CE-5232 EX1

"TEN" SERVICE MANUAL

CASSETTE DECK WITH ELECTRONIC TUNING TUNER

(AM/FM, MPX, SEEK, 5PB, AUTO-REVERSE, DOLBY* NR, CLOCK)

Model CE-5232EX1

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FUJITSU TEN LIMITED

REPAIRING PRECAUTIONS MOS IC

The following precautions are necessary for repairing PC boards containing MOS IC.
This model contains MOS ICs as follows :

RN-EIM-UPD1708G-011

1. MOS ICs should be stored or transported in conductive material so that all exposed leads are shorted together.
   MOS ICs must not be inserted into conventional stylo-form or plastic trays of the type used for storage and transportation of other semiconductor devices.
   Sometimes, several kilo-volt static may exist on an ungrounded bench surface and human body.
2. Therefore, MOS ICs should be placed on a grounded bench surface and the technicians should ground themselves prior to handling devices. This is done most effectively by having the technician wear a conductive wrist strap in series with 100k ohm to ground.
3. Nylon clothing should not be worn while handling MOS circuits.
4. Do not insert or remove MOS ICs with power applied.
5. Use a grounded soldering iron when soldering.
6. MOS ICs should be handled by their packages and not by the leads, if at all possible. Prior to touching the unit, the technician should touch an electrical ground to remove any static charge that may have been accumulated.

COMPOSITION

CE-5232EX1

Illus. No.	Stock No.	Description	Q'ty	Illus. No.	Stock No.	Description	Q'ty
1	CE-5232	Combination unit	1	11	RN-MBW-C5×16S	Bolt with washer	1
2	RN-MYC-1016A	Knob	2	12	RN-MTN-A6×16S	Screw, tapping	1
3	RN-MYD-1031	Knob	2	13	RN-EWJ-1744	Wiring sub-assembly, ground	1
4	RN-MDP-1509	Escutcheon	1	14	RN-EWJ-3382	Wiring sub-assembly, speaker	2
5	RN-MPF-1003	Packing	1	15	RN-EWJ-3408	Wiring sub-assembly, power lead	1
6	RN-MBF-11	Bracket	1	16	RN-MXK-151	Owners manual	1
7	RN-MSN-19	Nut, 9mm	4	17	RN-MXW-117A	Warranty cord	1
8	RN-MWS-1039	Washer, 9mm	4	18	F6-SBD-2.6×10S	Screw, 2.6×10mm	1
9	RN-MET-1229	Special screw	1	19	RN-MSS-1006	Spacer	1
10	RN-MNR-D5S	Nut, 9mm	2				

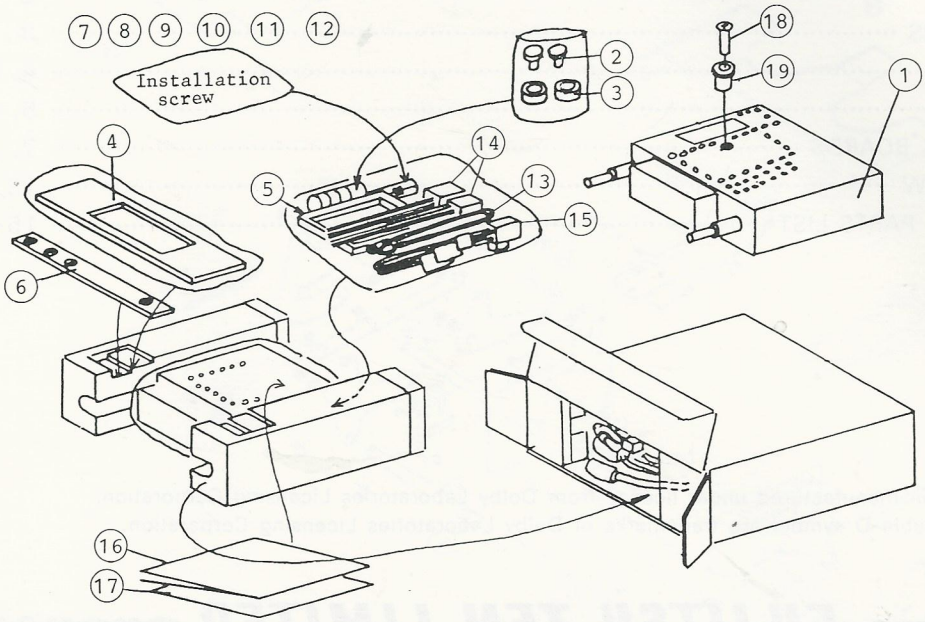


Fig. 1 (C91190232)

SPECIFICATIONS

SM-562
〔CE-5232EX1〕

(RADIO SECTION)	AM	FM
TUNING RANGE (Refer to Fig. 2)	522 to 1620 kHz (10 kHz step) 530 to 1620 kHz (9 kHz step)	87.5 to 107.9 MHz (200 kHz step) 87.5 to 108 MHz (100 kHz step)
INTERMEDIATE FREQUENCY	450 kHz	10.7 MHz
SENSITIVITY	30 dBμ or better	
SENSITIVITY AT ELECTRONIC TUNING	Distant: 34 ± 8 dBμ Local: Distant sens. +24 ± 6 dBμ	Distant: 20 ± 6 dBμ Local: Distant sens. +25 ± 6 dBμ
LIMITING SENSITIVITY		$12\ ^{+6}_{-8}$ dBμ
SEPARATION		22 dB or better (at 1 kHz)
ELECTRICAL FIDELITY	100 Hz: 4±3 dB (74 dBμ input, Refer. 400 Hz) 4 kHz: −15 ± 6 dB (74 dBμ input, Refer. 400 Hz)	100 Hz: 4±3 dB (54 dBμ input, Refer. 400 Hz) 10 kHz: −16 ± 5 dB (54 dBμ input, Refer. 400 Hz)

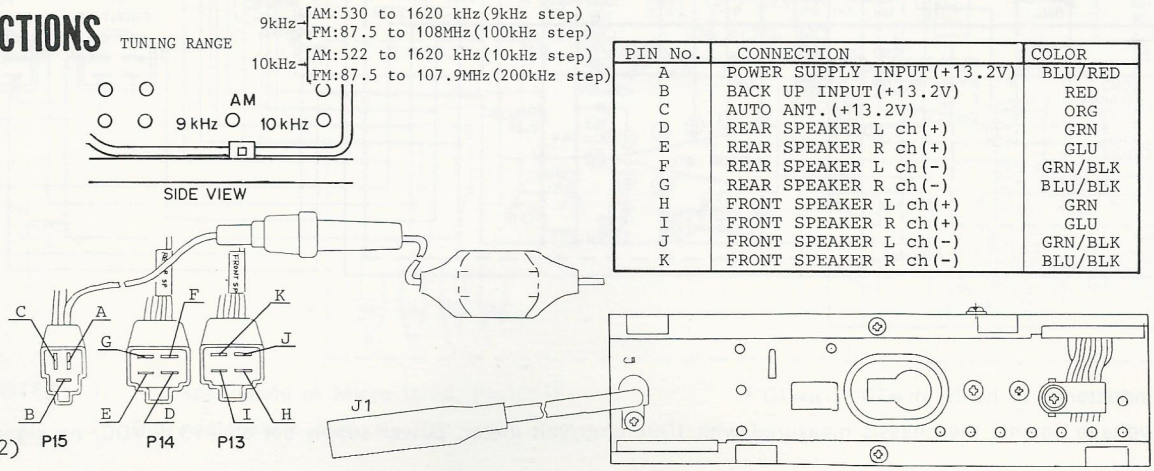
(CASSETTE DECK SECTION)

NUMBER OF TRACKS	4-track 2-channels
TAPE CARTRIDGE	Stereo/Monaural compact cassette
TAPE SPEED	4.76 cm/sec. (1-7/8", i.p.s.)
WOW & FLUTTER	0.25% or less (WRMS)
CROSSTALK	35 dB or better
SEPARATION	25 dB or better
FREQUENCY RESPONSE	63 Hz: $0\ ^{+10}_{-7}$ dB (Refer. 250 Hz) 10 kHz: $0\ ^{+5}_{-4}$ dB (Refer. 250 Hz)
EQUALIZATION	Normal: t_1=3,180μsec., t_2=120μsec. Crome and metal t_1=3,180μsec., t_2=70μsec.
SIGNAL TO NOISE RATIO	43 dB or better (with MTT-112B test tape)
TAKE-UP TORQUE	40 to 120 g-cm

(COMMON SECTION)

LOAD IMPEDANCE	4 ohm
OUTPUT POWER	14 watts×2 (THD=10%, 14.4V)
POWER INPUT	12-volt car battery, negative terminal to ground
Voltage	13.2 VDC
Current	Approx. 1.3 ampere (1watt×2) Approx. 5 ampere (Max.)
SEMICONDUCTOR	1 LSI, 15 ICs, 27 Transistors, 42 Diodes
DIMENSIONS	177.8(W)×50(H)×135(D)mm (7", 1-31/32", 5-5/16")
WEIGHT	Unit—1.4 kg (3.1 lbs.)

CONNECTIONS



PIN No.	CONNECTION	COLOR
A	POWER SUPPLY INPUT(+13.2V)	BLU/RED
B	BACK UP INPUT(+13.2V)	RED
C	AUTO ANT.(+13.2V)	ORG
D	REAR SPEAKER L ch(+)	GRN
E	REAR SPEAKER R ch(+)	GLU
F	REAR SPEAKER L ch(-)	GRN/BLK
G	REAR SPEAKER R ch(-)	BLU/BLK
H	FRONT SPEAKER L ch(+)	GRN
I	FRONT SPEAKER R ch(+)	GLU
J	FRONT SPEAKER L ch(-)	GRN/BLK
K	FRONT SPEAKER R ch(-)	BLU/BLK

Fig. 2
(C23190232)

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 80g-cm. The roller has four positions for the spring to be set.

Set the spring in one of Ⓐ-Ⓓ positions for the sufficient value.

The take-up torque may vary 7g-cm per one step of the roller.

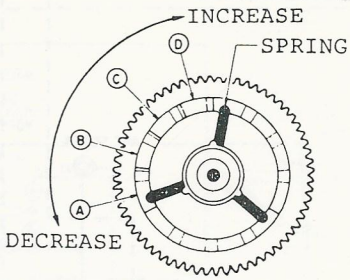


Fig. 3

CLEANING

After extended use, the tape playback head and the drive capstan will build up a layer of iron oxide from the 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. 4. Always use the test tape for azimuth adjustment because improper adjuustment would cause bad effect on the Dolby level adjustment. Dolby level should be readjusted after azimuth adjustment.

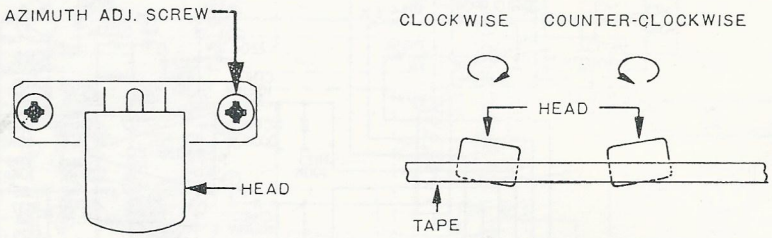


Fig. 4 (EOA-002)

a. Connections : Refer to Fig. 8.

b. Power supply : 13.2 VDC

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

Alignment Prodedure

Insert a test tape for the azimuth adjustment and drive the screw a little once.

Adjust the playback head so as to get equal and maximum output or right and left channel in either track, loosening the screw.

FM ALIGNMENT

Standard adjustment condition

a. Power supply ·····13.2V
b. AM/FM changing switch ·····FM
c. Loudness switch ·····off
d. Sensitivity switch ·····Distant
e. Balance ·····Center
f. Bass/treble ·····Center
g. Fader·····Front
h. Volume ····· Adjust to get 2V output level.
i. Connections

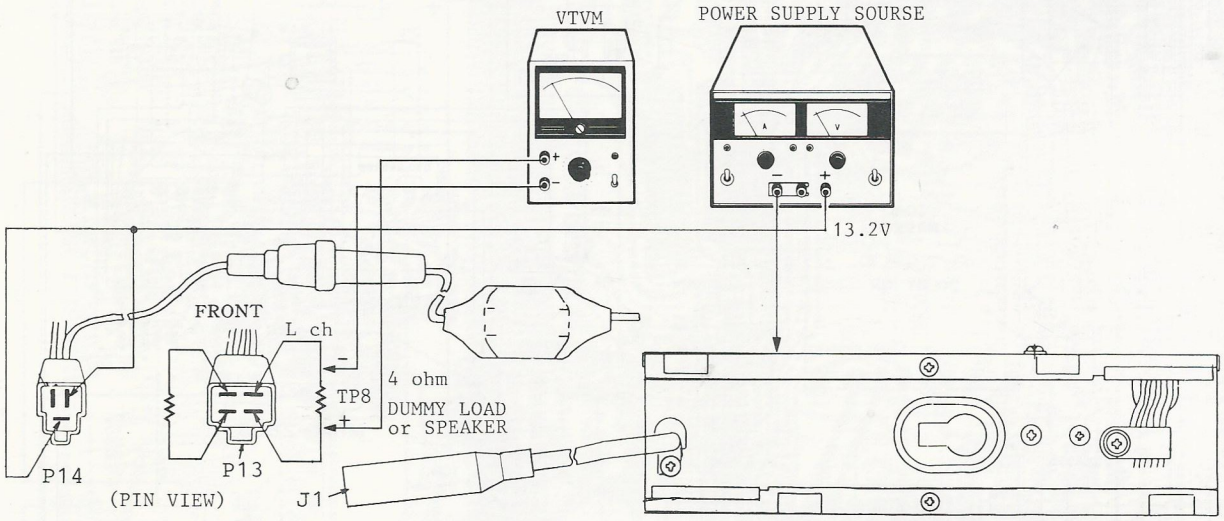


Fig. 8 (C33190231)

〔1〕 IF Alignment

(1) Connections

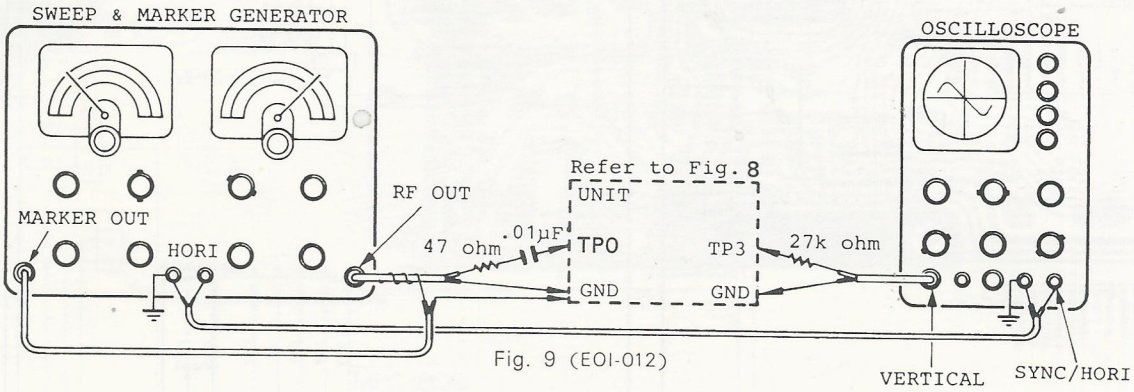


Fig. 9 (EOI-012)

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Antenna receptacle (J1)	Connect TP 3 in Fig. 12 through 27K-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

(2) Alignment (Refer to Fig. 12)

STEP	PURPOSE	SWEEP GENERATOR FREQUENCY	ADJUSTMENT POINTS	PROCEDURE
1	S curve	10.7 MHz	F IFT2	Adjust for full gain and length of s-curve at linears. (See Fig. 10)
2	S curve (Center)	SG 10.7 MHz (400 Hz, 30%)		Fine-adjust the potential difference between IC 2 ⑦ and ⑱ pins for 0V.

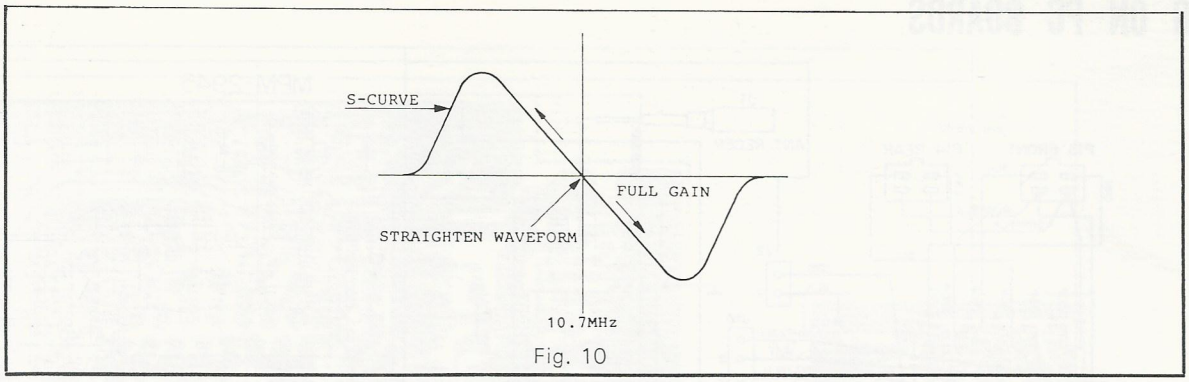


Fig. 10

NOTE: S curve center can be adjusted in the same manner by receiving local FM broadcast near 98.1 MHz.

〔2〕 SEEK Alignment

(1) Connections

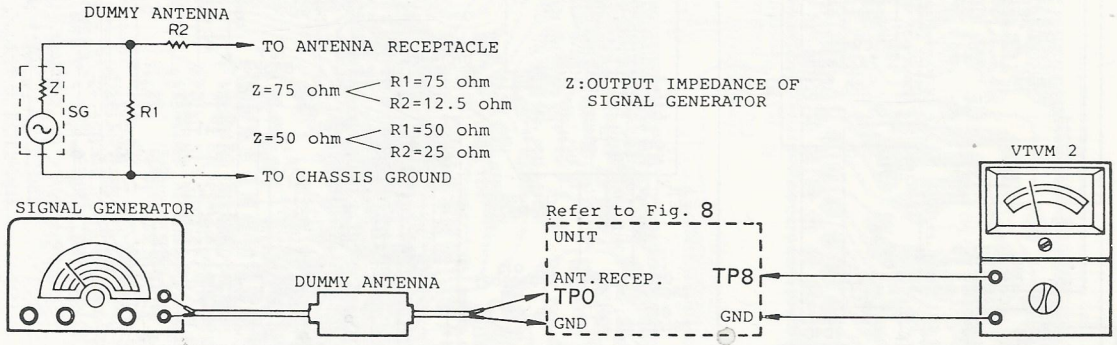


Fig. 11 (EOT-009)

TP8: Speaker terminal

(2) Alignment

STEP	PURPOSE	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	Set the local/distant selector switch in the local position.				
2	Local sensitivity	98.1 MHz (400 Hz, 30%)	45 dBμ (±6 dBμ)	RV 7	Depress SEEK button to actuate the searching, and then adjust sensitivity so that the searching action may stop nearly at 98.1 MHz.

〔3〕 ASC Working sensitivity alignment

(1) Connections Refer to Fig. 11

(2) Alignment (Refer to Fig. 12)

STEP	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (1 kHz, 30%)	54 dBμ	———	Adjust volume control (VOL) until TP8 output voltage is 2V.
2		30 dBμ	VR 3	Adjust the separation for 10 dB.

〔4〕 Noise blanker alignment

(1) Connections

a. Stereo signal generator·····Connect the TP 0

b. Oscilloscope ·····Connect the TP 5

(2) Alignment (Refer to Fig. 12)

STEP	STEREO SIGNAL GENERATOR FREQUENCY	STEREO SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (Stereo mode, No modulation)	54 dBμ	VR 5	After making sure of "STEREO" display, adjust the pilot signal wave (19 kHz) for minimum.

〔5〕 Free running frequency alignment

(1) Connections a. Frequency counter·····Connect the TP 6

(2) Aligement (Refer to Fig. 12)

STEP	ADJUSTMENT POINT	PROCEDURE
1	VR 6	Adjust the free running frequency for 76 kHz (±50 Hz)

〔6〕 Separation alignment

(1) Connections a. Stereo signal generator·····Connect the TP 0

b. Oscilloscope ·····Connect the TP 8 (L-ch)

(2) Alignment (Refer to Fig. 12)

STEP	STEREO SIGNAL GENERATOR		ADJUSTMENT POINT	PROCEDURE
	FREQUENCY	OUTPUT LEVEL		
1	98.1 MHz (R-ch : 1 kHz, 30% L-ch : no modulation)	54 dBμ	VR 4	Adjust R-ch output level for minimum.

〔7〕 Crystal oscillating frequency adjustment

(1) Connections a. Frequency counter (Resolution : 1 Hz)·····Connect the TP 4

(2) Alignment (Refer to Fig. 12)

STEP	FREQ. DISPLAY OF UNIT	ADJUSTMENT POINT	PROCEDURE
1	1000 kHz	TC 4	Adjust TC 4 for 1450 kHz at the frequency counter by using a screwdriver.

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 9 or TP 10 Cold side : chassis

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

c. Power supply ·····13.2 VDC d. Tape select switch·····Normal (▮)

e. Dolby N.R. switch·····Out (▮)

(2) Alignments (Refer to Fig. 12 for ADJUSTMENT POINTS.)

STEP	ADJUSTMENT POINT	PROCEDURE
1	VR 8	Adjust to get 300 mV (±30 mV) output of left channel with a volt meter.
2	VR 9	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

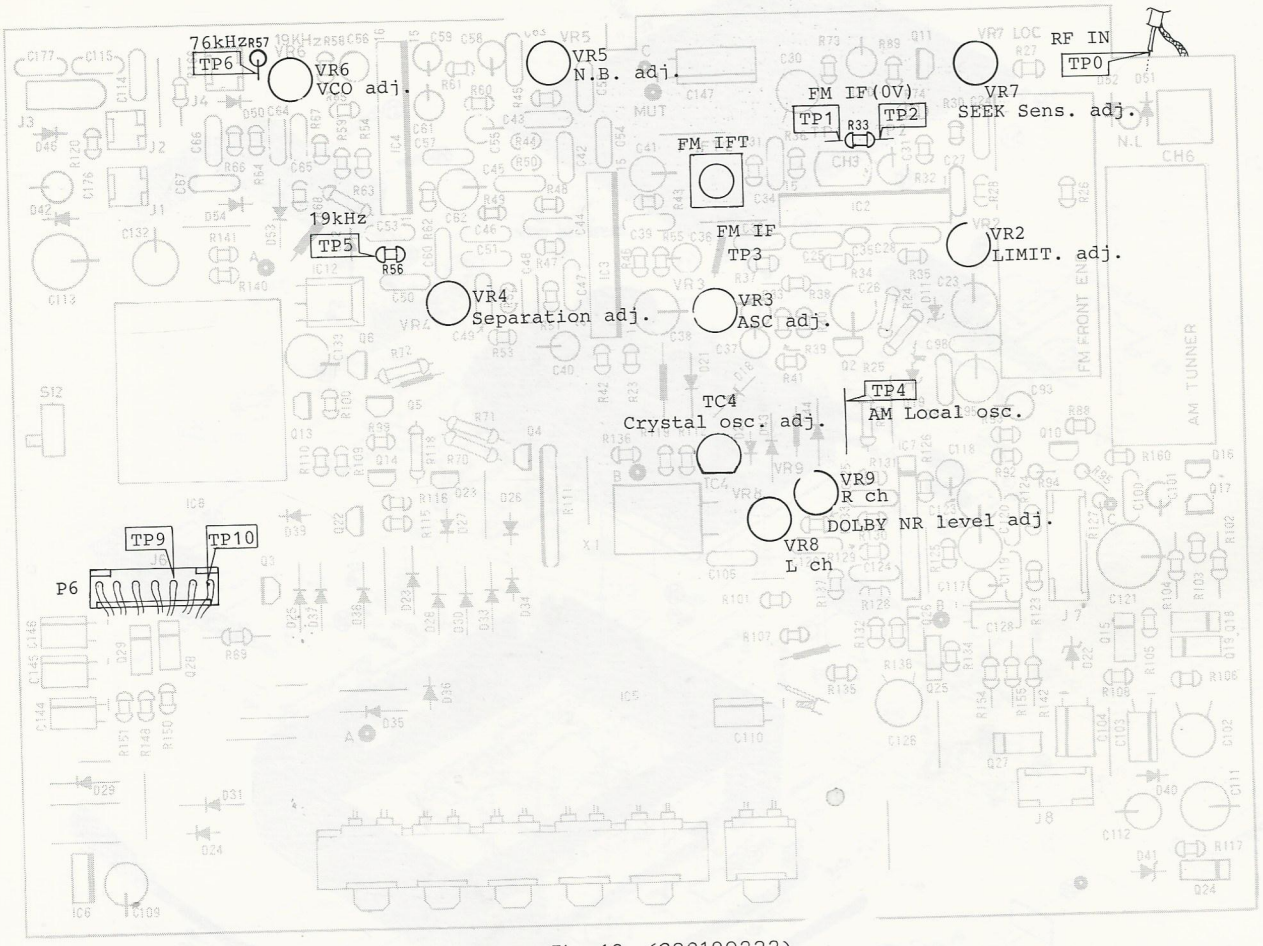


Fig. 12 (C33190232)

EXPLODED VIEW

SM-562
〔CE-5232EX1〕

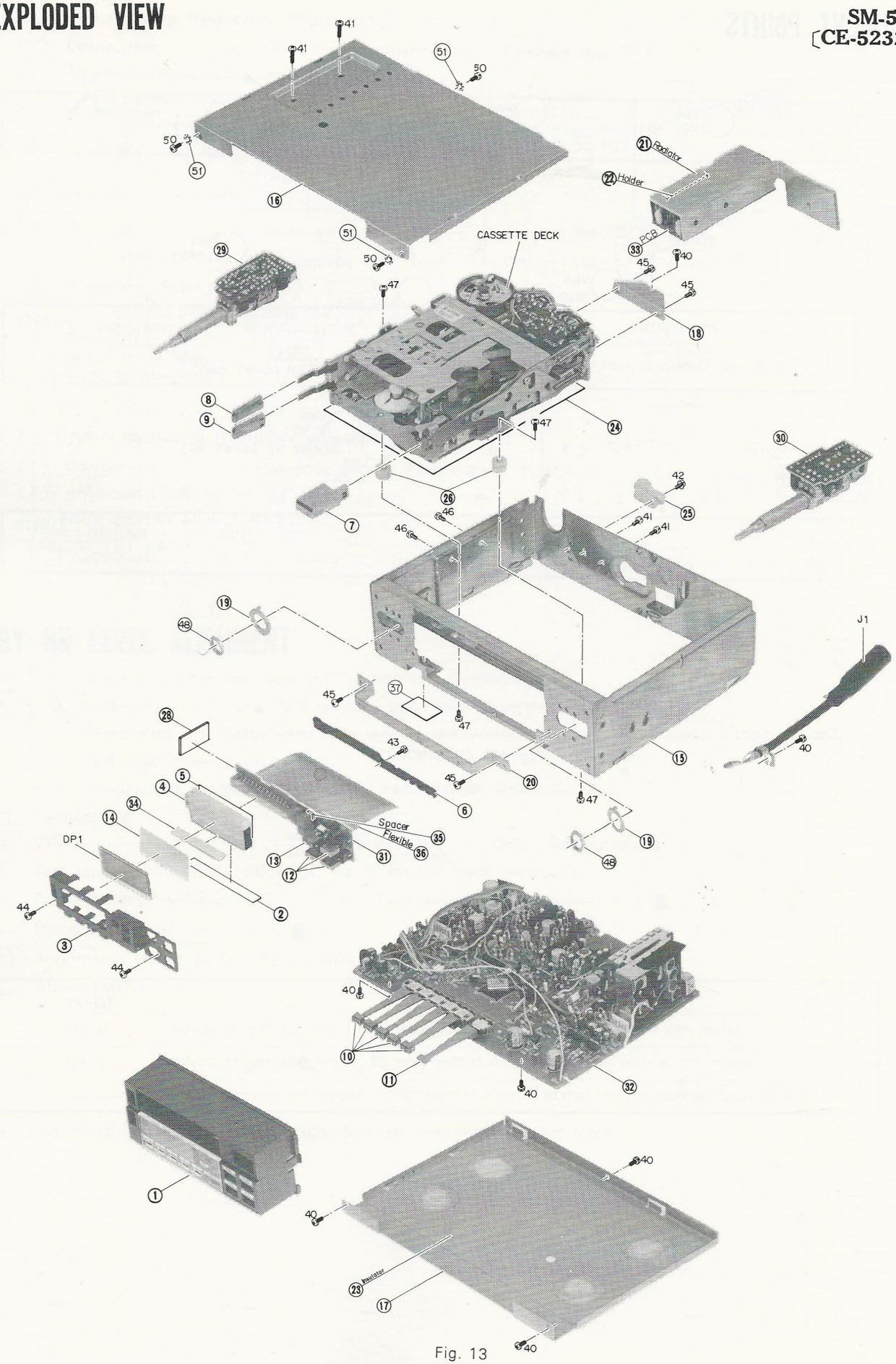


Fig. 13

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

EXPLODED VIEW (CASSETTE DECK) MDK-54/11A

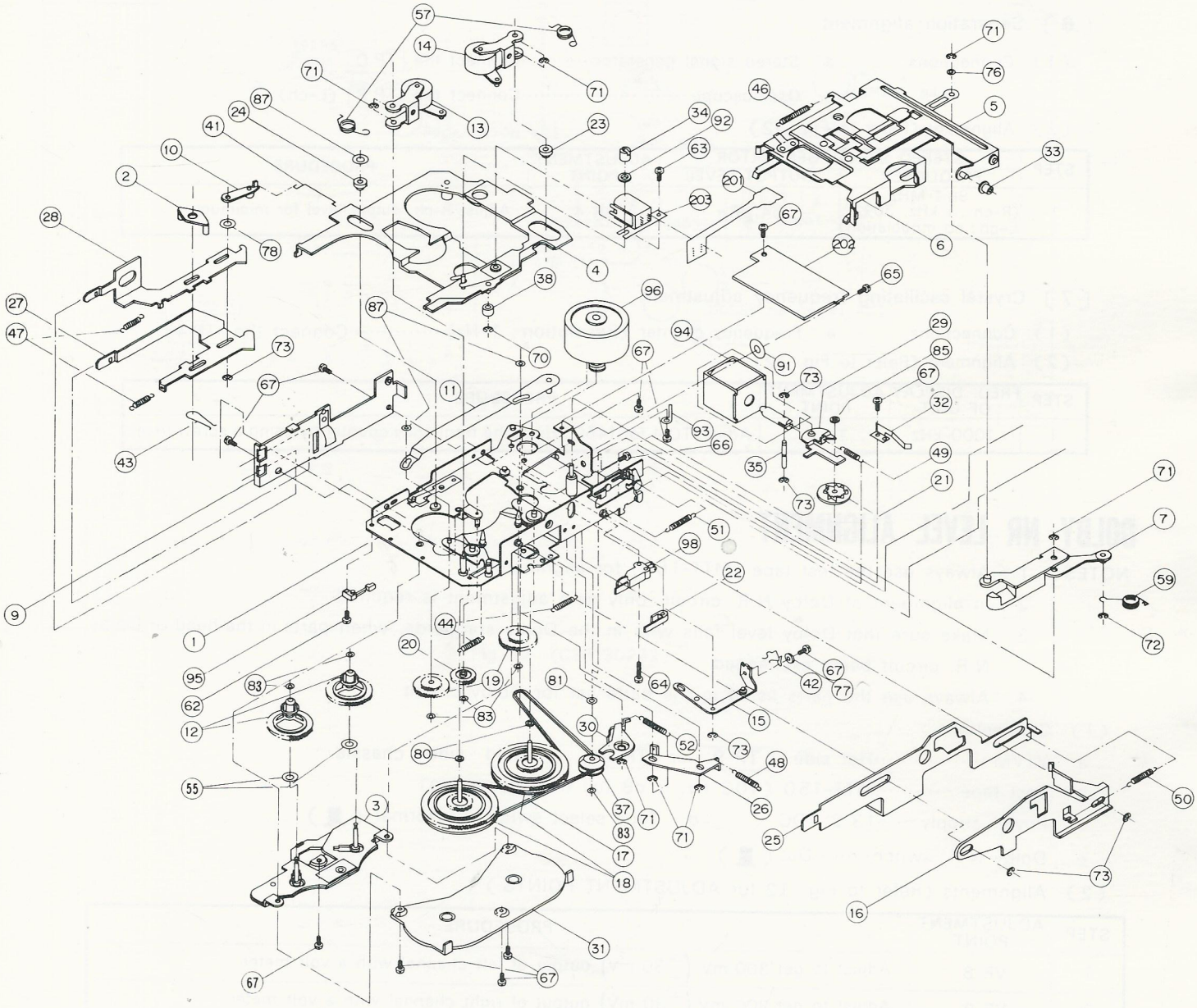


Fig. 14 (C28190231)

REPLACEMENT PARTS LIST

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

Symbol No.	Stock No.	Description			Remark
CAPACITORS					
C23	RN-ECE-M221V10-10	220 μF	10V	electrolytic	
C24,39,42,57, 64~67,98	RN-ECB-DOX103B	.01 μF	12V	ceramic	
C25,32,60,100	RN-ECB-DOX473B	.047 μF	12V	ceramic	
C26,62	RN-ECE-M101V16-41	100 μF	16V	electrolytic	
C27,28,94,129	RN-ECB-DOX223B	.022 μF	12V	ceramic	
C30,102	RN-ECB-DOX473B	.047 μF	12V	ceramic	
C31,36,110	RN-ECE-M4R7V25-32	4.7 μF	25V	electrolytic	
C33	RN-ECE-MR47V50-42	.47 μF	50V	electrolytic	
C34	RN-ECC-DSL330J	33 PF	50V	ceramic	
C35	RN-ECC-DSL101J	100 PF	50V	ceramic	
C37,141,142, 145,146	RN-ECE-MR10V50-32	.1 μF	50V	electrolytic	
C38	RN-ECE-M221V16-41	220 μF	16V	electrolytic	
C40	RN-ECE-M4R7V25-6	4.7 μF	25V	electrolytic	
C41	RN-ECE-M220V10-5	22 μF	10V	electrolytic	
C43	RN-ECB-DOX222B	.0022 μF	12V	ceramic	
C44~46,51	RN-ECK-DSA271K	270 PF	50V	ceramic	
C47	RN-ECC-DSL680J	68 PF	50V	ceramic	
C48	RN-ECB-DOX122B	1200 PF	12V	ceramic	
C49,50	RN-ECK-DB681K	680 PF	50V	ceramic	
C52	RN-ECB-DOX332B	3300 PF	12V	ceramic	
C53	RN-ECK-DB121K	120 PF	50V	ceramic	
C54	RN-ECB-DOX682B	6800 PF	12V	ceramic	
C55,70,93	RN-ECE-M1R0V50-7	1 μF	50V	electrolytic	
C56	RN-ECQ-M102K50-05A	1000 PF	50V	styrol	
C58	RN-ECE-M3R3V35-32	3.3 μF	35V	electrolytic	
C59	RN-ECY-M1R0V16-M1	1 μF	16V	tantalum	
C61,128,147~ 149,156,157	RN-ECE-M1R0V50-32	1 μF	50V	electrolytic	
C63,124,125	RN-ECB-DOX333B	.033 μF	12V	ceramic	
C80	RN-ECC-DSL300J	30 PF	50V	ceramic	
C95,152,153, 160,161	RN-ECE-M101V10-42	100 μF	10V	electrolytic	
C101	RN-ECE-M1R0V50-52	1 μF	50V	electrolytic	
C103	RN-ECE-M1R0V50-32	1 μF	50V	electrolytic	
C104,122,123, 185	RN-ECE-M470V16-32	47 μF	16V	electrolytic	
C105	RN-ECC-DSL220J	22 PF	50V	ceramic	
C109,112,133	RN-ECE-M470V10-10	47 μF	10V	electrolytic	
C111	RN-ECE-M221V10-41	220 μF	10V	electrolytic	
C113	RN-ECE-M101V16-10	100 μF	16V	electrolytic	
C114,115,177A	RN-ECK-DB331K	330 PF	50V	ceramic	
C117,118,144	RN-ECE-M100V16-32	10 μF	16V	electrolytic	
C119,120	RN-ECB-DOX152B	1500 PF	12V	ceramic	
C121	RN-ECE-M221V10-41	220 μF	10V	electrolytic	
C126	RN-ECB-DOX223B	.022 μF	12V	ceramic	

Symbol No.	Stock No.	Description				Remark
C132	RN-ECE-M101V10-9	100 μF	10V		electrolytic	
C136,139	RN-ECF-R472V50-K	.0047μF	50V		mylar	
C137,138	RN-ECF-R103V50-K	.01 μF	50V		mylar	
C140,143	RN-ECF-R333V50-K	.033μF	50V		mylar	
C150,151	RN-ECF-R102V50-K	.001μF	50V		mylar	
C154,155	RN-ECE-M470V16-5	47 μF	16V		electrolytic	
C158,159	RN-ECH-R104V50	.1 μF	50V		MP	
C162~165	RN-ECE-M101V16-41	100 μF	16V		electrolytic	
C166,167	RN-ECE-M102V16-51	1000μF	16V		electrolytic	
C168,169,182, 183	RN-ECH-R224V50	.22 μF	50V		MP	
C170~175	RN-ECK-DB331K	330 PF	50V		ceramic	
C176,177B	RN-ECH-R154V50	.15 μF	50V		MP	
C176A,180	RN-ECE-M471V16-13	470 μF	16V		electrolytic	
C178	RN-ECB-DOX103E	.01 μF	25V		ceramic	
C179	RN-ECY-M100V16-M1	10 μF	16V		tantalum	
C181	RN-ECE-M220V16-3	22 μF	16V		electrolytic	
VARIABLE CAPACITORS						
TC4	RN-ECV-A20-117	20 PF				
RESISTORS						
R23,42	RN-ERD-AC221JA	220 ohm	5%	1/8W	carbon	
R24,63	RN-ERD-AE101JB	100 ohm	5%	1/4W	carbon	
R25	RN-ERD-AE221JB	220 ohm	5%	1/4W	carbon	
R26,34,47,56, 100,115,160A, 109	RN-ERD-AC223JA	22K ohm	5%	1/8W	carbon	
R27,40,66,68, 74,140,141	RN-ERD-AC153JA	15K ohm	5%	1/8W	carbon	
R28,61,65,103, 104,106 154,155A	RN-ERD-AC102JA	1K ohm	5%	1/8W	carbon	
R30	RN-ERD-AC331JA	330 ohm	5%	1/8W	carbon	
R31,44	RN-ERD-AC562JA	5.6K ohm	5%	1/8W	carbon	
R32,46,89,99, 110,116,119, 123,124,128, 131,136,142	RN-ERD-AC104JA	100K ohm	5%	1/8W	carbon	
R33,36,102,105 150,151,108	RN-ERD-AC103JA	10K ohm	5%	1/8W	carbon	
R35,51~53,101, 107,112,117	RN-ERD-AC472JA	4.7K ohm	5%	1/8W	carbon	
R37,43	RN-ERD-AC473JA	47K ohm	5%	1/8W	carbon	
R38,49,50,62, 166	RN-ERD-AC222JA	2.2K ohm	5%	1/8W	carbon	
R39,41,60,148	RN-ERD-AC333JA	33K ohm	5%	1/8W	carbon	
R45	RN-ERD-AC682JA	6.8K ohm	5%	1/8W	carbon	
R48,129,130	RN-ERD-AC272JA	2.7K ohm	5%	1/8W	carbon	
R54,55	RN-ERD-AC392JA	3.9K ohm	5%	1/8W	carbon	
R57,163	RN-ERD-AE104JB	100K ohm	5%	1/4W	carbon	

Symbol No.	Stock No.	Description	Remark
R58	RN-ERD-AC123JA	12K ohm 5% 1/8W carbon	
R59	RN-ERD-AC822JA	8.2K ohm 5% 1/8W carbon	
R64,67	RN-ERD-AC332JA	3.3K ohm 5% 1/8W carbon	
R69	RN-ERD-AC224JA	220K ohm 5% 1/8W carbon	
R70,72	RN-ERD-AE103JB	10K ohm 5% 1/4W carbon	
R71	RN-ERD-AE472JB	4.7K ohm 5% 1/4W carbon	
R73	RN-ERD-AC393JA	39K ohm 5% 1/8W carbon	
R88,132,133, 135,137	RN-ERD-AC152JA	1.5K ohm 5% 1/8W carbon	
R90	RN-ERD-AE680JB	68 ohm 5% 1/4W carbon	
R92,93	RN-ERD-AC563JA	56K ohm 5% 1/8W carbon	
R94,95	RN-ERD-AE154JB	150K ohm 5% 1/4W carbon	
R111	RN-ERI-1028-6R333J	33K ohm×6 5% 1/4W carbon(array)	
R118	RN-ERD-AE154JB	150K ohm 5% 1/4W carbon	
R120,164	RN-ERD-AC181JA	180 ohm 5% 1/8W carbon	
R125,126	RN-ERD-AC680JA	68 ohm 5% 1/8W carbon	
R127,171	RN-ERD-AE331JB	330 ohm 5% 1/4W carbon	
R134,138	RN-ERD-AC154JA	150K ohm 5% 1/8W carbon	
R139	RN-ERD-AC331JA	330 ohm 5% 1/8W carbon	
R143	RN-ERD-AE682JB	6.8K ohm 5% 1/4W carbon	
R144	RN-ERD-AC682JA	6.8K ohm 5% 1/8W carbon	
R145,146,160B	RN-ERD-AE222JB	2.2K ohm 5% 1/4W carbon	
R147	RN-ERD-AC332JA	3.3K ohm 5% 1/8W carbon	
R149	RN-ERD-AE332JB	3.3K ohm 5% 1/4W carbon	
R152,153	RN-ERD-AC562JA	5.6K ohm 5% 1/8W carbon	
R155B	RN-ERD-AC101JA	100 ohm 5% 1/8W carbon	
R156~158	RN-ERD-AE101JB	100 ohm 5% 1/4W carbon	
R159	RN-ERD-AC222JA	2.2K ohm 5% 1/8W carbon	
R161,162	RN-ERD-AC150JA	15 ohm 5% 1/8W carbon	
R170	RN-ERD-AE471JB	470 ohm 5% 1/4W carbon	
R171	RN-ERD-AE331JB	330 ohm 5% 1/4W carbon	
VARIABLE RESISTORS			
VR2	RN-ERV-ON1-238	500 ohm	
VR3,5,7	RN-ERV-ON1-246	50K ohm	
VR4,6,8,9	RN-ERV-ON1-243	10K ohm	
VR10~16(S14)	RN-ERV-2R5-4	50K ohm×6, 100K ohm, volume	○
VR17,18(S1,16)	RN-ERV-2Z2-5	80K ohm×2, fader	○
SEMICONDUCTORS			
IC2	RN-EIC-LA1140	FM IF amp.~ Q.DET. linear-monolithic IC	○
IC3	RN-EIC-LA21110	Noise blanker linear-monolithic IC	○
IC4	RN-EIC-LA3375	MPX decoder linear-monolithic IC	○
IC5	RN-EIM-UPD1708G-011	Tuner controller C-MOS IC	○
IC6,12	RN-EIC-UPC78L05	Voltage regulator,5V,linear-monolithic IC	○
IC7	RN-EIC-BA328	Equalizer amp. linear-monolithic IC	○
IC8	RN-EIE-NR9200	Dolby NR hybrid IC	○
IC9,10	RN-EIC-TA7280P	Power amp. linear-monolithic IC	○
IC11	RN-EID-CX10006	Auto reverse cont. digital-monolithic IC	○
IC13,14	RN-EIA-DM106A	Tape end det.	○

Symbol No.	Stock No.	Description	Remark
Q2,4,11,13,16,17	RN-EVS-2SC1740-RS	Silicon transistor	○
Q3,14,22	RN-EVS-2SA933-QR	Silicon transistor	○
Q5,6	RN-EVS-2SA562Y	Silicon transistor	○
Q10,23	RN-EVS-DTC144EF	Silicon transistor	○
Q15,18,19,24~27	RN-EVS-2SC2021-RS	Silicon transistor	○
Q28,29	RN-EVS-2SD1469-QR	Silicon transistor	○
Q30	RN-EVS-2SD882	Silicon transistor	○
D11,19	RN-EDT-UZP8.2C-M	Zener diode, 8.2V	○
D12,18,20,21,23~40,43,44,50~54	RN-EDS-1S1555	Silicon diode	○
D22	RN-EDT-RD10EB2	Zener diode, 10V	○
D41	RN-EDT-MTZ5.6B	Zener diode, 5.6V	○
D42,46,49	RN-EDS-SR1K2	Silicon diode	○
D45,47,48	RN-EDP-GL9PG4	LED	○
TRANSFORMERS & COILS			
L1	RN-ELL-33	Coil	
CH3	RN-ETF-1020	Transformer	
CH6	RN-ELH-B6R2-2	Coil, 6.2μH	
FIFT2	RN-ETF-1019	Transformer	
MISELLSNEOUS ELECTRICAL			
A1	RN-EHM-C44-65	P.B. head	○
DP1	RN-EVE-1009-MPC02TN	Display	
E1	RN-EEM-1011A	Plunger solenoid	
F1	RN-EFG-B05	Fuse, 5A (included in P15)	○
J1	RN-EJL-1014	Antenna receptacle	
J2	RN-EWJ-3869	2P connector and lead assembly	
J3	RN-EWJ-3868	2P connector and lead assembly	
J4-P15(F1,L1)	RN-EWP-1105	Power supply lead	
J5	RN-EWJ-3867	2P connector and lead assembly	
J6	RN-EWJ-4219	7P connector and lead assembly	
J7	RN-EWJ-3866	6P connector and lead assembly	
J8	RN-EWJ-4217	4P connector and lead assembly	
J9	RN-EWJ-3870	3P connector and lead assembly	
J10	RN-EWJ-4218	6P connector and lead assembly	
M1	RN-EDM-1037	DC Motor	○
NE1	RN-EPN-54	Neon lamp	
P2,3,5	RN-EJU-S02V-1123	2P connector	
P6	RN-EJU-S07V-1345	7P connector	
P7	RN-EJU-S06V-1127	6P connector	
P8	RN-EJU-S04V-1125	4P connector	
P9	RN-EJU-S03V-1124	3P connector	
P10	RN-EJU-S06V-1344	6P connector	
P13,14	RN-EWS-1073	Connector and lead assembly, speaker	
PL1	RN-EPM-1038	Lamp	
PL2	RN-EPM-1062	Lamp	

Symbol No.	Stock No.	Description	Remark
S3~7	RN-ESB-1N1-202	Push switch	○
S8	RN-ESB-1N1-175	Push switch	○
S9~11	RN-ESB-1N1-201	Push switch	○
S12	RN-ESS-12-173	Slide switch	○
S13	RN-ESL-1016	Leaf switch	○
S15	RN-ESL-1017	Leaf switch	○
S17	RN-ESB-2L2-192	Push switch	○
S18	RN-ESS-62-170A	Slide switch	○
TV1	RN-ETV-1042	FM Front-end	
TV2	RN-ETV-1029	AM Tuner	
X1	RN-EXC-1021	Crystal, 4.5MHz	
————	RN-EJZ-1175	Contact rubber (㉛Fig.13)	

Illus. No. (Fig. 13)	Stock No.	Description	Q'ty	Remark
MECHANICAL				
1	RN-MFP-1122	Escutcheon	1	O
2	RN-MLC-1153	Supporter	1	
3	RN-MLC-1152	Supporter	1	
4	RN-MLF-1123	Filter	1	
5	RN-MLC-1154	Supporter	1	
6	RN-MSE-1331A	Insulator	1	
7	RN-MYB-1648	Button, EJECT	1	O
8	RN-MYB-1649	Button, FF	1	O
9	RN-MYB-1650	Button, REW	1	O
10	RN-MYB-1651	Button, CH1～5	5	O
11	RN-MYB-1652	Button, MEMO	1	O
12	RN-MYB-1653	Button, FM, LOUD, LO/MET	3	O
13	RN-MYB-1654	Button, DOLBY NR	1	O
14	RN-MSE-1332	Spacer	1	
15	RN-MTD-1174	Chassis, main	1	
16	RN-MTD-1220	Chassis, top	1	
17	RN-MTD-1176	Chassis, bottom	1	
18	RN-MHL-1073	Holder	1	
19	RN-MWS-1040	Washer	2	
20	RN-MHE-1476	Holder	1	
21	RN-MRE-1123	Radiator	1	
22	RN-MHE-1618	Holder	2	
23	RN-MIP-1331	Insulator	1	
24	RN-MIP-1332	Insulator	1	
25	RN-MCO-1008	Clamp	1	
26	RN-MSI-1082	Shaft	2	
28	RN-MLC-1155	Supporter	1	
29	RN-MPC-1809	PC board, volume (No parts mounted)	1	
30	RN-MPC-1810	PC board, fader (No parts mounted)	1	
31	RN-MPM-2947	PC board, display (No parts mounted)	1	
32	RN-MPM-2945	PC board, main (No parts mounted)	1	
33	RN-MPM-2946	PC board, AF (No parts mounted)	1	
34	RN-EJZ-1175	Contact rubber	1	
35	RN-MST-1105	Spacer	3	
36	RN-MPM-2816	PC board, flexible	1	
37	RN-MIP-1409	Insulator	1	
40	RN-MET-168	Special screw, 3×6mm	7	
41	RN-MET-202	Special screw, 3×6mm	4	
42	RN-MET-1236	Special screw, 3×8mm	1	
43	RN-MET-1235	Special screw, 2×8mm	1	
44	F6-SBD-2×10S	Screw, 2×10mm	2	
45	F6-SBD-2.6×3S	Screw, 2.6×3mm	4	
46	F6-SBD-3×10S	Screw, 3×10mm	2	
47	F6-SBD-3×4S	Screw, 3×4mm	4	
48	———	Nut, Included in variable resistor	—	
50	RN-MET-149	Screw, 3×6mm	3	
51	RN-MAW-A3S	Washer, 3mm	3	

CASSETTE DECK UNIT (MDK-54/11A)

SM-562
〔CE-5232EX1〕

Illus. No. (Fig. 14)	Stock No.	Description	Q'ty	Re-mark
1	RN-MAS-1058	Chassis main	1	
2	RN-MUL-1150	Lever	1	
3	RN-MYT-1187	Sub-chassis	1	
4	RN-MYT-1188	Sub-chassis	1	
5	RN-MHE-1207	Holder	1	
6	RN-MKI-1008B	Slide plate assembly	1	
7	RN-MUL-1151	Lever	1	
9	RN-MHL-1023	Holder	1	
10	RN-MUL-1132	Lever	1	
11	RN-MUL-1152	Lever	1	
12	RN-MKS-1021	Slip mechanism	2	○
13	RN-MKR-1026	Pinchroller assembly	1	
14	RN-MKR-1027	Pinchroller assembly	1	
15	RN-MUL-1153	Lever	1	
16	RN-MUL-1154	Lever	1	
17	RN-MUB-1024	Belt	1	○
18	RN-MUF-1008	Flywheel	2	
19	RN-MUG-1049	Gear	2	
20	RN-MUG-1050	Gear	1	
21	RN-MUC-1005	Cum	1	
22	RN-MUL-1145	Lever	1	
23	RN-MRP-1055	Roller	1	
24	RN-MRP-1056	Roller	1	
25	RN-MUL-1156	Lever	1	
26	RN-MUL-1138	Lever	1	
27	RN-MUL-1139	Lever	1	
28	RN-MUL-1140	Lever	1	
29	RN-MUL-1141	Lever	1	
30	RN-MUL-1127A	Lever	1	
31	RN-MYT-1038	Sub-chassis	1	
32	RN-MSP-1017A	Spring	1	
33	RN-MRP-1057	Roller	1	
34	RN-MEN-1022	Special nut	1	
35	RN-MSI-1035	Shaft	1	
37	RN-MRP-1044	Roller	1	
38	RN-MRP-1094	Roller	1	
41	RN-MUL-1128	Lever	1	
42	RN-MSW-1002	Spring	1	
43	RN-MSW-1004	Spring	1	
44	RN-MSC-1130	Spring	2	
46	RN-MSC-1132A	Spring	1	
47	RN-MSC-1133	Spring	2	
48	RN-MSC-1134	Spring	1	
49	RN-MSC-1135	Spring	1	

Illus. No. (Fig. 14)	Stock No.	Description	Q'ty	Re-mark
50	RN-MSC-1152	Spring	1	
51	RN-MSC-1153	Spring	1	
52	RN-MSC-1154	Spring	1	
55	RN-MSP-1020	Spring	2	
57	RN-MSC-1157	Spring	2	
59	RN-MSC-1158	Spring	1	
62	F6-SBD-1.7×4S	Screw, 1.7×4mm	1	
63	F6-SBD-2×3S	Screw, 2×3mm	1	
64	RN-MET-1207	Spcial screw	1	
65	F6-SBD-3×6S	Screw, 3×6mm	1	
66	F6-SW4NA-3×4S	Screw, 3×4mm	1	
67	F6-SNA-2.6×3S	Screw, 2.6×3mm	11	
70	F6-ER-1.2SUS	E-type ring, 1.2mm	1	
71	RN-MHJ-1003	E-type ring, 3mm	7	
72	F6-ER-2SUS	E-type ring, 2mm	1	
73	F6-ER-2.5SUS	E-type ring, 2.5mm	6	
76	F6-WK-3S	Washer	1	
77	F6-WK-2.6S	Washer	1	
78	RN-MWS-1013	Washer	1	
80	RN-MWP-1043	Washer	2	
81	RN-MWP-1044	Washer	1	
83	RN-MWP-1029	Washer	6	
85	RN-MWP-1033	Washer	1	
87	RN-MWP-1041	Washer	3	
91	RN-MIT-1005	Insulator	1	
92	RN-MST-133	Spacer	1	
93	RN-MCF-1018	Clamp	1	
E 1(94)	RN-EEM-1011A	Plunger solenoid	1	
S15(95)	RN-ESL-1017	Leaf switch	1	○
M 1(96)	RN-EDM-1037	DC motor	1	○
S13(98)	RN-ESL-1016	Leaf switch	1	○
201	RN-MPM-2816	PC Board, head	1	
202	RN-MPM-2838	PC Board	1	
A1(203)	RN-EHM-C44-65	P.B. head	1	○

NOTE : Specifications subject to change without prior notice.

SCHEMATIC

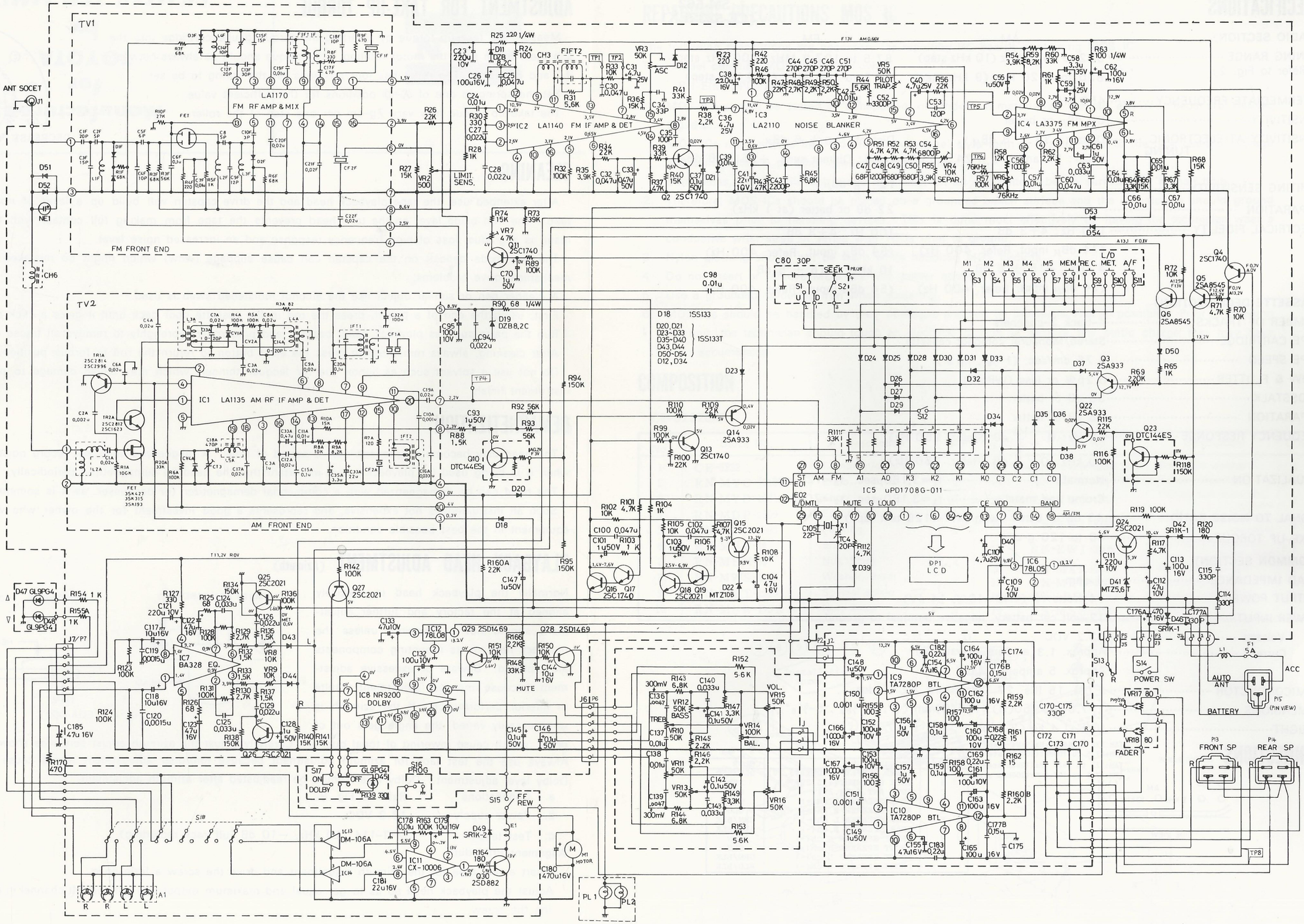


Fig. 5

NOTES: 1. All capacitance in Micro farad, $P=10^{-12}$

2. All resistance in ohm, $K=10^{3}$

3. All inductance in henly, $m=10^{-3}$, $\mu=10^{-6}$

4. DC voltage against the chassis measured with 100k ohm/volt meter, power supply set at +13.4 VDC, no signal input.

WIRING ON PC BOARDS

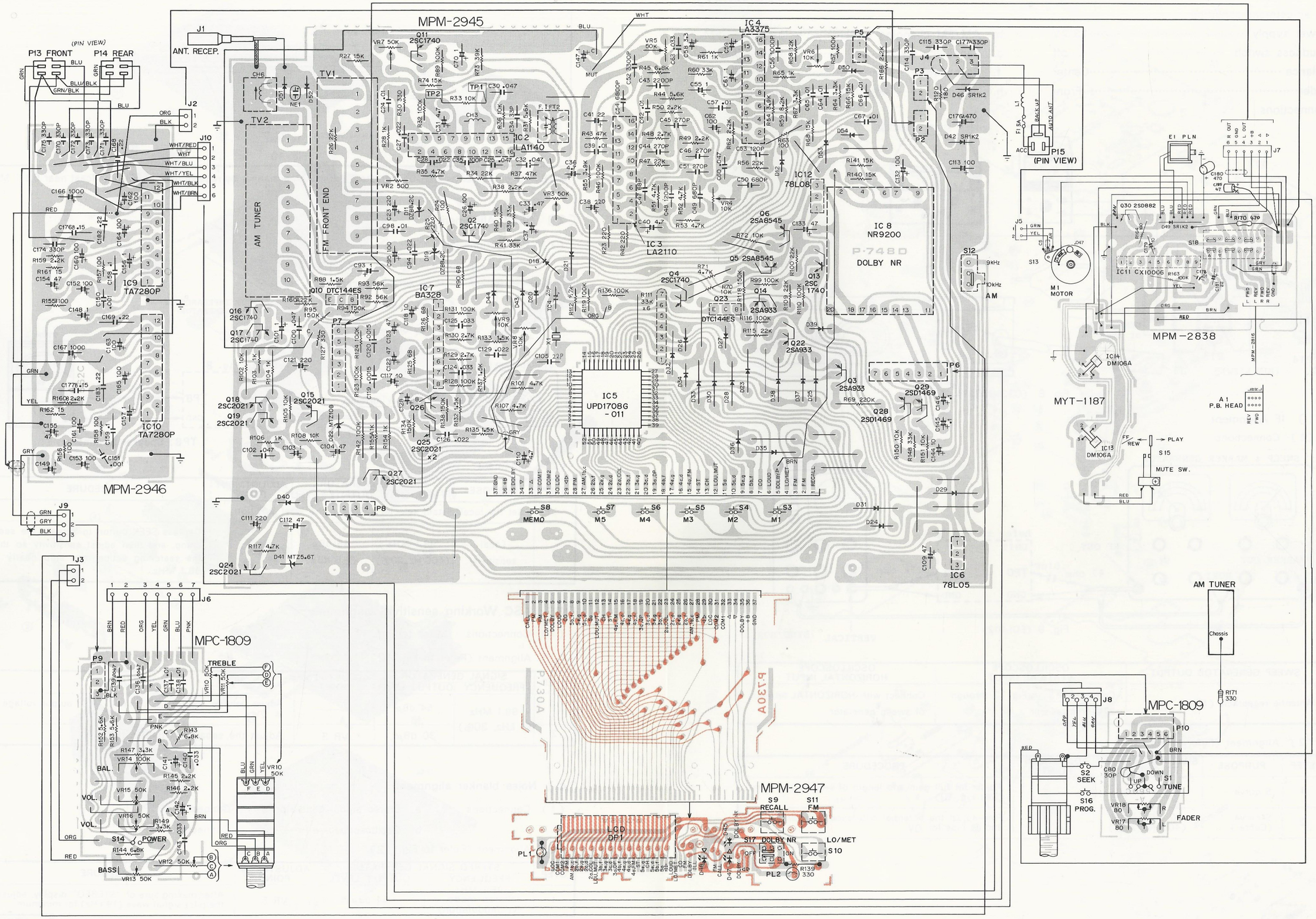


Fig. 6 (C27190232)