ATWATER KENT RADIO

SERVICE DATA

WITH PARTS AND PRICE LISTS FOR

Models 188 (2nd Type), 260 (3rd Type), 469 (2nd Type), 469-D, 469-Q, 480, 558, 558-D, 558-Q, 612, 627 and 812

All Models listed in this supplement employ the Atwater Kent super-heterodyne circuit with an intermediate frequency of 130 kilocycles, except Model 480 which has an intermediate frequency of 472½ kilocycles.

TABULATED DATA FOR MODELS DESCRIBED IN THIS SUPPLEMENT

Model No.	Power Supply	Part No. Complete	Part No. Speaker	Tone-beam	Automatic Vol. Control	Automatic Silencing	Range Switch	R.F.	1st Det.	1st I.F.	2nd I.F.	2nd Det.	Control	1st A.F.	osc.	Silencing Tube	2nd A.F.	Driver	Push-Push	Rect.
188 Above 8074387	110-V., 60-C.	28400	28700	No	Yes	Yes	No	58	58	58	—		55		56	57	47	—	—	80
188-F Above 5693025	110-V., 25-C.	29300	28700	No	Yes	Yes	No	58	58	58	—		55		56	57	47	—	—	80
260 Above 8423096	110-V., 60-C.	28900	28800	Yes	Yes	Yes	No	58	58	58	58		55		56	57	47(2)	—	—	80
260-F Above 6188242	110-V., 25-C.	29500	28800	Yes	Yes	Yes	No	58	58	58	58		55		56	57	47(2)	—	—	80
469 Above 8498122	110-V., 60-C.	29000	28800	Yes	Yes	Yes	No	58	58	58	—		55		56	57	47(2)	—	—	80
469-F Above 6186242	110-V., 25-C.	29400	28800	Yes	Yes	Yes	No	58	58	58	—		55		56	57	47(2)	—	—	80
469-D	110-V., D. C.	31300	31600	No	Yes	Yes	No	39	39	39	—		85		37	36	48(2)	—	—	—
469-Q	Battery	31100	31500	No	Yes	No	Yes	34	32*	34	34	30		32	*	—	—	30	30(2)	—
480	110-V., 60-C.	29600	28800	Yes	Yes	No	Yes	58	58	58	58	56	56	47(2)	56	—	—	—	—	80
480-F	110-V., 25-C.	29900	28800	Yes	Yes	No	Yes	58	58	58	58	56	56	47(2)	56	—	—	—	—	80
558	110-V., 60-C.	29800	17300	No	Yes	Yes	No	58	58	58	—		55		56	57	47	—	—	80
558-F	110-V., 25-C.	30800	17300	No	Yes	Yes	No	58	58	58	—		55		56	57	47	—	—	80
558-D	110-V., D. C.	31400	31800	No	Yes	Yes	No	39	39	39	—		85		37	36	48(2)	—	—	—
558-Q	Battery	31200	31700	No	Yes	No	Yes	34	32*	34	34	30		32	*	—	—	30	30(2)	—
612	110-V., 60-C.	30000	30200 / 30300	Yes	Yes	Yes	No	58	58	58	58		55		56	57	—	46	46(2)	83(2)
627	110-V., 60-C.	29700	17300	No	Yes	No	Yes	58	58	58	—		55		56	—	47	—	—	80
627-F	110-V., 25-C.	30700	17300	No	Yes	No	Yes	58	58	58	—		55		56	—	47	—	—	80
812	110-V., 60-C.	30500	30400 / 30600	Yes	Yes	Yes	No	58	58	58	58		55		56	57	—	46	46(2)	83(2)

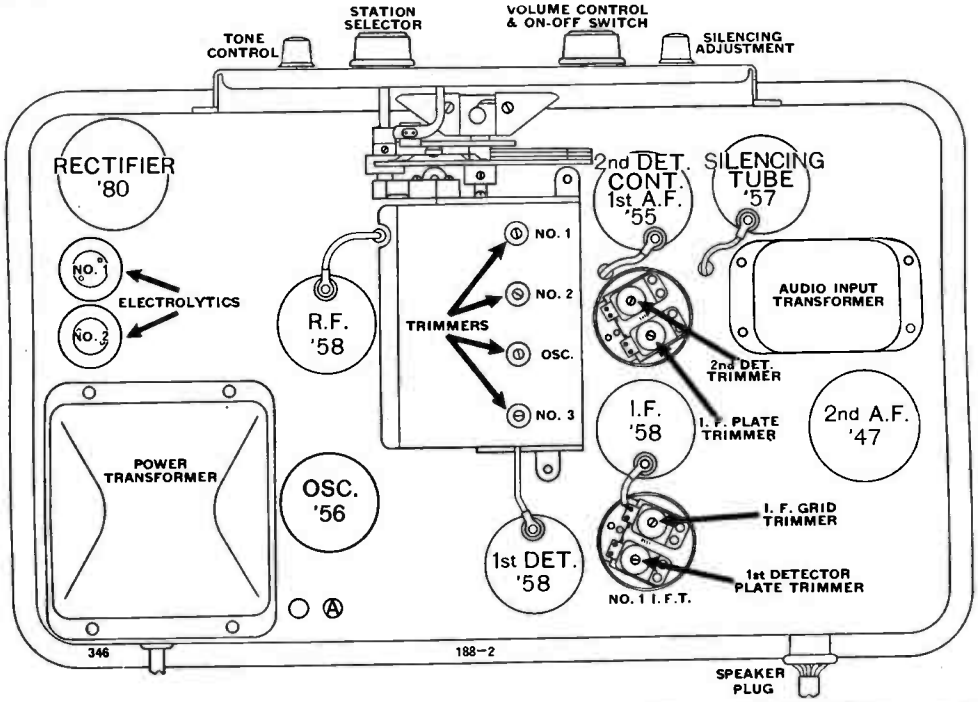
*In Models 469-Q and 558-Q, the 1st-detector and oscillator are combined in one type 32 tube.

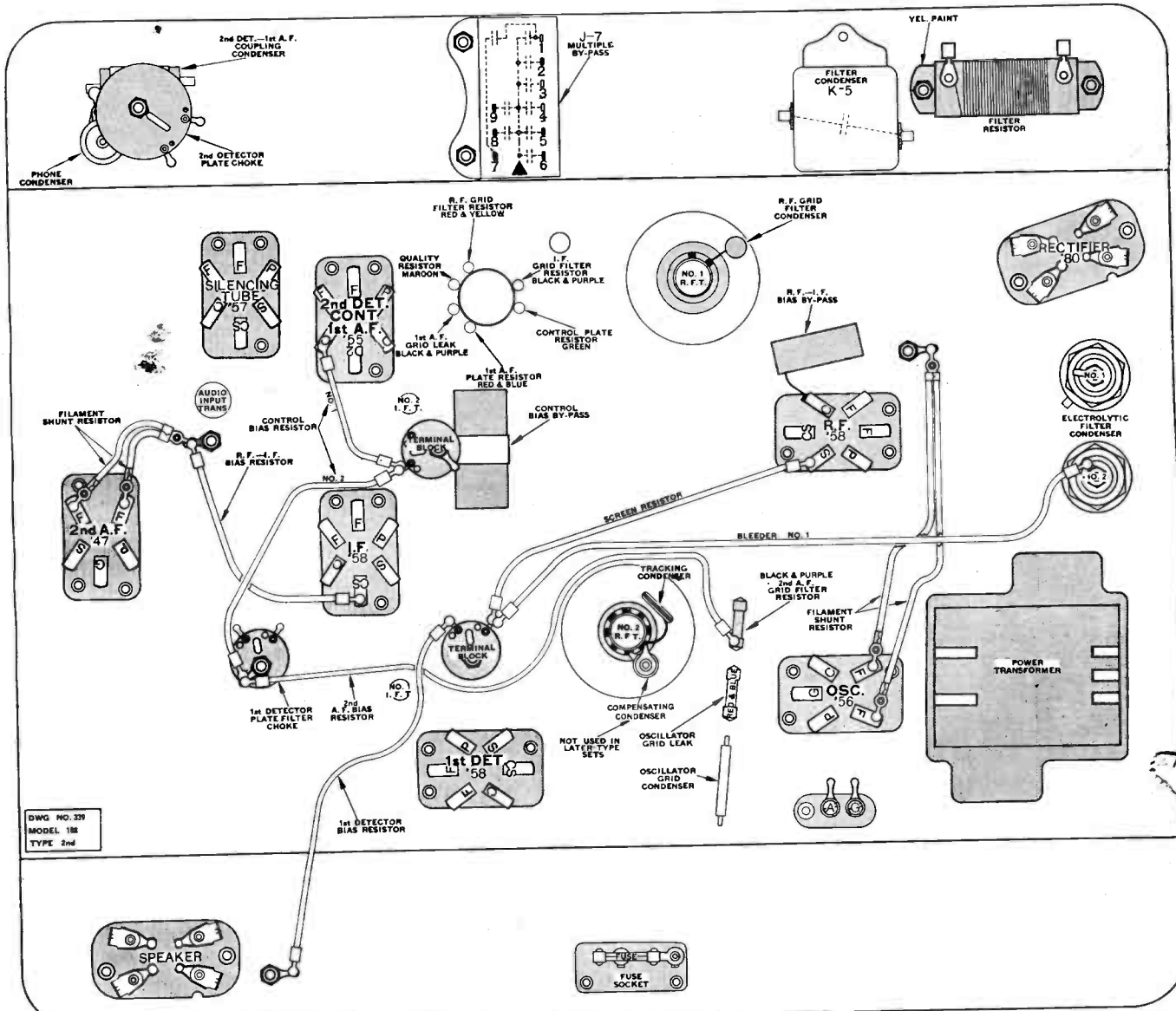
In Model 612, the 4-prong speaker, No. 30200, is type 324, and the 5-prong speaker, No. 30300, is type 326.

In Model 812, the 4-prong speaker, No. 30400, is type 336, and the 5-prong speaker, No. 30600, is type 338.

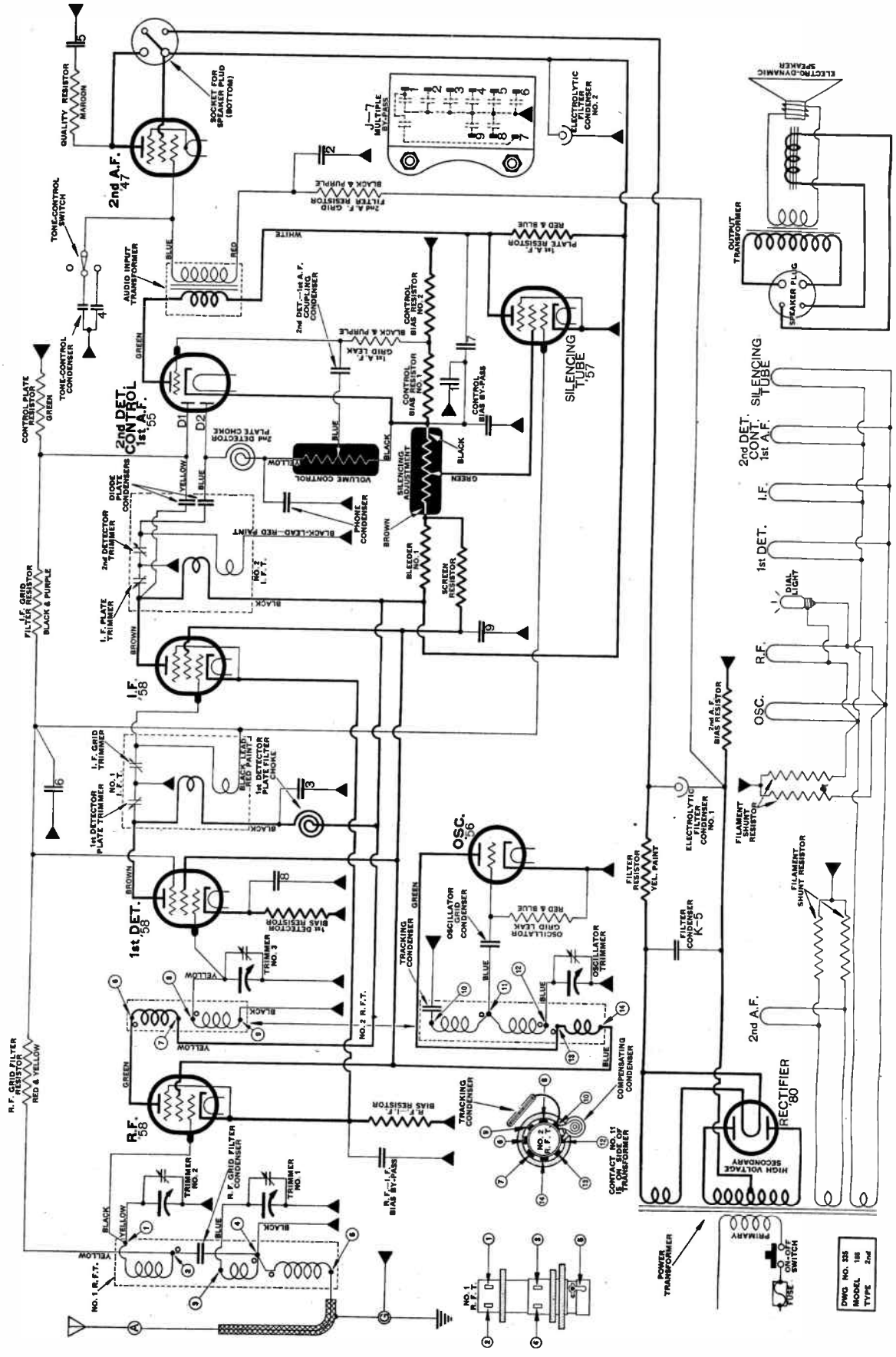
ATWATER KENT RADIO

TOP VIEW AND CHART MODEL 188 (2nd Type)

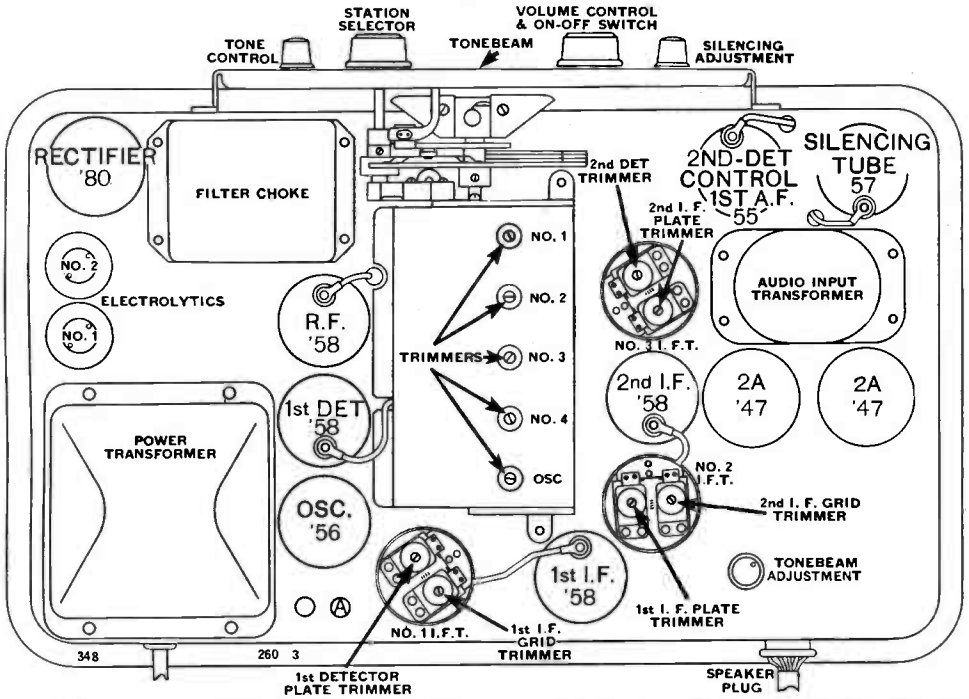


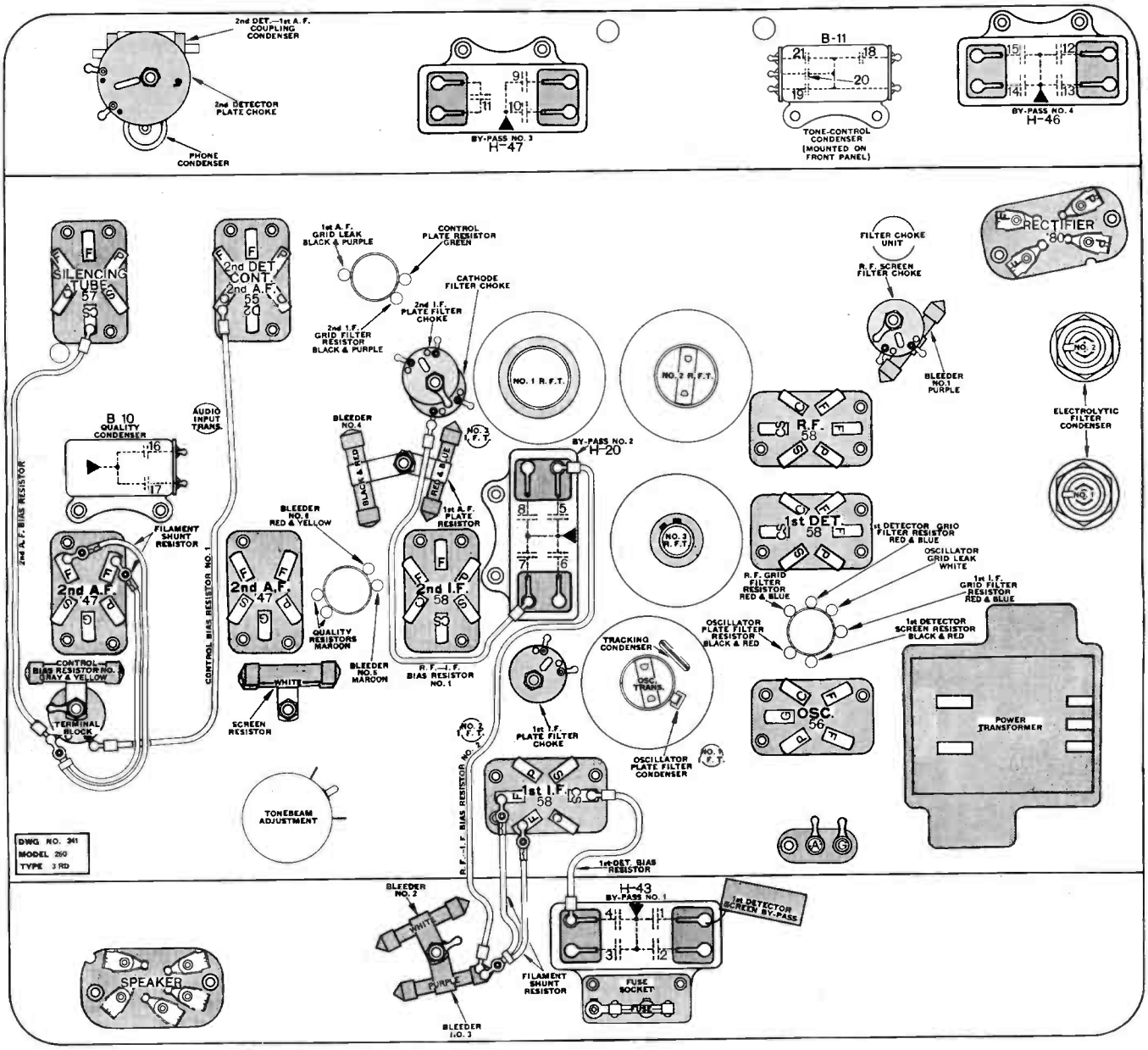


MODEL 188 (2nd Type)

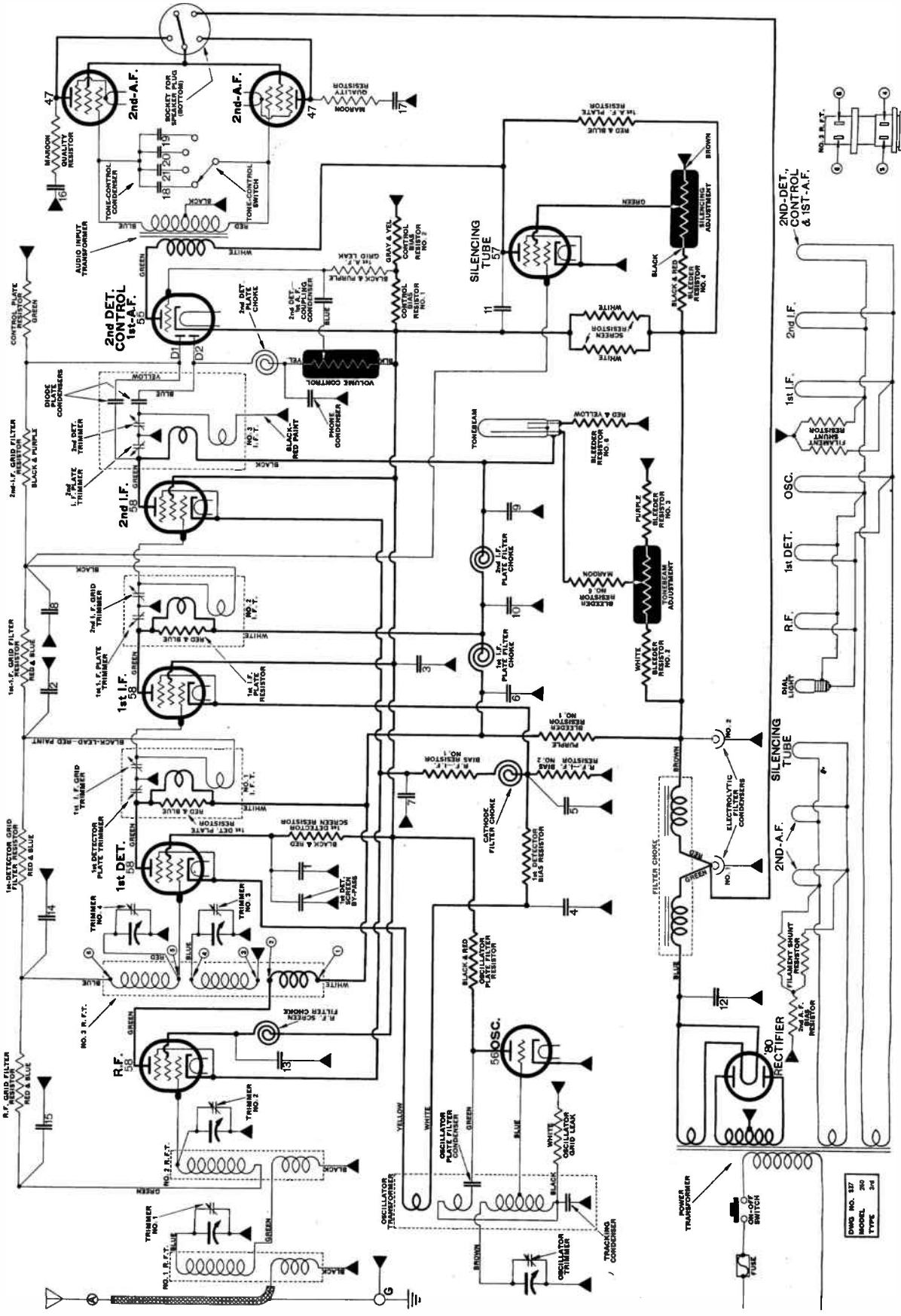


MODEL 260
(3rd Type)



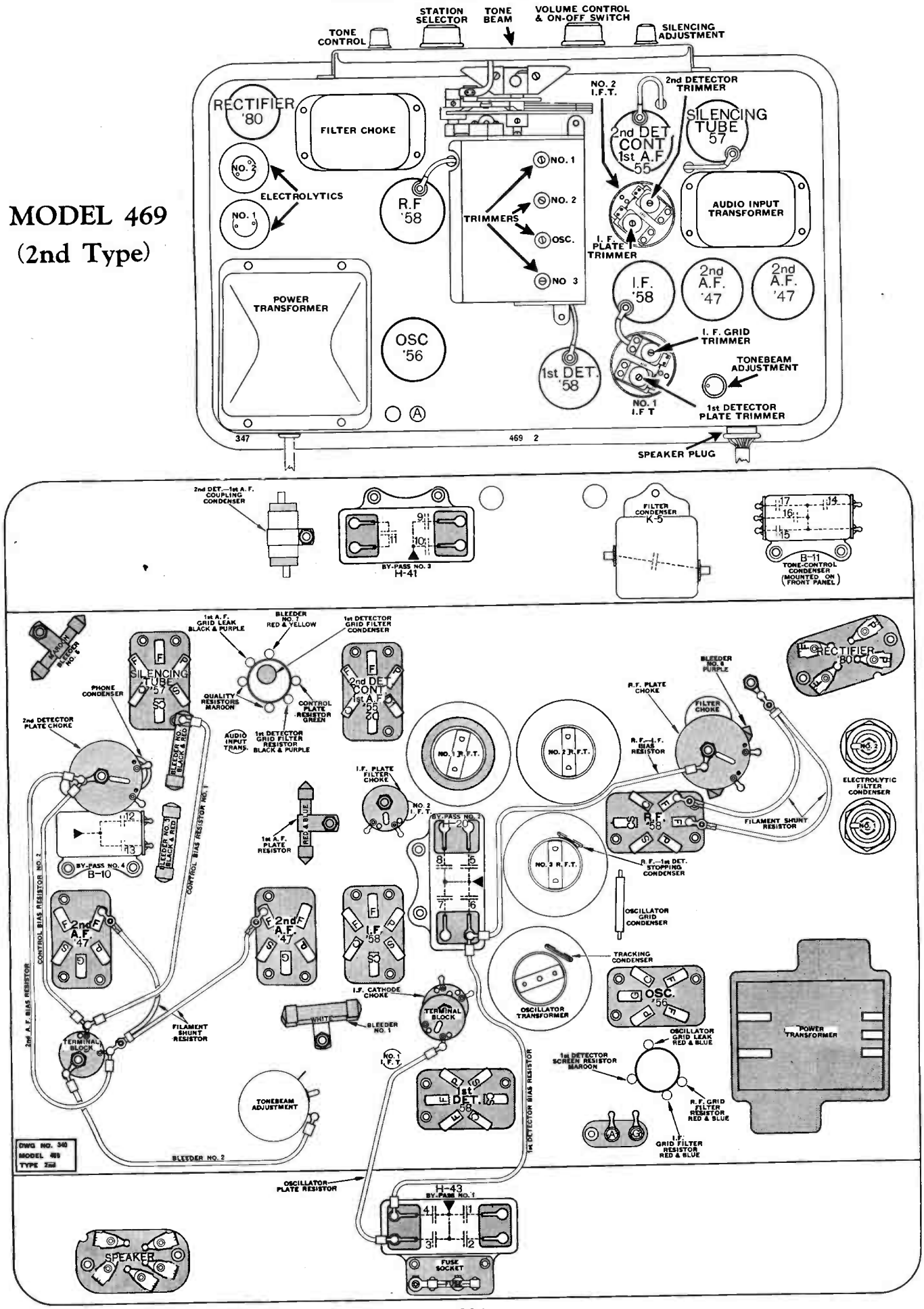


MODEL 260 (3rd Type)

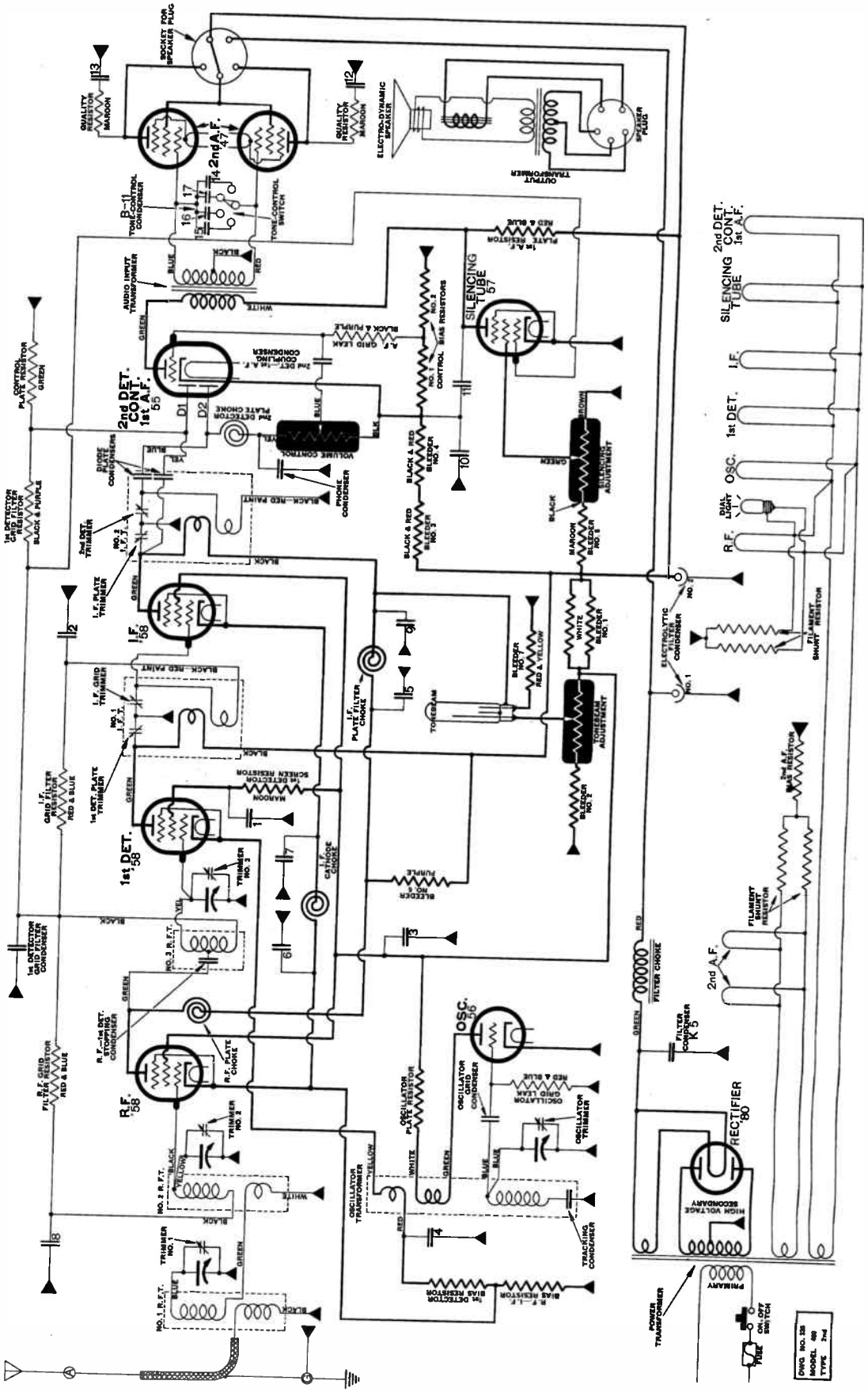


In late-type sets, the 2nd detector plate choke is replaced by a No. 20980 red-and-blue resistor, and the black-and-red bleeder No. 4 is replaced by a No. 29710 gray resistor, and in these sets, the voltage across bleeder No. 4 is about 160 volts, and the voltage across the silencing adjustment is about 107 volts.

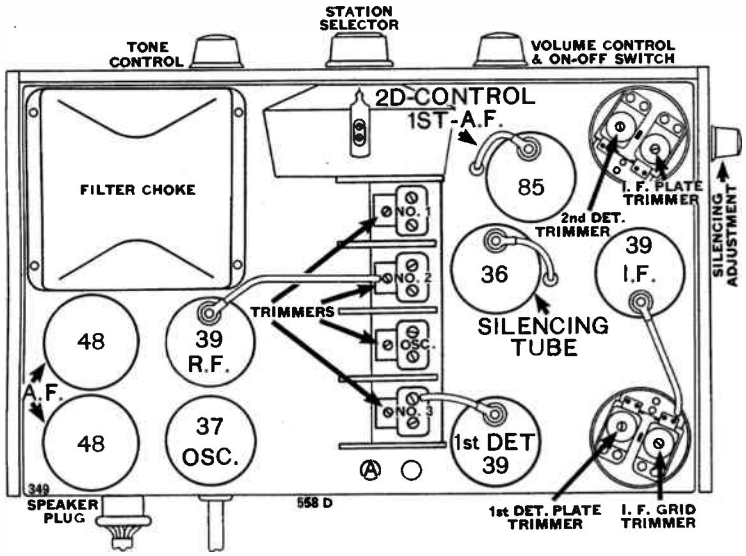
MODEL 469
(2nd Type)

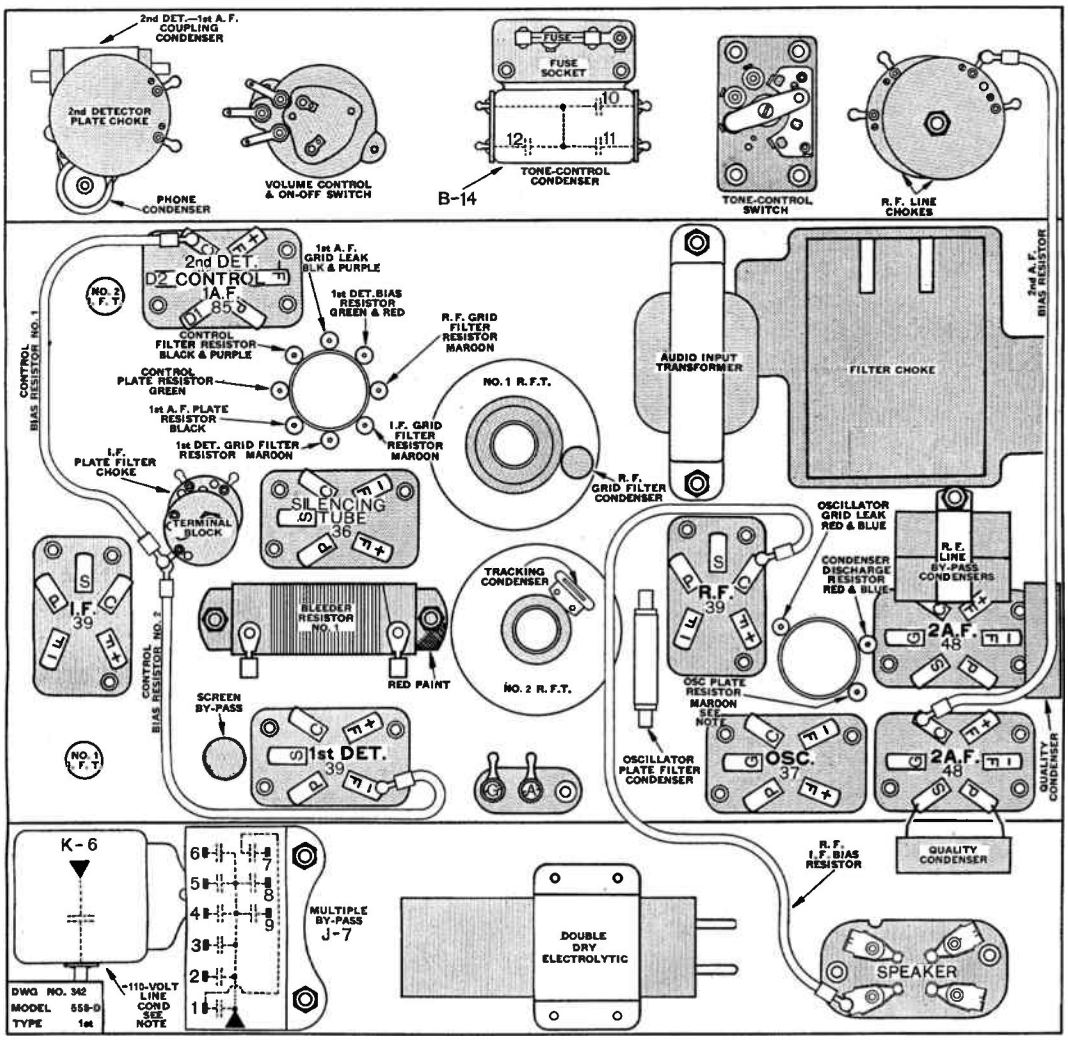


MODEL 469 (2nd Type)



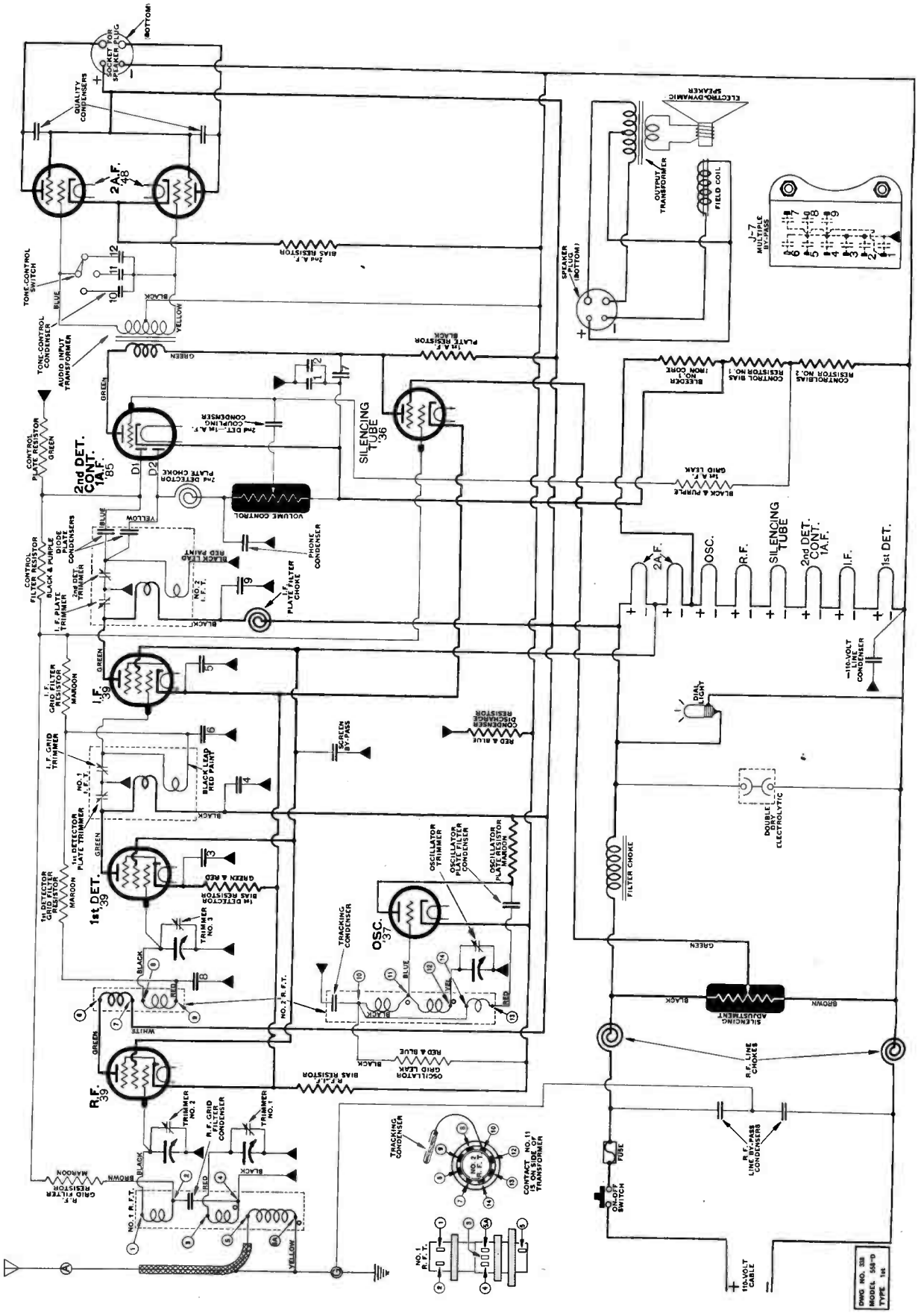
MODEL 469-D and 558-D



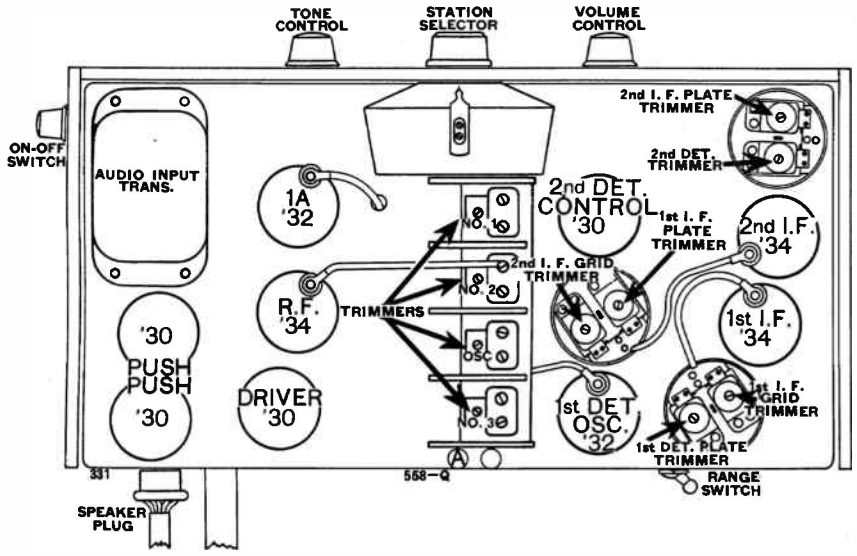


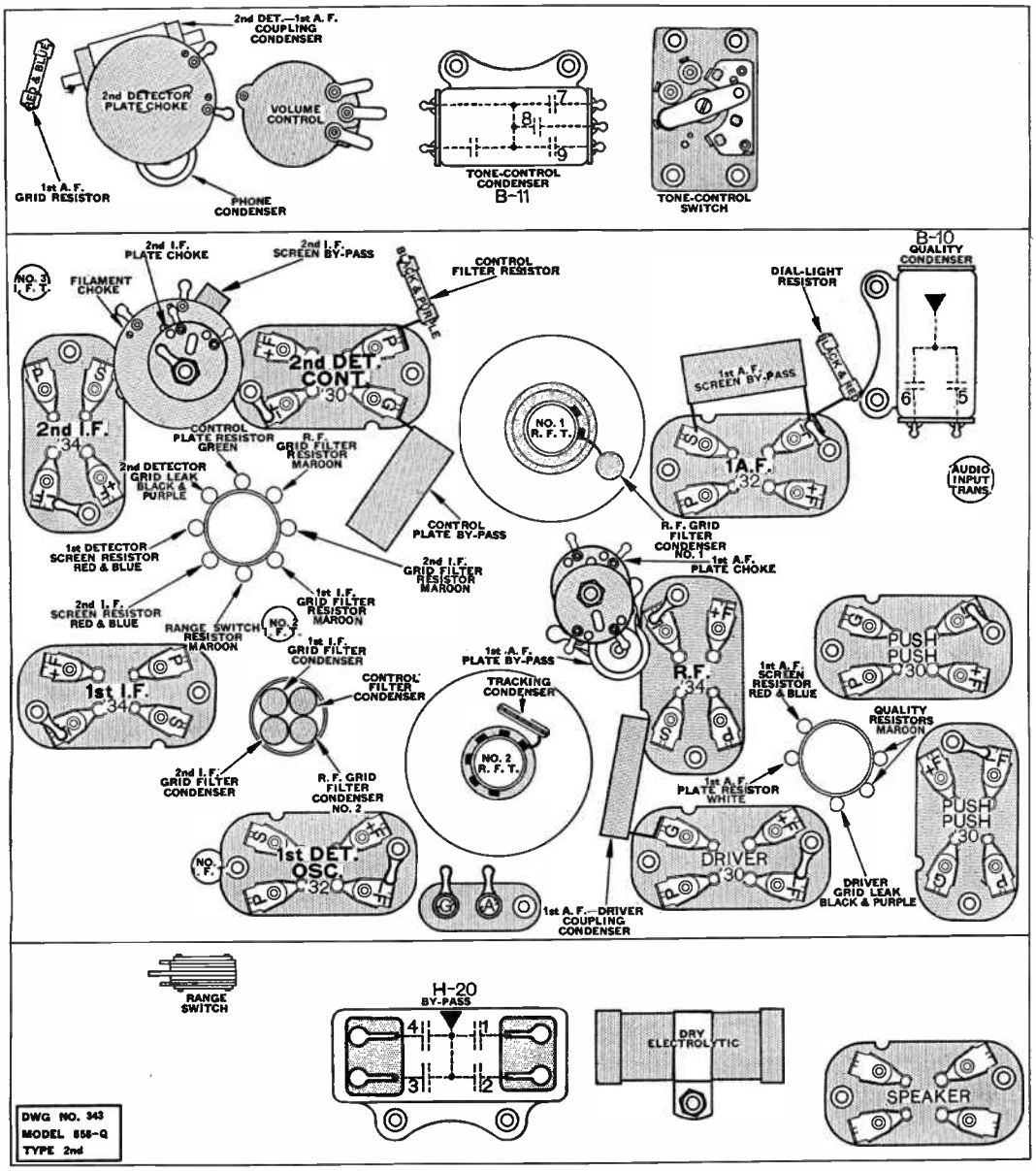
In some of these sets a tubular dry electrolytic is used as the -110 volt line condenser. Also a black resistor is connected across the maroon oscillator plate filter resistor.

MODEL 469-D and 558-D

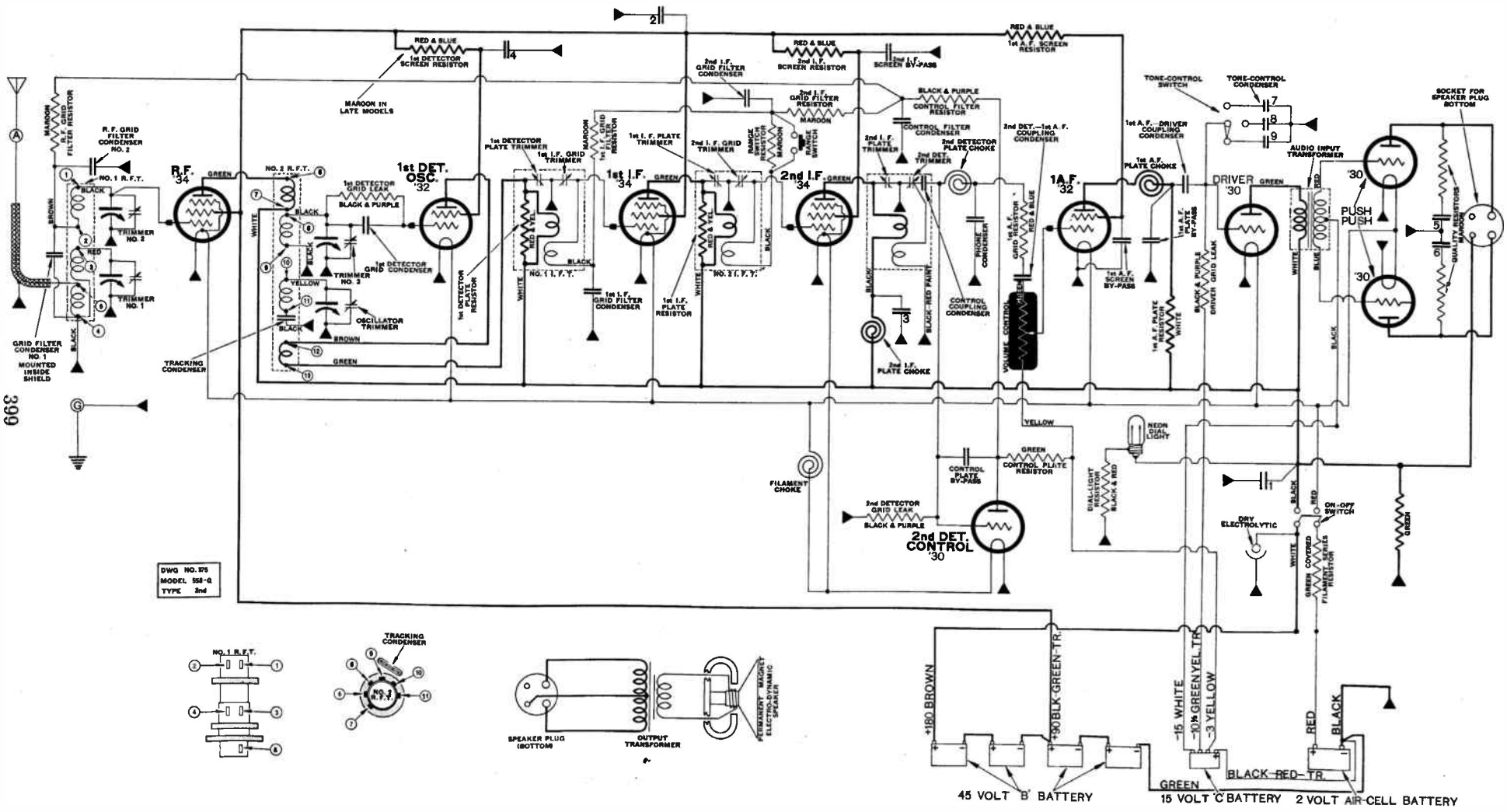


MODEL 469-Q and 558-Q

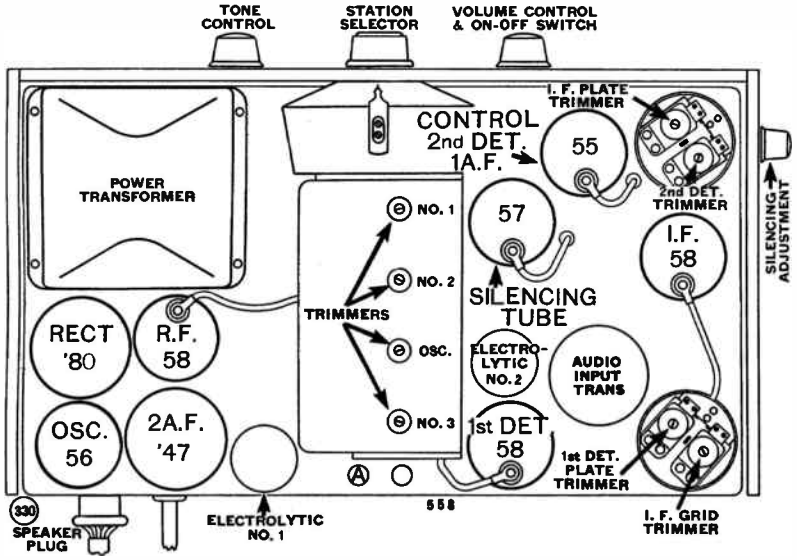


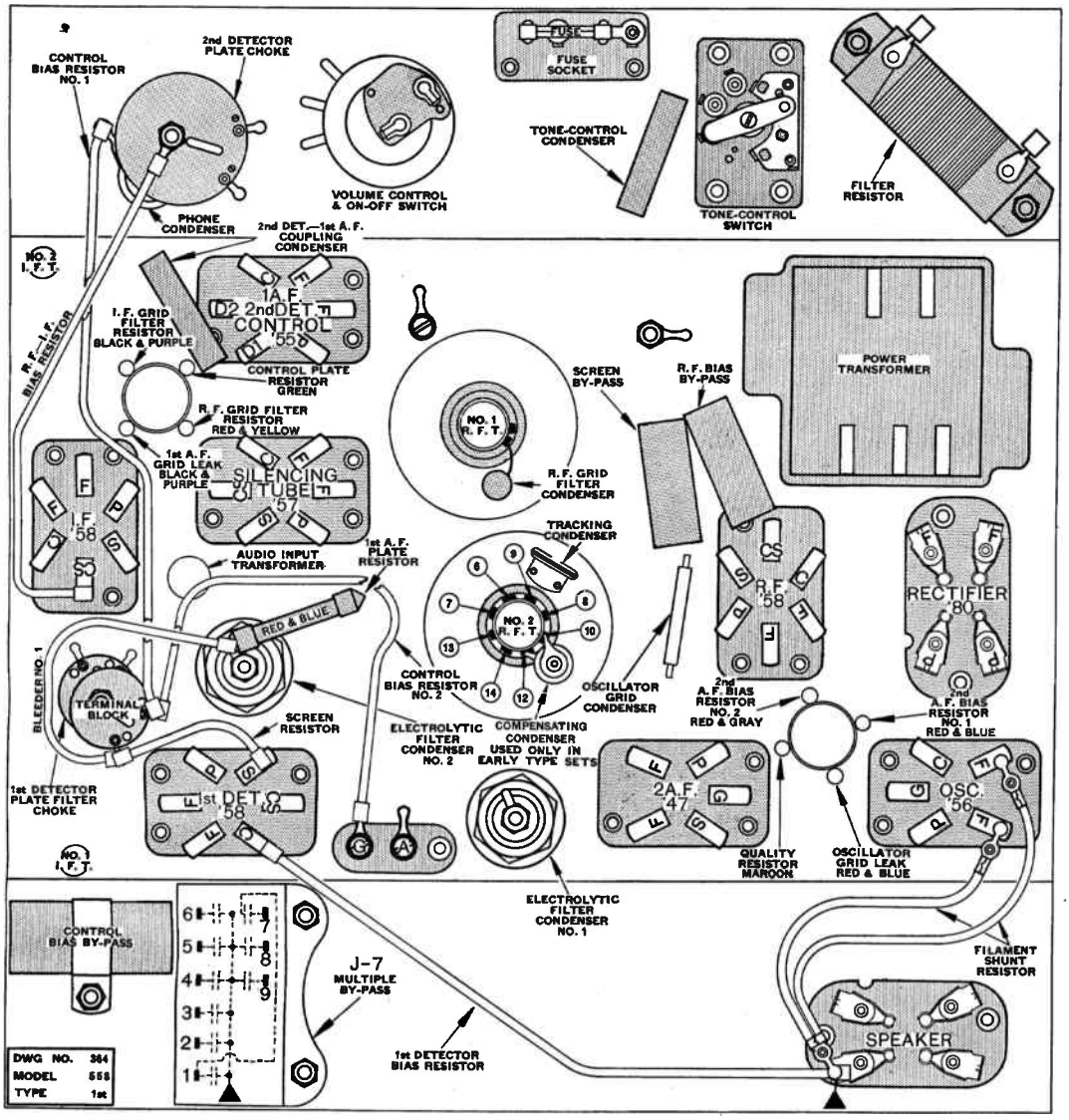


MODEL 469-Q and 558-Q

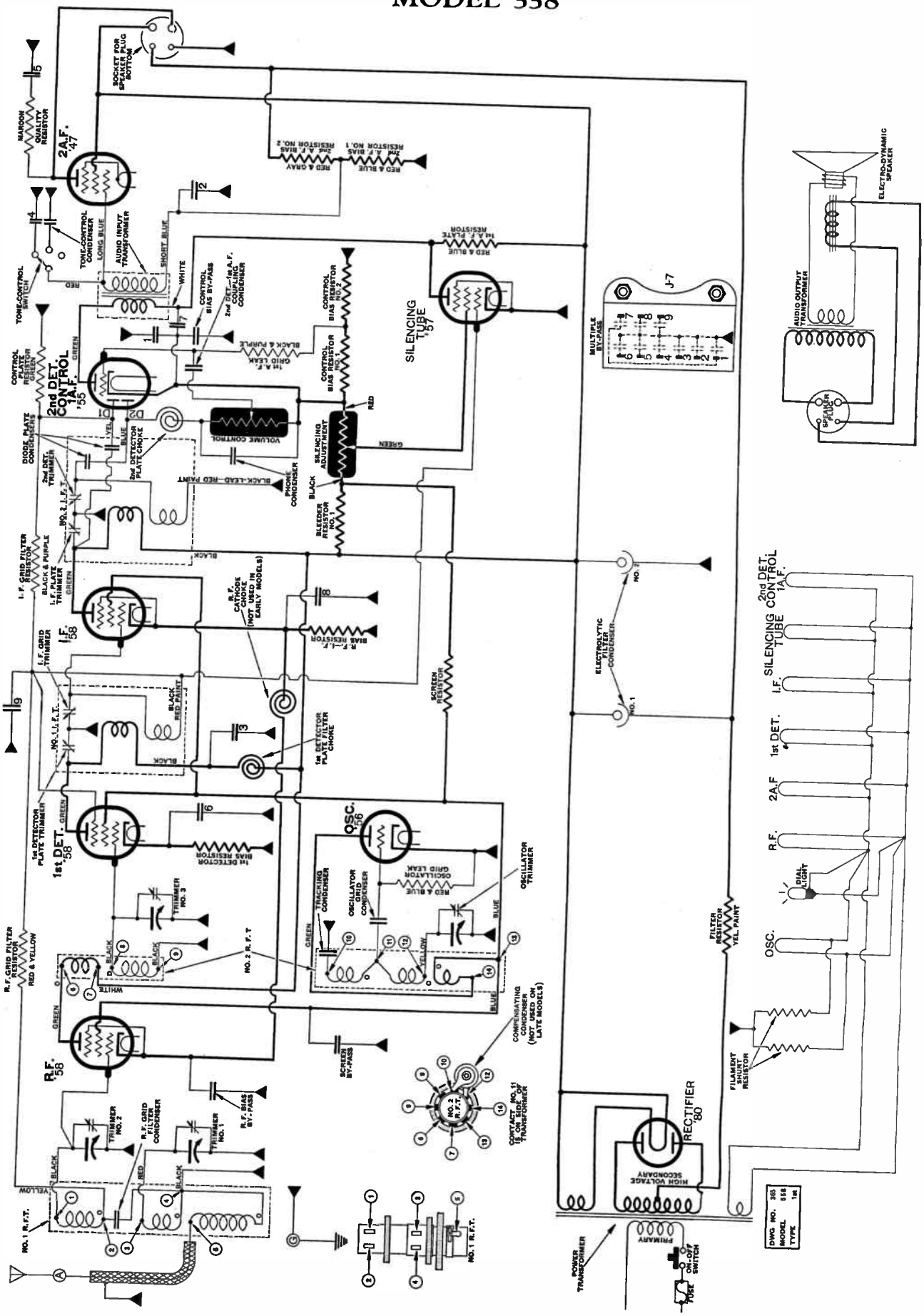


MODEL 558 TOP VIEW AND CHART

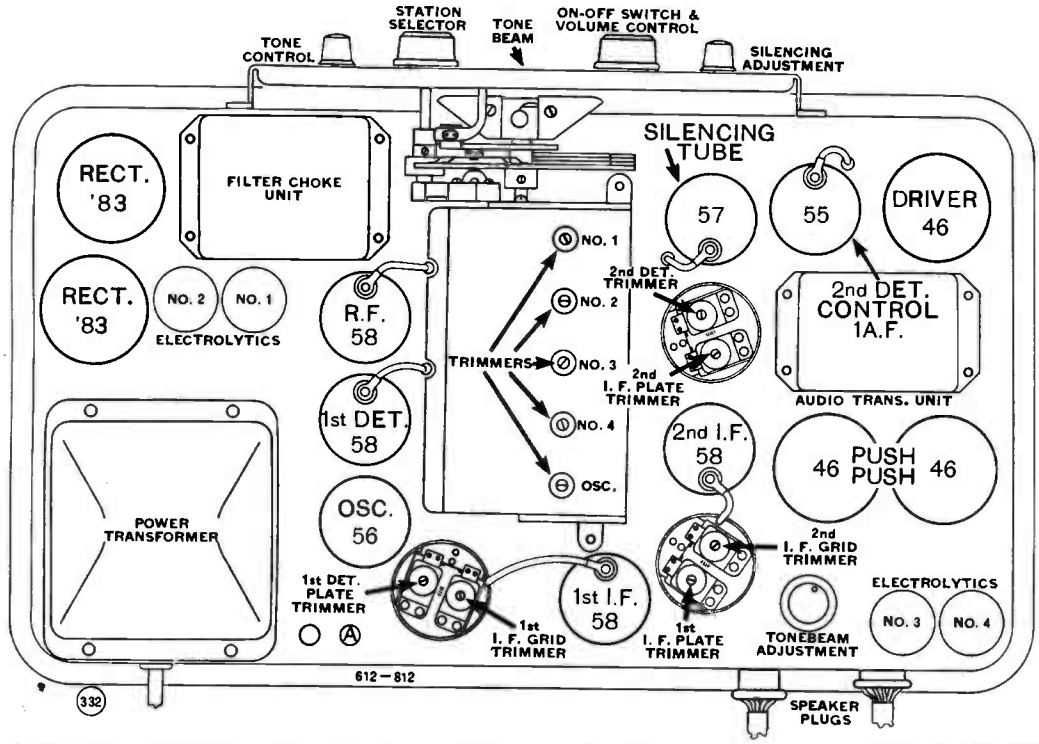


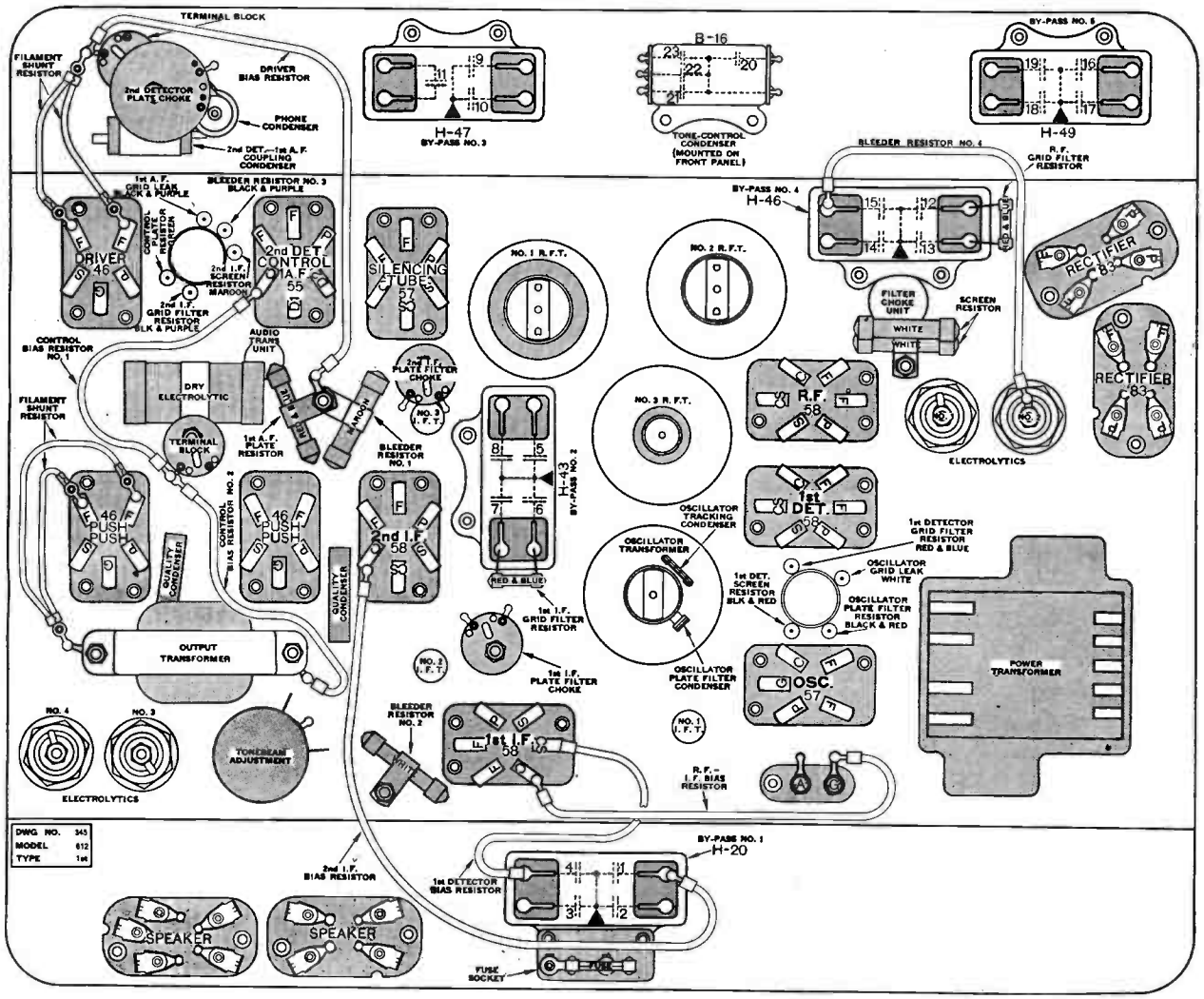


MODEL 558

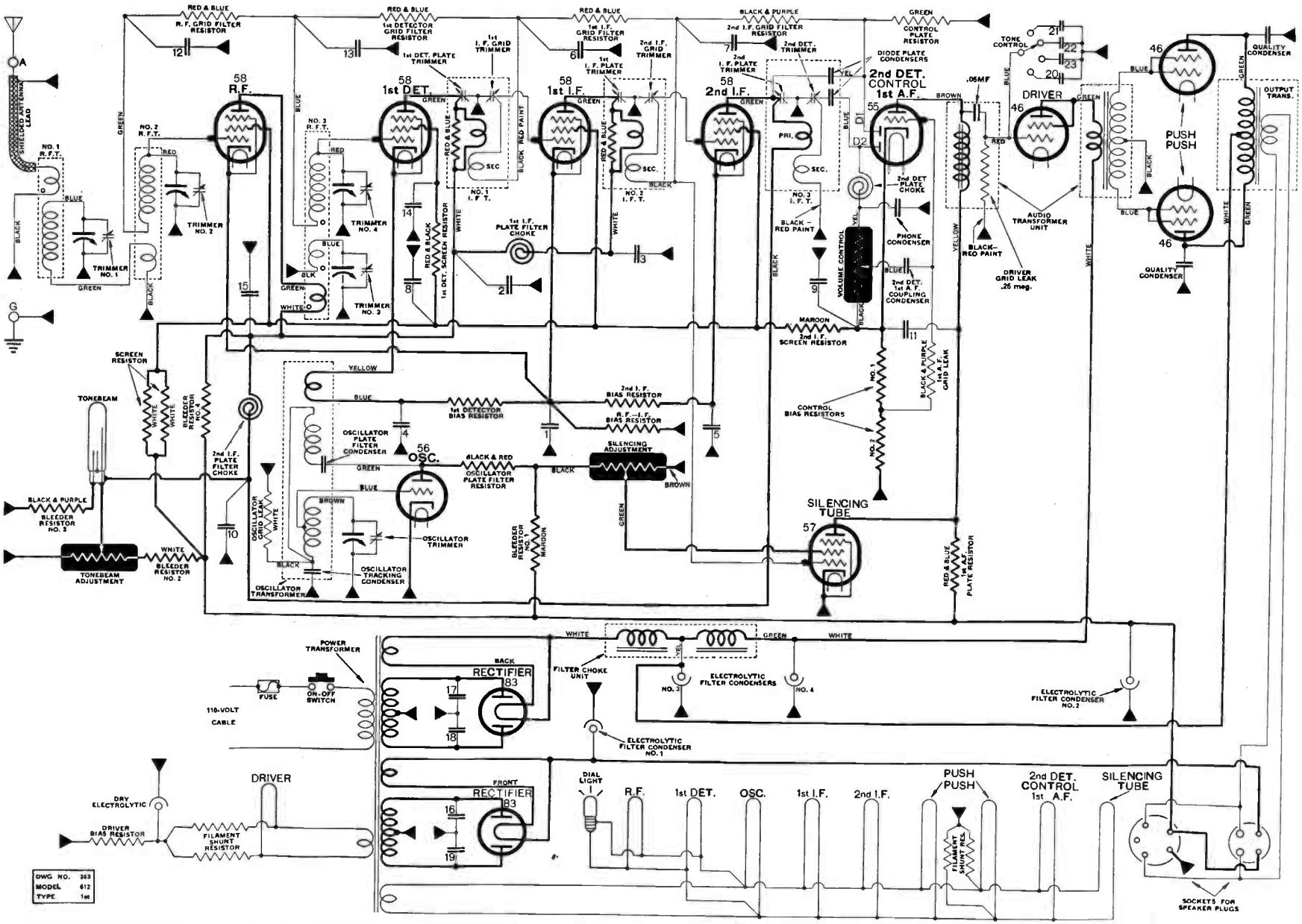


MODEL 612 TOP VIEW AND CHART





MODEL 612



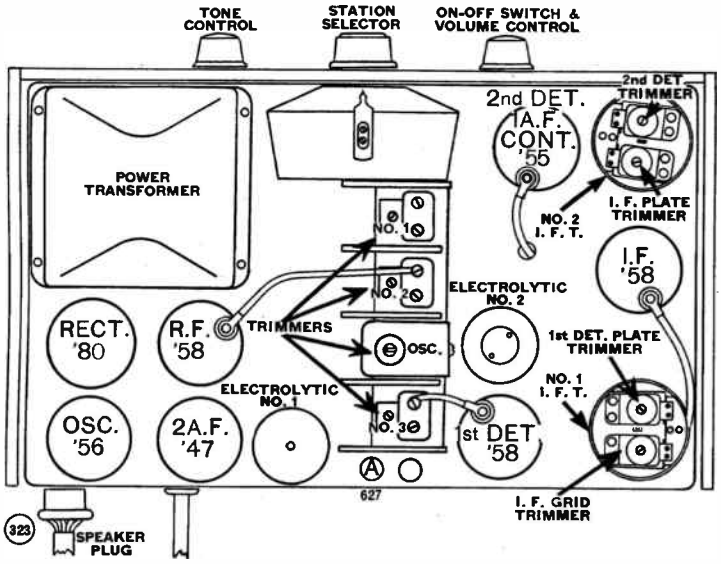
In early Model 612, the tone-control condenser is a B-11 and the quality condensers are .02MF. Later Model 612 uses a B-15 tone-control condenser and .015MF quality condensers. The latest type Model 612 uses a B-16 tone-control condenser and .025MF quality condensers. When replacing any of these units, use the same part as the original, except in the case of the .015MF quality condensers which are superseded by .025MF. In early Model 612, an audio transformer is used to couple the 1st-A. F. and driver tubes.

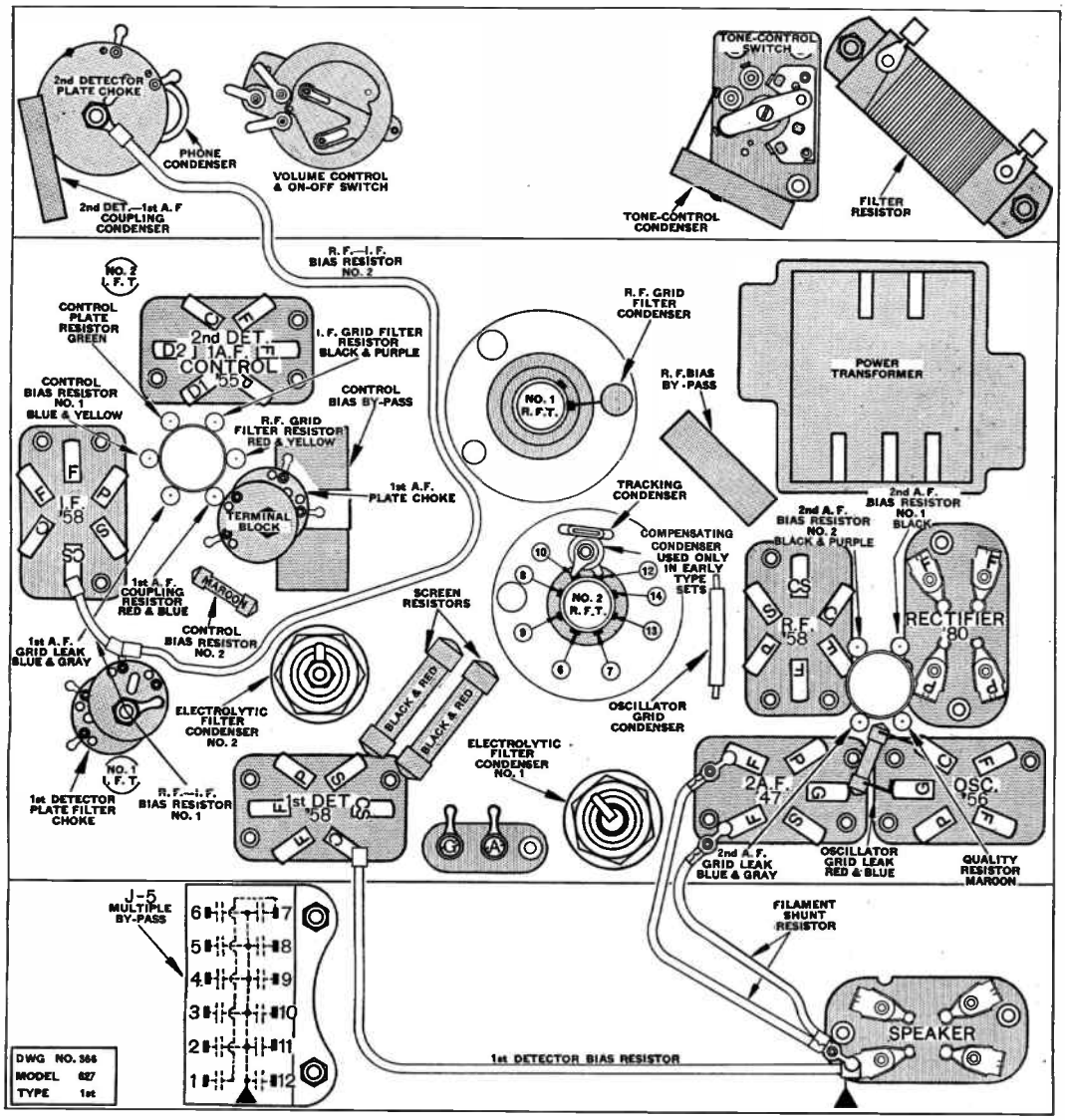
The power transformer has an internal shield which is connected to chassis. This shield is not shown in the above diagram.

In late Model 612, the control-grid of the silencing tube connects to the green lead from No. 2 R. F. T. instead of to the black lead from No. 2 I. F. T.

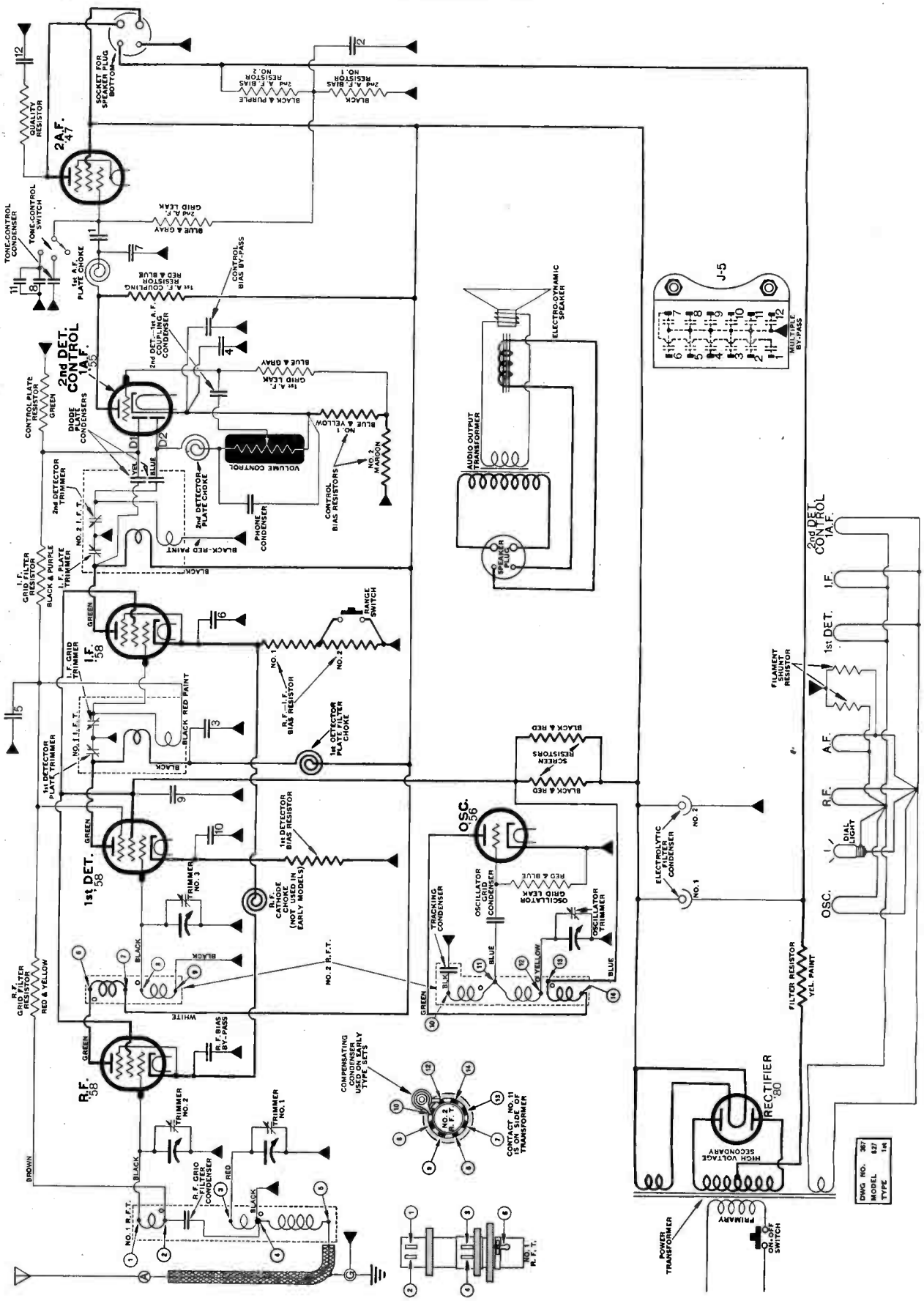
In early Model 612, by-pass No. 5 is an H-20. Use H-49 for replacement.

MODEL 627 TOP VIEW AND CHART

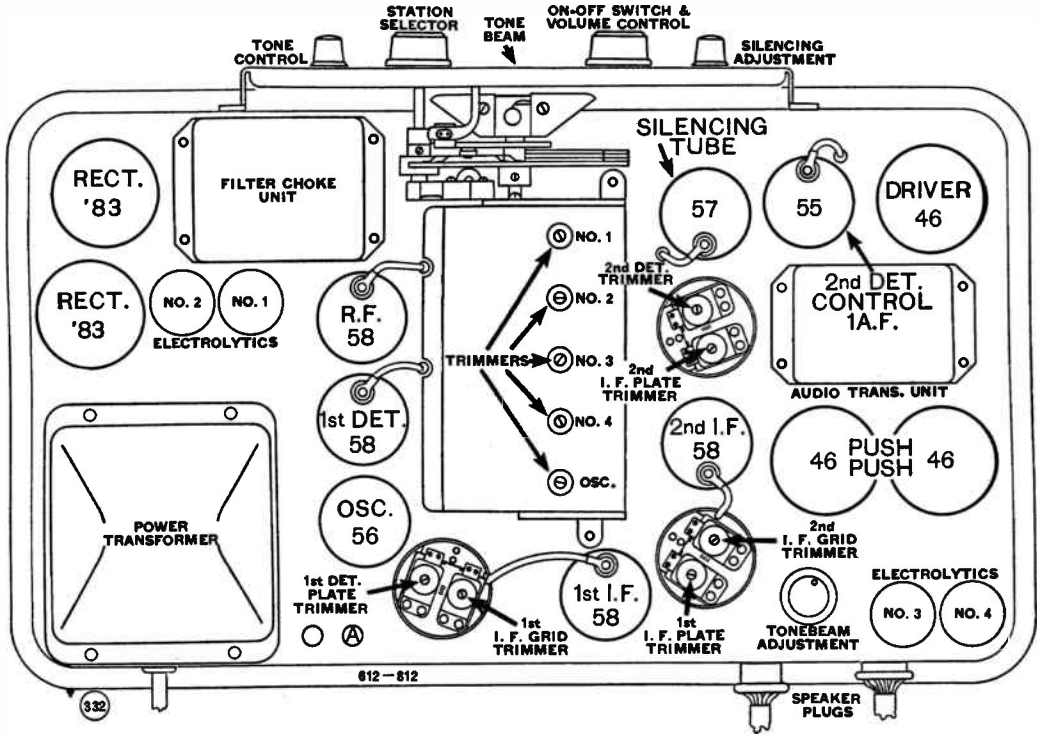


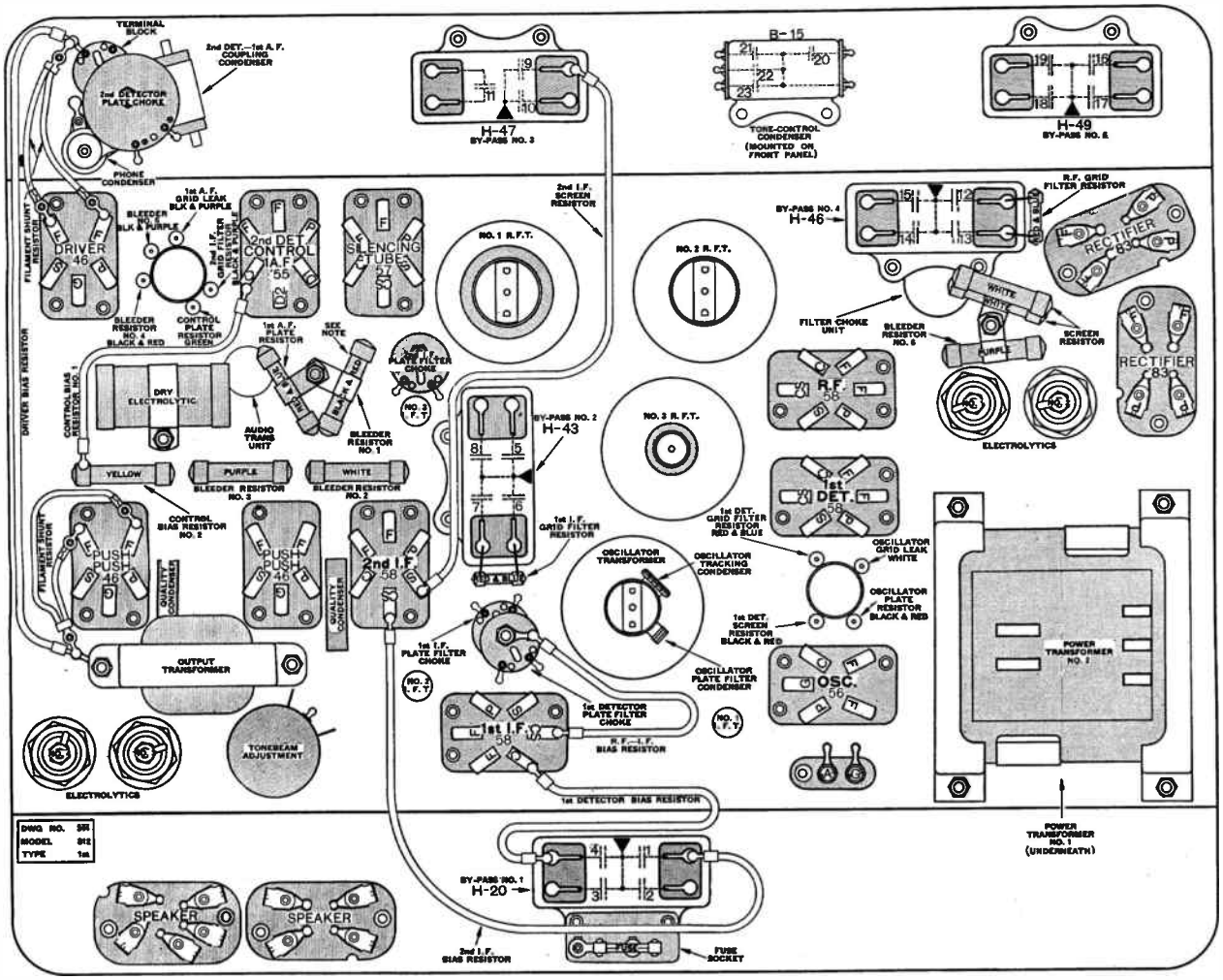


MODEL 627

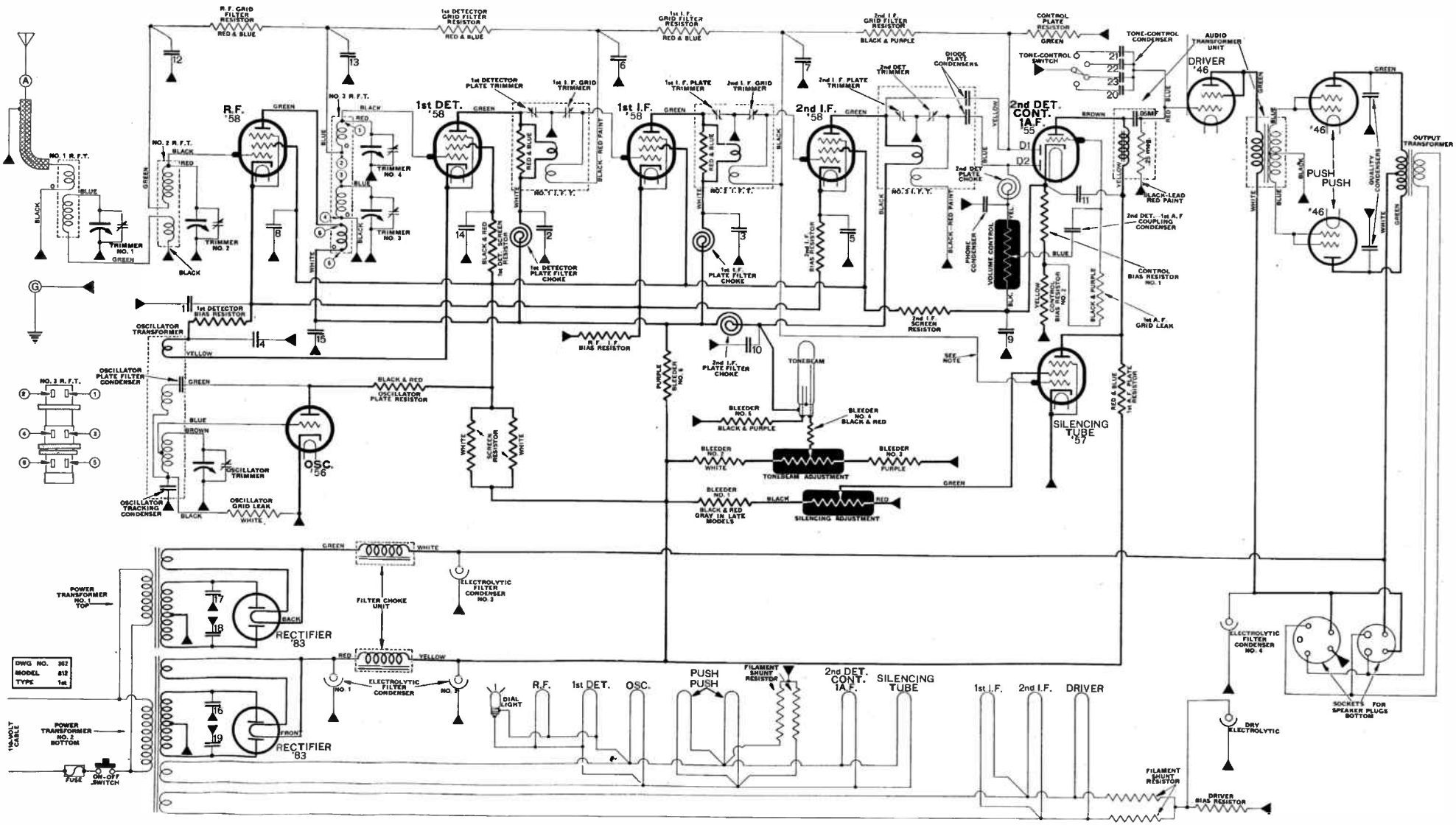


MODEL 812 TOP VIEW AND CHART





MODEL 812



In early Model 812, the tone-control condenser is a B-11 and the quality condensers are .02MF. Later Model 812 uses a B-15 tone-control condenser and .015MF quality condensers. The latest type Model 812 uses a B-16 tone-control condenser and .025MF quality condensers. When replacing any of these units, use the same part as the original, except in the case of the .015MF quality condensers which are superseded by .025MF.

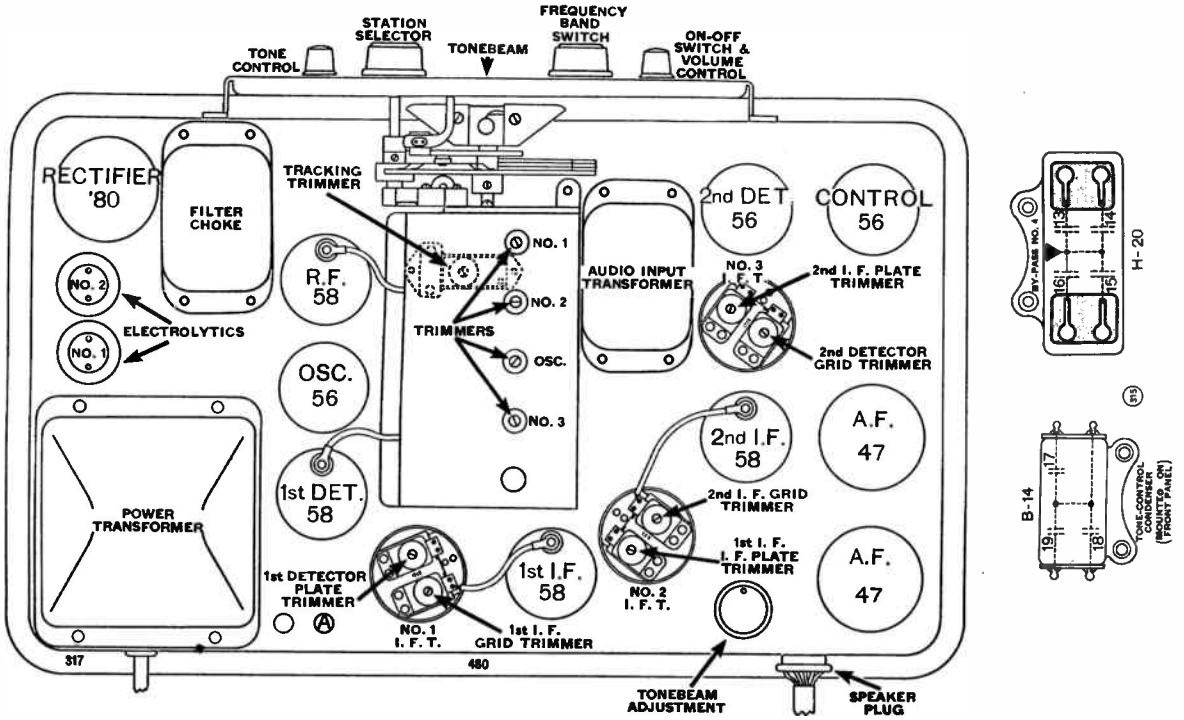
In early Model 812, an audio transformer is used to couple the 1st-A. F. and driver tubes.

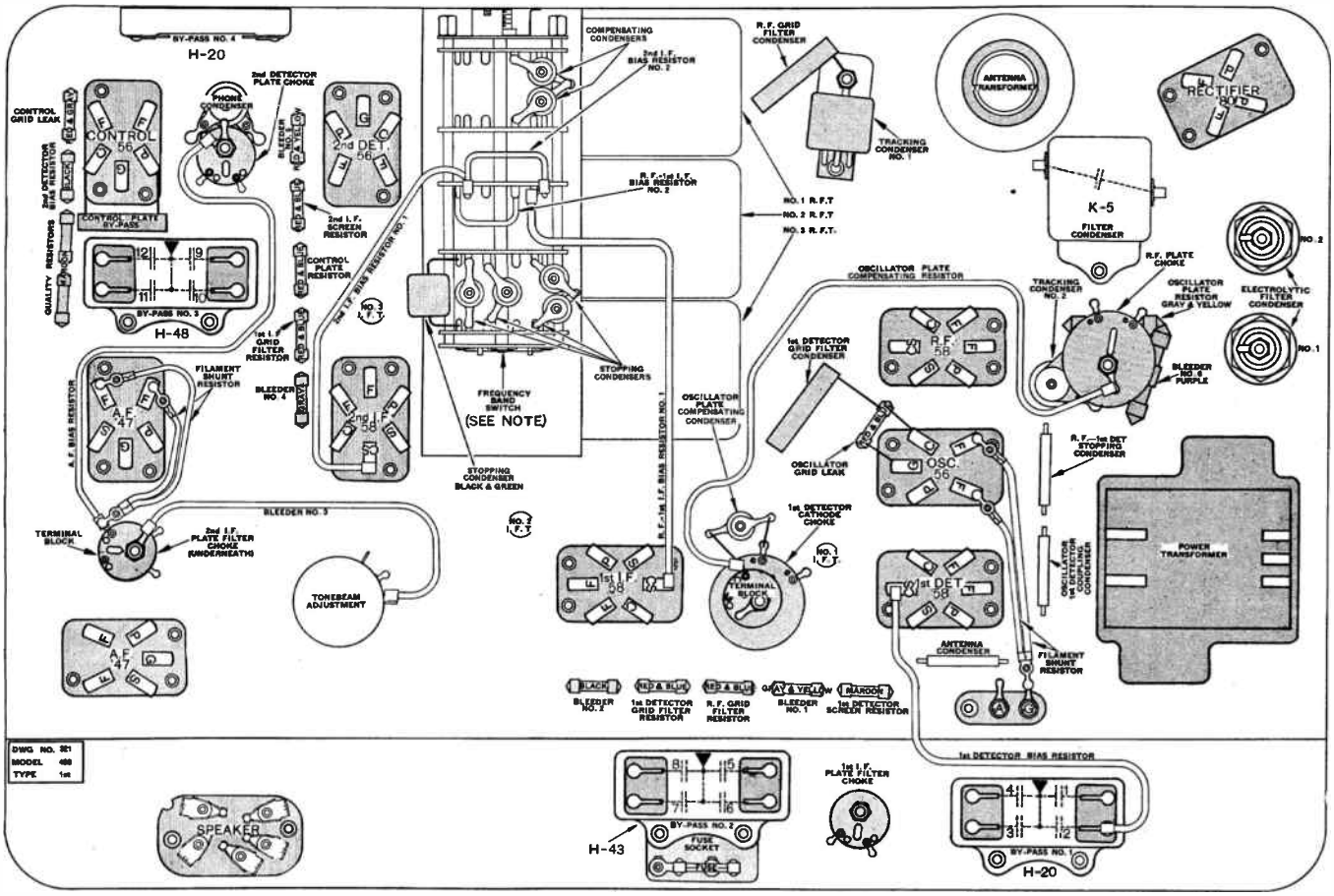
The power transformer has an internal shield which is connected to chassis. The shield is not shown in the above diagram.

In late Model 812, the control-grid of the silencing tube connects to the green lead from No. 2 R. F. T. instead of to the black lead from No. 2 I. F. T.

In early Model 812 by-pass condenser No. 5 is an H-20. Use H-49 for replacement.

MODEL 480 TOP VIEW AND CHART



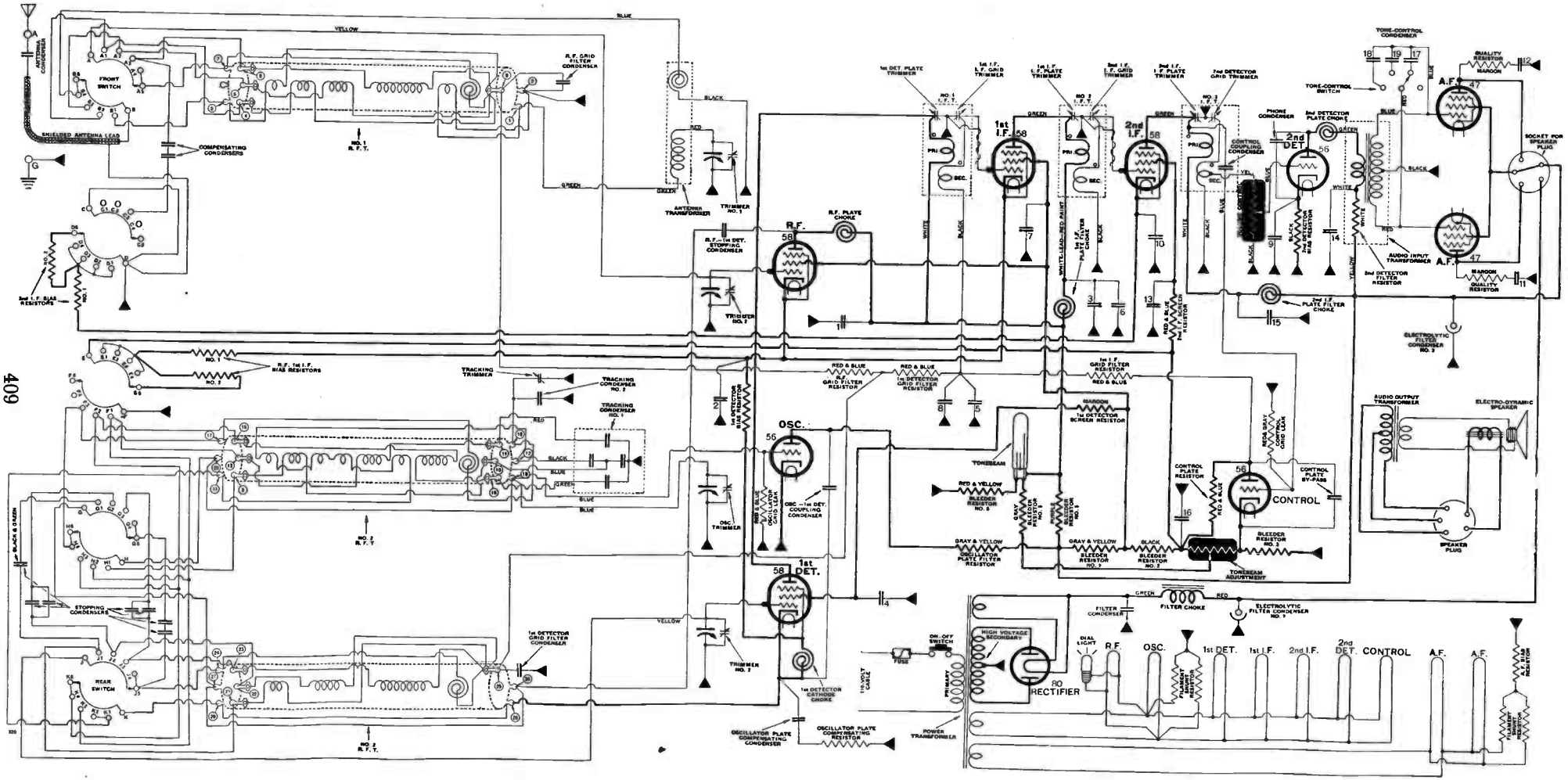


In late-type Model 480 receivers, the arrangement of the frequency-band switch is different from that shown above. The late arrangement is shown in the diagram on page 409.

MODEL 480

See Simplified Schematic on Page 410

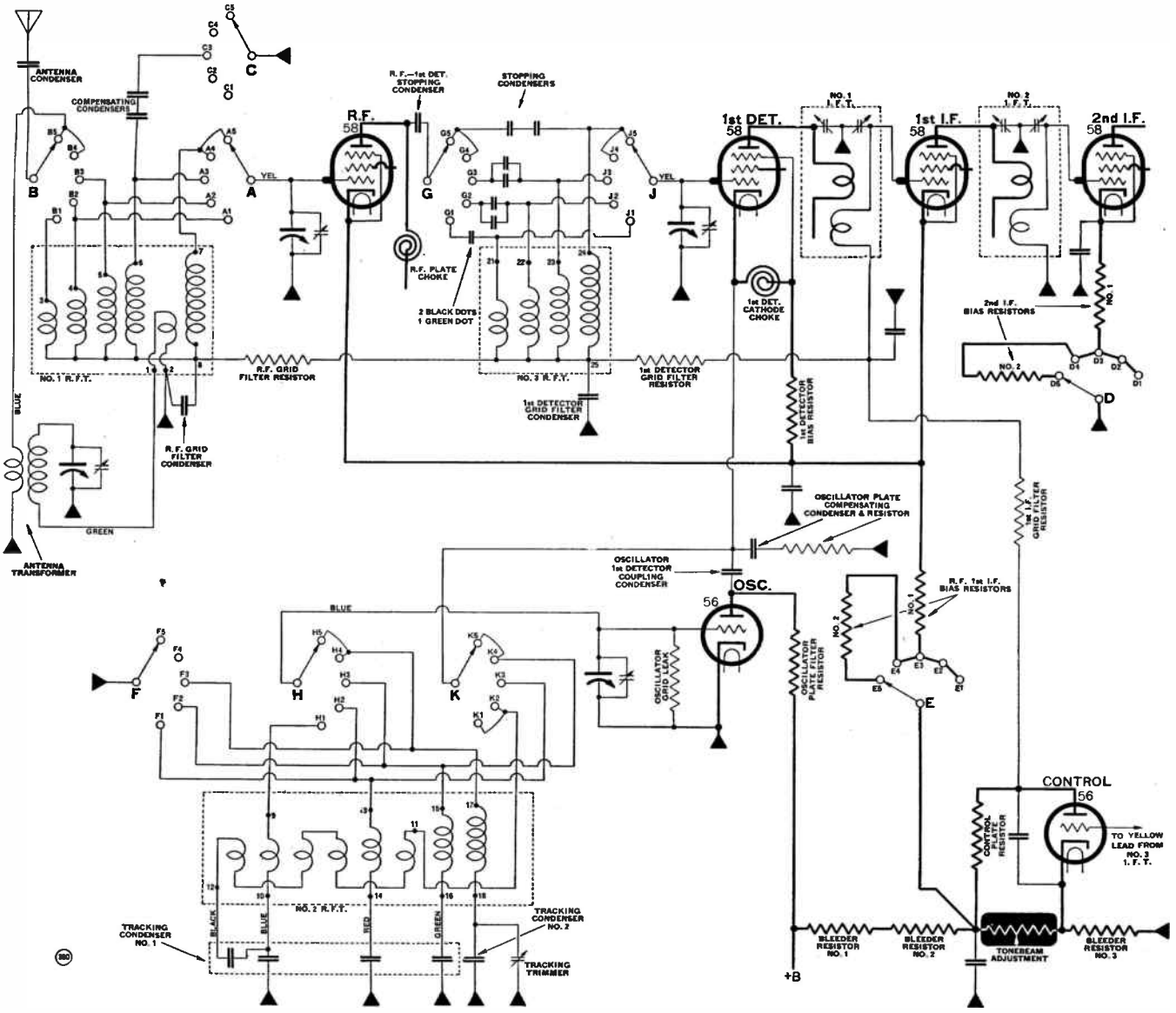
(Intermediate Frequency, 472½ Kilocycles)



In some early-type Model 480 receivers the circuit arrangement and contacts of the frequency-band switch are different from that shown above. The early circuit arrangement is shown on page 411.

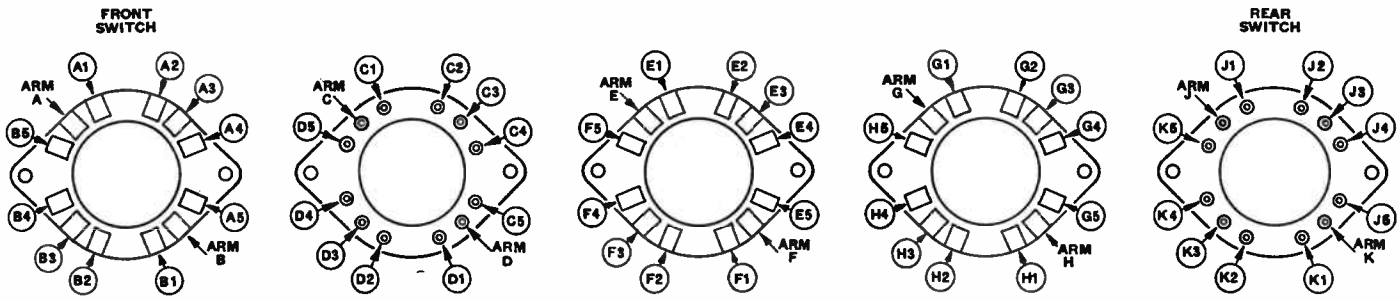
IMPORTANT: In late-type Model 480, the control-coupling condenser and the control grid leak are omitted, and there is no blue lead from No. 3 I. F. T. In these late sets, the grid of the control tube is connected to the yellow lead from No. 3 I. F. T.

MODEL 480 SIMPLIFIED SCHEMATIC



The frequency-range switch in Model 480 has five positions as follows:

1st. position —8.2 to 21.2 megacycles.
2nd. position—3.6 to 9.2 megacycles.
3rd. position —1.5 to 4 megacycles.
4th. position —"Distance" broadcast.
5th. position —"Local" broadcast.

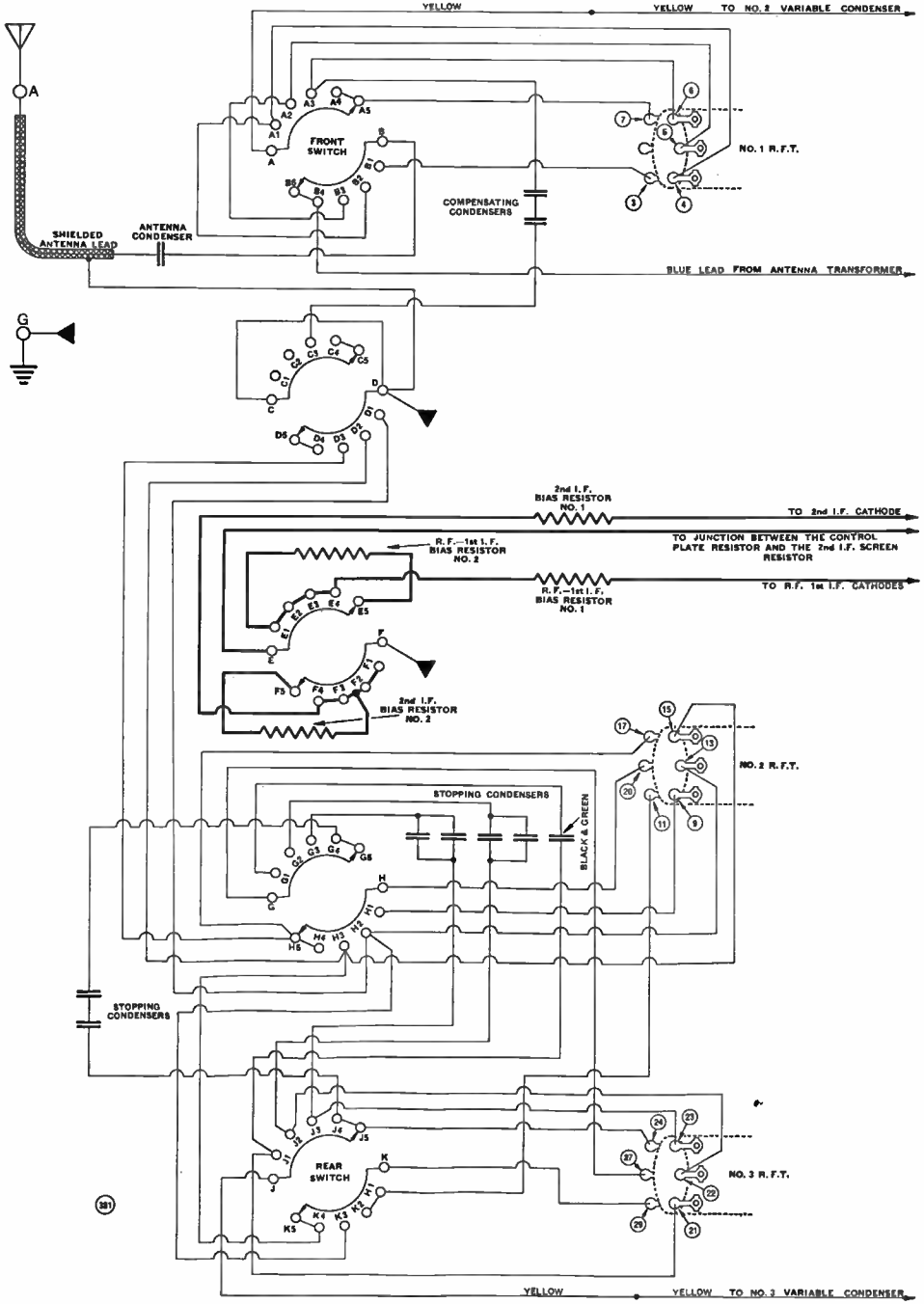


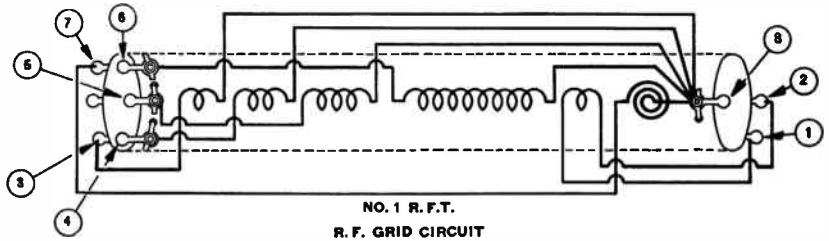
ARRANGEMENT OF CONTACTS ON FREQUENCY-RANGE SWITCH IN MODEL 480 (LATE TYPE.)

MODEL 480 FREQUENCY-RANGE-SWITCH CIRCUIT (Early Type)

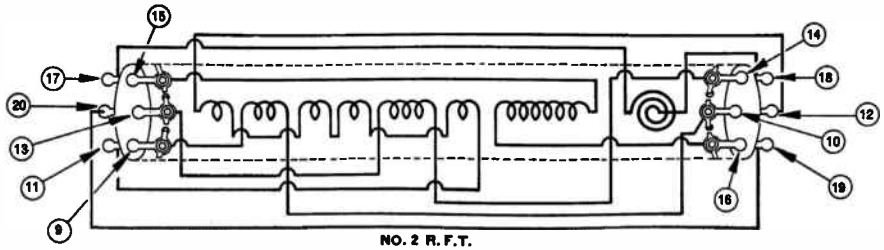
AND

MODEL 480 R. F. TRANSFORMER CONNECTIONS

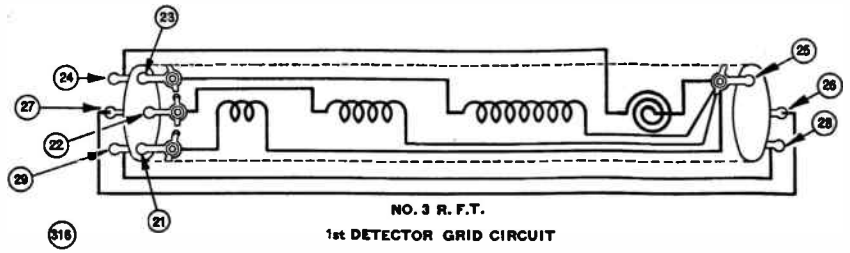




NO. 1 R.F.T.
R.F. GRID CIRCUIT

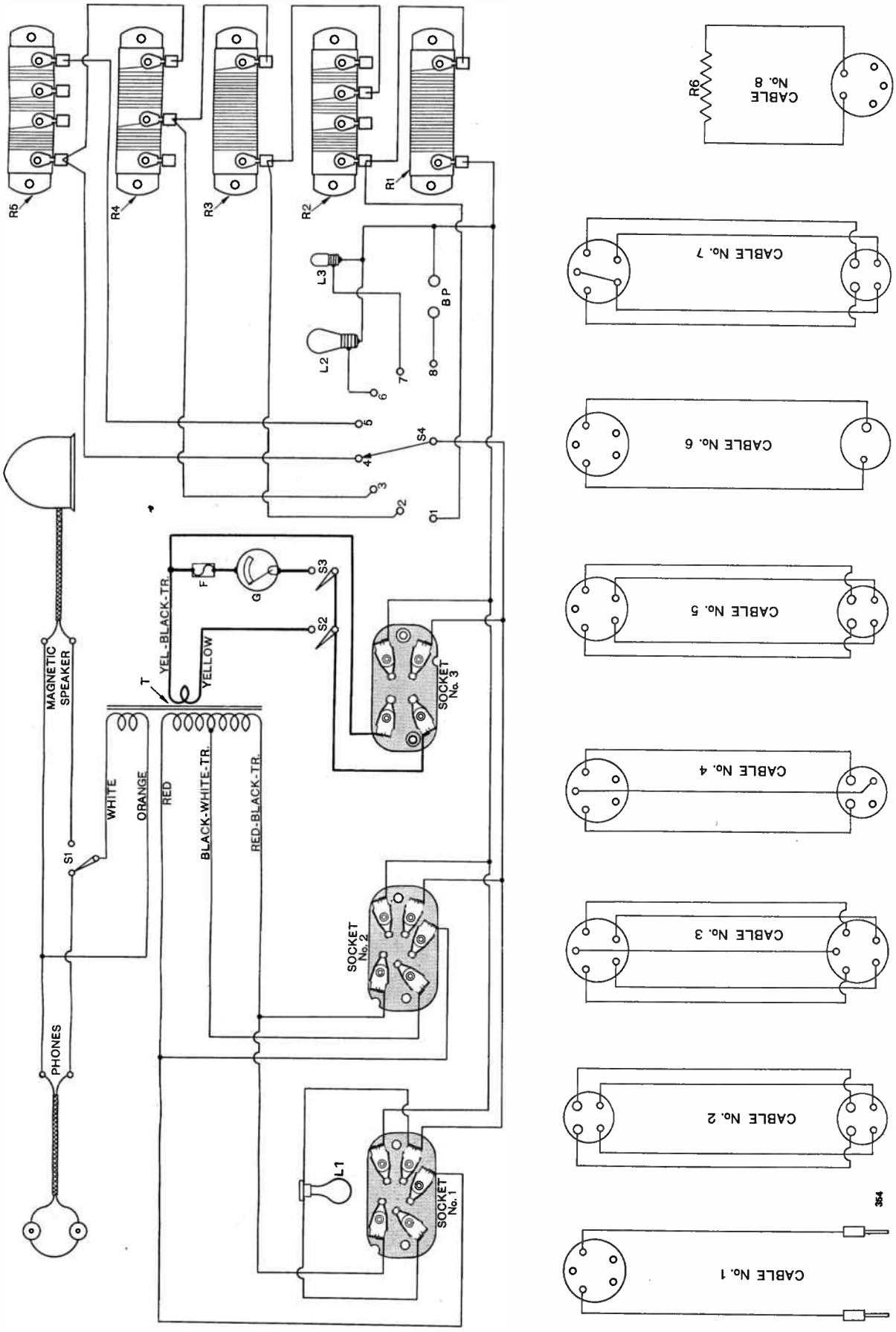


NO. 2 R.F.T.
OSCILLATOR PLATE & GRID CIRCUITS



NO. 3 R.F.T.
1st DETECTOR GRID CIRCUIT

OUTPUT MEASURING CIRCUIT



The top plug on each cable is for insertion in the correct socket on the output measuring circuit. The bottom plug on each cable is for insertion in the speaker socket on the chassis that is being tested. Follow instructions given in the table on the facing page.

In this diagram, all connections are made looking at the bottom of the sockets and plugs.

When switch S4 is set at contact 8, the binding posts BP are connected in the circuit and may be used to connect an external dummy field-resistor of the correct value to take care of future models.

OUTPUT MEASURING CIRCUIT

DESCRIPTION

An output measuring meter is required to ensure correct adjustment of variable condensers and trimmers. There are several satisfactory methods of connecting an output meter, but the circuit shown on page 412 has proved particularly satisfactory and popular because only one magnetic speaker is required to test any type of Atwater Kent chassis. In other words, on a chassis repair job, you do not have to "pull" the speaker; just bring in the chassis, connect it to the output meter circuit, and you can then check trimmer adjustments, sensitivity, volume and tone quality.

The output circuit includes dummy-field resistors of the correct value for each type of Atwater Kent chassis. A thermo-coupled galvanometer is used to indicate resonance when adjusting variable condensers and trimmers. The magnetic speaker provides a check on volume and tone quality. The cables and plugs provide a quick method of connecting the chassis to the output circuit.

We recommend the use of an Atwater Kent type JB inductor-dynamic speaker with this output circuit. This speaker provides good reproduction and can handle the required volume.

LIST OF PARTS

(The meter "G," fuse "F," and 8-point switch "S-4" are not Atwater Kent parts and can not be supplied from the factory.)

T—No. 18911 special audio output transformer.
S1—No. 13678 toggle switch.
S2, S3—No. 9991 toggle switches.
S4—8-point rotary switch.
R1—No. 16433 680-ohm resistor.
R2—No. 14039 535-ohm resistor (360-ohm section used).
R3—No. 16433 680 ohm resistor.
R4—No. 16434 600-ohm resistor (300-ohm section used).
R5—No. 14039 535-ohm resistor.
R6—Six No. 19180 1100-ohm resistors in series. These take the place of the 6500-ohm field coil in Models 612 and 812.
F—¼ ampere fuse.
G—115 milliampere thermo-coupled galvanometer.
Socket No. 1—No. 21337.
Socket No. 2—No. 21337.
Socket No. 3—No. 21336.
L1—No. 20075 110-volt, 75-watt lamp.
L2—No. 23982 120-volt, 3-watt lamp, miniature base.
L3—No. 16099 6-volt dial lamp.
Cable No. 1—1 No. 18582 5-prong speaker plug, and 1 No. 4259 two-conductor cord.
Cable No. 2—1 No. 19789 4-prong speaker cable and plug, and 1 No. 15079 4-prong plug.
Cable No. 3—1 No. 20657 5-prong speaker cable and plug, and 1 No. 18582 5-prong plug.
Cable No. 4—1 No. 23863 4-prong speaker plug and 3-conductor cable 1 No. 18582 5-prong plug.
Cable No. 5—1 No. 19789 4-prong speaker cable and plug. 1 No. 18582 5-prong plug.
Cable No. 6—1 No. 20889 2-prong speaker cable and plug. 1 No. 18582 5-prong plug.
Cable No. 7—1 No. 19789 4-prong speaker cable and plug. 1 No. 18582 5-prong plug.
Cable No. 8—1 No. 18582 5-prong plug, and resistor R6.

OPERATION OF OUTPUT CIRCUIT

1. Put switch S4 in the correct position, and connect the chassis to the output circuit by means of the correct cable, as specified in the table below.

2. Throw S1 to the right to test for quality or volume on the magnetic speaker.

   Throw S1 to the left to pick up oscillator signals on the headphones.

3. Close S2 and S3 to secure a reading on the galvanometer.

   Open S3 to disconnect the galvanometer when checking volume and quality.

CONNECTION TABLE

Model Number of Set	Speaker Type No.	Resistance of Field Coil (Ohms)	Put Switch S-4 at Tap No.	Use Cable No.	Use Socket No.
43	F	2500	5	2	3
46, 47	F-2	1700	3	2	3
53 (Early)	F-3	2500	5	2	3
53 (Late)	F-3	1700	3	2	3
55	F-4	1100	2	2	3
55-F	F-2	1700	3	2	3
60	F-4	1100	2	2	3
61	F-6	700	6*	2	3
66	F-6	700	1	2	3
67	F-7	8	7**	2	3
L, F, P or H	N	1100	2	3	2
D	N-3	650	6*	3	2
Q	J	***	***	4	2
80, 82, 83, 84, 85, 86, 90, 92, 94, 96, 188, 228, 558, 567 and 627	—	2000	4	5	2
82D, 84D, 228D	—	1200	6*	3	1
82Q, 84Q, 85Q and 228Q	—	***	***	6	2
87, 89	—	1100	2	3	2
87D	—	1200	6*	3	2
99 below 4884901	—	1100	2	3	2
99 above 4884901	—	2000	4	3	2
99F	—	1100	2	3	2
99P	—	2000	4	3	2
260, 469, 480	380	1100	2	3	2
469D, 558D	—	1200	6*	7	2
469Q, 558Q	—	***	***	4	2
612	324	2000	4	2	3
	326	6500	—	8	—
812	336	2000	4	2	3
	338	6500	—	8	—

*Lamp L2 should light, indicating continuity of the field supply circuit.
**Lamp L3 should light, indicating continuity of the field supply circuit.
***S4 may be left in any position as there is no field connection in these sets.

SERVICE NOTES

SYNCHRONIZING SPEAKERS IN MODELS 612 and 812

In order to get correct tone quality from the dual-speaker sets, Models 612 and 812, it is essential that the two speakers be so connected that the diaphragms of both work in unison or synchronism. If the terminals of one speaker are reversed, the tone of the set will be flat.

To test for proper connections, remove the speakers from the cabinet (leaving them plugged in) so the movement of the diaphragms can be observed. Turn on set, but turn volume down. Connect the terminals of a 1½-volt dry cell across the voice coil-terminals of either one of the speakers. If the diaphragms move in or out together at the instant of contact, the speaker connections are O. K. If one moves out and the other moves in, they are bucking, and the remedy is to reverse the red leads of the five-prong speaker at the voice-coil terminal strip.

TYPE '55 TUBE

The 55 tube (known as a duo-diode triode) as used by Atwater Kent in current models, serves three purposes, acting as 2nd-detector, automatic volume control, and 1st-A.F. amplifier.

The lower part of the tube has two small plates and the cathode, forming a duo-diode. One of these small plates (D-2) and the cathode functions as a diode or half-wave 2nd-detector. The other small plate (D-1) and the cathode functions as a diode or two-element automatic volume control.

The upper part of the tube has a plate, grid, and cathode, forming a triode, with the grid brought out to a cap on the top of the tube.

The signal voltage developed across the manual volume control in the 2nd-detector plate circuit is impressed on the grid of the triode, which acts as 1st-A.F. amplifier.

The automatic volume control plate (D-1) is actuated by strong signals in such a way as to produce an increased negative bias on the control grids of the R.F. and I.F. tubes, thus reducing their amplification and tending to keep a uniform signal level. The voltage drop across control bias resistors No. 1 and 2 determines the signal level at which the automatic volume control begins to function.

The drop across control bias resistor No. 1 is the bias voltage for the 1st-A.F. grid.

There is no bias on the 2nd-detector plate.

TYPE '85 TUBE

The 85 tube used in Models 469-D and 558-D corresponds to the 55 tube described above.

ACTION OF SILENCING TUBE

The silencing tube is so connected in the plate circuit of the 1st-A.F. tube that when no signal is being received (that is, when the set is tuned between stations), the plate voltage and consequently the amplification of the 1st-A.F. tube is decreased. When a signal is tuned in, the silencing tube automatically restores the normal plate voltage and amplification of the 1st-A.F. tube.

The automatic action of the silencing tube is secured by having the grid of the silencing tube connected to the automatic volume control circuit.

An adjustment for selecting the desired amount of silencing between stations is provided by having the screen of the silencing tube connected to a potentiometer by means of which the screen voltage may be regulated.

PUSH-PUSH AMPLIFICATION

"Class B" or push-push amplification is used in Atwater Kent Models 612, 812, 469-Q and 558-Q, to provide high power output with comparatively low power consumption.

Class B amplification differs from regular push-pull amplification in this way:—

In **push-pull** amplification, the grids of the two tubes are biased to a point where there is comparatively *high plate current* in each tube. When an A.C. signal voltage is impressed on the grids, the plate current of one tube decreases, and the plate current of the other tube increases in like amount. This action reverses as the impressed A.C. grid voltage reverses. Note that both tubes are functioning at all times, one pushing while the other pulls.

In class B or **push-push** amplification, the grids of the two tubes are biased to a point where there is practically *no plate current* in either tube. (The 46 tube is designed to give low plate current with zero grid bias.) When an A.C. signal voltage is impressed on the grids, one grid swings more negative, and the other grid swings positive. The plate current of the first tube cannot decrease as it is already practically zero, but the plate current of the other tube increases. This action reverses as the impressed A.C. signal voltage reverses. Note that in class B amplification, only one tube functions at a time, the other tube being inoperative for that half-cycle of the impressed A.C. signal voltage. The name push-push is derived from this action.

NECESSITY FOR DRIVER TUBE

In **push-pull** amplification, the grids do not swing positive, so there is practically no grid current, and very little power is required to feed the grid circuit.

However, in **push-push** amplification the grids swing positive, thus drawing grid current, and considerable power is required to feed the grids of these tubes.

This power is furnished by a "driver" tube which provides sufficient power output to swing or "drive" the grids of the push-push tubes.

NECESSITY FOR 83 TUBE

In **push-pull** amplification, the average plate current of the two tubes is practically constant at all times, regardless of signal strength. The current drain on the power unit is therefore practically constant, so there is no tendency for the output voltage of the power supply to vary. Under this condition the type 80 rectifier tube is satisfactory as it can supply the constant drain.

In **push-push** tubes there is practically no plate current when the volume control is turned down. But when a signal is received and the volume control is turned up, the push-push tubes alternately draw high plate current. This intermittant drain on the power supply necessitates use of a special rectifier and filter circuit to maintain constant voltage under the varying current drain. The 83 tube is designed to meet this condition as it has low internal resistance and good voltage regulation.

ACTION OF TONEBEAM

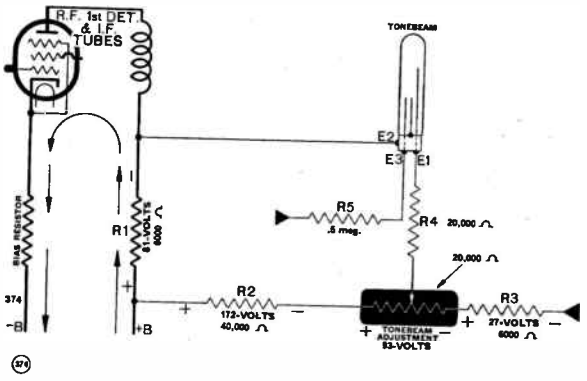
The Atwater Kent tonebeam is a neon light-column that indicates visually when the set is tuned correctly to resonance with the incoming signal.

A typical circuit arrangement for the tonebeam is shown below. This particular circuit is used in Model 812.

The tonebeam requires an initial bias to make the short center electrode (E-2) positive with respect to the long electrode (E-1). The bias is adjustable to take care of different tonebeam tubes, the adjustment being provided by a potentiometer in series with resistors R-2 and R-3 which limit the range of adjustment. In the circuit shown below, the bias voltage across E-1 and E-2 can be adjusted from 91 to 184 volts.

When a signal is tuned in, the automatic volume control increases the negative bias on the control grids of the R.F., 1st-detector, and I.F. tubes, thus decreasing their plate current. This decrease in plate current causes a decrease in voltage across R-1 and a corresponding increase in the voltage difference between electrodes E-1 and E-2. The increase in voltage across E-1 and E-2 causes the neon glow to extend up the long electrode. When the initial bias voltage is adjusted to the correct operating point, an increase of about 20 volts across E-1 and E-2 will cause the neon glow to extend up to the top of the long electrode E-1.

The electrode E-3 and resistor R-5 are used to ensure stable operation of the tonebeam. Resistor R-4 is used to make the tonebeam action more uniform on weak and strong signals.



TONEBEAM CIRCUIT IN MODEL 812.

Parts and Price List for Model 188 (2nd Type), 260 (3rd Type), 469 (2nd Type), 612 and 812

NAME OF PART	188	260	469	612	812
Volume control, complete	23228	23228	23228	23228	23228
less leads	1.25	1.25	1.25	1.25	1.25
	28040	21530	21530	30270	30270
Tone-control condenser	.20	1.00	1.00	1.00	1.00
	28220	28220	28220	28220	28220
Silencing adjustment	1.25	1.25	1.25	1.25	1.25
TRANSFORMERS					
Power transformer No. 1	26720	28680	28680	29170	28660
(Top)	7.50	7.50	7.50	8.25	7.50
Power transformer No. 2					28650
(Bottom)					6.00
	28490	26940	26940	28670	29960
Audio transformer unit	3.75	3.75	3.75	5.75	5.75
	23912	23823	23949	23823	23823
R.F. Transformer group	2.00	3.00	3.00	3.00	3.00
No. 1 I.F. Transformer,	23356	23535	23356	23535	23535
less trimmers	2.00	2.00	2.00	2.00	2.00
No. 2 I.F. Transformer,	22059	22913	22059	22913	22913
less trimmers	2.00	2.00	2.00	2.00	2.00
No. 3 I.F. Transformer,		22915		22915	22915
less trimmers		2.00		2.00	2.00
		27080	27040	27080	27080
Oscillator transformer		1.25	1.25	1.25	1.25
				28630	28630
Output transformer				2.25	2.25
CHOKES					
		26960	26970	29410	28640
Filter choke unit		5.75	5.75	5.75	5.75
1st. Detector plate filter	19210				19210
choke	.25				.25
2nd. Detector plate	17390	17390	17390	17390	17390
choke	.60	.60	.60	.60	.60
			17015		
R.F. Plate choke			.50		
		19210			
R.F. Screen filter choke		.25			
		19210			
Cathode filter choke		.25			
1st. I.F. Plate filter		19210		19210	19210
choke		.25		.25	.25
2nd. I.F. Plate filter		19210		19210	19210
choke		.25		.25	.25
			19210		
I.F. Plate filter choke			.25		
			19210		
I.F. Cathode choke			.25		
CONDENSERS					
Electrolytic filter	22538	22538	22538	23498	23498
condenser No. 1	2.50	2.50	2.50	2.50	2.50
Electrolytic filter	22538	22538	22538	22538	22538
condenser No. 2	2.50	2.50	2.50	2.50	2.50
Electrolytic filter				22538	23481
condenser No. 3				2.50	2.50
Electrolytic filter				22538	22538
condenser No. 4				2.50	2.50
Filter condenser unit,	26620		26620		
paper and foil	1.00		1.00		
				30250	30250
Quality condenser				.20	.20
	26690	26690	26690	26690	26690
Tracking condenser	.25	.25	.25	.25	.25
	26820				
R.F. Grid filter condenser	.20				
			26820		
1st. Det. grid filter cond.			.20		
	26670		26670		
Oscillator grid condenser	.25		.25		
	30240	30240	30240	30240	30240
Diode plate condenser	.20	.20	.20	.20	.20

NAME OF PART	188	260	469	612	812
CONDENSERS (Cont'd)					
2nd. Detector-1st. A. F.	23250	23250	23250	23250	23250
Coupling condenser	.35	.35	.35	.35	.35
	17440	17440	17440	30260	30260
Phone condenser	.50	.50	.50	.35	.35
Compensating or stopping	16360				
condenser	.10				
Control bias by-pass	26550				
condenser	.50				
R.F.-I.F. bias by-pass	26660				
condenser	.25				
1st. Detector screen by-pass		26660			
condenser		.25			
Multiple-type by-pass	28140				
condenser	2.00				
Other by-pass condensers					
are listed on Page 419.					
				23479	23479
Dry electrolytic condenser				.90	.90
FLEXIBLE AND WIRE-WOUND RESISTORS					
For tubular resistors, see Page 419.					
	21420	25950	25950		
2nd. A.F. Bias resistor	.20	.20	.20		
R.F.-I.F. Bias resistor		20040			
No. 1 or No. 2		.20			
			23780		
Oscillator plate resistor			.20		
	24470				
Screen resistor	.20				
				16320	20380
Driver bias resistor				.20	.20
				20040	20040
2nd. I.F. Bias resistor				.20	.20
					28470
2nd. I.F. screen resistor					.20
	28950		20040	21420	25950
R.F.-I.F. Bias resistor	.20		.20	.20	.20
	16320	25950	16320	25950	25950
1st. Detector bias resistor	.20	.20	.20	.20	.20
	21030	20380	16320	16320	16320
Control bias resistor No. 1	.20	.20	.20	.20	.20
	25850		24470	24470	
Control bias resistor No. 2	.20		.20	.20	
	24450				
Bleeder resistor No. 1	.20				
			24470		
Bleeder resistor No. 2			.20		
				20380	
Bleeder resistor No. 4				.20	
	27930				
Filter resistor	1.00				
	17077	17077	17077	17077	17077
Filament shunt resistor	.15	.15	.15	.15	.15
		22011	22011	22011	22011
TONEBEAM		2.00	2.00	2.00	2.00
Tonebeam adjustment		29020	29020	29020	29020
potentiometer		1.25	1.25	1.25	1.25
	18534	18534	18534	23774	23774
Line fuse	.05	.05	.05	.05	.05
		22615*	22615*	23497	23497
		F-1008	F-1008	F-1028	F-1028
Instruction folder		.01 Net	.01 Net	.01 Net	.01 Net
	23483				
	F-1024				
Instruction and log card	.01 Net				
	22769*	22738*	22875*	23793	23663
	F-986	F-993	F-994	F-1037	F-1033
Panel card	.01 Net	.01 Net	.01 Net	.01 Net	.01 Net

*When ordering, specify for silent tuning.

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

ATWATER KENT RADIO

PARTS AND PRICE LIST

FOR MODEL 480

Part No.	Name of Part	List Price
23376	VOLUME CONTROL, complete, less leads	$1.25
27390	TONE-CONTROL condenser	1.00
22011	TONEBEAM	2.00
27190	TONEBEAM ADJUSTMENT potentiometer	1.25
27720	POWER TRANSFORMER	8.25
30680	POWER TRANSFORMER, 25 cycle	10.75
27760	AUDIO INPUT TRANSFORMER	3.75
23408	R.F. TRANSFORMER GROUP	3.00
27670	ANTENNA TRANSFORMER	1.00
23271	NO. 1 I.F. TRANSFORMER, less trimmers	2.00
23353	NO. 2 I.F. Transformer, less trimmers	2.00
23272	NO. 3 I.F. Transformer, less trimmers	2.00
26970	FILTER CHOKE UNIT	5.75
17015	1st. Detector cathode choke	.50
19210	2nd. Detector plate choke	.25
17015	R.F. Plate choke	.50
19210	1st. or 2nd. I.F. Plate filter choke	.25
26620	FILTER CONDENSER UNIT, paper and foil type	1.00
22538	Filter condenser No. 1 or No. 2 (electrolytic)	2.50
	SMALL FIXED CONDENSERS	
27130	Antenna condenser	.25
27630	Control-plate by-pass condenser	.20
27640	R.F.-1st. Detector stopping condenser	.25
26670	Oscillator-1st. Detector coupling condenser	.25
27630	1st. Detector grid filter condenser	.20
23411	Tracking condenser No. 1	2.15
25650	Tracking condenser No. 2	$ .35
17440	Phone condenser	.50
27650	Compensating or stopping condenser	.10
23282	Stopping condenser (1 green dot, 2 black dots)	.30
	FLEXIBLE AND WIRE-WOUND RESISTORS (For tubular resistors, see Page 419)	
25950	R.F.-I.F. Bias resistor No. 1	.20
23780	R.F.-I.F. Bias resistor No. 2	.20
16320	1st. Detector bias resistor	.20
16320	2nd. I.F. Bias resistor No. 1	.20
24470	2nd. I.F. Bias resistor No. 2	.20
25840	A.F. Bias resistor	.20
20380	Bleeder resistor No. 3	.20
23780	Oscillator plate compensating resistor	.20
17077	Filament shunt resistor	.15
23107	FREQUENCY BAND SWITCH (less resistors and condensers)	3.75
23184	WAVE GUIDE F-1013 Net	.01
23279	Instruction folder F-1015 Net	.01
23216	Panel card F-1012 Net	.01
	BY-PASS CONDENSERS	
27580	H-48 (For other by-pass condensers, see Page 419)	1.00

PARTS AND PRICE LIST FOR MODEL 558, 627

Name of Part	558	627
VOLUME CONTROL, complete, less leads	23228 1.25	23228 1.25
TONE-CONTROL Condenser	28040 .20	28040 .20
SILENCING ADJUSTMENT	28220 1.25	
POWER TRANSFORMER, 60 cycles, 110 volts	28150 7.50	28150 7.50
Power transformer, 60 cycles, 220 volts	28430 11.50	28430 11.50
AUDIO INPUT TRANSFORMER	28290 3.75	
R.F. TRANSFORMER GROUP	23643 2.00	23434 2.00
NO. 1. I.F. TRANSFORMER, less trimmers	23356 2.00	23356 2.00
NO. 2 I.F. Transformer, less trimmers	22059 2.00	22059 2.00
1st. DETECTOR PLATE FILTER CHOKE	19210 .25	19210 .25
2nd. Detector plate choke	17390 .60	17390 .60
1st. A.F. Plate choke		19210 .25
R.F. Cathode Coke	19210 .25	19210 .25
ELECTROLYTIC FILTER CONDENSER NO. 1	22538 2.50	22538 2.50
Electrolytic filter condenser No. 2	22538 2.50	22538 2.50
SMALL FIXED CONDENSERS		
Tracking condenser	26690 .25	26690 .25
R.F. Grid filter condenser	26820 .20	26820 .20
Oscillator grid condenser	26670 .25	26670 .25
Diode plate condenser	30240 .20	30240 .20
2nd. Detector—1st. A.F. Coupling condenser	27630 .20	23250 .35
Phone condenser	17440 .50	17440 .50
Compensating or stopping condenser	16360 .10	16360 .10
Control bias by-pass condenser	26550 .50	26550 .50
R.F. Bias by-pass condenser	26660 .25	
R.F.-I.F. Bias by-pass condenser		26660 .25
Screen by-pass condenser	26660 .25	
BY-PASS CONDENSER, MULTIPLE TYPE Other by-pass condensers are listed on Page 419.	28140 2.00	24250 2.00
FLEXIBLE AND WIRE-WOUND RESISTORS For tubular resistors, see Page 419		
R.F.-I.F. Bias resistor No. 1		20040 .20
R.F.-I.F. Bias resistor No. 2		20380 .20
R.F.-I.F. Bias resistor	20040 .20	
1st. Detector bias resistor	16320 .20	16320 .20
Control bias resistor No. 1	21030 .20	
Control bias resistor No. 2	25850 .20	
Screen resistor	24470 .20	
Bleeder resistor No. 1	24450 .20	
Filter resistor	27930 1.00	27930 1.00
Filament Shunt resistor	17077 .15	17077 .15
RANGE SWITCH		20983 1.50
INSTRUCTION AND LOG CARD	23393 Net. 01	23347 Net. 01
PANEL CARD	23357 Net. 01	23339 Net. 01

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

Parts and Price List for Model 469-D, 469-Q, 558-D and 558-Q

NAME OF PART	469-D	469-Q	558-D	558-Q
	23982	23832	23982	23832
Dial lamp	.35 Net	.55 Net	.35 Net	.55 Net
	23228	23482	23228	23482
Volume Control, complete, less leads	1.25	.75	1.25	.75
	27390	21530	27390	21530
Tone-control condenser	1.00	1.00	1.00	1.00
	29380	29390	29380	29390
Audio Input transformer	4.00	4.00	4.00	4.00
	24043	23915	24043	23915
R.F. Transformer group	2.00	2.00	2.00	2.00
	28220		28220	
Silencing adjustment	1.25		1.25	
No. 1 I.F. Transformer,	23356	23535	23356	23535
less trimmers	2.00	2.00	2.00	2.00
No. 2 I.F. Transformer,	22059	23535	22059	23535
less trimmers	2.00	2.00	2.00	2.00
No. 3 I.F. Transformer,		23975		23975
less trimmers		2.00		2.00
	29370		29370	
Filter-choke unit	5.00		5.00	
	17254		17254	
R.F. Line choke	.50		.50	
		19210		19210
1st. A.F. Plate choke		.25		.25
	19210		19210	
I.F. Plate filter choke	.25		.25	
		19210		19210
2nd. I.F. Plate filter choke		.25		.25
	17390	17390	17390	17390
2nd. Detector plate choke	.60	.60	.60	.60
		17254		17254
Filament choke		.50		.50
	26670		26670	
Oscillator plate filter condenser	.25		.25	
	26690	26690	26690	26690
Tracking condenser	.25	.25	.25	.25
	22220	21160	22220	21160
Phone condenser	.35	.35	.35	.35
2nd. Detector—1st. A.F.	23250	23250	23250	23250
Coupling condenser	.35	.35	.35	.35
	29550		29550	
110-V. Line condenser	1.00		1.00	
	26820		26820	
R.F. Grid filter condenser	.20		.20	
		29030		29030
2nd. I.F. Screen by-pass condenser		.20		.20
		22220		22220
1st. A.F. Plate by-pass condenser		.35		.35
1st. A.F.—Driver coupling		27630		27630
condenser		.20		.20
		27630		27630
1st. I.F. Grid filter condenser		.20		.20
		27630		27630
2nd. I.F. Grid filter condenser		.20		.20
		27630		27630
Control filter condenser		.20		.20
		26820		26820
R.F. Grid filter condenser No. 1		.20		.20
		27630		27630
R.F. Grid filter condenser No. 2		.20		.20
	26660		26660	
R.F. Line by-pass condenser	.25		.25	
	26820	21450	26820	21450
Quality condenser	.20	.50	.20	.50
		26660		26660
1st. A.F. Screen by-pass condenser		.25		.25
		30240		30240
Control Coupling Condenser		.20		.20
		26660		26660
Control plate by-pass condenser		.25		.25
	26660		26660	
Screen by-pass condenser	.25		.25	
	30240		30240	
Diode plate condenser	.20		.20	
	28140		28140	
Multiple-type by-pass condenser	2.00		2.00	
	23981	22472	23981	22472
Dry Electrolytic condenser	1.25	.80	1.25	.80
		13664		13664
Range switch		1.00		1.00
		21958		21958
On-off switch		1.60		1.60
FLEXIBLE AND WIRE-WOUND RESISTORS				
For tubular resistors see Page 419.				
		30030		30030
Filament series resistor		.15		.15
	29220		29220	
Bleeder resistor No. 1	1.00		1.00	
	19820		19820	
Control bias resistor No. 1	.20		.20	
	19820		19820	
Control bias resistor No. 2	.20		.20	
	20050		20050	
R.F.-I.F. Bias resistor	.20		.20	
	28950		28950	
2nd. A.F. Bias resistor	.20		.20	
		23807		23806
Battery Cable		.75		1.25
	23693	23496	23693	23496
	F-1034	F-1027	F-1034	F-1027
Instruction and log-card	.01 Net	.01 Net	.01 Net	.01 Net
	23555	23527	23556	23484
	F-1030	F-1029	F-1031	F-1025
Panel card	.01 Net	.01 Net	.01 Net	.01 Net

No. 31600 SPEAKER USED IN MODEL 469-D

Part No.	Name of Part	List Price
20737	Diaphragm	$2.10
19860	Field coil	3.00
30020	Output transformer, less case	$2.25
19789	Cable and plug assembly	1.65

No. 31500 SPEAKER USED IN MODEL 469-Q

Part No.	Name of Part	List Price
19465	Diaphragm	$1.50
19918	Magnet assembly	6.00
23701	Output transformer, less case	$2.25
23863	Cable and plug assembly	1.00

No. 31800 SPEAKER USED IN MODEL 558-D

Part No.	Name of Part	List Price
19465	Diaphragm	$1.50
19860	Field coil	3.00
30020	Output transformer, less case	$2.25
19487	Cable and plug assembly	1.60

No. 31700 SPEAKER USED IN MODEL 558-Q

Part No.	Name of Part	List Price
19465	Diaphragm	$1.50
19918	Magnet assembly	6.00
23701	Output transformer, less case	$2.25
23764	Cable and plug assembly	1.00

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

No. 17300 TYPE S SPEAKER USED IN MODEL 558, 627

Part No.	Name of Part	List Price
19465	Diaphragm	$1.50
18870	Field coil	3.00
21672	Output transformer, less case	$3.00
19487	Cable and plug assembly	1.60

No. 28700 TYPE 368 SPEAKER USED IN MODEL 188

Part No.	Name of Part	List Price
20737	Diaphragm	$2.10
18870	Field coil	3.00
21672	Output transformer, less case	$3.00
19789	Cable and plug assembly	1.65

No. 28800 TYPE 380 SPEAKER USED IN MODEL 260, 260-F, 469, 469-F, 480

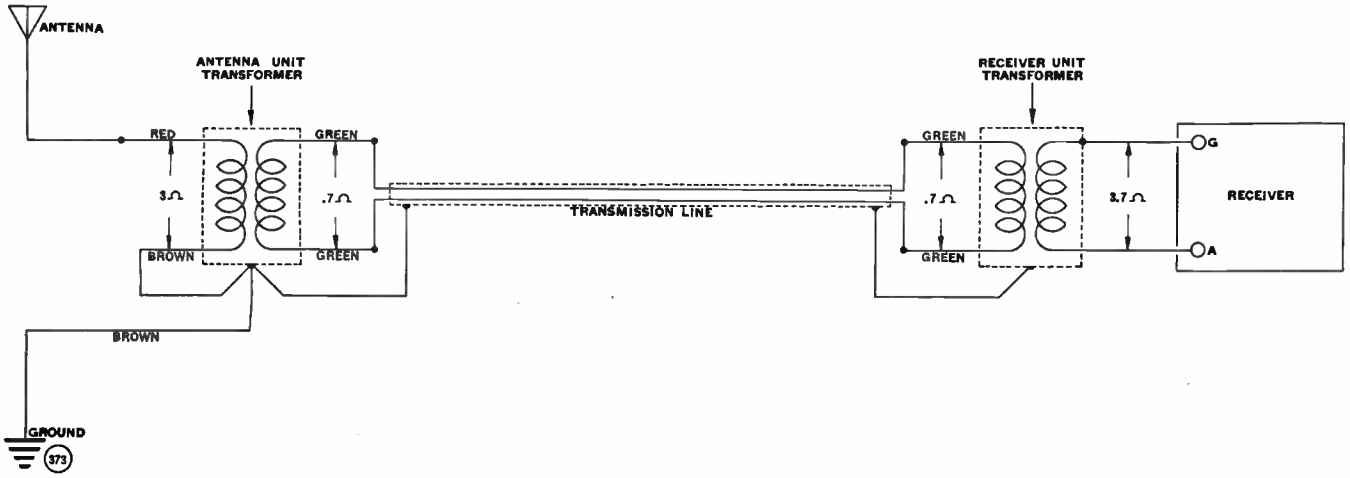
Part No.	Name of Part	List Price
20737	Diaphragm	$2.10
21260	Field coil	3.00
21693	Output transformer, less case	$3.00
20657	Cable and plug assembly	1.65

PARTS AND PRICE LIST FOR SPEAKERS USED IN MODEL 612 and 812

Name of Part	Type 324 No. 30200	Type 326 No. 30300	Type 336 No. 30400	Type 338 No. 30600
DIAPHRAGM	23589 1.50	23589 1.50	23589 1.50	23591 2.10
FIELD COIL	18870 3.00	28550 3.25	18870 3.00	28550 3.25
HUM-BUCKING COIL	23657 .20			
CABLE AND PLUG ASSEMBLY	23761 1.00	23822 1.00	23761 1.00	23822 1.00

PARTS AND PRICE LIST FOR TYPE 2-E INTERFERENCE ELIMINATOR No. 29210

Part No.	Name of Part	List Price
23748	Antenna Unit	$3.65
23749	Receiver Unit	3.55
13222	Cable Clamp	.03
23743	Auxiliary Tube Shield	$ .15
23744	Instruction Sheet	Net .50/c
23745	Packing Box	Net .05



CIRCUIT OF TYPE 2-E INTERFERENCE ELIMINATOR.

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

TUBULAR RESISTORS

(When replacing a tubular resistor, use a resistor of the same identifying color and size)

½ WATT

Part No.	Color	Resistance	List Price
20920	Red-yellow	250,000 Ohms	$ .25
20930	Black-purple	500,000 Ohms	.25
20940	Green	2,000,000 Ohms	.25
20950	Maroon	10,000 Ohms	.25
20960	Gray-yellow	15,000 Ohms	.25
20970	Gray	30,000 Ohms	.25
20980	Red-blue	100,000 Ohms	.25
21040	Black	65,000 Ohms	.25
21050	Blue-gray	1,000,000 Ohms	$ .25
23120	Red-black	20,000 Ohms	.25
23130	Red-gray	800,000 Ohms	.25
23170	Green-yellow	900,000 Ohms	.25
26160	White	40,000 Ohms	.25
26410	Green-red	3,300 Ohms	.25
28050	Blue-yellow	5,000 Ohms	.25

1 WATT

Part No.	Color	Resistance	List Price
15285	Gray	30,000 Ohms	$ .25
15544	Yellow	7,500 Ohms	.25
15545	Maroon	10,000 Ohms	.25
15592	Black	65,000 Ohms	.25
15891	Black-red	20,000 Ohms	.25
15892	Green	2,000,000 Ohms	.25
16282	Blue-red	100,000 Ohms	.25
16724	White	40,000 Ohms	.25
19346	Green-red	3,300 Ohms	$ .25
19581	Red-yellow	250,000 Ohms	.25
19649	Black-purple	500,000 Ohms	.25
20151	Purple	6,000 Ohms	.25
20223	Red-gray	800,000 Ohms	.25
21784	Gray-green (superseded by 22211)		
22211	Yellow-gray	15,000 Ohms	.25
22407	Black-yellow-red	50,000 Ohms	.25

1½ WATT

Part No.	Color	Resistance	List Price
27210	Maroon	10,000 Ohms	$ .30
27220	Gray-yellow	15,000 Ohms	.30
28030	Red-black	20,000 Ohms	.30
28750	White	40,000 Ohms	.30
28760	Red-blue	100,000 Ohms	$ .30
28770	Purple	6,000 Ohms	.30
29710	Gray	30,000 Ohms	.30

BY-PASS AND TONE-CONTROL CONDENSERS

Part No.	*Code Markings	List Price
†15262	B-1, H-1, H-9, H-20	$1.00
15263	B-2, H-2	.90
15640	H-16	1.00
15770	H-15	1.00
15780	H-17	1.10
15790	H-18, H-21	1.00
15837	B-3 (Superseded by 16233)	
15870	B-7, L-28	1.00
16060	H-24, L-29 (304) (Superseded by 18350)	***
16233	H-4, H-10	.90
16461	H-6, H-12	.75
16462	H-5, H-11	1.00
16490	B-6, L-12	1.00
16745	H-7, H-8, H-13	1.00
16828	B-5	.50
16880	H-23, L-26 (439)	1.10
16940	H-22, L-10	1.10
17360	H-27, L-32	1.10
17370	H-25, H-26, L-3, L-39	1.10
18350	H-28, L-49	1.10
19150	H-29	1.00
19160	H-30	1.00
19560	H-31	1.00
19690	H-32	1.00
19710	H-33	1.00
19980	H-34	1.00
19990	H-35	1.00
20010	B-8	1.00
20350	H-36	$1.00
20830	L-B-9, J-2, J-1	2.00
21170	H-37	1.00
21180	H-38	1.00
21250	B-9	1.00
21430	H-39, L-37-A	1.00
21440	H-40, L-44-A	1.00
21450	B-10, L-36-A	.50
21530	L-42-A, B-11	1.00
22050	H-41	1.00
22570	J-3	2.00
23140	J-4	2.00
23310	H-42 (Superseded by 21180)	**
23330	H-43	1.00
23590	L-55-A, H-44	1.00
23610	L-57-A, H-45	1.00
24250	LB-30, J-5	2.00
25690	LB-34, J-6	2.00
27120	H-46, L-66-A	1.00
27140	H-47	1.00
27390	B-14	1.00
27580	H-48	1.00
28140	J-7	2.00
29560	H-49	1.00
29690	B-15	1.00
30270	B-16	1.00
30310	H-51	1.00

* For information about code markings, see Page 253. ** Do not use 23310 in place of 21180. *** See note on Page 243.
† Do not use B-1, H-1, or H-9 in place of H-20.

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

VOLTAGE TABLE FOR MODELS 188, 260, 469, 469-D, 469-Q, 480, 558, 558-D, 558-Q, 612, 627, 812.

The voltages listed in this table are only approximate, and are measured values, not actual operating values.
Use 250-volt scale of a 1000-ohm-per-volt D. C. Voltmeter for all measurements of less than 250 volts.

TURN SILENCING ADJUSTMENT FULL CLOCKWISE, TONEBEAM ADJUSTMENT FULL COUNTER-CLOCKWISE, RANGE SWITCH AT LOCAL.

All plate, screen and grid measurements are made from cathode in heater-type tubes, and from —F in plain-filament-type tubes.

Line voltage=110 volts. Total "B" voltage on "Q" sets at time of test=170 volts.

		2nd TYPE 188	3rd TYPE 260	2nd TYPE 469	480† Local	480† Dist.	558	558-D 469-D	558-Q 469-Q	627	612	812
R. F. TUBE	Filament	2.4	2.4	2.4	2.4	2.4	2.4	6	2	2.4	2.4	2.4
	Plate	225	185	190	98	65	215	83	170	220	180	215
	Screen	90	75	55	93	70	92	58	80	115	65	80
	Grid	1	2	1	3	3	1	1	1	5	2	1
1st DET. TUBE	Filament	2.4	2.4	2.4	2.4	2.4	2.4	6	2	2.4	2.4	2.4
	Plate	220	195	205	95	65	212	80	170	220	175	217
	Screen	85	65	45	83	65	88	55	48	120	55	67
	Grid	5	2	3	5	5	5	5	0	6	3	3
1st I. F. TUBE	Filament	2.4	2.4	2.4	2.4	2.4	2.4	6	2	2.4	2.4	2.4
	Plate	220	185	185	98	65	215	83	170	220	175	217
	Screen	90	80	55	93	70	92	58	80	115	65	80
	Grid	2	1	1	4	1	2	1	1	7	3	3
2nd I. F. TUBE	Filament	—	2.4	—	2.4	2.4	—	—	2	—	2.4	2.4
	Plate	—	205	—	238	238	—	—	170	—	175	215
	Screen	—	80	—	56	56	—	—	40	—	65	78
	Grid	—	4	—	7	3	—	—	1	—	3	4
55 or 85 TUBE	Filament	2.4	2.4	2.4	—	—	2.4	6	—	2.4	2.4	2.4
	Plate	95	80	70	—	—	93	42	—	70	63	85
	D-1	10	30	12	—	—	10	2	—	6	10	55
	D-2	0	0	0	—	—	0	0	—	0	0	0
	Grid	4	3	2	—	—	4	1	—	1	2	4
2nd DET. TUBE	Filament	—	—	—	2.4	2.4	—	—	2	—	—	—
	Plate	—	—	—	173	173	—	—	0	—	—	—
	Grid	—	—	—	17	17	—	—	0	—	—	—
CONTROL TUBE	Filament	—	—	—	2.4	2.4	—	—	*	—	—	—
	Plate	—	—	—	43	43	—	—	*	—	—	—
	Grid	—	—	—	15	15	—	—	*	—	—	—
1st A. F. TUBE	Filament	—	—	—	—	—	—	—	2	—	—	—
	Plate	—	—	—	—	—	—	—	105	—	—	—
	Screen	—	—	—	—	—	—	—	50	—	—	—
	Grid	—	—	—	—	—	—	—	1	—	—	—
DRIVER TUBE	Filament	—	—	—	—	—	—	—	2	—	2.4	2.4
	Plate	—	—	—	—	—	—	—	165	—	230	203
	Screen	—	—	—	—	—	—	—	—	—	230	203
	Grid	—	—	—	—	—	—	—	4	—	14‡	14‡
OUTPUT TUBES	Filament	2.4	2.4	2.4	2.4	2.4	2.4	25	2	2.4	2.4	2.4
	Plate	215	225	200	226	226	207	70	170	205	280	355
	Screen	225	230	205	232	232	217	70	—	215	0	0
	Grid	5	13	12	17	17	13	12	15	4	0	0
OSC. TUBE	Filament	2.4	2.4	2.4	2.4	2.4	2.4	6	***	2.4	2.4	2.4
	Plate	93	27	55	123	123	93	63	***	100	63	42
	Grid	**	**	**	**	**	**	**	***	**	**	**
SILENCING TUBE	Filament	2.4	2.4	2.4	—	—	2.4	6	—	—	2.4	2.4
	Plate	120	150	95	—	—	114	50 *	—	—	88	155
	Screen	25	0	0	—	—	26	3	—	—	0	0
	Grid	1	1	1	—	—	1	1	—	—	1	0

*In Models 558-Q and 469-Q, the 2nd-detector and control are combined in one tube.
**The oscillator grid voltage varies, dependent on several factors.
***In Models 558-Q and 469-Q, the 1st-detector and oscillator are combined in one tube.
†It is advisable to repeat measurements of the R. F., 1st-det., and I. F. tubes in the Model 480 at each position of the frequency-band switch. The voltages on the short-wave ranges should correspond to those at the "distant broadcast" position.

VOLTAGES ACROSS RESISTORS

	2nd TYPE 188	3rd TYPE 260	2nd TYPE 469	480	558	558-D 469-D	627	612	812
BLEEDER RESISTORS									
Bleeder resistor No. 1	93	88	152	43	88	28	—	60	143§
Bleeder resistor No. 2	—	153	9	100	—	—	—	123	172
Bleeder resistor No. 3	—	27	87	15	—	—	—	0	27
Bleeder resistor No. 4	—	138	87	0	—	—	—	12	0
Bleeder resistor No. 5	—	0	62	30	—	—	—	—	80
Bleeder resistor No. 6	—	23	22	40	—	—	—	—	81
Bleeder resistor No. 7	—	—	0	—	—	—	—	—	—
BIAS RESISTORS									
R.F.-I.F. bias resistor	2	—	1	—	2	3	—	2	3
R.F.-I.F. bias resistor No. 1	—	1	—	—	—	—	1	—	—
R.F.-I.F. bias resistor No. 2	—	2	—	—	—	—	10	—	—
R.F.-1st-I.F. bias resistor No. 1	—	—	—	1	—	—	—	—	—
R.F.-1st-I.F. bias resistor No. 2	—	—	—	5	—	—	—	—	—
1st-detector bias resistor	5	1	2	2	4	4	6	—	1
2nd-I.F. bias resistor	—	—	—	—	—	—	—	0	1
2nd-I.F. bias resistor No. 1	—	—	—	1	—	—	—	—	—
2nd-I.F. bias resistor No. 2	—	—	—	5	—	—	—	—	—
2nd-detector bias resistor	—	—	—	16	—	—	—	—	—
Control bias resistor No. 1	12	8	6	—	12	4	6	5	9
Control bias resistor No. 2	14	73	23	—	13	4	12	20	55
2nd-A.F. bias resistor	—	—	—	—	—	13	—	—	—
A.F. bias resistor	14	13	12	16	—	—	—	—	—
Driver bias resistor	—	—	—	—	—	—	—	28	27
MISCELLANEOUS									
Screen resistor	37	193	—	—	33	—	100	120	215
2nd-I.F. screen resistor	—	—	—	18	—	—	—	40	17
Tonebeam adjustment	—	87	47	85	—	—	—	63	93
Silencing adjustment	102	130	147	—	100	108	—	132	150§
Four-prong speaker field								140	120
Five-prong speaker field								190	240
Front rectifier (83) (P to F)								340	370
Back rectifier (83) (P to F)								290	360

§ In sets where bleeder No. 1 is gray, its voltage is 170, and the voltage across the silencing adjustment is 115.

‡ In early 612 and 812, the measured voltage on the driver grid is about 27 volts.