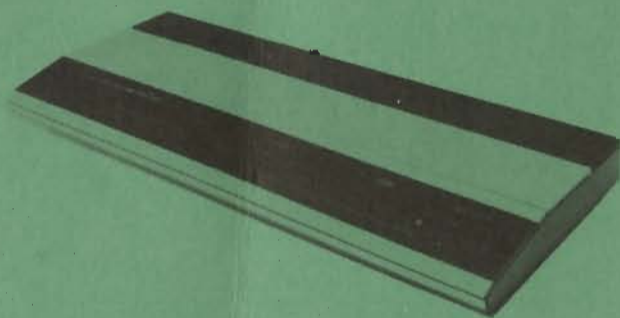


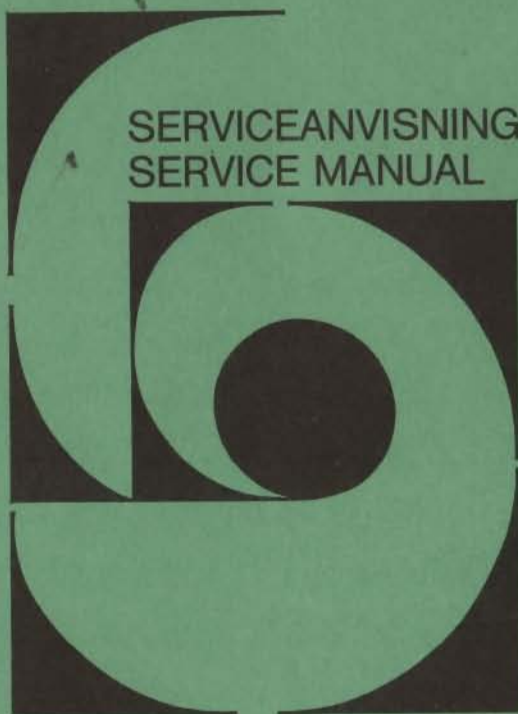
Bang & Olufsen



Beomaster 2000

Type 2911/12/13/15/17/19

SERVICEANVISNING
SERVICE MANUAL



Indhold

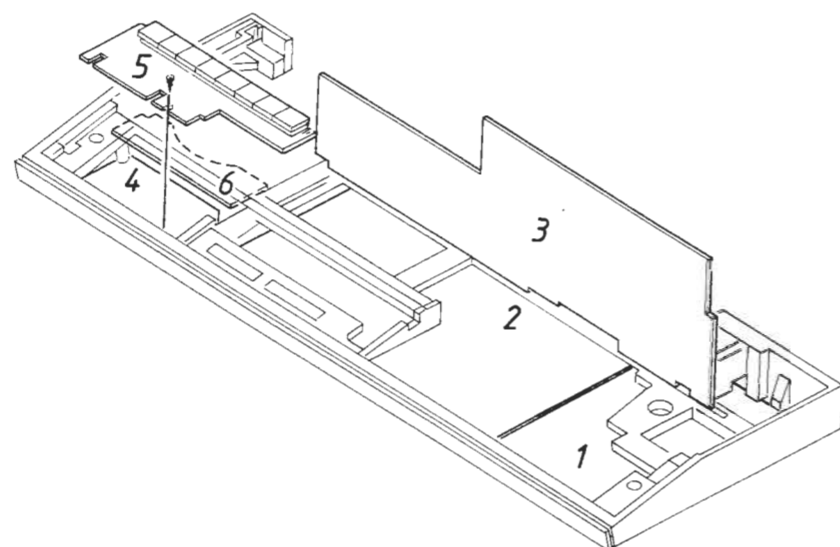
| |
|--------------------------------|
| Diagrammer |
| Halvlederoversigt |
| Elektrisk stykliste |
| Mekanisk stykliste |
| Justeringer |
| Tekniske specifikationer |
| Adskillelse |
| Servicetips |
| Isolationstest |

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Modules

| | |
|--|----------------|
| 1 RF Section..... | diagr. A, C |
| 2 AF Section, Power Supply & Control | diagr. B, C |
| 3 Secondary Control..... | diagr. A, B, C |
| 4 Volume Control..... | diagr. C |
| 5 Volume Display..... | diagr. C |
| 6 Fuses Board..... | diagr. B |



DIAGRAMFORKLARING

På diagrammet er der angivet typenumre på transistorer og IC'er i de tilfælde hvor typenummeret er entydigt for komponentens placering i kredsløbet - f.eks. TR20/BC 557B

Hvis positionsnummeret er efterfulgt af en stjerne skal reservedelsnummeret benyttes, da denne komponent er specielt udvalgt - f.eks. TR102*.

Koordinatsystem

De største printplader er forsynet med et koordinatsystem. Komponenterne på disse printplader er på diagrammet forsynet med en koordinatbetegnelse, som fortæller i hvilket felt på printpladen de er placeret (mindre skrifttype end positionsnummeret - f.eks. B3).

Styrekredsløb

I visse styrekredsløb er den aktive tilstand angivet med en bogstavsbetegnelse (Cr = High med CrO₂ bånd). Hvis betegnelsen er forsynet med negationstegn er den aktive tilstand LOW (C^r = LOW med CrO₂ bånd).

Ledningsforbindelser

Ledningsforbindelserne på diagrammet er samlet i »bundter«. De enkelte ledninger er forsynet med koder, der fortæller hvortil de går.

INTERN FORBINDELSE PÅ EN DIAGRAMSIDE

Interne forbindelser på en diagramside angives med et tal. Knækket på ledningen viser i hvilken retning den anden ende af ledningen findes.

FORBINDELSE TIL EN ANDEN DIAGRAMSIDE

Forbindelsen til en anden diagramside angives med et tal, samt bogstav indikation på det diagram forbindelsen går til.

EXPLANATION OF DIAGRAM

Type numbers of transistors and IC's have been indicated on the diagram in those cases where the type number is unambiguous for the position of the component in a circuitry - e.g. TR20/BC 557B.

If the position number is followed by an asterisk the spare part number **must be used** because this component has been especially selected - e.g. TR102*.

System of Co-ordinates

The largest PC-boards have been provided with a co-ordinate system. The components on these PC-boards are provided with a grid reference on the diagram indicating in what grid they are positioned on the PC-board (smaller typing than position numbers - e.g. B3).

Control Circuit

In certain control circuits the active mode has been indicated by means of a letter symbol (Cr = HIGH with CrO₂ tapes). If the symbol has a negation superscript bar the active mode is LOW (C^r = LOW with CrO₂ tapes).

Wiring Connections

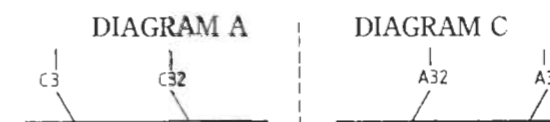
The wiring connections on the diagram are assembled in »bundles«. The individual wires are coded to indicate to where they are leading.

INTERNAL CONNECTION ON ONE DIAGRAM PAGE



Internal connections on a diagram page are indicated by a number. The bend of the wire indicates in which direction the other end of the wire may be found.

CONNECTION TO ANOTHER DIAGRAM PAGE



Connections to another diagram page are indicated by a number, as well as by a letter of the diagram to which the connections lead.

Målebetingelser

Alle DC spændinger er målt i forhold til stel med voltmeter (indre modstand 10 MΩ).

DC spændinger er målt i volt (V). Eks. 0,7 V.

Spændinger på diagram A er målt i stilling FM P5 MONO uden signal, spændinger i parentes er målt i stilling MW.

Signalveje er vist for FM, AM og LF højre kanal.

Symbol for sikkerhedskomponenter

Ved udskiftning af komponenter med dette symbol skal der anvendes komponenter med samme reservedelsnummer. Den nye komponent skal monteres på samme måde som den udskiftede.

Measuring Conditions

All DC voltages are measured relative to ground with voltmeter (inherent resistance 10 MΩ).

DC voltages are measured in Volts (V), ex. 0.7 V.

Voltages in diagram A are measured in position FM P5 MONO without signal, voltages in brackets are measured in position MW.

Signal paths are shown for AM, FM and AF right channel.

Symbol for Safety Components

When replacing components with this symbol components with identical part numbers are to be used. The new component must be fitted in the same way as the one replaced.

NOTICE EXPLICATIVE DES SCHEMAS

Sur les schémas, les numéros de types sont indiqués pour les transistors et les circuits imprimés dans les cas où le numéro de type est univoque pour la disposition du composant dans un circuit – par exemple TR20/BC557B.

Si le numéro de position est suivi par un astérisque, il faut utiliser le numéro de la pièce de rechange, étant donné qu'il dès lors d'un composant spécialement sélectionné – par exemple TR102*.

Système de coordonnées

Les plus grands circuits imprimés sont munis d'un système de coordonnées. Les composants de ces circuits imprimés portent un numéro de coordonnées sur le schéma qui indiquent dans quelle coordonnées ils sont placés sur le circuit imprimé (en caractères plus petit que ceux indiquent le numéro de position – par exemple B3).

Circuits de commande

Dans certains circuits de commande, l'état actif est indiqué par une représentation en lettres (Cr = Haut avec une bande CrO₂). Si cette représentation en lettres est munie d'un trait de négation, cela signifie que l'état actif est bas (C̄r = Bas avec une bande CrO₂).

Connexions des fils

Les connexions de fils sur le schéma sont assemblées en »faisceaux«. Chaque fil est muni d'un code qui indique sa destination.

ERLÄUTERUNGEN ZUM SCHALTBILD

Auf dem Schaltbild sind Typen-Nummern für Transistoren und IC's in den Fällen angegeben, in denen die Typen-Nummer für die Platzierung der Komponente in einem Schaltkreis eindeutig ist – z.B. TR20/BC 557B.

Wenn auf die Positionsnummer ein Stern folgt, ist die Ersatzteilnummer **zu benutzen**, da diese Komponente speziell ausgewählt werden ist – z.B. TR102*.

Koordinatensystem

Die grössten Printplatten sind mit einem Koordinatensystem versehen. Die Komponenten auf diesen Printplatten sind auf dem Schaltbild mit einer Koordinatennummer versehen, die erzählt, in welcher Koordinate der Printplatte sie angebracht sind (kleinere Schrifttyp als die der Positionsnummer – z.B. B3).

Steuerschaltkreise

Bei gewissen Steuerschaltkreisen ist der aktive Zustand durch eine Buchstabenbezeichnung (Cr = High mit CrO₂-Band) angegeben. Wenn die Bezeichnung mit einem Negationszeichen versehen ist, ist der aktive Zustand Low (C̄r = Low mit CrO₂-Band).

Leitungsverbindungen

Die Leitungsverbindungen sind auf dem Schaltbild in »Bündeln« zusammengefaßt. Die einzelnen Leitungen sind mit Code-Bezeichnungen versehen, die angeben, wohin die Leitungen führen.

CONNEXION INTERNE SUR UN COTE DU SCHEMA

Connexions internes sur une page de schéma doivent être indiquées par un numéro. L'angle du fil indique la direction dans laquelle l'autre bout du fil doit être trouvé.

CONNEXION VERS UN AUTRE COTE DU SCHEMA**DIAGRAM A**

Connexions vers une autre page de schéma doivent être indiquées par un numéro, et par lettre du schéma indiquant la destination de la connexion.

Conditions de mesure

Toutes les tensions continues (DC) sont mesurées par rapport à la masse à l'aide de voltmètre (résistance interne de 10 MΩ).

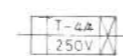
Les tensions continues sont mesurées en Volt (V), par exemple 0,7 V.

Les tensions sur schéma A sont mesurées en position FM P5 MONO sans signal, tensions en parenthèse sont mesurées en position MW.

Les cheminements des signaux sont indiqués pour FM, AM et BF, canal droit.

Symbol des composants de sécurité

En remplaçant un composant portant ce symbole, il faut utiliser les composants de même no. de référence. Le nouveau composant doit être monté de la même manière que celui qu'il remplace.



Replace with same type 4 amperes 250 volts slow acting fuse.

Remplacer par une fusible de même type retardé et de 4 amperes 250 volts.

INTERNE VERBINDUNGEN AUF EINER SCHALTBILDSEITE

Interne Verbindungen auf einer Schaltbildseite werden mit einem Nummer angegeben. Die Biegung der Leitung zeigt in welcher Richtung das andere Ende der Leitung sich befindet.

VERBINDUNGEN AN EINE ANDERE SCHALTBILDSEITE**DIAGRAM C**

Die Verbindungen an eine andere Schaltbildseite werden mit einem Nummer, sowie Indikation des Schaltbildes an den die Verbindung geht, angegeben.

Meßbedingungen

Alle DC Spannungen sind im Verhältnis zu Masse, mit Voltmeter (innerer Widerstand 10 MΩ) gemessen.

DC Spannungen sind in Volt (V) gemessen, z.B. 0,7 V.

Spannung in Schaltbild A sind in Stellung FM P5 MONO ohne Signal gemessen, Spannungen in Klammern sind in Stellung MW gemessen.

Signalwege sind für FM, AM und NF im rechten Kanal gezeigt.

Symbol für Sicherheitskomponente

Bei der Auswechslung von Komponente mit diesem Symbol sind Komponente mit gleichen Teilnummer zu verwenden. Die neue Komponente ist in derselben Weise wie die ausgewechselte Komponente zu montieren.

Explanation of the fuse symbols used in the set:

Explanation des symboles du fusible utilisés l'appareil:

BLOCK DIAGRAM

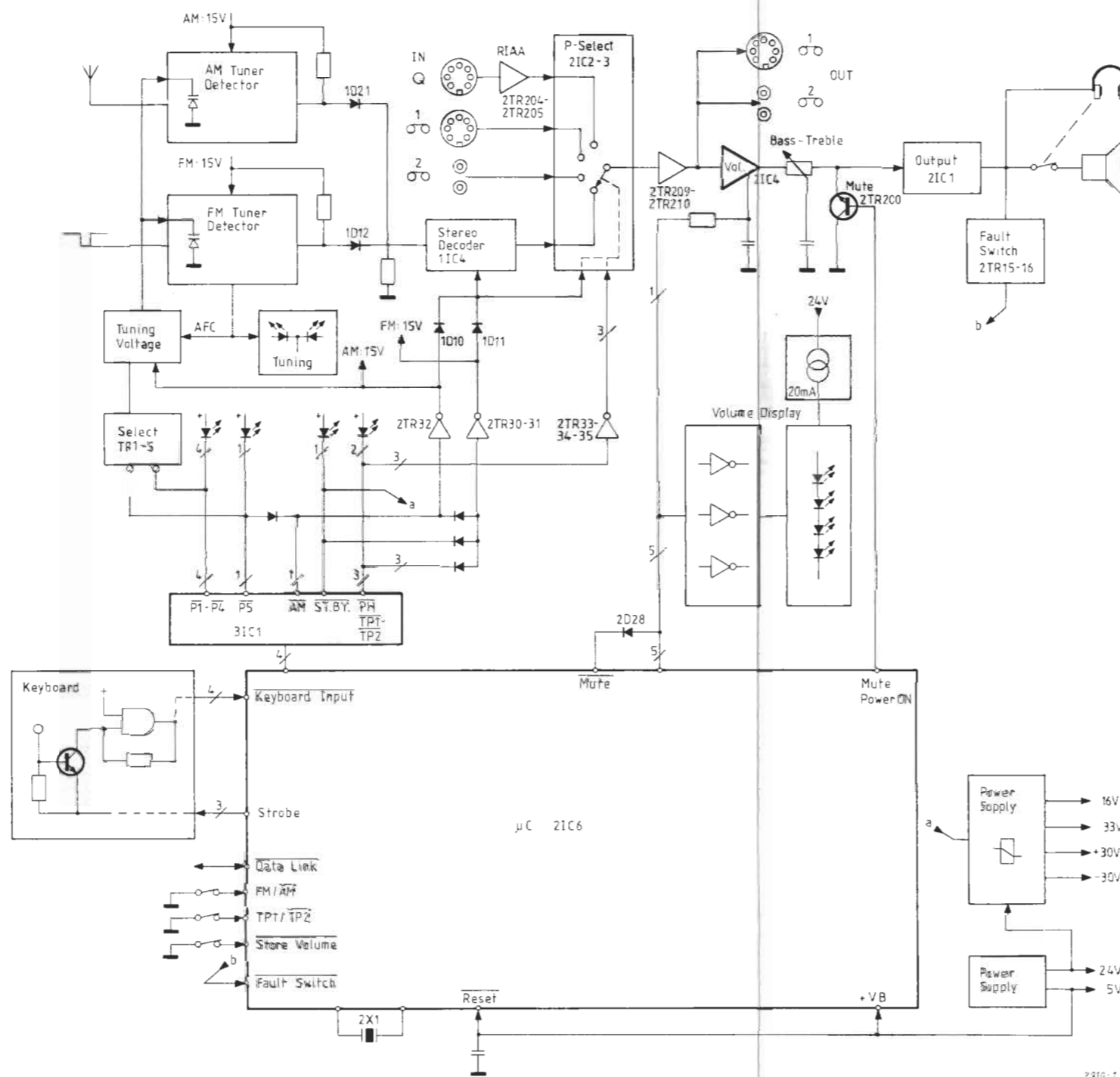


DIAGRAM A, type 2911

Before serial no. 2930001

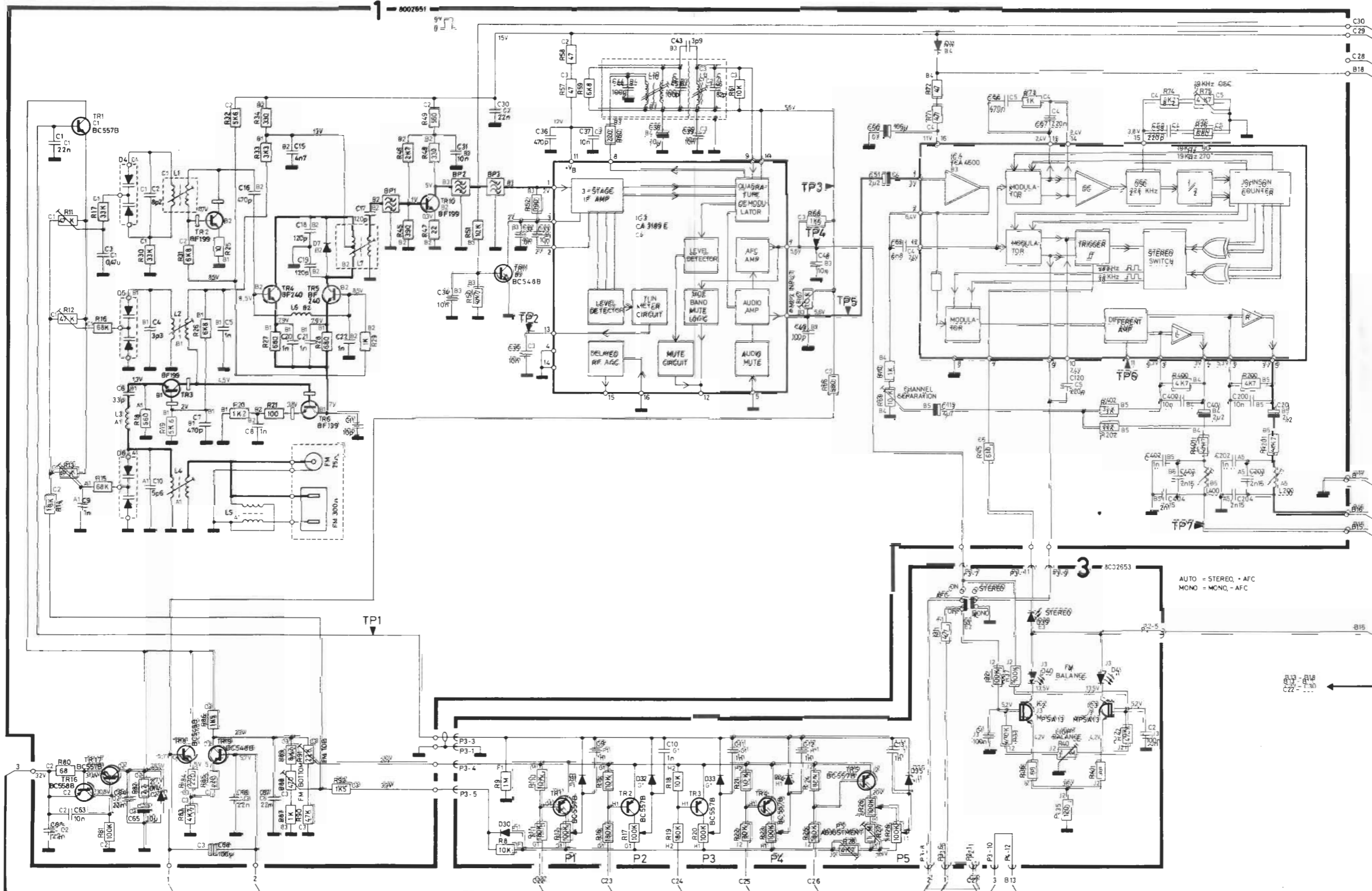


DIAGRAM A, type 2912/17 Before serial no. 2930001

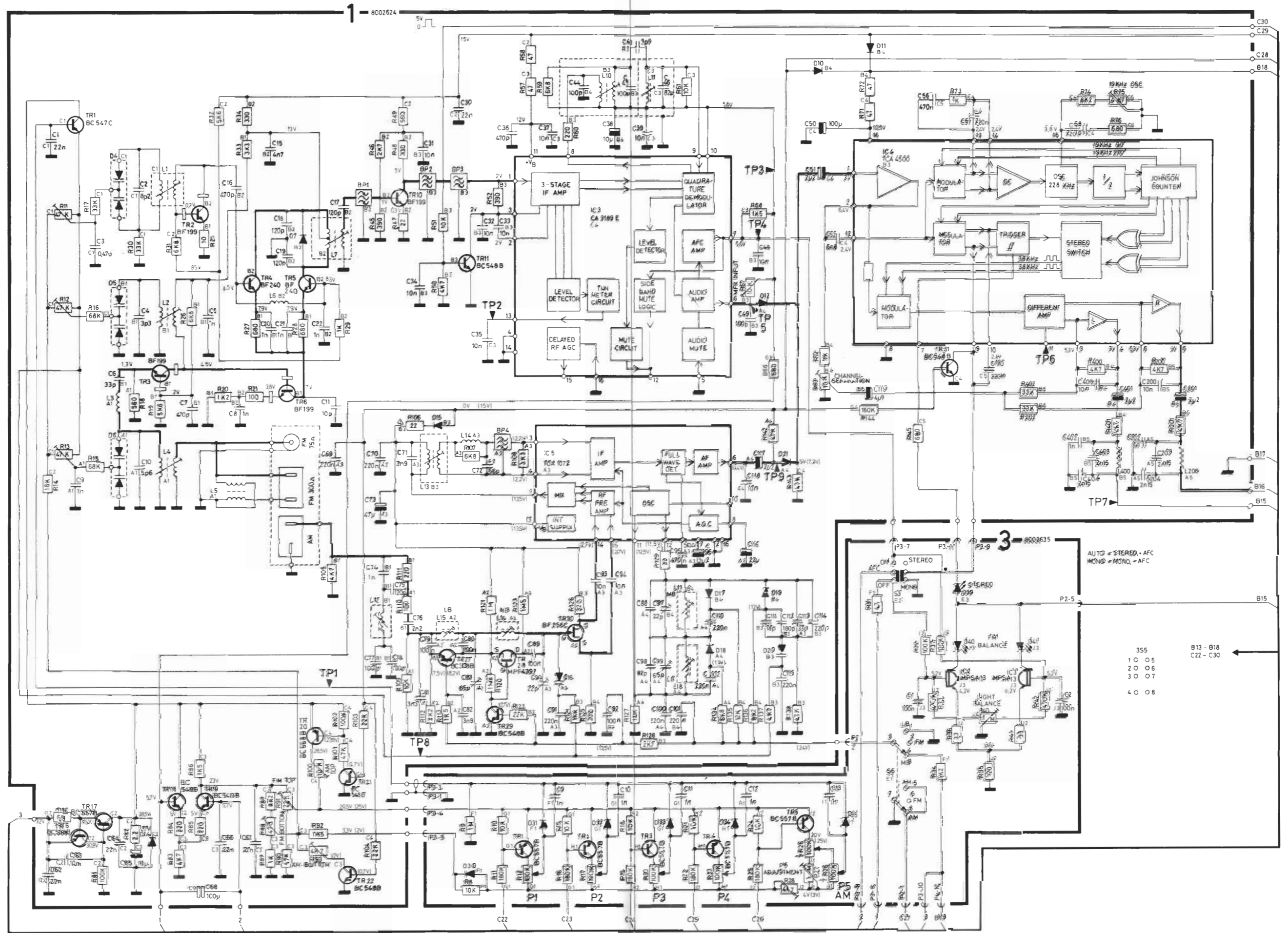
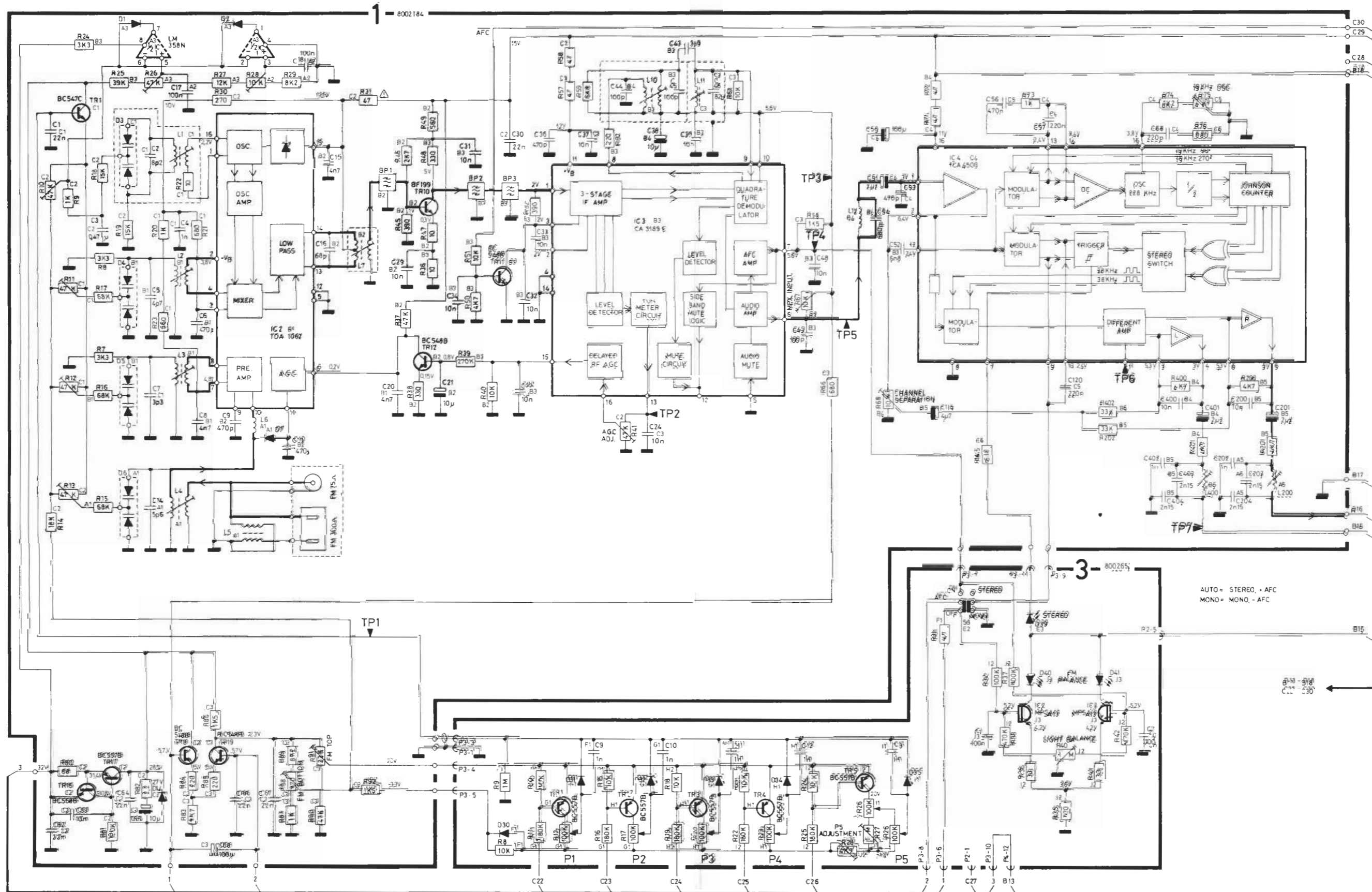


DIAGRAM A, type 2919



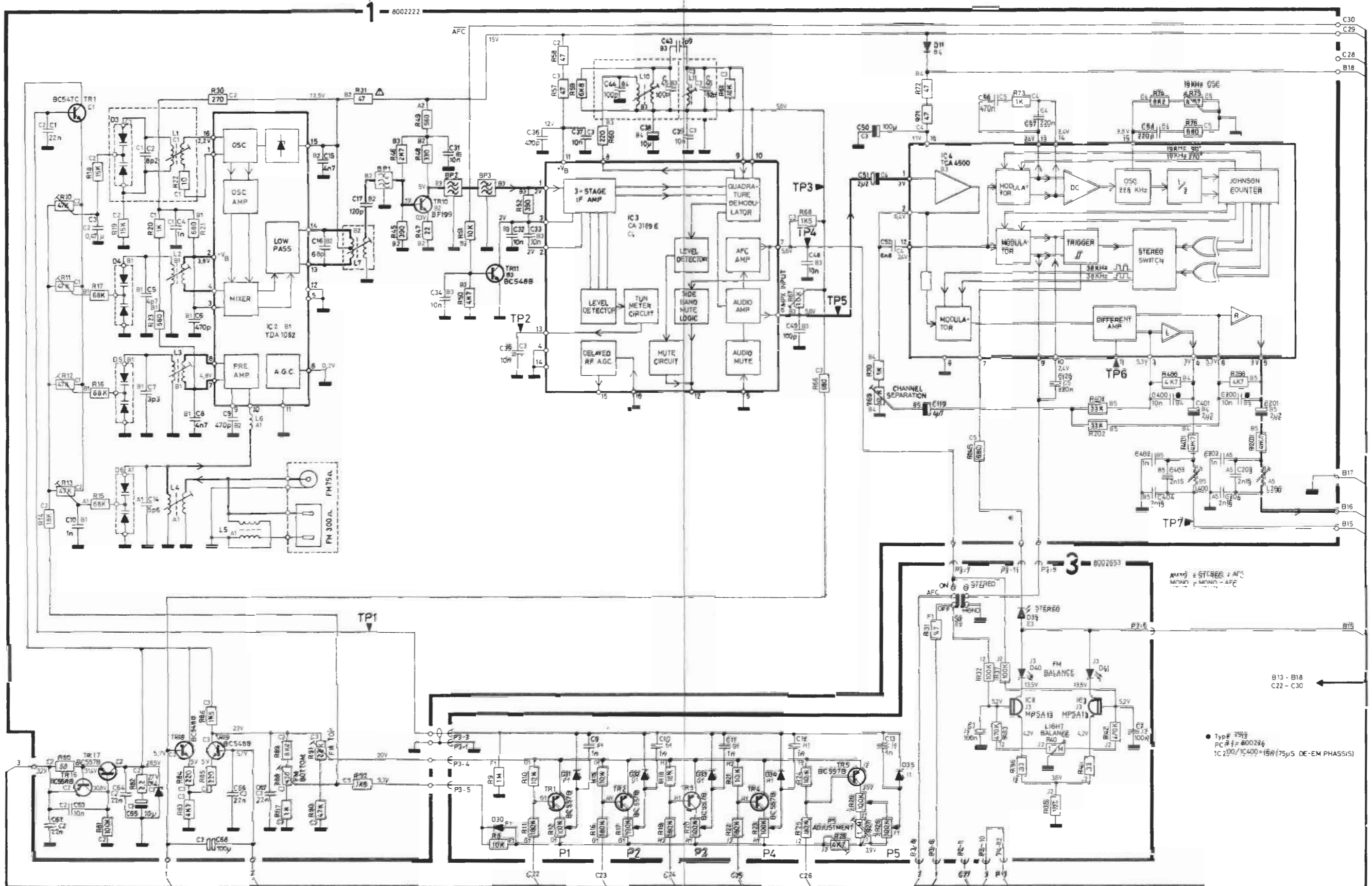


DIAGRAM A, type 2912/15/17 From serial no. 2930001

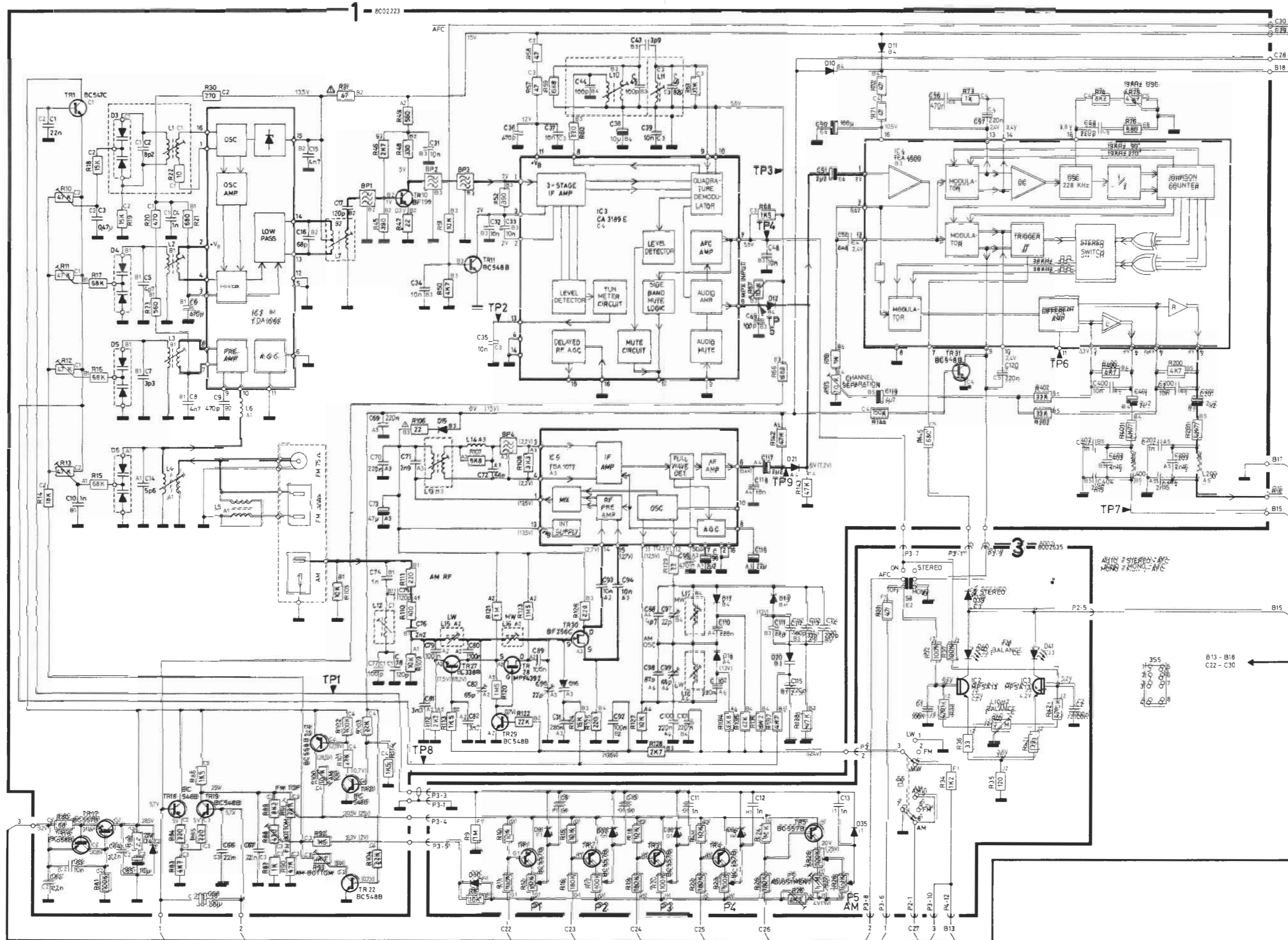


DIAGRAM B, all types

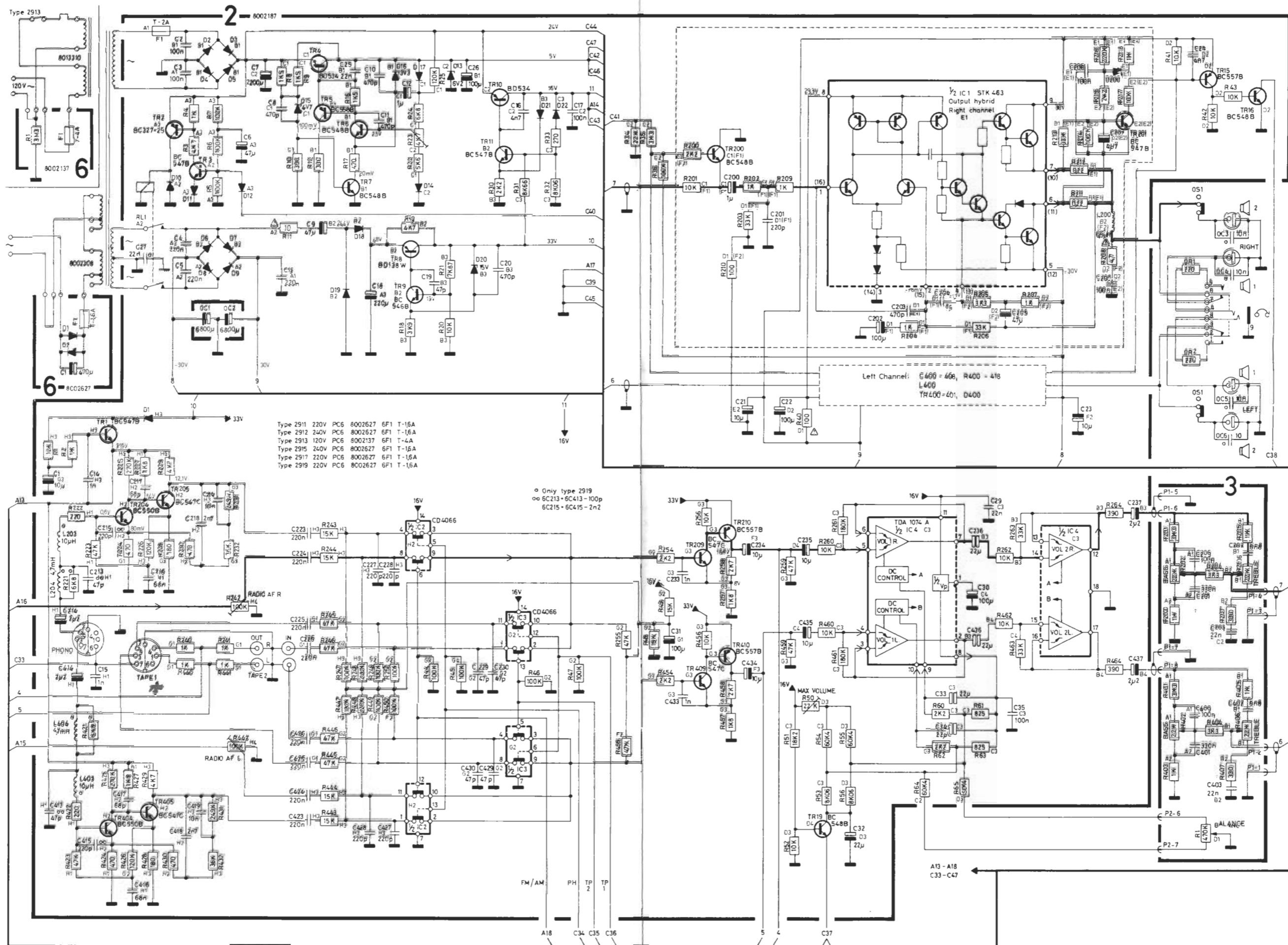
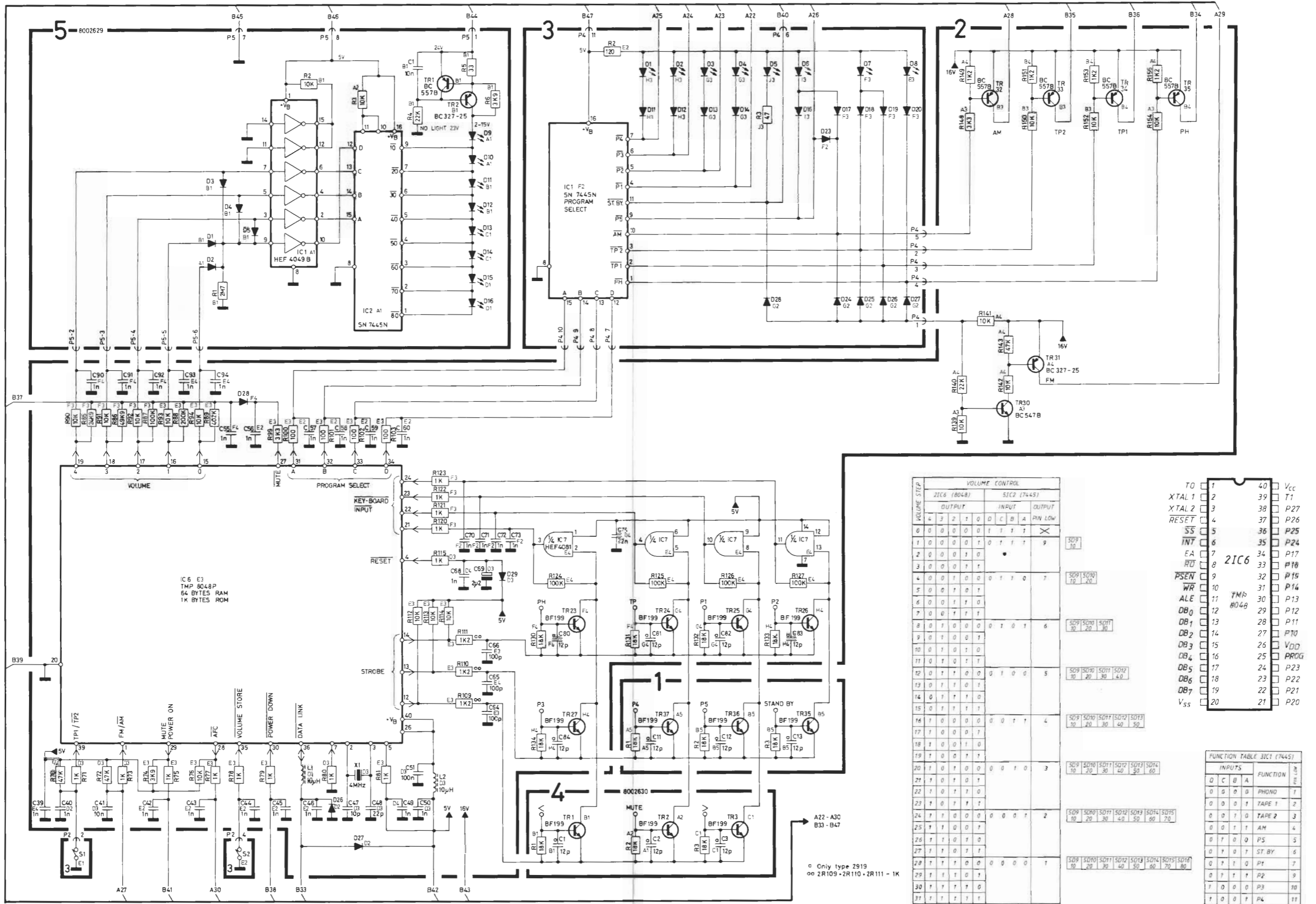
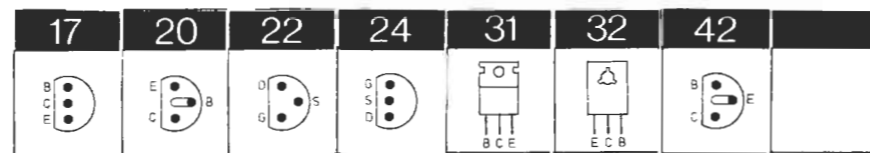


DIAGRAM C, all types

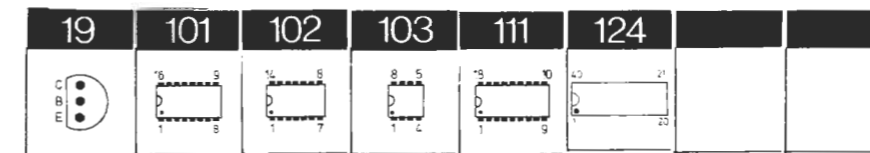


Transistors



| | | | | | | | |
|----------|----------|-----------|-------------|----------|---------|-----------|-----------|
| 1TR1 | 8320377 | 20 | BC 547 C | 2TR5 | 8320104 | 20 | BC 558 B |
| | | 20 | BC 182 C-CK | | | | |
| | | 17 | BC 182 CL | 2TR6-7 | 8320108 | 20 | BC 548 B |
| 1TR2-3 | 8320281 | 42 | BF 199 | 2TR8 | 8320241 | 32 | BD 138 W |
| 1TR4-5 | 8320311 | 42 | BF 240 | 2TR9 | 8320237 | 20 | BC 546 B |
| 1TR6/10 | 8320281 | 42 | BF 199 | 2TR10 | 8320369 | 31 | BD 534 |
| 1TR11-12 | 8320108 | 20 | BC 548 B | 2TR11 | 8320097 | 20 | BC 547 B |
| 1TR16 | 8320104 | 20 | BC 558 B | 2TR15 | 8320152 | 20 | BC 557 B |
| 1TR17 | 8320152 | 20 | BC 557 B | 2TR16/19 | 8320108 | 20 | BC 548 B |
| 1TR18-19 | 8320108 | 20 | BC 548 B | 2TR23-27 | 8320281 | 42 | BF 199 |
| 1TR20 | 8320104 | 20 | BC 558 B | 2TR30 | 8320097 | 20 | BC 547 B |
| 1TR21-22 | 8320108 | 20 | BC 548 B | 2TR31 | 8320316 | 20 | BC 327-25 |
| 1TR27 | 8320329 | 20 | BC 338-25 | 2TR32-35 | 8320152 | 20 | BC 557 B |
| 1TR28 | *8320396 | 24 | MPF 4392 | 2TR400 | 8320108 | 20 | BC 548 B |
| | | 24 | 2N 5639 | 2TR401 | 8320097 | 20 | BC 547 B |
| | | 24 | 2N 4392 | 2TR404 | 8320405 | 20 | BC 550 B |
| 1TR29 | 8320108 | 20 | BC 548 B | 2TR405 | 8320377 | 20 | BC 547 C |
| 1TR30 | 8320535 | 22 | BF 256 C | | | | 409 |
| 1TR31 | 8320108 | 20 | BC 548 B | 2TR410 | 8320152 | 20 | BC 557 B |
| 1TR35-37 | 8320281 | 42 | BF 199 | | | | 3TR1-5 |
| 2TR1 | 8320097 | 20 | BC 547 B | 4TR1-3 | 8320281 | 42 | BF 199 |
| 2TR2 | 8320316 | 20 | BC 327-25 | 5TR1 | 8320152 | 20 | BC 557 B |
| 2TR3 | 8320097 | 20 | BC 547 B | 5TR2 | 8320316 | 20 | BC 327-25 |
| 2TR4 | 8320369 | 31 | BD 534 | | | | |

IC's



| | | | | | | | |
|--------|----------|------------|--------------|--------|----------|------------|--------------|
| 1IC1 | 8340569 | 103 | LM 358 N | 2IC6 | Δ8340543 | 124 | TMP 8048 |
| 1IC2 | 8340198 | 101 | TDA 1062 | 2IC7 | Δ8340172 | 102 | CD 4081 BCN |
| | | | | | | 102 | HEF 4081 BP |
| 1IC3 | *8340233 | 101 | CA 3189 E | | | 102 | MC 14081 BCP |
| 1IC4 | 8340284 | 101 | TCA 4500 A | 3IC1 | 8340192 | 101 | SN 7445 N |
| | | | | | | 101 | DM 7445 N |
| 1IC5 | 8340489 | 101 | TDA 1072 | 3IC2-3 | 8340054 | 19 | MPS A13 |
| 2IC1 | 8350000 | | STK 463 ST | 5IC1 | 8340542 | 101 | HEF 4049 BP |
| 2IC2-3 | Δ8340202 | 102 | HEF 4066 BP | 5IC2 | 8340192 | 101 | SN 7445 N |
| | | 102 | CD 4066 BCN | | | 101 | DM 7445 N |
| | | 102 | MC 14066 BCP | | | | |
| 2IC4 | 8340187 | 111 | TDA 1074 A | | | | |

*Specielt udvalgt eller bearbejdet eksemplar.

*Specially selected or adapted sample.

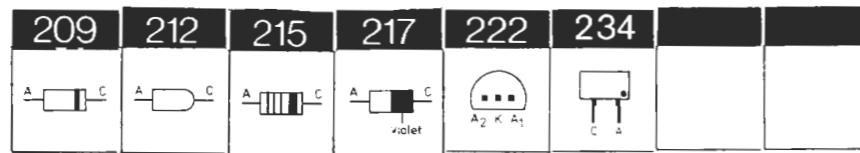
*Speziell ausgewähltes und bearbeitetes Exemplar.

ΔBetyder statisk elektricitet kan ødelægge komponenten.

ΔIndicates static electricity may destroy the component.

ΔBedeutet statische Elektrizität die Komponente zerstören kann.

ΔSignifi que électricité statique peut detruire le composant.



Diodes

| | | | | | | | |
|---------|----------|------------|---------------|-----------|----------|------------|---------------|
| 1D1-2 | 8300058 | 209 | 1N 4148 | 2D15 | 8300036 | 209 | ZPD 4.7V |
| | | 215 | 1N 4148 | | | 209 | BZX 79 C 4.7V |
| | | 217 | SFD 184 | | | 209 | BZX 83 C 4.7V |
| 1D3-6 | 8300308 | 222 | BB 204 | 2D16 | 8300135 | 209 | ZPD 3.3V |
| 1D7 | 8300306 | 209 | BA 479 | | | 209 | BZX 79 C 3.3V |
| | | | | | | 209 | BZX 83 C 3.3V |
| 1D10-12 | 8300058 | 209 | 1N 4148 | 2D17 | 8300058 | 209 | 1N 4148 |
| | | 215 | 1N 4148 | | | 215 | 1N 4148 |
| | | 217 | SFD 184 | | | 217 | SFD 184 |
| 1D14 | *8340105 | 209 | ZTK 27 SB | 2D18-19 | 8300023 | 209 | 1N 4002 |
| 1D15 | 8300058 | 209 | 1N 4148 | | | | |
| | | 215 | 1N 4148 | 2D20 | 8300313 | 209 | ZPD 15V |
| | | 217 | SFD 184 | | | 209 | BZX 79 B 15V |
| 1D16 | 8300384 | 234 | KV 1226 Y | | | 209 | BZX 83 B 15V |
| 1D17-19 | 8300385 | 209 | BA 423 | 2D21-22/ | 8300058 | 209 | 1N 4148 |
| 1D20 | 8300384 | 234 | KV 1226 Y | 26-29/400 | | 215 | 1N 4148 |
| 1D21 | 8300058 | 209 | 1N 4148 | | | 217 | SFD 184 |
| 2D1 | | 215 | 1N 4148 | 3D1-4 | *8330084 | | LT 9306 D A |
| | | 217 | SFD 184 | 3D5 | 8330001 | | CQY 10-5 |
| 2D2-5 | 8300023 | 209 | 1N 4002 | | | | CQY 85 LM |
| 2D6-9 | 8300294 | 209 | MR 501 | 3D6-8 | *8330084 | | LT 9306 D A |
| | | 212 | 1N 5401 | 3D11-14/ | 8300058 | 209 | 1N 4148 |
| 2D10-11 | 8300023 | 209 | 1N 4002 | 16-20/ | | 215 | 1N 4148 |
| 2D12 | 8300058 | 209 | 1N 4148 | 23-28/ | | 217 | SFD 184 |
| | | 215 | 1N 4148 | 30-35 | | | |
| | | 217 | SFD 184 | 3D39-41 | *8330126 | | LT 9306 E G/A |
| 2D13 | 8300201 | 209 | ZPD 6.2V | 5D1-5 | 8300058 | 209 | 1N 4148 |
| | | 209 | BZX 79 C 6.2V | | | 215 | 1N 4148 |
| | | 209 | BZX 83 C 6.2V | | | 217 | SFD 184 |
| 2D14 | 8300058 | 209 | 1N 4148 | 5D9-16 | *8330084 | | LT 9306 D A |
| | | 215 | 1N 4148 | 6D1-2 | 8300023 | 209 | 1N 4002 |
| | | 217 | SFD 184 | | | | |

LIST OF ELECTRICAL PARTS

Resistors not mentioned are standard 5%, 1/4W carbon film.

| | | | | | |
|-----|---------|-------------------|-----|---------|---------------------------------------|
| OC1 | 4200540 | 6800 μ F 40V | OR1 | 5001019 | 220 Ω 10% 12W |
| OC2 | 4200540 | 6800 μ F 40V | OR2 | 5001019 | 220 Ω 10% 12W |
| OS1 | 7400254 | Switch SPEAKERS 2 | OT1 | 8013308 | Mains transformer 2911/12/15/17/19 |
| | | | | 8013310 | Mains transformer 2913 |
| OC3 | 4010041 | 10 nF -20+80% 40V | | | |
| OC4 | 4010041 | 10 nF -20+80% 40V | | | |
| OC5 | 4010041 | 10 nF -20+80% 40V | | | |
| OC6 | 4010041 | 10 nF -20+80% 40V | | | |

2919 only

PCB 1 - RF, IF & Stereo Decoder From serial no. 2930001

8002222 type 2911
8002223 types 2912/15/17
8002224 type 2913
8002184 type 2919

| | | | | | |
|------|---------|----------------------|-------|---------|--------------------------------|
| C1 | 4010060 | 22 nF -20+80% 40V | C73 | 4200483 | 47 μ F 16V |
| C2 | 4000106 | 8.2 pF 0.25 pF 250V | C74 | 4100019 | 1 nF 2.5% 63V |
| C3 | 4200476 | 0.47 μ F 50V | C75 | 4000170 | 120 pF 2% 63V |
| C4 | 4010027 | 1 nF 10% 63V | C76 | 4010061 | 2.2 nF 10% 63V |
| C5 | 4000104 | 4.7 pF 0.25 pF 63V | C77 | 4000085 | 100 pF 2% 63V |
| C6 | 4010087 | 470 pF 10% 63V | C78 | 4000170 | 120 pF 2% 63V |
| C7 | 4000099 | 3.3 pF 0.25 pF 63V | C79 | 4130179 | 0.1 μ F 20% 63V |
| C8 | 4010063 | 4.7 nF 10% 63V | C80 | 4130179 | 0.1 μ F 20% 63V |
| C9 | 4010087 | 470 pF 10% 63V | C81 | 4100033 | 3.3 nF 5% 63V |
| C10* | 4010027 | 1 nF 10% 63V | C82 | 4100216 | 3.9 nF 2.5% 63V |
| C14 | 4000105 | 5.6 pF 0.25 pF 63V | C83 | 4340003 | 5.5-65 pF foil |
| C15 | 4010063 | 4.7 nF 10% 63V | C88 | 4000218 | 4.7 pF 5% 63V |
| C16 | 4000107 | 68 pF 2% 63V | C89 | 4130179 | 0.1 μ F 20% 63V |
| C17* | 4000170 | 120 pF 2% 63V | C90 | 4340002 | 2-22 pF foil |
| C31 | 4010041 | 10 nF -20+80% 40V | C91 | 4130215 | 0.22 μ F 20% 63V |
| C32 | 4010041 | 10 nF -20+80% 40V | C92 | 4130179 | 0.1 μ F 20% 63V |
| C33 | 4010041 | 10 nF -20+80% 40V | C93 | 4010041 | 10 nF -20+80% 40V |
| C34 | 4010041 | 10 nF -20+80% 40V | C94 | 4010041 | 10 nF -20+80% 40V |
| C35 | 4010041 | 10 nF -20+80% 40V | C95 | 4130293 | 0.47 μ F 10% 63V |
| C36 | 4010087 | 470 pF 10% 63V | C96 | 4200423 | 2.2 μ F 50V |
| C37 | 4010041 | 10 nF -20+80% 40V | C97 | 4340002 | 2-22 pF foil |
| C38 | 4200431 | 10 μ F 16V | C98 | 4000110 | 82 pF 5% 63V |
| C39 | 4010041 | 10 nF -20+80% 40V | C99 | 4340003 | 5.5-65 pF foil |
| C43 | 4000082 | 3.9 pF 0.25 pF 63V | C100 | 4130215 | 0.22 μ F 20% 63V |
| C44 | 4000085 | 100 pF 2% 63V | C101 | 4130215 | 0.22 μ F 20% 63V |
| C45 | 4000085 | 100 pF 2% 63V | C102 | 4130215 | 0.22 μ F 20% 63V |
| C46 | 4000110 | 82 pF 5% 63V | C110 | 4130215 | 0.22 μ F 20% 63V |
| C48 | 4010041 | 10 nF -20+80% 40V | C111 | 4000159 | 18 pF 2% 63V (IF = 460 kHz) |
| C49 | 4000085 | 100 pF 2% 63V | C111 | 4000026 | 22 pF 2% 63V (IF = 455 kHz) |
| C50 | 4200129 | 100 μ F 16V | | | |
| C51 | 4200423 | 2.2 μ F 50V | | | |
| C52 | 4130050 | 6.8 nF 10% 250V | C112 | 4100108 | 180 pF 5% 63V |
| C56 | 4130293 | 0.47 μ F 10% 63V | C113 | 4003125 | 33 pF 2% 63V |
| C57 | 4130215 | 0.22 μ F 20% 63V | C114 | 4101007 | 220 pF 5% 63V |
| C58 | 4101007 | 220 pF 5% 63V | C115 | 4130215 | 0.22 μ F 20% 63V |
| C62 | 4010060 | 22 nF -20+80% 40V | C116 | 4200480 | 22 μ F 10V |
| C63 | 4010041 | 10 nF -20+80% 40V | C117 | 4200423 | 22 μ F 50V |
| C64 | 4010060 | 22 nF -20+100% 40V | C118 | 4130220 | 10 nF 5% 63V |
| C65 | 4200487 | 10 μ F 50V | C119 | 4200477 | 4.7 μ F 25V |
| C66 | 4010060 | 22 nF -20+100% 40V | C120 | 4130215 | 0.22 μ F 20% 63V |
| C67 | 4010060 | 22 nF -20+100% 40V | C400* | 4130220 | 10 nF 5% 63V |
| C68 | 4200493 | 100 μ F 10V bip. | C401 | 4200423 | 2.2 μ F 50V |
| C69 | 4130215 | 0.22 μ F 20% 63V | C402 | 4100019 | 1 nF 2.5% 63V |
| C70 | 4130215 | 0.22 μ F 20% 63V | C403 | 4100081 | 2.15 nF 2.5% 63V |
| C71 | 4100216 | 3.9 nF 2.5% 63V | C404 | 4100081 | 2.15 nF 2.5% 63V |
| C72 | 4000109 | 56 pF 2% 63V | | | |

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|-----|---------|----------------------|------|---------|-----------------------|
| R10 | 5370061 | 47 k Ω 20% | R71 | 5011009 | 47 Ω 5% 12W |
| R11 | 5370061 | 47 k Ω 20% | R72 | 5011009 | 47 Ω 5% 12W |
| R12 | 5370061 | 47 k Ω 20% | R75 | 5370058 | 4.7 k Ω 20% |
| R13 | 5370061 | 47 k Ω 20% | R88 | 5370150 | 470 Ω 20% |
| R31 | 5020345 | 47 Ω 10% 1/4W | R91 | 5370068 | 22 k Ω 20% |
| R57 | 5011009 | 47 Ω 5% 12W | R93 | 5370058 | 4.7 k Ω 20% |
| R58 | 5011009 | 47 Ω 5% 12W | R100 | 5370074 | 10 k Ω 20% |
| R67 | 5370074 | 10 k Ω 20% | R106 | 5020148 | 22 Ω 10% 1/4W |
| R69 | 5370074 | 10 k Ω 20% | R120 | 5011071 | 1.5 M Ω 5% 12W |

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|------|---------|--------------------|------|---------|-------------------|
| R123 | 5011071 | 1.5 MΩ 5% 1/2W | R400 | 5010726 | 4.7 kΩ 2% 1/4W |
| R145 | 5011024 | 680 Ω 5% 1/2W | R401 | 5010726 | 4.7 kΩ 2% 1/4W |
| L1 | 8020322 | Osc. - FM | L12* | 8020471 | Trap 461 kHz |
| L2 | 8020321 | RF - FM | L13 | 8020418 | IF - AM |
| L3 | 8020320 | RF - FM | L14 | 8020502 | 1 mH |
| L4 | 8020319 | RF - FM | L15 | 8020414 | RF - LW |
| L5 | 8020341 | Aerial transformer | L16 | 8020416 | RF - MW |
| L6 | 6850127 | 1.2 μH | L17 | 8020417 | Osc. - MW |
| L7 | 8020323 | IF - FM | L18 | 8020415 | Osc. - LW |
| L10 | 8020368 | Det. - FM | L400 | 8020142 | 31 mH |
| L11 | 8020369 | Det. - FM | | | |
| BP1* | 8030014 | 10.7 MHz | BP4 | 8030025 | 460 kHz |
| BP2 | 8030014 | 10.7 MHz | BP4 | 8030056 | 455 kHz |
| BP3 | 8030014 | 10.7 MHz | | | |
| C400 | 4130301 | 15 nF 10% 63V | | | |
| C10 | 4010087 | 470pF 10% 63V | C21 | 4200431 | 10 μF 16V |
| C11 | 4000178 | 12 pF 5% 63V | C22 | 4010041 | 10 nF -20+80% 40V |
| C12 | 4000178 | 12 pF 5% 63V | C24 | 4010041 | 10 nF -20+80% 40V |
| C13 | 4000178 | 12 pF 5% 63V | C29 | 4010041 | 10 nF -20+80% 40V |
| C17 | 4130179 | 0.1 μF 20% 63V | C30 | 4010060 | 22 nF -20+80% 40V |
| C18 | 4130179 | 0.1 μF 20% 63V | C53 | 4010087 | 470pF 10% 63V |
| C20 | 4010063 | 4.7 nF 10% 63V | C54 | 4010031 | 680 pF 10% 63V |
| R26 | 5370061 | 47 kΩ 20% | L12 | 8020413 | 1 mH |
| R28 | 5370074 | 10 kΩ 20% | BP1 | 8030037 | 10.7 MHz |
| R41 | 5370201 | 47 kΩ 20% | | | |

2913 only*

2919 only*

PCB 1
Before serial no. 2930001

| | | | | | |
|-----|---------|---------------------|------|---------|-------------------|
| C1 | 4010060 | 22 nF -20+80% 40V | C57 | 4130215 | 0.22 μF 20% 63V |
| C2 | 4000106 | 8.2 pF 0.25 pF 250V | C58 | 4101007 | 220 pF 5% 63V |
| C3 | 4130293 | 0.47 μF 10% 63V | C62 | 4010060 | 22 nF -20+80% 40V |
| C4 | 4000099 | 3.3 pF 0.25 pF 63V | C63 | 4010041 | 10 nF -20+80% 40V |
| C5 | 4010027 | 1 nF 10% 63V | C64 | 4010060 | 22 nF -20+80% 40V |
| C6 | 4003125 | 33 pF 2% 63V | C65 | 4200487 | 10 μF 50V |
| C7 | 4010087 | 470 pF 10% 63V | C66 | 4010060 | 22 nF -20+80% 40V |
| C8 | 4010027 | 1 nF 10% 63V | C67 | 4010060 | 22 nF -20+80% 40V |
| C9 | 4010027 | 1 nF 10% 63V | C68 | 4200493 | 100 μF 10V bip. |
| C10 | 4000105 | 5.6 pF 0.25 pF 63V | C69 | 4130215 | 0.22 μF 20% 63V |
| C11 | 4000016 | 10 pF 2% 63V | C70 | 4130215 | 0.22 μF 20% 63V |
| C15 | 4010063 | 4.7 nF 10% 63V | C71 | 4100216 | 3.9 nF 2.5% 63V |
| C16 | 4010087 | 470 pF 10% 63V | C72 | 4000109 | 56 pF 2% 63V |
| C17 | 4000170 | 120 pF 2% 63V | C73 | 4200483 | 47 μF 16V |
| C18 | 4000170 | 120 pF 2% 63V | C74 | 4100019 | 1 nF 2.5% 63V |
| C19 | 4000170 | 120 pF 2% 63V | C75 | 4000170 | 120 pF 2% 63V |
| C20 | 4010027 | 1 nF 10% 63V | C76 | 4010061 | 2.2 nF 10% 63V |
| C21 | 4010027 | 1 nF 10% 63V | C77 | 4000085 | 100 pF 2% 63V |
| C22 | 4010027 | 1 nF 10% 63V | C78 | 4000170 | 120 pF 2% 63V |
| C30 | 4010060 | 22 nF -20+80% 40V | C79 | 4130179 | 0.1 μF 20% 63V |
| C31 | 4010041 | 10 nF -20+80% 40V | C80 | 4130179 | 0.1 μF 20% 63V |
| C32 | 4010041 | 10 nF -20+80% 40V | C81 | 4100033 | 3.3 nF 5% 63V |
| C33 | 4010041 | 10 nF -20+80% 40V | C82 | 4100216 | 3.9 nF 2.5% 63V |
| C34 | 4010041 | 10 nF -20+80% 40V | C83 | 4340003 | 55-65 pF foil |
| C35 | 4010041 | 10 nF -20+80% 40V | C88 | 4000218 | 10 pF 5% 63V |
| C36 | 4010087 | 470 pF 10% 63V | C89 | 4130179 | 0.1 μF 20% 63V |
| C37 | 4010041 | 10 nF -20+80% 40V | C90 | 4340002 | 2-22 pF foil |
| C38 | 4200431 | 10 μF 16V | C91 | 4130215 | 0.22 μF 20% 63V |
| C39 | 4010041 | 10 nF -20+80% 40V | C92 | 4130179 | 0.1 μF 20% 63V |
| C43 | 4000082 | 3.9 pF 0.25 pF 63V | C93 | 4010041 | 10 nF -20+80% 40V |
| C44 | 4000085 | 100 pF 2% 63V | C94 | 4010041 | 10 nF -20+80% 40V |
| C45 | 4000085 | 100 pF 2% 63V | C95 | 4130293 | 0.47 μF 10% 63V |
| C46 | 4000110 | 82 pF 5% 63V | C96 | 4200423 | 2.2 μF 50V |
| C48 | 4010041 | 10 nF -20+80% 40V | C97 | 4340002 | 2-22 pF foil |
| C49 | 4000085 | 100 pF 2% 63V | C98 | 4000110 | 82 pF 5% 63V |
| C50 | 4200129 | 100 μF 16V | C99 | 4340003 | 55-65 pF foil |
| C51 | 4200423 | 2.2 μF 50V | C100 | 4130215 | 0.22 μF 20% 63V |
| C52 | 4130050 | 6.8 nF 10% 250V | C101 | 4130215 | 0.22 μF 20% 63V |
| C56 | 4130293 | 0.47 μF 10% 63V | C102 | 4130215 | 0.22 μF 20% 63V |

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|------|---------|--------------------------------|------|---------|------------------|
| C110 | 4130215 | 0.22 μF 20% 63V | C117 | 4200423 | 2.2 μF 50V |
| C111 | 4000150 | 18 pF 2% 63V (IF = 460 kHz) | C118 | 4130220 | 10 nF 5% 63V |
| C111 | 4000026 | 22 pF 2% 63V (IF = 455 kHz) | C119 | 4200477 | 4.7 μF 25V |
| C112 | 4100108 | 180 pF 5% 63V | C120 | 4130215 | 0.22 μF 20% 63V |
| C113 | 4000125 | 33 pF 2% 63V | C400 | 4130220 | 10 nF 5% 63V |
| C114 | 4101007 | 220 pF 5% 63V | C401 | 4200423 | 2.2 μF 50V |
| C115 | 4130215 | 0.22 μF 20% 63V | C402 | 4100019 | 1 nF 2.5% 63V |
| C116 | 4200480 | 22 μF 16V | C403 | 4100081 | 2.15 nF 2.5% 63V |
| | | | C404 | 4100081 | 2.15 nF 2.5% 63V |
| R11 | 5370061 | 47 kΩ 20% | R75 | 5370058 | 4.7 kΩ 20% |
| R12 | 5370061 | 47 kΩ 20% | R88 | 5370150 | 470 Ω 20% |
| R13 | 5370061 | 47 kΩ 20% | R91 | 5370068 | 22 kΩ 20% |
| R57 | 5011009 | 47 Ω 5% 1/2W | R93 | 5370058 | 4.7 kΩ 20% |
| R58 | 5011009 | 47 Ω 5% 1/2W | R100 | 5370074 | 10 kΩ 20% |
| R67 | 5370074 | 10 kΩ 20% | R106 | 5020148 | 22 Ω 10% 1/4W |
| R69 | 5370074 | 10 kΩ 20% | R120 | 5011071 | 1.5 MΩ 5% 1/2W |
| R71 | 5011009 | 47 Ω 5% 1/2W | R123 | 5011071 | 1.5 MΩ 5% 1/2W |
| R72 | 5011009 | 47 Ω 5% 1/2W | R145 | 5011024 | 680 Ω 5% 1/2W |
| L1 | 8020322 | Osc. - FM | L12 | 8020471 | Trap 461 kHz |
| L2 | 8020487 | RF - FM | L13 | 8020418 | IF - AM |
| L3 | 6850127 | 1.2 μH | L14 | 8020413 | 1 mH |
| L4 | 8020319 | RF - FM | L15 | 8020414 | RF - LW |
| L5 | 8020341 | Aerial transformer | L16 | 8020416 | RF - MW |
| L6 | 8020342 | 10 μH | L17 | 8020417 | Osc. - MW |
| L7 | 8020468 | IF - FM | L18 | 8020415 | Osc. - LW |
| L10 | 8020368 | FM det. I | L400 | 8020142 | 31 mH |
| L11 | 8020369 | FM det. II | | | |
| BP1 | 8030014 | 10.7 MHz | BP4 | 8030025 | 460 kHz |
| BP2 | 8030014 | 10.7 MHz | BP4 | 8030056 | 455 kHz |
| BP3 | 8030014 | 10.7 MHz | | | |

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|-----|---------|--------------------|------|---------|--------------------|
| FE | 6710001 | Fe-beads | | | |
| C1 | 4201081 | 10 μF 63V | C42 | 4010027 | 1 nF 10% 63V |
| C2 | 4130103 | 0.1 μF 20% 250V | C43 | 4010027 | 1 nF 10% 63V |
| C3 | 4130103 | 0.1 μF 20% 250V | C44 | 4010027 | 1 nF 10% 63V |
| C4 | 4130082 | 0.22 μF 20% 250V | C45 | 4010027 | 1 nF 10% 63V |
| C5 | 4130082 | 0.22 μF 20% 250V | C46 | 4010027 | 1 nF 10% 63V |
| C6 | 4200128 | 47 μF 16V | C47 | 4000175 | 10 pF 5% 63V |
| C7 | 4200496 | 2200 μF 40V | C48 | 4000185 | 22 pF 5% 63V |
| C8 | 4010024 | 470 pF 10% 63V | C49 | 4010027 | 1 nF 10% 63V |
| C9 | 4200271 | 47 μF 63V | C50 | 4010027 | 1 nF 10% 63V |
| C10 | 4010024 | 470 pF 10% 63V | C51 | 4130103 | 0.1 μF 20% 250V |
| C11 | 4010024 | 470 pF 10% 63V | C52 | 4010027 | 1 nF 10% 63V |
| C12 | 4200426 | 1 μF 50V | C56 | 4010027 | 1 nF 10% 63V |
| C13 | 4130082 | 0.22 μF 20% 250V | C57 | 4010027 | 1 nF 10% 63V |
| C14 | 4010027 | 1 nF 10% 63V | C58 | 4010027 | 1 nF 10% 63V |
| C15 | 4010027 | 1 nF 10% 63V | C59 | 4010027 | 1 nF 10% 63V |
| C16 | 4010063 | 4.7 nF 10% 63V | C60 | 4010027 | 1 nF 10% 63V |
| C17 | 4130179 | 0.1 μF 20% 63V | C64 | 4003128 | 100 pF 5% 63V |
| C18 | 4200859 | 220 μF 63V | C65 | 4003128 | 100 pF 5% 63V |
| C19 | 4000173 | 47 pF 5% 63V | C66 | 4003128 | 100 pF 5% 63V |
| C20 | 4010024 | 470 pF 10% 63V | C68 | 4010027 | 1 nF 10% 63V |
| C21 | 4201081 | 10 μF 63V | C69 | 4200423 | 2.2 μF 50V |
| C22 | 4201082 | 100 μF 40V | C70 | 4010027 | 1 nF 10% 63V |
| C23 | 4201081 | 10 μF 63V | C71 | 4010027 | 1 nF 10% 63V |
| C24 | 4010063 | 4.7 nF 10% 63V | C72 | 4010027 | 1 nF 10% 63V |
| C25 | 4010076 | 22 nF -20+100% 40V | C73 | 4010027 | 1 nF 10% 63V |
| C26 | 4200478 | 100 μF 10V | C74 | 4010076 | 22 nF -20+100% 40V |
| C29 | 4010076 | 22 nF -20+100% 40V | C90 | 4010027 | 1 nF 10% 63V |
| C30 | 4200403 | 100 μF 25V | C91 | 4010027 | 1 nF 10% 63V |
| C31 | 4200129 | 100 μF 16V | C92 | 4010027 | 1 nF 10% 63V |
| C32 | 4200480 | 22 μF 16V | C93 | 4010027 | 1 nF 10% 63V |
| C33 | 4200518 | 22 μF 16V bip. | C94 | 4010027 | 1 nF 10% 63V |
| C34 | 4200518 | 22 μF 16V bip. | C400 | 4200426 | 1 μF 50V |
| C35 | 4130179 | 0.1 μF 20% 63V | C401 | 4000018 | 220 pF 5% 63V |
| C36 | 4010027 | 1 nF 10% 63V | C402 | 4200478 | 100 μF 16V |
| C40 | 4010027 | 1 nF 10% 63V | C403 | 4010024 | 470 pF 10% 63V |
| C41 | 4010027 | 1 nF 10% 63V | C404 | 4000015 | 8.2 pF 0.25 pF 63V |

PCB 2 - 8002187 AF, Power Supply & Control

| | | | | | |
|------|---------|----------------------|------|---------|----------------------|
| C405 | 4201087 | 47 μ F 40V | C424 | 4130233 | 0.22 μ F 20% 63V |
| C406 | 4130179 | 0.1 μ F 20% 63V | C425 | 4130233 | 0.22 μ F 20% 63V |
| C407 | 4200477 | 4.7 μ F 25V | C426 | 4130233 | 0.22 μ F 20% 63V |
| C408 | 4130103 | 0.1 μ F 20% 250V | C427 | 4010021 | 220 pF 10% 63V |
| C413 | 4000173 | 47 pF 5% 63V | C428 | 4010021 | 220 pF 10% 63V |
| C414 | 4200423 | 2.2 μ F 50V | C429 | 4000173 | 47 pF 5% 63V |
| C415 | 4000018 | 220 pF 5% 63V | C430 | 4000173 | 47 pF 5% 63V |
| C416 | 4130264 | 68 nF 10% 63V | C433 | 4010027 | 1 nF 10% 63V |
| C417 | 4000197 | 68 pF 5% 63V | C434 | 4200487 | 10 μ F 50V |
| C418 | 4010065 | 2.7 nF 10% 63V | C435 | 4200484 | 10 μ F 25V |
| C419 | 4130213 | 10 nF 10% 63V | C436 | 4200518 | 22 μ F 16V bip. |
| C423 | 4130233 | 0.22 μ F 20% 63V | C437 | 4200423 | 2.2 μ F 50V |

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|-----|---------|-------------------------|------|---------|-------------------------|
| R11 | 5020136 | 10 Ω 10% 3/4W | R63 | 5020185 | 825 Ω 1% 1/4W |
| R20 | 5010110 | 10 k Ω 1% 1/4W | R64 | 5020097 | 60.4 k Ω 1% 1/4W |
| R21 | 5020116 | 7.87 k Ω 1% 1/4W | R65 | 5020097 | 60.4 k Ω 1% 1/4W |
| R23 | 5370058 | 4.7 k Ω 20% | R85 | 5020240 | 24.9 k Ω 1% 1/4W |
| R31 | 5020145 | 8.66 k Ω 1% 1/4W | R86 | 5020140 | 49.9 k Ω 1% 1/4W |
| R32 | 5020340 | 8.06 k Ω 1% 1/4W | R87 | 5020263 | 100 k Ω 1% 1/4W |
| R40 | 5020159 | 100 Ω 10% 1/4W | R88 | 5020456 | 200 k Ω 1% 1/4W |
| R50 | 5370068 | 22 k Ω 20% | R89 | 5020281 | 402 k Ω 1% 1/4W |
| R51 | 5020235 | 18.2 k Ω 1% 1/4W | R408 | 5020657 | 4.7 Ω 10% 1/3W |
| R52 | 5010110 | 10 k Ω 1% 1/4W | R411 | 5102016 | 0.22 Ω 10% 1W |
| R53 | 5020340 | 8.06 k Ω 1% 1/4W | R412 | 5102016 | 0.22 Ω 10% 1W |
| R54 | 5020097 | 60.4 k Ω 1% 1/4W | R431 | 5020595 | 249 k Ω 1% 1/4W |
| R55 | 5020097 | 60.4 k Ω 1% 1/4W | R432 | 5020019 | 36.5 k Ω 1% 1/4W |
| R56 | 5020340 | 8.06 k Ω 1% 1/4W | R442 | 5370128 | 100 k Ω 20% |
| R61 | 5020185 | 825 Ω 1% 1/4W | | | |

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|----|---------|---------------------|-----|---------|------|
| F1 | 6600009 | 2 A-T250V S IEC 127 | RL1 | 7600069 | 24 V |
|----|---------|---------------------|-----|---------|------|

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|----|---------|------------|------|---------|-------------|
| L1 | 8020342 | 10 μ H | L400 | 6850114 | 0.5 μ H |
| L2 | 8020342 | 10 μ H | | | |

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|----|---------|-------|--|--|--|
| X1 | 8090003 | 4 MHz | | | |
|----|---------|-------|--|--|--|

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|-----|---------|------------------|------|---------|----------------|
| C27 | 4010060 | 22 nF-20+80% 40V | C83 | 4000178 | 12 pF 5% 63V |
| C80 | 4000178 | 12 pF 5% 63V | C84 | 4000178 | 12 pF 5% 63V |
| C81 | 4000178 | 12 pF 5% 63V | C413 | 4000173 | 100 pF 5% 63V |
| C82 | 4000178 | 12 pF 5% 63V | C415 | 4010061 | 2.2 nF 10% 63V |

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|------|---------|------------|--|--|--|
| L403 | 8020342 | 10 μ H | | | |
| L404 | 8020476 | 4.7 mH | | | |

PCB 3 - Secondary Control

8002653 FM
8002635 FM-AM

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|-----|---------|---------------------|------|---------|----------------------|
| C1 | 4130224 | 0.1 μ F 10% 63V | C13 | 4010027 | 1 nF 10% 63V |
| C2 | 4130224 | 0.1 μ F 10% 63V | C400 | 4130224 | 0.1 μ F 10% 63V |
| C9 | 4010027 | 1 nF 10% 63V | C401 | 4130227 | 0.33 μ F 10% 63V |
| C10 | 4010027 | 1 nF 10% 63V | C402 | 4130050 | 6.8 nF 10% 250V |
| C11 | 4010027 | 1 nF 10% 63V | C403 | 4130216 | 22 nF 10% 63V |
| C12 | 4010027 | 1 nF 10% 63V | | | |

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|-----|---------|-----------------------|------|---------|-------------------------|
| R1 | 5300123 | 470 k Ω lin. | R26 | 5320023 | 2x100 k Ω tuning |
| R2 | 5011014 | 120 Ω 5% 1/2W | R27 | 5370049 | 1 M Ω 20% |
| R12 | 5300092 | 100 k Ω preset | R28 | 5370058 | 4.7 k Ω 20% |
| R17 | 5300092 | 100 k Ω preset | R40 | 5370049 | 1 M Ω 20% |
| R20 | 5300092 | 100 k Ω preset | R402 | 5310113 | 2x22 k Ω log. |
| R23 | 5300092 | 100 k Ω preset | R406 | 5310113 | 2x22 k Ω log. |

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|----|---------|---------|----|---------|-----------|
| P1 | 7220168 | 8 pins | S1 | 7400200 | TP 1/TP 2 |
| P2 | 7220247 | 7 pins | S2 | 7400271 | STORE |
| P3 | 7220177 | 11 pins | S3 | 7400200 | AUTOMONO |
| P4 | 7220199 | 12 pins | S5 | 7400199 | LWMWFM |

PCB 4 - 8002630 Volume Control

2919 only

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|----|---------|--------------|--|--|--|
| C1 | 4000178 | 12 pF 5% 63V | | | |
| C2 | 4000178 | 12 pF 5% 63V | | | |
| C3 | 4000178 | 12 pF 5% 63V | | | |

PCB 5 - 8002629 Volume Display

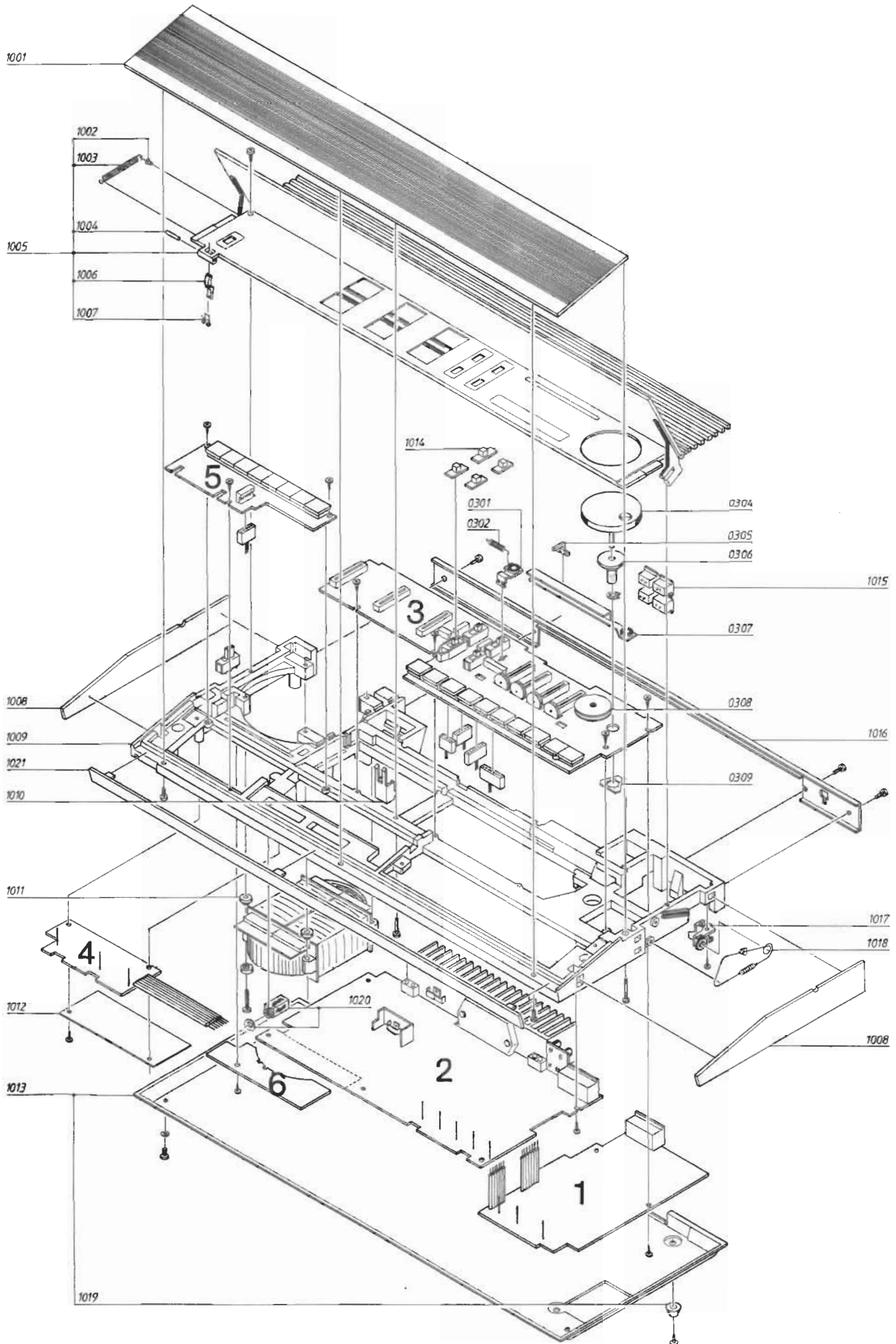
| | | | | | |
|----|---------|-------------------|--|--|--|
| C1 | 4010041 | 10 nF -20+80% 40V | | | |
| P5 | 7220168 | 8 pins | | | |

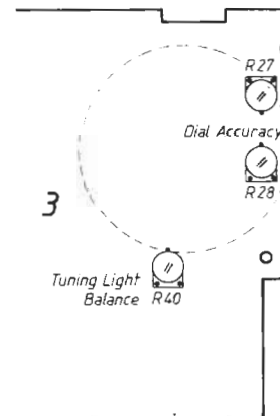
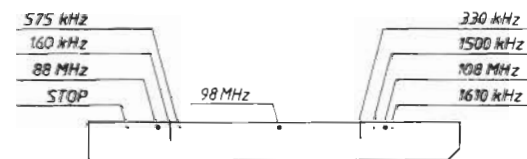
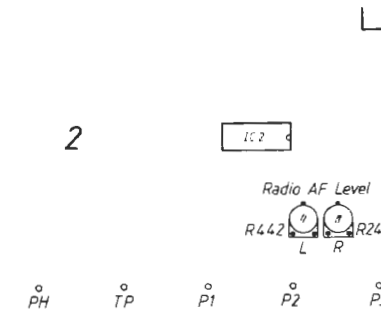
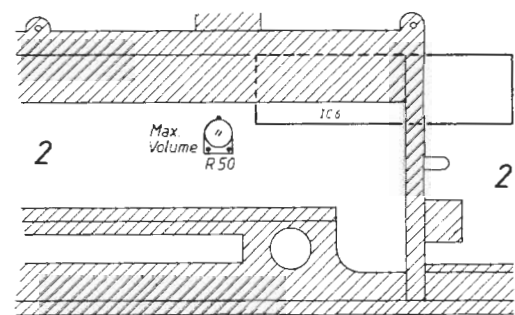
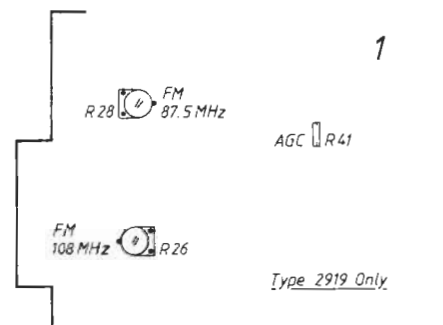
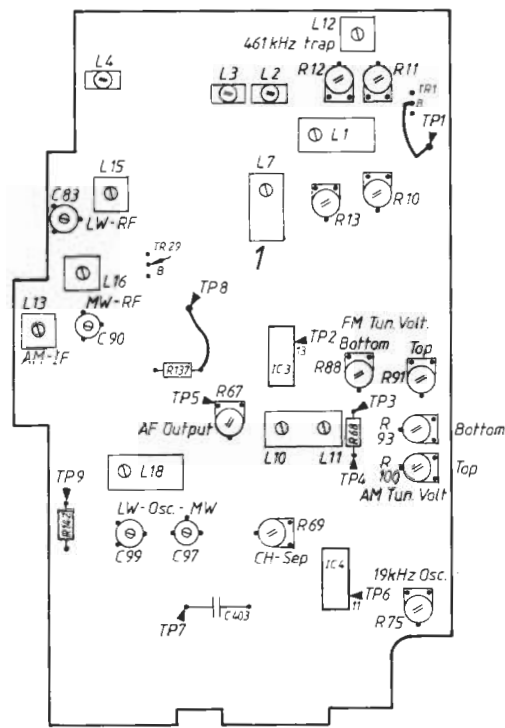
PCB 6 - 8002627 Fuses Board

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|----|---------|------------------|--|--|--|
| C1 | 4200143 | 470 μ F 6.3V | | | |
|----|---------|------------------|--|--|--|

PCB6 - 8002137 Fuses Board
2913 only

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|----|---------|------------------------|--|--|--|
| F1 | 6600022 | 1.6 A-T250V S IEC127 | | | |
| R1 | 5020319 | 3.3 M Ω 1% 1/2W | | | |
| F1 | 6600052 | 4 A-T | | | |





JUSTERINGER

I de efterfølgende justeringer henvises der til nogle testpunkter (TP). Det kan oplyses, at i et antal producerede modtagere er testpunkterne ikke vist på printpladernes komponenttryk.

Volume

Tonegenerator tilsluttes TAPE 2 og indstilles til at afgive 1 kHz 40 mV.

Balancekontrol stilles i midterstilling (kontrolleres med AC voltmeter).

Wattmeter eller AC voltmeter tilsluttes højttalerudgangen.

Volume kontrol reguleres i maksimum.

Med 2R50 justeres indtil der måles 2,8V på højttalerudgangen.

HF justeringer

AUTO-MONO omskifteren skal stå i MONO hvis andet ikke er nævnt.

Skalabaggrunden er forsynet med opmærkning af de mest benyttede justeringsfrekvenser. Ved indstilling af skalaen skal skalaviseren stå over mærkningen til den pågældende frekvens.

FM JUSTERINGER

Båndbegræns (kun type 2919)

Inden justering af afstemningsspænding, tuner/MF og skalapasning i type 2919, skal 1R26 drejes med uret til stop og 1R28 drejes mod uret til stop set fra printpladens kobberside.

Afstemningsspænding

Top

1. 3R27 & 3R28 drejes med uret til ca. 1/3 af drejning (set fra oversiden).
2. DC voltmeter tilsluttes 1TP1.
3. P5, FM aktiveres og skala drejes op til mekanisk stop.
4. 1R91 justeres til der måles 20V i 1TP1.

Bund

5. Skala drejes til mekanisk stop.
6. 1R88 justeres til der måles 3,6V i 1TP1.

ADJUSTMENTS

In the following adjustments references are made to some test points (TP). It is pointed out that in a number of receivers manufactured these test points are not shown on the component print of the PC-Boards.

Volume

Connect an audio oscillator to TAPE 2 and set it to yield 1 kHz 40 mV.

Set the balance control in its mid-position (checkable by means of an AC voltmeter).

Connect a wattmeter or AC voltmeter to the loudspeaker output.

Regulate the volume control in maximum.

Adjust with 2R50 until a reading of 2.8V is obtained in the loudspeaker output.

RF Adjustments

The AUTO-MONO switch must be set in MONO if not otherwise indicated.

The dial background is provided with markings indicating the most frequently used adjustment frequencies. When setting the dial, the dial pointer shall be opposite the marking of the frequency in question.

FM ADJUSTMENTS

Band Limiter (type 2919 only)

Prior to adjusting the tuning voltage, tuner/IF and dial calibration of type 2919, 1R26 must be turned clockwise until its stop and 1R28 must be turned counter-clockwise until its stop as seen from the top side of the PC-Board.

Tuning Voltage

Top

1. Turn 3R27 & 3R28 clockwise until approx. 1/3 of its travel (as seen from the top side).
2. Connect a DC voltmeter to 1TP1.
3. Activate P5 FM and turn the dial up until its mechanical stop.
4. Adjust 1R91 until a reading of 20V is obtained in 1TP1.

Bottom

5. Turn the dial down until its mechanical stop.
6. Adjust 1R88 until a reading of 3.6V is obtained in 1TP1.

Tuner/MF

1. Sweepgenerator tilsluttes antenneindgangen og indstilles til 87,5 MHz.
2. Oscilloskop tilsluttes 1TP2.
3. P5 skala indstilles til der måles 3,7V i 1TP1.
4. 1L1, 1L2, 1L3, 1L4 & 1L7 justeres til maksimum og symmetrisk MF kurve.
5. P5 skala indstilles til der måles 19,5V i 1TP1.
6. Sweepgenerator indstilles til 108 MHz.
7. 1R10, 1R11, 1R12 & 1R13 justeres til maksimum og symmetrisk MF kurve.
8. Gentag evt. punkt 3 til 7.

Skalapasning

1. P5 skala indstilles til der måles 19,5V i 1TP1.
2. Skalaviser flyttes hen over 108 MHz mærket på skalabaggrunden.
3. Sweepgenerator indstilles til 88 MHz.
4. P5 skalaviser stilles over 88 MHz mærket.
5. 1R88 justeres til skalapasning.
6. Sweepgenerator indstilles til 98 MHz.
7. P5 skalaviser stilles over 98 MHz mærket.
8. 3R27 justeres til skalapasning.
9. Gentag evt. punkt 3 til 8.

Båndgrænser (kun type 2919)

Sweepgenerator indstilles på 108 MHz.

P5 skalaviser stilles over 108 MHz mærket.

1R26 justeres indtil MF kurven netop flytter sig på oscilloskopet.

Sweepgeneratoren indstilles til 87,5 MHz.

P5 skala indstilles til 87,5 MHz (højre side af skalaviseren skal flugte med venstre side af 88 MHz mærket).

1R28 justeres til MF kurven netop flytter sig på oscilloskopet.

Tuner/IF

1. Connect a sweep generator to the aerial input and set it to 87.5 MHz.
2. Connect an oscilloscope to 1TP2.
3. Adjust the P5 dial until a reading of 3.7V is obtained in 1TP1.
4. Adjust 1L1, 1L2, 1L3, 1L4 & 1L7 until maximum and symmetrical IF curve is obtained.
5. Adjust P5 dial until a reading of 19.5V is obtained in 1TP1.
6. Set the sweep generator at 108 MHz.
7. Adjust 1R10, 1R11, 1R12 & 1R13 until maximum and symmetrical IF curve is obtained.
8. If necessary, repeat the points 3 to 7.

Dial Calibration

1. Adjust the P5 dial until a reading of 19.5V is obtained in 1TP1.
2. Move the dial pointer until it is opposite the 108 MHz mark on the dial background.
3. Set the sweep generator to 88 MHz.
4. Set the P5 dial pointer over the 88 MHz mark.
5. Adjust 1R88 to dial calibration.
6. Set the sweep generator to 98 MHz.
7. Set the P5 dial pointer over the 98 MHz mark.
8. Adjust 3R27 to dial calibration.
9. If necessary, repeat the points 3 to 8.

Band Limiter (type 2919 only)

Set the sweep generator to 108 MHz.

Set the P5 dial pointer over 108 MHz.

Adjust 1R26 until the IF curve on the oscilloscope just starts to move.

Set the sweep generator to 87.5 MHz.

Set the P5 dial to 87.5 MHz (the right-hand side of the dial pointer shall be in line with the left-hand side of the 88 MHz mark).

Adjust 1R28 until the IF curve on the oscilloscope just starts to move.

Detektor

For at der kan foretages en korrekt justering af detektoren, skal der bl.a. anvendes et forvrængningsmeter som beskrevet i punkt 1. Hvis et forvrængningsmeter ikke er tilgængeligt, kan der foretages en tilnærmet justering som beskrevet i punkt 2.

1. Modtageren indstilles på f.eks. 94 MHz.

En kombineret målesender og sweepgenerator tilsluttes antenneindgangen, og indstilles til at afgive 1 mV, $\Delta \pm 75$ kHz.

Oscilloskop tilsluttes i 1TP2.

Målesenderens frekvens indstilles til 94 MHz, og finindstilles til minimum 2. harmonisk af signalet (se fig.).

Et forvrængningsmeter tilsluttes højttalerudgangen.

Et DC voltmeter tilsluttes imellem 1TP3 & 1TP4.

Med 1L11 justeres, indtil der måles minimum forvrængning. Derefter justeres med 1L10, indtil der måles 0V.

Gentag begge justeringer, indtil de er i orden.

RIGTIG



CORRECT

FORKERT



INCORRECT

Detektor

Equipment needed to enable correct adjustment of the detector includes a distortion meter as explained in point 1. Should a distortion meter not be at hand it is possible to make an approximated adjustment as explained in point 2.

1. Set the receiver at, say, 94 MHz.

Connect a combination signal generator/sweep generator to the aerial input and set it to yield 1 mV EMF, $\Delta \pm 75$ kHz.

Connect an oscilloscope to 1TP2.

Set the signal generator frequency at 94 MHz and trim it to minimum the 2nd harmonic of the signal (see fig.).

Connect a distortion meter to the loudspeaker output.

Connect a DC voltmeter between 1TP3 & 1TP4.

Adjust with 1L11 until minimum distortion is obtained. Next, adjust with 1L10 until a reading of 0V is obtained.

Repeat both these adjustments until they are OK.

2. Justeringen foretages ved hjælp af »S-kurve«; men der vil være usikkerhed for, hvorvidt modtageren overholder sine forvrængningsdata.

Modtageren indstilles på f.eks. 94 MHz.

En kombineret målesender og sweepgenerator tilsluttes antenneindgangen, og indstilles til at afgive 1 mV EMF, $\Delta \pm 75$ kHz.

Oscilloskopet tilsluttes i 1TP2.

Målesenderens frekvens indstilles til 94 MHz, og finindstilles til minimum 2. harmonisk af signalet (se fig.).

Generatoren indstilles til sweep.

Et oscilloskop tilsluttes 1TP5 og et DC voltmeter tilsluttes mellem 1TP3 & 1TP4.

Med 1L10 & 1L11 justeres til maksimum og symmetrisk S-kurve.

Derefter justeres med 1L10 indtil der måles 0V.

2. Make the adjustments by means of a »S-curve«, but it will be uncertain whether the receiver maintains its distortion specifications.

Set the receiver at, say, 94 MHz.

Connect a combination signal generator/sweep generator to the aerial input and set it to yield 1 mV EMF, $\Delta \pm 75$ kHz.

Connect an oscilloscope to 1TP2.

Set the signal generator frequency at 94 MHz and trim it to minimum the 2nd harmonic of the signal (see fig.).

Set the generator to sweep.

Connect an oscilloscope to 1TP5 and connect a DC voltmeter between 1TP3 & 1TP4.

Adjust with 1L10 & 1L11 to maximum and symmetrical S-curve.

Next, adjust with 1L10 until a reading of 0V is obtained.

Detektor

For at der kan foretages en korrekt justering af detektoren, skal der bl.a. anvendes et forvrængningsmeter som beskrevet i punkt 1. Hvis et forvrængningsmeter ikke er tilgængeligt, kan der foretages en tilnærmet justering som beskrevet i punkt 2.

1. Modtageren indstilles på f.eks. 94 MHz.

En kombineret målesender og sweepgenerator tilsluttes antenneindgangen, og indstilles til at afgive 1 mV, $\Delta \pm 75$ kHz.

Oscilloskop tilsluttes i 1TP2.

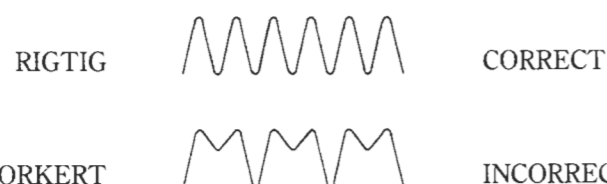
Målesenderens frekvens indstilles til 94 MHz, og finindstilles til minimum 2. harmonisk af signalet (se fig.).

Et forvrængningsmeter tilsluttes højttalerudgangen.

Et DC voltmeter tilsluttes imellem 1TP3 & 1TP4.

Med 1L11 justeres, indtil der måles minimum forvrængning. Derefter justeres med 1L10, indtil der måles 0V.

Gentag begge justeringer, indtil de er i orden.



2. Justeringen foretages ved hjælp af »S-kurve«, men der vil være usikkerhed for, hvorvidt modtageren overholder sine forvrængningsdata.

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En kombineret målesender og sweepgenerator tilsluttes antenneindgangen, og indstilles til at afgive 1 mV EMF, $\Delta \pm 75$ kHz.

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Generatoren indstilles til sweep.

Et oscilloskop tilsluttes 1TP5 og et DC voltmeter tilsluttes mellem 1TP3 & 1TP4.

Med 1L10 & 1L11 justeres til maksimum og symmetrisk S-kurve.

Derefter justeres med 1L10 indtil der måles 0V.

Detector

Equipment needed to enable correct adjustment of the detector includes a distortion meter as explained in point 1. Should a distortion meter not be at hand it is possible to make an approximated adjustment as explained in point 2.

1. Set the receiver at, say, 94 MHz.

Connect a combination signal generator/sweep generator to the aerial input and set it to yield 1 mV EMF, $\Delta \pm 75$ kHz.

Connect an oscilloscope to 1TP2.

Set the signal generator frequency at 94 MHz and trim it to minimum the 2nd harmonic of the signal (see fig.).

Connect a distortion meter to the loudspeaker output.

Connect a DC voltmeter between 1TP3 & 1TP4.

Adjust with 1L11 until minimum distortion is obtained. Next, adjust with 1L10 until a reading of 0V is obtained.

Repeat both these adjustments until they are OK.

2. Make the adjustments by means of a »S-curve«, but it will be uncertain whether the receiver maintains its distortion specifications.

Set the receiver at, say, 94 MHz.

Connect a combination signal generator/sweep generator to the aerial input and set it to yield 1 mV EMF, $\Delta \pm 75$ kHz.

Connect an oscilloscope to 1TP2.

Set the signal generator frequency at 94 MHz and trim it to minimum the 2nd harmonic of the signal (see fig.).

Set the generator to sweep.

Connect an oscilloscope to 1TP5 and connect a DC voltmeter between 1TP3 & 1TP4.

Adjust with 1L10 & 1L11 to maximum and symmetrical S-curve.

Next, adjust with 1L10 until a reading of 0V is obtained.

Balancelys

Skalaen indstilles til 0V mellem 1TP3 & 1TP4.

3R40 justeres indtil 3D40 & 3D41 lyser lige kraftigt.

LF output

En målesender tilsluttes antenneindgangen. Den indstilles på f.eks. 94 MHz og til at afgive 1 mV EMF, $\Delta \pm 75$ kHz.

Modtageren indstilles på samme frekvens som målesenderen.

AC voltmeter tilsluttes 1TP7, og 1R67 justeres til 575 mV.

Med 2R242 & 2R442 kan justeres til radio LF niveau efter kundens ønske. 2R242 & 2R442 er fra fabrikken justeres til maksimum output. De er tilgængelige fra bunden.

AGC (kun type 2919)

En målesender tilsluttes antenneindgangen, og indstilles til at afgive f.eks. 94 MHz 500 μ V EMF, $\Delta \pm 75$ kHz.

Modtageren indstilles på samme frekvens som målesenderen.

DC voltmeter tilsluttes 1IC3 ben 15, og 1R41 justeres til der måles 4V.

Stereodekoder

For at denne justering kan foretages korrekt, skal der anvendes en frekvenstæller eller Bang & Olufsen voltmeter RV11 og frekvens probe PF5 som beskrevet i punkt 1. Hvis omtalte instrumenter ikke er tilgængelige, kan der foretages en tilnærmet justering som beskrevet i punkt 2.

1. Indstil modtageren på en mono station (omskifter i stilling FM AUTO).

En frekvenstæller (eller RV11/PF5) tilsluttes 1TP6.

Med 1R75 justeres, indtil der måles 19 kHz ± 50 kHz.

2. Indstil modtageren på en stereo station.

Potentiometeret 1R75 drejes imod uret (set fra komponentsiden), indtil stereovirkningen lige netop ophører. Derefter drejes 1R75 med uret, indtil stereovirkningen lige netop ophører.

Indstil nu 1R75 midt mellem de to stillinger, og der er opnået en tilnærmelsesvis korrekt justering.

Balance Lights

Adjust the dial to 0V between 1TP3 & 1TP4.

Adjust 3R40 until 3D40 & 3D41 glow with identical strength.

AF Output

Connect a signal generator to the aerial input and set it to, say, 94 MHz and to yield 1 mV EMF, $\Delta \pm 75$ kHz.

Set the receiver to the same frequency as the signal generator.

Connect an AC voltmeter to 1TP7 and adjust 1R67 to 575 mV.

If it possible by means of 2R242 & 2R442, to adjust to radio AF level as the customer may wish. Both 2R242 & 2R442 are factory-adjusted for maximum output. They are accessible through the bottom plate.

AGC (type 2919 only)

Connect a signal generator to the aerial input and set it to, say, 94 MHz and to yield 500 μ V EMF, $\Delta \pm 75$ kHz.

Set the receiver to the same frequency as the signal generator.

Connect a DC voltmeter to pin 15 of 1IC3, and adjust 1R41 until a reading of 4V is obtained.

Stereo Decoder

In order to make this adjustment correctly a frequency counter or a Bang & Olufsen Voltmeter RV11 and a Frequency Probe PF5 should be used, as explained in point 1. Should these instruments not be at hand, a fairly good adjustment is possible by following the procedures described in point 2.

1. Tune the receiver to a mono transmitter (switch in FM AUTO mode).

Connect a frequency counter (or RV11/PF5) to 1TP6.

Adjust with 1R75 until a reading of 19 kHz ± 50 kHz.

2. Tune the receiver to a stereo transmitter.

Turn the potentiometer 1R75 counter-clockwise (as seen from the component side) until the stereo effect just ceases to be heard. Next turn 1R75 clockwise until the stereo effect just ceases to be heard.

Now adjust 1R75 in the middle between the two positions, and a fairly correct adjustment has been achieved.

En stereokoder (encoder) tilsluttes antenneindgangen.
Et wattmeter eller et AC voltmeter tilsluttes højttalerudgangen.

Med potentiometeret 1R69 justeres, til der opnås minimum signal i umoduleret kanal.

1L200 & 1L400 må ikke justeres.

AM JUSTERINGER

NB: Der må ikke justeres i MW oscillatorspolen 1L17.

Anvend svagest mulige signaler under justeringsarbejdet.

Topspænding, osc. & antennekredse

MW

1. AM målesender tilsluttes antenneindgangen og indstilles til at afgive 1610 kHz, modulation 30% - 400 Hz eller 1 kHz.
2. MW aktiveres og skalaviseren stilles over 1610 kHz mærket.
3. DC voltmeter tilsluttes 1TP8.
4. 1R100 justeres til der måles 25V.
5. Wattmeter tilsluttes LF udgangen, eller AC voltmeter tilsluttes 1TP7.
6. Med 1C97 justeres indtil modtageren ligger midt på målesenderfrekvensen.
7. Målesenderens og modtagerens frekvens ændres til 1500 kHz.
8. 1C90 justeres til maksimum output.
9. Målesenderens og modtagerens frekvens ændres til 575 kHz.
10. 1R93 justeres indtil modtageren ligger midt på målesenderfrekvensen.
11. 1L16 justeres til maksimum output.
12. Gentag evt. punkt 7 til 11.

LW

13. LW aktiveres, målesenderen og modtageren indstilles på 330 kHz.
14. Med 1C99 justeres indtil modtageren ligger midt på målesenderfrekvensen.
15. 1C83 justeres til maksimum output.
16. Målesenderens og modtagerens frekvens ændres til 160 kHz.

Connect a stereo coder (encoder) to the aerial input.

Connect a wattmeter or a voltmeter to the loudspeaker output.

Adjust with the potentiometer 1R69 until a minimum signal is obtained in non-modulated channel.

1L200 & 1L400 must not be adjusted

AM ADJUSTMENTS

NOTE! It is not allowable to make adjustments in the MW oscillator coil 1L17.

Always use signals as weak as possible during adjustments.

Top Voltage, Osc. & Aerial Circuits

MW

1. Connect an AM signal generator to the aerial input and set it to yield 1610 kHz, modulation 30% - 400 kHz or 1 kHz.
2. Activate MW and set the dial pointer over the 1610 kHz mark.
3. Connect a DC voltmeter to 1TP8.
4. Adjust 1R100 until a reading of 25V is obtained.
5. Connect a wattmeter to the AF output, or connect an AC voltmeter to 1TP7.
6. Adjust with 1C97 until the receiver lies centrally on the frequency of the generator.
7. Alter the frequencies of the signal generator and the receiver to 1500 kHz.
8. Adjust 1C90 to maximum.
9. Alter the frequencies of the signal generator and the receiver to 575 kHz.
10. Adjust 1R93 until the receiver lies centrally on the frequency of the generator.
11. Adjust 1L16 to maximum output.
12. If necessary, repeat the points 7 to 11.

LW

13. Activate LW and adjust the frequencies of the signal generator and the receiver to 330 kHz.
14. Adjust with 1C99 until the receiver lies centrally on the frequency of the generator.
15. Adjust 1C83 to maximum output.
16. Alter the frequencies of the signal generator and the receiver to 160 kHz.

17. Med 1L18 justeres indtil modtageren ligger midt på målesenderfrekvensen.
18. 1L15 justeres til maksimum output.
19. Gentag evt. punkt 13 til 18.
20. Det kontrolleres at skalaen dækker båndgrænserne både på MW & LW.

MF

En sweepgenerator tilsluttes antenneindgangen, og indstilles til centerfrekvens *455 kHz Δ 10 kHz.

Basis på 1TR29 kortsluttes til stel.

MW aktiveres og modtageren indstilles på 1500 kHz.

1L12 forstemmes ved at dreje kernen ud.

Oscilloskop tilsluttes 1TP9.

1L13 justeres til maksimum og symmetrisk MF kurve.

Sweepgeneratorens frekvens ændres til 461 kHz.

1L12 justeres til minimum MF kurve.

Kortslutningen på basis af 1TR29 fjernes.

*I nogle apparater er båndpasfilteret 1BP4 på 460 kHz. I disse modtagere skal AM mellemfrekvensen justeres med centerfrekvensen 460 kHz.

17. Adjust with 1L18 until the receiver lies centrally on the frequency of the generator.
18. Adjust 1L15 to maximum output.
19. If necessary, repeat the points 13 to 18.
20. Check that the dial covers the band limits of both MW & LW.

IF

Connect a sweep generator to the aerial input and set it to centre frequency of *455 kHz Δ 10 kHz.

Make a jumper between the base of 1TR29 and the chassis.

Activate MW and set the receiver to 1500 kHz.

Detune 1L12 by turning its core out.

Connect an oscilloscope to 1TP9.

Adjust 1L14 to maximum and symmetrical IF curve.

Alter the frequency of the sweep generator to 461 kHz.

Adjust 1L12 to minimum IF curve.

Remove the jumper from the base of 1TR29.

*In some receivers the bandpass filter 1BP4 is at 460 kHz. In these receivers the AM intermediate frequency must be adjusted with the centre frequency 460 kHz.

TECHNICAL SPECIFICATIONS
Amplifier section

| | |
|---------------------------------------|------------------------|
| Power output RMS DIN/IEC | 2 x 30W/8 Ω |
| Power output music | 2 x 40W/8 Ω |
| Harmonic distortion DIN/IEC | < 0.08% |
| Following measurements | IHF A-202 |
| Power output 20 - 20,000 Hz | 2 x 25W/8 Ω |
| Total harmonic distortion | < 0.1% |
| Dynamic headroom | 1.6 dB/8 Ω |
| Intermodulation | < 0.1% |
| Response vs frequency PHONO | 20 - 20,000 Hz ±1.5 dB |
| Response vs frequency TAPE | 20 - 20,000 Hz ±1.5 dB |
| Wideband damping factor | 35 |
| Input sensitivity/impedance PHONO | 0.45 mV/47 kΩ |
| Input sensitivity/impedance TAPE | 45 mV/150 kΩ |
| Overload level PHONO | 50 mV |
| Overload level TAPE | 3 V |
| Signal-to-noise ratio A-weighted | |
| PHONO | > 75 dB |
| Signal-to-noise ratio A-weighted TAPE | > 77 dB |
| Channel separation | 40 dB |
| Output TAPE | 500 mV/1 kΩ |
| Output Headphones | Max. 12V/220 Ω |
| BASS control at 40 Hz | ±10 dB |
| TREBLE control at 12,500 Hz | ±10 dB |

FM Tuner Section

Types 2911/12/13/13/15/17

| | |
|--|------------------------|
| Standard for measurements (RF) | IHF T-200 |
| FM range | 87.5 - 108 MHz |
| FM aerial impedance | 75/240 Ω |
| Usable sensitivity mono | 15 dBf - 1.6 μV/75 Ω |
| Usable sensitivity stereo | 20 dBf - 2.8 μV/75 Ω |
| 50 dB quieting sensitivity mono | 21 dBf - 3.2 μV/75 Ω |
| 50 dB quieting sensitivity stereo | 42 dBf - 35 μV/75 Ω |
| Signal-to-noise ratio at 65 dBf mono | > 72 dB |
| Signal-to-noise ratio at 65 dBf stereo | > 67 dB |
| Frequency response | 20 - 15,000 Hz ±1.8 dB |
| Distortion at 65 dBf mono | < 0.3% |
| Distortion at 65 dBf stereo | < 0.35% |
| Intermodulation distortion mono | < 0.05% |
| Intermodulation distortion stereo | < 0.25% |
| Capture ratio | < 1.7 dB |
| Adjacent channel selectivity | > 5 dB |
| Alternate channel selectivity | > 60 dB |
| Spurious response | > 110 dB |
| Image response ratio | > 75 dB |
| IF response ratio | > 110 dB |
| AM suppression | > 55 dB |
| Stereo channel separation | > 36 dB |
| Subcarrier product rejection | > 55 dB |

Type 2919 only

| | |
|--|----------------------|
| Standard for measurements (RF) | IHF T-200 |
| FM range | 87.5 - 108 MHz |
| FM aerial impedance | 75/240 Ω |
| Usable sensitivity mono | 20 dBf - 2.8 μV/75 Ω |
| Usable sensitivity stereo | 26 dBf - 6 μV/75 Ω |
| 50 dB quieting sensitivity mono | 25 dBf - 5 μV/75 Ω |
| 50 dB quieting sensitivity stereo | 45 dBf - 50 μV/75 Ω |
| Signal-to-noise ratio at 65 dBf mono | > 72 dB |
| Signal-to-noise ratio at 65 dBf stereo | > 67 dB |

AM Tuner Section

Types 2912/15/17

Other Data

| | |
|-----------------------------------|---|
| Frequency response | 30 - 15,000 Hz ±1.8 dB |
| Distortion at 65 dBf mono | < 0.3% |
| Distortion at 65 dBf stereo | < 0.35% |
| Intermodulation distortion mono | < 0.05% |
| Intermodulation distortion stereo | < 0.25% |
| Capture ratio | < 1.7 dB |
| Adjacent channel selectivity | > 5 dB |
| Alternate channel selectivity | > 60 dB |
| Spurious response | > 110 dB |
| Image response ratio | > 85 dB |
| IF response ratio | > 115 dB |
| AM suppression | > 55 dB |
| Stereo channel separation 1 kHz | > 36 dB |
| Subcarrier product rejection | > 55 dB |
| LW range | 150 - 350 kHz |
| MW range | 520 - 1610 kHz |
| LW sensitivity 20 dB S/N ratio | 120 μV |
| MW sensitivity 20 dB S/N ratio | 100 μV |
| Power supply | 2911/17/19: 220V |
| | 2912/15: 240V |
| | 2913: 120V |
| Power frequency | 50/60 Hz |
| Power consumption | 20 - 170W |
| Dimensions W x H x D | 62 x 7 x 29 cm (24 1/2" x 2 3/4" x 10") |
| Weight | 7 kg (15.4 lbs) |

Subject to change without notice

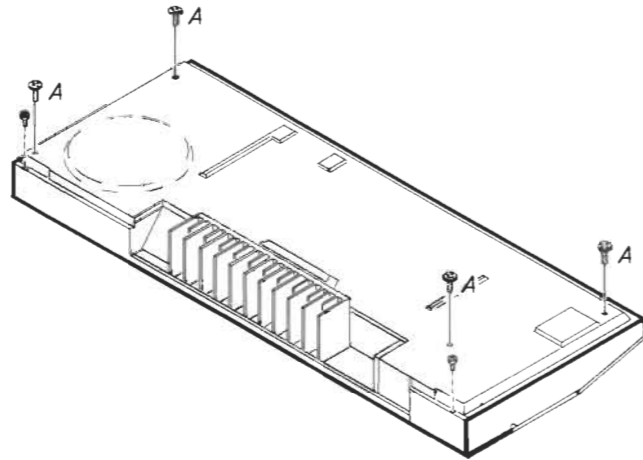
* With BEACON 2000, overloading will occur unless used with DIN LEAD 7229018 or fit 220162 RES. in series with DIN LEAD PINS 1&4.

ADSKILLELSE

DISMANTLING

Bund

Bottom



Afmonter de fire skruer (A).

Remove the four screws (A).

Løft bunden i forkanten og træk den fri af bagpladen.

Lift the bottom at the front edge and pull it free off the rear plate.

Ved samling skal det påses, at bundens bagkant kommer ind under bagpladen.

On re-assembly, observe that the rear edge of the bottom sits under the rear plate.

Specielt for type 2919

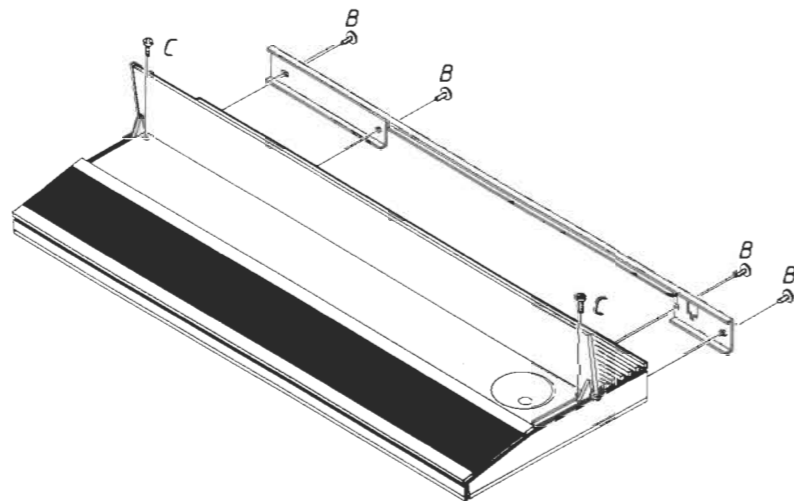
I denne type er der yderligere to skruer i bunden, der skal afmonteres. Det kan ligeledes være nødvendigt, at frigøre stelledningen mellem nettransformatoren og bundpladen.

Type 2919 Only

In this type are two additional bottom screws to be removed. Furthermore, it may be necessary to release the chassis wire between the mains transformer and the bottom plate.

Toppanel med låg

Top Panel with Lid



Bagpladen afmonteres ved hjælp af de fire skruer (B).

Remove the rear plate by unscrewing the four screws (B).

Afmonter de to skruer (C). Toppanelet kan nu frigøres ved at løfte i dets bagkant og trække bagud.

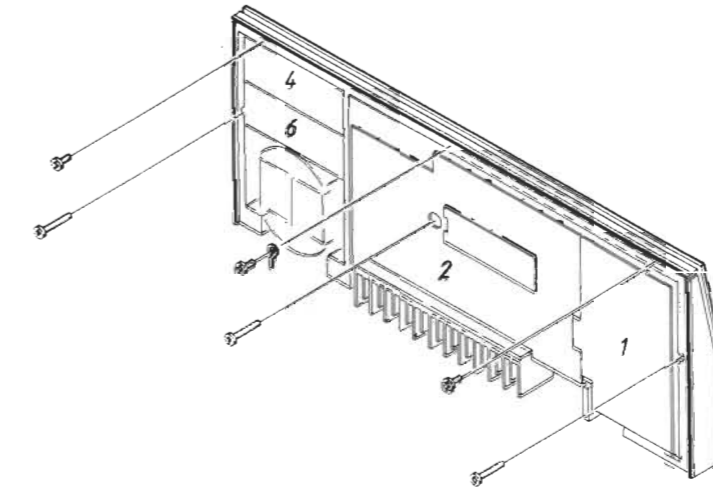
Remove the two screws (C). The top panel can now be released by lifting at its rear edge and pulling rearwards.

Ved samling kontrolleres det, at alle knapper er påsatte. Det kontrolleres ligeledes at tonekontrolskydere og friktionsarm for låg er i indgreb.

On-reassembly, check that all buttons are fitted. Also check that the tone control slides and the friction arm for the lid are meshing.

Betjeningspanel

Control Panel



Bund og toppanel afmonteres.

Remove the bottom and the top panel.

De seks viste skruer skrues ud. Betjeningspanelet kan nu fjernes.

Unscrew the six screws indicated. The control panel is now removable.

Pas på ikke at ødelægge kontaktfjedrene.

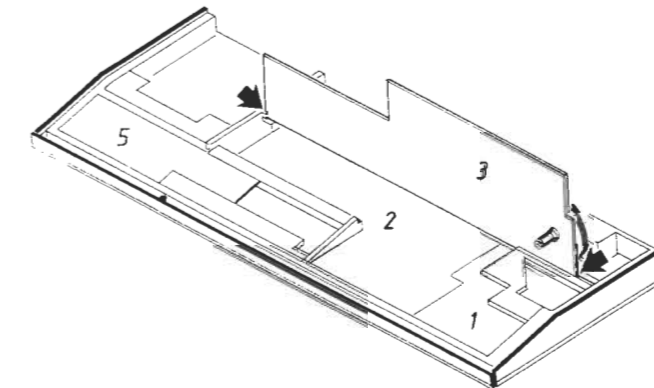
Take care not to destroy the contact springs.

Kontroller ved samling at alle kontaktfjedre er indgreb med stifterne på printpladerne.

On re-assembly, check that all contact springs are in contact with the PCB-pins.

Servicestilling PCB 3

Servicing Position for PCB 3



Ved servicering kan printplade 3 anbringes i de to viste riller.

During servicing PCB 3 can be placed in the two slits indicated.

SERVICETIPS

SERVICE TIPS

Ledningsmontering på nettransformator

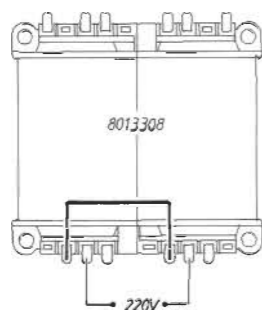
Anvend dobbeltisoleret ledning til forbindelserne.

Wiring of Mains Transformer

Use double insulated wires for the connections.

220V

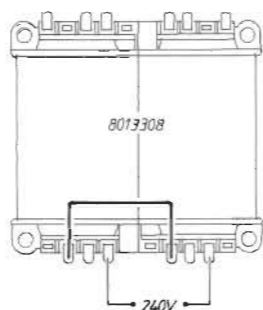
(type 2911/17/19)



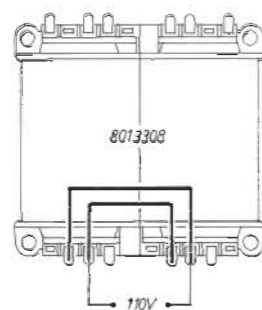
6F1 6600022 T-1.6 A Slow (250 V - IEC 127)

240V

(type 2912/15)

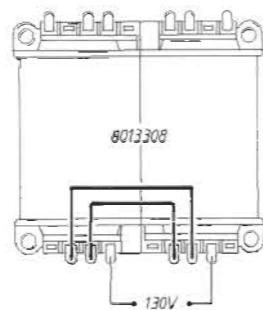


110V



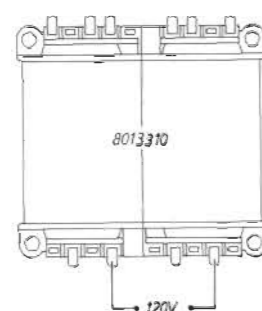
6F1 6600010 T-4 A Slow (250 V - IEC 127)

130V



120V

(type 2913)



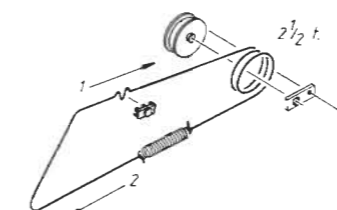
6F1 6600052 T-4 A Slow (UL)

Anvend dobbeltisoleret ledning til forbindelserne.

Use double insulated wires for the connections.

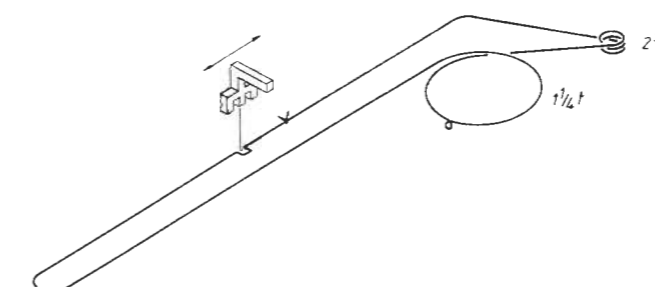
Snoretræk for programlåg

Drive System for Programming Cover



Skalasnor

Dial Cord



Ophængning på væg

Ophængningsset, med boreskabelon, skruer og rawplugs, kan rekvireres med reservedelsnr. 3390225.

Installing on Wall

Wall installing kit complete with drilling jig, screws & wallplugs are available as spare parts no. 3390225.

Sættet indeholder materialer for ophængning af såvel Beomaster som Beocord 2000.

The kit is composed to allow wall installing of both Beomaster & Beocord 2000.

Udløserarm for programlåg

Udskiftning af udløserarm, reservedelsnr. 2853099, foregår lettest ved hjælp af en skævbider.

Release Lever

Replacement of release lever, spare parts no. 2853099, is preferably made by using a pair of side-cutting pliers.

Med skævbideren presses omkring de to messingnitter, således den skrå flade på skævbideren presser nitten op.

The side-cutting pliers are pressed around the brass rivets, so the skew side of the pliers press out the rivet.

Efter udskiftningen kan de to messingnitter igen presses på plads.

After replacement of the release lever the brass rivets can be pressed back into place again.

ISOLATIONSTEST

Ethvert apparat **skal** isolationstestes efter det har været adskilt. Testen udføres når apparatet er helt samlet og klar til udlevering til kunden.

Isolationstesten udføres på følgende måde:
De to stikben på netstikket kortsluttes og tilsluttes en af terminalerne på isolationstesteren.

Den anden terminal fra isolationstesteren tilsluttes stel i TP1-stikdåsen (skærm + ben 2).

OBS!

For at undgå beskadigelser på apparatet er det vigtigt, at begge isolationstesterens terminaler har virkelig god kontakt.

Der drejes nu langsomt med spændingsreguleringen på isolationstesteren indtil en spænding på 1,5 - 2 kV er opnået. Her skal den holdes i 1 sekund, derefter drejes der langsomt ned for spændingen igen.

Der må ikke på noget tidspunkt under testen forekomme overslag.

INSULATION TEST

Each set **must** be insulation tested after dismantling. The test is to be performed when the set has been re-assembled and is ready for delivery to the customer.

Make the insulation test as follows:

Short-circuit the two plug pins of the mains plug and connect to one of the terminals of the insulation tester.

Connect the other terminal of the insulation tester to the chassis of the TP 1 socket (screen + pin 2).

NB!

To avoid ruining the set, it is essential that both terminals of the insulation tester are in really good mechanical contact.

Now slowly turn the voltage control of the insulation tester until a voltage of 1.5 - 2 kV is obtained. Hold it there for 1 second, then slowly turn the voltage down again.

At no point during the testing procedure any flash-overs are permissible.

Beomaster 3000

Type 2931/32/33/35/37/39

Terminal 3000

Type 2044

SEMI-CONDUCTORS

| 20 | 136 | 203 | 209 | 215 | 219 | | |
|----|-----|-----|-----|-----|-----|--|--|
| | | | | | | | |

| | | | | | | | |
|---------|---------|-----|-----------|----------|---------|-----|-------------|
| 4TR5 | 8320104 | 20 | BC 558 B | 16TR5 | 8320398 | 20 | BC 558 C |
| 4TR6 | 8320108 | 20 | BC 548 B | 16TR6-7 | 8320108 | 20 | BC 548 B |
| 4TR7 | 8320104 | 20 | BC 558 B | 16C1Δ | 8340655 | 136 | μC |
| 4TR8-10 | 8320108 | 20 | BC 548 B | 16D1-8 | 8300058 | 209 | 1N 4148 |
| 4D4 | 8330004 | 219 | SFH 205 | | | 215 | 1N 4148 |
| | | 219 | TIL 100 | 16D10 | 8300169 | 209 | BZX 79 5.1V |
| | | 219 | BPW 41 | | | 209 | ZPD 5.1V |
| 4D5-7 | 8300058 | 209 | 1N 4148 | | | 209 | BZX 83 5.1V |
| | | 215 | 1N 4148 | 16D11-13 | 8300058 | 209 | 1N 4148 |
| 16TR1 | 8320331 | 20 | BC 328-25 | | | 215 | 1N 4148 |
| 16TR2 | 8320398 | 20 | BC 558 C | 17D2-4 | 8330022 | 203 | LD 271 |
| 16TR3-4 | 8320108 | 20 | BC 548 B | | | 203 | V-290-P |
| | | | | 90D1 | 8330010 | 220 | CQY 73 N |

Other semi-conductors as for types 291x



SERVICEANVISNING
SERVICE MANUAL

DIAGRAM A, type 2939

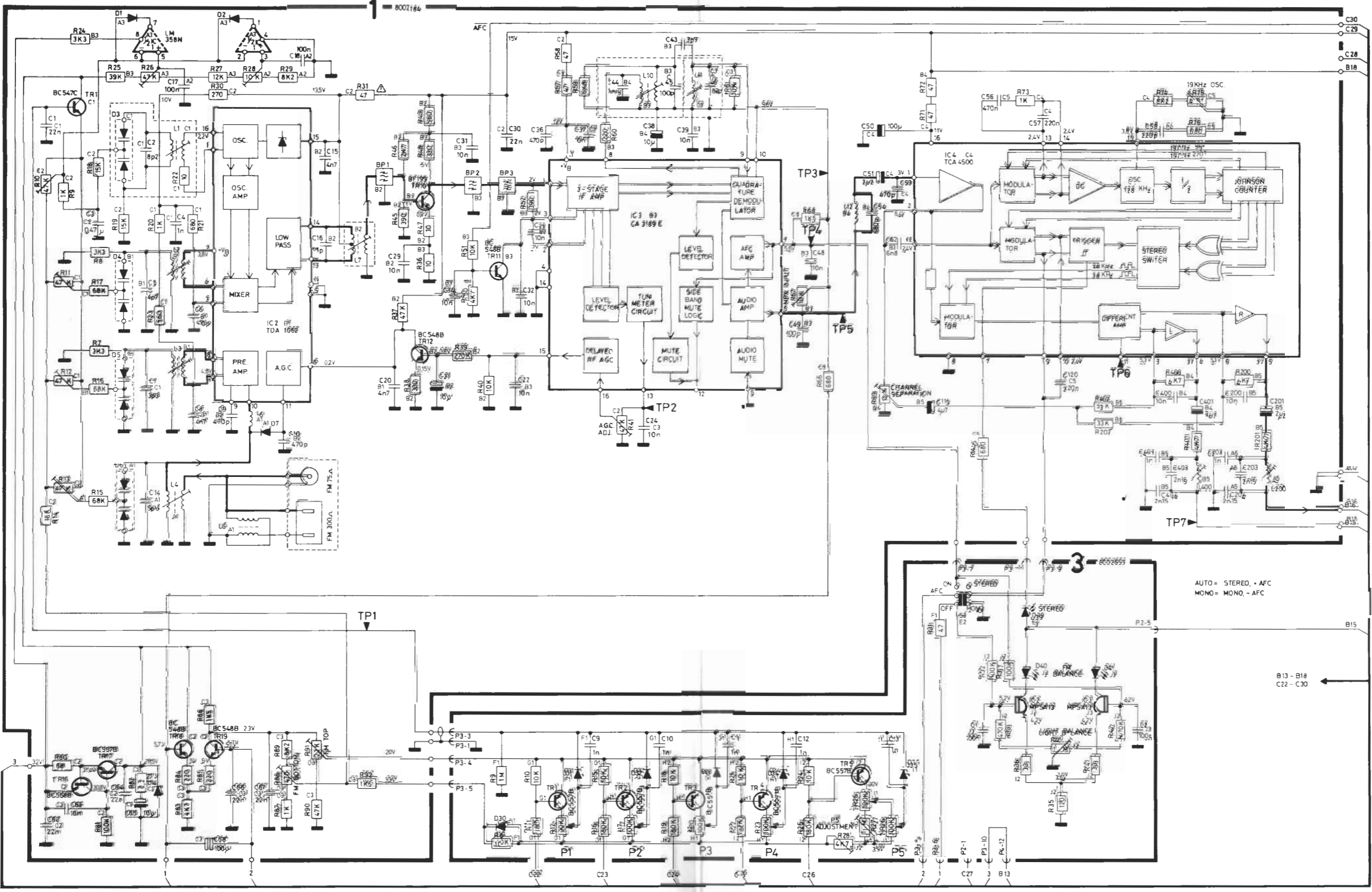


DIAGRAM A, types 2931/33

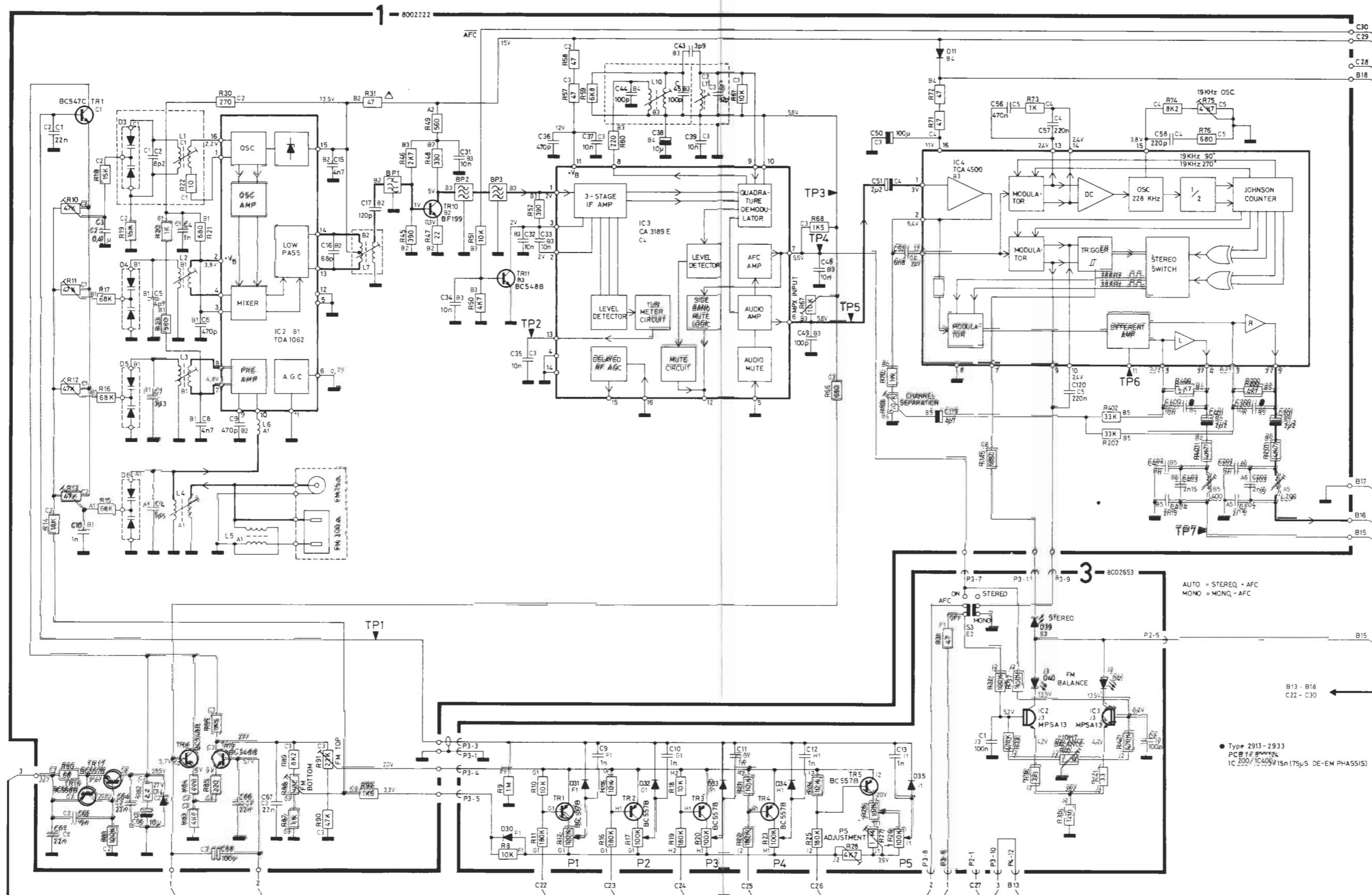


DIAGRAM A, types 2932/35/37

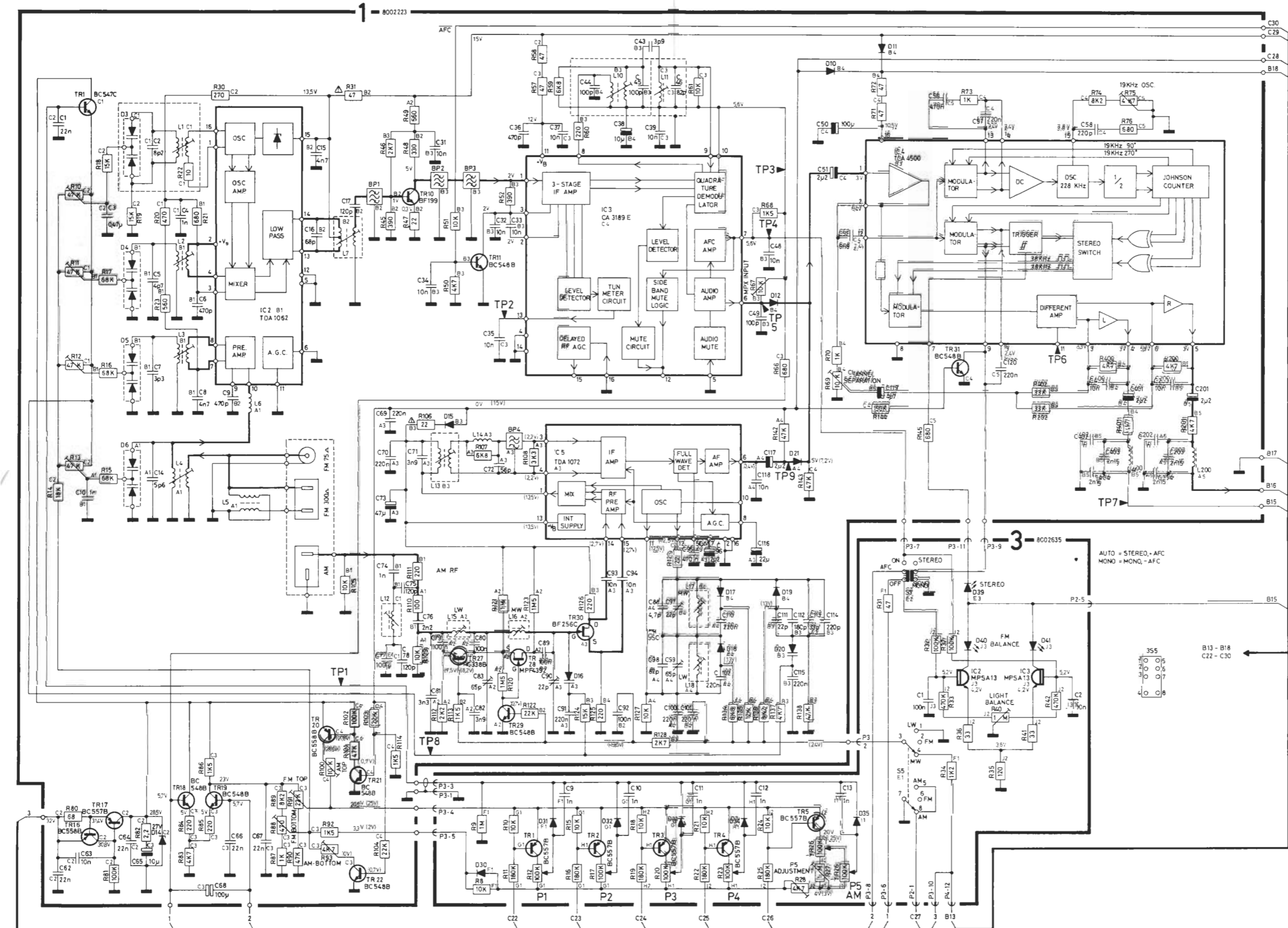


DIAGRAM B, all types

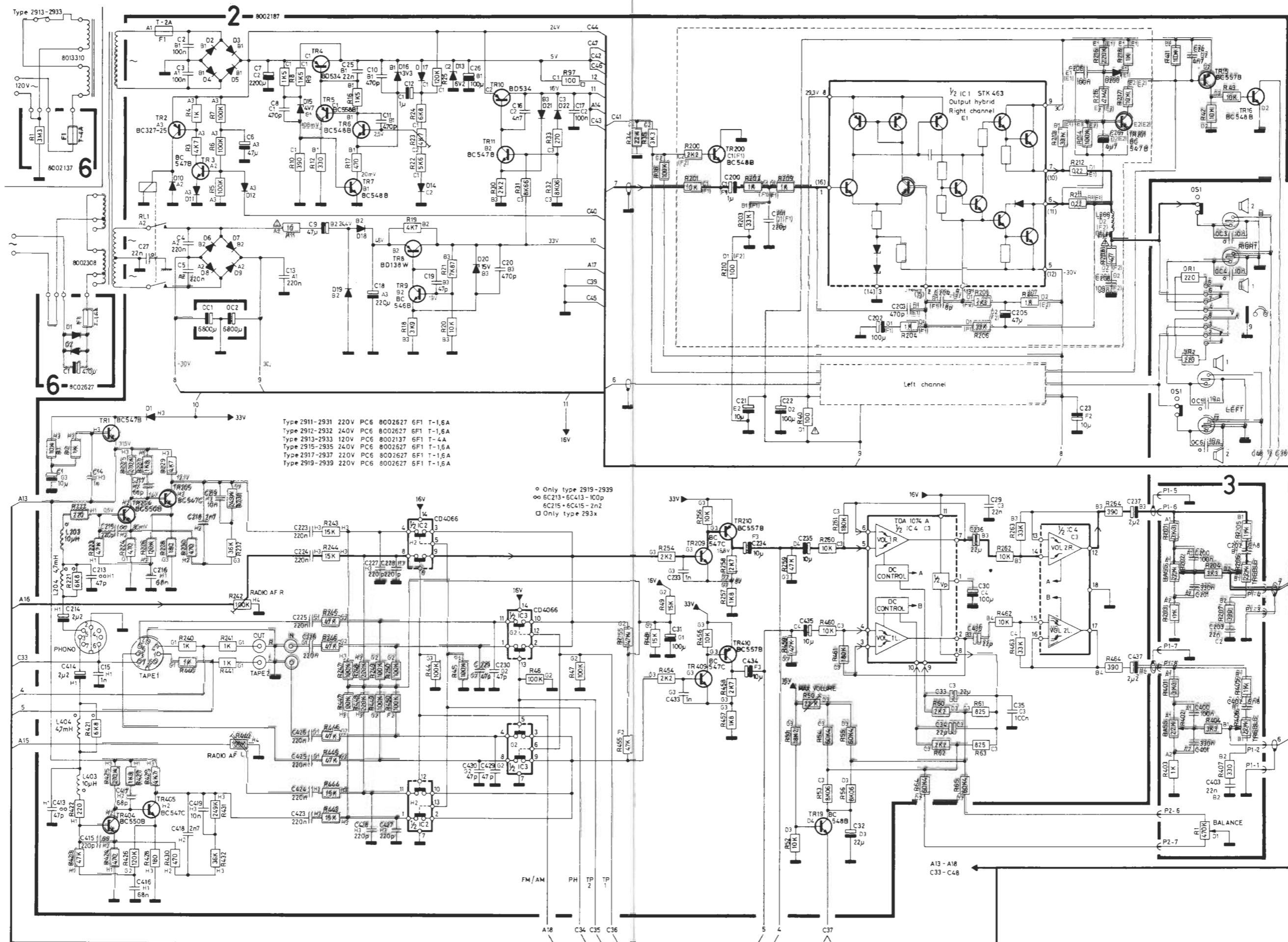


DIAGRAM C, all types 293x

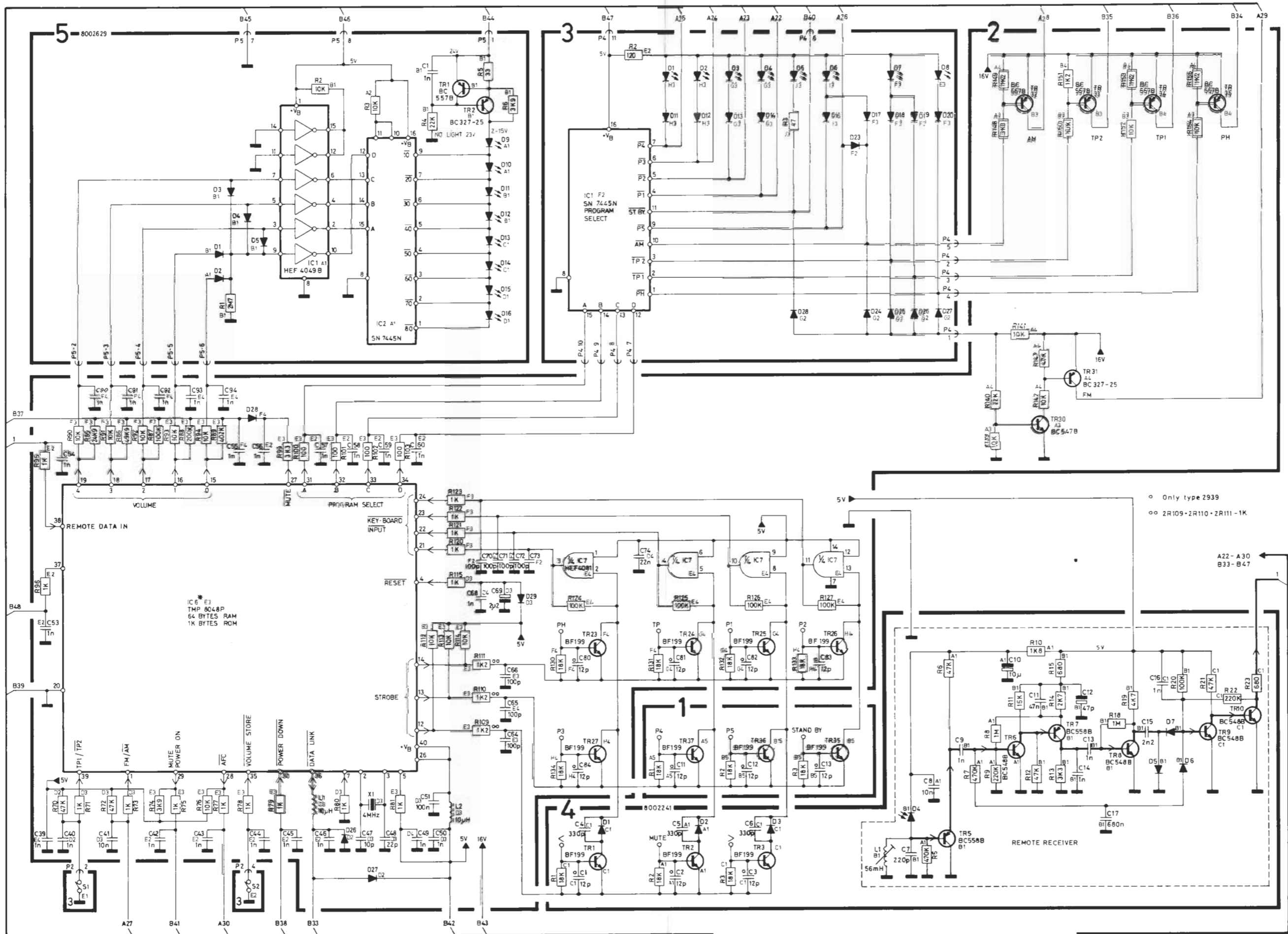
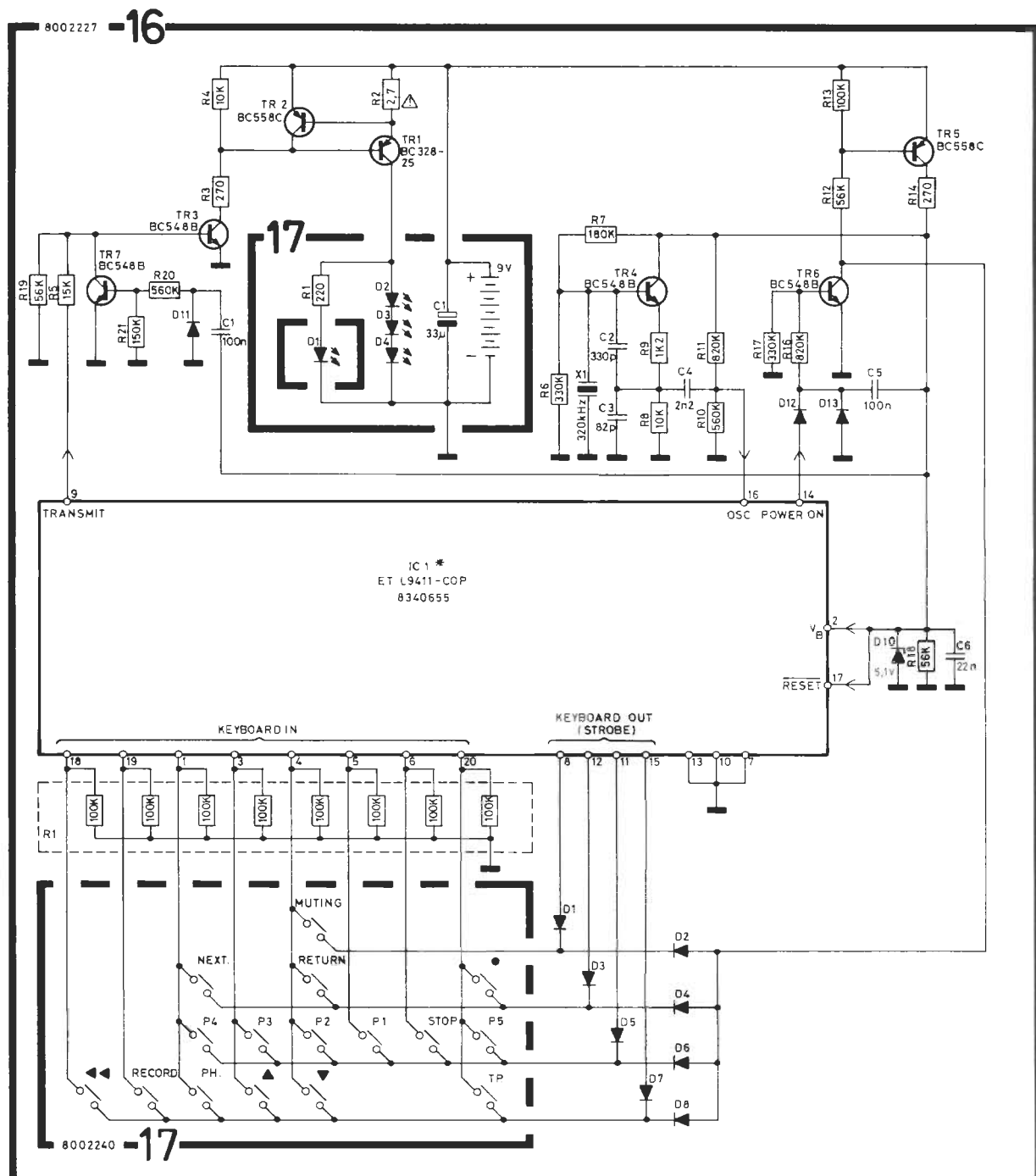


DIAGRAM D, type 2044



PARTS LIST

Resistors not mentioned are standard 5%, 1/4 W carbon film.

PCB 4 - 8002241 Volume Control & IR-receiver

| | | | | | |
|-----|---------|-------------------|-----|---------|-----------------|
| C07 | 4000018 | 220 pF 5% 63V | C13 | 4010027 | 1 nF 10% 63V |
| C08 | 4010041 | 10 nF -20+80% 40V | C14 | 4010027 | 1 nF 10% 63V |
| C09 | 4010027 | 1 nF 10% 63V | C15 | 4010061 | 2.2 nF 10% 63V |
| C10 | 4200484 | 10 µF 25V | C16 | 4010027 | 1 nF 10% 63V |
| C11 | 4130223 | 47 nF 10% 63V | C17 | 4130237 | 0.68 µF 20% 63V |
| C12 | 4200483 | 47 µF 16V | | | |

L01 8022128 56 mH

PCB 16 - 8002227 Remote Transmitter

| | | | | | |
|----|---------|----------------|----|---------|----------------|
| C1 | 4130224 | 0.1 µF 10% 63V | C4 | 4010061 | 2.2 nF 10% 63V |
| C2 | 4010062 | 330 pF 10% 63V | C5 | 4130224 | 0.1 µF 10% 63V |
| C3 | 4000200 | 82 pF 5% 63V | C6 | 4130193 | 22 nF 20% 63V |

R1 5030017 8 x 100 kΩ 5% 1/8W
R2 5020625 2.7 Ω 5% 1/3W
X1 8030039 320 kHz ±1 kHz

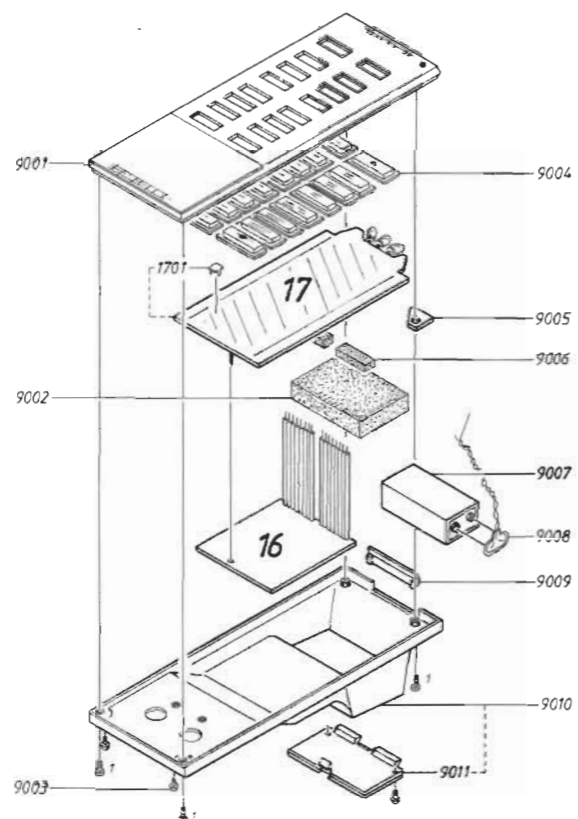
PCB 17 - 8002240 Keyboard

C1 4200414 33 µF 16V

Correction PCB 5

C1 4010027 1 nF 10% 63V

Terminal 3000, 8920440



16Modul 8002227 PCB - Microcomputer & IR-sender
PCB - Micro computer & IR-transmitter

17Modul 8002240 PCB - Betjening
1701 7500148 Kontaktfjeder
PCB - Keyboard
Switch

9001 3168256 Panel
9002 3917036 Skumklods
9003 3010007 Glidesko
9004 2775946 Knapsæt
9005 6141031 Printplade (uden 90D1)
Panel
Foam block
Plastic foot
Set of buttons
Printed circuit board (w/o 90D1)

| | | | |
|------|---------|---------------------|---------------------|
| 9006 | 3947031 | Skumtape | Piece of foam tape |
| 9007 | 8700000 | Batteri 9V alkaline | Battery 9V alkaline |
| 9008 | 7229020 | Batteritilslutning | Battery connector |
| 9009 | 3322058 | Rude | Window |
| 9010 | 3454347 | Bund | Bottom |
| 9011 | 3160031 | Dæksel | Cover |

1 2011023 Skruer 2,2x6,5 sort
Screw 2.2x6.5 black

Beomaster 3000

| | | | |
|---------|---------|----------------------------|----------------------------|
| 04Modul | 8002241 | PCB - Volume & IR-modtager | PCB - Volume & IR-receiver |
| | 3152430 | Afstandsstykke f/IR-diode | Spacer f/IR-diode |
| | 3302391 | Skærm, øvre | Screen, upper |
| | 3302392 | Skærm, nedre | Screen, lower |
| | 3300083 | Skærm IR-diode | Screen IR-diode |
| | 3170230 | Isolationsstykke | Insulating piece |

| | | | |
|------|---------|---------------------------|-----------------------|
| 1001 | 3168431 | Primær betjeningspanel | Panel primary control |
| 1013 | 3112300 | Bund, komplet | Bottom, complete |
| | 3322106 | Rude f/IR-diode | Window f/IR-diode |
| 1015 | 7210378 | Højttalerstikdåse 3 poler | Speaker socket 3 pins |
| 1016 | 3452498 | Bagstykke 2931 | Rear panel 2931 |
| | 3452499 | Bagstykke 2932 | Rear panel 2932 |
| | 3452500 | Bagstykke 2933 | Rear panel 2933 |
| | 3452501 | Bagstykke 2935 | Rear panel 2935 |
| | 3452502 | Bagstykke 2937 | Rear panel 2937 |
| | 3452503 | Bagstykke 2939 | Rear panel 2939 |
| 1021 | 3414780 | Kabinet forstykke | Cabinet front |

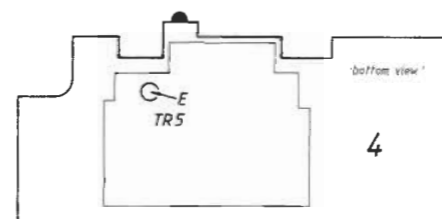
Ikke viste dele Parts Not Shown

| | | |
|---------|----------------------|------------------------|
| 3391630 | Emballage f/terminal | Packing f/terminal |
| 3390001 | Plastpose 150x300 mm | Plastic bag 150x300 mm |
| 3397542 | Skumemballagesæt | Set of foam packing |

Øvrige dele som 291x

Other parts as for 291x

JUSTERING



Følsomhed fjernbetjeningsmodtager

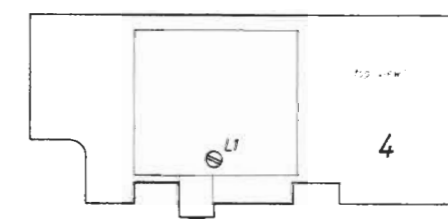
Oscilloskop tilsluttes emitteren på 4TR5.

Aktiver „volume ned“ (∇) på Terminal 3000.

Med 4L1 justeres til maksimum.

Øvrige justeringer som anført for type 291x

ADJUSTMENTS



Remote Receiver Sensitivity

Connect oscilloscope to the emitter of 4TR5.

Activate "volume down" (∇) on Terminal 3000.

Adjust 4L1 until maximum is obtained.

Other adjustments as stated for types 291x