

FIG. 5-15 EXPLODED VIEW OF LCBS-4

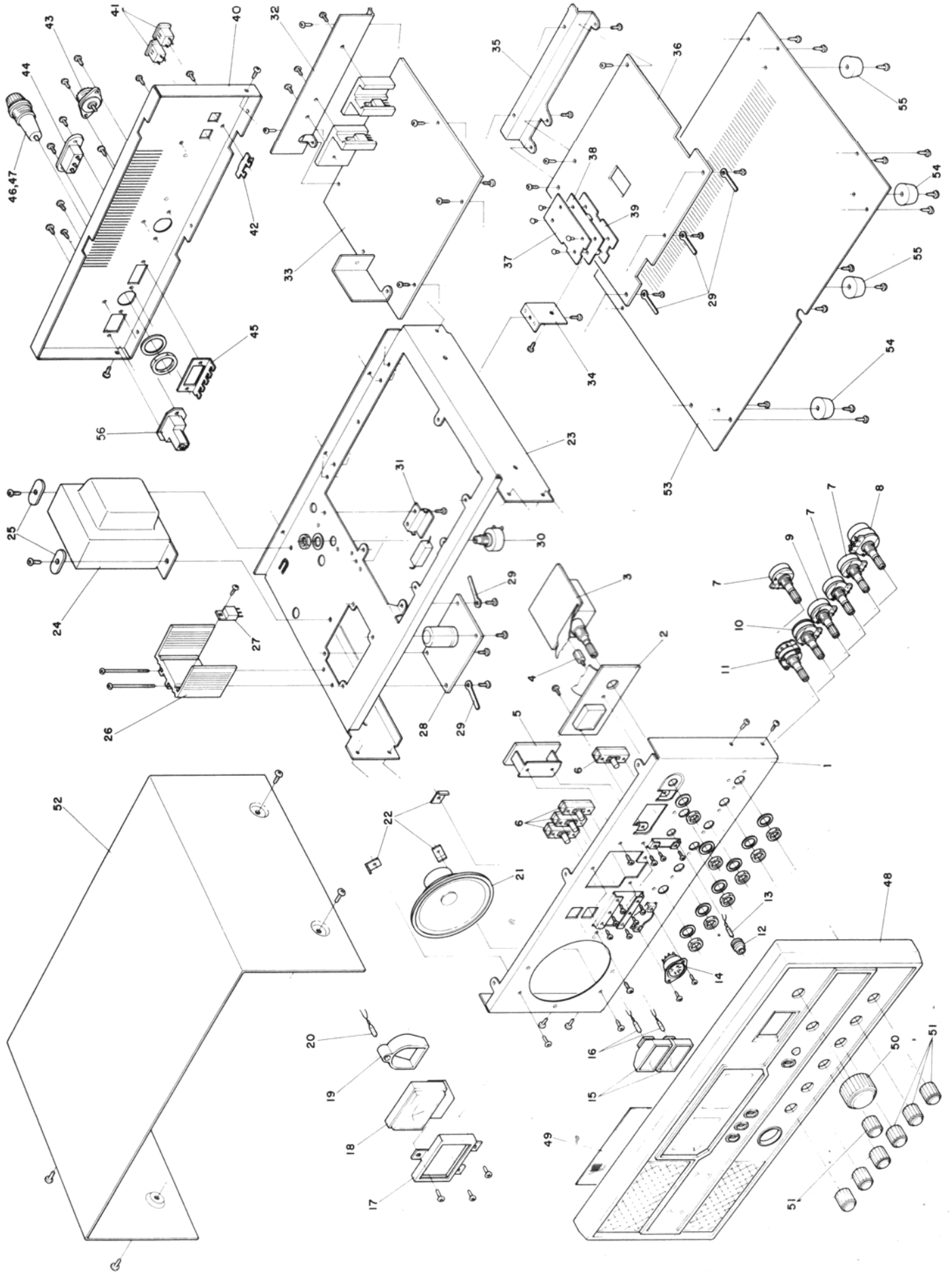
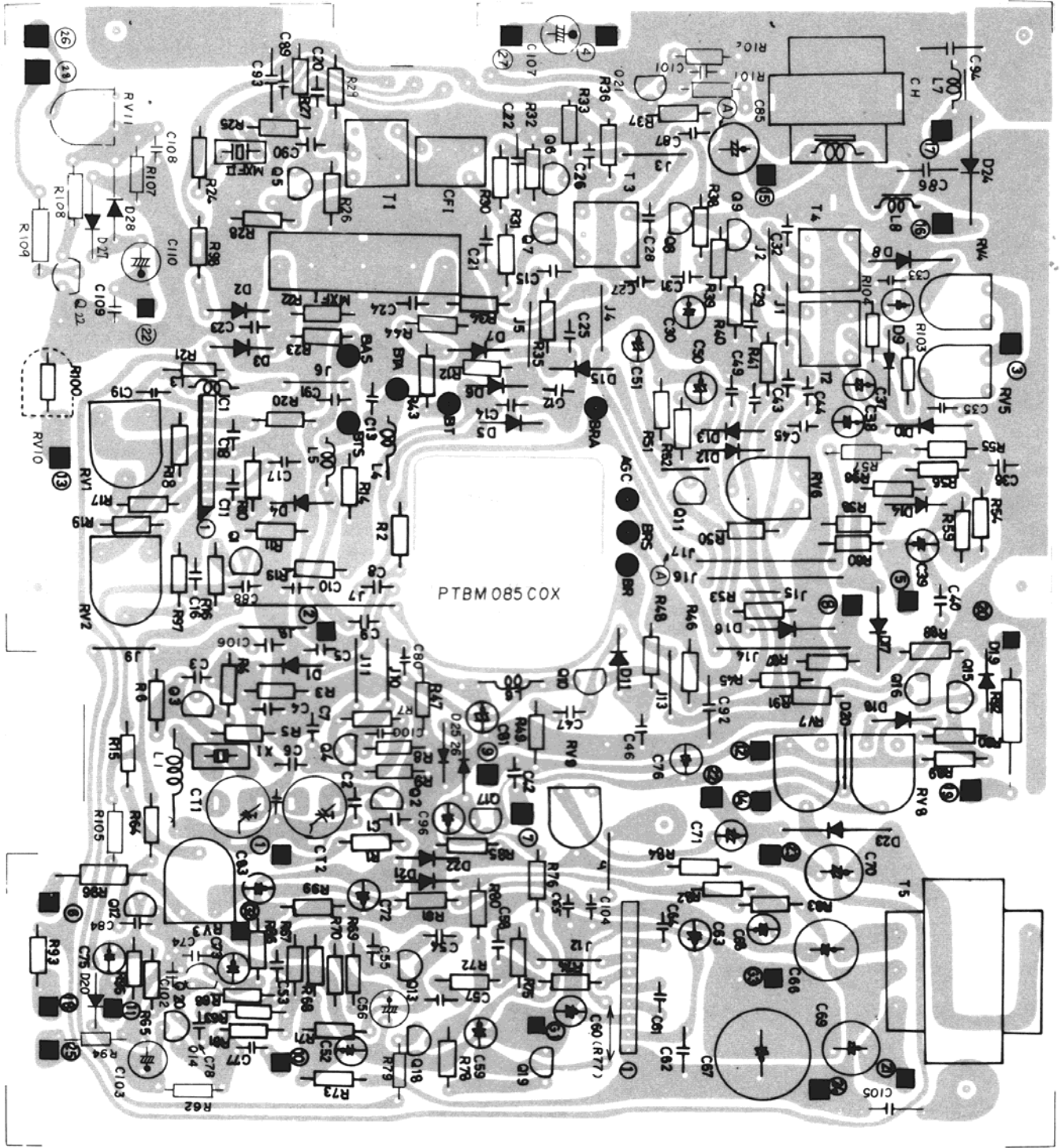
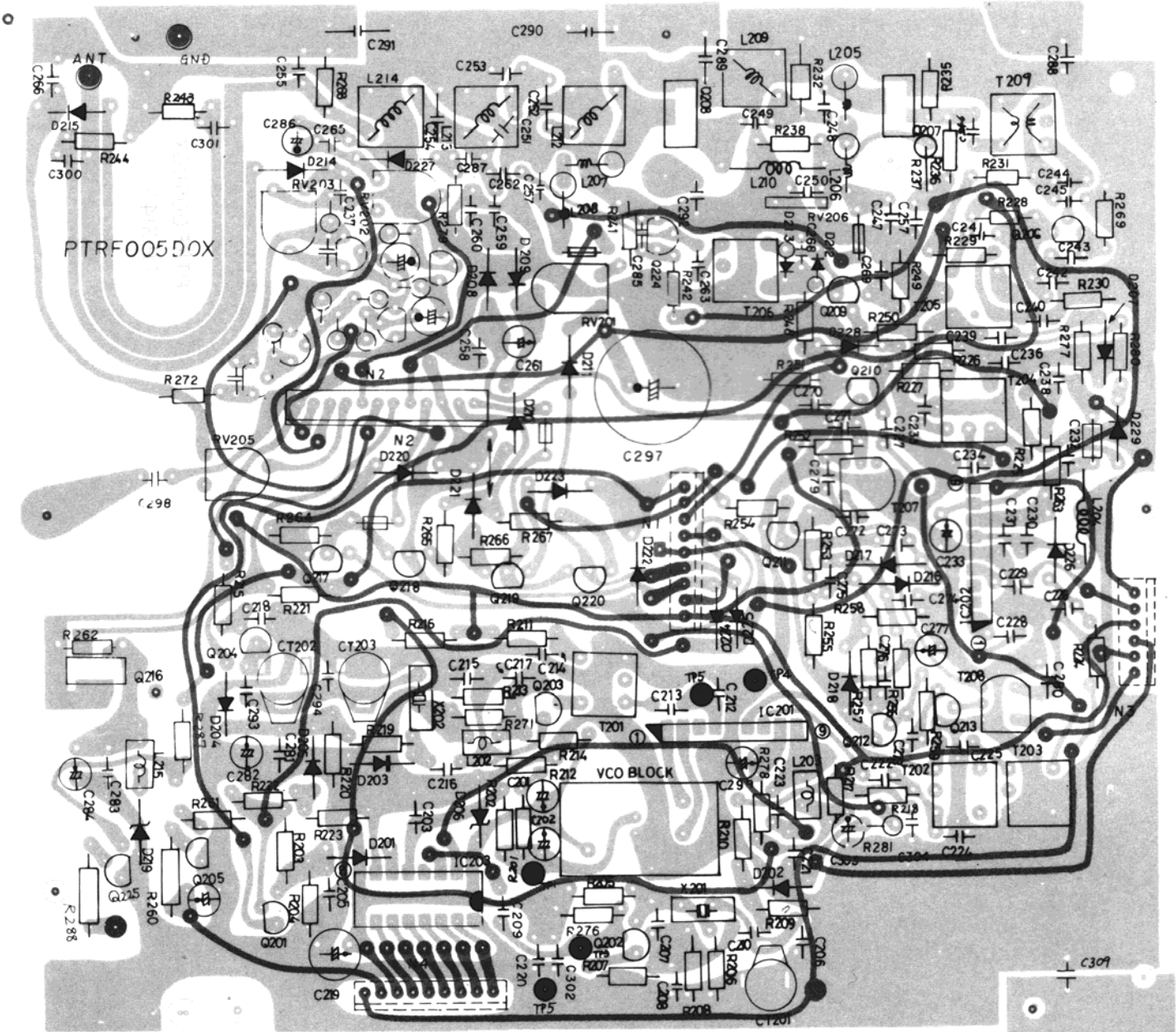


FIG. 5-16 COMPONENT LAYOUT (PC Board)

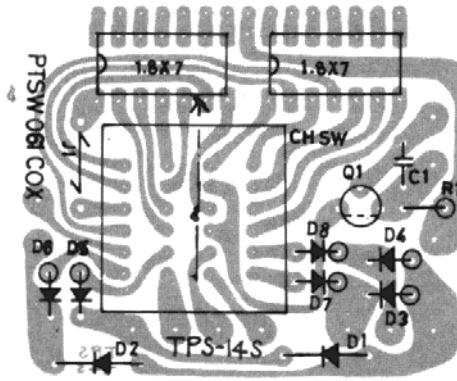


\*\* PTBM085COX

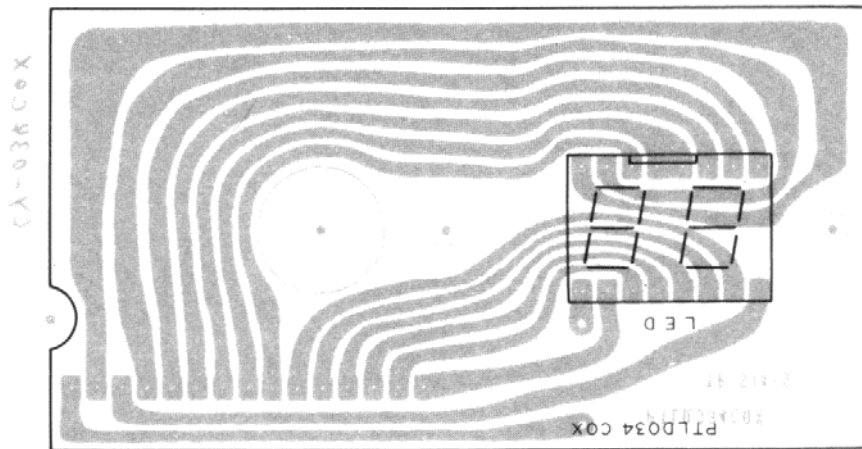
MAIN UNIT PC Board



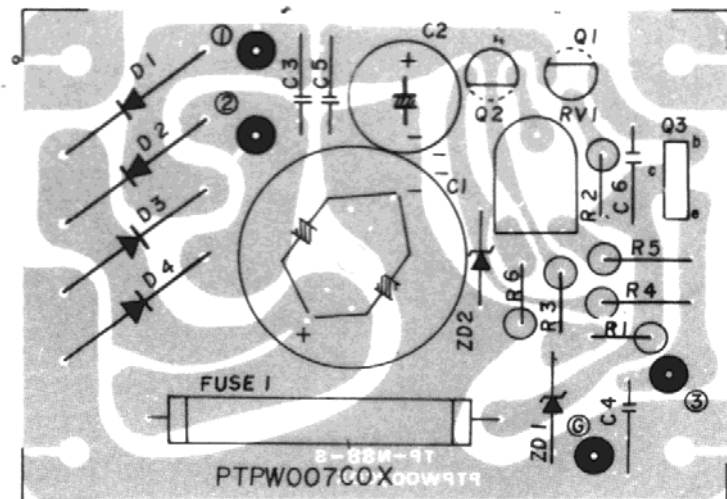
RF UNIT PC Board



PTSW061COX SWITCHING UNIT PC Board



PTLD034COX LED UNIT PC Board



PTPW007COX POWER SUPPLY PC Board

**SECTION 6**  
**REPLACEMENT PARTS LIST FOR MODEL LCBS-4**

| <b>PLL, TX Mixer, RF Amplifier, NB Circuits Board [PTRF005DOX]</b> |               |                         |
|--|---------------|-------------------------|
| <b>SYMBOL #</b>  | <b>PART #</b> | <b>DESCRIPTION</b>      |
| Q201, 213  | 2SC711F       | Tr., 2SC711F            |
| Q202   | 2SC711E       | Tr., 2SC711E            |
| Q203, 204, 206   | 2SC710D       | Tr., 2SC710D            |
| Q205   | 2SC945A       | Tr., 2SC945A            |
| Q207   | 2SC2166       | Tr., 2SC2166            |
| Q208   | 2SC1969       | Tr., 2SC1969            |
| Q209   | 2SC763C       | Tr., 2SC763C            |
| Q210, 211  | 2SC710C       | Tr., 2SC710C            |
| Q212   | 2SA628F       | Tr., 2SA628F            |
| Q216   | 2SD359        | Tr., 2SD359             |
| Q217, 219  | 2SD355        | Tr., 2SD355             |
| Q218, 220  | 2SB525        | Tr., 2SB525             |
| Q224   | 2SC900U       | Tr., 2SC900U            |
| Q225   | 2SC945        | Tr., 2SC945             |
| IC201  | 11-95         | IC, C3001T              |
| IC202  | 11-96         | IC, C3001M              |
| IC203  | 11-97         | IC, PLL02A              |
| D204, 205, 208-213, 218,<br>221-226, 230                           | 22-1-131      | Diode, silicon, MA150   |
| D202, 216, 217, 227  | 22-1-005      | Diode, germanium, 1N60  |
| D203   | 22-1-108      | Diode, varicap., ITT310 |
| D206   | 22-1-132      | Diode, zener, MZ205     |
| D219   | 22-1-133      | Diode, zener, MZ309     |
| D231   | 22-1-131      | Diode, silicon, MA150   |
| L201   | 33-150        | RFC, 150 $\mu$ H        |
| L202   | 33-2.2        | RFC, 2.2 $\mu$ H        |
| L203, 215  | 33-68         | RFC, 68 $\mu$ H         |
| L204   | 44-529        | RFC, 330-ohm-core       |
| L205, 207  | 44-530        | RFC, ELR-11             |
| L206, 208, 210   | 44-531        | RFC, ELR-11/220-ohm     |
| L209, 212  | 44-532        | RFC, 10 mm              |
| L213   | 44-533        | RFC, coreless           |
| L214   | 44-534        | RFC                     |
| CT201-203  | 9-20P         | Trimmer, 20 pF          |
| T201   | 44-535        | RFT, 10.0525 MHz        |
| T202-205   | 44-536        | RFT, 37 MHz, BPF        |
| T207, 208  | 44-538        | RFT                     |
| T209   | 44-539        | RFT, TB-77              |
| RV201  | 64-5K-2       | VR, semi-var., 5k       |
| RV202  | 64-20K-3      | VR, semi-var., 20k      |
| RV204  | 65-500-2      | VR, semi-var., 500      |

| SYMBOL #   | PART #       | DESCRIPTION                 |
|--|--------------|-----------------------------|
| X201   | 50-2-60      | Crystal, 10.24 MHz          |
| X202   | 50-2-59      | Crystal, 10.0525 MHz        |
| R232   | 77-560W1/2-3 | Metal-oxide-res., 560, 1/2W |
| R237   | 77-100W1-3   | Metal-oxide-res., 100, 1W   |
| C201   | 5-10M15      | Tant., 10, 15V              |
| C202, 307  | 5-1M35       | Tant., 1, 35V               |
| C203, 205, 214, 220, 226, 232,<br>236, 238, 240, 258, 265,<br>268-271, 276, 280, 281, 283,<br>285, 298, 304, 313, 314, 234,<br>254, 308, 309 | 1-.01M50-1   | Cer., 0.01, 50V.            |
| C204, 247, 257, 289, 290, 302  | 1-.022M50    | Cer., 0.022, 50V            |
| C206, 212, 228, 260  | 1-33P50      | Cer., 33p, 50V              |
| C207, 217, 249, 273, 275   | 1-220P50     | Cer., 220p, 50V             |
| C209, 216  | 3-.001M50    | Mylar, 1000p, 50V           |
| C210, 262  | 1-22P50      | Cer., 22p, 50V              |
| C213   | 1-12P50      | Cer., 12p, 50V              |
| C215   | 1-27P50      | Cer., 27p, 50V              |
| C218   | 1-2200P50    | Cer., 2200p, 50V            |
| C219   | 4-100M15     | Elyt, 100, 15V              |
| C208, 252  | 1-150P50     | Cer., 150p, 50V             |
| C221   | 1-100P50     | Cer., 100p, 50V             |
| C224   | 3-.0018M50   | Mylar, 1800p                |
| C225, 279  | 1-2P50       | Cer., 2p, 50V               |
| C227   | 1-10P50      | Cer., 10p, 50V              |
| C229, 293, 294   | 1-15P50      | Cer., 15p, 50V              |
| C230, 241, 248, 278  | 1-82P50      | Cer., 82p, 50V              |
| C231   | 1-56P50      | Cer., 56p, 50V              |
| C233   | 4-47M25      | Elyt, 47, 25V               |
| C242   | 1-39P50      | Cer., 39p, 50V              |
| C243, 250, 288, 291, 292, 311,<br>312, 263   | 1-.047M50    | Cer., 0.047, 50V            |
| C244, 251, 272   | 1-47P50      | Cer., 47p, 50V              |
| C253   | 1-560P50     | Cer., 560p, 50V             |
| C254   | 1-470P50     | Cer., 470p, 50V             |
| C259   | 1-5P50       | Cer., 5p, 50V               |
| C246   | 1-390P50     | Cer., 390p, 50V             |
| C261, 277  | 4-3.3M25     | Elyt, 3.3, 25V              |
| C274   | 1-.0047M50   | Cer., 0.0047, 50V           |
| C255   | 1-330P50     | Cer., 330p, 50V             |
| C282, 286, 299   | 4-1M50       | Elyt, 1, 50V                |
| C287   | 1-3P50       | Cer., 3p, 50V               |
| C284   | 4-10M16      | Elyt, 10, 16V               |
| C299   | 4-1000M16    | Elyt, 1000, 16V             |
| C303   | 4-33M6.3     | Elyt, 33, 6.3V              |
| C263   | 3-.047M50    | Mylar, 0.047                |
| VCO  |              | VCO-assembly                |

| SYMBOL #  | PART #   | DESCRIPTION  |
|---|--|--|
| F201-205<br>F207, 208   | 44-547<br>44-548   | Ferrite bead<br>Ferrite bead, for D216, 217  |
| N1, 4<br>N2<br>N3   | 8-61-001<br>8-61-002<br>8-61-003<br>8-61-004<br>8-61-005<br>8-61-006   | Internal connector, 9-pin<br>Internal connector, 12-pin<br>Internal connector, 6-pin<br>Heat sink, for 2SC2166<br>Heat sink, for 2SC1699<br>Heat sink, for AVR circuit |
| <b>Modulator, RX-IF, AF amplifier circuits Board [PTBM085COX]</b>                           |  |  |
| SYMBOL #  | PART #   | DESCRIPTION  |
| Q1, 12, 16, 17, 18, 21<br>Q2, 3<br>Q4, 10<br>Q5-9<br>Q11<br>Q13<br>Q14<br>Q15<br>Q20<br>Q23 | 2SC711F<br>2SC710D<br>2SC711E<br>2SC710C<br>2SK34E<br>2SC1312G<br>2SC900F<br>2SA628F<br>2SA719<br>2SD359/360 | Tr., 2SC711F<br>Tr., 2SC710D<br>Tr., 2SC711E<br>Tr., 2SC710C<br>FET, 2SK34E<br>Tr., 2SC1312G<br>Tr., 2SC900F<br>Tr., 2SA628F<br>Tr., 2SA719<br>Tr., 2SD359/360         |
| IC1<br>IC2  | 11-98<br>11-99   | IC, AN612<br>IC, TA7205P   |
| MXF1<br>MXF2<br>CF  | 55-2-017<br>55-2-018<br>55-1-022   | Monolithic filter, 10.6935 MHz<br>Monolithic filter, 10.695 MHz<br>Ceramic filter, 455 kHz   |
| X1  | 50-2-61  | Crystal, 10.695 MHz  |
| L1<br>L3-6<br>L7, 8   | 33-8.2<br>33-150<br>44-540   | RFC, 8.2 $\mu$ H<br>RFC, 150 $\mu$ H<br>dc input filtering   |
| T1, 2<br>T3, 4<br>T5  | 44-541<br>44-542<br>44-543   | IFT, 455 kHz<br>IFT, 10.695 MHz<br>AF power output   |
| CH  | 44-544   | dc 13.8V filter  |
| D1-4, 7, 9, 11, 14, 18-22<br>D5, 8, 10, 12, 13, 15-17<br>D6<br>D23, 24                      | 22-1-131<br>22-1-005<br>22-1-134<br>22-1-135   | Diode, silicon, MA 150<br>Diode, germanium, 1N60<br>Diode, silicon, MC301<br>Diode, silicon, GP25B   |
| CT1, 2  | 9-20P  | Trimmer, 20p   |

| SYMBOL #  | PART #      | DESCRIPTION                     |
|---|-------------|---------------------------------|
| RV1, 3, 9   | 64-1K-8     | VR, semi-fixed, 1k              |
| RV2, 5  | 64-10K-2    | VR, semi-fixed, 10k             |
| RV6   | 64-5K-3     | VR, semi-fixed, 5k              |
| RV7   | 64-20K-4    | VR, semi-fixed, 20k             |
| RV10  | 64-100K-4   | VR, semi-fixed, 100k            |
| RV4   | 64-2K-2     | VR, semi-fixed, 2k              |
| RV8   | 64-100K-4   | VR, semi-fixed, 100k            |
| R92   | 77-18W2-3   | Metal-oxide-film res., 18, 2W   |
| R120  | 77-10W1/2-3 | Metal-oxide-film res., 10, 1/2W |
| C1, 46, 49, 74, 80, 88  | 3-0022M50   | Mylar, 2200p, 50V               |
| C2, 4   | 1-47P50     | Cer., 47p, 50V                  |
| C3  | 1-150P50    | Cer., 150p, 50V                 |
| C5, 18, 22, 25, 47, 93, 94, 86,<br>106                                  | 1-047M50    | Cer., 0.047, 50V.               |
| C6, 24, 43, 110   | 1-10P50     | Cer., 10p, 50V                  |
| C7  | 1-33P50     | Cer., 33p, 50V                  |
| C8, 9, 20   | 1-22P50     | Cer., 22p, 50V                  |
| C11, 32, 100  | 1-100P50    | Cer., 100p, 50V                 |
| C12, 44   | 1-5P50      | Cer., 5p, 50V                   |
| C13, 17, 19, 21, 26, 33, 35,<br>22, 57, 87, 89-92, 101,<br>104, 105, 35 | 1-01M50     | Cer., 0.01, 50V                 |
| C14   | 1-022M50    | Cer., 0.022, 50V                |
| C15, 23   | 1-15P50     | Cer., 15p, 50V                  |
| C16, 38, 50   | 5-3.3M25    | Tant., 3.3, 25V                 |
| C27, 118  | 1-220P50    | Cer., 220p, 50V                 |
| C28   | 1-180P50    | Cer., 180p, 50V                 |
| C30   | 5-10M16     | Tant., 10, 16V                  |
| C36   | 3-0068M50   | Mylar, 6800p, 50V               |
| C37   | 4-1M50      | Elyt, 1, 50V                    |
| C39   | 4-4.7M50    | Elyt, 4.7, 50V                  |
| C40   | 3-0047M50   | Mylar, 4700p, 50V               |
| C42   | 3-012M50    | Mylar, 0.012, 50V               |
| C45   | 1-39P50     | Cer., 39p, 50V                  |
| C51, 56, 68   | 4-10M16     | Elyt, 10, 16V                   |
| C52, 63   | 4-47M16     | Elyt, 47, 16V                   |
| C53   | 3-033M50    | Mylar, 0.033, 50V               |
| C54   | 1-001M50    | Cer., 1000p, 50V                |
| C55, 64   | 1-0047M50   | Cer., 4700p, 50V                |
| C58   | 1-390P50    | Cer., 390p, 50V                 |
| C59   | 5-3.3M35    | Tant., 3.3, 35V                 |
| C60   | 4-33M16     | Elyt, 33, 16V                   |
| C61   | 1-270P50    | Cer., 270p, 50V                 |
| C62, 65   | 3-068M50    | Mylar, 0.068, 50V               |
| C66   | 4-470M16    | Elyt, 470, 16V                  |
| C67   | 4-1000M16   | Elyt, 1000, 16V                 |
| C69, 70   | 4-220M16    | Elyt, 220, 16V                  |
| C71, 72, 83   | 4-3.3M25    | Elyt, 3.3, 25V                  |



| SYMBOL #   | PART #   | DESCRIPTION  |
|--|--|--|
| C73<br>C75<br>C76<br>C77, 78<br>C85, 107<br>C111<br>C102<br>C103   | 4-33M10<br>4-4.7M25<br>4-22M16<br>3-.047M50<br>4-47M16<br>4-.47M50<br>1-.0047M50<br>4-4.7M10<br><br>8-61-007<br>8-61-008<br><br>44-545<br><br>8-61-009<br>8-61-010 | Elyt, 33, 10V<br>Elyt, 4.7, 25V<br>Elyt, 22, 16V<br>Mylar, 0.047, 50V<br>Elyt, 47, 16V<br>Elyt, 0.47, 50V<br>Cer., 0.0047, 50V<br>Elyt, 4.7, 10V<br><br>Heat sink [large], for TA7205P<br>Heat sink [small], for TA7205P<br><br>Ferrite bead<br><br>Internal connector, 6-pin<br>Internal connector, 9-pin |
| <b>Channel Selector Board [PTSW061COX]</b>   |  |  |
| SW<br><br>D1-8<br><br>Q1<br><br>C1   | 88-1-040<br><br>22-1-131<br><br>2SC1383<br><br>1-.01M50<br><br>77-1.8KX7   | 40 Ch. rotary SW<br><br>Diode, silicon, MA150<br><br>Tr., 2SC1383<br><br>Cer., 0.01, 50V<br><br>Resistor array, 1.8k [7]   |
| <b>Channel Readout LED Board [PTLD034COX]</b>  |  |  |
| LED  | 22-2-014   | LED, cathode-common type   |
| <b>AC to DC Power Supply Board [PTPW007COX]</b>  |  |  |
| Q501<br>Q502<br><br>D501-504<br>ZD501<br>ZD502<br><br>RV504<br><br>F501<br><br>C501<br>C502<br>C503, 506<br>C504 | 2SC945A<br>2SC900<br><br>22-1-135<br>22-1-136<br>22-1-137<br><br>64-500-6<br><br>99-3<br><br>4-2200M35<br>4-100M25<br>1-.022M50<br>1-.01M50                        | Tr., 2SC945A<br>Tr., 2SC900<br><br>Diode, silicon, GP25G<br>Diode, zener, BZ-162<br>Diode, zener, RD5.6E<br><br>VR, semi-fixed, 500<br><br>Fuse, ac, 250V, 3A<br><br>Elyt, 2200, 35V<br>Elyt, 100, 25V<br>Cer., 0.022, 50V<br>Cer., 0.01, 50V  |

| SYMBOL #                               | PART #     | DESCRIPTION                        |
|--|------------|------------------------------------|
| C505                                   | 1-.04M50   | Cer., 0.04, 50V                    |
| <b>Main Chassis Parts [electrical]</b> |            |                                    |
| S-2                                    | 88-1-041   | Rotary, 4p-3t, <b>Mode</b>         |
| S-3                                    | 88-2-031   | Slide, 2p-2t, <b>NB</b>            |
| S-4                                    | 88-2-031   | Slide, 2p-2t, <b>CB-PA</b>         |
| S-5                                    | 88-2-031   | Slide, 2p-2t, <b>ANL</b>           |
| S-6                                    | 88-2-031   | Slide, 2p-2t, <b>Dial-Ch. 9</b>    |
| VR-1                                   | 60-10W10   | VR, 10, 10W, AM-power adj.         |
| VR-2/S1                                | 61-50K-9   | VR/SW, 50kA, <b>Off-Volume</b>     |
| VR-3                                   | 60-50K-6   | VR, 50kA, <b>Squelch</b>           |
| VR-4                                   | 60-50K-6   | VR, 50kA, <b>Clarifier</b>         |
| VR-5                                   | 60-50K-7   | VR, 50kB, <b>RF Gain</b>           |
| VR-6                                   | 60-200K-1  | VR, 200kA, <b>Tone</b>             |
| VR-7                                   | 60-20K-1   | VR, 20kB, <b>Dimmer</b>            |
| J1                                     | 8-4-069    | SO-239, <b>Antenna</b>             |
| J2                                     | 8-60-002   | 3-p, 1/8", <b>PA Sp</b>            |
| J3                                     | 8-60-002   | 3-p, 1/8", <b>Ext Sp</b>           |
| J4                                     | 8-60-003   | 3p, <b>dc 13.8V</b>                |
| J5                                     | 8-60-001   | DIN, 5-p, <b>Microphone</b>        |
| J6                                     | 8-61-011   | 2-p, <b>ac input</b>               |
| SP                                     | 8-61-012   | Speaker, 3-1/2", 8-ohm, 2W         |
| M                                      | 8-61-013   | Meter, <b>S/RF</b>                 |
| PL1                                    | 8-61-014   | Lamp, 16V, 80mA, <b>Receiving</b>  |
| PL2                                    | 8-61-015   | Lamp, 16V, 80mA, <b>On the Air</b> |
| PL3                                    | 8-61-016   | Lamp, 9V, 40mA, meter illum.       |
| PL4                                    | 8-61-017   | Lamp, <b>Ch. 9</b> indic.          |
| T6                                     | 44-546     | ac power transformer               |
| R501                                   | 77-15W5-4  | Cement res., 15, 5W                |
| R502                                   | 4703-00200 | Solid [high voltage], 3.3M, 1/2W   |
| C501, 503-505                          | 1-.01M50   | Cer., 0.01, 50V                    |
| C502, 506, 509                         | 1-.001M50  | Cer., 0.001, 50V                   |
| C507, 508                              | 1-.047M50  | Cer., 0.047, 50V                   |
| C510                                   | 1-33P50    | Cer., 33p, 50V                     |
| Q501                                   | 2SD704     | Tr., 2SD704                        |
| <b>Mechanical Parts</b>                |            |                                    |
|  | 8-61-018   | Escutcheon Panel                   |
|  | 8-61-019   | Chassis [side portions]            |

| SYMBOL # | PART #   | DESCRIPTION                       |
|----------|----------|-----------------------------------|
|          | 8-61-020 | Chassis [ front portion]          |
|          | 8-61-021 | Chassis [ rear portion]           |
|          | 8-61-022 | Cabinet cover                     |
|          | 8-61-023 | Bottom plate                      |
|          |          | FCC ID plate [unavailable]        |
|          | 8-61-024 | Knob, for <b>Channel selector</b> |
|          | 8-61-025 | Knobs, for other controls         |
|          | 8-61-026 | Lamp holder                       |
|          | 8-61-027 | Sp grill net                      |
|          | 8-61-028 | Holder, meter support             |

EXPLODED VIEW REFERENCE SHEET

| EXPLODED VIEW SYMBOL NO. | DESCRIPTION                            |
|--------------------------|--|
| (1)                      | Front Panel                            |
| (2)                      | P.W.B. Ass'y LED PC Board PTLD034COX   |
| (3)                      | P.W.B. Ass'y CH-SW PC Board PWSW061COX |
| (4)                      | Support LED P.W.B. Mtg.                |
| (5)                      | P.W.B. Ass'y Relay                     |
| (6) S3-6                 | Slide SW NB/OFF, CB/PA, ANL/OFF, CH9   |
| (7) VR3, VR4             | Control Squelch/Clarifier 50kA         |
| (7A) VR5                 | Control RF Gain 50kB                   |
| (8) VR2                  | Control Volume 50kA                    |
| (9) VR6                  | Control Tone 200kA                     |
| (10) VR7                 | Control Dimmer 20kB                    |
| (11) S2                  | Rotary Switch Function                 |
| (12)                     | Holder Lamp                            |
| (13) PL4                 | Lamp CH-9                              |
| (14) J5                  | Jack Microphone                        |
| (15)                     | Holder Lamp                            |
| (16) PL1, PL2            | Lamp RX. On Air                        |
| (17)                     | Bracket Metre Mtg.                     |
| (18) M                   | Meter S/RF                             |
| (19)                     | Holder Meter Lamp                      |
| (20) PL3                 | Lamp Meter                             |
| (21) SP                  | Speaker 8 ohm 2W                       |
| (22)                     | Bracket Speaker Mtg.                   |
| (23)                     | Chassis                                |
| (24)                     | Power Transformer                      |
| (25)                     | Plate Power Transformer Mtg.           |
| (26)                     | Heat Sink Power P.W.B.                 |
| (27) Q501                | Transistor 2SD704                      |
| (28)                     | P.W.B. Ass'y AVR PTPW007COX            |
| (29)                     | Clamper Cord                           |
| (30) VR1                 | Control AM Power                       |
| (31)                     | Bracket Cement Resistor Mtg.           |
| (32)                     | Bracket P.W.B. Mtg.                    |
| (33)                     | P.W.B. Ass'y RF PTRF005DOX             |
| (34)                     | Retainer Heat Sink                     |
| (35)                     | Bracket Heat Sink                      |
| (36)                     | P.W.B. Ass'y Main PC Board PTBM085COX  |
| (37)                     | Barrier                                |
| (38)                     | Shield                                 |
| (39)                     | Barrier                                |
| (40)                     | Rear Panel                             |
| (41)                     | Jack PA. EXT/SP 3P                     |
| (42)                     | Terminal GND                           |
| (43)                     | Jack ANT.                              |
| (44) J4                  | Jack DC Power                          |
| (45)                     | Bracket DC Jack                        |
| (46)                     | Holder Fuse                            |
| (47)                     | Fuse 1A 250V                           |
| (48)                     | Frame Ass'y                            |
| (49)                     | Sheet Speaker                          |
| (50)                     | Knob Channel                           |

| EXPLODED VIEW<br>SYMBOL NO. | DESCRIPTION |         |
|-----------------------------|-------------|---------|
| (51)                        | Knob        | Control |
| (52)                        | Case        | Upper   |
| (53)                        | Cover       | Bottom  |



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