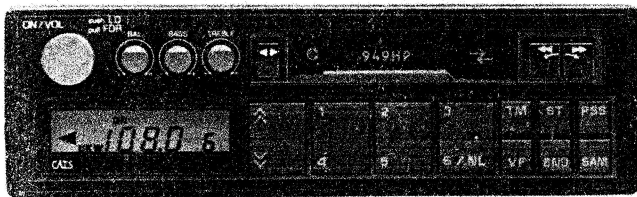




**Clarion Co., Ltd.**  
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# Service Manual



949HP



940HP

Model **949HP** (PE-9096A-A)  
**940HP** (PE-9097A-A)

## SPECIFICATIONS:

### Radio section

Circuit system: Superheterodyne  
 Tuning system: Electronic tuning  
 Receiving frequency: LW 153kHz to 281kHz  
 MW 531kHz to 1,602kHz  
 UKW(FM) 87.5MHz to 108MHz

Intermediate frequency:  
 LW, MW 459kHz  
 UKW(FM) 10.7MHz

### Tape section

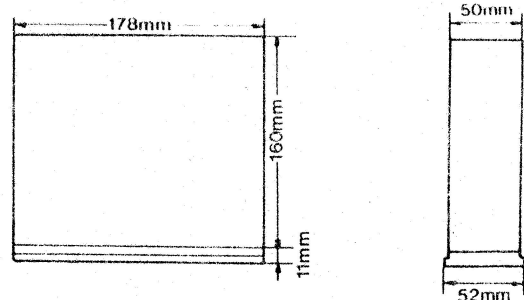
Reproduction system: Auto reversing  
 4 track, 2 channel stereo  
 cassette tape playback  
 (Monaural also capable)  
 Tape speed: 4.76cm/sec. (1 7/8 ips)

### Composite

Load impedance: 4Ω × 4  
 Power output: 18W × 2  
 (at 10% distortion TYP.)  
 More than 30W × 2

Power supply voltage: DC 14.4V(10.8V to 15.6V)  
 Negative ground  
 Power consumption: Less than 7A  
 (at max. output)

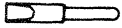


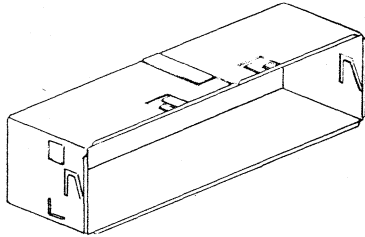
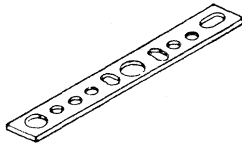
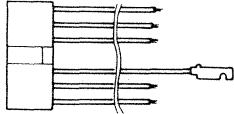
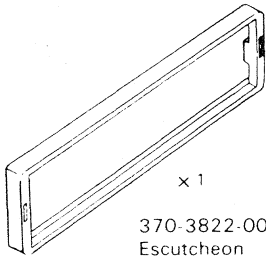
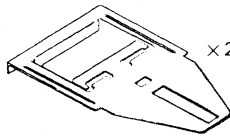
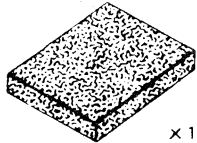




### Dimensions:



Weight: 1.6kg

## COMPONENTS VIEW:

- 949HP (PE-9096A-A)
- 940HP (PE-9097A-A)

Main unit	Parts bag	921-8203-00(only 949HP)	1
Mounting bracket 300-7110-00	 x4	 x4	 x4
	073-0649-00 Terminal	073-0650-00 Terminal	074-0804-00 Outlet socket
Mounting bracket 300-6954-00	Extension lead 852-9213-00(only 940HP)	1	
			
Parts bag 922-1396-00	Parts bag 921-8022-00	1	
	 x2	 x1	
x1 370-3822-00 Escutcheon	330-8216-00 Hook plate	345-2934-00 Cushion	
	 x1	 x1	 x1
	345-3653-01 Spacer	725-0181-00 Plate nut	700-5016-10 Tap screw
		 x1	
		722-0314-00 Nut	
	Lock pin 335-1360-00	1	

## FEATURES:

- MW/LW/UKW-MPX electronic tuning radio with auto reverse stereo cassette player (FF, REW lock).
- Provided radio traffic information (VF) system. (949HP)
- LD (Loudness).
- ARC-30 mechanism.
- NL (Noise Limiter)

## ADJUSTMENT:

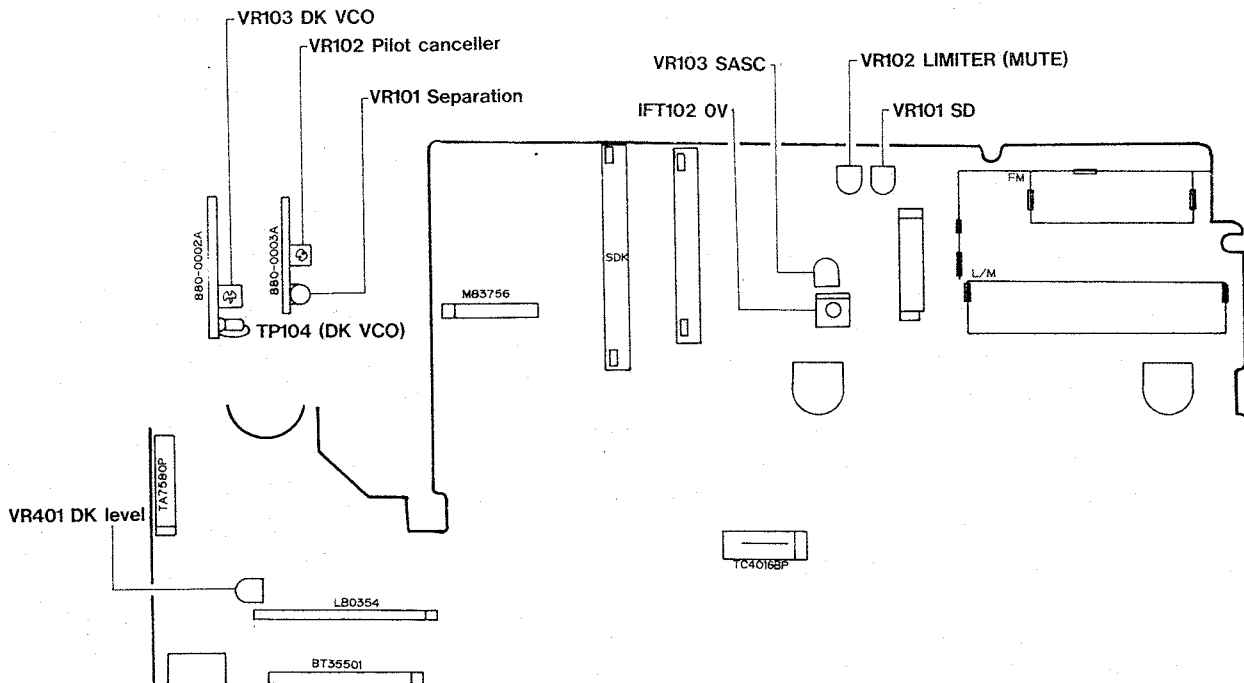
Adjustment item	Adjustment point	Procedure
0V fine adjustment	IFT102	<ol style="list-style-type: none"> <li>1. Tune 98.1MHz and input a 25dB non-modulated SSG signal.</li> <li>2. Connect a digital volt meter 0V TP.</li> <li>3. Adjust IFT102 so that the voltage is 0V.</li> <li>4. May adjust 0V by receiving weak broadcasting signal.</li> </ol>
Stop seek sensitivity	VR101	<ol style="list-style-type: none"> <li>1. Tune at 98.1MHz, input a 25dB non-modulated SSG signal.</li> <li>2. Adjust VR101 so that the voltage of SD TP is 5V.</li> </ol>
Limiter (MUTE)	VR102	<ol style="list-style-type: none"> <li>1. Tune at 98.1MHz, input 55dB SSG signal.</li> <li>2. Adjust VR to make the set output 0dB (2.45V).</li> <li>3. Reduce the output of SG 12dB.</li> <li>4. Adjust VR102 untill output level decrease to 3dB.</li> </ol>
SASC	VR103	<ol style="list-style-type: none"> <li>1. Tune at 98.1MHz, input an 65dB, 7kHz modulation frequency, 30% modulation degree SSG signal, and then turn on ST. SW.</li> <li>2. Adjust the output level of the volume controller to 0dBm (0.775V).</li> <li>3. Set the SSG output to 40dB and adjust VR103 so that the output level is -3dB</li> </ol>
MPX Separation	VR101 (880-0003A)	<ol style="list-style-type: none"> <li>1. Tune at 98.1MHz, connect the output of a stereo modulator to the external modulation terminal, and input a 65dB SSG signal.</li> <li>2. Set the stereo modulator to the L or R ch and adjust VR104 so that the maximum separation is obtained.</li> </ol>
Pilot canceller	VR102 (880-0003A)	<ol style="list-style-type: none"> <li>1. Tune at 98.1MHz, input a 55dB, modulation (PL 10%).</li> <li>2. Adjust VR105 so that output of the set is minimum.</li> </ol>
DK VCO (949HP)	VR103 (880-0002A)	<ol style="list-style-type: none"> <li>1. Tune at 98.1MHz 100% (Main + PL + DK + SK + BK) modulated SSG signal, and turn on VF. SW.</li> <li>2. Connect the frequency counter to TP and adjust VR106 so that the counter indicates 125Hz. In the case.</li> </ol>
DK level (949HP)	VR401	<ol style="list-style-type: none"> <li>1. Tune at 98.1MHz 10% modulated SSG signal, and turn on VF. SW.</li> <li>2. At the time of minimum sound volumè, adjust VR401 to make the speaker output 0.775V.</li> </ol>

**[NOTE]** After the adjustment of frequency range, be sure that:

- (1) Band edge frequency of LW shall be 148.5kHz - 20kHz
- (2) Band edge frequency of UKW shall be 87.5MHz + 100kHz - 160kHz

at low end. And shall be lower than 108.16MHz at upper end.

- SPECIFICATION -LIMIT- Quieting sensitivity: MW Less than 33dB (at 20dB S/N)  
LW Less than 40dB (at 20dB S/N)  
UKW Less than 12dB (at 30dB S/N)
- Stereo separation: UKW More than 20dB



## ■ ADJUSTMENTS: (TAPE MECHANISM)

### 1. Head Azimuth Adjustment (See Fig. 1)

○ Improper head azimuth is one of the causes which give rise to poor sound quality, crosstalk, etc. at the time of playback. If azimuth of the head is not proper, adjust as follows. However, to perform this adjustment, load the test tape and use the adjustment use screwdriver, inserting it through the hole in the lever mechanism (frame ass'y).

- 1) Play the test tape (315Hz, -10VU) and adjust the amplifier's volume control and balance control so that the output levels (gains of the playback system) of the left and right channels become equal.
- 2) Then play the test tape (8kHz, -10VU) and adjust the head azimuth adjusting screw so that the output level in both the forward and reverse directions of

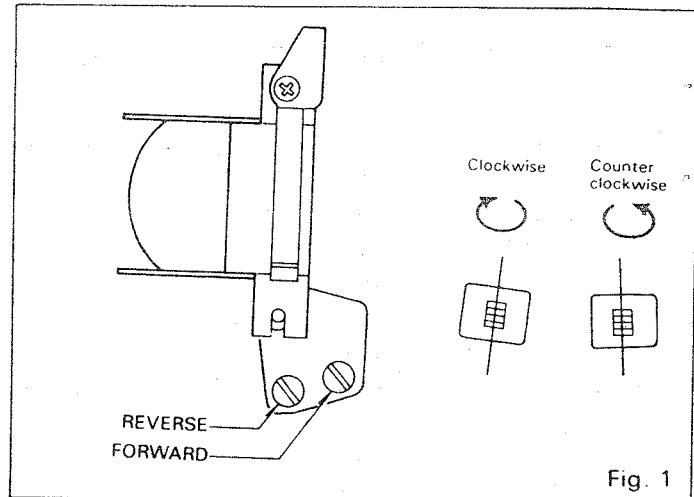


Fig. 1

play becomes close to the respective peak (maximum output level) point. Then lock the head azimuth adjusting screw.

### 2. Fast Forward, Rewind Gear Alignment

(See Fig. 2)

○ If the mechanism does not operate properly and abnormal sound (gear noise) is produced at the time of fast forward and rewind, first of all check whether the sound is produced during fast forward (FF) or rewinding (REW). If it is produced during FF, adjust by bending the claw (A) to the left or right with radio pliers, etc., and if it is produced during REW, adjust by bending the claw (B) in the same manner. Adjust so that the clearance at this time between the flywheel and FF. REW gear becomes about 0.1 to 0.2mm.

- 1) If the gear engagement is loose and the gears produce a large noise, bend the claw away from the center line.

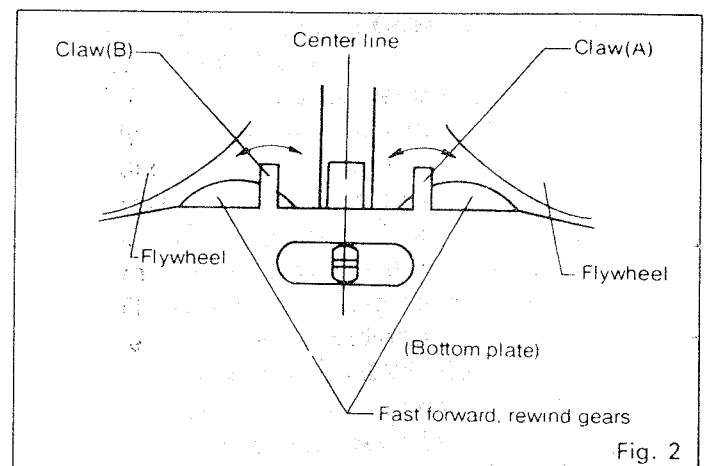


Fig. 2

- 2) If the gear engagement is too hard and there is no clearance between the gears, bend the claw toward the center line.

### 3. Adjustment of Power Switch (See Fig. 3)

○ If power does not turn on when pack is inserted (loaded), or if power does not turn off after ejecting the pack, and the underlying cause is found to be misadjustment of the power switch, adjust the switch at proper position by bending upward or downward the adjusting claw of the guide arm ass'y by means of radio pliers, etc. However, make sure that at the time of ejecting there is a clearance of at least 0.2mm to 0.3mm between the body of the switch and the switch lever.

- 1) If power does not turn on when loading pack, adjust by bending the adjusting claw downward.

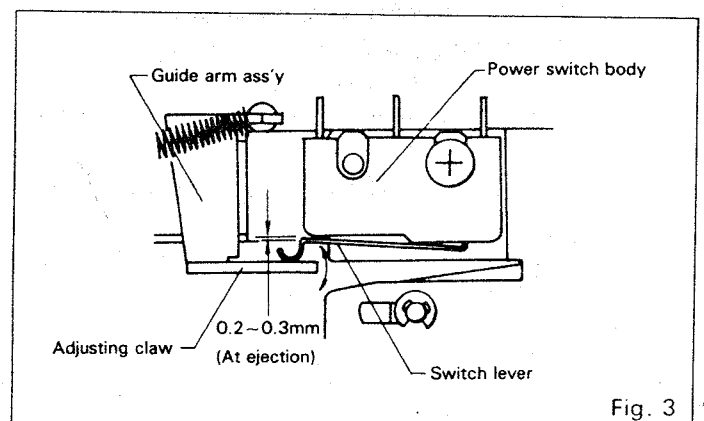


Fig. 3

- 2) If the gear engagement is too hard and there is no clearance between the gears, bend the claw toward the center line.

# EXPLANATION OF IC's:

LB0354 051-0619-00 LOUDNESS with MUTING

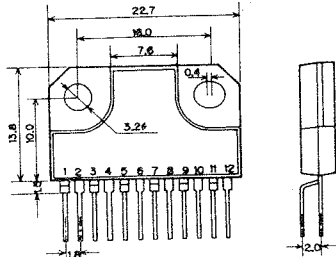
Refer to the description in Manual PE-9094A(959HX)

MB3756 051-0526-00 Constant-voltage Source

Refer to the description in Manual PE-9065A(E921)

TA7250BP 051-0748-00 23W BTL Power Amp.  
TA7251BP 051-0815-00

## OUTWARD FORM



## MAXIMUM RATINGS (Ta=25°C)

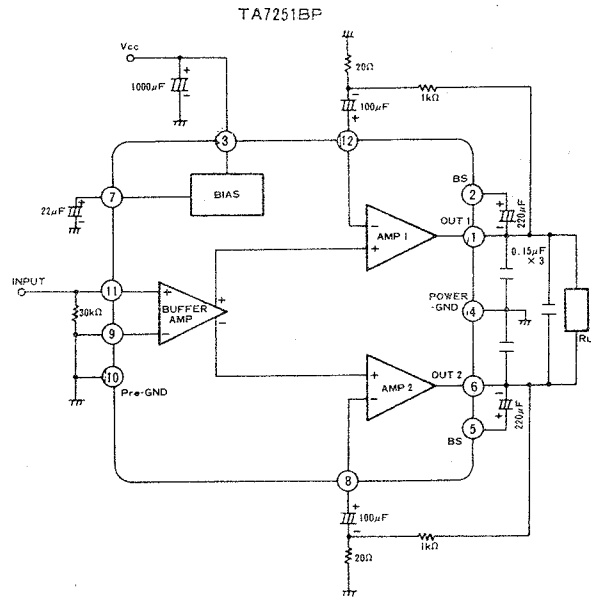
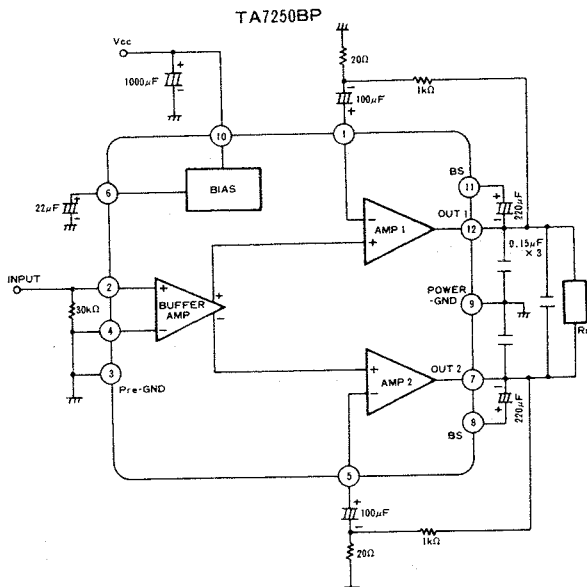
CHARACTERISTIC	SYMBOL	RATING	UNIT
Peak Supply Voltage (0.2sec)	Vcc surge	50	V
DC Supply Voltage	Vcc DC	25	V
Operating Supply Voltage	Vcc opr	18	V
Output Current (peak)	Io peak	9	A
Power Dissipation	Pd	25	W
Operating Temperature	Topr	-30 ~ 85	°C
Storage Temperature	Tstg	-55 ~ 150	°C

## ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, Vcc=13.2V, RL=4ohm, Rg=600ohm, f=1kHz, Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	Iccq		VIN=0		120	200	mA
Output Power	Pout(1)		THD=10%	20	23		W
	Pout(2)		RL=2ohm	24	30		W
	Pout(3)		THD=1%, f=50Hz ~ 20kHz		18		W
Total Harmonic Distortion	THD		Pout=4W		0.015	0.1	%
Voltage Gain	Gv		VIN=-50dBm	39.5	41	42.5	dB
Output Noise Voltage	Vno(1)		Rg=0, DIN45405 Noise Filter		0.25		mVrms
	Vno(2)		Rg=10kohm, BW=20Hz ~ 20kHz		0.35	0.9	mVrms
Ripple Rejection Ratio	R.R		f=100Hz, Vripple=0dBm		47		dB

## BLOCK DIAGRAM and TEST CIRCUIT



TA7411AP 051-0798-00 FM IF System  
TA7411AP-CLA 051-0798-01

Refer to the description in Manual PE-9092A(969HX)

μPD1714G-526-12 051-0794-00 PLL Frequency Synthesizer & Tuner Controller

Refer to the description in Manual PE-9092A(969HX)

# ■ PARTS LIST:

◎Electrical section

REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY	REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
D <sub>101,103,104,301</sub> 302,601-611 613,614,617,619 620,622,623,624 627,650,705,901	001-0330-00	Diode (1SS119)	28	C <sub>120,201,202,805</sub> 606	160-1022-05	Ceramic capacitor (1000pF B) HD	5
D <sub>626</sub>	001-0334-00	Diode (DSA17B)	1	C <sub>117</sub>	160-1512-05	Ceramic capacitor (150pF B) HD	1
D <sub>613,614</sub>	001-0360-00	Diode (S5566B)	2	C <sub>118</sub>	160-5612-05	Ceramic capacitor (560pF B) HD	1
D <sub>621</sub>	001-0361-00	Diode (1SS198)	1	C <sub>106,107,108,109</sub> 113,114,121,211 212,602,802,803 905	171-1032-06	Ceramic capacitor (0.01μF SR) SC	13
D <sub>102,615</sub>	001-0423-13	Diode (MA4033)	2	C <sub>501,502</sub>	171-2222-06	Ceramic capacitor (0.0022μF SR) SC	2
D <sub>616,625</sub>	001-0423-19	Diode (MA4056)	2	C <sub>101,102,122,123</sub> 611	171-2232-06	Ceramic capacitor (0.022μF SR) SC	5
D <sub>612</sub>	001-0423-23	Diode (MA4082)	1	C <sub>518,519</sub>	171-3332-06	Ceramic capacitor (0.033μF SR) SC	2
IFT <sub>101</sub>	005-0836-00	IF-transformer (MA)	1	C <sub>105,801</sub>	171-4733-06	Ceramic capacitor (0.047μF SR) SC	2
IFT <sub>102</sub>	005-0976-00	IF-transformer (IFT)	1	C <sub>506,507,508,513</sub> 514,515	173-1542-10	Polyester capacitor (0.15μF K) S	6
L <sub>601</sub>	009-0642-00	Choke	1	C <sub>207,208</sub>	173-6821-10	Polyester capacitor (6800pF J) S	2
L <sub>102</sub>	010-2046-12	Coil (2.2μH)	1	C <sub>110</sub>	174-1007-13	Ceramic capacitor (10pF CH) TC	1
L <sub>101,801</sub>	010-2046-17	Coil (5.6μH)	2	C <sub>608,609</sub>	174-2200-13	Ceramic capacitor (22pF CH) TC	2
VR <sub>102</sub>	012-3808-05	Variable resistor (4.7kΩ VR)	1	C <sub>901</sub>	042-0358-00	Electrolytic capacitor (10V1000μF)	1
VR <sub>101,401</sub>	012-3808-06	Variable resistor (10kΩ VR)	2	C <sub>405,505,516</sub>	179-2273-22	Electrolytic capacitor (10V220μF) S	3
VR <sub>103</sub>	012-3808-11	Variable resistor (220kΩ VR)	1	C <sub>509,512,906</sub>	179-2273-23	Electrolytic capacitor (10V220μF) S	3
CCT <sub>601</sub>	050-0078-02	Component circuit	1	C <sub>610</sub>	179-2283-23	Electrolytic capacitor (10V2200μF) S	1
IC <sub>301</sub>	051-0158-00	IC (TC4016BP)	1	C <sub>504</sub>	179-2283-31	Electrolytic capacitor (16V2200μF) S	1
IC <sub>201</sub>	051-0301-02	IC (M51522AL)	1	C <sub>301</sub>	179-3373-33	Electrolytic capacitor (16V330μF) S	1
IC <sub>901</sub>	051-0526-00	IC (MB3756)	1	C <sub>412,903</sub>	179-4763-22	Electrolytic capacitor (10V47μF) S	2
IC <sub>401</sub>	051-0606-00	IC (BT3S501)	1	C <sub>602</sub>	179-4773-22	Electrolytic capacitor (10V470μF) S	1
IC <sub>402</sub>	051-0619-00	IC (LB0354)	1	C <sub>902,904</sub>	179-4773-23	Electrolytic capacitor (10V470μF) S	2
IC <sub>501</sub>	051-0748-00	IC (TA7250BP)	1	C <sub>112,115,126,127</sub>	182-1053-62	Electrolytic capacitor (50V1μF) SS	4
IC <sub>601</sub>	051-0794-00	IC (μPD1714G-526-12)	1	C <sub>116,402,403,404</sub> 406,408,409,410 411,414,415,418 420	182-1063-32	Electrolytic capacitor (16V10μF) SS	13
IC <sub>101</sub>	051-0798-00	IC (TA7411AP)	1	C <sub>503,510,511,517</sub>	182-1073-12	Electrolytic capacitor (6.3V100μF) SS	4
IC <sub>502</sub>	051-0815-00	IC (TA7251BP)	1	C <sub>612,902,904</sub>	182-1073-22	Electrolytic capacitor (10V100μF) SS	3
SUP <sub>101</sub>	060-0122-00	Surge protector	1	C <sub>401</sub>	182-1073-32	Electrolytic capacitor (16V100μF) SS	1
X <sub>1</sub>	061-1053-61	Crystal (4.5MHz)	1	C <sub>413,416</sub>	182-2243-62	Electrolytic capacitor (50V0.22μF) SS	2
Q <sub>601,602,901,904</sub>	100-1175-60	Transistor (2SA1175F)	4	C <sub>118</sub>	182-2253-62	Electrolytic capacitor (50V2.2μF) SS	1
Q <sub>303</sub>	101-0911-00	Transistor (2SB911M.P.O.R)	1	C <sub>601</sub>	182-3353-62	Electrolytic capacitor (50V3.3μF) SS	1
Q <sub>602</sub>	102-1846-00	Transistor (2SC1846O.R.S)	1	C <sub>417</sub>	182-4743-62	Electrolytic capacitor (50V0.47μF) SS	1
Q <sub>201,202,301,607</sub> 611,803,804	102-2458-00	Transistor (2SC2458)	7	C <sub>203,204,209,210</sub>	183-1053-62	Electrolytic capacitor (50V1μF) USS	4
Q <sub>101,102,103,304</sub> 603,604,801	102-2458-51	Transistor (2SC2458GR,BL)	7	C <sub>124,125,128</sub>	183-1063-32	Electrolytic capacitor (16V10μF) USS	3
Q <sub>302,605,610,612</sub> 90,903	102-3400-00	Transistor (2SC3400AC)	6	C <sub>613</sub>	183-2263-52	Electrolytic capacitor (35V2.2μF) USS	1
Q <sub>104,105,401</sub>	103-1450-50	Transistor (2SD1450ST)	3	C <sub>603</sub>	183-3343-62	Electrolytic capacitor (50V0.33μF) USS	1
Q <sub>802,805</sub>	108-0161-28	FET (2SK161GR)	2	C <sub>601</sub>	183-3353-62	Electrolytic capacitor (50V3.3μF) USS	1
R <sub>506,508,510,511</sub>	111-1020-91	Film resistor ( $\frac{1}{2}$ Ws1kΩ±2%)	4	C <sub>106</sub>	183-4743-62	Electrolytic capacitor (50V0.47μF) USS	1
R <sub>505,508,509,512</sub>	111-2200-91	Film resistor ( $\frac{1}{2}$ Ws22Ω±2%)	4	C <sub>804</sub>	183-4753-52	Electrolytic capacitor (35V4.7μF) USS	1
R <sub>108</sub>	111-2231-81	Film resistor ( $\frac{1}{2}$ Ws22kΩ) PE-9096A-A	1	C <sub>205,206</sub>	183-4763-12	Electrolytic capacitor (6.3V4.7μF) USS	2
R <sub>309</sub>	111-2291-81	Film resistor ( $\frac{1}{2}$ Ws2.2Ω)	1	C <sub>605</sub>	183-4763-32	Electrolytic capacitor (16V47μF) USS	1
R <sub>108</sub>	111-5631-81	Film resistor ( $\frac{1}{2}$ Ws56kΩ) PE-9097A-A	1				
C <sub>103,104,111</sub>	043-0165-20	Ceramic capacitor (0.1μF SR)	3				

©NC-MPX P.W.B 880-0003A

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
VR104	012-3707-05	Variable resistor (VR10kΩ)	1
VR102	012-3707-08	Variable resistor (VR100kΩ)	1
CCT101	050-0099-00	Component circuit (DN1360E)	1
IC104	051-0407-00	IC (LA2110)	1
IC105	051-0733-00	IC (LA3430)	1
CF101	060-0115-01	Ceramic resonator (CBS456F11)	1
Q101	102-2458-25	Transistor (2SC2458Y)	1
C120	160-6812-05	Ceramic capacitor (68pF B)	1
C125,126	171-1033-06	Ceramic capacitor (0.01μF)	2
C124	171-2223-06	Ceramic capacitor (2200pF SR)	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
C132	171-2233-06	Ceramic capacitor (0.022μF)	1
C123	171-3333-06	Ceramic capacitor (0.033μF)	1
C130	171-4723-06	Ceramic capacitor (4700PF SR)	1
C128	171-4733-06	Ceramic capacitor (0.047μF)	1
C122,134,136	182-1053-62	Electrolytic capacitor (50V1μF)	3
C133	182-1063-32	Electrolytic capacitor (16V10μF)	1
C135	182-2243-62	Electrolytic capacitor (50V0.22μF)	1
C121	182-2263-32	Electrolytic capacitor (16V22μF)	1
C129	182-4753-52	Electrolytic capacitor (35V4.7μF)	1

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REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
VR103	012-3707-05	Variable resistor (VR-10kΩ)	1
CCT102	050-0103-00	Component circuit (TCB06T000B)	1
IC103	051-0501-00	IC (LA3365)	1
IC102	051-0739-00	IC (LA2220)	1
CF102	060-0115-01	Ceramic resonator (CBS456F11)	1
C144	171-4733-06	Ceramic capacitor (0.047μF)	1
C138	173-6831-10	Polyester capacitor (0.068μF)	1
C143,152	042-0249-00	Electrolytic capacitor (16V0.22μF TAN)	2
C147	182-1053-62	Electrolytic capacitor (50V1μF)	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
C137,145,149	182-1063-32	Electrolytic capacitor (16V10μF)	3
C146	182-1073-12	Electrolytic capacitor (6.3V100μF)	1
C139	182-1073-22	Electrolytic capacitor (10V100μF)	1
C141	182-2263-22	Electrolytic capacitor (10V22μF)	1
C140	182-3343-62	Electrolytic capacitor (50V0.33μF)	1
C150	182-4763-02	Electrolytic capacitor (4V33μF)	1
C142	182-4743-62	Electrolytic capacitor (50V0.47μF)	1
C148	182-4753-52	Electrolytic capacitor (35V4.7μF)	1
C151	182-4763-22	Electrolytic capacitor (10V47μF)	1

©FM FRONT END 880-1407A

Ref. No.	Part No. (Order No.)	Description	Q'ty
D1	001-0368-00	Diode (1SV121)	1
D3	001-0423-13	Diode (MA4033)	1
D2,4,5	001-0442-00	Diode (1SV147)	3
VC1	004-1567-00	Trimer (20P)	1
IFT1	005-0966-00	IF-Transformer	1
IFT2,3	005-0967-00	IF-Transformer (MS3LK)	2
L4	010-1570-01	Coil (RF)	1
L1	010-2046-03	Coil (0.039μH)	1
L2	010-2046-14	Coil (3.3μH)	1
L6	010-2104-00	Coil (OSC)	1
L3,5	010-2105-00	Coil (L4.5T)	2
IC1	051-0730-00	IC (HA12438FP)	1
R14	117-1011-10	Chip resistor (1/16W 100Ω)	
R6,11,13	117-1021-10	Chip resistor (1kΩ)	3
R12	117-1031-10	Chip resistor (10kΩ)	1
R3,7	117-1041-10	Chip resistor (100kΩ)	2
R5	117-2211-10	Chip resistor (220Ω)	1

Ref. No.	Part No. (Order No.)	Description	Q'ty
R2,9,10	117-3331-10	Chip resistor (33kΩ)	3
R8	117-4701-10	Chip resistor (47Ω)	1
R4	117-6831-10	Chip resistor (68Ω)	1
Q3	124-0114-15	Transistor (3SK114)	1
Q1	125-0001-01	Transistor (UN2111)	1
Q2	125-0006-00	Transistor (UN2110)	1
C11	176-1007-00	Ceramic chip capacitor (10pF)	1
C3,6,18	176-1501-00	Ceramic chip capacitor (15pF)	3
C14,15,16	176-2201-00	Ceramic chip capacitor (22pF)	3
C4	176-5601-00	Ceramic chip capacitor (56pF)	1
C5,9,13	176-6097-00	Ceramic chip capacitor (6pF)	3
C2	176-8097-00	Ceramic chip capacitor (8pF)	1
C21	178-1022-05	eramic chip capacitor (0.001μF)	1
C1,7,8,10,17	178-1032-05	Ceramic chip capacitor (0.01μF)	5
C12,19	178-2232-05	Ceramic chip capacitor (0.022μF)	2
C20	183-1053-62	Electrolytic capacitor (50V 1μF)	1

Note : OM (Oxidized Metal) SS (Super Small)  
 S (Small) TC (Temperature-Compensating)  
 HD (Higher Dielectric) LL (Low Leak)  
 SC (Semi-Conductor) USS (Ultra Super Small)

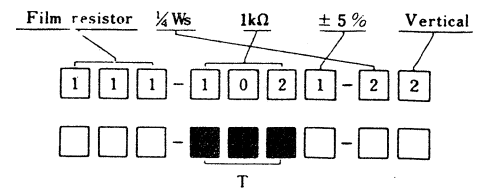
● How to read resistor

Resistors are deleted from the table of electric components, (except metal film resistors and special resistors). They can be converted to product Nos. as follows.

Film resistor (Carbon film resistor)

Classification	Resistance *	Tolerance of the value of resistance	Rated power	Shape	
1 1 1		0	0	0	
	Example	1 ± 5%	1	1/8 W	Approx. 3.7mm Horizontal
	33Ω = 330	2	2	1/8 Ws	Approx. 6.5mm Vertical
	33kΩ = 333	3	3		3
		4	4	1/2 W	Approx. 9mm 4
			7	1/8 W	Approx. 3.5mm
			8	1/2 Ws	Approx. 6.6mm
			9	1/4 Wss	Approx. 3.2mm

(Example)

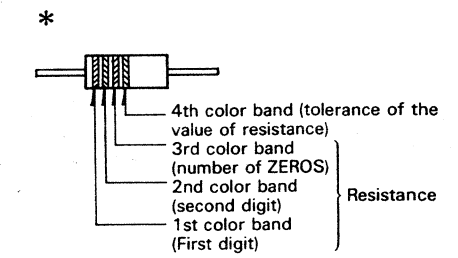


Note 1. The first two of three digits representing resistance are effective digits and the last one represents number of "0" following this.  
 Unit is given in ohm (Ω).

Example of conversion of resistance

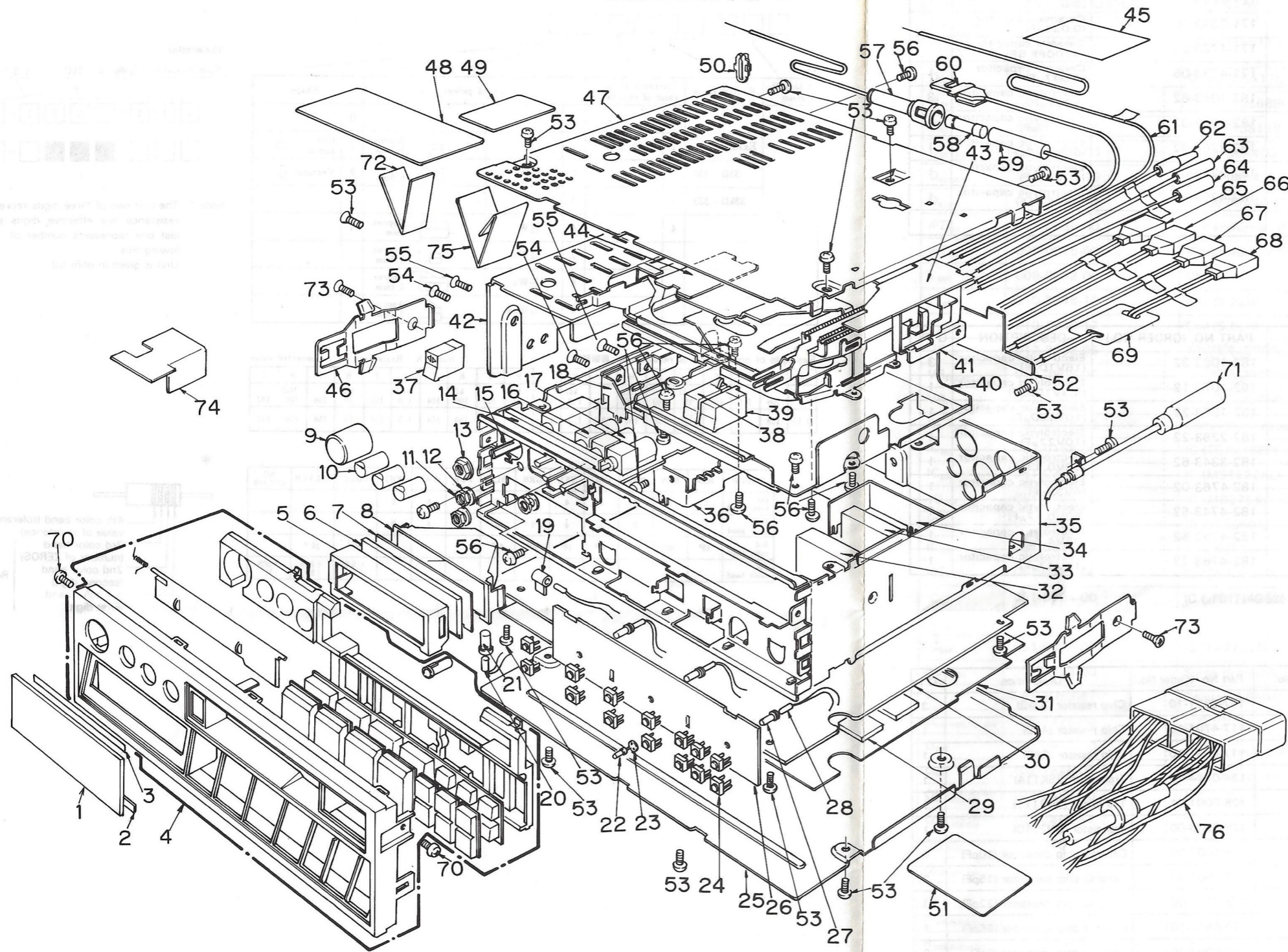
R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T
Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω
0.1	108	1.0	109	10	100	100	101	1.0	102	10	103	100	104	1.0	105	10	106	100	107
0.15	158	1.5	159	15	150	150	151	1.5	152	15	153	150	154	1.5	155	15	156	150	157

COLOR	BLK	BRN	RED	ORG	YEL	GRN	BLU	PUR	GRY	WHT	GOLD	SILVER	NO COLOR
1st color band	0	1	2	3	4	5	6	7	8	9			
2nd color band	0	1	2	3	4	5	6	7	8	9			
3rd color band	10 <sup>0</sup>	10 <sup>1</sup>	10 <sup>2</sup>	10 <sup>3</sup>	10 <sup>4</sup>	10 <sup>5</sup>	10 <sup>6</sup>				10 <sup>-1</sup>	10 <sup>-2</sup>	
4th color band											± 5% (J)	± 10% (K)	± 20% (M)



# EXPLODED VIEW • PARTS LIST:

©Main section



REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
30	099-7782-00	P.W.B	1
31	347-2165-01	Insulator	1
32	941-0159-01	LW/MW tuner	1
33	880-1407A	FM front end tuner	1
34	330-8431-00	Earth plate	1
35	312-0268-01	Chassis	1
36	944-0723-00	Filter ass'y	1
37	382-1082-00	Button (PRO)	1
38	382-1093-00	Button (REW/EJ)	1
39	382-1094-00	Button (FF/EJ)	1
40	330-8428-00	Mechanism holder	1
41	930-0519-10	Tape mechanism	1
42	313-1269-00	Heat sink	1
43	347-2147-00	Insulator (MECH-P.W.B)	1
44	347-2146-00	Insulator (MECH-SW)	1
45	285-1255-00	Guide label (only PE-9097A-A)	1
46	750-2486-00	Spring	2
47	303-0334-00	Upper cover	1
48	285-0915-00	Guide label	1
49	285-1000-00	Guide label	1
50	335-1164-00	Lead clamp	1
51	286-5837-00	Set plate (PE-9096A-A)	1
	286-5838-00	Set plate (PE-9097A-A)	1
52	347-2145-00	Insulator	1
53	731-3006-80	Tap tight (M3x6)	15
54	714-3006-41	Machine screw (M3x6)	2
55	714-3006-81	Machine screw (M3x6)	2
56	714-3004-81	Machine screw (M3x4)	11
57	850-2258-00	A-lead (POWER) (only PE-9096A-A)	1
58	120-0070-00	Fuse (7A) (only PE-9096A-A)	1
59	850-2268-02	A-lead (POWER) (only PE-9096A-A)	1
60	840-0386-00	Bonding wire (GND) (only PE-9096A-A)	1
61	850-2360-00	A-lead (BACK UP) (only PE-9096A-A)	1
62	850-2361-00	A-lead (ILLUMI) (only PE-9096A-A)	1
63	852-5322-02	Extension lead (SEEK) (only PE-9096A-A)	1
64	852-6652-01	Extension lead (AUTO ANT) (only PE-9096A-A)	1
65	851-2602-03	Speaker lead (only PE-9096A-A)	1
66	851-2602-02	Speaker lead (only PE-9096A-A)	1
67	851-2602-01	Speaker lead (only PE-9096A-A)	1
68	851-2602-00	Speaker lead (only PE-9096A-A)	1
69	285-1260-00	Guide label (only PE-9096A-A)	1
70	714-3005-81	Machine screw (M3x5)	2
71	092-0604-00	Antenna receptacle	1
72	347-2149-00	Insulator (only PE-9096A-A)	1
73	714-3005-41	Machine screw (M3x5)	2
74	347-2228-00	Insulator	1
75	347-2148-00	Insulator (only PE-9096A-A)	2
			1
76	852-9210-00	Extension lead (only PE-9097A-A)	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	373-0465-01	Dial cover	1
2	347-1105-00	Double face	1
3	347-1873-00	Double face	1
4	940-2923-04	Escutcheon ass'y (PE-9096A-A)	1
	940-2923-05	Escutcheon ass'y (PE-9097A-A)	1
5	335-2225-00	LCD cover	1
6	379-0125-00	Indicator	1
7	371-3361-00	Trim plate	1
8	335-2226-00	LCD holder	1
9	380-4762-00	Knob	1

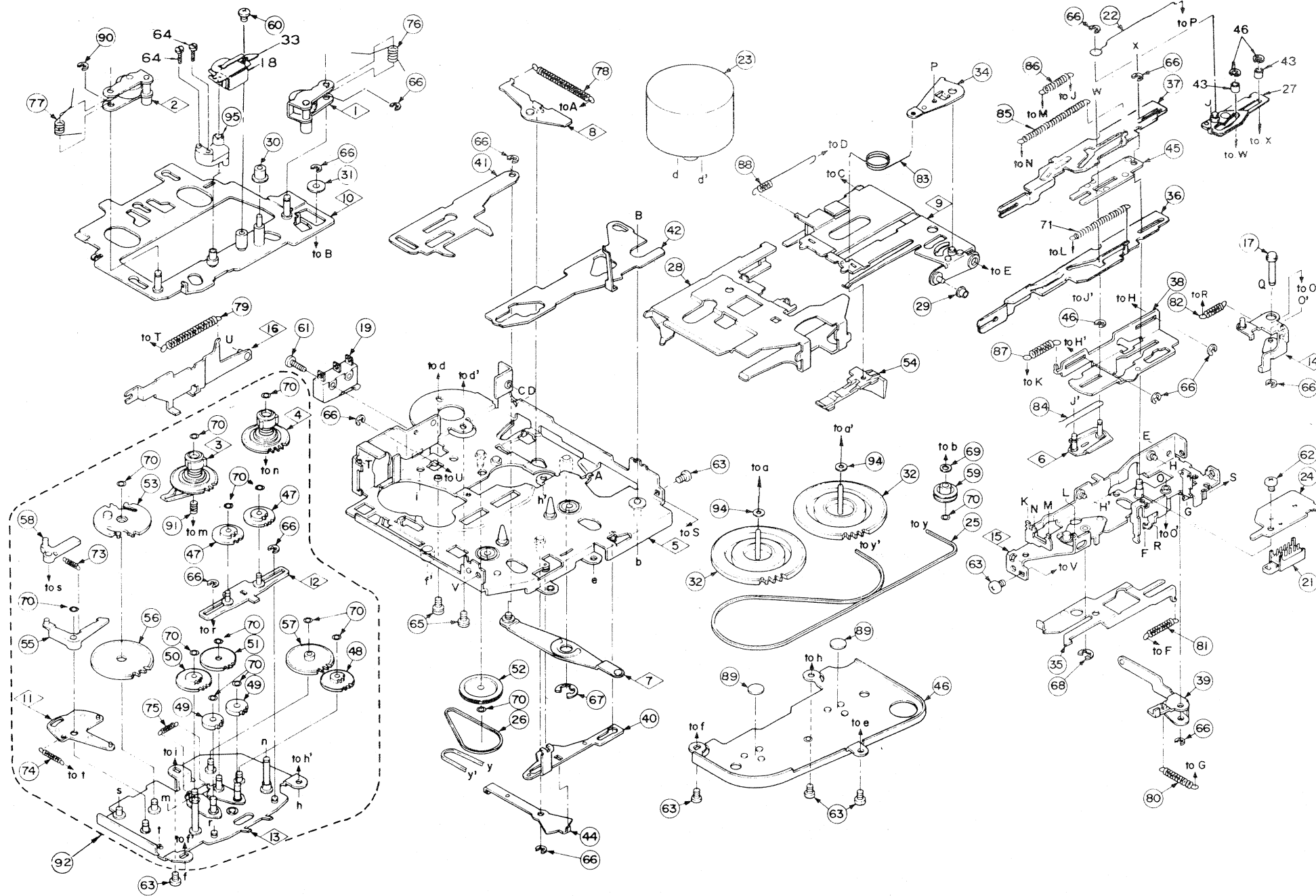
REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
10	380-4763-00	Knob	3
11	722-0332-00	Nut	3
12	745-0560-00	Washer	3
13	722-0368-00	Nut	1
14	330-8429-00	Volume holder	1
15	012-4509-00	Variable resistor	1
16	012-4507-00	Variable resistor	1
17	012-4508-00	Variable resistor	2
18	330-8430-00	IC holder	1
19	345-3316-01	Lamp rubber	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
20	017-0346-04	Pilot lamp (LCD)	1
21	345-3667-07	Lamp rubber (LCD)	1
22	001-0369-00	LED lamp (RED)	3
23	353-0268-00	Shade	3
24	013-3694-00	Tact switch	14
25	304-0387-00	Lower cover	1
26	099-7755-00	P.W.B (SW)	1
27	345-3436-10	Lamp rubber	3
28	017-0338-14	Pilot lamp	4
29	345-4162-00	Cushion rubber	2



# EXPLODED VIEW • PARTS LIST:

⊙Tape mechanism section



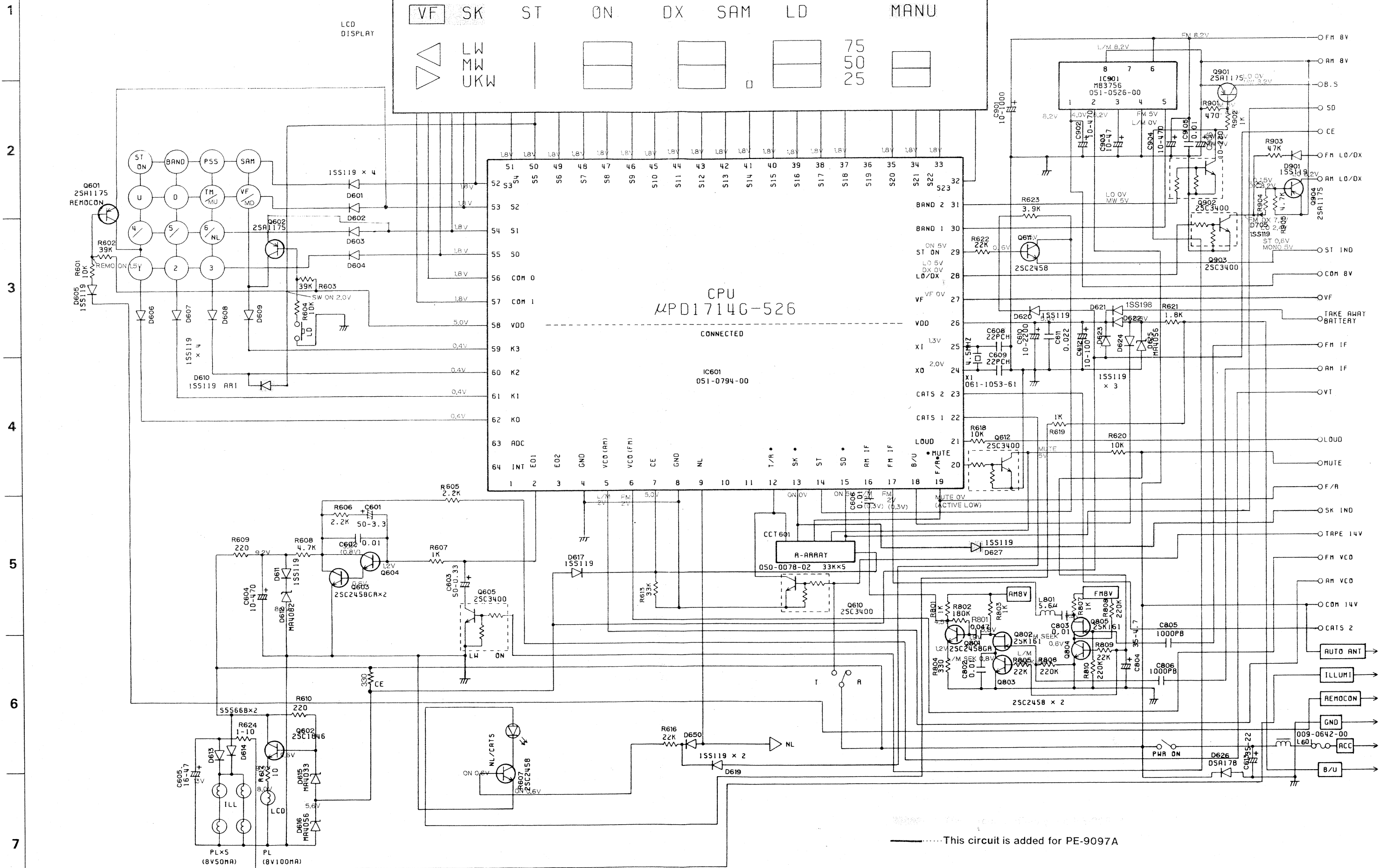
REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
43	632-1557-00	Roller	2
44	630-1420-00	FF link	1
45	630-1671-01	Hold plate	1
46	630-1415-01	Flywheel plate	1
47	631-0353-00	FF-REW gear	2
48	631-0354-01	Gear-B	1
49	631-0355-01	Play idler gear	2
50	631-0356-00	Gear-R	1
51	631-0357-00	Gear-F	1
52	631-0358-02	Gear pulley	1
53	960-3506-01	Power gear ass'y	1
54	631-0455-02	Pack stopper	1
55	631-0361-01	Lock link	1
56	631-0362-01	Cam gear	1
57	631-0363-02	Gear-A	1
58	631-0364-03	Sub lock link	1
59	631-0370-00	Tension pulley	1
60	714-2003-81	Machine screw (M2x3)	1
61	714-2308-81	Machine screw (M2 3x8)	1
62	716-0485-00	Screw	1
63	714-2604-81	Machine screw (M2 6x4)	6
64	716-0654-01	Screw (for Head azimuth)	2
65	716-0690-00	Screw	2
66	743-1500-10	E-ring	12
67	743-4000-10	E-ring	1
68	744-0006-01	E-ring	1
69	745-0645-00	Washer	2
70	746-0628-01	Washer	14
71	750-2357-02	Spring	1
72	630-1690-00	Adjust plate	1
73	750-2134-01	Spring	1
74	750-2135-01	Spring	1
75	750-2136-02	Spring	1
76	750-2372-01	Spring	1
77	750-2378-01	Spring	1
78	750-2139-01	Spring	1
79	750-2140-02	Spring	1
80	750-2141-01	Spring	1
81	750-2142-03	Spring	1
82	750-2374-00	Spring	1
83	750-2361-01	Spring	1
84	750-2199-00	Spring	1
85	750-2356-02	Spring	1
86	750-2359-00	Spring	1
87	750-2358-00	Spring	1
88	750-2150-00	Spring	1
89	631-0293-00	Thrust washer	2
90	743-2000-10	E-ring	2
92	960-3580-02	Bottom sub ass'y	1
94	746-0617-00	Washer	2
95	631-0456-00	Adjust link	1

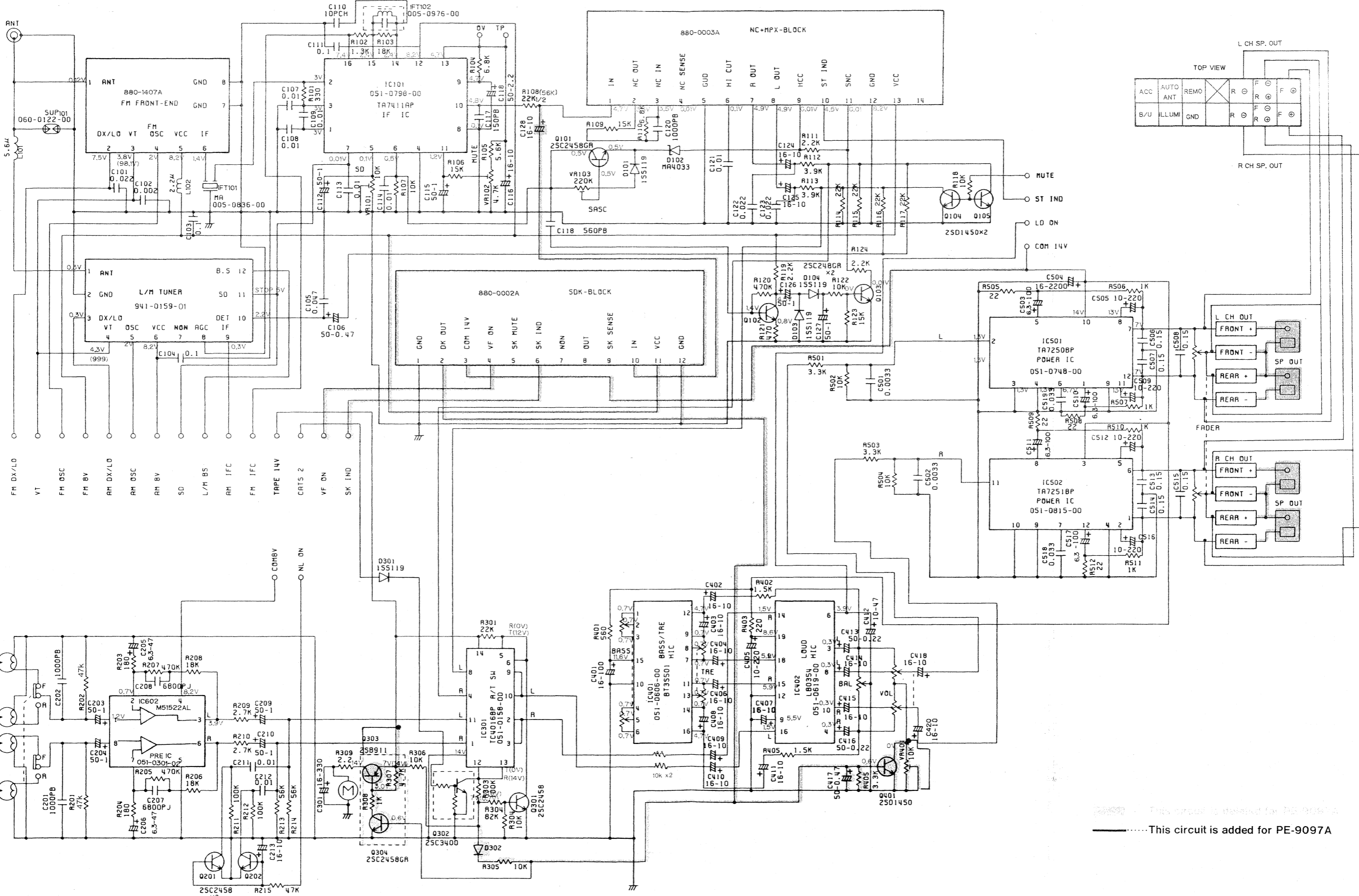
REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	960-3321-06	Roller F ass'y	1
2	960-3322-06	Roller R ass'y	1
3	960-3323-01	Reel base ass'y	1
4	960-3324-01	Reel base ass'y	1
5	960-3325-08	Deck plate ass'y	1
6	960-3568-02	Spring H ass'y	1
7	960-3328-04	Coupling P ass'y	1
8	960-3329-01	Link ass'y	1
9	960-3330-07	Guide arm ass'y	1
10	960-3562-05	Head plate ass'y	1
11	960-3332-03	Check P-B ass'y	1
12	960-3333-02	FF plate ass'y	1
13	960-3334-07	Bottom P ass'y	1
14	960-3577-03	Lock plate ass'y	1

REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
15	960-3567-04	Frame ass'y	1
16	960-3339-02	Program lever ass'y	1
17	632-1153-01	Lock plate pin	1
18	011-0296-10	Head	1
19	013-2690-03	Switch	1
20	750-2155-00	Spring	1
21	013-3646-00	Switch	1
22	750-2360-01	Spring	1
23	SMA-107-100	D.C. motor ass'y	1
24	099-6942-01	P.W.B	1
25	602-0068-00	Belt-A	1
26	602-0069-00	Belt-B	1
27	960-3565-01	Over plate ass'y	1
28	606-0071-07	Pack guide	1

REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
29	610-0080-00	Roller	1
30	610-0258-01	Head P-roller	1
31	610-0104-02	Roller	1
32	611-0062-02	Flywheel	2
33	630-1689-01	Head spring	1
34	630-1394-03	Swing plate	1
35	630-1399-04	Off plate-B	1
36	630-1881-00	FF lever-A	1
37	630-1882-00	REW lever	1
38	960-3563-02	Eject plate ass'y	1
39	630-1405-01	Off arm	1
40	630-1407-03	FF plate-B	1
41	630-1410-00	Power plate	1
42	630-1691-01	Change plate	1

**CIRCUIT DIAGRAM:**





.....This circuit is added for PE-9097A

.....This circuit is added for PE-9097A

1

2

3

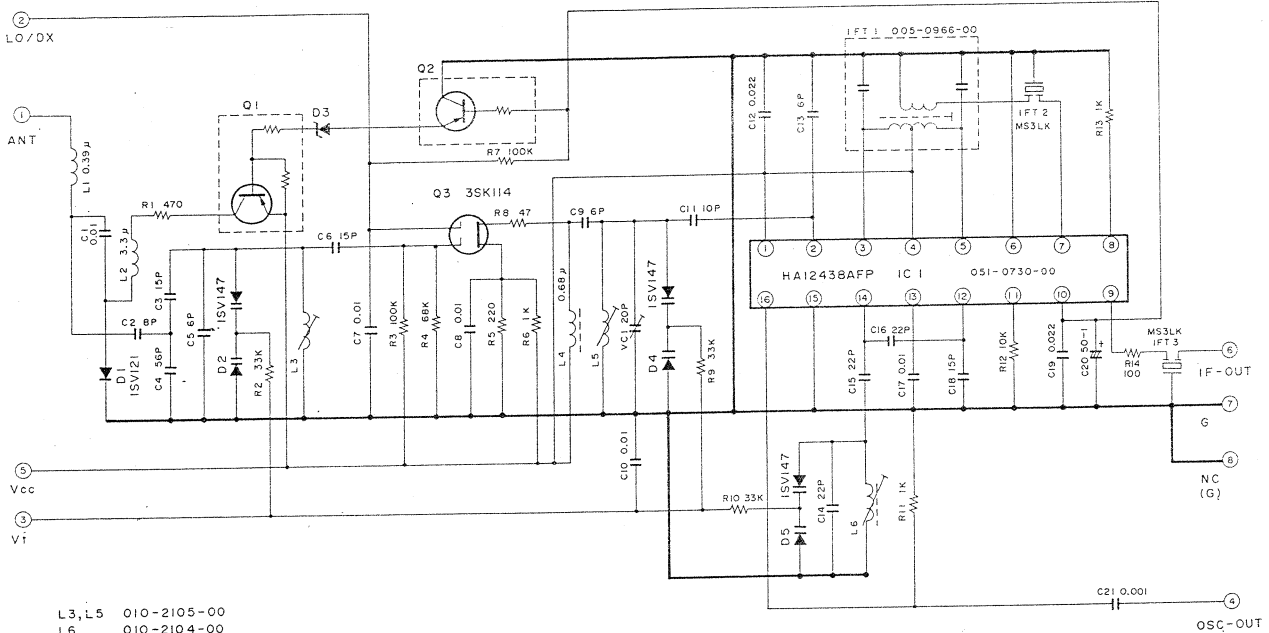
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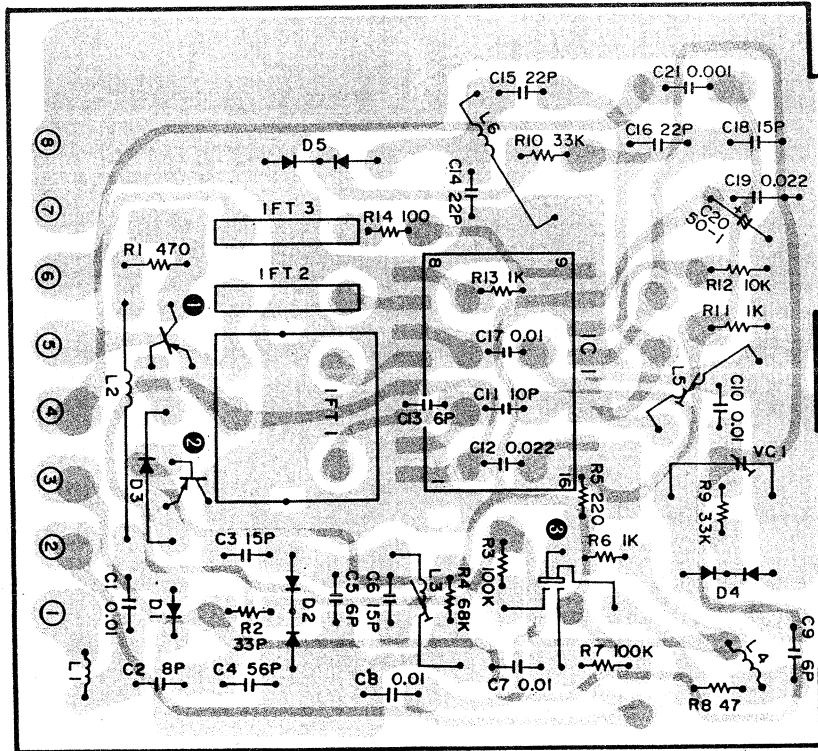
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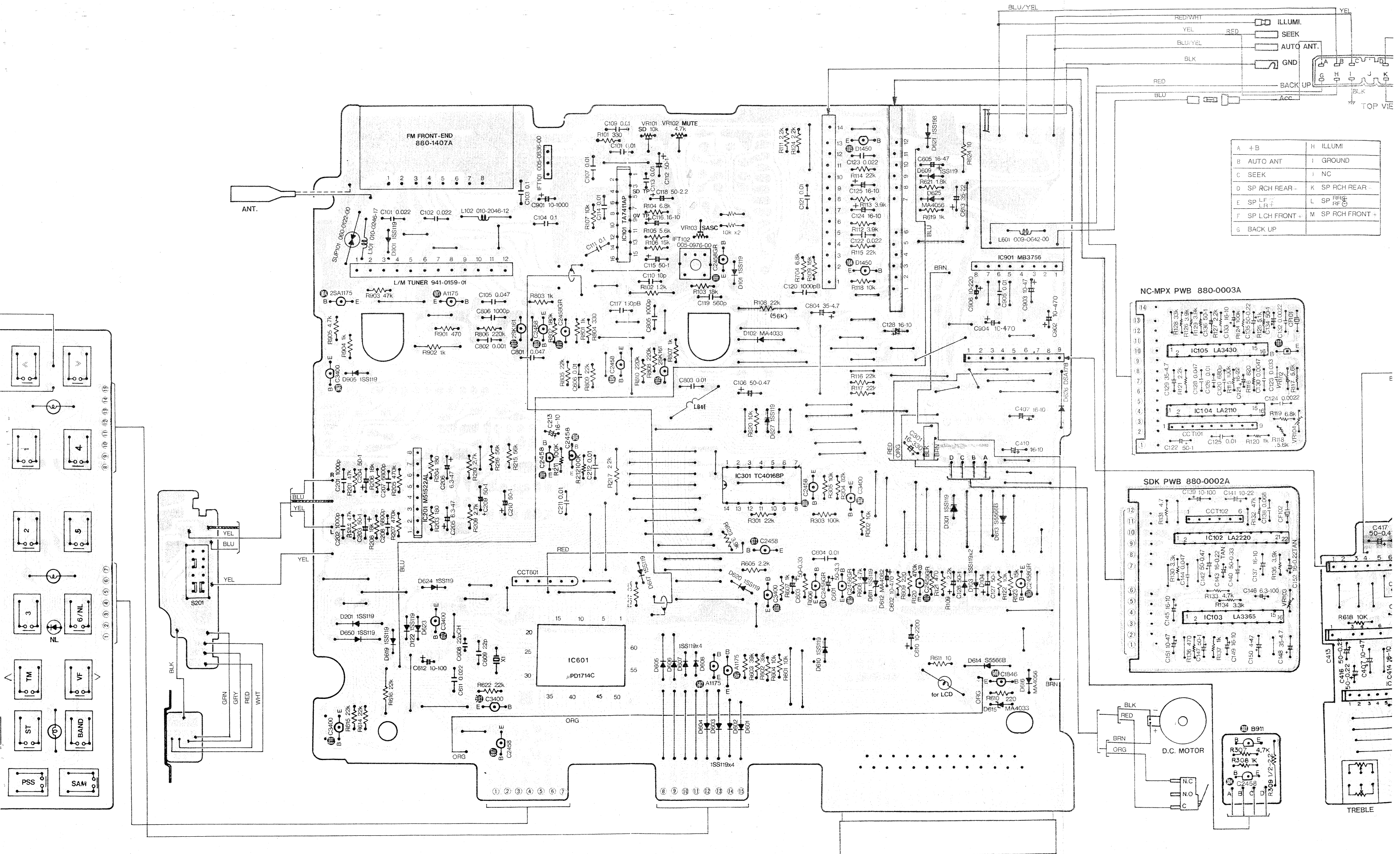
# FM FRONT END: 880-1407A



- L3, L5 010-2105-00
- L6 010-2104-00
- Q1 RN2402, UN2111
- Q2 UN2110S
- D3 001-0423-13



PRINTED WIRING BOARD:



A + B	H ILLUMI
B AUTO ANT	I GROUND
C SEEK	J NC
D SP RCH REAR -	K SP RCH REAR -
E SP LF	L SP RR
F SP LCH FRONT +	M SP RCH FRONT +
G BACK UP	

