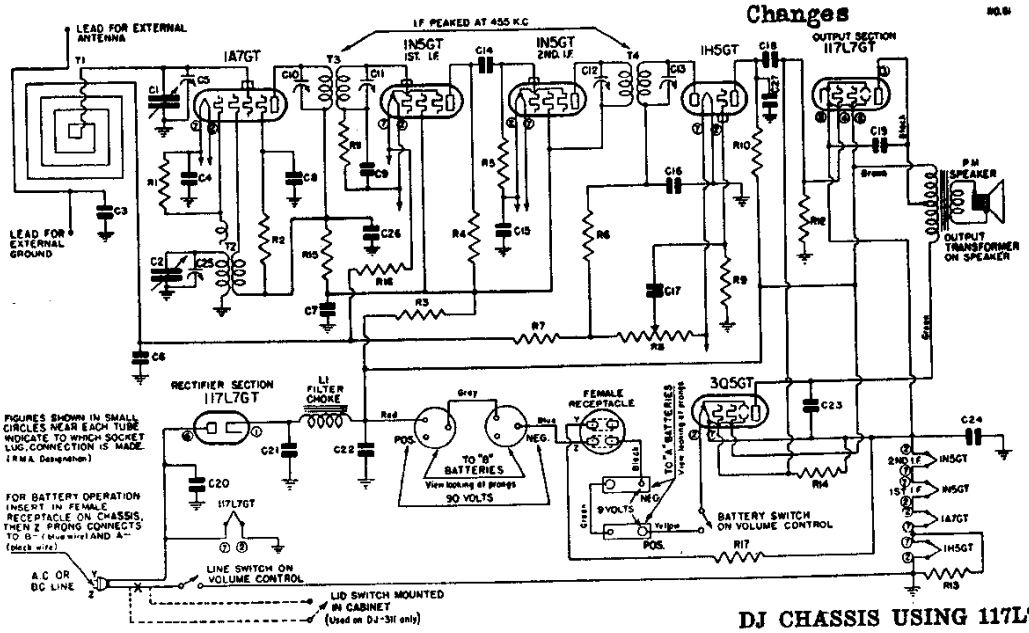
EMERSON RADIO & PHONOGRAPH CORP.

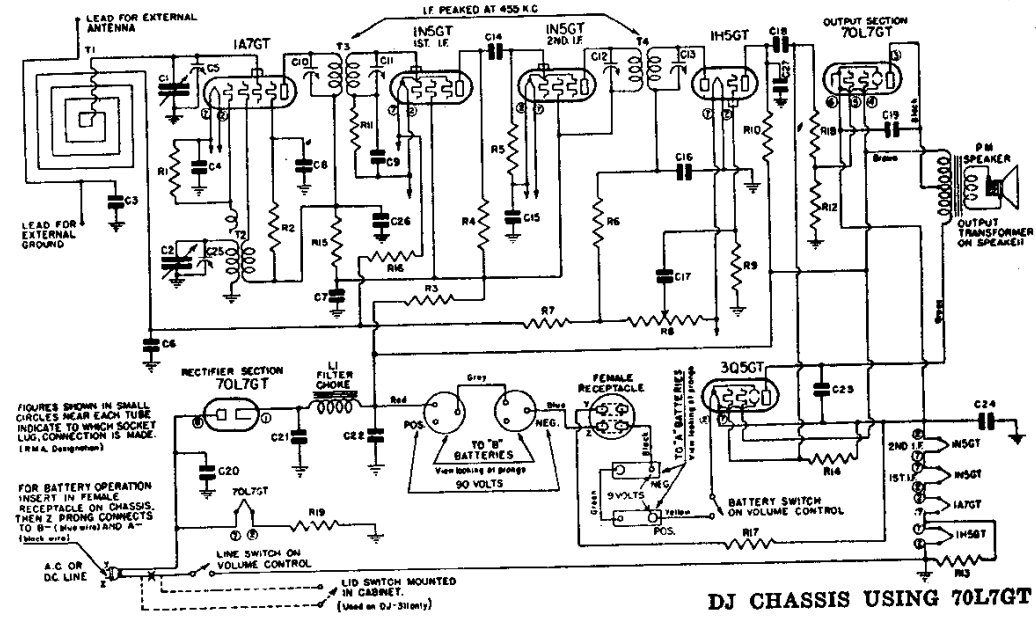
MODELS DJ310, DJ311, DJ312
Chassis DJ (2 Types)
Schematics, Voltage Changes



DJ CHASSIS USING 117L7GT

PRODUCTION CHANGES

1. DJ chassis bearing serial numbers below 3,017,129 use 70L7GT rectifier-output tube. See lower schematic.
2. In Model DJ-311 receivers after serial number 3,021,529, the door switch, part No. 7JS-444, has been omitted.



DJ CHASSIS USING 70L7GT

VOLTAGE ANALYSIS

Readings should be taken with a 1000 ohms-per-volt meter. Voltages listed are from point indicated to chassis with volume control turned on full and no signal. The battery voltages for these readings were: "A" 9.0 volts, "B" 90 volts.

Tube	*Plate*	*Screen*	*Osc. Plate*	*Fil.*
1A7GT	88	50	82	1.5
1N5GT 1st i-f	50	88	—	1.5
1N5GT 2nd i-f	88	88	—	1.5
1H5GT	27	—	—	1.5
3Q5GT	85	88	—	3.0
117L7GT (line operation only)	86	95	—	117

117L7GT rectifier cathode (Pin no. 1) (line operation only)—125 volts. (See production change no. 1.)

MODELS DJ310,DJ311,DJ312
Chassis DJ EMERSON RADIO & PHONOGRAPH CORP.
Alignment,Batt.Data,Parts
Trimmers

MODELS: DJ-310, DJ-311 and DJ-312

CHASSIS MODEL: DJ

BATTERY COMPLEMENT

The cabinet is designed to house the complete set of batteries. The battery complement should be as follows:

Type Battery	*No. Req.*	*Eveready Part No.*	*Rayovac Part No.*	*Burgess Part No.*
4½ volt "A"	2	746 (plug-in type)	P83A or EM-83 (plug-in type)	3G (plug-in type)
45 volt "B"	2	482 Minimax (plug-in type)	—	—

DESCRIPTION

Type: Universal (Battery,'A.C.-D.C.) Superheterodyne.

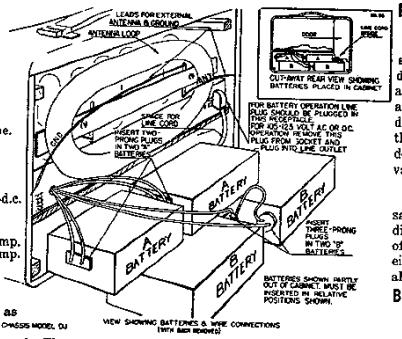
Frequency Range: 540-1600 kc.

Power Supply: Battery, A.C. or D.C.

Voltage Rating: (Line operation) 105-125 volts, a.c.-d.c.

Power Consumption: (Line operation) 30 watts.

Current Drain: (Battery operation) "A" battery 0.05 amp. "B" battery 0.01 amp.



GENERAL NOTES

1. The color coding of the i-f transformer leads is as follows:
   Grid—green Plate—blue
   Grid return—black B plus—red

2. The color coding of the battery cable is as follows:
   Red—B plus, 90 volts Yellow—A plus, 9 volts
   Blue—B minus Black—A minus

3. If replacements are made in the r-f section of the circuit, the receiver should be carefully re-aligned.

4. A.C.-D.C. Operation: Open the small door at the back of the cabinet. *It is important that this small door be left open while operating the receiver on either a.c. or d.c. power.* Take out the line cord, removing the plug from its receptacle at the rear of the chassis. Insert the plug in the wall outlet. If the power supply is d.c. and the receiver does not operate at first, remove the plug from the wall outlet, turn it half way around and re-insert it in the outlet, thus obtaining the proper polarity.

5. Battery Operation: Important: Remove the line plug from the electrical outlet. Insert the plug into the receptacle at the rear of the receiver. This is important since the receiver will not operate from batteries with the plug out of the receptacle. The loose portion of the cord can then be coiled and placed in the cabinet underneath the shelf.

6. The receiver has a self-contained antenna and normally does not require additional antenna or ground connection. For permanent home installations of this model, however, in a location far removed from broadcasting stations, an additional outside antenna should be used. The outside antenna and ground connections should be made to the two leads at the rear of the cabinet. See the illustration

7. The self-contained loop antenna has directional properties. *It is important, therefore, once the station is tuned in, that the cabinet be rotated on its base back and forth through a quarter of a circle* (90 *degrees*), *and left at the position where the station is received with maximum volume.*

ADJUSTMENTS

Location of Coils and Trimmer Adjustments

The oscillator coil is located beneath the chassis. The trimmer for the oscillator is on the front section of the variable condenser.

The loop antenna acts as the antenna coil. The trimmer for the loop is on the rear section of the variable condenser.

The i-f transformers are located in cans mounted on top of the chassis. The first i-f transformer is at the right of the variable condenser and the diode i-f transformer is to the left of the variable condenser. The trimming condensers for both transformers can be reached through holes in the tops of the cans.

I-f Alignment

Swing variable condenser to minimum capacity position. Feed 455 kc to the grid of the 1A7GT tube through a 0.01 mf condenser. Adjust the four i-f trimmers for maximum response.

R-f Alignment

Set the dial pointer at 140. Feed 1400 kc from the signal generator into a loop of wire about one foot in diameter. Hold this radiating loop approximately one foot away from and parallel to the receiver loop antenna and advance the output of the signal generator until a suitable deflection is obtained on the output meter. Adjust first the oscillator trimmer (on front section of variable condenser) then the antenna trimmer (on rear section of variable condenser) for maximum response.

If the loop antenna has been replaced it may be necessary to adjust the loop inductance. Align at 140. Set the dial at 60 and feed 600 kc to the radiating loop. A portion of the outside turn of the loop may then be swung to either side of the center to give maximum response. Re-align at 140.

Battery Installation

To install and connect the batteries in this cabinet observe the following procedure:

1. Remove the back panel of the cabinet by taking out the screws.

2. Locate the battery cable coming from the receiver and identify the plugs on the cable ends.

3. Insert the three-prong plug on the battery cable into the two "B" batteries. Place the two batteries in the bottom of the cabinet with the plug-ends of the batteries facing each other. Push the batteries up against the front of the cabinet. The wood blocks at the rear corners and rear center of the cabinet serve to hold the "B" batteries in place.

4. Insert the two-prong plug on the battery cable into the two "A" batteries. Place the "A" batteries, one at a time, above the "B" batteries in the cabinet. The plug-ends of the "A" batteries should be facing to the left, as indicated in the illustration. Push the "A" batteries to the left, when placing them in the cabinet, in order to clear the small wood block in the front right-hand corner of the cabinet.

5. Replace the back panel of the cabinet and fasten it in place with the screws.

*Item	Part No.	DESCRIPTION	PRICE
T1	7JW-206	Loop antenna assembly	$ .95
L1	7JT-524	Iron core filter choke	.85
T2	7CT-511	Oscillator coil	.40
T3	7BT-488E	Double-tuned 455 kc first i-f transformer	.95
T4	7JT-544A	Double-tuned 455 kc diode i-f transformer	.95
R1, R6	KR-53	50,000 ohm ¼ watt carbon resistor	.16
R2	ZZR-196	80,000 ohm ¼ watt carbon resistor	.16
R3	KR-50	500 ohm ¼ watt carbon resistor	.16
R4	OR-73	25,000 ohm ¼ watt carbon resistor	.16
R5	KR-54	100,000 ohm ¼ watt carbon resistor	.16
R7, R14	NNR-220	3 megohm ¼ watt carbon resistor	.16
R8	3HR-240E	Volume control with line and battery switch (500,000 ohms)	.95
R9, R11	3RR-274	5 megohm ¼ watt carbon resistor	.16
R10, R12	KR-56	500,000 ohm ¼ watt carbon resistor	.16
R13	LR-61	200,000 ohm ¼ watt carbon resistor (see production change no. 1)	.16
R13	7JR-376	330 ohm ¼ watt carbon resistor (see production change no. 1)	.16
R15, R17	PR-79	1,000 ohm ¼ watt carbon resistor	.16
R16	4XR-327	15 megohm ¼ watt carbon resistor	.16
C1, C2	7BC-445	Two-gang variable condenser	2.30
C3	3HC-274	0.002 mf, 600 volt tubular condenser	.20
C6, C7, C9, C26, C28	BC-12	0.05 mf, 200 volt tubular condenser	.20
C8, C18	LC-65	0.02 mf, 400 volt tubular condenser	.20
†C10, C11, C12, C13		Trimmers, part of i-f transformers.	
C14, C27	4XC-394A	0.00022 mf, mica condenser	.20
C15	5AC-388	0.25 mf, 100 volt tubular condenser	.20
C16	5AC-384	0.0002 mf, 600 volt tubular or mica condenser	.20
C17	HC-34	0.006 mf, 600 volt tubular condenser	.20
C19	3VC-324	0.003 mf, 600 volt tubular condenser	.20
C20	LC-64	0.05 mf, 400 volt tubular condenser	.20
C21, C22	6JC-426E	Dual 20 mf, 150 volt dry electrolytic condenser	.90
C23	NNC-199	0.001 mf, 600 volt tubular condenser	.20
C24	7FC-451	40 mf, 25 volt dry electrolytic condenser.	.80
†C25, C5		Trimmer, part of variable condenser.	
C29	AC-6	0.1 mf, 200 volt tubular condenser	.20
	7JS-444	Door switch (for DJ-311)	.50
	7JS-440	5½" permanent magnet dynamic speaker (for DJ-310 and DJ-326)	5.10
	7JS-443	6½" permanent magnet dynamic speaker (for DJ-311 and 312)	5.75
		DIAL PARTS	
	7JD-93	Dial face	.10
	4MZ-588A	Dial pointer	.20
	7BH-40B	Dial drive shaft	.10
	6RW-162	Drive cord spring	.02
	7JW-217	Battery cable (DJ)	.60
	7BZ-867A	Dial drive cord	.02
	7JE-30A	Dial crystal (for 310, 311)	.25
	7JE-30	Dial crystal (for 312)	.20

*Item number locates article on schematic diagram. †Not supplied separately.

Specify part numbers when ordering—List price each effective as of October 15, 1939. (Subject to change without notice.)