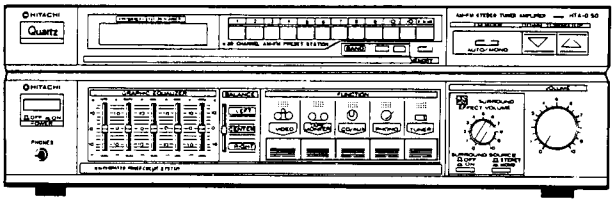
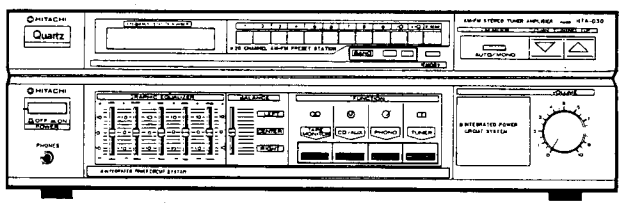
HITACHI
SERVICE MANUAL

TY	No. 505 EGF

HTA-D50(US,CS,SA,KS,VS,BS,ZS,EW,ES)
HTA-D30(US,CS,SA,KS,VS,BS,ZS,EW,ES)



HTA-D50



HTA-D30

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SAFETY PRECAUTION

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers.
   Critical parts are marked with ⚠ in the circuit diagram and printed wiring board.
2. Before returning a repaired unit to the customer, the service technician must toroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SICHERHEITSMASSNAHMEN

Bei Wartungsarbeiten sind die folgenden Sicherheitsmaßnahmen zu beachten:

1. Da verschiedene Teile dieses Gerätes Sicherheitsfunktionen aufweisen, nur Original-Hitachi-Ersatzteile verwenden. Kritische Teile im Netzteil sollten nicht durch ähnliche Teil anderer Hersteller ersetzt werden. Alle kritischen Teil sing im Schaltplan und im Diagramm der Schaltplatinen mit dem Symbol ⚠ gekennzeichne:
2. Vor der Auslieferung eines reparierten Gerätes an den Kunden muß der Wartungstechniker das Gerät einer gründlichen Prüfung unterziehen, um sicherzustellen, daß sicherer Betrieb ohne die Gefahr von elektrischen Schlägen gewährleistet ist.

PRÉCAUTINS DE SÉCURITÉ

Les précautions suivantes doivent être observées chaque fois qu'une réparation doit être faite.

1. Etant donné que de nombreux composants de l'appareil possèdent ds caractéristiues relatives à la sécurité, utiliser uniquement des pièces de rechange d'origine Hitachi pour effectuer un remplaccementiques du bloc d'alimentation qui ne doivent en aucun cas être remplacées par celles d'autres fabricants. Les piéces critiques sont accompagnés du symbole ⚠ dans le schéma de montage et sur le schéma de plaque de câblage.
2. Avant de retourner l'appareil réparé au client le technicien doit procéder àun essai complet pour s'assurer qu'il ne présente aucun danger chocs électriques.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

STEREO TUNER AMPLIFIER

August 1986 **TOYOKAWA WORKS**

SPECIFICATIONS

● FM SECTION

Frequency range	87.9 – 107.9 MHz (100 kHz spacing) [for US, CS] 87.50 – 108.00 MHz (50 kHz spacing) [except US, CS]
Usable sensitivity (Mono)	13.7 dBf (IHF) 1.5 μV (IEC)
Signal-to-noise ratio	Mono: 69 dB (IHF) Stereo: 67 dB (IHF) [HTA-D50] Mono: 60 dB (DIN Audio Q-Peak) 60 dB (DIN Noise Q-Peak) Stereo: 58 dB (DIN Audio Q-Peak) 58 dB (DIN Noise Q-Peak)
Total harmonic distortion (1 kHz, at 65 dBf)	Mono: 0.4% Stereo: 0.6%
Frequency response	30 Hz – 12 kHz ± 2.5 dB
Selectivity	60 dB (± 300 kHz) 65dB (± 400 kHz)
Stereo separation (1 kHz)	40 dB
Antenna input	75 ohms unbalanced

● MW SECTION

Frequency range	522 – 1,611 kHz (9 kHz spacing) [except US, CS] 530 – 1620 kHz (10 kHz spacing) [for US, CS]
Sensitivity	40 μV (IHF, ext antenna) 80 μV (IEC, ext antenna)
Selectivity	35 dB
Signal-to-noise ratio	48 dB
Antenna input:	AM loop antenna and external terminal

● LW SECTION

Frequency range:	153 – 281 kHz (1 kHz spacing)
Sensitivity:	350 μV (IEC)
Antenna input:	AM loop antenna and external terminal

● AUDIO SECTION (HTA-D50)

Power output (Both channels driven)	50 Watts per channel, min. RMS, at 8 ohms from 40 Hz to 20 kHz, with no more than 0.9% total harmonic distortion. [for US, CS] 55 W/ch + 55 W/ch (1 kHz, 8 ohms, T.H.D. 0.9%) [for US, CS] (1 kHz, 8 ohms, T.H.D. 0.7%) [except US, CS]
Frequency Characteristics	20 Hz – 30 kHz (± 3 dB)
Input Sensitivity/ Impedance (for 50 Watts output)	
Phono	2.9 mV/47 kohms
Aux/Tape	180 mV/47 kohms
Signal-to-Noise Ratio (IHF-A network input shorted)	
Phono	70 dB
CD/AUX/TAPE	80 dB
Graphic Equalizer Control Effect	± 10 dB (at 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

● AUDIO SECTION (HTA-D30)

Power output (Both channels driven)	27 Watts per channel, min. RMS, at 8 ohms from 40 Hz to 20 kHz, with no more than 0.9% total harmonic distortion. [for US, CS] 30 W/ch + 30 W/ch (1 kHz, 8 ohms, T.H.D. 0.9%) [for US, CS] (1 kHz, 8 ohms, T.H.D. 0.7%) [except US, CS]
Input sensitivity/ impedance (for 30Watts output)	
Phono	2.5 mV/50 kohms
Aux/Tape	150 mV/47 kohms
Signal to Noise Ratio (IHF-A network input sorted)	
Phono	70 dB
CD/AUX/TAPE	80 dB
Graphic equalizer control	± 10 dB (at 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

● GENERAL

Power requirements	AC120V 60 Hz [for US, CS] ∿ 220V 50 Hz [for KS, ZS, VS, ES] ∿ 240V 50 Hz [for BS, SA] ∿ 110V – 120V, ∿ 200V – 220V, ∿ 230V – 240V, 50/60 Hz (for multi voltage unit only)
Power consumption	140W [for US] 240W 280VA [for CS] (HTA-D50) 260W [for Europe] 110W [for CS] (HTA-D30) 170W [for Europe]
Dimensions	435(W) x 143(H) x 240(D) mm
Weight	5.6 kg (HTA-D50) 4.6kg (HTA-D30)

Measured Pursuant to the Federal Jrade Commission's Trade Regulation Rule on Power Output Claims for Amplifiers.

TECHNISCHE DATEN

● FM-TEIL

Frequenzberich 87,9 – 107.9 MHz (Kanalabstand 100 kHz) [für US, CS]
87,50–108,00 MHz (Kanalabstand 50 kHz) [außer US, CS]

Netzempfindlichkeit 13.7 dBf (IHF)
1.5 μV (IEC)

Signal/Rausch-Abstand
Mono: 69 dB (IHF)
Stereo: 67 dB (IHF) [HTA-D50]
Mono: 60 dB (DIN Audio Q-peak)
60 dB (DIN Noise Q-peak)
Stereo: 58 dB (DIN Audio Q-peak)
58 dB (DIN Noise Q-peak)

Klirrgrad (1 kHz, bei 65 dBf)
Mono: 0,4%
Stereo: 0.6%

Frequenzgang 30 Hz – 12 kHz ± 2,5 dB

Selektivität 60 dB (± 300 kHz)
65 dB (± 400 Hz)

Stereo-Trennung (1 kHz) 40 dB

Antenna input 75 ohms unbalanced

● MW-TEIL

Frequenzberich 522 – 1611 kHz (Kanalabstand 9 kHz) [außer US, CS]
530 – 1620 kHz (Kanalabstand 10 kHz) [für US, CS]

Empfindlichkeit 40 μV (IHF Außenantenne)
80 μV (IEC Außenantenne)

Selektivität 35 dB (± 10 kHz)

Störspannungsabstand: 48 dB

Antenneneingang: MW/LW-Rahmenantenne und Anschluß für externe Antenne

● LW TEIL

Frequenzbereich: 153 – 281 kHz (Kanalabstand 1 kHz)

Empfindlichkeit: 350 μV (IEC)

Antenneneingang: MW/LW-Rahmenantenne und Anschluß für externe Antenne

● AUDIO-TEIL (HTA-D50)

Ausgangsleistung Beide kanäle angesteuert) 50 Watt pro Kanal, min. RMS, bei 8 Ohm von 40 Hz bis 20 kHz, mit nicht mehr als 0,9% Klirrgrad. [für US, CS]
55 W/Kanal + 55 W/Kanal (1 kHz, 8 Ohm, 0,9% Klirrgrad) [für US, CS]
(1 kHz, 8 Ohm, 0,7% Klirrgrad) [außer US, CS]

Frequenzgang 20 Hz – 30 Hz (± 3 dB)

Eingangsempfindlichkeit/Impedanz (für 50 Watt Ausgang)
Phono 2,9 mV/47 kOhm
Aux/Tape 180 mV/47 kOhm

Störspannungsabstand (IHF-A Netzwerk, Eingang kurzgeschlossen)
Phono 70 dB
CD/AUX/TAPE 80 dB

Graphic Equalizer Klangregelung ± 10 dB (bei 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

● AUDIO-TEIL (HTA-30)

Ausgangsleistung (beide Kanäle angesteuert) 27 Watt pro Kanal, min. RMS, bei 8 ohm von 40 Hz bis 20 kHz, mit nicht mehr als 0,9% Klirrgrad. [für US, CS]
30 W/Kanal + 30 W/Kanal (1 kHz, 8 Ohm, 0,9% Klirrgrad) [für US, CS]
(1 kHz, 8 Ohm, 0,7% Klirrgred) [außer US, CS]

Eingangsempfindlichkeit/Impedanz (für 30 Watt Ausgang)
Phono 2,5 mV/50 kOhm
Aux/Tape 150 mV/47 kOhm

Störspannungsabstand (IHF-A Network, Eingang kurzgeschlossen)
Phono 70 dB
CD/AUX/TAPE 80 dB

Graphic Equalizer Klangregelung ± 10 dB (bei 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

● GENERALE

Spannungsversorgung AC120V 60 Hz [für US, CS]
∿ 220V 50 Hz [für KS, ZS, VS, ES]
∿ 240V 50 Hz [für BS, SA]
∿ 110V – 120V, ∿ 200V – 220V, ∿ 230V – 240V, 50/60 Hz (nur für Mehrfach-Spannung-Gerät)

Stromverbrauch
140W [für US]
240W 280VA [für CS] (HTA-D50)
260W [für Europa]
110W [für CS] (HTA-D30)
170W [für Europa]

Abmessungen 435(B) x 143(H) x 240(T) mm

Gewicht 5,6 kg (HTA-D50) 4,6 kg (HTA-D30)

Änderungen der Konstruktion und technischen Daten bleiben im Sinne der ständigen Verbesserung vorbehalten.

CARACTERISTIQUES TECHNIQUES

● SECTION FM

Band de fréquences 87,9 – 107,9 MHz (intervalle 100 kHz) [pour US, CS]
87,50 – 108,00 MHz (intervalle 50 kHz) [sauf pour US, CS]

Sensibilité utillisable (Mono): 13,7 dBf (IHF)
1.5μV (IEC)

Rapport signal/bruit
Mono: 69 dB (IHF)
Stéréo: 67 dB (IHF)
Mono: 60 dB (DIN Audio créte-Q)
60 dB (DIN Noise créte-Q)
Stéréo: 58 dB (DIN Audio créte-Q)
58 dB (DIN Noise créte-Q)

Distorsion harmonique totale (à 65 dBf, 1 kHz)
Mono: 0,4%
Stéréo: 0,6%

Réponse en fréquence 30 Hz – 12 kHz ± 2,5 dB

Sélectivité 60 dB (± 300 kHz)
65 dB (± 400kHz)

Séparation stéréo (1 kHz) 40 dB

Entréed'antenne 75 ohms non compensé

● SECTION PO

Gamme de fréquence: 522 – 1.611 kHz (intervalle de 9 kHz) [sauf pour US, CS]
530 – 1620 kHz (interfalle de 10 kHz) [pour US, CS]

Sensibilité: 40μV (IHF, antenne extérieure)
80μV (IEC, antenne extérieure)

Séparation: 35 dB (± 10 kHz)

Rapport signal/bruit 48 dB

Entrée d'antenne Antenne-cadre AM et borne externe

● SECTION GO

Gamme de fréquence: 153 – 281 kHz (intervalle de 1 kHz)

Sensibilité: 350 μV (IEC)

Entrée d'antenne: Antenne-cadre AM et borne externe

● SECTION AUDIO (HTA-D50)

Puissance de sortie (les deux canaux entraînés) 50 watts par canal, min., RMS, à 8 ohms de 40 Hz à 20 kHz, avec moins de 0,9% de distorsion harmonique totale. [pour US, CS]
55 W/canal + 55 W/canal
(1 kHz, 8 Ohms, DHT 0,9%)
[pour US, CS]
(1 kHz, 8 Ohms, DHT 0,7%)
[sauf pour US, CS]

Caractéristiques de fréquence 10 Hz – 30 kHz (± 3 dB)

Sensibilité d'entrée/impédance (pour 50 watts de sortie)
Phono 2,9 mV/47 kohms
Aux/bande 180 mV/47 kohms

Rapport signal/bruit (Réseau IHF-A entrée court-circuitée)
Phono 70 dB
CD/aux/bande 80 dB

Effet de commande d'égaliseur graphique ± 10 dB (à 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

● SECTION AUDIO (HTA-D30)

Puissanoe de sortie (les deux canaux entraînés) 27 watts par canal, min., RMS, à 8 ohms de 40 Hz à 20 kHz, avec moins de 0,9% de distorsion harmonique totale. [pour US, CS]
30 W/canal + 30 W/canal
(1 kHz, 8 ohms, DHT 0,9%) [pour US, CS]
(1 kHz, 8 ohms, DHT 0,7%) [sauf pour US, CS]

Sensibilité d'entrée/impédance (pour 30 watts de sortie)
Phono 2,5 mV/50 kohms
Aux/bande 150 mV/47 kohms

Rapport signal/bruit (Réseau IHF--A entrée court-circuitée)
Phono 70 dB
CD/aux/bande 80 dB

Commande d'égaliseur graphique ± 10 dB (à 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz)

● GÉNÉRAL

Allmentation AC120V 60 Hz [pour US, CS]
∿ 220V 50Hz [pour KS, ZS, VS, ES]
∿ 240V 50Hz [pour BS, SA]
∿ 110V – 120V, ∿ 200V – 220V,
∿ 230V – 240V 50/60 Hz (pour appareil multi tension)

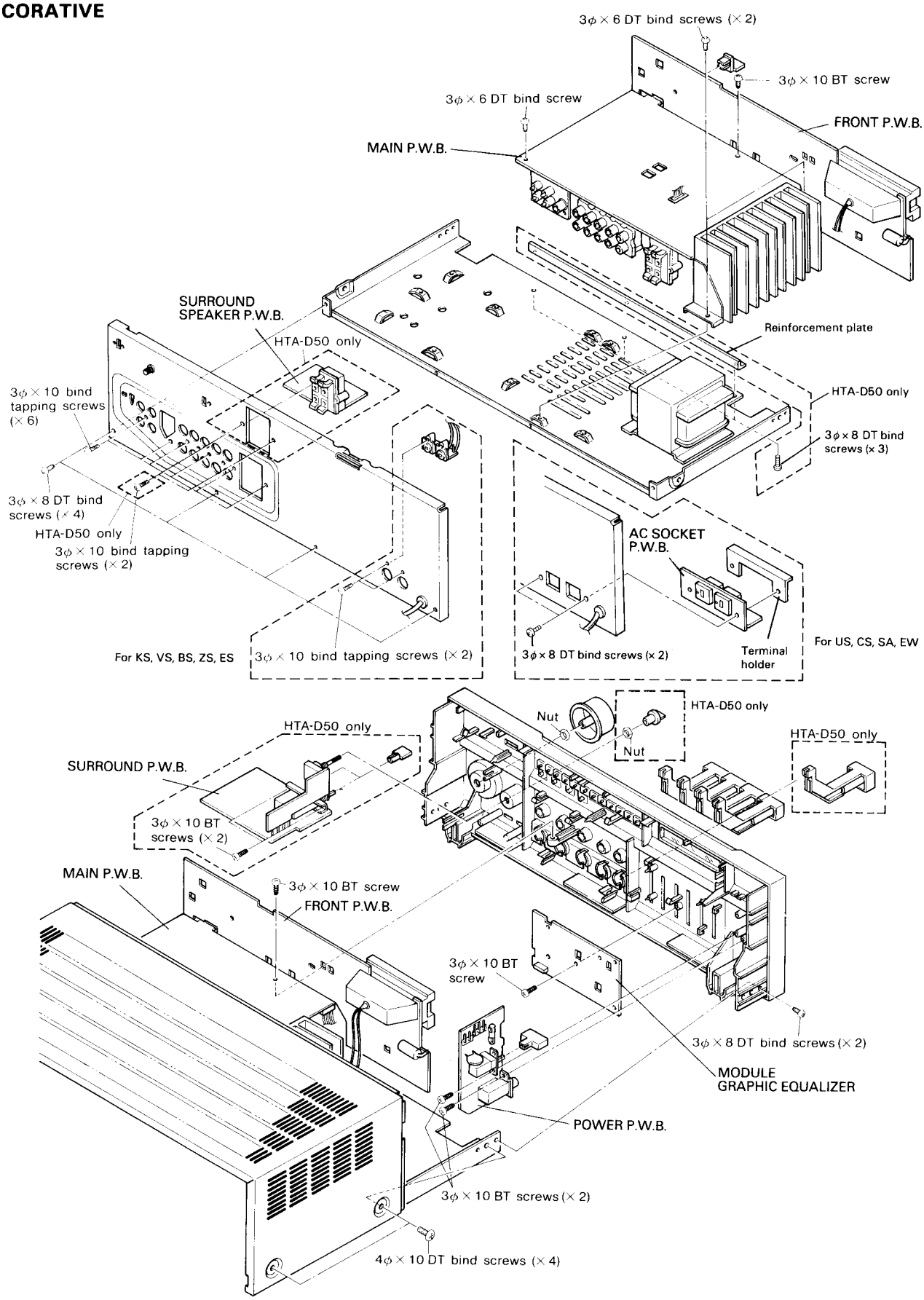
Consommation
140W [pour US]
240W 280VA [pour CS] (HTA-D50)
260W [pour Europe]
110W [pour CS]
170W [pour Europe] (HTA-D30)

Dimensions 435(L) x 143(H) x 210(D) mm

Poids 5,6 kg (HTA-D50) 4,6 kg (HTA-D30)

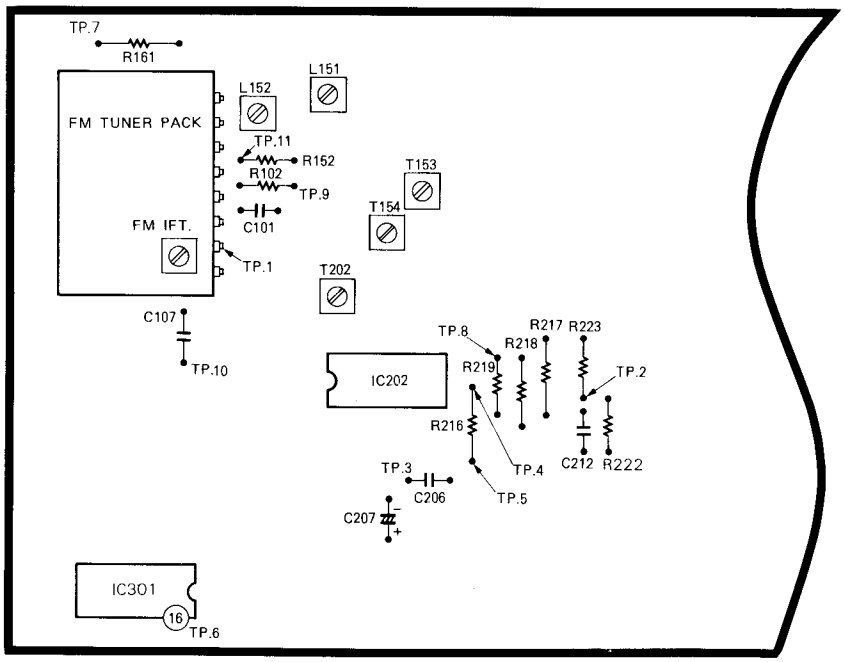
Les spécifications et la conception sont sujettes à modifications sans préavis pour des raisons d'amélioration.

CIRCUIT BOARD CHECKING AND FRONT PANEL ASS'Y DISASSEMBLY PROCEDURES
PRÜFUNG DER LEITERPLATTE UND VORDERE BEDIENUNGSTAFEL-DEMONTAGE-VORGÄNGE
CONTROLE DE CARTE A CIRCUITS IMPRIMES ET PANEAU AVANT DE DEMONTAGE DE PLAQUE DECORATIVE



GENERAL ALIGNMENT INSTRUCTIONS (Note 1)
ALLGEMEINE AUSRICHTANLEITUNG (Hinweis 1)
INSTRUCTIONS GNERLESS (Note 1)

- **ADJUSTING POINTS**
- **EINSTELLPUNKT**
- **POINT DE REGLAGE**



FM TUNER ALIGNMENT · ABGLEICH DES UKW- TUNERS · REGLAGE DE TUNER FM

FUNCTION: FM VOLUME: MIN FM MODE: MONO
Funktion: FM (UKW) Lautstärke: Minimum
FUNCTION: FM VOLUME: MIN

Sweep Generator
Wobbelgenerator
Générateur de balayage

Signal Generator
Signalgenerator
Générateur de signaux

Oscilloscope
Oszilloskop
Oscilloscope

+DC Null Meter
Gleichstrom-Nullmeter
–Indicateur déquilibrage à C.C.

VTVM
Vakunmröhrenvoltmeter
Voltmètre électronique

Frequency Counter
Frequenzzähler
Fréquencemètre

Dist
Distortion Meter
Klirrmesser
Distorsionmètdre

Sequence Folge Ordre		Connection Anschlüsse Connexion		Setting Einstellung Montage		Adjust for Einstellung für Réglage pour	
		Input Eingang Entrée	Output Ausgang Sortie	Tuning Abstimm-anzeige Indicateur d'accord	Signal	Adjust Einstellpunkt Réglage	Indication Indikation Indication
1	IF Amp. ZF-Verst. Amplificateur de fréquence intermédiaire	TP.1 Output Ausgang Sortie, 0.1μ 100K	TP.2 Input Eingang Entrée, 100K 0.1μ	–	10.7 MHz	FM IFT (Tuner pack) (Tuner-Teil) (Ensemble Tuner)	(Note 2) (Hinweis 2)
2	"S" curve S-Kurve Courbe "S"		TP.3 Input Eingang Entrée, 100K 0.1μ	–	10.7 MHz	Non-adjustment (No adjustments are required.) Keine Einstellung (Keine Einstellungen erforderlich.) Pas d'ajustement (aucun ajustement n'est requis.)	(Note 3) (Hinweis 3)

Sequence Folge Ordre		Connection Anschlüsse Connexion		Setting Einstellung Montage		Adjust for Einstellung für Réglage pour	
		Input Eingang Entrée	Output Ausgang Sortie	Tuning Abstimm-anzeige Indicateur d'accord	Signal	Adjust Einstellpunkt Réglage	Indication Indikation Indication
3	Covering Bereich Portée	-	-				(Note 4) (Hinweis 4)
4	Tracking Nachführung Alignment	-	-				(Note 4) (Hinweis 4)
5	Discriminator Diskriminator Discriminateur	ANT. Terminal Antennen-Anschluß Borne d'antenne 1 kHz, 60 dBμ 40 kHz (dev.)	TP.4 + − TP.5	89.9 MHz	89.9 MHz	—	Check that the meter reading indicates 0 ± 200 mV. Überprüfen, daß das Meßinstrument 0 ± 200 mV anzeigt. Vérifier que le compteur indique 0 ± 200 mV.

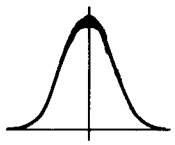


Fig. 1 Abb. 1

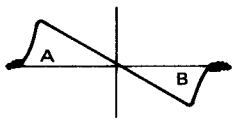


Fig. 2 Abb. 2

Note 1: Perform adjustment at least 3 minutes after the power has been switched ON.
Note 2: Apply low-input signals from a sweep generator (with a small amount of noise superimposed on IF waveform as in Fig. 1), and adjust the waveform unitl it becomes maximum and symmetrical.
Note 3: Confirm that the A and B are symmetry and linear as shown in Fig. 2. Since the ceramic discriminator is used, no adjustments are required for S-curve.
Note 4: FM Tuner pack is aligned before shipping, so it is not necessary to adjust covering and tracking.

Hinweis 1: Den Abgleich frühestens 3 Minuten nach dem Einschalten des Netzahalters durchführen.
Hinweis 2: Mit Hilfe eines Wobbelgenerators sind niederpegelige Signale (wie in Abb. 1 gezeigt mit geringer Rauschstörung auf der Zwischenfrequenz-Wellenform) anzulegen, und dann ist so abzugleichen, daß die Wellenform maximal und symmetrisch wird.
Hinweis 3: Überprüfen, daß A und B symmetrisch und linear sind, siehe Abb. 2. Da ein Keramik-Diskriminator verwendet wird, sind für die S-Kurve keine Einstellungen erforderlich.
Hinweis 4: Das UKW-Empfangsteil wurde vor dem Versand eingestellt, so daß der Bereich und die Nachführung nicht einjustiert werden müssen.

Note 1: Effectuer ce réglage au moins 3 minutes après la mise sous tension.
Note 2: Utiliser un générateur de balayage et appliquer des signaux d'entrée à faible niveau (avec un faible chevauchement de bruit dans la forme d'onde à F.I. comme reprécenté sur la Fig. 1), et régler la forme d'onde jnsqu'à ce su'elle devienne maximale et symétrique.
Note 3: S'assurer que A et B sont symétriques et linéaires comme indiqué dans la figure 2. Du fait d'un discriminateur à céramique est utilisé, aucun ajustement n'est requis pour la courbe S.
Note 4: L'étage tuner FM est réglé avant son envoi, il est donc inutile d'effectuer le réglage de portée et d'alignement.

AM TUNER ALIGNMENT·ABGLEICH DES AM- TUNERS· REGLAGE DE TUNER AM

FUNCTION:AM
MODULATION: 400 Hz 30%

Funktion: AM (UKW)
Modulation: 400 Hz 30%

FUNCTION: AM
MODULATION: 400 Hz 30%

Sequence Folge Ordre		Connection Anschlüsse Connexion: Input Eingang Entrée	Connection Anschlüsse Connexion: Output Ausgang Sortie	Setting Einstellung Montage: Tuning Abstimmanzeige Indicateur d'accord	Setting Einstellung Montage: Signal	Adjust for Einstellung für Réglage pour: Adjust Einstellpunkt Réglage	Adjust for Einstellung für Réglage pour: Indication Indikation Indication
1	IF Amp. ZF-Verstärker Amplificateur de fréquence intermédiarire	Output Ausgang Sortie TP.7 100K 0.1μ	Input Eingang Entrée TP.8 100K 0.1μ	–	450 kHz	T202	Max (Note 5) (Hinweis 5)
2	Tracking Vorstufe Alignement	Loop antenna Rahmenantenne Antenne en carbon	REC out Aufnahme-Ausgang Sortie enregistrement	600 kHz or 603 kHz	600 kHz or 603 kHz	L151	Output max. (Note 6) (Hinweis 6)
				164 kHz	164 kHz	L152	

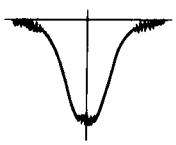


Fig. 3
Abb. 3

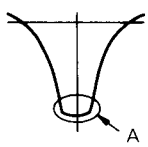


Fig. 4
Abb. 4

Note 5: When the output signal of the sweep generator is low, make adjustment until the waveform becomes maximum and symmetrical, as shown in Fig. 3. Then, increase the output leve sweep generator, and adjust the waveform until the band of portion A becomes as flat as possible, as shown in Fig. 4.

Note 6: At first, set the input level to 74 dB/m. As the adjustment advances, reduce the input level to an allowable minimum level (approx. 60 dB), and repeat the adjustment until the maximum output is obtained at the specified frequency.
Since the trimmer capacitor is not provided, the tracking adjustment at the upper limit frequency is not required.

Hinweis 5: Wenn das Ausgangssignal des Wobbelgenetators niedrig ist, abgleichen, bis die Wellenform wie in Abb. 3 gezeigt maximal und symmetrisch ist. Dann den ausgangspegel des Wobbelgenerators erhöhen, so daß der in Abb. 4 gezeigte Bandbereich von Teil A so flach wie möglich wird.

Hinweis 6: Zuerst den Eingangspegel auf 74 dB/m einsteelen. Mit fortschreitender Einstellung den Eingangspegel auf den zulässigen Mindestpegel (etwa 60 dB) verringern und die Einstellung wiederholen, bis der maximale Ausgang bei der festgelegten Frequenz erhalten wird.
Da kein Trimmer-Kondensator vorhanden ist, ist die Spurhalte-Einstellung an der oberen Grenzfrequenz nicht erforderlich.

Note 5: Dans le cas où le signal de sortie du générateur de balayage est faible, procécer à un réglage jusqu'à ce que la forme d'onde devienne maximale et symétrique comme montré sur la Fig. 3 . Augmenter ensuite le niveau de sortie du générateur de balayage, et régler la forme d'onde de façon que la bande de la partie A devienne la plus plate possible, comme indiqué sur la Fig. 4.

Note 6: En premier lieu, régler le niveau d'entrée à 74 dB/m. A mesure que le réglage avance, réduire le niveau d'entrée à un niveau mininmal admissible (environ 60 dB), et répéter le réglage jusqu'à ce que la sortie maximale soit obtenue à la fréquence spécifiée.
Du fait que la résistance de déclenchement n'est pas fournie, le réglage de l'alignement à la fréquence de limite supérieure n'est pas requis.

DIAGRAM
PLAN
CIRCUIT

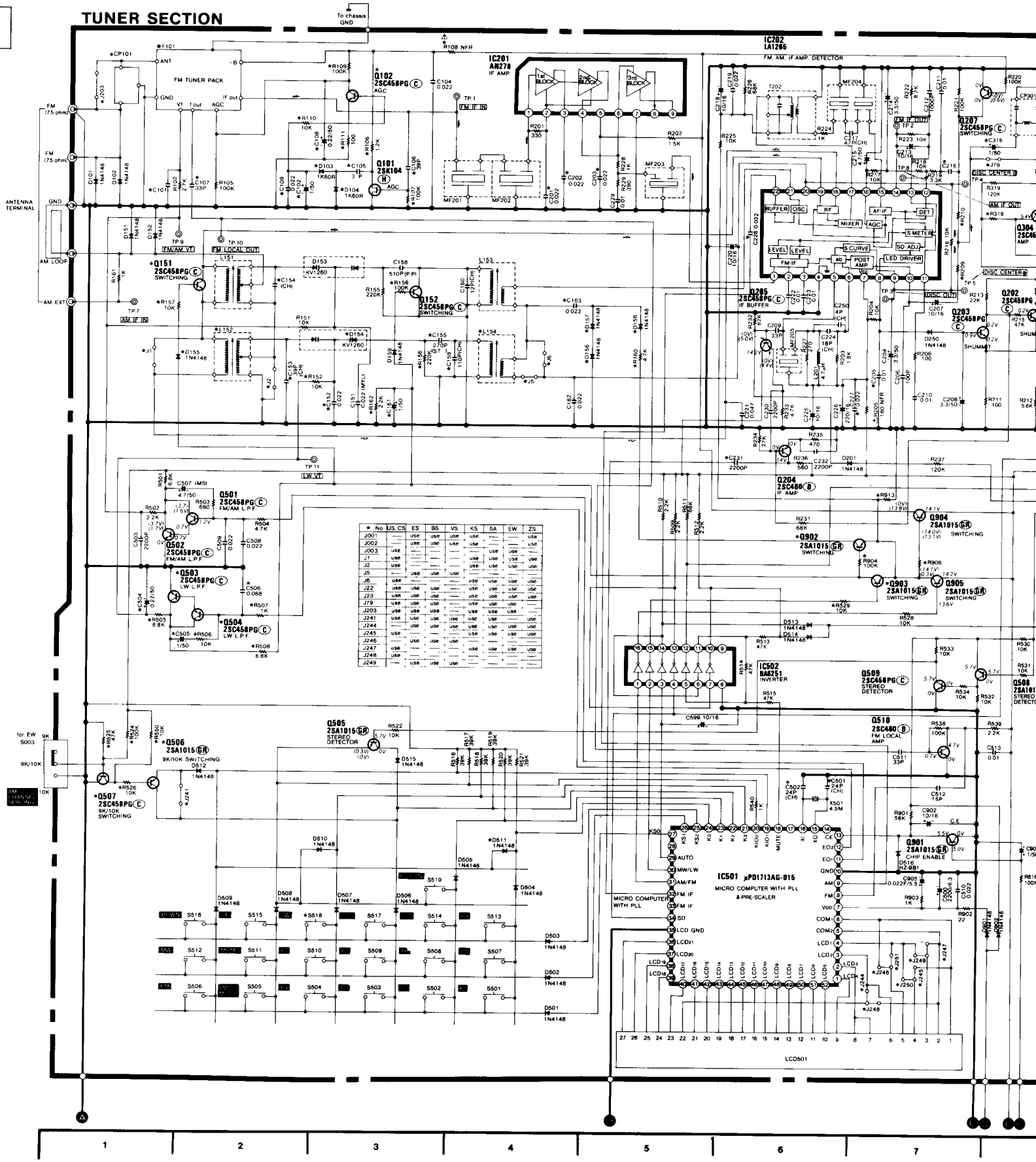
50

※ : Axial lead cylindrical ceramic capacitor
※ : Zylindrischer Keramikkondensator mit axialer Zuleitung
※ : Condensateur céramique cylindrique à conducteur axial

CAUTION

Use the electrolytic capacitors
diameter of them is more than

TUNER SECTION

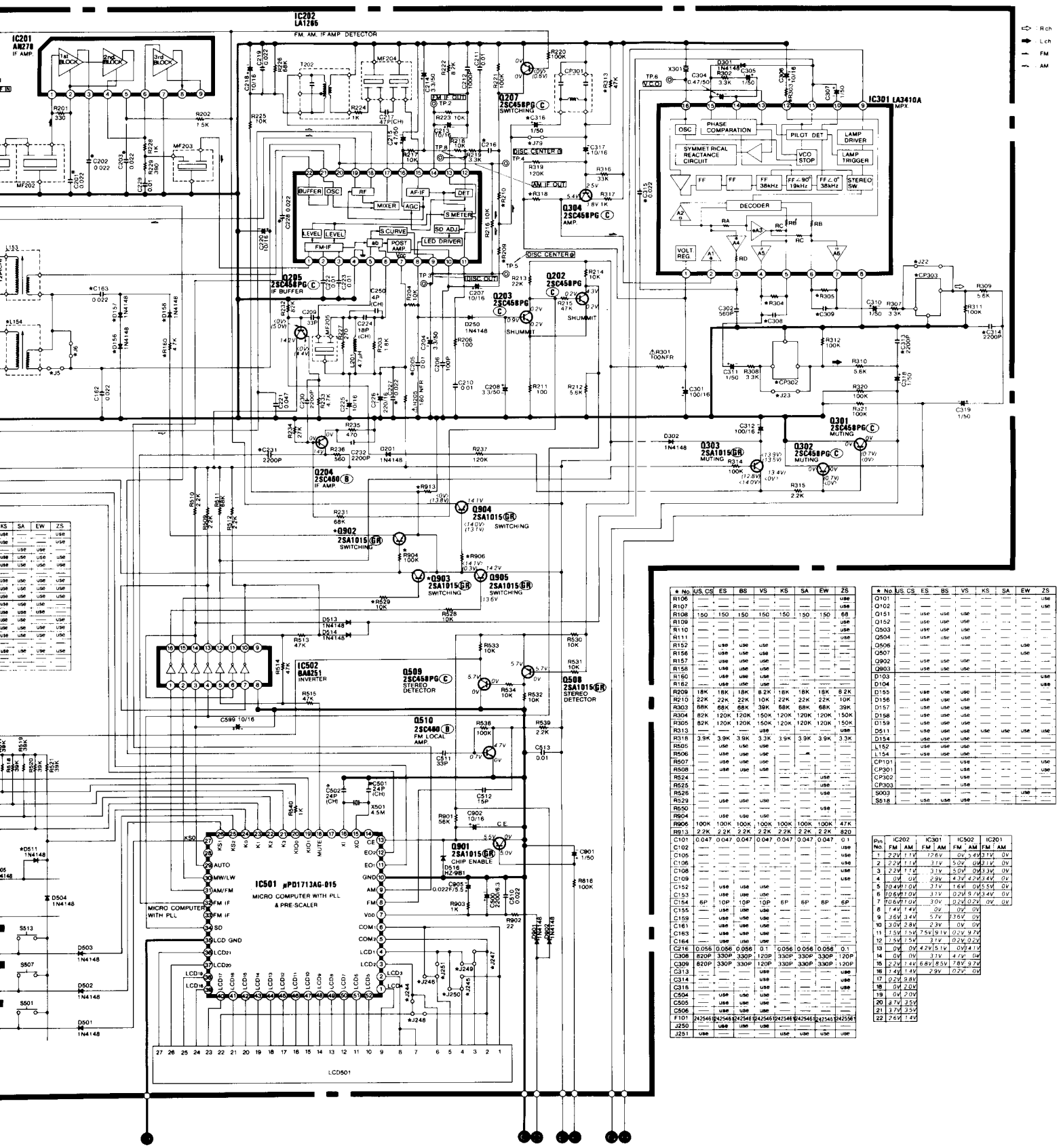


* No.	US. CS	ES	BS	VS	KS	SA	EW	ZS
J001	—	use	use	use	use	—	—	use
J002	use	use	use	use	use	—	—	use
J003	use	use	—	—	use	use	use	use
J1	use	—	—	—	use	use	use	use
J2	use	—	use	use	use	use	use	use
J5	—	use	use	use	use	—	—	—
J6	use	use	use	—	use	use	use	use
J22	use	use	use	—	use	use	use	use
J23	use	use	use	—	use	use	use	use
J79	use	use	use	—	use	use	use	—
J203	use	use	use	—	use	use	use	—
J241	use	use	use	use	use	use	—	use
J244	use	use	—	use	use	use	use	use
J245	—	—	use	use	use	use	use	use
J246	—	use	use	use	—	—	—	—
J247	use	—	—	use	use	use	use	use
J248	use	—	use	use	use	—	—	use
J249	—	use	use	use	—	—	—	—

ceramic capacitor
kkondensator mit axialer Zuleitung
ique cylindrique à conducteur axial

CAUTION

Use the electrolytic capacitors with explosion-proof valve when the diameter of them is more than 10 mmϕ.



★ No.	US, CS	ES	BS	VS	KS	SA	EW	ZS
R106	—	—	—	—	—	—	—	use
R107	—	—	—	—	—	—	—	use
R108	150	150	150	150	150	150	150	68
R109	—	—	—	—	—	—	—	use
R110	—	—	—	—	—	—	—	use
R111	—	—	—	—	—	—	—	—
R152	—	use	use	use	—	—	—	—
R156	—	use	use	use	—	—	—	—
R157	—	use	use	use	—	—	—	—
R158	—	use	use	use	—	—	—	—
R160	—	use	use	use	—	—	—	—
R182	—	use	use	use	—	—	—	—
R209	18K	18K	18K	8.2K	18K	18K	18K	8.2K
R210	22K	22K	22K	10K	22K	22K	22K	10K
R303	68K	68K	68K	39K	68K	68K	68K	39K
R304	82K	120K	120K	150K	120K	120K	120K	150K
R305	82K	120K	120K	150K	120K	120K	120K	150K
R313	—	—	—	use	—	—	—	use
R316	3.9K	3.9K	3.9K	3.3K	3.9K	3.9K	3.9K	3.3K
R505	—	use	use	use	—	—	—	—
R506	—	use	use	use	—	—	—	—
R507	—	use	use	use	—	—	—	—
R508	—	use	use	use	—	—	—	—
R524	—	—	—	—	—	—	use	—
R525	—	—	—	—	—	—	use	—
R528	—	—	—	—	—	—	use	—
R529	—	use	use	use	—	—	—	—
R550	—	—	—	—	—	—	use	—
R904	—	use	use	use	—	—	—	—
R906	100K	100K	100K	100K	100K	100K	100K	47K
R913	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	820
C101	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.1
C102	—	—	—	—	—	—	—	use
C105	—	—	—	—	—	—	—	use
C106	—	—	—	—	—	—	—	use
C108	—	—	—	—	—	—	—	use
C109	—	—	—	—	—	—	—	use
C152	—	use	use	use	—	—	—	—
C153	—	use	use	use	—	—	—	—
C154	6P	10P	10P	10P	6P	6P	6P	6P
C155	—	use	use	use	—	—	—	—
C159	—	use	use	use	—	—	—	—
C161	—	use	use	use	—	—	—	—
C163	—	use	use	use	—	—	—	—
C164	—	use	use	use	—	—	—	—
C216	0.056	0.056	0.056	0.1	0.056	0.056	0.056	0.1
C308	820P	330P	330P	120P	330P	330P	330P	120P
C309	820P	330P	330P	120P	330P	330P	330P	120P
C313	—	—	—	use	—	—	—	use
C314	—	—	—	use	—	—	—	use
C316	—	—	—	use	—	—	—	use
C504	—	use	use	use	—	—	—	—
C505	—	use	use	use	—	—	—	—
C506	—	use	use	use	—	—	—	—
F101	2425461	2425461	2425461	2425461	2425461	2425461	2425461	2425561
J250	—	use	use	use	—	—	—	use
J251	use	—	—	—	use	use	use	use

★ No.	US, CS	ES	BS	VS	KS	SA	EW	ZS
Q101	—	—	—	—	—	—	—	use
Q102	—	—	—	—	—	—	—	use
Q151	—	use	use	use	—	—	—	—
Q152	—	use	use	use	—	—	—	—
Q503	—	use	use	use	—	—	—	—
Q504	—	use	use	use	—	—	—	—
Q506	—	—	—	—	—	—	use	—
Q507	—	—	—	—	—	—	use	—
Q902	—	use	use	use	—	—	—	—
Q903	—	use	use	use	—	—	—	—
D103	—	—	—	—	—	—	—	use
D104	—	—	—	—	—	—	—	use
D155	—	use	use	use	—	—	—	—
D156	—	use	use	use	—	—	—	—
D157	—	use	use	use	—	—	—	—
D158	—	use	use	use	—	—	—	—
D159	—	use	use	use	—	—	—	—
D511	—	use	use	use	use	use	use	use
D154	—	use	use	use	—	—	—	—
L152	—	use	use	use	—	—	—	—
L154	—	use	use	use	—	—	—	—
CP101	—	—	—	use	—	—	—	use
CP301	—	—	—	use	—	—	—	use
CP302	—	—	—	use	—	—	—	—
CP303	—	—	—	use	—	—	—	—
S903	—	—	—	—	—	—	use	—
S518	—	use	use	use	—	—	—	—

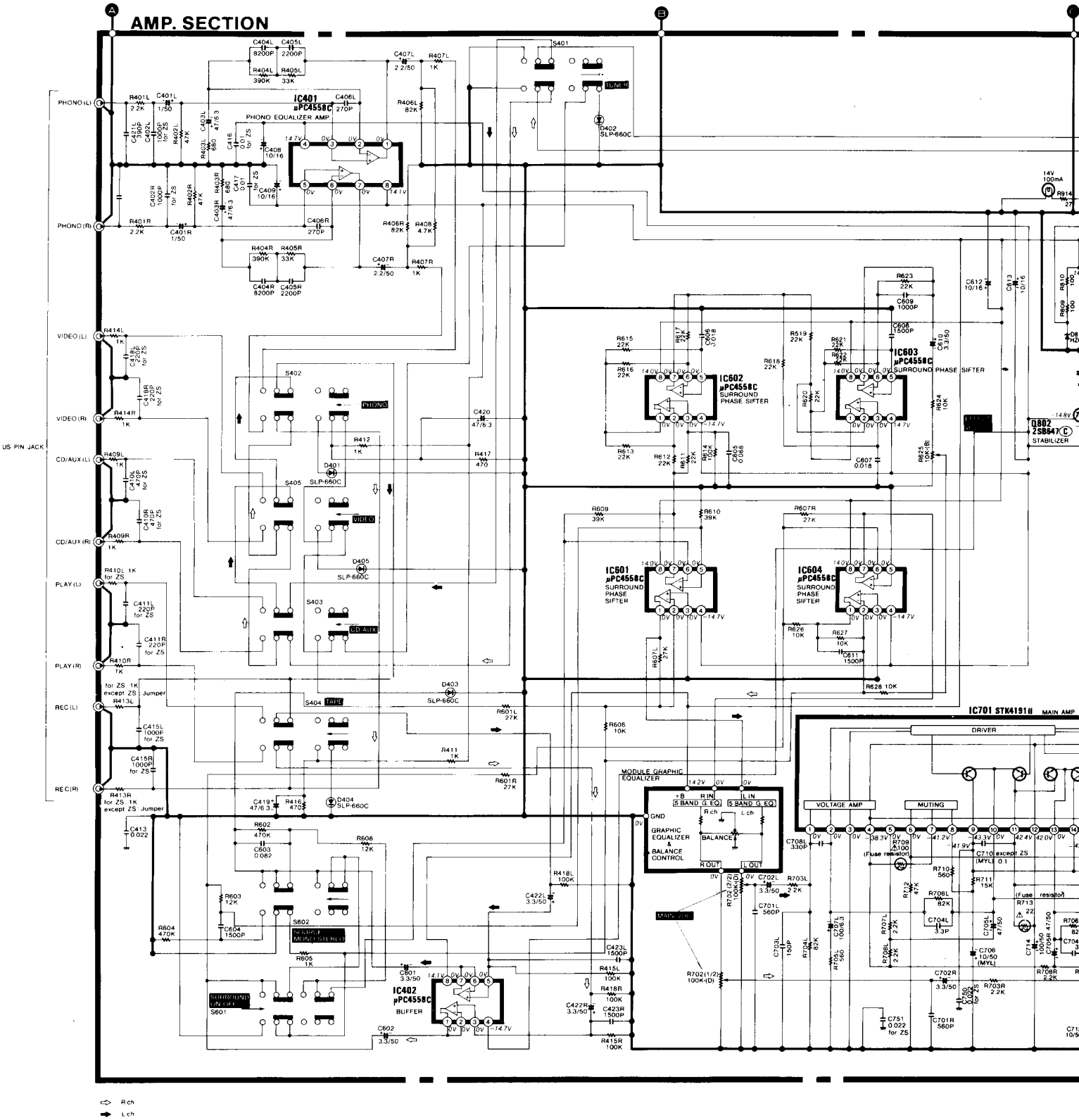
Pin No.	IC202 FM	IC202 AM	IC301 FM	IC301 AM	IC502 FM	IC502 AM	IC201 FM	IC201 AM
1	2.2V	1.1V	12.6V	0V	5.4V	3.1V	0V	0V
2	2.2V	1.1V	3.1V	5.0V	0V	3.1V	0V	0V
3	2.2V	1.1V	3.1V	5.0V	0V	3.3V	0V	0V
4	0V	0V	2.9V	4.3V	4.2V	3.4V	0V	0V
5	10.4V	1.0V	3.1V	1.6V	0V	5.5V	0V	0V
6	10.6V	1.0V	3.1V	0.2V	5.4V	3.4V	0V	0V
7	10.6V	1.0V	3.0V	0.2V	0.2V	0V	0V	0V
8	1.4V	1.4V	0V	0V	0V	0V		
9	1.6V	3.4V	5.7V	1.6V	0V	0V		
10	3.0V	2.8V	2.3V	0V	0V	0V		
11	1.5V	1.5V	7.5V	9.1V	0.2V	9.7V		
12	1.5V	1.5V	3.1V	0.2V	0.2V			
13	0V	0V	4.2V	5.1V	0V	4.1V		
14	0V	0V	3.1V	4.7V	0V			
15	2.2V	1.4V	6.8V	8.5V	7.8V	9.7V		
16	1.4V	1.4V	2.9V	0.2V	0V			
17	0.2V	9.8V						
18	0V	2.0V						
19	0V	2.0V						
20	4.7V	3.5V						
21	3.7V	3.5V						
22	2.6V	1.4V						

IT DIAGRAM
LTPLAN
DE CIRCUIT

※: Axial lead cylindrical ceramic capacitor
※: Zylindrischer Keramikkondensator mit axialer Zuleitung
※: Condensateur céramique cylindrique à conducteur axial

CAUTION

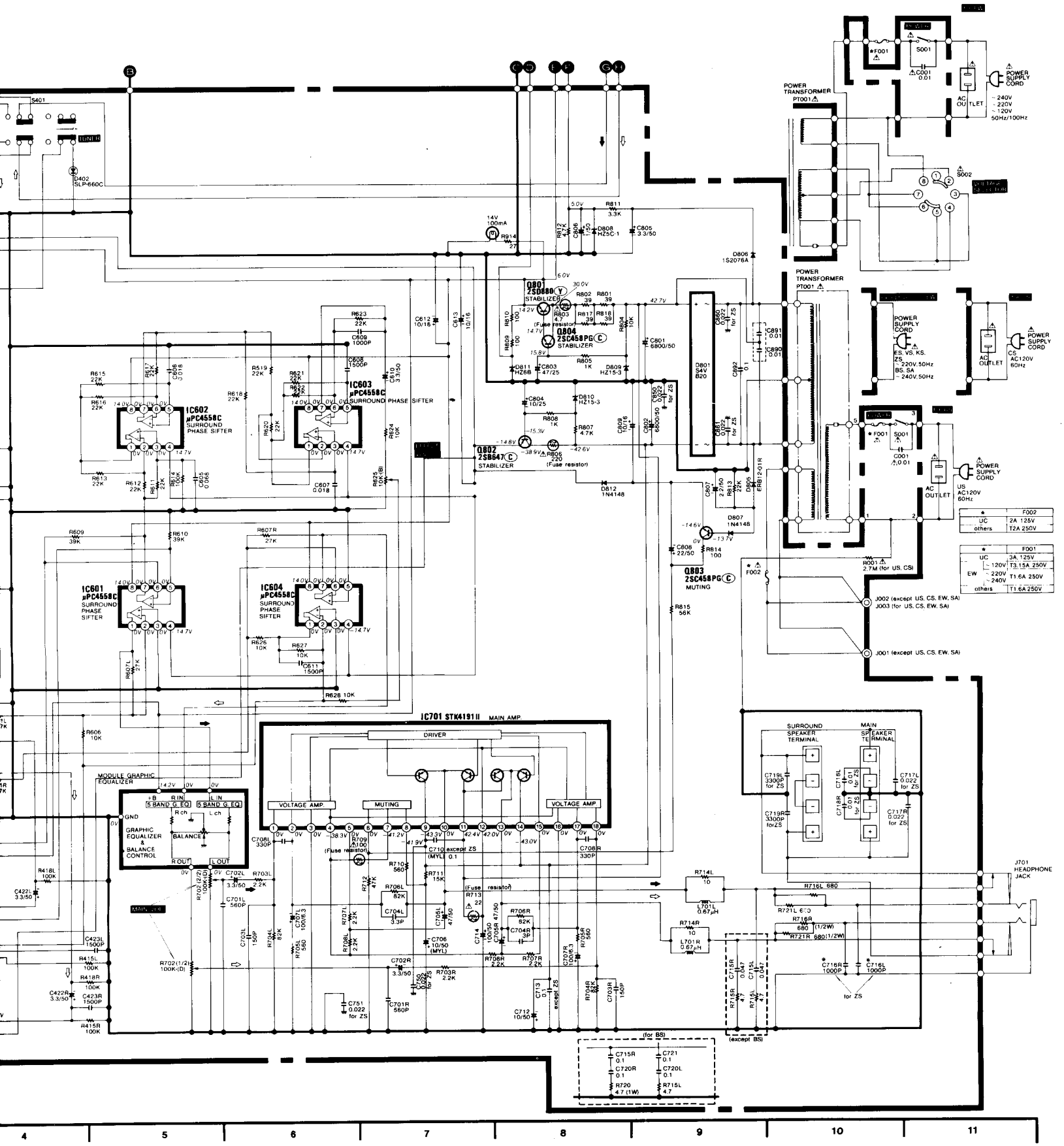
Use the electrolytic capacito
diameter of them is more tha



ical ceramic capacitor
amikkondensator mit axialer Zuleitung
ramique cylindrique à conducteur axial

CAUTION

Use the electrolytic capacitors with explosion-proof valve when the diameter of them is more than 10 mmϕ.



CIRCUIT DIAGRAM
SCHALTPLAN
PLAN DE CIRCUIT

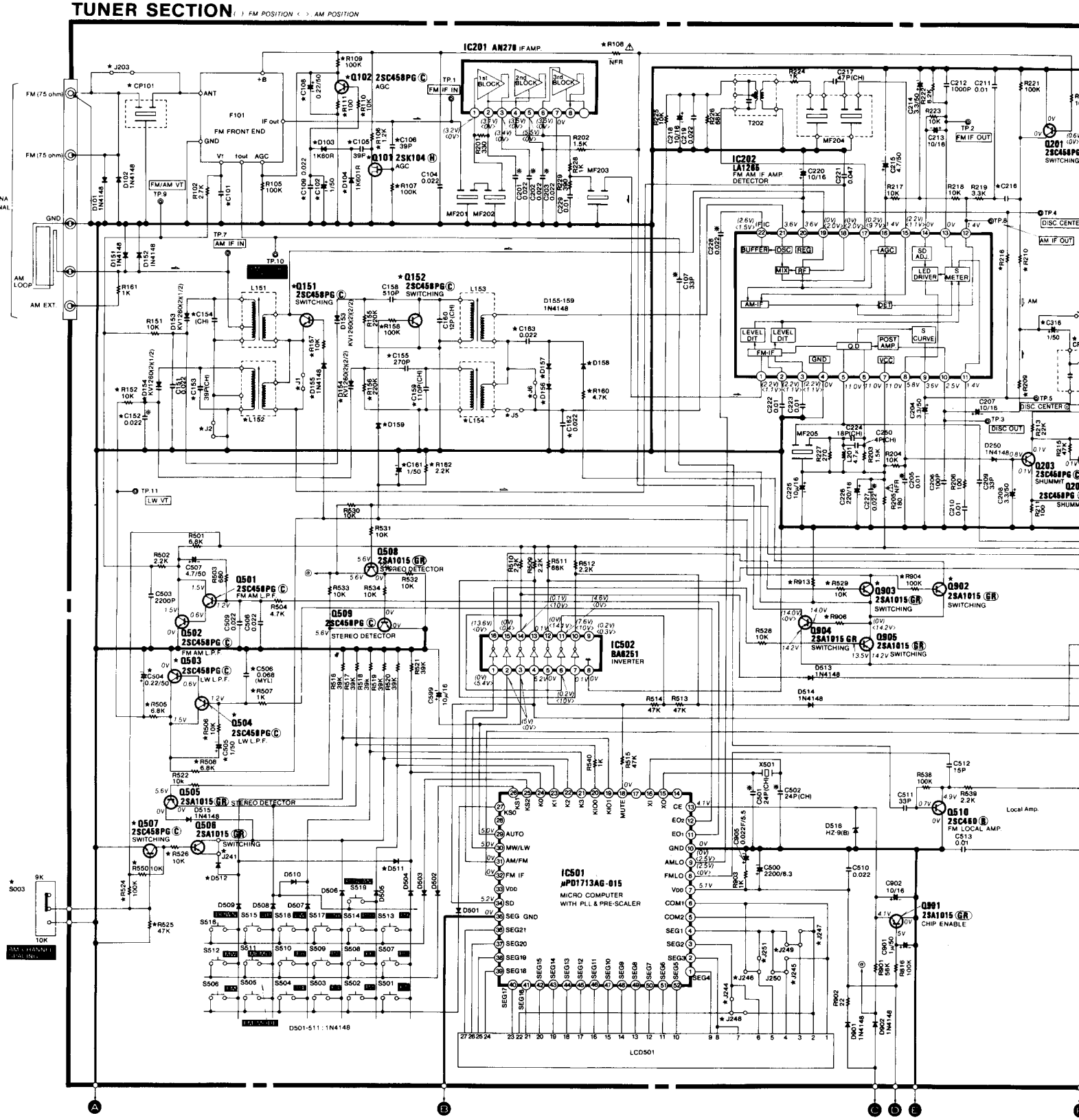
HTA-D30

※: Axial lead cylindrical ceramic capacitor
※: Zylindrischer Keramikkondensator mit axialer Zuleitung
※: Condensateur céramique cylindrique à conducteur axial

CAUTION
Use the electr
diameter of th

TUNER SECTION

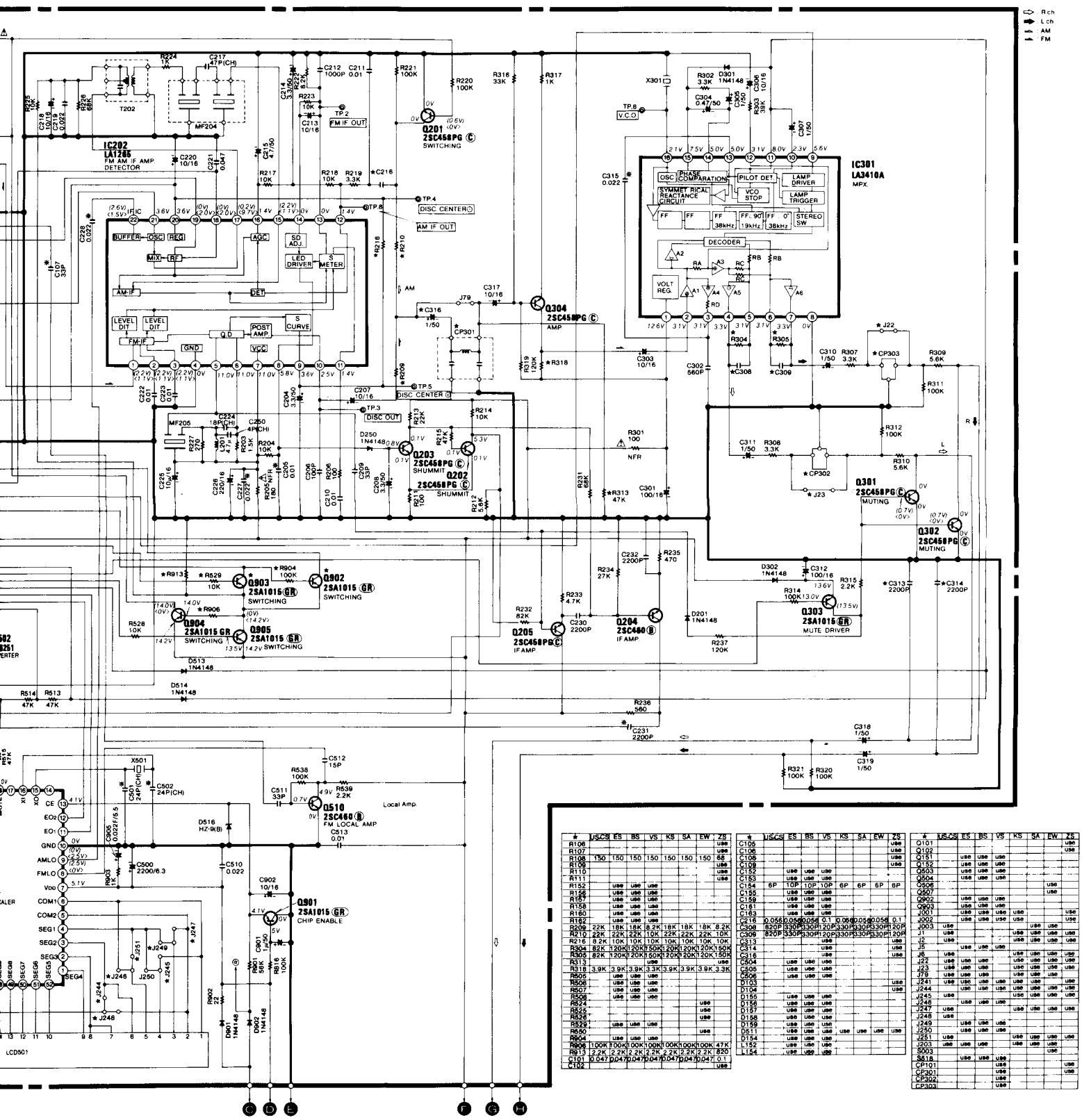
( ) FM POSITION < > AM POSITION



eramic capacitor
ondensator mit axialer Zuleitung
ue cylindrique à conducteur axial

CAUTION

Use the electrolytic capacitors with explosion-proof valve when the diameter of them is more than 10 mmϕ.



*	U,C,S	ES	BS	VS	KS	SA	EW	ZS
R106								use
R107								use
R108	150	150	150	150	150	150	150	68
R109								use
R110								use
R111								use
R152		use	use	use				
R156		use	use	use				
R157		use	use	use				
R158		use	use	use				
R160		use	use	use				
R162		use	use	use				
R209	22K	18K	18K	8.2K	18K	18K	18K	8.2K
R210	22K	22K	22K	10K	22K	22K	22K	10K
R216	8.2K	10K	10K	10K	10K	10K	10K	10K
R304	82K	120K	120K	150K	120K	120K	120K	150K
R305	82K	120K	120K	150K	120K	120K	120K	150K
R313			use					
R318	3.9K	3.9K	3.9K	3.3K	3.9K	3.9K	3.9K	3.3K
R505		use	use	use				
R506		use	use	use				
R507		use	use	use				
R508		use	use	use				
R524							use	
R525							use	
R526							use	
R529		use	use	use				
R550							use	
R904		use	use	use				
R906	100K	100K	100K	100K	100K	100K	100K	47K
R913	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	820
C101	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.1
C102								use

*	U,C,S	ES	BS	VS	KS	SA	EW	ZS
C105								use
C106								use
C108								use
C109								use
C152		use	use	use				
C153		use	use	use				
C154	6P	10P	10P	10P	6P	6P	6P	6P
C155		use	use	use				
C159		use	use	use				
C161		use	use	use				
C163		use	use	use				
C216	0.056	0.056	0.056	0.1	0.056	0.056	0.056	0.1
C308	820P	330P	330P	1200P	330P	330P	330P	1200P
C309	820P	330P	330P	1200P	330P	330P	330P	1200P
C313				use				use
C314				use				use
C316				use				use
C504		use	use	use				
C505		use	use	use				
C506		use	use	use				
D103								use
D104								use
D155		use	use	use				
D156		use	use	use				
D157		use	use	use				
D158		use	use	use				
D159		use	use	use				
D511		use	use	use	use	use	use	use
D154		use	use	use				
L152		use	use	use				
L154		use	use	use				

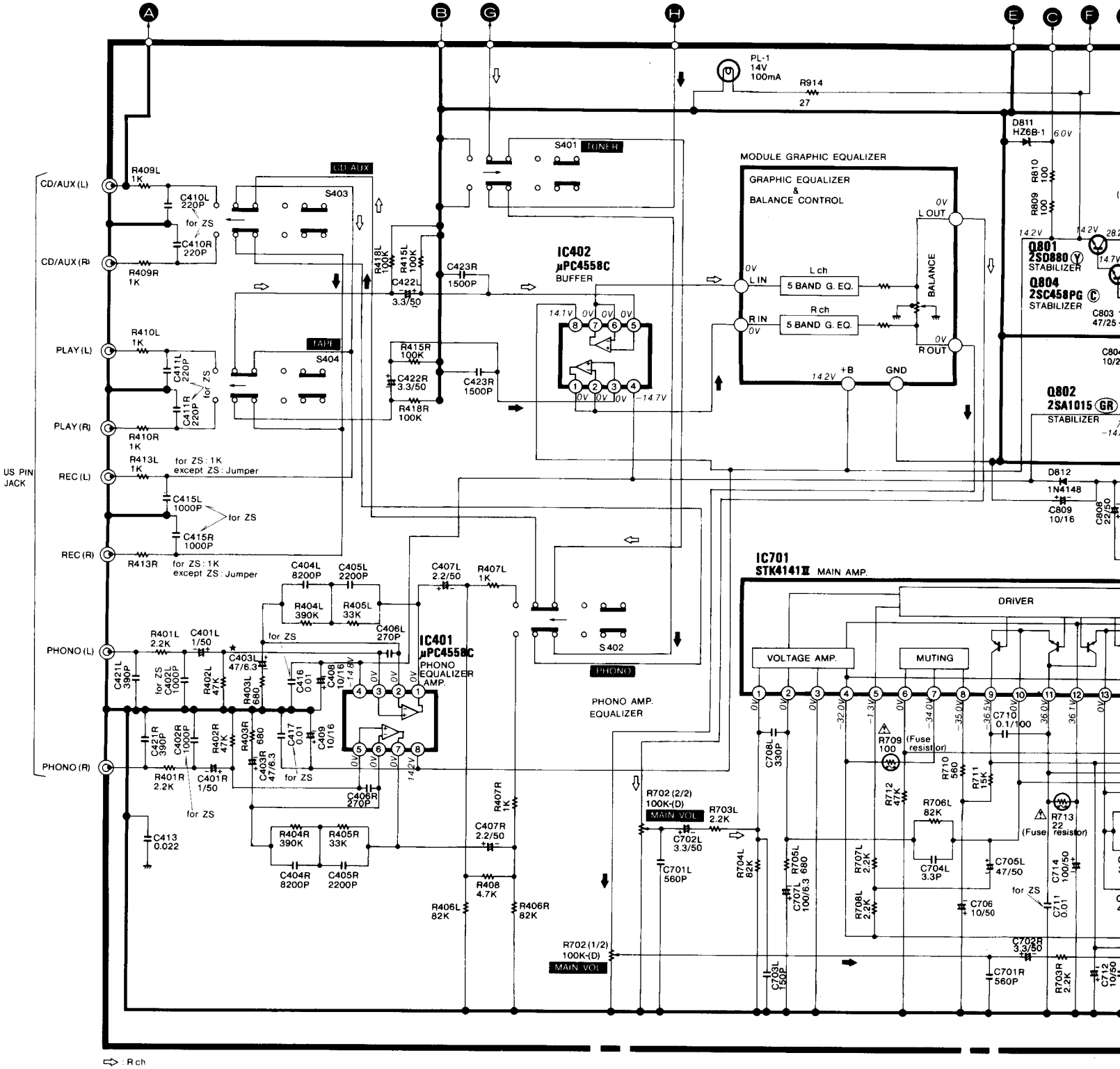
*	U,C,S	ES	BS	VS	KS	SA	EW	ZS
Q101								use
Q102								use
Q151		use	use	use				
Q152		use	use	use				
Q503		use	use	use				
Q504		use	use	use				
Q506						use		
Q507						use		
Q902		use	use	use				
Q903		use	use	use				
J001		use	use	use	use		use	
J002		use	use	use	use		use	
J003	use					use	use	use
J1	use					use	use	use
J2	use					use	use	use
J5		use	use	use				
J6	use					use	use	use
J22	use	use	use			use	use	use
J23	use	use	use			use	use	use
J79	use	use	use			use	use	
J241	use	use	use	use	use	use		use
J244	use	use	use	use	use	use	use	use
J245	use					use	use	use
J246	use	use	use	use				
J247	use					use	use	use
J248	use							
J249		use	use	use				
J250	use	use	use	use				
J251	use				use	use	use	use
J203	use	use	use		use	use	use	
SG03							use	
S818		use	use	use				
CP101				use				use
CP301				use				use
CP302				use				
CP303				use				

CIRCUIT DIAGRAM
SCHALTPLAN
PLAN DE CIRCUIT

※: Axial lead cylindrical ceramic capacitor
※: Zylindrischer Keramikkondensator mit axialer Zuleitung
※: Condensateur céramique cylindrique à conducteur axial

CAUTION
Use the elect
diameter of t

AMP. SECTION

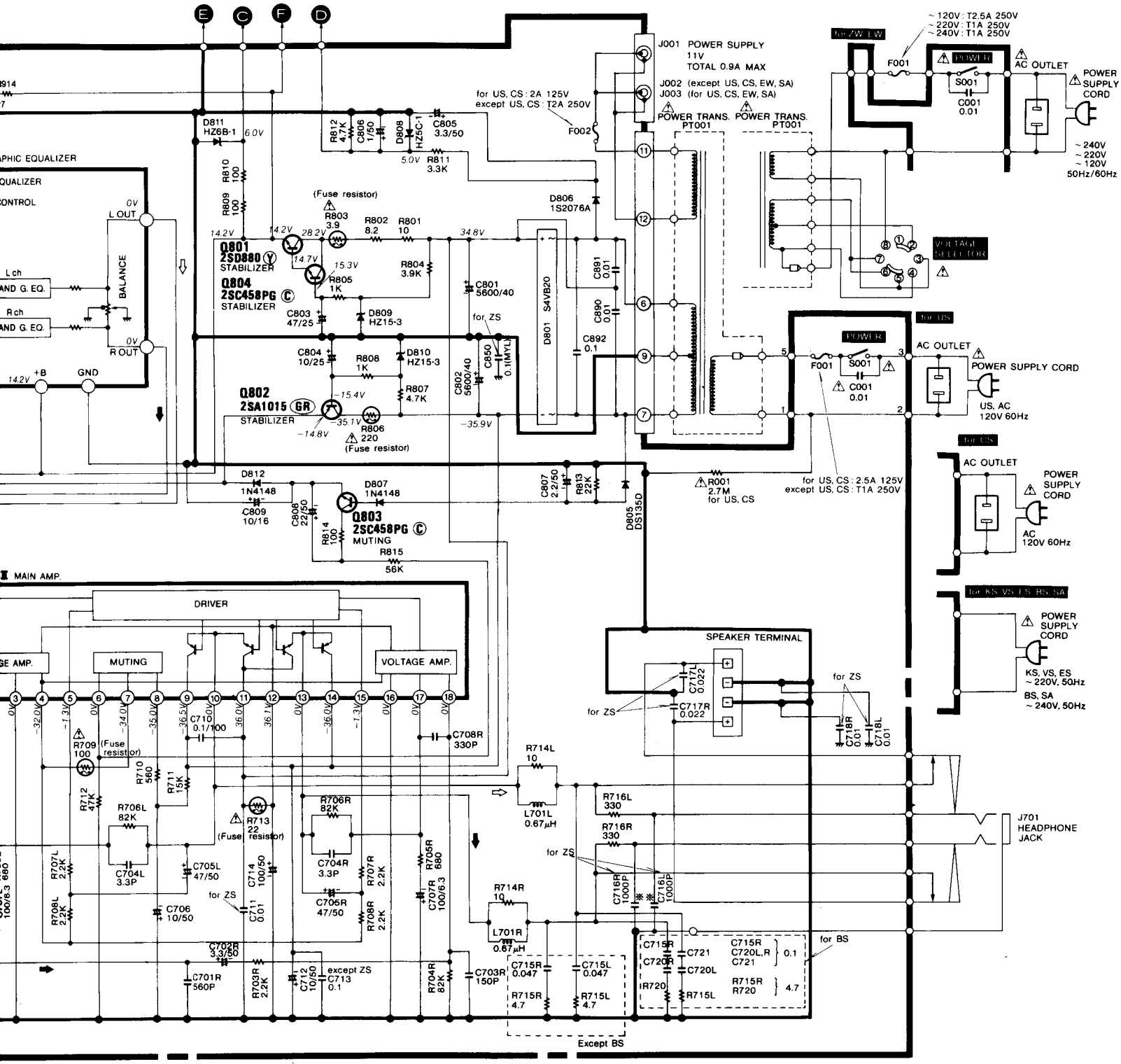


⇨ : R ch
➡ : L ch

r Zuleitung
ucteur axial

CAUTION

Use the electrolytic capacitors with explosion-proof valve when the diameter of them is more than 10 mmϕ.



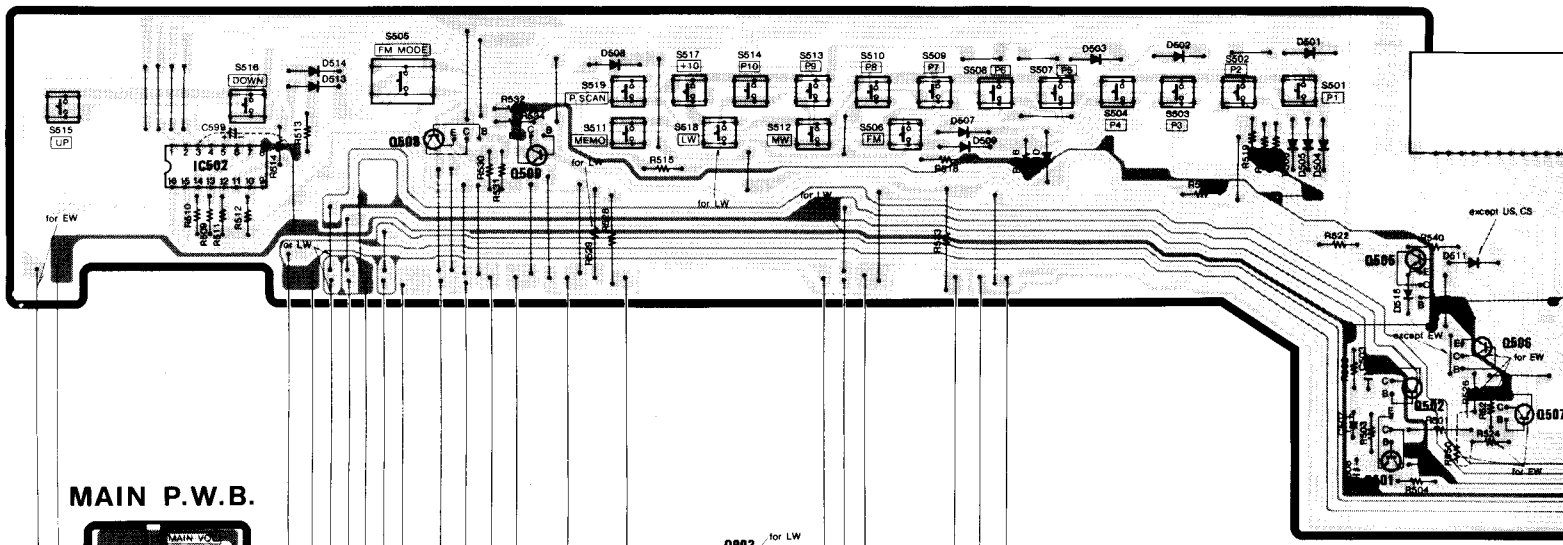
PRINTED WIRING BOARD
PRINTPLATTEN
PLAN DE BASE

[■: Earth, ▨: Other]

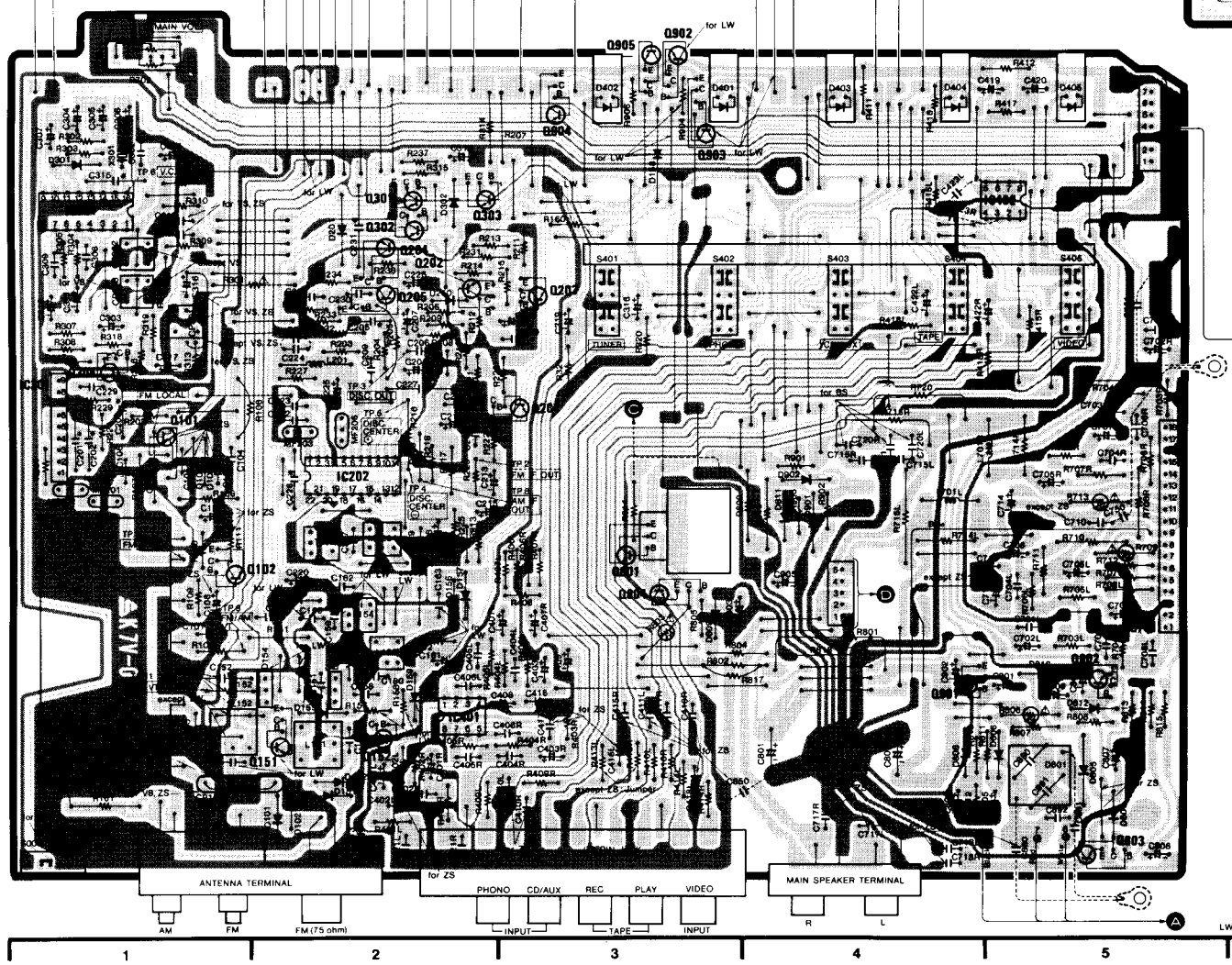
※: Axial lead cylindrical ceramic capacitor
※: Zylindrischer Keramikkondensator mit axialer Zuleitung
※: Condensateur céramique cylindrique à conducteur axial

HTA-D50

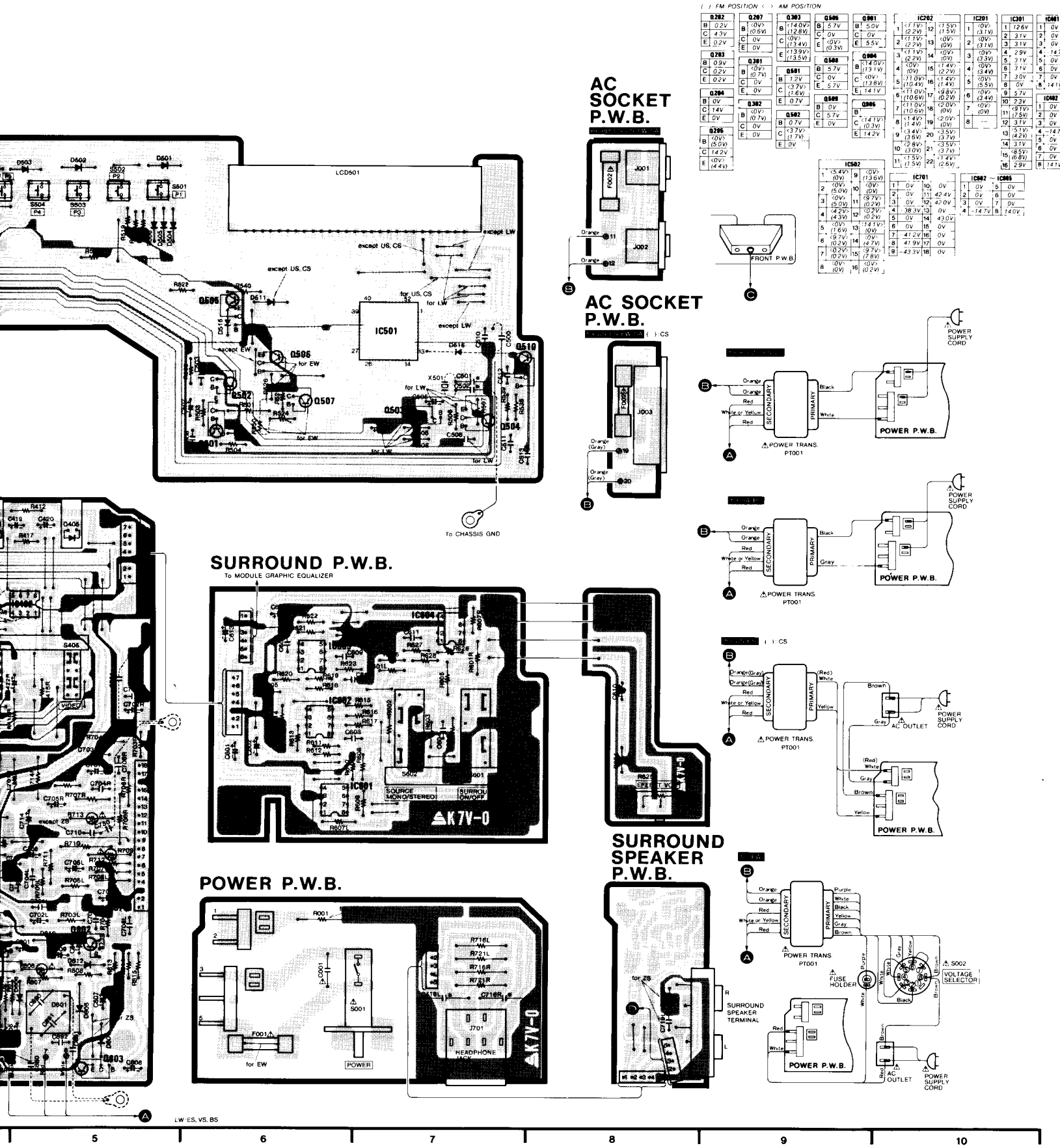
FRONT P.W.B.



MAIN P.W.B.



al ceramic capacitor
mikkondensator mit axialer Zuleitung
mique cylindrique à conducteur axial

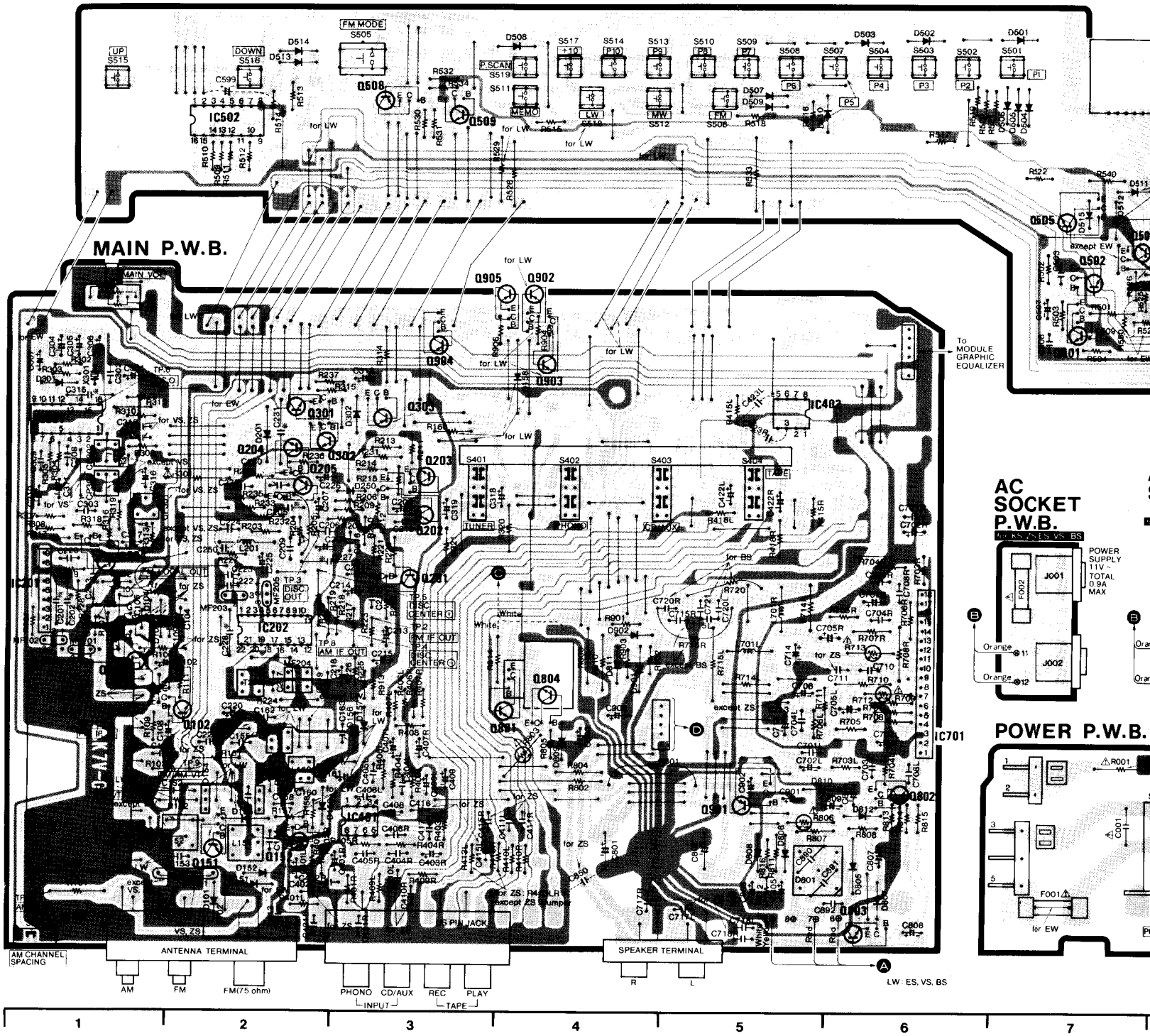


PRINTED WIRING BOARD
PRINTPLATTEN
PLAN DE BASE

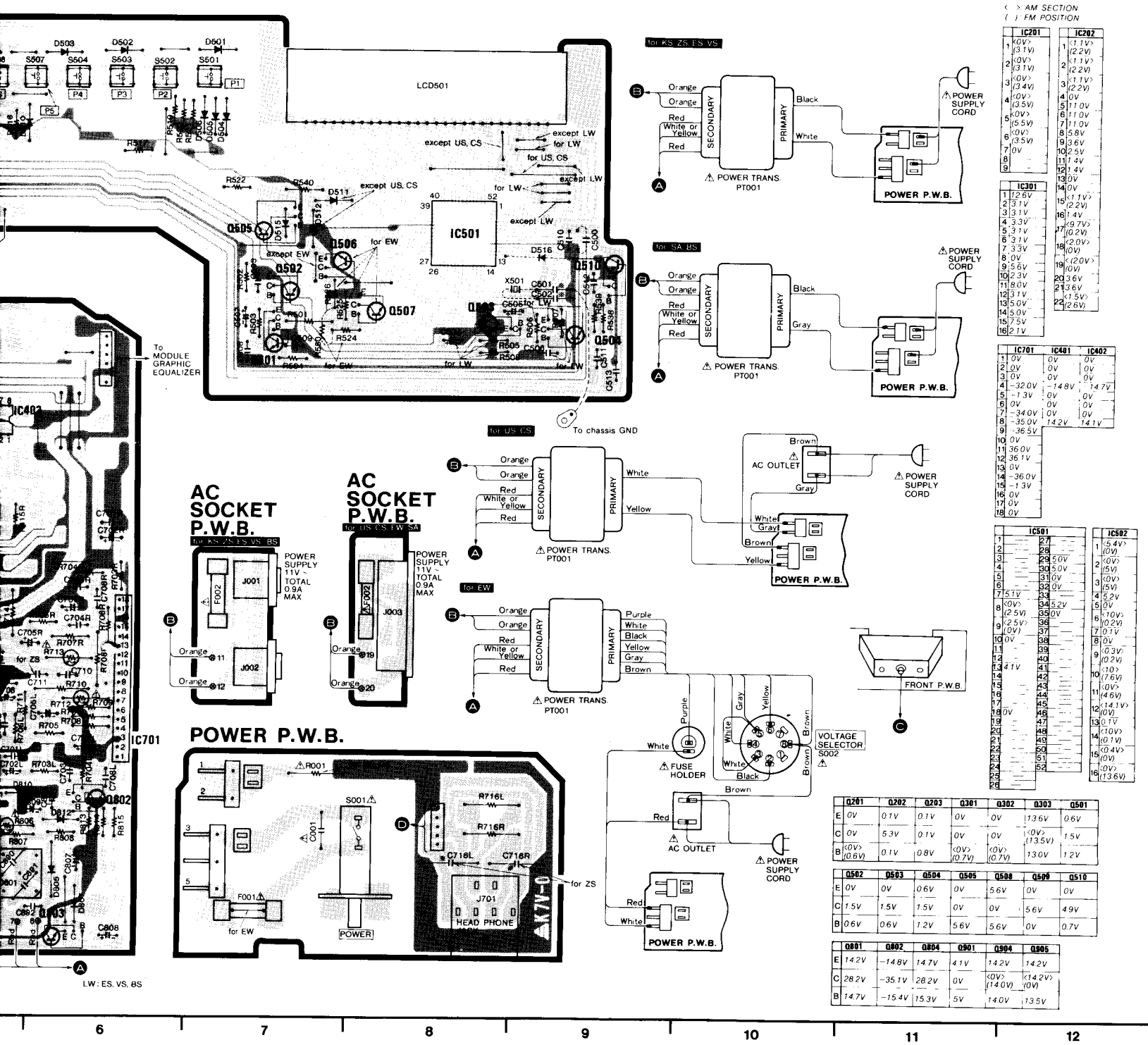
HTA-D30

[■■■: Earth, ■■■: Other]

※: Axial lead cylindrical ceramic capacitor
※: Zylindrischer Keramikkondensator mit axialer Zuleitung
※: Condensateur céramique cylindrique à conducteur axial



drical ceramic capacitor
eramikkondensator mit axialer Zuleitung
éramique cylindrique à conducteur axial



< > AM SECTION
( ) FM POSITION

IC201	
1	<0V> (3.1V)
2	<0V> (3.1V)
3	<0V> (3.4V)
4	<0V> (3.5V)
5	<0V> (5.5V)
6	<0V> (3.5V)
7	0V
8	
9	

IC202	
1	<1.1V> (2.2V)
2	<1.1V> (2.2V)
3	<1.1V> (2.2V)
4	0V
5	11.0V
6	11.0V
7	11.0V
8	5.8V
9	3.6V
10	2.5V
11	1.4V
12	1.4V
13	0V
14	0V
15	<1.1V> (2.2V)
16	1.4V
17	<9.7V> (0.2V)
18	<2.0V> (0V)
19	<(2.0V> (0V)
20	3.6V
21	3.6V
22	<1.5V> (2.6V)

IC301	
1	12.6V
2	3.1V
3	3.1V
4	3.3V
5	3.1V
6	3.1V
7	3.3V
8	0V
9	5.6V
10	2.3V
11	8.0V
12	3.1V
13	5.0V
14	5.0V
15	7.5V
16	2.1V

IC701	IC401	IC402
1	0V	0V	0V
2	0V	0V	0V
3	0V	0V	0V
4	-32.0V	-14.8V	14.7V
5	-1.3V	0V	0V
6	0V	0V	0V
7	-34.0V	0V	0V
8	-35.0V	14.2V	14.1V
9	-36.5V		
10	0V		
11	36.0V		
12	36.1V		
13	0V		
14	-36.0V		
15	-1.3V		
16	0V		
17	0V		
18	0V		

IC501		IC502	
1		27		1	<5.4V> (0V)
2		28		2	<0V> (5V)
3		29	5.0V	3	<0V> (5V)
4		30	5.0V	4	5.2V
5		31	0V	5	0V
6		32	0V	6	<10V> (0.2V)
7	5.1V	33		7	0.1V
8	<0V> (2.5V)	34	5.2V	8	0V
9	<2.5V> (0V)	35	0V	9	(0.3V) (0.2V)
10	0V	36		10	<10> (7.6V)
11		37		11	<0V> (4.6V)
12		38		12	<14.1V> (0V)
13	4.1V	39		13	0.1V
14		40		14	<10V> (0.1V)
15		41		15	<0.4V> (0V)
16		42		16	<0V> (13.6V)
17		43			
18	0V	44			
19		45			
20		46			
21		47			
22		48			
23		49			
24		50			
25		51			
26		52			

Q201	Q202	Q203	Q301	Q302	Q303	Q501
E	0V	0.1V	0.1V	0V	0V	13.6V	0.6V
C	0V	5.3V	0.1V	0V	0V	<0V> (13.5V)	1.5V
B	<0V> (0.6V)	0.1V	0.8V	<0V> (0.7V)	<0V> (0.7V)	13.0V	1.2V

Q502	Q503	Q504	Q505	Q508	Q509	Q510
E	0V	0V	0.6V	0V	5.6V	0V	0V
C	1.5V	1.5V	1.5V	0V	0V	5.6V	4.9V
B	0.6V	0.6V	1.2V	5.6V	5.6V	0V	0.7V

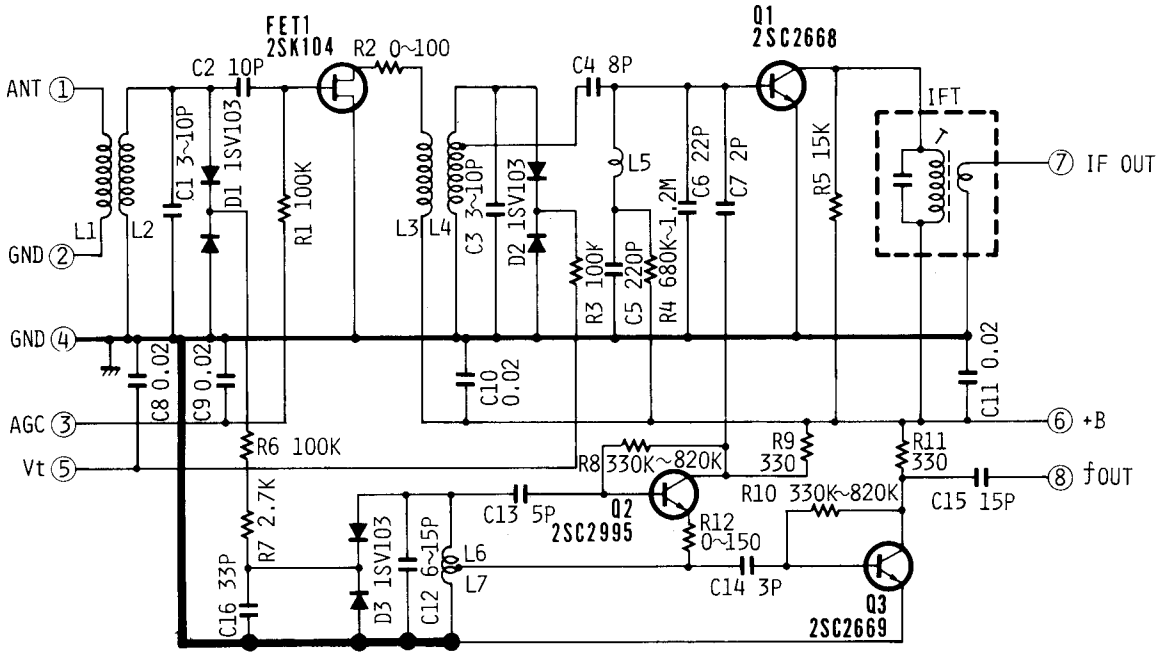
Q801	Q802	Q804	Q901	Q904	Q905
E	14.2V	-14.8V	14.7V	4.1V	14.2V	14.2V
C	28.2V	-35.1V	28.2V	0V	<0V> (14.0V)	<14.2V> (0V)
B	14.7V	-15.4V	15.3V	5V	14.0V	13.5V

6 7 8 9 10 11 12

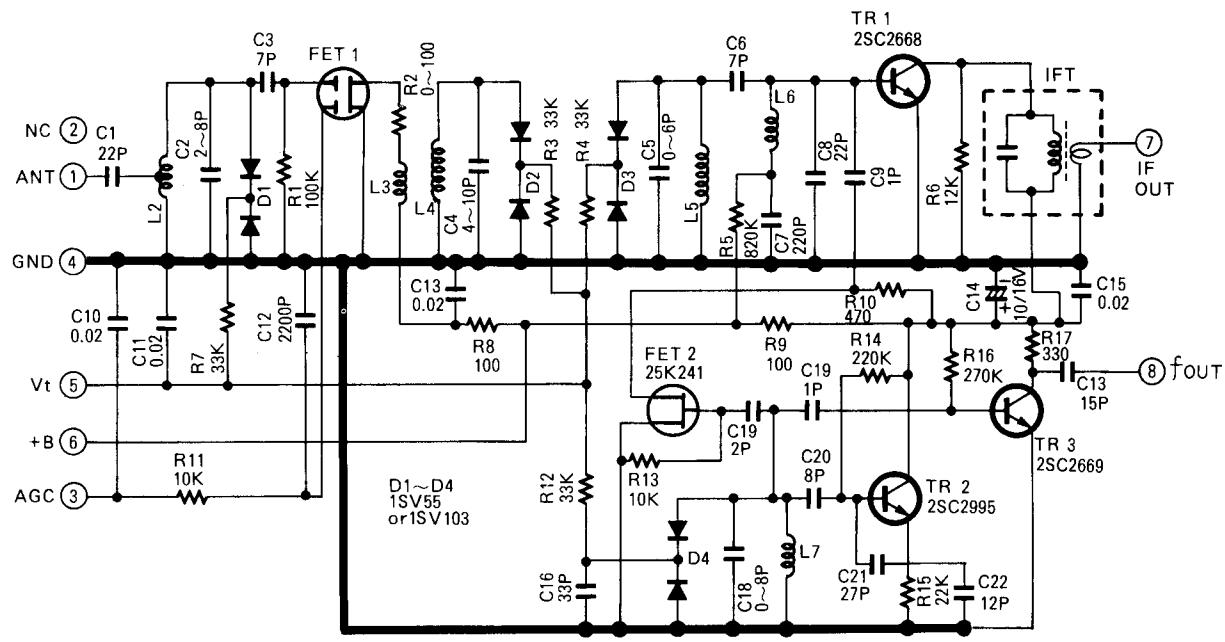
CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT

TUNER PACK

(except ZS)

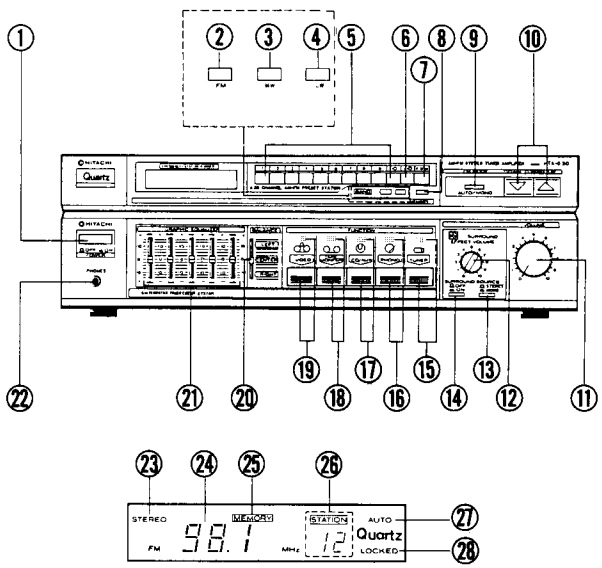


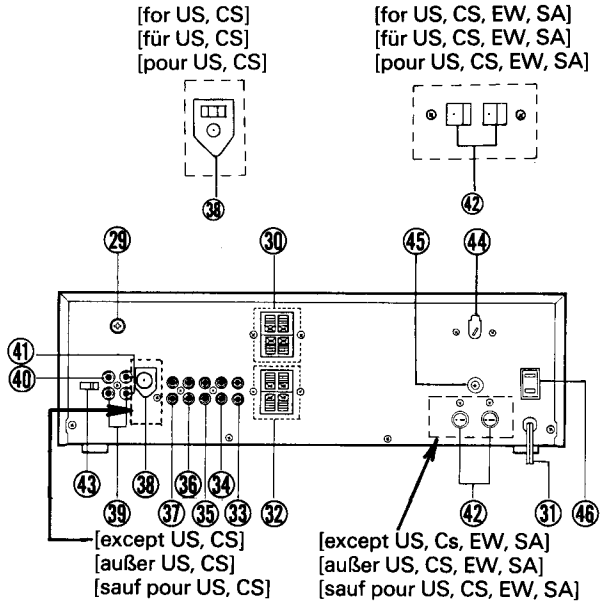
(for ZS)



FRONT AND REAR PANEL·VORDERE UND HINTER BEDIENUNGSTAFEL· PANNEAUX AVANT ET ARRIERE

HTA-D50



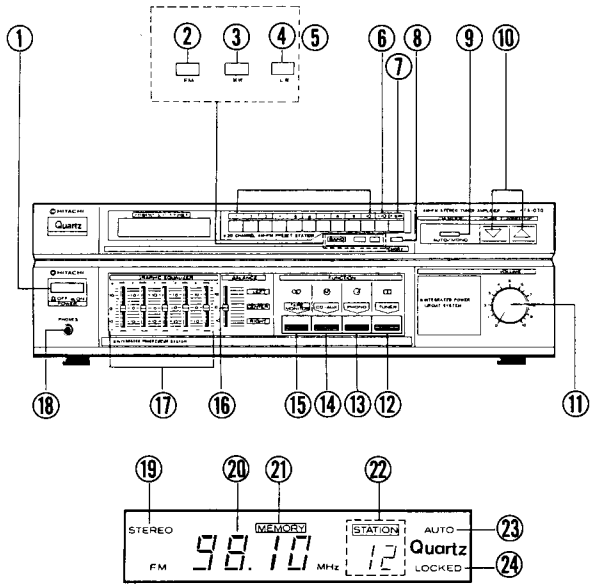


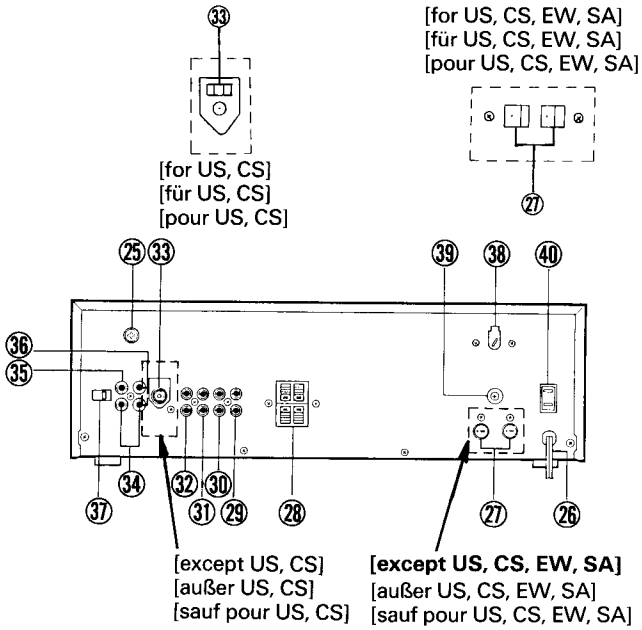
① Power switch (POWER)
② FM band key
③ AM band key
④ LW band key [for BS, VS, ES]
⑤ Station keys
⑥ +10 key
⑦ Preset Scan key (P. SCAN)
⑧ Memory write key (MEMORY)
⑨ FM mode key (FM MODE)
⑩ Tuning key (DOWN/UP)
⑪ Volume control (VOLUME)
⑫ Effect volume control (EFFECT VOLUME)
⑬ Source select switch (SOURCE)
⑭ Surround switch (SURROUND)
⑮ Tuner function key/indicator (TUNER)
⑯ Phono function key/indicator (PHONO)
⑰ CD/Aux function key/indicator (CD/AUX)
⑱ Tape monitor function key/indicator (TAPE MONITOR)
⑲ Video function key/indicator (VIDEO)
⑳ Balance control (BALANCE)
㉑ Graphic equalizer controls (GRAPHIC EQUALIZER)
㉒ Headphones jack (PHONES)
㉓ FM STEREO indicator
㉔ Frequency display
㉕ Memory indicator
㉖ Station display
㉗ FM mode "AUTO" indicator
㉘ Locked indicator
㉙ Ground terminal (GND)
㉚ Surround speaker terminals
㉛ Power supply cord
㉜ Main speaker terminals
㉝ Video input jacks
㉞ Tape play jacks
㉟ Tape rec jacks
㊱ CD/AUX input jacks
㊲ Phono input jacks
㊳ FM (75 ohms) antenna terminals
㊴ AM loop antenna terminals
㊵ AM external antenna terminals
㊶ FM (75 ohms) antenna terminals [except ZS]
㊷ AC output jack.
㊸ AM spacing selector [for EW]
㊹ Voltage selector [for EW]
㊺ Fuse holder [for EW]
㊻ AC outlet [for US, CS, EW]

① Netzschalter (POWER)
② UKW-Bandtaste (FM)
③ MW-Bandtaste (AM)
④ LW-Bandtaste (LW) [für BS, VS, ES]
⑤ Stationstasten
⑥ +10 Taste
⑦ Speicherabtast-Taste (P. SCAN)
⑧ Speicherschreibtaste (MEMORY)
⑨ UKW-Empfangsarttaste (FM MODE)
⑩ Abstimmtaste (DOWN/UP)
⑪ Lautstärkeregler (VOLUME)
⑫ Effektlautstärkeregler (EFFECT VOLUME)
⑬ Quellenwahlschalter (SOURCE)
⑭ Umfeldschalter (SURROUND)
⑮ Tuner-Funktionstaste/anzeige (TUNER)
⑯ Plattenspieler-Funktionstaste/anzeige (PHONO)
⑰ CD/Aux-Funktionstaste/anzeige (CD/AUX)
⑱ Bandüberwachung-Funktionstaste/anzeige (TAPE MONITOR)
⑲ Video-Funktionstaste/anzeige (VIDEO)
⑳ Balanceregler (BALANCE)
㉑ Graphic-Equalizer-Regler (GRAPHIC EQUALIZER)
㉒ Kopförerbuchse (PHONES)
㉓ UKW-Stereoanzeige (FM STEREO)
㉔ Frequenzanzeige
㉕ Speicheranzeige
㉖ Stationsanzeige
㉗ UKW-Empfangsart-"AUTO"-Anzeige
㉘ Empfangs-Anzeige
㉙ Masseklemme (GND)
㉚ Umfeldlautsprecher-Anschlüsse
㉛ Netzkabel
㉜ Hauptlautsprecher-Anschlüsse
㉝ Video-Eingangsbuchse
㉞ Tonband-Wiedergabebuchsen
㉟ Tonband-Aufnahmebuchsen
㊱ CD/AUX-Eingangsbuchsen
㊲ Plattenspieler-Eingangsbuchsen
㊳ UKW-Antennenanschluß (75 Ohm)
㊴ MW-Rahmenantennen-Anschlüsse
㊵ MW-Außenantennen-Anschluß
㊶ UKW-Antennenanschlüsse (75 Ohm) [außer ZS]
㊷ Netzausgänge
㊸ AM-Kanalabstandswähler [für EW]
㊹ Spannungswähler [für EW]
㊺ Sicherungshalter [für EW]
㊻ Netzausgang [für US, CS, EW]

① Interrupteur d'alimentation (POWER)
② Touche de gamme FM
③ Touche de gamme AM
④ Touche de gamme GO (LW) [pour BS, VS, ES]
⑤ Touches de station
⑥ Touche +10
⑦ Touche de balayage des stations préréglées (P. SCAN)
⑧ Touche d'inscription en mémoire (MEMORY)
⑨ Touche de mode FM (FM MODE)
⑩ Touche d'accord (ascendante/descendante) (DOWN/UP)
⑪ Commande de volume (VOLUME)
⑫ Commande d'effet de volume (EFFECT VOLUME)
⑬ Commutateur de sélection de source (SOURCE)
⑭ Commutateur d'ambiance (SURROUND)
⑮ Touche de fonction/d'indicateur du syntonisateur (TUNER)
⑯ Touche de fonction/d'indicateur de la table de lecture (PHONO)
⑰ Touche de fonction/d'indicateur de lecteur de disque compact/composant auxiliaire (CD/AUX)
⑱ Touche de fonction/d'indicateur de contrôle de bande (TAPE MONITOR)
⑲ Commande de fonction/d'indicateur video (VIDEO)
⑳ Commande d'équilibrage (BALANCE)
㉑ Commandes d'égaliseur graphique (GRAPHIC EQUALIZER)
㉒ Prise de casque (PHONES)
㉓ Témoin FM STEREO
㉔ Affichage de fréquence
㉕ Témoin de mémoire
㉖ Affichage de Affichage de station
㉗ Témoin de mode FM automatique
㉘ Témoin de verrouillage
㉙ Borne de terre (GND)
㉚ Enceintes d'ambiance
㉛ Cordon d'alimentation
㉜ Bornes d'enceintes principales
㉝ Prises d'entrée vidéo
㉞ Prises de lecture de bande
㉟ Prises d'enregistrement de bande
㊱ Prises d'entrée CD/AUX
㊲ Prises d'entrée PHONO
㊳ Borne d'antenne FM (75 ohms)
㊴ Borne d'antenne-cadre AM
㊵ Borne d'antenne AM extérieare
㊶ Borne d'antenne FM (75 ohms) [sauf pour ZS]
㊷ Prise de sortie CA
㊸ Sélecteur despacement AM [pour EW]
㊹ Sélecteur de tension [pour EW]
㊺ Support de fusible [pour EW]
㊻ Sortie CA [pour US, CS, EW]

HTA-D30





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⑩ Tuning key (DOWN/UP)
⑪ Volume control (VOLUME)
⑫ Tuner function key (TUNER)
⑬ Phono function key (PHONO)
⑭ CD/Aux function key (CD/AUX)
⑮ Tape monitor function key (TAPE MONITOR)
⑯ Balance control (BALANCE)
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㉕ Ground terminal (GND)
㉖ Power supply cord
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㉘ Speaker terminal
㉙ Tape play jack
㉚ Tape rec jack
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㉜ Phono input jack
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㉞ AM loop antenna terminals
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⑩ Abstimmtaste (DOWN/UP)
⑪ Lautstärkeregler (VOLUME)
⑫ Tuner-Funktionstaste (TUNER)
⑬ Plattenspieler-Funktionstaste (PHONO)
⑭ CD/Aux-Funktionstaste (CD/AUX)
⑮ Bandüberwachung-Funktionstaste (TAPE MONITOR)
⑯ Balanceregler (BALANCE)
⑰ Graphic-Equalizer-Regler (GRAPHIC EQUALIZER)
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㊵ Netzausgang [für US, CS, EW]

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⑨ Touche de mode FM (FM MODE)
⑩ Touche d'accord (ascendante/descendante) (DOWN/UP)
⑪ Commande de volume (VOLUME)
⑫ Touch de fonction du syntonisateur (TUNER)
⑬ Touch de fonction de la table de lecture (PHONO)
⑭ Touche de fonction de lecteur de disque compact/composant auxiliaire (CD/AUX)
⑮ Touch de fonction de contrôle de bande (TAPE MONITOR)
⑯ Commande d'équilibrage (BALANCE)
⑰ Commandes d'égaliseur graphique (GRAPHIC EQUALIZER)
⑱ Pris de casque (PHONES)
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㉓ Témoin de mode FM automatique
㉔ Témoin de verrouillage
㉕ Borne de terre
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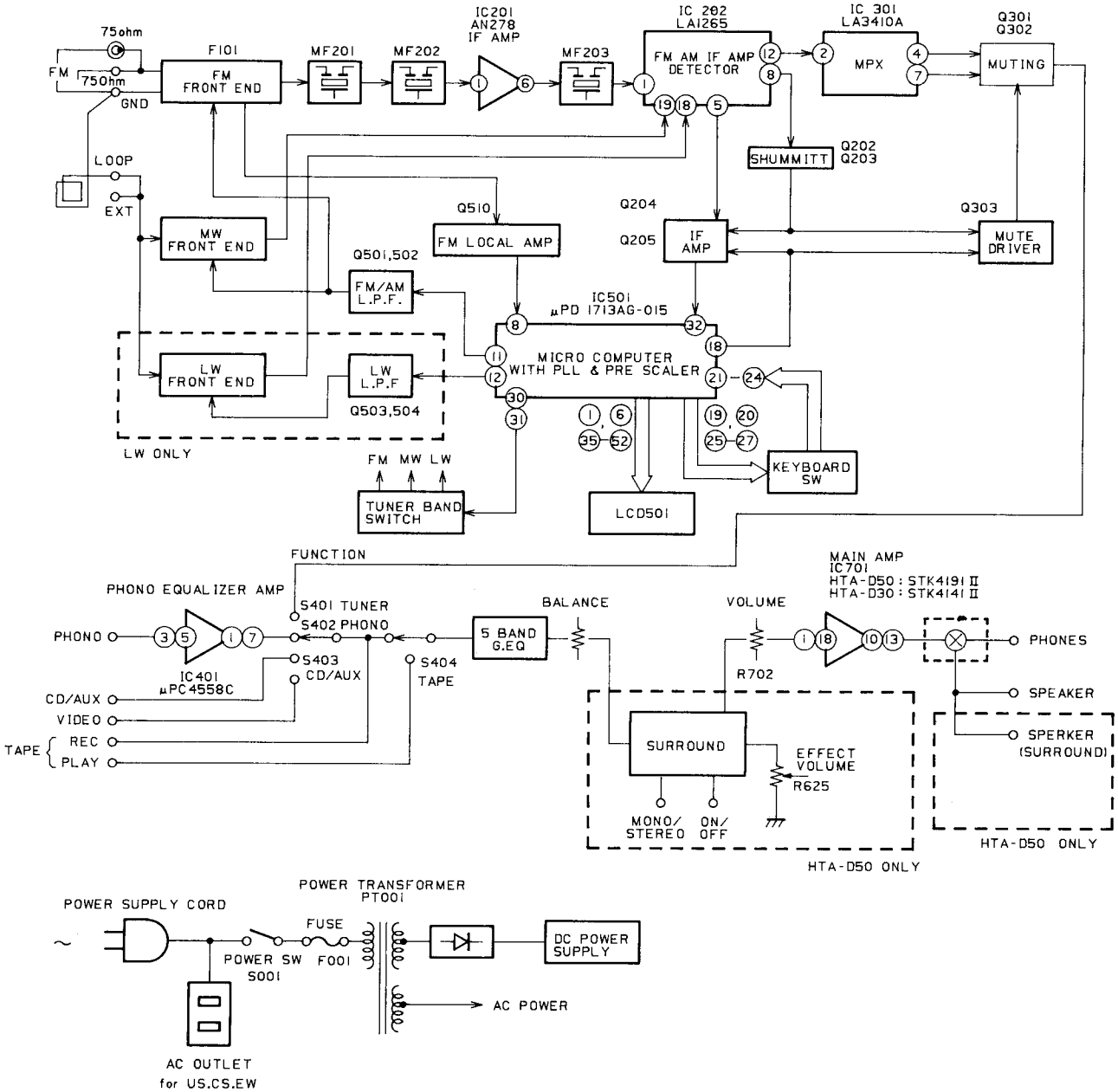
㉙ Prises de lecture de bande
㉚ Prises d'enregistrement de bande
㉛ Prises d'entrée CD/AUX
㉜ Prises d'entrée PHONO
㉝ Borne d'antenne FM (75 ohms)
㉞ Bornes d'antenne-cadre AM
㉟ Borne d'antenne AM extérieure
㊱ Bornes d'antenne FM (75 ohms) [sauf pour ZS]
㊲ Sélecteur ðespacement AM [pour EW]
㊳ Sélecteur de tension [pour EW]
㊴ Support de fusible [pour EW]
㊵ Sortie CA [pour US, CS, EW]

BLOCK DIAGRAM · BLOCKSCHEMA · SHEMA



REPLACEMENT PARTS LIST · ERSATZTEILLISTE · TABLEAU DES PIECES

CD.....Ceramic discal EL..... Electrolytic ST..... Styrol ME..... Metal CO..... Composition ★..... HTA-D50 only
CC..... Cylindrical ceramic MF ..... Mylar, film CF ..... Carbon film MO..... Metal, oxide FR ..... Fuse resistor ○..... HTA-D30 only

CAPACITORS

SYMBOL NO.	PART NO.	DESCRIPTION	
⚠C001	1243901	CD 0.01μF +100%	400V
C101	02750152	MF 0.047μF ±10% (except ZS)	50V
C101	02760112	MF 0.1μF ±10% (for ZS)	50V
C102	02528112	EL 1μF (for ZS)	50V
C104	02441732	CD 0.022μF +80% −20%	50V
C105	02086742	CD 39pF ±5% (for ZS)	50V
C106	02086742	CD 39pF ±5% (for ZS)	50V
C107	0230624	CC 33pF ±5%	50V
C108	0252802	EL 0.22μF (for ZS)	50V
C109	02441732	CD 0.022μF +80% −20% (for ZS)	50V
C151	02441732	CD 0.022μF +80% −20%	50V
C152	0240108	CC 0.022μF ±30% (for ES,VS,BS)	16V
C153	02464542	CD 39pF ±5% (for ES,VS,BS)	50V
C154	02464262	CD 6pF ±0.5% (except ES,VS,BS)	50V
C154	02464302	CD 10pF ±0.5% (for ES,VS,BS)	50V
C155	0228331	ST 270pF ±5% (for ES,VS,BS)	50V
C158	0279326	PP 510pF ±2%	100V
C159	02464652	CD 110pF ±5% (for ES,VS,BS)	50V
C160	02464422	CD 12pF ±5%	50V
C161	02528112	EL 1μF (for ES,VS,BS)	50V
C162	02441732	CD 0.022μF +80% −20%	50V
C163	02441732	CD 0.022μF +80% −20% (for ES,VS,BS)	50V
C201	0240108	CC 0.022μF ±30%	16V
C202	0240108	CC 0.022μF ±30%	16V
C203	0240108	CC 0.022μF ±30%	16V
C204	02528132	EL 3.3μF	50V
C205	0240061	CC 0.01μF ±30%	16V
C206	02086842	CD 100pF ±5%	50V
C207	0252521	EL 10μF	16V
C208	02528132	EL 3.3μF	50V
C209	02086722	CD 33pF ±5%	50V
C210	02441712	CD 0.01μF +80% −20%	50V
C211	02441712	CD 0.01μF +80% −20%	50V
C212	02740112	MF 1000pF ±10%	50V
C213	0252521	EL 10μF	16V
C214	02528132	EL 3.3μF	50V
C215	02528152	EL 4.7μF	50V
C216	0275035	MF 0.056μF ±10% (except VS,ZS)	50V
C216	02760112	MF 0.1μF ±10% (for VS,ZS)	50V
C217	02464562	CD 47pF ±5%	50V
C218	0252521	EL 10μF	16V
C219	02441732	CD 0.022μF +80% −20%	50V
C220	0252521	EL 10μF	16V
C221	02750152	MF 0.047μF ±10%	50V
C222	02441712	CD 0.01μF +80% −20%	50V
C223	02441712	CD 0.01μF +80% −20%	50V
C224	02464462	CD 18pF ±5%	50V
C225	0252521	EL 10μF	16V
C226	1252532	EL 220μF	16V
C227	0240108	CC 0.022μF ±30%	16V
C228	0240108	CC 0.022μF ±30%	16V
C229	02441712	CD 0.01μF +80% −20%	50V
C230	02097332	CD 2200pF ±10%	50V
C231	0240053	CC 2200pF ±20%	16V
C232	02097332	CD 2200pF ±10%	50V
C250	02464142	CD 4pF ±0.25pF	50V
C301	02525312	EL 100μF	16V
C302	02097242	CD 560pF ±10%	50V
C303	0252521	EL 10μF	16V
C304	02528052	EL 0.47μF	50V
C305	02528112	EL 1μF	50V
C306	0252521	EL 10μF	16V
C307	02528112	EL 1μF	50V
C308	02086862	CD 120pF ±5% (for ZS)	50V
C308	02097262	CD 820pF ±10% (for US,CS)	50V
C308	02097212	CD 330pF ±10% (except US,CS,VS,ZS)	50V
C308	02086942	CD 270pF ±5% (for VS)	50V
C309	02086862	CD 120pF ±5% (for ZS)	50V
C309	02097262	CD 820pF ±10% (for US,CS)	50V
C309	02097212	CD 330pF ±10% (except US,CS,VS,ZS)	50V
C309	02086942	CD 270pF ±5% (for VS)	50V
C310	02528112	EL 1μF	50V
C311	02528112	EL 1μF	50V
C312	02525312	EL 100μF	16V
C313	02097332	CD 2200pF ±10% (for VS,ZS)	50V
C314	02097332	CD 2200pF ±10% (for VS,ZS)	50V
C315	0240108	CC 0.022μF ±30%	16V
C316	02528112	EL 1μF (for VS,ZS)	50V
C317	0252521	EL 10μF	16V
C318	02528112	EL 1μF	50V
C319	02528112	EL 1μF	50V
C401L,R	02528112	EL 1μF	50V
C402L,R	02097312	CD 1000pF ±10% (for ZS)	50V
C403L,R	0252225	EL 47μF	6.3V
C404L,R	0274236	MF 8200pF ±5%	50V
C405L,R	02097332	CD 2200pF ±10%	50V
C406L,R	02086942	CD 270pF ±5%	50V
C407L,R	02528122	EL 2.2μF	50V
C408	0252521	EL 10μF	16V
C409	0252521	EL 10μF	16V
★C410L,R	02097232	CD 470pF ±10% (for ZS)	50V
○C410L,R	02086922	CD 220pF ±5% (for ZS)	50V
C411L,R	02086922	CD 220pF ±5% (for ZS)	50V
C413	02441732	CD 0.022μF +80% −20%	50V
C415L,R	02097312	CD 1000pF ±10% (for ZS)	50V
C416	02441712	CD 0.01μF +80% −20% (for ZS)	50V
C417	02441712	CD 0.01μF +80% −20% (for ZS)	50V
★C418L,R	02086922	CD 220pF ±5% (for ZS)	50V
★C419	02522252	EL 47μF	6.3V
★C420	02522252	EL 47μF	6.3V
C421L,R	02097222	CD 390pF ±10%	50V
C422L,R	02528132	EL 3.3μF	50V
C423L,R	02097322	CD 1500pF ±10%	50V
C500	0252242	EL 2200pF	6.3V
C501	0230071	CC 24pF ±5%	50V
C502	0230071	CC 24pF ±5%	50V
C503	02097332	CD 2200pF ±10%	50V
C504	0252802	EL 0.22μF (for ES,VS,BS)	50V
C505	02528112	EL 1μF (for ES,VS,BS)	50V
C506	02750162	MF 0.068μF ±10% (for ES,VS,BS)	50V
C507	1252880	EL 4.7μF	50V
C508	02441732	CD 0.022μF +80% −20%	50V
C509	02441732	CD 0.022μF +80% −20%	50V
C510	02441732	CD 0.022μF +80% −20%	50V
C511	02086722	CD 33pF ±5%	50V
C512	0208664	CD 15pF ±5%	50V
C513	02441712	CD 0.01μF +80% −20%	50V
C599	0252521	EL 10μF	16V
★C601	02528132	EL 3.3μF	50V
★C602	02528132	EL 3.3μF	50V
★C603	0275036	MF 0.082μF ±10%	50V
★C604	02097322	CD 1500pF ±10%	50V
★C605	02750162	MF 0.068μF ±10%	50V
★C606	0275032	MF 0.018μF ±10%	50V
★C607	0275032	MF 0.018μF ±10%	50V
★C608	02097322	CD 1500pF ±10%	50V
★C609	02097312	CD 1000pF ±10%	50V
★C610	02528132	EL 3.3μF	50V
★C611	02097322	CD 1500pF ±10%	50V
★C612	0252521	EL 10μF	16V
★C613	0252521	EL 10μF	16V
C701L,R	02097242	CD 560pF ±10%	50V
C702L,R	02528132	EL 3.3μF	50V
○C703L,R	02086882	CD 150pF ±5%	50V
★C703L,R	02086882	CD 150pF ±5% (except ZS)	50V
★C703L,R	0208682	CD 82pF ±5% (for ZS)	50V
C704L,R	0208633	CD 3pF ±0.25pF	50V
C705L,R	02528252	EL 47μF	50V
C706	02528212	EL 10μF	50V
C707L,R	02522312	EL 100μF	6.3V
○C708L,R	02097212	CD 330pF ±10%	50V
★C708L,R	02097212	CD 330pF ±10% (except ZS)	50V
★C708L,R	02097312	CD 1000pF ±10% (for ZS)	50V

SYMBOL NO.	PART NO.	DESCRIPTION	
C710	1276511	MF 0.1μF ±10% (except ZS)	100V
○ C710	1276511	MF 0.1μF ±10%	100V
○ C711	0275011	MF 0.01μF ±10% (for ZS)	50V
C712	02528212	EL 10μF	50V
C713	02760112	MF 0.1μF ±10% (except ZS)	50V
C714	1252831	EL 100μF	50V
C715L,R	02750152	MF 0.047μF ±10% (except BS)	50V
○ C715R	02760112	MF 0.1μF ±10% (for BS)	50V
		MF 0.1μF ±10% (for BS)	50V
C716L,R	0240045	CC 1000pF ±10% (for ZS)	50V
C717L,R	0275013	MF 0.022μF ±10% (for ZS)	50V
C718L,R	02441712	CD 0.01μF $^{+80}_{-20}$% (for ZS)	50V
★ C719L,R	02740142	MF 3300pF ±10% (for ZS)	50V
C720L,R	02760112	MF 0.1μF ±10% (for BS)	50V
C721	02760112	MF 0.1μF ±10% (for BS)	50V
★ C750L,R	02441732	CD 0.022μF $^{+80}_{-20}$% (for ZS)	50V
★ C751L,R	02441732	CD 0.022μF $^{+80}_{-20}$% (for ZS)	50V
★ C801	0259931	EL 6800μF	50V
○ C801	0259933	EL 5600μF	40V
★ C802	0259931	EL 6800μF	50V
○ C802	0259933	EL 5600μF	50V
C803	02526252	EL 47μF	25V
C804	02526212	EL 10μF	25V
C805	02528132	EL 3.3μF	50V
C806	02528112	EL 1μF	50V
C807	02528122	EL 2.2μF	50V
C808	02528222	EL 22μF	50V
C809	0252521	EL 10μF	16V
★ C850	02441732	CD 0.022μF $^{+80}_{-20}$% (for ZS)	50V
○ C850	02760112	MF 0.1μF ±10% (for ZS)	50V
★ C860	02441732	CD 0.022μF $^{+80}_{-20}$% (for ZS)	50V
★ C861	02441732	CD 0.022μF $^{+80}_{-20}$% (for ZS)	50V
C890	0245408	CD 0.01μF ±20%	500V
C891	0245408	CD 0.01μF ±20%	500V
C892	1276511	MF 0.1μF ±10%	100V
C901	02528112	EL 1μF	50V
C902	0252521	EL 10μF	16V

RESISTORS

⚠ R001	01390052	CO 2.7MΩ ±10% (for US,CS)	RC1/2GF
R102	0113625	CF 2.7kΩ ±5%	SRD1/6P
R105	0113663	CF 100kΩ ±5%	SRD1/6P
R106	0113617	CF 1.2kΩ ±5% (for ZS)	SRD1/6P
R107	0113663	CF 100kΩ ±5% (for ZS)	SRD1/6P
⚠ R108	1123619	CF 68Ω ±5% (for ZS)	SRD1/4P
⚠ R108	1123623	CF 150Ω ±5% (except ZS)	SRD1/4P
R109	0113663	CF 100kΩ ±5% (for ZS)	SRD1/6P
R110	0113639	CF 10kΩ ±5% (for ZS)	SRD1/6P
R111	0113591	CF 100Ω ±5% (for ZS)	SRD1/6P
R151	0113639	CF 10kΩ ±5%	SRD1/6P
R152	0113639	CF 10kΩ ±5% (for ES,VS,BS)	SRD1/6P
R155	0113671	CF 220kΩ ±5%	SRD1/6P
R156	0113671	CF 220kΩ ±5% (for ES,VS,BS)	SRD1/6P
R157	0113639	CF 10kΩ ±5% (for ES,VS,BS)	SRD1/6P
R158	0113663	CF 100kΩ ±5% (for ES,VS,BS)	SRD1/6P
R160	0113631	CF 4.7kΩ ±5% (for ES,VS,BS)	SRD1/6P
R161	01133652	CF 1kΩ ±5%	SRD1/2P
R162	0113623	CF 2.2kΩ ±5% (for ES,VS,BS)	SRD1/6P
R201	0113603	CF 330Ω ±5%	SRD1/6P
R202	0113619	CF 1.5kΩ ±5%	SRD1/6P
R203	0113619	CF 1.5kΩ ±5%	SRD1/6P
R204	0113639	CF 10kΩ ±5%	SRD1/6P
⚠ R205	1123624	CF 180Ω ±5%	SRD1/4P
R206	0113591	CF 100Ω ±5%	SRD1/6P
R209	0113637	CF 8.2kΩ ±5% (for VS,ZS)	SRD1/6P
R209	0113645	CF 18kΩ ±5% (except VS,ZS)	SRD1/6P
R210	0113639	CF 10kΩ ±5% (for VS,ZS)	SRD1/6P
R210	0113647	CF 22kΩ ±5% (except VS,ZS)	SRD1/6P
R211	0113591	CF 100Ω ±5%	SRD1/6P
R212	0113633	CF 5.6kΩ ±5%	SRD1/6P
R213	0113647	CF 22kΩ ±5%	SRD1/6P
R214	0113639	CF 10kΩ ±5%	SRD1/6P
R215	0113655	CF 47kΩ ±5%	SRD1/6P
R216	0113637	CF 8.2kΩ ±5% (for US,CS)	SRD1/6P
R216	0113639	CF 10kΩ ±5% (except US,CS)	SRD1/6P
R217	0113639	CF 10kΩ ±5%	SRD1/6P
R218	0113639	CF 10kΩ ±5%	SRD1/6P
R219	0113627	CF 3.3kΩ ±5%	SRD1/6P
R220	0113663	CF 100kΩ ±5%	SRD1/6P
R221	0113663	CF 100kΩ ±5%	SRD1/6P
R222	0113637	CF 8.2kΩ ±5%	SRD1/6P
R223	0113639	CF 10kΩ ±5%	SRD1/6P
R224	0113615	CF 1kΩ ±5%	SRD1/6P
R225	0113639	CF 10kΩ ±5%	SRD1/6P
R226	0113659	CF 68kΩ ±5%	SRD1/6P
R227	0113601	CF 270Ω ±5%	SRD1/6P
R228	0113615	CF 1kΩ ±5%	SRD1/6P
R229	0113605	CF 390Ω ±5%	SRD1/6P
R231	0113659	CF 68kΩ ±5%	SRD1/6P
R232	0113661	CF 82kΩ ±5%	SRD1/6P
R233	0113631	CF 4.7kΩ ±5%	SRD1/6P
R234	0113649	CF 27kΩ ±5%	SRD1/6P
R235	0113607	CF 470Ω ±5%	SRD1/6P
R236	0113609	CF 560Ω ±5%	SRD1/6P
R237	0113665	CF 120kΩ ±5%	SRD1/6P
⚠ R301	1123621	CF 100Ω ±5%	SRD1/4P
R302	0113627	CF 3.3kΩ ±5%	SRD1/6P
R303	0113653	CF 39kΩ ±5%	SRD1/6P
R304	0113661	CF 82kΩ ±5% (for US,CS)	SRD1/6P
R304	0113665	CF 120kΩ ±5% (except US,CS,VS,ZS)	SRD1/6P
R304	0113667	CF 150kΩ ±5% (for VS,ZS)	SRD1/6P
R305	0113661	CF 82kΩ ±5% (for US,CS)	SRD1/6P
R305	0113665	CF 120kΩ ±5% (except US,CS,VS,ZS)	SRD1/6P
R305	0113667	CF 150kΩ ±5% (for VS,ZS)	SRD1/6P
R307	0113627	CF 3.3kΩ ±5%	SRD1/6P
R308	0113627	CF 3.3kΩ ±5%	SRD1/6P
R309	0113633	CF 5.6kΩ ±5%	SRD1/6P
R310	0113633	CF 5.6kΩ ±5%	SRD1/6P
R311	0113663	CF 100kΩ ±5%	SRD1/6P
R312	0113663	CF 100kΩ ±5%	SRD1/6P
R313	0113655	CF 47kΩ ±5% (for VS,ZS)	SRD1/6P
R314	0113663	CF 100kΩ ±5%	SRD1/6P
R315	0113623	CF 2.2kΩ ±5%	SRD1/6P
R316	0113651	CF 33kΩ ±5%	SRD1/6P
R317	0113615	CF 1kΩ ±5%	SRD1/6P
R318	0113627	CF 3.3kΩ ±5% (for VS,ZS)	SRD1/6P
R318	0113629	CF 3.9kΩ ±5% (except VS,ZS)	SRD1/6P
R319	0113665	CF 120kΩ ±5%	SRD1/6P
R320	0113663	CF 100kΩ ±5%	SRD1/6P
R321	0113663	CF 100kΩ ±5%	SRD1/6P
R401L,R	0113623	CF 2.2kΩ ±5%	SRD1/6P
R402L,R	0113655	CF 47kΩ ±5%	SRD1/6P
R403L,R	0113611	CF 680Ω ±5%	SRD1/6P
R404L,R	0113677	CF 390kΩ ±5%	SRD1/6P
R405L,R	0113651	CF 33kΩ ±5%	SRD1/6P
R406L,R	0113661	CF 82kΩ ±5%	SRD1/6P
R407L,R	0113615	CF 1kΩ ±5%	SRD1/6P
R408	0113631	CF 4.7kΩ ±5%	SRD1/6P
R409L,R	0113615	CF 1kΩ ±5%	SRD1/6P
R410L,R	0113615	CF 1kΩ ±5%	SRD1/6P
★ R411	0129601	CF 1kΩ ±5%	SRD1/4P
★ R412	0129601	CF 1kΩ ±5%	SRD1/4P
R413L,R	0113615	CF 1kΩ ±5% (for ZS)	SRD1/6P
★ R414L,R	0113615	CF 1kΩ ±5%	SRD1/6P
R415L,R	0113663	CF 100kΩ ±5%	SRD1/6P
★ R416	0113607	CF 470Ω ±5%	SRD1/6P
★ R417	0113607	CF 470Ω ±5%	SRD1/6P
R418L,R	0113663	CF 100kΩ ±5%	SRD1/6P
R501	0113635	CF 6.8kΩ ±5%	SRD1/6P
R502	0113623	CF 2.2kΩ ±5%	SRD1/6P
R503	0113611	CF 680Ω ±5%	SRD1/6P
R504	0113631	CF 4.7kΩ ±5%	SRD1/6P
R505	0113635	CF 6.8kΩ ±5% (for ES,VS,BS)	SRD1/6P
R506	0113639	CF 10kΩ ±5% (for ES,VS,BS)	SRD1/6P
R507	0113615	CF 1kΩ ±5% (for ES,VS,BS)	SRD1/6P
R508	0113635	CF 6.8kΩ ±5% (for ES,VS,BS)	SRD1/6P
R509	0113623	CF 2.2kΩ ±5%	SRD1/6P

SYMBOL NO.	PART NO.	DESCRIPTION
R510	0113623	CF 2.2kΩ ±5% SRD1/6P
R511	0113659	CF 68kΩ ±5% SRD1/6P
R512	0113623	CF 2.2kΩ ±5% SRD1/6P
R513	0113655	CF 47kΩ ±5% SRD1/6P
R514	0113655	CF 47kΩ ±5% SRD1/6P
R515	0113655	CF 47kΩ ±5% SRD1/6P
R516	0113653	CF 39kΩ ±5% SRD1/6P
R517	0113653	CF 39kΩ ±5% SRD1/6P
R518	0113653	CF 39kΩ ±5% SRD1/6P
R519	0113653	CF 39kΩ ±5% SRD1/6P
R520	0113653	CF 39kΩ ±5% SRD1/6P
R521	0113653	CF 39kΩ ±5% SRD1/6P
R522	0113639	CF 10kΩ ±5% SRD1/6P
R524	0113663	CF 100kΩ ±5% SRD1/6P (for EW)
R525	0113655	CF 47kΩ ±5% SRD1/6P (for EW)
R526	0113639	CF 10kΩ ±5% SRD1/6P (for EW)
R528	0113639	CF 10kΩ ±5% SRD1/6P
R529	0113639	CF 10kΩ ±5% SRD1/6P (for ES,VS,BS)
R530	0113639	CF 10kΩ ±5% SRD1/6P
R531	0113639	CF 10kΩ ±5% SRD1/6P
R532	0113639	CF 10kΩ ±5% SRD1/6P
R533	0113639	CF 10kΩ ±5% SRD1/6P
R534	0113639	CF 10kΩ ±5% SRD1/6P
R538	0113663	CF 100kΩ ±5% SRD1/6P
R539	0113623	CF 2.2kΩ ±5% SRD1/6P
R540	0113615	CF 1kΩ ±5% SRD1/6P
R550	0113639	CF 10kΩ ±5% SRD1/6P (for EW)
★R601L,R	0113649	CF 27kΩ ±5% SRD1/6P
★R602	0113679	CF 470kΩ ±5% SRD1/6P
★R603	0113641	CF 12kΩ ±5% SRD1/6P
★R604	0113679	CF 470kΩ ±5% SRD1/6P
★R605	0113615	CF 1kΩ ±5% SRD1/6P
★R606	0113639	CF 10kΩ ±5% SRD1/6P
★R607L,R	0113649	CF 27kΩ ±5% SRD1/6P
★R608	0113641	CF 12kΩ ±5% SRD1/6P
★R609	0113653	CF 39kΩ ±5% SRD1/6P
★R610	0113653	CF 39kΩ ±5% SRD1/6P
★R611	0113647	CF 22kΩ ±5% SRD1/6P
★R612	0113647	CF 22kΩ ±5% SRD1/6P
★R613	0113647	CF 22kΩ ±5% SRD1/6P
★R614	0113663	CF 100kΩ ±5% SRD1/6P
★R615	0113647	CF 22kΩ ±5% SRD1/6P
★R616	0113647	CF 22kΩ ±5% SRD1/6P
★R617	0113647	CF 22kΩ ±5% SRD1/6P
★R618	0113647	CF 22kΩ ±5% SRD1/6P
★R619	0113647	CF 22kΩ ±5% SRD1/6P
★R620	0113647	CF 22kΩ ±5% SRD1/6P
★R621	0113647	CF 22kΩ ±5% SRD1/6P
★R622	0113647	CF 22kΩ ±5% SRD1/6P
★R623	0113647	CF 22kΩ ±5% SRD1/6P
★R624	0113639	CF 10kΩ ±5% SRD1/6P
★R626	0113639	CF 10kΩ ±5% SRD1/6P
★R627	0113639	CF 10kΩ ±5% SRD1/6P
★R628	0113639	CF 10kΩ ±5% SRD1/6P
R703L,R	0113623	CF 2.2kΩ ±5% SRD1/6P
R704L,R	0113661	CF 82kΩ ±5% SRD1/6P
★R705L,R	0113609	CF 560Ω ±5% SRD1/6P
○R705L,R	0113611	CF 680Ω ±5% SRD1/6P
R706L,R	0113661	CF 82kΩ ±5% SRD1/6P
R707L,R	0129609	CF 2.2kΩ ±5% SRD1/4P
R708L,R	0129609	CF 2.2kΩ ±5% SRD1/4P
⚠R709	1110621	FR 100Ω ±5% RN1/4B

SYMBOL NO.	PART NO.	DESCRIPTION
R710	0129579	CF 560Ω ±5% SRD1/4P
R711	0129635	CF 15kΩ ±5% SRD1/4P
R712	0113655	CF 47kΩ ±5% SRD1/6P
⚠R713	1110605	FR 22Ω ±5% RN1/4B
R714L,R	0129531	CF 10Ω ±5% SRD1/4P
R715L	1119029	ME 4.7Ω ±10% RN1B
R715R	1119029	ME 4.7Ω ±10% RN1B (except BS)
★R716L,R	01132972	CF 680Ω ±5% SRD1/2P
○R716L,R	0113293	CF 330Ω ±5% SRD1/2P
R720	1119029	ME 4.7Ω ±10% RN1B (for BS)
★R721L,R	01132972	CF 680Ω ±5% SRD1/2P
★R801	1119158	ME 39Ω ±10% RN2B
○R801	1119151	ME 10Ω ±10% RN2B
★R802	1119158	ME 39Ω ±10% RN2B
○R802	1119142	ME 8.2Ω ±10% RN2B
⚠★R803	1113825	FR 4.7Ω ±5% RN1/2B
⚠○R803	1113824	FR 3.9Ω ±5% RN1/2B
○R804	0129615	CF 3.9kΩ ±5% SRD1/4P
★R804	0129631	CF 10kΩ ±5% SRD1/4P
R805	0113615	CF 1kΩ ±5% SRD1/6P
⚠R806	1110625	FR 220Ω ±5% RN1/4B
R807	0129617	CF 4.7kΩ ±5% SRD1/4P
R808	0113615	CF 1kΩ ±5% SRD1/6P
R809	01132872	CF 100Ω ±5% SRD1/2P
R810	01132872	CF 100Ω ±5% SRD1/2P
R811	0129613	CF 3.3kΩ ±5% SRD1/4P
R812	0113631	CF 4.7kΩ ±5% SRD1/6P
R813	0113647	CF 22kΩ ±5% SRD1/6P
R814	0113591	CF 100Ω ±5% SRD1/6P
R815	0113657	CF 56kΩ ±5% SRD1/6P
R816	0113663	CF 100kΩ ±5% SRD1/6P
★R817	1119158	ME 39Ω ±10% RN2B
★R818	1119158	ME 39Ω ±10% RN2B
R901	0113657	CF 56kΩ ±5% SRD1/6P
R902	0113575	CF 22Ω ±5% SRD1/6P
R903	0113615	CF 1kΩ ±5% SRD1/6P
R904	0113663	CF 100kΩ ±5% SRD1/6P (for ES,VS,BS)
R906	0113655	CF 47kΩ ±5% SRD1/6P (for ZS)
R906	0113663	CF 100kΩ ±5% SRD1/6P (except ZS)
R913	0113613	CF 820Ω ±5% SRD1/6P (for ZS)
R913	0113623	CF 2.2kΩ ±5% SRD1/6P (except ZS)
R914	01132222	CF 27Ω ±5% SRD1/2P

ICS AND TRANSISTORS

IC201	23684312	AN278
IC202	2300411	LA1265
IC301	2388941	LA3410A
IC401	2300831	μPC4558C
IC402	2300831	μPC4558C
IC501	2300861	μPD1713AG-015
IC502	2387611	BA6251
★IC601	2300831	μPC4558C
★IC602	2300831	μPC4558C
★IC603	2300831	μPC4558C
★IC604	2300831	μPC4558C
★IC701	2387491	STK4191 II
○IC701	2387531	STK4141 II
Q101	2328803	2SK104 Ⓗ (for ZS)
Q102	2328285	2SC458PG Ⓒ (for ZS)

SYMBOL NO.	PART NO.	DESCRIPTION
Q151	2328285	2SC458PGⒸ (for ES,VS,BS)
Q152	2328285	2SC458PG Ⓒ (for ES,VS,BS)
Q201	2328285	2SC458PG Ⓒ
Q202	2328285	2SC458PG Ⓒ
Q203	2328285	2SC458PG Ⓒ
Q204	05734862	2SC460 Ⓑ
Q205	2328285	2SC458PG Ⓒ
Q301	2328285	2SC458PG Ⓒ
Q302	2328285	2SC458PG Ⓒ
Q303	2329183	2SA1015 ⒼⓇ
Q304	2328285	2SC458PG Ⓒ
Q501	2328285	2SC458PG Ⓒ
Q502	2328285	2SC458PG Ⓒ
Q503	2328285	2SC458PG Ⓒ (for ES,VS,BS)
Q504	2328285	2SC458PG Ⓒ (for ES,VS,BS)
Q505	2329183	2SA1015 ⒼⓇ
Q506	2329183	2SA1015 ⒼⓇ (for EW)
Q507	2328285	2SC458PG Ⓒ (for EW)
Q508	2329183	2SA1015 ⒼⓇ
Q509	2328285	2SC458PG Ⓒ
Q510	05734862	2SC460 Ⓑ
Q801	2317822	2SD880 Ⓨ
★Q802	2328625	2SB647 Ⓒ
○Q802	2329133	2SA1015 ⒼⓇ
Q803	2328285	2SC458PG Ⓒ
Q804	2328285	2SC458PG Ⓒ
Q901	2329183	2SA1015 ⒼⓇ
Q902	2329183	2SA1015 ⒼⓇ (for ES,VS,BS)
Q903	2329183	2SA1015 ⒼⓇ (for ES,VS,BS)
Q904	2329183	2SA1015 ⒼⓇ
Q905	2329183	2SA1015 ⒼⓇ

DIODE

D101	2398082	1N4148
D102	2398082	1N4148
D103	2337931	1K60R (for ZS)
D104	2337931	1K60R (for ZS)
D151	2398082	1N4148
D152	2398082	1N4148
D153	2397321	KV1260
D154	2397321	KV1260 (for ES,VS,BS)
D155	2398082	1N4148 (for ES,VS,BS)
≀	≀	≀ ≀
D159	2398082	1N4148 (for ES,VS,BS)
D201	2398082	1N4148
D250	2398081	1N4148
D301	2398082	1N4148
D302	2398082	1N4148
★D401	2339104	SLP-660C
★D402	2339104	SLP-660C
★D403	2339104	SLP-660C
★D404	2339104	SLP-660C
★D405	2339104	SLP-660C
D501	2398082	1N4148
≀	≀	≀
D510	2398082	1N4148
D511	2398082	1N4148 (except US,CS)
D512	2398082	1N4148 (except US,CS)
D512	2398081	1N4148 (for US,CS)
D513	2398082	1N4148
D514	2398082	1N4148
D515	2398081	1N4148
D516	2337292	HZ-9B
D801	2337461	S4VB20
D805	2339001	DS135D
D806	2337151	1S2076A

SYMBOL NO.	PART NO.	DESCRIPTION
D807	2398082	1N4148
D808	2337587	HZ5C1
D809	2337189	HZ-15-3
D810	2337189	HZ-15-3
D811	2337122	HZ-6B
D812	2398082	1N4148
D901	2398082	1N4148
D902	2398082	1N4148
VARIABLE RESISTORS		
★ R625	0158744	10kΩ- (B) EFFECT VOL.
R702	0158739	100kΩ- (D) MAIN VOL.
COILS AND TRANSFORMERS		
L151	2136503	MW antenna coil
L152	2136504	LW antenna coil (for ES,VS,BS)
L153	2136493	MW OSC coil
L154	2136494	LW OSC coil (for ES,VS,BS)
L201	2227915	Choke coil 4.7μH
L701L,R	2227361	Audio trap coil 0.67μ
MISCELLANEOUS		
⚠ S001	2600151	Push switch POWER
S002	2618053	Voltage switch VOLTAGE SELECTOR (for EW)
S003	2628301	Slide switch AM CHANNEL SPACING (for EW)
★ S401	2600442	5 Key push switch (FUNCTION)
★ S405		
○ S401	2600441	4 Key push switch (FUNCTION)
○ S404		
S501	2639682	Tact switch P1
S502	2639682	Tact switch P2
S503	2639682	Tact switch P3
S504	2639682	Tact switch P4
S505	2638241	Tact switch FM MODE
S506	2639683	Tact switch FM
S507	2639682	Tact switch P5
S508	2639682	Tact switch P6
S509	2639682	Tact switch P7
S510	2639682	Tact switch P8
S511	2639683	Tact switch MEMO
S512	2639683	Tact switch MW
S513	2639682	Tact switch P9
S514	2639682	Tact switch P10
S515	2639683	Tact switch UP
S516	2639683	Tact switch DOWN
S517	2639682	Tact switch +10
S518	2639683	Tact switch LW (for ES,VS,BS)
S519	2639682	Tact switch P.SCAN
★ S601	2600431	2 Key push switch SURROUND, SOURCE
★ S602		
X301	2136661	Ceramic filter
X501	2789281	Crystal oscillator

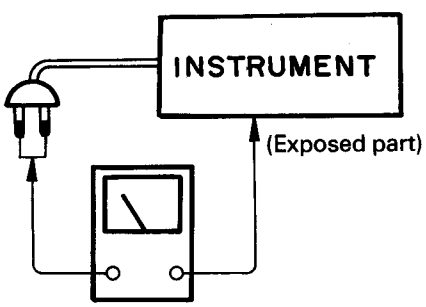
SYMBOL NO.	PART NO.	DESCRIPTION
MF201	2135002	Ceramic filter
MF202	2135002	Ceramic filter
MF203	2135002	Ceramic filter
MF204	2155152	AM ceramic filter
MF205	2137212	Ceramic discri transformer
CP101	2136941	Filter, band pass (for VS,ZS)
CP301	2136313	Filter low pass (for VS,ZS)
CP302	2136311	Rack filter (for VS)
CP303	2136311	Rack filter (for VS)
⚠★ F001	2727962	Fuse 3A 125V (for US,CS)
⚠○ F001	2727964	Fuse 2.5A 125V (for US,CS)
⚠★ F001	2727194	Fuse T1.6A (except US,CS,EW)
⚠○ F001	2727191	Fuse TIA (except US,CS,EW)
⚠ F002	2727961	Fuse 2A 125V (for US,CS)
⚠ F002	2727193	Fuse T2A (except US,CS)
F101	2425461	Tuner pack (except ZS)
F101	2425561	Tuner pack (for ZS)
⚠ J001	2658711	Jack, power (except US,CS,SA,EW)
⚠ J002	2658711	Jack, power (except US,CS,SA,EW)
J003	2657831	Speaker socket (for US,CS,EW,SA)
C905	0259891	Capacitor 0.022F
	2780081	Liquid crystal display
	3801281	Holder, liquid crystal display
★	3801271	Holder, LED
★	2504811	TA PWB assembly (for US,CS)
★	2504812	TA PWB assembly (for ES)
★	2504813	TA PWB assembly (for VS)
★	2504814	TA PWB assembly (for KS)
★	2504815	TA PWB assembly (for BS)
★	2504816	TA PWB assembly (for SA)
★	2504817	TA PWB assembly (for EW)
★	2504818	TA PWB assembly (for ZS)
○	2504801	TA PWB assembly (for US,CS)
○	2504802	TA PWB assembly (for ES)
○	2504803	TA PWB assembly (for VS)
○	2504804	TA PWB assembly (for KS)
○	2504805	TA PWB assembly (for BS)
○	2504806	TA PWB assembly (for SA)
○	2504807	TA PWB assembly (for EW)
○	2504808	TA PWB assembly (for ZS)
	2678347	6P US-pin jack
	2678348	4P US-pin jack (except ZS)
	2678494	Socket, speaker
	2689383	4P speaker terminal
	2727681	Holder, fuse (for US, CS, SA, EW)
	4468352	Sheet, lamp filter
	2689541	4P antenna terminal (for US, CS)
	2689542	4P antenna terminal (for EW)
	2689543	4P antenna terminal (for ZS)
	2678561	4P US pin jack (for ZS)
for ACCESSORIES		
	2757528	FM antenna
	2758341	AM loop antenna

SYMBOL NO.	PART NO.	DESCRIPTION
	3637792	Antenna holder assembly
⚠★ F001	2727196	Fuse T3.15A 250V (for EW)
⚠○ F001	2727199	Fuse T2.5A 250V (for EW)
	2667922	Siemens plug (for EW)
FINAL ASSEMBLY		
★	4040333	Front panel assembly (for ES,VS,BS)
★	4040334	Front panel assembly (except ES,VS,BS)
○	4040331	Front panel assembly (for ES,VS,BS)
○	4040332	Front panel assembly (except ES,VS,BS)
	3801141	Function button
★	3299653	14 knob balance
★	3291642	Push knob (S)
	3307023	Knob (35) assembly
	3306531	Tact button (3x16)
	3297795	Power button (BC)
	4463922	Cover assembly
	3916411	Leg
	4747043	Felt, Leg
⚠★ PT001	2249361	Power transformer (120V) (for US)
⚠★ PT001	2249362	Power transformer (220V) (for KS,ZS,ES,VS)
⚠★ PT001	2249363	Power transformer (240V) (for SA,BS)
⚠★ PT001	2249364	Power transformer (120V, 220V, 240V) (for EW)
⚠★ PT001	2249365	Power transformer (120V) (for CS)
⚠○ PT001	2249351	Power transformer (120V) (for US,CS)
⚠○ PT001	2249352	Power transformer (220V) (for KS,ZS,ES,VS)
⚠○ PT001	2249353	Power transformer (240V) (for SA,BS)
⚠○ PT001	2249354	Power transformer (120V, 220V, 240V) (for EW)
	4567443	Screw, bind head 4 × 10
	4567422	Screw, bind head 4 × 8
	4567432	Screw, tapping bind head 3 × 8 (BC)
	86914102	Screw, 3 × 10 BT bind head
	4567413	Screw bind head 3 × 10
	4567451	3φ×6 BT bind screw (SI)
	4784106	Screw, tapping bind head 3 × 10
	4567412	Screw, 3 × 8 DT Bind head
★	2377661	Module graphic-equalizer
	2767761	Lamp assembly (with wire)
REAR PLATE ASSEMBLY		
★	4468074	Rear plate (for US,CS)
★	4468075	Rear plate (for EW)
★	4468076	Rear plate (except US,CS,EW,SA)
	4468078	Rear plate (for SA)
○	4468071	Rear plate (for US,CS)
○	4468072	Rear plate (for EW)
○	4468073	Rear plate (except US,CS,EW,SA)

SYMBOL NO.	PART NO.	DESCRIPTION
○	4468077	Rear plate (for SA)
	4408861	Washer
⚠	0043793	Bushing (for EW)
⚠	3913006	Bushing (except EW)
⚠	2702711	Power supply cord (for US,CS)
⚠	2718091	Power supply cord (for KS,ZS,ES,VS)
⚠	2749582	Power supply cord (for BS)
⚠	2749622	Power supply cord (for SA)
⚠	2718113	Power supply cord (for EW)
⚠	2658372	AC outlet (for US,CS,EW)
	2727671	Fuse holder (for EW)
	4575661	Earth screw

Check that exposed parts are acceptably insulated from the supply circuit before returning the instrument repaired to the customer.

- **Checking method**
  Power switch is set to ON.
  Next, measure the resistance value between the both poles of attachment cup (Power supply plug) and the exposed parts (Parts such as Ground terminal, Knob, Cover, etc. where the customer is easy to touch) and check that the resistance value is 500 kohms or more.



Insulation tester (DC500V)

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HTA-D50/D30 TY No. 505 EGF

Printed in Japan (H.FL)