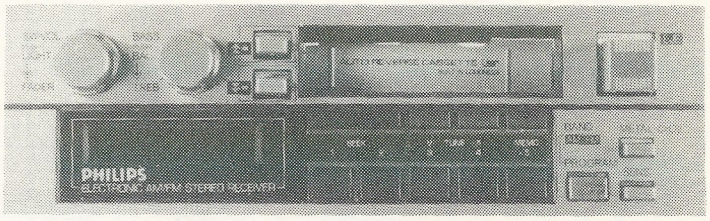
Car Radio Cassette Player CS883A

Service
Service
Service



Service Manual

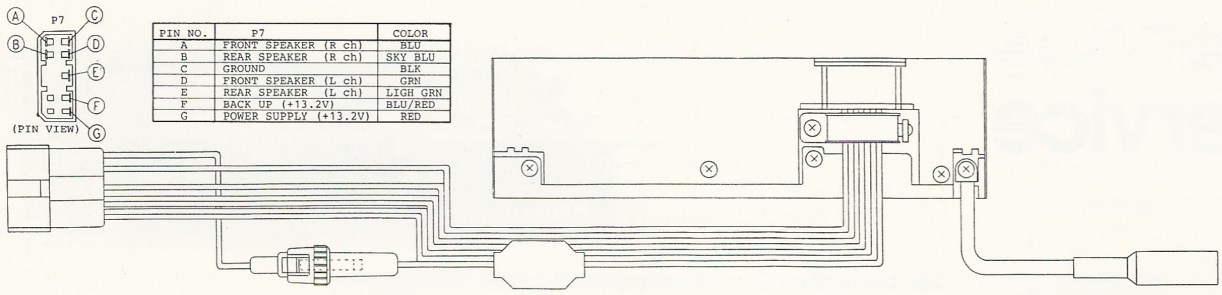
SPECIFICATIONS

RADIO SECTION	AM	FM
Tuning Range:	531 to 1611 kHz (9 kHz step)	88.1 to 107.9 MHz (.1 MHz step)
Intermediate Frequency:	450 kHz	10.7 Mhz
Sensitivity:	35dBμ or better (1.4V output)	
Sensitivity at Electronic Tuning:	Distant: 32 ± 6 dBμ Local: "Distant" plus 25 ± 6 dBμ	Distant: 20 ± 6 dBμ Local: "Distant" plus 25 ± 6 dBμ
Speaker Impedance:	4 ohm per channel	
Power Output:	2.5 watts x 2 (THD = 10%)	
Power Input:	12V car battery, negative terminal to ground	
Voltage	13.2VDC	
Current	Approx. 1 ampere (0.5 watt x 4) Approx. 3 amperes (Max.)	
Semiconductor:	1 LSI, 18 ICs, 30 Transistors, 5 FETs, 46 Diodes	
Dimensions:	180 (W) x 55 (H) x 162 (D)mm (7-5/64", 2-11/64", 6-3/8")	
Weight:	Unit – 1.6kg (3.5lbs.)	

Subject to modification
4802 725 17129
Printed in Australia

PHILIPS

DETAILS OF CONNECTOR



PIN NO.	P7	COLOR
A	FRONT SPEAKER (R ch)	BLU
B	REAR SPEAKER (R ch)	SKY BLU
C	GROUND	BLK
D	FRONT SPEAKER (L ch)	GRN
E	REAR SPEAKER (L ch)	LIGH GRN
F	BACK UP (+13.2V)	BLU/RED
G	POWER SUPPLY (+13.2V)	RED

Fig. 1 (C23190135)

DISASSEMBLING PROCEDURE

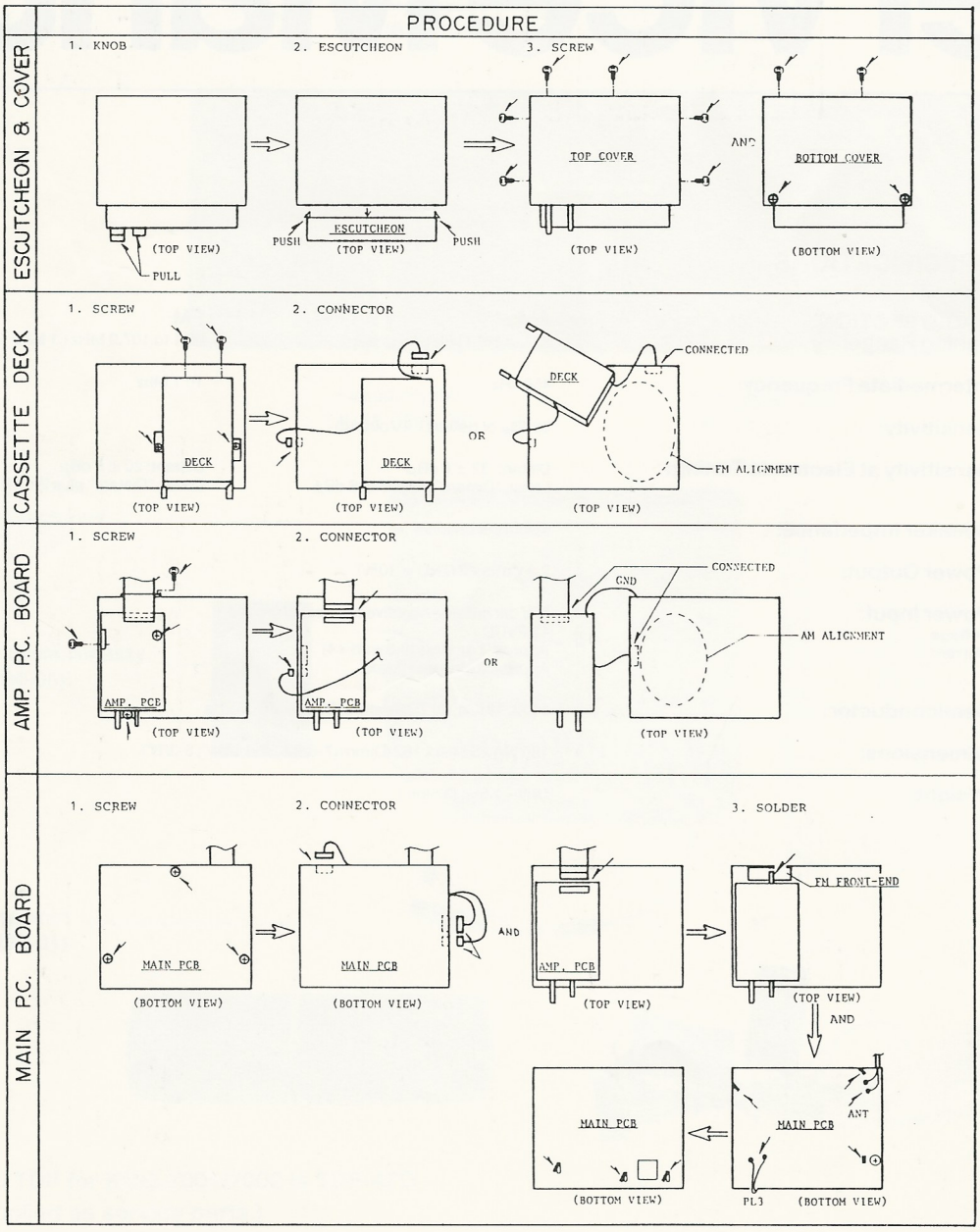


Fig. 2

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, 1611 kHz

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

Standard alignment condition

a. Power supply·····13.2V
b. AM/FM Changing switch·····AM
c. Sensitivity switch·····Distant
d. Balance, bass and treble control·····Center
e. Fader control·····front
f. Volume control·····Adjust to get 1.4V output level.
g. Connections

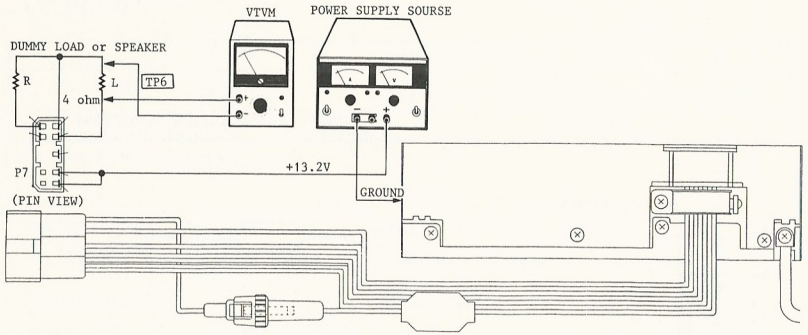


Fig. 8 (C33190135)

〔1〕 IF Alignment

(1) Connections

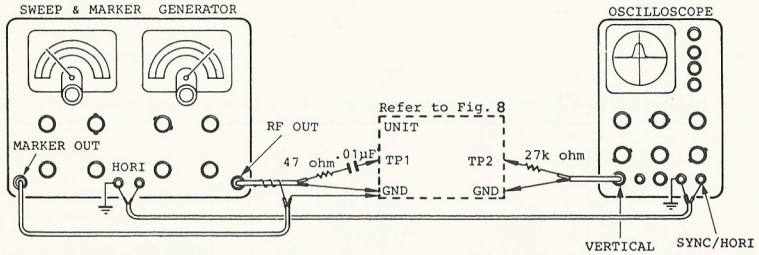


Fig. 9 (EOI-011)

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Antenna receptacle (JO)	Connect TP 2 in Fig. 15 through 27k-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

(2) Alignment (Refer to Fig. 15)

STEP	SWEEP GENERATOR MARKER	SWEEP GENERATOR OUTPUT LEVEL	ADJUSTMENT POINTS	PROCEDURE
1	450 kHz	Minimum	T 4	Get maximum IF curve and best symmetry on both sides.
2			T 5	
3	Repeat STEP 1 to 2 until no further gain in output can be obtained.			

〔2〕 Tuning bias and tracking alignment

(1) Connections

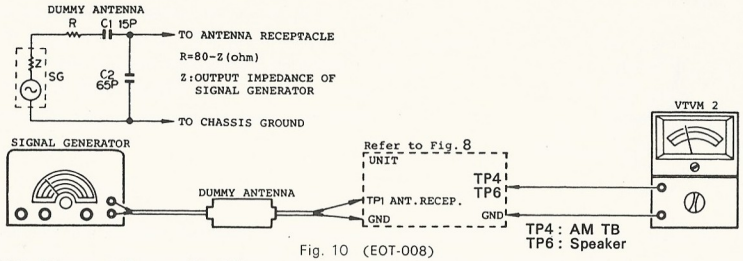


Fig. 10 (EOT-008)

(2) Alignment (Refer to Fig. 15)

STEP	PURPOSE	SIGNAL GENERATOR FREQUENCY	FREQ. DISPLAY OF UNIT	ADJUSTMENT POINTS	PROCEDURE
1	Tuning bias range	———	1611 kHz	CV 1 (OSC)	Adjust AM tuning bias for 7.3V.
2		———	531 kHz	T 6 (OSC)	Adjust AM tuning bias for 1.4V.
3	Repeat Steps 1 and 2 for alignment to stably obtain 1.4±.05V at 531 kHz and 7.3±.1V at 1611 kHz as bias.				
4	Tracking	603 kHz (400 Hz, 30%, AM)	603 kHz	T 2, T 3 (ANT, RF)	Adjust output voltage (TP6) for maximum. (See Fig. 8)
5		1404 kHz (400 Hz, 30%, AM)	1404 kHz	CV2, CV3 (ANT, RF)	
6	Repeat steps 4 and 6.				

〔3〕 SEEK Alignment

(1) Connections Refer to Fig. 10 Signal generator·····connect the TP 1

(2) Alignment (Refer to Fig. 15) VTVM2 ·····No used

STEP	PURPOSE	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINTS	PROCEDURE
1	Set the local/distant selector switch in the distant position.				
2	Distant sensitivity	999 kHz (400Hz, 30% AM)	32 dBμ (±6 dBμ)	RV 6	Depress SEEK button to start searching, and then adjust sensitivity so that the search tuning may stop right near 999 kHz.

FM ALIGNMENT

* Standard alignment Condition

FM alignment should be the same as in AM standard alignment condition, (AM/FM selector switch is, however, in FM position.)

NOTE: Since the electronic tuner unit is employed at FM front end section, no tracking and receiving frequency range alignment are required.

〔1〕 IF Alignment

(1) Connections

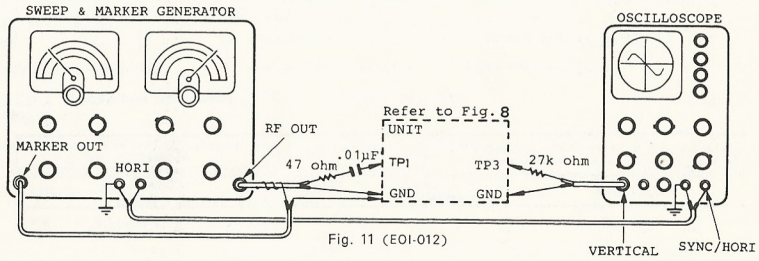


Fig. 11 (EOI-012)

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Antenna receptacle (J1)	Connect TP 3 in Fig. 15 through 27K-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

(2) Alignment (Refer to Fig. 15)

STEP	PURPOSE	SWEEP GENERATOR FREQUENCY	ADJUSTMENT POINTS	PROCEDURE
1	S curve	10.7 MHz	T 100	Adjust for full gain and length of s-curve at linears. (See Fig. 13)
2	S curve (Center)	SG 10.7 MHz (400 Hz, 30%)	T 1	Fine-adjust the potential difference between IC 1 ⑦ and ⑱ pins for OV.

COLOR	CENTER FREQUENCY
Red	10.70 MHz ± 30 kHz

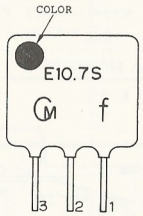


Fig. 12

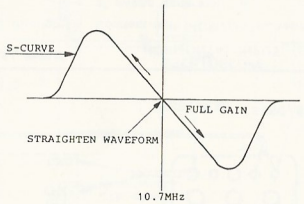


Fig. 13

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

[2] Limiting sensitivity alignment

(1) Connections

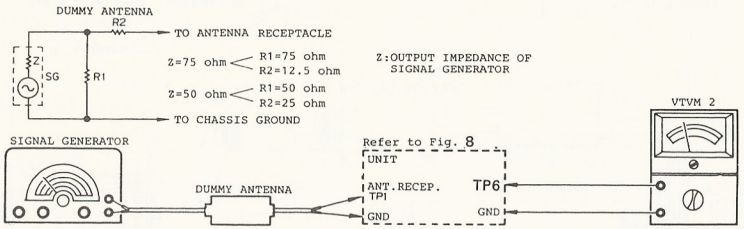


Fig. 14 (EOT-009)

TP6 : Speaker terminal

(2) Alignment (Refer to Fig. 15)

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 1.4V.
2		10±6 dBμ	RV 1	Adjust output voltage for −3 dB (1V).

[3] SEEK Alignment

(1) Connections Refer to Fig. 14

(2) Alignment (Refer to Fig. 15)

STEP	PURPOSE	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	Set the local/distant selector switch in the distant position.				
2	Distant sensitivity	98.1 MHz (400Hz, 30%)	20±6 dBμ	RV 2	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. 15)

STEP	STEREO SIGNAL GENERATOR FREQUENCY	STEREO SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (No modulation, Stereo mode)	54 dBμ	L 3	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. 15)

STEP	STEREO SIGNAL GENERATOR FREQUENCY	STEREO SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz (R-ch : 1 kHz, 30% L-ch : no modulation)	74 dBμ	RV 3	Adjust R-ch. output level for minimum.

[6] ASC Working sensitivity alignment

(1) Connections Same as separation alignment

(2) Alignment (Refer to Fig. 15)

STEP	SIGNAL GENERATOR FREQUENCY	SIGNAL GENERATOR OUTPUT LEVEL	ADJUSTMENT POINT	PROCEDURE
1	98.1 MHz	74 dBμ	———	Adjust volume control until the output voltage is 1.4V.
2	(1 kHz, 30%, ST)	35 dBμ	RV 4	Adjust the separation for 10 dB.

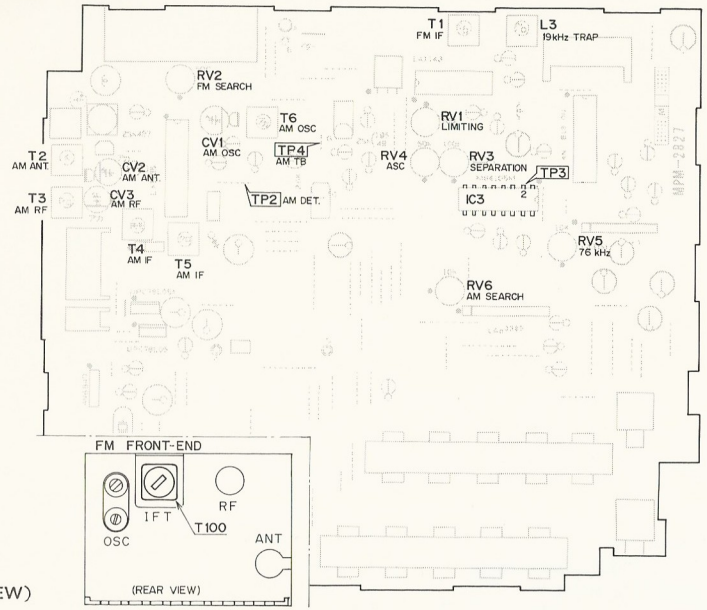
[7] Free running frequency alignment

(1) Connections a. Frequency counter·····Connect the TP 5

(2) Aligement (Refer to Fig. 15)

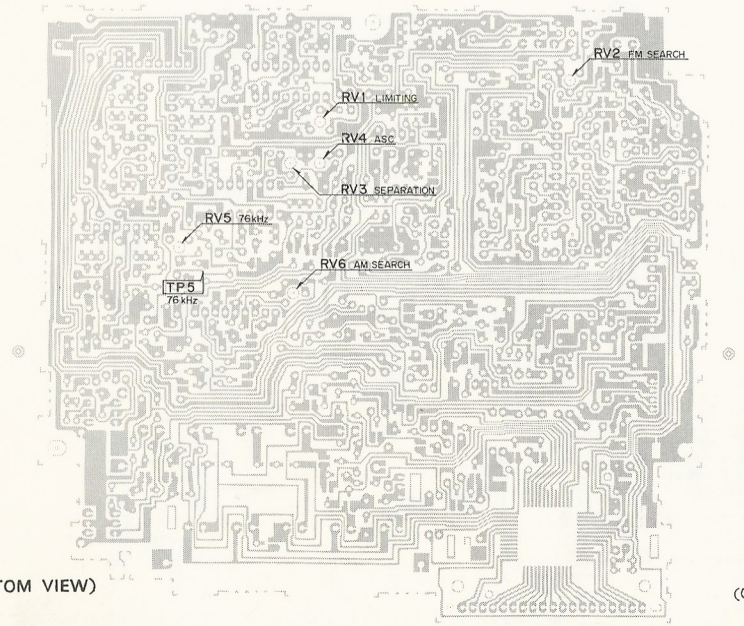
STEP	ADJUSTMENT POINT	PROCEDURE
1	RV 5	Adjust the free running frequency for 76 kHz (±100 Hz).

ADJUSTMENT POINTS



(TOP VIEW)

Fig. 15-1
(C33190135)



(BOTTOM VIEW)

Fig. 15-2
(C33190135)

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.

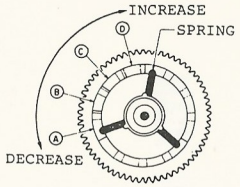


Fig. 16

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. 17. 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.

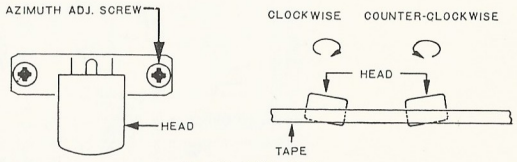


Fig. 17 (EOA-002)

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.

POWER AMP PC BOARD

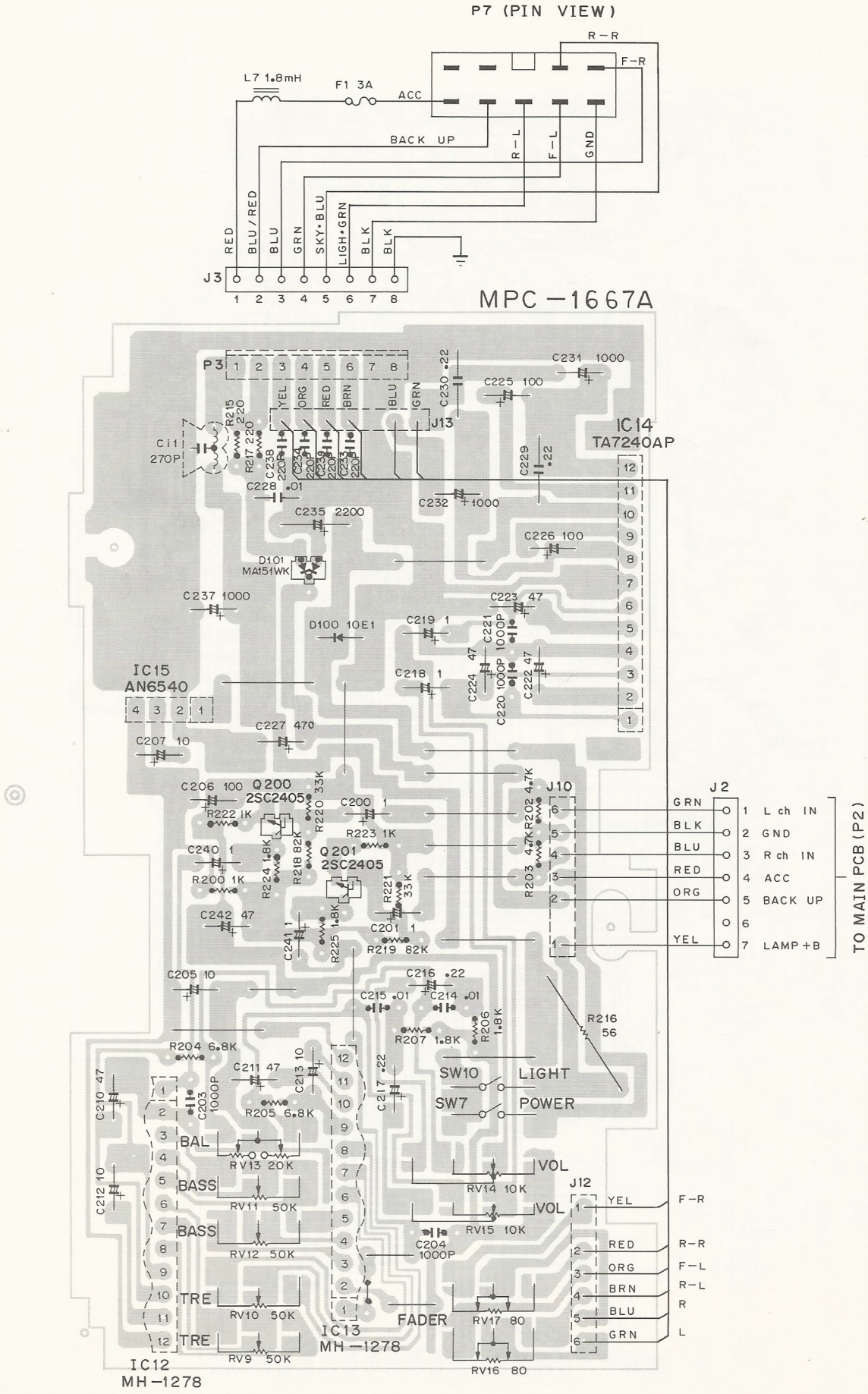


Fig. 5 (C27190135)

CASSETTE DECK PC BOARDS

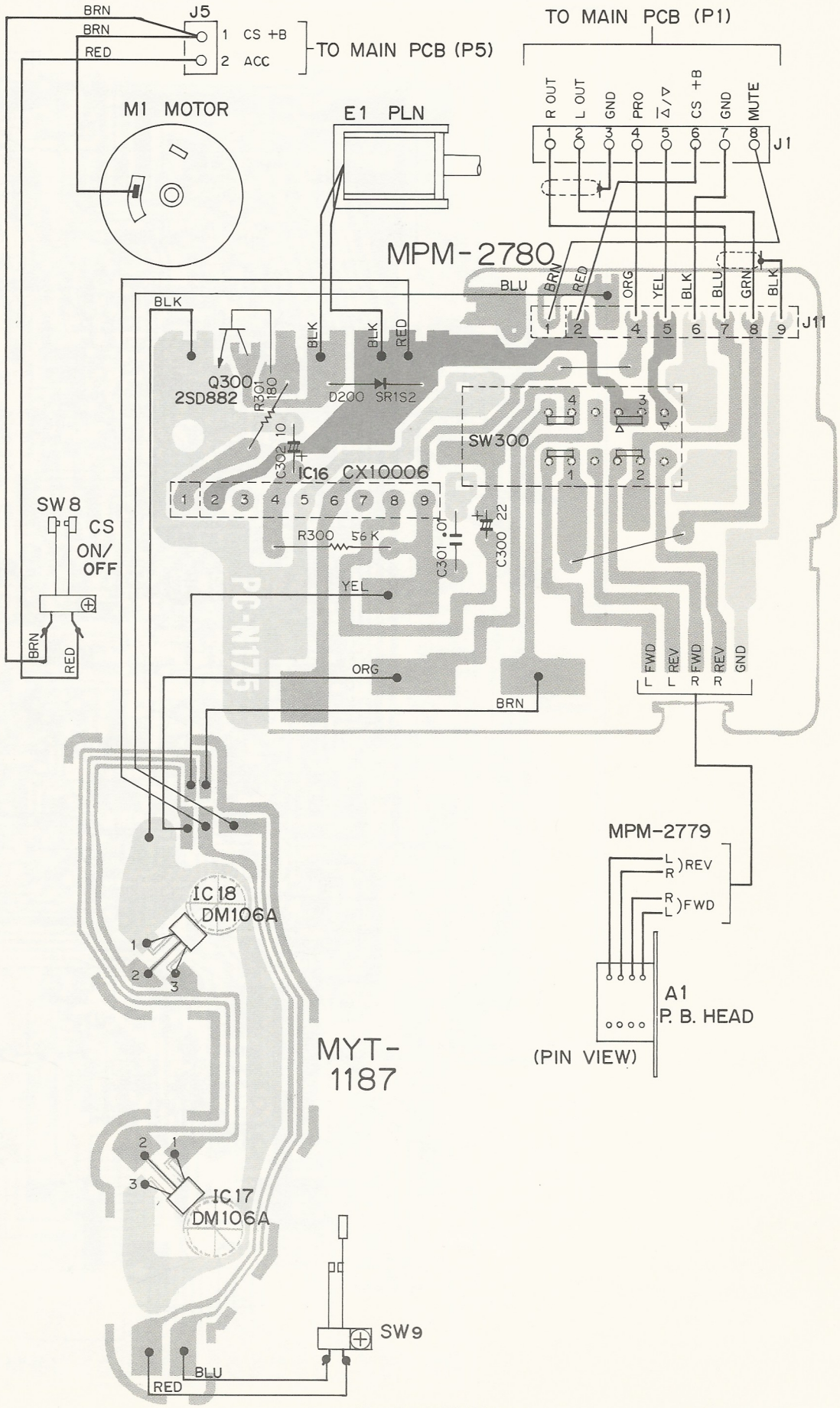


Fig. 6 (C27190131)

EXPLODED VIEW (CASSETTE DECK) MDK-64/2

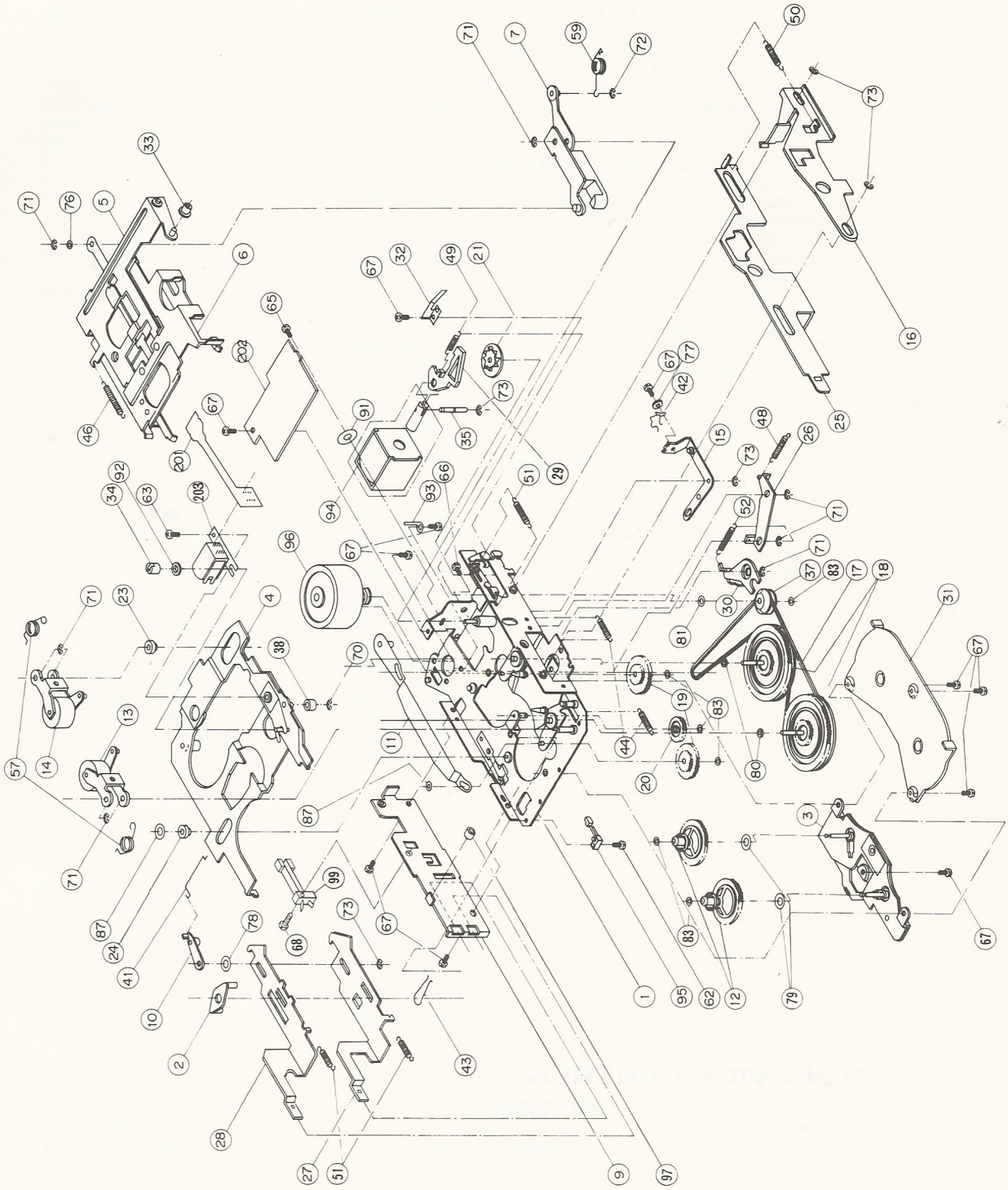


Fig. 19 (C28190131)

EXPLODED VIEW

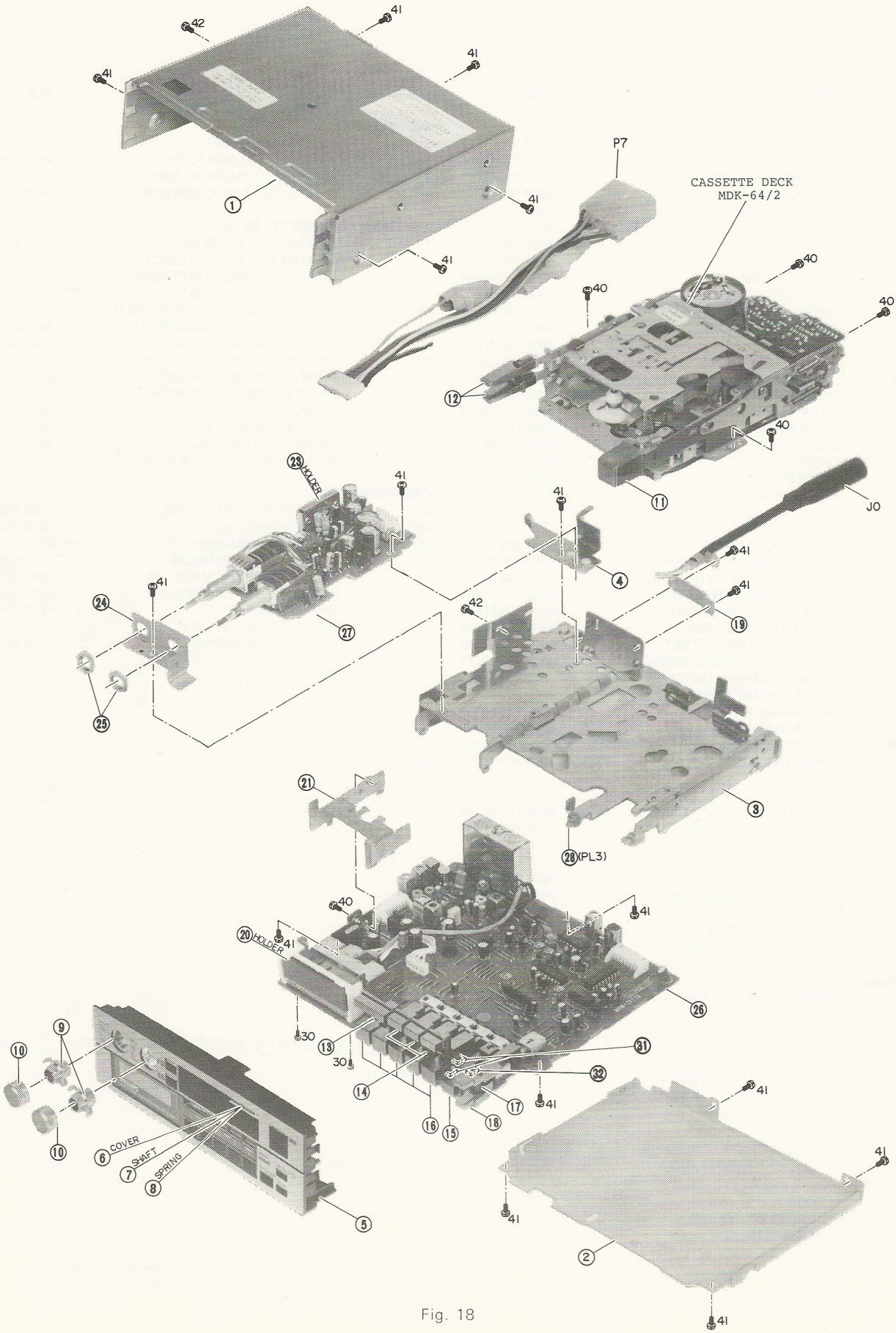


Fig. 18

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

LOCATION	PART	CODE
TRANSISTOR		
Q1	TRSTR 2SC3053C	4802 130 47542
Q10	TRSTR 2SJ106 FET	4802 130 47969
Q14	TRSTR 2SK195-F FET	4802 130 47971
Q15	TRSTR 2SK49-F FET	4802 130 47541
Q18	TRSTR 2SB815-67	4802 130 47975
Q200	TRSTR 2SC2405	4802 130 47543
Q22	TRSTR 2SB970	4802 130 47976
Q23	TRSTR 2SA1235	4802 130 47973
Q26	TRSTR 2SB709	4802 130 47544
Q27	TRSTR 2SD1328	4802 130 47978
Q300	TRSTR 2SD882 (USE BD437)	4822 130 40982
Q4	TRSTR 2SC3052	4802 130 47977
Q9	TRSTR 2SK427-RST	4802 130 47972
DIODE		
D1	DIODE MA 151K	4822 130 31742
D100	DIODE 10E1	4822 130 30684
D14	DOIDE MA151A	4802 130 37774
D2	DIODE 1S446	4822 130 30191
D200	DIODE SR1K2	4822 130 31127
D3	DIODE SVC321	4802 130 37457
D6/D101	DIODE MA151WK	4822 130 31742
I.C'S		
IC1	I.C...LA1143 FM IF AMP	4802 209 17002
IC10	I.C...UPD1708G-527 TUNER	4802 209 87158
IC11	I.C...NR-9200 DOLBY NR PROC	4802 209 87157
IC12	I.C...MH-1278A TONE CONTROL	4802 209 87461
IC14	I.C...TA7240AP POWER AMP	4802 209 87822
IC16	I.C...CX10006 AUTO REV	4802 209 87156
IC17	I.C...DM106A TAPE ENT DET	4802 209 87153
IC2	I.C...AN6130N NOISE BLANKER	4802 209 87471
IC3	I.C...MB4105M MPX DECODER	4802 209 17003
IC4	I.C...LA1135 AM TUNER	4802 209 87154
IC5	I.C...LA6358S IF TRIGGER	4802 209 87155
IC6	I.C...AN 6540 VOLTAGE REG	4802 209 87559
IC7/IC8	I.C...UPC78L05 VOLTAGE REG	4802 209 87303
IC9	I.C...LA3161 EQUALIZER AMP	4802 209 87658
CONTROLS		
RV14	80 OHM FADER 10K VOLUME	4802 102 37184
RV9	50K BASS/TREB 20K BAL	4802 102 37183
SWITCH		
SW-1	RN-ESB-1N1-191 PUSH SW	4802 276 17271
SW-4	RN-ESB-2L2-183 PUSH SW	4802 276 17272
SW-8	RN-ESL-1032 LEAF SW	4802 278 97121
SW-9	RN-ESL-1017 LEAF SW	4802 278 97082
SW300	RN-ESS-42-187 SLIDE SW	4802 277 37063
SOLENOID		
E1	SOLENOID RN-EEM-1036	4802 281 57043
FILTER		
F1	RN-MLF-1121 FILTER	4802 242 77272

LOCATION	PART	CODE
MISCELLANEOUS		
PL-3	RN-EPM-1149 LAMP ASSY	4802 134 47232
PL1	RN-EPM-1150 LAMP ASSY	4802 134 47233
TV1	RN-ETV-1014 FM FRONT END	4802 210 17155
VE1	RN-EVE-1004A-MPC02TN LCD	4802 130 37775
MECHANICAL CASSETTE DECK		
10	RN-MYC-1045 KNOB VOL/BAL	4802 411 27278
11	RN-MYB-1557 BUTTON EJECT	4802 411 27269
12	RN-MYB-1558 BUTTON FF/REW	4802 411 27271
13	RN-MYB-1631 BUTTON SEEK	4802 411 27275
14	RN-MYB-1632 BUTTON TUNE/MEM	4802 411 27276
15	RN-MYB-1561 BUTTON AM/FM PR	4802 411 27272
16	RN-MYB-1633 BUTTON SET	4802 411 27277
17	RN-MYB-1564 BUTTON LO/DX	4802 411 27274
18	RN-MYB-1563 BUTTON METAL	4802 411 27273
5	RN-MDP-1399 ESCUTCHEON	4802 460 17065
6	RN-MCV-1499 DOOR	4802 464 77147
7	RN-MSI-1054 SHAFT	4802 535 97353
8	RN-MSC-1201 SPRING	4802 492 37686
9	RN-MYD-1067 KNOB TRE/FADER	4802 412 17156
CASSETTE DECK		
A1	HEAD R/P RN-EHM-C 44-65	4802 249 37031
DK1	RN-MDK-64/2 CASS DECK	4802 691 37127
M1	MOTOR RN-EDM-1060 D-C	4802 361 27194
12	RN-MKS-1009 SLIP MECH.	4802 528 87269
13	RN-MKR-1026 PINCH ROLLER	4802 403 47151
14	RN-MKR-1027 PINCH ROLLER	4802 403 47149
17	RN-MUB-1024 BELT	4802 358 27036
18	RN-MUF-1008 FLYWHEEL	4802 528 67101
57	RN-MSC-1157 SPRING	4802 492 37526

MAIN PC BOARD

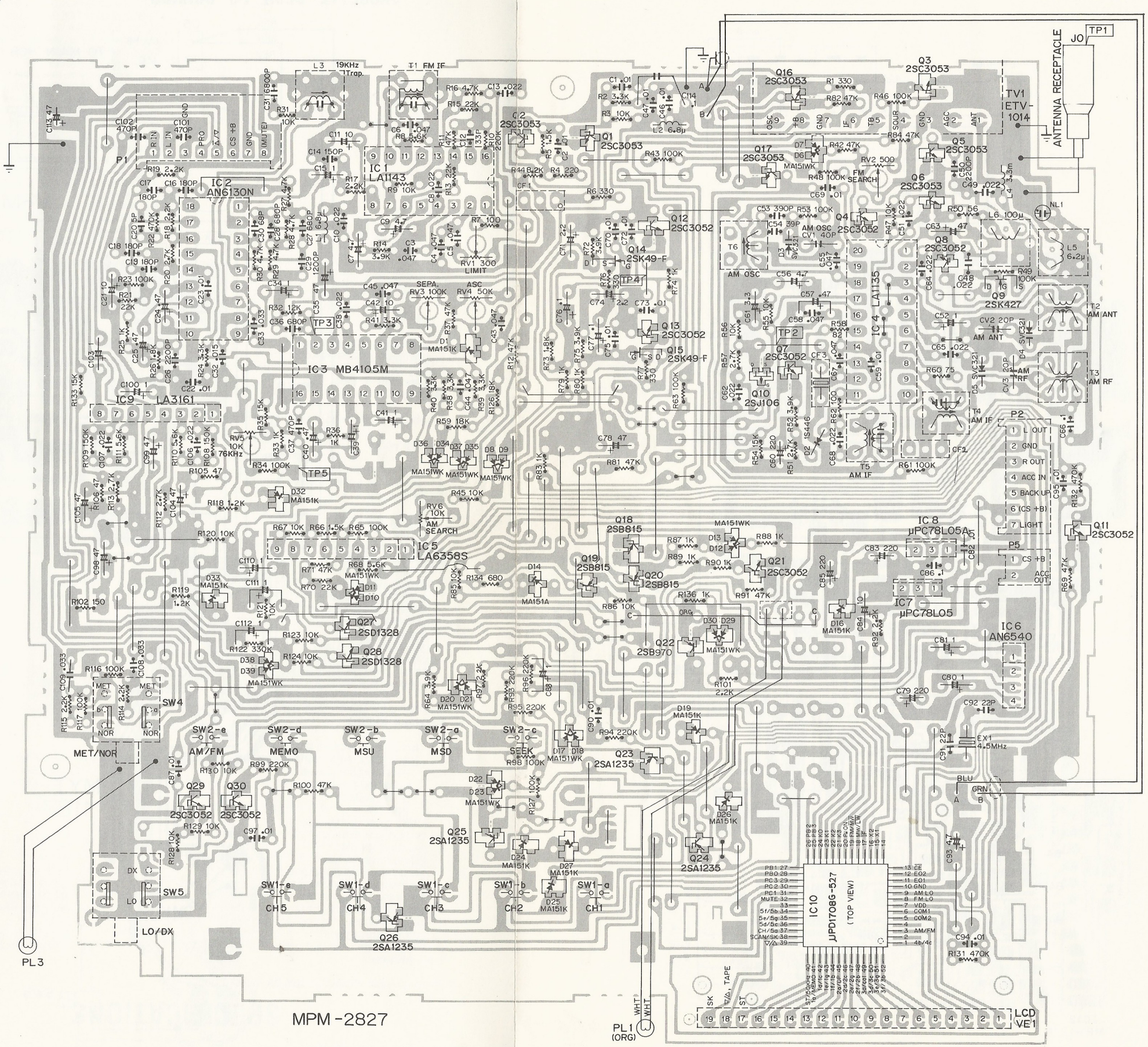
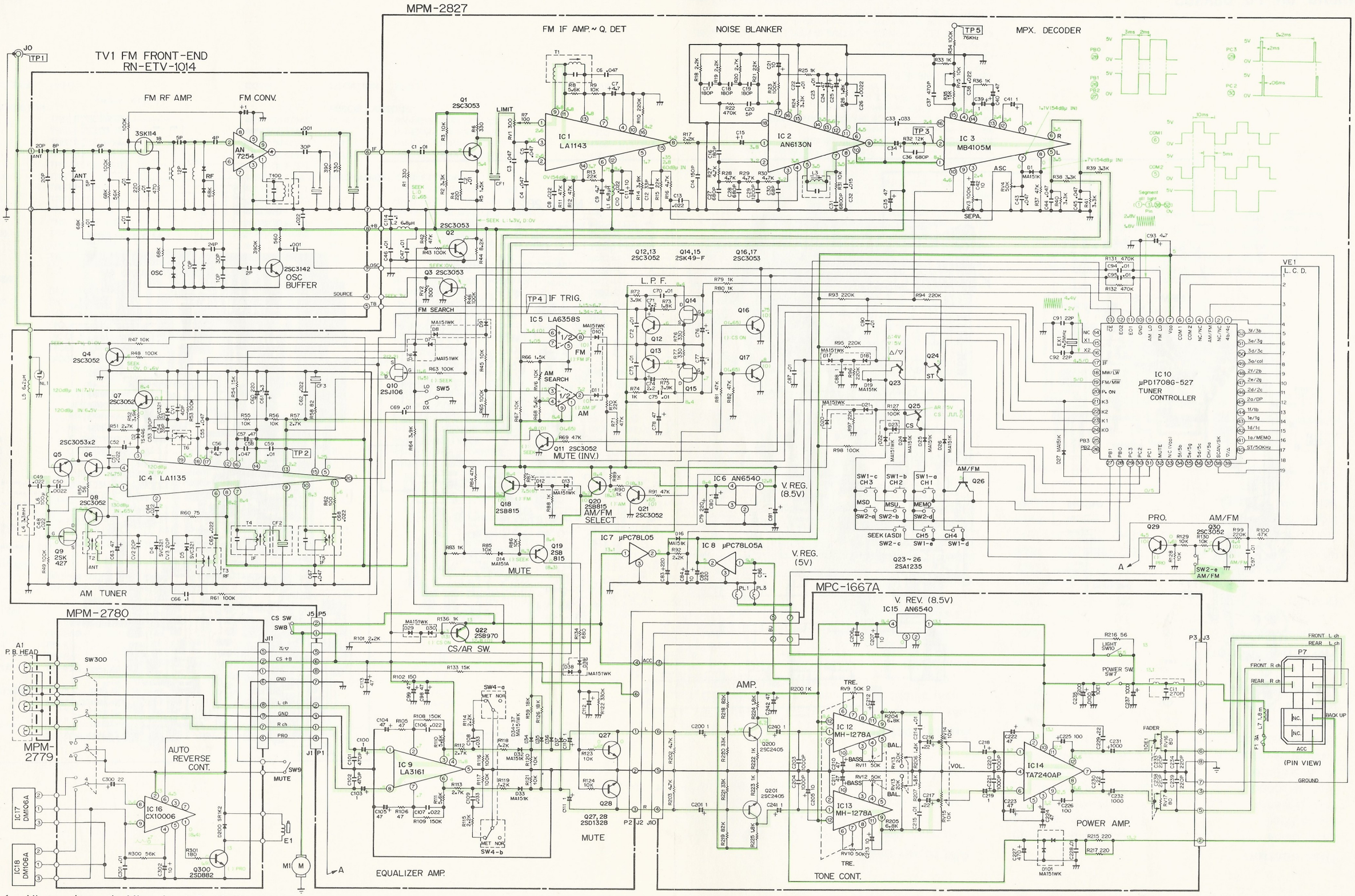


Fig. 7 (C27190135)

SCHEMATIC



NOTES:

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

Fig. 3 (C24190135)

4. DC voltage against the chassis measured with 100k ohm/volt meter, power supply set at +13.2 VDC, no signal input.
5. A red line and a red dotted feeble line show a power supply system flow and a signal system flow, respectively.

WIRING ON PC BOARDS

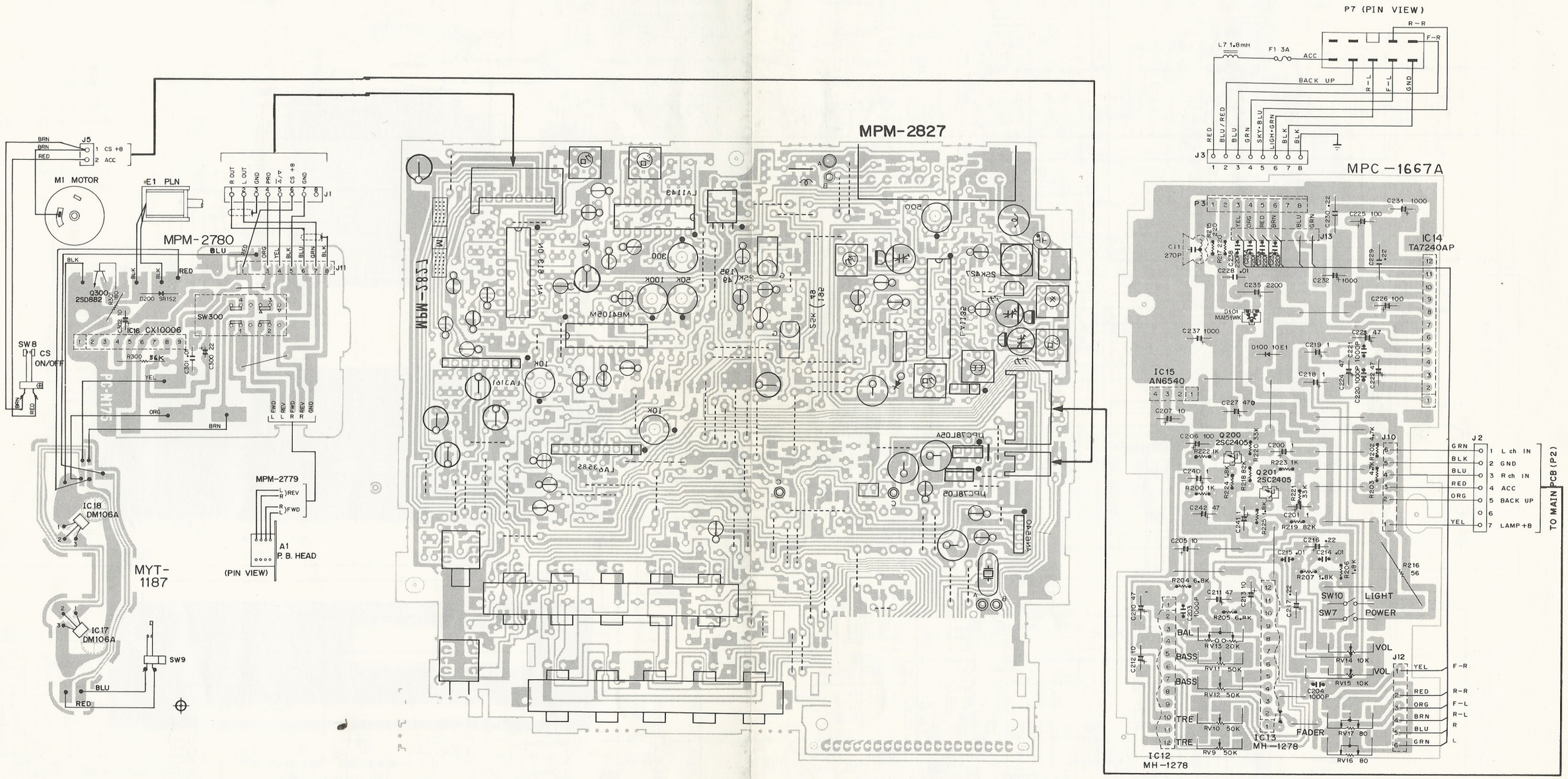


Fig. 4 (C27190135)