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Service Manual

Closer Relations through
"Clarion Service Manual"

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Model **E951 MK II (PE-9046A)**
E950 MK II (PE-9047A)



E951 MK II



E950 MK II

SPECIFICATIONS:

Radio section

Circuit system: Superheterodyne
Tuning system: Electronic tuning
Receiving frequency: LW 155kHz to 281kHz
MW 531kHz to 1,602kHz
UKW(FM) 87.5MHz to 108MHz

Intermediate frequency:

LW, MW 459kHz
UKW(FM) 10.7MHz

Tape section

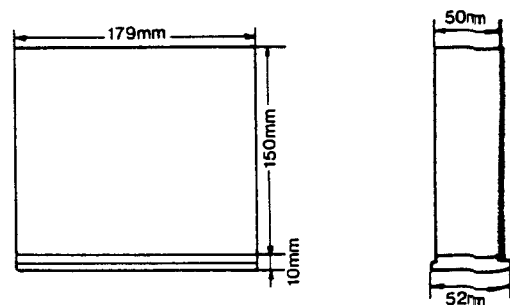
Reproduction system: Auto reversing
4 track, 2 channel, 2 program stereo cassette tape playback
(Monaural also capable)

Tape speed: 4.76cm/sec. (1 7/8 ips)

Composite

Speaker impedance: 4Ω×2, 4Ω×4
Power output: 15W×2
(at 10% distortion TYP.)
More than 22W×2
(at max. output TYP.)
Power supply voltage: DC 14.4V(10.8V to 15.6V)
Negative ground
Power consumption: Less than 7A
(at max. output)

Dimensions:

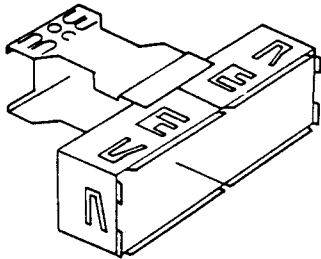
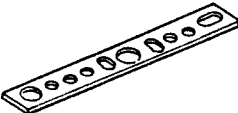
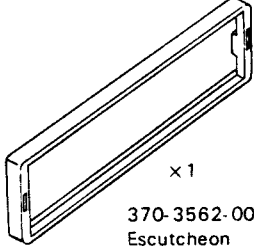
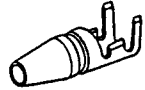
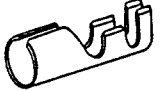

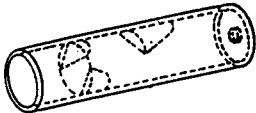
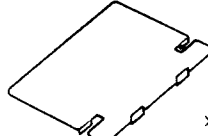
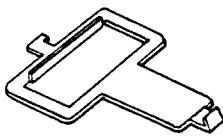







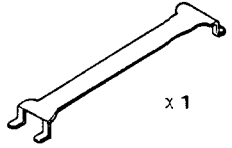


Weight: 1.8kg

- Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.
- Dolby and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

■ COMPONENT VIEW:

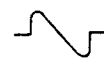
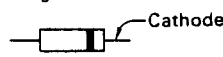
- E951 MKII (PE-9046A-A)
- E950 MKII (PE-9047A-A)

| | | | | |
|------------------|-------------|--|-------------|---|
| Main unit | 1 | Parts bag | 921-7554-00 | 1 |
| Mounting bracket | 300-6953-01 |  | | |
| Mounting bracket | 300-6954-00 |  | | |
| Parts bag | 922-1247-00 |  | | |
| Parts bag | 921-7908-00 |  x4  x4  x4  x4 | | |
| | |  x1  x2  x1  x1  x1  x1  x1  x1  x1  x1 | | |

■ FEATURES:

- MW/LW/UKW-MPX electronic tuning radio with auto reverse stereo cassette player (FF, REW. lock).
- Provided radio traffic information (VF) system. (E951 MKII)
- Dolby NR.
- MTL (tape selector).
- LD (Loudness).
- APC (Automatic Program Control).
- BASS & TREBLE tone control.
- Max. power 22W×2. (TYP.)
- ARK mechanism.
- Remote control tuning lead.

ADJUSTMENT:

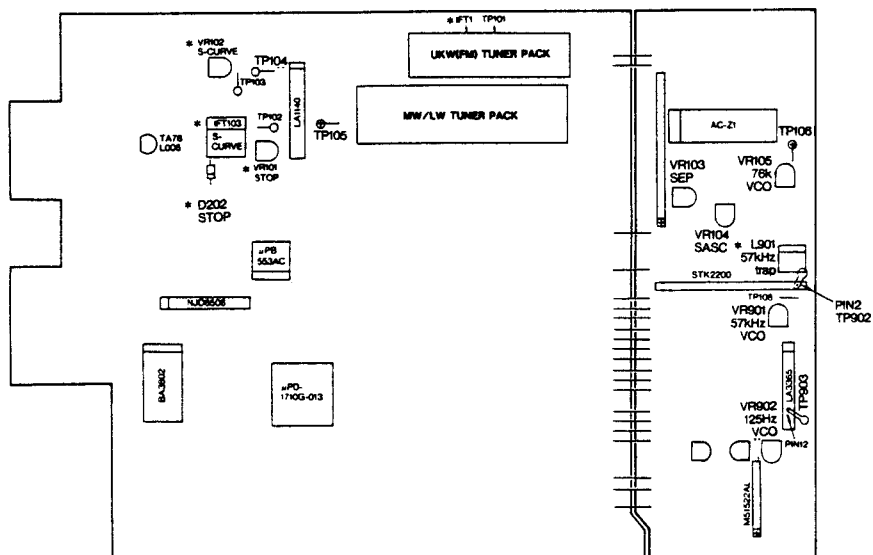
| Adjustment item | Adjustment point | Procedure | |
|-------------------------|-------------------------|---|---|
| S curve | IFT1 and IFT103 | <ol style="list-style-type: none"> 1. Connect the output of an IF sweep generator to TP101 and the input of the vertical hold of an oscilloscope to TP105. 2. Ground TP104. 3. Adjust the S curve by means of IFT1 and IFT103.  | |
| S curve fine adjustment | VR102 | <ol style="list-style-type: none"> 1. Tune at 87.5MHz(87.500MHz),and input a 28dB non-modulated SSG signal. 2. Connect a digital volt meter between TP102 and TP103. 3. Adjust VR102 so that the voltage between TP102 and TP103 is 0V. 4. May adjust 0V by receiving weak broadcasting signal. | |
| Stop seek sensitivity | VR101 | <ol style="list-style-type: none"> 1. Tune at 87.5MHz(87.500MHz), input a 28dB non-modulated SSG signal. 2. Adjust VR101 so that the voltage of the cathode of D202 is in the range 1 to 4V.  | |
| SASC | VR104 | <ol style="list-style-type: none"> 1. Tune at 87.5MHz(87.500MHz), input an 55dB, 7kHz modulation frequency, 30% modulation degree SSG signal, and then turn on ST. SW. 2. Adjust the output level of the volume controller to 0dBm (0.775V). 3. Set the SSG output to 40dB and adjust VR104 so that the output level is -3dBm. | |
| MPX | 1. VCO 2. Separation | VR105 VR103 | <ol style="list-style-type: none"> 1. Tune at 87.5MHz(87.500MHz), input a 55dB non-modulated SSG signal, and then turn on ST. SW. 2. Connect a frequency counter to TP106 through a 100kΩ resistor and adjust VR105 so that the counter indicates 76kHz. <ol style="list-style-type: none"> 1. Tune at 87.5MHz(87.500MHz), connect the output of a stereo modulator to the external modulation terminal, and input a 65dB SSG signal. 2. Set the stereo modulator to the L or R ch and adjust VR103 so that the maximum separation is obtained. |
| | SK | 1. VCO 2. 57kHz trap (E951 MK II) | VR901 L901 |
| DK VCO (E951 MK II) | VR902 | <ol style="list-style-type: none"> 1. Tune at 87.5MHz(87.500Hz), input a 55dB non-modulated SSG signal, and turn on VF. SW. 2. Connect the frequency counter to TP903 through a 22kΩ resistor and adjust VR902 so that the counter indicates 125Hz. In the case, 25sec later, seeking occurs. | |
| Dolby NR | VR306 and VR307 | Insert a Dolby level test tape (400Hz-200nWb/m), connect the millivoltmeter to TP301 and TP302, and adjust VR306 and VR307 to obtain an output of 300mV. | |

[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 39dB(at 20dB S/N)
 UKW Less than 12dB(at 30dB S/N)
- Stereo separation: UKW More than 20dB

ADJUSTMENT POINT



(NOTE) The part marked "*" should be adjusted from parts side, and the other adjustment should be done from P.W.B. pattern side.

■ ADJUSTMENT: <TAPE MECHANISM>

1. AZIMUTH ADJUSTMENT

Play the 6.3kHz, -10VU section of the AZIMUTH tape and adjust the head azimuth adjustment screw (716-0429-00) so that the output levels are maximized in both tape running directions. (Figure 1)

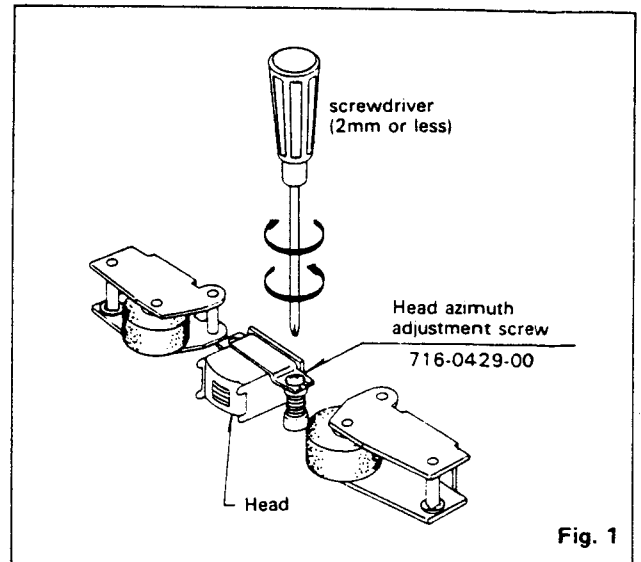


Fig. 1

2. FF/REW GEAR ENGAGEMENT ADJUSTMENT

If any abnormal sound is heard during FF/REW operation, adjust gear engagement as follows.

First identify the gear causing the abnormal sound. Then, adjust projection of the reel base plate ass'y by bending it in an appropriate direction as shown in Fig. 2; (A) when the FF gear causes abnormal sound; (B) when the REW gear causes abnormal sound.

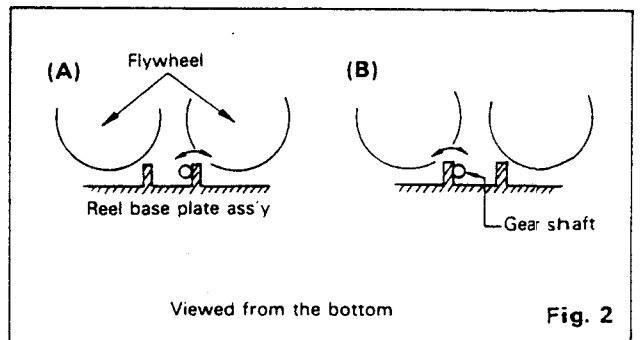


Fig. 2

3. IDLER GEAR ENGAGEMENT ADJUSTMENT

If any abnormal sound is heard during PLAY operation, adjust gear engagement as follows. First identify the gear causing the abnormal sound. Then, adjust projection of the roller plate A ass'y by bending it in an appropriate direction as shown in Fig. 3; (A) when the FWD gear causes abnormal sound; (B) when the REV gear causes abnormal sound.

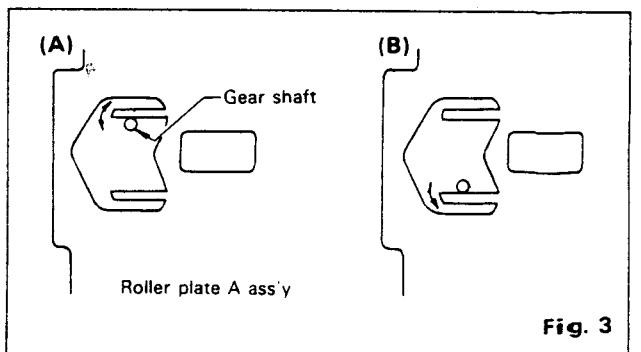


Fig. 3

4. LEAF SWITCH POSITION ADJUSTMENT

When replacing the leaf switch, first remove P.W.B from the mechanism, remove the solder on the leaf switch, adjust the position of the leaf switch from the P.W.B switch position adjustment hole, and then solder the switch. (Figure 4)

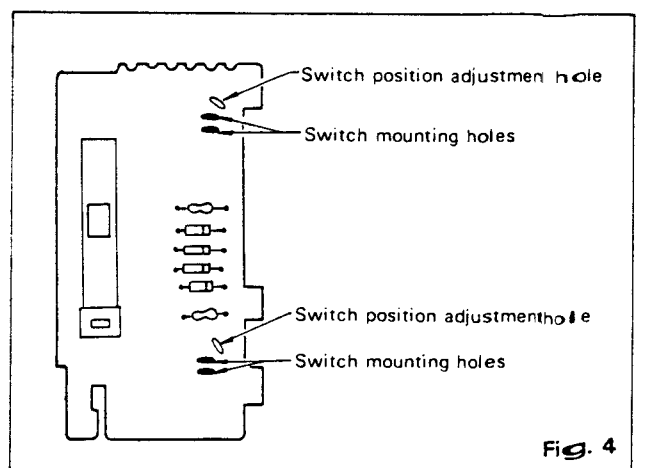


Fig. 4

● SPECIFICATION -LIMIT- Wow and flutter: Less than 0.25%(W.R.M.S)

■ PARTS LIST:

⊙ Electrical section

⊙ MAIN - FM-MPX P.W.B

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---|----------------------|----------------------------|------|
| D _{101-104,201} 202,410 501-506 508-511,514 515,502-704 903-906,908 | 001-0330-00 | Diode (1SS119) | 27 |
| D ₃₀₃ | 001-0333-31 | Diode (MA2082B) | 1 |
| D ₇₀₅ | 001-0347-32 | Diode (MA4056M) | 1 |
| D _{301,512} | 001-0347-45 | Diode (MA4082H) | 2 |
| D ₅₁₃ | 001-0347-47 | Diode (MA4091M) | 1 |
| D ₇₀₁ | 001-0347-49 | Diode (MA4100L) | 1 |
| D _{706,901} | 001-0361-00 | Diode (1SS198) | 2 |
| D ₁₀₅ | 001-0401-15 | Diode (HZS3.OEB2-TE) | 1 |
| TH ₁₀₁ | 002-0184-00 | Thermistor (30kΩ) | 1 |
| IFT ₁₀₃ | 005-0844-01 | IF-transformer | 1 |
| IFT _{101,102} | 005-0865-01 | IF-transformer | 2 |
| L _{102,501} | 010-1180-00 | Coil | 2 |
| L ₁₀₁ | 010-1708-00 | Coil | 1 |
| L ₉₀₁ | 010-1853-01 | Coil | 1 |
| L ₂₀₁ | 010-1904-06 | Coil | 1 |
| VR ₁₀₄ | 012-3808-05 | Variable resistor (4.7kΩ) | 1 |
| VR _{101,103} 901,902 | 012-3808-06 | Variable resistor (10kΩ) | 4 |
| VR _{306,307} | 012-3808-09 | Variable resistor (47kΩ) | 2 |
| VR ₁₀₂ | 012-3808-11 | Variable resistor (220kΩ) | 1 |
| VR ₁₀₅ | 012-4101-16 | Variable resistor (15kΩ) | 1 |
| CCT ₅₀₁ | 050-0077-00 | Component circuit (47kΩx4) | 1 |
| IC ₃₀₂ | 051-0267-55 | IC (μPD4066BG) | 1 |
| IC ₅₀₆ | 051-0281-01 | IC (μPB553AC) | 1 |
| IC ₇₀₁ | 051-0296-00 | IC (TA78L006) | 1 |
| IC ₃₀₁ | 051-0301-02 | IC (M51522AL) | 1 |
| IC ₅₀₂ | 051-0306-00 | IC (TD62105P) | 1 |
| IC ₅₀₅ | 051-0329-00 | IC (TD62506P) | 1 |
| IC ₁₀₁ | 051-0363-00 | IC (LA1140) | 1 |
| IC ₆₀₂ | 051-0409-00 | IC (BA634) | 1 |
| IC ₁₀₃ | 051-0463-00 | IC (μPD1256C, ACZ1) | 1 |
| IC ₁₀₂ | 051-0467-00 | IC (HIC) | 1 |
| IC _{507,904} | 051-0478-00 | IC (NJD6506S) | 2 |
| IC ₉₀₂ | 051-0501-00 | IC (LA3365) | 1 |
| IC ₉₀₁ | 051-0502-00 | IC (STK2200) | 1 |
| IC ₅₀₄ | 051-0504-00 | IC (BA3802) | 1 |
| IC ₅₀₃ | 051-0509-01 | IC (μPD1710G013-03) | 1 |
| IC ₃₀₅ | 051-0523-00 | IC (NR9200) | 1 |
| IC ₆₀₁ | 051-0561-00 | IC (AN6263) | 1 |
| IC ₅₀₁ | 051-0565-00 | IC (M54562P) | 1 |
| IC ₉₀₃ | 051-0579-00 | IC (BA222) | 1 |
| X ₅₀₁ | 061-1037-00 | Crystal (4.5MHz) | 1 |
| Q ₉₀₁ | 100-1020-15 | Transistor (2SA1020-O) | 1 |
| Q _{505,911} | 100-1175-49 | Transistor (2SA1175-THF) | 2 |
| Q _{705,910} | 101-0911-18 | Transistor (2SB911MR) | 2 |
| Q _{102-105,301} 302,314,315,501 502,701 903-909 | 102-2458-25 | Transistor (2SC2458Y) | 18 |
| Q _{305,306,702,703} | 102-2458-28 | Transistor (2SC2458GRTPE4) | 4 |
| Q ₁₀₁ | 102-2786-12 | Transistor (2SC2786-TLF) | 1 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---|----------------------|--|------|
| Q ₆₀₁₋₆₀₄ | 102-3400-00 | Transistor (2SC3400AC) | 4 |
| Q _{503,504} | 103-0571-12 | Transistor (2SD571L) | 2 |
| Q ₇₀₄ | 103-1020-69 | Transistor (2SD1020-TH/F) | 1 |
| Q _{106,107,303,304} | 103-1450-20 | Transistor (2SD1450T-T) | 4 |
| R ₁₂₃ | 032-0059-06 | Film resistor (33kΩ) | 1 |
| R ₁₁₇ | 032-0059-08 | Film resistor (100kΩ) | 1 |
| R ₁₁₆ | 032-0059-49 | Film resistor (5.6kΩ) | 1 |
| R ₅₂₉ | 032-0072-01 | Film resistor (5W22Ω) | 1 |
| R ₅₂₃ | 111-4791-81 | Film resistor (1/2W4.7Ω) | 1 |
| R ₃₇₉ | 114-1011-11 | Film resistor (1W100Ω) | 1 |
| C ₅₀₇ | 160-1012-05 | Ceramic capacitor (100pF B) | 1 |
| C _{112,508} | 160-1022-05 | Ceramic capacitor (1000pF B) | 2 |
| C ₁₁₃ | 160-1512-05 | Ceramic capacitor (150pF B) | 1 |
| C ₁₂₅ | 160-1522-05 | Ceramic capacitor (1500pF B) | 1 |
| C ₁₂₁ | 160-8212-05 | Ceramic capacitor (820pF B) | 1 |
| C _{301,302} | 171-1023-06 | Ceramic capacitor (1000pF SR) | 2 |
| C _{103-107,111} 118,133,202,505 516,704,705 | 171-1033-06 | Ceramic capacitor (0.01μF SR) | 13 |
| C ₁₃₁ | 171-1533-06 | Ceramic capacitor (0.015μF SR) | 1 |
| C ₉₀₁ | 171-2223-06 | Ceramic capacitor (0.0022μF SR) | 1 |
| C _{135,136,309,310} 317,501,706 | 171-2233-06 | Ceramic capacitor (0.022μF SR) | 7 |
| C _{102,109,602} | 171-4733-06 | Ceramic capacitor (0.047μF SR) | 3 |
| C _{307,308} | 171-6823-06 | Ceramic capacitor (0.0068μF SR) | 2 |
| C ₁₂₈ | 174-1000-13 | Ceramic capacitor (10pF CH) | 1 |
| C _{502,503} | 174-2200-13 | Ceramic capacitor (22pF CH) | 2 |
| C ₁₃₂ | 174-2210-13 | Ceramic capacitor (220pF CH) | 1 |
| C ₉₀₆ | 174-3610-37 | Ceramic capacitor (360pF RH) | 1 |
| C ₁₀₁ | 174-7090-13 | Ceramic capacitor (7pF CH) | 1 |
| C ₉₀₄ | 043-0174-00 | Ceramic capacitor (2200pF) | 1 |
| C _{512,710,711,712} | 172-1042-20 | Polyester capacitor (6.3V0.1μF) | 4 |
| C ₂₀₁ | 173-1042-10 | Polyester capacitor (0.1μF) | 1 |
| C ₇₀₅ | 042-0201-00 | Electrolytic capacitor (16V3.3μF TAN) | 1 |
| C ₉₁₄ | 042-0249-00 | Electrolytic capacitor (16V0.22μF TAN) | 1 |
| C _{366,902} | 179-2273-22 | Electrolytic capacitor (10V220μF) | 2 |
| C ₅₁₃ | 179-3373-33 | Electrolytic capacitor (16V330μF) | 1 |
| C _{504,905} | 179-4773-23 | Electrolytic capacitor (10V470μF) | 2 |
| C _{320,501} | 179-4773-33 | Electrolytic capacitor (16V470μF) | 2 |
| C ₁₃₀ | 181-1063-32 | Electrolytic capacitor (16V10μF LN) | 1 |
| C _{117,122,129,137} 138,139,303,304 313,314,901,908 913 | 182-1053-62 | Electrolytic capacitor (50V1μF) | 13 |
| C ₁₂₀ | 182-1056-62 | Electrolytic capacitor (50V1μF NP) | 1 |
| C ₉₁₀ | 182-1063-32 | Electrolytic capacitor (16V10μF) | 1 |
| C ₉₀₇ | 182-1073-02 | Electrolytic capacitor (4V100μF) | 1 |
| C _{311,367,514,515} 707,708 | 182-1073-22 | Electrolytic capacitor (10V100μF) | 6 |
| C ₁₂₄ | 182-2243-62 | Electrolytic capacitor (50V0.22μF) | 1 |
| C ₁₁₆ | 182-2246-62 | Electrolytic capacitor (50V0.22μF NP) | 1 |
| C ₉₁₂ | 182-3363-02 | Electrolytic capacitor (4V33μF) | 1 |
| C ₁₂₇ | 182-3363-22 | Electrolytic capacitor (10V33μF) | 1 |
| C _{132,134} | 182-4743-62 | Electrolytic capacitor (50V0.47μF) | 2 |
| C _{903,909} | 182-4753-52 | Electrolytic capacitor (35V4.7μF) | 2 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|------------------------------|----------------------|--|------|
| C115 | 182-4756-32 | Electrolytic capacitor (16V4.7 μ F NP) | 1 |
| C305,306 | 182-4763-12 | Electrolytic capacitor (6.3V47 μ F) | 2 |
| C126,905,911 | 182-4763-42 | Electrolytic capacitor (25V47 μ F) | 3 |
| C203,603 | 183-1043-62 | Electrolytic capacitor (50V0.1 μ F) | 2 |
| C114,315,316,318,319 | 183-1053-62 | Electrolytic capacitor (50V1 μ F) | 5 |
| C312,506,509,511,604,701,904 | 183-1063-32 | Electrolytic capacitor (16V10 μ F) | 7 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|------------------|----------------------|--|------|
| C703 | 183-2253-62 | Electrolytic capacitor (50V2.2 μ F) | 1 |
| C317,906 | 183-2263-32 | Electrolytic capacitor (16V22 μ F) | 2 |
| C702 | 183-3343-62 | Electrolytic capacitor (50V0.33 μ F) | 1 |
| C903 | 183-3363-22 | Electrolytic capacitor (10V33 μ F) | 1 |
| C108,119 | 183-4743-62 | Electrolytic capacitor (50V0.47 μ F) | 2 |
| C110,510,518,902 | 183-4753-52 | Electrolytic capacitor (35V4.7 μ F) | 4 |

◎AUDIO P.W.B

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|------------------|----------------------|---------------------------------------|------|
| D302 | 001-0360-00 | Diode (S5566B) | 1 |
| VR308 | 012-3808-04 | Variable resistor (3.3k Ω) | 1 |
| IC304 | 051-0444-04 | IC (TA7240AP) | 1 |
| IC303 | 051-0444-06 | IC (TA7241AP) | 1 |
| IC306 | 051-0606-00 | IC (BT3S501) | 1 |
| Q309-313 | 102-2458-25 | Transistor (2SC2458Y) | 5 |
| Q315 | 103-1450-20 | Transistor (2SD1450T) | 1 |
| C359,360,362,363 | 043-0122-00 | Ceramic capacitor (12V0.3 μ F) | 4 |
| C358,361 | 043-0165-01 | Ceramic capacitor (12V0.1 μ F) | 2 |
| C341,342 | 171-3323-06 | Ceramic capacitor (0.0033 μ F B) | 2 |
| C333,334 | 171-6823-06 | Ceramic capacitor (0.0068 μ F SR) | 2 |
| C365 | 172-1042-20 | Polyester capacitor (63V0.1 μ F) | 1 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|----------------------|----------------------|--|------|
| C354,356 | 173-1042-10 | Polyester capacitor (50V0.1 μ F) | 2 |
| C332,337 | 179-1063-32 | Electrolytic capacitor (16V10 μ F) | 2 |
| C345,347,353,355,357 | 179-1073-22 | Electrolytic capacitor (10V100 μ F) | 8 |
| C364 | 179-2283-31 | Electrolytic capacitor (16V2200 μ F) | 1 |
| C348,349 | 179-4763-22 | Electrolytic capacitor (10V47 μ F) | 2 |
| C318,319,344,345 | 182-1053-62 | Electrolytic capacitor (50V1 μ F) | 4 |
| C327,328 | 182-1063-32 | Electrolytic capacitor (16V10 μ F) | 2 |
| C331 | 182-1073-32 | Electrolytic capacitor (16V100 μ F) | 1 |
| C335,339 | 182-2243-62 | Electrolytic capacitor (50V0.22 μ F) | 2 |
| C390 | 182-2263-32 | Electrolytic capacitor (16V22 μ F) | 1 |
| C329,330,336,338 | 182-4753-52 | Electrolytic capacitor (35V4.7 μ F) | 4 |

◎MECHANISM P.W.B

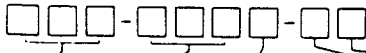
| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|----------|----------------------|-----------------------|------|
| D401-109 | 001-0112-00 | Diode (1S1588) | 9 |
| IC401 | 051-0403-01 | IC (TD6308AP) | 1 |
| Q401 | 102-1815-25 | Transistor (2SC1815Y) | 1 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|----------|----------------------|--|------|
| C404 | 179-3373-33 | Electrolytic capacitor (16V330 μ F) | 1 |
| C401,402 | 182-1063-32 | Electrolytic capacitor (16V10 μ F) | 2 |
| C403 | 182-4743-62 | Electrolytic capacitor (50V0.47 μ F) | 1 |

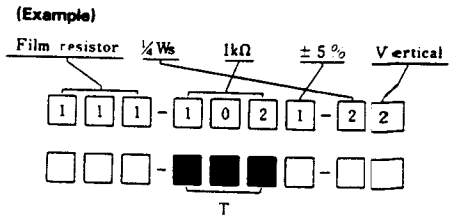
● How to read resistor

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 |
|----------------|--------------------|--------------------------------------|-----------|-------------|------------------|--------------|
| | | 0 | 0 | | | |
| 111 | Example | 1 | $\pm 5\%$ | 1 | $\frac{1}{8}W$ | 1 Horizontal |
| | 33 Ω = 330 | 2 | | 2 | $\frac{1}{4}Ws$ | 2 Vertical |
| | 33k Ω = 333 | 3 | | 3 | | 3 |
| | | 4 | | 4 | $\frac{1}{2}W$ | 4 |
| | | | | 7 | $\frac{1}{8}W$ | 7 |
| | | | | 8 | $\frac{1}{2}Ws$ | 8 |
| | | | | 9 | $\frac{1}{4}Wss$ | 9 |



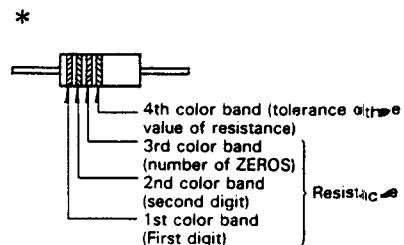
Note 1. The first two of three digits representing resistance are effective digits and the last one represents number of "0" following this. Unit is given in ohm (Ω).

Example of conversion of resistance $\blacksquare \blacksquare \blacksquare \blacksquare$

Note) R : Resistance, T : Converted value

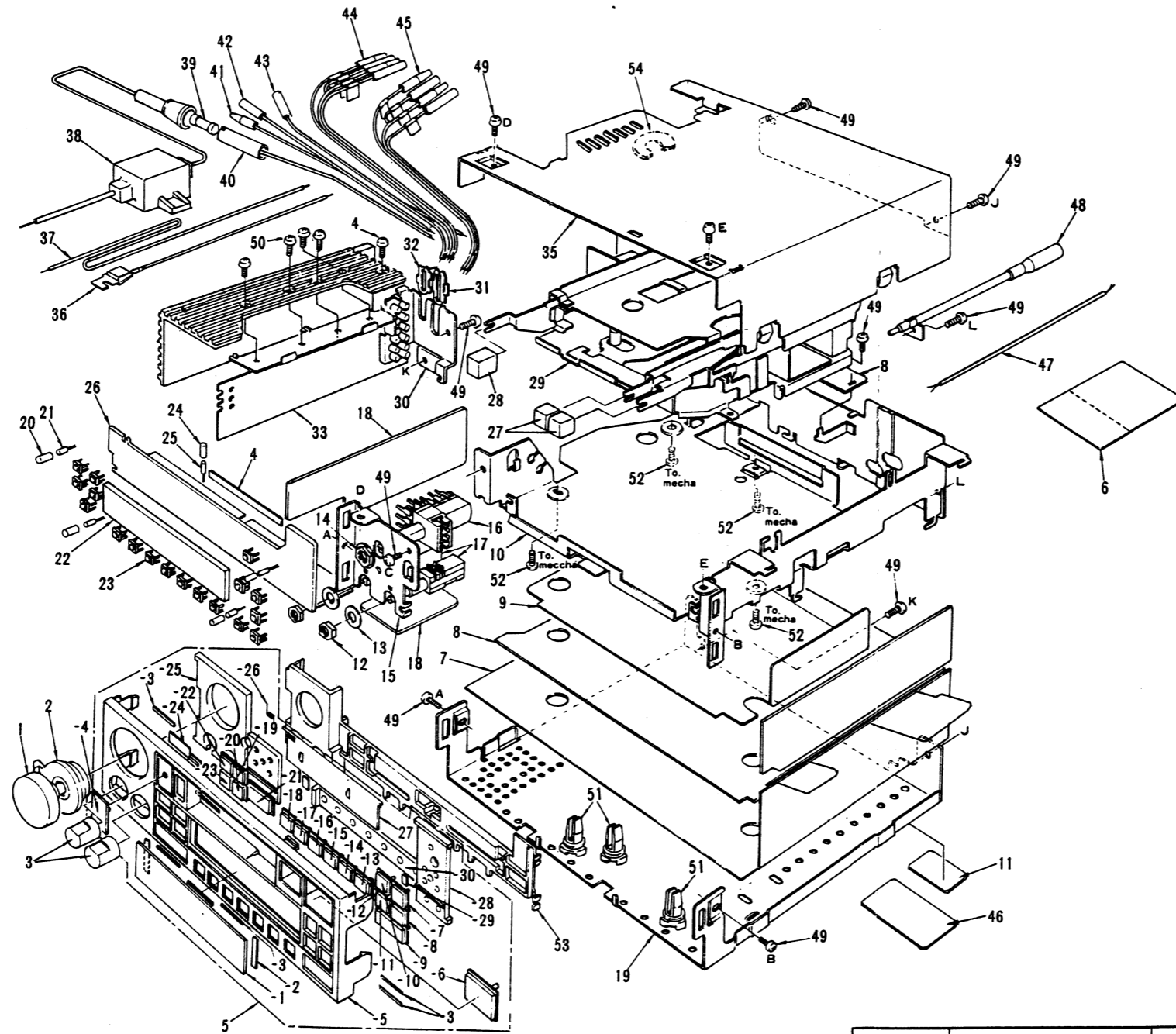
| R | T | R | T | R | T | R | T | R | T | R | T | R | T | R | T | R | T | R | T |
|------|-----|-----|-----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|
| 0.1 | 10M | 1.0 | 109 | 10 | 100 | 100 | 101 | 1.0 | 102 | 10 | 103 | 100 | 104 | 1.0 | 105 | 10 | 106 | 100 | 107 |
| 0.15 | 15M | 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 | 10^0 | 10^1 | 10^2 | 10^3 | 10^4 | 10^5 | 10^6 | | | | 10^{-1} | 10^{-2} | |
| 4th color band | | | | | | | | | | | $\pm 5\%$ (J) | $\pm 10\%$ (K) | $\pm 20\%$ (M) |



EXPLODED VIEW • PARTS LIST:

©Main section



| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---------|----------------------------|-----------------------------------|------|
| 1 | 380-4293-01 | Knob (VOL) | 1 |
| 2 | 380-4295-00 | Knob (FAD) | 1 |
| 3 | 380-4294-01 | Knob (BASS, TREB) | 2 |
| 4 | 714-3006-89 | Machine screw (M3x8) | 1 |
| 5 | 940-2808-00 940-2808-01 | Escutcheon (E951) ass'y (E950) | 1 |
| 5-1 | 373-0364-12 | Dial cover | 1 |
| 5-2 | 347-0645-00 | Adhesive paper | 2 |
| 5-3 | 347-0815-00 | Adhesive paper | 6 |
| 5-4 | 378-0088-00 | Badge | 1 |
| 5-5 | 370-3561-04 | Escutcheon | 1 |
| 5-6 | 382-0508-00 | Button (PRO) | 1 |

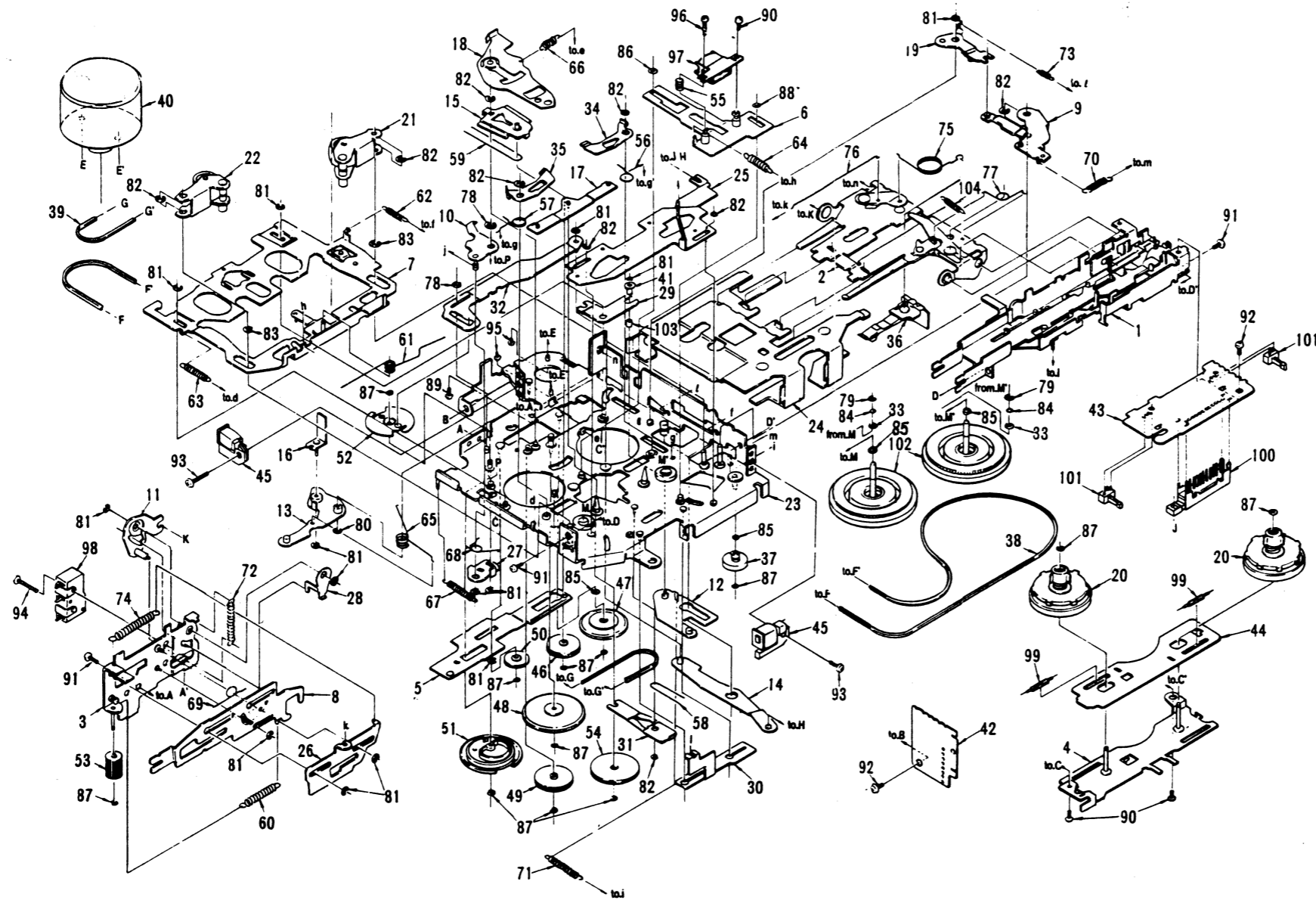
| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---------|----------------------------|---|------|
| 5-7 | 382-0509-03 | Button (L/M/U) | 1 |
| 5-8 | 382-0509-00 | Button (ST) | 1 |
| 5-9 | 382-0511-00 | Button (< >) | 1 |
| 5-10 | 382-0509-01 382-0507-00 | Button (VF) (E951) Dummy button (E950) | 1 |
| 5-11 | 382-0507-00 | Dummy button | 1 |
| 5-12 | 382-0510-00 | Button (M) | 1 |
| 5-13 | 382-0510-06 | Button (6) | 1 |
| 5-14 | 382-0510-05 | Button (5) | 1 |
| 5-15 | 382-0510-04 | Button (4) | 1 |
| 5-16 | 382-0510-03 | Button (3) | 1 |
| 5-17 | 382-0510-02 | Button (2) | 1 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---------|----------------------------|----------------------------------|------|
| 5-18 | 382-0510-01 | Button (1) | 1 |
| 5-19 | 382-0509-07 | Button (MTL) | 1 |
| 5-20 | 382-0509-06 | Button (APC) | 1 |
| 5-21 | 382-0511-01 | Button (> > >) | 1 |
| 5-22 | 382-0509-04 | Button (LD) | 1 |
| 5-23 | 382-0509-02 | Button (LD) | 1 |
| 5-24 | 347-0872-00 | Adhesive paper | 1 |
| 5-25 | 371-3078-01 | Trim plate | 1 |
| 5-26 | 750-2309-01 | Spring | 1 |
| 5-27 | 320-0328-45 320-0328-46 | Dustproof (E951) cover (E950) | 1 |
| 5-28 | 371-3077-01 | Trim plate | 1 |
| 5-29 | 347-0772-00 | Adhesive paper | 2 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---------|----------------------------|---------------------------------|------|
| 5-30 | 371-3079-02 | Trim plate | 1 |
| 6 | 285-1096-01 | Guide label | 1 |
| 7 | 347-1244-02 | Insulator | 1 |
| 8 | 099-7151-01 | P.W.B | 1 |
| 9 | 347-1217-01 | Insulator | 1 |
| 10 | 312-0231-03 | Chassis | 1 |
| 11 | 286-5384-00 286-5385-00 | Set plate (E951) (E950) | 1 |
| 12 | 722-0332-00 | Hex-nut | 2 |
| 13 | 745-0560-00 | Flat washer | 2 |
| 14 | 722-0417-00 | Nut | 1 |
| 15 | 330-7674-01 | VR bracket | 1 |
| 16 | 012-4068-00 | Variable resistor (VOL) | 1 |
| 17 | 012-4070-00 | Variable resistor (BASS, TREB) | 2 |
| 18 | 099-7190-00 | P.W.B | 1 |
| 19 | 304-0357-03 | Lower cover | 1 |
| 20 | 345-3619-00 | P.L cap | 4 |
| 21 | 017-0338-06 | Pilot lamp | 4 |
| 22 | 379-0051-16 | Indicator | 1 |
| 23 | 013-3694-00 | Switch | 18 |
| 24 | 345-2830-07 | P.L cap | 1 |
| 25 | 017-0349-00 | Pilot lamp | 1 |
| 26 | 099-6814-01 | P.W.B | 1 |
| 27 | 382-0506-01 | Button (◀) | 2 |
| 28 | 382-0505-01 | Button (↷) | 1 |
| 29 | 930-0514-01 930-0514-00 | Tape (E951) mechanism (E950) | 1 |
| 30 | 944-0650-03 | Filter ass'y | 1 |
| 31 | 335-0818-00 | Lead holder | 1 |
| 32 | 335-0580-00 | Lead holder | 1 |
| 33 | 347-1359-00 | Insulator | 1 |
| 34 | 313-1184-00 | Heat sink | 1 |
| 35 | 310-1125-03 | Upper case | 1 |
| 36 | 840-0386-00 | Bonding wire | 1 |
| 37 | 850-2110-02 | A-lead | 1 |
| 38 | 009-0626-13 | Choke | 1 |
| 39 | 120-0070-00 | Fuse (7A) | 1 |
| 40 | 850-2225-00 | A-lead | 1 |
| 41 | 850-1580-02 | A-lead | 1 |
| 42 | 852-5322-02 | Extension lead | 1 |
| 43 | 852-6652-01 | Extension lead | 1 |
| 44 | 851-2442-02 | Speaker lead (Gray) | 1 |
| 45 | 851-2443-03 | Speaker lead (White) | 1 |
| 46 | 285-0915-00 | Guide label | 1 |
| 47 | 815-2061-00 | Head lead wire | 1 |
| 48 | 092-0522-06 | Antenna receptacle | 1 |
| 49 | 731-3006-80 | Tap tight (M3x) | 11 |
| 50 | 714-3010-81 | Machine screw (M3x10) | 4 |
| 51 | 335-1603-00 | Bush | 3 |
| 52 | 714-3003-81 | Machine screw (M3x3) | 4 |
| 53 | 374-0833-02 | Back plate | 1 |
| 54 | 345-3826-00 | Spacer | 1 |

EXPLODED VIEW · PARTS LIST:

©Tape mechanism section



| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---------|----------------------|-------------------|------|
| 1 | 960-3475-03 | Frame sub ass'y | 1 |
| 2 | 960-3476-04 | Guide arm ass'y | 1 |
| 3 | 960-3477-01 | Side panel ass'y | 1 |
| 4 | 960-3479-01 | Reel base-P ass'y | 1 |
| 5 | 960-3480-03 | Power-P ass'y | 1 |
| 6 | 960-3481-01 | Head plate ass'y | 1 |
| 7 | 960-3482-05 | Roller-P-A ass'y | 1 |
| 8 | 960-3483-03 | E-lever ass'y | 1 |
| 9 | 960-3484-00 | Plunger-P ass'y | 1 |
| 10 | 960-3487-02 | C-gear-L-P ass'y | 1 |
| 11 | 960-3488-02 | Eject link ass'y | 1 |
| 12 | 960-3490-03 | P-sub-P ass'y | 1 |
| 13 | 960-3492-03 | Cam-G-L-P ass'y | 1 |
| 14 | 960-3493-02 | Change arm ass'y | 1 |
| 15 | 960-3494-02 | Idler-P ass'y | 1 |

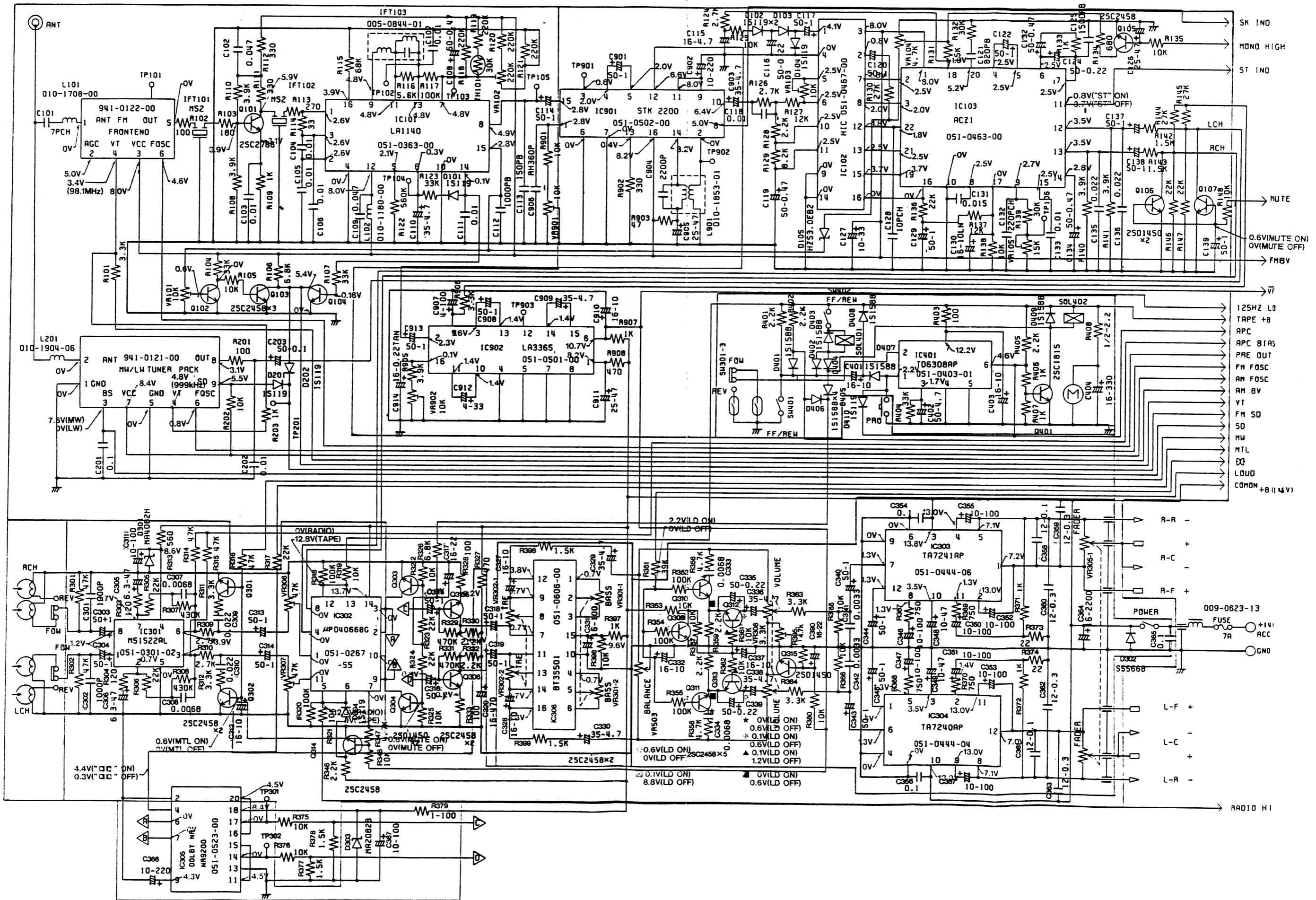
| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---------|----------------------|--------------------|------|
| 16 | 960-3495-00 | H-piece-B ass'y | 1 |
| 17 | 960-3496-02 | FF gear-P ass'y | 1 |
| 18 | 960-3497-01 | H-P-lock-P ass'y | 1 |
| 19 | 960-3498-01 | Hold plate ass'y | 1 |
| 20 | 960-3499-01 | Reel base ass'y | 2 |
| 21 | 960-3500-01 | Roller-F ass'y | 1 |
| 22 | 960-3501-01 | Roller-R ass'y | 1 |
| 23 | 960-3504-04 | Deck plate ass'y | 1 |
| 24 | 606-0077-04 | Pack guide | 1 |
| 25 | 630-1576-02 | Change plate | 1 |
| 26 | 630-1579-00 | Eject plate | 1 |
| 27 | 960-3561-00 | Timing plate ass'y | 1 |
| 28 | 630-1581-01 | Switch plate | 1 |
| 29 | 630-1582-01 | Power line | 1 |
| 30 | 630-1583-00 | FF plate | 1 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---------|----------------------------|------------------------------------|------|
| 31 | 630-1584-01 | FF gear arm | 1 |
| 32 | 630-1585-00 | Idler-C-plate | 1 |
| 33 | 746-0730-00 | Washer | 2 |
| 34 | 630-1587-00 | Brake plate-F | 1 |
| 35 | 630-1588-00 | Brake plate-R | 1 |
| 36 | 631-0412-03 | Pack stopper | 1 |
| 37 | 631-0370-01 | Tension pulley | 1 |
| 38 | 602-0079-00 | Belt | 1 |
| 39 | 602-0080-00 | Belt | 1 |
| 40 | 960-3532-00 | Motor ass'y | 1 |
| 41 | 610-0242-01 | P-roller | 1 |
| 42 | 099-8794-00 099-8704-01 | P.W.B (E951 MK II) (E950 MK II) | 1 |
| 43 | 099-6703-01 | P.W.B | 1 |
| 44 | 099-6702-01 | P.W.B | 1 |
| 45 | 015-0232-00 | Plunger | 2 |

| REF.NO. | PART NO. (ORDER NO.) | DESCRIPTION | Q'TY |
|---------|----------------------|------------------------|------|
| 46 | 613-0044-01 | Idler gear | 1 |
| 47 | 613-0045-00 | Pulley gear | 1 |
| 48 | 613-0046-01 | Gear A | 1 |
| 49 | 613-0047-01 | Gear B | 1 |
| 50 | 613-0048-01 | Gear C | 1 |
| 51 | 613-0049-03 | Cam gear | 1 |
| 52 | 613-0050-02 | Channel-C-gear | 1 |
| 53 | 613-0051-00 | Gear | 1 |
| 54 | 613-0052-02 | FF gear | 1 |
| 55 | 750-1910-00 | Azimuth spring | 1 |
| 56 | 750-2278-02 | Brake-F-spring | 1 |
| 57 | 750-2279-02 | Brake-R-spring | 1 |
| 58 | 750-2281-01 | FF-U-spring | 1 |
| 59 | 750-2282-03 | Idler-U-spring | 1 |
| 60 | 750-2283-00 | EJ-lever spring | 1 |
| 61 | 750-2284-01 | P-roller spring | 1 |
| 62 | 750-2286-00 | Roll-P-A-spring | 1 |
| 63 | 750-2287-00 | Roll-P-B-spring | 1 |
| 64 | 750-2288-00 | Head-P-spring | 1 |
| 65 | 750-2291-01 | Cam-G-spring | 1 |
| 66 | 750-2292-00 | Head-L-spring | 1 |
| 67 | 750-2293-00 | Change-G-spring | 1 |
| 68 | 750-2294-01 | Timing-P-spring | 1 |
| 69 | 750-2295-01 | Hook arm spring | 1 |
| 70 | 750-2296-00 | Plunger-P-spring | 1 |
| 71 | 750-2297-01 | P-sub spring | 1 |
| 72 | 750-2298-00 | E-link spring | 1 |
| 73 | 750-2299-00 | P-lock spring | 1 |
| 74 | 750-2300-02 | E-plate spring | 1 |
| 75 | 750-2301-03 | Slot in spring | 1 |
| 76 | 750-2302-00 | Rod spring | 1 |
| 77 | 750-2320-00 | E-lock spring | 1 |
| 78 | 744-0018-01 | E-ring | 2 |
| 79 | 744-0022-00 | E-ring | 2 |
| 80 | 743-1200-10 | E-ring | 1 |
| 81 | 743-1500-10 | E-ring | 14 |
| 82 | 743-2000-10 | E-ring | 9 |
| 83 | 743-2500-10 | E-ring | 2 |
| 84 | 746-0732-00 | Washer | 2 |
| 85 | 746-0617-00 | Washer | 6 |
| 86 | 746-0622-01 | Washer | 1 |
| 87 | 746-0628-01 | Washer | 12 |
| 88 | 746-0717-01 | Washer | 1 |
| 89 | 732-2604-11 | Sems screw (M2.6x4) | 1 |
| 90 | 714-2003-81 | Machine screw (M2x3) | 3 |
| 91 | 714-2603-81 | Machine screw (M2.6x3) | 3 |
| 92 | 714-2604-81 | Machine screw (M2.6x4) | 2 |
| 93 | 714-2606-11 | Machine screw (M2.6x6) | 2 |
| 94 | 714-2308-81 | Machine screw (M2.3x8) | 1 |
| 95 | 716-0347-00 | Screw | 2 |
| 96 | 716-0429-00 | Screw | 1 |
| 97 | 011-0285-00 | Head | 1 |
| 98 | 013-3580-00 | Switch | 1 |
| 99 | 013-3601-00 | Switch | 2 |
| 100 | 013-3666-00 | Switch | 1 |
| 101 | 013-3687-00 | Switch | 2 |
| 102 | 611-0067-00 | Fly wheel | 2 |
| 103 | 610-0259-00 | P-roller B | 1 |
| 104 | 750-2369-00 | Kick plate spring | 1 |

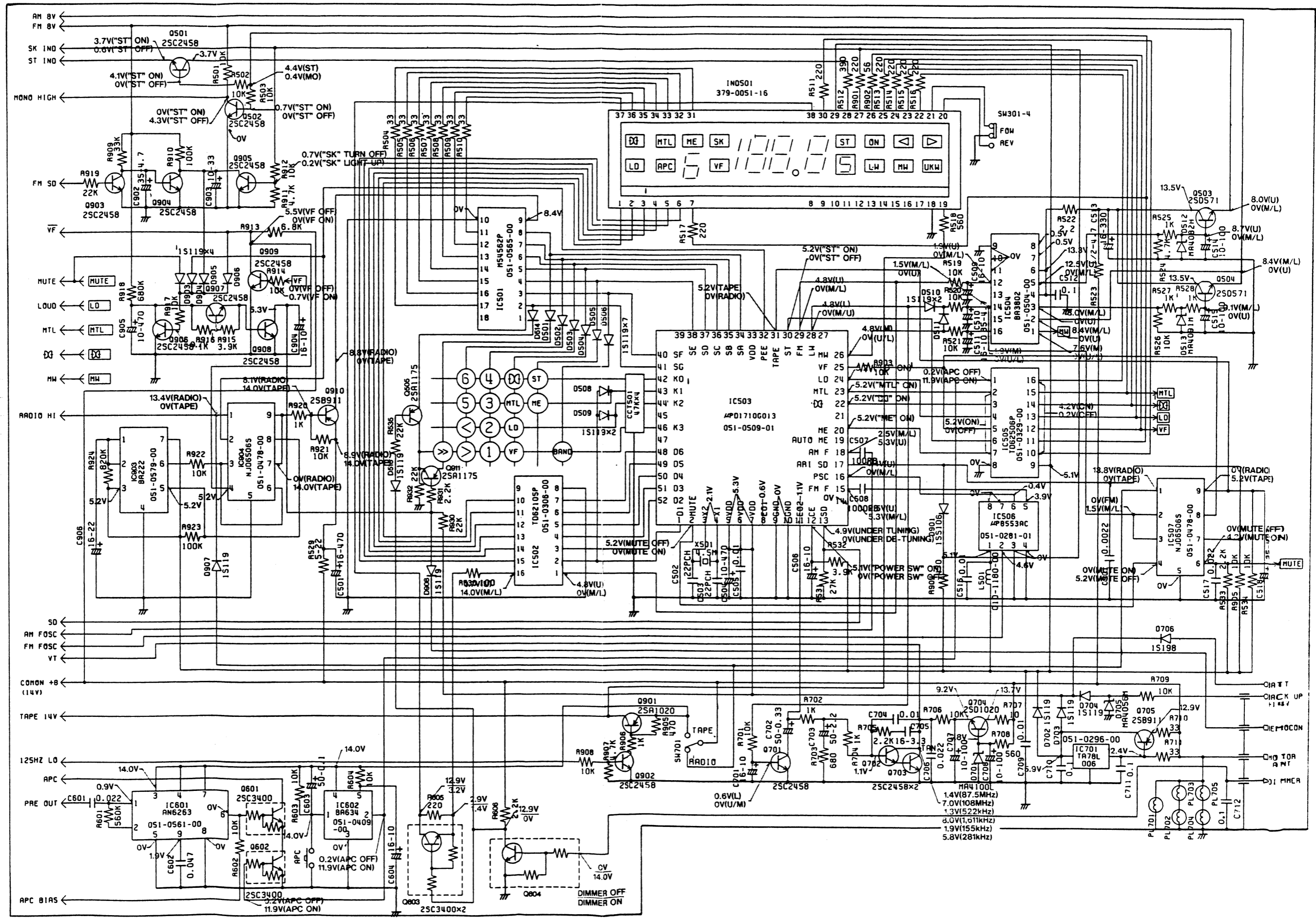
CIRCUIT DIAGRAM:

● E951 MK II (PE-9046A)



CIRCUIT DIAGRAM:

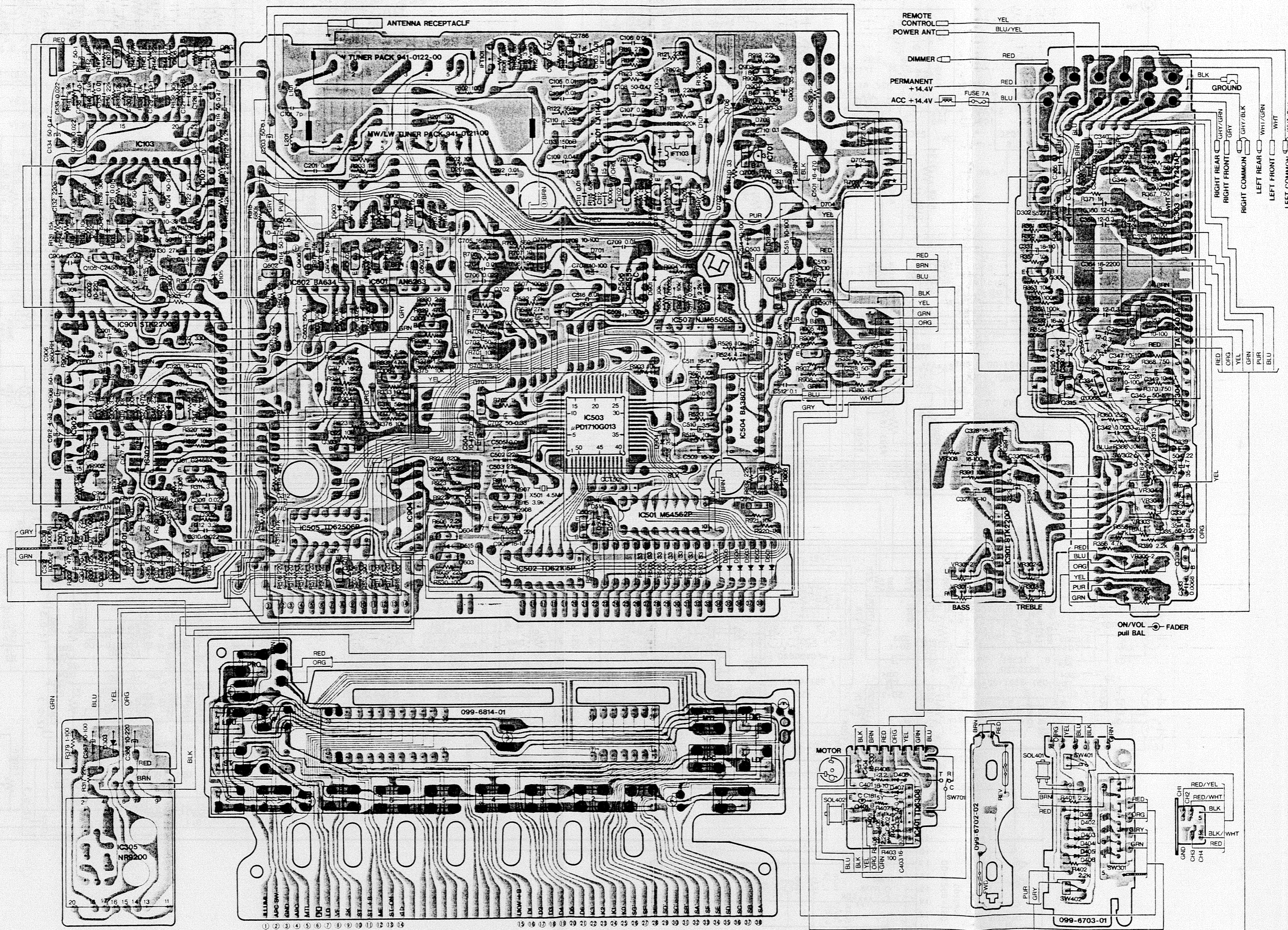
● E951 MK II (PE-9046A)



E951 MK II
E950 MK II

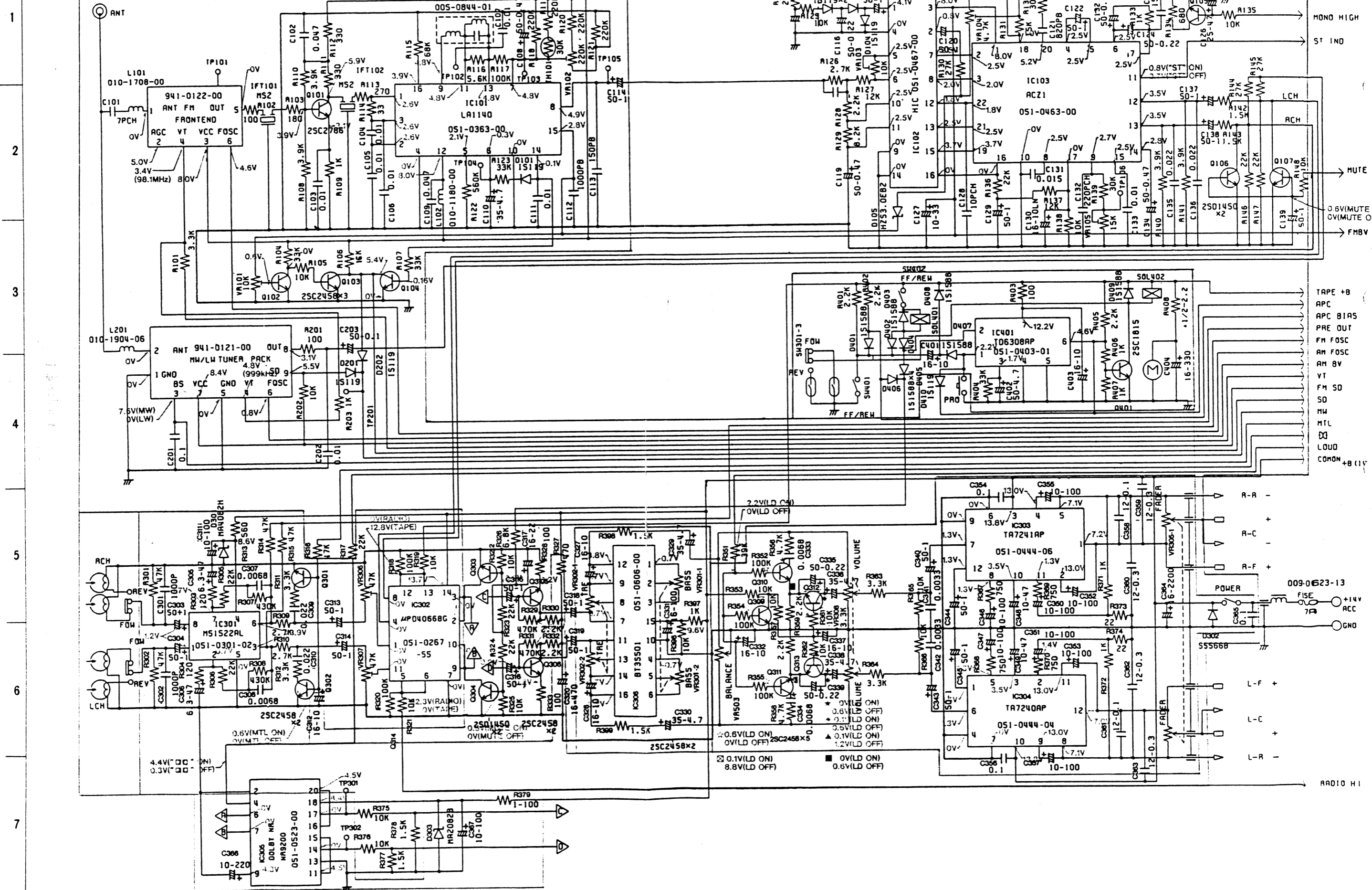
PRINTED WIRING BOARD:

E951 MK II (PE-9046A)



CIRCUIT DIAGRAM:

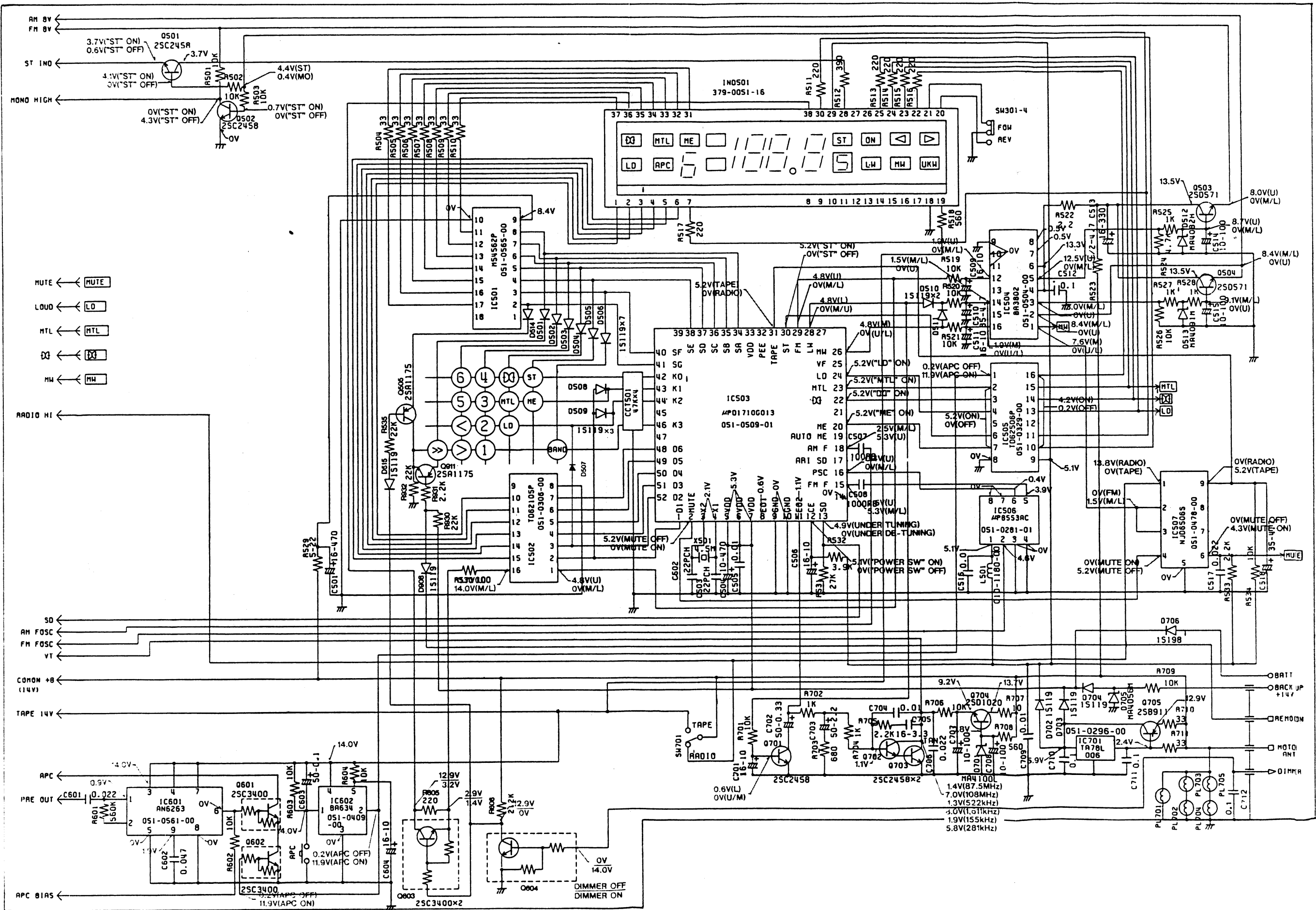
● E950-MK II (PE-9047A)



E951 MK II
E950 MK II

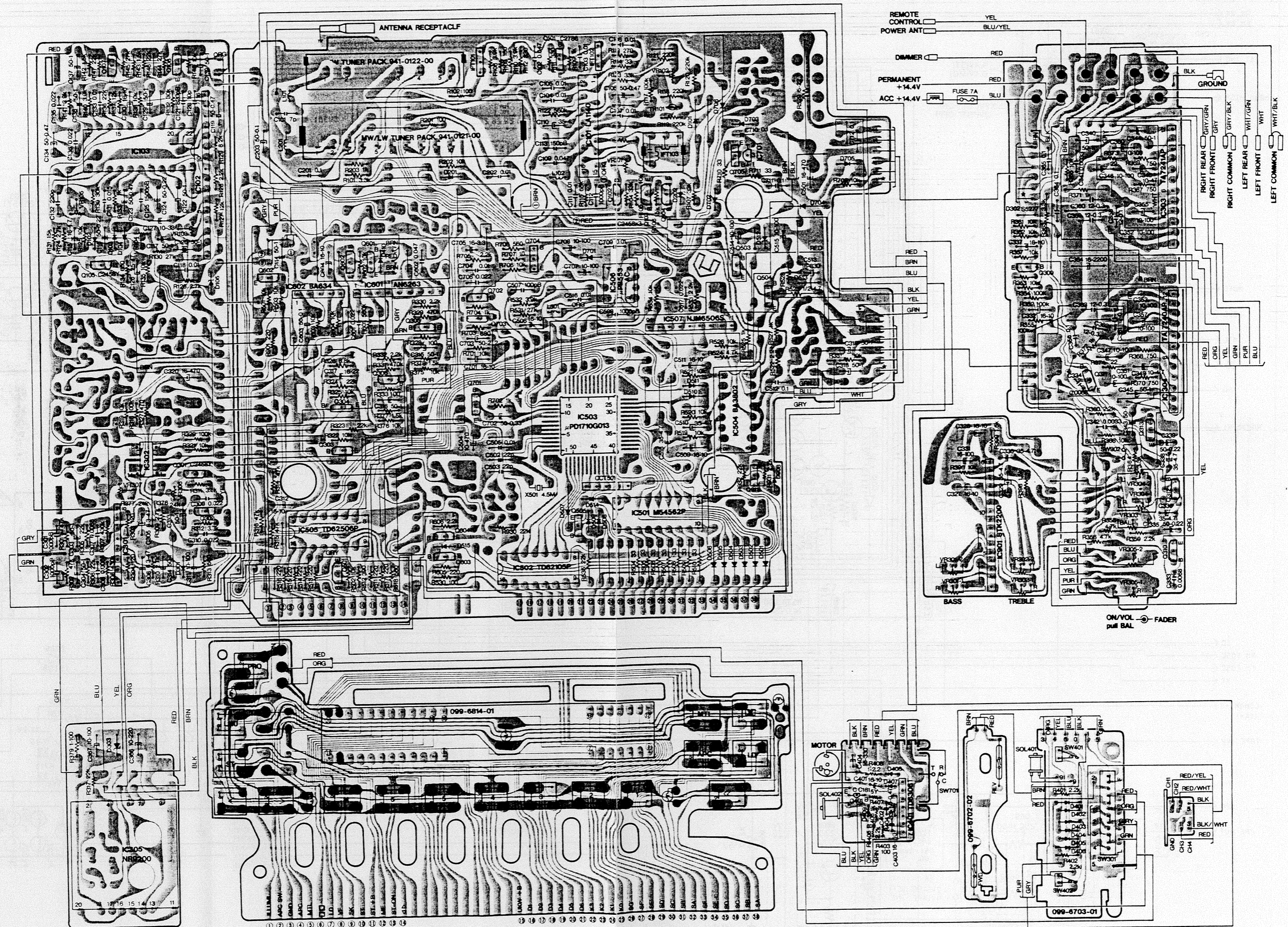
CIRCUIT DIAGRAM:

● E950 MK II (PE-9047A)



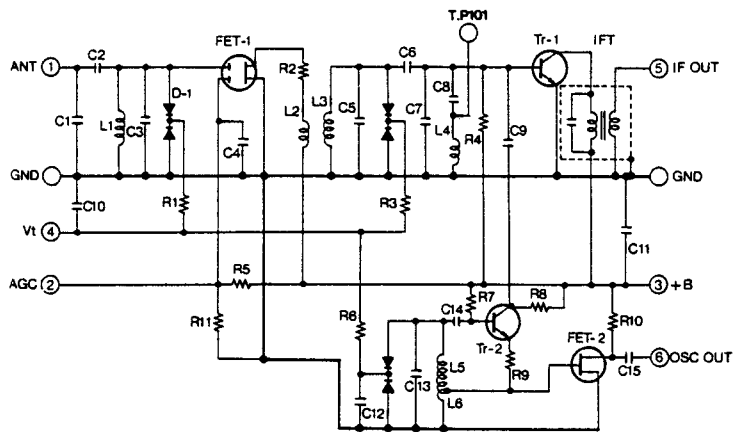
■ PRINTED WIRING BOARD:

● E950 MK II (PE-9047A)

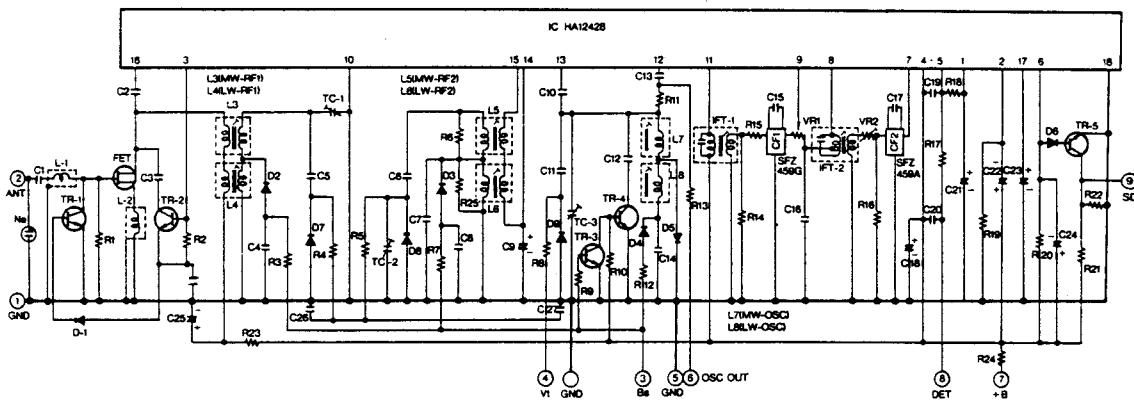


TUNER PACK CIRCUIT:

⊙UKW(FM) circuit



⊙MW/LW circuit



WAVE-FORM OF CONTROLLER

