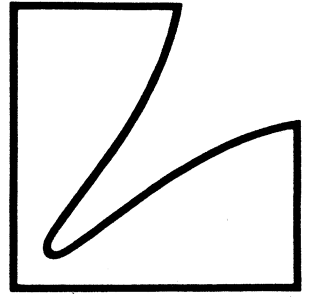
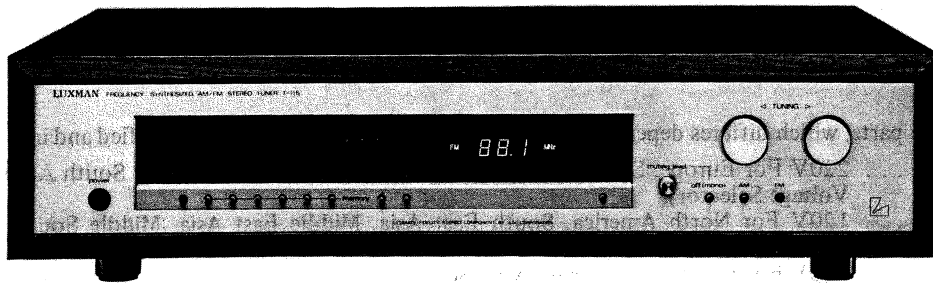


SERVICE MANUAL



DIGITAL FREQUENCY SYNTHESIZED AM FM STEREO TUNER **T-115**



CONTENTS

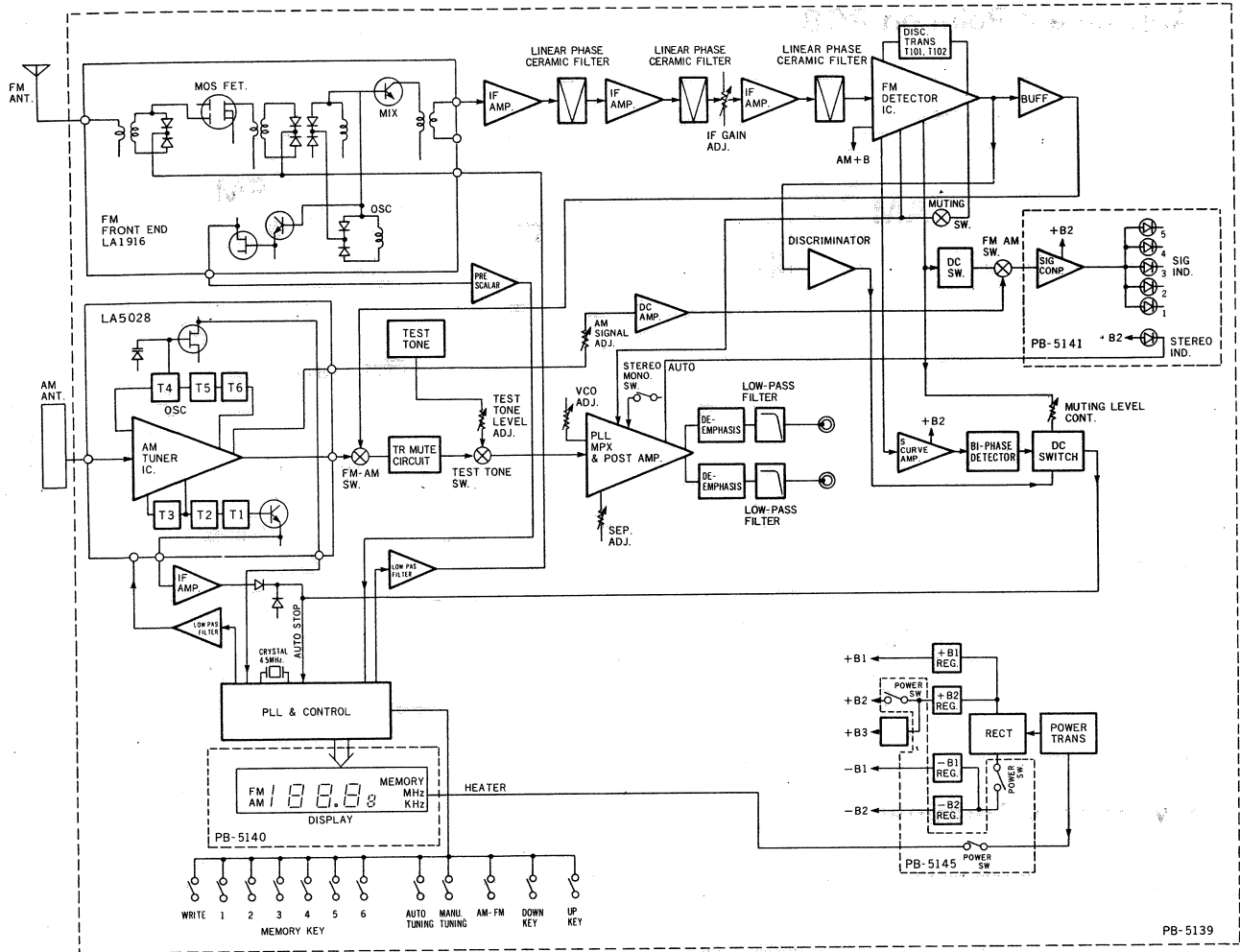
- BLOCK DIAGRAM 1
- ALIGNMENT PROCEDURE 2 · 3 · 4
- REPLACEMENT PARTS LIST 5
- EXPLODED VIEW 6
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- PCB PARTS LIST 9 · 10 · 11 · 12
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- STANDARD CURVES 14
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NOTE

In this manual the parts, which differes depending on destination and mains voltage, are classified and indicated as follow.

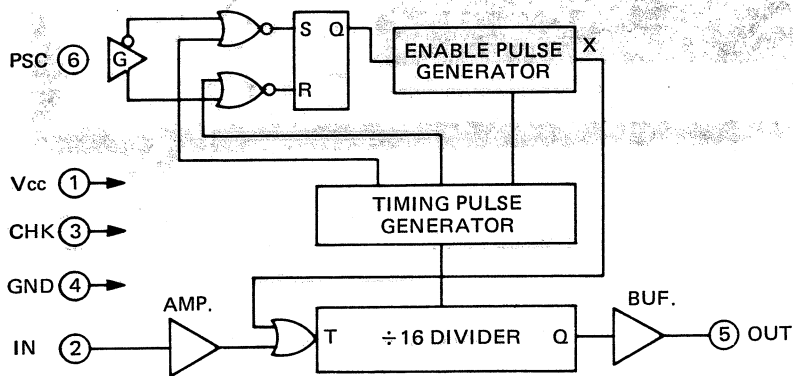
- E —
 - EK 220V For Europe, South Asia, East Asia, Middle East Asia, Middle South America (With Line Voltage Selector).
 - EZ 120V For North America, South East Asia, Middle East Asia, Middle South America (With Line Voltage Selector).
- S —
 - SK 220V For Europe, South East Asia, South America.
 - SG 240V For England, Oceania.
 - SB 240V For Australia.
- U —
 - U 120V For North America.
 - UW 120V For Canada.
- J 100V For Japan.

BLOCK DIAGRAM

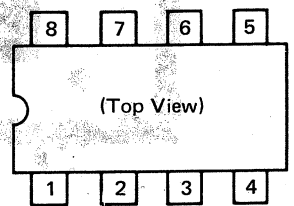


[μPB 5330]

BLOCK DIAGRAM

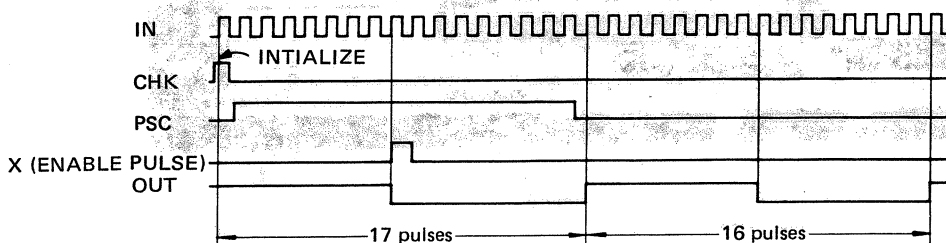


PIN CONNECTION



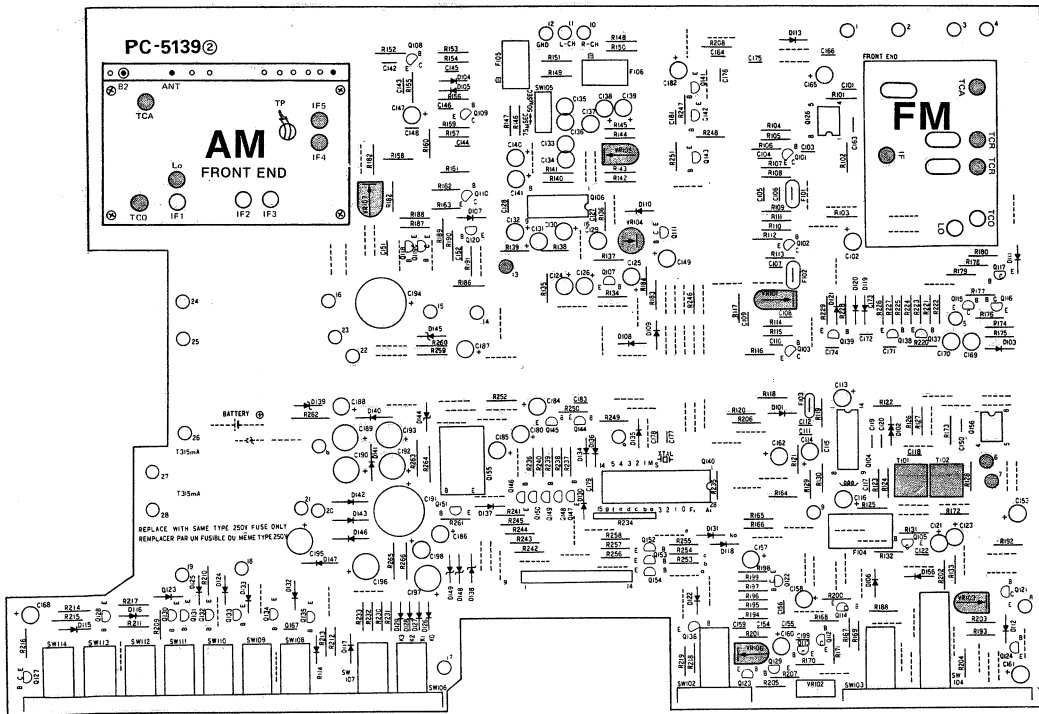
| Pin No. | |
|---------|-----|
| 1 | Vcc |
| 2 | IN |
| 3 | CHK |
| 4 | GND |
| 5 | OUT |
| 6 | PSC |
| 7 | NC |
| 8 | NC |

TIMING CHART

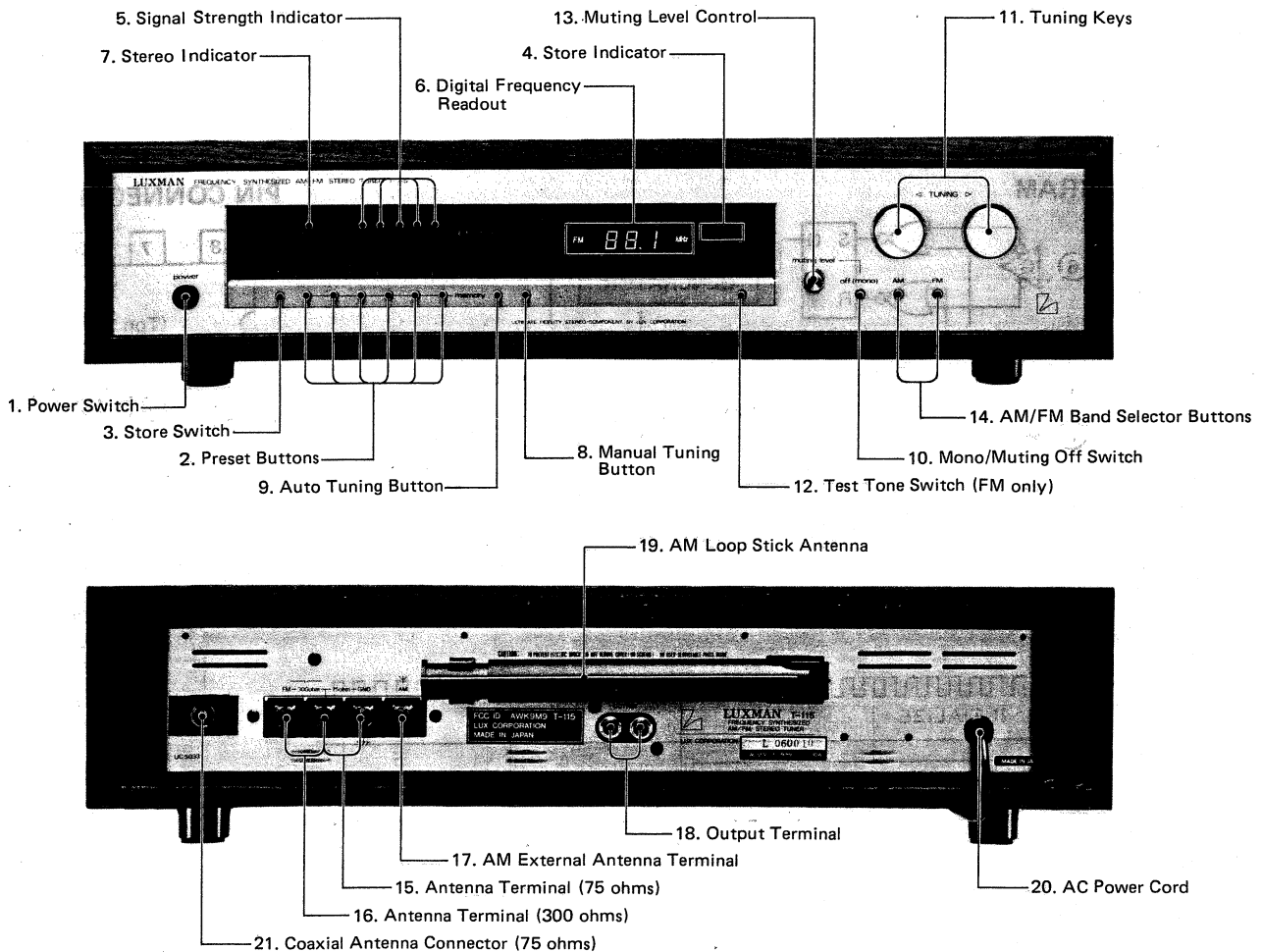


ALIGNMENT PROCEDURE

Adjustment Point on PCB



Switches & Terminal



1) Test equipment required and connection method.

Oscilloscope ————
 AC Voltmeter ————
 Distortion Analyzer ————
 FM Signal Generator FM-SG --- Connect to the Antenna terminal through matching network. (Balun)
 MPX Generator ----- Connect to the FM-SG
 Galvanometer ($\pm 100 \mu\text{A}$)
 Frequency Counter

Connect all the testing equipments as per Fig. 1:

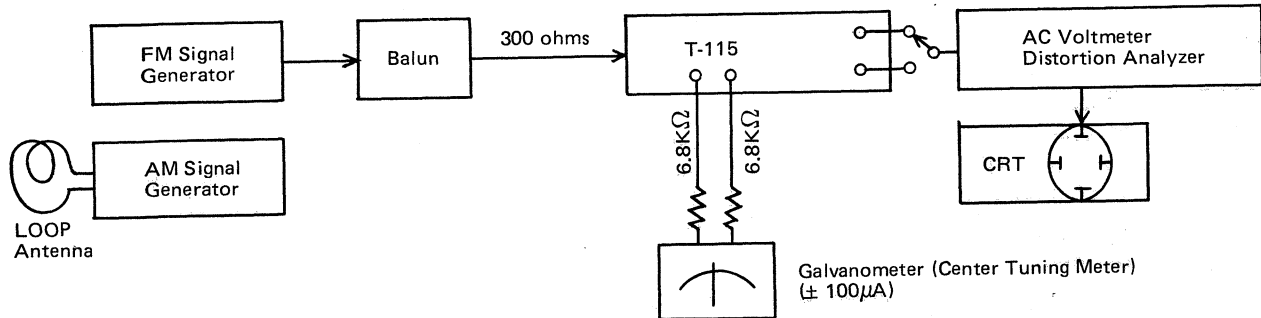


Fig. 1

FM SECTION

2) Pre-Setting of VR's

- VR101: Turn clockwise to the maximum for IF gain adjustment.
- VR103: Turn counter-clockwise to the maximum for signal strength level.
- VR104: Turn to the center position for MPX VCO adjustment.
- VR105: Turn to the center position for MPX separation adjustment.

3) Setting of Front Panel Function

- Muting Theshold VR: Turn counter-clockwise to the maximum
- Manual Tuning Switch: ON (manual)
- AM/FM Function Switch: FM
- Muting Switch: OFF
- Test Tone Switch: OFF

4) FM Discriminator, Distortion Adjustment

- 1) Set Signal Generator at 98MHz with output, 1mV Non-modulation.
- 2) Tune the T-115 at 98MHz.
- 3) Connect $\pm 100 \mu\text{A}$ Galavanometer having 6.8K ohm resistor in series to pin (6) and Pin (7) on PC5139.
- 4) Confirm the 1KHz signal coming at the output terminal of the T-115.
- 5) Adjust T101, FM Transformer to null point of above Meter.
- 6) Adjust T102, FM Transformer to make distortion minimum.
- 7) Repeat the above procedures 4 and 5 three or four times to obtain the "null" point of Center Tuning Meter and minimum distortion at the same time.

5) FM Tracking Adjustment

- 8) Set Signal Generator at 108MHz, output $2 \mu\text{V}$, 1KHz 100% modulation and tune the T-115 at 108 MHz.
- 9) Turn TCA, TCR the trimmers of the front-end to obtain maximum output level and sensitivity.
- 10) Adjust IF coil of the front-end to make the maximum output and sensitivity

6) FM Muting and Signal Strength Adjustment

- 11) Set Signal Generator at 98MHz, 1KHz 100% modulation and tune T115 at 98MHz.
- 12) Push Muting Sw. at "ON" and set output of Signal Generator to $5 \mu\text{V}$ and adjust VR101 to appear the signal of 1KHz at the tuner output.
- 13) Adjust VR103 to make 5th L.E.D. of signal strength indicator light at $300 \mu\text{V}$ output of Signal Generator.
- 14) Make output of Signal Generator null and confirm L.E.D. unlit.

7) MPX Adjustment

- 15) Connect frequency counter between check pin 13 and ground.
- 16) Set Signal Generator at 98MHz non-modulation, output 1mV and adjust VR104 to get VCO frequency 19KHz^{+0}_{-10} Hz on frequency counter reading.
- 17) Make left or right stereo modulation at 1KHz 90%, pilot signal 10%, with Signal Generator and adjust VR105 to make separation maximum and balanced on left and right channels.

8) Test Tone Level Adjustment

- 18) Set Signal Generator at 98MHz, output 1mV, 400Hz 100% modulation and tune the T115 at 98MHz.
- 19) Note output level of the T115 at output terminal.
- 20) Push tone switch "ON" and adjust VR106 to make - 6dB level against output level noted step 19.

AM SECTION**9) AM PLL Adjustment**

- 21) Connect DC Voltmeter to terminal B 2 of AM front-end and ground.
- 22) Tune the T115 at 1404KHz/E,S, 1400KHz/U and Adjust TCO to obtain $15.5\text{V} \pm 0.05\text{V}$ reading on meter.
- 23) Tune the T115 at 603KHz/E,S, 600KHz/U and adjust L0 to obtain $2.5\text{V} \pm 0.05\text{V}$ reading on meter.
- 24) Repeat step 22 and 25 so as to get accurate PLL adjustment.

10) AM IF Adjustment

- 25) Connect the output of 450KHz Sweep Generator to the ANT 1 terminal.
- 26) Connect the input of Sweep Generator to TP terminal and set the output of Sweep Generator to 40-50dB.
- 27) Adjust IF1-IF3 so as to obtain maximum symmetrical single peak response.

11) AM Tracking Adjustment

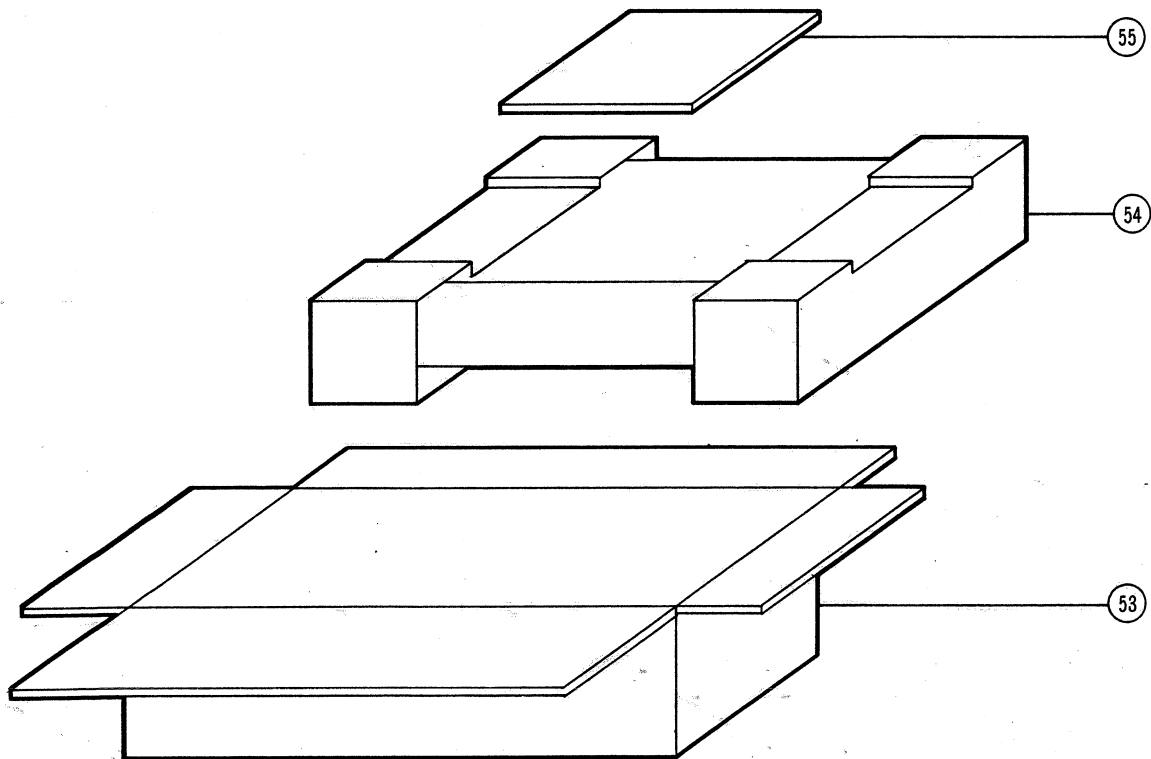
- 28) Set Signal Generator at 1404KHz/E,S, 1400KHz/U, 400Hz 30% modulation, field strength approx. 1404KHz/E,S, 1400KHz/U.
- 29) Adjust TCA to get maximum tuner output.
- 30) Change Signal Generator frequency and receiving frequency on tuner both at 603KHz/ES, 600KHz/U.
- 31) Adjust the bar antenna to obtain maximum tuner output.
- 32) Repeat steps 28-31 as necessary to obtain maximum sensitivity on band.
- 33) Set Signal Generator at 1008KHz/Es, 1000KHz/U, 400Hz 30% modulation, field strength 80dB/m and tune the T115 at 1008KHz/ES, 1000KHz/U.
- 34) Adjust VR107 to make 5th L.E.D. of signal strength indicator light.

12) AM Auto-Scanning IF peak adjustment

- 35) Connect Oscilloscope to IF Out terminal of AM front-end.
- 36) Set Signal Generator at 1008KHz/ES, 1000KHz/U, 400Hz 30% modulation, output level 20-40dB and tune the T115 at 1008KHz/ES, 1000KHz/U.
- 37) Adjust IF 4 and IF5 to obtain maximum level on Oscilloscope.
- 38) Confirmation
 - a) L.E.D.'s of Signal Strength Indicator not to light at no signal input and to light in order from 1st to 5th according to input signal of T-115.
 - b) Muting level to vary from 10 to $300\mu\text{V}$ with muting threshold VR.
 - c) Stereo indication L.E.D. to light upon stereo reception.
 - d) Pre-set tuning on right function and memory store as well.
 - e) Memory frequency not to change or store, by ON-OFF operation of Power Sw.
 - f) To scan between 87.50MHz and 108.00MHz under auto-tuning at no signal input.
 - g) To automatically stop under auto-tuning when the signal in the procedure 16 is given.
 - h) To start scanning when Tuning Button is continuously pressed for a few seconds and to stop when Tuning Button is released under manual-tuning.
 - i) Tuning frequency to increase or decrease by every 50KHz at FM and 9KHz at AM on one push of UP-DOWN key under manual tuning.
 - j) Receiving frequency not to be less than 87.50MHz and more than 108.00MHz.

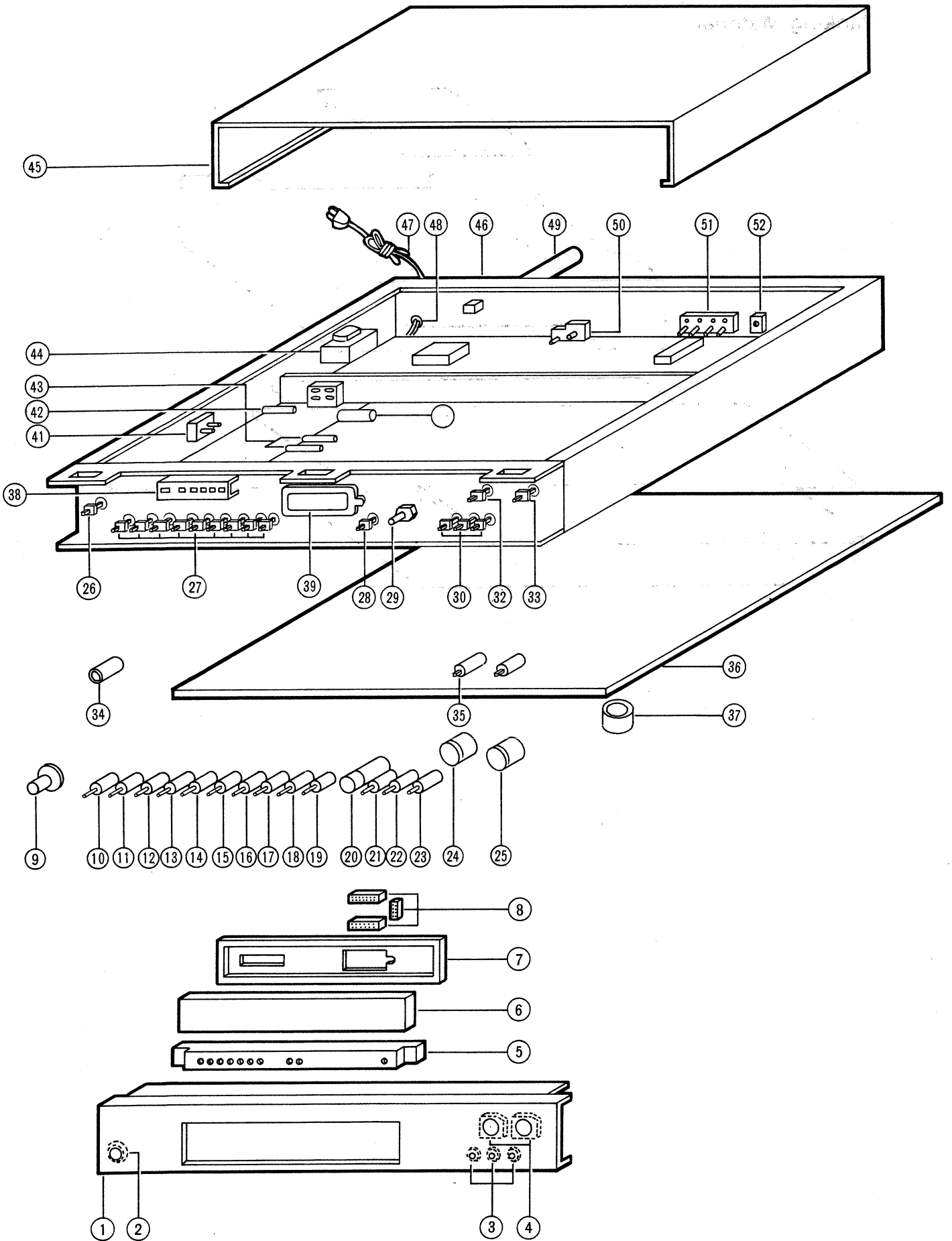
REPLACEMENT PARTS LIST

Packing Material



EXPLODED VIEW

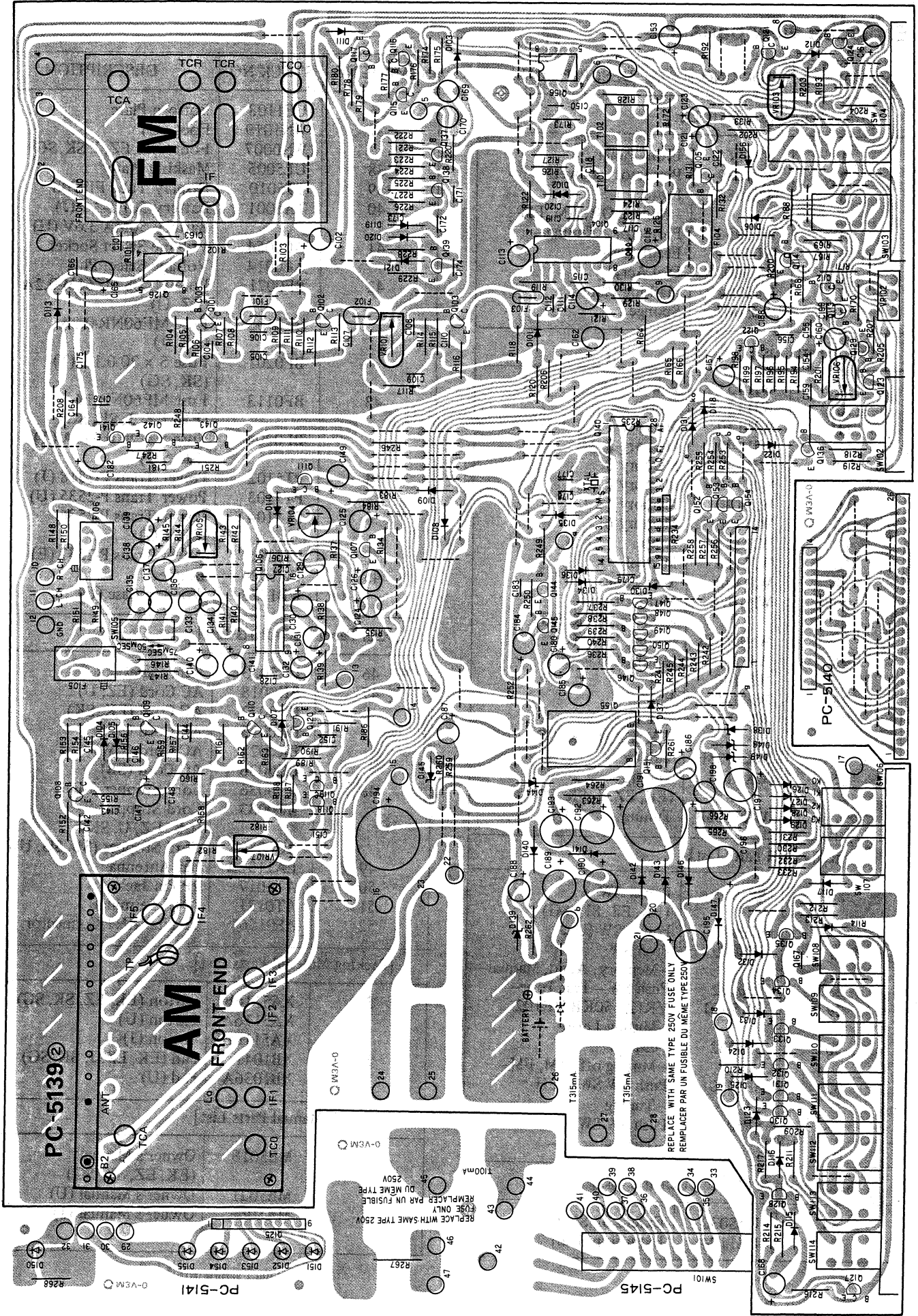
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Exploded view parts list

| SYMBOL NO. | STOCK NO. | DESCRIPTION |
|---------------------------------------|-----------|-------------------------------------|
| [Front Panel Ass'y Parts List] | | |
| 1 | WA5064 | Front Panel |
| 2 | WE1089 | Protector -Power- |
| 3 | WE1086 | Protector -Muting Off, AM, FM- |
| 4 | WE1056 | Protector -Tuning- |
| 5 | WD5020 | Escutcheon |
| 6 | WU5008 | Dial Acryl |
| 7 | UL5004 | Masking Plate |
| 8 | WZ5067 | Sponge |
| [Knob Parts List] | | |
| 9 | WJ1133 | Power |
| 10 | WJ1134BL | Store |
| 11 | WJ1140 | Memory 1 |
| 12 | WJ1140 | Memory 2 |
| 13 | WJ1140 | Memory 3 |
| 14 | WJ1140 | Memory 4 |
| 15 | WJ1140 | Memory 5 |
| 16 | WJ1140 | Memory 6 |
| 17 | WJ1140 | Auto |
| 18 | WJ1140 | Manual |
| 19 | WJ1140 | Test Tone |
| 20 | WH1076 | Muting Level (EK, EZ, J, SK, SG) |
| | WH1076B | Muting Level (U) |
| 21 | WJ1140 | Muting Off |
| 22 | WJ1140 | AM |
| 23 | WJ1140 | FM |
| 24 | WK1123 | Tuning (EK, EZ, J, SK, SG) |
| | WK1123B | Tuning (U) |
| 25 | WK1123 | Tuning (EK, EZ, J, SK, SG) |
| | WK1123B | Tuning (U) |
| [Switch & VR Parts List] | | |
| 26 | SP5051 | Power SW (EK, EZ, SK, SG) |
| | SP0113 | Power SW (U, J) |
| 27 | SP5049 | Push SW -Memory, Audio, Manual- |
| 28 | SP0162 | Push SW -Test Tone- |
| 29 | RV5070 | VR121 50KB VR102 -Muting Level- |
| 30 | SP5062 | Push SW -Muting off, AM, FM- |
| 32 | SP5050 | Push SW SWH12H -Tuning - |
| 33 | SP5050 | Push SW SWH12H -Tuning - |
| [Mechanism & Electrolytic Parts List] | | |
| 34 | UZ5032 | Extension Shaft |
| 35 | UZ1124 | Extension Shaft |

| SYMBOL NO. | STOCK NO. | DESCRIPTION |
|-------------------------------|-----------|---|
| 36 | UE1103 | Bottom Plate |
| 37 | WN1019 | Foot (U) |
| | WN0007 | Foot (EK, EZ, J, SK, SG) |
| 38 | UL5005 | Masking Plate |
| 39 | TT5010 | Display Tube FIP708 |
| 40 | TA5001 | Battery 50FT-3-1 (J) Battery 50MA 3.6V (U) |
| 41 | AC0054 | Voltage Select Socket |
| | AC0014 | Voltage Select Plug |
| 42 | BF0071 | Fuse ULCS-MF61M-0.2A (EZ, U) |
| | BF0108 | Fuse MF60NR-0.2A (EK, J) |
| | BF0201 | Fuse 5 x 20 0.1A (T) (SK, SG) |
| 43 | BF0113 | Fuse MF60NR 1A (EK, EZ, J, SK, SG) |
| | BF0204 | Fuse 5 x 20 0.315A (T) (SK, SG) |
| 44 | PT5102 | Power Trans P-2518 (J) |
| | PT5103 | Power Trans P-2535 (U) |
| | PT5104 | Power Trans P-2536 (SK, SG) |
| | PT5105 | Power Trans P-2537 (E) |
| 45 | UG1024 | Bonnet |
| | WB1078 | Wooden Case (U) |
| [Rear Panel Ass'y Parts List] | | |
| 46 | UC5033 | Rear Panel |
| 47 | BK0018 | AC Cord (EZ, U) |
| | BK0022 | AC Cord (EK, SK) |
| | BK0023 | AC Cord (SG) |
| | BK0027 | AC Cord (UW) |
| | BK0036 | AC Cord (SB) |
| 48 | BU0036 | Cord Stopper (SB) |
| | BU0033 | Cord Stopper (EK, EZ, U, SK) |
| | BU0039 | Cord Stopper (SB, SG, UW) |
| 49 | LA1132A | Bar Antenna |
| 50 | AT5017 | 2P Pin Jack |
| 51 | AT0121 | ANT Terminal |
| 52 | AS0156 | Coaxial ANT Connector |
| [Packing Material Parts List] | | |
| 53 | XA5116B | Carton (EK, EZ, SK, SG) |
| | XA5116A | Carton (U) |
| | XA5116BJ | Carton (J) |
| 54 | XB1041 | Pad (EK, EZ, J, SK, SG) |
| | XB1036A | Pad (U) |
| [Owner's Manual Parts List] | | |
| 54 | ME5018 | Owner's Manual (EK, EZ, SK, SG) |
| | ME5021 | Owner's Manual (U) |
| | MA5066 | Owner's Manual (J) |



P.C.B. parts list

REMARKS

Capacitor: My Mylar, El . . Electrolytic, St . . .Styrol, Ce . . .Ceramic
 Mi Mica, Ta . . Tantalum, Lp . . .Line pass (AC Cap.)
 TmTrimmer, Ac . . .Ac Capacitor, Fi . . .Film Cap.
 Resistor: Rd Carbon, Rc . . .Cement, Rm . .Metal Film, Rf . . .Flame proof
 Ro Oxid Metal,
 ± 5%, 0.25W, unless specified otherwise.

| SYMBOL NO. | STOCK NO. | DESCRIPTION | REMARK |
|-------------|-----------|----------------|---------|
| [Capacitor] | | | |
| C101 | CK0157T | 0.04μF 25WV Ce | |
| C102 | CE1721T | 100μ 16 El | |
| C103 | CK0155T | 0.01μ 50 Ce | |
| C104 | CK0157T | 0.04μ 25 Ce | |
| C105 | CK0157T | 0.04μ 25 Ce | |
| C106 | CK0155T | 0.01μ 50 Ce | |
| C107 | CC0038T | 50P 50 Ce | |
| C108 | CK0155T | 0.01μ 50 Ce | |
| C109 | CK0157T | 0.04μ 25 Ce | |
| C111 | CK0157T | 0.04μ 25 Ce | |
| C112 | CK0157T | 0.04μ 25 Ce | |
| C113 | CK1717T | 10μ 16 El | |
| C114 | CE1749T | 0.47μ 50 El | |
| C115 | CC0007T | 100P 50 Ce | |
| C116 | CE1749T | 0.47μ 50 El | |
| C117 | CK0157T | 0.04μ 25 Ce | |
| C118 | CK0157T | 0.04μ 25 Ce | |
| C119 | CK0157T | 0.04μ 25 Ce | |
| C120 | CK0157T | 0.04μ 25 Ce | |
| C121 | CE1718 | 0.04μ 25 Ce | |
| C122 | CK0109 | 470P 50 Ce | |
| C123 | CE1718T | 22μ 16 El | |
| C124 | CE1718T | 22μ 16 El | |
| C125 | CE1719T | 33μ 16 El | |
| C126 | CE1717T | 10μ 16 El | |
| C127 | CK0155T | 0.01μ 50 Ce | |
| C128 | CQ0009T | 0.047μ 50 My | |
| C129 | CQ5078 | 470P 50 St | E, S, U |
| C130 | CE1750T | 1μ 50 El | |
| C131 | CE1752T | 3.3μ 50 El | |
| C132 | CS0019 | 0.22μ 35 Ta | |
| C133 | CQ1402 | 1800P 50 St | |
| | CQ1428 | 1200P 50 St | |
| C134 | CQ1402 | 1800P 50 St | |
| | CQ1428 | 1200P 50 St | |
| C135 | CQ1419 | 620P 50 St | |
| C136 | CQ1419 | 620P 50 St | |
| C137 | CQ5078 | 470P 50 St | |
| C138 | CE1717T | 10μ 16 El | |
| C139 | CE1717T | 10μ 16 El | |
| C140 | CE1751T | 2.2μ 50 El | |
| C141 | CE1751T | 2.2μ 50 El | |
| C142 | CK0157T | 0.04μ 25 Ce | |
| C143 | CK0157T | 0.04μ 25 Ce | |
| C144 | CK0157T | 0.04μ 25 Ce | |
| C145 | CK0157T | 0.04μ 25 Ce | |
| C146 | CK0157T | 0.04μ 25 Ce | |
| C147 | CE1751T | 2.2μ 50 El | |
| C148 | CK0157T | 0.04μ 25 Ce | |
| C149 | CE1750T | 1μ 50 El | |

| SYMBOL NO. | STOCK NO. | DESCRIPTION | REMARK |
|------------|-----------|----------------|--------|
| C150 | CK0159 | 0.1μF 25WV Ce | |
| C151 | CK0155T | 0.01μ 50 Ce | |
| C152 | CK0155T | 0.01μF 50WV Ce | |
| C153 | CE1749 | 0.47μ 50 El | |
| C154 | CQ0013 | 0.022μ 50 My | |
| C155 | CQ0013T | 0.022μ 50 My | |
| C156 | CQ0013T | 0.022μ 50 My | |
| C157 | CE1717T | 10μ 16 El | |
| C158 | CE1717T | 10μ 16 El | |
| C159 | CQ0013T | 0.022μ 50 My | |
| C160 | CE1717T | 10μ 16 El | |
| C161 | CE1751T | 2.2μ 50 El | |
| C162 | CE1751T | 2.2μ 50 El | |
| C163 | CK0155T | 0.01μ 50 Ce | |
| C164 | CC0009T | 220P 16 Ce | |
| C165 | CE1720T | 47μ 16 El | |
| C166 | CK01571 | 0.04μ 25 Ce | |
| C167 | CK0155T | 0.01μ 50 Ce | |
| C168 | CE0785 | 0.47μ 50 El | |
| C169 | CQ1410 | 220P 50 St | |
| C170 | CQ1410 | 220P 50 St | |
| C171 | CQ0026T | 0.01μ 50 My | |
| C172 | CC0007T | 100P 50 Ce | |
| C174 | CK0157T | 0.04μ 25 Ce | |
| C175 | CK0155T | 0.01μ 50 Ce | |
| C176 | CC038T | 50P 50 Ce | |
| C177 | CC0006T | 47P 50 Ce | |
| C178 | CC0006T | 47P 50 Ce | |
| C179 | CK0157 | 0.04μ 25 Ce | |
| C180 | CE1715 | 1000μ 10 El | |
| C181 | CQ1337 | 0.22μ 50 My | |
| C182 | CE0787 | 2.2μ 50 El | |
| C183 | CQ0011T | 0.033μ 50 My | |
| C184 | CE0787 | 2.2μ 50 El | |
| C185 | CE1720T | 47μ 16 El | |
| C186 | CE1721T | 100μ 16 El | |
| C187 | CE1732T | 100μ 25 El | |
| C188 | CE1742T | 47μ 35 El | |
| C189 | CE1758 | 100μ 50 El | |
| C190 | CE1743 | 100μ 35 El | |
| C191 | CE1736 | 1000μ 25 El | |
| C192 | CE1733 | 220μ 25 El | |
| C193 | CE1721T | 100μ 16 El | |
| C194 | CE1726 | 2200μ 16 El | |
| C195 | CE1743 | 100μ 35 El | |
| C196 | CE1758 | 100μ 50 El | |
| C197 | CE1744 | 220μ 35 El | |
| C198 | CE1717T | 10μ 16 El | |
| C199 | CK0157T | 0.04μ 25 Ce | |

| SYMBOL NO. | STOCK NO. | DESCRIPTION | REMARK |
|------------|-----------|----------------------|---------|
| [Diode] | | | |
| D101 | TD0132T | 1S2472 | |
| D102 | TV0030 | VARISTOP KB265C4 | |
| D103 | TD0132T | 1S2472 | |
| D104 | TD0018 | 1K188FM-1 | |
| D105 | TD0018 | 1K188FM-1 | |
| D106 | TD0132T | 1S2472 | |
| D107 | TD0132T | 1S2472 | |
| D108 | TD0132T | 1S2472 | |
| D109 | TD0132T | 1S2472 | |
| D110 | TD0132T | 1S2472 | |
| D111 | TD0132T | 1S2472 TP | |
| D112 | TD0132T | 1S2472 | |
| D113 | TD0132T | 1S2472 | |
| D115 | TD0132T | 1S2472 | |
| D116 | TD0132T | 1S2472 | |
| D117 | TD0132T | 1S2472 | |
| D118 | TD0132T | 1S2472 | |
| D119 | TD0132T | 1S2472 | J, E, S |
| D120 | TD0132T | 1S2472 | J, E, S |
| D121 | TD0132T | 1S2472 | J, E, S |
| D122 | TD0132T | 1S2472 | |
| D123 | TD0132T | 1S2472 | |
| D123 | TD0132T | 1S2472 | |
| D124 | TD0132T | 1S2472 | |
| D125 | TD0132T | 1S2472 | |
| D126 | TD0197 | US1070 | |
| D127 | TD0197 | US1070 | J, E, S |
| D128 | TD0132T | 1S2472 | |
| D129 | TD0132T | 1S2472 | |
| D130 | TD0132T | 1S2472 | |
| D131 | TD0132T | 1S2472 | |
| D132 | TD0132T | 1S2472 | |
| D134 | TD0132T | 1S2472 | |
| D135 | TD0132T | 1S2472 | |
| D136 | TD0132T | 1S2472 | |
| D137 | TD0132T | 1S2472 | |
| D138 | TD5026T | ZENER WZ-065 | |
| D139 | TD0152T | ZENER WZ-270 | |
| or | TD0152 | ZENER WZ-270 | |
| D140 | TD0002 | IN4002 | |
| D141 | TD0002 | IN4002 | |
| D142 | TD0002 | IN4002 | |
| D143 | TD0002 | IN4002 | |
| D144 | TD0079T | ZENER WZ-140 | |
| D145 | TD0178 | ZENER WZ-032 3.2V | |
| D146 | TD0002 | IN4002 | |
| D147 | TD0002 | IN4002 | |
| D148 | TD0143 | ZENER BZ-240 24V | |
| D149 | TD0043T | ZENER WZ-130 T8 | |
| D151 | TD0217 | LED SE1123R | |
| D152 | TD0217 | LED SE1123R | |
| D153 | TD0217 | LED SE1123R | |
| D154 | TD0217 | LED SE1123R | |
| D155 | TD0217 | LED SE1123R | |
| D156 | TD0132T | 1S2472 | |
| D213 | TD0132T | 1S2472 | |

| SYMBOL NO. | STOCK NO. | DESCRIPTION | REMARK |
|--------------------------|-----------|---------------------------------------|--------|
| [Filter, FM transformer] | | | |
| F101 | LA1830 | FM ceramic filter KMFC89M11 | J |
| | LA1829 | FM ceramic filter KMFC112M12 | E, S |
| | LA1186 | Ceramic filter, SFE10. 7MLA | U |
| F102 | LA1830 | FM ceramic filter KMFC89M11 | J |
| | LA1186 | Ceramic filter SFE10.7MLA | U |
| | LA1829 | FM ceramic filter KMFC112M12 | E, S |
| F103 | CK0155 | Capacitor 0.01UF 50WV ceramic HE70 | J |
| | LA1829 | FM ceramic filter KMFC112M12 | E, S |
| | LA1186 | Ceramic filter SFE10.7MLA | U |
| F104 | LA1192 | Anti-bardi filter Lux-1192 | |
| F105 | LA1196 | Low-pass filter BL-30HJ | |
| F106 | LA1196 | Low-pass filter BL-30HJ | |
| T101 | LA5021 | FM transformer | |
| T102 | LA5022 | FM transformer | |
| [Transistor, IC] | | | |
| Q101 | TR0092 | 2SC1674 | |
| Q102 | TR0019 | 2SC1923 | |
| Q103 | TR0019 | 2SC1923 | |
| Q104 | TR0099 | LA123INS | |
| Q105 | TR0029 | 2SC945 | |
| Q106 | TC0094 | IC UPC1161C | |
| Q107 | TR0029 | 2SC945 | |
| Q108 | TR0029 | 2SC945 | |
| Q109 | TR0029 | 2SC945 | |
| Q111 | TR0029 | 2SC945 | |
| Q112 | TR0029 | 2SC945 | |
| Q113 | TR0029 | 2SC945 | |
| Q114 | TR0029 | 2SC945 | |
| Q115 | TR0029 | 2SC945 | |
| Q116 | TR0029 | 2SC945 | |
| Q117 | TR0043 | 2SA733 | |
| Q118 | TR0029 | 2SC945 | |
| Q119 | TR0029 | 2SC945 | |
| Q120 | TR0043 | 2SA733 | |
| Q120 | TR0029 | 2SC945 | |
| Q121 | TR0043 | 2SA733 | |
| Q122 | TR0029 | 2SC945 | |
| Q123 | TR0029 | 2SC945 | |
| Q124 | TR0029 | 2SC945 | |
| Q125 | TC0085 | IC BA656 | |
| Q126 | TC5033 | IC BA656 | |
| Q127 | TR0029 | 2SC945 | |
| Q128 | TR0029 | 2SC945 | |
| Q129 | TR0029 | 2SC945 | |
| Q130 | TR0029 | 2SC945 | |
| Q131 | TR0029 | 2SC945 | |

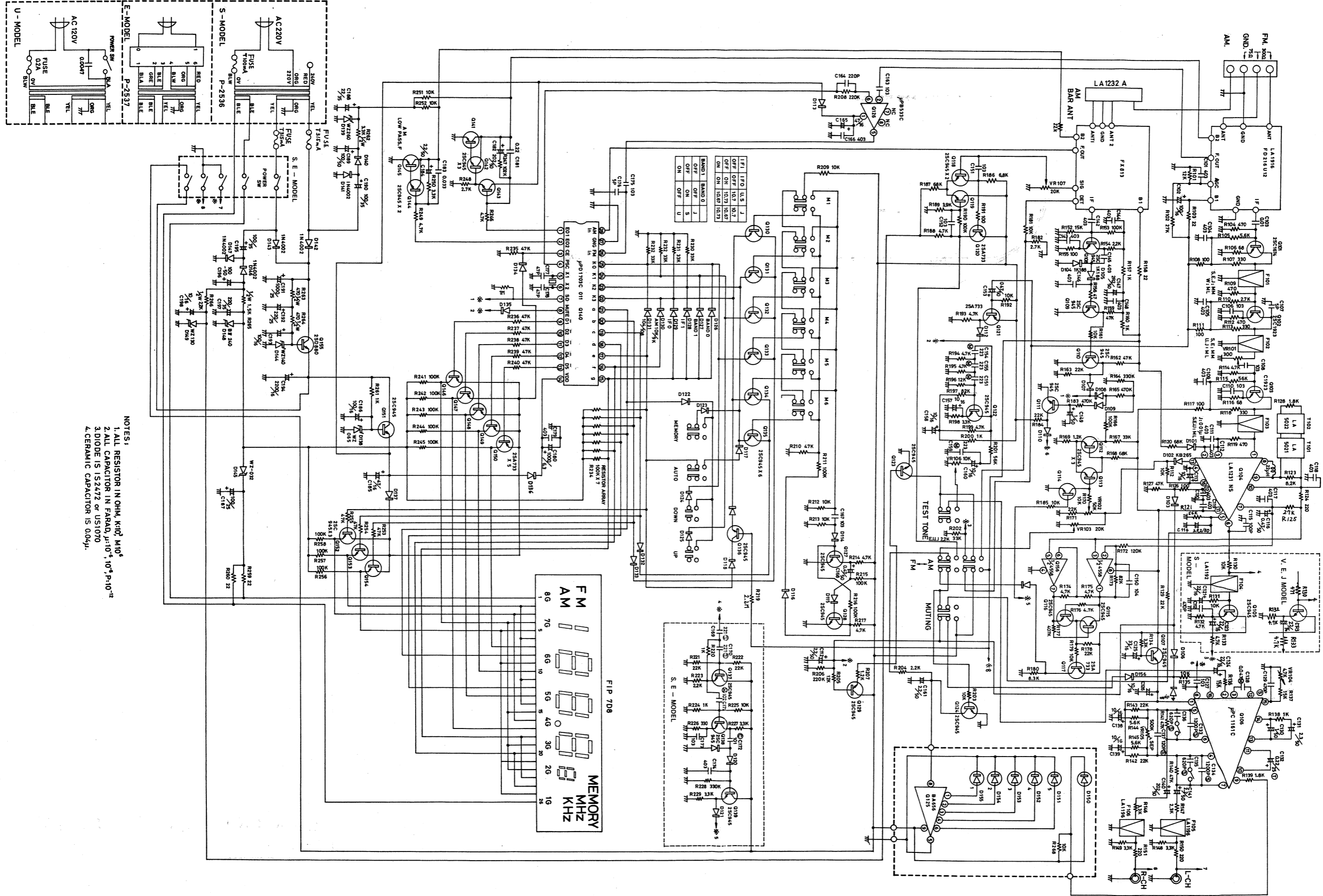
| SYMBOL NO. | STOCK NO. | DESCRIPTION | REMARK |
|---|-----------|--------------|---------|
| Q132 | TR0029 | 2SC945 | |
| Q133 | TR0029 | 2SC945 | |
| Q134 | TR0029 | 2SC945 | |
| Q135 | TR0029 | 2SC945 | |
| Q136 | TR0029 | 2SC945 | |
| Q137 | TR0029 | 2SC945 | |
| Q138 | TR0029 | 2SC945 | |
| Q139 | TR0029 | 2SC945 | |
| Q140 | TC5034 | IC UPD 1703C | |
| Q141 | TR0029 | 2SC945 | |
| Q142 | TR0029 | 2SC945 | |
| Q143 | TR0029 | 2SC945 | |
| Q144 | TR0029 | 2SC945 | |
| Q145 | TR0029 | 2SC945 | |
| Q146 | TR0043 | 2SA733 | |
| Q147 | TR0043 | 2SA733 | |
| Q148 | TR0043 | 2SA733 | |
| Q149 | TR0043 | 2SA733 | |
| Q150 | TR0043 | 2SA733 | |
| Q151 | TR0029 | 2SC945 | |
| Q152 | TR0029 | 2SC945 | |
| Q153 | TR0029 | 2SC945 | |
| Q154 | TR0029 | 2SC945 | |
| Q155 | TR5012 | 2SD880 | |
| Q156 | TC5002 | IC NJM4558D | |
| [Resistor] Unless Otherwise Specified 1/4W Carbon type | | | |
| R101 | RB0398T | 12K | |
| R102 | RB0406T | 27K | |
| R103 | RB0332T | 22 | |
| R104 | RB0364T | 470 | |
| R105 | RB0390T | 5.6K | |
| R106 | RB0344T | 68 | |
| R107 | RB0360T | 330 | |
| R108 | RB0348T | 100 | |
| R109 | RB0364T | 470 | |
| R110 | RB0382T | 2.7K | |
| R111 | RB0348T | 100 | |
| R112 | RB0364T | 470 | |
| R113 | RB0360T | 330 | |
| R114 | RB0388T | 4.7K | |
| R115 | RB0414T | 56K | |
| R116 | RB0344T | 68 | |
| R117 | RB0348T | 100 | |
| R118 | RB0360T | 330 | |
| R119 | RB0364T | 470 | |
| R120 | RB0416T | 68K | |
| R121 | RB0414T | 56K | |
| R122 | RB0396T | 10K | |
| R123 | RB0394T | 8.2K | |
| R124 | RB0356T | 220 | |
| R125 | RB0406T | 27K | |
| R126 | RB0348T | 100 | |
| R127 | RB0412T | 47K | |
| R128 | RB0378T | 1.8K | |
| R129 | RB0404T | 22K | |
| R130 | RB0396 | 10K | S, only |
| R131 | RB0364 | 470 | |
| | RB0396 | 10K | S, only |

| SYMBOL NO. | STOCK NO. | DESCRIPTION | REMARK |
|------------|-----------|-------------|--------|
| R132 | RB0388T | 4.7K | |
| R133 | RB0388T | 4.7K | |
| R134 | RB0384T | 3.3K | |
| R135 | RB0396T | 10K | |
| R136 | RB0400T | 15K | |
| R137 | RB0400T | 15K | |
| R138 | RB0372T | 1K | |
| R139 | RB0378T | 1.8K | |
| R140 | RB0412T | 47K | |
| R141 | RB0412T | 47K | |
| R142 | RB0404T | 22K | |
| R143 | RB0404T | 22K | |
| R144 | RB0390T | 5.6K | |
| R145 | RB0390T | 3.3K | |
| R146 | RB0384T | 3.3K | |
| R147 | RB0384T | 3.3K | |
| R148 | RB0384T | 3.3K | |
| R149 | RB0384T | 220 | |
| R150 | RB0356T | 220 | |
| R151 | RB0356T | 15K | |
| R152 | RB0400T | | |
| R153 | RB0420T | 100K | |
| R154 | RB0380T | 2.2K | |
| R155 | RB0348T | 100 | |
| R156 | RB0340T | 47 | |
| R157 | RB0372T | 1K | |
| R158 | RB0332T | 22 | |
| R159 | RB0412T | 47K | |
| R160 | RB0372T | 1K | |
| R161 | RB0396T | 10K | |
| R162 | RB0412T | 47K | |
| R163 | RB0404T | 22K | |
| R164 | RB0432T | 330K | |
| R165 | RB0436T | 470K | |
| R166 | RB0420T | 100K | |
| R168 | RB0416T | 68K | |
| R169 | RB0374T | 1.2K | |
| R170 | RB0396T | 10K | |
| R171 | RB0404T | 22K | |
| R172 | RB0422T | 120K | |
| R173 | RB0416T | 68K | |
| R174 | RB0388T | 4.7K | |
| R175 | RB0388T | 4.7K | |
| R176 | RB0388T | 4.7K | |
| R177 | RB0388T | 4.7K | |
| R178 | RB0404T | 22K | |
| R179 | RB0396T | 10K | |
| R180 | RB0384T | 3.3K | |
| R182 | RB0396T | 10K | |
| R182 | RB0382T | 2.7K | |
| R183 | RB0436T | 470K | |
| R184 | RB0404T | 22K | |
| R186 | RB0392T | 6.8K | |
| R187 | RB0418T | 82K | |
| R188 | RB0396T | 10K | |
| R188 | RB0388T | 4.7K | |
| R189 | RB0386T | 3.9K | |
| R190 | RB0420T | 100K | |
| R191 | RB0348T | 100 | |
| R192 | RB0396T | 10K | |
| R193 | RB0388T | 4.7K | |

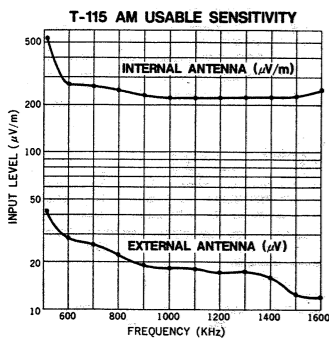
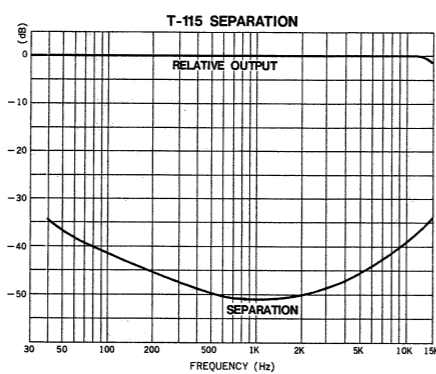
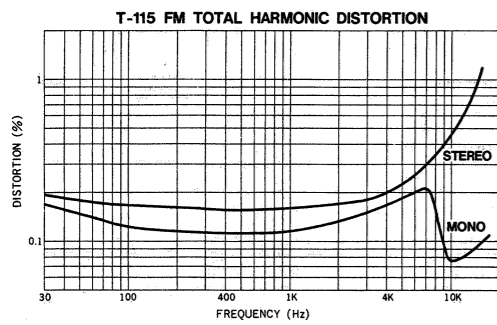
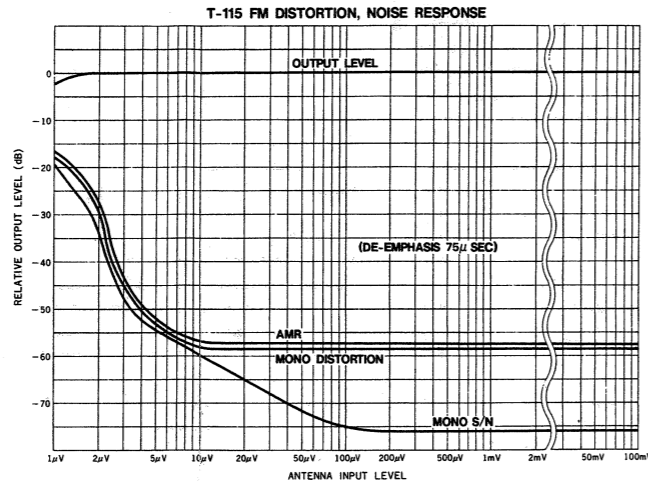
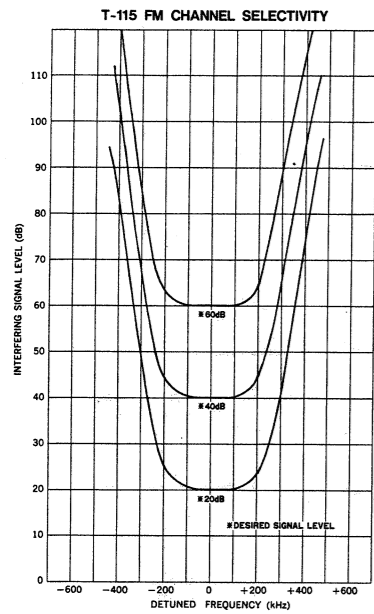
| SYMBOL NO. | STOCK NO. | DESCRIPTION | REMARK |
|------------|-----------|--------------------------|---------|
| R194 | RB0388T | 4.7K | |
| R195 | RB0388T | 4.7K | |
| R196 | RB0398T | 12K | |
| R197 | RB0418T | 82K | |
| R198 | RB0384T | 3.3K | |
| R199 | RB0388T | 4.7K | |
| R200 | RB0372T | 1K | |
| R201 | RB0414T | 56K | |
| R202 | RB0408 | 33K | S, only |
| | RB0380 | 2.2K | |
| R203 | RB0396T | 10K | |
| R205 | RB0398T | 12K | |
| R206 | RB0428T | 220K | |
| R207 | RB0374T | 1.2K | |
| R208 | RB0428T | 220K | |
| R209 | RB0396T | 10K | |
| R210 | RB0412T | 47K | |
| R211 | RB0420T | 100K | |
| R212 | RB0396T | 10K | |
| R213 | RB0396T | 10K | |
| R214 | RB0388T | 4.7K | |
| R215 | RB0420T | 100K | |
| R216 | RB0420T | 100K | |
| R217 | RB0388T | 4.7K | |
| R218 | RB0408T | 33K | |
| R218 | RB0452T | 2.2M | |
| R219 | RB0420T | 100K | |
| R220 | RB0372T | 1K | J, E, S |
| R221 | RB0404T | 22K | J, E, S |
| R222 | RB0404T | 22K | J, E, S |
| R223 | RB0380 | 2.2K | J, E |
| R224 | RB0372T | 1K | J, E, S |
| R225 | RB0396T | 10K | |
| R226 | RB0360T | 330 | J, E, S |
| R227 | RB0384T | 3.3K | J, E, S |
| R228 | RB0432T | 330K | J, E, S |
| R229 | RB0384T | 3.3K | J, E, S |
| R230 | RB0408T | 33K | |
| R231 | RB0408T | 33K | |
| R232 | RB0408T | 33K | |
| R233 | RB0408T | 33K | |
| R234 | RK7001 | 100K x 4, Resistor Array | |
| R235 | RB0412T | 47K | |
| R236 | RB0412T | 47K | |
| R237 | RB0412T | 47K | |
| R238 | RB0412T | 47K | |
| R239 | RB0412T | 47K | |
| R240 | RB0412T | 47K | |
| R241 | RB0420T | 100K | |
| R242 | RB0420T | 100K | |
| R243 | RB0420T | 100K | |
| R244 | RB0420T | 100K | |
| R245 | RB0420T | 100K | |
| R246 | RB0388T | 4.7K | |
| R247 | RB0374T | 1.2K | |
| R248 | RB0382T | 2.7K | |
| R249 | RB0388T | 4.7K | |
| R250 | RB0384T | 3.3K | |
| R251 | RB0396T | 10K | |
| R252 | RB0396T | 10K | |

| SYMBOL NO. | STOCK NO. | DESCRIPTION | REMARK |
|-----------------|-----------|-------------|--------|
| R253 | RB0412T | 47K | |
| R254 | RB0412T | 47K | |
| R255 | RB0412T | 47K | |
| R256 | RB0420T | 100K | |
| R257 | RB0420T | 100K | |
| R258 | RB0420T | 100K | |
| R259 | RB0332T | 22 | |
| R260 | RB0332T | 22 | |
| R261 | RB0372T | 1K | |
| R262 | RD2594 | 3.3K 1/2W | |
| R263 | RD2574 | 470 1/2W | |
| R264 | RD2574 | 470 1/2W | |
| R265 | RD2586 | 1.5K 1/2W | |
| R266 | RD2590 | 2.2K 1/2W | |
| R268 | RB0396T | 10K | |
| [Switch] | | | |
| SW101 | SP5051 | Power | |
| SW102 | SP0162 | Test tone | |
| SW103 | SP5062 | Muting off | |
| SW104 | SP5062 | AM/FM | |
| SW105 | SS0012 | De-Emphasis | |
| SW106 | SP5049 | Manual | |
| SW107 | SP5049 | Auto | |
| SW108 | SP5049 | Memory 6 | |
| SW109 | SP5049 | Memory 5 | |
| SW110 | SP5049 | Memory 4 | |
| SW111 | SP5049 | Memory 3 | |
| SW112 | SP5049 | Memory 2 | |
| SW113 | SP5049 | Memory 1 | |
| SW114 | SP5049 | Store | |
| [Potentiometer] | | | |
| VR101 | RT0054 | 300 B | |
| VR103 | RT0052 | 20K B | |
| VR104 | RT0025 | 4.7K B | |
| VR105 | RT0109 | 500K B | |
| VR106 | RT0086 | 10K B | |
| VR107 | RT0052 | 20K B | |

T-115 SCHMATIC DIAGRAM



STANDARD CURVES



SPECIFICATIONS

<FM SECTION> (IEEE/IHF Standard)

| | [MONO] | [STEREO] |
|---|--------------------------|----------|
| Usable Sensitivity: | 10.3dBf (1.8 μV) | |
| 50dB Quieting Sensitivity: | 15.6dBf (3.3 μV) | |
| Signal-to-Noise Ratio at 65dBf: | 76dB | |
| Frequency Response: | 30Hz - 15KHz (-1dB) | |
| Distortion at 65dBf: | 100Hz: 0.12% | 0.3% |
| | 1kHz: 0.15% | 0.3% |
| | 6kHz: 0.2% | 0.4% |
| Capture Ratio at 65dBf: | 1.4dB | |
| Adjacent Channel Selectivity: | 10dB | |
| Alternate Channel Selectivity ± 400kHz: | 75dB | |
| Spurious Response Ratio: | 85dB | |
| IF Response Ratio: | 85dB | |
| Image Response Ratio: | 70dB | |
| AM Suppression Ratio: | 56dB | |
| Stereo Separation: | 56dB | 40dB |
| | | 45dB |
| | | 39dB |
| Subcarrier Product Ratio: | 62dB | |
| SCA Rejection Ratio: | 60dB | |
| Muting Threshold: | 10 μV - 300mV (variable) | |
| Output Level: | 800mV | |

<AM SECTION>

| | |
|--|----------|
| Usable Sensitivity at 1MHz, 400Hz 30% mod.: | 200 μV/m |
| Image Response Ratio at 1MHz: | 50dB |
| IF Response Ratio at 1MHz: | 40dB |
| Signal-to-Noise Ratio at 1MHz, 10 m V/m, 400Hz 30% mod.: | 50dB |
| Distortion at 1MHz, 10m V/m, 400Hz/30% mod.: | 0.5% |

<GENERAL>

| | |
|--------------------|--|
| Power Consumption: | 10W |
| Dimensions: | 438 (W) x 312 (D) x 85 (H) mm (17-1/4" x 12-9/32" x 3-11/32") |
| Weight: | Net 5kgs (11.0 lbs.) Gross 6kgs (13.2 lbs.) |

Specifications and appearance design subject to change without notice.

LUX CORPORATION, JAPAN

1-1, 1-CHOME, SHINSENRI-NISHIMACHI, TOYONAKA-SHI, OSAKA 565
PHONE: 06-834-0004 CABLE: LUXMAN TOYONAKA TELEX: J63694

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