Figure 7-2. KW-1 Control Circuits
Figure 7-4. KW-1 Main Schematic
ANTENNAS
WITH
52 OHM COAXIAL FEED LINES

Published By
Collins Radio Company
Cedar Rapids, Iowa

520 9722 00
15 March 1952
Second Edition
THIS SYSTEM PERMITS USE OF A BALANCED OPEN WIRE LINE TO REDUCE LOSSES ON LONG TRANSMISSION LINES. CONSTRUCTION DETAILS OF THE UNBALANCED TO BALANCED IMPEDANCE MATCHING TRANSFORMER (BALUN) USED BETWEEN THE OPEN WIRE LINE AND THE 52 OHM RG-8/U COAXIAL CABLE ARE SHOWN BELOW.

NOTES:

1. DIMENSIONS D, E, AND F ARE NOT CRITICAL AND MAY BE ADAPTED TO THE INDIVIDUAL INSTALLATION. DIMENSION D SHOULD BE LONG ENOUGH TO PERMIT SILVER SOLDERING BRASS PLATE AND TUBES TOGETHER. DIMENSION E SHOULD BE LONG ENOUGH TO PERMIT ADJUSTMENT OF THE SHORTING BAR. DIMENSION F SHOULD BE LONG ENOUGH TO PROVIDE SUFFICIENT OVERHANG FOR CONNECTING THE RG-1/U CABLE.

2. BRASS PLATE OF CONVIENT SIZE SILVER SOLDERED TO THE TWO BRASS TUBES. PLATE MAY BE GROUNDED OR UNGROUNDED AND IS DESIGNED TO SECURE THE BALUN TO AN END SUPPORT.

3. ATTACH A COAX CONNECTOR HERE TO PERMIT ATTACHING A LENGTH OF 52 OHM RG-8/U COAX.


5. THIS SHORTING BAR SHOULD BE MOVABLE TO PERMIT ADJUSTING THE BALUN TO REDUCE THE OVERALL STANDING WAVE RATIO OF THE SYSTEM.

6. REMOVE THE OUTER JACKET AND SHIELD FROM A LENGTH OF RG-8/U 52 OHM COAX. INSERT THE PROPER LENGTH OF BARE DIELECTRIC INSIDE THE TUBE.

7. SOLDER INNER CONDUCTORS TOGETHER. COVER THE TUBE ENDS AND ALL OF THE CABLE BETWEEN WITH A CONTINUOUS WRAPPING OF SCOTCH ELECTRICAL TAPE TO EXCLUDE MOISTURE.

8. INSTALL A BRACKET FOR ATTACHING THE OPEN WIRE LINE. IF BRACKET IS SOLDERED, BE VERY CAREFUL TO AVOID OVERHEATING AND DAMAGING THE DIELECTRIC.

BALUN WITH BALANCED OPEN WIRE LINE FOR REDUCTION OF LOSSES ON LONG TRANSMISSION LINES.
NOTES:
1. ALLOW COAXIAL CABLE DIELECTRIC MATERIAL TO EXTEND FROM TUBE, SOLDER COAX INNER CONDUCTOR TO END OF OTHER TUBE, WRAP COAX DIELECTRIC MATERIAL AND END OF BOTH TUBES WITH SCOTCH ELECTRICAL TAPE TO EXCLUDE MOISTURE. MAKE A CONTINUOUS WRAPPING ALONG THE DIELECTRIC FROM ONE TUBE TO THE OTHER.
2. 3/8" BRASS TUBE CONTAINING COAX CABLE MINUS JACKET AND SHIELD.
3. CLOSE END OF TUBE TO EXCLUDE MOISTURE.
6. SOLDER 100ULF, HIGH VOLTAGE CERAMIC CAPACITOR TO END OF 20 GA. COPPER TRIANGLE. SOLDER COPPER TRIANGLE TO BRASS TUBE.

10 METER BEAM WITH SHORTENED UNBALANCED TO BALANCED TRANSFORMER (BALUN) FEED SYSTEM
20 METER BEAM WITH SHORTENED UNBALANCED TO BALANCED TRANSFORMER (BALUN) FEED SYSTEM. GENERAL CONSTRUCTION IS THE SAME AS THE TEN METER BEAM.
FOR DETAIL SEE FIGURE A

PHENOLIC BLOCK 2" X 1 1/2" X 1/2" WRAP CABLES AND BLOCK WITH SCOTCH ELECTRICAL TAPE SPACE BLOCKS 6 FEET APART ALONG BALUN.

FIGURE A

CUT OFF SHIELD AND OUTER JACKET AS SHOWN ALLOW DIELECTRIC TO EXTEND PART WAY TO OTHER CABLE COVER ALL EXPOSED SHIELD AND DIELECTRIC ON BOTH CABLES WITH A CONTINUOUS WRAPPING OF SCOTCH ELECTRICAL TAPE TO EXCLUDE MOISTURE.

KEEP BALUN AT LEAST 6 INCHES CLEAR OF GROUND AND OTHER OBJECTS.

DIMENSIONS SHOWN HERE ARE FOR THE 40 METER BAND. THIS ANTENNA MAY BE BUILT FOR OTHER BANDS BY USING DIMENSIONS THAT ARE MULTIPLES OR SUBMULTIPLES OF THE DIMENSIONS SHOWN. BALUN SPACING IS 1 1/2 INCHES ON ALL BANDS.

FIGURE B

REMOVE OUTER JACKET FROM A SHORT LENGTH OF CABLE AS SHOWN HERE, UNBRAID THE SHIELD OF COAX C, CUT OFF THE DIELECTRIC AND INNER CONDUCTOR FLUSH WITH THE OUTER JACKET, DO NOT CUT THE SHIELD, WRAP SHIELD OF COAX C AROUND SHIELD OF COAX D, SOLDER THE CONNECTION, BEING VERY CAREFUL NOT TO DAMAGE THE DIELECTRIC MATERIAL. HOLD CABLE D STRAIGHT WHILE SOLDERING, COVER THE AREA WITH A CONTINUOUS WRAPPING OF SCOTCH ELECTRICAL TAPE. NO CONNECTION TO INNER CONDUCTORS.

52 OHM RG-8U

ANY LENGTH

HALF WAVE ANTENNA WITH QUARTER WAVE UNBALANCED TO BALANCED TRANSFORMER (BALUN) FEED SYSTEM
COLLINS RADIO COMPANY

MAIN PLANT:
855 35TH ST. N.E., CEDAR RAPIDS, IOWA

BRANCHES:
1937 IRVING BOULEVARD, DALLAS, TEXAS
11 WEST 42ND STREET, NEW YORK 18, N. Y.
2700 WEST OLIVE AVE., BURBANK, CALIF.