ORDER NO. HAD8705124C0
A2

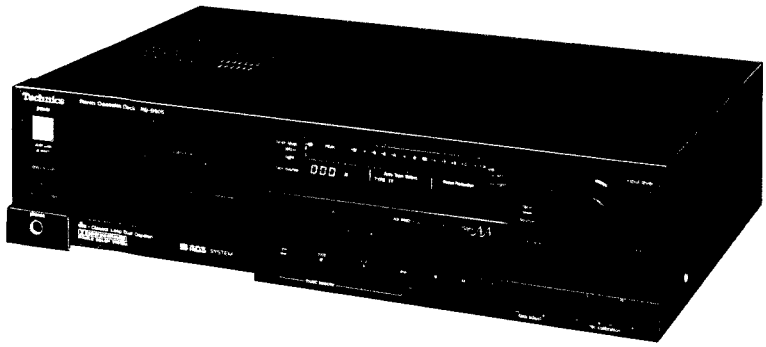
Service Manual

Cassette Deck

RS-B905

** dbx/Closed Loop Dual Capstan
DOUBLE DOLBY SYSTEM

* DOLBY B·C NR HX PRO



Color

(K)...Black Type

Color	Areas
(K)	[M].....U.S.A.
(K)	[MC].....Canada.
(K)	[E].....All European areas except United Kindom.
(K)	[EK].....United Kingdom.
(K)	[EG].....F.R. Germany.
(K)	[EH].....Holland.
(K)	[XA].....Asia, Latin America, Middle Near East, Africa and Oceania.
(K)	[XL].....Australia.
(K)	[XB].....Saudi Arabia.

SPECIFICATIONS

Deck system Stereo cassette deck
Track system 4-track, 2-channel
Heads
REC/PLAY Combination head
Erasing Double-gap ferrite head
Motors
Capstan Electronically controlled DC motor
Reel table drive Electronically controlled DC motor
Recording system AC bias
Bias frequency 85 kHz
Erasing system AC erase
Tape speed 4.8 cm/sec. (1-7/8 ips)
Frequency response
METAL 20 Hz~22 kHz (±15 dB)
30 Hz~21 kHz (DIN)
CrO_2 20 Hz~21 kHz (±15 dB)
30 Hz~20 kHz (DIN)
NORMAL 20 Hz~20 kHz (±15 dB)
30 Hz~19 kHz (DIN)
Dynamic Range (with dbx on) 110 dB (1 kHz)
Max. Input level improvement (with dbx on) 10 dB
S/N (signal level = max recording level, CrO_2 type tape)
dbx on 92 dB (A weighted)
Dolby C NR on 75 dB (CCIR)
Dolby B NR on 67 dB (CCIR)
NR off 57 dB (A weighted)

Wow and flutter 0.04% (WRMS)
±0.12% (DIN)
Fast Forward and Rewind Time
Approx. 95 seconds with C-60 cassette tape
Input sensitivity and impedance
LINE 60 mV/47 kΩ
Output voltage and impedance
LINE 400 mV/2.2 kΩ
HEADPHONES 125 mV/8 Ω

■ GENERAL

Power consumption 25W
Power supply
For U.S.A. and Canada AC 60Hz, 120V
For continental Europe AC 50Hz/60Hz, 220V
For United Kingdom and other area
AC 50Hz/60Hz, 110V/120V/220V/240V
Dimensions (W × H × D) 430 × 125 × 109.5mm
(16-15/16" × 11-7/32" × 4-5/16")
Weight 5kg (11lb.)

* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.
** The term dbx is a registered trademark of dbx Inc.
• Specifications are subject to change without notice.
Weight and dimensions are approximate.

Technics

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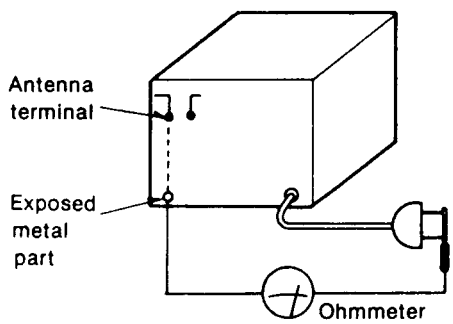
■ SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

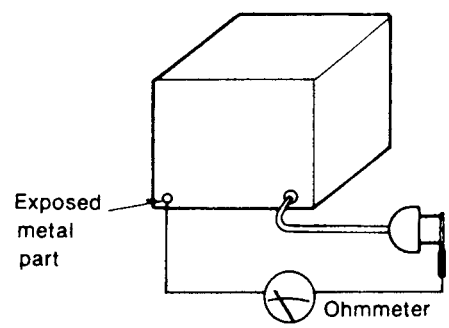
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ



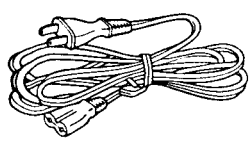
(Fig. B)

Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ ACCESSORIES

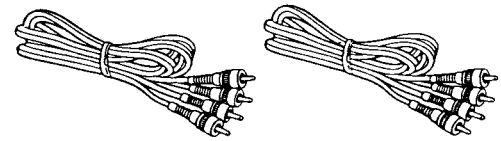
• AC power supply cord...1



(SJA166—[M]
SFDAC05E03—[E, EG, EH]
SFDAC05G02—[EK]
SJA173—[XL]
SJA168—[XA]
SJA183—[XB])

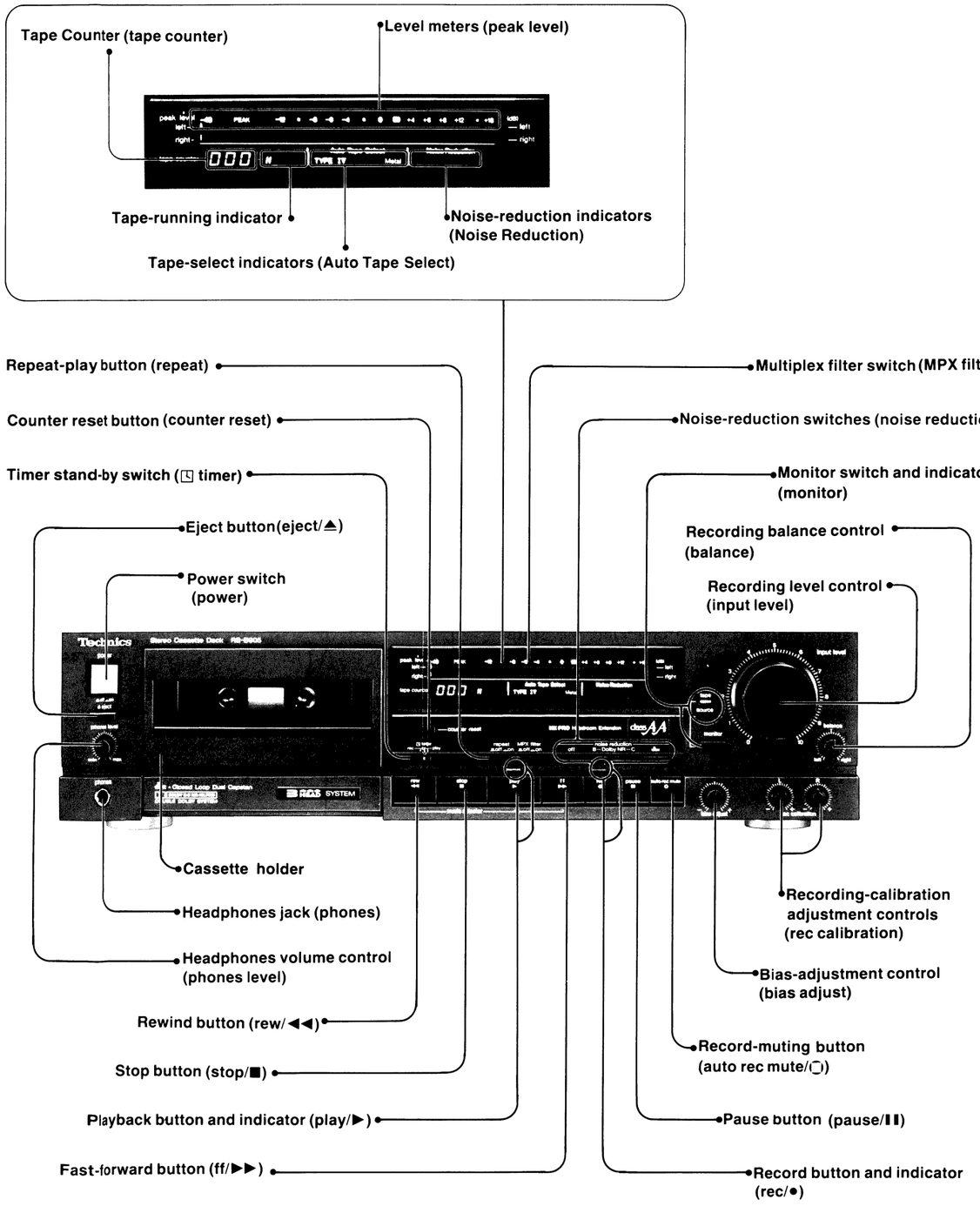
• AC plug adaptor...1 (SJP9215-[XA, XB])

• Stereo connection...2 (SJP2264)

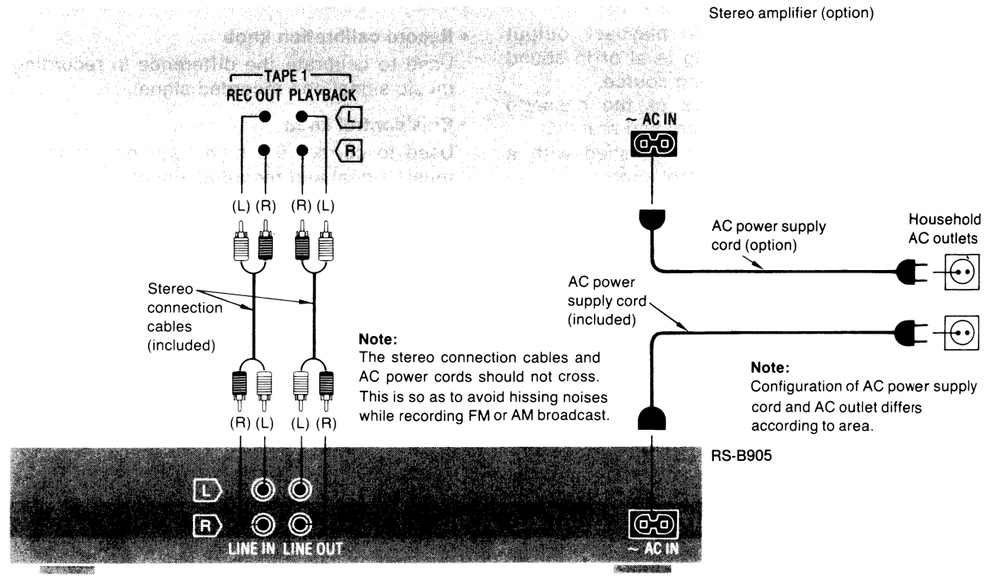


■ LOCATION OF CONTROLS

Front Panel



Rear Panel



■ TECHNICAL GUIDES

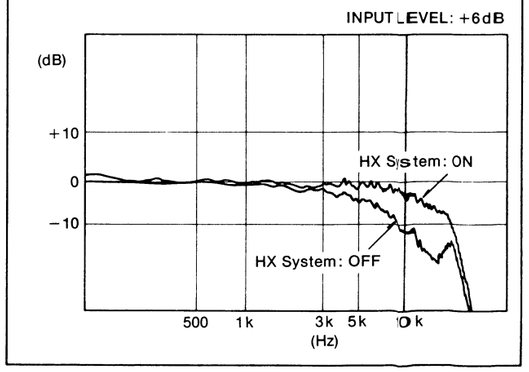
Dolby HX Pro-Head Room Extension System

To record good quality sound, it is necesary to give bias current to the head.
The bias current has characteristics as follows:

- **Increasing the bias current reduces the distortion in low-frequency range but lowers the recording level in high-frequency range.**
- **Decreasing the bias current improves the recording level in high-frequency range but increases the distortion in low-frequency range.**

In the case of a common deck, a specific level of bias current is determined according to the characteristics of recording head. Therefore, bias current cannot be applied to the head according to the frequency levels of music signal.
In order to solve such problems, this unit employs "Dolby HX-Pro". It picks up the high frequency of music source changing at all times, and controls the bias current level according to the changing frequency. It serves to make the bias current level then most suited for the music source.
This system always operates in recording mode irrespective of the noise reduction system, but the dynamic range in record/playback can be further increased by using this system in combination with a noise reduction system. Particularly, combination with the dbx NR system mounted in this unit will double the MOL (Maximum Output Level) in high frequency range, which is suited for the record/play-back of digital source as in CD.

Dolby HX Pro System (NORMAL)



Record Calibration/Bias Control Function

There are sometimes differences in playback output level even in case of same recording level or in sound quality even in case of same recording source.
This is because the characteristics of the cassette tape used are different with the makers and brands.
To solve this problem, this unit is furnished with a record calibration knob and bias control knob.
These knobs can be used to adjust the sound volume and quality while comparing the music signal (original sounds of record and tuner) and recorded signal (sound recorded on tape).
The comparison by hearing can be done by only one monitor switch because this unit is of 3-head type with record, playback and erase heads.

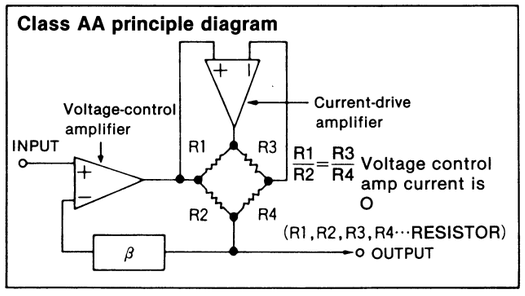
- **Record calibration knob**
  Used to calibrate the difference in recording level of music signal and recorded signal.
- **Bias control knob**
  Used to correct the high-frequency sound quality of music signal and recorded signal.

In this way, the record characteristics will not be distorted by tape, and the characteristics can be kept nearly uniform.

<class AA> Circuit Recording Equalizer Amp

Recording equalizer amp is an amplifier to supply recording current to the head. Usually, loads such as recording head and bias trap circuit (bias current control circuit) are added to the amplifier. Therefore, the current phase and voltage phase are fluctuated causing the recording signal to be distorted. This unit employs "class AA" amp in which two types of amplifier circuits (voltage control amp and current supply amp) different in amplifying system. This recording equalizer amplifier is not influenced by the fluctuation of current phase or voltage phase as mentioned above, and is excellent in waveform response.

Class AA principle diagram



Operation Principles of Noise Reduction System

● Dolby NR B type, C type

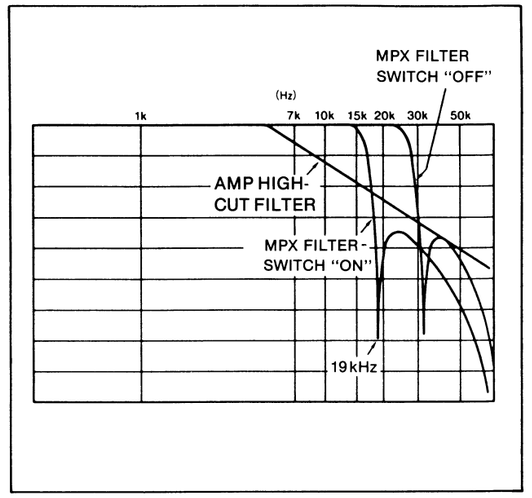
The level of hiss noise generated during playback is constant.
So, it is more offensive to the ear when the music signal level is lower.
Accordingly, raising the signal level during recording and lowering the level during playback will result in reduction of noise generated by the tape.
Dolby NR B type does it in high frequency range, and C type, in high and medium frequency ranges.

● dbx NR

Cassette tape is low in saturation level (limit of recording level). Therefore, distortion will be generated if music signal with large dynamic range (ratio of sound volumes of the weakest sound and the strongest sound) is recorded as it is.
dbx NR halves the music signal during recording and doubles it during playback.
In this way, dynamic range as large as 110dB and noise reduction effect as high as 30dB can be obtained, and good quality sound can be recorded even in case of music source with dynamic range as in CD and live performance.

MPX Filter

If FM stereo broadcast is recorded by dolby NR, then the pilot signal included in the broadcast is also processed by dolby NR as music signal, causing deterioration of sound quality and worsening of noise reduction effect.
To solve this problem, this unit is furnished with MPX filter switch to cut off the pilot signal.
It serves to cut off the 19kHz single frequency of the pilot signal, which is different from a high cut filter installed in an amplifier, etc.
Also, MPX filter hardly causes change of sound quality in a sense of hearing.
(When recording a source other than FM broadcast, set this switch to off (▂ → ▁) position.)

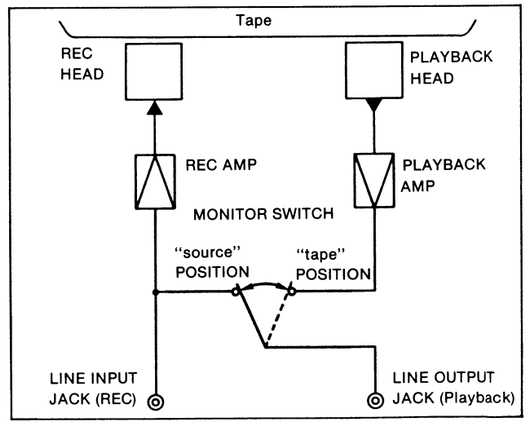


Pilot signal

This signal is used to separate FM broadcast into L (left) and R (right) channels, which is emitted at 19kHz very close to the music frequency band.

Monitor Switch

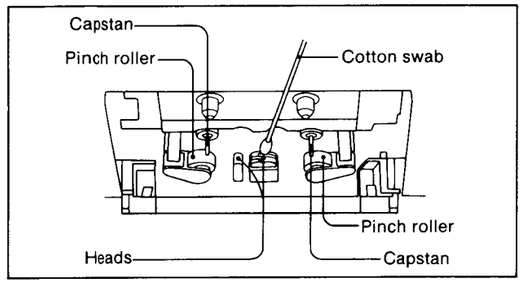
In order to avoid faulty recording such as low sound level or distortion, it is very important to monitor the state of recording.
In the case of a common deck (2-head type), the sound that can be monitored during recording is always the sound before recording. So, when checking the state of actual recording, you have to rewind the tape and play it back.
This unit is of 3-head type, and the record head is independent of the playback head. Also, the sound before recording can be compared with the recorded sound by use of the monitor switch, therefore the state of recording can be easily checked.



Head care

To assure sound quality for recording and playback, be sure to clean the heads after approximately every 10 hours of use.

1) Press the power switch to switch off the electrical power supply of the cassette tape deck.
2) Press the eject button to open the cassette holder.
3) Clean the heads, pinch roller and the capstan shaft with a cotton swab (or with a soft, lint-free cloth) slightly moistened with alcohol.
   Do not use any solution other than alcohol for head cleaning.



Head demagnetization

In order to maintain good sound quality during recording and playback, it is recommended that the head assembly be demagnetized when distortion or poor sound quality persist after cleaning the heads.
If the head assembly becomes magnetized, it could create noise in the recordings, loss of high-frequency response or erasure of valuable recordings. Several types of head demagnetizers are available and may be purchased separately at local electronics supply stores. Follow the instructions that are supplied with the device.

- Do not bring any type of metal objects or tools such as magnetic screwdrivers in contact with the head assembly.

Maintenance of external surfaces

To clean this unit, use a soft, dry cloth.
If the surfaces are extremely dirty, use a soft cloth, dipped into a soap-and-water solution or a weak detergent solution.
Wring the cloth well before wiping the unit.
Wipe once again with a soft, dry cloth.
Never use alcohol, paint thinner, benzine, nor a chemically treated cloth to clean this unit.
Such chemicals may damage the finish of your unit.

■ DISASSEMBLY INSTRUCTIONS

"ATTENTION SERVICER"

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	How to remove the cabinet
Procedure 1	• Remove the 5 screws.

Ref. No. 2	How to remove the power P.C.B. and the main P.C.B.
Procedure 1→2	• Remove the connection rod. • Remove the 5 screws (❻~❿). • Remove the power P.C.B. • Remove the 5 screws (❶~❺). • Remove the main P.C.B.

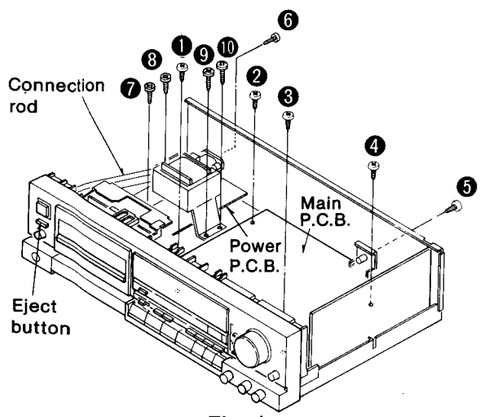


Fig. 1

Ref. No. 3	How to remove the FL meter P.C.B.
Procedure 1→3	• Remove the 4 screws (❶~❹), and then remove the angle. • Pull out the input level control knob and the balance control knob. • Remove the 2 screws (❺, ❻). • Push the 2 tabs.

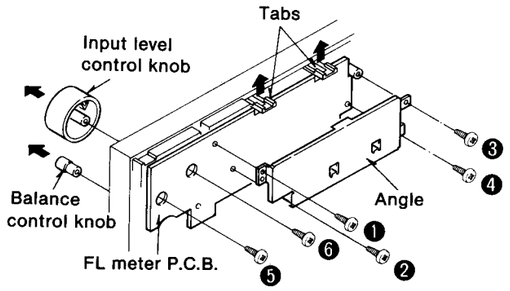


Fig. 2

Ref. No. 4	How to remove the timer P.C.B. and the bias adjust/recording calibration control P.C.B.
Procedure 1→2→3→4	• Romove the screw (❸) and then the timer P.C.B. • Remove the 2 screws (❶, ❷). • Pull out the bias adjust knob. • Remove the bias adjust/recording calibration control P.C.B.

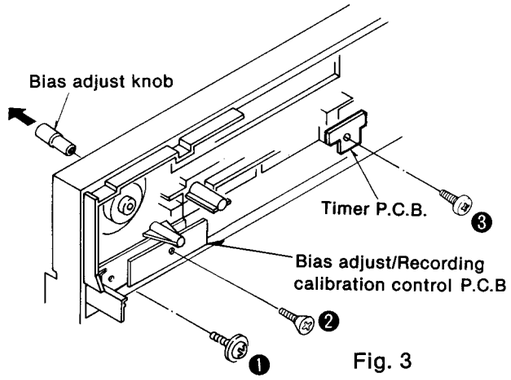


Fig. 3

Ref. No. 5	How to remove the mechanism unit
Procedure 1→5	• Remove the screw (❻) (See the Fig. 5). • Remove the 5 screws (❶~❺). • Push the eject button.

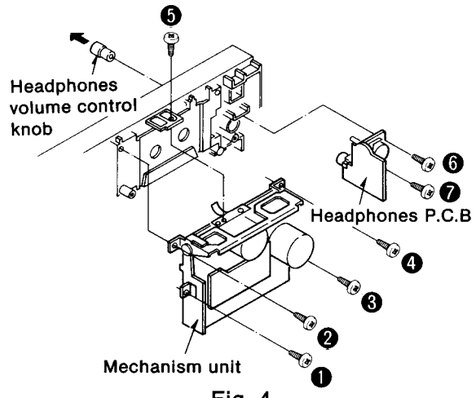


Fig. 4

Ref. No. 6	How to remove the headphones P.C.B.
Procedure 1→6	• Remove the 2 screws (❻, ❼). (See the Fig. 4). • Pull out the headphones volume control knob. (See the Fig. 4).

Ref. No. 7	How to remove the operation switch P.C.B.
Procedure 1→7	• Remove the 5 screws (❶~❺) • Remove the screw (❼). • Pull out the input level control knob and the balance control knob. (See the Fig. 2). • Push the 3 tabs (ⓐ) and then remove the front panel. • Push the 2 tabs (ⓑ).

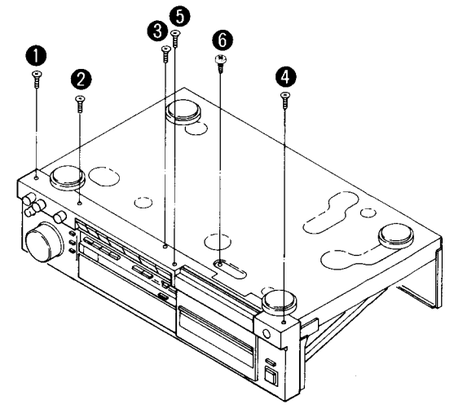


Fig. 5

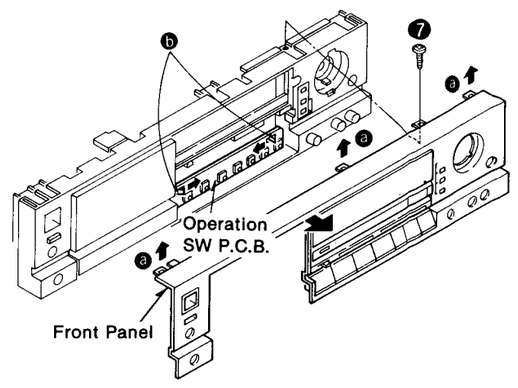


Fig. 6

D

■ MEASUREMENT AND ADJUSTMENT METHODES

Measurement Condition

- Input level controls; Maximum
- Timer start switch; Off
- Noise reduction select switch; Off
- Repeat-play switch; Off
- Multiplex filter switch; Off
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature 20±5°C(68±9°F)

Measuring instrument

- EVM(Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator
- ATT(Attenuator)
- DC voltmeter
- Resistor (600Ω)

Test tape

- Head azimuth adjustment (8kHz, -20dB); QZZCFM
- Tape speed adjustment (3kHz, -10dB); QZZCWAT
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, -20dB); QZZCFM
- Playback gain adjustment (315Hz, 0dB); QZZCFM
- Overall frequency response, Overall gain adjustment
- Normal reference blank tape;QZZCRA
- CrO_2 reference blank tape; QZZCRX
- Metal reference blank tape; QZZCRZ

HEAD AZIMUTH ADJUSTMENT

1.Playback the azimuth adjusment portion (8 kHz, -20 dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the outputs of the L-CH and R-CH are maximized and the lissajous waveform, as illustrated, approaches 0 degrees.

Note: If L-CH and R-CH are not maximized at the same point, adjust to the point where the levels of each channel are maximized and equal.

2.Perform the same adjustment in the play mode.

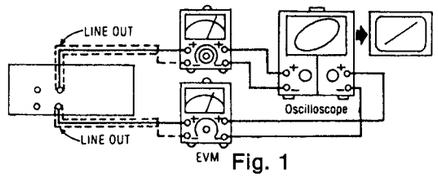


Fig. 1

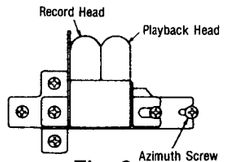


Fig. 2

TAPE SPEED ADJUSTMENT

1.Playback the middle portion of the test tape (QZZCWAT).
2. Adjust the **VR** in the motor **(see Fig. 3)** so that the output is within the standard value.

Standard value: 3000 $^{+15}_{-10}$Hz

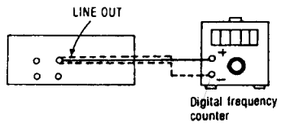


Fig. 3

PLAYBACK GAIN ADUJSTMENT

1.Playback the gain adjusted portion (315 Hz, 0 dB) of the test tape (QZZCFM).
2.Adjust VR1 (L-CH) and VR2 (R-CH) so that the output is within the standard value.

Standard value: 0.4V±0.5dB

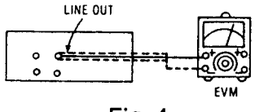


Fig. 4

PLAYBACK FREQUENCY RESPONSE

1.Playback the frequency response portion (315 Hz, 12.5 kHz ~ 63 Hz, -20 dB) of the test tape (QZZCFM).
2.Assure that the frequency response is within the range shown in **Fig. 6** for both L-CH and R-CH.

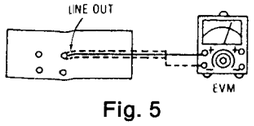


Fig. 5

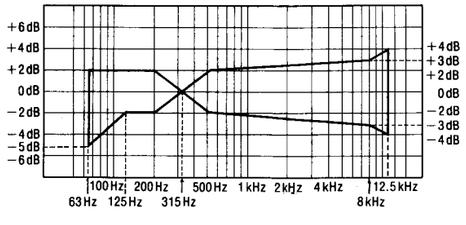


Fig. 6

FLUORESCENT METER ADJUSTMENT

1.Insert the Normal blank test tape (QZZCRA) andapply a reference input signal (1 kHz, -24 dB) in the Record Pause mode.
2.Using an attenuator, adjust it until the voltage of the tape decks "LINE OUT" terminals is 0.4V.

-40 dB ADJUSTMENT

3.Attenuate the signal input level in step 1, by 40 dB and apply it to the unit.
4.Adjust VR61 so that the "-40 dB" segment is slightly illuminated.

-0 dB ADJUSTMENT

5.Set the input signal level as indicated in step 2 above.
6.Adjust VR62 so that the "0 dB" segment is slightly illuminated.
7.Repeat steps 1 ~ 6 above and assure that both the -40 dB and 0 dB segments illuminate slightly.

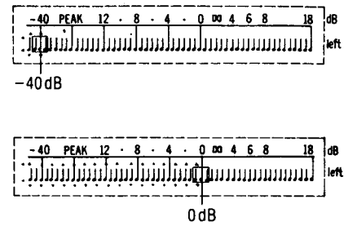


Fig. 7

OVERALL FREQUENCY RESPONSE

1.Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2.Apply a reference input signal (1 kHz, -24 dB) through an attenuator.
3.Attenuate the signal by 20 dB and adjust the frequency from 50 Hz ~ 15 kHz.
4.Record the frequency sweep.
5.Playback the recorded signal and assure that it is within the range shown in **Fig. 9** in comparison to the reference frequency (1 kHz).
6.If it is not within the standard range, adjust VR301 (L-CH) and VR302 (R-CH) so that the frequency level is within the standard range.
- Level up in high frequency range.....Increase the bias current.
- Level down in high frequency range...Decrease the bias current.

7.Repeat steps 2 ~ 6 above using the CrO_2 tape(QZZCRX) and the Metal tape(QZZCRZ) increasing the frequency range to 16 kHz (50Hz~16kHz).
8.Assure that the level is within the range shown in **Fig. 10**.

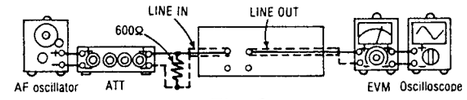


Fig. 8

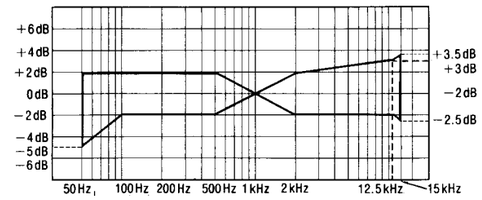


Fig. 9

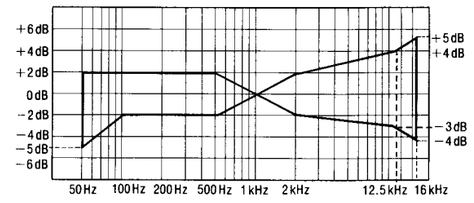


Fig. 10

OVERALL GAIN ADJUSTMENT

1.Insert the Normal blank test tape (QZZCRA) and set the unit to the Record pause mode.
2.Apply a reference input signal (1 kHz, -24 dB). Attenuate the output so that its level becomes 0.4V.
3.Record this input signal.
4.Playback the signal recorded in step 3 above , and assure that the output is within the standard value.
5.If it is not within the standard value, adjust VR151 (L-CH) and VR152 (R-CH).
6.Repeat the step 2 ~ 5 above until the output is within the standard value.

Standard value: 0.4V ± 0.5dB

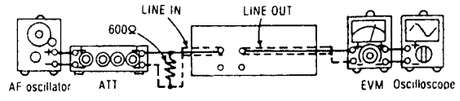


Fig. 11

HX-PRO ADJUSTMENT

1. Insert the Metal blank tape (QZZCRZ) and set the unit to the Record Pause mode.
2. Connect a DC voltmeter across R325 (L-CH., 10 ohms) and R326 (R-CH., 10 ohms).
3. Adjust L303 (L-CH) and L304 (R-CH) so that the voltage becomes less than 110mV DC.

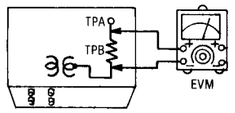


Fig. 12

TPA { TP305 (L-CH) / TP306 (R-CH) TPB { R325 (L-CH) / R326 (R-CH)

dbx TIMING ADJUSTMENT

ENCODE SIDE

1. Set the noise reduction switch to the dbx position.
2. Apply a 1 kHz signal to LINE IN terminals through an attenuator.
3. Connect an AC voltmeter across R565 (L-CH) and R566 (R-CH). Adjust the input signal level so that the voltage is 20 mV.
4. Connect a DC voltmeter across R550 (TP551) and adjust VR551, so that the voltage becomes 15 mV.

DECODE SIDE

5. Repeat steps 1 and 2 above.
6. Connect an AC voltmeter across R515 (L-CH) and R516 (R-CH). Adjust the input signal level so that the voltage is 20 mV.
7. Connect a DC voltmeter across R500 (TP501) and adjust VR501 so that the voltage becomes 15 mV.

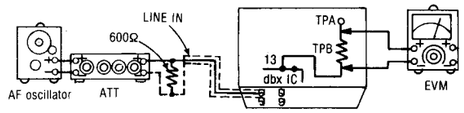


Fig. 13

TPA { TP551 (ENCODE) / TP501 (DECODE)

TPB { R550 (ENCODE) / R500 (DECODE)

dbx GAIN ADJUSTMENT

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record mode.
2. Apply a 1 kHz signal to the "LINE IN" through an attenuator.
3. Adjust the input level so that the meter reading is 0 dB.
4. Connect an AC voltmeter to the "LINE OUT" terminal.
5. Switch the Monitor switch position between "TAPE" and "SOURCE". Adjust VR553 (L-CH) and VR554 (R-CH) so that the voltage difference at "LINE OUT" is within 0.5 dB.

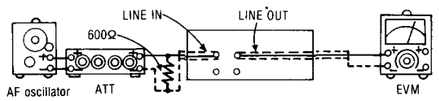
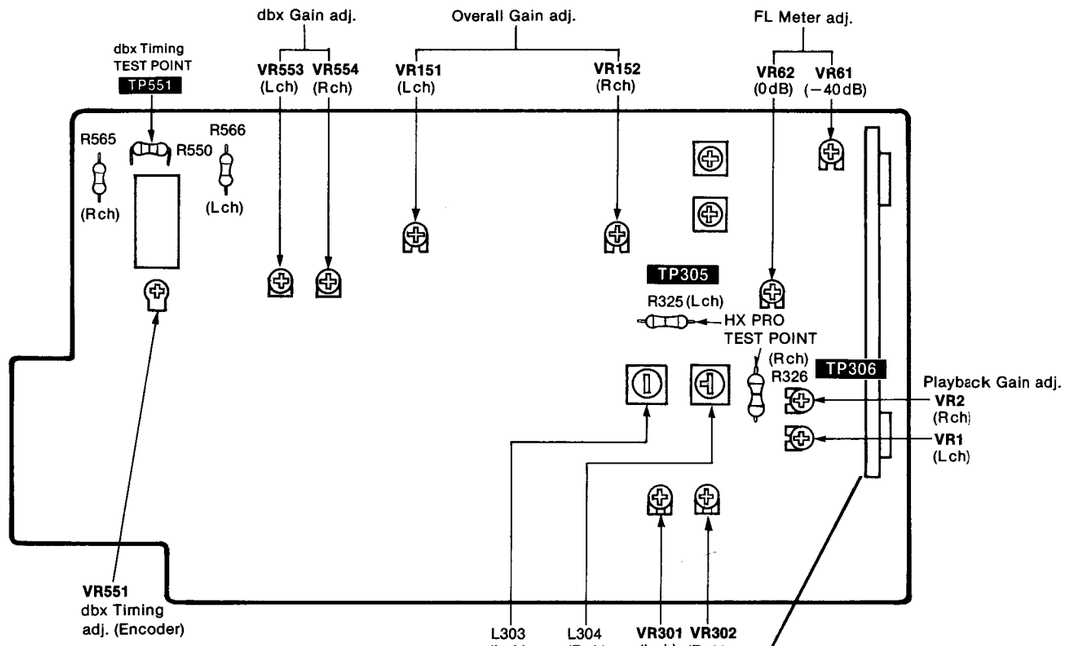


Fig. 14

• Adjust ment point



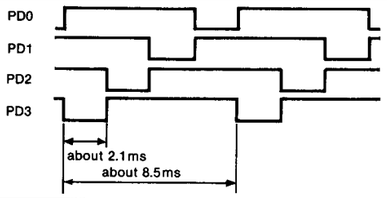
D

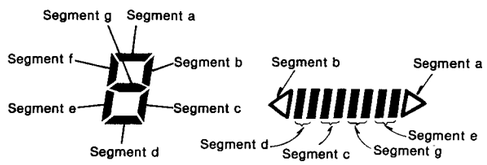
■ MICROCOMPUTER TERMINAL FUNCTION AND WAVEFORM (IC901: LM6495G-2104)

Terminal No.	Symbol	Function/operation
1, 42	XTAL	about 800kHz
2	PC0	Scan input Key scan matrix
3	PC1	
4	PC2	
5	PC3	
6	$\overline{INT}$	Connection of GND
7	$\overline{RES}$	Reset the microcomputer when power switch is thrown in. Reset at "L".
8	PD0	Scan output
9	PD1	
10	PD2	
11	PD3	
12	PE0	Connection of GND
13	PE1	• Segment a (PE 1)
14	PE2	• Segment b (PE 2)
15	PE3	• Segment c (PE 3)
16	PF0	• Segment d (PF 0)
17	PF1	• Segment e (PF 1)
18	PF2	• Segment f (PF 2)
19	PF3	• Segment g (PF 3)
20	TEST	Connection of GND
21	VSS	
22	PG0	Input of Repeat switch ON..."H" OFF..."L"
23	PG1	"L" when REC/REC PAUSE mode switch is on mode. "L" when Timer REC mode is power on in about 1.25sec.
24	PG2	"L" when REC switch is on mode.
25	PG3	"L" when PLAY switch is on mode. • MUSIC SELECTOR mode • PAUSE mode

Key scan matrix

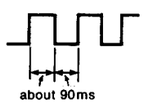
	PD0	PD1	PD2	PD3
PC0	auto rec mute	rew	Timer play	REC INH SW
PC1	pause	ff	Timer rec	PACK SW
PC2	rec	—	monitor sw	—
PC3	stop	play	Counter Reset sw	—

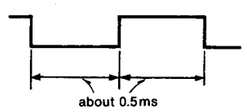




• According to the internal command of IC, the counter number changes with 2 turns of the take-up reel. Also, the running display changes by 1 with 1/2 turn.

• Each waveform changes because of dynamic lighting.



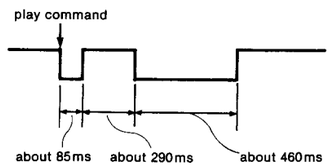


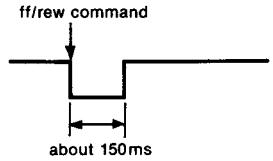
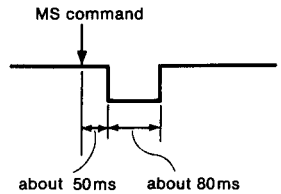
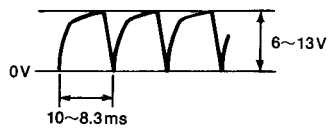
Terminal No.	Symbol	Function/operation
26	PH0	"L" when TAPE of MONITOR SELECTOR and POWER switch is on mode. "L" when PLAY from STOP, PAUSE, FF, REW and MS is moving. (auto monitor select)
27	PH1	"L" when SOURCE of MONITOR SELECT is ON mode. "L" when REC PAUSE mode from STOP and PAUSE ect is moving.
28	MSP	MUSIC SELECTOR, NON RECORDED SPACE pulse input Record..."L" Non-record..."H"
29	PH3	Source mode..."L" Tape mode..."H" FF/REW/MS..."L"
30	PI0	• Meter mute output..."L" (P10)
31	PI1	• Lineout mute output..."H" (P11)
32	PI2	• REC Amp mute output..."L" (P12)

		Stop Pause ff/rew	play	Rec pause		Rec play	
				Normal	A.R.M.	Normal	Auto Rec Mute
TAPE mode	PI0	L	H	L	L	H	L
	PI1	H	L	H	H	L	L
	PI2	L	L	L	L	H	L
SOURCE mode	PI0	H	H	H	L	H	L
	PI1	L	L	L	L	L	L
	PI2	L	L	L	L	H	L

PI0, PI2 { "H"=Muting OFF / "L"=Muting ON PI1 { "H"=Muting ON / "L"=Muting OFF

33	PA0	FF/REW motor speed control PLAY mode..."L"
34	PA1	FF/REW motor drive REW mode..."H"
35	PA2	FF/REW motor drive FF mode..."H"
36	PA3	Capstan motor drive STOP/PAUSE/FF/REW/MS mode..."H" PLAY mode..."L"
37	PB0	Plunger drive During music select mode, plunger attraction is maintained to keep Cue/Review mode.
38	PB1	Plunger drive Mechanism mode selector control output • STOP...PLAY



Terminal No.	Symbol	Function/operation
38	PB1	• STOP...FF/REW  • PLAY...MS 
39	PB2	• Reel base pulse Reel base rotation is detected by photo sensor. Pulses are used for tape-end detection and counter up/down.
40	POF	Power of DET 
41	V_{DD}	Operative on about 5V

D

■ RESISTORS & CAPACITORS

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

Numbering System of Resistor

Example

ERD	25	F	J	102
Type	Wattage	Shape	Tolerance	Value

ERX	2	AN	J	471
Type	Wattage	Shape	Tolerance	Value 47×10^{1} (ohm)

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	330
Type	Voltage	Peculiarity	Value (33×10^{0} microfarad)

Resistor Type	Wattage	Tolerance
ERD : Carbon ERG : Metal Oxide ERX : Metal Film ERQ : Fuse Type Metal ERD□ L : Carbon (chip) ERO□ K : Metal Film (chip) ERC : Solid	10 : 1/8W 12 : 1/2W 25 : 1/4W 1A : 1W 18 : 1/8W S2 : 1/4W S1 : 1/2W 2F : 1/4W 50 : 1/2W 2A : 2W	J : ±5% F : ±1% G : ±2% K : ±10%

Capacitor Type	Voltage	Tolerance
ECE : Electrolytic ECCD : Ceramic ECKD : Ceramic ECQM : Polyester ECQP : Polyproylene ECG : Ceramic ECEA□□□N: Non Polar Electrolytic QCU□ : Ceramic (Chip Type) ECUX : Ceramic (Chip Type) ECF : Semiconductor EECW : Liquid electrolyte double layer capcitor	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1H : 50V 1V : 35V 50 : 50V 05 : 50V 2H : 500V 2A : 100V 1 : 100V KC : 400V AC KC : 125VAC (UL) 1J : 63V	C : ±0.25pF J : ±5% K : ±10% Z : +80% −20% P : +100% −0% M : ±20% D : ±0.5pF G : ±2%

Ref. No.	Part No.	Part Code
RESISTORS		
R1, R2	ERDS2TJ683	001 152 2450 5
R3, R4	ERDS2TJ101	001 152 2421 0
R5, R6	ERDS2TJ684	001 152 2451 4
R7, R8	ERDS2TJ183	001 152 2429 2
R9, R10	ERDS2TJ103	001 152 2347 3
R11, R12	ERDS2TJ223	001 152 2432 7
R13, R14	ERDS2TJ223	001 152 2432 7
R15, R16	ERDS2TJ155	001 152 2766 8
R17, R18	ERDS2TJ223	001 152 2432 7
R19, R20	ERDS2TJ183	001 152 2429 2
R21, R22	ERDS2TJ331	001 152 2356 2
R23	ERDS2TJ222	001 152 2353 5
R51 (M, MC)	ERD25FJ820	001 152 0353 3
R51 (E, EG, EK, EH) (XL, XA, XB)	ERG2SJ820	001 151 5680 6
R52 (M, MC)	ERD25FJ820	001 152 0353 3
R52 (E, EG, EK, EH) (XL, XA, XB)	ERG2SJ820	001 151 5680 6
R53 (M, MC)	ERD25FJ820	001 152 0353 3
R53 (E, EG, EK, EH) (XL, XA, XB)	ERG2SJ820	001 151 5680 6
R54 (M, MC)	ERD25FJ820	001 152 0353 3
R54 (E, EG, EK, EH) (XL, XA, XB)	ERG2SJ820	001 151 5680 6
R60	ERDS2TJ222	001 152 2353 5
R61, R62	ERDS2TJ684	001 152 2451 4
R63, R64	ERD25FJ152	001 152 0237 6
R65, R66	ERDS2TJ103	001 152 2347 3
R67, R68	ERDS2TJ103	001 152 2347 3
R69	ERDS2TJ562	001 152 2445 2
R70	ERDS2TJ471	001 152 2361 5
R71, R72	ERDS2TJ102	001 152 2346 4
R73, R74	ERDS2TJ562	001 152 2445 2
R75, R76	ERD25FJ122	001 152 0226 9
R80	ERDS2TJ104	001 152 2348 2
R101, R102	ERDS2TJ333	001 152 2358 0
R103, R104	ERDS2TJ184	001 152 2588 8
R105, R106	ERDS2TJ242	001 152 3150 0
R107, R108	ERDS2TJ473	001 152 2363 3
R109, R110	ERDS2TJ242	001 152 3150 0
R111, R112	ERDS2TJ684	001 152 2451 4
R113, R114	ERDS2TJ684	001 152 2451 4
R117, R118	ERDS2TJ912	001 152 3003 0
R151, R152	ERD25TJ223	001 152 1863 2
R153, R154	ERDS2TJ472	001 152 2362 4
R157, R158	ERDS2TJ102	001 152 2346 4
R159, R160	ERDS2TJ273	001 152 2436 3
R161, R162	ERDS2TJ822	001 152 2455 0
R163, R164	ERDS2TJ121	001 152 2349 1
R165, R166	ERDS2TJ331	001 152 2356 2
R167, R168	ERDS2TJ151	001 152 2426 5
R169, R170	ERDS2TJ222	001 152 2353 5
R171, R172	ERDS2TJ471	001 152 2361 5
R173, R174	ERDS2TJ122	001 152 2423 8
R175, R176	ERDS2TJ102	001 152 2346 4
R177, R178	ERDS2TJ330	001 152 2355 3
R179, R180	ERDS2TJ332	001 152 2357 1
R181, R182	ERDS2TJ100	001 152 2420 1
R183, R184	ERDS2TJ102	001 152 2346 4
R185, R186	ERDS2TJ682	001 152 2365 1
R201	ERDS2TJ103	001 152 2347 3
R202	ERDS2TJ152	001 152 2350 8
R203	ERDS2TJ101	001 152 2421 0
R204, R206	ERDS2TJ473	001 152 2363 3
R207	ERDS2TJ103	001 152 2347 3
R208	ERDS2TJ332	001 152 2357 1
R209	ERDS2TJ223	001 152 2432 7
R210	ERDS2TJ333	001 152 2358 0
R211	ERDS2TJ472	001 152 2362 4
R212	ERD25FJ472	001 152 0311 3
R213	ERD25FJ103	001 152 0216 1
R214, R215	ERD25TJ223	001 152 1863 2
R216, R217	ERDS2TJ103	001 152 2347 3
R218	ERDS2TJ103	001 152 2347 3
R219	ERDS2TJ223	001 152 2432 7
R220	ERD25TJ223	001 152 1863 2
R221	ERD25FJ331	001 152 0286 7
R222, R223	ERDS2TJ103	001 152 2347 3
R224, R225	ERDS2TJ103	001 152 2347 3
R226	ERDS2TJ103	001 152 2347 3
R227	ERDS2TJ822	001 152 2455 0
R228	ERDS2TJ682	001 152 2365 1
R231	ERD25TJ473	001 152 1904 0
R232	ERDS2TJ223	001 152 2432 7
R301	ERD25FJ1R0	001 152 0208 1
R303, R304	ERDS2TJ223	001 152 2432 7
R305, R306	ERD25FJ180	001 152 0246 5
R307 (M, MC)	ERD25FJ221	001 152 0260 7
R307 (E, EG, EK, EH) (XL, XA, XB)	ERG2SJ221	001 151 3783 8
R308 (M, MC)	ERD25FJ561	001 152 0327 5
R308 (E, EG, EK, EH) (XL, XA, XB)	ERG1SJ561	001 151 4890 2
R315, R316	ERDS2TJ154	001 152 2427 4
R317, R318	ERDS2TJ333	001 152 2358 0
R321	ERDS2TJ332	001 152 2357 1
R322	ERDS2TJ682	001 152 2365 1
R323	ERDS2TJ102	001 152 2346 4
R324	ERD25FJ103	001 152 0216 1
R325	ERD2FCG100	001 152 0185 1
R325 (E, EG, EK, EH) (XL, XA, XB)	ERD25FJ100	001 152 0213 4
R326 (M, MC)	ERD2FCG100	001 152 0185 1
R326 (E, EG, EK, EH) (XL, XA, XB)	ERD25FJ100	001 152 0213 4
R331, R332	ERD25FJ100	001 152 0213 4
R333	ERD25TJ473	001 152 1904 0
R334	ERD25FJ152	001 152 0237 6
R335	ERDS2TJ472	001 152 2362 4
R336	ERDS2TJ104	001 152 2348 2
R337	ERD25TJ154	001 152 0450 3

D

■ RESISTORS & CAPACITORS

Ref. No.	Part No.	Part Code
R401	ERDS2TJ473	001 152 2363 3
R405, R406	ERDS2TJ112	001 152 3889 4
R409, R410	ERDS2TJ332	001 152 2357 1
R411, R412	ERDS2TJ102	001 152 2346 4
R413, R414	ERDS2TJ333	001 152 2358 0
R415, R416	ERDS2TJ823	001 152 2456 9
R417, R418	ERDS2TJ512	001 152 2596 8
R419, R420	ERDS2TJ683	001 152 2450 5
R421, R422	ERDS2TJ222	001 152 2353 5
R423, R424	ERDS2TJ823	001 152 2456 9
R433	ERD25FJ752	001 152 0349 9
R434	ERDS2TJ752	001 152 2894 1
R435	ERD25TJ473	001 152 1904 0
R444	ERDS2TJ472	001 152 2362 4
R455, R456	ERDS2TJ102	001 152 2346 4
R457, R458	ERDS2TJ123	001 152 2424 7
R459, R460	ERDS2TJ332	001 152 2357 1
R461, R462	ERDS2TJ102	001 152 2346 4
R463, R464	ERDS2TJ333	001 152 2358 0
R465, R466	ERDS2TJ823	001 152 2456 9
R467, R468	ERDS2TJ512	001 152 2596 8
R469, R470	ERDS2TJ683	001 152 2450 5
R471, R472	ERDS2TJ222	001 152 2353 5
R473, R474	ERDS2TJ823	001 152 2456 9
R491	ERDS2TJ103	001 152 2347 3
R492	ERD25FJ103	001 152 0216 1
R493	ERDS2TJ103	001 152 2347 3
R495	ERDS2TJ473	001 152 2363 3
R500	ERD25FJ102	001 152 0215 2
R503, R504	ERDS2TJ274	001 152 2437 2
R505	ERD25FJ822	001 152 0355 1
R506	ERDS2TJ822	001 152 2455 0
R507, R508	ERDS2TJ122	001 152 2423 8
R509, R510	ERDS2TJ154	001 152 2427 4
R511, R512	ERDS2TJ104	001 152 2348 2
R513, R514	ERDS2TJ104	001 152 2348 2
R515, R516	ERDS2TJ332	001 152 2357 1
R517, R518	ERDS2TJ472	001 152 2362 4
R519, R520	ERDS2TJ153	001 152 2351 7
R521, R522	ERDS2TJ333	001 152 2358 0
R523, R524	ERDS2TJ244	001 152 2767 7
R525, R526	ERDS2TJ472	001 152 2362 4
R527, R528	ERDS2TJ153	001 152 2351 7
R529, R530	ERDS2TJ153	001 152 2351 7
R531, R532	ERDS2TJ332	001 152 2357 1
R533, R534	ERDS2TJ103	001 152 2347 3
R535, R536	ERDS2TJ102	001 152 2346 4
R537, R538	ERDS2TJ151	001 152 2426 5
R539, R540	ERDS2TJ223	001 152 2432 7
R541, R542	ERDS2TJ682	001 152 2365 1
R543, R544	ERDS2TJ102	001 152 2346 4
R547	ERDS2TJ472	001 152 2362 4
R550	ERD25FJ102	001 152 0215 2
R553, R554	ERDS2TJ473	001 152 2363 3
R555, R556	ERDS2TJ682	001 152 2365 1
R557, R558	ERDS2TJ152	001 152 2350 8
R559, R560	ERDS2TJ154	001 152 2427 4
R561, R562	ERDS2TJ104	001 152 2348 2
R563, R564	ERDS2TJ563	001 152 2446 1
R565, R566	ERDS2TJ332	001 152 2357 1
R567, R568	ERDS2TJ472	001 152 2362 4
R569, R570	ERDS2TJ153	001 152 2351 7
R571, R572	ERDS2TJ333	001 152 2358 0
R573, R574	ERDS2TJ244	001 152 2767 7
R575, R576	ERDS2TJ472	001 152 2362 4
R577, R578	ERDS2TJ153	001 152 2351 7
R579, R580	ERDS2TJ153	001 152 2351 7
R581, R582	ERDS2TJ332	001 152 2357 1
R583, R584	ERDS2TJ103	001 152 2347 3
R585, R586	ERDS2TJ102	001 152 2346 4
R587, R588	ERDS2TJ151	001 152 2426 5
R589, R590	ERDS2TJ153	001 152 2351 7
R591, R592	ERDS2TJ472	001 152 2362 4
R593, R594	ERDS2TJ102	001 152 2346 4
R597	ERDS2TJ472	001 152 2362 4
R598	ERDS2TJ103	001 152 2347 3
R599	ERD25FJ151	001 152 0236 7
(M, MC)		
R599	ERG1SJ151	001 151 2990 7
(E, EG, EK, EH)		
(XL, XA, XB)		
R603	ERD25FJ331	001 152 0286 7
R604	ERD25FJ561	001 152 0327 5
R607 ⚠	ERD25FJ822	001 152 0355 1
R608 ⚠	ERDS2TJ682	001 152 2365 1
R611	ERD25FJ221	001 152 0260 7
(M, MC)		
R611	ERGF1SJ221	001 151 3084 8
(E, EG, EK, EH)		
(XL, XA, XB)		
R612	ERDS2TJ152	001 152 2350 8
R707	ERDS2TJ102	001 152 2346 4
R711	ERDS2TJ101	001 152 2421 0
(M, MC)		
R711	ERD2FCG101	001 152 0186 0
(E, EG, EK, EH)		
(XL, XA, XB)		
R713	ERDS2TJ103	001 152 2347 3
R715	ERDS2TJ181	001 152 2428 3
(M, MC)		
R715	ERD2FCG181	001 152 0189 7
(E, EG, EK, EH)		
(XL, XA, XB)		
R716	ERDS2TJ181	001 152 2428 3
(M, MC)		
R716	ERD2FCG181	001 152 0189 7
(E, EG, EK, EH)		
(XL, XA, XB)		
R731	ERDS2TJ103	001 152 2347 3
R733, R734	ERDS2TJ273	001 152 2436 3
R735, R736	ERDS2TJ124	001 152 2425 6
R739	ERDS2TJ121	001 152 2349 1
(M, MC)		
R739, R740	ERD2FCG121	001 152 0187 9
(E, EG, EK, EH)		
(XL, XA, XB)		
R740	ERD25FJ121	001 152 0225 0
(M, MC)		
R741, R742	ERD25FJ680	001 152 0341 7
R751	ERDS2TJ222	001 152 2353 5
R752	ERDS2TJ472	001 152 2362 4
R753	ERD25TJ123	001 152 2077 6
R754, R755	ERDS2TJ333	001 152 2358 0
R756, R757	ERDS2TJ333	001 152 2358 0
R761, R762	ERDS2TJ392	001 152 2439 0
R901	ERD2FCG100	001 152 0185 1
(E, EG, EK, EH)		
(XL, XA, XB)		
R901	ERD25FJ100	001 152 0213 4
(M, MC)		
R902	ERDS2TJ821	001 152 2454 1
R903	ERDS2TJ332	001 152 2357 1
R904	ERDS2TJ103	001 152 2347 3
R905	ERDS2TJ683	001 152 2450 5
R906	ERDS2TJ105	001 152 2422 9
R912, R913	ERD25TJ473	001 152 1904 0
R914, R915	ERD25TJ473	001 152 1904 0
R919, R920	ERDS2TJ105	001 152 2422 9
R921, R922	ERDS2TJ821	001 152 2454 1
R923	ERDS2TJ821	001 152 2454 1
R924, R925	ERDS2TJ103	001 152 2347 3
R926	ERDS2TJ473	001 152 2363 3
R927	ERDS2TJ122	001 152 2423 8
R928	ERDS2TJ561	001 152 2364 2
R929	ERDS2TJ471	001 152 2361 5
R930	ERDS2TJ122	001 152 2423 8
R932	ERDS2TJ103	001 152 2347 3
R933	ERG2SJ330	001 151 4037 1
(M, MC)		
R934	ERDS2TJ103	001 152 2347 3
R935	ERX1SJ4R7	001 151 2922 9
(E, EG, EK, EH)		
(XL, XA, XB)		
R936	ERX2SJ4R7	001 151 3611 7
(E, EG, EK, EH)		
(XL, XA, XB)		
R937	ERDS2TJ271	001 152 2435 4
R938	ERD2FCJ4R7	001 152 2480 9
(E, EG, EK, EH)		
(XL, XA, XB)		
R938	ERG1SJ330	001 151 2991 6
(M, MC)		
R939	ERDS2TJ392	001 152 2439 0
R940	ERD25FJ391	001 152 0299 2
R941, R943	ERDS2TJ103	001 152 2347 3
R944	ERDS2TJ223	001 152 2432 7
R945	ERDS2TJ682	001 152 2365 1
R946	ERDS2TJ471	001 152 2361 5
R951	ERDS2TJ331	001 152 2356 2
R953, R954	ERG2SJ330	001 151 4037 1
(E, EG, EK, EH)		
(XL, XA, XB)		

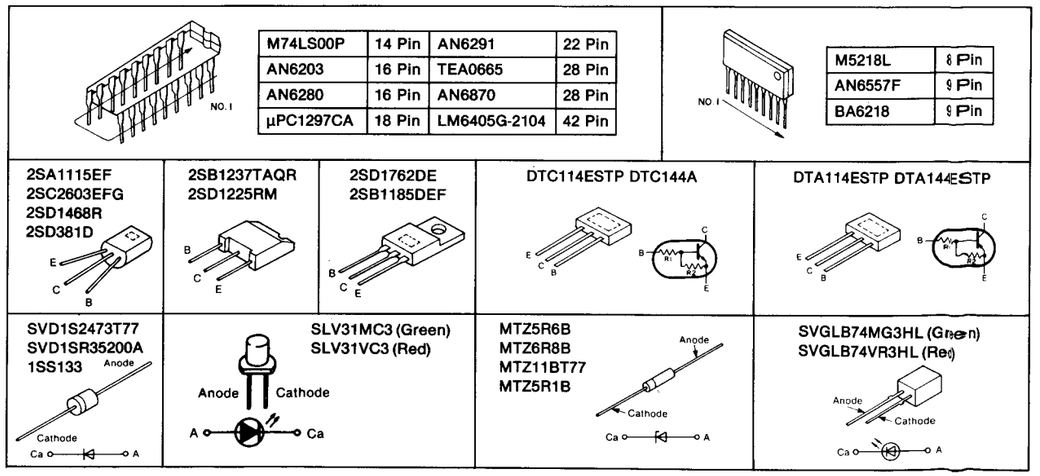
CAPACITORS

C1, C2	ECBT1H221KB	001 103 3519 2
C3, C4	ECCF1H121J	001 103 0378 9
C5, C6	ECEA0JS221	001 120 2925 9
C7, C8	ECCF1H121J	001 103 0378 9
C9, C10	ECQM1H472JZ	001 106 0801 0
C11, C12	ECCD1H470K	001 103 0627 1
C13, C14	ECKD1H152KB	001 103 1467 5
C21, C22	ECEA1CU100	001 120 2905 3
C51, C52	ECEA1AU331	001 120 3649 6
C53, C54	ECEA1AU331	001 120 3649 6
C61	ECEA1CU222	001 120 3074 3
(E, EG, EK)		
(EH, XL, XA) (XB)		
C61 (M, MC)	ECEA50ZR68	
C62	ECEA50ZR68	001 120 1290 5
C63, C64	ECEA1HU2R2	001 120 3253 2
C65	ECEA1EU101	001 120 2837 8
C67	ECEA1HSR33	001 120 3248 9
C69	ECEA1HU2R2	001 120 3253 2
C71, C72	ECEA1CU100	001 120 2905 3
C73, C74	ECKD1H122KB	001 103 1459 5
C75, C76	ECEA1CU100	001 120 2905 3
C101, C102	ECEA1HU2R2	001 120 3253 2
C103, C104	ECCD1H470K	001 103 0627 1
C105, C106	ECEA1CU100	001 120 2905 3
C107, C108	ECKD1H152KB	001 103 1467 5
C109, C110	ECKD1H122KB	001 103 1459 5
C111, C112	ECEA1CU220	001 120 2906 2
C115, C116	ECEA1HU010	001 120 2842 1
C121	ECEA1EU4R7	001 120 2840 3
C153, C154	ECBT1H221KB	001 103 3519 2
C155, C156	ECEA1HSR33	001 120 3248 9
C157, C158	ECQM1H183JZ	001 106 0723 7
C159, C160	ECQM1H822JZ	001 106 0845 8
C161, C162	ECQM1H562JZ	001 106 0820 7
C165, C166	ECQM1H183JV	
C169, C170	ECQM1H183JV	
C173, C174	ECEA1HU010	001 120 2842 1
C175, C176	ECBT1H561KB5	001 103 9079 1
C177, C178	ECCF1H121J	001 103 0378 9
C202	ECQM1H822JZ	001 106 0845 8
C203	ECEA1CU100	001 120 2905 3
C204	ECCD1H470K	001 103 0627 1
C205	ECEA1HU010	001 120 2842 1
C212	ECEA1CU100	001 120 2905 3
C213	ECEA1CU470	001 120 2835 0
C220	ECEA1CN4R7A	001 120 2868 1
C221	ECEA1EU4R7	001 120 2840 3
C301	ECQP1153JZW	001 106 3505 3
C302	ECCW1H100D5	001 103 6137 0
C303	ECQM1H562JZ	001 106 0820 7
C304, C305	ECQM1H472JZ	001 106 0801 0
C306	ECQM1H472JZ	001 106 0801 0
C307	ECEA1EU101	001 120 2837 8
C315, C316	ECKD1H223PF	001 103 1510 9
C317, C318	ECCF1H121J	001 103 0378 9
C319, C320	ECBA1H681KB5	001 103 9167 2

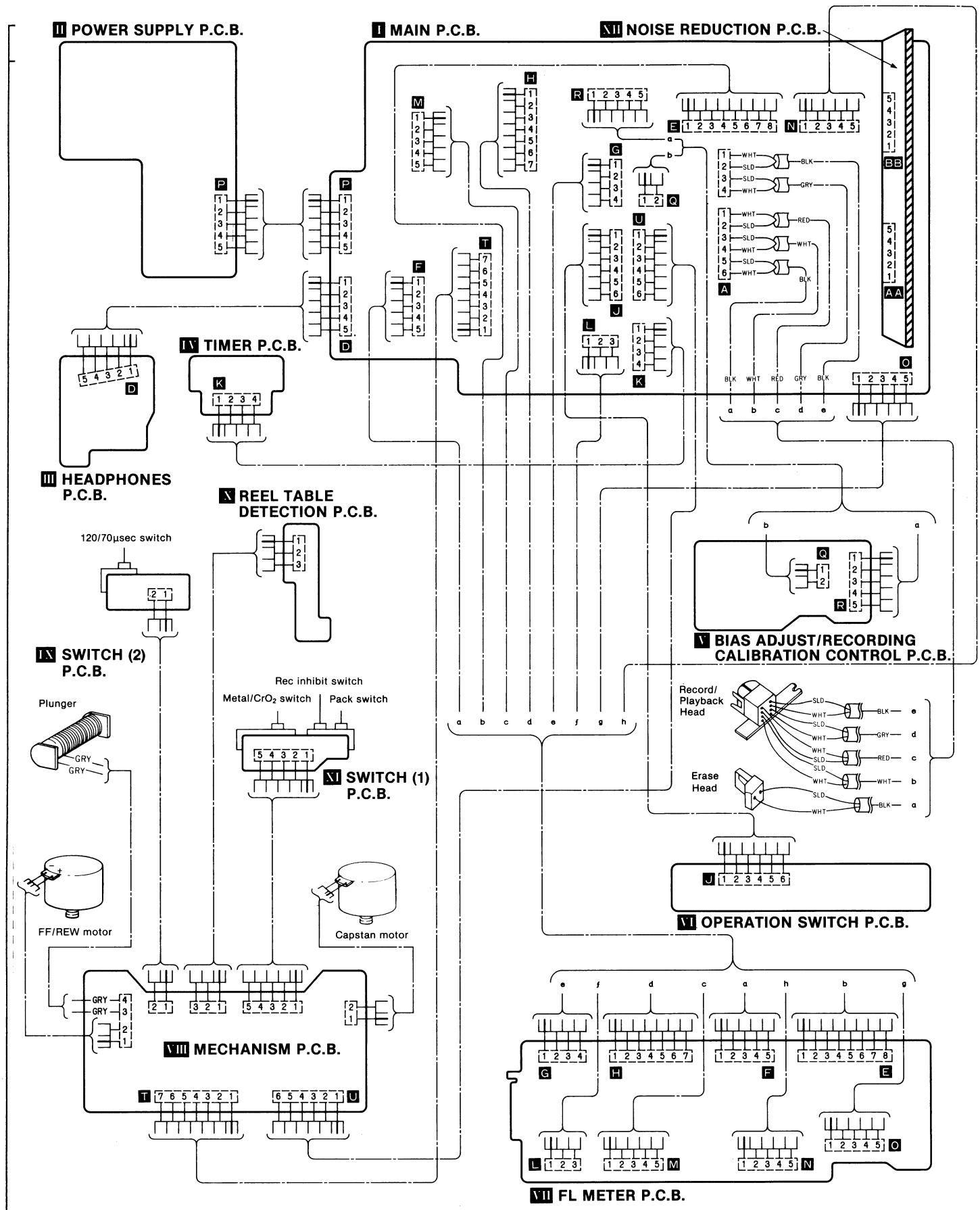
■ RESISTORS & CAPACITORS

Ref. No.	Part No.	Part Code
C321, C322	ECBT1H561KB5	001 103 9079 1
C323, C324	ECQM1H223JZ	001 106 0739 9
C325, C326	ECQV1H104JZ	001 106 2571 7
C327, C328	ECQM1H103JZ	001 106 0667 8
C330	ECEA1CU100	001 120 2905 3
C403, C404	ECQM1H472JZ	001 106 0801 0
C405, C406	ECEA1CU100	001 120 2905 3
C407, C408	ECQM1H473JZ	001 106 0810 9
C409, C410	ECQV1H224JZ	001 106 3625 6
C411, C412	ECEA50ZR68	001 120 1290 5
C413, C414	ECQM1H103JZ	001 106 0667 8
C415, C416	ECQM1H472JZ	001 106 0801 0
C417, C418	ECEA1CU100	001 120 2905 3
C419, C420	ECQM1H473JZ	001 106 0810 9
C421, C422	ECQV1H224JZ	001 106 3625 6
C423, C424	ECEA50ZR68	001 120 1290 5
C431, C432	ECEA1EU4R7	001 120 2840 3
C433, C434	ECEA1CU100	001 120 2905 3
C444	ECEA1HU010	001 120 2842 1
C451, C452	ECEA1CU100	001 120 2905 3
C453, C454	ECQM1H472JZ	001 106 0801 0
C455, C456	ECEA1CU100	001 120 2905 3
C457, C458	ECQM1H473JZ	001 106 0810 9
C459, C460	ECQV1H224JZ	001 106 3625 6
C461, C462	ECEA50ZR68	001 120 1290 5
C463, C464	ECQM1H103JZ	001 106 0667 8
C465, C466	ECQM1H472JZ	001 106 0801 0
C467, C468	ECEA1CU100	001 120 2905 3
C469, C470	ECQM1H473JZ	001 106 0810 9
C471, C472	ECQV1H224JZ	001 106 3625 6
C473, C474	ECEA50ZR68	001 120 1290 5
C481, C482	ECEA1EU4R7	001 120 2840 3
C494	ECEA1HU010	001 120 2842 1
C503, C504	ECKD1H122KB	001 103 1459 5
C505, C506	ECQM1H183JZ	001 106 0723 7
C511, C512	ECEA1HSR33	001 120 3248 9
C513, C514	ECCD1H391J	001 103 0605 7
C515, C516	ECEA50ZR68	001 120 1290 5
C517, C518	ECQV1H104JZ	001 106 2571 7
C519, C520	ECQV1H104JZ	001 106 2571 7
C521, C522	ECQM1H332JZ	001 106 0774 6
C523, C524	ECQM1H332JZ	001 106 0774 6
C525, C526	ECCD1H391J	001 103 0605 7
C527, C528	ECQM1H333JZ	001 106 0779 1
C529, C530	ECEA1HSR33	001 120 3248 9
C531, C532	ECEA16Z10	001 120 0699 8
C533, C534	ECEA0JU470	001 120 3125 9
C535, C536	ECQM1H472JZ	001 106 0801 0
C537, C538	ECQM1H153JZ	001 106 0704 0
C539	ECEA1HU010	001 120 2842 1
C540, C541	ECEA1CU100	001 120 2905 3
C542	ECEA1CU100	001 120 2905 3
C543, C544	ECQM1H332JZ	001 106 0774 6
C547	ECEA1CKS100	001 120 2600 7
C561, C562	ECEA1HU010	001 120 2842 1
C563, C564	ECQM1H223JZ	001 106 0739 9
C565, C566	ECEA50ZR68	001 120 1290 5
C567, C568	ECQV1H104JZ	001 106 2571 7
C569, C570	ECQV1H104JZ	001 106 2571 7
C571, C572	ECQM1H332JZ	001 106 0774 6
C573, C574	ECQM1H332JZ	001 106 0774 6
C575, C576	ECCD1H391J	001 103 6042 6
C577, C578	ECQM1H333JZ	001 106 0779 1
C579, C580	ECEA1HSR33	001 120 3248 9
C581, C582	ECEA16Z10	001 120 0699 8
C583, C584	ECEA1CU470	001 120 2835 0
C585, C586	ECQM1H472JZ	001 106 0801 0
C587, C588	ECCD1H391J	001 103 6042 6
C589	ECEA1HU010	001 120 2842 1
C590, C591	ECEA1CU100	001 120 2905 3
C592, C597	ECEA1CU100	001 120 2905 3
C599	ECEA1AU331	001 120 3649 6
C601	ECEA25V2200	001 120 3126 8
C602 ⚠	ECEA25V2200	001 120 3126 8
C603, C604 ⚠	ECKD1H223PF	001 103 1510 9
C605, C606 ⚠	ECEA1CU331	001 120 3200 5
C607	ECEA1CU332	001 120 3201 4
C610 ⚠	ECKD1H223PF	001 103 1510 9
C615 ⚠	ECKDKC103PF2	001 103 3734 7
C616	ECEA1CU101	001 120 2926 8
C617	ECEA1VU470	001 120 2843 0
C701	ECQV1H393JZW	001 106 5328 4
C711, C712	ECEA1EU4R7	001 120 2840 3
C715, C716	RCBS1H220JCY	001 103 5600 2
C752	ECQM1H103JZ	001 106 0667 8
C901	ECKD1H122KB	001 103 1459 5
C902	ECEA1CU100	001 120 2905 3
C903 ⚠	ECKD1H223PF	001 103 1510 9
C904	ECEA1EU4R7	001 120 2840 3
C905	ECEA1HU2R2	001 120 3253 2
C906, C907	ECBT1H221KB	001 103 3519 2
C908 ⚠	ECKD1H103PF	001 103 1449 7
C911	ECEA1CN100S	001 120 0233 8
C912	ECEA1CU470	001 120 2835 0
C915	ECKD1H152KB	001 103 1467 5
(E, EG, EK)		
(EH, XL, XA)		
(XB)		

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

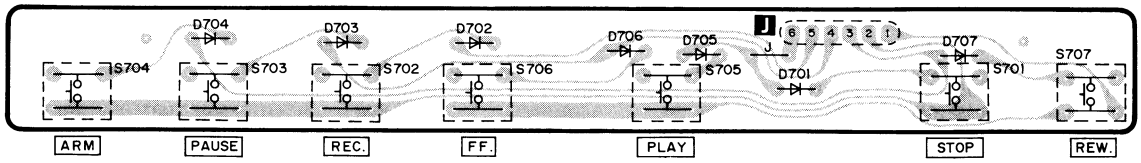


■ WIRING CONNECTION DIAGRAM

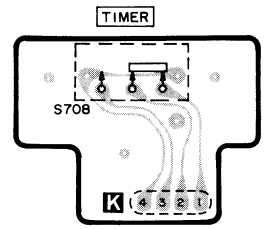


■ PRINTED CIRCUIT BOARDS

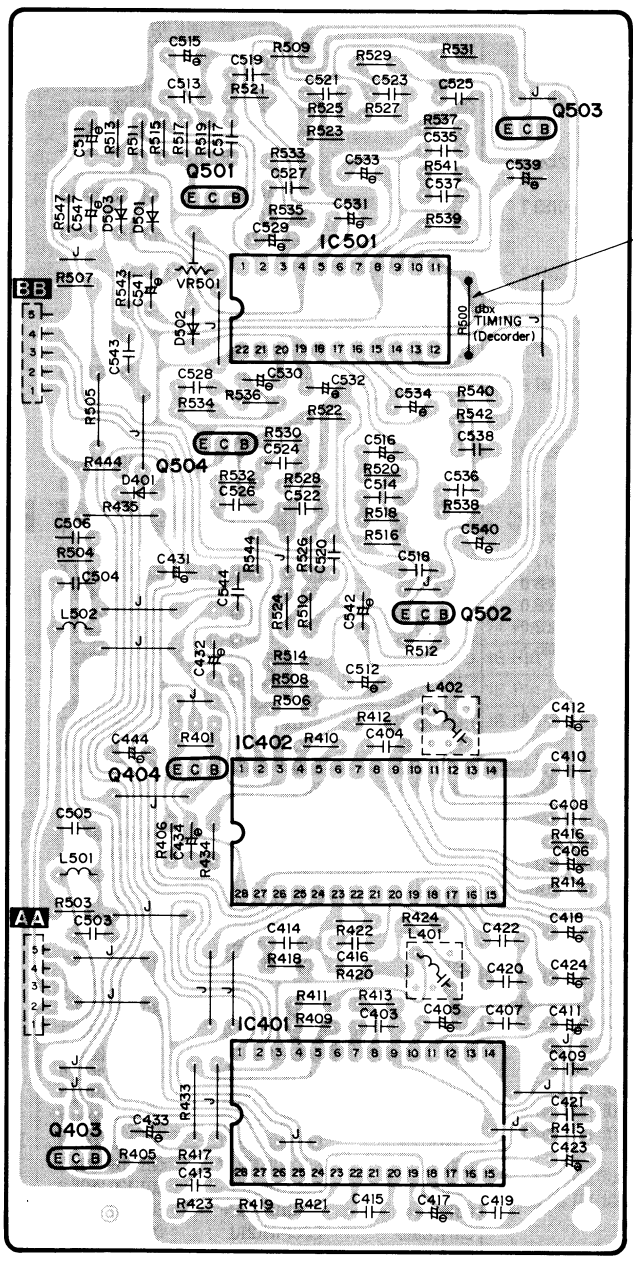
VI OPERATION SWITCH P.C.B.



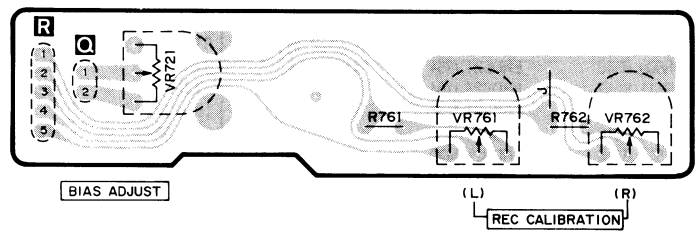
IV TIMER P.C.B.



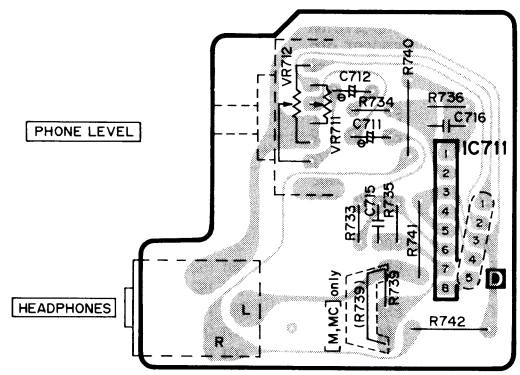
XII NOISE REDUCTION P.C.B.



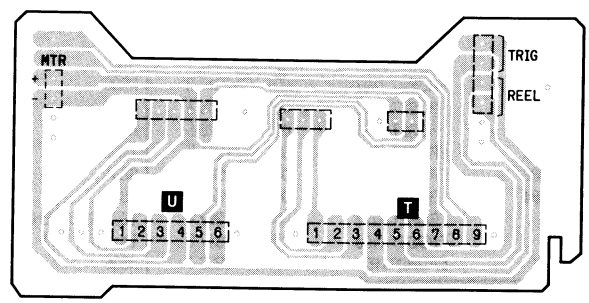
V BIAS ADJUST/RECORDING CALIBRATION CONTROL P.C.B.



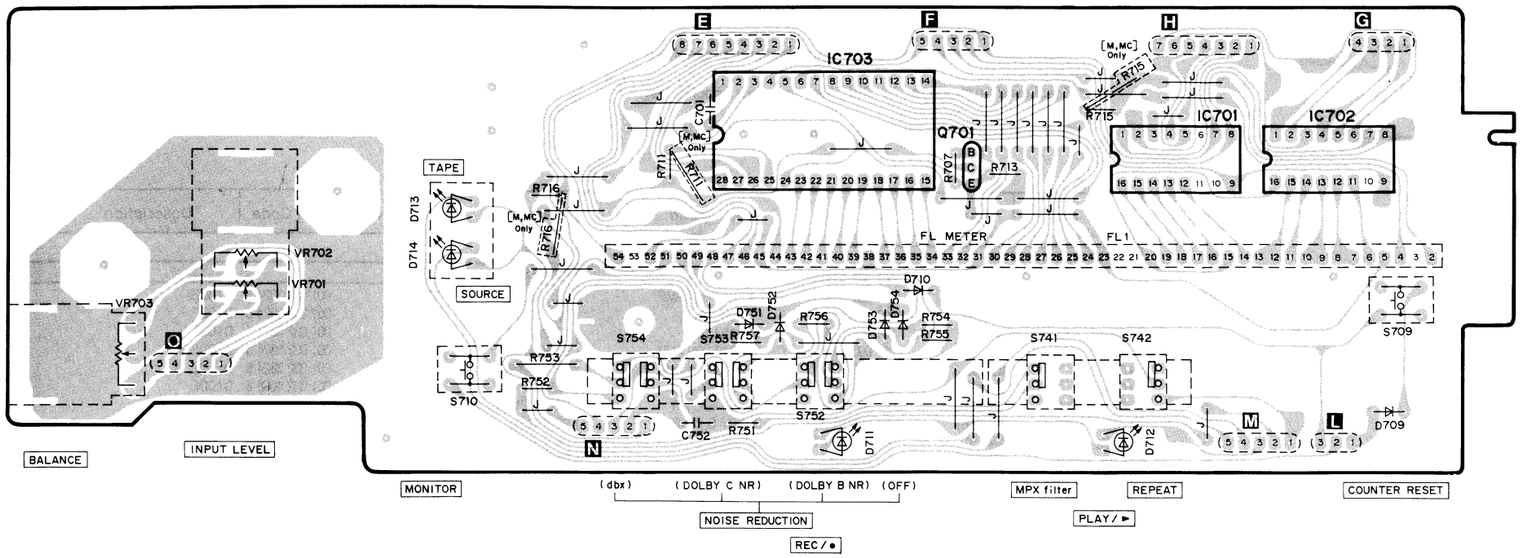
III HEADPHONES P.C.B.



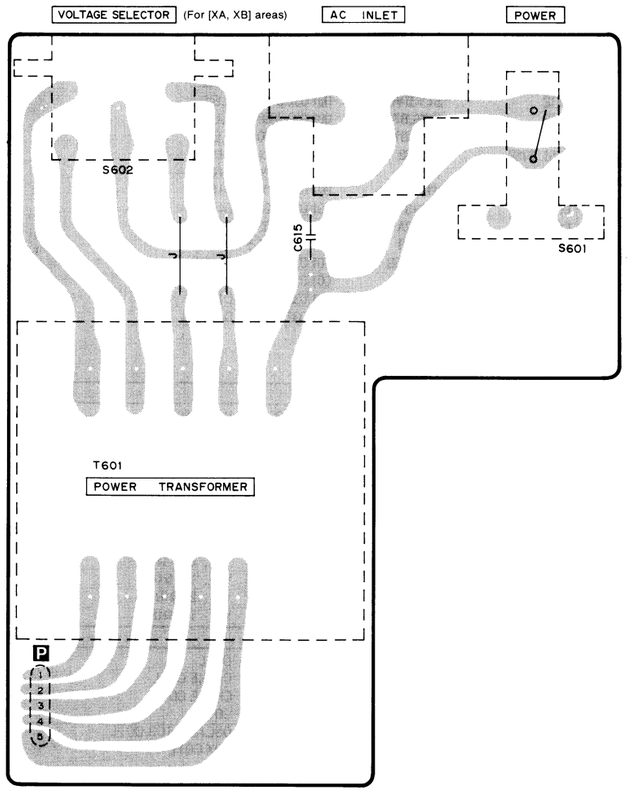
VIII MECHANISM P.C.B.



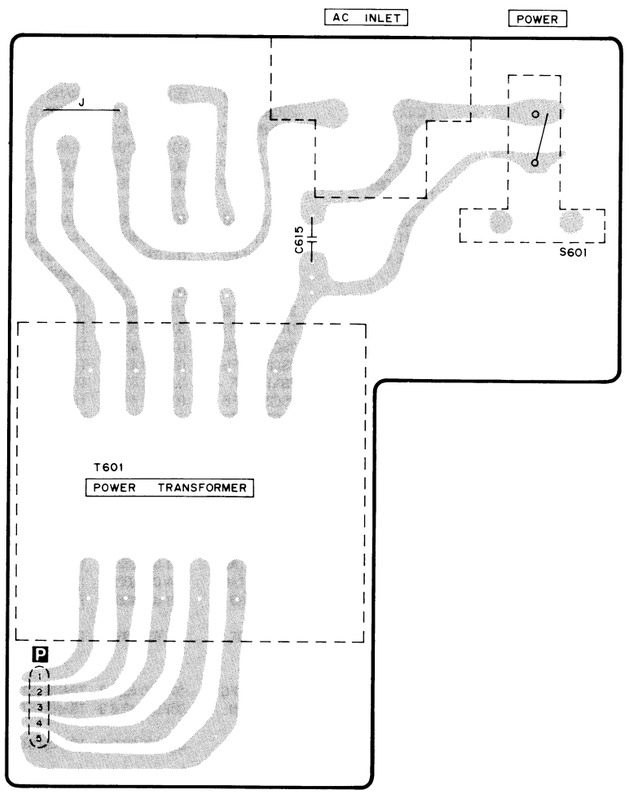
VII FL METER P.C.B.



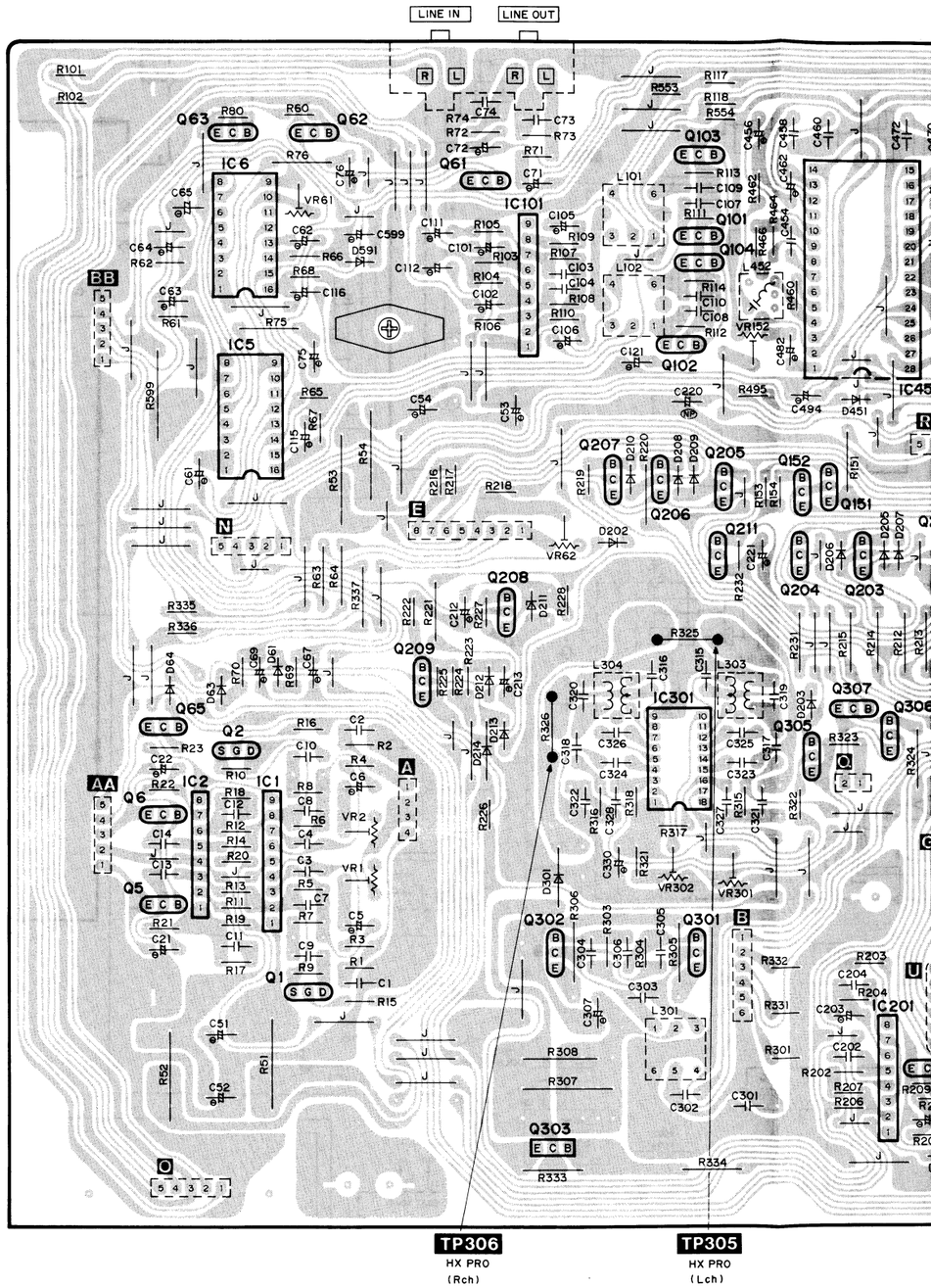
II POWER SUPPLY P.C.B. [E, EK, EG, EH, XL, XA, XB]

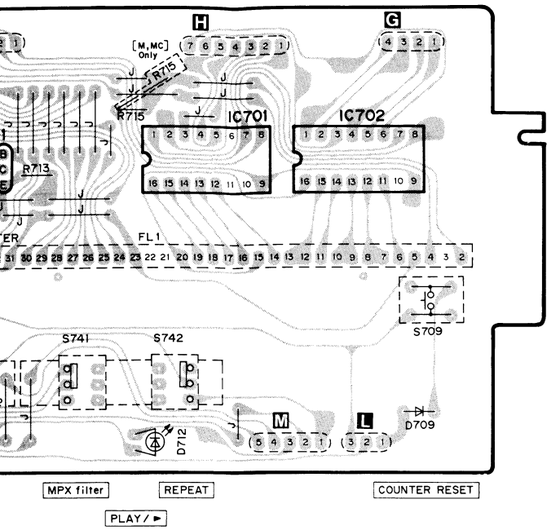


II POWER SUPPLY P.C.B. [M, MC]

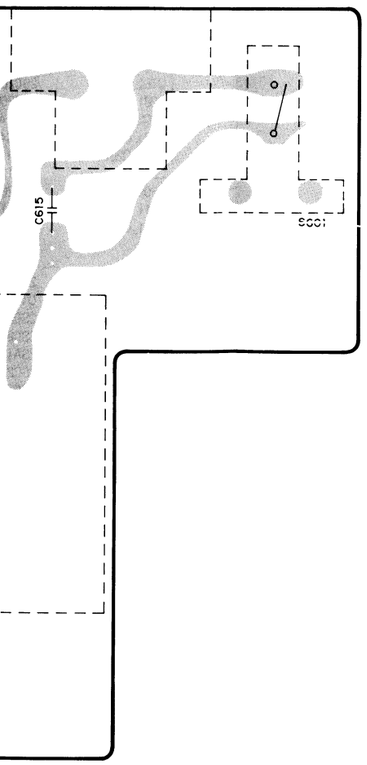


I MAIN P.C.B.

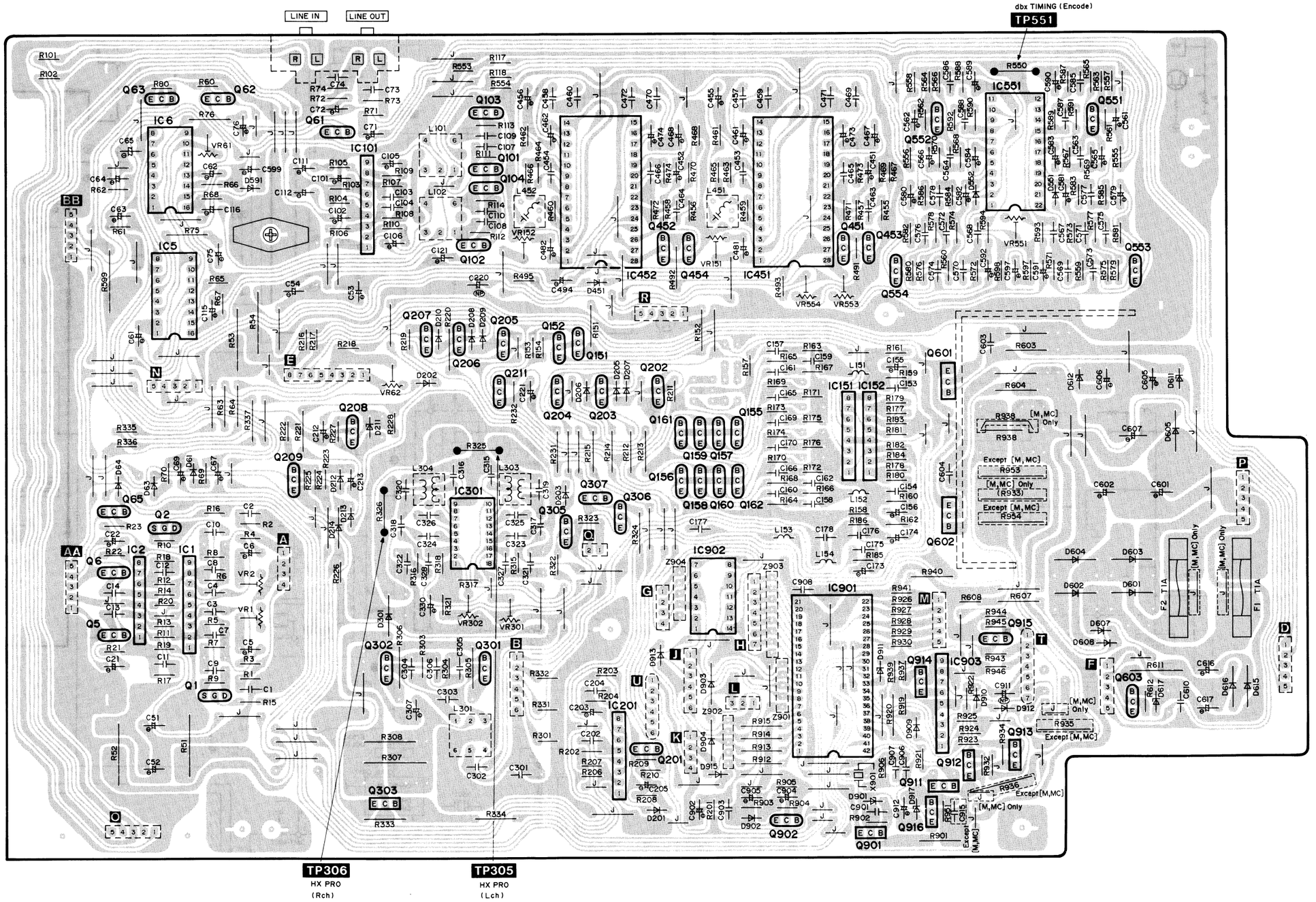




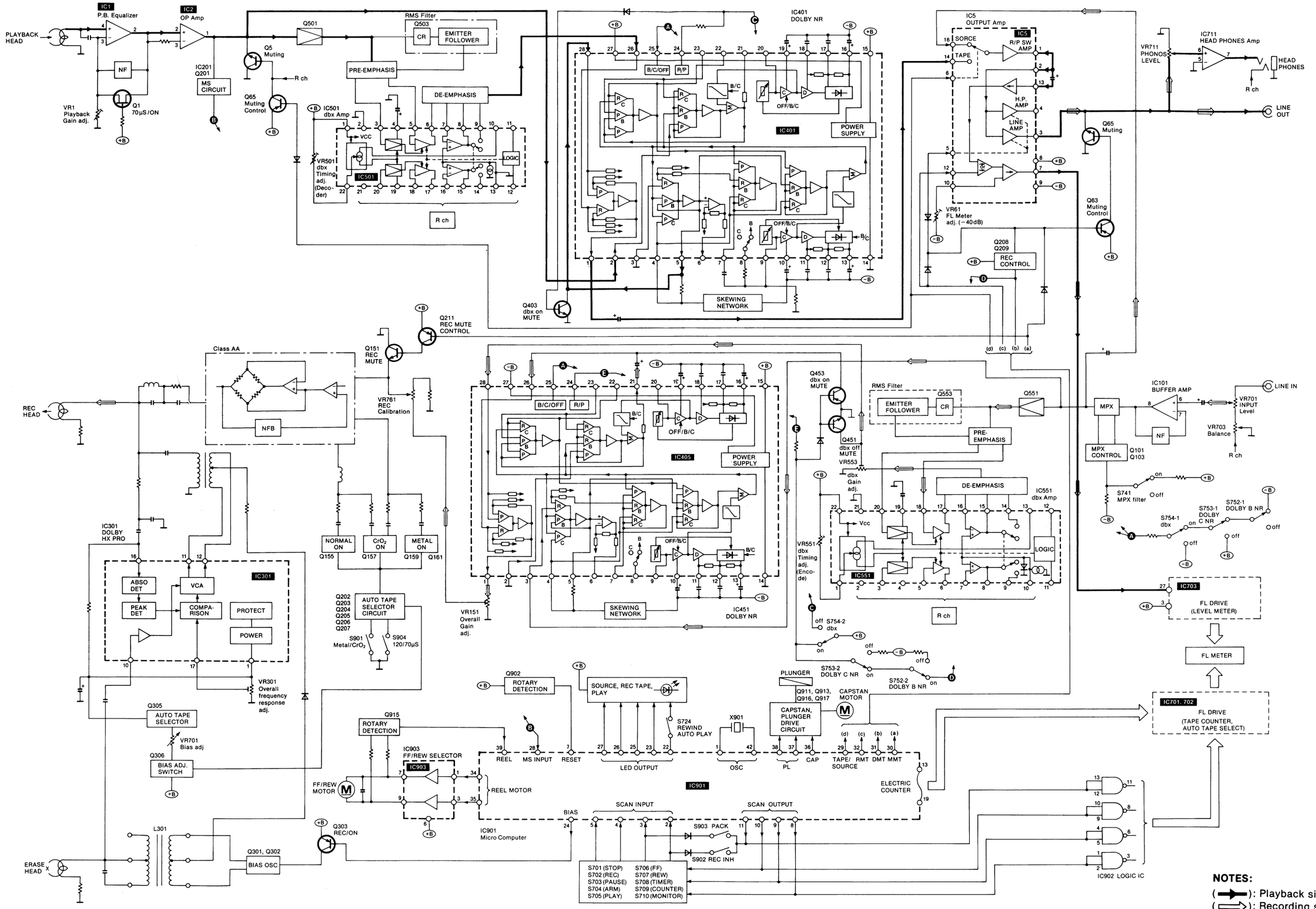
P.C.B. [M, MC]



I MAIN P.C.B.



■ BLOCK DIAGRAM



NOTES:

(→): Playback signal

(⇒): Recording signal

■ REPLACEMENT PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

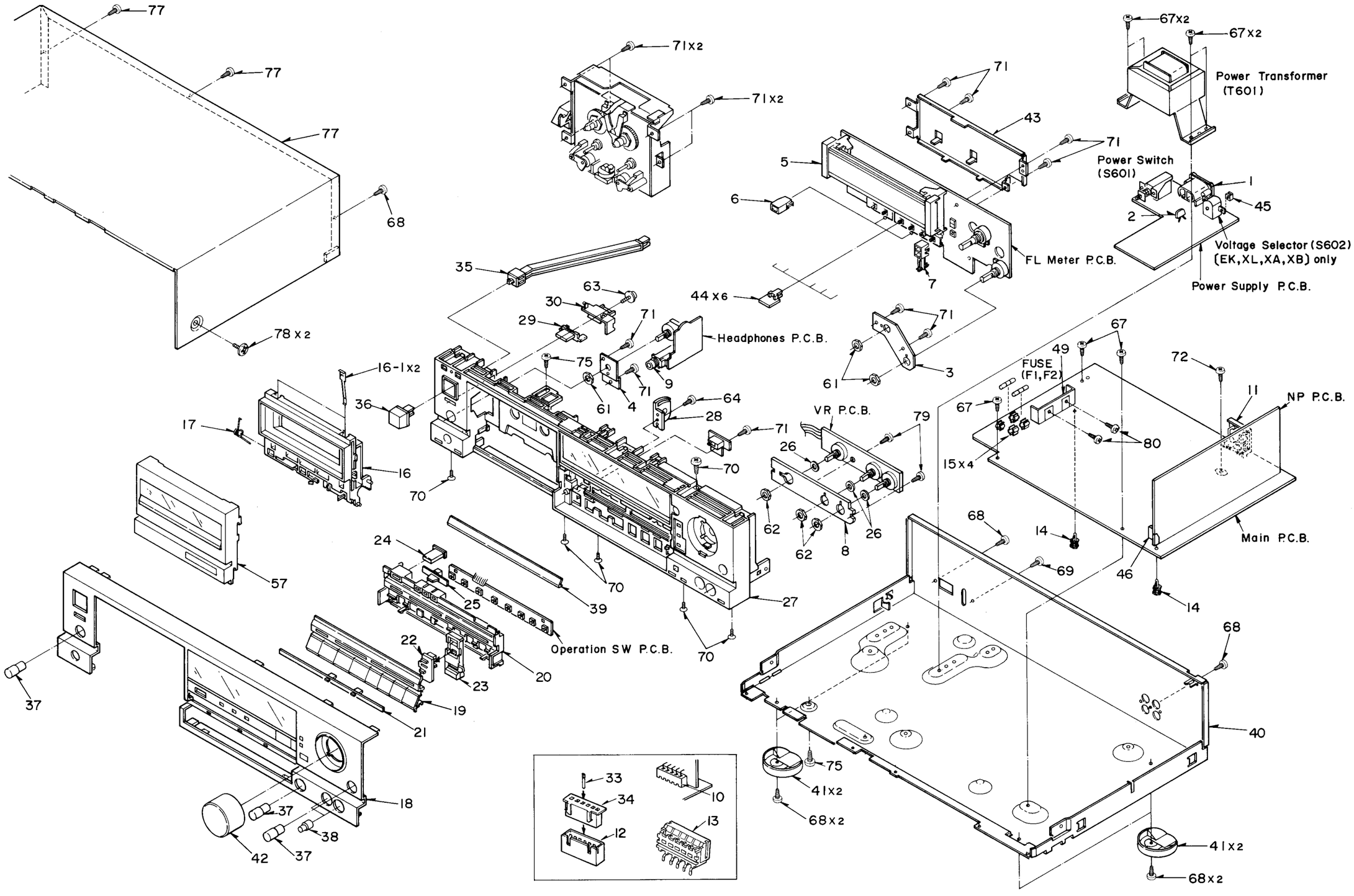
Ref. No.	Part No.	Part Code	Description
INTEGRATED CIRCUITS			
IC1	AN6557F	001 060 7688 6	I.C., EQUALIZER
IC2	M5218L	001 060 3798 7	I.C., OPERATION AMP.
IC5, IC6	AN6203	001 060 5005 1	I.C., OUTPUT AMP.
IC101	AN6557F	001 060 7688 6	I.C., EQUALIZER
IC151, IC152	M5218L	001 060 3798 7	I.C., OPERATION AMP.
IC201	M5218L	001 060 3798 7	I.C., OPERATION AMP.
IC301	UPC1297CA	001 061 3671 6	I.C., DOLBY HX PRO
IC401, IC402	TEA0665	001 060 7933 2	I.C., DOLBY B, C NR
IC451, IC452	TEA0665	001 060 7933 2	I.C., DOLBY B, C NR
IC501, IC551	AN6291	001 060 4112 3	I.C., DBX AMP.
IC701, IC702	AN6280	001 060 3742 3	I.C., FL DRIVE
IC703	AN6870	001 060 3746 9	I.C., FL DRIVE
IC711	M5218L	001 060 3798 7	I.C., OPERATION AMP.
IC901	LM6405G-2104	001 061 5238 1	I.C., MICROCOMPUTER
IC902	M74LS00P	001 060 1024 4	I.C., LOGIC
IC903	BA6218	001 061 1421 0	I.C., MOTOR DRIVE
TRANSISTORS			
Q1, Q2	2SD381D	001 030 7411 1	TRANSISTOR
Q5, Q6	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q61, Q62	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q63, Q65	DTA114ESTP	001 030 5275 9	TRANSISTOR
Q101, Q102	2SA1115EF	001 030 4055 3	TRANSISTOR
Q103, Q104	2SA1115EF	001 030 4055 3	TRANSISTOR
Q151, Q152	2SD1468R	001 030 2894 0	TRANSISTOR
Q155, Q156	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q157, Q158	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q159, Q160	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q161, Q162	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q201	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q202, Q203	DTA144ESTP	001 030 7166 5	TRANSISTOR
Q204, Q205	DTA144ESTP	001 030 7166 5	TRANSISTOR
Q206, Q207	DTA144ESTP	001 030 7166 5	TRANSISTOR
Q208	2SA1115EF	001 030 4055 3	TRANSISTOR
Q209	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q211	2SA1115EF	001 030 4055 3	TRANSISTOR
Q301, Q302	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q303	2SB1237TAQR	001 030 6929 0	TRANSISTOR
Q305	DTC144A	001 030 2708 7	TRANSISTOR
Q306	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q307	DTC114ESTP	001 030 5025 5	TRANSISTOR
Q403, Q404	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q451, Q452	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q453, Q454	2SA1115EF	001 030 4055 3	TRANSISTOR
Q501, Q502	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q503, Q504	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q551, Q552	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q553, Q554	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q601	2SD1762DE	001 030 6930 7	TRANSISTOR
Q602	2SB1185DEF	001 030 5691 7	TRANSISTOR
Q603, Q701	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q901	2SD1225RM	001 030 4356 3	TRANSISTOR
Q902	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q911, Q912	2SB1237TAQR	001 030 6929 0	TRANSISTOR
Q913	2SB1237TAQR	001 030 6929 0	TRANSISTOR
Q914 (M, MC)	2SD1225RM	001 030 4356 3	TRANSISTOR
Q914 (E, EG, EK, EH) (XL, XA, XB)	2SD1762DE	001 030 6930 7	TRANSISTOR
Q915	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q916 (M, MC)	2SD1225RM	001 030 4356 3	TRANSISTOR
Q916 (E, EG, EK, EH)	2SD1762DE	001 030 6930 7	TRANSISTOR

Ref. No.	Part No.	Part Code	Description
(XL, XA, XB)			
DIODES			
D61, D63	1SS133	001 032 3324 5	DIODE
D64, D201	1SS133	001 032 3324 5	DIODE
D202, D203	1SS133	001 032 3324 5	DIODE
D206, D207	1SS133	001 032 3324 5	DIODE
D208, D209	1SS133	001 032 3324 5	DIODE
D211	MTZ6R8B	001 032 4068 8	DIODE
D212, D213	1SS133	001 032 3324 5	DIODE
D214, D301	MA162A	001 032 0493 1	DIODE
D401, D451	1SS133	001 032 3324 5	DIODE
D501, D502	1SS133	001 032 3324 5	DIODE
D503, D551	1SS133	001 032 3324 5	DIODE
D552	1SS133	001 032 3324 5	DIODE
D591	MTZ5R1B	001 032 6202 2	DIODE
D601, D602 ⚠	SVD1SR35200A	001 032 3951 4	RECTIFIER
D603, D604 ⚠	SVD1SR35200A	001 032 3951 4	RECTIFIER
D605 ⚠	SVD1SR35200A	001 032 3951 4	RECTIFIER
D607, D608	1SS133	001 032 3324 5	DIODE
D611, D612	MTZ11BT77	001 032 7873 5	DIODE
D615, D616 ⚠	SVD1SR35200A	001 032 3951 4	RECTIFIER
D617	MTZ13CT77	001 033 0331 3	DIODE
D701, D702	1SS133	001 032 3324 5	DIODE
D703, D704	1SS133	001 032 3324 5	DIODE
D705, D706	1SS133	001 032 3324 5	DIODE
D707, D709	1SS133	001 032 3324 5	DIODE
D710	1SS133	001 032 3324 5	DIODE
D711	SLV31VC3	001 032 4525 4	L.E.D
D712	SLV31MC3	001 032 6353 8	L.E.D
D713	SVGLB74MG3HL	001 032 7888 8	L.E.D
D714	SVGLB74VR3HL	001 032 9300 9	L.E.D
D751, D752	1SS133	001 032 3324 5	DIODE
D753, D754	1SS133	001 032 3324 5	DIODE
D901	MTZ5R6B	001 032 9506 7	DIODE
D902	1SS133	001 032 3324 5	DIODE
D903, D904	MA162A	001 032 0493 1	DIODE
D909, D910	1SS133	001 032 3324 5	DIODE
D911	MTZ5R6B	001 032 9506 7	DIODE
D912, D913	1SS133	001 032 3324 5	DIODE
D915	1SS133	001 032 3324 5	DIODE
D917 (E, EG, EK) (EH, XL, XA) (XB)	MTZ11BT77	001 032 7873 5	DIODE
VARIABLE RESISTORS			
VR1, VR2	QVNB3A00B151	001 180 3085 4	V.R., 150Ω(B)
VR61	EVND4AA00B23	001 180 2317 1	V.R., 2KΩ(B)
VR62	EVND4AA00B24	001 180 2244 1	V.R., 20KΩ(B)
VR151, VR152	EVND4AA00B14	001 180 2242 3	V.R., 10KΩ(B)
VR301, VR302	EVND4AA00B24	001 180 2244 1	V.R., 20KΩ(B)
VR501, VR551	EVND4AA00B23	001 180 2317 1	V.R., 2KΩ(B)
VR553, VR554	EVND4AA00B14	001 180 2242 3	V.R., 10KΩ(B)
VR701, VR702	EWK94A033A54	001 174 8883 8	V.R., 50KΩ(A)
VR703	EWHFDAF20G25	001 174 8947 9	V.R., 200KΩ(G)
VR711, VR712	EWCSNA020A14	001 174 8940 6	V.R., 10KΩ(A)
VR721	EVJMLAF20B23	001 174 9173 7	V.R., 2KΩ(B)
VR761, VR762	EVJMLA018B14	001 174 9176 4	V.R., 10KΩ(B)
COILS AND TRANSFORMERS			
L101, L102	QLB40048	001 210 7275 9	COIL
L151, L152	SLQX272-1YT	001 211 0649 2	CHOKE COIL
L153, L154	SLQX303-1K	001 211 1756 6	CHOKE COIL
L301	QLB0202	001 210 9090 8	COIL
L303, L304	SL09B1-K	001 211 3508 2	OSCILLATOR COIL
L401, L402	SLM1B8-K	001 211 2731 1	MPX COIL
L451, L452	ELM7Q306A	001 210 6560 1	COIL

Ref. No.	Part No.	Part Code	Description
L501, L502	SLQX272-1YT	001 211 0649 2	CHOKE COIL
T601 ⚠ (E, EG, EH)	SLT5L279-W	001 202 9096 8	POWER TRANSFORMER
T601 ⚠ (EK, XL)	SLT5L280-W	001 202 9097 7	POWER TRANSFORMER
T601 ⚠ (XA, XB)	SLT5L281-W	001 202 9098 6	POWER TRANSFORMER
T601 ⚠ (M, MC)	SLT5L282-W	001 202 9099 5	POWER TRANSFORMER
COMPONENT COMBINATIONS			
Z901	EXBF5E103J8R	001 230 2886 6	COMPONENT COMBINATION
Z902	EXBF5E472J8R	001 230 2223 9	COMPONENT COMBINATION
Z903	EXBF8E472J8R	001 230 2622 8	COMPONENT COMBINATION
Z904	EXBF5E472J8R	001 230 2223 9	COMPONENT COMBINATION
OSCILLATORS			
X901	SVFKBR800H-K	001 241 1414 7	QUARTZ OSCILLATOR
DISPLAYS			
FL1	SADBG404ZK	001 001 0474 7	DISPLAY
FUSES			
F1, F2 ⚠ (E, EG, EK, EH) (XL, XA, XB)	XBA2C10TB0	002 380 1351 1	250V, T1A
SWITCHES			
S601 ⚠	ESB8249V	003 435 5877 0	POWER SWITCH
S602 ⚠ (EK, XL, XA) (XB)	SSR227	003 430 2365 6	VOLTAGE SELECTOR
S701, S702	EVQQAC05G	003 439 2072 1	SW, OPERATION
S703, S704	EVQQAC05G	003 439 2072 1	SW, OPERATION
S705, S706	EVQQAC05G	003 439 2072 1	SW, OPERATION
S707	EVQQAC05G	003 439 2072 1	SW, OPERATION
S708	QSS1306	003 431 2419 4	SW, TIMER
S709, S710	EVQQAC05G	003 439 2072 1	SW, COUNTER RESET/MONITOR
S741, S742	SSH2121	003 435 5841 2	SW, MPX SEL.
S752, S753	SSH4108	003 435 6138 4	SW, NR SEL.
S754	SSH4108	003 435 6138 4	SW, NR SEL.
S901	SMQA1059	003 435 6132 0	SW, DET.
S902, S903	SMQA1058	003 435 6131 1	SW, DET.
S904	SMQA1059	003 435 6132 0	SW, METAL

Ref. No.	Part No.	Part Code	Description
CABINET AND CHASSIS			
1 ⚠ (XL)	SJSD16	003 400 7436 6	AC INLET
1 ⚠ (M, MC, E, EG) (EK, EH, XA) (XB)	SJS9236	003 403 4660 7	AC INLET
2 (E, EG, EK, EH) (XL, XA, XB)	SMX897	016 600 0483 0	SHIELD COVER
3	SMNM11	016 632 1852 3	BRACKET
4	SMNM13	016 632 1853 2	BRACKET
5	SHRM9020	016 652 0721 5	FL HOLDER
6	SMPSB905-KE		L.E.D. BLOCK
7	SHRM9023	016 652 0829 4	L.E.D. HOLDER
8	SMNM14	016 632 1916 4	BRACKET
9	QJA0455ZC	003 400 5218 2	HEADPHONES JACK
10	SJT30539MB	003 410 6148 9	LUG TERMINAL
11	SJF3057N	003 410 3829 3	TERMINAL BOARD
12	SJT3415	003 403 3909 5	CONNECTOR(4-P)
12	SJT3611	003 410 6000 8	CONNECTOR(6-P)
13	SJT30243-V	003 410 6222 6	CONNECTOR(2-P)
13	SJT30340LX-V	003 410 6075 9	CONNECTOR(3-P)
13	SJT30440LX-V	003 410 6076 8	CONNECTOR(4-P)
13	SJT30540LX-V	003 410 5996 1	CONNECTOR(5-P)
13	SJT30640LX-V	003 410 6149 8	CONNECTOR(6-P)
13	SJT30740LX-V	003 410 5990 7	CONNECTOR(7-P)
13	SJT30840LX-V	003 410 5998 9	CONNECTOR(8-P)
14	SHR9762	016 652 0497 4	SPACER
15 (E, EG, EK, EH) (XL, XA, XB)	QTF1054	003 415 0168 4	FUSE HOLDER
16	SGXSB80R-KAN	016 846 3666 5	CASSETTE HOLDER
16-1	QBP2006A	015 727 0706 8	SPRING
17	SUSM12	016 726 0913 0	SPRING
18	SGWSB905-KE		FRONT PANEL
19	SBCM100		BUTTON, OPERATION
20	SHRSB905-KM	016 652 0876 7	BUTTON GUIDE
21	SGUM31ZT1A	016 842 1651 0	INDICATOR
22	SGUM32ZT0A	016 842 1652 9	INDICATOR
23	SBCM80ZK0A	016 702 7105 8	BUTTON, MONITOR
24	SBCM20ZK0A	016 702 6902 1	BUTTON, RESET
25	SBDM20ZK0A	016 700 1950 3	KNOB, TIMER
26	SHWM60H70	016 643 1084 8	SPACER
27	SGYSB905-KE		FRONT GRILLE
28	QYF0627A	015 641 0945 0	DAMPER GEAR
29	SBCM50ZK0A	016 702 6899 9	BUTTON, EJECT
30	SMQM30016	016 718 3366 9	LEVER
33	SJT783	003 410 6001 7	CONTACT
34	SJS5421	003 400 1643 5	CONNECTOR(4-P)
34	SJS5629	003 400 5917 2	CONNECTOR(6-P)
35	SUBM14	016 712 0347 4	ROD
36	SBC666-5	016 702 6679 9	BUTTON, POWER
37	SBDM10ZK0A	016 700 1952 1	KNOB
38	SBN1185-2	016 700 1614 6	KNOB
39	SGXM46	016 846 3664 7	ORNAMENT
40 (E, EG)	SGPM10ZF1B		CHASSIS
40 (M, MC)	SGPM10ZF1C		CHASSIS
40 (EK, XL, XA) (XB)	SGPM10ZF2A		CHASSIS
40 (EG, EH)	SGPSB905-KG		CHASSIS
40 (XL)	SGPSB905-KL		CHASSIS
40 (XA, XB)	SGPSB905-KX		CHASSIS
41	SKLD5	016 828 0321 1	INSULATOR
42	SYTM10ZC0A	016 700 1989 8	DIAL, REC LEVEL
43	SMNM10-1	016 632 1915 5	COVER
44	SBCM30ZK0A	016 702 6901 2	BUTTON
45 (EK, XL, XA) (XB)	SMNM15	016 632 1917 3	BRACKET
46	SME103-5	016 601 0461 1	MAGNETIC SHIELD PARTS
49	SMY890	016 611 0015 3	HEATSINK
50	SKC1850K991	016 800 2466 9	CABINET
51	SYKM38		CASSETTE LID
SCREWS, WASHERS & NUTS			
61	XNS8FZ	005 507 0573 8	NUT
62	XNS7	005 507 1202 8	NUT
63	SFXGQ06N01	005 500 4983 3	SCREW
64	XTV3+10BFN	005 501 0818 6	SCREW
67	XTV3+6FR	005 501 1321 2	SCREW
68	XTB3+8JFZ	005 501 0138 3	SCREW
69 (EK, XL, XA) (XB)	XTB3+12JFZ	005 501 2078 0	SCREW
70	XTS3+8JFZ	005 501 2270 2	SCREW
71	XTV3+10JR	005 501 1142 3	SCREW
72	XTBS3+8JFZ1	005 501 2523 0	SCREW
75	XTB3+6JR	005 501 4755 8	SCREW
77	XTB3+8JFZ	005 501 0138 3	SCREW
78	SNE2118-1	005 500 5004 1	SCREW
79	XTS3+12JR		SCREW
80	XYN3+F8	005 503 0513 0	SCREW

■ CABINET PARTS LOCATION



■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Note:

- **S601** : Power switch in "**off**" position.
- **S602** : Voltage selector switch in "**240 V**" position. (EK, XA, (110 V —— 127 V —— 220 V —— 240 V) XB, XL)
- **S701** : Stop switch in "**off**" position.
- **S702** : Record switch in "**off**" position.
- **S703** : Pause switch in "**off**" position.
- **S704** : Record-muting switch in "**off**" position.
- **S705** : Play switch in "**off**" position.
- **S706** : Fast-forward mode switch in "**off**" position.
- **S707** : Rewind switch in "**off**" position.
- **S708** : Timer stand-by switch in "**off**" position. (rec —— off —— play)
- **S709** : Counter reset switch in "**off**" position.
- **S710** : Monitor switch in "**off**" position.
- **S741** : Multiplex filter switch in "**off**" position.
- **S742** : Repeat-play switch in "**off**" position.
- **S752** : Noise-reduction DOLBY B mode switch in "**off**" position.
- **S753** : Noise-reduction DOLBY C mode switch in "**off**" position.
- **S754** : Noise-reduction dbx mode switch in "**off**" position.
- **S901** : Metal/CrO_2 switch in "**off (Metal)**" position.
- **S902** : Rec INH switch in "**off**" position.
- **S903** : Pack switch in "**off**" position.
- **S904** : 70 μ/120 μs selector switch in "**off (70 μs)**" position.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K=1,000 (Ω), 1M=1,000 k (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  ( )...Voltage values at record mode.
- (—▭—) indicates B (bias).
- (▨) indicates the flow of the playback signal.
- (⟹) indicates the flow of the record signal.
- Important safety notice
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

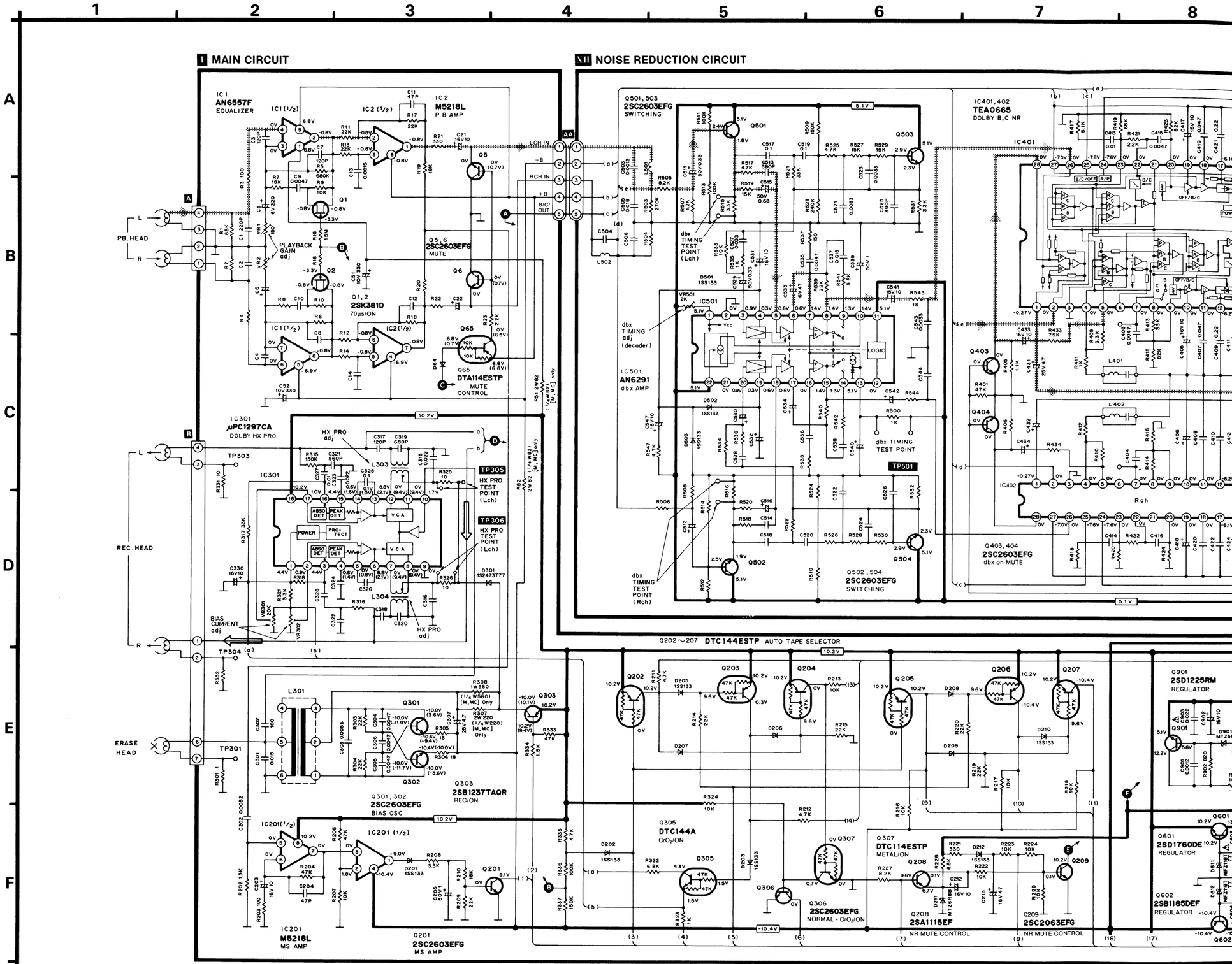
∗ Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

∗ Cover the parts boxes made of plastics with aluminum foil.
∗ Ground the soldering iron.
∗ Put a conductive mat on the work table.
∗ Do not touch the legs of IC or LSI with the fingers directly.

SPECIFICATIONS ∗ Input level control...MAX

Playback S/N ratio ∗ Test tape...QZZCFM	Greater than 45 dB
Overall distortion ∗ Test tape ...QZZCRA for Normal ...QZZCRX for CrO_2 ...QZZCRZ for Metal	Less than 4%
Overall S/N ratio ∗ Test tape ...QZZCRA	Greater than 43 dB (without NAB filter)



MAIN CIRCUIT

IC1 AN6557F EQUALIZER

IC2 M5218L P.B AMP

Q5 0V (0.7V)

Q1 -0.8V -0.8V -3.3V

Q5,6 2SC2603EFG MUTE

Q6 0V (0.7V)

Q2 -3.3V -0.8V -0.8V

Q1,2 2SK381D 70μs/ON

Q65 DTA114ESTP MUTE CONTROL

PLAYBACK GAIN adj

LCH IN

RCH IN

-B

+B

B/C/OUT

IC301 μPC1297CA DOLBY HX PRO

HX PRO adj

TP303

TP305 HX PRO TEST POINT (Lch)

TP306 HX PRO TEST POINT (Rch)

L303

L304

HX PRO adj

TP304

TP301

L301

Q301 -10.0V (3.6V)

Q302 -10.4V (-9.4V) -10.0V (-11.7V) -10.0V (-3.6V)

Q303 2SB1237TAQR REC/ON

Q301,302 2SC2603EFG BIAS OSC

IC201 (1/2)

IC201 M5218L MS AMP

Q201 2SC2603EFG MS AMP

NOISE REDUCTION CIRCUIT

Q501,503 2SC2603EFG SWITCHING

Q501 Q503

Q502,504 2SC2603EFG SWITCHING

Q502 Q504

dbx TIMING TEST POINT (Lch)

dbx TIMING TEST POINT (Rch)

dbx TIMING adj (decoder)

IC501 AN6291 dbx AMP

LOGIC

dbx TIMING TEST POINT

TP501

IC401,402 TEA0665 DOLBY B,C NR

IC401

IC402

B/C/OFF R/P

B/C

OFF/B/C

POWER SUPPLY

Q403,404 2SC2603EFG dbx on MUTE

Q403 Q404

Rch

Q202~207 DTC144ESTP AUTO TAPE SELECTOR

Q202 Q203 Q204 Q205 Q206 Q207

Q305 DTC144A CrO_2/ON

Q307 DTC114ESTP METAL/ON

Q306 2SC2603EFG NORMAL・CrO_2/ON

Q208 2SA1115EF NR MUTE CONTROL

Q209 2SC2063EFG NR MUTE CONTROL

Q901 2SD1225RM REGULATOR

Q603 2SC2603EFG REGULATOR

Q601 2SD1760DE REGULATOR

Q602 2SB1185DEF REGULATOR

For [XA, XB] areas.

For [E, EG, EH, EK, XL, M, MC] areas.

T601 POWER S601

C615 0.01

AC INLET

110V 127V 220V 240V

VOLTAGE SELECTOR

F1 T1A

F2 T1A

II POWER SUPPLY CIRCUIT

III HEADPHONES CIRCUIT

IC5,6 AN6203 OUTPUT AMP

IC711 M5218L HEAD PHONES AMP

IC711(1/2)

IC711(1/2)

PHONES LEVEL adj

HEAD PHONES

Q61,62 2SC2603 EFG MUTING

Q63 DTA114ESTP MUTING CONTROL

FL METER adj (-40dB)

IC151,152 M5218L CLASS AA

LINE OUT

LINE IN

Q211 9.6V(10.2V)

Q211 2SA1115EF MUTING CONTROL

IC151(1/2)

IC152(1/2)

IC152(1/2)

IC151(1/2)

Q152

Q151,152 2SD1468R PLAY MUTE

Q151

Q155

Q157

Q159

Q161

Q162

Q160

Q158

Q156

Q155 2SC2603EFG NORMAL ON

Q157,158,159,160 DSC2603EFG CrO2 ON

Q161,162 2SC2603EFG METAL ON

Q156 2SC2603EFG NORMAL ON

Q915 2SC2603EFG ROTARY DETECTION

IC101(1/2) AN6557F BUFFER

IC101(1/2)

IC101(1/2)

Q101~104 2SA1115EF MPX ON/ON

IC903 BA6218 FF/REW SELECTOR

IC903

Q915

Q914 2SD1762DE FF・REW/ON

Q914

(2SD1225RM) [M,MC] only

(1W33) [M,MC] only

L101

L102

IC451,452 TEA0665 DOLBY B・C NR

Q551,553 2SC2603EFG SWITCHING

Q551

Q553

TP551 dbx TIMING TEST POINT

dbx TIMING TEST POINT (Lch)

dbx TIMING TEST POINT (Rch)

dbx TIMING adj (EN-Coder)

dbx GAIN adj

IC551 AN6291 dbx AMP

IC551

LOGIC

Q451,452 2SC2603EFG dbx off MUTE

Q451 Q453 Q452 Q454

Q453,454 2SA1115EF dbx on MUTE

OVERALL GAIN adj

IC451

IC452

Q552 Q554

Q552,554 2SC2603EFG SWITCHING

V BIAS ADJUST/ RECORDING CALIBRATION CONTROL CIRCUIT

BIAS

REC CALIBRATION

VII MECHANISM CIRCUIT

Reel Pulse

Reel Motor

Trigger Solenoid

Capstan Motor

REC-INH SW S902

PACK SW S903

Metal / CrO2 S901

Metal 70μs/120μs S904

VI OPERATION SWITCH CIRCUIT

S707 (REW)

S706 (FF)

S705 (PLAY)

S704 (ARM)

S703 (PAUSE)

S702 (REC)

S701 (STOP)

VII FL METER CIRCUIT

IC451, 452
TEA0665
DOLBY B·C NR

Q551, 553
2SC2603EFG
SWITCHING

Q451, 452
2SC2603EFG
dbx off MUTE

Q453, 454
2SA1115EF
dbx on MUTE

OVERALL GAIN adj

IC902
M74LS00P
LOGIC IC

IC901
LM6405G-2104
MICRO-COMPUTER

Q911
2SB1237TABR
CAPSTAN

Q916
2SD1762·DE
DRIVE
(2SD1225RM)
[M,MC] Only

Q912, 913
2SB1237AQR
PLUNGER

IC701, 702
AN6280
FL DRIVE

IC703
AN6870
FL DRIVE

FL1 SADBG404ZK
FL METER

Q701
2SC2603EFG
SWITCHING

FL METER adj (0dB)

S741 (MULTIPLEX FILTER) OFF ⟷ ON
S752-1 (DOLBY B N.R.) OFF ⟷ ON
S753-1 (DOLBY C N.R.) OFF ⟷ ON
S754-1 (dbx N.R.) OFF ⟷ ON
S752-2 (DOLBY B N.R.) OFF ⟷ ON
S753-2 (DOLBY C N.R.) OFF ⟷ ON
S754-2 (dbx N.R.) OFF ⟷ ON

VI OPERATION SWITCH CIRCUIT

IV TIMER CIRCUIT

S708 (REC ⟷ PLAY)
TIMER

S742 (Rewind Auto Play)
S709 (Counter Reset)
S710 (Monitor Select)

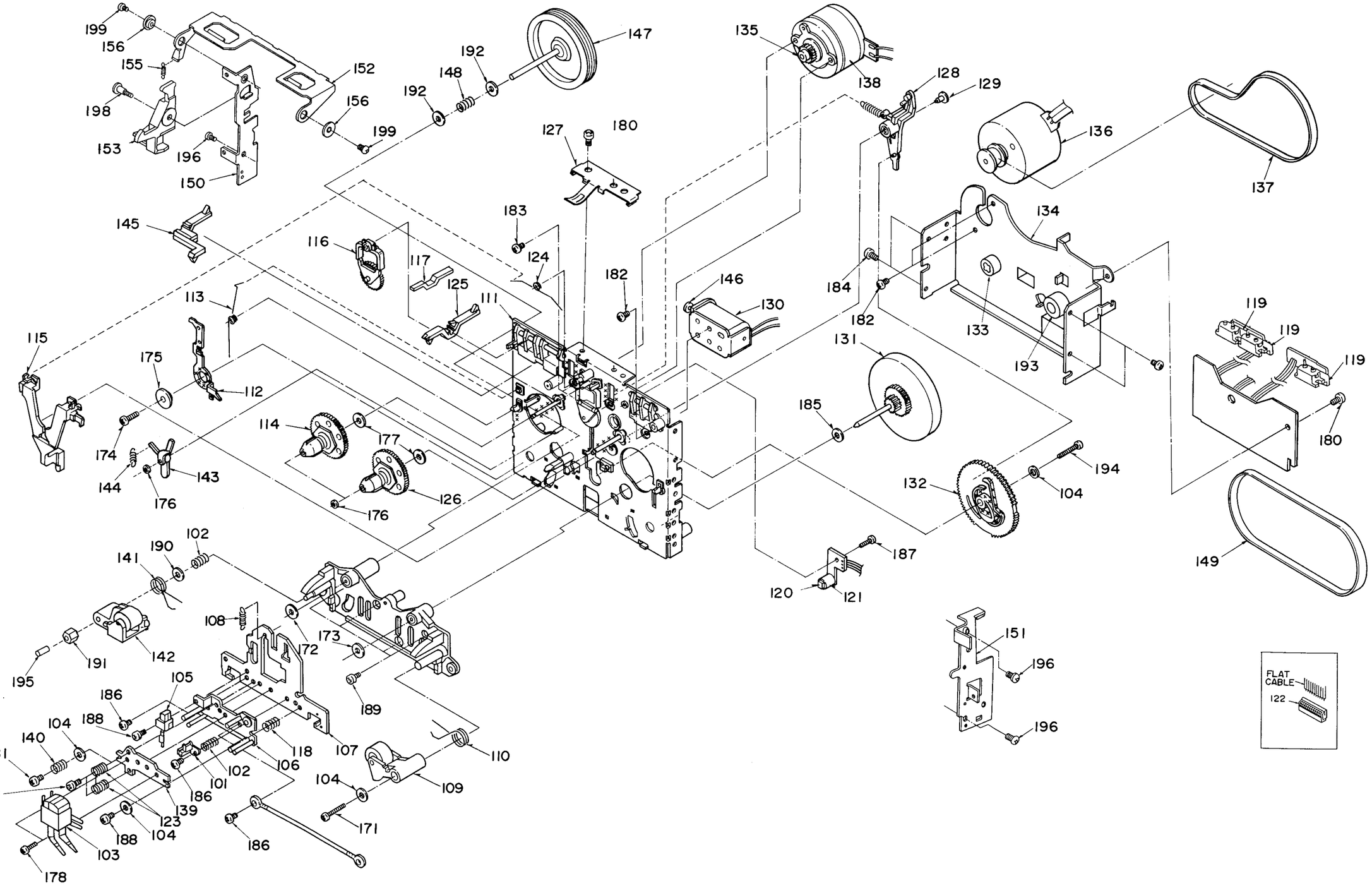
VR702 INPUT LEVEL
VR701 50K
VR703 200K BALLANCE

■ REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Code	Description
CASSETTE DECK			
CASSETTE DECK			
101	SMQA1190	016 641 0261 3	TAPE GUIDE
102	SMQA1191	016 726 1019 7	SPRING
103	SJH104	001 270 1869 7	MAGNETIC HEAD
104	SMQA1161	016 643 1069 7	WASHER
105	SMQA1192	001 270 1872 2	E.HEAD
106	SMQA1193	016 630 1863 0	SPACER
107	SMQA1194	016 630 1861 2	BASE
108	SMQA1004	016 726 0826 8	SPRING
109	SMQA1005	016 740 0114 1	ROLLER
110	SMQA1006	016 726 0825 9	SPRING
111	SMQA1196	016 630 1860 3	MECHANISM CHASSIS
112	SMQA1199	016 717 0282 9	LEVER
113	SMQA1012	016 726 0835 7	SPRING
114	SMQA1200	016 765 0059 4	REEL TABLE
115	SMQA1015	016 718 3350 7	BRAKE LEVER
116	SMQA1061	016 742 0039 5	IDLER PULLEY
117	SMQA1166	016 718 3407 7	DET. LEVER
118	SMQA1170	016 726 1014 2	AZIMUTH SPRING (R)
119	SMQA1021	016 643 0965 8	SPACER
120	SMQA1041	001 035 0392 0	PHOTO ELECTRIC TRANSDUCER
121	SMQA1022	016 643 0964 9	SPACER
122	SJT30243-V	003 410 6222 6	CONNECTOR(2-P)
122	SJT30440LX-V	003 410 6076 8	CONNECTOR(4-P)
122	SJT30640LX-V	003 410 6149 8	CONNECTOR(6-P)
122	SJT30740LX-V	003 410 5990 7	CONNECTOR(7-P)
123	SMQA1172	016 726 1012 4	SPRING
124	SMQA1024	016 726 0834 8	SPRING
125	SMQA1025	016 718 3349 0	DET. LEVER
126	SMQA1026	016 913 0003 6	REEL
127	SMQA1062	016 726 0881 1	SPRING
128	SMQA1171	016 717 0280 1	PLAY ARM
129	SMQA1029	016 640 0459 6	CAP
130	SMQA1070	003 454 0638 6	PLUNGER
131	SMQA1202	016 756 0091 5	WHEEL
132	SMQA1203	016 745 0261 6	CAM GEAR
133	SMQA1097	016 643 1004 4	SPACER
134	SMQA1204	016 650 5410 7	BRACKET
135	SMQA1036	002 310 2270 9	DC MOTOR
136	SMQA1205	002 310 2587 1	DC MOTOR
137	SMQA1206	016 754 0074 6	ANGULAR BELT
138	SMQA1179	016 601 0647 3	SHILD PLATE
139	SMQA1176	016 630 1859 6	HEAD PLATE
140	SMQA1177	016 726 1013 3	AZIMUTH SPRING (L)
141	SMQA1207	016 740 0129 4	SPRING
142	SMQA1208	016 740 0128 5	ROLLER
143	SMQA1210	016 717 0281 0	ARM
144	SMQA1211	016 726 1018 8	SPRING
145	SMQA1069	016 718 3359 8	DET. LEVER
146	SMQA1212	003 455 0413 6	PLUNGER CAP
147	SMQA1213	016 756 0090 6	WHEEL
148	SMQA1215	016 726 1017 9	SPRING
149	SMQA1218	016 754 0073 7	ANGULAR BELT
150	SMNM8A	016 632 1914 6	BRACKET
151	SMNM16	016 632 1930 6	BRACKET
152	SMQA1042	016 718 3369 6	LEVER
153	SMQM30015A	016 718 3400 4	LEVER, EJECT
155	QBT1936M	016 726 0914 9	SPRING
156	SUXM5	016 634 0141 1	SPACER
SCREWS,WASHERS & NUTS			
171	XSN2+4	005 500 1283 6	SCREW
172	SMQA1195	016 643 1074 0	WASHER
173	SMQA1007	016 862 1041 8	WASHER
174	SMQA1197	016 713 0424 3	SCREW
175	SMQA1198	016 643 1073 1	WASHER
176	SMQA1010	016 765 0056 7	WASHER
177	SMQA1014	016 641 0246 2	WASHER
178	SMQA1167	016 713 0418 1	SCREW
179	SMQA1168	016 713 0417 2	SCREW
180	XTN3+4	005 501 4864 4	SCREW
181	SMQA1169	016 713 0419 0	SCREW
182	XYN26+C3	005 503 0738 5	SCREW
183	XYN26+C6	005 503 0554 1	SCREW
184	XSN26+4	005 500 1357 5	SCREW
185	SMQA1201	016 643 1072 2	WASHER
186	SMQA1175	016 713 0420 7	SCREW
187	XTN2+6	005 501 3949 4	SCREW
188	XSN2+8	005 500 1301 1	SCREW
189	SMQA1207	016 740 0129 4	SPRING
190	SMQA1201	016 643 1072 2	WASHER
191	SMQA1209	016 740 0127 6	NUT
192	SMQA1214	016 643 1071 3	WASHER
193	SMQA1216	016 713 0423 4	SCREW
194	SMQA1217	016 713 0422 5	SCREW
195	SMQA1219	016 713 0421 6	SCREW
196	XTN3+5F	005 501 3502 1	SCREW
198	SMQA1017	005 500 6211 2	SCREW
199	XTV3+6F	005 501 0891 7	SCREW

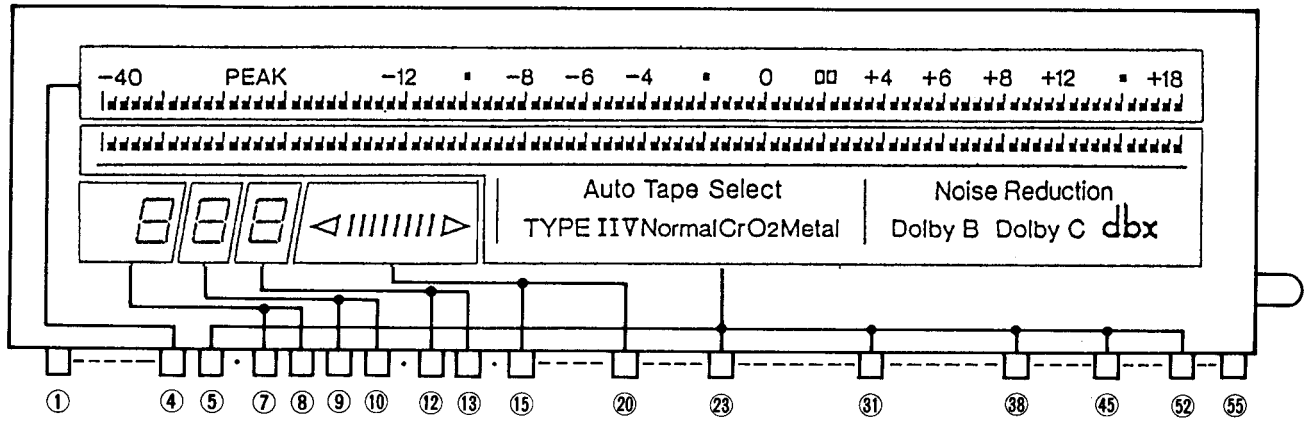
Ref. No.	Part No.	Part Code	Description
PACKINGS			
P1 (MC, E, EG, EK) (EH, XL)	SPGM94		CARTON BOX
P1 (M)	SPGM96		CARTON BOX
P1 (XA, XB)	SPGM98	016 971 5111 7	CARTON BOX
P2	SPSM17	016 977 3179 5	PAD
P3	SPSM18	016 977 3178 6	PAD
P5	SPSM19	016 977 3189 3	PAD
P6	XZB40X60A02	016 978 0254 8	PROTECTION COVER
ACCESSORIES			
A1	SJP2264	003 492 5035 3	OUTPUT CORD
A2 ⚠ (E, EG, EH)	SFDAC05E03	003 490 4809 5	POWER CORD
A2 ⚠ (EK)	SFDAC05G02	003 490 2613 3	POWER CORD
A2 ⚠	SJA166	003 490 4157 8	POWER CORD
(M, MC)			
A2 ⚠ (XA)	SJA168-1	003 490 4122 9	POWER CORD
A2 ⚠ (XL)	SJA173	003 490 4161 2	POWER CORD
A2 ⚠ (XB)	SJA183	003 490 4873 7	POWER CORD
A3 ⚠ (XA, XB)	SJP9215	003 402 1437 9	AC PLUG ADAPTOR
A4 (E, EK, EH, XL) (XA)	SQFM66	016 983 5310 6	INSTRUCTION MANUAL
A4 (EG)	SQFM67	016 983 5308 0	INSTRUCTION MANUAL
A4 (M)	SQFM69	016 983 5309 9	INSTRUCTION MANUAL
A4 (MC)	SQFM70	016 983 5307 1	INSTRUCTION MANUAL
A4 (XB)	SQFM72	016 983 5311 5	INSTRUCTION MANUAL

■ MECHANICAL PARTS LOCATION

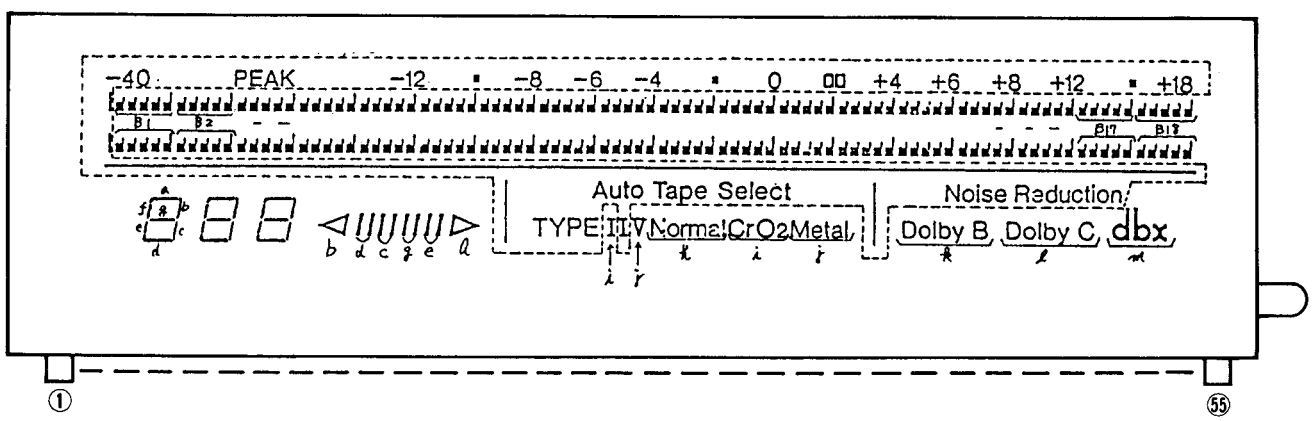


■ DESCRIPTION OF FL PANEL

• COMMON



• SEGMENT



• PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
CONNECTION	F 1	F 1	NP	1G A	2G A	a	1G B	1G B	2G B	2G B	b	3G B	3G B	c	4G B	d	e	f	g	4G B	NP	NP	2G A	B 1	B 2	B 3	B 4	B 5

PIN NO.	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	
CONNECTION	B 6	B 7	2G A	B 8	B 9	B 10	B 11	B 12	B 13	2G A	B 14	B 15	B 16	B 17	B 18	j	2G A	i	h	k	l	m	n	2G A	NP	F 2	F 2	

Printed in Japan
H870511000 KS/IM/AM

ORDER NO. HAD8705124CO-A

dbx/ Closed Loop Dual Capstan
DOUBLE DOLBY SYSTEM

DEUTSCH

Verwenden Sie bitte diese Broschüre Zusammen mit der Service-Anleitung für das Modell Nr. RS-B905

■ MESSUNGEN UND EINSTELL METHODEN

Meßinstrumente

- Elektronisches Voltmeter(EVM)
- Oszilloskop
- Digitaler Frequenzmesser
- Audiofrequenz-Oszillator
- Dämpfungswiderstand
- Gleichstrom-Voltmeter
- Widerstand (600Ω)

Tonkopf-Azimuteinstellung

1.Spielen Sie auf dem Testband (QZZCFM) den Teil für die Azimuteinstellung (8 kHz, -20dB) ab. Drehen Sie die Azimuteinstellschraube so lange, bis die Abgaben des L-K und R-K den Höchstwert erreichen, und die Lissajosscghe wellenfigur sich, wie abgebildet, 0 Grad nähert.

Anmerkung:
When L-K und R-K nicht auf demselben Punkt ihren Höchstwert erreichen, stellen Sie beide Kanäle auf den jeweiligen Höchstwert und gleichen dann aus.

2.Nehmen Sie denselben Einstellvorgang in der Wiedergabestellung vor.

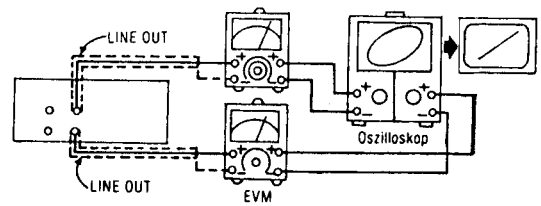


Abb. 1

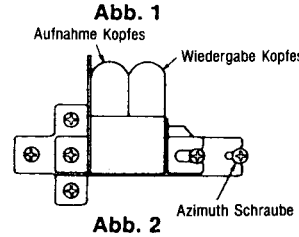


Abb. 2

Bandgeschwindigkeitseinstellung

1.Spielen Sie den Mittelteil des Testbands (QZZCWAT) ab.
2.Stellen Sie den **VR** im Motor **(Siehe Abb. 3)** so ein, daß die Abgabe den Normwert erfüllt.

Normwert: 3000 + 15, -10Hz

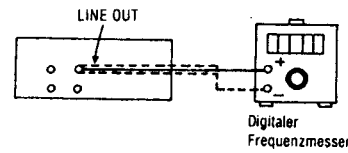


Abb. 3

Einstellung der Wiedergabeverstärkungsregelung

1.Spielen Sie auf dem Testband (QZZCFM) den Teil für die Einstellung der Verstärkungsregelung (315 Hz, 0 dB) ab.
2.Stellen Sie **VR1** (L-K)und **VR2** (R-K) so ein, daß die Abgabe den Normwert erfüllt.

Normwert: 0.4V ± 0.5dB

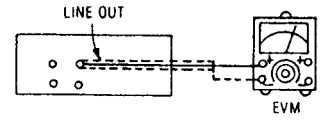


Abb. 4

Wiedergabefrequenzaang

1.Spielen Sie auf dem Testband (QZZCFM) den Teil für den Frequenzgang (315Hz, 12,5kHz~63Hz, -20dB) ab.
2.Achten Sie darauf, daß der Frequenzgang für beide Kanäle (L-K, R-K) in dem in **Abb. 6** gezeigten Bereich liegt.

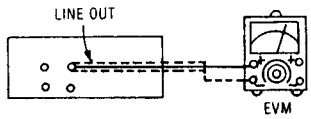


Abb. 5

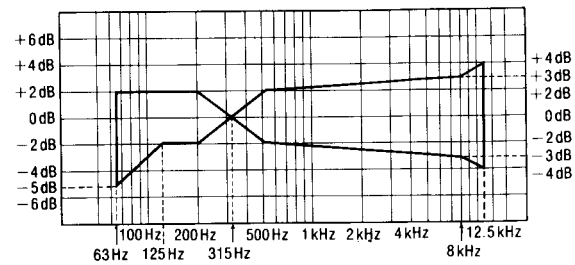


Abb. 6

Fluoreszenzanzeigeneinstellung

1.Legen Sie das normale Leertestband (QZZCRA) ein und geben bei Aufnahme-/Pause-Betrieb ein Bezugseingabesignal (1 kHz, -24 dB) ein.
2.Verwenden Sie einen Lautstärkeregler und stellen Sie diesen so ein, daß an den "LINE OUT"-Anschlüssen des Kassettendecks 0.4 V anliegen.

-40 dB Einstellung

3.Stellen Sie den Signaleingabepegel aus Schritt 1 auf 40 dB und geben das Signal ins Gerät ein.
4.Justieren Sie **VR61** so, daß der "-40 dB"-Abschnitt der Anzeige schwach aufleuchtet.

0 dB Einstellung

5.Stellen Sie den Pegel des Eingabesignals wie in Schritt 2 oben beschrieben ein.
6.Justieren Sie **VR62** so, daß der "-0 dB"-Abschnitt der Anzeige schwach aufleuchtet.
7.Wiederholen Sie die Schritte 1 ~ 6 und achten darauf, daß der -40 dB und 0 dB Anzeigenabschnitt schwach aufleuchten.

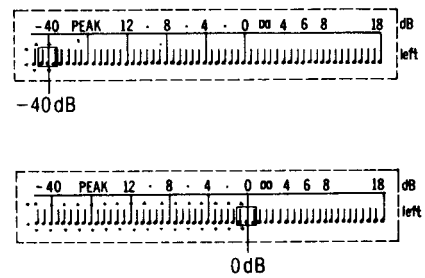


Abb. 7

Gesamtfrequenzgang

1.Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Pause-Betrieb.
2.Geben Sie über einen Lautstärkeregler ein Bezugseingabesignal(1 kHz, -24 dB) ein.
3.Stellen Sie das Signal auf 20 dB und justieren die Frequenz von 50 Hz ~ 15 kHz.
4.Nehmen Sie das Wobbelsignal auf.
5.Geben Sie das aufgenommene Signal wieder und achten darauf, daß dieses sich im Vergleich zur Bezugsfrequenz (1 kHz) in dem in **Abb. 9** aufgezeichneten Bereich befindet.
6.Sollte das Signal nicht im Normbereich liegen, justieren Sie **VR301** (L-K) und **VR302** (R-K) so, daß der Frequenzpegel mit der Norm übereinstimmt.
- Nach oben im Hochfrequenzbereich ausgleichen....Den vormagnetisierungsstrom anheben.
- Nach unten im Hochfrequenzbereich ausgleichen...Den vormagnetisierungsstrom senken.

7.Wiederholen Sie die Schritte 2 ~ 6 und verwenden das CrO_2 Band (QZZCRX) und das Metallband (QZZCRZ). Der Frequenzbereich wird auf 16 kHz (50 Hz ~ 16 kHz) angehoben.
8.Achten Sie darauf, daß sich der Frequenzpegel in dem in **Abb. 10** aufgezeigten Bereich befindet.

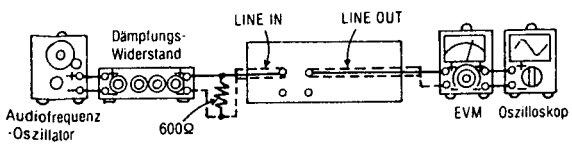


Abb. 8

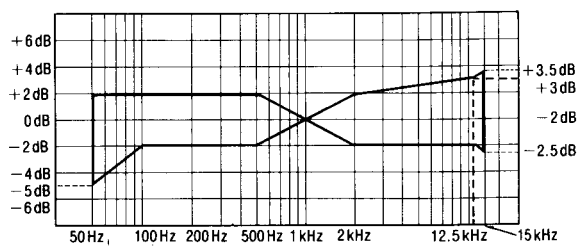


Abb. 9

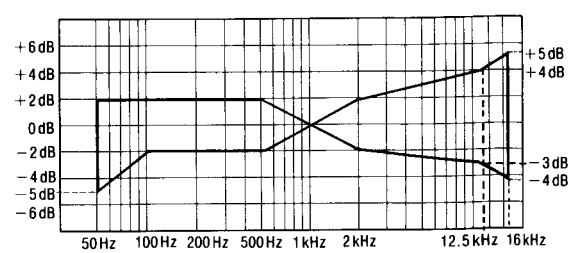


Abb. 10

Einstellung der Gesamtverstärkungsregelung

1.Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Betrieb.
2.Legen Sie ein Bezugseingabesignal (1 kHz, -24 dB) an. Stellen Sie das Ausgangssignal auf einen Pegel von 0.4 V ein.
3.Nehmen Sie das Eingabesignal auf.
4.Geben Sie das in Schritt 3 oben aufgenommene Signal wieder und achten Sie darauf, daß das Ausgangssignal mit dem Normwert übereinstimmt.
5.Sollte der Wert nicht innerhalb der Norm liegen, justieren Sie **VR151** (L-K) und **VR152** (R-K).
6.Wiederholen Sie die Schritte 2 ~ 5 von oben so lange, bis das Ausgangssignal im Normbereich liegt.

Normwert: 0.4V ± 0.5dB

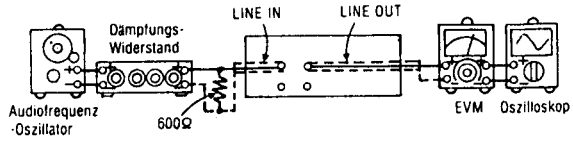


Abb. 11

HX-PRO Einstellung

1.Legen Sie das Metalleertestband (QZZCRZ) ein und stellen das Gerät auf Aufnahme-/Pause-Betrieb.
2.Schalten Sie ein Gleichspannungsvoltmeter parallel zu **R325** (L-K, 10Ω) und **R326** (R-K, 10Ω).
3.Stellen Sie **L303** (L-K) und **L304** (R-K) so ein, daß die Spannung < 110 mV Gleichspannung beträgt.

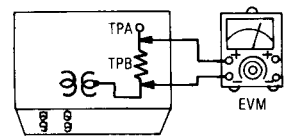


Abb. 12

TPA { TP305 (L-CH) / TP306 (R-CH) TPB { R325 (L-CH) / R326 (R-CH)

dbx Synchronisierung

Kompressionsseite

1.Stellen Sie den Rauschunterdrückungswählschalter in die dbx Stellung.
2.Legen Sie ein 1 kHz Signal an die "LINE IN"-Anschlüsse durch einen Lautstärkeregler.
3.Schalten Sie ein Wechselspannungsvoltmeter parallel zu **R565** (L-K) und **R566** (R-K). Justieren Sie den Eingabesignalpegel so, daß die Spannung 20 mV beträgt.
4.Schalten Sie ein Gleichspannungsvoltmeter parallel zu **R550** (TP551) und justieren **VR551** so, daß die Spannung 15 mV beträgt.

Expansionsseite

5.Wiederholen Sie Schritt 1 und 2.
6.Schalten Sie ein Wechselspannungsvoltmeter parallel zu **R515** (L-K) und **R516** (R-K). Justieren Sie den Eingabesignalpegel so, daß Spannung 20 mV beträgt.
7.Schalten Sie ein Gleichspannungsvoltmeter parallel zu **R500** (TP501) und justieren **VR501** so, daß die Spannung 15 mV beträgt.

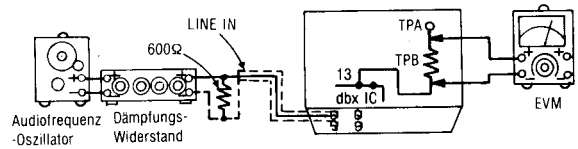


Abb. 13

TPA { TP551 (ENCODE) / TP501 (DECODE)

TPB { R550 (ENCODE) / R500 (DECODE)

Einstellung der dbx Verstärkungsregelung

1.Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-Betrieb.
2.Legen Sie ein 1 kHz Signal an die "LINE IN"-Anschlüsse durch einen Lautstärkeregler.
3.Justieren Sie den Eingabepegel so, daß die Anzeige 0 dB anzeigt.
4.Schließen Sie ein Wechselspannungsvoltmeter an den "LINE OUT"-Anschlu&be..
5.Schalten Sie den Monitorbetriebsartschalter von "TAPE" auf "SOURCE". Justieren Sie **VR553** (L-K) und **VR553** (R-K) so, daß die Spannungsdifferenz am "LINE OUT"-Anscluß ≦ 0.5 dB ausmacht.

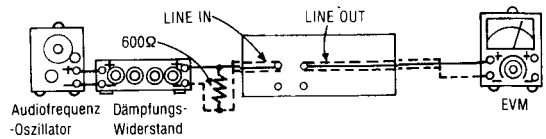


Abb. 14

FRANÇAIS

Ceci est à utiliser conjointement avec manuel d'entretien du modèle No. RS-B905

■ METHODES DES MEASURES ET REGLAGES

Apparelis de mesurage

- Voltmètre électronique
- Oscilloscope
- Compteur de fréquence numérique
- Oscillateur de fréquence audio
- A.T.T.(Atténuateur)
- Voltmètre à C.C.
- Résistance (600Ω)

Reglage Azimutal de la tete

1.Faire jouer la portion du réglage de l'azimuth (8 kHz, -20 dB) de la bande d'essai (QZZCFM). Ajuster la vis de la mise au point azimutale jusqu'à de que les sorties du canal de gauche et du canal de droite soient maximisées et que la forme d'onde de Lissajous, comme il est illustré, approche de 0 degré.

Nota:
Si le canal de gauche et canal de droite ne sont pas maximisés au même point, régler le point où les niveaux de chaque canal sont maximiséset égaux.

2.Effectuer le même r&e19mglage sur le mode d'audition.

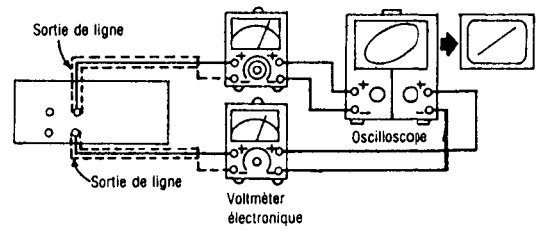


Fig. 1

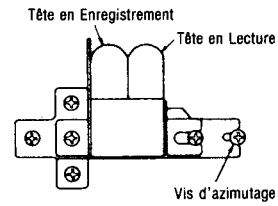


Fig. 2

Reglage de la Vitesse de Defilement

1.Faire jouer la portion médiane de la bande d'essai (QZZCWAT).

2.Régler le régulateur de tension dans le moteur **(voir Fig. 3)**, detelle sorte que la sortie soit en deçà de la valeur standard.

Valeur standard: 3000 + 15, -10Hz

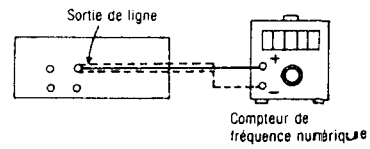


Fig. 3

Reglage de L'amplification de Lecture

1.Faire jouer la partie réglée de l'amplification (315 Hz, 0 dB) de la bande d'essai (QZZCFM).

2.Régler **VR1** (canal de gauche) et **VR2** (canal de droite) de telle sorte que la sortie soit en deçà de la valeur standard.

Valeur standard: 0.4V ± 0.5dB

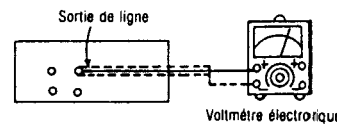


Fig. 4

Reponse en Frequence de la Lecture

1.Faier jouer la partie de la réponse en fréquence (315 Hz, 12.5 kHz, -63 Hz, -20 dB) de la bande d'essai (QZZCFM).
2.S'assurer que la réponse en fréquence soit en deçà de la plage montrée dans la **Fig. 6**, à la fois pour le canal de gauche et le canal de droite.

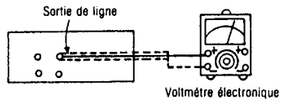


Fig. 5

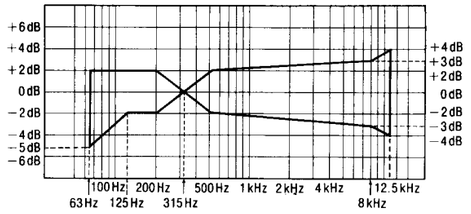


Fig. 6

Reglage du Mesureur Fluorescent

1.Introduire la bande d'essai vierge normale (QZZCRA) et appliquer un signal d'entrée de référence (1 kHz, -24 dB) sur le mode d'intermission d'un disque.
2.En utilisant un atténuateur, le régler jusqu'à ce que la tension des bornes "LINE OUT" (sortie de ligne) des platines de magnétophones soit de 0.4 V.

Reglage de -40 dB

3.Diminuer le niveau du signal d'entrée de l'étape 1 de 40 dB et l'appliquer à l'appareil.
4.Régler **VR61** de telle sorte que le segment de "-40 dB" soit légèrement éclairé.

Reglage de 0 dB

5.Régler le niveau du signal d'entrée comme il est indiqué à l'étape 2 ci-dessus.
6.Ajuster **VR62** de telle sorte que le segment "0 dB" soit légèrement éclairé.
7.Répéter les étapes 1 ~ 6 ci-dessus et s'assurer que les segments à la fois de -40 dB et de 0 dB s'éclairent légèrement.

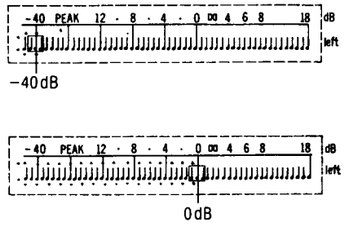


Fig. 7

Reponse en Frequence Totale

1.Introduire la bande d'essai vierge normale (QZZCRA) et régler l'appareil sur le mode d'intermission d'un disque.
2.Appliquer un signal d'entrée de référence (1 kHz, -24 dB) par l'intermédiaire d'un atténuateur.
3.Diminuer le signal de 20 dB et régler la fréquence de 50 Hz ~ 15 kHz.
4.Enregistrer le balayage de fréquence.
5.Faire jouer le signal enregistré et s'assurer qu'il soit en deçà de la plage montrée à la **Fig. 9** en comparaison à la fréquence de référence (1 kHz).
6.S'Il n'est pas en deçá de la plage standard, régler **VR301** (canal de gauche) et **VR302** (canal de droite) de telle sorte que le niveau de fréquence soit en deçá de la plage standard.
   - Elévation du niveau dans la plage de fréquence élevée..... Augmente le courant de polarisation.
   - Diminution du niveau dans la plage de fréquence élevée..... Diminue le courant de polarisation.
7.Répéter les étapes 2 ~ 6 ci-dessus en utilisant la band CrO_2 (QZZCRX) et la bande métallisée (QZZCRX) en augmentant la plage de fréquence à 16 kHz (50 Hz ~ 16 kHz).
8.S'assurer que le niveau soit en deçà de la plage montrée à la **Fig. 10**.

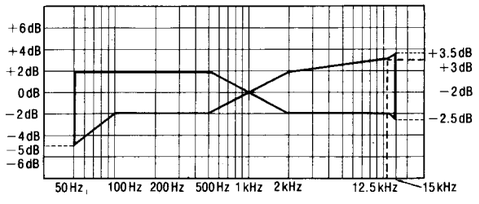


Fig. 9

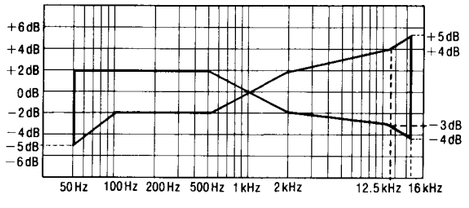


Fig. 10

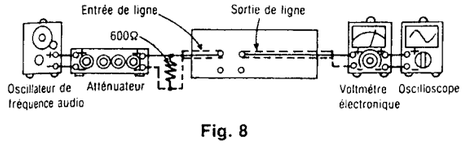


Fig. 8

Reglage de L'amplification Totale

1.Introduire la bande d'essai vierge normale (QZZCRA) et régler l'appareil sur le mode d'intermission d'un disque.
2.Appliquer un signal d'entrée de référence (1 kHz, -24 dB). Diminuer la sortie de telle sorte que son niveau devienne de 0.4 V.
3.Enregistrer ce signal d'entrée.
4.Faire jouer le signal enregistré à l'étape 3 ci-dessus, et s'assurer que la sortie en deçè de la valeur standard.
5.Si elle n'est pas en deçà de la valeur standard, régler **VR151** (canal de gauche)et **VR152** (canal de droite).
6.Répéter les étapes 2 ~ 5 ci-dessus jusqu'à ce que la sortie soit en deçà de la valeur standard.

Valeur standard: 0.4V ± 0.5dB

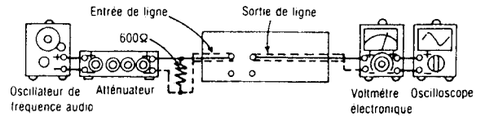


Fig. 11

Reglage de HX-PRO

1.Introduire la bande vierge métallisée (QZZCRZ) et régler l'appareil sur le mode d'intermission d'un disque.
2.Raccorder un voltmètre à C.C. à travers **R325** (canal de gauche, 10 ohms) et **R326** (canal de droite, 10 ohms).
3.Régler **L303** (canal de gauche)et **L304** (canal de droite) de telle sorte que la tension soit inférieure à 110 mV C.C.

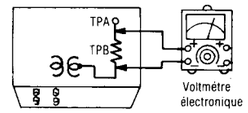


Fig. 12

TPA { TP305 (L-CH) / TP306 (R-CH) TPB { R325 (L-CH) / R326 (R-CH)

Reglage de la Synchronisation de dbx

Cote du Codage

1.Régler le commutateur de réduction des bruitssur la position "dbx".
2.Appliquer un signal de 1 kHz aux bornes "LINE IN" (entréede ligne) par l'intermédiaire d'un atténuateur.
3.Brancher un voltmètre à C.A. à travers **R565** (canal de gauche) et **R566** (canal de droite) . Ajuster le niveau du signal d'entrée de telle sorte que la tension soit de 20 mV.
4.Brancher un voltmètre à C.C. à travers **R550** (TP551) et ajuster **VR551** de telle sorte que la tension soit de 15 mV.

Cote du Decodage

5.Répéterles étapes 1 et 2 ci-dessus.
6.Brancher un voltmètre à C.A. à travers **R515** (canal de gauche) et **R516** (canal de droite). Ajuster le niveau du signal d'entrée de telle sorte que la tension soit de 20 mV.
7.Brancher un voltmètre à C.C. à travers **R500** (TP501) et ajuster **VR501** de telle sorte que la tension devienne de 15 mV.

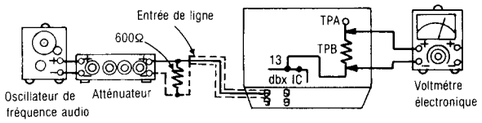


Fig. 13

TPA { TP551 (ENCODE) / TP501 (DECODE)

TPB { R550 (ENCODE) / R500 (DECODE)

Reglage de L'amplification de dbx

1.Introduire la bande d'essai vierge normale (QZZCRA) et régler l'ppareil sur le mode d'enregistrement.
2.Appliquer un signal de 1 kHz à "LINE IN" (entrée de ligne) par l'intermédiaire d'un atténuateur.
3.Ajuster le niveau d'entrée de telle sorte que la lecture du mesureur soit de 0 dB.
4.Brancher un voltmètre à C.A. à la borne "LINE OUT" (sortie de ligne).
5.Commuter la position du commutateur de contrôle entre "TAPE" et "SOURCE". Ajuster **VR553** (canal de gauche) et **VR554** (canal de droite) de telle sorte que la différence de tension à "LINE OUT" (sortie de ligne) soit en deçà de 0.5 dB.

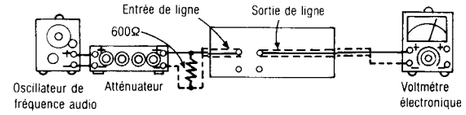


Fig. 14

ESPAÑOL

Sirvase utilizarse junto con manual de servicio para el model No. RS-B905

■ METODOS DE AJUSTE Y MEDIDA

Instrumento de medición

- EVM(Voltímetro electrónico)
- Osciloscopio
- Frecuencímetro digital
- Oscilador AF
- ATT(Atenuador)
- Voltímetro CC
- Resistor(600Ω)

Azuste Azimutal de Cabeza

1.Reproducir la porción de ajuste azimutal (8 kHz, -20 dB) de la cinta de prueba (QZZCFM). Variar el tornillo de ajuste azimutal hasta que las salidas del CH-I y CH-D se maximicen y la forma de onda de lissajous, como ilustrado, se acerque a grado 0.

Nota:
Si CH-I y CH-D no son maximizados en el mismo punto, ajustar al punto donde los niveles de cada canal sean maximizados e igualados.

2.Efectuar el mismo ajuste en la modalidad de reproducción.

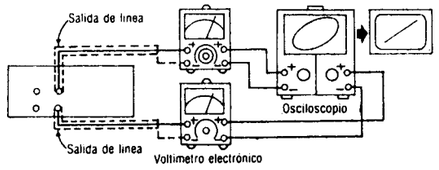


Fig. 1

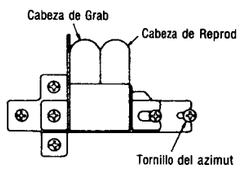


Fig. 2

Ajuste de Velocidad de Cinta

1.Reproducir la porción de la cinta prueba (QZZCWAT).
2.Ajustar el **VR** en el motor **(ver la Fig. 3)** de manera que salida esté dentro del valor estándar.

Valor esténdar: 3000 + 15, -10Hz

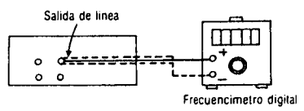


Fig. 3

Ajuste de Ganancia de Reproduccion

1.Reproducir la porción ajustada de ganancia (315 Hz, 0 dB) de la cinta de prueba (QZZCFM).
2.Ajustar **VR1** (CH-I) y **VR2** (CH-D) de manera que la salida esté dentro del valor estándar.

Valor estándar: 0.4V ± 0.5dB

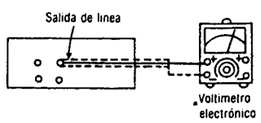


Fig. 4

Respuesta de Frecuencia de Reproduccion

1.Reproducir la parte de respuesta de frecuencia de reproducción (315 Hz, 12.5 kHz ~ 63 Hz, -20 dB) de la cinta de prueba (QZZCFM).
2.Asegurarse de que la respuesta de frecuencia esté dentro de la gama mostrada en la **Fig. 6** para ambos CH-I y CH-D.

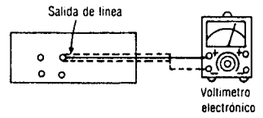


Fig. 5

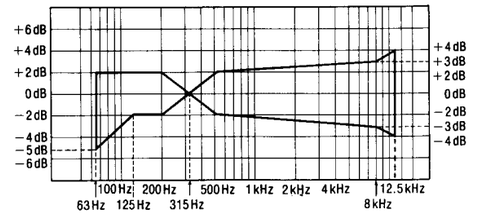


Fig. 6

Ajuste de Medidor de Fluorescente

1.Insertar la cinta de prueba en blanco normal (QZZCRA) y aplicar una señal de entrada de referencia (1 kHz, -24 dB) en la modalidad de Pausa de Grabación.
2.Utilizando un atenuador, ajustarlo hasta que la tensión de los terminales "LINE OUT" (salida de linea) de las platinas de cinta sea 0.4 V

Ajust de -40 dB
3.Atenuar el nivel de entrada de señal en paso 1, por 40 dB y aplicarlo a la unidad.
4.Ajustar **VR61** de manera que el segmento "-40 dB" esté ligeramente iluminado.

Ajuste de 0 dB
5.Poner el nivel de señal de entrada como indicado en el paso 2 de arriba.
6.Ajustar **VR62** de manera que el segmento "0 dB" esté ligeramente iluminado.
7.Repetir los pasos 1 ~ 6 de arriba y asegurarse de que ambos segmentos, -40 dB y 0 dB, se iluminen ligeramente.

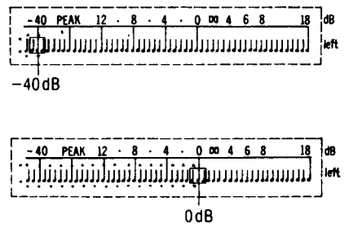


Fig. 7

Respuesta de Frecuencia Total

1.Poner una cinta virgen normal (QZZCRA) y poner la unidad en la modalidad de Pausa de Grabación.
2.Aplicar la señal de entrada de referencia (1 kHz, -24 dB) a través de un atenuador.
3.Atenuar la señal por 20 dB y ajustar la frecuencia de 50 Hz ~ 15 kHz.
4.Grabar el barrido de frecuencia.
5.Reproducir la señal grabada y asegurarse de que esté dentro de la gama mostrada en la **Fig. 9** en comparación con la frecuencia de referencia (1 kHz).
6.Si no está dentro de la gama de frecuencia, ajustar **VR301** (CH-I) y **VR302** (CH-D) de manera que el nivel de frecuencia esté dentro de la gama estándar.
- Subir el nivel en la gama de frecuencia alta..... Incrementar la corriente de polarización.
- Bajar el nivel en la gama de frecuencia baja..... Disminuir la corriente de polarización.

7.Repetir los pasos 2 ~ 6 de arriba utilizando la cinta CrO_2 (QZZCRX) y la cinta metálica (QZZCRZ) incrementando la gama de frecuencia a 16 kHz (50 Hz ~ 16 kHz).
8.Asegurarse de que el nivel est&e19mdentro de la gama mostrada en la **Fig. 10**.

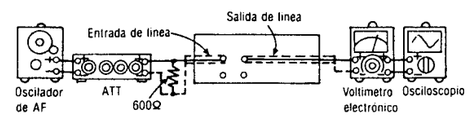


Fig. 8

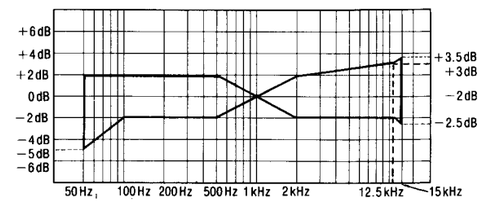


Fig. 9

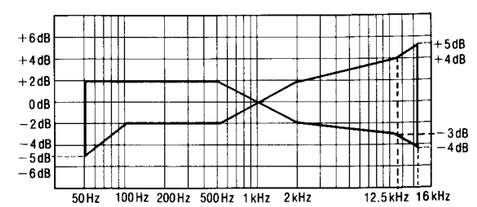


Fig. 10

Ajuste de Ganancia Total

1.Insertar la cinta de prueba en blanco normal (QZZCRA) y poner la unidad en modalidad de pausa de Grabación.
2.Aplicar la señal de entrada de referencia (1 kHz, -24 dB). Atenuar la salida de manera que su nivel se haga 0.4 V.
3.Grabar la señal de entrada.
4.Reproducir la señal grabada en el paso 3 de arriba y asegurarse de que la salida esté dentro del valor estándar.
5.Si no está dentro del valor estándar, ajustar **VR151** (CH-I) y **VR152** (CH-D).
6.Repetir el paso 2 ~ 5 de arriba hasta que la salida esté dentro del valor estándar.

Valor estándar: 0.4V ± 0.5dB

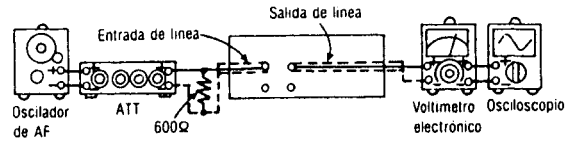


Fig. 11

Ajuste de HX-PRO

1.Insertar la cinta en blanco metálica (QZZCRZ) y poner la unidad en la modalidad de pausa de Grabación.
2.Conectar un voltimetro CC través de **R325** (CH-I, 10 ohmios) y **R326** (CH-D, 10 ohmios).
3.Ajustar **L303** (CH-I) y **L304** (CH-D) de manera que la tensión se haga menos de 110 mV CC.

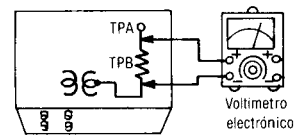


Fig. 12

TPA { TP305 (L-CH) / TP306 (R-CH) } TPB { R325 (L-CH) / R326 (R-CH) }

Ajuste de Sincronizacion de dbx

Lado de Codificar

1.Poner el interruptor de reducción de ruido en la posición dbx.
2.Aplicar una señal de 1 kHz a los terminales "LINE IN" (entrada de linea) a través de un atenuador.
3.Conectar un voltimetro CC a través de **R565** (CH-I) y **R566** (CH-D). Ajustar el nivel de señal de entrada de maera que la tensión se haga 20 mV.
4.Conectar un voltimetro CC a través de **R550** (TP551) y ajustar **VR551** de manera que la tensión se haga 15 mV.

Lodo de Descodificador

5.Repetir los pasos 1 y 2 de arriba.
6.Conectar un voltimetro CC a través de **R515** (CH-I) y **R516** (CH-D). Ajustar el nivel de señal de entrada de manera que la tensión sea 20 mV.
7.Conectar un voltimetro CC a través de **R500** (TP501) y ajustar **VR501** de manera que la tensión se haga 15 mV.

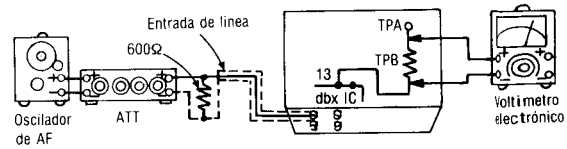


Fig. 13

TPA { TP551 (ENCODE) / TP501 (DECODE) }

TPB { R550 (ENCODE) / R500 (DECODE) }

Ajuste de Ganancia de dbx

1.Insertar la cinta de prueba en blanco normal (QZZCRA) y poner la unidad en la modalidad de Grabación.
2.Aplicar una señal de 1 kHz a la "LINE IN" (entrada de linea) a través de un atenador.
3.Ajustar el nivel de entrada de que la lectura del medidor sea 0 dB.
4.Conectar un voltimetro CC al terminal de "LINE OUT".
5.Conmutar la posición del interruptor de monitor entre "TAPE" (cinta) y "SOURCE" (fuente). Adjusrar **VR553** (CH-I) y **VR554** (CH-D) de manera que la diferencia de tensión en "LINE OUT" esté dentro de 0.5 dB.

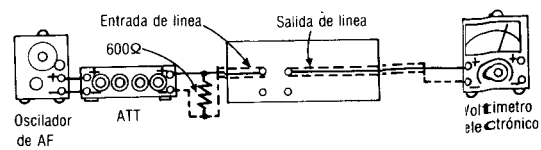


Fig. 14

Printed in Japan
H870504850 MY/IM/AM

ORDER NO. HAD8709298S0
A2

Service Manual

Supplement

Cassette Deck

RS-B905

dbx/Closed Loop Dual Capstan
DOUBLE DOLBY SYSTEM

DOLBY B·C NR HX PRO

Color

(K)... Black Type

Color	Areas
(K)	[M] .....U.S.A.
(K)	[MC]...Canada.
(K)	[E] .....All European areas except United Kingdom.
(K)	[EK]....United Kingdom.
(K)	[EG] ...F.R. Germany.
(K)	[EH] ...Holland.
(K)	[XA]....Asia, Latin America, Middle Near East, Africa and Oceania.
(K)	[XL]....Australia.
(K)	[XB]....Saudi Arabia.

* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.
** The term dbx is a registered trademark of dbx Inc.

Please file and use this supplement manual together with the service manual for model No. RS-B905, Order No. HAD8705124C0 and HAD8707218S0.

Notes:
- This supplement has been issued to inform you that the Erase Head has been changed in units having serial number suffixes "B" or later. (Refer to "How to read the serial number" on page 2.).
- The head was changed to improve the High-Pass Demagnetization.

CHANGES

■ REPLACEMENT PARTS LIST

Note: Part numbers are indicated on most mechanical parts. Please use this part number for parts order.

Ref. No.	Change of Parts No. OLD	→ NEW	Description	Schematic Diagram Zone
RESISTOR				
R308	ERD25FJ561	.....	Deletion, Carbon, 560Ω, 1/4W [M, MC]	E-3
	ERG1SJ561		Deletion, Metal Oxide, 560Ω, 1W [E, EK, EG, EH, XA, XL, XB]	

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Ontario, L4W 2T3

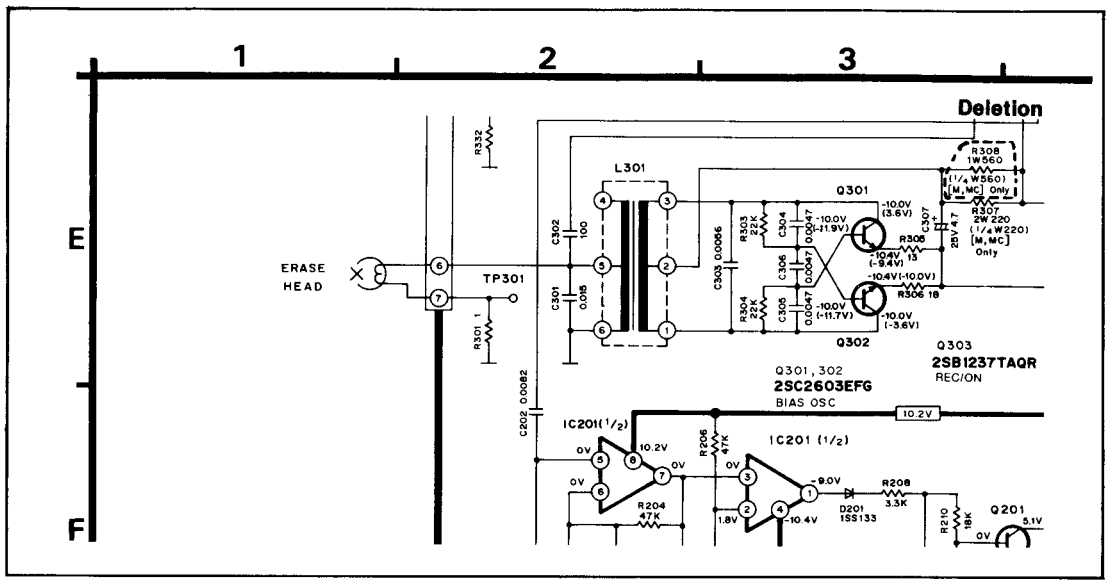
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Ref. No.	Change of Parts No. OLD → NEW		Description	Remarks
MECHANISM PART				
105	SMQA1192	**SMQA1192-1**	Erase Head	change

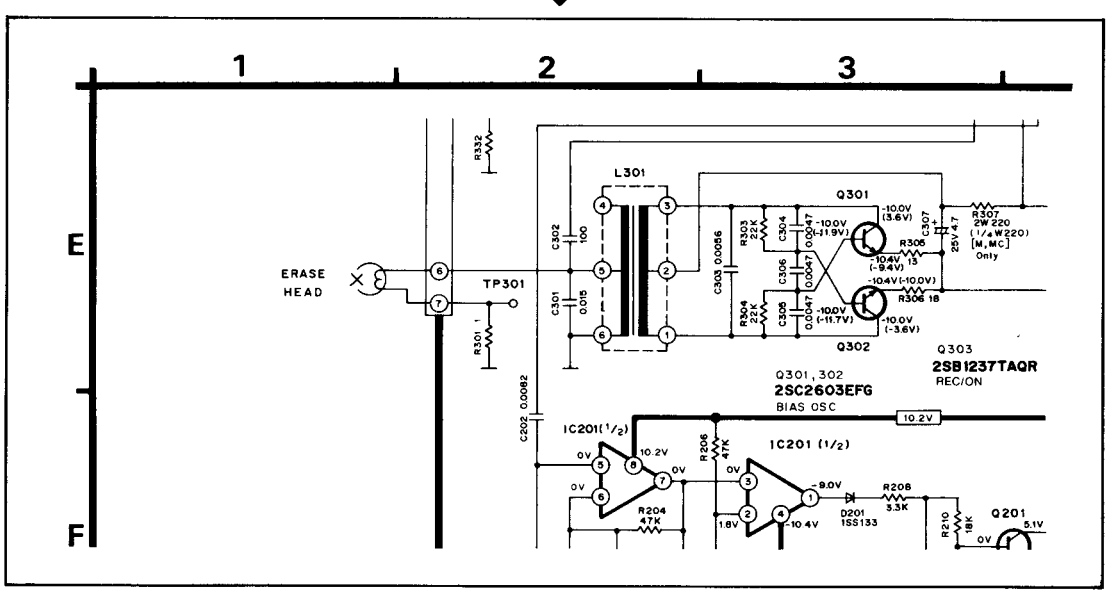
■ SCHEMATIC DIAGRAM

Note: R308 has deleted to improve the efficiency of the High-pass Demagnetization.

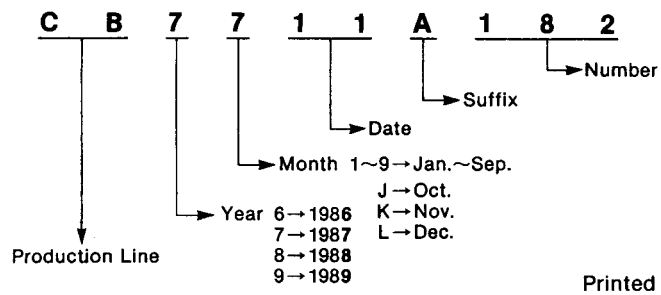
(OLD)



(NEW)



- **How to read the serial number**



Printed in Japan
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ORDER NO. HAD8707218S0
A2

Service Manual

Supplement

Cassette Deck

RS-B905

**dbx/Closed Loop Dual Capstan
DOUBLE DOLBY SYSTEM

DOLBY B·C NR HX PRO

Color

(K)... Black Type

Color	Areas
(K)	[M] .....U.S.A.
(K)	[MC]...Canada.
(K)	[E] .....All European areas except United Kingdom.
(K)	[EK]....United Kingdom.
(K)	[EG] ...F.R. Germany.
(K)	[EH] ...Holland.
(K)	[XA]....Asia, Latin America, Middle Near East, Africa and Oceania.
(K)	[XL]....Australia.
(K)	[XB]....Saudi Arabia.

* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.
** The term dbx is a registered trademark of dbx Inc.

Please file and use this supplement manual together with the service manual for model No. RS-B905, Order No. HAD8705124C0.

Notes:
- The circuit of RS-B905 has been changed for the improvement of performance.

CHANGES

■ REPLACEMENT PARTS LIST

Notes: • Part numbers are indicated on most electrical parts. Please use this part number for parts order.
• Important safety notice:
Components identified by the ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Change of Parts No. OLD	→ NEW	Part Name & Description	Per Set (Pcs.)	Remarks
RESISTORS					
R5, 6	ERDS2TJ684	**ERDS2TJ474**	Carbon, 1/4W, 470kΩ, ±5%	2	
R7, 8	ERDS2TJ183	**ERDS2TJ113**	Carbon, 1/4W, 11kΩ, ±5%	2	
R9, 10	ERDS2TJ103	**ERDS2TJ752**	Carbon, 1/4W, 7.5kΩ, ±5%	2	
R163, 164	ERDS2TJ121	**ERDS2TJ181**	Carbon, 1/4W, 180Ω, ±5%	2	
R165, 166	ERDS2TJ331	**ERDS2TJ181**	Carbon, 1/4W, 180Ω, ±5%	2	
R171, 172	ERDS2TJ471	**ERDS2TJ102**	Carbon, 1/4W, 1kΩ, ±5%	2	
R175, 176	ERDS2TJ102	**ERDS2TJ561**	Carbon, 1/4W, 560Ω, ±5%	2	
R185, 186	ERDS2TJ682	**ERDS2TJ103**	Carbon, 1/4W, 10kΩ, ±5%	2	
R457, 458	ERDS2TJ123	**ERDS2TJ682**	Carbon, 1/4W, 6.8kΩ, ±5%	2	
R503, 504	ERDS2TJ274	**ERDS2TJ472**	Carbon, 1/4W, 4.7kΩ, ±5%	2	

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Ref. No.	Change of Parts No.		Part Name & Description	Per Set (Pcs.)	Remarks
	OLD	**NEW**			
CAPACITORS					
C9, 10	ECQM1H472JZ	**ECQM1H682JZ**	Polyester, 50V, 0.0068μF, ±5%	2	
C165, 166	ECQM1H183JV	**ECQM1H223JZ**	Polyester, 50V, 0.022μF, ±5%	2	
C505, 506	ECQM1H183JZ	**ECQM1H472JZ**	Polyester, 50V, 0.0047μF, ±5%	2	
C610	ECKD1H223PF	——	——— [EK] only	1	**Deletion**
C610	——	**ECKD1H223PF**	Ceramic, 50V, 0.022μF, ±100% [EG, XL] only	1	**Addition,** ⚠
TRANSISTORS					
Q901	2SD1225RM	**2SD1858TAQR**	Transistor	1	
Q914	2SD1225RM	**2SD1858TAQR**	Transistor [M, MC] only	1	
Q916	2SD1225RM	**2SD1858TAQR**	Transistor [M, MC] only	1	

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