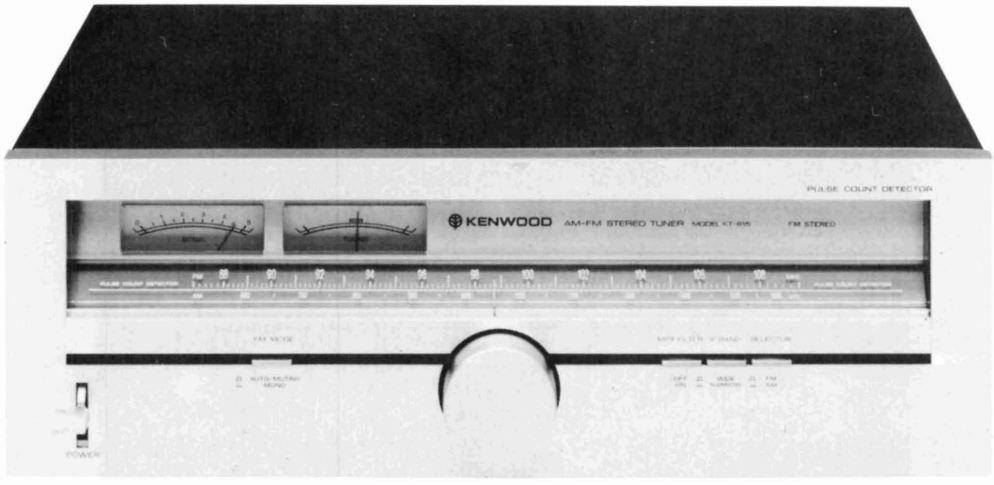
KENWOOD

HI/FI STEREO COMPONENTS

# SERVICE MANUAL

## KT-615
## (KT-6155)




**AM-FM STEREO TUNER**

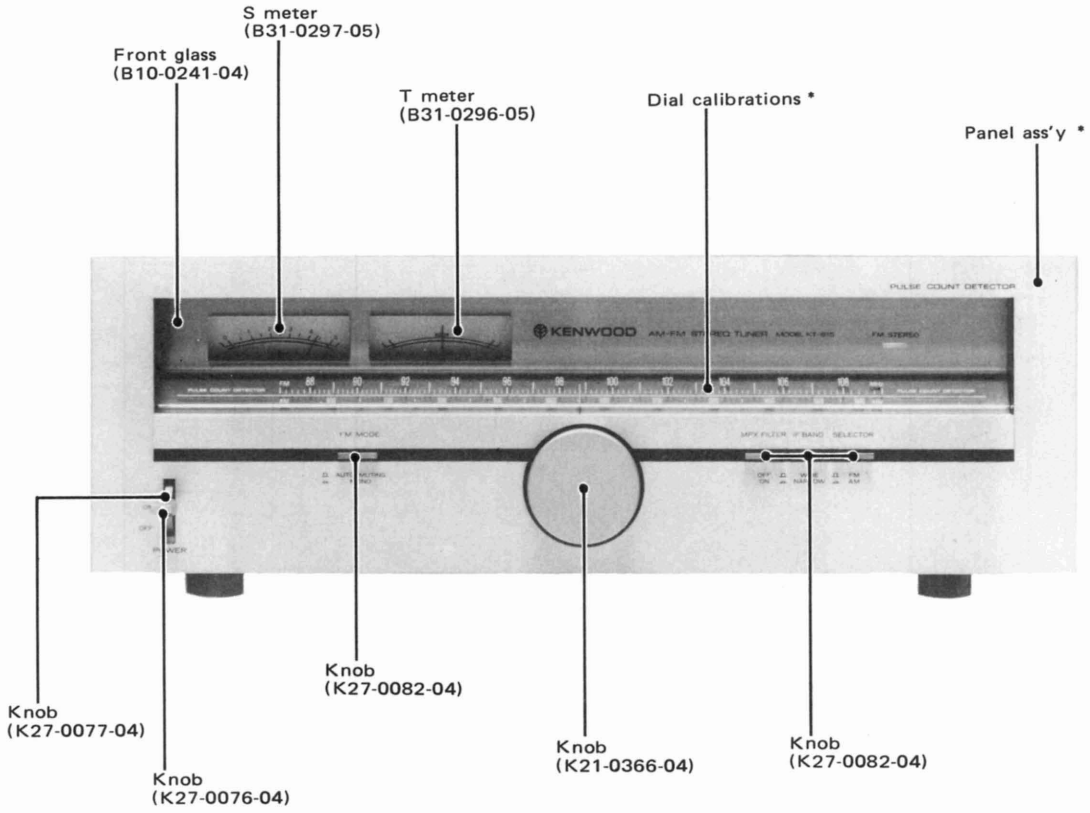
# CONTENTS

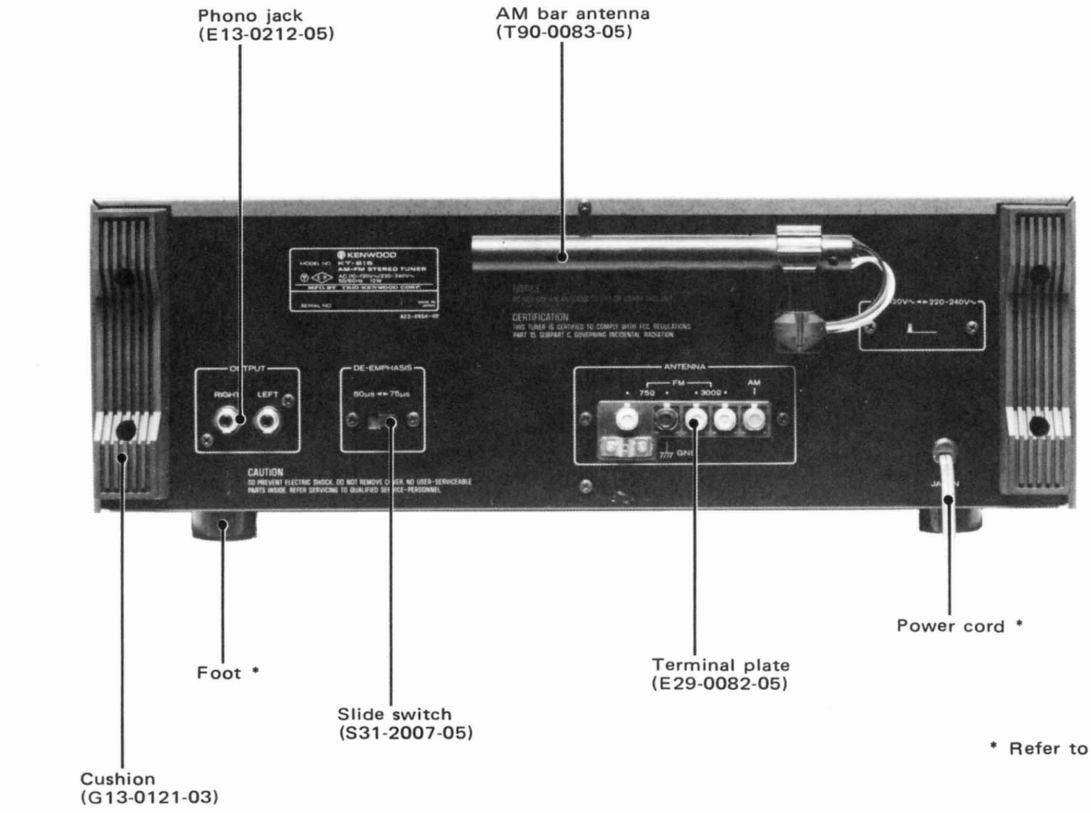


**Note:**
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

| Region | Code |
|---|---|
| U.S.A. | K |
| Canada | P |
| PX | U |
| Australia | X |
| Europe & Scandinavia | E |
| England | T |
| South Africa | S |
| Other Areas | M |
| Audio Club (KT-6155) | H |

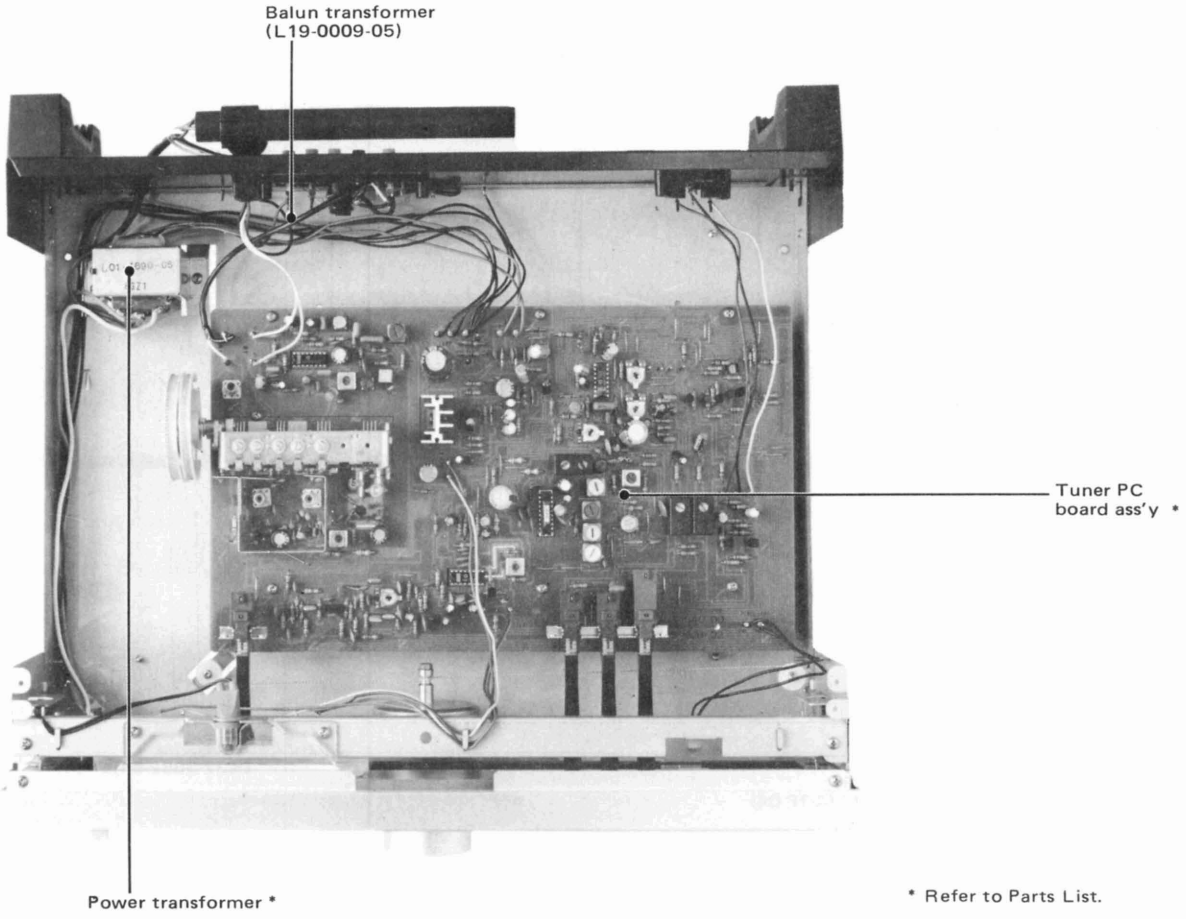
# EXTERNAL VIEW




* Refer to Parts List.

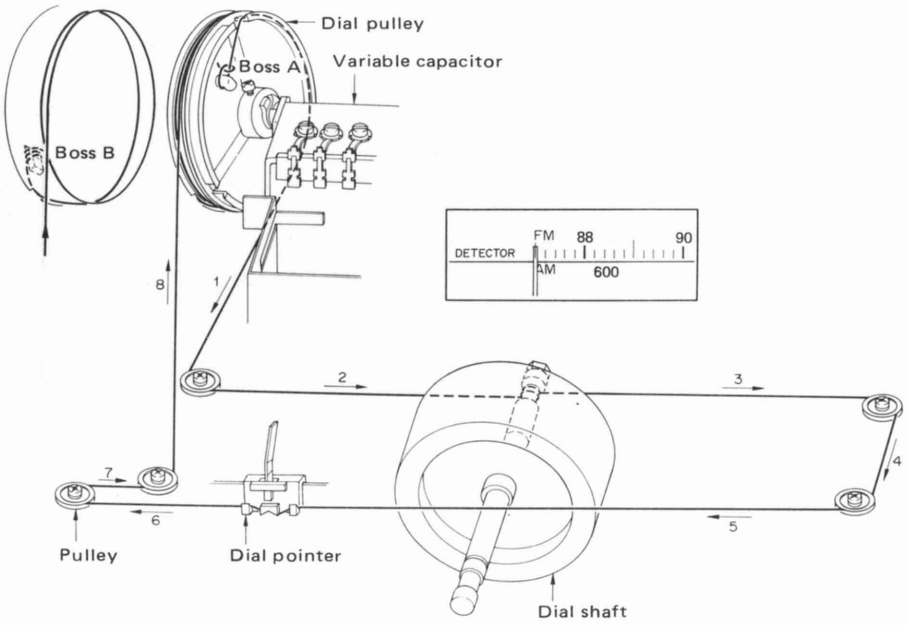
# INTERNAL VIEW / DIAL CORD STRINGING



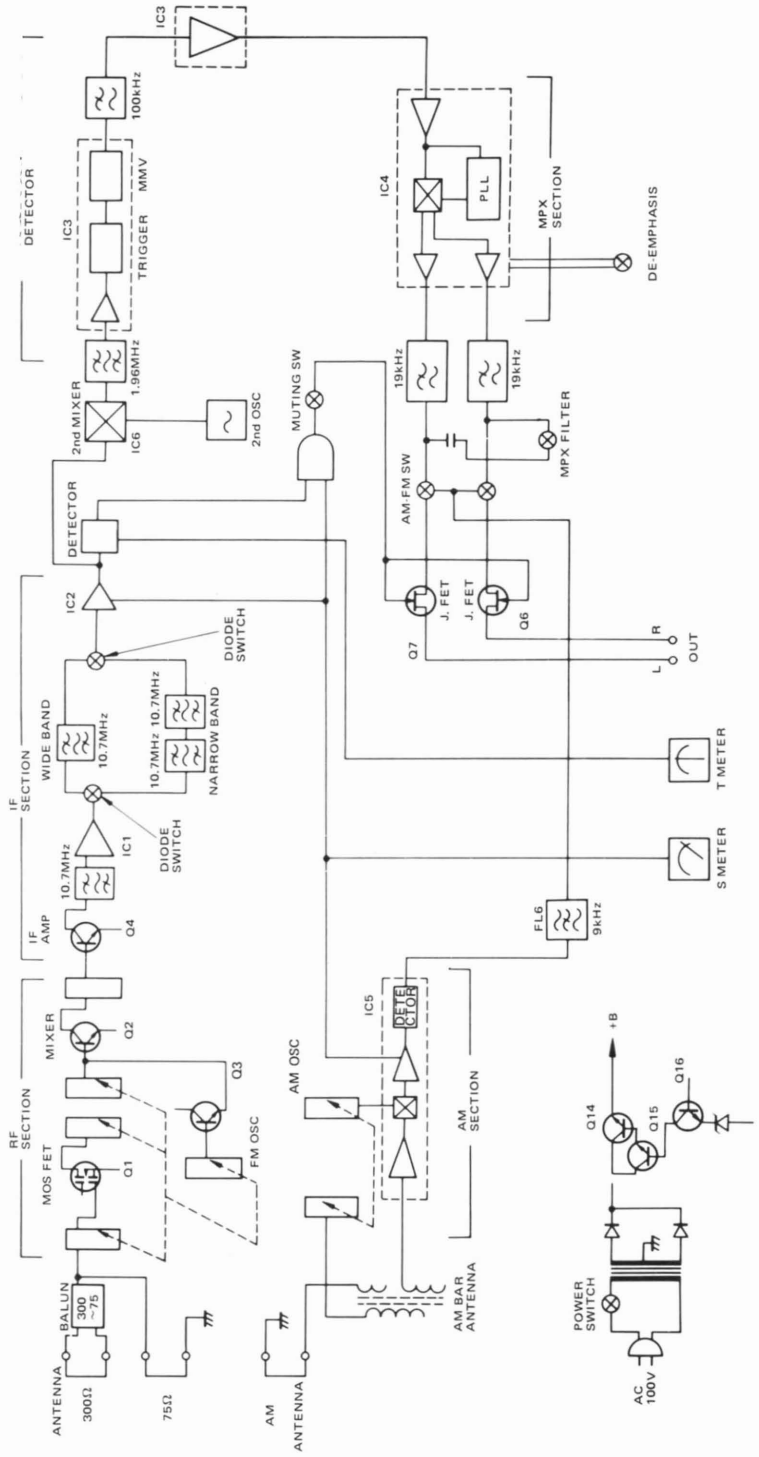

* Refer to Parts List.

## DIAL CORD STRINGING

1. Fully close the variable capacitor.
2. Set the dial pulley as illustrated.
3. Tie the end of the dial cord to the boss A as shown.
4. Dress the dial cord in the direction of "1" to "2" and wind 2 turns around the dial shaft starting from its lower side.
5. Dress the dial cord in the direction of "3" through "7" and wind it 2 turns around the dial pulley starting from its upper side.
6. Fix it to the boss B.
7. Mount the dial pointer as shown in the illustration.



# BLOCK DIAGRAM / EXPLODED VIEW PARTS LIST

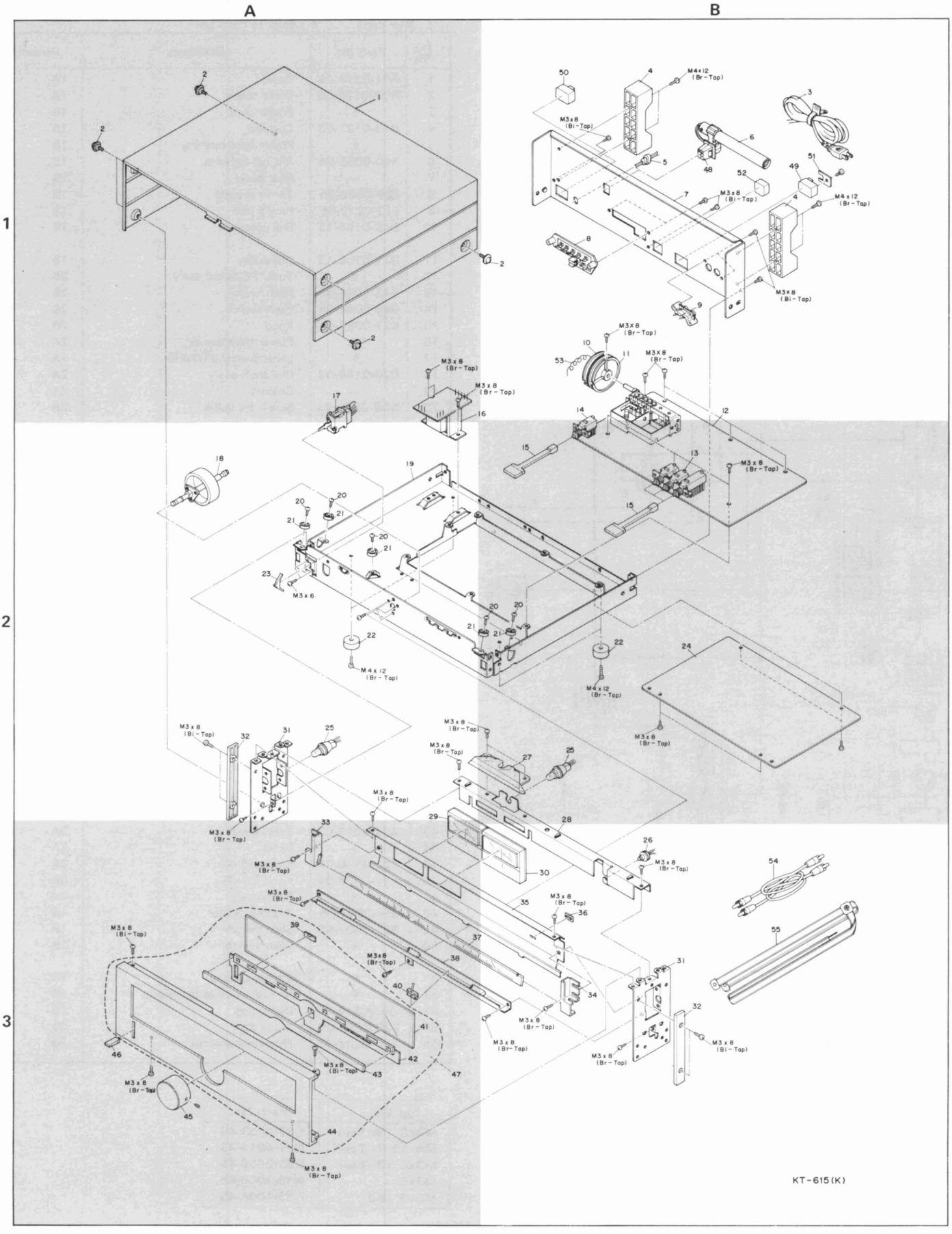



☆ : New Parts ★ : Refer to Parts List

| Fig. No. | Parts No. | Description | Remarks | |
|---|---|---|---|---|
| 1 | A01-0349-03 | Case | 1A | ☆ |
| 2 | NO8-0125-05 | Dress screw | 1A | |
| 3 | ★ | Power cord | 1B | |
| 4 | G13-0121-03 | Cushion | 1B | |
| 5 | ★ | Power cord bushing | 1B | |
| 6 | T90-0083-05 | AM bar antenna | 1B | |
| 7 | — | Rear panel | 1B | |
| 8 | E29-0082-05 | Terminal plate | 1B | |
| 9 | E13-0212-05 | Phono jack | 1B | |
| 10 | D15-0156-13 | Dial pulley | 1B | |
| 11 | D15-0155-13 | Dial pulley | 1B | |
| 12 | ★ | Tuner PC board ass'y | 2B | ☆ |
| 13 | S42-3026-05 | Push switch | 2B | |
| 14 | S40-2094-05 | Push switch | 2B | |
| 15 | K27-0082-04 | Knob | 2B | |
| 16 | ★ | Power transformer | 2A | ☆ |
| 17 | ★ | Lever switch (POWER) | 2A | |
| 18 | D20-0146-03 | Dial shaft ass'y | 2A | ☆ |
| 19 | — | Chassis | 2A | |
| 20 | NO9-0293-05 | Screw for pulley | 2A | |
| 21 | D15-0170-14 | Pulley | 2A | |
| 22 | ★ | Foot | 2A | |
| 23 | K27-0077-04 | Knob | 2A | |
| 24 | — | Bottom plate | 2B | |
| 25 | B30-0174-05 | Lamp (12V 0.15A) | 2A | ☆ |
| 26 | B30-0127-05 | Lamp (8V 0.05A) | 3B | |
| 27 | B19-0204-03 | Lighting plate | 2B | ☆ |
| 28 | — | Frame | 2B | |
| 29 | B31-0297-05 | S meter | 2A | ☆ |
| 30 | B31-0296-05 | T meter | 2B | ☆ |
| 31 | — | Mounting hardware | 2A | |
| 32 | B01-0132-04 | Panel escutcheon | 2A | ☆ |
| 33 | — | Dial calibrations holder (L) | 2A | |
| 34 | — | Dial calibrations holder (R) | 3B | |
| 35 | A30-0165-02 | Dial back board | 3B | ☆ |
| 36 | B08-3017-04 | Indicating plate | 3B | |
| 37 | ★ | Dial calibrations | 3A | ☆ |
| 38 | — | Rail | 3A | |
| 39 | B07-0252-04 | Escutcheon | 3A | |
| 40 | B21-0030-04 | Dial pointer ass'y | 3A | ☆ |
| 41 | B10-0241-04 | Front glass | 3A | |
| 42 | B01-0131-02 | Panel escutcheon | 3A | ☆ |
| 43 | A21-0298-03 | Dress panel | 3A | ☆ |
| 44 | — | Panel | 3A | |
| 45 | K21-0366-04 | Knob (50 $\phi$) | 3A | |
| 46 | K27-0076-04 | Knob (Lever) | 3A | |
| 47 | ★ | Panel ass'y | 3A | ☆ |
| 48 | J19-0507-05 | Antenna holder | 1B | |
| 49 | S31-2007-05 | Slide switch | 1B | |
| 50 | ★ | Slide switch | 1B | |
| 51 | ★ | Switch stopper | 1B | |
| 52 | ★ | RF coaxial cable receptacle | 1B | |
| 53 | G01-0314-04 | Dial spring | 1B | |
| 54 | E30-0505-05 | Audio cord | 3B | |
| 55 | T90-0202-05 | FM indoor antenna | 3B | |

| Fig. No. | Parts No. |
|---|---|
| M3x8 (Br-Tap) | N87-3008-46 |
| M4x12(Br-Tap) | N87-4012-45 |
| M3x8 (Bi-Tap) | N89-3008-45 |
| M3x6 | N30-3006-45 |
| M3x8 (Bi) | N35-3008-45 |

# EXPLODED VIEW



# PARTS LIST

## TOTAL

☆ : new parts

| Ref. No. | Parts No. | Description | | Re-Marks |
|---|---|---|---|---|
| 1 | A01-0349-13 | Case | | |
| 47 | A20-1374-03 | Panel ass'y | **K,P,U,M,S,X,E,T** | ☆ |
| 47 | A20-1384-03 | Panel ass'y | **H** | ☆ |
| 43 | A21-0298-03 | Dress panel | **K,P,U,M,S,X,E,T** | ☆ |
| 43 | A21-0299-03 | Dress panel | **H** | ☆ |
| 35 | A30-0163-02 | Dial back board | **K,P,U,M,S,X,E** | ☆ |
| 35 | A30-0164-02 | Dial back board | **T** | ☆ |
| 35 | A30-0166-02 | Dial back board | **H** | ☆ |
| 42 | B01-0131-02 | Panel escutcheon | | ☆ |
| 32 | B01-0132-04 | Panel escutcheon × 2 | | ☆ |
| 39 | B07-0252-04 | Escutcheon | | ☆ |
| 36 | B08-3017-04 | Indicating plate | | |
| 41 | B10-0241-04 | Front glass | | |
| 27 | B19-0204-03 | Lighting plate | | ☆ |
| 37 | B20-0437-04 | Dial calibrations | **K,P,U,M,S,X,E,T** | ☆ |
| 37 | B20-0438-04 | Dial calibrations | **S** | ☆ |
| 40 | B21-0030-04 | Dial pointer ass'y | | ☆ |
| 26 | B30-0127-05 | Lamp (8V 0.05A) | | |
| 25 | B30-0174-05 | Lamp (12V 0.15A) × 2 | | |
| 30 | B31-0296-05 | T meter | | ☆ |
| 29 | B31-0297-05 | S meter | | ☆ |
| — | B42-0009-04 | Passed sticker | | |
| — | B46-0055-20 | Warranty card | **P** | |
| — | B46-0060-00 | Warranty card | **T** | |
| — | B46-0061-20 | Warranty card | **K** | |
| — | B46-0062-20 | Warranty card | **U,H** | |
| — | B46-0063-00 | Warranty card | **U** | |
| — | B46-0064-00 | Warranty card | **X** | |
| — | B50-1815-00 | Instruction manual | **K,U,S,X** | |
| — | B50-1816-00 | Instruction manual | **P,M** | |
| — | B50-1817-00 | Instruction manual | **H** | |
| — | B50-1818-00 | Instruction manual | **E** | |
| — | B50-1819-00 | Instruction manual | **T** | |
| — | B59-0018-00 | Kenwood service stations' list | | |
| — | C52-1756-16 | Ceramic capacitor | 560pF ± 10% | |
| — | C54-3310-39 | Ceramic capacitor × 2 | 0.01 μF DC2KWV **E,T** | |
| — | C90-0145-05 | | | |
| — | or C91-0001-05 | Capacitor | 0.01μF **K** | |
| — | C91-0023-05 | Ceramic capacitor | 0.01μF 250WV **U,M,H,S,X** | |
| — | C91-0025-05 | Metal film capacitor | 0.01μF **P** | |
| — | D01-0029-04 | Fly wheel | | |
| 11 | D15-0155-13 | Dial pulley | | |
| 10 | D15-0156-13 | Dial pulley | | |
| 21 | D15-0170-14 | Pulley × 5 | | |
| 18 | D20-0146-03 | Dial shaft ass'y | | ☆ |
| 51 | D32-0075-04 | Switch stopper (De-emphasis) | **U,M,H** | |
| 52 | E04-0004-05 | RF coaxial cable receptacle | **E** | |
| 9 | E13-0212-05 | Phono jack | | |
| 8 | E29-0082-05 | Terminal plate | | |
| 3 | E30-0181-05 | Power cord | **K,P** | |
| 3 | E30-0185-05 | Power cord | **X** | |
| 3 | E30-0459-05 | Power cord | **H,E** | |
| 54 | E30-0505-05 | Audio cord | | |
| 3 | E30-0545-05 | Power cord | **U,M** | |
| 3 | E30-0602-05 | Power cord | **S,T** | |
| 53 | G01-0314-04 | Dial spring | | |
| 4 | G13-0121-03 | Cushion × 2 | | |
| — | H01-1857-04 | Carton box | **K,U,M,S,X,E** | ☆ |
| — | H01-1858-04 | Carton box | **P** | ☆ |
| — | H01-1859-04 | Carton box | **H** | ☆ |
| — | H01-1860-04 | Carton box | **T** | ☆ |
| — | H10-1524-12 | Polystyrene foamed fixture × 2 | | |
| — | H20-0448-04 | Polyethylene cover | **M** | |
| — | H20-0453-04 | Polyethylene cover | **K,P,U,H,S,X,E,T** | |
| — | H25-0078-04 | Polyethylene bag (235 × 315) | | |
| — | H25-0148-04 | Polyethylene bag (110 × 230) | | |
| — | H40-0004-04 | Anti-rust paper | **M** | |
| 22 | J02-0049-14 | Foot × 4 | **P,U,M,H,S,X,E,T** | |
| 22 | J02-0073-04 | Foot × 4 | **K** | |
| — | J02-0097-04 | Foot | | |
| 48 | J19-0507-05 | AM bar antenna holder | | |
| 5 | J41-0024-15 | Power cord bushing | **S,X,T** | |
| 5 | J41-0033-05 | Power cord bushing | **M,E** | |
| 5 | J41-0034-05 | Power cord bushing | **K,P,U,M** | |
| 45 | K21-0366-04 | Knob (50φ) | | |
| 46 | K27-0076-04 | Knob (Lever) | | |
| 23 | K27-0077-04 | Knob (Lever) | | |
| 15 | K27-0082-04 | Knob (Push) | | |
| 16 | L01-1691-05 | Power transformer | **K,P** | |
| 16 | L01-1694-05 | Power transformer | **U,M,H,S,X,T** | |
| 16 | L01-1697-05 | Power transformer | **E** | |
| — | L19-0009-05 | Balun Transformer | | |
| 2 | N08-0125-05 | Dress screw × 6 | | |
| 20 | N09-0293-05 | Screw for pulley × 5 | | |
| — | R47-1427-05 | Flame-proof RS resister × 2 | | |
| — | R92-0173-05 | Carbon resister | 2.2MΩ 1/2W **K,P** | |
| 49 | S31-2007-05 | Slide switch (De-emphasis) | **U,M,H** | |
| 50 | S31-2050-05 | Slide switch (Power voltage selector) | **U,M,H,S,X,E** | |
| 17 | S33-1011-05 | Lever switch (Power) | **U,M,H,S,X** | |
| 17 | S33-1014-05 | Lever switch (Power) | **K,P** | |
| 17 | S33-2042-05 | Lever switch (Power) | **E,T** | |
| 6 | T90-0083-05 | AM bar antenna | | |
| 55 | T90-0202-05 | FM indoor antenna | | |
| 12 | X05-1640-11 | Tuner PC board ass'y | **K,P** | ☆ |
| 12 | X05-1640-41 | Tuner PC board ass'y | **S** | ☆ |
| 12 | X05-1640-81 | Tuner PC board ass'y | **U,M,H** | ☆ |
| 12 | X05-1642-71 | Tuner PC board ass'y | **X,E,T** | ☆ |
| — | 351-0008-04 | Dial cord | | |

# PARTS LIST

## TUNER (X05-1640-00)

X05-1640-11 → 011
X05-1640-41 → 041
X05-1640-81 → 081
X05-1642-71 → 271

| Ref. No. | Parts No. | Description | Remarks |
|---|---|---|---|
| | | **CAPACITOR** | |
| C1 | C63-1715-05 | Ceramic 15pF ±5% | |
| C2 | C71-1710-15 | Ceramic 100pF ±5% | |
| C3,4 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C5,6 | C63-1718-05 | Ceramic 18pF ±5% | |
| C7 | C71-1712-02 | Ceramic 12pF ±0.5pF | |
| C8 | C71-1710-02 | Ceramic 10pF ±0.5pF | |
| C9 | C71-1722-15 | Ceramic 220pF ±5% | |
| C10 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C11 | C60-1722-05 | Ceramic 22pF ±5% | **011,081,271** |
| | C60-1712-05 | Ceramic 12pF ±5% | **041** |
| C12 | C62-1710-02 | Ceramic 10pF ±0.5pF | |
| C13 | C62-1739-05 | Ceramic 39pF ±5% | |
| C14 | C62-1710-02 | Ceramic 10pF ±0.5pF | |
| C15 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C16 | C24-1210-71 | Electrolytic 100μF 16WV | |
| C17 | C71-1701-01 | Ceramic 1pF ±0.25pF | |
| C18 | C24-1210-71 | Electrolytic 100μF 16WV | |
| C19~26 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C27 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C28 | C71-1710-15 | Ceramic 100pF ±5% | |
| C29 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C30~35 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C36 | C24-6547-51 | Electrolytic 4.7μF 35WV | |
| C37 | C25-6522-57 | Electrolytic 2.2μF 35WV | |
| C38 | C24-1210-61 | Electrolytic 10μF 16WV | |
| C39 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C40 | C71-1710-15 | Ceramic 100pF ±5% | |
| C41 | C24-1710-51 | Electrolytic 1μF 50WV | |
| C42 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C43 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C46 | C91-0070-05 | Ceramic 0.047μF +80%, −20% | |
| C48 | C91-0070-05 | Ceramic 0.047μF +80%, −20% | |
| C49 | C24-1247-71 | Electrolytic 470μF 16WV | |
| C50 | C58-1747-05 | Ceramic 47pF ±5% | |
| C51 | C91-0070-05 | Ceramic 0.047μF +80%, −20% | |
| C52 | C24-1010-71 | Electrolytic 100μF 10WV | |
| C53 | C24-1210-61 | Electrolytic 10μF 16WV | |
| C54 | C24-1022-61 | Electrolytic 22μF 10WV | |
| C55,56 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C57 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C58 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C59 | C24-1247-71 | Electrolytic 470μF 16WV | |
| C60 | C71-1722-15 | Ceramic 220μF ±5% | |
| C61 | C24-1733-51 | Electrolytic 3.3μF 50WV | |
| C62,63 | C24-1210-61 | Electrolytic 10μF 16WV | |
| C64 | C71-1710-15 | Ceramic 100pF ±5% | |
| C65,67 | C46-1727-25 | Mylar 2700pF ±5% | **081** |
| C66,68 | C46-1727-25 | Mylar 2700pF ±5% | **011** |
| | C46-1712-25 | Mylar 1200pF ±5% | **271,041** |
| | C46-1747-25 | Mylar 4700pF ±5% | **081** |
| C69 | C46-1712-26 | Mylar 0.0012μF ±10% | |
| C70 | C46-1747-36 | Mylar 0.047μF ±10% | |
| C71 | C48-1736-15 | Polystyrene 360pF ±5% | |
| C72 | C25-1433-57 | Electrolytic 3.3μF 25WV | |
| C73 | C25-6522-57 | Electrolytic 2.2μF 35WV | |
| C74 | C25-1733-47 | Electrolytic 0.33μF 50WV | |
| C75,76 | C24-1733-51 | Electrolytic 3.3μF 50WV | |
| C77,78 | C25-1747-47 | Electrolytic 0.47μF 50WV | |
| C79 | C46-1715-36 | Mylar 0.015μF ±10% | |
| C80 | C24-1022-71 | Electrolytic 220μF 10WV | |
| C81 | C71-1747-05 | Ceramic 47pF ±5% | |
| C82 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C83 | C70-1718-05 | Ceramic 18pF ±5% | |
| C84 | C48-1736-15 | Polystyrene 360pF ±5% | |
| C85 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C86 | C71-1747-05 | Ceramic 47pF ±5% | |
| C87 | C46-1710-26 | Mylar 0.001μF ±10% | |
| C88 | C24-1210-61 | Electrolytic 10μF 16WV | |
| C89 | C46-1710-36 | Mylar 0.01μF ±10% | |
| C90,91 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C92 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C93 | C24-6547-51 | Electrolytic 4.7μF 35WV | |
| C94 | C46-1710-26 | Mylar 0.001μF ±10% | |
| C95 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C96 | C24-1733-51 | Electrolytic 3.3μF 50WV | |
| C97 | C46-1722-35 | Mylar 0.022μF ±5% | |
| C98 | C46-1768-35 | Mylar 0.068μF ±5% | |
| C99~102 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C103 | C25-1433-57 | Electrolytic 3.3μF 25WV | |
| C104 | C24-1433-61 | Electrolytic 33μF 25WV | |
| C105 | C24-1410-81 | Electrolytic 1000μF 25WV | |
| C106 | C24-1410-71 | Electrolytic 100μF 25WV | |
| C107 | C52-1756-16 | Ceramic 560pF ±10% | |
| C108,109 | C24-1210-61 | Electrolytic 10μF 16WV | |
| C110 | C24-1047-61 | Electrolytic 47μF 10WV | |
| C111 | C25-1410-67 | Electrolytic 10μF 25WV | |
| C112 | C25-1433-57 | Electrolytic 3.3μF 25WV | |
| C113,114 | C24-1710-51 | Electrolytic 1μF 50WV | |
| C115 | C24-1733-51 | Electrolytic 3.3μF 50WV | |
| C116 | C24-1210-71 | Electrolytic 100μF 16WV | |
| C117~120 | C55-1710-38 | Ceramic 0.01μF +80%, −20% | |
| C122 | C67-1782-05 | Ceramic 82pF ±5% | |
| C125,126 | C24-1722-51 | Electrolytic 2.2μF 50WV | |
| C127 | C55-1747-38 | Ceramic 0.047μF +80%, −20% | |
| C128 | C24-1722-51 | Electrolytic 2.2μF 50WV | |
| C129 | C24-1210-61 | Electrolytic 10μF 16WV | |
| C130 | C24-1247-61 | Electrolytic 47μF 16WV | |
| C131 | C24-6547-51 | Electrolytic 4.7μF 35WV | |
| | | **RESISTOR** | |
| R43 | R40-8310-68 | Carbon 10MΩ ±20% 1/2W | |
| R51 | R49-6268-23 | Metal film 6.8kΩ ±1% 1/4W | |
| R68 | R40-8315-16 | Carbon 150Ω ±10% 1/2W | |
| R75,76 | R40-8310-68 | Carbon 10MΩ ±20% 1/2W | |
| R124,125 | R47-1427-05 | Flame-proof RS 27Ω ±5% 1W | |
| | | **SEMICONDUCTOR** | |
| Q1 | V09-0142-10 | FET 3SK73(Y,GR) | |
| Q2 | V03-0098-05 | Transistor 2SC535(B) | |
| | V03-0092-05 | or 2SC381(O) | |
| Q3 | V03-0445-05 | Transistor 2SC1342(B) | |
| | V03-0136-05 | or 2SC785(R) | |
| Q4 | V03-0098-05 | Transistor 2SC535(B) | |
| | V03-0092-05 | or 2SC381(O) | |
| Q5~7 | V09-0127-20 | FET 2SK105 | |
| | V09-0126-00 | or 2SK117 | |
| Q8 | V01-0733-30 | Transistor 2SA733A(R,Q) | |
| | V01-0992-10 | or 2SA992(F,E) | |
| Q9~13 | V03-0270-05 | Transistor 2SC945(R,Q) | |
| | V03-0505-05 | or 2SC828A(P,Q) | |
| Q14 | V03-0344-05 | Transistor 2SC1419(B) | |
| Q15,16 | V03-0270-05 | Transistor 2SC945(R,Q) | |
| | V03-0505-05 | or 2SC828A(P,Q) | |
| IC1 | V30-0087-05 | IC TA7060P | |
| IC2 | V30-0192-05 | IC HA1137W | |
| IC3 | V30-0296-20 | IC TR4010A | |
| IC4 | V30-0193-05 | IC HA1196 | |
| IC5 | V30-0196-05 | IC HA1197 | |
| IC6 | V30-0268-10 | IC MC1496N | |
| D1~11 | V11-0076-05 | Diode 1S1555 | |
| | V11-0271-05 | or 1S2076 | |
| D12, 13 | V11-0295-05 | Diode W06B | |
| D14, 15 | V11-0273-05 | Diode 1S2076A | |
| D16~18 | V11-0076-05 | Diode 1S1555 | |
| | V11-0271-05 | or 1S2076 | |
| D19 | V11-4101-20 | Zener diode XZ-060 | |
| D20~24 | V11-0076-05 | Diode 1S1555 | |
| | V11-0271-05 | or 1S2076 | |

# PARTS LIST

| Ref. No. | Parts No. | Description | Re-Marks |
|---|---|---|---|
| | | **VARIABLE CAPACITOR/TRIMMER** | |
| — | C01-0201-05 | Variable resistor | |
| TC1 | C05-0055-05 | Ceramic filter | |
| | | **POTENTIOMETER** | |
| VR1 | R12-0047-05 | Potentiometer 500Ω IF GAIN | |
| VR2,3 | R12-5017-05 | Potentiometer 200kΩ NARROW/WIDE | |
| VR4 | R12-3030-05 | Potentiometer 10KΩ VCO | |
| | | **COIL/INDUCTOR/FILTER** | |
| L1 | L31-0372-05 | FM ANT Coil | |
| L2 | L34-0436-05 | FM RF Coil | |
| L3 | L31-0374-05 | FM RF Coil | |
| L4 | L32-0210-05 | FM OSC Coil | **011,081,271** |
| | L32-0204-05 | FM OSC Coil | **041** |
| L5 | L40-1092-12 | Inductor 1μH | |
| L6 | L30-0282-05 | FM IFT | |
| L7,9,10 | L40-2292-11 | Inductor 2.2μH | |
| L11 | L30-0320-05 | FM IFT | |
| L12 | L32-0205-15 | AM OSC Coil | |
| L13 | L30-0307-05 | AM IFT | |
| L15 | L40-1021-03 | Inductor 1mH | |
| | L40-1021-45 | or 1mH | |
| L16 | L30-0284-05 | AM IFT | |
| L17 | L32-0218-05 | FM OSC Coil | |
| L18 | L40-1092-44 | Inductor 1μH | |
| L19 | L40-3325-64 | Inductor 3.3mH | |
| L20 | L40-1021-03 | Inductor 1mH | |
| | L40-1021-45 | or 1mH | |
| L21 | L40-1015-25 | Inductor 100μH | |
| L22 | L40-2292-12 | Inductor 2.2μH | |
| CF1,2 | L72-0056-05 | FM Ceramic filter | |
| CF3,4 | L72-0059-05 | FM Ceramic filter | |
| CF5 | L72-0054-05 | AM Ceramic filter | |
| FL1 | L79-0094-05 | LC filter | |
| FL2 | L79-0095-05 | LC filter | |
| FL3 | L79-0080-05 | LC filter | |
| FL4,5 | L79-0056-05 | LC filter | |
| FL6 | L79-0073-05 | LC filter | **041,081,271** |
| FL7 | L79-0096-05 | LC filter | |
| FL8 | L79-0097-05 | LC filter | |
| — | L79-0091-05 | Filter assy | |
| | | **SWITCH** | |
| S1 | S42-3026-05 | Push switch | |
| S2 | S40-2094-05 | Push switch | |

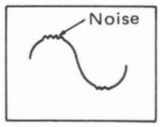
# ADJUSTMENT

FM MODE is AUTO/MUTING, and MPX FILTER is OFF, unless otherwise specified.

| No. | ALIGNMENT | TEST EQUIPMENTS | | TUNER SETTING | OUTPUT INDICATOR | ADJUSTMENT POINTS | REMARKS |
|---|---|---|---|---|---|---|---|
| | | CONNECTION | SETTING | | | | |
| **FM SECTION** | | | | | | | |
| 1a | TRACKING | Ⓐ | 90MHz<br>1kHz (Mod)<br>75kHz (Dev) | 90MHz<br>WIDE | Ⓑ | L4,3,2,1 | Maximum deflection |
| 1b | TRACKING | - do - | 106MHz<br>1kHz (Mod)<br>75kHz (Dev) | 106MHz<br>WIDE | - do - | TC1,4,3,2, | - do - |
| 2a | T METER | - do - | 95MHz<br>1kHz (Mod)<br>75kHz (Dev) | 95MHz<br>WIDE | - do - | — | Set the tuning knob so that the noise appears Symmetrically on upper and lower peaks of the waveform under the weak signal fed condition. *1 |
| 2b | T METER | - do - | 95MHz<br>1kHz (Mod)<br>75kHz (Dev)<br>60dB (ANT INPUT) | - do - | T meter | L11 | T meter<br>pointer to be on the center point. |
| 3 | DISTORTION | Ⓒ | 95MHz<br>1kHz (Mod)<br>68.25kHz (Dev)<br>60dB (ANT INPUT)<br>SELECTOR: L+R | - do - | Ⓑ | L6 | Minimum distortion |
| 4a | WIDE GAIN | Ⓑ | 95MHz<br>0 (Dev) | 95MHz<br>NARROW | S meter | — | Set the SG output level so that S meter indicates "3". |
| 4b | WIDE GAIN | - do - | same condition<br>as 4a | 95MHz<br>WIDE | S meter | VR1 | Adjust VR1 so that S meter indicates "3". |
| 5 | VCO | - do - | 95MHz<br>0 (Dev)<br>60dB (ANT INPUT) | - do - | Hold the body of C71 by the SSVM's clip (+ side) and connect the output of SSVM to the frequency counter. *4 | VR4 | 76kHz |
| 6a | SEPARATION (NARROW) | Ⓒ | 95MHz<br>1kHz (Mod)<br>68.25kHz (Dev, under L+R position)<br>60dB ANT INPUT)<br>SELECTOR: L or R | 95MHz<br>NARROW | Ⓑ | VR2 | Minimum crosstalk |
| 6b | SEPARTION (WIDE) | - do - | - do - | 95MHz<br>WIDE | - do - | VR3 | - do - |
| **AM SECTION** | | | | | | | |
| 1 | IF | Ⓓ | 1000kHz<br>400Hz 30% (Mod) | 1000kHz | Ⓑ | L13 | Maximum deflection |
| 2a | TRACKING | - do - | 600kHz<br>400Hz 30% (Mod) | 600kHz | - do - | L12<br>AM bar antenna | - do - |
| 2b | TRACKING | - do - | 1400kHz<br>400Hz 30% (Mod) | 1400kHz | - do - | TC5,6 | - do - |

## NOTE ON ADJUSTMENT

*** 1**




*** 2** 0 dB = 1 μV

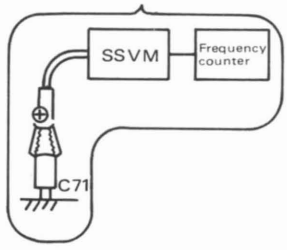
*** 3 Adjustment of the Second Local Oscillator (L17)**

L17 needs no adjustment except when it has been replaced, and it may also need the adjustment when IC6 being replaced.

Adjustment procedure:

First, tune the 95 MHz non-modulated signal, and measure the first IF frequency of the positive side of L17 by the frequency counter. Next, adjust L17 so that the second IF frequency of the connecting point of FL8 and R50 becomes the value of the " $\frac{9}{49}$ X the first IF frequency".

*** 4**



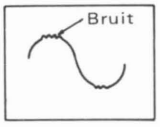
# REGLAGES

Bouton FM MODE en position Auto/Muting et filtre MPX hors service, sauf indication contraire.

| Nº | ALIGNEMENT | APPAREILLAGE | | REGLAGE DU TUNER | INDICATEUR DE SORTIE | POINTS DE REGLAGES | REMARQUES |
|---|---|---|---|---|---|---|---|
| | | RACCORDEMENT | REGLAGE | | | | |
| **SECTION MF** | | | | | | | |
| 1a | **ALIGNEMENT** | Ⓐ | 90MHz<br>1kHz (MODULATION)<br>75kHz (DEVIATION) | 90MHz<br>WIDE | Ⓑ | L4,3,2,1 | Déviation maximale |
| 1b | **ALIGNEMENT** | idem | 106MHz<br>1kHz (MODULATION)<br>75kHz (DEVIATION) | 106MHz<br>WIDE | idem | TC1,4,3,2, | idem |
| 2a | **INDICATEUR A ZERO CENTRAL** | idem | 95MHz<br>1kHz (MODULATION)<br>75kHz (DEVIATION) | 95MHz<br>WIDE | idem | — | Régler le bouton d'accord de façon à ce que le bruit apparaisse symétriquement sur les crêtes supérieures et inférieures du signal, lorsque l'on injecte un signal de faible amplitude *1 |
| 2b | **INDICATEUR A ZERO CENTRAL** | idem | 95MHz<br>1kHz (MODULATION)<br>75kHz (DEVIATION)<br>60dB (ENTREE ANT) | idem | T-METRE | L11 | Aiguille de l'indicateur à zéro central en position centrale |
| 3 | **DISTORSION** | Ⓒ | 95MHz<br>1kHz (MODULATION)<br>68.25kHz (DEVIATION)<br>60dB (ENTREE ANT)<br>L+R (SELECTION) | idem | Ⓑ | L6 | Distorsion minimale |
| 4a | **GRAND GAIN** | Ⓑ | 95MHz<br>0 (DEVIATION) | 95MHz<br>NARROW | Indicateur de champ | — | Régler le niveau de sortie du générateur pour lire "3" |
| 4b | **GRAND GAIN** | idem | mêmes conditions que 4a | 95MHz<br>WIDE | Indicateur de champ | VR1 | Ajuster VR 1 de façon à ce que l'indicateur affiche "3" |
| 5 | **OSCILLATEUR 76kHz** | idem | 95MHz<br>0 (DEVIATION)<br>60dB (ENTREE ANT) | idem | Maintenir le corps de C 71 avec la pince du millivoltmètre (côté positif) et relier la sortie du millivoltmètre à un fréquencemètre | VR4 | Ajuster oscillateur à 76kHz |
| 6a | **SEPARATION (ETROITE)** | Ⓒ | 95MHz<br>1kHz (MODULATION)<br>sur la position (L+R)<br>68.25kHz (DEVIATION)<br>60dB (ENTREE ANT)<br>L ou R | 95MHz<br>NARROW | Ⓑ | VR2 | Diaphonie minimale |
| 6b | **SEPARATION (LARGE)** | idem | idem | 95MHz<br>WIDE | idem | VR3 | Diaphonie minimale |
| **SECTION MA** | | | | | | | |
| 1 | **FI** | Ⓓ | 1000kHz<br>400Hz 30%<br>(MODULATION) | 1000kHz | Ⓑ | L13 | Déviation maximale |
| 2 | **ALIGNEMENT** | idem | 600kHz<br>400Hz 30%<br>(MODULATION) | 600kHz | idem | L12<br>Antenne ferrite MA | Déviation maximale |
| 3 | **ALIGNEMENT** | idem | 1400kHz<br>400Hz 30%<br>(MODULATION) | 1400kHz | idem | TC5,6 | Déviation maximale |

## NOTES CONCERNANT LES REGLAGES

*** 1**




*** 2** 0 dB = 1 μV

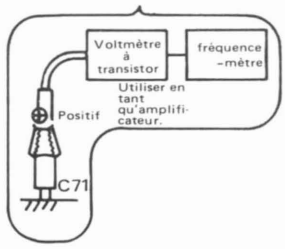
*** 3 Ajustement du second oscillateur local (L 17)**

En dehors de son remplacement, l'inductance L 17 n'a pas besoin d'être réglée, elle peut nécessiter un réglage au cas où IC 6 serait remplacé.

Procédure de réglage.

Accorder tout d'abord le récepteur sur une onde non modulée à 95 MHz et mesurer la valeur de la première fréquence intermédiaire sur le point chaud de L 17 (on utilise le fréquencemètre). Ajuster ensuite L 17 de façon à ce que la seconde fréquence intermédiaire, mesurée sur le point commun à FL8 et R50 soit égale aux 9/49 èmes de la valeur du première FI.

***4**

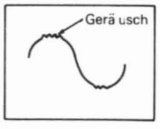


# ABGLEICHE

| Nr. | Abgleich | Prüfeinrichtung | | Tuner Einstellung | Ausgangsanzeige | Einstellpunkt | Bemerkungen |
|---|---|---|---|---|---|---|---|
| | | Anschlüsse | Einstellung | | | | |
| **UKW-Empfangsabteilung** | | | | | | | |
| 1a | **Empfangsbereich** | Ⓐ | 90MHz<br>1kHz, ±75kHz (Hub) | 90MHz<br>WIDE | Ⓑ | L4,3,2,1 | maximaler Ausschlag |
| 1b | **Empfangsbereich** | dito | 106MHz<br>1kHz, ±75kHz (Hub) | 106MHz<br>WIDE | dito | TC1,4,3,2, | dito |
| 2a | **Kanalmitten-Anzeiger (TUNING METER)** | dito | 95MHz<br>1kHz, ±75kHz (Hub) | 95MHz<br>WIDE | dito | — | Den Abstimmknopf so einstellen, daß Die Wellenform ist gesehen wie die Figur. *1 |
| 2b | **Kanalmitten-Anzeiger (TUNING METER)** | dito | 95MHz<br>1kHz, ±75kHz (Hub)<br>60dB(Eingangssignalpegel) | dito | Kanalmitten —Anzeiger | L11 | Den Zeiger des Kanalmitten-Anzeiger mittig einstellen. |
| 3 | **Klirrfaktor** | Ⓒ | 95MHz<br>1kHz, ±68.25kHz (Hub)<br>60dB(Eingangssignalpegel)<br>Wähler: L order R | dito | Ⓑ | L6 | minimaler klirr |
| 4a | **Feldstärkeinstrument (SIGNAL METER) Abgleich (Weit)** | Ⓑ | 95MHz<br>0 (Hub) | 95MHz<br>NARROW | Feldstärke —instrument (SIGNAL METER) | — | Den Ausgang des HF-Signalgenerator so einregeln, daß das Feldstärkeinstrument "3" anzeigt. |
| 4b | **Feldstärkeinstrument (SIGNAL METER) Abgleich (Weit)** | dito | gleicher Zustand wie bei 4a | 95MHz<br>WIDE | Feldstärke —instrument | VR1 | VR1 so einstellen, daß das Feldstärke-instrument "3" anzeigt. |
| 5 | **Spannungsgeregelter Oszillator** | dito | 95MHz<br>0 (Hub)<br>60dB<br>(Eingangssignalpegel) | dito | Den Körper des C71 mit der Klemme (+Seite) des Transistor-Voltmeter festhalten und den Ausgang des Transistor-Voltmeter mit dem Frequenzzähler verbinden. *4 | VR4 | 76kHz |
| 6a | **Stereo Kanal trennung (eng)** | Ⓒ | 95MHz<br>1kHz, ±68.25kHz (Hub bei L+R Stellung), 60dB (Eingangssignalpegel)<br>Wähler: L order R | 95MHz<br>(NARROW) | Ⓑ | VR2 | minimales Übersprechen |
| 6b | **Stereo Kanel trennung (weit)** | dito | dito | 95MHz<br>WIDE | dito | VR3 | dito |
| **MW-Empfangsabteilung** | | | | | | | |
| 1 | **Zwischenfrequenz** | Ⓓ | 1000kHz<br>400Hz, 30% Modulation | 1000kHz | Ⓑ | L13 | maximaler Ausschlag |
| 2a | **Empfangsbereich** | dito | 600kHz<br>400Hz, 30% Modulation | 600kHz | dito | L12<br>MW-Ferritantenne | dito |
| 2b | **Empfangsbereich** | dito | 1400kHz<br>400Hz, 30% Modulation | 1400kHz | dito | TC5,6 | dito |

## HINWEISE FÜR DIE EINSTELLUNG

*1



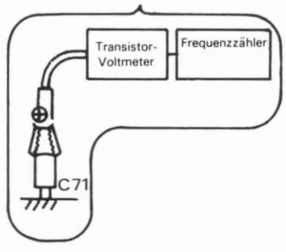

Greräusch muß im oberen und unteren Teil der kurve sein.

*2 0 dB=1μV

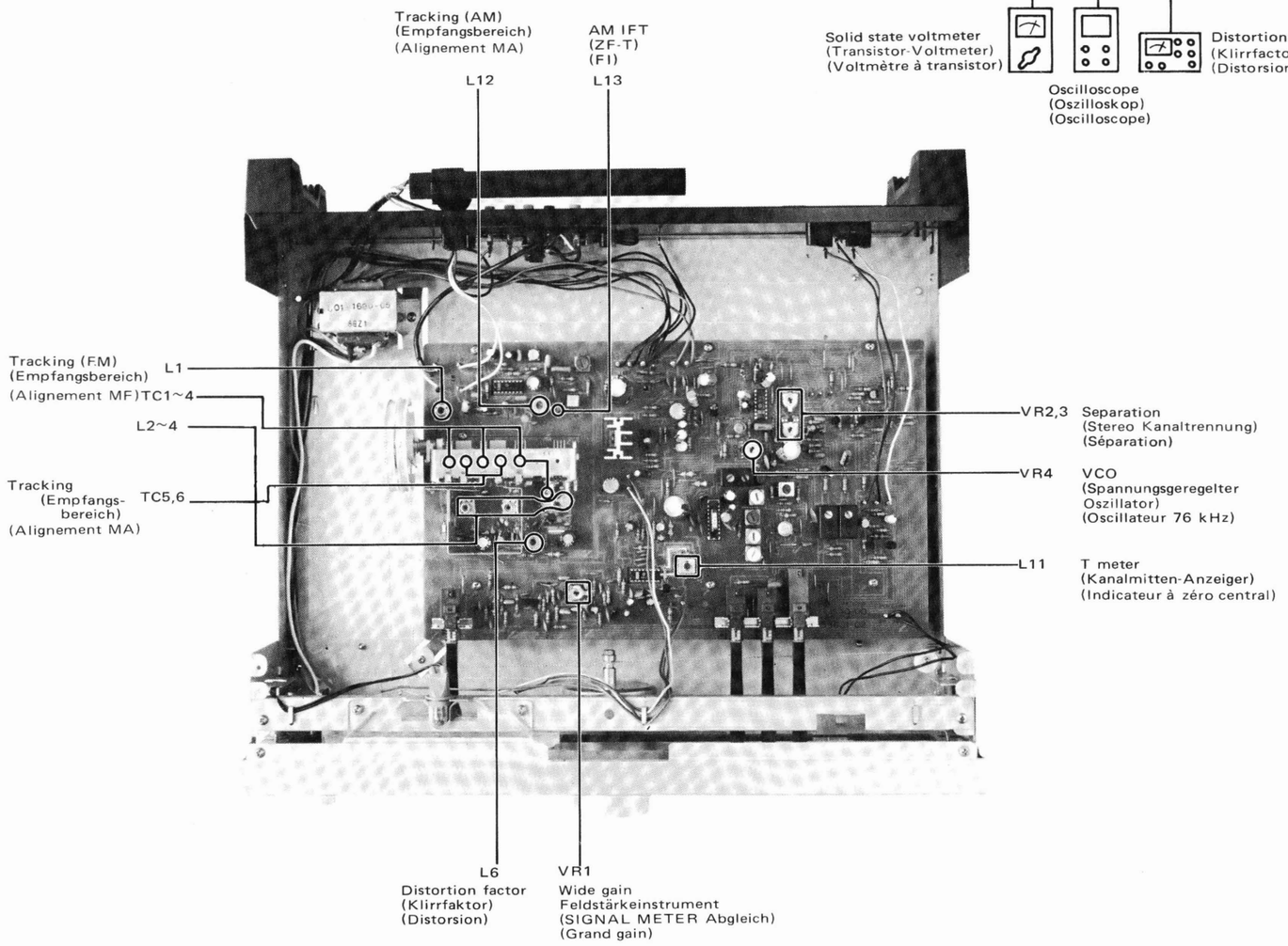
***3 Einstellung des zweiten Oszillator (L17)**

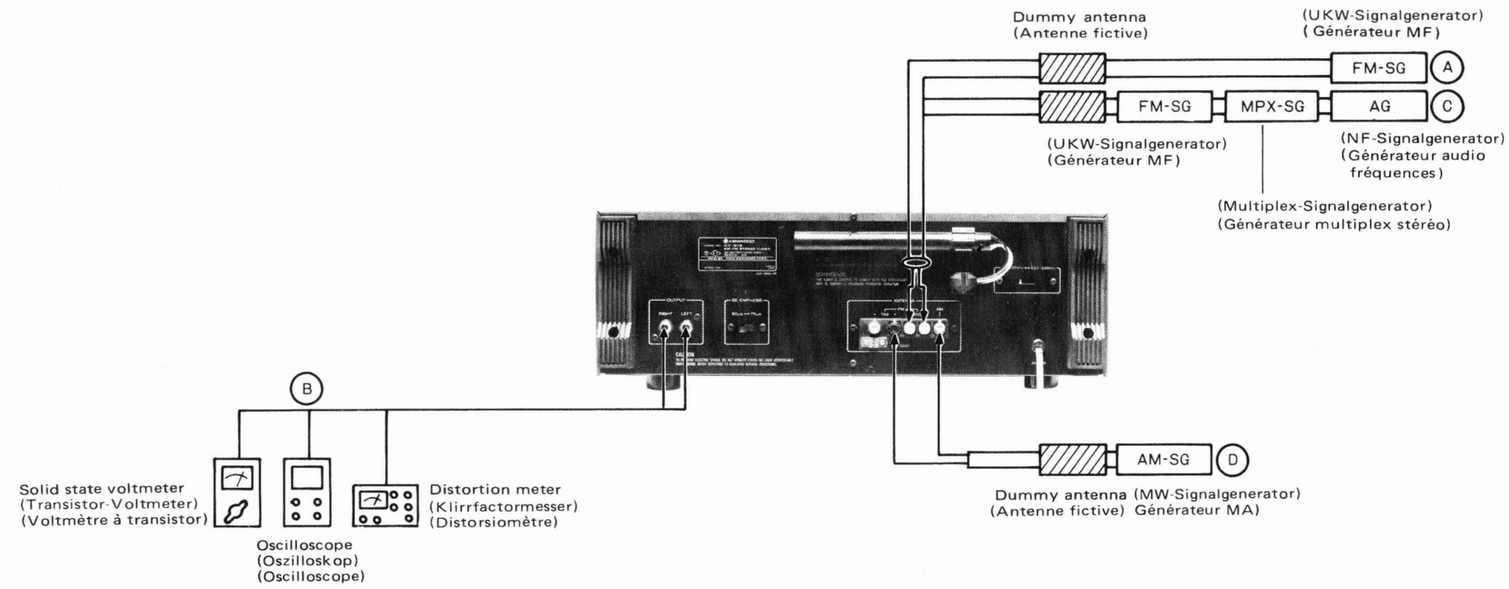
Die L17 braucht nur beim Auswechseln eingestellt zu werden. Auch beim Auswechseln des IC6 kann eine Einstellung erforderlich sein.
Einstellungsvorgang:
Zuerst das unmodulierte 95MHz-Signal abstimmen, und die erste Zwischenfrequenz am heißen Ende der L17 mit dem Frequenzzähler messen.
Dann die L17 so einstellen, daß die zweite Zwischenfrequenz der Anschlußstelle von FL8 und R50 zum Wert " $\frac{9}{49}$ × der ersten Zwischenfrequenz wird."

*4



# ADJUSTMENT / REGLAGES / ABGLEICHE




## SEMICONDUCTOR SUBSTITUTIONS

| PC board ass'y | Ref. No. | Semiconductor name | Substitutions |
|---|---|---|---|
| X05-164⊡-⊡⊡ | Q1 | 3SK73(GR,Y) | 3SK59(GR,Y) |
| | Q2, 4 | 2SC535(B) or 2SC381(O) | – |
| | Q3 | 2SC1342(B) or 2SC785(R) | – |
| | Q5~7 | 2SK105 or 2SK117 | 2SK68, 2SK68A, 2SK30A |
| | Q8 | 2SA733A(R,Q) or 2SA992(E,F) | 2SA640 |
| | Q9~13,15,16 | 2SC945(R,Q) or 2SC828A(P,Q) | 2SC734, 2SC1213A, 2SC1775(D,E) 2SC1890(D,E,F) |
| | Q14 | 2SC1419(B) | 2SC1061, 2SC789, 2SD330(E,D) |

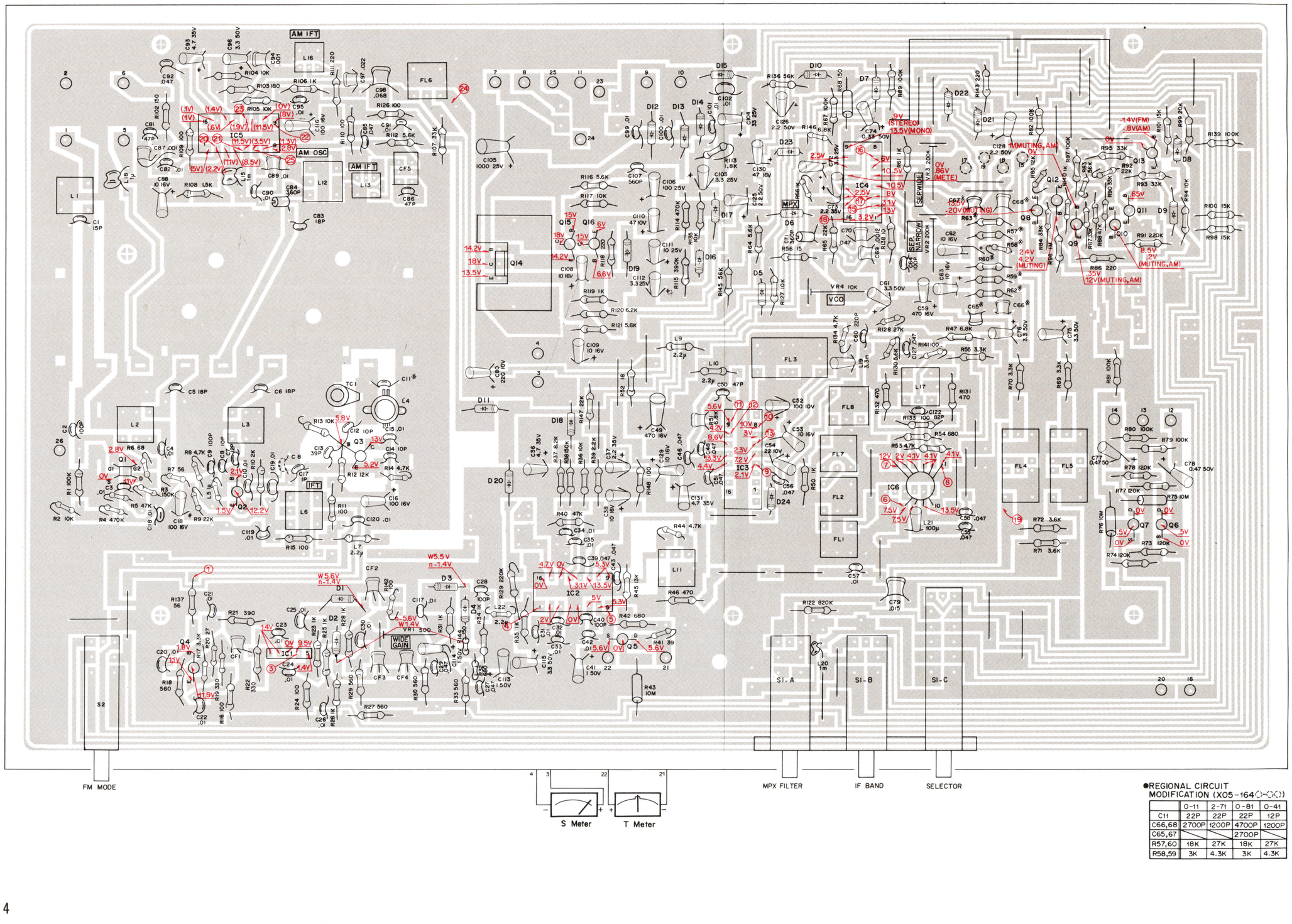
KT-615 KT-615

## PC BOARD

PC BOARD

### TUNER (X05-1640-11)

● X05-1640-11
: FL6 is omitted




Q1: 3SK73(GR,Y)
Q2,4: 2SC535(B) or 2SC381(O)
Q3: 2SC1342(B) or 2SC785(R)
Q5~7: 2SK105 or 2SK117
Q8: 2SA733A(R,Q) or 2SA992(F,E)
Q9~13,15,16: 2SC945(R,Q) or 2SC828A(P,Q)
Q14: 2SC1419(B)
IC1: TA7060P
IC2: HA1137W
IC3: TR4010A
IC4: HA1196
IC5: HA1197
IC6: MC1496N

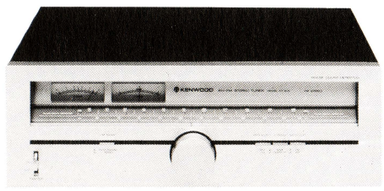
●REGIONAL CIRCUIT MODIFICATION (X05-164◇-○○)

| | 0-11 | 2-71 | 0-81 | 0-41 |
|---|---|---|---|---|
| C11 | 22P | 22P | 22P | 12P |
| C66,68 | 2700P | 1200P | 4700P | 1200P |
| C65,67 | | | 2700P | |
| R57,60 | 18K | 27K | 18K | 27K |
| R58,59 | 3K | 4.3K | 3K | 4.3K |

KENWOOD

# AM-FM STEREO TUNER

# KT-615



## SPECIFICATIONS

### FM TUNER SECTION

| | | |
|---|---|---|
| **Usable Sensitivity** | 10.3 dBf (1.8 μV) | |
| **50 dB Quieting Sensitivity** | | |
| Mono | 15.8 dBf (3.4 μV) | |
| Stereo | 37.2 dBf (40 μV) | |
| **Signal to Noise Ratio** | | |
| Mono | 81 dB | |
| Stereo | 78 dB | |
| **Total Harmonic Distortion** | WIDE | NARROW |
| Mono at 100 Hz | 0.05% | 0.06% |
| 1,000 Hz | 0.05% | 0.17% |
| 6,000 Hz | 0.065% | 0.4% |
| 15,000 Hz | 0.09% | 0.09% |
| 50 Hz to 10,000 Hz | 0.065% | 0.4% |
| Stereo at 100 Hz | 0.1% | 0.5% |
| 1,000 Hz | 0.06% | 0.25% |
| 6,000 Hz | 0.1% | 0.25% |
| 15,000 Hz | 0.4% | 1.5% |
| 50 Hz to 10,000 Hz | 0.15% | 0.7% |
| **Capture Ratio** | 1.0 dB | 2.0 dB |
| **Alternate Channel Selectivity** | 45 dB | 54 dB (300 kHz) |
| **Stereo Separation** | | |
| 1,000 Hz | 55 dB | 48 dB |
| 50 Hz to 10,000 Hz | 40 dB | 35 dB |
| 15,000 Hz | 38 dB | 30 dB |
| **Frequency Response** | 30 Hz to 15,000 Hz +0.2 dB, −1.5 dB | |
| **Spurious Response Ratio** | 105 dB | |
| **Image Response Ratio** | 85 dB | |
| **IF Response Ratio** | 100 dB | |
| **AM Suppression Ratio** | 65 dB | |
| **Sub Carrier Product Ratio** | 65 dB | |
| **Antenna Impedance** | 300 ohms balanced and 75 ohms unbalanced | |
| **FM Frequency Range** | 88 MHz to 108 MHz | |
| **Output Level** | | |
| 1,000 Hz 100% Mod. | 0.75V, 1.8 kohms | |

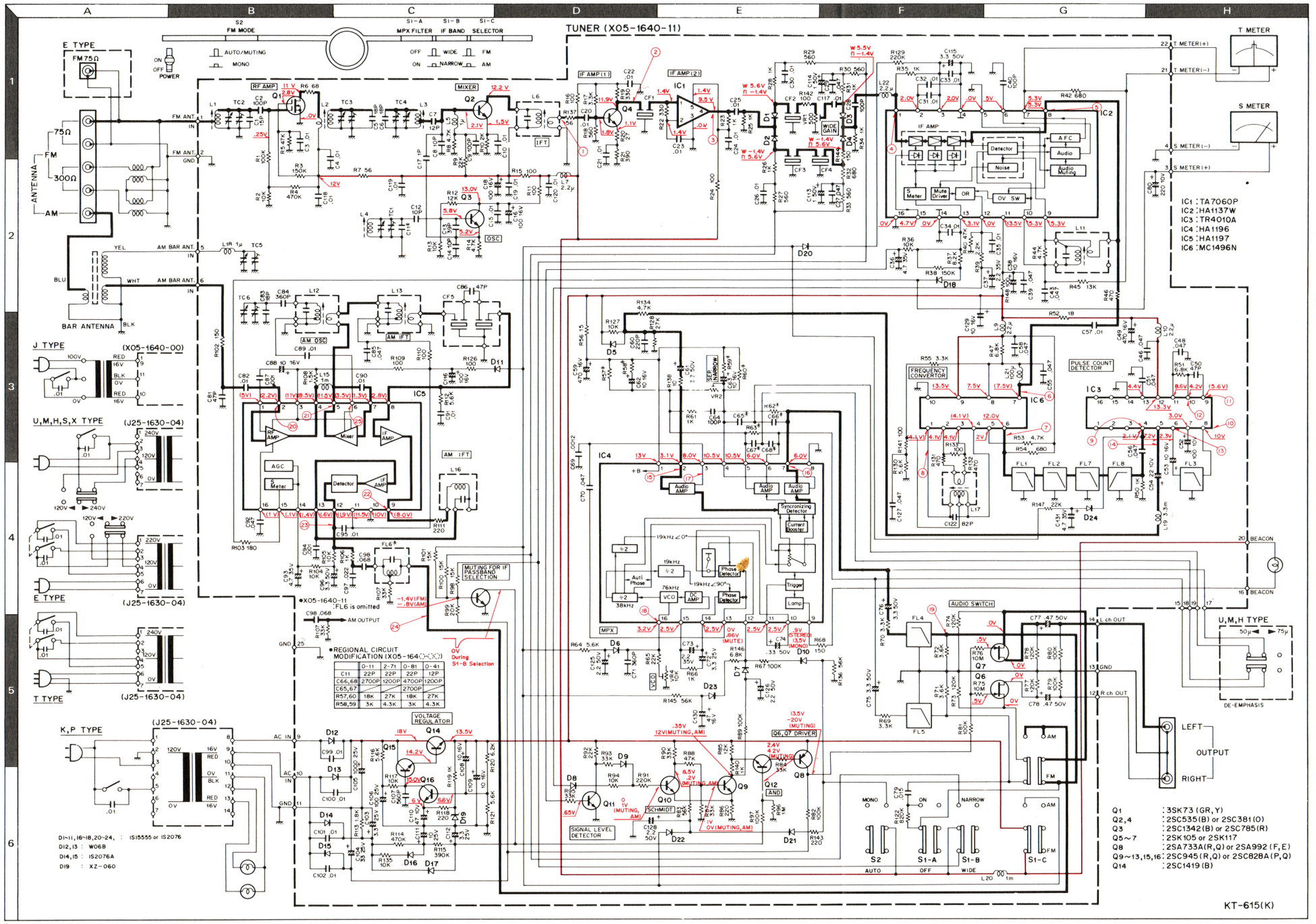
### AM TUNER SECTION

| | |
|---|---|
| **Usable Sensitivity** | 13 μV |
| **Signal to Noise Ratio** | 50 dB |
| **Total Harmonic Distortion** | 0.4% |
| **Image Rejection** | 60 dB |
| **Selectivity** | 38 dB |
| **Output Level** | |
| 400 Hz 30% Mod. | 0.14V, 2.0 kohms |

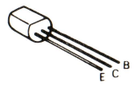
### GENERAL

| | |
|---|---|
| **Power Requirements** | 60 Hz 120V (U.S.A. and Canada Model) or 50/60 Hz 110-120/220-240V switchable |
| **Power Consumption** | 12 watts |
| **Dimensions** | W 440 mm (17-10/32″)<br>H 153 mm (6-6/32″)<br>D 402 mm (15-27/32″) |
| **Weight (Net)** | 7.2 kg (15.8 lbs) |

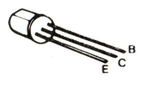
**Note:**
Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.



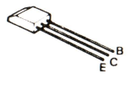

2SA733A 2SA992 2SC828A 2SC945



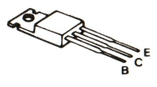
2SC381 2SC785



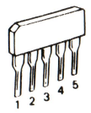
2SC535 2SC1342



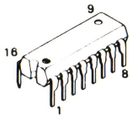
2SC1419



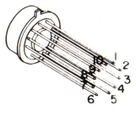
TA7060P



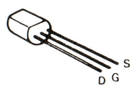
HA1137W HA1197 HA1196 TR4010A



MC1496



2SK105 2SK117



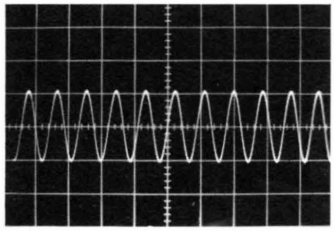
3SK73

DC voltages are measured with 25kΩ/V VOM.

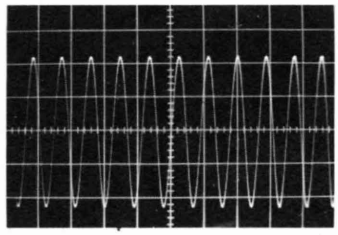
KT-615

# WAVEFORMS OF MEASURED POINTS

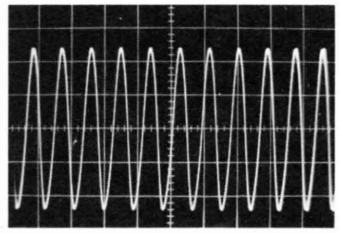
①~⑫ : FM85MHz, 0(Dev), 60dB(ANT INPUT)
⑬, ⑭ : FM85MHz, 1kHz(Mod), 75kHz(Dev), 60dB(ANT INPUT)
⑮~⑲ : FM85MHz, 1kHz(Mod), 68.25kHz(Dev), SELECTOR → L+R, 60dB(ANT INPUT)
⑳~㉕ : AM1000kHz, 1kHz(Mod), 20% MODULATION



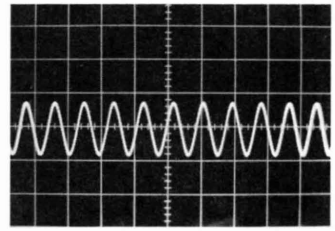
① . 1μS/cm, 5mV/cm



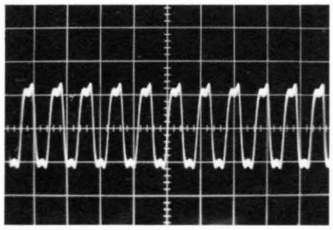
② . 1μS/cm, 10mV/cm



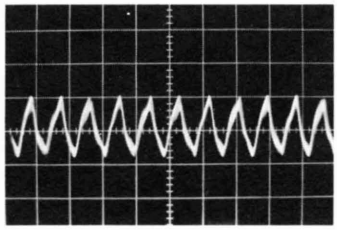
③ . 1μS/cm, 20mV/cm



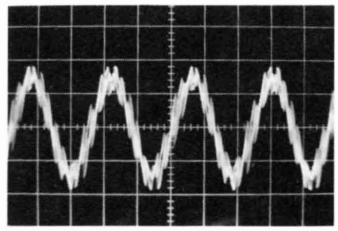
④ . 1μS/cm, 20mV/cm



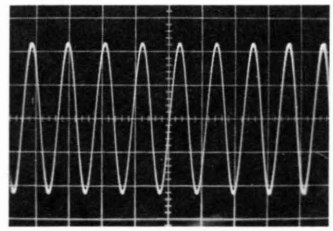
⑤ . 1μS/cm, 5mV/cm



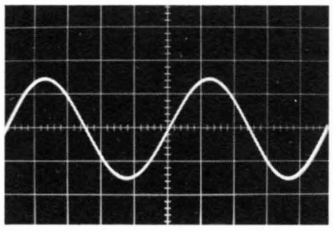
⑥ . 1μS/cm, 5mV/cm



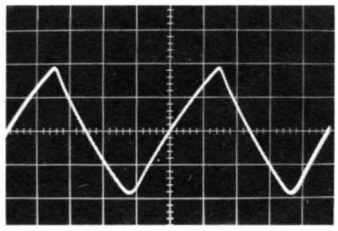
⑦ . 2μS/cm, 20mV/cm



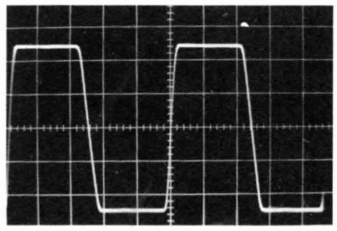
⑧ . 1μS/cm, 5mV/cm



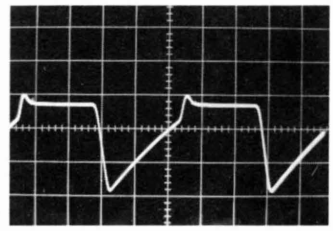
⑨ . 1μS/cm, 20mV/cm
Horizontal line (center) .2V



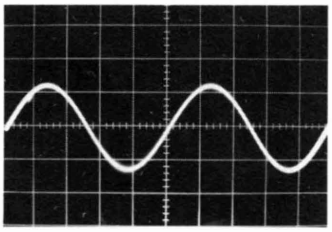
⑩ . 1μS/cm, 50mV/cm
Horizontal line (center) .95V



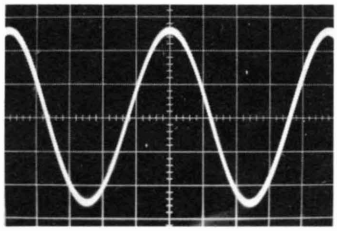
⑪ . 1μS/cm, .1V/cm
Horizontal line (center) .5V



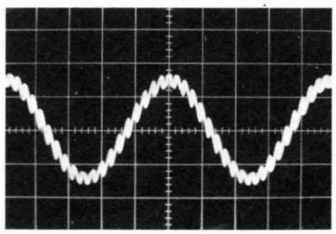
⑫ . 1μS/cm, .1V/cm
Horizontal line (center) .4V



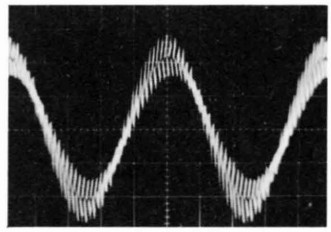
⑬ . 2mS/cm, 10mV/cm
Horizontal line (center) .2V



⑭ . 2mS/cm, 20mV/cm
Horizontal line (center) .7V

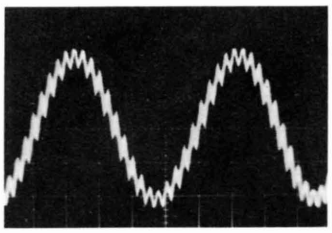


⑮ . 2mS/cm, 20mV/cm

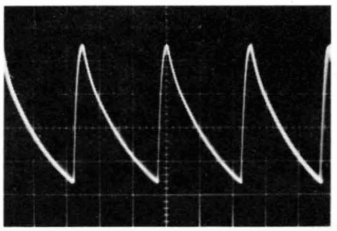


⑯ . 2mS/cm, .1V/cm

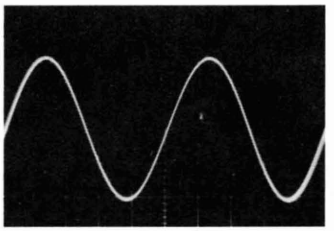
# WAVEFORMS OF MEASURED POINTS



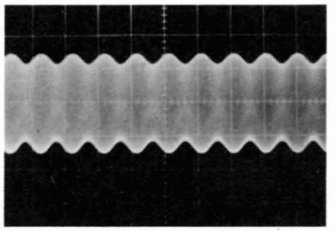
⑰ .2mS/cm, 50mV/cm



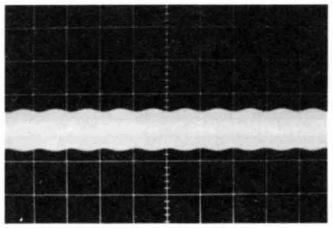
⑱ .5μS/cm, .1V/cm



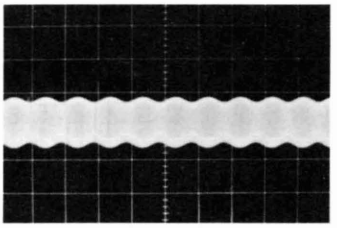
⑲ .2mS/cm, 50mV/cm



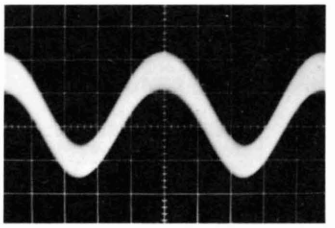
⑳ 1mS/cm, 20mV/cm



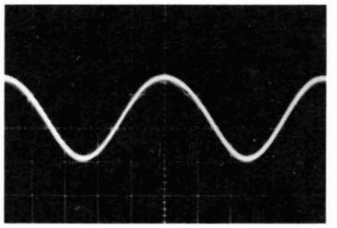
㉑ 1mS/cm, 10mV/cm



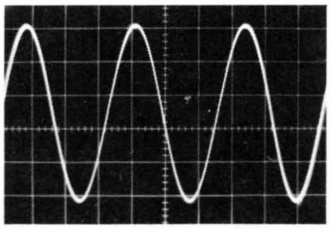
㉒ 1mS/cm, 10mV/cm



㉓ .2mS/cm, 10mV/cm



㉔ .2mS/cm, 10mV/cm



㉕ .2μS/cm, 20mV/cm

A product of

**TRIO-KENWOOD CORPORATION**

6-17, 3-chome, Aobadai, Meguro-ku, Tokyo 153, Japan

**KENWOOD ELECTRONICS, INC.**
1315 E. Watsoncenter Rd, Carson, California 90745
75 Seaview Drive, Secaucus, New Jersey 07094, U.S.A.
**TRIO-KENWOOD ELECTRONICS, N.V.**
Leuvensesteenweg 184 B-1930 Zaventem, Belgium
**TRIO-KENWOOD ELECTRONICS GmbH**
Rudolf-Braas-Str. 20, 6056 Heusenstamm, West Germany
**TRIO-KENWOOD FRANCE S.A.**
5, Boulevard Ney, 75018 Paris, France
**TRIO-KENWOOD SVENSKA AB**
Kemistvagen 10A, 183 21 Taby, Sweden
**TRIO-KENWOOD (AUSTRALIA) PTY. LTD.**
30 Whiting St., Artarmon, N.S.W. 2064, Australia
**KENWOOD & LEE ELECTRONICS, LTD.**
Room 501, Wang Kee Building, 5th Floor, 34-37, Connaught Road, Central, Hong Kong

1979-1 PRINTED IN JAPAN B51-0567-00 (T) 3,697