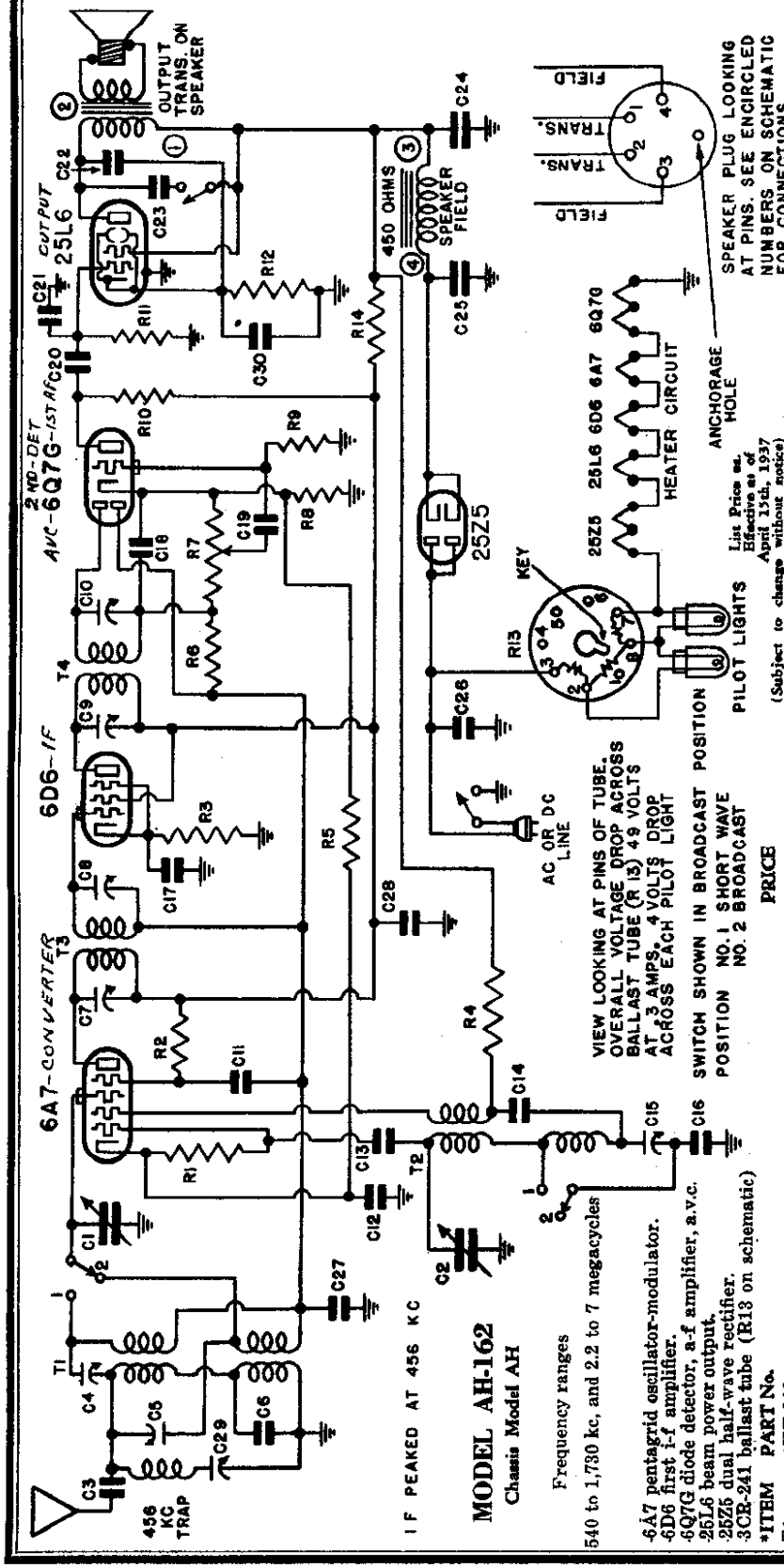
EMERSON RADIO & PHONO. CORP.

MODEL AH162
Chassis AH
Schematic, Changes
Parts

PRODUCTION CHANGES

In receivers bearing serial numbers below 1, 102, 142, C11 was an .01 mf, 400 volt tubular condenser.

In receivers bearing serial numbers below 1, 149, 148, C22 was connected from plate to B plus.



6A7 pentagrid oscillator-modulator.
6D6 first i-f amplifier.
6Q7G diode detector, a-f amplifier, a.v.c.
25L6 beam power output.
25Z5 dual half-wave rectifier.
3CR-241 ballast tube (R13 on schematic)

*ITEM	PART No.		PRICE
T1	4HT-360	Two-band antenna coil with 456 kc wave trap	$1.70
T2	4HT-361	Two-band oscillator coil	1.10
T3	4ET-350A	Double-tuned 456 kc first i-f transformer	1.15
T4	4ET-351A	Double-tuned 456 kc second i-f transformer	1.15
R1	KR-54	100,000 ohm ¼ watt carbon resistor	.16
R2	ZZR-196	30,000 ohm ¼ watt carbon resistor	.16
R3	3CR-295	410 ohm ½ watt wire-wound molded resistor	.16
R4	LR-65	10,000 ohm ¼ watt carbon resistor	.16
R5	3RR-276	310 ohm ½ watt wire-wound molded resistor	.16
R6	HR-42	2 megohm ¼ watt carbon resistor	.16
R7	3ZR-288	Volume control with line switch—500,000 ohms	1.05
R8, R14	3CR-294	240 ohm ½ watt wire-wound molded resistor	.16
R9	KR-57	1 megohm ¼ watt carbon resistor	.16
R10	KR-55	250,000 ohm ¼ watt carbon resistor	.16
R11	KR-56	500,000 ohm ¼ watt carbon resistor	.16
R12	3FR-293	140 ohm ½ watt wire-wound molded resistor	.16
R13	3CR-241	Plug-in ballast resistor	.80
C1, C2	4HC-343	Two-gang variable condenser	3.35
C3, C11	3HC-274	0.002 mf, 600 volt tubular condenser	.20
†C4, C5	——	Trimmer, part of antenna coil assembly.	
C29			
C6	IIC-133A	0.000025 mf mica condenser	.20
†C7, C8	——	Trimmer, part of first i-f transformer.	
†C9, C10	——	Trimmer, part of second i-f transformer.	
C14	KC-58	0.01 mf, 400 volt tubular condenser	.20
C12, C28	AC-6	0.1 mf, 200 volt tubular condenser	.20
C13	AAC-106A	0.00005 mf mica condenser	.20
C15	2NC-231	Single adjustable padding condenser range—800 to 600 mmf.	.50
C16	3LC-327	0.0018 mf mica condenser	.30
C17, C19	FC-29	0.02 mf, 200 volt tubular condenser	.20
C20	LC-65	0.02 mf, 400 volt tubular condenser	.20
C18, C21	AC-7A	0.00025 mf mica condenser	.20
C22	QQC-173	0.015 mf, 600 volt tubular condenser	.20
C23	EC-23	0.03 mf, 400 volt tubular condenser	.20
C24, C25	4HC-348	Dual 20 mf, 150 volt, dry electrolytic condenser in cardboard	1.50
C26	3EC-326A	0.05 mf, 400 volt molded type paper condenser	.20
C27	BC-12	0.05 mf, 200 volt tubular condenser	.20
C30	IC-43A	5 mf, 25 volt tubular dry electrolytic condenser	.90
	TTS-111K	Wave-band switch	.60
	4HS-262	5½" dynamic speaker	5.15
	3ES-256	Tone control switch	.50
	XL-9	Pilot light, 6.3 volt, 25 amp., Mazda No. 46	.20
	4HZ-561	Dial face	1.15
	3LZ-403	Drive belt for dial assembly	.15
	3CZ-337	Drive shaft and pulley for dial assembly	.10
	3CZ-339	Idler pulley for dial assembly	.05
	4HZ-562	Idler spring for dial assembly	.05
	3CZ-341	Condenser shaft pulley	.10
	3SZ-436	Dial pointer	.10
	3SZ-438A	Escutcheon with crystal	1.85

List Price as of Effective as of April 15th, 1937 (Subject to change without notice)

MODEL AH162
Chassis AH
Voltage, Alignment
Notes

EMERSON RADIO & PHONO. CORP.

VOLTAGE ANALYSIS

Readings should be taken with a 1000 ohms-per-volt meter. Voltages listed below are from point indicated to ground (chassis) with the volume control turned on full and no signal. Line voltage for these readings was 117.5 volts, 60 cycles, a.c.

Tube	*Plate*	*Screen*	*Cathode*	*Osc. Plate*	*Fil.*
6A7	100	55	2.0	77	6.3
6D6	100	100	3.3	—	6.3
6Q7G	38	—	1.0	—	6.3
25L6	96	103	6.7	—	25.0

Voltage at 25Z5 cathode—130 volts.
Voltage across speaker field—28 volts.
Voltage drop across ballast tube (pins Nos. 3, 7)—49 volts.
Voltage drop across each pilot light section (pins Nos. 2, 8 and Nos. 8, 7)—4 volts

1. If replacements are made or the wiring disturbed in the r-f portion of the circuit, the receiver should be carefully re-aligned.
2. One side of the power line is directly grounded to the chassis base. Under no circumstances, therefore, should a ground wire be permitted to come in contact with any metal part of the receiver.
3. The filament dropping resistor (R13 on schematic) is in a special metal tube at the rear of the chassis. This tube will become quite hot under normal operating conditions. For voltage drop specifications, see below.
4. When operating the receiver on d.c. it may be necessary to reverse the line plug to obtain the correct polarity.
5. The color coding of the i-f transformer leads is as follows:
   Grid—green — Plate—blue
   Grid return—black — B plus—red
6. An efficient antenna system is necessary to enable a full realization of the merits of the receiver. For reduction of noise and achievement of high efficiency on all frequency ranges the Emerson All-Wave High-Fidelity Antenna, Model W-78, and the Emerson All-Wave Antenna System, Model W-89, are recommended. Instructions for the installation of these antennas are supplied with each kit.
   In congested areas where the installation of a large antenna is not desirable we recommend the use of the Emerson Flexible Mast Antenna, Model W-82. Instructions for the installation of this compact and efficient antenna are supplied with each kit.
7. The wave-trap in the receiver has been adjusted for maximum signal rejection at 456 kc. If, however, persistent interference is experienced from some particular telegraphic station, readjust the wave-trap trimmer until the response from the interfering station is at a minimum.

An oscillator with frequencies of 456, 600, 1600 and 6,000 kc should be used.
An output meter should be used across the voice coil or output transformer for observing maximum response.
If the circuit is at all disturbed, both the broadcast and short-wave bands must be realigned.
The set's oscillator is higher in frequency than the signal, so images should be observed on the low frequency side of the signals.
Always choose the minimum capacity peak on oscillator trimmers and maximum capacity peaks on antenna trimmers. The last motion in adjusting trimmers should always be a tightening one, not a loosening one.
Never leave a trimmer with the outside plate so loose that there is no tension on the screw. Either bend the plate up or remove the screw entirely.
Always use as weak a test signal as possible during alignment.
Use a standard dummy antenna for aligning either of the bands. A .0002 mf condenser may be used for the broadcast band dummy antenna and a 400 ohm non-inductive resistor for the short-wave dummy antenna.

Location of Coils and Trimmer Adjustments

The two i-f transformers are located on top of the chassis deck. The second i-f is the one directly behind the variable condenser. The four trimmers, two for each transformer, are accessible through holes in the tops of the cans.
The adjustable padding condenser for the broadcast band is mounted underneath the chassis (in the corner near the 6A7 tube) with the screw adjustment accessible through a hole in the top of the chassis.
The antenna coils for the broadcast and short-wave bands and the 456 kc wave trap are wound on one form and mounted underneath the chassis deck directly behind the adjustable padding condenser. The trimmers for these coils are accessible through holes in the top of the chassis. The trimmer nearest the front of the chassis is the short-wave antenna trimmer. The central trimmer is the broadcast antenna trimmer. The trimmer nearest the rear of the chassis is the 456 kc wave trap.
The oscillator coils for the broadcast and short-wave bands are wound on one form and mounted underneath the chassis deck near the variable condenser. The trimmers for these coils are accessible through holes in the top of the chassis. The trimmer nearest the front of the chassis is for the short-wave oscillator coil and the trimmer farthest from the front is for the broadcast oscillator coil.

I-f and Wave-trap Alignment

Rotate the wave-band switch to the broadcast (clockwise) position. Set the variable condenser at the minimum capacity position and feed 456 kc, through a 0.02 mf paper condenser, to the grid cap of the 6A7 tube (do not remove the grid clip from the tube). Adjust the four i-f trimmers for maximum response. Feed 456 kc to the antenna through a standard dummy antenna and adjust the wave-trap trimmer for *minimum* response. (See General Notes.)

Short-Wave Alignment (Alignment of the short-wave band should precede broadcast alignment)

Rotate the wave-band switch to the short-wave (counter-clockwise) position, and set the dial pointer exactly at 6 megacycles. Feed 6,000 kc to the antenna and adjust the short-wave oscillator trimmer for maximum response, and then adjust the short-wave antenna trimmer for maximum response. Be very careful to choose the minimum capacity peak on the oscillator trimmer.

Broadcast Alignment

Rotate the wave-band switch to the broadcast position (clockwise) and set the dial pointer at 60. Feed 600 kc through a standard dummy antenna. Adjust the broadcast series padding condenser for maximum response. Move pointer to 160, feed 1600 kc and adjust the broadcast oscillator trimmer for maximum response and then adjust the broadcast antenna trimmer for maximum response. Return pointer to 60, feed 600 kc and readjust the series padding condenser rocking the variable condenser for maximum response.