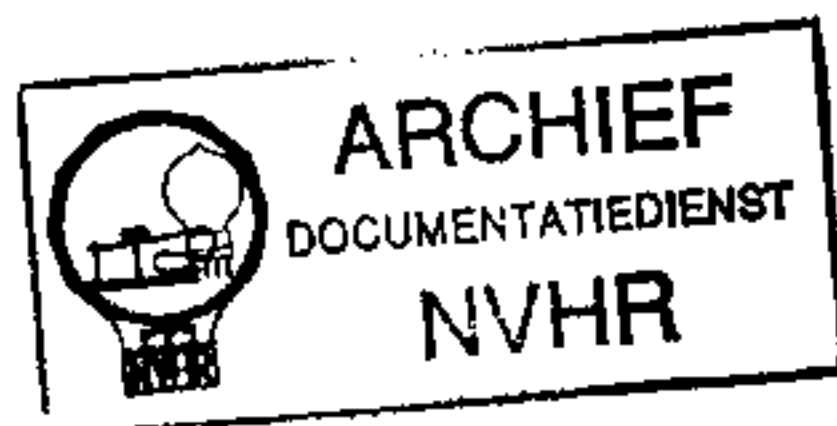


Service
Service
Service

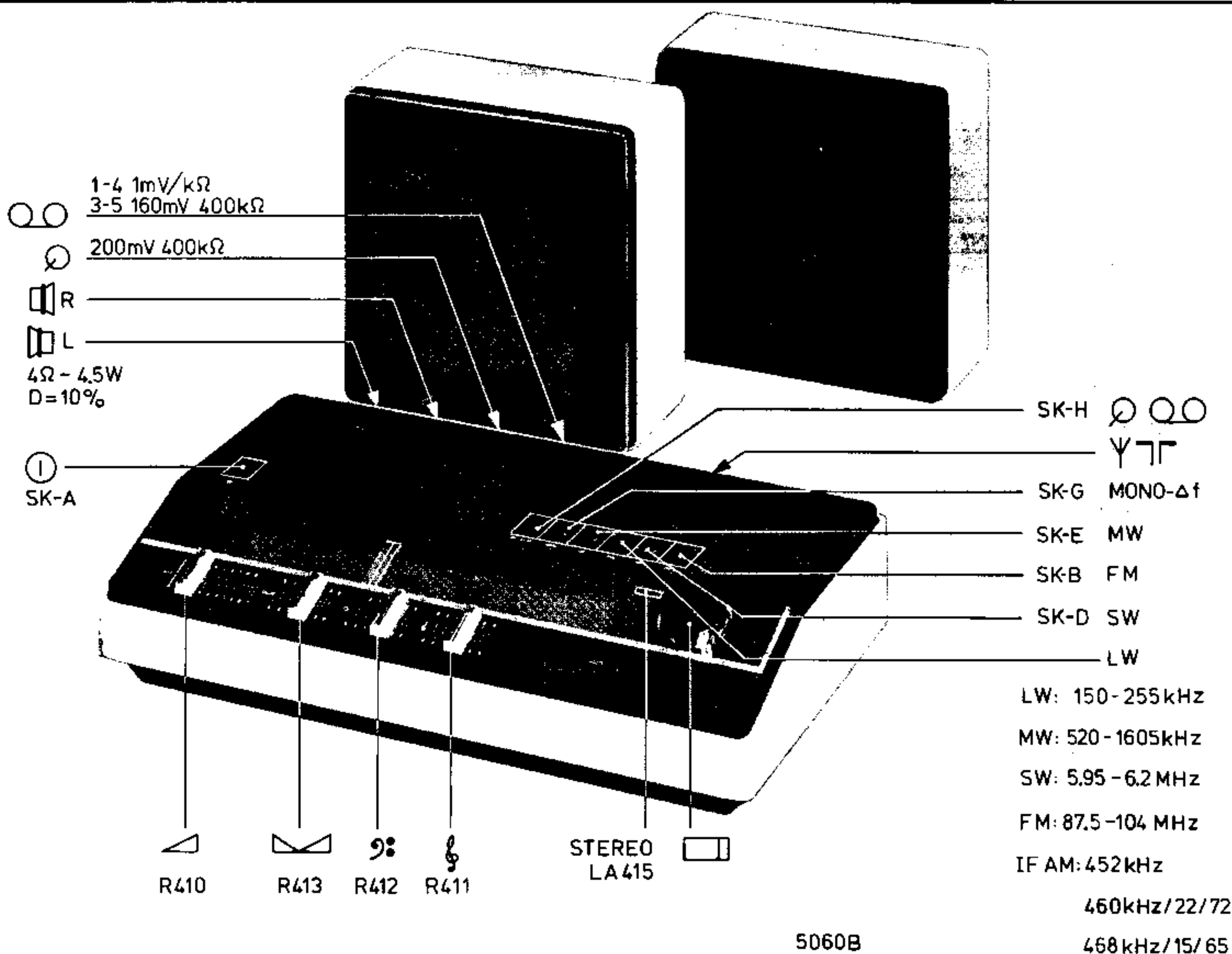
00/15/22/29/50/60
/65/72/75/79/83/89

Met dank aan www.radiomuseum-hengelo.nl

Ned. Ver. v. Historie v/d Radio

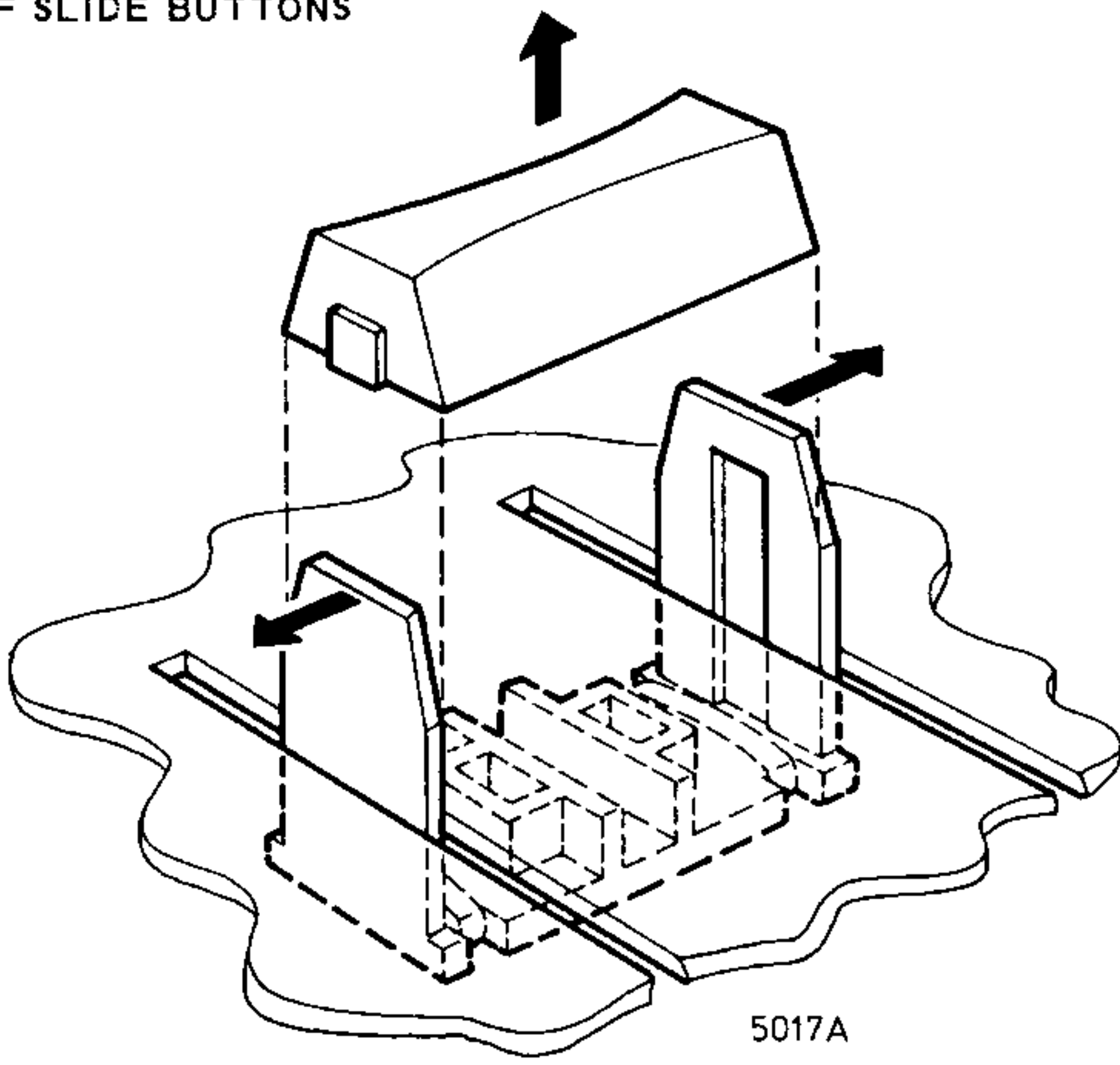


Service Manual

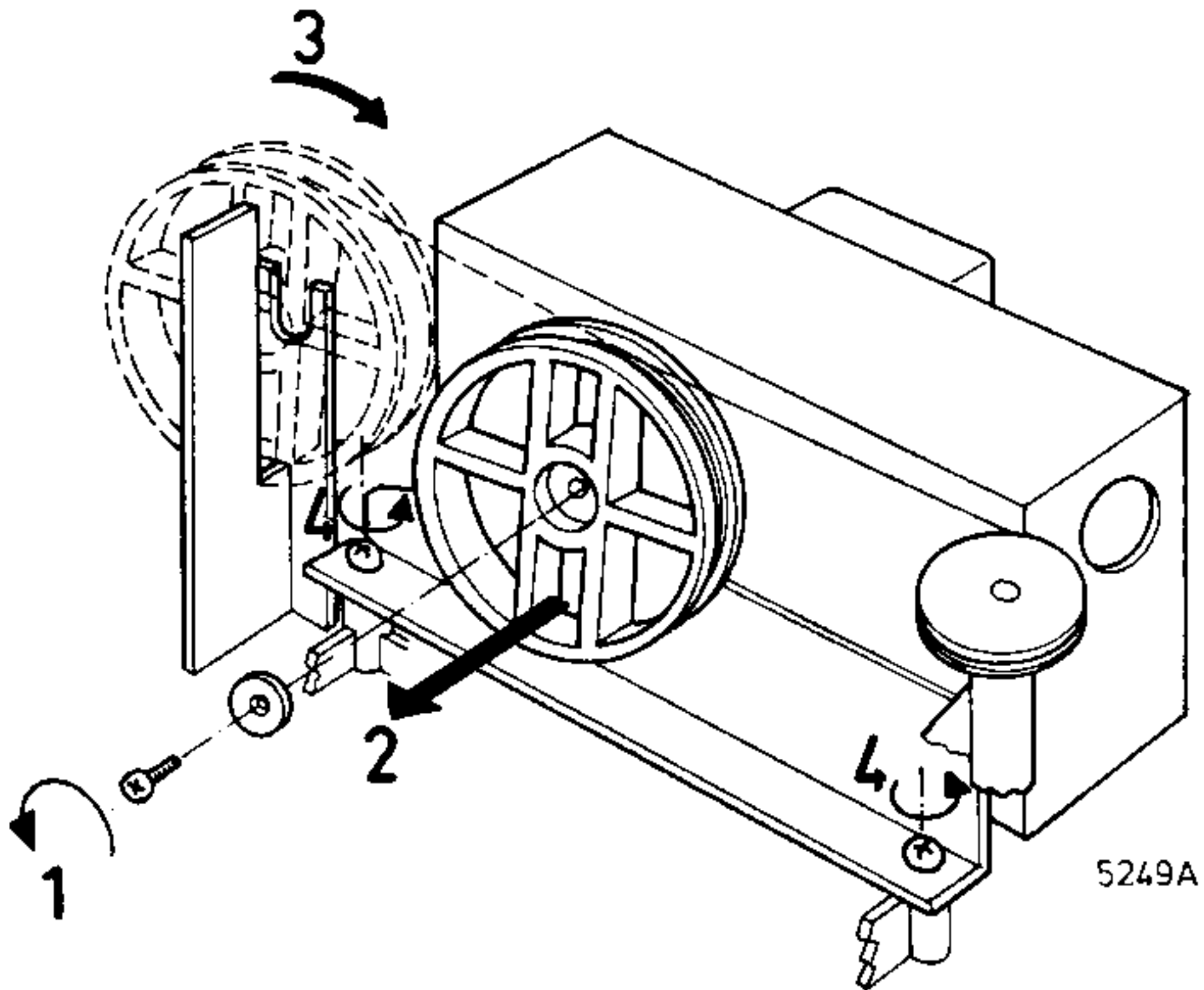


Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

REPLACEMENT OF SLIDE BUTTONS



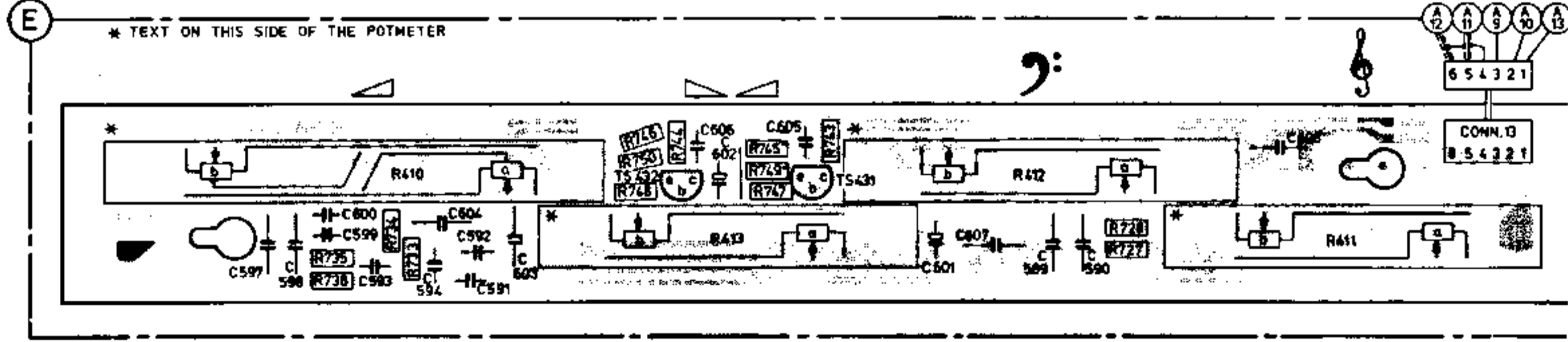
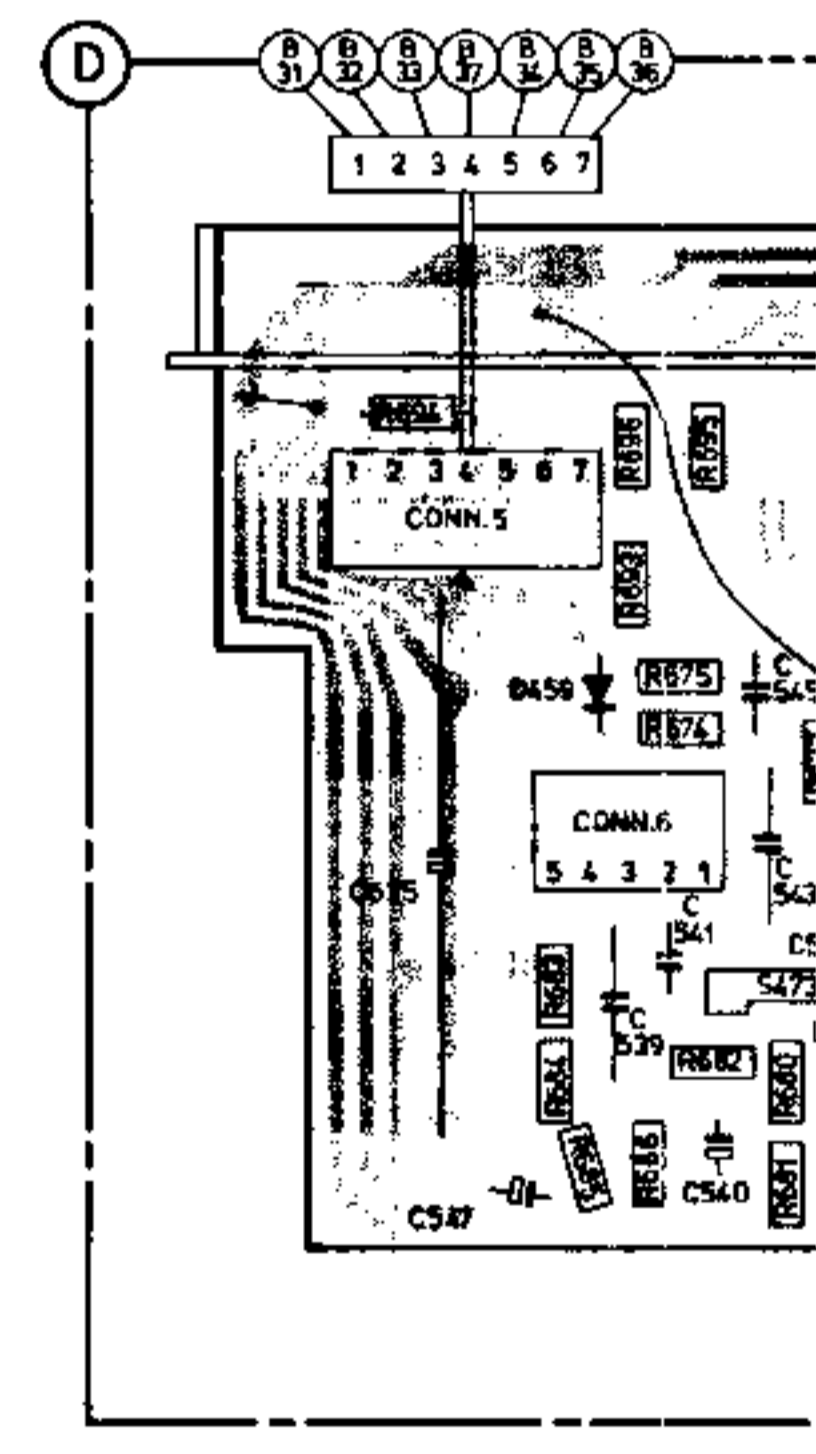
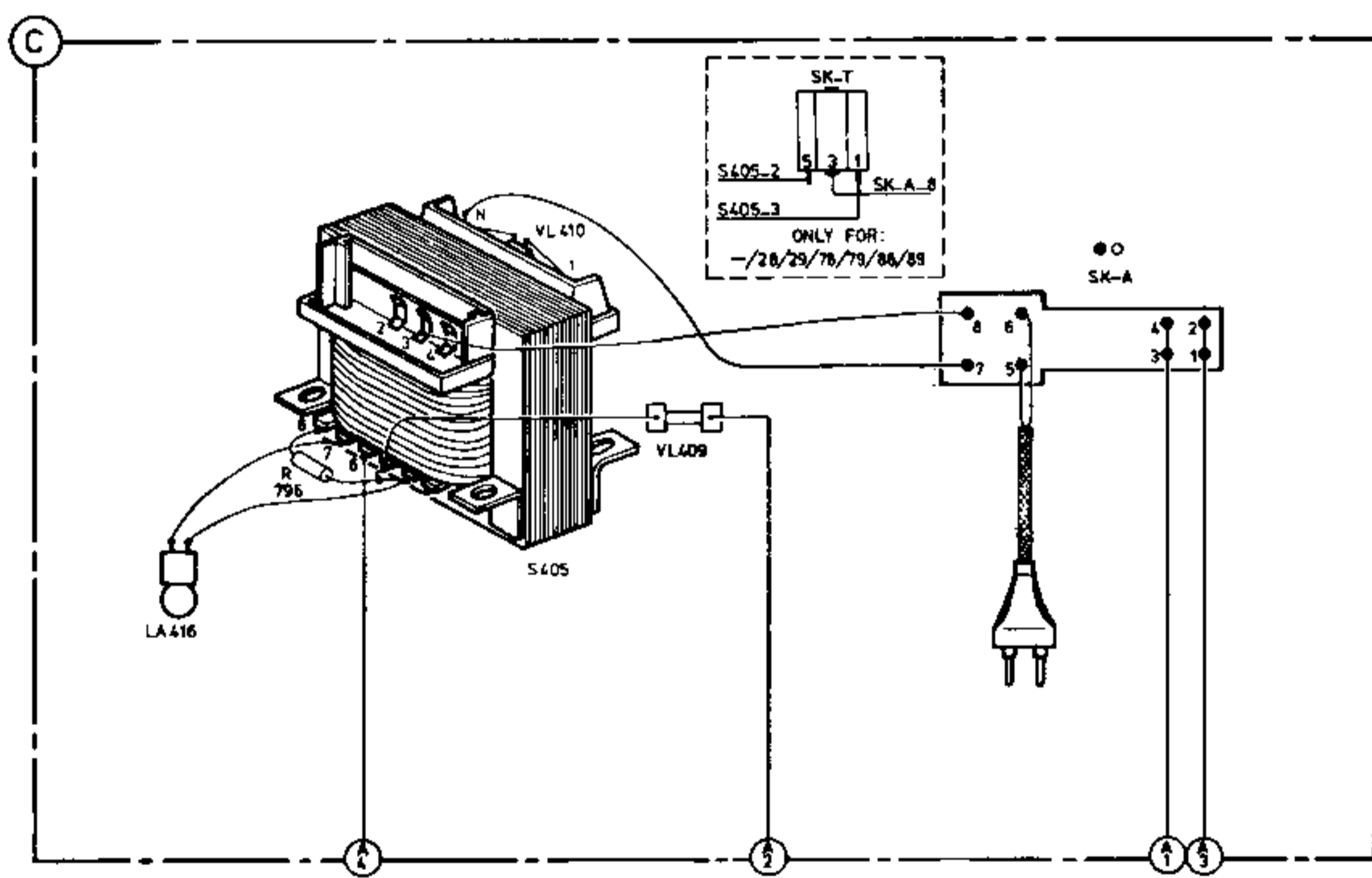
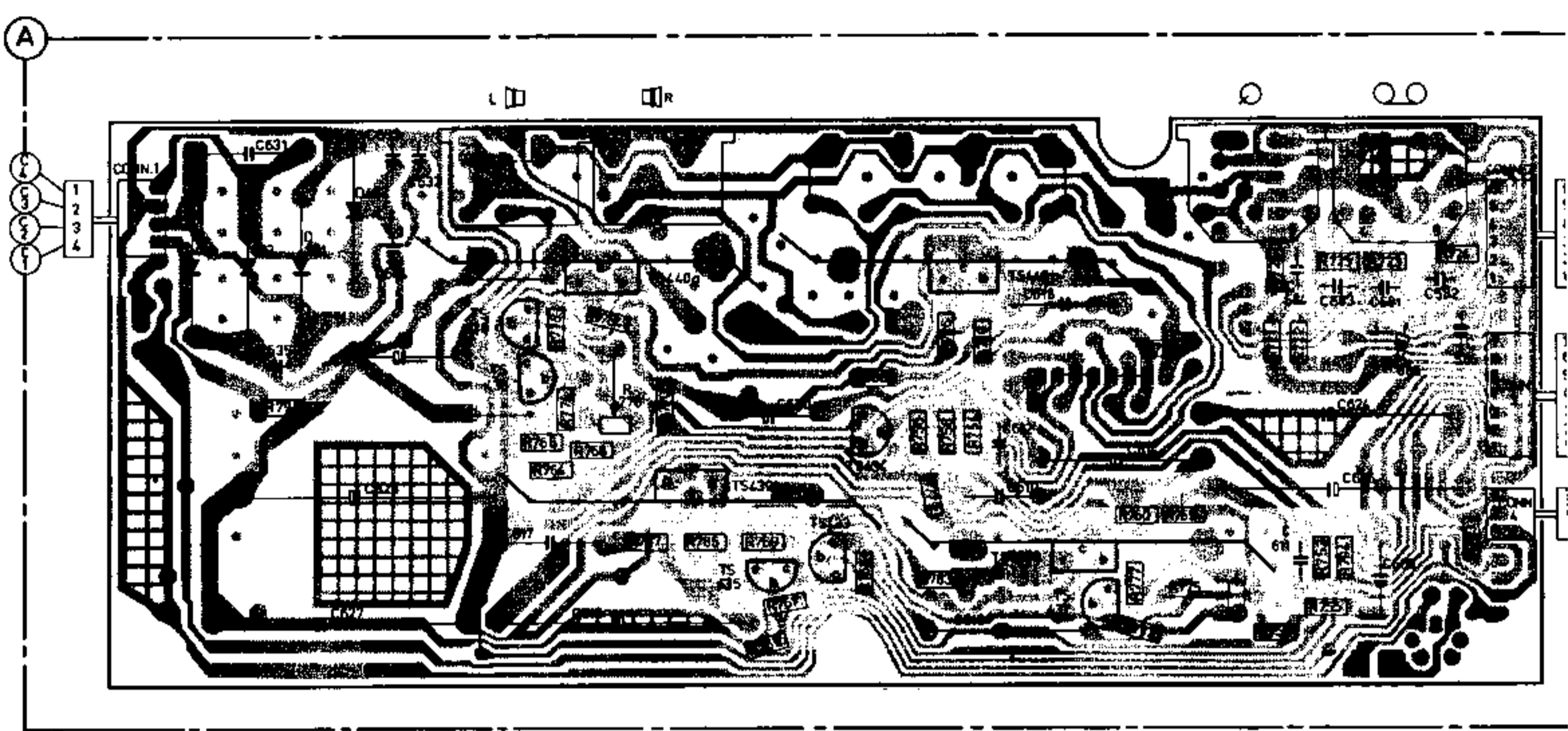
SERVICE POSITION OF VAR.CAP. DRUM



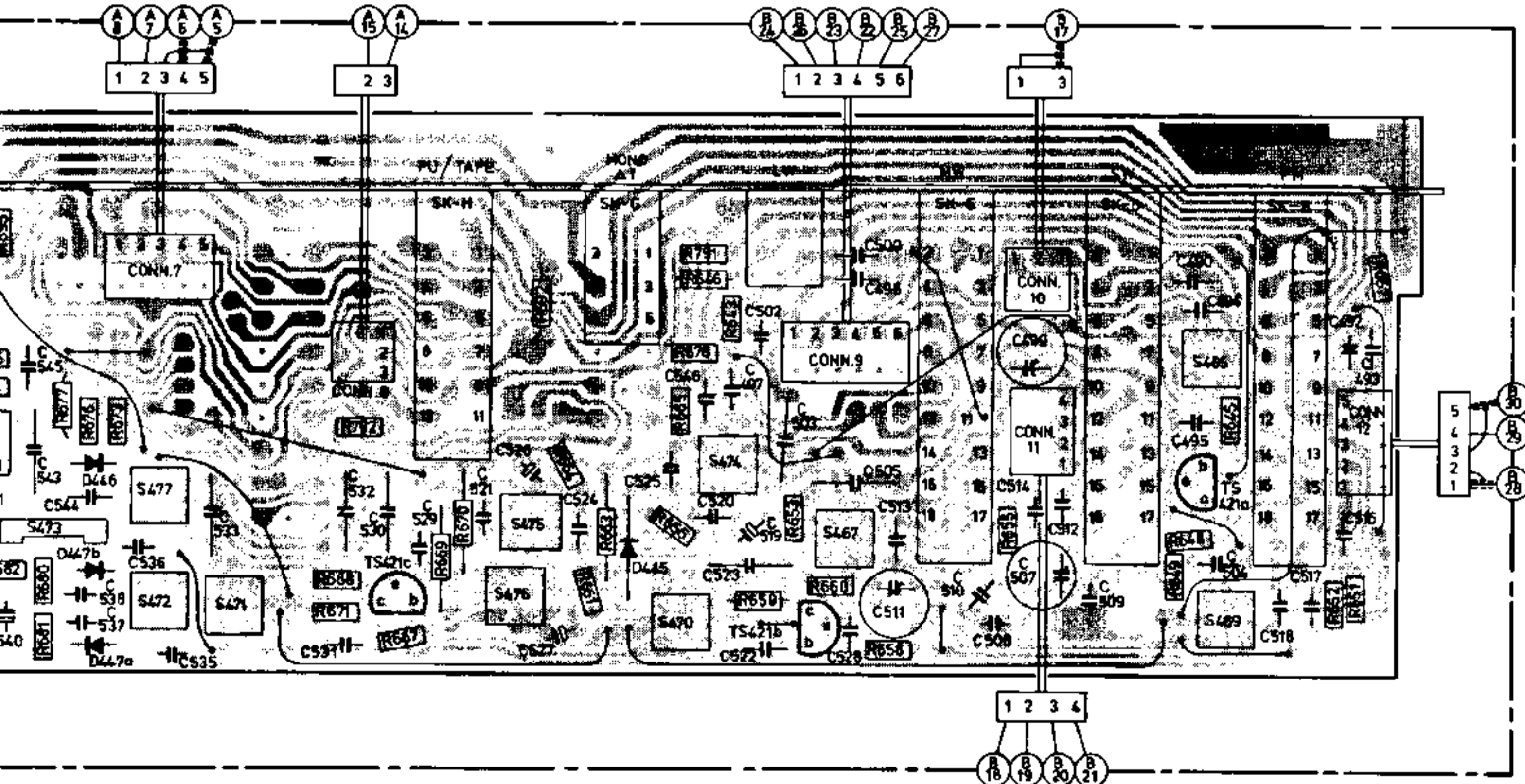
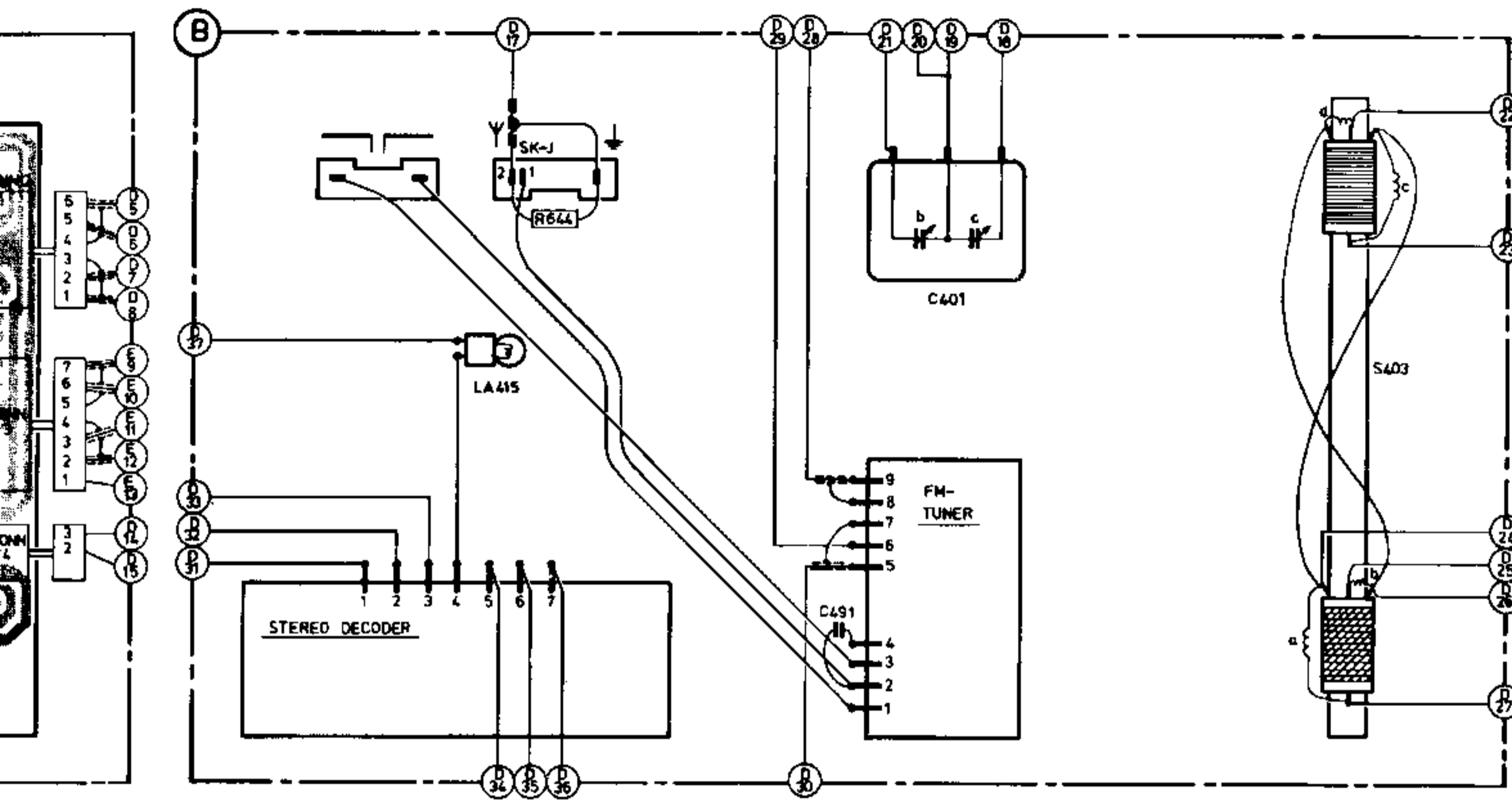
ATTENTION: REPLACEMENT OF VAR.CAP.

Keep during the replacement of the var.cap.
the pointer in the middle of the scale.

| | | | | | | | | | | | |
|-------|-------|---|-------------|---------|------------------|---|-----------------------|--------------------|---------------------|---------------------------------|---------------------------------|
| MISC. | D460 | D463 | D461 | D462 | TS438, 436 | TS440a | TS439b, 435, 433, 434 | TS440 b, 439a, 437 | D459 | S473 | |
| MISC. | LA416 | | | | S405 VL 410, 409 | | TS432 | TS431 | SK-A | | |
| C | | 631 635 | 629 | 633 632 | 617 | | 628 | 612 618 | 614 | 584 583 624 581 585 582 586 | |
| C | | | 627 628 634 | | 619 | | | 613 610 | | 611 626 609 539 541 545 543 541 | |
| C | | 597 596 600 599 593 594 604 592 591 603 | | | | 606 602 | 605 | 601 607 | 599 590 | 608 | 625 547 540 538 537 |
| R | | 795 796 | | | | 778 774 784 770 | | 788 | 756 786 754 780 789 | 760 790 758 | 728 722 725 723 693 724 |
| R | | | | | | 766 764 768 776 787 785 769 765 767 763 | | 783 778 758 | | 773 777 775 | 721 757 755 753 794 695 696 793 |
| R | | | 410 733-736 | | | 413 713-790 | | 412 | 728 727 | | 411 694 680-688 673-677 |

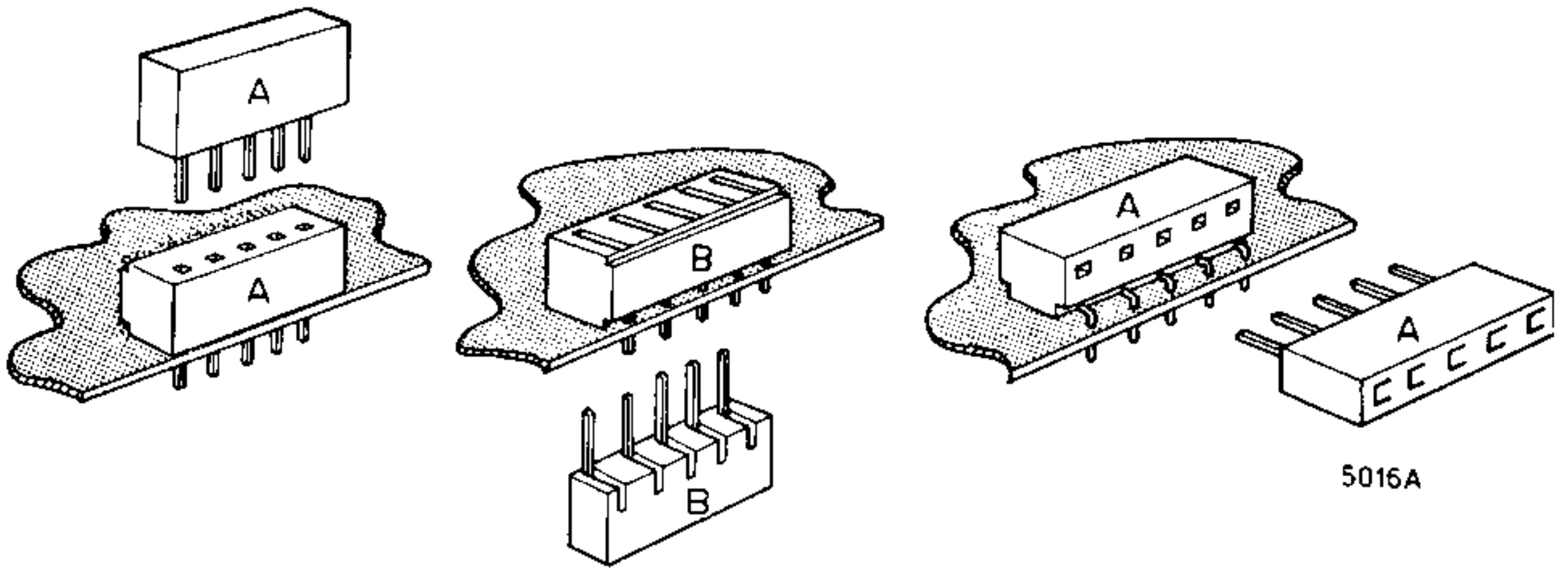


| | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|---------------------|-------------------------|-----------------|------|---------|-----|
| D44E S477, 472, 471 | LA 415 SK-H, J | 5K-G 0445 | S467 | SK-E | SK-D | TS421a | SK-B | S403 | M5C |
| S473 D447ab | TS421c | S476, 475 | S470, 476 | TS421b | | S465, 468 | | | M5C |
| | | | | | 500 498 401 | | | | C |
| S45 S43 S44 | S32 S30 S29 S21 | S26 | S24 | S25 S46 497 502 503 | 481 505 513 514 499 512 | 480 494 495 | | 482 483 | C |
| S38 S37 S36 S35 S33 | S31 | S27 | | S20 S23 S22 S19 | S28 511 510 508 507 509 | S04 S18 S17 S16 | | | C |
| | | 644 | 791 | | | | | | R |
| 3 | 792 | 692 | 646 678 643 | | | 648 645 | | 657 | R |
| S77 | 667+671 | 664 661 663 | 656 663 659 653 660 | 658 | 655 | 649 | | 652 651 | R |

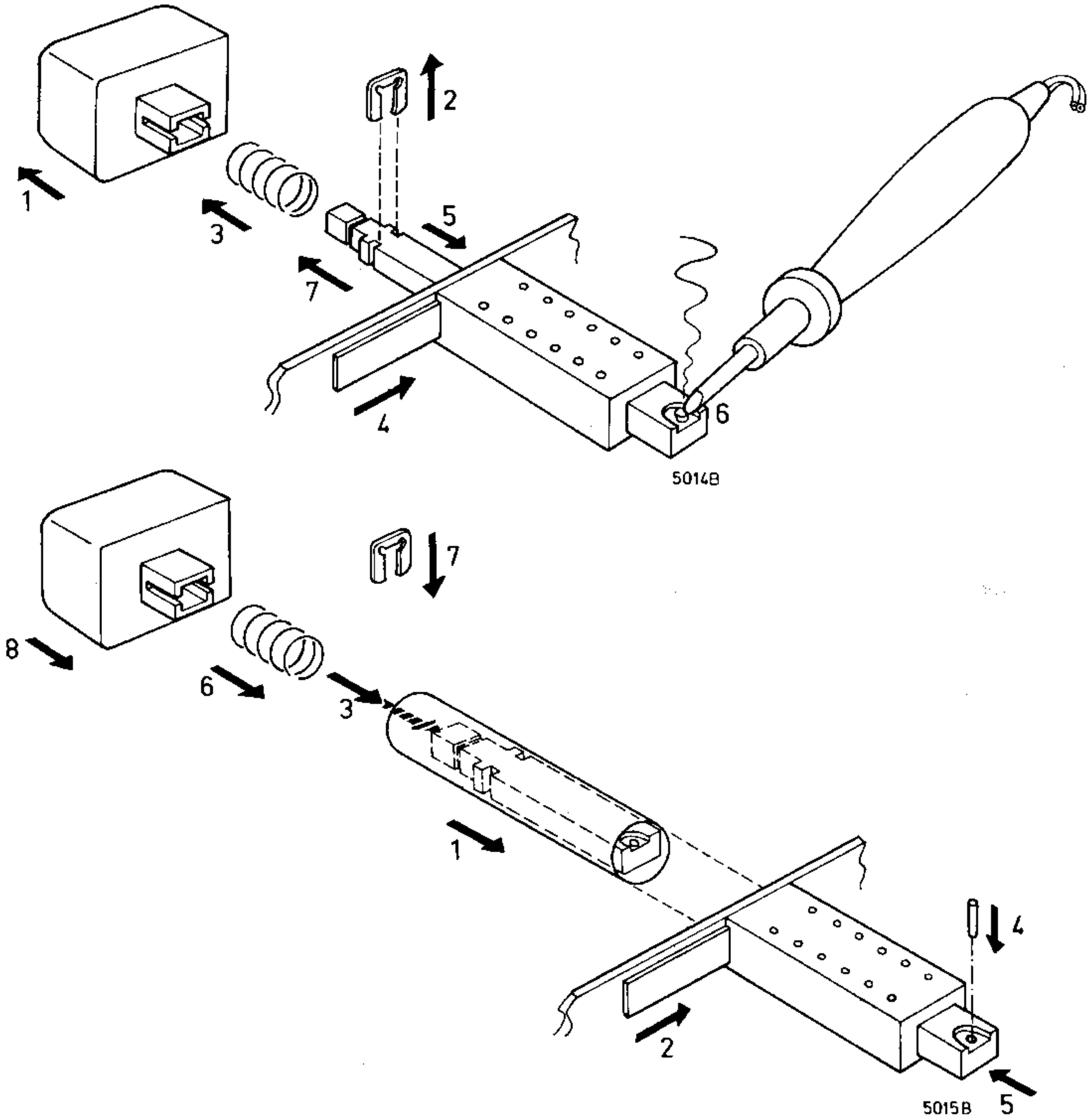


THE CONNECTORS 1-13 SHOULD BE FITTED SO THAT THE SMOOTH SURFACES ARE OPPOSITE EACH OTHER.

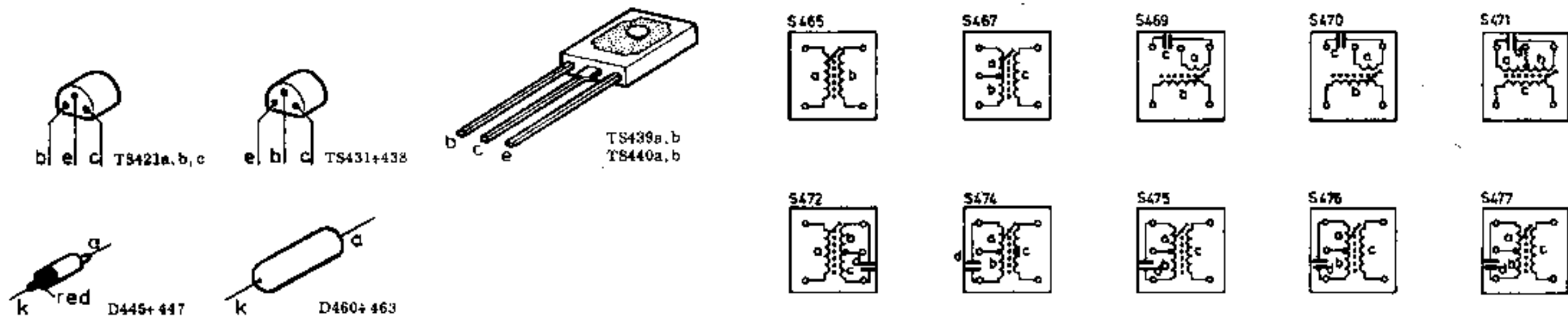
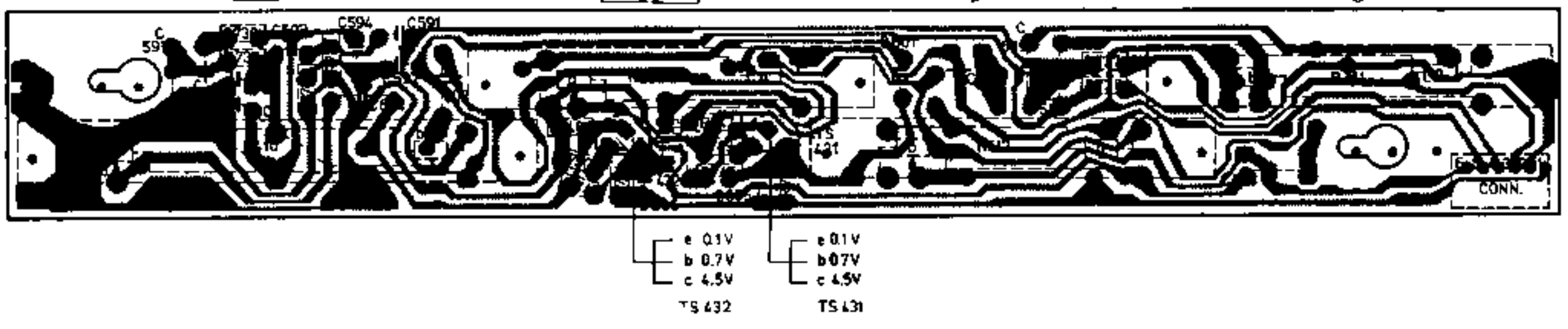
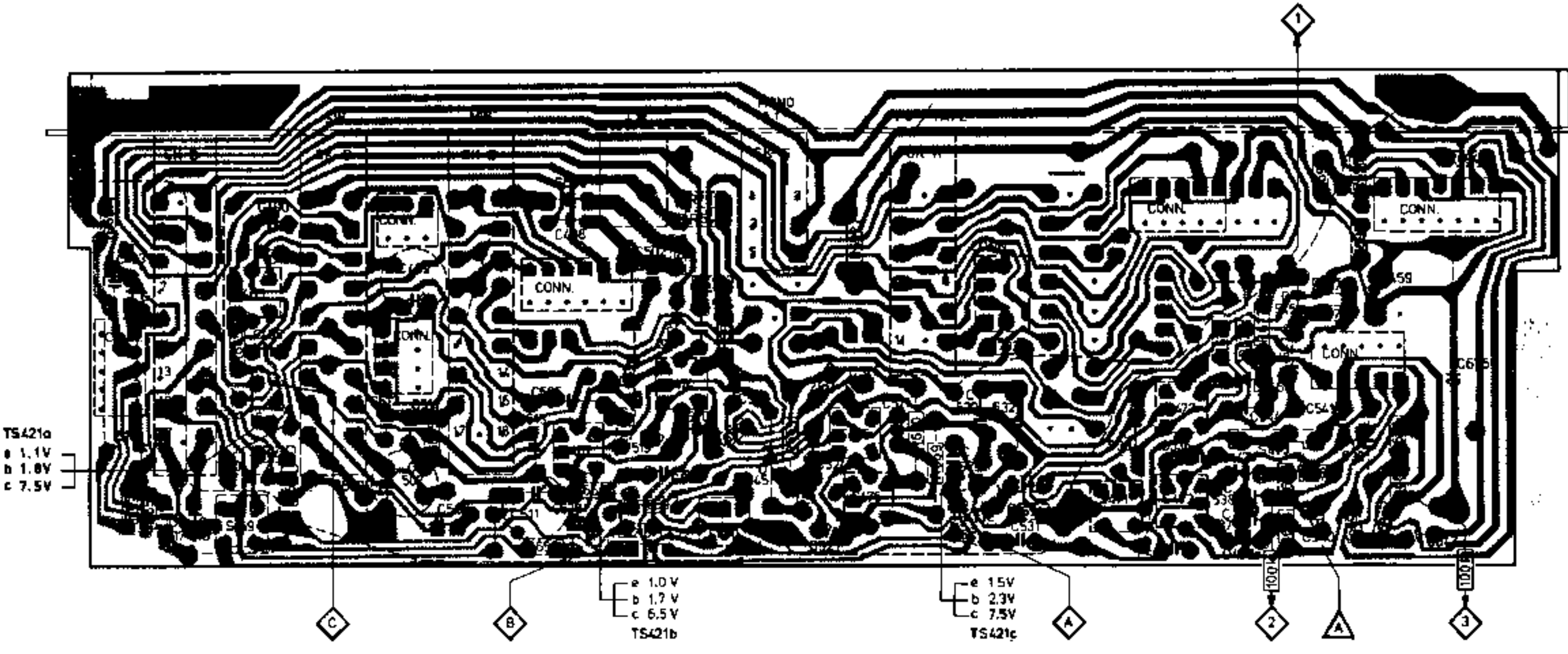
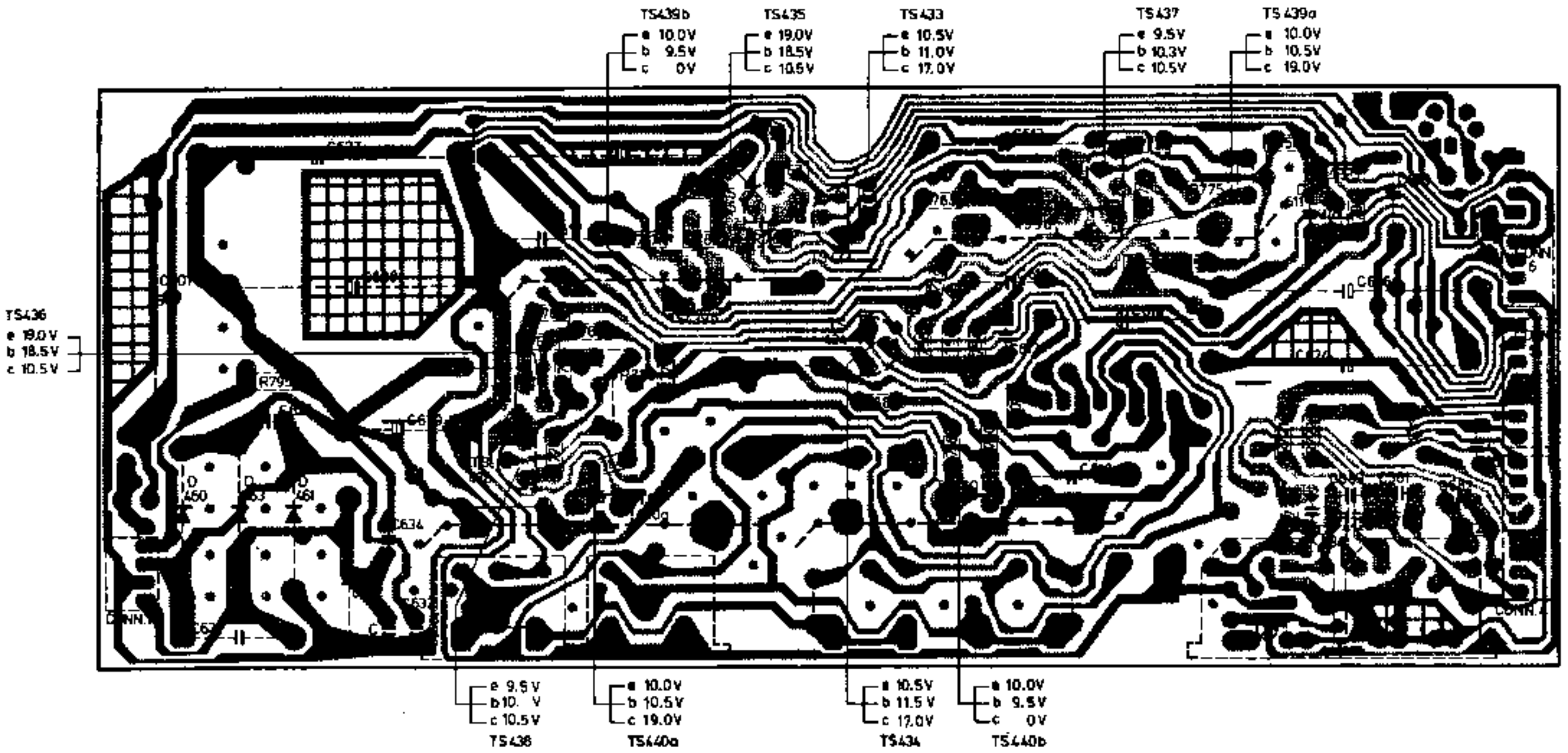
POSITIONING OF CONNECTORS



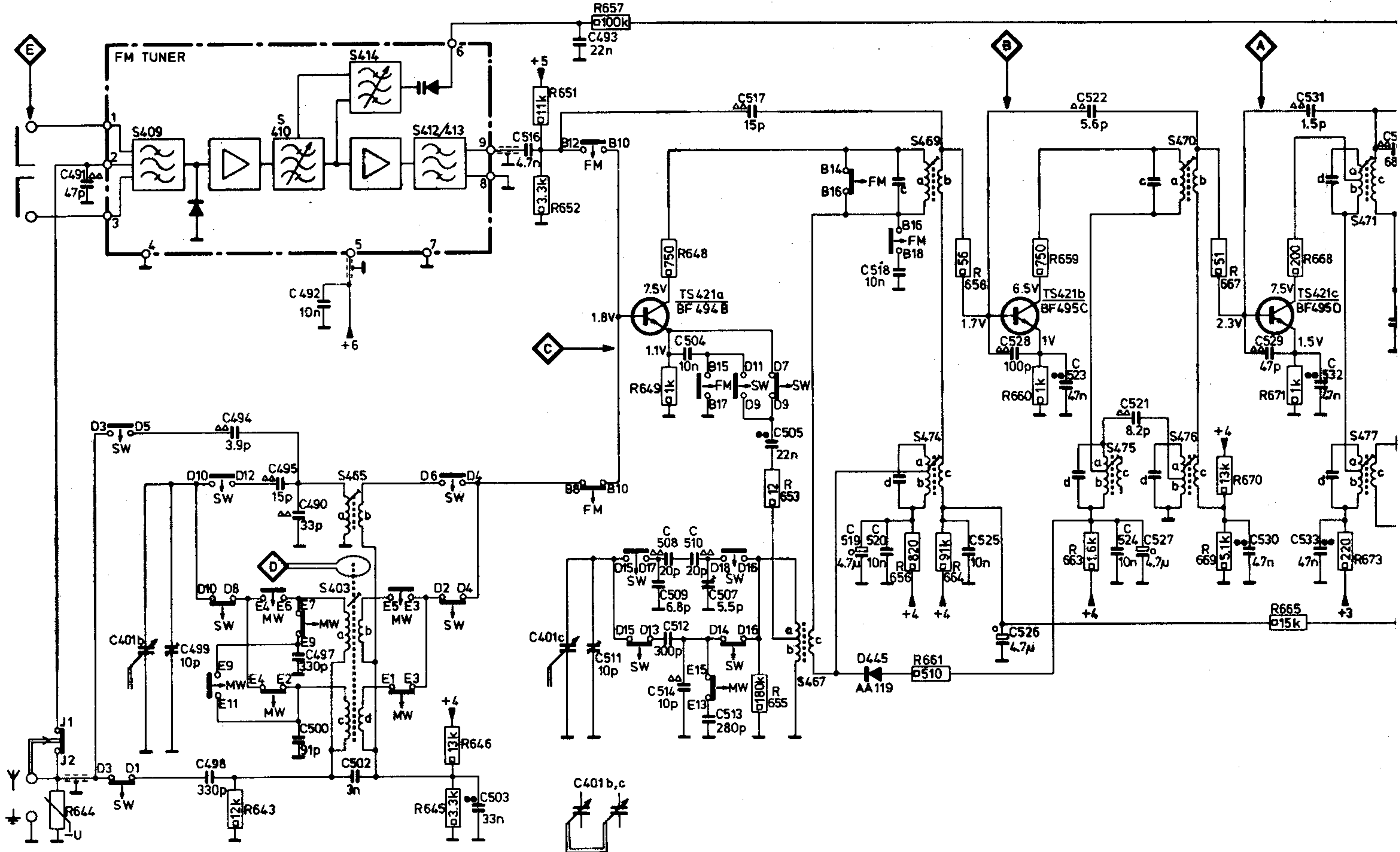
REPLACEMENT OF SLIDES OF WAVE RANGE SWITCHES



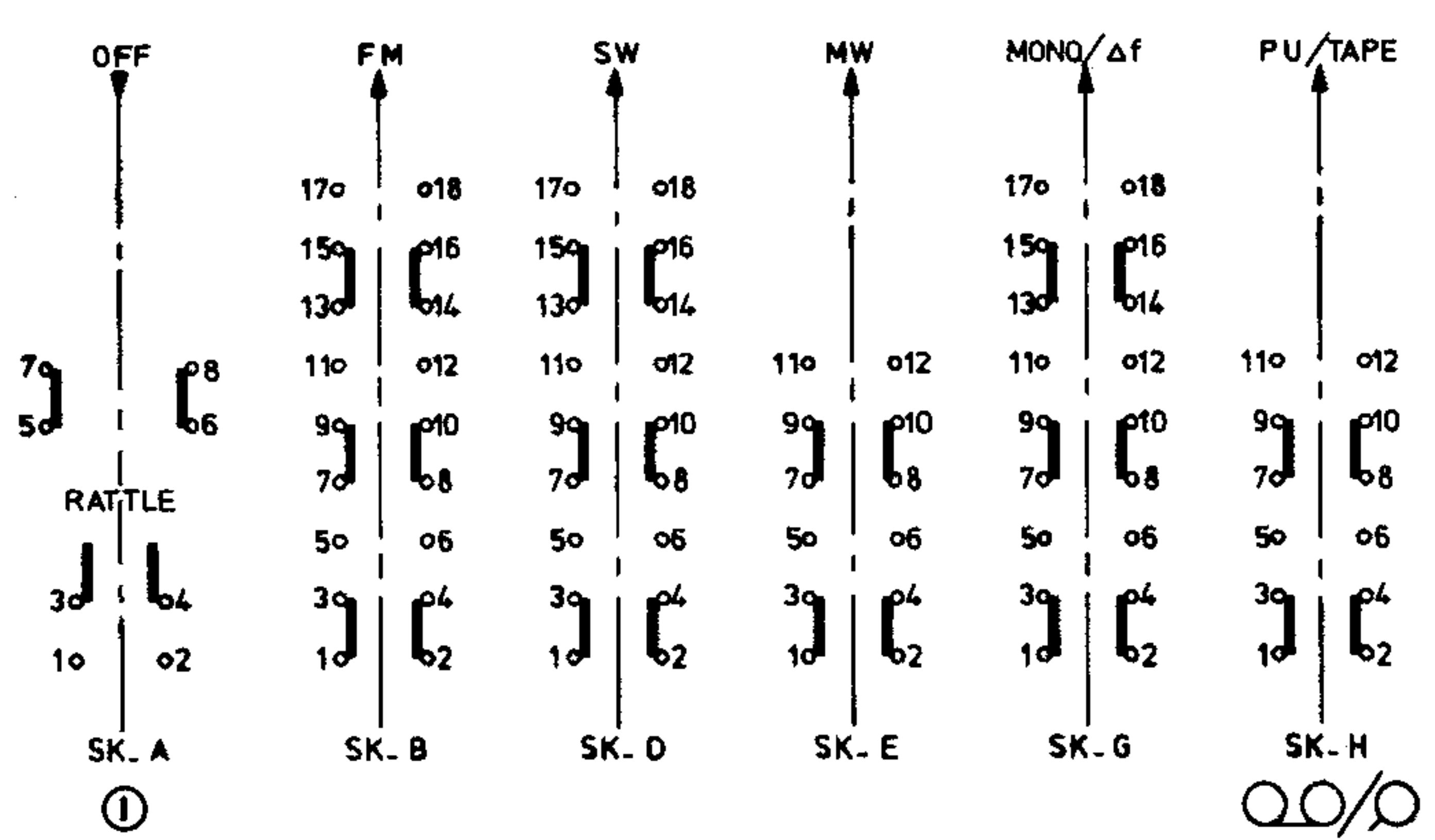
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|---------|--------|----------|------------|-----------|-----------|---------------|-----------|---------------|-------------|----------|--------|-----------|--------------|--------------|---------|------|---------|-----|-----|-----|-----|------|-----|-----|-----|------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| MISC | CONN.1 | D460 | D463 | D461 | D462 | TS436,436 | TS440a,TS439b | TS435,432 | TS433,434,431 | 440b,TS439e | TS437 | CONN.2 | CONN.3,20 | S473 | CONN.4,5,6,7 | | | | | | | | | | | | | | | | | | | | | | | |
| MISC | CONN.12 | TS421a | S465,469 | CONN.13,14 | CONN.15,8 | S467 | TS421b | S474,470 | D445 | CONN.16 | S475,476 | TS421c | CONN.7 | S471,472,477 | D446,447a,b | CONN.21 | D459 | CONN.19 | | | | | | | | | | | | | | | | | | | | |
| C | 906 | 907 | 631 | 635 | 627 | 628 | 633 | 634 | 632 | 629 | 617 | 619 | 497 | 546 | 620 | 613 | 610 | 612 | 618 | 614 | 611 | 624 | 626 | 609 | 581 | 585 | 582 | 586 | | | | | | | | | | |
| C | 493 | 516 | 482 | 597 | 490 | 494 | 495 | 593 | 499 | 507 | 508 | 510 | 511 | 500 | 498 | 503 | 502 | 522 | 523 | 525 | 605 | 526 | 521 | 530 | 532 | 536 | 538 | 545 | 543 | 541 | 539 | 625 | | | | | | |
| C | 517 | 518 | 598 | 504 | 599 | 600 | 509 | 512 | 514 | 504 | 592 | 604 | 591 | 603 | 513 | 505 | 528 | 519 | 606 | 602 | 520 | 527 | 524 | 601 | 607 | 529 | 531 | 589 | 590 | 533 | 535 | 608 | 537 | 544 | 540 | 547 | | |
| R | | | | 795 | | | | 786 | 764 | 774 | 768 | 776 | 787 | 785 | 765 | 787 | 763 | 788 | 783 | 779 | 758 | 754 | 1017 | 773 | 777 | 760 | 1018 | 759 | 1016 | 775 | 757 | 755 | 753 | 794 | 926 | 925 | 799 | 793 |
| R | 657 | 645 | 648 | 410 | 655 | 778 | 784 | 770 | 643 | 791 | 678 | 646 | 756 | 786 | 780 | 1015 | 668 | 721 | 722 | 411 | 723 | 724 | | | | | | | | | | | | | | | | |
| R | 651 | 652 | 649 | 736 | 735 | 734 | 733 | 658 | 660 | 653 | 659 | 413 | 763 | 750 | 685 | 656 | 663 | 661 | 664 | 692 | 670 | 669 | 427 | 792 | 667 | 671 | 727 | 728 | 673 | 677 | 680 | 681 | 693 | 696 | 683 | 686 | | |



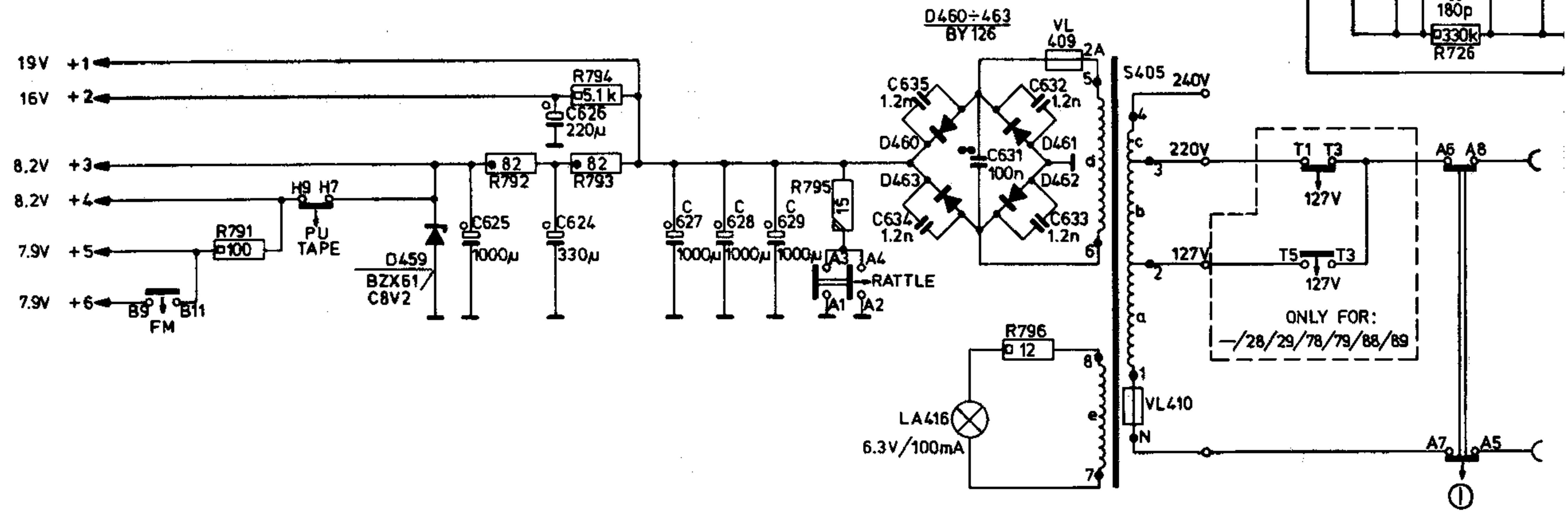
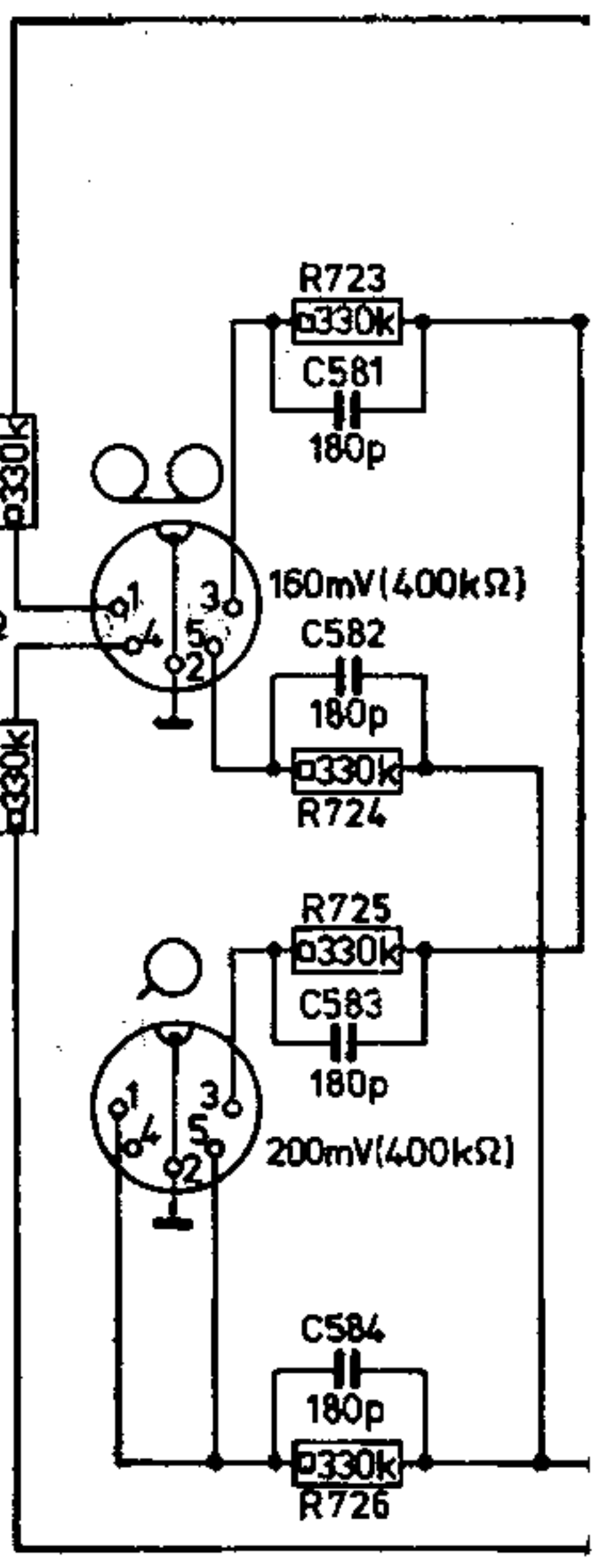
| | | | | | | | | | |
|-------|-------|-------------------------|-----------|------|----------------|-------------------------|------------------|---------------------|-------------------|
| C | 491. | 492. | 516. | 493. | 504. 510. 517. | 518. | 528. | 523. 522. | 529. 531. 532. |
| | 401b. | 494. 495. 490. 497+500. | 502. | 503. | 401c. | 508. 509. 511+514. 507. | 505. | 519. 520. | 525. 526. |
| | | | | | | 624+629. | | 631+635. | 581+584. |
| R | 644. | 643. | 645. 646. | | 655. 653. | 656. 661. 664. | | 658. 660. 659. | 667. 671. 668. |
| | | | 791. | | 792. 794. 793. | | 795. | 796. | 721+726 |
| MISC. | | S465. S403. | | | TS421a. | | S469. | TS421b. | S470. |
| | | | | | | S467. D445. S474. | | S475. S476. | TS421c. S471. S47 |
| | | | D459. | | | | LA416. D460+463. | VL409. S405. VL410. | S477. |



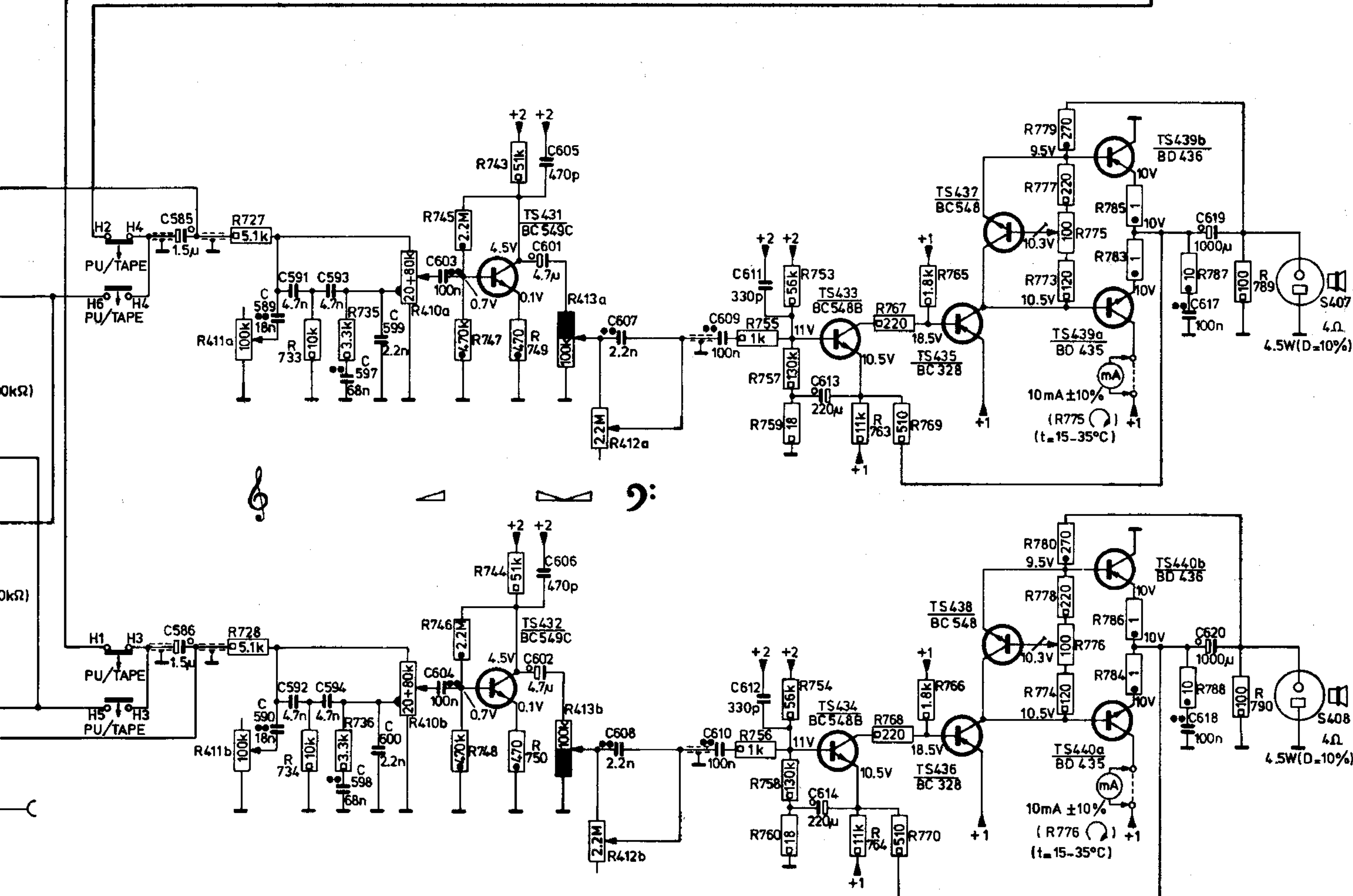
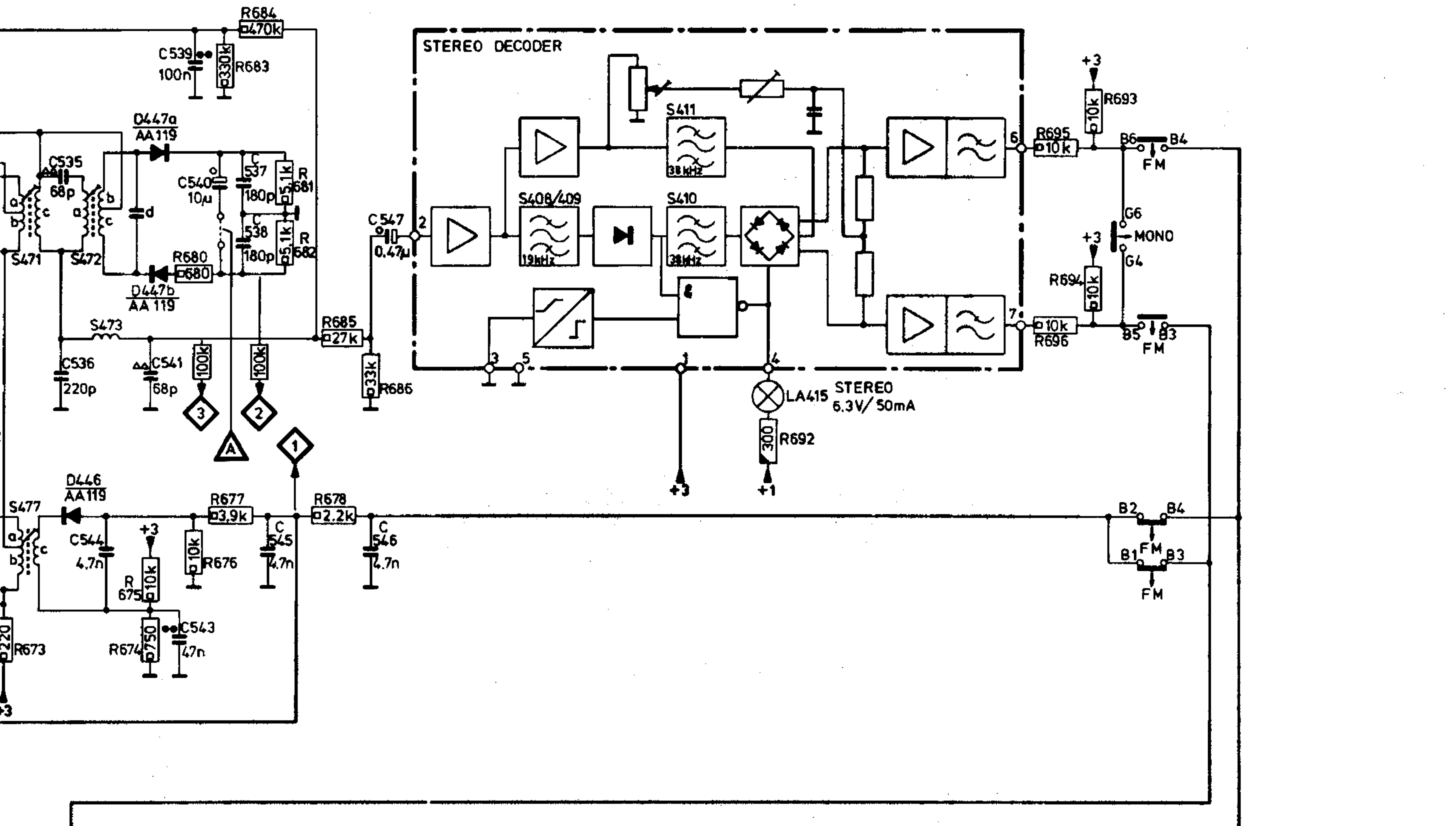
DRAWN IN POSITION LW



SK - J AERIAL



| | | | | | | | | | | | | | |
|--------------------------|---------------------------|------------------|------------------|-------------------|----------|------------|------------------|--|------------------------------|---------|------------|----------|---|
| 2. | S35+541. | 547. | | | | | | | | | | | |
| 544. | 585.543. | 589.545.591.593. | 546.597.599.603. | 601.605. | 607. | 609.611. | 613. | | | | | 617.619. | C |
| | 586. | 590. | 592.594. | 598.600.604. | 602.606. | 608. | 610.612. | 614. | | | | | |
| | | 680+686. | | | | 692. | | 693+696. | | | | | |
| 673. | 674+677.411a.727.733.678. | | 735. | 410a.745.747.743. | 749. | 413a.412a. | 755.757.759.753. | 763.767.769. | 765.779.777.773.775.785.783. | 787. | 789. | R | |
| | 411b.728.734. | | 736. | 410b.746.748.744. | 750. | 413b.412b. | 756.758.760.754. | 764.768.770.766.780.778.774.776.786.784. | 788. | 790. | | | |
| S471.S472.S473. D447a.b. | | | | | | LA 415. | | | | | | | |
| S477. D446. | TS431. | | TS432. | | TS433. | | TS435. | TS437. | TS439a. | TS439b. | S407.MISC. | | |
| | | | | | | TS434. | | TS436. | TS438. | TS440a. | TS440b. | S408 | |



| | | | | | | | |
|--|----------------------------|---------|----------------------|-------------|--|----------------------------------|--------|
| | Carbon resistor E24 series | 0,125 W | | 5 % | | Plate ceramic capacitor | 4638 E |
| | Carbon resistor E12 series | 0,25 W | < 1 MΩ > 1 MΩ | 5 % 10 % | | Flat-foil polyester capacitor | |
| | Carbon resistor E12 series | 0,5 W | < 1,5 MΩ > 1,5 MΩ | 5 % 10 % | | Miniature electrolytic capacitor | |
| | Carbon resistor E12 series | 1 W | < 2,2 MΩ > 2,2 MΩ | 5 % 10 % | | | |
| | | | | | | | |

| SK.... | | | | | | | | | | |
|----------------------|---|--|--------|------------------|--------------|--|--|--|-----------------------|-----------------------|
| MW (520-1605 kHz) | 452 kHz via 33 nF Δf 200 kHz (50 Hz) /72 460 kHz /65 468 kHz | | | S474,476 | S477 | | | | | |
| | | | | | S476 | | | | | |
| | | | | | S475 | | | | | |
| | | | | | S474 | | | | | |
| LW (150-255 kHz) | 147 kHz | | | | S467 | | | | | |
| | 155 kHz | | | | S403c-d | | | | | |
| MW (520-1605 kHz) | 1635 kHz | | | | C511 | | | | | |
| | 550 kHz | | | | S403a-b | | | | | |
| | 1500 kHz | | | | C499 | | | | | |
| SW (5.95-6.2 MHz) | 6.075 MHz | | | | C507 S465 | | | | | |
| FM (87.5-104 MHz) | 10.7 MHz via 5 nF Δf 200 kHz (50 Hz) | | | S469,472 S413 | S471 | | | | | |
| | | | | | S470 | | | | | |
| | | | | | S469 | | | | | |
| | 96 MHz via 5 nF Δf 200 kHz (50 Hz) | | | S413 | S412 | | | | | |
| | | | | | S413 | | | | | |
| | | | | S472 | | | | | | $V_{rms} 0 \pm 30$ mV |
| | | | 96 MHz | | C434 | | | | $V_{rms} 0 \pm 30$ mV | |

Repeat

* Turn out the cores till about 3 mm above the rim.

STEREO DECODER

| SK.... | | | | | | | | |
|----------------------|---|--|--|------|--|--------------------------|--|------|
| FM (87.5-104 MHz) | Pilot 19 kHz (pilot) S 5 kHz (S + 5 kHz) Multiplex 1 kHz (pilot + right + 1 kHz) Multiplex 5 kHz (pilot + right + 5 kHz) | | | S409 | | max. via 1 M Ω | | |
| | | | | S408 | | | | |
| | | | | S410 | | max. | | |
| | | | | S411 | | | | |
| | | | | R458 | | | | min. |
| R459 | | | | | | | | |

Repeat

(.....) mentioned are the buttons to be pushed in on service-stereocoder PM 6455.

GB

- 1 Adjust for max. amplitude and symmetry.
- 2 Interrupt
- 3 Close
- 4 Adjust for max. slope and symmetry of the "S" curve.
- 5 Adjust 0 V without sweep (Δf 200 kHz).
- 6 Readjust for zero-axis crossing of the "S" curve.
- 7 Signal intensity such that the stereo indicator acts.
- 8 Adjust "S" signal to max. and such that a well-defined zero-axis crossing is visible.

NL



- 1 Afregelen op max. hoogte en symmetrie.
- 2 Onderbreek .
- 3 Sluit .
- 4 Afregelen op max. steilheid en symm. van de "S"-kromme.
- 5 0 V instellen zonder zwaai (Δf 200 kHz).
- 6 Naregelen op nuldoorgang van "S"-kromme.
- 7 Signaalsterkte zodanig dat stereoindicator werkt.
- 8 Het S-signaal afregelen op max. en zo dat een scherpe nuldoorgang zichtbaar is.

F



- 1 Régler à la hauteur et la symétrie max.
- 2 Interrompre .
- 3 Fermer .
- 4 Régler à la pente et à la symétrie max. de la courbe "S".

- 5 Régler 0 V sans excursion (Δf 200 kHz).
- 6 Réajuster sur passage de zéro de la courbe "S".
- 7 Intensifier de façon que l'indicateur stéréophonique fonctionne.
- 8 Régler le signal "S" sur max. de façon que le passage de zéro net soit visible.



D

- 1 Justiere auf maximale Höhe und Symmetrie.
- 2 Unterbrich .
- 3 Schliesse .
- 4 Justiere auf maximale Schräge und Symmetrie der "S"-Kurve.
- 5 Stelle ohne Hub 0 Volt ein (Δf 200 kHz).
- 6 Reguliere den Nulldurchgang der "S"-Kurve nach.
- 7 Die Signalstärke muss so sein, dass der Stereoindikator arbeitet.
- 8 Justiere das "S"-Signal auf Maximum, bis ein scharfer Nulldurchgang sichtbar ist.



S

- 1 Justera för max höjd och symmetri.
- 2 Bryt .
- 3 Slut .
- 4 Justera för max höjd och symmetri på S-kurvan.
- 5 Justera 0 V utan svep (Δf 200 kHz).
- 6 Efterjustera S-kurvans nollgenomgång.
- 7 Signalvinå så att stereoindikatorn börjar arbeta.
- 8 Justera "S" signalen till max och så att en väldefinierad nollgenomgång erhålls.



N

- 1 Juster til max. amplitude og symmetri.
- 2 Åbn .
- 3 Luk .
- 4 Juster S-kurven til max. stejthed og symmetri.
- 5 Juster 0-volt uden sweep ($\Delta f = 200$ kHz).
- 6 Efterjuster S-kurven til nul-aksekrydsning.
- 7 Forøg signalet således, at stereoindikatoren aktiveres.
- 8 Juster "S"-signalet til max., således at en veldefineret nul-aksekrydsning er synlig.



I

- 1 Regolare per altezza e simmetria massima.
- 2 Interrompere .
- 3 Chiudere .
- 4 Regolare per pendenza e simmetria massima della curva ad "S".
- 5 Regolare 0 V senza scarto (Δf 200 kHz).
- 6 Regolare di nuovo per passaggio per lo zero della curva ad "S".
- 7 Intensificare in modo che l'indicatore stereofonico funzioni.
- 8 Regolare il segnale "S" per massimo in modo che il passaggio per lo zero nitido sia visibile.

DK

- 1 Justér til maks. amplitude og symmetri.
- 2 Bryt .
- 3 Forbind .
- 4 Justér til maks. helling og symmetri på "S"-kurve.
- 5 Justér 0 V uden sweep (Δf 200 kHz).
- 6 Rejustér til 0-gjennemgang på "S"-kurve.
- 7 Signalstyrke slik at stereoindikatoren virker.
- 8 Justér "S"-signal til maks. og slik at en veldefineret 0-gjennemgang er synlig.

SF

- 1 Säädä symmetriseksi ja amplituudi suurimmilleen.
- 2 Katkaise .
- 3 Sulje .
- 4 Säädä S-käyrän jyrkkyys ja symmetrisyys maksimiin.
- 5 Säädä 0 V ilman pyyhkäisyä (Δf 200 kHz).
- 6 Säädä uudelleen S-käyrän 0-kohta.
- 7 Signaalin voimakkuuden tulee olla niin suuri, että stereo-ilmaisimain toimii.
- 8 Säädä S-signaali maksimiinsa ja sellaiseksi, että 0-kohta näkyy selvästi.

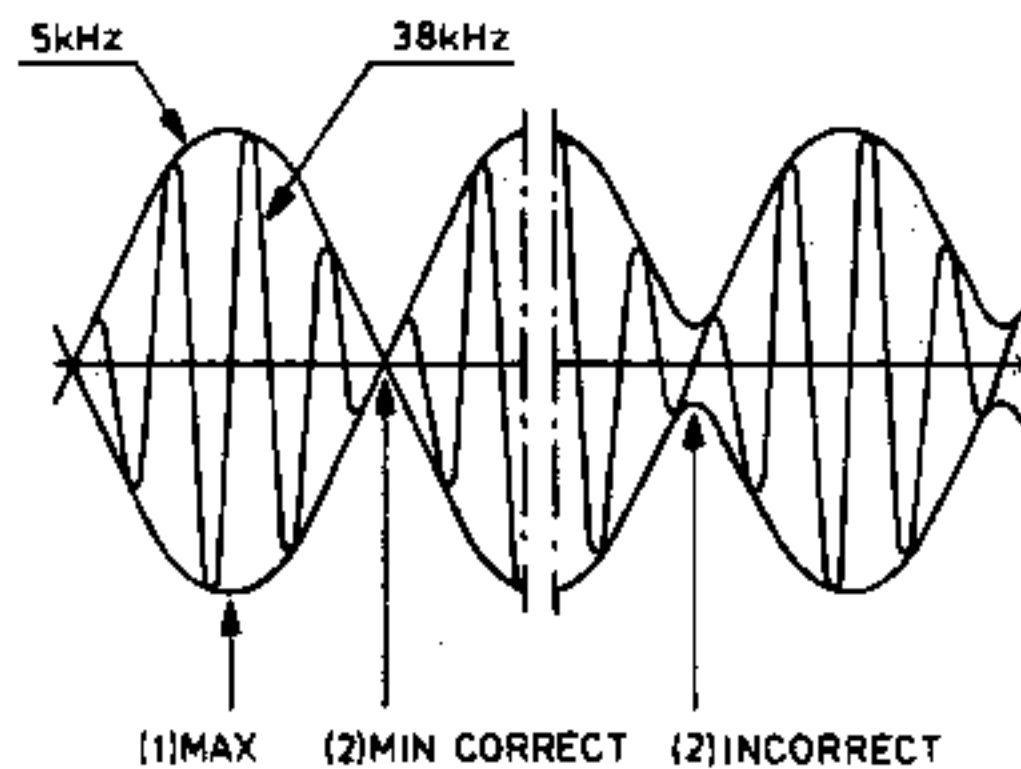
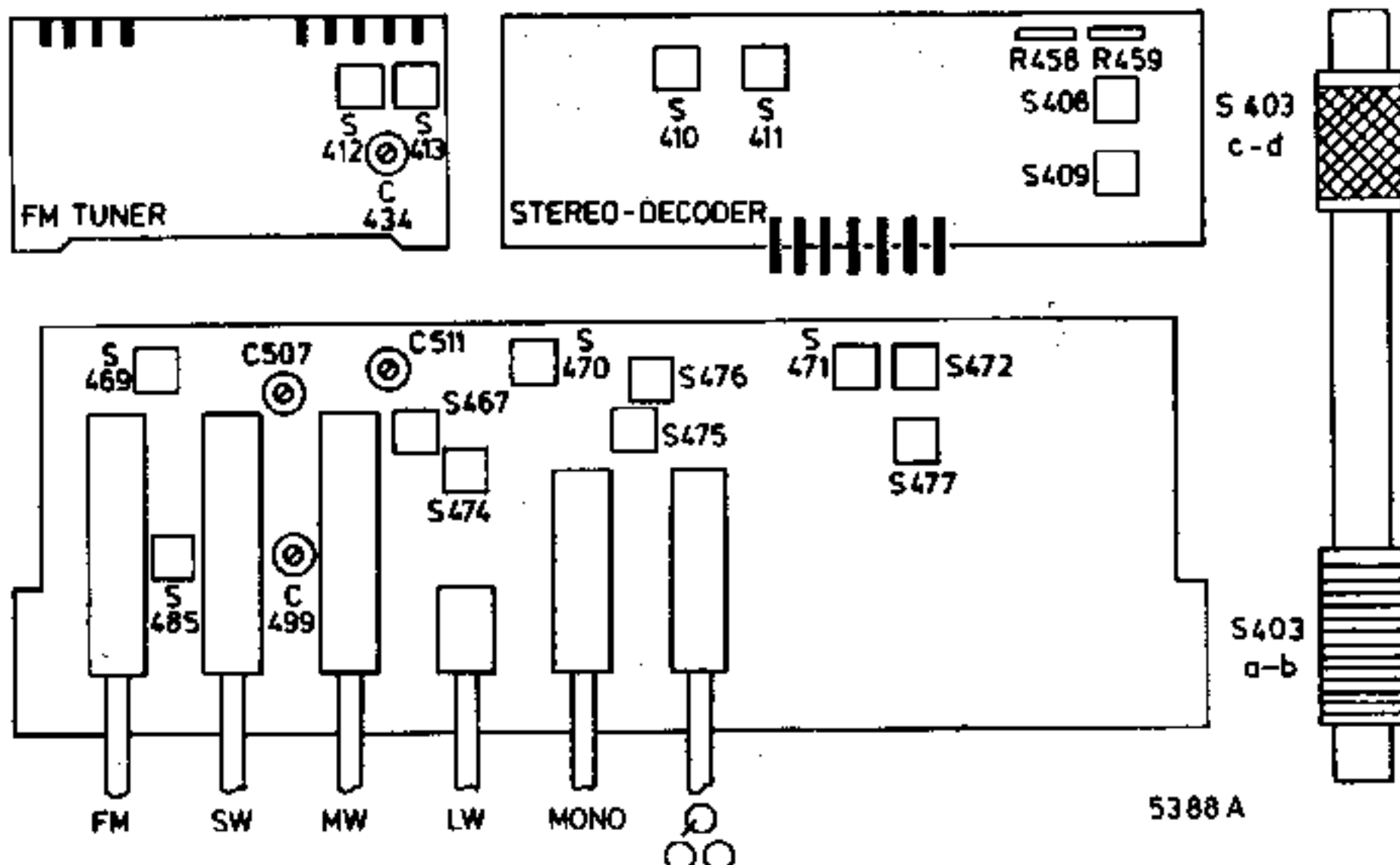


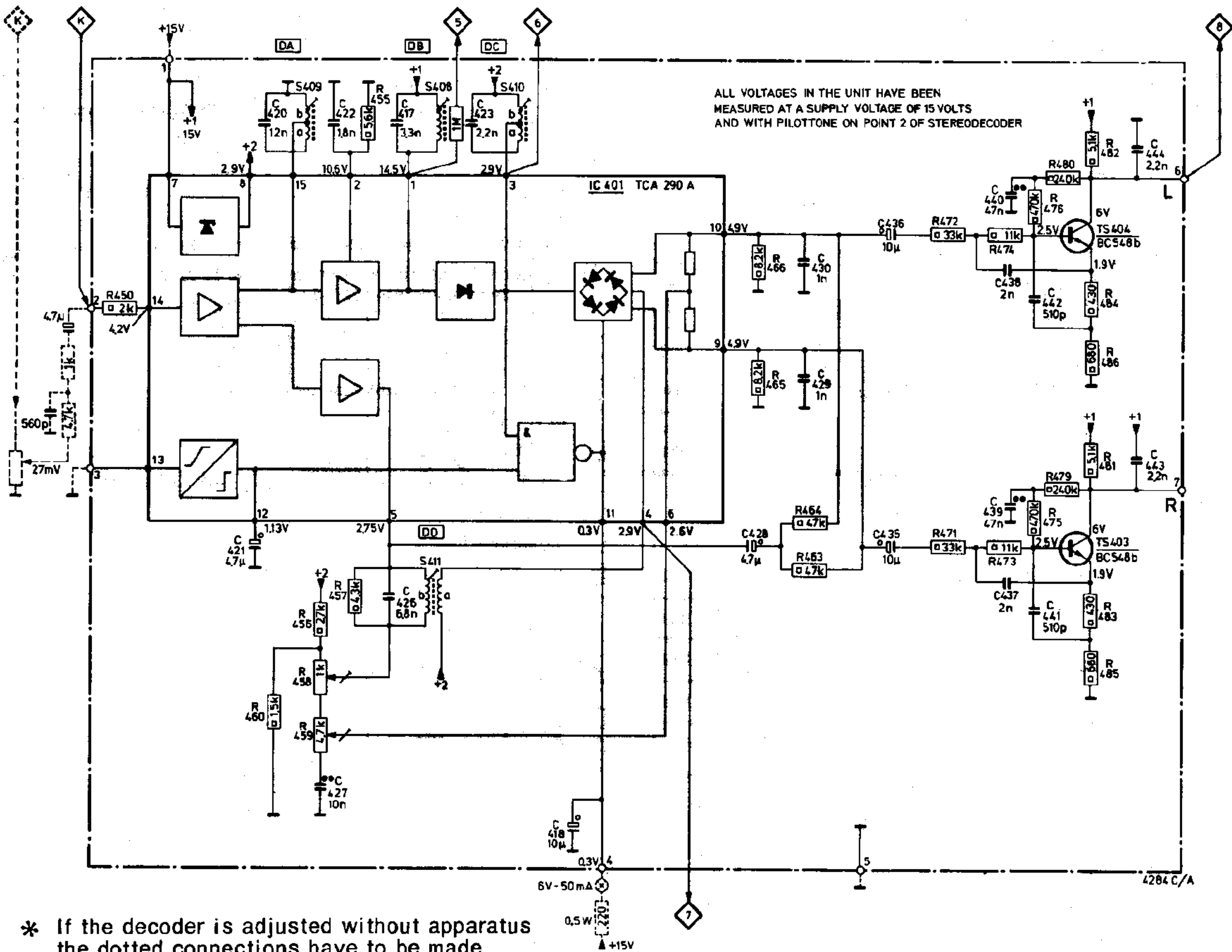
Fig.1

4992A



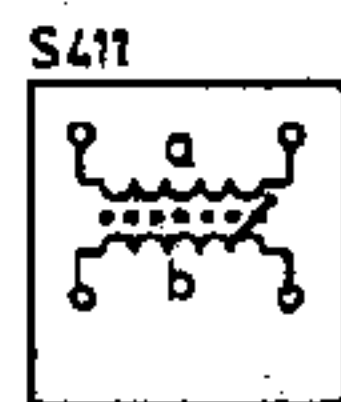
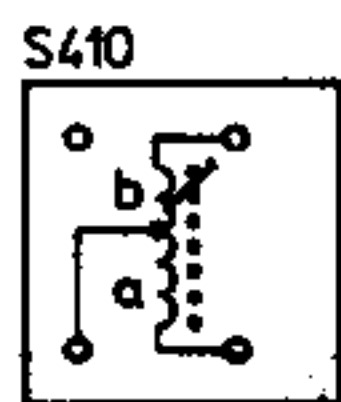
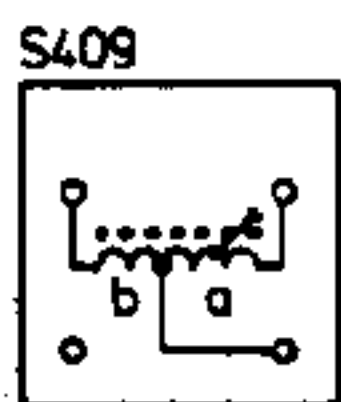
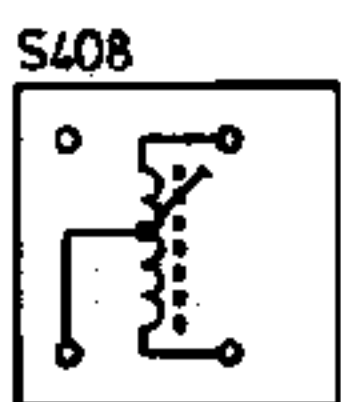
5388 A

STEREO-DECODER

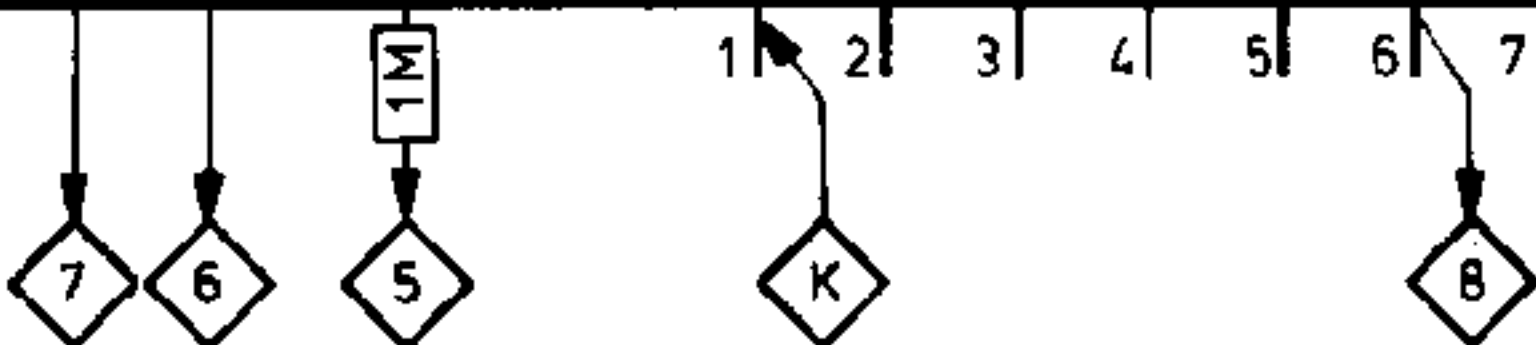
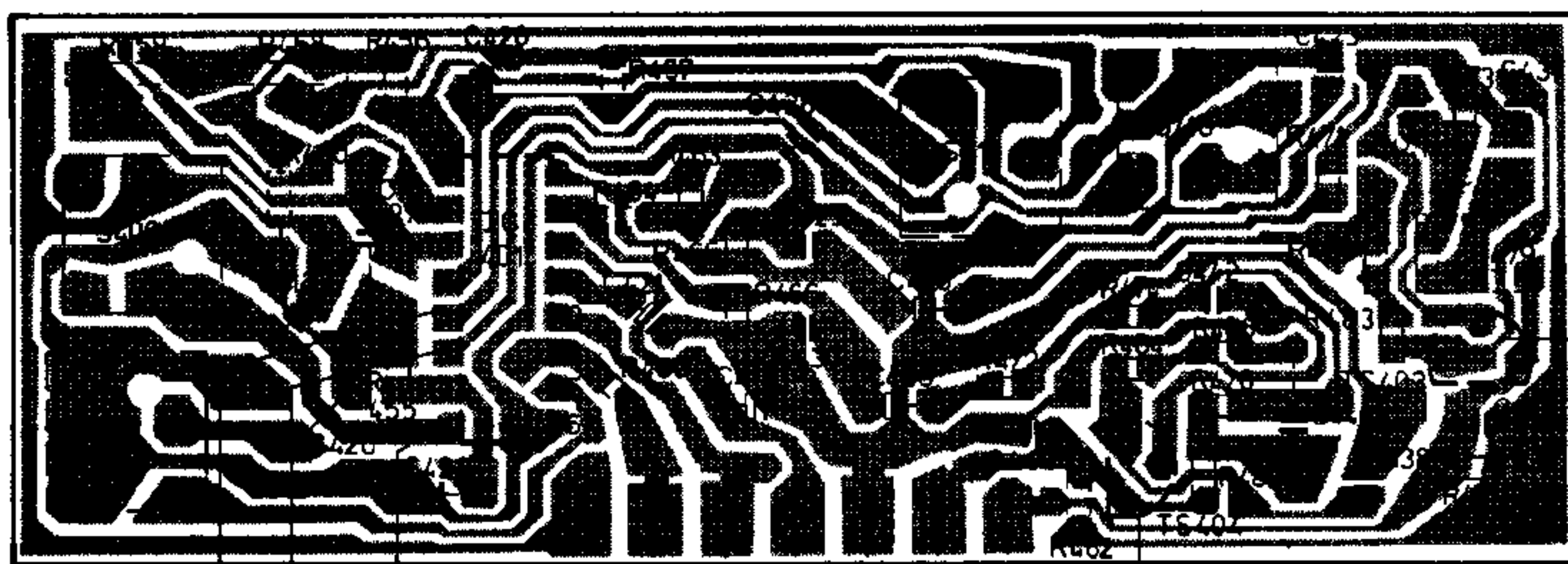


* If the decoder is adjusted without apparatus the dotted connections have to be made

** In the apparatus the supply voltage of the stereo decoder is 8.2 V



| IC401 | |
|-------|--------------|
| 29V | 8 9 - 4.9V |
| 15V | 7 10 - 4.9V |
| 2.6V | 6 11 - 0.3V |
| 2.75V | 5 12 - 1.13V |
| 2.9V | 4 13 |
| 2.9V | 3 14 - 4.2V |
| 10.6V | 2 15 - 0V |
| 14.5V | 1 16 |

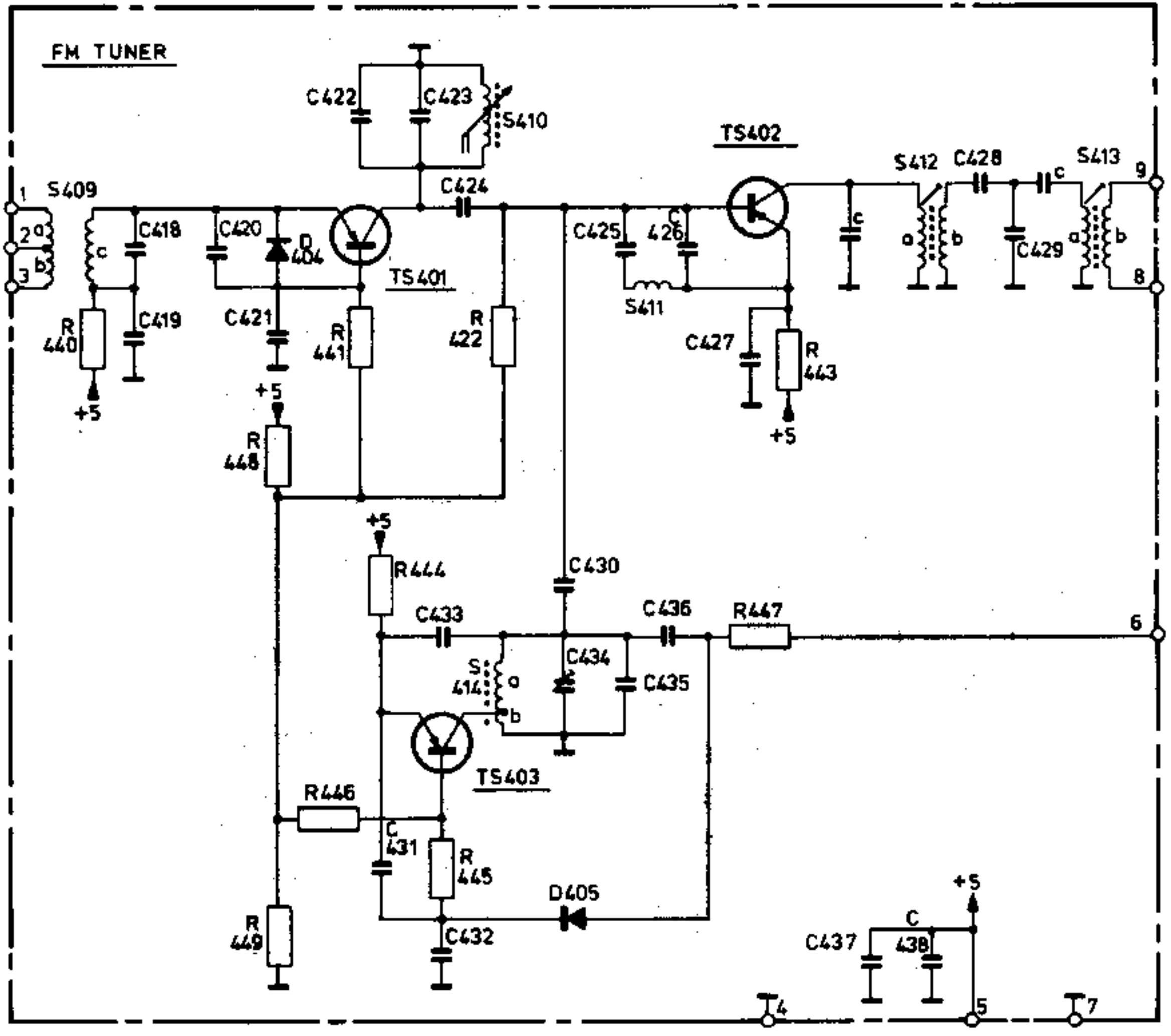


E = 1.9V
B = 2.5V
C = 6V

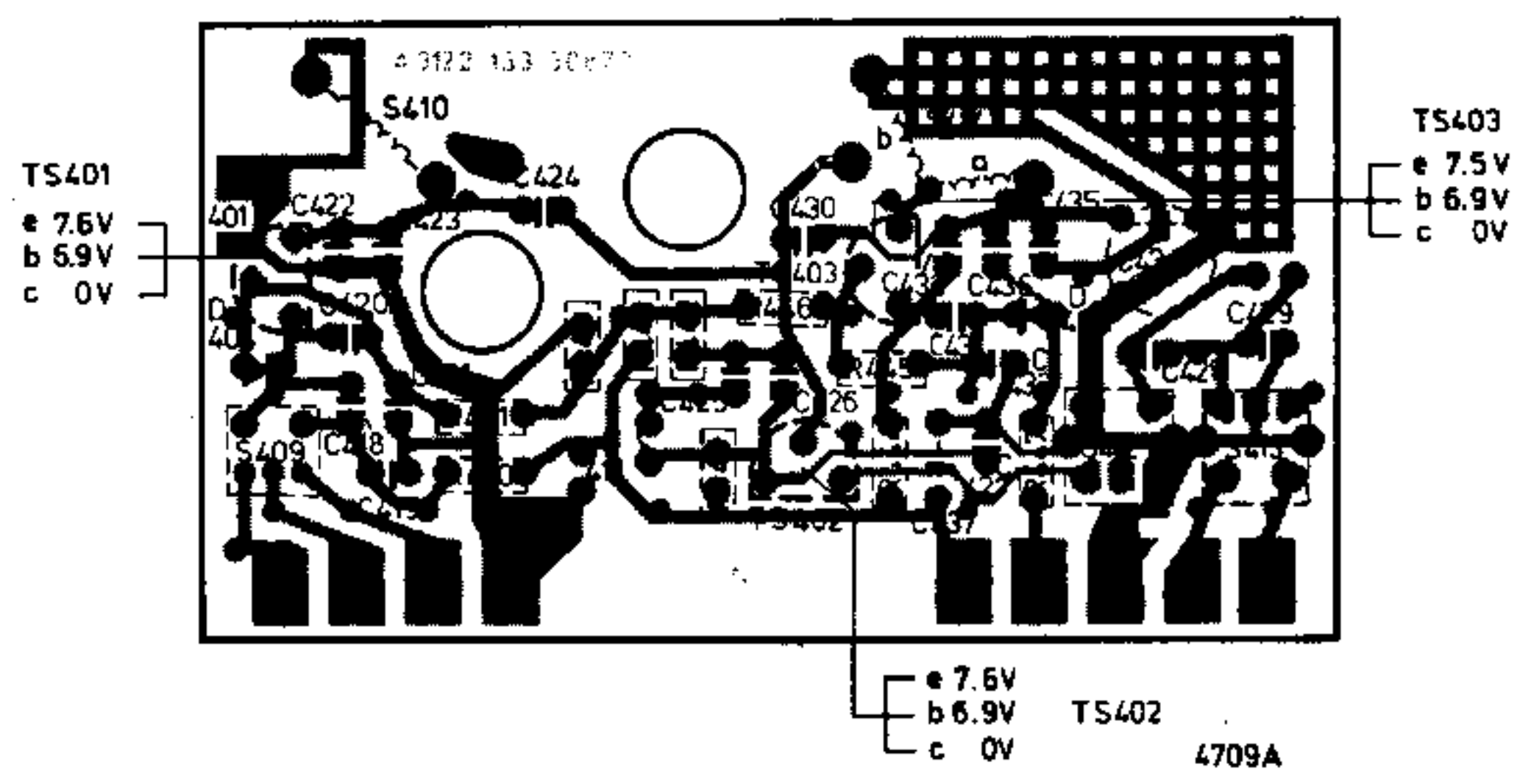
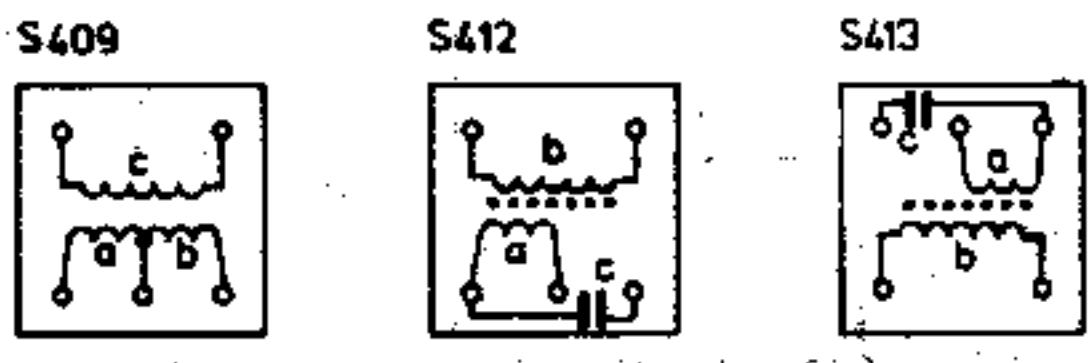
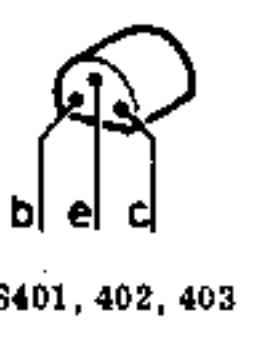
4482 B/A

FM TUNER

- ①③
- ②
- ④⑦
- ⑤ +
- ⑥ AFC
- ⑧⑨ IF

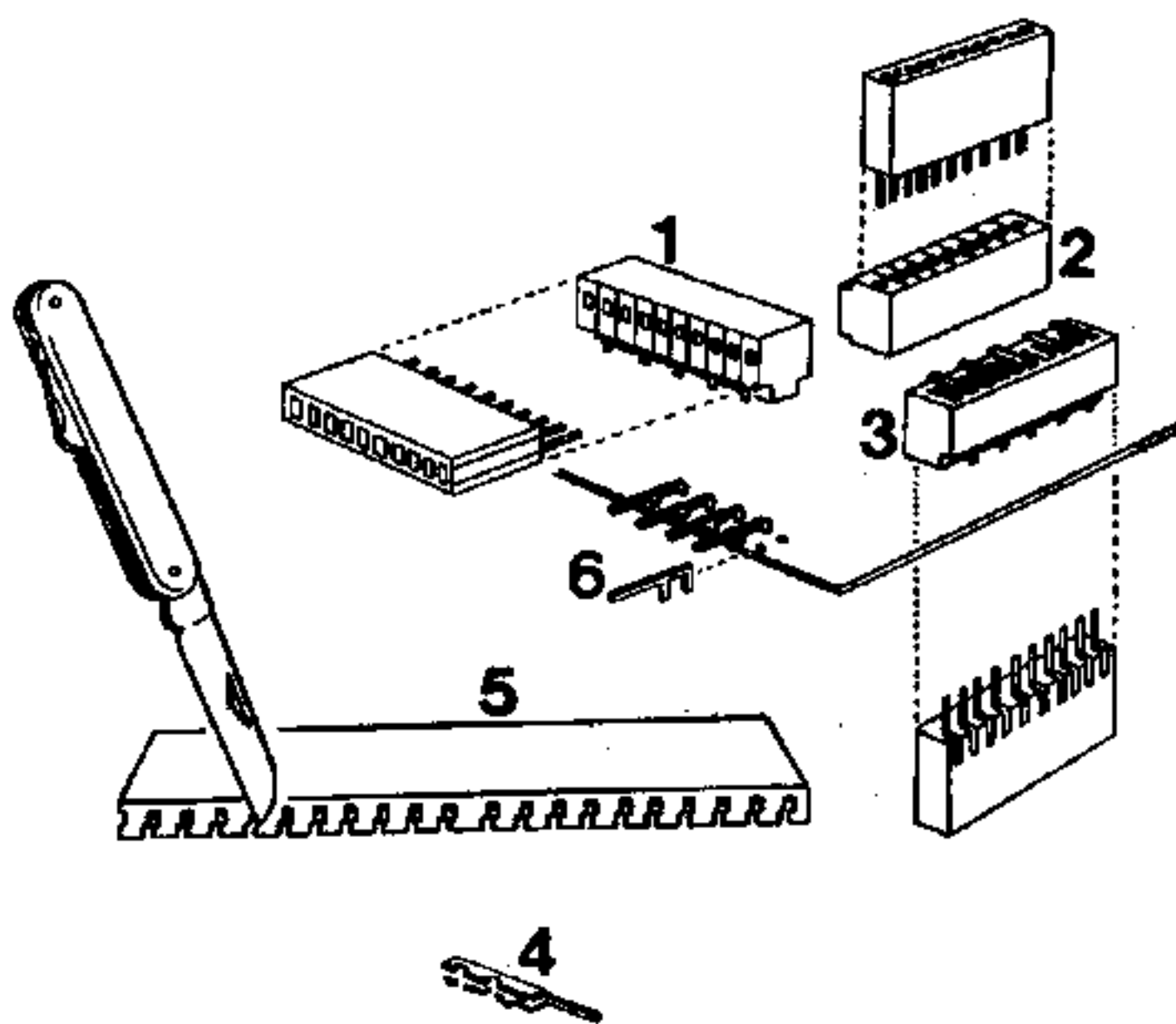


5050B



MECHANICAL PARTS LIST

| | | |
|----|----------------|----------------|
| 1 | | 4822 450 60169 |
| 2 | | 4822 426 40039 |
| 3 | | 4822 333 60144 |
| 4 | | 4822 450 80479 |
| 5 | | 4822 410 21556 |
| 6 | | 4822 276 10542 |
| 7 | | 4822 321 10084 |
| 8 | | 4822 255 10007 |
| 9 | | 4822 492 61976 |
| 10 | | 4822 411 60365 |
| 11 | | 4822 492 61974 |
| 12 | | 4822 404 20153 |
| 13 | | 4822 278 30097 |
| 14 | | 4822 278 30103 |
| 15 | | 4822 321 30042 |
| 16 | | 4822 321 30215 |
| 17 | | 4822 267 30198 |
| 18 | | 4822 492 60063 |
| 19 | | 4822 413 50907 |
| 20 | | 4822 278 30104 |
| 21 | | 4822 426 90024 |
| 22 | | 4822 267 40133 |
| 23 | | 4822 267 20155 |
| 24 | Cabinet LS box | 4822 445 10046 |
| 25 | Front LS box | 4822 445 20007 |

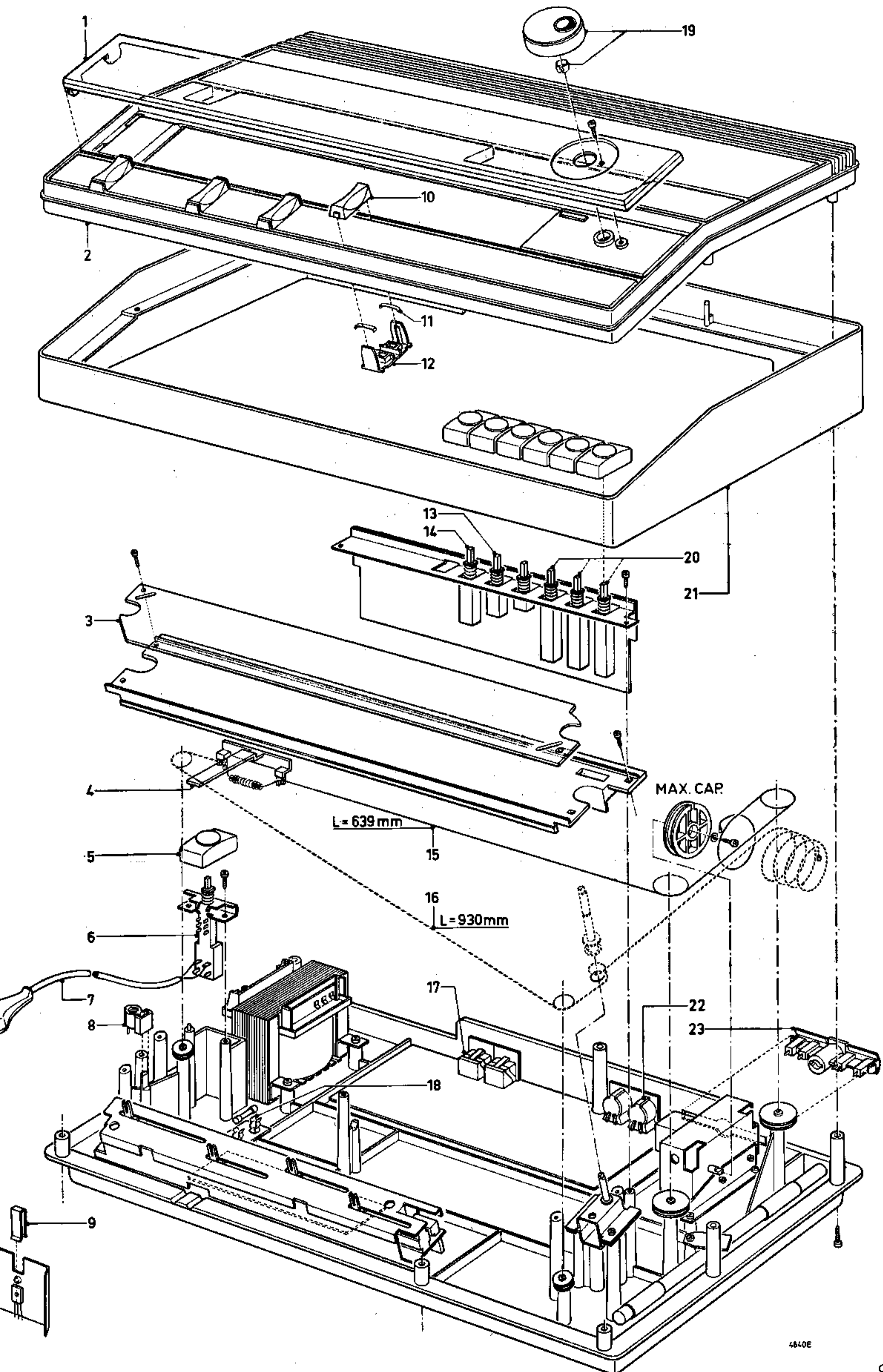


4632A/B



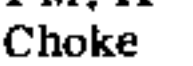




| <u>Item</u> | <u>Codenummer</u> |
|-------------|------------------------|
| 1 | 5322 267 64027 (10 p) |
| 2 | 4822 267 50209 (10 p) |
| 3 | 4822 267 50211 (10 p) |
| 4 | 4822 268 10107 |
| 5 | 5322 267 64007 (20 p) |
| 6 | 5322 264 54017 (strip) |





ELECTRICAL PARTS LIST

| -S-  | -D-  |
|--|---|
| S403 Ferroceptor 4822 158 60371 | D445 AA119 5322 130 40229 |
| S405 Mains transformer 4822 146 20501 | D446 AA119 5322 130 40229 |
| S407 Loudspeaker 4822 240 60036 | D447 pair 2xAA119 4822 130 30312 |
| S408 Loudspeaker 4822 240 60036 | D459 BZX61/C8V2 5322 130 34115 |
| S465 Aerial coil SW 4822 156 40616 | D460 BY126 5322 130 30192 |
| S467 Oscillator coil 4822 156 30505 | D461 BY126 5322 130 30192 |
| S469 FM, IF 4822 153 50205 | D462 BY126 5322 130 30192 |
| S470 FM, IF 4822 153 50206 | D463 BY126 5322 130 30192 |
| S471 FM, IF 4822 153 50207 | |
| S472 FM, IF 4822 153 50208 | |
| S473 Choke 4822 157 10007 | |
| S474 AM, IF 4822 153 10292 | |
| S475 AM, IF 4822 153 10292 | |
| S476 AM, IF 4822 153 10292 | |
| S477 AM, IF 4822 153 10293 | |
| | |
| -R-  | -C-  |
| R410 Slide potm. 80+20 k log. 4822 105 10166 | C401a Var.cap. 4822 125 20184 |
| R411 Slide potm. 100 k log. 4822 105 10167 | C492 10 nF, 20 % 4822 122 30043 |
| R412 Slide potm. 2M2 log. 4822 105 10168 | C493 22 nF, 20 % 5322 122 30103 |
| R413 Slide potm. 100 k lin. 4822 105 10169 | C497 330 pF, 2 % 4822 122 30055 |
| R644 VDR 4822 116 20073 | C498 330 pF, 2 % 4822 122 30055 |
| R775 Preset potm. 100 Ω 4822 100 10075 | C499 Trimmer 10 pF 4822 125 50062 |
| R776 Preset potm. 100 Ω 4822 100 10075 | C500 91 pF, 1 % 4822 121 50577 |
| R783 1 Ω, 1/4 W 4822 110 53027 | C502 3000 pF, 1 % 4822 121 50414 |
| R784 1 Ω, 1/4 W 4822 110 53027 | C504 10 nF, 20 % 4822 122 30043 |
| R785 1 Ω, 1/4 W 4822 110 53027 | C507 Trimmer 5.5 pF 4822 125 50061 |
| R786 1 Ω, 1/4 W 4822 110 53027 | C511 Trimmer 10 pF 4822 125 50062 |
| | C512 300 pF, 1 % 4822 121 50068 |
| | C513 280 pF, 1 % 4822 121 50573 |
| | C518 10 nF, 20 % 4822 122 30043 |
| | C520 10 nF, 20 % 4822 122 30043 |
| | C524 10 nF, 20 % 4822 122 30043 |
| | C525 10 nF, 20 % 4822 122 30043 |
| | C536 220 pF, 10 % 4822 122 31173 |
| | C537 180 pF, 10 % 4822 122 31172 |
| | C538 180 pF, 10 % 4822 122 31172 |
| | C544 4.7 nF, 10 % 4822 122 30128 |
| | C545 4.7 nF, 10 % 4822 122 30128 |
| | C546 4.7 nF, 10 % 4822 122 30128 |
| | C581 180 pF, 10 % 4822 122 31172 |
| | C582 180 pF, 10 % 4822 122 31172 |
| | C591 180 pF, 10 % 4822 122 31172 |
| | C592 180 pF, 10 % 4822 122 31172 |
| | C593 4.7 nF, 10 % 4822 122 30128 |
| | C594 4.7 nF, 10 % 4822 122 30128 |
| | C599 2.2 nF, 10 % 4822 122 30114 |
| | C600 2.2 nF, 10 % 4822 122 30114 |
| | C605 470 pF, 10 % 4822 122 31177 |
| | C606 470 pF, 10 % 4822 122 31177 |
| | C611 350 pF, 10 % 4822 122 31165 |
| | C612 350 pF, 10 % 4822 122 31165 |
| | C632 1200 pF, 10 % 4822 122 31171 |
| | C633 1200 pF, 10 % 4822 122 31171 |
| | C634 1200 pF, 10 % 4822 122 31171 |
| | C635 1200 pF, 10 % 4822 122 31171 |
| | |
| -Miscellaneous- | |
| VL409 2 A slow 4822 253 30025 | |
| VL410 Trafo fuse 4822 252 20071 | |
| L415 6 V, 50 mA 4822 134 40003 | |
| L416 6 V, 100 mA 4822 134 40005 | |
| U401 FM tuner 4822 210 10177 | |
| R406 Stereo decoder 4822 210 30027 | |
| | |
| -TS-  | |
| TS421a,b,c packet 4822 130 40949 | |
| TS431 BC549C 5322 130 44216 | |
| TS432 BC549C 5322 130 44216 | |
| TS433 BC548b 4822 130 40937 | |
| TS434 BC548b 4822 130 40937 | |
| TS435 BC328 5322 130 44104 | |
| TS436 BC328 5322 130 44104 | |
| TS437 BC548 4822 130 40938 | |
| TS438 BC548 4822 130 40938 | |
| TS439 pair BD435/436 4822 130 40978 | |
| TS440 pair BD435/436 4822 130 40978 | |