

VOLTAGE DATA

ATWATER KENT MFG. CO.

VOLTAGE TABLE

FOR MODEL 80, 81, 82, 82-D, 82-Q, 83, 84, 84-D, 84-Q, 85, 85-Q, 86, 87 and 89

The voltages listed in this table are only approximate, and are measured values, not actual operating values. Turn volume control to maximum.

Use 250-volt scale of a 1000-ohm-per-volt D. C. voltmeter.

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

When replacing a tubular resistor, use a resistor of the same color as the defective unit. However, if a resistor has been removed, or its identification destroyed, replace it with a resistor having the color that is specified in the diagram for that set.

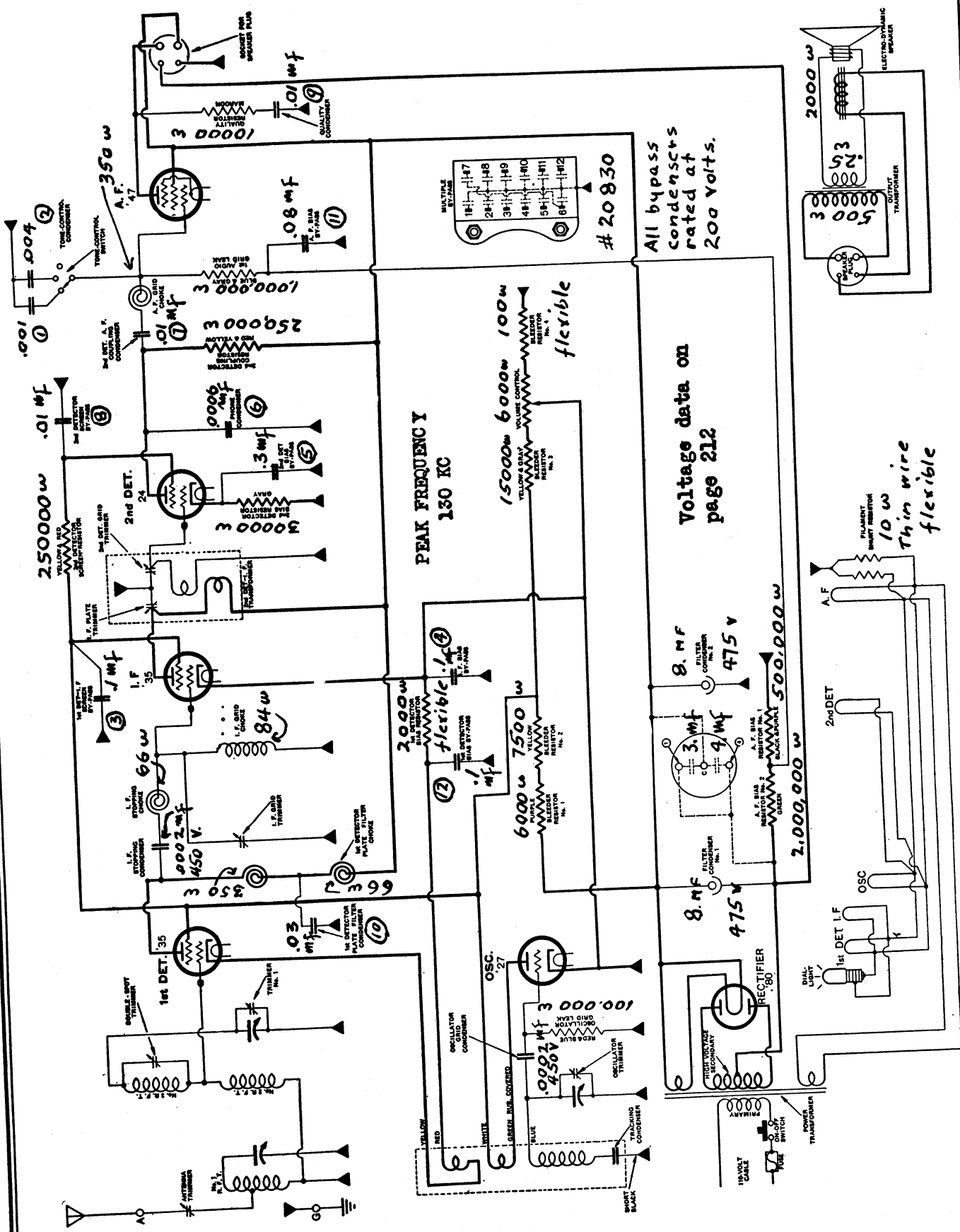
the same color as the defective unit. However, if a resistor has been removed, or its identification destroyed, replace it with a resistor having the color that is specified in the diagram for that set.

	MODEL 80	MODEL 81	MODEL 82	MODEL 82-D	MODEL 82-Q	MODEL 83	MODEL 84	MODEL 84-D	MODEL 84-Q	MODEL 85	MODEL 85-Q	MODEL 86	MODEL 87	MODEL 89
LINE VOLTAGE	110	110	110	112	110	110	110	110	120	110	110	115	110	110
TOTAL "B" VOLTAGE	125	125	125	125	125	125	125	125	125	125	125	125	125	125
FILAMENT	5.5	5.5	5.5	5.5	2	2.4	2.4	2.4	5.7	2	2.4	2.4	2.4	2.4
PLATE	125	125	125	125	2	125	125	125	125	2	125	125	170	125
SCREEN	75	75	75	75	60	60	60	60	65	65	65	40	80	50
GRID	SMALL	SMALL	SMALL	SMALL	3	3	3	3	3	3	3	2	2	2
FILAMENT	2.4	5.5	2.4	5.5	2	2.4	2.4	2.4	5.7	2	2.4	2.4	2.4	2.4
PLATE	235	95	135	70	135	235	205	80	135	135	135	135	160	120
SCREEN	90	50	50	50	40	90	65	50	25	50	40	35	70	45
GRID	5	7	4	5	3	5	6	5	5	3	3	4	11	4
FILAMENT	2.4	2.4	2.4	6	2	2.4	2.4	6.5	2	2.4	2	2.4	2.4	2.4
PLATE	230	140	95	50	135	230	215	105	135	135	135	125	170	125
SCREEN	95	50	50	50	60	95	65	55	65	50	65	40	80	50
GRID	2	SMALL	SMALL	SMALL	3	2	3	SMALL	SMALL	2	3	2	2	2
FILAMENT	2.4	2.4	5.5	5.5	2	2.4	2.4	5	2	2.4	2	2.4	2.4	2.4
PLATE	110	105	55	55	45	110	90	55	60	100	40	95	90	120
SCREEN	45	65	10	10	35	45	45	10	35	65	25	60	SMALL	15
GRID	5	8	2	2	3	5	6	1	3	7	3	8	SMALL	15
FILAMENT	2.4	5.5	2.4	5.5	2	2.4	2.4	6	2	2.4	2	2.4	2.4	2.4
PLATE	230	120	230	75	55	230	205	80	55	215	55	210	90	120
SCREEN	240	123	240	75	55	240	215	7	5	225	220	220	SMALL	SMALL
GRID	4	11	5	3	3	4	5	2.5	3	5	3	5	3	4
FILAMENT	2.4	2.4	2.4	2	2	2	2	2	2	2	2	2	2	2
PLATE	95	95	95	85	120	90	90	90	120	120	120	120	200	235
SCREEN	95	95	95	90	120	90	90	95	120	120	120	120	210	235
GRID	95	95	95	7	15	15	15	7	5	15	15	15	14	14
FILAMENT	2.4	2.4	2.4	5	2	2.4	2.4	6	2	2.4	2	2.4	2.4	2.4
PLATE	95	95	95	100	60	100	70	110	60	100	40	95	85	100
SCREEN	95	95	95	95	60	100	70	110	60	100	40	95	85	100
GRID	95	95	95	95	60	100	70	110	60	100	40	95	85	100
FILAMENT	5.5	5.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
PLATE	3	3	15	15	15	15	15	15	15	15	15	30	35	35
SCREEN	3	3	8	8	8	8	8	8	8	8	8	7	5	5
GRID	3	3	4	4	4	4	4	4	4	4	4	4	4	3

* The measured oscillator grid voltage will vary dependent on the capacity of the voltmeter leads. In some cases, the presence of the leads will stop oscillation and no reading will be secured for grid bias. In other cases, the reading will be only slight, or it may be as high as 10 volts.
 **This includes the 1st, 2nd and 3rd R. F. tubes in Model 81. †This is the detector tube in Model 81.

ATWATER KENT MFG. CO.

MODEL 80, 80-F
83, 83-F



All bypass condensers rated at 200 Volts.

Voltage data on page 212

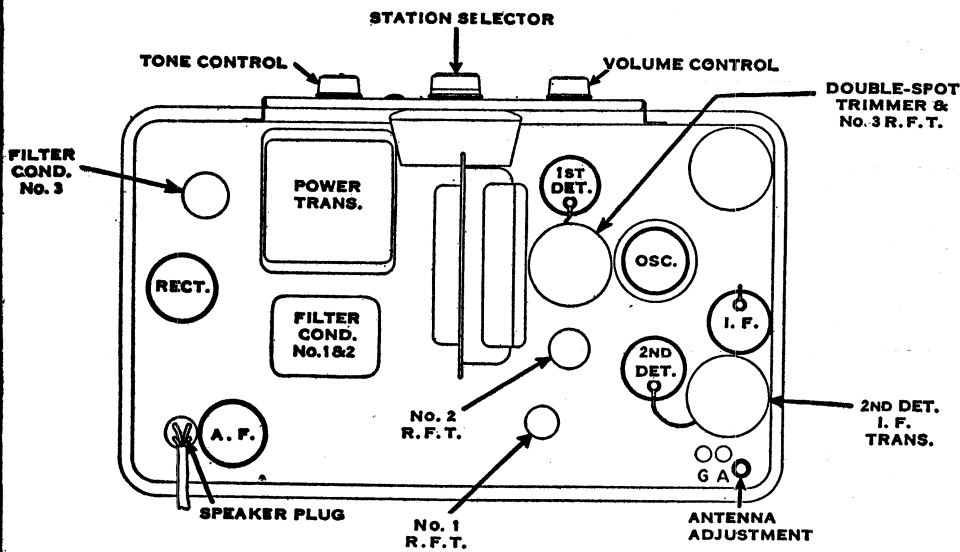
PEAK FREQUENCY 130 KC

Thin wire flexible

In Model 83 and 83-F, a filter-condenser unit is used and it is connected as shown in dotted lines. This unit is NOT used in Model 80 and 80-F. In Model 83, 83-F, the electrolytic filter condenser No. 1 is not used, and the filament circuit is slightly different.

MODEL 80, 80-F
83, 83-F

ATWATER KENT MFG. CO.



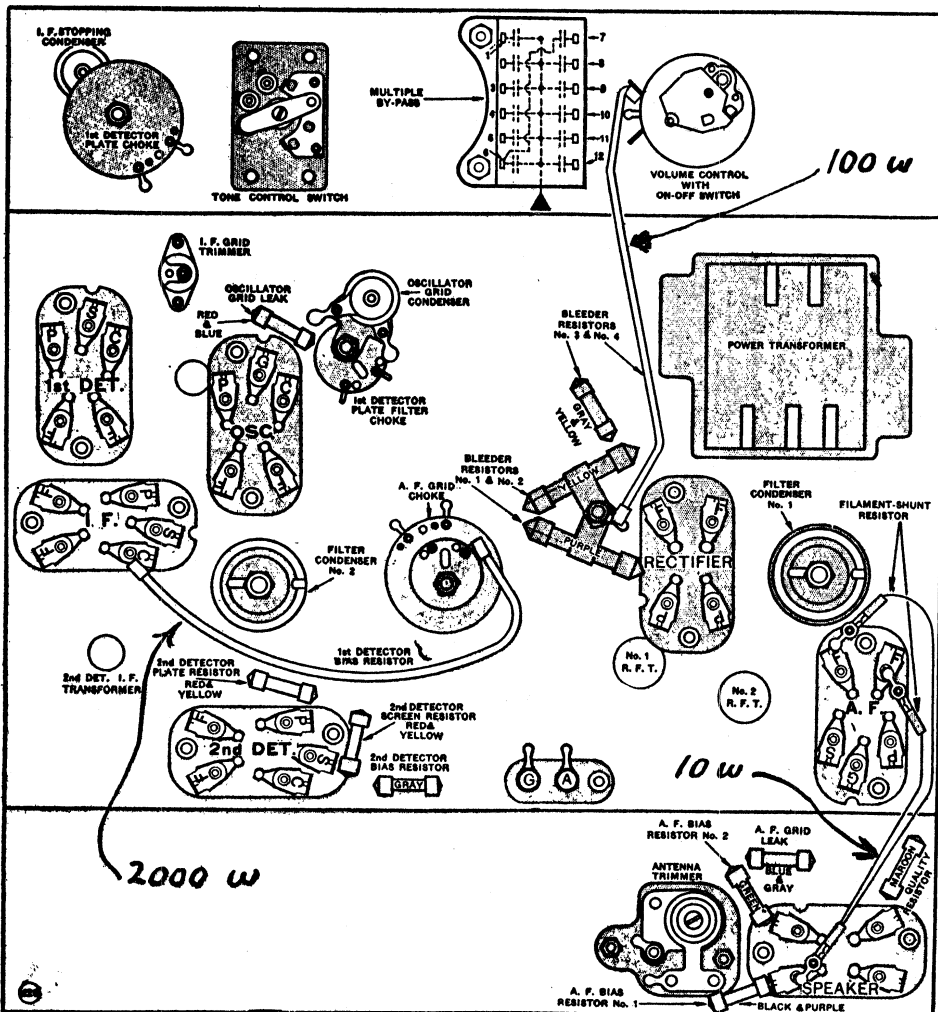
Condensers in Multiple By-pass Model 80, 80-F, 83, 83-F

- 1—Tone-control condenser.
- 2—Tone-control condenser.
- 3—1st-detector—I. F. screen by-pass.
- 4—I. F. bias by-pass.
- 5—2nd-detector bias by-pass.
- 6—Phone condenser.
- 7—2nd-detector—A. F. coupling condenser.
- 8—2nd-detector screen by-pass.
- 9—Quality condenser.
- 10—1st-detector plate filter condenser.
- 11—A. F. bias by-pass.
- 12—1st-detector bias by-pass.

TOP VIEW OF MODEL 83, 83-F.

The circle in the upper right-hand corner is the shield that covers the coupling unit between the 1st-detector and the I. F. tubes.

The numbers given above correspond with the numbers marked upon the multiple condenser unit.



VOLTAGE TABLE	Control			
	Plate	Screen	Control	Control
1st Det.	225	90	5	*
I-F	230	95	2	*
2nd Det	110	45	5	*
1st A-F	230	240	4	*
2nd A-F	100			*
Osc				*

Fil. 2.4
 2.4
 2.4
 2.4
 2.4
 2.4

* A variable depending upon several factors. Capacity of voltmeter leads may cause oscillator tube to cease functioning.

CHART OF MODEL 80, 80-F.

The parts on Model 83, 83-F are similar except that Model 83, 83-F has a filter condenser unit and only one electrolytic condenser.

ATWATER KENT MFG. CO.

VOLTAGE TABLE

FOR MODEL 80, 81, 82, 82-D, 82-Q, 83, 84, 84-D, 84-Q, 85, 85-Q, 86, 87 and 89

The voltages listed in this table are only approximate, and are measured values, not actual operating values. Turn volume control to maximum.

Use 250-volt scale of a 1000-ohm-per-volt D. C. voltmeter.

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

When replacing a tubular resistor, use a resistor of the same color as the defective unit. However, if a resistor has been removed, or its identification destroyed, replace it with a resistor having the color that is specified in the diagram for that set. In a few cases, owing to engineering changes, the color of a resistor in a chassis may not agree with the color specified in the diagram. In such a case, disregard the diagram and use a replacement resistor having the same color as the defective unit.

	MODEL 80	MODEL 81	MODEL 82	MODEL 82-D	MODEL 82-Q	MODEL 83	MODEL 84	MODEL 84-D	MODEL 84-Q	MODEL 85	MODEL 85-Q	MODEL 86	MODEL 87	MODEL 89
LINE VOLTAGE	110	110	110	110	110	110	110	120	110	110	110	115	110	110
TOTAL "B" VOLTAGE	135	135	135	135	135	135	125	135	135	135	135	135	135	135
FILAMENT	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
PLATE	135	135	135	135	135	135	135	135	135	135	135	135	135	135
SCREEN	75	75	75	75	75	75	75	75	75	75	75	75	75	75
GRID	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL
FILAMENT	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
PLATE	225	95	135	70	125	225	205	80	125	135	135	125	170	120
SCREEN	90	70	70	40	40	90	65	50	25	50	40	35	70	45
GRID	5	4	4	5	3	5	6	5	3	3	3	4	11	4
FILAMENT	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
PLATE	230	140	95	125	230	215	105	125	125	135	125	125	170	125
SCREEN	95	50	50	60	95	65	55	65	50	65	40	40	80	50
GRID	2	SMALL	SMALL	3	2	3	SMALL	SMALL	2	3	2	2	2	2
FILAMENT	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
PLATE	110	105	55	45	110	90	55	60	100	40	95	90	90	120
SCREEN	45	65	10	25	45	45	10	25	65	25	60	60	60	15
GRID	5	8	2	3	5	6	1	3	7	3	8	SMALL	SMALL	15
FILAMENT	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
PLATE	240	123	240	75	55	230	205	80	55	215	55	210	90	120
SCREEN	4	11	5	3	3	240	215	2.5	2.5	2.5	2.5	2.5	2.5	2.5
GRID	4	4	4	3	3	4	5	2.5	3	5	3	5	3	4
FILAMENT	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
PLATE	95	85	120	90	120	90	120	90	120	120	120	120	200	225
SCREEN	2	7	15	7	15	7	15	7	15	15	15	15	210	235
GRID	2	2	2	2	2	2	2	2	2	2	2	2	2	2
FILAMENT	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
PLATE	95	95	100	60	60	100	70	110	60	100	40	95	85	100
SCREEN	2	2	2	2	2	2	2	2	2	2	2	2	2	2
GRID	2	2	2	2	2	2	2	2	2	2	2	2	2	2
FILAMENT	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
PLATE	3	15	15	15	15	15	15	15	15	15	15	15	15	15
SCREEN	2	2	2	2	2	2	2	2	2	2	2	2	2	2
GRID	2	2	2	2	2	2	2	2	2	2	2	2	2	2

* The measured oscillator grid voltage will vary dependent on the capacity of the voltmeter leads. In some cases, the presence of the leads will stop oscillation and no reading will be secured for grid bias. In other cases, the reading will be only slight, or it may be as high as 10 volts.
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Use 250-volt scale of a 1000-ohm-per-volt D. C. voltmeter.

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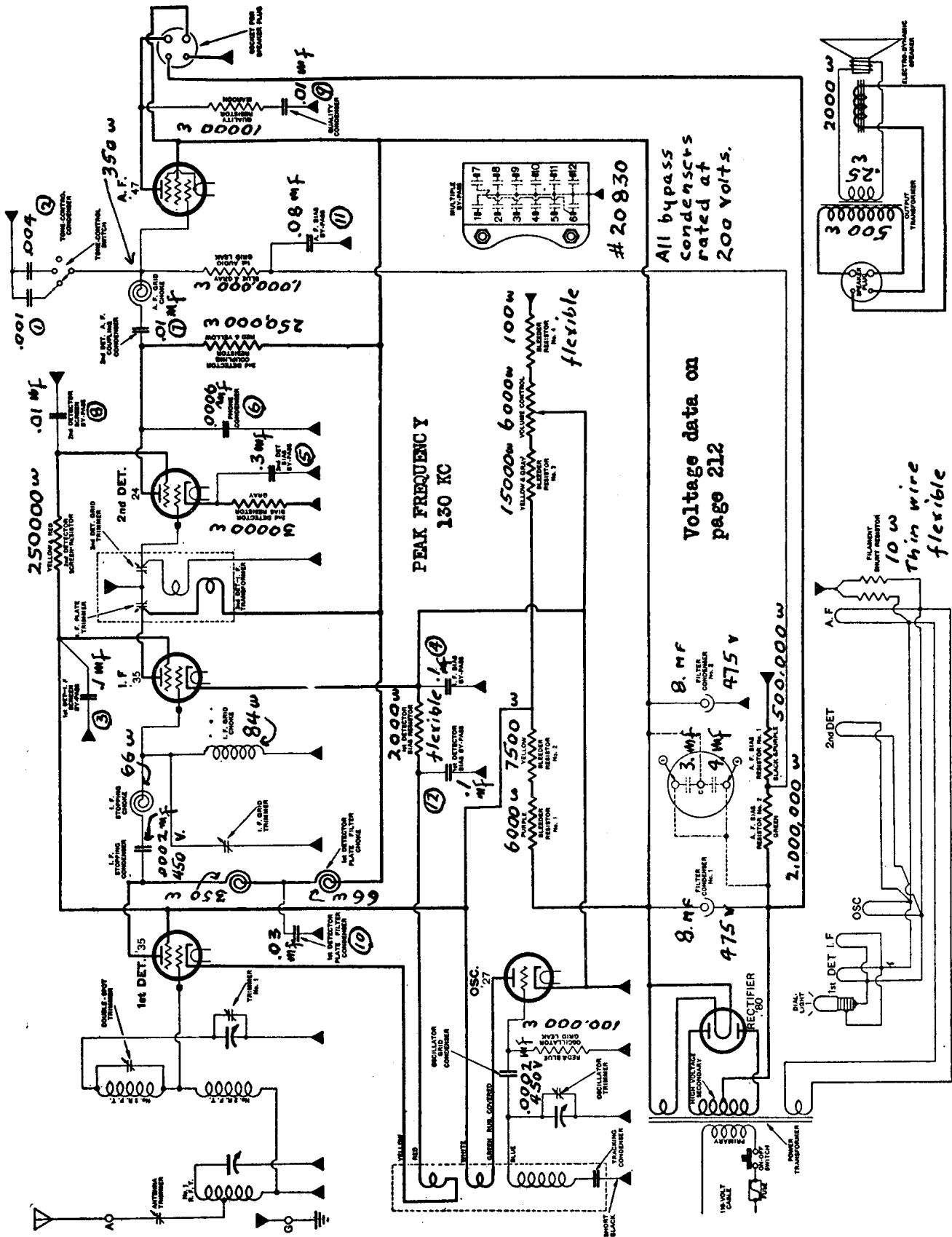
the same color as the defective unit. However, if a resistor has been removed, or its identification destroyed, replace it with a resistor having the color that is specified in the diagram for that set.

	MODEL 80	MODEL 81	MODEL 82	MODEL 82-D	MODEL 82-Q	MODEL 83	MODEL 84	MODEL 84-D	MODEL 84-Q	MODEL 85	MODEL 85-Q	MODEL 86	MODEL 87	MODEL 89
LINE VOLTAGE	110	110	110	112	110	110	110	120	110	110	110	115	110	110
TOTAL "B" VOLTAGE	125	125	125	125	125	125	125	125	125	125	125	125	125	125
FILAMENT	5.5	5.5	5.5	5.5	2	2.4	2.4	5.7	2	2.4	2	2.4	2.4	2.4
PLATE	125	135	70	135	125	235	205	80	125	135	125	135	170	125
SCREEN	75	50	50	60	60	90	65	50	65	50	40	40	80	50
GRID	SMALL	3	3	3	3	3	3	SMALL	SMALL	3	3	2	2	2
FILAMENT	2.4	2.4	2.4	2.4	2	2.4	2.4	6.5	2	2.4	2	2.4	2.4	2.4
PLATE	230	140	95	125	125	230	215	105	125	135	125	125	170	125
SCREEN	95	50	50	60	60	95	65	55	65	50	65	40	80	50
GRID	2	SMALL	SMALL	SMALL	3	2	3	SMALL	SMALL	2	3	2	2	2
FILAMENT	2.4	2.4	5.5	5.5	2	2.4	2.4	5	2	2.4	2	2.4	2.4	2.4
PLATE	110	105	55	45	110	110	90	55	60	100	40	95	90	120
SCREEN	45	65	10	25	45	45	45	10	25	65	25	60	—	—
GRID	5	8	2	3	5	5	6	1	3	7	3	8	SMALL	15
FILAMENT	2.4	5.5	2.4	5.5	2	2.4	2.4	6	2	2.4	2	2.4	2.4	2.4
PLATE	230	120	230	75	55	230	205	80	55	215	55	210	90	120
SCREEN	240	123	240	—	—	240	215	—	—	225	—	220	—	—
GRID	4	11	5	3	3	4	5	2.5	3	5	3	5	3	4
FILAMENT	—	—	—	2	2	—	—	2	2	—	2	—	2.4	2.4
PLATE	—	—	—	85	120	—	—	90	120	—	120	—	200	235
SCREEN	—	—	—	90	125	—	—	95	125	—	125	—	210	235
GRID	—	—	—	7	15	—	—	7	5	—	15	—	14	14
FILAMENT	2.4	2.4	2.4	5	60	2	2.4	6	2	2.4	2	2.4	2.4	2.4
PLATE	95	95	95	100	60	100	70	110	60	100	40	95	85	100
SCREEN	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GRID	—	—	—	—	—	—	—	—	—	—	—	—	—	—
FILAMENT	5.5	2.4	2.4	—	—	—	—	—	—	2.4	—	2.4	—	2.4
PLATE	3	15	—	—	—	—	—	—	—	15	—	30	—	25
SCREEN	—	8	—	—	—	—	—	—	—	7	—	7	—	5
GRID	—	2	4	—	—	—	—	—	—	5	—	4	—	3

* The measured oscillator grid voltage will vary dependent on the capacity of the voltmeter leads. In some cases, the presence of the leads will stop oscillation and no reading will be secured for grid bias. In other cases, the reading will be only slight, or it may be as high as 10 volts. † This includes the 1st, 2nd and 3rd R. F. tubes in Model 81. ‡ This is the detector tube in Model 81.

ATWATER KENT MFG. CO.

MODEL 80, 80-F
83, 83-F



All bypass condensers rated at 200 Volts.

Voltage data on page 212

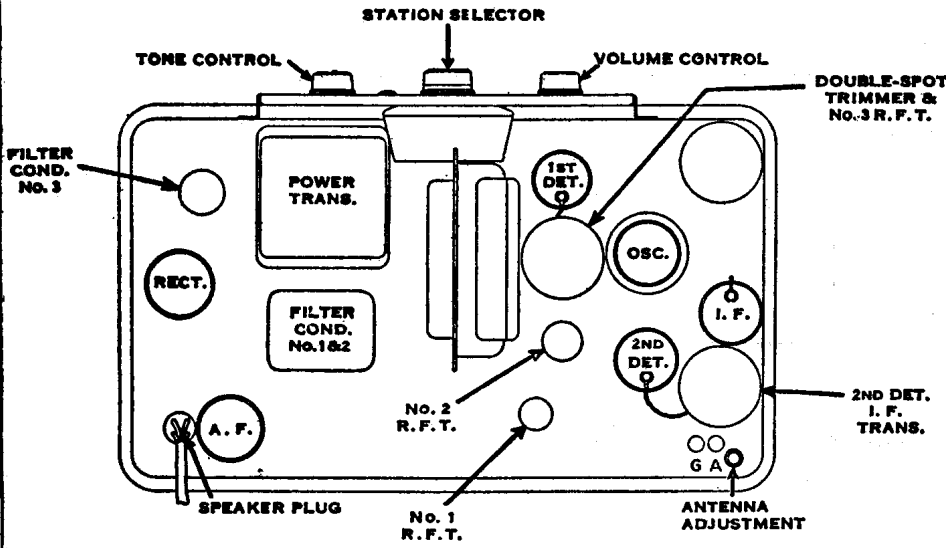
PEAK FREQUENCY 130 KC

Thin wire flexible

In Model 83 and 83-F, a filter-condenser unit is used and it is connected as shown in dotted lines. This unit is NOT used in Model 80 and 80-F. In Model 83, 83-F, the electrolytic filter condenser No. 1 is not used, and the filament circuit is slightly different.

MODEL 80, 80-F
85, 83-F

ATWATER KENT MFG. CO.



TOP VIEW OF MODEL 83, 83-F.

The circle in the upper right-hand corner is the shield that covers the coupling unit between the 1st-detector and the I. F. tubes.

Condensers in Multiple By-pass Model 80, 80-F, 83, 83-F

- 1—Tone-control condenser.
- 2—Tone-control condenser.
- 3—1st-detector—I. F. screen by-pass.
- 4—I. F. bias by-pass.
- 5—2nd-detector bias by-pass.
- 6—Phone condenser.
- 7—2nd-detector—A. F. coupling condenser.
- 8—2nd-detector screen by-pass.
- 9—Quality condenser.
- 10—1st-detector plate filter condenser.
- 11—A. F. bias by-pass.
- 12—1st-detector bias by-pass.

The numbers given above correspond with the numbers marked upon the multiple condenser unit.

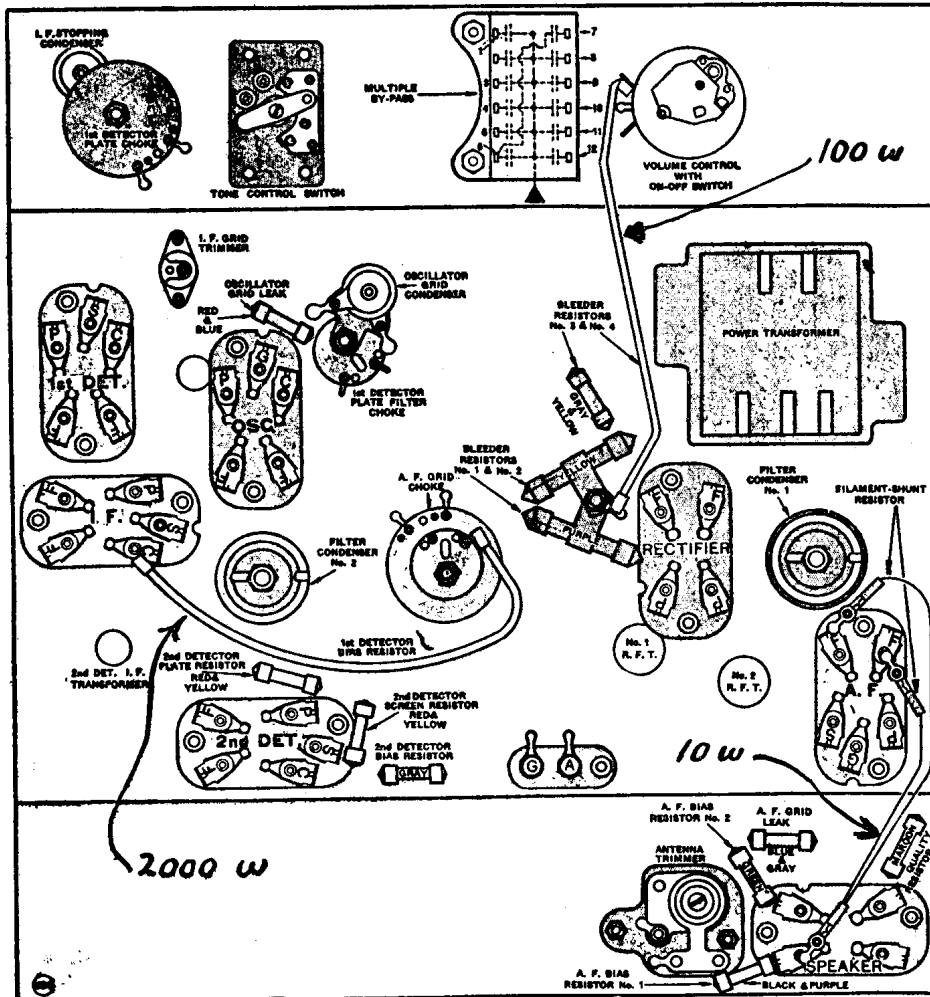


CHART OF MODEL 80, 80-F.

The parts on Model 83, 83-F are similar except that Model 83, 83-F has a filter condenser unit and only one electrolytic condenser.

VOLTAGE TABLE		Control	Screen	Plate
1st Det.	2.4	5*	90	225
I-F	2.4	2*	95	230
2nd Det	2.4	5*	45	110
1st A-F	2.4	4*	240	230
2nd A-F	2.4	*		100
Osco	2.4			

* A variable depending upon several factors. Cap-acity of voltmeter leads may cause oscillator tube to cease functioning.