

# HITACHI

## SERVICE MANUAL

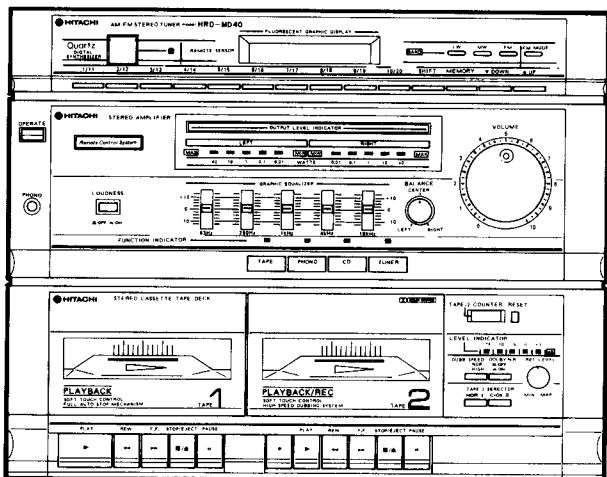
TY

No. 590EGF

### HRD-MD40

[US, CS, ES, ZS, BS, SA, EW]

TN-21SW-985-1 chassis



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#### SAFETY PRECAUTIONS

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  $\triangle$  in the circuit diagram and printed wiring board.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

## STEREO TUNER-AMPLIFIER DOUBLE CASSETTE RECORDER

July 1988

YOKOHAMA WORKS

## PRÉCAUTIONS 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 des caractéristiques relatives à la sécurité, utiliser uniquement des pièces de rechange d'origine Hitachi pour effectuer un remplacement. Ceci se rapporte notamment aux pièces critiques du bloc d'alimentation qui ne doivent en aucun cas être remplacées par celles d'autres fabricants. Les pièces critiques sont accompagnés du symbole  $\triangle$  dans le plan de circuit et sur le plan de base.
2. Avant de retourner l'appareil répare au client le technicien doit procéder à un essai complet pour s'assurer qu'il ne présente aucun danger de chocs électriques.

## 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 Teile anderer Hersteller ersetzt werden. Alle kritischen Teile sind im Schaltplan und im Printplatten mit dem Symbol  $\triangle$  gekennzeichnet.
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.

## SPECIFICATIONS

### ● GENERAL

<b>Power supply:</b>	AC120V, 60 Hz [for US, CS] AC220V, 50 Hz [for ES, ZS] AC240V, 50 Hz [for BS, SA] AC110—120/200—220/230—240V, 50/60 Hz [for EW]
<b>Power consumption:</b>	145W [for US, CS] 180W [except US, CS]
<b>Dimensions:</b>	370 (W) x 296 (H) x 264 (D) mm
<b>Weight:</b>	7.6 kg

### ● AMPLIFIER SECTION

<b>Audio output:</b>	10W x 2 (8 ohms, T.H.D. 5% both canal driven 1 kHz) 30 Watts* per channel, min. RMS. at 8 ohms from 100 Hz to 10 kHz, with more than 2% total harmonic distortion. [for US, CS] 30W x 2 (8 ohms, T.H.D. 5% both channel driven, 1 kHz) [except US, CS]
<b>Music power output:</b>	60W x 2 (8 ohms, 1 kHz)
<b>Tone control:</b>	$\pm 8$ dB (at 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz) [except BS, SA] $\pm 9$ dB (at 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz) [for BS, SA]
<b>Input sensitivity and impedance:</b>	PHONO 3.5 mV/50 kohms CD 200 mV/30 kohms
<b>Signal to noise ratio: (IHF-A network)</b>	PHONO 68 dB CD 80 dB
<b>Output impedance:</b>	Speaker 8—16 ohms Headphones 8 ohms

### ● TUNER SECTION

<b>Circuit system:</b>	FM/AM 2 bands superheterodyne [except BS, ES] FM/MW/LW 3 bands superheterodyne [for BS, ES]
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### Tuning range:

FM 87.5—108 MHz (50 kHz steps) [except US, CS, SA] 87.9—107.9 MHz (100 kHz steps) [for US, CS, SA]
AM (MW) 522—1,611 kHz (9 kHz steps) [except US, CS, EW] 530—1,620 kHz (10 kHz steps) [for US, CS] 522—1,611/530—1,620 kHz (9/10 kHz steps) [for EW]
LW 153—281 kHz (1 kHz steps) [for BS, ES]

### FM stereo separation:

30 dB

### IHF sensitivity:

FM 1 $\mu$ V (S/N 26 dB) [except US, CS] 1 $\mu$ V (S/N 30 dB) [for US, CS] AM(MW) 600 $\mu$ V/m (S/N 20dB) LW 2,500 $\mu$ V/m (S/N 20dB) [for BS, ES]
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### FM signal to noise ratio:

60 dB

### Antennas:

FM: External antenna (aerial) AM(MW)/LW: Loop antenna outdoor antenna
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### ● TAPE DECK SECTION

<b>Tape:</b>	Cassette tape
<b>Tape speed:</b>	4.75 cm/s
<b>Recording system and bias frequency:</b>	AC bias, 85 kHz
<b>Track system:</b>	4 tracks 2 channels
<b>Erasing system:</b>	Ac erase
<b>Frequency Response:</b>	Normal 70—14,000 Hz CrO <sub>2</sub> 70—14,000 Hz
<b>Signal to noise ratio:</b>	Dolby NR ON 58 dB OFF 50 dB
<b>Crosstalk:</b>	60 dB
<b>Erase ratio:</b>	65 dB
<b>Motor:</b>	DC motor
<b>Wow and Flutter:</b>	0.25% (WRMS)

\*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers.

## ● GENERALE

<b>Spannungsversorgung:</b>	AC120V, 6 Hz [für US, CS] AC220V, 50 Hz [für ES, ZS] AC240V, 50 Hz [für BS, SA] AC110—120/200—220/230—240V, 50/60 Hz [für EW]
<b>Leistungsaufnahme:</b>	145W [für US, CS] 180W [außer US, CS]
<b>Abmessungen:</b>	370 (B) x 296 (H) x 264 (T) mm
<b>Gewicht:</b>	7.6 kg

## ● VERSTÄRKER TEIL

<b>Audio ausgang:</b>	10W x 2 (8Ω, Klirrfaktor 5% auf beiden Kanälen bei 1 kHz) 30 Watt/Kanal min.RMS bei 8 Ohm von 100 Hz bis 10 kHz, mit 2% Klirr [für US, CS] 30W x 2 (8 Ohm, klirrgrad 5% beide kanäle angesteuert 1 kHz) [außer US, CS]
<b>Musik-Ausgangsleistung:</b>	60W x 2 (8 Ohm, 1 kHz)
<b>Klangregelung:</b>	±8 dB (bei 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz) [außer BS, SA] ±9 dB (bei 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz) [für BS, SA]

### Eingangsempfindlichkeit und Impedanz:

PHONO 3,5 mV/50 kOhm CD 200mV/30 kOhm
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### Störspannungsabstand (IHF-A Network):

PHONO 68 dB CD 80 dB
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### Ausgangsimpedanz:

Lautsprecher 8—16 Ohm Kopfhörer 8 Ohm
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## ● TUNER-TEIL

<b>Schaltkreissystem:</b>	UKW/AM 2 Wellenbereiche Superhet [außer BS, ES] UKW/MW/LW 3 Wellenbereiche Superhet [für BS, ES]
<b>Abstimmbereich:</b>	UKW 87,5—108 MHz (50 kHz Kanallabstand) [außer US, CS, SA] 87,9—107,9 MHz (100 kHz Kanallabstand) [für US, CS, SA]

AM(MW) 522—1611 kHz (9 kHz Kanallabstand) [außer US, CS, EW] 530—1620 kHz (10 kHz Kanallabstand) [für US, CS] 522—1611/530—1620 kHz (9/10 kHz Kanallabstand) [für EW]
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LW 153—281 kHz (1 kHz Kanallabstand) [für BS, ES]
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30 dB
UKW 1 μV (Storspannungsabstand 26 dB) [außer US, CS] 1 μV (Storspannungsabstand 30 dB) [für US, CS]

AM(MW) 600 μV/m (Storspannungsabstand 20 dB)
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LW 2500 μV/m (Storspannungsabstand 20 dB) [für BS, SA]
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### UKW-Stereotrennung:

### IHF-Empfindlichkeit:

### UKW-Störspannungsverhältnis:

<b>Antenne:</b>	UKW: Externe Antenne AM(MW)/LW: Rahmenantenne Außenantenne
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## ● KASSETTENDECK-TEIL

<b>Band:</b>	Kassettenband
<b>Bandgeschwindigkeit:</b>	4,75 cm/sek
<b>Aufnahmesystem und Vormagnetisierungsfrequenz:</b>	Wechselstrom-Vormagnetisierung 85 kHz
<b>Spursystem:</b>	4-Spur 2-Kanal
<b>Löschsystem:</b>	Wechselstromlöschung
<b>Frequenzgang:</b>	Normal 70—14000 Hz CrO <sub>2</sub> 70—14000 Hz
<b>Störspannungsverhältnis:</b>	Mit Dolby NR 58 dB Ohne Dolby NR 50 dB
<b>Übersprechdämpfung:</b>	60 dB
<b>Löschverhältnis:</b>	65 dB
<b>Motor:</b>	Gleichstrommotor
<b>Gleichlaufschwankungen:</b>	0.25 % (WRMS)

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

# CARACTÉRISTIQUE TECHNIQUES

## ● GÉNÉRAL

<b>Alimentation:</b>	CA120V, 60 Hz [pour US, CS] CA220V, 50 Hz [pour ES, ZS] CA240V, 50 Hz [pour BS, SA] CA110—120/200—220/230—240V, 50/60 Hz [pour EW]
<b>Consommation électrique:</b>	145W [pour US, CS] 180W [sauf US, CS]
<b>Dimensions:</b>	370 (L) x 296 (H) x 264 (P) mm
<b>Poids:</b>	7.6 kg

## ● SECTION AMPLIFICATEUR

<b>Sortie audio:</b>	10W x 2 (8 ohms, D.H.T. 5% les deux canaux entraînes 1 kHz) [pour BS] 30 Watts* par canal, min. efficace, à 8 ohms de 100 Hz à 10 kHz, avec une distorsion harmonique totale inférieure à 2% [poru US, CS] 30W x 2 (8 ohms, D.H.T. 5% les deux canaux entraînes 1 kHz) [sauf US, CS]
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<b>Puissance gesortie musicale:</b>	60W x 2 (8 ohms, 1 kHz)
<b>Contrôle de tonalité:</b>	±8 dB (à 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz) [sauf BS, SA] ±9 dB (à 63 Hz, 250 Hz, 1 kHz, 4 kHz, 16 kHz) [pour BS, SA]

### Sensibilité et impédance d'entrée:

PHONO 3,5 mV/50 kohms CD 200 mV/30 kohms
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### Ruppport signal/bruit: (Réseau IHF-A)

CD 80 dB Ceintenes acoustiques 8—16 ohms Casque d'ecoute 8 ohms
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## ● SECTION TUNER

<b>Système de circuit:</b>	2 gammes, d'ondes MF/AM à superhétérodyne [sauf BS, ES] 3 gammes d'ondes MF/PO/GO à superhétérodyne [pour BS, ES]
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<b>Plage d'accord:</b>	MF 87,5—108 MHz (Réglé sur 50 kHz) [sauf US, CS, SA] 87,9—107,9 MHz (Réglé sur 100 kHz) [pour US, CS, SA] AM(PO) 522—1611 kHz (Réglé sur 9 kHz) [sauf US, CS, EW] 530—1620 kHz (Réglé sur 10 kHz) [pour US, CS] 522—1611/530—1620 kHz (Réglé sur 9/10 kHz) [pour EW] GO 153—281 kHz (Réglé sur 1 kHz) [pour BS, ES]
<b>Séparation stéréo MF:</b>	30 dB
<b>Sensibilité IHF:</b>	MF 1 $\mu$ V (S/B 26 dB) [sauf US, CS] 1 $\mu$ V (S/B 30 dB) [pour US, CS] AM(PO) 600 $\mu$ V/m (S/B 20 dB) GO 2500 $\mu$ V/m (S/B 20 dB) [pour BS, ES]
<b>Rapport signal/bruit MF:</b>	60 dB
<b>Antenne:</b>	MF: Antenne extérieure AM(PO)/GO: Antenne cadre AM Antenne extérieure

## ● SECTION MAGNETOCASSETTE

<b>Bande:</b>	Cassette
<b>Vitesse de défilement:</b>	4,75 cm/s
<b>Système d'enregistrement/ fréquence de polarisation:</b>	Polarisation CA, 85 kHz
<b>Système de piste:</b>	4 pistes 2 canaux
<b>Système d'effacement:</b>	Effacement CA
<b>Réponse en fréquence:</b>	Normal 70—14000 Hz CrO <sub>2</sub> 70—14000 Hz
<b>Rapport signal/bruit:</b>	Dolby NR, MARCHE 58 dB ARRET 50 dB
<b>Transmodulation:</b>	60 dB
<b>Taux d'effacement:</b>	65 dB
<b>Moteur:</b>	Moteur CC
<b>Pleurage et scintillement:</b>	0,25% (watts effic.)

\*Mesures conformes aux règlements commerciaux de la Federal Trade Commission relatifs à la puissance de sortie des amplificateurs.

## DISASSEMBLY

- Cover (Fig. 1)**  
Remove six screws ① and then remove four screws ②. Slide the cover in the direction of arrow A. Caution: Removing the cover by lifting the bottom first may break the front panel tabs. Be sure to lift it straight up first before sliding the cover back.
- Switch P.W.B. (Fig. 2)**  
Remove two screws ③. Remove the power switch.
- Front Panel (Fig. 2, 9)**  
Remove two screws ④, three screws ⑤, one screw ⑥ and seven main P.W.B. connectors a. (Refer to Fig. 9 for connectors a.)
- Volume Control P.W.B. (Fig. 3)**  
Remove one screw ⑦.
- Display P.W.B. (Fig. 3)**  
Remove the volume knob. Then remove fifteen screws ⑧ and two tabs.
- Headphones P.W.B. (Fig. 3)**  
Remove two screws ⑨.
- Power indicator P.W.B. (Fig. 4)**  
After removing the Display P.W.B., remove the two tabs.
- Deck P.W.B. (Fig. 4, 5, 9)**  
Remove two screws ⑩, two screws ⑪, five connectors b and two connectors c. Open in the direction of arrow B. Next, remove the REC level knob, two screws ⑫ and one tab. (Refer to Fig. 9 for connectors c.)
- Cassette Door (Fig. 6)**  
Remove two screws ⑬ and remove the damper. Next, press the cassette door OPEN button to open the cassette door. Then press the two arms in the direction of arrow C and pull out. (Do the same for Tape 2.)
- Cassette Chassis (Fig. 7)**  
After removing the cassette doors, remove six screws ⑭ and remove the counter belt.
- Power Supply P.W.B. (Fig. 8)**  
Remove four screws ⑮.
- Jack P.W.B. (Fig. 9)**  
Remove one screw ⑯.
- Audio P.W.B. (Fig. 9)**  
Remove six screws ⑰, one screw ⑱, two screws ⑲ and one connector d.

**DEMONTAGE****1. Abdeckung (Abb. 1)**

Die sechs Schrauben ① und dann die vier Schrauben ② herausdrehen. Nun die Abdeckung in Pfeilrichtung ④ schieben.

Vorsicht: Wird beim Entfernen der Abdeckung zuerst das Unterteil angehoben können die Frontplattenklauen brechen. Daher die Abdeckung zuerst anheben und dann nach hinten schieben.

**2. Schalter-Leiterplatte (Abb. 2)**

Die beiden Schrauben ③ herausdrehen und die Netzta-  
ste abnehmen.

**3. Frontplatte (Abb. 2, 9)**

Anschließend die beiden Schrauben ④, die drei Schrauben ⑤ und Schraube ⑥ herausdrehen und die sieben Steckverbinder ① der Haupt-Leiterplatte entfernen. (Steckverbinder ① siehe Abb. 9.)

**4. Lautstärkeregler-Leiterplatte (Abb. 3)**

Die eine Schraube ⑦.

**5. Display-Leiterplatte (Abb. 3)**

Den Drehknopf des Lautstärkereglers abziehen und die fünfzehn Schrauben ⑧ und die beiden Klauen entfernen.

**6. Kopfförer-Leiterplatte (Abb. 3)**

Die beiden Schrauben ⑨ herausdrehen.

**7. Spannungsanzeige-Platine (Abb. 4)**

Nach Ausbau der Anzeige-Platine die beiden Klauen entfernen.

**8. Deck-Leiterplatte (Abb. 4, 5, 9)**

Die beiden Schrauben ⑩ und ⑪ herausdrehen und die fünf Steckverbinder ② sowie die beiden Steckverbinder ③ abziehen. In Pfeilrichtung ④ öffnen. Danach den Drehknopf für Aufnahmepegel (REC) sowie die beiden Schrauben ⑫ und eine Klaue entfernen. (Steckverbinder ③ siehe Abb. 9.)

**9. Cassettenfachdeckel (Abb. 6)**

Die beiden Schrauben ⑬ herausdrehen und den Dämpfer abnehmen. Danach durch Drücken der Offnen-Taste (OPEN) den Cassettenfachdeckel öffnen. Nun die beiden Arme in Pfeilrichtung ④ drücken und herausziehen. (Bei TAPE 2 ebenso vorgehen.)

**10. Cassettenchassis (Abb. 7)**

Nach Ausbau des Cassettenfachdeckels die sechs Schrauben ⑭ herausdrehen und den Zählwerkriemen abnehmen.

**11. Netzteil-Leiterplatte (Abb. 8)**

Die vier Schrauben ⑮ herausdrehen.

**12. Buchse-Leiterplatte (Abb. 9)**

Die eine Schraube ⑯.

**13. Audio-Leiterplatte (Abb. 9)**

Die sechs Schrauben ⑰, Schraube ⑱ und beiden Schrauben ⑲ herausdrehen und Steckverbinder ② abziehen.

**DÉMONTAGE****1. Couvercle (Fig. 1)**

Enlever six vis ①, puis enlever quatre vis ②. Faire coulisser le couvercle dans la direction de la flèche ④. Précaution: Le fait de dégager le couvercle en soulevant le bas en premier peut provoquer une rupture des attaches de panneau avant. Veiller à le soulever tout droit avant de faire coulisser le dos du couvercle.

**2. Plaguette de commutateur (Fig. 2)**

Enlever deux vis ③. Enlever l'interrupteur d'alimentation.

**3. Panneau avant (Fig. 2, 9)**

Puis enlever deux vis ④, trois vis ⑤, une vis ⑥ et sept connecteurs de plaguette principale ①. (Se référer à la Fig. 9 pour les connecteurs ①.)

**4. Plaguette commande de volume (Fig. 3)**

Enlever une vis ⑦.

**5. Plaguette d'affichage (Fig. 3)**

Enlever le bouton de volume. Puis enlever quinze vis ⑧ et deux attaches.

**6. Plaguette de casque (Fig. 3)**

Enlever deux vis ⑨.

**7. Plaguette de témoin de mise sous tension (Fig. 4)**

Après avoir enlevé la plaguette d'affichage, enlever les deux attaches.

**8. Plaguette platine (Fig. 4, 5 & 9)**

Enlever deux vis ⑩, deux vis ⑪, cinq connecteurs ② et deux connecteurs ③. Ouvrir dans la direction de la flèche ④. Puis, enlever le bouton de niveau d'enregistrement (REC), deux vis ⑫ et une attache. (Se référer à la Fig. 9 pour les connecteurs ③.)

**9. Porte du logement cassette (Fig. 6)**

Enlever deux vis ⑬ et enlever le dispositif d'amortissement. Puis, appuyer sur le bouton d'ouverture (OPEN) de la platine afin d'ouvrir la porte du logement-cassette. Puis appuyer sur les deux bras dans la direction de la flèche ④ et tirer.

(Suivre la même procédure pour la Platine 2.)

**10. Châssis de cassette (Fig. 7)**

Après avoir enlevé la porte du logement cassette, enlever six vis ⑭ et enlever la courroie du compteur.

**11. Plaguette d'alimentation (Fig. 8)**

Enlever quatre vis ⑮

**12. Plaguette prise (Fig. 9)**

Enlever une vis ⑯.

**13. Plaguette audio (Fig. 9)**

Enlever six vis ⑰, une vis ⑱, deux vis ⑲ et un connecteur ②.

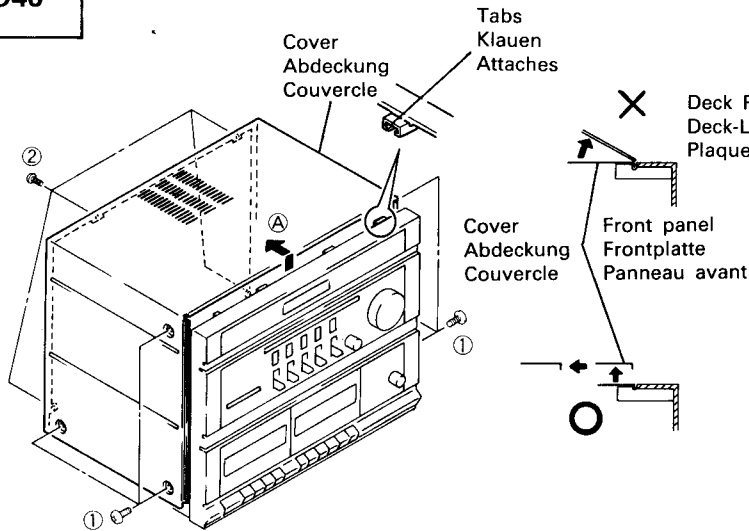


Fig. 1 Abb. 1

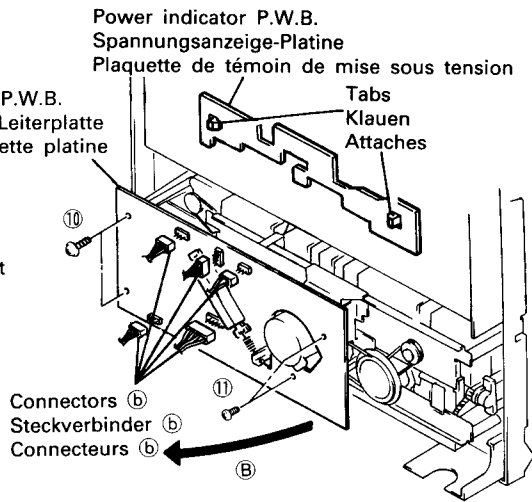


Fig. 4 Abb. 4

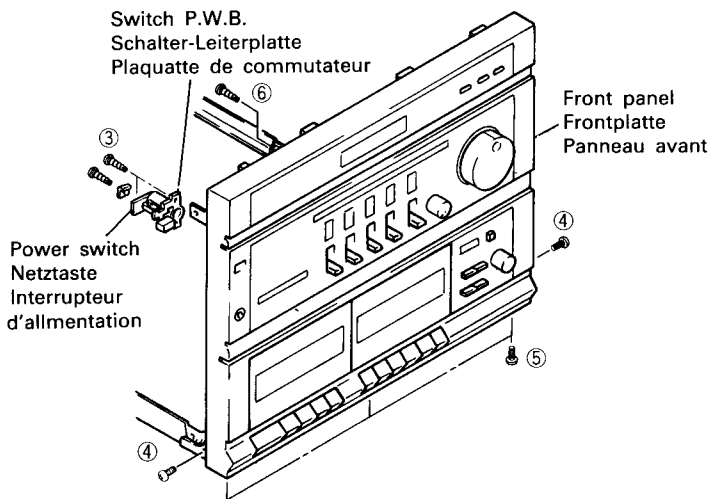


Fig. 2 Abb. 2

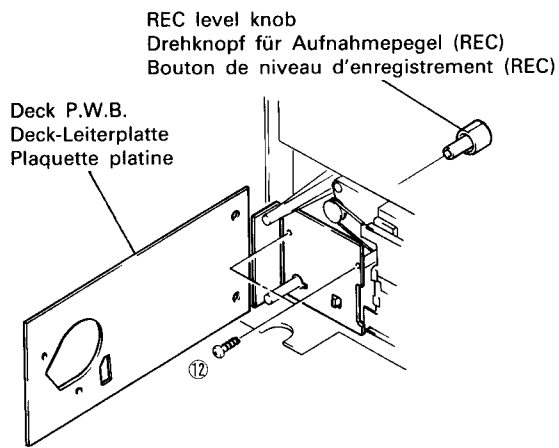


Fig. 5 Abb. 5

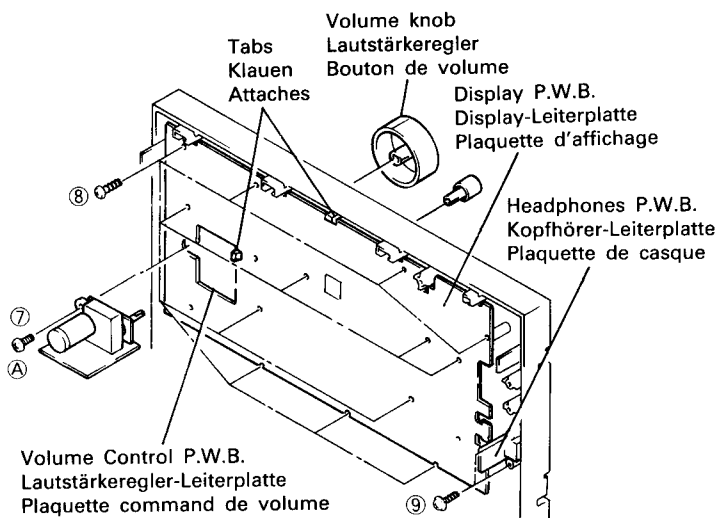


Fig. 3 Abb. 3

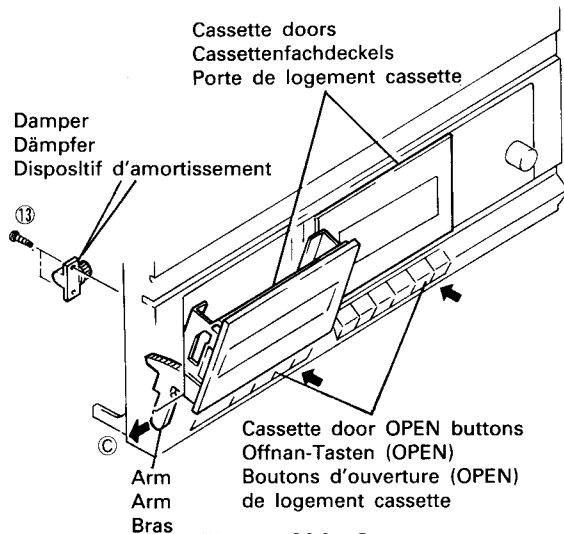


Fig. 6 Abb. 6

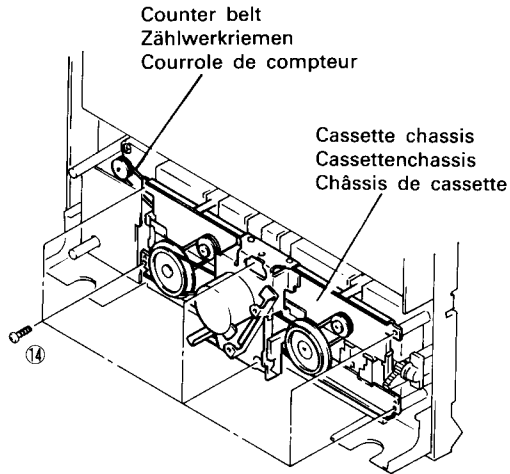


Fig. 7 Abb. 7

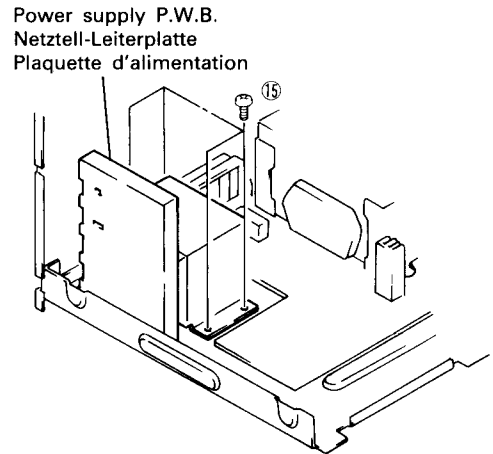


Fig. 8 Abb. 8

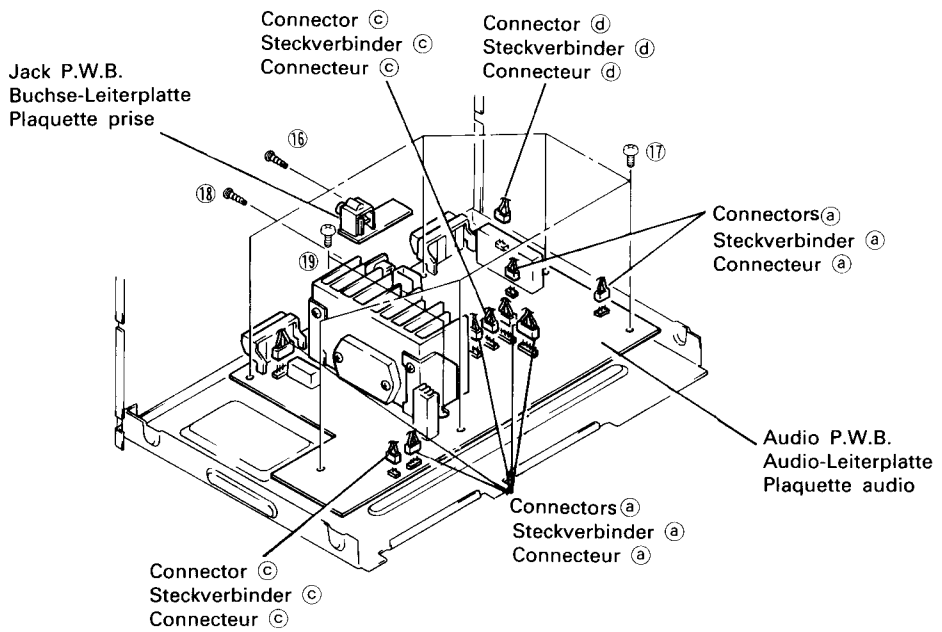


Fig. 9 Abb. 9

# ADJUSTMENTS

## 1. RADIO SECTION

### ● Adjustment points

## AUDIO P.W.B.

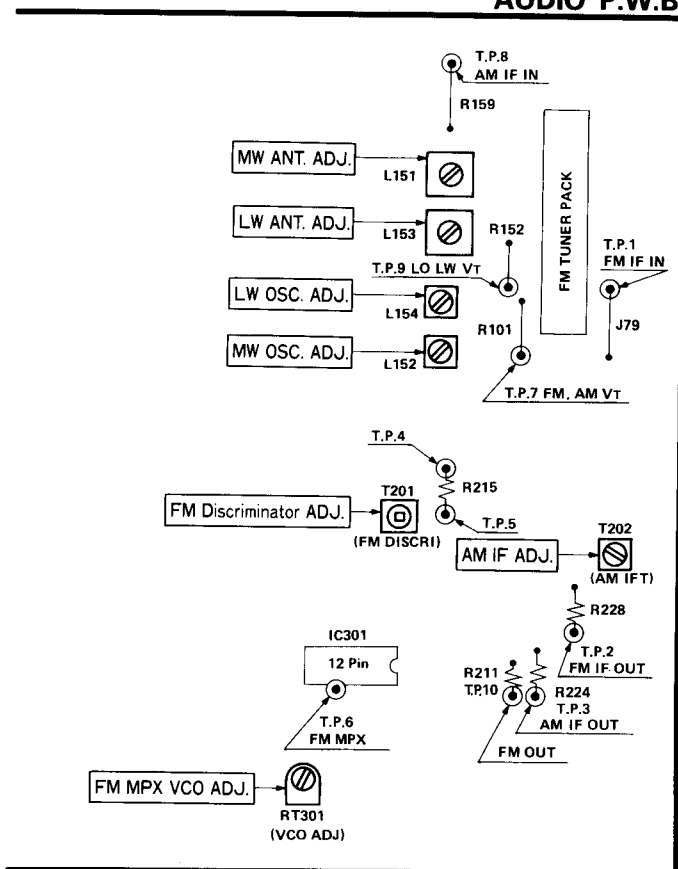


Fig. 10

### AM Section

Step	Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading
		Measuring Instrument	Input Terminal	Output Terminal				
1	(1) (2) AM IF	Genescope (455 kHz)	TP. 8	TP. 3	450 kHz	Highest	T202	Note 1
2	(1) MW OSC (Covering)	• AM signal generator (400 Hz, 30% mod.)	Loop antenna Note 2	TP. 7	522 kHz (except US, CS) 530 kHz (for US, CS)	Lowest	L152	1.2V (except US, CS) 1.25 V (for US, CS)
3	(1) MW ANT (Tracking)	• VTVM • Oscilloscope		SP. OUT	600 kHz	600 kHz	L151	Max Note 2
4	(1) LW OSC (Covering)	• AM signal generator (400 Hz, 30% mod.)	Loop antenna Note 2	TP. 9	153 kHz	Lowest	L154	1.2V
5	(1) LW ANT (Tracking)	• VTVM • Oscilloscope		SP OUT	164 kHz	164 kHz	L153	Note 2

### FM Section

Step	Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading
		Measuring Instrument	Input Terminal	Output Terminal				
1	(1) Discriminator	• DC balance meter (AUTO state)	FM ANT 400 Hz 22.5 kHz DEV. 60 dB	TP. 4(+) TP.5(-)	98 MHz	98 MHz	T201	0±10 mV
2	(1) MPX VCO (19 kHz)	Frequency counter	FM antenna terminal 75Ω 60 dB Non modulation	TP. 6 (Connect via 100 kΩ resistor)	98 MHz	98 MHz	RT301	19 kHz ± 50 Hz



**Note 1:** If the signal from the sweep generator is weak, make sure that the waveform becomes maximum and symmetrical as shown in Fig. 11.

Raise the level of the sweep generator, make sure that range at point A becomes as flat as possible as shown in Fig. 12.

**Note 2:** Initially set the input level to 74 dB/m, and lower the level to minimum as required (approx. 60 dB/m) for progress of the adjustment. And adjust repeatedly so that the output is maximum at the specified frequency. The trimmer condenser has been eliminated, so upper limit frequency tracking adjustment is unnecessary.

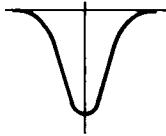


Fig. 11

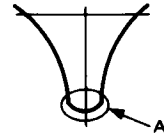


Fig. 12

**2. TAPE DECK SECTION**

● Adjustment points

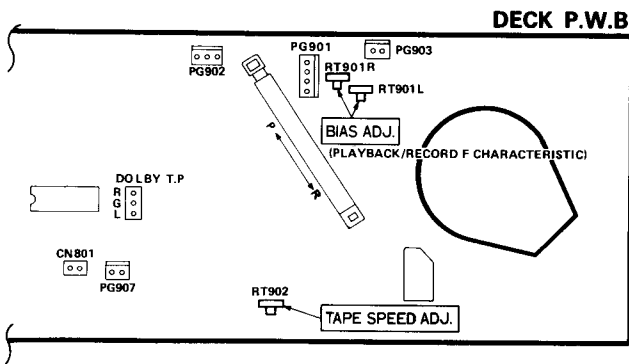


Fig. 13

Symbol No.	Switches and Controls	Position
S903	DOLBY NR	OFF
S902	TAPE SELECT SW	NOR
RV901	REC VOL	MAX
S991	RIF SW	A

Perform the following adjustments in the sequence stated after cleaning the head, pressure roller, and capstan with a head cleaning stick moistened in alcohol.

**(1) Head azimuth adjustment**

**Setting:** Playback mode.

**Connection:**

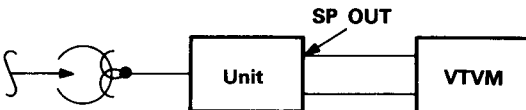


Fig. 14

**Adjustment:**

Playback test tape (10 kHz) and adjust the azimuth adjustment screw for maximum output however, if the peak level differs between the left and right channels, set it to the left-channel peak level. At this time, the difference between both channel peak levels should be within 2 dB. After adjustment, lock the screw.

**(2) Frequency characteristic adjustment (Bias adj.)**

**Setting:** Recording/Playback mode

**Connection:**

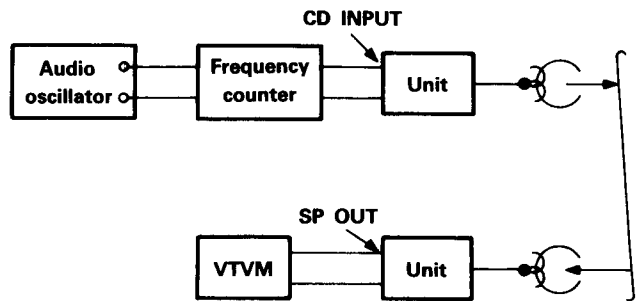


Fig. 15

**Adjustment:** Set the RT901LR to the center position beforehand.

① Record 400 Hz and 10 kHz signals at the level of -25 dB. Set the record mode, and if there is a difference of more than -25 dB ± 1.5 dB in output, adjust RT901L, R. Measure the record/playback frequency characteristic of the test tape at the level of -25 dB. Then make sure that the measured value is within the range of the specification.

② Apply 400 Hz signal and adjust the audio oscillator until the meter reads -10 dB, and then record on tape. Playback the recorded tape and check that the output is within -10 dB ± 2 dB.

**Note:** For CHROME and METAL tapes, make checks only.

**(3) Tape speed adjustment**

Item	Adjustment point	Procedure
Tape speed adjustment	RT902	Playback test tape (3000 Hz) in TAPE 2 and adjust. (Adjust NOR) NOR → 3000 ± 30 Hz

Speed difference between TAPE 1 and TAPE 2 should be +70 to -40 Hz.

## INSPECTION OF MECHANISM

Item	Checking item		Reference value	Remarks
1	Pressure of pressure roller		300—500 g	Note
2	Take-up torque		30—60g·m	
3	Fast forward/Rewind torque		50g·cm or more	
4	Auto-Stop sensor operation force		40—75 g	
5	Brake torque		15 g·cm or more	Measured in stop mode
6	Back tension torque	Take-up	1—6 g·cm	
		Supply	1—4 g·cm	
7	Flywheel thrust gap		0.05—0.5 mm	
8	Button operation force	Play button	1.1 kg or less	
		FF button	0.8 kg or less	
		Rewind button	1.1 kg or less	
		Eject button	0.6 kg or less	
		Record button	1.0 kg or less	
		Pause button	1.0 kg or less	

**Note:**

Set this unit in the playback mode and press the pressure roller in the direction of the arrow using a fan type tension gauge, and measure the pressure when the pressure roller is released from the capstan.

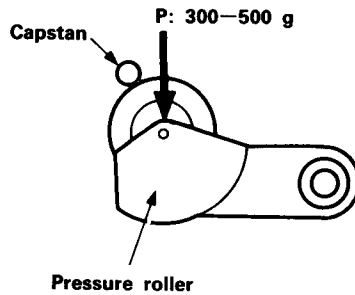


Fig. 16

# EINSTELLUNGEN

## 1. RADIOTEIL

### ● Einstellpunkte

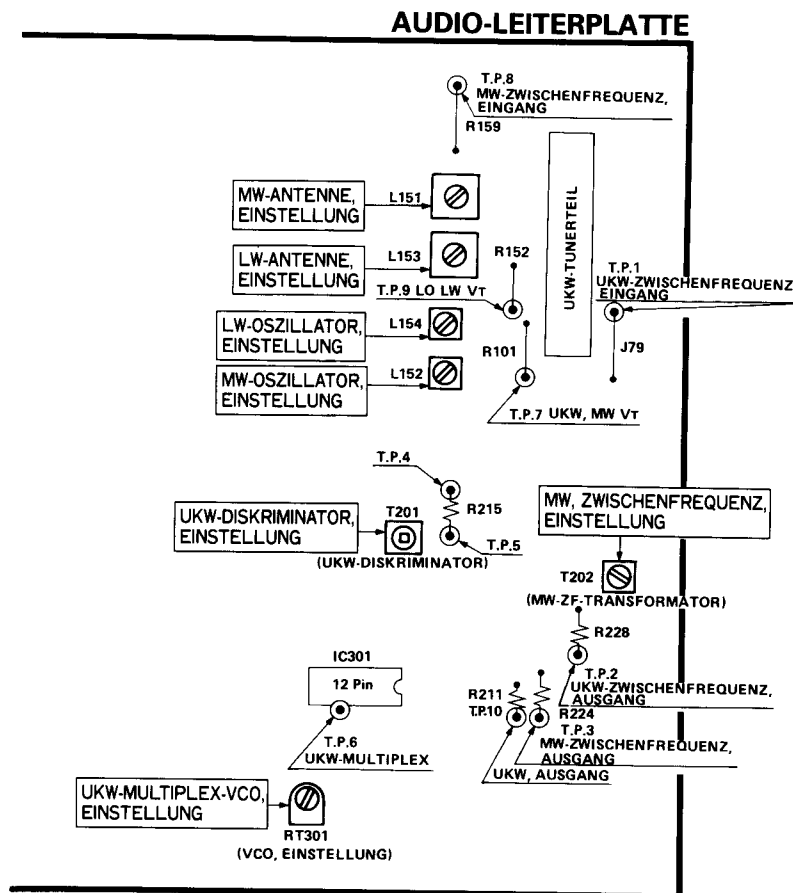


Abb. 10

### MW-Teil

Schritt	Einstellteil	Meßgerät und Meßanschlüsse			Frequenz von Genescope oder Signalgenerator	Skalenanzeige	Einstellung an	Meßwert
		Meßgerät	Eingangsanschluß	Ausgangsanschluß				
1	(1) MW-Zwischenfrequenz (2)	Genescope (455 kHz)	Meßpunkt TP. 8	Meßpunkt TP. 3	450 kHz	Voll ausschlag	T202	Hinweis 1
2	(1) MW-Oszillator (Abdeckung)	• MW-Signalgenerator (400 Hz, Modulationsgrad 30%)	Schleifenantenne, Hinweis 2	Meßpunkt TP. 7	522 kHz (außer US und CS) 530 kHz (für US und CS)	Kleinstmöglicher Zeigeranschlag	L152	1,2 V (außer US and CS) 1,25 V (für US and CS)
3	(1) MW-Antenne (Nachlauf)	• Röhrenvoltmeter • Oszilloskop		SP., Ausgang		600 kHz	600 kHz	L151
4	(1) LW-Oszillator (Abdeckung)	• MW-Signalgenerator (400 Hz, Modulationsgrad 30%)	Schleifenantenne, Hinweis 2	Meßpunkt TP. 9	153 kHz	Kleinstmöglicher Zeigeranschlag	L154	1.2 V
5	(1) LW-Antenne (Nachlauf)	• Röhrenvoltmeter • Oszilloskop		SP., Ausgang		164 kHz	164 kHz	L153

UKW-Teil

Schritt	Einstellteil	Meßgerät und Meßanschlüsse			Frequenz von Genescope oder Signalgenerator	Skalenanzeige	Einstellung an	Meßwert
		Meßgerät	Eingangsanschluß	Ausgangsanschluß				
1	(1) Diskriminator	• Gleichspannungsausgleichsindikator- (in AUTO Zustand)	UKW-Antenne, 400 Hz, Hub 22,5 kHz, 60 dB	Meßpunkt TP. 4(+) Meßpunkt TP. 5(-)	98 MHz	98 MHz	T201	$0 \pm 10$ mV
2	(1) Multiplex-VCO (19 kHz)	Frequenzzähler	UKW-Antennenanschluß, 75 Ohm, 60 dB, unmoduliert	Meßpunkt TP. 6 (über einen widerstand von 100 k $\Omega$ )	98 MHz	98 MHz	RT301	19 kHz $\pm$ 50 Hz

**Hinweis 1:** Bei schwachem Ausgangssignal des Wobbelgenerators sicherstellen, daß der Sinalpegel Höchstwert annimmt und der Signalverlauf symmetrisch ist (siehe Abb. 11). Den Pegel des Wobbelgenerators anheben und sicherstellen, daß der Frequenzgang an Punkt (A) möglichst linear verläuft (siehe Abb. 12).

**Hinweis 2:** Den Eingangspegel zunächst auf 74 dB/m einstellen und dann zur Fortsetzung der Abgleicharbeiten ggf. auf Mindestwert (ca. 60 dB/m) einstellen. Immer so einstellen, daß bei der angegebenen Frequenz ein maximaler Ausgangspegel anliegt. Da bei diesem Gerät ein Trimmkondensator fehlt, ist keine NachlaufEinstellung der oberen Grenzfrequenz erforderlich.

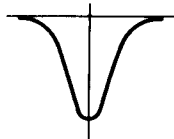


Abb. 11

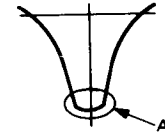


Abb. 12

2. TAPEDECK

• Einstellpunkte

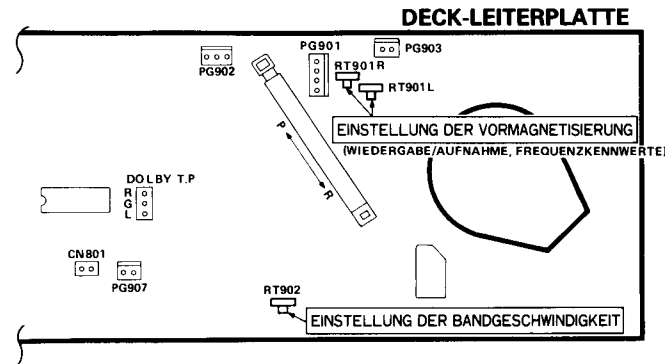


Abb. 13

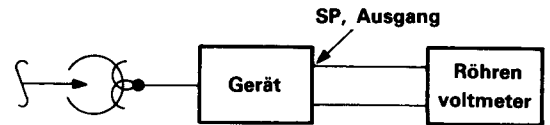
Bezugsbezeichnung	Bedien- und Einstellelemente für	Stellung
S903	Rauschunterdrückungssystem DOLBY NR	OFF (Aus)
S902	Bandsortenwahl	NOR (Normal)
RV901	Aufnahmepegel	MAX (Höchstwert)
S991	RIF	A

Tonkopf, Andruckrolle und Tonwelle mit einem mit Alkoholhohol befeuchteten Wattestäbchen reinigen. Anschließend die folgenden Einstellarbeiten in der angegebenen Reihenfolge ausführen.

(1) Einstellung des Kopfazimuts

Betriebsart: Wiedergabe

Anschlüsse:



Einstellung:

Das Testband (10 kHz) wiedergeben und mit der Azimut-Einstellschraube auf maximalen Ausgangspegel einstellen. Bei unterschiedlichen Spitzenpegeln auf linkem und rechtem Kanal die Einstellung für den linken Kanal vornehmen. Der Unterschied zwischen den beiden Spitzenpegel darf höchstens 2 dB betragen.

Nach Abschluß der Einstellung die Schraube in ihrer Stellung fixieren.

(2) Einstellung der Frequenzkennwerte (Einstellung der vormagnetisierung)

Betriebsart: Wiedergabe

Anschlüsse:

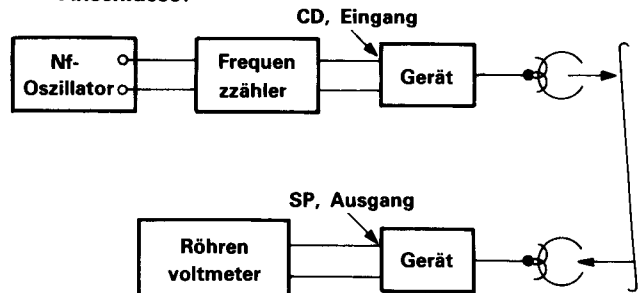


Abb. 15

**Einstellung:** Zunächst RT901L, R in Mittelstellung bringen.

① 400-Hz- und 10-kHz-Signale mit einem Pegel von  $-25$  dB aufzeichnen. Das Gerät auf Aufnahme stellen und bei einer Abweichung von mehr als  $-25$  dB  $\pm$  1,5 dB am Ausgang RT901L, R entsprechend einstellen.

Die Aufnahme/Wiedergabe-Frequenzkennwerte des Testbands bei einem Pegel von  $-25$  dB messen und sicherstellen, daß der Meßwert innerhalb des Toleranzbereichs liegt.

② Ein 300-Hz-Signal zuführen und den Nf-Oszillator so einstellen, daß das Meßgerät  $-10$  dB anzeigt. Anschließend das Signal aufzeichnen. Die Bandaufzeichnung wiedergeben und sicherstellen, daß der Ausgangspegel einen Wert von  $-10$  dB  $\pm$  2 dB hat.

**Hinweis:** Die Prüfungen gelten ausschließlich für Ferrochrom- und Reineisenband.

### (3) Einstellung der Bandgeschwindigkeit

Einstellgegenstand	Einstellpunkt	Verfahren
Einstellung der Bandgeschwindigkeit	RT902	Das Testband (300 Hz) in Laufwerk TAPE 2 wiedergeben und entsprechend einstellen. (Einstellung auf Normalwert) Normalwert $\rightarrow$ $3000 \pm 30$ Hz

Der Geschwindigkeitsunterschied zwischen TAPE 1 und TAPE 2 muß im Bereich von  $+70$  bis  $-40$  Hz liegen.

## PRÜFUNG DES LAUFWERKS

Laufende Nr.	Prüfgegenstand	Bezugswert	Anmerkungen
1	Druck der Andruckrolle	300–500 g	Hinweis
2	Aufwickelmoment	30–60 g·cm	
3	Schnellvorlauf-/Rückspulmoment	50 g·cm oder darüber	
4	Autostopp-Sensor, Betätigungskraft	40–75 g	
5	Bremsmoment	15 g·cm oder darüber	Messung bei Stoppbetrieb
6	Bandspannungsmoment	Aufwickelseite	1–6 g·cm
		Abwickelseite	1–4 g·cm
7	Axialspiel des Schwungrads	0,05–0,5 mm	
8	Betätigungskraft der Tasten	Wiedergabetaste	1,1 kg oder darunter
		Schnellvorlauftaste	0,8 kg oder darunter
		Rücklauftaste	1,1 kg oder darunter
		Auswurfaste	0,6 kg oder darunter
		Aufnahmetaste	1,0 kg oder darunter
		Pausetaste	1,0 kg oder darunter

#### Hinweis:

Das Gerät auf Wiedergabe stellen und die Andruckrolle mit einer Bandspannungslehre (Fächertyp) in Pfeilrichtung drücken; den Druck messen, sobald sich die Andruckrolle von der Tonwelle trennt.

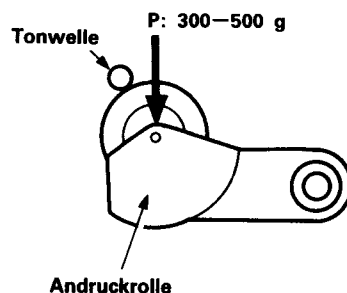


Abb. 16

# RÉGLAGE

## 1. SECTION RADIO

● Points de réglage

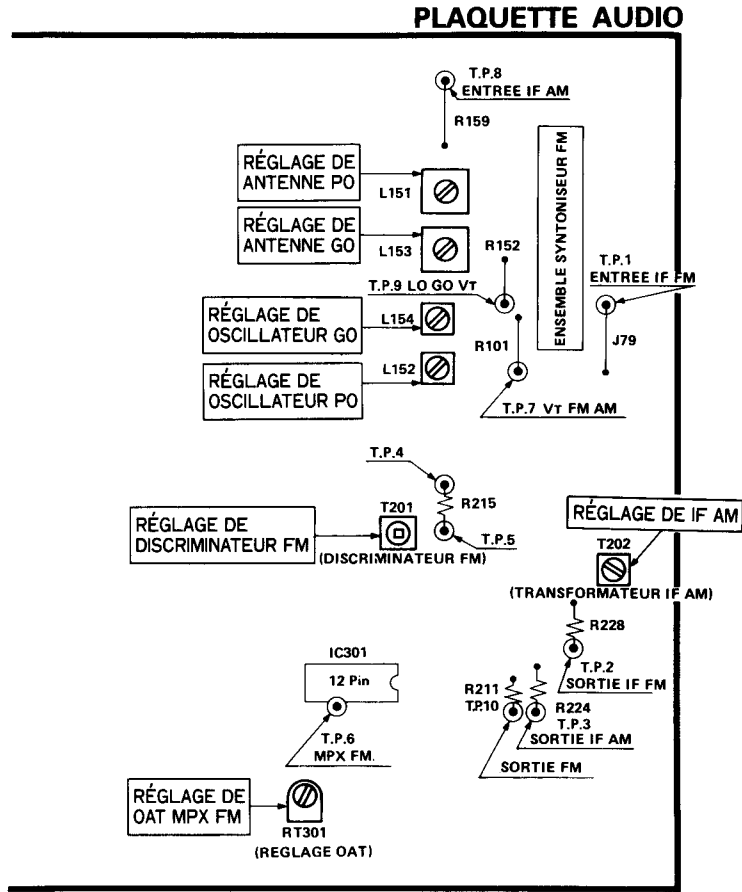


Fig. 10

### Section MA

Etape	Poste de réglage	Instrument de mesure et connexion			Fréquence du généscope ou du générateur de signaux	Position de l'indicateur du cadran	Réglez	Lecture
		Instrument de mesure	Borne d'entrée	Borne de sortie				
1	(1) AM IF (moyenne fréquence MA)	Génescope (455 kHz)	TP. 8	TP. 3	450 kHz	Le plus haut possible	T202	Remarque 1
	(2)							
2	MW OSC (oscillateur PO) (guipage)	<ul style="list-style-type: none"> <li>Générateur de signaux MA (400 Hz, 30% de mod.)</li> <li>VTVM (voltmètre électronique)</li> <li>Oscilloscope</li> </ul>	Antenna à boucle Remarque 2	TP. 7	522 kHz (sauf US, CS) 530 kHz (pour US, CS)	Le plus bas possible	L152	1.2 V (sauf US, CS) 1.25 V (pour US, CS)
3	MW ANT (antenne PO) (alignement)			SP. OUT (hors circuit)	600 kHz	600 kHz	L151	Max Remarque 2
4	LW OSC (oscillateur GO) (guipage)	<ul style="list-style-type: none"> <li>Générateur de signaux MA (400 Hz, 30% de mod.)</li> <li>VTVM (voltmètre électronique)</li> <li>Oscilloscope</li> </ul>	Antenna à boucle Remarque 2	TP. 9	153 kHz	Le plus bas possible	L154	1.2 V
5	LW ANT (antenne GO) (alignement)			SP. OUT (hors circuit)	164 kHz	164 kHz	L153	Max Remarque 2

Section MF

Etape	Poste de réglage	Instrument de mesure et connexion			Fréquence du généscope ou du générateur de signaux	Position de l'indicateur du cadran	Réglez	Lecture
		Instrument de mesure	Borne d'entrée	Borne de sortie				
1	(1) Discriminateur	• Indicateur de zéro CC (état AUTO)	FM ANT (antenne MF) 400 Hz 22,5 kHz dév 60 dB	TP. 4 (+) TP. 5 (-)	98 MHz	98 MHz	T201	$0 \pm 10$ mV
2	(1) MPX VCO (oscillateur à fréquence réglée par variation de tension MPX) (19 kHz)	Compteur de fréquences	Borne d'antenne MF 22,5 kHz dév. 60 dB non-modulation	TP. 6 (Connectez par enregistreur 100 kohms)	98 MHz	98 MHz	RT301	$19 \text{ kHz} \pm 50 \text{ Hz}$

**Remarque 1:** Si le signal provenant du générateur de balayage est faible, assurez-vous que la forme d'onde devienne maximale et symétrique comme indiqué en fig. 11.

Augmentez le niveau du générateur de balayage et vérifiez que le parcours en point A est aussi plat que possible comme indiqué en fig. 12.

**Remarque 2:** Placez d'abord le niveau d'entrée à 74 dB/m, et abaissez le niveau au minimum comme il vous l'est demandé (environ 60 dB/m) pour continuer le réglage. Réglez à plusieurs reprises jusqu'à ce que la sortie soit maximale à la fréquence spécifiée.

Comme le condensateur variable a été éliminé, il n'est pas nécessaire de procéder au réglage de poursuite de la fréquence de limite supérieure.

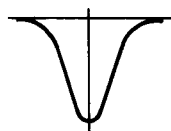


Fig. 11

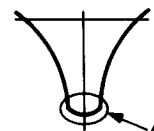


Fig. 12

2. SECTION MAGNETOCASSETTE

● Points de réglage

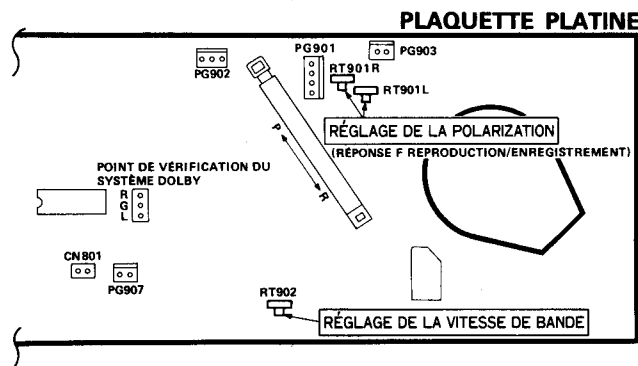
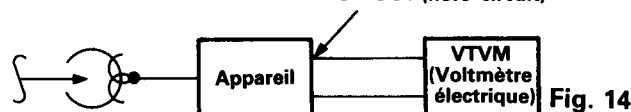


Fig. 13

(1) Réglage de l'azimuth de tête

Mise au point: mode de reproduction

Connexion: SP OUT (hors circuit)



Réglage:

Reproduisez la bande d'essai (10 kHz) et réglez la vis de réglage azimutal pour obtenir une sortie maximale, néanmoins, si le niveau de crête diffère entre le canal gauche et le canal droit, réglez-le au niveau de crête du canal gauche. A ce moment, la différence entre les deux niveaux de crête des canaux devrait être d'un ordre de 2 dB.

Après réglage, vissez la vis.

(2) Réglage caractéristique des fréquences (réglage de la polarisation)

Mise au point: mode d'enregistrement/reproduction

Connexion: CD INPUT (entrée CD)

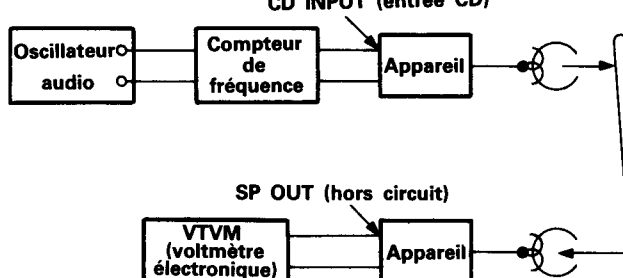


Fig. 15

Neméro de symbole	Commutateurs et commandes	Position
S903	DOLBY NR	OFF (hors circuit)
S902	TAPE SELECT SW (sélecteur de bande)	NOR
RV901	REC VOL (volume de l'enregistrement)	MAX
S991	RIF SW (Commutateur RIF)	A

Effectuez les réglages suivants dans l'ordre spécifié après nettoyage de la tête, du galet-presseur et du cabestan à l'aide d'un coton-tige imbibé d'alcool.

**Réglage:** Au préalable, positionner RT901LR au centre.

- ① Enregistrez des signaux de 400 Hz et 10 kHz à un niveau de  $-25$  dB. Placez en mode d'enregistrement, et si vous obtenez une différence de plus de  $-25$  dB  $\pm$  1,5 dB à la sortie, réglez RT901L, R.

Mesurez la fréquence d'enregistrement/reproduction caractéristique de la bande d'essai au niveau de  $-25$  dB. Puis vérifiez que la valeur mesurée est comprise dans la gamme de spécification.

- ② Appliquer un signal de 400 Hz et régler l'oscillateur audio jusqu'à ce que le compteur indique  $-10$  dB, puis enregistrer sur la band. Reproduire la bande enregistrée et vérifier que le niveau de sortie soit de  $-10$  dB  $\pm$  2 dB.

**Remarque:** Pour les bandes au chrome et au métal, ne faire que des vérifications.

### (3) Réglage de la vitesse de bande

Point	Réglez	Mise au point
Réglage de la vitesse bande	RT902	Reproduisez la bande d'essai (3000 Hz) sur TAPE 2 pour effectuer le réglage (réglez en position NOR). NOR (vitesse normale) $\rightarrow$ 3000 $\pm$ 30 Hz

Le différence de vitesse entre TAPE 1 et TAPE 2 doit être dans  $+70$  à  $-40$  Hz.

## INSPECTION DU MECANISME

Point	Poste de vérification		Valeur de référence	Remarques
1	Pression du galet-presseur		300–500 g	Remarque
2	Couple d'enroulage		30–60 g-cm	
3	Couple d'avancée rapide/rembobinage rapide		50 g-cm ou plus	
4	Effort à l'utilisation du détecteur pour arrêt automatique		40–75 g	
5	Couple de freinage		15 g-cm ou plus	Mesuré en mode d'arrêt
6	Couple de tension de recul	Enroulage	1–6 g-cm	
		Alimentation	1–4 g-cm	
7	Intervalle de poussée du volant		0,05–0,5 mm	
8	Effort à l'utilisation des touches	Touche de reproduction	1,1 kg ou moins	
		Touche d'avancée rapide	0,8 kg ou moins	
		Touche de rembobinage	1,1 kg ou moins	
		Touche d'éjection	0,6 kg ou moins	
		Touche d'enregistrement	1,0 kg ou moins	
		Touche de pause	1,0 kg ou moins	

**Remarque:**

Placez cet appareil en mode de reproduction, appuyez sur le galet-presseur dans le sens de la flèche à l'aide d'un calibre de tension type éventail, et mesurez la pression lorsque le galet-presseur est libéré du cabestan.

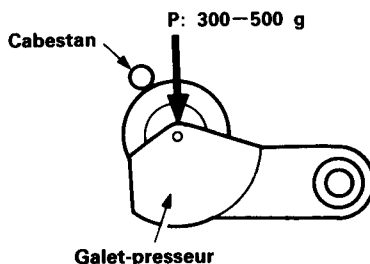


Fig. 16



## LUBRICATION

Apply one or two drops of pan motor oil or sonic slider oil to rotating parts. Coat sliding parts with Molycoat (EL-10M). Lubricate once a year or every 1,000 hours of operation. Do not let oil contact belts or idlers.

Rotating parts	Metal to metal	Pan motor oil (10W-40)
	Plastics to metal	Sonic slider oil (# 1600)
Sliding parts	(Note) Plastics to plastics	Molycoat (EL-10M)
	Plastics to metal	
Spring vibration prevention		Floyl (GB-TS-1)

### NOTE:

When front frame and slide knob are replaced, coat both contacting parts lightly with white grease.

## SCHMIERUNG

An die drehenden Teilen ein oder zwei Tropfen Motoröl oder Schmieröl (Sonic Slider) geben, und die Gleitteile mit Molycoat (EL-10M) schmieren.

Einmal im Jahr oder alle 1,000 Betriebsstunden schmieren. Darauf achten, da das Öl nicht auf den Riemen oder die Zwischenscheiben gelangt.

Drehende Teile	Zwischen Metallteilen	Motoröl (10W-40)
	Zwischen Plastik und Metal	Schmieröl (Sonic Slider # 1600)
Gleitteile	(Hinweis) Zwischen Plastikteilen	Molycoat (EL-10M)
	Zwischen Plastik und Metall	
Verhinderung von Federvibrationen		Floyl (GB-TS-1)

### Hinweis:

Wenn der Frontrahmen und Schieberegler ersetzt werden, beide Kontaktflächen leicht mit weißem Schmierfett überziehen.

## LUBRIFICATION

Appliquer une ou deux gouttes d'huile moteur ou d'huile Sonic pour curseur, sur les membres rotatifs. De la graisse Molycoat (EL-10M) est appliquée sur les membres coulissants.

Lubrifier une fois par an ou toutes les 1,000 heures de fonctionnement.

Veiller à ne pas appliquer d'huile sur les courroies ou les galets.

Membres rotatifs	Entre les parties métalliques	Huile moteur (10W-40)
	Entre le moulage et les parties métalliques	Huile Sonic pour curseur (# 1600)
Membres coulissants	(Remarque) Entre moulures	Molycoat (EL-10M)
	Entre moulures et pièces métalliques	
Prévention de vibration de ressort		Floyl (GB-TS-1)

### Remarque:

Lorsque le châssis avant et le boulon curseur doivent être remplacés, appliquer une couche légère de graisse blanche sur les parties de contact.

## MAINTENANCE

### ■ Clean cabinet and panels when dirty

Clean off dirt on the surfaces with a dry cloth. Never use thinners, benzene or alcohol since these will damage the surface finish.

## ENTRETIEN

### ■ Nettoyage du coffret et des panneaux lorsqu'ils sont sales

Enlever la poussière des surfaces de l'appareil avec un chiffon sec. Ne jamais utiliser de solvants, de benzine ou d'alcool car ils abîmeraient le fini des surfaces.

## PFLEGE DES GERÄTS

### ■ Reinigung des Gehäuses und der Oberflächen

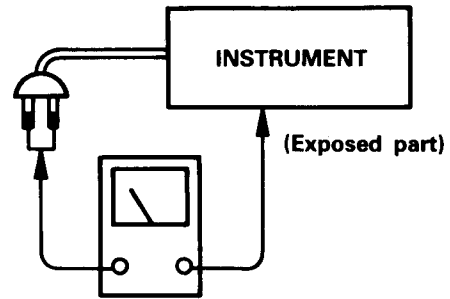
Die Geräteoberflächen mit einem trockenen Tuch reinigen. Keinesfalls Verdünner, Waschbenzin oder Alkohol verwenden, da durch diese scharfen Mittel die Oberflächenbeschichtung angegriffen wird.

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

● **Checking method**

Operate 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 Knob, Cover, etc. where the customer is easy to touch.) and check that the resistance value is 500 kohms or more.



Insulation tester (DC 500V)

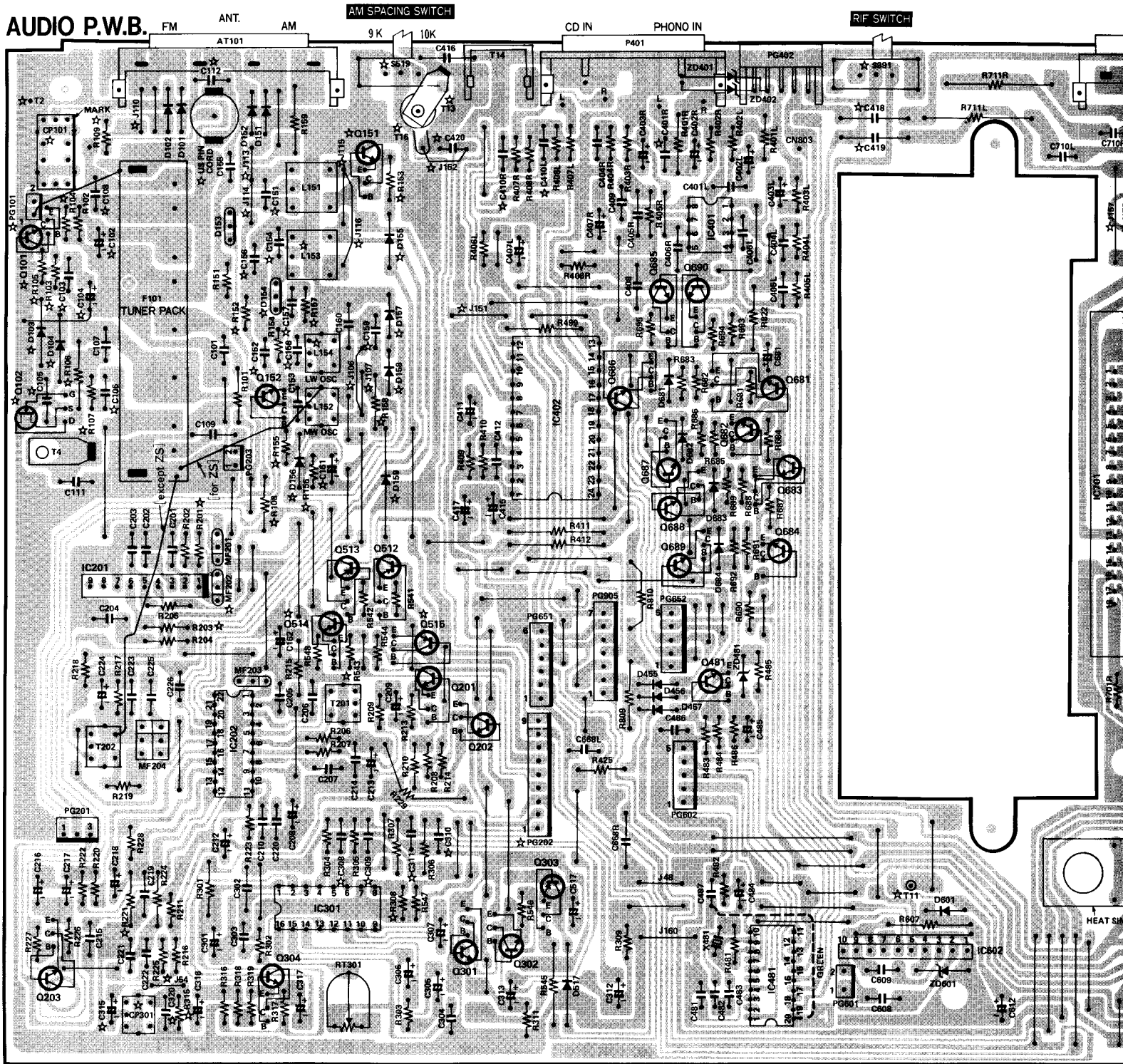
**DIFFERENCE FOR DESTINATION [for DISPLAY/DECK P.W.B.]**  
**UNTERSCHIEDE NACH BESTIMMUNGSLÄNDERN**  
**[für DISPLAY/DECK-LEITERPLATTE]**  
**DIFFÉRENCE EN FONCTION DU PAYS DE DESTINATION**  
**[pour PLAQUETTE D’AFFICHAGE/PLATINE]**

☆SYMBOL NO.	US, CS	ES	ZS	EW	SA	BS
C504 ~ C506	—	USE	—	—	—	USE
C665	—	—	USE	—	—	—
C666, C667	—	USE	—	—	—	USE
C993, 989	—	USE	—	—	—	USE
R505 ~ 508	—	USE	—	—	—	USE
R521, R561 ~ 563	—	—	—	USE	—	—
R996	—	USE	—	—	—	USE
Q503, 504	—	USE	—	—	—	USE
Q508, 509	—	—	—	USE	—	—
Q992	—	USE	—	—	—	USE
D512	—	USE	USE	USE	—	USE
D514	—	USE	USE	USE	USE	USE
S515	—	USE	—	—	—	USE
CN202	8P	8P	8P	9P	8P	8P
CN991	—	USE	—	—	—	USE
J277	—	USE	USE	—	USE	USE
J246, 248, 251	USE	—	USE	USE	USE	—
J247, 249, 250	—	USE	—	—	—	USE
J254	—	USE	USE	USE	—	USE
J255	USE	—	—	—	USE	—
J260	—	USE	—	—	—	USE
J278, 286	—	—	—	USE	—	—

**DIFFERENCE FOR DESTINATION [for AUDIO P.W.B.]**  
**UNTERSCHIEDE NACH BESTIMMUNGSLÄNDERN**  
**[für AUDIO LEITERPLATTE]**  
**DIFFÉRENCE EN FONCTION DU PAYS DE DESTINATION**  
**[pour PLAQUETTE AUDIO]**

☆SYMBOL NO.	US, CS	ES	ZS	EW	SA	BS
C102	—	—	USE	—	—	—
C103	—	—	USE	—	—	—
C104	—	—	USE	—	—	—
C105	—	—	USE	—	—	—
C106	—	—	USE	—	—	—
C108	—	USE	USE	—	USE	USE
C154	—	USE	—	—	—	USE
C156	—	USE	—	—	—	USE
C157	—	USE	—	—	—	USE
C158	—	USE	—	—	—	USE
C159	—	USE	—	—	—	USE
C161	—	USE	—	—	—	USE
C315	—	—	USE	—	—	—
C320	—	—	USE	—	—	—
C401LR	—	—	USE	—	—	—
C410LR	—	—	USE	—	—	—
C418	—	—	USE	—	—	—
C419	—	—	USE	—	—	—
C420	—	—	USE	—	—	—
C702LR	USE	USE	—	USE	USE	USE
C711LR	—	—	USE	—	—	—
C714	—	—	USE	—	—	—
C715LR, 665	—	—	USE	—	—	—
C811	—	—	USE	—	—	—
C812	—	—	USE	—	—	—
R001	USE	—	—	—	—	—
R103	—	—	USE	—	—	—
R104	—	—	USE	—	—	—
R105	—	—	USE	—	—	—
R106	—	—	USE	—	—	—
R107	—	—	USE	—	—	—
R109	—	—	USE	—	—	—
R201	USE	USE	—	USE	USE	USE
R152	—	USE	—	—	—	USE
R153	—	USE	—	—	—	USE
R155	—	USE	—	—	—	USE
R156	—	USE	—	—	—	USE
R157	—	USE	—	—	—	USE
R158	—	USE	—	—	—	USE
R315	—	—	USE	—	—	—
R543	—	USE	—	—	—	USE

☆SYMBOL NO.	US, CS	ES	ZS	EW	SA	BS
Q101	—	—	USE	—	—	—
Q102	—	—	USE	—	—	—
Q151	—	USE	—	—	—	USE
Q152	—	USE	—	—	—	USE
Q514	—	USE	—	—	—	USE
Q515	—	USE	—	—	—	USE
D103	—	—	USE	—	—	—
D104	—	—	USE	—	—	—
D154	—	USE	—	—	—	USE
D155	—	USE	—	—	—	USE
D156	—	USE	—	—	—	USE
D157	—	USE	—	—	—	USE
D158	—	USE	—	—	—	USE
D159	—	USE	—	—	—	USE
L153	—	USE	—	—	—	USE
L154	—	USE	—	—	—	USE
T2	—	USE	—	USE	USE	USE
T11	—	USE	—	—	—	USE
T12	—	—	USE	—	—	—
T13	USE	USE	USE	—	USE	USE
T15	—	—	USE	—	—	—
T16	—	—	—	USE	—	—
MF202	—	—	USE	—	—	—
CP101	—	—	USE	—	—	—
CP301	—	—	USE	—	—	—
S519	—	—	—	USE	—	—
S991	—	USE	—	—	—	USE
PG101	—	USE	—	USE	USE	USE
J54	USE	USE	—	USE	USE	USE
J106	—	USE	—	—	—	USE
J107	USE	—	USE	USE	USE	—
J113	USE	—	USE	USE	USE	—
J114	—	USE	—	—	—	USE
J115	USE	—	USE	USE	USE	—
J116	—	USE	—	—	—	USE
J110	USE	—	USE	USE	USE	—
J131	USE	—	—	—	—	—
J151	—	—	USE	—	—	—
J152	—	—	—	USE	—	—
J156	—	—	USE	—	—	—
J157	—	—	USE	—	—	—
WIRE (BROWN)	—	—	—	USE	—	—
WIRE (ORANGE)	—	—	—	USE	—	—
WIRE (BLUE)	—	—	—	USE	—	—
WIRE (GRAY)	—	—	—	USE	—	—
WIRE (WHITE)	—	—	—	USE	—	—
US PIN CORD	—	—	USE	—	—	—



**T201** FM DISCRIMINATOR ADJ. **L151** MW ANT. ADJ. **L153** LW ANT. ADJ. **RT301** FM MPX VCO ADJ.

**T202** AM IF ADJ. **L152** MW OSC ADJ. **L154** LW OSC ADJ.

**IC202** ( ) LW

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

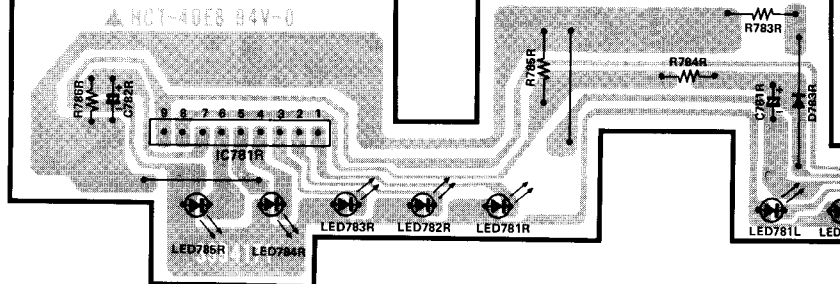
**IC301**

Pin No.	1	2	3	4	5	6	7	8
Voltage	5.7	2.3	1.7	2.8	2.8	5.2	0	0.4
Pin No.	9	10	11	12	13	14	15	16
Voltage	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

**IC402**

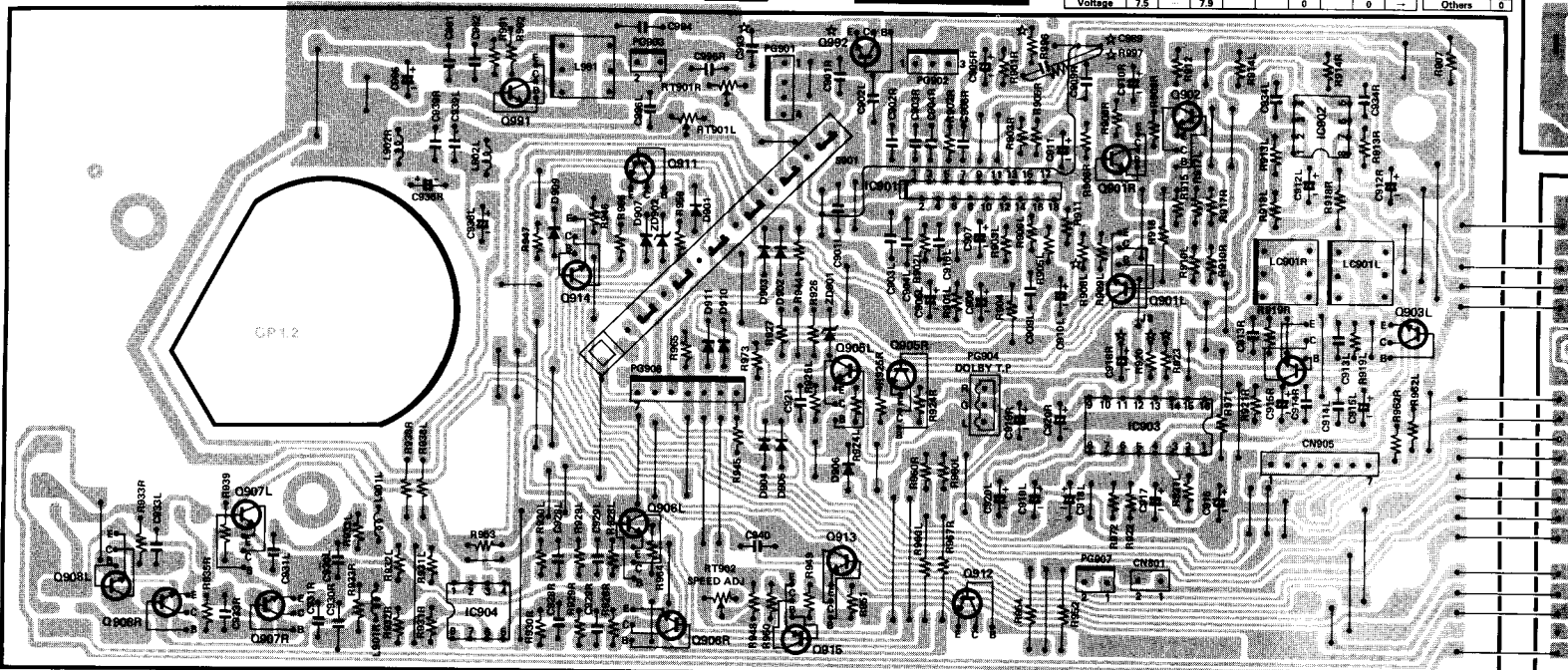
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Voltage	0	12.7										14.7
Pin No.	13	14	15	16	17	18	19	20	21	22	23	24
Voltage												12.8

**POWER INDICATOR P.W.B.**





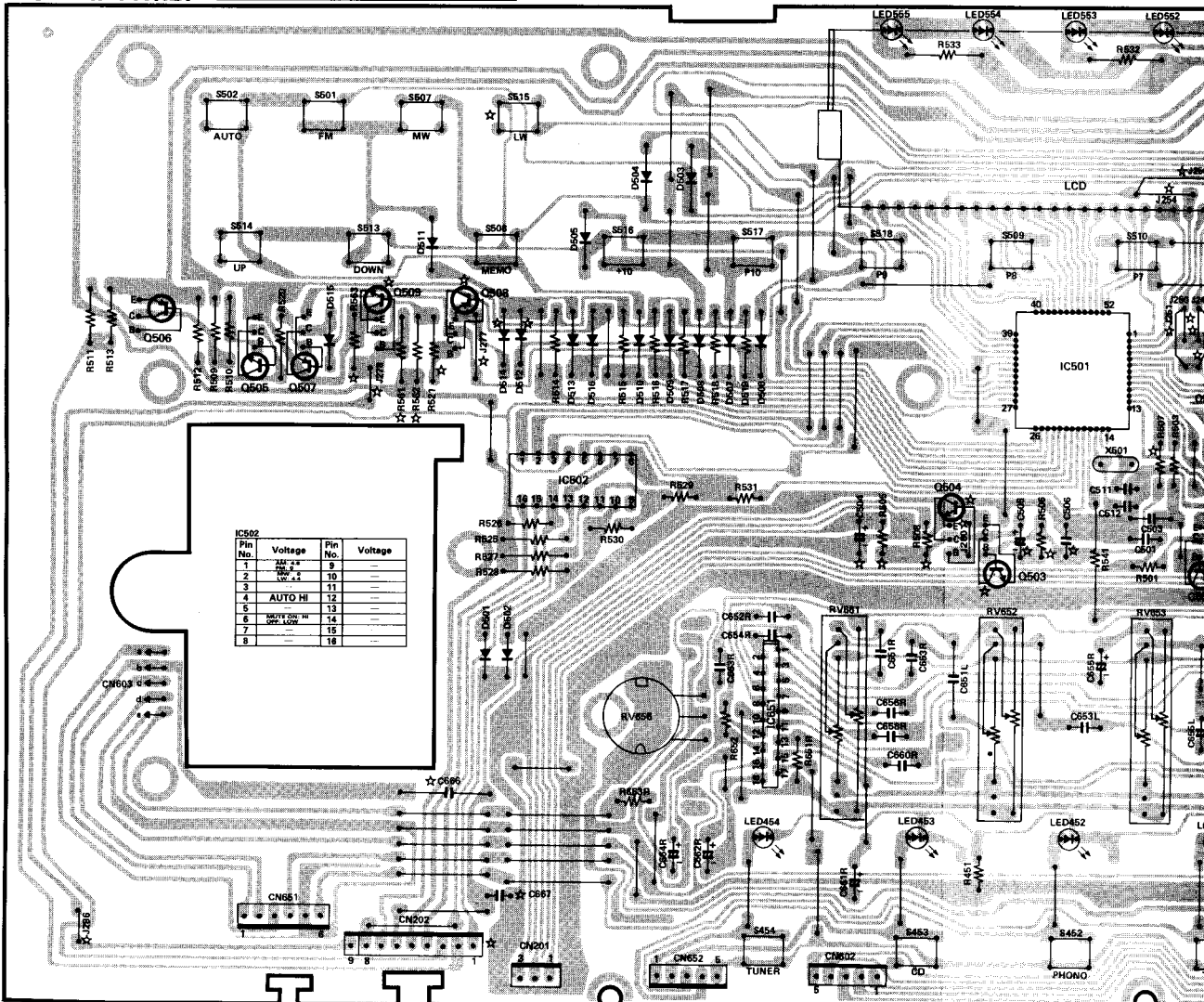
DECK P.W.B.



DISPLAY P.W.B.

RT902 TAPE SPEED ADJ.

Pin No.	1	2	3	4	5	6	7	8
IC902	-	-	-	-14.6	-	-	-	14.1
IC904	-	-	-	-14.8	-	-	-	14.1



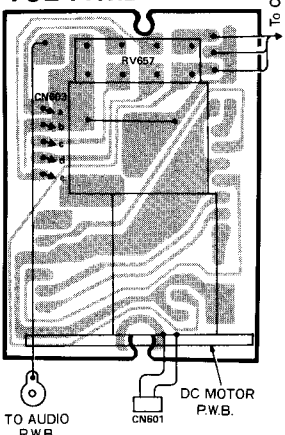
	E	C	B
Q902			DUBBING PLAY: 0.6
Q903LR			HIGH SPEED: 0.6
Q905LR			REC: 0.6
Q906LR			PLAY: 0.6 REC: 0
Q912			0.6
Q913		10.0 (0)	(0.6)
Q915	10.4 (10.4)	6.8 (10.4)	
Q916LR			REC: 0
Q991		NOR: 6.0 CrO: 8.0	

[ ] : NORMAL DUBBING

IC501

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	4.8	5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VOL P.W.B.



IC502

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Voltage	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2	20V ±2
Pin No.	9	10	11	12	13	14	15	16								
Voltage	-	-	-	-	-	-	-	-								

RV657 VOLUME CONTROL

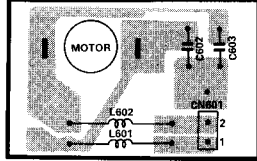
RV651-655 GRAPHIC EQUALIZER CONTROL

RV656 BALANCE CONTROL

The circuit symbol (☆) means difference for destination. (Refer to the table in page 18.)  
 Das Schaltkreissymbol (☆) weist auf unterschiedliche Zielrichtungen hin. (Siehe die Tabelle auf Seite 18.)  
 Le symbol de circuit (☆) signifie qu'il s'agit des différence pour destination. (Consulter la table dans le page 18.)

IC901	Pin No.	1	2	3	4	5	6	7	8	9
Voltage	0	0	0	0	0.6	1.5	2.4			
	Pin No.	10	11	12	13	14	15	16	17	18
Voltage	7.5	7.9			0					
	Others	2.5	0							

### DC MOTOR P.W.B.

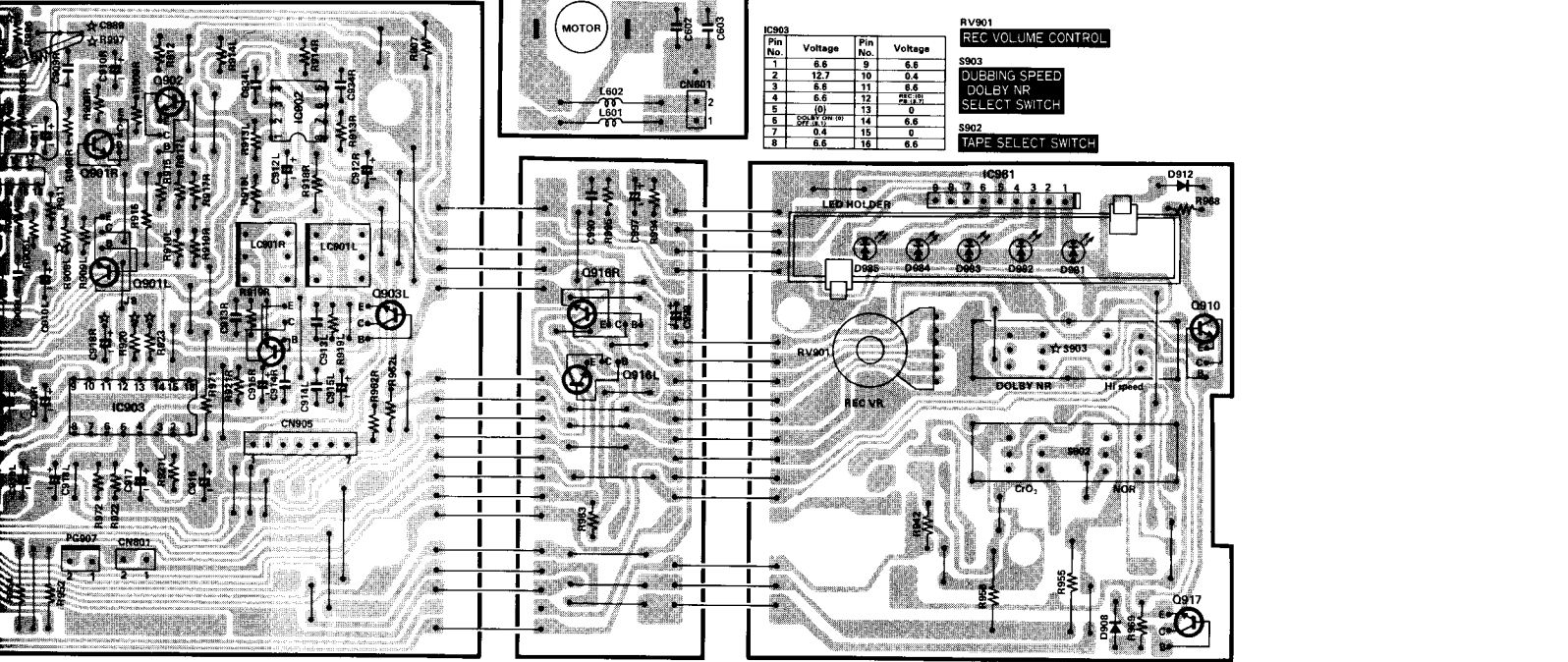


IC903	Pin No.	1	2	3	4	5	6	7	8
Voltage	6.6	6.6	9	6.6					
	Pin No.	10	11	12	13	14	15	16	
Voltage	12.7	6.6	6.6	6.6	0	5.2	0.4	6.6	
	Pin No.	17	18	19	20	21	22	23	24

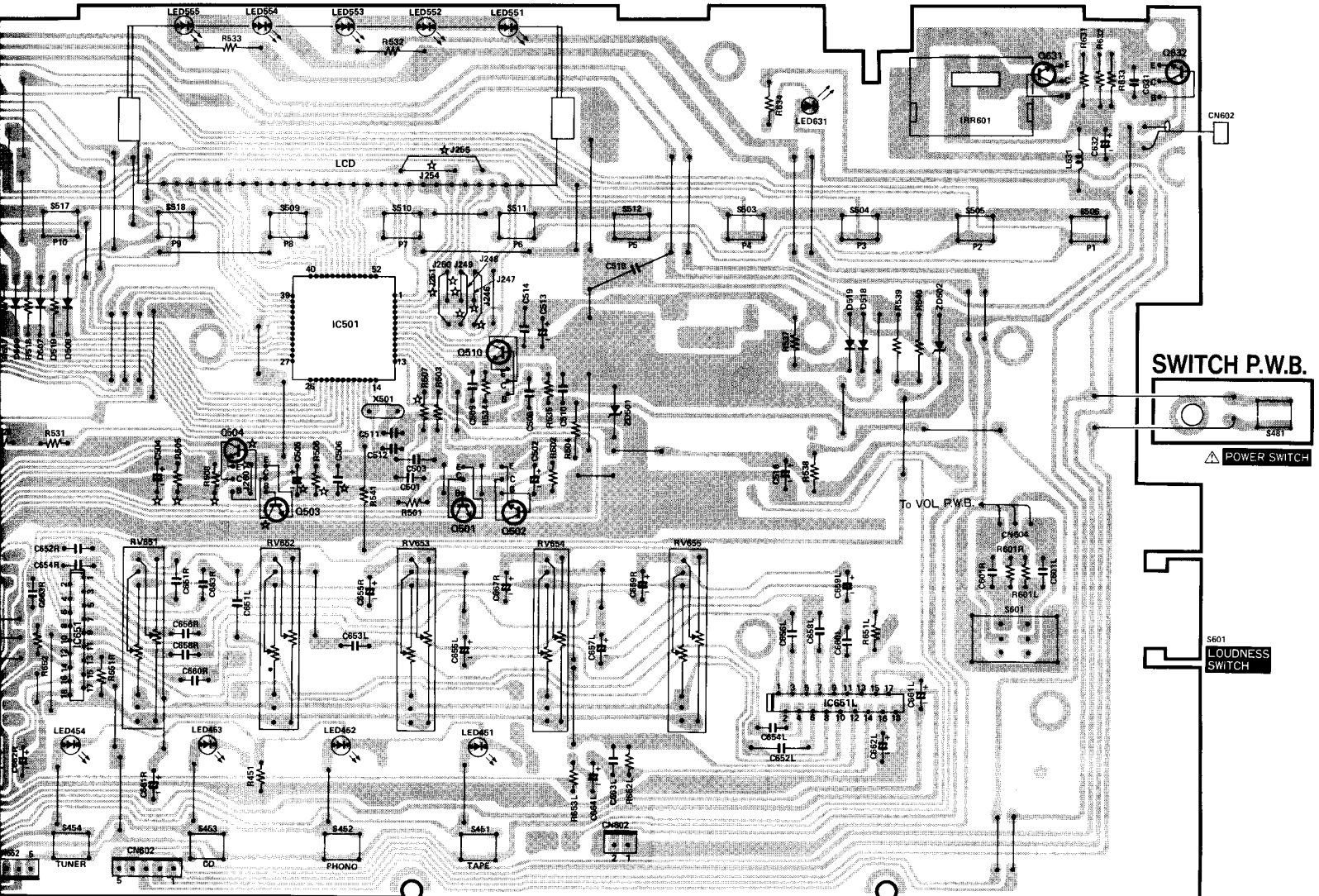
### RV901 REC VOLUME CONTROL

S903  
 DUBBING SPEED  
 DOLBY NR  
 SELECT SWITCH

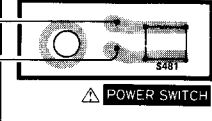
S902  
 TAPE SELECT SWITCH



IC961	Pin No.	1	2	3	4	5	6	7	8	9
Voltage	0	0	0	0	0	0	0	0	0	12.0



### SWITCH P.W.B.



S601  
 LOUDNESS SWITCH

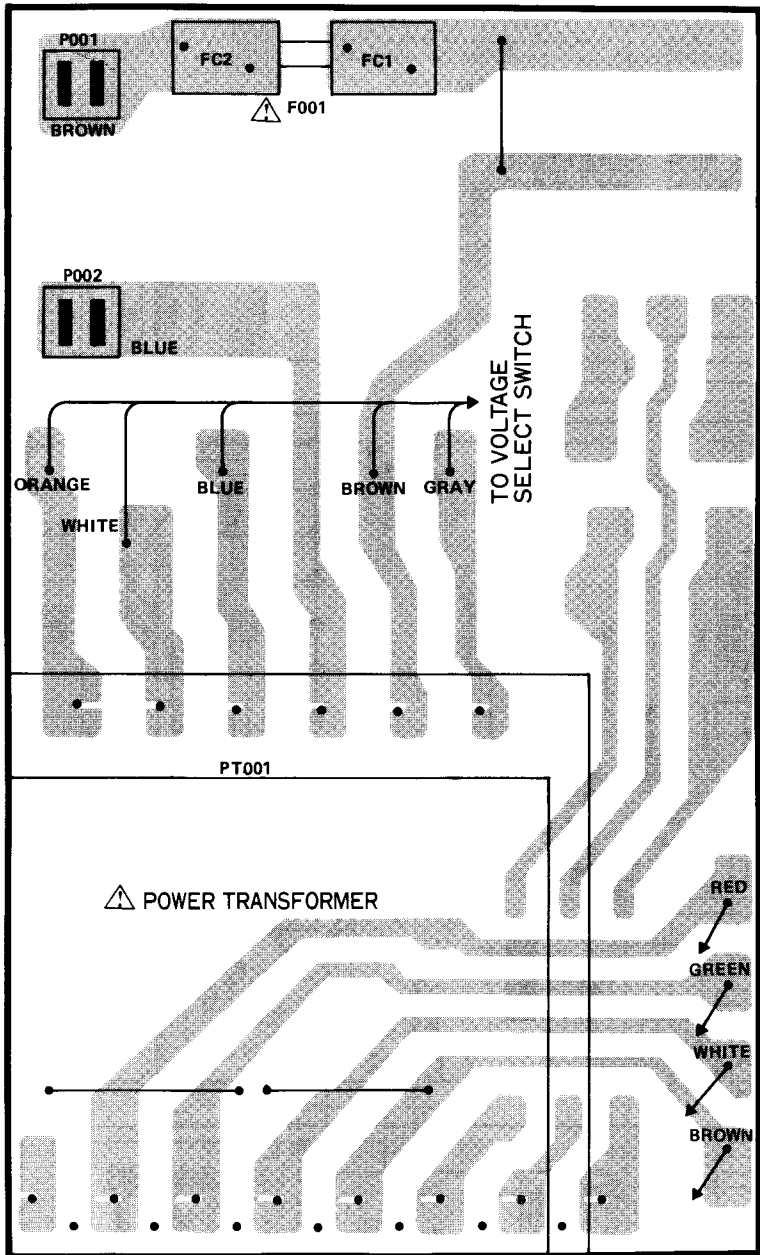
RV651-655  
 GRAPHIC EQUALIZER CONTROL

RV656  
 BALANCE CONTROL



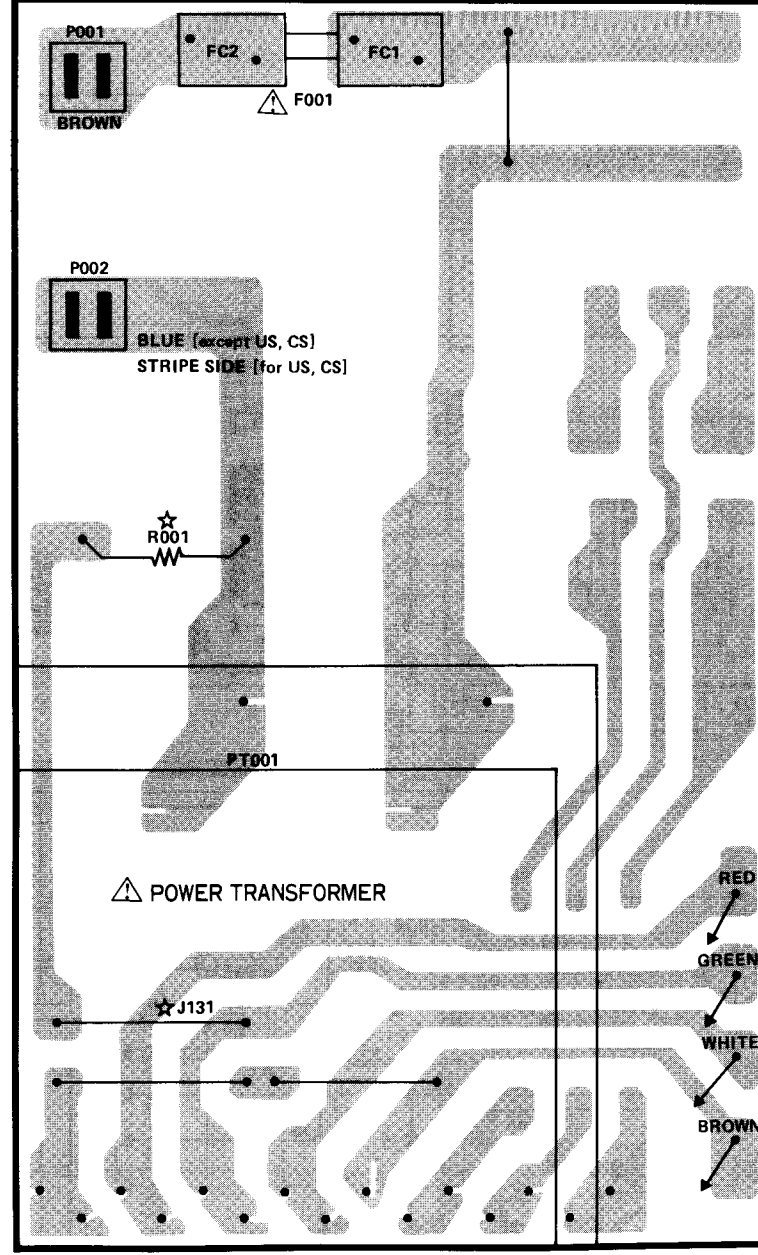
# POWER SUPPLY P.W.B.

[for EW]



# POWER SUPPLY P.W.B.

[except EW]



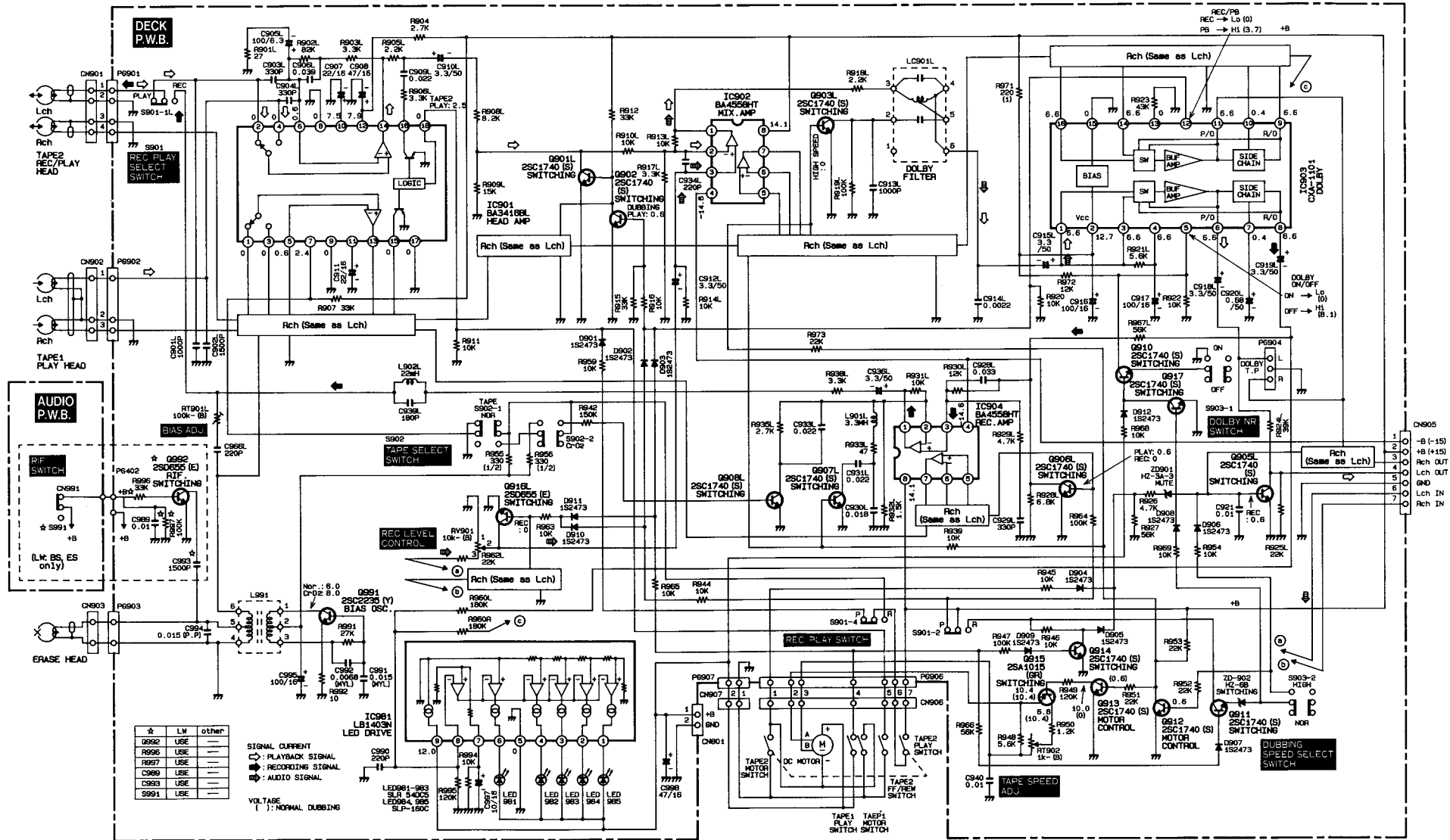
- 25 -

PRINTED WIRING BOARD · PRINTPLATTEN · PLAN DE BASE  
 A  
 B  
 C  
 D  
 E  
 F  
 G

HRD-MD40

The circuit symbol (☆) means difference for destination. (Refer to the table in page 19,20.)  
 Das Schaltkreissymbol (☆) weist auf unterschiedliche Zielrichtungen hin. (Siehe die Tabelle auf Seite 19,20.)  
 Le symbol de circuit (☆) signifie qu'il s'agit des différence pour destination. (Consulter la table dans le page 19,20.)

1 2 3 4 5 6 7 8 9

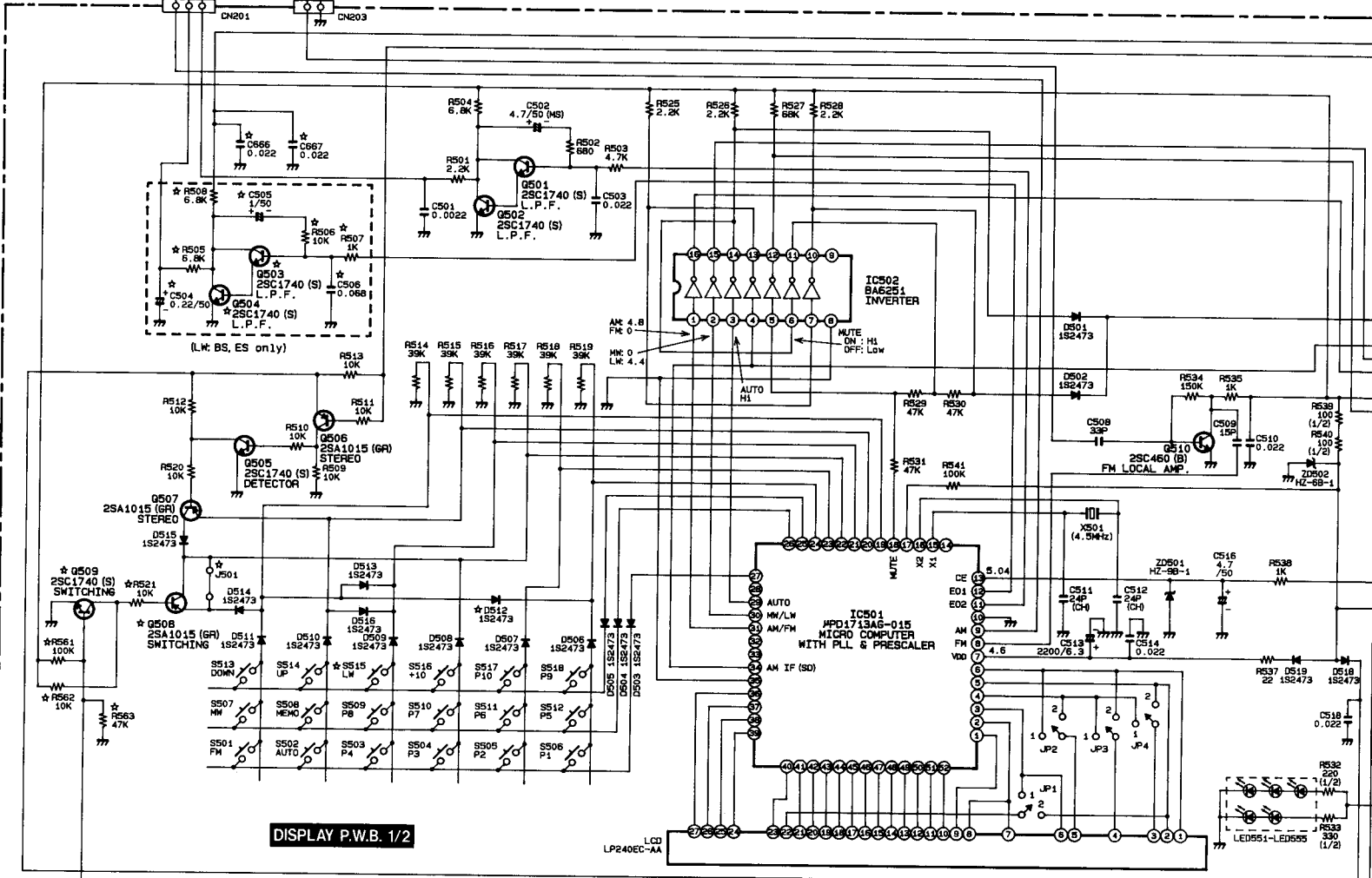
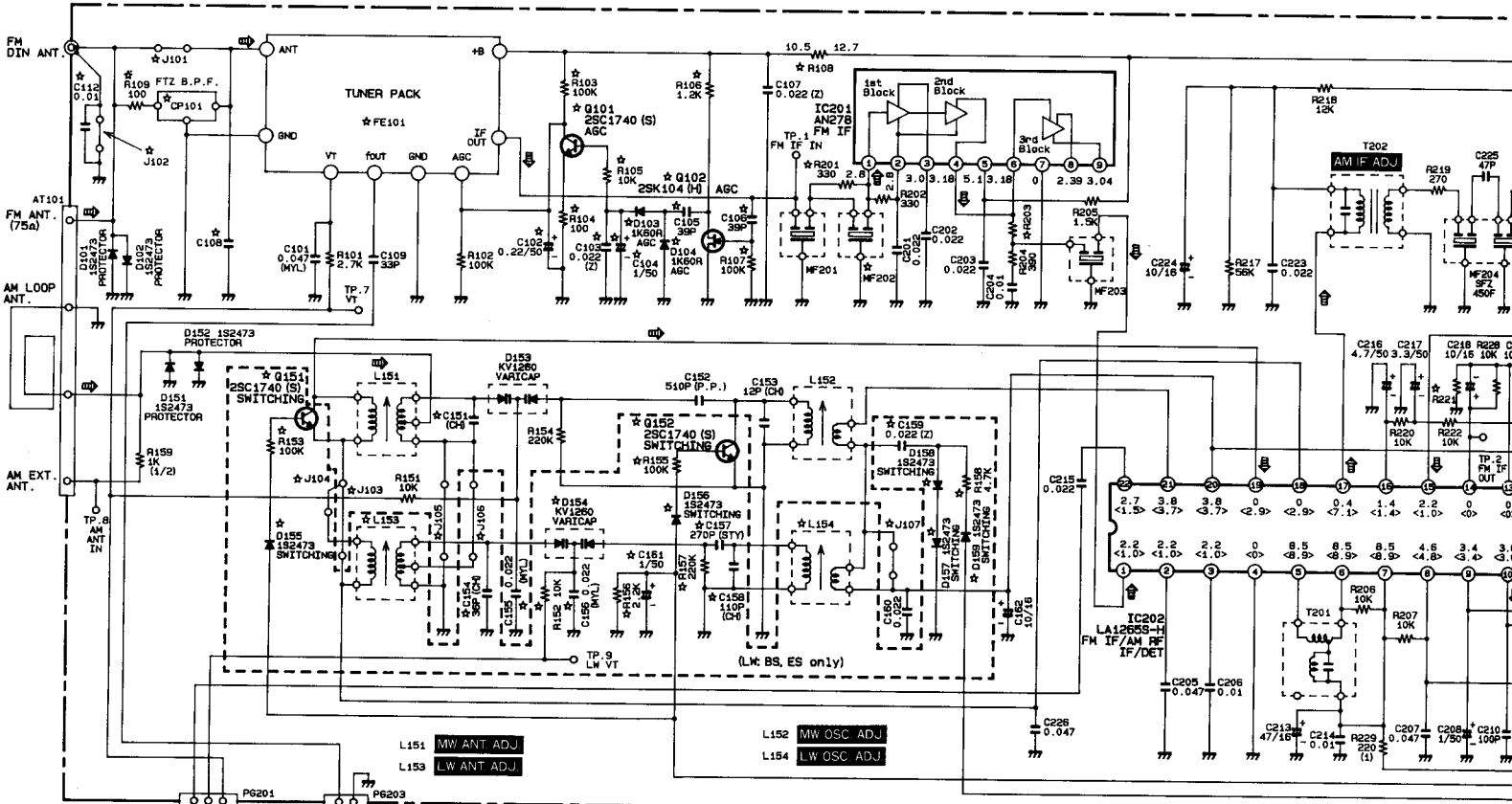


★	LW	other
G982	USE	---
R996	USE	---
R997	USE	---
C999	USE	---
C993	USE	---
S991	USE	---

SIGNAL CURRENT  
 ◀: PLAYBACK SIGNAL  
 ▶: RECORDING SIGNAL  
 ⊕: AUDIO SIGNAL

VOLTAGE  
 ( ): NORMAL DUBBING

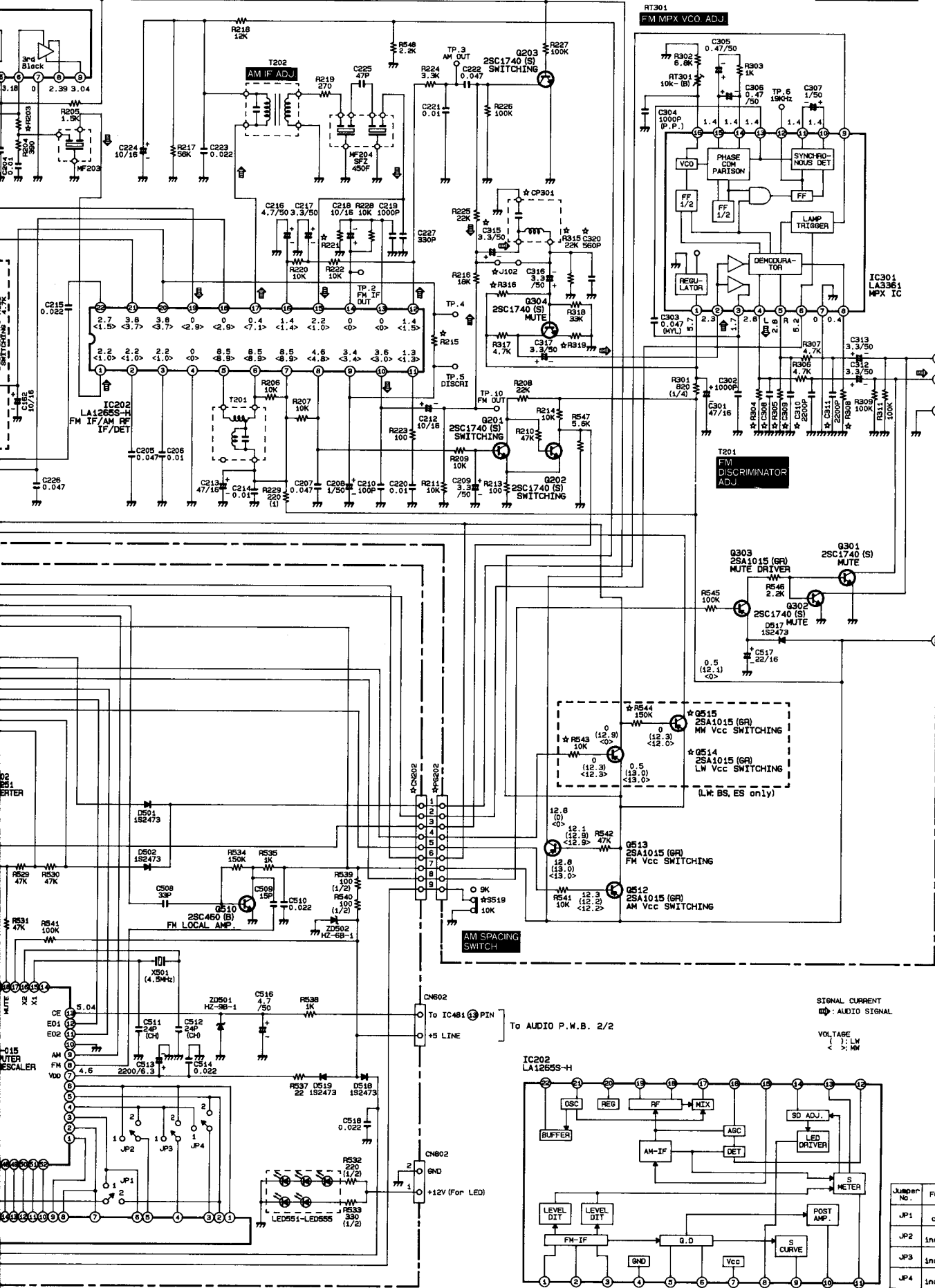
# CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT



DISPLAY P.W.B. 1/2

LCD LPR240C-AA

AUDIO P.W.B. 1/2



☆	ZS	Others
Q101	USE	---
Q102	USE	---
D103	USE	---
D104	USE	---
R103	USE	---
R104	USE	---
R105	USE	---
R106	USE	---
R107	USE	---
R108	68	150
R109	100	---
R201	---	USE
R203	1K	2.2K
R221	8.2K	6.8K
R304	5.8K	5.6K
R305	6.8K	5.6K
CP301	USE	---
R316	180K	120K
R319	680	1K
C102	USE	---
C103	USE	---
C104	USE	---
C105	USE	---
C106	USE	---
C112	USE	---
C115	USE	---
C320	USE	---
CP101	USE	---
CP101	USE	---
MF202	USE	---
FE101	4mm	3mm
J101	---	USE
J102	---	USE

(LW, BS, ES only)

☆	LW	Others
Q151	USE	---
Q152	USE	---
Q503	USE	---
Q504	USE	---
Q514	USE	---
Q515	USE	---
D154	USE	---
D155	USE	---
D156	USE	---
D157	USE	---
D158	USE	---
D159	USE	---
R152	USE	---
R153	USE	---
R155	USE	---
R156	USE	---
R157	USE	---
R158	USE	---
R505	USE	---
R506	USE	---
R508	USE	---
R543	USE	---
R544	USE	---
C151	6P	8P
C154	USE	---
C156	USE	---
C157	USE	---
C158	USE	---
C159	USE	---
C161	USE	---
C504	USE	---
C505	USE	---
C506	USE	---
C566	USE	---
C567	USE	---
L153	USE	---
L154	USE	---
J103	---	USE
J104	---	USE
J105	---	USE
J106	---	USE
J107	---	USE
S515	---	USE

☆	EW	Others
Q508	USE	---
Q509	USE	---
R521	USE	---
R561	USE	---
R562	USE	---
R563	USE	---
S518	USE	---
CN202	9P	8P
PF202	9P	8P
J501	---	USE

☆	ZS	US, EW, CS	Others
C108	22P	---	12P

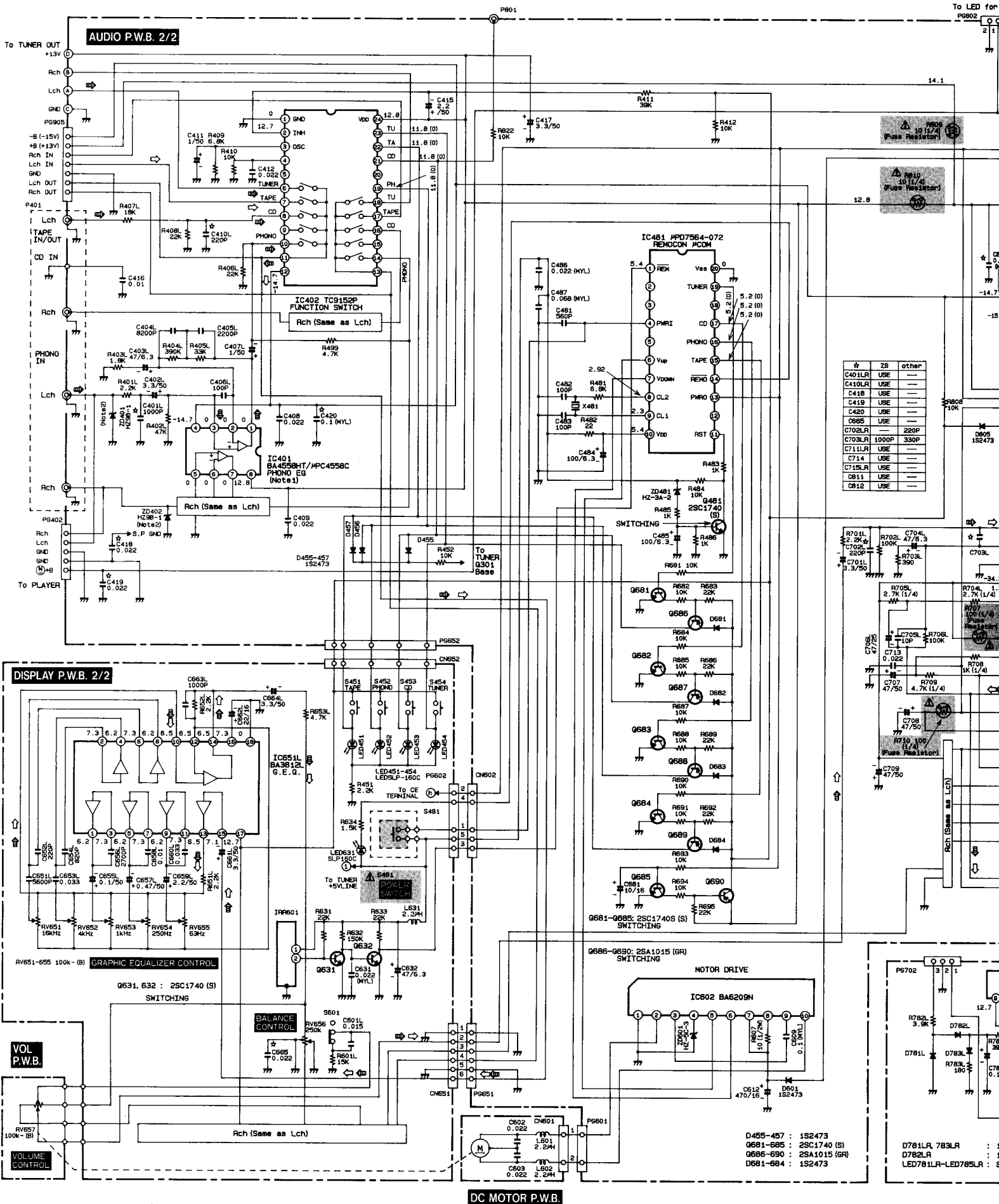
☆	SA	US, CS	Others
D512	---	---	USE
D514	---	---	USE
R215	15K	15K	33K

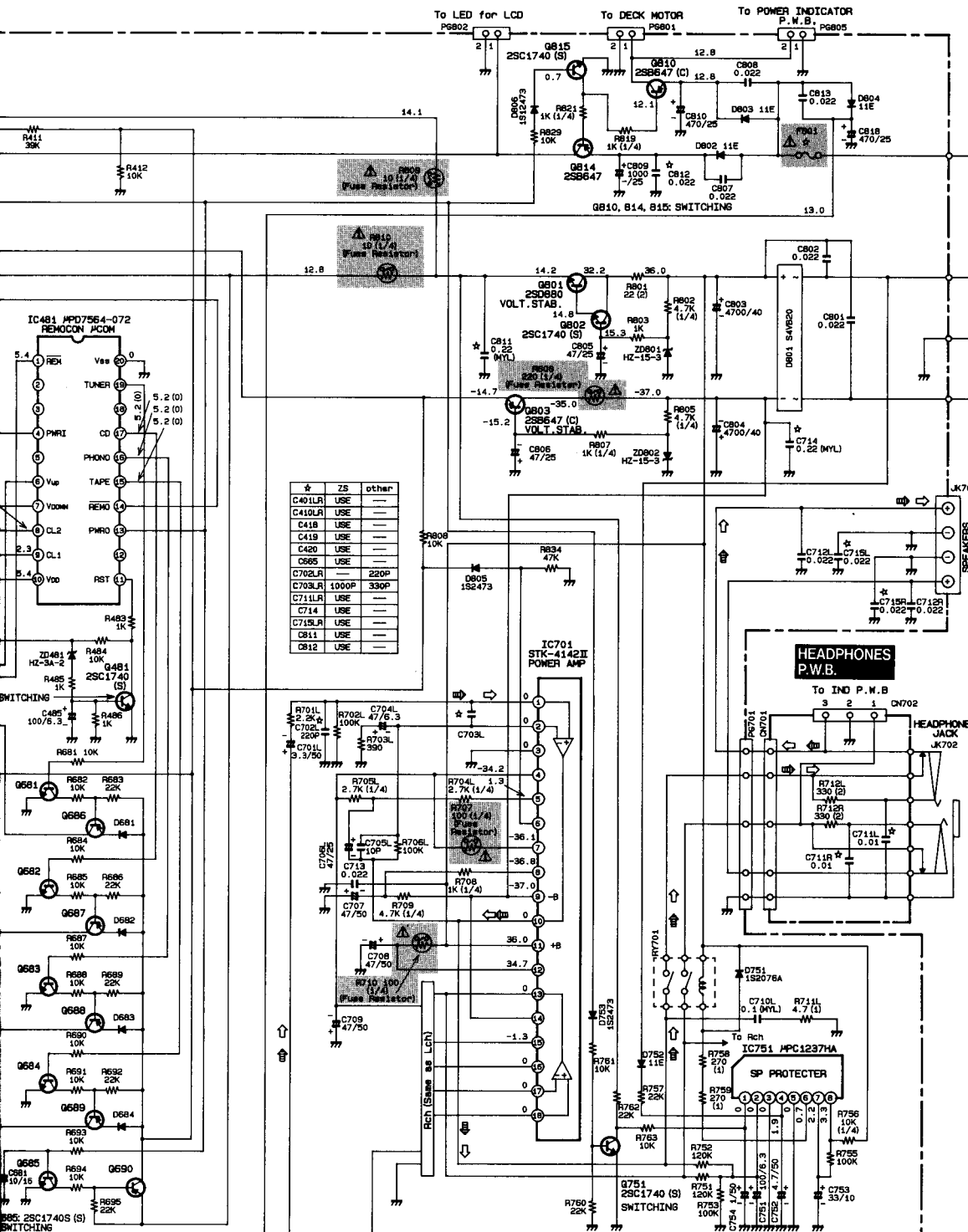
☆	ZS	US, CS	Others
C308	0.0082	0.01	0.0082
C309	0.0082	0.01	0.0082
C310	0.0022	0.0047	0.0022
C311	0.0022	0.0047	0.0022
R308	820	470	390

Jumper No.	Function	BS, KS, ES	EW, ZS	US, CS	SA
JP1	FM channel 1	1	1	2	2
JP2	AM indication	1	2	2	2
JP3	NW indication	1	2	2	2
JP4	LW indication	1	2	2	2

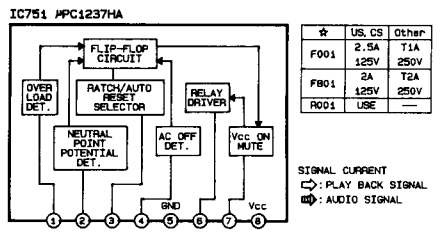
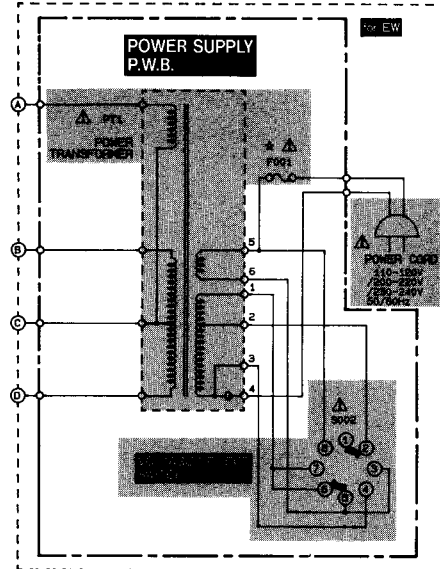
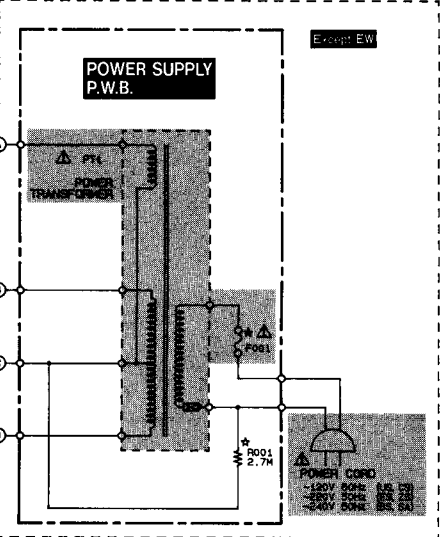
SIGNAL CURRENT  
 ↳ AUDIO SIGNAL  
 VOLTAGE  
 < : LW  
 > : MW

# CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT





★	ZS	Other
C401LR	USE	---
C410LR	USE	---
C418	USE	---
C419	USE	---
C420	USE	---
C655	USE	---
C702LR	---	220P
C703LR	1000P	330P
C711LR	USE	---
C714	USE	---
C715LR	USE	---
C811	USE	---
C812	USE	---



★	US, CS	Other
F001	2.5A	T1A 250V
F801	2A	TEA 250V
R001	USE	---

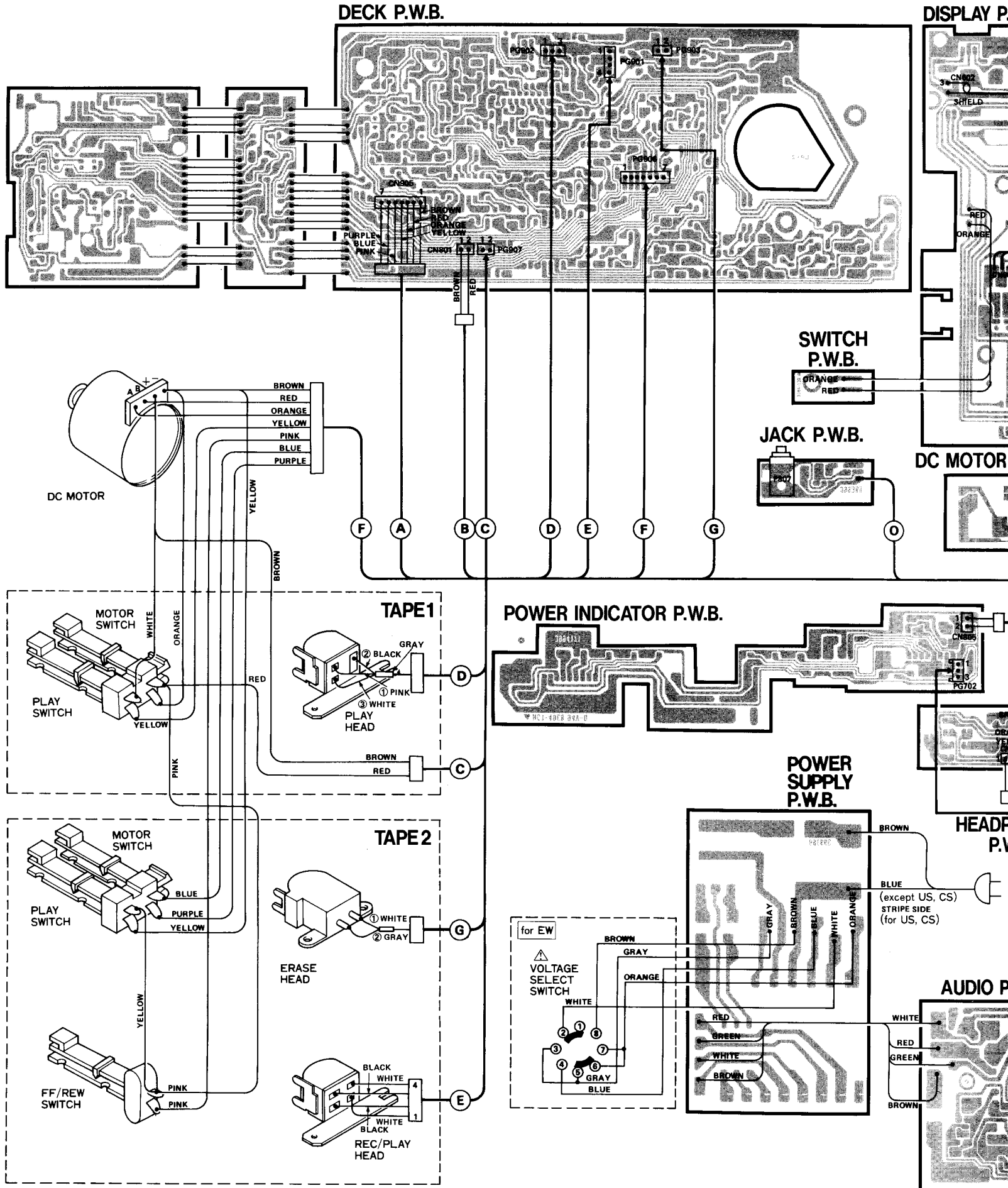
SIGNAL CURRENT  
 □ PLAY BACK SIGNAL  
 ▢ AUDIO SIGNAL

Note1) In case IC BA4558HT suffers an electrostatic breakdown, add ZD401/402 as a countermeasure.  
 Note2) If this fails, remove ZD401/402 and replace IC BA4558HT by IC MPC4558.

	ES until 4000	ES from 4001
ZD401, 402	○	×
IC402 (ICBA4558HT)	○	×
IC401 (ICMPC4558)	×	○

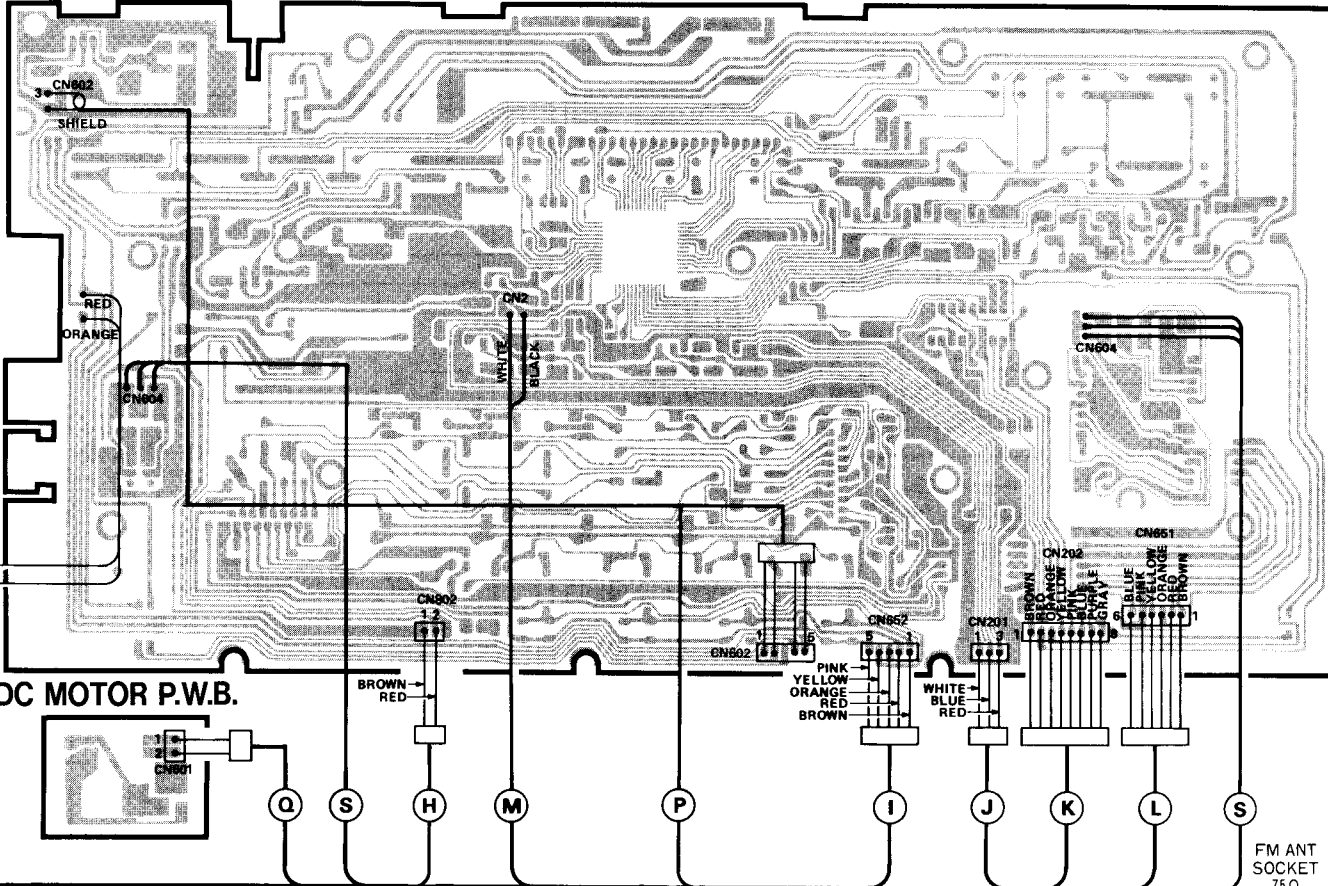
D455-457 : 1S2473  
 Q681-685 : 2SC1740 (S)  
 Q686-690 : 2SA1015 (GR)  
 D681-684 : 1S2473

D781LR, 783LR : 1S2473  
 D782LR : 1K344F  
 LED781LR-LED785LR : SLP-160C



# SCHEMATIC OF WIRING

## DISPLAY P.W.B.



## SWITCH P.W.B.



## JACK P.W.B.

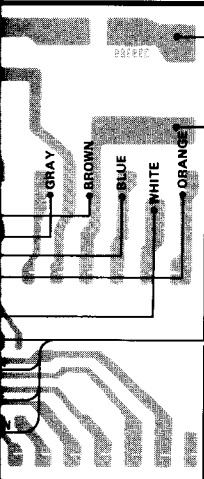


## DC MOTOR P.W.B.

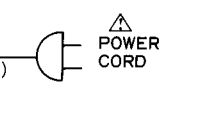


FM ANT SOCKET 75Ω

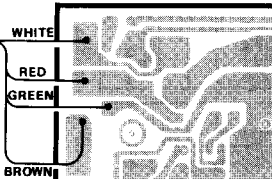
## POWER SUPPLY P.W.B.



## HEADPHONES P.W.B.



## AUDIO P.W.B.



DIN SOCKET [for ZS]

COAXIAL CABLE

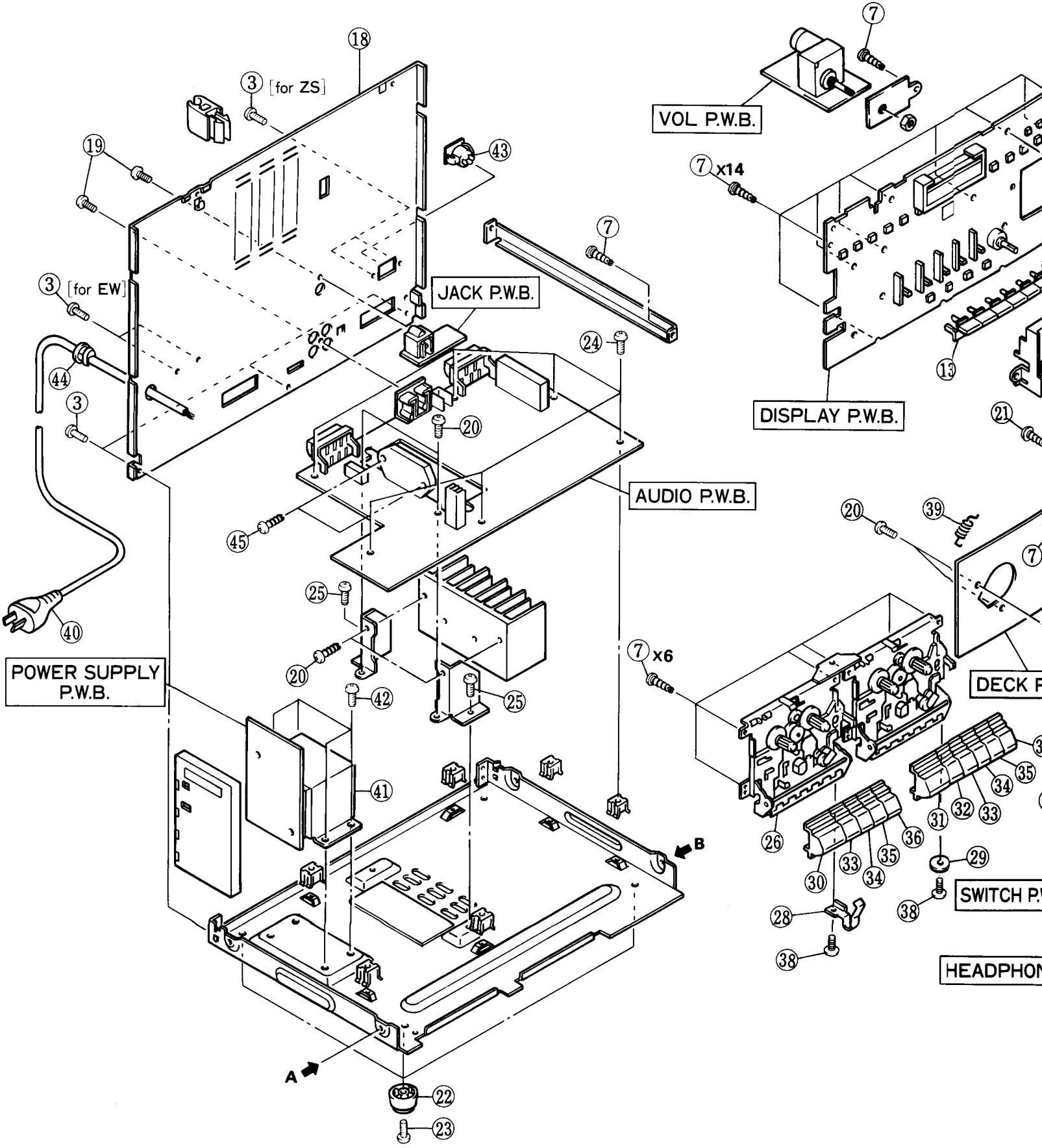


**EXPLODED VIEW  
(Cabinet)**

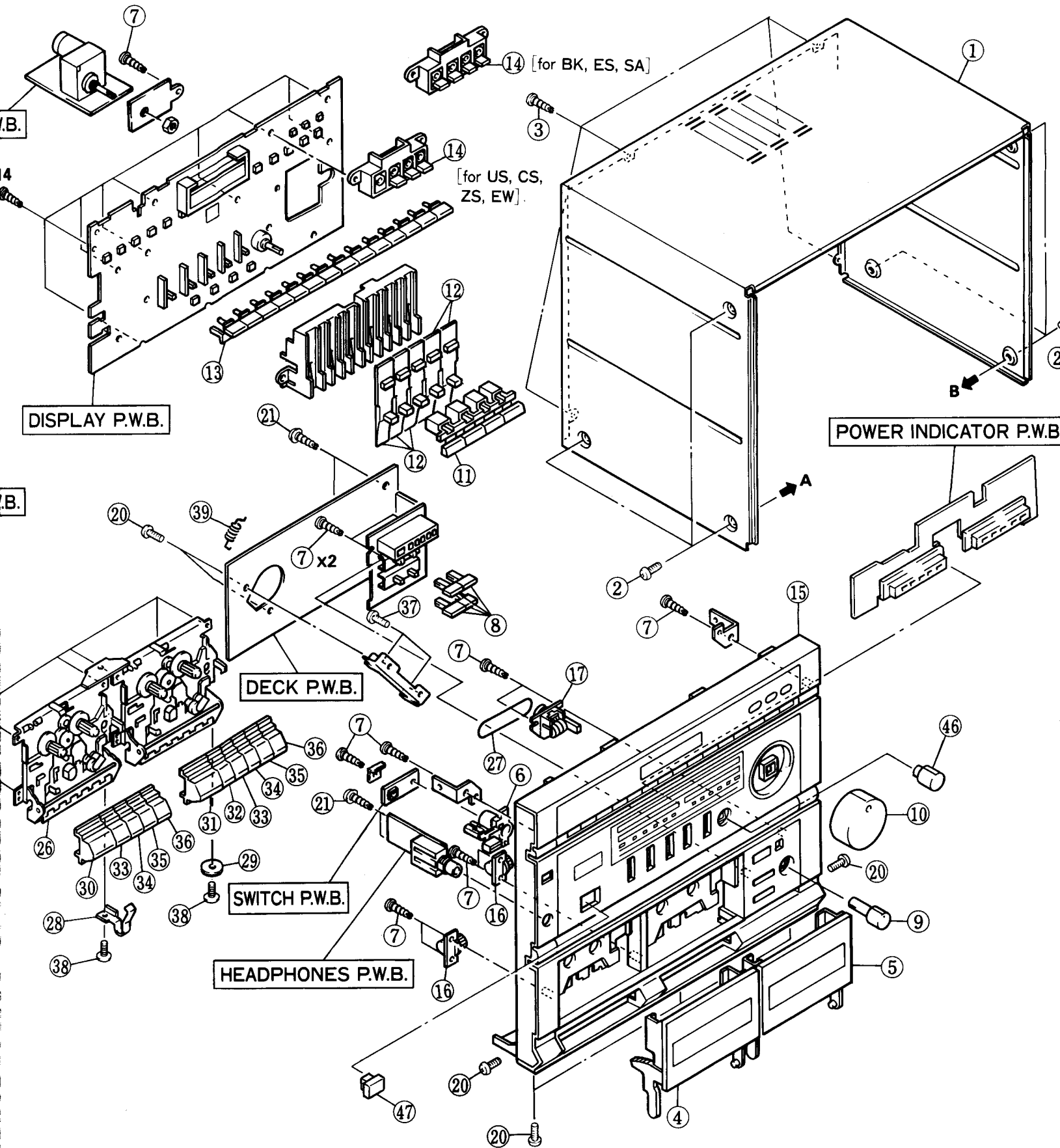
**EXPLOSIONSANSICHT  
(Chassis)**

**VUE EXPLOSEE  
(Coffret)**

- Nos. 1-10
- Diese 1-10
- Ces n. 1-10



- Nos. are référencé Nos. of parts list.
- Diese Numerierung bezieht sich auf die Teileliste.
- Ces numéros correspondent à la liste des pièces.

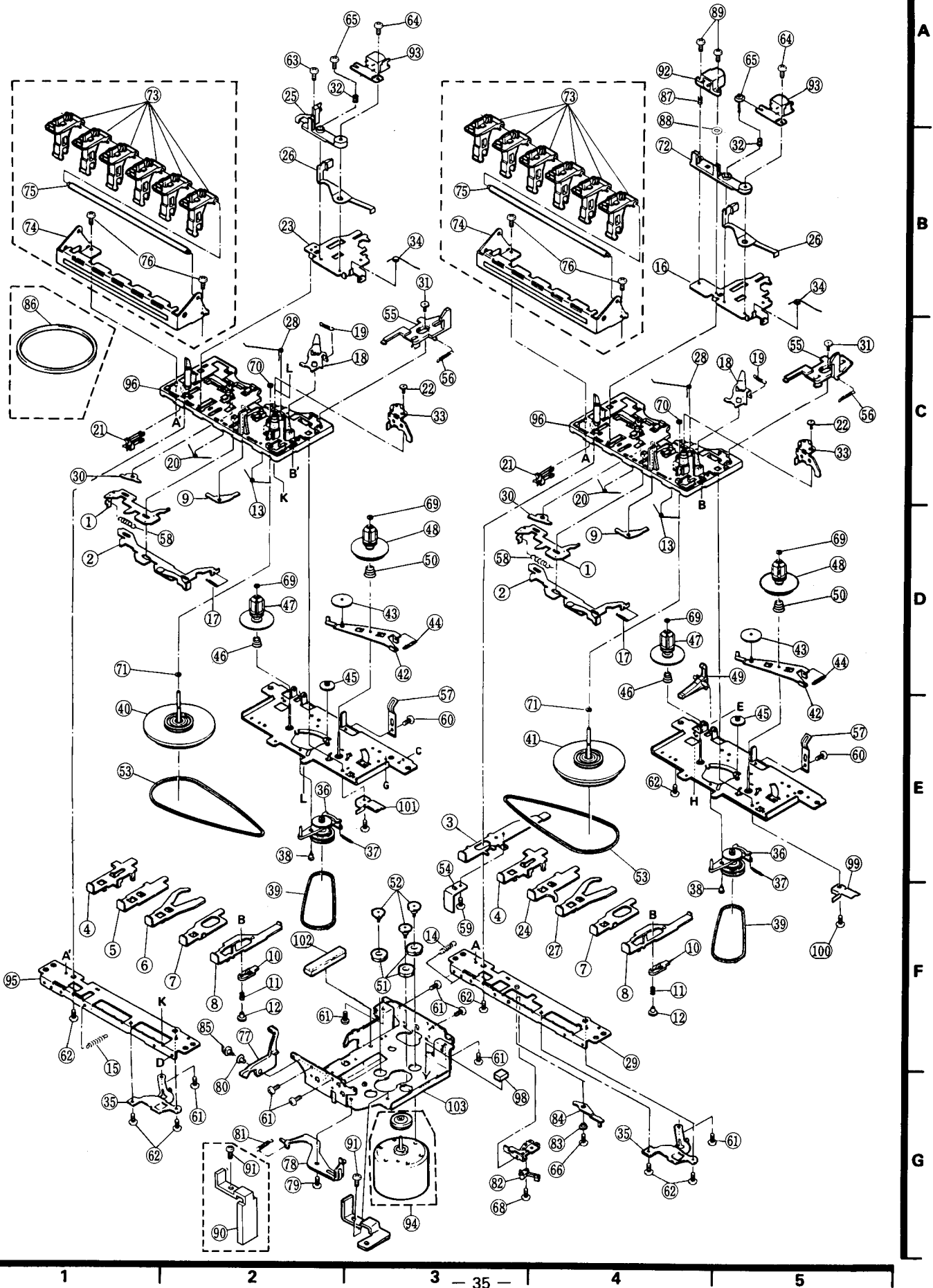


# EXPLODED VIEW EXPLOSIONSANSICHT VUE EXPLOSEE

## (Cassette Chassis) (Cassetterdech-Chassis) (Châssis de Cassette)

HRD-MD40

- Nos. are reference Nos. of parts list.
- Diese Numerierung bezieht sich auf die Teilleiste.
- Ces numéros correspondent à la liste des pièces.



SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
CAPACITORS			C225	0230628	CC 47PF ±5% 50V	C501	0240053	CC 2200PF ±20% 16V
C101	0275015	MF 0.047 μF ±10% 50V	C226	0240220	CD 47000PF ±10% 25V	C502	0252880	EL 4.7 μF 50V
C102	0252455	EL 0.22 μF 50V [for ZS]	C227	0240039	CC 330PF ±10% 50V	C503	0240066	CC 22000PF ±80% ±20% 16V
C103	0240066	CC 22000PF ±80% ±20% 16V [for ZS]	C301	0252425	EL 47 μF 16V	C504	0252455	EL 0.22 μF 50V [for BK, ES]
C104	0252459	EL 1 μF 50V [for ZS]	C302	0240045	CC 1000PF ±10% 50V	C505	0252459	EL 1 μF 50V [for BK, ES]
C105	0230626	CC 39PF ±5% 50V [for ZS]	C303	0275015	MF 0.047 μF	C506	0240222	CD 6800PF ±10% 25V [for BK, ES]
C106	0230626	CC 39PF ±5% 50V [for ZS]	C304	0268446	PP 0.001 μF ±5% 100V	C508	0230624	CC 33PF ±5% 50V
C107	0240066	CC 22000PF ±80% ±20% 16V	C305	0252457	EL 0.47 μF 50V	C509	0230616	CC 15PF ±5% 50V
C108	0230620	CC 22PF ±10% 50V [for ZS]	C306	0252457	EL 0.47 μF 50V	C510	0240066	CC 22000PF ±80% ±20% 16V
C109	0230624	CC 33PF ±5% 50V	C307	0252459	EL 1 μF 50V	C511	02464492	CD 24PF ±5% 50V
C111	0240061	CC 10000PF ±30% 16V	C308	0240058	CC 5600PF ±30% 16V [for ZS]	C512	02464492	CD 24PF ±5% 50V
C112	0240061	CC 0.01 μF ±30% 16V [for ZS]	C308	0240061	CC 10000PF ±30% 16V [for US, CS]	C513	0252242	EL 2200 μF 6.3V
C151	02464162	CD 6PF ±0.25% 50V [for BK, ES]	C309	0240058	CC 5600PF ±30% 16V [for ZS]	C514	0240066	CC 22000PF ±80% ±20% 16V
C151	02464125	CD 2P ±0.25% 50V [except BK, ES]	C309	0240061	CC 10000PF ±30% 16V [for US, CS]	C516	0252462	EL 4.7 μF 50V
C152	0268323	PP 510PF ±5% 100V	C309	0240061	CC 10000PF ±30% 16V [for US, CS]	C517	0252423	EL 22 μF 16V
C153	0230654	CD 12PF ±5% 50V	C309	0240061	CC 10000PF ±30% 16V [for US, CS]	C518	0240066	CC 22000PF ±80% ±20% 16V
C154	0246453	CD 36PF ±5% 50V [for BK, ES]	C309	0240061	CC 10000PF ±30% 16V [for US, CS]	C601LR	0240214	CC 1500PF ±30% 16V
C155	02752132	MF 0.022 μF ±5% 50V	C309	0240061	CC 10000PF ±30% 16V [for US, CS]	C609	0276211K	MF 0.1 μF ±5% 50V
C156	02752132	MF 0.022 μF ±5% 50V [for BK, ES]	C309	0240061	CC 10000PF ±30% 16V [for US, CS]	C612	02525352	EL 470 μF 16V
C158	0246465	CD 110PF ±5% 50V [for BK, ES]	C310	0240053	CC 2200PF ±20% 16V	C631	02750132	MF 0.022 μF ±10% 50V
C159	0240066	CC 22000PF ±80% ±20% 16V [for BK, ES]	C311	0240053	CC 2200PF ±20% 16V	C632	02522252	EL 47 μF 6.3V
C160	0240066	CC 22000PF ±80% ±20% 16V	C312	0252461	EL 3.3 μF 50V	C651LR	0240058	CC 5600PF ±30% 16V
C161	0252459	EL 1 μF 50V [for BK, ES]	C313	0252461	EL 3.3 μF 50V	C652LR	0240037	CC 220PF ±10% 50V
C162	0252422	EL 10 μF 16V	C315	0252461	EL 3.3 μF 50V [for ZS]	C653LR	0240218	CD 33000PF ±10% 25V
C201	0240066	CC 22000PF ±80% ±20% 16V	C316	0252461	EL 3.3 μF ±20% 50V	C654LR	0240044	CC 820PF ±10% 50V
C202	0240066	CC 22000PF ±80% ±20% 16V	C317	0252461	EL 3.3 μF ±20% 50V	C655LR	0252454	EL 0.1 μF 50V
C203	0240066	CC 22000PF ±80% ±20% 16V	C320	0240042	CC 560PF ±10% 50V [for ZS]	C656LR	0240054	CC 2700PF ±20% 16V
C204	0240061	CC 10000PF ±30% 16V	C401LR	0240045	CC 1000PF ±10% 50V [for ZS]	C657LR	0252457	EL 0.47 μF 50V
C205	0240220	CD 47000PF ±10% 25V	C402LR	0252461	EL 3.3 μF 50V	C658LR	0240061	CC 10000PF ±30% 16V
C206	0240061	CD 10000PF ±30% 16V	C403LR	0252401	EL 47 μF 6.3V	C659LR	0252460	EL 2.2 μF 50V
C207	0240220	CD 47000PF ±10% 25V	C404LR	0240060	CC 8200PF ±30% 16V	C660LR	0240218	CD 33000PF ±10% 25V
C208	0252459	EL 1 μF 50V	C405LR	0240053	CC 2200PF ±20% 16V	C661LR	0252461	EL 3.3 μF 50V
C209	0252461	EL 3.3 μF 50V	C406LR	0240033	CC 100PF ±10% 50V	C662LR	0252423	EL 22 μF 16V
C210	0240033	CC 100PF ±10% 50V	C407LR	0252459	EL 3.3 μF 50V	C663LR	0240045	CC 1000PF ±10% 50V
C212	0252422	EL 10 μF 16V	C408	0240066	CC 22000PF ±80% ±20% 16V	C664LR	0252461	EL 3.3 μF 50V
C213	0252425	EL 47 μF 16V	C409	0240066	CC 22000PF ±80% ±20% 16V	C665	0240066	CC 22000PF ±80% ±20% 16V
C214	0240061	CC 10000PF ±30% 16V	C410LR	0240037	CC 220PF ±10% 50V [for ZS]	C666	0240066	CC 22000PF ±80% ±20% 16V [For ES, BS]
C215	0240066	CC 22000PF ±80% ±20% 16V	C411	0252459	EL 1 μF 50V	C667	0240066	CC 22000PF ±80% ±20% 16V [For ES, BS]
C216	0252462	EL 4.7 μF 50V	C412	0240066	CC 22000PF ±80% ±20% 16V	C668LR	0240041	CC 470PF ±10% 50V
C217	0252461	EL 3.3 μF 50V	C415	0252460	EL 2.2 μF 50V	C681	0252422	EL 10 μF 16V
C218	0252422	EL 10 μF 16V	C416	0240061	CC 10000PF ±30% 16V	C701LR	0252461	EL 3.3 μF 50V
C219	0240045	CC 1000PF ±10% 50V	C417	0252461	EL 3.3 μF 50V	C702LR	0240037	CC 220PF ±10% 50V [except ZS]
C220	0240061	CC 10000PF ±30% 16V	C418	0240066	CC 22000PF ±80% ±20% 16V [for ZS]	C703LR	0240039	CC 330PF ±10% 50V [except ZS]
C221	0240061	CC 10000PF ±30% 16V	C419	0240066	CC 22000PF ±80% ±20% 16V [for ZS]	C703LR	0240045	CC 1000PF ±10% 50V [for ZS]
C222	0240220	CD 47000PF ±10% 25V	C420	0276091	MF 0.1 μF ±5% 50V	C704LR	0252401	EL 47 μF 6.3V
C223	0240066	CC 22000PF ±80% ±20% 16V	C481	0240042	CC 560PF ±10% 50V	C705LR	0230612	CC 10PF ±5% 50V
C224	0252422	EL 10 μF 16V	C482	0240033	CC 100PF ±10% 50V	C706LR	0252436	EL 47 μF 25V
			C483	0240033	CC 100PF ±10% 50V	C707	0252466	EL 47 μF 50V
			C484	0252402	EL 100 μF 6.3V	C708	02550112	EL 47 μF 50V
			C485	0252402	EL 100 μF 6.3V	C709	02550112	EL 47 μF 50V
			C486	02752132	MF 0.022 μF 50%	C710LR	02760112	MF 0.1 μF ±10% 50V
			C487	0275216	MF 0.068 μF 50%	C711LR	02400612	CC 10000PF ±30% 16V [for ZS]
						C712LR	02441735	CC 22000PF ±80% ±20% 50V

SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
C713	02441735	CD 22000PF $\pm 80\%$ 50V	C994	0268435	MF 15000PF $\pm 5\%$ 50V	R215	0113651	CF 33K $\Omega$ $\pm 5\%$ SRD1/6P [except US, CS, SA]
C714	0276013	MF 0.22 $\mu$ F [For ZS]	C995	0252426	EL 100 $\mu$ F 16V	R216	0113645	CF 18K $\Omega$ $\pm 5\%$ SRD1/6P
C715LR	0240066	CC 22000PF $\pm 80\%$ 16V	C996LR	0240037	EL 220PF $\pm 10\%$ 50V	R217	0113657	CF 56K $\Omega$ $\pm 5\%$ SRD1/6P
C751	0252402	EL 100 $\mu$ F 6.3V	C997	0252422	EL 10 $\mu$ F 16V	R218	0113641	CF 12K $\Omega$ $\pm 5\%$ SRD1/6P
C752	0252462	EL 4.7 $\mu$ F 50V	C998	0252425	CC 10000PF $\pm 30\%$ 16V	R219	0113601	CF 270 $\Omega$ $\pm 5\%$ SRD1/6P
C753	0252412	EL 33 $\mu$ F 10V	C998	02525252	EL 47 $\mu$ F 16V	R220	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P
C754	0252459	EL 1 $\mu$ F 50V	RESISTORS			R221	0113635	CF 6.8K $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]
C781LR	0252454	EL 0.1 $\mu$ F 50V	$\Delta$ R001	01390052	CF 2.7M $\Omega$ $\pm 10\%$ SRD1/2P [for US, CS]	R221	0113637	CF 8.2K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]
C782LR	0252422	EL 10 $\mu$ F 16V	R101	0113625	CF 2.7K $\Omega$ $\pm 5\%$ SRD1/6P	R222	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P
C801	02441735	CD 22000PF $\pm 80\%$ 50V	R102	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P	R223	0113591	CF 100 $\Omega$ $\pm 5\%$ SRD1/6P
C802	02441735	CD 22000PF $\pm 80\%$ 50V	R103	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]	R224	0113627	CF 3.3K $\Omega$ $\pm 5\%$ SRD1/6P
C803	0255001	EL 4700 $\mu$ F 40V	R104	0113591	CF 100 $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]	R225	0113647	CF 22K $\Omega$ $\pm 5\%$ SRD1/6P
C804	0255001	EL 4700 $\mu$ F 40V	R105	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]	R226	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P
C805	0252436	EL 47 $\mu$ F 25V	R106	0113617	CF 1.2K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]	R227	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P
C806	0252436	EL 47 $\mu$ F 25V	R107	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]	R228	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P
C807	02441735	CD 22000PF $\pm 80\%$ 50V	R108	0129551	CF 68 $\Omega$ $\pm 5\%$ SRD1/8P [for ZS]	R229	1119425	MO 220 $\Omega$ $\pm 10\%$ RSB
C808	02441735	CD 22000PF $\pm 80\%$ 50V	R108	0129565	CF 150 $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]	R301	0129583	CF 820 $\Omega$ $\pm 5\%$ SRD1/4P
C809	0252636	EL 1000 $\mu$ F 16V	R108	0129565	CF 150 $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]	R302	0113635	CF 6.8K $\Omega$ $\pm 5\%$ SRD1/6P
C810	0252635	EL 470 $\mu$ F 16V	R109	0113591	CF 100 $\Omega$ $\pm 5\%$ SRD1/6P	R303	0113615	CF 1K $\Omega$ $\pm 5\%$ SRD1/6P
C811	0276013	MF 0.22 $\mu$ F [For ZS]	R151	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P	R304	0113633	CF 5.6K $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]
C812	02441735	CD 22000PF $\pm 80\%$ 50V	R152	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P [for BK, ES]	R304	0113635	CF 6.8K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]
C813	02441735	CD 22000PF $\pm 80\%$ 50V	R153	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P [for BK, ES]	R305	0113633	CF 5.6K $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]
C818	0252635	EL 470 $\mu$ F 16V	R154	0113671	CF 220K $\Omega$ $\pm 5\%$ SRD1/6P	R305	0113633	CF 5.6K $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]
C901LR	0240045	CC 1000PF $\pm 10\%$ 50V	R155	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P [for BK, ES]	R305	0113635	CF 6.8K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]
C902LR	0240045	CC 1000PF $\pm 10\%$ 50V	R156	0113623	CF 2.2K $\Omega$ $\pm 5\%$ SRD1/6P [for BK, ES]	R306	0113631	CF 4.7K $\Omega$ $\pm 5\%$ SRD1/6P
C903LR	0240039	CC 330PF $\pm 10\%$ 50V	R157	0113671	CF 220K $\Omega$ $\pm 5\%$ SRD1/6P [for BK, ES]	R307	0113631	CF 4.7K $\Omega$ $\pm 5\%$ SRD1/6P
C904LR	0240039	CC 330PF $\pm 10\%$ 50V	R158	0113631	CF 4.7K $\Omega$ $\pm 5\%$ SRD1/6P [for BK, ES]	R308	0113605	CF 390 $\Omega$ $\pm 5\%$ SRD1/6P [except ZS, US, CS]
C905LR	0252402	EL 100 $\mu$ F 6.3V	R159	01133652	CF 1K $\Omega$ $\pm 5\%$ SRD1/2P	R308	0113607	CF 470 $\Omega$ $\pm 5\%$ SRD1/6P [For US, CS]
C906LR	0240219	CC 39000PF $\pm 10\%$ 25V	R201	0113603	CF 330 $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]	R308	0113613	CF 820 $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]
C907	0252423	EL 22 $\mu$ F 16V	R202	0113603	CF 330 $\Omega$ $\pm 5\%$ SRD1/6P	R309	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P
C908	0252425	EL 47 $\mu$ F 16V	R203	0113615	CF 1K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]	R311	0113663	CF 100K $\Omega$ $\pm 5\%$ SRD1/6P
C909LR	0240066	CC 22000PF $\pm 80\%$ 16V	R203	0113623	CF 2.2K $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]	R315	0113647	CF 22K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]
C910LR	0252461	EL 3.3 $\mu$ F 50V	R204	0113605	CF 390 $\Omega$ $\pm 5\%$ SRD1/6P	R316	0113665	CF 120K $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]
C911	0252423	EL 22 $\mu$ F 16V	R205	0113619	CF 1.5K $\Omega$ $\pm 5\%$ SRD1/6P	R316	0113669	CF 180K $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]
C912LR	0252461	EL 3.3 $\mu$ F 50V	R206	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P	R317	0113631	CF 4.7K $\Omega$ $\pm 5\%$ SRD1/6P
C913LR	0240045	CC 1000PF $\pm 10\%$ 50V	R207	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P	R318	0113651	CF 33K $\Omega$ $\pm 5\%$ SRD1/6P
C914LR	0240053	CC 2000PF $\pm 20\%$ 16V	R208	0113647	CF 22K $\Omega$ $\pm 5\%$ SRD1/6P	R319	0113611	CF 680 $\Omega$ $\pm 5\%$ SRD1/6P [for ZS]
C915LR	0252461	EL 3.3 $\mu$ F 50V	R209	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P	R319	0113615	CF 1K $\Omega$ $\pm 5\%$ SRD1/6P [except ZS]
C916	0252426	EL 100 $\mu$ F 16V	R210	0113655	CF 47K $\Omega$ $\pm 5\%$ SRD1/6P	R401LR	0113623	CF 2.2K $\Omega$ $\pm 5\%$ SRD1/6P
C917	0252426	EL 100 $\mu$ F 16V	R211	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P	R402LR	0113655	CF 47K $\Omega$ $\pm 5\%$ SRD1/6P
C918LR	0252461	EL 3.3 $\mu$ F 50V	R212	0113591	CF 100 $\Omega$ $\pm 5\%$ SRD1/6P	R403LR	0113621	CF 1.5K $\Omega$ $\pm 5\%$ SRD1/6P
C919LR	0252461	EL 3.3 $\mu$ F 50V	R214	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P	R404LR	0113677	CF 390K $\Omega$ $\pm 5\%$ SRD1/6P
C920LR	0252458	EL 0.68 $\mu$ F 50V	R215	0113643	CF 15K $\Omega$ $\pm 5\%$ SRD1/6P [for US, CS, SA]	R405LR	0113651	CF 33K $\Omega$ $\pm 5\%$ SRD1/6P
C921	0240061	CC 10000PF $\pm 30\%$ 16V				R406LR	0113647	CF 22K $\Omega$ $\pm 5\%$ SRD1/6P
C928LR	0240218	CD 33000PF $\pm 10\%$ 25V				R407LR	0113645	CF 18K $\Omega$ $\pm 5\%$ SRD1/6P
C929LR	0240039	CC 330PF $\pm 10\%$ 50V				R408LR	0113647	CF 22K $\Omega$ $\pm 5\%$ SRD1/6P
C930LR	0240215	CD 18000PF $\pm 10\%$ 25V				R409	0113635	CF 6.8K $\Omega$ $\pm 5\%$ SRD1/6P
C931LR	0240216	CD 22000PF $\pm 10\%$ 25V				R410	0113639	CF 10K $\Omega$ $\pm 5\%$ SRD1/6P
C933LR	0240216	CD 22000PF $\pm 10\%$ 25V						
C934LR	0240037	CC 220PF $\pm 10\%$ 50V						
C936LR	0252461	EL 3.3 $\mu$ F 50V						
C939LR	0240036	CC 180PF $\pm 10\%$ 50V						
C940	0240061	CC 1000PF $\pm 30\%$ 16V						
C989	0240061	CC 10000PF $\pm 30\%$ 16V						
C990	0240037	CC 220PF $\pm 10\%$ 50V						
C991	02750122	MF 0.015 $\mu$ F $\pm 10\%$ 50V						
C992	0274016	MF 6800PF $\pm 10\%$ 50V						
C993	0240051	CC 1500PF $\pm 20\%$ 16V [for BK, ES]						

SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
R411	0113653	CF 33K $\Omega$ $\pm$ 5% SRD1/6P	R561	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P	R802	0129617	CF 4.7K $\Omega$ $\pm$ 5% SRD1/4P
R412	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P			(for EW)	R803	0129601	CF 1K $\Omega$ $\pm$ 5% SRD1/4P
R451	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	R562	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	$\Delta$ R804	1110625	FR 220 $\Omega$ $\pm$ 5% RN1/4B
R452	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P			(for EW)	R805	0129617	CF 4.7K $\Omega$ $\pm$ 5% SRD1/4P
R481	0113635	CF 6.8K $\Omega$ $\pm$ 5% SRD1/6P	R563	0113655	CF 47K $\Omega$ $\pm$ 5% SRD1/6P	$\Delta$ R806	1110625	FR 220 $\Omega$ $\pm$ 5% RN1/4B
R482	0113575	CF 22 $\Omega$ $\pm$ 5% SRD1/6P	R601LR	0113643	CF 15K $\Omega$ $\pm$ 5% SRD1/6P	R807	0129601	CF 1K $\Omega$ $\pm$ 5% SRD1/4P
R483	0113615	CF 1K $\Omega$ $\pm$ 5% SRD1/6P	R607	0113201	CF 10 $\Omega$ $\pm$ 10% SRD1P	R808	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R484	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R631	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R809	1110601	CF 10 $\Omega$ $\pm$ 5% SRD1/4P
R485	0113615	CF 1K $\Omega$ $\pm$ 5% SRD1/6P	R632	0113667	CF 150K $\Omega$ $\pm$ 5% SRD1/6P	R810	1110601	CF 10 $\Omega$ $\pm$ 5% SRD1/4P
R486	0113615	CF 1K $\Omega$ $\pm$ 5%	R633	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R819	0129601	CF 1K $\Omega$ $\pm$ 5% SRD1/4P
R499	0113631	CF 4.7K $\Omega$ $\pm$ 5% SRD1/6P	R634	0113619	CF 1.5 $\Omega$ $\pm$ 5% SRD1/6P	R821	0129601	CF 1K $\Omega$ $\pm$ 5% SRD1/4P
R501	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	R651LR	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	R822	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R502	0113611	CF 680 $\Omega$ $\pm$ 5% SRD1/6P	R652LR	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	R823	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P
R504	0113635	CF 6.8K $\Omega$ $\pm$ 5% SRD1/6P	R653LR	0113631	CF 4.7K $\Omega$ $\pm$ 5% SRD1/6P	R824	1110601	CF 10 $\Omega$ $\pm$ 5% SRD1/4P
R505	0113635	CF 6.8K $\Omega$ $\pm$ 5% SRD1/6P	R654LR	0113643	CF 15K $\Omega$ $\pm$ 5% SRD1/6P	R829	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
		[for BK, ES]	R681	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R834	0113655	CF 47K $\Omega$ $\pm$ 5% SRD1/6P
R506	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R682	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R901LR	0113577	CF 27 $\Omega$ $\pm$ 5% SRD1/6P
		[for BK, ES]	R683	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R902LR	0113661	CF 82K $\Omega$ $\pm$ 5% SRD1/6P
R507	0113615	CF 1K $\Omega$ $\pm$ 5% SRD1/6P	R684	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R903LR	0113627	CF 3.3K $\Omega$ $\pm$ 5% SRD1/6P
		[for BK, ES]	R685	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R904	0113625	CF 2.7K $\Omega$ $\pm$ 5% SRD1/6P
R508	0113635	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R686	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R905LR	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P
		[for BK, ES]	R687	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R906LR	0113627	CF 3.3K $\Omega$ $\pm$ 5% SRD1/6P
R509	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R688	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R907	0113651	CF 33K $\Omega$ $\pm$ 5% SRD1/6P
R510	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R689	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R908LR	0113637	CF 8.2K $\Omega$ $\pm$ 5% SRD1/6P
R511	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R690	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R909LR	0113643	CF 15K $\Omega$ $\pm$ 5% SRD1/6P
R512	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R691	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R910LR	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R513	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R692	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R911	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R514	0113653	CF 39K $\Omega$ $\pm$ 5% SRD1/6P	R693	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R912	0113651	CF 33K $\Omega$ $\pm$ 5% SRD1/6P
R515	0113653	CF 39K $\Omega$ $\pm$ 5% SRD1/6P	R694	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R913LR	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R516	0113653	CF 39K $\Omega$ $\pm$ 5% SRD1/6P	R695	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R914LR	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R517	0113653	CF 39K $\Omega$ $\pm$ 5% SRD1/6P	R701LR	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	R915	0113651	CF 33K $\Omega$ $\pm$ 5% SRD1/6P
R518	0113653	CF 39K $\Omega$ $\pm$ 5% SRD1/6P	R702LR	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P	R916	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R519	0113653	CF 39K $\Omega$ $\pm$ 5% SRD1/6P	R703LR	0113605	CF 390 $\Omega$ $\pm$ 5% SRD1/6P	R917LR	0113627	CF 3.3K $\Omega$ $\pm$ 5% SRD1/6P
R520	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R704LR	0129611	CF 2.7K $\Omega$ $\pm$ 5% SRD1/4P	R918LR	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P
R521	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R705LR	0129611	CF 2.7K $\Omega$ $\pm$ 5% SRD1/4P	R919LR	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P
		[for EW]	R706LR	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P	R920	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R525	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	$\Delta$ R707	1110621	FR 100 $\Omega$ $\pm$ 5% RN1/4B	R921LR	0113633	CF 5.6K $\Omega$ $\pm$ 5% SRD1/6P
R526	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	R708	0129601	CF 1K $\Omega$ $\pm$ 5% SRD1/4P	R922	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R527	0113659	CF 68K $\Omega$ $\pm$ 5% SRD1/6P	R709	0129617	CF 4.7K $\Omega$ $\pm$ 5% SRD1/4P	R923	0113654	CF 43K $\Omega$ $\pm$ 5% SRD1/6P
R528	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	$\Delta$ R710	1110621	FR 100 $\Omega$ $\pm$ 5% RN1/4B	R924LR	0113653	CF 39K $\Omega$ $\pm$ 5% SRD1/6P
R529	0113655	CF 47K $\Omega$ $\pm$ 5% SRD1/6P	R711LR	1119029	ME 4.7 $\Omega$ $\pm$ 10% RN14B	R925LR	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P
R530	0113655	CF 47K $\Omega$ $\pm$ 5% SRD1/6P	R712LR	1119527	MO 330 $\Omega$ $\pm$ 10% RSB	R926	0113631	CF 4.7K $\Omega$ $\pm$ 5% SRD1/6P
R531	0113655	CF 47K $\Omega$ $\pm$ 5% SRD1/6P	R751	0113665	CF 120K $\Omega$ $\pm$ 5% SRD1/6P	R927	0113657	CF 56K $\Omega$ $\pm$ 5% SRD1/6P
R532	01132912	CF 220 $\Omega$ $\pm$ 5% SRD1/4P	R752	0113665	CF 120K $\Omega$ $\pm$ 5% SRD1/6P	R928LR	0113635	CF 6.8K $\Omega$ $\pm$ 5% SRD1/6P
R533	0113293	CF 330 $\Omega$ $\pm$ 5% SRD1/4P	R753	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P	R929LR	0113631	CF 4.7K $\Omega$ $\pm$ 5% SRD1/6P
R534	0113667	CF 150K $\Omega$ $\pm$ 5% SRD1/6P	R755	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P	R930LR	0113641	CF 12K $\Omega$ $\pm$ 5% SRD1/6P
R535	0113615	CF 1K $\Omega$ $\pm$ 5% SRD1/6P	R756	0129631	CF 10K $\Omega$ $\pm$ 5% SRD1/4P	R931LR	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R537	0113575	CF 22 $\Omega$ $\pm$ 5% SRD1/6P			[except BK]	R932LR	0113619	CF 1.5K $\Omega$ $\pm$ 5% SRD1/6P
R538	0113615	CF 1K $\Omega$ $\pm$ 5% SRD1/6P	R757	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R933LR	0113583	CF 47 $\Omega$ $\pm$ 5% SRD1/6P
R539	01132872	CF 100 $\Omega$ $\pm$ 5% SRD1/4P	R758	0110131	CF 270 $\Omega$ $\pm$ 5% SRD1/2P	R935LR	0113625	CF 2.7K $\Omega$ $\pm$ 5% SRD1/6P
					[except BS]	R938LR	0113627	CF 3.3K $\Omega$ $\pm$ 5% SRD1/6P
R540	01132872	CF 100 $\Omega$ $\pm$ 5% SRD1/4P	R759	0110131S	CF 270 $\Omega$ $\pm$ 5% SRD1/2P	R939	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R541	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P	R760	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R942	0113667	CF 150K $\Omega$ $\pm$ 5% SRD1/6P
		[DE & DP P.W.B.]	R761	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R944	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R541	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R762	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	R945	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
		[TA P.W.B.]	R763	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R946	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P
R544	0113667	CF 150K $\Omega$ $\pm$ 5% SRD1/6P	R782LR	0113629	CF 3.9K $\Omega$ $\pm$ 5% SRD1/6P	R947	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P
		[for BK, ES]	R783LR	0113597	CF 180 $\Omega$ $\pm$ 5% SRD1/6P	R948	0113633	CF 5.6K $\Omega$ $\pm$ 5% SRD1/6P
R545	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P	R784LR	0113653	CF 39K $\Omega$ $\pm$ 5% SRD1/6P	R949	0113665	CF 120K $\Omega$ $\pm$ 5% SRD1/6P
R546	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	R785LR	0113635	CF 6.8K $\Omega$ $\pm$ 5% SRD1/6P	R950	0113617	CF 1.2K $\Omega$ $\pm$ 5% SRD1/6P
R547	0113633	CF 5.6K $\Omega$ $\pm$ 5% SRD1/6P	R786LR	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	R951	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P
R548	0113623	CF 2.2K $\Omega$ $\pm$ 5% SRD1/6P	R801	1119155	ME 22 $\Omega$ $\pm$ 10% RNB			

SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
R952	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	Q501	2318303	2SC1740S(S)	DIODES		
R953	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	Q502	2318303	2SC1740S(S)	D101	23376012	1S2473
R954	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	Q503	2318303	2SC1740S(S) [for BK, ES]	D102	23376012	1S2473
R955	0113293	CF 330 $\Omega$ $\pm$ 5% SRD1/2P	Q504	2318303	2SC1740S(S) [for BK, ES]	D103	23379312	1K60R
R956	0113293	CF 330 $\Omega$ $\pm$ 5% SRD1/2P	Q505	2318303	2SC1740S(S)	D104	23379312	1K60R
R959	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	Q506	2329183	2SA1015 TPT(GR)			[for ZS]
R960LR	0113669	CF 180K $\Omega$ $\pm$ 5% SRD1/6P	Q507	2329183	2SA1015 TPT(GR)			[for ZS]
R962LR	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	Q508	2329183	2SA1015 TPT(GR) [for EW]	D151	23376012	1S2473
R963	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	Q509	2318303	2SC1740S(S) [for EW]	D152	23376012	1S2473
R964	0113663	CF 100K $\Omega$ $\pm$ 5% SRD1/6P	Q510	0573486	2SC460(B)	D153	2397321	KV1260
R965	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	Q512	2329183	2SA1015(GR)	D154	2397321	KV1260
R966	0113657	CF 56K $\Omega$ $\pm$ 5% SRD1/6P	Q513	2329183	2SA1015(GR)			[for BK, ES]
R967LR	0113657	CF 56K $\Omega$ $\pm$ 5% SRD1/6P	Q514	2329183	2SA1015(GR) [for BK, ES]	D155	2337601T	1S2473
R968	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	Q515	2329183	2SA1015(GR) [for BK, ES]	D156	23376012	1S2473
R969	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	Q631	2318303	2SC1740S(S)	D157	23376012	1S2473
R971	1119425	MO 220 $\Omega$ $\pm$ 10% SRD1P	Q632	2318303	2SC1740S(S)	D158	23376012	1S2473
R972	0113641	CF 12K $\Omega$ $\pm$ 5% SRD1/6P	Q681	2318303	2SC1740S(S)	D159	23376012	1S2473
R973	0113647	CF 22K $\Omega$ $\pm$ 5% SRD1/6P	Q682	2318303	2SC1740S(S)			[for BK, ZS]
R991	0113649	CF 27K $\Omega$ $\pm$ 5% SRD1/6P	Q683	2318303	2SC1740S(S)	D501	23376012	1S2473
R992	0113567	CF 10 $\Omega$ $\pm$ 5% SRD1/6P	Q684	2318303	2SC1740S(S)	D502	23376012	1S2473
R994	0113639	CF 10K $\Omega$ $\pm$ 5% SRD1/6P	Q685	2318303	2SC1740S(S)	D503	23376012	1S2473
R995	0113665	CF 120K $\Omega$ $\pm$ 5% SRD1/6P	Q686	2329183	2SA1015 TPT(GR)	D504	23376012	1S2473
R996	0113651	CF 33K $\Omega$ $\pm$ 5% SRD1/6P [for BK, ES]	Q687	2329183	2SA1015 TPT(GR)	D505	23376012	1S2473
			Q688	2329183	2SA1015 TPT(GR)	D506	23376012	1S2473
			Q689	2329183	2SA1015 TPT(GR)	D507	23376012	1S2473
			Q690	2329183	2SA1015 TPT(GR)	D508	23376012	1S2473
			Q751	2318303	2SC1740S(S)	D509	23376012	1S2473
			Q801	2317822	2SD880(Y)	D510	23376012	1S2473
			Q802	2318303	2SC1740S(S)	D511	23376012	1S2473
			Q803	2328625	2SB647(C)	D512	23376012	1S2473
			Q810	2328625	2SB647(C)			[except US, CS, SA]
			Q814	2328625	2SB647(C)	D513	23376012	1S2473
			Q815	2318303	2SC1740S(S)	D514	23376012	1S2473
			Q901LR	2318303	2SC1740S(S)			[except US, CS]
			Q902	2318303	2SC1740S(S)	D515	23376012	1S2473
			Q903LR	2318303	2SC1740S(S)	D516	23376012	1S2473
			Q905LR	2318303	2SC1740S(S)	D517	23376012	1S2473
			Q906LR	2318303	2SC1740S(S)	D518	23376012	1S2473
			Q907LR	2318303	2SC1740S(S)	D519	23376012	1S2473
			Q908LR	2318303	2SC1740S(S)	D601	23376012	1S2473
			Q911	2318303	2SC1740S(S)	D681	23376012	1S2473
			Q912	2318303	2SC1740S(S)	D682	23376012	1S2473
			Q913	2318303	2SC1740S(S)	D683	23376012	1S2473
			Q914	2318303	2SC1740S(S)	D684	23376012	1S2473
			Q915	2329183	2SA1015 TPT(GR)	D751	23371512	1S2076A
			Q916LR	2329952	2SD655(E)	D752	23987812	11E2
			Q991	2317782	2SC2235(Y)	D753	23376012	1S2473
			Q992	2329952	2SD655(E) [for BK, ES]	D781LR	23376012	1S2473
						D782LR	23379212	1K34A
						D783LR	2337601T	1S2473
						D801	2337461	S4VB20
						D802	23987812	11E2
						D803	23987812	11E2
						D804	23987812	11E2
						D805	23376012	1S2473
						D806	23376012	1S2473
						D901	23376012	1S2473
ICs & TRANSISTORS								
IRR601	2377791	Module remote Control unit						
IC201	2368431	AN278						
IC202	23004122	LA1265-H						
IC301	23005612	LA3361						
IC401	2300837	$\mu$ PC4558C						
IC402	2387564	TC9152P						
IC481	23016022	$\mu$ PD7564-072						
IC501	23008612	$\mu$ PD1713AG-015						
IC502	2387611	BA6251						
IC602	23017012	BA6209N						
IC651LR	23008412	BA3812L						
IC701	23011612	STK4142 II						
IC751	2387582	$\mu$ PC1237HA						
IC781LR	2387051	LB1403						
IC901	23010522	BA3416BL						
IC902	2388302	BA4558HT						
IC903	23020912	CXA1101						
IC904	2388302	BA4558HT						
IC981	2387051	LB1403N						
Q101	2318303	2SC1740S(S) [for ZS]						
Q102	2328803	2SK104(H) [for ZS]						
Q151	2318303	2SC1740S(S) [for BK, ES]						
Q152	2318303	2SC1740S(S) [for BK, ES]						
Q201	2318303	2SC1740S(S)						
Q202	2318303	2SC1740S(S)						
Q203	2318303	2SC1740S(S)						
Q301	2318303	2SC1740S(S)						
Q302	2318303	2SC1740S(S)						
Q303	2329183	2SA1015(GR)						
Q304	2318303	2SC1740S(S)						
Q481	2318303	2SC1740S(S)						

SYMBOL No.	PART No.	DESCRIPTION
D902	23376012	1S2473
D903	23376012	1S2473
D904	23376012	1S2473
D905	23376012	1S2473
D906	23376012	1S2473
D907	23376012	1S2473
D908	23376012	1S2473
D909	23376012	1S2473
D910	23376012	1S2473
D911	23376012	1S2473
D912	23376012	1S2473
ZD481	23376122	HZ-3A2
ZD501	23375242	HZ-9B-1
ZD502	2337121	HZ6A
ZD601	23375892	HZ5C3
ZD801	23371892	HZ15-3
ZD802	23371892	HZ15-3
ZD901	23376132	HZ-3A-3
ZD902	23371222	HZ-6B
LCD1	2780081	Lp240EC-AA
LED451	23391022	SLP160C
LED452	23391022	SLP160C
LED453	23391022	SLP160C
LED454	23391022	SLP160C
LED631	23391022	SLP160C
LED781LR	23391022	SLP160C
LED782LR	23391022	SLP160C
LED783LR	23391022	SLP160C
LED784LR	23391022	SLP160C
LED785LR	23391022	SLP160C
LED981	2398401	SLR-54DC5
LED982	2398401	SLR-54DC5
LED983	2398401	SLR-54DC5
LED984	23391022	SLP160C
LED985	23391022	SLP160C
VARIABLE RESISTORS		
RT301	0150958	10KΩ (FM MPX ADJ.)
RT301	0199331	10KΩ (FM MPX ADJ.) [for BK, ES]
RT901LR	0158928	100kΩ -(B) (BIAS CURRENT ADJ.)
RT902	0158922	1kΩ -(B) (TAPE SPEED ADJ.)
RV651	0167001	100kΩ -(B) (G.E CONTROL)
RV652	0167001	100kΩ -(B) (G.E CONTROL)
RV653	0167001	100kΩ -(B) (G.E CONTROL)
RV654	0167001	100kΩ -(B) (G.E CONTROL)
RV655	0167001	100kΩ -(B) (G.E CONTROL)
RV656		(BALANCE CONTROL)
RV657	0189113	Motor volume (VOLUME CONTROL)
RV901	0150701	10kΩ -(B) (REC. LEVEL CONTROL)
COILS & TRANSFORMERS		
L151	2137373	AM ANT. coil
L152	2136493	MW OSC. coil
L153	2137374	AM ANT. coil [for BK, ES]
L154	2136494	LW OSC. coil [for BK, ES]

SYMBOL No.	PART No.	DESCRIPTION
L631	2227912	Choke coil
L901LR	2227991	Choke coil 3.3MH
L991	2136823	Bias osc. coil
LC901LR	2228103	Dolby filter
L902LR	2228003	Choke coil
T201	2137033	FM discriminator coil
T202	2154493	AM IF transformer
MISCELLANEOUS		
AT101	2689552	4P push terminal
P401	2678921	4P US pin jack [for US, CS]
P801	2678931	
JK701	2689551	4P push terminal
JK702	2677863	Headphones jack
MF201	2135002	Ceramic filter
MF202	2135002	Ceramic filter [for ZS]
MF203	2135002	Ceramic filter
MF204	2155152	AM ceramic filter
RY701	2647761	DC relay
X481	2155222	Ceramic oscillator
X501	2785302	Crystal resonator
△S001	2600551	Power switch
△S002	2618053	AC switch (VOLTAGE SELECT) [for EW]
S451	2639682	Deck switch (TAPE)
S452	2639682	Deck switch (PHONO)
S453	2639682	Deck switch (CD)
S454	2639682	Deck switch (TUNER)
S501	2639682	Deck switch (FM)
S502	2639682	Deck switch (AUTO)
S503	2639682	Deck switch (P4)
S504	2639682	Deck switch (P3)
S505	2639682	Deck switch (P2)
S506	2639682	Deck switch (P1)
S507	2639682	Deck switch (MW)
S508	2639682	Deck switch (MEMORY)
S509	2639682	Deck switch (P8)
S510	2639682	Deck switch (P7)
S511	2639682	Deck switch (P6)
S512	2639682	Deck switch (P5)
S513	2639682	Deck switch (TUNING DOWN)
S514	2639682	Deck switch (TUNING UP)
S515	2639682	Deck switch (LW) [for BK, ES]
S516	2639682	Deck switch (+10)
S517	2639682	Deck switch (P10)
S518	2639682	Deck switch (P9)
S519	2629381	Slide switch [AM SPACING] [for EW]
S601	2600563	1 Key push switch
S901	2628983	Slide switch (REC/PLAY SELECT)
S902	2600562	2 key push switch (TAPE SELECT)
S903	2600561	2 key push switch (DOLBY NR/DUBBING SPEED SELECT)
S991	2629381	Slide switch (RIF) [for BK, ES]

SYMBOL No.	PART No.	DESCRIPTION
CP101	2137301	FM low-pass filter [for ZS]
CP301	2136313	Low pass filter [for ZS]
△F001	2727964	Fuse 2.5A 125V [for US, CS]
△F001	2727743	Fuse T1A 250V [for BK]
△F001	2727191	Fuse T1A 250V [except US, CS, BK]
△F801	2727893	Fuse 2A 125V [for US, CS]
△F801	2727745	Fuse T2A 250V [for BK]
△F801	2727193	Fuse T2A 250V [except US, CS, BK]
FE101	2405031	FM tuner pack [except ZS]
FE101	2405041	FM tuner pack [for ZS]
for Accessories		
	2758342	AM loop antenna
	2589411	Remote control unit
	2757528	FM antenna [for US, CS, SA]
△	2667922	Siemens plug
CABINET CHASSIS		
1	4479031	Top cover
2	8679608	DT bind head screw (4 ϕ x 8)
3	8679406	DT bind head screw (3 ϕ x 6)
4	40457712	Cassette door (1) assy
5	40457722	Cassette door (2) assy
6	3309081	Power button
7	86914102	3 ϕ x 10 BT screw
8	3307203	Push button
9	3309161	REC VOL. knob
10	3309131	VOL. knob
11	3309141	Function button
12	3309351	Equalizer knob
13	3309121	Tuning button
14	3309111	Band change button [for US, CS, ZS, EW, SA]
	3309112	Band change button [for BK, ES]
15	40457232	Front panel assy [for US, CS]
	4045724	Front panel assy [for BK, ES]
16	3950381	Damper assy
17	2588921	Counter
18	4479121	Rear plate [for US]
	4479122	Rear plate [for CS]
	4479123	Rear plate [for ES]
	4479124	Rear plate [for BK]



SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION	SYMBOL No.	PART No.	DESCRIPTION
	4479125	Rear plate [for SA]	CASSETTE CHASSIS			61	48190682	2 φ x 4 C tapping screw
	4479126	Rear plate [for ZS]	1	48189922	Switch plate	62	48196072	2 φ x 5 P bind tapping screw
	4479127	Rear plate [for EW]	2	4839371	Push button actuator assy	63	48196112	2 φ x 6 screw
19	86994102	3 φ x 10 BT screw	3	4823651	REC button lever	64	48190602	2 φ x 7 + — cap screw
20	86714062	3 φ x 6 bind tapping screw	4	4823661	PLAY button lever	65	48196002	Azimuth screw
21	4597971	DT screw with washer	5	4823671	RWD button lever	66	48192022	2 φ x 2.5 EH screw (camera)
22	3927411	Foot	6	4823681	FF button lever	67	4832471	2 φ x 2.5 screw (camera)
23	8671410	3 φ x 10 DT screw	7	4823691	STOP button lever	68	4832472	1.7 φ x 4.5 screw (camera)
24	8671414	3 φ x 14 DT screw	8	4823701	PAUSE button lever assy	69	4850698	P washer cut 1.2 φ x 3.7 x 0.4
25	8671408	3 φ x 8 DT screw	9	48189902	RWD lever	70	48190782	P washer cut 1.55 φ x 3.8 x 0.5
26	2589323	Cassette deck TN-21SW-985-1	10	4833451	PAUSE lever	71	4832432	P washer cut 2.05 φ x 4 x 0.5
27	46919112	Counter belt	11	48191322	PAUSE lever spring	72	48195282	Head base
28	4475821	Eject spring	12	48191332	PAUSE stopper	73	4831623	Operation lever
29	4475831	Eject spring	13	4850692	Button lever spring (K)	74	4831624	B frame (S)
30	3309181	D operation button	14	48190072	Button lever spring (A)	75	48192322	Button lever shaft
31	3309171	D operation button	15	48202172	PLAY button lever spring (S)	76	48190722	2 φ x 7 screw (for camera)
32	3309172	D operation button	16	4831614	Head panel	77	4833463	P kick lever (B)
33	3309173	D operation button	17	48190082	Actuator spring	78	4833464	P kick lever (A)
34	3309174	D operation button	18	48190092	Auto lever	79	4833465	P.K. collar screw (A)
35	3309175	D operation button	19	48190002	Auto lever spring	80	4833460	P. kick lever collar
36	3309176	D operation button	20	48202142	Button lever spring (B)	81	4833467	P kick lever spring
37	8671306	2.6 φ x 6 DT screw	21	4832091	Leaf switch	82	4832102	Leaf switch
38	4584792	2 φ BT bind screw	22	4832522	Screw	83	4833468	M.T.A collar
39	3392251	REC spring	23	48202192	Head panel	84	4850699	RC lever C
△40	2702713	Power cord [for US, CS]	24	4832451	RWD button lever	85	4833472	2 φ x 6 C tapping screw
△	2749582	Power cord [for BK]	25	48190142	Head base	86	46919112	Counter belt
△	2749622	Power cord [for SA]	26	4832412	Sensing plate assy	87	48195292	E head spring
△	2718091	Power cord [for ES, ZS]	27	4832452	FF button lever	88	4850702	Washer 2.4 φ x 7 x 0.1
△	2707709	Power cord [for ES]	28	48202212	Head panel spring (S)	89	48195442	2 φ x 8 + — cup screw
△	2706584	Power cord [for EW]	29	4832482	Sub. plate	90	3909461	REC lever (A)
△41	2267461	Power transformer [for US, CS]	30	48190062	P.R. stopper	91	4598191	REC lever PK collar screw (A)
△	2267462	Power transformer [for BK, SA]	31	48190452	PME screw	92	48195412	E head
△	2267463	Power transformer [for ES, ZS]	32	48190172	Azimuth spring	93	48190502	R/P head
△	2267464	Power transformer [for EW]	33	4839372	Pinch roller arm assy	94	4831657	Motor assy
42	8671608	4 φ x 8 DT screw	34	4850693	Pinch roller spring	95	48202152	Sub. chassis
43	2677911	Socket (FM 75) [for BK, ES, SA, EW]	35	4831610	Metal guide	96	48189912	Main base assy
	26583912	DIN antenna socket [for ZS]	36	4839373	RF pulley arm assy	98	4850708	Anti vibration felt mat
△44	3809481	Bushing [except EW]	37	48202252	RF pulley arm spring	99	4833455	PAUSE bracket
△	00437932	Bushing [for EW]	38	4835913	RF arm collar screw	100	48191912	Tapping screw 2 φ x 6
45	4671414	3 φ x 14 DT screw (IC701)	39	48202272	RF belt	101	4835917	Switch bracket
46	3309162	BAL. VOL. KNOB	40	4850703	Flywheel assy	102	4839383	Anti vibration felt mat
47	3309341	L button	41	4833454	Flywheel assy	103	4835915	Motor bracket
			42	4839377	Take up gear plate assy			
			43	4839378	Take up roller gear			
			44	48190202	T.G. plate spring			
			45	4839379	FF gear			
			46	4839370	Back tension spring			
			47	4842431	Supply reel assy			
			48	4839381	Take up reel assy			
			49	4832421	Record safety lever			
			50	4839382	Back tension spring			
			51	48190392	Motor rubber			
			52	48195332	Collar screw			
			53	4833457	Main belt			
			54	4833452	REC. SP plate			
			55	4850696	Eject slide lever			
			56	48190442	Eject slide lever spring			
			57	48190362	Pack spring			
			58	48202182	Switch actuator spring			
			59	48191862	2 φ x 3 tams screw			
			60	48190632	2 φ x 3 C tapping screw			



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