

## Allied Radio Corp.

**Model: 9639**

**Chassis:**

**Year: Pre October 1936**

**Power:**

**Circuit:**

**IF:**

**Tubes:**

**Bands:**

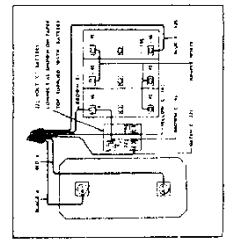
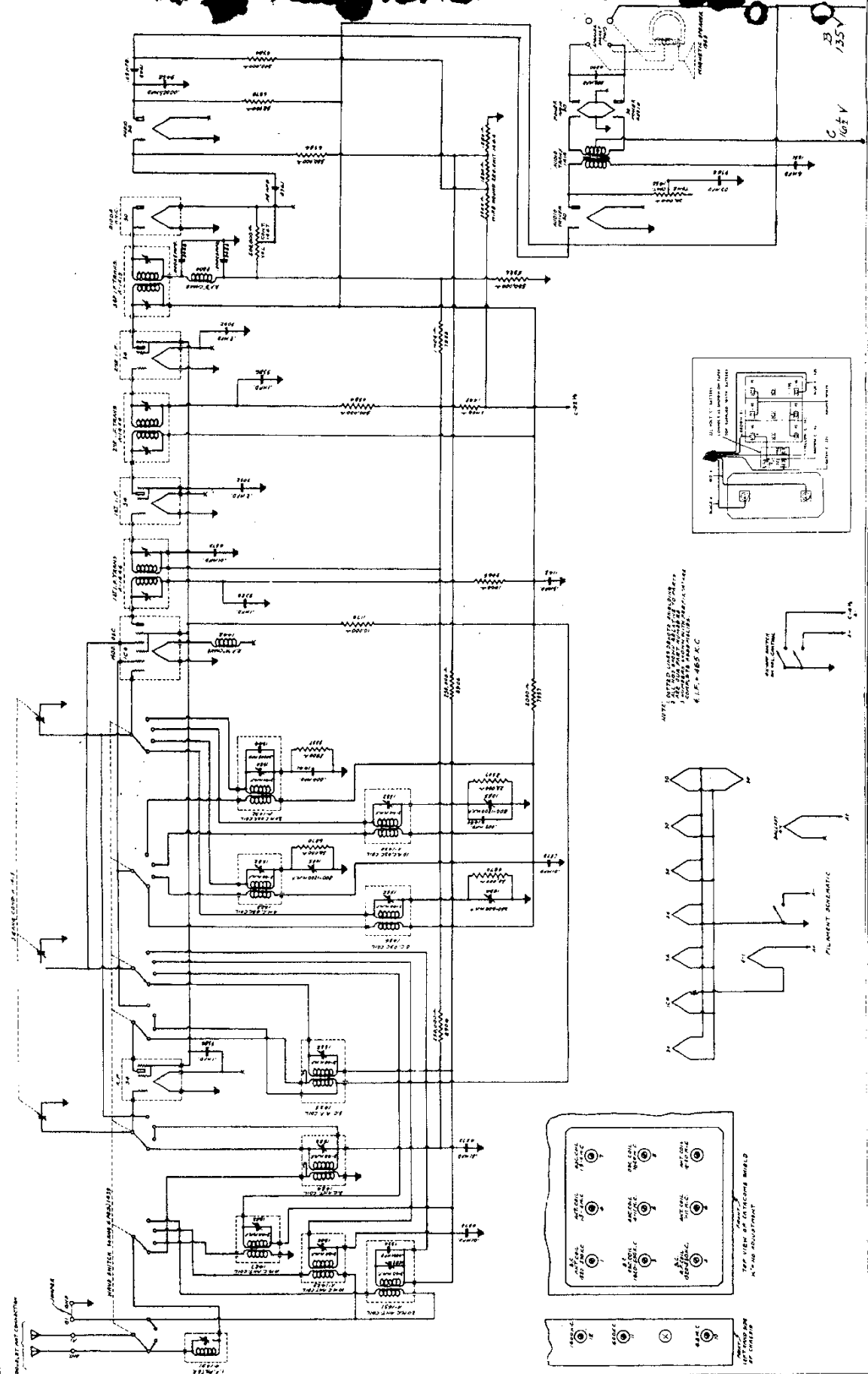
### Resources

[Riders Volume 7 - ALLIED 7-9](#)

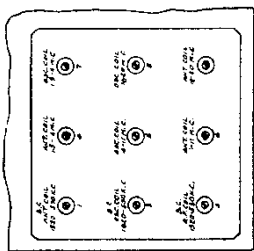
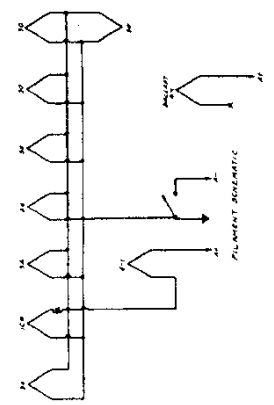
[Riders Volume 7 - ALLIED 7-11](#)

[Riders Volume 7 - ALLIED 7-12](#)

ALLIED RADIO CORP.



NOTE: INTERLOCK SWITCHES ARE USED IN ALL SETS WITH THIS FILAMENT CONTROL SYSTEM.



## ALLIED RADIO CORP.

MODEL G-9629,9631,9633

9635,9637,9639

Alignment, Part 1

## SERVICE NOTES

for the

TEN TUBE BATTERY OPERATED  
 FOUR BAND SUPERHETERODYNE RECEIVER  
 1520-535 KILOCYCLES  
 1.5 -4.2 MEGACYCLES  
 4 -11 MEGACYCLES  
 10 -20 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 that 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 been 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 one of a different manufacture 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 1C6 tube, leaving the grid cap disconnected. Connect the ground side of the oscillator to the receiver ground post.
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 transformers in the same manner.

**NOTE:** Two type intermediate transformer trimmers have been used in this receiver. One type has two parallel 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 (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 oscillator through a 250 mmfd. (.00025 Mfd.) to the receiver antenna post and the ground to the ground post.
2. Place the band selector switch for operation on the 1520 to 535 kilocycle band (broadcast); 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 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 (1520-535 kilocycles) and tune the receiver and set the test oscillator to approximately 600 kilocycles. Then while rocking the condenser slightly to the right and left adjust the 600 kilocycle padding condenser No. 11, which is located on and accessible through the hole provided on the left hand side of the chassis, for maximum 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. 7. Next adjust catacomb trimmer No. 4 for maximum sensitivity.
6. With the band selector switch in the same position (1.5-4.2 megacycle band) tune the receiver dial and set the oscillator frequency to approximately 1600 kilocycles, and then while rocking the variable condenser slightly to the right and left adjust the 1600 kilocycle trimmer No. 12 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 4 to 11 megacycle band and tune the receiver and set the oscillator frequency to exactly 10.5 megacycles. When adjusting catacomb trimmer No. 5 two peaks (the fundamental and the image peak) will be noticed. CARE MUST BE TAKEN SO THAT THE FUNDAMENTAL PEAK IS NOT THE IMAGE PEAK IS USED FOR ALIGNING THE RECEIVER AT 10.5 MEGACYCLES. First back off catacomb trimmer No. 5 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. 5 to BRING IN THE 10.5 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 10.5 megacycles, increase its output, and tune the receiver dial to approximately 9.5 megacycles. Vary the receiver dial slightly to the right and left of 9.5 megacycles and if the fundamental peak was used in aligning at 10.5 megacycles the test oscillator signal will be heard at approximately 9.5 megacycles on set dial. If it is not possible to receive the signal then the fundamental peak was not used and the 10.5 megacycle adjustment of trimmer No. 5 must be gone over and properly adjusted. After correctly completing catacomb trimmer No. 5 adjustment adjust catacomb trimmer No. 6 for maximum sensitivity. Should two peaks be noticed with this trimmer always adjust trimmer No. 6 to the one that requires the most capacity.

MODELS G-9629, 9631, 9635  
9635, 9637, 9639

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Alignment, Part 2  
Voltage, Parts List

9. With the band selector switch adjusted for operation on the same band (4-11 megacycles) set the test oscillator frequency and tune the receiver dial to approximately 4.8 megacycles. Then while rocking the variable condenser slightly to the right and left adjust the 4.8 megacycle trimmer No. 10, located on the left hand side of the chassis for maximum sensitivity.

10. Recheck the 10.5 megacycle adjustment.

11. Adjust the band selector switch for operation on the 10 to 20 megacycle band, tune the receiver dial and set the oscillator frequency to exactly 19 megacycles. When adjusting catacomb trimmer No. 8 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 19 MEGACYCLES. First back off catacomb trimmer No. 8 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. 8 to BRING IN THE 19 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 19 megacycles, increase its output, and tune the receiver dial to approximately 18 megacycles. Vary the receiver dial slightly to the right and left of 18 megacycles and if the fundamental peak was used in aligning at 19 megacycles the test oscillator signal will be heard at approximately 18 megacycles on set dial. If it is not possible to receive the signal then the fundamental peak was used and the 19 megacycle adjustment of trimmer No. 8 must be gone over and properly adjusted. After correctly completing catacomb trimmer No. 8 adjustment adjust catacomb trimmer No. 9 for maximum sensitivity. Should two peaks be noticed with this trimmer always adjust trimmer No. 9 to the one that requires the most capacity.

12. 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 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 o.k., then 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

- \*A\* Battery - 3 Volt Dry Cell
- \*B\* Battery - 3 45 Volt "B" Battery
- \*C\* Battery - 1 22½ Volt "C" Battery

TUBE		FILAMENT	PLATE	SCREEN	GRID NO. 2	GRID NO. 3 & 5	CONTROL GRID
106	Oscillator & 1st Detector	1.9	135		135	75	3.5
34	Radio Frequency	1.9	135	75			
34	1st Intermediate Frequency	1.9	135	75			
34	2nd Intermediate Frequency	1.9	135	75			
30	2nd Detector & AVC	1.9	60#	(Total "A" Drain 600 M.A.)			
30	1st Audio	1.9	125	(Total "B" Drain 23 M. A. with no signal)			
30	Audio Driver	1.9	125				
30	Output	1.9	125				
30	Output	1.9	125				

# Comparative voltage only. Read all voltages from socket to chassis with 1,000 ohm per volt meter. When making voltage checks use batteries that deliver full voltage with the receiver turned on.

PART NUMBER		LIST PRICE	PART NUMBER		LIST PRICE
1446	First and Second I. F. Transformer	\$2.05	1447	Volume Control with D.P.S.T. Switch	\$1.26
1413	Third I. F. Transformer	2.10	1450	Tone Control	.83
1424	Antenna Coil for 1520-535 K. C. Band	.90	9458	.00025 Mfd. Moulded Condenser	.21
1425	R. F. Coil for 1520-535 K. C. Band	.98	1544	.0005 Mfd. Moulded Condenser	.21
1426	Oscillator Coil for 1520-535 K. C. Band	.72	9766	.03 Mfd. 400 Volt Condenser	.19
1427	Antenna Coil for 1.5-4.2 M. C. Band	.60	9032	.2 Mfd. 200 Volt Condenser	.23
1428	Oscillator Coil for 1.5-4.2 M. C. Band	.60	9386	.1 Mfd. 200 Volt Condenser	.18
1429	Antenna Coil for 4-11 M. C. Band	.77	8961	.05 Mfd. 400 Volt Condenser	.17
1430	Oscillator Coil for 4-11 M. C. Band	.80	6590	.002 Mfd. 400 Volt Condenser	.44
1431	Antenna Coil for 10-20 M. C. Band	.73	1146	.5 Mfd. 200 Volt Condenser	.19
1432	Oscillator Coil for 10-20 M. C. Band	.72	1449	3 Meg Ohm 1/3 Watt Resistor	.19
1433	9 Cell Catacomb Coil Shield	1.50	7998	1 Meg Ohm 1/3 Watt Resistor	.19
1439	Four Gang Four Position Wave Switch	3.10	6984	500,000 Ohm 1/3 Watt Resistor	.19
9799	Trimmer Condenser	.15	9065	1,000 Ohm 1/3 Watt Resistor	.19
1054	Trimmer Condenser	.55	1176	10,000 Ohm 1/2 Watt Resistor	.19
1055	Trimmer Condenser	.55	6-1	Voltage Regulator Tube	3.00
1415	Three Gang Condenser	4.40	1420	Antenna and Ground Connector Strip	.24
1453	Single Speed Dial & Drive	2.75	1353	8" Magnetic Speaker	7.00
1505	Two Speed Planetary Drive only	1.10	1508	Tuning Knob (Bottom Section)#	.30
1510	Dial Mechanism & glass for Two Speed Planetary Drive	2.75	1509	Tuning Knob (Top Section)#	.25
1491	I. F. Filter Assembly	1.50	1500	Volume Control and Band Selector Knob with indicator line#	.30
1448	R. F. "A" Choke	.45	1565	Tone Control Knob#	.27
9800	R. F. "B" Chokes	.54			
1451	Seven Conductor Battery Cable	.80	1794	Volume and Band Selector Knob with indicator line##	.25
1291	4 Mfd. Wet Electrolytic Condenser	.85			
1444	Resistor Strip	1.10	1740	Tuning Control Knob##	.22
1414	Audio Transformer	2.20	1739	Tone Control Knob###	.22

# For two speed planetary drive only, specify if wooden or bakelite knobs are desired.  
## For single speed drive only, specify if wooden or bakelite knobs are desired.