TOYOTA
AUDIO COMPONENT SERVICE MANUAL

AM-FM MPX RADIO WITH ELECTRONIC TUNER and CASSETTE TAPE PLAYER (DOLBY*NR)

VEHICLE	DESTINATION	PRODUCED AFTER	TOYOTA PART No.	FUJITSU TEN MODEL No.
SUPRA	GENERAL	March 1986	86100-14580	CE-5831TL1A

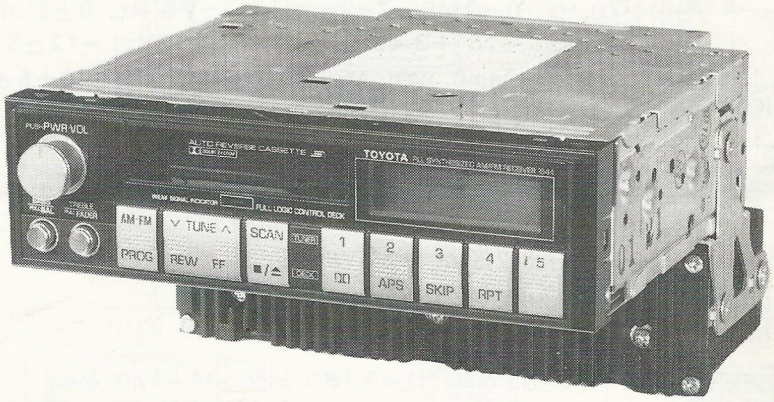

TABLE OF CONTENTS

	Page
COMPOSITIONS • SPECIFICATIONS	2
CONNECTIONS	3
SCHEMATIC • WIRING ON PC BOARDS (Main unit)	4—16
ALIGNMENT	17—21
EXPLODED VIEW	22—24
SCHEMATIC • WIRING ON PC BOARDS (Power amp. unit)	25—28
REPLACEMENT PARTS LIST	29—35

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Manufactured for TOYOTA

by *FUJITSU TEN LIMITED*

PUB. NO. **SM-596**

COMPOSITION

Stock No.	Description	Q'ty
CE-5831TL1A		
CE-5831A	Combination unit	1
UM-135	Power amp. unit	1
RN-MBE-1730	Bracket	1
RN-MBE-1731	Bracket	1
F6-SSA-5×8S	Screw, 5×8mm	6

SPECIFICATIONS

MAIN UNIT

(RADIO SECTION)	AM	FM
TUNING RANGE	531 to 1602 kHz (9 kHz step)	88.1 to 107.9 MHz (.1 MHz step)
INTERMEDIATE FREQUENCY	450 kHz	10.7 MHz
SENSITIVITY	34 dBμ or better (S/N 20 dB)	18 dBμ or better (at S/N 30 dB)
SENSITIVITY AT ELECTRONIC TUNING	Distant: 30±5 dBμ Local: Distant plus 20±5 dBμ	Distant: 24±8 dBμ Local: Distant plus 25±5 dBμ
LIMITING SENSITIVITY		7±5 dBμ
SEPARATION		25 dB or better
ELECTRICAL FIDELITY	70 Hz: 0±3 dB 4 kHz: −13 +3 dB (74 dBμ input, VOL Max.)	70 Hz: 0±3 dB (54 dBμ input, VOL Max.) 4 kHz: −12±5 dB (54 dBμ input, VOL Max.) −8±5 dB (10 dBμ input, VOL Max.)

(CASSETTE DECK SECTION)

NUMBER OF TRACKS ····· 4-track 2-channel

TAPE CARTRIDGE ····· Stereo/Monaural compact cassette

TAPE SPEED ····· 4.76cm/sec. (1-7/8", i.p.s.)

WOW & FLUTTER ····· 0.2% or less (WRMS)

CROSSTALK ····· 45 dB or better

SEPARATION ····· 30 dB or better

EQUALIZATION ····· Normal: t1=3,180 μsec., t2=120 μsec.
Chrome and metal: t1=3,180 μsec., t2=70 μsec.

SIGNAL TO NOISE RATIO ····· 46 dB or better (with MTT-150 test tape)

DOLBY NR CIRCUIT

NOISE REDUCTION EFFECT ····· 8 dB or better (400 Hz, MTT-150, CCIR filter)

DOLBY NR LEVEL ····· 300 mV ±30 mV (with MTT-150 test tape)

TAKE-UP TORQUE ····· 40 to 70 g-cm

(COMMON SECTION)

LOAD IMPEDANCE ····· 100K ohms per channel

POWER INPUT ····· 12-volt car battery, negative terminal to ground

Voltage ····· 13.2 VDC

Current ····· Approx. 0.5 amperes (FM 400 Hz, 30%, VOL Max.)
Approx. 1.5 ampere (Max.)

SEMICONDUCTORS ····· 28 ICs, 60 Transistors, 40 Diodes, 2 LEDs

DIMENSIONS ····· 180(W)×50(H)×170(D)mm

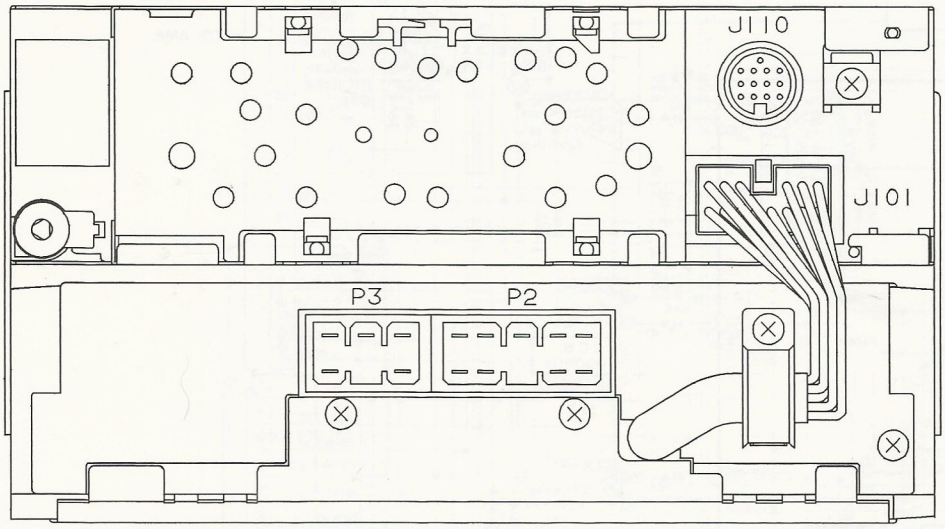
WEIGHT ····· Unit—1.45 kg

NOTES:
1. Above specification is of main units only (measured without power amp. unit).
2. Unless otherwise noted specification is measured with balance and fader control at center and acoustic selector at classic position.

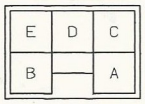
POWER AMP. UNIT 〔UM-135〕

LOAD IMPEDANCE	100K ohms
SPEAKER IMPEDANCE	4 ohms×4
POWER OUTPUT	17 watts×4
CURRENT	Approx. 8.5 amperes (Max.)
SEMICONDUCTORS	6 ICs, 5 Transistors, 4 Diodes
DIMENSIONS	178(W)×50(H)×65(D)mm
WEIGHT	795g

CONNECTIONS

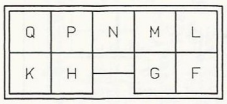


P3 (PIN VIEW)



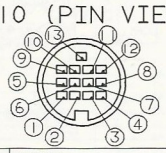
B	REAR	R⊕
A	REAR	L⊕
E	REAR	R⊖
D	BACK UP	
C	REAR	L⊖

P2 (PIN VIEW)



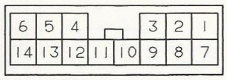
K	1	FRONT	R⊕
H	2	FRONT	L⊕
G	3	ACC +B	
F	4	ANT AMP +B	
Q	5	FRONT	R⊖
P	6	FRONT	L⊖
N	7	GND	
M	8	AMP +B	
L	9	DIM +B	

J110 (PIN VIEW)



1	GND
2	R IN PUT
3	GND
4	L IN PUT
5	DEFEAT
6	CD +B
7	ACC +B
8	MUTE
9	CD OFF
10	BACK UP
11	DIM +B
12	HAR
13	DIM (-)
14	GND

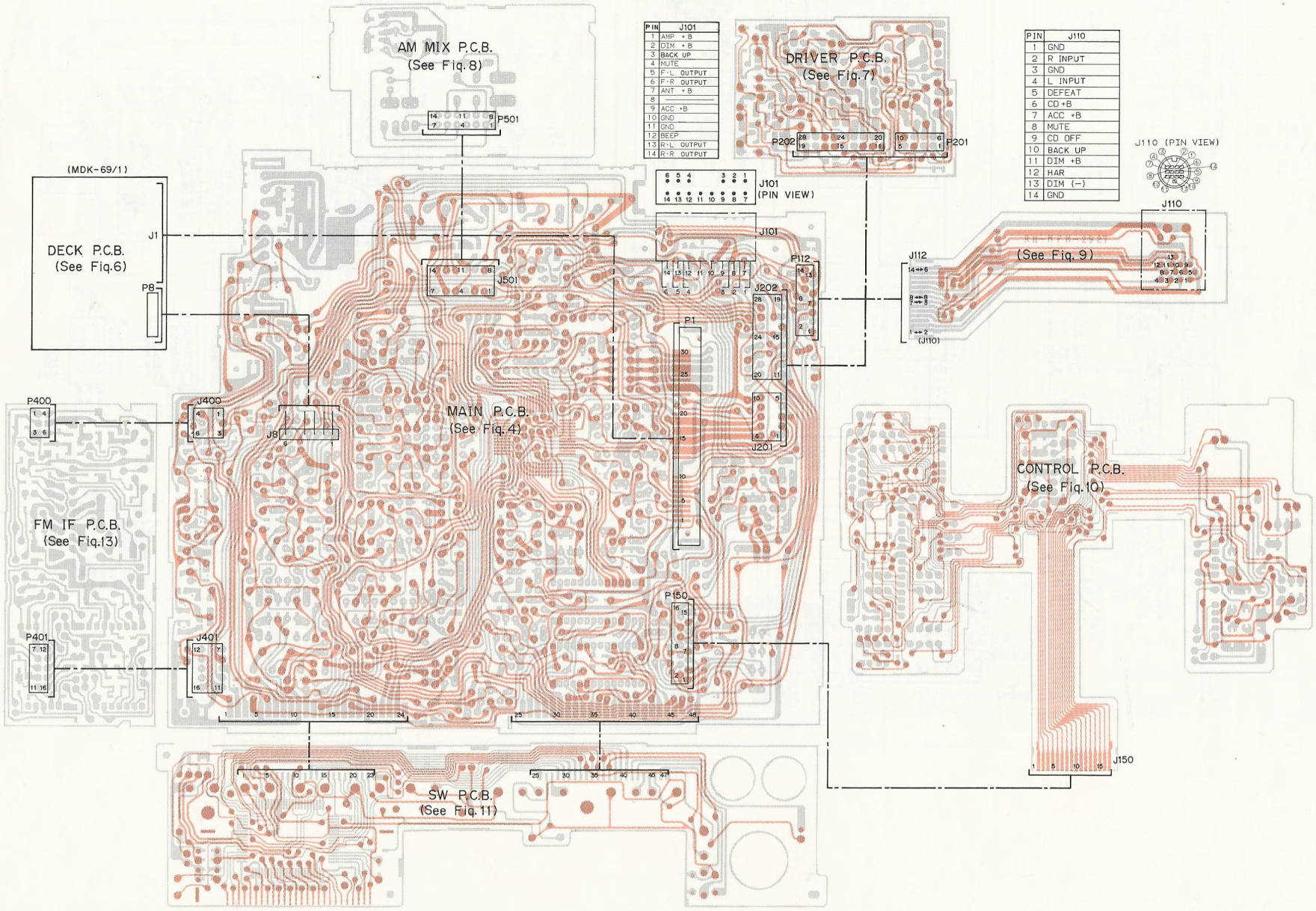
J101 (PIN VIEW)



1	AMP +B
2	DIM +B
3	BACK UP
4	MUTE
5	F·L OUT PUT
6	F·R OUT PUT
7	ANT +B
8	———
9	ACC +B
10	GND
11	GND
12	BEEP
13	R·L OUT PUT
14	R·R OUT PUT

Fig. 1 (C23190831)

INSTRUMENT WIRING



PIN	J101
1	AMP +B
2	DIM +B
3	BACK UP
4	MUTE
5	F-L OUTPUT
6	F-R OUTPUT
7	ANT +B
8	
9	ACC +B
10	GND
11	GND
12	BEEP
13	R-L OUTPUT
14	R-R OUTPUT

PIN	J110
1	GND
2	R INPUT
3	GND
4	L INPUT
5	DEFEAT
6	CD +B
7	ACC +B
8	MUTE
9	CD OFF
10	BACK UP
11	DIM +B
12	HAR
13	DIM (−)
14	GND

Fig. 2 (C27190831)

AR · CONTROL CIRCUIT

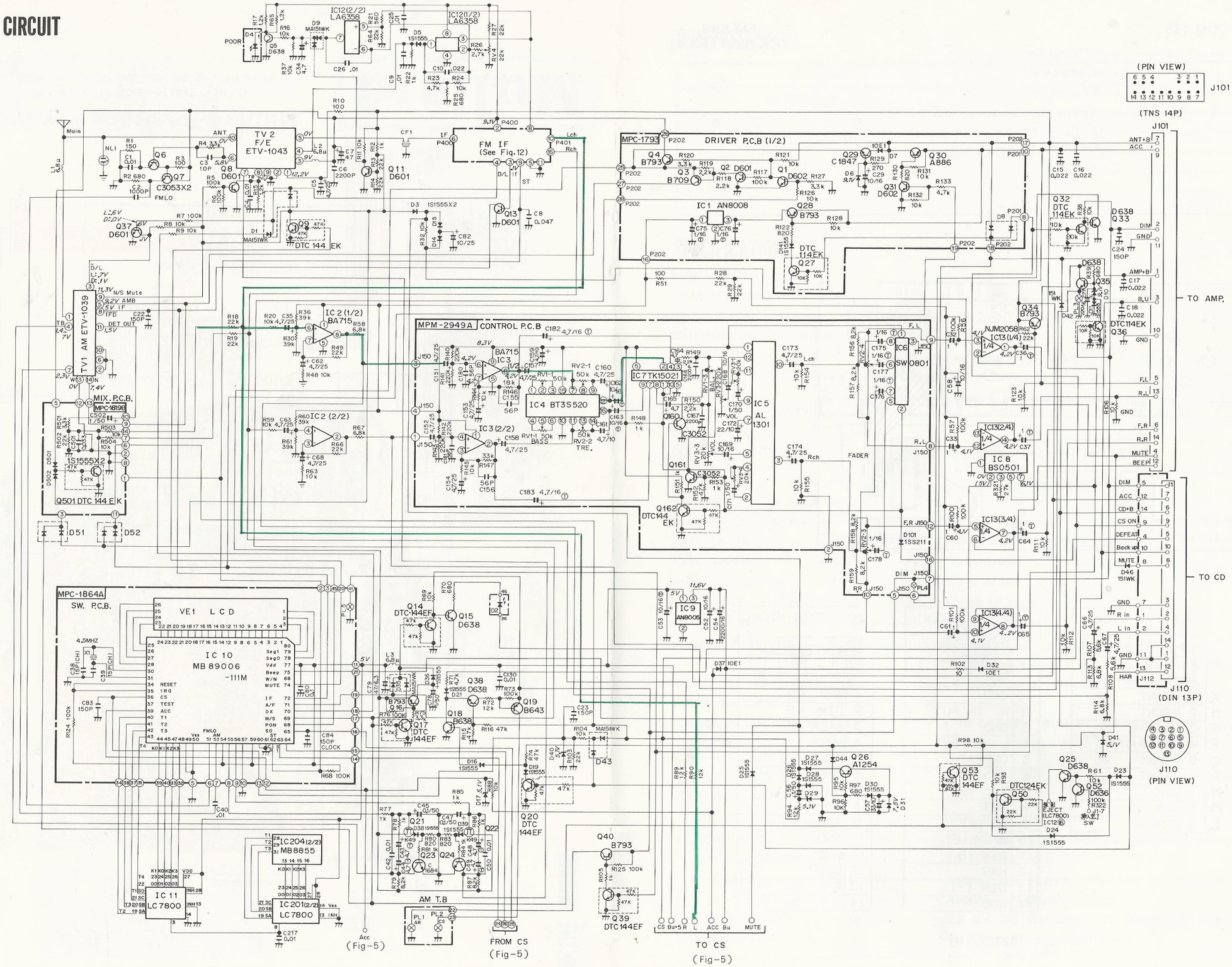
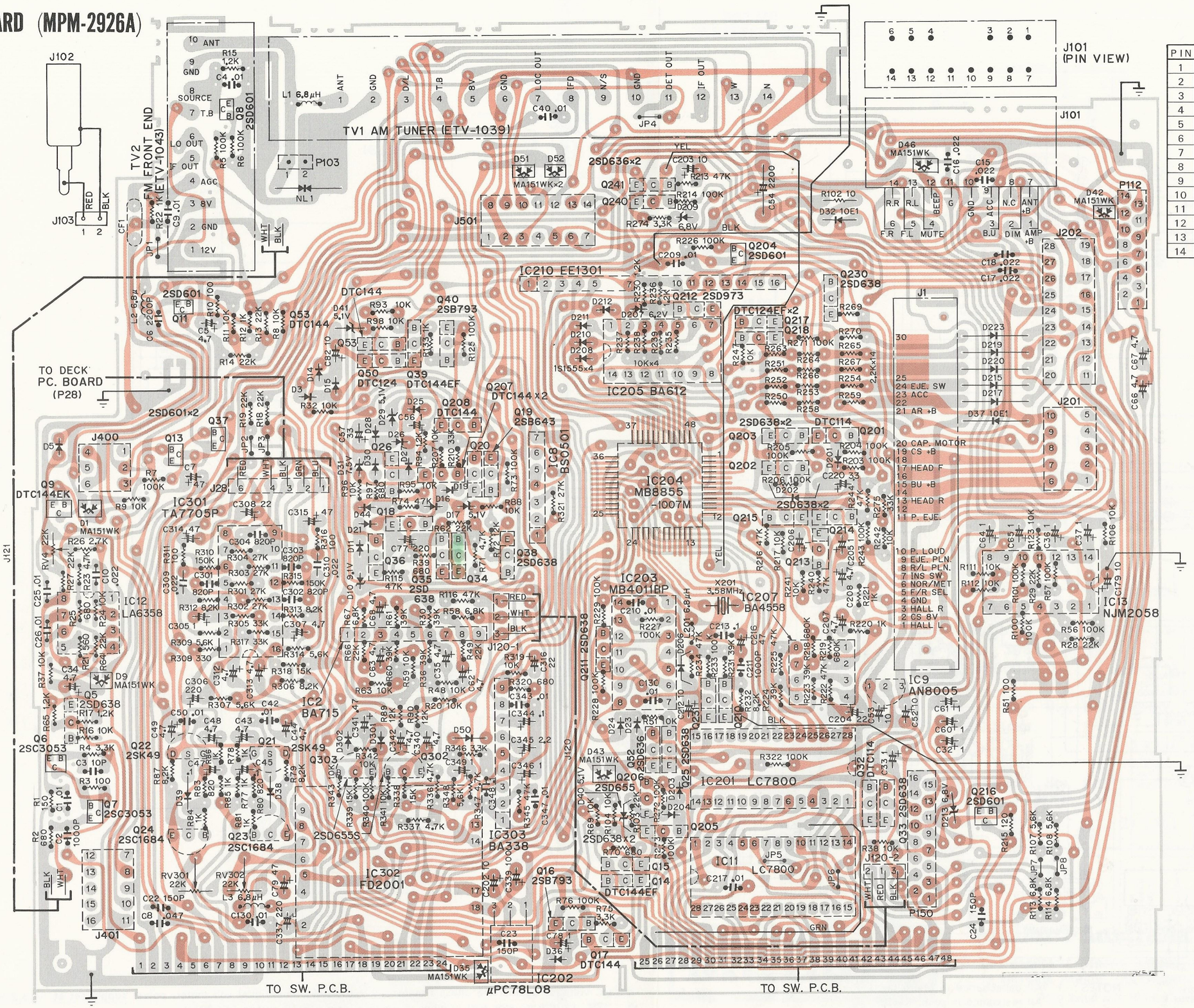


Fig. 3 (C24190831)

NOTES: 1. All capacitance in Micro farad, $P=10^{-12}$
2. All resistance in ohm, $K=10^{3}$
3. All inductance in henry, $m=10^{-3}$, $\mu=10^{-6}$
4. DC voltages against the chassis measured with 10M ohms digital volt meter, power supply set at +13.2 VDC, no signal input.
5. "2S" from transistor part number is omitted. (ex. C3053 means 2SC3053.)

MAIN PC BOARD (MPM-2926A)



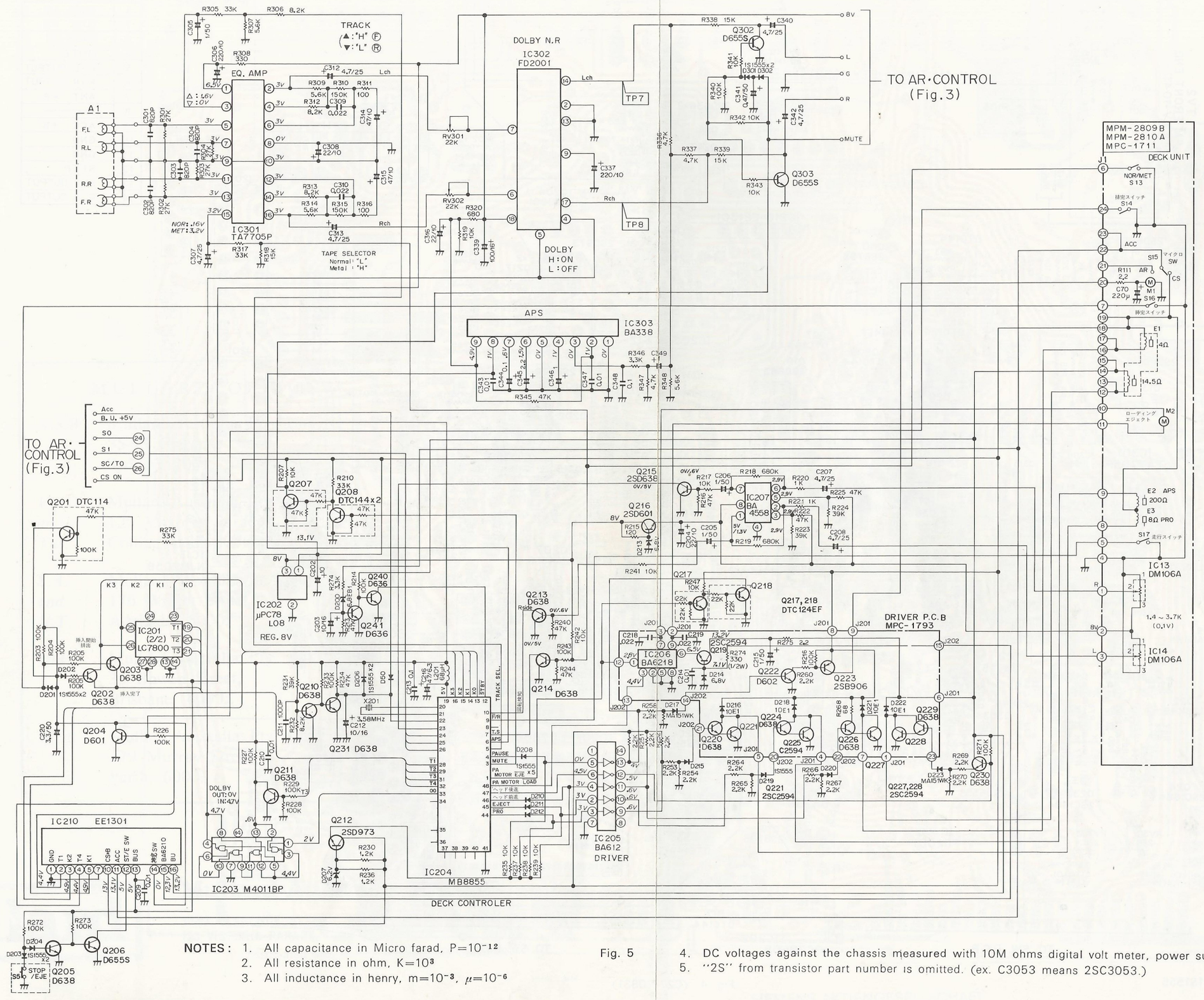
PIN	J101
1	AMP +B
2	DIM +B
3	BACK UP
4	MUTE
5	F·L OUTPUT
6	F·R OUTPUT
7	ANT +B
8	———
9	ACC +B
10	GND
11	GND
12	BEEP
13	R·L OUTPUT
14	R·R OUTPUT

NOTE: Diodes without part number are 1S1555.

Fig. 4 (C27190831)

CS CIRCUIT

SM-596
[CE-5831TL1A]



NOTES:
1. All capacitance in Micro farad, $P=10^{-12}$
2. All resistance in ohm, $K=10^{3}$
3. All inductance in henry, $m=10^{-3}$, $\mu=10^{-6}$
4. DC voltages against the chassis measured with 10M ohms digital volt meter, power supply set at +13.2 VDC, no signal input.
5. "2S" from transistor part number is omitted. (ex. C3053 means 2SC3053.)

Fig. 5

DECK PC BOARD

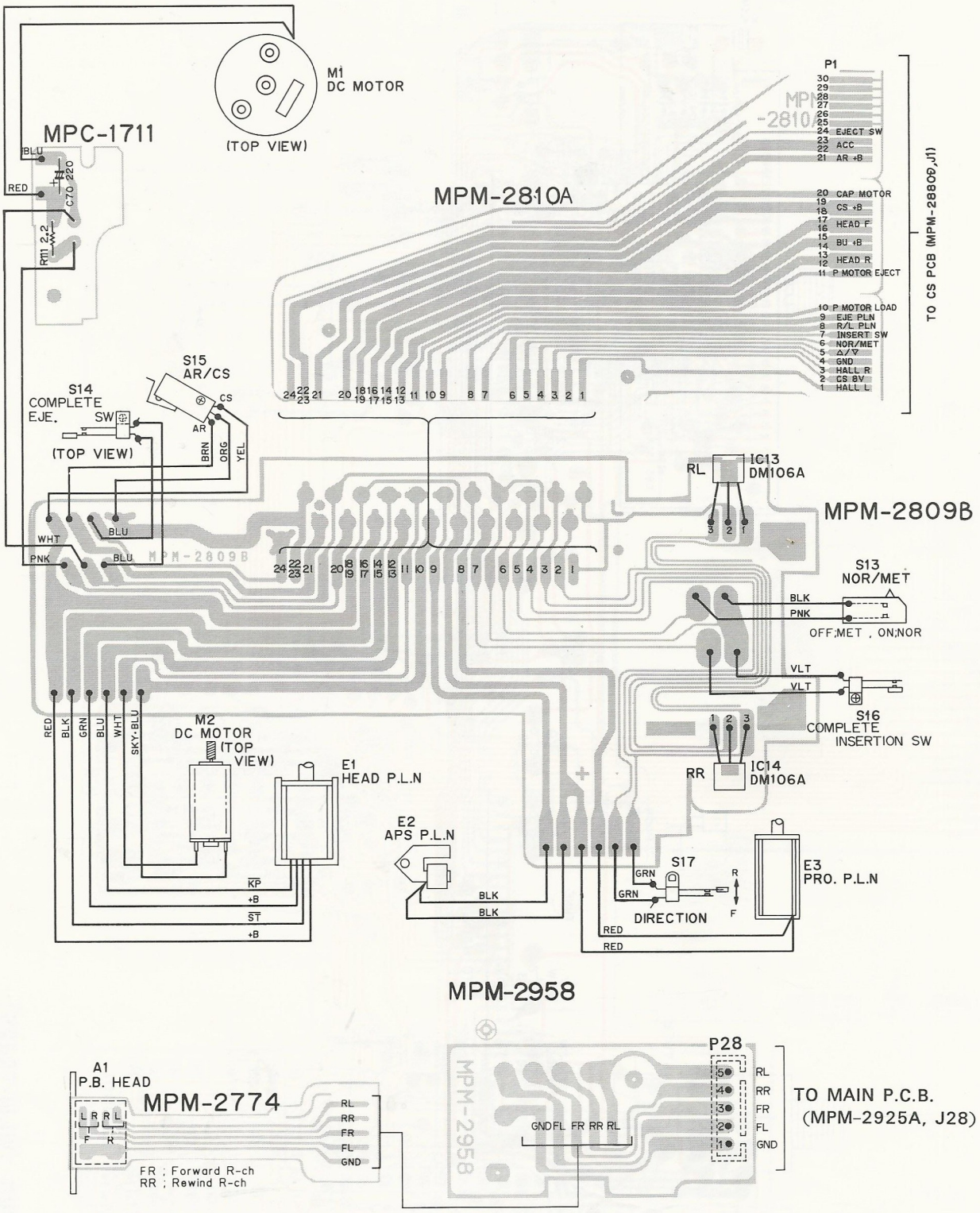


Fig. 6

DRIVER PC BOARD (MPC-1793)

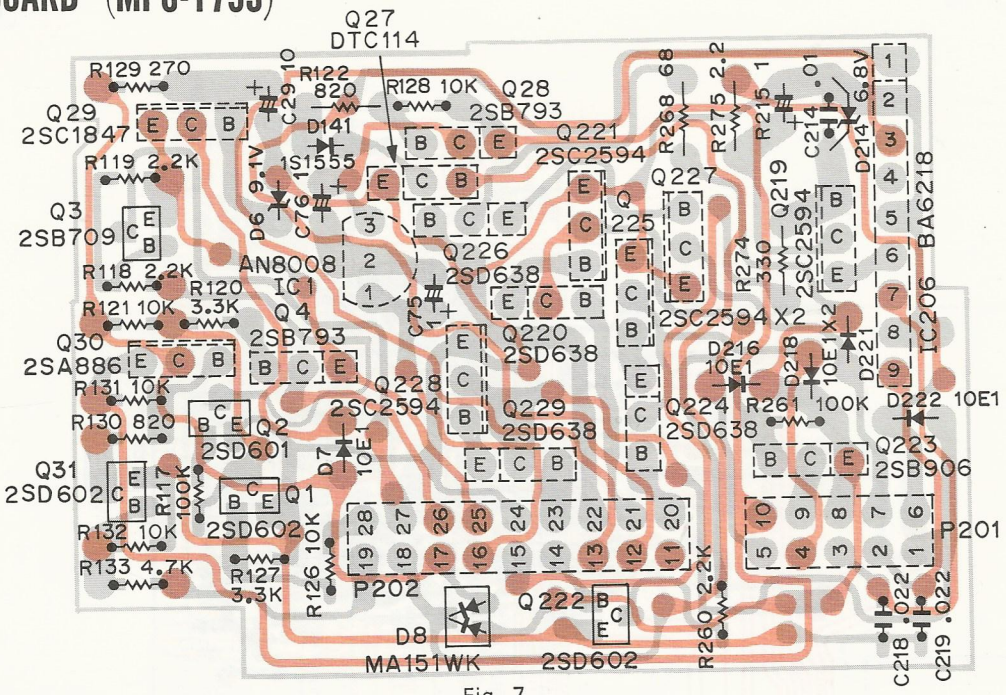


Fig. 7

MIX. PC BOARD (MPC-1819B)

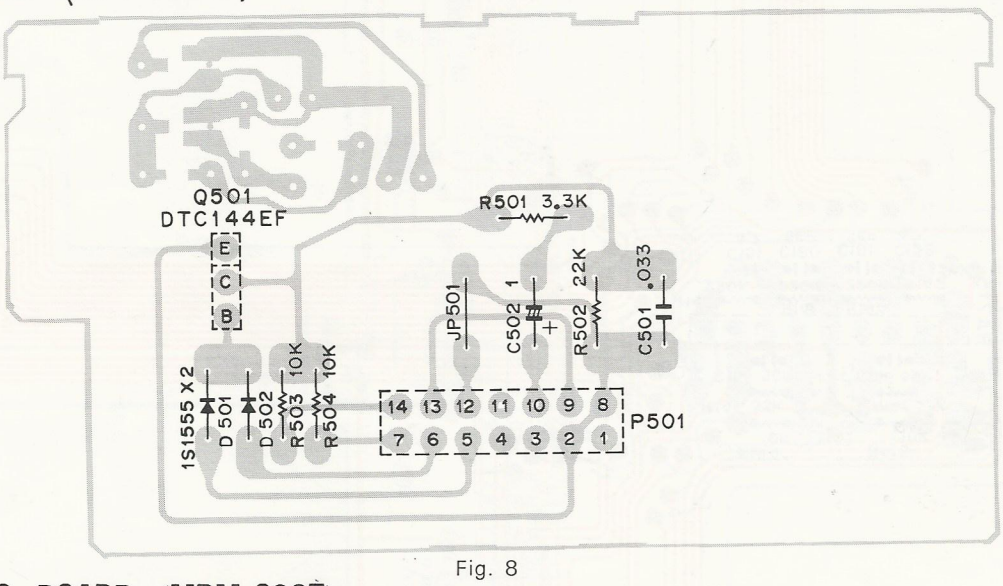
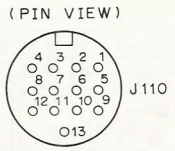


Fig. 8

CONNECTOR PC BOARD (MPM-2927)

PIN	J110	PIN	J110
1	GND(大)	8	MUTE
2	R入力	9	CD OFF
3	GND(小)	10	生+B
4	L入力	11	DIM +B
5	DEFEAT	12	交通情報
6	CD +B	13	DIM (-)
7	ACC +B	14	GND(大)



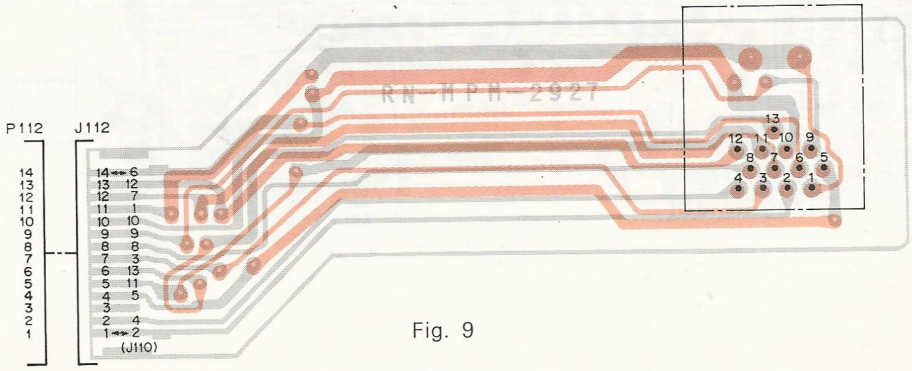


Fig. 9

CONTROL PC BOARD (MPM-2949A)

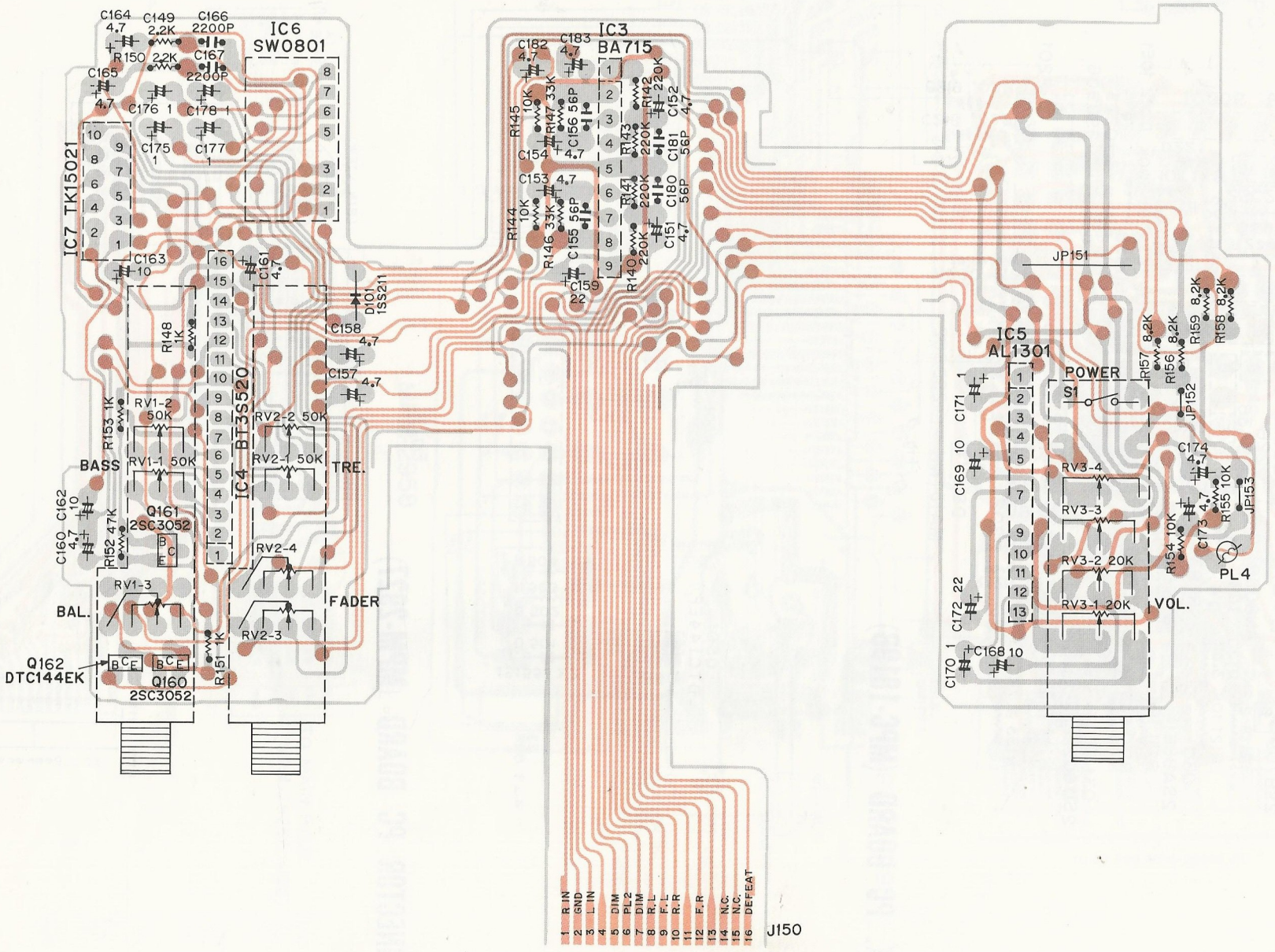


Fig. 10

SW. PC BOARD (MPC-1864A)

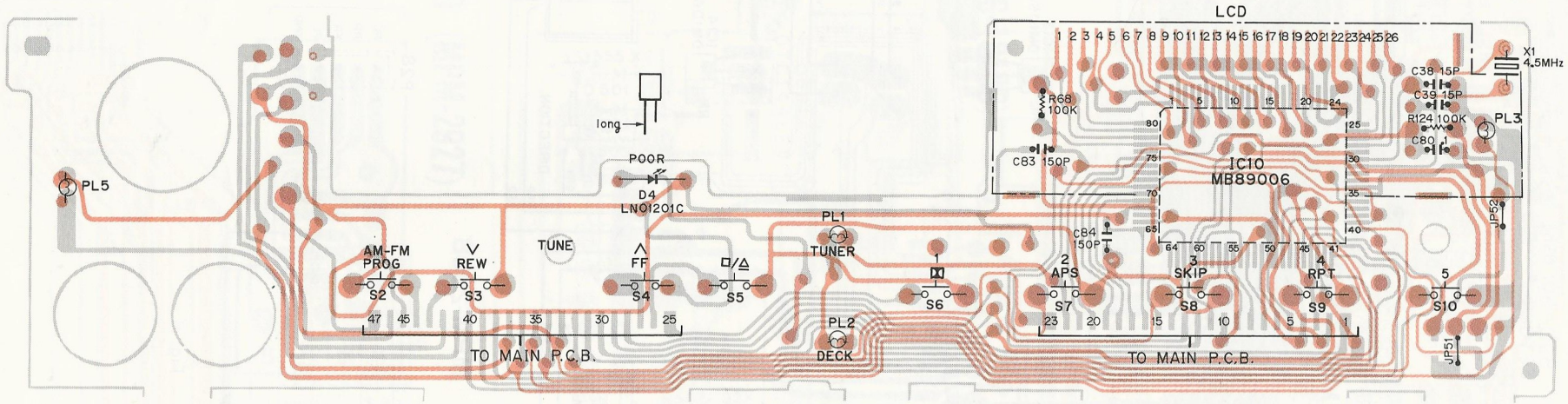


Fig. 11

FM IF CIRCUIT

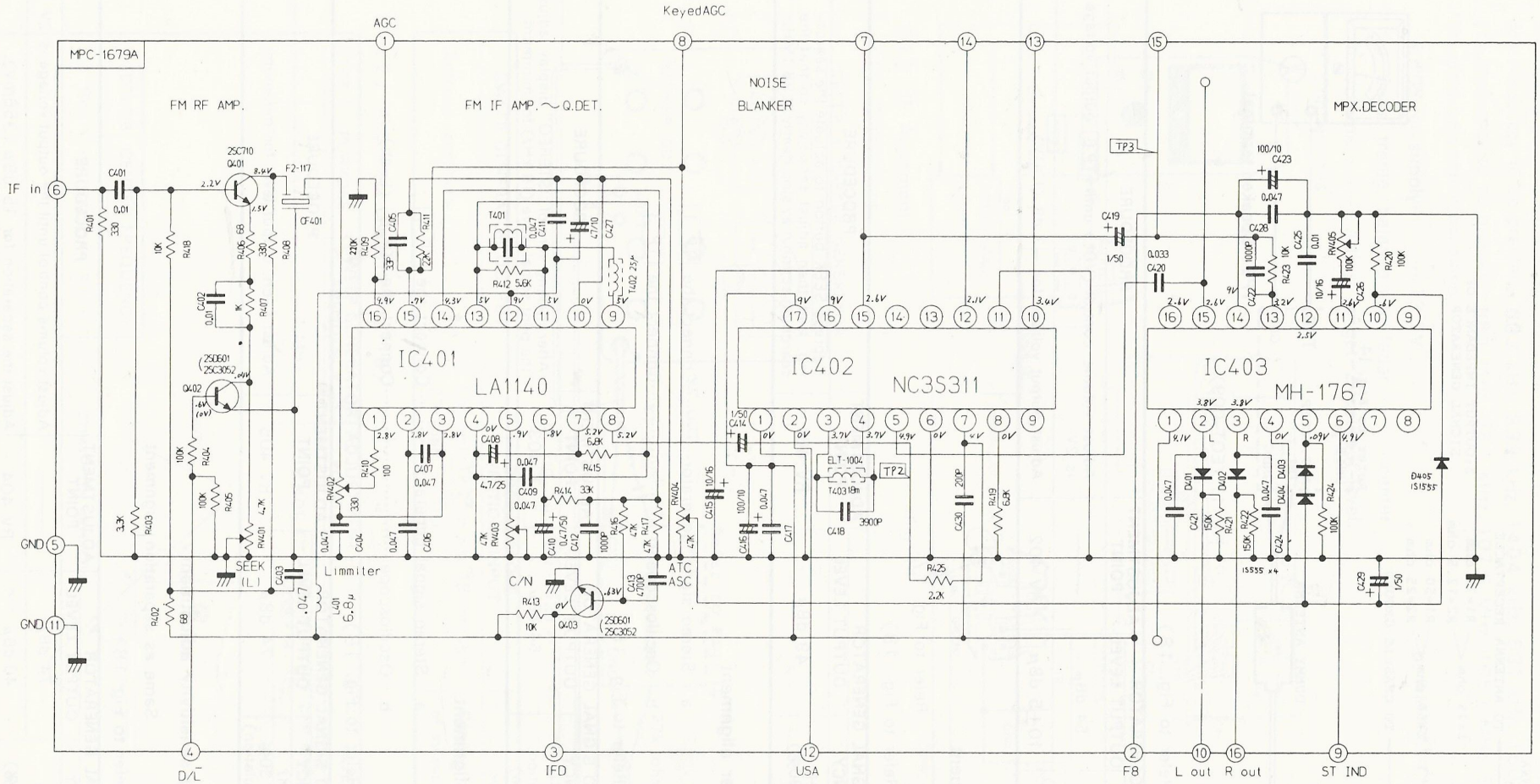


Fig. 12 (C24190430)

NOTES:
1. All capacitance in Micro farad, $P=10^{-12}$
2. All resistance in ohm, $K=10^{3}$
3. All inductance in henry, $m=10^{-3}$, $\mu=10^{-6}$
4. DC voltages against the chassis measured with 10M ohms digital volt meter, power supply set at +13.2 VDC, no signal input.
5. Circled numbers on the encloseure line of schematic are pin numbers of connectors P400 and P401.

FM IF PC BOARD (MPC-1679A)

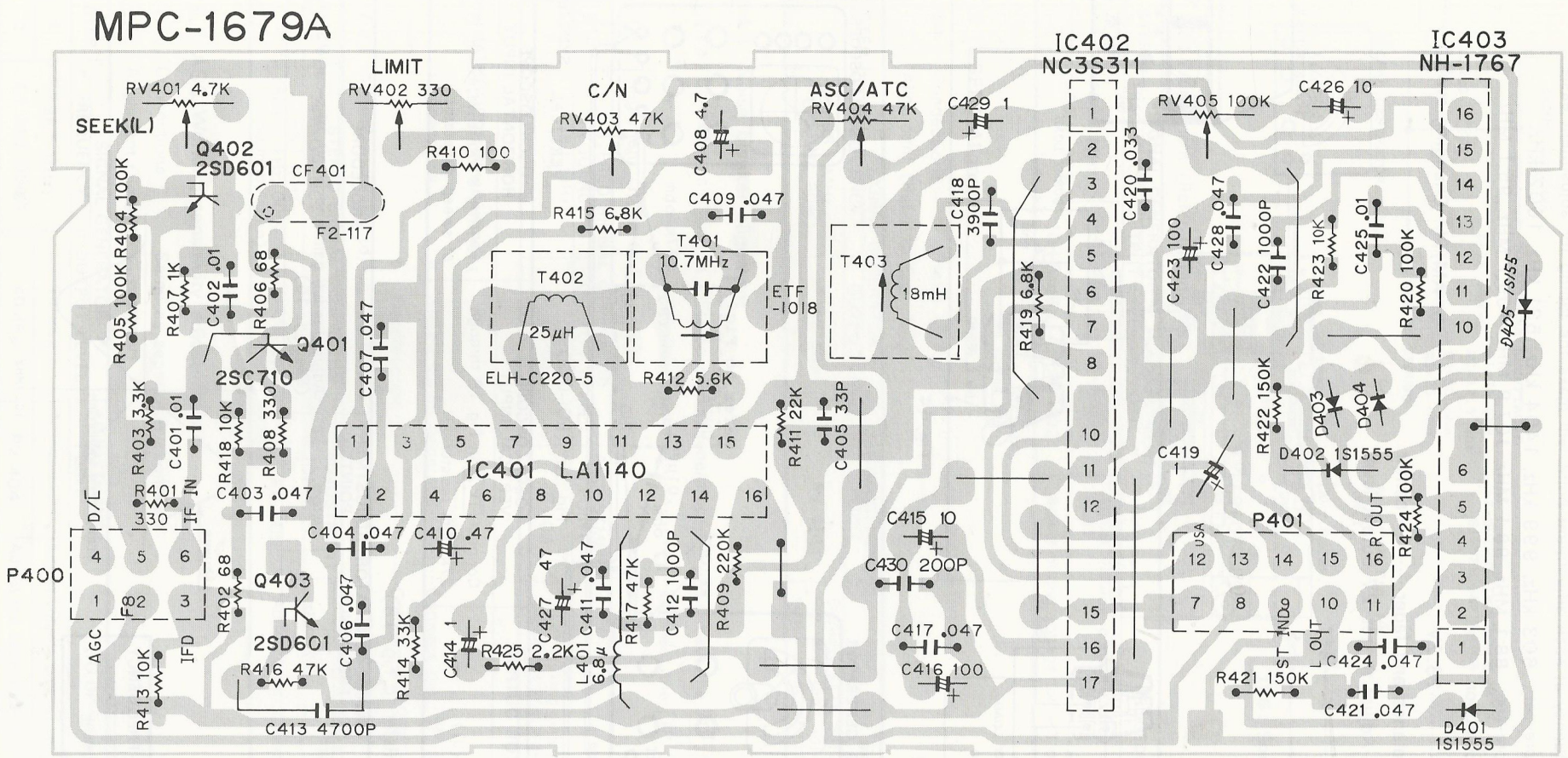


Fig. 13 (C27190430)

AM ALIGNMENT

Pre-setting of the frequency at each adjustment point will make the tuning for adjustment easier.

AM Frequnecy to be pre-set: 603 kHz, 999 kHz, 1404 kHz, 531 kHz, 1602 kHz.

FM Frequency to be pre-set: 88.1 MHz, 98.1 MHz. 107.9 MHz, 105.1 MHz, 95.1 MHz

Standard adjustment condition

a. power supply·····13.2V

b. AM/FM Changing switch·····FM

c. Bass, treble, balance and fader·····center

d. Volume·····Adjust to get 2V output level.

e. Connections

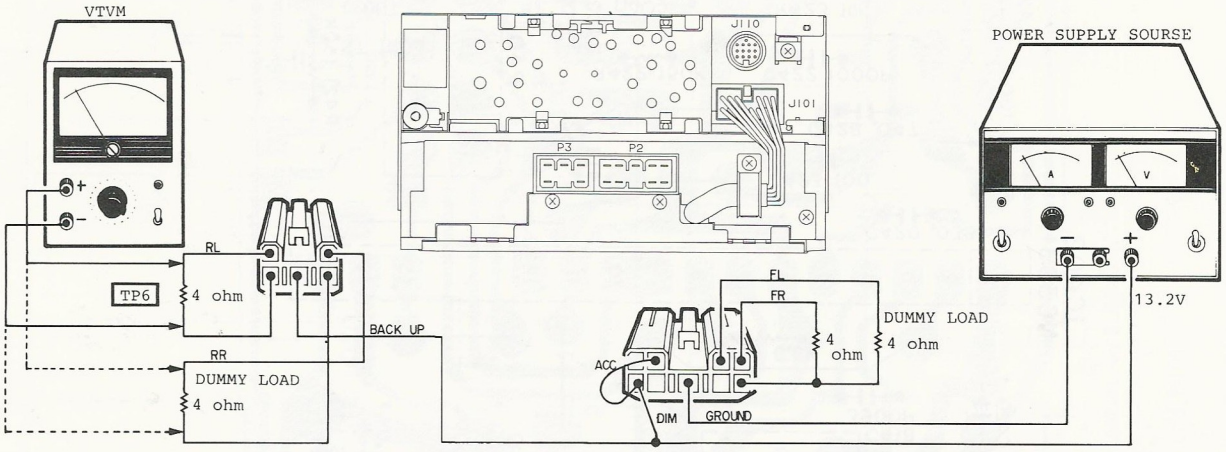


Fig. 14

[1] IF Alignment

(1) Connections

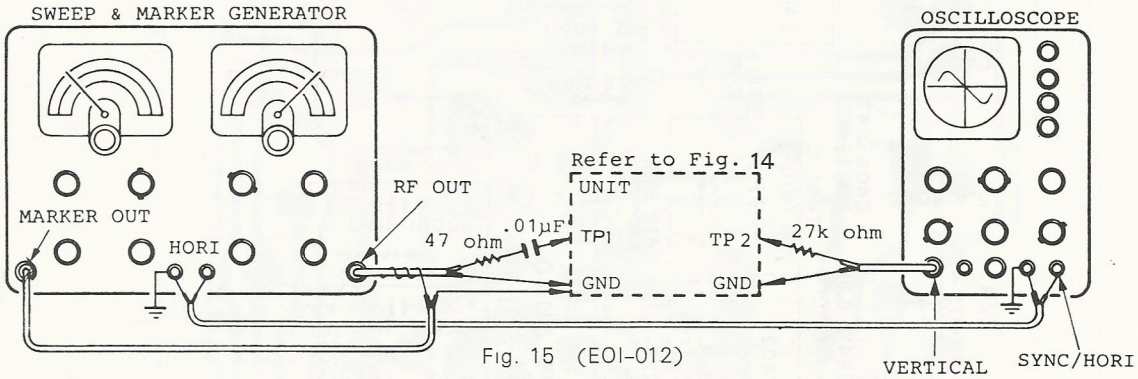


Fig. 15 (EOI-012)

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Antenna receptacle (J1)	Connect TP 2 in Fig. 18 through 27K-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

(2) Alignment (Refer to Fig. 18)

STEP	PURPOSE	SWEEP GENERATOR FREQUENCY	ADJUSTMENT POINTS	PROCEDURE
1	S curve	10.7 MHz	T 401	Adjust for full gain and length of s-curve at linears. (See Fig. 16)

COLOR	CENTER FREQUENCY
Red	10.70 MHz ± 30 kHz

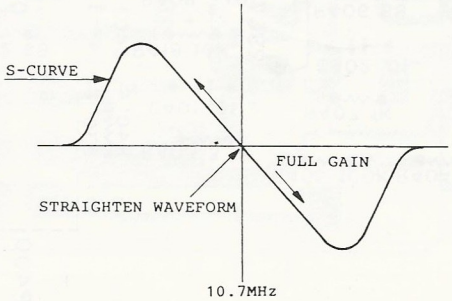


Fig. 16

[2] Limiting sensitivity alignment

(1) Connections

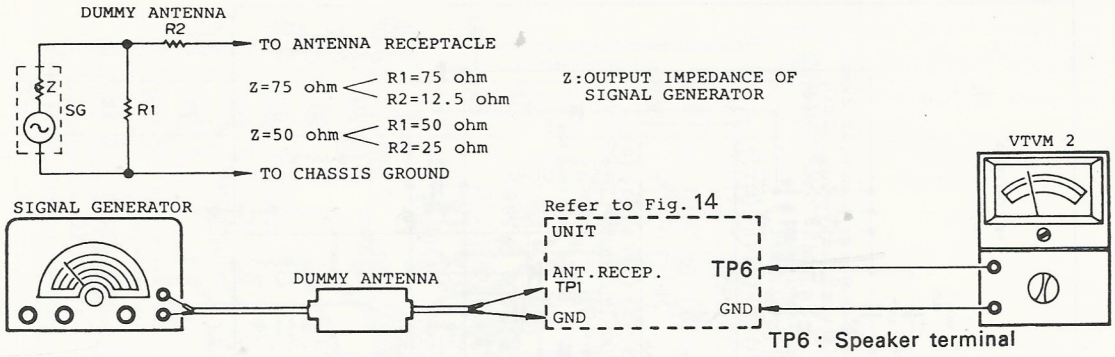


Fig. 17 (EOT-009)

(2) Alignment (Refer to Fig. 18)

STEP	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (400Hz, 30%)	54 dBμ	———	Adjust volume control (VOL) until TP 6 output voltage is 2V.
2		10±5 dBμ	RV 402	Adjust output voltage for −3 dB (1.41V).

[3] SEEK Alignment

(1) Connections Refer to Fig. 17

(2) Alignment (Refer to Fig. 18)

STEP	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (400 Hz, 30%)	49 dBμ	RV 401	Depress SEEK button to actuate the searching, and then adjust sensitivity so that the searching action may stop nearly at 98.1MHz.

[4] Noise blanker alignment

(1) Connections a. Stereo signal generator·····Connect the TP 1

b. Oscilloscope ·····Connect the TP 3

(2) Alignment (Refer to Fig. 18)

STEP	STEREO SIGNAL GENERATOR FREQUENCY	STEREO SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (No modulation, Stereo mode)	54 dBμ	T 403	After making sure of "STEREO" display, adjust the pilot signal wave (19 kHz) for minimum.

[5] Separation alignment

(1) Connections a. Stereo signal generator·····Connect the TP 1

b. Oscilloscope ·····Connect the TP 6 (L-ch)

(2) Alignment (Refer to Fig. 18)

STEP	STEREO SIGNAL GENERATOR FREQUENCY	STEREO SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (Rch: 1 kHz, 30% Lch: no mobulation)	74 dBμ	RV 405	Adjust L-ch. output level for minimum.

[6] ASC Working sensitivity adjustment

(1) Connections Same as separation alignment

(2) Alignment (Refer to Fig. 18)

STEP	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (1 kHz, 30%)	74 dBμ	———	Adjust volume control until the output voltage is 2V.
2		40 dBμ	RV 404	Adjust the separation for 15 dBμ (356mV).

[7] C/N Alignment

(1) Connections Refer to Fig. 17 a. VTVM2 ⊕·····P703 ⑱ pin
⊖·····ground

(2) Aligement (Refer to Fig. 18)

STEP	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (400 Hz, 30%)	54 dBμ	———	Adjust volume control so that the output voltage may be 500mV.
2	Disconnect the signal generator.		RV 403	Adjust the output voltage (residual noise) for 16mV.

∘ Adjustment points

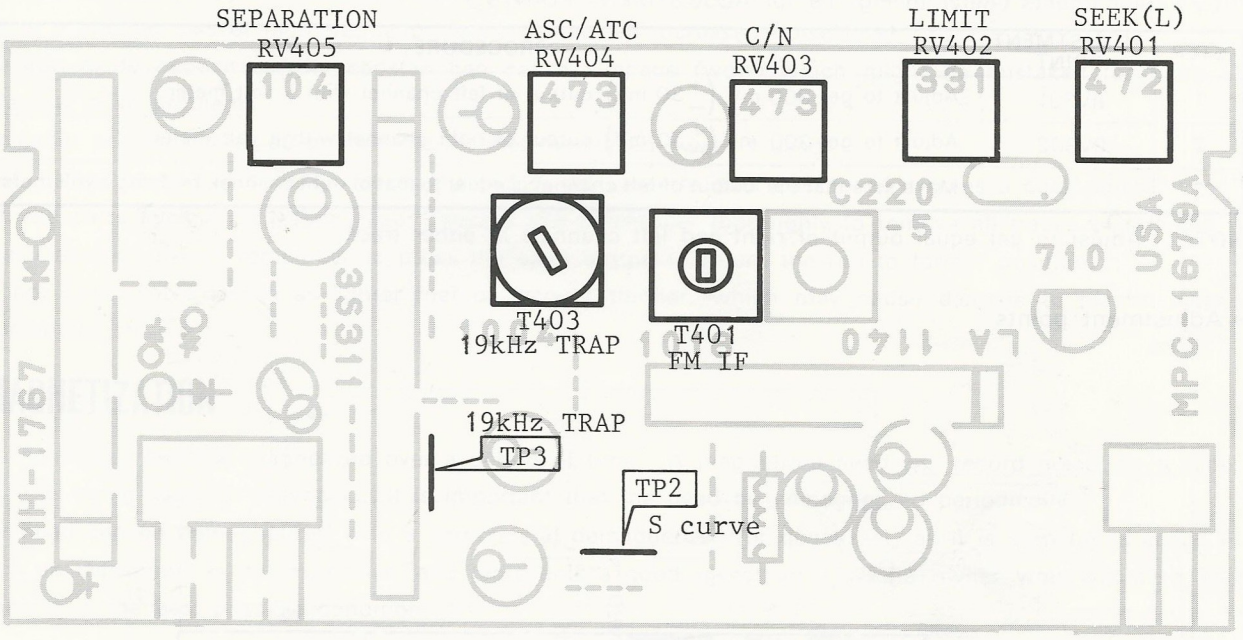


Fig. 18 (C33190430)

DOLBY NR LEVEL ALIGNMENT

NOTES : 1. Always use the test tape (MTT-150) for alignment.

2. In alignment of Dolby N.R. circuit, only gain adjustment is required.

3. Make sure that Dolby level falls with in the Dolby standards, when parts in the head or Dolby N.R. circuit being exchanged.

4. Always use the parts listed in the parts list for Dolby circuit.

(1) Connections

a. VTVM·····Hot side : TP 7 or TP 8 Cold side : chassis

b. Test tape ·····MTT-150 (400 Hz, 0 dB full track recording)

c. Power supply ·····13.2 VDC

d. Dolby N.R. switch·····Out (▮)

(2) Alignments (Refer to Fig. 19 for ADJUSTMENT POINTS.)

STEP	ADJUSTMENT POINT	PROCEDURE
1	RV301	Adjust to get 300 mV (±30 mV) output of left channel with a volt meter.
2	RV302	Adjust to get 300 mV (±30 mV) output of right channel with a volt meter.
3	———	Make sure that the output of left channel is equal to that of right channel, by using a volt meter.

NOTE : Adjust to get equal output of right and left channels in either track.

○ Adjustment points

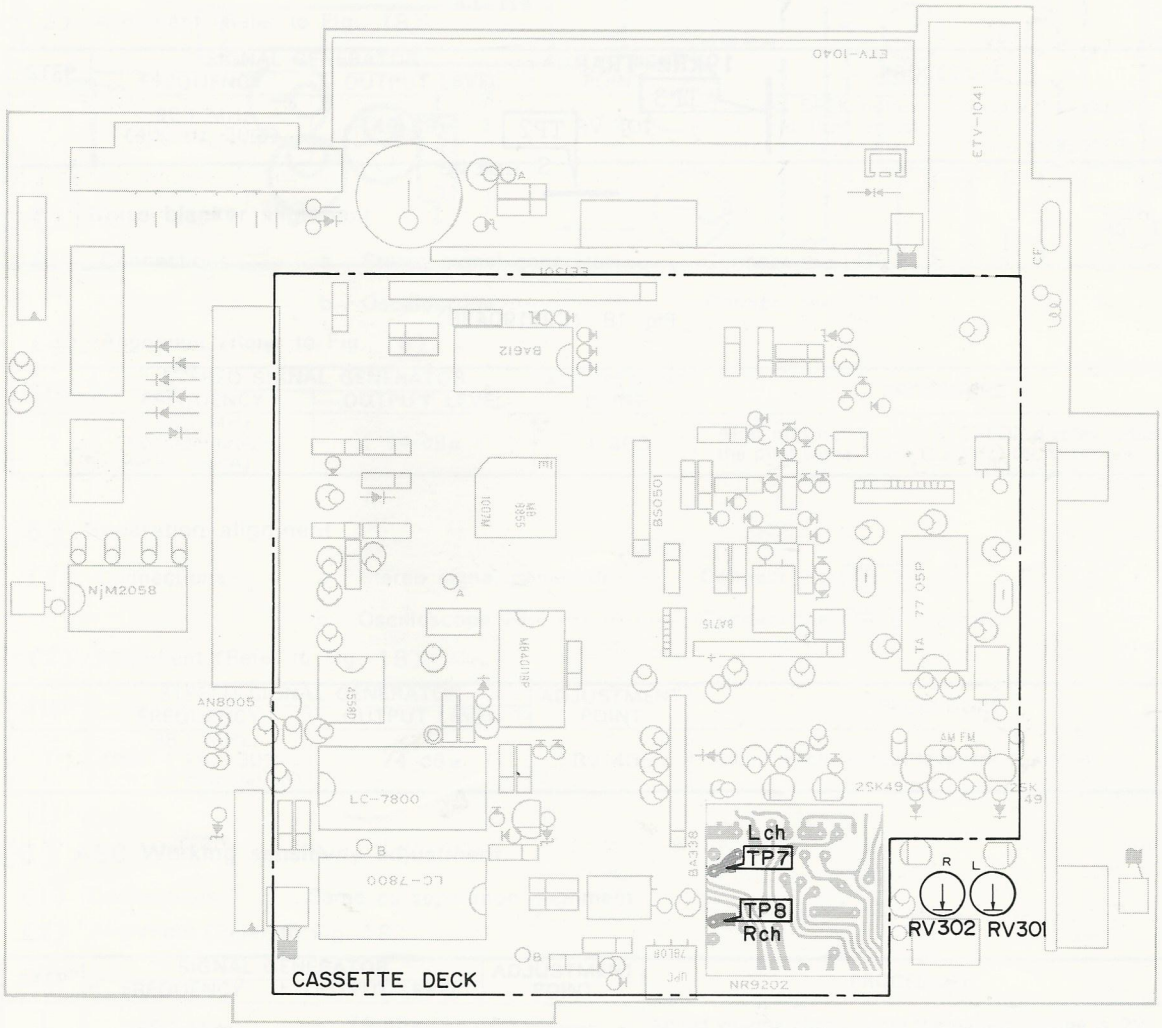


Fig. 19 (C33190430)

ADJUSTMENT FOR TAKE-UP TORQUE

Measure the take-up torque by inserting the torque gauge cartridge into the slip mechanism with the motor rotating. The torque should be always between 40 and 70g-cm. The roller has four positions for the spring to be set.

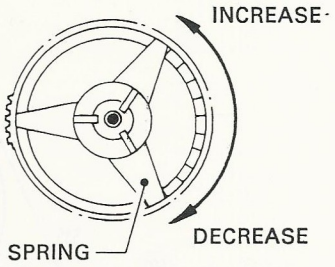


Fig. 20

CLEANING

After extended use, the tape playback head and the drive capstan will buil tape. The iron oxide layer on the tape head prevents the tape from making full contact with the head and the result is a gradual loss of high frequency response and an increased noise level.

The iron oxide deposit on the capstan can cause slippage (wow) which might be mistaken for more serious mechanical drive problems.

A cleaner pen or similar object like the alcohol moistened swab is used.

First, using the end of a pencil, press the rod in the cassette door back until it gives a click sound.

Rub the parts such as playback head, capstan and pinchroller thoroughly to remove all traces of dirt and grime.

After cleaning, always remember to press the eject button to return the rod to former position.

Do not use a solvent such as lighter fuel or lacquer thinner, which may cause damage to plastic parts or to instrument finish.

DEMAGNETIZATION

The head may become magnetized over a period of time. A magnetized head will record noise on a tape even when it is being used for playback. It is important that the head be demagnetized periodically.

The head can be demagnetized with a commercial demagnetizer (or degausser, as it is sometimes called.)

Such an instrument is not expensive, and represents a good investment for the owner who wants to keep his equipment in the best possible condition.

PLAYBACK HEAD ADJUSTMENT (Azimuth)

Normally the playback head is precisely aligned at the factory and further adjustment should not be required unless the playback head or its mounting components are replaced. Beware of excessive adjustment. because improper adjustment results in inferior performance. If the azimuth is unnecessarily varied, the angle gets out of order, which cause lowering of tonal quality. Carefully adjust the azimuth adjust screw as shown in Fig. 21.

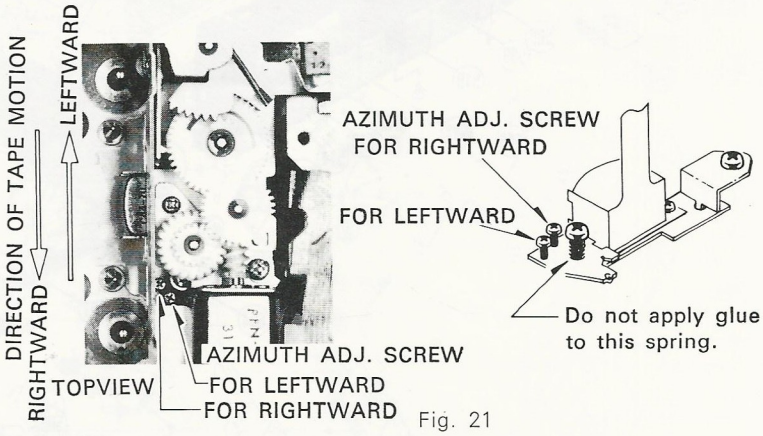


Fig. 21

a. Power supply : 13.2 VDC

b. Test tape : MTT-114 (10 kHz, −10 dB Full track recording)

Alignment Prodedure

Check the direction of tapemotion and adjust the checked direction head azimuth to obtain as maximum output sound as possible. (Adjust both directions.)

After adjustment apply glue to azimuth adjustment screws to prevent loosening.

EXPLODED VIEW

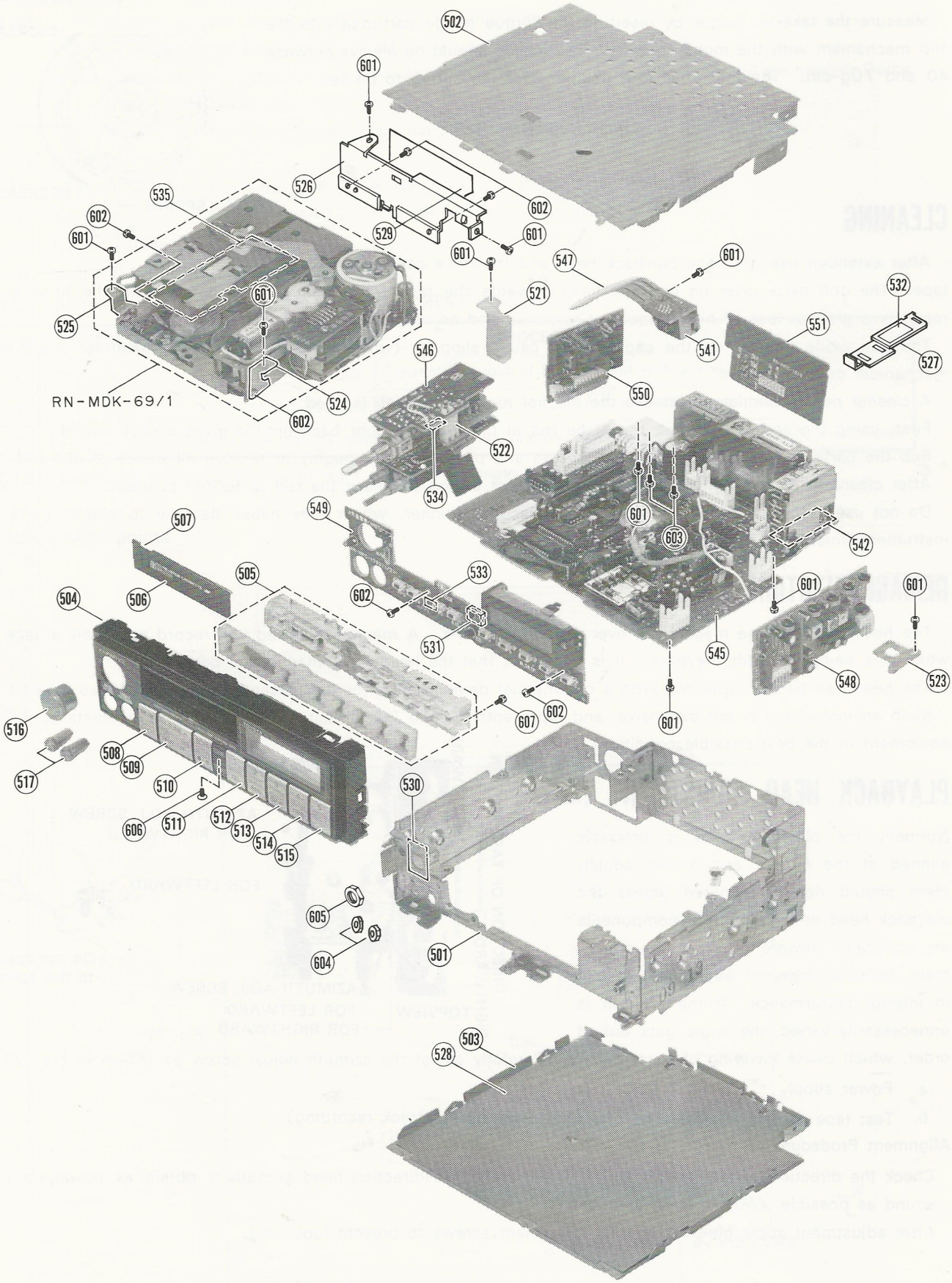


Fig. 22

NOTE : Printed circuit board does not include component parts to be mounted.

EXPLODED VIEW (CASSETTE DECK) MDK-69/1

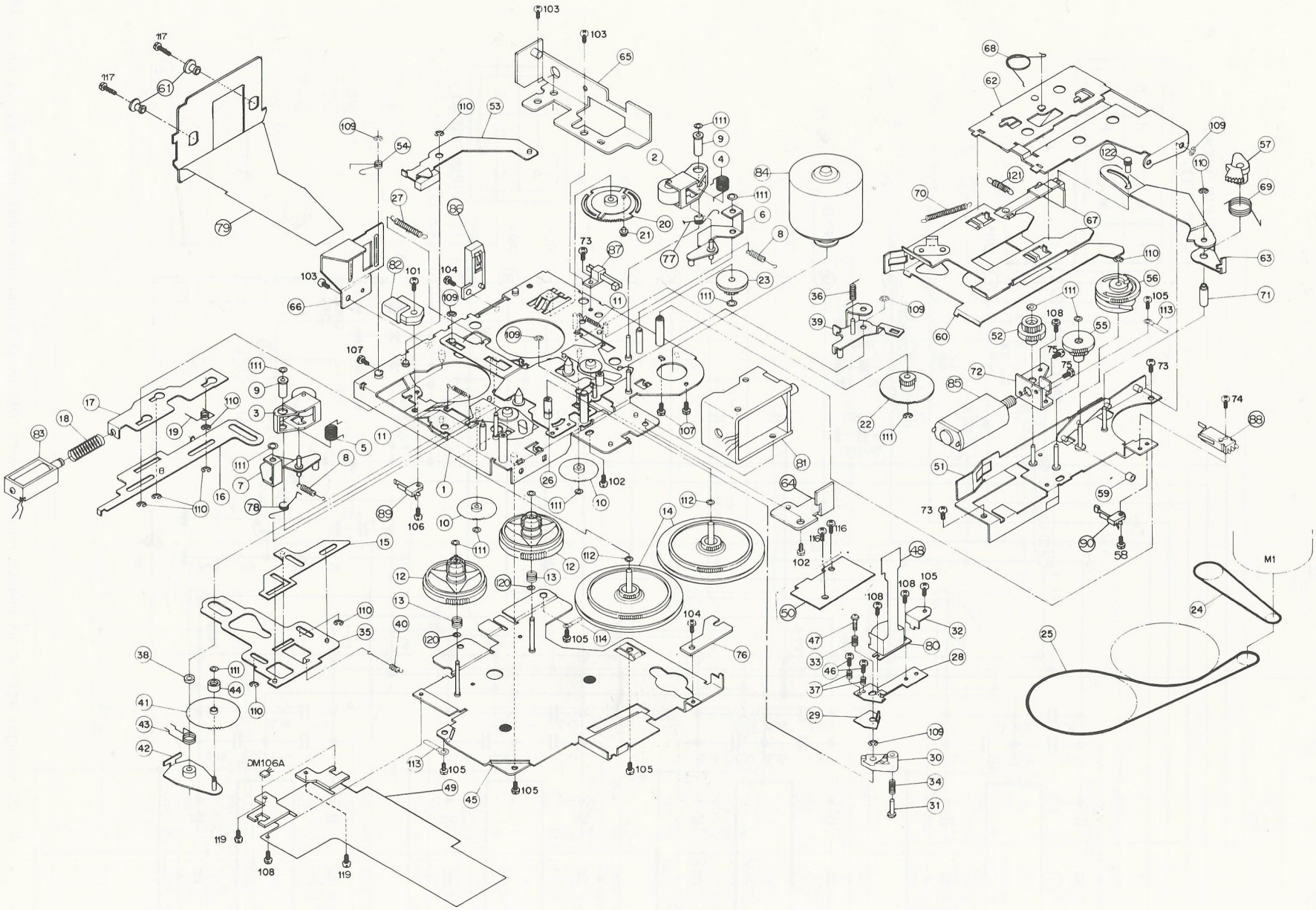


Fig. 23 (C28190830)

EXPLODED VIEW (POWER AMP.) [UM-135]

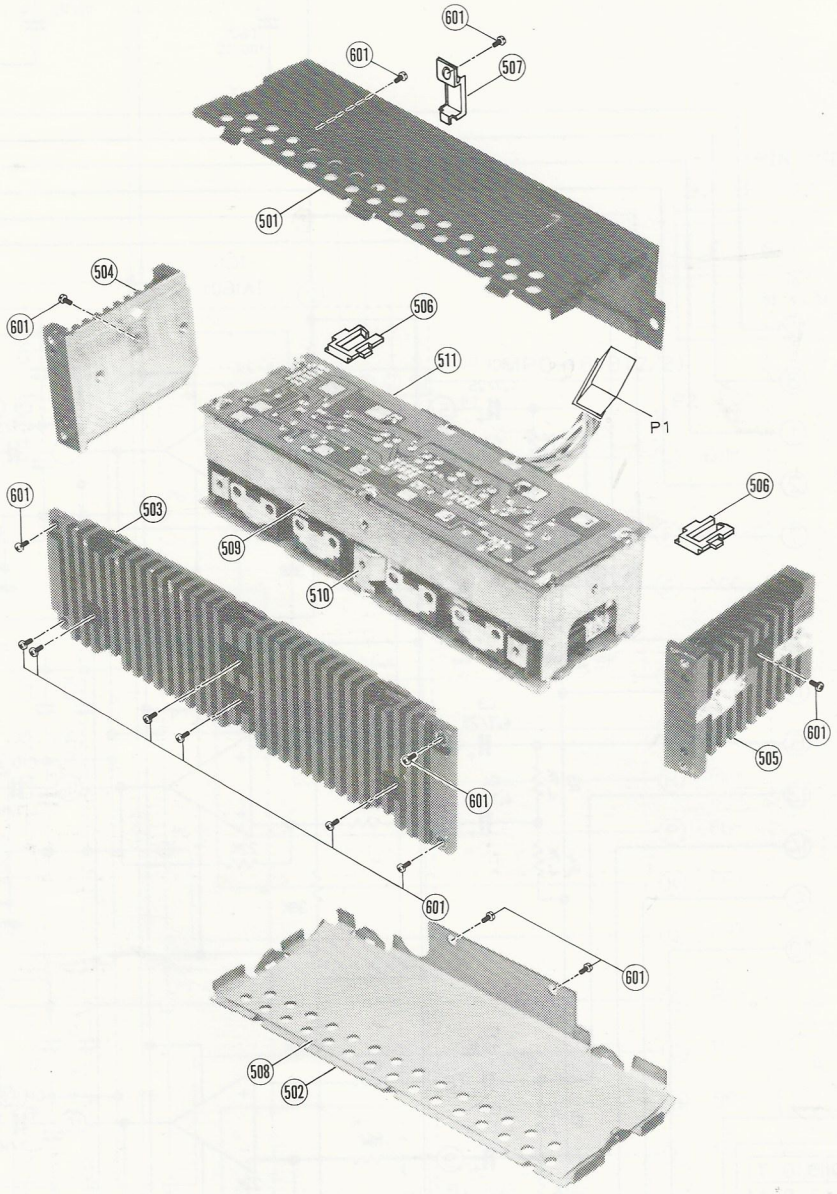
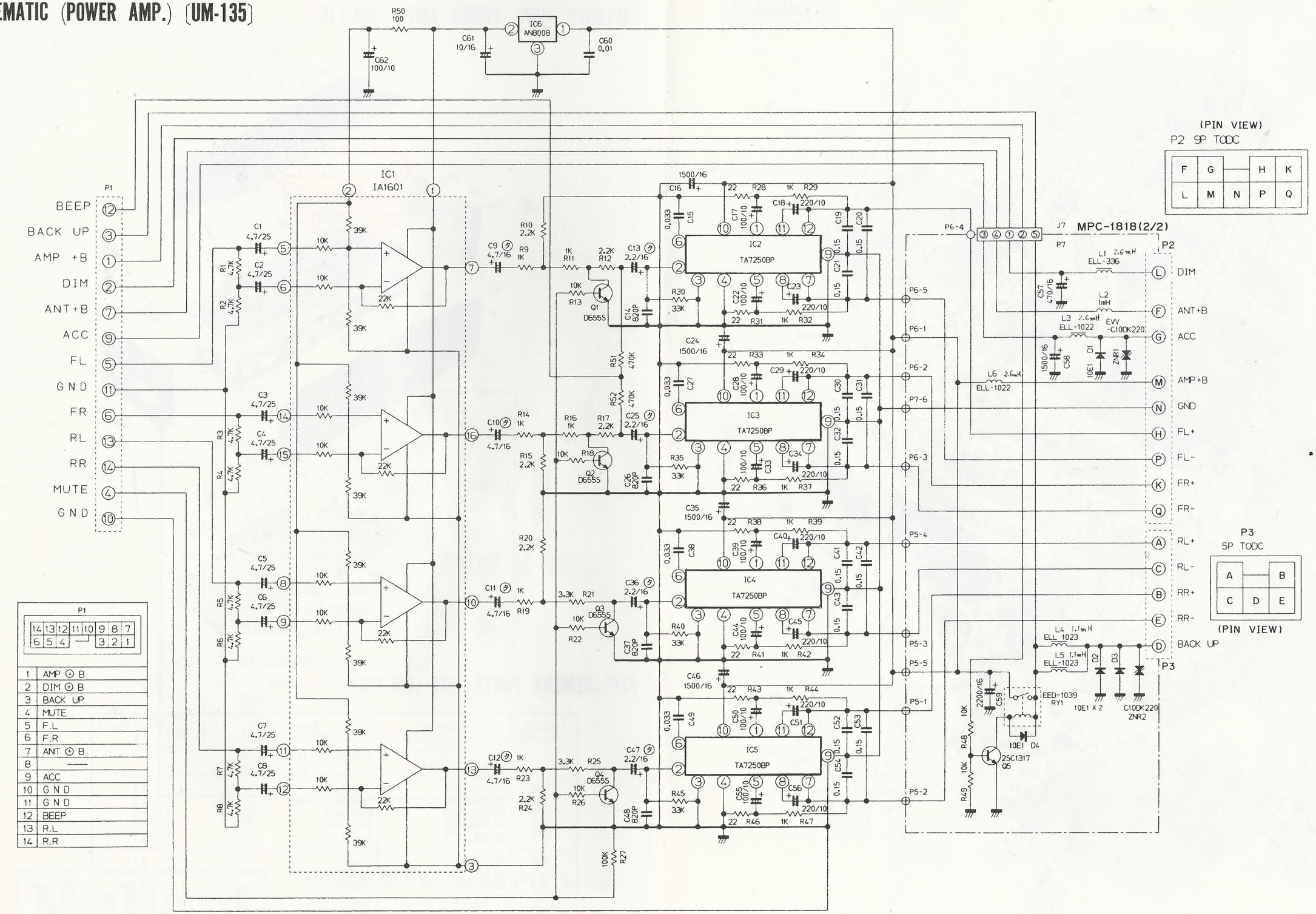


Fig. 24

REPLACEMENT PARTS LIST [UM-135]

Illus.No. (Fig.24)	Stock No.	Description	Q'ty	Remark
MECHANICAL				
501	TN-MAD-1331	Chassis, top	1	
502	RN-MAD-1285	Chassis, bottom	1	
503	RN-MRE-1100	Heat-sink	1	
504	RN-MRE-1101	Heat-sink	1	
505	RN-MRE-1122	Heat-sink	1	
506	RN-MCE-1058	Clamp	2	
507	RN-MCE-1079	Clamp	1	
508	RN-MiP-1414	Insulator	2	
509	RN-MSB-1112	Shield plate	1	
510	RN-MHE-1482	Holder	1	
511	RN-MPC-1818A	PC board	1	
601	F6-SBD-3×6S	Screw, 3×6mm	15	

SCHEMATIC (POWER AMP.) (UM-135)



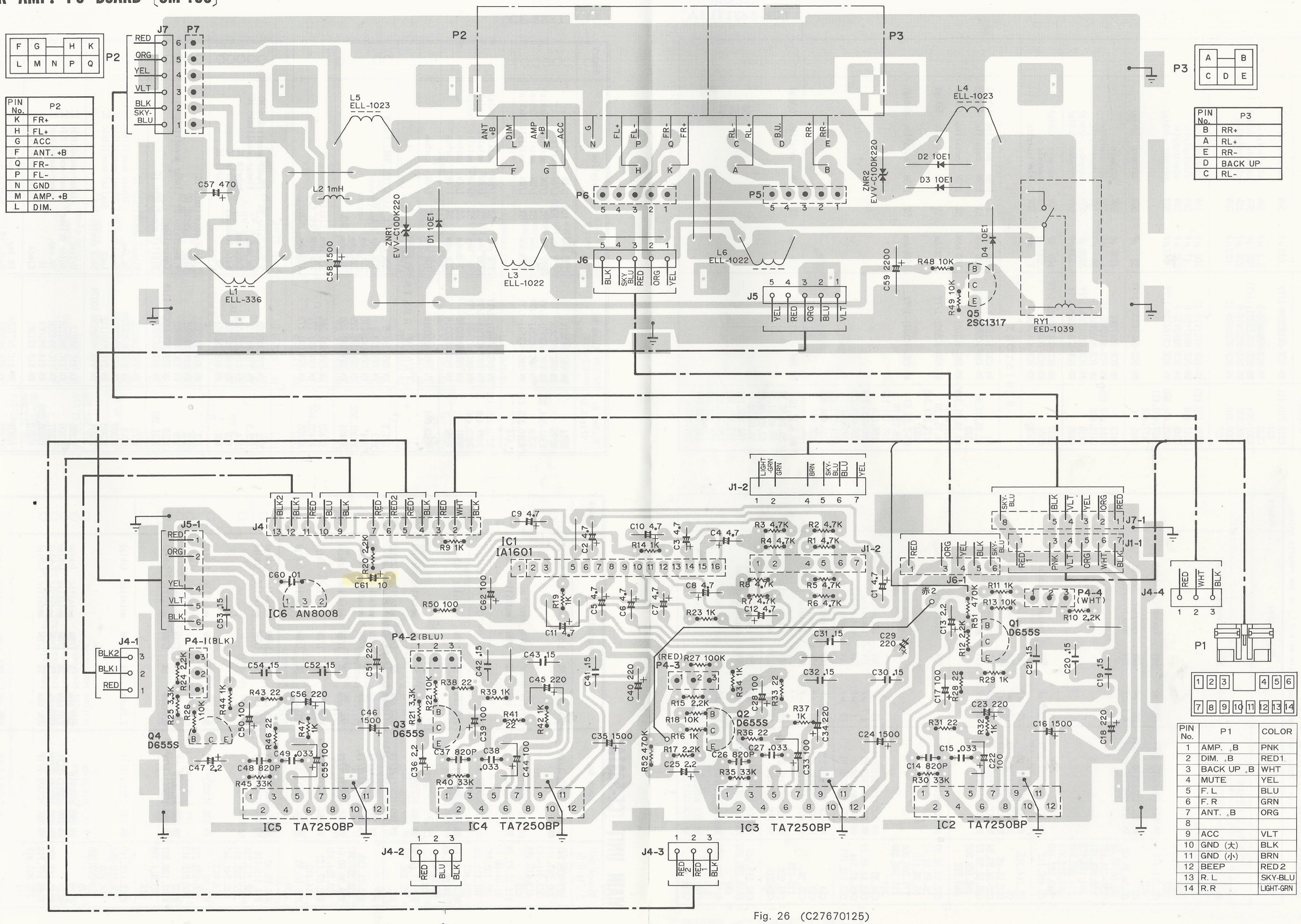
P1	
1	AMP ⊕ B
2	DIM ⊕ B
3	BACK UP
4	MUTE
5	F.L
6	F.R
7	ANT ⊕ B
8	——
9	ACC
10	G N D
11	G N D
12	BEEP
13	R.L
14	R.R

NOTES:
1. All capacitance in Micro farad, $P=10^{-12}$
2. All resistance in ohm, $K=10^{3}$
3. All inductance in henry, $m=10^{-3}$, $\mu=10^{-6}$

Fig. 25 (C24670125)

4. DC voltages against the chassis measured with 10M ohms digital volt meter, power supply set at +13.2 VDC, no signal input.
5. "2S" from transistor part number is omitted. (ex. 655S means 2SC655S.)

POWER AMP. PC BOARD (UM-135)



PIN No.	P2
K	FR+
H	FL+
G	ACC
F	ANT. +B
Q	FR-
P	FL-
N	GND
M	AMP. +B
L	DIM.

PIN No.	P3
B	RR+
A	RL+
E	RR-
D	BACK UP
C	RL-

PIN No.	P1	COLOR
1	AMP. +B	PNK
2	DIM. +B	RED1
3	BACK UP +B	WHT
4	MUTE	YEL
5	F. L	BLU
6	F. R	GRN
7	ANT. +B	ORG
8		
9	ACC	VLT
10	GND (大)	BLK
11	GND (小)	BRN
12	BEEP	RED2
13	R. L	SKY-BLU
14	R. R	LIGHT-GRN

Fig. 26 (C27670125)

C 61
10uf TANT.

MAIN UNIT (CE-5831A)

REPLACEMENT PARTS LIST

Note : Main replacement parts are marked ○ in the remarks column.

Symbol No. (Fig.3,5)	Stock No.	Description				Remark
CAPACITORS						
C1,4,9,14,25 26,40,42,51 130 209,210 215,217,343 347,401,402 425	RN-ECK-CD1H103M-4/TY	.01 μF	50V	ceramic	(chip)	
C2,211,412 422	RN-ECK-CB1H102K-1/TY	1000 pF	50V	ceramic	(chip)	
C3	RN-ECC-CSL1H100j-2/TY	10 pF	50V	ceramic	(chip)	
C5,34,35,62 63,66,67,68 151~154,157 158,160,161 164,165,173 174,207,208 307,312,313 340,342,408	RN-ECE-M4R7V25-6	4.7 μF	25V	electrolytic		
C6,166,167	RN-ECK-CB1H222K-2/TY	2200 pF	50V	ceramic	(chip)	
C7,314,315,	RN-ECE-M470V10-10	47 μF	10V	electrolytic		
C8	RN-ECK-CD1E473M-4/TY	.047 μF	25V	ceramic	(chip)	
C10,15~18	RN-ECK-CB1E223M-1/TY	.022 μF	25V	ceramic	(chip)	
C22~24,83,84	RN-ECC-CSL1H151j-1/TY	150 pF	50V	ceramic	(chip)	
C29,52,58,82 168,169,202 203,212	RN-ECE-M100V16-9	10 μF	16V	electrolytic		
C32,33,36,37 56,60,61,64 65,78,170 171,205,206 215,305,346 349	RN-ECE-M1R0V50-6	1 μF	50V	electrolytic		
C38,39	RN-ECC-CCH1H150j-4/TY	15 pF	50V	ceramic	(chip)	
C43,44,48,49	RN-ECY-M4R7V25-M1	4.7 μF	25V	tantalum		
C45,47,344	RN-ECE-MR10V50-3	.1 μF	50V	electrolytic		
C53,162,163	RN-ECY-M100V16-M1	10 μF	16V	tantalum		
C54	RN-ECE-M222V16-7	2200 μF	16V	electrolytic		
C57	RN-ECE-M330V10-42	33 μF	10V	electrolytic		
C75,76 175~178	RN-ECY-M1R0V16-M1	1 μF	16V	tantalum		
C77,220	RN-ECE-M221V16-6	220 μF	16V	electrolytic		
C79,216	RN-ECE-M470V6R3-32	47 μF	6.3V	electrolytic		
C80,213,348	RN-ECK-CD1E104M-4/TY	.1 μF	25V	ceramic	(chip)	
C155,156,180 181	RN-ECC-CSL1H560j-1/TY	56 pF	50V	ceramic	(chip)	
C159,204,308 316	RN-ECE-M220V10-5	22 μF	10V	electrolytic		
C182,183	RN-ECY-M4R7V16-M1	4.7 μF	16V	tantalum		
C214	RN-ECK-CB1H103K-1/TY	.01 μF	50V	ceramic	(chip)	

Symbol No. (Fig.3,5)	Stock No.	Description				Remark
C218,219,421 424	RN-ECK-CB1H223M-1/TY	.022 μF	50V	ceramic	(chip)	
C220	RN-ECE-M3R3V50-3	3.3 μF	50V	electrolytic		
C301~304	RN-ECC-CSL1H821j-1/TY	820 pF	50V	ceramic	(chip)	
C306,337	RN-ECE-M221V10-9	220 μF	10V	electrolytic		
C309,310 427	RN-ECF-R223V50-jZ	.022 μF	50V	mylar		
C339,416,423	RN-ECE-M101V10-11	100 μF	10V	electrolytic		
C341,410	RN-ECE-MR47V50-8	.47 μF	50V	electrolytic		
C345	RN-ECE-M2R2V50-7	2.2 μF	50V	electrolytic		
C403,404,406 407,409,411 417,428	RN-ECK-CD1H473M-1/TY	047 μF	50V	ceramic	(chip)	
C405	RN-ECC-CSL1H330K-4/TY	33 pF	50V	ceramic	(chip)	
C413	RN-ECK-DB472KY	4700 pF	50V	ceramic		
C414,419,429	RN-ECE-M1R0V50-10	1 μF	50V	electrolytic		
C415,426	RN-ECE-M100V16-10	10 μF	16V	electrolytic		
C418	RN-ECK-CB1H392K-1/TY	3900 pF	50V	ceramic	(chip)	
C420	RN-ECK-CD1H333M-1/TY	.033 μF	50V	ceramic	(chip)	
C430	RN-ECC-CSL1H101K-1/TY	100 pF	50V	ceramic	(chip)	
C501	RN-ECB-D0X333E	.033 μF	25V	ceramic		
C502	RN-ECE-M1R0V50-8	1 μF	50V	electrolytic		
RESISTORS						
R1	RN-ERG-iC151j-1/TY	150 ohm	5%	1/8W	metallic (chip)	
R2,25,39,96 320	RN-ERG-iC681j-1/TY	680 ohm	5%	1/8W	metallic (chip)	
R3,10,31,311 316,410	RN-ERG-iC101j-1/TY	100 ohm	5%	1/8W	metallic (chip)	
R4,75,120 127,274,346 403	RN-ERG-iC332j-1/TY	3.3kohm	5%	1/8W	metallic (chip)	
R5~7,56,57 68,73,76 100,101,117 124,125 203~206,214 226~229,233 243,261 271~273,327 340,404,405 420,424	RN-ERG-iC104j-1/TY	100kohm	5%	1/8W	metallic (chip)	
R8,9,11,16 20,24,32,37 38,48,51,59 63,69,88,93 95,97,98 104,106,111 112,121,123 126,128,131 132,144,145 154,155,207 217,235	RN-ERG-iC103j-1/TY	10k ohm	5%	1/8W	metallic (chip)	

MAIN UNIT (CE-5831A)

Symbol No. (Fig.3,5)	Stock No.	Description	Remark
237~239,241 242,247,319 323,341~343 413,415,418 423	RN-ERG-iC103j-1/TY	10k ohm 5% 1/8W metallic (chip)	
R12,22,77,78 81,84~86 105,133,148 151,153,220 221,407	RN-ERG-iC102j-1/TY	1k ohm 5% 1/8W metallic (chip)	
R13,14,18,19 27,28,29,49 62,64,66 103,411	RN-ERG-iC223j-1/TY	22k ohm 5% 1/8W metallic (chip)	
R15,17,65,94 230,236	RN-ERG-iC122j-1/TY	1.2kohm 5% 1/8W metallic (chip)	
R21	RN-ERG-iC561j-1/TY	560 ohm 5% 1/8W metallic (chip)	
R26	RN-ERG-iC272j-1/TY	2.7kohm 5% 1/8W metallic (chip)	
R23,71,133, 336,337,347	RN-ERG-iC472j-1/TY	4.7kohm 5% 1/8W metallic (chip)	
R30,36,60,61 223,224,231	RN-ERG-iC393j-1/TY	39k ohm 5% 1/8W metallic (chip)	
R58,67,113 114,419	RN-ERG-iC682j-1/TY	6.8kohm 5% 1/8W metallic (chip)	
R70,80,83 130	RN-ERG-iC821j-1/TY	820 ohm 5% 1/8W metallic (chip)	
R72,89,90	RN-ERG-iC123j-1/TY	12k ohm 5% 1/8W metallic (chip)	
R74,115,116 152,213,216 222,225,234 240,244,345 416,417	RN-ERG-iC473j-1/TY	47k ohm 5% 1/8W metallic (chip)	
R79,87 156~159,232 306,312,313	RN-ERG-iC822j-1/TY	8.2kohm 5% 1/8W metallic (chip)	
R102	RN-ERD-AE100jB	10 ohm 5% 1/4W carbon	
R107,108,307 309,314,348 412	RN-ERG-iC562j-1/TY	5.6kohm 5% 1/8W metallic (chip)	
R118,119,149 150,250~254 258~260 263~267,269 270	RN-ERG-iC222j-1/TY	2.2kohm 5% 1/8W metallic (chip)	
R122	RN-ERD-AE821jB	820 ohm 5% 1/8W metallic (chip)	
R129	RN-ERG-iC271j-1/TY	270 ohm 5% 1/8W metallic (chip)	
R140~143,409	RN-ERG-iC224j-1/TY	220kohm 5% 1/8W metallic (chip)	
R146,147,210 275,305,317 414	RN-ERG-iC333j-1/TY	33k ohm 5% 1/8W metallic (chip)	
R215	RN-ERG-iC121j-1/TY	120 ohm 5% 1/8W metallic (chip)	
R218,219	RN-ERG-iC684j-1/TY	680kohm 5% 1/8W metallic (chip)	
R262	RN-ERC-CF2R2K	2.2 ohm 10% 1/2W solid	
R268	RN-ERG-AG680j	68 ohm 5% 1W metalic	

Symbol No. (Fig.3,5)	Stock No.	Description	Remark
R274	RN-ERC-AE331K	330 ohm 10% 1/4W solid	
R275	RN-ERC-AE2R2K	2.2 ohm 10% 1/4W solid	
R301~304,321	RN-ERG-iC273j-1/TY	27k ohm 5% 1/8W metallic (chip)	
R308	RN-ERG-iC331j-1/TY	330 ohm 5% 1/8W metallic (chip)	
R310,315,421 422	RN-ERG-iC154j-1/TY	150kohm 5% 1/8W metallic (chip)	
R318,338,339	RN-ERG-iC153j-1/TY	15k ohm 5% 1/8W metalic (chip)	
R401,408	RN-ERG-iC331j-1/TY	330 ohm 5% 1/8W metalic (chip)	
R402,406	RN-ERG-iC680j-1/TY	68 ohm 5% 1/8W metalic (chip)	
R501	RN-ERD-AE332jB	3.3kohm 5% 1/4W carbon	
R502	RN-ERD-AE223jB	22k ohm 5% 1/4W carbon	
R503,504	RN-ERD-AE103jB	10k ohm 5% 1/4W carbon	
VARIABLE RESISTORS			
RV1,2	RN-ERV-1N4-5	50k ohm ×4, BASS/TRE.,BAL.,FADER	○
RV3	RN-ERV-1Z4-1	20k ohm ×4, VOL.	○
RV4	RN-ERV-ON1-270	22k ohm	
RV301,302	RN-ERV-ON1-229	22k ohm	
RV401	RN-ERV-ON1-268	4.7kohm ,D/L	
RV402	RN-ERV-ON1-266	330 ohm, Limiter	
RV403,404	RN-ERV-ON1-271	47k ohm, ASC,C/N	
RV405	RN-ERV-ON1-272	100kohm, MPX	
I C			
IC1	RN-EiC-AN8008	V.Regulator,8V linear-monolithic IC	○
IC2,3	RN-EiC-BA715	Op.amp. linear-monolithic IC	○
IC4	RN-EiE-BT3S520	Bass/Tre hybrid IC	○
IC5	RN-EiE-AL1301	Auto loudness hybrid IC	○
IC6	RN-EiE-SW0801	SW hybrid IC	○
IC7	RN-EiC-TK15021	Linear-monolithic IC	○
IC8	RN-EiE-BS0501	BEEP hybrid IC	○
IC9	RN-EiC-AN8005	V.Regulator,8V Linear-monolithic IC	○
IC10	RN-EiM-MB89006PF-111M	Controller	○
IC11,201	RN-EiD-LC7800	Digital-monolithic IC	○
IC12	RN-EiC-LA6358	Linear-monolithic IC	○
IC13	RN-EiC-NjM2058D	Op.amp. linear-monolithic IC	○
IC202	RN-EiC-UPC78L08	Regulator,8V linear-monolithic IC	○
IC203	RN-EiD-M4011BP	Luch digital-monolithic IC	○
IC204	RN-EiM-MB8855M-1007M	Deck controller	○
IC205	RN-EiC-BA612	Driver linear-monolithic IC	○
IC206	RN-EiC-BA6218	Moter Driver linear-monolithic IC	○
IC207	RN-EiC-BA4558	Op.amp. linear-monolithic IC	○
IC208,209	RN-EiA-DM106A	IC	○
IC210	RN-EiF-BE1301	Eject linear-monolithic IC	○
IC301	RN-EiC-TA7705P	EQ.Amp. linear-monolithic IC	○
IC302	RN-EiE-FD2001	Dolby NR hybrid IC	○
IC303	RN-EiC-BA338	APS linear-monolithic IC	○
IC401	RN-EiC-LA1140	FM IF AMP ~ Q.DET linear-monolithic IC	○
IC402	RN-EiE-NC3S311	Noise blanker,hybrid IC	○

MAIN UNIT [CE-5831A]

Symbol No. (Fig.3,5)	Stock No.	Description	Remark
IC403	RN-EIE-MH-1767	MPX. hybrid IC	○
TRANSISTORS			
Q1,31,222	RN-EVS-2SD602-RS/TY	Silicon transistor (chip) mark : WR,WS	○
Q2,8	RN-EVS-2SD601-QR/TY	Silicon transistor (chip) mark : YQ,YR	○
Q3	RN-EVS-2SB709-QR	Silicon transistor	○
Q4,28	RN-EVS-2SB793-QR	Silicon transistor	○
Q5,15,18,25 33,35,38 202,203,205 210,211,213 214,215,220 224,226 229~231	RN-EVS-2SD638-QR	Silicon transistor	○
Q6,7	RN-EVS-2SC3053-C/TY	Silicon transistor (chip) mark : FC	○
Q9,162	RN-EVS-DTC144EK/TY	Silicon transistor (chip) mark : 26	○
Q11,13,37 204,216	RN-EVS-2SD601-QRS-TY	Silicon transistor (chip) mark : YQ,YR,YS	○
Q14,17,20,39 53,207,208 501	RN-EVS-DTC144EF	Silicon tranistor	○
Q16,34,40	RN-EVS-2SB793-QRS	Silicon tranistor	○
Q19	RN-EVS-2SB643-QR	Silicon tranistor	○
Q21,22	RN-EVF-2SK49-H1	FET	
Q23,24	RN-EVS-2SC1684-PQ	Silicon tranistor	○
Q26	RN-EVS-2SA1254-C	Silicon tranistor	○
Q27,32,36 201	RN-EVS-DTC114EF	Silicon tranistor	○
Q29	RN-EVS-2SC1847-QR	Silicon tranistor	○
Q30	RN-EVS-2SA886-QR	Silicon tranistor	○
Q50,217,218	RN-EVS-DTC124EF	Silicon tranistor	○
Q51,52,240 241	RN-EVS-2SD636-QR	Silicon tranistor	○
Q160,161	RN-EVS-2SC3052-EF/TY	Silicon tranistor (chip) mark : LE,LF	○
Q206,302,303	RN-EVS-2SD655S	Silicon tranistor	○
Q212	RN-EVS-2SD973-QRS	Silicon tranistor	○
Q219,221,225 227,228	RN-EVS-2SC2594	Silicon tranistor	○
Q223	RN-EVS-2SB906-Y	Silicon tranistor	○
Q401	RN-EVS-2SC710-E	Silicon tranistor	○
Q402,403	RN-EVS-2SD601-RS/TY	Silicon tranistor (chip) mark : YR,YS	○
DIODES			
D1,8,9,33,34 35,42,43,46 51,52	RN-EDS-MA151WK/TY	Silicon diode (chip) mark : MT	○
D3,5,11 14~16,23~28 30,36,38,39 44,45,50 141,201~206	RN-EDS-1S1555	Silicon diode	○

Symbol No. (Fig.3,5)	Stock No.	Description	Remark
D208,210~212 215,217,219 220,223,301 302,401~405 501,502	RN-EDS-1S1555	Silicon diode	○
D4	RN-EDP-LN01201C	LED	○
D6	RN-EDT-RD9R1EB2	Zener diode, 9.1V	○
D7,32,37,216 218,221,222	RN-EDS-10E1	Silicon diode	○
D10	RN-EDT-RD9R1EB3	Zener diode, 9.1V	○
D17,29,40,41	RN-EDT-RD5R1EB3	Zener diode, 5.1V	
D31	RN-EDT-RD7R5EB3	Zener diode, 7.5V	○
D101	RN-EDS-1SS211	Silicon diode	○
D207	RN-EDT-RD6R2EB3	Zener diode, 6.2V	
D209	RN-EDT-RD6R8EB1	Zener diode, 6.8V	○
D213	RN-EDT-RD6R8EB3	Zener diode, 6.8V	○
D214	RN-EDT-RD6R8EB2	Zener diode, 6.8V	○
COIL AND TRANSFORMERS			
L1,3,201	RN-ELH-DE6R8-1/TY	Coil, 6.8 μH (chip)	
L2	RN-ELH-C6R8-2	Coil, 6.8 μH	
L401	RN-ELH-C6R8-4KH	Coil, 6.8 μH	
T401	RN-ETF-1018	Transformer,FM IF 10.7MHz	
T402	RN-ELH-C220-5	Coil, 22μH	
T403	RN-ELT-1004	Trap Coil, 19kHz	
MISCELLANEOUS ELECTRICAL			
A1	RN-EHM-C44-70A	P.B Head	○
M1	RN-EDM-1058	DC Motor	○
M2	RN-EDM-1059	DC Motor, loading	○
E1	RN-EEM-1033D	Plunger Solenoid,head	
E2	RN-EEM-1035A	Plunger Solenoid,APS	
E3	RN-EEM-1034A	Plunger Solenoid, PRO	
TV1	RN-ETV-1039	AM tuner	○
TV2	RN-ETV-1043	FM front tuner	○
X1	RN-EXC-1036	Crystal	
X201	RN-EXB-C4SA3R58-M00	Caramic oscillator,3.58MHZ	
VE1	RN-EVE-1016-MPB02TN	LCD	
CF1	RN-EFC-F2-120	Ceramic filter, 10.7MHz	
CF401	RN-EFC-F2-117	Ceramic filter, 280kHz	
NL1	RN-EPN-1002	Neon lamp	○
PL1,2	RN-EPM-1177	Lamp assembly	○
PL3	RN-EPM-1178	Lamp assembly	○
PL4	RN-EPM-1195A	Lamp assembly	○
PL5	RN-EPM-1179A	Lamp assembly	○
S2~10	RN-ESB-1N1-189	Push switch AM/FM,FF/REW	○
S13	RN-ESL-1025	Leaf switch	○
S14	RN-ESL-1002	Leaf switch	○
S15	RN-ESM-1012B	Micro switch	○

MAIN UNIT (CE-5831A)

Symbol No. (Fig.3.5)	Stock No.	Description	Remark
S16	RN-ESL-1033	Leaf switch	○
S17	RN-ESL-1007	Leaf switch	○
J1	RN-EjU-S30W-1171	30P connector	
J28	RN-EWj-4227	6P-5P connector and lead assembly	
J101	RN-EjU-S14V-1346	14P connector	
J102	RN-EjA-1001	Antenna receptacle	
J103	RN-EWj-4229A	Lead assembly	
J110	RN-EjU-S13W-1166	13P connector	
J120	RN-EWj-4228	3P-3P connector and lead assembly	
J121	RN-EWj-4352	2P connector and lead assembly	
J201,401	RN-EjU-S10W-1150	10P connector	
J202	RN-EjU-S18W-1154	18P connector	
J400	RN-EjU-S06W-1148	6P connector	
J501	RN-EjU-S14W-1152	14P connector	
P28	RN-EjU-S05V-564	5P connector	
P103	RN-EjU-S02V-561	2P connector	
P112	RN-EjU-S14W-1196	14P connector	
P150	RN-EjU-S16W-1197	16P connector	
P201	RN-EjU-S10V-1132	10P connector	
P202	RN-EjU-S18V-1136	18P connector	
P400	RN-EjU-S06V-1130	6P connector	
P401	RN-EjU-S10V-1132	10P connector	
P501	RN-EjU-S14V-1134	14P connector	

Illus.No. (Fig.22)	Stock No.	Description	Q'ty	Remark
MECHANICAL				
501	RN-MTD-1262	Chassis, main		
502	RN-MTD-1214	Chassis, top		
503	RN-MTD-1215	Chassis, bottom		
504	RN-MDP-1533	Escutcheon		○
505	RN-MDP-1551	Escutcheon, filter assembly		○
506	RN-MCV-1611A	Cover	1	
507	RN-MSC-1426	Spring	1	
508	RN-MYB-1844	Button, AM/FM/PROG	1	○
509	RN-MYB-1845	Button, TUNE·FF/REW	1	○
510	RN-MYB-1846	Button, SCAN/STOP/EJE	1	○
511	RN-MYB-1847	Button, 1/DOLBY	1	○
512	RN-MYB-1848	Button, 2/APS	1	○
513	RN-MYB-1849	Button, 3/SKIP	1	○
514	RN-MYB-1850	Button, 4/RPT	1	○
515	RN-MYB-1851	Button, 5	1	○
516	RN-MYC-1054	Knob, PWR·VOL	1	○
517	RN-MYC-1058	Knob, BASS/TRE, BAL. FADER	2	○
521	RN-MHE-1585	Holder	1	
522	RN-MHE-1586	Holder	1	
523	RN-MHE-1603	Holder	1	
524	RN-MHE-1506	Holder	1	
525	RN-MHE-1590	Holder	1	
526	RN-MHE-1591	Holder	1	
527	RN-MHE-1587	Holder	1	
528	RN-MiP-1397	Insulator	1	
529	RN-MiP-1431	Insulator, for 501	1	
530	RN-MLC-1184A	Supporter	1	
531	RN-MSE-1435	Spacer, lamp filter	1	
532	RN-MSE-1560	Spacer, for 527	1	
533	RN-MSE-1451	Spacer	1	
534	RN-MSE-1499	Spacer	1	
535	RN-MSB-1153	Shield plate	1	
541	RN-MHE-1589	Holder	1	
542	RN-MiP-1361	Insulator	1	
545	RN-EPP-1508A-CE-5832	PC board assembly	1	
546	RN-MPM-2949A	PC board (No parts mounted)	1	
547	RN-MPM-2927	PC board (No parts mounted)	1	
548	RN-MPC-1679A	PC board (No parts mounted)	1	
549	RN-EPC-1995-CE-5831	PC board assembly	1	
550	RN-MPC-1793A	PC board (No parts mounted)	1	
551	RN-MPC-1819B	PC board (No parts mounted)	1	
ASSEMBLY MATERIAL				
601	F6-SBD-3×6S	Screw, 3×6mm	10	
602	F6-SBD-3×4S	Screw, 3×4mm	6	

MAIN UNIT 〔CE-5831A〕

Illus.No. (Fig.22)	Stock No.	Description	Q'ty	Remark
603	RN-MET-253	Special screw, 3×8mm	2	
604	RN-MEN-1059	Special nut, 7 mm	2	
605	RN-MSN-1003	Nut, 9mm	1	
606	F6-SSA-3×4S	Screw, 3×4mm	1	
607	F6-SNATP2-2×6	Screw, 2×6mm	1	

NO OR VERY LOW DISTORTED OUTPUT:
IC'S OK.
CHECK 8 VOLT REG IC6 ON AMP PCB.
10uF TANT LEAKING !! CAUSING LOW VOLTS ON O/P PIN OF IC.

CASSETTE DECK (MDK-69/1)

Illus.No. (Fig.23)	Stock No.	Description	Q'ty	Remark
1	RN-MAS-1051G	Chassis	1	
2	RN-MKR-1024	Pinchroller assembly (L)	1	
3	RN-MKR-1025	Pinchroller assembly (R)	1	
4	RN-MSC-1262E	Spring	1	
5	RN-MSC-1263E	Spring	1	
6	RN-MUL-1255C	Lever	1	
7	RN-MUL-1256C	Lever	1	
8	RN-MSC-1265C	Spring	2	
9	RN-MST-1095A	Spacer	2	
10	RN-MUG-1110C	Gear	2	
11	RN-MSC-1266A	Spring	2	
12	RN-MKS-1019A	Slip mechanism	2	○
13	RN-MSC-1264	Spring	2	
14	RN-MUF-1013A	Flywheel	2	
15	RN-MUL-1259B	Lever	1	
16	RN-MUL-1261B	Lever	1	
17	RN-MUL-1262B	Lever	1	
18	RN-MSC-1267	Spring	1	
19	RN-MSC-1312A	Spring	1	
20	RN-MUG-1111C	Gear	1	
21	RN-MSi-1076	Shaft	1	
22	RN-MUG-1112A	Gear	1	
23	RN-MUG-1113D	Gear	1	
24	RN-MUB-1029	Belt	1	○○
25	RN-MUB-1028	Belt	1	
26	RN-MYT-1168G	Sub-chassis	1	
27	RN-MSC-1268D	Spring	1	
28	RN-MHU-1059A	Holder	1	
29	RN-MSP-1065	Spring	1	
30	RN-MUC-1027A	Cum	1	
31	RN-MSi-1075B	Shaft	1	
32	RN-MSP-1066	Spring	1	
33	RN-MSC-1270A	Spring	1	
34	RN-MSC-1349A	Spring	1	
35	RN-MYT-1170C	Sub-chassis	1	
36	RN-MSC-1271C	Spring	1	
37	RN-MSC-1272B	Spring	2	
38	RN-MRP-1100A	Roller	1	
39	RN-MUL-1263D	Lever	1	
40	RN-MSC-1313A	Spring	1	
41	RN-MUG-1114A	Gear	1	
42	RN-MUL-1265C	Lever	1	
43	RN-MSC-1274D	Spring	1	
44	RN-MRP-1092A	Roller	1	
45	RN-MYT-1169E	Sub-chassis	1	
46	RN-MET-1200A	Special screw	2	
47	RN-MET-1266	Special screw	1	
48	RN-MPM-2774	PC board (No parts mounted)	1	

MAIN UNIT 〔CE-5831A〕

(MDK－69／1)

Illus.No. (Fig.23)	Stock No.	Description	Q'ty	Remark
49	RN-MPM-2809C	PC board (No parts mounted)	1	
50	RN-MPM-2958	PC board (No parts mounted)	1	
51	RN-MHE-1664B	Holder	1	
52	RN-MUG-1105A	Gear	1	
53	RN-MUL-1264C	Lever	1	
54	RN-MSC-1314B	Spring	1	
55	RN-MUG-1190A	Gear	1	
56	RN-MUG-1186D	Gear	1	
57	RN-MUG-1189D	Gear	1	
58	RN-MET-1263	Special screw	1	
59	RN-MST-1120	Spacer	1	
60	RN-MKi-1024C	Slide Plate assembly	1	
61	RN-MSS-1026A	Spacer	1	
62	RN-MHE-1665C	Holder	1	
63	RN-MUL-1368B	Lever	1	
64	RN-MHL-1074	Holder	1	
65	RN-MHL-1095B	Holder	1	
66	RN-MHL-1094C	Holder	1	
67	RN-MUL-1371D	Lever	1	
68	RN-MSC-1420B	Spring	1	
69	RN-MSC-1418B	Spring	1	
70	RN-MSC-1347A	Spring	1	
71	RN-MST-1118	Spacer	1	
72	RN-MHL-1060C	Holder	1	
73	RN-MET-1257	Special screw	3	
74	RN-MET-1202	Special screw	1	
75	RN-MET-1258	Special screw	2	
76	RN-MPC-1711	PC board (No parts mounted)	1	
77	RN-MSC-1372	Spring	1	
78	RN-MSC-1373	Spring	1	
79	RN-MPM-2810A	PC board (No parts mounted)	1	
80(A1)	RN-EHM-C44-70A	P.B Head	1	○
81(E1)	RN-EEM-1033D	Plunger solenoid	1	
82(E2)	RN-EEM-1035A	Plunger solenoid	1	
83(E3)	RN-EEM-1034A	Plunger solenoid	1	
84(M1)	RN-EDM-1058	DC Motor	1	○
85(M2)	RN-EDM-1059	DC Motor	1	○
86(S13)	RN-ESL-1025	Leaf switch	1	○
87(S14)	RN-ESL-1002	Leaf switch	1	○
88(S15)	RN-ESM-1012B	Micro switch	1	○
89(S17)	RN-ESL-1007	Leaf switch	1	○
90(S16)	RN-ESL-1033A	Leaf switch	1	○
101	F6-SBD-2.6×6S	Screw 2.6×6mm	1	
102	F6-SBD-2.6×4S	Screw 2.6×4mm	2	
103	F6-SBD-2.6×3S	Screw 2.6×3mm	3	
104	F6-SBD-2×4S	Screw 2×4mm	2	
105	F6-SBD-2×3S	Screw 2×3mm	6	
106	F6-SNA-2×3S	Screw 2×3mm	1	

(MDK－69／1)

Illus.No. (Fig.23)	Stock No.	Description	Q'ty	Remark
107	F6-SNA-2×2.5S	Screw 2×2.5mm	3	
108	F6-SNA-2×2S	Screw 2×2mm	4	
109	F6-ER-2	E-type ring 2mm	6	
110	F6-ER-1.5	E-type ring 1.5mm	8	
111	RN-MWP-80A	Washer	13	
112	RN-MWP-85	Washer	2	
113	RN-MCF-18	Clamp	2	
114	RN-MCF-1019	Clamp	1	
116	F6-SNA-2.6×4S	Screw 2.6×4mm	2	
117	F6-SBD-2×9.5S-M-ZN2A	Screw 2×9.5mm	2	
119	RN-MET-1276	Special Screw	2	
120	RN-MWP-1016	Washer	2	
121	RN-MSC-1419A	Spring	1	
122	RN-MSI-1103A	Shaft	1	

NOTE : Specifications subject to change without prior notice.

POWOR AMP [UM-135]

REPLACEMENT PARTS LIST (UM-135)

Note : Main replacement parts are marked ○ in the remarks column.

Symbol No. (Fig.25)	Stock No.	Description				Remark
CAPACITORS						
C1~8	RN-ECE-M4R7V25-9	4.7 μF	25V		electrolytic	
C9~12	RN-ECY-M4R7V16-M1	4.7 μF	16V		tantalum	
C13,25,36,47	RN-ECY-M2R2V16-M1	2.2 μF	16V		tantalum	
C14,26,37,48	RN-ECC-CSL1H821K-2/TY	820 pF	50V		ceramic (chip)	
C15,27,38,49	RN-ECK-CB1H333K-1/TY	033μF	50V		ceramic (chip)	
C16,24,35,46 58	RN-ECE-M152V16-1	1500μF	16V		electrolytic	
C17,22,28,33 39,44,50,55 62	RN-ECE-M101V10-12	100 μF	10V		electrolytic	
C18,23,29,34 40,45,51,56	RN-ECE-M221V10-12	220 μF	10V		electrolytic	
C19,20,21,30 31,32,41,42 43	RN-ECF-R154K50-12	.15 μF	50V		mylar	
C57	RN-ECE-M471V16-13	470 μF	16V		electrolytic	
C59	RN-ECE-M222V16-8	2200μF	16V		electrolytic	
C60	RN-ECK-CB1H103M-4/TY	.01 μF	50V		ceramic (chip)	
C61	RN-ECY-M100V16-M1	10 μF	16V		tantalum	
RESISTORS						
R1~8	RN-ERG-iC472j-1/TY	4.7kohm	5%	1/8W	metallic (chip)	
R9,11,14,16 19,23,29,32 34,37,39,42 44,47	RN-ERG-iC102j-1/TY	1k ohm	5%	1/8W	metallic (chip)	
R10,12,15,17 20,24	RN-ERG-iC222j-1/TY	2.2kohm	5%	1/8W	metallic (chip)	
R13,18,22,26 48,49	RN-ERG-iC103j-1/TY	10k ohm	5%	1/8W	metallic (chip)	
R21,25	RN-ERG-iC332j-1/TY	3.3kohm	5%	1/8W	metallic (chip)	
R27	RN-ERG-iC104j-1/TY	100kohm	5%	1/8W	metallic (chip)	
R28,31,33,36 38,41,43,46	RN-ERG-iC220j-1/TY	22 ohm	5%	1/8W		
R30,35,40,45	RN-ERG-iC333j-1/TY	33 kohm	5%	1/8W	metallic (chip)	
R50	RN-ERG-iC101j-1/TY	100 ohm	5%	1/8W	metallic (chip)	
R51,52	RN-ERG-iC474j-1/TY	470kohm	5%	1/8W	metallic (chip)	
SEMICONDUCTORS						
IC1	RN-EiE-iA1601	Linear-monolithic IC				○
IC2~5	RN-EiC-TA7250BP	Linear-monolithic IC				○
IC6	RN-EiC-AN8008	Linear-monolithic IC				○
Q1~4	RN-EVS-2SD655S	Silicon transistor				○
Q5	RN-EVS-2SC1317-QR	Silicon transistor				○
D1~4	RN-EDS-10E1	Silicon diode				○
ZNR1,ZNR2	RN-EVV-C10DK220	Varistor				○

Symbol No. (Fig.25)	Stock No.	Description	Remark
MISCELLANEOUS ELECTRICAL			
L1	RN-ELL-336	Choke, 2.6mH	
L2	RN-ELH-C102-5/TP	Coil, 1 mH	
L3,6	RN-ELL-1022	Choke, 2.6mH	
L4,5	RN-ELL-1023	Choke, 1.1mH	
RY1	RN-EED-1039	DC Reray	○
J4	RN-EWj-4236	13P-3P connector and lead assembly	
J5	RN-EWj-4238	6P-5P connector and lead assembly	
J6	RN-EWj-4237	6P-5P connector and lead assembly	
J7	RN-EWj-4239	8P-6P connector and lead assembly	
P1(J1)	RN-EWj-4240	14P-7P connector and lead assembly	
P2,3	RN-EjU-S14V-901	9P-5P connector	
P4-1	RN-EjU-S03V-562B	3P connector (black)	
P4-2	RN-EjU-S03V-562L	3P connector (blue)	
P4-3	RN-EjU-S03V-562R	3P connector (red)	
P4-4	RN-EjU-S03V-562	3P connector (white)	
P5,6	RN-EjU-S05V-564	5P connector (white)	
P7	RN-EjU-S06V-565	6P connector (white)	

NOTE : Specifications subject to change without prior notice.