ALIGNMENT & SERVICING INSTRUCTIONS FOR DUAL DIVERSITY RECEIVER MODEL DD-1

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ALIGNMENT & SERVICING INSTRUCTIONS
FOR
SKYRIDER DIVERSITY RECEIVER
MODEL DD1

SWITCHING ARRANGEMENT

For speed, ease and accuracy in aligning the Duel Diversity receiver, it is recommended that the output of the signal generator be terminated in a switching box in which you have installed a double throw single pole switch. From this switching box enclosed in a shielded cable which will serve as ground, run two leads one of which is connected appropriately to section "A" and the other to Section "B". Operation of the switch will readily allow you to switch the signal generator to either receiver section being aligned for a quick comparative check.

INTERMEDIATE FREQUENCY ALIGNMENT

Have controls set as follows:-
Have I.F. gain switch in NORMAL position.
Receiver switch to "A" side.

Set rejector control to 3 KC marking.
Balance control in center position.
All other gain controls adjusted for maximum gain.

IN ALIGNING "A" SECTION:-

Connect signal generator to the grid of the "A" section 6L7 converter (see diagram for location.) Adjust the signal generator for 455 KC output. Adjust I.F. transformers in the "A" receiver until they are peaked for maximum gain.

In Aligning "B" Section:-

Connect the signal generator as indicated above to the 6L7 converter tube in the "B" receiver and duplicate the adjustments done to the I.F. transformers of section "A". The receiver switch will necessarily be switched to the "B" side.

REJECTOR ADJUSTMENT

Before aligning the I.F. Rejector Circuit, the variable rejector condensers found below the chassis and driven by the long flexible copper cable, should be set as follows: With the rejector pointer set at ± 3 KC, check the first rejector condenser (closest to front panel in each I.F. section). It should have its rotor plates about 80% in mesh. The second rejector condenser (farthest from front panel) should have its plates about 20% in mesh. The same relationship should also exist between the condensers in the other I.F. section. When turning the rejector control from ± 3 KC toward ± 18 KC, the plates on the first rejector condenser should unmesh at the same time the plates on the second rejector condenser are meshing.

To correctly adjust the rejector circuit it is necessary to have two signals available which are accurately removed from the 455 KC fundamental by 3 KC on each side. The most satisfactory way to accomplish this is to use two crystals, one for 452 KC output and the other for 458 KC output. In the event, however, that crystals of those frequencies are not available, a satisfactory substitute can be used which consists of the following procedure: Put the BFO switch in the heterodyne position. Feed 455 KC from the signal generator into either 6L7 converter. Remove modulation from the signal being delivered by the generator. Obtain zero beat on the B.F.O. by operating the pitch control knob. Tune the generator slowly away from the 455 KC setting until a beat note of 3000 cycles (+ or - of 455 KC) is heard. Remember the pitch of that note. It will be necessary in adjusting the signal generator to a frequency 3000 cycles on the other side of 455 KC. A little practice will enable you to reset to each side of 455 KC by the 3 KC difference quite accurately and when signals of 452 and 458 KC are then available by this method, these signals should be used to properly peak the rejection circuit. This method is recommended only when a closely calibrated signal generator or a crystal controlled signal generator are not available.

Begin with receiver B. Set signal generator to 458 KC output. Adjust the 2nd Rejector Control (shown in the top chassis view) for minimum response. There should be two points of minimum output. If there is only one minimum point, rotate the adjusting nut on this control approximately 1/4 turn from the minimum, and very, very carefully adjust the 1st rejector control until a minimum occurs. After this has been accomplished, adjust the 2nd rejector control for minimum response. Now adjust the first phasing control (screw driver shaft nearest front panel), for minimum response. Readjust the 2nd rejector control carefully for minimum response. Repeat with "A" side without changing setting of the signal generator, connecting the signal generator to the "A" side 6L7, and switching the receiver to the "A" side. Readjust signal generator to 452 KC. Make similar adjustments on Rejector Controls 3 and 4 and the rear phasing control. Switch over to the "B" receiver and repeat these adjustments on the "B" side.

Now retune signal generator to 455 KC (still connected to "B" side). Carefully repeat each of the I. F. transformer trimming condensers. Switch signal generator output to 6L7 in "A" side and repeat the above operation.

NOTE: The gain of each receiver should be approximately the same, variation between receiver sections should not exceed 25% as shown on output meter readings. If gain-balance is far off, interchanging the 6L7 I.F. amplifier tubes sometimes improves it.

R. F. ALIGNMENT

Adjust receiver to Band 1, set "A". Have all gain controls at maximum, balance control in center position.

Now connect signal generator to antenna post of "A" receiver section through a 400 ohm resistor. Be sure shorting strap from A2 to G remains connected. During all adjustments the grounded side of the generator should be connected to the ground post on the receiver.

Set band spread dial to "0" and leave it there during entire alignment. Adjust generator to 1400 KC. Set dial on receiver to that frequency. Align oscillator, 2nd R. F., 1st R. F. and antenna trimmers in the order named for maximum gain. Switch over to Receiver "B" and repeat the above operations with the exception of the oscillator section which does not require readjustment this time. Set generator and receiver to 600 KC. Adjust oscillator padder for maximum response. Retrim oscillator at 1400 KC. Repeat the above procedure on the remaining bands, except that on bands 3-4-5-6 the R. F. padders should also be adjusted for maximum response at the low frequency ends of each band.

Care should be exercised in avoiding alignment on the image frequency. In every case, the image will be heard approximately 1 megacycle lower in frequency when adjusting the main tuning dial.

The greatest caution should be taken when adjusting the No. 6 hand oscillator padder because only a slight change causes a large variation in frequency and may throw the oscillator frequency completely out of the band. The relative sensitivities of receivers "A" and "B" should not vary more than 50%. A frequent cause of unbalance between receivers is defective 1851 tubes or R. F. coils.

The trimming and Padding points for the model DD1 Dual Diversity receiver are:

BAND	TRIM	PAD
1	1400 KC	600 KC
2	3.8 MC	1.8 MC
3	9 MC	4.2 MC
4	18. MC	10 MC
5	30. MC	20 MC
6	42. MC	36 MC

BEAT FREQUENCY OSCILLATOR ADJUSTMENTS

Place the B.F.O. Key in the Heterodyne position.

With 455 KC signal from generator feeding into the "A" 6L7 converter and receiver "A" functioning, and the chassis standing on its left end (looking at set from the front) adjust the padding condenser inside the B.F.O. Shield can until zero beat is reached. The B.F.O. shield can is located directly behind the pitch control. Prior to making this adjustment assure yourself that the PITCH CONTROL condenser is at 50% capacity pointer on control positioned vertically). When properly adjusted, rotation of the pitch control condenser will show two beat note signals 180 degrees apart.

S METER ADJUSTMENT

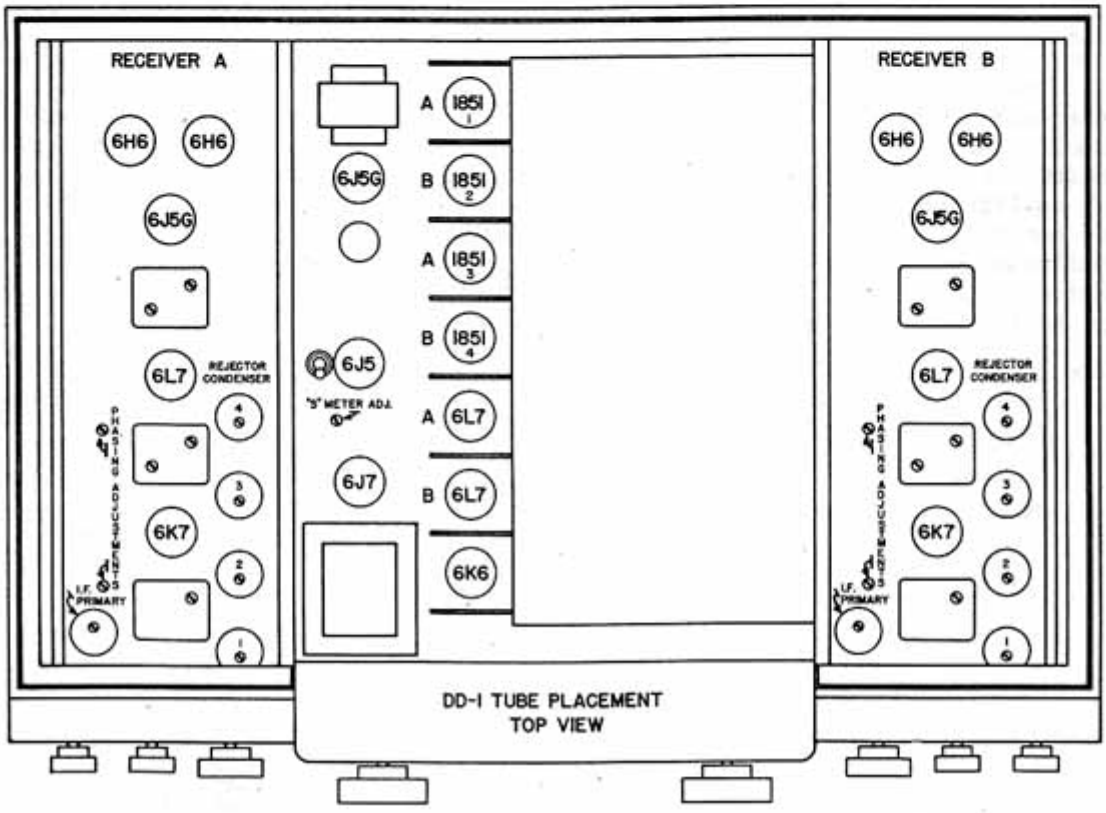
Push in No. 6 Band Button. With gain controls at maximum, adjust the zero reset control on all meters for zero.

NOTES:

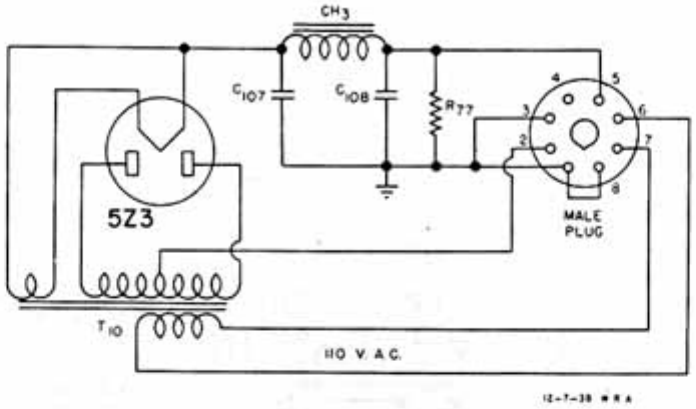
If overload occurs on the broadcast band it might be advisable to shorten the length of the receiving antennas. If this recommendation is of little help check for a short to ground in the A.V.C. circuit.

Should the occasion of examining the coil units arise, exercise extreme care in moving the heavy leads attached to the switch terminals. Excessive movement of one of these leads may cause the contacting portion of the switch to be thrown out of alignment and provide improper contact.

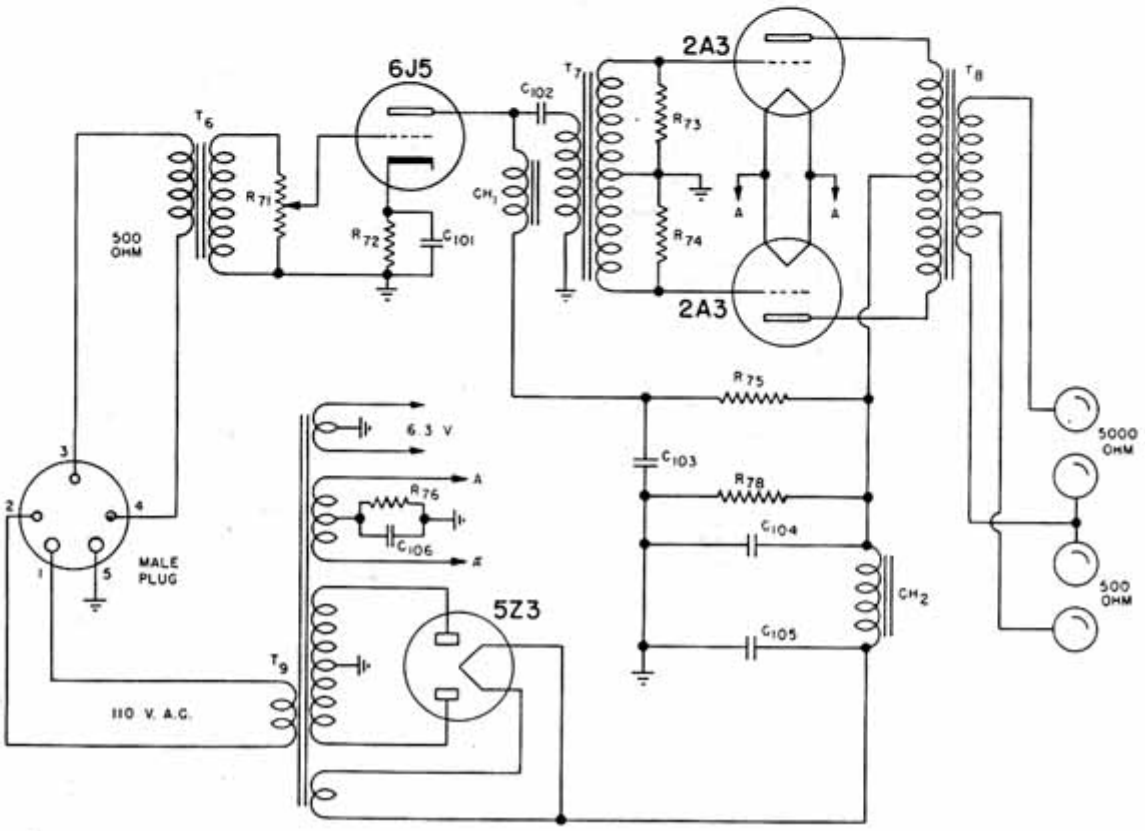
If it becomes difficult to properly heterodyne a strong signal when listening to C. W. reception, reduce the overall gain with the master gain control till a satisfactory note is obtained.

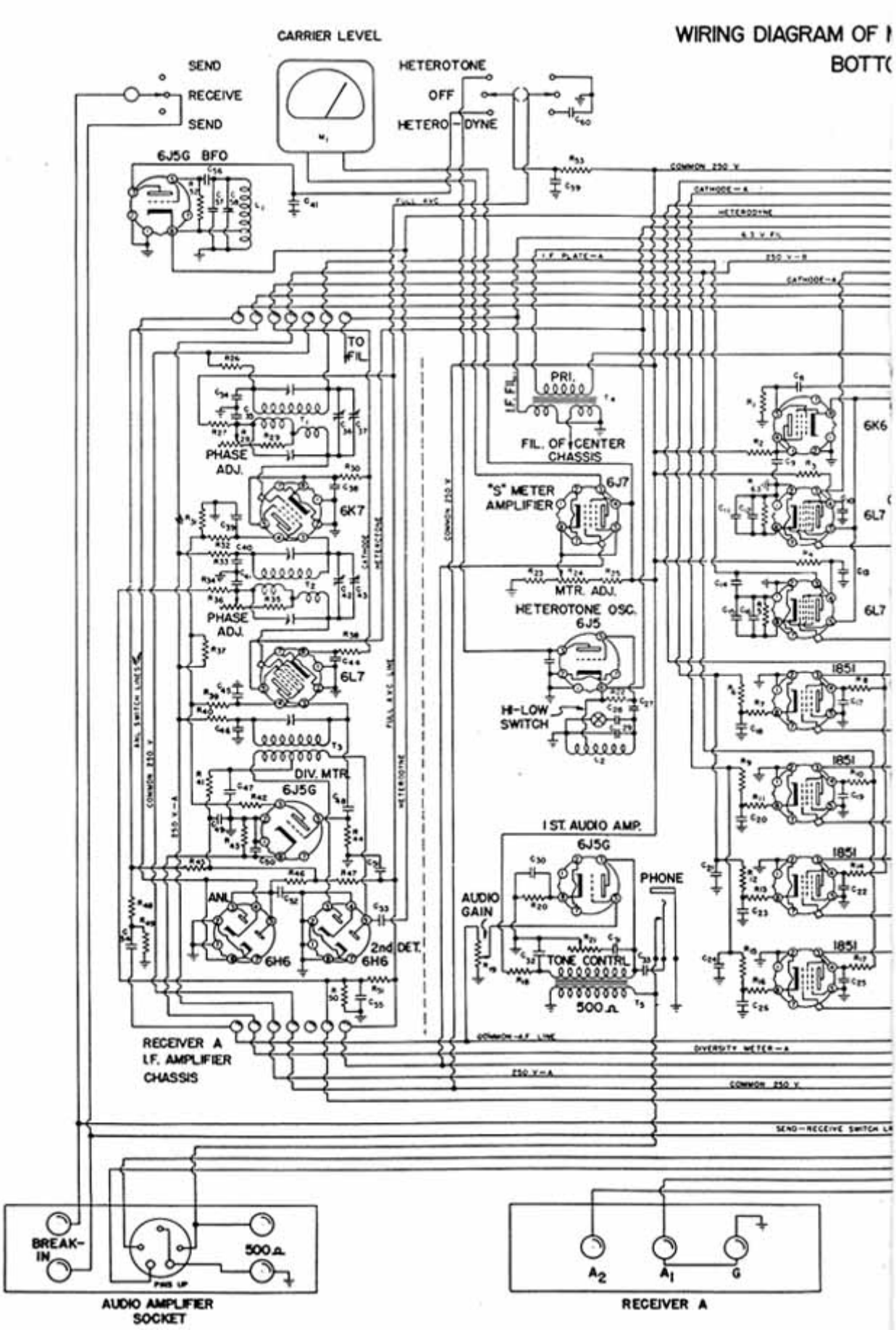


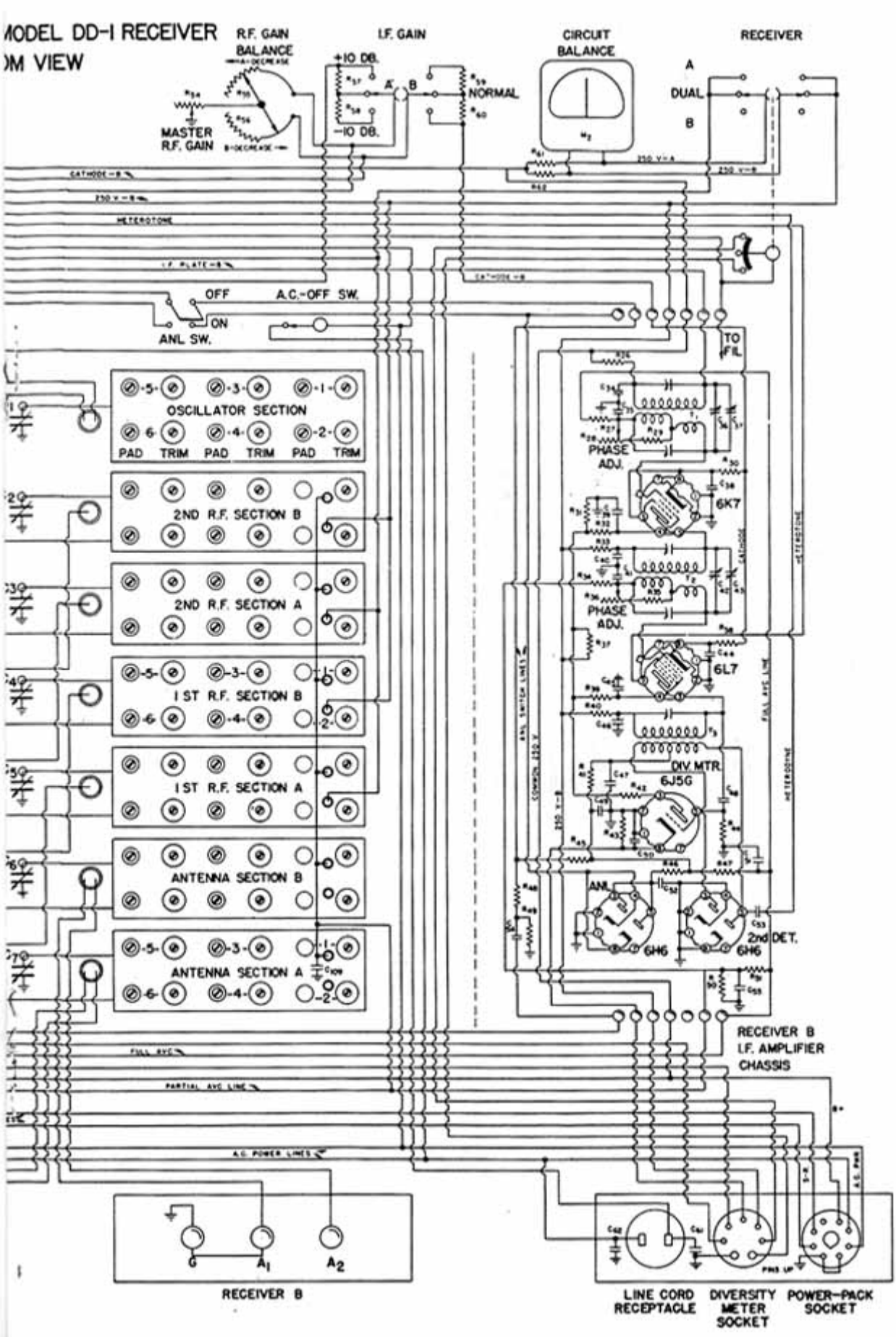
POWER PACK
DD-P



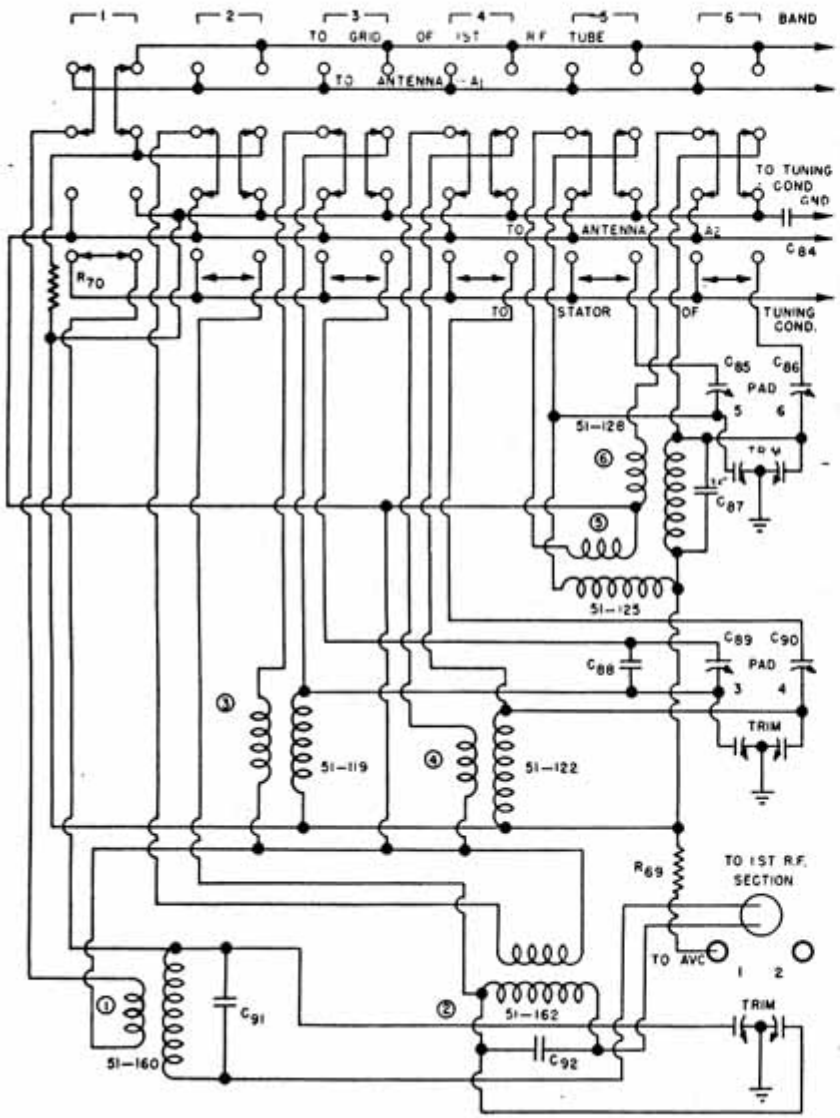
AUDIO AMPLIFIER
DD-A



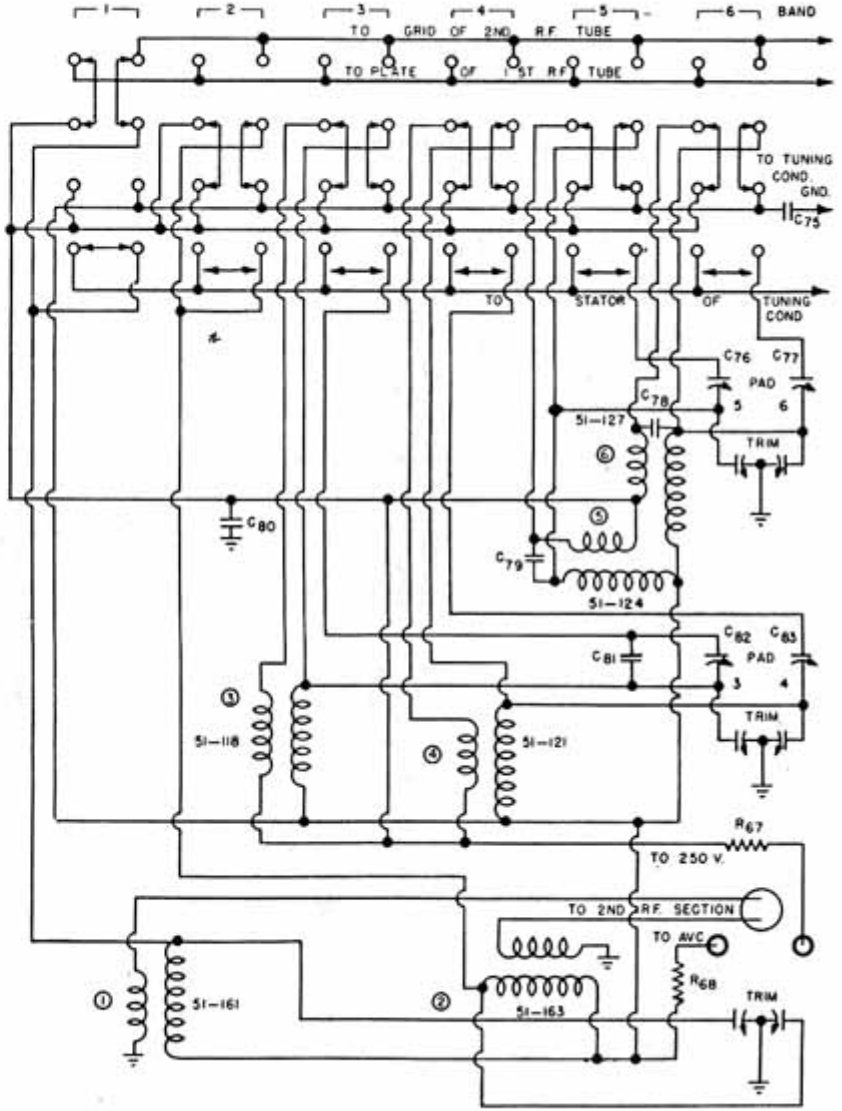

WIRING DIAGRAM OF
BOTT
CARRIER LEVEL
SEND
RECEIVE
SEND
HETEROTONE
OFF
HETERO-DYNE
6J5G BFO
COMMON 250 V
CATHODE-A
HETERODYNE
6.3 V FIL
I.F. PLATE-A
250 V-B
CATHODE-A
TO FIL
PRI.
I.F. FIL.
FIL. OF CENTER CHASSIS
PHASE ADJ.
6K7
"S" METER AMPLIFIER
6J7
MTR. ADJ.
HETEROTONE OSC.
6J5
PHASE ADJ.
6L7
HI-LOW SWITCH
DIV. MTR.
6J5G
1ST. AUDIO AMP.
6J5G
AUDIO GAIN
PHONE
TONE CONTRL
500 Ω
ANL
6H6
2nd DET.
6H6
6K6
6L7
6L7
1851
1851
1851
1851
ANL SWITCH LINES
COMMON 250 V
250 V-A
FINAL AMP. LINE
HETERODYNE
COMMON I.F. LINE
DIVERSITY METER-A
250 V-A
COMMON 250 V
SEND-RECEIVE SWITCH LI
RECEIVER A
I.F. AMPLIFIER
CHASSIS
BREAK-IN
500 Ω
PINS UP
AUDIO AMPLIFIER SOCKET
A2
A1
G
RECEIVER A

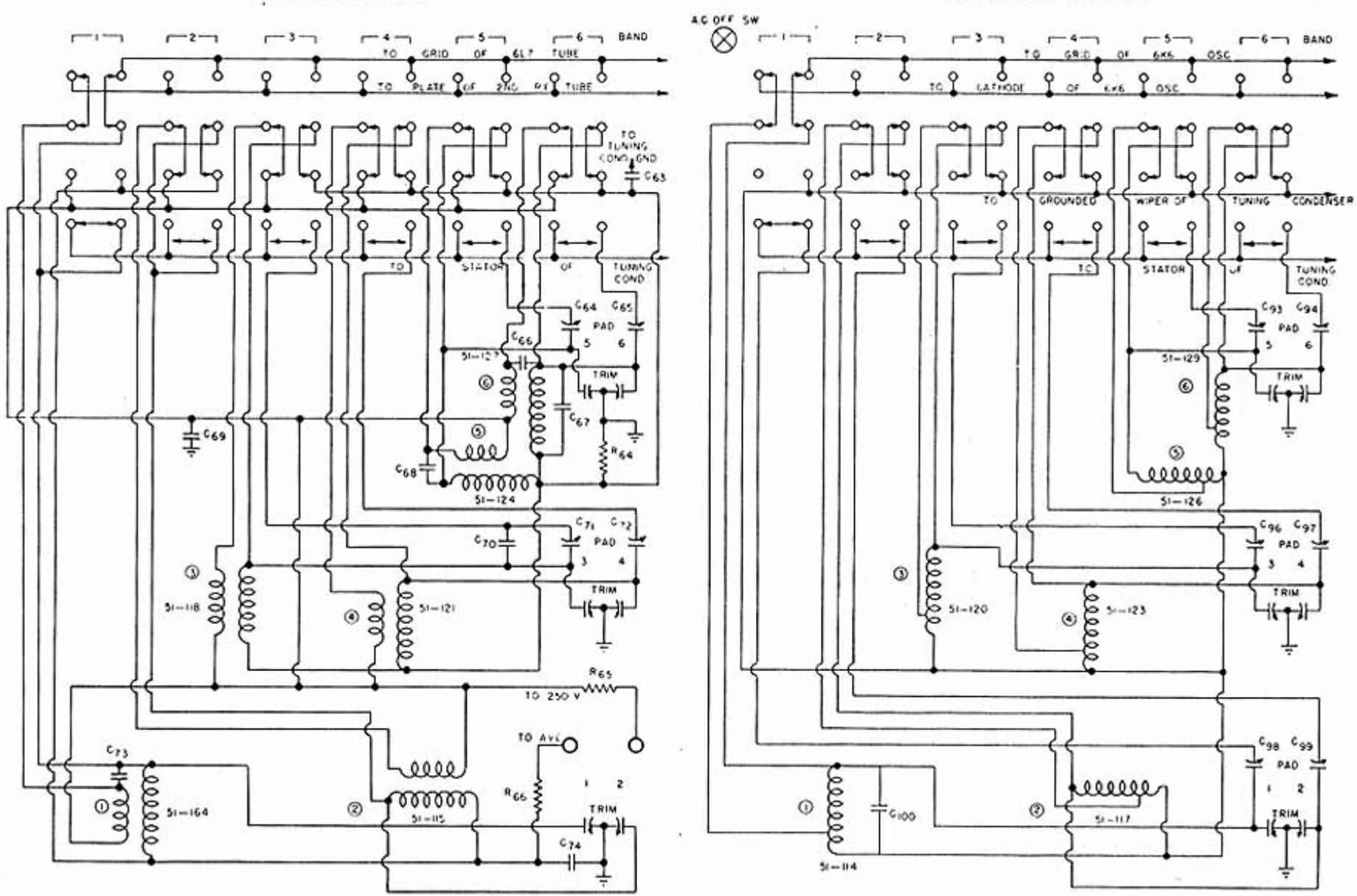

MODEL DD-I RECEIVER
OM VIEW
R.F. GAIN BALANCE
MASTER R.F. GAIN
I.F. GAIN
+10 DB.
-10 DB.
NORMAL
CIRCUIT BALANCE
RECEIVER
DUAL
OFF
ON
A.C.-OFF SW.
ANL SW.
OSCILLATOR SECTION
PAD TRIM PAD TRIM PAD TRIM
2ND R.F. SECTION B
2ND R.F. SECTION A
1ST R.F. SECTION B
1ST R.F. SECTION A
ANTENNA SECTION B
ANTENNA SECTION A
TO I.F.
PHASE ADJ.
6K7
6L7
DIV. MTR.
6J5G
ANL.
6H6
2nd DET.
RECEIVER B I.F. AMPLIFIER CHASSIS
RECEIVER B
LINE CORD RECEPTACLE
DIVERSITY METER SOCKET
POWER-PACK SOCKET

ANTENNA SECTION



1 ST R.F. SECTION




2ND R.F. SECTION
OSCILLATOR SECTION
A.C. OFF SW
BAND
TO GRID OF 6L7 TUBE
TO PLATE OF 2ND R.F. TUBE
TO GRID OF 6K6 OSC
TO CATHODE OF 6K6 OSC
TO TUNING COND GND
C63
TO STATOR OF TUNING COND
TO GROUNDED WIPER OF TUNING CONDENSER
C64 C65 PAD 5 6
C66
TRIM
C67
R64
C68
C69
S1-124
S1-126
C70
C71 C72 PAD 3 4
S1-118
S1-121
S1-120
S1-123
R65
TO 250 V
TO AVC
C73
S1-164
S1-115
R66
C74
1 2
C93 C94 PAD 5 6
C96 C97 PAD 3 4
C98 C99 PAD 1 2
C100
S1-114
S1-117