



THOMSON

AUDIO



SERVICE MANUAL DOCUMENTATION TECHNIQUE TECHNISCHE DOKUMENTATION DOCUMENTAZIONE TECNICA DOCUMENTACION TECNICA

MS2200

Version (PC*): A

*PC: The version code is indicated either in the battery compartment or on the back of the unit - ce code version est indiqué dans le compartiment à piles ou au dos de l'appareil - PC: Version des Geräts wird im Batteriefach oder auf der Rückseite angegeben - il codice della versione è indicato nello scompartimento delle batterie o sul retro dell'apparecchio - el código de la versión está indicado en el compartimento de las pilas o en la parte trasera del aparato.



Technical data - Caractéristiques principales Technische Daten - Dati tecnici - Características del aparato

Type of set : Type d'appareil : Geräteart : Tipo d'apparecchio : Tipo de aparato :	Cassette radio recorder / compact disc Combiné radio cassette / CD CD-Radio Cassetten Portable Insieme radio cassette / CD Radio cassette / CD	
Power supply : Alimentation : Stromversorgung : Alimentazione : Alimentación :	230 V ~ 50 Hz	Nominal output power : Puissance nominale de sortie : Nennausgangsleistung : potenza nominale di uscita : Potencia nominal de salida :
FM - MF : MW - PO : LW - GO :	87,5 - 108 MHz 522 - 1611 kHz 150 - 283 kHz	Sensitivity : Sensibilité : Empfindlichkeit : Sensibilità : Sensibilidad :
Frequency response : Courbe de réponse : Frequenzgang : Curva di risposta : Curva de respuesta :	200 Hz - 4 kHz (+5 / - 5 dB)	Signal to noise ratio : Rapport signal / bruit : Geräuschspannungsabstand : Rapporto segnale / disturbo : Relación señal / ruido :
Wow and flutter : Fluctuations : Gleichlauf : Fluttuazioni : Fluctuaciones :	0,3 %	
DAD Disc rotation speed : Vitesse de rotation du disque : CD-Drehgeschwindigkeit : Velocità di rotazione del disco : Velocidad de rotación del disco :	200 → 500 tr/m	Frequency response : Courbe de réponse : Frequenzgang : Curva di risposta : Curva de respuesta :
Stereo separation : Diaphonie : Übersprechdämpfung : Diafonia : Diafonia :	40 dB	Signal to noise ratio : Rapport signal / bruit : Geräuschspannungsabstand : Rapporto segnale / disturbo : Relación señal / ruido :



WARNING : Before servicing this chassis please read the safety recommendations.
ATTENTION : Avant toute intervention sur ce châssis, lire les recommandations de sécurité.
ACHTUNG : Vor jedem Eingriff auf diesem Chassis, die Sicherheitsvorschriften lesen.
ATTENZIONE : Prima di intervenire sullo chassis, leggere le norme di sicurezza.
IMPORTANTE : Antes de cualquier intervención, leer las recomendaciones de seguridad.

Code : 357 828 50 - 0504 / 3,7M - CRKD2571 Print.



Do not disconnect modules when they are energized!
Repairs on power supply section are to be carried out only with isolating transformer.

Ne pas retirer les modules lorsqu'ils sont sous tension. N'effectuer les travaux de maintenance sur la partie reliée au secteur (Switch Mode) qu'au travers d'un transformateur d'isolement.


Module nicht bei eingeschaltetem Gerät entfernen!
Servicearbeiten am Netzteil nur unter Verwendung eines Regeltrenntrafos durchführen.


Non scollegare le piastre quando sono alimentate!
Per le riparazioni sulla sezione alimentatore, utilizzare un trasformatore isolatore.


No desconectar los módulos cuando están activados. Las reparaciones en la sección de alimentación de energía deben ser ejecutadas solamente con un transformador de separación.




Indicates critical safety components, and identical components should be used for replacement. Only then can the operational safety be guaranteed.

Le remplacement des éléments de sécurité (repérés avec le symbole ) par des composants non homologués selon la Norme CEI 65 entraîne la non-conformité de l'appareil. Dans ce cas, la responsabilité du fabricant n'est plus engagée.

Wenn Sicherheitsteile (mit dem Symbol ) gekennzeichnet nicht durch Original - Ersatzteile ersetzt werden, erlischt die Haftung des Herstellers.

La sostituzione dei componenti di sicurezza (evidenziati con il segno ) con componenti non omologati secondo la norma CEI 65 comporta la non conformità dell'apparecchio. In tal caso è "esclusa la responsabilità" del costruttore.

La sustitución de elementos de seguridad (marcados con el símbolo ) por componentes no homologados según la norma CEI 65, provoca la no conformidad del aparato. En ese caso, el fabricante cesa de ser responsable.

MEASUREMENT CONDITIONS - CONDITIONS DE MESURES - MESSBEDINGUNGEN CONDIZIONI DI MISURA - CONDICIONES DE MEDIDAS

RECEIVER

On UHF, input level : 1 mV, bar test pattern :
- PAL, 1 standard, 100% white.

Via the scart socket, input level : 1 Vpp, bar test pattern :

Colour, contrast and brightness at mid-position, sound at minimum.
Programme selected : PR 01.

DC voltages measured between the point and earth using a digital voltmeter.

RICEVITORE :

In UHF, livello d'entrata 1 mV, monoscopio barre :
- PAL, norma G, bianco 100%.

Via SCART, livello d'entrata 1 Vpp, monoscopio barre :

Colore, Contrasto, Luminosità media, Suono minimo.
Programma selezionato PR 01.

Tensioni continue rilevate rispetto alla massa con un voltmetro digitale.

RECEPTEUR :

En UHF, niveau d'entrée 1 mV mire de barres
- SECAM, Norm L, Blanc 100%.

Par la prise Périlévésion, niveau d'entrée 1 Vcc, mire de barres .

Couleur, contraste, lumière à mi-course, son minimum.
Programme affecté PR 01.

Tensions continues relevées par rapport à la masse avec un voltmètre numérique.

RECEPTOR :

En UHF, nivel de entrada 1 mV, mira de barras :
- PAL, norma G, blanco 100%.

Por la toma Peritelevision, nivel de entrada 1 Vpp mira de barra.

Color, Contraste, luz a mitad de carrera, Sonido minimo.
Programa afectado PR 01.

Tensiones continuas marcadas en relacion a la masa con un voltmetro digital.



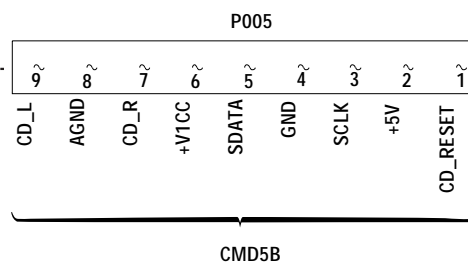
CLASS 1 LASER PRODUCT
APPAREIL A LASER DE CLASSE 1
LASER KLASSE 1
APPARECCHIO CON LASER DI CLASSE 1
APARATO CON LASER DE CLASE 1

- DANGER :** Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
- ATTENTION :** Le rayon laser est invisible. Eviter l'exposition directe lors de la maintenance.
- VORSICHT BEI REPARATUREN :** Bei geöffneter Schublade und Defekt der Sicherheitsvorrichtungen besteht die Gefahr unsichtbaren Laserlichts. Niemals direkt in den Laserstrahl sehen.
- ATTENZIONE :** Il raggio laser è invisibile. Evitare l'esposizione diretta durante la manutenzione.
- IMPORTANTE :** El rayo laser es invisible. Evitar la exposición directa en el momento del mantenimiento.

DIGITAL PROCESSING SCHEMATIC DIAGRAM - SCHEMA DU TRAITEMENT DIGITAL - SCHALTBILD DIGITALVERARBEITUNG - SCHEMA ELABORAZIONE DIGITALE - ESQUEMA DEL TRATAMIENTO DIGITAL

The complete Digital Processing Module is available from A.S.S. under Part Number :
En SAV, l'ensemble du module traitement digital est géré sous le code :
Die Service Bestell-Nr. für das Modul "Digital Processing kompl." ist :
Il codice del modulo completo di elaborazione digitale è :
En postventa, el modulo completo tratamiento digital lleva el código :

107 502 60





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- PAL, I standard, 100% white.

Via the scart socket, input level: 1 Vpp, bar test pattern:

Colour, contrast and brightness at mid-position, sound at minimum.
Programme selected: PR 01.

DC voltages measured between the point and earth using a digital voltmeter.

RICEVITORE:

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Via SCART, livello d'entrata 1 Vpp, monoscopio barre:

Colore, Contrasto, Luminosità media, Suono minimo.
Programma selezionato PR 01.

Tensioni continue rilevate rispetto alla massa con un voltmetro digitale.

RECEPTEUR:

En UHF, niveau d'entrée 1 mV mire de barres
- SECAM, Norm L, Blanc 100%.

Par la prise Péril-télévision, niveau d'entrée 1 Vcc, mire de barres.

Couleur, contraste, lumière à mi-course, son minimum.
Programme affecté PR 01.

Tensions continues relevées par rapport à la masse avec un voltmètre numérique.

RECEPTOR:

En UHF, nivel de entrada 1 mV, mira de barras:
- PAL, norma G, blanco 100%.

Por la toma Peritelevision, nivel de entrada 1 Vpp mira de barra.

Color, Contraste, luz a mitad de carrera, Sonido mínimo.
Programa afectado PR 01.

Tensiones continuas marcadas en relación a la masa con un voltmetro digital.

DISASSEMBLY

Cover Removal

Note: Perform all disassembly procedures in the order presented. When reassembling, use the reverse procedure. Make sure that all leads/wiring are routed correctly when reassembling.

1. Remove the screw located on the backside of the unit as shown in Figure 1. Remove seven (7) screws located on the left and right side of the cover
2. Remove top panel by lifting upward from rear and separating tabs from backside of front plate.

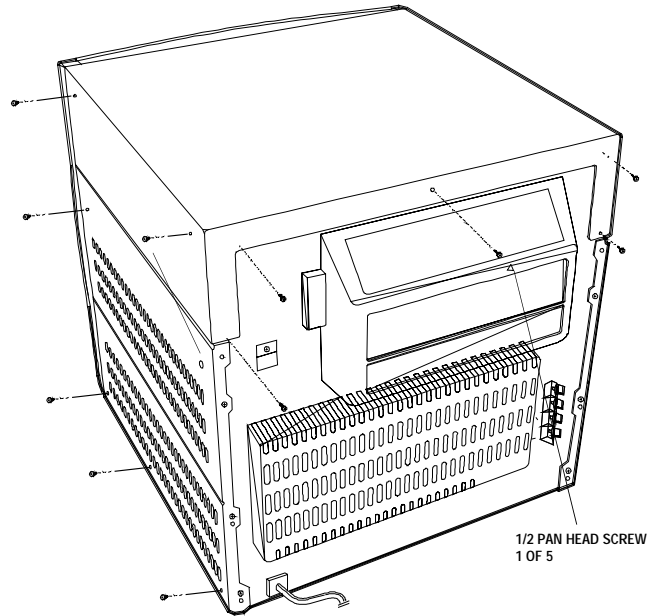


Fig. 1

Back Panel Removal

1. Remove cover.
2. Remove thirteen (13) screws from the back of unit as shown in Figure 2.
3. Lift CD tray to release tabs on back panel as shown in Figure 2.

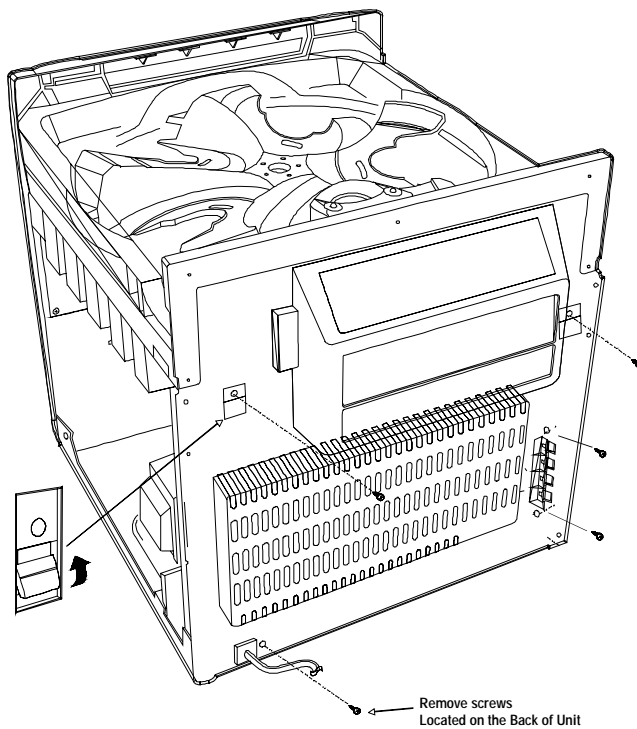


Fig. 2

CD Mechanism Removal

1. Plug unit in and extend the CD tray. While extended unplug the unit.
2. Remove top cover.
3. Remove side panels.
4. Remove the back panel
5. Remove one (1) screw from the CD Arm Stop as shown in Figure 3.
6. Remove four (4) screws from CD Mechanism Assembly as shown in Figure 4.
7. Release one (1) wire from catch on bottom of CD Tray.
8. Release CD Mechanism Assembly from mount by pulling towards the rear and lifting gently.

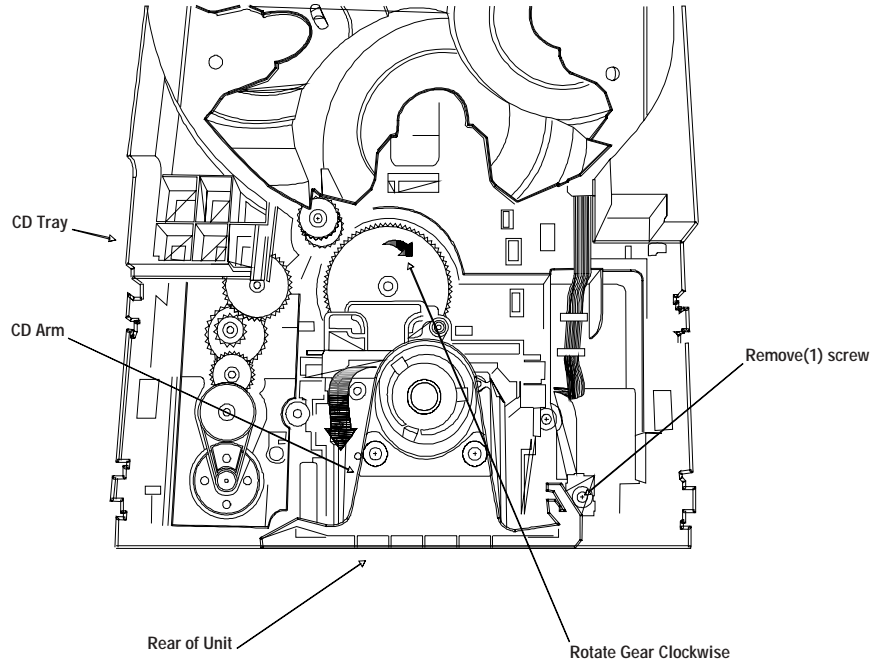


Fig. 3

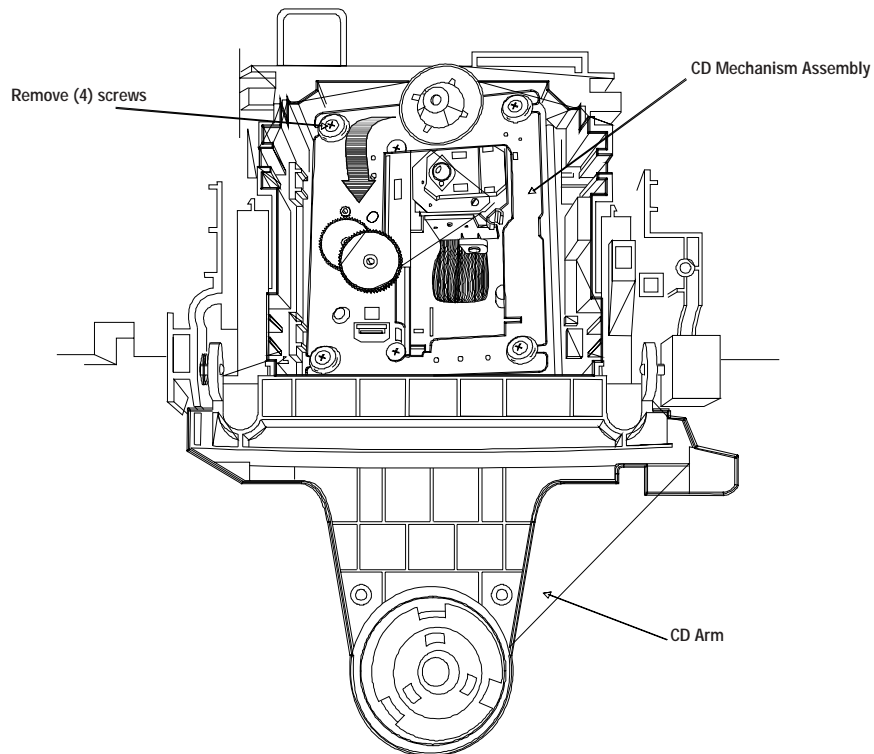


Fig. 4

CD Mechanism Removal (Cont'd)

10. Disconnect one (1) Ribon wire from CD Mechanism Assembly as shown in Figure 5.

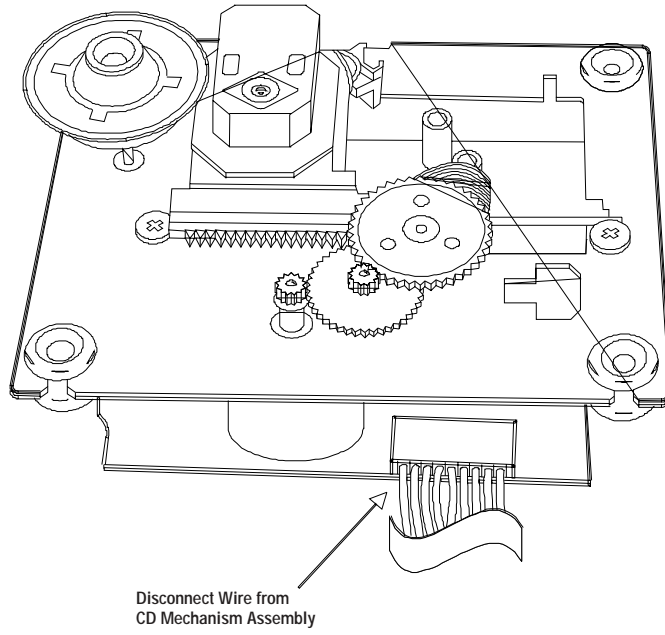













































Fig. 5

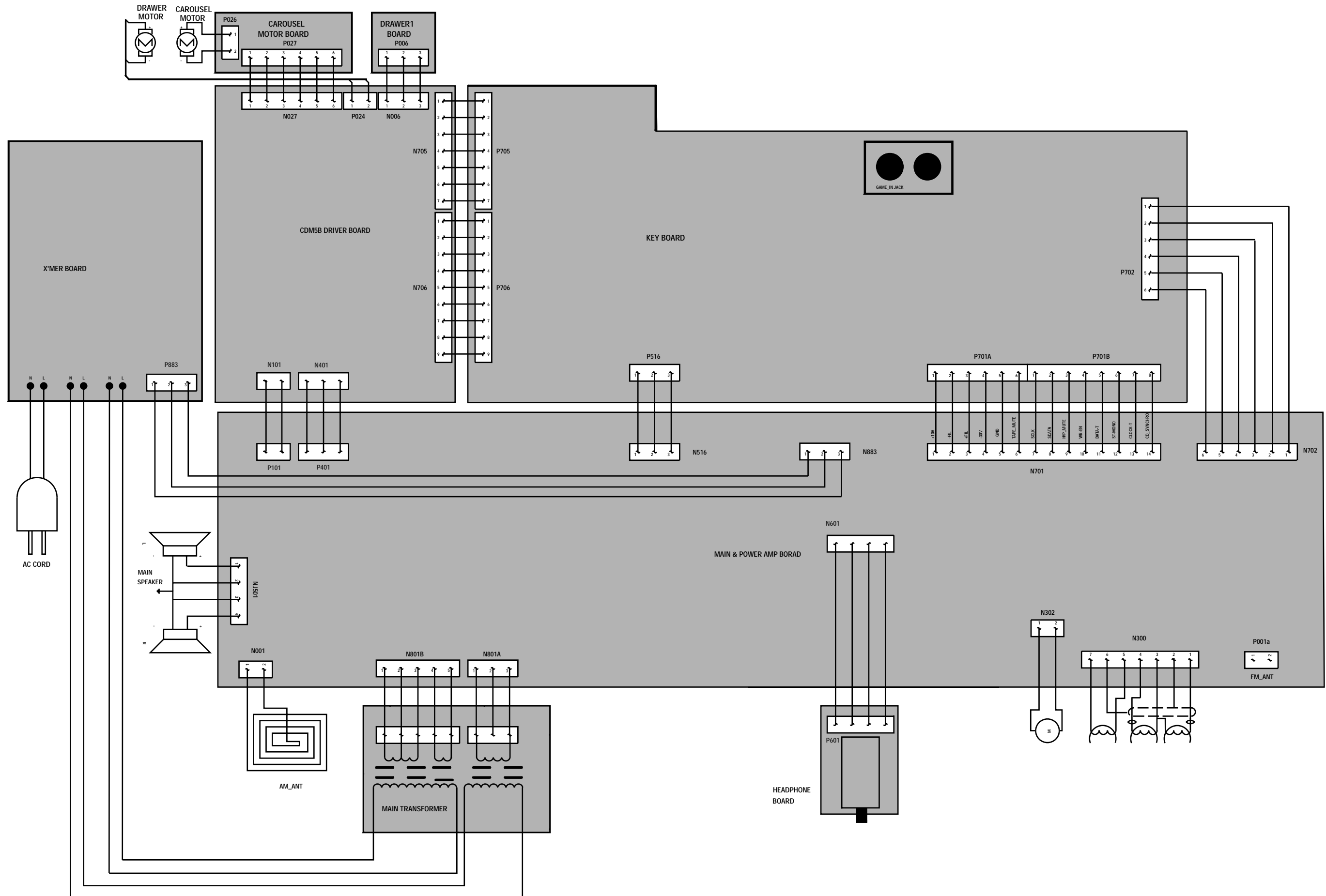
ADJUSTMENTS - REGLAGES - EINSTELLUNGEN - REGOLAZIONI - AJUSTES

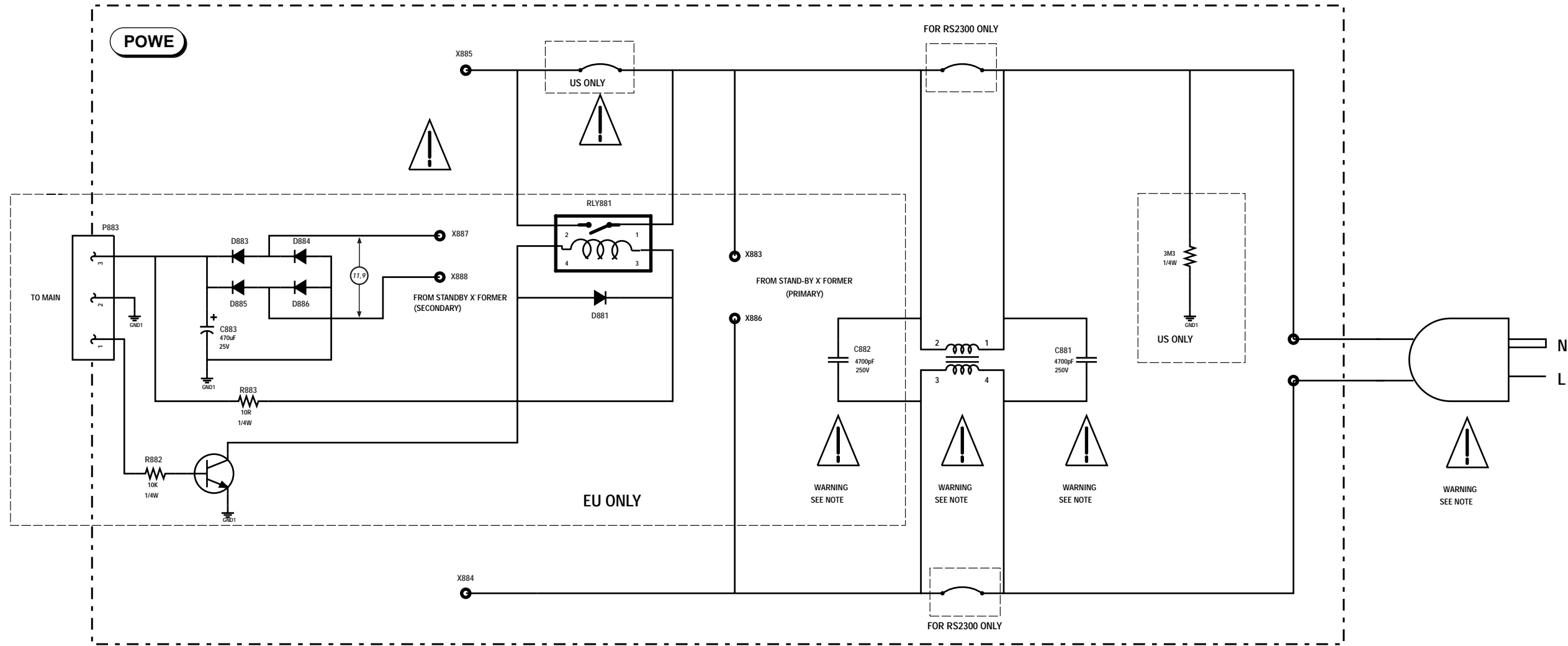
AM alignment											
					f						
MW Osc	1				522 kHz	522 kHz		TF003		TP002	V = 1,35V ±0,05V (TP009G = AGND)
	2				1611 kHz	1611 kHz		TP002	V = 8,0V ±1V		
LW Osc	3				150 kHz	150 kHz		TF004		TP002	V = 1,51V ±0,01V
	4				283 kHz	283 kHz		TP002	V = 4,6V ±1V		
IF	5		Ve = 100 mV		450 kHz	450 kHz		TF005 TF008		TP009	max.
	6				450 kHz	450 kHz		TF007	TP011	V = 450 kHz ±1 kHz	
MW	7		Ve = 300 ∞V		630 kHz	630 kHz		TF001		TP007	max.
LW	8				170 kHz	170 kHz		TF001	TP008	(TP009G = AGND)	

FM alignment											
					f						
IF	1		Ve = 1 mV		98,1 MHz	98,1 MHz		TF006		TP003	(TP009G = AGND)
Osc	2				87,5 MHz	87,5 MHz		L004		VT = 1,0V ±0,05V	
	3				108,1 MHz	108,1 MHz	CV002	VT = 7,0V ±0,5V			
RF	4		Ve = 1 mV		90,1 MHz	90,1 MHz		L003		TP007	max.
	5				106,1 MHz	106,1 MHz		TP008	(TP009G = AGND)		

Decoder alignment											
					f						
FM	1		Ve = 1 mV		98,1 MHz	98,1 MHz		RV001		TP005	f = 152 kHz ±1 kHz

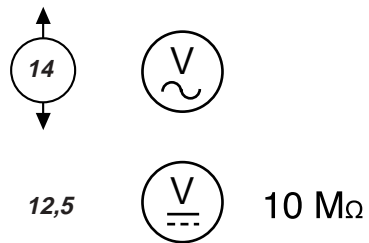
WIRING DIAGRAM - SCHEMA D'INTERCONNESSIONS - VERDRAHTUNGSPLAN - DIAGRAMMA DELLE INTERCONNESSIONI - ESQUEMA DE INTERCONEXIONES





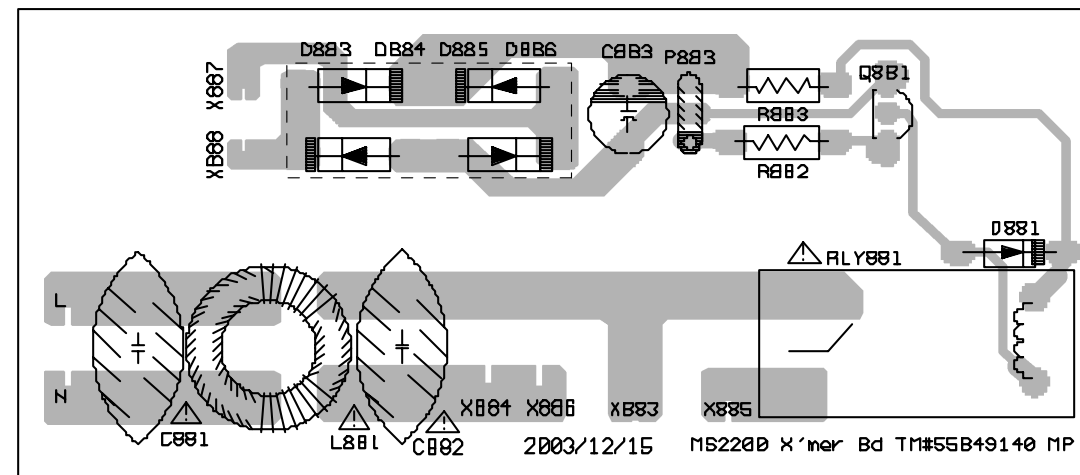
NOTES:

1. Unless otherwise specified:
 - A. All resistor values are in ohms, 1/10W
 - B. All Capacitor values are in uF
2. Voltages are positive with respect to ground under no signal conditions
3. Replace transistors with type specified from replacement parts list
4. Unless otherwise stated, all voltages taken in radio "on" position
5. * and ⚠ indicates critical safety components. Replace only with those specified from replacement parts list to maintain proper performances and safety of this unit.

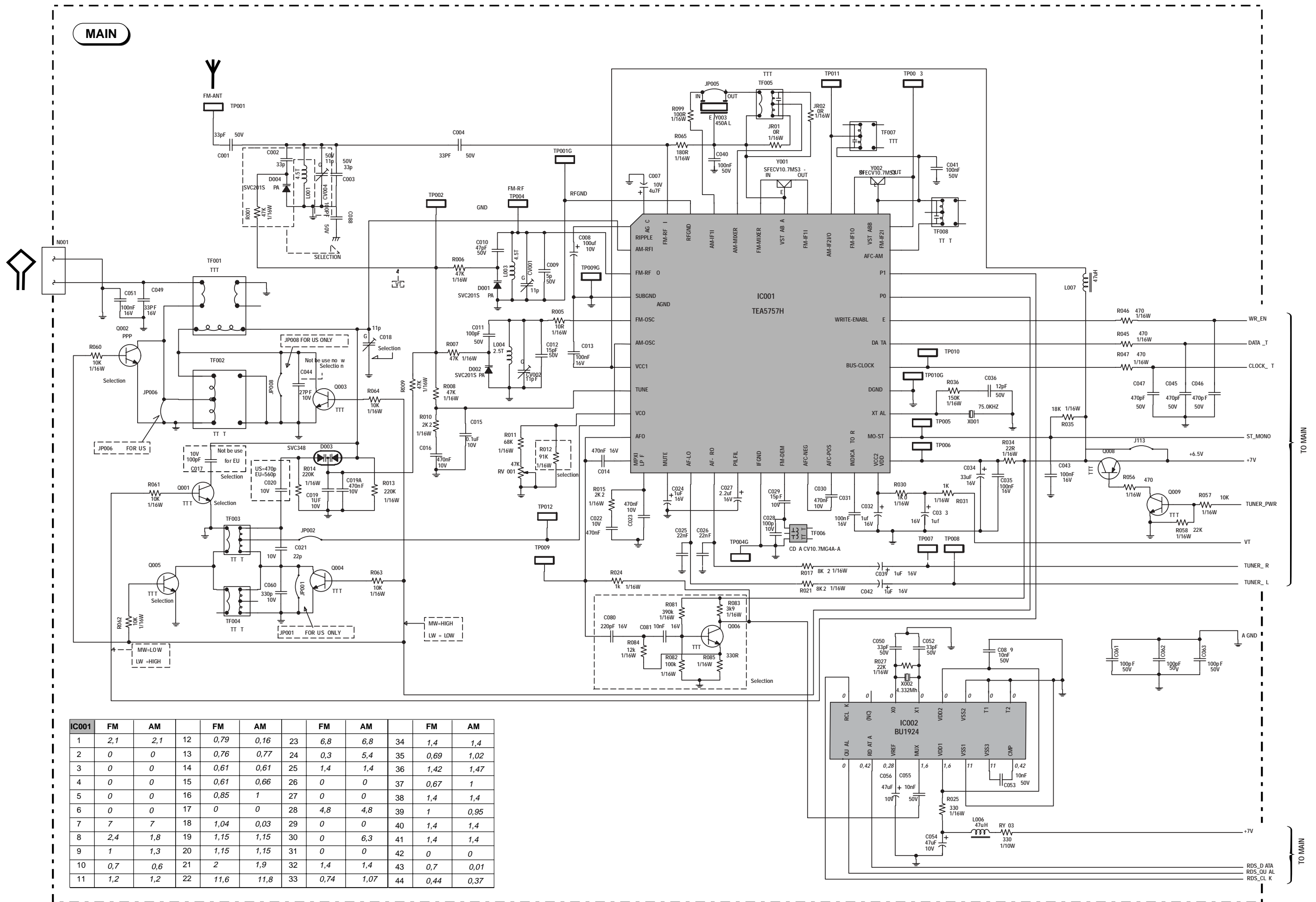


Power unit P.C.B.
 Platine secteur
 Ltpl. Netzanschluss
 Piastra di rete
 Platina de red

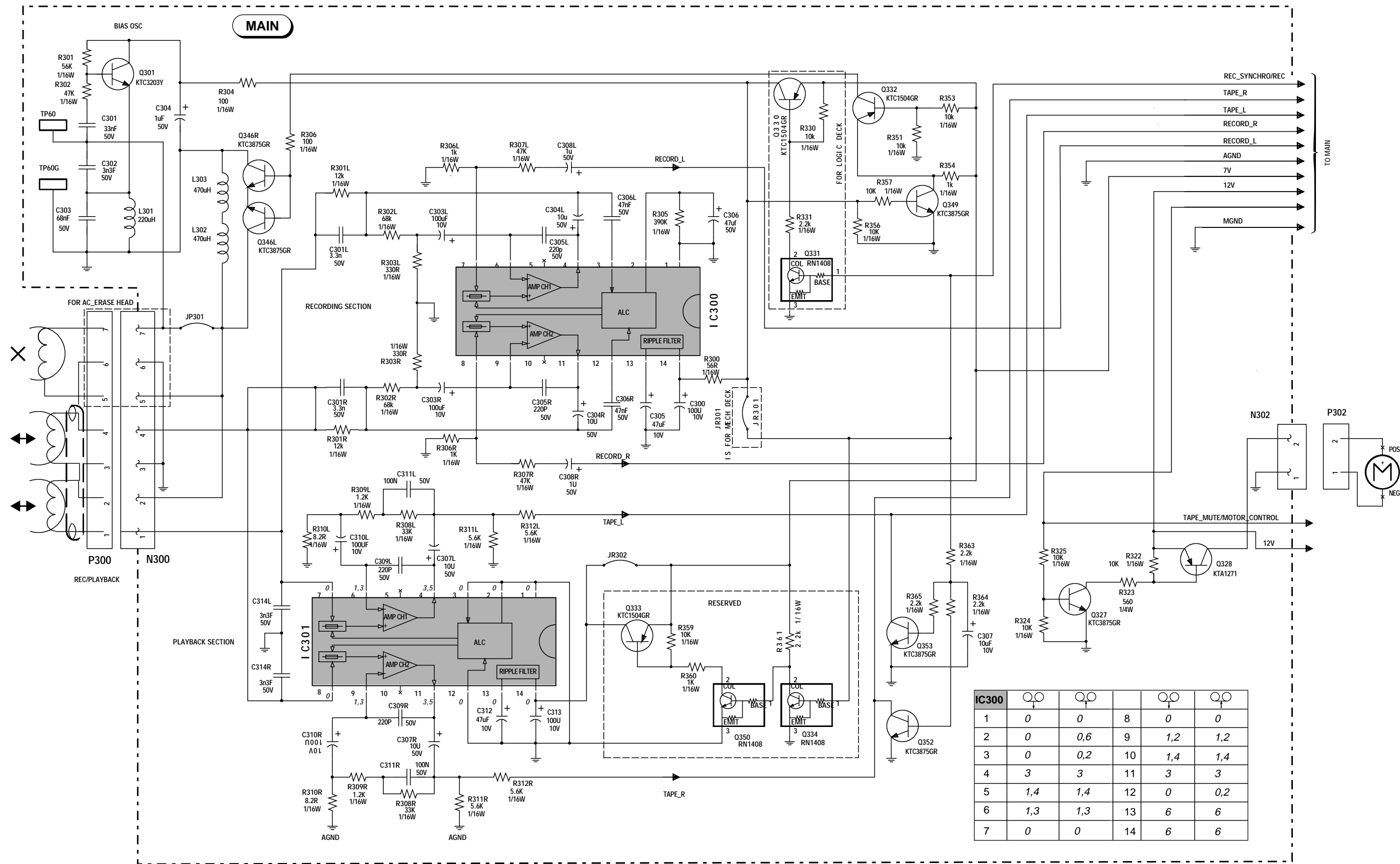
Component side
 Côté composants
 Bestückungsseite
 Lato componenti
 Lado componentes



MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD GRUNDPLATTE - SCHEMA DELLA PIASTRA PRINCIPALE - ESQUEMA DE LA PLATINA PRINCIPAL (TUNER PART)

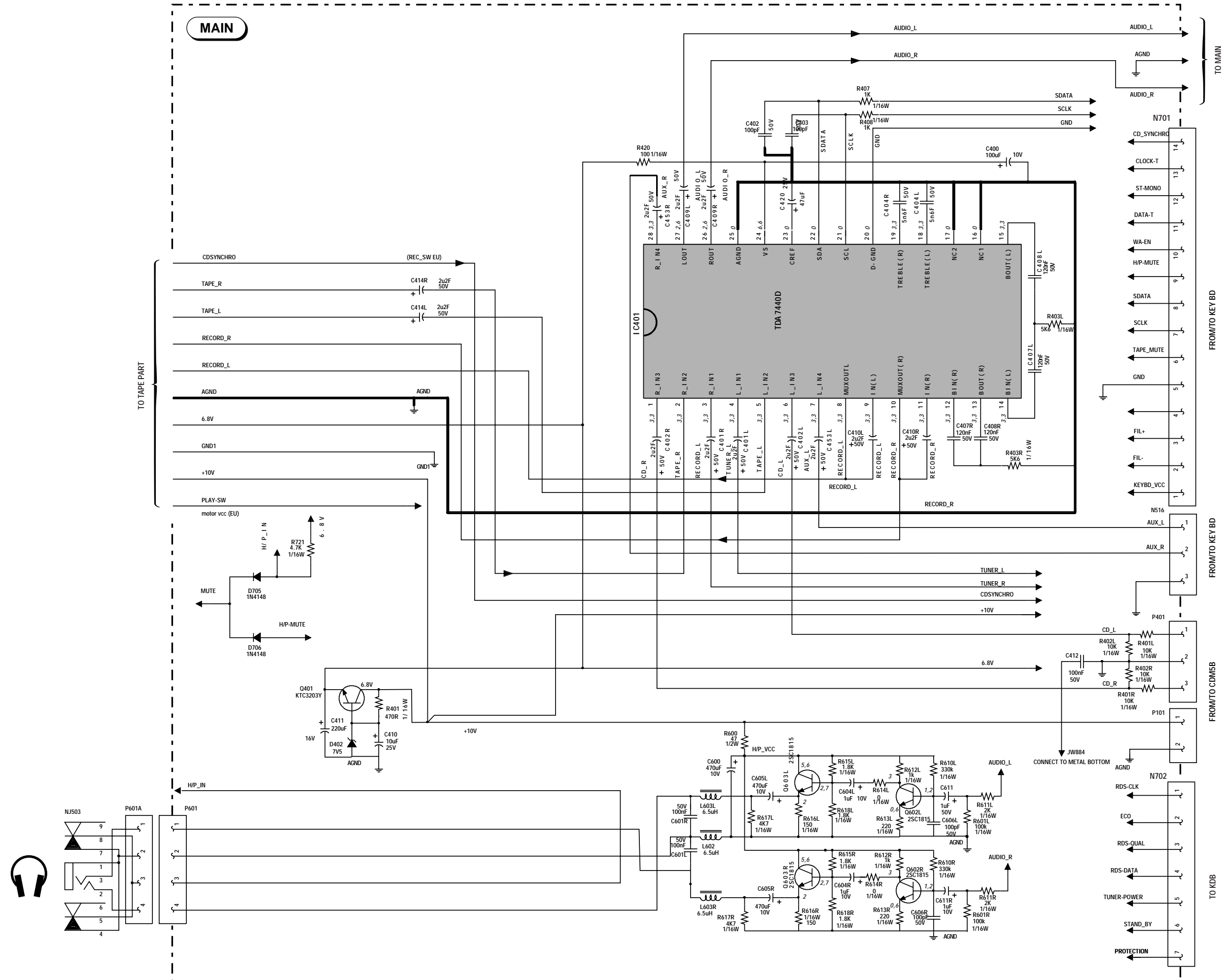


MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD GRUNDPLATTE - SCHEMA DELLA PIASTRA PRINCIPALE - ESQUEMA DE LA PLATINA PRINCIPAL (TAPE PART)

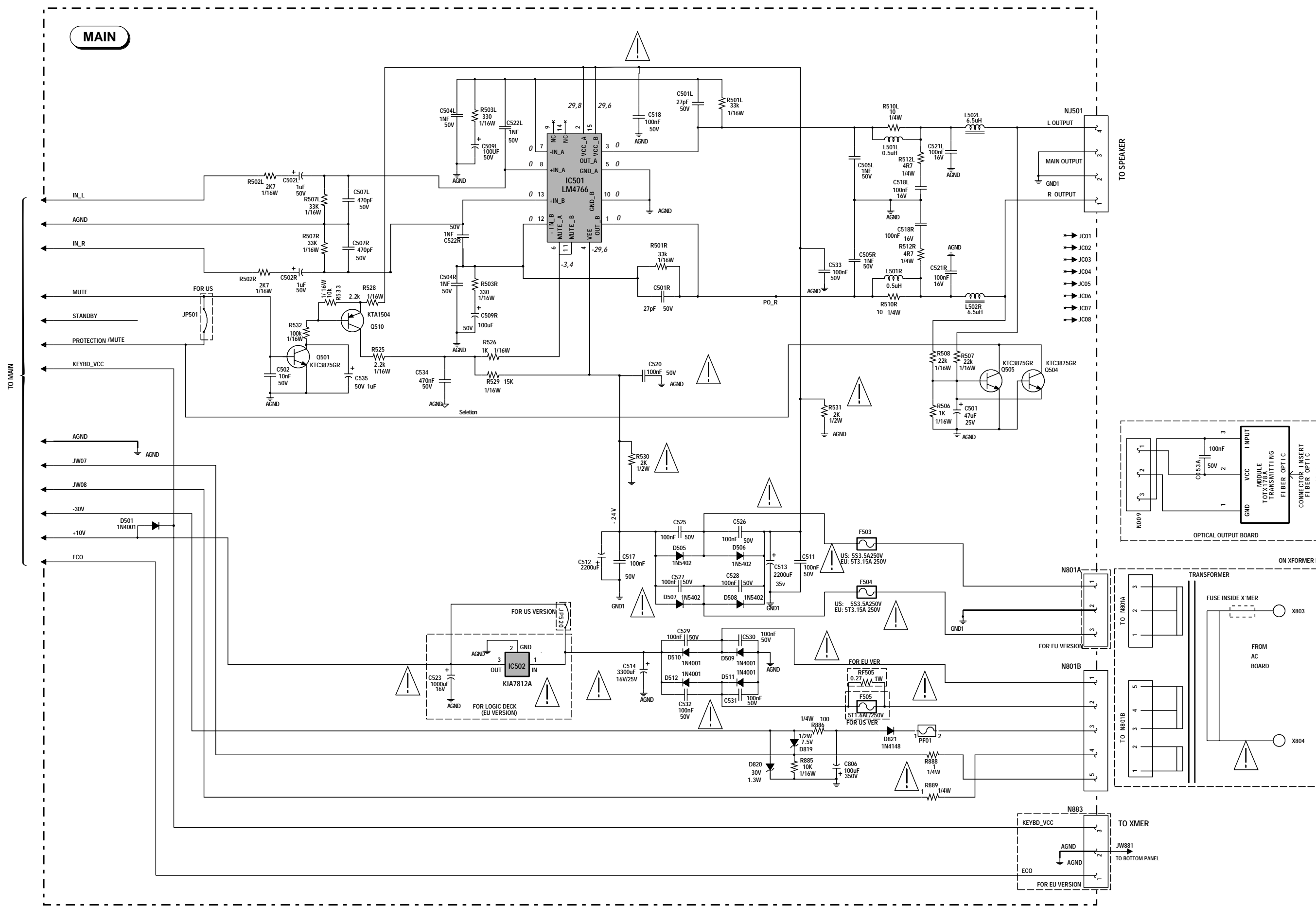


IC300	1	2	3	4	5
1	0	0	8	0	0
2	0	0,6	9	1,2	1,2
3	0	0,2	10	1,4	1,4
4	3	3	11	3	3
5	1,4	1,4	12	0	0,2
6	1,3	1,3	13	6	6
7	0	0	14	6	6

MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD GRUNDPLATTE - SCHEMA DELLA PIASTRA PRINCIPALE - ESQUEMA DE LA PLATINA PRINCIPAL

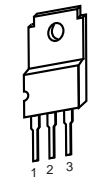
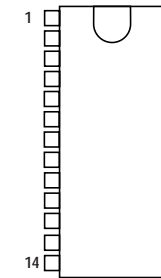
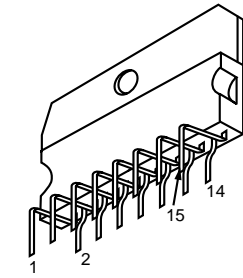
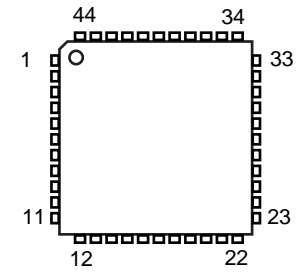
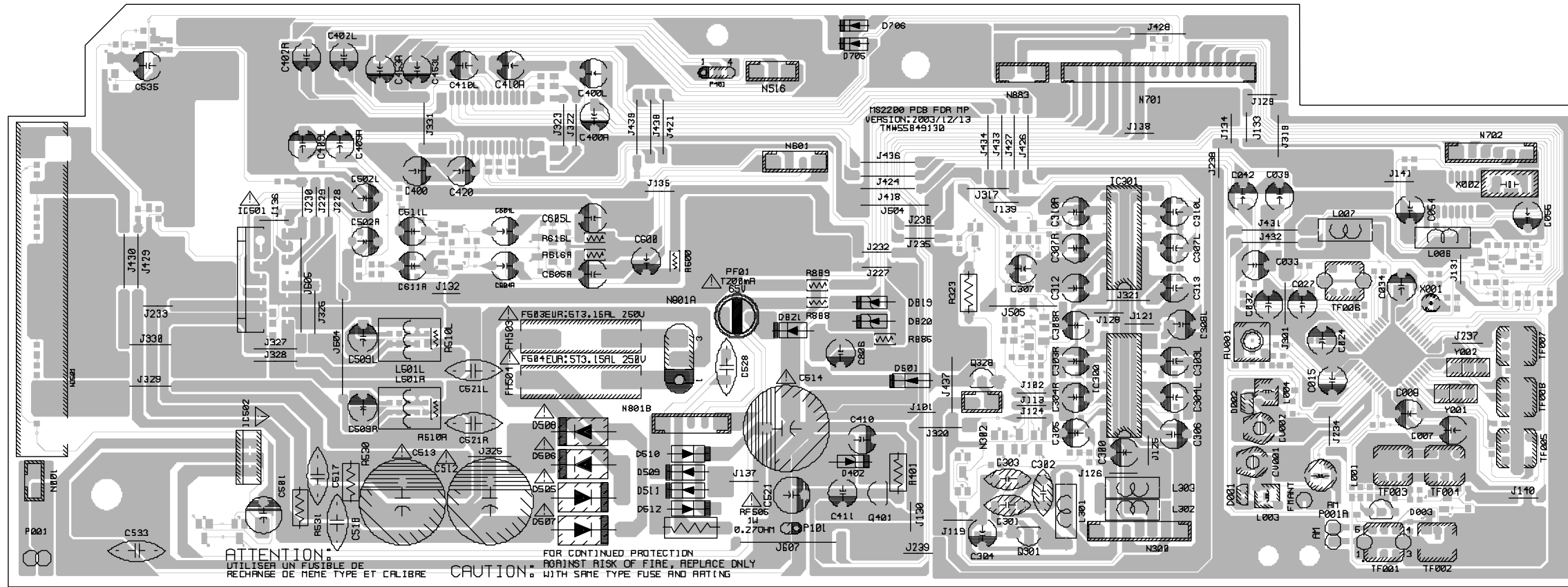


MAIN SCHEMATIC DIAGRAM - SCHEMA DE LA PLATINE PRINCIPALE - SCHALTBILD GRUNDPLATTE - SCHEMA DELLA PIASTRA PRINCIPALE - ESQUEMA DE LA PLATINA PRINCIPAL (POWER AMP PART)

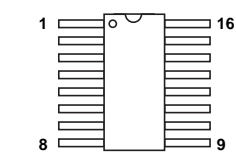
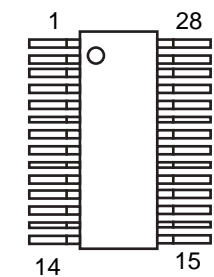
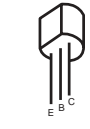
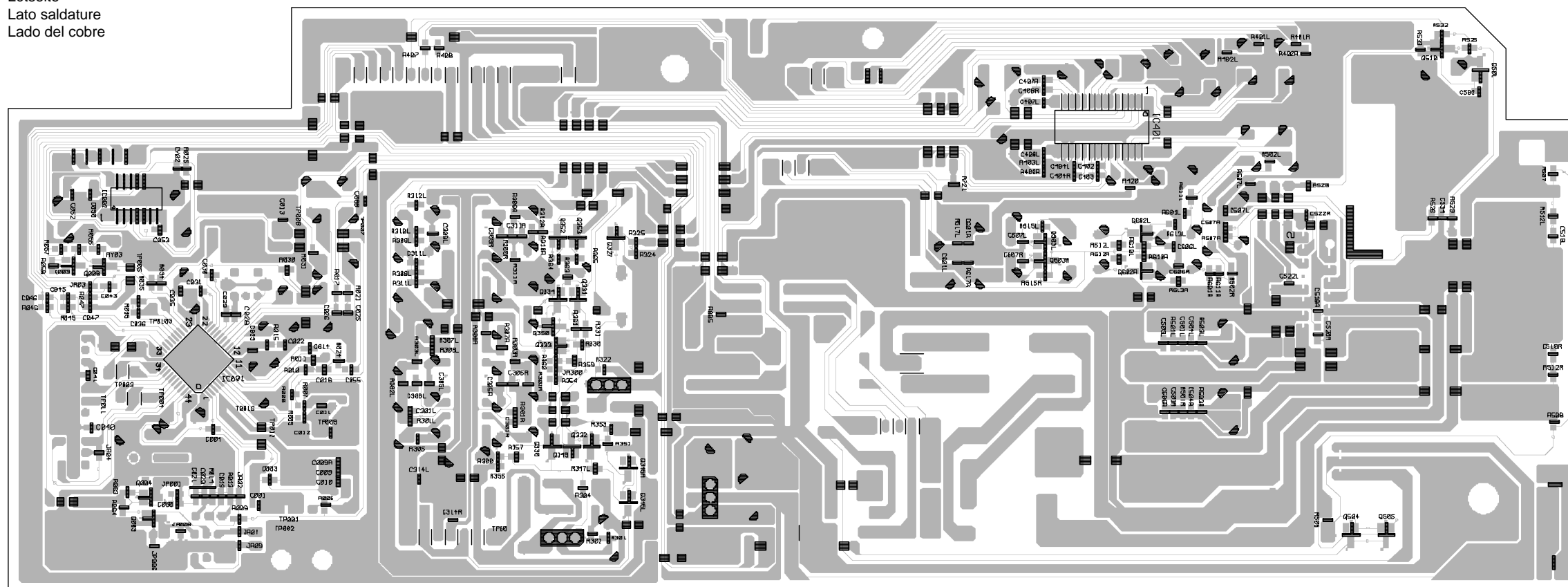


Main P.C.B.
Platine principale
Grundplatte
Piastra principale
Platina principal

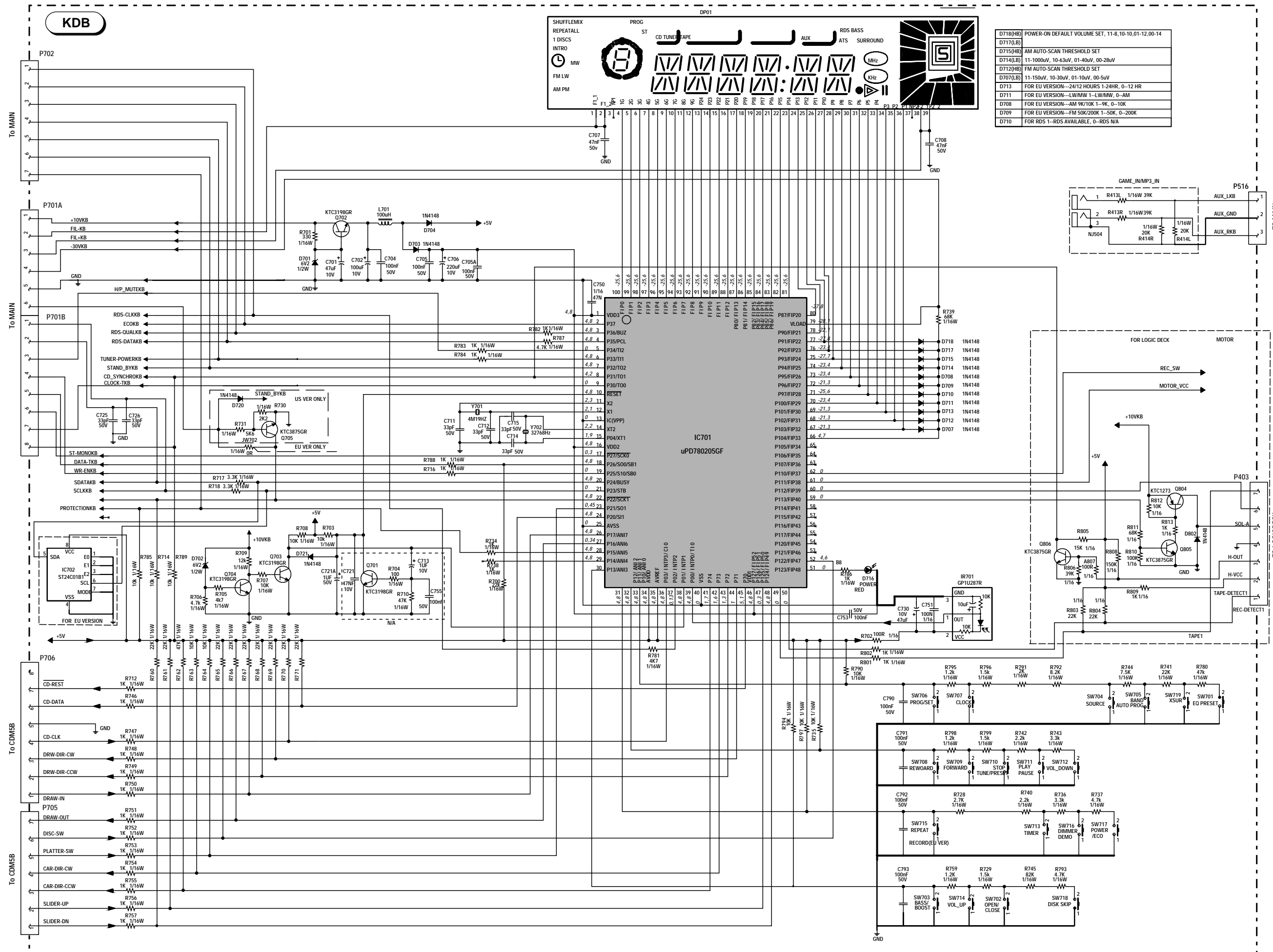
Component side
 Côté composants
 Bestückungsseite
 Lato componenti
 Lado componentes

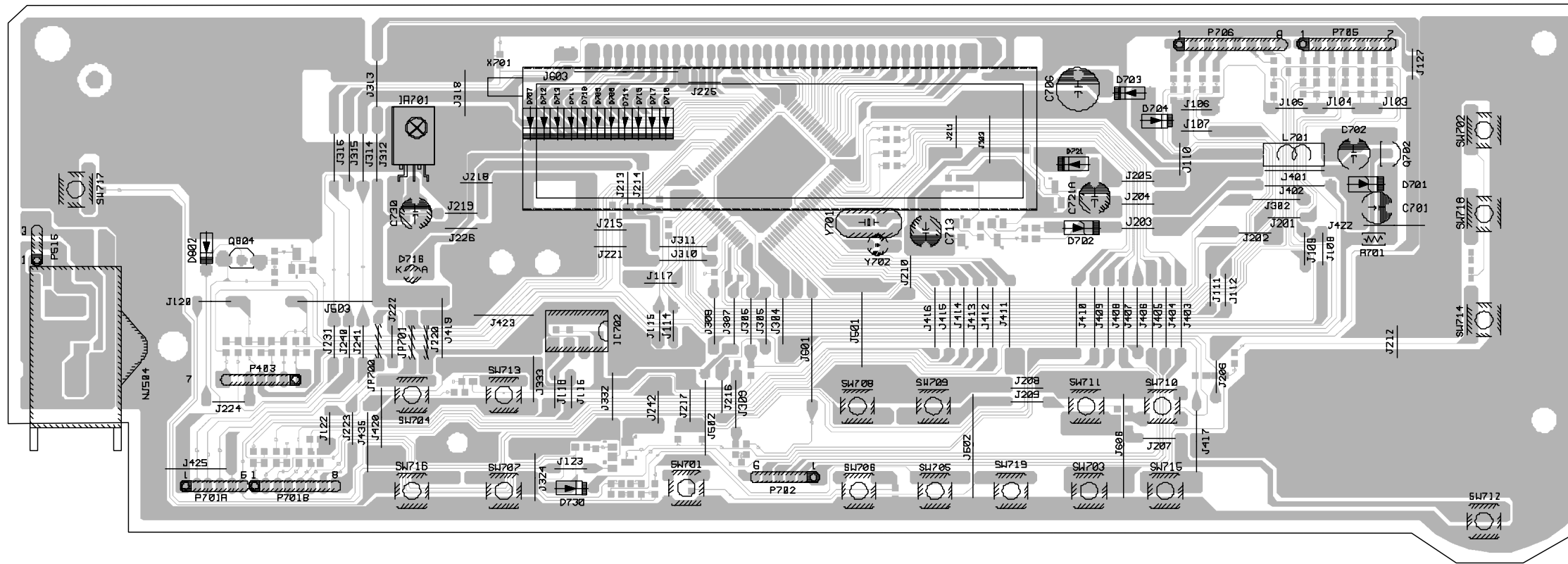


Solder side
Côté soudure
Lötseite
Lato saldature
Lado del cobre

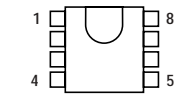


CONTROL / DISPLAY SCHEMATIC DIAGRAM - SCHEMA COMMANDES / AFFICHEUR - SCHALTBILD BEDIENTEIL / ANZEIGE - SCHEMA COMANDI / INDICATORE - ESQUEMA MANDOS / INDICADOR

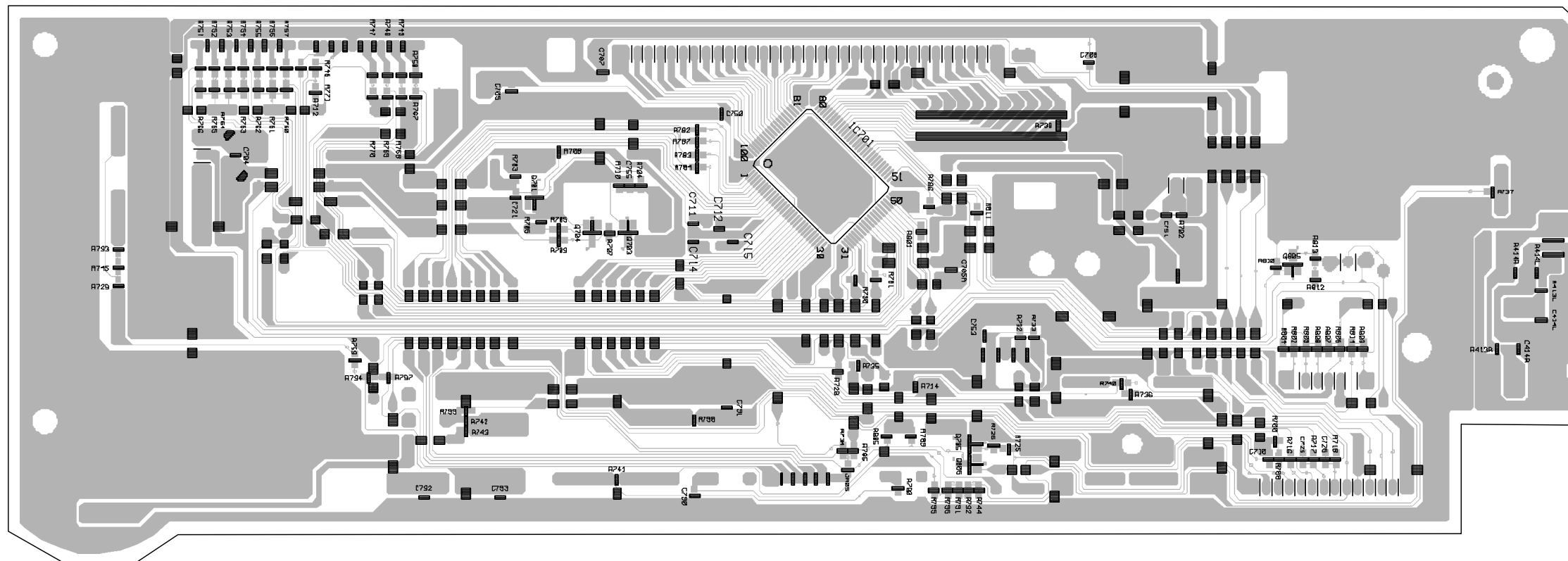




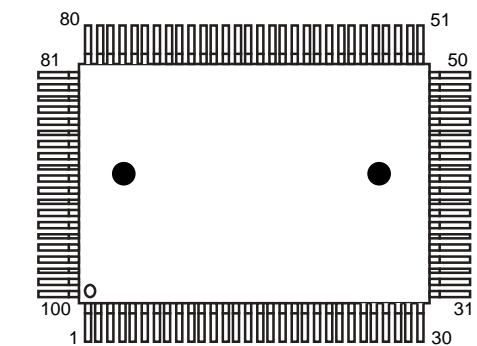
Component side
 Côté composants
 Bestückungsseite
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M24C01BN6

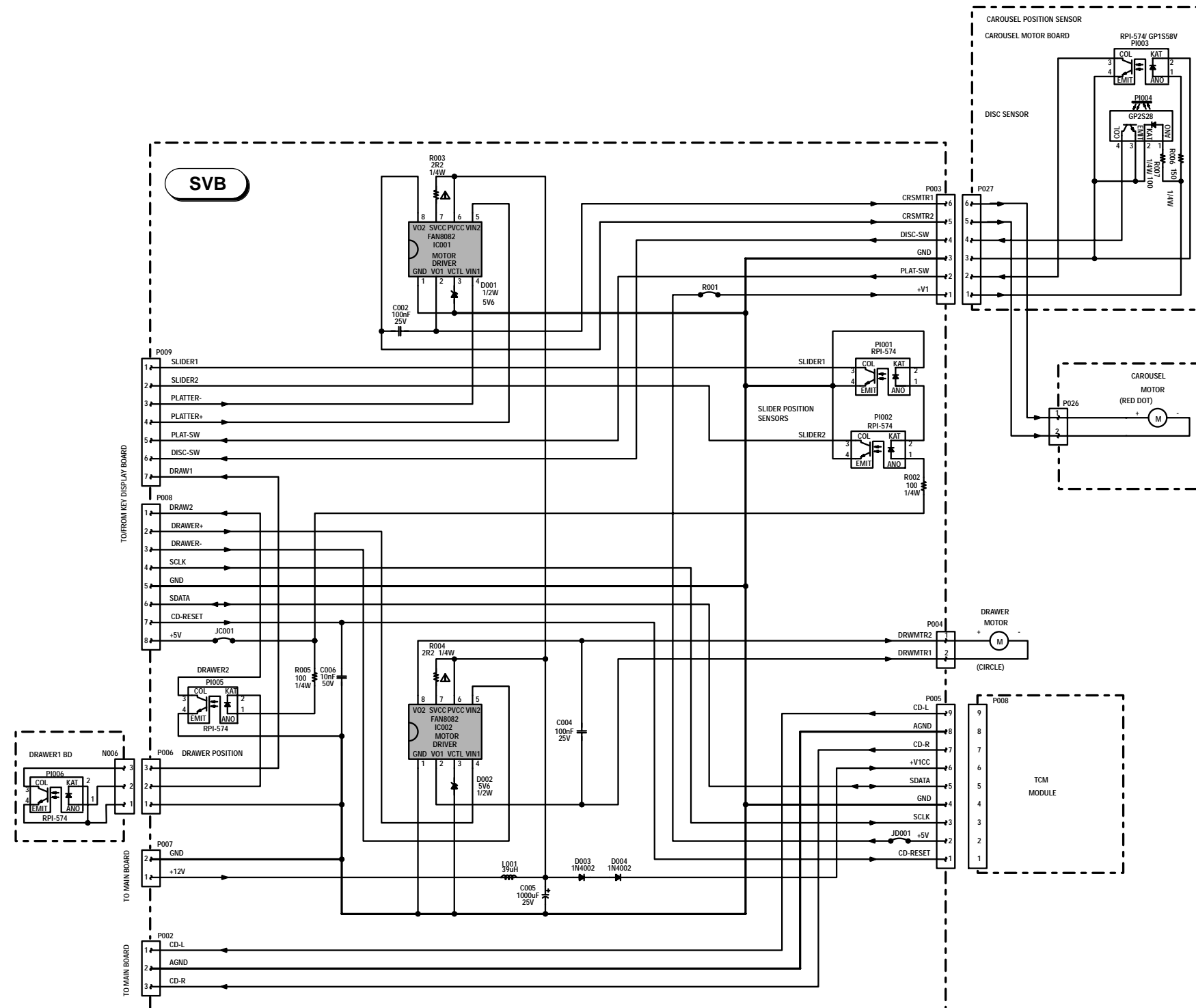


Solder side
 Côté soudure
 Lötseite
 Lato saldature
 Lado del cobre

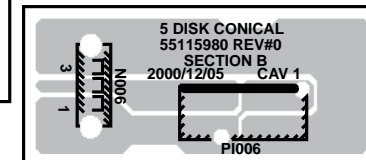
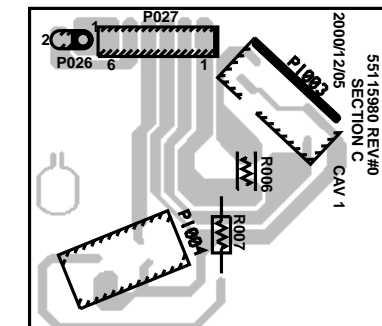
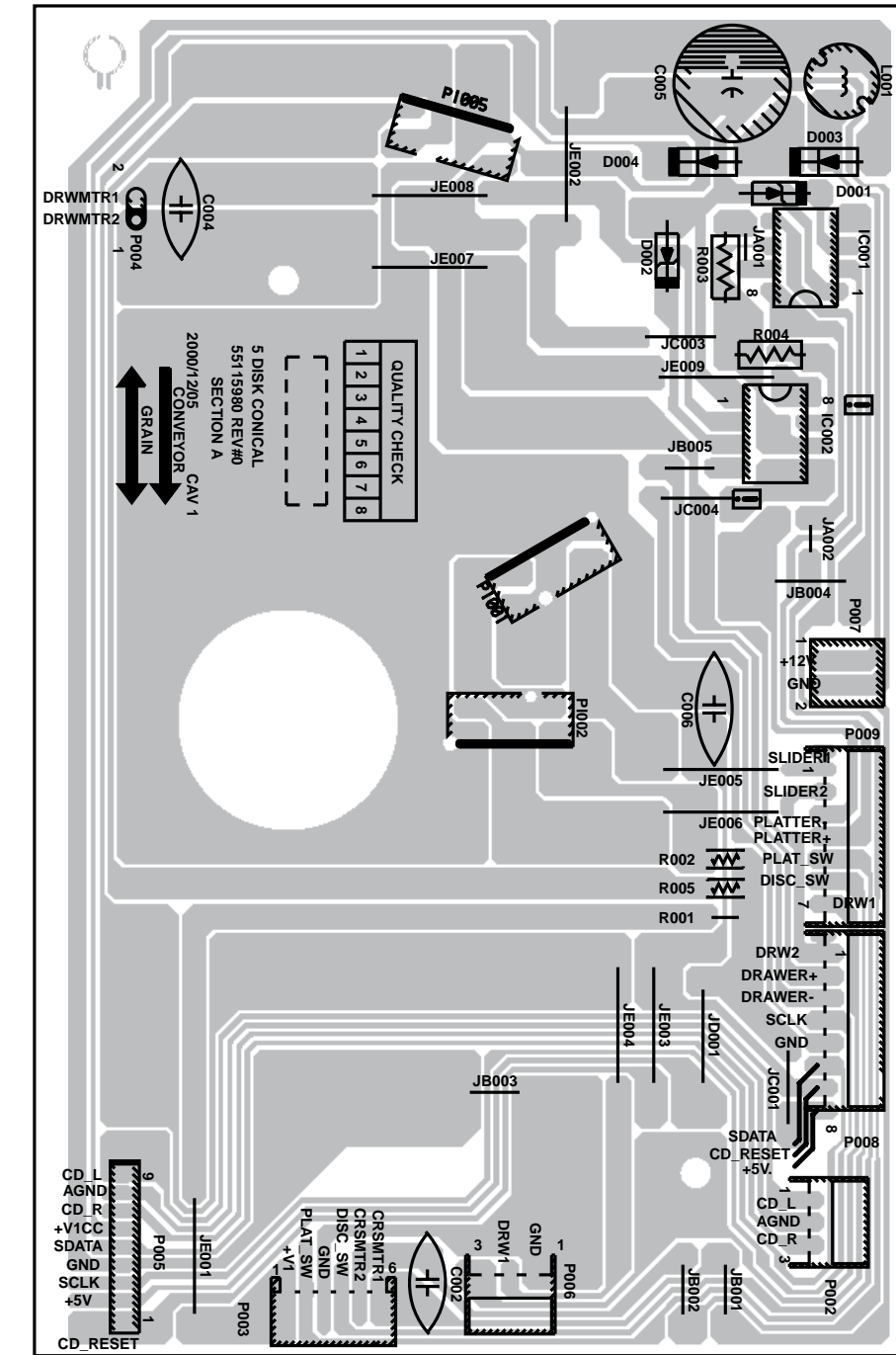


UPD780208GF

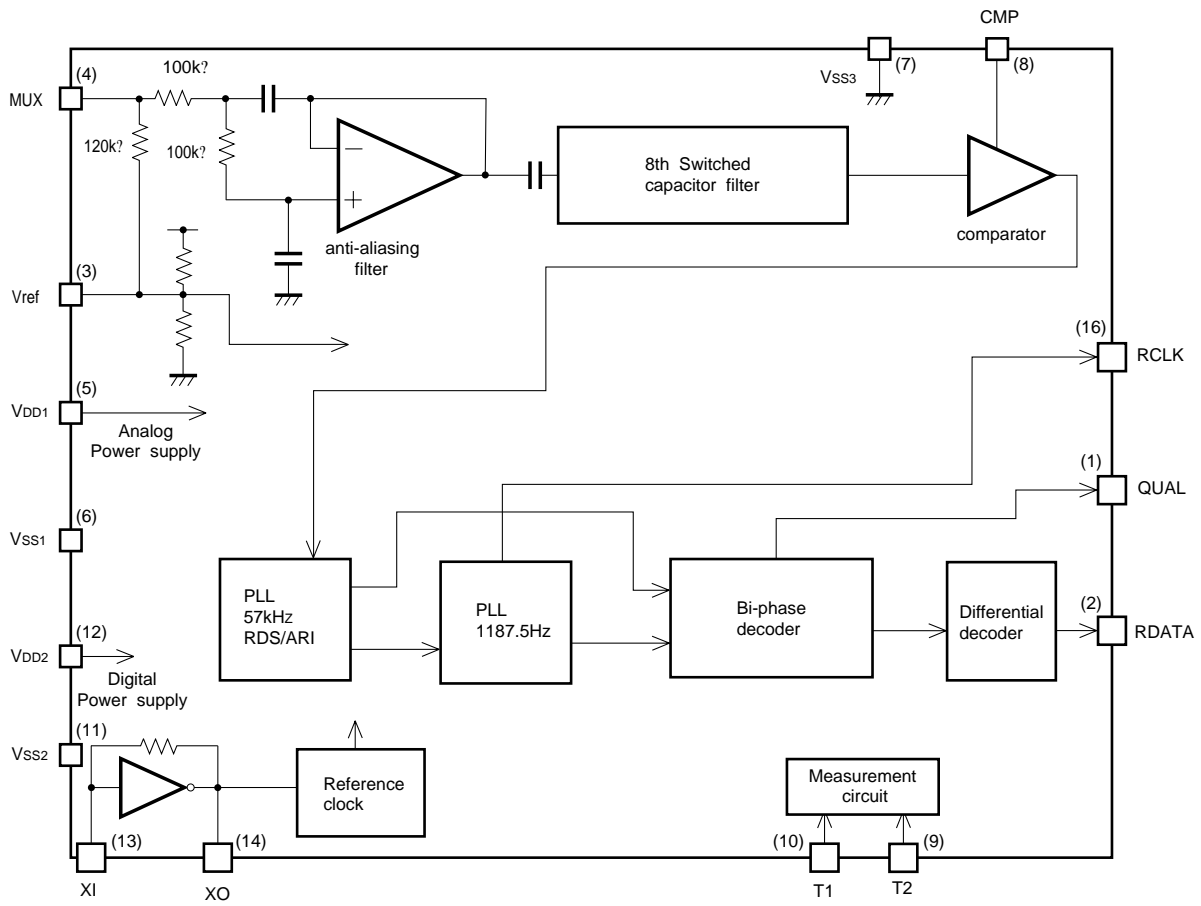
CD CONTROL MOTORS SCHEMATIC DIAGRAM - SCHEMA COMMANDES MOTEURS
CD - SCHALTBILD CD WECHSLER-MOTOR - SCHEMA COMANDI MOTORI CD -
ESQUEMA MANDOS MOTORES CD



CD motors control P.C.B.
Platine moteurs commandes CD
Ltpl. CD Wechsler-Moteur
Piastra comandi motori CD
Platina de mandos motores CD



IC002 BU1924F



Abbreviations - Abreviations - Abkürzungen - Abbreviazioni - Abreviaciones

AC	Alternating Current	GCA	Gain Controlled Amplifier
ACC	Automatic Colour Control	HPF	High Pass Filter
AGC	Automatic Gain Control	I.R	Infra Red
A_IF	Audio IF	ID	Identification
ALC	Automatic Level Control	INP/IN	Input
AMP	Amplifier	KDB	Key Display Board
APC	Automatic Phase Control	LIM	Limiter
AV	Audio-Video	LPF	Low Pass Filter
BPF	Band Pass Filter	PCB	Printed Circuit Board
CH	Channel	PG	Pulse Generator
CLK	Clock	PLL	Phase Locked Loop
COMP	Comparator	PWM	Pulse Width Modulation
CONV	Converter	SCL	Serial Clock
CSYNC	Composite Synch	SDA	Serial Data
CTL	Control	SMPS	Switch Mode Power Supply
DC	Direct Current	SW	Switch
DET	Detector	VCA	Voltage Controlled Amplifier
DIG	Digital	VCO	Voltage Controlled Oscillator
ENV	Envelope	VD	Supply Voltage Digital
EQ	Equalizer	VE	Voltage (Ever)
FG	Frequency Generator	VS	Voltage (Switched)
GND	Ground		

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