Allied Radio Corp.

	Model: 9645	Chassis:	Year: Pre October 1936
	Power:	Circuit:	IF:
	Tubes:		
	Bands:		

Resources
Riders Volume 7 - ALLIED 7-6
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MODELS G-9643,9645
Schematic

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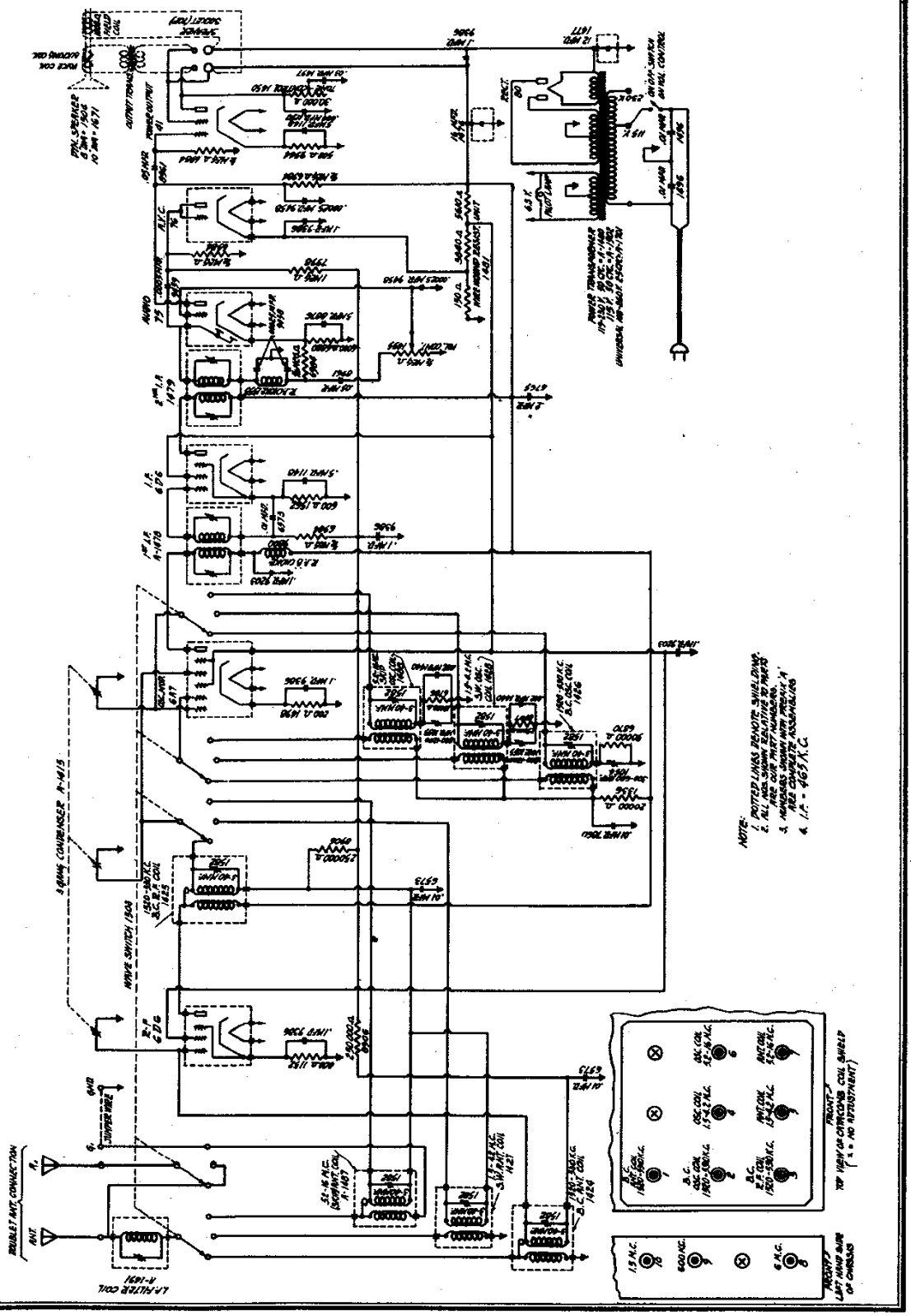

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SERVICE NOTES
for the
SEVEN TUBE AC OPERATED
THREE BAND SUPERHETERODYNE RECEIVER
1520-550 KILOCYCLES
1.5-4.2 MEGACYCLES
5.4-16 MEGACYCLES

Realignment of this receiver should never be necessary unless one of the oscillator, antenna, or RF coils has been replaced and then only the frequency band in which the coil is used will require realignment. Lack of sensitivity, selectivity, and poor tone quality may be due to any one or a combination of causes such as weak or defective tubes or speaker, inadequate or excessively long antenna, open or grounded bias resistor, bypass condenser, etc. Under no circumstances should realignment be attempted until all other possible sources of trouble have been first thoroughly investigated and have definitely proven not to be the cause. If an IF tube is replaced it is advisable to realign the IF amplifier particularly if the replacement tube is made by a different manufacturer than the one in the receiver.

NOTE: NEVER LIFT THE RECEIVER BY GRASPING THE CATACOMB SHIELD, TO DO SO MAY MOVE THE SHIELD THEREBY DETUNING THE RECEIVER.

ALIGNMENT PROCEDURE:

It is important when aligning to carefully follow the procedure in the order given, otherwise the receiver will lack sensitivity and the dial calibration will be incorrect. IT IS IMPERATIVE THAT AN ACCURATELY CALIBRATED OSCILLATOR BE USED WITH SOME TYPE OF OUTPUT MEASURING DEVICE.

INTERMEDIATE ALIGNMENT:

1. Connect the high side of the oscillator output to the control grid of the 6A7 tube, leaving the grid cap disconnected. Connect the ground side of the oscillator to the receiver chassis.

2. Set the test oscillator frequency to 465 kilocycles. (This must be accurate).

3. Align the first intermediate transformer by turning one of the trimmer screws up and down (increasing and decreasing capacity) until maximum reading is obtained on the output meter, after which adjust the other trimmer screw of the same transformer for maximum sensitivity.

4. Adjust the other intermediate transformer in the same manner.

NOTE: Two type intermediate transformer trimmers have been used in this receiver. One type has two oval holes in the top of the shield, one for each trimmer. The other type has a brass hex nut for adjusting one trimmer, the other intermediate trimmer being adjusted with the trimmer screw located inside of the brass hex nut. Regardless of which type trimmer is used, the procedure is the same.

TO ALIGN THE VARIABLE CONDENSER:

Adjustment of the trimmer condensers, located inside of and accessible through the holes found in the top of the catacomb shield (mounted on top and in the left hand front corner of the receiver) will be referred to by numbers as indicated on the circuit diagram showing the relative location of these trimmers.

1. Connect the high output side of the test oscillator to the receiver antenna post through a 250 MMFD (.00025 MFD) condenser and the ground to the set ground post.

2. Place the band selector switch for operation on the 1520 to 530 kilocycle (broadcast) band. Tune the receiver to exactly 1400 kilocycles on the dial and set the test oscillator frequency to exactly 1400 kilocycles. THEN BRING IN THE 1400 KILOCYCLE SIGNAL TO MAXIMUM OUTPUT BY ADJUSTING THE TRIMMER MARKED NO. 2 ON CATACOMB DIAGRAM, after which adjust No. 1 and No. 3 trimmers in the order named for maximum sensitivity.

3. Leave the band selector switch for operation on the broadcast band (1520 to 530 kilocycles) and tune the receiver and set the oscillator to approximately 600 kilocycles. Then adjust the 600 kilocycle padding condenser No. 9 which is located on and accessible through the hole in the left hand side of the chassis for maximum sensitivity. As this adjustment is quite critical, it is necessary to rock the variable condenser slightly to the right and to the left to find the point of greatest sensitivity.

4. Recheck the alignment at 1400 kilocycles as the 600 kilocycle adjustment may have changed the alignment at 1400 kilocycles.

5. Place the band selector switch for operation on the 1.5 to 4.2 megacycle band and set the test oscillator frequency and tune the receiver dial to exactly 3.8 megacycles. THEN TUNE IN THIS 3.8 MEGACYCLE SIGNAL TO MAXIMUM OUTPUT BY ADJUSTING CATACOMB TRIMMER NO. 4, next adjust trimmer No. 5 for maximum sensitivity.

6. With the band selector switch in the same position (1.5 to 4.2 megacycle band) tune the receiver dial and set the oscillator frequency to approximately 1.7 megacycles and then while rocking the variable condenser slightly to the right and left, adjust the 1.7 megacycle trimmer No. 10 (located on the left hand side of the chassis) for maximum sensitivity.

7. Recheck 3.8 megacycle adjustments.

8. Adjust the band selector switch for operation on the 5.2 to 16 megacycle band and tune the receiver dial and set the oscillator frequency to exactly 15 megacycles. When adjusting catacomb trimmer No. 6 two peaks (the fundamental and the image peak) will be noticed. CARE MUST BE TAKEN SO THAT THE FUNDAMENTAL PEAK AND NOT THE IMAGE PEAK IS USED FOR ALIGNING THE RECEIVER AT 15 MEGACYCLES. First back off catacomb trimmer No. 6 to minimum capacity, next screw down the trimmer (add capacity) until the first peak which is the fundamental and the one you are to use is tuned in. If the trimmer is screwed down beyond the point where this first peak is received the incorrect image peak will be tuned in. When the first peak has been located adjust catacomb trimmer No. 6 to BRING IN THE 15 MEGACYCLE SIGNAL TO MAXIMUM OUTPUT. After completing this adjustment always check to see if the proper peak has been used. To do this leave the test oscillator frequency at 15 megacycles and increase the output of the test oscillator, then tune the receiver dial to approximately 14 megacycles. Vary the receiver dial slightly to the right and left of 14 megacycles and if the fundamental peak was used in aligning at 15 megacycles the test oscillator signal will be heard at approximately 14 megacycles on the set dial. If it is not possible to receive the signal then the fundamental peak was not used and the 15 megacycle adjustment of trimmer No. 6 must be gone over and properly adjusted. After correctly completing catacomb trimmer No. 6 adjustment adjust catacomb trimmer No. 7 to maximum sensitivity. Should two peaks be noticed with this trimmer always adjust trimmer No. 7 to the one that requires the most capacity to tune in.

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Alignment,Part 2
Voltage,Parts List

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9. Leave the band selector switch for operation on 5.4 to 16 megacycle band, set the oscillator frequency and tune the receiver dial to approximately 6 megacycles. While rocking the variable condenser slightly to the right and left, adjust the 6 megacycle trimmer No. 8 (located on the left hand side of the chassis) for maximum sensitivity.

10. Recheck 15 megacycle adjustments.

11. Some code and aircraft signals are broadcast on a frequency exactly the same or near the IF frequency of the receiver. To eliminate interference from these signals a 465 kilocycle filter (mounted in the coil shield located underneath and towards the front of the chassis) is incorporated in the set. To adjust, set the oscillator frequency (with oscillator output connected to set antenna and ground) TO EXACTLY 465 KILOCYCLES turn the receiver on end and adjust the trimmer located on and accessible through the top of the filter shield for MINIMUM 465 KILOCYCLE SIGNAL.

This completes the alignment and it is recommended that all of the adjustments be gone over again. Generally it will be found that improved results can be obtained if this is done. Assuming that all tubes and component parts of the set are okeh, extreme inaccuracies in the dial calibration, low sensitivity, and poor selectivity are indications that the alignment procedure has not been followed. Should these conditions be apparent, proceed to realign, starting at the IF alignment and carefully follow each step in the order given.

VOLTAGE TABLE

Line voltage : 115 Volt 60 Cycle
Volume Control : Full on
Wave Band : Broadcast

TUBE	FIL.	PLATE	SCREEN	CATHODE	GRID NO.1	GRID NO.2	GRID NO. 3 and 5
6A7 Oscillator & 1st Detector	6.2	250	94	2.5	4.5	175	94
6D6 Radio Frequency	6.2	250	94	3.4			
6D6 Intermediate Frequency	6.2	250	94	3.2			
75 2nd Detector & 1st Audio	6.2	70#		1.2			
76 Automatic Volume Control	6.2			3.4			
41 Output	6.2	250	94	15			
80 Rectifier	4.9		80 M. A. Total Drain				

#- Triode Plate
Read all voltages from socket to chassis with 1,000 ohm per volt meter.

PART NUMBER		LIST PRICE	PART NUMBER		LIST PRICE
1478	First I. F. Transformer	$2.10	6765	.2 Mfd. 400 Volt Condenser	$ .26
1479	Second I. F. Transformer	2.10	9386	.1 Mfd. 200 Volt Condenser	.19
1424	Antenna Coil for 1520-530 K.C. Band	.90	1148	.5 Mfd. 200 Volt Condenser	.55
1426	Oscillator Coil for 1520-530 K.C. Band	.75	9203	.1 Mfd. 400 Volt Condenser	.20
1425	R. F. Coil for 1520-530 K. C. Band	.95	6573	.01 Mfd. 200 Volt Condenser	.17
1427	Antenna Coil for 1.5-4.2 M. C. Band	.55	7998	1 Meg Ohm 1/3 Watt Resistor	.19
1428	Oscillator Coil for 1.5-4.2 M. C. Band	.55	6984	500,000 Ohm 1/3 Watt Resistor	.19
1487	Antenna Coil for 5.4-16 M. C. Band	.70	6880	6,000 Ohm 1/3 Watt Resistor	.19
1488	Oscillator Coil for 5.4-16 M.C. Band	.75	1498	200 Ohm 1/3 Watt Resistor	.19
1433	Nine Cell Gimcomb Coil Shield	1.50	1152	400 Ohm 1/3 Watt Resistor	.19
1503	Wave Switch 3 gang 3 positions	2.25	9544	500 Ohm 1 Watt Resistor	.22
9799	Trimmer Condenser	.15	1363	600 Ohm 1/3 Watt Resistor	.19
1054	Padding Condenser	.55	1701	Power Transformer (Universal)	9.25
1055	Trimmer Condenser	.55	1502	Power Transformer 115 Volt 50-60 Cycle	5.25
1491	I. F. Filter Assembly	1.50	1480	Power Transformer 115-230 Volt 50-60 Cycle	5.75
9800	R. F. "B" Choke	.22	1481	Vitreous Resistor Strip	1.10
1415	Three Gang Condenser	4.50	1504	8" Dynamic Speaker	9.50
1505	Two Speed Planetary Drive	1.10	1671	10" Dynamic Speaker	12.00
1511	Tuning Dial with Glass	2.50	1738	Large Bakelite Tuning Knob (Bottom Sec.)	.25
1476	16 Mfd. Wet Electrolytic Condenser	1.40	1739	Bakelite Tone Control & Top Section tuning control knob	.22
1477	12 Mfd. Wet Electrolytic Condenser	1.25			
8876	5 Mfd. Dry Electrolytic Condenser	.77	1794	Bakelite Band Selector Knob	.25
9458	.00025 Mfd. Moulded Condenser	.21	1740	Bakelite Volume Control Knob	.22
9459	.0005 Mfd. Moulded Condenser	.21	1567	Large Wood Tuning Knob (Bottom Section)	.30
1496	.01 Mfd. 600 Volt Condenser	.18	1568	Small Wood Tuning Knob (Top Section)	.25
8961	.05 Mfd. 400 Volt Condenser	.18	1570	Wood Band Selector Knob	.30
7862	.004 Mfd. 600 Volt Condenser	.17	1569	Wood Volume Control Knob	.25
1497	.03 Mfd. 600 Volt Condenser	.19	1571	Wood Tone Control Knob	.25