

MODELS AY194, AY195

Chassis AY  
MODEL BD197  
Chassis BD

EMERSON RADIO & PHONO CORP.

Alignment, Voltage  
Changes, Parts

PRODUCTION CHANGES

BD Chassis bearing serial numbers above 1580,950 differ from the schematic as follows:

- (a) C28, C28 and C29 have been removed.
- (b) C27 is connected from 25L5 grid to cathode.
- (c) A 4 point tone control, has been added, consisting of the following parts: Price 80  
One 0.04 capacitor, part no. 42S-317A ..... Price 20  
One 0.04 capacitor, part no. 42C-349 ..... Price 20  
One 0.07 mf, 400 volt tubular condenser, part no. 5DC-389 ..... Price 20

ADJUSTMENTS

An oscillator with frequencies of 456, 600, 1400 and 15,000 kc should be used. In addition an output meter should be used across the voice coil or output transformer for observing maximum response. The set's oscillator is higher in frequency than the signal, so images should be observed on the low frequency side of the signal. Always use the minimum capacity peak on oscillator trimmers and maximum capacity peaks on antenna trimmers. The set motor in adjusting trimmers should always be a tightening one, not a loosening one.

Always use as weak a test signal as possible during alignment.

Never leave a trimmer with the outside plate so loose that there is not tension on the screw. Either bend the plate up or remove the screw entirely.

Location of Coils and Trimmer Adjustments:

The broadcast antenna coil, short wave antenna coil, and 456 kc wave trap are one assembly mounted underneath the chassis deck to the right of the variable condenser. The trimmers for these coils are accessible through three holes in the top of the chassis. The trimmer closest to the front of the chassis is for the short wave antenna coil. The central trimmer is for the broadcast antenna coil. The trimmer farthest from the front of the chassis is for the 456 kc wave trap.

The broadcast and short-wave oscillator coils are located below and to the left of the variable condenser. For these coils are accessible through two holes in the top of the chassis. The trimmer closest to the variable condenser is for the short-wave oscillator coil and the trimmer farthest from it is for the broadcast oscillator coil.

The two I-F transformers are in oblong cans located on the top of the chassis. The first I-F transformer is the one behind and to the left of the variable condenser. The second I-F transformer is the one located just to the right of the speaker.

The broadcast series padding condenser is located on the top of the chassis to the left of the variable condenser.

I-F Transformer and Wave-Trap Alignment

Turn the switch to the broadcast position and rotate the variable condenser to the minimum capacity position. Feed 456 kc to the grid cap of the 6A7 tube through a .02 mf condenser and adjust the four I-F trimmers for maximum response. Feed 456 kc to the antenna through a .0002 mf condenser and adjust the wave-trap trimmer (near screw, to the right of variable condenser) for minimum response.

NOTE: Since the dial indicator is taken to the chassis to adjust the variable condenser, a piece of wire should be fastened to the variable condenser and bent over to form a pointer when the chassis is removed from cabinet.

Short-Wave Alignment

Use a dummy antenna (400 ohm resistor) when aligning the short-wave coils. Rotate the wave-band switch counter-clockwise to the short-wave position and set the dial to 15 megacycles. Feed 15 megacycles through the dummy antenna and adjust the short-wave oscillator trimmer (screw to left of variable condenser, near 6A7) for maximum response and then adjust the short-wave antenna trimmer (screw closest to 6A7) for maximum response. The variable condenser should be adjusted while adjusting the antenna trimmer (rotate variable condenser rotor shaft back and forth through a small arc).

Broadcast Alignment

Rotate the wave-band switch to the broadcast position (control) and set dial at 60. Feed 600 kc through a standard dummy antenna (a .0002 mf condenser may be used as a substitute). Adjust the broadcast series padding (screw to left of variable condenser, near front of chassis) for maximum response. Rotate the dial to 140, feed 1400 kc and adjust the broadcast oscillator trimmer (screw to left of variable, nearest electrolytic) for maximum response and then the antenna trimmer (center screw to right of variable) for maximum response. Return dial to 60, feed 600 kc and readjust the series padding, rocking the variable condenser for maximum response.

VOLTAGE ANALYSIS

Readings should be taken with a 1000 ohm-per-volt meter. Voltages listed below are from point indicated to ground (chassis) with the volume control turned on full and no signal. All readings except cathode and heater voltages were taken on 250 volt meter. Line voltage for all readings was 115 volts, 60 cycles, a.c.

Point	Plate	Screen	Cathode	Grid	File
6A7	104	45	23	82	63
6B7	104	45	12	82	63
6C7	104	45	12	82	63
25L5	26L4	35	104	62	250

Voltage across speaker field—23 volts.  
Voltage drop across speaker tube (pins Nos. 6, 7)—49 volts.  
Voltage drop across pilot light sections (pins Nos. 2, 3, 4)—4 volts.

Voltage rating	105-125 volts, a.c. or d.c.
Power consumption	50 watts
Frequency ranges	540 to 1,750 kc, and 5.6 to 18.0 megacycles

REPLACEMENT PARTS LIST  
FOR CHASSIS MODELS BD AND AY

Part No.	DESCRIPTION	PRICE
ART-418	Two-band antenna coil	1.75
AVT-420	456 kc first I-F transformer	1.50
AVT-421	second I-F transformer	1.50
KC-421	50,000 ohm 1/2 watt carbon resistor	.16
ZR-276	30,000 ohm 1/2 watt carbon resistor	.16
ZR-276	310 ohm 1/2 watt wire-wound resistor	.16
KC-295	410 ohm 1/2 watt wire-wound resistor	.16
KC-295	10,000 ohm 1/2 watt carbon resistor	.16
HK-32	1 megohm 1/4 watt carbon resistor	.16
LR-65	240 ohm 1/2 watt wire-wound resistor	.16
HR-22	200 ohm 1/2 watt wire-wound resistor	.16
KR-294	250,000 ohm 1/4 watt carbon resistor	.16
KR-45	500,000 ohm 1/4 watt carbon resistor	.16
KR-45	140 ohm 1/2 watt wire-wound resistor	.16
3P-241	Plug-in type bulb socket	.30
3P-241	1000 mf 600 volt tubular condenser	3.20
NAC-100	Trimmer, part of antenna coil assembly	.20
BC-12	Trimmer, part of antenna coil assembly (see Production Changes)	.20
AC-9	0.1 mf, 200 volt tubular condenser	.20
AC-9	0.00095 mf mica condenser	.20
NAC-106A	0.1 mf, 200 volt tubular condenser (see Production Changes)	.20
2NC-281	Trimmer, part of oscillator coil assembly	.20
3PC-267	Single adjusting padding condenser, Range: 300 to 600 mmf.	.20
KC-58	0.0042 mf mica condenser	.20
EAC-384	0.01 mf, 400 volt tubular condenser	.20
8CC-337	Trimmer, part of second I-F transformer	.20
3CC-351	0.0002 mf, 800 volt tubular condenser (see Production Changes)	.20
3CC-351	40 mf, 150 volt wet electrolytic condenser	.20
3CC-351	20 mf, 150 volt wet electrolytic condenser	.20
4BL-54	Pilot light 6.3 volt, .25 amp., Mazda No. 44	.20
3CS-254A	6% dynamic speaker	.20
4VZ-347	Condenser drive pulley	.20
4VZ-789	Conical dial face	.20
4VZ-792	Conical section with crystal	.20
4VZ-792	Drive cord springs	.20
4VZ-794	Drive shaft and pulley	.20
3ES-256	Tone control switch (see Production Changes)	.50
4VT-417	Two-band oscillator coil	1.40
4VT-419	456 kc fixed wave-trap	.20
KR-67	1 megohm 1/4 watt carbon resistor	.20
3HC-106A	0.00095 mf mica condenser	.20
4VS-315	Wave-band switch	1.40
8CT-290A	Two-band oscillator coil	1.85
EDS-318	Wave-band switch	1.80
6DZ-788	Conical speaker grille assembly	1.80
4VT-424	Antenna coil	.80
AC-7A	.00025 mf mica condenser	.20
4CC-384A	.00012 mf mica condenser	.20
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4CC-384A	.00075 mf mica condenser	.20
4CC-384A	.00005 mf mica condenser	.20
AAC-106A	.901 mf, 600 volt tubular condenser	.20
NAC-189	Dual trimming condenser	.40
4VZ-201	3000 ohm 1/2 watt carbon resistor	.16
4VZ-300	6 gang push-button selector switch	2.55
4VZ-721	6 wire cable with actual plug assembly	1.75
4VZ-782	Push-button	.05
4VZ-785	Celluloid push-button cap	.05
4VZ-785	Trimmer button	.05
4VZ-785	Station name-tab cards (complete set)	.45

When ordering replacement parts specify part numbers.

\*Item number locates the article on the schematic diagram.  
†These trimmers are part of coil assemblies and cannot be supplied separately.  
‡These trimmers are supplied in pairs.