

# ATWATER KENT RADIO

## SERVICE DATA

With

### PARTS AND PRICE LIST FOR

### MODEL 87-D (Direct Current Operated) RECEIVER

#### GENERAL DESCRIPTION

Model 87-D is a console-type super-heterodyne receiver designed for 110-volt direct-current supply. It incorporates the following features—

1. Atwater Kent super-heterodyne circuit with single-spot selectivity.
2. Eight tubes, including three pentodes as audio-frequency amplifiers.
3. Quick-vision dial, tone control, electro-dynamic speaker.
4. Atwater Kent expert design and dependable construction.

#### SERVICE NOTES

1. The intermediate frequency is 130 kilocycles.
2. Instructions regarding adjustment of trimmers have been given previously in the supplement for Type H chassis. Much of this information may be applied in servicing Model 87-D.
3. The readings given in the table below were obtained with the 250-volt scale of a 1000-ohm-per-volt D. C. voltmeter. The values given are only approximate and are the measured values, not the actual operating voltages. All measurements are made from cathode in heater tubes and from —F in plain-filament-type tubes.

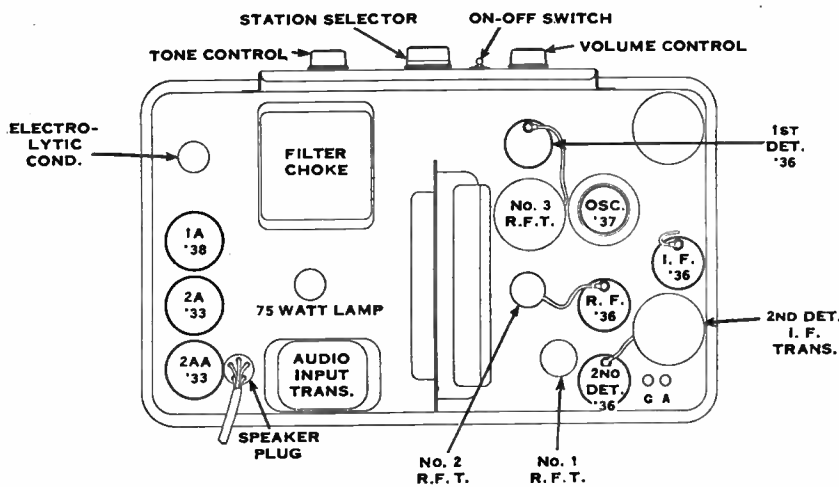


FIG. 322. TOP VIEW OF MODEL 87-D. The circle in the top right-hand corner indicates the shield for the coupling unit between the 1st-detector and the I. F. tube.

#### Voltage Table for Model 87-D

Turn Volume Control to Maximum  
Line Voltage, 120

APPROXIMATE VOLTAGES				
	FILAMENT	PLATE	SCREEN	GRID
R. F.	6	100	55	3
1ST-DET.	6	100	60	4
I. F.	6	100	60	3
2ND-DET.	6	65	40	SMALL
1ST-A. F.	6	93	98	4
2ND-A. F.	2	99	98	5
OSCILLATOR	6	100	—	5

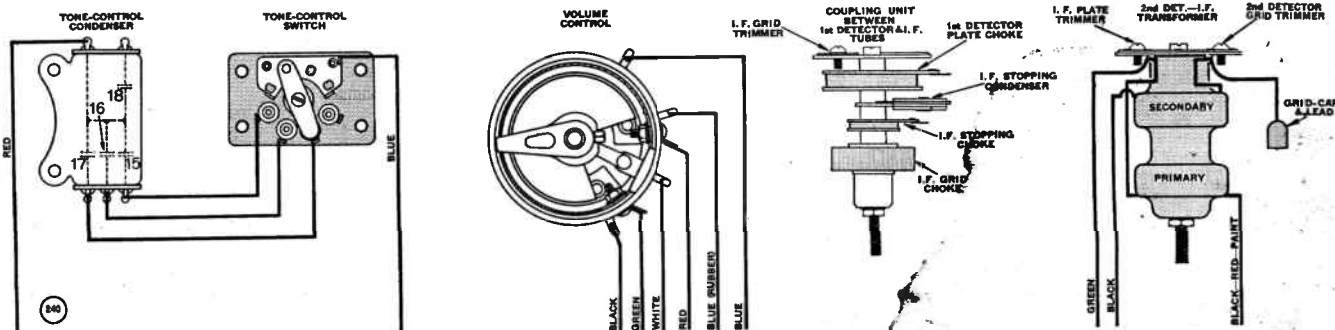


FIG. 323. CONNECTION OF PANEL UNITS AND I. F. TRANSFORMERS, MODEL 87-D.

ATWATER KENT RADIO

PARTS AND PRICE LIST FOR MODEL 87-D, No. 24900 CHASSIS

Part No.	Name of Part	List Price	Part No.	Name of Part	List Price
21815	FRONT PANEL WITH BRACES AND ESCUTCHEON.....	\$ 2.50	18144	Dial-knob shaft bracket.....	\$ .35
17224	Front-panel brace.....	.10	17935	Dial-knob-shaft-bracket support.....	.03
21439	Escutcheon.....	1.00	17961	Dial rubber and bushing.....	.15
8272	Escutcheon rivet.....	.02	17959	Dial pointer.....	.05
16420-A	Dial-light socket and reflector.....	.40	18823	Dial-pointer shim.....	.02
16099	Dial light.....	.25	18615	Dial gear.....	.40
17814	Dial knob.....	.30	18117	Balance weight.....	.35
17244	Knob for volume control or tone control.....	.30	17962	Pointer control arm.....	.30
15562	Knob set-screw.....	.30/c	17062	Trimmer mica.....	.03
21816	VOLUME CONTROL, COMPLETE LESS LEADS.....	4.25	20049	FILTER CONDENSER (ELECTROLYTIC).....	2.60
17876	Volume-control mounting bracket.....	.20	19551	Fibre insulating case.....	.10
21530	TONE-CONTROL CONDENSER..	1.00	19729	Case solder clip.....	.02
18223	Tone-control condenser clamp.....	.05	19936	Mounting clamp.....	.10
16430	Tone-control switch, complete.....	.75	19543	Mounting-clamp screw.....	.25/c
18148	Tone-control-switch base.....	.60	19784	Mounting-clamp nut.....	.01
18146	Tone-control-switch shaft.....	.12	17068	Mounting-clamp rivet.....	.01
18112	Tone-control-switch blade.....	.03			
13664	ON-OFF SWITCH.....	1.00		FIXED CONDENSERS	
	TRANSFORMERS		23590	By-pass No. 1 (L-55-A, H-44).....	1.00
23760	Audio input transformer.....	4.50	15770	By-pass No. 2 (H-15).....	1.00
21814	R. F. transformer group.....	3.00	23610	By-pass No. 3 (L-57-A, H-45).....	1.00
19443	R. F. transformer cap (aluminum)..	.05	15262	By-pass No. 4 (H-20).....	1.00
23810	Oscillator transformer.....	1.25	21530	Tone control (L-42-A, B-11).....	1.00
20313	Oscillator-transformer shield.....	.50	23250	R. F. screen by-pass.....	.35
19573	2nd-detector I. F. transformer, less trimmers.....	2.00	21160	Oscillator grid condenser.....	.35
17295	Shield for R. F. or I. F. transformer..	.50	21160	I. F. stopping condenser.....	.35
	CHOKES		19330	Single I. F. trimmer.....	.70
19770	Filter-choke unit.....	5.00	19910	Double I. F. trimmer.....	1.10
17824	Filter-choke cover.....	.50		Trimmer-condenser sealing wax.....	.50 lb.
17825	Filter-choke-cover spring.....	.10		SOCKETS	
17254	R. F.-line choke No. 1 or No. 2.....	.50	20236	R. F., 1st-det., I. F., 2nd-det., A. F. or osc. socket.....	.30
19210	R. F.-grid filter choke.....	.25	21337	Speaker socket.....	.35
17390	1st-detector plate choke.....	.60	17377	Tube-socket insulator.....	.25/c
19210	1st-detector grid- or plate-filter choke	.25	18016	Speaker-socket insulator.....	.25/c
19210	I. F.-stopping choke.....	.25	8249	Socket eyelet.....	.50/c
20307	I. F. grid choke.....	1.00	18449	Fuse socket.....	.15
17390	1st-A. F. grid-choke.....	.60	20014	Protective-lamp socket.....	.50
	FLEXIBLE AND WIRE-WOUND RESISTORS			TUBULAR RESISTORS	
21030	1st-detector bias resistor.....	.20		FIVE-RESISTOR GROUP	
23780	R. F.-I. F. bias resistor.....	.20	19649	1st-A. F. grid leak (black and purple)	.25
16320	1st-A. F. bias resistor.....	.20	21784	2nd-A. F. grid resistor (gray & green)	.25
19820	2nd-A. F. filament shunt resistor.....	.20	15545	2nd-detector bias resistor (maroon)..	.25
19850	Filament series resistor No. 1.....	1.00	16282	2nd-detector coupling resistor (blue and red).....	.25
19840	Filament series resistor No. 2.....	.20	17118	Mounting bracket.....	.05
23840	Filament series resistor No. 3.....	.20	17117	Fibre resistor-pad.....	.25/c
21742	VARIABLE CONDENSER ROTOR, STATOR AND FRAME.....	9.60	17119	Metal clamping-strip.....	.02
20795	Rotor connection, long.....	.10		THREE-RESISTOR GROUP	
20796	Rotor connection, short.....	.10	19649	2nd-detector grid resistor (black and purple).....	.25
19968	Stopping spring.....	.12	16282	Oscillator grid leak (blue and red)...	.25
17941	Dial-knob shaft.....	.05	15545	R. F. screen resistor (maroon).....	.25
			17341	Mounting bracket.....	.05
			17342	Fibre resistor-pad.....	.25/c
			17345	Metal clamping-strip.....	.02

December, 1931. THESE PRICES SUPERSEDE ALL PREVIOUS PRICES AND ARE SUBJECT TO CHANGE WITHOUT NOTICE.

PARTS AND PRICE LIST FOR MODEL 87-D (Continued)

MISCELLANEOUS PARTS

Part No.	Name of Part	List Price	Part No.	Name of Part	List Price
15213	Tube shield.....	\$ .15	3419	Binding-post insulating bushing.....	\$ .15/c
15214	Tube-shield base.....	.03	19547	Self-tapping screw (3/8" long).....	.02
16771	Tube-shield base rivet.....	.30/c	18534	Line fuse (2 amperes).....	.05
19566	110-volt cable and plug.....	1.90	21108	Control-grid lead and cap.....	.15
20073	110-volt-cable instruction tag.....	.02	22530	Fibre disc (1" dia.) with two lugs used as a terminal block.....	.05
18897	110-volt plug (male).....	.15	19869	Bottom plate.....	1.30
16741	110-volt cable bushing.....	.05	13989	Ground clamp assembly.....	.30
16742	Bushing retaining spring.....	.05	20075	Protective lamp (75 watts).....	.35 net
18363	Binding post base.....	.05	21674	Instruction and log card (F-861).....	.01 net
8215	Binding post.....	.20	21779	Shipping container.....	.65 net
13145	Binding-post insulating washer.....	.25/c			

PARTS AND PRICE LIST FOR NO. 25000 SPEAKER IN MODEL 87-D

Part No.	Name of Part	List Price	Part No.	Name of Part	List Price
20737	Diaphragm.....	\$ 3.25	14367	Top-pole-piece mounting nut.....	\$ .02
14382	Diaphragm-holding segment (3 used) per set.....	1.00	24040	OUTPUT TRANSFORMER (less case).....	3.00
14394	Diaphragm-holding segment screw..	.30/c	21418	Output-transformer case.....	.40
4795N	Diaphragm-spider screw.....	.30/c	21424	Output-transformer fibre insulator..	.02
19459	Diaphragm-spider washer (hex. metal)	.02	7697	Output-transformer mounting screw..	.30/c
19471	Diaphragm-spider washer (fibre)....	.30/c	8188	Output-transformer mounting nut....	.01
20894	Diaphragm housing.....	2.50			
19860	FIELD COIL.....	3.00			
19458	Field-coil insulator.....	.02			
19479	Field-coil washer, back (2 3/8" dia.)..	.50/c			
20147	Field-coil washer, front (2 3/8" dia. padded).....	.05			
19454	TOP-POLE PIECE.....	.65			
19538	Top-pole-piece mounting screw.....	.03			

MISCELLANEOUS PARTS

20657	Cable and plug assembly.....	1.65
18582	Plug only.....	.65
19508	Cable clamp.....	.05
18959	Cloth screen.....	1.00
20171	Gauge for centering voice coil (set of 3)	.10
20739	Shipping container.....	.35 net

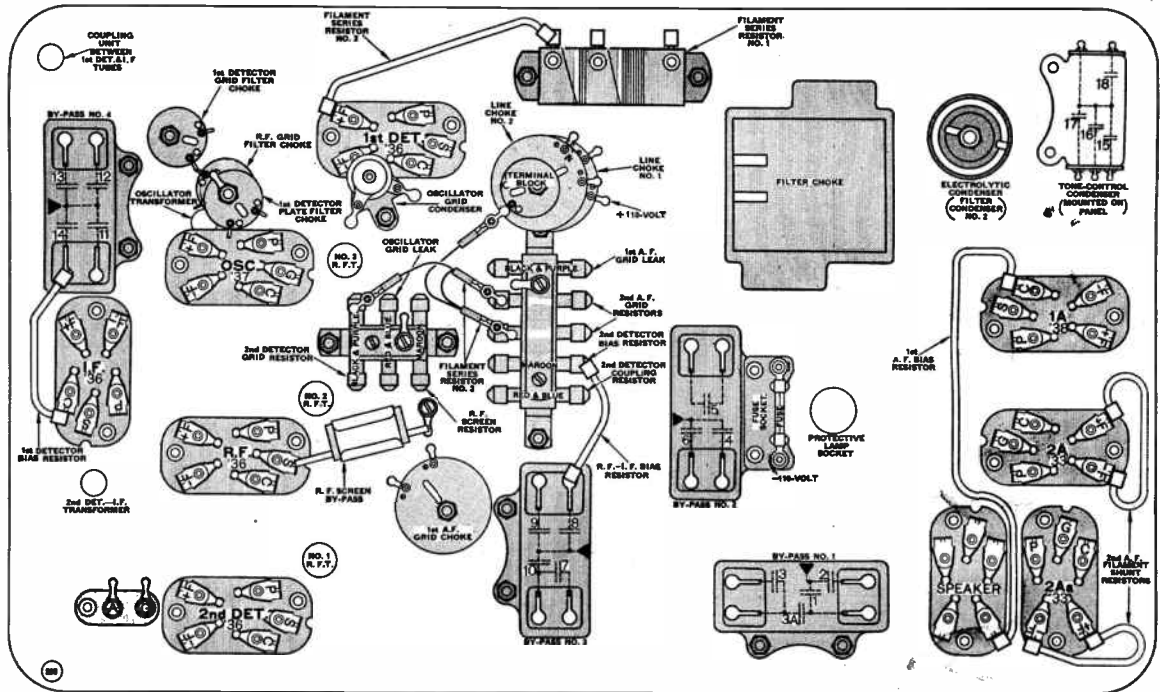


FIG. 324. CHART OF MODEL 87-D.  
The 2nd-A. F. Grid resistors are colored gray and green.

By-pass Condensers in Model 87-D.

By-pass No. 1	By-pass No. 2	By-pass No. 3	By-pass No. 4	Tone Control Condenser
1—Negative 110-volt line condenser.	4—2nd-detector bias by-pass.	7—2nd-detector—1st-A. F. coupling condenser.	11—R. F. grid-circuit by-pass.	15—Tone condenser.
2—I. F.—1st-detector screen by-pass.	5—2nd-detector grid circuit by-pass.	8—R. F.—I. F. bias by-pass.	12—1st-detector plate filter condenser.	16—Tone condenser.
3—Filter condenser No. 1.	6—Filter condenser No. 3.	9—2nd-detector screen by-pass.	13—1st-detector—I. F. grid-circuit by-pass.	17—Tone condenser.
3A—Ground coupling condenser.		10—Phone condenser.	14—1st-detector bias by-pass.	18—Not used.

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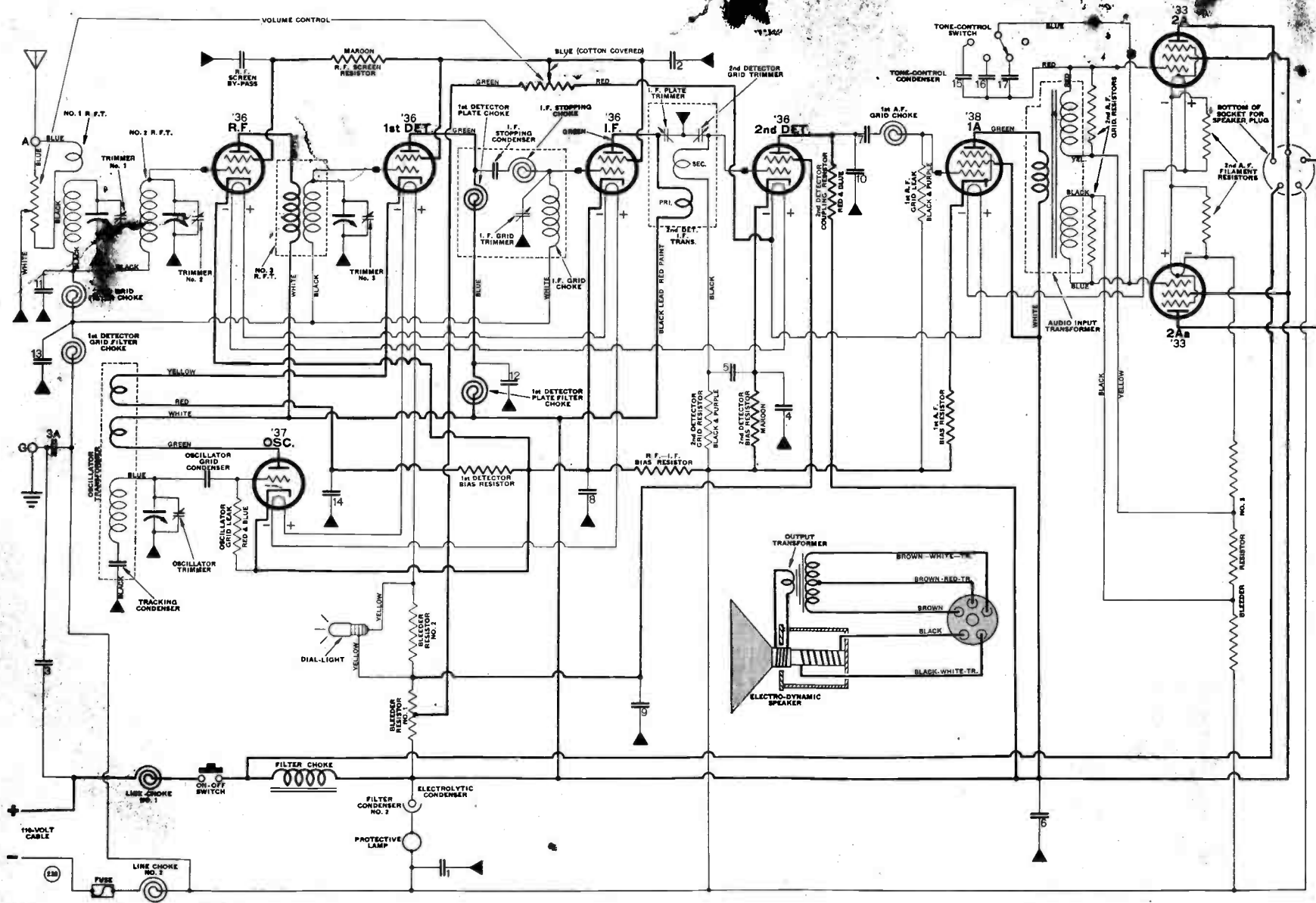


FIG. 325. DIAGRAM OF MODEL 87-D.

The 2nd-A. F. grid resistors are colored gray and green.

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MODEL 87-D