



# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

TRADE NAME: Norelco Model L4X25T

SUPPLIER: For Current Address, see Master Index

TYPE SET: 7 Transistor MW-SW Receiver

POWER SUPPLY: 9 Volts DC

RATING: 22MA @ 9VDC (No Signal, Min. Volume)  
28MA @ 9VDC (Signal, Normal Volume)

TUNING RANGE: BROADCAST 517 — 1622KC  
SHORT WAVE 1 11.6 — 21.9MC  
SHORT WAVE 2 4.6 — 9.9MC  
SHORT WAVE 3 1.6 — 3.9MC



## ALIGNMENT INSTRUCTIONS

Check for specified source voltage. Set Volume control at maximum.  
Fashion loop of several turns of wire and connect generator across loop.  
Adjust output of generator to radiate only enough signal into receiver to obtain a suitable indication.  
Suggested Alignment Tools:

A1 thru A6, A10, A13, A17, A19, A22. GENERAL CEMENT #8290, 8868, 9089  
WALSCO #2525, 2528, 2587

### MW BUTTON DEPRESSED

|    | GENERATOR<br>FREQUENCY | DIAL<br>SETTING            | INDICATOR                          | ADJUST                              | REMARKS   |
|----|------------------------|----------------------------|------------------------------------|-------------------------------------|---|
| 1. | 452KC<br>(400% Mod.)   | Tuning gang<br>fully open. | Output Meter across<br>Voice coil. | A1, A2,<br>A3, A4,<br>A5, A6,<br>A7 | Adjust for maximum. Repeat until no<br>further improvement can be made.         |
| 2. | 1620KC                 | "                          | "                                  | A8                                  | Adjust for maximum.   |
| 3. | 1400KC                 | Tune to signal.            | "                                  | A9                                  | Adjust for maximum.   |
| 4. | 600KC                  | "                          | "                                  | A10                                 | Rock tuning gang and adjust for maximum.  |
| 5. | 600KC                  | "                          | "                                  | A11                                 | Adjust for maximum by moving coil along<br>ferrite core. Repeat steps 2 thru 5. |

### SW 3 BUTTON DEPRESSED

|    |       |       |   |     |   |
|----|-------|-------|---|-----|---|
| 6. | 3.9MC | 3.9MC | " | A12 | Adjust for maximum.   |
| 7. | 1.6MC | 1.6MC | " | A13 | Adjust for maximum. Repeat steps 6 & 7.   |
| 8. | 3.5MC | 3.5MC | " | A14 | Adjust for maximum.   |
| 9. | 1.7MC | 1.7MC | " | A15 | Adjust for maximum by moving coil<br>along ferrite core. Repeat steps 6 thru 9. |

### SW 2 BUTTON DEPRESSED

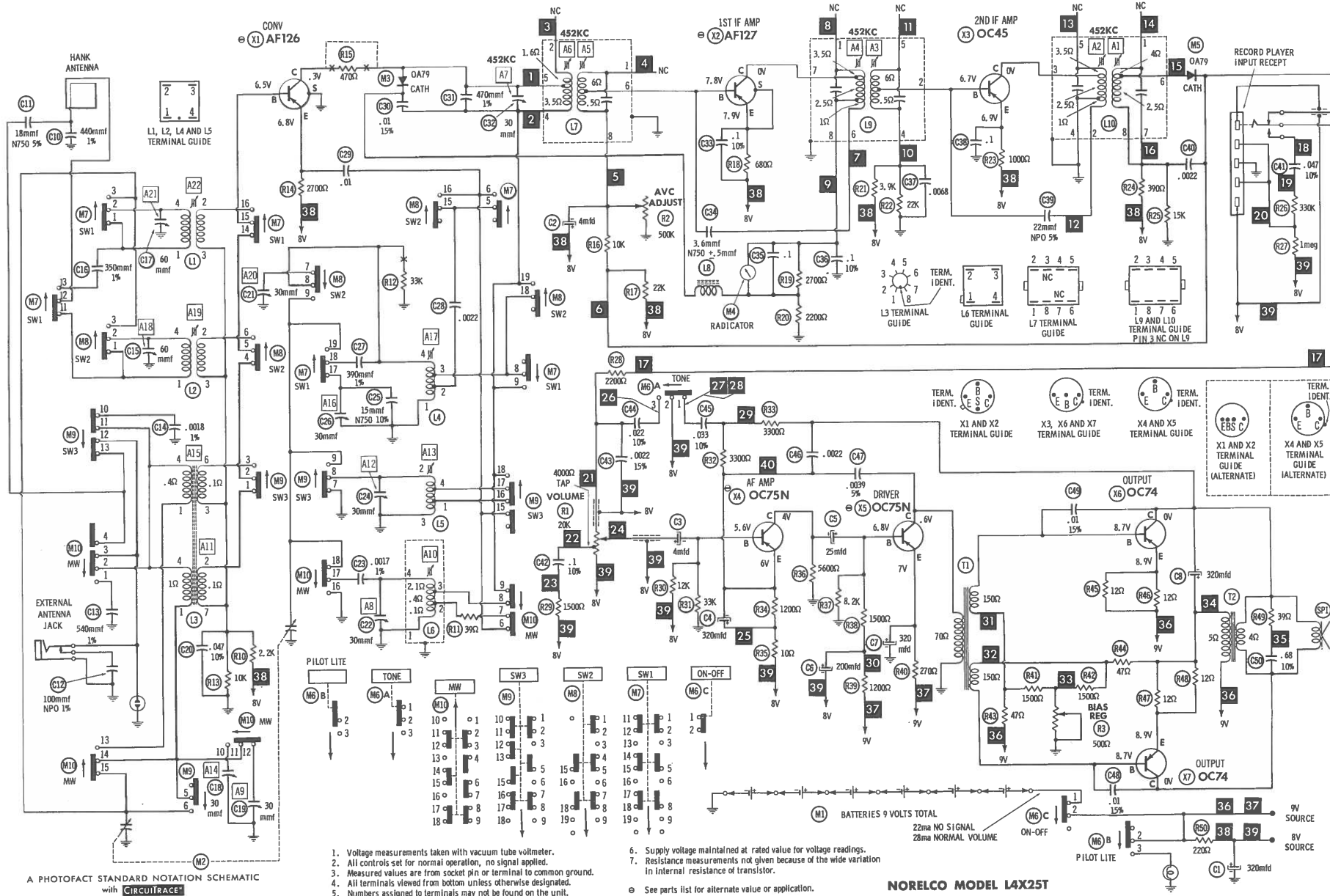
|     |       |       |   |     |   |
|-----|-------|-------|---|-----|---|
| 10. | 9.9MC | 9.9MC | " | A16 | Adjust for maximum.                             |
| 11. | 4.6MC | 4.6MC | " | A17 | Adjust for maximum. Repeat steps 10 and<br>11.  |
| 12. | 9MC   | 9MC   | " | A18 | Adjust for maximum.                             |
| 13. | 5MC   | 5MC   | " | A19 | Adjust for maximum. Repeat steps 10<br>thru 13. |

### SW1 BUTTON DEPRESSED

|     |        |        |   |     |   |
|-----|--------|--------|---|-----|---|
| 14. | 21.9MC | 21.9MC | " | A20 | Adjust for maximum.                             |
| 15. | 20MC   | 20MC   | " | A21 | "   |
| 16. | 12MC   | 12MC   | " | A22 | Adjust for maximum. Repeat steps 14<br>thru 16. |

NORELCO MODEL L4X25T

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana



A PHOTOFAC<sup>®</sup> STANDARD NOTATION SCHEMATIC  
with **CIRCUITRACE<sup>®</sup>**

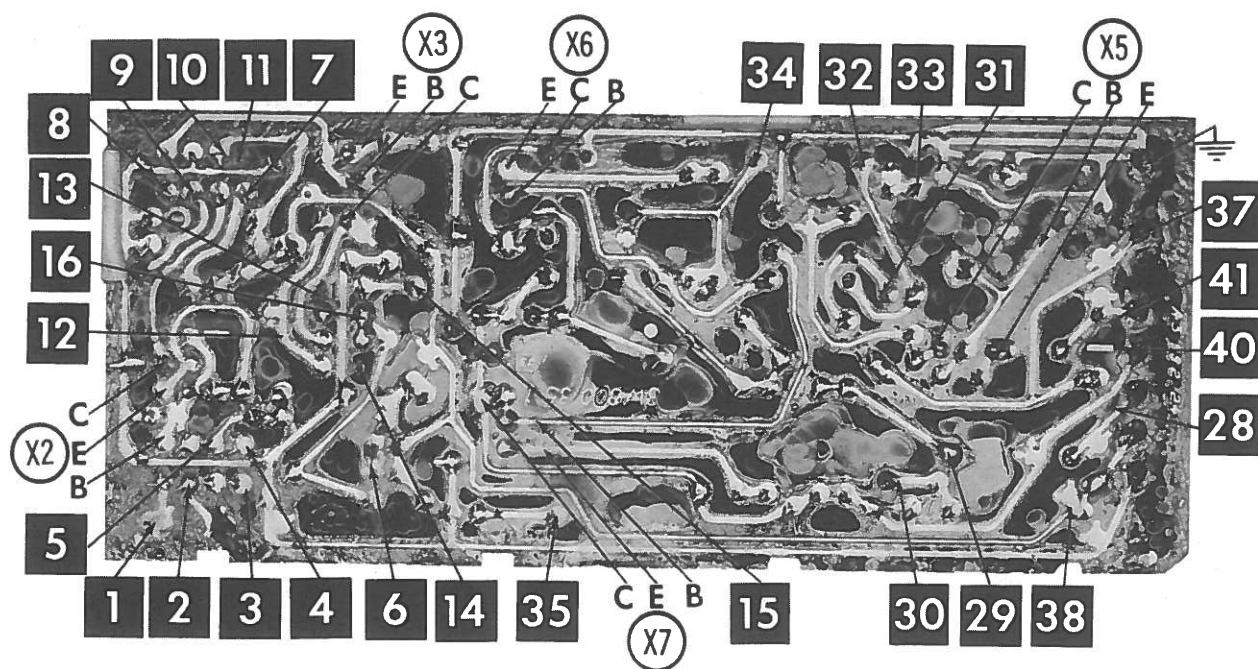
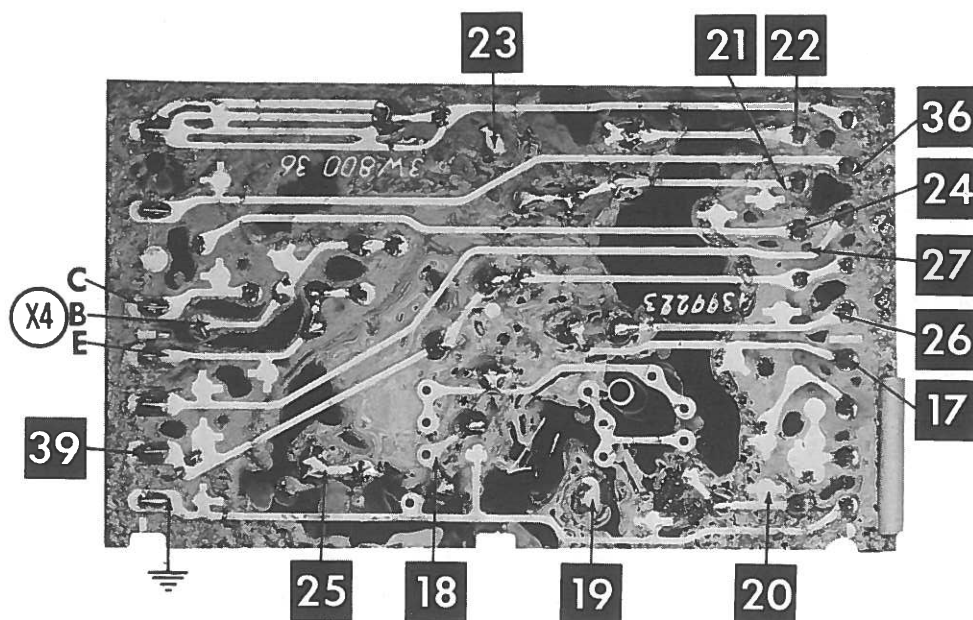
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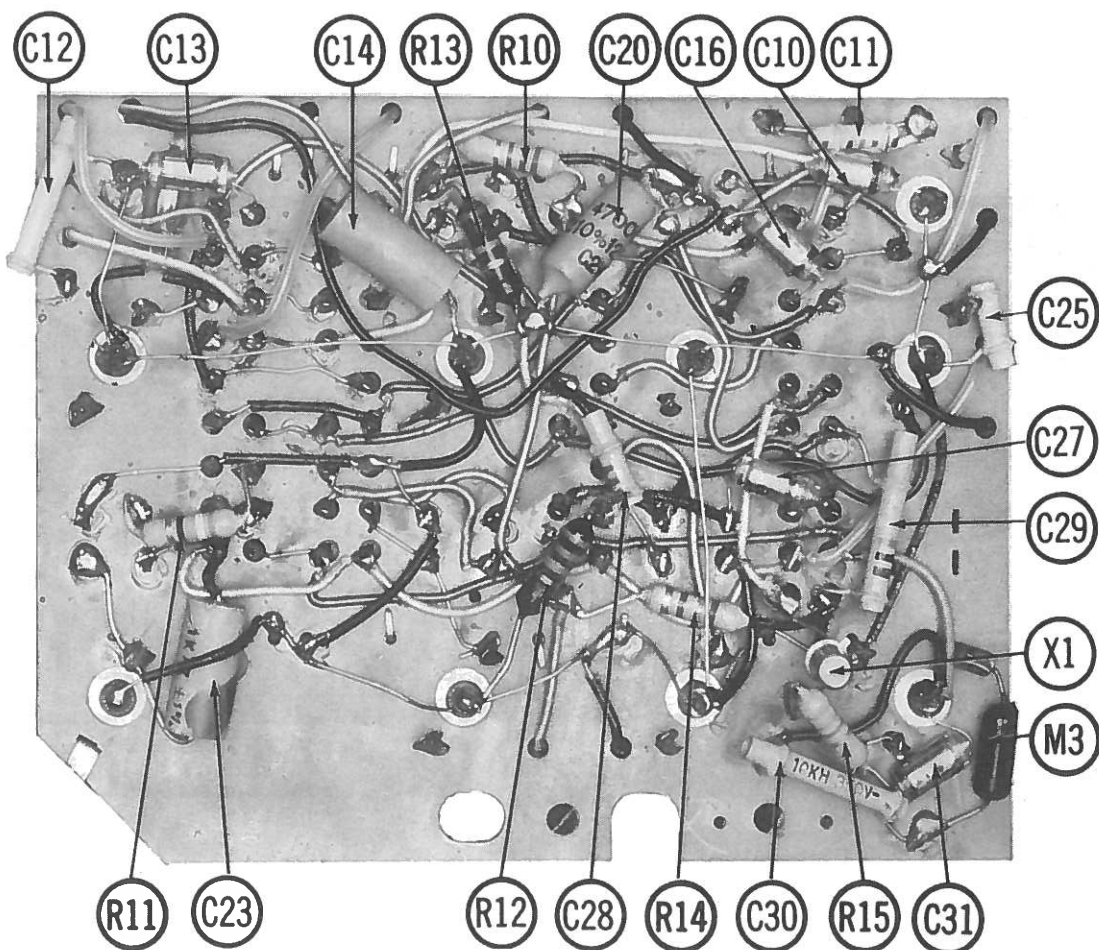
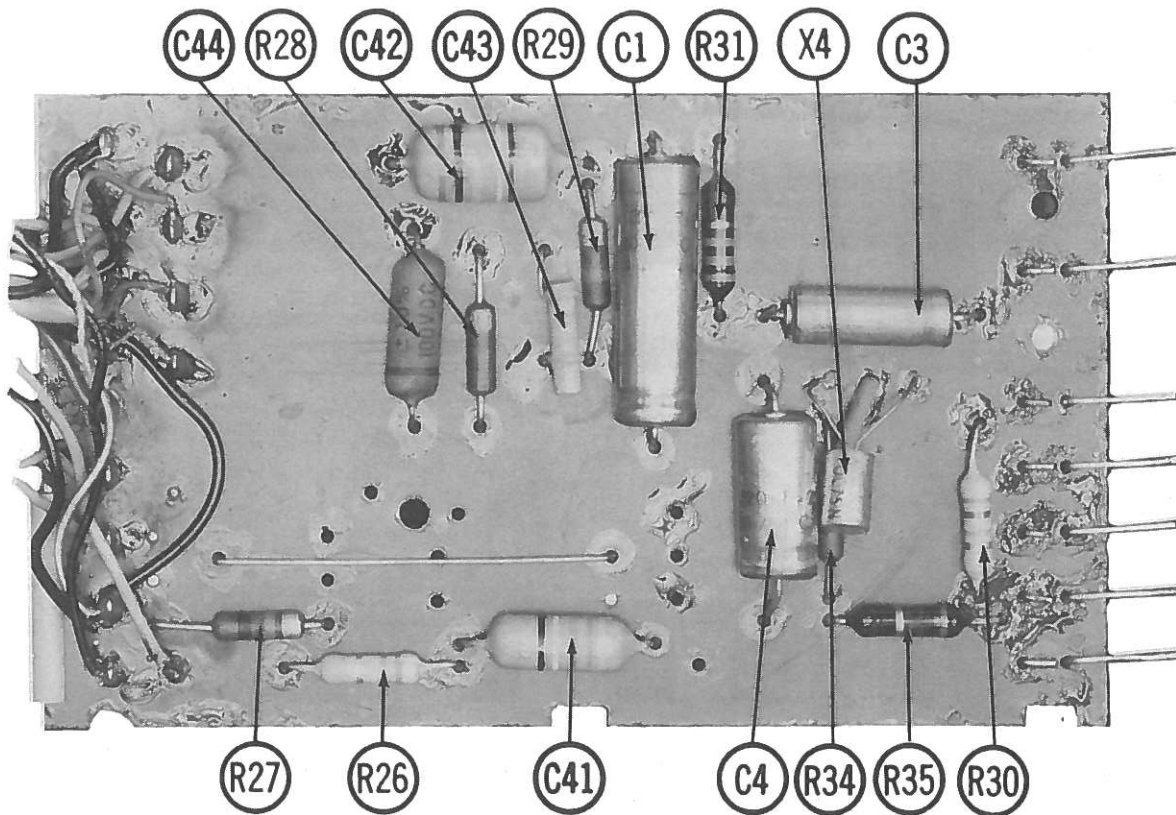
1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found on the unit.

6. Supply voltage maintained at rated value for voltage readings.
7. Resistance measurements not given because of the wide variation in internal resistance of transistor.

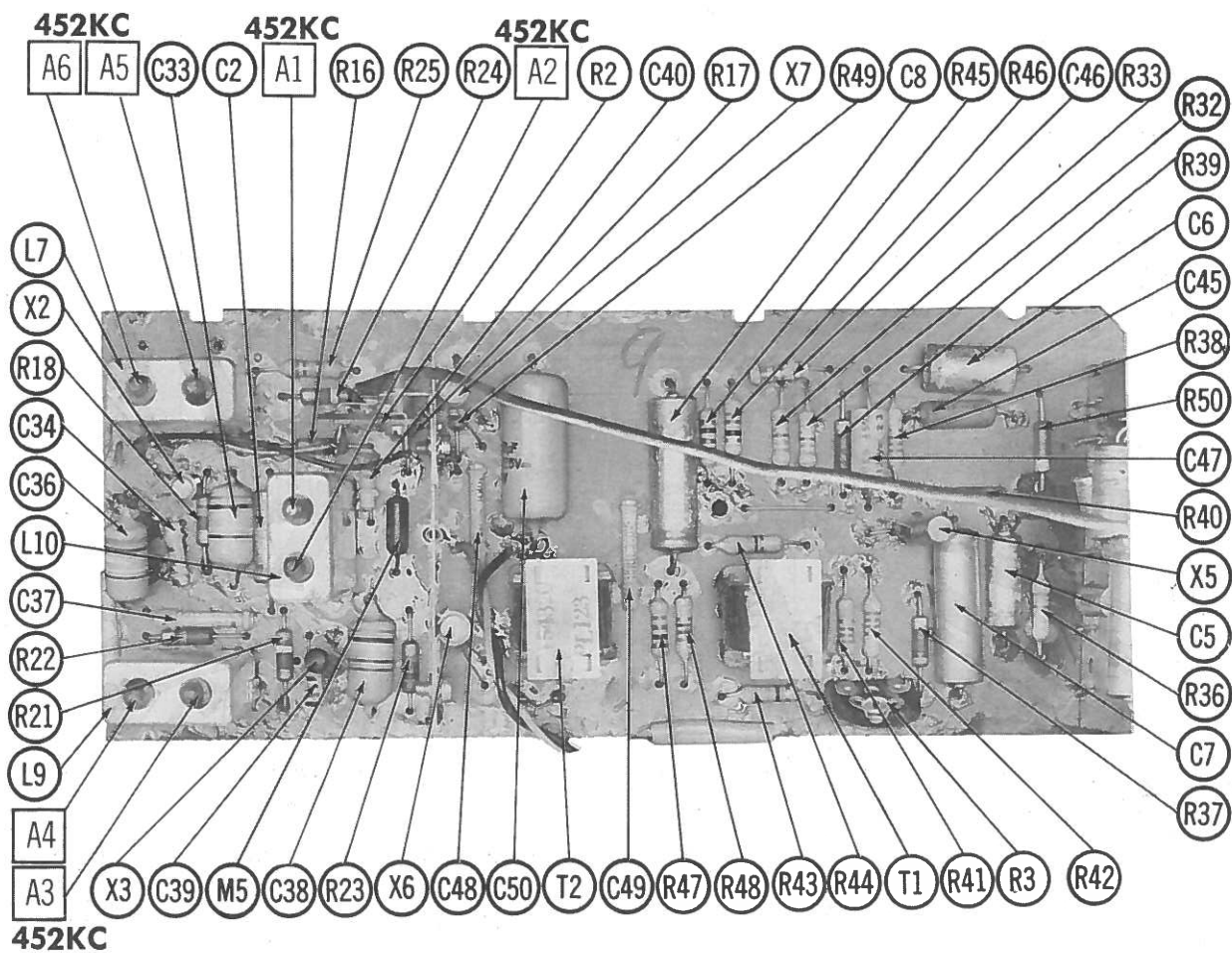
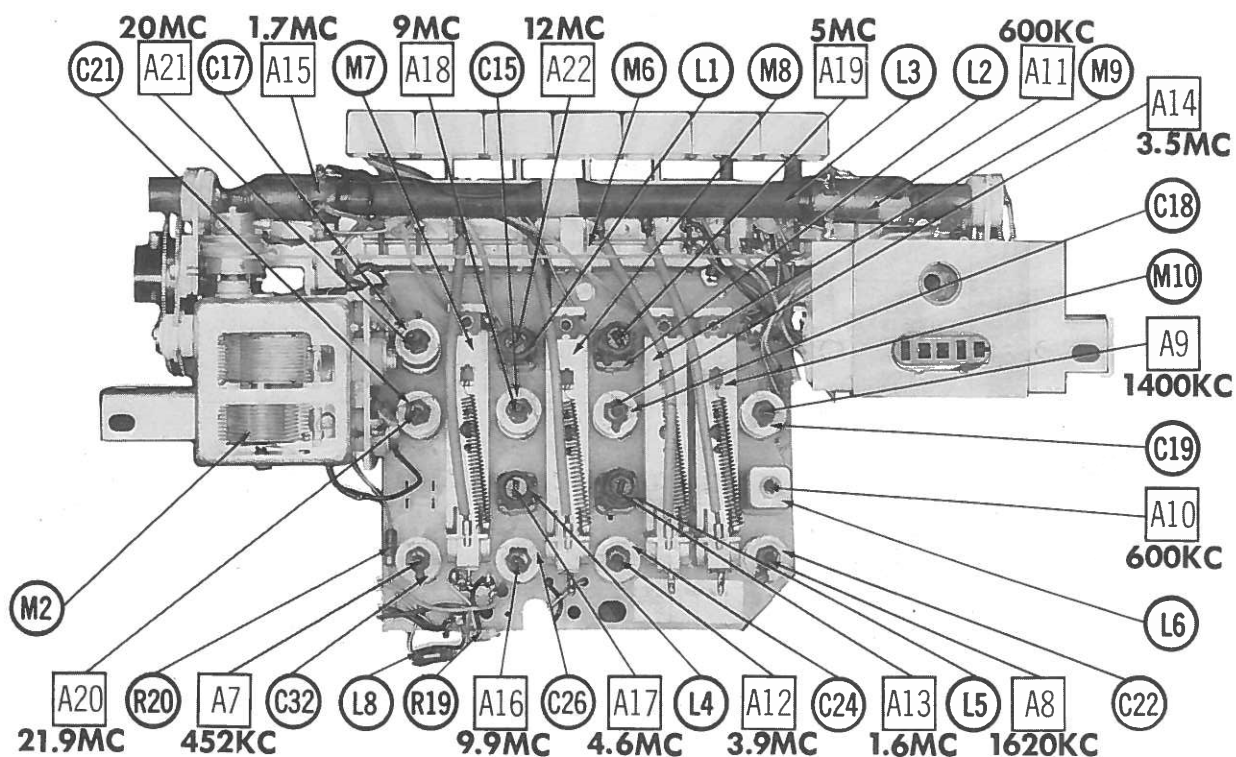
Ⓔ See parts list for alternate value or application.

**NORELCO MODEL L4X25T**









# PARTS LIST AND DESCRIPTION

## WIRING DATA

|   |   |                              |
|---|---|------------------------------|
| General-use Unshielded Hook-up Wire ..... | Use BELDEN No. 8530 (Solid 22AWG)<br>8524 (Stranded 22AWG)<br>8570 (Stranded 26AWG) | Available<br>in<br>12 Colors |
|---|---|------------------------------|

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE         | REPLACEMENT DATA |                           |              | NOTES |
|----------|------------|-------------|------------------|---------------------------|--------------|-------|
|          |            |             | DELCO PART No.   | GENERAL ELECTRIC PART No. | RCA PART No. |       |
| X1       | AF126*     | Converter   | DS-25            | GE-9                      |              | PNP   |
| X2       | AF127†     | 1st IF Amp. | DS-25            | GE-9                      |              | PNP   |
| X3       | OC45       | 2nd IF Amp. | DS-25            | GE-9                      |              | PNP   |
| X4       | OC75       | AF Amp.     | DS-26            | GE-2                      | 2N406        | PNP   |
| X5       | OC75       | Driver      | DS-26            | GE-2                      | 2N406        | PNP   |
| X6       | OC74       | Output      | DS-26            | GE-2                      | 2N408        | PNP   |
| X7       | OC74       | Output      | DS-26            | GE-2                      | 2N408        | PNP   |

\* Alternate AF116. † Alternate AF117

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING |       | REPLACEMENT DATA |                  |                           |                           |                             |                  |                  |
|----------|--------|-------|------------------|------------------|---------------------------|---------------------------|-----------------------------|------------------|------------------|
|          | CAP.   | VOLT. | NORELCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | GENERAL ELECTRIC PART No. | GENERAL INSTRUMENT PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C1       | 320    | 10    | 909/U320         | PTT104           | BR250-12                  | MT1-25                    | BL2130                      | TT12X250         | TE-1138          |
| C2       | 4      | 64    | 909/Z4           | CRE903A          | NLW4-50                   | MT1-3                     | BL1370                      | TT80X4           | TE-1302.1        |
| C3       | 4      | 64    | 909/Z4           | CRE903A          | NLW4-50                   | MT1-3                     | BL1370                      | TT80X4           | TE-1302.1        |
| C4       | 320    | 2.5   |                  | CRE235A          | NLW300-3                  | MT1-26                    | BL1912                      | TT3X300          | TE-1066          |
| C5       | 25     | 64    | 909/C25          | CRE912A          | NLW25-50                  | MT1-14                    | BL1970                      | TT100X20         | TE-1207          |
| C6       | 200    | 10    | 909/W200         | CRE431A          | NLW200-10                 | MT1-23                    | BL2030                      | TT15X200         | TE-1137          |
| C7       | 320    | 10    | 909/W320         | PTT104           | BR250-12                  | MT1-25                    | BL2130                      | TT12X250         | TE-1138          |
| C8       | 320    | 10    | 909/U320         | PTT104           | BR250-12                  | MT1-25                    | BL2130                      | TT12X250         | TE-1138          |

## FIXED CAPACITORS

| ITEM No. | RATING             | REMARKS       | REPLACEMENT DATA |                    |                           |                  |                  |                  |
|----------|--------------------|---------------|------------------|--------------------|---------------------------|------------------|------------------|------------------|
|          |                    |               | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C10      | 440 1%             | #C285AB/D460E |                  | TCN-18             |                           |                  |                  |                  |
| C11      | 18 N750 5%         |               |                  |                    |                           |                  | CN7418           | 10TCU-Q18        |
| C12      | 100 NPO 1%         |               |                  |                    |                           |                  |                  |                  |
| C13      | 540 1%             |               |                  |                    |                           |                  |                  |                  |
| C14      | .0018 125V 1%      |               |                  |                    |                           |                  |                  |                  |
| C15      |                    |               |                  |                    |                           |                  |                  |                  |
| C16      | 350 1%             |               |                  |                    |                           |                  |                  |                  |
| C17      |                    |               |                  |                    |                           |                  |                  |                  |
| C18      |                    | #C285AB/D170E |                  |                    |                           |                  |                  |                  |
| C19      |                    | #C285AB/D170E |                  |                    |                           |                  |                  |                  |
| C20      | .047 125V 10%      |               | BE2S47           |                    | WMF1847                   | 1DP-2-473        | PVC1147          | 2PS-S47          |
| C21      |                    | #C285AB/D170E |                  |                    |                           |                  |                  |                  |
| C22      |                    | #C285AB/D170E |                  |                    |                           |                  |                  |                  |
| C23      | .0017 125V 1%      | #C285AB/D1K77 |                  |                    |                           |                  |                  |                  |
| C24      |                    | #C285AB/D170E |                  |                    |                           |                  |                  |                  |
| C25      | 15 N750 10%        |               |                  | TCN-15             | C10Q15U                   | CCTN-150         | CN7415           | 10TCU-Q15        |
| C26      |                    | #C285AB/D170E |                  |                    |                           |                  |                  |                  |
| C27      | 390 1%             |               |                  |                    |                           |                  |                  |                  |
| C28      | .0022              |               | SI 2200          | D6-222             | JB6D22                    | CCD-222          | GP222            | 5HK-D22          |
| C29      | .01                |               | SI 10000         | D6-103             | BYA6S1                    | CCD-103          | GP110            | 5HK-S10          |
| C30      | .01 15%            |               |                  | CPR-10000J         |                           | CCD-103          | JF110            | 10TS-S10         |
| C31      | 470 1%             |               |                  |                    |                           |                  |                  |                  |
| C32      |                    | #C285AB/D170E |                  |                    |                           |                  |                  |                  |
| C33      | .1 125V 10%        |               | BE2P1            |                    | WMF1P1                    | 1DP-2-104        | PVC101           | 2PS-P10          |
| C34      | 3.6mmf N750 ±.5mmf |               |                  | TCN-3R3            |                           |                  | CN7533           | 10TCU-V33        |
| C35      | .1                 | #C280AA/P100K | TTD-1            | CK-104             | H6                        |                  | TA010            | TG-P10           |
| C36      | .1 125V 10%        |               | BE2P1            |                    | WMF1P1                    | 1DP-2-104        | PVC101           | 2PS-P10          |
| C37      | .0068              |               | SI 6800          | D6-682             | BYA10D68                  | CCD-682          | GP268            | 5HK-D68          |
| C38      | .1 125V            |               | BE2P1            | DF-104             | WMF1P1                    | 1DP-2-104        | PVC101           | 2PS-P10          |
| C39      | 22 NPO 5%          |               |                  | TCZ-22             | C10Q22C                   |                  | CNO422           | 10TCC-Q22        |
| C40      | .0022              |               | SI 2200          | D6-222             | JB6D22                    | CCD-222          | GP222            | 5HK-D22          |
| C41      | .047 125V 10%      |               | BE2S47           |                    | WMF1S47                   | 1DP-2-473        | PVC1147          | 2PS-S47          |
| C42      | .1 125V 10%        |               | BE2P1            |                    | WMF1P1                    | 1DP-2-104        | PVC101           | 2PS-P10          |
| C43      | .0022 15%          |               |                  | CPR-2200J          | JB6D22                    | CCD-222          | JF222            | 10TS-D22         |
| C44      | .022 100V 10%      |               | BE2S22           |                    | WMF1S22                   | 1DP-1-223        | PVC1122          | 2PS-S22          |
| C45      | .033 100V 10%      |               | BE4S33           |                    | WMF1S33                   | 1DP-1-333        | PVC1133          | 4PS-S33          |
| C46      | .0022              |               | SI 2200          | D6-222             | JB6D22                    | CCD-222          | GP222            | 5HK-D22          |
| C47      | .0039 125V 5%      |               |                  |                    |                           |                  |                  | 5BF-D39          |
| C48      | .01 15%            |               |                  | CPR-10000J         |                           |                  | JF110            | 10TS-S10         |
| C49      | .01 15%            |               |                  | CPR-10000J         |                           |                  | JF110            | 10TS-S10         |
| C50      | .68 125V 10%       |               |                  |                    | WMF1P68                   | 1DP-5-684        | PVC1068          | 2WF-P68          |

# Norelco Part Number.

## CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | USE       | RESIST-ANCE     | REPLACEMENT DATA |                    |                    |                  |                  |
|----------|-----------|-----------------|------------------|--------------------|--------------------|------------------|------------------|
|          |           |                 | NORELCO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. |
| R1       | Volume    | 20K Tap @ 4000Ω | 916/GL4KX18K     |                    |                    |                  |                  |
| R2       | AVC Bias  | 500K            | E097AD/500K      |                    |                    |                  |                  |
| R3       | Bias Reg. | 500Ω            | E097AC/1K        |                    |                    |                  |                  |

## PARTS LIST AND DESCRIPTION (CONTINUED)

### COILS (RF-IF)

| ITEM No. | USE                  | REPLACEMENT DATA    |                |                 |                  |                  | NOTES |
|----------|----------------------|---------------------|----------------|-----------------|------------------|------------------|-------|
|          |                      | NORELCO PART No.    | MERIT PART No. | MILLER PART No. | STANCOR PART No. | WORKMAN PART No. |       |
| L1       | SWI Ant.             | A398564             |                |                 |                  |                  |       |
| L2       | SWII Ant.            | A398566             |                |                 |                  |                  |       |
| L3       | Loopstick (SWIII/BC) | A398561             |                |                 |                  |                  |       |
| L4       | SWI, SWII Osc.       | A398565             |                |                 |                  |                  |       |
| L5       | SWIII Osc.           | A312932             |                |                 |                  |                  |       |
| L6       | BC Osc.              | A312959             |                |                 |                  |                  |       |
| L7       | 1st IF               | A312935<br>(9.35.1) |                |                 |                  |                  |       |
| L8       | Choke Coil           | A311952             |                |                 |                  |                  |       |
| L9       | 2nd IF               | A312934<br>(9.34.0) |                |                 |                  |                  |       |
| L10      | 3rd IF               | A312933<br>(9.33.0) |                |                 |                  |                  |       |

### TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO |       | REPLACEMENT DATA    |                |                  |                     |                | NOTES |
|----------|-------------|-------|---------------------|----------------|------------------|---------------------|----------------|-------|
|          |             |       | NORELCO PART No.    | MERIT PART No. | STANCOR PART No. | THORDARSON PART No. | TRIAD PART No. |       |
|          | PRI.        | SEC.1 |                     |                |                  |                     |                |       |
| T1       | 2           | 1     | A316211<br>(162110) |                |                  |                     |                |       |
|          |             | SEC.2 |                     |                |                  |                     |                |       |
|          |             | 1     |                     |                |                  |                     |                |       |

### TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE |      | REPLACEMENT DATA    |                |                  |                     |                | NOTES |
|----------|-----------|------|---------------------|----------------|------------------|---------------------|----------------|-------|
|          |           |      | NORELCO PART No.    | MERIT PART No. | STANCOR PART No. | THORDARSON PART No. | TRIAD PART No. |       |
|          | PRI.      | SEC. |                     |                |                  |                     |                |       |
| T2       | 70Ω       | 25Ω  | A315432<br>(154320) |                |                  |                     |                |       |

### SPEAKER

| ITEM No. | TYPE         | REPLACEMENT DATA |               | NOTES |
|----------|--------------|------------------|---------------|-------|
|          |              | NORELCO PART No. | QUAM PART No. |       |
| SP1      | 5" PM 24-26Ω | AD3500HWZ        |               |       |

### BATTERIES

| ITEM No. | VOLTAGE | NORELCO PART No. | REPLACEMENT DATA |               |                  | NOTES      |
|----------|---------|------------------|------------------|---------------|------------------|------------|
|          |         |                  | BURGESS          | EVEREADY      | MALLORY          |            |
| M1       | 9V      |                  | 230 (or AL2)     | A100 (or E95) | M13R (or MN1300) | 6 Required |

### MISCELLANEOUS

| ITEM No. | PART NAME          | NORELCO PART No. | NOTES |
|----------|--------------------|------------------|-------|
| M2       | Tuning Cap.        | 4900237          |       |
| M3       | Overload OA79      |                  |       |
| M4       | Indicator          | AE50426          |       |
| M5       | Detector OA79      |                  |       |
| M6       | Switching Assembly | A329846          |       |
| M7       | SWI Switch         | A379189          |       |
| M8       | SWII Switch        | A379190          |       |
| M9       | SWIII Switch       |                  |       |
| M10      | MW Switch          | A329849          |       |

Includes Off-On, Pilot, Tone & Push Buttons for Band Switching

### CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

| ITEM          | PART No. | ITEM           | PART No.       |
|---------------|----------|----------------|----------------|
| Cabinet       | A332865  | Push Button    | P542022/139/FY |
| Cabinet Front | A332860  | Battery Holder | A378615/16     |

### DIAL CORD STRINGING

