

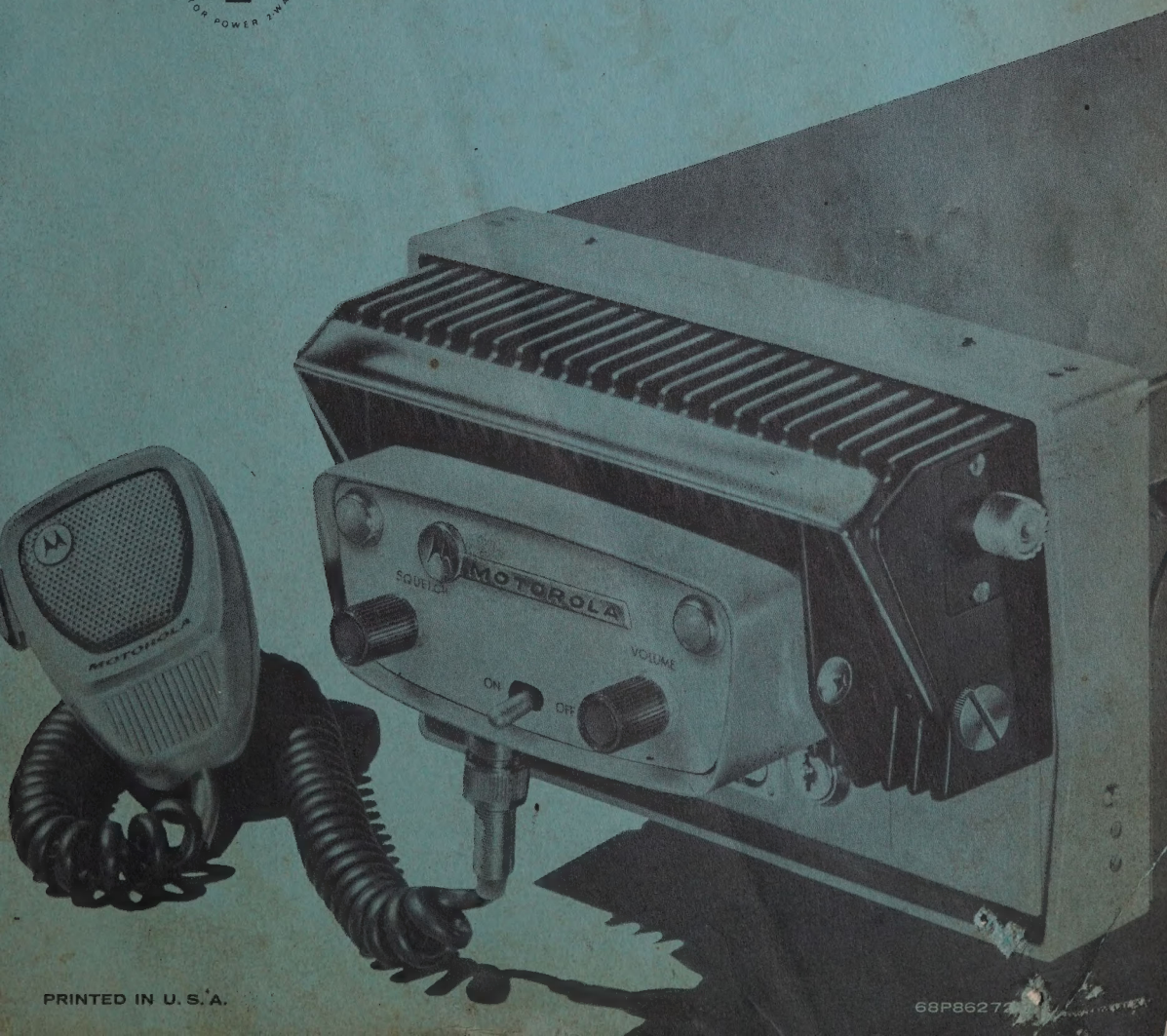


## Mobile FM Two-Way Radio

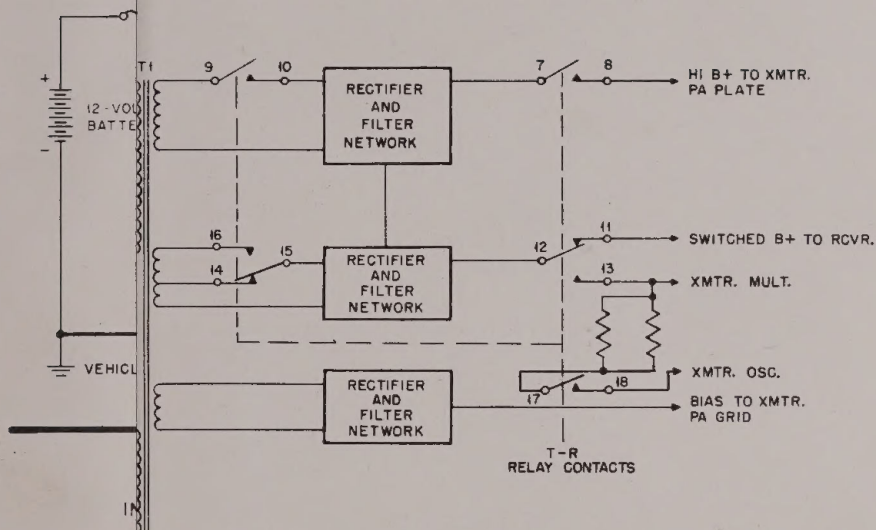
25-54 MC

50 W RF POWER

12 VDC



FUNCTIONAL DIAGRAM  
DETAILS ALL  
ED



SEQUENCE OF OPERATIONS

"TURN-ON" OPERATION

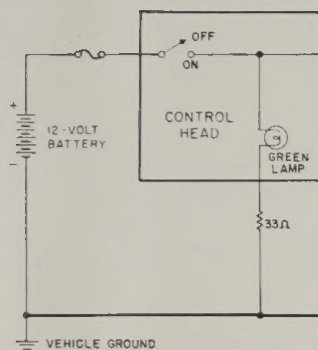
1. ON-OFF SWITCH SET TO ON POSITION.
2. FRONT-MOUNT-SWITCH APPLIES DC TO RADIO SET. GREEN LAMP GOES ON. REAR-MOUNT-SWITCH ENERGIZES "A" RELAY. RELAY APPLIES DC TO RADIO SET. GREEN LAMP GOES ON.
3. FILAMENTS ENERGIZED. TRANSISTOR MULTIVIBRATOR OPERATES. RECEIVER IN FULL OPERATION ("STANDBY" CONDITION).
4. MIC. P-T-T BUTTON PRESSED.
5. TRANSMIT-RECEIVER RELAY AND ANTENNA RELAY OPERATES
6. TRANSMITTER ON AIR. RECEIVER MUTED. RED LIGHT ON ("ON-THE-AIR" CONDITION).

"TURN-OFF" OPERATION

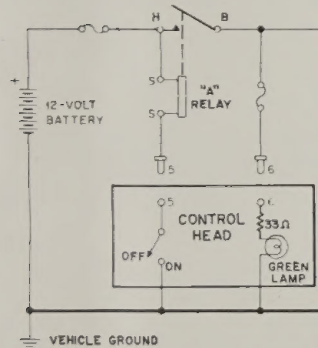
1. P-T-T BUTTON RELEASED.
2. TRANSMIT-RECEIVE RELAY AND ANTENNA RELAY RELEASES.
3. TRANSMITTER OFF, RECEIVER BACK IN OPERATION. RED LIGHT GOES OUT ("STANDBY" CONDITION).



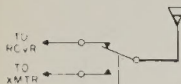
# FRONT MOUNT INSTALLATIONS



# REAR MOUNT INSTALLATIONS

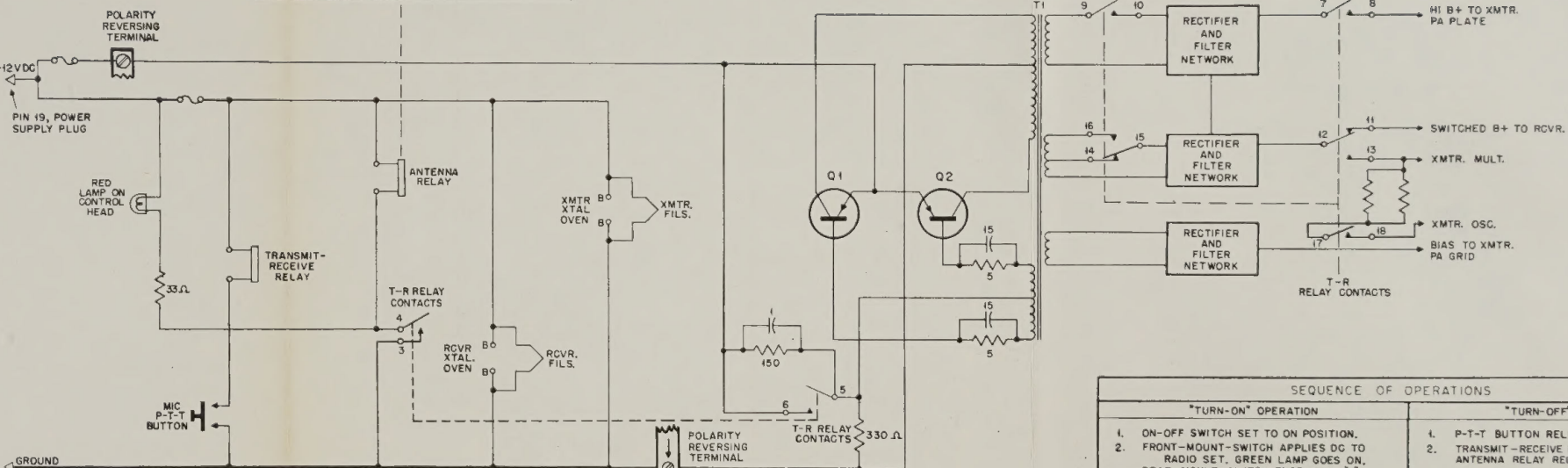


# ANTENNA RELAY CIRCUIT



# NOTE

THIS IS A SIMPLIFIED FUNCTIONAL DIAGRAM  
SEE SCHEMATICS FOR EXACT DETAILS ALL  
RELAYS SHOWN DE ENERGIZED



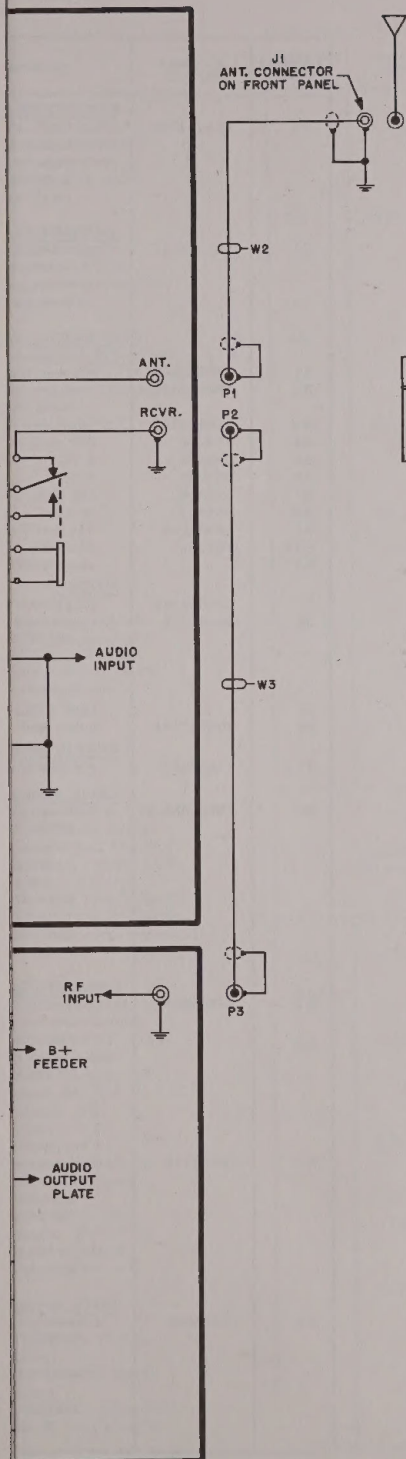
# SEQUENCE OF OPERATIONS

## "TURN-ON" OPERATION

1. ON-OFF SWITCH SET TO ON POSITION.
2. FRONT-MOUNT-SWITCH APPLIES DC TO RADIO SET. GREEN LAMP GOES ON. REAR-MOUNT-SWITCH ENERGIZES "A" RELAY. RELAY APPLIES DC TO RADIO SET. GREEN LAMP GOES ON.
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6. TRANSMITTER ON AIR. RECEIVER MUTED. RED LIGHT ON ("ON-THE-AIR" CONDITION).

## "TURN-OFF" OPERATION

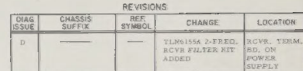
1. P-T-T BUTTON RELEASED.
2. TRANSMIT-RECEIVE RELAY AND ANTENNA RELAY RELEASES.
3. TRANSMITTER OFF, RECEIVER BACK IN OPERATION. RED LIGHT GOES OUT ("STANDBY" CONDITION).

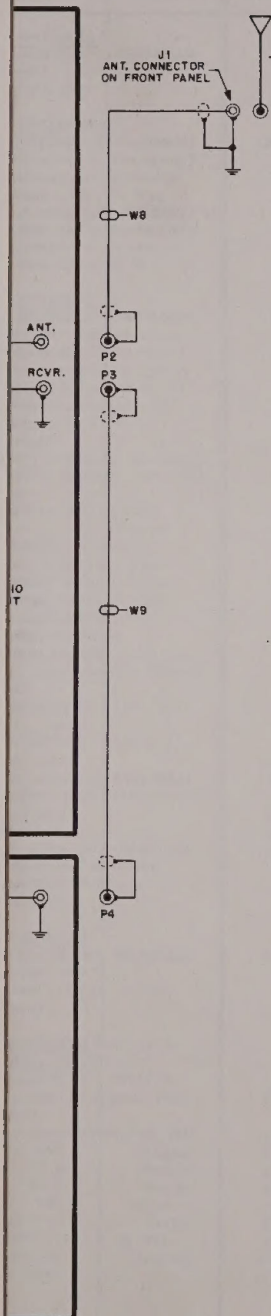


# REVISIONS

| DIAG. ISSUE | CHASSIS SUFFIX | REF. SYMBOL | CHANGE                                 | LOCATION                        |
|-------------|----------------|-------------|----------------------------------------|---------------------------------|
| D           |                | ---         | TLN6155A 2-FREQ. RCVR FILTER KIT ADDED | RCVR. TERM. BD. ON POWER SUPPLY |







# REVISIONS

| DIAG. ISSUE | CHASSIS SUFFIX | REF. SYMBOL | CHANGE                                 | LOCATION                        |
|-------------|----------------|-------------|----------------------------------------|---------------------------------|
| C           | —              | —           | TLN6155A 2-FREQ. RCVR FILTER KIT ADDED | RCVR. TERM. BD. ON POWER SUPPLY |

PARTS LIST for Inter-cabling Diagram 63E856474-D

| REFERENCE SYMBOL | MOTOROLA PART No.                             | DESCRIPTION                                                                                                                                                                                                                                                 |
|------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A1               | 1V861317                                      | <b>AMPLIFIER, AF:</b><br>microphone pre-amplifier; assembly; includes 1V859594 BOARD, circuit; eyeletted assembly; includes soldering lug terminals<br>Reference parts C1, Q1, R5, R6, R7, R8                                                               |
| C1               | 23C855013 or 23B844927                        | <b>CAPACITOR, fixed; electrolytic:</b><br>tubular; 20 uf +100-10%; 25 vdcw                                                                                                                                                                                  |
| C2               | 23C855013                                     | tubular; 20 uf +100-10%; 25 vdcw same as C2                                                                                                                                                                                                                 |
| DP1              | 59C852603                                     | <b>CARTRIDGE, microphone:</b><br>magnetic; dynamic type; 175 ohm impedance at 1 kc                                                                                                                                                                          |
| DS1              | 65R4151                                       | <b>LAMP, incandescent:</b><br>6-8 volt, 2 ampere; single contact bayonet base; globular glass; type 51                                                                                                                                                      |
| DS2              | same as DS1                                   | same as DS1                                                                                                                                                                                                                                                 |
| F1               | 65K52482                                      | <b>FUSE, cartridge; one time; paper</b><br>20 ampere; 250 volt; 2" long x 9/16" dia                                                                                                                                                                         |
| J1               | 1V855055                                      | <b>CONNECTOR, receptacle; female:</b><br>assembly; includes mounting bracket and single contact, coaxial connector                                                                                                                                          |
| J2               | 9B16345                                       | 4 contact; polarized; round molded black phenolic base; chassis mounted, includes 457699 LOCKWASHER; 13/16" internal                                                                                                                                        |
| J3               | 9C801050                                      | 28K1300 NUT, ring 19 contact; polarized; rectangular mid. blk. phenolic base; chassis mid.; does not include 7B85513 BRACKET, connector mtg., nor 64C855103 PLATE, connector mtg.; bracket and plate must be ordered separately                             |
| MK1              | 1V854033 ("plug-in") or 1V852400 ("wired-in") | <b>MICROPHONE, dynamic:</b><br>palm type; contains Transistor amplifier and "push-to-talk" switch; includes reference parts A1, DP1, S4, W8<br>palm type; contains Transistor amplifier and "push-to-talk" switch; includes reference parts A1, DP1, S4, W4 |
| P1               | 28A474006                                     | <b>CONNECTOR, plug:</b><br>male; single contact; round bakelite wafer insulator; cable mounted; connects to Transmitter Antenna Relay Antenna Connector                                                                                                     |
| P2               | same as P1                                    | except connects to Transmitter Antenna Relay Receiver Connector                                                                                                                                                                                             |
| P3               | same as P1                                    | except connects to Receiver Antenna Connector                                                                                                                                                                                                               |
| P4               | 9B855112                                      | <b>CONNECTOR, female:</b><br>2 contact; polarized; round phenolic wafer insulator; cable mounted; does not include 15B855111 SHIELD, connector; shell must be ordered separately                                                                            |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P5               | 28A16370          | <b>CONNECTOR, (cont'd)</b><br>male; 4 contact; polarized; round molded phenolic insulator; cable mounted; includes 41K838823 SPRING, cable strain relief                                                                                                                                                                                                                                             |
| Q1               | 48A124317         | <b>TRANSISTOR:</b><br>type MNX; does not include 1A861190 INSULATOR, transistor; insulator must be ordered separately                                                                                                                                                                                                                                                                                |
| R1               | 17K892469         | <b>RESISTOR, fixed; carbon; 40%</b><br>1/2 w. ins.; unless otherwise stated                                                                                                                                                                                                                                                                                                                          |
| R2               | 18K855108         | wire-wound; 4 ohm 42%; 1 w variable; wire-wound; 20 ohm 420%; 2 w                                                                                                                                                                                                                                                                                                                                    |
| R3               | 18K855107         | variable; wire-wound; 10K; 2 w                                                                                                                                                                                                                                                                                                                                                                       |
| R4               | 6R6336            | 270 ohm; 1 w                                                                                                                                                                                                                                                                                                                                                                                         |
| R5               | 6R6080            | 4.7K                                                                                                                                                                                                                                                                                                                                                                                                 |
| R6               | 6R5581            | 3.3K                                                                                                                                                                                                                                                                                                                                                                                                 |
| R7               | 6R5660            | 180 ohm                                                                                                                                                                                                                                                                                                                                                                                              |
| R8               | 6H5621            | 10 ohm                                                                                                                                                                                                                                                                                                                                                                                               |
| R9               | 6R488016          | 33 ohm; 2 w                                                                                                                                                                                                                                                                                                                                                                                          |
| R10              | 6R5550            | 47 ohm                                                                                                                                                                                                                                                                                                                                                                                               |
| R11              | same as R10       | same as R10                                                                                                                                                                                                                                                                                                                                                                                          |
| S1               | 40B858304         | <b>SWITCH</b><br>toggle; spst                                                                                                                                                                                                                                                                                                                                                                        |
| S2               | 40A80248          | toggle; spdt; does not include 288382 NUT, machine; 15/32-32 x 9/16" hex; 2 required; nuts must be ordered separately                                                                                                                                                                                                                                                                                |
| S3               | NOT USED          |                                                                                                                                                                                                                                                                                                                                                                                                      |
| S4               | 40B857174         | push; dpst                                                                                                                                                                                                                                                                                                                                                                                           |
| TB1              | 31A890699         | <b>BOARD, terminal:</b><br>6 screw terminals                                                                                                                                                                                                                                                                                                                                                         |
| W1               | 1V832063          | <b>LEAD, electrical:</b><br>Battery to Fuseholder; includes: 30K831572 CABLE, power; single conductor; #10 ga.; stranded; ins.; coded BLK; 2 ft. length required<br>29K832116 LUG, ring tongue; for 3/8" stud and #10 wire<br>29K824154 LUG, ring tongue; for #10 stud and #10 wire                                                                                                                  |
| W2               | 1V855053          | <b>LINE, RF transmission:</b><br>assembly; Antenna to transmitter Antenna Relay; includes: 1V855054 ASSEMBLY, cable and plug; includes: 30R475378 CABLE, RF; coaxial; RG-58A/U; 6" length required<br>Reference part P1<br>Reference part J1<br>Transmitter Antenna Relay to Receiver Antenna Input; includes: 30R475378 CABLE, RF; coaxial; RG-58A/U; 24" length required<br>Reference parts P2, P3 |
| W3               | 1K800193          | <b>Transmitter Antenna Relay to Receiver Antenna Input;</b><br>includes: 30R475378 CABLE, RF; coaxial; RG-58A/U; 24" length required<br>Reference parts P2, P3                                                                                                                                                                                                                                       |
| W4               | 1V854006          | <b>CORD, microphone:</b><br>assembly; includes: 30K852742 CORD, coiled; timeel<br>41A852707 SPRING, strain relief<br>11M2506 TUBING, extruded; #9 BLK; 1" length req'd                                                                                                                                                                                                                               |

| REFERENCE SYMBOL                                                                     | MOTOROLA PART No. | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| W5                                                                                   | 30K831572         | <b>CORD, microphone: (cont'd)</b><br>29A847033 LUG, terminal; wire mounted; insulation piercing; 8 req'd                                                                                                                                                                                                                                                              |
| W6                                                                                   | 30K831572         | <b>CABLE, power:</b><br>single conductor, #10 ga. stranded; ins.; coded black; 9 ft. length req'd does not include 29K824154 LUG, ring tongue; for #10 wire and #10 stud; lug must be ordered separately                                                                                                                                                              |
| W7                                                                                   | 30A825430         | same as W5 except does not include 29K832116 LUG, ring tongue; for #10 wire and 3/8" stud; lug must be ordered separately                                                                                                                                                                                                                                             |
| W8                                                                                   | 1V854034          | 2 conductor; rubber covered; each conductor; #18 ga. stranded; 41" length req'd                                                                                                                                                                                                                                                                                       |
|                                                                                      |                   | <b>CORD, microphone:</b><br>assembly; includes: 30K852742 CORD, coiled; timeel<br>41A852707 SPRING, strain relief<br>11M2506 TUBING, extruded; #9 BLK; 2" length req'd<br>29A847033 LUG, terminal; wire mounted; insulation piercing; 4 req'd<br>29A847034 LUG, terminal; wire mounted; insulation piercing; 4 req'd<br>37K480513 SLEEVE, rubber<br>Reference part P5 |
| NON-REFERENCED ITEMS                                                                 |                   |                                                                                                                                                                                                                                                                                                                                                                       |
| The following are replaceable parts which do not appear on the inter-cabling diagram |                   |                                                                                                                                                                                                                                                                                                                                                                       |
| XDS1                                                                                 | 9A859619          | <b>LAMPHOLDER:</b><br>single contact; miniature; bayonet base<br>name as XDS1                                                                                                                                                                                                                                                                                         |
| XDS2                                                                                 | 67K892616         | <b>FUSEHOLDER:</b><br>single fuse mounting rectangular porcelain base; chassis mounted; for fuse 2" long x 9/16" dia.                                                                                                                                                                                                                                                 |
| XP1                                                                                  | 67K892616         |                                                                                                                                                                                                                                                                                                                                                                       |
| TLN6000A Installation Kit; includes the following items:                             |                   |                                                                                                                                                                                                                                                                                                                                                                       |
| 1V859627                                                                             |                   | Cable Clamp Kit; includes: 42A19376 CLAMP, cable; 4 req'd<br>357467 SCREW, tapping; #8 x 3/8" plain hex; 4 req'd                                                                                                                                                                                                                                                      |
| 1V849628                                                                             |                   | Mounting Hardware Kit; includes: 35125947 SCREW, tapping; #14 x 3/4" plain hex; 4 req'd<br>45119331 LOCKWASHER; 1/4" split; 4 req'd                                                                                                                                                                                                                                   |

| REFERENCE SYMBOL                                                                                                                                                                          | MOTOROLA PART No. | DESCRIPTION                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TLN6000A Installation Kit; includes the following items:                                                                                                                                  |                   |                                                                                                                                                                                                                                                                                      |
| 1V84019                                                                                                                                                                                   |                   | <b>Noise Filter Kit:</b><br>includes: 8A821889 CAPACITOR, generator hash filter; fixed; paper tubular; 5 uf 420%; 150 vdcw; one lead grounded; one lead insulated; 2 supplied<br>6A4141 SUPPRESSOR, noise; resistor; screw type<br>457670 LOCKWASHER; 1/4" internal; 2 req'd         |
| TK611 Cable Kit; includes reference parts F1, XF1, W1 and the following items:                                                                                                            |                   |                                                                                                                                                                                                                                                                                      |
| 32A880552                                                                                                                                                                                 |                   | <b>GASKET, fuseholder</b><br>Mounting Hardware Kit, fuseholder; includes: 41A8363 WASHER, cushion; 2 supplied<br>35400465 SCREW, tapping; #10 x 3/4" slotted round head; 2 supplied<br>457658 LOCKWASHER; #10 internal; 2 supplied<br>451706 WASHER; 3/8" x .203 x .053"; 2 supplied |
| Control Heads                                                                                                                                                                             |                   |                                                                                                                                                                                                                                                                                      |
| Items which are common to all control heads are listed first. Items which are not common to all control heads are listed under the model number of the particular control head concerned. |                   |                                                                                                                                                                                                                                                                                      |
| 288382                                                                                                                                                                                    |                   | NUT, machine; 15/32-32 x 9/16" hex; 2 req'd                                                                                                                                                                                                                                          |
| 61B859620                                                                                                                                                                                 |                   | LENS, indicator: RED                                                                                                                                                                                                                                                                 |
| 61B859621                                                                                                                                                                                 |                   | LENS, indicator: GRN                                                                                                                                                                                                                                                                 |
| 457691                                                                                                                                                                                    |                   | NUT, machine; 3/8-32 x 1/2" hex; 2 req'd                                                                                                                                                                                                                                             |
| 64C855103                                                                                                                                                                                 |                   | PLATE, connector mounting (back cover)                                                                                                                                                                                                                                               |
| 7B855113                                                                                                                                                                                  |                   | BRACKET, connector mounting                                                                                                                                                                                                                                                          |
| 42A855115                                                                                                                                                                                 |                   | CLAMP, cable                                                                                                                                                                                                                                                                         |
| 26B857812                                                                                                                                                                                 |                   | SHIELD, indicator lamp; 2 req'd                                                                                                                                                                                                                                                      |
| 35122080                                                                                                                                                                                  |                   | LOCKSCREW; 6-32 x 1/4" plain hex; 6 req'd                                                                                                                                                                                                                                            |
| 36B855027                                                                                                                                                                                 |                   | KNOB, control; 2 req'd                                                                                                                                                                                                                                                               |
| Each control head model includes the items shown for the model, plus items listed above.                                                                                                  |                   |                                                                                                                                                                                                                                                                                      |

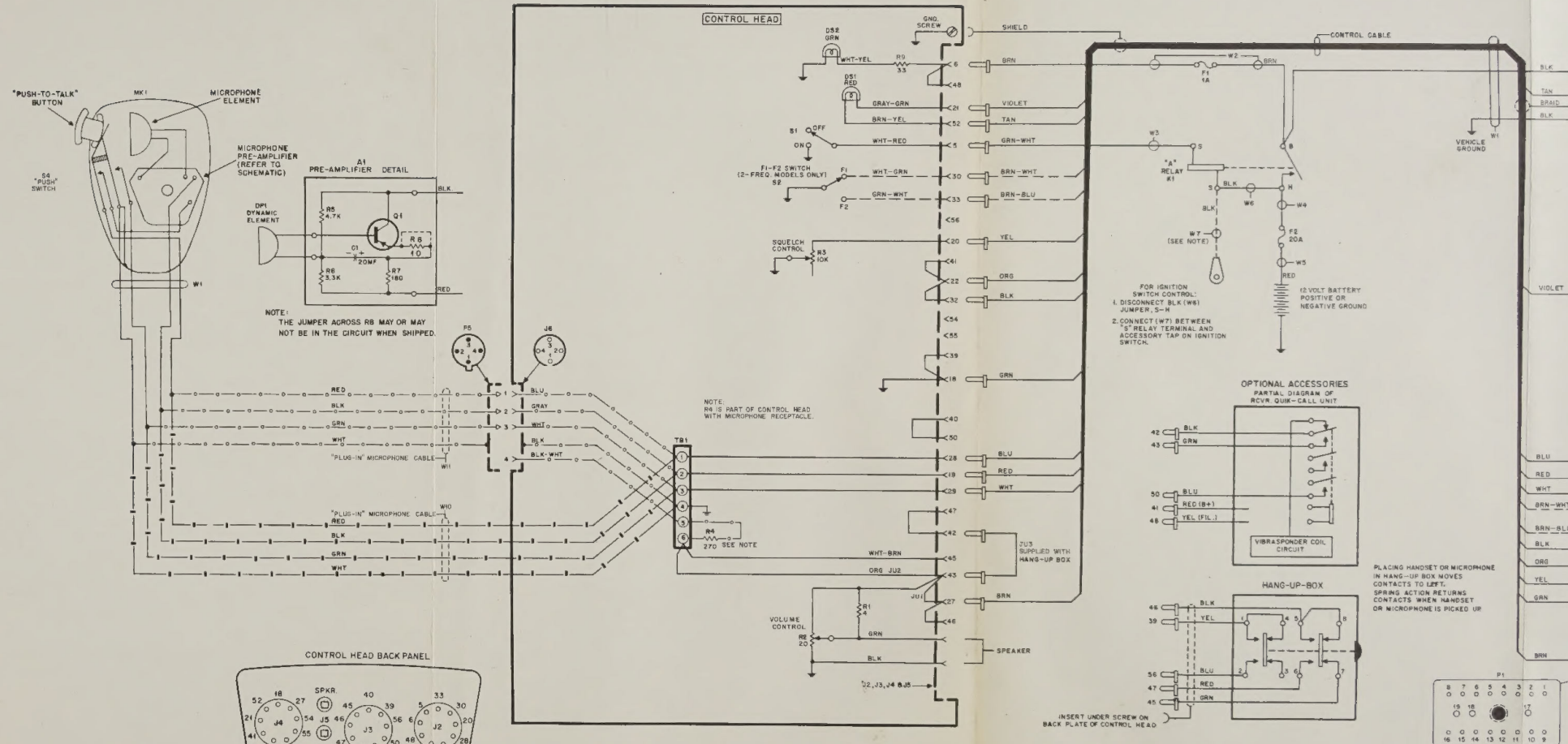
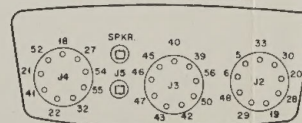
| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1V852400         |                   | <b>TCN6000AA (1-freq. with "wired-in" microphone):</b><br>includes the following items:<br>MICROPHONE (reference part MK1)<br>BUTTON, plug<br>GROMMET, rubber; for 7/16" dia hole                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 38A857093        |                   | <b>TCN6000AB (2-freq. with "wired-in" microphone):</b><br>includes reference part S2 and the following items:<br>MICROPHONE (reference part MK1)<br>BUTTON, plug<br>GROMMET, rubber; for 7/16" dia hole                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 1V852400         |                   | <b>TCN6000AE (1-freq. with receptacle for "plug-in" microphone):</b><br>includes reference parts J2, R4 and the following items:<br>LOCKWASHER; 3/8" internal LUG, soldering; 7/8"                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 457691           |                   | <b>TCN6000AF (2-freq. with receptacle for "plug-in" microphone):</b><br>includes reference parts J2, R4, S2 and the following items:<br>LOCKWASHER; 3/8" internal LUG, soldering; 7/8"                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 457691           |                   | <b>Microphones</b><br>Items which are common to all microphones are listed first. Items which are not common to all microphones are listed under the model number of the particular microphone concerned.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1V854005         |                   | <b>Items common to all microphones include the following parts:</b><br><br><b>NOTE</b><br>These items are part of reference part MK1 (both 1V854033 and 1V852400).<br>BACK HOUSING AND HANG-UP STUD ASSEMBLY<br>LOCKSCREW; 6-32 x 1/4"; Phillips round head; 3 req'd<br>STRAP, strain relief<br>BUTTON, push<br>FRONT HOUSING<br>GRILLE<br>CLOTH, grille<br>GASKET, rubber<br>INSULATOR; used for insulating printed circuit assembly<br>CLAMP, used for securing microphone cartridge<br>INSULATOR; used between clamp and microphone cartridge<br>WASHER, insulating; used as a spacer<br>LOCKSCREW; 6-32 x 5/16"; Phillips round head |

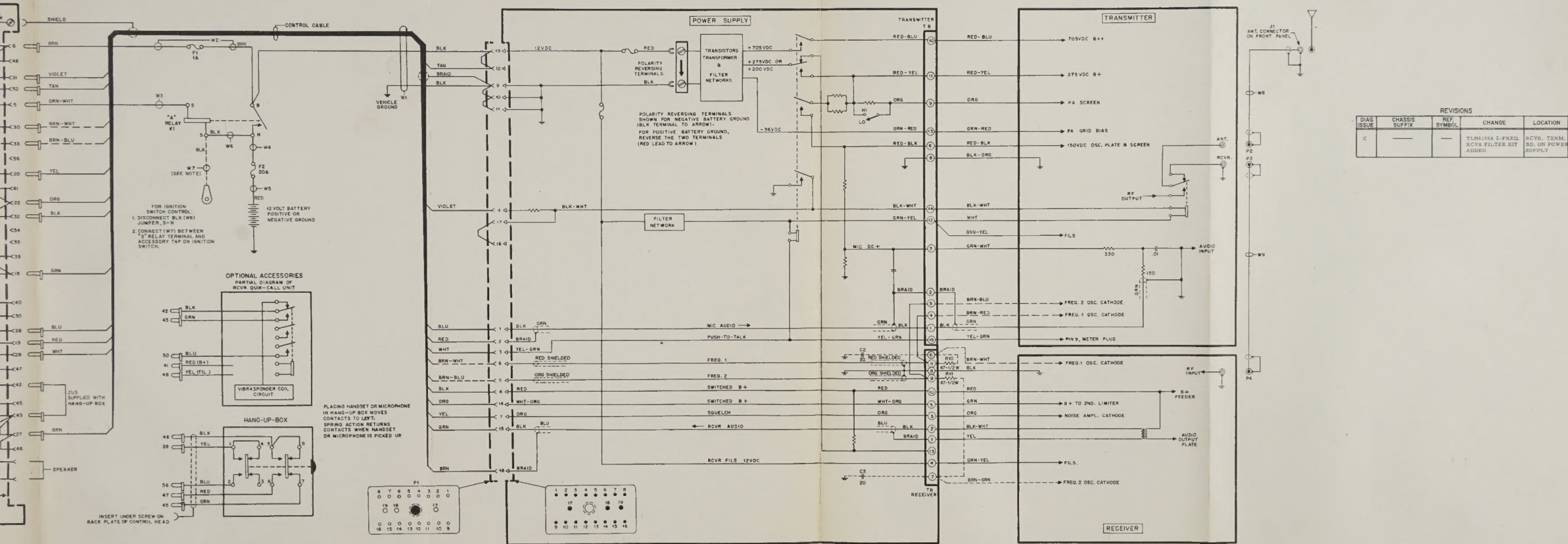
| REFERENCE SYMBOL                                                                                                                                                                                                        | MOTOROLA PART No. | DESCRIPTION                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------|
| 35127481                                                                                                                                                                                                                |                   | <b>SCREW, machine; 6-32 x 7/8";</b><br>Phillips round head; 2 required |
| 45400386                                                                                                                                                                                                                |                   | <b>LOCKWASHER; #6 split; 2 required</b>                                |
| Each microphone model includes the items shown for the model, plus items listed above                                                                                                                                   |                   |                                                                        |
| 1V852400 Microphone ("wired-in" type)<br>includes reference part MK1 (1V852400)                                                                                                                                         |                   |                                                                        |
| TU351A Microphone ("plug-in" type)<br>includes reference part MK1 (1V854033) and the following items:<br>Mounting Kit, microphone; includes: 64A85596 microphone hang-up<br>35122810 SCREW, tapping; #8 x 1/2"; 2 req'd |                   |                                                                        |



EPD-1516-C

CONTROL HEAD BACK PANEL







## PARTS LIST for Interconnecting Diagram 63E85475-C

| REFERENCE SYMBOL | MOTOROLA PART No.    | DESCRIPTION                                                                                                                                                                                       |
|------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A1               | 1V861317             | <b>AMPLIFIER, AF:</b><br>microphone pre-amplifier; assembly, includes: 1V85954 BOARD, circuitry; electrolytic assembly, includes: soldering lug terminals. Reference parts C1, Q1, R5, R6, R7, R8 |
| C1               | 23C85911 or 23B84927 | <b>CAPACITOR, fixed, electrolytic:</b> tubular, 20 $\mu$ F $\pm$ 10% 15Vdc                                                                                                                        |
| C2               | 23C851913            | tubular, 24 $\mu$ F $\pm$ 10% 25Vdc same as C2                                                                                                                                                    |
| DP1              | 59C85261             | <b>CARTRIDGE, microphone:</b> magnetic, dynamic type; 175 ohm impedance at 1 kc                                                                                                                   |
| DS1              | 65R4151              | <b>LAMP, incandescent:</b> 6-8 volt, 2 ampere; single contact bayonet base; globular glass; type S1 same as DS1                                                                                   |
| DS2              |                      |                                                                                                                                                                                                   |
| F1               | 65R5281              | <b>FUSE, cartridge:</b> one time; glass; 1 ampere; 250 V -1/4" long x 1/8" dia.                                                                                                                   |
| F2               | 65K5242              | one time; paper; 20 ampere; 250 V 2" long x 9/16" dia.                                                                                                                                            |
| J1               | 1V85595              | <b>CONNECTOR, receptacle female:</b> assembly, includes: mounting bracket and single contact, coaxial connector                                                                                   |
| J2               | 91R55150             | 5 contact, polarized; round molded black phenolic insulator saddle mounted same as J2                                                                                                             |
| J3               |                      | same as J2                                                                                                                                                                                        |
| J4               | 91R55150             | 2 contact, rectangular molded black bakelite insulator; chassis mounted                                                                                                                           |
| J5               | 91B1645              | 4 contact, polarized; round molded black phenolic base; chassis mounted, includes: 63766 LOCKWASHER; 1/16" internal 2K91180 NUT, ring                                                             |
| J6               |                      |                                                                                                                                                                                                   |
| J7               |                      |                                                                                                                                                                                                   |
| J8               |                      |                                                                                                                                                                                                   |
| J9               |                      |                                                                                                                                                                                                   |
| J10              |                      |                                                                                                                                                                                                   |
| J11              |                      |                                                                                                                                                                                                   |
| J12              |                      |                                                                                                                                                                                                   |
| J13              |                      |                                                                                                                                                                                                   |
| J14              |                      |                                                                                                                                                                                                   |

| REFERENCE SYMBOL | MOTOROLA PART No.                             | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K1               | 59K858480                                     | <b>RELAY, armature:</b> 12 vdc, contact arrangement, 1 form "A"; coil resistance 76.5 $\pm$ 9.9 ohm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| MK1              | 1V854033 ("plug-in") or 1V852400 ("wired-in") | <b>MICROPHONE, dynamic:</b> palm type; contains transistor amplifier and "push-to-talk" switch; includes reference parts A1, DP1, S4, W11 palm type; contains transistor amplifier and "push-to-talk" switch; includes reference parts A1, DP1, S4, W10                                                                                                                                                                                                                                                                                                                                                              |
| P1               | 9C801050                                      | <b>CONNECTOR, plug:</b> female; 19 contacts; polarized; rectangular, molded black plastic filled phenolic base; cable mounted; connects to Power Supply; does not include the following component parts which must be ordered separately: 15B800676 SHELL, connector 15B800674 COVER, connector shell 14A800673 INSULATOR, connector shell; small 14B800678 INSULATOR, connector shell; large 42A800667 CLAMP, cable 42A800666 CLAMP, cable 6A11712 WASHER, "C" 4A800671 WASHER 3B800681 SCREW, connector retaining; includes knurled head 357209 SCREW, 6-32 x 1/8; 2 required 357342 SCREW, 6-32 x 1/2; 2 required |
| P2               | 28A47406                                      | male; coaxial; round bakelite water insulator; cable mounted same as P2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| P3               |                                               | same as P2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| P4               | 28A16370                                      | male; 4 contact; polarized; includes metal shell and 41K83823 SPRING, cable strain relief                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Q1               | 48A124317                                     | <b>TRANSISTOR:</b> type MN40; does not include 14A801196 INSULATOR; insulator must be ordered separately                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| R1               | 17R932469                                     | <b>RESISTOR, fixed, carbon; <math>\pm</math>10%:</b> 1/2 w, 1/2 w, unless otherwise stated; wire-wound; 4 ohm $\pm$ 2%, 1 w variable; wire-wound; 20 ohm $\pm$ 20%, 2 w variable; wire-wound; 10K; 2 w                                                                                                                                                                                                                                                                                                                                                                                                               |
| R2               | 18K851109                                     | 270 ohm, 1 w                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| R3               | 18K851109                                     | 4.7K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| R4               | 6R6080                                        | 3.3K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| R5               | 6R5581                                        | 180 ohm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| R6               | 6R5660                                        | 10 ohm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| R7               | 6R5621                                        | 33 ohm; 2 w                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| R8               | 6R488016                                      | 47 ohm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| R9               | 6R5550                                        | same as R10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| R10              |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| R11              |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| REFERENCE SYMBOL | MOTOROLA PART No.  | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| S1               | 40B858104 40A80248 | <b>SWITCH,</b> toggle; spst; does not include 258362 NUT, machine; 15/32-32 x 9/16" hex; 2 req'd nuts must be ordered separately                                                                                                                                                                                                                                                                                    |
| S3               | 40B857174          | <b>NOT USED</b><br>push, dist                                                                                                                                                                                                                                                                                                                                                                                       |
| TB1              | 11A809059          | <b>BOARD, terminal:</b> 6 screw terminals                                                                                                                                                                                                                                                                                                                                                                           |
| W1               | 1V812061           | <b>CABLE ASSEMBLY, special purpose:</b> includes reference part P1 and the following items: 30CA300 M CABLE; 12 conductor; stranded, ins.; leads; shielded; black plastic covered; 17 ft. length req'd 29K80416 CONNECTOR, plug; male; single contact; pin type; cable mounted; coded #18 also includes: the following connectors which are the same as above part number: 29K80418 except for coding as indicated: |
|                  |                    | Part No. Code#                                                                                                                                                                                                                                                                                                                                                                                                      |
|                  |                    | 29K80419 19                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80420 20                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80421 21                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80422 22                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80423 23                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80424 24                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80425 25                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80426 26                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80427 27                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80428 28                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80429 29                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80430 30                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80431 31                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80432 32                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80433 33                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80434 34                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80435 35                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80436 36                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80437 37                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80438 38                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80439 39                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80440 40                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80441 41                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80442 42                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80443 43                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80444 44                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80445 45                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80446 46                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80447 47                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80448 48                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80449 49                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80450 50                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80451 51                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80452 52                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80453 53                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80454 54                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80455 55                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80456 56                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80457 57                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80458 58                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80459 59                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80460 60                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80461 61                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80462 62                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80463 63                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80464 64                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80465 65                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80466 66                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80467 67                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80468 68                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80469 69                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80470 70                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80471 71                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80472 72                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80473 73                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80474 74                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80475 75                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80476 76                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80477 77                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80478 78                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80479 79                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80480 80                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80481 81                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80482 82                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80483 83                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80484 84                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80485 85                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80486 86                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80487 87                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80488 88                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80489 89                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80490 90                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80491 91                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80492 92                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80493 93                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80494 94                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80495 95                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80496 96                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80497 97                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80498 98                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80499 99                                                                                                                                                                                                                                                                                                                                                                                                         |
|                  |                    | 29K80500 100                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80501 101                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80502 102                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80503 103                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80504 104                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80505 105                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80506 106                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80507 107                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80508 108                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80509 109                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80510 110                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80511 111                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80512 112                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80513 113                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80514 114                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80515 115                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80516 116                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80517 117                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80518 118                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80519 119                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80520 120                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80521 121                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80522 122                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80523 123                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80524 124                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80525 125                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80526 126                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80527 127                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80528 128                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80529 129                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80530 130                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80531 131                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80532 132                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80533 133                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80534 134                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80535 135                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80536 136                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80537 137                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80538 138                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80539 139                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80540 140                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80541 141                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80542 142                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80543 143                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80544 144                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80545 145                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80546 146                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80547 147                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80548 148                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80549 149                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80550 150                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80551 151                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80552 152                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80553 153                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80554 154                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80555 155                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80556 156                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80557 157                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80558 158                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80559 159                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80560 160                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80561 161                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80562 162                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80563 163                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80564 164                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80565 165                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80566 166                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80567 167                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80568 168                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80569 169                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80570 170                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80571 171                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80572 172                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80573 173                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80574 174                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80575 175                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80576 176                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80577 177                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80578 178                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80579 179                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80580 180                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80581 181                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80582 182                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80583 183                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80584 184                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80585 185                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80586 186                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80587 187                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80588 188                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80589 189                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80590 190                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80591 191                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80592 192                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80593 193                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80594 194                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80595 195                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80596 196                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80597 197                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80598 198                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80599 199                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80600 200                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80601 201                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80602 202                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80603 203                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80604 204                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80605 205                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80606 206                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80607 207                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80608 208                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80609 209                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80610 210                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80611 211                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80612 212                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80613 213                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80614 214                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80615 215                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80616 216                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80617 217                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80618 218                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80619 219                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80620 220                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80621 221                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80622 222                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80623 223                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80624 224                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80625 225                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80626 226                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80627 227                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80628 228                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80629 229                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80630 230                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80631 231                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80632 232                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80633 233                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80634 234                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80635 235                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80636 236                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80637 237                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80638 238                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80639 239                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80640 240                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80641 241                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80642 242                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80643 243                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80644 244                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80645 245                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80646 246                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80647 247                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80648 248                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80649 249                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80651 251                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80652 252                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80653 253                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80655 255                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80656 256                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80658 258                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80661 261                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80663 263                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80665 265                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80678 278                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80679 279                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80680 280                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80681 281                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80682 282                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80683 283                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80684 284                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80685 285                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80686 286                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80687 287                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80688 288                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80689 289                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80690 290                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80691 291                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80692 292                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80693 293                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80695 295                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80696 296                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80700 300                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80702 302                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80703 303                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80704 304                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80707 307                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80709 309                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80710 310                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80713 313                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80714 314                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80715 315                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80716 316                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80717 317                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80719 319                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80727 327                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80728 328                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                  |                    | 29K80730 330                                                                                                                                                                                                                                                                                                                                                                                                        |
|                  |                    | 29K80731 331                                                                                                                                                                                                                                                                                                                                                                                                        |
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# HOW TO SET UP THE P-8500 AND P-8501 SERIES TEST SETS FOR DISCRIMINATOR AND 455 KC ALIGNMENT

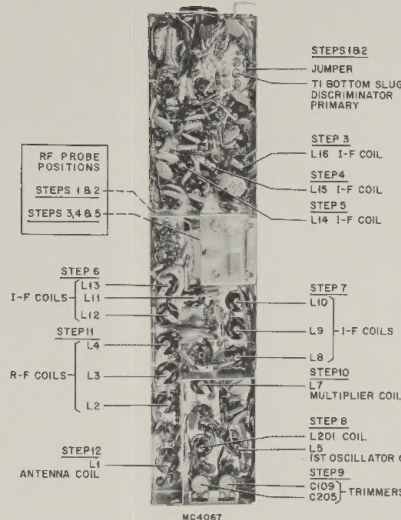
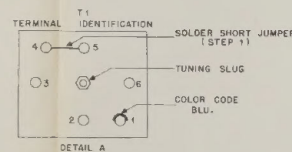
- Set the REC. -XMTR. -050 UA switch to the REC. position.
- Plug a 455 kc crystal into the two-pin crystal socket.
- Set the GRID CURRENT-METER-FIELD STRENGTH selector switch to the GRID CURRENT position.
- Set the ATTENUATOR control for maximum output (10).
- Place the test set ON-OFF switch in the ON position. (Test set operates on internal battery. Conserve battery life by keeping switch OFF when set is not in use.)
- Adjust the frequency control (ADJ) for a maximum meter reading.
- Set the ON-OFF switch to the OFF position.
- Set the GRID CURRENT-METER-FIELD STRENGTH switch to the METER position.
- Plug the test set metering cable into the METER receptacle on the receiver chassis.
- Connect one end of the test set extension cable to the RF OUTPUT jack on the test set. Connect the other end of the extension cable to the RF probe cable.

TEST SET SELECTOR SWITCH POSITIONS

| P-8500 & P-8501<br>SERIES<br>TEST SETS | 1                 | 2                | +4, -4           | 5               | 6                |
|----------------------------------------|-------------------|------------------|------------------|-----------------|------------------|
| TU546 SERIES<br>TEST SETS              | 1                 | 2                | 4                | 5               | 6                |
| CIRCUIT<br>METERED                     | 2nd (F<br>#3 Grid | 1st Lim.<br>Grid | Discr.<br>Output | Discr.<br>Input | 1st Osc.<br>Grid |

# HOW TO SET UP THE TU546 SERIES TEST SETS FOR DISCRIMINATOR AND 455 KC ALIGNMENT

- Set the function selector switch to the RCVR position.
- Connect the 20-pin metering cable into the receptacle on the test set. Plug the other end (11-pin) into the metering socket on the receiver.
- Connect one end of the test set r-f extension cable to the x-f connector on the test set. Connect the other end of the extension cable to the r-f probe cable.
- Place the oscillator and meter reversing switch to the 455 kc position.



HOW TO SET UP THE SIGNAL GENERATOR\* FOR 5.5 MC. I. F. ALIGNMENT

- Couple the signal generator output loosely to the grid (pin 7) of V105. Couple just enough input to give a small meter reading.
- Set the test set selector switch to position 4. Turn on test set.
- Set the signal generator frequency for approximately 5.5 mc.
- Locate the exact 5.5 mc point by rotating the generator dial back and forth around the 5.5 mc setting until you obtain a meter reading of exactly zero (position 4). The meter reading should go above and below zero as the dial is rotated. Leave the generator set for zero meter reading. Make sure the signal remains constant throughout the alignment (generator may drift).

\*Use Model T1034A Series or equivalent.

| STEP | STAGE, TEST CONDITIONS AND PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ALIGNMENT<br>FREQUENCY                            | ADJUSTMENT          | TU546<br>TEST SET<br>SWITCH<br>POSITION | METER<br>READING           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------|-----------------------------------------|----------------------------|
| 1    | DISCRIMINATOR PRIMARY—Solder a short jumper across terminals 4 and 5 of the discriminator secondary coil (see DETAIL A, lower left). Set up the Motorola Test Set as described in the left hand column. Place the test set selector switch in position 1 and set the ON-OFF switch to the ON position. Move the r-f probe around near pin 1, V106, until the meter reading is at least 15 ua. Secure the probe in its position and place the selector switch in position 5. Adjust T1 for maximum meter reading. Unsolder the jumper.                                                                                                                                                                                                                                     | 455 kc.,<br>sharp tuning                          | T1<br>bottom slug   | 5                                       | Maximum                    |
| 2    | DISCRIMINATOR SECONDARY—With the r-f probe placed as in step 1 adjust the top slug of T1 for exactly zero meter reading (selector switch in position 4).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 455 kc.,<br>sharp tuning                          | T1<br>top slug      | 4                                       | Zero                       |
| 3    | 455 KC. I-F COIL L16—Place the r-f probe near the input to the 455 kc i-f filter (see illustration). Couple the signal loosely so that an increase of signal strength will produce a linear increase in meter reading (switch in position 1 or 2). Secure the probe in position to keep the input at a constant level. Adjust L16 for a maximum meter reading with the switch in position 2.                                                                                                                                                                                                                                                                                                                                                                              | 455 kc.,<br>sharp tuning                          | L16                 | 2                                       | Maximum                    |
| 4    | 455 KC. I-F COIL L15—Couple the signal to the i-f filter so as to obtain a maximum reading of approximately 5 ua. with the selector switch in position 1. Adjust L15 for a maximum reading.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 455 kc.,<br>broad tuning                          | L15                 | 1                                       | Maximum                    |
| 5    | 455 KC. I-F COIL L14—Use the same conditions as in step 4. Adjust L14 for a maximum meter reading. Place the test set ON-OFF switch in the OFF position and remove the r-f probe.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 455 kc.,<br>sharp tuning                          | L14                 | 1                                       | Maximum                    |
| 6    | 5.5 MC I-F COILS L13, L12 and L11—Set up the Model T1034A Series Signal Generator (or equivalent) as described below the illustration. After adjusting the signal generator set the test set selector switch to position 1 or 2 and couple the generator output to the grid (pin 1) of V104. The signal must be coupled loosely so that an increase of signal strength produces a linear increase in meter reading (position 1 or 2). Adjust L13 for a maximum meter reading with switch in position 1 or 2, note that two peaks are present within the coil tuning range. The peak found when the slug is nearest the top of the coil (as viewed from bottom of chassis) is the proper alignment peak. Adjust L12 and L11 for a maximum meter reading (position 1 or 2). | 5.5 mc.,<br>sharp tuning                          | L13, L12<br>and L11 | 1 or 2                                  | Maximum                    |
| 7    | 5.5 MC. I-F COILS L10, L9 and L8—Follow the same procedure as in step 6 except couple the signal to the grid (pin 6) of V103 and adjust L10, L9 and L8; no double peaks will be found.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5.5 mc.,<br>sharp tuning                          | L10, L9<br>and L8   | 1 or 2                                  | Maximum                    |
| 8    | FIRST OSCILLATOR COIL L5—Uncouple the signal generator. Position the ceramic trimmer, C109, so that the screwdriver adjustment slot is parallel with the length of the receiver chassis (see illustration). Adjust coil L5 for a maximum meter reading with the selector switch in position 6. If 2-frequency, set F1-F2 switch on control head to F1 position while adjusting L5. Then place the F1-F2 switch in the F2 position while adjusting trimmer C205 in the same manner as C109 above. Adjust coil L201 for a maximum meter reading.                                                                                                                                                                                                                            | Receiver<br>crystal<br>frequency,<br>sharp tuning | L5<br>(L201)        | 6                                       | Maximum                    |
| 9    | FREQUENCY CHECK—Transmit the carrier frequency from the transmitter which this receiver is normally intended to receive. A zero meter reading indicates that the receiver is on frequency. Adjust trimmer C109 to obtain a zero meter reading. Check the final setting by rotating C109 back and forth while observing the meter. The reading should go above and below the zero point as the trimmer is rotated. Set C109 for exactly zero meter reading. On 2-frequency receivers, adjust C205 for the number 2 frequency.                                                                                                                                                                                                                                              | Carrier<br>frequency,<br>sharp tuning             | C109<br>(C205)      | 4                                       | Zero                       |
| 10   | MULTIPLIER COIL L7—The signal generator must be set for the exact carrier frequency to be received. To do this follow the procedure outlined below the illustration except select the carrier frequency instead of 5.5 mc. and couple the signal to pin 6 of V103 instead of pin 7, V105. With the generator output coupled loosely to pin 6, V103, adjust L7 for maximum meter reading (position 1 or 2).                                                                                                                                                                                                                                                                                                                                                                | Carrier<br>frequency,<br>sharp tuning             | L7                  | 1 or 2                                  | Maximum                    |
| 11   | RF COILS L4, L3 and L2—Keep the signal generator set for the carrier frequency as in step 10. Couple the signal loosely to the grid (pin 1) of V101. Adjust L4, L3 and L2 for maximum reading (position 1 or 2).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Carrier freq.,<br>sharp tuning                    | L4, L3<br>and L2    | 1 or 2                                  | Maximum                    |
| 12   | ANTENNA COIL L1—Connect the signal generator output to the antenna receptacle on the receiver chassis. Use a 6 db, 50 ohm, attenuation pad between the generator and the receiver input. Adjust L1 for maximum reading.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Carrier freq.,<br>sharp tuning                    | L1                  | 1 or 2                                  | Maximum                    |
| 13   | IGNITION NOISE ADJUSTMENT—Install the receiver in the vehicle. Start the vehicle engine and allow it to run while making the adjustments. Turn the receiver ON and allow it to warm up for five minutes. Radiate a carrier frequency signal from a transmitter, signal generator or test set (see test set instruction manual). The signal should be just strong enough to produce quieting (20 to 30 db). Turn VOLUME control on control head to normal usable level. Plug the test set metering cable into the METER receptacle on the receiver. Set the selector switch to position 2 and note the meter reading. Adjust coil L14 very slightly to reduce audible ignition noise. DO NOT reduce the meter reading more than one-half microampere.                      | Carrier<br>frequency,<br>slight adj.              | L14                 | 2                                       | Reduce<br>audible<br>noise |

RE INDICATED IN OHMS,  $\pm 10\%$ , 1/2 WATT  
TED, K = 1000 OHMS.

ARE INDICATED IN MICROMICROFARADS  
ATED.

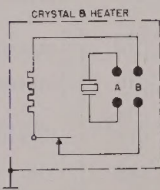
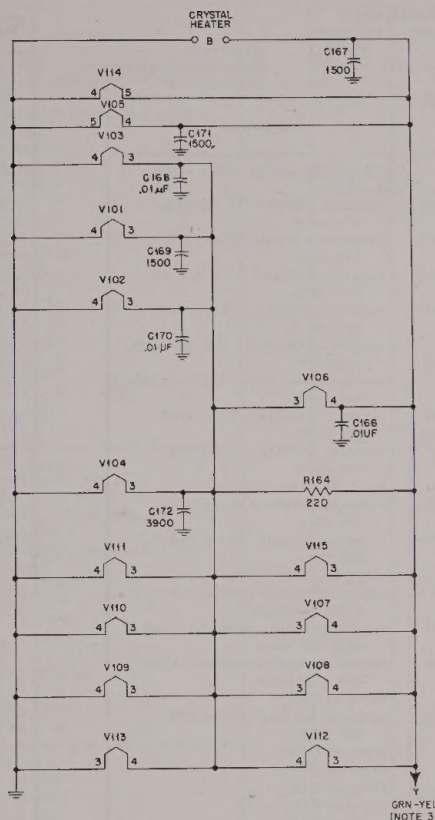
S.

WITH A VTVM (B+ = 200V) WITH SOUCEL AT  
WISE) AND DC VOLUME AT MAXIMUM (CLOCKWISE).

ER IN VALUE FOR THE VARIOUS RECEIVER MODELS  
IS APPLICABLE.

LE FOR SPECIFIC IDENTIFICATION.

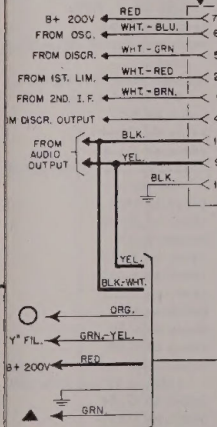
| MODELS     |         |                      |
|------------|---------|----------------------|
| TA235 W-L  | TA235 X | TRB1081AB/TA235 S-L  |
| TA235 W-M  |         | TRB1082AB/TA235 S-M  |
| TA235 W-H  |         | TRB1083AB/TA235 S-H  |
| TA235 W-HH |         | TRB1084AB/TA235 S-HH |
| TUNING     |         |                      |
| TUNING     | TUNING  | TUNING               |
| 18K        | 100K    |                      |
| 680        | 220     |                      |
| 560K       | 1MEG    |                      |
| 56K        | 180K    |                      |
| 56K        | 180K    |                      |



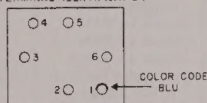
TO PIN 4  
(METER  
SOCKET)



J102  
METER  
SOCKET



T1  
TERMINAL IDENTIFICATION



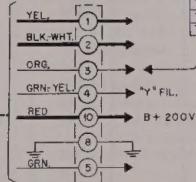
BOTTOM VIEW  
OF COILS



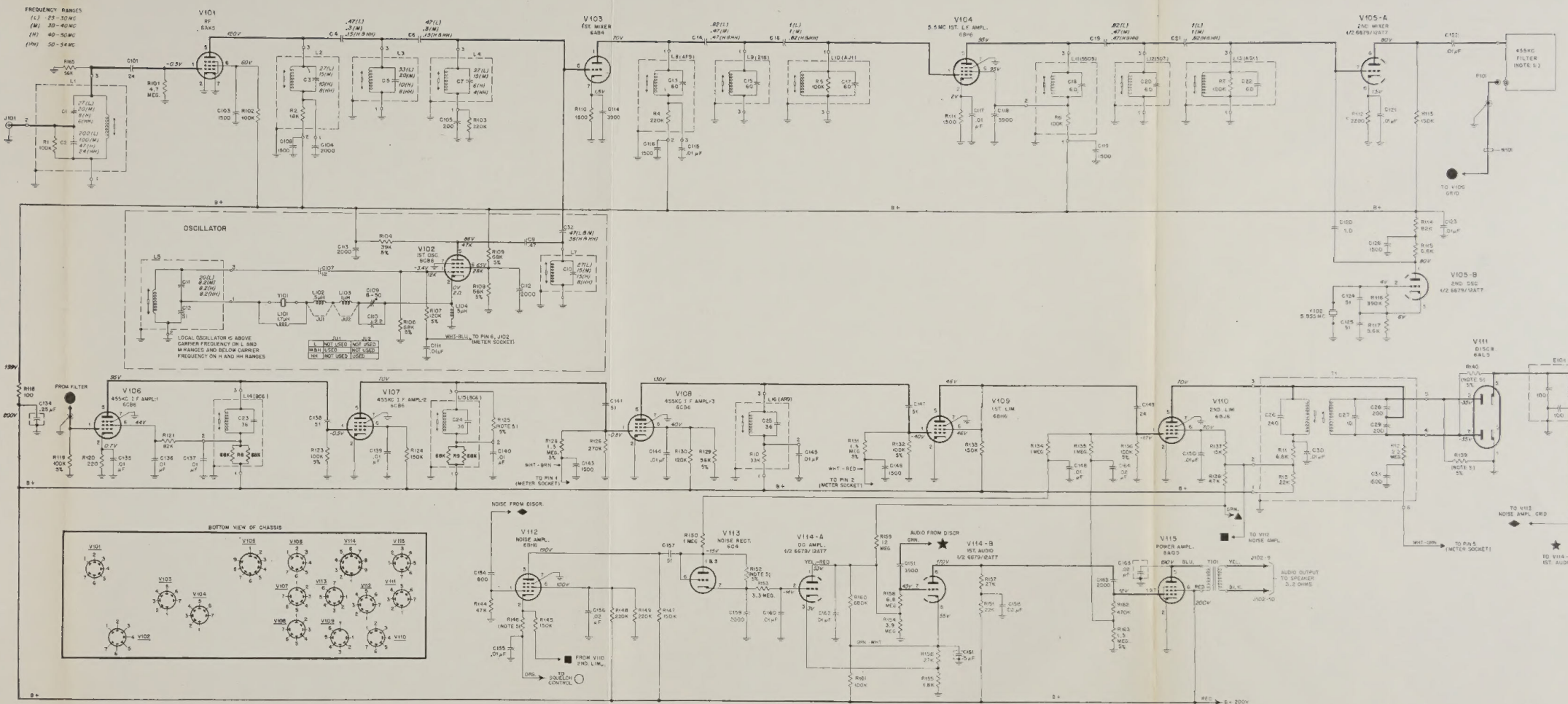
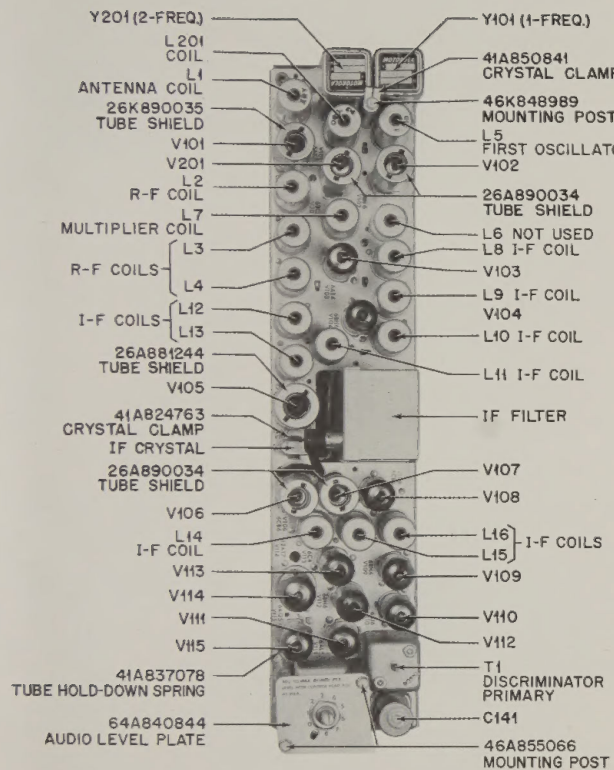
MODEL TABLE

| ONE - FREQUENCY      | CHASSIS<br>SUFFIX | FREQ-RANGE | CHANNEL<br>SPACING |
|----------------------|-------------------|------------|--------------------|
| TRB1081AA/TA235 W-L  | 3                 | 25 - 30 MC | 40 KC              |
| TRB1082AA/TA235 W-M  | 3                 | 30 - 40 MC | 40 KC              |
| TRB1083AA/TA235 W-H  | 3                 | 40 - 50 MC | 40 KC              |
| TRB1084AA/TA235 W-HH | 3                 | 50 - 64 MC | 40 KC              |
| TRB1081AB/TA235 S-L  | 3                 | 25 - 30 MC | 20 KC              |
| TRB1082AB/TA235 S-M  | 3                 | 30 - 40 MC | 20 KC              |
| TRB1083AB/TA235 S-H  | 3                 | 40 - 50 MC | 20 KC              |
| TRB1084AB/TA235 S-HH | 3                 | 50 - 64 MC | 20 KC              |
| TA235 X              | 2                 | 25 - 64 MC | 120 KC             |

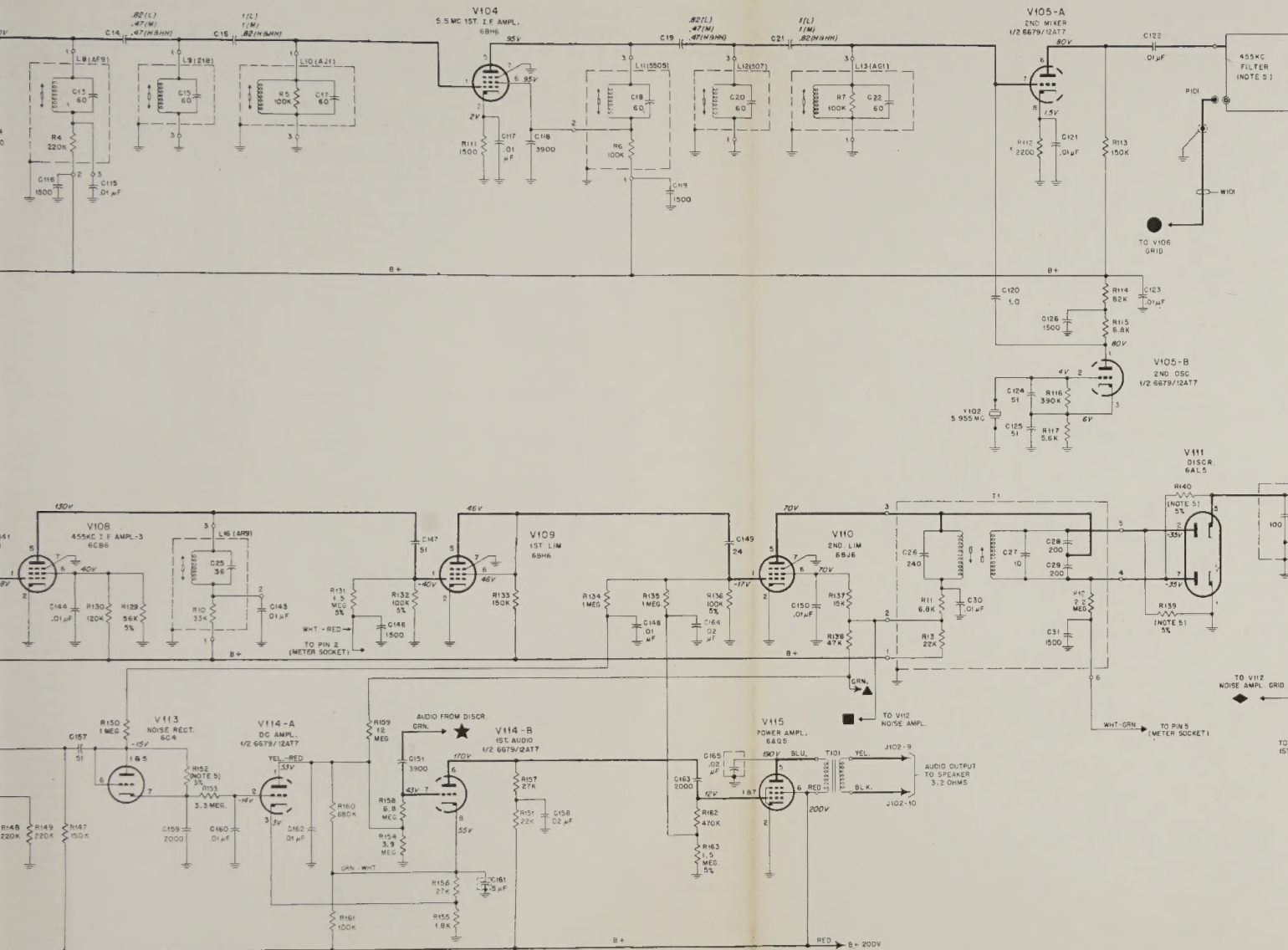
TERMINAL BOARD  
LOCATED ON POWER SUPPLY





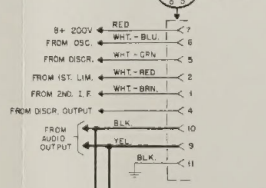
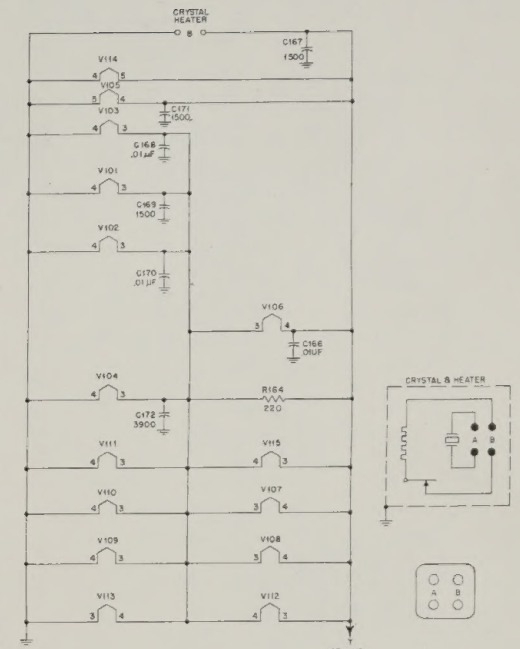






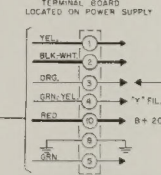
- NOTES:
1. ALL RESISTOR VALUES ARE INDICATED IN OHMS, 240 $\Omega$ , 1/2 WATT UNLESS OTHERWISE STATED. K=1000 OHMS.
  2. ALL CAPACITOR VALUES ARE INDICATED IN MICROMICROFARADS UNLESS OTHERWISE STATED.
  3. \*Y\* HEATER IS 12.6 VOLTS.
  4. ALL VOLTAGES MEASURED WITH A VTVM (8+ - 200V) WITH SQUELCH AT MINIMUM (COUNTERCLOCKWISE) AND DC VOLUME AT MAXIMUM (CLOCKWISE).
  5. COMPONENTS NOTED DIFFER IN VALUE FOR THE VARIOUS RECEIVER MODELS FOR WHICH THIS DIAGRAM IS APPLICABLE. REFER TO SPECIFIC IDENTIFICATION.

| COMPONENT    | MODELS                                                                                |        |                                                                                   |
|--------------|---------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|
|              | TRB1080A/TA235-W-L<br>TRB1080A/TA235-W-M<br>TRB1080A/TA235-W-H<br>TRB1080A/TA235-W-NH | TA235X | TRB1080B/TA235S-L<br>TRB1080B/TA235S-M<br>TRB1080B/TA235S-H<br>TRB1080B/TA235S-NH |
| 455KC FILTER | TU540W                                                                                | TU540X | TU540S                                                                            |
| R 125        | 8K                                                                                    | 15K    | 100K                                                                              |
| R 146        | 680                                                                                   | 680    | 220                                                                               |
| R 152        | 560K                                                                                  | 560K   | 1MEG                                                                              |
| R 139        | 56K                                                                                   | 56K    | 180K                                                                              |
| R 140        | 56K                                                                                   | 56K    | 180K                                                                              |



MODEL TABLE

| ONE-FREQUENCY       | CHASSIS | FREQ-RANGE | CHANNEL |
|---------------------|---------|------------|---------|
| TRB1080A/TA235-W-L  | 5       | 25-30 MC   | 40 KC   |
| TRB1080A/TA235-W-M  | 3       | 30-40 MC   | 40 KC   |
| TRB1080A/TA235-W-H  | 1       | 40-50 MC   | 40 KC   |
| TRB1080A/TA235-W-NH | 5       | 50-54 MC   | 40 KC   |
| TRB1080B/TA235S-L   | 3       | 25-30 MC   | 20 KC   |
| TRB1080B/TA235S-M   | 1       | 30-40 MC   | 20 KC   |
| TRB1080B/TA235S-H   | 3       | 40-50 MC   | 20 KC   |
| TRB1080B/TA235S-NH  | 5       | 50-54 MC   | 20 KC   |
| TA235X              | 5       | 25-30 MC   | 60 KC   |



ARE INDICATED IN OHMS,  $\pm 10\%$ , 1/2 WATT  
TED. K=1000 OHMS.

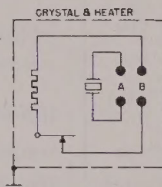
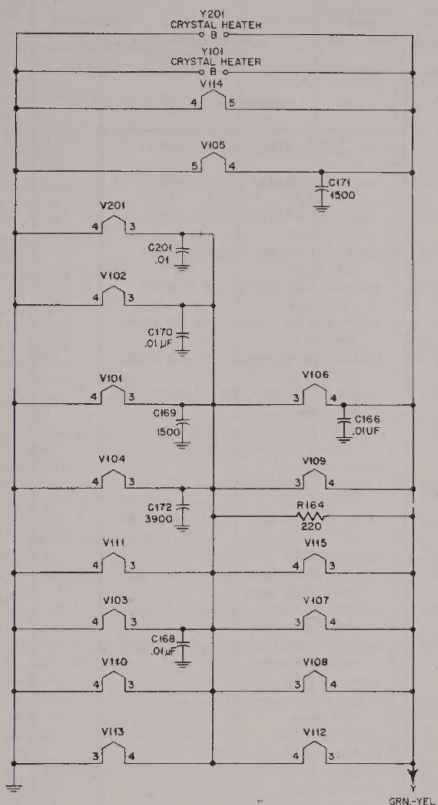
ARE INDICATED IN MICROMICROFARADS  
TED.

rs.

5. WITH A VTVM (8+  $\times$  200V) WITH SQUELCH AT  
(WISE) AND DC VOLUME AT MAXIMUM (CLOCKWISE).

ER IN VALUE FOR THE VARIOUS RECEIVER MODELS  
IS APPLICABLE  
BLE FOR SPECIFIC IDENTIFICATION.

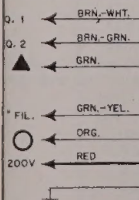
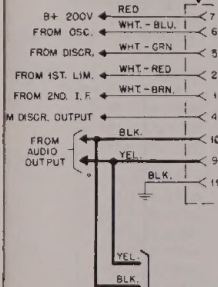
| MODELS   |                          |             |
|----------|--------------------------|-------------|
| 35W-R2-L | TRB (084D) / TA235S-R2-L | TA235X-R2-L |
| 35W-R2-M | TRB (084D) / TA235S-R2-M | TA235X-R2-M |
| 35W-R2-H | TRB (084D) / TA235S-R2-H | TA235X-R2-H |
|          | TU540S                   | TU540X      |
|          | 100K                     | 18K         |
|          | 220                      | 680         |
|          | 1MEG                     | 560K        |
|          | 180K                     | 56K         |
|          | 180X                     | 56K         |



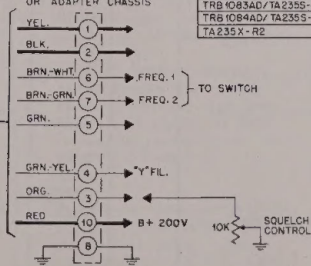
→ TO PIN-4  
(METER  
SOCKET)



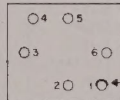
J102  
METER  
SOCKET



TERMINAL BOARD  
LOCATED ON POWER SUPPLY  
OR ADAPTER CHASSIS



74  
TERMINAL IDENTIFICATION



BOTTOM VIEW



| MODEL TABLE                |        |               |         |         |
|----------------------------|--------|---------------|---------|---------|
| TWO - FREQUENCY            | SUFFIX | FREQ. - RANGE | CHANNEL | SPACING |
| TRB1081AC / TA235W - R2-L  | 3      | 25 - 30 MC    | 40 KC   |         |
| TRB1082AC / TA235W - R2-M  | 3      | 30 - 40 MC    | 40 KC   |         |
| TRB1083AC / TA235W - R2-H  | 3      | 40 - 50 MC    | 40 KC   |         |
| TRB1084AC / TA235W - R2-HH | 3      | 50 - 54 MC    | 40 KC   |         |
| TRB1081AD / TA235S - R2-L  | 3      | 25 - 30 MC    | 20 KC   |         |
| TRB1082AD / TA235S - R2-M  | 3      | 30 - 40 MC    | 20 KC   |         |
| TRB1083AD / TA235S - R2-H  | 3      | 40 - 50 MC    | 20 KC   |         |
| TRB1084AD / TA235S - R2-HH | 3      | 50 - 54 MC    | 20 KC   |         |
| TA215G - R2                | 2      | 25 - 50 MC    | 120 KC  |         |

TRB1080/TA235 Two-Frequency Receiver  
Schematic Diagram  
Motorola No. 63E854953-G  
11/5/59-RCS



SCHEMATIC DIAGRAM PARTS LIST

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                           |
|------------------|-------------------|---------------------------------------------------------------------------------------|
|                  |                   | Reference: Schematic Diagram 68584952-2                                               |
| C1L              | 21R134440         | CAPACITOR, fixed, unless otherwise stated<br>ceramic, tubular, 27 uuf 45%<br>500 vdcw |
| C1M              | 21R474460         | ceramic, tubular, 20 uuf 45%<br>500 vdcw                                              |
| C1R              | 21R400075         | ceramic, tubular, 8 uuf 4.5 uuf<br>500 vdcw                                           |
| C1HM             | 21R400072         | ceramic, tubular, 8 uuf 4.5 uuf<br>500 vdcw                                           |
| C2L              | 21R2748           | molded silver mica, 200 uuf 40%<br>500 vdcw                                           |
| C2M              | 21R631            | molded silver mica, 100 uuf 40%<br>500 vdcw                                           |
| C2H              | 21R14153          | ceramic, tubular, 47 uuf 40%<br>500 vdcw                                              |
| C2H9             | 21R31493          | ceramic, tubular, 24 uuf 45%<br>500 vdcw                                              |
| C3L              | 21R475262         | ceramic, tubular, 15 uuf 45%<br>500 vdcw                                              |
| C3R              | 21R495002         | ceramic, tubular, 10 uuf 45%<br>500 vdcw                                              |
| C3HM             | 21R45994          | same as C1H<br>molded phenolic, tubular, 47 uuf 40%<br>500 vdcw                       |
| C4M              | 21R330201         | molded phenolic, tubular, 3 uuf 45%<br>500 vdcw                                       |
| C4H              | 21R381004         | molded phenolic, tubular, 15 uuf 45%<br>500 vdcw                                      |
| C4H9             | 21R120437         | ceramic, tubular, 33 uuf 45%<br>500 vdcw                                              |
| C5M              |                   | same as C1M                                                                           |
| C5H              |                   | same as C1H                                                                           |
| C5HM             |                   | same as C1H                                                                           |
| C6L              |                   | same as C4L                                                                           |
| C6M              |                   | same as C3M                                                                           |
| C6H              |                   | same as C3H                                                                           |
| C6HM             |                   | same as C3H                                                                           |
| C7L              |                   | same as C1L                                                                           |
| C7M              |                   | same as C3M                                                                           |
| C7H              |                   | same as C3H                                                                           |
| C7HM             | 21R40404          | same as C1HM<br>ceramic, tubular, 4 uuf 4.5 uuf<br>500 vdcw                           |
| C8               |                   | NOT USED                                                                              |
| C9               |                   | same as C4L                                                                           |
| C10L             |                   | same as C1L                                                                           |
| C10M             |                   | same as C3M                                                                           |
| C10H             |                   | same as C3H                                                                           |
| C10HM            |                   | same as C3H                                                                           |
| C11L             | 21R69334          | cer., disc, 20 uuf 40%<br>500 vdcw                                                    |
| C11M             | 21R647873         | cer., disc, 8 uuf 4.5 uuf<br>500 vdcw                                                 |
| C11H             |                   | same as C11M                                                                          |
| C11HM            |                   | same as C11M                                                                          |
| C12              | 21R640711         | molded silver mica, 51 uuf 40%<br>500 vdcw                                            |
| C13              | 21R404048         | ceramic, tubular, 40 uuf 40%<br>500 vdcw                                              |
| C14L             | 21R475479         | molded phenolic, tubular, 82 uuf 40%<br>500 vdcw                                      |
| C14M             |                   | same as C4L                                                                           |
| C14H             |                   | same as C4L                                                                           |
| C14HM            |                   | same as C4L                                                                           |
| C15L             | 21R3939           | molded, tubular, 1 uuf 4.2 uuf<br>500 vdcw                                            |
| C15M             |                   | same as C14L                                                                          |
| C15H             |                   | same as C14L                                                                          |
| C15HM            |                   | same as C14L                                                                          |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                  |
|------------------|-------------------|--------------------------------------------------------------|
| C17              |                   | same as C13                                                  |
| C18              |                   | same as C13                                                  |
| C19L             |                   | same as C14L                                                 |
| C19M             |                   | same as C4L                                                  |
| C19H             |                   | same as C3H                                                  |
| C19HM            |                   | same as C3H                                                  |
| C20L             |                   | same as C13                                                  |
| C21M             |                   | same as C10L                                                 |
| C21H             |                   | same as C14L                                                 |
| C21HM            |                   | same as C14L                                                 |
| C22              |                   | same as C13                                                  |
| C22L             | 21R77127          | ceramic, tubular, 36 uuf 45%<br>500 vdcw                     |
| C24              |                   | same as C23                                                  |
| C25              |                   | same as C23                                                  |
| C26              | 21R404048         | molded silver mica, 240 uuf 45%<br>500 vdcw                  |
| C27              | 21R408811         | ceramic, disc, 10 uuf 45%<br>500 vdcw                        |
| C28              | 21R408812         | molded silver mica, 200 uuf 45%<br>500 vdcw                  |
| C29              |                   | same as C28                                                  |
| C30              | 21R601139         | ceramic, disc, .01 uuf +80-20%<br>500 vdcw                   |
| C31              | 21R500801         | ceramic, disc, 1500 uuf G4V<br>+100% max., 500 vdcw          |
| C32L             |                   | same as C4L                                                  |
| C32M             |                   | same as C3M                                                  |
| C32H             | 21R42041          | molded phenolic, tubular, 36 uuf 40%<br>500 vdcw             |
| C32HM            |                   | same as C32H                                                 |
| C101             | 21R404365         | ceramic, disc, 24 uuf 45%<br>500 vdcw                        |
| C162             |                   | NOT USED                                                     |
| C163             | 21R500801         | ceramic, disc, 1500 uuf G4V<br>+100% max., 500 vdcw          |
| C164             | 21R437746         | ceramic, disc, 2000 uuf 40%<br>500 vdcw                      |
| C195             | 21R408812         | molded silver mica, phenolic coated, 200 uuf 40%<br>500 vdcw |
| C196             |                   | NOT USED                                                     |
| C197             | 21R47874          | ceramic, disc, 12 uuf 45%<br>500 vdcw, NPO                   |
| C198             |                   | same as C103                                                 |
| C199             | 20R40719          | variable air, 8 uuf min. to 50 uuf max.                      |
| C110             | 21R4247           | molded phenolic, tubular, 2 uuf 40%<br>500 vdcw              |
| C111             |                   | same as C30                                                  |
| C112             |                   | same as C104                                                 |
| C113             |                   | same as C104                                                 |
| C114             | 21R47596          | ceramic, disc, 3900 uuf 40%<br>500 vdcw                      |
| C115             |                   | same as C30                                                  |
| C116             |                   | same as C103                                                 |
| C117             |                   | same as C10                                                  |
| C118             |                   | same as C114                                                 |
| C119             |                   | same as C103                                                 |
| C120             |                   | same as C106                                                 |
| C121             |                   | same as C30                                                  |
| C122             |                   | same as C30                                                  |
| C123             |                   | same as C30                                                  |
| C124             | 21R404711         | molded silver mica, phenolic coated, 51 uuf 45%<br>500 vdcw  |
| C125             |                   | same as C124                                                 |
| C126             |                   | same as C103                                                 |
| C127             |                   | NOT USED                                                     |
| C128             |                   | NOT USED                                                     |
| C129             |                   | NOT USED                                                     |
| C130             |                   | NOT USED                                                     |
| C131             |                   | NOT USED                                                     |
| C132             |                   | NOT USED                                                     |
| C133             |                   | NOT USED                                                     |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                              |
|------------------|-------------------|------------------------------------------------------------------------------------------|
| C134             | 8A92986           | CAPACITOR, fixed, unless otherwise stated<br>oil filled, tubular, 25 uuf 40%<br>400 vdcw |
| C135             |                   | same as C30                                                                              |
| C136             |                   | same as C30                                                                              |
| C137             |                   | same as C30                                                                              |
| C138             |                   | same as C124                                                                             |
| C139             |                   | same as C30                                                                              |
| C140             |                   | same as C124                                                                             |
| C141             |                   | same as C124                                                                             |
| C142             |                   | NOT USED                                                                                 |
| C143             |                   | same as C103                                                                             |
| C144             |                   | same as C30                                                                              |
| C145             |                   | same as C103                                                                             |
| C146             |                   | same as C103                                                                             |
| C147             |                   | same as C103                                                                             |
| C148             |                   | same as C30                                                                              |
| C149             |                   | same as C101                                                                             |
| C150             |                   | same as C10                                                                              |
| C151             |                   | same as C14                                                                              |
| C152             | 21R467601         | molded silver mica, 1000 uuf 45%<br>500 vdcw                                             |
| C153             |                   | same as C103                                                                             |
| C154             | 21R404049         | molded silver mica, phenolic coated, 400 uuf 45%<br>500 vdcw                             |
| C155             |                   | same as C30                                                                              |
| C156             | 21R401029         | ceramic, disc, .02 uuf +80-20%<br>500 vdcw                                               |
| C157             |                   | same as C124                                                                             |
| C158             |                   | same as C156                                                                             |
| C159             |                   | same as C30                                                                              |
| C160             |                   | same as C30                                                                              |
| C161             | 21R406074         | electrolytic, tubular, 5 uuf 100-15%<br>150 vdcw                                         |
| C162             |                   | same as C10                                                                              |
| C163             |                   | same as C104                                                                             |
| C164             |                   | same as C104                                                                             |
| C165             | 8K5984            | oil filled, tubular, .03 uuf 40%<br>400 vdcw                                             |
| C166             |                   | same as C30                                                                              |
| C167             |                   | same as C103                                                                             |
| C168             |                   | same as C103                                                                             |
| C169             |                   | same as C30                                                                              |
| C170             |                   | same as C30                                                                              |
| C171             |                   | same as C103                                                                             |
| C172             |                   | same as C114                                                                             |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                                                                                                                        |
|------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C173             | 21R404726         | CAPACITOR, RESISTOR ASSEMBLY:<br>tubular, consisting of:<br>dual CAPACITOR, printed circuitly, silver paint on ceramic form, each section 100 uuf 350 vdcw<br>one RESISTOR, fixed, carbon, 47K 40% |
| C174             | 21R404726         | same as C173                                                                                                                                                                                       |
| C175             | 9A67120           | female, single contact, round molded mica filled phenolic base, for 1/8" diameter male pin connector                                                                                               |
| C176             | 9B86864           | female, 1 contact, polarized, round molded black plastic base, chassis mounted; does not include 42A61418 RING, connector resistor, which must be ordered separately                               |
| C177             | 24R404723         | CAPACITOR, fixed, carbon, unless otherwise stated<br>oil filled, tubular, 25 uuf 40%<br>400 vdcw                                                                                                   |
| C178             | 24R404723         | same as C177                                                                                                                                                                                       |
| C179             | 24R404723         | same as C177                                                                                                                                                                                       |
| C180             | 24R404723         | same as C177                                                                                                                                                                                       |
| C181             | 24R404723         | same as C177                                                                                                                                                                                       |
| C182             | 24R404723         | same as C177                                                                                                                                                                                       |
| C183             | 24R404723         | same as C177                                                                                                                                                                                       |
| C184             | 24R404723         | same as C177                                                                                                                                                                                       |
| C185             | 24R404723         | same as C177                                                                                                                                                                                       |
| C186             | 24R404723         | same as C177                                                                                                                                                                                       |
| C187             | 24R404723         | same as C177                                                                                                                                                                                       |
| C188             | 24R404723         | same as C177                                                                                                                                                                                       |
| C189             | 24R404723         | same as C177                                                                                                                                                                                       |
| C190             | 24R404723         | same as C177                                                                                                                                                                                       |
| C191             | 24R404723         | same as C177                                                                                                                                                                                       |
| C192             | 24R404723         | same as C177                                                                                                                                                                                       |
| C193             | 24R404723         | same as C177                                                                                                                                                                                       |
| C194             | 24R404723         | same as C177                                                                                                                                                                                       |
| C195             | 24R404723         | same as C177                                                                                                                                                                                       |
| C196             | 24R404723         | same as C177                                                                                                                                                                                       |
| C197             | 24R404723         | same as C177                                                                                                                                                                                       |
| C198             | 24R404723         | same as C177                                                                                                                                                                                       |
| C199             | 24R404723         | same as C177                                                                                                                                                                                       |
| C200             | 24R404723         | same as C177                                                                                                                                                                                       |

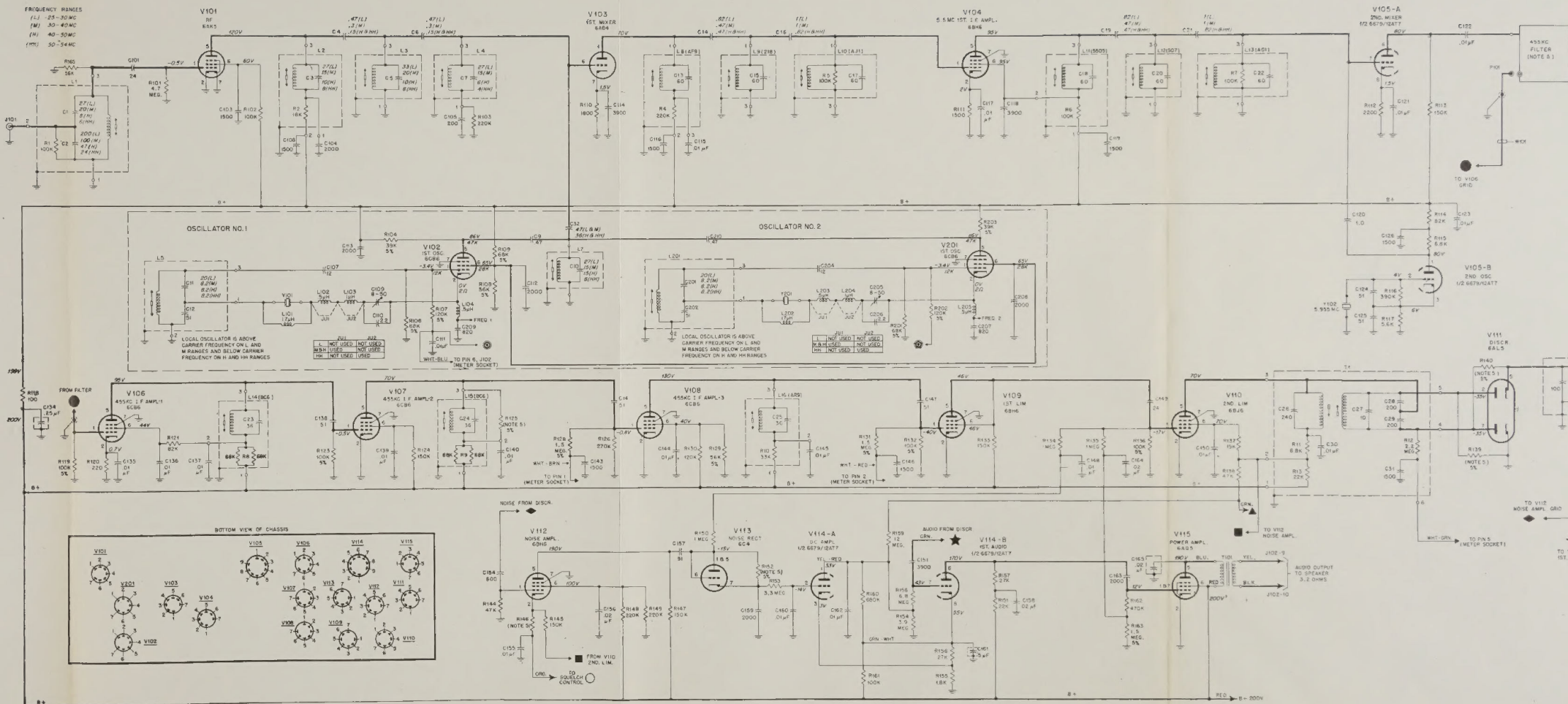
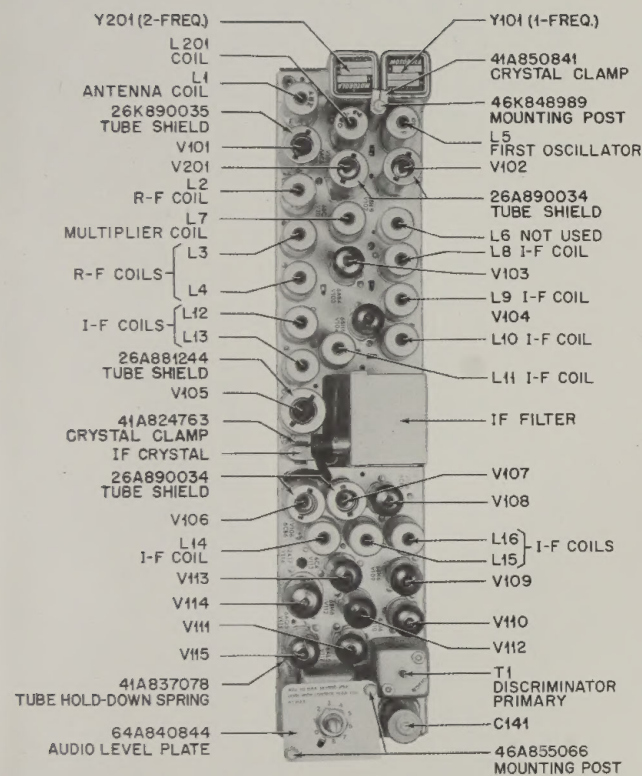
| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                      |
|------------------|-------------------|--------------------------------------------------------------------------------------------------|
| C201             | 24R404726         | CAPACITOR, fixed, carbon, unless otherwise stated<br>oil filled, tubular, 25 uuf 40%<br>400 vdcw |
| C202             | 24R404726         | same as C201                                                                                     |
| C203             | 24R404726         | same as C201                                                                                     |
| C204             | 24R404726         | same as C201                                                                                     |
| C205             | 24R404726         | same as C201                                                                                     |
| C206             | 24R404726         | same as C201                                                                                     |
| C207             | 24R404726         | same as C201                                                                                     |
| C208             | 24R404726         | same as C201                                                                                     |
| C209             | 24R404726         | same as C201                                                                                     |
| C210             | 24R404726         | same as C201                                                                                     |
| C211             | 24R404726         | same as C201                                                                                     |
| C212             | 24R404726         | same as C201                                                                                     |
| C213             | 24R404726         | same as C201                                                                                     |
| C214             | 24R404726         | same as C201                                                                                     |
| C215             | 24R404726         | same as C201                                                                                     |
| C216             | 24R404726         | same as C201                                                                                     |
| C217             | 24R404726         | same as C201                                                                                     |
| C218             | 24R404726         | same as C201                                                                                     |
| C219             | 24R404726         | same as C201                                                                                     |
| C220             | 24R404726         | same as C201                                                                                     |
| C221             | 24R404726         | same as C201                                                                                     |
| C222             | 24R404726         | same as C201                                                                                     |
| C223             | 24R404726         | same as C201                                                                                     |
| C224             | 24R404726         | same as C201                                                                                     |
| C225             | 24R404726         | same as C201                                                                                     |
| C226             | 24R404726         | same as C201                                                                                     |
| C227             | 24R404726         | same as C201                                                                                     |
| C228             | 24R404726         | same as C201                                                                                     |
| C229             | 24R404726         | same as C201                                                                                     |
| C230             | 24R404726         | same as C201                                                                                     |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION  |
|------------------|-------------------|--------------|
| C231             | 24R404726         | same as C201 |
| C232             | 24R404726         | same as C201 |
| C233             | 24R404726         | same as C201 |
| C234             | 24R404726         | same as C201 |
| C235             | 24R404726         | same as C201 |
| C236             | 24R404726         | same as C201 |
| C237             | 24R404726         | same as C201 |
| C238             | 24R404726         | same as C201 |
| C239             | 24R404726         | same as C201 |
| C240             | 24R404726         | same as C201 |
| C241             | 24R404726         | same as C201 |
| C242             | 24R404726         | same as C201 |
| C243             | 24R404726         | same as C201 |
| C244             | 24R404726         | same as C201 |
| C245             | 24R404726         | same as C201 |
| C246             | 24R404726         | same as C201 |
| C247             | 24R404726         | same as C201 |
| C248             | 24R404726         | same as C201 |
| C249             | 24R404726         | same as C201 |
| C250             | 24R404726         | same as C201 |
| C251             | 24R404726         | same as C201 |
| C252             | 24R404726         | same as C201 |
| C253             | 24R404726         | same as C201 |
| C254             | 24R404726         | same as C201 |
| C255             | 24R404726         | same as C201 |
| C256             | 24R404726         | same as C201 |
| C257             | 24R404726         | same as C201 |
| C258             | 24R404726         | same as C201 |
| C259             | 24R404726         | same as C201 |
| C260             | 24R404726         | same as C201 |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION  |
|------------------|-------------------|--------------|
| C261             | 24R404726         | same as C201 |
| C262             | 24R404726         | same as C201 |
| C263             | 24R404726         | same as C201 |
| C264             | 24R404726         | same as C201 |
| C265             | 24R404726         | same as C201 |
| C266             | 24R404726         | same as C201 |
| C267             | 24R404726         | same as C201 |
| C268             | 24R404726         | same as C201 |
| C269             | 24R404726         | same as C201 |
| C270             | 24R404726         | same as C201 |
| C271             | 24R404726         | same as C201 |
| C272             | 24R404726         | same as C201 |
| C273             | 24R404726         | same as C201 |
| C274             | 24R404726         | same as C201 |
| C275             | 24R404726         | same as C201 |
| C276             | 24R404726         | same as C201 |
| C277             | 24R404726         | same as C201 |
| C278             | 24R404726         | same as C201 |
| C279             | 24R404726         | same as C201 |
| C280             | 24R404726         | same as C201 |
| C281             | 24R404726         | same as C201 |
| C282             | 24R404726         | same as C201 |
| C283             | 24R404726         | same as C201 |
| C284             | 24R404726         | same as C201 |
| C285             | 24R404726         | same as C201 |
| C286             | 24R404726         | same as C201 |
| C287             | 24R404726         | same as C201 |
| C288             | 24R404726         | same as C201 |
| C289             | 24R404726         | same as C201 |
| C290             | 24R404726         | same as C201 |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION  |
|------------------|-------------------|--------------|
| C291             | 24R404726         | same as C201 |
| C292             | 24R404726         | same as C201 |
| C293             | 24R404726         | same as C201 |
| C294             | 24R404726         | same as C201 |
| C295             | 24R404726         | same as C201 |
| C296             | 24R404726         | same as C201 |
| C297             | 24R404726         | same as C201 |
| C298             | 24R404726         | same as C201 |
| C299             | 24R404726         | same as C201 |
| C300             | 24R404726         | same as C201 |
| C301             | 24R404726         | same as C201 |
| C302             | 24R404726         | same as C201 |
| C303             | 24R404726         | same as C201 |
| C304             | 24R404726         | same as C201 |
| C305             | 24R404726         | same as C201 |
| C306             | 24R404726         | same as C201 |
| C307             | 24R404726         | same as C201 |
| C308             | 24R404726         | same as C201 |
| C309             | 24R404726         | same as C201 |
| C310             | 24R404726         | same as C201 |
| C311             | 24R404726         | same as C201 |
| C312             | 24R404726         | same as C201 |
| C313             | 24R404726         | same as C201 |
| C314             | 24R404726         | same as C201 |
| C315             | 24R404726         | same as C201 |
| C316             | 24R404726         | same as C201 |
| C317             | 24R404726         | same as C201 |
| C318             | 24R404726         | same as C201 |
| C319             | 24R404726         | same as C201 |
| C320             | 24R404726         | same as C201 |









References  
Schematic Diagram  
63E854953-G

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                              |
|------------------|-------------------|----------------------------------------------------------|
|                  |                   | CAPACITOR, fixed, unless otherwise stated                |
| C17              |                   | same as C13                                              |
| C18              |                   | same as C13                                              |
| C19A             |                   | same as C14L                                             |
| C19M             |                   | same as C4L                                              |
| C19H             |                   | same as C4L                                              |
| C19H1            |                   | same as C4L                                              |
| C20              |                   | same as C13                                              |
| C21L             |                   | same as C16L                                             |
| C21M             |                   | same as C16L                                             |
| C21H             |                   | same as C16L                                             |
| C21H1            |                   | same as C16L                                             |
| C22              |                   | same as C13                                              |
| C23              | 21R87127          | ceramic, tubular, 36 uf ±5%; 500 vdc                     |
| C24              |                   | same as C23                                              |
| C25              |                   | same as C23                                              |
| C26              | 21KX40048         | molded silver mica; 240 uf ±5%, 500 vdc                  |
| C27              | 21KX40811         | ceramic, disc; 10 uf ±5%, 500 vdc                        |
| C28              | 21KX40812         | molded silver mica; 200 uf ±5%, 500 vdc                  |
| C29              |                   | same as C28                                              |
| C30              | 21B801139         | ceramic, disc; .01 uf ±20.2%, 600 vdc                    |
| C31              | 21B800801         | ceramic, disc; 1500 uf GMV ±100% max., 500 vdc           |
| C32L             |                   | same as C4L                                              |
| C32M             |                   | same as C4L                                              |
| C32H             | 21KX42041         | molded phenolic, tubular, 36 uf ±5%, 500 vdc             |
| C32H1            |                   | same as C32H                                             |
| C101             | 21KX40365         | ceramic, disc; 24 uf ±5%, 500 vdc                        |
| C102             |                   | NOT USED                                                 |
| C103             | 21B800801         | ceramic, disc; 1500 uf GMV ±100% max., 500 vdc           |
| C104             | 21KX37746         | ceramic, disc; 2000 uf ±10%, 500 vdc                     |
| C105             | 21KX41012         | molded silver mica; phenolic coated, 200 uf ±5%, 500 vdc |
| C106             |                   | NOT USED                                                 |
| C107             | 21KX47874         | ceramic, disc; 12 uf ±5%, 500 vdc, NFO                   |
| C108             |                   | same as C103                                             |
| C109             | 20D840719         | variable, air; 8 uf min. to 50 uf max.                   |
| C110             | 21KX4247          | molded phenolic, tubular, 2.2 uf ±10%, 500 vdc           |
| C111             |                   | same as C10                                              |
| C112             |                   | same as C104                                             |
| C113             |                   | same as C104                                             |
| C114             | 21KX37956         | ceramic, disc; 3900 uf ±10%, 500 vdc                     |
| C115             |                   | same as C10                                              |
| C116             |                   | same as C103                                             |
| C117             |                   | same as C10                                              |
| C118             |                   | same as C10                                              |
| C119             |                   | same as C114                                             |
| C120             |                   | same as C115                                             |
| C121             |                   | same as C10                                              |
| C122             |                   | same as C30                                              |
| C123             |                   | same as C10                                              |
| C124             | 21KX40711         | molded silver mica; phenolic coated; 51 uf ±5%, 500 vdc  |
| C125             |                   | same as C124                                             |
| C126             |                   | same as C103                                             |
| C127             |                   | NOT USED                                                 |
| C128             |                   | NOT USED                                                 |
| C129             |                   | NOT USED                                                 |
| C130             |                   | NOT USED                                                 |
| C131             |                   | NOT USED                                                 |
| C132             |                   | NOT USED                                                 |
| C133             |                   | NOT USED                                                 |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                                       |
|------------------|-------------------|-------------------------------------------------------------------------------------------------------------------|
|                  |                   | <b>CORE.</b>                                                                                                      |
| L1M              | 24K824732         | RF: Antenna, base stamped 722; includes 46K881276 CORE, 80 adjustable tuning; coded ORANGE dot and C1M, C2M, R1   |
| L1H              | 24K825514         | RF: Antenna, base stamped 514; includes 46K881276 CORE, 80 adjustable tuning; coded ORANGE dot and C1H, C2H, R1   |
| L1HH             | 24K881365         | RF: Antenna; base stamped 365; includes 46K881276 CORE, 80 adjustable tuning; coded ORANGE dot and C1HH, C2HH, R1 |
| L2L              | 24K831225         | RF: Plate, base stamped 225; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C1L, R2             |
| L2M              | 24K831224         | RF: Plate, base stamped 224; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C1M, R2             |
| L2H              | 24K825525         | RF: Plate, base stamped 225; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C1H, R2             |
| L2HH             | 24K881366         | RF: Plate, base stamped 366; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C1HH, R2            |
| L3L              | 24K8813221        | RF: Coupling, base stamped 221; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C5L              |
| L3M              | 24K8813220        | RF: Coupling, base stamped 220; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C5M              |
| L3H              | 24K825516         | RF: Coupling, base stamped 516; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C5H              |
| L3HH             | 24K825515         | RF: Coupling, base stamped 515; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C5H              |
| L4L              | 24K824726         | RF: Mixer Grid, base stamped 726; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C7L            |
| L4M              | 24K824736         | RF: Mixer Grid, base stamped 736; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C7M            |
| L4H              | 24K824724         | RF: Mixer Grid, base stamped 724; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C7H            |
| L4HH             | 24K881367         | RF: Mixer Grid, base stamped 367; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C7HH           |
| L5L              | 24B85584          | RF: Ist. Oscillator, base stamped 84; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C11L, C12  |
| L5M              | 24B847871         | RF: Ist. Oscillator, base stamped 871; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C11, C12  |

| REFERENCE<br>STANDARD | MATERIAL<br>PART No. | DESCRIPTION                                                           |
|-----------------------|----------------------|-----------------------------------------------------------------------|
|                       |                      | RESISTOR, fixed, carbon, unless<br>otherwise specified                |
| R9                    |                      | same as R8                                                            |
| R10                   | 6R4040               | 33K $\pm 10\%$ , 1/2 w. ins.                                          |
| R11                   | 6R4042               | 1.8K $\pm 10\%$ , 1/2 w. ins.                                         |
| R12                   | 6R4433               | 2.2 meg $\pm 10\%$ , 1/2 w. ins.                                      |
| R13                   | 6R4091               | 22K $\pm 10\%$ , 1/2 w. ins.                                          |
| R14                   | 6R4446               | 4.7 meg $\pm 10\%$ , 1/2 w. ins.                                      |
| R102                  |                      | same as R13                                                           |
| R103                  |                      | same as R4                                                            |
| R104                  |                      | 39K $\pm 5\%$ , 1/2 w. ins.                                           |
| R105                  | 6R40076              | NOT USED                                                              |
| R106                  | 6R4879               | 68K $\pm 5\%$ , 1/2 w. ins.                                           |
| R107                  | 6R4049               | 120K $\pm 5\%$ , 1/2 w. ins.                                          |
| R108                  | 6R40100A             | 56K $\pm 5\%$ , 1/2 w. ins.                                           |
| R109                  |                      | same as R106                                                          |
| R110                  | 6R2089               | 1.8K $\pm 10\%$ , 1/2 w. ins.                                         |
| R111                  | 6R6038               | 1.5K $\pm 10\%$ , 1/2 w. ins.                                         |
| R112                  | 6R6069               | 2.2K $\pm 10\%$ , 1/2 w. ins.                                         |
| R113                  | 6R6398               | 150K $\pm 10\%$ , 1/2 w. ins.                                         |
| R114                  | 6R5644               | 92K $\pm 10\%$ , 1/2 w. ins.                                          |
| R115                  |                      | same as R11                                                           |
| R116                  | 6R5646               | 390K $\pm 10\%$ , 1/2 w. ins.                                         |
| R117                  | 6R6117               | 5.6K $\pm 10\%$ , 1/2 w. ins.                                         |
| R118                  | 6R6326               | 100 ohm $\pm 10\%$ , 1/2 w. ins.                                      |
| R119                  | 6R5553               | 100K $\pm 5\%$ , 1/2 w. ins.                                          |
| R120                  | 6R6270               | NOT USED                                                              |
| R121                  |                      | same as R114                                                          |
| R122                  |                      | 220 ohm $\pm 10\%$ , 1/2 w. ins.                                      |
| R123                  |                      | same as R114                                                          |
| R124                  |                      | same as R115                                                          |
| R125                  |                      | same as R112                                                          |
| R126                  | 6R486095             | 18K $\pm 5\%$ , 1/2 w. ins.; used only in<br>TA235W-R2 and TA235X-R2  |
| R127                  | or 6R5553            | 100K $\pm 5\%$ , used only in TA235S-R2                               |
| R128                  | 6R4044               | 270K $\pm 10\%$ , 1/2 w. ins.                                         |
| R129                  |                      | NOT USED                                                              |
| R130                  | 6R400228             | 1 meg $\pm 5\%$ , 1/2 w. ins.                                         |
| R131                  |                      | same as R109                                                          |
| R132                  | 6R5531               | 120K $\pm 10\%$ , 1/2 w. ins.                                         |
| R133                  |                      | same as R125                                                          |
| R134                  |                      | same as R115                                                          |
| R135                  |                      | same as R113                                                          |
| R136                  | 6R6046               | 1 meg $\pm 10\%$ , 1/2 w. ins.                                        |
| R137                  |                      | same as R114                                                          |
| R138                  |                      | same as R115                                                          |
| R139                  | 6R4877               | 15K $\pm 10\%$ , 1/2 w. ins.                                          |
| R140                  | 6R5043               | 47K $\pm 10\%$ , 1/2 w. ins.                                          |
| R141                  | 6R40106              | 56K; used only in TA235W-R2<br>and TA235X-R2                          |
| R142                  | or 6R2061            | 180K $\pm 5\%$ ; used only in TA235S-R2                               |
| R143                  | 6R5773               | 620K $\pm 10\%$                                                       |
| R144                  | 16K845110            | variable; 200K $\pm 10\%$ , 1/2 w. ins.                               |
| R145                  |                      | same as R128                                                          |
| R146                  |                      | same as R138                                                          |
| R147                  |                      | same as R113                                                          |
| R148                  | 6R6049               | 680 ohm $\pm 10\%$ only in TA235W-R2<br>and TA235X-R2                 |
| R149                  | or 6R6270            | 220 ohm; used only in TA235S-R2                                       |
| R150                  |                      | same as R112                                                          |
| R151                  |                      | same as R4                                                            |
| R152                  |                      | same as R134                                                          |
| R153                  | 6R5796               | 540K $\pm 5\%$ , 1/2 w. ins.; used only<br>in TA235W-R2 and TA235X-R2 |
| R154                  | or 6R5587            | 1 megohm $\pm 10\%$ , 1/2 w. ins.;<br>used only in TA235S-R2          |
| R155                  | 6R4877               | 3.3 meg $\pm 10\%$ , 1/2 w. ins.                                      |
| R156                  | 6R49016              | 3.9 ohm $\pm 10\%$ , 1/2 w. ins.                                      |
| R157                  |                      | same as R110                                                          |
| R158                  | 6R6434               | 27K $\pm 10\%$ , 1/2 w. ins.                                          |
| R159                  |                      | same as R164                                                          |
| R160                  | 6R2097               | 6.8 meg $\pm 10\%$ , 1/2 w. ins.                                      |
| R161                  | 6R400334             | 12 meg $\pm 10\%$ , 1/2 w. ins.                                       |
| R162                  |                      | 680K                                                                  |

| REFERENCE SYMBOL                                                        | MOTOROLA PART No. | DESCRIPTION                                                                                    |
|-------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------|
| Y101                                                                    | 9K857506          | SOCKET, crystal female;<br>4 contact square, molded<br>black phenolic base, chassis<br>mounted |
| Y102                                                                    | 9K861367          | 2 contact, rectangular; black<br>phenolic base, chassis mounted                                |
| Components unique for Two-Frequency<br>Receiver Chassis are as follows: |                   |                                                                                                |
|                                                                         |                   | CAPACITOR, fixed, unless otherwise<br>stated                                                   |
| C201L                                                                   |                   | same as C11L                                                                                   |
| C201M                                                                   |                   | same as C11M                                                                                   |
| C201H                                                                   |                   | same as C11H                                                                                   |
| C201HH                                                                  |                   | same as C11HH                                                                                  |
| C202                                                                    |                   | same as C12                                                                                    |
| C203                                                                    |                   | NOT USED                                                                                       |
| C204                                                                    |                   | same as C107                                                                                   |
| C205                                                                    |                   | same as C108                                                                                   |
| C206                                                                    |                   | same as C110                                                                                   |
| C207                                                                    | 21B37745          | ceramic, disc; 820 $\mu$ F $\pm$ 10%,<br>50Vdc                                                 |
| C208                                                                    |                   | same as C104                                                                                   |
| C209                                                                    |                   | same as C207                                                                                   |
| C210                                                                    |                   | same as C4L                                                                                    |
|                                                                         |                   | COIL                                                                                           |
| L201L                                                                   |                   | same as L5L except includes<br>C201L, C202                                                     |
| L201M                                                                   |                   | same as L5M except includes<br>C201M, C202                                                     |
| L201H                                                                   |                   | same as L5H except includes<br>C201H, C202                                                     |
| L201HH                                                                  |                   | same as L5HH except includes<br>C201HH, C202                                                   |
| R202                                                                    |                   | same as R101                                                                                   |
| R203                                                                    |                   | same as R102                                                                                   |
| R204                                                                    |                   | same as R103                                                                                   |
| R205                                                                    |                   | same as R102                                                                                   |
|                                                                         |                   | RESISTOR, fixed; carbon, unless<br>otherwise stated                                            |
| R201                                                                    |                   | same as R105                                                                                   |
| R202                                                                    |                   | same as R107                                                                                   |
| R203                                                                    |                   | same as R104                                                                                   |
|                                                                         |                   | TUBE                                                                                           |
| V201                                                                    |                   | same as V102                                                                                   |
|                                                                         |                   | SOCKET, tube;                                                                                  |
| V201M                                                                   |                   | same as XV101                                                                                  |
|                                                                         |                   | SOCKET, crystal;                                                                               |
| Y201                                                                    |                   | same as XY101                                                                                  |
| TER                                                                     |                   |                                                                                                |
| TU5405                                                                  |                   | "PERMANAV" IF Filter;<br>36 KC Channel Spacing                                                 |
| TU540W                                                                  |                   | "PERMANAV" IF Filter;<br>60 KC Channel Spacing                                                 |
| TU540X                                                                  |                   | "PERMANAV" IF Filter;<br>120 KC Channel Spacing                                                |



[illegible]

## a. Audio Input and Amplifier Stage

Refer to the diagram below for a simplified illustration of the audio input circuit.

### (1) Circuit Paths

There are two circuit paths involved in the transmitter audio input circuit. These are: (a) microphone dc input, and, (b) microphone audio output.

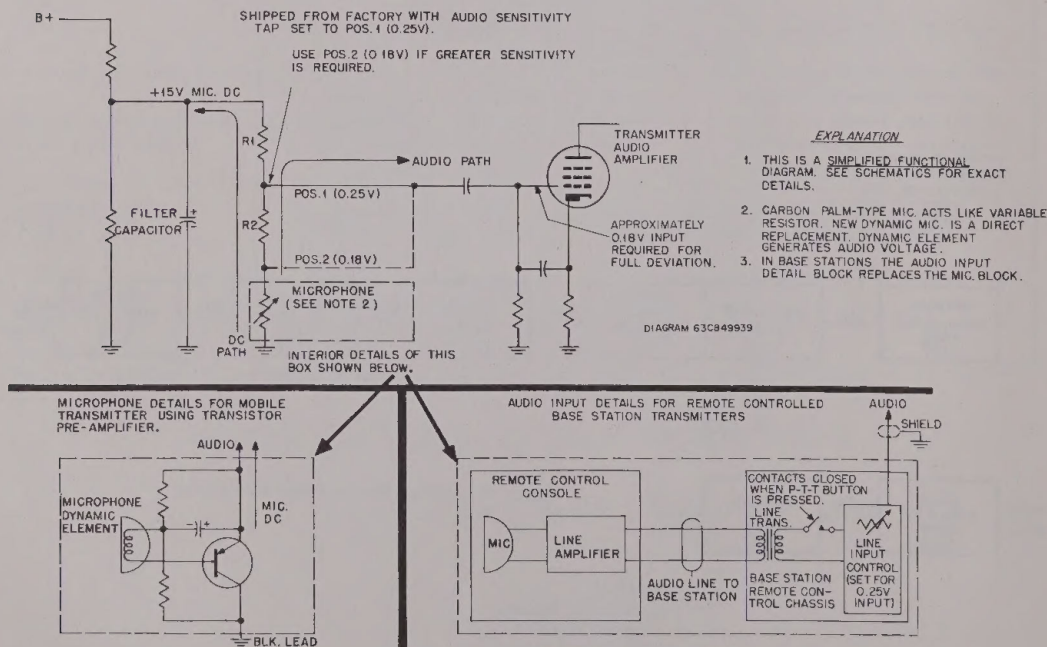
#### (a) Microphone Dc Input

The microphone dc input (called "talking current") is taken from a B+ voltage source in the transmitter. A resistor network drops the microphone dc voltage to approximately 15 volts dc. A relatively large capacitor is connected across the circuit to provide additional filtering. The dc path leads through two resistors, R1 and R2, to the microphone. These resistors drop the voltage to about 4 volts at the microphone input. The dc path leads through the microphone cartridge, returning to ground through the cable shield.

## (b) Microphone Audio Output

The microphone acts like a voltage generator in the circuit. Sound waves received by the microphone element vary the voltage in accordance with the voice frequency and intensity. This results in voltage changes at the microphone output as a person speaks into the microphone.

There are two "audio sensitivity" taps in the microphone output circuit. As it is shipped from the factory, the circuit is wired so that position 1 tap is used. The lower tap, position 2, connects the full output to the transmitter audio amplifier input. However, the currently produced MOTOROLA microphones develop a sufficiently high audio input level to provide full transmitter deviation across resistor R2. Placing the tap on the other side of R2 permits a lower microphone level to operate the transmitter. Generally speaking the position 1 tap is used for all base station and mobile applications in current production. The position 2 tap can be used if greater audio sensitivity is required in special applications.



SIMPLIFIED AUDIO INPUT



# PRE-ALIGNMENT NOTES

## EXCERPTS FROM FCC REGULATIONS

- Radio transmitters may be tuned or adjusted only by duly authorized radio operators or by personnel working directly under their supervision.
- The RF power output of a station shall be no more than required for satisfactory technical operation considering the area to be covered and the local conditions.

## TEST EQUIPMENT REQUIRED

- MOTOROLA Portable Test Set (P-8500 series, P-8501 series or TU546 series)
- MOTOROLA K-9322 Alignment Tool Kit
- MOTOROLA T1100A Series Frequency Monitor (for oscillator alignment and deviation adjustment)
- RF wattmeter or dummy antenna
- Power Supply (preferably the one designed for the transmitter under test)

## HOW TO SET UP THE P-8500 SERIES AND THE P-8501 SERIES TEST SETS

- Connect the dummy antenna or r-f wattmeter to the transmitter ANT. jack.
- Connect the test set cable plug to the transmitter METER jack.
- Place the test set REC. - XMTR. -0-50 UA switch in the XMTR. position.
- Place the GRID CURRENT-METER-FIELD STRENGTH switch in the METER position.
- Connect the power supply to the transmitter as shown on the intercabling diagram for the equipment.
- If the power supply chassis has a HI-LO switch place it in the LO position.
- Turn the equipment on. Allow 30 seconds for the tubes to warm up.

## HOW TO SET UP THE TU546 SERIES TEST SET

- Connect the dummy antenna or r-f wattmeter to the transmitter ANT. jack.
- Connect one end of the metering cable to the test set and the other end to the transmitter METER receptacle.
- Place the Function Selector Switch in the XMTR. position.
- Place the oscillator and meter reversing switch in the OFF position.
- Connect the power supply to the transmitter as shown on the intercabling diagram for the radio set.
- Place the HI-LO switch on the power supply in the LO position.
- Turn the equipment on. Allow 30 seconds for the tubes to warm up.

## TEST SET SWITCH POSITIONS

|                        |   |   |   |              |                  |                     |         |                  |              |
|------------------------|---|---|---|--------------|------------------|---------------------|---------|------------------|--------------|
| P-8500 & P-8501 Series | 1 | 2 | 3 | -4           | +4(PA)           | 5                   | 6       | 7                | 8            |
| TU546 Series           | 1 | 2 | 3 | 4            | 7                | 5                   | 6       | 9                | 10           |
| Circuit Metered        | — | — | — | Tripler Grid | PA Plate Current | Doubler Driver Grid | PA Grid | PA Plate Voltage | Push-to-Talk |

## HOW TO KEY THE TRANSMITTER

- Use the XMTR-ON switch of the test set to place the unmodulated carrier on the air for meter reading and adjustment.
- Use the MOTOROLA TU353A Microphone (or equivalent) to key the transmitter and modulate the carrier as required.

## CAUTION

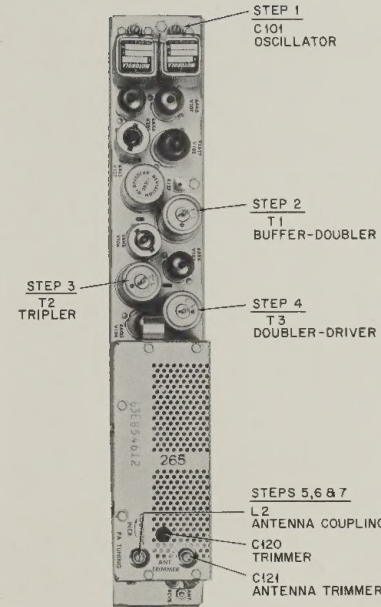
Do not key the transmitter for more than a few seconds at a time until it is properly tuned. Plate current is excessive in untuned stages and may damage the unit. Turn the transmitter on for brief periods while reading the meter and making the adjustments.

## FREQUENCY CALCULATIONS

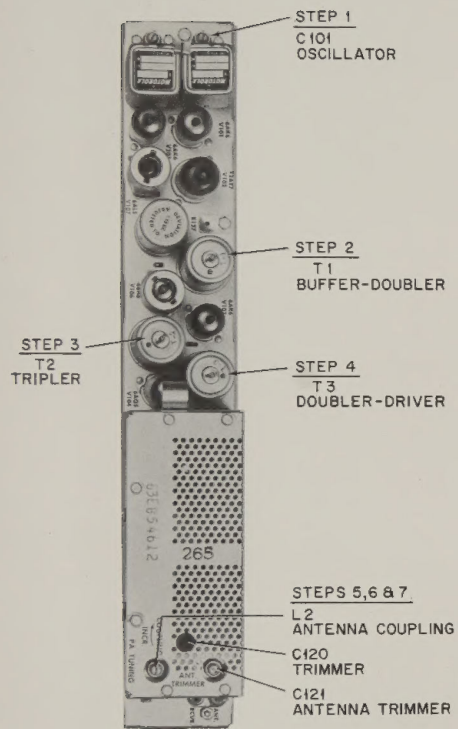
$$f_0 = \frac{f_c}{12} \text{ where: } f_0 = \text{crystal frequency, and } f_c = \text{carrier frequency}$$

## IDC CONTROL SETTING

- Set up T1100A Series Frequency Monitor for voice modulation measurement. (If an oscilloscope is available see text for IDC setting using the scope.)
- Turn transmitter on and modulate with 1000 cps tone.
- Adjust the IDC control (R127) on the transmitter chassis until the MODULATION DEVIATION meter on the station monitor reads as outlined in the following paragraphs.
  - When the transmitter is intended for operation on a 40 kc or 120 kc channel spacing, the IDC control should be adjusted for an approximate 17 kc reading on the station monitor MODULATION DEVIATION METER. Note that the MODULATION DEVIATION METER reads average voltage but is calibrated in peak voltage. The setting of 17 kc corresponds to a peak of 15 kc.
  - When the transmitter is intended for operation on a 20 kc channel spacing, the IDC control should be adjusted for an approximate 5-1/2 kc reading on the station monitor MODULATION DEVIATION METER.



| STEP | SWITCH POS. TEST SET | ADJUSTMENT     | METER READING                                                | STAGE, CONDITIONS AND PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------|----------------------|----------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    |                      | C101           | Maximum On-frequency                                         | OSCILLATOR. Place the HI-LO switch in the LO position. Adjust only when primary or secondary frequency standard is available (MOTOROLA T1100A Series may be used). Set up frequency monitor. Loosen locknut, adjust C101 for "on-frequency" reading on monitor. Tighten locknut.                                                                                                                                                                                                                                                                                                                                                                                  |
| 2    | 4                    | T1             | Maximum                                                      | BUFFER-DOUBLER. Adjust primary slug from bottom. Adjust secondary slug from top. The circuit frequency is two times the crystal frequency.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3    | 5                    | T2             | Maximum                                                      | TRIPLER. Adjust primary slug from bottom. Adjust secondary slug from top. The circuit frequency is six times the crystal frequency. Repeat T1 with the meter switch in position 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4    | 6                    | T3             | Maximum                                                      | DOUBLER-DRIVER. Adjust primary slug from bottom. Adjust secondary slug from top. Tune for a definite peak. The meter will always show the fixed bias in this position. A definite peak reading indicates proper alignment. The circuit frequency is twelve times the crystal frequency.                                                                                                                                                                                                                                                                                                                                                                           |
| 5    | 7                    | C120, C121     | Minimum (Dip)                                                | POWER AMPLIFIER. Loosen locknuts on C120 and C121. Set ANT. TRIMMER C121 for minimum plate current. Turn COUPLING adjustment (L2) fully counterclockwise (decoupled). Tune C120 for a dip. Set power supply HI-LO switch to HI.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 6    | 7                    | C121           | Maximum                                                      | ANTENNA INPUT. Adjust ANT. TRIMMER C121 for maximum meter reading.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 7    | 7                    | C120, C121, L2 | Maximum RF Output<br><br><b>NOTE</b><br>DO NOT EXCEED 150 ma | ANTENNA COUPLING. Remove test load and connect antenna.<br>1. Using field strength meter: Make adjustments with transmitter shielded as much as possible by housing. Place RF probe near antenna. Adjust C121 and COUPLING (L2) for maximum RF indication on meter. Do not exceed 150 ma.<br>2. Without field strength meter: Turn COUPLING (L2) counterclockwise, increasing gradually while retuning C120 for dip. Increase coupling until only a slight dip is apparent. DO NOT overcouple. This causes the dip to disappear and reduces power output. Recheck setting of C121. DO NOT EXCEED 150 ma. Repeat T1, T2 and T3. Tighten locknuts on C120 and C121. |



| STEP | SWITCH POS.<br>TU546<br>TEST SET | ADJUSTMENT           | METER<br>READING                                            | STAGE, CONDITIONS AND PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------|----------------------------------|----------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    |                                  | C101                 | Maximum<br>On-frequency                                     | OSCILLATOR. Place the HI-LO switch in the LO position. Adjust only when primary or secondary frequency standard is available (MOTOROLA T1100A Series may be used). Set up frequency monitor. Loosen locknut, adjust C101 for "on-frequency" reading on monitor. Tighten locknut.                                                                                                                                                                                                                                                                                                                                                                                        |
| 2    | 4                                | T1                   | Maximum                                                     | BUFFER-DOUBLER. Adjust primary slug from bottom. Adjust secondary slug from top. The circuit frequency is two times the crystal frequency.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 3    | 5                                | T2                   | Maximum                                                     | TRIPLER. Adjust primary slug from bottom. Adjust secondary slug from top. The circuit frequency is six times the crystal frequency. Repeak T1 with the meter switch in position 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 4    | 6                                | T3                   | Maximum                                                     | DOUBLER-DRIVER. Adjust primary slug from bottom. Adjust secondary slug from top. Tune for a definite peak. The meter will always show the fixed bias in this position. A definite peak reading indicates proper alignment. The circuit frequency is twelve times the crystal frequency.                                                                                                                                                                                                                                                                                                                                                                                 |
| 5    | 7                                | C120,<br>C121        | Minimum<br>(Dip)                                            | POWER AMPLIFIER. Loosen locknuts on C120 and C121. Set ANT. TRIMMER C121 for minimum plate current. Turn COUPLING adjustment (L2) fully counter-clockwise (decoupled). Tune C120 for a dip. Set power supply HI-LO switch to HI.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6    | 7                                | C121                 | Maximum                                                     | ANTENNA INPUT. Adjust ANT. TRIMMER C121 for maximum meter reading.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 7    | 7                                | C120,<br>C121,<br>L2 | Maximum RF<br>Output<br><br>NOTE<br>DO NOT EXCEED<br>150 ma | ANTENNA COUPLING. Remove test load and connect antenna.<br>1. Using field strength meter:<br>Make adjustments with transmitter shielded as much as possible by housing. Place RF probe near antenna. Adjust C121 and COUPLING (L2) for maximum RF indication on meter. Do not exceed 150 ma.<br>2. Without field strength meter:<br>Turn COUPLING (L2) counterclockwise, increasing gradually while retuning C120 for dip. Increase coupling until only a slight dip is apparent. DO NOT overcouple. This causes the dip to disappear and reduces power output. Recheck setting of C121. DO NOT EXCEED 150 ma. Repeak T1, T2 and T3. Tighten locknuts on C120 and C121. |

#### FINAL METER READINGS

Each time a transmitter is aligned or tested, final meter readings should be made and entered in a logbook.

All readings given in the table below are minimum except PA, which is maximum. DO NOT exceed the value given for the PA current. This is the maximum plate current to which the unit can be safely tuned.

Readings 1 through 6 are purely relative and do not give actual current or voltage measurement.

When using the P-8500 or the P-8501 series test sets, position 7 is a d-c voltmeter with 1000 volts full scale. Actual B+ reading is obtained by multiplying the microampere scale reading by 20. The TU546 series test sets have a 0-1000 volt d-c scale from which the B+ is read directly.

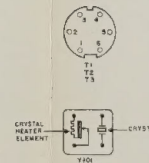
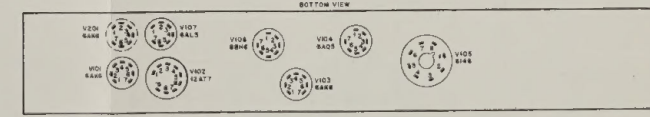
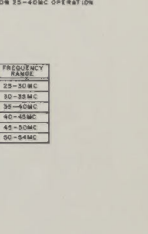
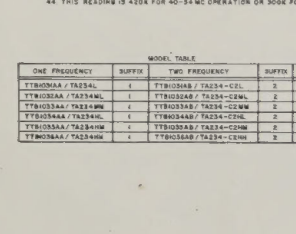
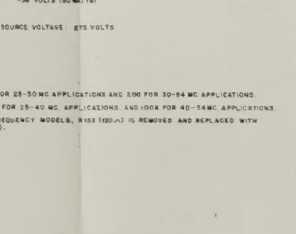
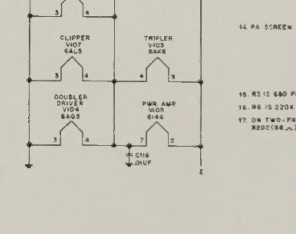
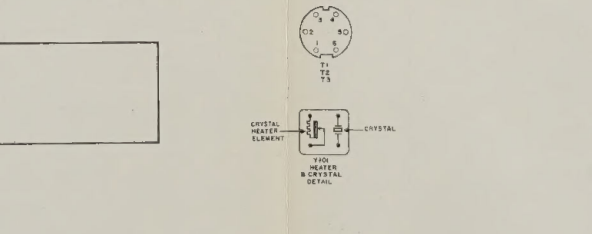
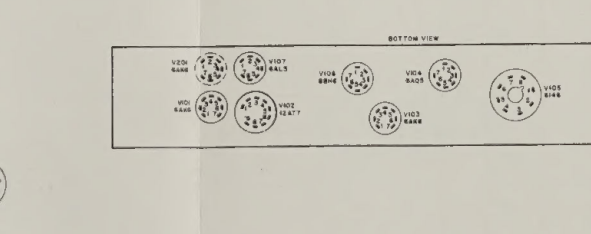
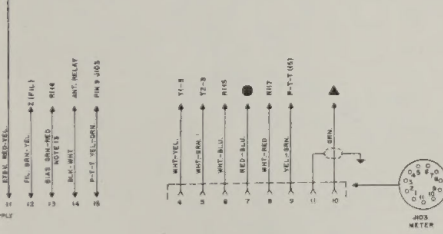
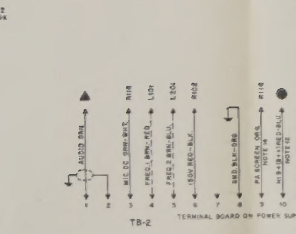
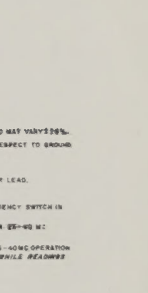
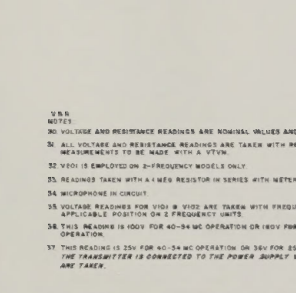
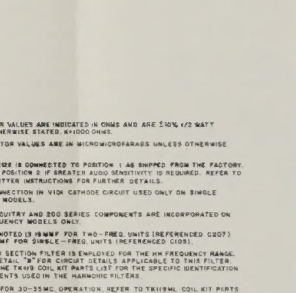
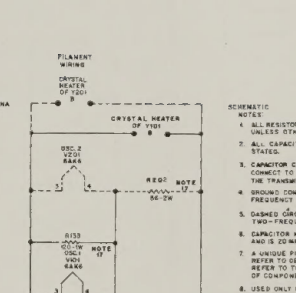
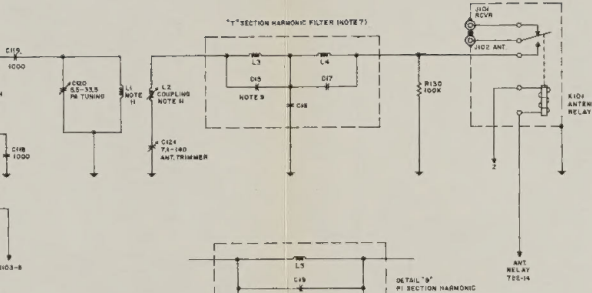
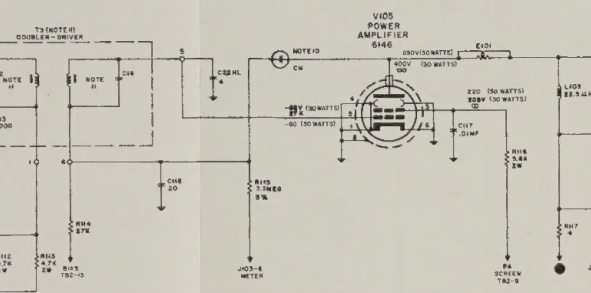
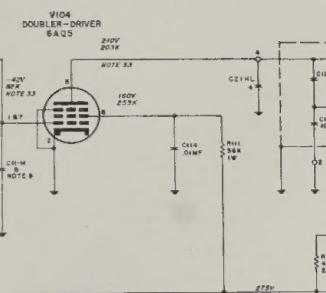
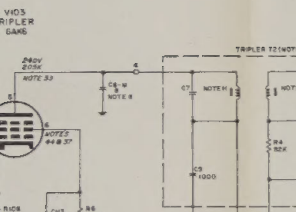
When using the P-8500 or the P-8501 series test sets, position 8 indicates d-c relay control voltage when the transmitter is not keyed. Multiply the microampere scale reading by 0.3 to obtain the actual value of the d-c voltage. When using the TU546 series test sets, the relay control voltage is read directly with the position selector switch in position 10.

For all three series portable test sets, multiply the scale reading by 5 to obtain the actual PA plate current in milliamperes.

| SWITCH<br>POSITION | P-8500 &<br>P-8501 SERIES | 1 | 2 | 3 | -4 | 5  | 6  | 7  | 8  | PA(+4) |
|--------------------|---------------------------|---|---|---|----|----|----|----|----|--------|
|                    | TU546 SERIES              | 1 | 2 | 3 | 4  | 5  | 6  | 9  | 10 | 7      |
| METER<br>READING   | 30 WATTS                  | - | - | - | 4  | 18 | 14 | 20 | -  | 30     |
|                    | 50 WATTS                  | - | - | - | 4  | 18 | 18 | 20 | -  | 25     |







- SCHEMATIC NOTES:
- ALL RESISTOR VALUES ARE INDICATED IN OHMS AND ARE 10% 1/2 WATT UNLESS OTHERWISE STATED. 4X1000 OHMS.
  - ALL CAPACITOR VALUES ARE IN MICROFARADS UNLESS OTHERWISE STATED.
  - CAPACITOR C20 IS CONNECTED TO POSITION 1 AS SHOWN FROM THE FACTORY. CONNECT TO POSITION 2 IF GREATER AUDIO SENSITIVITY IS REQUIRED. REFER TO THE TRANSMITTER INSTRUCTIONS FOR FURTHER DETAILS.
  - GROUND CONNECTION IN V104 CATHODE CIRCUIT USED ONLY ON SINGLE FREQUENCY MODELS.
  - DASHED CIRCUITRY AND 200 SERIES COMPONENTS ARE INCORPORATED ON TWO-FREQUENCY MODELS ONLY.
  - CAPACITOR C207 (3.9MMF) FOR TWO-FREQ. UNITS (REFERENCED C207) AND IS 10MMF FOR SINGLE-FREQ. UNITS (REFERENCED C103).
  - A UNIQUE PI SECTION FILTER IS EMPLOYED FOR THE LOW FREQUENCY RANGE. REFER TO DETAIL "B" FOR CIRCUIT DETAILS APPLICABLE TO THIS FILTER. REFER TO THE T-100 COIL KIT PARTS LIST FOR THE SPECIFIC IDENTIFICATION OF COMPONENTS USED IN THE HARMONIC FILTERS.
  - USED ONLY FOR 30-35MC OPERATION. REFER TO T-100 COIL KIT PARTS LIST.
  - C20 IS NOT USED ON T-100.
  - THIS SYMBOL INDICATES NEUTRALIZING CAPACITY INHERENT IN CIRCUIT.
  - REFER TO THE T-100 COIL KIT PARTS LIST FOR COMPONENT IDENTIFICATION.
  - H1-B (H1-A) 400 VOLTS (30 WATTS) 700 VOLTS (50 WATTS)
  - BIAS VOLTAGE: -25 VOLTS (30 WATTS) -35 VOLTS (50 WATTS)
  - THIS READING IS 420X FOR 40-34 MC OPERATION OR 300X FOR 35-40 MC OPERATION.
  - PA SCREEN SOURCE VOLTAGE: 275 VOLTS

| MODEL TABLE        |        |                        |        |                 |
|--------------------|--------|------------------------|--------|-----------------|
| ONE FREQUENCY      | SUFFIX | TWO FREQUENCY          | SUFFIX | FREQUENCY RANGE |
| TTB1030AA / TA234A | 1      | TTB1030AB / TA234A-C2L | 3      | 23-30 MC        |
| TTB1030AA / TA234A | 1      | TTB1030AB / TA234A-C2M | 2      | 30-35 MC        |
| TTB1030AA / TA234A | 1      | TTB1030AB / TA234A-C2W | 2      | 35-40 MC        |
| TTB1030AA / TA234A | 1      | TTB1030AB / TA234A-C2E | 2      | 40-45 MC        |
| TTB1030AA / TA234A | 1      | TTB1030AB / TA234A-C2H | 2      | 45-50 MC        |
| TTB1030AA / TA234A | 1      | TTB1030AB / TA234A-C2N | 2      | 50-54 MC        |



## SCHEMATIC DIAGRAM PARTS LIST

Reference:  
Schematic Diagram  
63E854612-E

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                      |
|------------------|-------------------|--------------------------------------------------|
|                  |                   | <b>CAPACITOR, fixed:</b> unless otherwise stated |
| C1L              | 21K813512         | ceramic; rectangular; 68 uuf ±10%; 450 vdcw      |
| C1ML             | 21K2733           | molded silver mica; 30 uuf ±10%; 500 vdcw        |
| C1HML            | 21K2768           | molded silver mica; 20 uuf ±10%; 500 vdcw        |
| C1HMM            | 21R38223          | ceramic; tubular; 10 uuf ±5%; 500 vdcw           |
| C1HH             | 21R482328         | NOT USED                                         |
| C2L              | 21R482328         | ceramic; tubular; 30 uuf ±5%; 500 vdcw           |
| C2ML             | 21K86392          | ceramic; tubular; 16 uuf ±.75 uuf 500 vdcw       |
| C2MM             |                   | same as C2ML                                     |
| C2HL             | 21R470324         | ceramic; tubular; 6 uuf ±1 uuf; 500 vdcw         |
| C2HM             |                   | same as C2HL                                     |
| C2H              |                   | NOT USED                                         |
| C3L              |                   | same as C2L                                      |
| C3ML             |                   | same as C2ML                                     |
| C3MM             |                   | same as C2ML                                     |
| C3HL             |                   | same as C2HL                                     |
| C3HM             |                   | same as C2HL                                     |
| C3H              |                   | NOT USED                                         |
| C4               | 21K6638           | molded mica; 1000 uuf ±20%; 300 vdcw             |
| C5               |                   | same as C4                                       |
| C6L              |                   | NOT USED                                         |
| C6ML             | 21R892897         | ceramic; tubular; 8 uuf ±.5 uuf; 500 vdcw        |
| C6MM             |                   | NOT USED                                         |
| C6HL             |                   | NOT USED                                         |
| C6HM             |                   | NOT USED                                         |
| C6H              |                   | NOT USED                                         |
| C7L              |                   | same as C6ML                                     |
| C7ML             |                   | NOT USED                                         |
| C7MM             |                   | NOT USED                                         |
| C7HL             | 21K2753           | molded silver mica; 3.3 uuf ±.5 uuf; 500 vdcw    |
| C7HM             |                   | same as C7HL                                     |
| C7H              |                   | NOT USED                                         |
| C8L              | 21R891167         | ceramic; tubular; 12 uuf ±5%; 500 vdcw           |
| C8ML             |                   | NOT USED                                         |
| C8MM             |                   | NOT USED                                         |
| C8HL             |                   | NOT USED                                         |
| C8HM             |                   | same as C7HL                                     |
| C8H              |                   | NOT USED                                         |
| C9               |                   | same as C4                                       |
| C10              |                   | same as C4                                       |
| C11L             |                   | NOT USED                                         |
| C11ML            |                   | same as C6ML                                     |
| C11MM            |                   | NOT USED                                         |
| C11HL            |                   | NOT USED                                         |
| C11HM            |                   | NOT USED                                         |
| C11H             |                   | NOT USED                                         |
| C12L             |                   | same as C2ML                                     |
| C12ML            |                   | NOT USED                                         |
| C12MM            |                   | NOT USED                                         |
| C12HL            |                   | NOT USED                                         |
| C12HM            |                   | NOT USED                                         |
| C12H             |                   | NOT USED                                         |
| C13              |                   | same as C4                                       |
| C14L             |                   | same as C1HM                                     |
| C14ML            |                   | NOT USED                                         |
| C14MM            |                   | NOT USED                                         |
| C14HL            |                   | NOT USED                                         |
| C14HM            |                   | NOT USED                                         |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                               |
|------------------|-------------------|-----------------------------------------------------------------------------------------------------------|
|                  |                   | <b>CAPACITOR, fixed:</b> unless otherwise stated                                                          |
| C14HM            | 21K474952         | NOT USED                                                                                                  |
| C15L             |                   | ceramic; tubular; 4 uuf ±.5 uuf; 500 vdcw                                                                 |
| C15ML            | 21A478274         | molded; tubular; 2.2 uuf ±20%; 500 vdcw                                                                   |
| C15MM            |                   | same as C15ML                                                                                             |
| C15H             |                   | NOT USED                                                                                                  |
| C15HM            |                   | same as C15L                                                                                              |
| C15HH            |                   | NOT USED                                                                                                  |
| C16L             | 21K410062         | molded silver mica; 170 uuf ±5%; 500 vdcw                                                                 |
| C16ML            | 21R6596           | molded silver mica; 150 uuf ±5%; 500 vdcw                                                                 |
| C16MM            | 21K410061         | molded silver mica; 130 uuf ±5%; 500 vdcw                                                                 |
| C16HL            | 21K410060         | molded silver mica; 110 uuf ±5%; 500 vdcw                                                                 |
| C16HM            |                   | same as C16HL                                                                                             |
| C16HH            |                   | NOT USED                                                                                                  |
| C17L             | 21R38932          | ceramic; tubular; 24 uuf ±5%; 500 vdcw                                                                    |
| C17ML            | 21R474330         | ceramic; tubular; 20 uuf ±5%; 500 vdcw                                                                    |
| C17MM            |                   | same as C17L                                                                                              |
| C17HL            |                   | same as C17ML                                                                                             |
| C17HM            |                   | same as C17ML                                                                                             |
| C17H             |                   | NOT USED                                                                                                  |
| C18L             |                   | NOT USED                                                                                                  |
| C18ML            |                   | NOT USED                                                                                                  |
| C18MM            |                   | NOT USED                                                                                                  |
| C18HL            |                   | NOT USED                                                                                                  |
| C18HM            |                   | NOT USED                                                                                                  |
| C18HH            | 21K803468         | molded silver mica; 40 uuf ±3%; 500 vdcw                                                                  |
| C19L             |                   | NOT USED                                                                                                  |
| C19ML            |                   | NOT USED                                                                                                  |
| C19MM            |                   | NOT USED                                                                                                  |
| C19H             |                   | NOT USED                                                                                                  |
| C19HM            |                   | NOT USED                                                                                                  |
| C20L             |                   | NOT USED                                                                                                  |
| C20ML            |                   | NOT USED                                                                                                  |
| C20MM            |                   | NOT USED                                                                                                  |
| C20HL            |                   | NOT USED                                                                                                  |
| C20HM            |                   | NOT USED                                                                                                  |
| C20H             |                   | same as C19HH                                                                                             |
| C21L             |                   | NOT USED                                                                                                  |
| C21ML            |                   | NOT USED                                                                                                  |
| C21MM            |                   | NOT USED                                                                                                  |
| C21HL            |                   | same as C15L                                                                                              |
| C21HM            |                   | NOT USED                                                                                                  |
| C21H             |                   | NOT USED                                                                                                  |
| C22L             |                   | NOT USED                                                                                                  |
| C22ML            |                   | NOT USED                                                                                                  |
| C22MM            |                   | NOT USED                                                                                                  |
| C22HL            |                   | same as C15L                                                                                              |
| C22HM            |                   | NOT USED                                                                                                  |
| C22H             |                   | NOT USED                                                                                                  |
| C101             | 19A830230         | variable; air; 4.1 uuf min. -21.9 uuf max.                                                                |
| C102             |                   | same as C8L                                                                                               |
| C103             | 21K840047         | dipped silver mica; 150 uuf ±5%; 500 vdcw                                                                 |
| C104             | 21K837746         | ceramic; disc; 2000 uuf ±10%; 500 vdcw                                                                    |
| C105             | 21K2768           | molded silver mica; 20 uuf ±10%; 500 vdcw; used only in 1-freq. model; replace with C207 in 2-freq. model |
| C106             | 21R83198          | ceramic; tubular; 51 uuf ±5%; 500 vdcw                                                                    |
| C107             |                   | same as C7HL                                                                                              |
| C108             | 21B800801         | ceramic; disc; .0015 uF GMV +100% max; 500 vdcw                                                           |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                               |
|------------------|-------------------|-----------------------------------------------------------------------------------------------------------|
|                  |                   | <b>CAPACITOR, fixed:</b> unless otherwise stated                                                          |
| C109             | 23K892117         | electrolytic; tubular; 3 section; consisting of: 20 uF +100-10%; 25 vdcw; 1.1HM                           |
| C109A            |                   | same as C109                                                                                              |
| C109B            |                   | RF; output coupling; 4-1/2 turns                                                                          |
| C109C            |                   | RF; output coupling; 3-1/2 turns                                                                          |
| C110             | 21A801139         | ceramic; disc; .01 uF +80-20%; 600 vdcw                                                                   |
| C111             |                   | same as C110                                                                                              |
| C112             | 21K845214         | dipped silver mica; 510 uuf ±5%; 500 vdcw                                                                 |
| C113             |                   | same as C108                                                                                              |
| C114             |                   | same as C110                                                                                              |
| C115             |                   | same as C105                                                                                              |
| C116             |                   | same as C110                                                                                              |
| C117             |                   | same as C116                                                                                              |
| C118             | 21K2727           | molded mica; 1000 uuf ±20%; 2000 vdcw                                                                     |
| C119             |                   | same as C118                                                                                              |
| C120             | 19B830246         | variable; air; 5.5 uuf min. -33.5 uuf max.                                                                |
| C121             | 19A830291         | variable; air; 7.1 uuf min. -140 uuf max.                                                                 |
| C122             |                   | same as C110                                                                                              |
| C123             | 23K890624         | electrolytic; tubular; 1 section; 5 uF +100-15%; 150 vdcw                                                 |
| C124             | 21B401029         | ceramic; disc; .02 uF +80-20%; 600 vdcw                                                                   |
| C125             |                   | same as C124                                                                                              |
| C126             | 8K836753          | oil filled; tubular; .0025 uF ±10% 100 vdcw                                                               |
| C127             |                   | NOT USED                                                                                                  |
| C128             |                   | same as C124                                                                                              |
| C129             | 21K6720           | molded silver mica; 390 uuf ±5%; 500 vdcw                                                                 |
| C130             |                   | same as C110                                                                                              |
| C131             | 21R410115         | ceramic; disc; 220 uuf ±20%; 500 vdcw                                                                     |
| C132             |                   | same as C110                                                                                              |
| C201             |                   | same as C108                                                                                              |
| C202             |                   | same as C101                                                                                              |
| C203             |                   | same as C8L                                                                                               |
| C204             |                   | same as C108                                                                                              |
| C205             |                   | same as C103                                                                                              |
| C206             | 23K857384         | electrolytic; tubular; 5 uF ±100-10%; 50 vdcw                                                             |
| C207             | 21R41867          | ceramic; tubular; 15 uuf ±5%; 500 vdcw; replaces C105 (20 uuf) in One-Freq. Operation                     |
| C208             |                   | same as C206                                                                                              |
|                  |                   | <b>SUPPRESSOR</b>                                                                                         |
| E101             | 6A832263          | parasitic                                                                                                 |
|                  |                   | <b>CONNECTORS</b>                                                                                         |
| J101             | 9A87120           | receptacle; female; single contact; round molded mica filled phenolic base; chassis mounted; RECIVER      |
| J102             |                   | same as J101 except connects to ANTENNA                                                                   |
| J103             | 9A880881          | receptacle; female; 11 contact; polarized; round molded mica filled phenolic base; saddle mounting; METER |
| K101             | 59K854405         | <b>RELAY</b><br>Armature: non-coaxial; contact arrangement; 1 form "C"                                    |
| L1L              | 24K832226         | <b>COIL</b><br>RF; tank; 7-1/2 turns                                                                      |
| L1ML             | 24K832077         | RF; tank; 5-1/2 turns                                                                                     |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                             |
|------------------|-------------------|---------------------------------------------------------|
|                  |                   | <b>COIL</b>                                             |
| L1MM             |                   | same as L1ML                                            |
| L1HL             | 24A832225         | RF; tank; 3-1/2 turns                                   |
| L1HM             |                   | same as L1HL                                            |
| L1H              |                   | same as L1HL                                            |
| L2L              | 24K832476         | RF; output coupling; 4-1/2 turns                        |
| L2ML             | 24K832249         | RF; output coupling; 3-1/2 turns                        |
| L2MM             |                   | same as L2ML                                            |
| L2HL             | 24A830195         | RF; output coupling; 2-1/2 turns                        |
| L2HM             |                   | same as L2HL                                            |
| L2H              |                   | RF; output coupling; 3-1/2 turns                        |
| L3L              | 24K810403         | RF; harmonic filter; 8 turns                            |
| L3ML             | 24K810402         | RF; harmonic filter; 7 turns                            |
| L3MM             | 24K810401         | RF; harmonic filter; 6 turns                            |
| L3HL             | 24B810400         | RF; harmonic filter; 5 turns                            |
| L3HM             | 24K832224         | RF; harmonic filter; 4 turns                            |
| L3HH             |                   | NOT USED                                                |
| L4L              |                   | same as L3L                                             |
| L4ML             |                   | same as L3ML                                            |
| L4MM             |                   | same as L3MM                                            |
| L4HL             |                   | same as L3HL                                            |
| L4HM             |                   | same as L3HM                                            |
| L4H              |                   | NOT USED                                                |
| L5L              |                   | NOT USED                                                |
| L5ML             |                   | NOT USED                                                |
| L5MM             |                   | NOT USED                                                |
| L5HL             |                   | NOT USED                                                |
| L5HM             |                   | NOT USED                                                |
| L5H              |                   | same as L3ML                                            |
| L101             | 24A800899         | RF; choke; 1.2 millihenries                             |
| L102             | 24A832402         | RF; choke; 100 microhenries                             |
| L103             | 24A812542         | RF; choke; 22.5 microhenries                            |
| L104             | 25D850636         | AF; choke; 6 henries                                    |
| L201             |                   | same as L101                                            |
|                  |                   | <b>RESISTOR, fixed: carbon; unless otherwise stated</b> |
| R1               | 6R5577            | 2.7K ±10%; 1/2 w; ins.                                  |
| R2               | 6R6487            | 37K ±10%; 1/2 w; ins.                                   |
| R3L              | 6R5651            | 680 ohm ±5%; 1/2 w; ins.                                |
| R3ML             | 6R6165            | 1.2K ±5%; 1/2 w; ins.                                   |
| R3MM             |                   | same as R3ML                                            |
| R3HL             |                   | same as R3ML                                            |
| R3HM             |                   | same as R3ML                                            |
| R3H              |                   | same as R3ML                                            |
| R4               | 6R5644            | same as R3ML                                            |
| R5               | 6R401017          | EL; 50 ohm ±10%; 1/2 w; ins.                            |
| R6L              | 6R6407            | 1.8 megohm ±5%; 1/2 w; ins.                             |
| R6ML             |                   | 220K ±10%; 1/2 w; ins.                                  |
| R6               |                   | same as R6L                                             |
| R6MM             |                   | same as R6L                                             |
| R6HL             |                   | same as R6L                                             |
| R6HM             | 6R6031            | 100K ±10%; 1/2 w; ins.                                  |
| R6H              |                   | same as R6HL                                            |
| R101             | 6R6378            | 56K ±10%; 1/2 w; ins.                                   |
| R102             | 6R6048            | 47K ±10%; 1/2 w; ins.                                   |
| R103             | 6R6398            | 150K ±10%; 1/2 w; ins.                                  |
| R104             | 6R6393            | 1.2K ±10%; 1/2 w; ins.                                  |
| R105             | 6R6229            | 1K ±10%; 1/2 w; ins.                                    |
| R106             |                   | same as R6HL                                            |
| R107             | 6R6269            | 820 ohm ±10%; 1/2 w; ins.                               |
| R108             | 6R5618            | 3.9K ±10%; 1 w; ins.                                    |
| R109             |                   | NOT USED                                                |
| R110             | 6R3576            | 4.7K ±10%; 1 w; ins.                                    |
| R111             | 6R6402            | 68K ±10%; 1 w; ins.                                     |
| R112             | 6R5671            | 4.7K ±10%; 2 w; ins.                                    |
| R113             |                   | same as R112                                            |
| R114             | 6R6434            | 27K ±10%; 1/2 w; ins.                                   |
| R115             | 6R488185          | 3.3 megohm ±5%; 1/2 w; ins.                             |
| R116             | 6R5765            | 5.6K ±10%; 2 w; ins.                                    |
| R117             | 17K892469         | wire wound; 4 ohm ±2%; 1 w; ins.                        |
|                  | 17B821901         | wire wound; 4 ohm ±2%; 3 w; ins.                        |
| R118             | 6R120638          | 330 ohm ±5%; 1/2 w; ins.                                |
| R119             | 6R6086            | 4.7K ±10%; 1/2 w; ins.                                  |
| R120             | 6R5645            | 150 ohm ±5%; 1/2 w; ins.                                |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                                               |
|------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------|
|                  |                   | <b>RESISTOR, fixed: carbon; unless otherwise stated</b>                                                                   |
| R121             | 6R2068            | 33K ±5%; 1/2 w; ins.                                                                                                      |
| R122             |                   | same as R6L                                                                                                               |
| R123             | 6R5040            | 680 ohm ±10%; 1/2 w; ins.                                                                                                 |
| R124             | 6R5773            | 820K ±5%; 1/2 w; ins.                                                                                                     |
| R125             | 6R6475            | 680K ±10%; 1/2 w; ins.                                                                                                    |
| R126             |                   | same as R125                                                                                                              |
| R127             | 18K812998         | variable; 300K ±20%; 1/4 w                                                                                                |
| R128             | 6R2061            | 180K ±5%; 1/2 w; ins.                                                                                                     |
| R129             | 6R5766            | 12K ±10%; 2 w; ins.                                                                                                       |
| R130             |                   | same as R6HL                                                                                                              |
| R131             |                   | same as R6HL                                                                                                              |
| R132             |                   | same as R6L                                                                                                               |
| R133             | 6R488021          | 120 ohm ±10%; 1 w; ins.                                                                                                   |
| R201             |                   | same as R101                                                                                                              |
| R202             | 6R488090          | 56 ohm ±10%; 2 w; ins.                                                                                                    |
| R203             | 6R6326            | 100 ohm ±10%; 1/2 w; ins.                                                                                                 |
| R204             |                   | same as R203                                                                                                              |
|                  |                   | <b>TRANSFORMER</b>                                                                                                        |
| T1L              | 24K832479         | RF; Buffer-Doubler; base stamped 479; includes two 46K821425 CORE, adjustable tuning and C2L, C3L, C4, C5, R1, R2, R3L    |
| T1ML             | 24B832071         | RF; Buffer-Doubler; base stamped 071; includes two 46K821425 CORE, adjustable tuning and C2ML, C3ML, C4, C5, R1, R2, R3ML |
| T1MM             |                   | same as T1ML except includes C2MM, C3MM, C4, C5, R1, R2, R3MM                                                             |
| T1HL             | 24K832211         | RF; Buffer-Doubler; base stamped 211; includes two 46K821425 CORE, adjustable tuning and C2HL, C3HL, C4, C5               |
| T1HM             |                   | same as T1HL except includes C2HM, C3HM, C4, C5, R1, R2, R3HM                                                             |
| T1MH             | 24K832458         | RF; Buffer-Doubler; base stamped 458; includes two 46K821425 CORE adjustable tuning and C4, C5, R1, R2, R3H               |
| T2L              | 24K832478         | RF; Tripler; base stamped 478; includes two 46K821425 CORE adjustable tuning and C7L, C8L, C9, C10, R4, R5                |
| T2ML             | 24B832073         | RF; Tripler; base stamped 073; includes two 46K821425 CORE adjustable tuning and C9, C10, R4, R5                          |
| T2MM             |                   | same as T2ML                                                                                                              |
| T2HL             | 24B832212         | RF; Tripler; base stamped 212; includes two 46K821425 CORE adjustable tuning and C7HL, C8HL, C9, C10, R4, R5              |
| T2HM             |                   | same as T2HL except includes C7HM, C8HM, C9, C10, R4, R5                                                                  |
| T2HH             | 24K832459         | RF; Tripler; base stamped 459; includes two 46K821425 CORE adjustable tuning and C9, C10, R4, R5                          |
| T3L              | 24K832477         | RF; Doubler-Driver; base stamped 477; includes two 46K821425 CORE, adjustable tuning and C12L, C13, C14L                  |
| T3ML             | 24B832072         | RF; Doubler-Driver; base stamped 072; includes two 46K821425 CORE, adjustable tuning and C13                              |
| T3MM             |                   | same as T3ML                                                                                                              |

| REFERENCE SYMBOL | MOTOROLA PART No. | DESCRIPTION                                                                                                                                                                                                                       |
|------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |                   | <b>TRANSFORMER</b>                                                                                                                                                                                                                |
| T3HL             | 24B832213         | RF; Doubler-Driver; base stamped 213; includes two 46K821425 CORE, adjustable tuning and C13                                                                                                                                      |
| T3HM             |                   | same as T3HL                                                                                                                                                                                                                      |
|                  |                   | <b>TUBE</b>                                                                                                                                                                                                                       |
| V101             | 6AK6              | Electron                                                                                                                                                                                                                          |
| V102             | 12AT7             | Electron                                                                                                                                                                                                                          |
| V103             | 6AQ5              | same as V101                                                                                                                                                                                                                      |
| V104             | 6146              | Electron                                                                                                                                                                                                                          |
| V106             | 6BH6              | Electron                                                                                                                                                                                                                          |
| V107             | 6AL5              | Electron                                                                                                                                                                                                                          |
| V201             |                   | same as V101                                                                                                                                                                                                                      |
|                  |                   | <b>SOCKET, tube; female;</b>                                                                                                                                                                                                      |
| XV101            | 9K87124           | 7 contact; miniature molded mica filled phenolic base; includes center shield; saddle mounting                                                                                                                                    |
| XV102            | 9K825586          | 9 contact; miniature; molded mica filled phenolic base; includes center shield and tube shield base; saddle mounting                                                                                                              |
| XV103            |                   | same as XV101                                                                                                                                                                                                                     |
| XV104            |                   | 8 contact; brown bakelite wafer                                                                                                                                                                                                   |
| XV105            | 9B890001          | base; saddle mounting                                                                                                                                                                                                             |
| XV106            | 9B834083          | 7 contact; miniature molded mica filled phenolic base; includes center shield and tube shield base; saddle mounting                                                                                                               |
| XV107            |                   | same as XV106                                                                                                                                                                                                                     |
|                  |                   | <b>SOCKET, tube;</b>                                                                                                                                                                                                              |
| XV201            |                   | same as XV101                                                                                                                                                                                                                     |
|                  |                   | <b>SOCKET, crystal; female;</b>                                                                                                                                                                                                   |
| XY101            | 9A30451           | 4 contact; square molded mica 604 bakelite base; chassis mounted                                                                                                                                                                  |
| XY201            |                   | same as XY101                                                                                                                                                                                                                     |
|                  |                   | <b>CRYSTALS</b>                                                                                                                                                                                                                   |
|                  |                   | <b>NOTE</b><br>Crystal Units are part of the Radio Set model. When ordering a transmitter chassis only, crystals must be ordered separately. Crystal type number and operating frequency must be specified when ordering crystal. |
| Y101             | Type RN3-A        | <b>CRYSTAL UNIT</b><br>Quartz; Transmitter Oscillator; 2.0833 - 4.50000 MC; with 6 volt heater unit                                                                                                                               |
| Y201             |                   | same as Y101                                                                                                                                                                                                                      |

circuit changes the d-c into a-c, then the power transformer steps up the voltage of the a-c, and finally the rectifier-filter network converts the high voltage a-c to d-c.

## b. Transistor Multivibrator Circuit

### (1) Function

The function of the transistor multivibrator circuit is to change the pure d-c input into pulsating d-c, a form of a-c, so that it can be stepped-up in voltage by transformer action. The operation is illustrated in the simplified functional diagram, Figure 1. The diagram shows a negative ground electrical system. For a positive ground electrical system, reverse the leads to the polarity reversing terminals.

### (2) Operation

The ON-OFF switch at the control head connects the 12 volt d-c input to pin #19 of the

power and control plug on the power supply. When the switch is ON, the d-c input is applied to two points: (a) the feedback network used in the "receive" condition, and (b) the center tap of the main transformer winding.

### (a) Feedback Path

The path through the "receive" feedback network leads to the center tap of the feedback winding of the transformer. The opposite ends of this transformer winding are connected to the two transistor base elements. The 330 ohm starting resistor is connected between the center tap and the d-c input. Current flows through the feedback network and starting resistor, applying a bias to the base elements of each transistor. Due to a slight unbalance in transistor conductivity, one will tend to conduct more heavily than the other. This is the effect which starts the oscillation cycle.

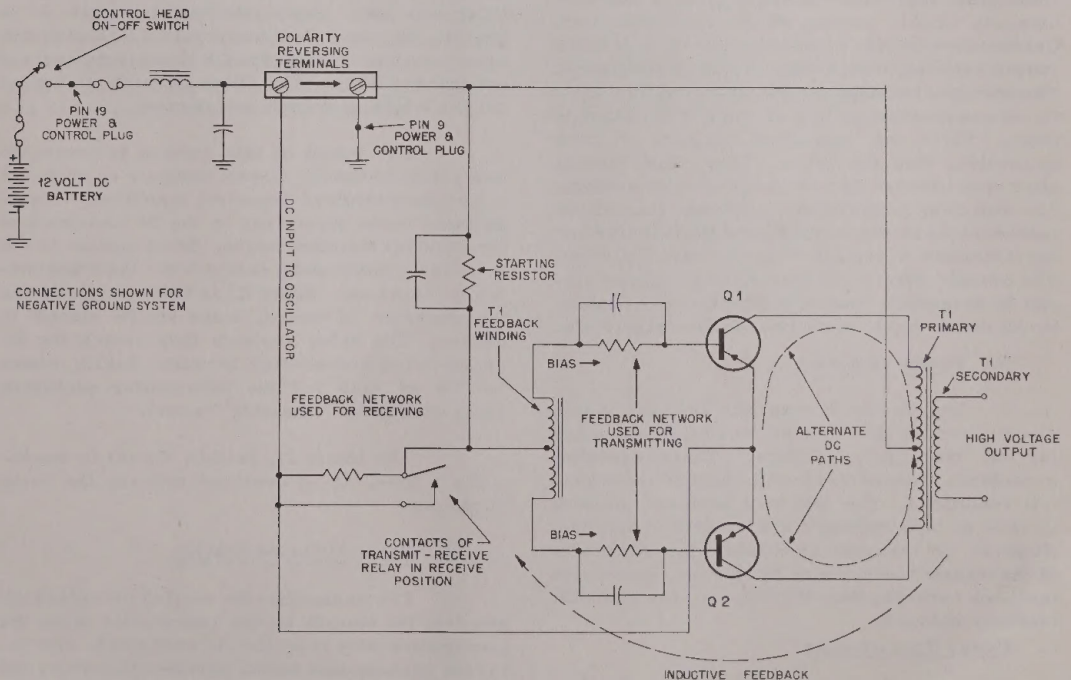
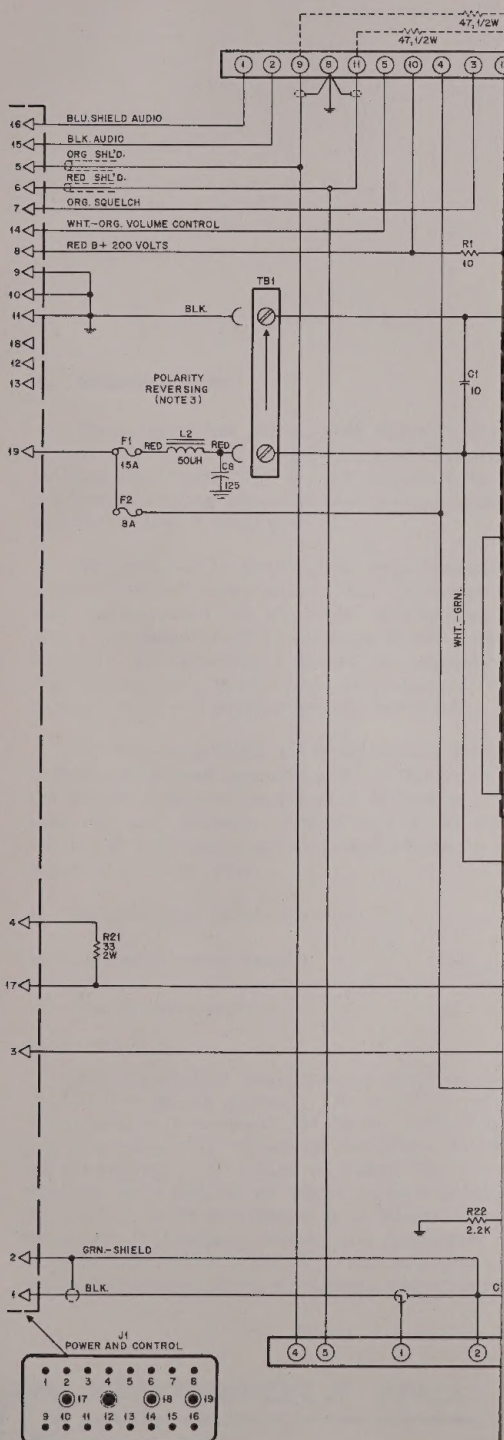


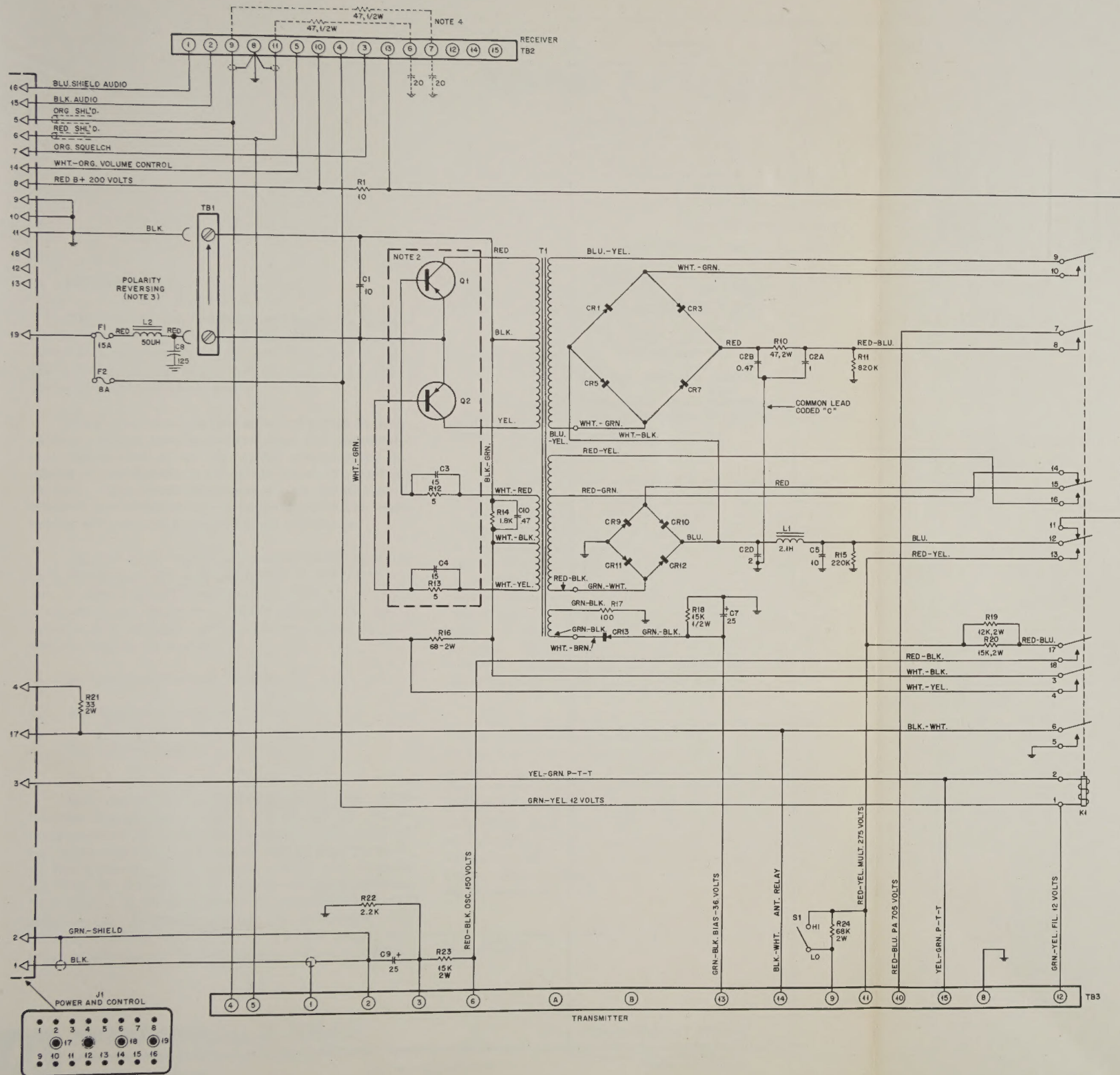
FIGURE 1





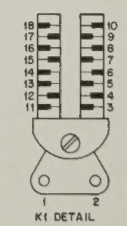
# REVISIONS

| DIAG. ISSUE | CHASSIS SUFFIX | REF. SYMBOL | CHANGE                                                                     | LOCATION                                                        |
|-------------|----------------|-------------|----------------------------------------------------------------------------|-----------------------------------------------------------------|
| C           | TU588-3        | DS1         | LAMP REMOVED                                                               | FROM 275 VOLT CIRCUIT IN 12 VOLT LINE HI VOLTAGE OUTPUT CIRCUIT |
|             |                | L2          | WAS 120 $\mu$ h                                                            |                                                                 |
|             |                | C2          | TYPE CHANGE AND CIRCUIT WAS:                                               |                                                                 |
|             |                |             |                                                                            |                                                                 |
| D           | TU588-4        | R16         | WAS 150 OHMS                                                               | PRIMARY VOLTAGE INPUT CIRCUIT IN SERIES WITH F1                 |
|             |                | C6          | 1 $\mu$ f REMOVED                                                          |                                                                 |
|             |                | R14         | WAS 330 OHMS                                                               | PRIMARY OF T1                                                   |
|             |                | C10         | .47 $\mu$ f ADDED                                                          |                                                                 |
|             |                | L2          | RELOCATED, WAS IN SERIES WITH F2                                           | PRIMARY VOLTAGE INPUT CIRCUIT IN SERIES WITH F1                 |
|             |                | C8          | RELOCATED, WAS IN SERIES WITH F2                                           |                                                                 |
| E           | TU588-5        |             | TLN6155A 2-FREQ. RCVR. FILTER KIT ADDED TO SCHEMATIC REFERENCE. SEE NOTE 4 | TB2 & J1                                                        |
| F           | TK661-1        | Q1          | WAS 48A125286                                                              | FRONT PANEL SEE NOTE 2                                          |
|             | TU588-5        | Q2          | 1V859763 MTG. BD. ASSEM. WAS REPLACED WITH 1V865695 TERM. BD. ASSEM.       | NON-REFERENCE PARTS LIST                                        |

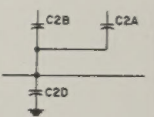


| MODEL   | DESCRIPTION             |
|---------|-------------------------|
| TU588-5 | TRANSISTOR POWER SUPPLY |
| TK661-1 | FRONT PANEL             |

- NOTES:**
- UNLESS OTHERWISE SPECIFIED:  
ALL RESISTOR VALUES ARE IN OHMS,  $\pm 10\%$ , 1WATT  
K=1000 OHMS.  
ALL CAPACITOR VALUES ARE IN MICROFARADS.
  - COMPONENTS ENCLOSED IN DASHED LINES ARE LOCATED ON FRONT PANEL.
  - POLARITY REVERSING TERMINALS SHOWN FOR NEGATIVE BATTERY GROUND (BLK. TERMINAL TO ARROW). FOR POSITIVE BATTERY GROUND, REVERSE THE TWO TERMINALS (RED LEAD TO ARROW).
  - TLN6155A RCVR. FILTER KIT IS P/O 2-FREQ. RADIO SET ONLY. REFER TO INTERCABLEING DIAGRAM FOR PARTS IDENTIFICATION.



# REVISIONS

| DIAG. ISSUE | CHASSIS SUFFIX | REF. SYMBOL | CHANGE                                                                              | LOCATION                                        |
|-------------|----------------|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------|
| C           | TU588-3        | DS1         | LAMP REMOVED                                                                        | FROM 275 VOLT CIRCUIT IN 12 VOLT LINE           |
|             |                | L2          | WAS 120 uH                                                                          | HI VOLTAGE OUTPUT CIRCUIT                       |
|             |                | C2          | TYPE CHANGE AND CIRCUIT WAS:                                                        |                                                 |
|             |                |             |  |                                                 |
| D           | TU588-4        | R16         | WAS 150 OHMS                                                                        | PRIMARY VOLTAGE INPUT CIRCUIT IN SERIES WITH F1 |
|             |                | C6          | 1 uF REMOVED                                                                        |                                                 |
|             |                | R14         | WAS 330 OHMS                                                                        | PRIMARY OF T1                                   |
|             |                | C10         | .47 uF ADDED                                                                        |                                                 |
|             |                | L2          | RELOCATED, WAS IN SERIES WITH F2                                                    | PRIMARY VOLTAGE INPUT CIRCUIT IN SERIES WITH F1 |
| E           | TU588-5        |             | TLN6155A 2-FREQ. RCVR. FILTER KIT ADDED TO SCHEMATIC REFERENCE. SEE NOTE 4          | TB2 & J1                                        |
|             |                |             |                                                                                     |                                                 |
| F           | TK661-1        | Q1          | WAS 48A125286                                                                       | FRONT PANEL SEE NOTE 2                          |
|             | TU588-5        | Q2          | 1V859763 MTC. BD. ASSEM. WAS REPLACED WITH 1V865695 TERM. BD. ASSEM.                | NON-REFERENCE PARTS LIST                        |



PARTS LIST for Power Supply Diagram 63E856462-F (Rev.)

| REFERENCE SYMBOL                                                                            | MOTOROLA PART No.                               | DESCRIPTION                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C1<br>C2<br>C2A                                                                             | 23K859299<br>8K861326                           | <u>CAPACITOR, fixed:</u><br>tantalum; 10 uf +75-15%; 25 vdcw<br>mylar; consists of:<br>1 uf ±20%; 900 vdcw;<br>coded "A"                                                                                                                                                                                     |
| C2B                                                                                         |                                                 | .47 uf ±20%; 900 vdcw;<br>coded "B"                                                                                                                                                                                                                                                                          |
| C2C<br>C2D<br>C3                                                                            | 23K858677                                       | common connection; coded "C"<br>2 uf ±20%; 400 vdcw; coded "D"                                                                                                                                                                                                                                               |
| C4<br>C5<br>C6                                                                              | 23K837903                                       | electrolytic; tubular; 15 uf<br>+100-10%; 10 vdcw<br>same as C3<br>electrolytic; tubular; 10 uf<br>+50-10%; 450 vdcw<br>NOT USED                                                                                                                                                                             |
| C7<br>C8<br>C9<br>C10                                                                       | 23K839917<br>23K840707<br>23K850516<br>8K861614 | electrolytic; tubular; 25 uf<br>+100-10%; 100 vdcw<br>electrolytic; tubular; 125 uf<br>+100-10%; 18 vdcw<br>electrolytic; tubular; 25 uf<br>+100-10%; 50 vdcw<br>mylar; tub; .47 uf ±10%; 100 vdcw                                                                                                           |
| CR1<br>CR2<br>CR3<br>CR4<br>CR5<br>CR6<br>CR7<br>CR8<br>CR9<br>CR10<br>CR11<br>CR12<br>CR13 | 48K859727<br>48K859708<br>48K859726             | <u>CRYSTAL UNIT, rectifying:</u><br>silicon junction; cartridge<br>type 1N1223<br>NOT USED<br>same as CR1<br>NOT USED<br>same as CR1<br>NOT USED<br>same as CR1<br>NOT USED<br>type 1N1222<br>same as CR9<br>same as CR9<br>same as CR9<br>type 1N1219                                                       |
| F1<br>F2                                                                                    | 65K804906<br>65K475248                          | <u>FUSE, cartridge; one time:</u><br>slow blow type; glass; 15 ampere,<br>32 volt; 1-1/4" long x 1/4" dia.<br>slow blow type; glass; 8 ampere;<br>32 volt; 1-1/4" long x 1/4" dia.                                                                                                                           |
| J1                                                                                          | 28C802820                                       | <u>CONNECTOR, receptacle:</u><br>male; 19 contact; polarized;<br>rectangular molded black<br>phenolic insulator; chassis<br>mounted                                                                                                                                                                          |
| K1                                                                                          | 80K858550                                       | <u>RELAY, armature:</u><br>dual stack; contact arrangement:<br>1st stack, 1 form "A",<br>2 form "C", 2nd stack, 4<br>form "A"; coil resistance<br>100 ohms; does not include<br>15K848892 COVER, relay,<br>nor 7A811735 BRACKET,<br>relay cover mounting; cover<br>and bracket must be ordered<br>separately |

| REFERENCE SYMBOL                                                                                                                                            | MOTOROLA PART No.                                                                                                                                   | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L1                                                                                                                                                          | 25B837416                                                                                                                                           | <u>REACTOR:</u><br>filter; 2.1 henries at 100 ma. dc                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| L2                                                                                                                                                          | 25B861375                                                                                                                                           | <u>COIL, AF:</u><br>choke; 50 microhenry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Q1<br>Q2                                                                                                                                                    | 48A124376                                                                                                                                           | <u>TRANSISTOR:</u><br>P-N-P<br>same as Q1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| R1<br>R2<br>R3<br>R4<br>R5<br>R6<br>R7<br>R8<br>R9<br>R10<br>R11<br>R12<br>R13<br>R14<br>R15<br>R16<br>R17<br>R18<br>R19<br>R20<br>R21<br>R22<br>R23<br>R24 | 6R118205<br>6R488035<br>6R2053<br>17K858769<br>6R5620<br>6R5574<br>6R118239<br>6R6415<br>6R6477<br>6R5766<br>6R5732<br>6R488016<br>6R6409<br>6R2079 | <u>RESISTOR, fixed; carbon; ±10%;</u><br>1 w; ins.; unless otherwise stated<br>10 ohm ±20%<br>NOT USED<br>NOT USED<br>NOT USED<br>NOT USED<br>NOT USED<br>NOT USED<br>47 ohm; 2 w<br>820K<br>wire-wound; 5 ohm; 5 w<br>same as R12<br>1.8K ohm<br>220K<br>68 ohm; 2 w<br>100 ohm<br>15K; 1/2 w<br>12K; 2 w<br>15K; 2 w<br>33 ohm; 2 w<br>2.2K<br>same as R20<br>68K; 2 w                                                                                                                                                  |
| S1                                                                                                                                                          | 40A482097                                                                                                                                           | <u>SWITCH, toggle:</u><br>S. P. S. T.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| T1                                                                                                                                                          | 25D858644                                                                                                                                           | <u>TRANSFORMER, power:</u><br>transistor controlled; consists<br>of the following windings:<br>primary #1: YEL, RED leads<br>with BLK center tap; total<br>resistance .031 ohms<br>primary #2: WHT-RED,<br>WHT-YEL leads with WHT-<br>BLK center tap; total<br>resistance .040 ohms<br>secondary #1: BLU-YEL,<br>BLU-YEL leads; resistance<br>21.5 ohms<br>secondary #2: RED-BLK,<br>RED-YEL leads with<br>RED-GRN tap; total<br>resistance 12.6 ohms<br>secondary #3: GRN-BLK,<br>GRN-BLK leads;<br>resistance 2.26 ohms |
| TB1<br>TB2<br>TB3                                                                                                                                           | 31A858723<br>31B802699<br>31B851408                                                                                                                 | <u>BOARD, terminal:</u><br>2 screw terminals<br>14 solder lug terminals;<br>board coded 1 to 15<br>17 solder lug terminals;<br>board coded B, A, and 1 to 16                                                                                                                                                                                                                                                                                                                                                              |

| REFERENCE SYMBOL     | MOTOROLA PART No.                 | DESCRIPTION                                                                                                                                                                                                                                                                               |
|----------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| XF1<br>XF2           | 9B865564                          | <u>FUSEHOLDER:</u><br>extractor post type; molded<br>black bakelite bayonet base;<br>single hole chassis mounted;<br>for 1-1/4" long x 1/4" dia.<br>fuse; includes cap, lock-<br>washer and mounting nut<br>same as XF1                                                                   |
| NON-REFERENCED PARTS |                                   |                                                                                                                                                                                                                                                                                           |
|                      | 1V865695<br>7D865605<br>14A851751 | RECTIFIER MOUNTING BOARD<br>ASSEMBLY,<br>riveted; includes:<br>31A865187 MOUNTING BOARD<br>ASSEMBLY; includes 4 pairs<br>of terminal clips for<br>mounting 4 diodes;<br>2 req'd<br>7B858571 BRACKET, mounting<br>board<br>RADIATOR, transistor mounting<br>INSULATOR, transistor; 2 req'd |

Transistors located in the heat sink on the front panel are coated with DC-4 silicone grease. This grease increases the rate of heat transfer.

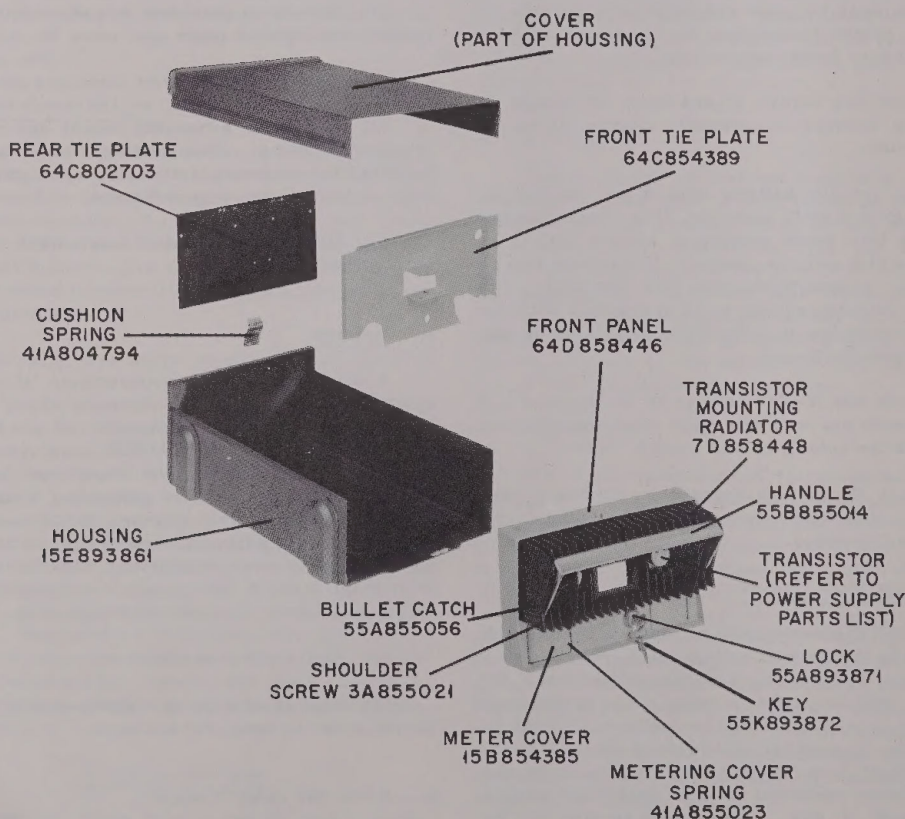
Note that a thin mica insulator is between each transistor and the front panel. When replacing a transistor, first coat it with silicone grease and place the insulator between the transistor and the front panel. There also must be silicone grease between the mica washer and the heat sink. Replace the mica insulator if it is damaged.

m. Check the filament voltage and the B+ voltages.

- n. Set the transmitter oscillators on frequency.
- o. Tune the entire transmitter.
- p. Check the transmitter modulation.
- q. Tune the entire receiver.
- r. Check the audio response against a fixed station.

#### NOTE

For detailed alignment procedures of the various chassis refer to the pertaining instruction section of this instruction manual.

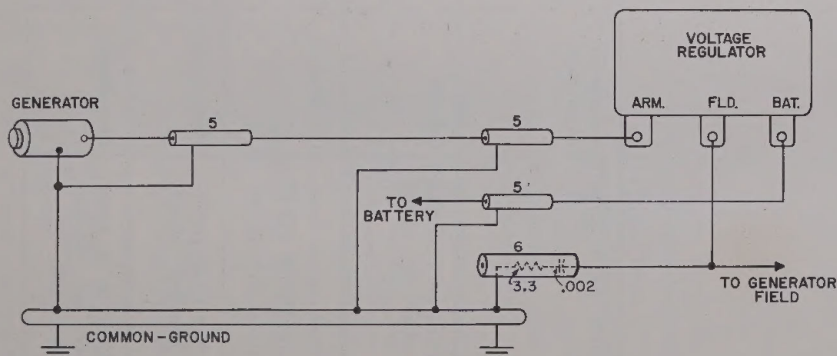
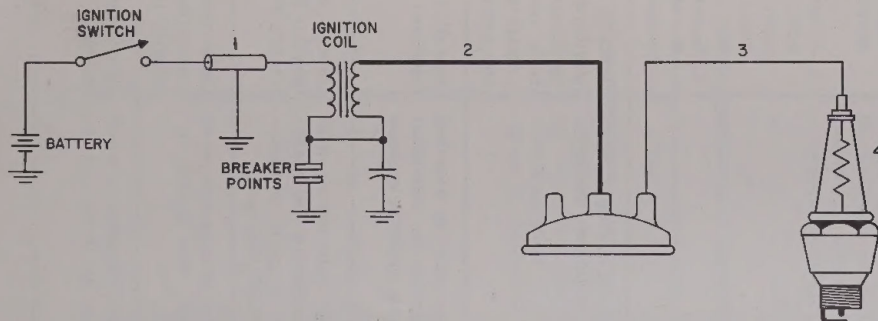


HOUSING PARTS IDENTIFICATION DETAIL



NOTES:

1. THE 0.1UF COAXIAL CAPACITOR SHOULD BE MOUNTED AS CLOSE TO THE IGNITION COIL PRIMARY INPUT AS POSSIBLE.
2. EITHER A SUPPRESSOR CABLE OR A RESISTOR SUPPRESSOR IN THE DISTRIBUTOR ROTOR LEAD OR BOTH MAY BE USED ACCORDING TO THE REQUIREMENTS OR THE LIMITATIONS OF THE INDIVIDUAL INSTALLATION. SEE PARAGRAPH 5 OF THIS SECTION FOR FURTHER DETAILS.
3. EITHER RESISTOR SUPPRESSORS IN THE DISTRIBUTOR SPARK PLUG LEADS, OR RESISTANCE WIRES, OR RESISTANCE SPARK PLUGS OR ANY COMBINATION MAY BE USED ACCORDING TO THE REQUIREMENTS OR THE LIMITATIONS OF THE INDIVIDUAL INSTALLATION. SEE PARAGRAPH 5 OF THIS SECTION FOR FURTHER DETAILS.
4. THE 0.5UF COAXIAL CAPACITORS SHOULD BE MOUNTED AS CLOSE TO THE GENERATOR AND THE REGULATOR AS POSSIBLE.
5. NOISE SUPPRESSION CAN BE ACHIEVED ONLY IF COMPONENTS ARE PROPERLY GROUNDED. BE SURE ALL COMPONENTS ARE PROPERLY GROUNDED.



TYPICAL NOISE SUPPRESSION DETAIL

THIS DIAGRAM IS A SUGGESTED NOISE SUPPRESSION SETUP. IT MAY BE USED IN ITS ENTIRETY OR IN PART, ACCORDING TO THE NEEDS OR LIMITATIONS OF THE INDIVIDUAL INSTALLATION. (SEE TEXT FOR COMPLETE INFORMATION.)

| REF. SYM. | DESCRIPTION                                                             | PART NO.               |
|-----------|-------------------------------------------------------------------------|------------------------|
| 1         | *COAXIAL CAPACITOR, 0.1UF                                               | 8B839908               |
| 2         | *SUPPRESSOR CABLE                                                       | 30A502396              |
| 3         | RESISTIVE WIRE                                                          | SEE AUTO PARTS DEALER  |
| 4         | RESISTOR SPARK PLUG                                                     | AUTO-LIGHT OR CHAMPION |
| 5         | *COAXIAL CAPACITOR, 0.5UF                                               | 8K839909               |
| 6         | *GENERATOR FIELD SUPPRESSOR ASSEMBLY (3.3Ω RESISTOR & .002UF CAPACITOR) | 1V80700A89             |

\* THE TEN6018A NOISE SUPPRESSION KIT CONSISTS OF THE ITEMS MARKED WITH AN ASTERISK.