |               | RECORD (30 sec.)<br>REWIND<br>PLAY | R 375 (L)<br>R 475 (R)                | $\pm 1,5$ dB/20 kHz<br>$\updownarrow$ (PLAY)<br>$\pm 1,5$ dB/20 kHz         | TAPE „METAL“<br>DOLBY „OFF“            |

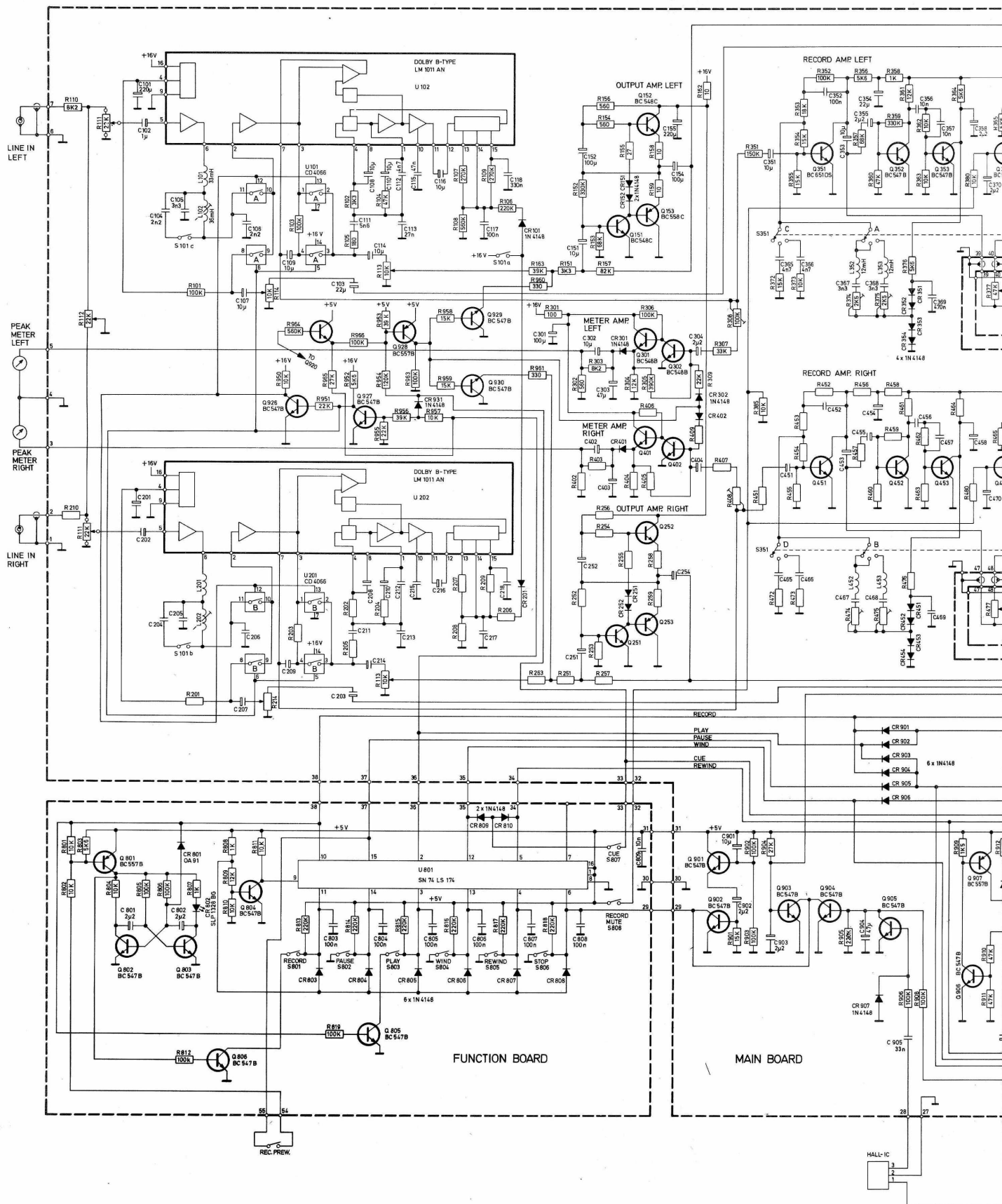
\* Geräuscherdrückungssystem unter Lizenz von Dolby Laboratories Licensing Corporation hergestellt. Das Wort „Dolby“ und das Symbol des doppelten D sind die Warenzeichen von Dolby Laboratories Licensing Corporation.

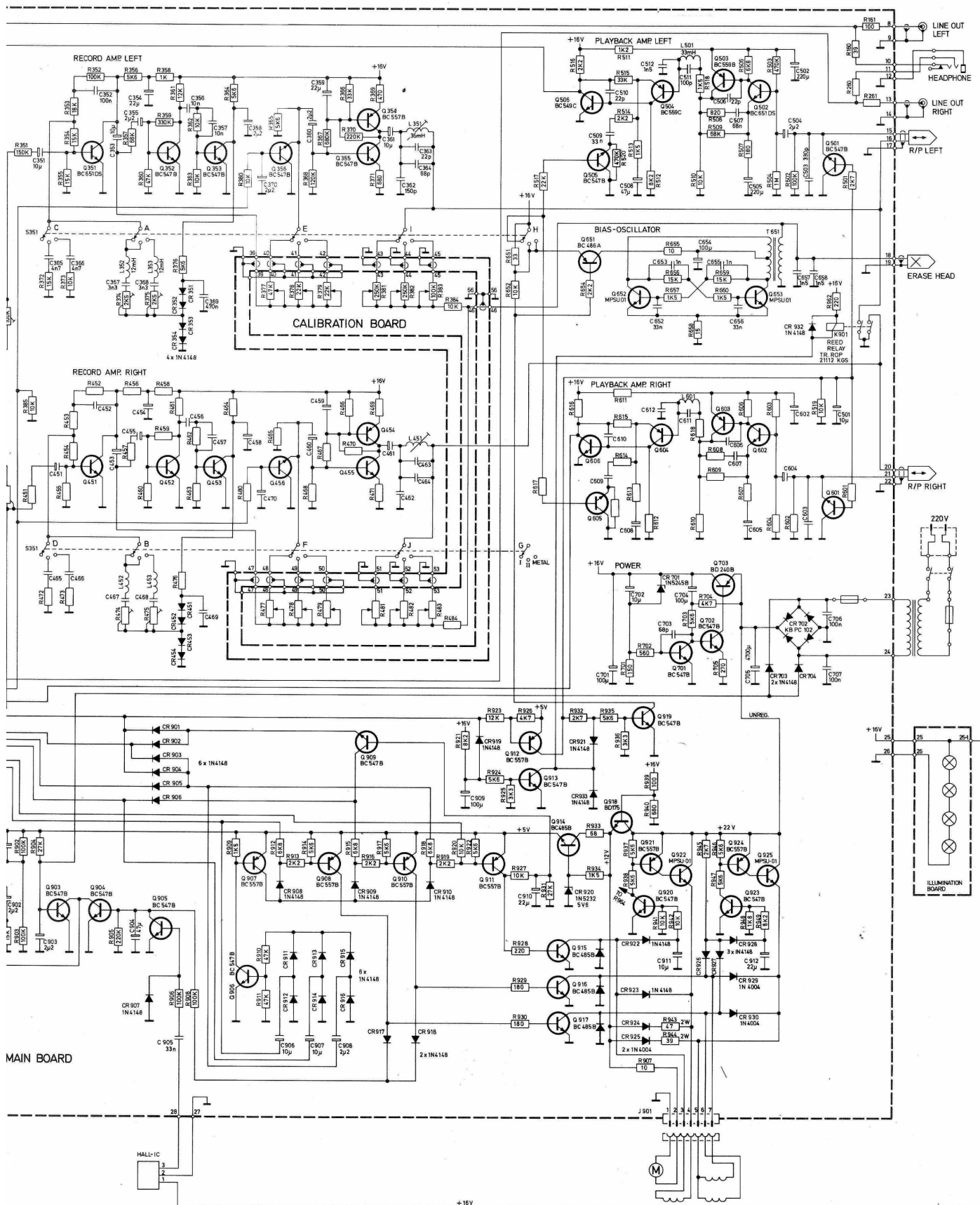
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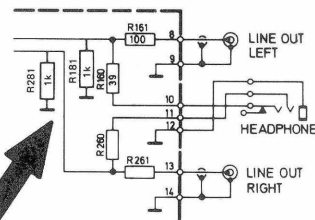
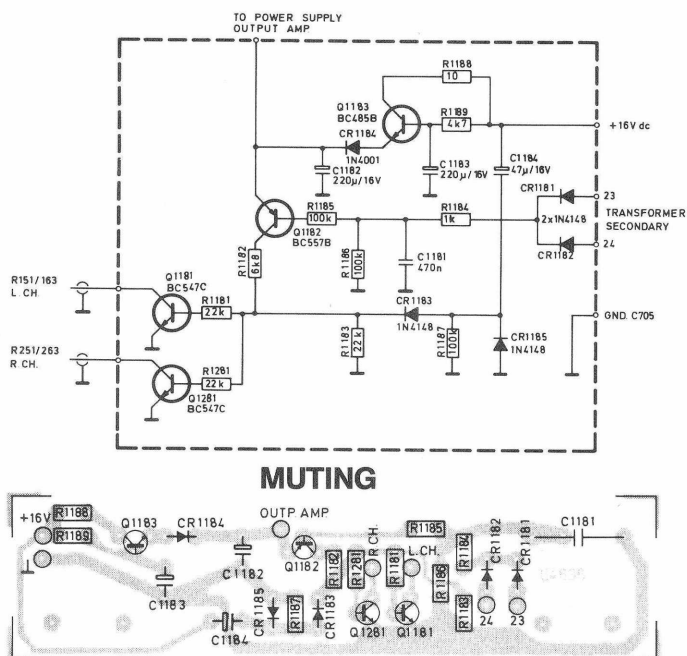
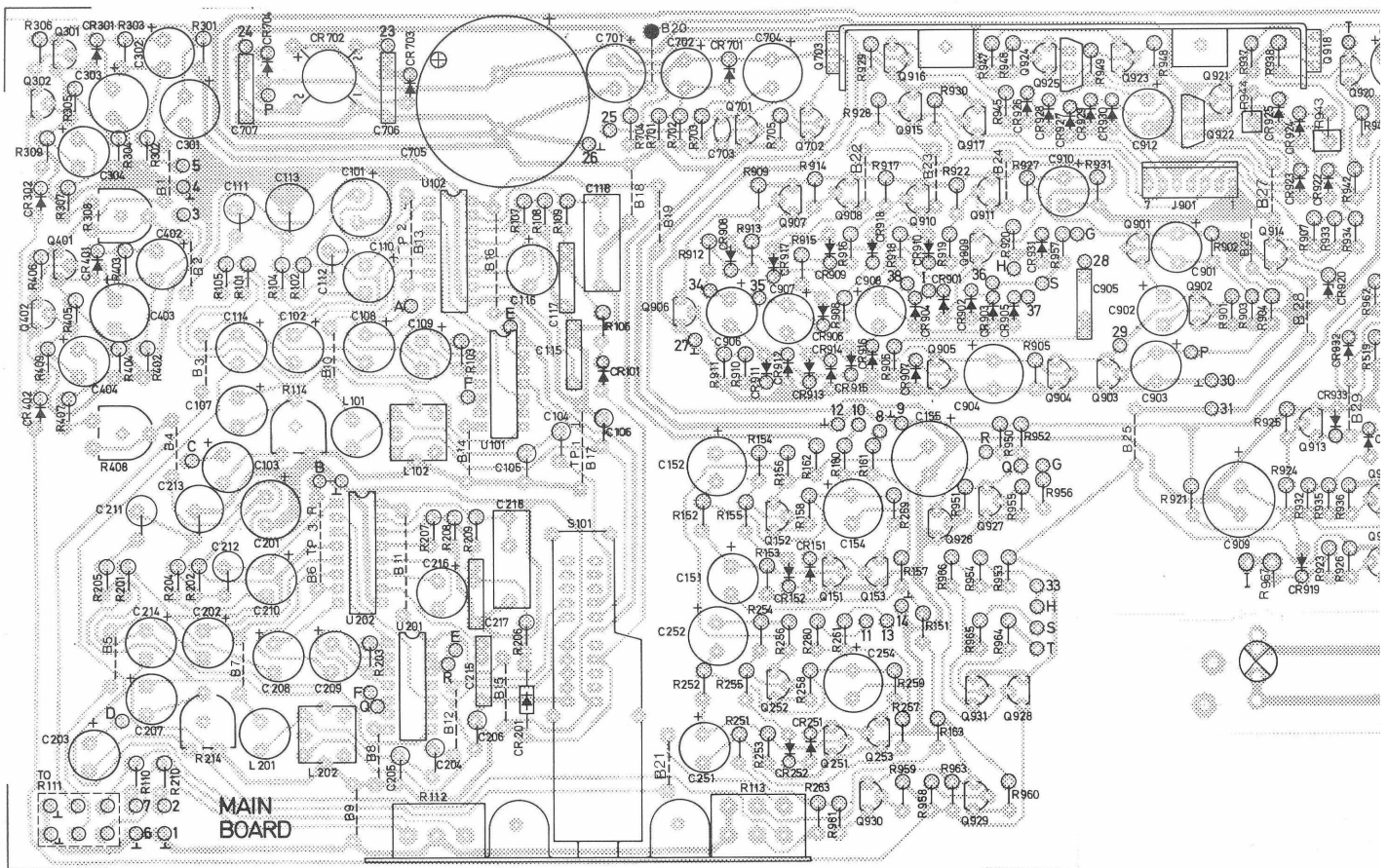
\* Réducteur de bruits Dolby: Circuit fabriqué sous licence des Dolby Laboratories Licensing Corporation. Le mot „Dolby“ et le symbole double D sont des marques déposées des Dolby Laboratories Licensing Corporation.

| Pos. |                                                                                  | No.        |
|------|----------------------------------------------------------------------------------|------------|
| 1    | Abdeckung/Cover/Couvercle                                                        | 6134 37 06 |
| 2    | Blende/Dummy plate/Ecran                                                         | 8681 24 83 |
| 3    | Blende/Dummy plate/Ecran                                                         | 8681 24 82 |
| 4    | Abdeckung/Cover/Couvercle                                                        | 6134 38 99 |
| 5    | Blende/Dummy plate/Ecran                                                         | 8681 24 85 |
| 6    | Blende/Dummy plate/Ecran                                                         | 8681 24 84 |
| 7    | Taste/Pushbutton/Bouton poussoir (STOP, PLAY, REC. ...)                          | 6328 11 79 |
| 8    | Knopf/Knob/Bouton (MASTER)                                                       | 6328 11 83 |
| 9    | Knopf/Knob/Bouton (OUTPUT, BALANCE)                                              | 6328 11 81 |
| 10   | Knopf/Knob/Bouton (TAPE, DOLBY)                                                  | 6328 11 82 |
| 11   | Taste/Pushbutton/Bouton poussoir (POWER)                                         | 6328 11 80 |
| 12   | Instrument                                                                       | 4427 91 17 |
| 13   | Rahmen f. Instrument/Instrument frame/Ecran pour Instrument                      | 8681 24 81 |
| 14   | Zähler/Counter/Compteur                                                          | 6467 16 76 |
| 15   | Zählerfenster/Counter window/Fenêtre de compteur                                 | 6462 56 89 |
| 16   | Buchse/Socket/Prise (HEADPHONES)                                                 | 4145 03 49 |
| 17   | Fußgummi/Foot rubber/Piedestal au caoutchouc                                     | 8868 06 94 |
|      | Gehäusefront/Cabinet front/Panneau frontal                                       | 6134 38 96 |
|      | Gehäuseboden/Cabinet bottom/Seméle                                               | 6134 38 97 |
|      | Gehäuseoberteil/Cabinet top/Partie supérieure de boîtier                         | 6134 38 98 |
|      | Netztrafo/Mains transformer/Transformateur d'alimentation                        | 4511 33 19 |
|      | Netzschalter/Mains switch/Interrupteur secteur                                   | 4112 94 79 |
|      | Halter hierzu/Holder for this item/Support                                       | 8318 45 17 |
|      | Laufwerk/Drive mechanism/Platine                                                 | 5863 11 34 |
|      | Zähler-Antriebsrolle/Counter driving wheel/<br>Roue d'entraînement pour compteur | 7548 41 76 |





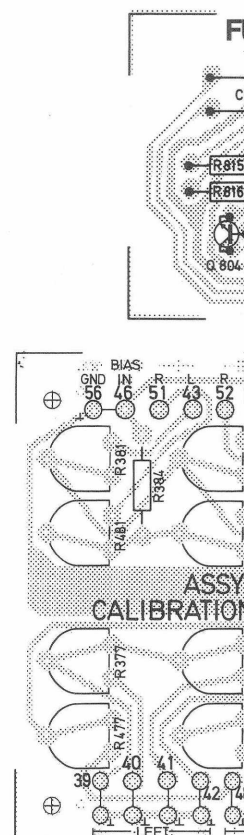


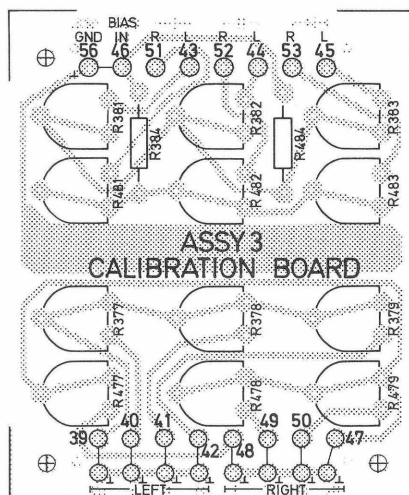
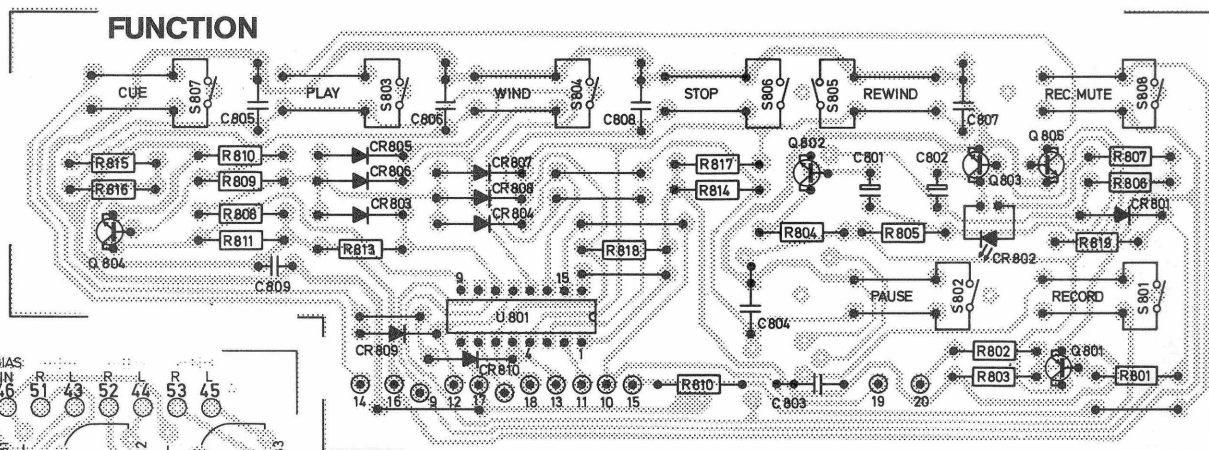
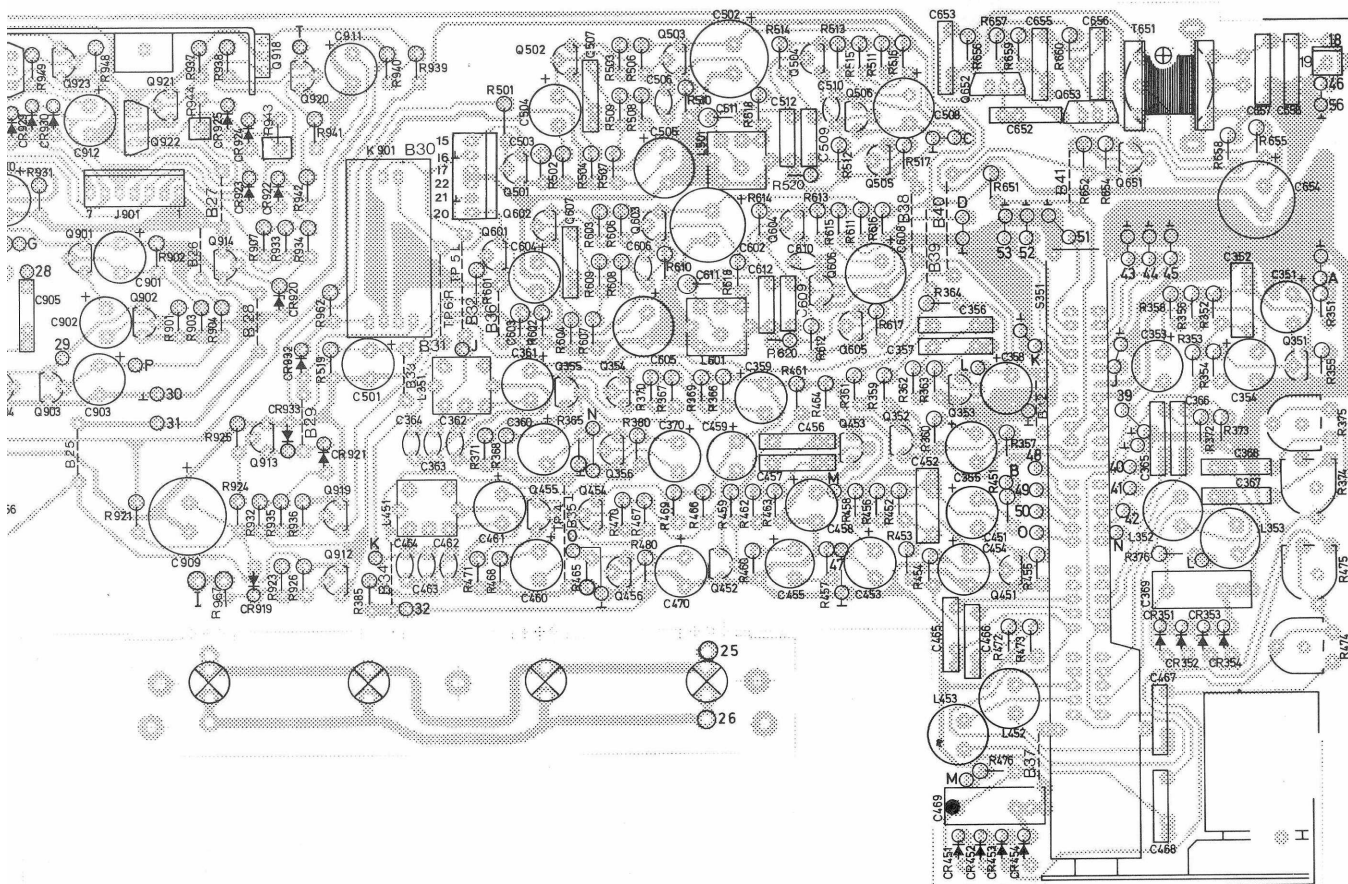


Bei Verwendung einer Muting-Schaltung dieses Typs sind R 181/281 auf der Hauptplatte eingelötet.

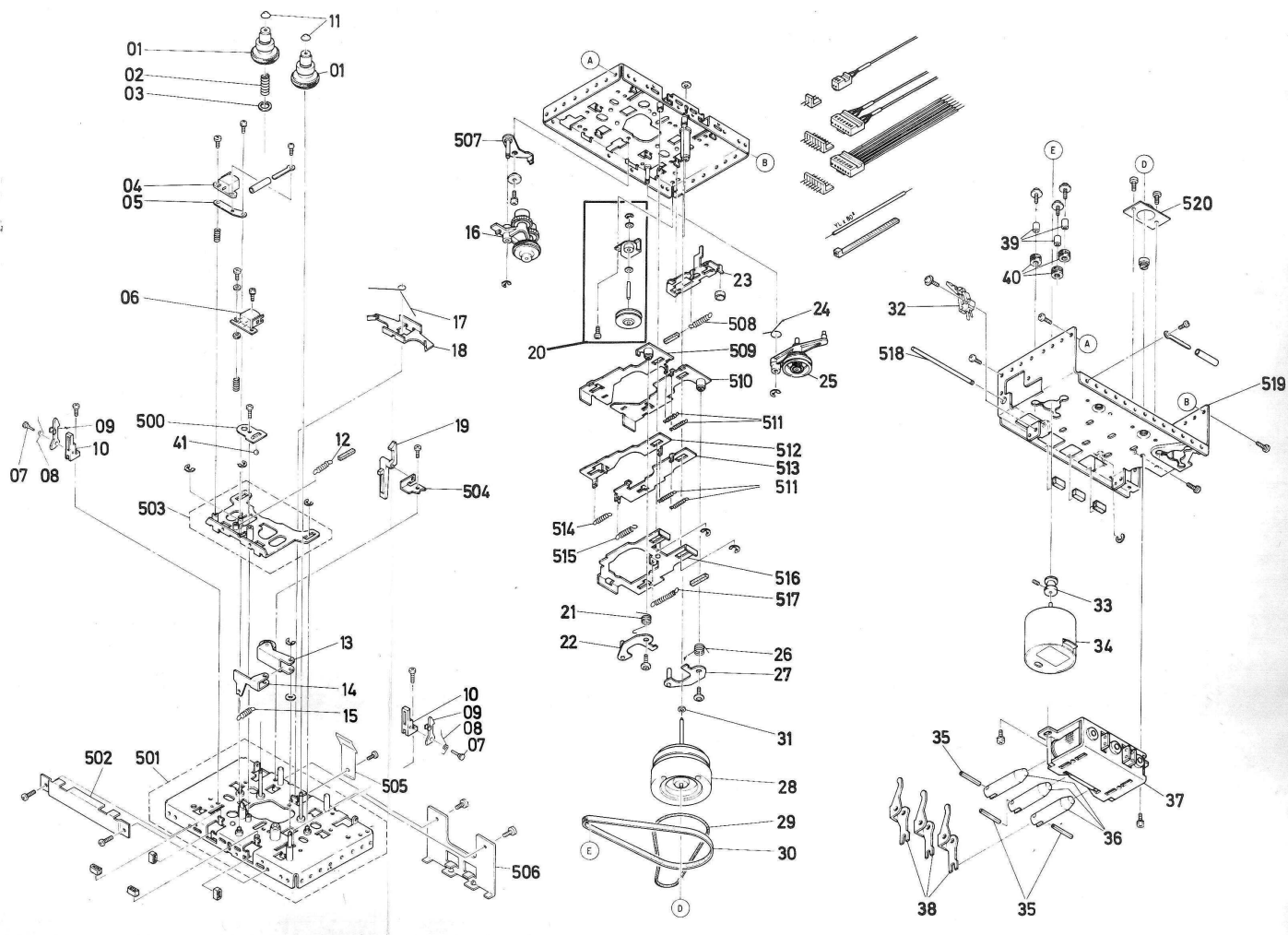
If this type of muting circuit is installed,  
R 181, 281 are soldered on the main board.

En utilisant un muting-circuit de ce type, R 181, 281 sont soudés sur la plaque centrale.





| Pos.                                                                                                                                                                                                                                                                                                                                     | No.        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1                                                                                                                                                                                                                                                                                                                                        | 6253 41 37 |
| 2                                                                                                                                                                                                                                                                                                                                        | 7358 25 84 |
| 3                                                                                                                                                                                                                                                                                                                                        | 7726 05 27 |
| 4                                                                                                                                                                                                                                                                                                                                        | 4337 91 50 |
| 5                                                                                                                                                                                                                                                                                                                                        | 8318 45 26 |
| 6                                                                                                                                                                                                                                                                                                                                        | 4335 91 99 |
| 7                                                                                                                                                                                                                                                                                                                                        | 8318 45 22 |
| 8                                                                                                                                                                                                                                                                                                                                        | 7358 25 79 |
| 9                                                                                                                                                                                                                                                                                                                                        | 8318 45 20 |
| 10                                                                                                                                                                                                                                                                                                                                       | 8681 24 87 |
| 11                                                                                                                                                                                                                                                                                                                                       | 8681 20 54 |
| 12                                                                                                                                                                                                                                                                                                                                       | 7358 25 80 |
| 13                                                                                                                                                                                                                                                                                                                                       | 7538 33 33 |
| 14                                                                                                                                                                                                                                                                                                                                       | 7358 25 87 |
| 15                                                                                                                                                                                                                                                                                                                                       | 7358 25 81 |
| 16                                                                                                                                                                                                                                                                                                                                       | 2424 01 15 |
| 17                                                                                                                                                                                                                                                                                                                                       | 7358 25 85 |
| 18                                                                                                                                                                                                                                                                                                                                       | 8318 45 23 |
| 19                                                                                                                                                                                                                                                                                                                                       | 8681 24 88 |
| 20                                                                                                                                                                                                                                                                                                                                       | 7424 01 16 |
| 21                                                                                                                                                                                                                                                                                                                                       | 7358 25 83 |
| 22                                                                                                                                                                                                                                                                                                                                       | 8318 45 19 |
| 23                                                                                                                                                                                                                                                                                                                                       | 8318 45 25 |
| 24                                                                                                                                                                                                                                                                                                                                       | 7358 25 86 |
| 25                                                                                                                                                                                                                                                                                                                                       | 7424 01 14 |
| 26                                                                                                                                                                                                                                                                                                                                       | 7358 25 82 |
| 27                                                                                                                                                                                                                                                                                                                                       | 8318 45 18 |
| 28                                                                                                                                                                                                                                                                                                                                       | 7518 40 85 |
| 29                                                                                                                                                                                                                                                                                                                                       | 7618 42 06 |
| 30                                                                                                                                                                                                                                                                                                                                       | 7618 42 05 |
| 31                                                                                                                                                                                                                                                                                                                                       | 7726 59 69 |
| 32                                                                                                                                                                                                                                                                                                                                       | 4188 04 24 |
| 33                                                                                                                                                                                                                                                                                                                                       | 7548 41 77 |
| 34                                                                                                                                                                                                                                                                                                                                       | 4432 01 41 |
| 35                                                                                                                                                                                                                                                                                                                                       | 7971 01 05 |
| 36                                                                                                                                                                                                                                                                                                                                       | 8318 45 21 |
| 37                                                                                                                                                                                                                                                                                                                                       | 4672 40 04 |
| 38                                                                                                                                                                                                                                                                                                                                       | 8318 45 24 |
| 39                                                                                                                                                                                                                                                                                                                                       | 6568 10 07 |
| 40                                                                                                                                                                                                                                                                                                                                       | 8188 03 97 |
| 41                                                                                                                                                                                                                                                                                                                                       | 7651 11 09 |
| Pos.                                                                                                                                                                                                                                                                                                                                     |            |
| 500                                                                                                                                                                                                                                                                                                                                      |            |
| 501                                                                                                                                                                                                                                                                                                                                      |            |
| 502                                                                                                                                                                                                                                                                                                                                      |            |
| 503                                                                                                                                                                                                                                                                                                                                      |            |
| 504                                                                                                                                                                                                                                                                                                                                      |            |
| 505                                                                                                                                                                                                                                                                                                                                      |            |
| 506                                                                                                                                                                                                                                                                                                                                      |            |
| 507                                                                                                                                                                                                                                                                                                                                      |            |
| 508                                                                                                                                                                                                                                                                                                                                      |            |
| 509                                                                                                                                                                                                                                                                                                                                      |            |
| 510                                                                                                                                                                                                                                                                                                                                      |            |
| 511                                                                                                                                                                                                                                                                                                                                      |            |
| 512                                                                                                                                                                                                                                                                                                                                      |            |
| 513                                                                                                                                                                                                                                                                                                                                      |            |
| 514                                                                                                                                                                                                                                                                                                                                      |            |
| 515                                                                                                                                                                                                                                                                                                                                      |            |
| 516                                                                                                                                                                                                                                                                                                                                      |            |
| 517                                                                                                                                                                                                                                                                                                                                      |            |
| 518                                                                                                                                                                                                                                                                                                                                      |            |
| 519                                                                                                                                                                                                                                                                                                                                      |            |
| 520                                                                                                                                                                                                                                                                                                                                      |            |
| <p>Die Teile mit Pos. Nr. 500 ... 520 sind nur während der Fertigungsperiode des Gerätes verfügbar.</p> <p>The parts numbered from 500 to 520 are available only during the manufacturing period of the unit.</p> <p>Les pièces avec numéro de position 500 ... 520 sont uniquement à disposition pendant la période de fabrication.</p> |            |





|            |             |            |
|------------|-------------|------------|
| U 101, 201 | CD 4066 MOS | 3772 02 75 |
| U 102, 202 | LM 1011 N   | 3771 41 21 |
| U 801      | 74 LS 174 N | 3771 40 01 |



|                                                                                                                                                                                              |           |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|
| Q 151, 152, 251, 252                                                                                                                                                                         | BC 548 C  | 3614 13 25 |
| Q 153, 253                                                                                                                                                                                   | BC 558 C  | 3614 20 25 |
| Q 301, 302, 352, 353, 355, 356,<br>401, 402, 452, 453, 455, 456,<br>501, 505, 601, 605, 701, 702,<br>802... 807, 901... 906, 909, 913,<br>919, 920, 923, 926, 927, 929...<br>931, 1181, 1281 | BC 547 B  | 3614 12 12 |
| Q 351, 451, 502, 602                                                                                                                                                                         | BC 651 DS | 3614 49 31 |
| Q 354, 454, 901, 907, 908, 910,<br>911, 912, 921, 924, 928                                                                                                                                   | BC 557 B  | 3614 19 24 |
| Q 503, 504, 603, 604                                                                                                                                                                         | BC 559 B  | 3614 38 68 |
| Q 506, 606                                                                                                                                                                                   | BC 549 C  | 3614 14 13 |
| Q 651                                                                                                                                                                                        | BC 486 A  | 3614 49 34 |
| Q 652, 653, 922, 925                                                                                                                                                                         | MPSU 01   | 3614 49 32 |
| Q 703                                                                                                                                                                                        | BD 176    | 3616 14 20 |
| Q 801, 1182                                                                                                                                                                                  | BC 557 B  | 3614 19 24 |
| Q 914... 917, 1183                                                                                                                                                                           | BC 485 B  | 3614 49 33 |
| Q 918                                                                                                                                                                                        | BD 175    | 3616 15 20 |



|                                                                                                                                                                                      |            |            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|
| CR 101, 151, 152, 201, 251, 252,<br>301, 302, 351... 354, 401, 402,<br>451... 454, 703, 704, 803... 810,<br>901... 919, 921... 923, 926...<br>928, 931... 933, 1181... 1183,<br>1185 | 1 N 4148   | 3656 08 10 |
| CR 701                                                                                                                                                                               | 1 N 5245 B | 3656 28 32 |
| CR 702                                                                                                                                                                               | WO 005     | 3674 01 51 |
| CR 801                                                                                                                                                                               | 1 N 60     | 3662 08 01 |
| CR 802                                                                                                                                                                               | SLP 132 B  | 3681 16 51 |
| CR 920                                                                                                                                                                               | 1 N 5232 B | 3653 17 24 |
| CR 924, 925, 929, 930, 934... 936,<br>1184                                                                                                                                           | 1 N 4004   | 3657 11 02 |



|                      |       |            |
|----------------------|-------|------------|
| R 111                | 20 k  | 3112 97 21 |
| R 112                | 25 k  | 3112 97 20 |
| R 113                | 10 k  | 3112 97 19 |
| R 114, 214           | 10 k  | 3111 80 44 |
| R 308, 408           | 100 k | 3111 80 30 |
| R 374, 375, 474, 475 | 2,2 k | 3111 52 27 |
| R 377, 477           | 47 k  | 3111 48 60 |
| R 378, 379, 478, 479 | 22 k  | 3111 50 68 |
| R 383, 483           | 100 k | 3111 80 30 |



|                                                                                                 |              |               |            |
|-------------------------------------------------------------------------------------------------|--------------|---------------|------------|
| C 101, 155, 201, 502, 505, 602,<br>605, 1182, 1183                                              | 220 $\mu$ F  | 16 V          | 3422 26 50 |
| C 102, 202                                                                                      | 1 $\mu$ F    | 50 V          | 3422 08 14 |
| C 103, 203, 354, 359, 454, 459                                                                  | 22 $\mu$ F   | 16 V          | 3422 30 08 |
| C 107... 110, 114, 116, 151, 207...<br>210, 214, 216, 251, 351, 353, 361,<br>451, 453, 461, 501 | 10 $\mu$ F   | 16 V          | 3422 09 98 |
| C 152, 154, 252, 254, 301, 701, 704                                                             | 100 $\mu$ F  | 16 V          | 3422 27 84 |
| C 302, 402, 702, 901, 906... 908,<br>911                                                        | 10 $\mu$ F   | 35 V          | 3422 09 09 |
| C 303, 403, 904                                                                                 | 47 $\mu$ F   | 50 V          | 3422 58 25 |
| C 304, 404, 801, 802, 902, 903                                                                  | 2,2 $\mu$ F  | 50 V miniatur | 3422 85 09 |
| C 355, 358, 360, 370, 455, 458,<br>460, 470                                                     | 2,2 $\mu$ F  | 25 V miniatur | 3422 86 57 |
| C 504, 604                                                                                      | 1000 $\mu$ F | 10 V miniatur | 3422 85 40 |
| C 508, 608, 1184                                                                                | 47 $\mu$ F   | 16 V          | 3422 30 11 |
| C 654                                                                                           | 100 $\mu$ F  | 25 V          | 3422 86 34 |
| C 705                                                                                           | 4700 $\mu$ F | 25 V          | 3422 86 62 |
| C 909                                                                                           | 100 $\mu$ F  | 10 V          | 3422 23 84 |
| C 910, 912                                                                                      | 22 $\mu$ F   | 50 V          | 3422 58 82 |
| C 1181                                                                                          | 0,47 $\mu$ F | 50 V          | 3422 61 02 |



|                      |           |            |
|----------------------|-----------|------------|
| L 101, 201, 501, 601 | 33 mH     | 4543 96 66 |
| L 102, 202, 351, 451 | 36 mH     | 4543 94 66 |
| L 352, 353, 452, 453 | 12 mH     | 4543 98 09 |
| T 651                | BIAS OSC. | 4552 92 23 |
| K 901                | Relais    | 4124 10 27 |



|                                            |            |
|--------------------------------------------|------------|
| Taster/Key switch/<br>Commutateur à touche | 4115 86 34 |
|--------------------------------------------|------------|

#### GEDR. PLATTE / PCB / CIRCUIT IMPRIME

|                                     |            |
|-------------------------------------|------------|
| Hauptplatte/Main board/Centrale     | 6913 31 82 |
| Regler/Potentiometers/Potentiomètre | 6913 31 83 |
| Beleuchtung/Illumination            | 6913 31 84 |
| Function                            | 6913 31 85 |
| Muting                              | 6913 52 12 |
| Q 807                               | 6913 52 13 |