

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 Dual 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 456 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 return 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 "O" 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	30 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

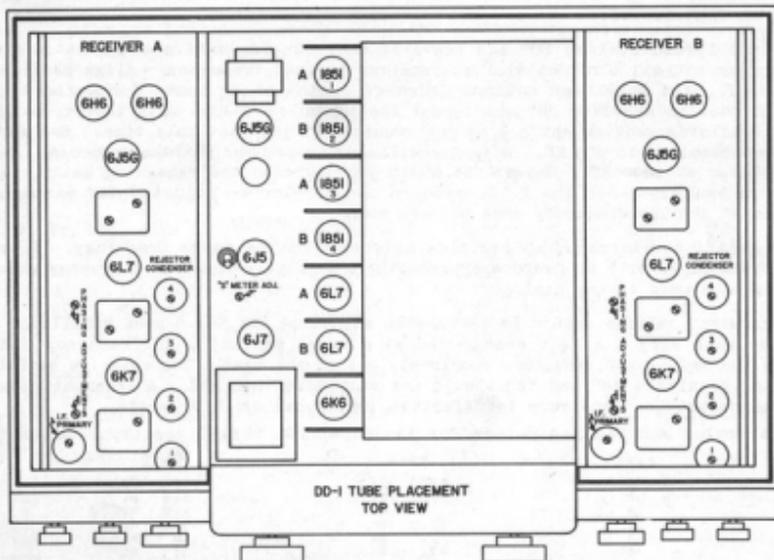
Push in No. 6 Band Button. With gain controls at maximum, adjust the zero reset control on all meters for zero.

NOTES:

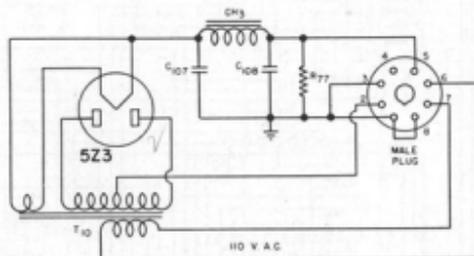
If overload occurs on the broadcast band it might be advisable to shorten the length of the receiving antennas. If this recommendation is of little help check for a short to ground in the A.V.C. circuit.

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.

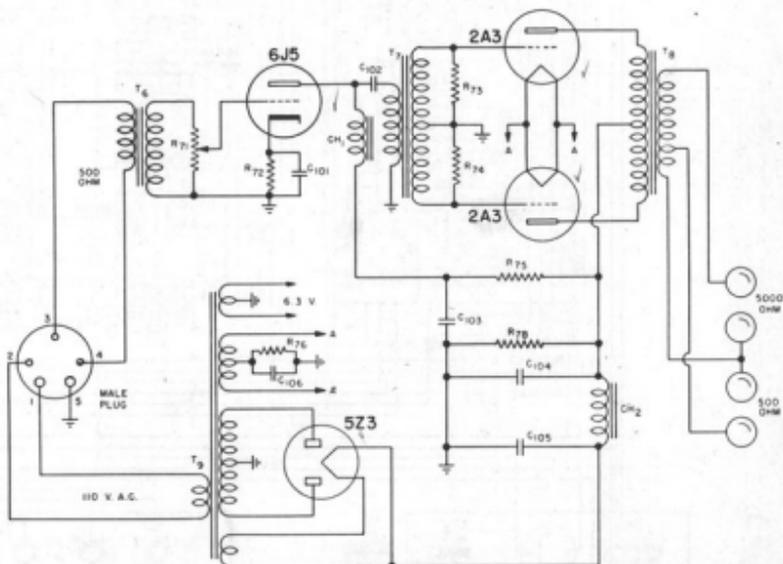


POWER PACK
DD-P

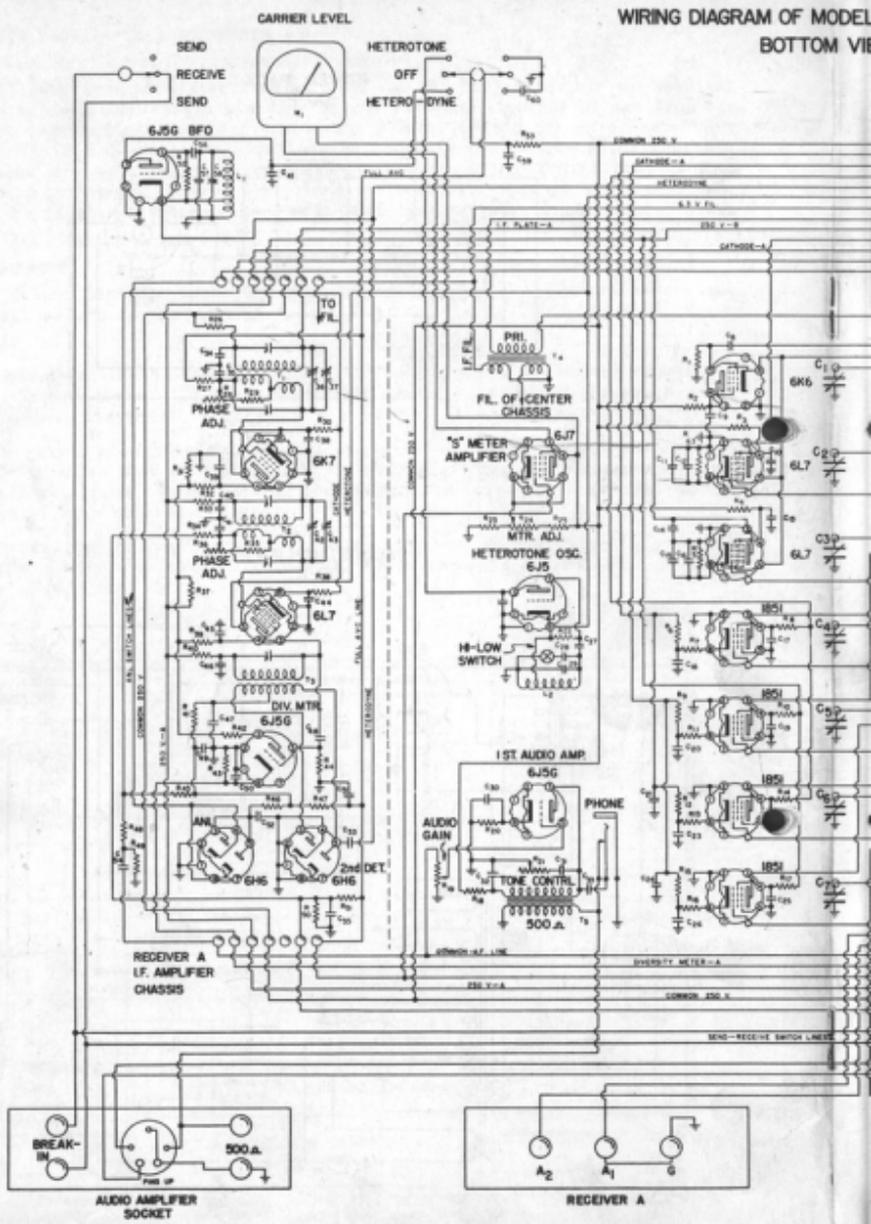


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AUDIO AMPLIFIER
DD-A



WIRING DIAGRAM OF MODEL
BOTTOM VIEW



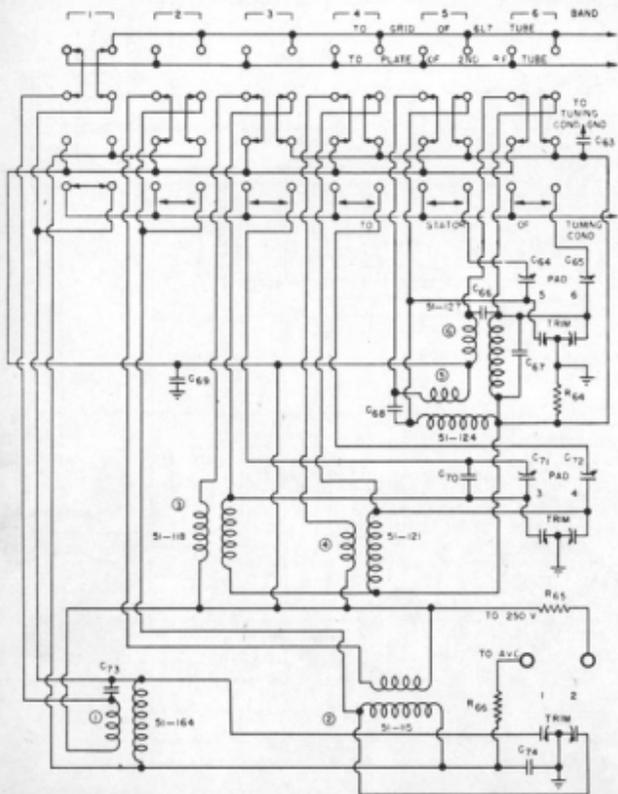
RESISTOR PARTS LIST MODEL DD-1

<u>NO.</u>	<u>VALUE OHMS</u>	<u>WATTAGE</u>	<u>PARTS NO.</u>	<u>NO.</u>	<u>VALUE OHMS</u>	<u>WATTAGE</u>	<u>PARTS NO.</u>
R1	50,000	1/3	20-084	40	1,000	1/3	20-033
2	3,500	2	22-126	41	20,000	1/3	20-072
3	30,000	1	22-075	42	5,000	1/3	22-053
4	30,000	1	22-075	43	10,000	1/3	20-063
5	600	1/3	22-128	44	1,000,000	1/3	20-108
6	120	1/3	22-127	45	100,000	1/3	20-093
7	35	1/3	20-115	46	1,000,000	1/3	20-108
8	60,000	1/3	22-056	47	500,000	1/3	22-098
9	120	1/3	22-127	48	100,000	1/3	20-093
10	60,000	1/3	22-056	49	250,000	1/3	20-099
11	35	1/3	20-115	50	750,000	1/3	22-104
12	120	1/3	20-116	51	500,000	1/3	22-098
13	35	1/3	20-115	52	50,000	1/3	20-084
14	60,000	1/3	22-056	53	20,000	1	20-070
15	120	1/3	22-127	54	2,500	Mas. R.F. Gain	25-122
16	35	1/3	20-115	55	1,000	Bal. Control	25-035
17	60,000	1/3	22-056	56	1,000	Bal. Control	
18	5,000	1	22-051	57	600	1/3	22-125
19	500,000	Audio Gain	25-038	58	600	1/3	22-125
20	4,000	1/3	22-050	59	600	1/3	22-125
21	100,000	Tone Control	25-037	60	600	1/3	22-125
22	50,000	1/3	20-084	61	200	1/3	22-014
23	400	1/3	22-023	62	200	1/3	22-014
24	500	1/3	22-026	63	600	1/3	22-125
25	50,000	1	22-081	64	100,000	1/3	20-093
26	1,000	1/3	20-033	65	1,000	1/3	20-033
27	1,000	1/3	20-033	66	100,000	1/3	20-093
28	15,000	1/3	22-068	67	1,000	1/3	20-033
29	30,000	1/3	22-077	68	100,000	1/3	20-093
30	300	1/3	22-020	69	100,000	1/3	20-093
31	20,000	1	20-072	70	100,000	1/3	20-093
32	1,000	1/3	20-033	71	250,000	A.F. Gain Con.	25-038
33	1,000	1/3	20-033	72	1,000	1	22-030
34	1,000	1/3	20-033	73	100,000	1/2	22-091
35	25,000	1/3	22-074	74	100,000	1/2	22-091
36	15,000	1/3	22-068	75	10,000	2	24-042
37	15,000	2	22-129	76	750	10	26-000
38	300	1/3	22-020	77	10,000	20	26-002
39	1,000	1/3	20-033	78	30,000	20	26-001

CONDENSER PARTS LIST MODEL DD-1

NO.	CAPACITY	TYPE	VOLT-AGE	PART NO.	NO.	CAPACITY	TYPE	VOLT-AGE	PART NO.
C1					55	.05 mfd.		400	41-005
2		Main		48-023	56	100. mfd.	Mica		40-007
3	440 mfd.				57	400. mfd.	Pad		44-036
4	per section	Tunive			58	25. mfd.	Air		48-034
5	" "			48-024	59	10. mfd.	Elec.	400	42-007
6	" "	Gang			60	8. mfd.		150	45-012
7	" "				61	.01 mfd.		600	45-002
8	100 mfd.	Mica		40-011	62	.01 mfd.		600	45-002
9	.01 mfd.		600	45-002	63	.005 mfd.	Mica		45-011
10	.05 mfd.		400	41-005	64	315. mfd.	Pad		44-028
11	.01 mfd.	Mica		43-022	65	100. mfd.	Pad		
12	.05 mfd.		200	41-004	66	15. mfd.	Mica		40-022
13	.05 mfd.		400	41-005	67	10. mfd.			40-021
14	15 mfd.	Mica		40-022	68	10. mfd.			40-021
15	.01 mfd.	Mica		43-022	69	.002 mfd.	Mica		40-013
16	.05 mfd.		200	41-004	70	1500. mfd.	Mica		43-021
17	.05 mfd.		400	41-005	71	2200. mfd.	Pad		44-029
18	.01 mfd.	Mica		43-022	72	440 mfd.	Pad		
19	.05 mfd.		400	41-005	73	50. mfd.	Mica		40-023
20	.01 mfd.	Mica		43-022	74	.005 mfd.	Mica		45-011
21	1 mfd.		200	41-012	75	.005 mfd.	Mica		45-011
22	.05 mfd.		400	41-005	76	315. mfd.	Pad		44-028
23	.01 mfd.	Mica		41-022	77	100. mfd.	Pad		
24	1 mfd.		200	41-012	78	15. mfd.	Mica		40-022
25	.05 mfd.		400	41-005	79	10. mfd.	Mica		40-021
26	.01 mfd.	Mica		43-022	80	.002 mfd.	Mica		40-013
27	.01 mfd.		400	41-001	81	1500. mfd.	Mica		43-021
28	.01 mfd.	Mica		41-022	82	2200. mfd.	Pad		44-029
29	.01 mfd.	Mica		41-022	83	440. mfd.	Pad		
30	20. mfd.		25	42-025	84	.005 mfd.	Mica		45-011
31	.02 mfd.		200	41-002	85	315. mfd.	Pad		44-028
32	10. mfd.	Elec.	250	42-007	86	100. mfd.	Pad		
33	.02 mfd.		400	41-003	87	25. mfd.	Mica		40-024
34	.05 mfd.		600	45-007	88	1000. mfd.	Mica		40-011
35	.01 mfd.		400	41-001	89	2200. mfd.	Pad		44-029
36	25. mfd.	Air		48-012	90	440. mfd.	Pad		
37	1. mfd.	Air		48-027	91	25. mfd.	Mica		40-024
38	.05 mfd.		400	41-005	92	25. mfd.	Mica		40-024
39	.05 mfd.		400	41-005	93	230. mfd.	Pad		44-030
40	.05 mfd.		600	45-007	94	90. mfd.	Pad		
41	.01 mfd.		400	41-001	95				
42	25. mfd.	Air		48-012	96	1120. mfd.	Pad		44-031
43	1. mfd.	Air		48-027	97	340. mfd.	Pad		
44	.05 mfd.		400	41-005	98	540. mfd.	Pad		44-032
45	.05 mfd.		400	41-005	99	1.070mfd.	Pad		
46	.05 mfd.		600	45-007	100	6 mfd.	Mica		40-025
47	50. mfd.	Mica		40-023	101	10. mfd.	Elec.	50	42-003
48	100. mfd.	Mica		40-011	102	.1 mfd.		600	45-008
49	50. mfd.	Mica		40-023	103	1. mfd.		400	41-013
50	.05 mfd.		400	41-005	104	16. mfd.		475	42-022
51	.05 mfd.		400	41-005	105	16. mfd.		475	42-022
52	.05 mfd.		400	41-005	106	20. mfd.		100	42-023
53	10. mfd.			40-021	107	16. mfd.		400	42-019
54	.05 mfd.		400	41-005	108	16. mfd.		400	42-019
					109	.1 mfd.		200	41-006

2ND RF SECTION



OSCILLATOR SECTION

