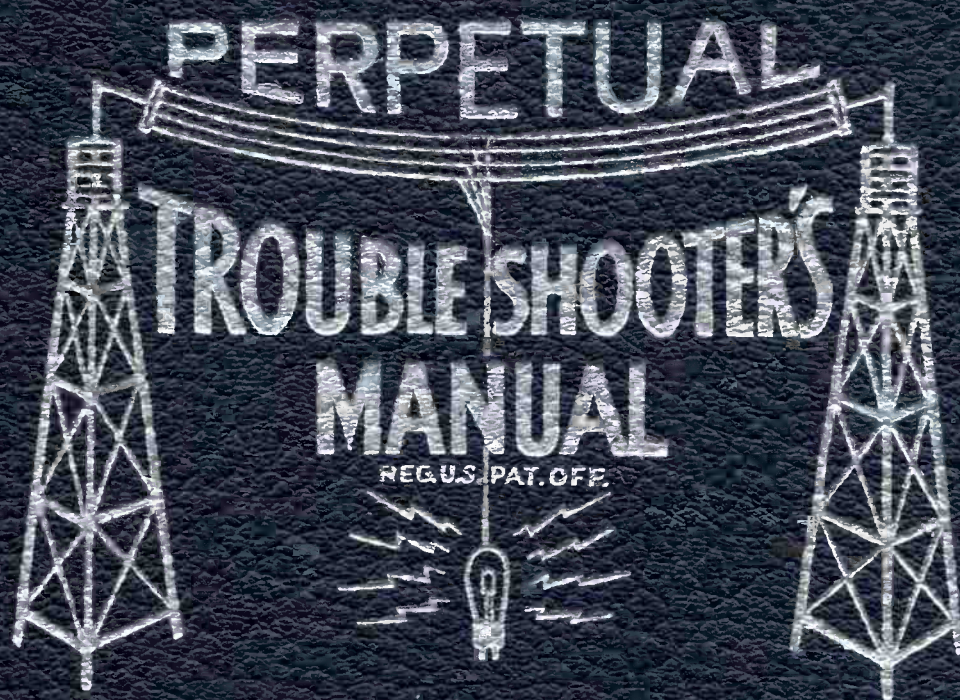


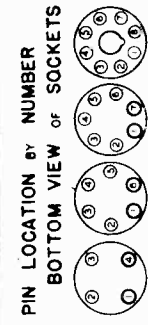
VOLUME X



JOHN F. RIDER

THE MAGNAVOX CO., INC.

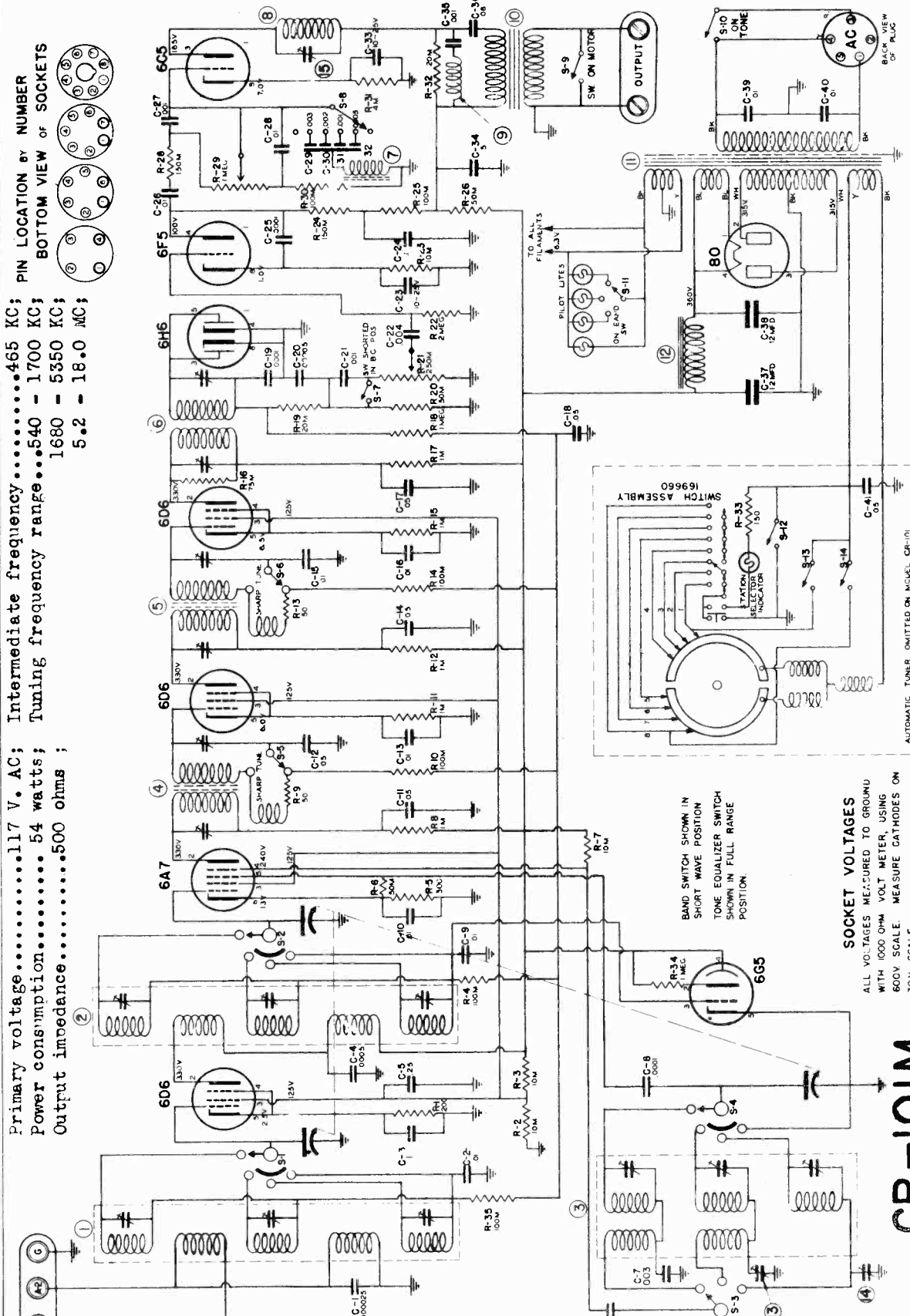
CHASSIS CR101, CR101M
Schematic, Voltage



Primary voltage.....117 V. AC; Intermediate frequency.....465 KC;
 Power consumption.....54 watts; Tuning frequency range...540 - 1700 KC;
 Output impedance.....500 ohms; 1680 - 5350 KC;
 5.2 - 18.0 MC;

CR-101M -- Used in Windsor combination.
 Used in Regent combination.

CR-101 -- Used in RTR-308 remote tuner.



BAND SWITCH SHOWN IN
 SHORT WAVE POSITION
 TONE EQUALIZER SWITCH
 SHOWN IN FULL RANGE
 POSITION

SOCKET VOLTAGES
 ALL VOLTAGES MEASURED TO GROUND
 WITH 1000 OHM VOLT METER, USING
 600V SCALE. MEASURE CATHODES ON
 30V SCALE

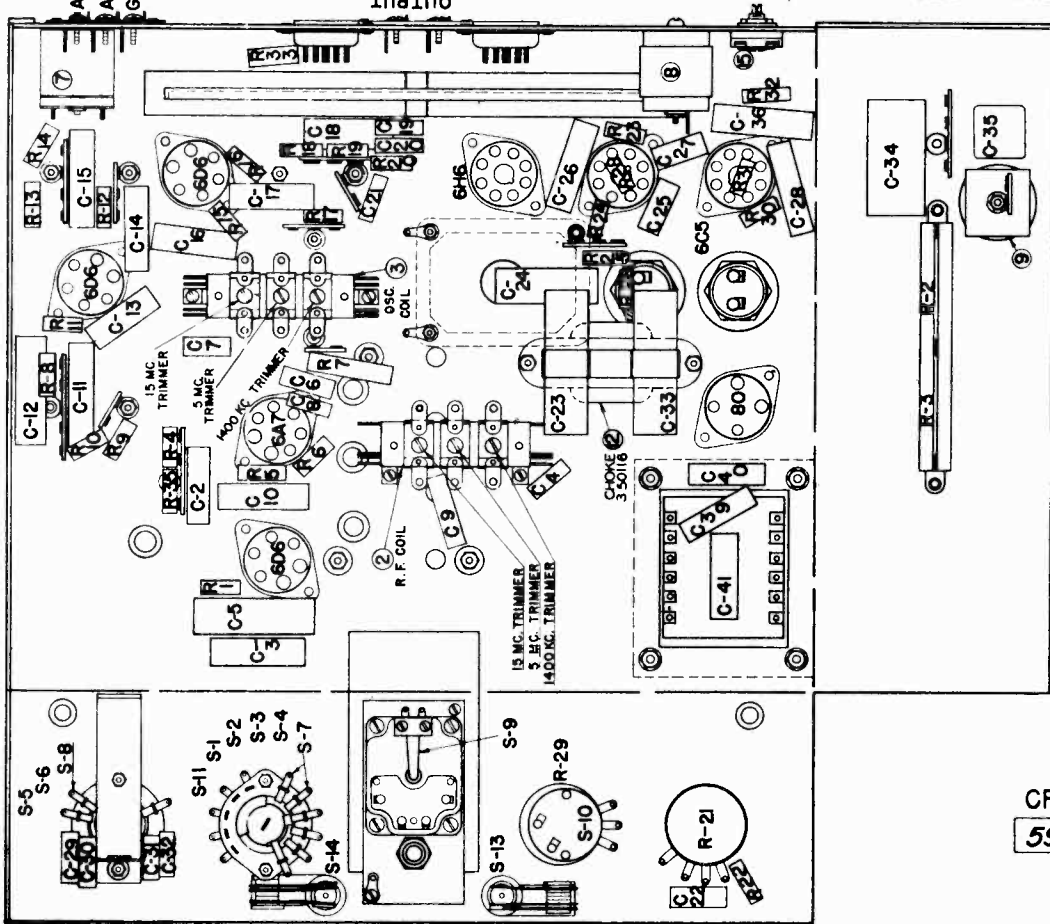
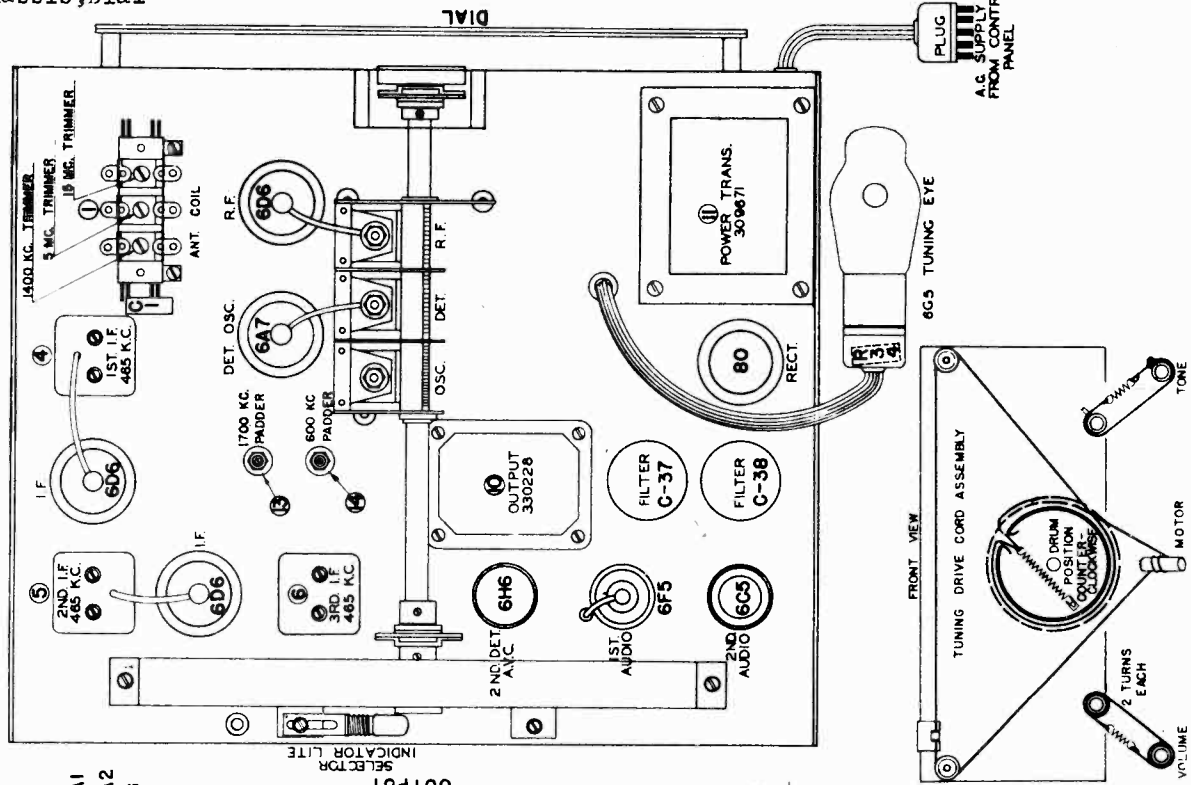
CR-101M

MAGNAVOX RADIO CHASSIS

Type Circuit: High-fidelity superheterodyne, with three tuning ranges, bass and tuned treble controls, automatic volume control, band expansion, and bass compensation in volume control for phonograph pickup.

CHASSIS CR101, CR101M
 Socket, Trimmers
 Chassis, Dial

THE MAGNAVOX CO., INC.



CR-101 M
 595152

It is important that EXACT replacement parts be used when necessary and these parts must be located in exactly the same way that the original part was located and connected. This applies particularly to ground points.

THE MAGNAVOX CO., INC.

ALIGNING THE 1680-5350 KILOCYCLE BAND

1. Use a 400 ohm resistor in series with the signal generator output when connecting to the antenna binding post. Use both this resistor and a .00025 mfd. condenser when connecting to the 6A7 grid.
2. Set the band switch for reception on the foreign band.
3. Connect the output of the signal generator to the grid of the 6A7 tube, set the signal generator and the radio to 1700 KC and adjust the 1700 KC padder for maximum deflection on the output meter.
4. Set the signal generator and radio to 5000 KC and adjust the 5000 KC oscillator trimmer for maximum deflection of the output meter.
5. Leave the signal generator and radio set at 5000 KC, connect the signal generator output to the antenna binding post "A1" and adjust the 5000 KC R.F. trimmer and the 5000 KC antenna trimmer for maximum deflection of the output meter.

ALIGNING THE 5.6-18.0 MEGACYCLE BAND

1. Use a 400 ohm resistor in series with the signal generator when connecting to the antenna post. Use both this resistor and a .00025 mfd. condenser when connecting to the 6A7 grid.
2. Set the band switch for reception on the foreign band.
3. Connect the signal generator output to the grid of the 6A7 tube, set the signal generator and the radio to 15 megacycles and adjust the 15 megacycle oscillator trimmer for maximum deflection of the output meter.
4. Leave the signal generator and radio set for 15 megacycles, connect the signal generator output to the antenna binding post "A1" and adjust the 15 megacycle P.F. trimmer and the 15 megacycle antenna trimmer for maximum deflection of the output meter.

RESTRINGING THE DIAL CABLE

To restring the cable on this model, it is necessary first to remove the glass dial. Bend back the small metal ears that hold the glass in place, on the left and lower sides only. Slip the three dividing strips from the assembly and the four glass strips will be easily removable. Slip the brown backing from the assembly exposing the cable tension spring inside the disc. Remove the spring "A" from the small hook "B", and tie one end of cable to the spring, lacing it through the opening in the groove of the disc, allowing about 1/2 inch between the end of the spring and the inside edge of the groove. Proceed around the disc in a clockwise direction for one complete revolution, continue around the drive shaft "C" for 2 1/2 turns in a clockwise direction up through the left-hand idler pulley "D", across the top and around the right-hand idler pulley "E", downward around the disc in a clockwise direction, through the opening in the groove and secure it to the spring, until the other end can be secured to the hook. Replace the dial strips in their original locations and the operation is completed.

ALIGNMENT PROCEDURE

It is absolutely necessary that an accurately calibrated test oscillator with some type of output measuring device be used when aligning the receiver.

ALIGNING THE I. F. STAGES AT 465 KILOCYCLES

1. Use a .00025 mfd. condenser in series with the signal generator output.
2. Connect an output meter across the voice coil of the speakers.
3. Turn the tone equalizer to the "sharp-tune" position.
4. Turn the volume control up to 10 or more, and adjust the signal generator output until a reading of one volt is obtained when a signal is applied.
5. Align the third I.F. transformer first by connecting the signal generator to the grid of the 6D6 second I.F. tube. Now adjust the third I.F. transformer until a maximum deflection is obtained on the output meter.
6. Align the second I.F. transformer by connecting the output of the signal generator to the grid of the 6D6, first I.F. tube. Readjust the output of the signal generator so that the output meter reading does not exceed one volt and adjust the second I.F. transformer until a maximum deflection of the output meter is obtained.
7. Connect the output of the signal generator to the grid of the 6A7 tube. Readjust the output of the signal generator so that the output meter reading does not exceed one volt and adjust the first I.F. transformer until a maximum deflection of the output meter is obtained.

ALIGNING THE 540-1700 KILOCYCLE BAND

1. Use a .00025 mfd. condenser in series with the signal generator output.
2. Set the wave band switch for reception on the broadcast band.
3. Run the dial pointer to the extreme left position. This will adjust the tuning condensers to maximum capacity.
4. Holding the tuning condensers at maximum capacity, adjust the dial pointer to a position at the end of the horizontal scale. This is done by sliding the pointer on the dial string.
5. Connect the signal generator output to the grid of the 6A7 tube, tune the radio and signal generator to 600 KC and adjust the 600 KC padder for maximum deflection of the output meter.
6. Turn the signal generator and radio to 1400 KC and adjust the 1400 KC oscillator trimmer for maximum deflection of the output meter.
7. Leave the signal generator and radio set at 1400 KC, connect the signal generator output to the antenna binding post "A1", connect binding post "A2" to ground and adjust the 1400 KC R.F. trimmer and the 1400 KC antenna trimmer for maximum deflection of the output meter.

MISCELLANEOUS NOTES

The radio chassis must "float" freely and it is, therefore, important that none of the knobs touch the panel. The four holes in the radio support bracket "C" Fig. 1, are sufficiently large to permit adjustment of the chassis until it "floats" properly. Be sure that this "floating" condition exists before attempting to tighten the screws "A" Fig. 1, after replacing the chassis in the cabinet.

If one of the push-button switches does not function, remove the radio panel in the manner outlined in the foregoing instructions, and check the switch contacts. It is entirely probable that the trouble can be corrected by either cleaning the contacts or by bending them so that they form a solid connection.

When the release button on the radio push-button assembly is depressed, the switch arm nearest the end of the assembly must break one contact before making the other contact. Failure of the release button switch to operate in this manner will cause the "set-up" pilot lamp to burn out, in which case the arm of the switch should be bent until the "break-before-make" action is obtained.

Due to the extremely high sensitivity of the receiver, it is possible for some excessively strong signals to overload and cause distortion in the radio. This condition is very rare and occurs only on a very strong signal when the receiver has a very efficient antenna. This difficulty is recognized by distortion on a strong signal and being absent on weak signals. To correct this trouble, it is necessary to connect a 500 ohm resistor across the broadcast antenna primary to ground. The terminal for making this connection is available at the rear of the R.F. transformer on the top of the chassis. Connect the resistor from the lug having the red-with-blue tracer lead connected to it, to the ground bus wire which ties the three trimmer condensers together.

It is possible for the distortion mentioned above, to occur due to defective 6D6 I.F. tubes. The second I.F. tube is more susceptible to this difficulty and should be replaced before checking the first I.F. tube.

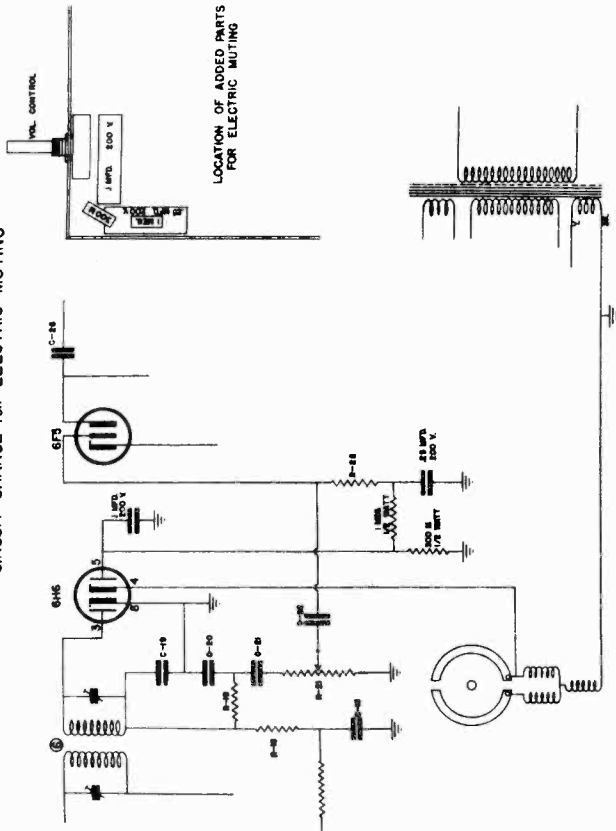
When push-button tuning is used, the dial pointer may have a tendency to "hunt" on either side of the desired frequency before coming to rest. This condition is caused by insufficient pressure of the small spring at the rear of the tuning motor, against the armature shaft. The spring should be "kinked" slightly to provide additional pressure, using a pair of long-nosed pliers to make the adjustment.

If a distinct hum is heard in the speakers when using the radio, the 6F5 tube should be replaced as a possible cure. It is extremely important that the grid lead of the 6F5 tube is shielded as near to the cap of the tube as is possible, or hum will be picked up in this lead.

The two .05 Mfd. condensers connected across the two motor push-button switches should be removed to prevent a "scraping" noise that may be apparent when the receiver is tuned manually.

The 1000 ohm bias resistor in the cathode circuit of the 6A7 tube should be replaced with a 300 ohm resistor to increase the stability of the receiver.

CIRCUIT CHANGE FOR ELECTRIC MUTING



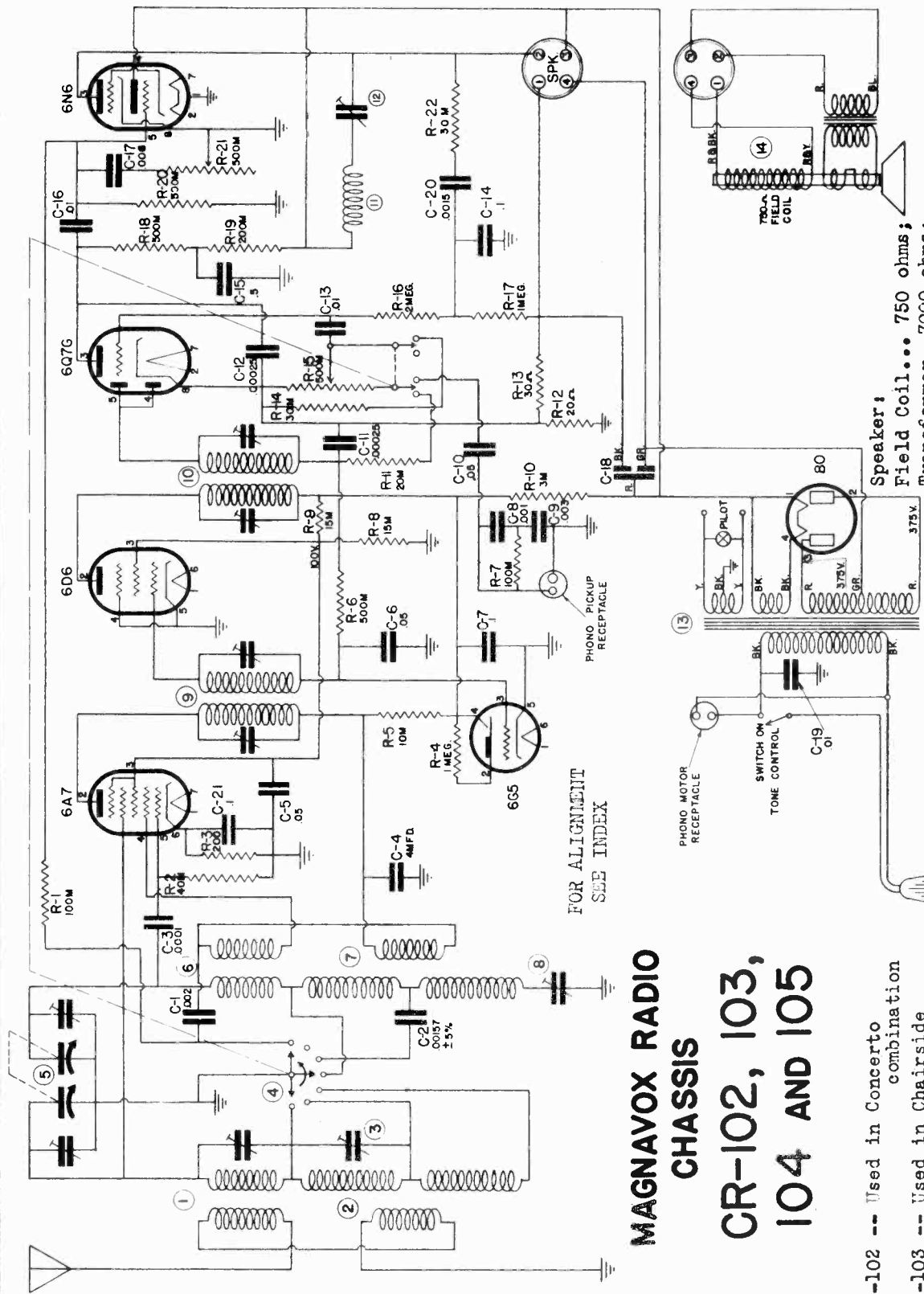
Some of the earlier models were not equipped with electric muting. This feature may be incorporated by following the instructions outlined below.

1. Remove the two jumpers shunting the cathodes and plates of the 6H6 tube.
2. One cathode (8) is left at ground potential and the other cathode (4) is connected to the tuning motor as shown in the above schematic.
3. One plate (5) is left in its original circuit connection and the other plate (5) is connected to the junction of the 1 megohm and 300,000 ohm resistors that have been inserted in series with R-22 to ground.
4. Install one .25 Mfd. condenser from the junction of R-22 and the 1 megohm resistor to ground.
5. Ground the side of the transformer winding that connects to the tuning motor, completing the operation.

THE MAGNAVOX CO., INC.

CHASSIS CR102, CR103
CR104, CR105

Schematic



FOR ALIGNMENT
SEE INDEX

**MAGNAVOX RADIO
CHASSIS
CR-102, 103,
104 AND 105**

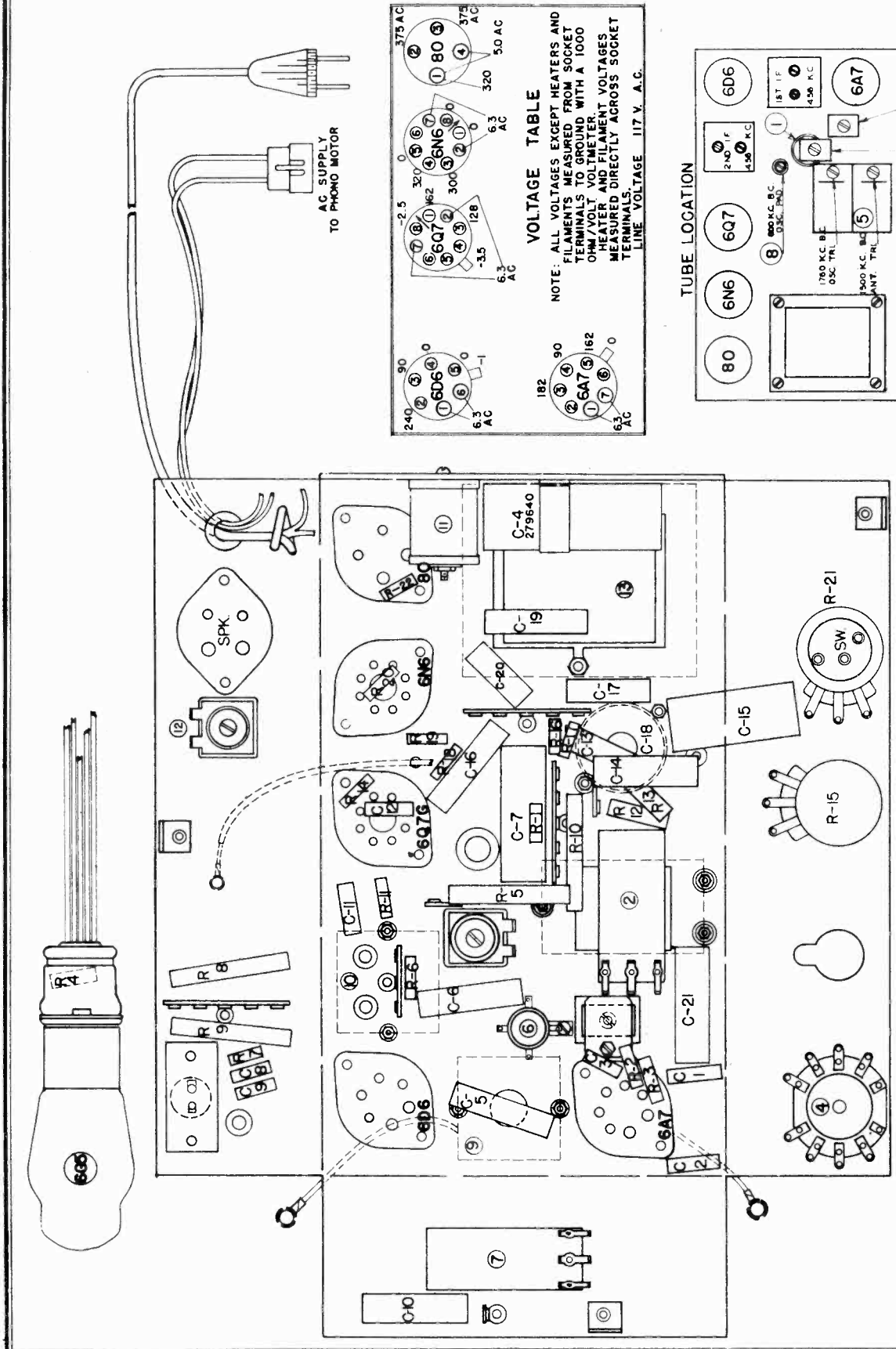
- CR-102 -- Used in Concerto combination
- CR-103 -- Used in Chairside combination
- CR-104 -- Same as CR-102 except for addition of Items 11, 12, C-20 and R-22.
- CR-105 -- Same as CR-103 except for addition of Items 11, 12, C-20 and R-22.

Primary voltage.....117 V. AC; Intermediate frequency.....450 KC;
 Power consumption..... 80 watts; Tuning frequency range 540 -1760 KC;
 Power output..... 4 watts; 1.6 - 5.0 MC;
 5.0 - 19. MC;

Speaker: Superheterodyne with Field Coil... 750 ohms; Transformer...7000 ohms;
 Type Circuit: Superheterodyne with three tuning ranges, tone control, A.V.C. bass compensation in volume control for phonograph pickup.

CHASSIS CR102, CR103
 CR104, CR105
 Socket, Voltage
 Chassis, trimmers

THE MAGNAVOX CO., INC.



VOLTAGE TABLE

NOTE: ALL VOLTAGES EXCEPT HEATERS AND FILAMENTS TO BE MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM/VOLT VOLTMETER. HEATER AND FILAMENT VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS. LINE VOLTAGE 117 V. A.C.

Terminal	6D6	6Q7	6N6	6A7
1	240	182	320	182
2	6.3 AC	6.3 AC	6.3 AC	6.3 AC
3	90	90	375 AC	90
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
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81	0	0	0	0
82	0	0	0	0
83	0	0	0	0
84	0	0	0	0
85	0	0	0	0
86	0	0	0	0
87	0	0	0	0
88	0	0	0	0
89	0	0	0	0
90	0	0	0	0

It is important that EXACT replacement parts be used when necessary and these parts must be located in exactly the same way that the original part was located and connected. This applies particularly to ground points.

THE MAGNAVOX CO., INC.

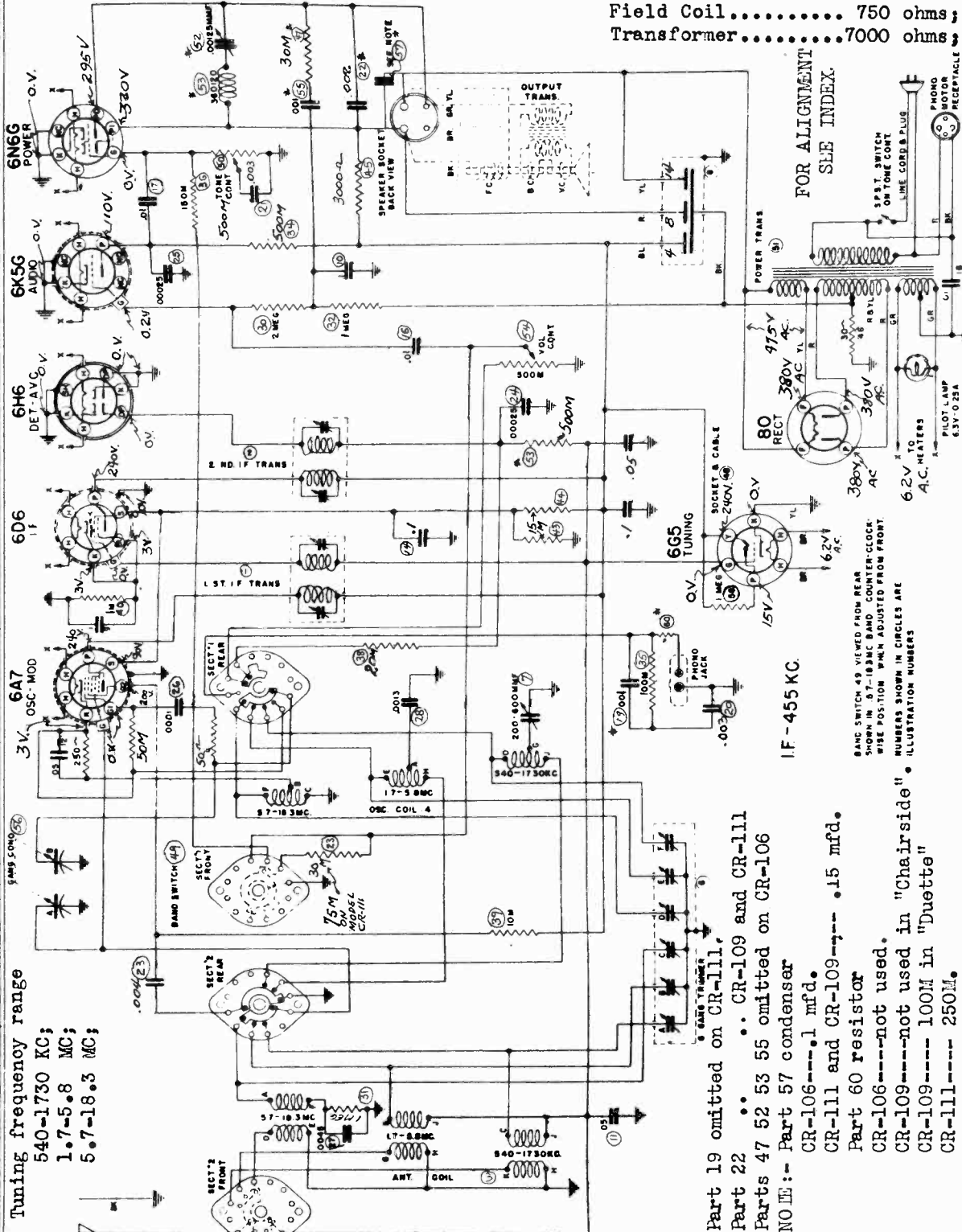
CHASSIS CR106, CR109, CR111
Schematic, Voltage

- CR-106 -- Used in Concerto combination.
- CR-109 -- Used in Chairside combination.
- CR-111 -- Used in Berkeley combination.

Type Circuit: Superheterodyne with three tuning ranges, tone control, A.V.C. bass compensation in volume control for phonograph pickup.

Speaker;

Field Coil..... 750 ohms;
Transformer.....7000 ohms;



FOR ALIGNMENT
SLE INDEX.

595155
Primary voltage.....117 V. AC;
Power consumption..... 90 watts;
Power output.....5.5 watts;

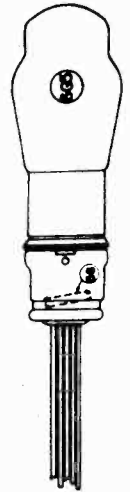
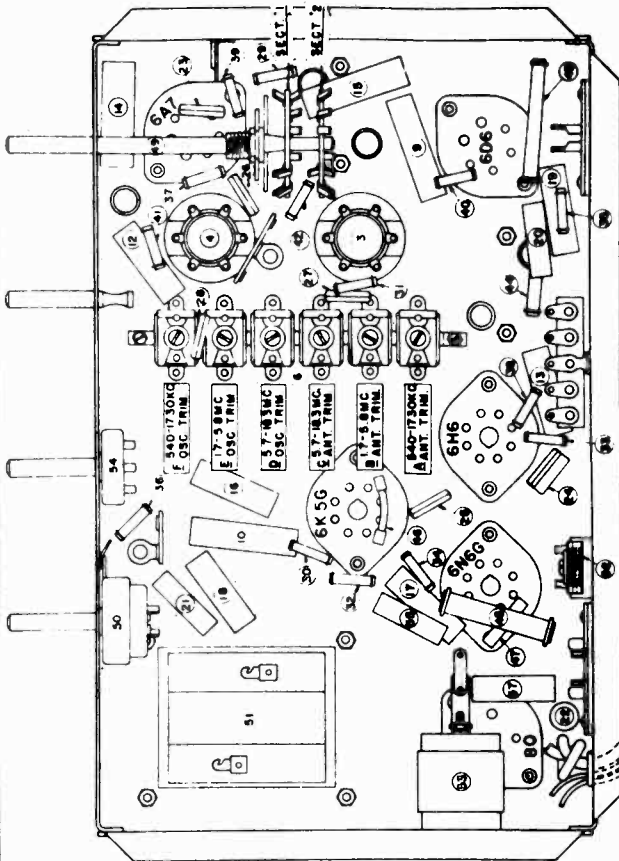
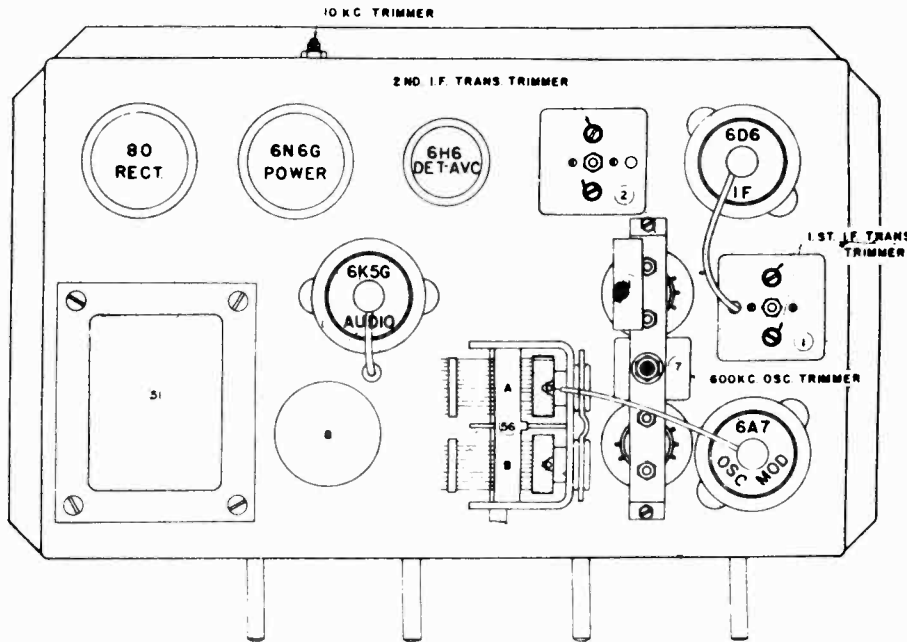
Part 19 omitted on CR-111,
Part 22 .. CR-109 and CR-111
Parts 47 52 53 55 omitted on CR-106
NOTE:- Part 57 condenser
CR-106---.1 mfd.
CR-111 and CR-109---.15 mfd.
Part 60 resistor
CR-106---not used.
CR-109---not used in "Chairside"
CR-109---100M in "Duette"
CR-111---250M.

ALL VOLTAGES EXCEPT HEATERS AND FILAMENTS MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM PER VOLT METER.
HEATER AND FILAMENT VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS. LINE VOLTAGE 115 VOLTS A.C.

CHASSIS CR106, CR109, CR111
 Socket, Trimmers, Chassis
 Filter Adjustment

THE MAGNAVOX CO., INC.

CHASSIS CR113, -114, -115
 -118, -125
 Filter Adjustments



TUNING EYE



PHOTO MOTOR SOCKETABLE

MAGNAVOX RADIO CHASSIS CR-106, 109 AND 111

It is important that EXACT replacement parts be used when necessary and these parts must be located in exactly the same way that the original part was located and connected. This applies particularly to ground points.

10 K.C. FILTER ADJUSTMENT

- .15 With the tone control set for maximum treble response, tune the receiver to a point between two stations of about the same signal strength on adjacent channels. If a 10,000 cycle heterodyne is heard as the beat note between the two carriers, it may be eliminated by retuning the 10 KC output filter by means of the 10 KC trimmer condenser on the back of the chassis near the speaker tuning shaft .20 socket.

ALL PRICES SUBJECT TO
 CHANGE WITHOUT NOTICE

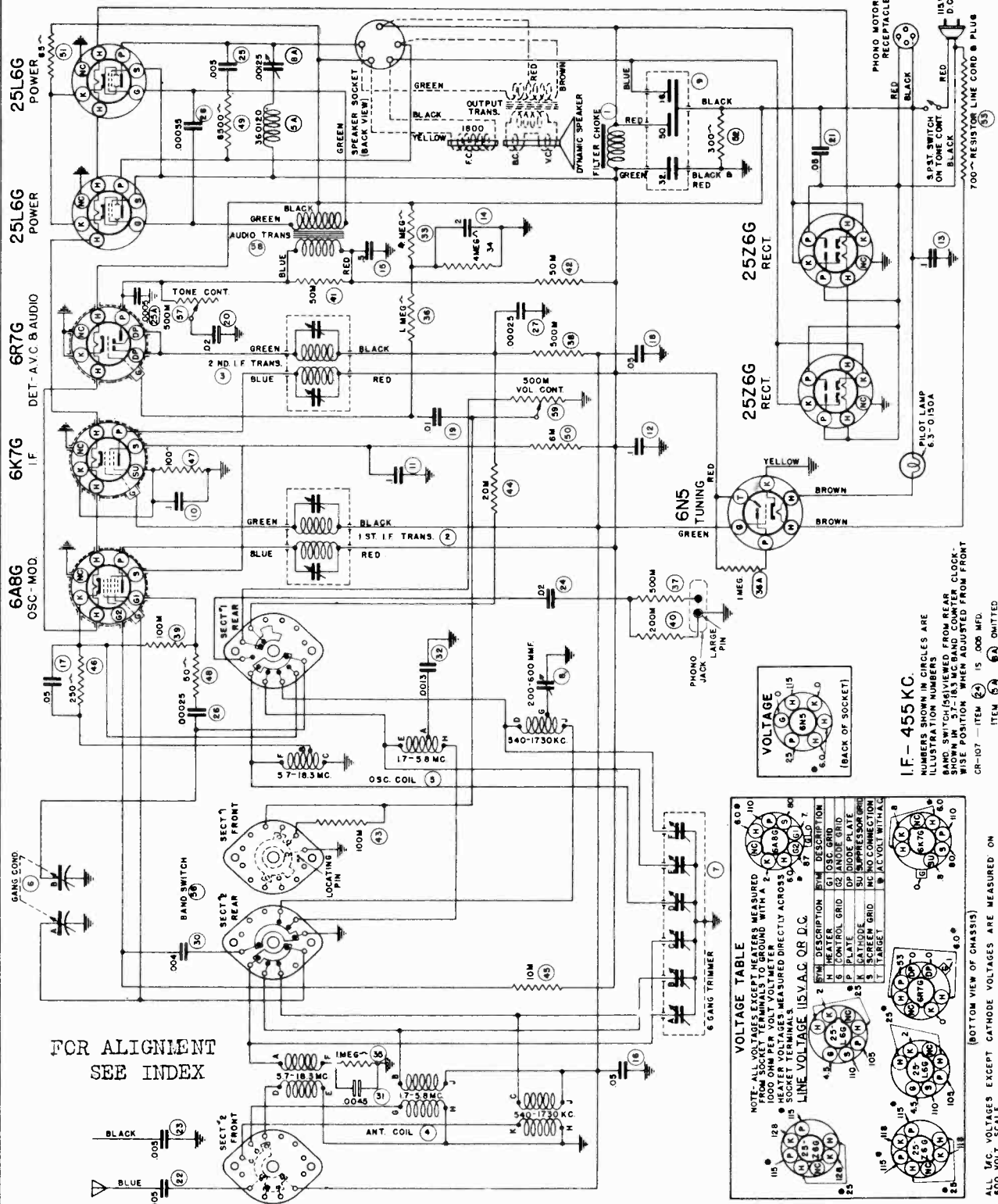
182592	Bulb	Pilot lamp, 6.3 volt .25 ampere	.15
103322	Washer	"C" washer, tuning shaft retainer	.05
449801	Cable	Dial drive cable	
883308	Dial Assb.	Complete assembly less glass scale	4.00
153238	Dial	Calibrated glass scale	1.20
153273	Escutcheon	Dial escutcheon with crystal	1.80
103321	Spring	Dial cord tension spring	.05

143267	Knob	"Tuning"
143265	Knob	"Tone"
143266	Knob	"Volume"
143268	Knob	"O-B-P-F"
633320	Pulley	Dial pulley
633315	Shaft	Tuning shaft .20 socket

Schematic, Voltage Socket

THE MAGNAVOX CO., INC.

CHASSIS CR107, -110, -112
-119, -120, -126, -127



FOR ALIGNMENT
SEE INDEX

Primary voltage.....117 V. AC-DC;
Power consumption..... 80 watts;
Power output..... 6 watts;

Speaker:
Field coil.....1800 ohms;
Transformer.....3000 ohms;

Tuning frequency range 540 - 1730 KC;
1.7 - 5.8 MC;
5.7 - 18.3 MC;

Type Circuit: Superheterodyne with three
tuning ranges, tone control, A.V.C., bass
compensation in volume control for phono-
graph pickup.

VOLTAGE TABLE

NOTE: ALL SOCKET VOLTAGES MEASURED FROM SOCKET TYPICAL TO GROUND WITH A 2-1000 OHM PER VOLT VOLTMETER

ITEM	DESCRIPTION	RTM	DESCRIPTION	RTM
100	1 OSC. GRID	100	1 OSC. GRID	100
101	1 HEATER	101	1 HEATER	101
102	1 PLATE	102	1 PLATE	102
103	1 SUPPRESSOR GRID	103	1 SUPPRESSOR GRID	103
104	1 SCREEN GRID	104	1 SCREEN GRID	104
105	1 NO CONNECTION	105	1 NO CONNECTION	105
106	1 AC VOLT WITH A	106	1 AC VOLT WITH A	106
107	1 TARGET	107	1 TARGET	107

LINE VOLTAGE 115 VAC OR D.C.

NOTE: ALL VOLTAGES EXCEPT CATHODE VOLTAGES ARE MEASURED ON 30 VOLT SCALE.

ALL CATHODE VOLTAGES MEASURED ON 400 VOLT SCALE.

IF - 455 KC.

NUMBERS SHOWN IN CIRCLES ARE ILLUSTRATION NUMBERS

BAND SWITCH (56) VIEWED FROM REAR

57-18.3 MC BAND COMPENSATOR

58 POSITION WHEN ADJUSTED FROM FRONT

CR-107 - ITEM 24 IS 000 MFD.

ITEM 25 IS 000 MFD.

ITEM 26 IS 000 MFD.

ITEM 27 IS 000 MFD.

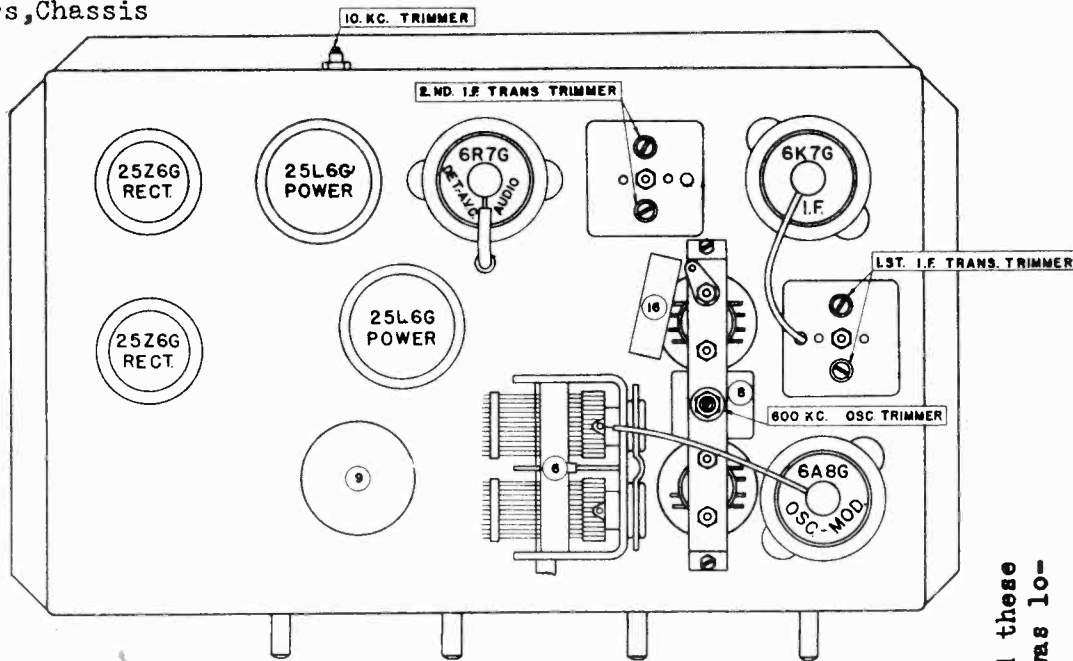
NOTE: ITEM 28 ON CR7G PLATE WAS NOT ON FIRST PRODUCTION

ADD THIS FOR BETTER I.F. STABILITY

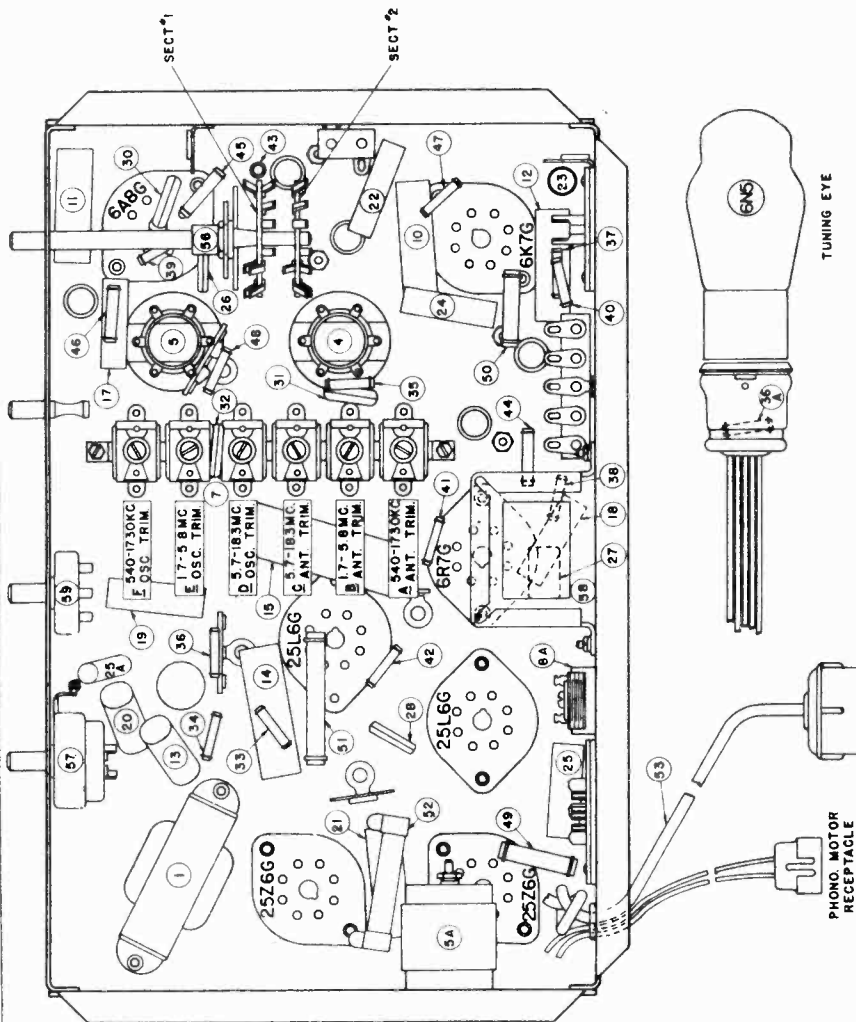
CHASSIS CR107, -110, -112
 -119, -120, -126, -127
 Socket, Trimmers, Chassis

THE MAGNAVOX CO., INC.

**MAGNAVOX RADIO CHASSIS
 CR-107, 110, 112, 119,
 120, 126, 127**



ALIGNMENT PROCEDURE
 SEE CHASSIS CR-106.



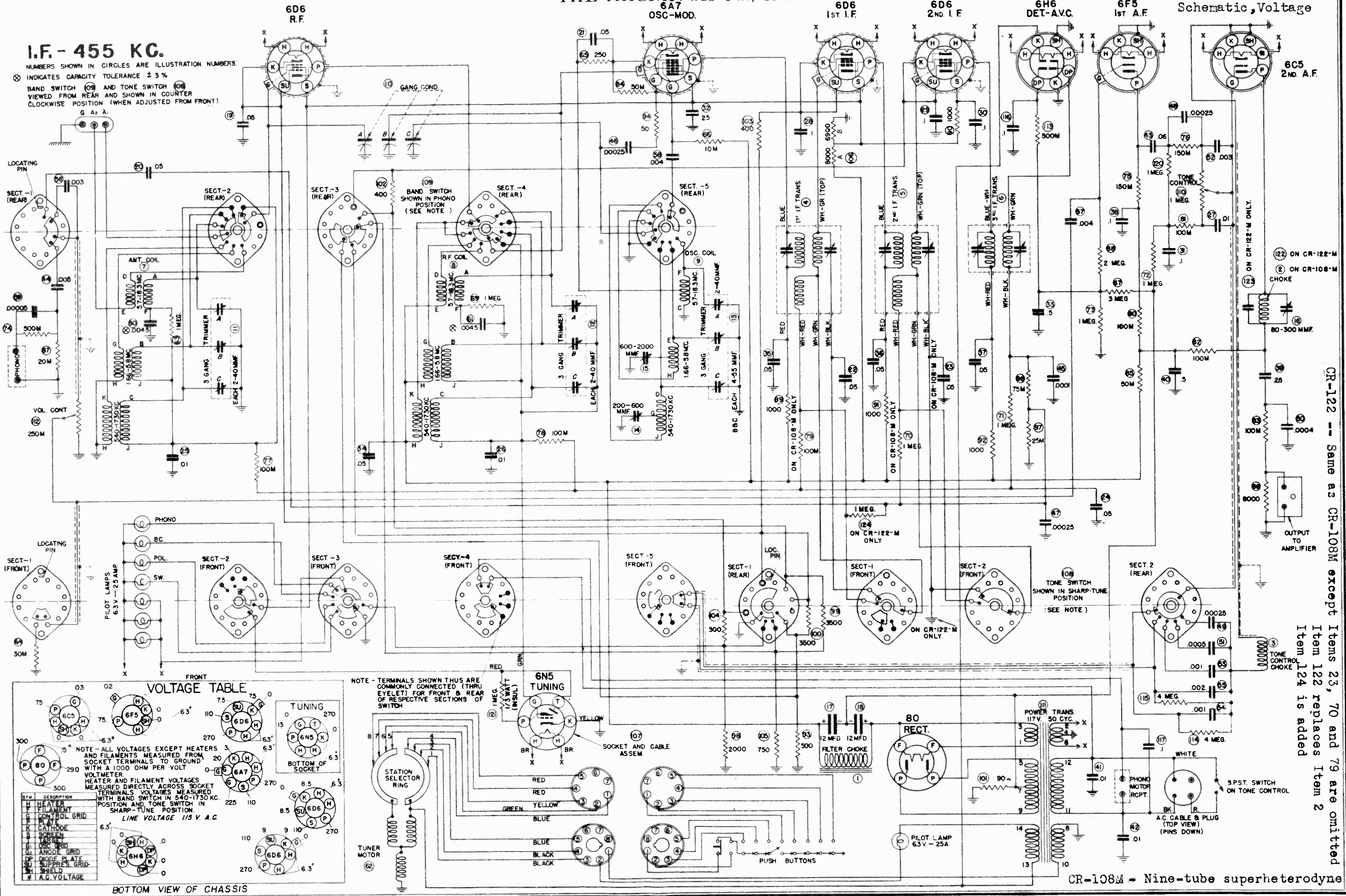
- CR-107 -- Used in AC-DC Concerto combination. Has .005 mfd. condenser for item 24.
 - CR-110 -- Has brackets for mounting in Chairside cabinet.
 - CR-112 -- Has brackets insulated from chassis for mounting in Berkeley cabinet.
 - CR-120 -- Speaker mounted on the chassis for use in AC-DC Playfellow combination.
 - CR-126 -- Has brackets for mounting in Berkeley cabinet.
 - CR-127 -- Has brackets for mounting in Hepplewhite cabinet.
- It is important that EXACT replacement parts be used when necessary and these parts must be located in exactly the same way that the original part was located and connected. This applies particularly to ground points.

THE MAGNAVOX CO., INC.

CHASSIS CR108M, CR122 Schematic, Voltage

I.F. - 455 KC.

NUMBERS SHOWN IN CIRCLES ARE ILLUSTRATION NUMBERS. ⊗ INDICATES CAPACITY TOLERANCE ± 3%. BAND SWITCH (10) AND TONE SWITCH (108) VIEWED FROM REAR AND SHOWN IN COUNTER CLOCKWISE POSITION (WHEN ADJUSTED FROM FRONT)

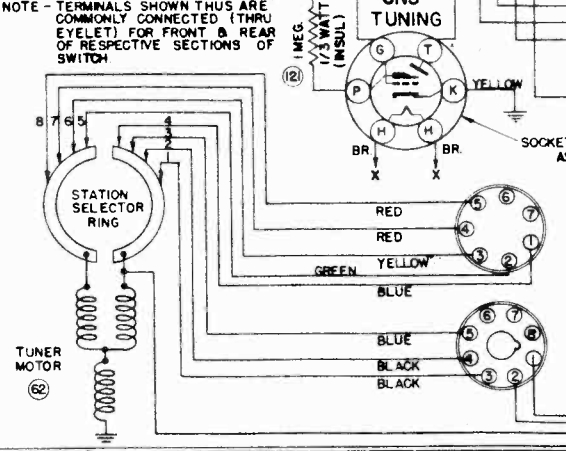


VOLTAGE TABLE

NOTE - ALL VOLTAGES EXCEPT HEATERS AND FILAMENTS MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM PER VOLT VOLTMETER. HEATER AND FILAMENT VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS. VOLTAGES MEASURED WITH BAND SWITCH IN 540-1730 KC. POSITION AND TONE SWITCH IN SHARP-TUNE POSITION. LINE VOLTAGE 115 V. A.C.

SYM	DESCRIPTION	HEATER	FILAMENT	CONTROL GRID	CATHODE	SCREEN	DIODE GRID	ANODE GRID	DIODE PLATE	SUPPRESSOR GRID	SHIELD	A.C. VOLTAGE
03	6C5	250	6.3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
02	6F5	250	6.3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
01	6D6	250	6.3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
04	6A7	250	6.3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
05	6D6	250	6.3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
06	6H6	250	6.3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

BOTTOM VIEW OF CHASSIS



CR-122 - Same as CR-108M except Items 23, 70 and 79 are omitted. Item 122 replaces Item 2. Item 124 is added.

CR-108M - Nine-tube superheterodyne

ALIGNMENT PROCEDURE

It is absolutely necessary that an accurately calibrated test oscillator with some type of output measuring device be used when aligning the receiver.

ALIGNING THE I. F. STAGES AT 455 KILOCYCLES

1. Connect an output meter across the voice coil of the speakers.
2. Turn the tone equalizer to the sharp-tune position.
3. Turn the volume control up to 7 or more, and adjust the signal generator output until a reading of one volt is obtained on the output meter when a signal is applied.
4. Align the third I.F. transformer first, by connecting the signal generator to the grid of the 6A6, second I.F. tube; now adjust the third I.F. transformer until a maximum output meter deflection is obtained. **THE OUTPUT OF THE SIGNAL GENERATOR IS TO BE CONNECTED THROUGH A .00025 MFD. CONDENSER AT ALL TIMES.**
5. Align the second I.F. transformer first, by connecting the signal generator to the grid of the 6D6 first I.F. tube. Readjust the output of the signal generator so that the output meter reading does not exceed one volt and adjust the second I.F. transformer until a maximum deflection of the output meter is obtained.
6. Readjust the output of the signal generator to the grid of the 6A7 tube. Reading does not exceed one volt, and adjust the first I.F. transformer until a maximum deflection of the output meter is obtained.

ALIGNING THE 540-1730 K. C. BAND

1. Set the wave-band switch for reception on the broadcast band.
 2. Run the dial pointer to the extreme left position. This will adjust the tuning condensers to maximum capacity.
 3. Holding the tuning condensers at maximum capacity, adjust the dial pointer to a position at the end of the horizontal scale. This is done by sliding the pointer on the dial string.
 4. Connect the signal generator output to the grid of the 6A7 tube, tune the radio and signal generator to 600 KC and adjust the 600 KC padder for maximum deflection of the output meter.
 5. Turn the radio and signal generator to 1400 KC and adjust the 1400 KC trimmer for maximum deflection of the output meter.
 6. Leave the signal generator and radio switch at 1400 KC, connect the signal generator output to the antenna binding post "A1" and adjust the 1400 KC R.F. stage trimmer for maximum deflection of the output meter.
- ### ALIGNING THE 1660-5800 K. C. BAND
1. Set the band switch for reception on the police band.
 2. Connect the output of the signal generator to the grid of the 6A7 tube, set the signal generator and radio to 1800 KC and adjust the 1800 KC padder for maximum deflection of the output meter.

3. Set the radio and the signal generator to 5000 KC and adjust the 5000 KC oscillator trimmer for maximum deflection of the output meter.

4. Leave the radio and signal generator set at 5000 KC, connect the signal generator output to the antenna binding post "A1", and adjust the 5000 KC first detector trimmer and the 5000 KC R.F. trimmer for maximum deflection of the output meter.

ALIGNING THE 5700-18300 K. C. BAND

1. Set the band switch for reception on the foreign band.
2. Connect the signal generator output to the grid of the 6A7 tube, set the radio and the signal generator to 16 megacycles and adjust the 16 megacycle oscillator trimmer for maximum deflection of the output meter.
3. Leave the signal generator and the radio set for 16 megacycles, connect the signal generator output to the antenna binding post "A1" and adjust the 16 megacycle first detector trimmer and the 16 megacycle oscillator trimmer for maximum deflection of the output meter.

MISCELLANEOUS NOTES

The radio chassis must "float" freely and it is therefore important that none of the knobs touch the panel. The four holes in the radio support bracket "C" Fig. 1, are sufficiently large to permit adjustment of the chassis until it "floats" properly. Be sure that this "floating" condition exists before attempting to tighten the screws "A" Fig. 1, after replacing the chassis in the cabinet.

If one of the push-button switches does not function, remove the radio panel in the manner outlined in the foregoing instructions, and check the switch contacts. It is entirely probable that the trouble can be corrected by either cleaning the contacts or by bending them so that they form a solid connection.

When the release button of the radio push-button assembly is depressed, the switch arm nearest the end of the assembly must break one contact before making the other contact. Failure of the release button to operate in this manner will cause the group pilot lamp to burn out, in which case the arm of the switch should be bent until the "break-before-make" action is obtained.

Due to the extremely high sensitivity of the receiver, it is possible for some excessively strong signals to overload and cause distortion in the radio. This condition is very rare and occurs only on a very strong signal when the receiver has a very efficient antenna. This difficulty is recognized by distortion on a strong signal and being absent on weak signals. To correct this trouble, it is necessary to connect a 500 ohm resistor across the broadcast antenna primary to ground. The terminal for making this connection is accessible at the rear of the R.F. transformer on the top of the chassis. Connect the resistor from the lug having the red-with-blue tracer lead connected to it, to the ground bus wire which ties the three trimmer condensers together.

It is possible for the distortion mentioned above, to occur due to defective 6D6 I.F. tubes. The second I.F. tube is more susceptible to this difficulty and should be replaced before checking the first I.F. tube.

MISCELLANEOUS NOTES (continued)

The tuning shaft "A" Fig. 2, can be bent very easily when the chassis is out of the cabinet if extreme care is not exercised. If the shaft is bent only slightly, it can possibly be bent back to its original shape, otherwise it should be replaced.

To replace the tuning shaft, first slip the dial cable from the front groove of the disc "B" Fig. 2, by releasing the spring holding that cable in place. Now rotate the disc until the dial pointer is at the extreme right end of the scale, at which point the hole "C" in the disc is in line with the hole in the shaft support bracket. Insert a small screw driver through the two holes and remove the motor mounting screw. Remove the other two motor mounting screws and lift the motor from the chassis.

Now remove the "C" washer from the shaft immediately to the front of the shaft support bracket, and slide the shaft toward the inside of the chassis. Insert a new shaft and gear, wrap 2 1/2 turns of the dial cable in the groove provided, and fasten the "C" washer in place. The method of properly stringing the dial cable is shown in detail in Fig. 2 and is fully described in the following paragraphs. Remount the motor with the three mounting screws. The holes through which these screws pass, are sufficiently large to permit adjustment of the motor so that the gears mesh properly. The procedure outlined above for replacing a tuning shaft may also be used in replacing a tuning motor.

To adjust the position of the volume or tone compensator semaphores disc, loosen the small set-screw on the brass bushing behind the disc, and slide the disc until the proper setting is obtained. Tighten the set-screw, and the operation is completed.

When push-button tuning is used, the dial pointer may have a tendency to "hunt" on either side of the desired frequency before coming to rest. This condition is caused by insufficient pressure of the small spring, at the rear of the tuning motor, against the armature shaft. The spring should be "kinked" slightly to provide additional pressure, using a pair of long-nosed pliers to make the adjustment.

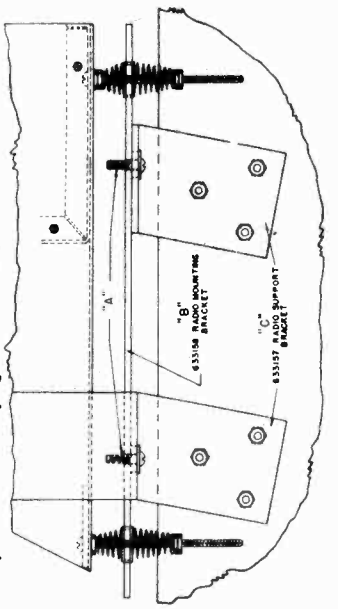
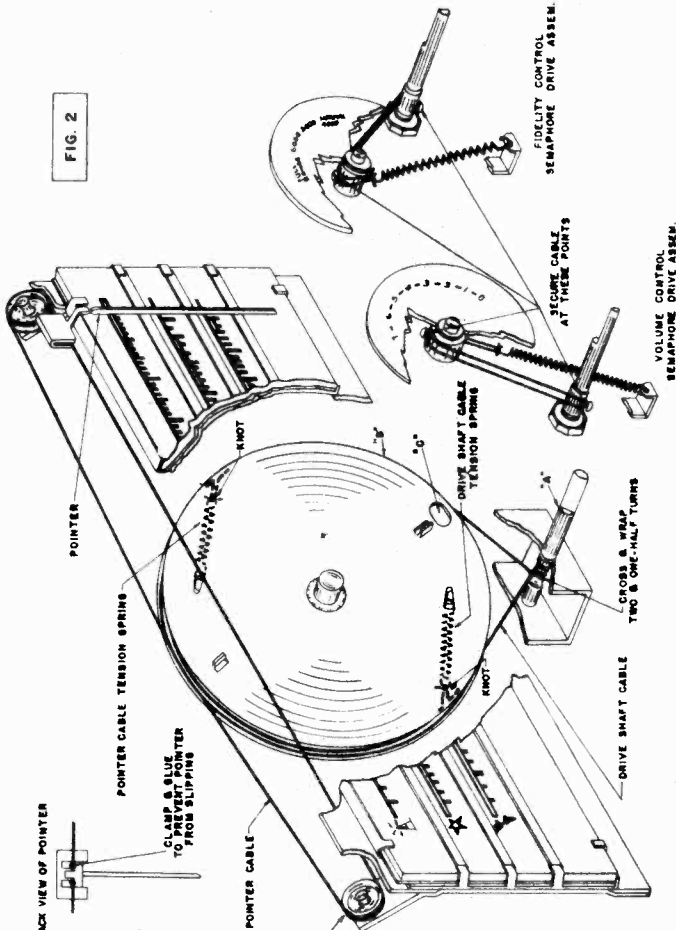
If a distinct hum is heard in the speakers when using the radio, the 6F5 tube should be replaced as a possible cure. It is extremely important that the grid lead of the 6F5 tube is shielded as near to the cap of the tube as is possible or hum will be picked up in this lead.

The shell of the cap on the phonograph input plug should not be allowed to contact the chassis or else a hum will be heard in the speakers with phonograph operation. A small felt washer is used between the plug and the receptacle to prevent this and should be replaced at any time that it is necessary to remove this plug from its receptacle.

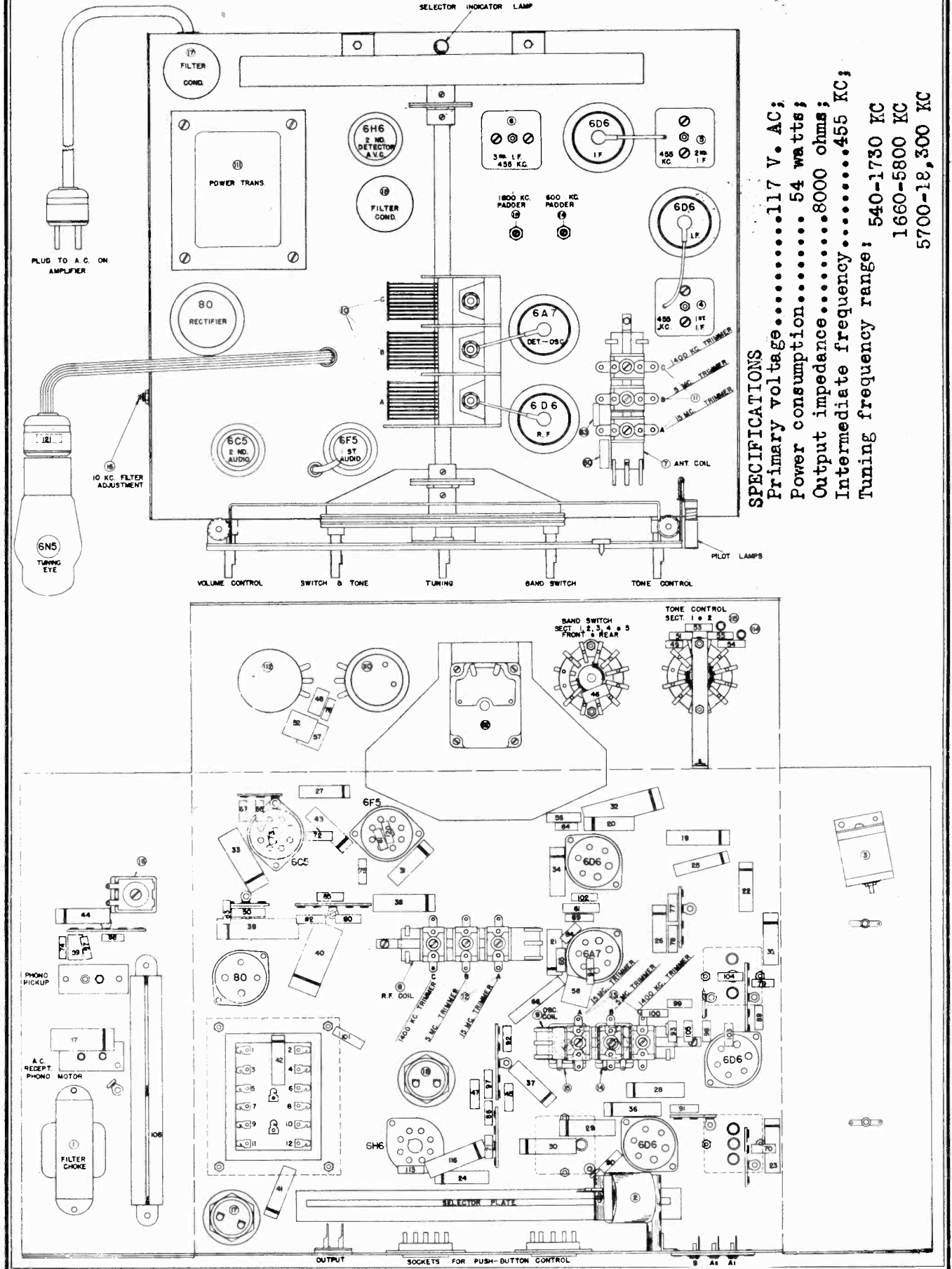
RESTRINGING THE DIAL CABLE

To restring the pointer cable, first tie one end of the cable to the pointer tension spring, Fig. 2, after the spring has been removed from the small hook on disc "B". Lace the cord through the eyelet in the rear groove, allowing about 1/2 inch between the spring and the inside edge of the groove. Proceed around the idler pulley at the left end of the dial, across the front of the disc "B", through the back of the pointer clamp (see inset Fig. 2), around the right-end idler pulley and around the rear disc groove in a counter-clockwise direction, threading it into the eyelet mentioned above. Knot the cable to the spring, bringing the spring toward the inside rim of the disc as close as possible. Now stretch the spring until the other end can be secured to the hook, completing the operation.

To restring the drive shaft cable, first tie one end of the cable to the drive shaft cable tension spring, after the spring has been removed from the small hook on disc "B". Lace the cord through the eyelet in the front groove allowing about 1/2 inch between the end of the spring and inside edge of the groove. Proceed around the disc in a counter-clockwise direction, wrap two and one-half turns around shaft "A" Fig. 2, in a clockwise direction and from front to rear. Continue around the groove in a counter-clockwise direction threading the cable through the eyelet near the spring. Knot the cable to the spring, bringing the spring toward the inside rim of the disc as close as possible. Stretch the spring until the other end can be secured to the hook, and the operation is completed.



CHASSIS CR108M, CR122
 THE MAGNAVOX CO., INC. Socket, Trimmers, Chassis



SPECIFICATIONS
 Primary voltage.....117 V. AC;
 Power consumption..... 54 watts;
 Output impedance.....8000 ohms;
 Intermediate frequency.....455 KC;
 Tuning frequency range: 540-1730 KC
 1660-5800 KC
 5700-12,300 KC

CHASSIS CR102,-103,104,105
 CHASSIS CR106,-109,-111
 CHASSIS CR107,-110,-112,
 -119,-120,-126,-127

THE MAGNAVOX CO., INC.

CHASSIS CR113,-114,-115,
 -118,-125
 CHASSIS 121,-124
 Alignment

MODELS CR102, 103, 104, 105

ALIGNING THE I. F. AT 456 KILOCYCLES

1. Connect the ground lead of the test oscillator to the chassis or set ground lead (black). Connect the other lead of the test oscillator to the grid cap of the 6A7 tube through a .00025 mfd. condenser.
2. Set the band switch for reception on the broadcast band and set the dial pointer to 1,000 kilocycles, adjusting the receiver volume control to its maximum setting.
3. Now feed a 456 kilocycle signal from the test oscillator and peak each of the second I.F. trimmer condensers.
4. Peak each of the first I.F. trimmer condensers, repeating the adjustments several times for most accurate setting.

ALIGNING THE 540-1760 KILOCYCLE BAND

1. Remove the test oscillator lead from the grid of the 6A7 tube and connect it to the receiver antenna lead (blue) through a .00025 mfd. condenser.
2. Check the tuning dial adjustment by turning the gang condenser until the plates are completely meshed at which point the dial pointer must be exactly even with the last line at the low frequency end of the band (540 KC).
3. With the band selector set for reception on the broadcast band, set the dial pointer to the extreme high frequency end of the band (1760 KC) and feed a 1760 KC signal from the signal generator, adjusting the 1760 kilocycle oscillator trimmer for maximum output.
4. Now set the receiver and test oscillator frequency to 1500 KC and adjust the 1500 KC antenna trimmer for maximum output.
5. Set the receiver and test oscillator frequency to 600 KC and adjust the 600 KC oscillator padder to maximum output while tuning the receiver back and forth across the signal. This completes the alignment of the broadcast band.

ALIGNING THE 1600-5000 KILOCYCLE BAND

1. Set the band selector for operation on the police band.
2. Set the receiver and test oscillator frequency to 4 megacycles and adjust the 4 megacycle antenna trimmer for maximum output.

ALIGNING THE 4.0-19.0 MEGACYCLE BAND

1. Set the band selector for operation on the foreign band.
2. Set the receiver and test oscillator frequency to 15 megacycles and adjust the 15 megacycle antenna trimmer for maximum output.

10 KILOCYCLE FILTER ADJUSTMENT

With the tone control set for maximum treble response, tune the receiver to a point between two stations of about the same signal strength on adjacent channels. If a 10,000 cycle heterodyne is heard as the beat note between the two carriers, it may be eliminated by retuning the 10 KC output filter by means of the 10 KC trimmer condenser on the rear of the chassis adjacent to the speaker socket.

MODELS CR106, 109, 111; CR107, 110, 112, 119, 120, 126, 127;
 CR113, 114, 115, 118, 126; CR121, 124

ALIGNING THE I. F. STAGES AT 455 K.C.

1. Connect the ground lead of the test oscillator to the chassis or radio ground lead. Connect the other lead of the test oscillator to the grid cap of the 6A7 tube through a .00025 mfd. series condenser. DO NOT REMOVE THE GRID CLIP.
2. Set the test oscillator to EXACTLY 455 kilocycles and turn the receiver volume to its maximum setting.
3. Peak each of the second I.F. transformer trimmer condensers.
4. Peak each of the first I.F. transformer trimmer condensers.

ALIGNING THE 540-1730 K.C. BAND

Remove the test oscillator lead from the grid of the 6A7 tube and connect it to the receiver antenna lead (blue) through a .00025 mfd. series condenser.
 Set the test oscillator frequency and receiver dial to EXACTLY 1730 kilocycles. Adjust the 1730 kilocycle oscillator trimmer to bring in 1730 kilocycle test oscillator signal to maximum output.

Tune the receiver and test oscillator frequency to EXACTLY 1400 kilocycles and adjust the 1400 kilocycle antenna trimmer for maximum output as indicated on the output meter.

Set the test oscillator and receiver frequency to approximately 600 kilocycles. While rocking the gang condenser slightly to the right and to the left, adjust the 600 kilocycle oscillator padder for maximum signal.

ALIGNING THE 1.7-5.8 M.C. BAND

Substitute a 400 ohm resistor for the .00025 mfd. condenser in series with the antenna lead.
 Tune the receiver and test oscillator frequency to EXACTLY 5 megacycles and adjust the 5 megacycle antenna trimmer for maximum output.

ALIGNING THE 5.7-18.3 M.C. BAND

Leave the 400 ohm resistor in series with the test oscillator lead and set the band selector switch for operation on the 5.7 - 18.3 megacycle band (short wave).
 Set the receiver and test oscillator frequency to EXACTLY 18.3 megacycles.
 Adjust the 18.3 megacycle oscillator trimmer for maximum signal as indicated on the output meter.

When adjusting this trimmer two peaks may be noticed, in which case CARE MUST BE TAKEN THAT THE PROPER PEAK IS USED FOR ALIGNING THE RECEIVER AT 18.3 MC. Always back off the trimmer to minimum capacity, then screw down the trimmer (add capacity) until the second peak -- if more than one is noticed -- which is the correct one to use, is tuned in.

Set the receiver and test oscillator frequency to EXACTLY 15 megacycles.
 Rock the gang condenser slightly to the right and to the left, adjusting the 15 megacycle antenna trimmer for maximum signal as indicated on the output meter.

THE MAGNAVOX CO., INC.

CHASSIS CR113, -114, -115
CR118, -125

Schematic, Voltage

Type circuit: Superheterodyne with three tuning ranges, tone control, A.V.C., bass compensation in volume control for phonograph pickup.

Intermediate frequency.....455 KC;
Tuning frequency range 540 - 1730 KC;
1.7 - 5.8 MC;
5.7 - 18.3 MC;

MODEL CR-113
OMIT PARTS 27, 52, 53, 54, 61
PART 50 SHORTED
PART 57 IS .05 MFD.

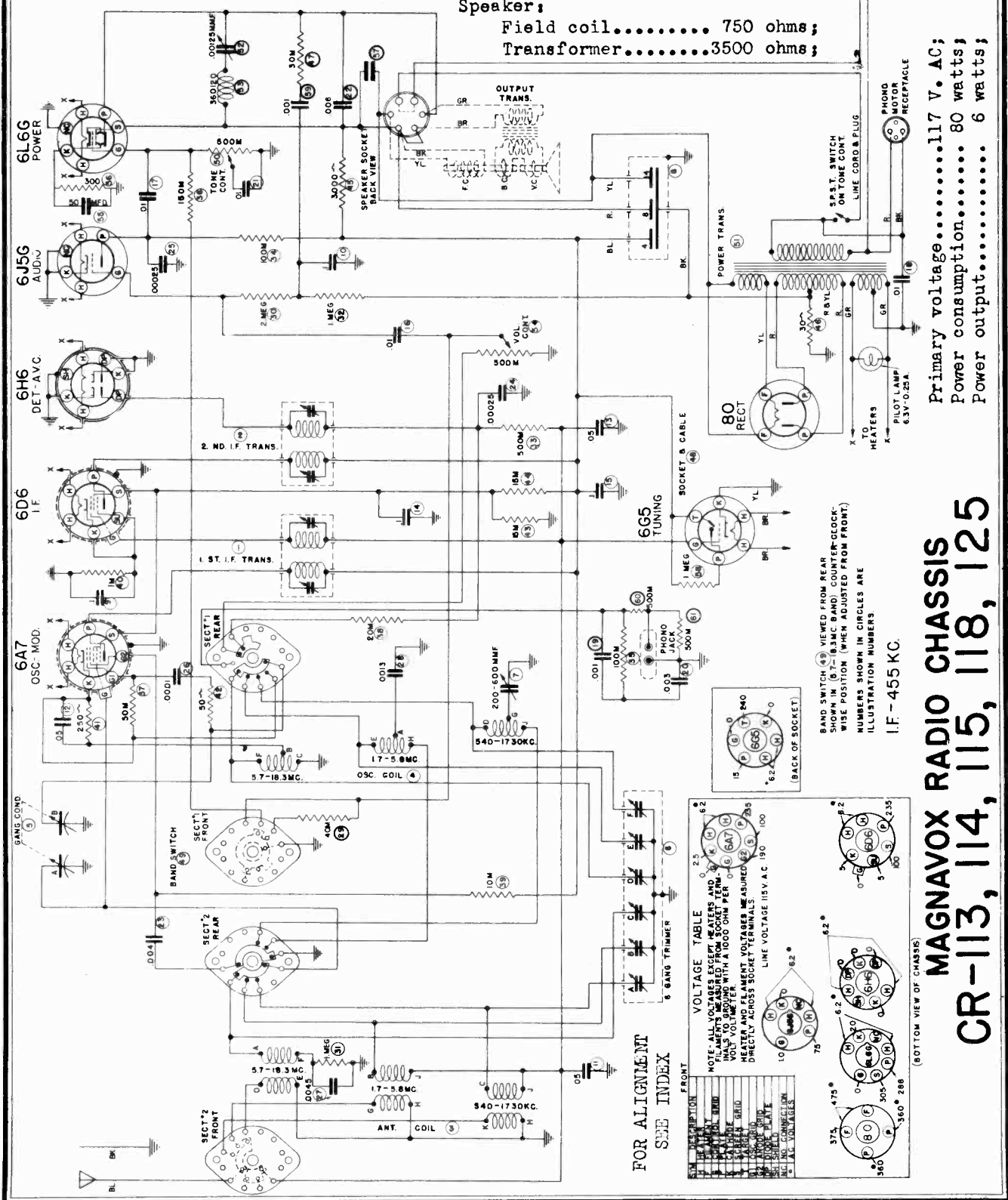
MODEL CR-114
OMIT PARTS 22, 61
PART 68 SHORTED
PART 57 IS .15 MFD.

MODEL CR-115
OMIT PARTS 19, 22
PART 24 IS 100,000
PART 57 IS .15 MFD.

MODEL CR-118
OMIT PARTS 19, 22
PART 24 IS 100,000
PART 57 IS .15 MFD.

Speaker:

Field coil..... 750 ohms;
Transformer.....3500 ohms;



Primary voltage.....117 V. AC;
Power consumption..... 80 watts;
Power output..... 6 watts;

MAGNAVOX RADIO CHASSIS
CR-113, 114, 115, 118, 125

I.F. - 455 KC.

VOLTAGE TABLE

NO.	DESCRIPTION	FRONT	REAR
23	ANT. COIL	10	75
24	ANT. COIL	10	75
25	ANT. COIL	10	75
26	ANT. COIL	10	75
27	ANT. COIL	10	75
28	ANT. COIL	10	75
29	ANT. COIL	10	75
30	ANT. COIL	10	75
31	ANT. COIL	10	75
32	ANT. COIL	10	75
33	ANT. COIL	10	75
34	ANT. COIL	10	75
35	ANT. COIL	10	75
36	ANT. COIL	10	75
37	ANT. COIL	10	75
38	ANT. COIL	10	75
39	ANT. COIL	10	75
40	ANT. COIL	10	75
41	ANT. COIL	10	75
42	ANT. COIL	10	75
43	ANT. COIL	10	75
44	ANT. COIL	10	75
45	ANT. COIL	10	75
46	ANT. COIL	10	75
47	ANT. COIL	10	75
48	ANT. COIL	10	75
49	ANT. COIL	10	75
50	ANT. COIL	10	75
51	ANT. COIL	10	75
52	ANT. COIL	10	75
53	ANT. COIL	10	75
54	ANT. COIL	10	75
55	ANT. COIL	10	75
56	ANT. COIL	10	75
57	ANT. COIL	10	75
58	ANT. COIL	10	75
59	ANT. COIL	10	75
60	ANT. COIL	10	75
61	ANT. COIL	10	75
62	ANT. COIL	10	75

NOTE: ALL VOLTAGES ARE MEASURED ACROSS SOCKET TERMINALS. VOLTAGE MEASUREMENTS SHOULD BE MADE WITH A 1000 OHM PER DIV. RESISTANCE. LINE VOLTAGE IS V. A.C. 100.

BOTTOM VIEW OF CHASSIS

FOR ALIGNMENT
SEE INDEX

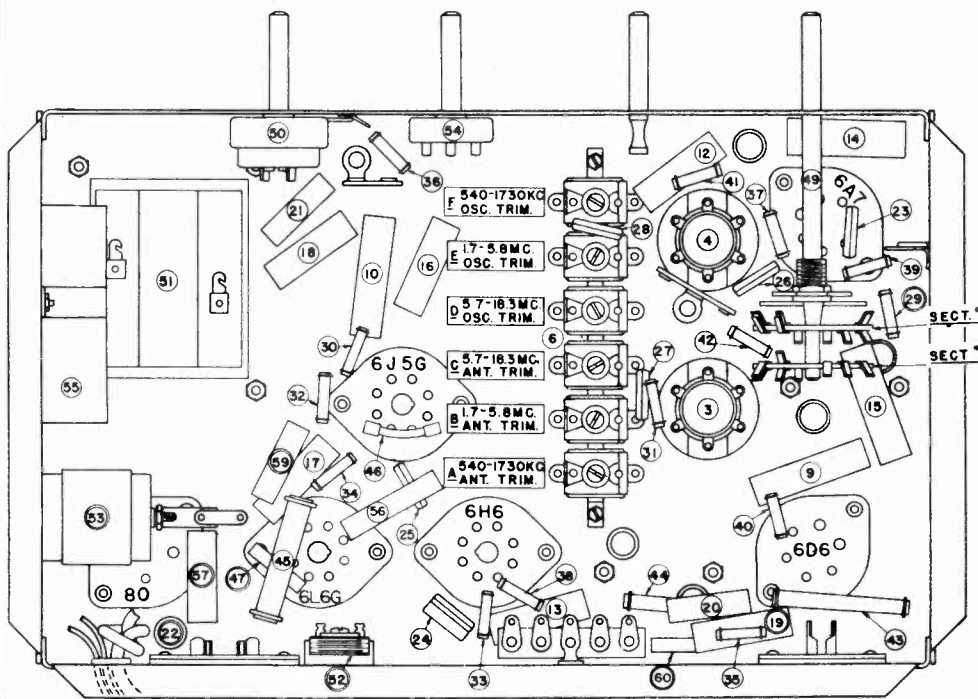
CHASSIS CR113,-114,-115

CR118,-125

THE MAGNAVOX CO., INC.

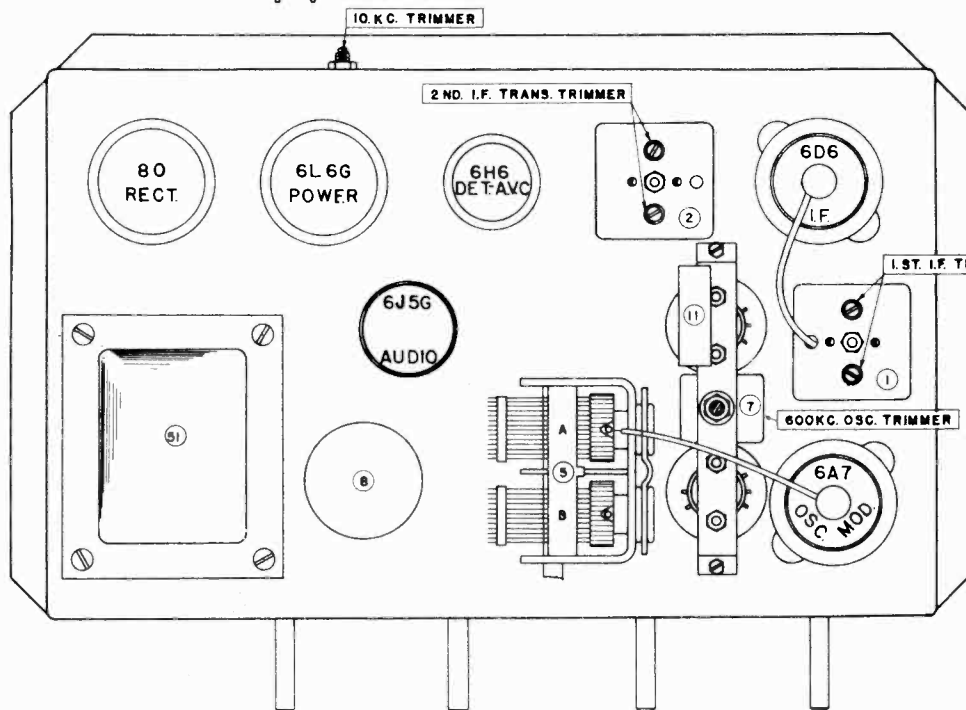
Socket, Trimmers, Chassis

It is important that EXACT replacement parts be used when necessary and these parts must be located in exactly the same way that the original part was located and connected. This applies particularly to ground points.



PHONO MOTOR RECEPTACLE

TUNING EYE



CR-114 -- Has brackets for mounting in Chairside combination.

Omit items 22 and 61.

CR-115 -- Has brackets for mounting in Duette combination.

Omit items 19 and 22.

Item 29 is 100,000 ohms.

Item 57 is .15 mfd.

CR-118 -- Has brackets for mounting in Berkeley combination.

Omit items 19 and 22.

Item 29 is 100,000 ohms.

Item 57 is .15 mfd.

CR-113 -- Used in Concerto combination.

Omit items 47, 52, 53, 59 and 61.

Item 60 is shorted.

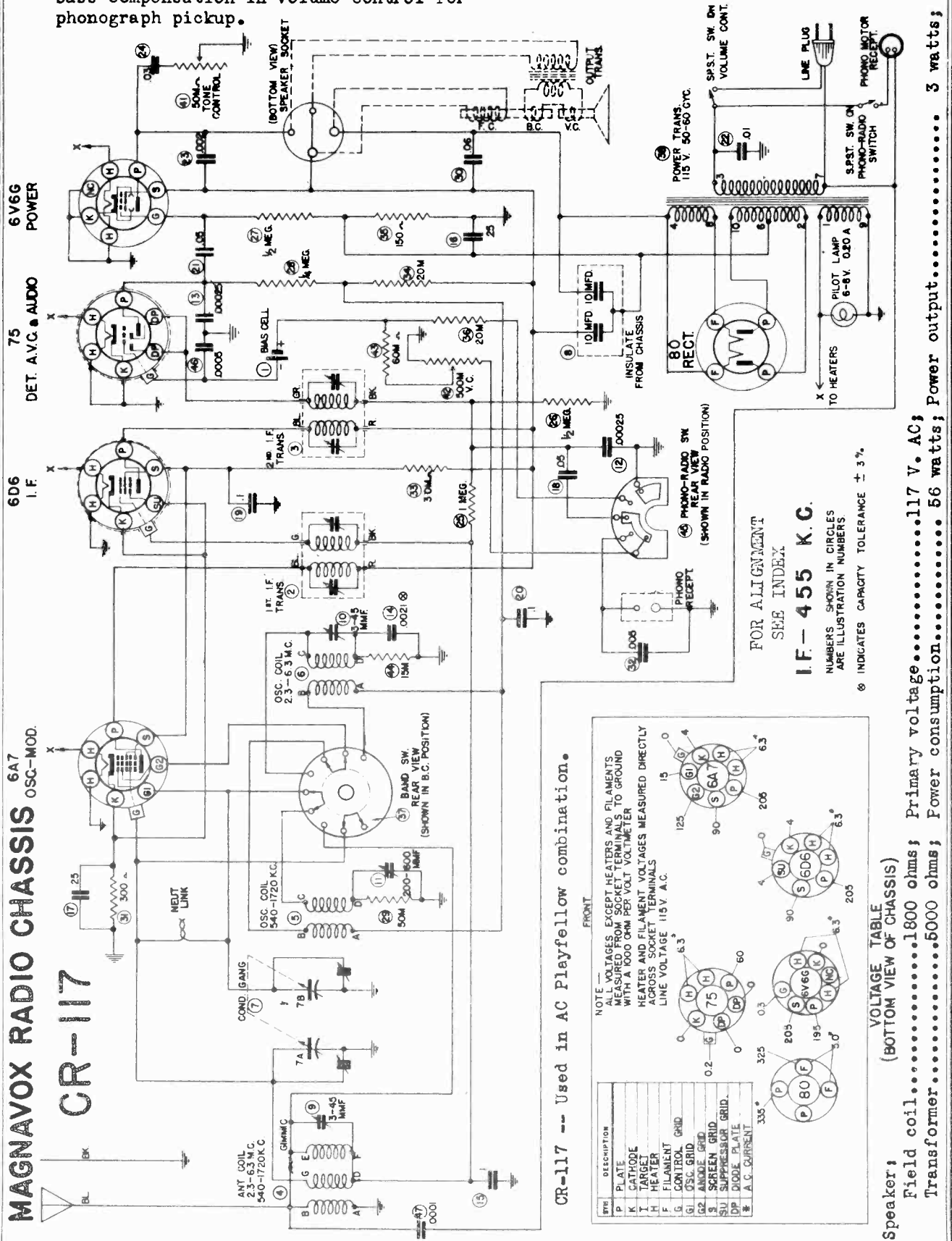
Item 57 is .05 mfd.

THE MAGNAVOX CO., INC.

CHASSIS CR117
Schematic, Voltage

Type Circuit: Superheterodyne with two tuning ranges, tone control, A.V.C. bass compensation in volume control for phonograph pickup.

Tuning frequency range.....540-1720 KC
2.3-6.3 MC



FOR ALIGNMENT
SEE INDEX
I.F. - 455 K.C.
NUMBERS SHOWN IN CIRCLES
ARE ILLUSTRATION NUMBERS
⊗ INDICATES CAPACITY TOLERANCE ± 3%.

CR-117 -- Used in AC Playfellow combination.

NOTE - VOLTAGES EXCEPT HEATERS AND FILAMENTS MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM PER VOLT VOLTMETER. HEATER AND FILAMENT VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS. LINE VOLTAGE 115V. A.C.

FRONT

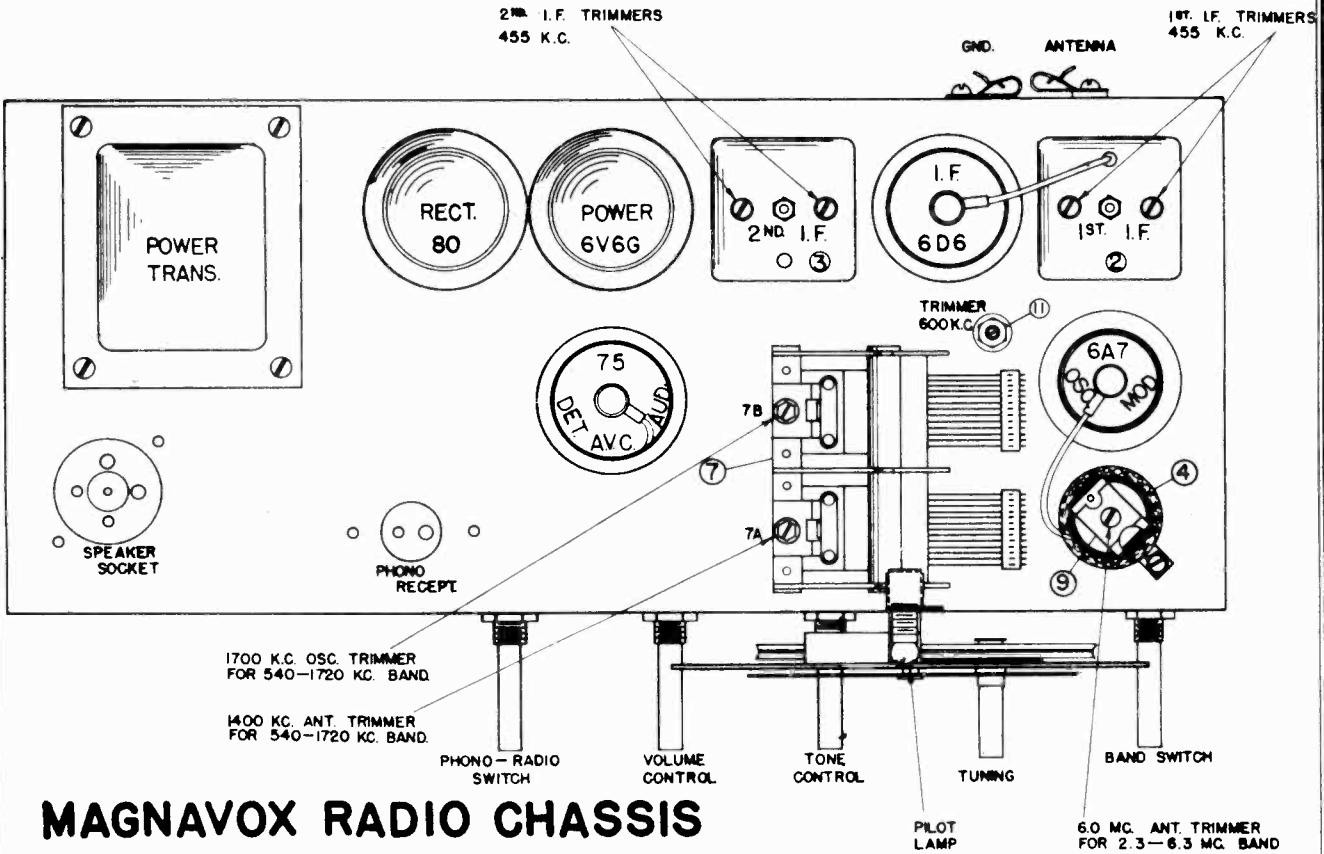
SYM	DESCRIPTION
P	PLATE
K	CATHODE
T	TARGET
H	HEATER
F	FILAMENT
G	CONTROL GRID
G1	SCREEN GRID
G2	ANODE GRID
S	SCREEN GRID
SU	SUPPRESSOR GRID
DP	DIODE PLATE
⊗	A.C. CURRENT

VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)

Speaker: Field coil.....1800 ohms; Transformer.....5000 ohms; Power output..... 3 watts; Primary voltage.....117 V. AC; Power consumption..... 56 watts; Power output..... 3 watts;

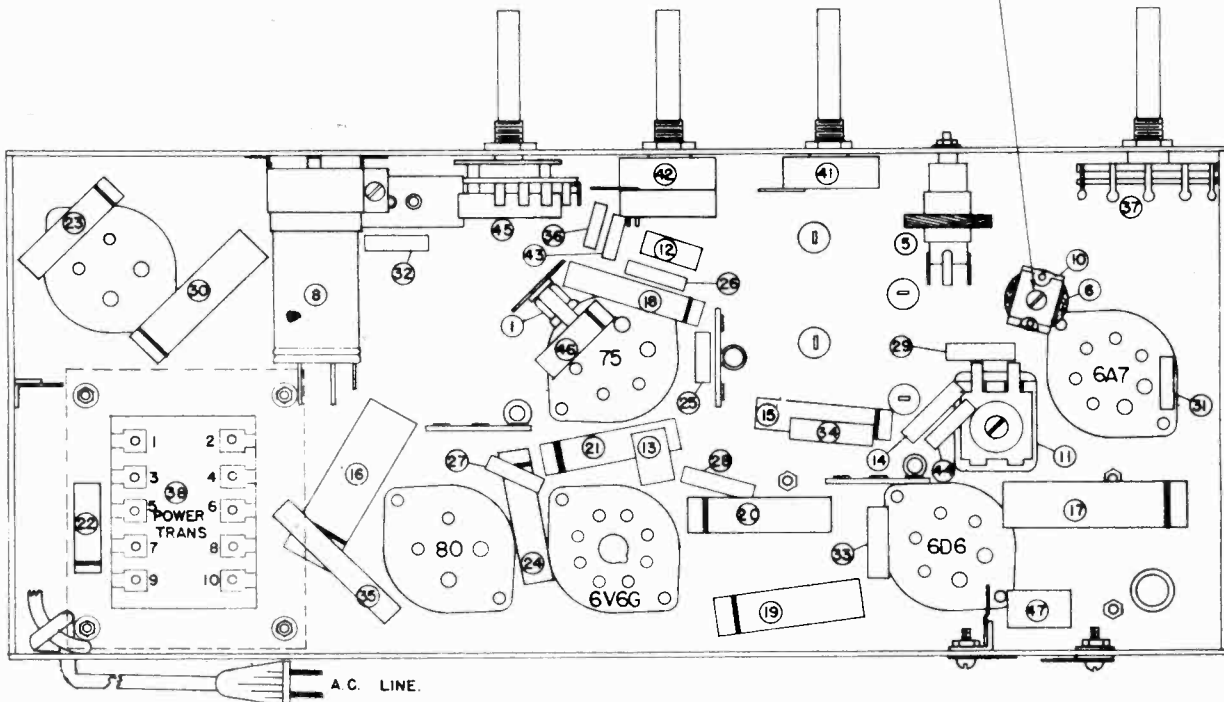
CHASSIS CR117
 Socket, Trimmers
 Chassis

THE MAGNAVOX CO., INC.



MAGNAVOX RADIO CHASSIS

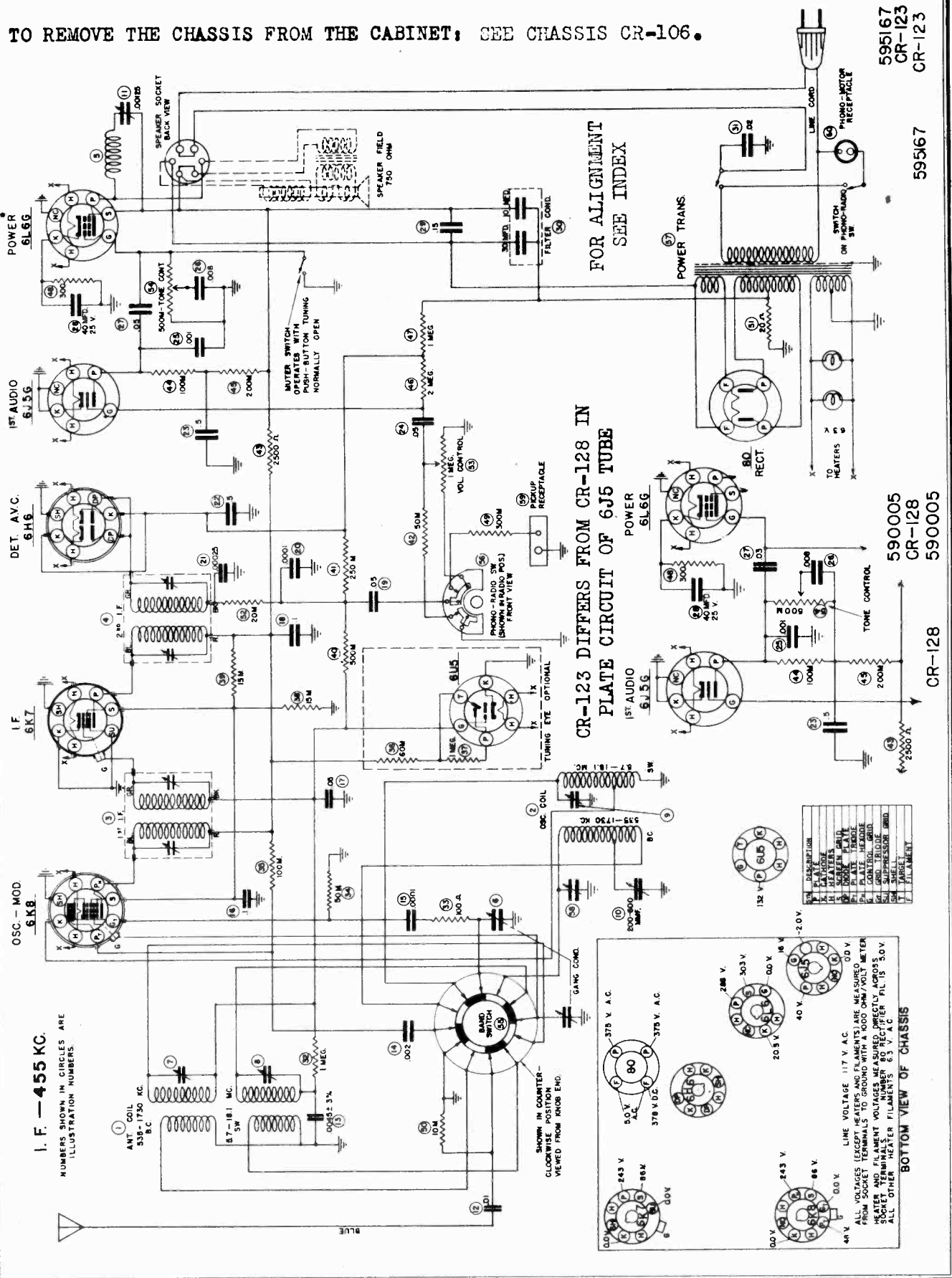
CR-117



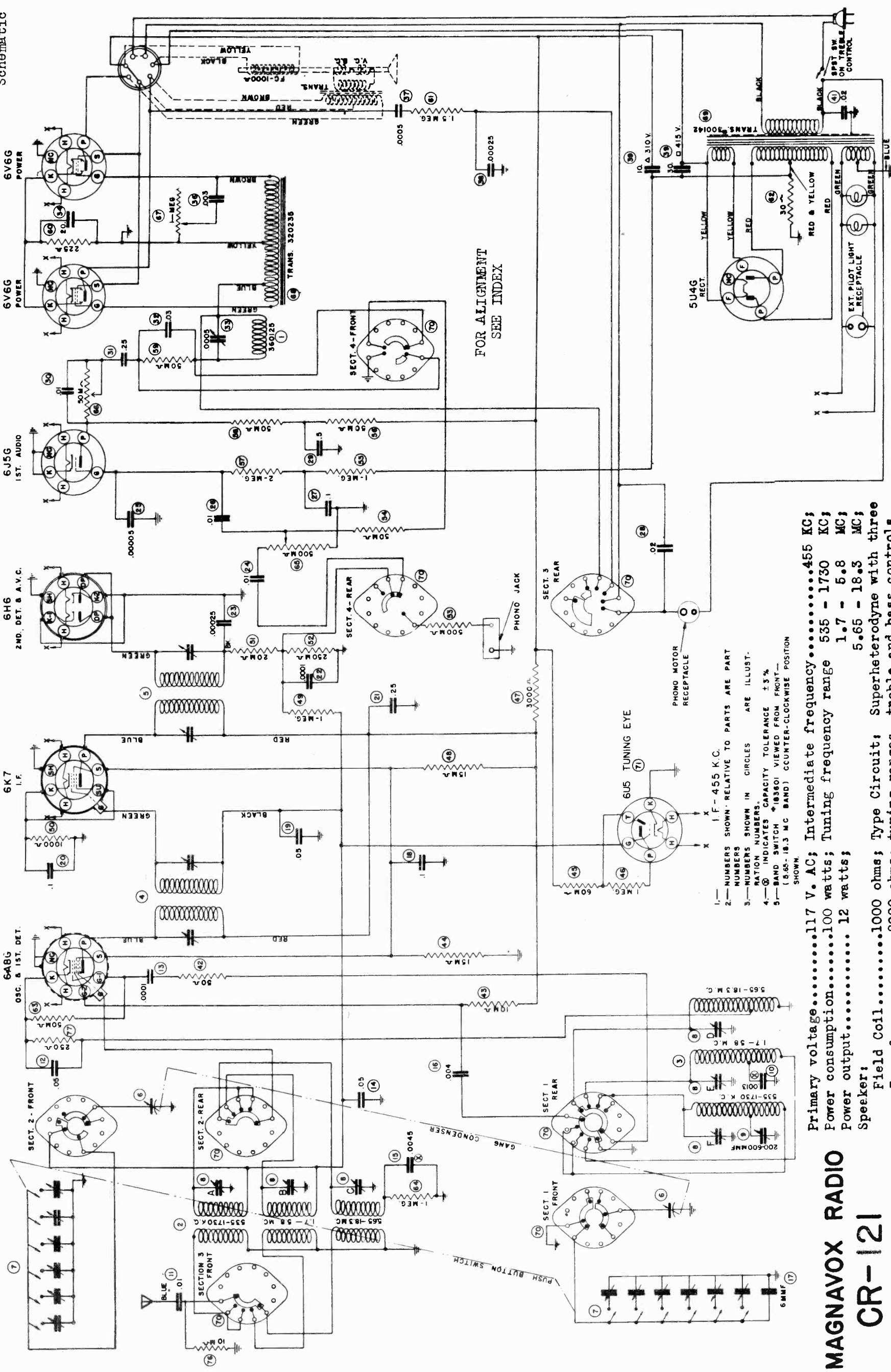
It is important that EXACT replacement parts be used when necessary and these parts must be located in exactly the same way that the original part was located and connected. This applies particularly to ground points.

THE MAGNAVOX CO., INC.

TO REMOVE THE CHASSIS FROM THE CABINET; SEE CHASSIS CR-106.



THE MAGNAVOX CO., INC.



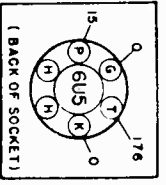
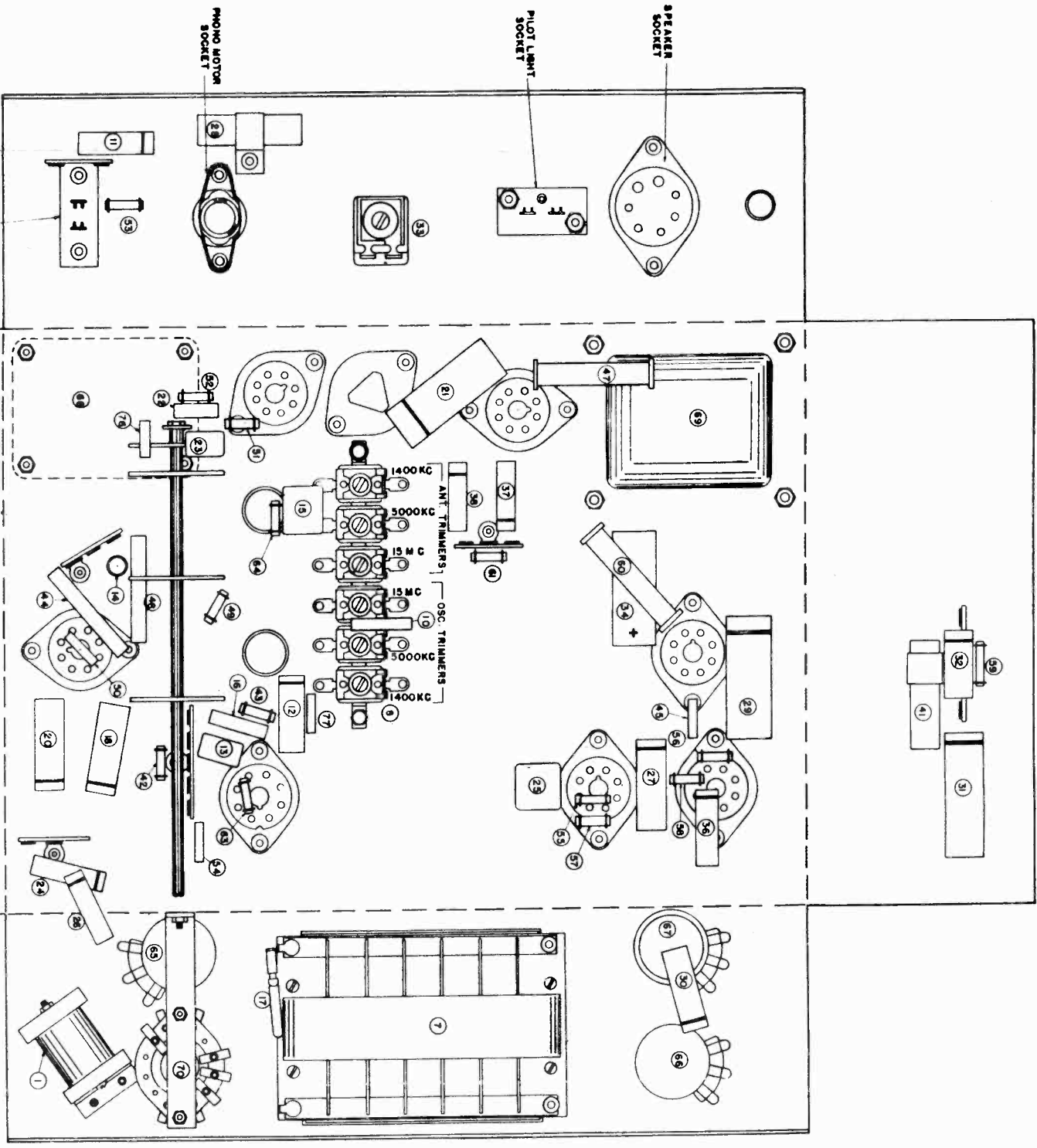
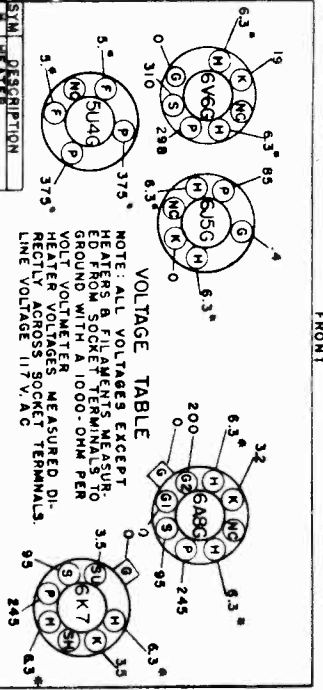
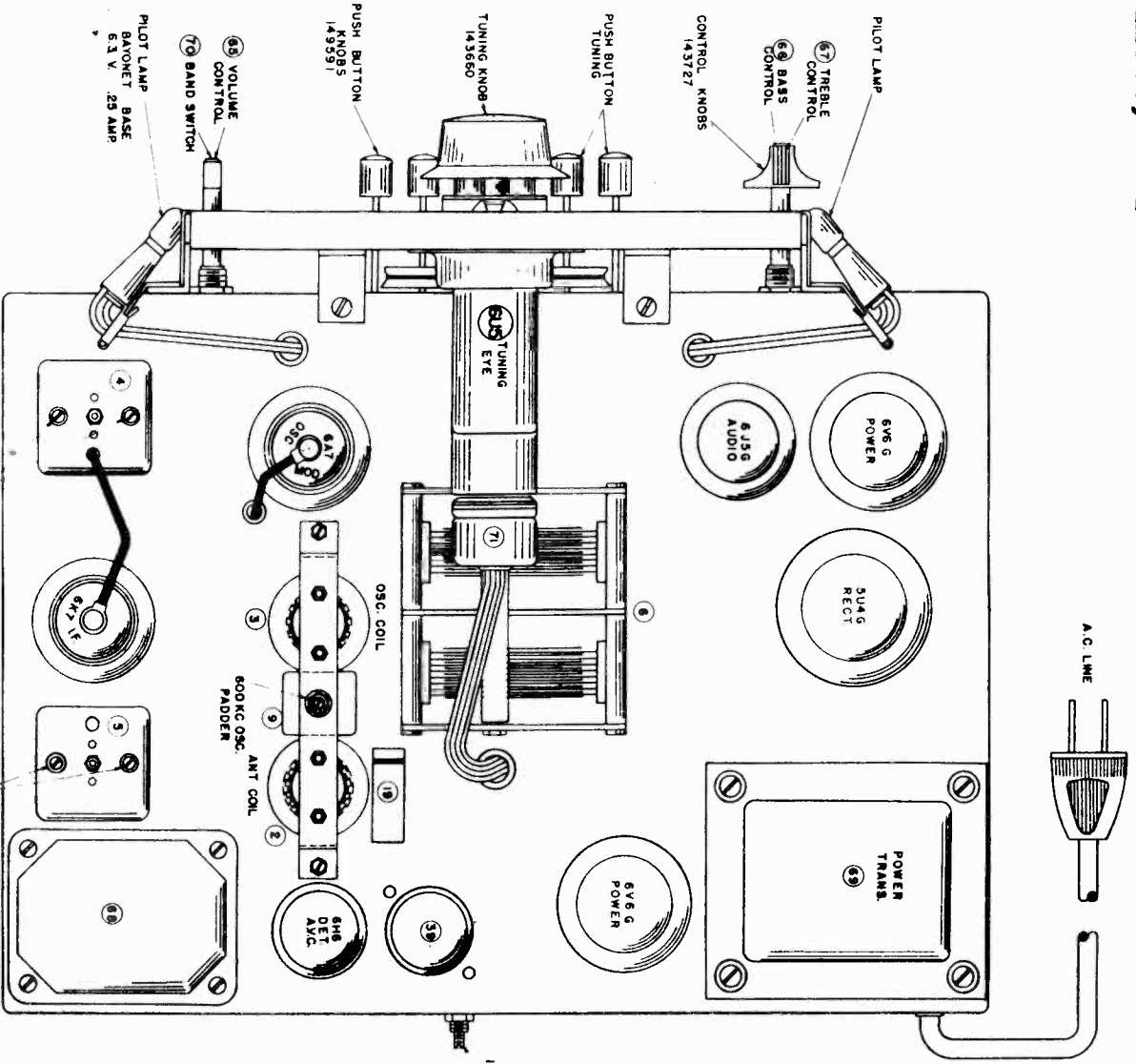
Primary voltage.....117 V. AC; Intermediate frequency.....455 KC;
 Power consumption.....100 watts; Tuning frequency range 535 - 1730 KC;
 Power output.....12 watts; Speaker: 1.7 - 5.8 MC;
 5.65 - 18.3 MC;
 Field Coil.....1000 ohms; Type Circuit: Superheterodyne with three
 Transformer.....8000 ohms; tuning ranges, treble and bass controls,
 A.V.C., bass compensation in volume con-
 trol for phonograph pickup.

**MAGNAVOX RADIO
CR-121
CHASSIS**

CR-121 -- Used in AC Hepplewhite Manual combination.
 Used in AC Berkeley combination.

CHASSIS CR121
Voltage, Socket
Trimmers, Chassis

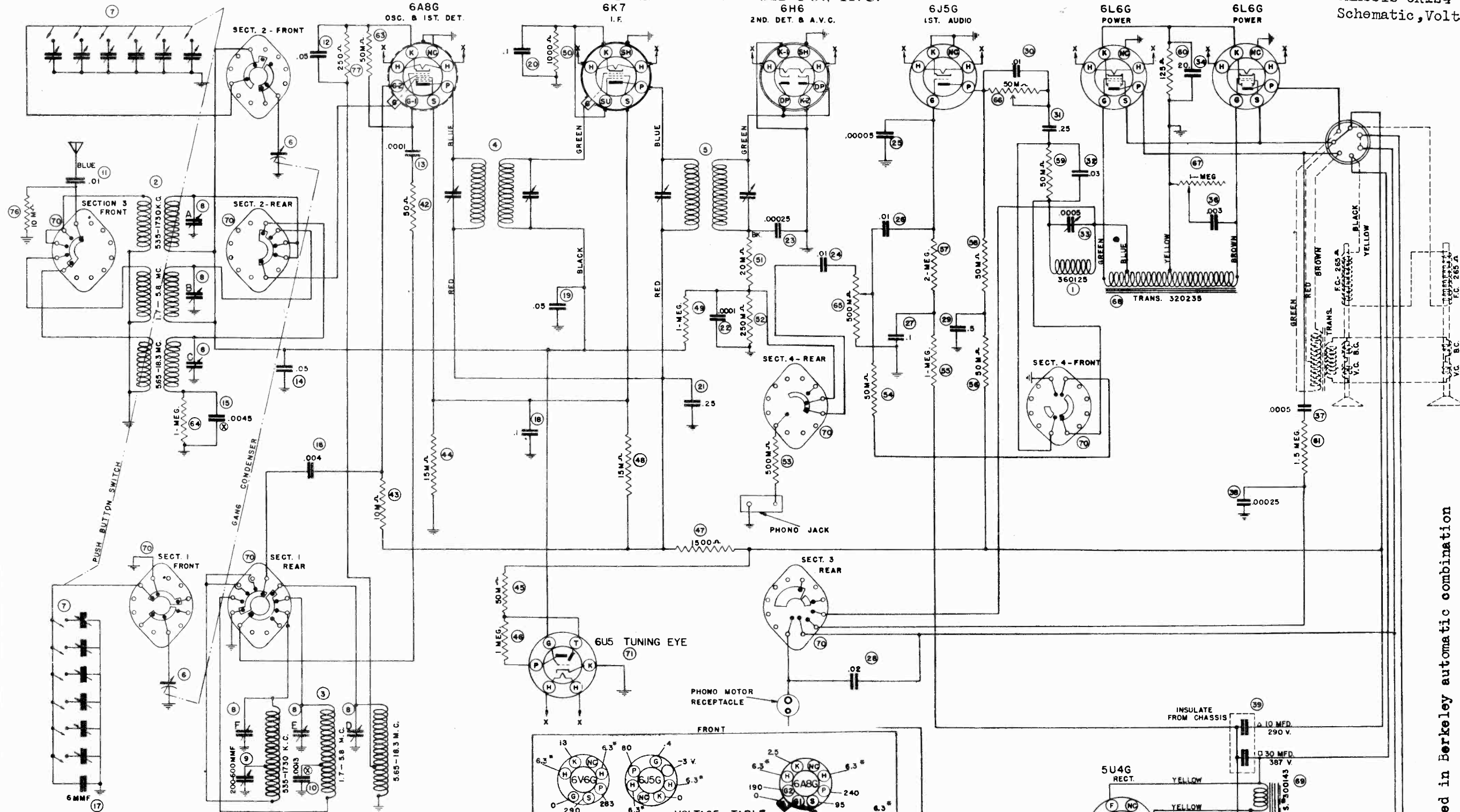
THE MAGNAVOX CO., INC.



It is important that EXACT replacement parts be used when necessary and these parts must be located in exactly the same way that the original part was located and connected. This applies particularly to ground points.

THE MAGNAVOX CO., INC.

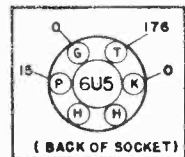
CHASSIS CR124
Schematic, Voltage



MAGNAVOX RADIO CHASSIS CR-124

- 1.— I. F. - 455 K.C.
- 2.— NUMBERS SHOWN RELATIVE TO PARTS ARE PART NUMBERS.
- 3.— NUMBERS SHOWN IN CIRCLES ARE ILLUSTRATION NUMBERS.
- 4.— ⊕ INDICATES CAPACITY TOLERANCE ±5%
- 5.— BAND SWITCH *163601 VIEWED FROM FRONT— (5.65-18.3 MC BAND) COUNTER-CLOCKWISE POSITION SHOWN.

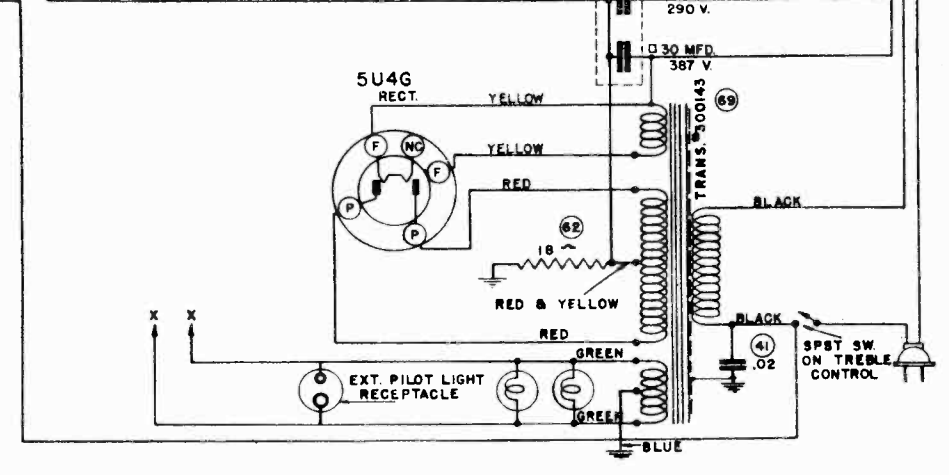
FOR ALIGNMENT
SEE INDEX



VOLTAGE TABLE

NOTE: ALL VOLTAGES EXCEPT HEATERS & FILAMENTS MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000-OHM PER VOLT VOLTMETER. HEATER VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS. LINE VOLTAGE 117 V. A.C.

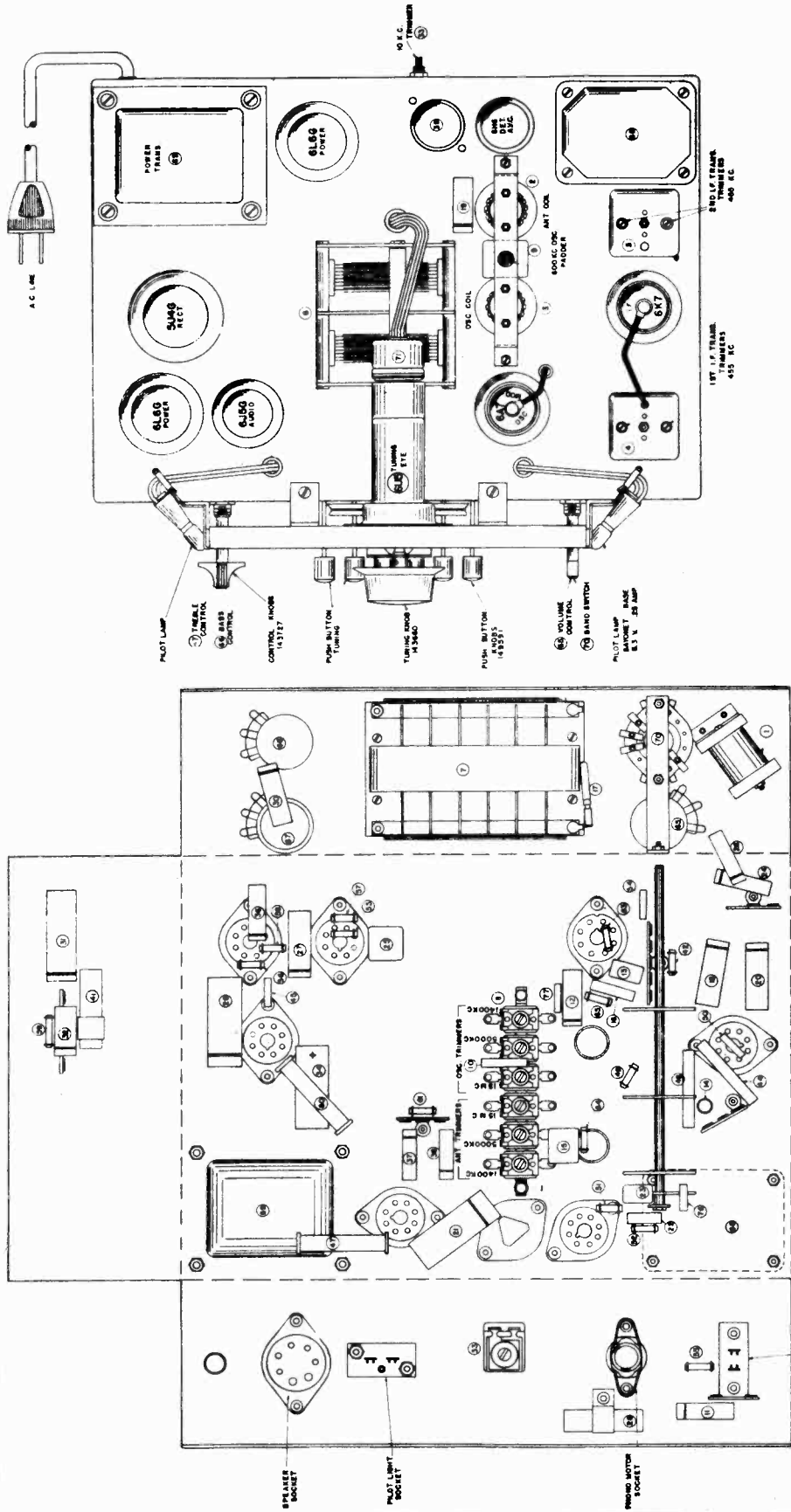
SYM.	DESCRIPTION	VOLTS
H	HEATER	
F	FILAMENT	
G	CONTROL GRID	
P	PLATE	
K	KATHODE	
S	SCREEN GRID	
T	TARGET	
G1	OSC. GRID	
G2	ANODE GRID	
DP	DIODE PLATE	
SH	SHIELD	
NC	NO CONNECTION	
A.C.	A.C. VOLTAGE	
SU	SUPPRESSOR	



CR-124 -- Used in Berkeley automatic combination

THE MAGNAVOX CO., INC.

CHASSIS CR124
Socket, Trimmers
Chassis



- Primary voltage.....117 V. AC;
- Power consumption.....165 watts;
- Power output..... 17 watts;
- Circuit: Superheterodyne with three tuning ranges, treble and bass controls
- A.V.C., bass compensation in volume control for phonograph pickup.
- Speaker (302);
- Field Coil.....250 ohms ;
- Transformer.....10M ohms ;
- Speaker (12C131);
- Field Coil.....250 ohms ;
- Transformer.....None

ALIGNMENT PROCEDURE

It is absolutely necessary that an accurately calibrated test oscillator with some type of output measuring device be used when aligning the receiver. TUNING FREQUENCY RANGE: 535 - 1730 KC; 1.7 - 5.8 and 5.65 - 18.3 MC.

FOLLOW ALIGNMENT PROCEDURE OF MAGNAVOX CHASSIS CR-106.

10 K.C. FILTER ADJUSTMENT

With the tone control set for maximum treble response, tune the receiver to a point between two stations of about the same signal strength on adjacent channels. If a 10,000 cycle heterodyne is heard as the beat note between the two carriers, it may be eliminated by retuning the 10 KC output filter by means of the 10 KC trimmer condenser as the rear center of the chassis.

MODEL CR 117

ALIGNING THE I.F. STAGES AT 455 KILOCYCLES

1. Connect the ground lead of the test oscillator to the chassis or radio ground lead. Connect the other lead of the test oscillator to the grid cap of the 6A7 tube through a .00025 mfd. series condenser. DO NOT REMOVE THE GRID CLIP.
2. Set the test oscillator to EXACTLY 455 kilocycles and turn the receiver volume to maximum setting.
3. Peak each of the second I.F. transformer trimmer condensers.
4. Peak each of the first I.F. transformer trimmer condensers.

To insure most accurate trimmer setting, repeat the above adjustment several times, always using the lowest possible test oscillator output consistent with readable output meter scale deflection.

ALIGNING THE 540-1720 KILOCYCLE BAND

1. Remove the test oscillator lead from the grid of the 6A7 tube and attach it to the receiver antenna lead (blue) through a .00025 mfd. series condenser.
2. Check tuning dial adjustment by turning the gang condenser until plates are completely meshed, at which point the dial pointer must be exactly even with the last line at the low frequency end of the dial calibration.
3. Set the receiver and test oscillator frequency to EXACTLY 1700 kilocycles.
4. Adjust the oscillator trimmer "7B" Fig. 2, for maximum output as indicated on the output meter.
5. Set the receiver and test oscillator frequency to EXACTLY 1400 kilocycles.
6. Adjust the antenna trimmer "7A" Fig. 2, for maximum output, as indicated on the output meter.
7. Now set the receiver and test oscillator frequency to 600 kilocycles, and adjust the oscillator paddor condenser "11" Fig. 2, accessible from the top of the chassis, for maximum output.

ALIGNING THE 2.3-6.3 MEGACYCLE BAND

1. Substitute a 400 ohm resistor for the .00025 mfd. condenser in series with the antenna lead.
2. Adjust the band selector switch for short-wave band and tune the receiver and test oscillator frequency to EXACTLY 6.3 megacycles.
3. Now adjust the 6.3 megacycle oscillator trimmer "10" Fig. 2, for maximum deflection on the output meter.
4. Set the receiver and test oscillator frequency to EXACTLY 6 megacycles, and adjust the 6 MC antenna trimmer "9" Fig. 2, for maximum deflection on the output meter.

THE MAGNAVOX CO., INC.

CHASSIS CR117
CHASSIS CR123, CR128
Alignment

MODELS CR 125, CR 128

ALIGNING THE I.F. AT 455 KILOCYCLES

1. Connect the ground lead of the test oscillator to the chassis or radio ground lead. Connect the other lead of the test oscillator to the grid of the 6K8 tube through a .00025 mfd. series condenser. DO NOT REMOVE THE GRID CLIP.
2. Set the test oscillator to EXACTLY 455 kilocycles and turn the receiver volume to maximum setting.
3. Peak each of the second I.F. transformer trimmer condensers.
4. Peak each of the first I.F. transformer trimmer condensers.

ALIGNING THE 535-1730 KILOCYCLE BAND

1. Remove the test oscillator lead from the grid of the 6K8 tube and connect it to the receiver antenna lead (blue) through a .00025 mfd. series condenser.
2. Check the tuning dial adjustment by turning the gang condenser until the plates are completely meshed, at which point the dial pointer must be exactly even with the last line at the low frequency end of the dial calibration.
3. Adjust the band selector switch for operation on the 535-1730 kilocycle (broadcast) band.
4. Set the test oscillator frequency and receiver dial to EXACTLY 1400 kilocycles. Adjust the 1400 kilocycle oscillator trimmer and the antenna trimmer to bring in the 1400 kilocycle test oscillator signal to maximum output.
5. Set the test oscillator and receiver frequency to 600 kilocycles. While rocking the gang condenser slightly to the right and to the left, adjust the 600 kilocycle oscillator paddor for maximum output.

ALIGNING THE 5.7-18.1 MEGACYCLE BAND

1. Substitute a 400 ohm resistor for the .00025 Mfd. condenser in series with the antenna lead.
 2. Adjust the band selector switch to the 5.7-18.1 megacycle (foreign) band, tune the receiver and test oscillator frequency to EXACTLY 15 megacycles and adjust the 15 megacycle oscillator trimmer and antenna trimmer for maximum output as indicated on the output meter.
- While adjusting the oscillator trimmer, two peaks may be noticed, in which case care must be taken so that the proper peak is used for aligning the receiver at 15 megacycles. Always back off the trimmer to minimum capacity, then screw down the trimmer until the second peak (if more than one is noticed) which is the correct one, is tuned in.

10 K.C. FILTER ADJUSTMENT

With the tone control set for maximum treble response, tune the receiver to a point between two stations of about the same signal strength on adjacent channels. If a 10,000 cycle heterodyne is heard as the beat note between the two carriers, it may be eliminated by retuning the 10 KC output filter by means of the 10 KC trimmer condenser at the rear center of the chassis.

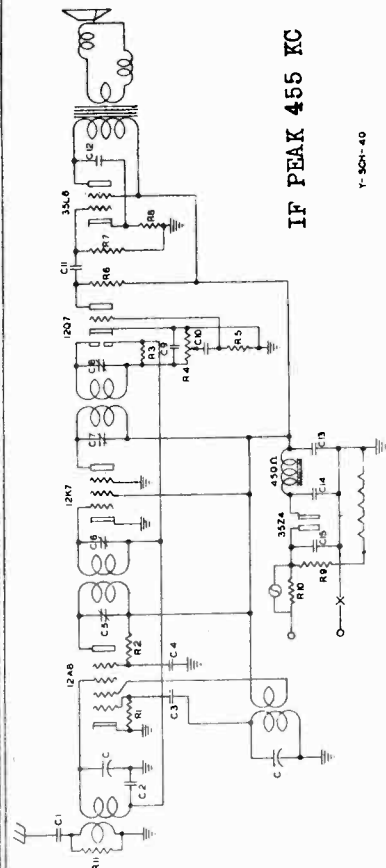
Schematics, Socket Trimmers, Alignment

MAJESTIC RADIO & TELEV. CORP.

MODELS 1A59, 1A59B, 1A59C

1B59, 1B59C

MODELS 149I, 149N, 149W



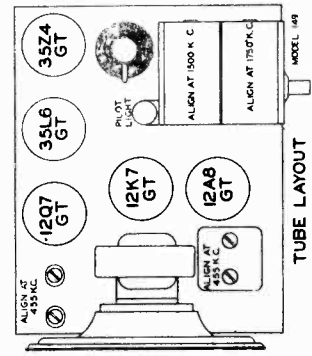
IF PEAK 455 KC

Y-304-40

PARTS LIST FOR MODELS 149-W, 149-I, 149-N

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
C1	C15754	Tubular cond. .01 mfd. 400V	R1	R-15511	Carbon resistor 50K 1/4W 20%
C2	C-15756	Tubular cond. .05 mfd. 200V	R2	R-15516	Carbon resistor 15K 1/4W 20%
C3	C-15752	Mica cond. 50 mmf. 30%	R3	R-15500	Carbon resistor 2 meg. 1/4W 20%
C4	CM-30	Mica cond. 250 mmf. 30%	R4	Y-VC-29	Volume Control
C5	C-15774	Tubular cond. .002 mfd. 400V	R5	R-79	Carbon resistor 1 meg. 1/4W 20%
C6	C-15760	Tubular cond. .02 mfd. 400V	R6	R-15520	Carbon resistor 500K 1/4W 20%
C7	Y-CT-18	Trimmer cond. 1st I. F. Trans.	R7	R-80	Carbon res. 110 ohm 1/4W 20%
C8	Y-CT-23	Trimmer cond. 2nd I. F. Trans.	R8	R-86	Carbon res. 70 ohm 1/4W 20%
C9	Y-CE-50	Electr. 16 mfd. 24 mfd. 150V	R9	R-15531	Carbon res. 10K ohm 1/4W 20%
C10			R10	R-85	Carbon res. 35 ohm 1/4W 20%
C11					Auto. Life C. Lenda #40-1.5 amp.
C12					Aligner C. il
C13					Y-CR-16
C14					Y-CR-17
C15					Y-CI-31
C16					Y-CI-32
					2nd I. F. Transformer
					Y-SP-37
					Speaker
					Y-CV-27
					Variable Condenser

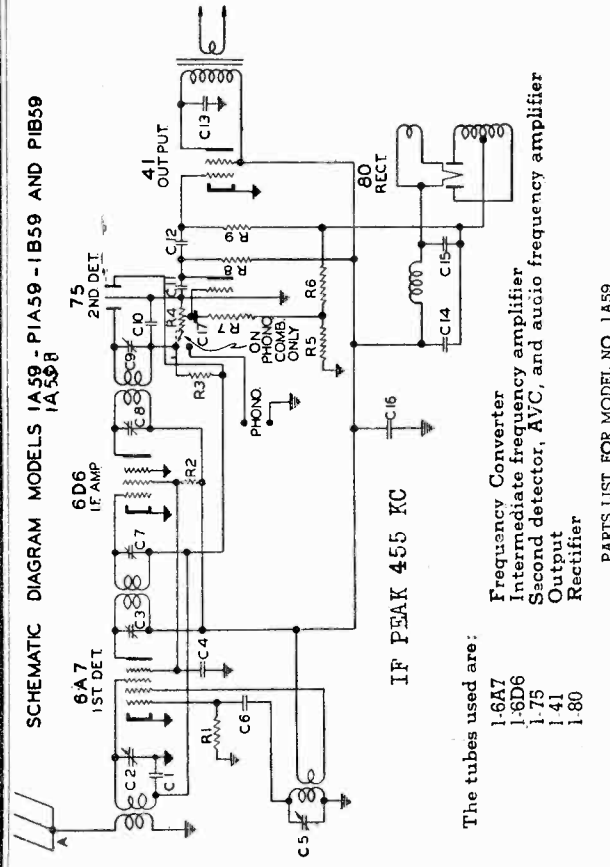
TUBE LOCATION CHART



This receiver is a 5-tube, super-heterodyne using two double purpose tubes. It operates on either AC or DC current, of 105 to 125 volts. It receives stations lying between 535 and 1750 Kilocycles. This includes standard broadcast and most police stations.

The tubes used are:

- 1-12A8GT Combined oscillator and first detector
- 1-12K7GT Intermediate frequency amplifier
- 1-12Q7GT Second detector, automatic volume control, gas gate, and audio amplifier
- 1-35L6GT Beam power output
- 1-35Z4GT Rectifier



IF PEAK 455 KC

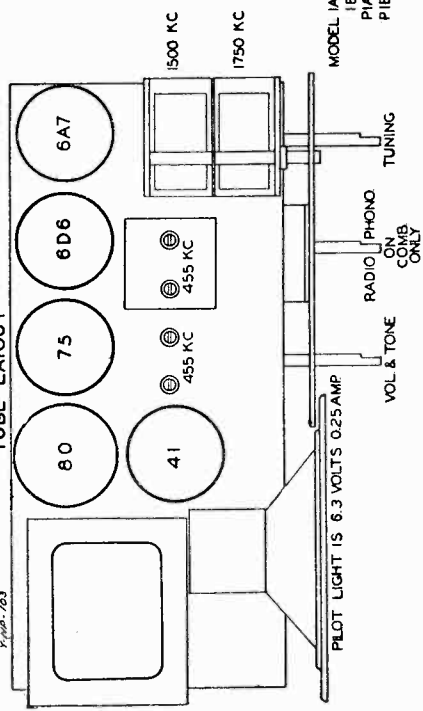
The tubes used are:

- 1-6A7 Frequency Converter
- 1-6D6 Intermediate frequency amplifier
- 1-75 Second detector, AVC, and audio frequency amplifier
- 1-41 Output
- 1-80 Rectifier

PARTS LIST FOR MODEL NO. 1A59

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
C1	C-15752	.05 mfd. 200V	R1	R-15511	50K 1/4W 20%
C2	C-15756	.05 mfd. 400V	R2	R-15516	25K 1/4W 20%
C3	C-15754	.05 mfd. 400V	R3	R-82	250 ohms 1/4W 20%
C4	C-15752	.05 mfd. 400V	R4	R-27	250 ohms 1/4W 20%
C5	Y-VC-30	Volume Control	R5	R-15517	1 meg. 1/4W 20%
C6	Y-CT-1	1st I. F. Trimmer	R6	R-15520	500K 1/4W 20%
C7	Y-CT-23	2nd I. F. Trimmer	R7	R-62	400K 1/4W 20%
C8	CM-30	250 mmf. Mica	R8	Y-VC-30	Volume Control
C9	CM-31	100 mmf. Mica	R9		
C10	CM-29	50 mmf. Mica	R10		
C11	Y-CE-51	8 mfd. 300V Electrolytic			
C12					
C13					
C14					
C15					

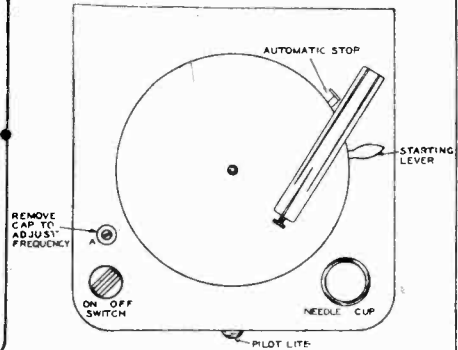
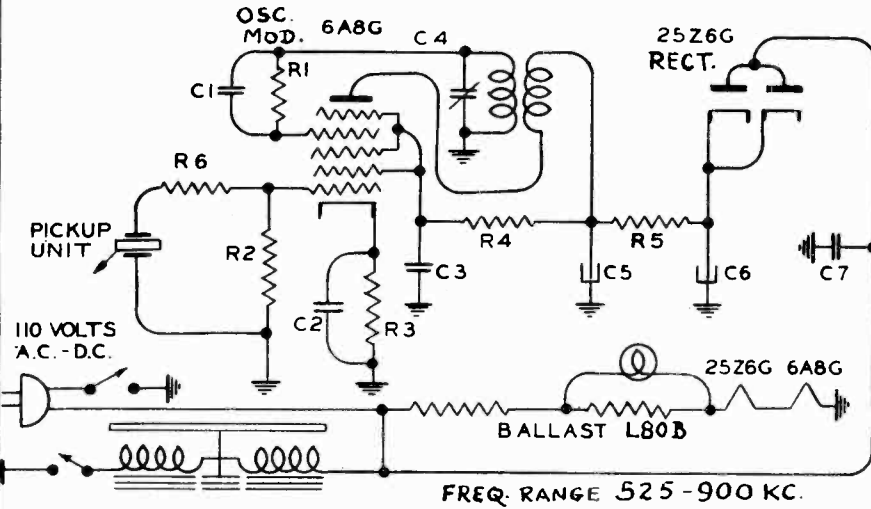
TUBE LOCATION CHART



MODEL 3PW Record Player Schematic, Socket

MAJESTIC RADIO & TELEV CORP.

MODEL 651 Schematic, Socket Trimmers, Alignment

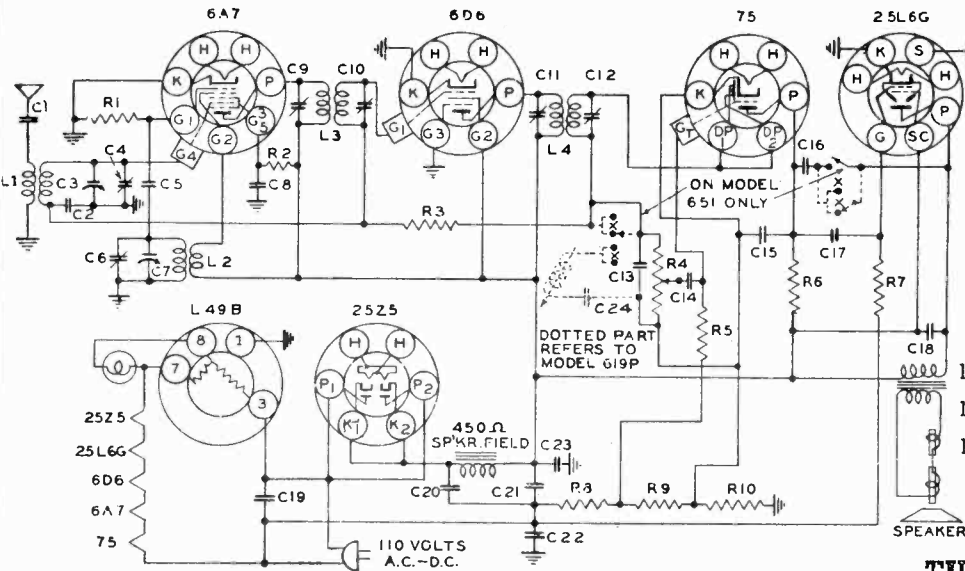
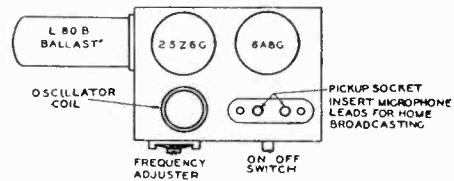


RECORD PLAYER MODEL 3-PW

REPLACEMENT PARTS LIST FOR MODEL 3-PW

Schematic Location	Part No.	Description
R4,R5	R-2	Carbon resistor 5K 1/4W20%
R1	R-65	Carbon resistor 10K 1/4W20%
R3	R-15542	Carbon resistor 1K 1/4W20%
R6	R-15512	Carbon resistor 250K 1/4W20%
R2	R-15515	Carbon resistor 100K 1/4W20%
C5,C6	CE-47	Elect. cond. 8.16 mfd. 150V
C4	Y-CT-6	Adj. polder cond.
C7	C-15757	Paper cond. .1 mfd. 400V
C2,C3	C-15761	Paper cond. .1 mfd. 200V
C1	CM-15929	Mica cond. 50 mmi. 20%

TUBE LOCATION CHART



The tubes used are:

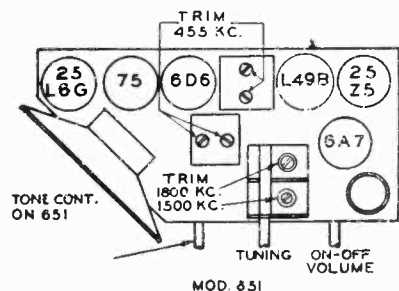
- 1-6A7 Frequency Converter
- 1-6D6 Intermediate frequency amplifier
- 1-75 Second detector, AVC, and audio driver
- 1-25L6G Beam power output
- 1-25Z5 Rectifier
- 1-L49B Plug-in ballast resistor

IF PEAK 455 KC

REPLACEMENT PARTS LIST FOR MODEL 651

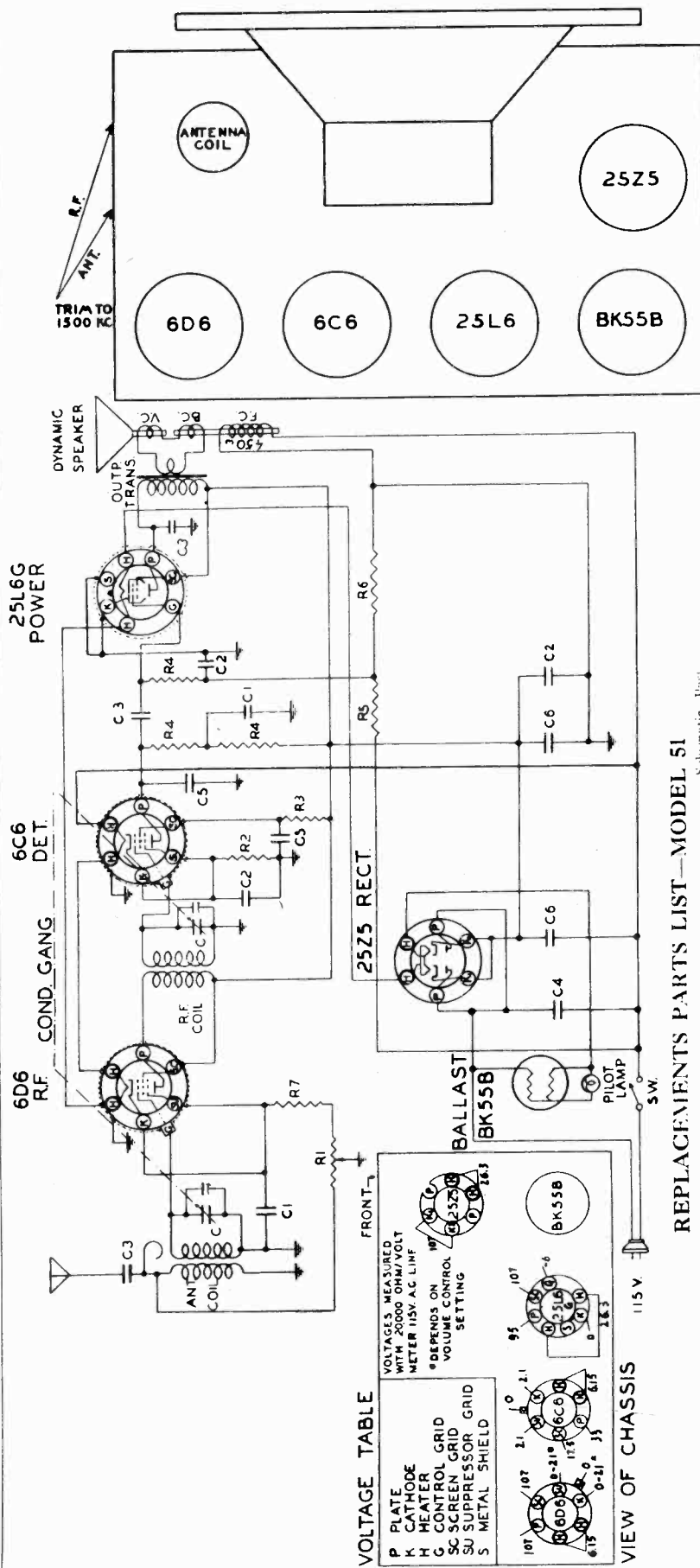
Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
C1,C14,C17	C-15754	Tubular cond. .01 mfd 400V	R1	R-15511	Carbon resistor 50K 1/4W20%
C2,C8,C23	C-15752	Tubular cond. .05 mfd, 200V	R2	R-15516	Carbon resistor 15K 1/4W20%
C18	C-15760	Tubular cond. .02 mfd. 400V	R3	R-15500	Carbon resistor 2meg. 1/4W20%
C19	C-15757	Tubular cond. .1 mfd. 400V	R5	R-15517	Carbon resistor 1 Meg 1/4W20%
C24	C-15750	Tubular cond. .25 mfd. 400V	R6	R-15512	Carbon resistor 250K 1/4W20%
C5	CM-15929	Mica cond. 50 mmi.	R7	R-15528	Carbon resistor 400K 1/4W20%
C15	CM-15928	Mica cond 250 mmi.	R8		Candehn 50 ohms
C13,C16	CM-15918	Mica cond. 100 mmi.	R9	Y-RC-8	Candehn 20 ohms
C3	Y-CV-22	Variable cond. (Signal Section)	R10		Candehn 50 ohms
C7		Variable cond. (Osc. Section)	R4	Y-VC-21	Volume control 500K ohms
C4		Trimmer cond. (Signal Section)	L1	Y-CS-33	Antenna Coil
C6		Trimmer cond. (Osc. Section)	L2	Y-CS-46	Oscillator Coil
C9,C10	Y-CT-1	Trimmer cond. 1st I. F. Trans.	L3	Y-CI-15	1st I. F. Transformer
C11,C12	Y-CT-1	Trimmer cond. 2nd I. F. Trans.	L4	Y-CI-28	2nd I. F. Transformer
C20		lectr. cond. 40 mfd 150WV			
C21	Y-CE-46	ectr. cond. 16 mfd. 150WV			
C22		Electr cond. 20 mfd 25WV			

TUBE LOCATION CHART



MAJESTIC RADIO & TELEV. CORP.

MODELS 51B, 51P, 51W
 Chassis 151
 Schematic, Voltage
 Socket, Trimmers



VOLTAGE TABLE

VOLTAGES MEASURED WITH 20000 OHM/VOLT METER 115V. AC LINE *DEPENDS ON VOLUME CONTROL SETTING

P	PLATE	107
K	CATHODE	0-15
H	HEATER	2.1
G	CONTROL GRID	11.5
SC	SCREEN GRID	107
SU	SUPPRESSOR GRID	0-15
S	METAL SHIELD	0-15

REPLACEMENTS PARTS LIST—MODEL 51

Schematic Part Location	Description	Schematic Part Location	Description
C	Condenser Variable Gang	R6	Resistor Carbon 450 Ohms 1/4W 20%
C1	Cond. Tub. .1 MFD 200 V	R7	Resistor Carbon 450 Ohms 1/4W 20%
C2	Cond. Tub. .25 MFD 200 V	Y-CE-1	Volume Control 50,000 Ohms
C3	Cond. Tub. .01 MFD 400 V	Y-CR-2	Resistor Carbon 3 Megohms 1/4W 20%
C4	Cond. Tub. .1 MFD 400 V	Y-PA-10	Pilot Light Indicator
C5	Cond. Mica 1000 M.M.F. 20%		
Y-CV-2	Condenser Variable Gang		
R1	Resistor Carbon 20 MFD 175 V		
R2	Resistor Carbon 50,000 Ohms		
R3	Resistor Carbon 3 Megohms 1/4W 20%		
R4	Resistor Carbon 250,000 Ohms 1/4W 20%		
R5	Resistor Carbon 400,000 Ohms 1/4W 20%		

TUBES

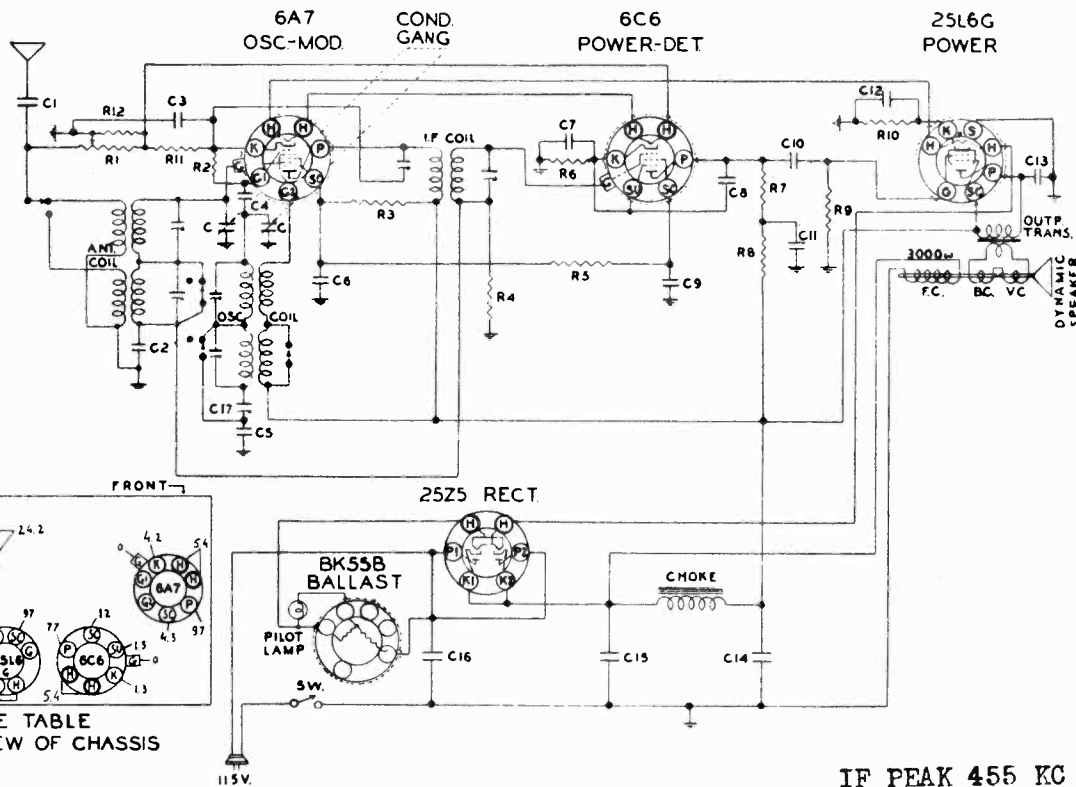
The following tube numbers are employed:

Tube	Purpose	Kind
6D6	Radio frequency amplifier	GLASS
6C6	Power detector	GLASS
25L6G	Beam Power Output	GLASS
25Z5	Rectifier	GLASS
YTU9 (BK55B)	Line Ballast Tube	METAL

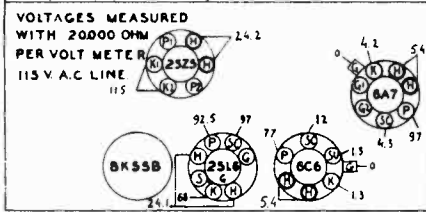
This receiver is a 5 tube AC-DC compact type radio receiver employing tuned radio frequency circuit. The tuning range covers all frequencies between 528 kilocycles and 1750 kilocycles (171 meters to 565 meters). These frequencies cover the standard broadcast band and in addition police calls and some amateur transmitters. This receiver is designed to operate on 50-60 cycle AC or DC at voltages between 105 and 130. These are standard voltages used practically all over the United States and in some foreign countries. The audio power output of the receiver is a maximum of 2 watts. The receiver should not be connected to any power line having higher voltage than mentioned above. On DC operation reverse plug if receiver does not commence operating one minute after switch is turned on. On AC operation reversal of the plug in some cases may reduce hum.

MODELS 55B, 55P, 55W
 Chassis 155
 Schematic, Socket
 Trimmers, Alignment

MAJESTIC RADIO & TELEV. CORP.



SYM.	DESCRIPTION
P	PLATE
K	CATHODE
H	HEATER
G	CONTROL GRID
G1	OSCILLATOR GRID
G2	ANODE GRID
SC	SCREEN GRID
SU	SUPPRESSOR GRID
S	METAL SHIELD

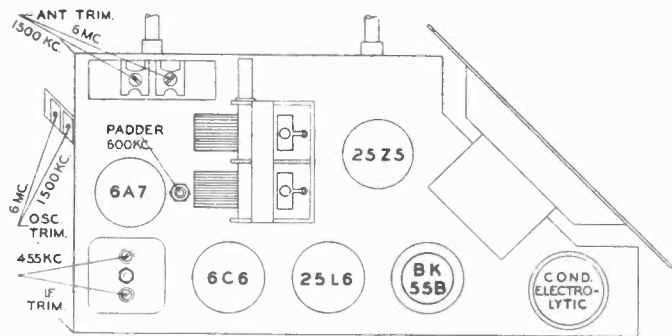


VOLTAGE TABLE
 BOTTOM VIEW OF CHASSIS

IF PEAK 455 KC

REPLACEMENTS PARTS LIST—MODEL 55

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
C	Y-CV-3	Condenser Variable Gang	C12		Condenser Electrolytic Dry 12 Mfd. 25 V.
C1, C3, C9, C10	C-15754	Condenser Tubular .01 Mfd. 400 V.	C14	Y-CE-4	Condenser Electrolytic Dry 16 Mfd. 150 V.
C2, C6	C-15752	Condenser Tubular .05 Mfd. 200 V.	C15		Condenser Electrolytic Dry 35 Mfd. 150 V.
C7	C-15751	Condenser Tubular .25 Mfd. 200 V.	C17	Y-CP-16472	Condenser Padder
C11	C-15761	Condenser Tubular .1 Mfd. 200 V.	Y-VC-2		Volume Control 50,000 Ohms
C13	C-4	Condenser Tubular .025 Mfd. 400 V.	R2, R3	R-15511	Resistor Carbon 50,000 Ohms 1/4 W. 20%
C16	C-15757	Condenser Tubular .1 Mfd. 400 V.	R4	R-15559	Resistor Carbon 3 Meg. 1/4 W. 20%
C4	CM-15929	Condenser Mica 50 Mmf. —20%	R5	R-7	Resistor Carbon 1 1/2 Meg. 1/4 W. 20%
C5	CM-15942	Condenser Mica 1710 Mmf. 5%	R6	R-11	Resistor Carbon 18,000 Ohms 1/4 W. 10%
C8	CM-15928	Condenser Mica 250 Mmf. 20%	R7	R-15517	Resistor Carbon 1 Meg. 1/4 W. 20%
			R8	R-15512	Resistor Carbon 1/4 Meg. 1/4 W. 20%
			R9	R-15520	Resistor Carbon 1/2 Meg. 1/4 W. 20%



CHASSIS LAYOUT
 MODEL 55.

Schematic Part Location	No.	Description
R10	R-12	Res. Car. 170 Ohms 1/2 W. 10%
R11	R-22	Res. Car. 450 Ohms 1/4 W. 20%
R12	R-15564	Res. Car. 1,500 Ohms 1/4 W. 20%
	Y-CK-4	Filter Choke
	Y-CS-1	Antenna Coil
	Y-CS-8	Oscillator Coil
	Y-C1-11	I. F. Coil
	Y-SP-4	Dynamic Speaker 5 1/2"
	SPA-2	Speaker V. C. and Cone
	SPA-3	Speaker Transformer
	P-16885	Pilot Lamp

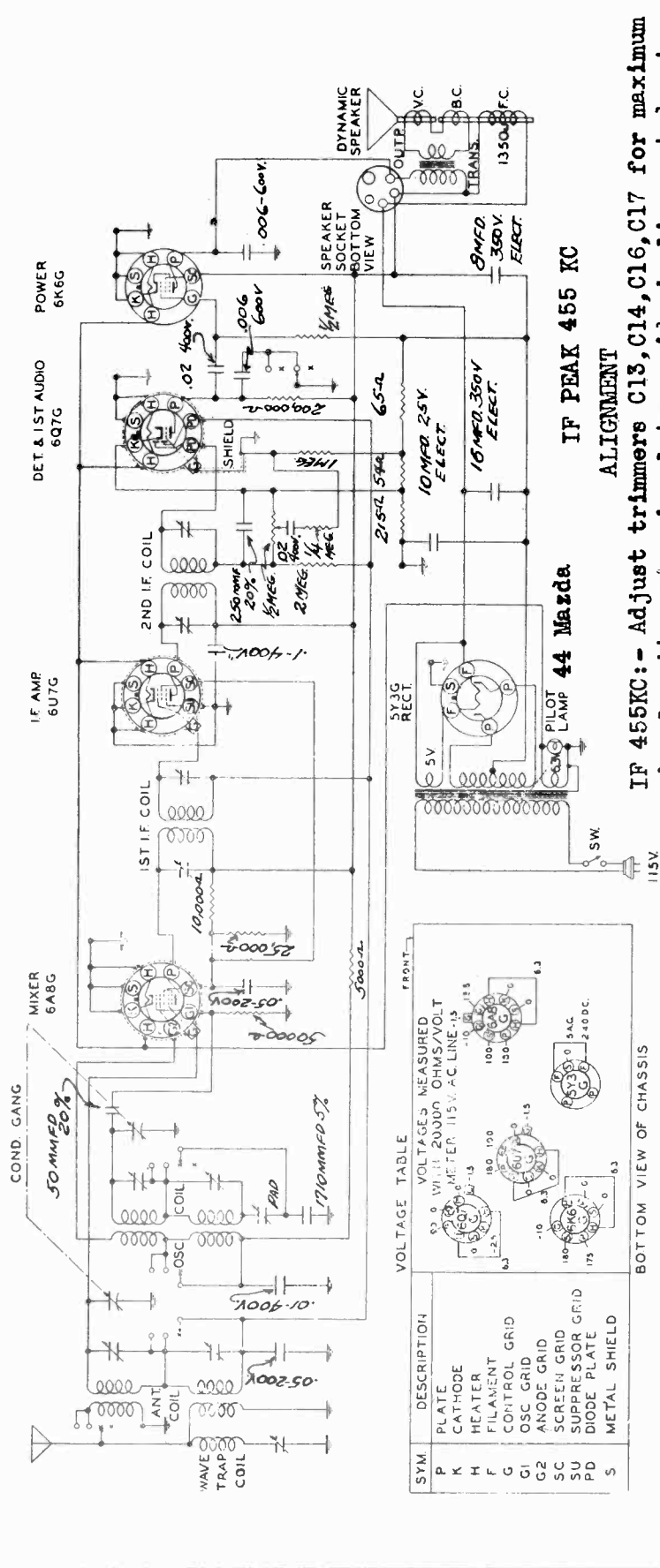
PRINTED IN U. S. A.

In a super-heterodyne it is very important when realigning the receiver, to use the same frequencies as are used at the factory. Alignment is best accomplished by using an output meter across the voice coil and aligning for maximum. The I. F. frequency is 455 K. C. The short wave must be aligned before the broadcast band. This is done at only one frequency, 6 megacycles. On the broadcast band the alignment frequencies are 1500 and 600 K. C. 1500 K. C. is the first to be aligned using the shunt trimmers. When aligning 600 K. C., adjust the series pad, rocking the gang condenser to assure proper alignment.

Socket, Trimmers Alignment

MAJESTIC RADIO & TELEV. CORP.

MODEL 56
Chassis 156
Schematic, Voltage



IF PEAK 455 KC

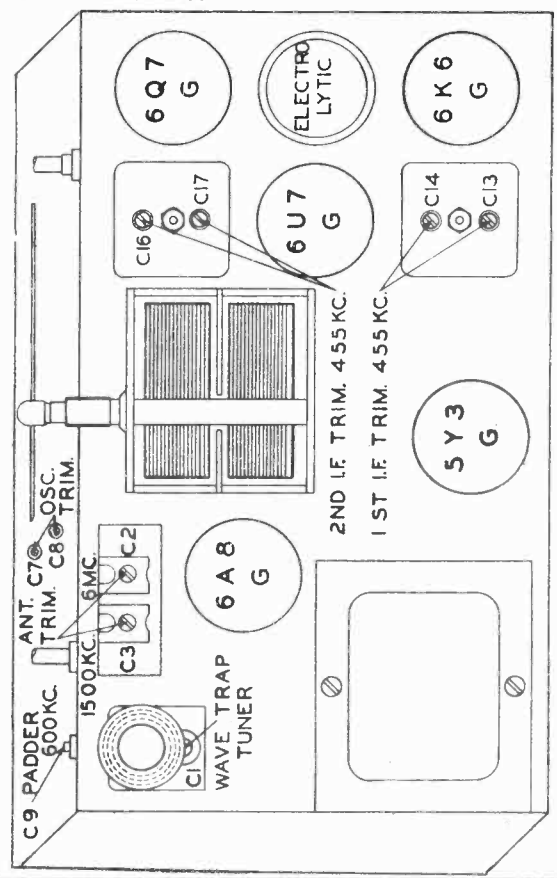
ALIGNMENT

IF 455KC:- Adjust trimmers C13, C14, C16, C17 for maximum signal; attenuate signal to avoid misalignment due to A.V.C.

SW BAND:- Ground signal gen. to chassis through .1 mf cond. Osc. at 7.2 MC through 400 ohm carbon resistor to Ant. lead (blue). Turn band selector clockwise to 3rd pos. from extreme left. Variable fully open; set C7 at minimum cap. tighten to signal. Osc. at 6 MC tune receiver to signal, adjust C2 to max. and adjust dial calibration. Check band at 4.25 and 2.40 MC.

BC BAND:- Band selector and tone control switch to extreme left. Apply 600 KC through 200 mmf cond to Ant. lead, dial at 600 KC; adj. C9 to max. signal. Osc. at 1750 KC; dial at 1750 KC; adj. C8 to max. sig. Signal at 1500KC, dial to signal, adj. C3 to max. sig. Osc. at 600 KC adjust C9 to max. sig. with variable. Osc at 1500 KC, tune to max. sig., readjust C3 to maximum signal.

WAVE TRAP:- Band sw. in BC position, dial below 650KC where no station is heard. Apply 455KC, Adj. C1 to min.



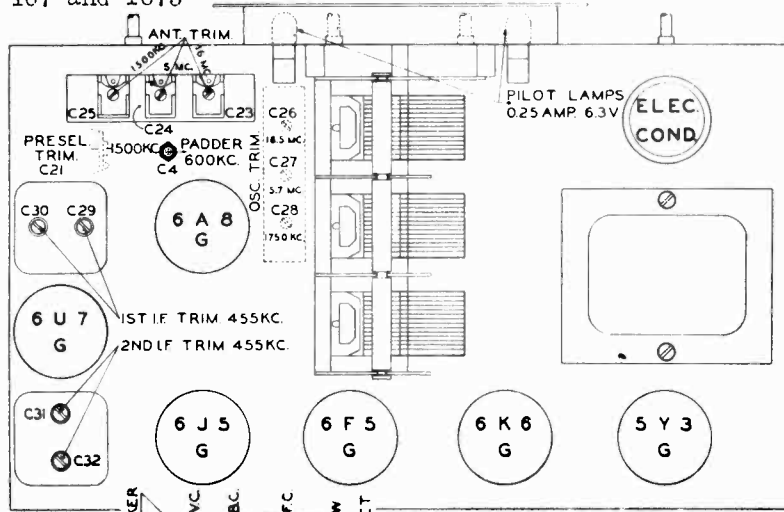
MODELS 67,68,670,671

672,673

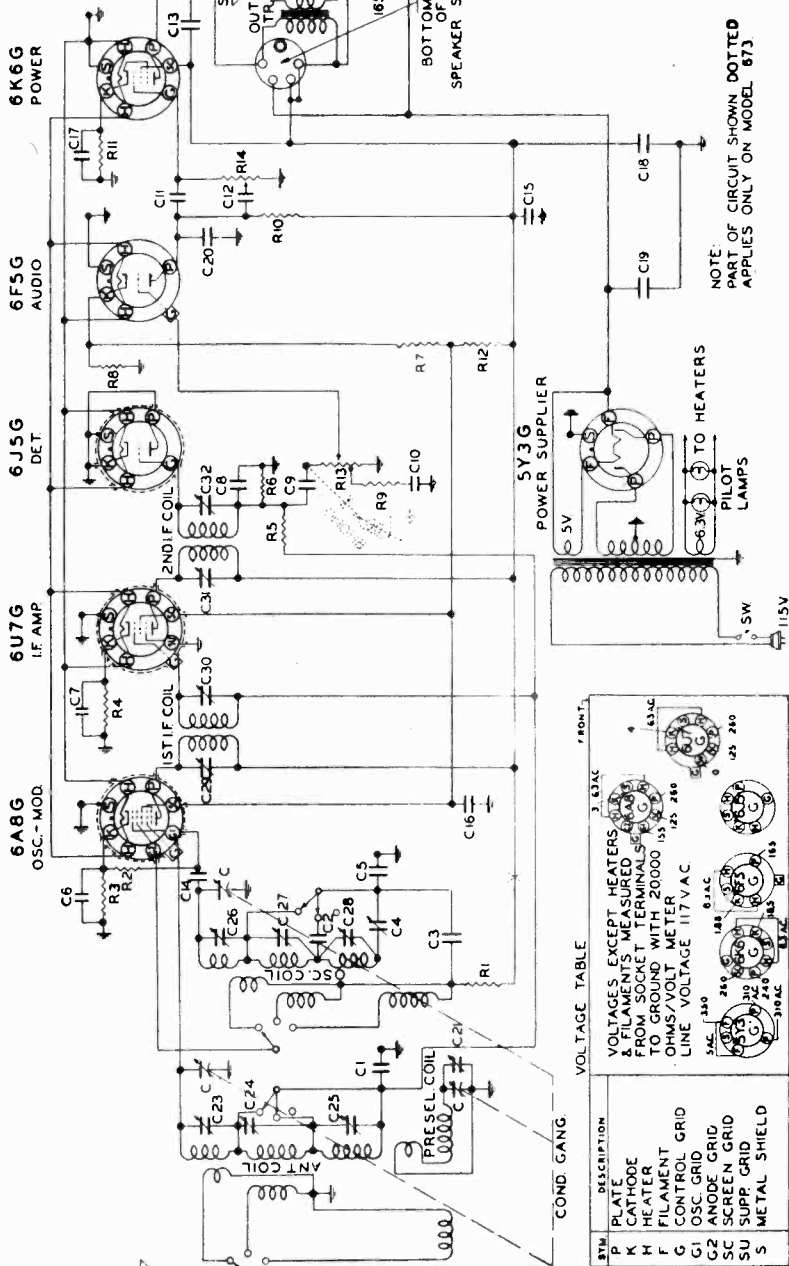
Chassis 167 and 1673

MAJESTIC RADIO & TELEV. CORP.

Schematic, Voltage
Socket, Trimmers
Alignment



CHASSIS LAYOUT



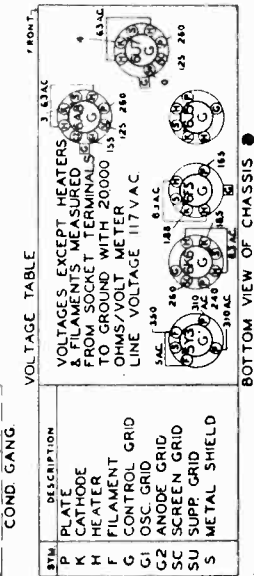
NOTE:
PART OF CIRCUIT SHOWN DOTTED
APPLIES ONLY ON MODEL 673

IF PEAK 455 KC

SHORT WAVE BAND

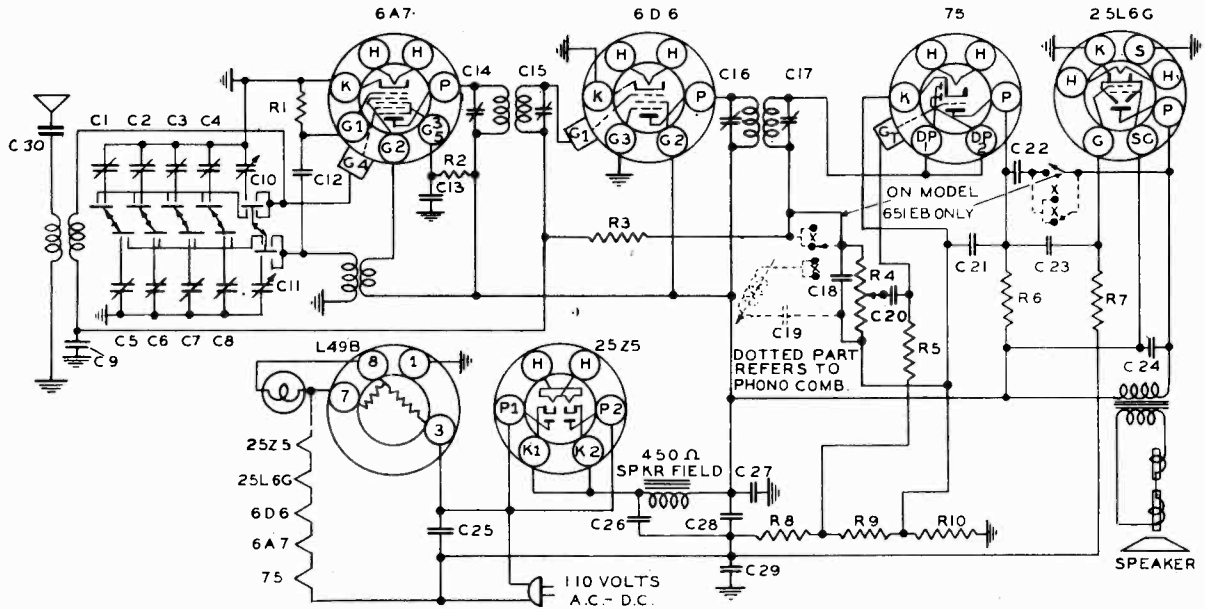
Rotate the wave band switch to full clock wise position. Connect high side of generator output to antenna lead through a 400 ohm dummy antenna. Completely disengage variable condenser. Apply 18.5 meg. signal. Unscrew trimmer C26 to a minimum capacity, slowly turn the screw so that the trimmer capacity increases until the signal is heard. Apply 16 meg. signal, rotate gang condenser until this signal is heard. Adjust C23 for maximum response. It may be found advisable to "rock" generator frequency back and forth through signal to offset detuning effect from inter action between input and oscillator circuits at high frequencies. Check alignment through medium of sensitivity at 11 meg. and 6

Correct alignment is extremely important. The receiver is properly aligned at the factory and should not be disturbed unless it is absolutely necessary. The procedure is as follows: Turn wave change switch to broadcast position (full counter clock wise) and rotate variable condenser until it is about 50% engaged. Apply a 455 KC signal to the grid of 6A8G mixer tube through a tubular condenser on the order of .1 MFD. Referring to chassis layout, adjust C30, C29, C31 and C32 for maximum signal using of course some sort of indicating device such as an AC volt meter or output meter across the voice coil of the speaker. It may be necessary to apply a very strong signal to "find" the signal until alignment is approached. It is advisable to maintain as low a signal input as conveniently possible in order to minimize the possibility of misalignment resulting from A.V.C. and overload effects. If a squeal is heard while tuning, rotate the gang condenser slightly and it should disappear. Naturally, the ground side of the generator should be connected to the chassis either directly or through the .1 MFD. condenser.



MAJESTIC RADIO & TELEV. CORP.

MODEL 651-EB
Schematic, Tuner



REPLACEMENT PARTS LIST—MODEL 651-EB

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
C20, C23, C30	C-15754	Tubular cond. .01 mfd. 400V	C14, C15	Y-CT-1	Trimmer cond. 1st I.F.	R1	R-15511	Carbon resistor 50K 1/4 W 20%
C24	C-15760	Tubular cond. .02 mfd. 400V	C16, C17	Y-CT-1	Trimmer cond. 2nd I.F.	R2	R-15516	Carbon resistor 15K 1/4 W 20%
C9, C13, C27	C-15752	Tubular cond. .05 mfd. 200V	C10, C11	Y-CV-24	Variable 2 gang condenser	R3	R-15500	Carbon resistor 2meg 1/4 W 20%
C25	C-15757	Tubular cond. .1 mfd. 400V	C26	Y-CE-46	{ Elect. cond. 40 mfd. 150WV	R5	R-15517	Carbon resistor 1meg 1/4 W 20%
C19	C-15750	Tubular cond. .25 mfd. 400V	C28	Y-CT-20	{ Elect. cond. 16 mfd. 150WV	R6	R-15512	Carbon resistor 250K 1/4 W 20%
C12	CM-15929	Mica cond. .50 mmf. Type "O"	C29		{ Elect. cond. 20 mfd. 25WV	R7	R-15528	Carbon resistor 400K 1/4 W 20%
C18, C22	CM-15918	Mica cond. 100 mmf. Type "O"	C1, C2, C3, C4	Y-CT-20	Trimmer cond. strip	R8		Candohm 50 ohms
C21	CM-15928	Mica cond. 250 mmf. Type "O"	C5, C6, C7, C8	Y-CT-20		R9	Y-RC-8	Candohm 20 ohms
						R10		Candohm 50 ohms
						R4	Y-VC-21	Volume control 500K

I.F. PEAK 455 KC.

The tubes used are:

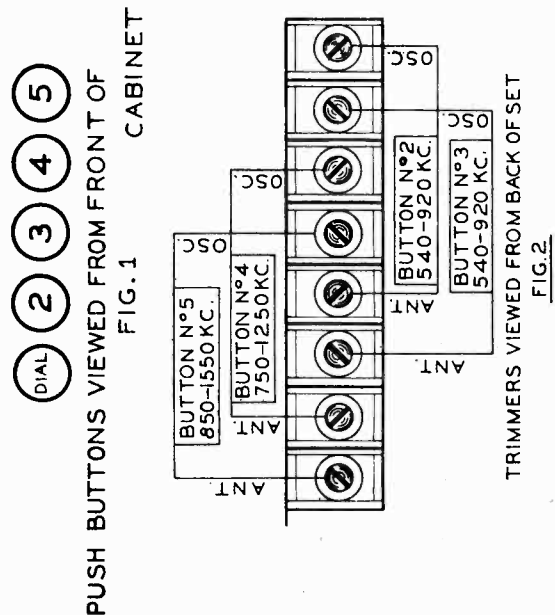
- 1-6A7 Frequency Converter
- 1-6D6 Intermediate frequency amplifier
- 1-75 Second detector, AVC, and audio driver
- 1-25L6G Beam power output
- 1-25Z5 Rectifier
- 1-L49B Plug-in ballast resistor

ADJUSTMENT OF PUSH BUTTONS

- 1—Determine which four stations you desire to set up on the push buttons.
- 2—Determine the frequency of these stations.
- 3—Determine the proper push button on which these stations should be set up from the following table.

- | | |
|-------|--|
| No. 1 | Push button is for manual tuning. |
| No. 2 | " " is for stations lying between 540 and 920 KC's. |
| No. 3 | " " is for stations lying between 540 and 920 KC's. |
| No. 4 | " " is for stations lying between 750 and 1200 KC's. |
| No. 5 | " " is for stations lying between 850 and 1550 KC's. |

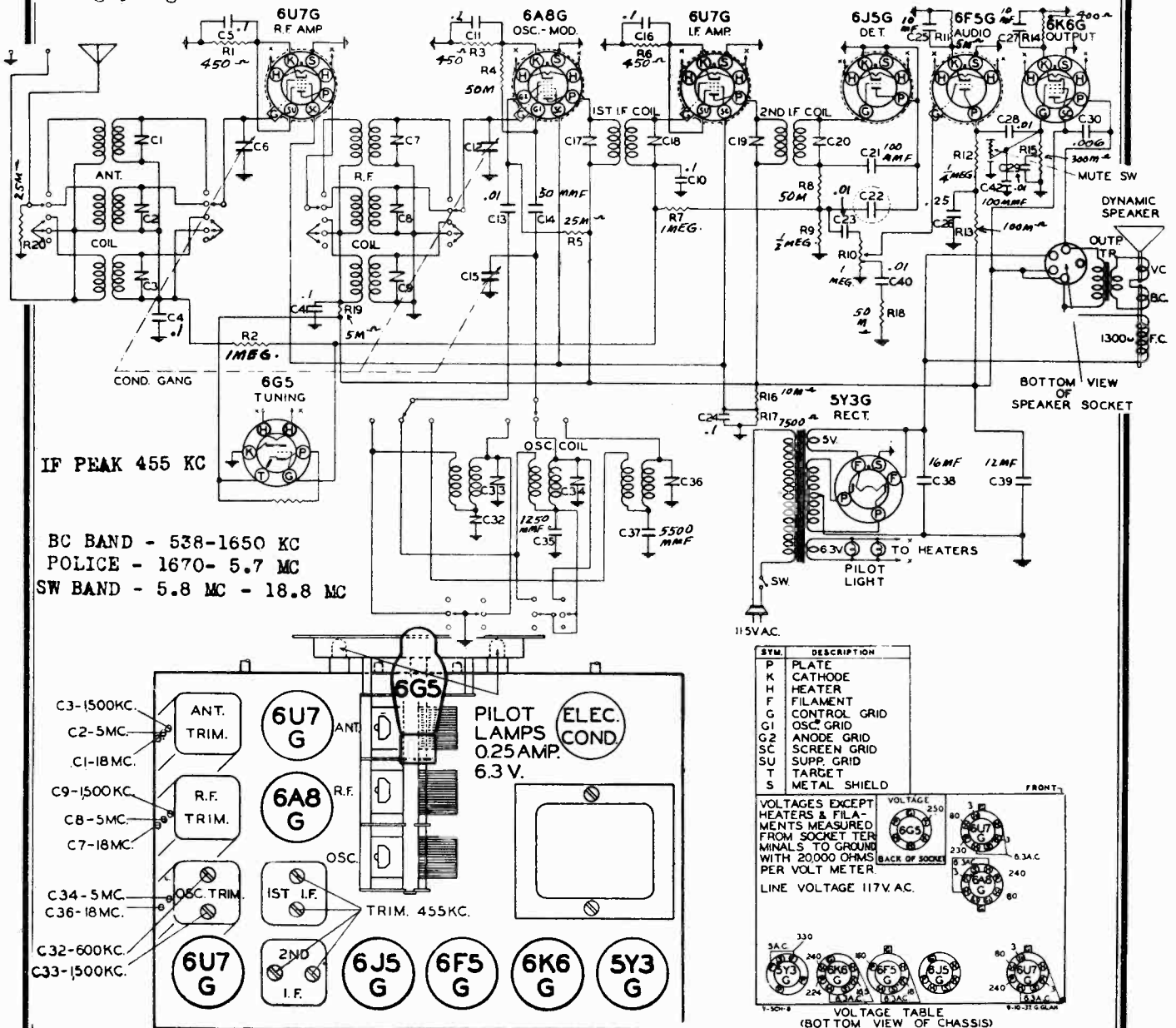
- 4—Push the proper push button.
 - 5—Using an insulated screw driver adjust the oscillator trimmer corresponding to the proper push button as shown in Fig. 2 until your station is tuned in with best tonal response.
 - 6—Adjust the antenna trimmer corresponding to the proper push button until the station already heard is received with maximum volume.
 - 7—Repeat steps 4, 5, and 6 for the other push buttons.
- It may be desirable to check the push buttons occasionally for proper adjustment as extreme climatic variations may affect the push buttons set on high frequency stations.



Chassis 1870

Schematic, Socket, Trimmers MAJESTIC RADIO & TELEV. CORP:

Voltage, Alignment



ALIGNMENT - Turn wave change switch to BC pos. and rotate var. cond. until about 50 percent engaged. Apply a 455 KC sig. to 6A8G thru a .1 mf cond. Adjust trimmers marked "Trim 455 KC" for maximum signal.

SHORT WAVE BAND - Rotate wave band switch to full clockwise pos. Connect high side of gen. o.p. to ant. lead thru 400 ohm dummy ant. Set dial at 18 MC - Apply 18 MC signal. Adj. C36 trim. to min. cap., slowly turn screw so trim. cap. increases until signal is heard. Apply 18 MC sig. and adj. C7 and C1 for max. - Check align. thru medium of sensitivity at 11 meg. and 6 meg. resp. - When align. at 18 MC the C7 trim. may indicate 2 maxima. Maxima obtained with trimmer tighter is the desired one. Check by leaving gang cond. set and shifting to higher freq. : 19 meg. where image should appear. If properly aligned it should require about 10 times six. volt. for image to give same O.P. as real signal.

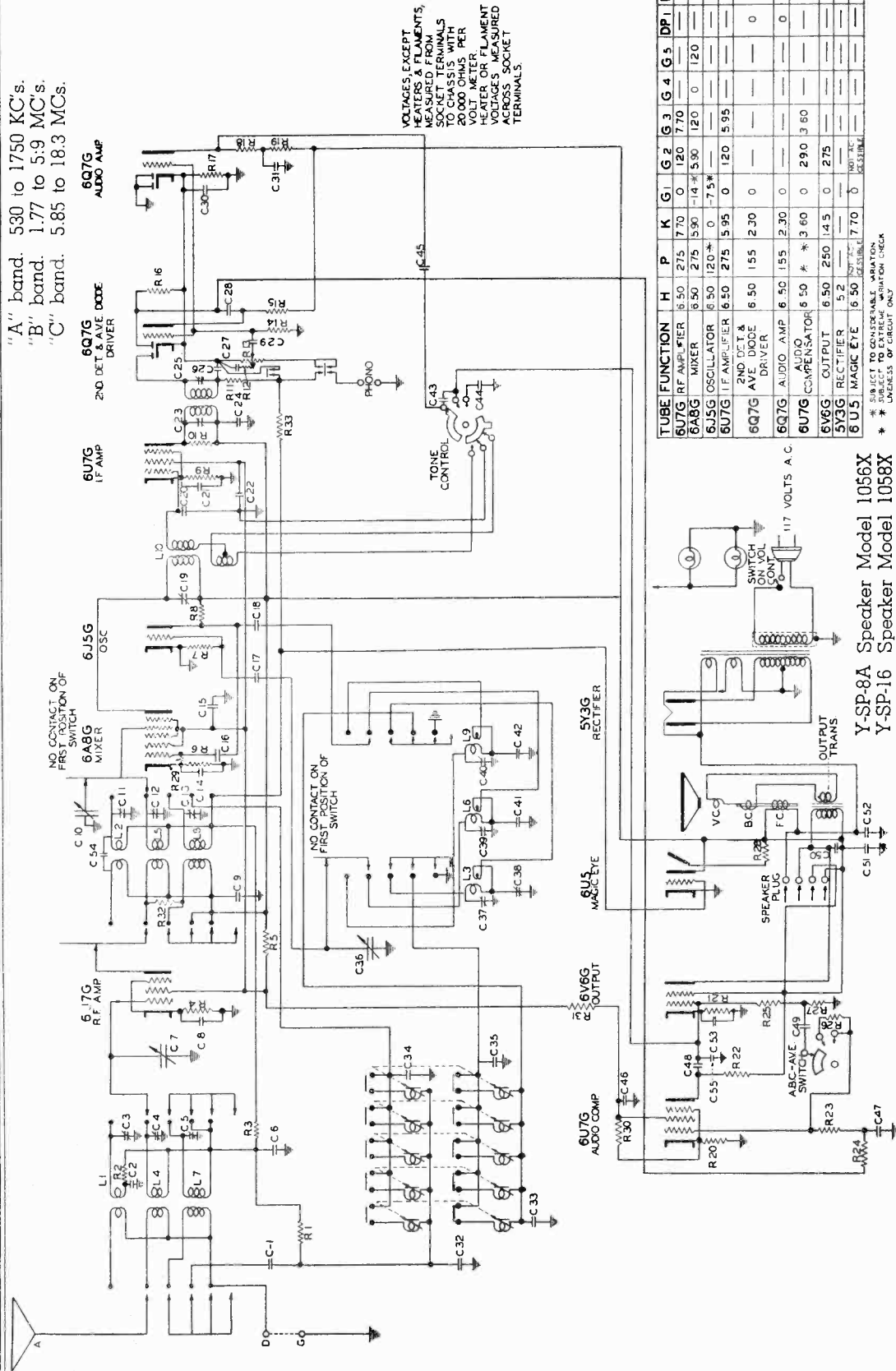
POLICE BAND - Shift waveband switch to middle pos. - Apply 5 MC sig. - Dial at 5 Mc. - Adj. C34 trim. as previous band until max. sig. is heard. Apply 5 meg. sig. and adj. Check alignment at 3.5 and 2 MC resp. Check for image same as previous band.

BROADCAST BAND - Use a 200 mmf cond. for dummy ant. on this band. Shift wave band sw. to full counter clockwise. Adj. trims. C3 and C9 to medium tight pos. - Dial at 600 KC. Apply 600 KC sig. and adj. padder C32 for max. - Dial at 1500 KC and 1500 KC sig. adj. C33 for same. Then adj. trims. C3 and C9 for max. - Shift gang to 600 KC and apply 600 KC sig. - Adjust C4 for max. sig. - Recheck 1500 KC trimming.

MAJESTIC RADIO & TELEV. CORP.

MODELS 1056X, 1058X
Schematic, Voltage

"A" band. 530 to 1750 KC's.
"B" band. 1.77 to 5.9 MC's.
"C" band. 5.85 to 18.3 MC's.



TUBE FUNCTION	H	P	K	G1	G2	G3	G4	G5	DP1	DP2
6U7G RF AMP. DRIVER	6.50	275	770	0	120	7.70	0	120	—	—
6A8G MIXER	6.50	275	530	-14*	5.90	120	0	120	—	—
6J5G OSCILLATOR	6.50	120*	0	-7.5*	—	—	—	—	—	—
6U7G IF AMP. DRIVER	6.50	275	595	0	120	5.95	—	—	—	—
6Q7G 2ND DET. & AVE DOCE DRIVER	6.50	155	230	0	—	—	—	—	0	0
6Q7G AUDIO AMP	6.50	155	230	0	—	—	—	—	0	0
6U7G AUDIO COMPENSATOR	6.50	* 3.60	0	29.0	3.60	—	—	—	—	—
6V6G OUTPUT	6.50	250	145	0	275	—	—	—	—	—
5Y3G RECTIFIER	5.2	—	—	—	—	—	—	—	—	—
6U5 MAGIC EYE	6.50	—	—	—	—	—	—	—	—	—

* SUBJECT TO CONSIDERABLE VARIATION
* SUBJECT TO EXTREME WARMUP CHECK
* SUBJECT TO CIRCUIT ONLY

AVE and ABC
Driver
Rectifier
Beam power output
Tuning indicator

1 - 6 U 7 G
1 - 6 Q 7 G
1 - 5 Y 3 G
1 - 6 V 6 G
1 - 6 U 5

R. F. amplifier
Modulator
Oscillator
I. F. amplifier
2nd det. and AVE amp.

1 - 6 U 7 G
1 - 6 A 8 G
1 - 6 J 5 G
1 - 6 U 7 G
1 - 6 Q 7 G

Y-SP-8A Speaker Model 1056X
Y-SP-16 Speaker Model 1058X

The tubes used are:

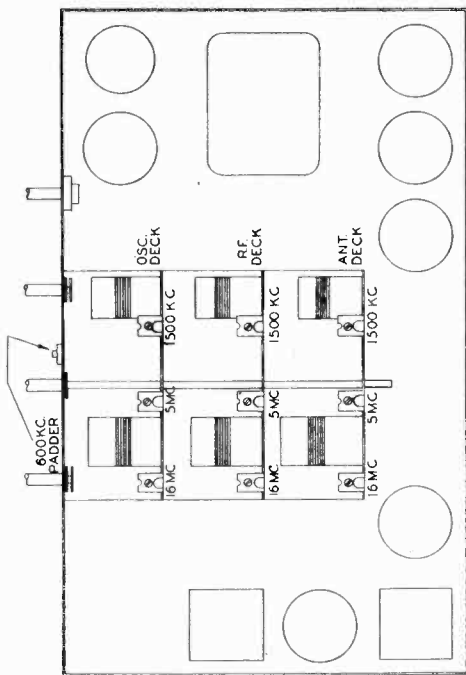
MODELS 1056X, 1058X
 Socket, Trimmers,
 Parts List, Notes
 Alignment

MAJESTIC RADIO & TELEV. CORP.

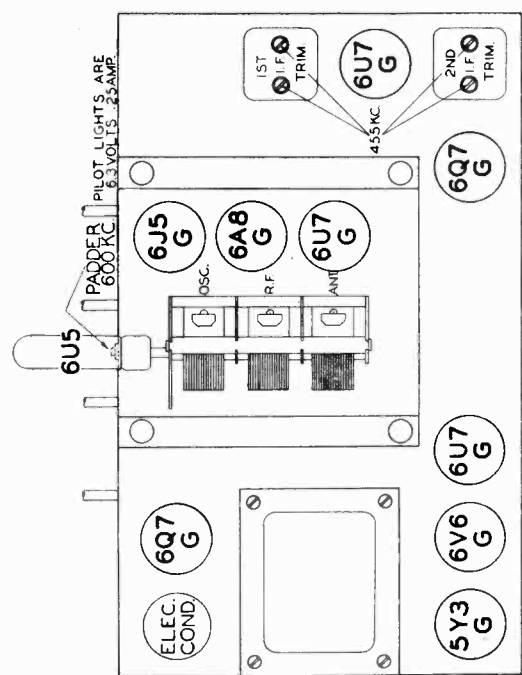
Part Number	Description
Variable condenser	
2000 MMF	3% silver condensers
484 MMF	1% silver condensers
710 MMF	1% silver condensers
274 MMF	1% silver condensers
.01 MFD	400 Volt R. F. type
.05 MFD	200 Volt R. F. type
.1 MFD	200 Volt
.1	400 "
.01	" 400 "
.006	" 600 "
.25	" 400 "
.15	" 200 "
.02	" 200 "
.05	" 400 "
250 MMF	Mica Condenser
50	" "
5500	" "
1350	" "
1000	" "
100	" "
10	" "
	Padding Condenser
	Trimmer Condenser
16+ 16 MFD	400 Volt. 10 MFD - 25 Volt electrolytic cond.
10 MFD	25 Volt
	Trimmer I. F.
	Volume Control
250K	1/4 W 20%
1000	1/4 W 20%
100K	1/4 W 20%
10K	3W 10%
500	ohm 1/4 W 10%
50K	1/4 W 20%
25K	1W 20%
700	ohm 1/4 W 10%
300K	1/4 W 20%
20K	1/4 W 20%
1M	1/4 W 20%
20K	1/2 W 20%
400K	1/4 W 20%
4K	1/4 W 20%
400	ohm 1/4 W 10%
250	ohm 1W 10%
5K	1/4 W 20%
2500	1/4 W 20%
1M	connected internal in magic eye socket
	Tone control
	ABC-AVE switch
	Volume control
	Band switch

Schematic Location	Part Number
C7 C10 C36	Y-CV 7
C32	CM-27
C34	CM-24
C33	CM-26
C35	CM-25
C2 C9 C18	C-5
C1 C8 C14	C-6
C21	C-15761
C22 C46	C-15757
C29 C49	C-15794
C44 C48 C50	C-15759
C24 C31	C-15750
C47	C-9
C27	C-15772
C8 C15 C45	C-15756
C16	CM-15928
C17	CM-15929
C42	CM-9
C41	CM-6
C43	CM-15939
C26 C28 C55	CM-15918
C54	CM-10
C38	Y-CT-4
C3 C4 C5 C11 C12 C13	Y-CT-3
C 37 C39 C40	Y-CE-10
C51 C52 C53	CE-25
C30	Y-CT-2
C19 C20 C23 C25	Y-V-C-5
R13	15512
R25 R27	15543
R4	15515
R1 R2 R3 R19	R-26
R5	15571
R6	15511
R7 R11 R29	15501
R8	15519
R9 R72	15549
R10 R18	15557
R12 R16 R23 R26 R33	15517
R31	15513
R15 R22	15528
R17	R-40
R20	R-76
R21	15584
R24	15500
R30	15576
R32	15576
R28	15530
R13	Y-B9
	Y-B-11
	Y-V-C-5
	Y-B-43

FOR PHONOGRAPH AND
 TUNER DATA, SEE INDEX



CHASSIS LAYOUT
 (BOTTOM VIEW)



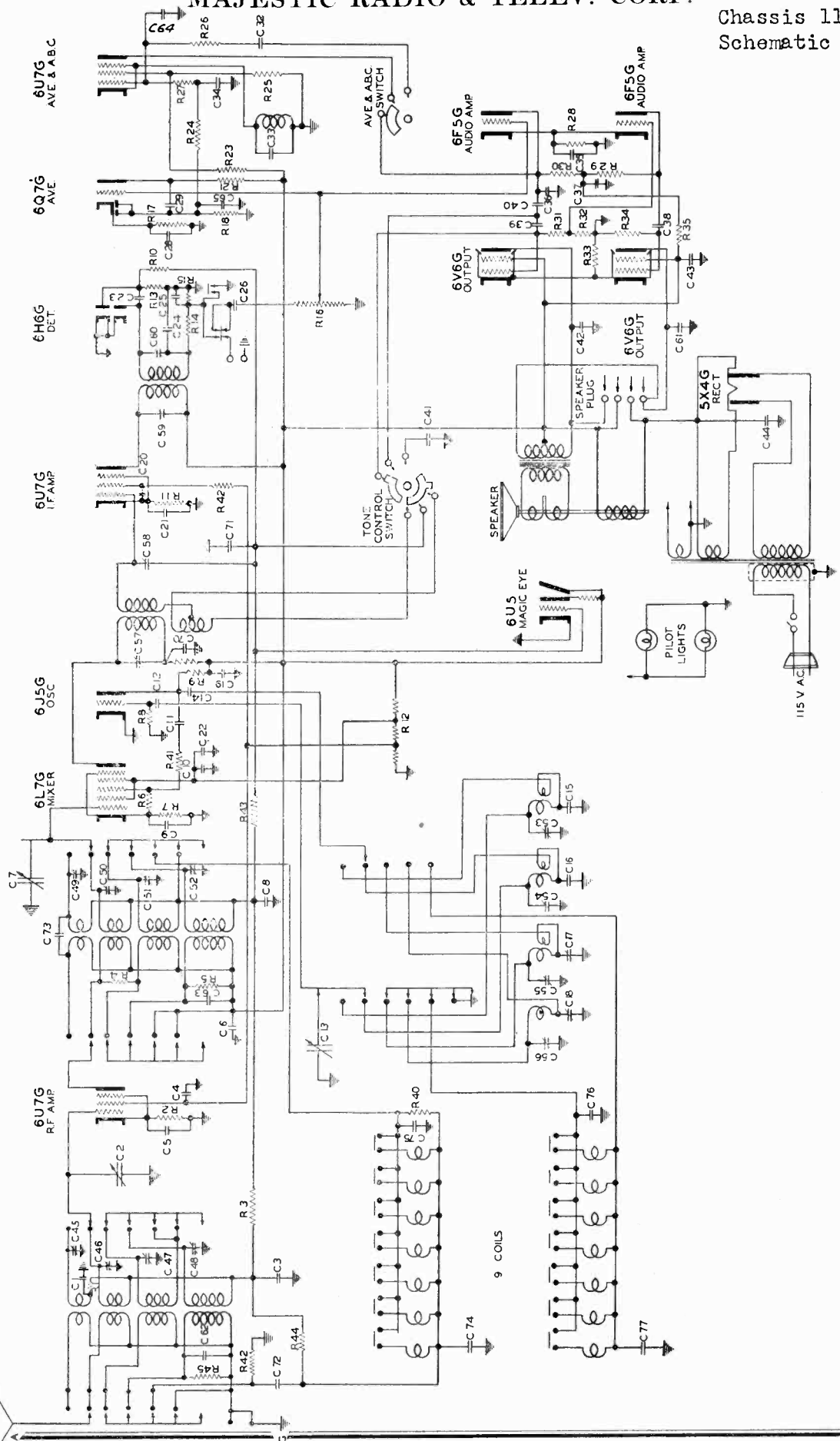
CHASSIS LAYOUT
 (TOP VIEW)

Antenna

There are three terminals on back of chassis marked A D G. Terminal A is for use with ordinary outdoor antennas from 30 to 50 feet in length. Terminal G is for connection to a suitable ground such as a water pipe, although radiators or other type grounds are often used successfully. Terminal D is to be used in combination with A when a doublet type antenna is used and under these conditions there should be no connection between terminals D and G.

MAJESTIC RADIO & TELEV. CORP. MODEL 1356X
Chassis 11356X
Schematic

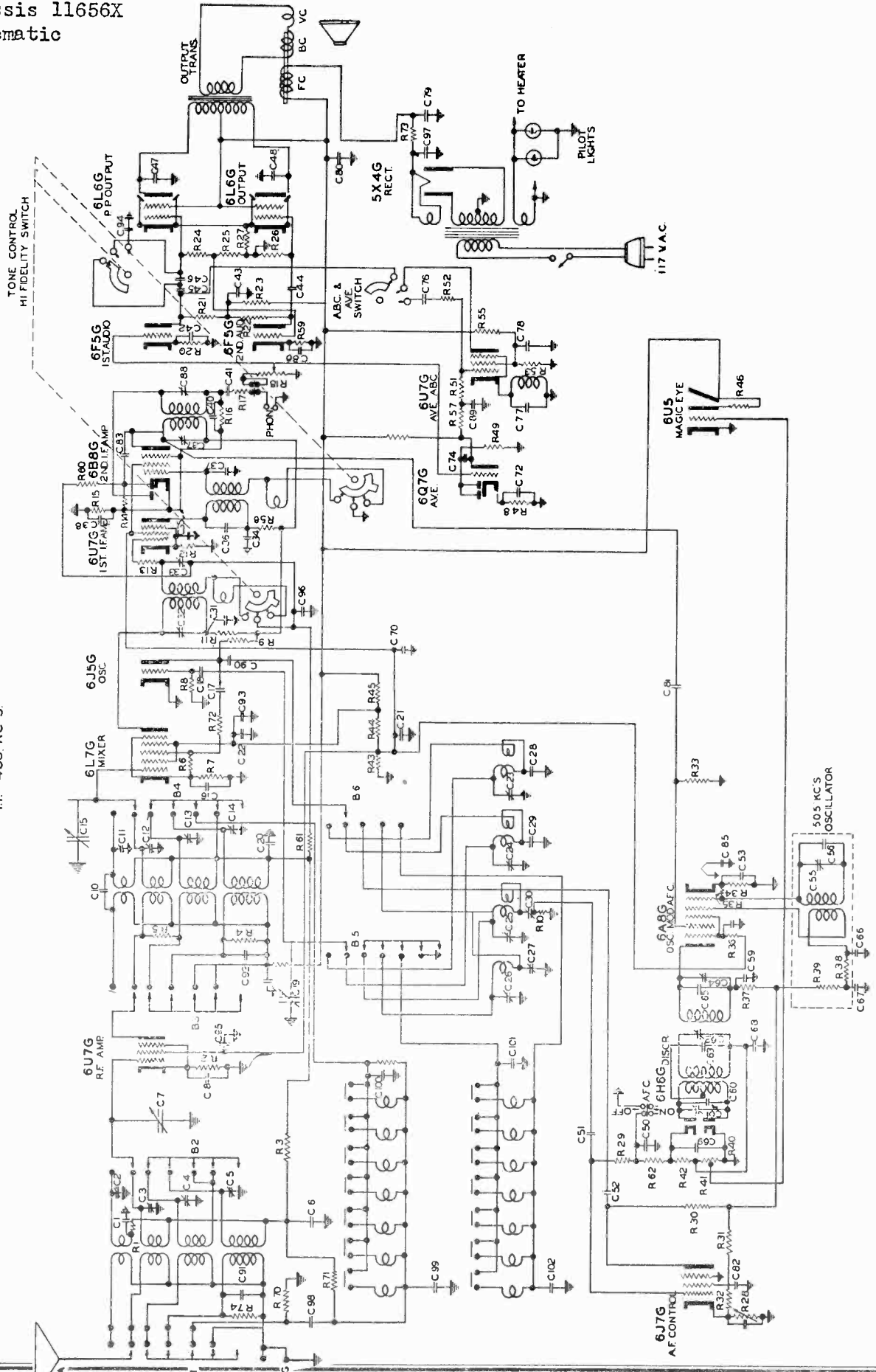
SCHEMATIC WIRING DIAGRAM - CHASSIS 11356 X
I.F. 455 KC'S.



MODEL 1656X
Chassis 11656X
Schematic

MAJESTIC RADIO & TELEV. CORP.

SCHEMATIC WIRING DIAGRAM - CHASSIS 11656X
I.F. 4.55 KC'S



MODELS 1056X, 1058X
Phono., Tuner Data

MAJESTIC RADIO & TELEV. CORP.

MODEL 1356X
MODEL 1656X
Socket, Trimmers
Phono., Tuner Data
Alignment

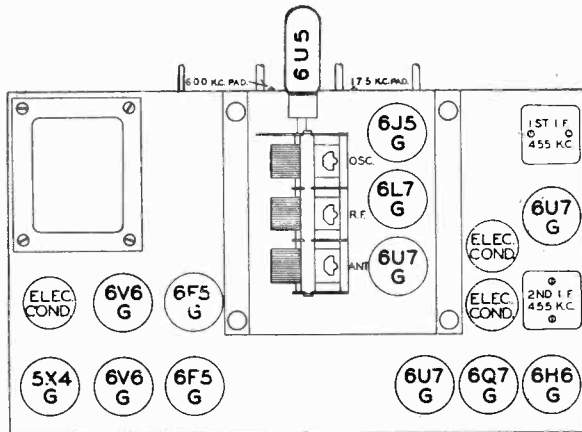


FIG. 3 A CHASSIS LAYOUT
TOP VIEW
MODEL 1356X

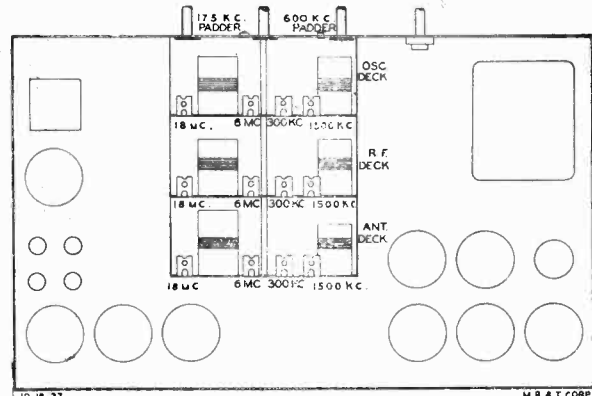


FIG. 4A CHASSIS LAYOUT
BOTTOM VIEW MODEL 1356X

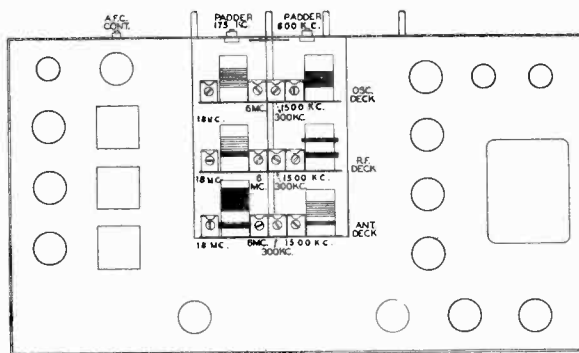


FIG. 4-B CHASSIS LAYOUT (BOTTOM VIEW)
MODEL 1656X

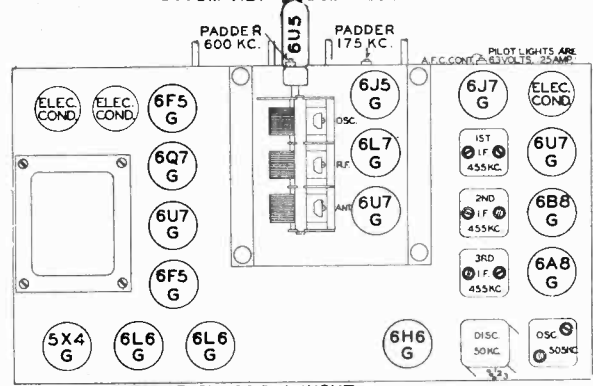


FIG. 3B CHASSIS LAYOUT (TOP VIEW)
MODEL 1656X

MODELS 1056X, 1058X, 1356X, 1656X

PHONOGRAPH—For phonograph, you can use the MAJESTIC Wireless record player, Model 3 PW, or any standard record player. When using a standard record player, plug in the pick-up tips in the jacks marked "PHONO" at the rear of the receiver. If you get undue hum, reverse these pick-up tips. Push the push-button marked "PHONO" and adjust the Volume, Tone, Volume Expansion and Bass Compensation by means of the controls on the receiver.

AUTOMATIC FREQUENCY CONTROL—Model 1656X.

When tuning manually on the broadcast or "A" band, the station may be pulled and held into proper tuning by using the AFC. This is done by pushing the first button from the left. If the station is approximately tuned, the AFC will do the rest and insure proper tuning.

This should be used only on local or strong stations as the AFC will cause the set to tune itself to the strongest stations within its range.

To release the AFC, push the AFC button slightly upward. This will cause it to come out in the same manner as the "PHONO" button.

SETTING UP OF PUSH BUTTONS

To adjust the push buttons, turn the band switch knob, the second one from the left, all the way to the left, to the position marked "E" on the cabinet. Going to the back of the receiver, adjust the coil marked No. in figure two (2), by turning the screw in the center of the coil by means of a screw driver, until the station you desire to hear is heard with maximum volume and best tone.

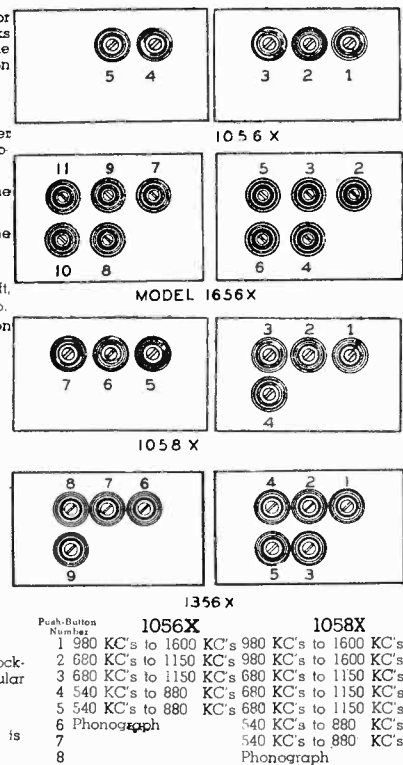
It is desirable to turn the tone control to high fidelity when listening on the push-buttons. Only local or strong stations should be set up on the push-buttons.

Push button Number	Model 1356X	Model 1656X
1	1250 and 1750 KC's	AFC
2	950 and 1560 KC's	1250 and 1750 KC's
3	950 and 1560 KC's	950 and 1560 KC's
4	680 and 1110 KC's	950 and 1560 KC's
5	680 and 1110 KC's	680 and 1110 KC's
6	680 and 1110 KC's	680 and 1110 KC's
7	540 and 720 KC's	680 and 1110 KC's
8	540 and 720 KC's	680 and 1110 KC's
9	540 and 720 KC's	540 and 720 KC's
10	540 and 720 KC's	540 and 720 KC's
11	PHONO	540 and 720 KC's
12		540 and 720 KC's

When the buttons are set up and the wave band switch is turned all the way to the left, counter clockwise, pushing any one of the buttons will cause the receiver to receive the station set up on that particular button.

WARNING

When operating this set on "RADIO," make certain that the phonograph push-button is out. If it is not, pushing slightly upwards on this push-button will cause it to be released and come out.



MODEL 1356X
MODEL 1656X
Parts Lists

MAJESTIC RADIO & TELEV. CORP.

Replacement Parts List For Chassis 1656X

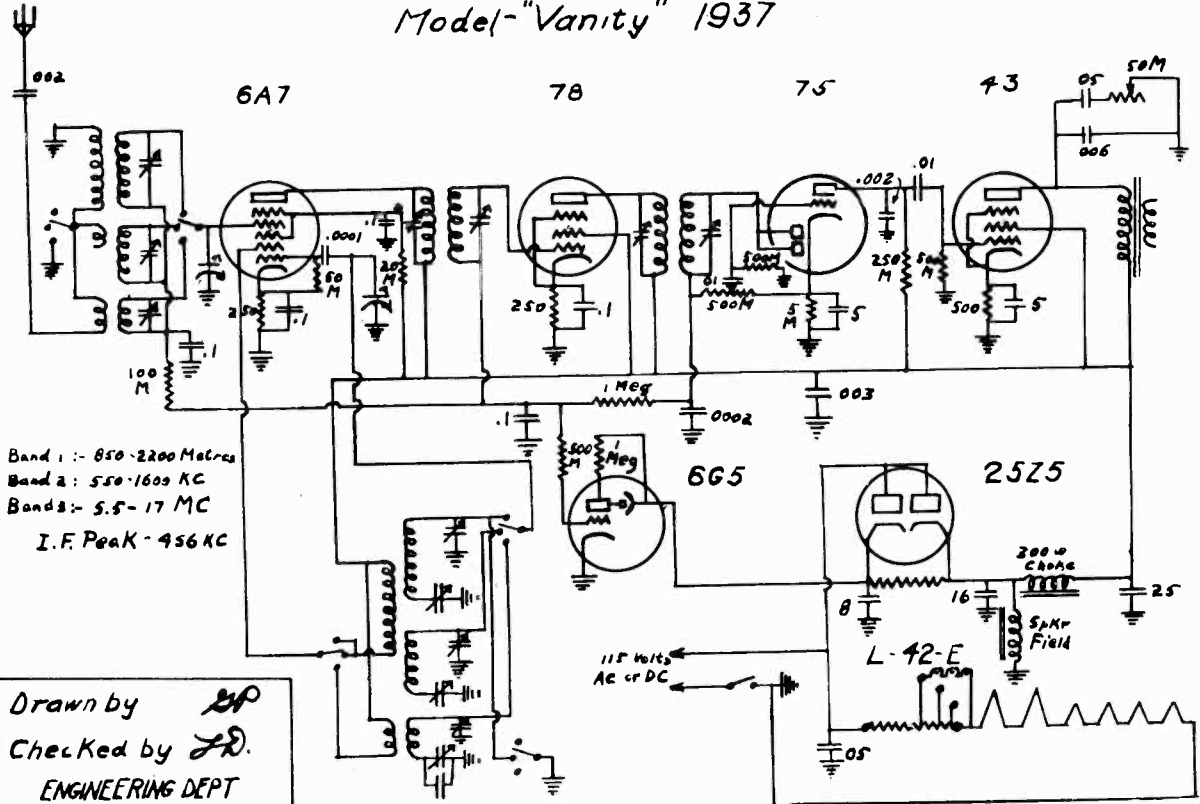
Replacement Parts List for Chassis 1356X

Schematic location	Part Number	Description	Schematic Location	Part Number	Description
C7, C15, C19	Y-CV-7	Condenser 3 gang variable	C2, C7, C13	Y-CV-7	Cond. 3 gang variable
C68, C69	C-15772	" Tubular .02 mfd 200 V	C3, C4, C5, C8, C9, C10	C-6	" tubular .05 mf. 200 V (H.F.)
C1, C9, C90, C98	C-5	" .01 mfd 400 V	C1, C8, C14	C-5	" .01 mfd 400 V (H.F.)
C6, C8, C16, C22, C95, C20	C-6	" .05 mfd 200 V	C19	C-15750	" .25 mf 400 V
C31, C34, C38, C59, C66, C67	C-15757	" .1 mfd 400 V	C32	C-15771	" .004 mf 600 V
C35, C38, C78, C84, C96	C-15761	" .1 mfd 200 V	C26, C38, C40	C-15760	" .02 mf 400 V
C89	C-15770	" .2 mfd 200 V	C39	C-15767	" .001 mf 600 V
C21	C-15775	" .5 mfd 200 V	C20, C29, C70	C-15756	" .05 mf 400 V
C76	C-15771	" .004 mfd 600 V	C33	C-15761	" .15 mf 200 V
C47, C48	C-15	" .002 mfd 800 V	C42, C61	C-9	" .001 mf 800 V
C85	C-14	" .5 mfd 120 V	C41	C-15759	" .006 mf 600 V
C94	C-15759	" .006 mfd 600 V	C34	C-15770	" .2 mf 200 V
C70	C-15750	" .25 mfd 400 V	C71	C-15752	" .05 mf 200 V
C77	C-9	" .15 mfd 200 V	C72	C-15754	" .01 mf 400 V
C46	C-15767	" .001 mfd 600 V	C73	CM-10	" Mica 10 mmf 5%
C41, C44, C45, C50	C-15760	" .02 mfd 400 V	C74	CM-27	" 2000 mmf silver plated
C49, C53, C74, C82	C-15756	" .05 mfd 10%	C75	CM-24	" 484 mmf silver plated
C51	CM-11	" Mica 500 mmf 10%	C76	CM-25	" 274 mmf silver plated
C56	CM-16	" 150 mmf 10%	C77	CM-26	" 710 mmf silver plated
C80, C63, C65	CM-15917	" 650 mmf 5%	C16	CM-9	" 5500 mmf 5%
C18, C57, C81, C83, C91	CM-15919	" 50 mmf 10%	C12, C23, C36, C62, C65	CM-15919	" 50 mmf 10%
C28	CM-9	" 5500 mmf 5%	C24, C25	CM-15918	" 100 mmf 20%
C79	CM-6	" 1350 mmf 5%	C11, C63, C64	CM-15928	" 250 mmf 20%
C17, C75, C92	CM-7	" 10 mmf 5%	C45, C46, C47	Y-CT-3	" Antenna trim 3-30 mmf
C10	CM-10	" 100 mmf 10%	C49, C50, C51	"	" R. F. trim 3-30 mmf
C52, C40	CM-15906	" 100 mmf 10%	C53, C54, C55	"	" Oscillator trim 3-30 mmf
C99	CM-27	" 2000 mmf silver plated	C48	Y-CT-7	" Antenna trim 40-100 mmf
C100	CM-24	" 484 mmf silver plated	C52	"	" R. F. trim 40-100 mmf
C101	CM-25	" 274 mmf silver plated	C56	Y-CT-2	" Oscillator trim 40-100 mmf
C102	CM-26	" 710 mmf silver plated	C57, C58	Y-CE-13	" 1st I. F. trimmer
C42, C72, C95	CE-25	" Tubular Dry Elec. 10 mfd 25 V	C59, C60	Y-CE-15	" 2nd I. F. trimmer
C43	CE-27	" Tubular Dry Elec. 4 mfd 300 V	C44	Y-CE-13	" Wet Electrolytic 40 mf 300 V
C97	CE-22	" Tubular Dry Elec. 28 mfd 400 V	C45	Y-CE-15	" Wet Electrolytic 30 mf 415 V
C79	CE-15	" Wet Electrolytic	C35	Y-CE-23	" Cond. Dry Electrolytic 20 mf 25 V
C80	CE-13	" Wet Electrolytic	C22	CE-26	" Cond. Tubular Dry Elec. 30 mf 200 V
C83	B-17042	" Wet Electrolytic	C28	Y-CT-4	" Cond. Variable Padder 200-600 mmf
C54, C55	Y-CT-5	" Air trimmer	R8, R14, R35	Y-CT-6	" Cond. Variable Padder 100-300 mmf.
C7, C3, C4, C11, C12, C13, C23, C24, C25	Y-CT-3	" Trimmer 3-30 mmf	R9	R-15511	Resistor Carbon 50K 1/4 W 20%
C5, C14, C26	Y-CT-7	" Trimmer 40-100 mmf	R1, R3, R6, R30, R44	R-15501	" 25K 1 W 20%
C30	Y-CT-4	" Trimmer	R2, R7	R-15515	" 100K 1/4 W 20%
C27	Y-CT-5	" Trimmer	R4, R5	R-15610	" 900 ohms 1/4 W 10%
C61, C62, C54	Y-CT-9	" Padder	R11	R-15530	" 2500 ohms 1/4 W 10%
C32, C33, C36, C37, C87, C88	Y-CT-2	I. F. Trimmer	R15	R-15537	" 400 ohms 1/4 W 10%
R13	R-39	Carbon Resistor	R18, R24, R26, R10, R13, R40	R-15520	" 500K 1/4 W 20%
R10	R-41	" 75 ohm 1/4 W 10%	R17	R-15517	" 1 meg 1/4 W 20%
R9	"	" 25K 1 W 20%	R15512	R-15512	" 250K 1/4 W 20%
R8, R17, R23, R35	R-15511	" 50K 1/4 W 20%	R15511	R-15611	" 3000 ohms 1/4 W 10%
R4, R5	R-15530	" 2500 ohm 1/4 W 10%	R21	R-40	" 75K 1 W 10%
R2, R7	R-15610	" 900 ohm 1/4 W 10%	R14, R21, R29	R-15554	" 4000 ohms 1/4 W 10%
R1, R3, R6, R21, R71	R-15515	" 100K 1/4 W 20%	R23	R-33	" 8000 ohms 1/4 W 10%
R30, R31, R32	R-15510	" 20K 1/4 W 20%	R28	R-15607	Resistor Carbon 250 ohms 2 W 10%
R14, R42, R49, R52, R57, R60, R61	R-15517	" 1 meg 1/4 W 20%	R31, R34	R-2	" Candohm 7000, 2250, 5800 ohms
R16, R24, R26, R29, R40, R41	R-15520	" 500K 1/4 W 20%	R32	Y-RC-3	Volume control 1 meg.
R11, R53, R56	R-2	" 5000 ohm 1/4 W 10%	R33	R-15570	2000 ohms 1/4 W 20%
R12	R-15519	" 700 ohms 1/4 W 10%	R25	R-15601	Resistor Carbon 100 ohms 1/4 W 20%
R15, R34	R-15551	" 250 ohms 1/4 W 10%	R12	R-15542	" 1000 ohms 1/4 W 20%
R36	R-15566	" 2000 ohms 1/4 W 10%	R16	AM-88	Antenna bank assembly
R33, R62	R-15500	" 2 Meg. 1/4 W 20%	R45	AM-89	R. F. bank assembly
R22, R51, R58	R-15512	" 250K 1/4 W 20%	R41	AM-90	Oscillator bank assembly
R20, R38, R39, R54, R56	R-15556	" 10000 ohms 1/4 W 10%	R42	Y-C15	1st I. F. coil assembly
R37, R48	R-15617	" 3000 ohms 1/4 W 20%		Y-C15	2nd I. F. coil assembly
R25	R-16	" 8000 ohms 1/4 W 20%		B45	Band switch
R55	R-15524	" 50K 1 W 10%		Y-B-9	Tone and High Fidelity switch
R72	R-15801	" 100 ohms 1/4 W 20%		Y-B-11	A.B.C. - A.V.E. switch
R73	R-78	" 150 ohms 4 W 20%		Y-SP-9	Dynamic speaker 12"
R74	R-15570	" 2000 ohms 1/4 W 20%		SPA-16	Speaker voice coil and cone
R28	Y-PA-12	Variable resistor 1000 ohms		SPA-17	Speaker transformer
R18	Y-VC-9	Volume control 1 meg		Y-TP-7	Power transformer
R27	Y-RC-5	Candohm resistor		DC-3	Dial crystal
R43, R44, R65	Y-RC-3	1 MEG. Internal connection in magic eye socket		ES-16	Escutcheon
R46				Y-CK-5	Filter choke (A.V.E. - A.B.C.)
R70	R-15542	Carbon resistor 1000 ohms 1/4 W 20%			
B1, B2, B3, B4, B5, B6, B7	B-45	Band Switch			
B8, B9	Y-B-8	Tone control and Hi. Fidelity switch			
B10	Y-B-11	A.B.C. and A.V.E. switch			
	Y-CK-5	A.B.C. filter choke			
	Y-TP-8	Power Transformer			
	Y-SP-10	Speaker 12"			
	Y-C1-8	1st and 2nd I.F. coil assembly			
	Y-C1-7	3rd I.F. coil assembly			
	Y-C1-9	Discriminator coil assembly			
	Y-C1-10	Oscillator coil assembly			
	AM-88	Antenna bank assembly			
	AM-89	R. F. bank assembly			
	AM-90	Oscillator bank assembly			
	SPA-18	Speaker voice coil and cone			
	SPA-19	Speaker transformer			
	ES-7	Escutcheon			
	DC-3	Dial crystal			
	2-P-16589	Pilot light Mazda No. 51			

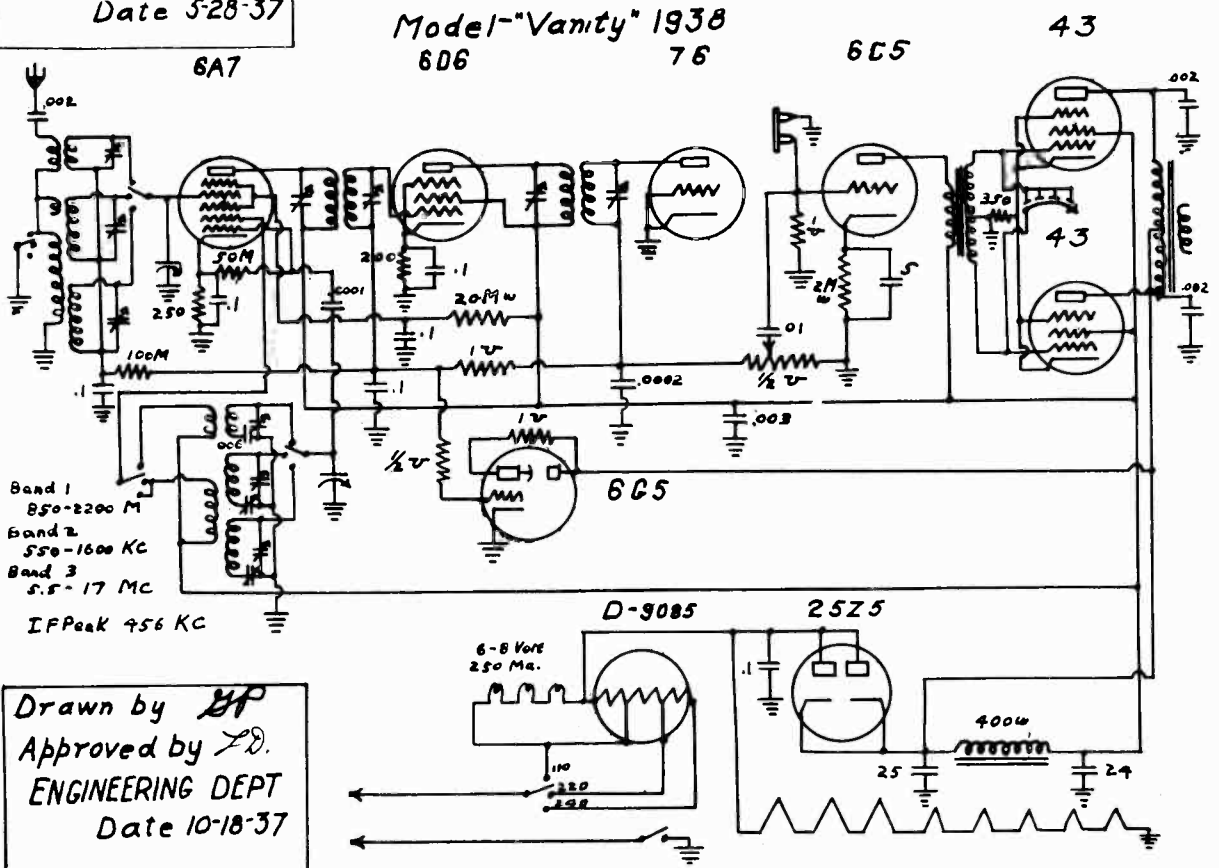
MARCONIPHONE INC.

MODEL Vanity 1937
MODEL Vanity 1938
Schematics

Model-"Vanity" 1937

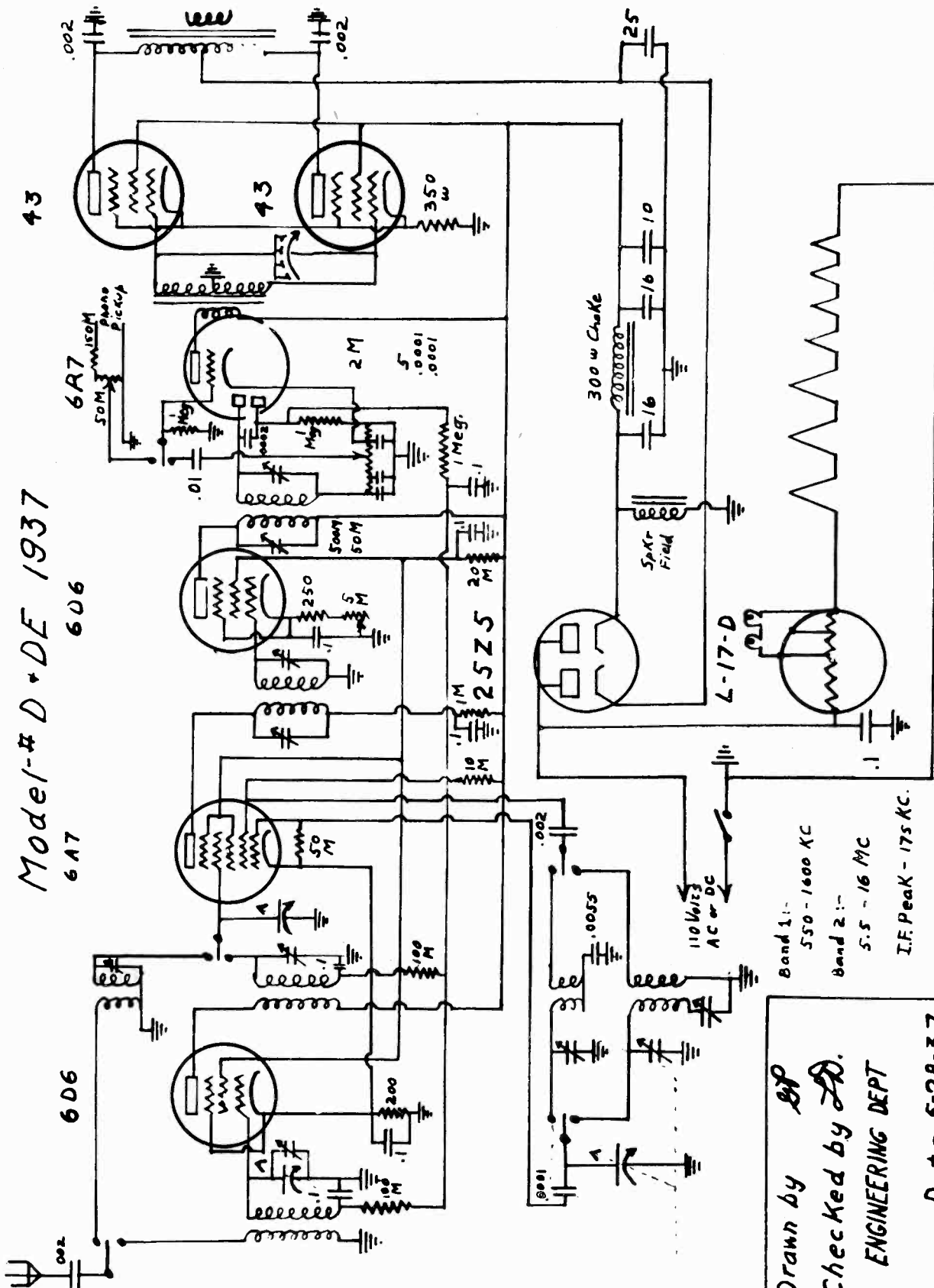


Model-"Vanity" 1938



MODELS D, DE 1937
Schematic

MARCONIPHONE INC.

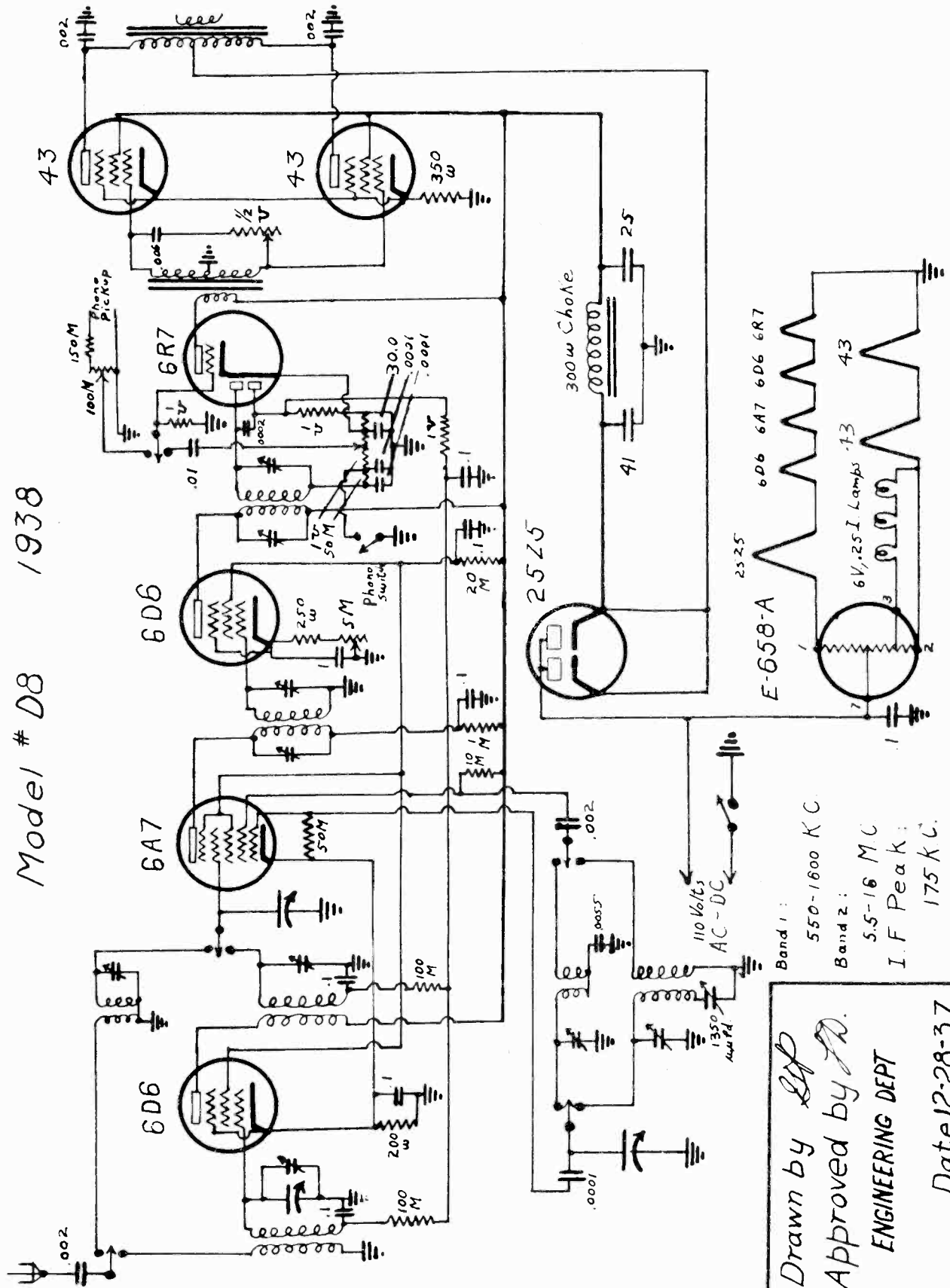


Band 1:-
550 - 1600 KC
Band 2:-
5.5 - 16 MC
I.F. Peak - 175 KC.

Drawn by *BP*
Checked by *AD*.
ENGINEERING DEPT
Date 5-28-37

MARCONIPHONE INC.

Model # D8 1938



Band 1 : 550-1600 KC
 Band 2 : 5.5-16 MC
 I.F. Peak : 175 KC.

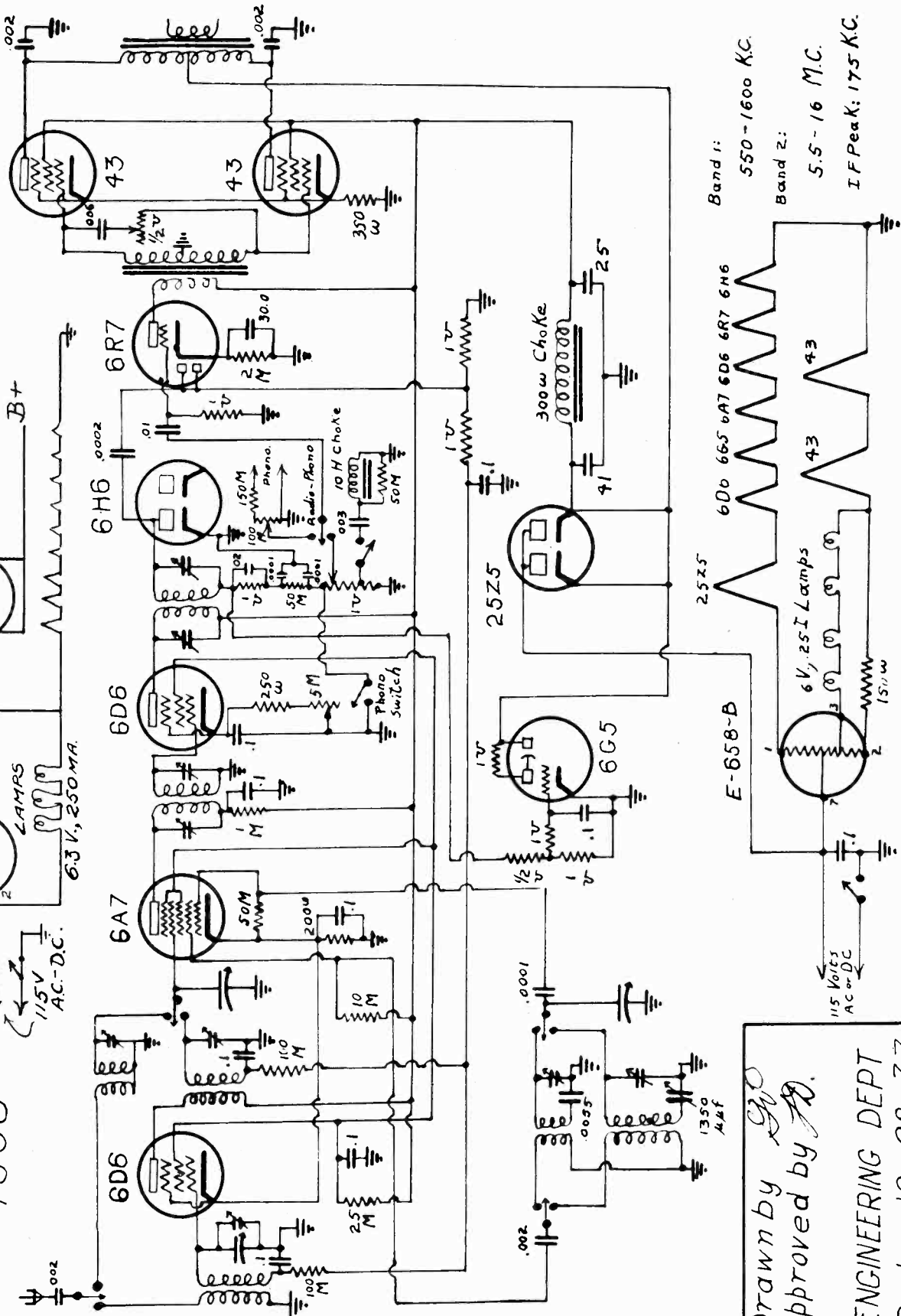
Drawn by GJP
 Approved by D.D.
 ENGINEERING DEPT
 Date: 12-28-37

MODEL D10, 1938
Schematic

MARCONIPHONE INC.

FILAMENT CHANGES IN EARLIER
MODEL D-10 (1938).

Model D-10
1938



Band 1: 550 - 1600 KC.
Band 2: 5.5 - 16 MC.
I F Peak: 175 KC.

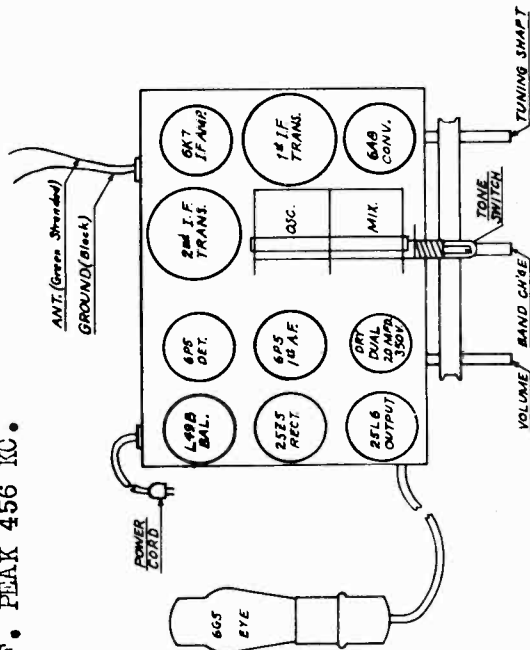
Drawn by *GO*
Approved by *FD*.
ENGINEERING DEPT
Date 12-28-37

E34	Eye Clamp
E35	Eye Socket Cable
K4	P Buffer Key
K24	Knob Knob
P46	Pilot Light 6-0
R12	500 Ohm 1/2 W.
R17	25M. . . .
R19	100M. . . .
R21	500M. . . .
R22	1Meg. . . .
R11	300
R72	15M. . . . 1W.
R47	25M. . . . 1/2W.
S304	Speaker 6"
S319	Tension Spring
S333	Pointer Assembly
S407	Band Switch
S445	Tone Switch
T164	1E I F Trans.
T165	2nd
C23	Osc. Pedder

C26	Power Cord
C111	Filter Choke
C221	3 Gang Trimmer
C226	IF Pedder
C232	OSC. Pedder
C240	Dual Dry-20-20
C280	100 mfd mica
C285	2000
C286	3000
C287	200
C289	1200
C290	60
C291	250 dual
C301	0.1 mfd 200V.
C302	105
C303	25
C31	0.1 400
C313	25
C314	105
C349	2 Gang Variable
C383	Vol. Cont. 1/2 W
D5	Dial Disk
E6	Escutcheon
E16	Eye Escutcheon
E33	Eye Bracket

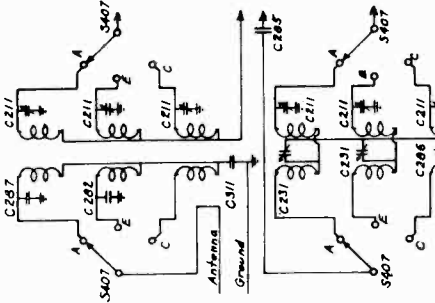
No Signal, Volume Control Turned Off			
Line Voltage	~117Volts, 60 Cycles		
Meter Used	~25,000 Ohms per Volt.		
TUBE	PLATE SCREEN SUPPLY	GRID HEATH	
6A8 Converter	105 60 80	1.0 5.5	
6K7 IF Ampl.	105 60 0	0 5.5	
6P5 Detector	0 0 0	0 5.5	
6P5 1st A.F.	15 0 0	0 5.5	
2S16 Output	100 105	7.5 2.30	
2S5 Rectifier	119 D.C.	0 2.30	
6G5 Eye Tube	105 0	5.5	
L58B Ballast	4.0 AC (in Plug)	4.40	

I.F. PEAK 456 KC.

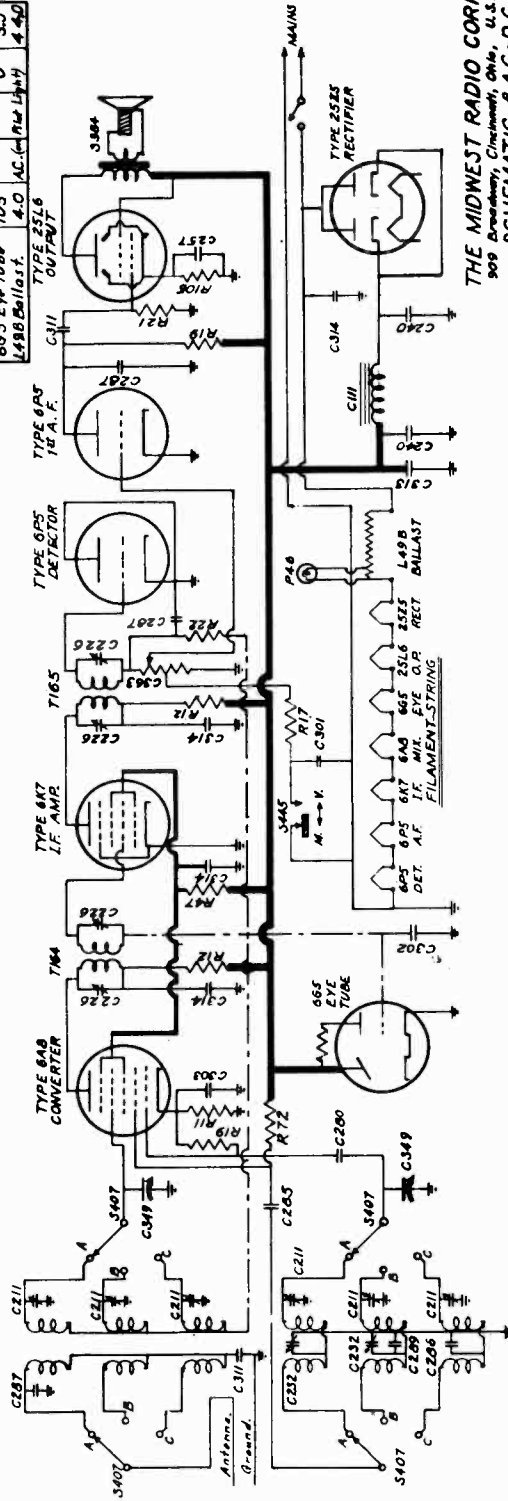


B+ Lines
Screen Lines
A.V.C. Lines

Ground-Black
Plate-Red
No Connection-Blue
SPEAKER PLUG - Pin End



Brain Schematic For Sets
Incorporating Long Wave
or "E" Band. (125-350 KC.)
Standard Brain Below
Incorporates Police Band
1.7-5.5 MC.



THE MIDWEST RADIO CORP.
909 Broadway, Cincinnati, Ohio, U.S.A.
SCHEMATIC-8 A.C.-D.C. '39

10-27-38 ed.

MODEL 17-'39
Schematic, Socket
Voltage

MID-WEST RADIO CORP.

R23	40M Ohm 1/4W
R47	25M Ohm 1/4W
R48	50M
R72	LSM
R77	Spacer, 3/2"
S37	Spring, Bell Im.
S39	Spacer, 12 in.
S41	Coil Switch, 3C
S42	Coil Switch, RF
S43	Switch Clicker
S44	Tone Switch
S45	Tone Switch
T73	Power Transformer
T161	14 JF Trans
T162	23 JF Trans
T163	34 JF Trans
W51	Window, Tuning
W52	Window, Volume
W53	Window, Motor
W54	Window, Tone
W55	Window, Aushubler
R18	50M Ohm 1/4 Watt

G13	25MFD 400V
G14	.05
G15	50mg Variable
G28	Control Volume, MS
D3	Pin Line Cord
D4	Dial, Glass
K24	Knob, 1 inch
K25	Knob, 2 inch
M23	Motor
P9	Panel, Molded
P42	Pilot Light, 32V
P46	Pilot Light, 350V
P59	Armature, Slide
R11	200 Ohm, 1/2 Watt
R12	500
R13	1000
R14	2000
R15	5000
R17	25000
R19	100M
R20	100M
R21	500M
R22	1 Megohm
R23	

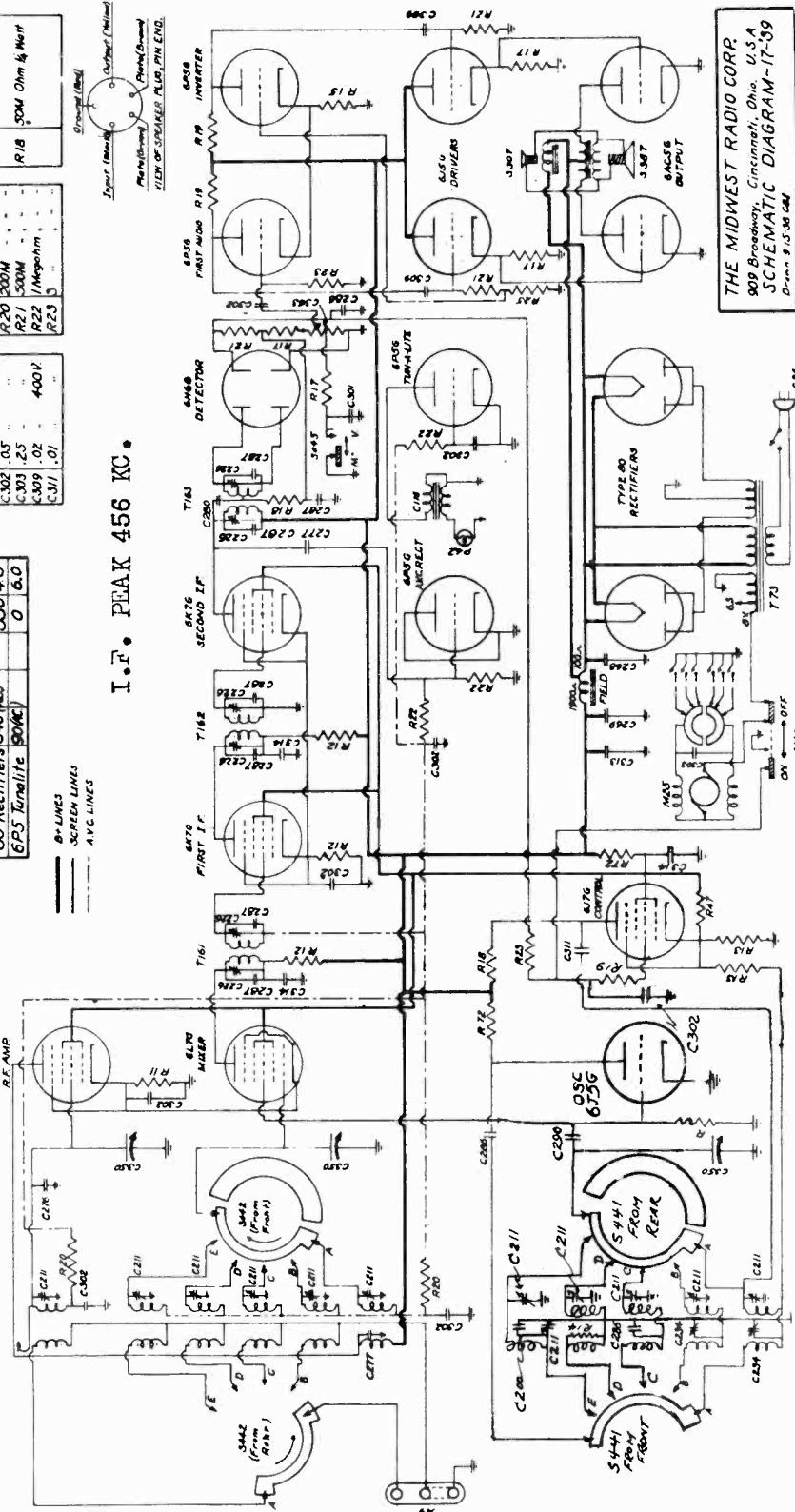
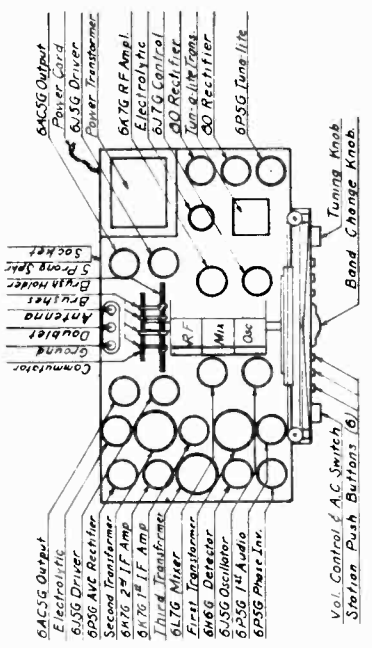
A9	Antenna Strip
B26	Brush Holder
B27	Brush Clip
C28	Brush Contact
C16	Tone Lite Trans
C45	Commutator, Spinning
C21	Coil Trimmer
C24	Osc Padler
C24A	24MFD 500V
C289	40 MFD 350V
C276	10 MFD 350V
C277	25
C280	100
C285	200
C286	300
C287	200
C290	60
C301	.01 Mfd 200V
C302	.05
C303	.25
C309	.02
C311	.01

OPERATING VOLTAGES

No Signal: Volume Control Turned Off. Motor Switch In Off Position.
Line Voltage 117 Volts, 60 Cycles
Meter Used - 20000 Ohms per Volt.

TUBE	HEAT SCREEN SUPPLY	GRID	HEATER
6K7 R.F.	245	185	2.4 6.0
6L7 Mixer	245	85	2.4 6.0
6J5 Osc	140		0 6.0
6J7 Control	200	85	4.4 6.0
6K7 1 st I.F.	245	85	4.4 6.0
6K7 2 nd I.F.	245	85	4.4 6.0
6H6 2 nd Def.	0		6.0
6P5 1 st A.F.	150		9.2 6.0
6P5 Inverter	150		9.2 6.0
6L5 Drivers	245		10 6.0
6AC3 Outputs	335		0 6.0
6O Rectifiers	340 (AC)		350 4.8
6P5 Tonnelite	300 (AC)		0 6.0

I.F. PEAK 456 KC.



THE MIDWEST RADIO CORP.
909 Broadway, Cincinnati, Ohio, U.S.A.
SCHEMATIC DIAGRAM-17-39
Drawn 9-15-38 CML

MID-WEST RADIO CORP.

MODEL 14-Z-9
Schematic, Voltage
Socket

A9	Antenna Strip
C26	Cable Plug (40)
C211	36 Gang Trimmer
C224	IF Padder
C232	Osc Padder
C240	24 MFD 500 V
C249	40 MFD 350 V
C251	250mfd Dual
C271	25 MFD MFD Mca
C284	3000
C287	200
C302	.05 MFD 200 V
C309	.02 MFD 400 V
C313	.25
C319	.05
C340	2 Gang Variable
C343	Control Volume Knob
C401	Fish Line Card
P96	Pilot Light 6PK
R11	200 Ohm 1/2 Watt
R12	500
R15	5000
R17	25000

R19	500 Ohm 1/2 Watt
R21	200M
R22	1 Meg Ohm
R23	3
R25	40M Ohm 1/2 W
R27	15M
R28	Spring Butt Tin
S30	Speaker B
S33	Pointer
S401	Coil Switch
T73	Power Transformer
T82	2M
T85	3E
C285	2000 mfd
C286	100

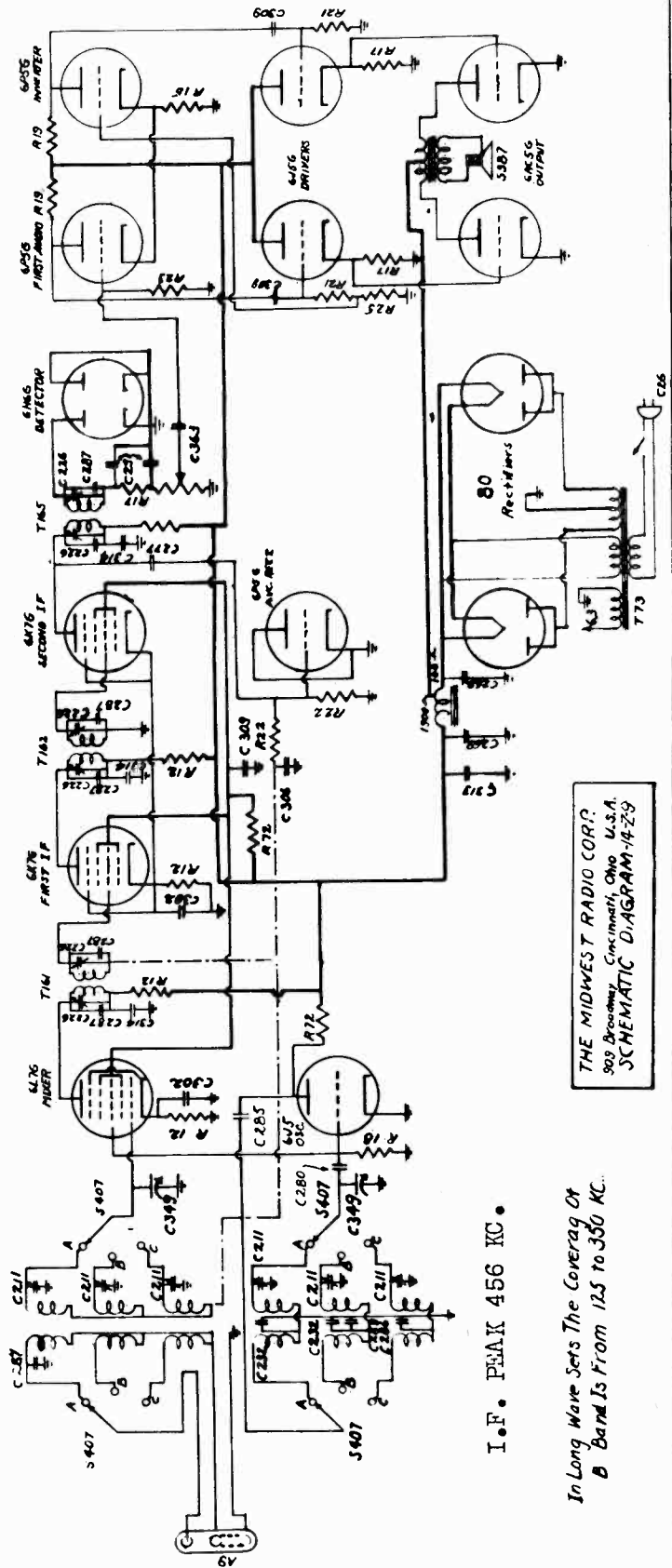
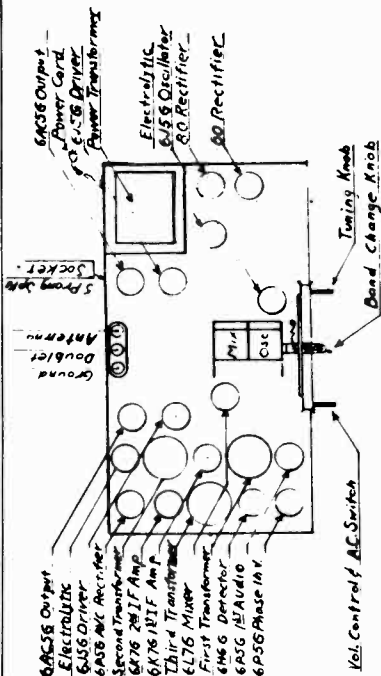
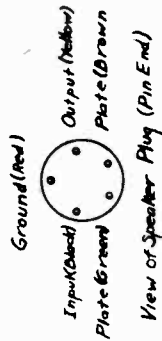
OPERATING VOLTAGES

No. Signal, Volume Control Turned Off

Line Voltage 117 Volts 60 Cycles

Meter Used 2000 Ohms per Volt

TUBE	PLATE (Normal sup)	CATH (Normal)
6L7 Mixer	245 B5	2.4 6.0
6J5 Os.	140	0 6.0
6K7 MIF	245 B5	2.4 4.4 6.0
6K7 ZWIF	245 B5	4.4 4.4 6.0
6P5 AM Rect	0	6.0
6H6 2M DET	0	6.0
6P5 1M AF	150	9.2 6.0
6J5 Drivers	245	10 6.0
6P5 Inverter	150	9.2 6.6
6A5 Drivers	335	0 6.0
80 Rectifiers	340 (AC)	3.50 4.8



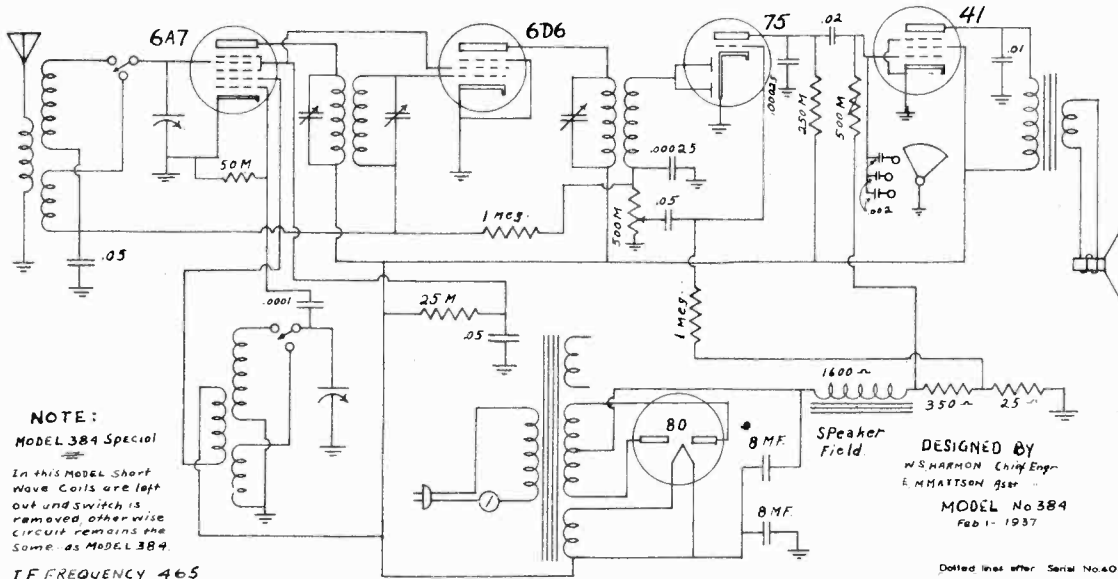
I.F. PEAK 456 KC.

In Long Wave Sets The Coverage of
B Bands Is From 125 to 350 KC.

MODEL 3749
Schematics

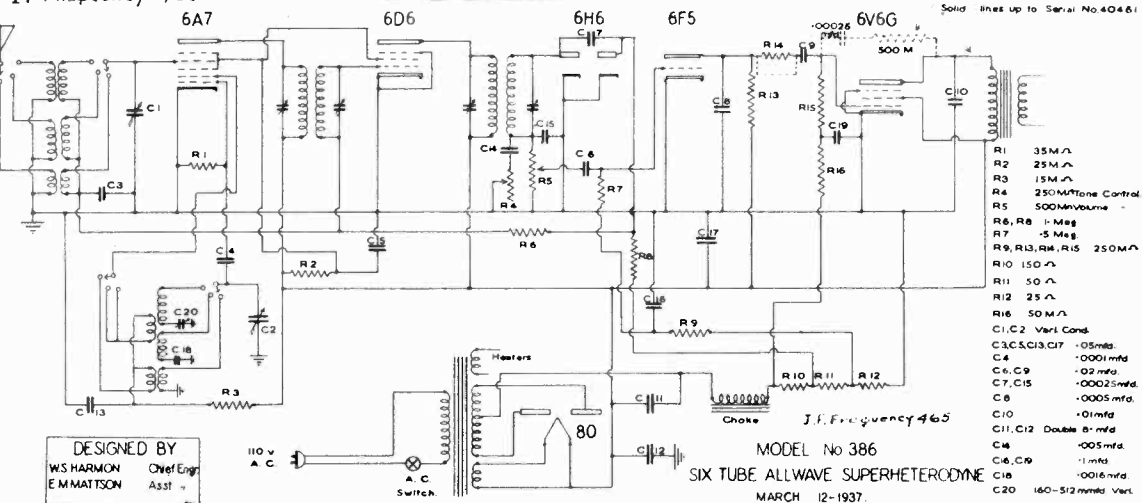
MISSION-BELL RADIO MFG. CO., INC.

MODEL 384
384 Special
MODEL 386
Above, Below
Serial No. 40461



NOTE:
MODEL 384 Special
In this MODEL Short Wave Coils are left out and switch is removed, other wise circuit remains the same as MODEL 384.

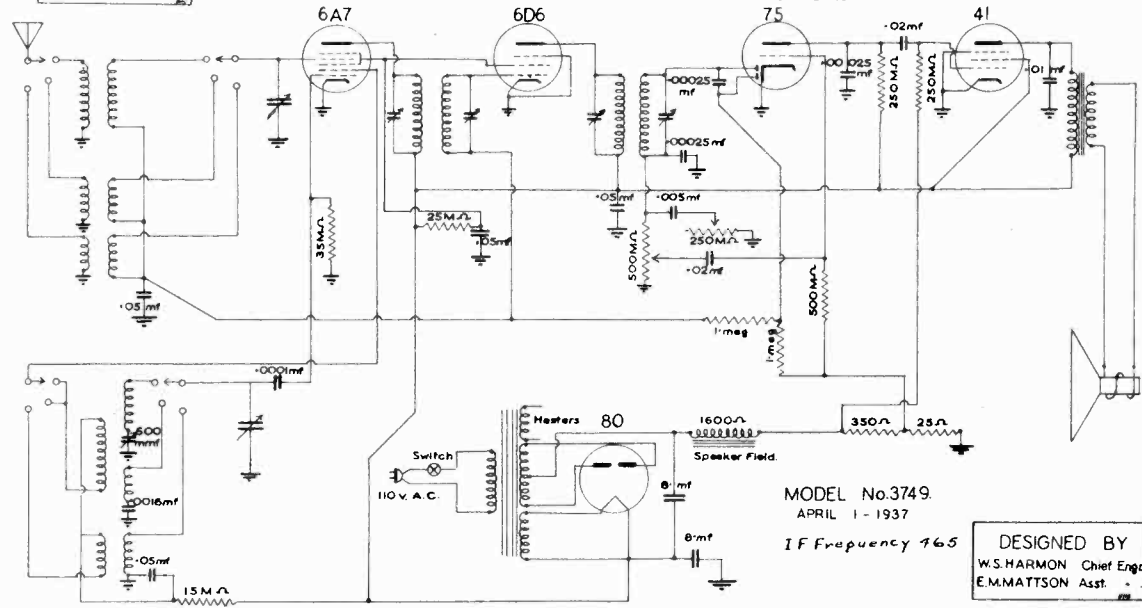
DESIGNED BY
W.S. HARMON Chief Eng.
E. MATTSON Asst.
MODEL No 384
Feb 1 - 1937



DESIGNED BY
W.S. HARMON Chief Eng.
E. MATTSON Asst.

- R1 35M Ω
- R2 25M Ω
- R3 15M Ω
- R4 250M Ω Tone Control
- R5 500M Ω Volume
- R6, R8 1 Meg
- R7 .5 Meg
- R9, R13, R14, R15 250M Ω
- R10 150 Ω
- R11 50 Ω
- R12 25 Ω
- R16 50M Ω
- C1, C2 Vari. Cond.
- C3, C5, C13, C17 .05mfd
- C4 .0001mfd
- C6, C9 .02 mfd
- C7, C15 .00025mfd
- C8 .0005 mfd
- C10 .01mfd
- C11, C12 Double 8 mfd
- C14 .005mfd
- C16, C19 .1mfd
- C18 .0016mfd
- C20 160-512mfd Vari.

MODEL No 386
SIX TUBE ALLWAVE SUPERHETERODYNE
MARCH 12-1937.

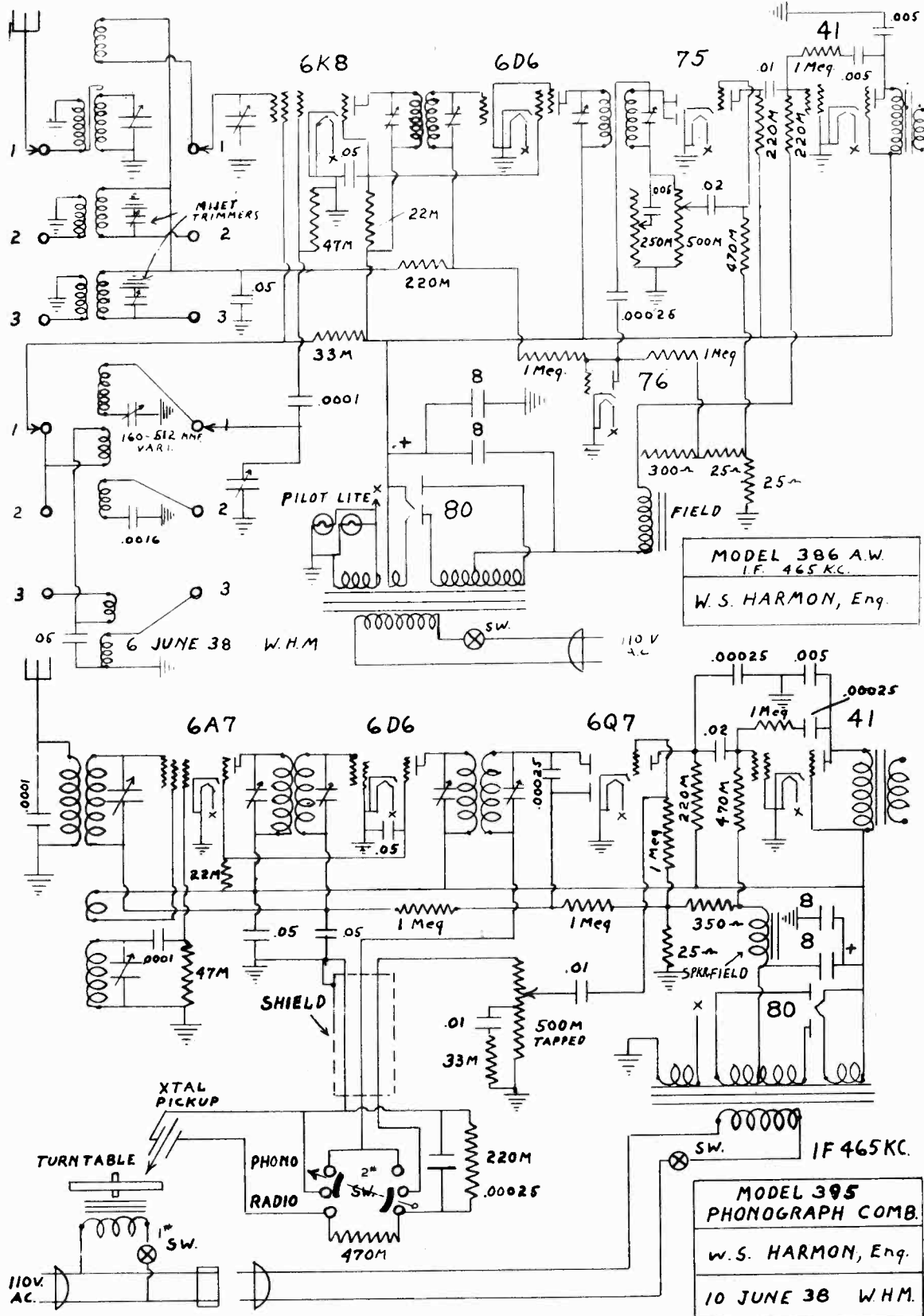


MODEL No.3749
APRIL 1 - 1937
IF Frequency 465

DESIGNED BY
W.S. HARMON Chief Eng.
E. MATTSON Asst.

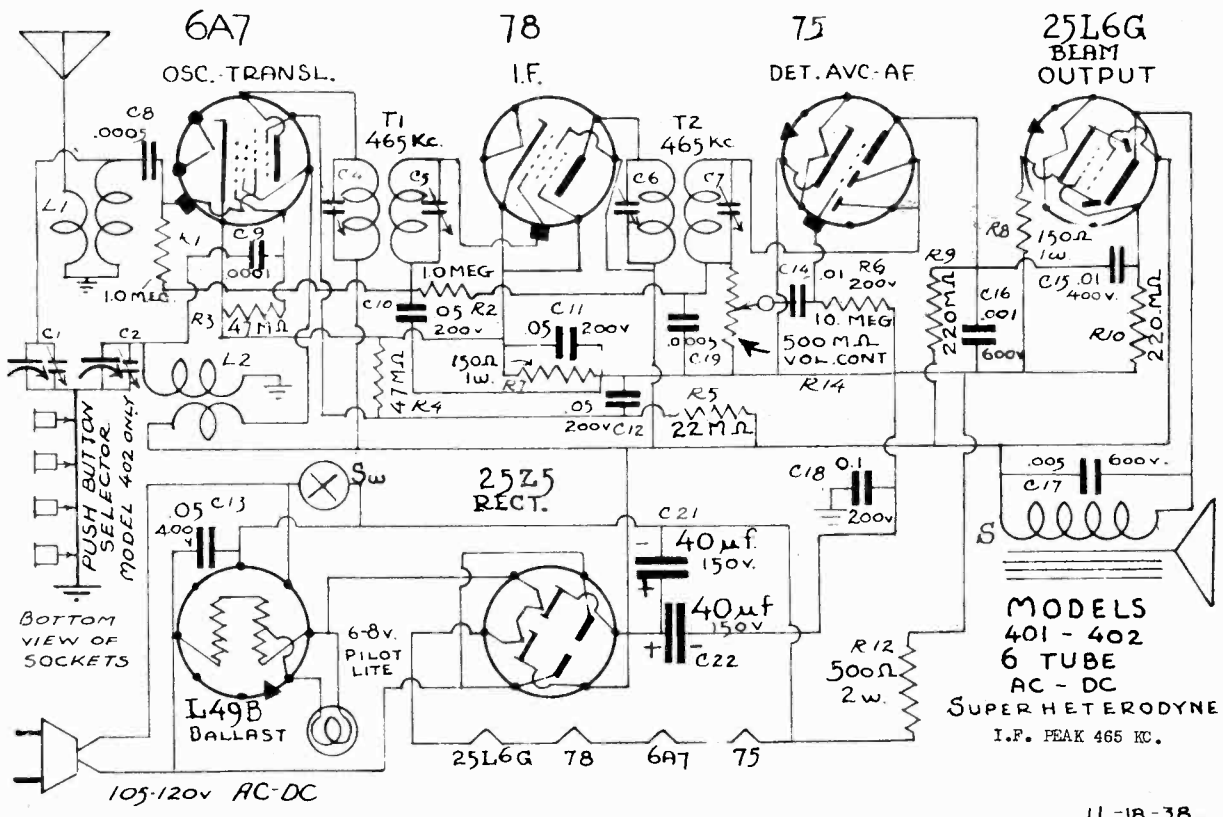
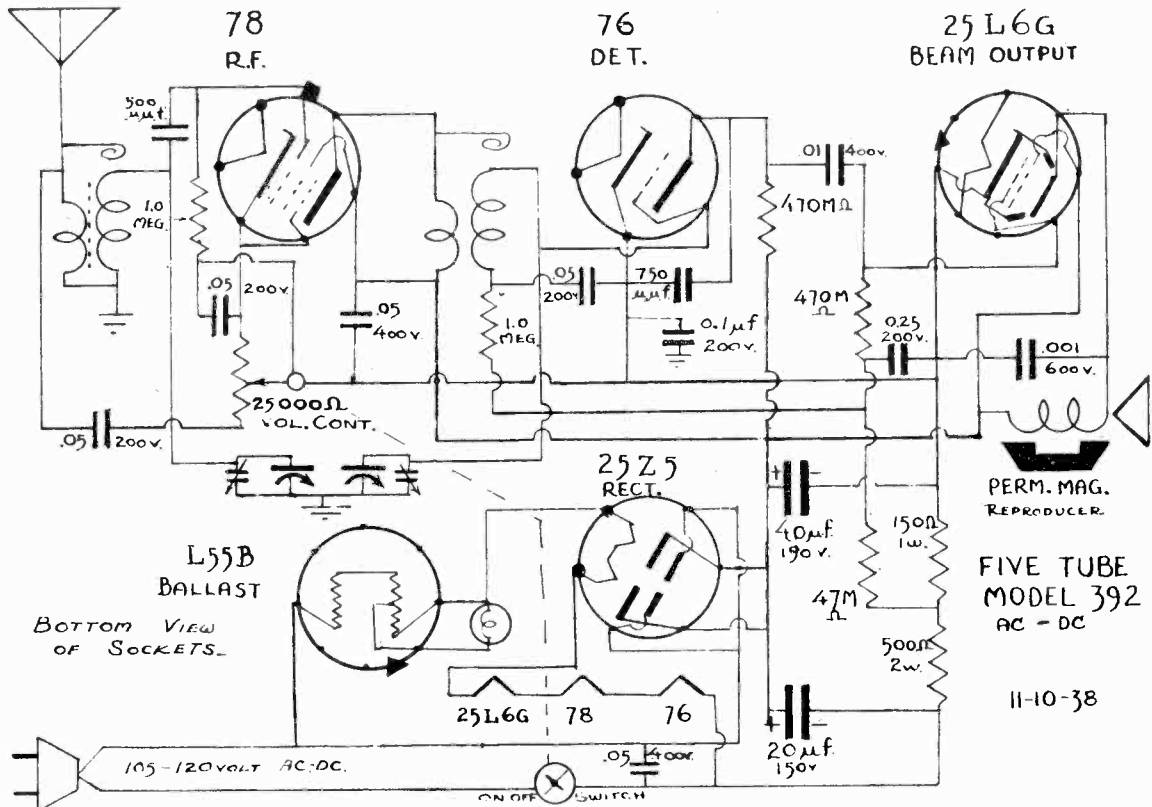
MODEL 386 AW
MODEL 395
Schematics

MISSION-BELL RADIO MFG. CO., INC.



MISSION-BELL RADIO MFG. CO., INC.

MODEL 392
MODELS 401,402
Schematics

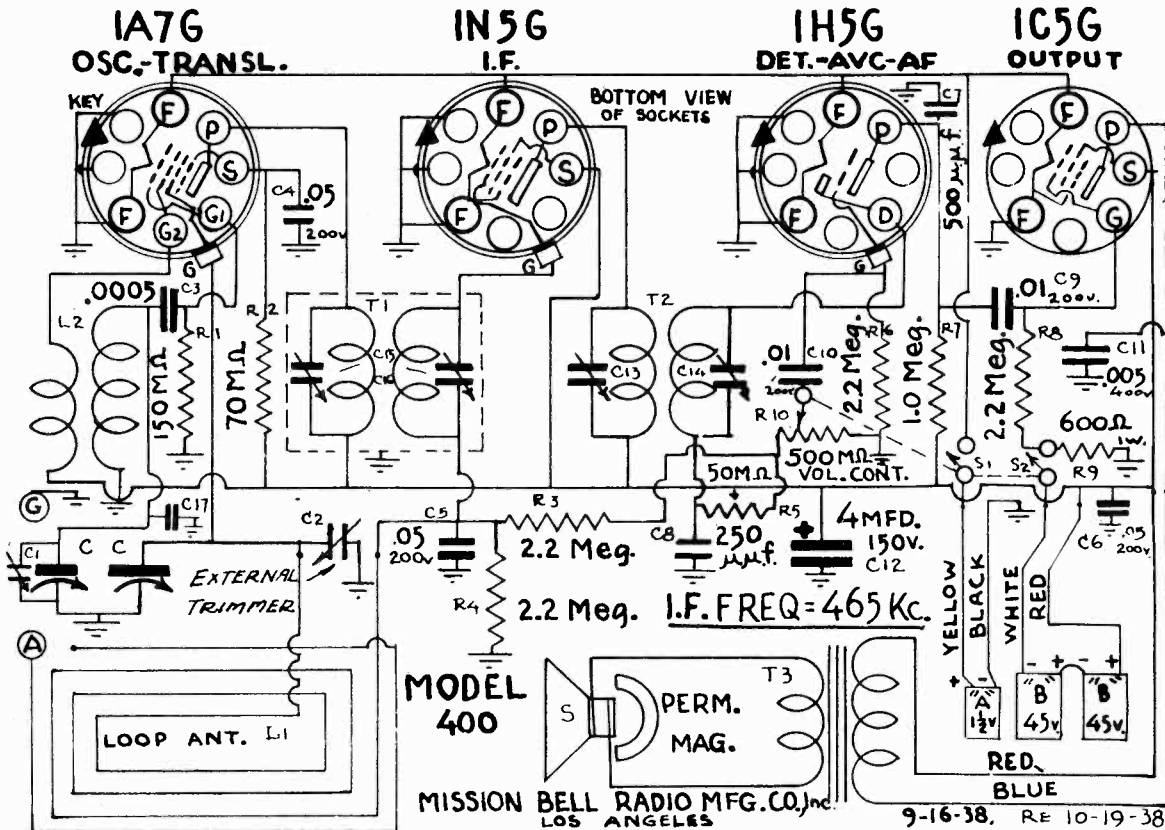
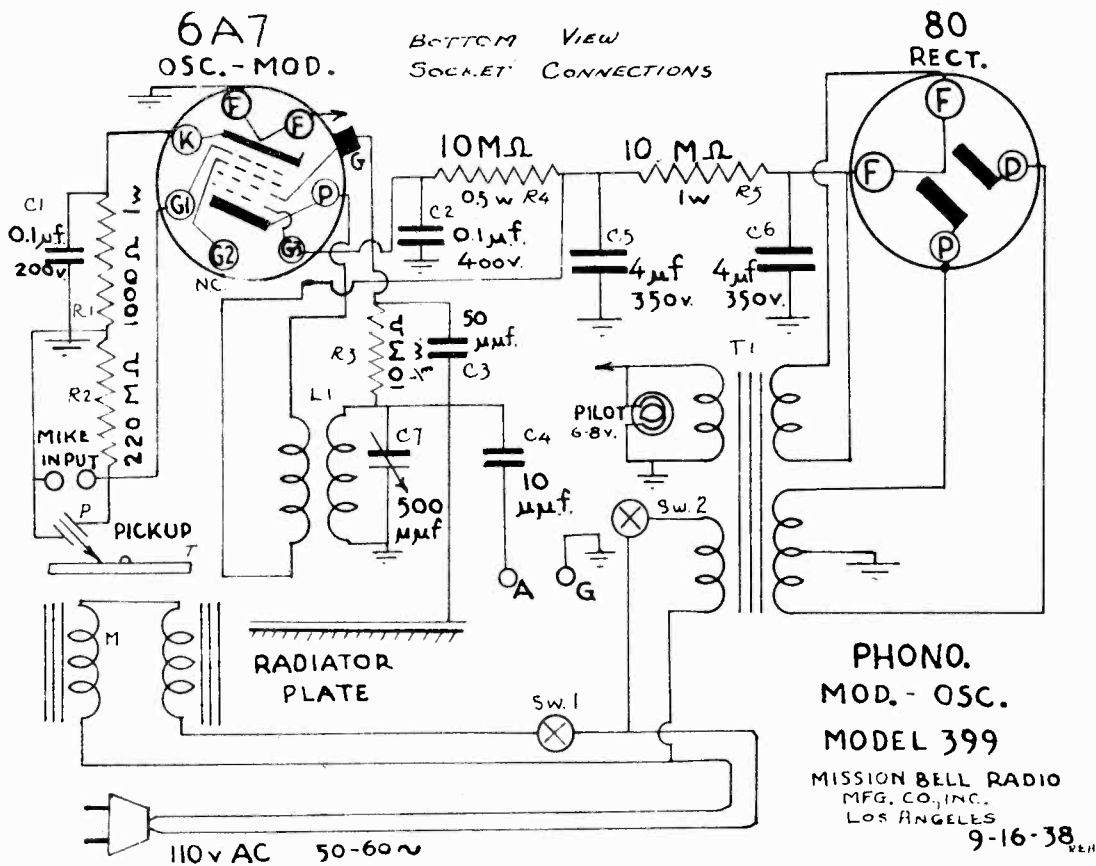


MODEL 399 Phono. Osc.

MODEL 400

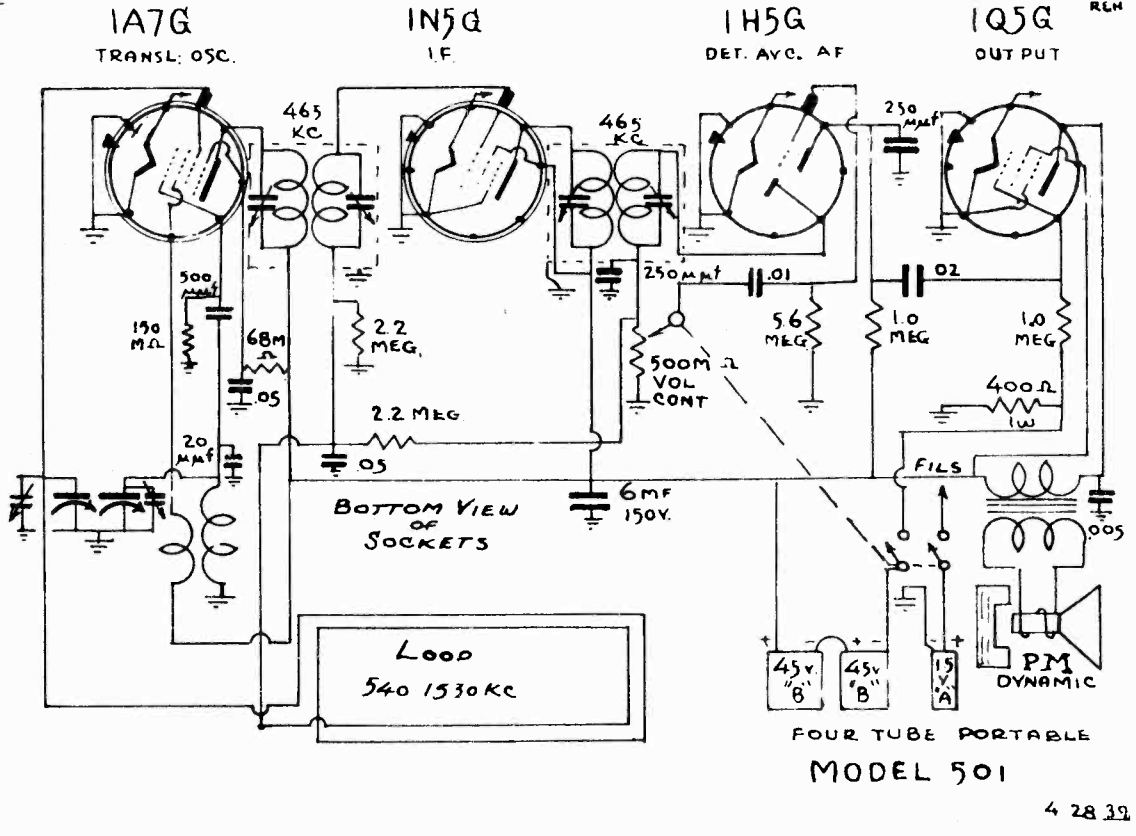
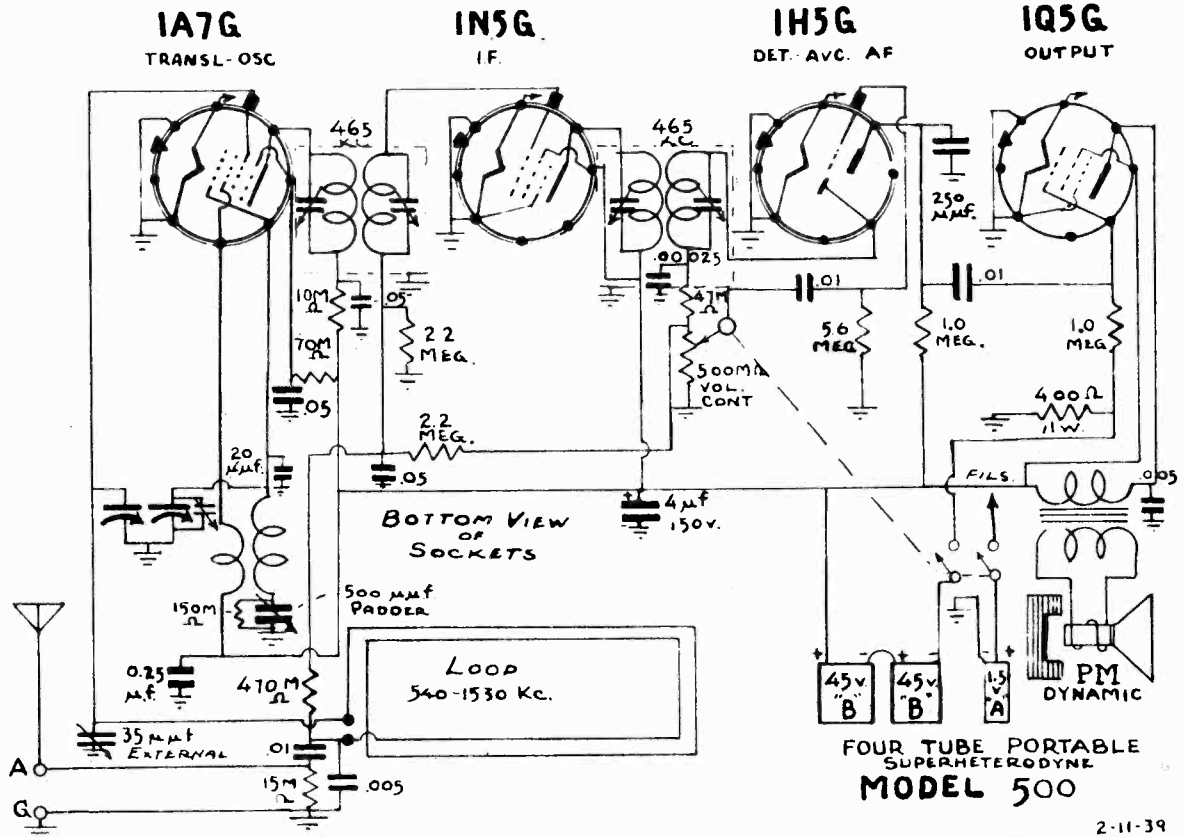
Schematics

MISSION-BELL RADIO MFG. CO., INC.



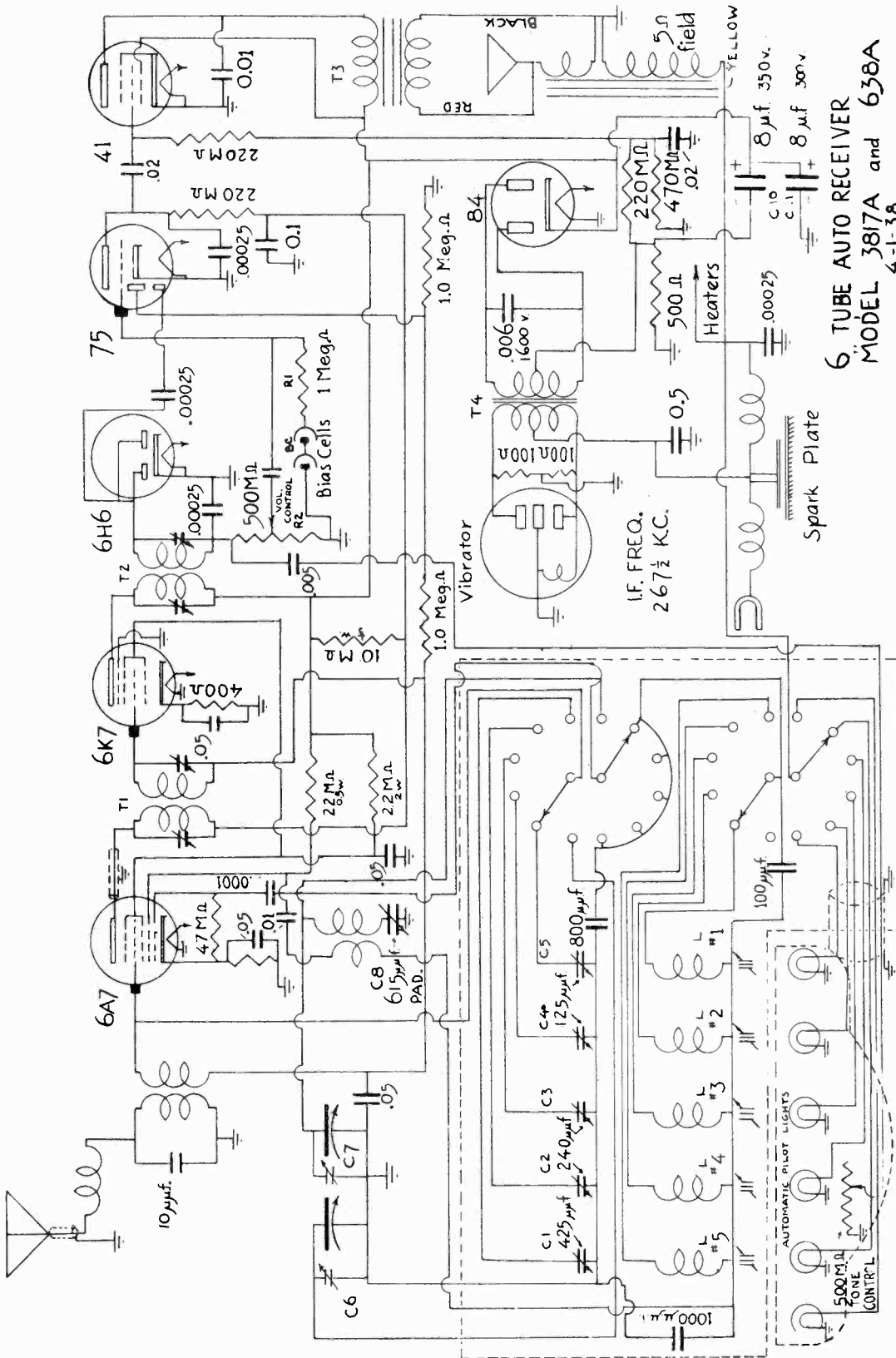
MISSION-BELL RADIO MFG. CO., INC.

MODEL 500
MODEL 501
Schematics



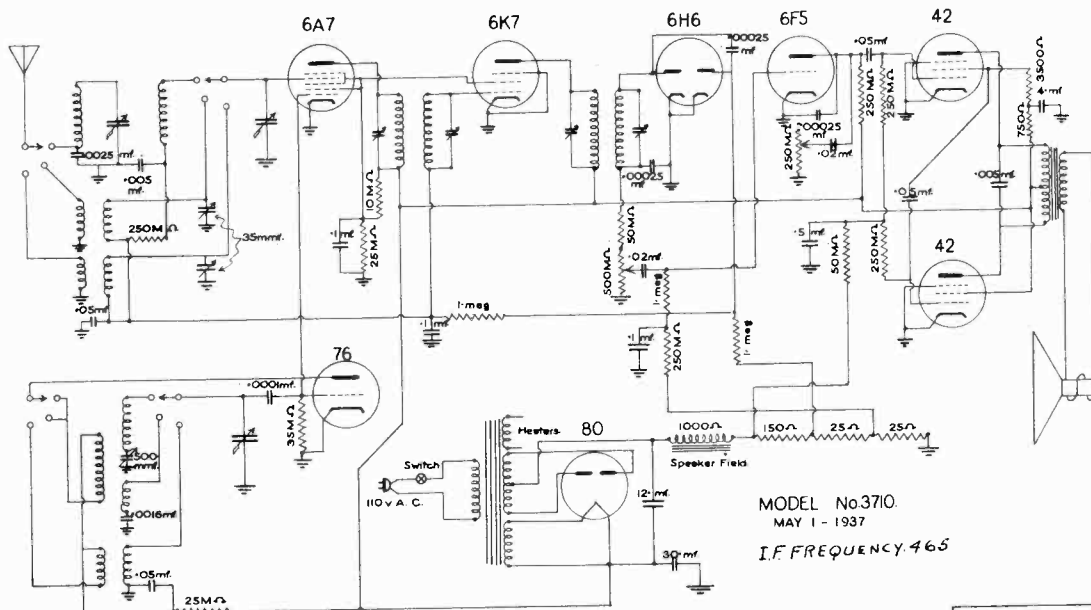
MODELS 638A, 3817A
Schematic

MISSION-BELL RADIO MFG. CO., INC.

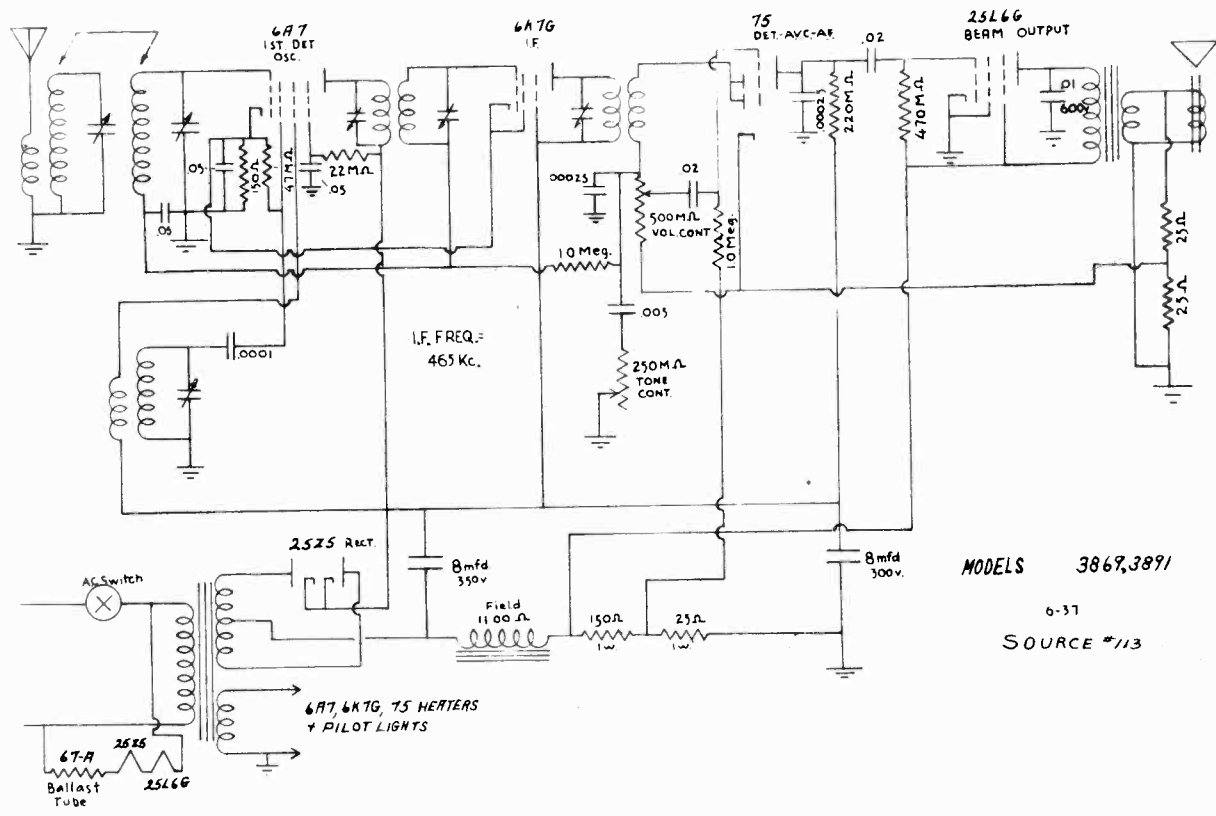


6 TUBE AUTO RECEIVER
MODEL 3817A and 638A
4-1-38

MISSION-BELL RADIO MFG. CO., INC. MODEL 3710
MODELS 3869,3891
Schematics

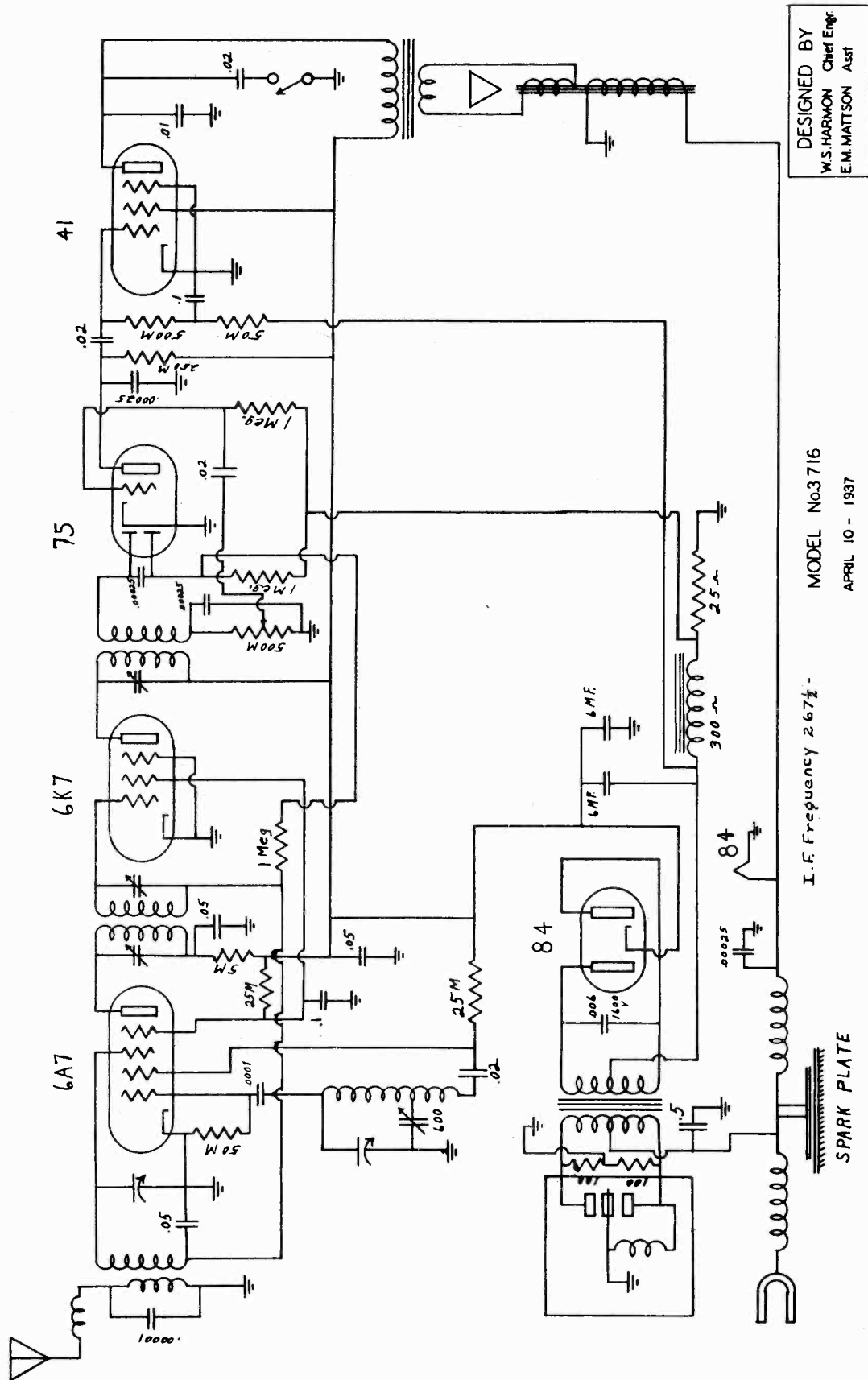


DESIGNED BY
W.S.HARMON Chief Engr.
E.M.MATTSON Asst.



MODEL 3716
Schematic

MISSION-BELL RADIO MFG. CO., INC.



DESIGNED BY
W.S. HARMON Chief Eng'r
E.M. MATTSON Asst

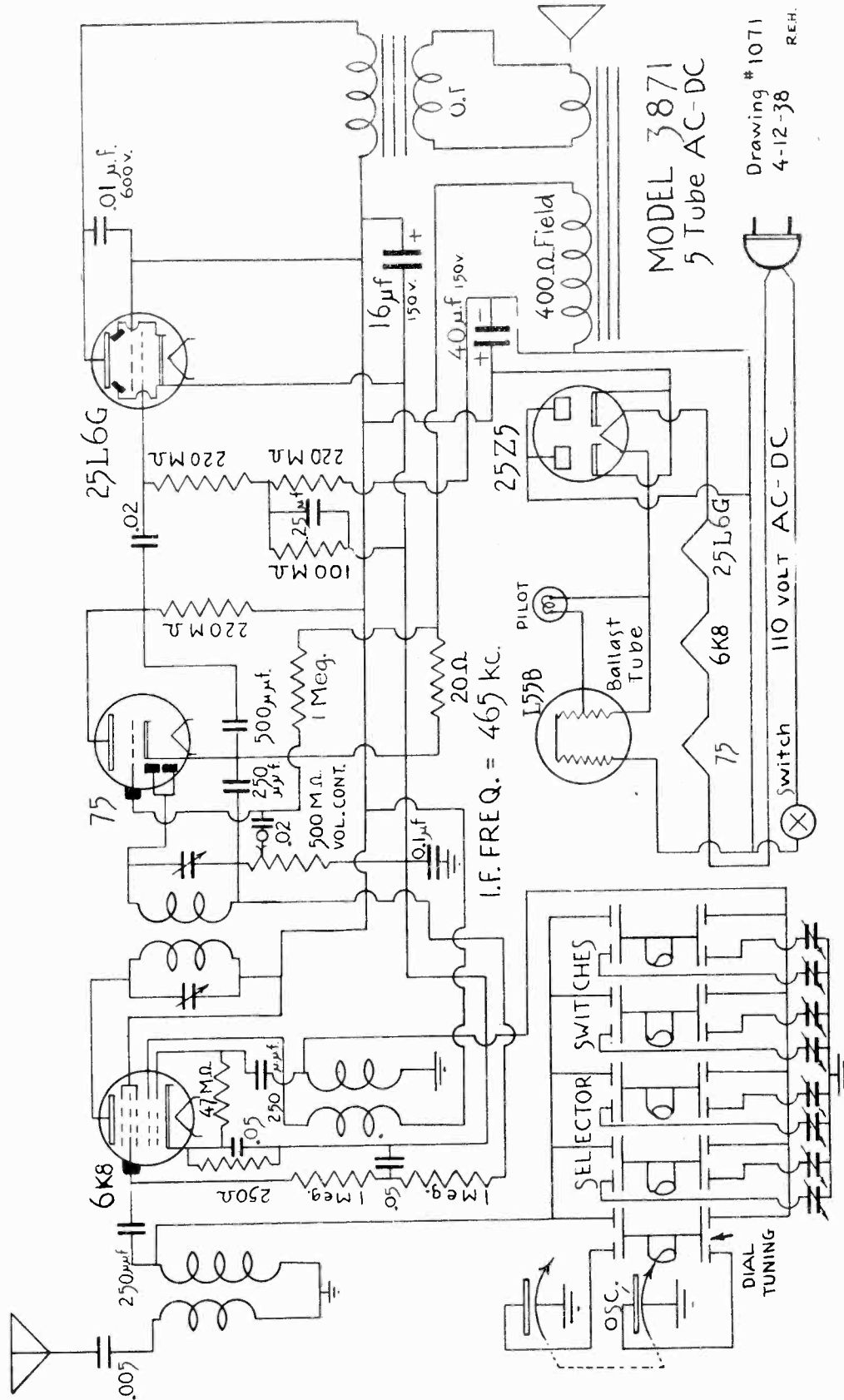
MODEL No. 3716
APRIL 10 - 1937

I.F. Frequency 267k

SPARK PLATE

MISSION-BELL RADIO MFG. CO., INC.

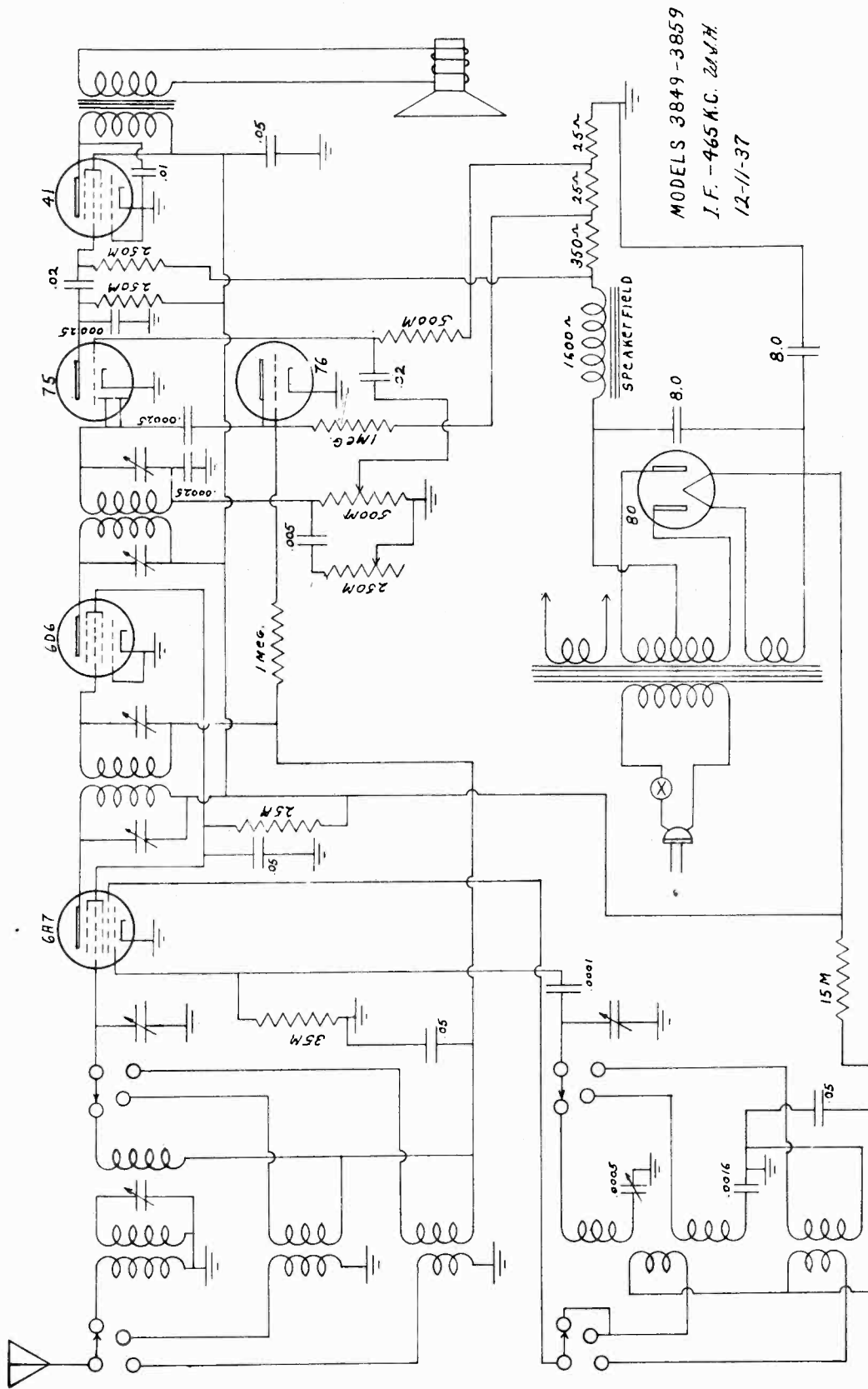
MODEL 3871
Schematic



MODELS 3849, 3859

MISSION-BELL RADIO MFG. CO., INC.

Schematic



MODELS 3849-3859
I.F. - 465 K.C. 24MH
12-11-37

Schematic, Socket
Trimmers, Alignment

MONTGOMERY-WARD & CO.

MODELS 62-123, 62-131
62-133, 62-142, 62-144
62-152, 62-158

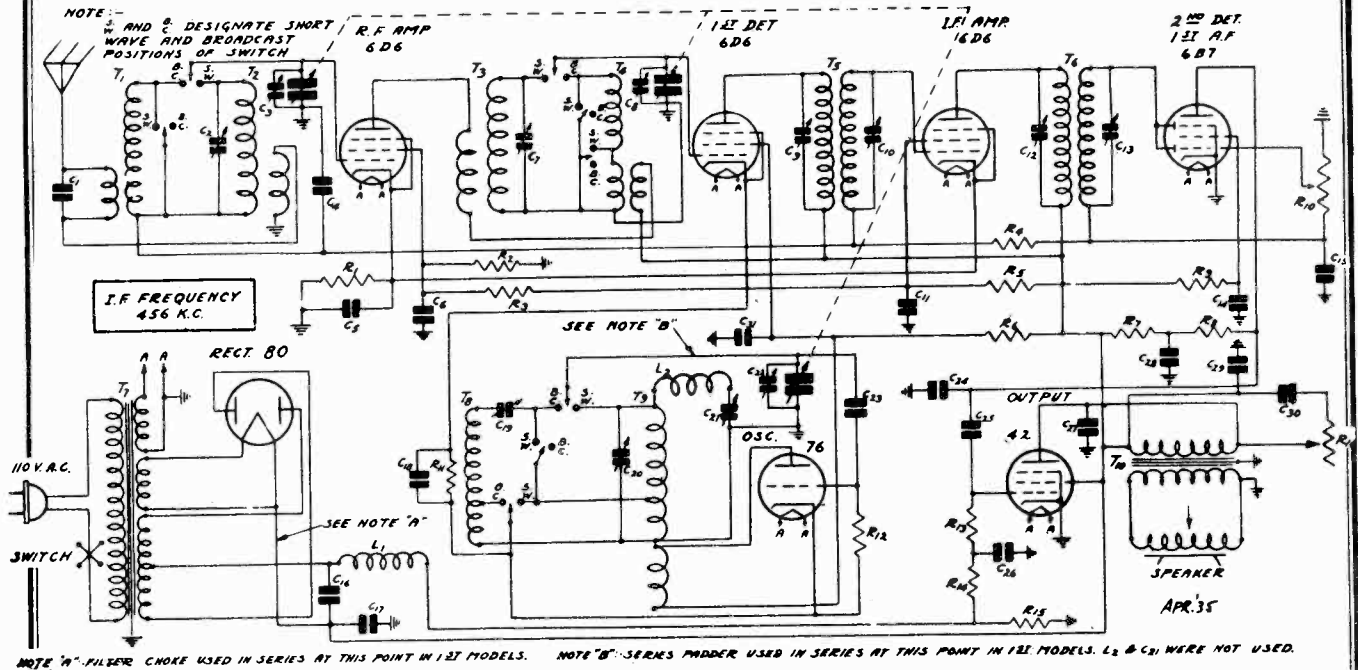


Fig. 1—Schematic Circuit Diagram

Condenser Alignment

Correct alignment is extremely important in connection with all wave receivers. The receivers are all properly aligned at the factory with precision instruments and re-alignment should not be attempted unless all other possible causes of the faulty operation have first been investigated and unless the service technician has the proper equipment. A signal generator that will provide an accurately calibrated signal of 456 K. C. and accurately calibrated signals over the broadcast and short wave bands, 530-1740 K. C. and 5.8-18.3 M. C. is required. An output indicating meter is also necessary. It will be practically impossible to align the receiver if unsatisfactory apparatus is used.

Use a non-metallic screw driver for the adjustments. The complete procedure is as follows:

Intermediate Frequency Adjustment

Set the signal generator for 456 K. C. Connect the antenna lead of the signal generator to the grid of the 1st detector through a .05 mfd. condenser. Turn the tuning condenser rotor until the plates are completely out. The ground lead from the signal generator goes to the ground lead of the receiver. The volume control should be at the maximum position. Attenuate the signal so that A. V. C. action is not obtained.

Then adjust the four I. F. trimmer condensers until maximum output is obtained. The adjusting screws for these condensers are reached from the top of the chassis and are in the round I. F. cans—See Fig. 2. The openings to the trimmer condensers are covered over by a small cover plate which is held in position by a screw. Loosen these screws until the cover plates can be swung around.

Broadcast Band Adjustment

The broadcast short wave switch should be in the broadcast position. Set the signal generator for 1740 K. C. Turn the rotor to the full open position. The antenna lead from the signal generator is in this instance connected to the antenna lead of the receiver. Attenuate the signal so that A. V. C. action is not obtained. Adjust the oscillator broadcast trimmer until maximum output is obtained. This trimmer is on the tuning condenser and its location is shown in Fig. 2.

Then set the signal generator for 1500 K. C. Turn the rotor until maximum output is obtained. Loosen the pointer

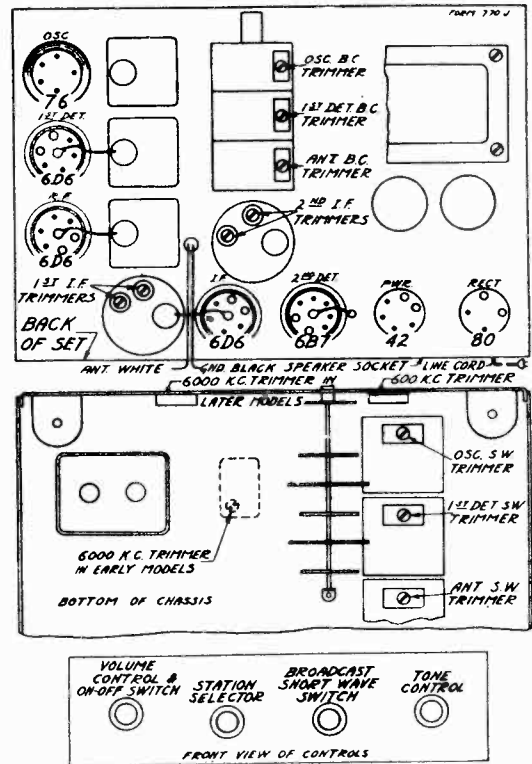


Fig. 2—Tube Arrangement and Location of Trimmers

screw and set the pointer at the 1500 K. C. mark on broadcast band scale. Retighten pointer screw. Then adjust the antenna and 1st detector broadcast trimmers until maximum output is obtained.

Next set the signal generator for 600 K. C. and adjust the 600 K. C. trimmer. The adjusting screw is reached through a hole in the front panel of the chassis as shown in Fig. 2. Turn the tuning condenser rotor until maximum output is obtained. Then turn the rotor slowly back and forth over

MODELS 62-123,62-131
62-133,62-142,62-144
62-152,62-158

MONTGOMERY WARD & CO.

Alignment, Part 2
Voltage, Drive Data
Changes, Parts

Table with columns: Part No., Item, Price. Lists various electronic components like sockets, transformers, and capacitors.

Replace the dial assembly and pointer. Replace the pilot light assembly after which the chassis may be reinstalled in the cabinet.

Changes in Early Models

There are two points at which the early models of this receiver differ from the later models. These points are indicated in Fig. 1 and described below.

Power Unit

In the early models a separate filter choke was used in series at the point indicated in note A in Fig. 1. The values of the two filter condensers C16 and C17 were less than as used at present.

The two power transformers are not interchangeable and care must be taken in ordering for replacement purposes to secure the correct one. The original chassis can be identified by the separate filter choke.

Short Wave Oscillator

Referring to Fig. 1 it will be noted that there is a track-impedance coil connected in series with the short wave oscillator coil and the first models of this receiver these two units, which are required for tracking the short wave oscillator, are not used. Instead a series padding condenser was used at the point in the circuit indicated by note B in Fig. 1.

At the time this change was made a change was also made in the oscillator assembly and care must be taken in ordering models with the original oscillator assembly have no track-impedance coil or green spot of paint on the 80 socket rivet. Later models with the new oscillator assembly and new tracking system have a red spot of paint on the 80 socket rivet.

Twenty-five Cycle Receivers

The twenty-five cycle receiver differs from the sixty-cycle receiver only in the fact that a different power transformer is used. The correct power transformer is shown in the parts list.

The twenty-five cycle chassis can be operated satisfactorily from a six-cycle power supply. However, the receiver is not designed for this type of power supply.

A 110-220 Volt, 40-60 cycle Power Transformer is also available for this model.

BROADCAST AND SHORT WAVE RECEIVER REPAIR PARTS LIST FOR 7 TUBE

When ordering parts be sure and give the part number. Also give the series number which will be found in the License Notice label. If there is a spot of paint on the chassis, give this color.

Table with columns: Part No., Item, Price. Lists repair parts for the broadcast and short wave receiver.

Table titled 'Voltages at Sockets' showing antenna shorts to ground for various tube types and functions.

- (1) Cathode to ground
(2) Subject to variation
(3) Read with 1,000,000 ohm meter
(4) As read across R15

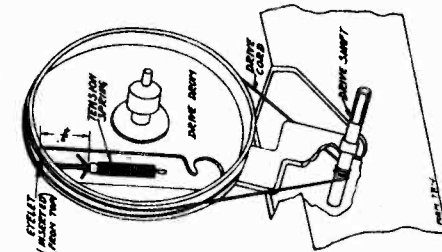


Fig. 3-Drive Cord Adjustment

Wrap the cord in a clockwise direction (facing front of chassis) around the drive drum approximately one-half turn. Then tilt the chassis up on its back panel and bring the cord mentioned in the previous paragraph down to the drive shaft. Wrap it two and one-half times around the drive shaft as shown in Fig. 3.

Then bring this cord up from the drive shaft and wrap it around the drive drum approximately one and one-half turns in a clockwise direction until it is up to the hole in this drum as illustrated. Invert the free end of the cord through the hole in the eyelet and tie it to the end of the tension spring. The 3/8" from the flange of the drum as shown in Fig. 3. Cut off the surplus length of cord after it is knotted. Then secure the other end of the tension spring over the spur on the drive drum.

this setting at the same time adjusting the 600 K. C. trimmer screw until the highest output is obtained.

Short Wave Band Adjustment

CAUTION-After the broadcast band alignment as described above has been made, do not change the adjustment of any of the broadcast band trimmers. Turn the broadcast short wave switch to the short wave position and adjust the volume control to the maximum. Then adjust the signal generator for 18,400 K. C. Then adjust the oscillator short wave trimmer for maximum output. This trimmer is reached from under the chassis and its position is shown in Fig. 2.

Next set the signal generator for 15,000 K. C. Turn the rotor until the dial pointer is at the 15,000 K. C. mark on the short wave portion of the dial scale. Then adjust the antenna and 1st detector short wave trimmers until maximum output is obtained.

In aligning the short wave band of the receiver, it will be noted that the signal will be heard with the signal generator set at two points 912 K. C. apart. That is, if the receiver is tuned to 15,000 K. C. a signal will be heard when the signal generator is set at 15,000 K. C. and again at approximately 15,912 K. C. This is due to image reception of the fact that a 450 K. C. beat is obtained when the signal is 450 K. C. lower than the receiver oscillator, and also when the signal is 450 K. C. higher than the receiver oscillator. Care should be taken to see that the pointer of the two frequency dials which a signal is heard, in order that the oscillator in the receiver will be 450 K. C. higher in frequency than the signal.

Next set the signal generator for 6000 K. C. and adjust the 9000 K. C. trimmer. In the first models of this receiver, the condenser was not used. In the later models it is reached through a hole in the front panel of the chassis as shown in the same illustration. Turn the tuning condenser rotor until maximum output is obtained. Then turn the rotor slowly back and forth over this setting, at the same time adjusting the 6000 K. C. trimmer screw until the highest output is obtained. In the early models this adjustment is broad while in the later models it is more critical.

Caution

The can of electrolytic condenser C16 is not at ground potential. Therefore in any work on the chassis, care should be taken not to touch this can, and any other grounded point such as the other electrolytic condenser can.

Replacing Drive Cord

Remove chassis from cabinet. Take off the pilot light assembly by lifting off the two sockets and spring clips.

Detach the large pointer by removing the screw at the center of the dial. Loosen the dial assembly by taking out the two screws which secure the bottom of this assembly to the chassis. Then lay the complete dial assembly face downward in front of the chassis. It is not necessary to remove the volume control and tone control collars which hold the indicator cords of these two controls in position.

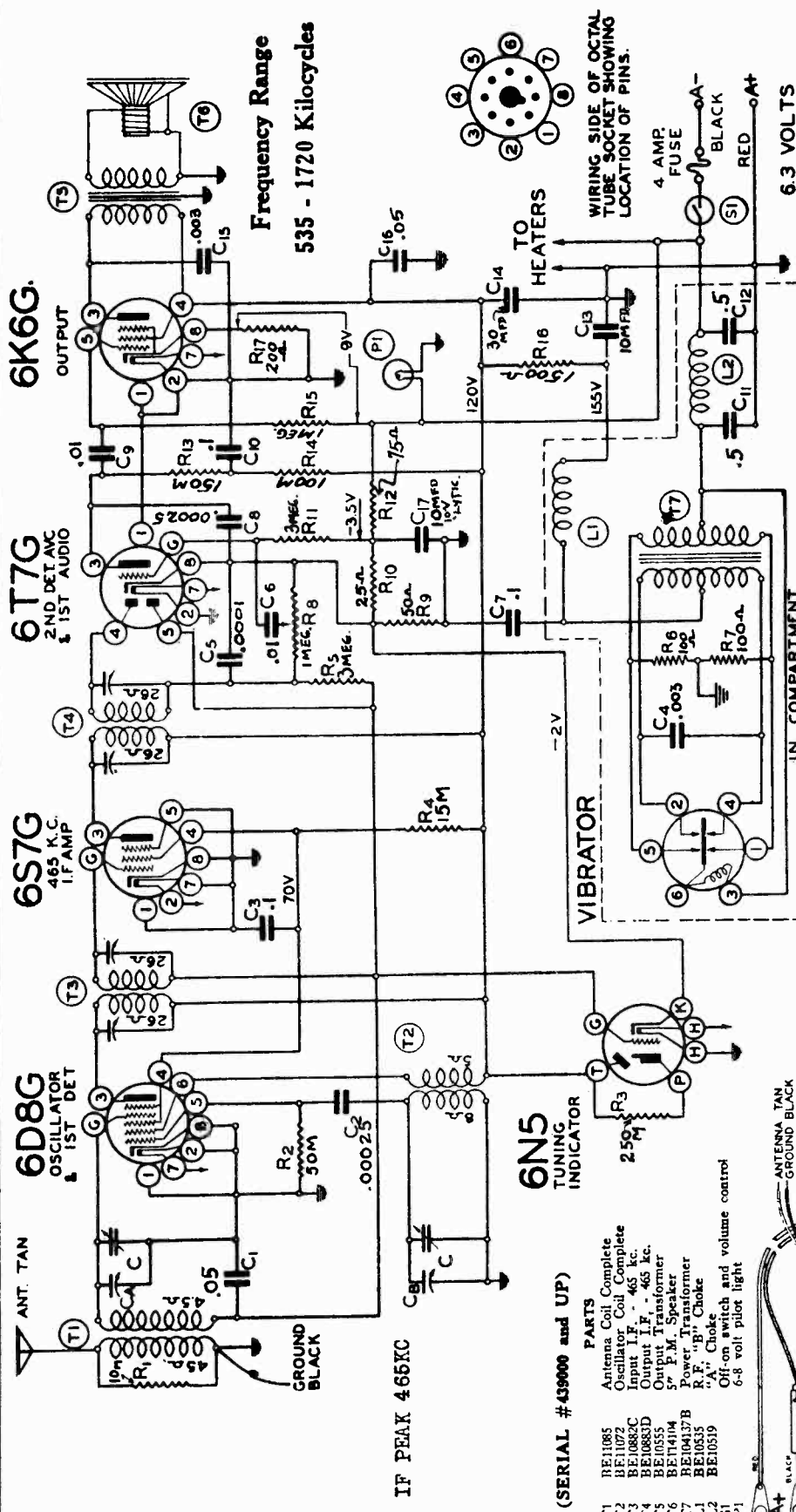
Turn the drive drum until the opening in this drum is approximately vertical and with the hole at the top as shown in Fig. 3.

Remove the tension spring and the old drive cord. See that the eyelet is in the hole in the drive drum as shown in Fig. 3. Insert one end of the drive cord from the outside through the hole in the eyelet in the drive drum.

Schematic, Voltage, Socket Trimmers, Alignment

MONTGOMERY WARD & CO.

MODELS 62-280, 62-282, 62-284 Series B, Above Ser. 439000



ALIGNING I.F. TRANSFORMERS: (465 K.C.):
 These I.F. transformers have two adjustments, both of which are accessible from the top of chassis (see Fig. 1).
 1. With volume control full on (extreme right of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
 (a) Connect external oscillator set at 465 kilocycles, in series with .1 mfd. condenser, to the control grid cap of the type 6S7G tube, and adjust the output I.F. transformer (No. 108-83D) to resonance.
 (b) Move oscillator output clip from grid of 6S7G to grid of 6D8G and adjust input I.F. transformer (No. 108-82C) to resonance.
 (c) With oscillator still connected to 6D8G, readjust output I.F. transformer (108-83D) if necessary.

R.F. ALIGNMENT: (535-1720 K.C.):
 1. With gang condenser in its minimum capacity position, plates entirely out of mesh, connect an external oscillator in series with a 200 mfd. condenser to the antenna lead and chassis ground and make the following adjustments:
 (a) With external oscillator set at 1720 kilocycles, adjust oscillator trimmer to resonance. This adjustment is on the top of rear section of variable gang condenser. (See Fig. 1).
 (b) Re-set external oscillator to 1400 kilocycles, rotate condenser, pick up oscillator signal and adjust antenna trimmer to resonance. (Top of front section of gang condenser).
 (c) Check sensitivity at 600 and 1000 kilocycles.

- (SERIAL #439000 and UP)**
- PARTS**
- T1 BE11085 Antenna Coil Complete
 - T2 BE11072 Oscillator Coil Complete
 - T3 BE10882C Input I.F. - 465 kc.
 - T4 BE10883D Output I.F. - 465 kc.
 - T5 BE10555 Output Transformer
 - T6 BE104104 P. P. Speaker
 - T7 BE104137B P. P. Transformer
 - T8 BE104105 P. P. Choke
 - T9 BE10519 Off-on switch and volume control

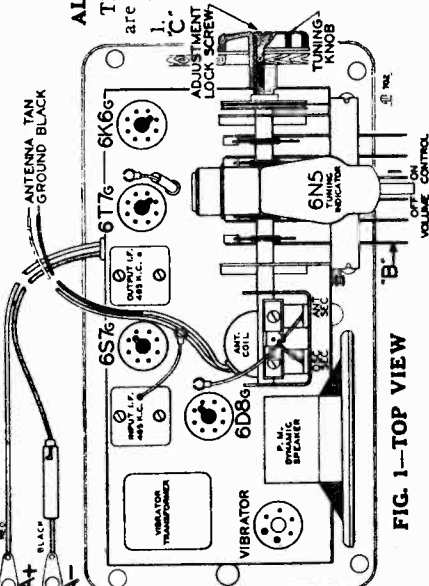


FIG. 1—TOP VIEW

MODELS 62-280,62-282,62-284
 MODELS 62-323,62-353
 MODEL 62-324
 MODEL 62-453
 MODEL 62-459
 MODELS 62-501,62-502
 MODELS 62-504,62-505

MONTGOMERY WARD & CO

MODEL 62-552
 MODEL 62-553
 MODELS 62-558,62-1558,62-2558
 MODEL 62-601
 MODELS 93BR508A,93BR509A
 MODEL 93BR564A
 Tuner Data

TUNER DATA

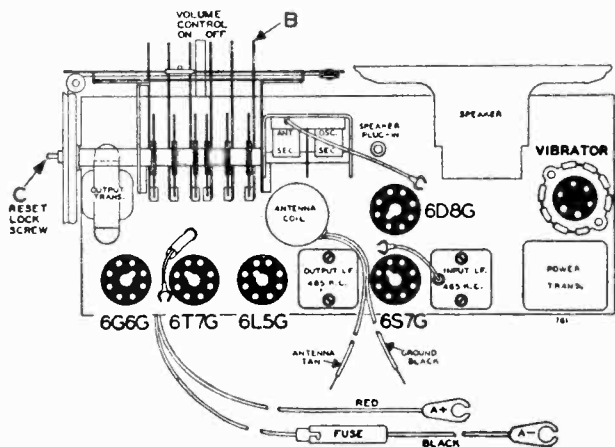


FIG. 1—TOP VIEW

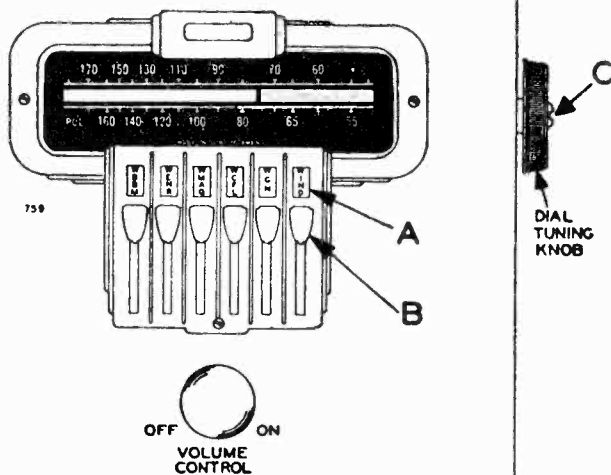


FIG. 2—FRONT VIEW

OPERATION:

The two control knobs in sequence from left to right are (see Fig. No. 2)

- Knob 1, Volume Control and On-Off Switch.
- Knob 2, Tuning Knob. (Side of Cabinet).

KNOB 1. VOLUME CONTROL AND "ON"- "OFF" SWITCH ARE COMBINED:

When turning on, a click will be heard and the dial will light. Wait approximately 45 seconds for the tubes to heat up. Turn knob all the way to the left to turn set off.

KNOB 2. MANUAL TUNING:

This radio may be used to tune in stations either by the conventional manual method or by using the Automatic levers. The tuning range of the radio is from 535 to 1735 kilocycles, the dial being calibrated in channel numbers. It covers all standard broadcast channels and one police band.

To convert channel numbers to kilocycles, add one zero. For example, 170 is 1700 kilocycles.

PROCEDURE FOR SETTING THE AUTOMATIC LEVERS:

There are six levers on the dial by means of which six stations may be selected, (See "B," Fig. 2).

Press down any one of the six Automatic levers. Holding it down, tune in by means of tuning knob No. 2 any one of your favorite stations. Turn the tuning knob very slowly back and forth until signal is clearest. The stations will then be accurately tuned in.

Release this lever and press down any other Automatic lever. Hold this lever down and tune in by means of knob No. 2 another favorite station.

Follow this procedure until stations have been set on all the levers. Hold tuning knob securely with left hand to prevent it from turning and with a coin or screw driver, tighten the special locking screw ("C") in the center of the tuning knob, (See Fig. 2).

This screw will lock in place all stations you have selected on the Automatic levers. (Note: Locking Screw "C" is loose when radio is shipped from factory).

If you should desire to change any station you selected to another, hold the tuning knob securely and loosen locking screw ("C") one or two turns; select the new station as explained.

BE SURE TO RETIGHTEN THE LOCKING SCREW, otherwise the stations will not stay adjusted to the levers.

Above each Automatic lever an opening in the escutcheon is provided for inserting station call letters, (See "A," Fig. 2).

Punch the correct station call letter tabs from the set of sheets supplied and insert them into the rectangular openings in the escutcheon above each of the levers. One of the small, clear celluloid tabs supplied should be snapped into place over each of the station call letter tabs.

The Automatic Tuner dial is now set up for quick tuning. Press down on the lever and your favorite station is selected.

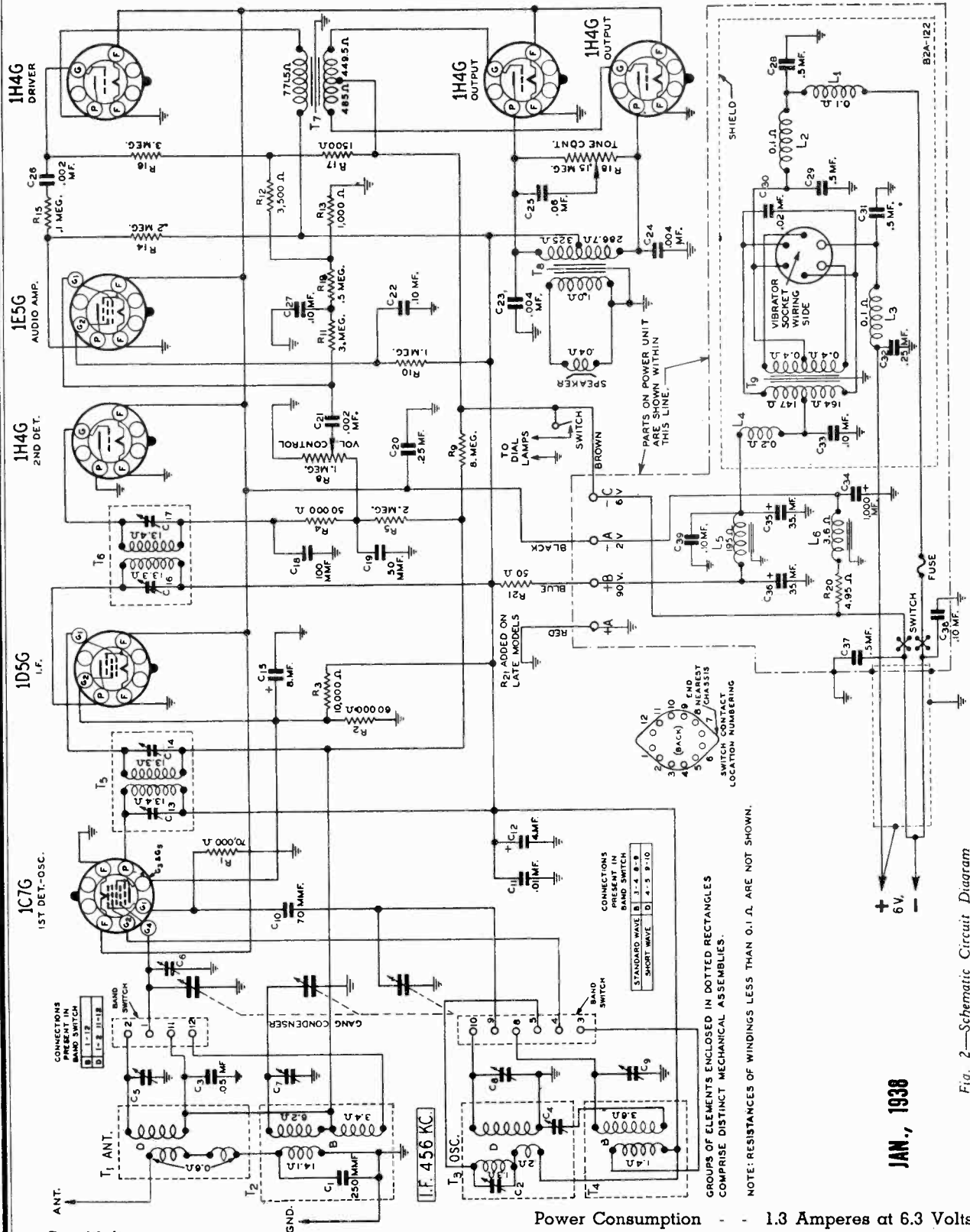
TYPICAL TUNING DATA

The procedure for setting the Automatic Levers is the same for all the above mentioned models. However, the number of Automatic Levers may differ.

The locking screw "C" and automatic levers shown in both figs 1 and 2 are for the Model 62-552 receiver. However, this is a typical receiver.

MONTGOMERY-WARD & CO.

MODELS 62-292, 62-294
62-373, 62-374
Schematic



Sensitivity

B Range.....13.5 Microvolts Average
D Range.....21.0 Microvolts Average

Tuning Frequency Range

B Range..... 528 to 1730 KC
D Range..... 5750 to 18300 KC

Power Consumption - - 1.3 Amperes at 6.3 Volts
Power Output - - - - 360 Milli-watts Undistorted
725 Milli-watts Maximum

Selectivity - - 35 KC Broad at 1000 times Signal
Intermediate Frequency - - - - 456 KC

Speaker - - - - 6" P.M. Dynamic—Mantel Models
8" P.M. Dynamic—Console Models

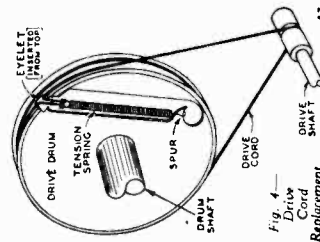
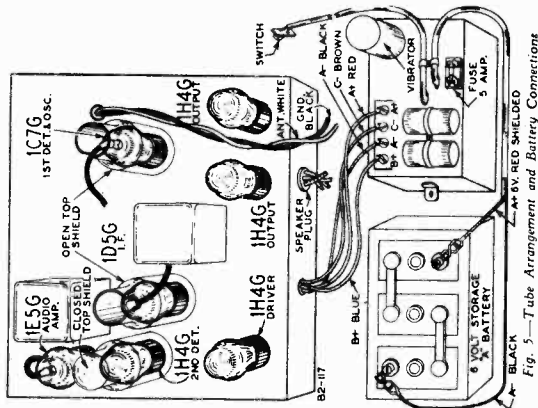
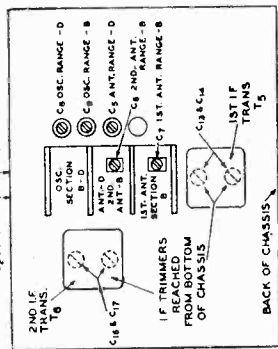
JAN., 1938

Fig. 2—Schematic Circuit Diagram

MODELS 62-292, 62-294
 62-373, 62-374
 Alignment, Voltage

MONTGOMERY-WARD & CO.

Coils, Socket, Trimmers
 Drive Data, Notes



ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.
 Connect Radio Chassis to Ground Post of Signal Generator. With a Short Heavy Lead.
 Allow Chassis and Signal Generator to "Heat Up" for Several Minutes.

The following equipment is required for aligning:
 An All Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
 Output Indicating Meter: Non-Metallic Screwdriver.
 Dummy Antennas — .1 mf., 200 mf., and 400 ohms.

STEP (Follow Order as Given)	BAND SWITCH SETTING	DUMMY ANTENNA SETTING	SIGNAL GENERATOR FREQUENCY SETTING	TRIMMERS ADJUSTED See Illustration	INITIAL STEPS	ADJUSTMENT
I.F.	Range B	.1 mf.	456 KC	Grid of 1st Det. 2nd I.F. (C13) & (C14) 1st Ant. Range B (C7) 2nd Ant. Range B (C2)	Turn Rotor to Full Open	Adjust to Maximum Output
RANGE B	1730 KC	200 mf.	1730 KC	Oscillator Range B (C9)	Turn Rotor to Full Open	Adjust to Maximum Output
1500 KC	Range B	200 mf.	1500 KC	1st Ant. Range B (C7) 2nd Ant. Range B (C2)	Turn Rotor to Max. Output Set Indicator to 1500 KC—See Note A	Adjust to Maximum Output
600 KC	Range B	200 mf.	600 KC	Antenna Lead	Turn Rotor to Max. Output	Adjust to Maximum Output
RANGE D	18300 KC	400 Ohm	18300 KC	Antenna Lead	Turn Rotor to Full Open	Adjust to Maximum Output
15000 KC	Range D	400 Ohm	15000 KC	Antenna Lead	Turn Rotor to Max. Output	Adjust to Maximum Output
6000 KC	Range D	400 Ohm	6000 KC	Antenna Lead	Turn Rotor to Max. Output	Adjust to Maximum Output

NOTE A—In sets using the finger tip tuning dial, remove the retaining cap and turn the dial scale in position. Readjust rotor to maximum output. Hold the station selector ring and turn the dial scale until the pointer is at the 1500 KC mark. Replace the retaining ring.

NOTE B—Turn the rotor back and forth and adjust the trimmer until the point of greatest intensity is obtained.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

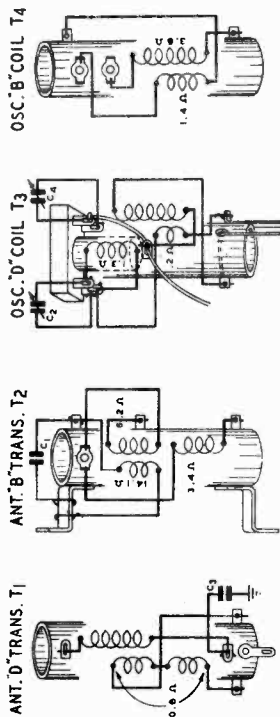
After each range is completed, repeat the procedure as a final check.

After alignment of Range D has been completed, do not make any adjustments of the Range B trimmers. If this is done, it will be necessary to realign Range D.

CAUTION—When aligning the short wave band be sure NOT to adjust at the image frequency. This can be checked as follows: Let us say the signal generator is set for 15,000 KC. The signal will then be heard at 15,000 on the dial of the radio. The image signal, which is much weaker, will be heard at 15,000 less 912 KC, or 14,088 KC on the dial. It may be necessary to increase the input signal to hear the image.

A synchronous type vibrator is used in the power unit. This vibrator interrupts the current through the primary of the power transformer and also rectifies the current in the secondary circuit.

If, after a new 2 section dry electrolytic condenser has been installed, vibrator hash is encountered, reverse the connections of the 2 sections.



NOTE: RESISTANCES OF WINDINGS LESS THAN 1.0 ARE NOT SHOWN

VOLTAGES AT SOCKETS

Volume Control: Maximum
 Readings taken with 1000 Ohm-per-volt meter.

TUBE	FUNCTION	VOLTAGE BETWEEN SOCKET PRONG AND GROUND (Unless otherwise indicated)						
		Prong No. 2	Prong No. 3	Prong No. 4	Prong No. 5	Prong No. 6	Prong No. 7	Control Grid Bias
1C76	1st Det.-Osc.	0	103	66	103	2	2	Control Grid Bias
1D5G	I.F.	0	103	66		2	2	
1H4G	2nd Det.	0	0			2	2	
1E5G	Audio Amp.	0	40(1)	19(1)		2	2	1.0 Across R13
1H4G	Driver	0	100			2	2	Across R12 & R13
1H4G	Output	0	102		6	2	2	6 -C to Ground

(1) As read on 1000 volt scale.

Schematic Voltage Socket, Trimmers

MONTGOMERY WARD & CO.

MODELS 62-323, 62-353 Series A, Issue A Ser. 8J305400 up Issue B, Ser. 9B613100 up

Power Consumption 55 Watts (at 115 Volts 60 Cycles) Power Output 1.5 Watts Undistorted, 3.2 Watts Maximum

- BE10653 .25 x 400 V. .0005 Mica BE12939 .01 x 400 V. .0005 Mica BE10011 .01 x 400 V. .0005 Mica BE12921 .01 x 400 V. .0005 Mica BE10011 .01 x 400 V. .0005 Mica BE10943B 8 mid.-350 v. v. lyric BE11963B 12 mid.-350 v. v. lyric BE10989 100 x 800 V. C18 and C19 in same unit. C5 and C8 in same unit.

PARTS

- BE1193C SW. BC. Antenna Coil Complete BE11089 SW. BC. Oscillator Coil Complete BE108105G Output I. F. -465 kc. BE108106G Output I. F. -465 kc. BE10575 Power Transformer BE104124B 6" Speaker Dynamic (1500 ohm field) BE114125 Band Switch BE12354 Off-on Switch, on volume control BE101126 BE10794 6.3 v. Fluor Light T-44

CERTAIN PARTS ARE DIFFERENT IN THE TWO ISSUES. THESE DIFFERENCES ARE SHOWN BELOW.

FOR ISSUE "A" ONLY

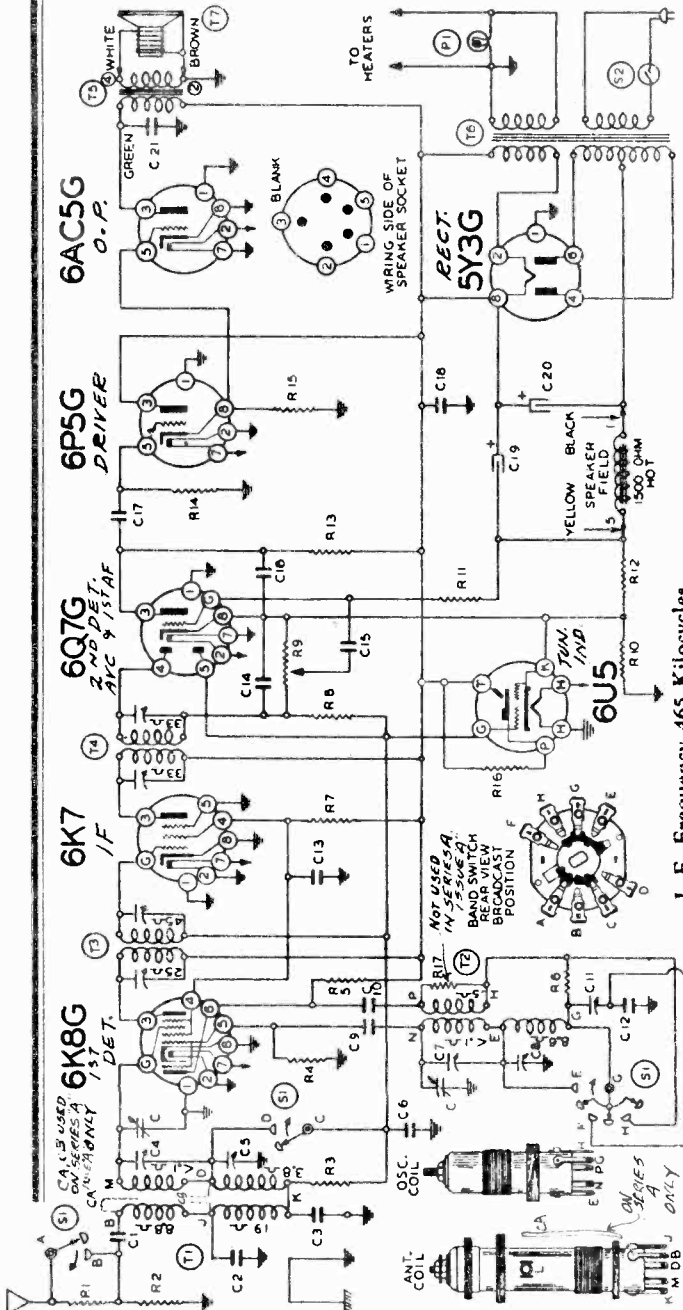
- Adjustable Capacitor BE13017 10M ohm-1/2 W. BE13023 40 ohm-1/2 W.

FREQUENCY 540 TO 1720 Kilocycles RANGE 5.45 to 18.3 Megacycles

- BE12949 .0009 Mica BE10077 .00304 x 600 V. BE13065 30M ohm-1 W. BE13020 40 ohm-1/2 W. BE12439 SW. Antenna Trimmer 2-25 mmid. BE12453 BC. Antenna Trimmer 1-10 mmid. BE10022 .05 x 400 V. BE12439 SW. Oscillator Trimmer 2-25 mmid. BE12453 BC. Oscillator Trimmer 2-25 mmid. BE12938 .002 x 600 V. W.C. B.C. Series Pad BE10025 350 mmid. W.C. B.C. Series Pad BE12431B .004 Compression Type (Short Wave Osc. Pad) BE12912

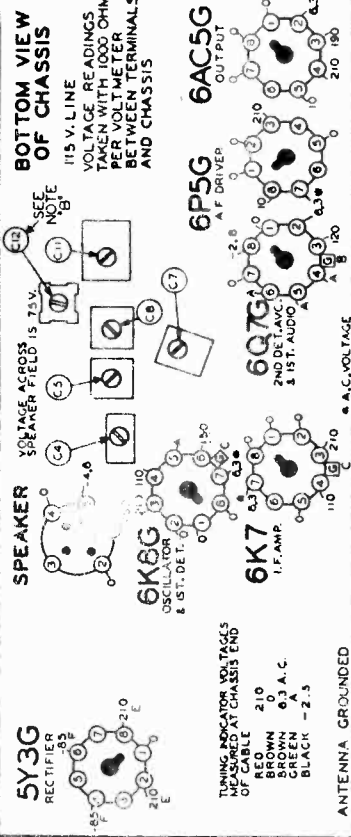
FOR SETTING UP PUSH BUTTONS, SEE INDEX.

REPAIR PARTS Series A Issue A (Serial No. 8J305400 and up) Series A, Issue B (Serial No. 9B613100 and up)



I. F. Frequency 465 Kilocycles

- THE FOLLOWING PARTS ARE COMMON TO BOTH ISSUES A AND B: BE13041 800 ohm-1/2 W. BE13020 10M ohm-1/2 W. BE13019 200M ohm-1/2 W. BE13012 50M ohm-1/2 W. BE13010 1500 ohm-1/2 W. BE13042 20M ohm-1/2 W. BE1304 3 megohm control (volume) BE101126 1 megohm control (volume) BE10274 2 gang variable condenser BE12987 .000105 Mica



NOTE: Circuit diagram and voltage chart indicate connections and voltage measurements for the cathode-ray tuning eye tube type 6U5. This data only applies to the model 62-323; the model 62-353 is not equipped with a cathode-ray tuning eye.

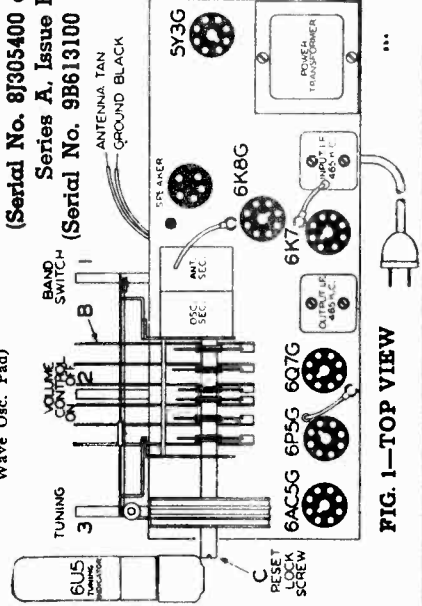


FIG. 1-TOP VIEW

MODELS 62-323, 62-353
Series A, Issues A, B
Alignment, Notes

MONTGOMERY WARD & CO.

MODEL 62-380, Series A
Alignment, Socket
Trimmers

SERVICE NOTES:
Voltages taken from different points of circuit to chassis are measured with volume control, full on, all tubes in, their resistances are measured with a voltmeter having a resistance of 1000 ohms per volt.
All voltages as indicated on the voltage chart are measured with 115 volts on the primary of the power transformer.
Resistances of coil windings are indicated in ohms on the schematic circuit diagram.
To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.
Excessive hum, stuttering, low volume and a reduction in all D. C. voltages is usually caused by a shorted electrolytic condenser; open by-pass condensers frequently cause oscillation and distorted tone.
Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40, 50, 60 cycles and with primary taps for 110, 130, and 230 volts.

ALIGNMENT INSTRUCTIONS:
CAUTION:—No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded

The following equipment is required for aligning:
• An all wave signal generator which will provide an accurately calibrated signal at the test frequency as listed.
• Output indicating meter.
• Non-metallic screwdriver.
• Dummy antenna—1 mfd., 200 mmf., and 400 ohms.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.
After each band is completed, repeat the procedure as a final check.

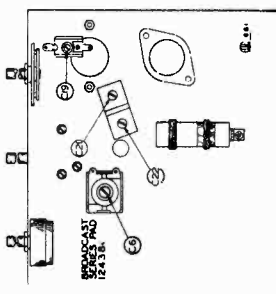


FIG. 3—BOTTOM VIEW SHOWING TRIMMERS

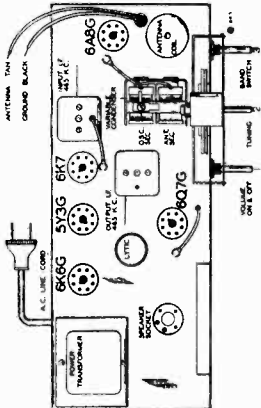


FIG. 1—TOP VIEW

MODELS 62-323, and 62-353 Series A, Issues A & B
ALIGNMENT PROCEDURE

The following equipment is required for aligning:
• An all wave signal generator which will provide an accurately calibrated signal at the test frequency as listed.
• Output indicating meter.
• Non-metallic screwdriver.
• Dummy antenna—1 mfd., 200 mmf., and 400 ohms.

BAND	Frequency Setting	SIGNAL GENERATOR Dummy Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	Grid of 6K7	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output	Adjust to maximum output
	465 Kc.	Grid of 6K3	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
SHORT WAVE BAND	17 Mc.	400 ohms Antenna lead	Short wave (Extreme right rotation)	Set dial at 17 Mc.	Trimmer (C7) (See circuit diagram)	Short wave Oscillator	Adjust to maximum output
	17 Mc.	400 ohms Antenna lead	Short wave (Extreme right rotation)	Set dial at 17 Mc.	Trimmer (C4) (See Fig. 3)	Short wave Antenna	Adjust to maximum output
BROAD-CAST BAND	1720 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer (C8) (See Fig. 3)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer (C9) (See Fig. 3)	Broadcast Antenna	Adjust to maximum output
	600 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Set dial at 600 Kc.	Trimmer (C11) (See Fig. 3)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")
	2100 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Pick up signal at 1700 Kc. on dial	Wire capacitor (CB) (See circuit diagram)	Image rejection	Adjust by twisting for minimum output. (See note "B")
IMAGE REJECTION ADJUSTMENTS	2630 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Pick up signal at 1700 Kc. on dial	Wire capacitor (CA) (See circuit diagram)	Image rejection	Adjust by moving for minimum output. (See note "C")

NOTE "A": Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.
NOTE "B": 200Kc is the image frequency of 1700 Kc. Adjust wire capacity (CB) by twisting the two wires until a minimum output is obtained.
NOTE "C": 2630Kc is the image frequency of 1700Kc. Adjust wire capacity (CA) by moving the wire center toward or away from the antenna coil winding until a minimum output is obtained on the output meter.

ALIGNMENT PROCEDURE MODEL 62-380 Series A

The following equipment is required for aligning:
• An all wave signal generator which will provide an accurately calibrated signal at the test frequency as listed.
• Output indicating meter.
• Non-metallic screwdriver.
• Dummy antenna—1 mfd., 200 mmf., and 400 ohms.

BAND	Frequency Setting	SIGNAL GENERATOR Dummy Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	Grid of 6K7	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output	Adjust to maximum output
	465 Kc.	Grid of 6A3	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
SHORT WAVE BAND	17 Mc.	400 ohms Antenna lead	Short Wave (Extreme right rotation)	Set dial at 17 Mc.	Trimmer-Top of rear section (See Fig. 1)	Short wave Oscillator	Adjust to maximum output
	17 Mc.	400 ohms Antenna lead	Short Wave (Extreme right rotation)	Set dial at 17 Mc.	Trimmer (C19) (See Fig. 3)	Short wave Antenna	Adjust to maximum output
BROAD-CAST BAND	1720 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer (C20) (See Fig. 3)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer (C21) (See Fig. 3)	Broadcast Antenna	Adjust to maximum output
	600 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Set dial at 600 Kc.	Trimmer (C23) (See Fig. 3)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")
	2100 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Pick up signal at 1700 Kc. on dial	Wire capacitor (CB) (See circuit diagram)	Image rejection	Adjust by twisting for minimum output. (See note "B")
IMAGE REJECTION ADJUSTMENTS	2630 Kc.	200 mmf. Antenna lead	Broadcast (Extreme left rotation)	Pick up signal at 1700 Kc. on dial	Wire capacitor (CA) (See circuit diagram)	Image rejection	Adjust by moving for minimum output. (See note "C")

NOTE "A": Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.
NOTE "B": 200Kc is the image frequency of 1700 Kc. Adjust wire capacity (CB) by twisting the two wires until a minimum output is obtained.
NOTE "C": 2630Kc is the image frequency of 1700Kc. Adjust wire capacity (CA) by moving the wire center toward or away from the antenna coil winding until a minimum output is obtained on the output meter.

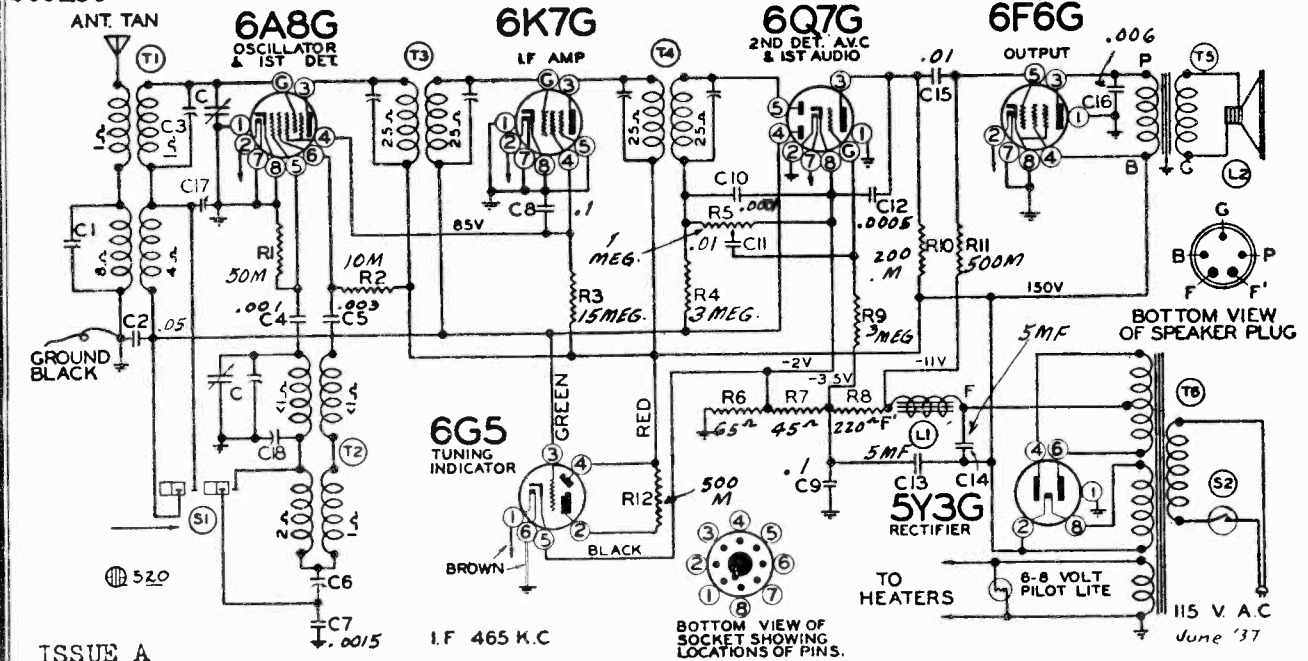
Schematic, Voltage,
Trimmers, Alignment
Socket

MONTGOMERY WARD & CO.

MODELS 62-306, 62-406

Issue A, Above Ser. 7E659000

Issue B, Above Ser. 8C146800



ISSUE A

PARTS (SERIAL No. 7E659000 and UP)

ISSUE B PARTS (SERIAL No. 8C146800 and UP)

IF ALIGNMENT - 465 KC

Vol. Control full on, variable condenser in minimum capacity position: Adjust to resonance 2 trimmers at 465 KC, thru a .1 mf. condenser.

SHORT WAVE ALIGNMENT - 2000 to 7000 KC

Dial at 6 MC, adjust to resonance the SW oscillator trimmer (at top of rear variable gang condenser) and SW Antenna trimmer No. 1 (Fig. 1) at 6 M.C., thru a .1 mf. condenser and 400 ohm resistor series.

BROADCAST ALIGNMENT- 535 to 1720 KC

Gang condenser in minimum capacity position; signal generator in series with a 200 mmf condenser and 20 ohm resistor series;-

(a) Adjust oscillator trimmer No. 3 Fig. 3. to resonance at 1720 KC.

(b) Adjust Antenna trimmer No. 2 Fig. 3, to resonance at 1400 Kc.

(c) Adjust Padder No. 4 Fig. 3, to resonance at 600 KC.

(d) Repeat adjustments a & c until sensitivity is at maximum.

(e) Check for tracking & sensitivity at 1400, 1000 and 600 KC.

DO NOT BEND PLATES OF CONDENSER TO CORRECT TRACKING.

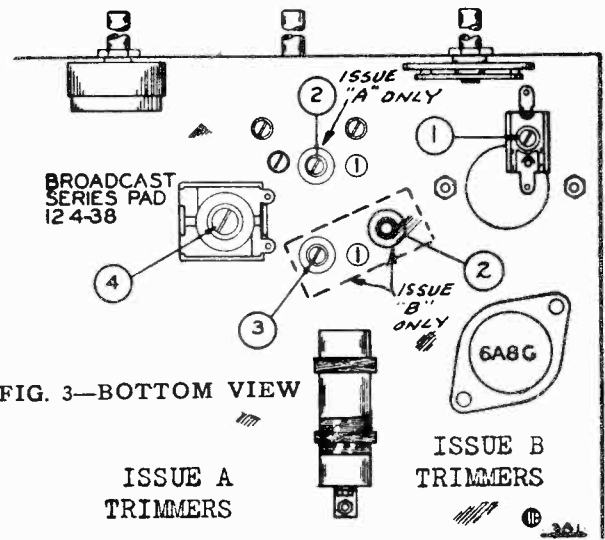


FIG. 3—BOTTOM VIEW

ISSUE A
TRIMMERS

ISSUE B
TRIMMERS

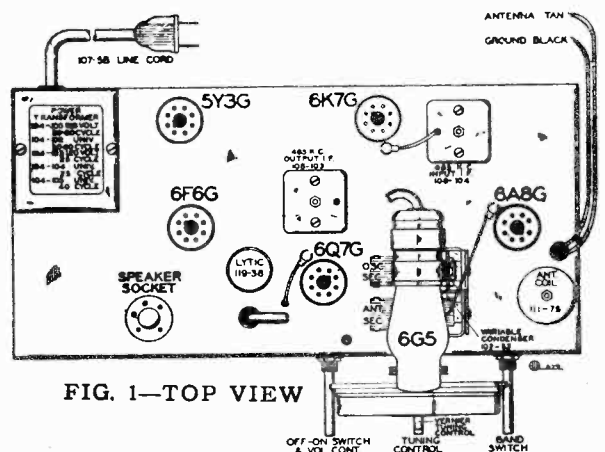
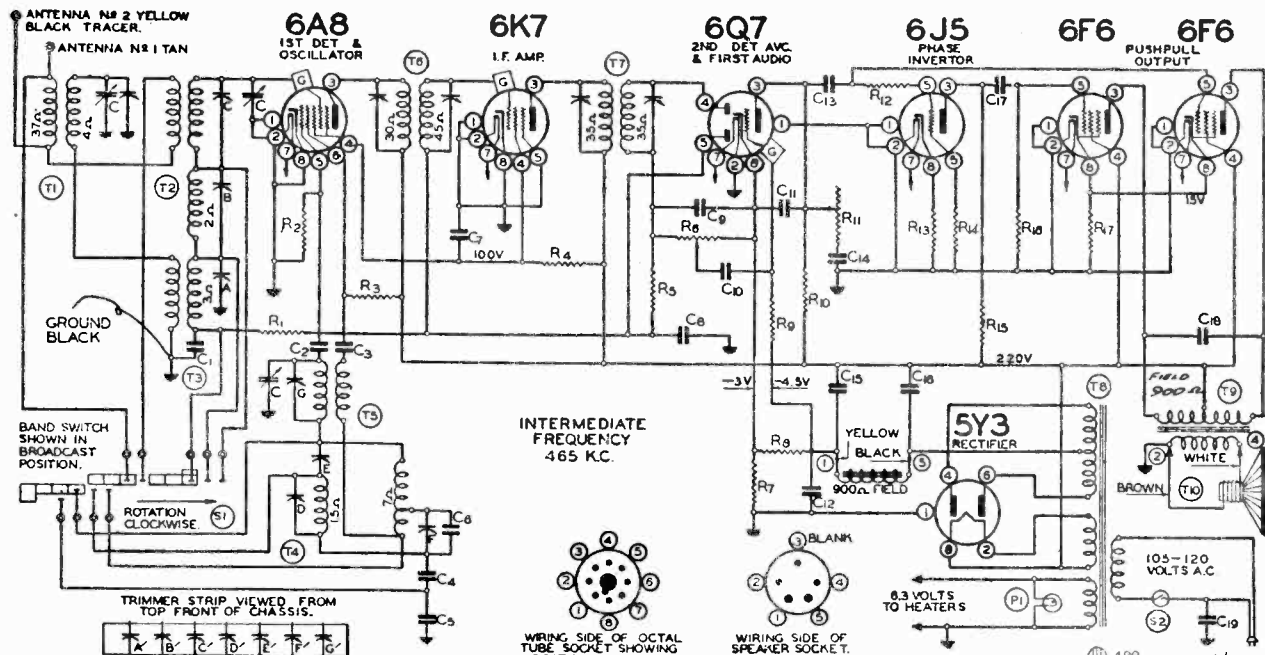


FIG. 1—TOP VIEW

MODEL 62-324
Schematic, Voltage

MONTGOMERY WARD & CO.

Socket, Trimmers
Alignment



PARTS (Serial No. 8H261200 and up)

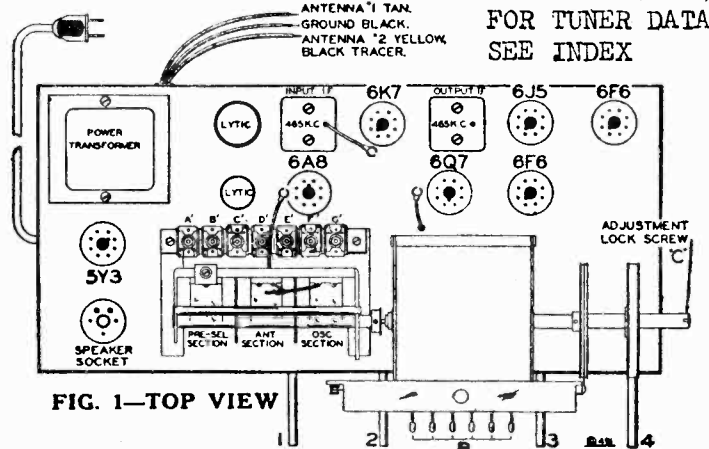
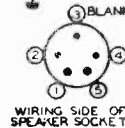
RESISTORS

R1	130-103	100M ohm - 1/3 w. 10%
R2	130-12	50M ohm - 1/3 w. 20%
R3	130-123	15M ohm - 1/2 w. 10%
R4	130-196	30M ohm - 1 w. 10%
R5	130-4	3 megohm - 1/3 w. 20%
R6	101-104	1 megohm volume control
R7	130-198	40 ohm - 1/2 w. 10%
R8	130-197	20 ohm - 1/3 w. 10%
R9	130-4	3 megohm - 1/3 w. 20%
R10	130-103	100M ohm - 1/3 w. 10%
R11	101-105	300M ohm - tone control
R12	130-163	400M ohm - 1/3 w. 10%
R13	130-22	5M ohm - 1/3 w. 20%
R14	130-103	100M ohm - 1/3 w. 10%
R15	130-12	50M ohm - 1/3 w. 20%
R16	130-102	500M ohm - 1/3 w. 10%
R17	130-195	250 ohm - 1.2 w. 10%

CONDENSERS

C	102-62	3 gang variable
C1	100-23	.05 x 200 v. 25%
C2	129-67	.00004 Mica 10%
C3	100-25	.002 x 600 v. 25%

C4	129-83	.0027 Mica 2-1/2%	C12	100-20	.1 x 200 v. 25%
C5	129-84	.003 Mica 2-1/2%	C13	100-26	.02 x 400 v. 25%
C6	129-88	.0006 Mica 5%	C14	100-57	.006 x 600 v. ± 10 - 20%
C7	100-39	.1 x 400 v. 20%	C15	103-14	16 mfd. lytic 275 w.v. Reg.
C8	100-26	.02 x 400 v. 25%	C16	103-6	8 mfd. lytic 350 w.v.
C9	129-5	.0001 Mica 20%	C17	100-26	.02 x 400 v. 25%
C10	100-26	.02 x 400 v. 25%	C18	100-37	.003 x 600 v. 10%
C11	129-2	.0005 Mica 20%	C19	100-61	.02 x 600 v. bakelite 20%



FOR TUNER DATA
SEE INDEX

I.F.-Vol.contr.full on; Var.at 1400KC. At 465KC-.1 mfd.dummy to grid cap of 6K7 tube,align output I.F.;signal to 6A8 grid cap,align input I.F.
B.C.BAND-Sw.in B.C.pos.;Var.at min.cap.;200mfd.and 20 ohm series resistor dummy to tan ant. lead. At 1750KC adjust trimmer E' to resonance. At 1400KC,trimmer A' and PRE-SEL section of var. to resonance. At 600KC trimmer F' to resonance. Repeat all adjustments of the band. Check sensitivity at 1000 KC.
S.W.BAND-.1 mfd.cond. in series with 400 ohm resistor as dummy;band sw. in S.W. pos. At 17MC,dial at 17MC,adjust G'and C' to resonance. At 6 MC check sensitivity For band coverage check set at 18,1 and 5.5 MC.
MIDDLE BAND- Band sw. at middle wave pos.Dummy as for S.W. adjustments. At 5000 KC, dial at 5000 KC, adjust D'and B' to resonance. At 1900KC check sensitivity; then recheck B.C.Band alignment.

Socket, Trimmers Alignment

MONTGOMERY-WARD & CO.

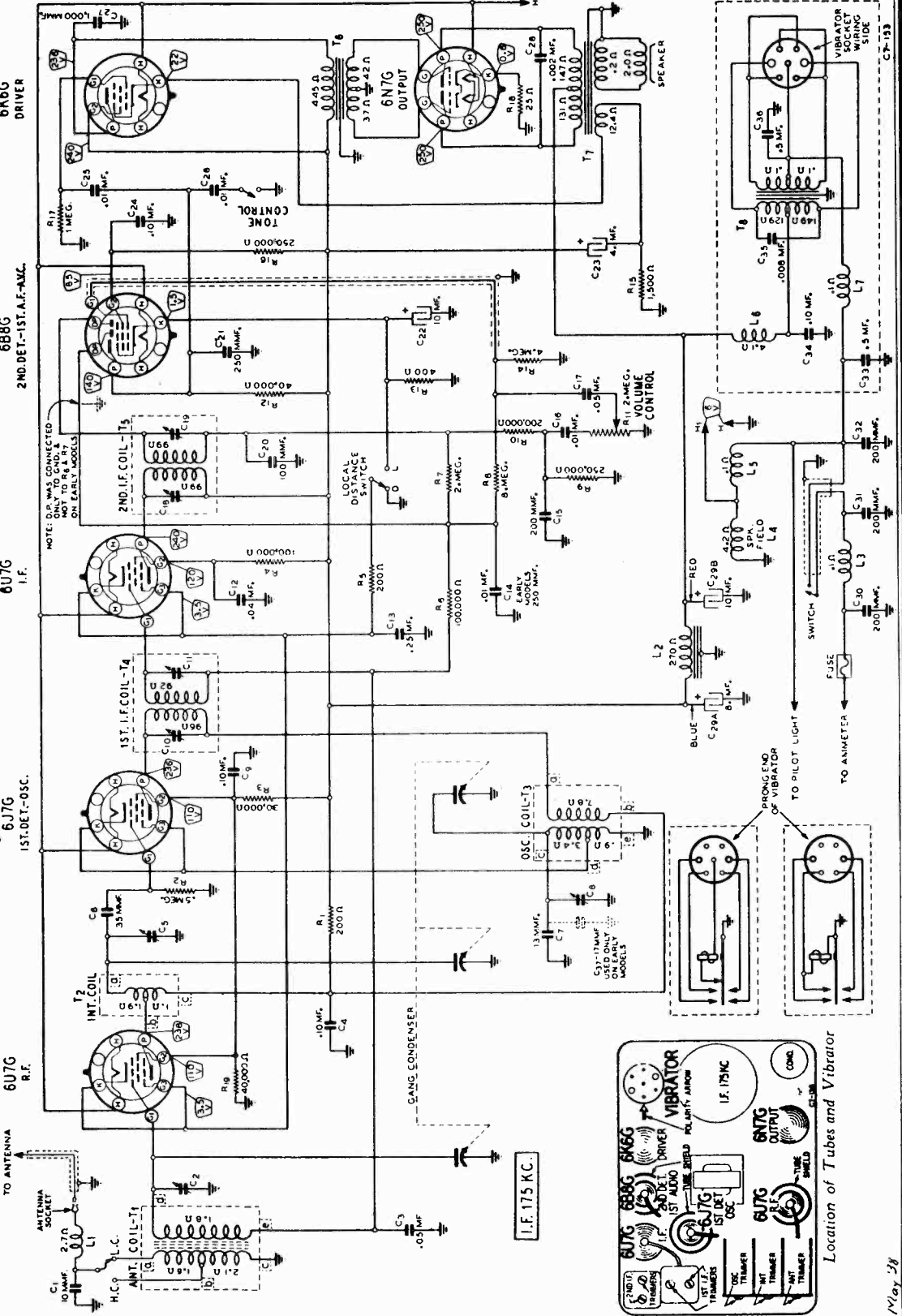
MODEL 62-364 Schematic Voltage

Set the signal generator for 175 KC and connect the output of the signal generator through a .05 mf. condenser to the stator of the interstage section (middle) of the tuning condenser. Connect the ground lead of the signal generator to the chassis. Set the volume control at maximum and the L-D switch in the distance position. Attenuate the signal from the signal generator to prevent the leveling off action of the AVC. Then adjust the 4 IF trimmers until maximum output is obtained. Insert the antenna cable plug in the antenna socket on the chassis. Now refer to the antenna capacity changeover socket.

If the jumper is inserted between the HC holes of this socket and the entire 60-inch shielded cable (70 mmf.) is being used, connect the antenna wire at the other end through a 150 mmf. condenser to the antenna post of the signal generator. If the jumper is inserted between the LC holes of this socket, the antenna cable has been cut as explained in the instructions. If cut in half (30-inch length), the capacity of the antenna cable is approximately 35 mmf. Connect the antenna wire, in this case through a 25 mmf. condenser to the antenna post of the signal generator.

Set the signal generator for 1581 KC. Turn the rotor of the tuning condenser to the full open position. Adjust the trimmer of the oscillator section of the gang condenser until maximum output is obtained. See Fig. 4 for location of this trimmer. Set the signal generator for 1400 KC. Turn the rotor of the tuning condenser carefully until maximum output is obtained. Adjust the interstage and antenna 1400 KC trimmers for maximum output. Do not change the setting of the oscillator trimmer.

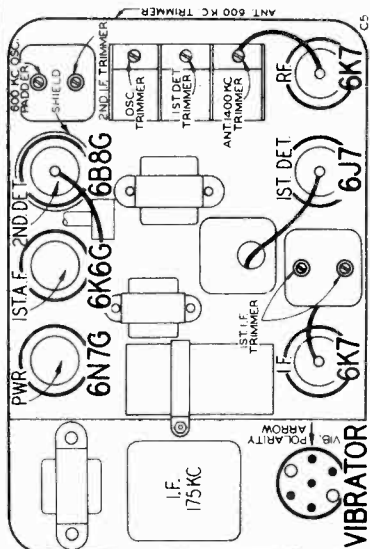
After the antenna is connected, tune in a weak signal at approximately 1400 KC with the volume control about three-fourths on. Turn the adjusting screw of the antenna 1400 KC trimmer up or down until maximum output is obtained.



MODEL 62-369
Schematic, Socket

MONTGOMERY-WARD & CO.

Trimmers, Alignment



Set the signal generator for 600 KC. Connect the output through a .05 mf. condenser to the control grid of the 6K7 R.F. tube. Rock the tuning condenser rotor and adjust the 600 KC oscillator paddler (See Fig. 2) until the peak of greatest intensity is obtained. Leave the signal generator set for 600 KC and re-connect the output to the shielded antenna lead through a 120 mf. condenser. Adjust the 600 KC antenna trimmer to maximum. (This trimmer is reached from outside of the case - See Fig. 1.) After the alignment procedure is completed, the antenna plug will be withdrawn and reinscribed on the LC side if a low capacity (70 mf.) car antenna is used.

Adjusting Antenna 600 KC Trimmer - After the radio is installed and the car antenna is connected, it will be necessary to readjust the antenna trimmer. Tune in a weak station approximately 600 KC with the volume control about three-fourths on. Turn the adjusting screw of the antenna 600 KC trimmer up or down until maximum output is obtained.

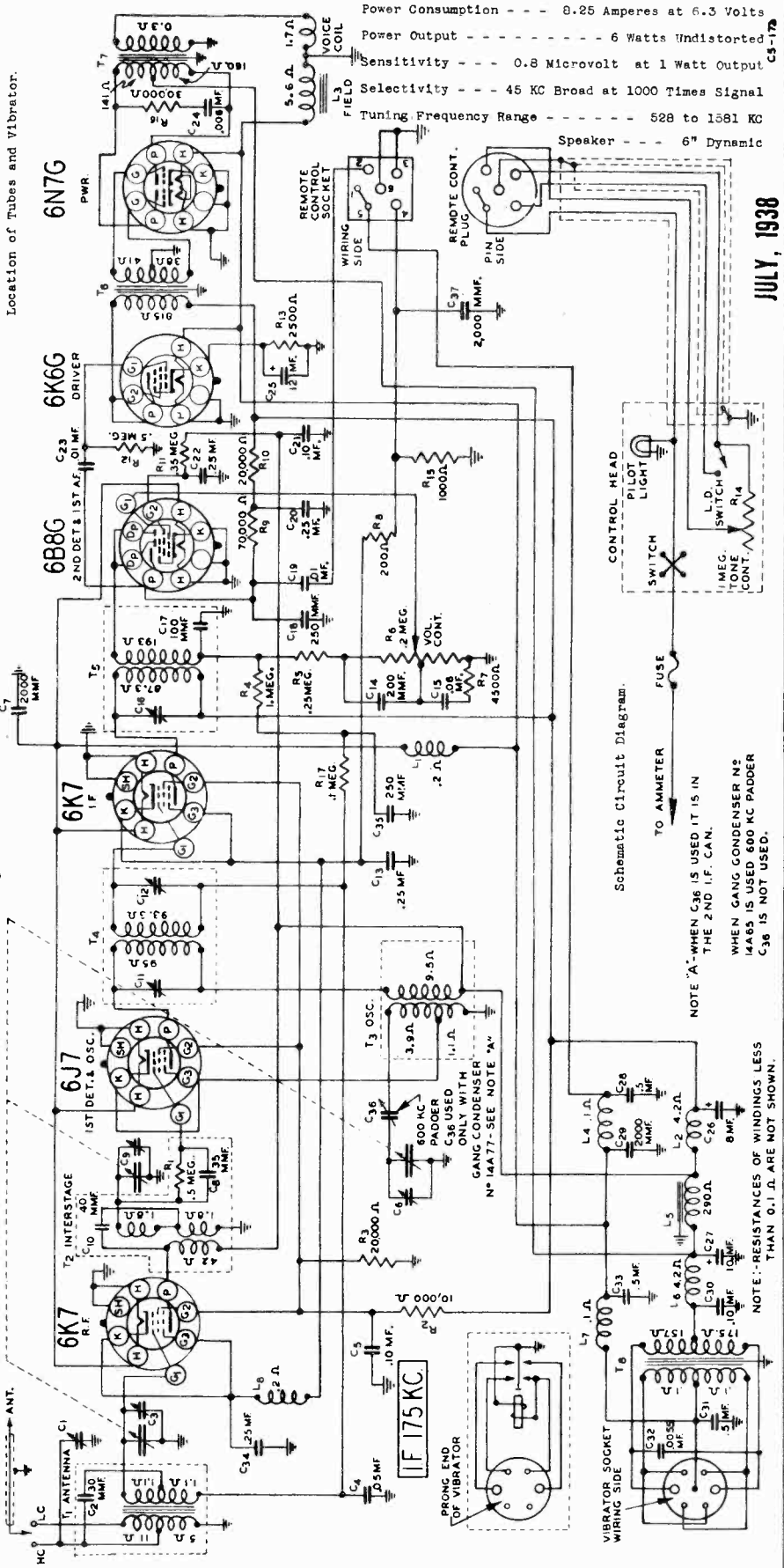
Calibrating the Radio - To calibrate the radio, tune in a station from the car antenna. Remove the dial lamp assembly from the back of the pilot light. Hold the tuning knob in place with the blade screwdriver and turn this screw so that the POINTER triangle is in a clockwise direction until it is at the frequency of the station being received.

Alignment and Calibration

Set the signal generator for 175 KC and connect the output of the signal generator through a .05 mf. condenser to the stator of the tuned section of the tuning condenser. Connect the signal lead of the signal generator to the chassis. The gang should be in the case. Set the volume control at maximum and the L-D switch in the distance position. Attenuate the signal from the signal generator to prevent the leveling off action of the AVC. Then adjust the three I.F. trimmers until maximum output is obtained - See Fig. 2.

Set the signal generator for 1581 KC. Turn the rotor of the tuning condenser to the full open position. Insert the antenna plug with the mark on the high capacity (HC) side. Connect the shielded antenna lead from the chassis through a 120 mf. condenser to the antenna post of the signal generator. Adjust the trimmer of the oscillator section of the three gang condenser until maximum output is obtained.

Set the signal generator for 1400 KC. Carefully turn the rotor of the tuning condenser until maximum output is obtained. Adjust the last detector and antenna 1400 KC trimmers for maximum output. Do not change the setting of the oscillator trimmer.



JULY, 1938

MONTGOMERY-WARD & CO. MODELS 62-370, 62-470, 62-700 Schematic, Voltage, Socket Coils, Phono

JUNE, 1938 A15-176

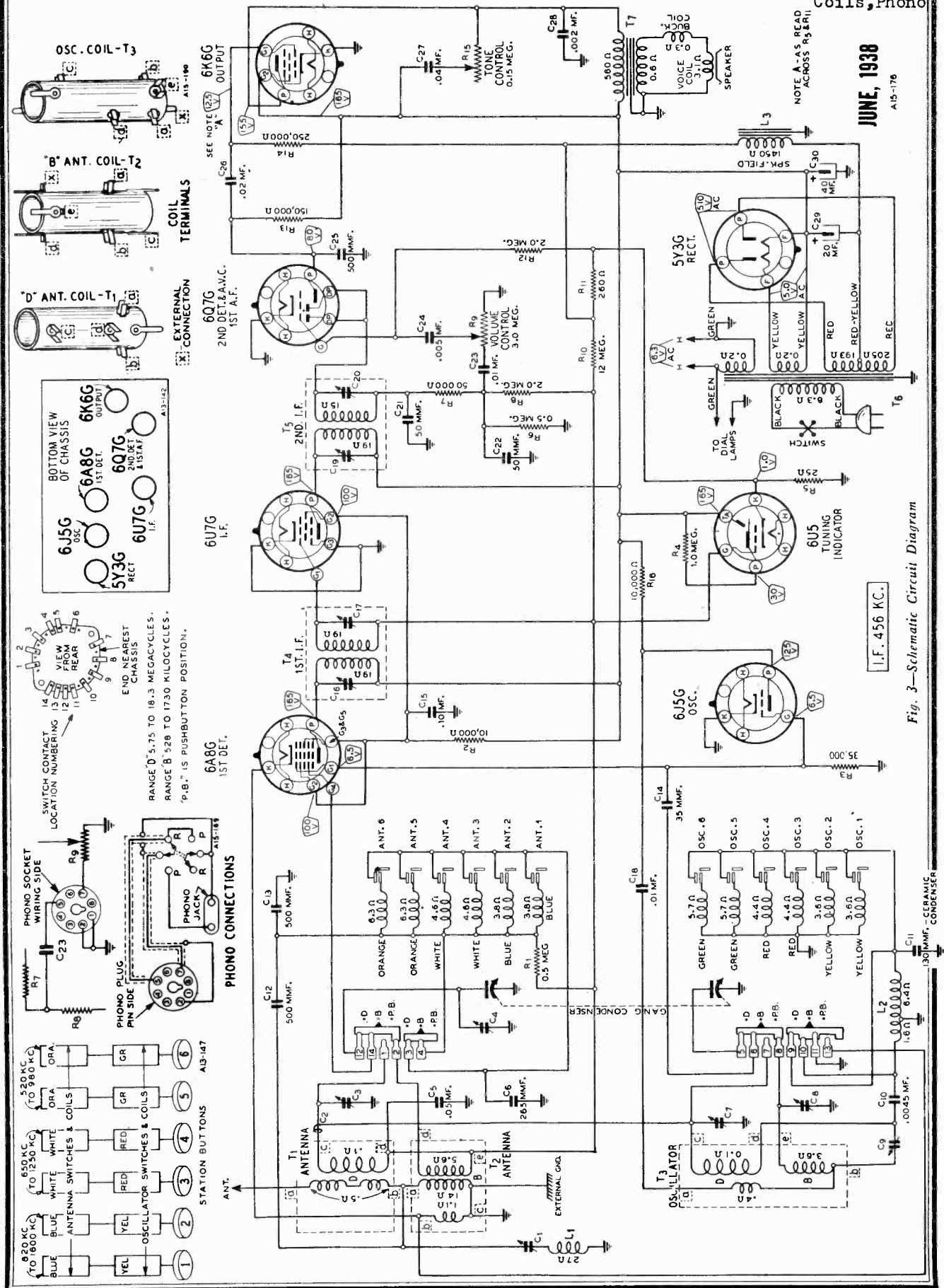


Fig. 3—Schematic Circuit Diagram

MODELS 62-370, 62-470, 62-700

Alignment, Trimmers

MONTGOMERY WARD & CO.

Power Consumption - 50 Watts (At 117 volts 60 cycles)
 Power Output - 1.0 Watts Undistorted
 2.0 Watts Maximum
 Selectivity - 38 KC Broad at 1000 times Signal
 Sensitivity
 B Range (Manual Tuning).....15 Microvolts Average
 B Range (Automatic Tuning).....15 Microvolts Average
 D Range25 Microvolts Average

Intermediate Frequency - 456 KC
 Speaker - 6" or 8" Dynamic
 Tuning Frequency Range
 B Range (Manual Tuning).... 528 to 1730 KC (Kilocycles)
 D Range (Manual Tuning)....5750 to 18300 KC (Kilocycles)
 Buttons 1 and 2 (Automatic Tuning).....820 to 1600 KC
 Buttons 3 and 4 (Automatic Tuning).....650 to 1250 KC
 Buttons 5 and 6 (Automatic Tuning).....520 to 980 KC

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

The following equipment is required for aligning:

Connect Radio Chassis to Ground Post of Signal Generator with a Short Heavy Lead.

An All Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.

Allow Chassis and Signal Generator to "Heat Up" for several minutes.

Output Indicating Meter—Non-Metallic Screwdriver.
 Dummy Antennas—.1 mf., 200 mmf., and 400 ohms.

SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (Unless otherwise specified)
I. F.					
456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C16) & (C17) 2nd I.F. (C19) & (C20)
RANGE B					
1730 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C8)
1500 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1500 KC— See Note A	Ant. Range B (C4)
600 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C9) Rock Rotor—See Note B
WAVE TRAP					
456 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to 600 KC Adjust Sig. Gen.—See Note C	Wave Trap (C1) Adjust for MINIMUM Output
RANGE D					
18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C7)
15,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C3) Rock Rotor—See Note B
PERMEABILITY TUNING UNIT					
			BUTTON DEPRESSED (Band Switch in Push Button Position)	TURN SETTING SCREW TO MAXIMUM OUTPUT —See Instruction Book	ADJUST COIL POSITION TO MAXIMUM OUTPUT —See Note D
1100 KC	Antenna Lead	200 mmf.	No. 1	Setting Screw No. 1	Antenna Coil No. 1
1100 KC	Antenna Lead	200 mmf.	No. 2	Setting Screw No. 2	Antenna Coil No. 2
850 KC	Antenna Lead	200 mmf.	No. 3	Setting Screw No. 3	Antenna Coil No. 3
850 KC	Antenna Lead	200 mmf.	No. 4	Setting Screw No. 4	Antenna Coil No. 4
700 KC	Antenna Lead	200 mmf.	No. 5	Setting Screw No. 5	Antenna Coil No. 5
700 KC	Antenna Lead	200 mmf.	No. 6	Setting Screw No. 6	Antenna Coil No. 6

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each range is completed, repeat the procedure as a final check.

NOTE A—If the pointer is not at 1500 KC on the dial, loosen the 2 clamps which hold the pointer assembly on the cord, move the pointer to the 1500 KC mark, and tighten the clamps.

NOTE B—Turn the rotor back and forth and adjust the trimmer until the peak of greatest intensity is obtained.

NOTE C—Leave condenser rotor at the 600 KC setting and adjust the signal generator until maximum output is obtained at or near 456 KC.

NOTE D—At the top of the permeability tuning unit can be seen six "W" openings. Insert the end of a pair of long nose pliers or a screwdriver in the "W" opening of the proper button and adjust the position of the antenna (rear) coil by twisting the pliers or screwdriver until maximum output is obtained.

CAUTION—When aligning the short wave bands be sure NOT to adjust at the image frequency. This can be checked as follows: Let us say the signal generator is set for

15,000 KC. The signal will then be heard at 15,000 on the dial of the radio. The image signal, which is much weaker, will be heard at

15,000 less 912 KC, or 14,088 KC on the dial. It may be necessary to increase the input signal to hear the image.

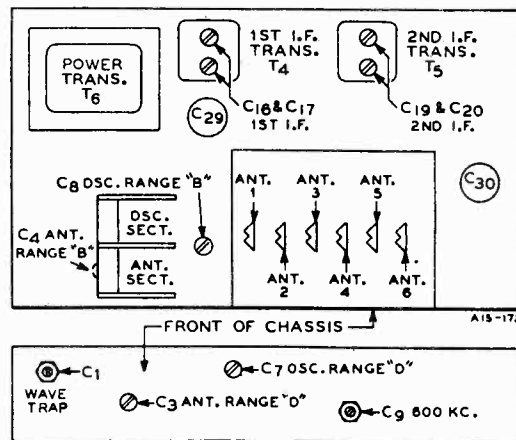


Fig. 2—Location of Trimmers

MODEL 93BR560A
 MODEL 93BR657A
 MODEL 93BR713A
 Tuner Data

MONTGOMERY WARD & CO.

MODELS 62-370, 62-470
 62-700
 MODELS 62-704 to 62-712
 MODELS 62-902, 62-905

MODELS 93BR560A, 93BR657A, 93BR713A

PROCEDURE FOR SETTING THE AUTOMATIC TUNER PUSHBUTTONS NOW, PROCEED AS FOLLOWS:—

Unlock the tuner mechanism. (NOTE:—The automatic tuner mechanism is locked tight when radio is shipped from the factory.)

1. Remove the snap-in button from the dial escutcheon plate on the front panel of the radio (see "C" Reset Lock Screw Fig. 2). If the snap-in button will not come out easily, using your fingers, pry it off with a screwdriver or a knife, being careful not to mar the finish on the escutcheon plate.
2. Unlock the tuner mechanism by inserting a screwdriver through the hole in the panel. Press in and loosen the locking screw by turning it to the right as far as it will turn without forcing. You will note that as the locking screw is turned it will turn easily until the dial reaches its stop and then a slight amount of force will be required to actually start unlocking the tuner mechanism. Beyond this point, the locking screw will turn quite easily again until the tuner mechanism is completely unlocked. At this point do not force the locking screw any further. The tuner mechanism is now unlocked.

SETTING PUSHBUTTONS:

1. Press in all the way any one of the automatic tuner push-buttons. Holding it in firmly, press on the Dial Tuning Control, No. 4, and tune in the station indicated on the station call letter tab on this pushbutton. You will note that in order to tune the station, the Dial Tuning Control will have to be pressed slightly. Move the Dial Tuning Control very slowly up and down (while still holding the automatic tuner pushbutton in firmly), noting the width of the shadow on the screen of the cathode-ray tuning eye. Minimum width on the tuning eye indicates the ideal tuning position (resonance). The station will then be clearest and accurately tuned in.
2. Press in another tuner pushbutton. Holding it in firmly, press on the Dial Tuning Control and carefully tune in the station indicated on the call letter tab on this pushbutton.
3. Follow this procedure until you have selected all of your favorite stations. (NOTE:—If the dial mechanism works hard or has a tendency to slip when setting up a station for one of the pushbuttons, it is due to the tuner mechanism not being unlocked all the way. Loosen the reset locking screw. The Dial Tuning Control should turn the dial drum freely with a pushbutton pushed in.)

LOCKING THE TUNER MECHANISM

1. To lock the tuner mechanism insert a screwdriver through the hole in the escutcheon panel and press in and turn the reset locking screw to the left, until it cannot be turned any further without forcing it.
2. This will lock the tuner mechanism and all the stations that have been set up on the pushbuttons will be locked in place for automatic tuning. Press in any one of the pushbuttons and—YOUR FAVORITE STATION IS SELECTED.

MODELS 62-370, 62-470, 62-700; 62-902, 62-905; 62-704 to 62-712

Procedure for Setting the Station Buttons

To determine whether the correct station has been set, turn the band switch knob back to the BROADCAST position. The same station should be heard (provided the tuning knob has not been turned). If it is not, turn the band switch knob to the PUSH BUTTON TUNING position again and retune with the setting screw.

Remove the station call letter tab from the sheets provided and push the tab all the way to the bottom of the rectangular space above the correct station button, opening in the escutcheon plate. Then cover the call letter tab with one of the clear celluloid tabs.

Proceed in the same manner to set stations on any of the remaining buttons. Use blank tabs above buttons on which stations are not set.

After all of the stations have been set, carefully replace the escutcheon plate.

If at any time you wish to change the setting of a button from one station to another, repeat the above procedure. Changing the setting of one button will not affect the setting of any of the other buttons. The old call letter tab may be removed by sticking a pin through the notch in the celluloid tab and through the call letter tab.

ber, and tune in this station with the tuning knob in the usual way. Determine what program is being broadcast.

At each side of the escutcheon plate is an escutcheon screw—See Fig. 2. Remove the escutcheon plate by unscrewing these two screws. Be careful to avoid scratching the plate.

When this is done, the setting screws above the six buttons will be exposed.

Turn the band switch knob to the PUSH BUTTON TUNING position previously will probably disappear.

If the kilocycle number of the station tuned in is within the range of button No. 1, push this button in. The same station or a different station may be heard.

With a small screw driver, slowly turn the setting screw above button No. 1 in or out until the desired station (the one previously tuned in) is heard. Turning the screw in (clockwise) will tune in stations with higher kilocycle numbers while turning the screw out (counter-clockwise) will tune in stations with lower kilocycle numbers. Be sure not to tune in some other station broadcasting the same program. Using the tuning eye as a guide, accurately tune in this station. The station is now set on this button.

Setting a Station Button

Select a station from the list you have prepared, preferably the station with the highest kilocycle number

1. Determine whether the correct station has been set, turn the band switch knob back to the BROADCAST position. The same station should be heard (provided the tuning knob has not been turned). If it is not, turn the band switch knob to the PUSH BUTTON TUNING position again and retune with the setting screw.

Remove the station call letter tab from the sheets provided and push the tab all the way to the bottom of the rectangular space above the correct station button, opening in the escutcheon plate. Then cover the call letter tab with one of the clear celluloid tabs.

Proceed in the same manner to set stations on any of the remaining buttons. Use blank tabs above buttons on which stations are not set.

After all of the stations have been set, carefully replace the escutcheon plate.

If at any time you wish to change the setting of a button from one station to another, repeat the above procedure. Changing the setting of one button will not affect the setting of any of the other buttons. The old call letter tab may be removed by sticking a pin through the notch in the celluloid tab and through the call letter tab.

MODELS 62-370 etc.

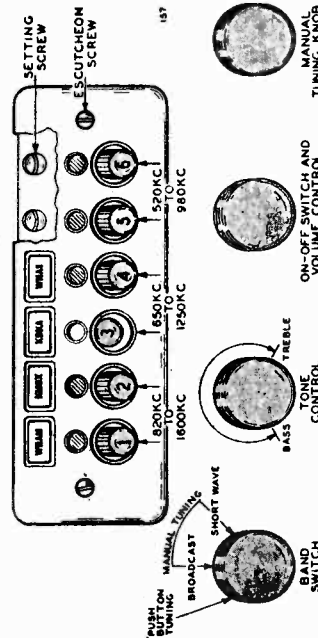


Fig. 2.—Location of Controls and Push Buttons

MODELS 93BR560A, etc.

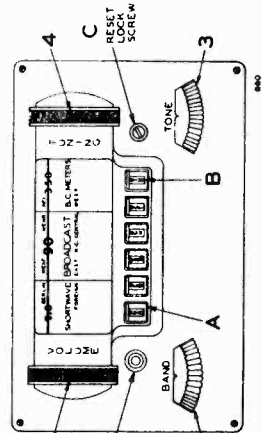


FIG. 2.—FRONT VIEW

MODEL 62-380

Series A
Ser. 9C618200 up
Schematic, Voltage
Socket

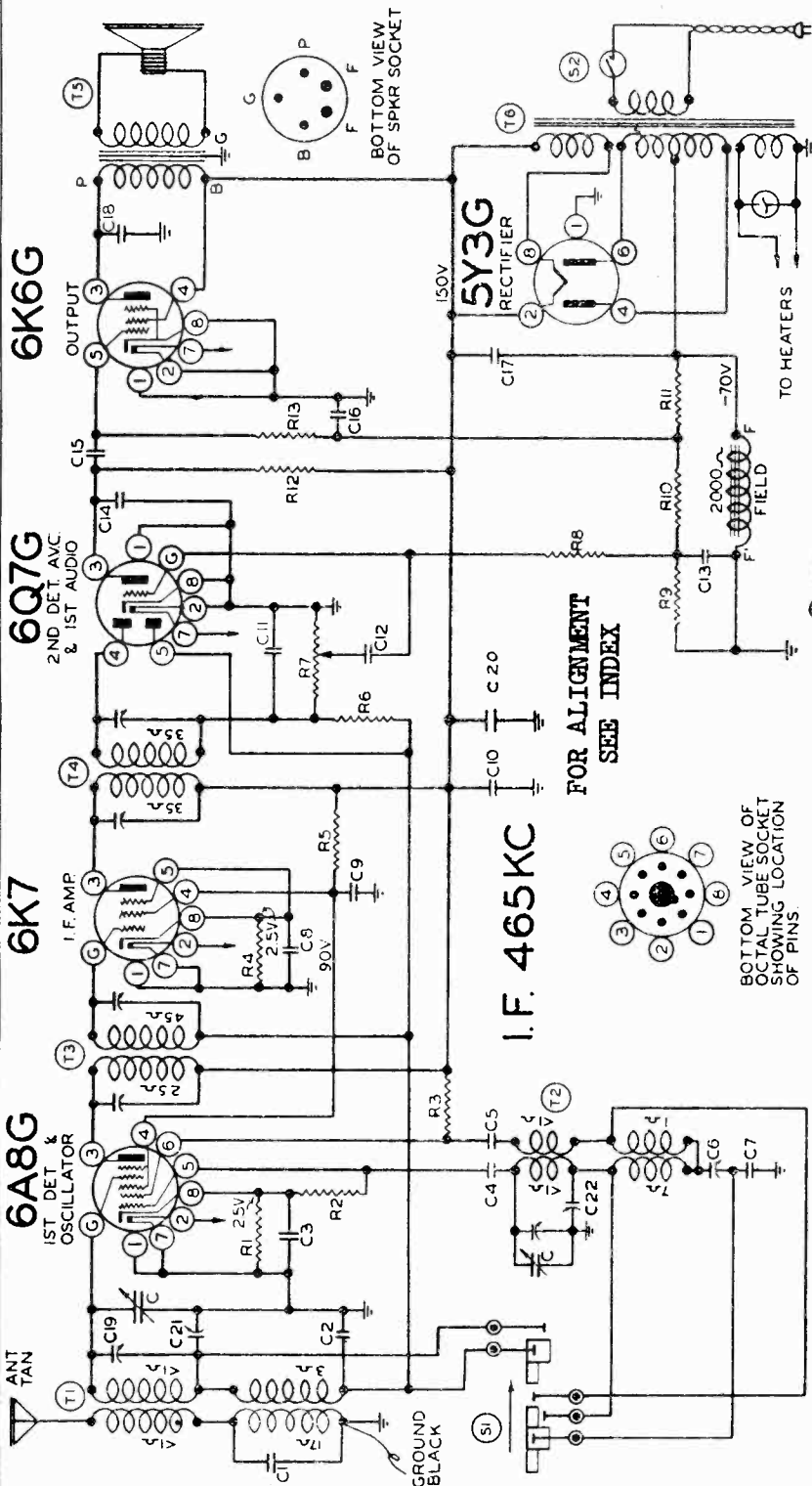
MONTGOMERY WARD & CO.

BAND SWITCH
Extreme Right Rotation
Extreme Left Rotation

BAND
Short Wave
Broadcast

FREQUENCY RANGE
5.5 to 18.1 MC.
535 to 1720 KC.

Power Consumption.....55 Watts (At 115 volts 50-60 cycles)
Power Output......750 Watts Undistorted, 1.6 Watts Maximum
Intermediate Frequency.....465 KC.



6K6G

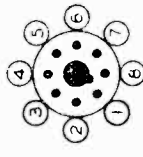
6Q7G

6K7

6A8G

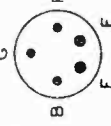
I.F. 465 KC

FOR ALIGNMENT
SEE INDEX



BOTTOM VIEW OF
OCTAL TUBE SOCKET
SHOWING LOCATION
OF PINS

BOTTOM VIEW
OF SPKR SOCKET



- 0.03-2 1/2% Mica
- .1 x 200 v.-25%
- .1 x 400 v.-50-10%
- 5.0 mid.-250 w. v. 'Lytic
- .0001-20% Mica
- .01 x 400 v.-25%
- .1 x 200 v.-25%
- .0005-20% Mica
- .02 x 400 v.-25%
- .1 x 200 v.-25%
- 5.0 mid.-250 w. v. 'Lytic
- .003 x 600 v.-10%
- 2.25 mmf. Adj. Cond.
- .05 x 400 v.-25%
- 200 400 v.-25%
- Adj. Cond. 1-10 mmf.
- C21-C22 in same unit
- Ant. Coil
- Output I. F.-465 kc
- 6" Dynamic Speaker (2000 ohm field)
- Power Transformer
- Wave Band Switch
- On-off switch on volume control

- BE12954
- BE10020
- BE1001
- BE11938
- BE1295
- BE10011
- BE10020
- BE1292
- BE10026
- BE10020
- BE11938
- BE10037
- BE12439B
- BE10013
- BE12430C
- BE12430C
- BE11183
- BE11066B
- BE108105B
- BE108106B
- BE11461
- BE10460B
- BE12537

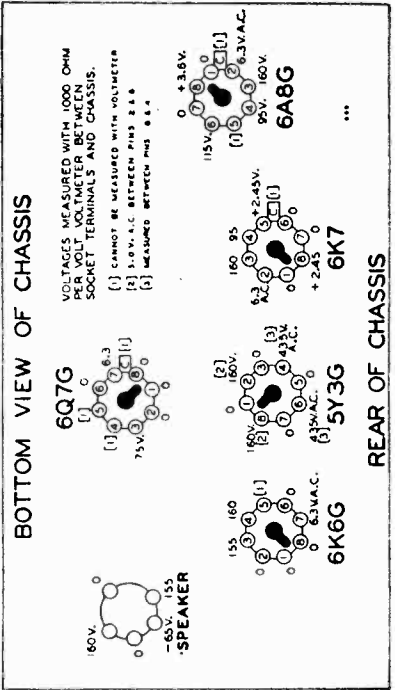
- C7
- C8
- C9
- C10
- C11
- C12
- C13
- C14
- C15
- C16
- C17
- C18
- C19
- C20
- C21
- C22
- T1
- T2
- T3
- T4
- T5
- T6
- S1
- S2

- 300 ohm-1/2 w.-10%
- 50M ohm-1/2 w.-20%
- 10M ohm-1/2 w.-20%
- 450 ohm-1/2 w.-10%
- 15M ohm-1/2 w.-20%
- 3 megohm-1/2 w.-20%
- 3 megohm Volume control
- 20M ohm-1/2 w.-10%
- 150M ohm-1/2 w.-10%
- 800M ohm-1/2 w.-10%
- 200M ohm-1/2 w.-20%
- 500M ohm-1/2 w.-20%

- BE13063
- BE13012
- BE13017
- BE13093
- BE130149
- BE1304
- BE10171
- BE1304
- BE130176
- BE13040
- BE13046
- BE1309
- BE1303
- BE10243B
- BE1295
- BE10022
- BE10020
- BE12939
- BE10025
- BE12438

- 2 gang variable condenser
- .0001 Mica
- .05 x 200 v.-25%
- .1 x 200 v.-25%
- .00005-20% Mica
- .02 x 600 v.-20%
- 600 mmf. Series Pad Adj.

PARTS (SERIAL No. 9C618200 and UP)



MONTGOMERY WARD & CO.

MODELS 62-386, 62-636, 62-646
Schematic, Voltage, Alignment
Resistances

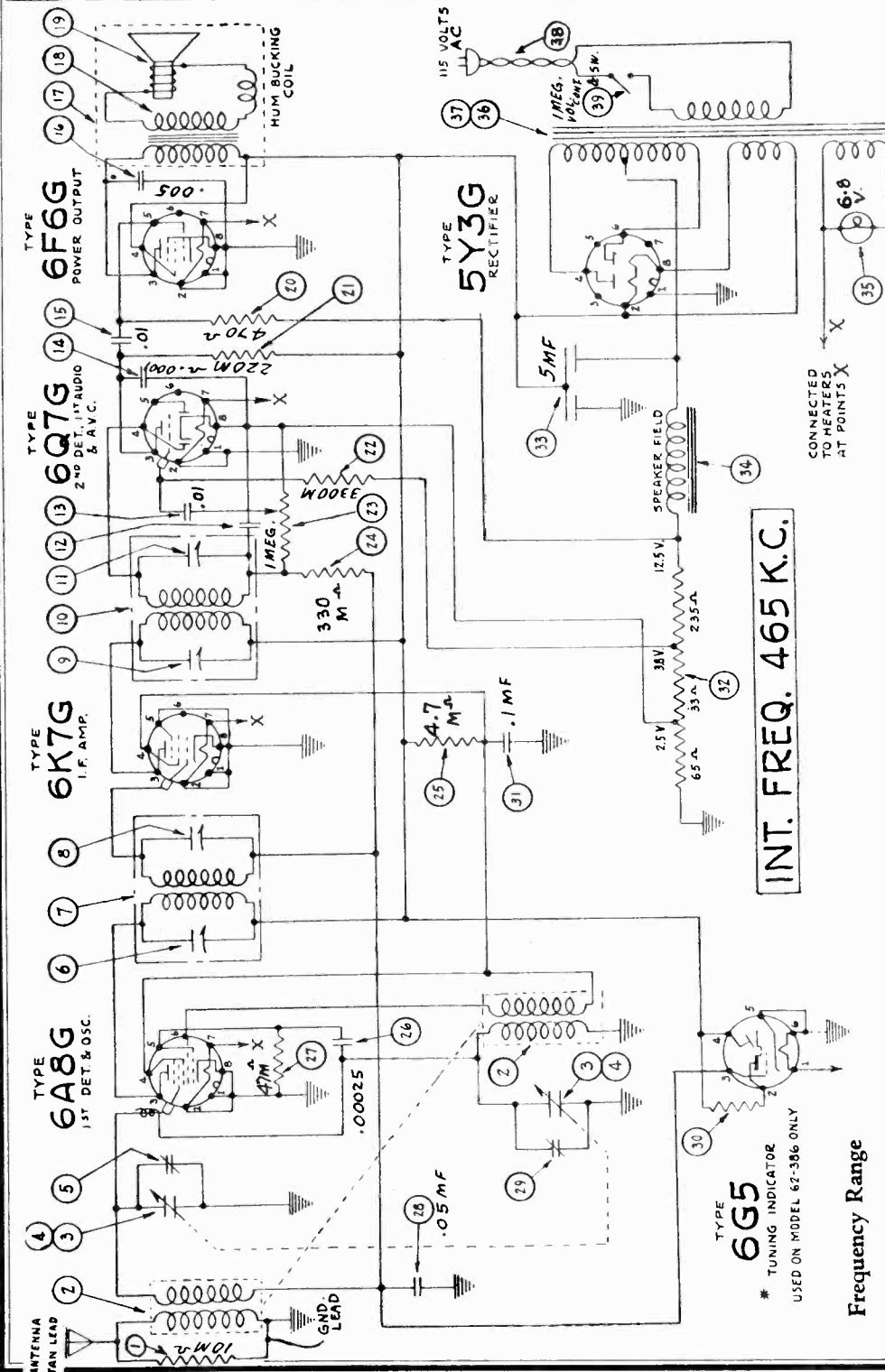
WINDING RESISTANCE

PART	FUNCTION	PRIMARY		SECONDARY	
		OHMS	IDENT.	OHMS	IDENT.
2	ANT. COIL	19	A TO GND.	4.5	B TO C
2	OSC. COIL	2.0	D TO E	4.0	F TO GND.
7	1ST I.F. COIL	18.5	GREEN TO RED & YEL.	18.5	RED TO BLUE
10	2ND I.F. COIL	18.5	GREEN TO RED & YEL.	18.5	RED TO BLUE
18	OUTPUT TR.	550	3 TO 4 6F6G SOCK.	.5	
19	VOICE COIL	3.5			
34	SPKR. FIELD	1700	YELLOW TO BLACK		
36	PWR. TRANS.	15	3 ON RECT. SOCK. TO SW.	558	4 TO 6 RECT. SOCK.
	5 V. SEC.			.2	2 TO 8 "
	6.3 V. SEC.			.25	2 TO 7 6Q7G SOCK.
37	PWR. TRANS.				

SOCKET VOLTAGES

NOTE: ALL VOLTAGES READ WITH 1000 OHM PER VOLT VOLTMETER FOR 115 V. LINE

TUBE	STAGE	FIL.	PIN NO.	PLATE	PIN NO.	SCREEN	PIN NO.
6A8G	DET.-OSC.	6.3	2 To 7	35	1 To 3	100	1 To 4
6K7G	I.F. AMPLIFIER	6.3	2 To 7	155	1 To 3	100	1 To 4
6Q7G	2ND DET. 1ST A.F.	6.3	2 To 7	75	1 To 3	100	1 To 4
6F6G	OUTPUT A.F.	6.3	2 To 7	148	1 To 3	155	1 To 4
5Y3G	RECTIFIER	5.0	2 To 8				
6G5	TUNING INDICATOR	6.3	1 To 6	155	6 To 4		



R.F. ALIGNMENT (535-1720 K.C.):

With the gang condenser in a minimum position (plates entirely out of mesh) the dial reading should be at the end marking of the scale.

1. Connect the test oscillator in series with a 200 mmf. condenser to the tan antenna lead from the chassis.
2. Set the oscillator and gang condenser to 1500 K.C. and adjust oscillator trimmer No. 29 (rear section of condenser gang).
3. Set the test oscillator and gang to 1400 K.C. and adjust antenna trimmer No. 5 (front section of condenser gang).
4. Check sensitivity at 1000 and 600 K.C.

ALIGNING I.F. TRANSFORMERS (465 K.C.):

Connect an output meter across the voice coil of the speaker or across the primary of the output transformer.

1. Connect an external oscillator which has been adjusted to 465 K.C. in series with a .1 mfd. condenser, to the control grid of the 6A8-G tube.
2. Connect the oscillator ground to the black chassis ground lead.
3. Adjust I.F. trimmers Nos. 6, 8, 9 and 11 to resonance, at the same time reducing the output of the oscillator as required.

Frequency Range

535 - 1720 Kilocycles

INT. FREQ. 465 K.C.

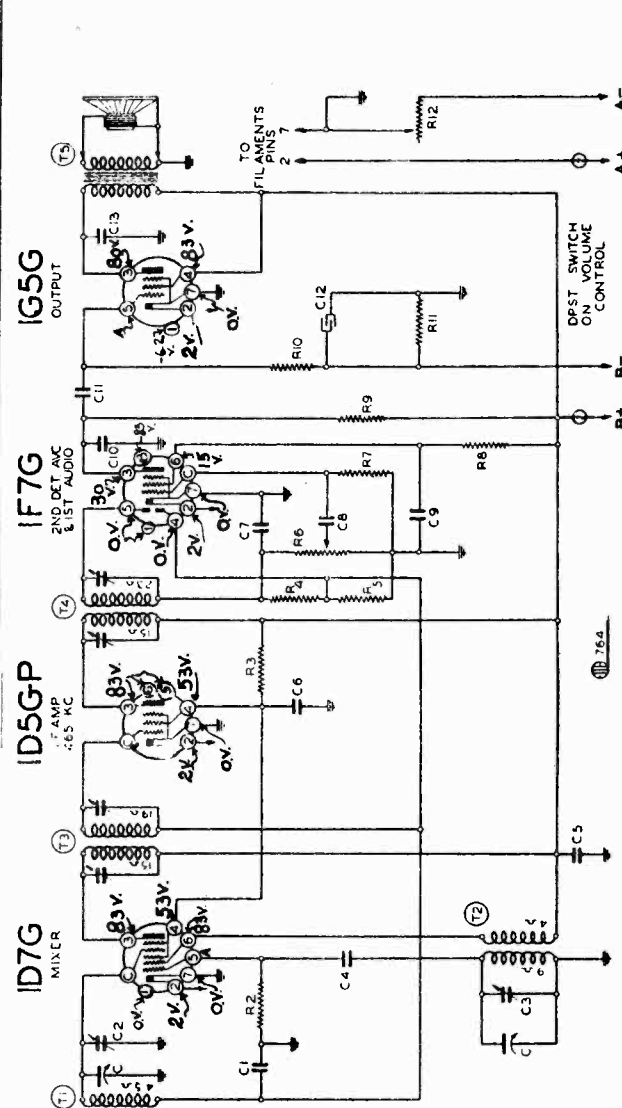
TYPE 6G5

* TUNING INDICATOR
USED ON MODEL 62-386 ONLY

MODEL 62-453, Series A
 Ser. 489500 up
 Schematic, Voltage
 Socket, Trimmers
 Alignment

MONTGOMERY WARD & CO.

MODEL 62-459
 MODEL 62-552
 MODEL 62-553
 MODEL 62-601
 Alignment



PARTS (SERIAL No. 489,500 and UP)

- RESISTORS**
 R1 BE13021 20M ohm—1/2 w.
 R2 BE13012 50M ohm—1/2 w.
 R3 BE13017 10M ohm—1/2 w.
 R4 BE13038 2 megohm—1/2 w.
 R5 BE13038 2 megohm—1/2 w.
 R6 BE10155 1 megohm—1/2 w.
 R7 BE13019 1 megohm—1/2 w.
 R8 BE13019 1 megohm—1/2 w.
 R9 BE13019 20M ohm—1/2 w.
 R10 BE13019 1 megohm—1/2 w.
 R11 BE13093 450 ohm—1/2 w.
 R12 BE10156 3.2 ohm rheostat
- CONDENSERS**
 C1 BE1027B 2 gang variable condenser .05 x 200
 C2 BE1009 Trimmer
 C3 BE1009 Trimmer
 C4 BE12912 Oscillator Trimmer .00025 mica
 C5 BE10020 .25 x 200 v.
 C6 BE10020 .1 x 200 v.
 C7 BE1295 .001 mica
 C8 BE10011 .01 x 400 v.
 C9 BE1009 .05 x 200 v.
 C10 BE1292 .01 x 400 v.
 C11 BE10011 .01 x 400 v.
 C12 BE1952 .25 mid. x 25 w. v. lytic
 C13 BE10071 .004 x 600 v.
- PARTS**
 T1 BE11114 Antenna Coil
 T2 BE1108 Oscillator Coil
 T3 BE10811 Output I. F.—465 kc.
 T4 BE10812D Output I. F.—465 kc.
 T5 BE11445 5" P. M. Speaker

FOR ADJUSTMENT OF
 AUTOMATIC TUNING
 LEVERS, SEE INDEX.

THIS ALIGNMENT APPLIES ALSO TO
 MODELS 62-459, 62-553, 62-601, and 62-552.

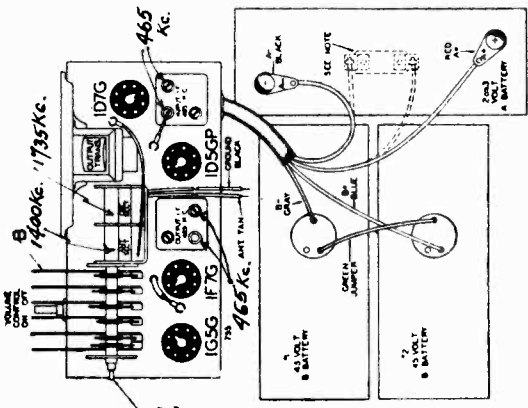


FIG. 1—TOP VIEW

D.C. VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS AND CHASSIS.
 VOLUME CONTROL AT MIN., ANT. GROUND.ED.
 2 VOLT "A" AND 90 VOLT "B" BATTERIES
 A—CANNOT BE READ WITH VOLTMETER

- The following batteries are required:
- 2—45 Volt "B" Batteries.
- 1—3 Volt Dry "A" Battery or 2 Volt Storage Battery.

Check the Position of the Knob on the Back of the Radio Before Making any Battery Connections

ALIGNMENT PROCEDURE

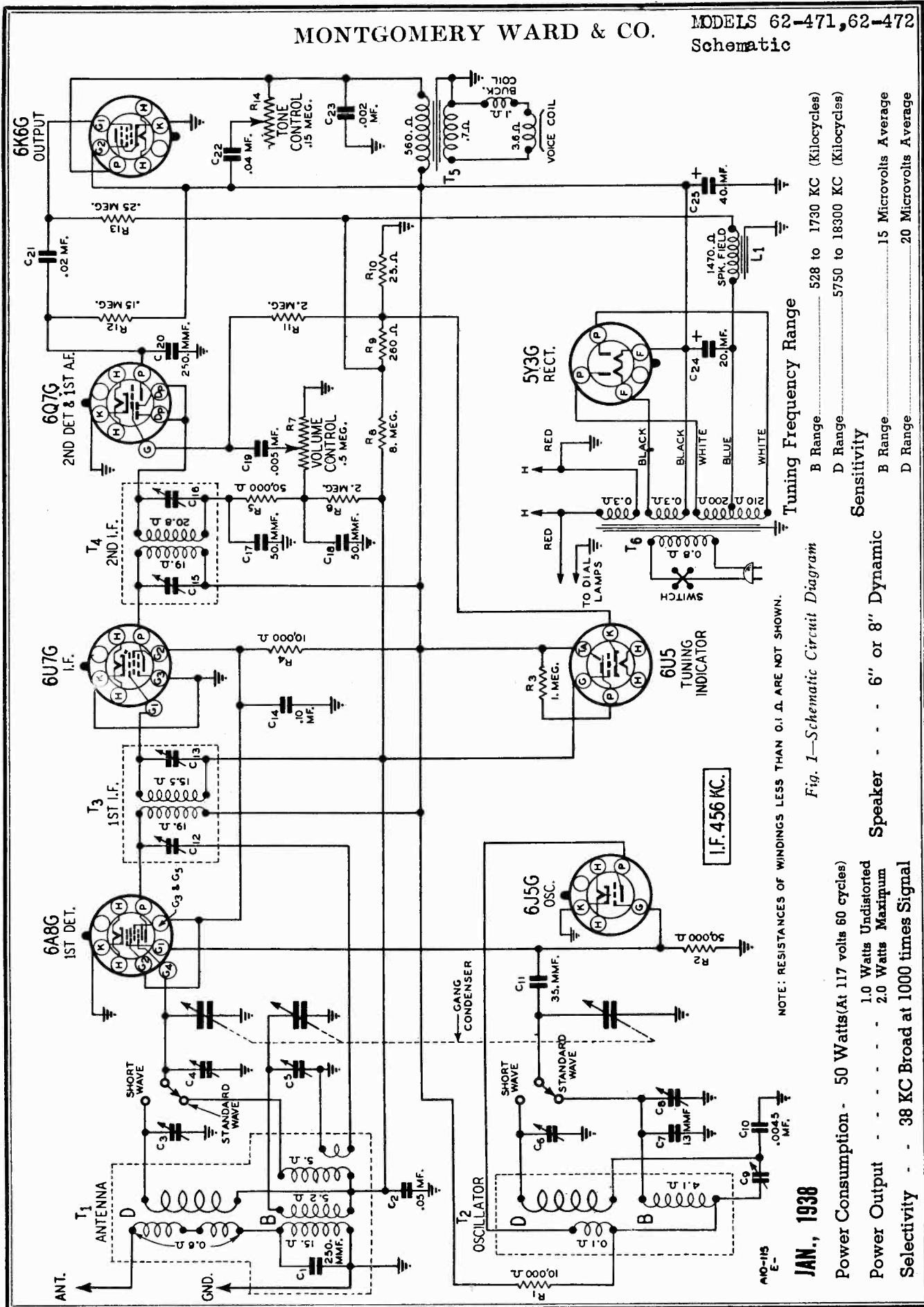
- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

BAND	SIGNAL GENERATOR Frequency Setting	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	Grid of last I. F. Tube	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	Grid of first I. F. (Mixer Tube)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROADCAST BAND	1735 Kc.	Antenna Lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang (See Fig. 1)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	Antenna Lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang (See Fig. 1)	Antenna Broadcast	Adjust to maximum output

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC. After each band is completed, repeat the procedure as a final check.

MONTGOMERY WARD & CO.

MODELS 62-471, 62-472
Schematic



NOTE: RESISTANCES OF WINDINGS LESS THAN 0.1 OHM ARE NOT SHOWN.

Tuning Frequency Range

B Range..... 528 to 1730 KC (Kilocycles)

D Range..... 5750 to 18300 KC (Kilocycles)

Sensitivity

B Range..... 15 Microvolts Average

D Range..... 20 Microvolts Average

Fig. 1—Schematic Circuit Diagram

Power Consumption - 50 Watts (At 117 volts 60 cycles)

Power Output - 1.0 Watts Undistorted
 2.0 Watts Maximum

Selectivity - . . . 38 KC Broad at 1000 times Signal

Speaker - 6" or 8" Dynamic

JAN., 1938

MODELS 62-471, 62-472
Socket, Trimmers, Tuner
Alignment, Voltage
Drive Cord Data

MONTGOMERY-WARD & CO.

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.
 Connect Radio Chassis to Ground Post of Signal Generator With a Short Heavy Lead.
 Allow Chassis and Signal Generator to "Heat Up" for Several Minutes.

The following equipment is required for aligning:
 An all Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
 Output Indicating Meter; Non-Metallic Screwdriver.
 Dummy Antennas—.1 mf., 200 mmf., and 400 ohms.

STEP (Follow Order as Given)	BAND SWITCH SETTING	DUMMY ANTENNA	SIGNAL GENERATOR		TRIMMERS ADJUSTED	PROCEDURE	
			FREQUENCY SETTING	CONNECTION AT RADIO		INITIAL STEPS	ADJUSTMENT
I.F.							
456 KC	Range B	.1 mf.	456 KC	Grid of 1st Det.	1st I.F. (C12) & (C13) 2nd I.F. (C15) & (C16)	Turn Rotor to Full Open	Adjust to Maximum Output
RANGE B							
1730 KC	Range B	200 mmf.	1730 KC	Antenna Lead	Oscillator Range B (C8)	Turn Rotor to Full Open	Adjust to Maximum Output
1500 KC	Range B	200 mmf.	1500 KC	Antenna Lead	1st Ant. Range B (C5) 2nd Ant. Range B (C4)	Turn Rotor to Max. Output Set Indicator to 1500 KC— See Note A	Adjust to Maximum Output
RANGE D							
600 KC	Range B	200 mmf.	600 KC	Antenna Lead	600 KC (C9)	Turn Rotor to Max. Output	Adjust to Maximum Output Rock Rotor— See Note B
18300 KC	Range D	400 Ohm	18300 KC	Antenna Lead	Oscillator Range D (C6)	Turn Rotor to Full Open	Adjust to Maximum Output
15000 KC	Range D	400 Ohm	15000 KC	Antenna Lead	Ant. Range D (C3)	Turn Rotor to Max. Output	Adjust to Maximum Output Rock Rotor— See Note B

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.
 After each range is completed, repeat the procedure as a final check.
 After alignment of Range D has been completed, do not make any adjustments of the Range B trimmers. If this is done, it will be necessary to realign Range D.

NOTE A—After the 1500 KC adjustment is made, the dial indicator should be at the 1500 KC mark on the dial scale. If it is not, the position of the indicator on the drive cord must be changed. This procedure, however, should not be followed unless it is absolutely necessary as there is danger of breaking the clamp which holds the indicator in place.

If the indicator must be moved, loosen the clamp at the back which holds it in place, move the indicator to the correct position, and bend the clamp back into place again.
 NOTE B—Turn the rotor back and forth and adjust the trimmer until the peak of greatest intensity is obtained.

at 15,000 on the dial of the radio. The range signal which is much weaker will be heard at 15,000 lines 912 KC or 14,088 KC on the dial. It may be necessary to increase the input signal to hear the lineage.

VOLTAGE AT SOCKETS

Line Voltage: 117—Volume Control: Maximum. Antenna Shorted to Ground.
 Readings taken with a 1000 Ohm-per-volt meter. Position of Band Switch: Standard Wave.

TUBE	FUNCTION	VOLTAGE BETWEEN SOCKET PRONG AND GROUND (Unless otherwise indicated)							
		Prong No. 1	Prong No. 2	Prong No. 3	Prong No. 4	Prong No. 5	Prong No. 6	Prong No. 7	Prong No. 8
6A8G	1st Det.	0	6.1(1)	165	90	6.5	90	6.1(1)	0
6J5G	Osc.	0	6.1(1)	125		6.5		6.1(1)	0
6U7G	I.F.	0	6.1(1)	165	90	0		6.1(1)	0
6Q7G	2nd Det. & 1st. Audio	0	6.1(1)	80				6.1(1)	0(2)
6K6G	Output	0	6.1(1)	185	165	12.5(3)		6.1(1)	0
5Y3G	Rectifier	0	4.7(4)		480(5)		480(5)		4.7(4)
6U5	Tuning Indicator	Plate to Ground 35	Target to Ground 165	Cathode to Ground 1	Across Heater 6.1 A.C.				

- (1) A.C. voltage read across heater terminals 2 and 7.
- (2) Bias (1.2 volts) as read across R10.
- (3) Bias voltage as read across R9 and R10.
- (4) A.C. voltage as read across filament terminals 2 and 8.
- (5) A.C. voltage as read across terminals 4 and 6.

CAUTION—When aligning the short wave band be sure NOT to adjust at the mega frequency. This can be checked as follows: Let us say the signal generator is set for 15,000 KC. The signal will then be heard

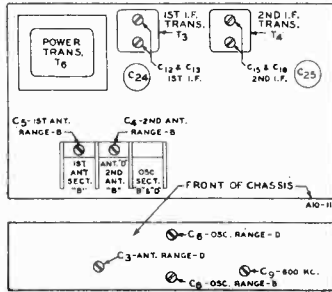


Fig. 2—Location of Trimmers

Replacing Drive Cords

Three drive cords, Nos. 1, 2, and 3, as shown in Fig. 5, are used. To replace any of these cords, proceed as follows:

Cord No. 1

Turn the gang condenser to full open position.
 Turn the drive shaft so that the holes for the cord are vertical. The positions of the drive shaft and drive drum are shown in Fig. 5.

Tie a double knot in one end of the cord. From the bottom of hole (A) in the drive shaft, thread the other end of the cord through the hole.

Slide a 1/2 inch length of fabric tubing on the cord, placing it near the free end. Fasten the shorter of the two springs used to the free end of the cord, making the distance between the two knots 2 7/8 inches.

Starting at the point where the cord leaves hole (A), wind it around the shaft 3/4 of a turn as shown in Fig. 5. Bring the end up to the wide groove (B) in the drive drum and wind on 2 1/4 turns, progressing toward the edge of the groove. Pass the cord through the slot at (C), placing the fabric tube (F) in position to protect the cord from being cut, and hook the spring to the pin at (D).

Cord No. 2

The gang condenser and tuning shaft should be in the same position as explained for Cord No. 1.

Tie a double knot in one end of the cord. From the top of hole (E) in the drive shaft, thread the other end of the cord through the hole.

Slide a 1/2 inch length of fabric tubing on the cord, placing it near the free end. Tie a slip knot with a small loop in the free end of the cord so that the length of the cord is 12 inches between the knots.

Starting at the point where the cord leaves hole (E), wind it around the shaft 3/4 turns as shown in Fig. 5. Do not attempt to wind the cord on the drive drum, but put the loop in the slip knot over pin (G). Rotate the drive drum clockwise about 1/2 a turn. This will unwind the cord on the drive shaft at (E).

Pass the cord through the slot at (C), placing the fabric tube (F) in position to protect the cord from being cut. While holding the cord on the wide flange, rotate the drive drum counterclockwise. The cord will be pulled into position in the groove.

The gang condenser and drive drum should be in the same position as explained for Cord No. 1.

Tie one end of the cord on hook (H).

Slide a 1/4 inch length of fabric tubing over the cord. Place this tubing approximately 13 1/2 inches from the end of the cord to be attached to the spring.

Tie the other end of the cord to the longer of the two springs used. The length of the cord between the knots should be 3 3/4 inches.

Pass the cord through slot (J) in groove (P) of the drive drum. Bring the cord up to pulley (K), around the other pulleys as shown in Fig. 5 and down to groove (P). After passing the cord around the drive drum 1/2 turn in groove (P), fasten the spring to hook (Q).

Attaching Dial Pointer—Tune in a station of known frequency. Move the pointer to this frequency on the dial scale. After the pointer has been moved to the correct position, clamp it tightly over the fabric tubing on the cord—See Fig. 5.

Lever Tuning Assembly Adjustments

Pressure of Spacers on Heart Cams — The heart cams must rotate freely relative to the shaft spacers when the tightening lever is in the "loose" position and must not rotate relative to the shaft spacers when this lever is in the "tight" position.

Pressure of the spacers against the heart cams is determined by the position of nut (R) on the threaded shaft—See Fig. 5. If, after the tightening lever is turned to the "tight" position, the cams can turn relative to the shaft, this nut must be tightened.

Bend back the ears of washer (S)—See Fig. 5, and tighten nut (R) about 1/2 turn. Bend the ears of the washer down again on nut (R). Tighten the tightening lever and see if the cams are sufficiently tight.

In general, nut (R) should be at such a position on the threaded shaft that the stop on the tightening lever moves to about 1/8 inch from the end of the slot in the tightening washers when a reasonable amount of pressure is exerted on this lever.

Connection between Gang Condenser and Cam Shaft—One screw only should be used in the universal joint connection between the condenser shaft and the cam shaft. If 2 screws are used, considerably more pressure must be exerted on the station levers to rotate the cam shaft.

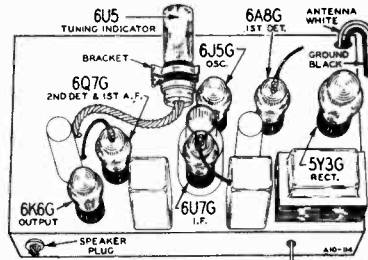


Fig. 4—Location of Tubes

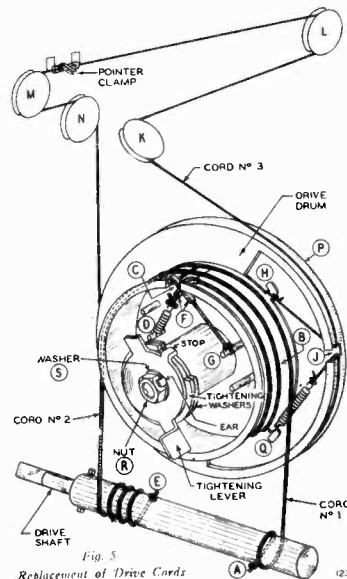
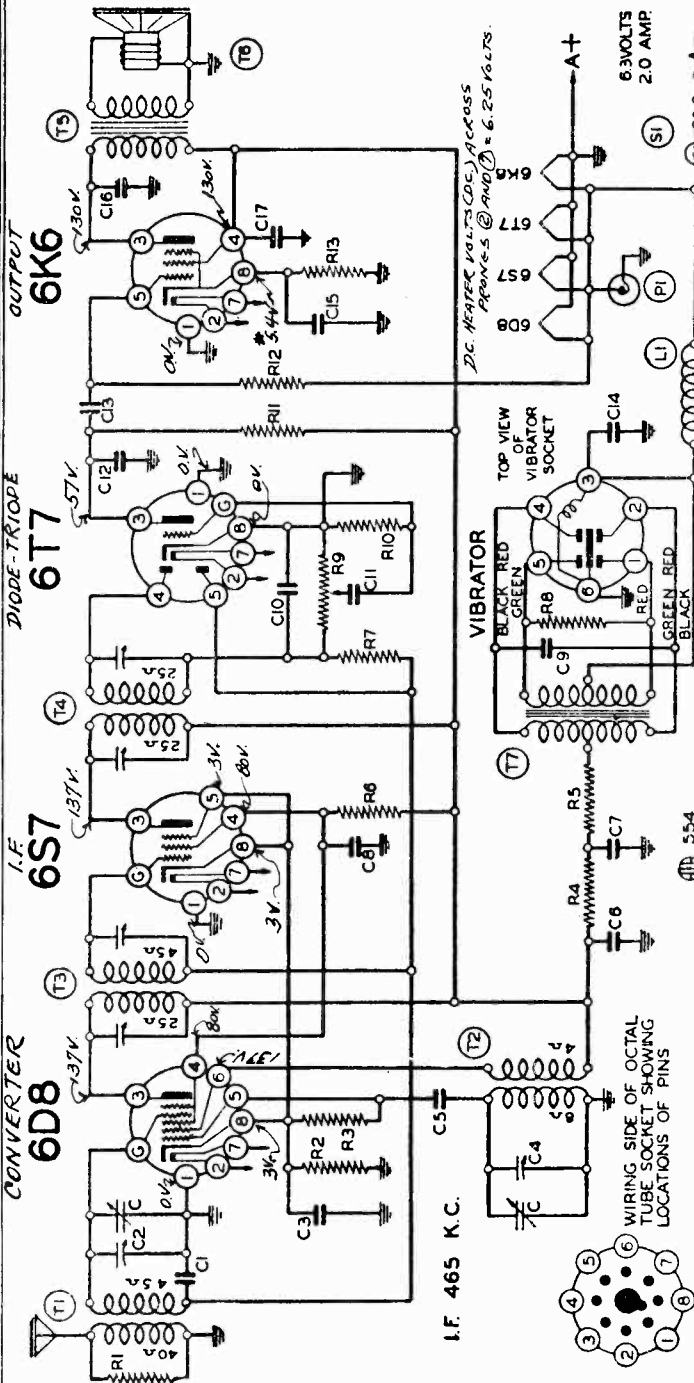


Fig. 5
 Replacement of Drive Cords

Schematic, Voltage
Socket, Trimmers

MONTGOMERY WARD & CO.

MODEL 62-459
Series A



TO REMOVE CHASSIS FROM THE CABINET:

To remove chassis from the cabinet unscrew the locking screw in the center of the tuning knob and pull tuning knob and volume knob off their shafts. Remove the four mounting screws that hold the bottom plate and chassis to the cabinet. Pull off the five buttons on the levers. Move the chassis toward back of cabinet so that control shafts and dial assembly clear holes in cabinet. then chassis can be slipped out.

VOLTAGES AT SOCKETS

Supply Voltage 6.3 DC—Volume Control: Maximum
Readings taken with 1000 ohm-per-volt meter
Antenna Shorted to Ground

Power Consumption.....2 Amperes at 6.3 Volts
Power Output.....4 Watts Undistorted, 1 Watt Maximum

FREQUENCY RANGE
535 to 1720 KC.

*Bias (11.6 volts) as read across terminals 8 to 7.

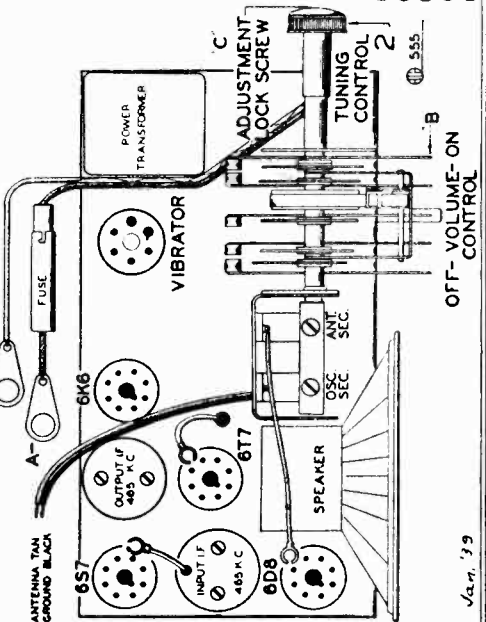
In case of difficulty, the fuse contained in the metal fuse receptacle should be checked. A 4 ampere Type 3AG fuse (Part No. BE13179) should be used.

PARTS

BE13021	R1	20M ohm— $\frac{1}{2}$ w.	C5	BE12912	.00025—mica
BE13061	R2	250 ohm— $\frac{1}{2}$ w.	C6	BE11957	15 mfd.—150 w. v.
BE13012	R3	50M ohm— $\frac{1}{2}$ w.	C7	BE11958	30 mfd.—150 w. v.
BE13084	R4	200 ohm— $\frac{1}{2}$ w.	C8	BE10022	.05 x 200 v.
BE13084	R5	200 ohm— $\frac{1}{2}$ w.	C9	BE10068	.003 x 1400
BE130149	R6	200 ohm— $\frac{1}{2}$ w.	C10	BE12912	.00025—Mica
BE130170	R7	15M ohm— $\frac{1}{2}$ w.	C11	BE10011	.01 x 400 v.
BE13084	R8	3 megohm— $\frac{1}{2}$ w.	C12	BE1292	.0005—Mica
BE101107	R9	200 ohm— $\frac{1}{2}$ w.	C13	BE10011	.01 x 400 v.
BE130225	R10	500M ohm	C14	BE10031	5 x 120 w. v.
BE1309	R11	15 megohm— $\frac{1}{2}$ w.	C15	BE11957	15 mfd.—25 w. v.
BE1303	R12	200M ohm— $\frac{1}{2}$ w.	C16	BE10019	.006 x 600 v.
BE13024	R13	500M ohm— $\frac{1}{2}$ w.	C17	BE10020	.1 x 200 v.
		400 ohm— $\frac{1}{2}$ w.			C6 and C 15 in same unit

RESISTORS

BE10267B	C	2 gang variable condenser
BE1009	C1	.05 x 200 v.
BE10022	C2	Antenna trimmer on gang condenser
	C3	.05 x 200 v.
	C4	Oscillator trimmer on gang condenser



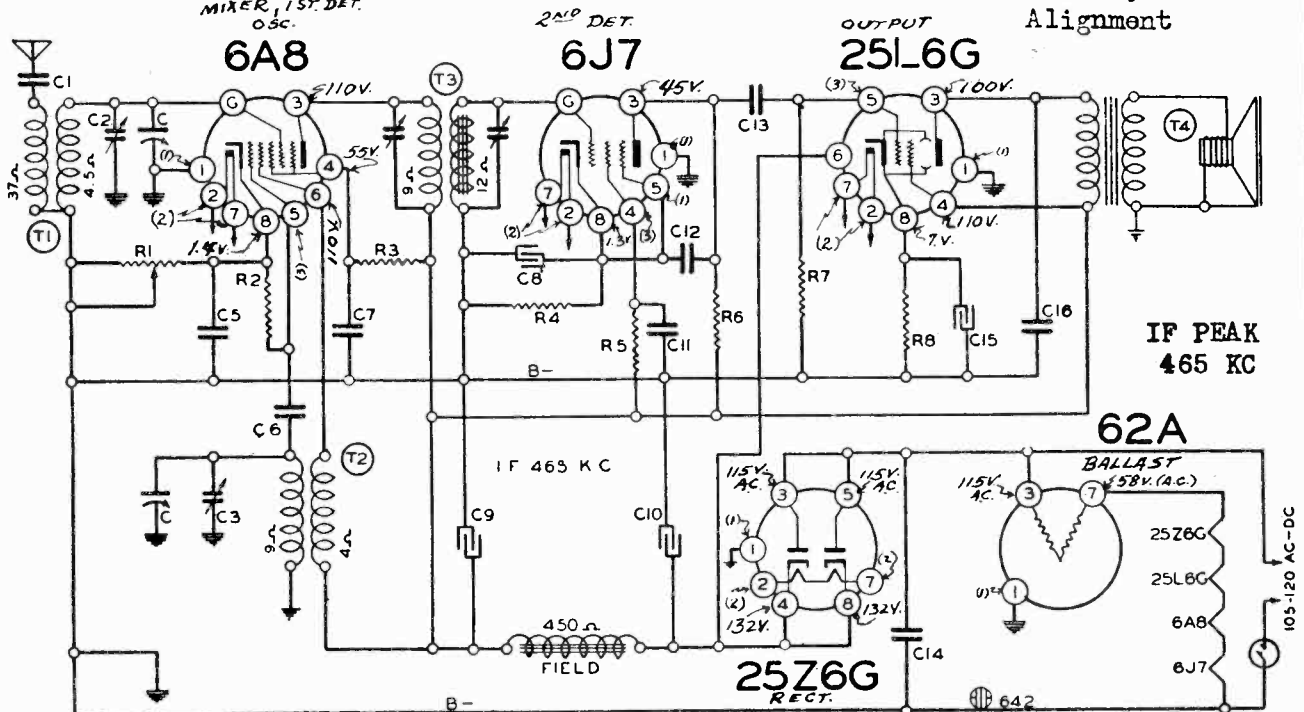
FOR ALIGNMENT PROCEDURE AND SETTING AUTOMATIC TUNING LEVERS, SEE INDEX.

MODELS 62-501, 62-502

Series A, Ser. 286700 up
MIXER, 1ST. DET.
OSC.

MONTGOMERY WARD & CO.

Schematic, Voltage
Socket, Trimmers
Alignment



IF PEAK
465 KC

Power Consumption 45 Watts
Power Output 800 Milliwatts Undistorted, 1300 Milliwatts Maximum
Intermediate Frequency 465 K.C.

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PARTS (Serial 286,700 and UP)

RESISTORS

R1	BE101138	20M ohm volume control
R2	BE13012	50M ohm—1/3 w.
R3	BE130194	35M ohm—1/3 w.
R4	BE130252	6M ohm—1/3 w.
R5	BE13038	2 megohm—1/3 w.
R6	BE13045	250M ohm—1/3 w.
R7	BE1303	500M ohm—1/3 w.
R8	BE130251	160 ohm—1/3 w.

CONDENSERS

C	BE10287	2 gang variable condense
C1	BE1292	.0005 mica
C2		Antenna Trimmer
C3		Oscillator Trimmer
C5	BE1009	.05 x 200 v.
C6	BE12912	.00025 mica
C7	BE1009	.05 x 200 v.
C8	BE11971	5 mfd. x 25 v. lytic
C9	BE11970	30 mfd. x 150 v. lytic
C10	BE11970	30 mfd. x 150 v. lytic
C11	BE10020	.1 x 200 v.
C12	BE1292	.0005 mica
C13	BE10026	.02 x 400 v.
C14	BE1001	.1 x 400 v.
C15	BE11970	40 mfd. x 25 v. v. lytic
C16	BE10095	.035 x 400 v.

C9, C10 and C15 in one unit, part no. BE11970

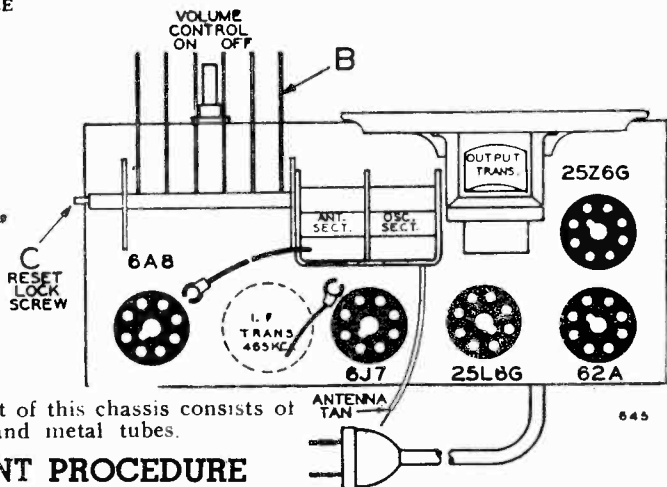
PARTS

T1	BE111110	Antenna Coil
T2	BE11095	Oscillator Coil
T3	BE108123	I. F. Transformer—465 kc.
T4	BE114130	5 inch Dynamic Speaker

FREQUENCY RANGE
530 to 1720 K.C.

**FOR SETTING
THE AUTOMATIC
TUNING LEVERS,
SEE INDEX.**

D.C. VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS AND B- WITH LINE VOLTAGE OF 115 VOLTS A.C. OR D.C.
NOTE: TERMINALS MARKED "O" ARE B-POINTS.
VOL. CONT. ON FULL ANTENNA GROUND (1) NO READING (CONNECTED TO CHASSIS) (2) 0.5 V.A.C. READ BETWEEN TERMINALS 2&7 OF SAME SOCKET (3) CANNOT BE READ WITH VOLTMETER



The tube complement of this chassis consists of octal base glass and metal tubes.

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect B- of radio chassis to ground post of signal generator through .1 Mfd. condenser.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The following equipment is required for aligning:

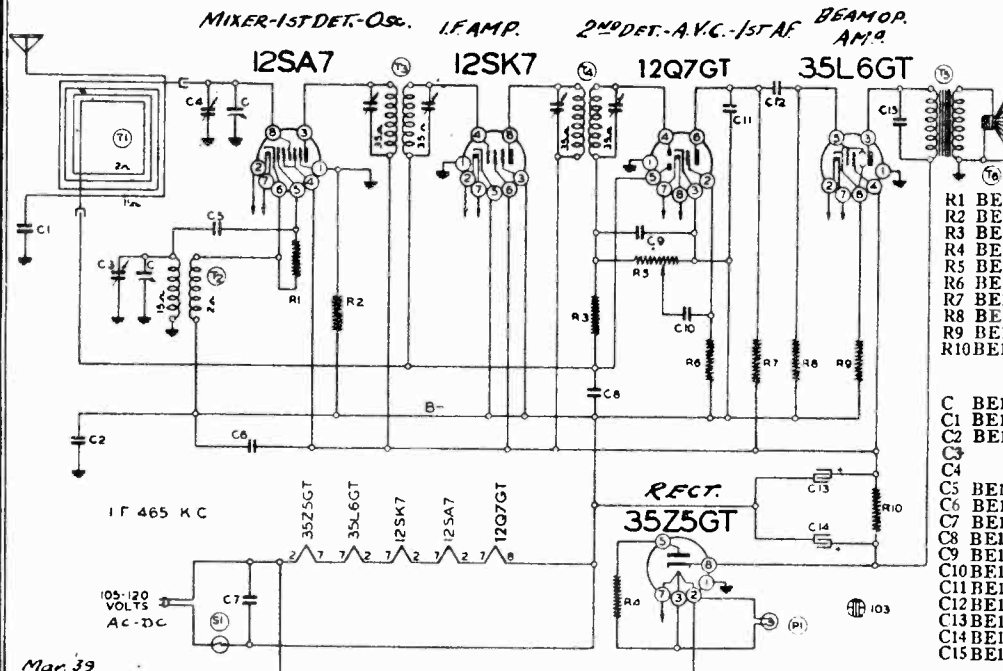
- An all wave signal generator.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—.1 mf., 100 mmf.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6A8	Rotor full open (Plates out of mesh)	Two trimmers	I. F.	Adjust to maximum output
BROAD-CAST BAND	1720 Kc.	100 muf.	Antenna Lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang	Broadcast Oscillator	Adjust to maximum output
BROAD-CAST BAND	1400 Kc.	100 mmf.	Antenna Lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang	Broadcast Antenna	Adjust to maximum output

Schematic, Voltage
Socket, Trimmers
Alignment, Changes

MONTGOMERY WARD & CO.

MODELS 62-504, 62-505
Series A, Issues A, B
Ser. 623100 up



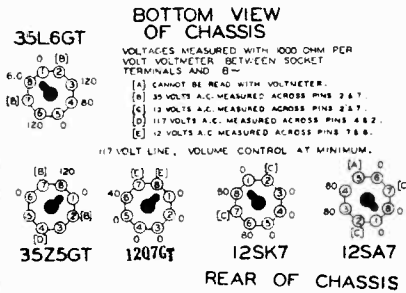
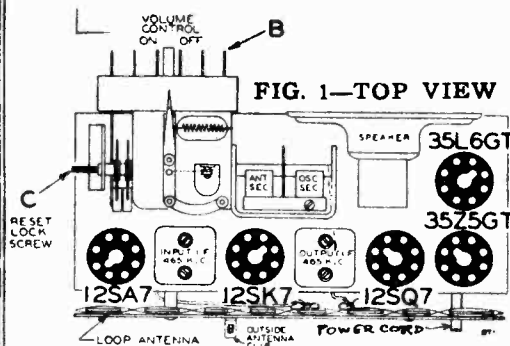
PARTS (Serial No. 623,100 and UP) ISSUES A AND B RESISTORS

- R1 BE13021 20M ohm— $\frac{1}{2}$ w.
- R2 BE130100 150M ohm— $\frac{1}{2}$ w.
- R3 BE1304 3 megohm— $\frac{1}{2}$ w.
- R4 BE130215 25 ohm— $\frac{1}{2}$ w.
- R5 BE101164 1 megohm—volume control
- R6 BE130225 15 megohm— $\frac{1}{2}$ w.
- R7 BE13011 250M ohm— $\frac{1}{2}$ w.
- R8 BE1303 500M ohm— $\frac{1}{2}$ w.
- R9 BE130166 150 ohm— $\frac{1}{2}$ w.
- R10 BE130199 1500 ohm—1 watt

CONDENSERS

- C BE102102 2 gang variable condenser
 - C1 BE1292 .0005 Mica
 - C2 BE10091 .15 x 400 v.
 - C3 Osc. Trimmer on Gang
 - C4 Ant. Trimmer on Gang
 - C5 BE12912 .00025 mica
 - C6 BE1009 .05 x 200 v.
 - C7 BE1001 .1 x 400 v.
 - C8 BE10022 .05 x 200 v.
 - C9 BE1295 .0001 mica
 - C10 BE10071 .004 x 600 v.
 - C11 BE12912 .00025 mica
 - C12 BE10011 .01 x 400 v.
 - C13 BE11982 30 mfd. lytic
 - C14 BE11982 30 mfd. lytic
 - C15 BE10095 .035 x 400 v.
- C13 and C14 in same unit

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- PARTS**
- T1 BE120268 Loop Antenna Oscillator Coil
 - T2 BE110113 Oscillator Coil
 - T3 BE108140B Input I. F.
 - T4 BE108141 Output I. F.
 - T5 BE10587 Output Transformer
 - T6 BE114157 4" P. M. Speaker
 - S1 Off-on switch on vol. control
 - P1 BE107249 6.3 volt Pilot Light

FOR SETTING AUTOMATIC TUNING LEVERS, SEE INDEX

Frequency Range 540-1650 Kilocycles
I. F. Frequency 465 K. C.

NOTE:- In ISSUE A, a 12SQ7 is used as 2nd Det.-A.V.C.-1st. Audio; Resistor, R 10, part BE 130282, 2000 ohm 1 watt, and P1, part BE 10794, 6.8 v. Pilot Light are used. For all other parts see parts list.

ALIGNMENT PROCEDURE

Do not remove the back cover of the radio which contains the loop antenna from the chassis. It is important during alignment that the same distance between the loop antenna and the chassis be maintained as when the chassis is installed in the cabinet.

Slight adjustments to the oscillator and antenna circuits can be made without removing the chassis from the cabinet through two holes which are provided on the bottom of the cabinet.

The two adjustments on the variable gang condenser can be reached with a long insulated type screw driver through these two holes.

- Volume control—Maximum all adjustments.
- Connect B - of radio chassis to ground post of signal generator through .1 Mfd. condenser.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

BAND	SIGNAL GENERATOR			Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
	Frequency Setting	Dummy Antenna	Connection to Radio				
I. F.	465 Kc.	.1 MFD.	Grid of 12SA7	Rotor full open (Plates out of mesh)	Four Trimmers on Top (See Fig. 1)	Output and Input I.F.	Adjust to maximum output
BROADCAST BAND	1650 Kc.	.1 MFD.	Grid of 12SA7	Rotor full open (Plates out of mesh)	Trimmer—Bottom of rear section of gang (See Bottom of Radio)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	See Note "A"		Set dial at 1400 Kc.	Trimmer—Bottom of front section of gang (See Bottom of Radio)	Broadcast Antenna	Adjust to maximum output
				Power Consumption.....	40 Watts		
				Power Output.....	1.3 Watts Undistorted, 2.5 Watts Maximum		
				Intermediate Frequency.....	465 K.C.		

NOTE "A" Lay the output lead from the generator in back of the loop antenna. Turn up the output of the generator, picking up the energy in the loop antenna without any electrical connection from the generator.

MODELS 62-551, 62-1551
62-2551

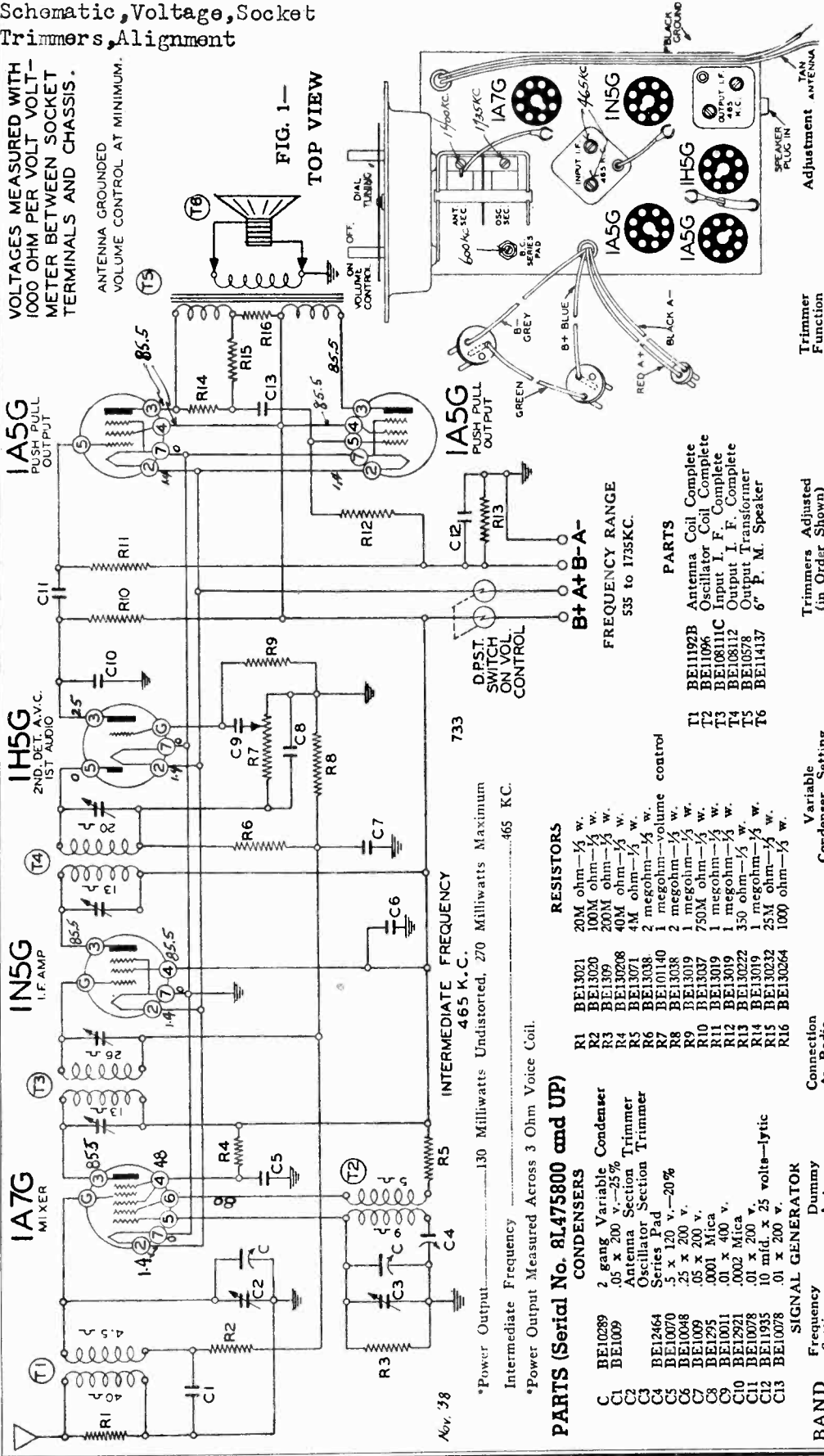
MONTGOMERY WARD & CO.

Series A, Ser. 8L475800 up
Schematic, Voltage, Socket
Trimmers, Alignment

VOLTAGES MEASURED WITH
1000 OHM PER VOLT VOLT-
METER BETWEEN SOCKET
TERMINALS AND CHASSIS.

ANTENNA GROUNDED
VOLUME CONTROL AT MINIMUM.

FIG. 1—
TOP VIEW



PARTS (Serial No. 8L475800 and UP)

- C BE10289 2 gang Variable Capacitor
- C1 BE1009 Antenna Section Trimmer
- C2 BE1009 Antenna Section Trimmer
- C3 BE1009 Oscillator Section Trimmer
- C4 BE12464 Series Pad
- C5 5 x 120 v.—20%
- C6 BE10070 25 x 200 v.
- C7 BE10048 65 x 200 v.
- C8 BE10098 .001 Mica
- C9 BE1292 .001 Mica
- C10 BE19011 .002 Mica
- C11 BE10078 .01 x 200
- C12 BE11933 10 mfd. x 25 volts—lytic
- C13 BE10078 .01 x 200 v.
- R1 BE13021 20M ohm—1/2 w.
- R2 BE13020 100M ohm—1/2 w.
- R3 BE1309 200M ohm—1/2 w.
- R4 BE13028 40M ohm—1/2 w.
- R5 BE13071 4M ohm—1/2 w.
- R6 BE13038 2 megohm—1/2 w.
- R7 BE10140 1 megohm—volume control
- R8 BE13038 2 megohm—1/2 w.
- R9 BE13019 1 megohm—1/2 w.
- R10 BE13037 750M ohm—1/2 w.
- R11 BE13019 1 megohm—1/2 w.
- R12 BE13019 1 megohm—1/2 w.
- R13 BE13022 350 ohm—1/2 w.
- R14 BE13019 1 megohm—1/2 w.
- R15 BE13023 25M ohm—1/2 w.
- R16 BE130264 1000 ohm—1/2 w.
- T1 BE1192B Antenna Coil Complete
- T2 BE11096 Oscillator Coil Complete
- T3 BE10811C Input I. F. Complete
- T4 BE108112 Output I. F. Complete
- T5 BE10578 Output Transformer
- T6 BE114137 6" P. M. Speaker

BAND	Frequency Setting	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)
I. F.	465 Kc.	Grid of 1N5G I.F. Tube	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)
	465 Kc.	Grid of 1A7G	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)
BROAD-CAST BAND	1735 Kc.	Antenna lead	Rotor full open (Plates out of mesh)	Broadcast Oscillator
	1400 Kc.	Antenna lead	Set dial at 1400 Kc.	Antenna
	600 Kc.	Antenna lead	Set dial at 600 Kc.	Broadcast oscillator series pad

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

After each band is completed, repeat the procedure as a final check.

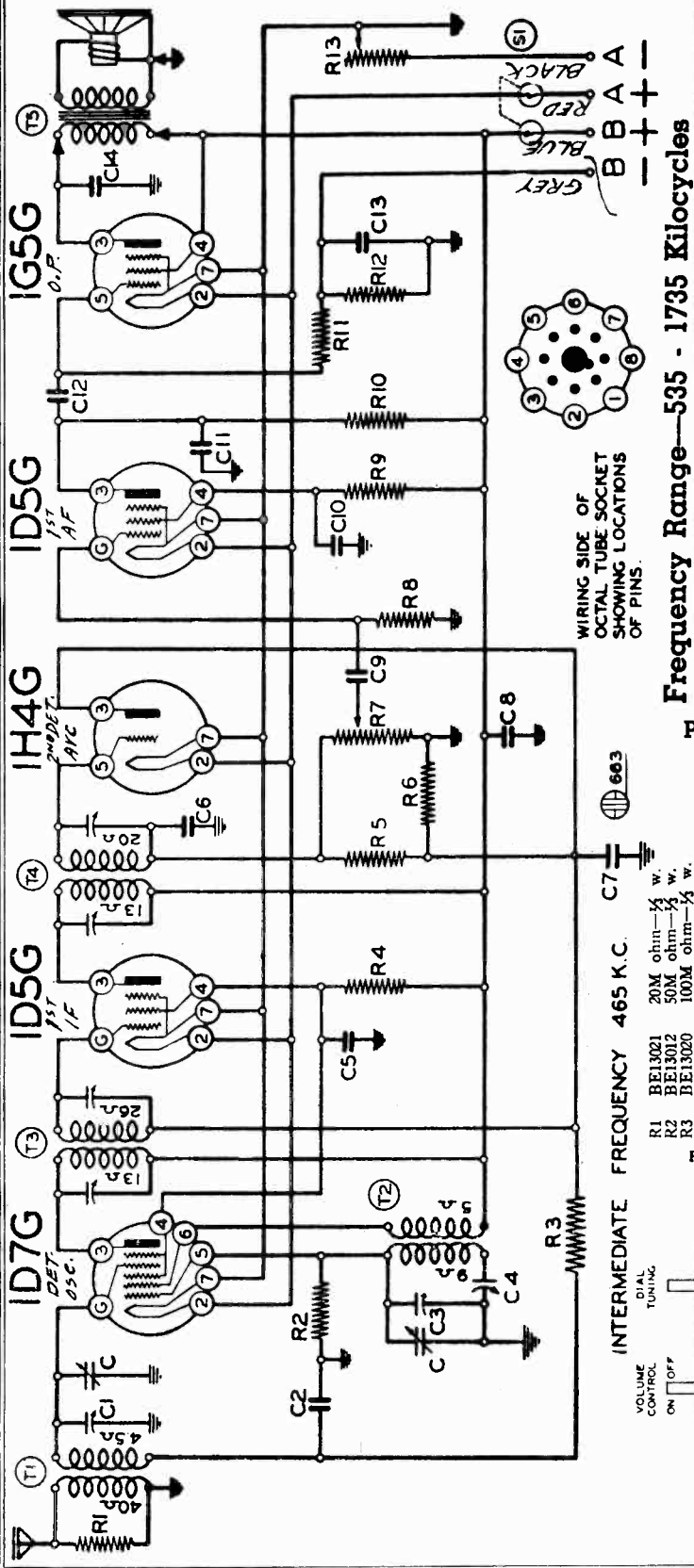
Schematic, Voltage Socket, Trimmers

MONTGOMERY WARD & CO.

MODELS 62-550, 62-1550
62-2550, Series A
Ser. 8J312900 up

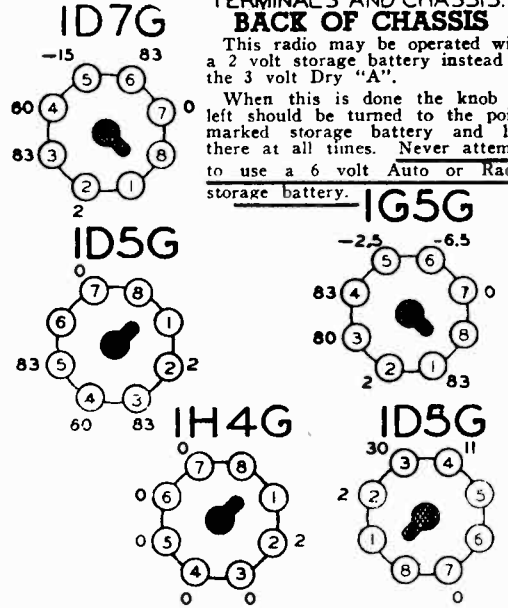
5 TUBE

Broadcast Band 2-Volt Battery Operated Superheterodyne Receiver



Frequency Range—535 - 1735 Kilocycles

BOTTOM VIEW OF CHASSIS



REAR OF CHASSIS

FIG. 3

PARTS (SERIAL No. 8J312900 and UP)

- INTERMEDIATE FREQUENCY 465 K.C. C7 663
- RESISTORS
- R1 BE13021 20M ohm—1/4 w.
 - R2 BE13012 50M ohm—1/4 w.
 - R3 BE13020 100M ohm—1/4 w.
 - R4 BE13017 10M ohm—1/4 w.
 - R5 BE13038 2 megohm—1/4 w.
 - R6 BE13038 2 megohm—1/4 w.
 - R7 BE101140 1 megohm Volume Control
 - R8 BE13019 1 megohm—1/4 w.
 - R9 BE13019 1 megohm—1/4 w.
 - R10 BE13019 200 M ohm—1/4 w.
 - R11 BE13093 450 ohm—1/4 w.
 - R12 BE13093 450 ohm—1/4 w.
 - R13 BE10179 Filament Rheostat (4.75 ohms)
- CONDENSERS
- C1 BE10289 Two Gang Variable Capacitor
 - C2 BE1009 Antenna Section Trimmer
 - C3 BE12464 .05 x 200 V.
 - C4 BE10022 .0001 Mica
 - C5 BE1295 .05 x 200 v.
 - C6 BE10048 .25 x 200 v.
 - C7 BE10011 .01 x 400 v.
 - C8 BE1009 .05 x 200 v.
 - C9 BE1292 .0005 Mica
 - C10 BE10011 .01 x 400 v.
 - C11 BE1292 25 mfd. 25 v. Lytic Capacitor
 - C12 BE10011 .01 x 400 v.
 - C13 BE10011 .01 x 400 v.
 - C14 BE10071 .04 x 600 v. P.A.R.T.S.
- Other parts listed include: T1 BE11192B Antenna Coil Complete, T2 BE11096 Oscillator Coil Complete, T3 BE10811C Input I.F. Complete, T4 BE108112 Output I.F. Complete, T5 BE11476 6 in. P. M. Speaker, S1 Double Pole Double Throw Switch on Volume Control.

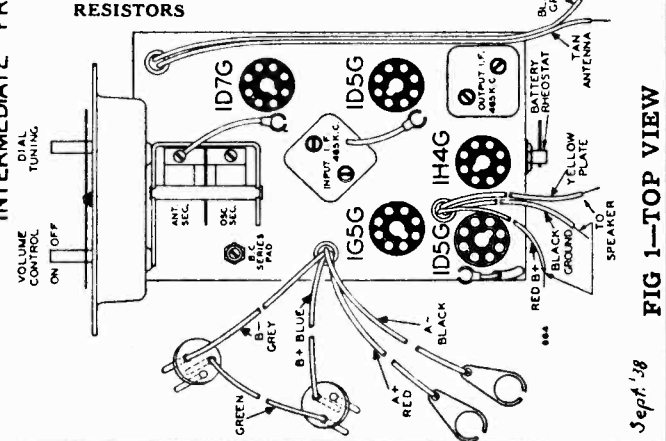


FIG 1—TOP VIEW

Sept. '38

MODELS 62-550, 62-1550
62-2550

MODELS 93WG602, 93WG603
Alignment

MONTGOMERY WARD & CO.

MODELS 62-558, 62-1558
62-2558

MODEL 62-653
Alignment, Trimmers

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The following equipment is required for aligning:

- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 mf., 200 mmf.

MODELS 62-550, 62-1550, 62-2550
Series A

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (In Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1D5G I.F. Tube	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1D7G	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROADCAST BAND	1735 Kc.	200 mmf.	Antenna lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang (See Fig. 1)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	200 mmf.	Antenna lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang (See Fig. 1)	Antenna Broadcast	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Set dial at 600 Kc.	B.C. Series Pad (See Fig. 1)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC. After each band is completed, repeat the procedure as a final check.

Power Output—150 Milliwatts Undistorted, 250 Milliwatts Maximum
Intermediate Frequency—465 KC.

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The following equipment is required for aligning:

- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 mf., 200 mmf. and 400 ohms.

MODELS 62-558, 62-1558, 62-2558
Series A, Issue A

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (In Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1N5G 2nd I. F.	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1N5C 1st I. F.	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Interstage I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1A7G Mixer	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 17 Mc.	Trimmer C6—Top of front section of gang (See Fig. 1)	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 17 Mc.	Trimmer C2	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 6 Mc.	Trimmer C7	Short Wave oscillator series pad	Adjust to maximum rock dial. (See note "A")
BROADCAST BAND	1750 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer C8	Broadcast oscillator	Adjust to maximum output
	1400 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 1500 Kc.	Trimmer C3	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 600 Kc.	Trimmer C9	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC. After each band is completed, repeat the procedure as a final check.

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

ALIGNMENT PROCEDURE Model 62-653

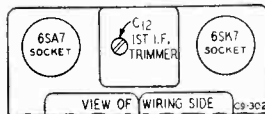


Fig. 6—Location of 1st I.F. Trimmer in Tuning Unit

Remove grille and speaker from speaker unit.

Remove the chassis from tuning unit case in accordance with the article under "General Installation Items" in this manual.

Set the signal generator for 456 KC and connect the output of the signal generator through a .05 mf. condenser to the control grid of the 6SA7 1st detector tube (prong No. 8). Connect the ground lead of the signal generator to the tuning unit chassis. Set the volume control at maximum and the Local-Distance

switch to the distance position. Attenuate the signal from the signal generator to prevent the leveling off action of the AVC.

Then adjust the 4 I.F. trimmers until maximum output is obtained. Three of the trimmers are in the speaker unit—See Fig. 2. One trimmer is at the top of the tuning unit—See Fig. 6.

Insert the antenna cable plug in the antenna socket on the tuning unit. The total capacity of the antenna cable and dummy antenna should be 60 mmf. If the cable, for example, has a capacity of 25 mmf., use a 35 mmf. condenser for a dummy antenna. Connect the other end of the antenna cable through the dummy antenna capacity to the output of the signal generator.

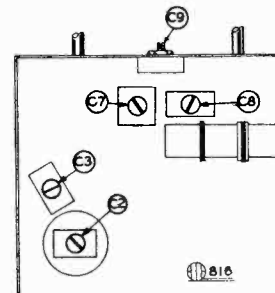
Set the signal generator for 1560 KC. Turn the tuning knob until the iron cores are as far out of the tuning coils as they will go. Then adjust the oscillator trimmer C6

(Fig. 1) until maximum output is obtained.

Set the signal generator for 1000 KC. Turn the tuning knob until maximum output is obtained. Adjust interstage trimmer C7 and antenna trimmer C2 for maximum output—See Fig. 1.

Reassemble the radio and install it in the automobile. Insert the car antenna cable. Tune in a weak signal near 1000 KC and readjust the antenna trimmer C2 for maximum output.

Calibration—If it is necessary to calibrate the radio, remove the chassis from the tuning unit case—See article on that subject in this manual. Accurately tune in a signal of known frequency near 1000 KC. Loosen the set screw of the large gear that drives the dial drum. Turn the dial drum until the indicator line is at the frequency of the station tuned in. Tighten the set screw and reassemble.



MODELS 62-558, 62-1558
62-2558
Series A

ALIGNMENT PROCEDURE Models 93WG602 and 93WG603

Volume Control—Maximum All Adjustments. Allow Chassis and Signal Generator to "Heat Up" for several Minutes. Connect Ground Post of Signal Generator to B—(125K7—Prong No. 3) in Chassis.

SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
456 KC	Signal Grid of 1st Det. Connect at Stator of Large Gang Section.	.1 mf.	Turn Rotor to full open	1st I.F. (C7) & (C8) 2nd I.F. (C9) & (C10)
1730 KC	Signal Grid of 1st Det.	.1 mf.	Turn Rotor to full open	Oscillator (C2)
1500 KC	None—See Note		Turn Rotor to max. output	Antenna (C3)

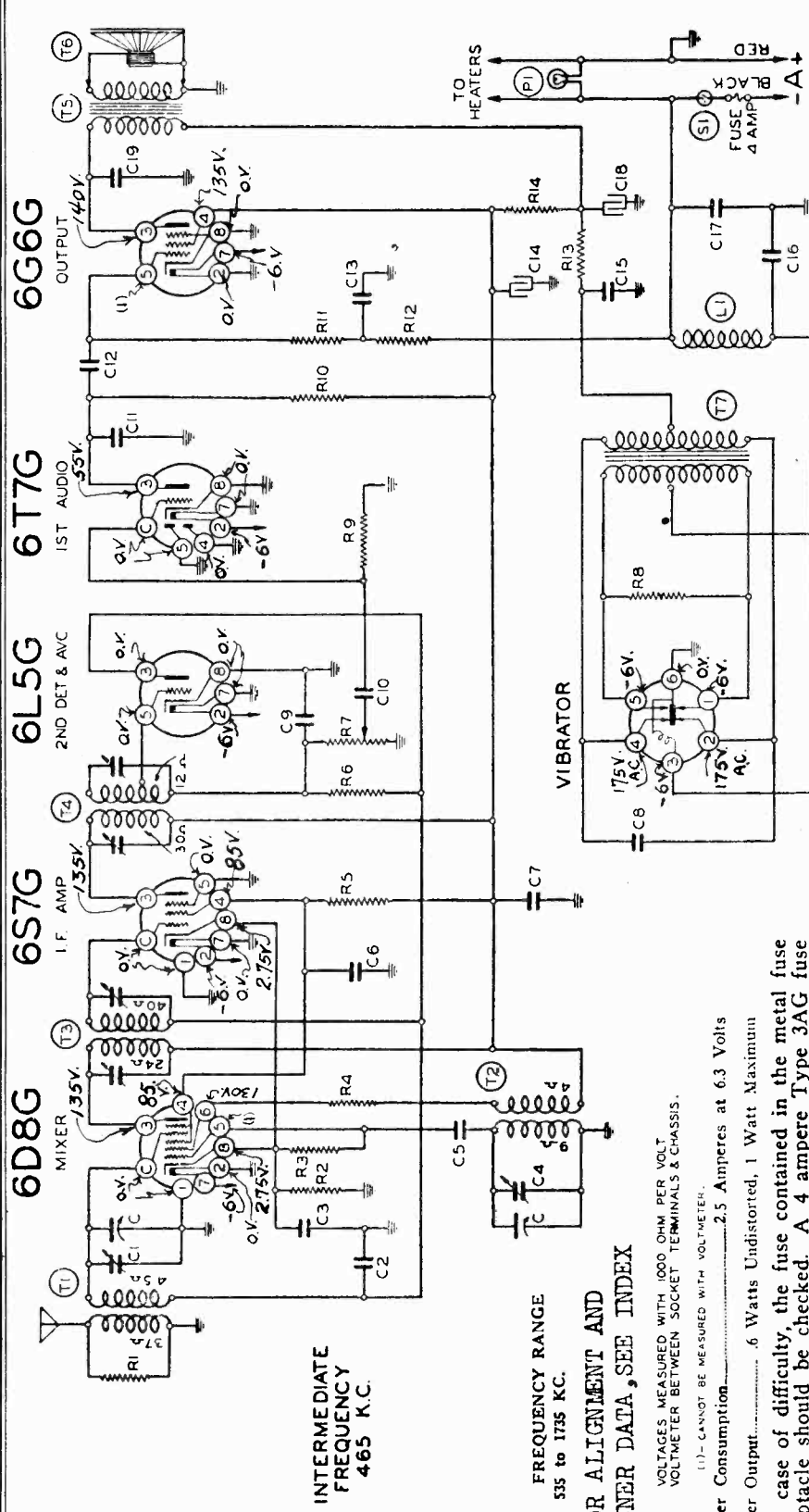
CALIBRATION—If it is necessary to calibrate the radio, remove the back cover. Turn the tuning control drum until the 2 set screws on the dial hub near the volume control can be reached with a screwdriver. Loosen the 2 set screws by turning them about 1/8th turn in a counter-clockwise direction. Tune in an 800 KC signal. Hold the tuning control motionless and at the same time turn the dial drum until the dial is in calibration. Then slowly turn the tuning control drum until the 2 set screws can be reached and re-tightened with a screwdriver. Check to see that the dial has remained in calibration.

Dummy Antenna—.1 mf.

NOTE—Connect a loop approximately one foot in diameter across the antenna and ground posts of the signal generator. Secure the back in place on the cabinet. Place radio approximately 3 feet from loop so as to pick up signal. Radio should not be in proximity to any metal (metal bench, etc.).

MONTGOMERY WARD & CO.

MODEL 62-552, Series A
Schematic, Voltage
Socket, Trimmers
Alignment



INTERMEDIATE
FREQUENCY RANGE
465 K.C.

FREQUENCY RANGE
535 to 1735 K.C.

FOR ALIGNMENT AND
TUNER DATA, SEE INDEX

VOLTAGES MEASURED WITH 1000 OHM PER VOLT
VOLT-METER BETWEEN SOCKET TERMINALS & CHASSIS.

(1) - CANNOT BE MEASURED WITH VOLT-METER.

Power Consumption..... 2.5 Amperes at 6.3 Volts
Power Output..... 6 Watts Undistorted, 1 Watt Maximum

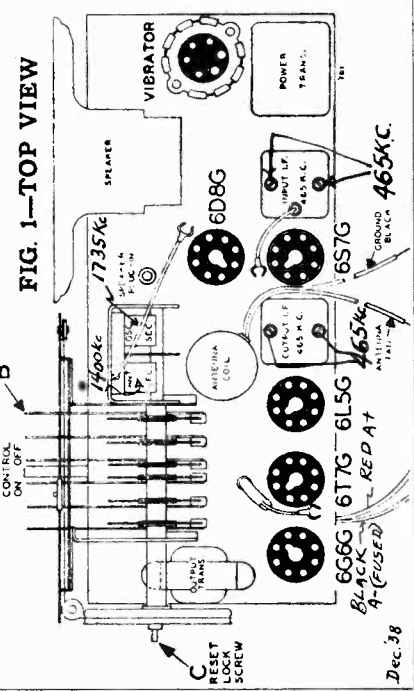
In case of difficulty, the fuse contained in the metal fuse
receptacle should be checked. A 4 ampere Type 3AG fuse
(Part No. BE13179) should be used.

- | | | |
|-----|--------|-----------------------------|
| R1 | 13017 | 10M ohm— $\frac{1}{2}$ w. |
| R2 | 13097 | 200 ohm— $\frac{1}{2}$ w. |
| R3 | 13012 | 50M ohm— $\frac{1}{2}$ w. |
| R4 | 13092 | 1000 ohm— $\frac{1}{2}$ w. |
| R5 | 130157 | 12M ohm— $\frac{1}{2}$ w. |
| R6 | 1304 | 3 megohm— $\frac{1}{2}$ w. |
| R7 | 101126 | 1 megohm— $\frac{1}{2}$ w. |
| R8 | 13097 | 200 ohm— $\frac{1}{2}$ w. |
| R9 | 130225 | 15 megohm— $\frac{1}{2}$ w. |
| R10 | 13011 | 250M ohm— $\frac{1}{2}$ w. |
| R11 | 130102 | 500M ohm— $\frac{1}{2}$ w. |
| R12 | 130163 | 100M ohm— $\frac{1}{2}$ w. |
| R13 | 130168 | 100 ohm— $\frac{1}{2}$ w. |
| R14 | 13092 | 1000 ohm— $\frac{1}{2}$ w. |
-
- | | | |
|-----|--------|--------------------------------|
| C9 | 12960 | 00015 mica |
| C10 | 10011 | .01 x 400 v. |
| C11 | 1292 | 0005 mica |
| C12 | 10011 | .01 x 200 v. |
| C13 | 10020 | .1 x 200 v. |
| C14 | 11959C | 10 mfd. electrolytic—200 w. v. |
| C15 | 10020 | .1 x 200 v. |
| C16 | 10040 | .5 x 120 v. |
| C17 | 10040 | .5 x 120 v. |
| C18 | 11959C | 30 mfd. electrolytic—200 w. v. |
| C19 | 10019 | .006 x 600 v. |
-
- | | | |
|----|---------|----------------------------------|
| T1 | 11185C | Antenna Coil |
| T2 | 110103 | Oscillator Coil |
| T3 | 108129B | Input I. F. Coil—465 kc. |
| T4 | 108130B | Output I. F. Coil—465 kc. |
| T5 | 10569B | 6" P. M. Speaker |
| T6 | 114143 | Power Transformer |
| T7 | 104137D | "A" Choke |
| L1 | 10568 | 6.3 volt pilot light T40-150 ma. |
| S1 | 10789 | Off-on switch on volume control |

PARTS

CONDENSERS

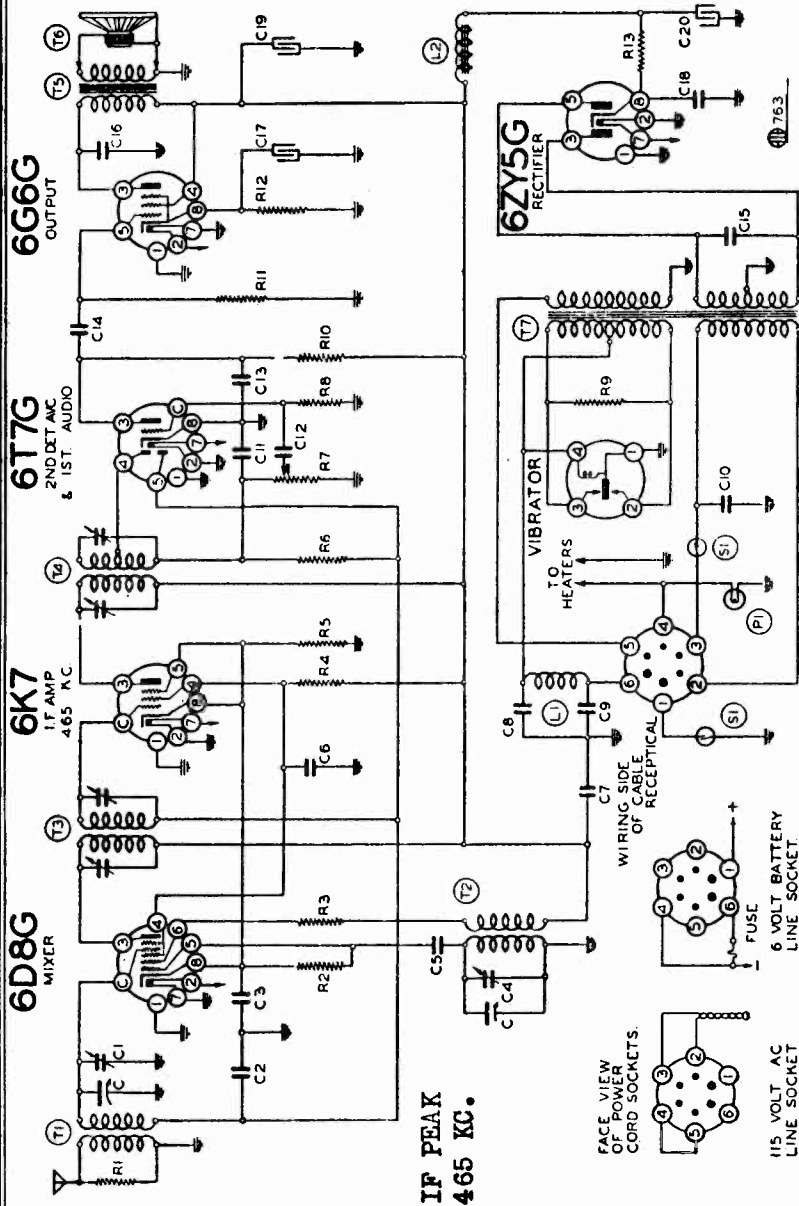
- | | | |
|----|-------|---------------------------|
| C | 10294 | 2 gang variable condenser |
| C1 | 1009 | Antenna Trimmer |
| C2 | 10048 | .05 x 200 v. |
| C3 | 10048 | .25 x 200 v. |
| C4 | 1295 | Oscillator Trimmer |
| C5 | 10020 | .0001 mica |
| C6 | 10020 | .1 x 200 v. |
| C7 | 10020 | .1 x 200 v. |
| C8 | 10068 | .003 x 1400 v. |



Dec. 38

MONTGOMERY WARD & CO.

MODEL 62-553
Schematic, Voltage
Socket, Trimmers



Power Consumption... 40 Watts (at 115 Volts 50/60 Cycles) or 2.5 Amperes at 6.3 Volts
Power Output... 6 Watts Undistorted, 1 Watt Maximum

FREQUENCY RANGE
55 to 175 KC.

PARTS (Serial No. 8M502000 and up)

- RESISTORS**
R1 BE13017 10M ohm-1/2 w.
R2 BE13012 50M ohm-1/2 w.
R3 BE13012 100 ohm-1/2 w.
R4 BE13017 12M ohm-1/2 w.
R5 BE13017 300 ohm-1/2 w.
R6 BE1304 3 megohm-1/2 w.
R7 BE101150 15 megohm-volume control
R8 BE130225 200 ohm-1/2 w.
R9 BE13027 200 ohm-1/2 w.
R10 BE130266 500M ohm-1/2 w.
R11 BE130402 450 ohm-1/2 w.
R12 BE13093 100 ohm-1/2 w.
R13 BE130168
- CONDENSERS**
C1 BE10294 2 gang variable condenser
C2 Antenna Trimmer
C3 BE10064 .25 x 200 v.
C4 Oscillator Trimmer
C5 .0001 mica
C6 1 x 200 v.
C7 1 x 200 v.
C8 5 x 120 v.
C9 5 x 120 v.
C10 BE10040 .01 x 400 v.
C11 BE12960 .01 x 400 v.
C12 BE10011 .05 x 200 v.
C13 BE1292 .05 x 200 v.
C14 BE10023 .008 x 1200 v.
C15 BE10023 .008 x 1200 v.
C16 BE11979 1 x 200 x 200 w. volt
C17 16 mid. x 200 w. volt
C18 BE11979 16 mid. x 200 w. volt
C19 BE11979 16 mid. x 200 w. volt
C20
- PARTS**
T1 Antenna Coil
T2 Oscillator Coil
T3 Input I. F. Coil-465 kc.
T4 Output I. F. Coil-465 kc.
T5 BE10569B Output Transformer
T6 BE114143 6" P. M. Speaker
T7 BE10414B Power Transformer
S1 Off-on switch on volume control
P1 6.3 v. Pilot Light T40-150 ma.
L1 "A" Choke
L2 "B" Choke
- BEI1185C** Antenna Coil
BEI10106 Oscillator Coil
BEI08129 Input I. F. Coil-465 kc.
BEI08130 Output I. F. Coil-465 kc.
BE10569B Output Transformer
BE114143 6" P. M. Speaker
BE10414B Power Transformer
BE10789 Off-on switch on volume control
BEI0568 6.3 v. Pilot Light T40-150 ma.
BEI0530G "A" Choke
BEI0530G "B" Choke

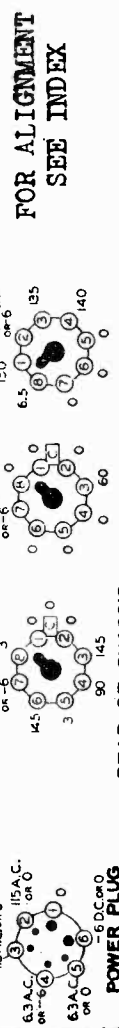
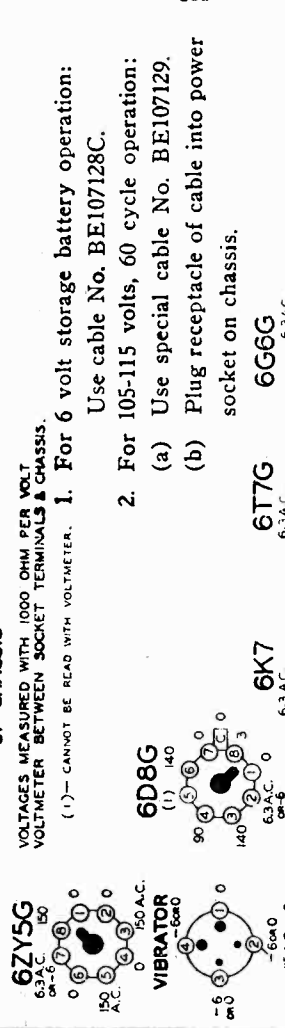


FIG. 1-TOP VIEW Dec. 38

FOR ALIGNMENT
SEE INDEX

Socket, Trimmers
Alignment

MONTGOMERY WARD & CO. SPECIFICATIONS

MODEL 62-554
Schematic, Voltage

Power Consumption - 6.25 Amperes at 6.3 Volts

Power Output - 1.5 Watts Undistorted

Sensitivity - 1.5 Microvolts at .5 Watt Output

Selectivity - 42 KC Broad at 1000 Times Signal

Tuning Frequency Range - 540 to 1560 KC

Intermediate Frequency - 456 KC

Speaker - 6" Electro-Dynamic

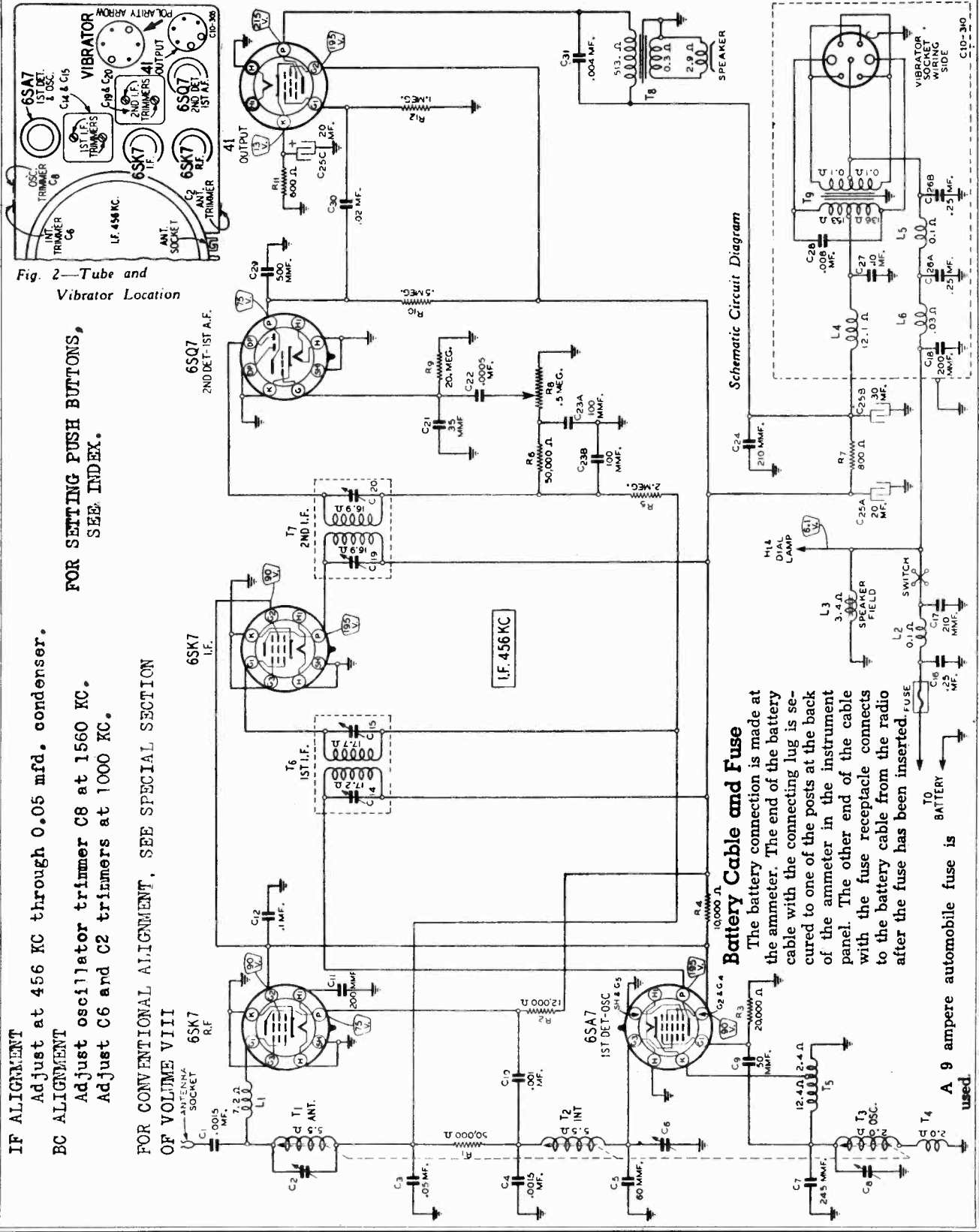


Fig. 2—Tube and
Vibrator Location

FOR SETTING PUSH BUTTONS,
SEE INDEX.

IF ALIGNMENT
Adjust at 456 KC through 0.05 mfd. condenser.

BC ALIGNMENT
Adjust oscillator trimmer C8 at 1560 KC.
Adjust C6 and C2 trimmers at 1000 KC.

FOR CONVENTIONAL ALIGNMENT, SEE SPECIAL SECTION
OF VOLUME VIII

Battery Cable and Fuse

The battery connection is made at the ammeter. The end of the battery cable with the connecting lug is secured to one of the posts at the back of the ammeter in the instrument panel. The other end of the cable with the fuse receptacle connects to the battery cable from the radio after the fuse has been inserted.

A 9 ampere automobile fuse is used.

MODEL 62-554
 MODEL 62-653
 MODEL 93WG562
 MODELS 93WG602, 93WG603

MONTGOMERY WARD & CO.

Tuner Data

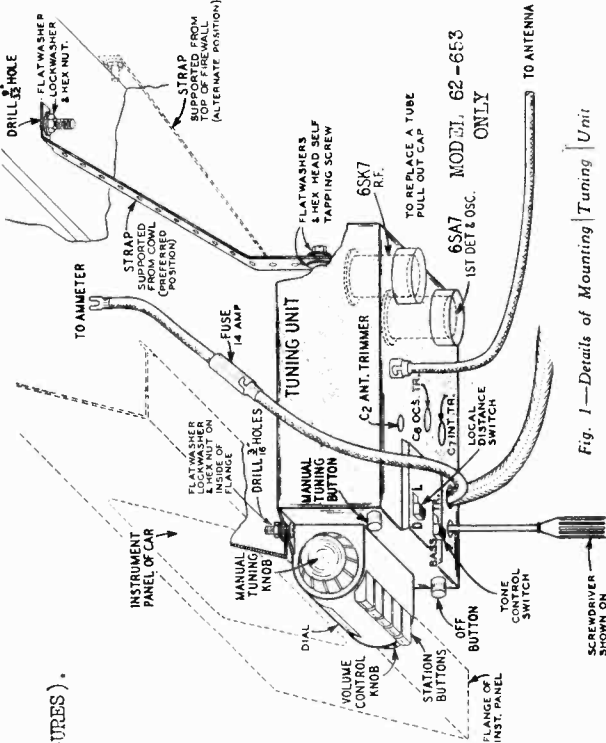


Fig. 1—Details of Mounting Tuning Unit

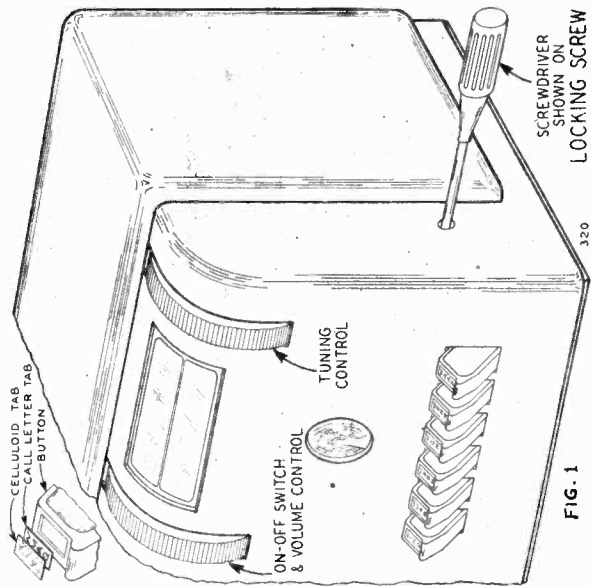


FIG. 1

Procedure for Setting the Station Buttons

TYPICAL TUNING DATA (FOR NUMBER OF BUTTONS AND LOCATION OF LOCKING SCREWS -SEE FIGURES).

There are 5 buttons on the automatic tuning dial by means of which 5 stations may be set. Any button may be used for any station you can receive. Depress the manual tuning button and keep it depressed during the entire setting operation as described below. See Fig. 1 for location of buttons. Turn the manual tuning knob so that the indicator moves toward the 1500 KC end of the dial until the stop is reached.

UNLOCK THE TUNING MECHANISM by inserting a SMALL HANDLE screwdriver, as shown in Fig. 1, in the locking screw opening at the bottom of the tuning unit. Loosen the locking screw by turning it counter-clockwise as far as it will go.

TO SET STATIONS ACCURATELY, DO NOT JAR THE RADIO OR BUTTONS WHILE THE MECHANISM IS UNLOCKED. Insert a celluloid reinforcement tab half-way in the slot at the front of station button No. 1—See Fig. 3.

Remove the correct station call letter tab for button No. 1 from the sheet supplied by bending the sheet back and forth at the score line.

CAUTION—Do not touch this button again while the mechanism is unlocked as the setting may be altered.

Turn the manual tuning knob carefully back and forth until the above mentioned station is accurately tuned in to the loudest point. This station is now set on button No. 1.

Repeat the above procedure for the other stations. Both will remain depressed. Select the first station from the list you have made and tune in this station by means of the manual tuning knob.

Turn the manual tuning knob carefully back and forth until the above mentioned station is accurately tuned in to the loudest point. This station is now set on button No. 1.

Repeat the above procedure for the other stations. Both will remain depressed. Select the first station from the list you have made and tune in this station by means of the manual tuning knob.

Turn the manual tuning knob carefully back and forth until the above mentioned station is accurately tuned in to the loudest point. This station is now set on button No. 1.

Repeat the above procedure for the other stations. Both will remain depressed. Select the first station from the list you have made and tune in this station by means of the manual tuning knob.

Next keep the manual tuning button depressed with one hand and, with the other hand, depress the second station button firmly and gently. Then proceed to set the second station on your list in the same manner as described above.

Then continue to set any additional stations on your list on the remaining buttons.

After all desired stations have been set, release any station button which is depressed as follows: **KEEP THE MANUAL TUNING BUTTON DEPRESSED WITH ONE HAND** and, with the other hand, push in the OFF button a slight amount—only enough to release any station button which is depressed. Should the OFF button be pushed all the way in to the depressed position, no harm will be done except that the dial will not be illuminated.

Turn the manual tuning knob so that the indicator moves toward the 1500 KC end of the dial, until the stop is reached.

NOW LOCK THE TUNING MECHANISM by inserting the SMALL HANDLE screwdriver, as shown in Fig. 1, in the locking screw opening. Turn the locking screw in a clockwise direction until it is tight. Do NOT tighten too much to avoid stripping the threads.

Turn the manual tuning knob so that the indicator moves toward the 1500 KC end of the dial, until the stop is reached.

Repeat the above procedure for the other stations. Both will remain depressed. Select the first station from the list you have made and tune in this station by means of the manual tuning knob.

Turn the manual tuning knob carefully back and forth until the above mentioned station is accurately tuned in to the loudest point. This station is now set on button No. 1.

Repeat the above procedure for the other stations. Both will remain depressed. Select the first station from the list you have made and tune in this station by means of the manual tuning knob.

Turn the manual tuning knob carefully back and forth until the above mentioned station is accurately tuned in to the loudest point. This station is now set on button No. 1.

Repeat the above procedure for the other stations. Both will remain depressed. Select the first station from the list you have made and tune in this station by means of the manual tuning knob.

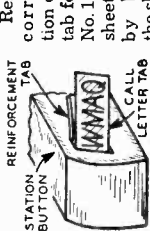
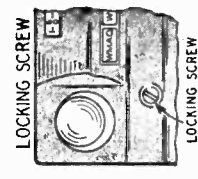


Fig. 3—Inserting Station Tab



LOCKING SCREW

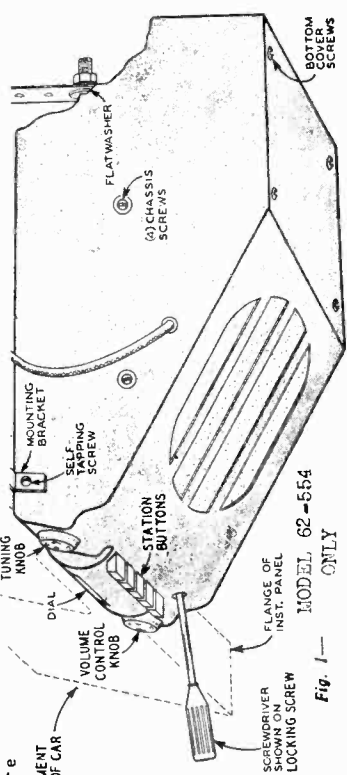


Fig. 1

Schematic, Voltage
Socket, Alignment
Trimmers

MONTGOMERY WARD & CO.
SPECIFICATIONS

MODELS 62-555, 62-557
62-2555, 62-2557

Input Voltages and Currents

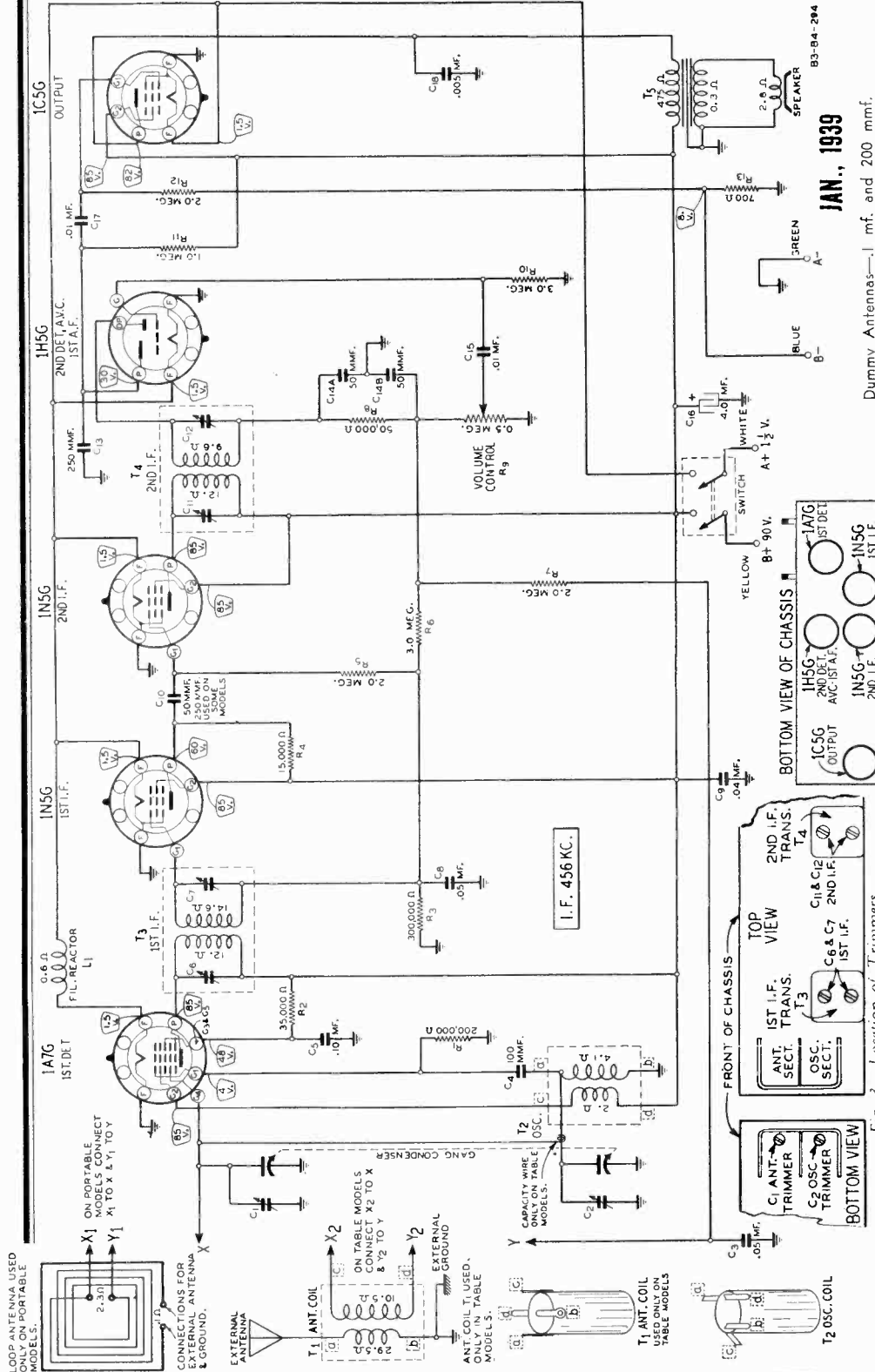
"A" Battery 1.5 Volts—30 Amperes
"B" Battery90 Volts—12 to 15 Ma.

Power Output - - - 140 Milliwatts Undistorted
Selectivity - - 41 KC Broad at 1000 Times Signal

Intermediate Frequency - - - - - 456 KC.
Speaker - - - - - 6" P.M. Dynamic
Tuning Frequency Range - - - - 540 to 1600 KC.

Sensitivity (For .05 Watt Output)

Table Model 10.5 Microvolts Average
Portable Model 20 Microvolts Per Meter Average



JAN., 1939

Dummy Antennas—1 mf. and 200 mmf.
NOTE—Connect a loop approximately one foot in diameter across the antenna and ground posts of the signal generator. Secure the back in place on the cabinet. Connections for the output meter may be made through the opening for the outside antenna and ground connecting posts. This opening is at the bottom of the cabinet near the back. Place radio approximately 3 feet from loop so as to pick up signal. Radio should not be in proximity to any metal (metal bench, etc.).
CALIBRATION—To obtain dial scale calibration, tune in an 800 KC signal. The pointer should be at the 800 KC mark on the dial. If it is not, loosen the pointer screw, set the pointer at the 800 KC mark and retighten the pointer screw.

Volume Control—Maximum All Adjustments. Allow Chassis and Signal Generator to "Heat Up" for several Minutes

SIGNAL GENERATOR FREQUENCY SETTING	DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
456 KC	.1 mf.	Turn rotor to full open	1st I.F. (C6) & (C7) 2nd I.F. (C11) & (C12)
1600 KC	.1 mf.	Turn rotor to full open	Oscillator (C2)
TABLE MODEL ONLY			
1500 KC	200 mmf.	Turn rotor to max. output	Antenna (C1)
PORTABLE MODEL ONLY			
1500 KC	None—See Note	Turn rotor to max. output	Antenna (C1)

MODELS 62-558, 62-1558

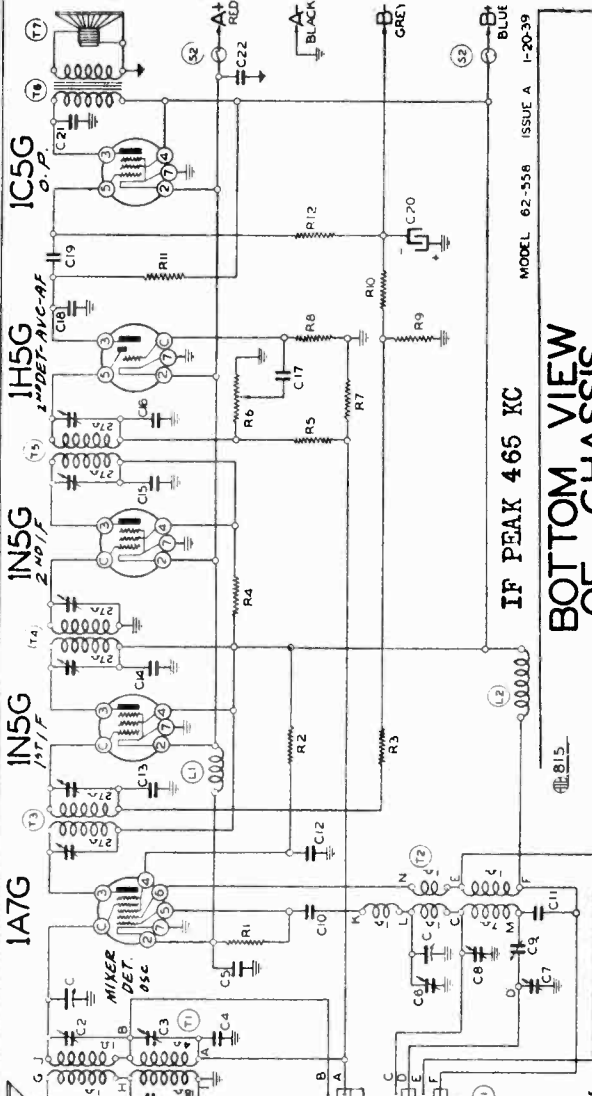
62-2558

Series A, Issue A

Ser. 591000 up

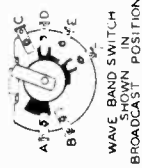
Schematic, Voltage
Socket, Trimmers

MONTGOMERY WARD & CO.

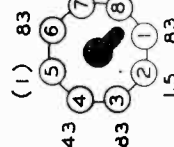


IF PEAK 465 KC

BOTTOM VIEW
OF CHASSIS



1A7G



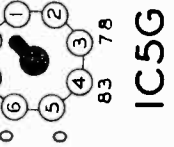
1H5G



VOLTAGES MEASURED WITH 1000 OHM PER VOLT
VOLTMETER BETWEEN SOCKET TERMINALS & CHASSIS.

(1) CANNOT BE READ WITH VOLTMETER.

IC5G



IN5G



812

IN5G

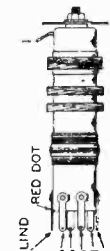
IN5G

FOR ALIGNMENT AND
TUNER DATA, SEE INDEX

REAR OF CHASSIS

- RESISTORS**
- R1 BE130266 200M ohm— $\frac{1}{2}$ w.
 - R2 BE13094 50M ohm— $\frac{1}{2}$ w.
 - R3 BE13019 1 megohm— $\frac{1}{2}$ w.
 - R4 BE130193 3M ohm— $\frac{1}{2}$ w.
 - R5 BE13038 2 megohm— $\frac{1}{2}$ w.
 - R6 BE101160 250M ohm—volume control
 - R7 BE130271 4 megohm— $\frac{1}{2}$ w.
 - R8 BE13019 1 megohm— $\frac{1}{2}$ w.
 - R9 BE130270 180 ohm— $\frac{1}{2}$ w.
 - R10 BE13093 450 ohm— $\frac{1}{2}$ w.
 - R11 BE1303 500M ohm— $\frac{1}{2}$ w.
 - R12 BE13019 1 megohm— $\frac{1}{2}$ w.

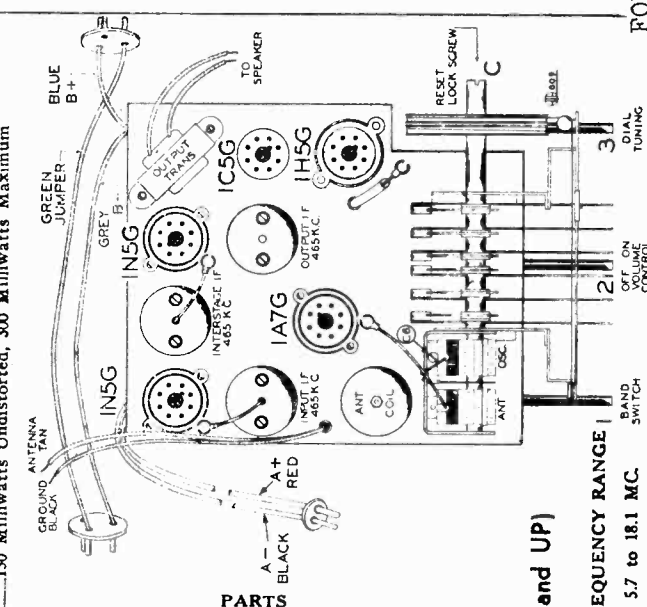
- CONDENSERS**
- C BE10299 2-gang variable condenser
 - C1 BE12940 .0001 mica
 - C2 BE12455 S.W. Antenna Adj. Trimmer
 - C3 BE12439 B.C. Antenna Adj. Trimmer
 - C4 BE10022 .05 x 200 v.
 - C5 BE10064 .25 x 200 v.
 - C6 S.W. Osc. Adj. Trimmer on gang
 - C7 BE12994 S.W. Adj. Series pad .003 w.c.
 - C8 BE12439 B.C. Osc. Adj. Trimmer
 - C9 BE12438 B.C. Adj. Series Pad 580 mmf. W.C.
 - C10 BE129135 .00005 mica
 - C11 BE1009 .05 x 200 v.
 - C12 BE10020 .1 x 200 v.
 - C13 BE10059 .05 x 200 v.
 - C14 BE10050 .25 x 200 v.
 - C15 BE10020 .1 x 200 v.
 - C16 BE12912 .00025 mica
 - C17 BE10019 .006 x 600 v.
 - C18 BE12921 .0002 mica
 - C19 BE10011 .01 x 400 v.
 - C20 BE11952 20 mfd. lytic w. v.
 - C21 BE10071 .004 x 600 v.
 - C22 BE1006 .25 x 200 v.



ANTENNA COILS
"A" 300 Ma., "B" 13 Ma.

OSCILLATOR COILS

Power Consumption 150 Milliwatts Undistorted, 300 Milliwatts Maximum



- PARTS**
- T1 BE11117 Antenna Coil Complete
 - T2 BE110106 Oscillator Coil Complete
 - T3 BE108133 Input I. F. 465 kc. complete
 - T4 BE108135 Interstage I. F.—465 kc. complete
 - T5 BE108134 Output I. F. — 465 kc. complete
 - T6 BE114115 6" P. M. Speaker
 - L1 BE10568 "A" Choke
 - L2 BE1233 R. F. "B" Choke
 - S1 BE12573 Wave Band Switch
 - S2 BE10569 D.P. S.T. Switch on Volume Control
 - T7 BE10569 Output Transformer

REPAIR PARTS
(SERIAL No. 591000 and UP)

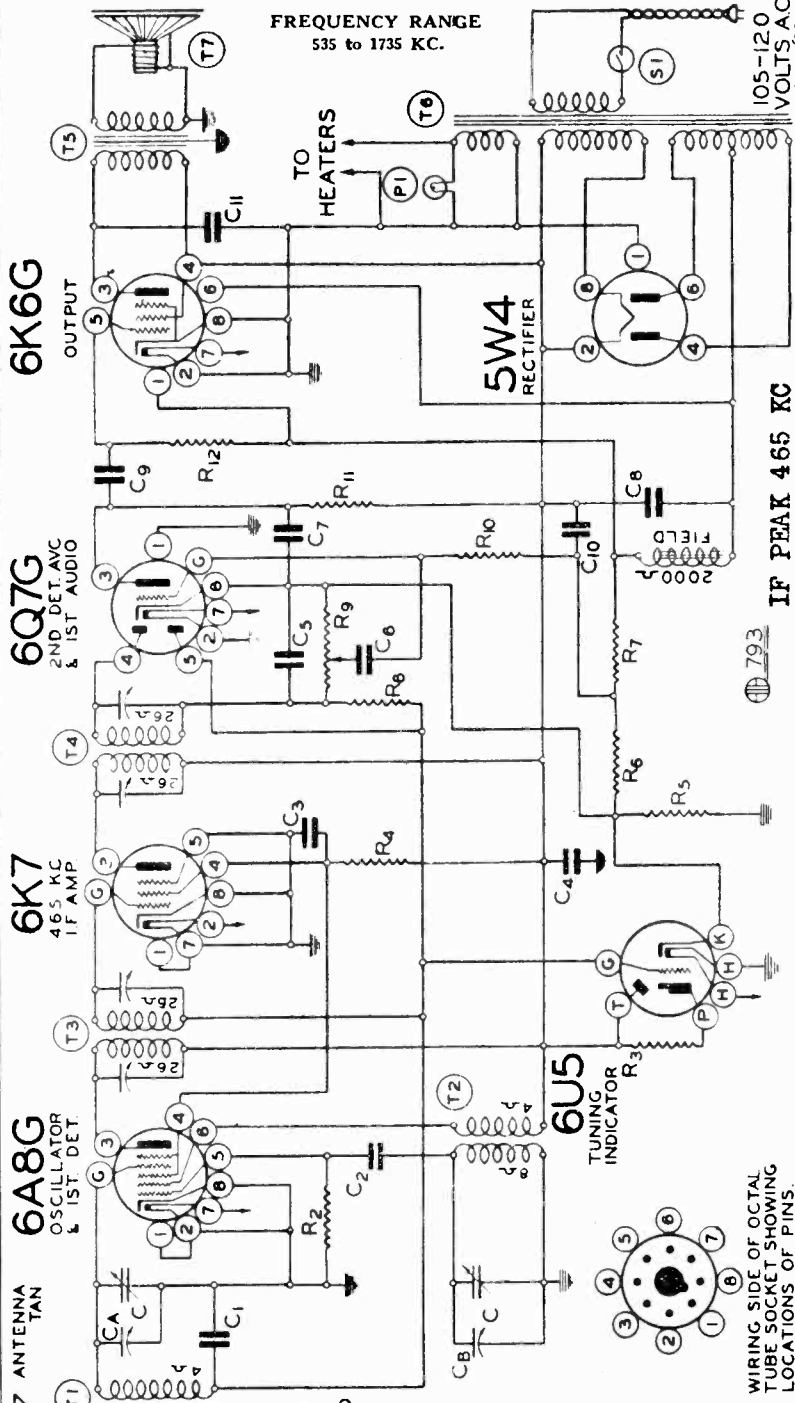
BAND SWITCH FREQUENCY RANGE 5.7 to 18.1 MC.
Extreme Right Rotation 50 to 1750 KC.
Extreme Left Rotation

FIG 1—TOP VIEW

Schematic, Voltage Socket, Trimmers

MONTGOMERY WARD & CO.

MODEL 62-601, Series A Ser. 545900 up



RESISTORS

R1	BE13017	10M ohm—1/2 w.
R2	BE13012	50M ohm—1/2 w.
R3	BE130186	250M ohm—1/10 w.
R4	BE13021	20M ohm—1/2 w.
R5	BE10635	65 ohm Resistor Strip
R6	BE10635	45 ohm Resistor Strip
R7	BE10635	220 ohm Resistor Strip
R8	BE130170	3 megohm—1/2 w.
R9	BE101158	1 megohm—Volume control
R10	BE130170	3 megohm—1/2 w.
R11	BE1309	200M ohm—1/2 w.
R12	BE130118	600M ohm—1/2 w.

R5, R6 and R7 in same unit

CONDENSERS

C	BE10296	2 gang variable condenser
CA		Antenna Trimmer on Gang
CB		Oscillator Trimmer on Gang
C1	BE1009	.05 x 200 v.
C2	BE12912	.00025 Mica
C3	BE1001	.1 x 400 v.
C4	BE10013	.05 x 400 v.
C5	BE1295	.0001 Mica
C6	BE10011	.01 x 400 v.
C7	BE1292	.0005 Mica
C8	BE11947BC	5.0 mfd. 250 w. v. lytic
C9	BE10011	.01 x 400 v.
C10	BE11947RC	5.0 mfd. 250 w. v. lytic
C11	BE10019	.006 x 600 v.

C8 and C10 in same unit

Power Consumption.....45 Watts (at 115 Volts 50/60 Cycles)
 Power Output.....1 Watt Undistorted, 2 Watts Maximum

FREQUENCY RANGE
535 to 1735 KC.

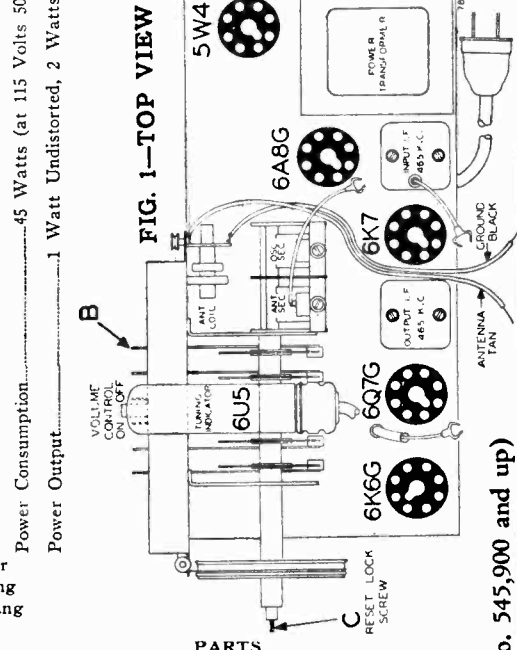
WIRING SIDE OF OCTAL TUBE SOCKET SHOWING LOCATIONS OF PINS.

OUTPUT
105-120 VOLTS A.C.

TO HEATERS

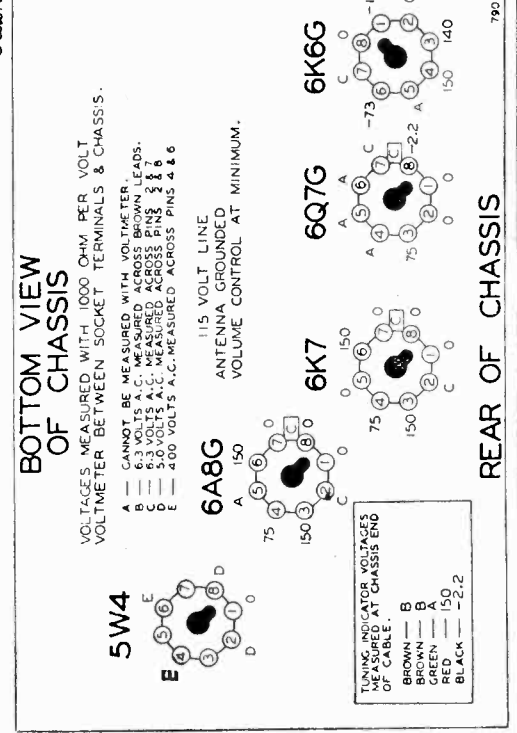
105-120 VOLTS A.C.

FOR ALIGNMENT AND TUNER DATA, SEE INDEX



PARTS

T1	BE111102	Antenna Coil Complete
T2	BE111072	Oscillator Coil Complete
T3	BE10882D	Input I. F.—465 kc.
T4	BE10883D	Output I. F.—465 kc.
T5	BE10555	Output Transformer
T6	BE104100B	Power Transformer
T7	BE114152	6" Dynamic Speaker (2000 ohm field)
S1		Off-on Switch on Volume Control
P1	BE10794	6-8 volt pilot light type 44



PARTS (Serial No. 545,900 and up)

REAR OF CHASSIS

MODELS 62-651, 62-652

MONTGOMERY WARD & CO.

Tuner Data

MODELS 62-654, 62-655, 62-1654,
62-2654, 62-2655, 62-1655,

MODELS 62-656, 62-1656, 62-2656

MODELS 62-750, 62-751

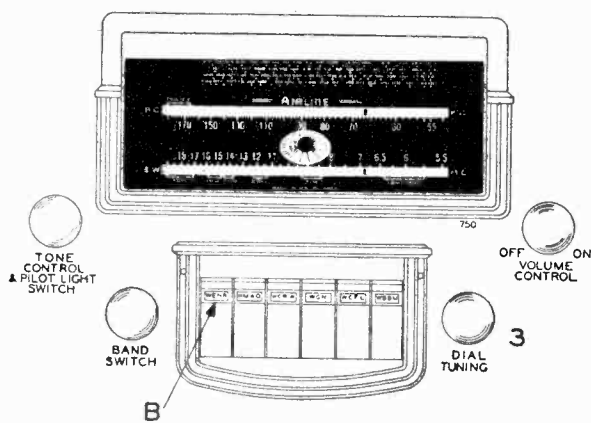


FIG. 2—FRONT VIEW

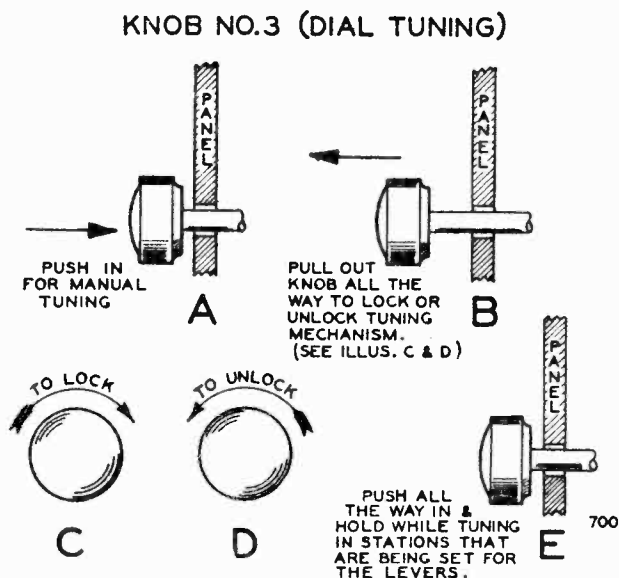


FIG. 3

PROCEDURE FOR SETTING THE AUTOMATIC TUNER LEVERS:

IMPORTANT—Read carefully before setting the automatic levers.

There are six levers by means of which six stations may be selected. Make a list of local stations or stations you tune in regularly; any number up to and including six.

Punch out from the set of station call letter tabs supplied, the call letters of the stations you have selected.

On the front of each automatic tuner lever button an opening is provided for inserting the call letter tabs.

Insert the call letter tabs in the rectangular openings of each of the automatic tuner buttons. One of the small celluloid tabs supplied should be inserted into place over each of the station call letter tabs.

NOW, PROCEED AS FOLLOWS:—

1. Pull the dial tuning knob all the way out (See Illus. "B," Fig. 3), and rotate the tuning knob to the left (counterclockwise) until it cannot be turned any further (See Illus. "D," Fig. 3). This will unlock the automatic tuner mechanism. (NOTE:—Automatic tuner mechanism is locked **TIGHT** when radio is shipped from the factory.)

2. Press down all the way any one of the automatic tuner levers. Holding it down firmly, press in on the dial tuning knob No. 3 and tune in the station indicated on the station call letter tab on this lever. You will note that in order to tune the station, the dial tuning knob will have to be pressed in (See Illus. "E," Fig. 3). Turn the dial tuning knob very slowly back and forth (while still holding the automatic tuner lever in downward position), noting the width of the shadow on the screen of the cathode-ray tuning indicator. Minimum width on the tuning indicator indicates the ideal tuning position (resonance). The station will then be clearest and accurately tuned in.

3. Press down another automatic tuner lever. Holding it down firmly, press in on the dial tuning knob and carefully tune in the station indicated on the call letter tab on this lever.

4. Follow this procedure until you have selected all of your favorite stations.

5. Pull the dial tuning knob all the way out (See Illus. "B," Fig. 3) and rotate the tuning knob to the right (clockwise) until it cannot be turned any further (See Illus. "C," Fig. 3).

TYPICAL TUNING DATA

The procedure for setting the Automatic Levers is the same for all the above mentioned models. However, the number of Automatic Levers may differ.

This will lock the automatic tuner mechanism and the stations you have set up for automatic tuning will be locked in place. After you have locked the tuner mechanism, push the dial tuning knob in.

6. If you should desire to change any station you selected to another, pull the dial tuning knob all the way out and rotate the knob to the left (counterclockwise) and unlock the tuner mechanism. Select the new station as explained. (NOTE:—If the dial mechanism works hard when setting up a new station for one of the automatic tuner levers, it is due to the tuner mechanism not being unlocked all the way. Pull the dial tuning knob out all the way and rotate the knob to the left (counterclockwise) until it will turn no further. The dial mechanism should work freely with the tuner lever pressed down.)

7. After you have selected the new station, pull the dial tuning knob all the way out and rotate the knob to the right (clockwise) to lock the tuner mechanism. Be sure the knob is turned until it will turn no further, then press the dial tuning knob in.

8. The automatic tuner levers are now set up for quick tuning. Press down the lever key and—**YOUR FAVORITE STATION IS SELECTED!**

The important steps to remember when setting up stations on the tuner levers for automatic tuning are:

1. To unlock the tuner mechanism pull the dial tuning knob all the way out. You may find it necessary to rotate the knob slightly when pulling it out to make certain that the gears mesh properly. Rotate the dial tuning knob to the left (counterclockwise) as far as it will turn without forcing.

2. To set a lever, press down all the way and hold in this position while tuning in by means of the dial tuning knob the station you want this lever to be tuned to. (NOTE:—you will notice that it will be necessary to keep pressing in on the dial tuning knob while tuning in the station as a spring tends to push the knob out.) Set all the levers in the same manner before locking the mechanism.

3. To lock the tuner mechanism pull the dial tuning knob all the way out. Rotate the dial tuning knob to the right as far as it will turn making certain that it is tight, but it is not necessary to use force.

4. After locking or unlocking the tuner mechanism always return the dial tuning knob to its normal position (pushed in).

Schematic, Socket, Trimmers

MONTGOMERY WARD & CO. Series A, Ser. 8M498700 up

MODELS 62-651, 62-652

CONDENSERS

C1	BE10292C	2 gang variable condenser
C2	BE10012	.003 x 600 w.
C3	BE12469	B. C. Antenna Trimmer
C4	BE129132	.000125 mica
C5	BE129131	.002775 mica
C6	BE12469	S. W. Antenna Trimmer
C7	BE12466	.00045 Series Pad B. C.
C8	BE12466	.0015 Series Pad S. W.
C9	BE10020	.1 x 200 v.
C10	BE12470	S. W. Oscillator Trimmer
C11	BE12470	B. C. Oscillator Trimmer
C12	BE10025	.002 x 600 v.
C13	BE10020	.1 x 200 v.
C14	BE10020	.1 x 200 v.
C15	BE1295	.0001 mica
C16	BE10020	.1 x 200 v.

PARTS (SERIAL No. 8M498700 and UP)

C17	BE11959C	10 mfd. lytic
C18	BE10068	.003 x 1400 v.
C19	BE1009	.05 x 200 v.
C20	BE10012	.003 x 600 v.
C21	BE10020	.1 x 200 v.
C22	BE1292	.0005 mica
C23	BE10076	.02 x 400 v.
C24	BE10019	.006 x 600 v.
C25	BE1009	.05 x 200 v.
C26	BE10031	.5 x 120 v.
C27	BE10040	.5 x 120 v.
C28	BE10089	.008 x 800 v.
C29	BE11959C	.30 mfd. lytic

C17 - C29 in same unit

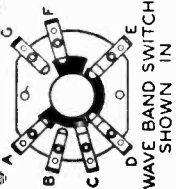
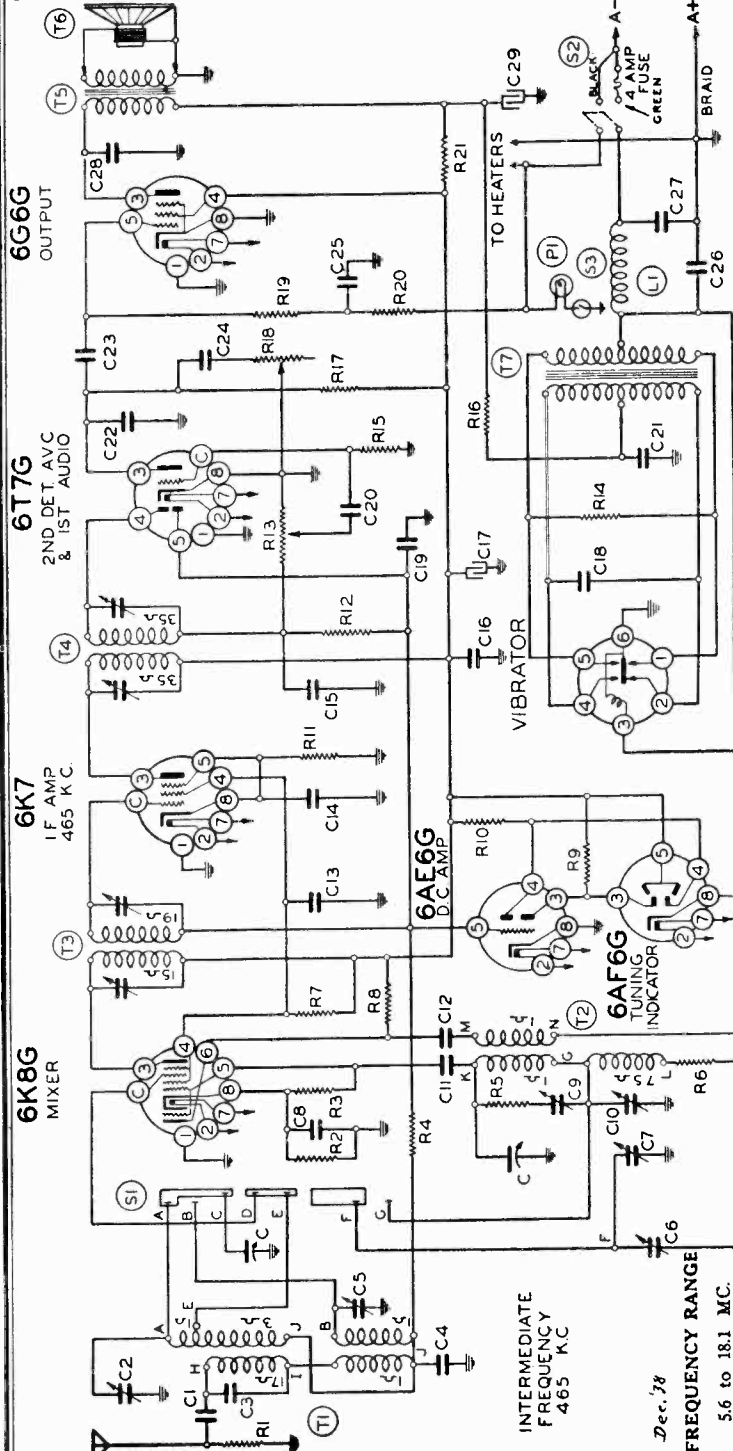
T4	BE108106-O	Output I. F.—465 kc.
T5	BE10569C	Output Transformer
T6	BE114143	6 in. P. M. Speaker (62-651)
T7	BE114139	8 in. P. M. Speaker (62-652)
T8	BE104137E	Power Transformer
L1	BE10568	"A" Choke
S1	BE12568	Band Switch
S2		Off-on Switch on Volume Control
S3		Push button pilot light switch on tone control
P1	BE10789	6.3 volt pilot light—T40—150 ma.

PARTS

T1	BE111112	Antenna Coil
T2	BE11098	Oscillator Coil
T3	BE108111F	Input I. F.—465 kc.

RESISTORS

R1	BE13017	10M ohm—1/4 w.
R2	BE13097	200 ohm—1/4 w.
R3	BE13012	50M ohm—1/4 w.
R4	BE13011	250M ohm—1/4 w.
R5	BE130240	30 ohm—1/4 w.
R6	BE130197	20 ohm—1/4 w.
R7	BE13082	10M ohm—1/4 w.
R8	BE13048	15M ohm—1/4 w.
R9	BE13019	1 megohm—1/4 w.
R10	BE13019	1 megohm—1/4 w.
R11	BE13070	500 ohm—1/4 w.
R12	BE1304	3 megohm—1/4 w.
R13	BE101153	1 megohm volume control
R14	BE13097	200 ohm—1/4 w.
R15	BE130225	15 megohm—1/4 w.
R16	BE130168	100 ohm—1/4 w.
R17	BE1309	200M ohm—1/4 w.
R18	BE101154	250M ohm—tone control
R19	BE130163	400M ohm—1/4 w.
R20	BE130103	100M ohm—1/4 w.
R21	BE13079	400 ohm—1/4 w.



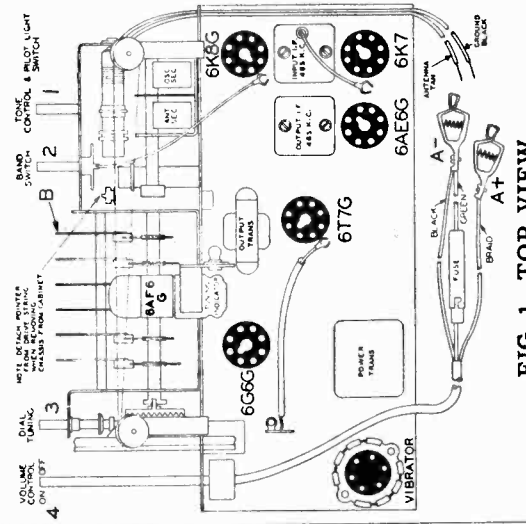
BATTERY CONNECTIONS:

Referring to Fig. 1, connect the battery cable to the storage battery in the following manner:

- The storage battery should be located as far from the receiver as the battery cable will permit.
- Connect the lead (containing the fuse receptacle) marked A negative (-) to the negative (-) post of the storage battery.
- Connect the lead marked A positive (+) to the positive (+) post of the storage battery.

FUSE:

In case of difficulty, the fuse contained in the metal fuse receptacle should be checked. A 4 ampere Type 3AG fuse (Part No. BE13179) should be used.



MODELS 62-651, 62-652

MODELS 62-654, 62-655

62-1654, 62-2654, 62-2655

Voltage, Alignment, Trimmers

MONTGOMERY WARD & CO.

MODELS 62-750, 62-751

Alignment, Trimmers

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6K7	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 6K8G	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROAD-CAST BAND	1730 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer (C10) (See Fig. 4)	Broadcast oscillator	Adjust to maximum output
	1500 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 1500 Kc.	Trimmer (C2) (See Fig. 4)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 600 Kc.	Trimmer (C5) (See Fig. 4)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 17 Mc.	Trimmer (C9) (See Fig. 4)	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Dial Set at 17 Mc.	Trimmer (C5) (See Fig. 4)	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 6 Mc.	Trimmer (C7) (See Fig. 4)	Short Wave Oscillator series pad	Adjust to maximum rock dial. (See note "A")

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

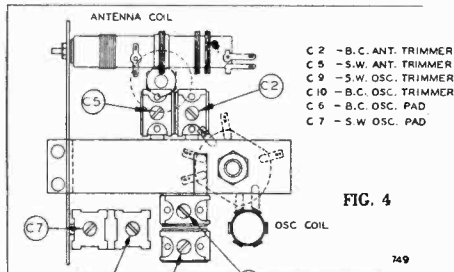
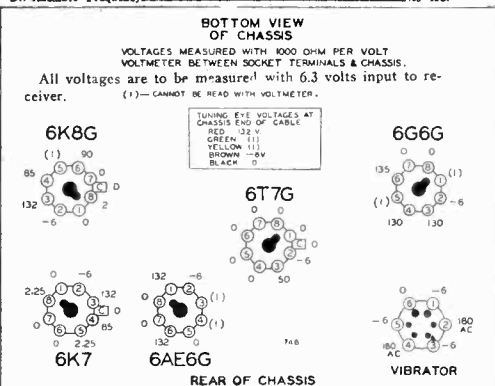
Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each band is completed, repeat the procedure as a final check.

Power Consumption.....2.8 Amperes at 6.3 Volts

Power Output.....6 Watts Undistorted, 1.1 Watts Maximum

Intermediate Frequency.....465 KC.



ALIGNMENT SOCKET VOLTAGE TRIMMERS
MODELS 62-651 62-652 Series A

To remove the chassis from the cabinet, remove the four bolts which are used to fasten the chassis to the cabinet bottom; pull the knobs off their shafts and detach the pointer from the drive string (see Fig. 1, top view).

NOTE:—On the side of the string dial drum a calibrated scale is provided for aligning this chassis to the frequencies listed in the alignment procedure. Attach a pointer so that it will indicate proper dial setting in respect to the position of the variable condenser.

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The following equipment is required for aligning.

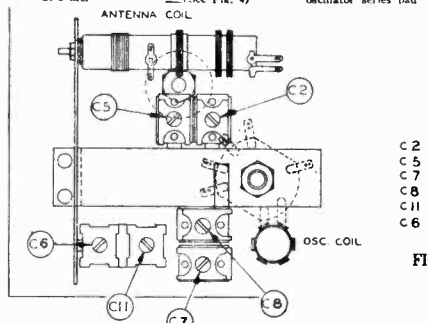
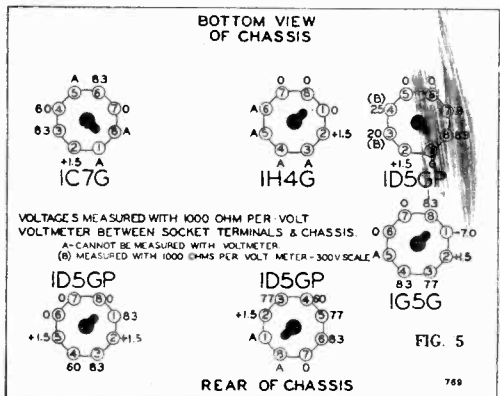
- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 mf., 200 mmf. and 400 ohms.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1D5G-P 2nd I. F.	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1D5G-P 1st I. F.	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Interstage I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1C7G Mixer	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROAD-CAST BAND	1730 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer C8 (See Fig. 4)	Broadcast oscillator	Adjust to maximum output
	1500 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 1500 Kc.	Trimmer C2 (See Fig. 4)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 600 Kc.	Trimmer C11 (See Fig. 4)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 17 Mc.	Trimmer C7 (See Fig. 4)	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Dial Set at 17 Mc.	Trimmer C5 (See Fig. 4)	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 6 Mc.	Trimmer C6 (See Fig. 4)	Short Wave oscillator series pad	Adjust to maximum rock dial. (See note "A")

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each band is completed, repeat the procedure as a final check.



ALIGNMENT SOCKET VOLTAGE TRIMMERS
MODELS 62-654, -655, -1654, -2655 Series A

To remove the chassis from the cabinet, remove the four bolts which are used to fasten the chassis to the cabinet bottom; pull the knobs off their shafts and detach the pointer from the drive string (see Fig. 1, top view).

NOTE:—On the side of the string dial drum a calibrated scale is provided for aligning this chassis to the frequencies listed in the alignment procedure. Attach a pointer so that it will indicate proper dial setting in respect to the position of the variable condenser.

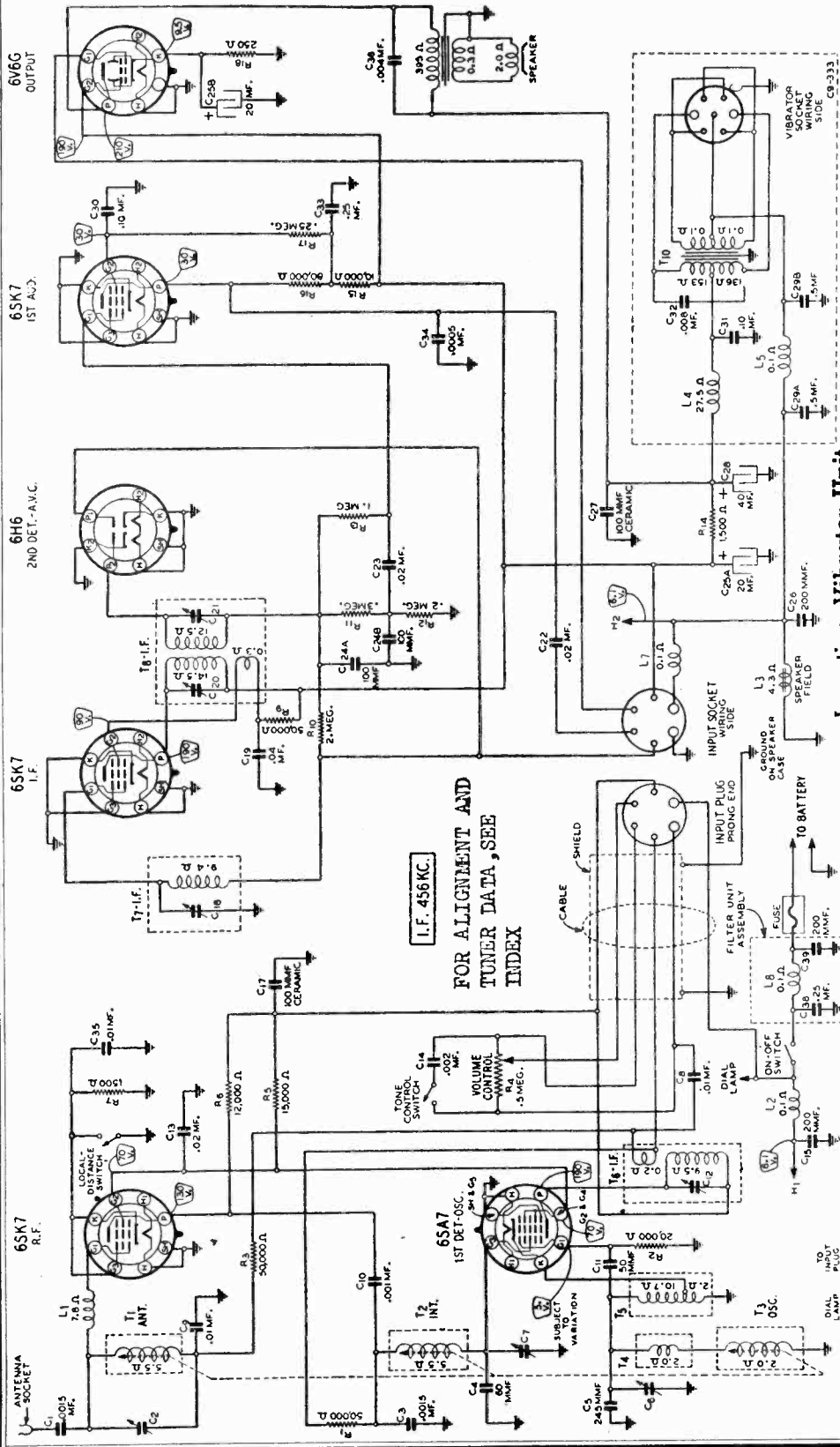
FOR TUNER DATA SEE INDEX

MONTGOMERY WARD & CO. SPECIFICATIONS

MODEL 62-653
Schematic, Voltage
Socket, Trimmers

Power Consumption - 6.8 Amperes at 6.3 Volts
Power Output - - - - - 3 Watts Undistorted
Sensitivity - - 1.5 Microvolts at .5 Watt Output
(L-D Switch in Distance Position)

Selectivity - 39 KC Broad at 1000 Times Signal
Tuning Frequency Range - - - 540 to 1560 KC
Intermediate Frequency - - - - - 456 KC
Speaker - - - - - 6" Electro-Dynamic



Inserting Vibrator Unit
IMPORTANT—The vibrator unit can be inserted in two ways. The proper method of insertion will depend on which terminal of the car battery is grounded. If the POSITIVE (+) terminal of the car battery is grounded, line up the + mark on the top of the vibrator with the arrow on the chassis base. If the NEGATIVE (—) terminal of the car battery is grounded, line up the — mark on the top of the vibrator with the arrow on the chassis base.

Adjusting Antenna Trimmer
After the antenna is connected, tune in a weak signal at approximately 1000 KC with the volume control about three-fourths on. Turn the adjusting screw of the antenna trimmer (C2) up or down until maximum output is obtained. See Fig. 1 for location of this trimmer.

6 TUBES
5 STATION BUTTONS

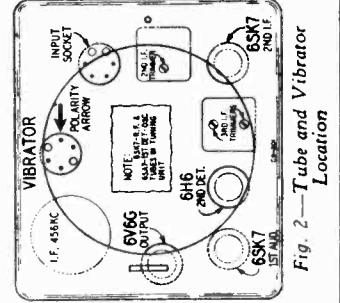


Fig. 5—Schematic Circuit Diagram

MODELS 62-654, 62-655

62-1654, 62-1655

62-2654, 62-2655

Series A

Ser. 509200 up

MONTGOMERY WARD & CO.

Schematic, Socket
Trimmers

PARTS

(SERIAL No. 509200 and UP)

RESISTORS

- R1 BE13017 10M ohm—1/2 w.
- R2 BE1309 20M ohm—1/2 w.
- R3 BE13012 50M ohm—1/2 w.
- R4 BE13019 20 ohm—1/2 w.
- R5 BE13019 20 ohm—1/2 w.
- R6 BE13025 8M ohm—1/2 w.
- R7 BE13043 250M ohm—1/2 w.
- R8 BE10152 250M ohm—volume control
- R9 BE13019 1 megohm—1/2 w.
- R10 BE13019 1 megohm—1/2 w.
- R11 BE13019 1 megohm—1/2 w.
- R12 BE13083 300 ohm—1/2 w.
- R13 BE130225 15 megohm—1/2 w.
- R14 BE130168 100 ohm—1/2 w.
- R15 BE13019 1 megohm—1/2 w.
- R16 BE1303 500M ohm—1/2 w.
- R17 BE13019 1 megohm—1/2 w.
- R18 BE10151 1 megohm tone control
- R19 BE10112 3.2 ohm—rheostat

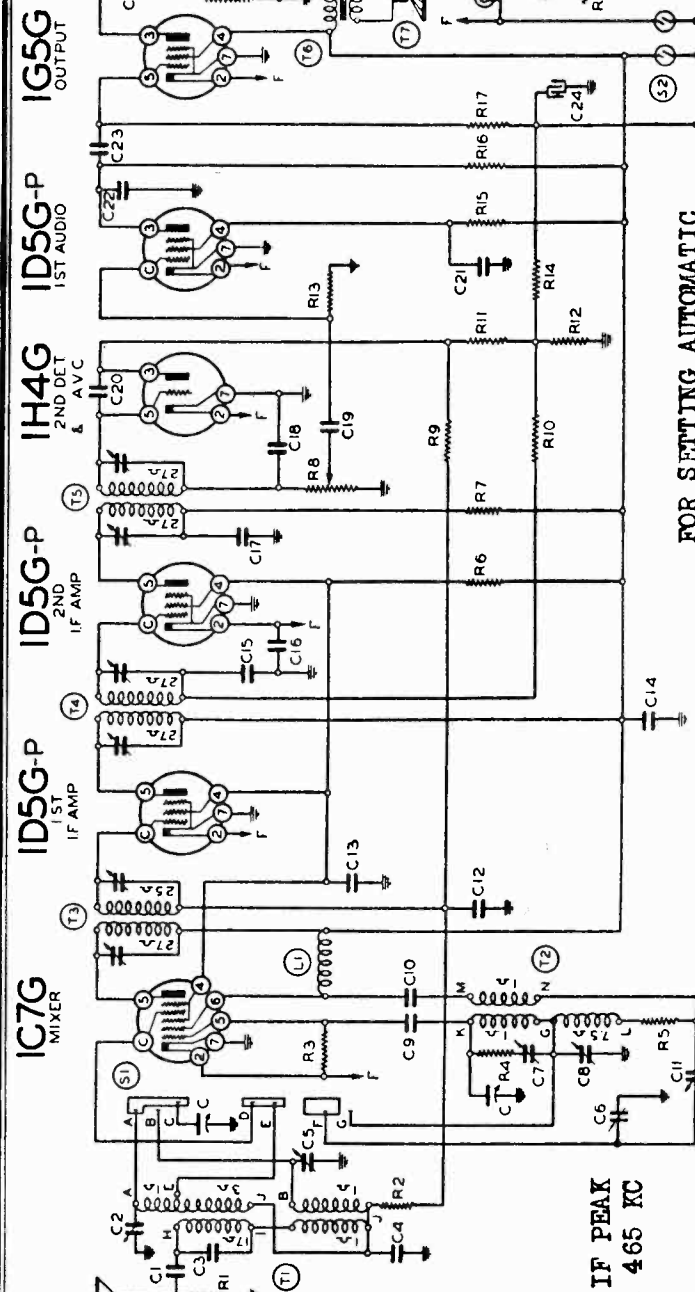
CONDENSERS

- C1 BE10292C 2 Gang Variable
- C2 BE10078 .01 x 200 v.
- C3 BE12469 B.C. Antenna Trimmer
- C4 BE129132 .000125 mica
- C5 BE129131 .002775 mica
- C6 BE12469 S.W. Antenna Trimmer
- C7 BE12466 S.W. Oscillator Series Pat
- C8 BE12470 S.W. Oscillator Trimmer
- C9 BE12470 B.C. Oscillator Trimmer
- C10 BE12939 .00035 mica
- C11 BE10025 .002 x 600 v.
- C12 BE12466 B.C. Oscillator Series Pad
- C13 BE10026 .02 x 400 v.
- C14 BE10048 .25 x 200 v.
- C15 BE10048 .05 x 200 v.
- C16 BE10048 .25 x 200 v.
- C17 BE10020 1 x 200 v.
- C18 BE12912 .00025 mica
- C19 BE1007 .005 x 600 v.
- C20 BE12939 1 x 200 v.
- C21 BE10020 .00035 mica
- C22 BE1295 1 x 200 v.
- C23 BE10086 .02 x 400 v.
- C24 BE10952 25 mid-.25 w. v. lyric
- C25 BE10011 .01 x 400 v.
- C26 BE10071 .04 x 600 v.

PARTS

- BE11112 Antenna Coil
- BE11098B Oscillator Coil
- BE108128 Input I. F.—465 Kc.
- BE108127 Interstage I. F.—465 Kc.
- BE10829E Output I. F.—465 Kc.
- BE10569 Output Transformer
- BE14115 6" P. M. Speaker (62-654)
- BE14146 8" P. M. Speaker (62-655)
- BE1233 R. F. Choke
- BE12568 Wave Band Switch

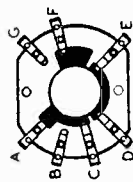
Off-on switch on volume control
Push-in switch on tone control



**FOR SETTING AUTOMATIC
TUNING LEVERS AND
ALIGNMENT, SEE INDEX.**

FREQUENCY RANGE

5.6 to 18.1 MC.
535 to 1730 KC.

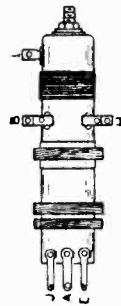


WAVE BAND SWITCH
SHOWN IN
BROADCAST POSITION

Power Consumption—

250 Milliwatts Maximum
170 Milliwatts Un distorted,
170 STORAGE
Dec. '33

Power Output—
"A"—480 Ma., "B"—19 Ma.

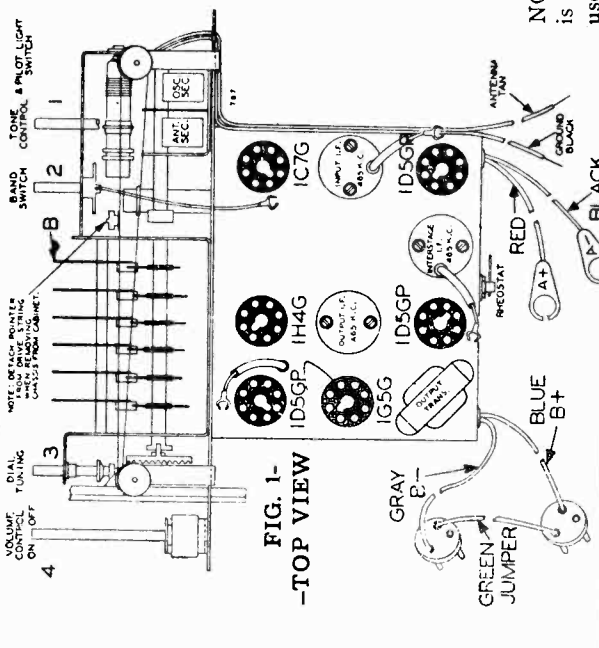


ANTENNA COILS



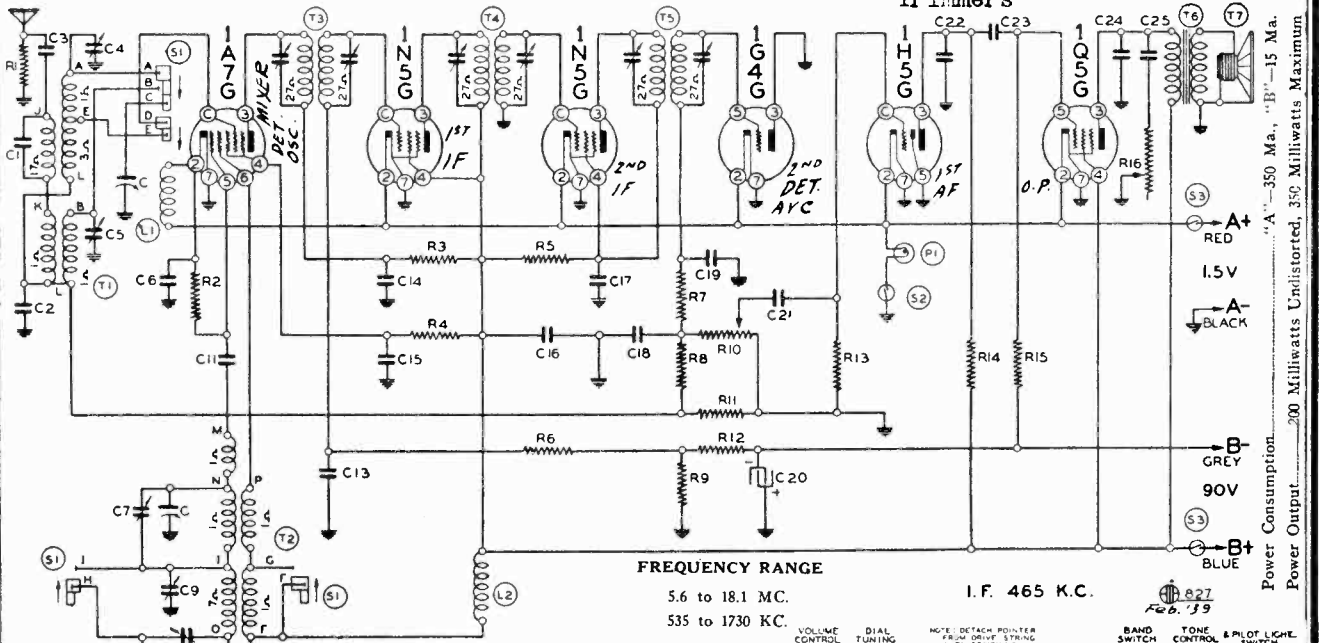
OSCILLATOR COILS

NOTE:—The letter "P" indicates that the 1D5G Tube used is a Pentode. It is important that only this type 1D5G-P be used in this radio.



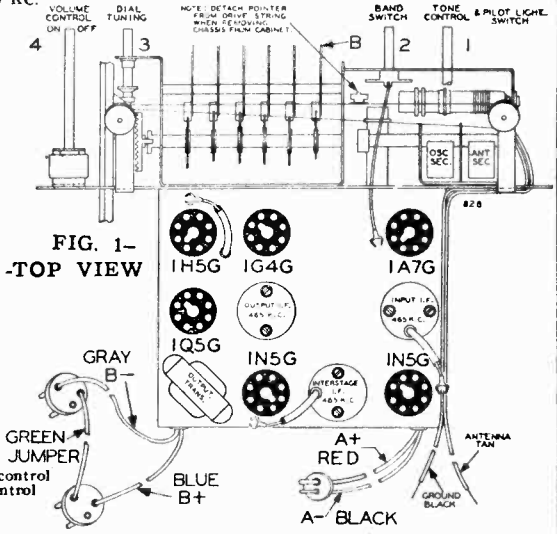
**FIG. 1—
—TOP VIEW**

MONTGOMERY WARD & CO. Models 62-656, 62-1656, 62-2656
 Series A, Ser. 509200 up
 Schematic, Voltage, Socket
 Trimmers

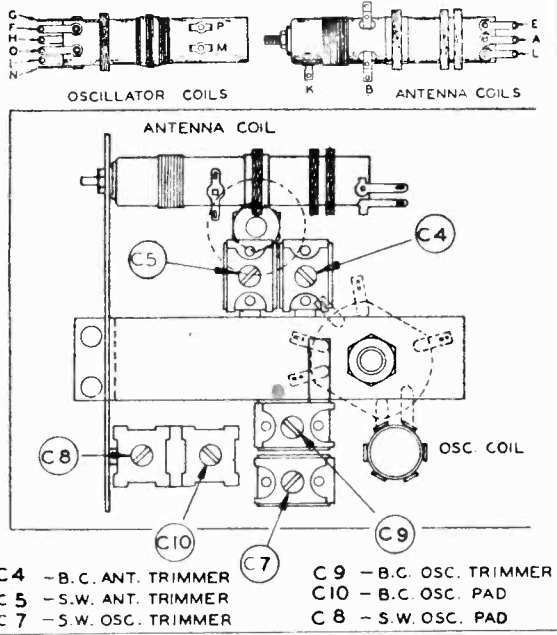
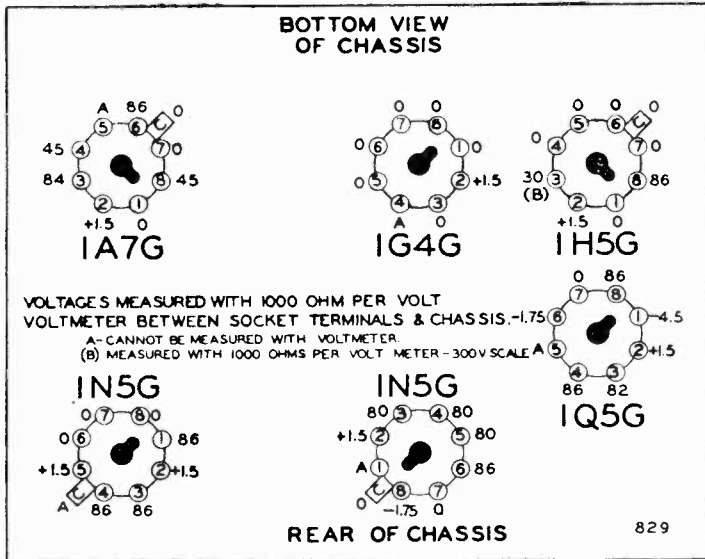


PARTS (SERIAL No. 509200 and UP)

RESISTORS		CONDENSERS	
R1	BE13017 10M ohm-1/4 w.	C1	BE10292C 2 Gang Variable Condenser
R2	BE130266 200M ohm-1/4 w.	C2	BE129132 .000125 mica
R3	BE13043 2500 ohm-1/4 w.	C3	BE129131 .002775
R4	BE13094 50M ohm-1/4 w.	C4	BE10078 .01 x 200 v.
R5	BE13043 2500 ohm-1/4 w.	C5	BE12469 B.C. Antenna Trimmer
R6	BE13019 1 megohm-1/4 w.	C6	BE12469 S.W. Antenna Trimmer
R7	BE13094 50M ohm-1/4 w.	C7	BE10048 .25 x 200 v.
R8	BE13038 2 megohm-1/4 w.	C8	BE12470 S.W. Oscillator Trimmer
R9	BE130166 150 ohm-1/4 w.	C9	BE12479 .00136 W.C. S.W. Series Pad
R10	BE101152 250M ohm-volume control	C10	BE12470 B. C. Oscillator Trimmer
R11	BE1304 3 megohm-1/4 w.		
R12	BE13097 200 ohm-1/4 w.		
R13	BE13019 1 megohm-1/4 w.		
R14	BE1303 500M ohm-1/4 w.		
R15	BE13019 1 megohm-1/4 w.		
R16	BE101151 1 megohm tone control		
C11	BE12939 .00005 mica	T1	BE111112 Antenna Coils
C12	BE1009 .05 x 200 v.	T2	BE110108 Oscillator Coils
C13	BE10032 .05 x 200 v.	T3	BE108128 Input I.F. Coil-465 kc.
C14	BE10048 .25 x 200 v.	T4	BE108127 Interstage I.F. Coil-465 kc.
C15	BE10020 .1 x 200 v.	T5	BE108134B Output I.F. Coil-465 kc.
C16	BE10048 .25 x 200 v.	T6	BE10569 Output Transformer
C17	BE10020 .1 x 200 v.	T7	BE114115 6" Speaker-P.M.
C18	BE12912 .00025 mica	T7	BE114146 8" Speaker-P.M.
C19	BE1295 .0001 mica	S1	BE12575 Wave Band Switch
C20	BE1952 25 mfd.-25 w.v. lytic	S2	BE10243 Pilot Light Switch on tone control
C21	BE1067 .005 x 600 v.	S3	BE10568 1/2 v. Pilot light
C22	BE1295 .0001 mica	L1	BE10568 "A" Choke
C23	BE10026 .02 x 400 v.	L2	BE1233 R.F. "B" Choke
C24	BE10071 .004 x 600 v.		
C25	BE10011 .01 x 400 v.		



FOR SETTING AUTOMATIC TUNING LEVERS SEE INDEX



- C4 - B.C. ANT. TRIMMER
- C5 - S.W. ANT. TRIMMER
- C7 - S.W. OSC. TRIMMER
- C9 - B.C. OSC. TRIMMER
- C10 - B.C. OSC. PAD
- C8 - S.W. OSC. PAD

MODELS 62-656, 62-1656, 62-2656

MODELS 93BR454A, 93BR1455A MONTGOMERY WARD & CO.

MODEL 93BR713A

Alignment

MODELS 62-656, 62-1656, 62-2656

Series A

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with 4 short heavy lead.
- Connect dummy antenna valve in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

- The following equipment is required for aligning.
- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
 - Output indicating meter.
 - Non-metallic screwdriver.
 - Dummy antennas—1 mf., and 200 mmf. and 400 ohms.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1N5G 2nd I. F.	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1N5G 1st I. F.	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Interstage I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1A7G Mixer	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set dial at 17 Mc.	Trimmer C7 (See Fig. 4)	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set dial at 17 Mc.	Trimmer C5 (See Fig. 4)	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set dial at 6 Mc.	Trimmer C8 (See Fig. 4)	Short Wave oscillator series pad	Adjust to maximum rock dial. (See note "A")
BROAD-CAST BAND	1730 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme right rotation)	Rotor full open (Plates out of mesh)	Trimmer C9 (See Fig. 4)	Broadcast oscillator	Adjust to maximum output
	1400 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set dial at 1400 Kc.	Trimmer C4 (See Fig. 4)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set dial at 600 Kc.	Trimmer C10 (See Fig. 4)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")

BAND SWITCH	BAND	FREQUENCY RANGE
Extreme Right Rotation	Short Wave	5.6 to 18.1 MC.
Extreme Left Rotation	Broadcast	535 to 1730 KC.

Power Consumption..... "A"—350 Ma., "B"—15 Ma.
 Power Output..... 200 Milliwatts Undistorted, 350 Milliwatts Maximum
 Intermediate Frequency..... 465 K.C.

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC. After each band is completed, repeat the procedure as a final check.

Connecting A Battery

First—Place the A Battery in the cabinet as shown.
 NEXT—Insert the special two-prong connector plug into the socket on the A batteries as shown in illustration.

Connecting B Batteries

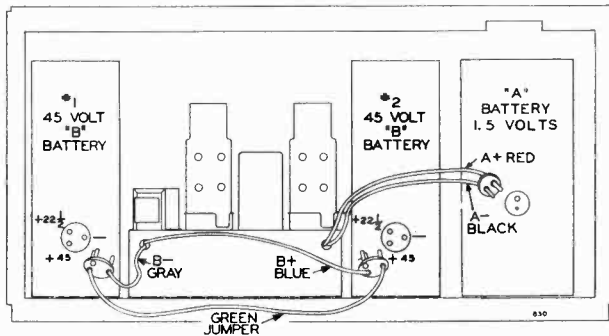
First—Place both B Batteries in the cabinet exactly as shown.
 NEXT—Insert the special three-prong connector plugs into the sockets on the B batteries as shown in illustration.
 NOTE: The above procedure and illustration pertains to the new style B batteries which have sockets; however, the old style B batteries which have terminals can be used by connecting them as follows.

FIRST—Remove the special plugs by cutting the wires off at the plugs.

NEXT—Connect gray colored B minus (—) wire to minus (—) terminal of battery on left side of receiver (marked Battery No. 1 in illustration).

NEXT—Connect one end of green connecting wire to plus (+45) terminal of battery No. 1 and other end to the minus (—) terminal of Battery No. 2.

NOW—Connect blue B plus (+) wire to the plus (+45) terminal of Battery No. 2.



MODELS 93BR-454A & 93BR-1455A

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1A7G Tube	Rotor full open (Plates out of mesh)	Four trimmers on top (See Fig. 1)	Output and input I. F.	(See Note "A") Adjust to maximum output
BROAD-CAST BAND	1650 Kc.	200 mmf.	Grid of 1A7G Tube	Rotor full open (Plates out of mesh)	Trimmer (C3) front section of gang (See Fig. 4)	Oscillator	(See Note "A") Adjust to maximum output
	1400 Kc.		See Note "C"	Set dial at 1400 Kc.	Trimmer (C2) rear section of gang (See Fig. 4)	Antenna	(See Note "B") Adjust to maximum output

NOTE "A" — A 1 megohm resistor must be connected between the two loop antenna leads from the chassis when aligning the I. F. transformers and setting the oscillator trimmer, (C3). The loop antenna must be disconnected from the chassis.

NOTE "B" — Remove the 1 megohm resistor from the loop antenna leads; adjust the chassis and the loop antenna in the cabinet, connect the loop antenna to the chassis; adjust trimmer (C2). (See note "C")

NOTE "C" — Lay the output lead from the signal generator in back of the loop antenna. Turn up the output of the generator, picking up the energy in the loop antenna without any electrical connection from the signal generator.

FREQUENCY RANGE

345 to 1650 KC.

Power Output..... 200 Milliwatts Undistorted, 300 Milliwatts Maximum
 Intermediate Frequency..... 465 KC.

CHASSIS No. 93BR713A

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6SK7	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 6SA7	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROAD-CAST BAND	1730 Kc.	200 mmf.	Antenna lead	Broadcast	Rotor full open (Plates out of mesh)	Trimmer (C1) (See Fig. 4)	Broadcast oscillator	Adjust to maximum output
	1500 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1500 Kc.	Trimmer (C2) (See Fig. 3)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer (C10) (See Fig. 3)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")
	465 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer (C1) (See Fig. 4)	I. F. Wave Trap	Adjust for minimum output
IMAGE ADJUSTMENT	2430 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Pick up signal at 1500 Kc. on dial	Trimmer (C6) (See Figs. 1 and 4)	Image rejection	Adjust for minimum output (See note "B")
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 17 Mc.	Trimmer (C10) (See Fig. 4)	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave	Dial Set at 17 Mc.	Trimmer (C8) (See Fig. 3)	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 6 Mc.	Trimmer (C11) (See Fig. 3)	Short Wave oscillator series pad	Adjust to maximum rock dial. (See note "A")

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

NOTE "B" 1500 KC. is the image frequency of 2430 KC. Adjust Trimmer (C6) until a minimum

output is obtained. Trimmer (C6) is mounted on the bottom of the chassis.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each band is completed, repeat the procedure as a final check.

Schematic, Voltage Socket, Trimmers

MONTGOMERY WARD & CO.

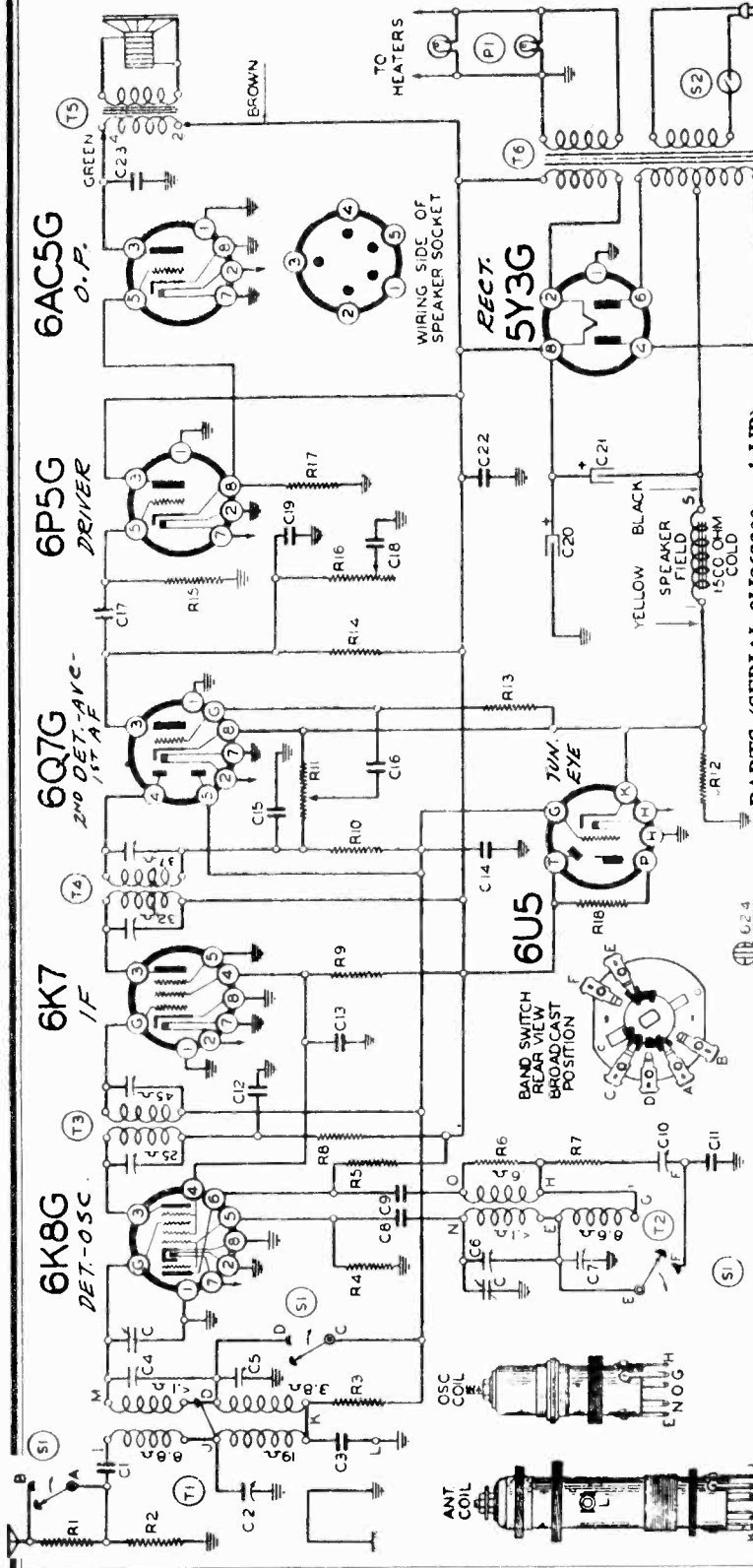
MODELS 62-702, 62-703 Series A, Issue B Ser. 8H262200 up

BAND SWITCH
 Extreme Right Rotation
 Extreme Left Rotation

BAND
 Short Wave
 Broadcast

FREQUENCY RANGE
 5.65 to 18.3 MC.
 535 to 1720 KC.

Power Consumption.....45 Watts (At 115 volts 50-60 cycles)
 Power Output.....1.6 Watts Undistorted, 3 Watts Maximum
 Selectivity.....58 KC. Broad at 1000 KC. 1000 Times Signal Strength
 Intermediate Frequency.....465 KC.



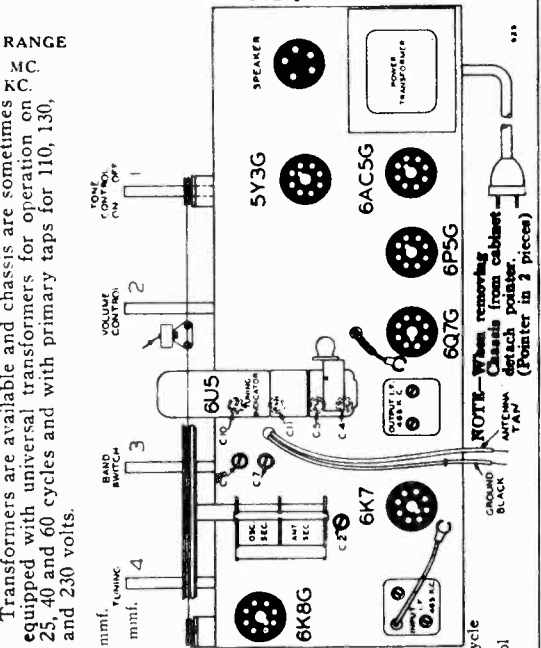
Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40 and 60 cycles and with primary taps for 110, 130, and 230 volts.

PARTS (SERIAL 8H262200 and UP)

- C3 BE129128
- C4 BE10026
- C5 BE10096
- C6 BE12943
- C7 BE12943
- C8 BE12939
- C9 BE10026
- C10 BE12940
- C11 BE12460
- C12 BE10026
- C13 BE1001
- C14 BE10096
- C15 BE12943
- C16 BE1001
- C17 BE1001
- C18 BE1001
- C19 BE1292
- C20 BE11969
- C21 BE11969
- C22 BE10013
- C23 BE10019

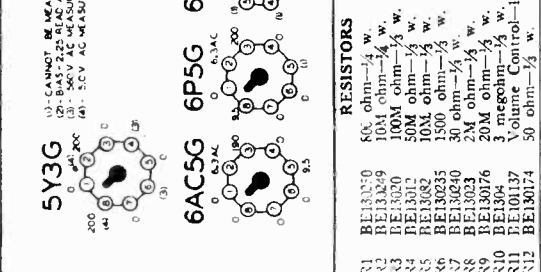
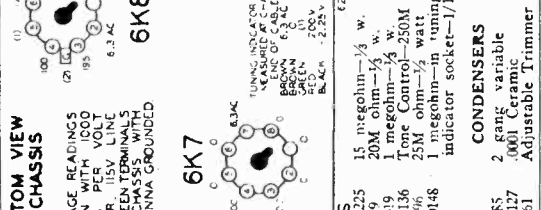
- T1 BE1193E
- T2 BE1069B
- T3 BE108127
- T4 BE10816J
- T5 BE1193E
- T6 BE10134F
- S1 BE1556
- S2 BE10794
- P1 BE10794

- RESISTORS**
- R1 BE13070 50 ohm-1/2 w.
 - R2 BE13070 100 ohm-1/2 w.
 - R3 BE13070 100 ohm-1/2 w.
 - R4 BE13070 100 ohm-1/2 w.
 - R5 BE13070 100 ohm-1/2 w.
 - R6 BE13070 100 ohm-1/2 w.
 - R7 BE13070 100 ohm-1/2 w.
 - R8 BE13070 100 ohm-1/2 w.
 - R9 BE13070 100 ohm-1/2 w.
 - R10 BE13070 100 ohm-1/2 w.
 - R11 BE13070 100 ohm-1/2 w.
 - R12 BE13070 100 ohm-1/2 w.
 - R13 BE13025 30 ohm-1/2 w.
 - R14 BE13025 30 ohm-1/2 w.
 - R15 BE13025 30 ohm-1/2 w.
 - R16 BE13025 30 ohm-1/2 w.
 - R17 BE13025 30 ohm-1/2 w.
 - R18 BE13025 30 ohm-1/2 w.
 - R19 BE13025 30 ohm-1/2 w.
 - R20 BE13025 30 ohm-1/2 w.
 - R21 BE13025 30 ohm-1/2 w.
 - R22 BE13025 30 ohm-1/2 w.
 - R23 BE13025 30 ohm-1/2 w.
 - R24 BE13025 30 ohm-1/2 w.
 - R25 BE13025 30 ohm-1/2 w.
 - R26 BE13025 30 ohm-1/2 w.
 - R27 BE13025 30 ohm-1/2 w.
 - R28 BE13025 30 ohm-1/2 w.
 - R29 BE13025 30 ohm-1/2 w.
 - R30 BE13025 30 ohm-1/2 w.
 - R31 BE13025 30 ohm-1/2 w.
 - R32 BE13025 30 ohm-1/2 w.
 - R33 BE13025 30 ohm-1/2 w.
 - R34 BE13025 30 ohm-1/2 w.
 - R35 BE13025 30 ohm-1/2 w.
 - R36 BE13025 30 ohm-1/2 w.
 - R37 BE13025 30 ohm-1/2 w.
 - R38 BE13025 30 ohm-1/2 w.
 - R39 BE13025 30 ohm-1/2 w.
 - R40 BE13025 30 ohm-1/2 w.
 - R41 BE13025 30 ohm-1/2 w.
 - R42 BE13025 30 ohm-1/2 w.
 - R43 BE13025 30 ohm-1/2 w.
 - R44 BE13025 30 ohm-1/2 w.
 - R45 BE13025 30 ohm-1/2 w.
 - R46 BE13025 30 ohm-1/2 w.
 - R47 BE13025 30 ohm-1/2 w.
 - R48 BE13025 30 ohm-1/2 w.
 - R49 BE13025 30 ohm-1/2 w.
 - R50 BE13025 30 ohm-1/2 w.
 - R51 BE13025 30 ohm-1/2 w.
 - R52 BE13025 30 ohm-1/2 w.
 - R53 BE13025 30 ohm-1/2 w.
 - R54 BE13025 30 ohm-1/2 w.
 - R55 BE13025 30 ohm-1/2 w.
 - R56 BE13025 30 ohm-1/2 w.
 - R57 BE13025 30 ohm-1/2 w.
 - R58 BE13025 30 ohm-1/2 w.
 - R59 BE13025 30 ohm-1/2 w.
 - R60 BE13025 30 ohm-1/2 w.
 - R61 BE13025 30 ohm-1/2 w.
 - R62 BE13025 30 ohm-1/2 w.
 - R63 BE13025 30 ohm-1/2 w.
 - R64 BE13025 30 ohm-1/2 w.
 - R65 BE13025 30 ohm-1/2 w.
 - R66 BE13025 30 ohm-1/2 w.
 - R67 BE13025 30 ohm-1/2 w.
 - R68 BE13025 30 ohm-1/2 w.
 - R69 BE13025 30 ohm-1/2 w.
 - R70 BE13025 30 ohm-1/2 w.
 - R71 BE13025 30 ohm-1/2 w.
 - R72 BE13025 30 ohm-1/2 w.
 - R73 BE13025 30 ohm-1/2 w.
 - R74 BE13025 30 ohm-1/2 w.
 - R75 BE13025 30 ohm-1/2 w.
 - R76 BE13025 30 ohm-1/2 w.
 - R77 BE13025 30 ohm-1/2 w.
 - R78 BE13025 30 ohm-1/2 w.
 - R79 BE13025 30 ohm-1/2 w.
 - R80 BE13025 30 ohm-1/2 w.
 - R81 BE13025 30 ohm-1/2 w.
 - R82 BE13025 30 ohm-1/2 w.
 - R83 BE13025 30 ohm-1/2 w.
 - R84 BE13025 30 ohm-1/2 w.
 - R85 BE13025 30 ohm-1/2 w.
 - R86 BE13025 30 ohm-1/2 w.
 - R87 BE13025 30 ohm-1/2 w.
 - R88 BE13025 30 ohm-1/2 w.
 - R89 BE13025 30 ohm-1/2 w.
 - R90 BE13025 30 ohm-1/2 w.
 - R91 BE13025 30 ohm-1/2 w.
 - R92 BE13025 30 ohm-1/2 w.
 - R93 BE13025 30 ohm-1/2 w.
 - R94 BE13025 30 ohm-1/2 w.
 - R95 BE13025 30 ohm-1/2 w.
 - R96 BE13025 30 ohm-1/2 w.
 - R97 BE13025 30 ohm-1/2 w.
 - R98 BE13025 30 ohm-1/2 w.
 - R99 BE13025 30 ohm-1/2 w.
 - R100 BE13025 30 ohm-1/2 w.



- REAR OF CHASSIS**
- R1 BE13025 30 ohm-1/2 w.
 - R2 BE13025 30 ohm-1/2 w.
 - R3 BE13025 30 ohm-1/2 w.
 - R4 BE13025 30 ohm-1/2 w.
 - R5 BE13025 30 ohm-1/2 w.
 - R6 BE13025 30 ohm-1/2 w.
 - R7 BE13025 30 ohm-1/2 w.
 - R8 BE13025 30 ohm-1/2 w.
 - R9 BE13025 30 ohm-1/2 w.
 - R10 BE13025 30 ohm-1/2 w.
 - R11 BE13025 30 ohm-1/2 w.
 - R12 BE13025 30 ohm-1/2 w.
 - R13 BE13025 30 ohm-1/2 w.
 - R14 BE13025 30 ohm-1/2 w.
 - R15 BE13025 30 ohm-1/2 w.
 - R16 BE13025 30 ohm-1/2 w.
 - R17 BE13025 30 ohm-1/2 w.
 - R18 BE13025 30 ohm-1/2 w.
 - R19 BE13025 30 ohm-1/2 w.
 - R20 BE13025 30 ohm-1/2 w.
 - R21 BE13025 30 ohm-1/2 w.
 - R22 BE13025 30 ohm-1/2 w.
 - R23 BE13025 30 ohm-1/2 w.
 - R24 BE13025 30 ohm-1/2 w.
 - R25 BE13025 30 ohm-1/2 w.
 - R26 BE13025 30 ohm-1/2 w.
 - R27 BE13025 30 ohm-1/2 w.
 - R28 BE13025 30 ohm-1/2 w.
 - R29 BE13025 30 ohm-1/2 w.
 - R30 BE13025 30 ohm-1/2 w.
 - R31 BE13025 30 ohm-1/2 w.
 - R32 BE13025 30 ohm-1/2 w.
 - R33 BE13025 30 ohm-1/2 w.
 - R34 BE13025 30 ohm-1/2 w.
 - R35 BE13025 30 ohm-1/2 w.
 - R36 BE13025 30 ohm-1/2 w.
 - R37 BE13025 30 ohm-1/2 w.
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 - R39 BE13025 30 ohm-1/2 w.
 - R40 BE13025 30 ohm-1/2 w.
 - R41 BE13025 30 ohm-1/2 w.
 - R42 BE13025 30 ohm-1/2 w.
 - R43 BE13025 30 ohm-1/2 w.
 - R44 BE13025 30 ohm-1/2 w.
 - R45 BE13025 30 ohm-1/2 w.
 - R46 BE13025 30 ohm-1/2 w.
 - R47 BE13025 30 ohm-1/2 w.
 - R48 BE13025 30 ohm-1/2 w.
 - R49 BE13025 30 ohm-1/2 w.
 - R50 BE13025 30 ohm-1/2 w.

- CONDENSERS**
- C1 BE10013 3 megohm-1/2 w.
 - C2 BE10013 3 megohm-1/2 w.
 - C3 BE10013 3 megohm-1/2 w.
 - C4 BE10013 3 megohm-1/2 w.
 - C5 BE10013 3 megohm-1/2 w.
 - C6 BE10013 3 megohm-1/2 w.
 - C7 BE10013 3 megohm-1/2 w.
 - C8 BE10013 3 megohm-1/2 w.
 - C9 BE10013 3 megohm-1/2 w.
 - C10 BE10013 3 megohm-1/2 w.
 - C11 BE10013 3 megohm-1/2 w.
 - C12 BE10013 3 megohm-1/2 w.
 - C13 BE10013 3 megohm-1/2 w.
 - C14 BE10013 3 megohm-1/2 w.
 - C15 BE10013 3 megohm-1/2 w.
 - C16 BE10013 3 megohm-1/2 w.
 - C17 BE10013 3 megohm-1/2 w.
 - C18 BE10013 3 megohm-1/2 w.
 - C19 BE10013 3 megohm-1/2 w.
 - C20 BE10013 3 megohm-1/2 w.
 - C21 BE10013 3 megohm-1/2 w.
 - C22 BE10013 3 megohm-1/2 w.
 - C23 BE10013 3 megohm-1/2 w.



MODELS 62-702, 62-703

Series A, Issue B

Alignment

MONTGOMERY WARD & CO.

MODEL 62-901

Alignment, Trimmers

Dial Data, Phono.

MODELS 62-702, 62-703 Series A Issue B

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The following equipment is required for aligning:

- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 mf., 200 mmf. and 400 ohms.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6K7	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 6K8	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 17 MC	Trimmer (C 6, Top of Chassis (See Fig. 1))	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Dial Set at 17 MC	Trimmer (C 4) (See Fig. 1)	Short Wave antenna	Adjust to maximum output
BROADCAST BAND	1720 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer (C 7) (See Fig. 1)	Broadcast oscillator	Adjust to maximum output
	400 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 1400 Kc.	Trimmer (C 5) (See Fig. 1)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 600 Kc.	Trimmer (C 10) (See Fig. 1)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")
IMAGE REJECTION ADJUSTMENTS	2330 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Pick up signal at 1400 kc. on dial	Trimmer (C 2) (See Fig. 1)	Image rejection	Adjust for minimum output. (See note "B")

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

NOTE "B" 1400KC is the image frequency of 2330KC. Adjust Trimmer (C2) until a minimum output is obtained.

NOTE "C" Trimmer (C11) is preadjusted at factory and should not be tampered with.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each range is completed, repeat the procedure as a final check.

MONTGOMERY WARD MODEL 62-901

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

Connect Radio Chassis to Ground Post of Signal Generator with a Short Heavy Lead.

Allow Chassis and Signal Generator to "Heat Up" for several minutes.

IMPORTANT—Follow procedure in the order shown.

The following equipment is required for aligning:

An All Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.

Output Indicating Meter—Non-Metallic Screwdriver.

Dummy Antennas—.1 mf., 200 mmf., and 400 ohms.

SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (Unless otherwise specified)
I. F. 456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	2nd I.F. (C16) & (C17) 1st I.F. (C14) & (C15)
WAVE TRAP 456 KC	Antenna Lead	200 mmf.	B Range	600 KC	Wave Trap (C5) Adjust for MINIMUM Output
RANGE B 1730 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C11)
1500 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1500 KC— See Note A	Ant. Range B (C3)
600 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C9) Rock Rotor—See Note B
RANGE D 18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C8)
15,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1) Rock Rotor—See Note B

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each range is completed, repeat the procedure as a final check.

NOTE A—If the pointer is not at 1500 KC on the dial, loosen the 2 clamps which hold the pointer assembly on the cord, move the pointer to the 1500 KC mark, and tighten the clamps.

NOTE B—Turn the rotor back and forth and adjust the trimmer until the peak of greatest intensity is obtained.

CAUTION—When aligning the short wave bands, be sure NOT to adjust at the image frequency. This can be checked as follows: Let us say the signal generator is set for 15,000 KC. The signal will then be heard at 15,000 KC on the dial of the radio. The image signal, which is much weaker, will be heard at 15,000 less 912 KC, or 14,088 KC on the dial. If may be necessary to increase the input signal to hear the image.

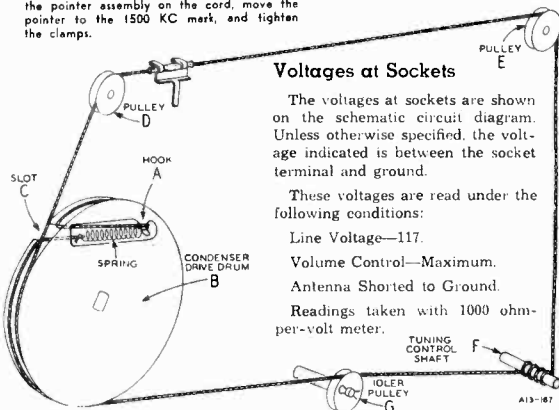


Fig. 4—Drive Cord Replacement

Voltagess at Sockets

The voltages at sockets are shown on the schematic circuit diagram. Unless otherwise specified, the voltage indicated is between the socket terminal and ground.

These voltages are read under the following conditions:

- Line Voltage—117.
- Volume Control—Maximum.
- Antenna Shorted to Ground.
- Readings taken with 1000 ohm-per-volt meter.

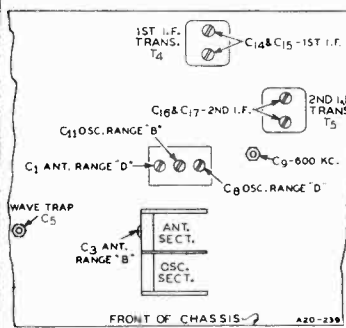


Fig. 2—Location of Trimmers

Drive Cord Replacement

Tie a knot with a small loop at one end of the new drive cord. Slide a 1 3/4 inch length of fabric tubing on the cord. Tie the free end of the drive cord to the tension spring. The distance between knots should be 48 1/2 inches.

Arrange to keep the gang condenser in the completely closed position.

Place the looped end of the drive cord over hook A on condenser drive drum B (See Fig. 4). Pass the cord through slot C in the drum rim and wind one turn in a clockwise direction (from front of chassis) on condenser drive drum. Pass drive cord over pulleys D and E as shown. See that the fabric tubing is now between pulleys D and E. Continue cord down to shaft F and wind 2 1/4 turns clockwise, progressing towards the chassis. Bring cord over pulley G to bottom of condenser drive drum B as shown. Wind drive cord clockwise (from front of chassis) around condenser drive drum B to slot C. See that the drive cord does not cross in groove of condenser drive drum. Pass the remaining drive cord and tension spring through slot C and secure the free end of the spring on hook A.

DIAL POINTER ATTACHMENT

—Tune in a station of known frequency. Move the pointer to this frequency on the dial scale. Clamp pointer tightly over the fabric tubing on the cord—See Fig. 4.

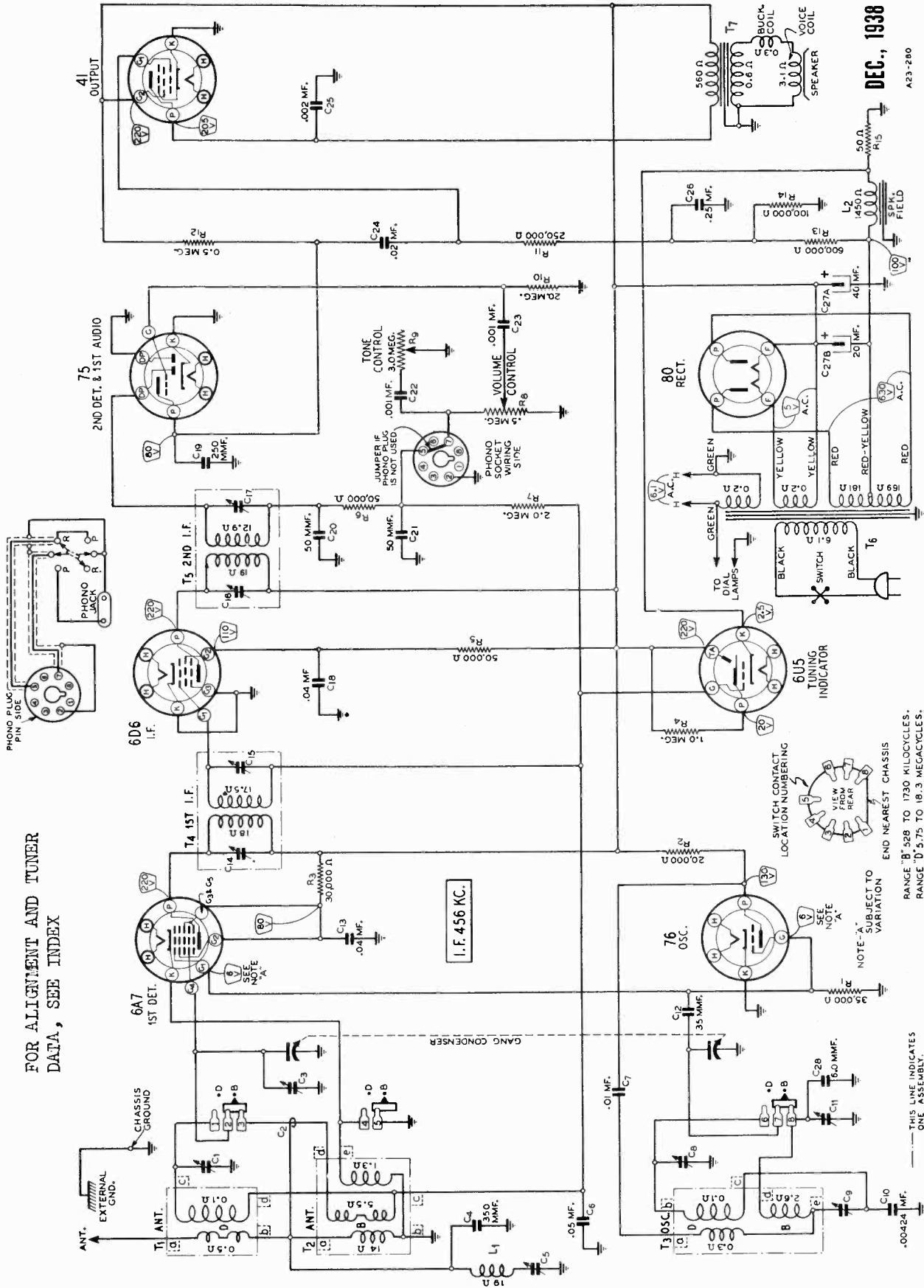
Phonograph Connections

Phonograph connections are made as shown in the schematic circuit diagram—Fig. 3. On the back panel of the chassis base is a round knockout 1-9/64 inches in diameter. An octal base socket is mounted in this knockout opening and wired as shown in the schematic.

A phono cable assembly may then be purchased (See parts list). On one end of this cable is an octal plug and on the other end is a phonograph-radio switch and double tip jack.

MONTGOMERY WARD & CO. MODELS 62-704 to 62-712 inc. Schematic, Voltage

FOR ALIGNMENT AND TUNER DATA, SEE INDEX



DEC., 1938 A23-280

Fig. 3—Schematic Circuit Diagram

NOTE—SUBJECT TO VARIATION END NEAREST CHASSIS RANGE 'B' 528 TO 1730 KILOCYCLES. RANGE 'D' 5.75 TO 18.3 MEGACYCLES.

THIS LINE INDICATES ONE ASSEMBLY.

MODELS 62-750, 62-751
Series A, Ser. 8M499800 up
Schematic, Voltage
Socket, Trimmers

MONTGOMERY WARD & CO.

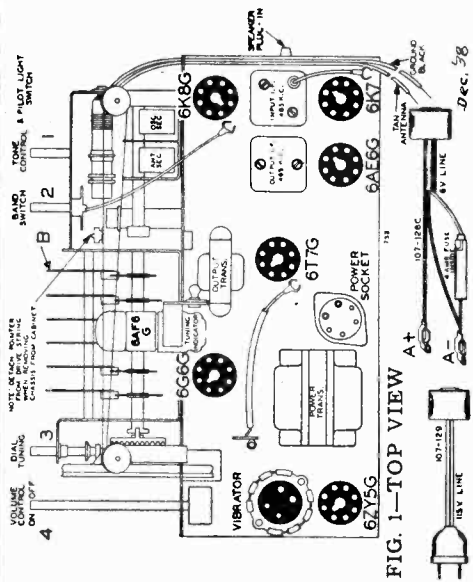
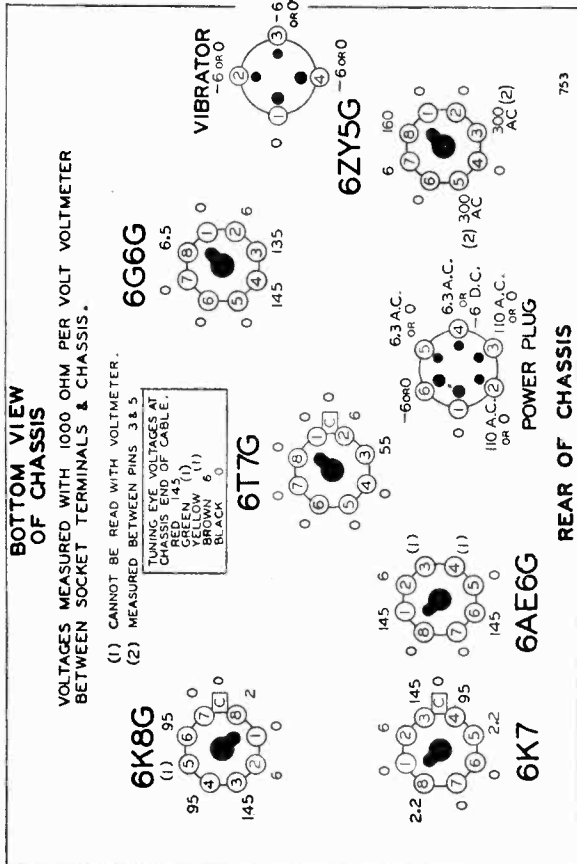
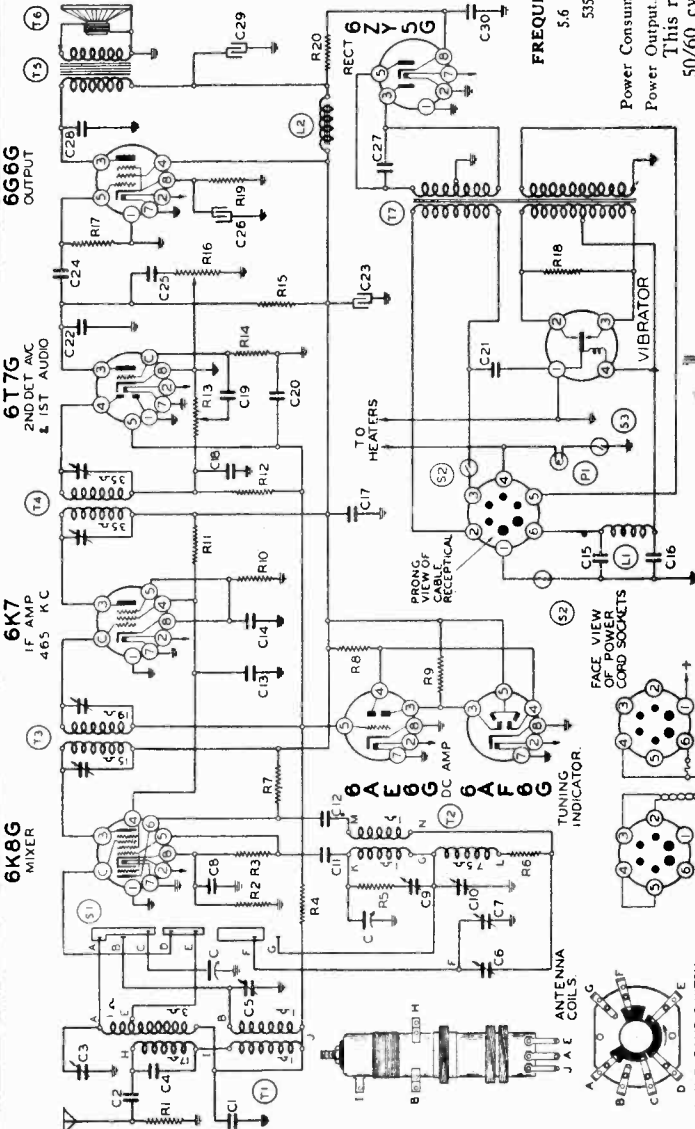


FIG. 1—TOP VIEW

FOR TRIMMERS, ALIGNMENT
PROCEDURE, AND SETTING
AUTOMATIC TUNING LEVERS,
SEE INDEX.

FREQUENCY RANGE
5.6 to 18.1 MC.
535 to 1730 KC.

Power Consumption.....40 Watts (At 115 volts 30-60 cycles), or 3.3 amperes at 6.3 volts
Power Output.....6 Watts Undistorted, 1 Watt Maximum
This radio is designed to operate from either 105-125 volts
50/60 cycle A.C. supply or a 6 volt storage battery.



BOTTOM VIEW
OF CHASSIS

VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER
BETWEEN SOCKET TERMINALS & CHASSIS.

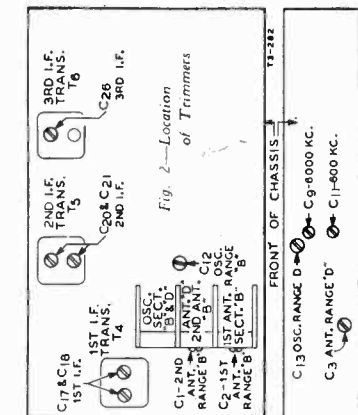
(1) CANNOT BE READ WITH VOLTMETER.
(2) MEASURED BETWEEN PINS 3 & 5.
TUNING EYE VOLTAGES AT
REAR END OF CABLE:
RED IN 45 (1)
YELLOW 6 (1)
BLACK 6 (1)

- ANTENNA COILS
T1 BE11112
T2 BE1098
T3 BE108111 F
T4 BE108106
T5 BE10314 C
T6 BE11139
T7 BE104114 C
T8 BE10558
T9 BE10580 H
T10 BE12568
- OSCILLATOR COILS
C12 BE10025
C13 BE10020
C14 BE10020
C15 BE10040
C16 BE10040
C17 BE10020
C18 BE12940
C19 BE10019
C20 BE10073
C21 BE10011
C22 BE10292
C23 BE11979 B
C24 BE10026
C25 BE10019
C26 BE11979 B
C27 BE10073
C28 BE10019
C29 BE11979 B
C30 BE10023
- CONDENSERS
C1 BE10292C
C2 002775 mica
C3 BE129131
C4 003 x 600 v.
C5 BE12469
C6 000125 mica
C7 BE129132
C8 S. W. Antenna Trimmer
C9 S. W. Series Pad
C10 BE12466
C11 BE12466
C12 BE10020
C13 BE12470
C14 BE12470
C15 BE12470
C16 BE12470
C17 BE12470
C18 BE12470
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C24 BE12470
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C98 BE12470
C99 BE12470
C100 BE12470
- RESISTORS
R1 BE13017
R2 BE13097
R3 BE13094
R4 BE13011
R5 BE130240
R6 BE130097
R7 BE13068
R8 BE13068
R9 BE13079
R10 BE13062
R11 BE13062
R12 BE1304
R13 BE10153
R14 BE13025
R15 BE13011
R16 BE10134
R17 BE13079
R18 BE13097
R19 BE13093
R20 BE130168
- TRIMMERS
S1 BE129131
S2 BE12469
S3 BE129132
S4 S. W. Antenna Trimmer
S5 S. W. Series Pad
S6 BE12466
S7 BE12466
S8 BE12466
S9 BE12470
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S88 BE12470
S89 BE12470
S90 BE12470
S91 BE12470
S92 BE12470
S93 BE12470
S94 BE12470
S95 BE12470
S96 BE12470
S97 BE12470
S98 BE12470
S99 BE12470
S100 BE12470
- POWER SOCKET
P1 BE10789
- VIBRATOR
V1 BE12568
- POWER PLUG
P1 BE12568
- REAR OF CHASSIS

MONTGOMERY WARD & CO.

MODELS 62-752, 62-753
Schematic, Voltage
Socket, Trimmers, Notes

Power Consumption - 1.45 Amperes at 32 Volts DC Intermediate Frequency - - - - - 456 KC
 Power Output - - - - - .17 Watts Undistorted Speaker - - - - - 6" or 8" Electro-Dynamic
 Selectivity - - - - - 30 KC Broad at 1000 times Signal Tuning Frequency Range
 Sensitivity (For .05 watt output):
 B Range - - - - - 6.0 Microvolts Average B Range - - - - - 528 to 1730 KC (Kilocycles)
 D Range - - - - - 6.0 Microvolts Average D Range - - - - - 5750 to 18300 KC (Kilocycles)



Line Voltage Range
 The radio will operate satisfactorily within a line voltage range of 25 to 42 volts. If the line voltage is higher than 42, it will be necessary to use a series resistor to cut it down. If the voltage varies, a variable resistor may be required.

Starting Current
 When first turned on for a few seconds the drain is slightly higher than normal until the tubes heat up. Some automatic plants are adjusted to start under a load of 200 to 300 watts. If a number of devices such as lights or motors are being used and the radio set is turned on the total drain may be sufficient to start the plant.

This radio is designed for use on farms and in those places where the power supply consists of a 32 volt direct current generating plant.

Polarity of Power Supply

There is a red mark on the plug at the end of the power supply cord of the radio. The prong of the plug at which the red mark is placed must be plugged into the positive side of the line.

Caution

If used on any other type of power supply than 32 volt DC, severe damage may be done to the receiver.
 Do not turn the radio on unless all of the tubes and the dial lamps are in the proper sockets. Use only No. 51 dial lamps.

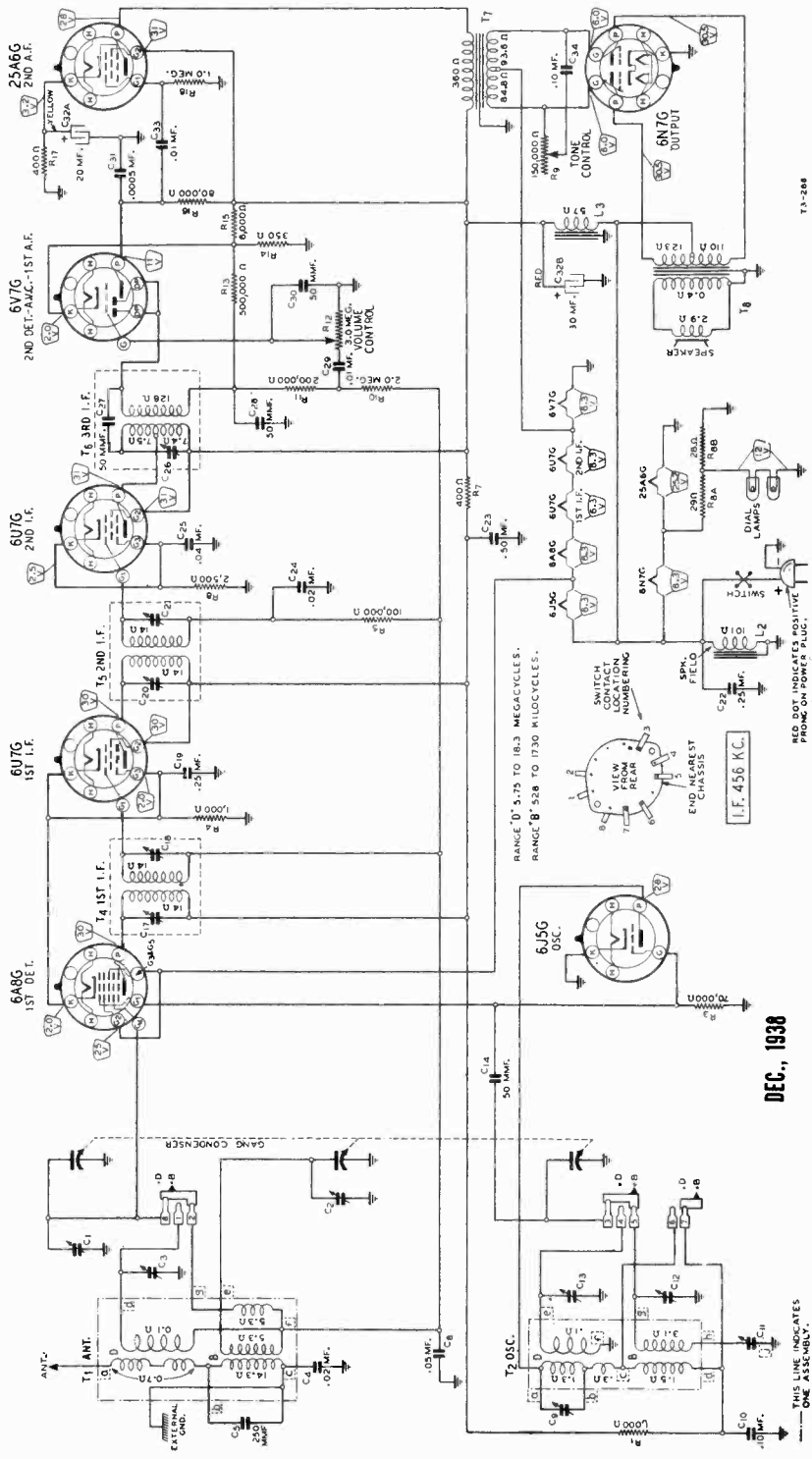
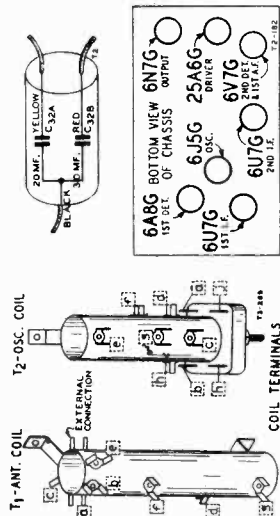


Fig. 3—Schematic Circuit Diagram

DEC., 1938

MODELS 62-704 to 62-712 inc.
 Socket, Trimmers, Alignment MONTGOMERY WARD & CO.
 MODELS 62-752, 62-753
 Alignment, Drive Data

MODELS 62-704 to 62-712

Tuning Frequency Range
 B Range..... 528 to 1730 KC (Microcycles)
 D Range..... 5750 to 18300 KC (Microcycles)

Sensitivity (For 0.5 watt output)
 B Range..... 30 Microvolts Average
 D Range..... 50 Microvolts Average

Power Consumption - 60 Watts (At 117 volts 60 cycles)

Power Output - 1.5 Watts Undistorted
 3.0 Watts Maximum

Selectivity - 45 KC Broad at 1000 times Signal

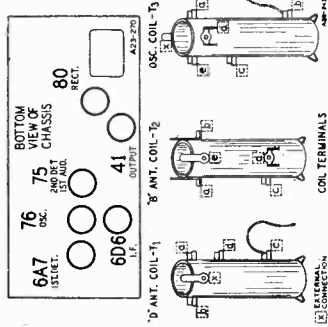
Intermediate Frequency - 456 KC

Speaker - 6", 8" or 10" Dynamic

ALIGNMENT PROCEDURE
 MOD ELS --905

FOR DRIVE CORD REPLACEMENT AND RACK AND PANEL ASSEMBLY SEE MOD ELS --905

The following equipment is required for aligning:
 An All Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
 Output Indicating Meter--Non-Metallic Screwdriver.
 Dummy Antennas--1 mf., 200 mmf., and 400 ohms.



ALIGNMENT PROCEDURE
 Volume Control--Maximum All Adjustments.
 Connect Radio Chassis to Ground Post of Signal Generator with a Short Heavy Lead.
 Allow Chassis and Signal Generator to "Heat Up" for several minutes.
IMPORTANT--Follow procedure in the order shown.

SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER OR DIAL SETTING	ADJUST TRIMMERS TO MAXIMUM (Unless otherwise specified)
456 KC	Grid of 1st Det.	1 mf.	B Range	Turn Rotor to Full Open	2nd I.F. (C16) & (C17) 1st I.F. (C14) & (C15)
1730 KC	Antenna Lead	200 mmf.	B Range	600 KC	Wave Trap (C5) Adjust for MINIMUM Output
1500 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Full Closed Position. Pointer should be at low frequency end and mark on scale--See Note A.	
600 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor until dial pointer is at 1500 KC	Oscillator Range B (C11)
18300 KC	Antenna Lead	400 Ohm	D Range	Leave Rotor at above setting	Ant. Range B (C3)
15000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	600 KC (C9) Rack Rotor--See Note B
6000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C8)

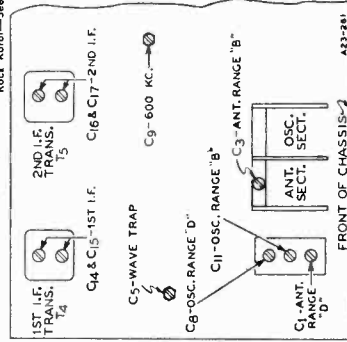


Fig. 2--Location of Trimmers

MODELS 62-752 and 62-753

ALIGNMENT PROCEDURE

Volume Control--Maximum All Adjustments.
 Connect Radio Chassis to Ground Post of Signal Generator with a Short Heavy Lead.
 Allow Chassis and Signal Generator to "Heat Up" for several minutes.
IMPORTANT--Follow procedure in the order shown.

SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
456 KC	Grid of 1st Det.	1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C17) & (C18) 2nd I.F. (C20) & (C21) 3rd I.F. (C26)
1730 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C12)
1500 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1500 KC-- See Note A	1st Ant. Range B (C2) 2nd Ant. Range B (C1)
600 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C11) Rack Rotor--See Note B
18300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C13)
15000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C3) Rack Rotor--See Note B
6000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	6000 KC (C9) Rack Rotor--See Note B

NOTE A--If the pointer is not at 1500 KC on the dial, hold the drive cord and move the pointer to this mark.
 NOTE B--Turn the rotor back and forth and adjust the trimmer until the peak of greatest intensity is obtained.

Drive Cord Replacement
 Tie a knot with a small loop at one end of the new drive cord.
 Tie the free end of the drive cord to the tension spring. The distance between knots should be .493 inches.
 Arrange to keep the gang condenser in the completely closed position.

Place the looped end of the drive cord over hook A on condenser drive drum B (See Fig. 4). Pass the cord through slot C in the drum rim and wind one turn in a clockwise direction (from front of chassis) on condenser drive drum. Pass drive cord over pulleys D and E as shown. Continue cord down to shaft F and wind 4 turns clockwise, progressing towards the chassis. Bring cord over pulley G to bottom of condenser drive drum B as shown. Wind drive cord clockwise (from front of chassis) around condenser drive drum B to slot C. See that the drive cord does not cross in groove of condenser drive drum. Pass the remaining drive cord and tension spring through slot C and secure the free end of the spring on hook A.

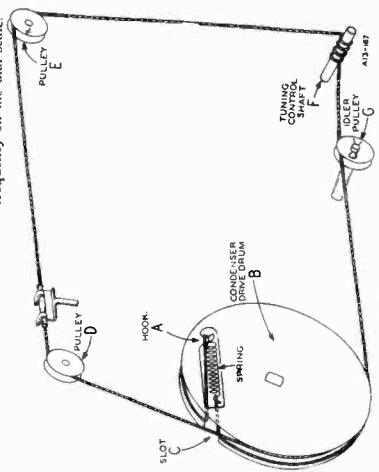


Fig. 4--Drive Cord Replacement

MONTGOMERY WARD & CO. Schematic, Voltage Socket, Changes

MODEL 62-901, Issues A, B

SPECIFICATIONS

Power Consumption - - 60 Watts (At 117 volts 60 cycles)
 Power Output - - - - - 3.0 Watts Undistorted
 - - - - - 4.0 Watts Maximum
 Selectivity - - 40 KC Broad at 1000 times Signal
 Intermediate Frequency - - - - - 456 KC
 Speaker - - - - - 10" Dynamic

Tuning Frequency Range
 B Range 528 to 1730 KC (Kilocycles)
 D Range 5750 to 18300 KC (Kilocycles)

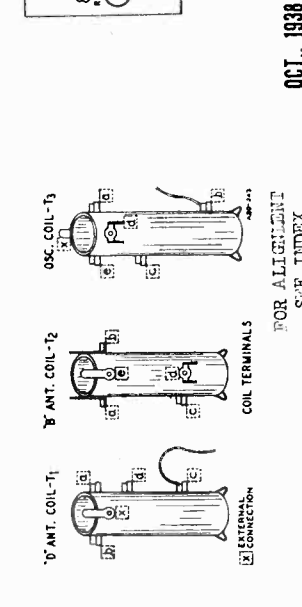
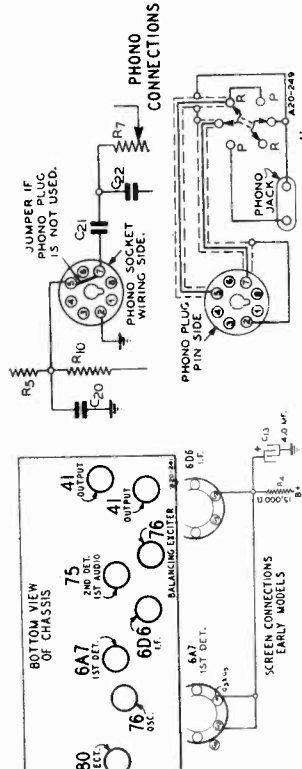
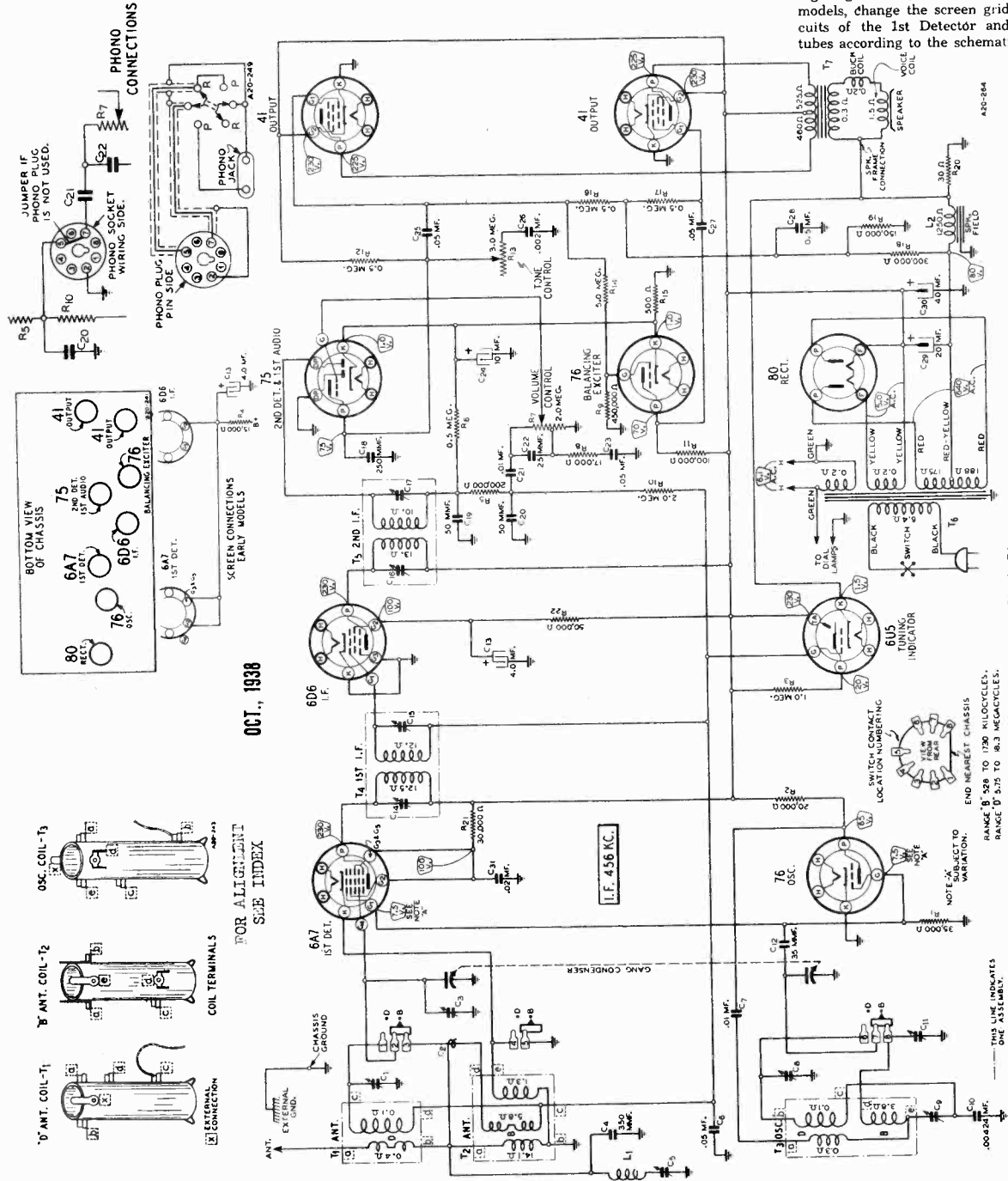
Sensitivity (For 0.5 watt output)
 B Range 25 Microvolts Average
 D Range 40 Microvolts Average

"B" Issue Models

The issue letter is the last letter of the chassis number on the chassis number label.

In "B" issue models, the screen grid circuits of the 1st Detector and I.F. tubes are supplied through separate resistors as shown in the schematic.

If distortion is encountered at high signal levels in the "A" issue models, change the screen grid circuits of the 1st Detector and I.F. tubes according to the schematic.



OCT., 1938

FOR ALIGNMENT SEE INDEX

I.F. 456 KC.

Fig. 3—Schematic Circuit Diagram

END NEAREST CHASSIS RANGE B 528 TO 1730 KILOCYCLES. RANGE D 5750 TO 18300 KILOCYCLES.

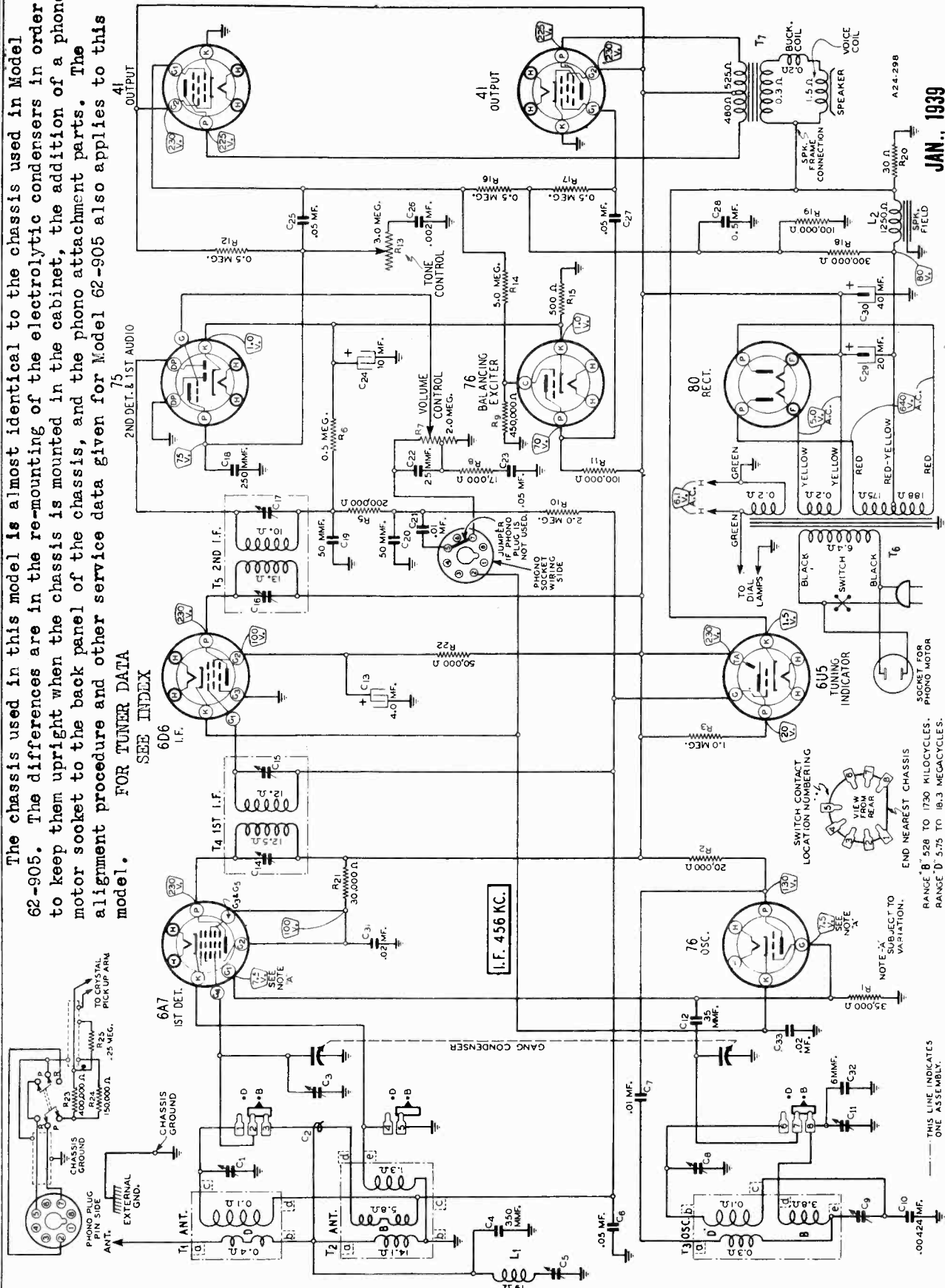
NOTE: X INDICATES VARIATION. THIS LINE INDICATES ONE ASSEMBLY.

MONTGOMERY WARD & CO.

MODEL 62-902
Schematic, Voltage
Notes, Phono.

The chassis used in this model is almost identical to the chassis used in Model 62-905. The differences are in the re-mounting of the electrolytic condensers in order to keep them upright when the chassis is mounted in the cabinet, the addition of a phono motor socket to the back panel of the chassis, and the phono attachment parts. The alignment procedure and other service data given for Model 62-905 also applies to this model.

FOR TUNER DATA
SEE INDEX



JAN., 1939

NOTE 'A' SUBJECT TO VARIATION.
NOTE 'B' 528 TO 1730 KILOCYCLES.
RANGE D 5.75 TO 18.3 MEGACYCLES.

NOTE 'A' SUBJECT TO VARIATION.
NOTE 'B' 528 TO 1730 KILOCYCLES.
RANGE D 5.75 TO 18.3 MEGACYCLES.

MODELS 62-704 to 62-712 inc.
Drive Data

MONTGOMERY WARD & CO.

MODEL 62-902
MODEL 62-905
Alignment, Trimmers
Drive Data

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.
Connect Radio Chassis to Ground Post of Signal Generator with a Short Heavy Lead.

Allow Chassis and Signal Generator to "Heat Up" for several minutes.

IMPORTANT—Follow procedure in the order shown.

SIGNAL GENERATOR		DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER OR DIAL SETTING	ADJUST TRIMMERS TO MAXIMUM (Unless otherwise specified)
FREQUENCY SETTING	CONNECTION AT RADIO				
I. F. 456 KC	Grid of 1st Det.	.J mf.	B Range	Turn Rotor to Full Open	2nd I.F. (C16) & (C17) 1st I.F. (C14) & (C15)
WAVE TRAP 456 KC	Antenna Lead	200 mmf.	B Range	600 KC	Wave Trap (C5) Adjust for MINIMUM Output
RANGE B				Turn Rotor to Full Closed Position. Pointer should be at low frequency end mark on scale—See Note A.	
1500 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor until dial pointer is at 1500 KC	Oscillator Range B (C11)
1500 KC	Antenna Lead	200 mmf.	B Range	Leave Rotor at above setting	Ant. Range B (C3)
600 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C9) Rock Rotor—See Note B
RANGE D					
18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C8)
15,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1) Rock Rotor—See Note B

NOTE A—The low frequency end mark is a small dot at the left side of the short wave scale under the "5." of the number 5.8 and to the right of the "C" of the letters MC. If the pointer is not at this mark on the dial, move the pointer to this mark.

NOTE B—Turn the rotor back and forth and adjust the trimmer until the peak of greatest intensity is obtained.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each range is completed, repeat the procedure as a final check.

CAUTION—When aligning the short wave bands, be sure NOT to adjust at the image frequency. This can be checked as follows: Let us say the signal generator is set for 15,000 KC. The signal will then be heard at 15,000 KC on the dial of the radio. The image signal, which is much weaker, will be heard at 15,000 less 912 KC, or 14,088 KC on the dial. It may be necessary to increase the input signal to hear the image.

General Service Data

Drive Cord Replacement

Tie a knot with a small loop at one end of the new drive cord. Tie the other end to the tension spring, leaving a distance of 6 1/4 inches between the knots.

Turn the gang condenser to the full open position. Secure the free end of the spring over hook A—See Fig. 4. Turn the gang condenser to the completely closed position.

Pass the cord through slot B and, guiding the cord in the groove of the drive drum, turn the gang condenser to the full open position. Hook the cord in slot B and turn the gang condenser to the completely closed position. Unhook the cord from slot B and pass over pulleys C, D, and E as shown. Pass the cord in front of idler pulley F. Wind 2 1/2 turns counter-clockwise (from front of chassis)

around the drive shaft—spool, progressing away from the chassis. Pass cord up and over the drive drum. Guiding the cord in the groove of the drive drum, turn the gang condenser to the full open position. If necessary, stretch the tension spring and pull the drive cord taut. Pass drive cord through slot B and secure the loop to the tension spring at point G.

EARLY MODELS—In the early models using a larger drive shaft spool (See Fig. 4), there should be a distance of 6 1/2 inches between the knots.

DIAL POINTER ATTACHMENT—Tune in a station of known frequency. Move the pointer to the approximate frequency on the dial scale. Pass the cord through the slotted head—See Fig. 4. Hold the drive cord and slide the pointer to the exact frequency on the dial scale

Rack and Pinion Assembly

If it is ever necessary to re-assemble the automatic tuning unit, proceed as follows: The pinion gear shaft should be held in such a position that the flat portion is vertical or turned slightly counter-clockwise from the vertical as shown in Fig. 5.

The lower rack should be meshed with the pinion gear so that the 8th tooth from the front on each side of the rack is in line with the axis of the pinion gear shaft—See Fig. 5. The upper rack should then be lined up with the lower rack and meshed with the pinion gear. The 8th tooth from the front on each side of the upper rack will then line up with the axis of the pinion gear shaft.

The rear and side brackets can then be mounted on the rack and pinion assembly.

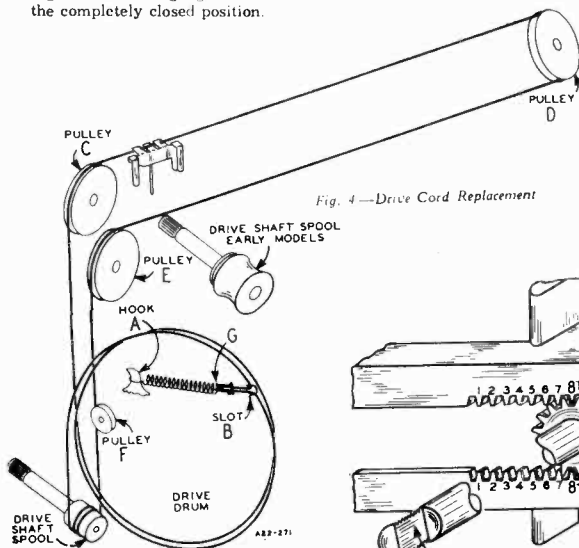


Fig. 4—Drive Cord Replacement

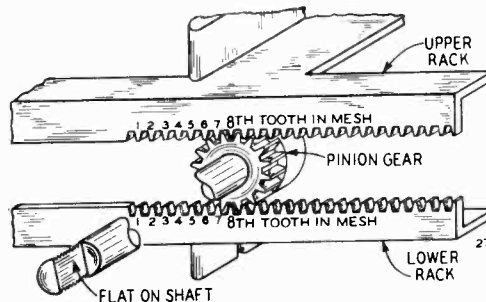


Fig. 5—Rack and Pinion Assembly

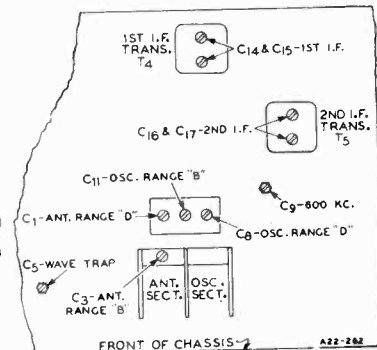


Fig. 6—Location of Trimmers

MODEL 62-905
Schematic, Socket
Coils, Voltage

MONTGOMERY-WARD & CO.

SPECIFICATIONS

Power Consumption - - 65 Watts (At 117 volts 60 cycles)
 Power Output - - - - 3.0 Watts Undistorted
 - - - - - 4.0 Watts Maximum
 Selectivity - - 40 KC Broad at 1000 times Signal
 Intermediate Frequency - - - - 456 KC
 Speaker - - - - - 10" Dynamic

Tuning Frequency Range
 B Range 528 to 1730 KC (Kilocycles)
 D Range 5750 to 18300 KC (Kilocycles)

Sensitivity (For 0.5 watt output)
 B Range 25 Microvolts Average
 D Range 40 Microvolts Average

Twenty-Five Cycle Models
 The twenty-five cycle receiver differs from the sixty cycle receiver only in the fact that a different power transformer is used.

MODELS 62-902 AND 62-905

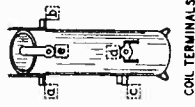
Volume Control—Maximum.
 Antenna Shorted to Ground.
 Readings taken with 1000 ohm-per-volt meter.

Voltages at Sockets
 The voltages at sockets are shown on the schematic circuit diagram. Unless otherwise specified, the voltage indicated is between the socket terminal and ground.
 These voltages are read under the following conditions:
 Line Voltage—117.

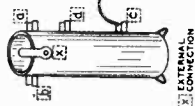
OSC. COIL-T₃



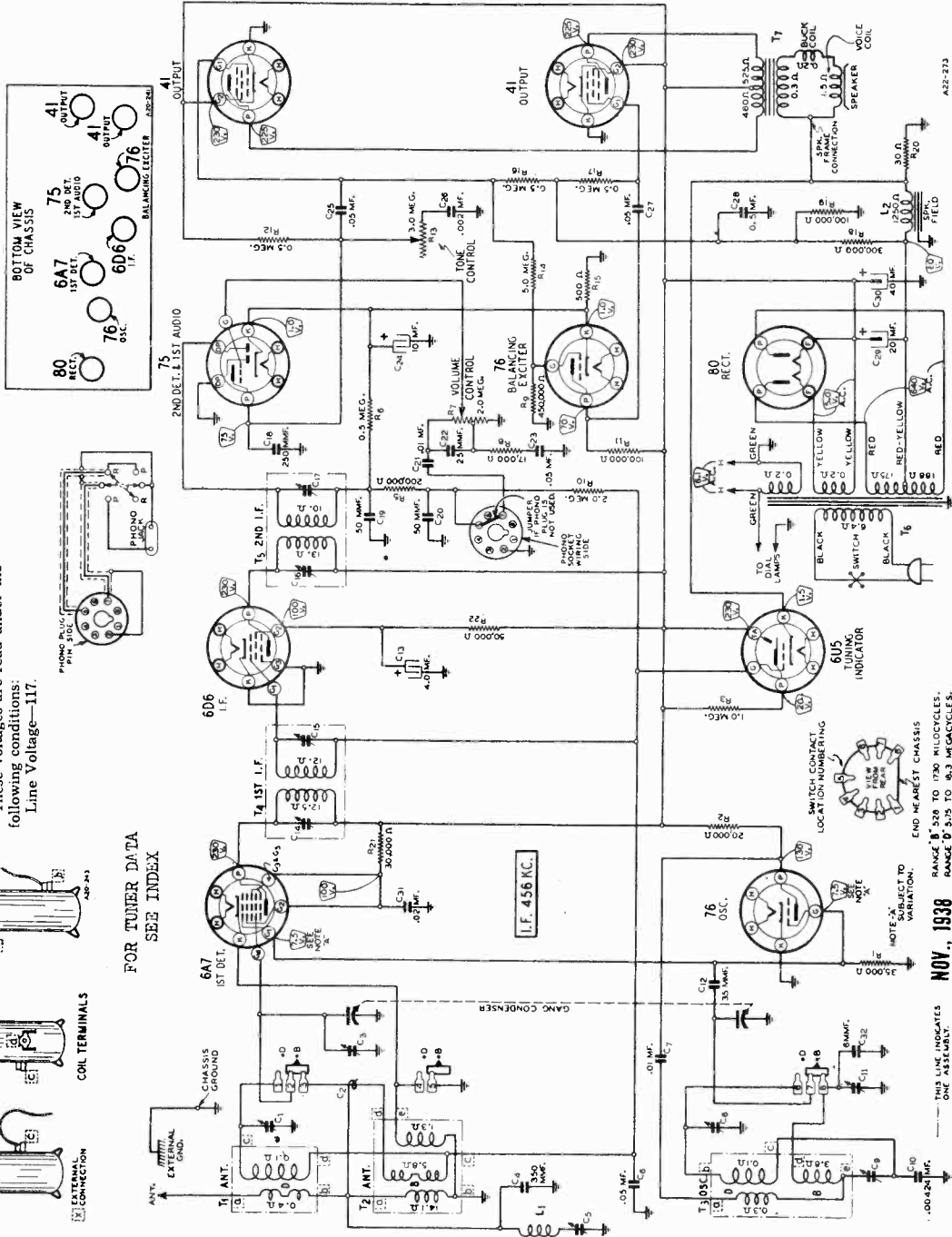
ANT. COIL-T₂



ANT. COIL-T₁



FOR TUNER DATA
 SEE INDEX



A82-273

Fig. 3—Schematic Circuit Diagram

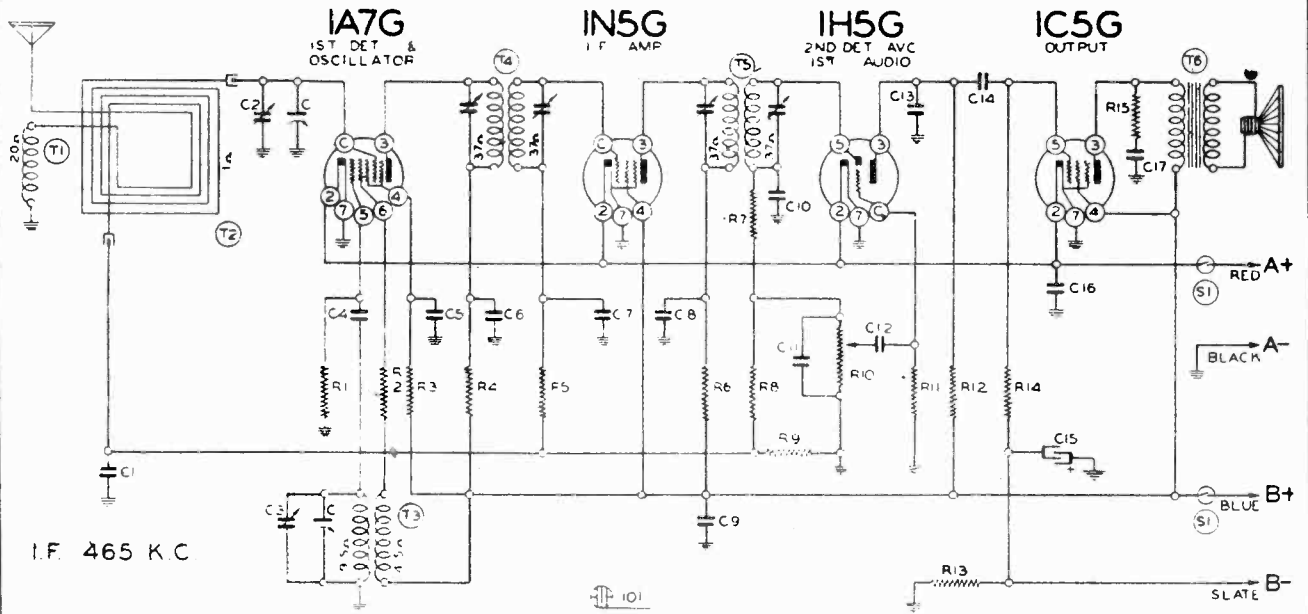
RANGE B 528 TO 1730 KILOCYCLES.
 RANGE D 5750 TO 18300 KILOCYCLES.

NOV., 1938

NOTE: 'A' SUBJECT TO VARIATION.
 END NEAREST CHASSIS.
 SWITCH CONTACT LOCATION: INSURING
 TO DIAL LAMP.
 BLACK SWITCH 5
 BLACK FROM REAR
 YELLOW
 YELLOW
 RED
 RED-YELLOW
 RED

MONTGOMERY WARD & CO.

MODELS 93BR454A, 93BR1455A
Series A
Schematic, Voltage, Socket
Trimmers



Schematic Part
Ref. No. No. Description

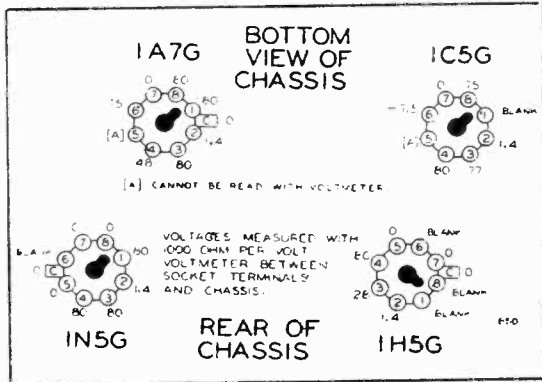
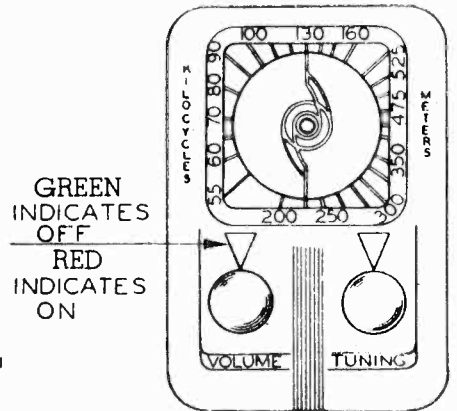
- RESISTORS**
- R1 BE1309 200M ohm— $\frac{1}{4}$ w.
 - R2 BE13071 4M ohm— $\frac{1}{4}$ w.
 - R3 BE130208 40M ohm— $\frac{1}{4}$ w.
 - R4 BE13026 1000 ohm— $\frac{1}{4}$ w.
 - R5 BE13020 100M ohm— $\frac{1}{4}$ w.
 - R6 BE13026 1000 ohm— $\frac{1}{4}$ w.
 - R7 BE13040 19M ohm— $\frac{1}{4}$ w.
 - R8 BE13038 2 megohm— $\frac{1}{4}$ w.
 - R9 BE13038 2 megohm— $\frac{1}{4}$ w.
 - R10 BE101163 1 megohm volume control
 - R11 BE13038 2 megohm— $\frac{1}{4}$ w.
 - R12 BE1313 500M ohm— $\frac{1}{4}$ w.
 - R13 BE130283 750 ohm— $\frac{1}{4}$ w.
 - R14 BE13019 1 megohm— $\frac{1}{4}$ w.
 - R15 BE130218 5M ohm— $\frac{1}{4}$ w.

- CONDENSERS**
- C BE102103 2 gang variable condenser
 - C1 BE10022 .05 x 200 v.
 - C2 .05 x 200 v.
 - C3 Loop ant. trimmer on gang

Schematic Part
Ref. No. No. Description

- C4 BE12912 .00025 mica
- C5 BE10022 .05 x 200 v.
- C6 BE10078 .01 x 200 v.
- C7 BE10078 .01 x 200 v.
- C8 BE10078 .01 x 200 v.
- C9 BE10064 .25 x 200 v.
- C10 BE1295 .0001 mica
- C11 BE1295 .0001 mica
- C12 BE10078 .01 x 200 v.
- C13 BE12912 .00025 mica
- C14 BE10078 .01 x 200 v.
- C15 BE11935 25 mid. 25 w v. lytic
- C16 BE10056 .5 x 200 v.
- C17 BE10012 .003 x 600 v.

- PARTS**
- T1 BE1236 Antenna load coil (on loop)
 - T2 BE120257 Loop antenna coil (complete)
 - T3 BE110110 Oscillator coil
 - T4 BE108142 Input I. F. coil
 - T5 BE108143 Output I. F. coil
 - T6 BE114158 5" P. M. Speaker



FOR ALIGNMENT
SEE INDEX

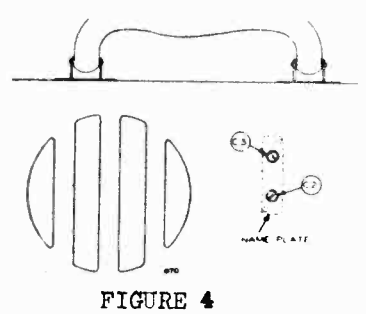
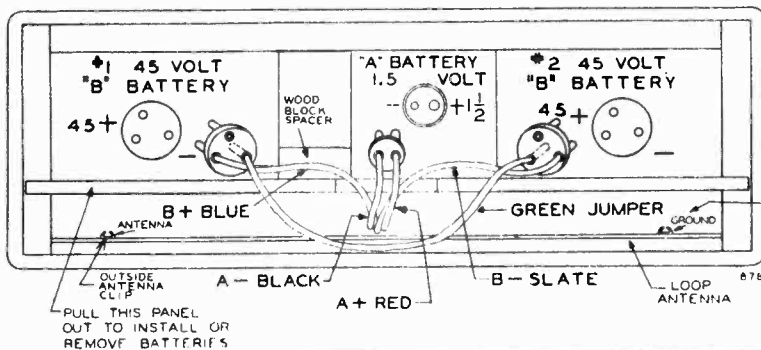
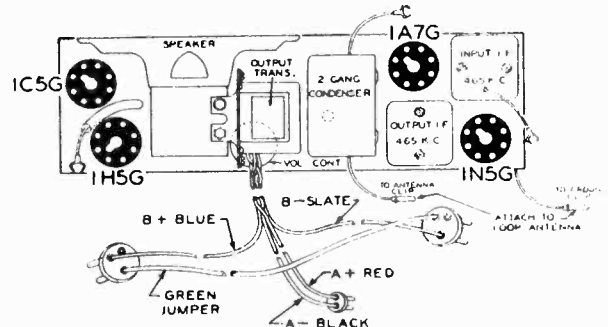
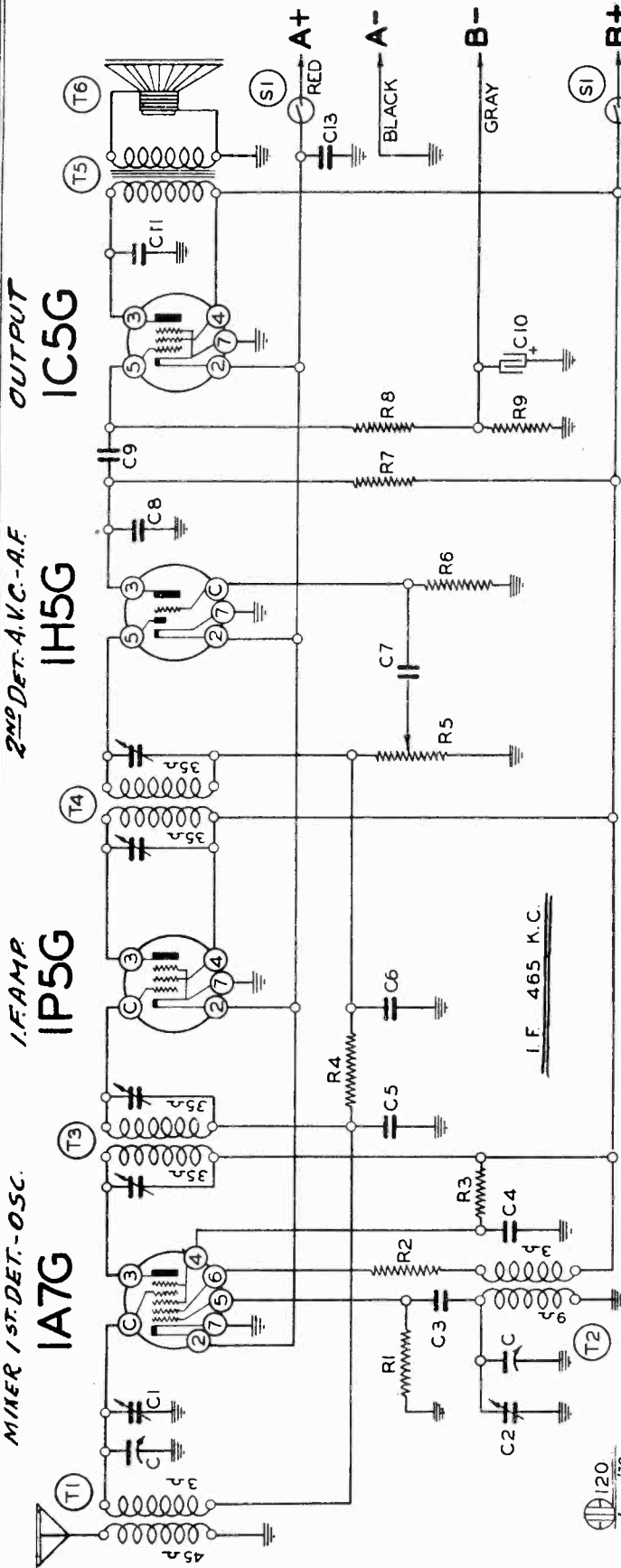
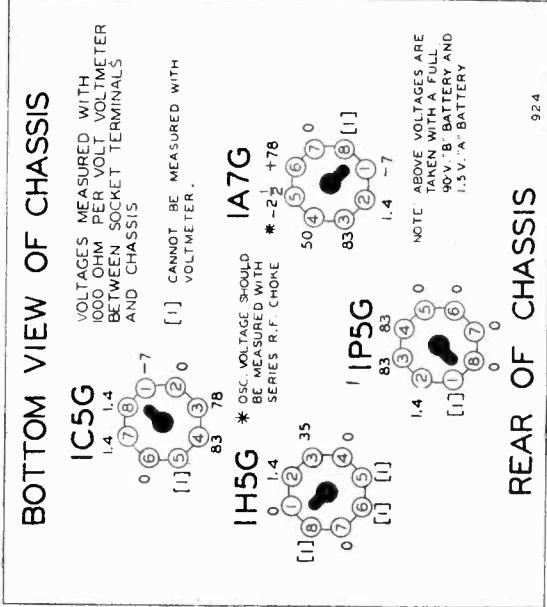


FIGURE 4

MODELS 93BR460A, 93BR1460A
 Schematic, Voltage, Socket TRIMMERS MONTGOMERY WARD & CO.



FOR ALIGNMENT
 SEE INDEX



- RESISTORS**
- R1 BE130266 200M ohm-1/4 w.
 - R2 BE13018 4M ohm-1/4 w.
 - R3 BE1307 40M ohm-1/4 w.
 - R4 BE1304 3 megohm-1/4 w.
 - R5 BE100175 1 megohm volume control
 - R6 BE130257 5 megohm-1/4 w.
 - R7 BE1303 500M ohm-1/4 w.
 - R8 BE13019 1 megohm-1/4 w.
 - R9 BE130200 700 ohm-1/4 w.
- CONDENSERS**
- C1 BE102110 2 gang variable condenser
 - C2 Antenna Trimmer on gang
 - C3 Oscillator trimmer on gang
 - C4 .0025 mica
 - C5 .05 x 200 v.
 - C6 .05 x 200 v.
 - C7 BE1295 .0001 mica
 - C8 BE10012 .003 x 600 v.
 - C9 BE1295 .0001 mica
 - C10 BE10011 .01 x 400 v.
 - C11 BE11975 10 mid x 25 w. v.
 - C12 BE10012 .003 x 600 v.
 - C13 BE10064 .25 x 200 v.
 - BE10020 .1 x 200 v.
 - T1 BE11132 Antenna Coil
 - T2 BE110122 Oscillator Coil
 - T3 BE108151B Input I.F. - 465 kc.
 - T4 BE108153 Output I.F. - 465 kc.
 - T5 BE10591 Output Transformer
 - T6 BE114166 5" P. M. Speaker
- Off-on switch on Volume control

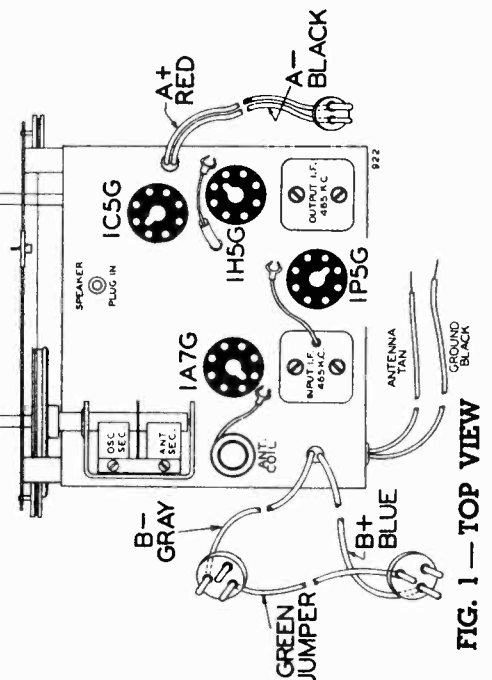
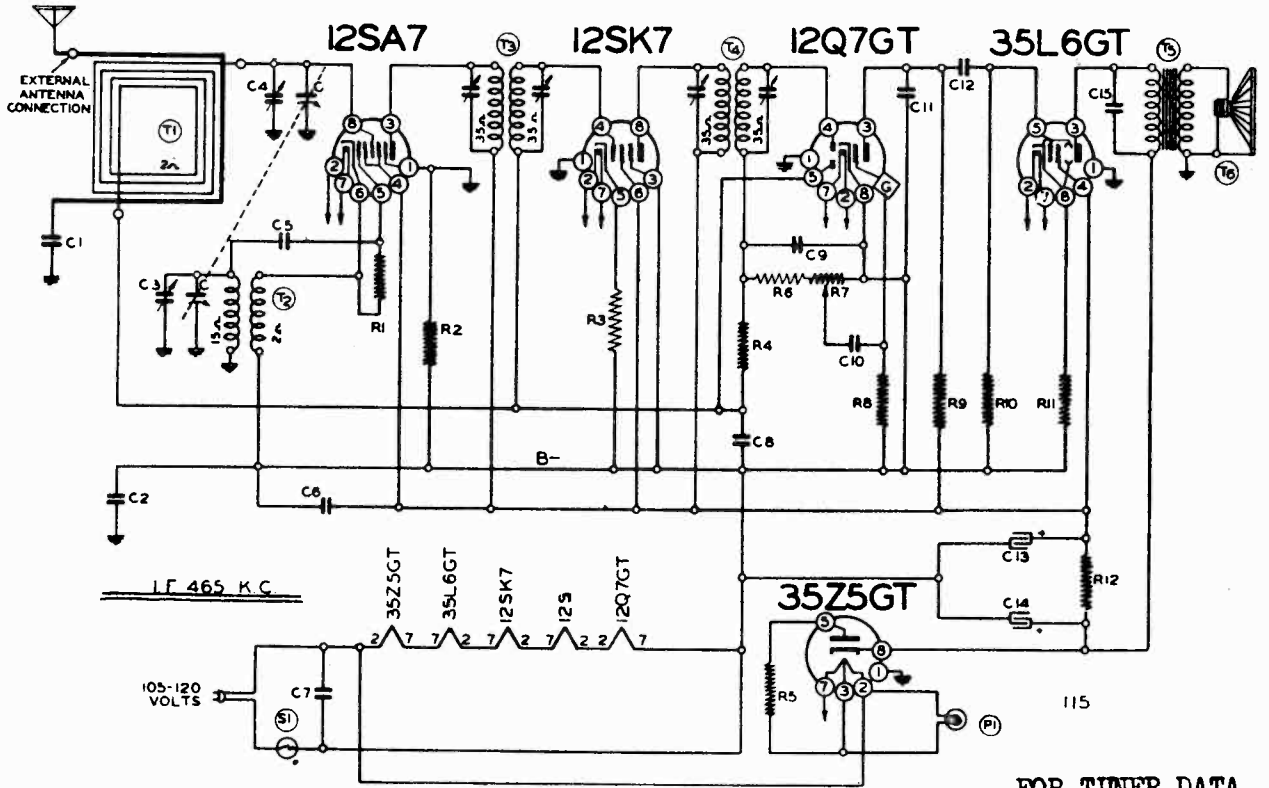


FIG. 1 - TOP VIEW

REAR OF CHASSIS

MONTGOMERY WARD & CO. MODELS 93BR508A, 93BR509A
Schematic, Voltage, Socket
Trimmers



FOR TUNER DATA
SEE INDEX.

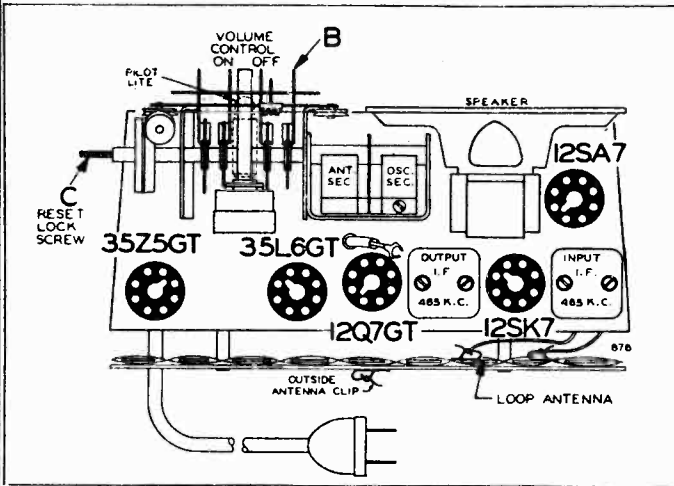


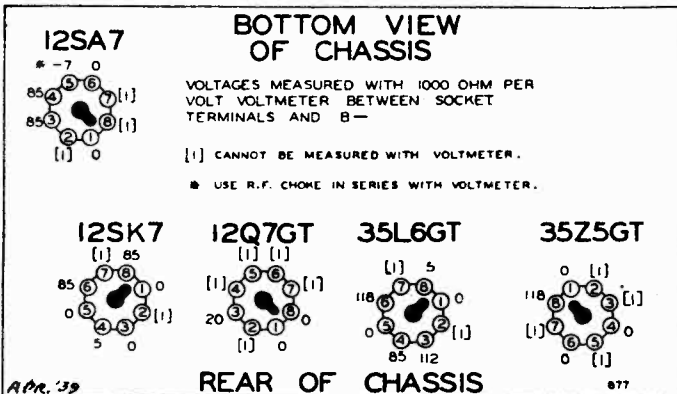
FIG. 1—TOP VIEW

Schematic Ref. No.	Part No.	Description
RESISTORS		
R1	BE130176	20M ohm— $\frac{1}{2}$ w.—10%
R2	BE1309	200M ohm— $\frac{1}{2}$ w.
R3	BE130203	40 ohm— $\frac{1}{2}$ w.—10%
R4	BE1304	3 megohm— $\frac{1}{2}$ w.
R5	BE130215	25 ohm— $\frac{1}{2}$ w.
R6	BE1301	25M ohm— $\frac{1}{2}$ w.
R7	BE101170	1 megohm—volume control
R8	BE130257	5 megohm— $\frac{1}{2}$ w.
R9	BE1303	500M ohm— $\frac{1}{2}$ w.
R10	BE1303	500M ohm— $\frac{1}{2}$ w.
R11	BE130166	150 ohm— $\frac{1}{2}$ w.
R12	BE130199	1500 ohm—1 watt
CONDENSERS		
C	BE102107	2 gang variable condenser
C1	BE10011	.01 x 400 v.
C2	BE10091	.15 x 400 v.
C3		Osc. Trimmer on Gang
C4		Antenna Trimmer on Gang
C5	BE12921	.0002 mica

Schematic Ref. No.	Part No.	Description
C6	BE1009	.05 x 200 v.
C7	BE1001	.1 x 400 v.
C8	BE1009	.05 x 200 v.
C9	BE1295	.0001 mica
C10	BE10025	.002 x 600 v.
C11	BE12912	.00025 mica
C12	BE100106	.004 x 600 v.
C13	BE11987	30 mfd. lytic
C14	BE11987	30 mfd. lytic
C15	BE10026	.02 x 400 v.

PARTS

T1	BE111128	Loop Antenna
T2	BE110116	Oscillator Coil
T3	BE108140E	Input I. F.
T4	BE108141B	Output I. F.
T5	BE10589	Output Transformer
T6	BE114160	5" P. M. Speaker
S1		Off-on switch on vol. control
P1	BE107249	6-8 v. pilot light T-47



REAR OF CHASSIS

The tube complement of this chassis consists of the following octal base glass and metal tube.
The type and function of each tube is as follows.
1—Type 12SA7 Mixer, First Detector-oscillator.
1—Type 12SK7 I. F. Amplifier.
1—Type 12Q7GT Second Detector, A.V.C. and First Audio.
1—Type 35L6GT Beam Output Amplifier.
1—Type 35Z5GT High Vacuum Rectifier.

MODELS 93BR508A, 93BR509A
 MODEL 93BR564A
 Alignment

MONTGOMERY WARD & CO.

CHASSIS No. 93-BR-508A and 93-BR-509A

Power Consumption 40 Watts
 Power Output 800 Milliwatts Undistorted
 Sensitivity (for .05 Watts Output) - 250 Microvolts
 Per Meter at 1000 KC.
 (For Loop Antenna)

Selectivity - 70 KC Broad at 1000 Times Signal at 1000 KC
 Tuning Frequency Range 540 to 1650 KC
 Intermediate Frequency 465 KC
 Speaker 5 in. P. M. Dynamic

ALIGNMENT PROCEDURE

IMPORTANT: See Aligning Instructions on Page 4.

- Volume control—Maximum all adjustments.
- Connect B of radio chassis to ground post of signal generator through .1 Mfd. condenser.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

- The following equipment is required for aligning.
- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver
- Dummy antennas—1 Mfd.

BAND	SIGNAL GENERATOR Frequency Setting	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc. 465 Kc.	Grid of 12SK7 I. F. Tube Grid of 12SA7	Rotor full open (Plates out of mesh) Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1) Two trimmers on top (See Fig. 1)	Output I. F. Input I. F.	(See Note "A") Adjust to maximum output (See Note "A") Adjust to maximum output
BROAD-CAST BAND	1650 Kc. 1400 Kc.	Grid of 12SA7 (See Note "B" and "C")	Rotor full open (Plates out of mesh) Set dial at 1400 Kc.	Trimmer—Bottom of rear section of gang (See Bottom of Radio) Trimmer—Bottom of front section of gang (See Bottom of Radio)	Oscillator Antenna	(See Note "A") Adjust to maximum output (See Note "B") Adjust to maximum output

NOTE "A"—A 200M ohm resistor must be connected between the two loop antenna leads from the chassis when aligning the I. F. transformers and setting the oscillator trimmer. The loop antenna must be disconnected from the chassis.

NOTE "B"—Remove the 200M ohm resistor from the loop antenna leads; mount the chassis and trimmer in the cabinet and connect the loop antenna to the chassis. Adjust the antenna trimmer through hole in bottom of cabinet.

NOTE "C"—Lay the output lead from the signal generator in back of the loop antenna. Turn up the output of the generator, picking up the energy in the loop antenna without any electrical connection from the signal generator.

MODEL 93BR508A
 " 93BR509A

ALIGNMENT PROCEDURE

Model No. 93BR-564A

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

- The following equipment is required for aligning.
- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 mfd., 200 mmi.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc. 465 Kc.	.1 MFD. .1 MFD.	Grid of 6K7 I. F. Tube Grid of 6D8G	Rotor full open (Plates out of mesh) Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1) Two trimmers on top (See Fig. 1)	Output I. F. Input I. F.	Adjust to maximum output (See Fig. 1) Adjust to maximum output
BROAD-CAST BAND	1730 Kc. 1400 Kc.	200 mmi. 300 mmi.	Antenna Lead Antenna Lead	Rotor full open (Plates out of mesh) Set dial at 1400 Kc.	Trimmer—Top of rear section of gang (See Fig. 1) Trimmer—Bottom of front section of gang (See Fig. 1)	Broadcast Antenna Broadcast	Adjust to maximum output Adjust to maximum output

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each band is completed, repeat the procedure as a final check.

Power Consumption 40 Watts (at 117 Volts 50/60 Cycles)
 Power Output 2.5 Amp. at 6.3 Volts
 Sensitivity (for .05 Watts Output)6 Watts Undistorted
 Selectivity - 45 KC Broad at 1000 Times Signal at 1000 KC
 Tuning Frequency Range 535 to 1735 KC
 Intermediate Frequency 465 KC
 Speaker 6 in. P. M. Dynamic

MONTGOMERY WARD & CO.

MODEL 93BR560A
Schematic, Voltage
Socket, Trimmers

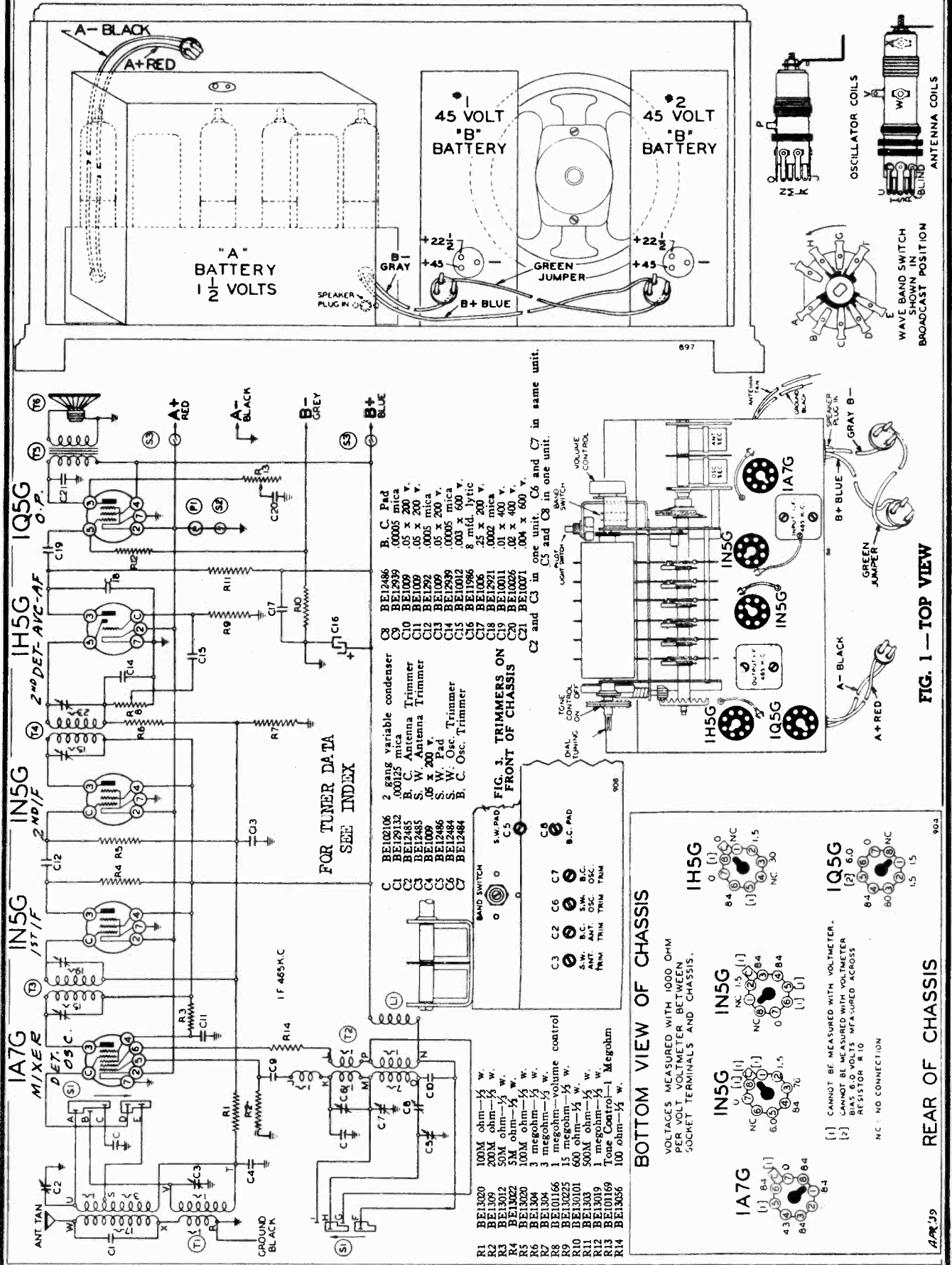


FIG. 1 — TOP VIEW

REAR OF CHASSIS

APR 39

Chassis No. 93BR560A

Power Consumption . . . "A" Battery 300 MA; "B" Battery 11 MA.
 Power Output 190 Milliwatts, Undistorted
 Sensitivity (for .05 Watts) - { Broadcast Band—10 Microvolts Average
 Short Wave Band—20 Microvolts Average

Selectivity 35 Kc. Broad at 1000 Times Signal at 1000 Kc.
 Tuning Range - Broadcast 535—1720 Kc.; Shortwave 5.6—18.3 Mc.
 Intermediate Frequency 465 Kc.
 Speaker 6 in. P. M. Dynamic

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna valve in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

- The following equipment is required for aligning:
- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 mf., 200 mmf. and 400 ohms.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1N5G 2nd I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1A7G 1st I.F. Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output (See Note "A")
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 17 Mc.	Trimmer C6 (See Fig. 3)	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 17 Mc.	Trimmer C3 (See Fig. 3)	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 6 Mc.	Trimmer C5 (See Fig. 3)	Short Wave oscillator series pad	Adjust to maximum rock dial. (See note "B")
BROADCAST BAND	1720 Kc.	200 mmf.	Antenna lead	Broadcast	Rotor full open (Plates out of mesh)	Trimmer C7 (See Fig. 3)	Broadcast oscillator	Adjust to maximum output
	1400 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1400 Kc.	Trimmer C2 (See Fig. 3)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer C8 (See Fig. 3)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "B")

NOTE "A" Do not re-adjust the trimmers on the output I. F. Transformer.

NOTE "B" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each band is completed, repeat the procedure as a final check.

Model No. 93BR-460A and 93BR-1460A

Power Consumption . . . "A" Battery 260 MA; "B" Battery 11.5 MA.
 Power Output 150 Milliwatts, Undistorted
 Sensitivity (for .05 Watts) 45 Microvolts Average

Selectivity 45 Kc. Broad at 1000 Times Signal at 1000 Kc.
 Tuning Range 535 to 1730 Kc.
 Intermediate Frequency 465 Kc.
 Speaker 5 in. P. M. Dynamic

ALIGNMENT PROCEDURE

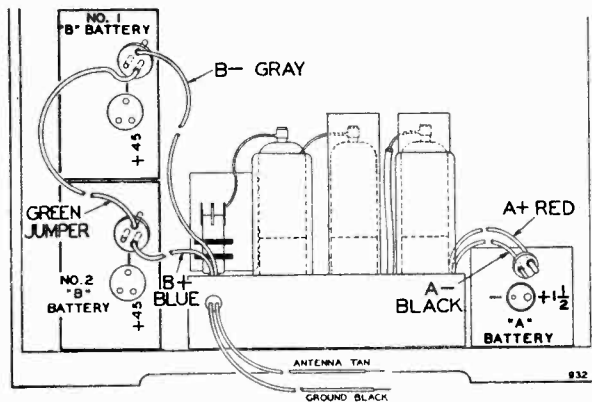
- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna valve in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

- The following equipment is required for aligning:
- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 mf., 200 mmf.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1P5G I. F. Tube	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1A7G	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROADCAST BAND	1730 Kc.	200 mmf.	Antenna lead	Rotor full open (Plates out of mesh)	Trimmer—Top of front section of gang (See Fig. 1)	Oscillator	Adjust to maximum output
	1400 Kc.	200 mmf.	Antenna lead	Set dial at 1400 Kc.	Trimmer—Top of rear section of gang (See Fig. 1)	Antenna	Adjust to maximum output

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each band is completed, repeat the procedure as a final check.



STEP 1—CONNECTING "A" BATTERY:

First—Place the "A" Battery in the cabinet as shown, (alongside right hand side of the radio chassis).
 NEXT—Insert the special two-prong connector plug into the socket on the "A" battery as shown in illustration.

STEP 2—CONNECTING "B" BATTERIES:

First—Place both "B" Batteries in the cabinet exactly as shown (alongside left hand side of the radio chassis).
 NEXT—Insert the special three-prong connector plugs into the sockets on the "B" batteries as shown in illustration.

NOTE: The above procedure and illustration pertains to the new style "B" batteries which have sockets; however, the old style "B" batteries which have terminals can be used by connecting them as follows:

FIRST—Remove the special plugs by cutting the wires off at the plugs.

NEXT—Connect gray colored B minus (—) wire to minus (—) terminal of "B" battery (marked Battery No. 1 in illustration).

NEXT—Connect one end of green connecting wire to plus (+45) terminal of battery No. 1 and other end to the minus (—) terminal of Battery No. 2.

NOW—Connect blue B plus (+) wire to the plus (+45) terminal of Battery No. 2.

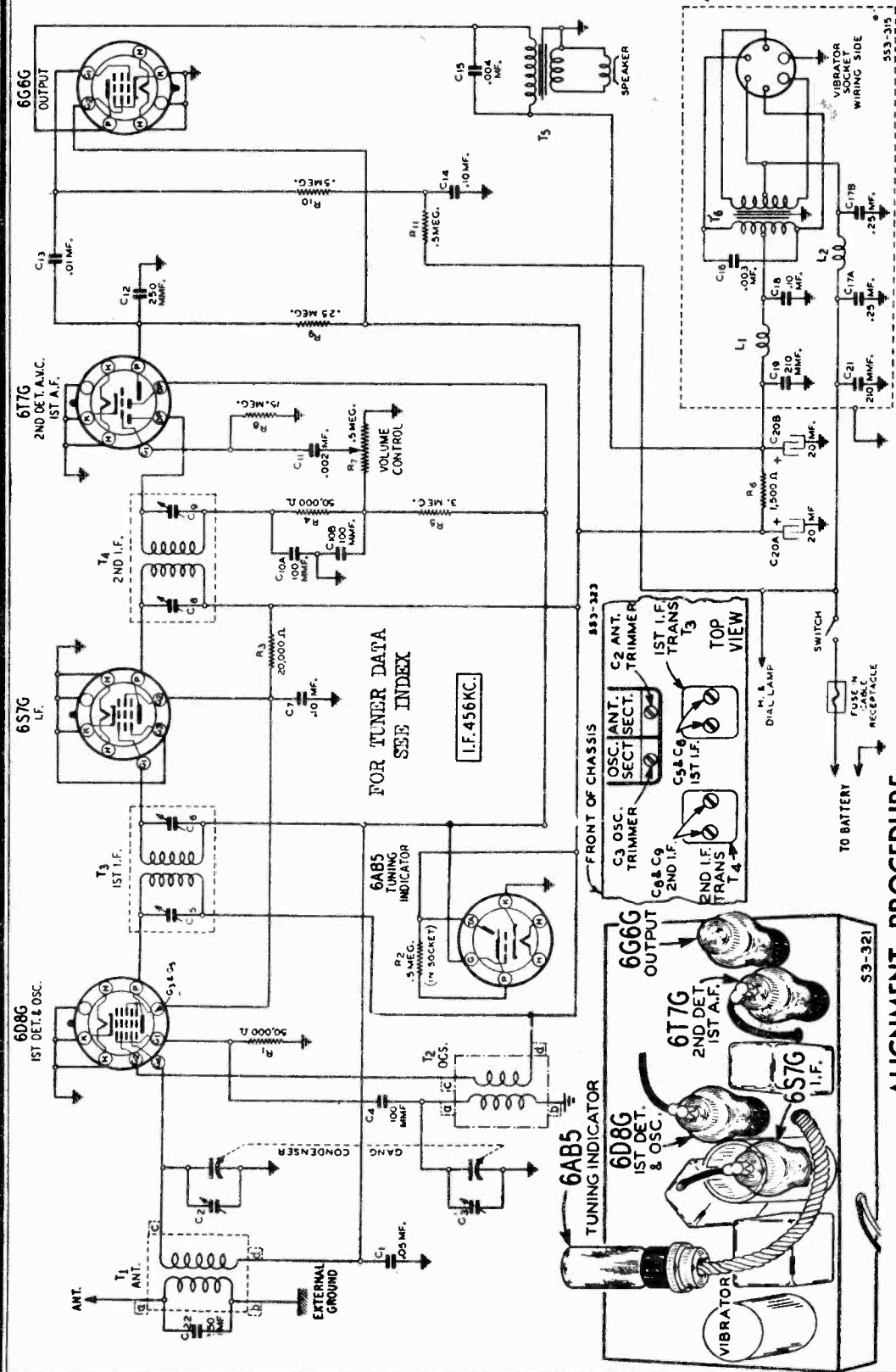
MONTGOMERY WARD & CO.

MODEL 93WG562
Schematic, Socket
Alignment, Trimmers

SPECIFICATIONS

Power Consumption - 2.2 Amperes at 6.3 Volts
Power Output - 5 Watt Undistorted
10 Watt Maximum
Selectivity - 41 KC Broad at 1000 times Signal

Intermediate Frequency - 456 KC
Speaker - 5" P. M. Dynamic
Tuning Frequency Range - 528 to 1730 KC.
Sensitivity (For .05 Watt Output) 15 Microvolts Average



CALIBRATION—If it is necessary to calibrate the radio, accurately tune in a signal of known frequency near 800 KC and note distance and direction dial is off calibration. Remove chassis from cabinet. Loosen the 2 set screws in the hub at the side of the dial drum nearest the center of the chassis. Turn the dial drum the necessary amount in required direction. Place the chassis back in the cabinet and see if it is in calibration. If it is, remove the chassis, tighten the set screws and re-assemble.

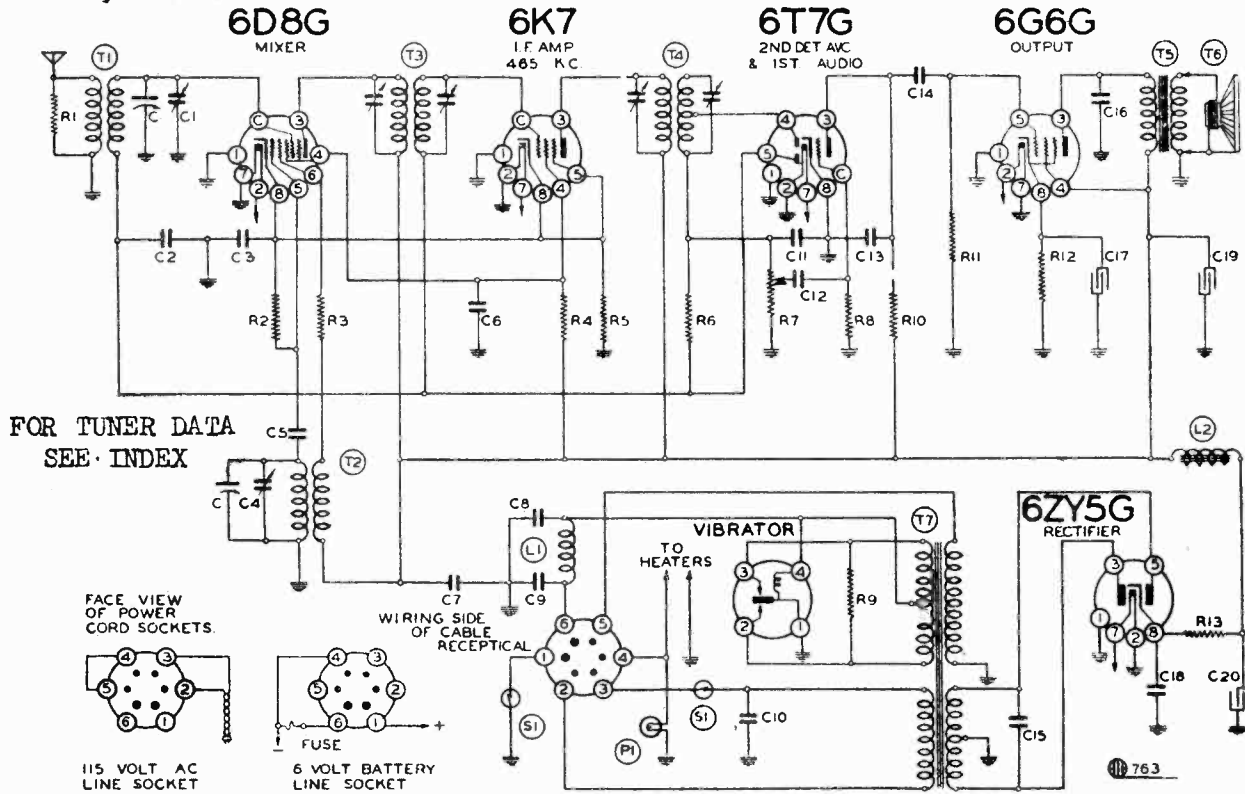
ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments. Allow Chassis and Signal Generator to "Heat Up" for several Minutes.

SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)	CONDENSER SETTING
456 KC	Signal Grid of 1st Det.	.1 mf.	Turn rotor to full open	1st I.F. (C5) & (C6) 2nd I.F. (C8) & (C9)
1730 KC	Grid of 1st Det.	.1 mf.	Turn rotor to full open	Oscillator (C3)
1500 KC	Antenna Lead	200 mmf.	Turn rotor to max. output	Antenna (C2)

MODEL 93BR564A
Schematic, Voltage
Socket, Trimmers

MONTGOMERY WARD & CO.



BOTTOM VIEW OF CHASSIS

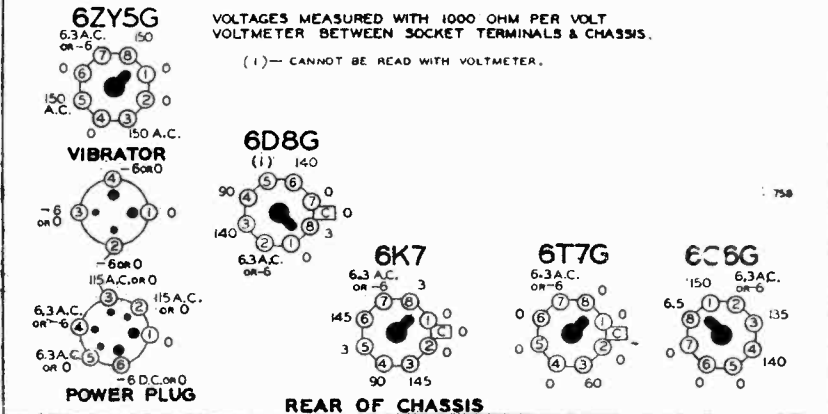


FIG. 3

Schematic Reference No.	Part No.	Description
RESISTORS		
R1	BE13017	10M ohm-1/4 w.
R2	BE13012	50M ohm-1/2 w.
R3	BE13092	1000 ohm-1/4 w.
R4	BE130157	12M ohm-1/4 w.
R5	BE13097	200 ohm-1/4 w.
R6	BE1304	3 megohm-1/4 w.
R7	BE101150	1 megohm volume control
R8	BE130225	15 megohm-1/4 w.
R9	BE13097	200 ohm-1/4 w.
R10	BE130266	200M ohm-1/4 w.
R11	BE130102	500M ohm-1/4 w.
R12	BE13093	450 ohm-1/4 w.
R13	BE130168	100 ohm-1/4 w.
CONDENSERS		
C	BE102113	2 gang variable condenser. Antenna Trimmer
C1		
C2	BE1009	.05 x 200 v.
C3	BE10064	.25 x 200 v.
C4		Oscillator Trimmer
C5	BE1295	.0001 mica
C6	BE10020	.1 x 200 v.
C7	BE10020	.1 x 200 v.
C8	BE10040	.5 x 120 v.
C9	BE10040	.5 x 120 v.
C10	BE10011	.01 x 400 v.
C11	BE12960	.00015 mica
C12	BE10011	.01 x 400 v.
C13	BE1292	.0005 mica
C14	BE1009	.05 x 200 v.
C15	BE10073	.008 x 1200 v.
C16	BE10019	.006 x 600 v.
C17	BE11979	20 mfd. x 25 w. volt
C18	BE10020	.1 x 200 v.
C19	BE11979	16 mfd. x 200 w. volt
C20	BE11979	16 mfd. x 200 w. volt

Schematic Reference No.	Part No.	Description
PARTS		
T1	BE11185C	Antenna Coil
T2	BE110103	Oscillator Coil
T3	BE108129	Input I. F. Coil-465 kc.
T4	BE108130	Output I. F. Coil-465 kc.
T5	BE10569B	Output Transformer
T6	BE114143B	6" P. M. Speaker
T7	BE104114B	Power Transformer
S1		Off-on switch on volume control
P1	BE107249	6.3 v. Pilot Light Type 47
L1	BE10568	"A" Choke
L2	BE10530G	"B" Choke

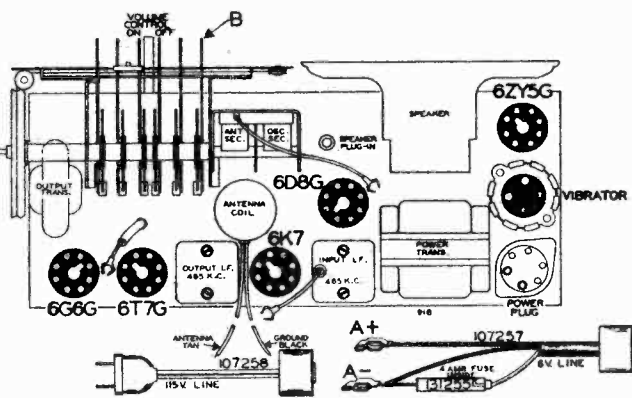


FIG. 1--TOP VIEW

MONTGOMERY WARD & CO. SPECIFICATIONS

MODELS 93WG602, 93WG603

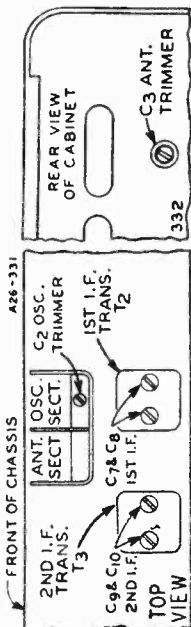
Schematic, Voltage Socket, Trimmers

Power Consumption - 28 Watts (At 117 volts AC Supply)
 Power Output - .8 Watt Undistorted
 Selectivity - 50 KC Broad at 1000 times Signal
 Intermediate Frequency - 456 KC

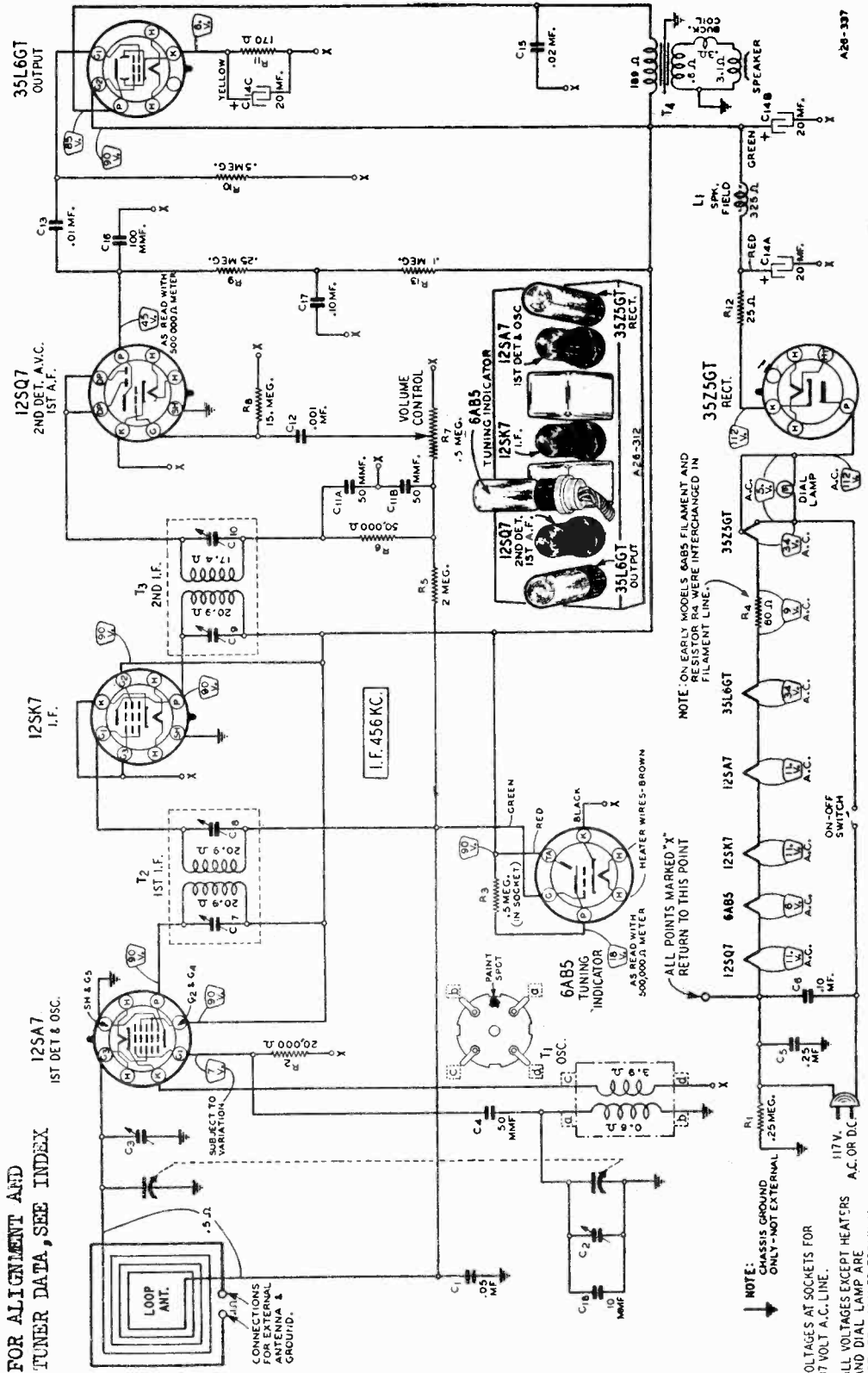
Speaker - 5" Electro Dynamic
 Tuning Frequency Range - 528 to 1730 KC
 Sensitivity - 40 Microvolts per Meter Average
 (For .05 Watt Output)

Caution

The metal chassis is connected to one side of the line through a .25 mfd. condenser. Both AC and DC power lines are generally grounded on one side. If the side of the line not connected to the metal chassis through this condenser is grounded and the metal chassis comes in contact with an external ground, this condenser will be connected across the line and there will be an increase in hum. Therefore, in any service work on the chassis, keep it on a wood or other insulated surface to avoid contacts with ground. The person working on the set should avoid getting in contact with any ground.



FOR ALIGNMENT AND TUNER DATA, SEE INDEX



NOTE: ON EARLY MODELS 6AB5 FILAMENT AND RESISTOR R4 WERE INTERCHANGED IN FILAMENT LINE.

ALL POINTS MARKED "X" RETURN TO THIS POINT

NOTE: CHASSIS GROUND ONLY-NOT EXTERNAL 117V. A.C. OR D.C. VOLTAGES AT SOCKETS FOR ALL VOLTAGES EXCEPT HEATERS AND DIAL LAMP ARE BETWEEN SOCKET TERMINAL 2-B (INDICATED BY "X")

Use ONLY a No. 51 dial lamp.

MODEL 93BR713A
Schematic, Voltage
Socket, Trimmers

MONTGOMERY WARD & CO.

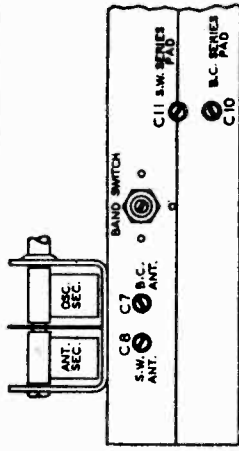


Fig. 3. FRONT VIEW

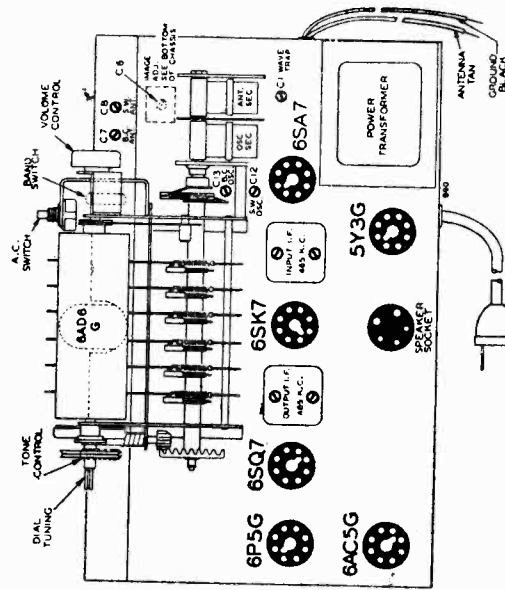
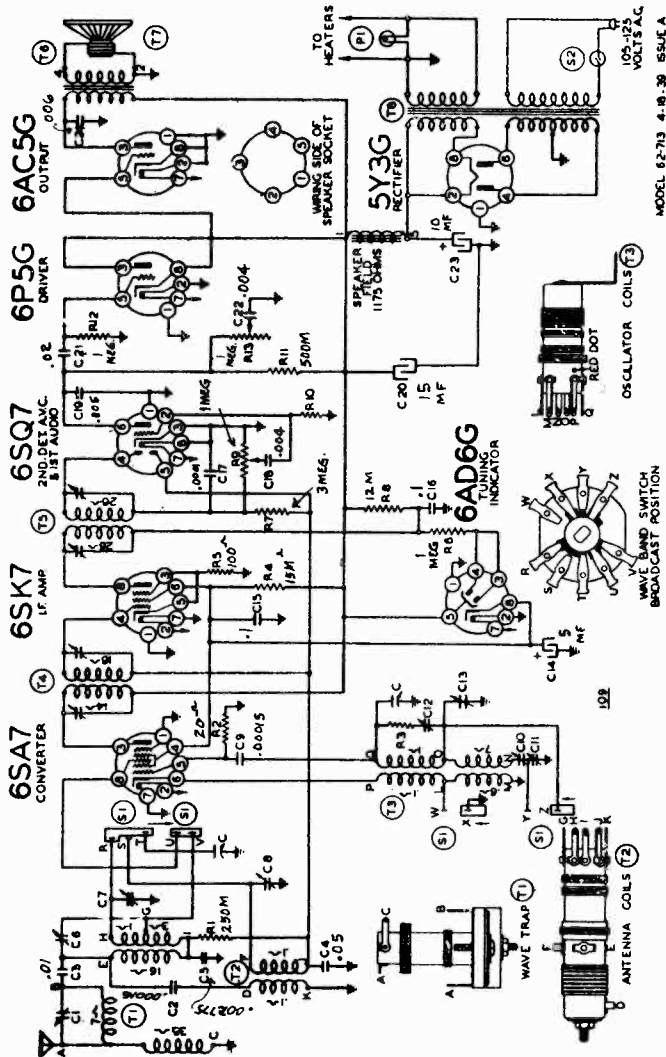


FIG. 1-TOP VIEW

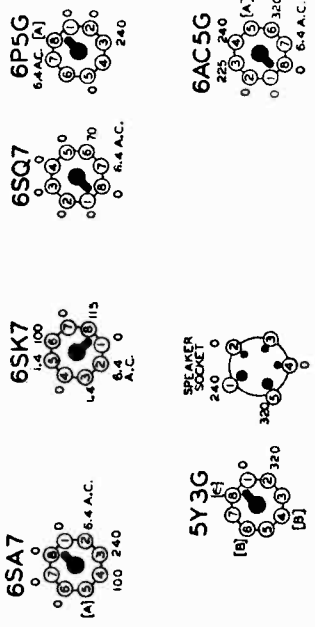
- Power Consumption - - - - - 65 Watts
- Power Output - - - - - 2.5 Watts Undistorted
- Sensitivity (for .5 Watts Output) - - 60 Microvolts Average
- Selectivity - 45 KC Broad at 1000 Times Signal at 1000 KC
- Tuning Frequency Range - - - - - { 535 to 1730 KC
- Intermediate Frequency - - - - - { 5.5 to 18.3 MC
- Speaker - - - - - 6 in. Electro Dynamic



IF PEAK
466 KC

FOR ALIGNMENT AND
TUNER DATA, SEE INDEX
BOTTOM VIEW OF CHASSIS

TUNING EYE
VOLTAGE MEASURED WITH
1000 OHM PER VOLT VOLT-
METER BETWEEN SOCKET
TERMINALS AND CHASSIS.
117 VOLT LINE
VOLUME CONTROL AT MINIMUM.
ANTENNA GROUND.



REAR OF CHASSIS

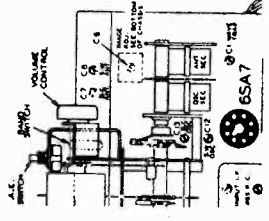
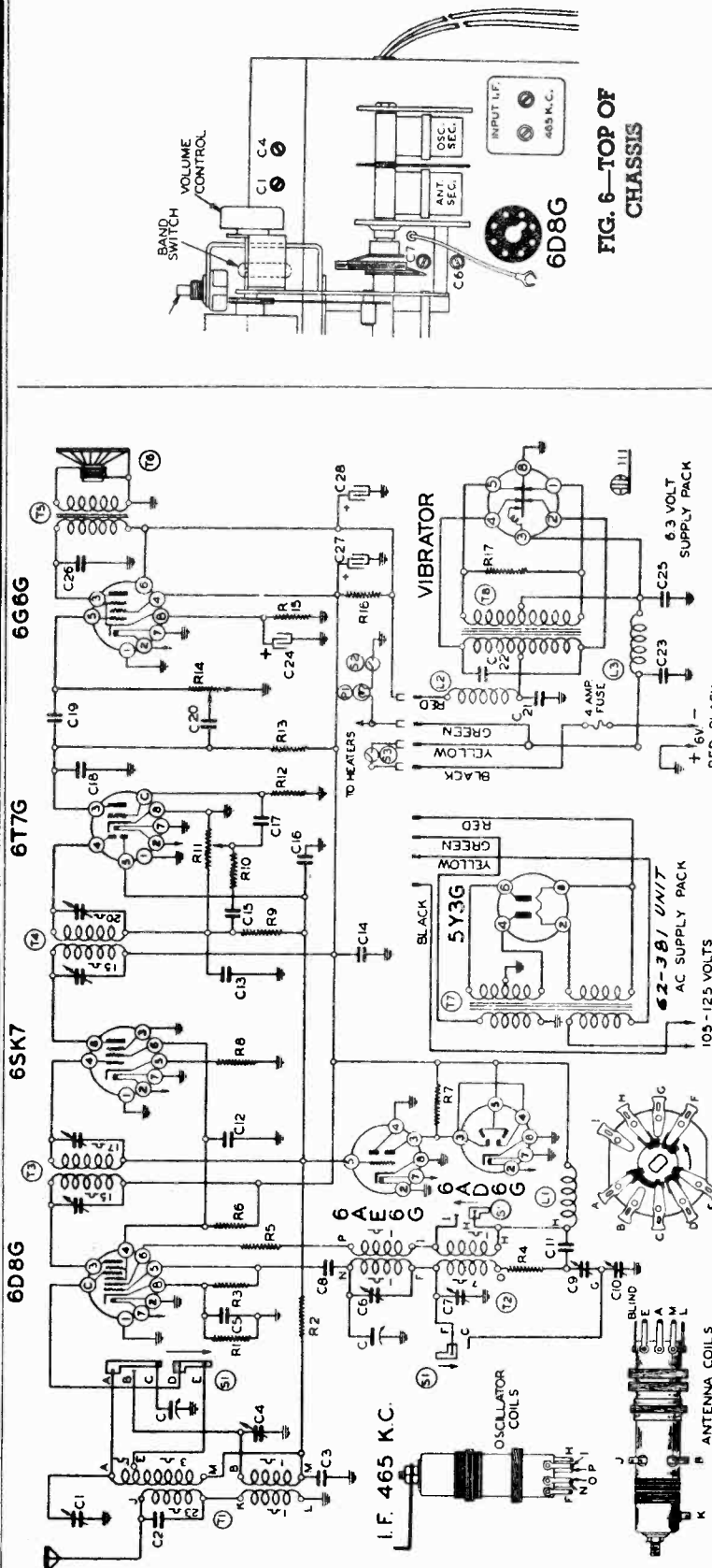


Fig. 4. TOP VIEW

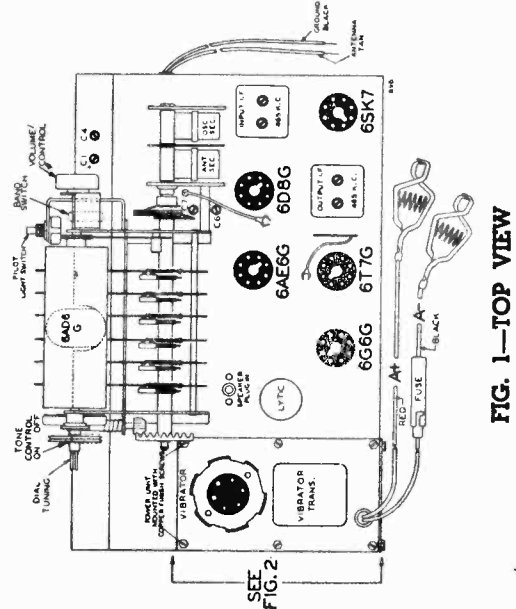
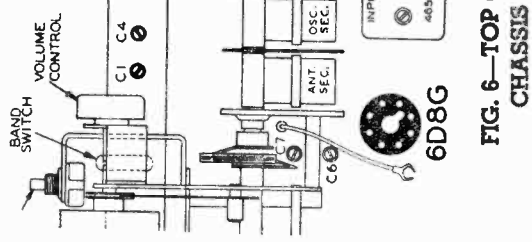
MONTGOMERY WARD & CO.

MODEL 93BR657A
Schematic, Voltage
Socket, Trimmers
MODEL 62-381 S.P.U.
Schematic



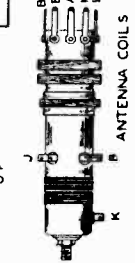
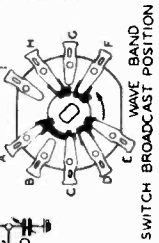
FOR TUNER DATA
SEE INDEX

6 TUBE 6 VOLT
2 BAND
- OR -
7 TUBE A.C.
WITH
62-381
A. C. POWER
UNIT



BOTTOM VIEW OF CHASSIS		REAR OF CHASSIS	
<p>6D8G</p> <p>130 75 0 ③ ④ ① 0 ② ⑤ ⑥ 0 ⑦ ⑧ ⑨ 2.2 6.0 D.C. 6.3 A.C.</p>	<p>6AE6G</p> <p>15 0 0 ③ ④ ① 0 ② ⑤ ⑥ 0 ⑦ ⑧ ⑨ 0 ⑩ ⑪ ⑫ 130 6.0 D.C. 15 6.3 A.C.</p>	<p>6SK7</p> <p>0 0 0 ③ ④ ① 0 ② ⑤ ⑥ 0 ⑦ ⑧ ⑨ 0 ⑩ ⑪ ⑫ 160 6.0 D.C. 0 50 6.3 A.C.</p>	<p>6G6G</p> <p>0 0 0 ③ ④ ① 0 ② ⑤ ⑥ 0 ⑦ ⑧ ⑨ 0 ⑩ ⑪ ⑫ 150 6.0 D.C. 0 55 6.3 A.C.</p>
<p>6T7G</p> <p>0 0 0 ③ ④ ① 0 ② ⑤ ⑥ 0 ⑦ ⑧ ⑨ 0 ⑩ ⑪ ⑫ 150 6.0 D.C. 0 50 6.3 A.C.</p>	<p>6AD6G</p> <p>0 0 0 ③ ④ ① 0 ② ⑤ ⑥ 0 ⑦ ⑧ ⑨ 0 ⑩ ⑪ ⑫ 150 6.0 D.C. 0 50 6.3 A.C.</p>	<p>5Y3G</p> <p>117 ③ ① ② ④ ⑤ ⑥ ⑦ ⑧ ⑨ 117 6.3 A.C. ⑩ ⑪ ⑫ 177 A.C.</p>	<p>VIBRATOR</p> <p>6.0 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ 6.0 6.0</p>

FIG. 1—TOP VIEW



MODEL 93BR657A Alignment MODEL 62-381 S.P.U. Chassis

MONTGOMERY WARD & CO.

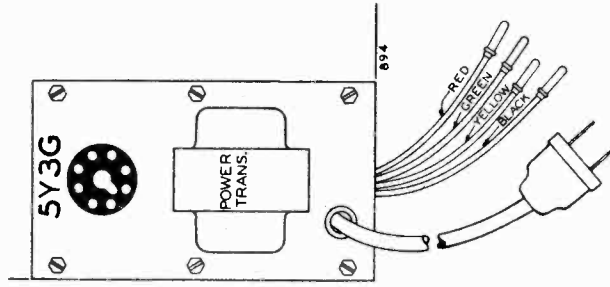


FIG. 2—MODEL 62-381 A. C. POWER UNIT

Model 62-381 Power Unit

(For 105-125 Volt 50/60 Cycle A. C. Operation)

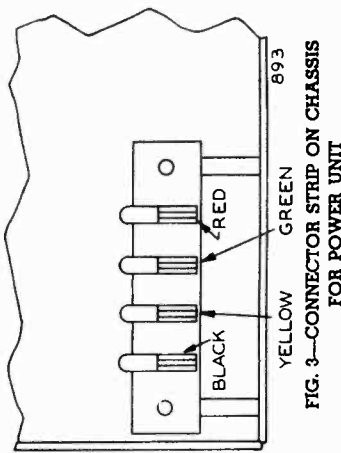


FIG. 3—CONNECTOR STRIP ON CHASSIS FOR POWER UNIT

Chassis No. 98BR657A

- Power Consumption 2.5 Amp. at 6.3 Volts
Power Output .6 Watts Undistorted
Sensitivity (for .05 Watts Output) Broadcast 10 Microvolts Average
Shortwave 20 Microvolts Average
Selectivity 35 KC Broad at 1000 Times Signal at 1000 KC
Tuning Frequency Range 535 to 1730 KC
Intermediate Frequency 5.6 to 18.3 MC
Speaker 8 in. P. M. Dynamic

Volume control—Maximum all adjustments.
Connect radio chassis to ground post of signal generator with a short heavy lead.
Connect dummy antenna in series with generator output lead.
Connect output meter across primary of output transformer.
Allow chassis and signal generator to "heat up" for several minutes.

Table with columns: BAND, SIGNAL GENERATOR Frequency Setting, Connection to Radio, Variable Condenser Setting, Trimmers Adjusted (in Order Shown), Trimmer Function, Adjustment.

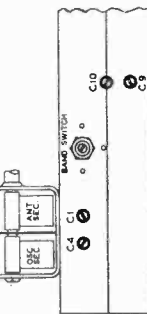


FIG. 5—FRONT OF CHASSIS

TUBES:

The following complement of this chassis consists of the following octal base glass and metal tubes:
The type and function of each tube is as follows:
1—Type 6DBG First Detector-oscillator.
1—Type 6SK7 Remote Cut-Off Pentode, I. F. Amplifier (465 K. C.).
1—Type 6T7G Duplex Diode Triode Second Detector, A.V.C. and First Audio.
1—Type 6G6 Output Amplifier.
1—Type 6AE6G D. C. Amplifier.
1—Type 6AD6G Cathode-Ray Tuning Eye.
NOTE:—If the 62-381 A. C. power unit is installed in place of the 6 volt power unit, the tube complement of the radio will consist of one more tube:
1—Type 5Y3G Rectifier.

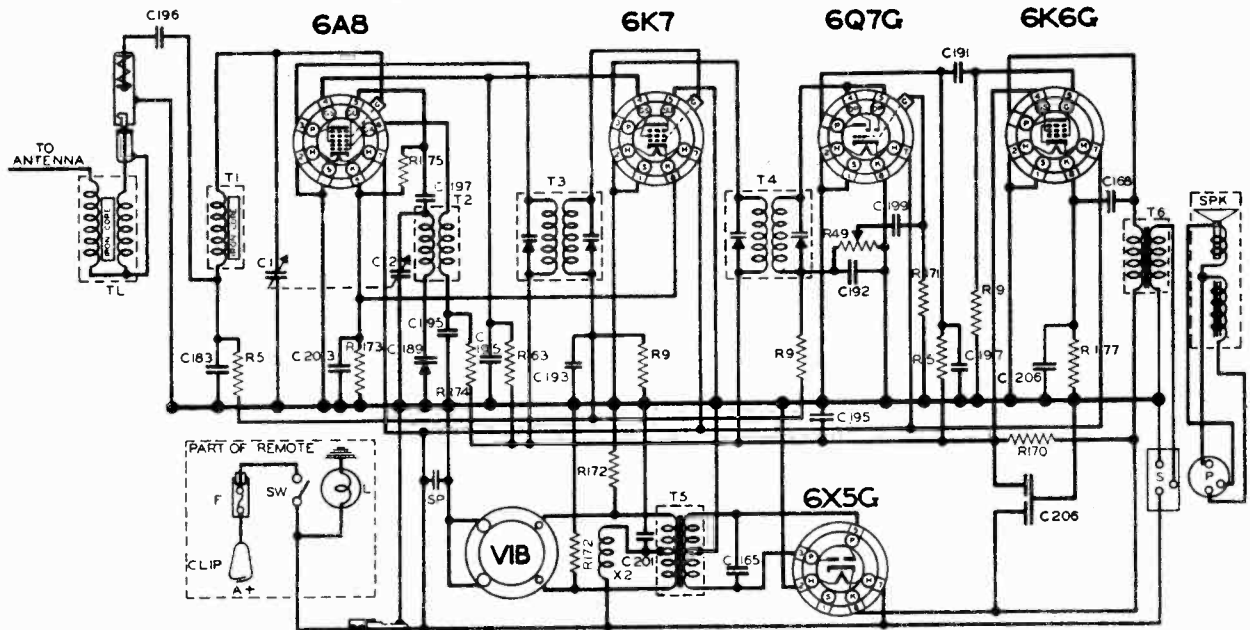
Table with columns: No., Part No., Description. Lists various resistors, capacitors, and parts like BE10200, BE1275, BE1295, etc.

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.
Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.
Alter: each band is completed, repeat the procedure as a final check.

Schematics
Voltage

NOBLITT-SPARKS INDUSTRIES, INC. MODEL 7A, Chassis RE44
MODEL 44C, Chassis RE46

ARVIN CAR RADIO CHASSIS RE44



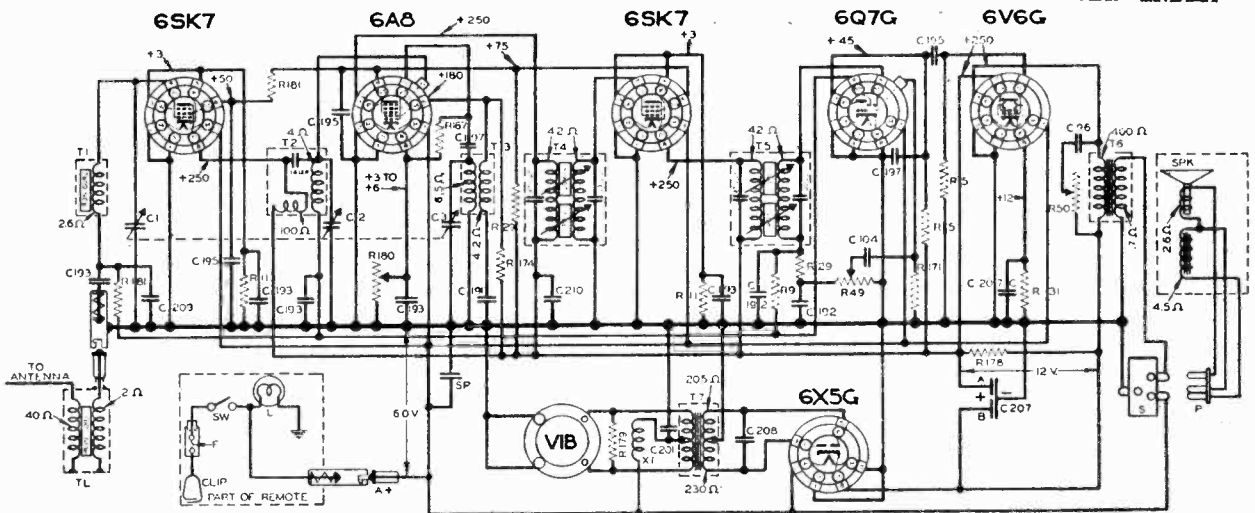
RESISTORS			CONDENSERS			CORES & TRANSFORMERS			MISCELLANEOUS UNITS		
R	OHMS	W	C	CAPACITANCE	VOLT	T-1	TYPE	PART NO.	SYMBOL	DESCRIPTION	PART NO.
5	500K	1/4	1	TWO GANG		1	ANTENNA COIL	00-19218	F	FUSE-20 AMP	17-2228
8	10K	1/4	2	500 P.F.	250	2	OSCILLATOR COIL	00-18220	L	DIAL LIGHT BULB - MAZDA NO. 51	17-3904
48	500K	1/4	185	.005	1200	3	FIRST I.F. COIL	00-18263	P	SPEAKER PLUG	17-4780
63	25K	1/4	183	.001	800	4	SECOND I.F. COIL	00-18284	S	SPEAKER SOCKET	17-5931
170	800	1/4	184	.001	700	5	POWER TRANS.	00-18285	SPR	SPEAKER ASSEMBLY	17-5370
171	10K	1/4	181	.001	450	6	OUTPUT TRANS.	00-18286	SW	POWER SWITCH	17-5370
172	100	1/4	192	.00025	200				TL	TRANSMISSION LINE	00-18233
173	200	1/4	193	.05	200				SP	SPEAKER PLATE	17-4741
174	20K	1/4	193	.05	400				VIB	VIBRATOR	17-4741
175	40K	1/4	196	.05	200						
177	850	1/4	197	.0001	800						
			199	.02	200						
			201	.5	150						
			203	.2	200						
			208	10-15MFD	30V						
			208	20MFD	15V						
			188	.307	400						

MODEL 7A

I.F. PEAK 455 K.C.
FREQUENCY RANGE 1575 TO 540 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.,
COLUMBUS, INDIANA

ARVIN CAR RADIO CHASSIS RE46

FOR ANTENNA DATA
SEE INDEX



R5--500K	R171--15M	C96--.05-600v.	C207A) 10mfd.-400v.
R9--1M	R174--20K	C104--.01-200v.	C207B) 20mfd.-25v.
R11--2K	R178--1200	C191--.01-400v.	C208--.005-1600v.
R29--50K	R179--100	C192--.00025-200v.	C209--.001725-600v.
R31--260	R180--2000	C193--.05-200v.	C210--.1-400v.
R49--500K	R181--100K	C195--.05-400v.	F-fuse-20 amp.
R50--100K	A111/4 W.	C197--.0001-600v.	L-Mazda No.51
R167--60K	but R31-1/2.	C201--.5-150v.	

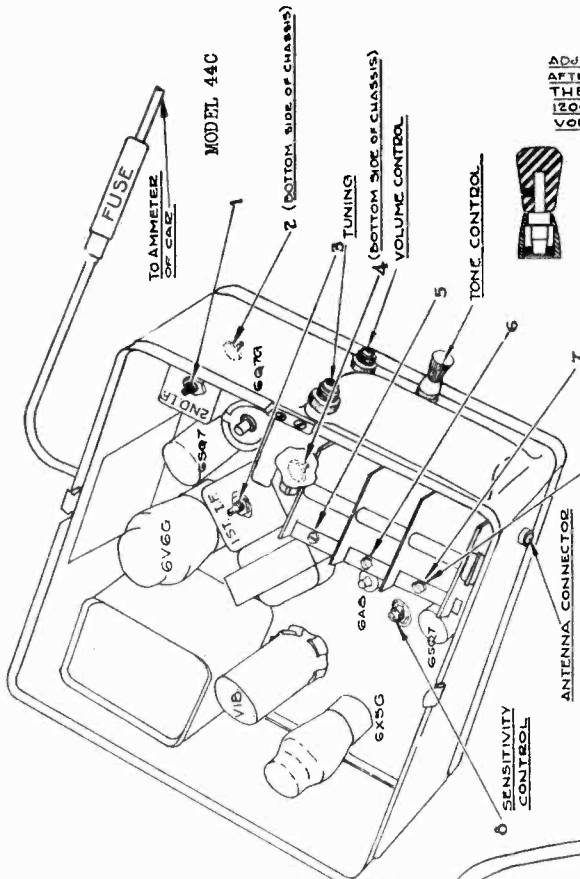
INTERMEDIATE FREQUENCY 170 K.C.
FREQUENCY RANGE 1570 TO 540 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.,
COLUMBUS, INDIANA.

MODEL 44C

NOTE - ALL VOLTAGES GIVEN
FOR "A" INPUT OF 6 VOLTS.
ALLOW 10% ON ALL
VOLTAGES & RESISTANCES
OF WINDING.

MODEL 7A, Chassis RE44 NOBLITT-SPARKS INDUSTRIES, INC.
 MODEL 44C, Chassis RE46

Alignment, Socket
 Sensitivity
 Trimmers



**BALANCING INSTRUCTIONS
 ARVIN MODEL 44C CAR RADIO**

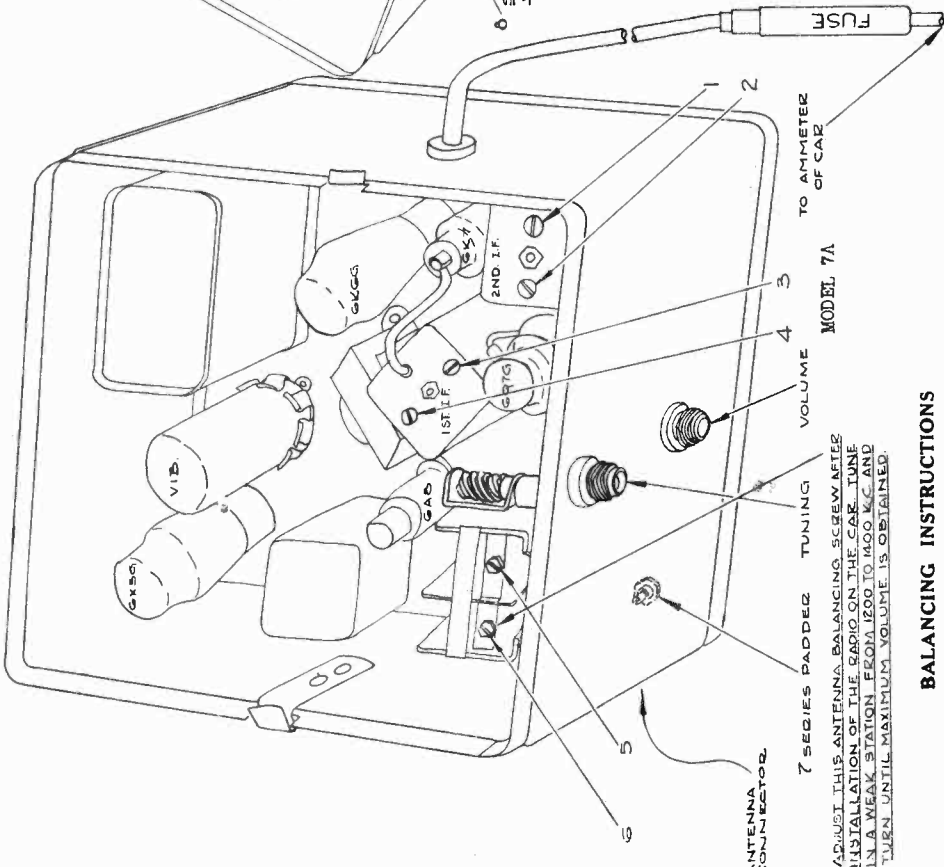
All sensitivities are given for 1 watt output = 1.73 V across speaker voice coil.

SPECIAL NOTE: The intermediate frequency transformers in this receiver are coupled so as to secure flat top characteristics and provide semi-high fidelity reception of radio stations. These transformers may be balanced with a standard signal generator and output meter as follows:

Feed a signal of 170 kc into the grid of the 6A8 tube through .002 mfd. capacity, connect a 30,000 ohm resistor across the primary of the second I. F. transformer (P to B+) and adjust screw No. 1 for maximum output. Disconnect the resistor and place it across the secondary of the same transformer and adjust screw No. 2.

Then connect the resistor across the primary of the 1st I. F. transformer and adjust screw No. 3 and then after placing the resistor across the secondary, adjust screw No. 4.

ADJUST THIS ANTENNA BALANCING SCREW AFTER INSTALLATION OF THE RADIO ON THE CAR. TUNE IN A WEAK STATION FROM 1300 TO 1400 K.C. AND TURN UNTIL MAXIMUM VOLUME IS OBTAINED



**BALANCING INSTRUCTIONS
 ARVIN MODEL 7A CAR RADIO**

All sensitivities given for 1/2 watt output equals 1.4 V. across Voice Coil

Operation No.	Connect Bal. Oscillator To	Bal. Oscillator Frequency	Adjust Padder No.	Dial Setting	Sensitivity
1	6A8 Grid	170 kc	1, 2, 3 & 4	Condenser Closed	700 uv
2	Ant. Coupler Through 20 uuf	1570 kc	5	Condenser Open	5 uv
3	Through 20 uuf	1400 kc	6 & 7	1400 kc	5 uv
4	Through 20 uuf	600 kc	8	600 kc	3.5 uv

*Operation No. 4 adjusts bias on 6A8 to obtain 5 uv sensitivity; for metropolitan areas this sensitivity may be set as low as 10 uv, and in mountainous areas as high as 1 uv, to secure the most satisfactory reception.

MODELS 828AT, 838AT NOBLITT-SPARKS INDUSTRIES, INC.
Alignment, Tuner Data
Sensitivity

MODEL 7A
MODEL 8A
MODEL 44C
Antenna Data

ARVIN 828AT-838AT AUTOMATIC DIAL TUNING INDICATOR

This receiver should first be removed from its carton and the cabinet carefully cleaned with a soft rag to remove packing lint.

The hook bolts or clips which secure the chassis to the cabinet to hold it rigidly during shipment should next be removed. One will be found on each side of the chassis. Do not confuse these with the brackets which suspend the chassis through rubber grommets. These latter brackets should not be molested unless it is necessary to service the receiver.

The receiver may be prepared for operation by connecting an antenna lead at "A" on the rear terminal strip and connecting a ground lead at "G", leaving the jumper from "D" to "G" in place, or by removing the jumper and connecting the transmission line lead from an Arvin all-wave antenna kit. (Black lead to "D" and red lead to "A".) Plug the line cord into a suitable receptacle.

Make a list of ten stations in your locality which you desire to set up on the station selector, arranging this list so that the stations appear in the order of their frequencies. Cut the call letters of these stations from the sheets supplied with this receiver, leaving a white tab on each end of the piece cut out.

The receiver is placed in operation by turning the right-hand knob in a clockwise direction. This knob also functions as a tone control. The second knob to the left should be turned to the maximum counter-clockwise or manual tuning position.

Tune in the first station on your list, using the tuning indicator to determine whether station is properly tuned in. Change the Manual-Automatic Tuning switch to the automatic tuning position. Unless one of the buttons about to be adjusted happens to be set at this point the receiver will now appear to be inoperative. (In event a button does happen to be set at the proper point—no adjustment is necessary. If the pilot light is not in proper rotation, the sockets may be exchanged from the rear.) Looking at the rear of the dial and on the side toward which the pointer is now pointing, locate the button in the circular slot whose lead goes to the lowest pilot light on that side of the dial. Loosen this button by means of a turn in the counter-clockwise direction and slide the button in its track slowly until a point is reached where the receiver operates. The correct location for this button is directly behind the brass strip carried by the arm behind the plate on which the buttons are mounted. If this correct location cannot be attained by sliding the button in the particular track it now occupies, the button should be slid along this

track to the point where it may be taken out and inserted in a track where this adjustment is possible.

The Manual-Automatic Tuning switch should now be returned to the Manual position; the second station on the list tuned in; the Manual-Automatic Tuning switch again thrown to the Automatic Tuning position; the button at the rear of the dial selected whose lead goes to the second pilot light; this button should be loosened, slid along the track and again tightened at the point where the receiver operates.

This same procedure should be continued for each station successively right around the dial, which then completes the set-up.

The switch may now be turned to the Automatic Tuning position. Tune in each station again, placing the proper call letters in each clip, inserting them from the rear of the receiver and at the edge of the dial frame. Push the call letter strips in so that they properly center in each window when viewed from the front.

This Arvin receiver has special advanced features which must be properly understood in order that full benefit may be derived from this fine instrument.

When the receiver is being operated with the Manual-Automatic Tuning switch in the manual position, the receiver tunes sharply and any station within the range of the receiver may be selected at will. Tonal quality to suit the taste of the listener may be obtained by adjustment of the tone control.

On the other hand, when the Manual-Automatic Tuning switch is in the automatic tuning position, the receiver functions in an entirely different manner. Throwing this switch automatically broadens the selectivity characteristics of the receiver.

It should be noted that this broad selectivity will only function satisfactorily on the louder stations, that is, those which are normally selected for use on the Arvin-Station-Selector. (This broadened selectivity is not practical in the manual tuning position because of inter-station interference which would inevitably result.)

Should the listener so desire, this increased fidelity can be compensated for by readjusting the setting of the tone control.

When this receiver is being operated on the police-amateur or foreign-short wave band, tuning should always be done manually and no attempt made to utilize the station selector feature which has been set up for the broadcast band.

BALANCING INSTRUCTIONS
MODELS 828AT and 838AT

SENSITIVITY:

- A. Broadcast Band—50 Microvolts Minimum
- B. Police Band—75 Microvolts Minimum
- C. Short Wave Band—100 Microvolts Minimum

NOTE: Standard output is considered 500 milliwatts which is equal to 1.12 R.M.S. AC volts across the voice coil of the speaker. Sensitivity is determined by the amount of input in microvolts required to produce 1.12 volts at the voice coil. Measurement may be made with any AC voltmeter or output meter.

The intermediate frequency transformers embodied in the circuit of Arvin Models 828AT-838AT are of the semi-permatune type, the only adjustment being variable iron cores in the fields of the transformers. It is advisable before attempting to rebalance the intermediate stages of this receiver, therefore, to check the overall intermediate frequency stage sensitivity. This may be accomplished by connecting the 455 K. C. output of a standard signal generator to the grid cap of the 6ABG tube after removing the grid clip. Connection should be made through a standard 200 u.f. dummy antenna. Check sensitivity and perform all balancing procedure with the automatic tuning in the "off" position. The intermediate frequency sensitivity should be at least 75 microvolts for 50 milliwatts output. If the I. F. sensitivity is within the limits prescribed the following instructions for balancing may then be followed.

If the I. F. sensitivity is low then adjust screws 1, 2, 3 and 4 for maximum output.

1. Connect the signal generator to the A and G terminals on the rear of the radio. Rotate the condenser until it is fully in mesh (maximum clockwise position.) The dial pointer should point to the center of the station window which is alongside 550 kilocycles (55 on the American broadcast band.)
2. Rotate dial pointer to 1,400 K. C. Set band switch to Broadcast Position. Adjust padder No. 5 to resonance. Adjust padder No. 6 for maximum output.
3. Rotate dial pointer to 600 K. C. With 600 K. C. input from the signal generator adjust padder No. 7 for resonance.
4. Set band switch to mid-band position. Rotate dial pointer to 5.0 megacycles. With 5,000 K. C. input from signal generator adjust padder No. 8 for resonance. Adjust padder No. 9 for maximum output.
5. Set band switch to short-wave band position. Rotate dial pointer to 15.0 megacycles. With 15 megacycles input from signal generator turn padder No. 10 to the extreme clockwise position. Then rotate padder screw counter-clockwise selecting the second resonance point reached. Then adjust padder No. 11 for maximum output.

ARVIN MODELS 7A, 8A, AND 44C,
ANTENNAS A22, A23 and A24

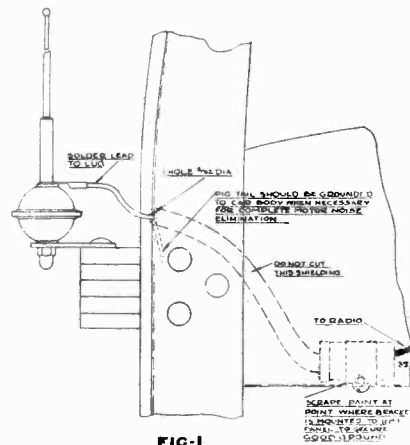


FIG. 1
INSTALLATION FOR DOOR HINGE ANTENNA

Antenna:

Arvin antennae A22, A23 and A24 are recommended for use with the Arvin Model 7A Radio. These antennae are supplied with special connector shield cups to provide for good motor noise elimination.

The use of UNDER CAR or built in ROOF TYPE ANTENNA is not recommended nor will satisfactory reception be obtained if this type antennae is used.

The Phantom Filter should be mounted as shown in Figure 1 if a door hinge type antenna is used. Fig 2 illustrates the proper connections for the side cowl type Arvin Antenna and the Arvin Phantom Filter.

Installation:

A clear space, preferably above the steering column, approximately 8 1/2" square and free of obstructions is required for mounting the model 7A radio chassis.

Remove the cap screw in the rear of the radio chassis and insert the stud, (supplied in the hardware envelope) in its place. Drill a 1/2" hole in the center of the space selected for the chassis.

Scrape the paint from the motor side of the dash around the 1/2" hole to secure a good ground for the mounting stud.

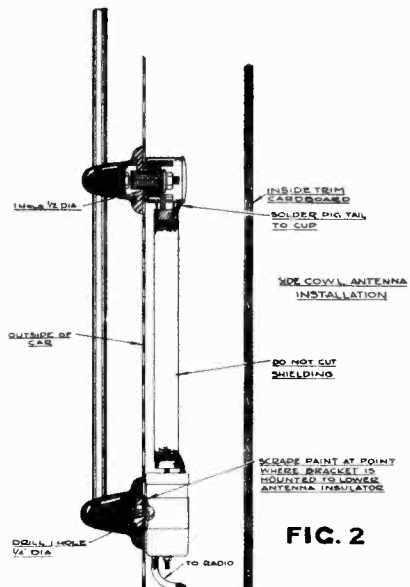


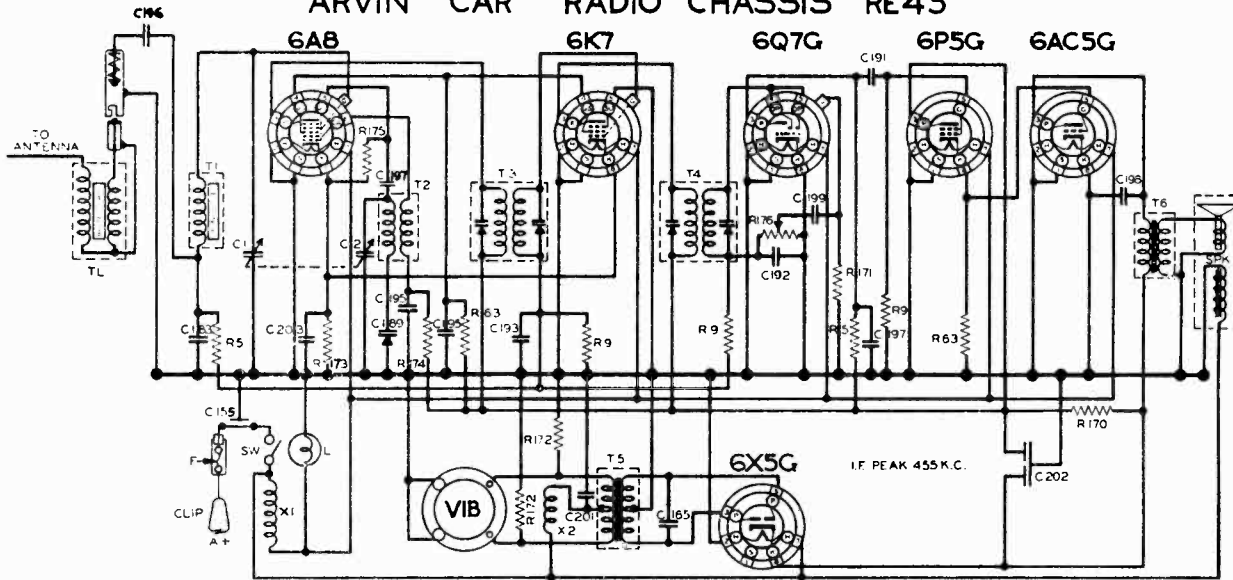
FIG. 2

MODEL 8A
Chassis RE 45
Schematic

NOBLITT-SPARKS INDUSTRIES, INC.

Alignment
Socket
Trimmers

ARVIN CAR RADIO CHASSIS RE45



BALANCING INSTRUCTIONS:

All sensitivities given for 1/2 watt output = 1.4 V. across Voice Coil

Operation No.	Connect Bal. Oscillator to	Bal. Oscillator Frequency	Adjust Padder No.	Dial Setting	Sensitivity
1	6A8 Grid	455	1, 2, 3 & 4	550 KC	50 uv
2	Ant. Coupler Through 20 uuf	1400	5	1400	
3	"	1400	6	1400	10 uv
4	"	600	7	600	10 uv

RESISTORS:

Ref. No.	Part No.	Description
R5	17-2070	500,000 ohm, 1/4 W.
R9	17-2080	1,000,000 ohm, 1/4 W.
R63	17-14091	25,000 ohm, 1/4 W.
R170	17-14287	800 ohm, 1 W.
R171	17-14288	15,000,000 ohm, 1/4 W.
R172	17-14289	100 ohm, 1/4 W.
R173	17-14290	200 ohm, 1/4 W.
R174	17-14291	20,000 ohm, 1/4 W.
R175	17-14292	40,000 ohm, 1/4 W.
R176	17-16225	500,000 ohm, vol. control

CONDENSERS:

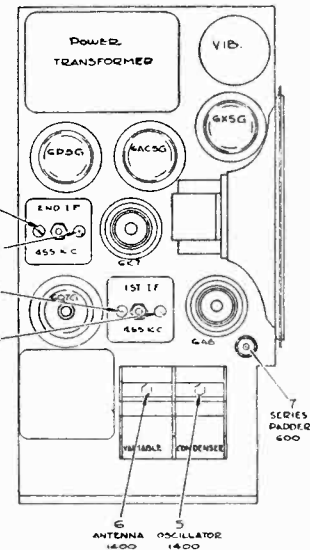
Ref. No.	Part No.	Description
C182	29-16217	Tuning Condenser
C155	17-14217	.0002 mfd. 600 V.
C185	17-14230	.005 mfd. 1200 V.
C183	17-14294	.003 mfd. 600 V.
C189	17-14266	.0005 mfd. padder
C191	17-14272	.01 mfd., 400 V.
C192	17-14273	.00025 mfd., 600 V.
C193	17-14274	.05 mfd., 200 V.
C195	17-14276	.05 mfd., 400 V.
C196	17-14277	.1 mfd., 200 V.
C197	17-14278	.0001 mfd., 600 V.
C198	17-14279	.005 mfd., 400 V.
C199	17-14283	.02 mfd., 200 V.
C201	17-14285	.5 mfd. -150 V.
C202	17-15286	10-10 mfd., 300 V.
C203	17-16242	2 mfd., 200 V.

COILS and TRANSFORMERS:

T-1	00-16219	Antenna Coil
T-2	00-16220	Oscillator Coil
T-3	00-16221	1st. I. F. Trans.
T-4	00-16222	2nd I. F. Trans.
T-5	00-16223	Power Transformer
T-6	00-16224	Output Transformer
X-1	20-13458	Suppression Choke
X-2	29-13459	Suppression Choke
TL	00-16223	Phantom Filter

FREQUENCY RANGE 1575 TO 540 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.,
COLUMBUS INDIANA

FOR ANTENNA DATA
SEE INDEX



MISCELLANEOUS:

Part No.	Description
17-16213	Speaker Assembly (5 1/4")
37-13423	Rear Mounting Bracket
61-16230	Dial Glass
26-16212	Dial Pointer
29-13583	24" Dial Cord
17-14747	Vibrator.
29-16024	Tuning & Volume Knob
29-16232	Push Button Knobs
10-5145	Mounting Screw 1/8 x 1 1/2"
10-5141	Mounting Screw No. 10 x 3/4"
29-3219	Instruction Sheet
29-3150	Call Letter Sheets
23-16249	Ford Mounting Spacer

MODEL 578B

MODEL 9A

Alignment, Voltage NOBLITT-SPARKS INDUSTRIES, INC.

Voltage

Data

MODEL 9A SOCKET VOLTAGES

Tube	Heater	Cathode	Suppressor Grid	Screen Grid	Plate	Oscillate. Grid	Anode Grid	Diode Plates	Control Grid
78	6.3	0	0	75	175	.....	.....	.....	3.4
6A7	6.3	0	.....	75	175	4-7	135	.....	3.4
78	6.3	3.2	0	75	175	.....	.....	.....	0
75	6.3	0	.....	.....	90	.....	.....	2.0	1.6
41	6.3	0	.....	175	172	.....	.....	.....	17.0
84	6.3	195	.....	.....	215 A. C.	.....	.....	.....	.....

Socket voltages given in table are for an input of 5.8 volts at the tubes in the receiver. 5.8 volts is the average obtained in various cars after allowing for drop in car wiring.

FOR OTHER SERVICING DATA ON THESE MODELS SEE INDEX

MODEL 578B ARVIN RADIO

- TUBES:** 1C7G—1st Detector-Oscillator
 1D5G—I. F. Amplifier
 1H6G—2nd Detector
 1G5G—Audio Output Amplifier

COIL RESISTANCES

Antenna Coil Primary	14.5 Ω	1st I. F. Secondary	14 Ω
Antenna Coil Secondary	4.4 Ω	2nd I. F. Primary	14 Ω
Oscillator Coil Primary	4.5 Ω	2nd I. F. Secondary	14 Ω
Oscillator Coil Secondary	4.7 Ω	Output Transformer Primary	800 Ω
1st I. F. Primary	14 Ω	Output Transformer Secondary	3 Ω

FREQUENCY RANGE: 540 to 1,725 Kilocycles

POWER OUTPUT: 300 Milliwatts

SPEAKER:

- 6" Permanent Magnet Dynamic
 3 ohm voice coil—400 cycles

POINT TO POINT RESISTANCES

1C7G

Filament	0 Ω
Filament	∞
Screen to B+	15,000 Ω
Oscillator Grid	50,000 Ω
Anode Grid to B+	0 Ω
Control Grid	2,500,000 Ω
Plate to B	15 Ω

1D5G

Filament	0 Ω
Filament	∞
Screen to B+	15,000 Ω
Plate to B+	15 Ω
Control Grid	2,500,000 Ω

VOLTAGE AND POWER CONSUMPTION:

- "A" Battery—360 milliamperes at 2.1 volts
 "B" Battery—12-15 milliamperes at 90 volts

1H6G

Filament	0 Ω
Filament	∞
Plate to B+	250,000 Ω
Diode Plates	500,000 Ω
Grid	500,000 Ω

1G5G

Filament	0 Ω
Filament	∞
Screen to B+	800 Ω
Grid	1,000,400 Ω
1 Volume control in full-on position.	

SENSITIVITY:

- 1000 KC.—100 Microvolts for 50 milliwatts output
 456 KC.—200 Microvolts for 50 milliwatts output

SOCKET VOLTAGES

Tube	Filament	Plate	Screen Grid	Oscillator *Grid	Anode Grid	Diode *Plates	Control *Grid
1C7G	2.1	84	45	3-6V	84	.....	0
1D5G	2.1	84	45	.....	.....	.....	0
1H6G	2.1	35	.....	.....	.....	0	0
1G5G	2.1	84	84	.....	.....	.....	-6

* Measured with a vacuum tube voltmeter. 600 to 1500 K. C.

No signal applied to receiver; with 100,000 microvolts to input diode voltage approximately 12 volts.

BALANCING INSTRUCTIONS

CONNECT an output meter or A. C. Voltmeter across the speaker coil leads.

1. Connect the signal generator to the grid cap of the 1C7G tube and with an input of 456 K. C. adjust padders 1, 2, 3 and 4 for maximum output.
2. Connect the signal generator through a standard 200 micromicrofarad dummy antenna to the antenna (green) lead wire on the rear of the chassis. Ground the generator to the (black) ground wire.
3. Rotate the tuning condenser to the wide

open position. Check the dial pointer to see that it is parallel to the horizontal line across the dial face.

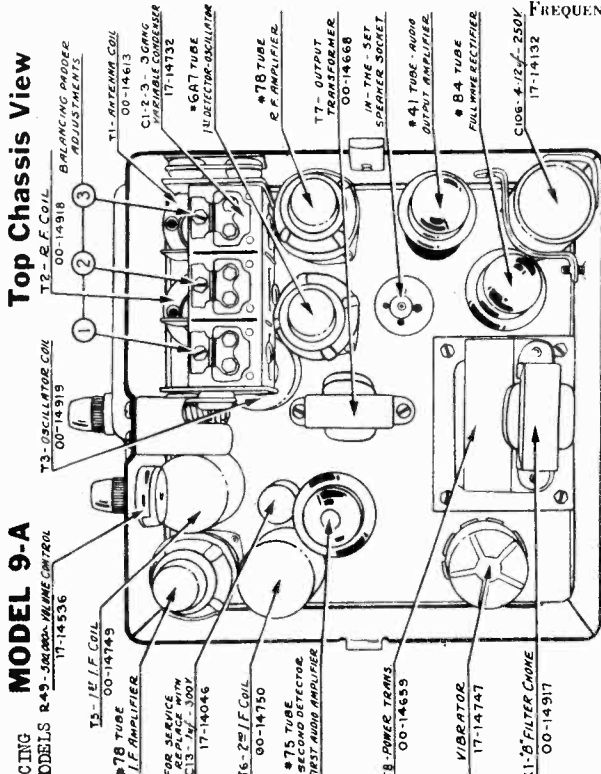
4. Rotate the dial pointer to 1,400 K. C. and with an input of that frequency adjust padder No. 5 to resonance. Adjust padder No. 6 for maximum output.
5. Rotate the dial pointer to 600 K. C. and with an input of that frequency adjust the series padder No. 7 to resonance.
6. Return to 1,400 K. C. and recheck the settings of padders No. 5 and No. 6.

MODEL 9A

MODELS 828AT, 838AT NOBLITT-SPARKS INDUSTRIES, INC.

Socket, Trimmers
Chassis

Top Chassis View

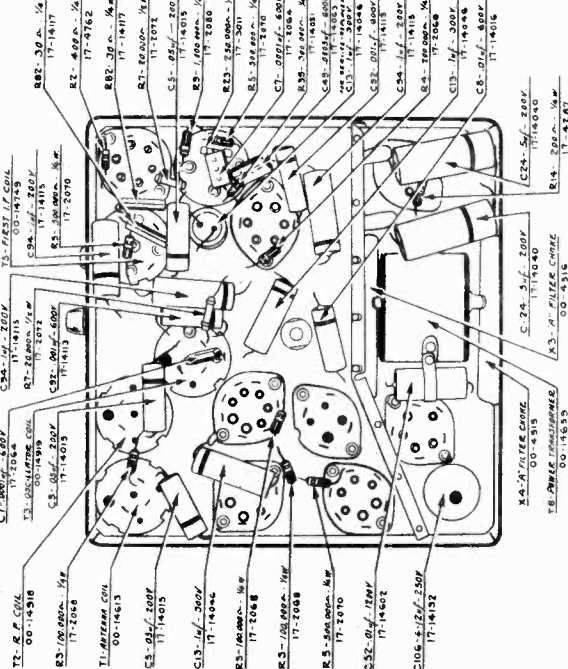


FREQUENCY RANGE: 1575-540 Kilocycles VOICE COIL: 3 Ohms
POWER OUTPUT: 2.7 Watts POWER SUPPLY: 6 V. Storage Battery
SPEAKER: 5" Dynamic AMPERE DRAIN: 5.4 Amperes

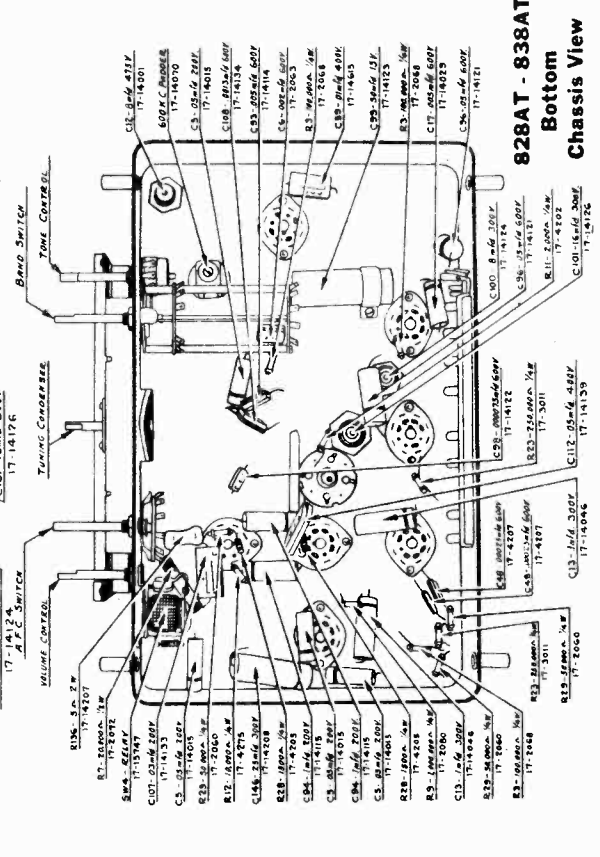
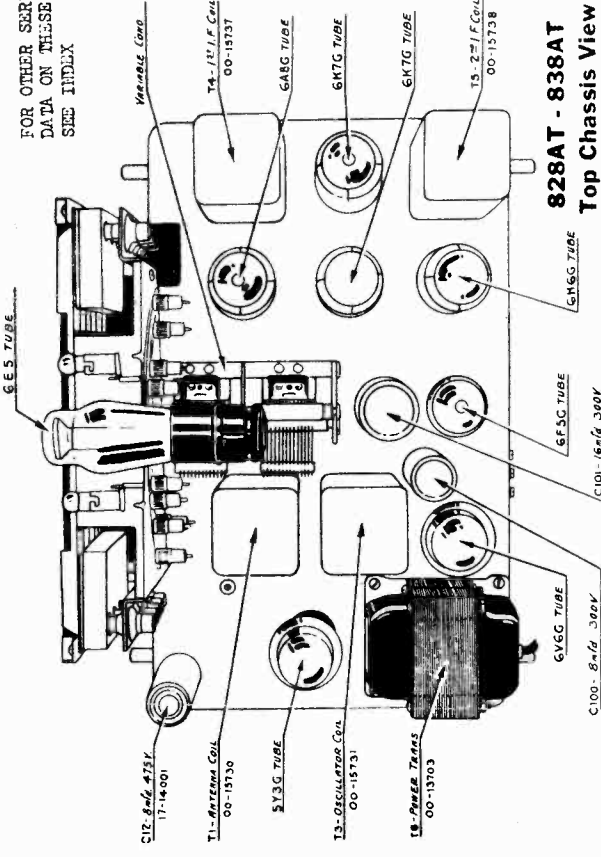
MODEL 9-A

FOR OTHER SERVICING DATA ON THESE MODELS R-2-586 AND W-1000 SEE INDEX

Bottom Chassis View



828AT - 838AT
Top Chassis View



828AT - 838AT
Bottom Chassis View

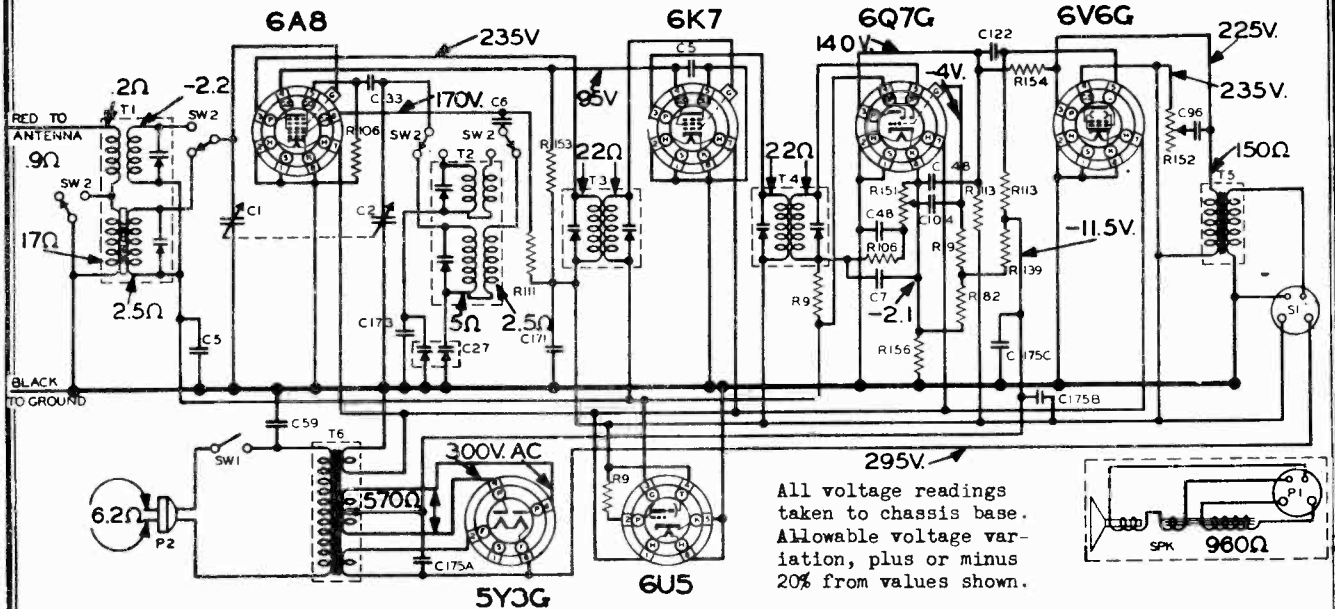
Alignment, Trimmers
Sensitivity

NOBLITT-SPARKS INDUSTRIES, INC.

MODELS 89, 91
Chassis RE27
Schematic, Voltage

ARVIN RADIO CHASSIS RE27

RADIO MODELS 89 and 91



All voltage readings taken to chassis base. Allowable voltage variation, plus or minus 20% from values shown.

BALANCING INSTRUCTIONS

ARVIN MODELS 89, 91 - RE27 CHASSIS

All sensitivities given for 200 milliwatts output = .78 V across voice coil

RESISTORS

Ref. No.	Part No.	Description	Price
R9	17-2080	1,000,000 ohm, 1/4 watt	.20
R82	17-14117	30 ohm, 1/4 watt	.20
R106	17-14171	50,000 ohm, 1/4 watt	.20
R111	17-14176	20,000 ohm, 1/4 watt	.20
R113	17-14178	250,000 ohm, 1/4 watt	.20
R139	17-14219	100 ohm, 1 watt	.30
R153	17-14243	30,000 ohm, 1/2 watt	.20
R154	17-14244	1,500,000 ohm, 1/4 watt	.20
R156	17-14246	35 ohm, 1/4 watt	.20

CONDENSERS

Ref. No.	Part No.	Description	Price
C6	17-2063	.002 mfd. 600V	.25
C7	17-2064	.0001 mfd. 600V	.25
C122	17-2189	.01 mfd. 400 V	.35
C104	17-2206	.01 mfd. 200 V	.30
C48	17-4207	.00025 mfd. 600 V	.25
C27	17-13077	Series Padder	.60
C5	17-14015	.05 mfd. 200 V	.30
C33	17-14047	.00005 mfd. 600 V	.25
C96	17-14121	.05 mfd 600 V	.40
C171	17-14238	.1 mfd. 400 V	.40
C173	17-14247	.003 mfd. 600V	.25
C175 A, B, & C	17-14249	10-10 mfd. 450V	.25
		20 mfd. 25V	3.00
C59	17-14615	.01 mfd. 400V	.35
C1, 2 & 3	17-16005	Tuning Condenser	4.00

COILS AND TRANSFORMERS

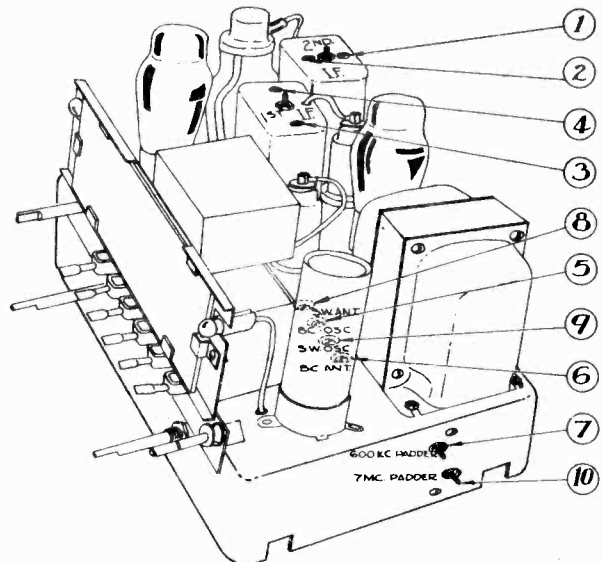
Ref. No.	Part No.	Description	Price
T6	00-15995	Power Transformer	4.50
T5	00-15996	Output Transformer	1.75
T1 & 2	00-15997	Antenna & Oscillator Coil Assembly	3.00
T3	00-15998	1st I.F. Transformer	1.50
T4	00-15999	2nd I.F. Transformer	1.50

SPEAKER, DIAL PARTS, CABINET & MISCELLANEOUS

Part No.	Description	Price
29-3188	Instruction sheet	.02
28-5186	Dial Drive Pulley (rubber)	.10
17-13249	Speaker socket	.15
29-13583	Dial Drive Cord	.10
34-13660	Dial Drive Cord Spring	.05
17-13875	Tuning Eye Cable	.60
17-13904	Dial Light (M-51)	.15
17-15791E	110 V. Line Cord	.40
29-15981A	Dial Pointer	.15
61-16000	Dial Glass	1.00
17-16007	Band Switch	.75
17-16008	Volume Control	.75
17-16009	Tone Control	1.00
29-16013	Knob (Pushbutton)	.10
41-16030	Electric Eye Escutcheon	.25
41-16031	Escutcheon Plate (Dial)	1.50
41-16032	Escutcheon Plate (Pushbutton)	.35
17-16027	Speaker 8"	6.50
27-16115	Cabinet Model 89	15.00
27-16122	Cabinet Model 91	30.00
29-16123	Knob (Tuning and volume)	.15

Operation No.	Connect Generator To	Sig. Frequency	Input Adjust Padder No.	Dial Setting	Band Switch Position	Sensitivity
1	6A8 Grid	455 KC	1, 2, 3, & 4	600 KC	Broadcast	70 uv
*2	Antenna Wire	1,400 KC	5	1,400 KC	Broadcast	-----
3	Antenna Wire	1,400 KC	6	1,400 KC	Broadcast	25 uv
**4	Antenna Wire	600 KC	7	600 KC	Broadcast	40 uv
5	Antenna Wire	15 MC	8	15 MC	Short Wave	-----
6	Antenna Wire	15 MC	9	15 MC	Short Wave	120 uv
7	Antenna Wire	7 MC	10	7 MC	Short Wave	150 uv

* Dial pointer should be parallel with horizontal line across center of dial with tuning condenser in closed position (maximum capacity) before proceeding with adjustments.
** After balancing 600 KC padder, return and recheck the adjustments of padders 5 & 6



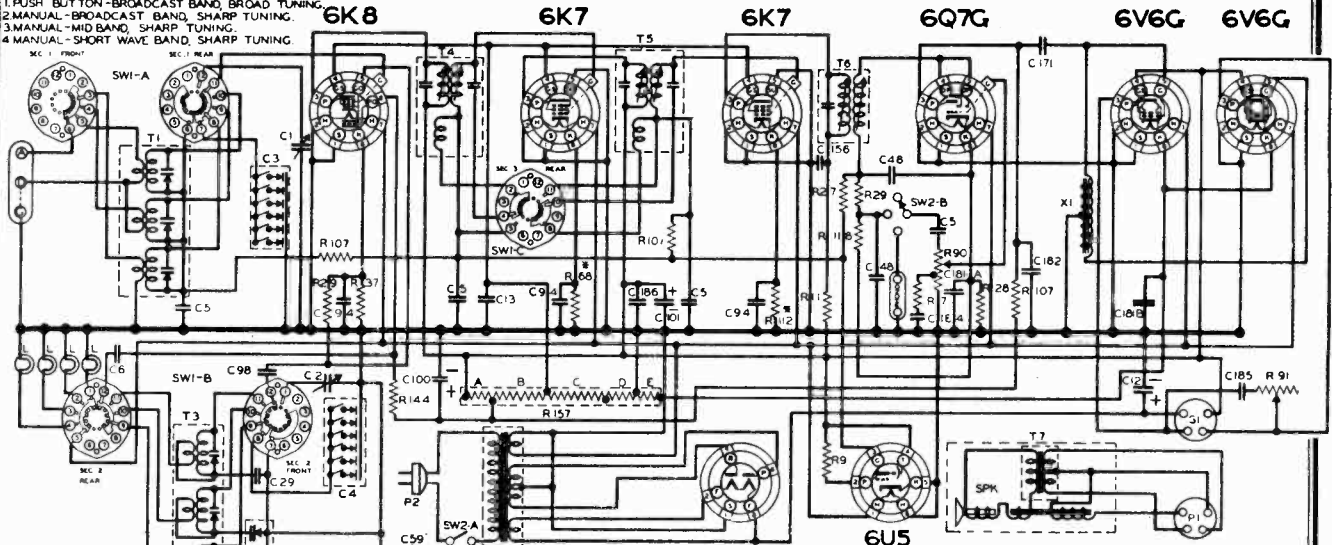
MODEL 92

NOBLITT-SPARKS INDUSTRIES, INC.

Trimmers
Sensitivity

Chassis RE31
Schematic, Alignment

SWITCH SHOWN IN PUSH-BUTTON TUNING POSITION.
SEQUENCE OF POSITIONS:
1. PUSH-BUTTON - BROADCAST BAND, BROAD TUNING.
2. MANUAL - BROADCAST BAND, SHARP TUNING.
3. MANUAL - MID BAND, SHARP TUNING.
4. MANUAL - SHORT WAVE BAND, SHARP TUNING.



5Y3G ARVIN RADIO MODEL 92
CHASSIS RE31
SOCKET VOLTAGES

6K8: P-255; Gs-65; Po-70; K-2. 6K7: P-255; Gs-65; K-2. 6V6G: P-245; Gs-255; K-11.5
5Y3G: P-380AC; P-380AC; K-300. 6K7: P-255; Gs-65; K-5. 6Q7: P-115; K-2.
6V6G: P-245; Gs-255; K-11.5. 6U5: *P-255; T-255; K-0.

* Through 1 megohm resistor. Voltage Divider: A=1650; B=6310; C=4230; D=145; E=170.
Speaker Field = 600 ohms.

BALANCING INSTRUCTIONS

(All sensitivities given for 1 watt output - 1.73 V. across voice coil)

Operation No.	Connect Generator	Sig. To	Input Frequency	Adjust Padder No.	Dial Setting	Band Switch Position	Sensitivity (Minimum)
1	6K8 Grid		455 kc	1,2,3,4,& 5	600 kc	Broadcast	75 uv
*2	Antenna Term.		1400 kc	6	1400 kc	Broadcast	-----
3	Antenna Term.		1400 kc	7	1400 kc	Broadcast	50 uv
**4	Antenna Term.		600 kc	8	600 kc	Broadcast	50 uv
5	Antenna Term.		5.0 mc	9	5.0 mc	Mid-Band	-----
6	Antenna Term.		5.0 mc	10	5.0 mc	Mid-Band	75 uv
7	Antenna Term.		2 mc	11	2 mc	Mid-Band	75 uv
8	Antenna Term.		15 mc	12	15 mc	Short Wave	-----
9	Antenna Term.		15 mc	13	15 mc	Short Wave	120 uv

* Dial pointer should line up with end of broadcast band dial calibration with tuning condenser fully closed.
** After balancing 600 kc padder, return and recheck the adjustments of padders 6 & 7.
** NOTE: Signal generator should be connected to A & G terminals on rear of radio chassis. D & G terminals should be connected together.

RESISTORS

Ref. No.	Part No.	Description	Price
R29	17-2060	50,000 ohm, 1/4 watt	.20
R7	17-2072	20,000 ohm, 1/4 watt	.20
R9	17-2078	1,000,000 ohm, 1/4 watt	.20
R11	17-4202	2,000 ohm, 1/4 watt	.20
R28	17-4205	1,500 ohm, 1/4 watt	.20
R68	17-4290	8,000 ohm, 1/4 watt	.20
R27	17-4788	2,000 ohm, 1/4 watt	.20
R37	17-14033	300 ohm, 1/4 watt	.20
R107	17-14172	100,000 ohm, 1/4 watt	.20
R112	17-14177	500 ohm, 1/4 watt	.20
R118	17-14183	300,000 ohm, 1/4 watt	.20
R144	17-14231	40,000 ohm, 1/4 watt	.20
R157	17-14251A	12,500 ohm tapped res.	1.50

CONDENSERS

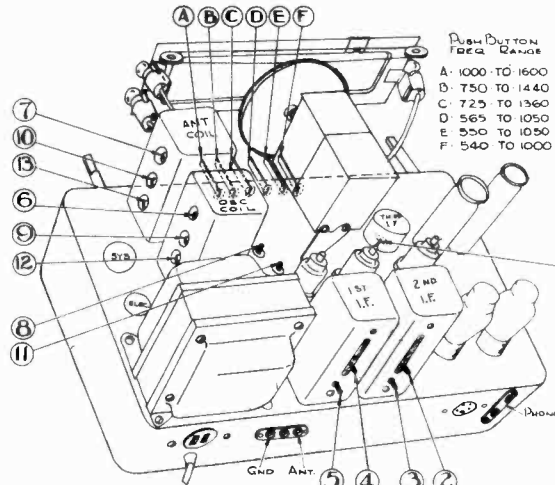
Ref. No.	Part No.	Description	Price
C6	17-2063	.002 mfd. 600V	.25
C48	17-4207	.00025 mfd. 600V	.25
C5	17-14015	.05 mfd. 200V	.30
C12	17-14001	8 mfd. 475 V	.75
C29	17-14022	.005 mfd. 600 V	.35
C13	17-14046	.1 mfd. 300 V.	.35
C36	17-14054	Series Padder Condenser	.75
C156	17-4397	.05 mfd. 400 V.	.35
C94	17-14115	.1 mfd. 200 V.	.40
C98	17-14122	.000075 mfd. 600 V.	.30
C100	17-14124	8 mfd. 300 V.	.75
C101	17-14126	16 mfd. 300 V.	.90
C171	17-14238	.1 mfd. 400 V.	.40
C181 A&B	17-13260	4 mfd. 15V. 50 mfd. 25V. 1.25	
C182	17-14261	.0002 mfd. 600 V.	.25
C184	17-14263	.03 mfd. 200 V.	.30
C185	17-14265	.03 mfd. 600 V.	.40
C59	17-14615	.01 mfd. 400 V.	.35
C182	17-15965	Tuning Condenser	4.50
C384	17-15967	Six section Push button condenser assembly	5.50

COILS & TRANSFORMERS

Ref. No.	Part No.	Description	Price
I1	00-15966	Input Choke (Audio)	2.20
T2	00-15972	Power Transformer	5.00
T7	17-16050	Output Transformer	2.00
T1	00-16078	Antenna Transformer	2.60
T3	00-16079	Oscillator Coil	2.75
T4	00-16080	1st I. F. Transformer	1.75
T5	00-16081	2nd I. F. Transformer	1.75
T6	00-16082	3rd I. F. Transformer	1.50

SPEAKER, DIAL PARTS, CABINET & MISCELLANEOUS

61-16017	Dial Glass (Broadcast)	.75	29-3167	Call letter sheets	.40
61-16018	Dial Glass (Mid Band)	.50	29-3189	Carton	1.50
61-16019	Dial Glass (Short Wave)	.50	29-3190	Instruction Sheet	.02
41-16030	Escutcheon (Tuning Eye)	.35	17-13249	Speaker Socket	.15
41-16051	Escutcheon (Dial)	1.75	29-13583	Dial Drive Cord, 38"	.25
41-16052	Escutcheon (Push Button)	.65	17-13761	110 V Outlet Socket	.65
29-16057	Knob (Push Button)	.10	17-13795	Volume Control	.75
29-16085	Dial Pointer	.20	17-13796	Tone Control	.75
17-16125	Speaker (12")	7.50	17-15771	Line Cord & Plug	.40
27-16126	Cabinet	50.00	17-15952	Band Switch	2.50
29-16127	Knob (Tuning, Volume, etc)	.15	17-16014	AC. Phono-Radio Switch	.90



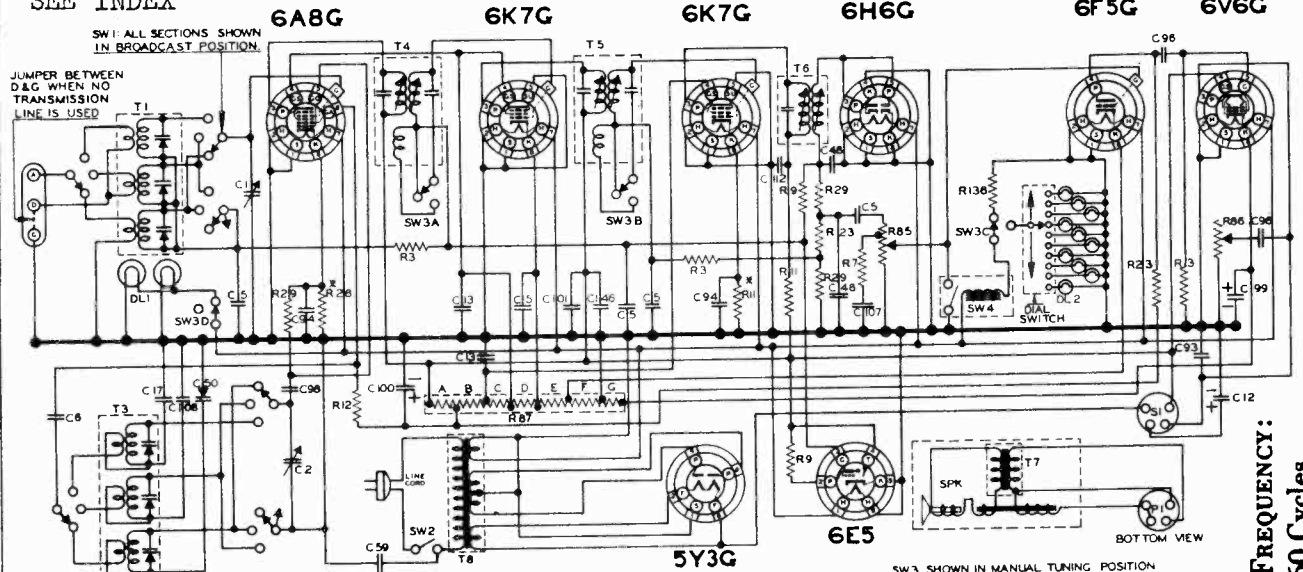
Push Button
Area Range
A- 1000 TO 1600
B- 750 TO 1440
C- 725 TO 1360
D- 565 TO 1050
E- 550 TO 1050
F- 540 TO 1000

NOBLITT-SPARKS INDUSTRIES, INC.

MODELS 828AT, 838AT
Chassis 818AT
Schematic, Voltage
Resistances

FOR OTHER DATA
SEE INDEX

SCHMATIC CIRCUIT DIAGRAM
ARVIN HOME RADIO CHASSIS 818AT



VOLTAGE AND FREQUENCY:
110 Volts, 60 Cycles

NOTE
R87
A-1.666 OHMS
B-4.285
C-1.860
D-3.890
E-225
F-55
G-240

RESISTORS				CAPACITORS				TRANSFORMERS				MISCELLANEOUS			
QTY	TYPE	VALUE	PART NO.	QTY	TYPE	VALUE	PART NO.	QTY	TYPE	DESCRIPTION	PART NO.	QTY	TYPE	DESCRIPTION	PART NO.
1	100K	100,000	17-2086	1	TWO-GANG	17-1487	1	1	TYPE	ANTENNA COIL	00-1310	1	SPK	12" SPEAKER FOR MODEL 838AT	17-1314
1	20K	20,000	17-2072	1	VARIABLE	17-1487	1	1	ANTENNA COIL	00-1310	1	SPK	12" SPEAKER FOR MODEL 828AT	17-1320	
1	100K	100,000	17-2086	1	500	17-1487	1	1	OSCILLATOR COIL	00-1311	1	SPK	SPEAKER SOCKET	17-1319	
1	100K	100,000	17-2086	1	500	17-1487	1	1	1ST I.F. TRANS.	00-1312	1	SPK	SPEAKER PLUG	17-1321	
1	100K	100,000	17-2086	1	500	17-1487	1	1	2ND I.F. TRANS.	00-1313	1	DLI	DIAL LIGHT	17-1304	
1	100K	100,000	17-2086	1	500	17-1487	1	1	3RD I.F. TRANS.	00-1314	1	DLI	DIAL LIGHT	17-1304	
1	100K	100,000	17-2086	1	500	17-1487	1	1	OUTPUT TRANS. 828AT	17-1315	1	SW1	BAND SWITCH	17-1328	
1	100K	100,000	17-2086	1	500	17-1487	1	1	OUTPUT TRANS. 838AT	17-1316	1	SW2	LINE SWITCH - SEE R86	17-1329	
1	100K	100,000	17-2086	1	500	17-1487	1	1	POWER TRANS.	00-1317	1	SW3	MANUAL-AUTOMATIC TUNING SWITCH	17-1330	
1	100K	100,000	17-2086	1	500	17-1487	1	1			1	SW4	RELAY	17-1331	

WATTS POWER CONSUMPTION: 75 Watts POWER OUTPUT: 5 Watts

MODEL 838AT-828AT SOCKET VOLTAGES (Input Voltage 110 V. RMS)

Tube	Heaters	Plate	Screen	Cathode	Osc. Grid	Anode Grid	Suppressor Grid
6A8G	6.3	252	85	3.4	-5 to -20 V.	155	0
6K7G	6.3	252	85	5.8	.....	.....	0
6K7G	6.3	252	114	3.1	.....	.....	0
6H6G	6.3	.....	.....	0	.....	.....	.....
6F5C	6.3	105	.....	1.0	.....	.....	.....
6V6G	6.3	240	252	10.8	.....	.....	.....
5Y3G	5.0	365AC	.....	325	.....	.....	.....
6E5	6.3	150	.....	0	.....	.....	.....

‡ AVC voltage developed approximately 30 volts with 100,000 microvolts input to antenna. Reading taken with a vacuum tube voltmeter.

POINT TO POINT RESISTANCES

All readings taken to ground unless otherwise stated. * Volume control in pull on position. All shell terminals grounded to chassis.

6A8G	Heater 0 Ω	6K7G	Heater 0 Ω	6F5C	Heater 0 Ω	6E5	Heater 0 Ω
Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω
Cathode 1,500 Ω	Cathode 200,000 Ω	Cathode 200,000 Ω	Cathode 200,000 Ω	Cathode 55 Ω	Cathode 1,450,000 Ω ‡	Cathode 145 Ω	Cathode 145 Ω
Oscillator Grid 51,500 Ω	Suppressor 0 Ω	Suppressor 0 Ω	Suppressor 0 Ω	*Control Grid 500,000 Ω	Control Grid 1,450,000 Ω ‡	Control Grid 145 Ω	Control Grid 145 Ω
Anode Grid to B+ 11,666 Ω	Screen to B+ 5,951 Ω	Screen to B+ 5,951 Ω	Screen to B+ 5,951 Ω	Plate to B+ 250,000 Ω	Plate to B+ 1,000,000 Ω ‡	Plate to B+ 145 Ω	Plate to B+ 145 Ω
Screen to B+ 7,811 Ω	Plate to B+ 2,000 Ω	Plate to B+ 2,000 Ω	Plate to B+ 2,000 Ω	Plate to B+ 760 Ω	Target to B+ 0 Ω	Target to B+ 0 Ω	Target to B+ 0 Ω
Plate to B+ 12.0 Ω	Control Grid 150,000 Ω	Control Grid 150,000 Ω	Control Grid 150,000 Ω	Screen 12,200 Ω			
Control Grid 1,450,000 Ω							
6K7G	Heater 0 Ω	6H6G	Heater 0 Ω	6V6G	Heater 0 Ω	5Y3G	Filament to B+ 1,000 Ω
Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Heater ..... .05 Ω	Filament 12,000 Ω	Filament 12,000 Ω
Cathode 280 Ω	Cathode 0 Ω	Cathode 100,000 Ω	Cathode 100,000 Ω	Cathode 240 Ω	Cathode 155 Ω	Plate 145 Ω	Plate 145 Ω
Suppressor 0 Ω	Plate 350,000 Ω	Screen Grid to B+ 0 Ω	Screen Grid to B+ 0 Ω	Control Grid 100,000 Ω	Plate 145 Ω	Plate to Plate 300 Ω	Plate to Plate 300 Ω
Screen to B+ 7,811 Ω	Plate 350,000 Ω	Plate to B+ 760 Ω	Plate to B+ 760 Ω	Screen Grid to B+ 0 Ω	Plate to Plate 300 Ω		
Plate to B+ 12.0 Ω	Cathode 0 Ω	Screen 12,200 Ω	Screen 12,200 Ω	Plate to B+ 12,200 Ω			
Control Grid 1,350,000 Ω							

* R87 tapped as follows: A-1.666; B-4.285; C-1.860; D-3.890; E-225; F-55; G-240.

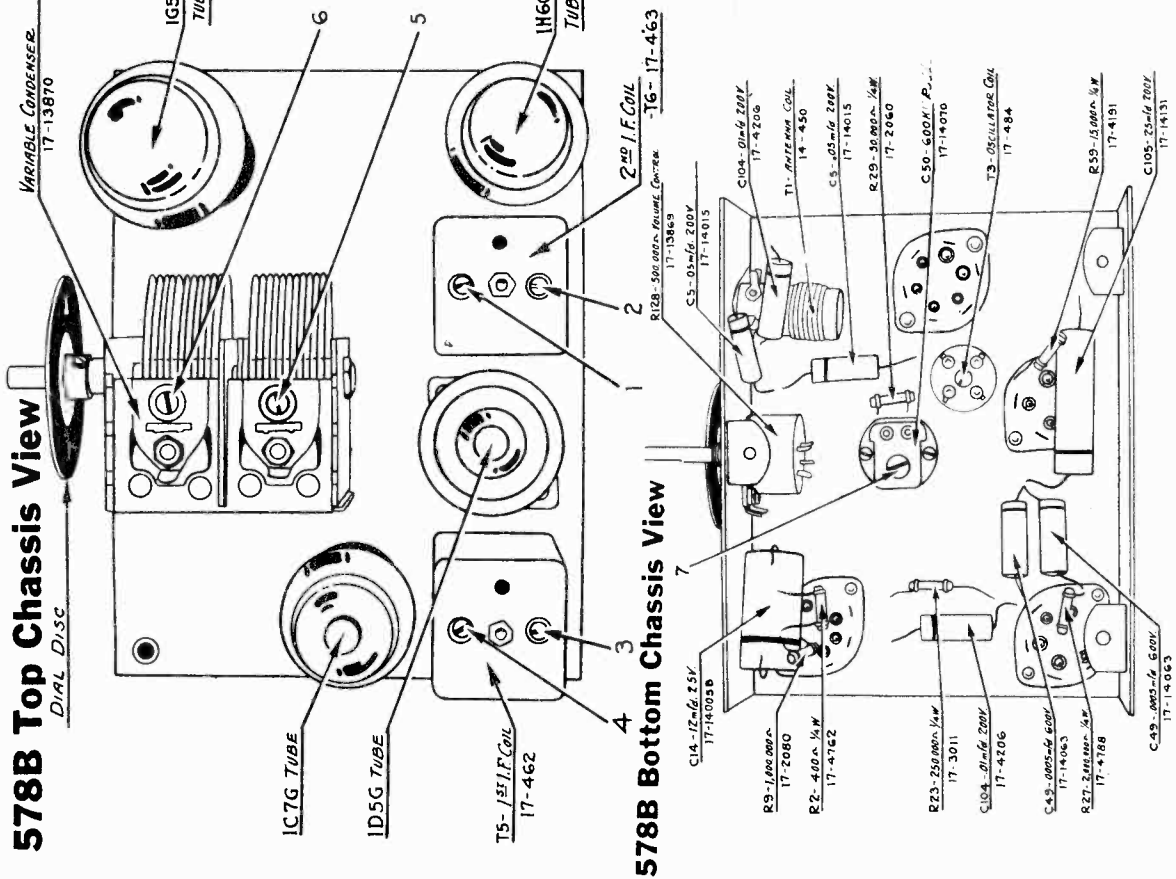
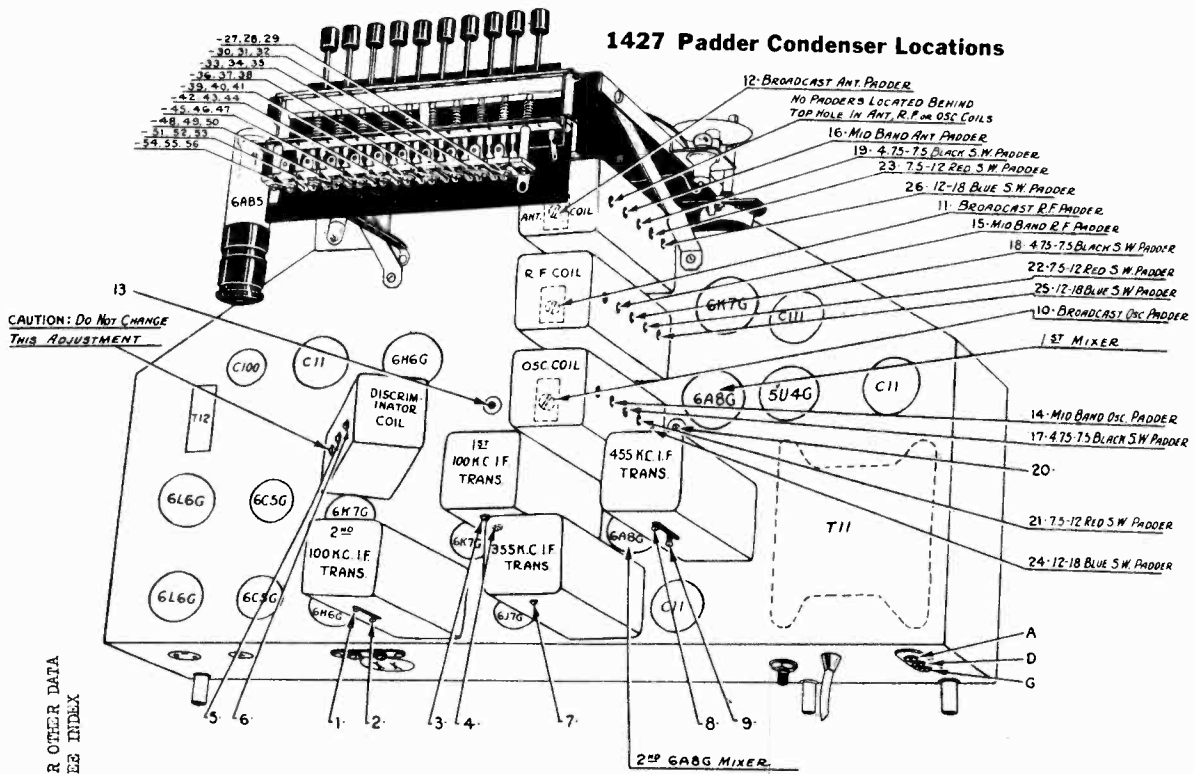
COIL, TRANSFORMER AND SPEAKER RESISTANCES

T1—Antenna Coil	Broadcast Primary 18.5 Ω	T3—Oscillator Coil	Broadcast Primary ..... .15 Ω	T4—1st I. F. Transformer	Primary 12.0 Ω	T6—3rd I. F. Transformer	Primary 64.0 Ω	T7—Output Transformer (838AT)	Primary 760 Ω	T8—Power Transformer	110 V. Primary 6.5 Ω
Broadcast Secondary 3.5 Ω	Broadcast Secondary ..... .27 Ω	Primary 12.0 Ω	Primary 64.0 Ω	Secondary 12.0 Ω	Secondary 64.0 Ω	6 V. Secondary ..... .05 Ω	Secondary 1 Ω	5 V. Secondary ..... .05 Ω	Hi-Volt Secondary 155-0-145 Ω		
Mid-Band Primary ..... .1 Ω	Mid-Band Primary ..... .08 Ω	T5—2nd I. F. Transformer	Primary 12.0 Ω	T7—Output Transformer (828AT)	Primary 760 Ω	SPK—Speaker (828AT or 838AT)	Field 1,000 Ω				
Mid-Band Secondary ..... .07 Ω	Mid-Band Secondary ..... .06 Ω	Primary 12.0 Ω	Secondary 12.0 Ω	Secondary 1 Ω							
Short-Wave Primary ..... .05 Ω	Short-Wave Primary ..... .08 Ω										
Short-Wave Secondary ..... .02 Ω	Short-Wave Secondary ..... .01 Ω										

MODEL 578B
Socket, Trimmers
Chassis

NOBLITT-SPARKS INDUSTRIES, INC.

MODEL 1427, 1427D
Trimmers, Socket



MODEL 1427

SOCKET VOLTAGES

All readings taken to ground unless otherwise specified. Allow speaker to remain connected.

Table with columns: Tube, Heater, Plate, Screen, Cathode, Suppressor, Grid, Anode Grid, Osc. Grid, Target. Lists voltages for various tubes like 6K7C, 6A8G, 6H6G, etc.

† Measured with a vacuum tube voltmeter. * Through 1,000,000 Ω Resistor.

POINT TO POINT RESISTANCES

All readings taken to ground unless otherwise specified. Allow speaker to remain connected.

Table of point-to-point resistances for various components like 6K7C-R.F., 6A8G-Second Mixer, 6C5-First Audio, etc.

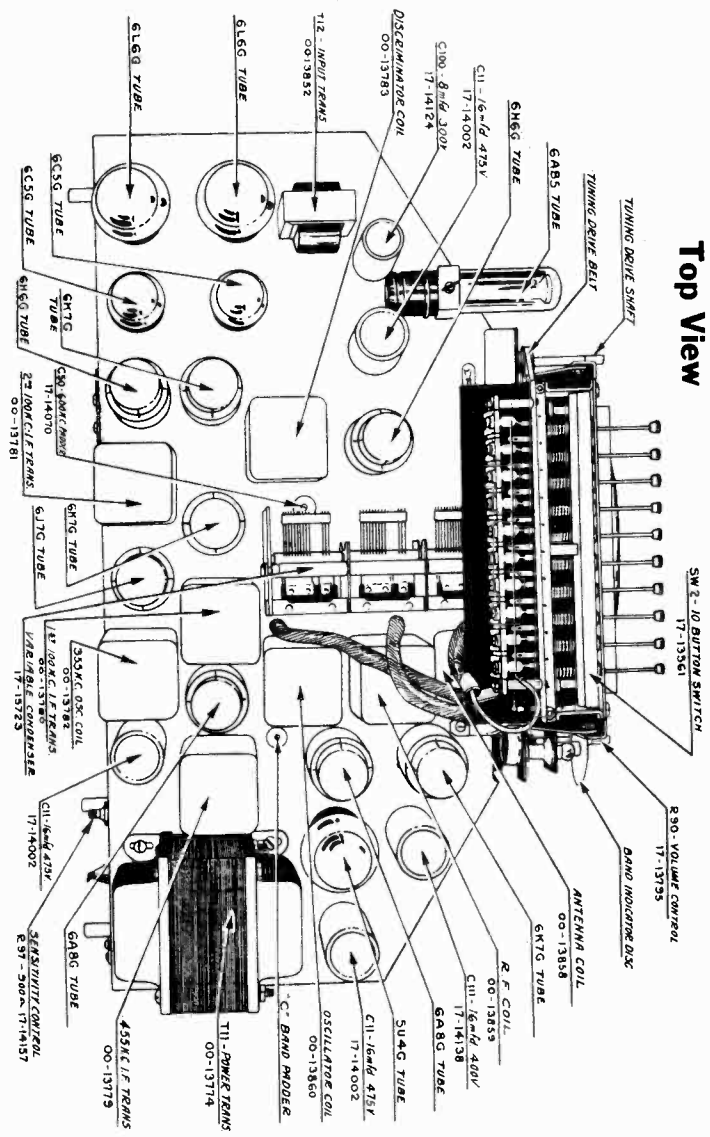
COIL, TRANSFORMER AND SPEAKER RESISTANCES

Table listing resistances for various coils (T1-T9), transformers (T4, T5, T6, T7, T8, T10, T11), and speakers (Spk-1, Spk-2).

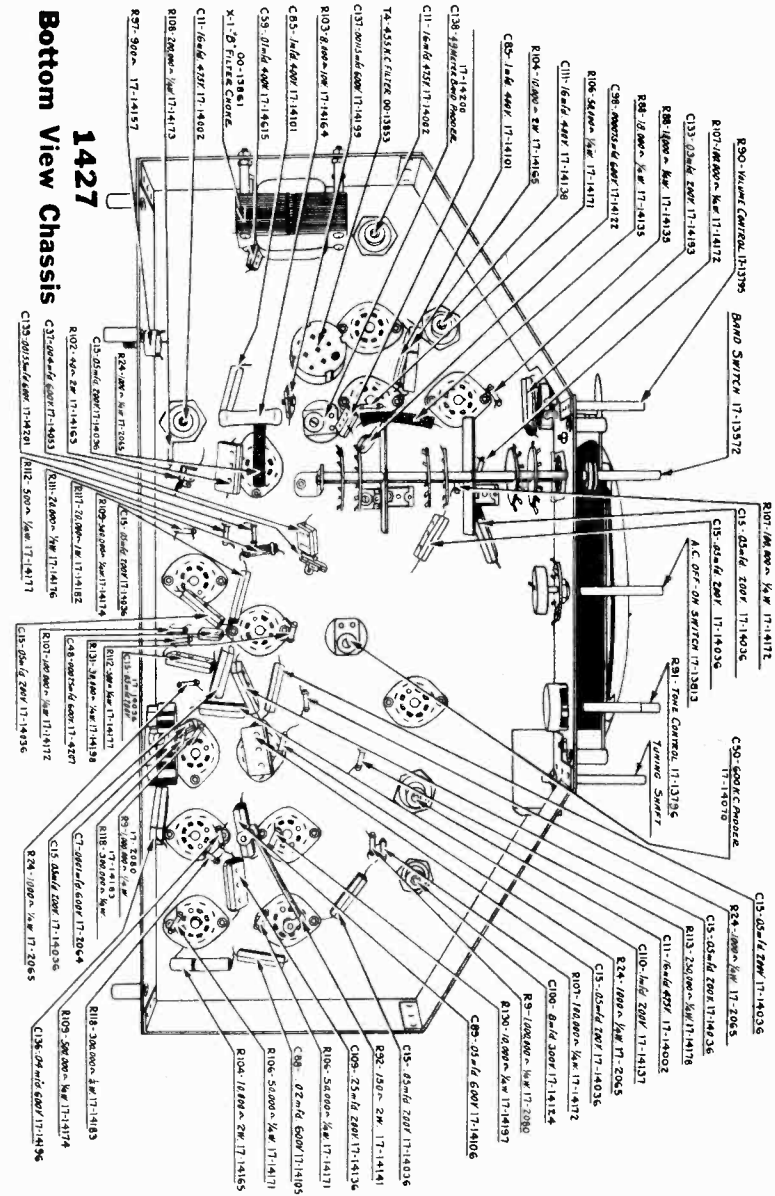
Coils Listed Below Contain Other Circuit Parts Not Shown on Chassis Plan Views.

Table listing details for various coils and transformers, including part numbers and specifications.

Model -- 1427 Chassis Top View

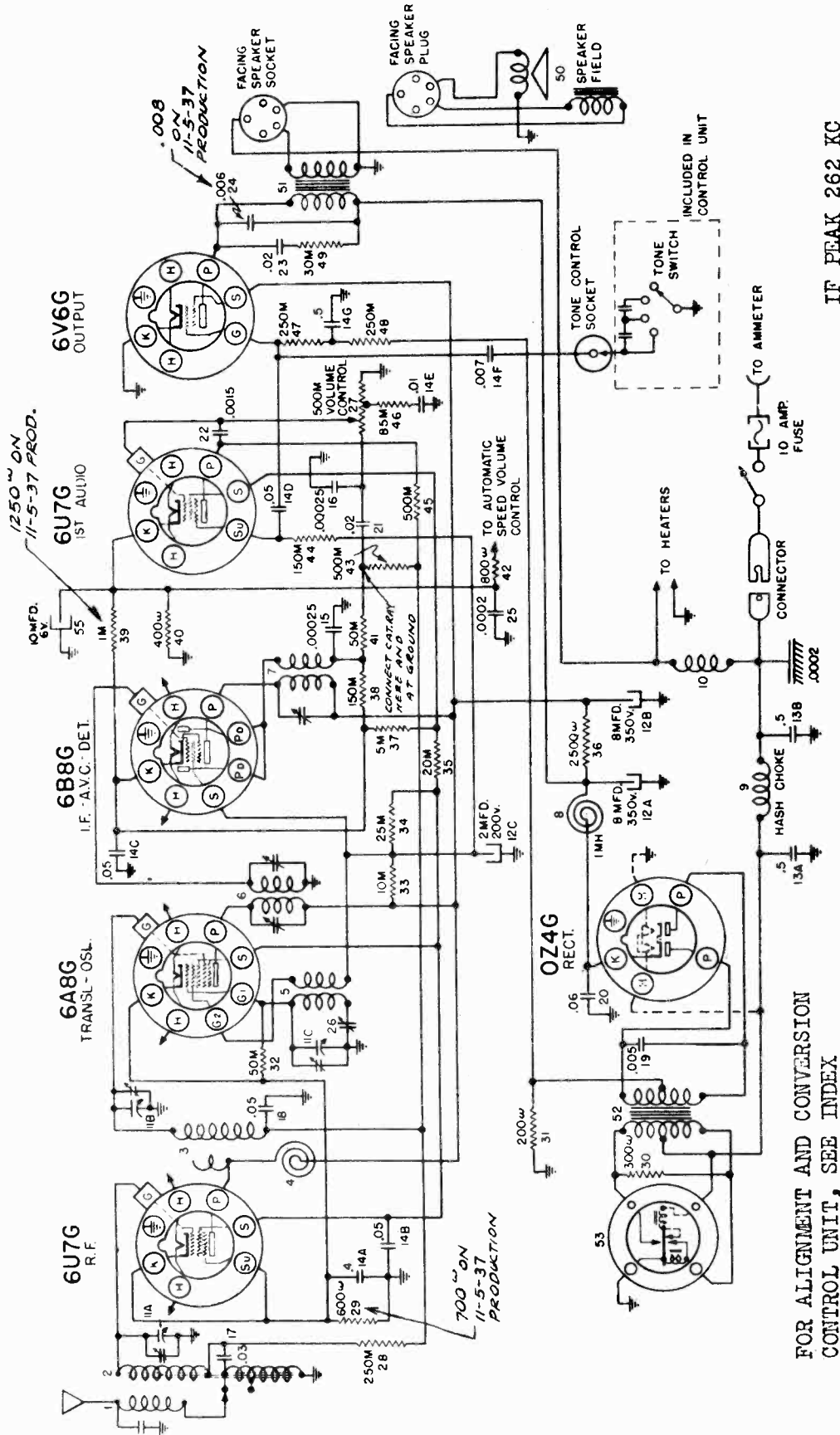


1427 Bottom View Chassis



OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982083
Early, Late
Schematic



IF PEAK 262 KC

FOR ALIGNMENT AND CONVERSION
CONTROL UNIT, SEE INDEX

FIG. 1 MODEL 982083 - CIRCUIT DIAGRAM

The Oldsmobile Model 982083 is a six tube single unit receiver with variable tone control. This receiver was designed specifically for 1938 Model Oldsmobiles and is equipped with an instrument panel tuning control having a variable tone control in addition to the tuning and volume controls.

MODEL 982083
 Early, Late
 Socket, Trimmers
 Chassis
 Condenser Schematic

OLDSMOBILE DIV.—GEN. MOTORS

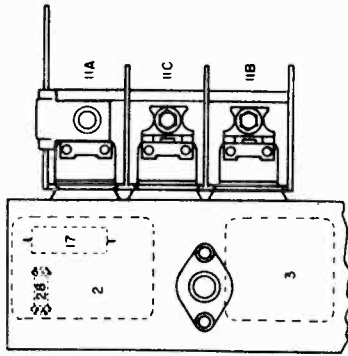


FIG. 3 GANG CONDENSER

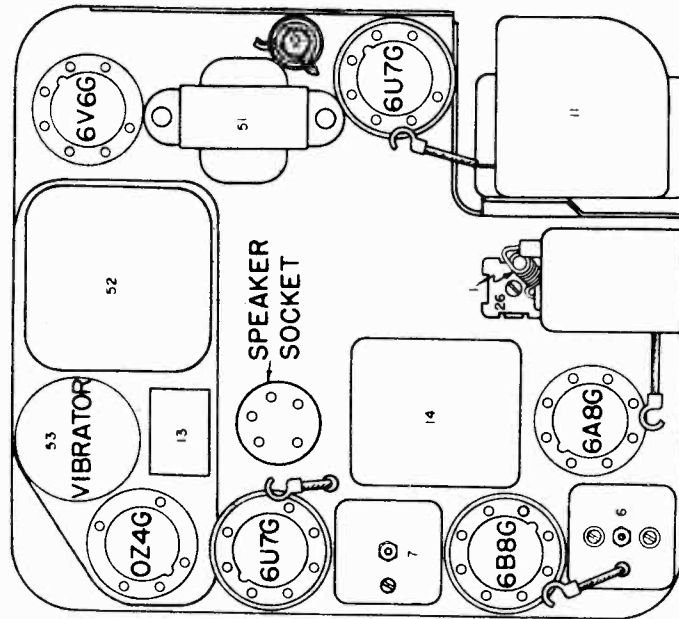


FIG. 2 PARTS LAYOUT - TOP VIEW

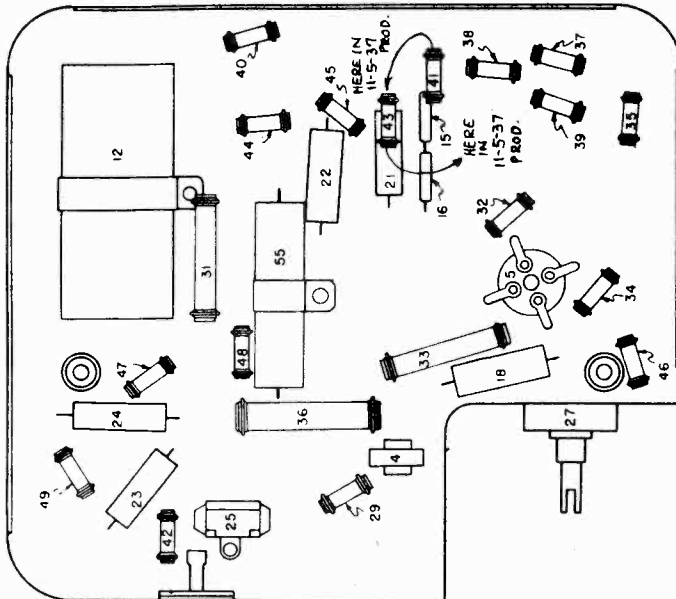


FIG. 4 PARTS LAYOUT - BOTTOM VIEW

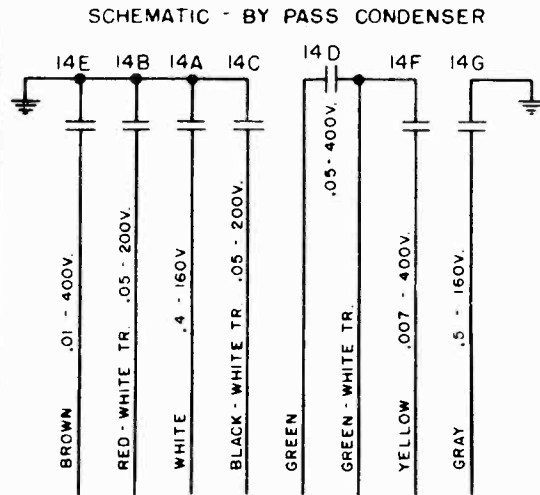


FIG. 6

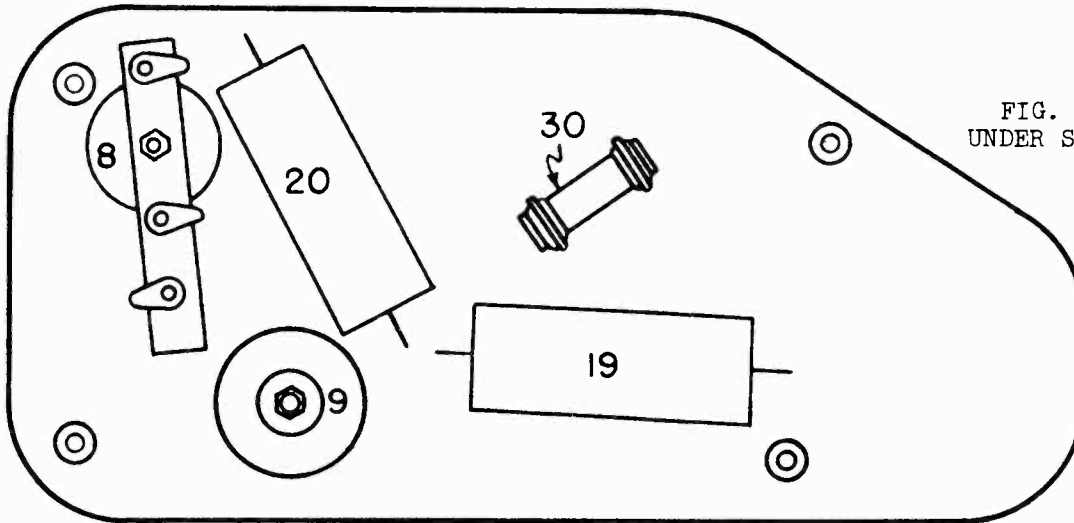


FIG. 7 PARTS UNDER SUB. PANEL

Remote Cont. Head
Details, Parts

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982063
MODEL 982085

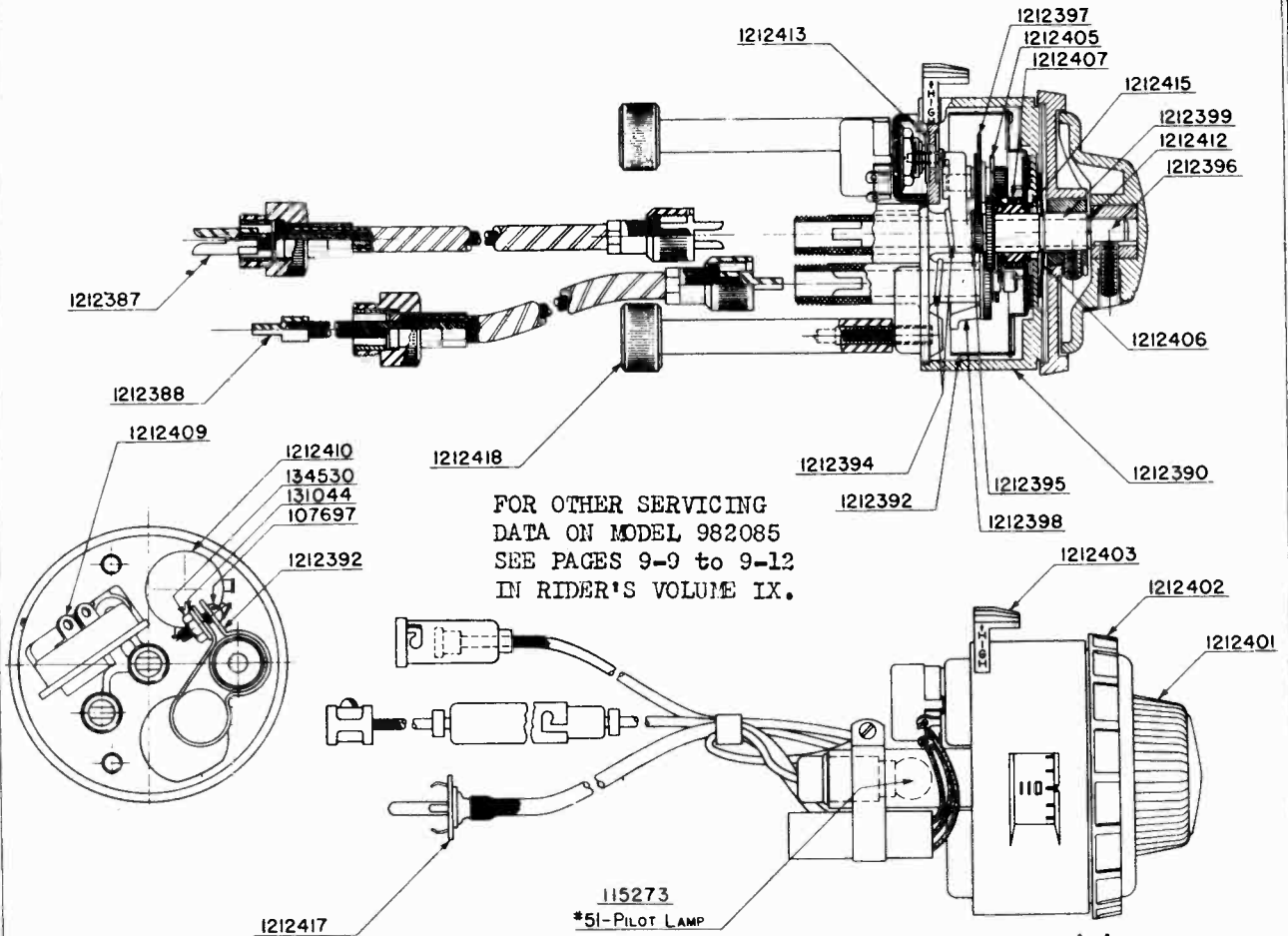


FIG. 8 REMOTE CONTROL HEAD

409976	Control Unit Complete	Standard	
1212484	Base	Control Assembly	
1212387	Cable Assembly Flexible	Station Selector	
1212388	Cable Assembly Flexible	Volume Control	
1212392	Clamp	Lead	
1212393	Clip	Shaft Retaining	
1212394	Clutch Dial Assembly		
1212397	Gear and Shaft Assembly	Idle Driving and Dial Drive	
1212396	Gear and Shaft	Dial Drive (Driving Pinion)	
1212398	Gear and Shaft	Off-On Volume (Driving)	
1212399	Gear and Shaft	Off-On Volume (Driven)	
1212401	Knob	Station Selector	
1212402	Knob	Off-On and Volume Control	
1212403	Knob	Tone Control	
115275	Lamp No. 51 Miniature Bayonet Base	Pilot Light	
134530	Nut 6/32	Lead Clamp Mtg.	
1212405	Plate	Gear Retaining	
1212482	Screw 4/36 x 3/16	Binder Head	
107697	Screw 6/32 x 3/8 R.H.	Lead Clamp Mtg.	
1212406	Spring	Case Retaining	
1212407	Spring	Dial Tension	
1212418	Stud	Control Unit Mtg.	
1212409	Switch	Off-On	
1212410	Switch	Tone Control 4 Positions	
1212413	Washer	Knob Retaining	
1212414	Washer	Off-On and Volume Shaft Retaining	
131044	Washer Lock	Lead Clamp Mtg.	
			Pinion Gear and Shaft Mtg.
			Dial Drive Bushing Mtg.
			Tone Control
			Escutcheon
			Tone Control
			No. 8 Lock
			Washer Plain
			Washer Plain
			Cable and Plug Assy.
			Case Control Unit
			Condenser Dual
			Washer
1212395			
1212415			
1212417			
1212390			
1212480			
121241			

MODEL 982083
 MODEL 982084
 "Hash" Elimination
 Changes, Notes

OLDSMOBILE DIV.—GEN. MOTORS

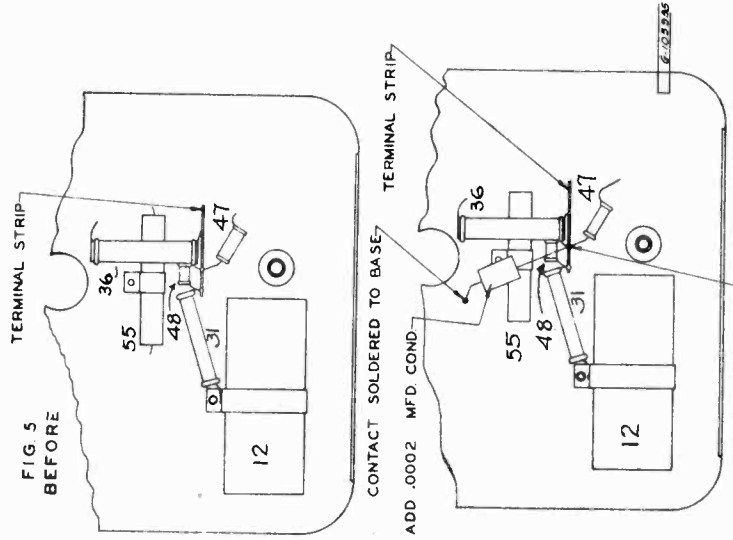
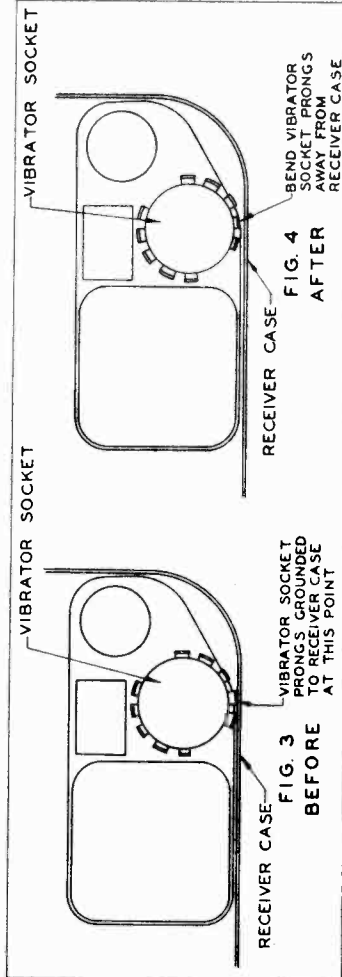
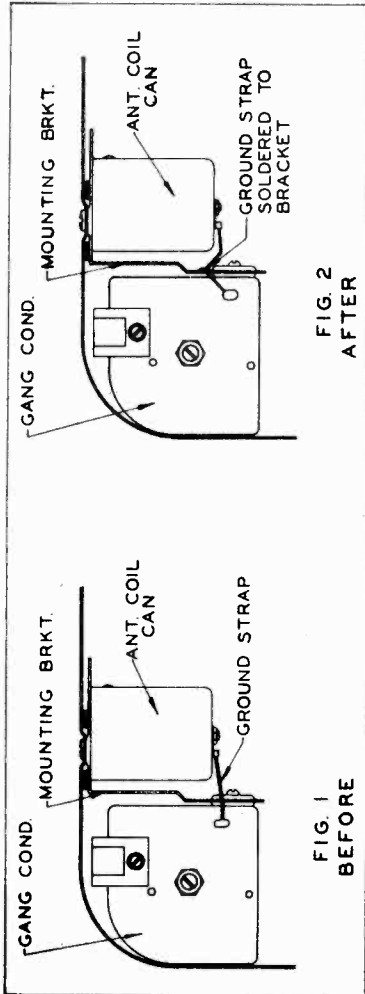


FIG. 5 BEFORE
 FIG. 6 AFTER

1. Ground the Gang Condenser can as shown in Figure 2.
 2. Bend vibrator prongs away from receiver case as shown in Figure 4.
 3. Tighten power supply mounting nuts.
- Standard Model - 982083 ONLY

SUBJECT--VIBRATOR "HASH" NOISE

Caution: Only radios that have a vibrator hash noise should have this correction made. If there is no hash noise and these changes are made to prevent hash noise into the radio, it will only tend toward driving hash noise into the radio.

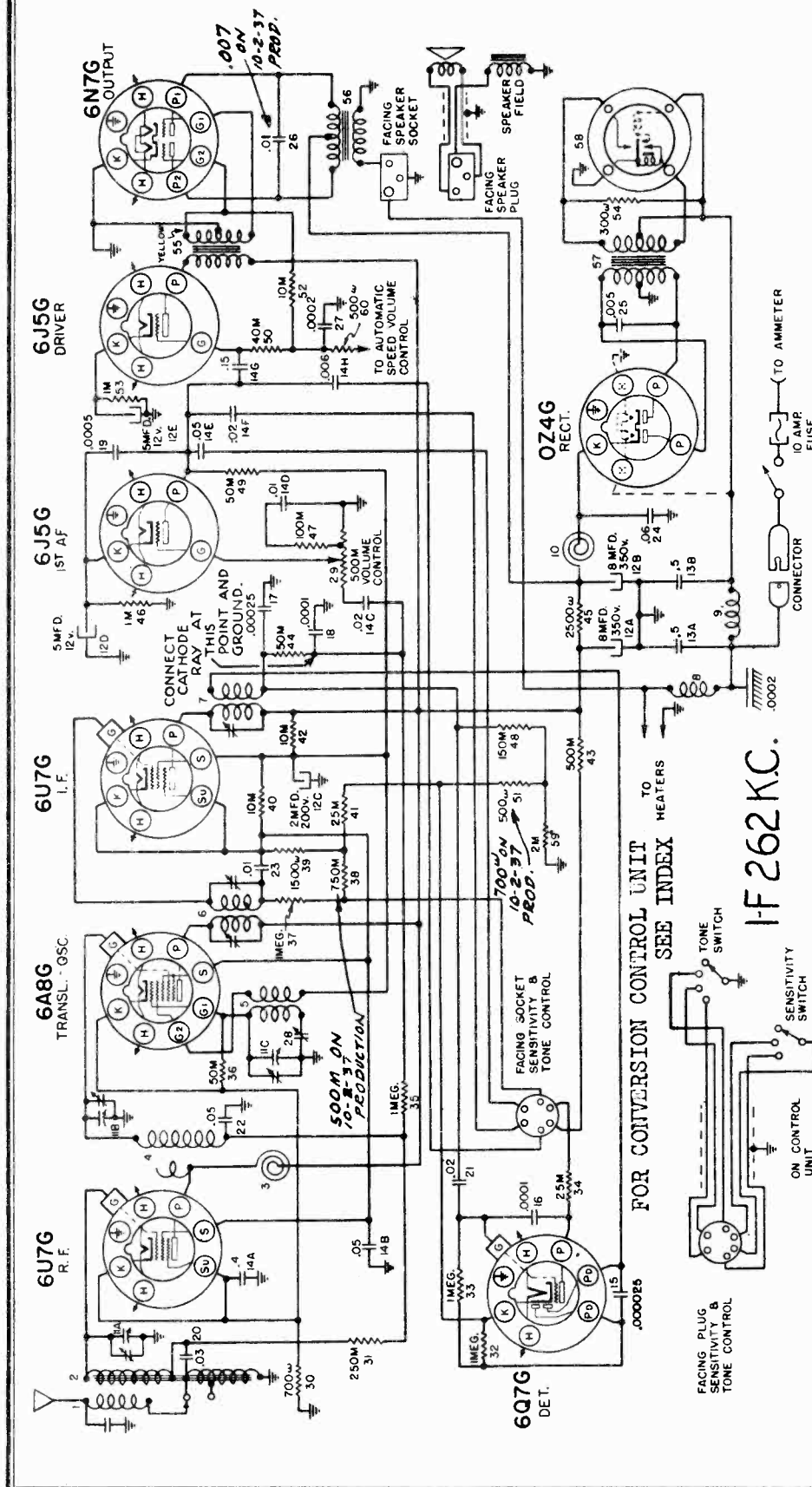
CORRECTION

The following procedure to correct vibrator hash is:
 Deluxe Model - 982084 ONLY

1. The Bond that grounds the Gang Condenser to the Antenna Coil can should be held against the Gang Condenser bracket and soldered. This is shown in Figure 1 before change, and Figure 2 after change.
2. Remove the receiver from the car and add a .0002 MFD condenser from the small terminal strip to ground. Solder one end of condenser to the same terminal that the two small resistors are soldered to and solder the other end of the condenser to the chassis ground, as shown in Figure 6.

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982084
Early, Late
Schematic Notes



The Oldsmobile Model 982084 is an eight tube Dash Speaker Deluxe Receiver, with tone and sensitivity controls. This receiver was designed specifically for 1938 Oldsmobiles and is equipped with an instrument panel tuning control having a sensitivity switch and variable tone control in addition to the tuning and volume controls.

The antenna circuit is directly coupled to the antenna in contrast with the capacity coupled circuit used in some previous Oldsmobile Models. A small adjustable condenser is provided for adjusting the antenna circuit to the antenna. This adjustment is made near the high frequency end of the band (1400 K.C.) instead of at the low frequency end as with the capacity coupled sets. There are two taps provided on the Antenna Coil. One for use with the Running Boards Antenna and the other for use with overhead (Roof) type Antennas.

MODEL 982084
Early, Late

OLDSMOBILE DIV.—GEN. MOTORS

Socket, Trimmers
Chassis

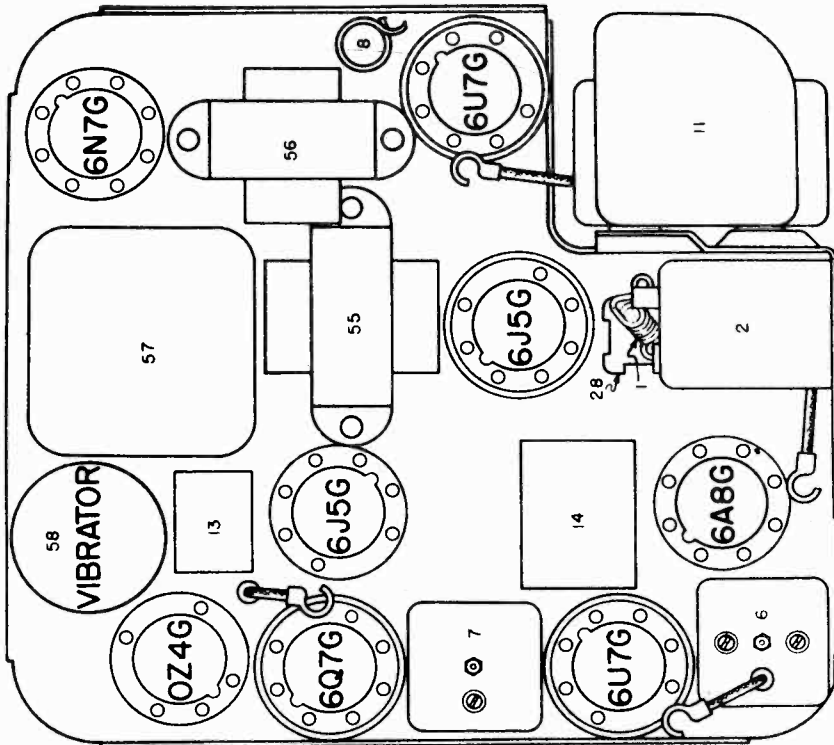


FIG. 2 PARTS LAYOUT-TOP VIEW

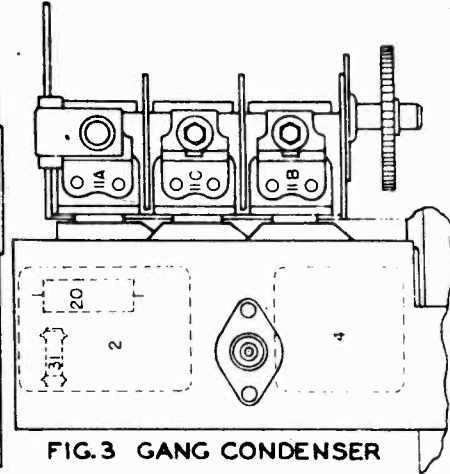


FIG. 3 GANG CONDENSER

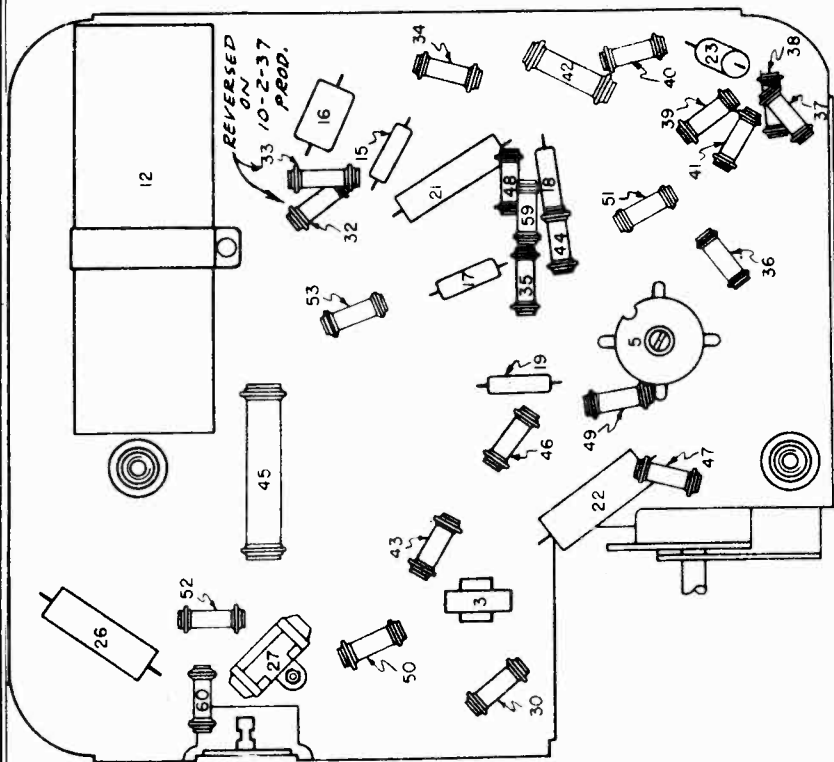


FIG. 4 PARTS LAYOUT-BOTTOM VIEW

FIG. 2-3-4 PARTS LAYOUT

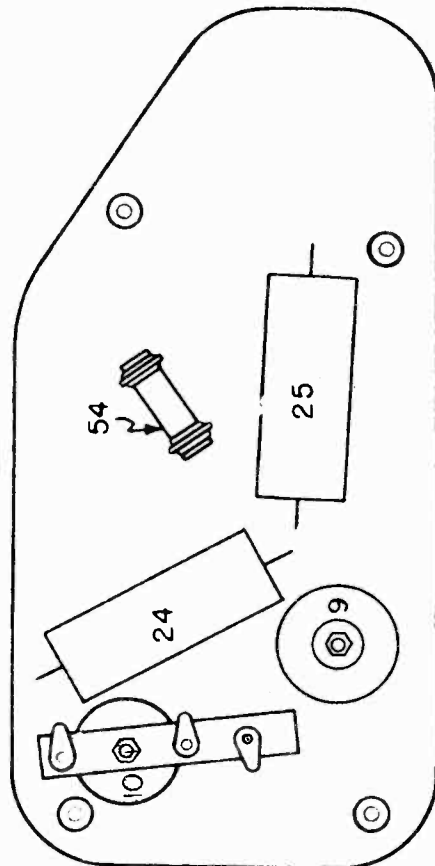


FIG. 7 PARTS UNDER SUB. PANEL

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982084
Early, Late
Alignment, Voltage

1. Aligning I-F Stages at 262 Kilocycles:
IMPORTANT: The sensitivity switch on the tuning control should be in the "Distance" position when aligning the receiver, or the cable from the control unit to the receiver disconnected.
 - a. Connect the signal lead of the test oscillator to the grid cap of the 6A8G Tube through a .1 mfd. condenser, leaving the tube's grid clip in place.
 - b. Connect the ground lead of the test oscillator to the chassis frame.
 - c. Connect the output meter across the plate prongs of the output tube. Care should be taken when connecting the output meter to insert a series condenser to protect the meter from D.C. Voltages.
 - d. Set the test oscillator to exactly 262 K.C.
 - e. Adjust the trimmers on the I-F coils (Illustration 6 and 7, Figure 2) for maximum output. These adjustments should be repeated several times and during alignment, the test oscillator output should be kept to as low a value as is consistent with obtaining a readable indication on the output meter.
2. Aligning at 1520 Kilocycles:
 - a. Leave the test oscillator leads connected the same as for aligning the I-F circuits.
 - b. Turn the rotor plates of the gang condenser all the way out and against the high frequency stop.
 - c. Set the test oscillator to 1520 Kilocycles.
 - d. Adjust the parallel trimmer for the oscillator section of the condenser gang (Illustration 11C, Figure 3) for maximum output. (It is very important that this frequency be set accurately as a slight mis-setting will cause the receiver to be out of track over the entire high frequency end of the dial.)
3. Aligning at 540 Kilocycles:
 - a. Leave test oscillator leads connected the same as before.
 - b. Turn the rotor plates of the gang condenser all the way into mesh so that they rest against the low frequency stop.
 - c. Set the test oscillator to 540 K.C.
 - d. Adjust the oscillator padding condenser (Illustration 2B, Figure 2) located on the mounting plate of the receiver to maximum output. (This adjustment sets the low frequency tuning range of the receiver to 540 K.C.)
4. Aligning at 1400 Kilocycles:
 - a. Remove the signal lead of the test oscillator from the grid of the Translator tube and connect to the antenna terminal of the receiver THROUGH A .00055 mfd. MICA CONDENSER connected in place of the .1 mfd. condenser previously used. (It is very important that a .00055 mfd. mica condenser be used in aligning the antenna stage of these receivers in order that this circuit can be made to track properly. Some test oscillators have this condenser included and if the capacity is correct, it will not be necessary to use an external series condenser.)
 - b. Set the test oscillator to 1400 K.C.
 - c. Turn the condenser rotor plates until the frequency is tuned in with maximum output.
5. Aligning at 600 Kilocycles:

The oscillator padding condenser was previously adjusted at 540 K.C., however, it is necessary in most cases to repeat the oscillator tracking condenser at 600 K.C. in order to make the receiver track properly and to secure full sensitivity.

 - a. Set the test oscillator on 600 K.C.
 - b. Turn the condenser rotor plates until the signal from the test oscillator is tuned in with maximum output.
 - c. Maintain a low output signal from the test oscillator and readjust the oscillator gang tuning shaft back and forth through the signal.
 - d. This operation should be continued until no further increase in output can be obtained.

NOTE: If the entire alignment procedure has been accomplished correctly, the receiver should be very nearly uniformly sensitive over the entire frequency range.

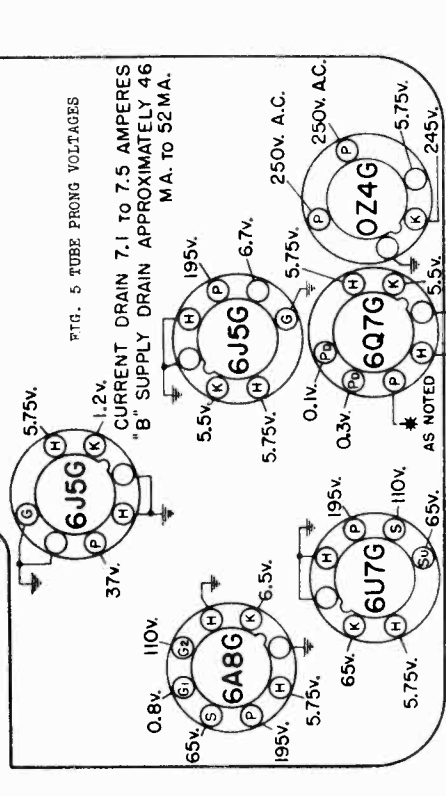
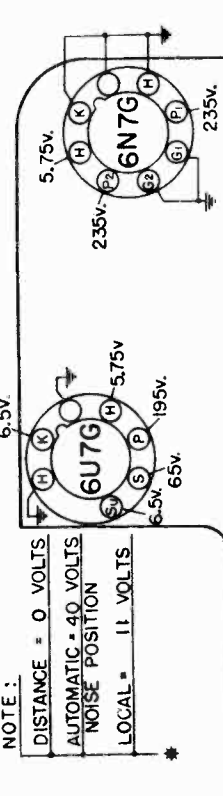


FIG. 5 TUBE PRONG VOLTAGES
CURRENT DRAIN 7.1 TO 7.5 AMPERES
"B" SUPPLY DRAIN APPROXIMATELY 46 MA. TO 52 MA.

BOTTOM VIEW OF TUBE SOCKETS
READINGS TAKEN FROM TUBE SOCKET CONTACTS TO GROUND WITH A D.C. VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT; "A" BATTERY 6 VOLTS

MODEL 982084
Early, Late

OLDSMOBILE DIV.—GEN. MOTORS

Remote Cont. Head
Assembly, Details
Condenser Schematic

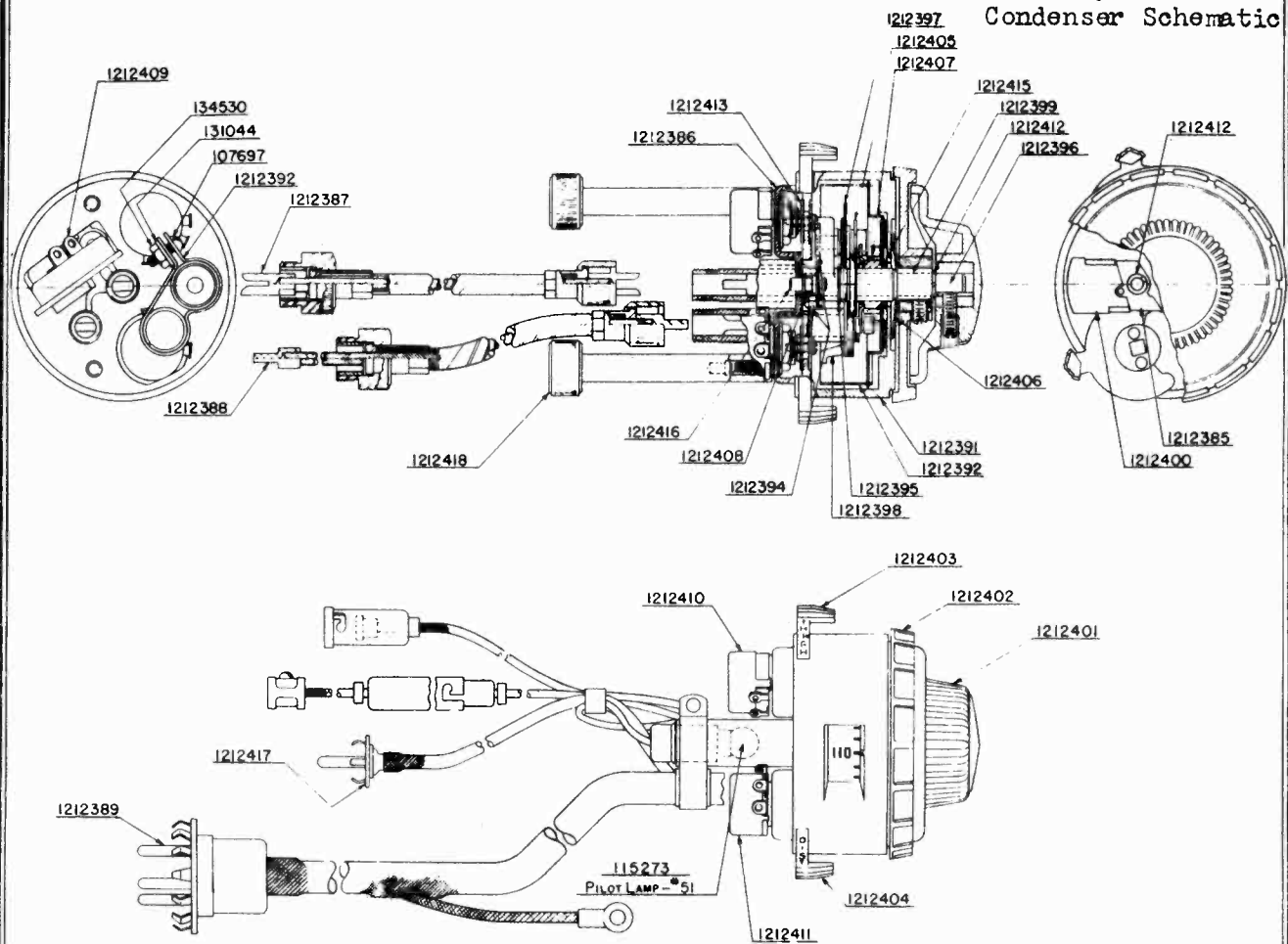


FIG. 8 REMOTE CONTROL HEAD

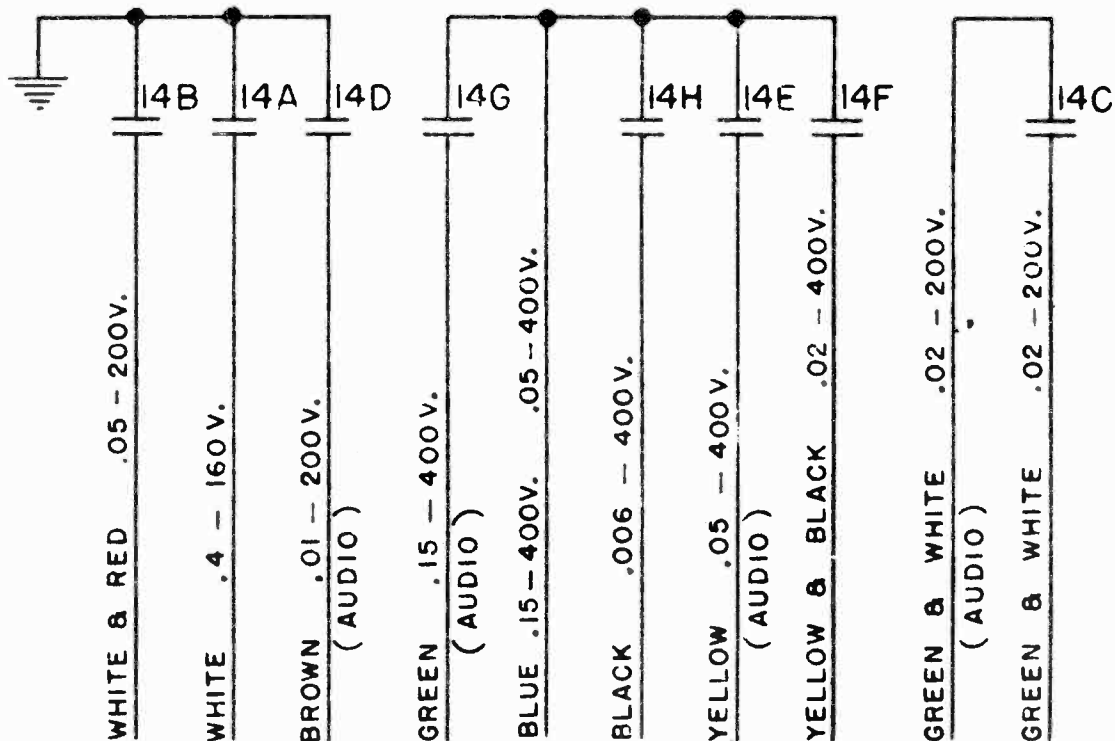
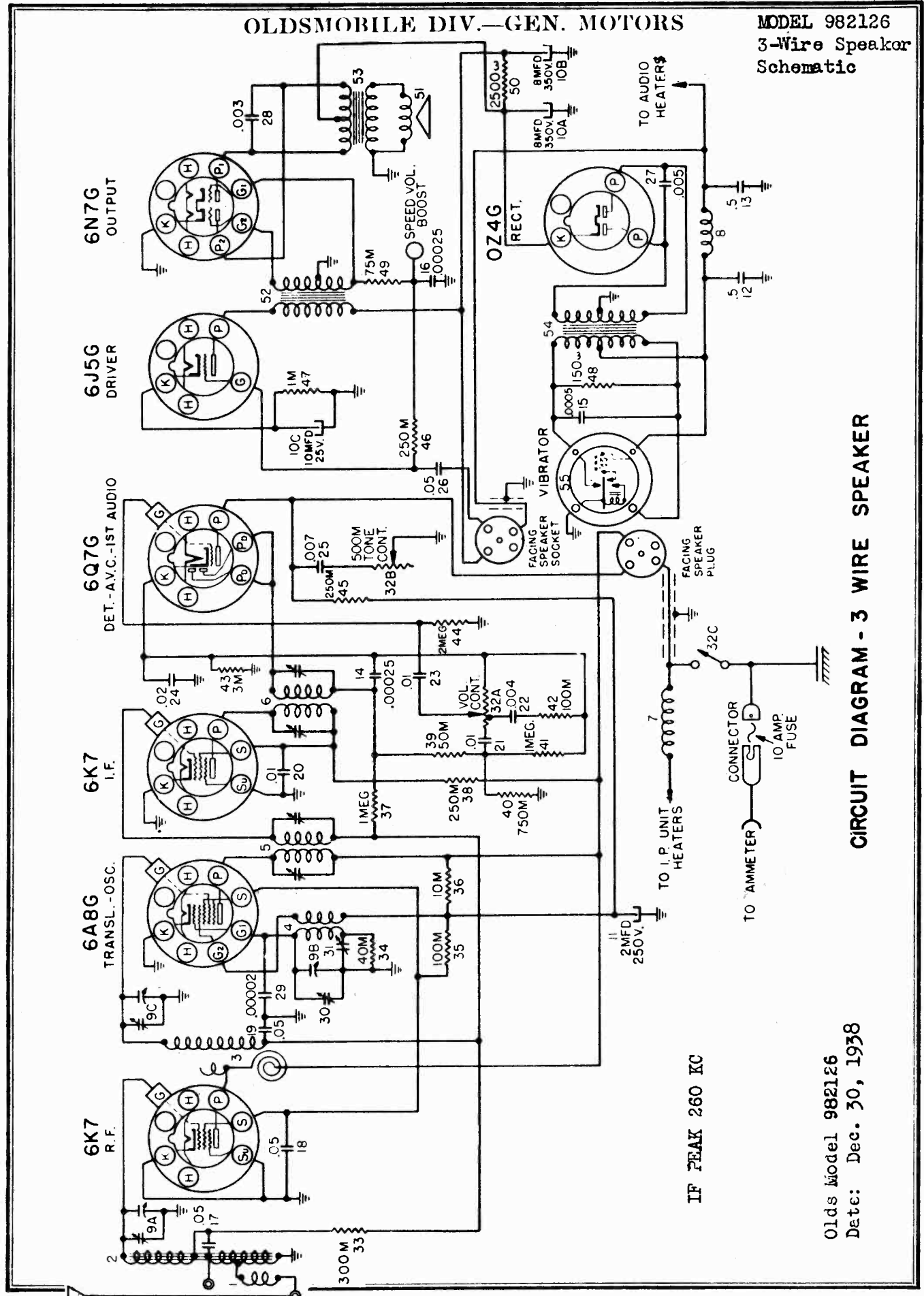


FIG. 7--#1212439 CONDENSER BLOCK CONNECTIONS

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982126
3-Wire Speaker
Schematic

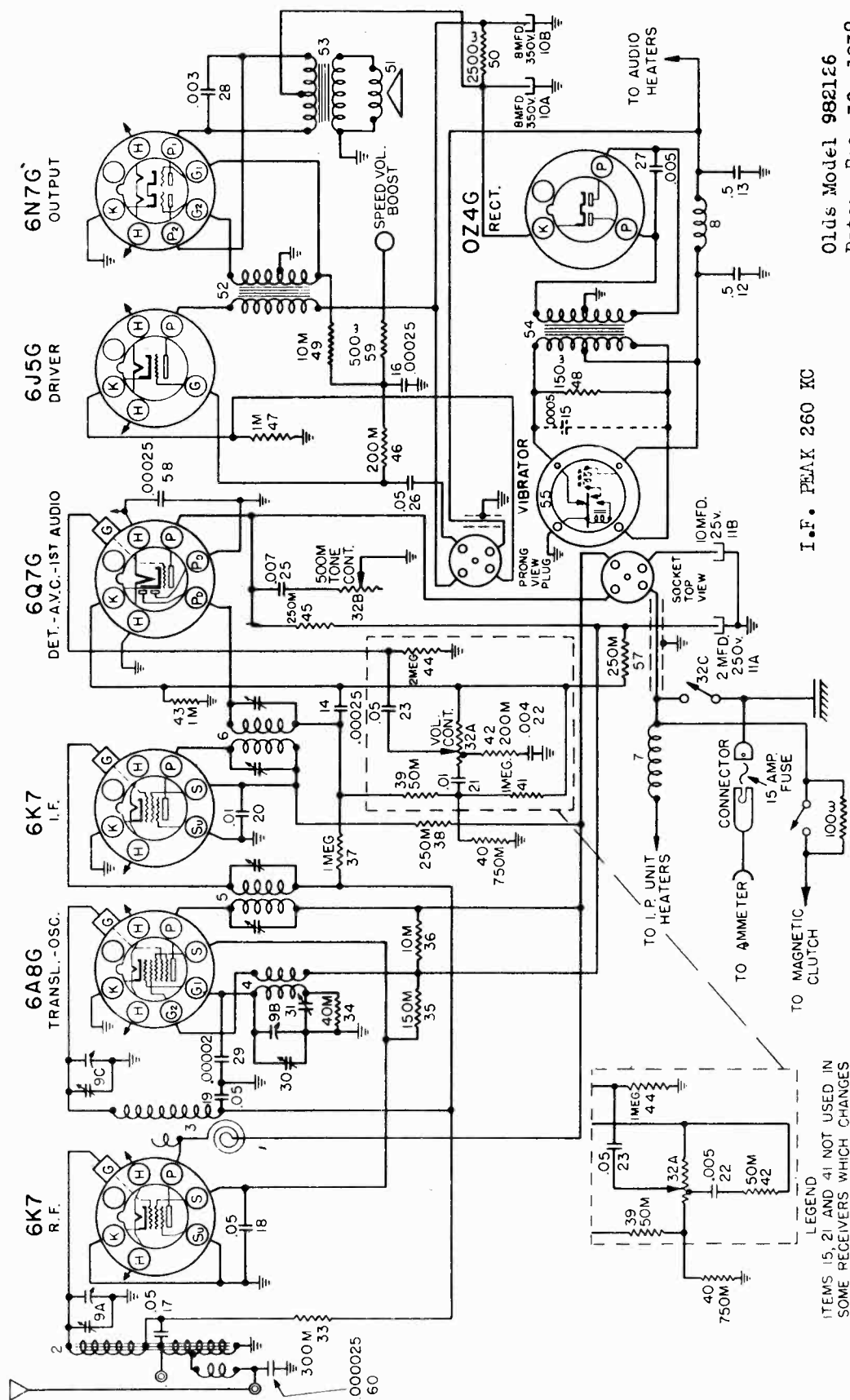


CIRCUIT DIAGRAM - 3 WIRE SPEAKER

Olds Model 982126
Dec. 30, 1938

MODEL 982126
4-Wire Speaker
Schematic

OLDSMOBILE DIV.—GEN. MOTORS



Olds Model 982126
Date: Dec. 30, 1938

I.F. PEAK 260 KC

CIRCUIT DESCRIPTION

The circuit used in this receiver is the conventional superheterodyne type and does not employ regeneration.

An Automatic Speed Volume Control, which increases volume with car speed, is incorporated in the receiver.

CIRCUIT DIAGRAM OLDS MODEL 982126
4 PRONG CABLE SPEAKER

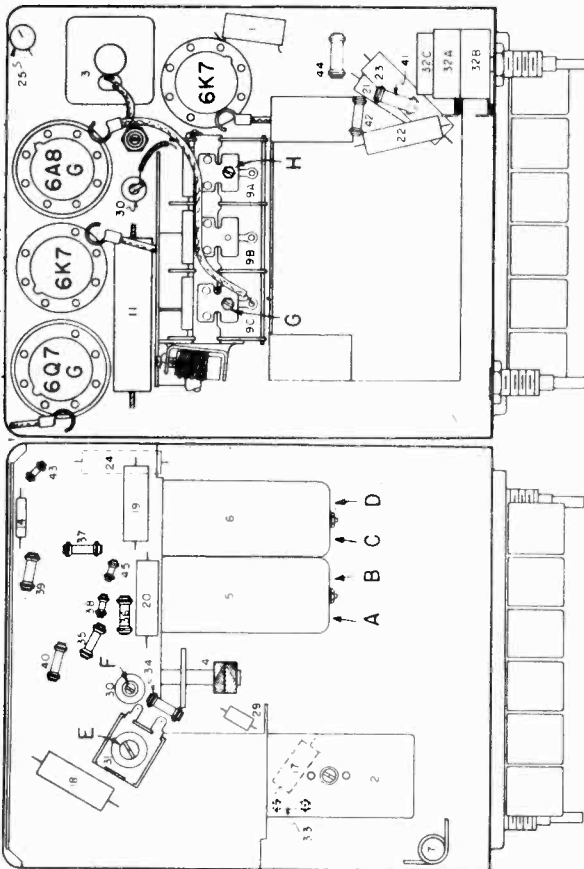
LEGEND
ITEMS 15, 21 AND 41 NOT USED IN
SOME RECEIVERS WHICH CHANGES
THE VALUES OF ITEMS 22, 42
AND 44 AS INDICATED.

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982126
 Socket Trimmers
 Chassis Alignment

ANTENNA CIRCUIT

The antenna circuit is directly coupled to the antenna. A small adjustable condenser is provided for adjusting the antenna circuit to the antenna. This adjustment is made near the high frequency end of the band (1400 K.C.). There are two antenna receptacles provided on the receiver. One for use with the running boards antenna and the other for use with the overhead (roof) type antenna.



1. Aligning I-F stages at 260 Kilocycles

- (a) Connect the signal lead of the test oscillator to the grid cap of the 6A8G Tube through a .1 mfd. condenser, leaving the tube's grid clip in place
- (b) Connect the ground lead of the test oscillator to the chassis frame.
- (c) Connect the output meter across the plate prongs of the output tube. Care should be taken when connecting the output meter to insert a series condenser to protect the meter from D. C. voltages.
- (d) Set the test oscillator to exactly 260 Kilocycles.
- (e) Adjust the trimmers "A", "B", "C" and "D" on the I-F Transformers for maximum output. (See parts layout). These adjustments should be repeated several times and during alignment the test oscillator output should be kept to as low a value as is consistent with obtaining a readable indication on the output meter.

2. Aligning at 1560 Kilocycles

- (a) Leave the test oscillator leads connected as for aligning the I-F Circuits.
- (b) Turn the Rotor plates of the gang condenser (Illustration #9) all the way out and against the high frequency stop.

- (c) Set the test oscillator to 1560 kilocycles.
- (d) Adjust the condenser "F" for maximum output. (It is very important that this frequency be set accurately as a slight missetting will cause the receiver to be out of track over the high frequency end of the dial.)

3. Aligning at 540 Kilocycles

- (a) Leave the test oscillator leads connected the same as before.
- (b) Turn the rotor plates of the gang condenser all the way into mesh so that they rest against the low frequency stop.
- (c) Set the test oscillator to 540 kilocycles.
- (d) Adjust the oscillator padding condenser "E" for maximum output. (This adjustment sets the low frequency tuning range of the receiver to 540 K.C.)

4. Aligning at 1400 Kilocycles

- (a) Remove the signal lead of the test oscillator from the grid of the 6A8G tube and connect to the Running Board Antenna receptacle of the receiver THROUGH a .00045 mfd. MICA CONDENSER connected in place of the .1 mfd. condenser previously used. (It is very important that a .00045 mfd. mica condenser be used when aligning the antenna stage of these receivers and that the lead from the test oscillator is in the correct terminal in order that this circuit can be made to track properly.)
- (b) Set the test oscillator to 1400 K.C.
- (c) Turn the condenser rotor plates until this frequency is tuned in with Maximum output.
- (d) Adjust the R-F Parallel trimmer "G" on the condenser gang and the antenna compensating condenser "H" which is the parallel trimmer on the Condenser Gang.

5. Aligning at 600 Kilocycles

- The oscillator padding condenser was previously adjusted at 540 K.C., however, it is necessary in most cases to repeat the oscillator tracking condenser at 600 K.C. in order to make the receiver track properly and to secure full sensitivity.
- (a) Set the test oscillator at 600 K. C.
 - (b) Turn the Condenser rotor plates until the signal from the test oscillator is tuned in with maximum output.
 - (c) Maintain a low output signal from the test oscillator and readjust the oscillator tracking condenser "E" while rocking the variable condenser gang tuning shaft back and forth through the signal.
 - (d) This operation should be continued until no further increase in output can be obtained.

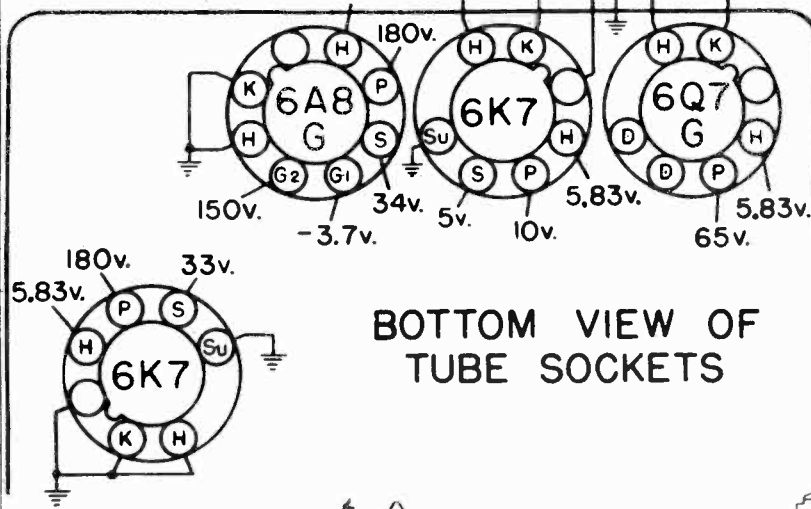
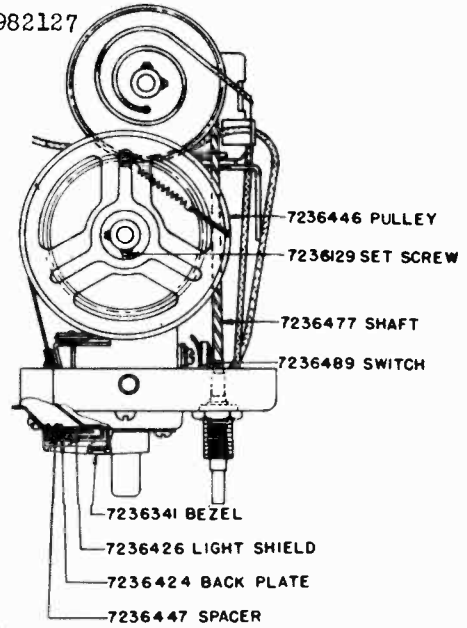
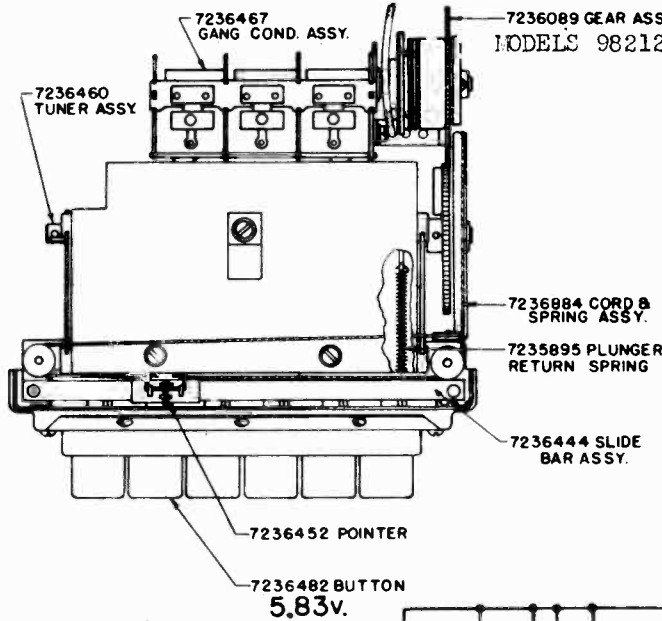
NOTE: If the entire alignment procedure has been accomplished accurately, the receiver should be very nearly uniformly sensitive over the entire frequency range.

Model 982126
 Date: Dec. 30, 1938.

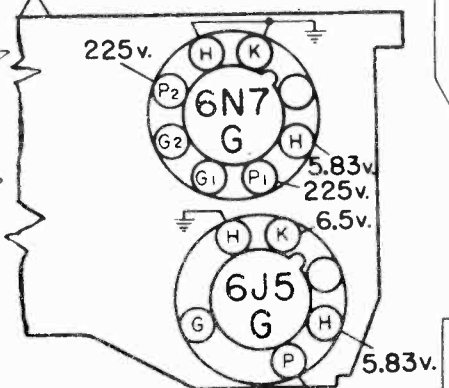
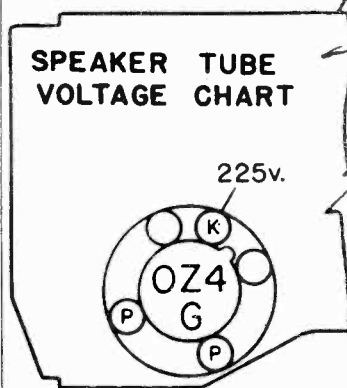
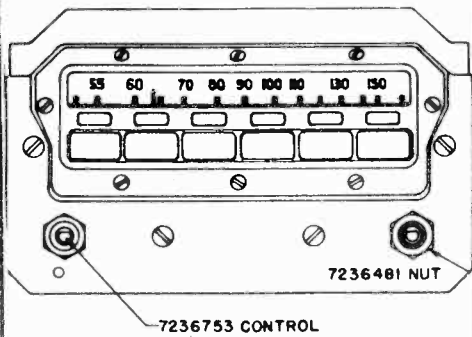
MODEL 982126
Voltage, Chassis
Control Assembly

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982127
Control Assembly

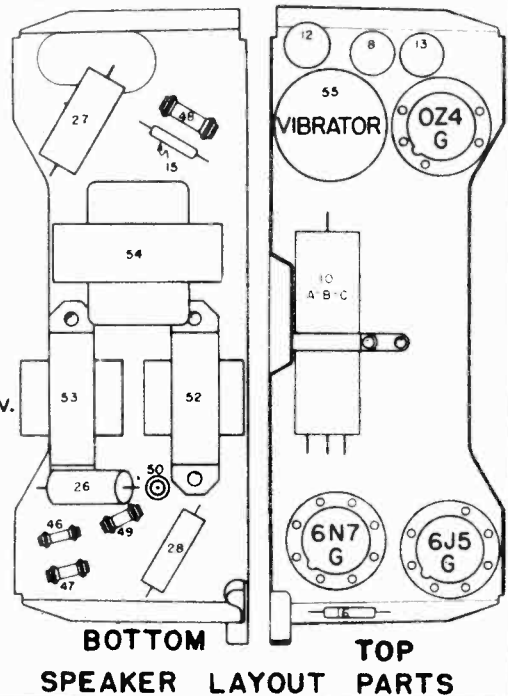


BOTTOM VIEW OF TUBE SOCKETS



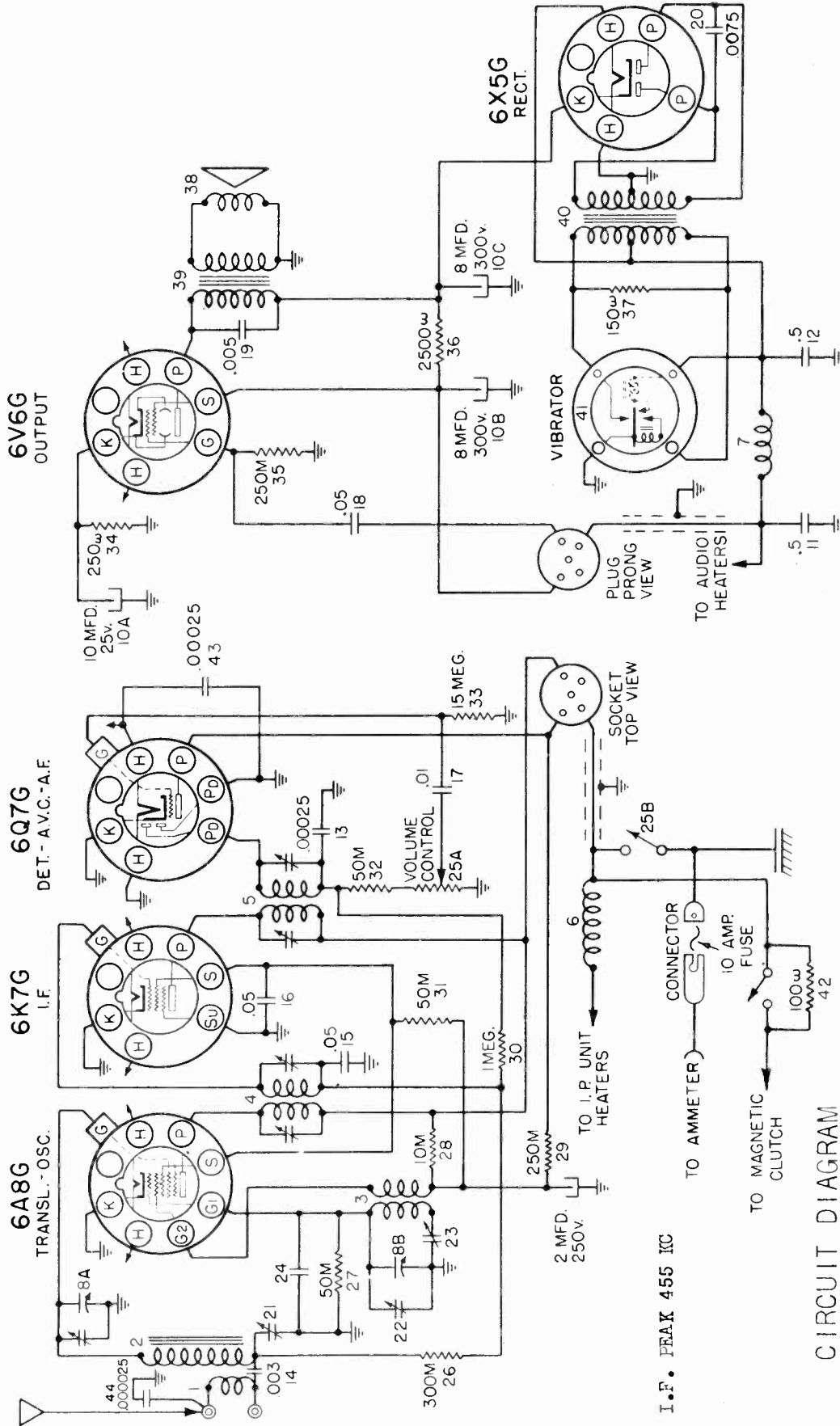
READINGS TAKEN FROM TUBE SOCKET CONTACTS TO GROUND WITH A D.C. VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT;
"A" BATTERY 6 VOLTS.

CURRENT DRAIN 6.7 TO 7.6 AMPERES.
"B" SUPPLY DRAIN APPROXIMATELY



OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982127
Schematic



CIRCUIT DIAGRAM

ANTENNA CIRCUIT

OLDS MODEL 982127

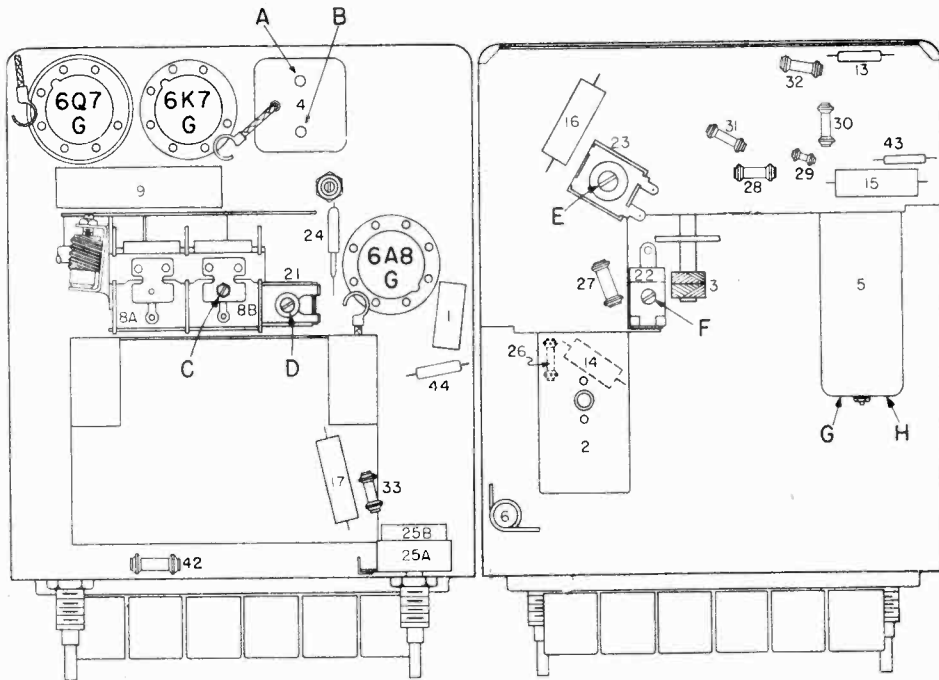
The antenna circuit is capacity coupled to the antenna. A small adjustable condenser is provided for adjusting the antenna circuit to the antenna. This adjustment is made near the low frequency end of the band (600 K.C.) There are two antenna receptacles provided on the receiver. One for use with the Running Boards Antenna and the other for use with Side Cowl Mounted type Antenna.

Olds Model 982127
Date: April 20, 1939

MODEL 982127
Socket, Trimmers
Alignment

OLDSMOBILE DIV.—GEN. MOTORS

5. Aligning at 600 Kilocycles
The oscillator padding condenser was previously adjusted at 540 K.C., however, it is necessary in most cases to repeak the oscillator padding condenser at 600 K.C. in order to make the receiver track properly and to secure full sensitivity.
- Set the test oscillator at 600 K.C.
 - Turn the condenser rotor plates until the signal from the test oscillator is tuned in with maximum output.
 - Maintain a low output signal from the test oscillator and readjust the oscillator padding condenser "G" while rocking the variable condenser gang tuning shaft back and forth through the signal.
 - This operation should be continued until no further increase in output can be obtained.
- NOTE: If the entire alignment procedure has been accomplished correctly, the receiver should be very nearly uniformly sensitive over the entire frequency range.



LOCATION OF PARTS - OLDS MODEL 982127

Note: For tuning head mechanism parts, refer to Olds Model Radio 982126.

- Aligning I-F Stages at 455 Kilocycles
(a) Connect the signal lead of the test oscillator to the grid cap of the 6AG5 tube through a .1 mfd. condenser, leaving the tube's grid clip in place.
- Connect the ground lead of the test oscillator to the chassis frame.
- Connect the output meter from the plate prong of the output tube to ground. Care should be taken when connecting the output meter to insert a series condenser to protect the meter from D. C. Voltages.
- Set the test oscillator to exactly 455 K.C.
- Turn volume control to maximum.
- Adjust the trimmers "A", "B", "G" and "H" on the I-F Transformers for maximum output. (See parts layout) These adjustments should be repeated several times and during alignment the test oscillator output should be kept to as low a value as is consistent with obtaining a readable indication on the output meter.

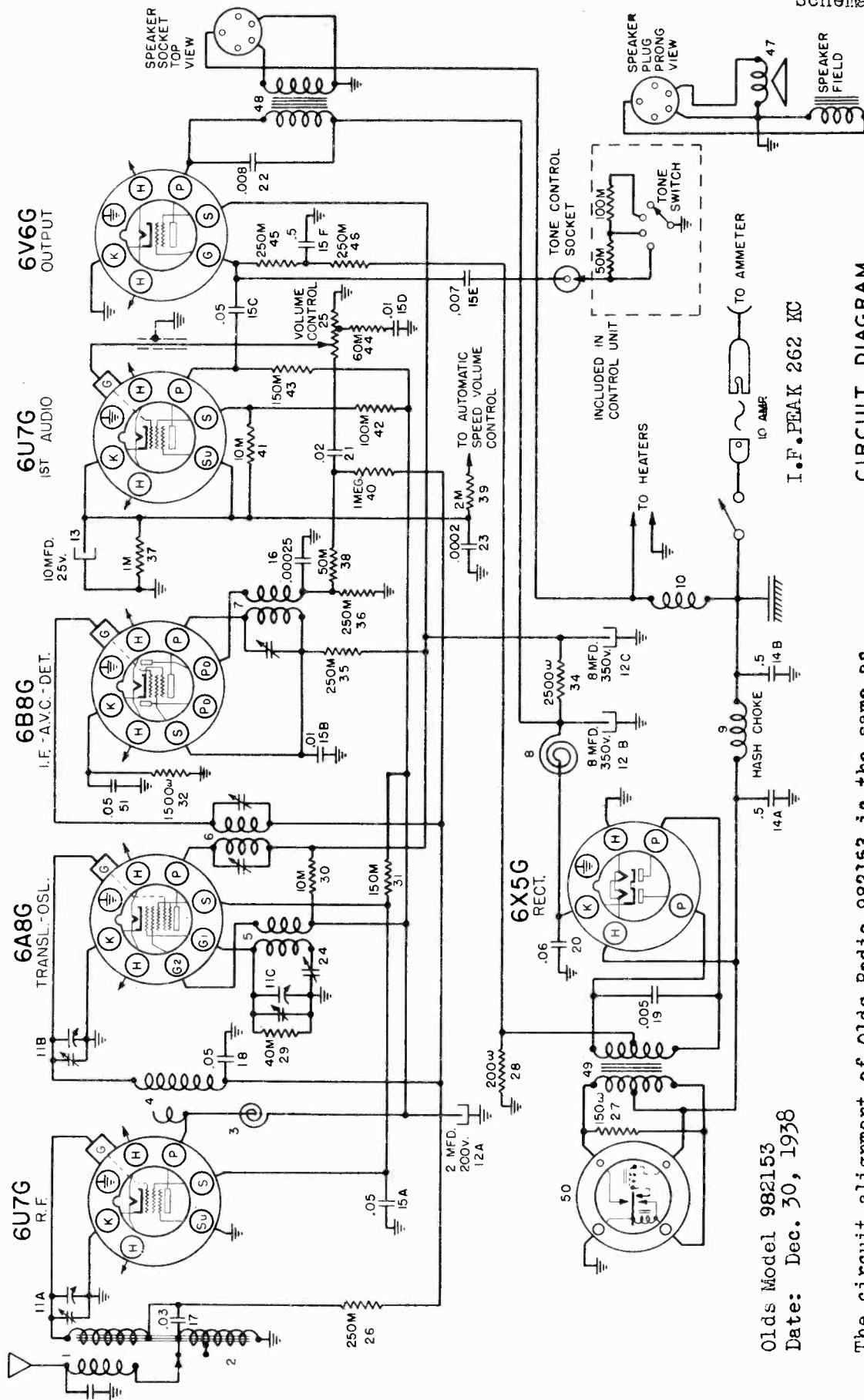
- Aligning at 1520 Kilocycles
 - Leave the test oscillator leads connected the same as for aligning the I-F Circuits.
 - Turn the Rotor plates of the gang condenser (illus. #8) all the way out and against the high frequency stop.
 - Set the test oscillator to 1520 kilocycles.
 - Adjust the condenser "F" for maximum output. (It is very important that the frequency be set accurately as a slight missetting will cause the receiver to be out of track over the entire high frequency end of the dial.)

- Aligning at 540 Kilocycles
 - Leave test oscillator leads connected the same as before.
 - Turn the rotor plates of the gang condenser all the way into mesh so that they rest against the low frequency stop.
 - Set the test oscillator to 540 K.C.
 - Adjust the oscillator padding condenser "E" for maximum output. (This adjustment sets the low frequency tuning range of the receiver to 540 K.C.)

- Aligning the Antenna Stage
 - Remove the signal lead of the test oscillator from the grid of the 6AG5 tube and connect to the Running Board Antenna receptacle of the receiver through a .0004 mfd. MICA CONDENSER connected in place of the .1 mfd. condenser previously used. (It is very important that a .0004 mfd. mica condenser be used when aligning the antenna stage of these receivers and that the lead from the test oscillator is in the correct receptacle in order that this circuit can be made to track properly.)
 - Set the test oscillator to 600 K.C.
 - Adjust antenna trimmer condenser "D" for maximum output.
 - Set the test oscillator to 1400 K.C.
 - Turn the condenser rotor plates until this frequency is tuned in with maximum output.
 - Adjust the Parallel trimmer "C" on the condenser gang for maximum output.

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982153
Schematic



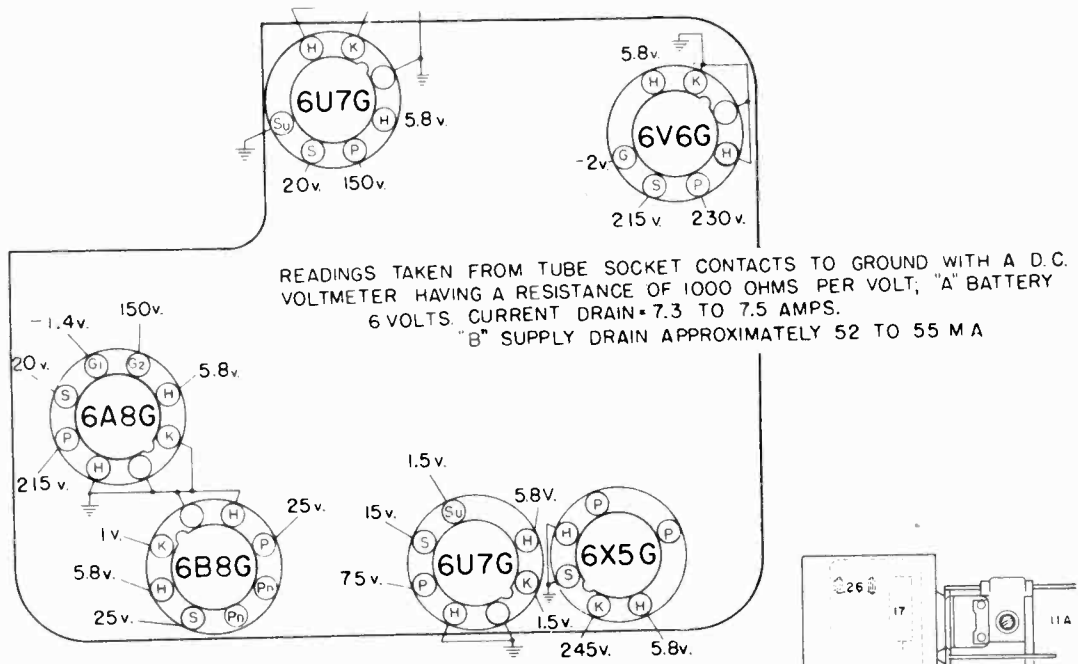
Olds Model 982153
Date: Dec. 30, 1938

CIRCUIT DIAGRAM
OLDS RADIO-982153

The circuit alignment of Olds Radio 982153 is the same as
Olds Radio 982083
FOR CONVERSION CONTROL UNIT
SEE INDEX

MODEL 982153
Voltage, Chassis
Socket, Trimmers

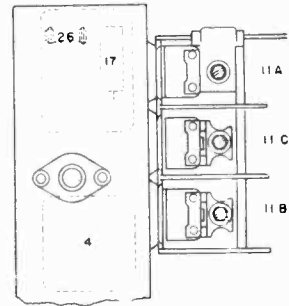
OLDSMOBILE DIV.—GEN. MOTORS



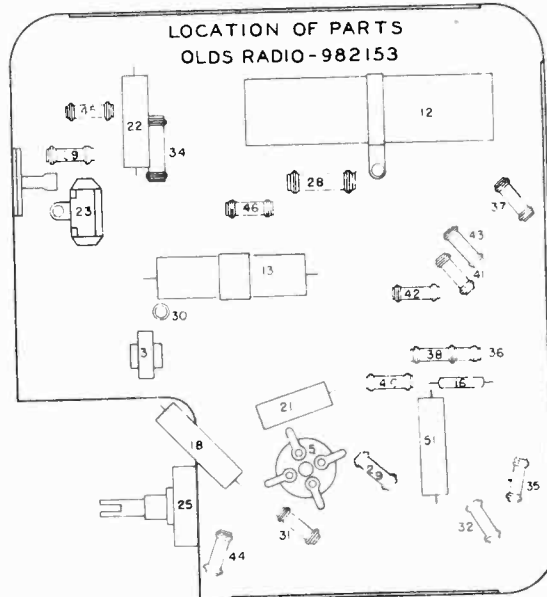
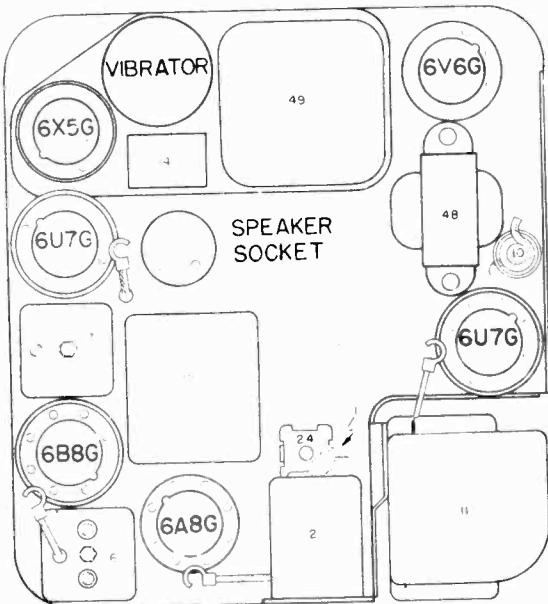
READINGS TAKEN FROM TUBE SOCKET CONTACTS TO GROUND WITH A D.C. VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT; "A" BATTERY 6 VOLTS. CURRENT DRAIN = 7.3 TO 7.5 AMPS.
"B" SUPPLY DRAIN APPROXIMATELY 52 TO 55 MA

BOTTOM VIEW OF TUBE SOCKETS

FIG. 3
PRONG VOLTAGES
OLDS RADIO-982153



POWER SUPPLY UNIT LOCATION OF PARTS
RADIO 982153



MODEL 982153
Alignment

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982083
Voltage, Alignment

d. Adjust the R-F parallel trimmer on the condenser gang (Illustration 11-B) and the antenna compensating condenser which is the parallel trimmer on the Condenser Gang (Illustration 11-A, Figure 3).

5. Aligning at 600 Kilocycles:

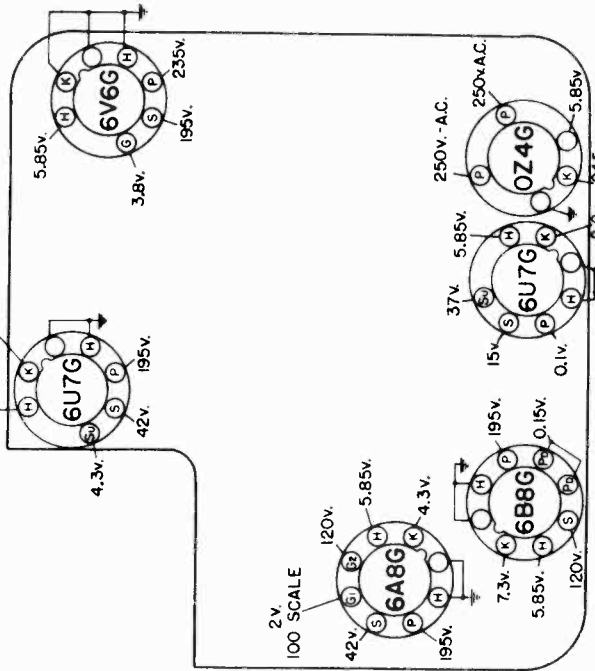
The oscillator padding condenser was previously adjusted at 540 K.C., however, it is necessary in most cases to repeak the oscillator tracking condenser at 600 K.C. in order to make the receiver track properly and to secure full sensitivity.

a. Set the test oscillator on 600 K.C.

b. Turn the condenser rotor plates until the signal from the test oscillator is tuned in with maximum output.

c. Maintain a low output signal from the test oscillator and readjust the oscillator tracking condenser (Illustration 26, Figure 2) while rocking the variable condenser gang tuning shaft back and forth through the signal.

d. This operation should be continued until no further increase in output is obtained. Note if the entire alignment procedure has been accomplished correctly, the receiver should be very nearly uniformly sensitive over the entire frequency range.



BOTTOM VIEW OF TUBE SOCKETS

READINGS TAKEN FROM TUBE SOCKET CONTACTS TO GROUND WITH A D.C. VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT; "A" BATTERY 6 VOLTS. CURRENT DRAIN—6.6 TO 6.8 AMPS. "B" SUPPLY DRAIN APPROXIMATELY 50 TO 54 M.A.

FIG. 5 TUBE PRONG VOLTAGES - MODEL 982083

1. Aligning I-F Stages at 262 Kilocycles:

a. Connect the signal lead of the test oscillator to the grid cap of the 6A8G tube through a .1 mfd. condenser, leaving the tube's grid clip in place.

b. Connect the ground lead of the test oscillator to the chassis frame.

c. Connect the output meter from the plate prong of the 6V6G to ground. Care should be taken when connecting the output meter to insert a series condenser to protect the meter from D.C. voltages.

d. Set the test oscillator to exactly 262 K.C.

e. Adjust the trimmers on the I-F coils (Illustration 6 and 7, Figure 2) for maximum output. These adjustments should be repeated several times and during alignment the test oscillator output should be kept to as low a value as is consistent with obtaining a readable indication on the output meter.

2. Aligning at 1520 Kilocycles:

a. Leave the test oscillator leads connected the same as for aligning the I-F circuits.

b. Turn the rotor plates of the gang condenser all the way out and against the high frequency stop.

c. Set the test oscillator to 1520 kilocycles.

d. Adjust the parallel trimmer for the oscillator section of the condenser gang (Illustration 11C, Figure 3) for maximum output. (It is very important that this frequency be set accurately as a slight mis-setting will cause the receiver to be out of track over the entire high frequency end of the dial.)

3. Aligning at 540 Kilocycles:

a. Leave test oscillator leads connected the same as before.

b. Turn the rotor plates of the gang condenser all the way into mesh so that they rest against the low frequency stop.

c. Set the test oscillator to 540 K.C.

d. Adjust the oscillator padding condenser (Illustration 26, Figure 2) located on the mounting plate of the receiver to maximum output. (This adjustment sets the low frequency tuning range of the receiver to 540 K.C.)

Aligning at 1400 Kilocycles:

a. Remove the signal lead of the test oscillator from the grid of the Translator tube and connect to the antenna terminal of the receiver THROUGH A .00055 mfd. MICA CONDENSER connected in place of the .1 mfd. condenser previously used. (It is very important that a .00055 mfd. mica condenser be used in aligning the antenna stage of these receivers in order that this circuit can be made to track properly. Some test oscillators have this condenser included and if the capacity is correct, it will not be necessary to use an external series condenser.)

b. Set the test oscillator to 1400 K.C.

c. Turn the condenser rotor plates until the frequency is tuned in with maximum output.

MODEL 982083
 MODEL 982084
 MODEL 982085
 MODEL 982153

OLDSMOBILE DIV.—GEN. MOTORS

Conversion Cont.Units
 Assembly, Parts List

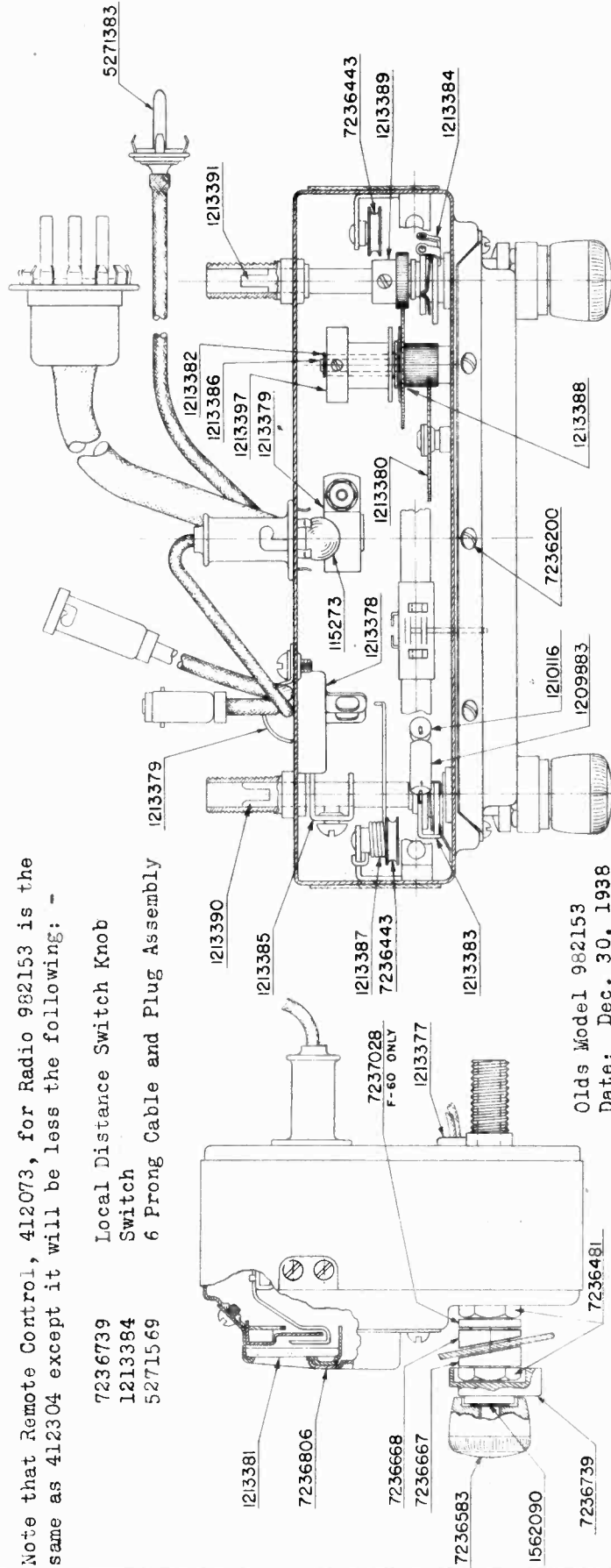
CONVERSION CONTROL UNIT 412304.

1213385	Arm Assembly	1213397	Dial Drive
7236806	Bezel Assembly	7236443	Wood
5271383	Cable & Plug Assembly	1210116	Insulated 50,000 ohms, 1/2 Watt
1213379	Cable & Plug Assembly	1209883	Insulated 100,000 ohms, 1/2 Watt
1213382	Clamp	7236200	Bezel Mounting
1213381	Clip	1213391	Station Selector
1213388	Dial Glass	1213390	Volume Control
1213389	Gear Assembly	1213387	Dial Pointer - String Tension
1213380	Gear & Bushing Assy.	1213386	Idler Gear
1213377	Grommet	1213378	Off-On Switch
115273	Lamp #51	1213383	Tone Control Switch
7236583	Knob	1213384	Local Distance Switch
7236739	Knob		
7236481	Nut 7/16-28 Hex		

Note that Remote Control, 412073, for Radio 982153 is the same as 412304 except it will be less the following: -

- 7236739 Local Distance Switch Knob
- 1213384 Switch
- 5271569 6 Prong Cable and Plug Assembly

CONVERSION CONTROL UNIT 412304
 INCLUDED IN PACKAGE 982123
 USED IN CONNECTION WITH RECEIVER
 982083-4-5



Olds Model 982153
 Date: Dec. 30, 1938