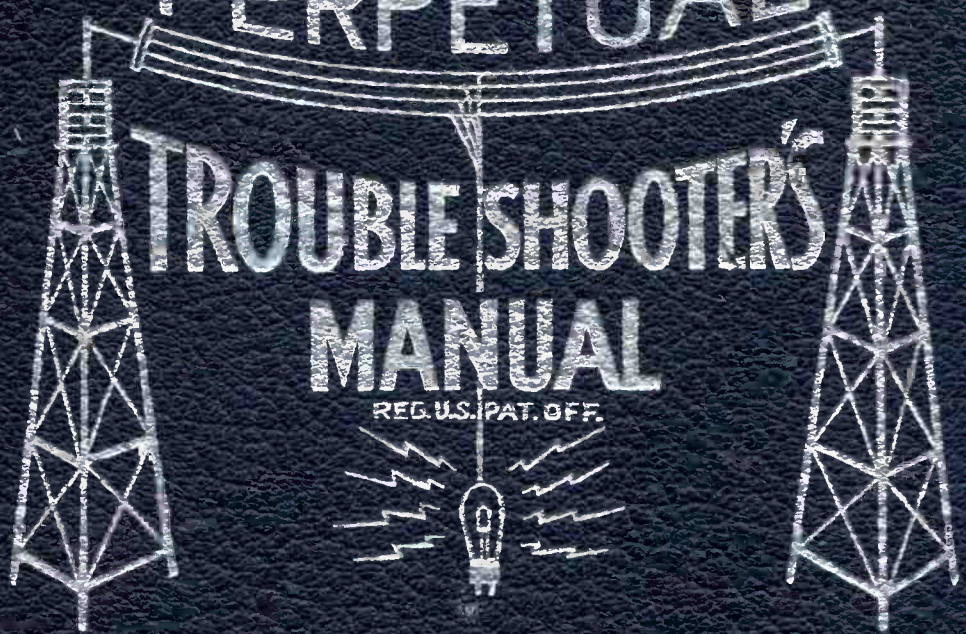
VOLUME XIII

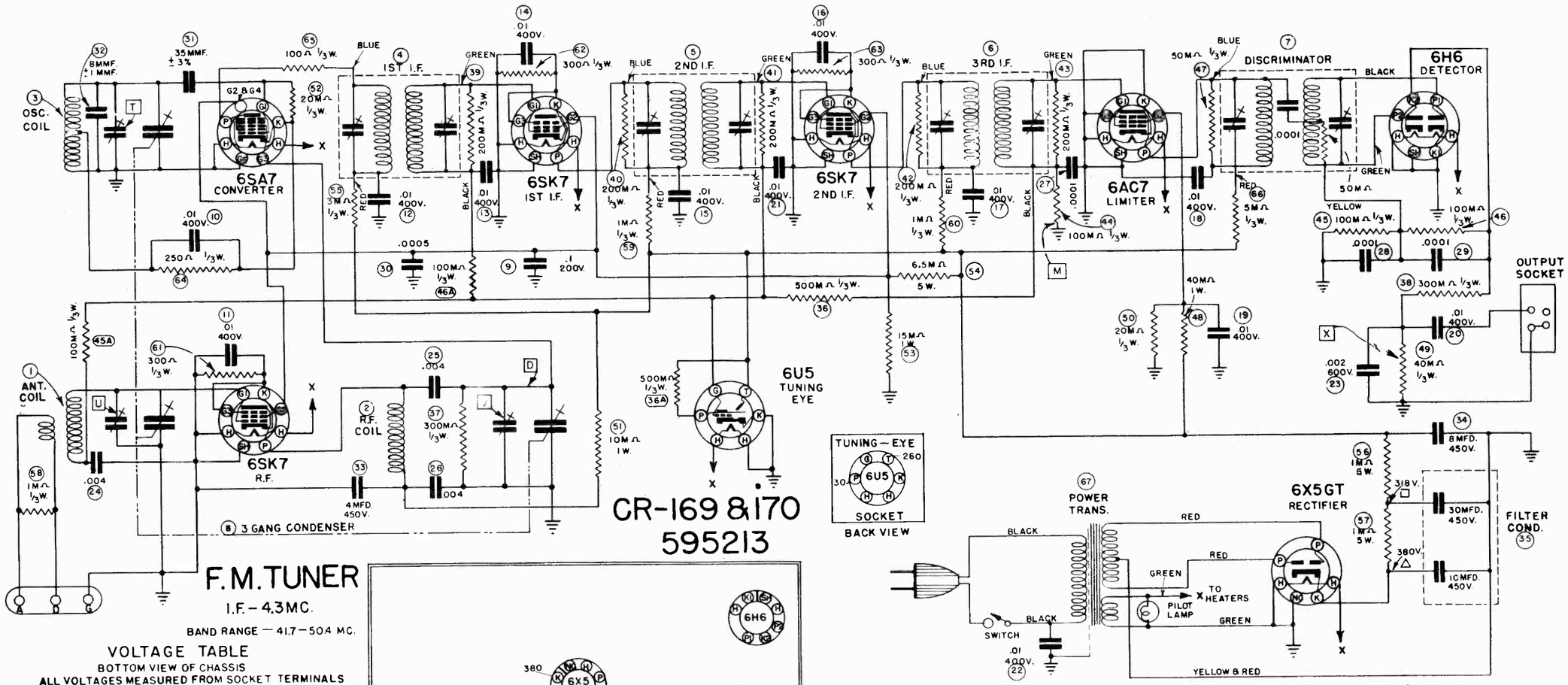
PERPETUAL TROUBLE SHOOTER'S MANUAL

REG. U.S. PAT. OFF.



JOHN F. RIDER

THE MAGNAVOX CO., INC.



F.M. TUNER

I.F. – 4.3MC.

BAND RANGE — 41.7 – 50.4 MC.

VOLTAGE TABLE

BOTTOM VIEW OF CHASSIS

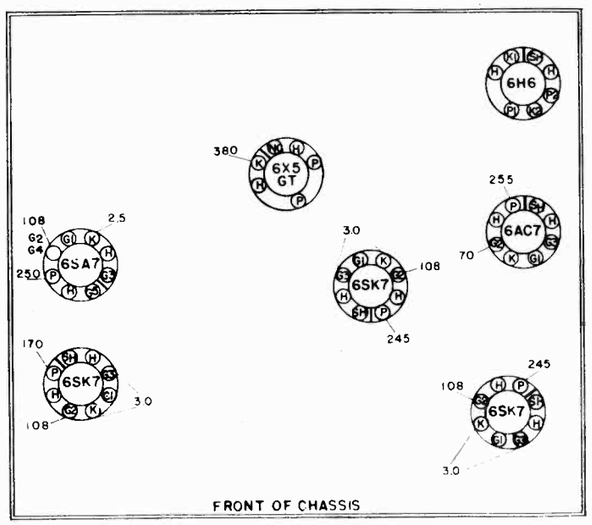
ALL VOLTAGES MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM PER VOLT VOLTMETER
ALL HEATERS (H) 6.3V. A.C.
MEASURE CATHODES (K) EXCEPT 6X5 GT, ON 30V. SCALE
ALL OTHERS ON 600 V SCALE
LINE VOLTAGE 117V A.C.

PRIMARY VOLTAGE 117 v. 50-60 cycles

POWER CONSUMPTION 70 watts

TUNING RANGE 41.7 - 50.4 MC

IF PEAK 4.3 MC



ALIGNMENT PROCEDURE

Although it is most convenient to align this received with a frequency-modulated oscillator, a satisfactory job can also be done with an accurately-calibrated signal generator or oscillator covering a range in the vicinity of 4.3 megacycles. The object of alignment is to adjust the I.F. trimmers so that the I.F. system has a pass band from 4.2 to 4.4 megacycles, and then to adjust the discriminator transformer to cover exactly the same band. Proceed as follows:

1. Connect the "high" side of the generator output to the grid (G3) of the 6SA7 converter, and the "low" side of the generator to the ground of the chassis. The connection to the grid is most easily made by connecting to the stator or middle condenser in the tuning gang. If it is found that the generator does not furnish enough signal, it will be necessary to make this connection directly to the control grid of the 6SA7 tube and to disconnect the R.F. coil from this grid. This point is indicated at "D" on the schematic diagram.

2. Connect a 0-50 or 0-200 microammeter in series with the "ground" end of the 100,000 ohm resistor (44). This is point "M" on the diagram. Connect the positive terminal of the meter to ground. This will measure the grid current of the 6AC7 tube. A reading of 30 to 100 microamperes is all that should be expected at this point. If an Analyst or a D.C. electronic voltmeter is available, it can be connected directly across this 100,000 ohm resistor (62) without disconnecting the resistor. This measures the limiter grid bias voltage. A reading of 3 to 10 volts should be considered normal.

3. Set the generator at 4300 kc. and align the I.F. Trimmers for maximum grid current in the 6AC7 tube as indicated by the microammeter or voltmeter.

4. The I.F. stages are now aligned. Remove the microammeter and re-connect the 100,000 ohm resistor (44) as it was before.

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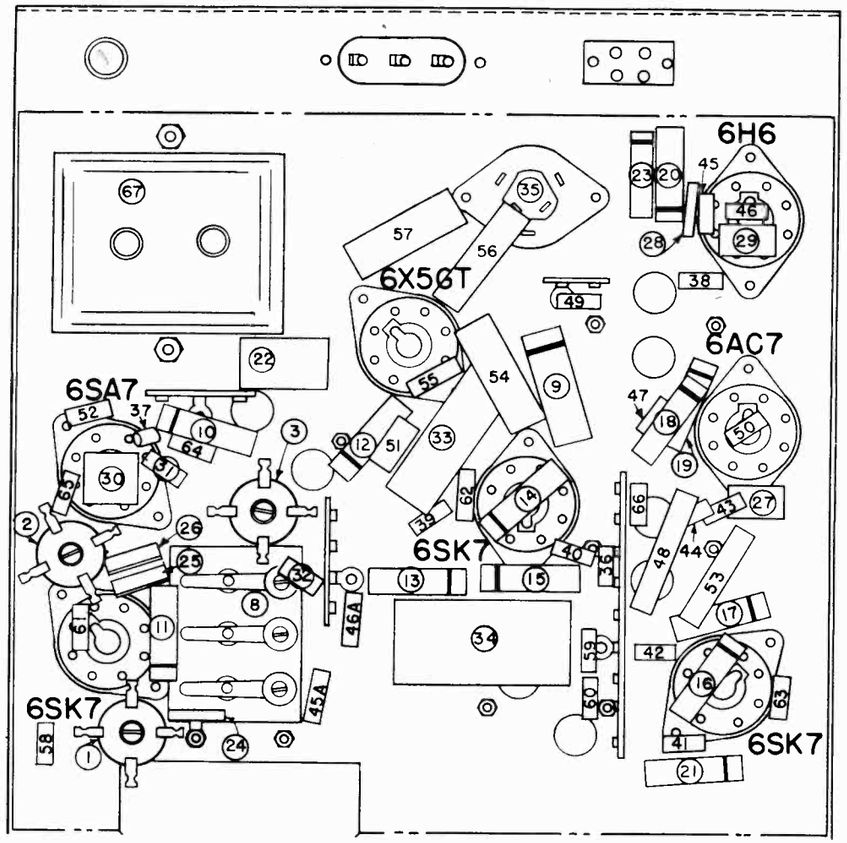

5. The discriminator will be adjusted next. Connect the microammeter in parallel with the 40,000 ohm resistor (49). This is indicated as point "X" on the diagram. The positive side of the meter is connected to ground. Instead of this, a high impedance electronic voltmeter, such as an Analyst or similar device, can be connected across this resistor. This measures the detector output current or voltage.

6. Adjust the test generator to 4375 kc. Adjust both trimmers on the discriminator transformer (7) for a peak. Adjust the output of the generator so that the meter reads at least 60 microamperes or 2.4 volts. Readjust the oscillator to 4300 kc. Adjust the trimmer nearest the 6H6 tube until the current or voltage is zero. A non-metallic screwdriver is essential; this is an extremely important operation. Re-set the oscillator to 4375 kc. and note the meter reading.

   Now reverse the meter connections so that the negative terminal is connected to ground. Set the generator to 4225 kc. and the meter reading should be within 10% of being the same. If not, the tuning of the discriminator transformer was not done carefully enough and must be repeated. This completes the adjustment of the discriminator. Remove the meter from the circuit.

7. Re-connect the control grid of the 6SA7 to the mixer coil if this connection had been removed and disconnect the generator from this point.

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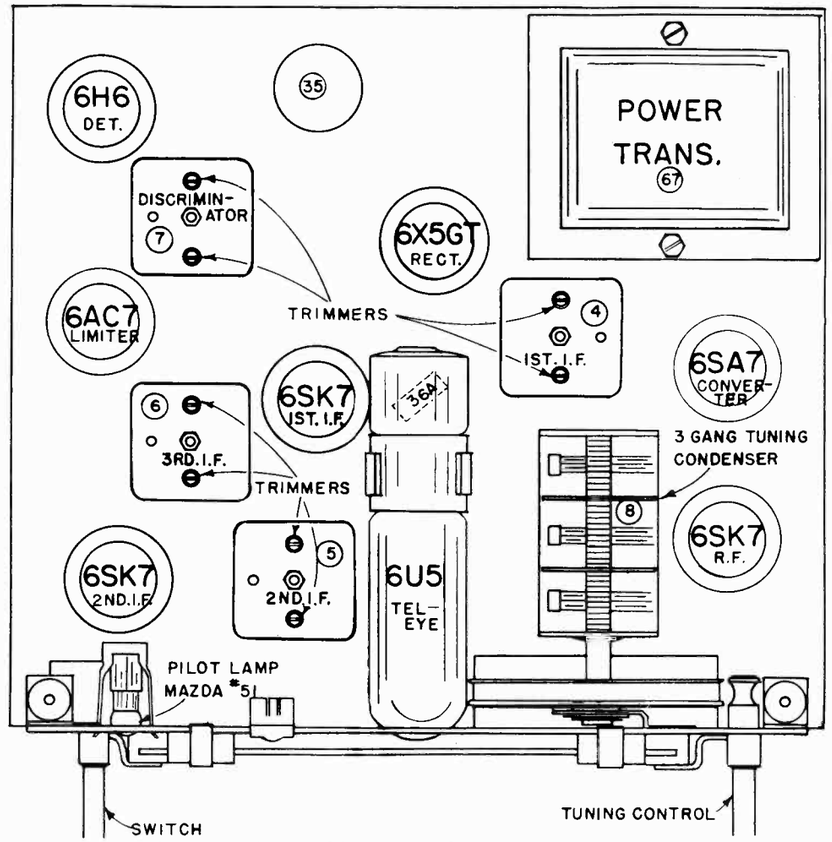


8. The antenna, mixer, and oscillator coils are now ready to be aligned. Check to see that the dial pointer is at the end of the dial calibration (41.7 mc.) when the tuning gang is fully meshed.

9. Prepare to measure the limiter grid current by again connecting the microammeter as described in paragraph 2.

10. If an extremely accurate signal generator is available, it may be used for setting the oscillator to the dial calibration. The generator is connected to the antenna post through a 70 ohm resistor. Otherwise it will be necessary to connect an antenna to the receiver and use a F.M. transmitter for the frequency standard, preferably one between 47 mc. and 50 mc.

11. Set the dial to the known frequency of the transmitter and adjust the oscillator air trimmer "T" until the signal produces a maximum reading on the microammeter. Then adjust the trimmers "U" and "V" on the antenna and R.F. coils for maximum reading. If too much signal is fed to the receiver, it will appear at several settings of the dial and confuse the adjusting. These trimmers should align rather loosely. If they are tightened so that the frequency of the R.F. circuit equals the oscillator frequency, spurious oscillations and responses are produced. The oscillatorfrequency is normally 4300 kc. lower than the signal frequency. When the above adjustments are completed and the 100,000 ohm resistor (44) is again grounded, the receiver has been aligned.

THE MAGNAVOX CO., INC.

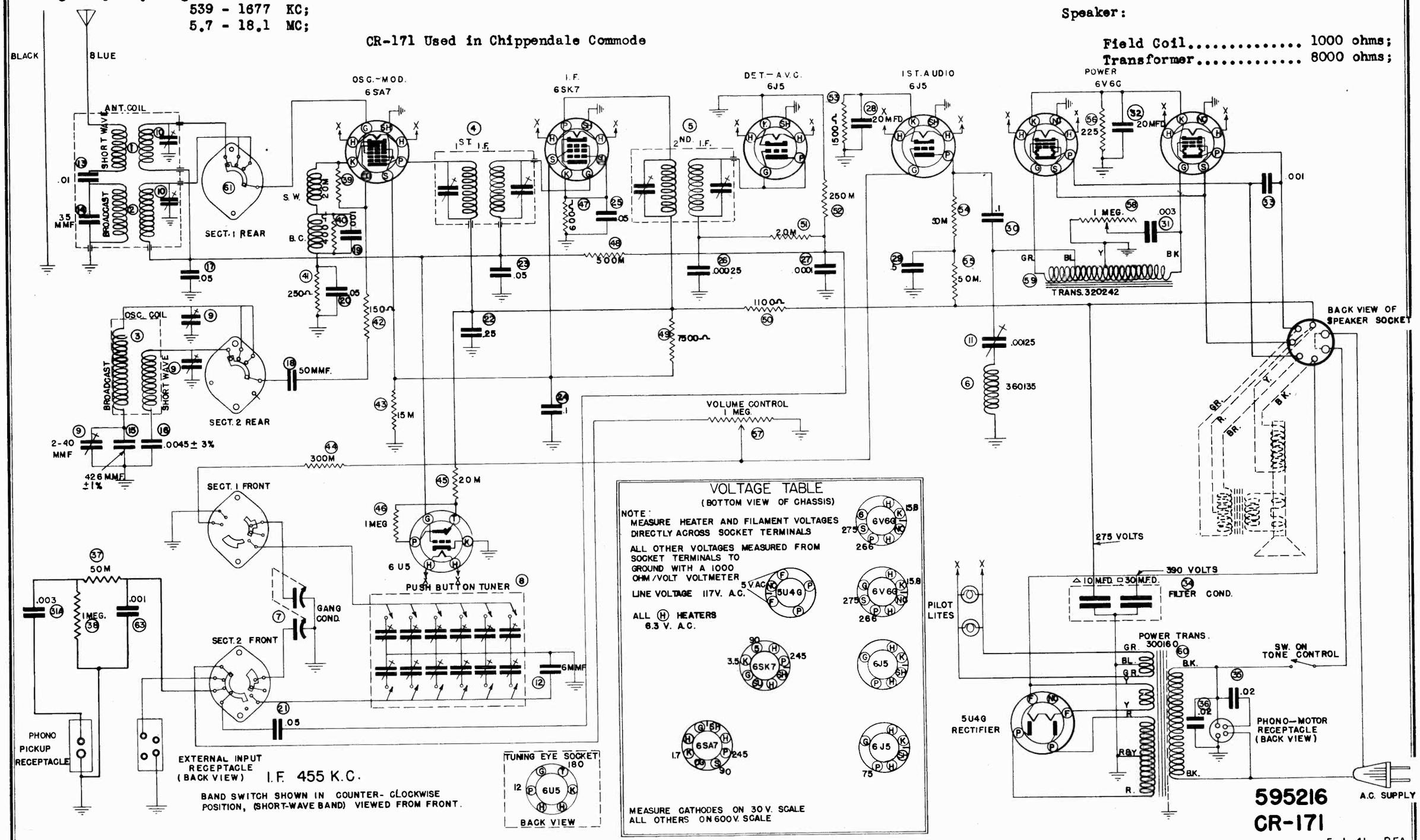
Intermediate frequency.....455 KC;
Tuning frequency range:
539 - 1677 KC;
5.7 - 18.1 MC;

Primary voltage....117 V. 50-60 cycle AC;
Power consumption..... 100 watts;
Power output..... 12 watts;

Speaker:

Field Coil..... 1000 ohms;
Transformer..... 8000 ohms;

CR-171 Used in Chippendale Commode



VOLTAGE TABLE

(BOTTOM VIEW OF CHASSIS)

NOTE:
MEASURE HEATER AND FILAMENT VOLTAGES DIRECTLY ACROSS SOCKET TERMINALS

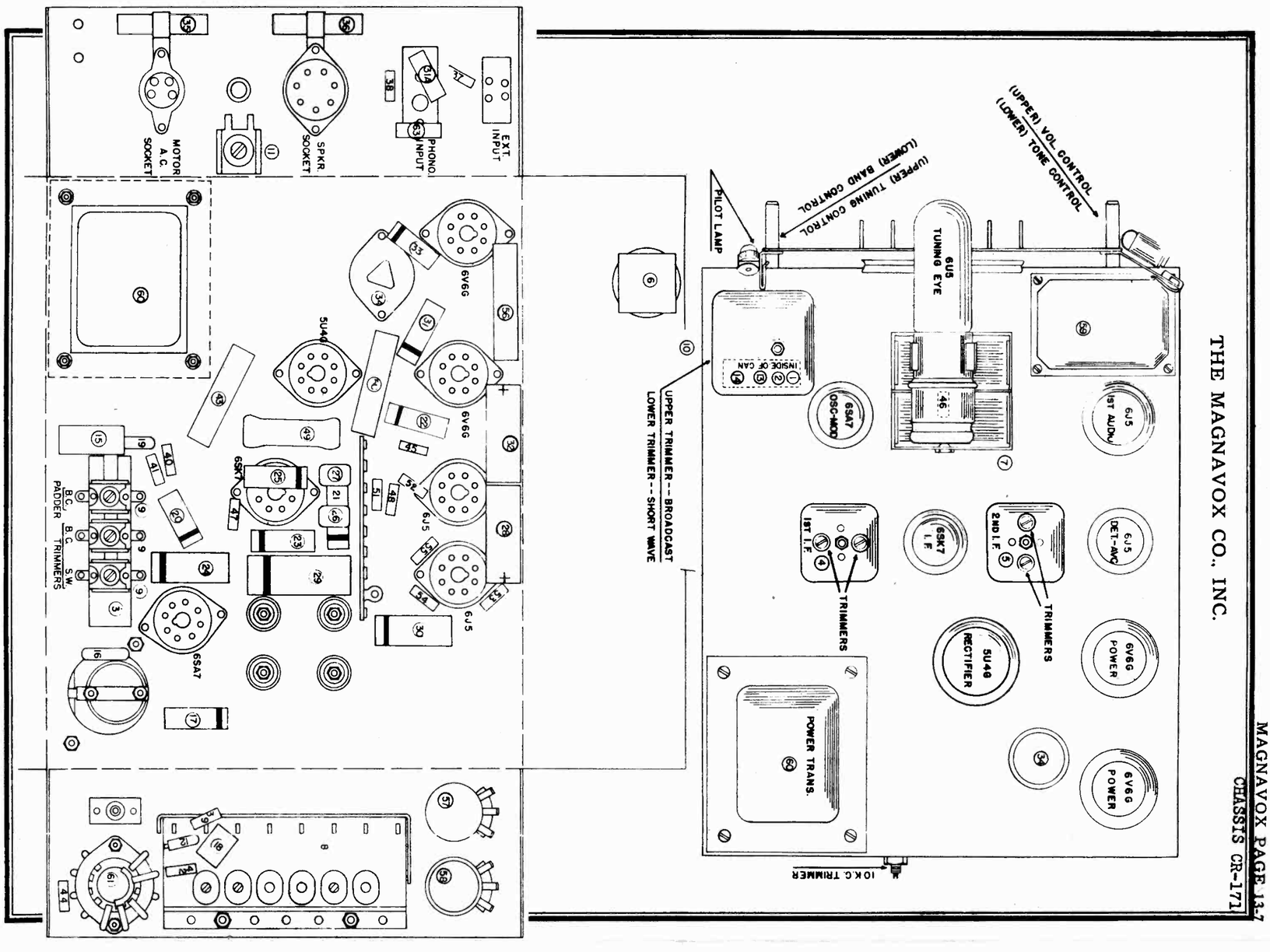
ALL OTHER VOLTAGES MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM/VOLT VOLTMETER

LINE VOLTAGE 117V. A.C.

ALL (H) HEATERS 6.3 V. A.C.

MEASURE CATHODES ON 30 V. SCALE
ALL OTHERS ON 600 V. SCALE

595216
CR-171
5-1-41 R.F.A.



CR-171 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 oscillator grid of the 6SA7 tube through a .00025 mfd series condenser.
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.

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 539-1677 K.C. BAND

1. Remove the test oscillator lead from the grid lead of the 6SA7 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 of the 539-1677 kilocycle BROADCAST band.
4. Set the test oscillator frequency and receiver dial to EXACTLY 1400 kilocycles. Adjust the BROADCAST 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 padder for maximum output.

ALIGNING THE 5.7-18.1 M.C. BAND

1. Substitute a 400 ohm resistor for the .00025 mfd. condenser in series with the test oscillator output feeding the antenna lead.
2. Adjust the band selector switch to the 5.7-18.1 megacycle SHORT-WAVE band, tune the receiver and test oscillator frequency to EXACTLY 15 megacycles, and adjust the SHORT WAVE oscillator trimmer and antenna trimmer for maximum output consistent with readable output meter scale deflection.

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 screw in the trimmer to maximum capacity, then back off the trimmer until the second peak (if more than one is noticed) which is the correct one, is tuned in.

NOTE: To assure most accurate trimmer setting, repeat all of the above adjustments several times, always using the lowest possible test oscillator output consistent with readable outnut meter scale deflection.

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.

CR-172, 178 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 oscillator grid of the 6SA7 tube through a .00025 mfd. series condenser.
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.

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 541-1630 K.C. BAND

Remove the test oscillator lead from the grid of the 6SA7 tube and connect it to the receiver antenna lead (blue) through a .00025 mfd. series condenser.

Set the ANT-LOOP switch switch to the ANT position.

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.

Set the test oscillator frequency and receiver dial to EXACTLY 1400 kilocycles. Adjust the oscillator trimmer (on condenser gang) and the antenna trimmer (accessible through opening in top of chassis -- see layout diagram) to bring in the 1400 kilocycles test oscillator signal to maximum output.

Set the test oscillator frequency and receiver dial to EXACTLY 600 kilocycles. While rocking the gang condenser slightly to the right and to the left, adjust the 600 kc. oscillator padder (accessible through opening in top of chassis back of condenser gang) for maximum output.

The loop trimmer adjustment must now be made to provide for maximum possible signal pickup with the loop. This adjustment must be made while the chassis and loop are in the cabinet, or with the chassis and loop in the same relative positions as when they are mounted in the cabinet.

Connect the output of a signal generator that has been adjusted to 1400 kilocycles, to a loop of about five turns of wire, eight inches in diameter. Set the ANT-LOOP switch to the LOOP position.

Tune the receiver to 1400 kilocycles and adjust the loop trimmer (accessible through an opening in the top of chassis -- see layout diagram) for maximum output as indicated on an output meter connected across the voice coil while holding the smaller loop approximately 18 inches from the set loop and in the same plane.

10 K.C. FILTER ADJUSTMENT

With the treble 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 returning the 10 KC output filter by means of the 10 KC trimmer condenser at the top center of the chassis.

THE MAGNAVOX CO., INC.

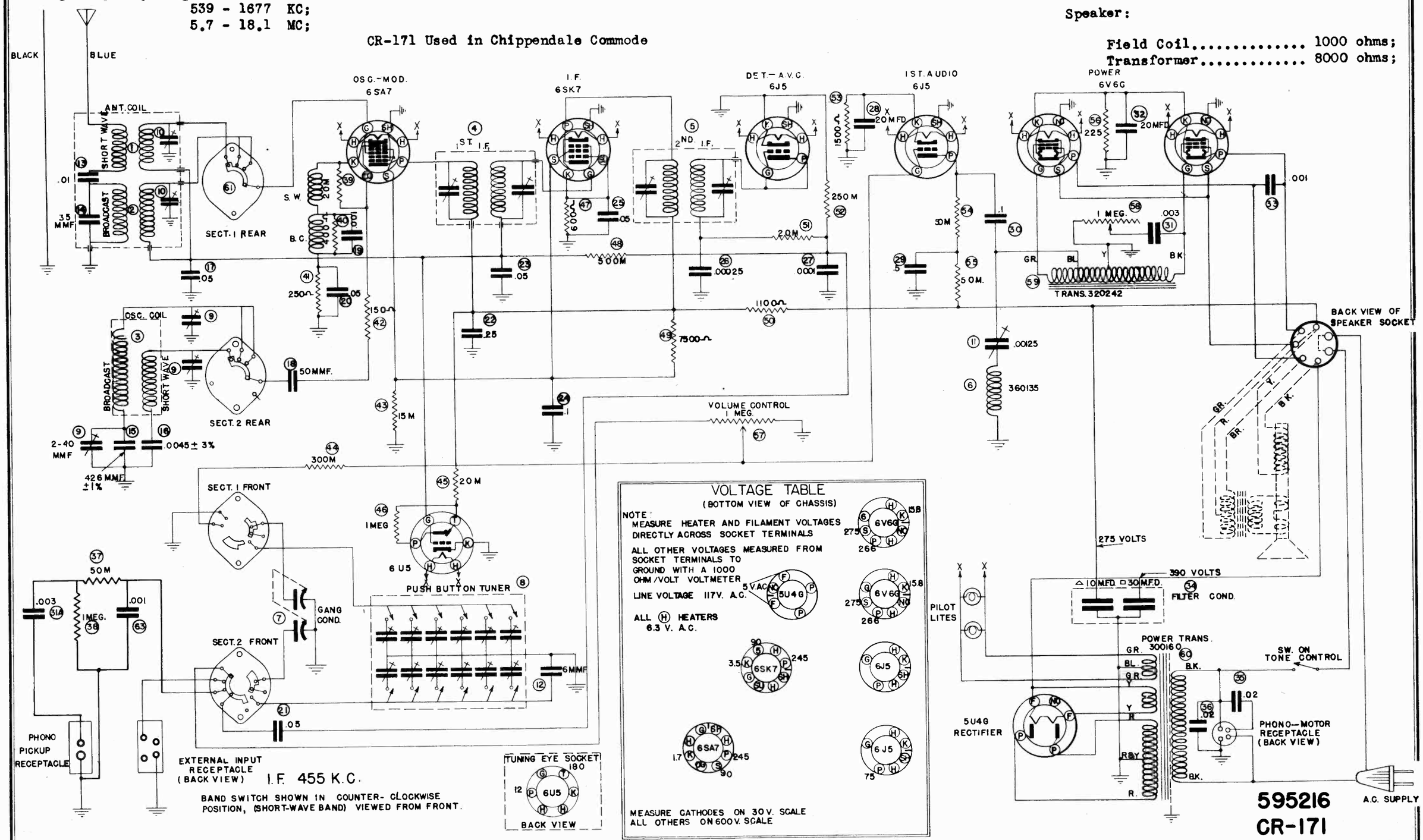
Intermediate frequency.....455 KC;
Tuning frequency range:
539 - 1677 KC;
5.7 - 18.1 MC;

Primary voltage....117 V. 50-60 cycle AC;
Power consumption..... 100 watts;
Power output..... 12 watts;

Speaker:

Field Coil..... 1000 ohms;
Transformer..... 8000 ohms;

CR-171 Used in Chippendale Commode



VOLTAGE TABLE

(BOTTOM VIEW OF CHASSIS)

NOTE
MEASURE HEATER AND FILAMENT VOLTAGES DIRECTLY ACROSS SOCKET TERMINALS

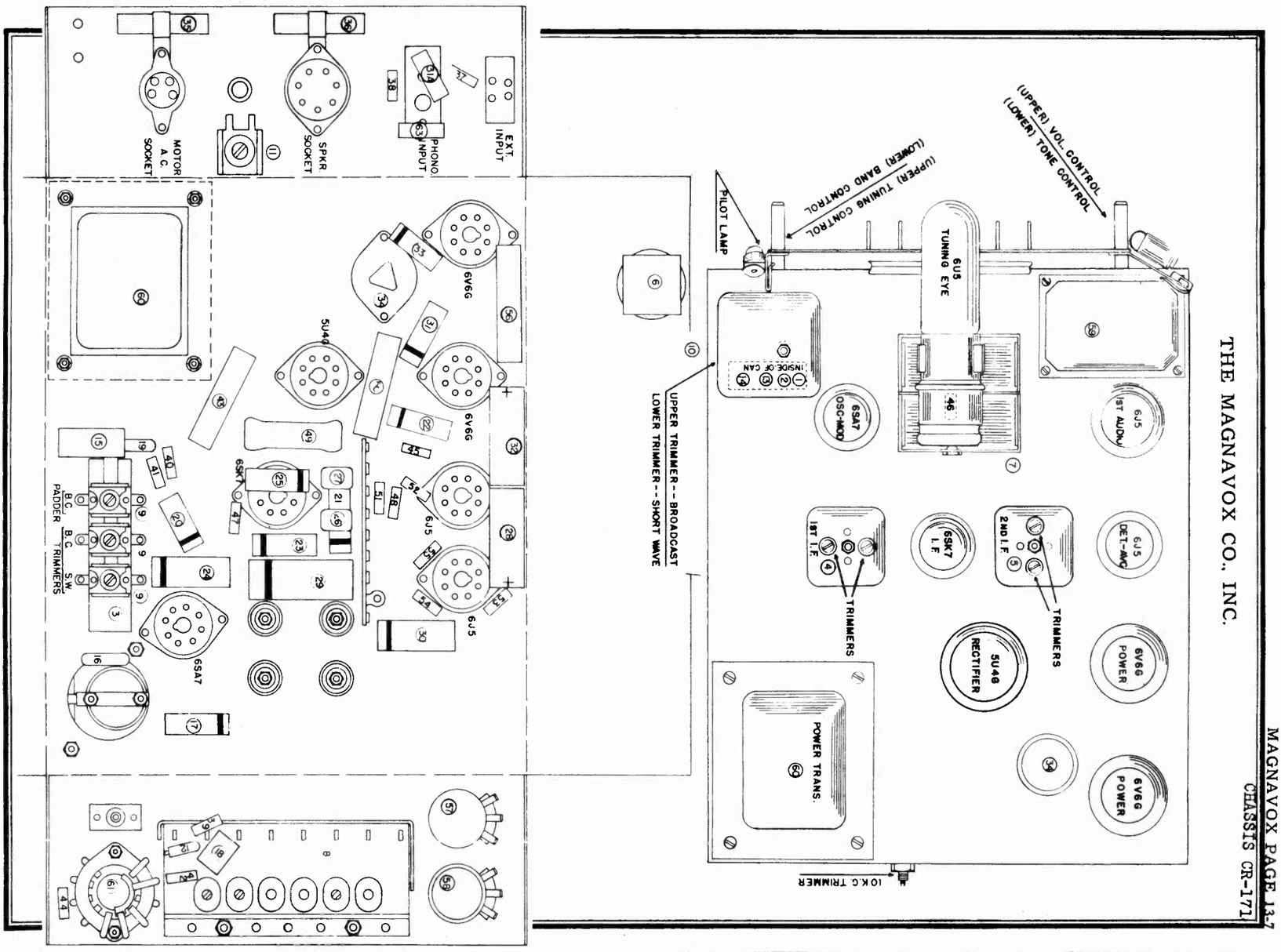
ALL OTHER VOLTAGES MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM/VOLT VOLTMETER

LINE VOLTAGE 117V. A.C.

ALL (H) HEATERS 6.3 V. A.C.

MEASURE CATHODES ON 30 V. SCALE
ALL OTHERS ON 600 V. SCALE

595216
CR-171
5-1-41 R.F.A.



CR-171 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 oscillator grid of the 6SA7 tube through a .00025 mfd series condenser.
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.

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 539-1677 K.C. BAND

1. Remove the test oscillator lead from the grid lead of the 6SA7 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 of the 539-1677 kilocycle BROADCAST band.
4. Set the test oscillator frequency and receiver dial to EXACTLY 1400 kilocycles. Adjust the BROADCAST 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 padder for maximum output.

ALIGNING THE 5.7-18.1 M.C. BAND

1. Substitute a 400 ohm resistor for the .00025 mfd. condenser in series with the test oscillator output feeding the antenna lead.
2. Adjust the band selector switch to the 5.7-18.1 megacycle SHORT-WAVE band, tune the receiver and test oscillator frequency to EXACTLY 15 megacycles, and adjust the SHORT WAVE oscillator trimmer and antenna trimmer for maximum output consistent with readable output meter scale deflection.

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 screw in the trimmer to maximum capacity, then back off the trimmer until the second peak (if more than one is noticed) which is the correct one, is tuned in.

NOTE: To assure most accurate trimmer setting, repeat all of the above adjustments several times, always using the lowest possible test oscillator output consistent with readable output meter scale deflection.

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.

CR-172, 178 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 oscillator grid of the 6SA7 tube through a .00025 mfd. series condenser.
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.

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 541-1630 K.C. BAND

Remove the test oscillator lead from the grid of the 6SA7 tube and connect it to the receiver antenna lead (blue) through a .00025 mfd. series condenser.

Set the ANT-LOOP switch switch to the ANT position.

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.

Set the test oscillator frequency and receiver dial to EXACTLY 1400 kilocycles. Adjust the oscillator trimmer (on condenser gang) and the antenna trimmer (accessible through opening in top of chassis -- see layout diagram) to bring in the 1400 kilocycles test oscillator signal to maximum output.

Set the test oscillator frequency and receiver dial to EXACTLY 600 kilocycles. While rocking the gang condenser slightly to the right and to the left, adjust the 600 kc. oscillator padder (accessible through opening in top of chassis back of condenser gang) for maximum output.

The loop trimmer adjustment must now be made to provide for maximum possible signal pickup with the loop. This adjustment must be made while the chassis and loop are in the cabinet, or with the chassis and loop in the same relative positions as when they are mounted in the cabinet.

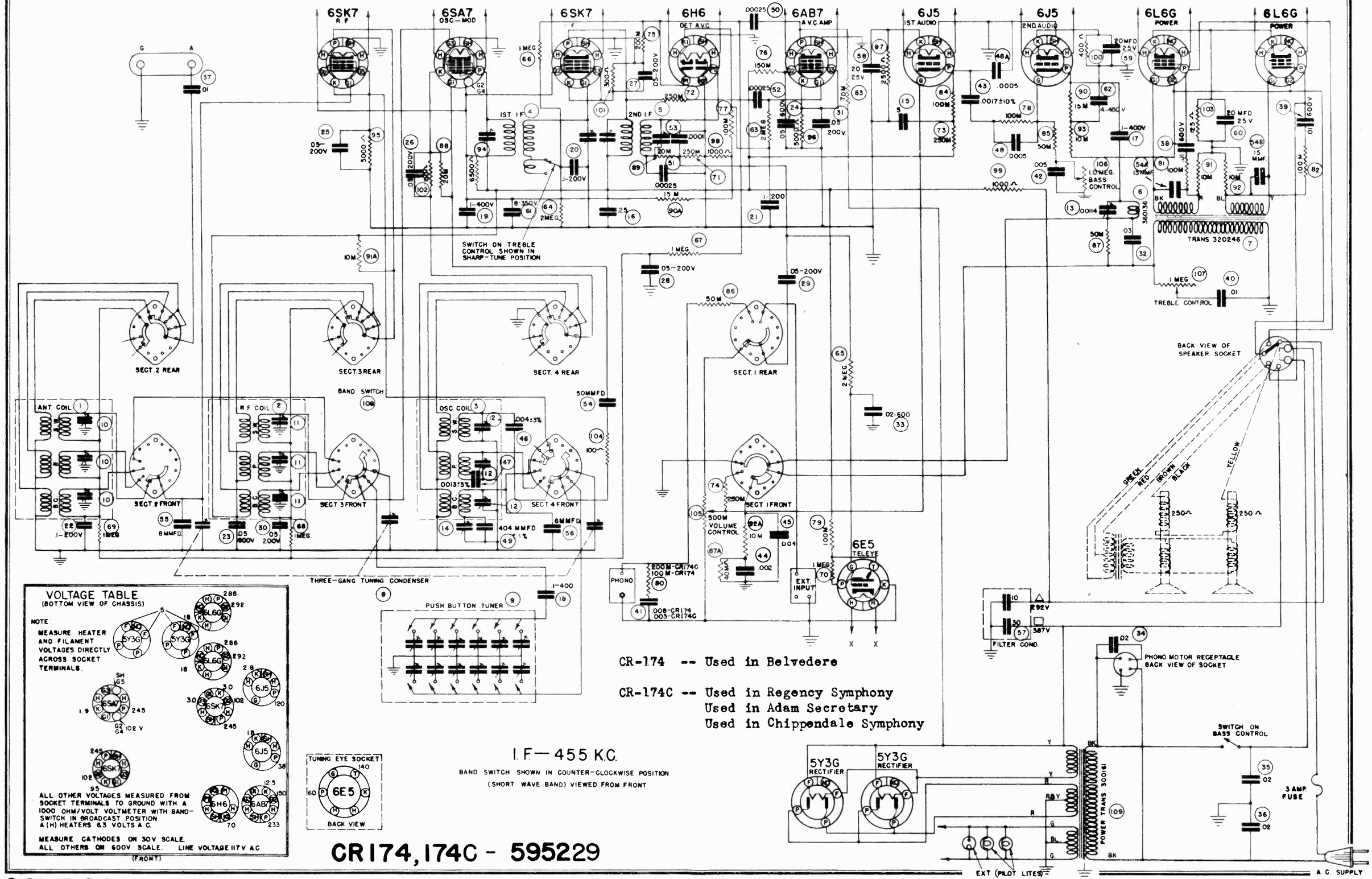
Connect the output of a signal generator that has been adjusted to 1400 kilocycles, to a loop of about five turns of wire, eight inches in diameter. Set the ANT-LOOP switch to the LOOP position.

Tune the receiver to 1400 kilocycles and adjust the loop trimmer (accessible through an opening in the top of chassis -- see layout diagram) for maximum output as indicated on an output meter connected across the voice coil while holding the smaller loop approximately 18 inches from the set loop and in the same plane.

10 K.C. FILTER ADJUSTMENT

With the treble 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 returning the 10 KC output filter by means of the 10 KC trimmer condenser at the top center of the chassis.

THE MAGNAVOX CO., INC.



VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)

NOTE:
MEASURE HEATER AND FILAMENT VOLTAGES DIRECTLY ACROSS SOCKET TERMINALS.

ALL OTHER VOLTAGES MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM/VOLT VOLTMETER WITH BAND-SWITCH IN BROADCAST POSITION.
A(H) HEATERS 6.3 VOLTS A.C.

MEASURE CATHODES ON 30V SCALE.
ALL OTHERS ON 600V SCALE. LINE VOLTAGE 117 V A.C.

(FRONT)

I.F—455 K.C.

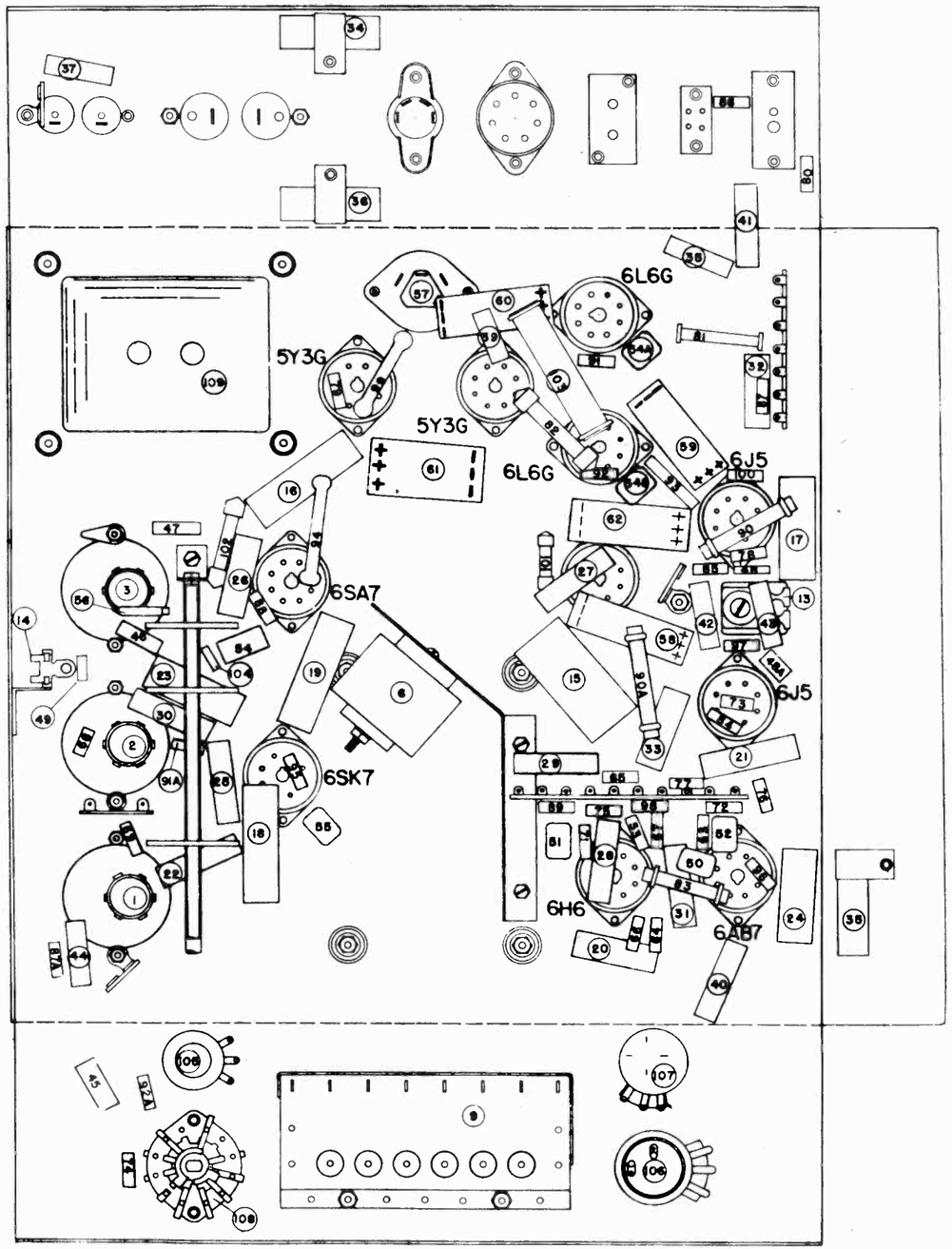
BAND SWITCH SHOWN IN COUNTER-CLOCKWISE POSITION
(SHORT WAVE BAND) VIEWED FROM FRONT

CR174,174C - 595229

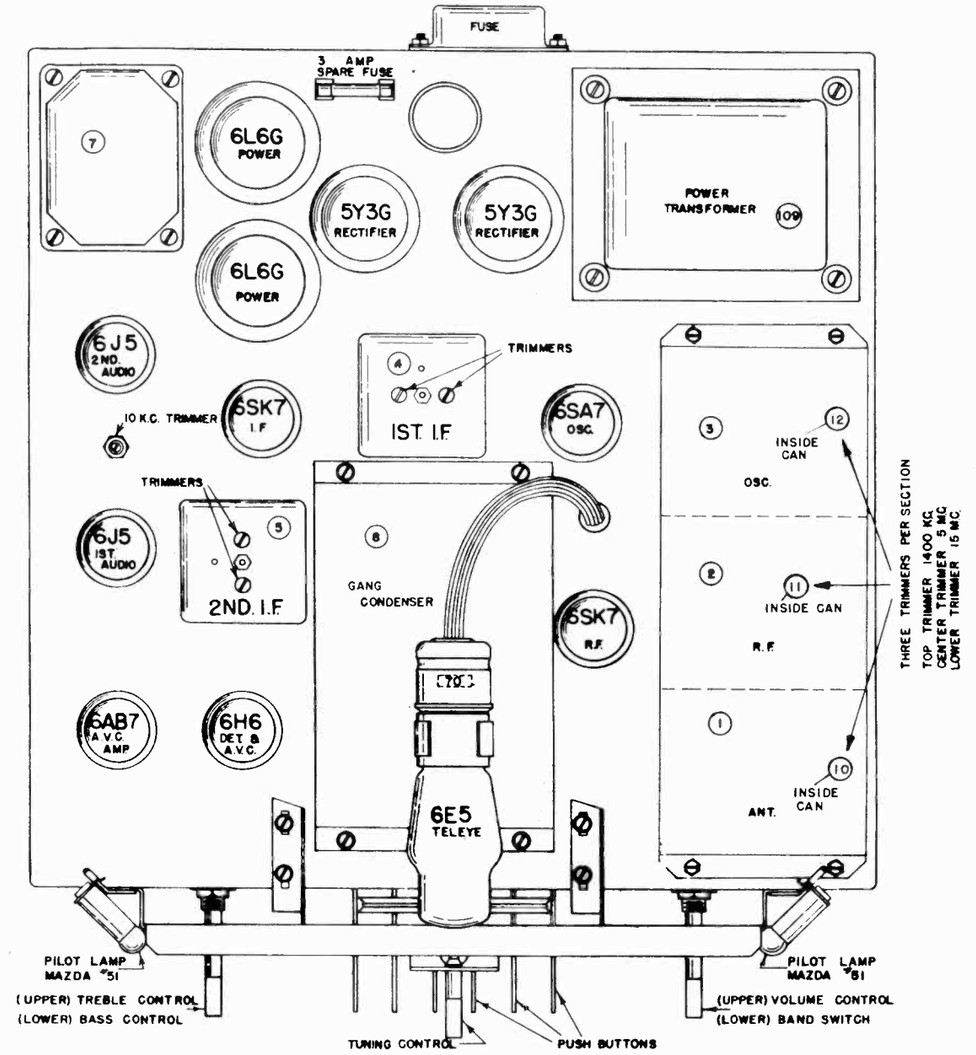
CR-174 -- Used in Belvedere

CR-174C -- Used in Regency Symphony
Used in Adam Secretary
Used in Chippendale Symphony

THE MAGNAVOX CO., INC.



THE MAGNAVOX CO., INC.



Primary voltage.....117 V. AC;
Power consumption.....180 watts;

Speaker (12C131):
Field Coil.....250 ohms;
Transformer.....NONE

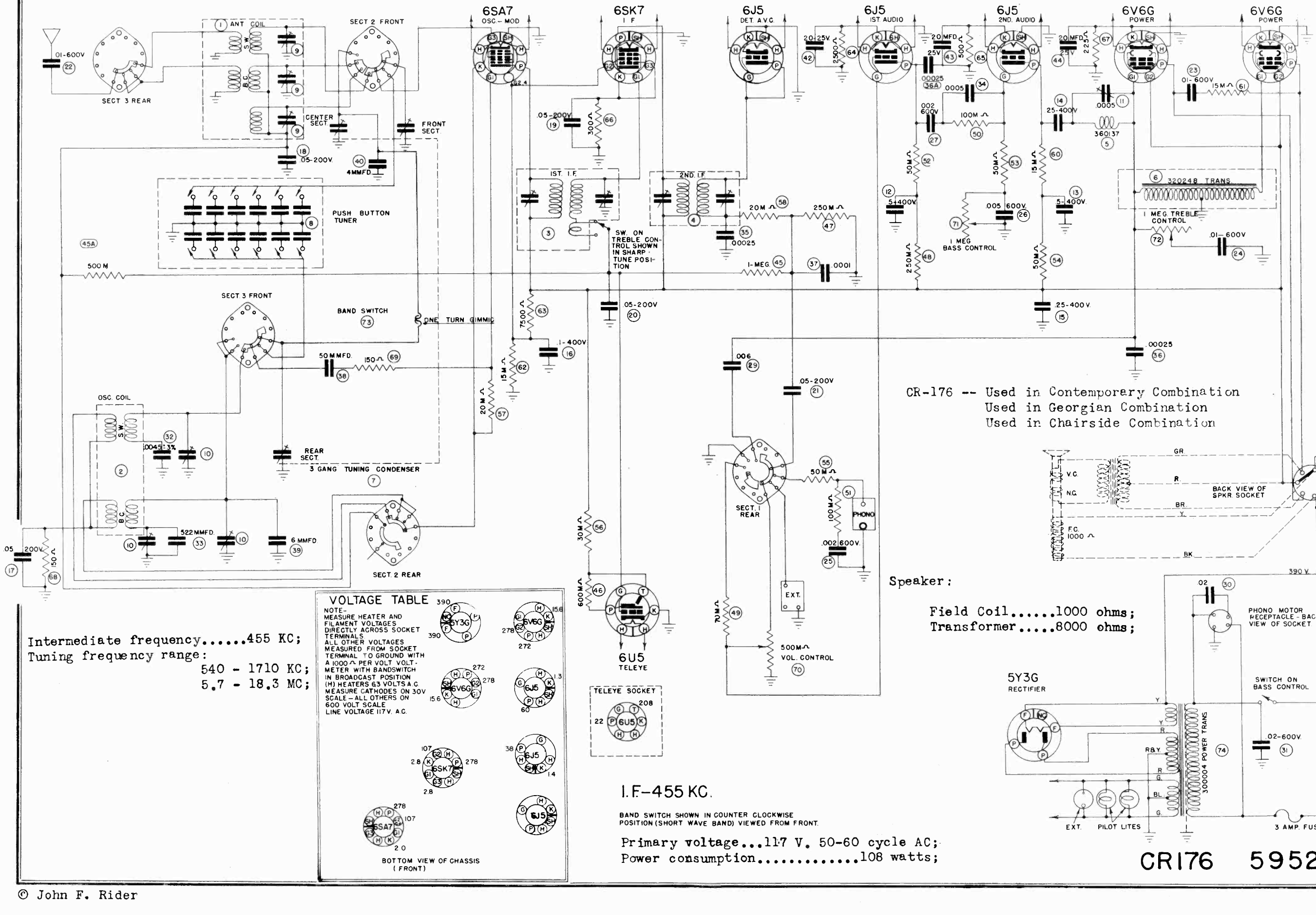
Speaker (302):
Field Coil.....250 ohms;
Transformer..... 5M ohms;
(for dual speakers)

Intermediate frequency.....455 KC;
Tuning frequency range: 535 - 1720 KC;
1667 - 5680 KC;
5.6 - 18.4 MC;

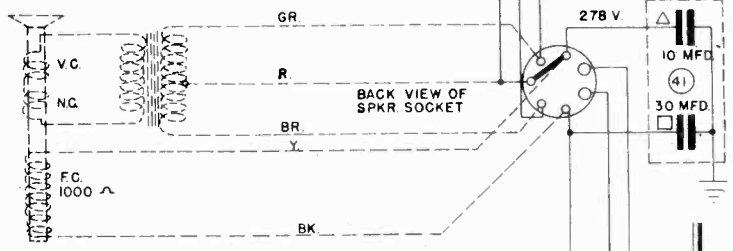
Circuit: Superheterodyne with three tuning ranges, treble and bass controls, I.F. band expansion, amplified A.V.C., inverse feedback circuit, bass compensation in volume control for phonograph pickup, push button condenser-type tuner temperature stabilized.

FOR ALIGNMENT SEE PAGE 13-12

THE MAGNAVOX CO., INC.

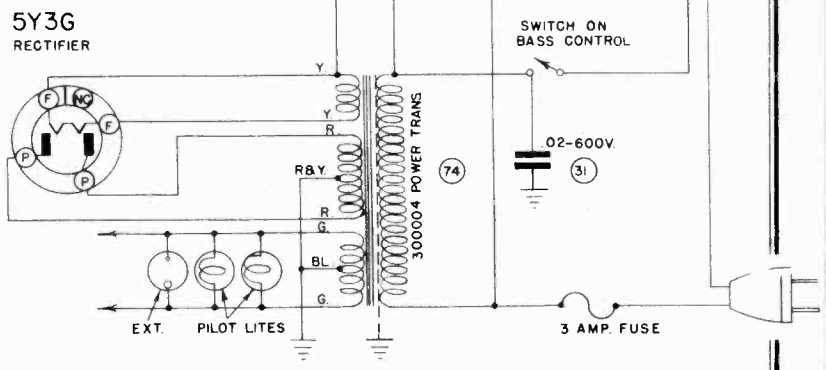


CR-176 -- Used in Contemporary Combination
Used in Georgian Combination
Used in Chairside Combination



Speaker:

Field Coil.....1000 ohms;
Transformer.....8000 ohms;



Intermediate frequency.....455 KC;
Tuning frequency range:
540 - 1710 KC;
5.7 - 18.3 MC;

VOLTAGE TABLE

NOTE-
MEASURE HEATER AND FILAMENT VOLTAGES DIRECTLY ACROSS SOCKET TERMINALS
ALL OTHER VOLTAGES MEASURED FROM SOCKET TERMINAL TO GROUND WITH A 1000 Ω PER VOLT VOLTMETER WITH BANDSWITCH IN BROADCAST POSITION (H) HEATERS 6.3 VOLTS A.C.
MEASURE CATHODES ON 30V SCALE - ALL OTHERS ON 600 VOLT SCALE
LINE VOLTAGE 117 V. A.C.

I.F.-455 KC.

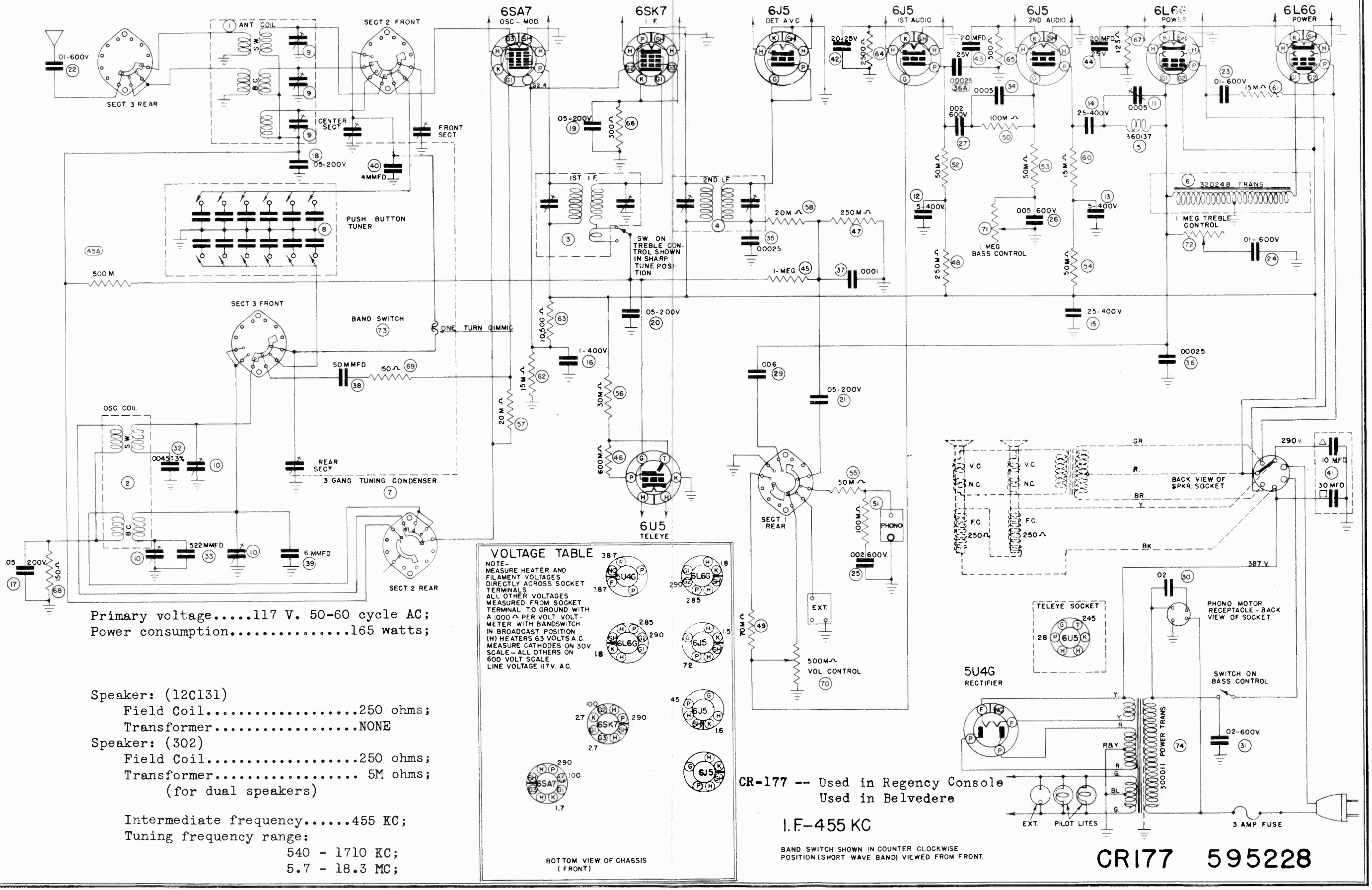
BAND SWITCH SHOWN IN COUNTER CLOCKWISE POSITION (SHORT WAVE BAND) VIEWED FROM FRONT.

Primary voltage...117 V. 50-60 cycle AC;
Power consumption.....108 watts;

CR176 595227

CHASSIS CR-177

THE MAGNAVOX CO., INC.



Primary voltage.....117 V. 50-60 cycle AC;
Power consumption.....165 watts;

Speaker: (12C131)
Field Coil.....250 ohms;
Transformer.....NONE
Speaker: (302)
Field Coil.....250 ohms;
Transformer..... 5M ohms;
(for dual speakers)

Intermediate frequency.....455 KC;
Tuning frequency range:
540 - 1710 KC;
5.7 - 18.3 MC;

VOLTAGE TABLE

NOTE-
MEASURE HEATER AND FILAMENT VOLTAGES DIRECTLY ACROSS SOCKET TERMINALS.
ALL OTHER VOLTAGES MEASURED FROM SOCKET TERMINAL TO GROUND WITH A 1000 Ω PER VOLT VOLTMETER WITH BANDSWITCH IN BROADCAST POSITION (M) HEATERS 6.3 VOLTS A.C. MEASURE CATHODES ON 30V SCALE - ALL OTHERS ON 600 VOLT SCALE
LINE VOLTAGE 117V. A.C.

BOTTOM VIEW OF CHASSIS (FRONT)

CR-177 -- Used in Regency Console
Used in Belvedere

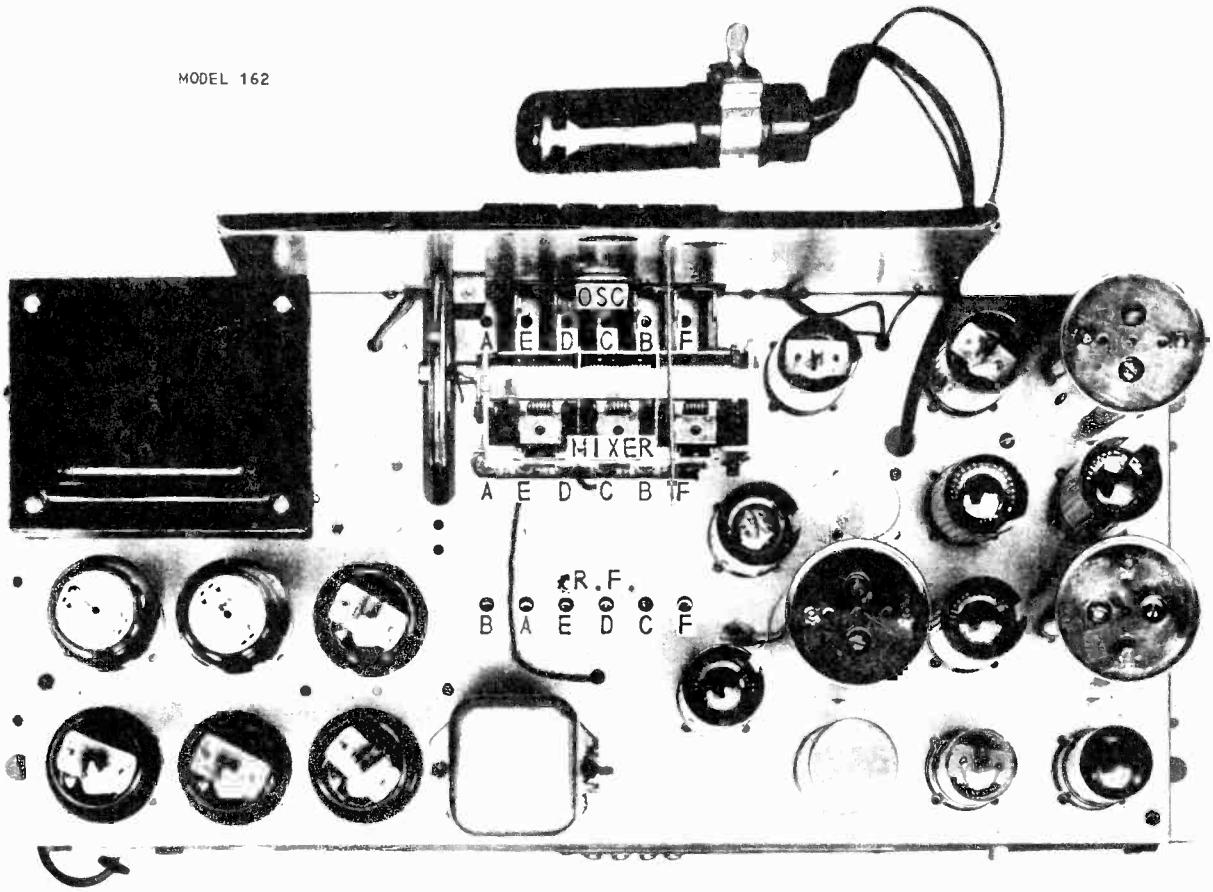
I.F.-455 KC

BAND SWITCH SHOWN IN COUNTER CLOCKWISE POSITION (SHORT WAVE BAND) VIEWED FROM FRONT.

CR177 595228

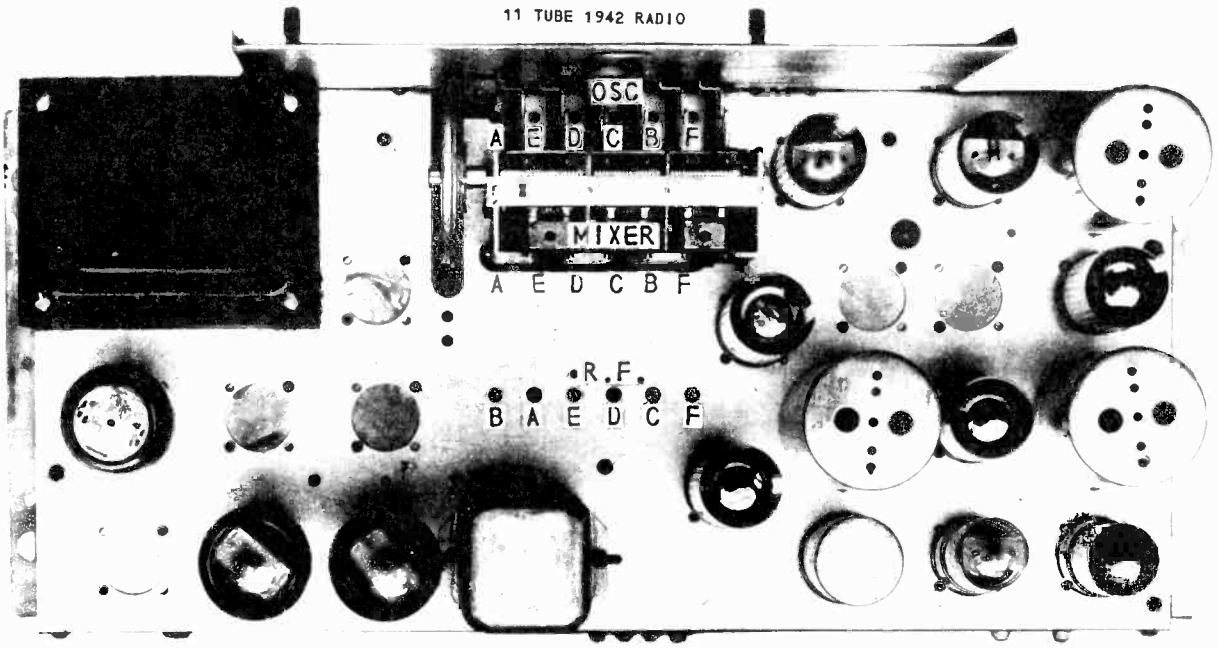
THE MAGNAVOX CO., INC. CHASSIS CR-176 and CR-177

MODEL 162



MODEL 112

11 TUBE 1942 RADIO

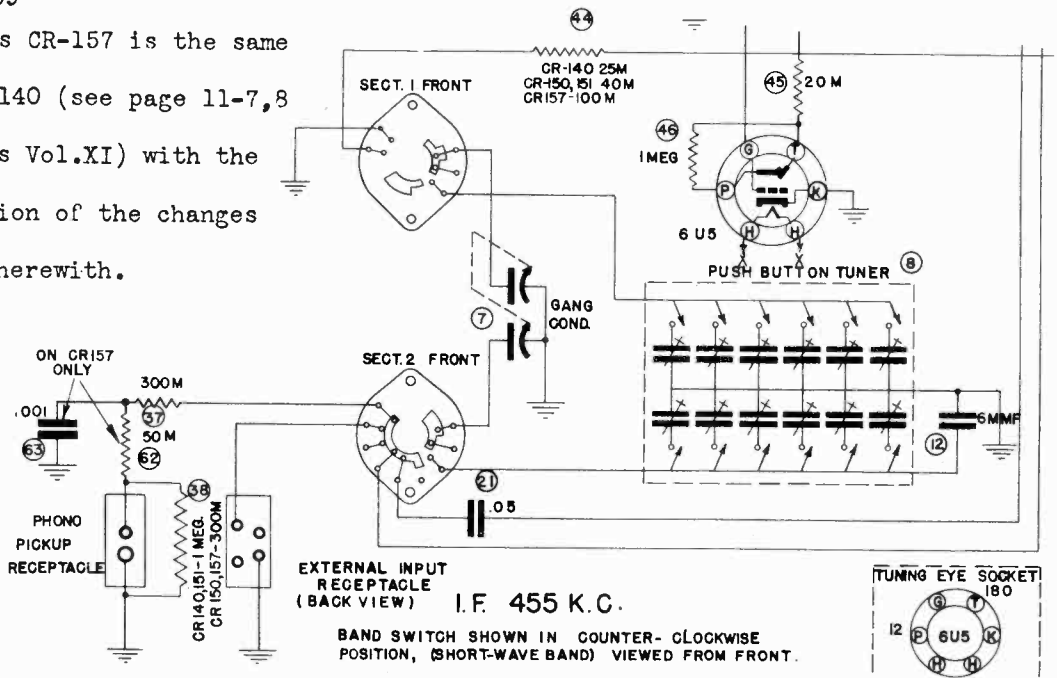


CHASSIS CR-157
CHASSIS CR-159

THE MAGNAVOX CO., INC.

CHASSIS CR-160

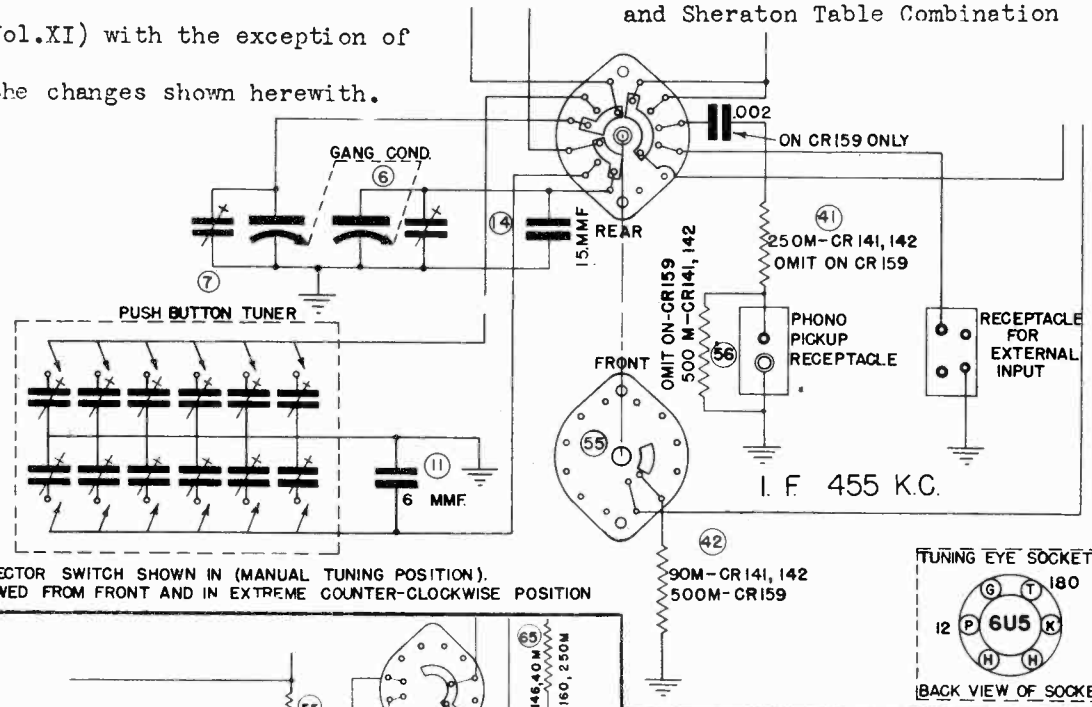
Chassis CR-157 is the same as CR-140 (see page 11-7,8 Rider's Vol.XI) with the exception of the changes shown herewith.

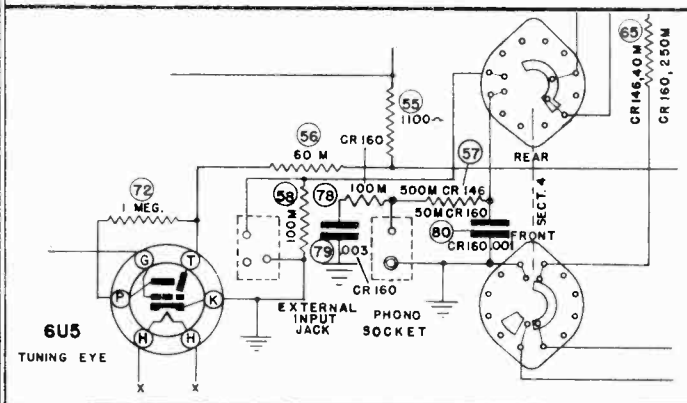


CR-157 is used in Chippendale Commode Combination

Chassis CR-159 is the same as CR-141 (see page 11-13 Rider's Vol.XI) with the exception of the changes shown herewith.

CR-159 is used in Concerto Combination and Sheraton Table Combination

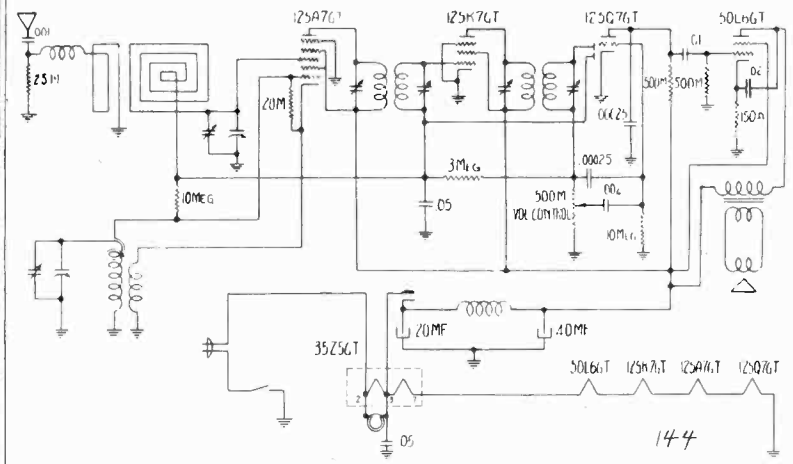




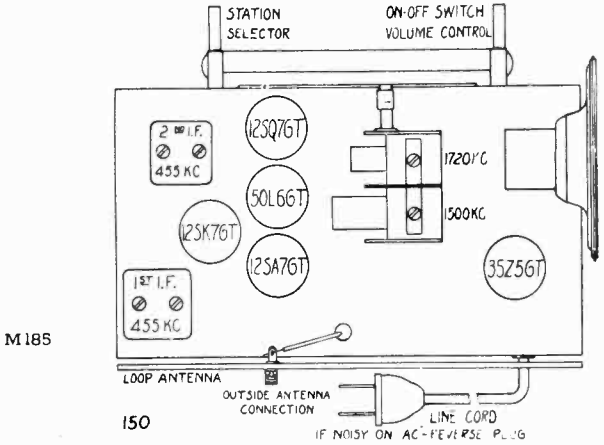
CHASSIS CR-160 is the same as CR-146 with the exception of the change that is shown at the left.

CR-160 used in AC Hepplewhite Combination.

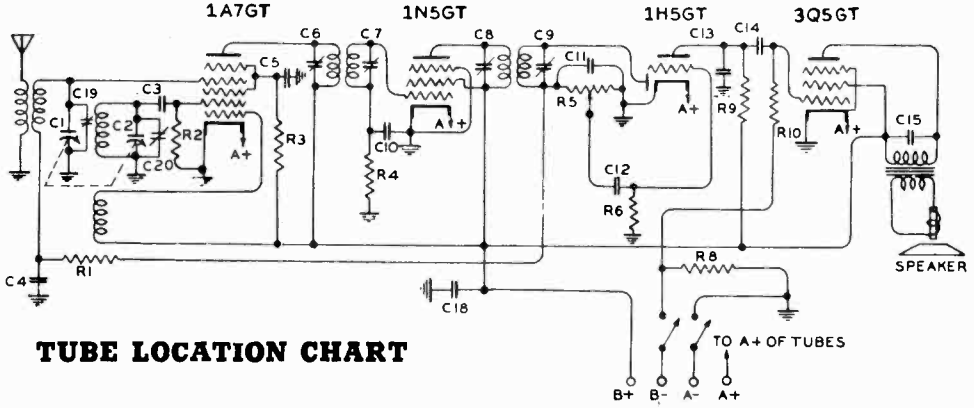
SCHEMATIC DIAGRAM MODEL 5TIO & 5TIOW



TUBE LAYOUT

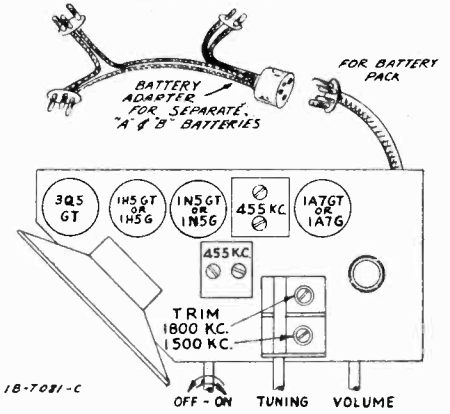


SCHEMATIC DIAGRAM



TUBE LOCATION CHART

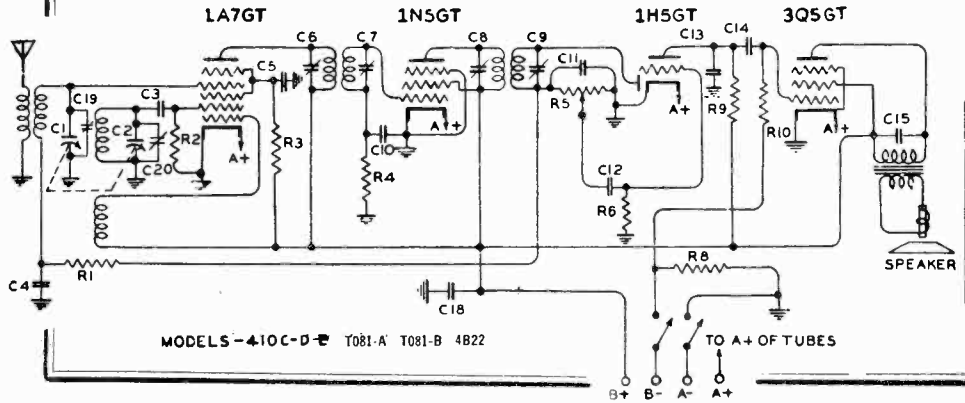
TUBE LAYOUT MODEL T-081-C-D

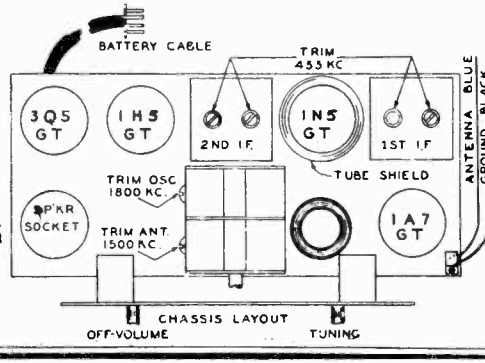


REPLACEMENT PARTS LIST

Schematic Location	Part No.	Description
R1,R4,R10	R-15500	2 Megohm ¼ Watt Resistor 20%
R8	R-157	430 ohm ¼ Watt Resistor 20%
R2	R-15523	200K ohm ¼ Watt Resistor 20%
R3	R-15552	30K ohm ¼ Watt Resistor 20%
R9	R-154	470K ohm ¼ Watt Resistor 20%
R6	R-149	4.7 Megohm ¼ Watt Resistor 20%

Schematic Location	Part No.	Description
C4	C-15752	.05 mfd. 200 Volt Condenser
C10,C5	C-15754	.01 mfd. 400 Volt Condenser
C15	C-25	.006 mfd. 400 Volt Condenser
C12,C14	C-15774	.002 mfd. 400 Volt Condenser
C3	CM-31	100 mmfd. Mica Condenser
C11,C13	CM-30	250 mmfd. Mica Condenser
C18	CE-35	8 mfd. 150V Electrolytic



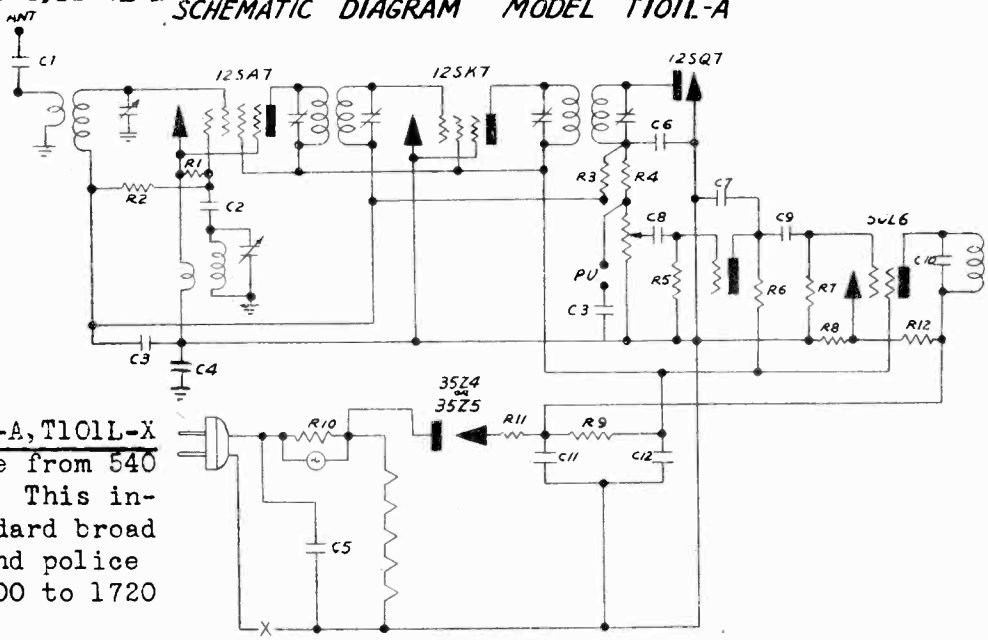


R9	R-15520	500K ohm	¼ Watt Resistor
R10	R-15517	1 Megohm	¼ Watt Resistor
R8	R-76	400 ohm	¼ Watt Resistor
R2	R-15523	200K ohm	¼ Watt Resistor
R6	R-15559	3 Megohm	¼ Watt Resistor
R3	R-44	30K ohm	¼ Watt Resistor
R1,R4	R-15500	2 Megohm	¼ Watt Resistor
C4,C5	C-15752	.05 mfd.	200V
C10,C12	C-15763	.01 mfd.	200V
C15	C-25	.006 mfd.	400V
C14	C-44	002 mfd.	600V
C3,C11,C13	CM-44	100 mmfd.	Mica
C18	CE-35	8 mfd. 150V	Electrolytic

MODELS T101L-A, T101L-X
MODELS T102L-A, T102L-X

MAJESTIC RADIO & TELEV. CORP.

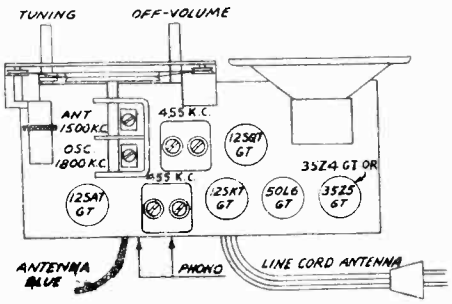
SCHEMATIC DIAGRAM MODEL T101L-A



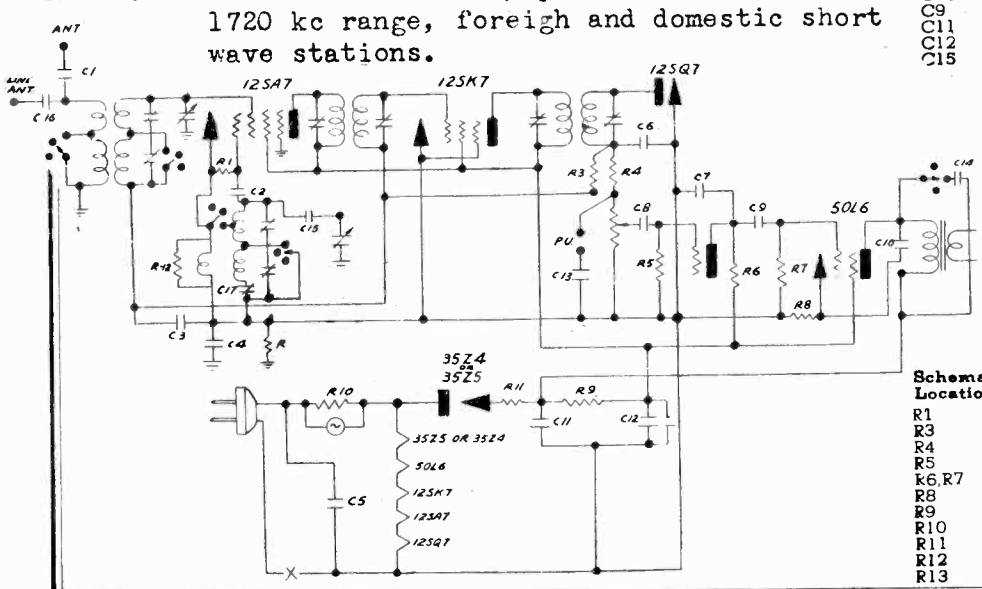
MODEL T101L-A, T101L-X Tuning range from 540 to 1720 kc. This includes standard broad cast band and police calls in 1600 to 1720 kc range.

Schematic Location	Part No.	Description
R1	R-15510	20K ohm ¼ Watt Resistor 20%
R2,R5	R-63	10 Megohm ¼ Watt Resistor 20%
R3	R-15500	2 Megohm ¼ Watt Resistor 20%
R4	R-15504	150K ohm ¼ Watt Resistor 20%
R6,R7	R-15520	500K ohm ¼ Watt Resistor 20%
R8	R-59	110 ohm ½ Watt Resistor 10%
R9	R-138	1000 ohm 1 Watt Resistor 20%
R10	R-150	15 ohm 1 Watt Resistor 20%
R11	R-85	35 ohm 1 Watt Resistor 20%
R12	R-145	9K ohm 2 Watt Resistor 10%
R13	R-15512	250K ohm ¼ Watt Resistor 20%
C1	C-15754	.01 mfd. 400 Volt Condenser
C2	CM-29	50 mmfd. Mica Condenser
C3	C-15752	.05 mfd. 200 Volt Condenser
C4	C-15770	.2 mfd. 200 Volt Condenser
C5	C-15756	.05 mfd. 400 Volt Condenser
C6	CM-30	250 mmfd. Mica Condenser
C7	CM-37	500 mmfd. Mica Condenser
C8	C-15774	.002 mfd. 400 Volt Condenser
C9	C-47	.004 mfd. 400 Volt Condenser
C10	C-25	.006 mfd. 400 Volt Condenser
C11,C12	Y-CE-66-1	40 mfd. & 75 mfd. Electr. Cond

TUBE LAYOUT MODEL T101L-A

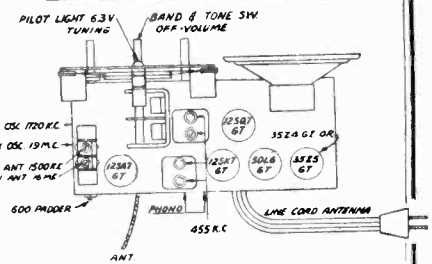


MODEL T102L-A, T102L-X: Tuning range from 540 to 1720 kc and 5,500 to 18,600 kc. This includes standard broadcast band, police calls 1600 to 1720 kc range, foreigh and domestic short wave stations.



Schematic Location	Part No.	Description
C1,C16,C14	C-15754	.01 mfd. 400 Volt Condenser
C2	CM-31	100 mmfd. Mica Condenser
C3,C13	C-15752	.05 mfd. 200 Volt Condenser
C4	C-15770	.20 mfd. 200 Volt Condenser
C5	C-15756	.05 mfd. 400 Volt Condenser
C6,C7	CM-30	250 mmfd. Mica Condenser
C8	C-15774	.002 mfd. 400 Volt Condenser
C10	C-47	.004 mfd 400 Volt Condenser
C9	C-25	.006 mfd. 400 Volt Condenser
C11	CE-66-1	75 mfd. Elec. Condenser
C12	CE-66-1	40 mfd. Elec. Condenser
C15	CM-2	4300 mmfd. Mica Condenser

TUBE LAYOUT MODEL T102L-A



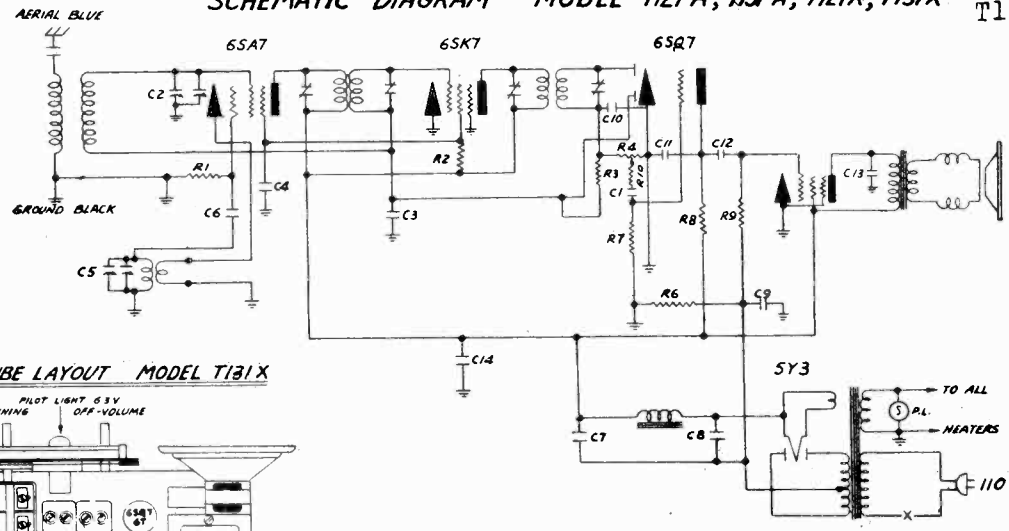
Schematic Location	Part No.	Description
R1	R-15510	20K ohm ¼ Watt Resistor 20%
R3	R-15500	2 Megohm ¼ Watt Resistor 20%
R4	R-146	150K ohm ¼ Watt Resistor 20%
R5	R-50	5 Megohm ¼ Watt Resistor 20%
R6,R7	R-15520	250K ohm ¼ Watt Resistor 20%
R8	R-59	110 ohm ½ Watt Resistor 20%
R9	R-138	1000 ohm 1 Watt Resistor 20%
R10	R-150	15 ohm ¼ Watt Resistor 20%
R11	R-85	35 ohm 1 Watt Resistor 20%
R12	R-72	600 ohm ¼ Watt Resistor 20%
R13	R-15512	250K ohm ¼ Watt Resistor 20%

MAJESTIC RADIO & TELEV. CORP.

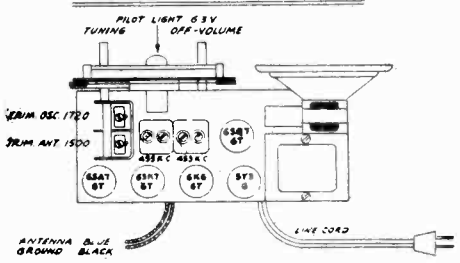
MODELS T121-A, T121-X, T131-A, T131-X

MODELS T122-A, T122-X, T132-A, T132-X

SCHEMATIC DIAGRAM MODEL T121-A; T131-A; T121-X; T131-X



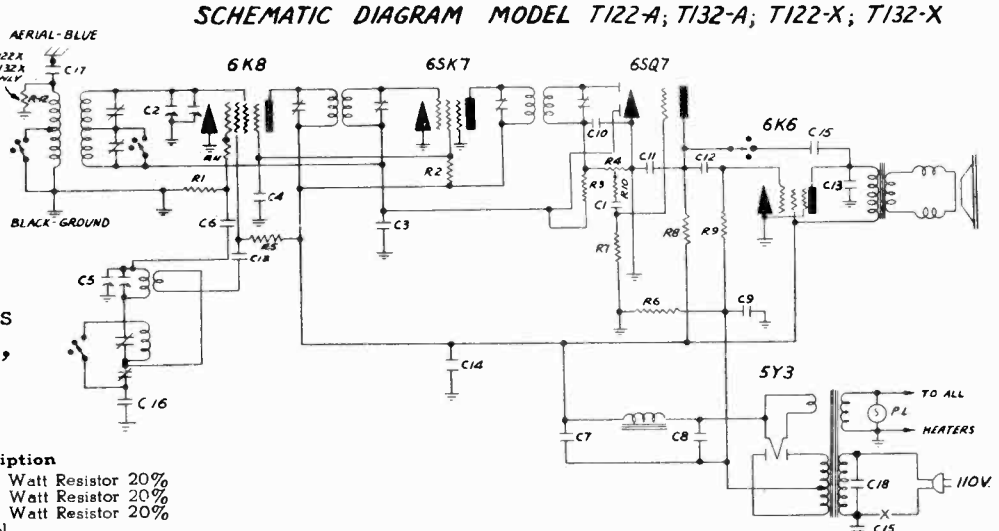
TUBE LAYOUT MODEL T131X



Schematic Location	Part No.	Description
R1	R-15510	20K ohm ¼ Watt Resistor
R2	R-15526	10K ohm 1 Watt Resistor
R3	R-15500	2 Megohm ¼ Watt Resistor
R4	Y-VC-21	Volume Control
R6	R-117	275 ohm ½ Watt Resistor
R7	R-63	10 Megohm ¼ Watt Resistor
R8,R9	R-15520	500K ohm ¼ Watt Resistor
R10	R-15515	100K ohm ¼ Watt Resistor
R11	R-15559	3 Megohm ¼ Watt Resistor
C1	C-15774	.002 mfd. 400 Volt Condenser
C3	C-15752	.05 mfd. 200 Volt Condenser
C4	C-15754	.05 mfd. 400 Volt Condenser
C6	CM-29	50 mmfd Mica Condenser
C7,C8,C9	Y-CE-43	Electrolytic
C10,C11	CM-30	250 mmfd. Mica Condenser
C12	C-15754	.01 mfd. 400 Volt Condenser
C13	C-25	.006 mfd. 400 Volt Condenser
C14	C-15757	.1 mfd. 400 Volt Condenser
C15	C-19	.05 mfd. Molded
C16	CM-15912	1000 mmfd. Mica Condenser

MODELS T121-A, T131-A, T121-X, T131-X: Tuning range from 540-1720 kc Includes standard b.c. band and police calls in the 1600-1720 kc range.

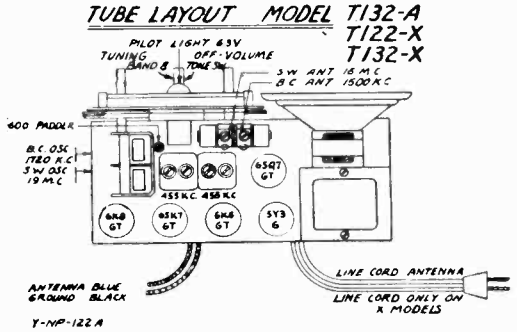
SCHEMATIC DIAGRAM MODEL T122-A; T132-A; T122-X; T132-X



MODELS T122-A, T122-X, T132-A, T132-X: Tuning range 540-1720 kc, & 5,500-18,600 kc; includes stand. b.c. bands and police calls in 1600-1720 kc range, foreign and domestic short wave stations.

Schematic Location	Part No.	Description
R1	R-15511	50K ohm ¼ Watt Resistor 20%
R2	R-15525	35K ohm ¼ Watt Resistor 20%
R3	R-15500	2 Megohm ¼ Watt Resistor 20%
R4	Y-VC-21	Volume Control
R5	R-15541	5K ohm ½ Watt Resistor 20%
R6	R-117	275 ohm ½ Watt Resistor 20%
R7	R-109	5 Megohm ¼ Watt Resistor 20%
R8,R9	R-15520	500K ohm ¼ Watt Resistor 20%
R10	R-15515	2 Megohm ¼ Watt Resistor 20%
R11	R-15601	100 ohm ¼ Watt Resistor 20%
R12	R-60	25K ohm ¼ Watt Resistor 20%
C1	C-15774	.002 mfd. 400 Volt Condenser
C3	C-15752	.05 mfd. 200 Volt Condenser
C4	C-15756	.05 mfd. 400 Volt Condenser
C6	CM-29	50 mmfd. Mica Condenser
C7,C8,C9	CE 43-A	Electrolytic Condenser
C18	C-19	.05 mfd. 400 Volt mold. cond.
C10,C11	CM-30	250 mmfd. Mica Condenser
C12	C-15754	.01 mfd. 400 Volt Condenser
C13,C15	C-25	.006 mfd. 400 Volt Condenser
C14	C-15757	.1 mfd. 400 Volt Condenser
C16	CM-2	4330 mmfd. Mica Condenser
C17	C-18	.01 mfd. 400 Volt mold. cond.

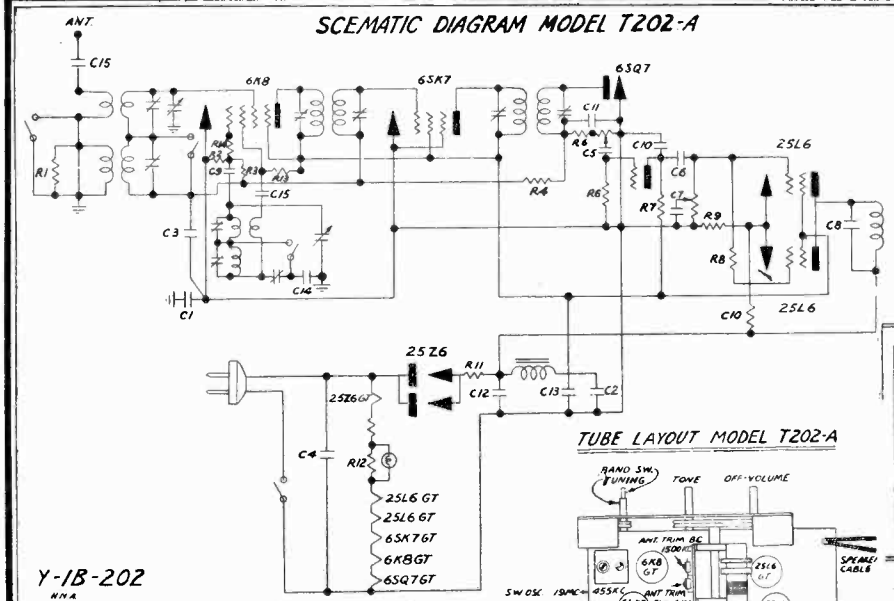
TUBE LAYOUT MODEL T122-A T132-A T122-X T132-X



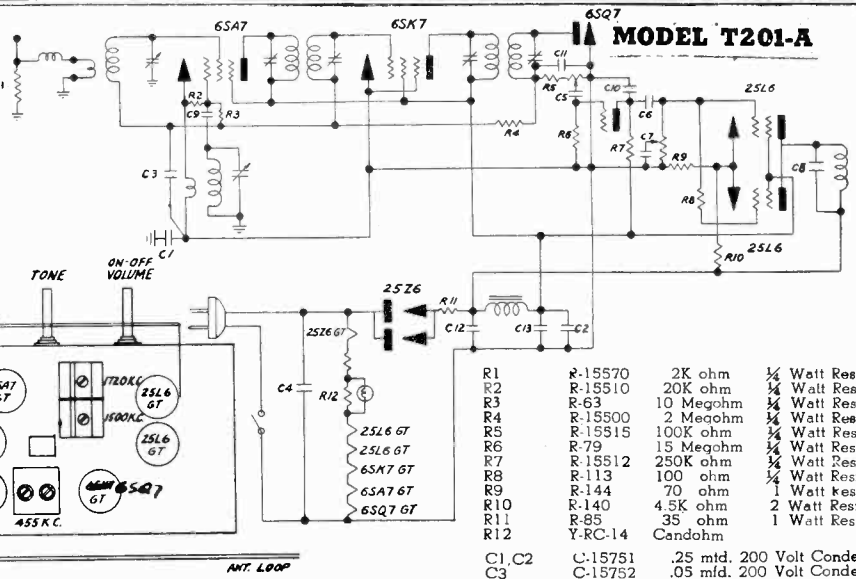
MODEL T201-A
MODEL T202-A
MODELS TP221-A, TP231-A

MAJESTIC RADIO & TELEV. CORP.

SCEMATIC DIAGRAM MODEL T202-A



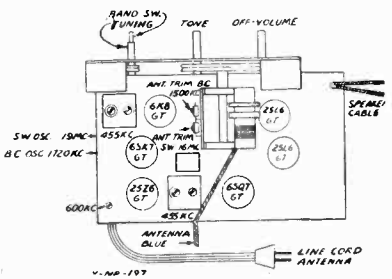
MODEL T201-A



R1	R-15570	2K ohm	¼ Watt Resistor
R2	R-15510	20K ohm	¼ Watt Resistor
R3	R-63	10 Megohm	¼ Watt Resistor
R4	R-15500	2 Megohm	¼ Watt Resistor
R5	R-15515	100K ohm	¼ Watt Resistor
R6	R-79	15 Megohm	¼ Watt Resistor
R7	R-15512	250K ohm	¼ Watt Resistor
R8	R-113	100 ohm	¼ Watt Resistor
R9	R-144	70 ohm	1 Watt Resistor
R10	R-140	4.5K ohm	2 Watt Resistor
R11	R-85	35 ohm	1 Watt Resistor
R12	Y-RC-14	Candohm	
C1,C2	C-15751	.25 mfd. 200	Volt Condenser
C3	C-15752	.05 mfd. 200	Volt Condenser
C4	C-15756	.05 mfd. 400	Volt Condenser
C5	C-44	.002 mfd. 600	Volt Condenser
C6	C-15754	.01 mfd. 400	Volt Condenser
C7	C-25	.006 mfd. 400	Volt Condenser
C8	C-31	.004 mfd. 400	Volt Condenser
C9	CM-29	50 mmfd.	Mica Condenser
C10,C11	CM-30	250 mmfd.	Mica Condenser
C12	CE-66	75 mfd.	Electrolytic Condenser
C13	CE-66	40 mfd.	Electrolytic Condenser

MODEL T201-A: Tuning range 540 kc to 1720 kc. This includes standard broadcast band and 1600 kc to 1720 kc police calls.

TUBE LAYOUT MODEL T202-A

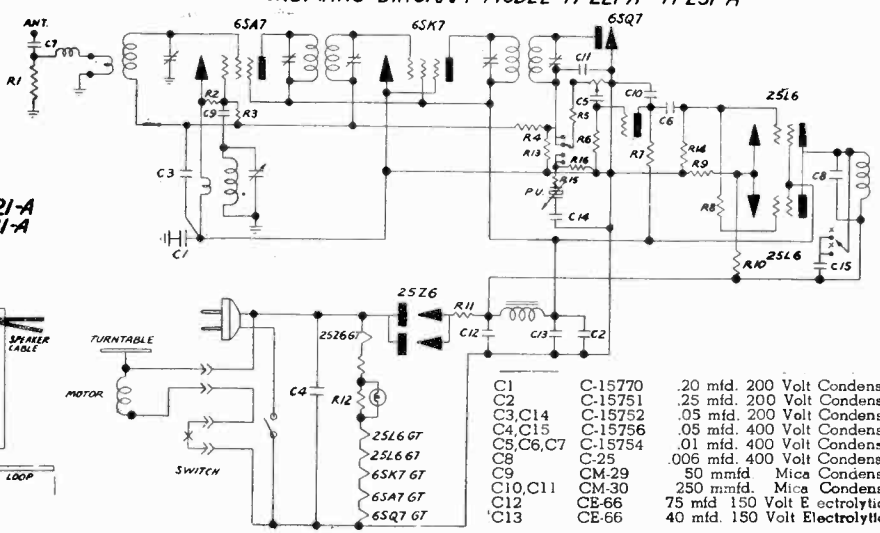


Y-1B-202

R1	R-60	25K ohm	¼ Watt Resistor
R2	R-15511	50K ohm	¼ Watt Resistor
R3	R-79	15 Megohm	¼ Watt Resistor
R4	R-15500	2 Megohm	¼ Watt Resistor
R5	R-15515	100K ohm	¼ Watt Resistor
R6	R-63	10 Megohm	¼ Watt Resistor
R7	R-15512	250K ohm	¼ Watt Resistor
R8,R14	R-113	100 ohm	¼ Watt Resistor
R9	R-144	70 ohm	1 Watt Resistor
R10	R-140	4.5K ohm	2 Watt Resistor
R11	R-85	35 ohm	1 Watt Resistor
R12	RC-14	Candohm	
R13	R-2	5K ohm	¼ Watt Resistor
C1,C2	C-15751	.25 mfd. 200	Volt Condenser
C3	C-15752	.05 mfd. 200	Volt Condenser
C4	C-15756	.05 mfd. 400	Volt Condenser
C5	C-44	.002 mfd. 400	Volt Condenser
C6,C15	C-15754	.01 mfd. 400	Volt Condenser
C7	C-25	.006 mfd. 400	Volt Condenser
C8	C-31	.004 mfd. 400	Volt Condenser
C9	CM-31	100 mmfd	Mica Condenser
C10,C11C15	CM-30	250 mmfd.	Mica Condenser
C14	CM-2	4330 mmfd.	Mica Condenser
C12	CE-66	75 mfd.	Electrolytic Condenser
C13	CE-66	40 mfd.	Electrolytic Condenser

MODEL T202-A: Tuning 540 to 1720 kc; includes standard b.c. and police calls in 1600 to 1720 kc spectrum. Also 5,800 to 13,600 kc, American and foreign short wave, ships, planes, trans-Atlantic phone.

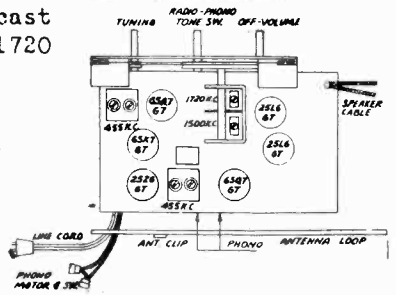
SCHEMATIC DIAGRAM MODEL TP221-A TP231-A



C1	C-15770	.20 mfd. 200	Volt Condenser
C2	C-15751	.25 mfd. 200	Volt Condenser
C3,C14	C-15752	.05 mfd. 200	Volt Condenser
C4,C15	C-15756	.05 mfd. 400	Volt Condenser
C5,C6,C7	C-15754	.01 mfd. 400	Volt Condenser
C8	C-25	.006 mfd. 400	Volt Condenser
C9	CM-29	50 mmfd	Mica Condenser
C10,C11	CM-30	250 mmfd.	Mica Condenser
C12	CE-66	75 mfd 150	Volt E ectrolytic
C13	CE-66	40 mfd. 150	Volt Electrolytic

MODEL TP221-A, TP231-A: Tuning range 540 to 1720 kc. This includes standard broadcast and police calls lying in the 1600 to 1720 kc range.

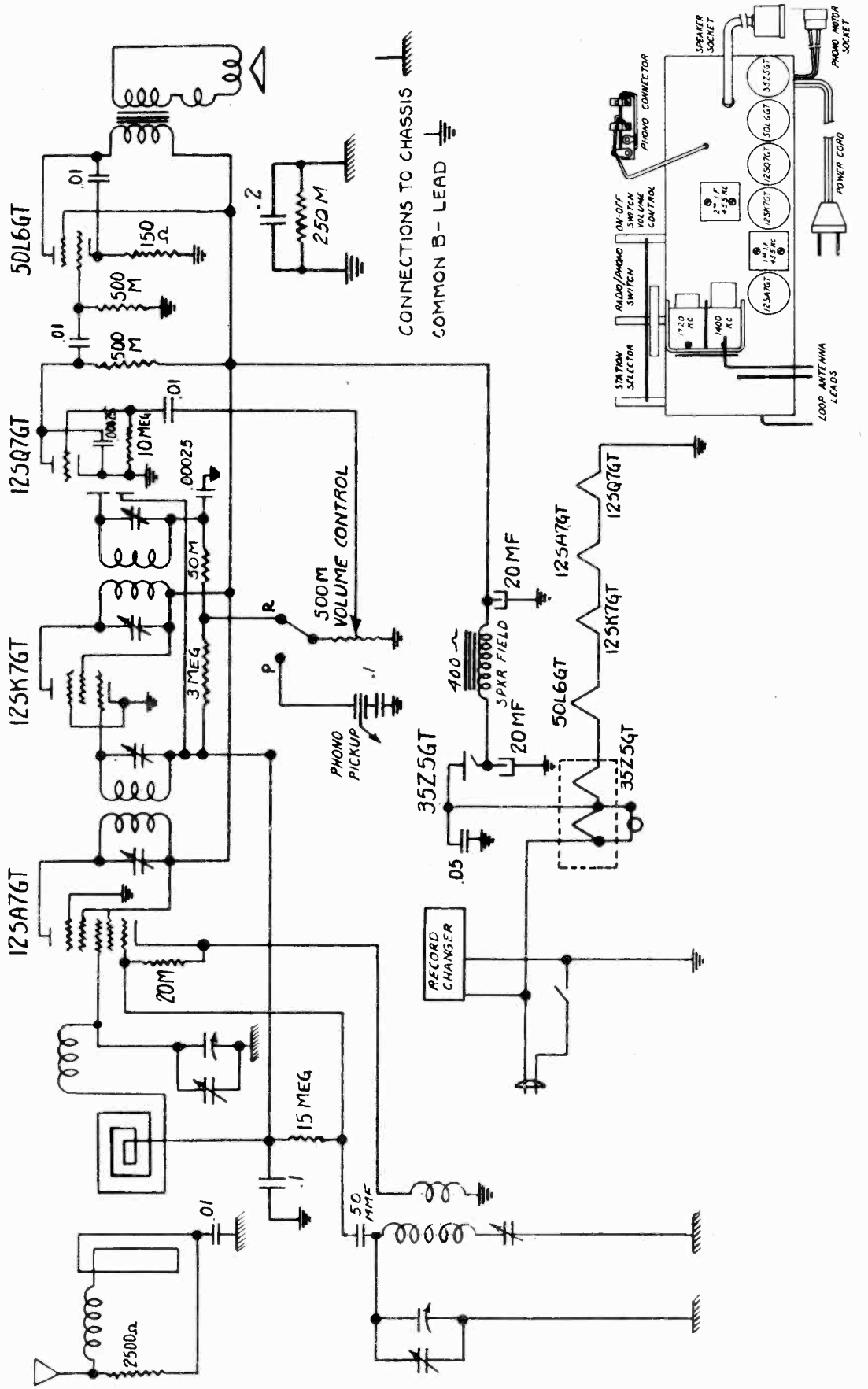
TUBE LAYOUT MODEL TP221-A TP231-A



R1	R-15570	2000 ohm	¼ Watt Resistor
R2	R-15510	20K ohm	¼ Watt Resistor
R3	R-79	15 Megohm	¼ Watt Resistor
R4,R13	R-15500	2 Megohm	¼ Watt Resistor
R5	R-15515	100K ohm	¼ Watt Resistor
R7,R14	R-15512	250K ohm	¼ Watt Resistor
R6	R-149	4.7 Megohm	¼ Watt Resistor
R8	R-113	100 ohm	¼ Watt Resistor
R9	R-144	70 ohm	¼ Watt Resistor
R10	R-147	4K ohm	3 Watt Resistor
R11	R-85	35 ohm	1 Watt Resistor
R12	RC-14	Candohm	
R15	R-148	300K ohm	¼ Watt Resistor
R16	R-54	50K ohm	¼ Watt Resistor

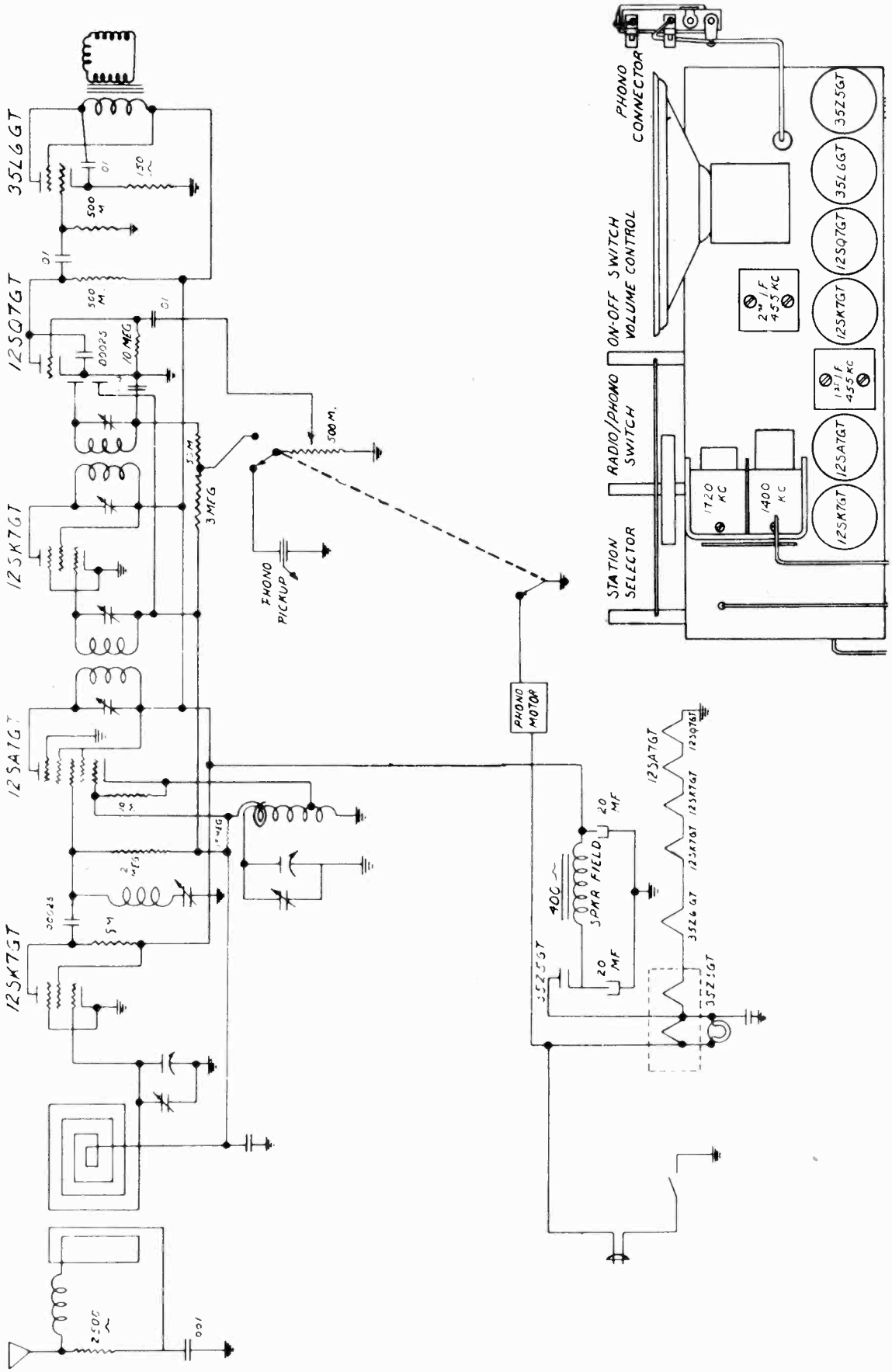
MODEL 6C35

MAJESTIC RADIO & TELEV. CORP.



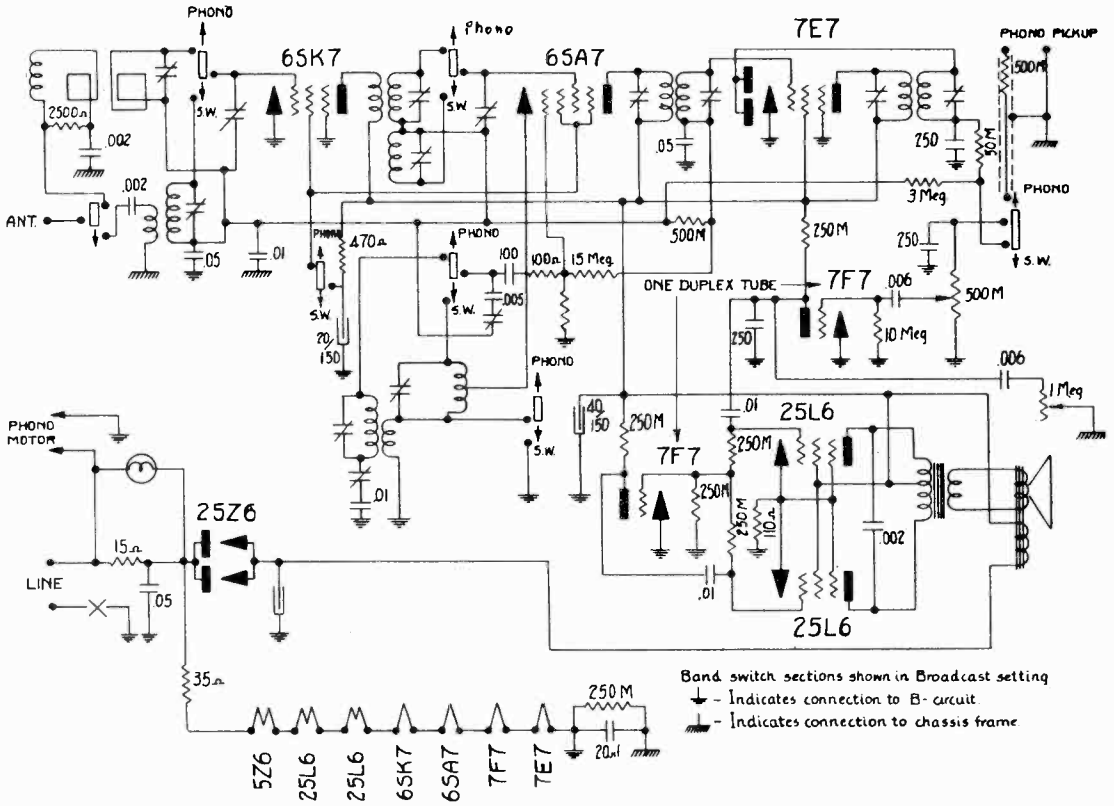
MODEL 5CU36

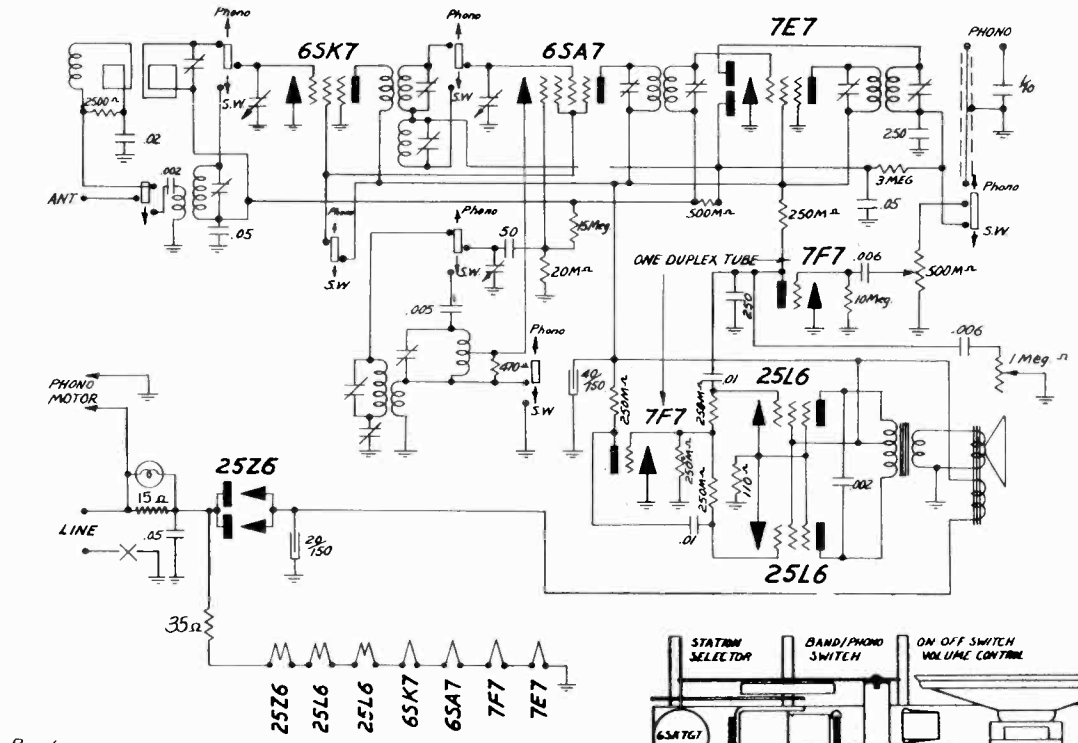
MAJESTIC RADIO & TELEV. CORP.



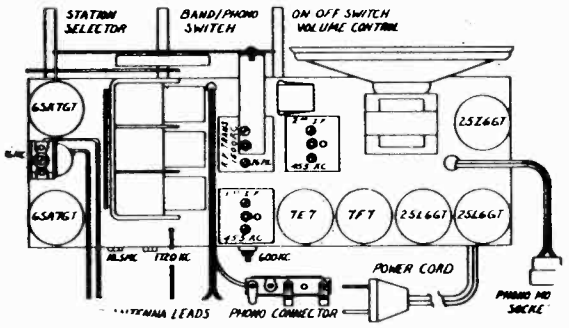
MODEL 7C40
MODEL 7CU40

MAJESTIC RADIO & TELEV. CORP.





Band switch sections shown in Broadcast setting.

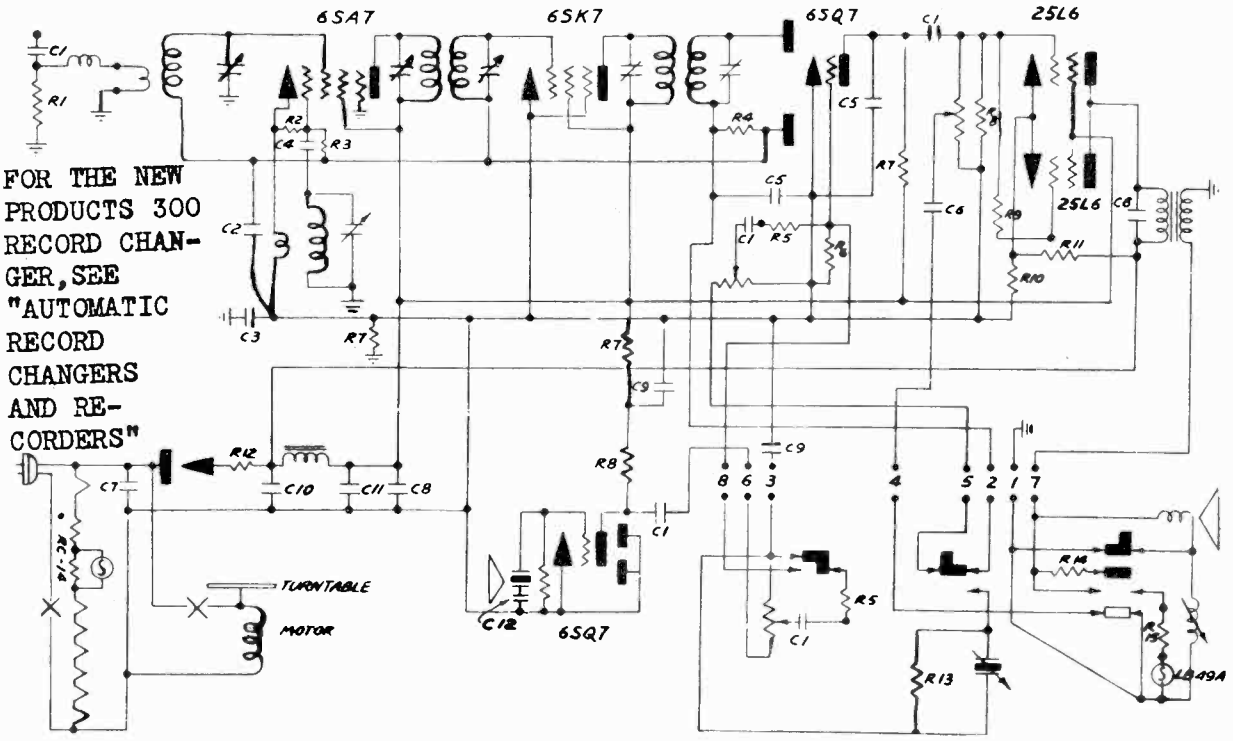


FOR NEW PRODUCTS 300 RECORD CHANGER, SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".

MODELS TR321A, TR331A

MAJESTIC RADIO & TELEV. CORP.

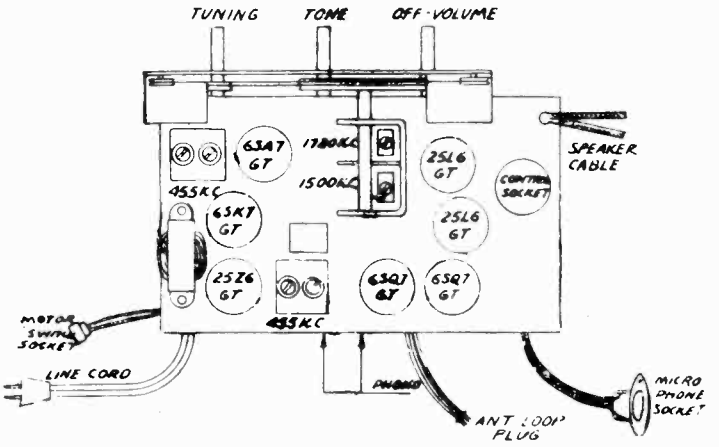
SCHEMATIC DIAGRAM MODEL TR321-A TR331-A



REPLACEMENT PARTS LIST

Schematic Location	Part No.	Description
R1	R-15570	2K ohm ½ Watt Resistor 20%
R2	R-15510	20K ohm ½ Watt Resistor 20%
R3	R-79	15 Megohm ½ Watt Resistor 20%
R4	R-15500	2 Megohm ½ Watt Resistor 20%
R5	R-15504	150K ohm ½ Watt Resistor 20%
R6	R-149	4.7 Megohm ½ Watt Resistor 20%
R7	R-153	270K ohm ½ Watt Resistor 20%
R8	R-154	470K ohm ½ Watt Resistor 20%
R9	R-15601	100 ohm ½ Watt Resistor 20%
R10	R-155	68 ohm 1 Watt Resistor 20%
R11	R-147	4K ohm 3 Watt Resistor 20%
R12	R-85	35 ohm 1 Watt Resistor 20%
R13	R-100	300K ohm ½ Watt Resistor 20%
R14	R-152	4 ohm 1 Watt Resistor 20%
R15	R-151	7.5 ohm 1 Watt Resistor 20%
RC-14	RC-14	Candohm
C1	C-15754	.01 mfd. 400 Volt Condenser
C2	C-15752	.05 mfd. 200 Volt Condenser
C3	C-15770	.2 mfd. 200 Volt Condenser
C4	CM-29	50 mmfd Mica Condenser
C5	CM-30	250 mmfd. Mica Condenser
C6	C-25	.006 mfd. 400 Volt Condenser
C7	C-15756	.05 mfd. 400 Volt Condenser
C8	C-15751	.25 mfd. 200 Volt Condenser
C9,C12	C-15761	.10 mfd. 200 Volt Condenser
C10	CE-66-2	100 mfd Electrolytic
C11	CE-66-2	40 mfd. Electrolytic

TUBE LAYOUT MODEL TR321-A TR331-A



This receiver is equipped with a built-in loop antenna and, under normal conditions, should not require an external antenna. Since reception of loops is directional, reception can be improved by orienting the set for best reception of preferred stations. In very difficult locations, an external antenna should be used. This should be connected to the clip on the back of the receiver. No ground should be used on this set.

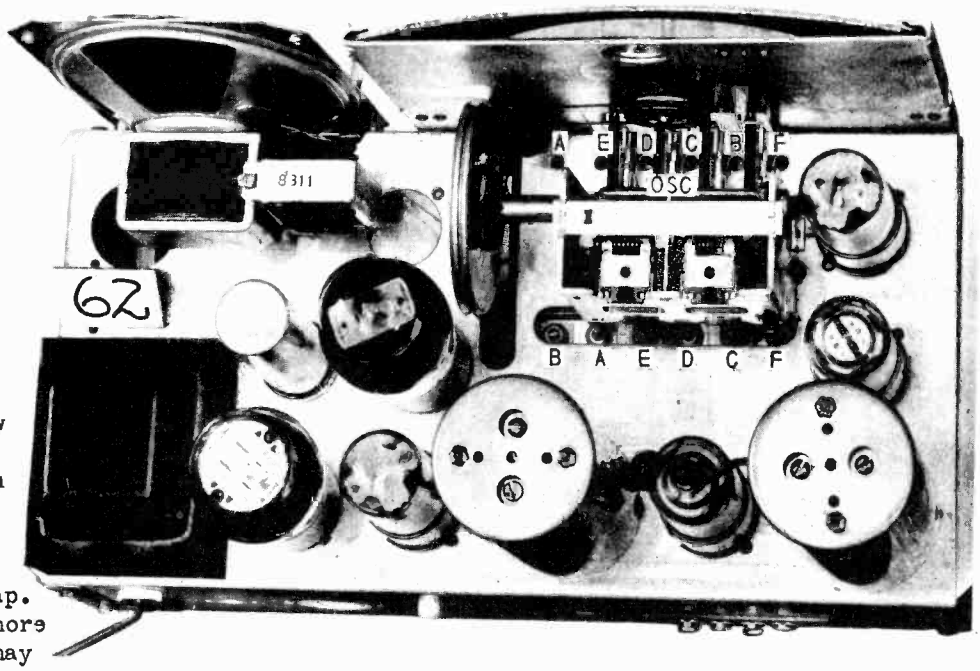
Model TR321-A operates on 105-125 volts 60 cycles AC only.

Model TR331-A operates on 105-125 volts 50 cycles AC only.

This is a seven tube combination superheterdyne radio receiver, home recorder, phonograph, and public address amplifier.

The tuning range is from 540 to 1720 kilocycles. This includes the standard broadcast band and police calls in 1600 to 1720 kilocycles range.

MIDWEST RADIO CORP.



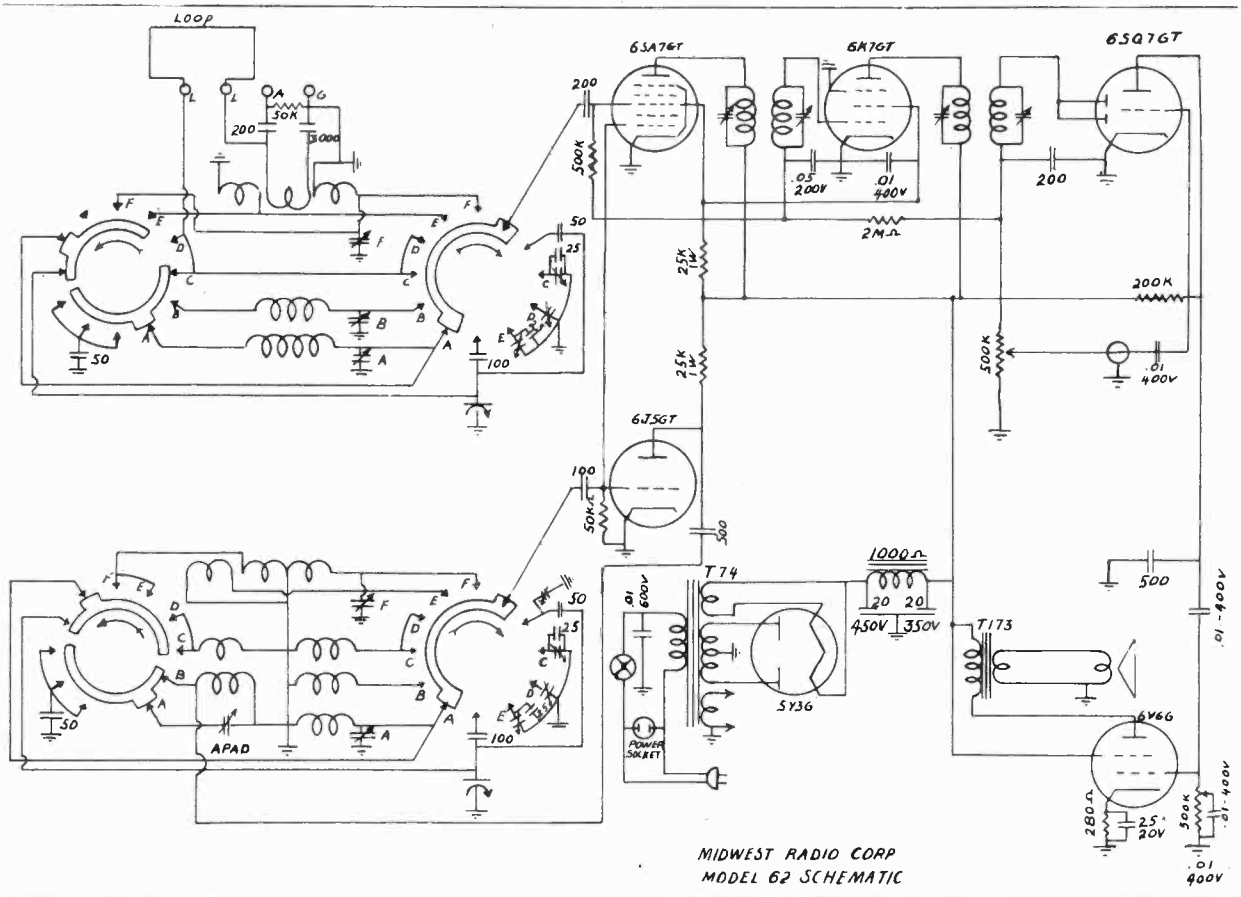
SETTING PUSH BUTTONS

1. Expose locking screw by removing push button.
2. Loosen locking screw about one full turn.
3. With locking screw loose, and button depressed, tune in desired station accurately.
4. Tighten screw and replace moulded cap.

DO NOT LOOSEN screw more than 4 turns. Screw may come out and may be hard to replace.

ALIGNMENT FREQUENCIES

I.F.456 KC. A_ 1400 KC. C_ 9.8 MC. E_ 15.7 MC.
B_ 6.6 MC. D_ 11.7 MC. F_ 24 MC.



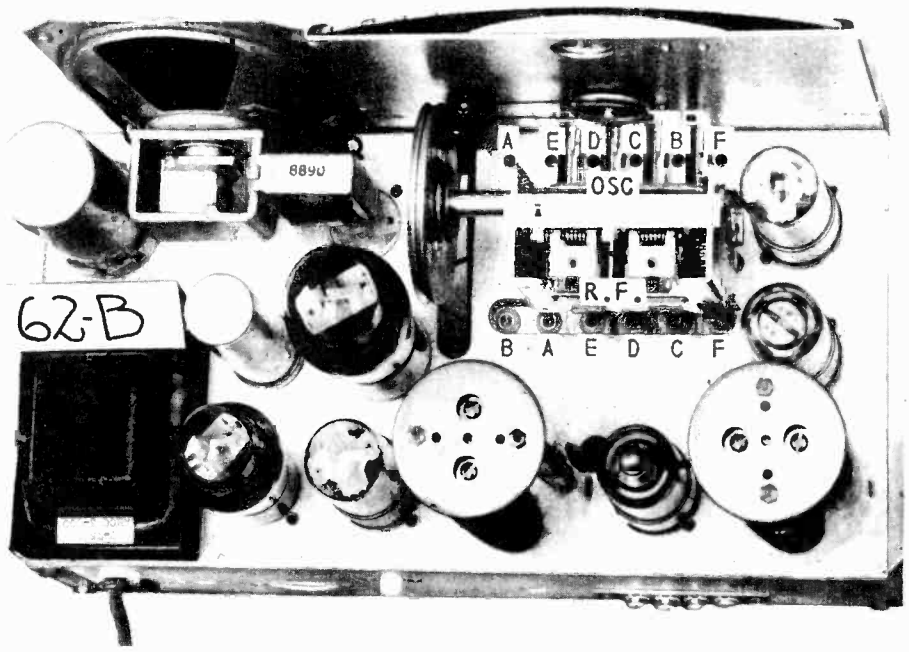
MODEL 62B

MIDWEST RADIO CORP.

SETTING PUSH BUTTONS

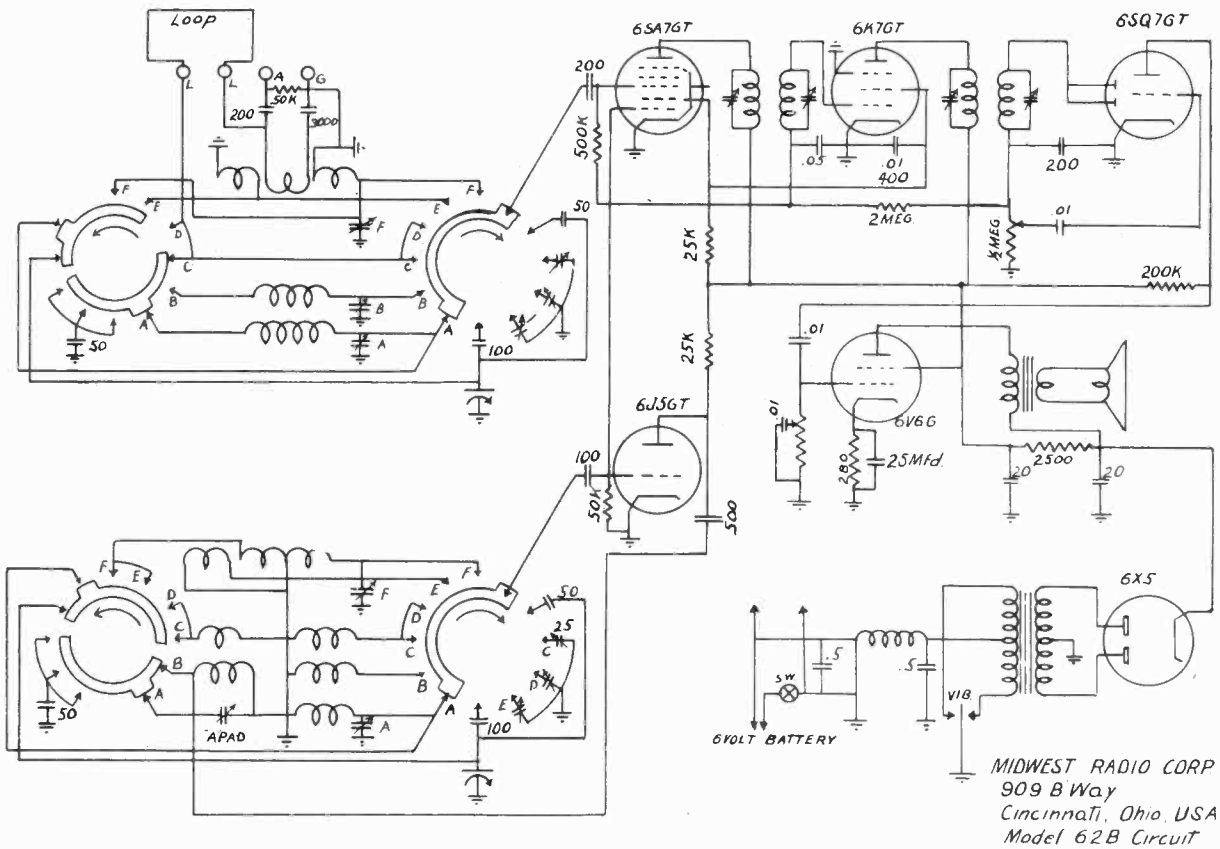
1. Expose locking screw by removing push button.
2. Loosen locking screw about one full turn.
3. With locking screw loose, and button depressed, tune in desired station accurately.
4. Tighten screw and replace moulded cap.

DO NOT LOOSEN screw more than 4 turns. Screw may come out and may be hard to replace.



ALIGNMENT FREQUENCIES

IF - 456 KC	A - 1400 KC	C - 9.8 MC	E - 15.7 MC
	B - 6.6 MC	D - 11.7 MC	F - 24 MC

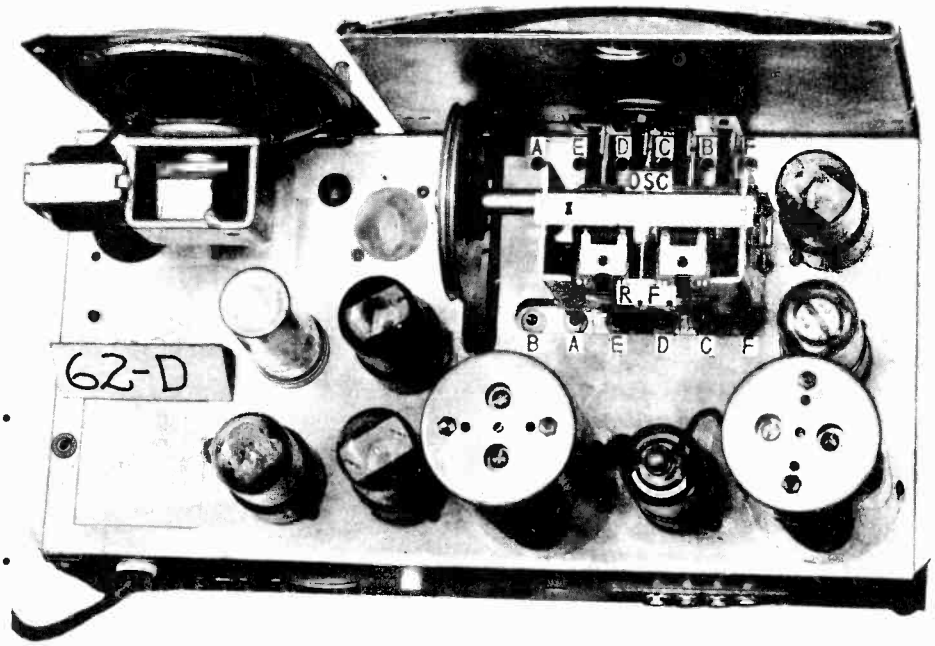


MIDWEST RADIO CORP.

SETTING PUSH BUTTONS

1. Expose locking screw by removing push button.
2. Loosen locking screw about one full turn.
3. With locking screw loose, and button depressed, tune in desired station accurately.
4. Tighten screw and replace moulded cap.

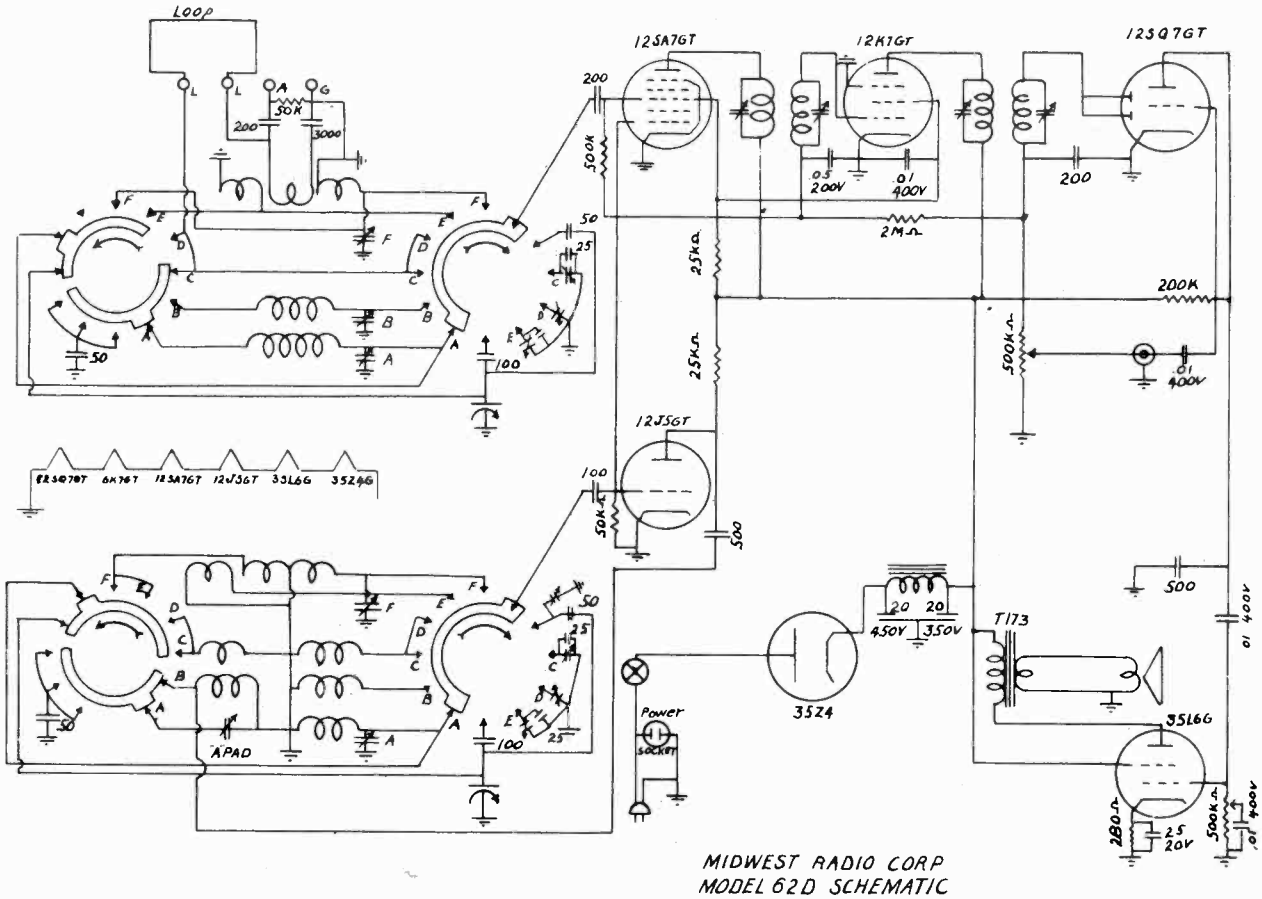
DO NOT LOOSEN screw more than 4 turns. Screw may come out and may be hard to replace.



ALLIGNMENT FREQUENCIES

IF - 456 KC

A - 1400 KC
B - 6.6 MC
C - 9.8 MC
D - 11.7 MC
E - 15.7 MC
F - 24 MC



MIDWEST RADIO CORP
MODEL 62D SCHEMATIC

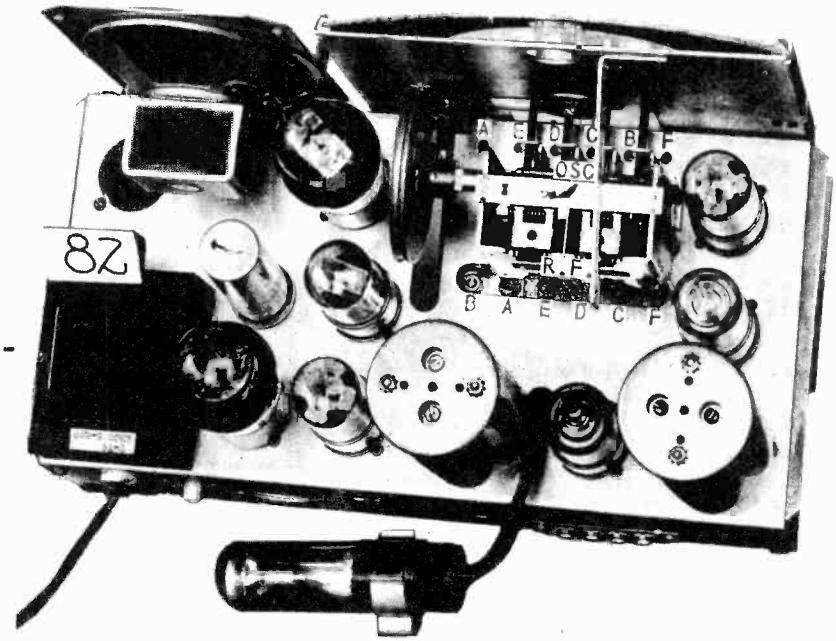
MODEL 82

MIDWEST RADIO CORP.

SETTING PUSH BUTTONS

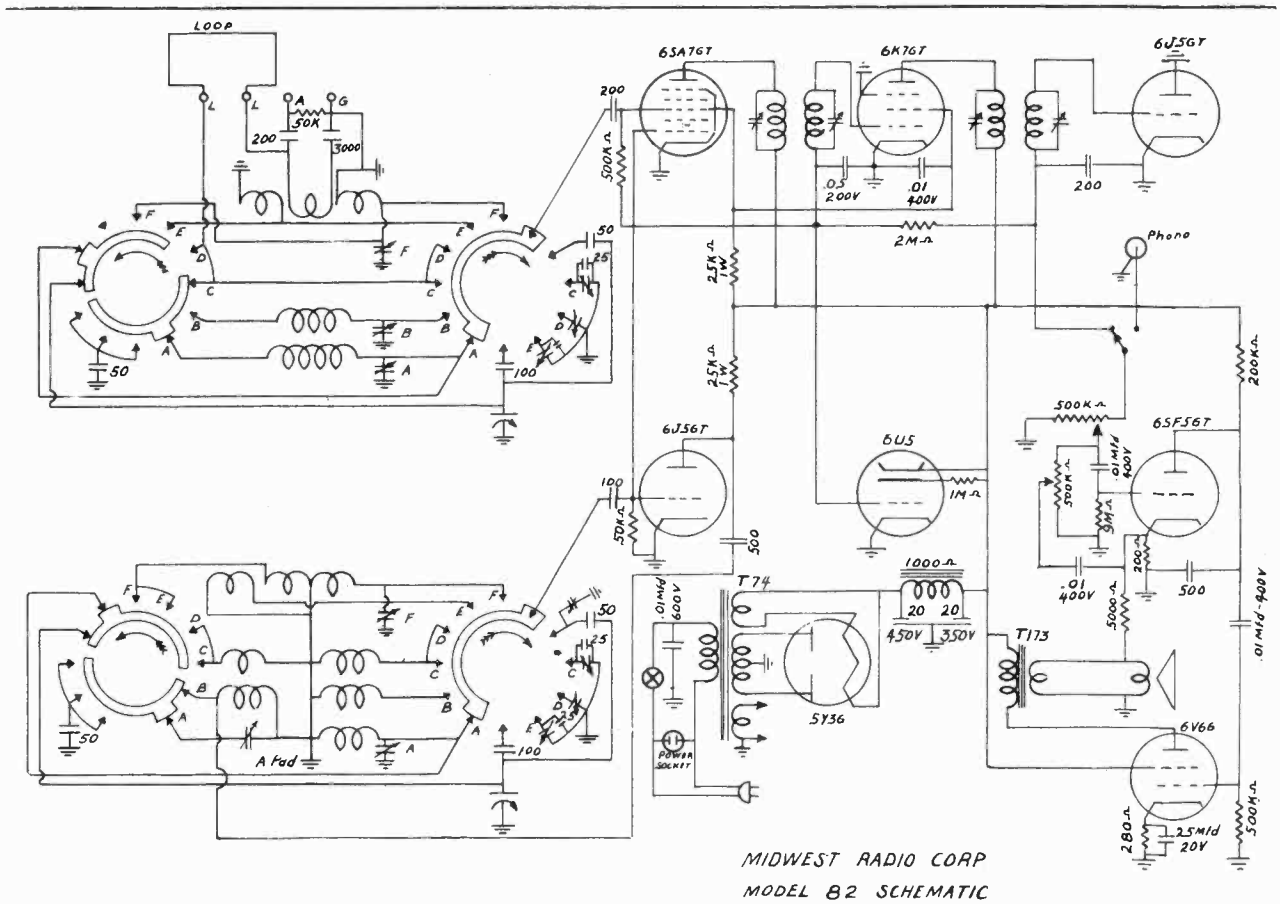
1. Expose locking screw by removing push button.
2. Loosen locking screw about one full turn.
3. With locking screw loose, and button depressed, tune in desired station accurately.
4. Tighten screw and replace moulded cap.

DO NOT LOOSEN screw more than 4 turns. Screw may come out and may be hard to replace.



ALIGNMENT FREQUENCIES

IF - 456 KC	A - 1400 KC	C - 9.8 MC	E - 15.7 MC
	B - 6.5 MC	D - 11.7 MC	F - 24 MC

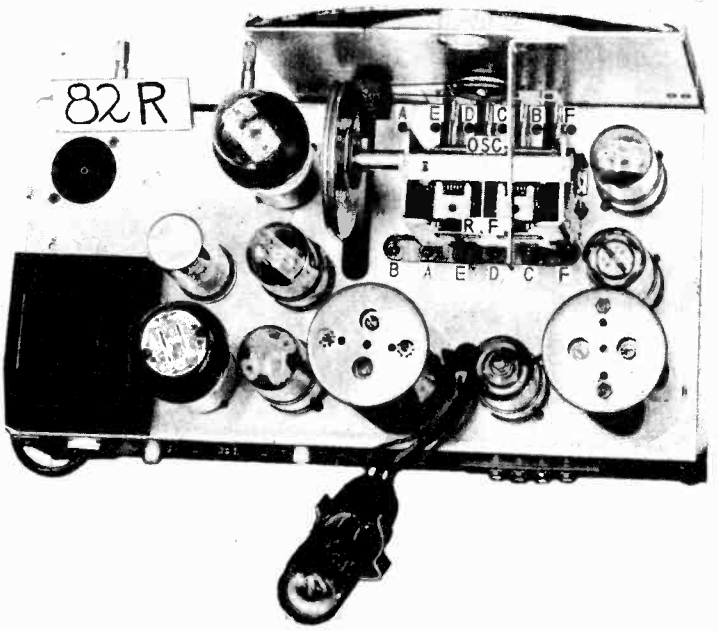


MIDWEST RADIO CORP.

SETTING PUSH BUTTONS

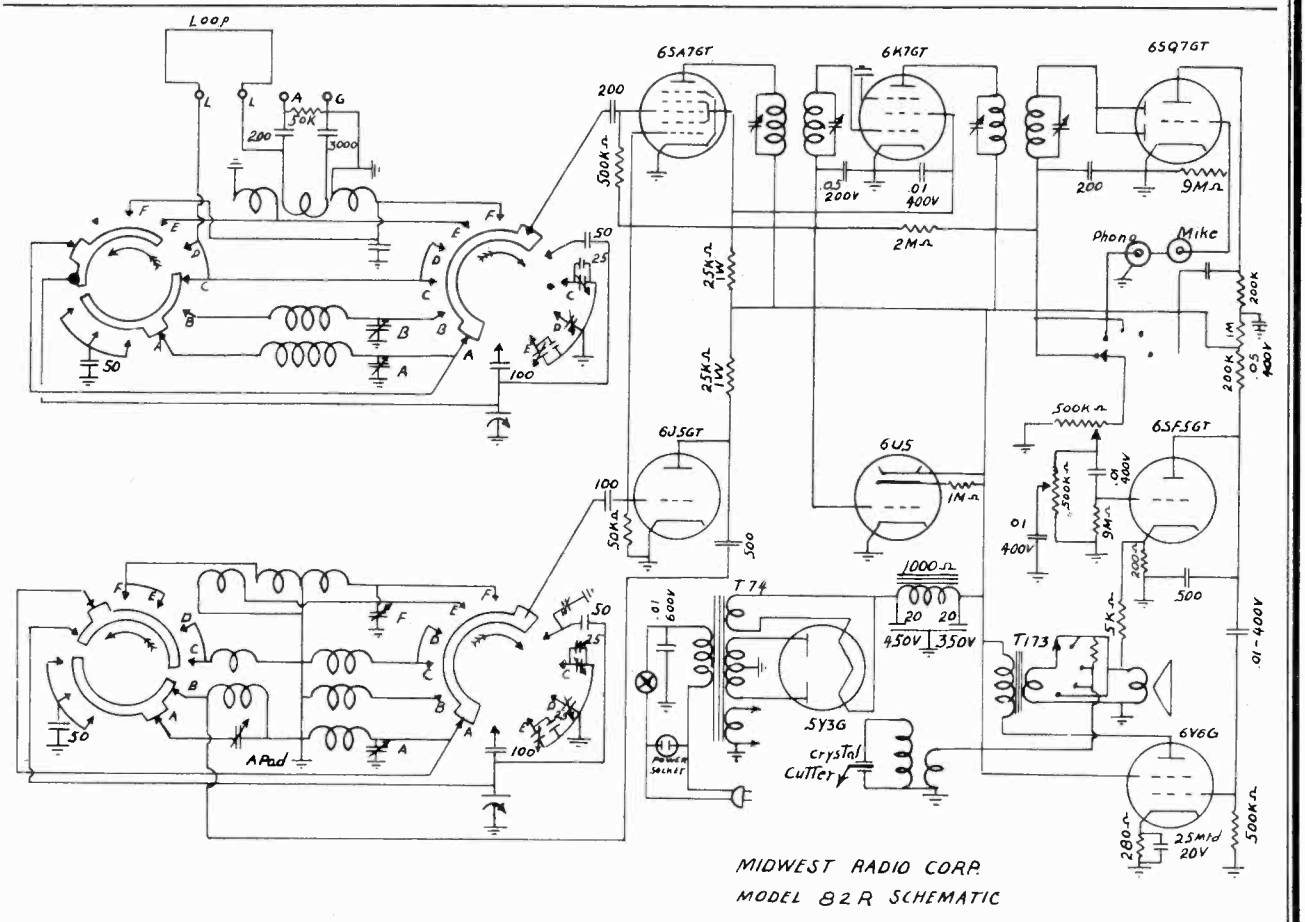
1. Expose locking screw by removing push button.
2. Loosen locking screw about one full turn.
3. With locking screw loose, and button depressed, tune in desired station accurately.
4. Tighten screw and replace moulded cap.

DO NOT LOOSEN screw more than 4 turns. Screw may come out and may be hard to replace.



ALLIGNMENT FREQUENCIES

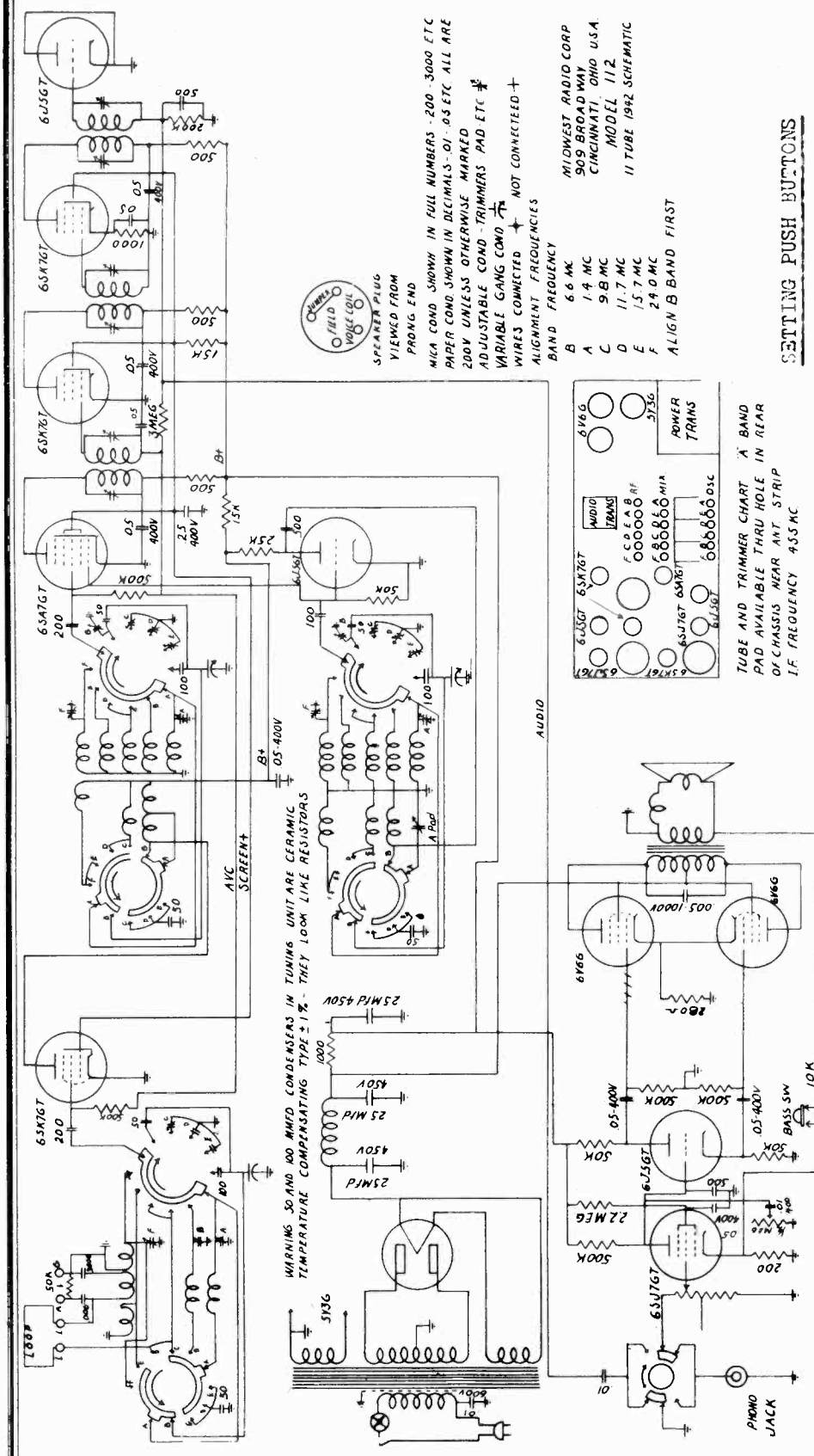
IF - 456 KC	A - 1400 KC	C - 9.8 MC	E - 15.7 MC
	B - 6.5 MC	D - 11.7 MC	F - 24 MC



MIDWEST RADIO CORP.
MODEL 82R SCHEMATIC

MODEL 112

MIDWEST RADIO CORP.



SETTING PUSH BUTTONS

1. Expose locking screw by removing push button.
2. Loosen locking screw about one full turn.
3. With locking screw loose, and button depressed, tune in desired station accurately.
4. Tighten screw and replace moulded cap.

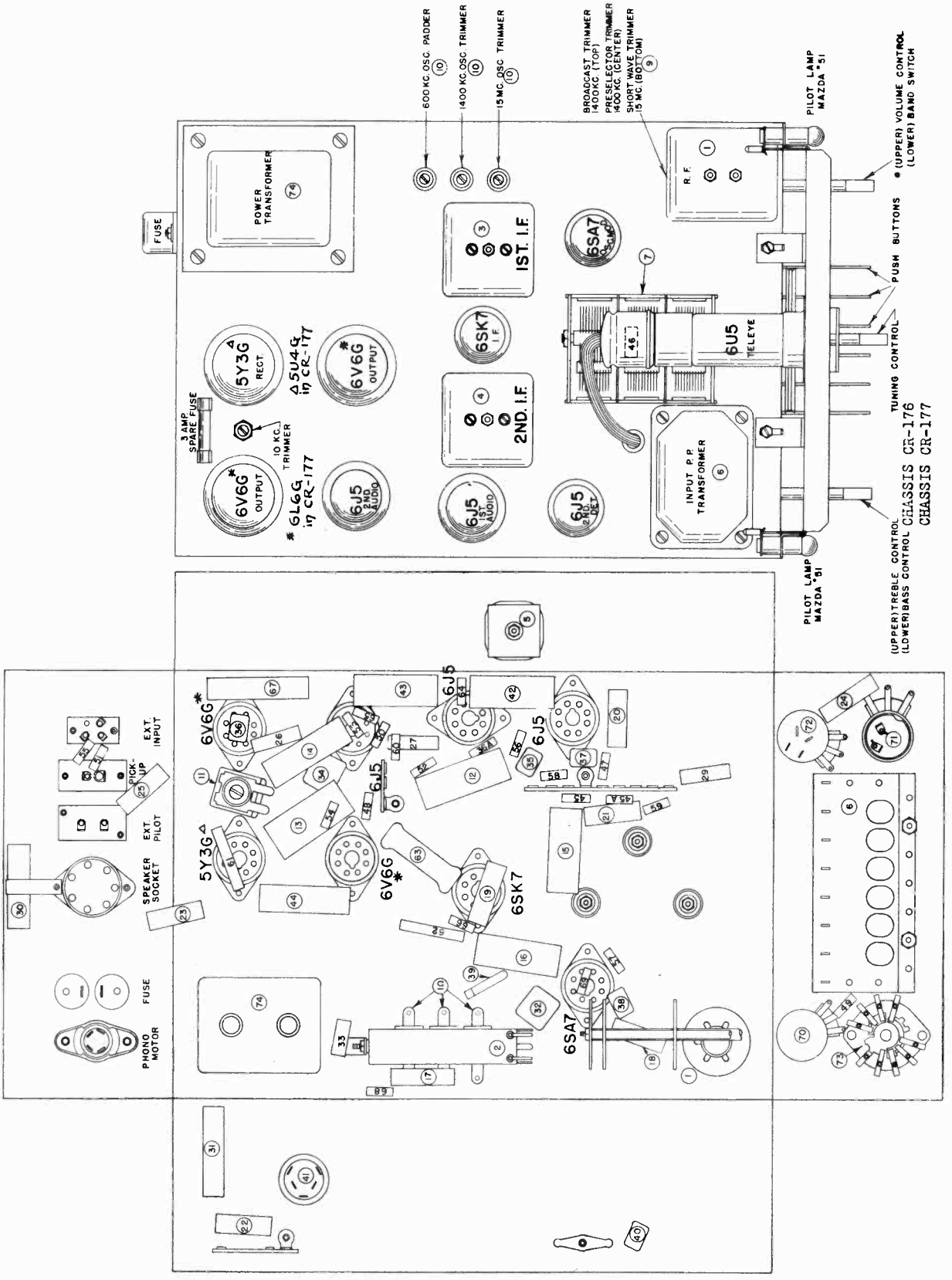
DO NOT LOOSEN screw more than 4 turns. Screw may come out and may be hard to replace.

BANDS

This receiver has six separate and distinct wave bands. It is designed so that you may easily receive all of the foreign and domestic stations now operating in the radio spectrum. Bands are lettered "A B C D E and F." The "A" band is the usual broadcast band and on it you will receive your favorite U.S. broadcast stations. The tuning range of the other five bands is so designed that you may tune in your favorite short wave stations during the day or night time. For example: In the early morning hours you will find most of the short wave stations on the "E" or "F" bands. As daylight increases you will find that these stations will disappear and reappear again on the "C" and "D" bands. At night you will find that these stations have again changed and will appear on the "B" and "C" bands.

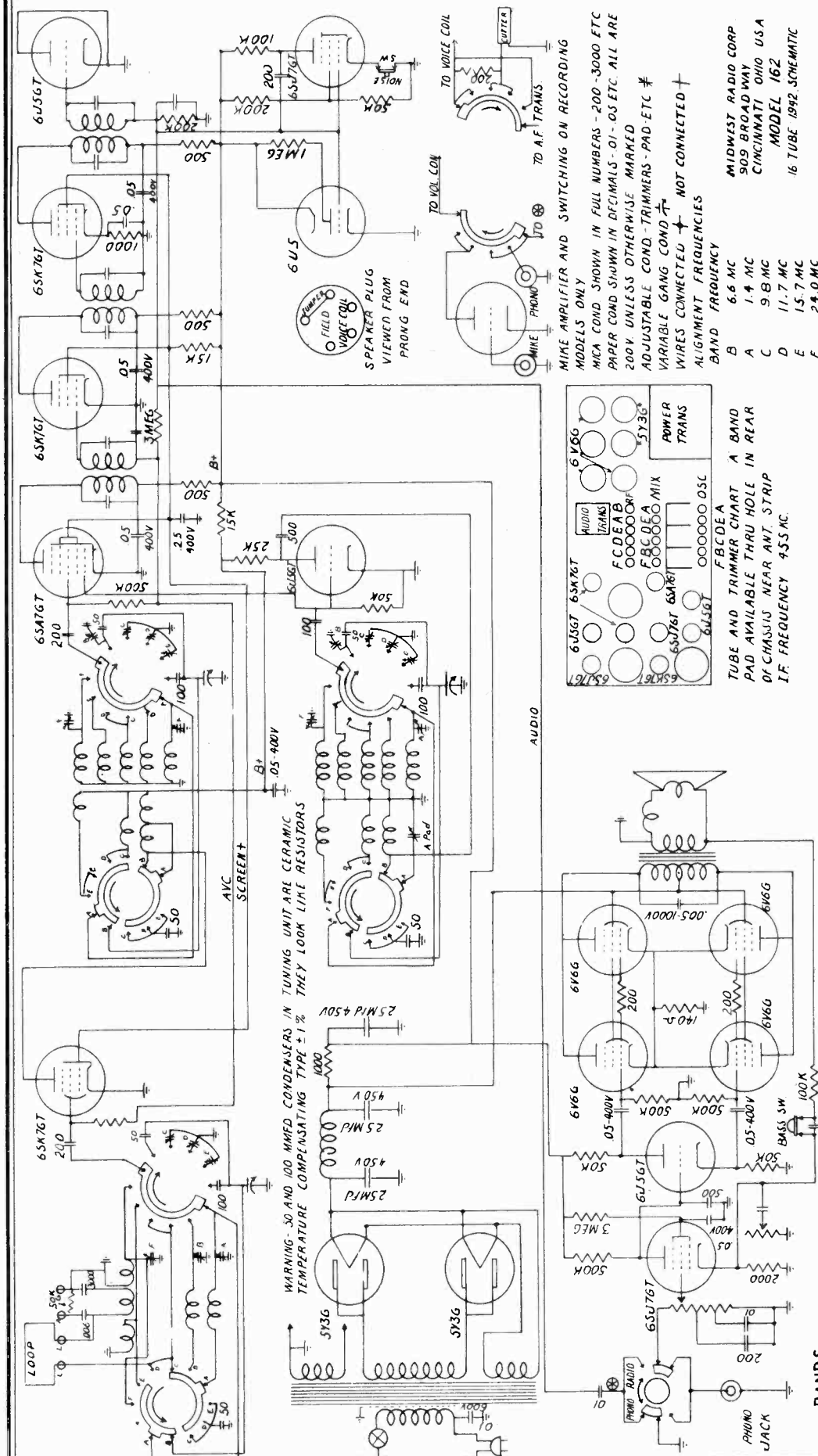
MIDWEST RADIO CORP.

MODEL 112
MODEL 162



MODEL 162

MIDWEST RADIO CORP.



MIKE AMPLIFIER AND SWITCHING ON RECORDING MODELS ONLY
MICA COND SHOWN IN FULL NUMBERS - 200-3000 ETC
PAPER COND SHOWN IN DECIMALS - .01-.05 ETC ALL ARE 200 V. UNLESS OTHERWISE MARKED
ADJUSTABLE COND - TRIMMERS - PAD - ETC ⌀
VARIABLE GANG COND ⏚
WIRES CONNECTED + NOT CONNECTED +

ALIGNMENT FREQUENCIES

BAND	FREQUENCY
B	6.6 MC
A	1.4 MC
C	9.8 MC
D	11.7 MC
E	15.7 MC
F	24.0 MC

ALIGN B BAND FIRST

TUBE AND TRIMMER CHART A BAND PAD AVAILABLE THRU HOLE IN REAR OF CHASSIS NEAR ANT. STRIP
I.F. FREQUENCY 455 KC.

MIDWEST RADIO CORP
909 BROADWAY
CINCINNATI OHIO U.S.A
MODEL 162
16 TUBE 1942 SCHEMATIC

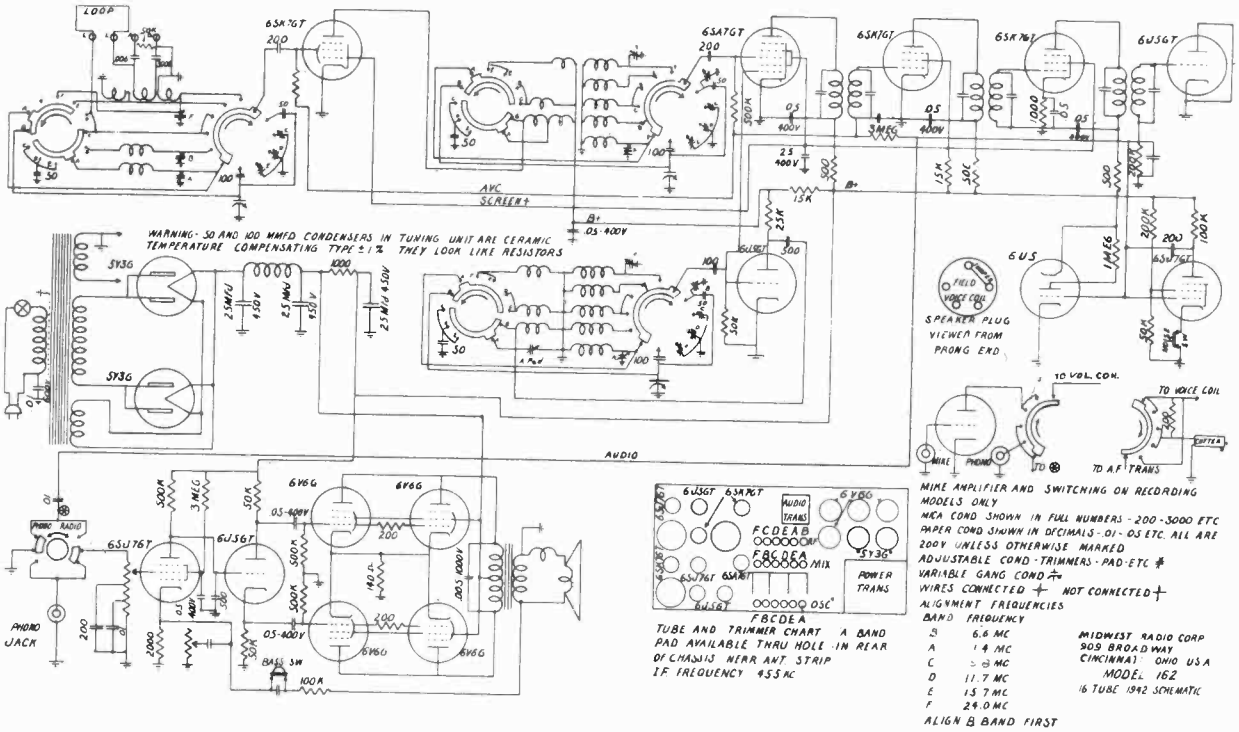
Push button data same as for model 82R.

BANDS

This receiver has six separate and distinct wave bands. It is designed so that you may easily receive all of the foreign and domestic stations now operating in the radio spectrum. Bands are lettered "A B C D E and F." The "A" band is the usual broadcast band and on it you will receive your favorite U.S. broadcast stations. The tuning range of the other five bands is so designed that you may tune in your favorite short wave stations during the day or night time. For example: In the early morning hours you will find most of the short wave stations on the "E" or "F" bands. As daylight increases you will find that these stations will disappear and reappear again on the "C" and "D" bands. At night you will find that these stations have again changed and will appear on the "B" and "C" bands.

MODEL 162R

MIDWEST RADIO CORP.



TUBE AND TRIMMER CHART A BAND PAD AVAILABLE THRU HOLE IN REAR OF CHASSIS NEAR ANT STRIP
IF FREQUENCY 455 KC

MIKE AMPLIFIER AND SWITCHING ON RECORDING MODELS ONLY
MICA COND SHOWN IN FULL NUMBERS - 200 - 3000 ETC
PAPER COND SHOWN IN DECIMALS - .01 - .05 ETC. ALL ARE 200V UNLESS OTHERWISE MARKED
ADJUSTABLE COND - TRIMMERS - PAD - ETC ≠
VARIABLE GANG COND ⫩
WIRES CONNECTED + NOT CONNECTED +

ALIGNMENT FREQUENCIES

BAND	FREQUENCY
B	6.6 MC
A	1.4 MC
C	[illegible] MC
D	11.7 MC
E	15.7 MC
F	24.0 MC

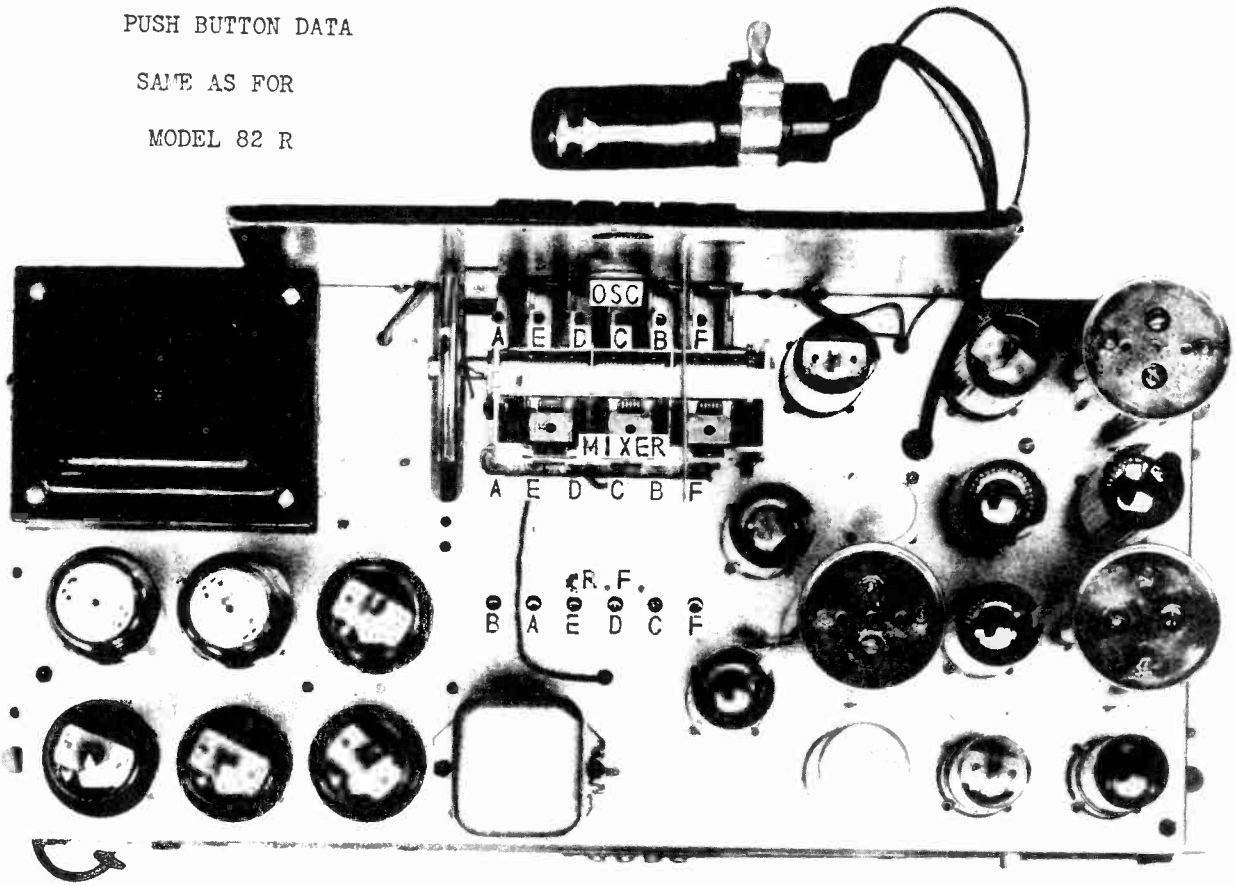
ALIGN B BAND FIRST

MIDWEST RADIO CORP
909 BROADWAY
CINCINNATI OHIO U.S.A
MODEL 162
16 TUBE 1942 SCHEMATIC

PUSH BUTTON DATA

SAME AS FOR

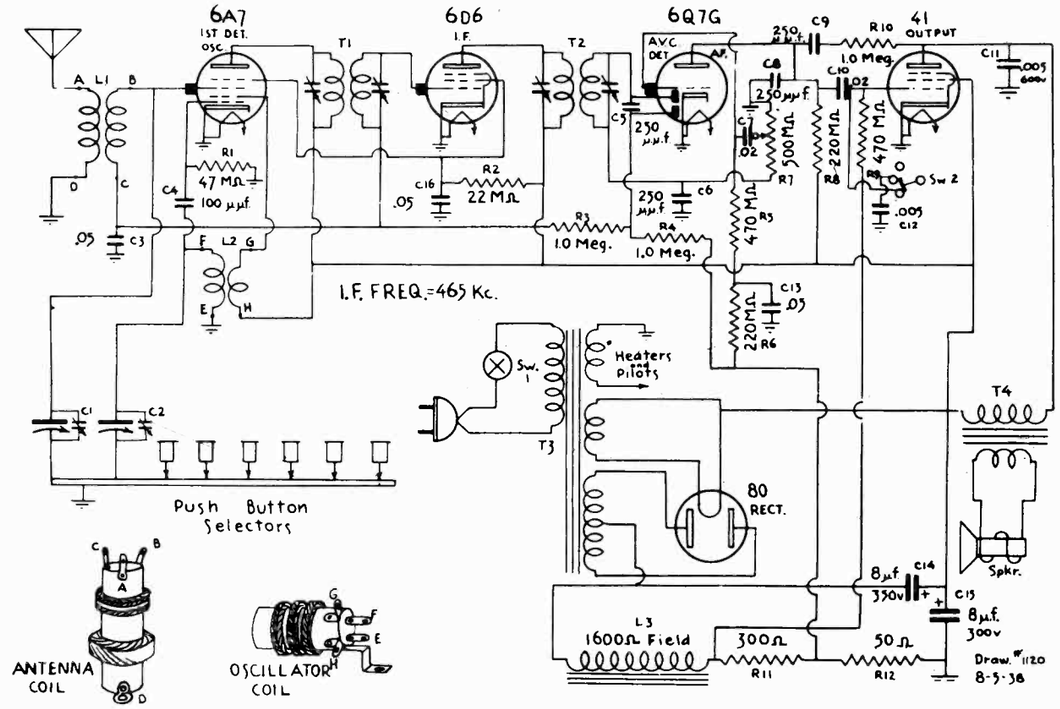
MODEL 82 R

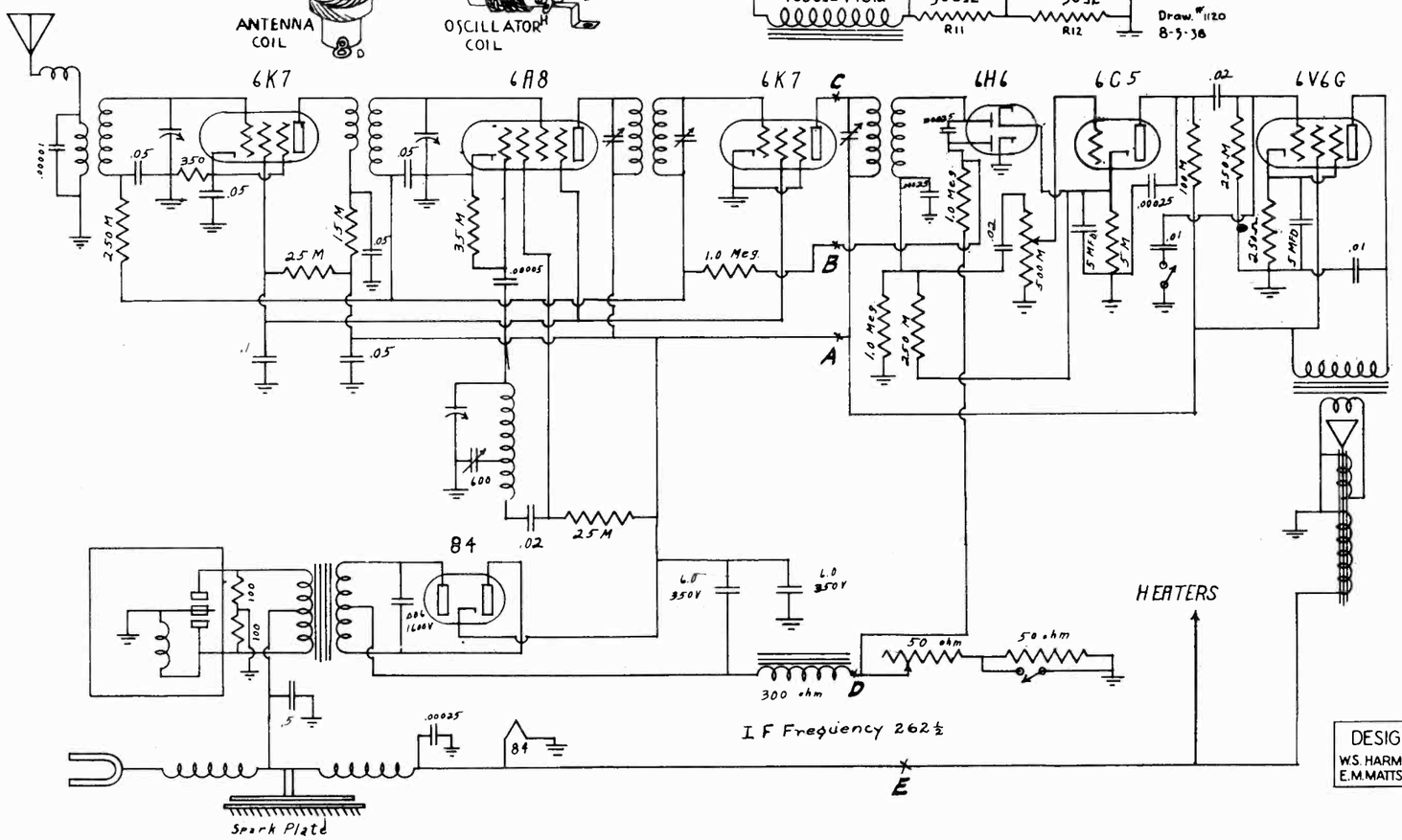


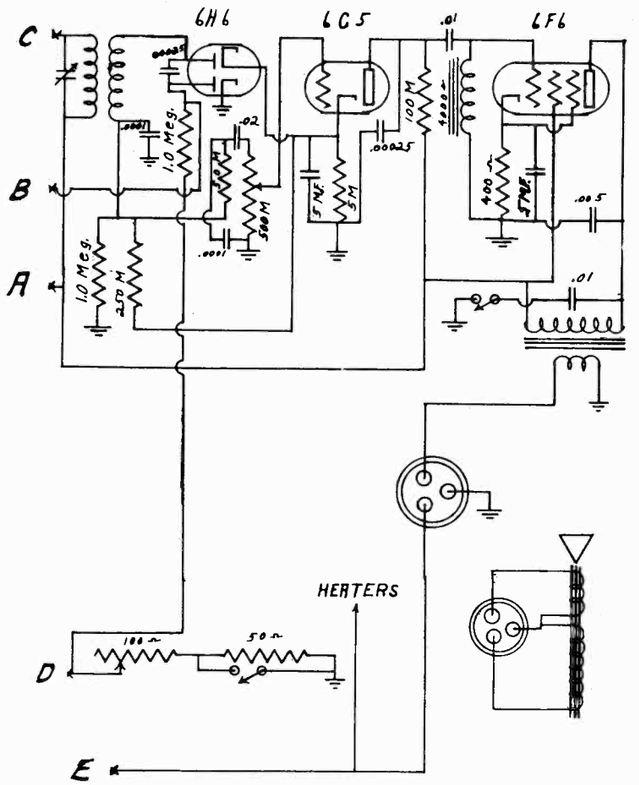
MISSION BELL RADIO MFG. CO., INC.

MODEL 972
MODEL 3818
MODEL 3820

MODEL 972







MODEL No. 3820
APRIL 10-1937

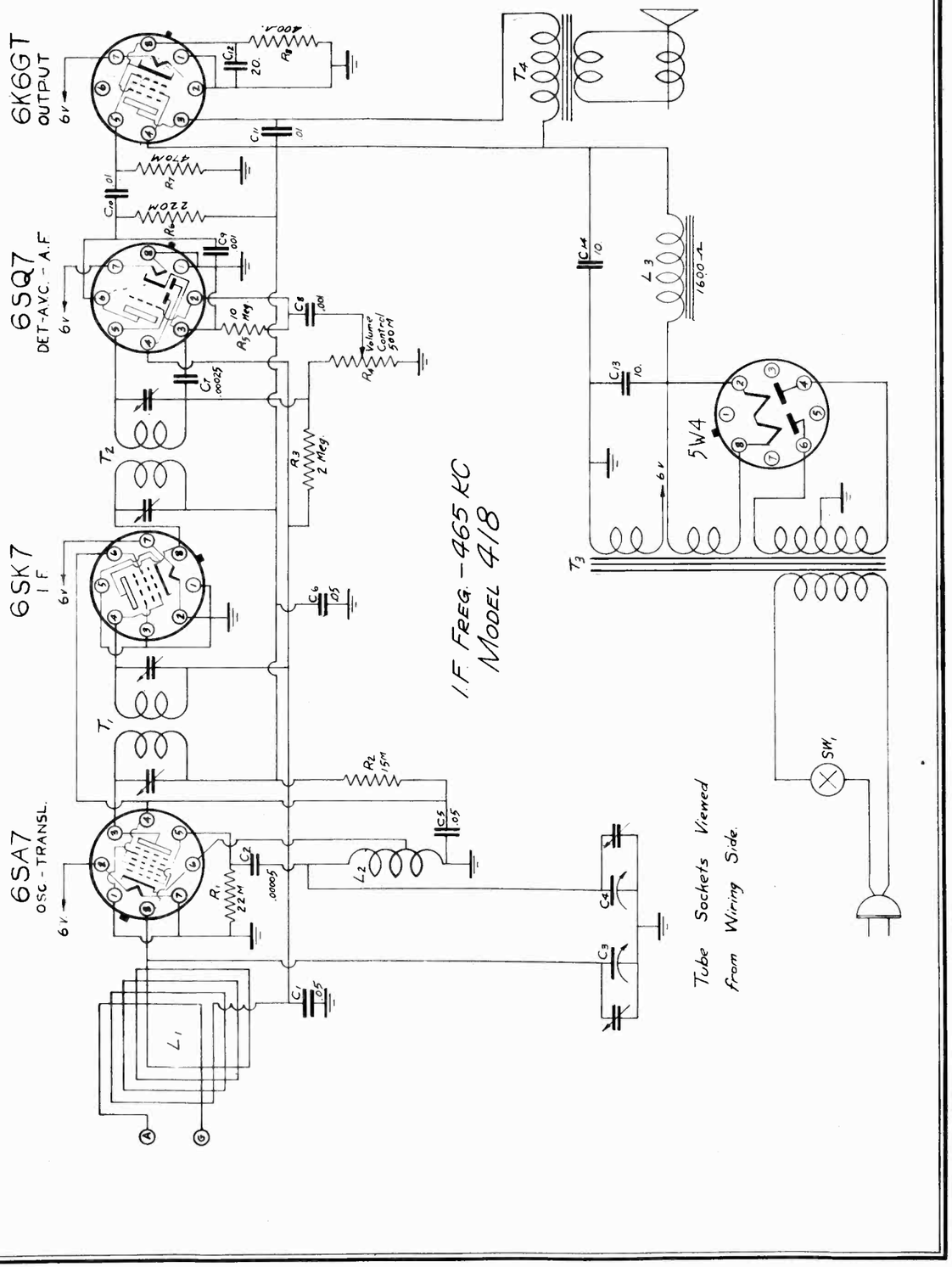
DESIGNED BY
W.S. HARMON Chief Engr.
E.M. MATTSON Asst. Engr.

PARTIAL SCHEMATIC SHOWING DIFFERENCES BETWEEN MODEL 3818 AND MODEL 3820; FOR BALANCE OF CONNECTIONS FOR MODEL 3820, SEE MODEL 3818 ABOVE.

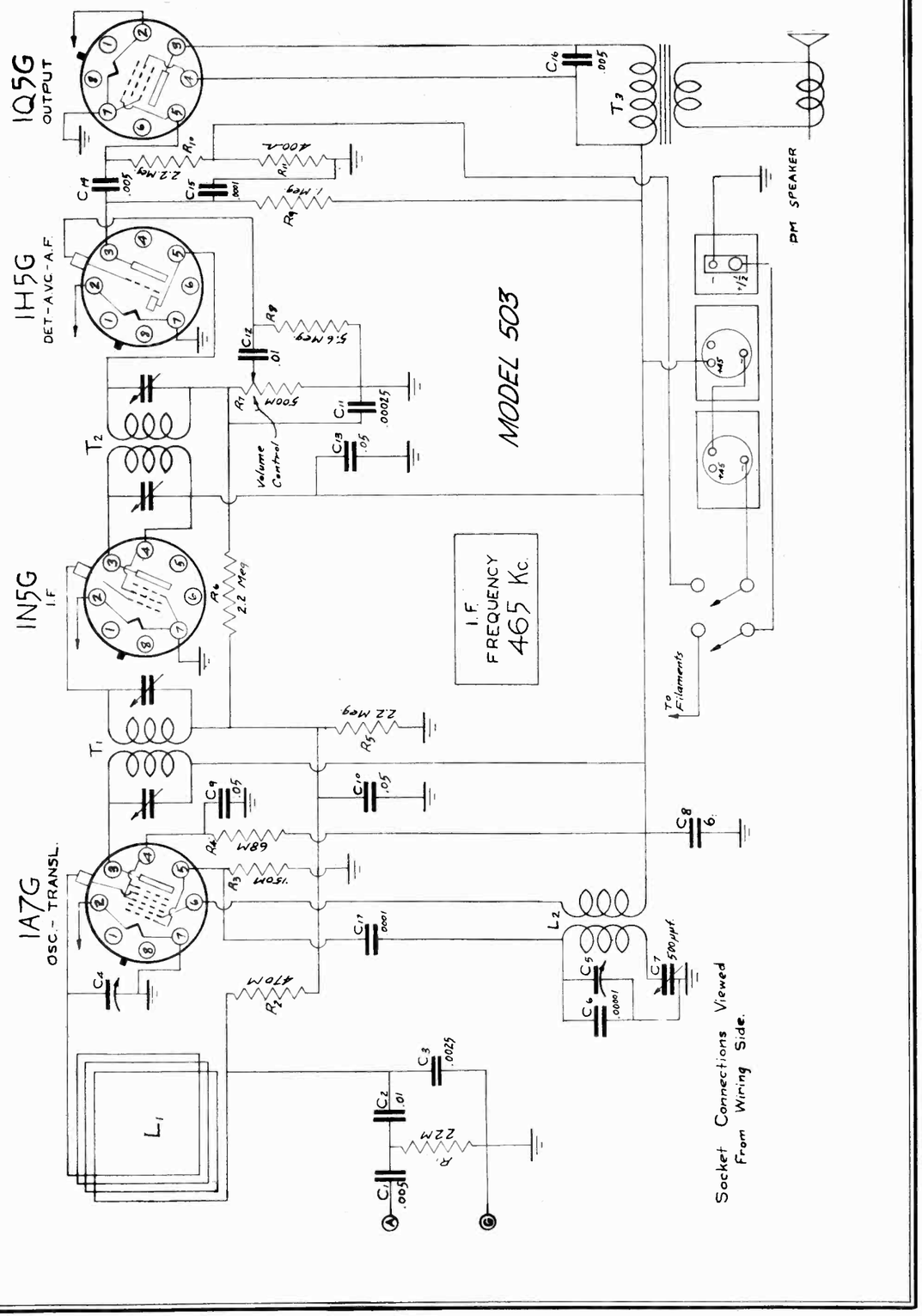
DESIGNED BY
W.S. HARMON Chief Engr.
E.M. MATTSON Asst. Engr.

MODEL No. 3818.
APRIL 10-1937

MODEL 418

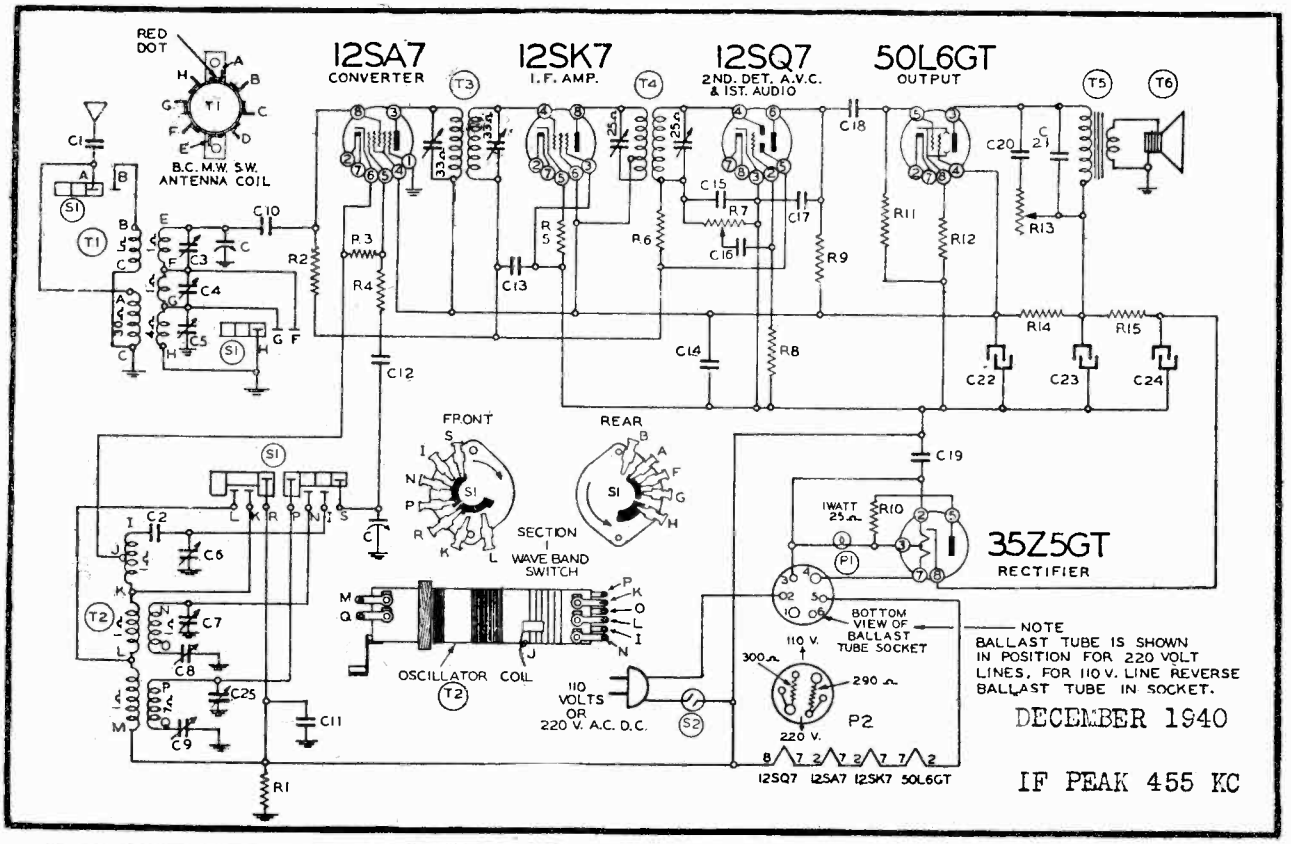


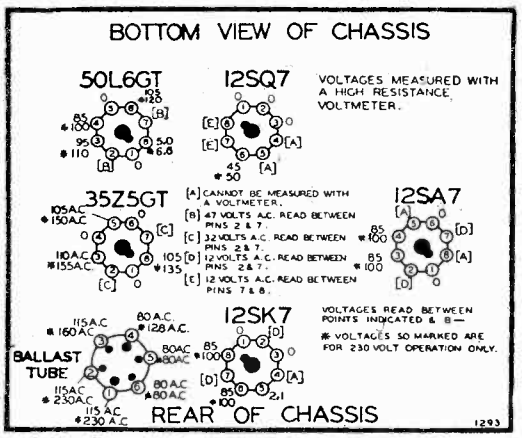
MODEL 503

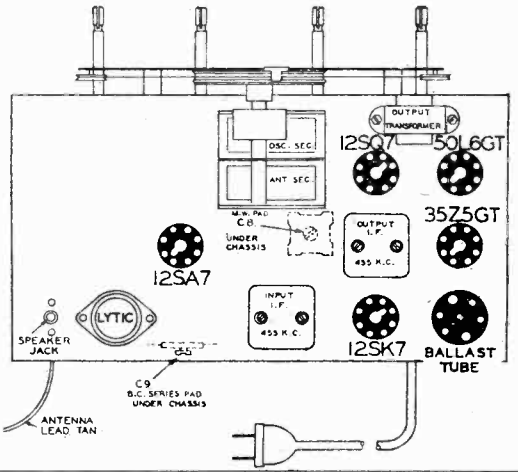


MODEL 04BR-397A

MONTGOMERY WARD & CO.







Prices subject to change without notice

Part No.	Circuit Diagram Reference	Description	No. Used In Set	List Price Each
CONDENSERS				
BE1001	C19	.1 x 400 Volt Tubular Condenser	1	.12
BE1009	C20	.05 x 200 Volt Tubular Condenser	1	.12
BE10020	C14	.1 x 200 Volt Tubular Condenser	1	.12
BE10024	C11	.25 x 400 Volt Tubular Condenser	1	.26
BE10025	C16	.002 x 600 Volt Tubular Condenser	1	.12
BE10026	C13, C18, C21	.02 x 400 Volt Tubular Condenser	3	.12
BE119101	C22, C23, C24	20 Mfd. x 20 Mfd. x 40 Mfd. Electrolytic Filter Condenser		1.26
BE124123	C6, C7, C25	Trimmer Condenser Strip—3 Gang S.W.—M.W.—B.C. Osc.	1	.40
BE124124	C3, C4, C5	Trimmer Condenser Strip—3 Gang S.W.—M.W.—B.C. Ant.	1	.40
BE1292	C1, C10, C17	.0005 Mica Type Condenser—20%	3	.12
BE1295	C12, C15	.0001 Mica Type Condenser—20%	2	.12
BE129153	C2	.006 Compression Type Mica Condenser	1	.40
BE129154	C8	.0025 Compression Type Mica Condenser	1	.28
BE129155	C9	.000483 Compression Type Condenser—3%	1	.20
RESISTORS				
BE13011	R1, R9, R11	250M Ohm—½ Watt Resistor—20%	3	.10
BE13019	R2	1 Megohm—½ Watt Resistor—20%	1	.10
BE13081	R5	250 Ohm—½ Watt Resistor—20%	1	.10
BE130166	R12	150 Ohm—½ Watt Resistor—10%	1	.10
BE130170	R6	3 Megohm—½ Watt Resistor—25%	1	.10
BE13057	R3	35M Ohm—½ Watt Resistor—20%	1	.10
BE130296	R15	200 Ohm—1 Watt Resistor—10%	1	.10
BE130287	R14	1200 Ohm—1 Watt Resistor—10%	1	.10
BE130295	R10	25 Ohm—1 Watt Resistor—10%	1	.10
BE130327	R4	10 Ohm—½ Watt Resistor—20%	1	.10
BE130223	R8	10 Megohm—½ Watt Resistor—20%	1	.10
BE10663	P2	Ballast Tube—110 and 220 Volts	1	.60

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., 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.	455 Kc.	.1 MFD.	Grid of 12SK7 I. F. Tube	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top (See Chassis View)	Output I. F.	Adjust to maximum output
	455 Kc.	.1 MFD.	Grid of 12SA7	Broadcast (Extreme Left Rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Chassis View)	Input I. F.	Adjust to maximum output
SHORT WAVE BAND	21 Mc.	400 ohms	Antenna lead	Short Wave (Extreme Right Rotation)	Set Dial at 21 MC	Trimmer (C6) (See Trimmer View)	Short wave oscillator	See Note "A" Adjust to maximum output
	21 Mc.	400 ohms	Antenna lead	Short Wave (Extreme Right Rotation)	Set Dial at 21 MC	Trimmer (C3) (See Trimmer View)	Short wave antenna	Adjust to maximum output
MEDIUM WAVE BAND	6 Mc.	400 ohms	Antenna lead	Medium Wave	Set Dial at 6 MC	Trimmers (C7, C4) (See Trimmer View)	Medium wave oscillator and antenna	Adjust to maximum output
	2.3 Mc.	400 ohms	Antenna lead	Medium Wave	Set Dial at 2.3 MC	Trimmer (C8) (See Chassis View)	Medium wave osc. series pad	Adjust to maximum rock dial. (See note "B")
BROAD-CAST BAND	1730 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme Left Rotation)	Rotor full open (Plates out of mesh)	Trimmer (C25) (See Trimmer View)	Broadcast oscillator	Adjust to maximum output
	1500 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1500 Kc.	Trimmer (C5) (See Trimmer View)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer (C9) (See Chassis View)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "B")

NOTE "A"—It is extremely necessary when making this adjustment that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental.

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.

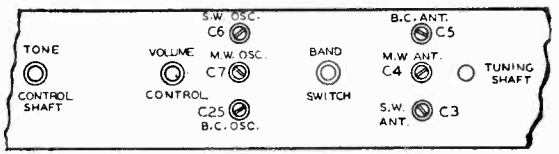
After each range is completed, repeat the procedure as a final check.

TECHNICAL DATA

TEST FREQUENCIES USED

	K.C.	Meters
I. F.	455	645.1
Short Wave	21000	14.2
Medium Wave	6000	50
Medium Wave	2300	130
Broadcast	1730	173.4
Broadcast	1500	200
Broadcast	600	500

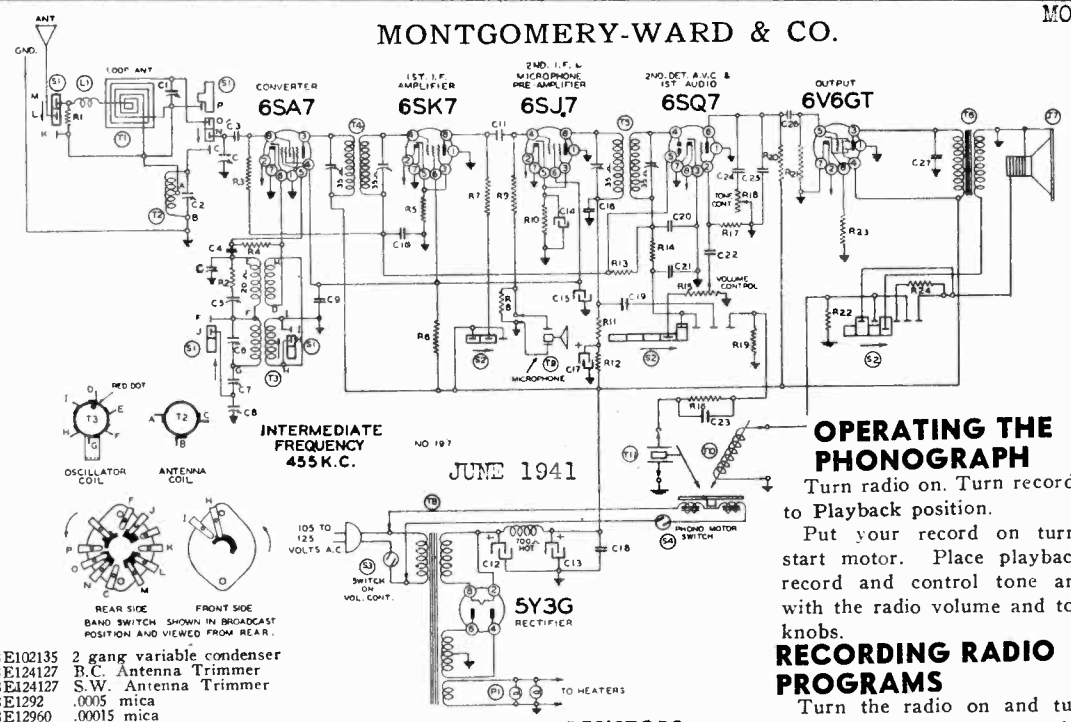
Power Consumption - - - - - - - - 110 V. 35 Watts
220 V. 65 Watts
Power Output - - - - - - 1½ Watts Undistorted
Tuning Frequency Range Broadcast Band - 540 to 1735 KC
Medium Band - - - 2.2 to 7 MC
Short Wave Band - 6.6 to 23 MC
Intermediate Frequency - - - - - - - - 455 KC
Speaker - - - - - - - - 6 in. Electro Dynamic



TRIMMER VIEW

MODEL 04BR-615A

MONTGOMERY-WARD & CO.



C	BE102135	2 gang variable condenser
C1	BE124127	B.C. Antenna Trimmer
C2	BE124127	S.W. Antenna Trimmer
C3	BE1292	.0005 mica
C4	BE12960	.00015 mica
C5	BE124112	S.W. Oscillator trimmer
C6	BE124112	B.C. Oscillator trimmer
C7	BE124146	B.C. Oscillator series padder
C8	BE124146	S.W. Oscillator series padder
C9	BE10013	.05 x 400 v. condenser
C10	BE1009	.05 x 200 v. condenser
C11	BE12921	.0002 mica
C12	BE119114	15 mfd. x 400 v. lytic
C13	BE119114	15 mfd. x 400 v. lytic
C14	BE119114	20 mfd. x 25 v. lytic
C15	BE119114	10 mfd. x 300 v. lytic
C16	BE1292	.0005 mica
C17	BE11967	8 mfd. x 450 v. lytic
C18	BE1001	.1 x 400 v. condenser
C19	BE10011	.01 x 400 v. condenser
C20	BE129161	.0001 mica
C21	BE129161	.0001 mica
C22	BE10012	.003 x 600 v. condenser
C23	BE1292	.0005 mica
C24	BE10089	.008 x 800 v.
C25	BE1292	.0005 mica
C26	BE10026	.02 x 400 v.
C27	BE10011	.01 x 400 v.

C1 and C2 in one unit C5 and C6 in one unit
C7 and C8 in one unit C12, C13, C14 and C15 in one unit C20 and C21 in one unit

RESISTORS

R1	BE130321	3500 ohms—½ w.
R2	BE130197	20 ohms—½ w.
R3	BE1304	3 megohm—½ w.
R4	BE13076	30M ohms—½ w.
R5	BE13097	200 ohms—½ w.
R6	BE130165	15M ohms—1 w.
R7	BE13022	5M ohms—½ w.
R8	BE13019	1 megohm—½ w.
R9	BE13012	50M ohms—½ w.
R10	BE130192	2M ohms—½ w.
R11	BE1302	75M ohms—½ w.
R12	BE1301	25M ohms—½ w.
R13	BE1304	3 megohm—½ w.
R14	BE13012	50M ohms—½ w.
R15	BE101142	1 megohm volume control
R16	BE13028	750M ohm—½ w.
R17	BE130257	5 megohm—½ w.
R18	BE101143	Tone control
R19	BE13019	1 megohm—½ w.
R20	BE13011	250M ohm—½ w.
R21	BE1303	500M ohm—½ w.
R22	BE130322	10 ohm—1 w.
R23	BE130227	250 ohm—1 w.
R24	BE130203	40 ohm—¼ w.

OPERATING THE PHONOGRAPH

Turn radio on. Turn recording switch to Playback position.

Put your record on turntable and start motor. Place playback arm on record and control tone and volume with the radio volume and tone control knobs.

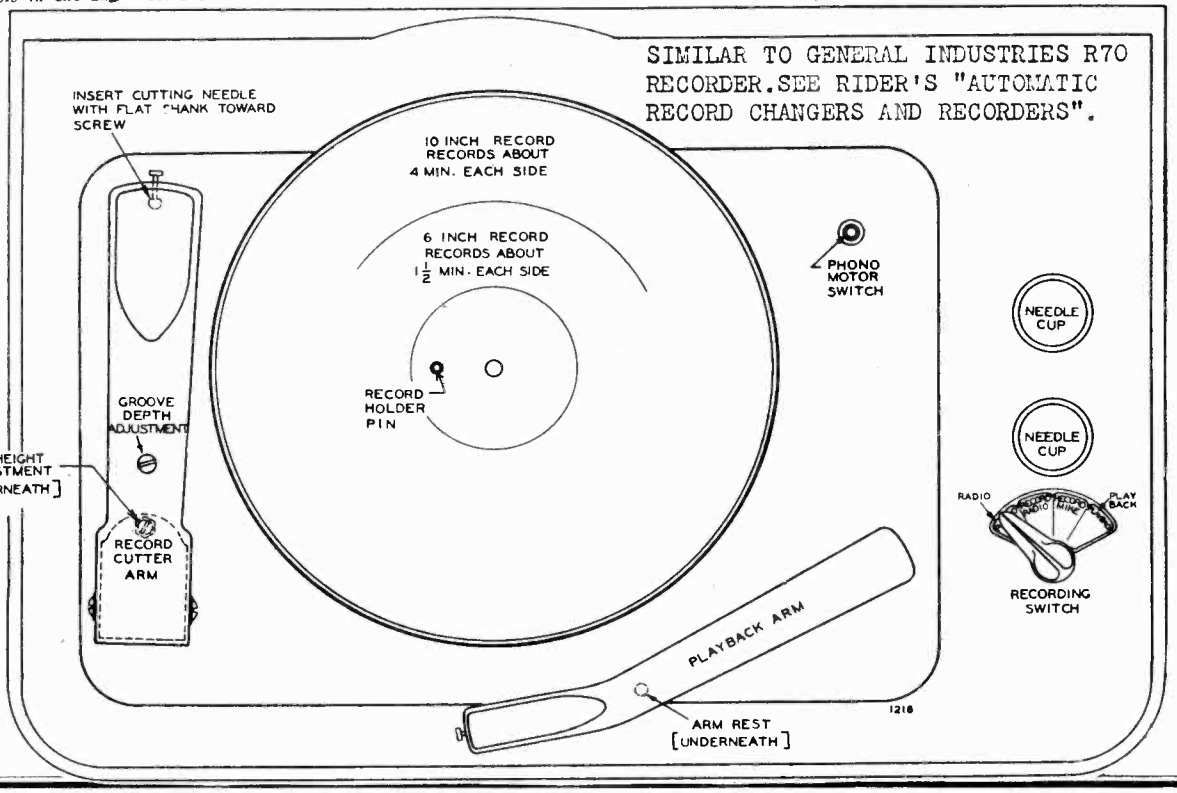
RECORDING RADIO PROGRAMS

Turn the radio on and tune in the program you wish to record. Put recording switch in "Record-Radio" position. The volume will drop. Start motor and then gently lower cutting needle onto blank record, about ¼" from outer edge.

RECORDING VOICE

Turn the radio volume control nearly full on. Recording switch should be in Record "Mike" position. Start motor, and set cutting needle gently on start of record. Turn mike switch on and talk.

NOTE: The cutting arm must be raised about three inches to move it freely across the record.



- Volume control—Maximum all adjustments.
- Connect radio ground 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., 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.	455 Kc.	.1 MFD.	Grid of 6SJ7 I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top (See Top View)	Output I. F.	Adjust to maximum output
	455 Kc.	.1 MFD.	Grid of 6SA7 Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top (See Top View)	Input I. F.	Adjust to maximum output
SHORT WAVE BAND (See Note A)	17 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 17 Mc.	Trimmer C5	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 17 Mc.	Trimmer C2	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 6 Mc.	Trimmer C8	Short Wave oscillator series pad	Adjust to maximum rock dial. (See note "C")
BROAD-CAST BAND (See Note A)	1600 Kc.	200 mmf.	Grid of 6SA7	Broadcast	Rotor full open (Plates out of mesh)	Trimmer C6	Broadcast oscillator	Adjust to maximum output
	535 Kc.	200 mmf.	Grid of 6SA7	Broadcast	Rotor full closed	Trimmer C7	Broadcast oscillator series pad	Adjust to maximum output
LOOP ALIGN-MENT (See Note B)	1400 Kc.	200 mmf.	External Antenna and Ground	Broadcast	Set Dial at 1400 Kc.	Trimmer C1 (See Top View)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	External Antenna and Ground	Broadcast	Set Dial at 600 Kc.	Trimmer C7 (See Top View)	Broadcast osc. Series Pad	Adjust to maximum output

NOTE "A"—The signal generator is connected to the "ANT." and "GND." leads when aligning the **Short Wave Band** and to the grid of the 6SA7 tube and ground terminal when setting the **Broadcast Band** oscillator end frequencies, (1600 and 535 K. C.).

The loop antenna should be connected to the radio when making these adjustments.

NOTE "B"—Loop alignment is made with the chassis mounted in the cabinet and the loop antenna connected. The signal generator is connected to the "ANT." and "GND." terminals.

NOTE "C"—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 — Radio Only - - - - - 70 Watts; Motor Only - - - - - 40 Watts

Power Output - - - - - - - - 2.1 Watts Undistorted

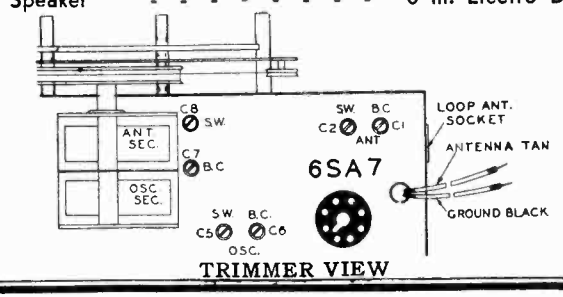
Sensitivity for 500 Milliwatt Output: 15 Microvolts Average

Selectivity - 51 KC Broad at 1000 Times Signal at 1000 KC

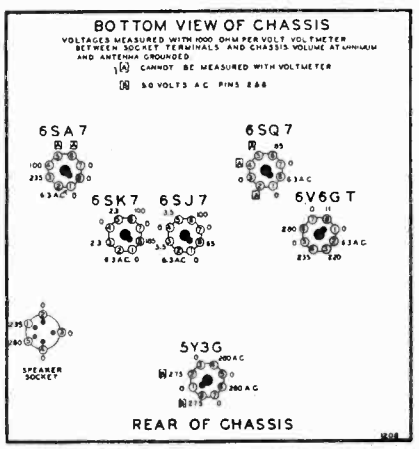
Tuning Frequency Range Broadcast Band - 535 to 1600 KC
Shortwave Band - 5.46 to 18.3 MC

Intermediate Frequency - - - - - - - - - - 455 KC

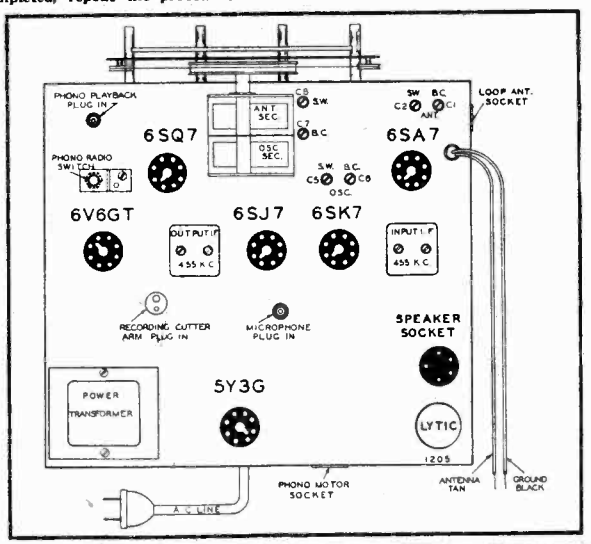
Speaker - - - - - - - - - - 6 in. Electro Dynamic



TRIMMER VIEW



REAR OF CHASSIS



MONTGOMERY WARD & CO.

MODEL 04JP-399D
Phono-Recorder
P-A System

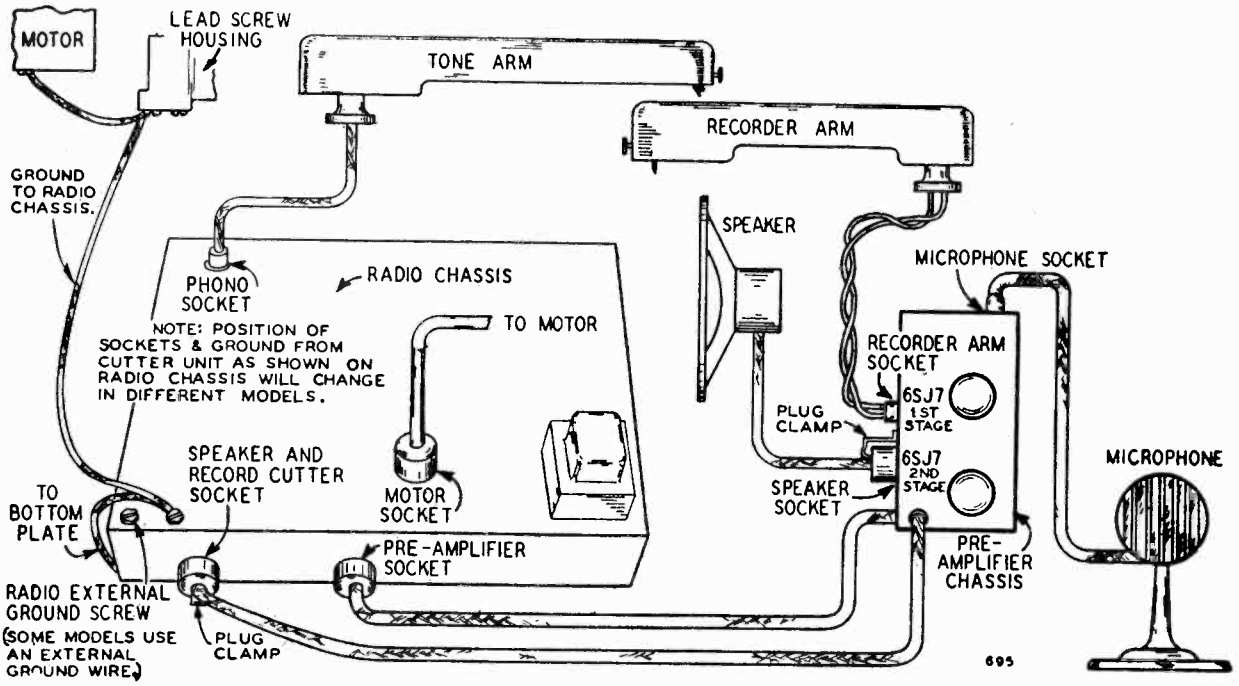


Fig. 13—Cable Interconnections

Model 04JP-399D can be used with the following model receivers:
04WG-732 04BR-904 04BR-906 04BR-1106 14WG-732 14BR-904
14BR-906 14BR-1106

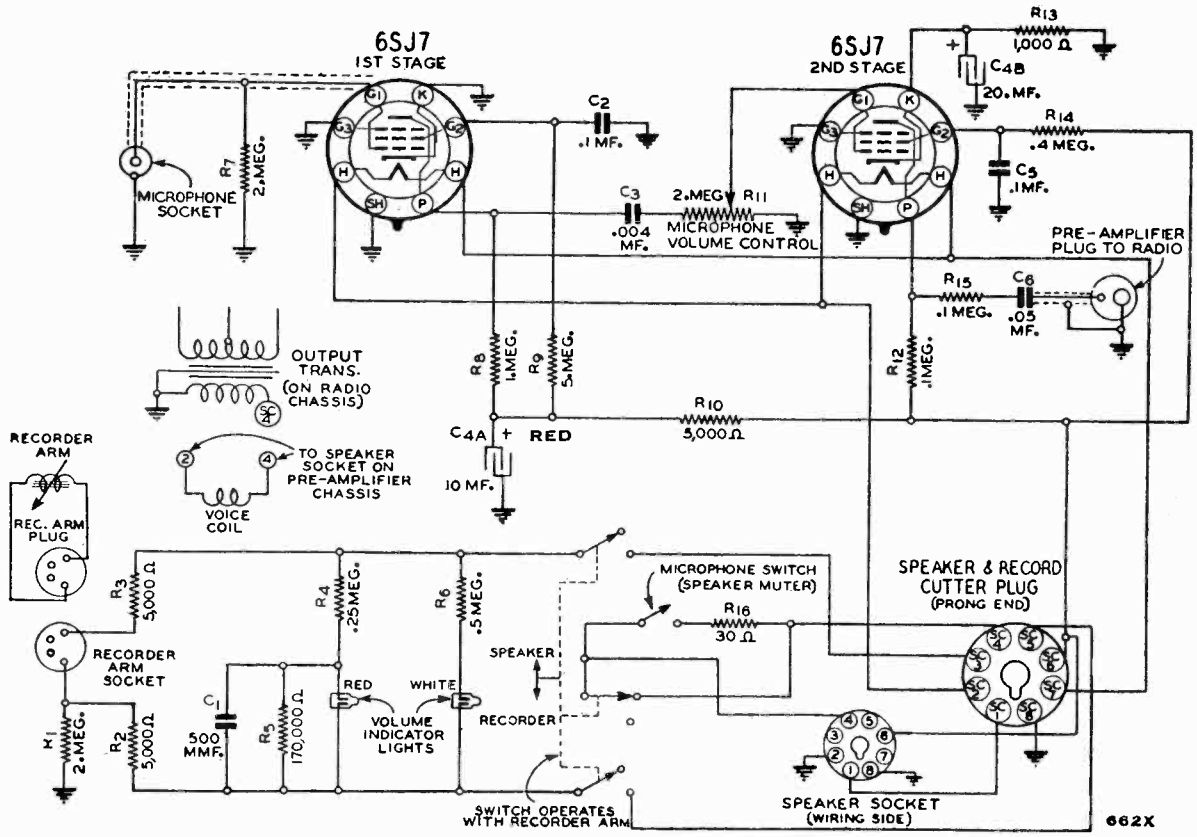


Fig. 14—Pre-Amplifier Unit Schematic Circuit Diagram

MODEL 04JP-399D

MONTGOMERY WARD & CO.

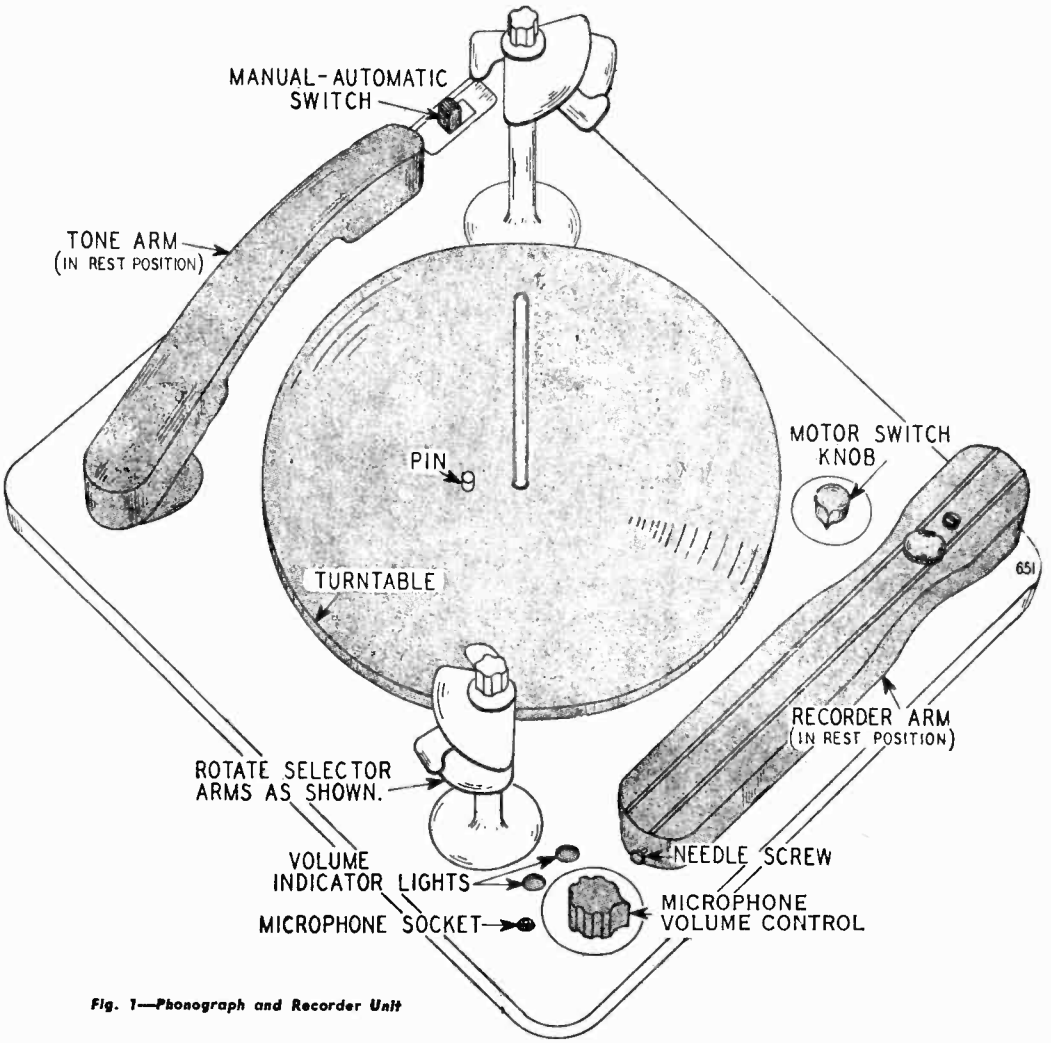


Fig. 1—Phonograph and Recorder Unit

SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS" FOR COMPLETE DATA ON SEEBURG JR RECORD CHANGER AND THE MONT-GOMERY-WARD SECTION FOR SIMILAR USE OF MICROPHONE AND RADIO FOR A PUBLIC-ADDRESS SYSTEM.

PRE-AMPLIFIER UNIT REPLACEMENT PARTS LIST

GENERAL

Bin No.	Part No.	Description	Selling Price
	28A37	Recording Microphone complete with Stand and 12 Ft. Cable	$9.70
	4X390	Escutcheon for Microphone Volume Control	.18
	7A119	Neon Lamps for Red and White Volume Indicators ... Ea.	.22
	15X175	Celluloid Indicator—Red ... Doz.	.12
	15X176	Celluloid Indicator—White ... Doz.	.12
	13X408	Power Cable with Molded Octal Plug	.54
	13X410	Amplifier Output Cable with 2 Prong Plug	.18
	3A303	Tubes and Speaker Sockets—Octal (8 prong) ... Ea.	.06
	3A305	Microphone Socket—Single Pin Tip	.06
	3A308	Cutter Socket	.06
	2A184	Record Cutter Changeover Switch	.30
	37X194	Trip Arm and Hub Assembly for Changeover Switch	.16
	10A314	Knob for Microphone Volume Control	.06

RESISTORS

Bin No.	Part No.	Code	Resistance	Wattage		Selling Price
	B85205	R1,R7	2 Megohm	0.5	Carbon	$0.06
	D93502	R2,R3	5,000 Ohm	0.5	Carbon	.20
	B83254	R4	250,000 Ohm	0.5	Carbon	.10
	B83174	R5	170,000 Ohm	0.5	Carbon	.10
	B84504	R6	500,000 Ohm	0.5	Carbon	.08
11188	B85105	R8	1 Megohm	0.5	Carbon	.06
	B85505	R9	5 Megohm	0.5	Carbon	.06
	B85502	R10	5,000 Ohm	0.5	Carbon	.06
	36X292	R11	2 Megohm		Volume Control and Microphone Switch.	.42
10968	B84104	R12	100,000 Ohm	0.5	Carbon	.08
	B84102	R13	1,000 Ohm	0.5	Carbon	.08
	B84404	R14	400,000 Ohm	0.5	Carbon	.08
	B85104	R15	100,000 Ohm	0.5	Carbon	.06
	B85300	R16	30 Ohm	0.5	Carbon	.06

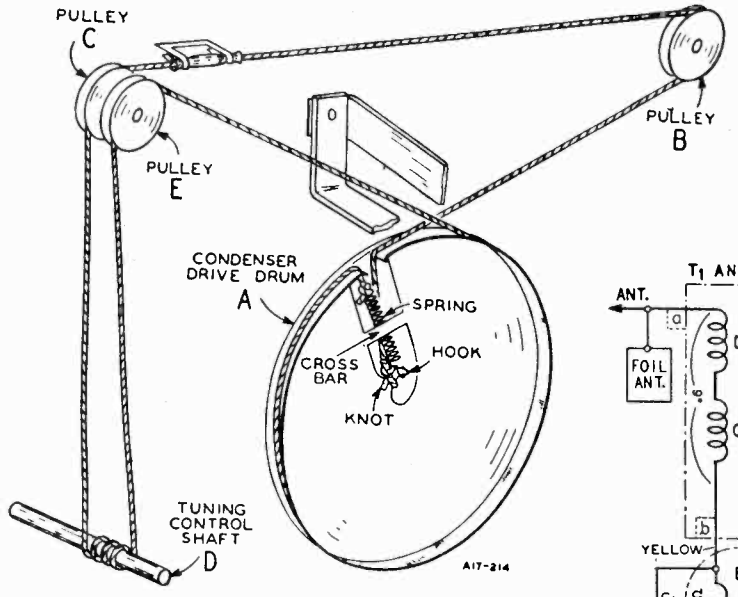
CONDENSERS

Bin No.	Part No.	Code	Capacitance	Voltage		Selling Price
10508	47X61	C1	500 mmf.		Molded	$0.10
10979	46X257	C2,C5	.10 mf.	240	Tubular	.06
10888	46X284	C3	.004 mf.	180	Tubular	.06
	45X287	C4A	10 mf.	300	Dry Electrolytic	.28
		C4B	20 mf.	25		
	46X311	C6	.05 mf.	240	Tubular	.06

Use only GENUINE factory tested parts to insure service jobs you can depend on and to obtain original set performance.

Prices Subject to Change Without Notice.

MONTGOMERY WARD & CO.



Drive Cord Replacement

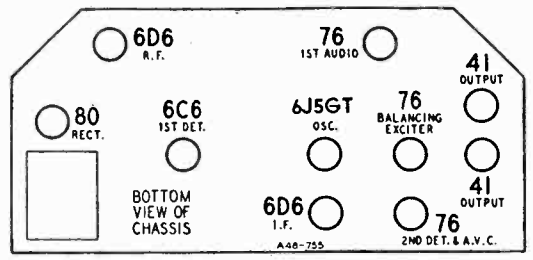
Tie a knot with a small loop at one end of the new drive cord. Slide a 1¾ inch length of fabric tubing on the cord. The free end of the drive cord should be tied to the tension spring in such a manner that there is a distance of 56⅜ inches between the knots.

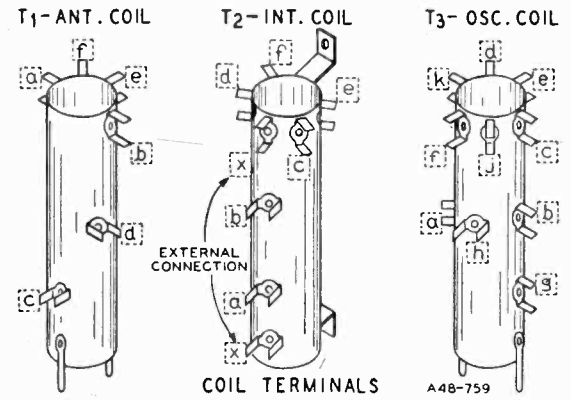
Turn the gang condenser to full open position.

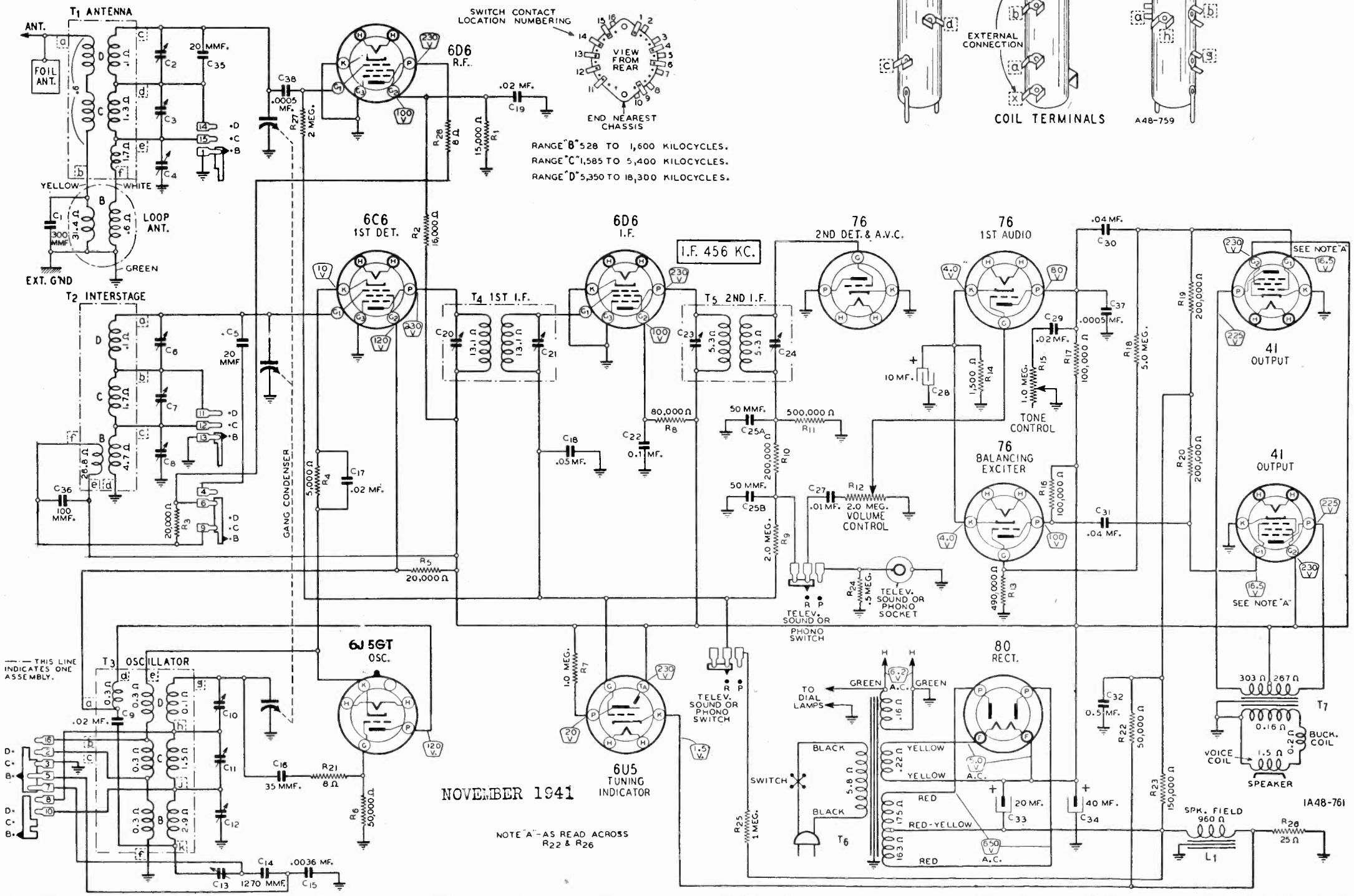
Place the looped end of the drive cord over the hook on condenser drive drum A—See illustration. Bring the cord up through the slot in the drum rim and pass to the right (from back of chassis) and around pulley B. Then bring the cord to the left and over pulley C. See that the fabric tubing is now between pulleys B and C. Continue cord down to control shaft D and wind 3½ turns counter-clockwise (from back of chassis) on shaft D. Bring cord up to and over pulley E. Bring cord down to top of drive drum A and wind one turn clockwise around the drum rim.

Pass the remaining drive cord and tension spring through the slot in the drum. Place free end of spring over the hook on the condenser drive drum.

ATTACHING DIAL POINTER—Tune in a 1500 KC signal. Move the pointer to the 1500 KC mark on the dial and clamp it tightly over the fabric tubing on the cord.







MONTGOMERY WARD & CO.

MODEL 04WG-1108A

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:

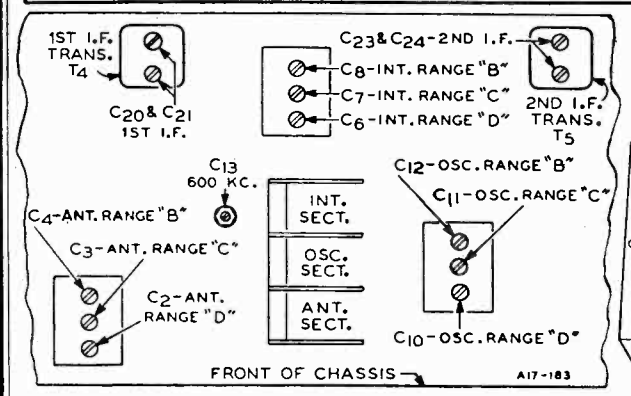
An All Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.

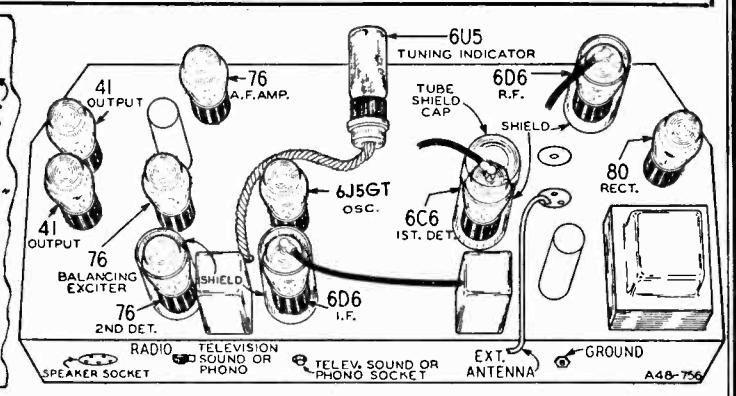
Output Indicating Meter—Non-Metallic Screwdriver.

Dummy Antennas—.1 mf., 100 mmf., and 400 ohms.

SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
I. F. 456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	2nd I.F. (C23) & (C24) 1st I.F. (C20) & (C21)
RANGE D 18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C10)
15,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C2) Int. Range D (C6) Rock Rotor—See Note A
RANGE C 5400 KC	Antenna Lead	400 Ohm	C Range	Turn Rotor to Full Open	Oscillator Range C (C11)
5000 KC	Antenna Lead	400 Ohm	C Range	Turn Rotor to Max. Output	Antenna Range C (C3) Int. Range C (C7)
RANGE B 1600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C12)
1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC—See Note B	Ant. Range B (C4) Int. Range B (C8)
600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C13) Rock Rotor—See Note A

LOOP RANGE B—If chassis has been aligned in the cabinet, no loop trimmer re-adjustment is required. If, however, chassis has been removed, re-assemble in cabinet and re-adjust Antenna Range B (C4) trimmer as covered in 1400 KC adjustment.





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

NOTE B—If the pointer is not at 1400 KC on the dial, loosen the 2 clamps which hold the pointer assembly on the cord, move the pointer to the 1400 KC mark, and tighten the clamps.

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 5000 KC. The signal will then be heard at 5000 KC on the dial of the radio. The image signal, which is much weaker, will be heard at 5000 less 912 KC, or 4088 KC on the dial. It may be necessary to increase the input signal to hear the image.

Voltages at Sockets

These voltages are read under the following conditions:

Line Voltage—117.

Band Switch—Broadcast.

Volume Control—Maximum.

Antenna Shorted to Ground.

Readings taken with 1000 ohm-per-volt meter. Plate and screen voltages are read on 500 volt scale.

Power Consumption - 80 Watts (At 117 volts 60 cycles)

Power Output - - - - - - 5.0 Watts Undistorted, 5.5 Watts Maximum

Selectivity - - 32 KC Broad at 1000 times Signal

Intermediate Frequency - - - - - - 456 KC.

Speaker - - - - - - - 10" Electro-Dynamic

Tuning Frequency Range

B Range ..... 528 to 1600 KC.
C Range ..... 1585 to 5400 KC.
D Range ..... 5350 to 18300 KC.

Sensitivity —External Antenna—(For 0.5 Watt Output)

B Range .....5.0 Microvolts Average
C Range .....3.0 Microvolts Average
D Range .....8.0 Microvolts Average

MODEL 14JP-399D
Phono-Recorder
P-A System

MONTGOMERY-WARD & CO.

FOR SEEBURG JR RECORD CHANGER AND RECORDER, SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".

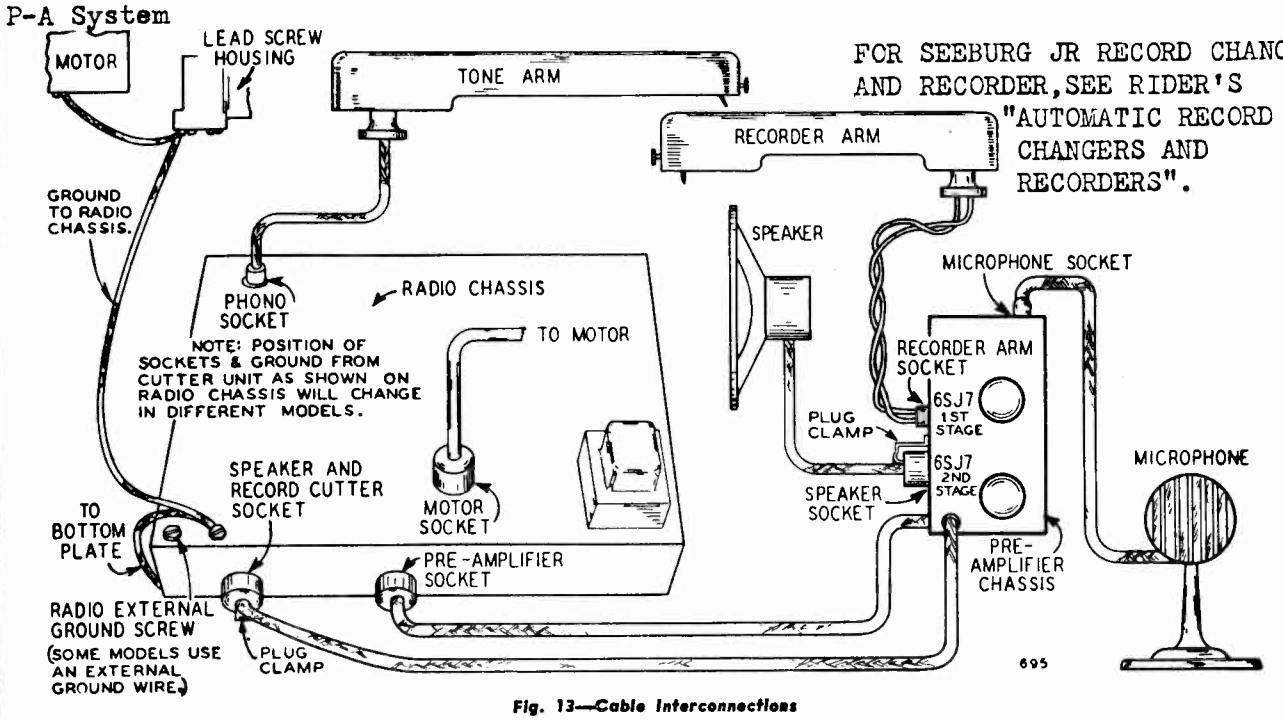
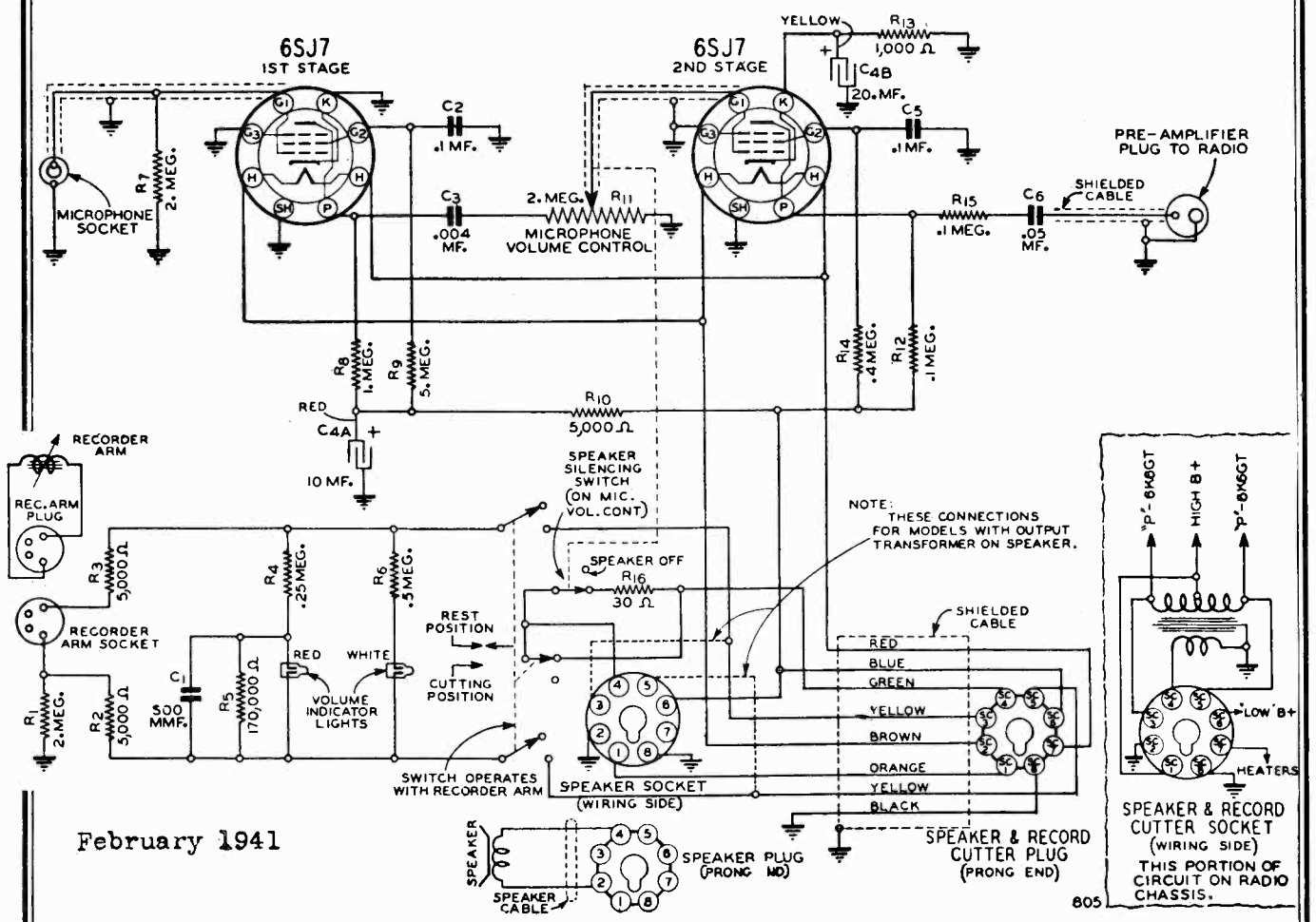


Fig. 13—Cable Interconnections

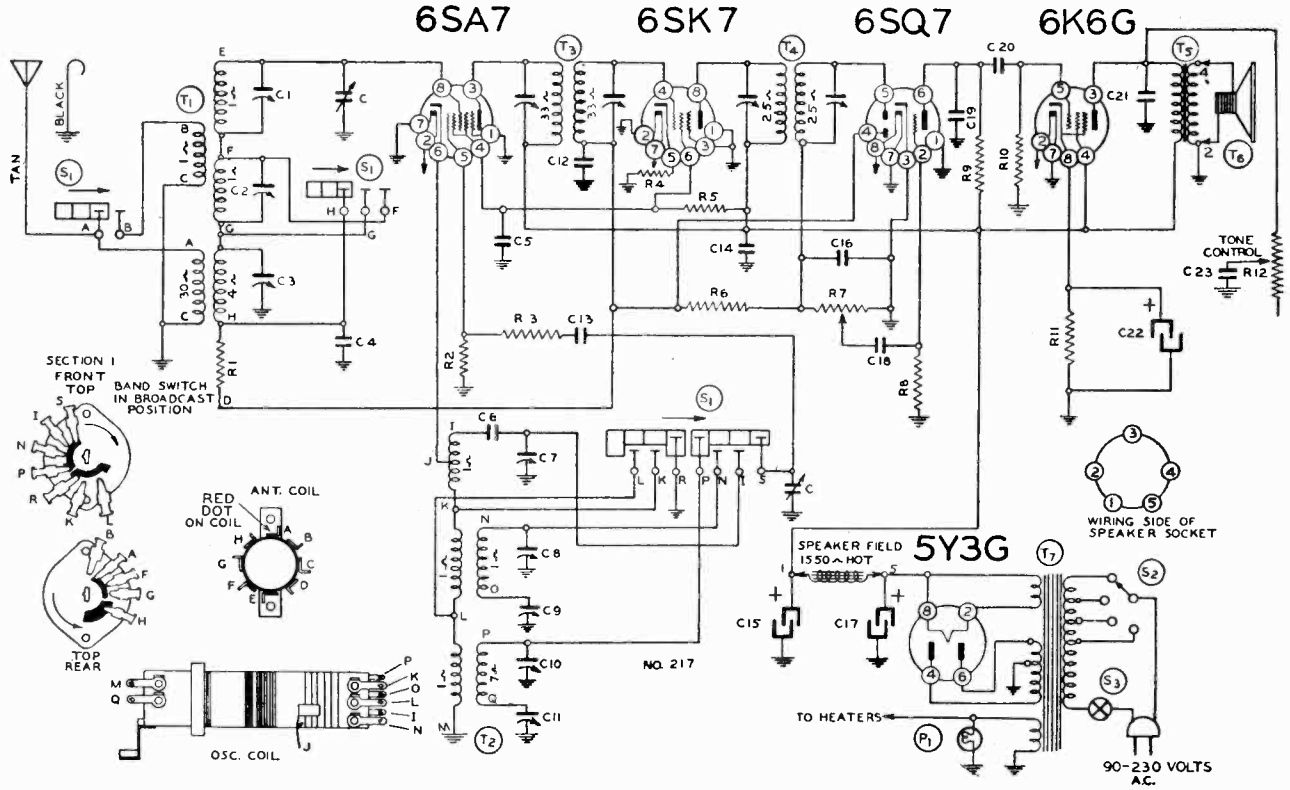


February 1941

FOR USE WITH MODELS 14WG-732, 14BR-904, 14BR-906, 14BR-1106

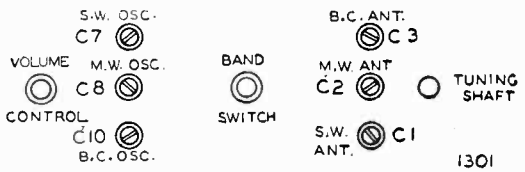
MODEL 14BR-440A

MONTGOMERY-WARD & CO.



TECHNICAL DATA

Power Consumption	55 Watts
Power Output	1½ Watts Undistorted
Sensitivity Broadcast Band 540 to 1735 Kc.	25 M.V.
Medium Band 2.2 to 7 Mc.	35 M.V.
Short Wave Band 6.6 to 23 Mc.	40 M.V.
Intermediate Frequency	455 KC
Speaker	6 in. Electro Dynamic



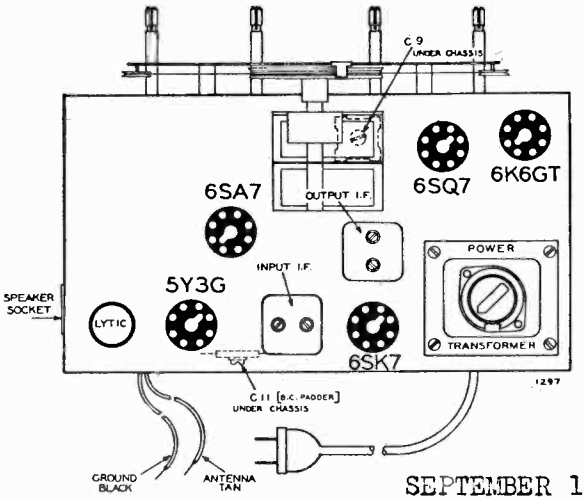
TRIMMER VIEW

Part No.	Schematic Diagram Reference	Description	No. Selling Used In Set	Price Each
		CONDENSERS		
BE10013	C23	.1 x 400 Volt Tubular Condenser	1	.12
BE1001	C5, C14	.1 x 400 Volt Tubular Condenser	2	.12
BE1009	C4	.05 x 200 Volt Tubular Condenser	1	.12
BE10025	C18	.002 x 600 Volt Tubular Condenser	1	.12
BE10026	C12, C20	.02 x 400 Volt Tubular Condenser	2	.12
BE10071	C21	.004 x 600 Volt Tubular Condenser	1	.12
BE119103	C15, C17, C22	40 Mfd.—10 Mfd.—20 Mfd. Electrolytic Condenser	1	.86
BE124123	C7, C8, C10	Trimmer Condenser Strip (3 Gang) (S.W. M.W.—Bc. Osc.)	1	.40
BE124124	C1, C2, C3	Trimmer Condenser Strip (3 Gang) (S.W.—M.W.—Bc. Ant.)	1	.40
BE1292	C19	.0005 Mica Type Condenser—20%	1	.12
BE1295	C13, C16	.0001 Mica Type Condenser—20%	2	.12
BE129153	C6	.006 Compression Type Condenser—2% (S.W. Pad)	1	.40
BE129154	C9	.0025 Compression Type Condenser—3%	1	.28
BE129155	C11	.000483 Compression Type Condenser—3%	1	.20
		RESISTORS		
BE1304	R6	3 Megohm—⅓ Watt Resistor—20%	1	.10
BE13011	R1, R9	250M Ohm—⅓ Watt Resistor—20%	2	.10
BE13019	R10	1 Megohm—⅓ Watt Resistor—20%	1	.10
BE13070	R11	500 Ohm—⅓ Watt Resistor—10%	1	.10
BE130194	R2	35M Ohm—⅓ Watt Resistor—10%	1	.10
BE130223	R8	10 Megohm—⅓ Watt Resistor—20%	1	.10
BE130239	R4	250 Ohm—⅓ Watt Resistor—10%	1	.10
BE130242	R5	12M Ohm—1 Watt Resistor—10%	1	.10
BE130299	R3	10 Ohm—⅓ Watt Resistor—10%	1	.10
		COILS		
BE108169H	T3	Input I.F. Coil Complete in Can	1	.76
BE108170C	T4	Output I.F. Coil Complete in Can	1	.76
BE110143	T2	Bc.—M.W.—S.W. Oscillator Coil Complete	1	.76
BE111169	T1	Bc.—M.W.—S.W. Antenna Coil Complete	1	.80
		SOCKETS		
BE1218		Five Prong Socket "SPKR"	1	.08
BE121245		Eight Prong Octal Socket "6SK7"	1	.10
BE121246		Eight Prong Octal Socket "6SQ7"	1	.10
BE121247		Eight Prong Octal Socket "6SA7"	1	.10
BE121250		Eight Prong Octal Socket "5Y3"	1	.10
BE121251		Eight Prong Octal Socket "6K6"	1	.15
		TRANSFORMERS		
BE104193B	T7, S2	Power Transformer Universal Primary Tapped (95 V.—110 V.—130 V.—230 V.) 40/60 Cycle	1	4.30
BE10575C	T5	Output Transformer for Speaker	1	.62
		SPEAKER		
BE114176	T6	Six Inch Dynamic Speaker (1550 Ohm Field)	1	3.10
BE10575C	T5	Output Transformer for Speaker	1	.62

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

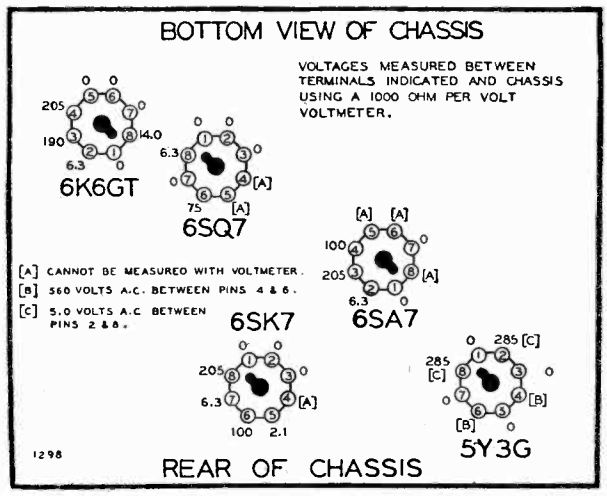
MODEL 143R-440A

MONTGOMERY-WARD & CO.



SEPTEMBER 1941

CHASSIS VIEW showing tube location.
NOTE: Antenna and ground leads at back of chassis.



VOLTAGE CHART

ANTENNA

For best results, an outside antenna approximately 50 to 75 feet long including lead-in is recommended. It should be erected as high as possible and as far from surrounding objects as practical. For minimum interference it should be at right angles to street car lines, incoming power lines and other electrical apparatus which may be in the vicinity. A ground is advisable. A good ground will often reduce noise. The ground wire should be connected with a clamp to a well cleaned water pipe or to a piece of pipe driven several feet into damp earth.

POWER SUPPLY—This radio is equipped with a universal transformer, 40 to 60 cycles which has the following taps: 95-110-130-150-230 volts. A rotary switch mounted on top of the transformer selects the proper voltage tap.

Set the switch for various line voltages to conform with the following table: 95 mark for current of 85 to 105 volts; 110 mark for current of 105 to 125 volts; 130 mark for current of 125 to 145 volts; 150 mark for current of 145 to 165 volts; 230 mark for current of 210 to 250 volts.

To set the switch, unloosen the set screw on the side of the switch and rotate the knob so that the mark desired shows up in the small framed window on the top of the switch Tighten the set screw.

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator.

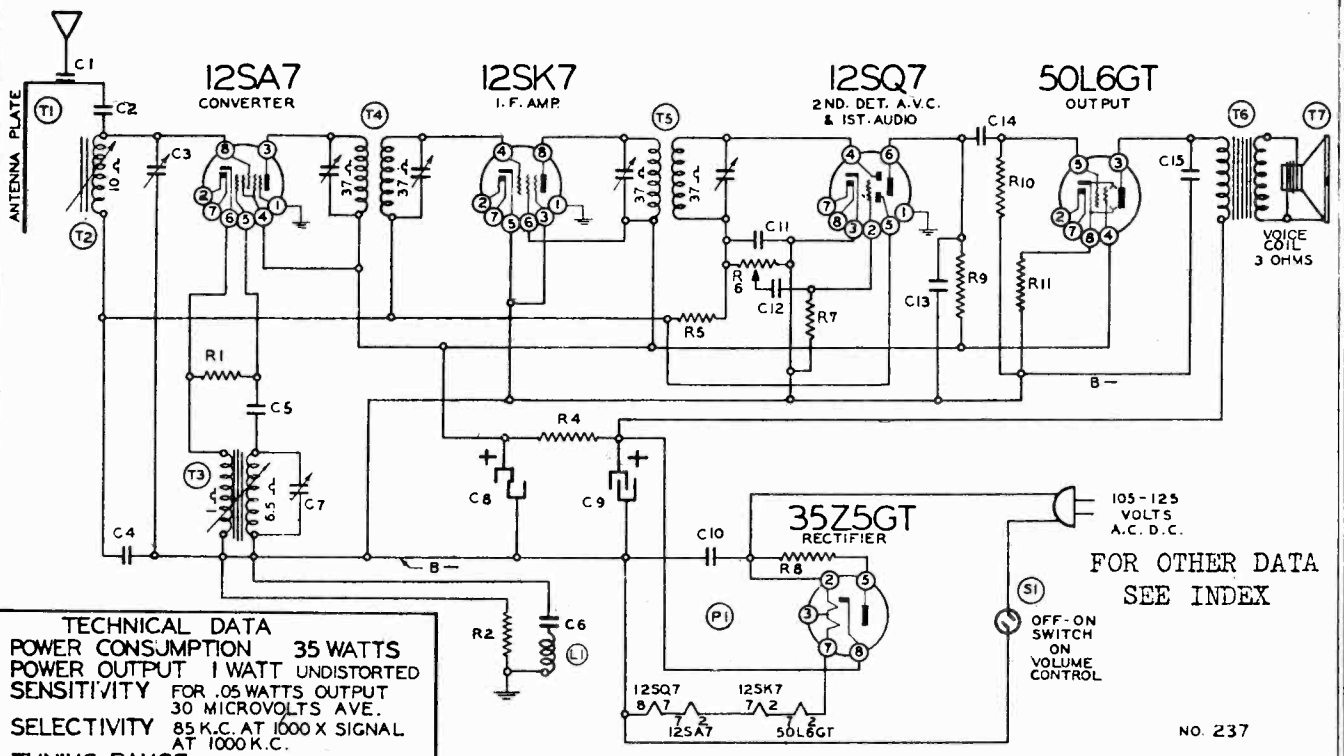
BAND	Frequency Setting	SIGNAL GENERATOR Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Maximum (in Order Shown)
I. F.	455 Kc.	.1 MFD.	Grid of 6SK7 I. F. Tube	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F. (See Chassis View)
	455 Kc.	.1 MFD.	Grid of 6SA7	Broadcast (Extreme Left Rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F. (See Chassis View)
SHORT WAVE BAND	21 Mc.	400 ohms	Antenna lead	Short Wave (Extreme Right Rotation)	Set Dial at 21 MC	Trimmer (C7) Short wave oscillator (See Trimmer View) See Note "A"
	21 Mc.	400 ohms	Antenna lead	Short Wave (Extreme Right Rotation)	Set Dial at 21 MC	Trimmer (C1) Short wave antenna (See Trimmer View)
MEDIUM WAVE BAND	6 Mc.	400 ohms	Antenna lead	Medium Wave	Set Dial at 6 MC	Trimmers (C8, C2) Medium wave oscillator and antenna (See Trimmer View)
	2.3 Mc.	400 ohms	Antenna lead	Medium Wave	Set Dial at 2.3 MC	Trimmer (C9) Medium wave osc series pad (See Chassis View) See Note "B"
BROADCAST BAND	1730 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme Left Rotation)	Rotor full open (Plates out of mesh)	Trimmer (C10) Broadcast osc. (See Trimmer View)
	1500 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1500 Kc.	Trimmer (C3) Broadcast antenna (See Trimmer View)
	600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer (C11) Broadcast osc. series pad (See Chassis View) See Note "B"

NOTE "A"—It is extremely necessary that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental.

NOTE "B"—Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained. **After each range is completed, repeat the procedure as a final check.**

MONTGOMERY-WARD & CO.

MODELS 14BR-521A,
14BR-522A



TECHNICAL DATA

POWER CONSUMPTION 35 WATTS
POWER OUTPUT 1 WATT UNDISTORTED
SENSITIVITY FOR .05 WATTS OUTPUT 30 MICROVOLTS AVE.
SELECTIVITY 85 K.C. AT 1000 X SIGNAL AT 1000 K.C.
TUNING RANGE 535 TO 1720 K.C.
INTERMEDIATE FREQUENCY 455 K.C.

Code No.	Part No.	Description

RESISTORS

R1	BE130176	20M ohm—½ w.
R2	BE130100	150M ohm—½ w.
R4	BE130279	1M ohm—1 w.
R5	BE1304	3 megohm—½ w.
R6	BE101255	500M ohm—Volume control and switch
R7	BE130257	5 megohm—½ w.
R8	BE130240	30 ohm—½ w.
R9	BE130100	150M ohm—½ w.
R10	BE13011	250M ohm—½ w.
R11	BE130166	150 ohm—½ w.

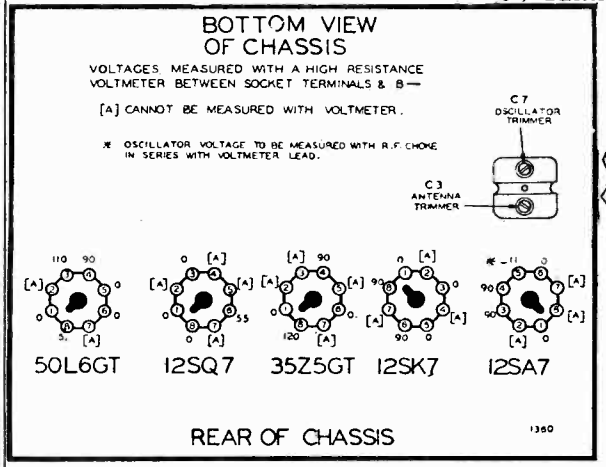
CONDENSERS

C1	BE131262	.00001 washer condenser (antenna clip on back plate)
C2	BE129114	.0003 mica
C3	BE124137	Trimmer on antenna coil
C4	BE1009	.05 x 200 v.
C5	BE12939	.00005 mica
C6	BE10091	.15 x 400 v.
C7	BE124137	Trimmer on oscillator coil
C8	BE11992	20 Mfd. lytic x 150 w.v.
C9	BE11992	40 mfd. lytic x 150 w. v.
C10	BE10013	.05 x 400 v.
C11	BE12912	.00025 mica
C12	BE10025	.002 x 600 v.
C13	BE1292	.0005 mica
C14	BE10011	.01 x 400 v.
C15	BE10026	.02 x 400 v.

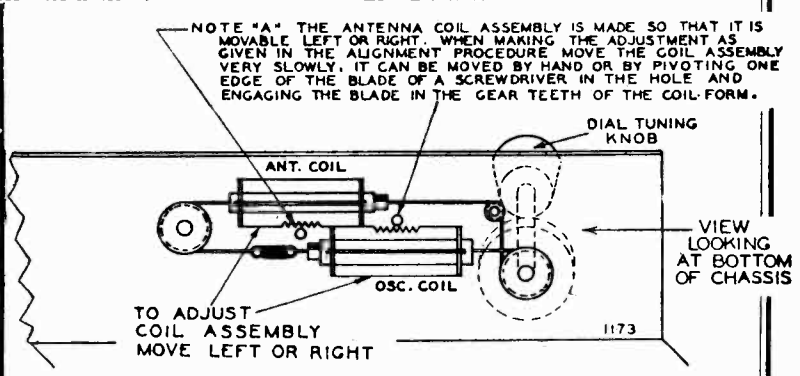
C3 and C7 are in same unit
C8 and C9 are in same unit

PARTS

T1	BE115597-18	Antenna plate (Walnut)
or	BE115597-9	Antenna plate (Ivory)
T2	BE111181	Antenna permeability coil
T3	BE110153	Oscillator permeability coil
T4	BE108157-H	Input I.F. coil—455 kc.
T5	BE108157-I	Output I.F. coil—455 kc.
T6	BE105128	Output transformer
T7	BE114199	4" PM speaker
or		
T7	BE114259	4" Electrodynamic speaker
S1		Switch on Volume control
L1	BE105138	R.F. choke

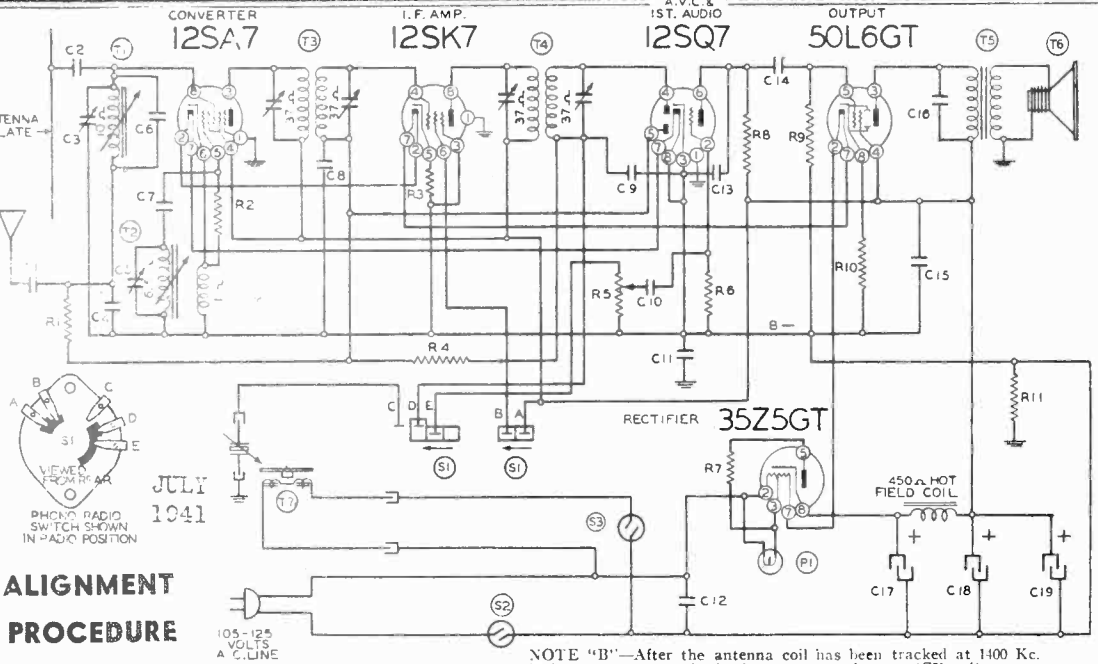


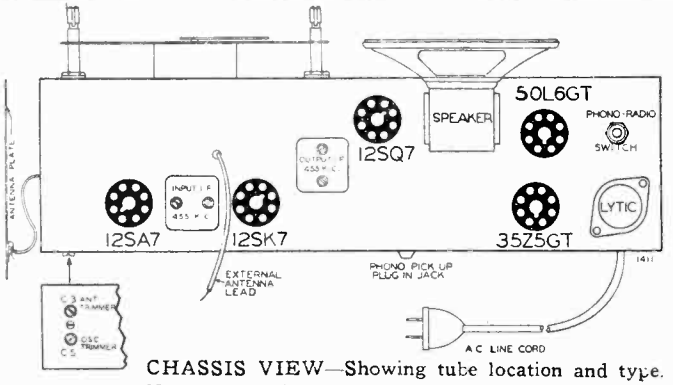
VOLTAGE CHART



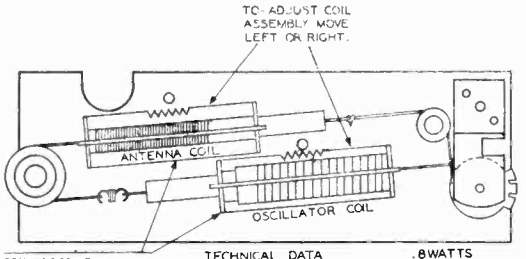
COIL ASSEMBLY VIEW

JULY 1941





CHASSIS VIEW—Showing tube location and type. Note External Antenna Lead at back of chassis.



NOTE: THE ANTENNA COIL ASSEMBLY IS MADE SO THAT IT IS MOVABLE LEFT OR RIGHT. WHEN MAKING THE ADJUSTMENT AS GIVEN IN THE ALIGNMENT PROCEDURE MOVE COIL ASSEMBLY VERY SLOWLY

TECHNICAL DATA

TUNING RANGE 535 TO 1690 K.C.
SENSITIVITY 30 MICROVOLTS AVERAGE
SELECTIVITY 59 K.C. AT 1000 K.C. AT 1000 X
UNDISTORTED POWER OUTPUT .8 WATTS
MAX. POWER OUTPUT 1.4 WATTS IN VOICE COIL.
POWER CONSUMPTION
RADIO CHASSIS 35 WATTS
PHONO MOTOR 20 WATTS
I.F. 455 K.C.

ALIGNMENT PROCEDURE

NOTE "A"—The antenna coil assembly is made so that it is movable right or left. When making the adjustment as given in the alignment procedure move the coil assembly very slowly. It can be moved by hand or by pivoting one edge of the blade of a screwdriver in the hole and engaging the blade in the gear teeth of the coil form.

NOTE "B"—After the antenna coil has been tracked at 1400 Kc. it is necessary to check the antenna trimmer (C3) adjustment again at 1690 Kc. If no appreciable change in trimmer adjustment is made the coil is in track, if the trimmer requires considerable change it will be necessary to again adjust the position of the antenna coil at 1400 Kc. These two adjustments should be tried several times until no change of trimmer adjustment is required at 1690 Kc.

- Volume control—Maximum all adjustments.
- Connect B— of radio chassis to ground post of signal generator through .1 Mfd. condenser.

SIGNAL GENERATOR

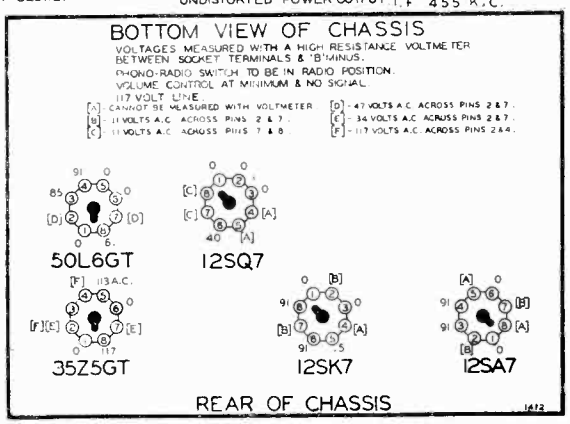
BAND	Frequency Setting	Dummy Antenna	Connection to Radio	Position of Iron Cores (Dial Setting)	Trimmers Adjusted to Maximum (in Order Shown)
I. F.	455 Kc.	.1 MFD.	Connect to Antenna Plate	Iron Cores All the way out	Two trimmers on top of output I.F. (See Chassis View)
	455 Kc.	.1 MFD.	Connect to Antenna Plate	Iron Cores All the way out	Two trimmers on top of input I.F. (See Chassis View)
BROAD-CAST BAND	1690 Kc.	.1 MFD.	Connect to Antenna Plate	Iron Cores All the way out	Oscillator trimmer (C5) (See Chassis View)
	1690 Kc.	200 MMF	Connect to Antenna Lead	Iron Cores All the way out	Antenna trimmer (C3) (See Chassis View)
	1400 Kc.	200 MMF.	Connect to Antenna Lead	Turn Dial to 1400 Kc.	Adjust position of antenna coil right or left. (See Note "A")
	1690 Kc.	200 MMF	Connect to Antenna Lead	Turn Dial to 1690 Kc.	Adjust antenna trimmer (C3) (See Chassis View) (See Note "B")

FOR SEEBURG C RECORD CHANGER SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".

ALIGNMENT FOR MODEL 14BR-692A is the same as that for 14BR-523A except that oscillator trimmer number is C6

CONDENSERS

PE1009	C8, C15	.05 x 200 Volt Tubular Condenser	.12
PE 00119	C11	1 x 400 Volt Tubular Condenser	.12
BE10025	C10	002 x 600 Volt Tubular Condenser	.12
BE10019	C14	00 x 600 Volt Tubular Condenser	.12
BE1301	C 6	01 x 400 Volt Tubular Condenser	.12
BE1001	C12	.1 x 400 Volt Tubular Condenser	.12
BE11994	C17, C18, C19	Electrolytic Filter Condenser. 50 to 60 Cycles. 40 Mfd.—20 Mfd.—20 Mfd. x 150 Volts	.86
BE11995	C17, C18, C19	Electrolytic Filter Condenser. 25 Cycles. 60 Mfd.—40 Mfd.—40 Mfd. x 150 Volts	1.20
BE124136	C3, C5	Antenna and Oscillator Dual Trimmer Condenser	.24
BE129114	C2	.0003 Mica Type Condenser—20%	.12
BE1295	C1, C7, C9	0001 Mica Type Condenser—20%	.12
BE129162	C4	.0008 Mica Type Condenser—10%	.12
BE12912	C13	.00025 Mica Type Condenser—20%	.12
BE129183	C6	.00005 Ceramicon Condenser—10%	.16



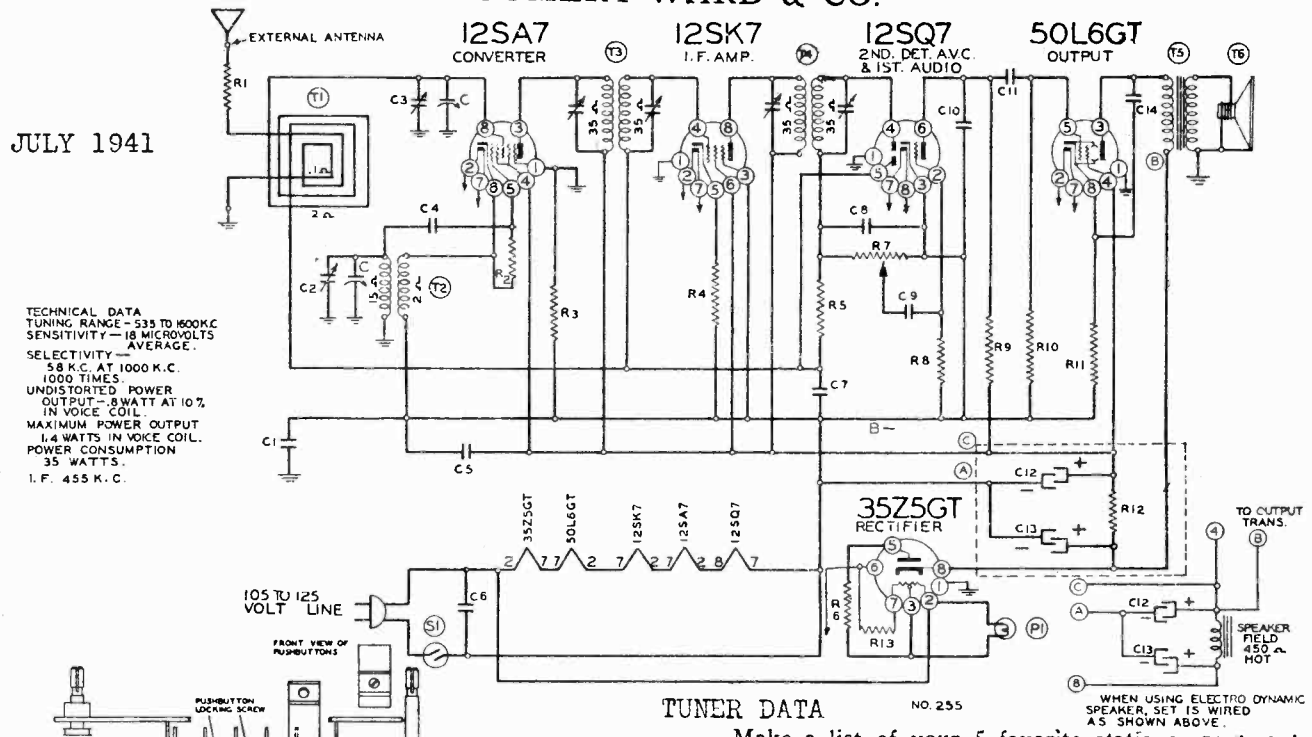
RESISTORS

BE1309	R1, R11	200M Ohm—⅓ Watt Resistor—20%	.10
BE130176	R2	20M Ohm—⅓ Watt Resistor—10%	.10
BE130168	R3	100 Ohm—⅓ Watt Resistor—10%	.10
BE1304	R4	3 Megohm—⅓ Watt Resistor—20%	.10
BE1301	R8	250M Ohm—⅓ Watt Resistor—20%	.10
BE130257	R6	5 Megohm—⅓ Watt Resistor—25%	.10
BE130215	R7	25 Ohm—½ Watt Resistor—10%	.10
BE13037	R9	750M Ohm—⅓ Watt Resistor—20%	.10
BE130166	R10	150 Ohm—⅓ Watt Resistor—10%	.10
BE130293	R12	30 Ohm—1 Watt Resistor—20%	.10

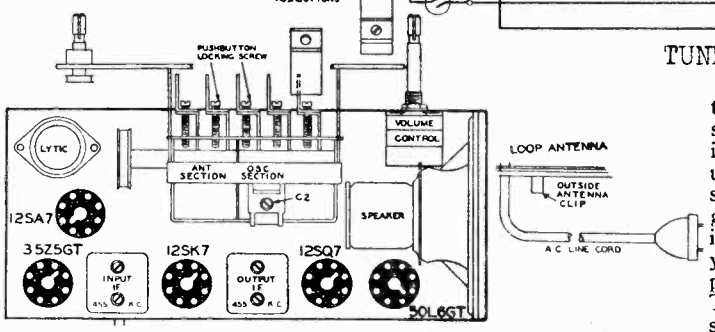
MONTGOMERY-WARD & CO.

MODELS 14BR-525A, 14BR-526A

JULY 1941



TECHNICAL DATA
TUNING RANGE – 535 TO 1600 KC
SENSITIVITY – 18 MICROVOLTS AVERAGE.
SELECTIVITY – 58 K.C. AT 1000 K.C. 1000 TIMES.
UNDISTORTED POWER OUTPUT – .8 WATT AT 10% IN VOICE COIL.
MAXIMUM POWER OUTPUT 1.4 WATTS IN VOICE COIL.
POWER CONSUMPTION 35 WATTS.
I. F. 455 K. C.



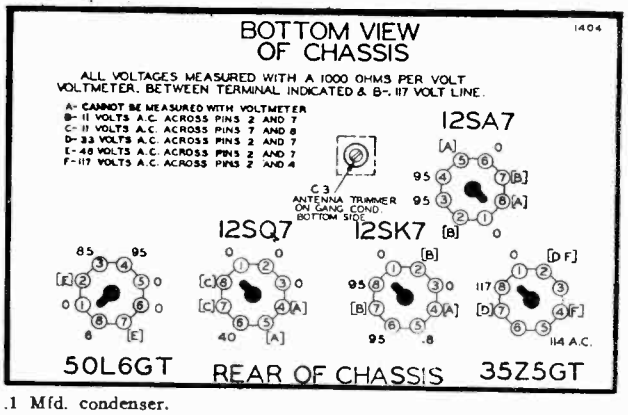
TUNER DATA NO. 255

Make a list of your 5 favorite stations—push out the call letters of these stations from the call letter sheets supplied. Next insert a long slim screw driver into the hole in front of one of the pushbuttons and unscrew the pushbutton locking screw (to the left) several turns. Now with the screw driver still engaged in the locking screw slot push it all the way in. Hold it in this position and tune in the station you want with the tuning knob. Now tighten up the pushbutton locking screw by turning it to the right. Tighten firmly. Continue setting each button in the same way. When you have set your stations insert the call letter of each station in the front of the proper button and put one of the celluloid tabs over the station call letter.

To change stations simply repeat the above procedure.

BE10026	C14	.02 x 400 Volt Tubular Condenser	1	.12
BE100106	C11	.004 x 600 Volt Tubular Condenser	1	.12
BE1009	C5, C7	.05 x 200 Volt Tubular Condenser	2	.12
BE100110	C1	.2 x 400 Volt Tubular Condenser	1	.12
BE1001	C6	.1 x 400 Volt Tubular Condenser	1	.12
BE10025	C9	.002 x 600 Volt Tubular Condenser	1	.12
BE11992	C12, C13	Electrolytic Filter Condenser. 50 to 60 Cycles. 20 Mfd.-40 Mfd. x 150 Volts	1	.74
		NOTE: BE11992 can be used on 25 to 60 cycles if set uses Electrodynamic Speaker.		
BE11993	C12, C13	Electrolytic Filter Condenser. 25 Cycles. 40 Mfd.-60 Mfd. x 150 Volts		1.24
BE1295	C8	0001 Mica Type Condenser—20%	1	.12
BE12912	C10	.00025 Mica Type Condenser—20%	1	.12
BE12921	C4	.0002 Mica Type Condenser—20%	1	.12
BE13026	R1	1M Ohm—½ Watt Resistor—20%	1	.10
BE1303	R9	500M Ohm—½ Watt Resistor—20%	1	.10
BE130166	R11	150 Ohm—½ Watt Resistor—10%	1	.10
BE1309	R3	200M Ohm—½ Watt Resistor—20%	1	.10
BE130257	R8	5 Megohm—½ Watt Resistor—25%	1	.10
BE1304	R5	3 Megohm—½ Watt Resistor—20%	1	.10
BE130174	R4	50 Ohm—½ Watt Resistor—10%	1	.10
BE13094	R2	50M Ohm—½ Watt Resistor—10%	1	.10
BE130287	R12	1200 Ohm—1 Watt Resistor—10%	1	.10
BE130215	R6	25 Ohm—½ Watt Resistor—10%	1	.10
BE13037	R10	750M Ohm—½ Watt Resistor—20%	1	.10
BE130293	R13	30 Ohm—1 Watt Resistor—20%	1	.10

PRICES SUBJECT TO CHANGE WITHOUT NOTICE



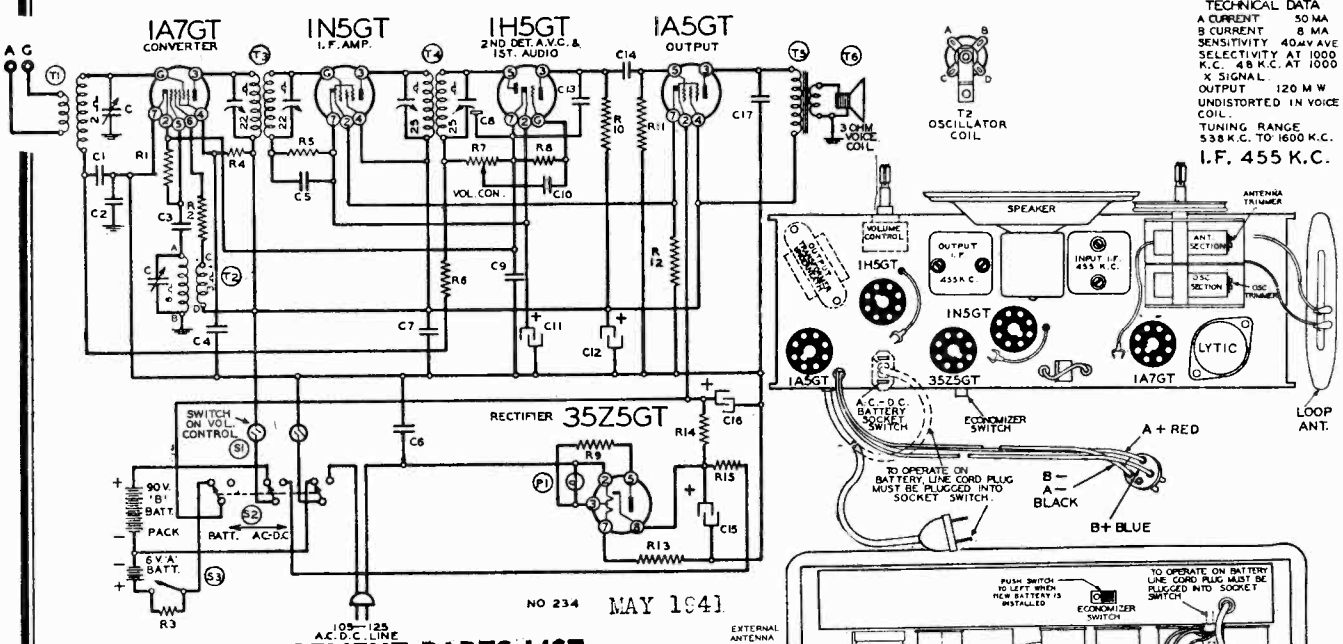
- Volume control—Maximum all adjustments.
- Connect B—of radio chassis to ground post of signal generator through .1 Mfd. condenser.

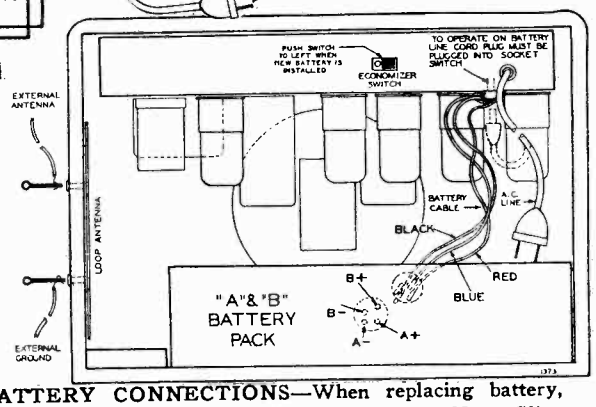
BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted to Maximum
I. F.	455 Kc.	.1 MFD.	Grid of 12SK7 I. F.	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 12SA7 Mixer	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
BROAD-CAST BAND	1600 Kc.	.1 mmf.	Grid of 12SA7	Rotor full open (Plates out of mesh)	B.C. Osc. trimmer C2 on Gang
	1400 Kc.	200 mmf.	External Antenna and B–	Set Dial at 1400 K. C.	B.C. Ant. trimmer C3 under Gang

The loop antenna should be connected to the radio and in its proper position whenmaking all adjustments.

MODEL 14BR-573A

MONTGOMERY WARD & CO

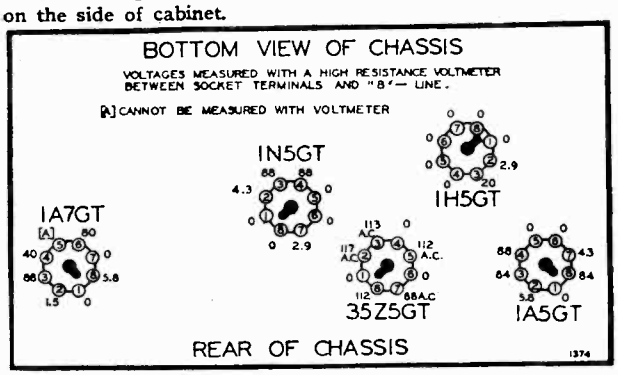




BATTERY CONNECTIONS—When replacing battery, plug cable into battery socket as shown above. Note: Clips for connecting an external antenna and ground are shown on the side of cabinet.

REPLACEMENT PARTS LIST

Part No.	Schematic Diagram Reference	Description	No. Used In Set	Selling Price Each
		CONDENSERS		
BE10025	C17	.002 x 600 Volt Tubular Condenser	1	.12
BE10026	C6	.02 x 400 Volt Tubular Condenser	1	.12
BE100110	C2	.2 x 400 Volt Tubular Condenser	1	.12
BE100127	C4, C5	.01 x 120 Volt Tubular Condenser	2	.12
BE100128	C1	.05 x 120 Volt Tubular Condenser	1	.12
BE100133	C9	.1 x 120 Volt Tubular Condenser	1	.12
BE100134	C10	.006 x 120 Volt Tubular Condenser	1	.12
BE100135	C7	.25 x 120 Volt Tubular Condenser	1	.12
BE100137	C13, C14	.01 x 200 Volt—.0001 x 200 Volt Dual Tubular Condenser	1	.24
BE119126	C11, C12, C15, C16	Electrolytic Filter Condenser, 20 Mfd. x 150 V.; 40 Mfd. x 150 V.; 40 Mfd. x 150 V.; 200 Mfd. x 10 V. 50-60 Cycles	1	.74
BE1295	C3	.0001 Mica Type Condenser	1	.12
		RESISTORS		
BE1304	R6, R11	3 Megohm—½ Watt Resistor—20%	2	.10
BE1309	R1	200M Ohm—½ Watt Resistor—20%	1	.10
BE13019	R10	1 Megohm—½ Watt Resistor—20%	1	.10
BE13085	R2	3M Ohm—½ Watt Resistor—20%	1	.10
BE130129	R15	2500 Ohm—½ Watt Resistor—10%	1	.10
BE130197	R3, R9	20 Ohm—½ Watt Resistor—10%	2	.10
BE130200	R12	700 Ohm—½ Watt Resistor—10%	1	.10
BE130223	R5, R8	10 Megohm—½ Watt Resistor—20%	2	.10
BE130305	R4	65M Ohm—½ Watt Resistor—10%	1	.10
BE130343	R13	545 Ohm—14 Watt Resistor—5%	1	.28
BE130344	R14	1975 Ohm—6 Watt Resistor—5%	1	.28



ALIGNMENT PROCEDURE

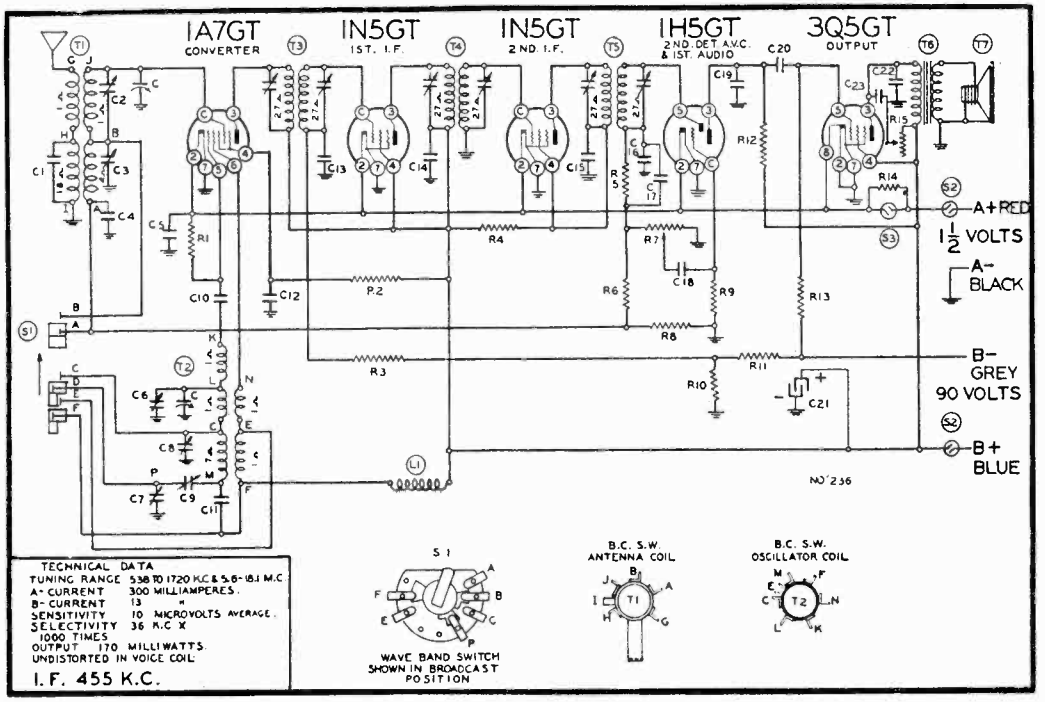
The following equipment is required for aligning.

- Dummy antenna .1 mfd. and 200 mmf.
- Volume control—Maximum all adjustments.
- Connect B— of radio chassis to ground post of signal generator.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Dial Setting	Trimmers Adjusted (in Order Shown)	Adjustment
455 Kc. I. F.	455 Kc.	.1 MFD.	Connect to Grid of 1A7	Rotor full open (Plates out of mesh)	Input and Output Trimmers on Top of I. F. cans	Maximum output (See Note "A")
BROAD-CAST BAND	1600 Kc.	.1 MFD.	Connect to Grid of 1A7	Rotor full open (Plates out of mesh)	Osc. Trimmer on gang (See chassis view)	Maximum output (See Note "A")
	1400 Kc.	200 MMF.	Connect to Antenna Clip	Set dial at 1400 Kc.	Ant. Trimmer on gang (See chassis view)	Maximum output (See Note "B")

NOTE "A"—The loop antenna need not be connected to the radio when making these adjustments, but a 1. Meg. Resistor must be substituted across the loop clips. The ground of the signal generator is connected to the B— and the other lead from the signal generator in series with .1 MFD. dummy to the grid of the 1A7GT tube.

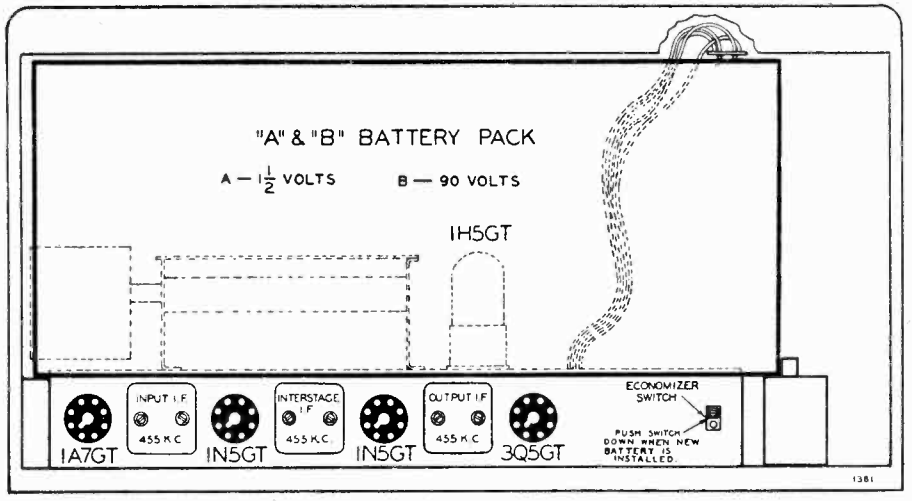
NOTE "B"—This adjustment should be made with the ground lead of the signal generator connected to the external ground terminal. The other lead of the signal generator is connected in series with a 200 Mmf. dummy to the external antenna terminal.



REPLACEMENT PARTS LIST

BE10071	C22	.004 x 600 Volt Tubular Condenser	.12
BE10019	C18	.006 x 600 Volt Tubular Condenser	.12
BE10020	C12, C15	.1 x 200 Volt Tubular Condenser	.12
BE10011	C20	.01 x 400 Volt Tubular Condenser	.12
BE1006	C5, C14	.25 x 200 Volt Tubular Condenser	.12
BE10022	C4, C13	.05 x 200 Volt Tubular Condenser	.12
BE10087	C23	.01 x 600 Volt Tubular Condenser	.12
BE100133	C11	.1 x 120 Volt Tubular Condenser	.12
BE119130	C21	Electrolytic Filter Condenser. 10 Mfd. x 150 Volts	.26
BE124171	C2, C3, C8	Triple Unit Trimmer Cond. C2, S.W. Ant. Trimmer. C3, B.C. Ant. Trimmer. C8, B.C. Osc. Trimmer	.40
BE124173	C9	B.C. Series Pad. 580 Mmfd.	.24
BE129161	C16, C17	.0001 Dual Mica Condenser	.14
BE129125	C7	.004 Mica—S.W. Series Pad	.50
BE12939	C10	.00005 Mica Type Condenser—20%	.12
BE1295	C1	.0001 Mica Type Condenser—20%	.12
BE12921	C19	.0002 Mica Type Condenser—20%	.12
BE13099	R11	300 Ohm—⅓ Watt Resistor—20%	.10
BE13019	R3, R13	1 Megohm—⅓ Watt Resistor—20%	.10
BE130257	R9	5 Megohm—⅓ Watt Resistor—25%	.10
BE130348	R8	4 Megohm—⅓ Watt Resistor—20%	.10
BE13038	R6	2 Megohm—⅓ Watt Resistor—20%	.10
BE1303	R12	500M Ohm—⅓ Watt Resistor—20%	.10
BE13085	R4	3M Ohm—⅓ Watt Resistor—20%	.10
BE13056	R10	100 Ohm—⅓ Watt Resistor—20%	.10
BE13012	R2, R5	50M Ohm—⅓ Watt Resistor—20%	.10
BE1309	R1	200M Ohm—⅓ Watt Resistor—20%	.10
BE130346	R14	.56 Ohm—⅓ Watt Resistor—10%	.10

PRICES SUBJECT TO CHANGE WITHOUT NOTICE



BATTERY VIEW—When replacing battery, plug cable into battery socket as shown above. Note: Battery can be placed in back of cabinet as shown.

BATTERIES REQUIRED

The battery pack must contain a 1½ volt "A" battery and 90 volts of "B" battery. Plug the Battery Cable from the radio into the socket on the battery pack. The pack will fit nicely into the back of the cabinet as shown in the battery view.

Replacement batteries may be obtained from Wards Stores or Mail Order Houses. Order battery pack No. 62-5033.

ECONOMIZER SWITCH—When the A battery is fresh the economizer switch on the back of the chassis should be pushed down.

After the radio has been in use several weeks and reception becomes weaker push the switch up, (the white dot will show). Leave in this position until new batteries are installed.

MODEL 14BR-574A

MONTGOMERY WARD & CO.

ALIGNMENT PROCEDURE

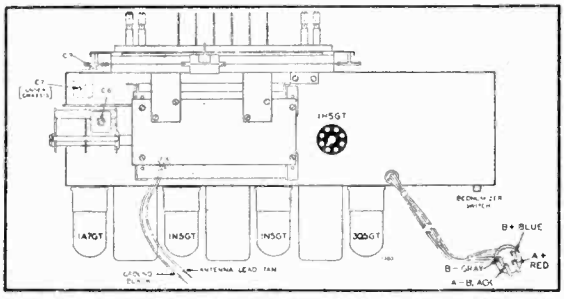
- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Max.
I. F.	455 Kc.	.1 MFD.	Grid of 1N5G 2nd I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 1N5G 1st I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Interstage I. F.
	455 Kc.	.1 MFD.	Grid of 1A7G Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
SHORT WAVE BAND	16 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 16 Mc.	Trimmer C6— S. W. osc. Top of front section of gang
	16 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 16 Mc.	Trimmer C2 S. W. antenna
	6 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 6 Mc.	Trimmer C7 S. W. osc. series pad (See note "A")
BROAD-CAST BAND	1720 Kc.	200 mmf.	Antenna lead	Broadcast	Rotor full open (Plates out of mesh)	Trimmer C8 B. C. osc.
	1500 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1500 Kc.	Trimmer C3 B. C. antenna
	600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer C9 B. C. osc. series pad (See note "A")

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

ANTENNA

For best results, an outside antenna approximately 50 to 75 feet long including lead-in is recommended. It should be erected as high as possible and as far from surrounding objects as practical. For minimum interference it should be at right angles to street car lines, incoming power lines and other electrical apparatus which may be in the vicinity. A ground is advisable. A good ground will often reduce noise. The ground wire should be connected with a clamp to a well cleaned water pipe or to a piece of pipe driven several feet into damp earth.



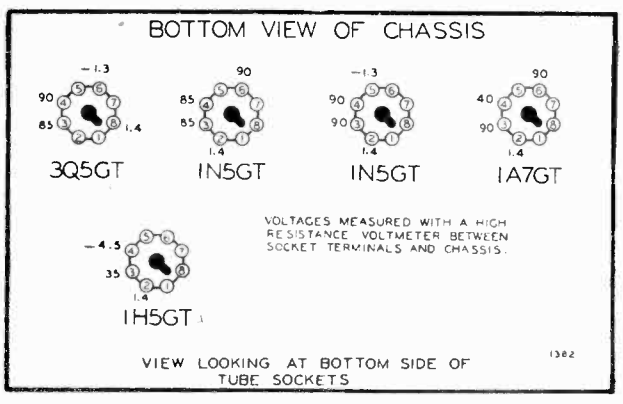
CHASSIS VIEW showing tube location and battery cable. NOTE: Antenna and ground leads at back of chassis.

SETTING THE PUSHBUTTONS

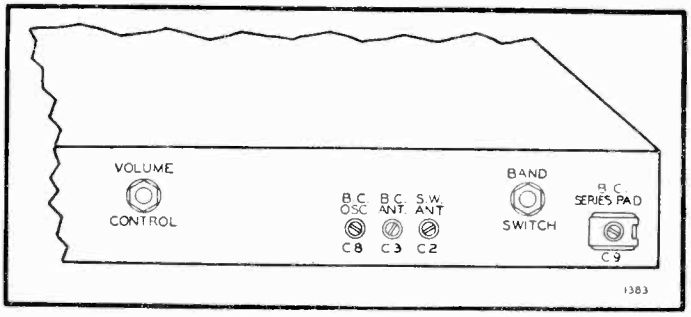
Make a list of your 6 favorite stations. Push out the call letters of these stations from the call letter sheets supplied. Insert a call letter in the slot on top of each pushbutton.

Next pull one of the pushbuttons all the way out as far as it will come (pull, with fingers on top and bottom of button). Now tune in the station you want with the tuning knob—Tune back and forth until the station is clear and distinct. Now push the button hard all the way in to lock the station in place. Continue setting each pushbutton in the same way. Pressing the proper button will now tune the station you want. If it does not do so you did not push the button hard enough to lock it in place when setting up the station.

To change stations simply repeat the procedure above.



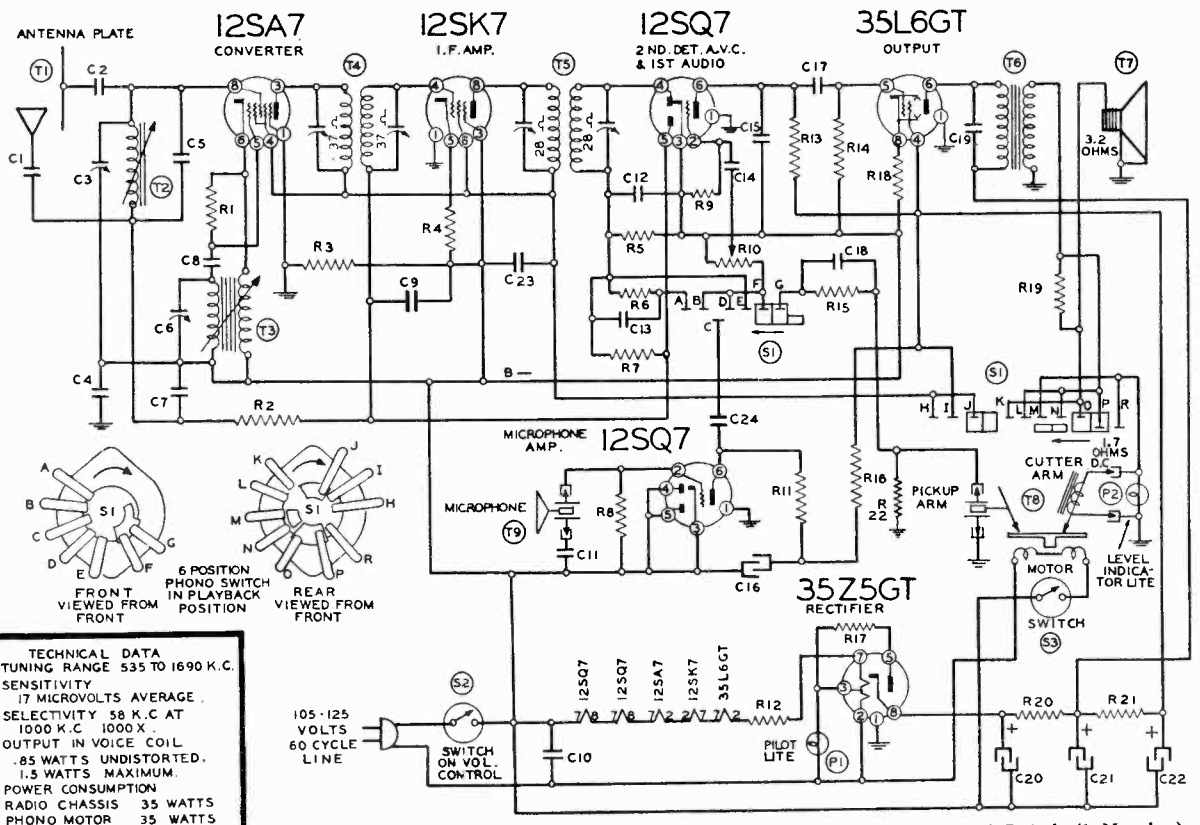
VOLTAGE CHART



TRIMMER VIEW—Looking at front of chassis.

MODEL 14BR-629A

MONTGOMERY-WARD & CO.



TECHNICAL DATA
TUNING RANGE 535 TO 1690 K.C.
SENSITIVITY
17 MICROVOLTS AVERAGE.
SELECTIVITY 58 K.C AT
1000 K.C 1000 K.
OUTPUT IN VOICE COIL
.85 WATTS UNDISTORTED.
1.5 WATTS MAXIMUM.
POWER CONSUMPTION
RADIO CHASSIS 35 WATTS
PHONO MOTOR 35 WATTS
I.F. 455 K.C.

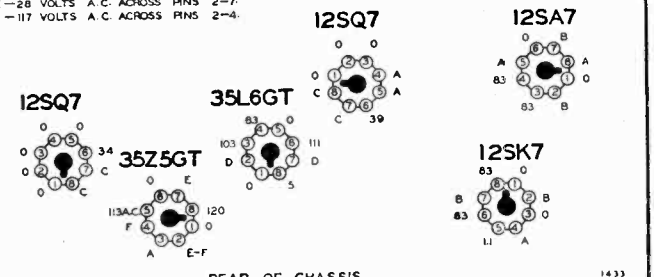
JULY 1941

VOLTAGE CHART

BOTTOM VIEW OF CHASSIS

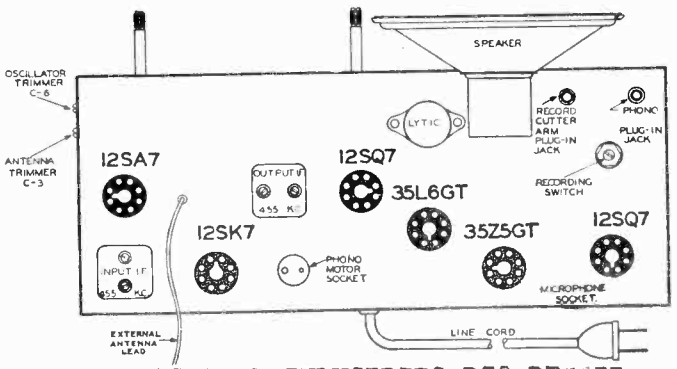
ALL VOLTAGES MEASURED BETWEEN B— & TERMINAL INDICATED, WITH A 1000 OHMS PER VOLT VOLTMETER. 117 VOLT LINE, PHONO SWITCH IN RADIO POSITION, VOLUME CONTROL AT MINIMUM, & ANTENNA LEAD GROUNDED TO CHASSIS.

A—CANNOT BE MEASURED WITH VOLTMETER.
B—11.5 VOLTS A.C. ACROSS PINS 2-7.
C—11.5 VOLTS A.C. ACROSS PINS 7-8.
D—35 VOLTS A.C. ACROSS PINS 2-7.
E—28 VOLTS A.C. ACROSS PINS 2-7.
F—117 VOLTS A.C. ACROSS PINS 2-4.

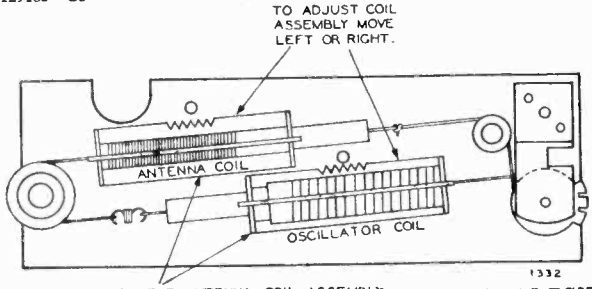


BE101273	R10, S2	Volume Control and Switch (1 Megohm)	1	.62
BE130176	R1	20M Ohm—⅓ Watt Resistor—10%	1	.10
BE130168	R4, R19	100 Ohm—⅓ Watt Resistor—10%	2	.10
BE1309	R2, R3	200M Ohm—⅓ Watt Resistor—20%	2	.10
BE1304	R7, R8	3 Megohm—⅓ Watt Resistor—20%	2	.10
BE130118	R5	600M Ohm—⅓ Watt Resistor—20%	1	.10
BE130257	R9	5 Megohm—⅓ Watt Resistor—25%	1	.10
BE1303	R11, R13	500M Ohm—⅓ Watt Resistor—20%	2	.10
BE130166	R18	150 Ohm—⅓ Watt Resistor—10%	1	.10
BE13037	R14	750M Ohm—⅓ Watt Resistor—20%	1	.10
BE13097	R20	200 Ohm—⅓ Watt Resistor—10%	1	.10
BE130287	R21	1200 Ohm—1 Watt Resistor—10%	1	.10
BE130215	R17	25 Ohm—½ Watt Resistor—10%	1	.10
BE13020	R16	100M Ohm—⅓ Watt Resistor—20%	1	.10
BE13019	R15, R22	1 Megohm—⅓ Watt Resistor—20%	1	.10
BE130288	R12	50 Ohm—1½ Watt Resistor—20%	1	.10
BE13038	R6	2 Megohm—⅓ Watt Resistor—20%	1	.10
BE100119	C4	.1 x 400 Volt Tubular Condenser	1	.12
BE1001	C10	.1 x 400 Volt Tubular Condenser	1	.12
BE1009	C9, C23	.05 x 200 Volt Tubular Condenser	2	.12
BE10019	C17	.006 x 600 Volt Tubular Condenser	1	.12
BE10011	C19	.01 x 400 Volt Tubular Condenser	1	.12
BE10025	C14	.002 x 600 Volt Tubular Condenser	1	.12
BE100141	C11	.22 x 200 Volt Tubular Condenser	1	.12
BE11994	C20, C21, C22	Electrolytic Filter Condenser. 60 Cycles. 40 Mfd. x 150 V.; 20 Mfd. x 150 V.; 20 Mfd. x 150 V.	1	.86
BE119117B	C16	Electrolytic Filter Condenser. 10 Mfd. x 150 Volts	1	.26
BE124136	C3, C6	Ant. and Osc. Dual Adjustable Condenser	1	.24
BE129114	C2, C15	.0003 Mica Type Condenser—20%	2	.12
BE1295	C1, C8	.0001 Mica Type Condenser—20%	2	.12
BE129162	C7	.0008 Mica Type Condenser—10%	1	.12
BE12960	C12	.00015 Mica Type Condenser—20%	1	.12
BE12921	C18	.0002 Mica Type Condenser—20%	1	.12
BE1292	C13, C24	.0005 Mica Type Condenser—20%	2	.12
BE129183	C5	.00005 Ceramicon Type Condenser—10%	1	.16

PRICES SUBJECT TO CHANGE WITHOUT NOTICE



FOR GENERAL INDUSTRIES R70 RECORD CHANGER, SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".

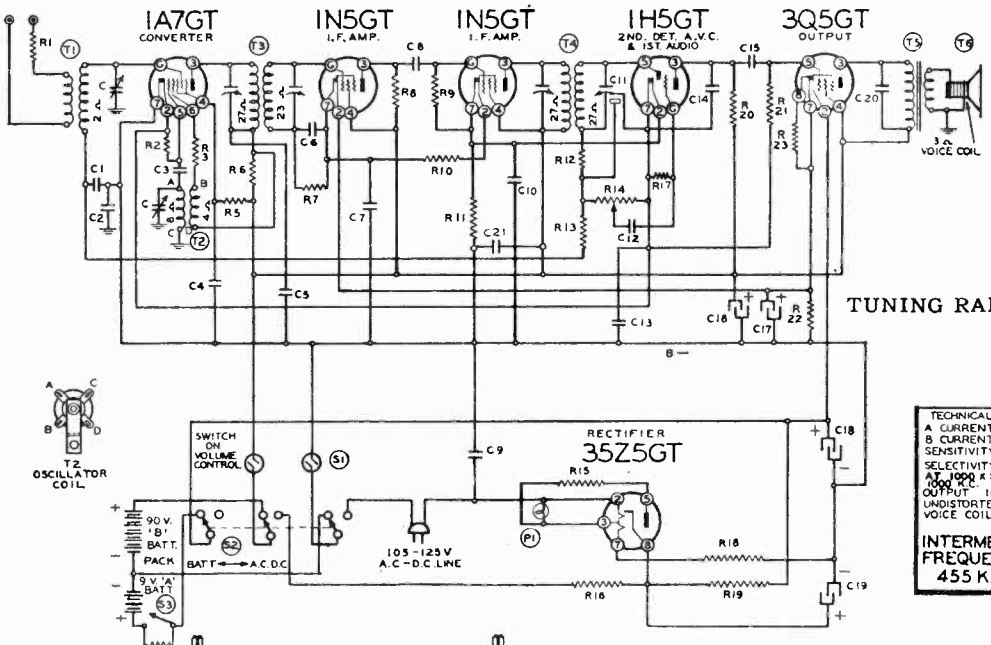


NOTE: THE ANTENNA COIL ASSEMBLY IS MADE SO THAT IT IS MOVABLE LEFT OR RIGHT. WHEN MAKING THE ADJUSTMENT AS GIVEN IN THE ALIGNMENT PROCEDURE MOVE COIL ASSEMBLY VERY SLOWLY

FOR ALIGNMENT SEE INDEX

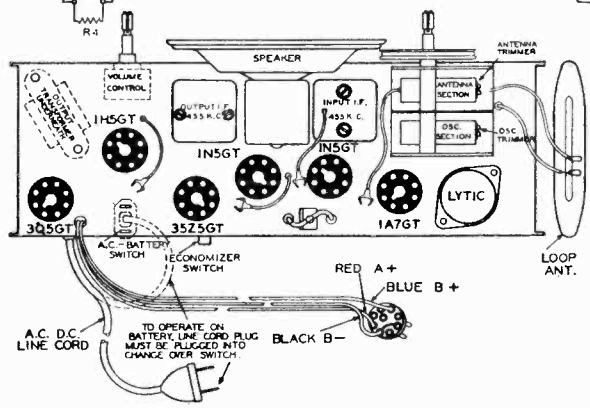
MODEL 14BR-684A

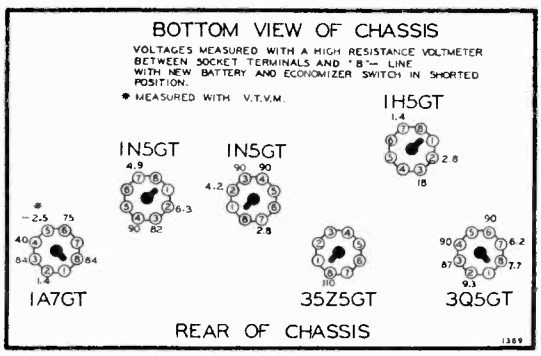
MONTGOMERY-WARD & CO.



TECHNICAL DATA
A CURRENT 50 MA
B CURRENT 13 MA
SENSITIVITY 10 μ v AVE.
SELECTIVITY 48 K.C. AT 1000 K SIGNAL AT 1000 K.C.
OUTPUT 185 M.W. UNDISTORTED IN VOICE COIL.
INTERMEDIATE FREQUENCY 455 K.C.

AUGUST 1941





BE13019	R20	1 Megohm—⅓ Watt Resistor—20%	.10
BE1304	R13, R21	3 Megohm—⅓ Watt Resistor—20%	.10
BE130257	R7, R9, R17	5 Megohm—⅓ Watt Resistor—25%	.10
BE130197	R4, R15	20 Ohm—⅓ Watt Resistor—10%	.10
BE130129	R16	2500 Ohm—⅓ Watt Resistor—10%	.10
BE130192	R11	2M Ohm—⅓ Watt Resistor—10%	.10
BE130347	R10	15 Ohm—⅓ Watt Resistor—10%	.10
BE13022	R8	5M Ohm—⅓ Watt Resistor—20%	.10
BE13085	R3, R6	3M Ohm—⅓ Watt Resistor—20%	.10
BE130200	R22	700 Ohm—⅓ Watt Resistor—10%	.10
BE1309	R2	200M Ohm—⅓ Watt Resistor—20%	.10
BE130305	R5	65M Ohm—⅓ Watt Resistor—10%	.10
BE13026	R1	1M Ohm—⅓ Watt Resistor—20%	.10
BE130329	R12	47M Ohm—⅓ Watt Resistor—20%	.10
BE130343	R18	545 Ohm—14 Watt W.W. Resistor—5%	.28
BE130344	R19	1975 Ohm—6 Watt W.W. Resistor—5%	.22
BE130222	R23	350 Ohm—⅓ Watt Resistor—10%	.10
BE10071	C20	.004 x 600 V. Tubular Condenser	.12
BE100110	C2	.2 x 400 V. Tubular Condenser	.12
BE100127	C4, C6	.01 x 120 V. Tubular Condenser	.12
BE100128	C1	.05 x 120 V. Tubular Condenser	.12
BE100133	C5	.1 x 200 V. Tubular Condenser	.12
BE100134	C12	.006 x 120 V. Tubular Condenser	.12
BE100135	C7, C10, C13	.25 x 200 V. Tubular Condenser	.12
BE100137	C15, C14	.01 x 200 V.; .0001 x 200 V. Dual Tubular Condenser	.24
BE10020	C21	.1 x 200 V. Tubular Condenser	.12
BE119126	C16, C17, C18, C19	Electrolytic Filter Condenser 20 Mfd. x 50 V.; 40 Mfd. x 150 V.; 40 Mfd. x 150 V.; 200 Mfd. x 10 V. 50-60 Cycles	.74
BE1292	C8	.0005 Mica Type Condenser—20%	.12
BE1295	C3	.0001 Mica Type Condenser—20%	.12
BE10026	C9	.02 x 400 Volt Tubular Condenser	.12

PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

ALIGNMENT PROCEDURE

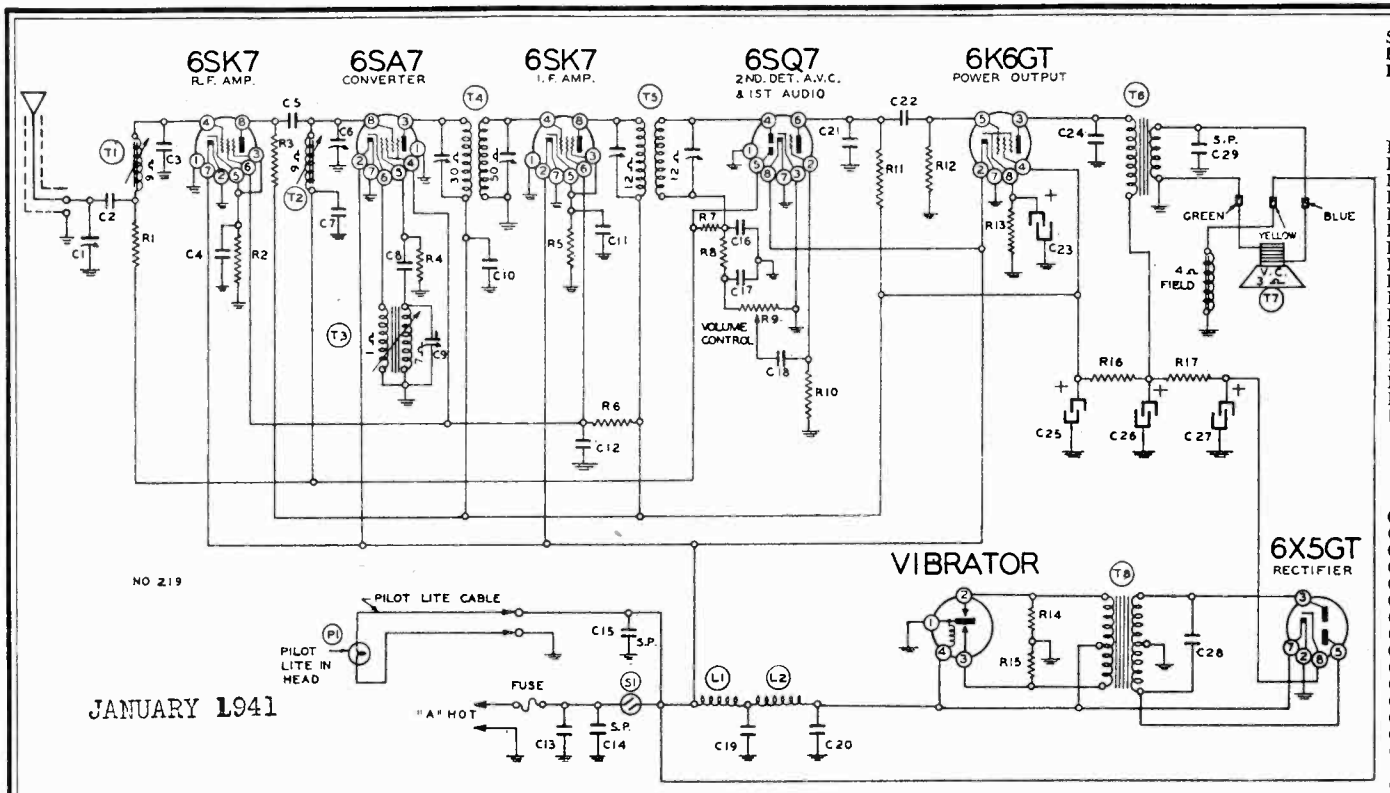
The following equipment is required for aligning.

- Dummy antenna .1 mfd. and 200 mmf.
- Volume control—Maximum all adjustments.
- Connect B— of radio chassis to ground post of signal generator.

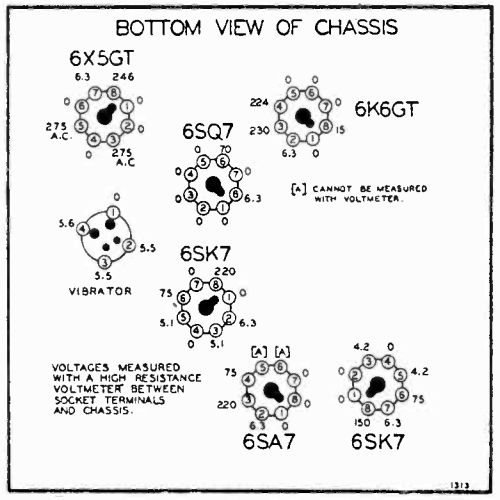
BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Dial Setting	Trimmers Adjusted (in Order Shown)	Adjustment
455 Kc. I. F.	455 Kc.	.1 MFD.	Connect to Grid of 1A7	Rotor full open (Plates out of mesh)	Input and Output Trimmers on Top of I. F. cans	Maximum output (See Note "A")
BROAD-CAST BAND	1600 Kc.	.1 MFD.	Connect to Grid of 1A7	Rotor full open (Plates out of mesh)	Osc. Trimmer on gang (See chassis view)	Maximum output (See Note "A")
	1400 Kc.	200 MMF.	Connect to Antenna Clip	Set dial at 1400 Kc.	Ant. Trimmer on gang (See chassis view)	Maximum output (See Note "B")

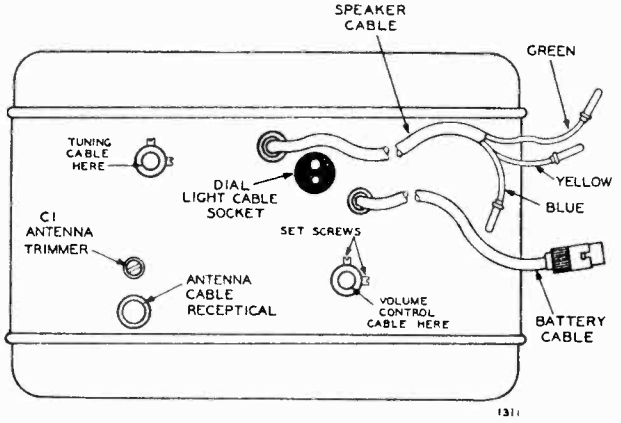
NOTE "A"—The loop antenna need not be connected to the radio when making these adjustments, but a 1. Meg. Resistor must be substituted across the loop clips. The ground of the signal generator is connected to the B— and the other lead from the signal generator in series with .1 MFD. dummy to the grid of the 1A7GT tube.

NOTE "B"—This adjustment should be made with the ground lead of the signal generator connected to the external ground terminal. The other lead of the signal generator is connected in series with a 200 Mmf. dummy to the external antenna terminal.



INTERMEDIATE FREQUENCY 455 K.C.





Schematic Diagram Ref. No. | Part No. | Description

RESISTORS

R1	BE130330	220M ohm—⅓ w.
R2	BE130333	1500 ohm—⅓ w.
R3	BE130334	25M ohm—⅓ w.
R4	BE130329	47M ohm—⅓ w.
R5	BE130192	2M ohm—⅓ w.
R6	BE130196	30M ohm—1 watt
R7	BE13019	1 Megohm—⅓ w.
R8	BE130329	47M ohm—⅓ w.
R9	BE101246	500M ohm volume control
R10	BE130257	5 megohm—⅓ w.
R11	BE13011	250M ohm—⅓ w.
R12	BE13019	1 Megohm—⅓ w.
R13	BE130267	550 ohm—⅓ w.
R14	BE130163	100 ohm—⅓ w.
R15	BE130168	100 ohm—⅓ w.
R16	BE130199	1500 ohm—1 watt
R17	BE130168	100 ohm—⅓ w.

CONDENSERS

C1	BE124157	Antenna Trimmer
C2	BE100127	.01 x 120 v.
C3	BE129172	.0001 Ceramicon
C4	BE100128	.05 x 120 v.
C5	BE129141	.00001 Ceramicon
C6	BE124129	R.F. Trimmer
C7	BE100129	.02 x 120 v.
C8	BE100172	.0001 Ceramicon
C9	BE124158	Oscillator Trimmer
C10	BE1001	.1 x 400 v.
C11	BE100128	.05 x 120 v.
C12	BE10053	.25 x 400 v.
C13	BE10031	.5 x 120 v.
C14	BE115687	Spark Plate
C15	BE115710	Spark Plate
C16	BE129165B	.00005 Mica
C17	BE129165B	.00005 Mica
C18	BE100127	.01 x 120 v.
C19	BE10031	.5 x 120 v.
C20	BE10031	.5 x 120 v.
C21	BE100130	.00025 x 400 v.
C22	BE100130	.02 x 400 v.
C23	BE11975	10.0 mfd. x 25 volt lytic
C24	BE10087	.01 x 600 v.
C25	BE119120	15.0 mfd. x 350 v. lytic
C26	BE119120	15.0 mfd. x 350 v. lytic
C27	BE119120	15.0 mfd. x 350 v. lytic
C28	BE100100	.008 x 1600 v.
C29	BE115710	Spark Plate

C16 and C17 are in same unit.
C21 and C22 are in same unit.
C25, C26, and C27 are in same unit.

PARTS

T1	BE111231	Antenna Coil Assembly
T2	BE10963	R.F. Coil Assembly
T3	BE110174	Oscillator Coil Assembly
T4	BE108194	Input I.F. Coil 455 Kc.
T5	BE108196	Output I.F. Coil 455 Kc.
T6	BE105125	Output Transformer
T7	BE114234	6" Dynamic Speaker
T8	BE104159C	Power Transformer
L1	BE10519	"A" Choke
L2	BE10519	"A" Choke
S1		on and off switch on volume control
P1	BE10797	Pilot Lite

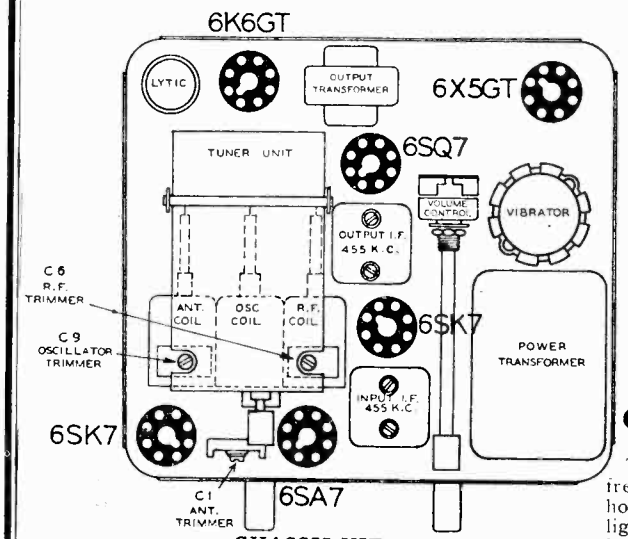
ALIGNMENT PROCEDURE

- 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., 35 mmf.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Remote Tuner Dial Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	455 Kc.	.1 MFD.	Grid of 6SK7 I. F. Tube	Set dial at 1400 Kc.	See Chassis View	Output I. F.	Adjust to maximum output
	455 Kc.	.1 MFD.	Grid of 6SA7 I. F. Tube	Set dial at 1400 Kc.	See Chassis View	Input I. F.	Adjust to maximum output
BROAD-CAST BAND	1600 Kc.	35 mmf.	Antenna lead	Set dial at 1600 Kc.	Trimmer C9, C6, C1 See Chassis View	Oscillator R. F. antenna	Adjust to maximum output
	1400 Kc.	35 mmf.	Antenna lead	Set dial at 1400 Kc.	Rotate cores of antenna and R. F. coils	Antenna and R. F.	Adjust to maximum output



CHASSIS VIEW
SHOWING TRIMMER POSITIONS

Battery Drain	7 Amps.
Power Output	1.8 Watts Undistorted
Sensitivity for 1 Watt Output	6 Microvolt Average
Selectivity - 38 KC Broad at 1000 Times Signal at 1000 KC	
Tuning Frequency Range	540 to 1600 KC
Intermediate Frequency	455 KC
Speaker	6 in. Electro Dynamic

CALIBRATING THE DIAL

Tune set to some station of a known frequency (between 800 and 1200 K.C.). hold selector knob, then remove pilot light assembly from back of remote head and with a screw driver adjust the slotted screw through this opening and in this way adjust the dial pointer to the correct frequency setting.

GENERATOR CONDENSER

A Generator Condenser must be connected in all cases from the battery terminal of the generator to the Generator frame.

This condenser must not be connected across the field winding terminal on late cars which use Automatic Cutouts.

It is advisable that you find out from your local car dealers where the manufacturer recommends the condenser be connected for each make of car.

HIGH AND LOW TENSION LEADS

In many cars the low tension battery leads, etc., are grouped together with the high tension wires. These leads will very often pick up motor noise and feed it into the receiver through the battery circuit. In cases such as these it will be necessary to separate the low tension from the high tension wires and run them through another hole if they run from the engine compartment up to the instrument panel. This condition is particularly true on the V-8 Ford as the battery and primary leads run through a special tube which also houses the high tension leads. Shield and ground these leads.

AMMETER CONDENSER

A .5 Mfd. by pass condenser should be connected from one ammeter terminal to a good ground on the instrument panel. Usually this condenser plus the generator condenser and distributor suppressor will remove all objectionable ignition noise.

ADJUSTING THE ANTENNA TRIMMER

The input circuit has been especially designed to be used with a low capacity antenna of the fish pole or whip type.

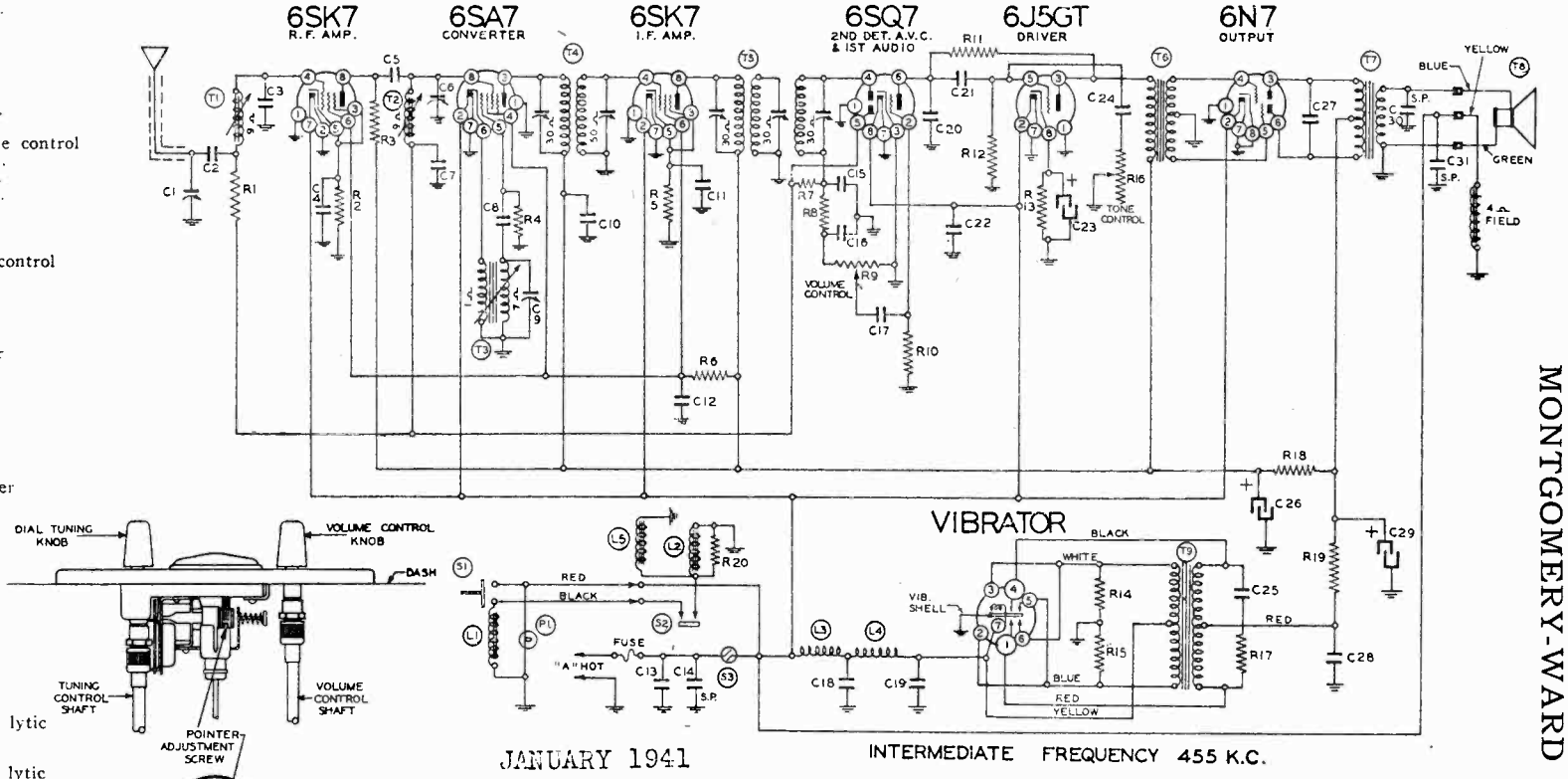
The antenna lead supplied with the radio should not be shortened or otherwise altered.

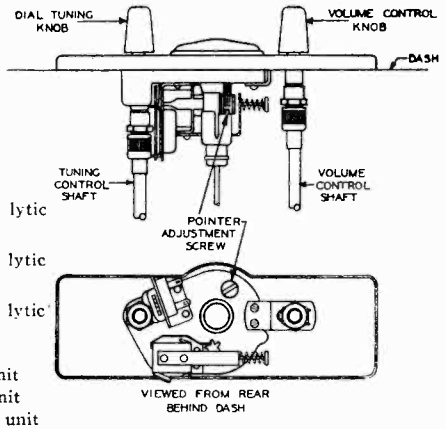
It is important that the grounding lead on the end of the antenna cable be carefully grounded to the car body, otherwise it may prove difficult to eliminate ignition noise.

Tune in a station on the high frequency end of the dial and adjust the antenna trimmer for maximum volume. A weak station which does not fade is best for this adjustment.

R1	BE130330	220M ohm—⅓ w.
R2	BE130332	250 ohm—⅓ w.
R3	BE130331	15M ohm—⅓ w.
R4	BE130329	47M ohm—⅓ w.
R5	BE13016	900 ohm—⅓ w.
R6	BE130196	30M ohm—1 w.
R7	BE13019	1 megohm—⅓ w.
R8	BE130329	47M ohm—⅓ w.
R9	BE101242	500M ohm volume control
R10	BE130257	5 megohm—⅓ w.
R11	BE130102	500M ohm—⅓ w.
R12	BE130102	500M ohm—⅓ w.
R13	BE13092	1M ohm—⅓ w.
R14	BE130168	100 ohm—⅓ w.
R15	BE130168	100 ohm—⅓ w.
R16	BE101245	1 megohm tone control
R17	BE13092	1M ohm—⅓ w.
R18	BE130199	1500 ohm—1 w.
R19	BE130328	75 ohm—⅓ w.
R20	BE13060	100 ohm—⅓ w.
C1	BE124157	Antenna trimmer
C2	BE100127	.01 x 120 v.
C3	BE129172	.0001 ceramicon
C4	BE100128	.05 x 120 v.
C5	BE129145	.00001 ceramicon
C6	BE124159	R.F. trimmer
C7	BE100129	.02 x 120 v.
C8	BE129172	.0001 ceramicon
C9	BE124158	Oscillator trimmer
C10	BE1001	.1 x 400 v.
C11	BE100128	.05 x 120 v.
C12	BE10053	.25 x 400 v.
C13	BE10031	.5 x 120 v.
C14	BE115687	Spark plate
C15	BE129165B	.00005 mica
C16	BE129165B	.00005 mica
C17	BE100127	.01 x 120 v.
C18	BE10031	.5 x 120 v.
C19	BE10031	.5 x 120 v.
C20	BE100130	.00025 x 400 v.
C21	BE100130	.02 x 400 v.
C22	BE1292	.0005 mica
C23	BE119118	20.0 mfd. x 25 v. lytic
C24	BE10011	.01 x 400 v.
C25	BE10098	.005 x 1600 v.
C26	BE119118	20 mfd. x 400 v. lytic
C27	BE100126	.006 x 800 v.
C28	BE1001	.1 x 400 v.
C29	BE119118	20 mfd. x 400 v. lytic
C30	BE115710	Spark plate
C31	BE115710	Spark plate

C15 and C16 are in same unit
C20 and C21 are in same unit
C23, C26 and C29 are in same unit





JANUARY 1941

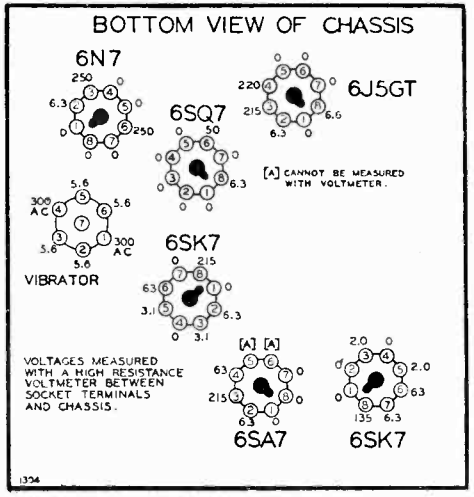
INTERMEDIATE FREQUENCY 455 K.C.

Battery Drain	7.8 Amps.
Power Output	5½ Watts Undistorted
Sensitivity for 1 Watt Output	1 Microvolt Average
Selectivity	38 KC Broad at 1000 Times Signal at 1000 KC
Tuning Frequency Range	540 to 1600 KC
Intermediate Frequency	455 KC
Speaker	6 in. Electro Dynamic

CALIBRATING THE DIAL

Turn the manual tuning knob and set the dial at 540 KC or 1600 KC whichever end the dial scale will reach. Now tighten the pointer adjustment screw (see Dash Control Rear View) this will lock the dial scale in place.

Turn the manual tuning knob to the right until it stops if you have the dial scale set at 540 Kc. Turn it to the left if it is set at 1600 Kc. Next loosen the adjustment screw to unlock the dial scale.



MONTGOMERY-WARD & CO.

MONT. WARD PAGE 13-23

MODEL 14BR-682A

- 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-metal ic screwdriver.
- Dummy antennas—.1 mf., 35 mmf.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Remote Tuner Dial Setting	Trimmers Adjusted (In Order Shown)	Trimmer Function	Adjustment
I. F.	455 Kc.	.1 MFD.	Grid of 6SK7 I. F. Tube	Set dial at 1400 Kc.	See Chassis View	Output I. F.	Adjust to maximum output
	455 Kc.	.1 MFD.	Grid of 6SA7 I. F. Tube	Set dial at 1400 Kc.	See Chassis View	Input I. F.	Adjust to maximum output
BROAD-CAST BAND	1600 Kc.	35 mmf.	Antenna lead	Set dial at 1600 Kc.	Trimmer C9, C6, C1 Chassis View	Oscil'ator R. F. antenna	Adjust to maximum output
	1400 Kc.	35 mmf.	Antenna lead	Set dial at 1400 Kc.	Rotate cores of antenna and R. F. coils	Antenna and R. F.	Adjust to maximum output

SETTING UP THE AUTOMATIC TUNING

NOTE: Stations may be set up on the bench, before installing radio.

There are three major steps in setting up the automatic. Take these steps in order. After you become familiar with them, you may vary the routine, but you will then know the operations needed.

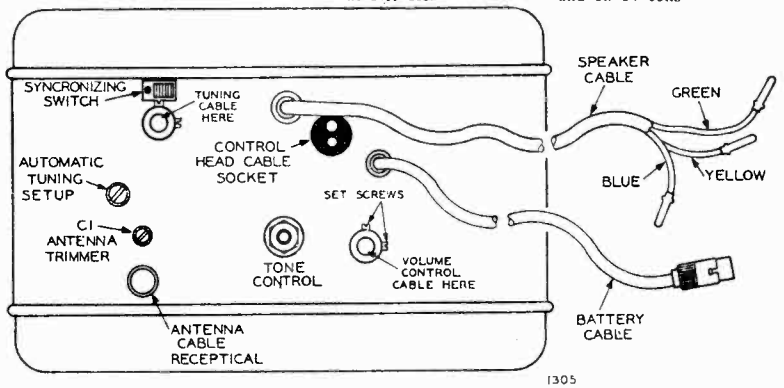
1st—To **Synchronize** the word "Dial" on the dial scale with the "Dial" position in the Chassis Tuner.

Note—The word "dial" is short for manual tuning.

2nd—To select one station and put it on the first automatic position.

3rd—To put the call letter on the dial.

The synchronizing must be done only once, but items two and three are repeated until 5 Automatic Positions are set up.



ADJUSTING THE ANTENNA TRIMMER

The input circuit has been especially designed to be used with a low capacity antenna of the fish pole or whip type.

The antenna lead supplied with the radio should not be shortened or otherwise altered.

It is important that the grounding lead on the end of the antenna cable be carefully grounded to the car body, otherwise it may prove difficult to eliminate ignition noise.

Tune in a station on the high frequency end of the dial and adjust the antenna trimmer for maximum volume. A weak station which does not fade is best for this adjustment.

SYNCHRONIZING (Step 1)

See that the Synchronizing Switch on the chassis case is closed (white dot showing). Press the tuning knob once. Let it come back—and then see if the knob will tune in stations (Don't forget to turn up the volume control). Repeat this until the radio can be tuned with the tuning knob. It is now in the Manual Tuning (Dial) Position.

Now open the "Synchronizer" Switch (No white dot showing). This will disconnect the tuner and keep it from shifting. Next press the tuner knob several times or until the word "Dial" shows up on the dial scale. Close the synchronizer switch (white dot showing) and the dial and tuner are now in synchronism.

SELECT ONE STATION (Step 2)

With the Tuning Knob in "Dial" Position, press the knob once and release. It is now in the first automatic step. Insert a long screw driver in the automatic tuner set up hole and turn the screw until you hear the station you want.

There are two methods for finding the station quickly. One—tune it in on another radio (A portable if you set up the station in the car) and then adjust the screw for the same program; or two—Tune the station on the manual first—Note the program and then move to the first Automatic Position and locate the program on the screw.

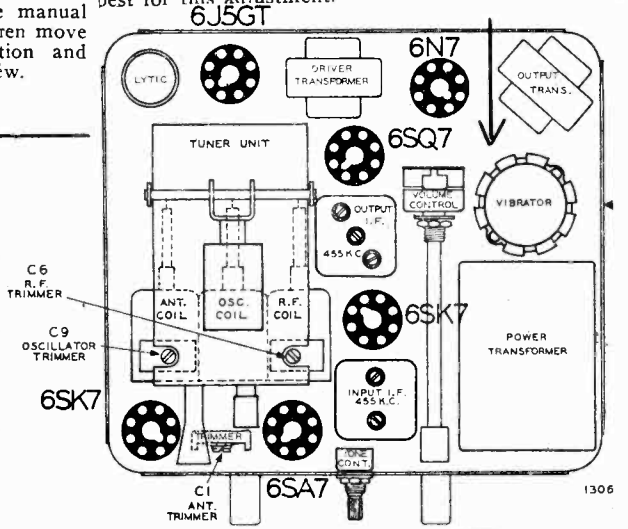
CALL LETTER ON THE DIAL (Step 3)

So that you will know which Automatic Position the station has been set up on, paste the call letter on the dial before setting up another station.

The dial crystal should be removed for this purpose and the proper station call pasted on the automatic scale at the top where it will show thru the crystal window.

Having set up the first station proceed to repeat steps one and two except that you will press the tuning knob into the 2nd Automatic Position.

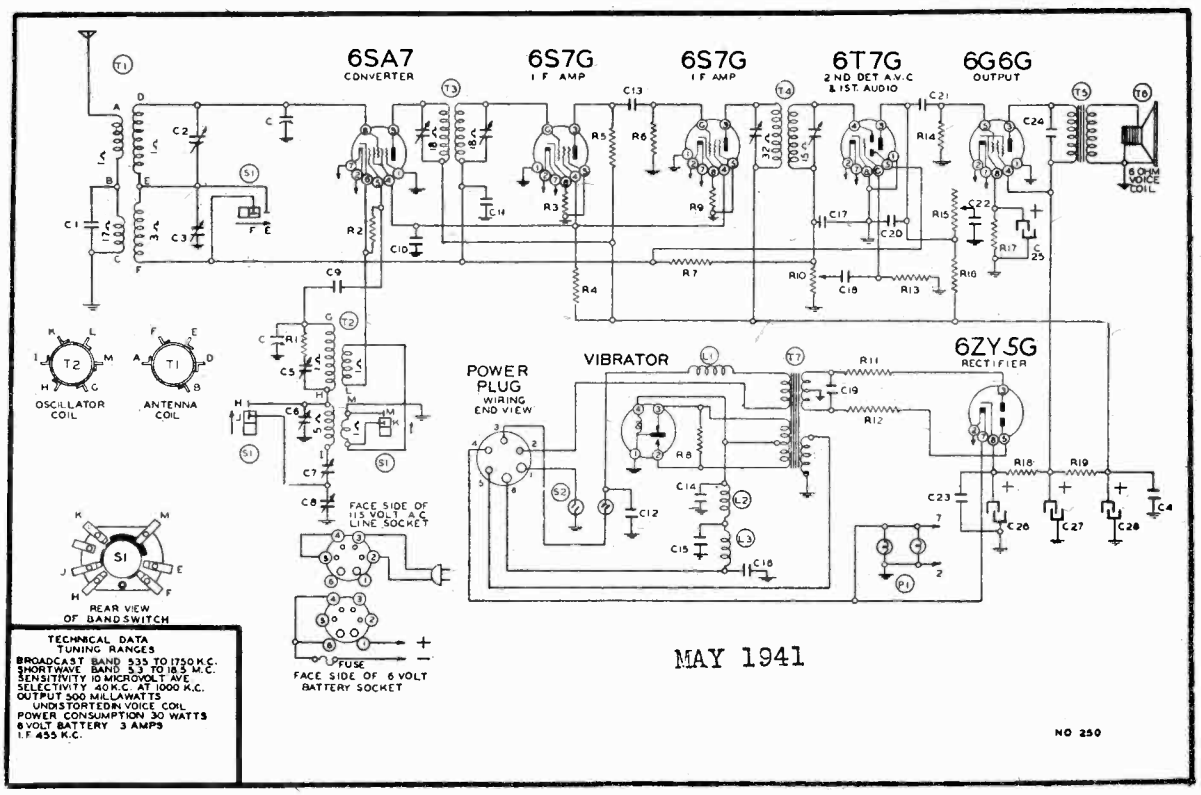
Continue the same operation thru the 3rd, 4th and 5th automatic positions.



CHASSIS VIEW

MONTGOMERY-WARD & CO.

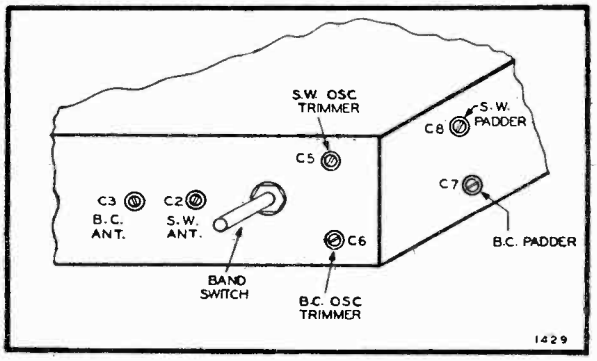
MODELS 14BR-688A, 14BR-689A



REPLACEMENT PARTS LIST

Part No.	Schematic Diagram Reference	Description	No. Used In Set	Selling Price Each
		CONDENSERS		
BE102133	C	Two Gang Variable Condenser	1	1.88
BE10020	C4, C23	.1 x 200 Volt Tubular Condenser	2	.12
BE1009	C11	.05 x 200 Volt Tubular Condenser	1	.12
BE10019	C18	.006 x 600 Volt Tubular Condenser	1	.12
BE10026	C21	.02 x 400 Volt Tubular Condenser	1	.12
BE10025	C24	.002 x 600 Volt Tubular Condenser	1	.12
BE10013	C12	.05 x 400 Volt Tubular Condenser	1	.12
BE10031	C14, C15, C16	.5 x 120 Volt Tubular Condenser	3	.36
BE100106	C22	.004 x 600 Volt Tubular Condenser	1	.12
BE10048	C10	.25 x 200 Volt Tubular Condenser	1	.20
BE10073	C19	.008 x 1200 Volt Tubular Condenser	1	.12
BE119111	C25, C26, C27, C28	Electrolytic Filter Condenser. 20 Mfd. x 20 V.; 40 Mfd. x 200 V.; 20 Mfd. x 200 V.; 20 Mfd. x 200 V.	1	1.30
BE124176	C2, C3	S.W. and B.C. Dual Antenna Trimmer	1	.24
BE124177	C5, C6	S.W. and B.C. Dual Oscillator Trimmer	1	.24
BE124178	C7, C8	B.C. and S.W. Dual Padder Condenser	1	.56
BE1292	C13, C20	.0005 Mica Type Condenser—20%	2	.12
BE1295	C1, C17	.0001 Mica Type Condenser—20%	2	.12
BE12938	C9	.00005 Mica Type Condenser—10%	1	.12
		In some sets 124178 Dual Condenser is replaced by one each of the following:		
BE129186	C7	Compression Mica Cond. .004	1	.36
BE124184	C8	Adjustable Condenser	1	.24

PRICES SUBJECT TO CHANGE WITHOUT NOTICE



TRIMMER VIEW—Looking at front of chassis.

RESISTORS

BE101268	R10, S2	Volume Control and Switch (1 Megohm)	1	.62
BE101269	R15	Tone Control (2 Megohm)	1	.25
BE130157	R5	12M Ohm—½ Watt Resistor—10%	1	.10
BE13067	R4	9M Ohm—½ Watt Resistor—10%	1	.10
BE130276	R1	10 Ohm—½ Watt Resistor—10%	1	.10
BE130192	R9	2M Ohm—½ Watt Resistor—10%	1	.10
BE13019	R6	1 Megohm—½ Watt Resistor—20%	1	.10
BE130170	R7	3 Megohm—½ Watt Resistor—25%	1	.10
BE130266	R16	200M Ohm—½ Watt Resistor—10%	1	.10
BE130223	R13	10 Megohm—½ Watt Resistor—20%	1	.10
BE1303	R14	500M Ohm—½ Watt Resistor—20%	1	.10
BE13079	R17	400 Ohm—½ Watt Resistor—10%	1	.10
BE130235	R19	1500 Ohm—½ Watt Resistor—10%	1	.10
BE130222	R18	350 Ohm—½ Watt Resistor—10%	1	.10
BE130233	R11, R12	60 Ohm—½ Watt Resistor—10%	2	.10
BE13084	R8	200 Ohm—½ Watt Resistor—20%	1	.10
BE130236	R2	30M Ohm—½ Watt Resistor—10%	1	.10
BE13070	R3	500 Ohm—½ Watt Resistor—10%	1	.10

POWER SUPPLY—Unless marked otherwise, this radio will operate on either a 6 volt storage battery or on 105 to 125 volts A.C. 50 to 60 cycle line. Two power cords are supplied one for battery and one for electric operation. Whichever cord is required should be plugged into the back of the chassis. When using a battery be sure A+ lead is connected to + battery terminal. Do not lengthen battery cable. Keep antenna lead away from battery cable

MODELS 14BR-688A, 14BR-689A

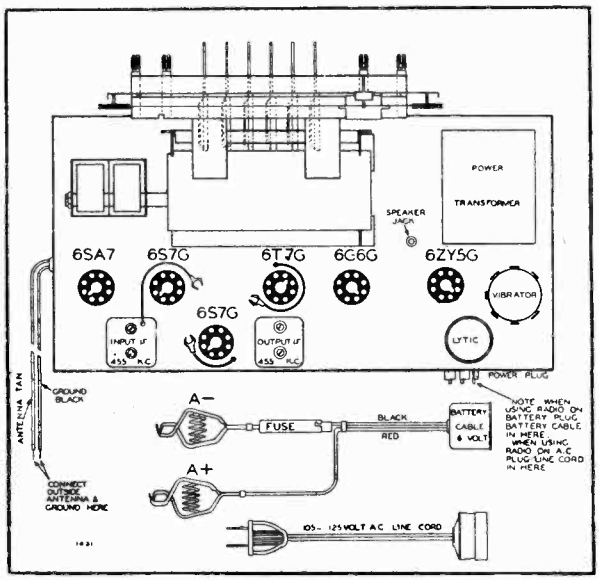
MONTGOMERY-WARD & CO.

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Max.
I. F.	455 Kc.	.1 MFD.	Grid of 6S7 I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 6SA7 Mixer	Broadcast	Rotor fu" open (Plates out of mesh)	Two trimmers on top of Input I. F.
SHORT WAVE BAND	17 Mc.	400 Ohms	Antenna lead	Short Wave	Set Dial at 17 Mc.	Trimmer C5— S. W. osc.
	17 Mc.	400 Ohms	Antenna lead	Short Wave	Set Dial at 17 Mc.	Trimmer C2 S. W. antenna
	6 Mc.	400 Ohms	Antenna lead	Short Wave	Set Dial at 6 Mc.	Trimmer C8 S. W. osc. series pad (See note "A")
BROAD CAST BAND	1750 Kc.	200 mmf.	Antenna lead	Broadcast	Rotor full open (Plates out of mesh)	Trimmer C6 B. C. osc.
	1500 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1500 Kc.	Trimmer C3 B. C. antenna
	600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer C7 B. C. osc. series pad (See note "A")

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



CHASSIS VIEW showing tube location and power cables.
NOTE: Antenna and ground leads at side of chassis.

SETTING THE PUSHBUTTONS

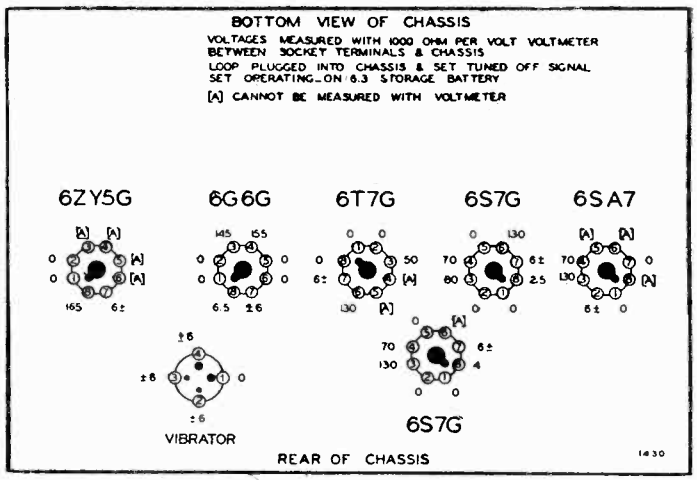
Make a list of your 6 favorite stations. Push out the call letters of these stations from the call letter sheets supplied. Insert a call letter in the slot on top of each pushbutton.

Next pull one of the pushbuttons all the way out as far as it will come. Now tune in the station you want with the tuning knob—Tune back and forth until the station is clear and distinct. Now push the button **hard** all the way in to lock the station in place. Continue setting each pushbutton in the same way. Pressing the proper button will now tune the station you want. If it does not do so you did not push the button hard enough to lock it in place when setting up the station.

To change stations simply repeat the procedure above.

ANTENNA

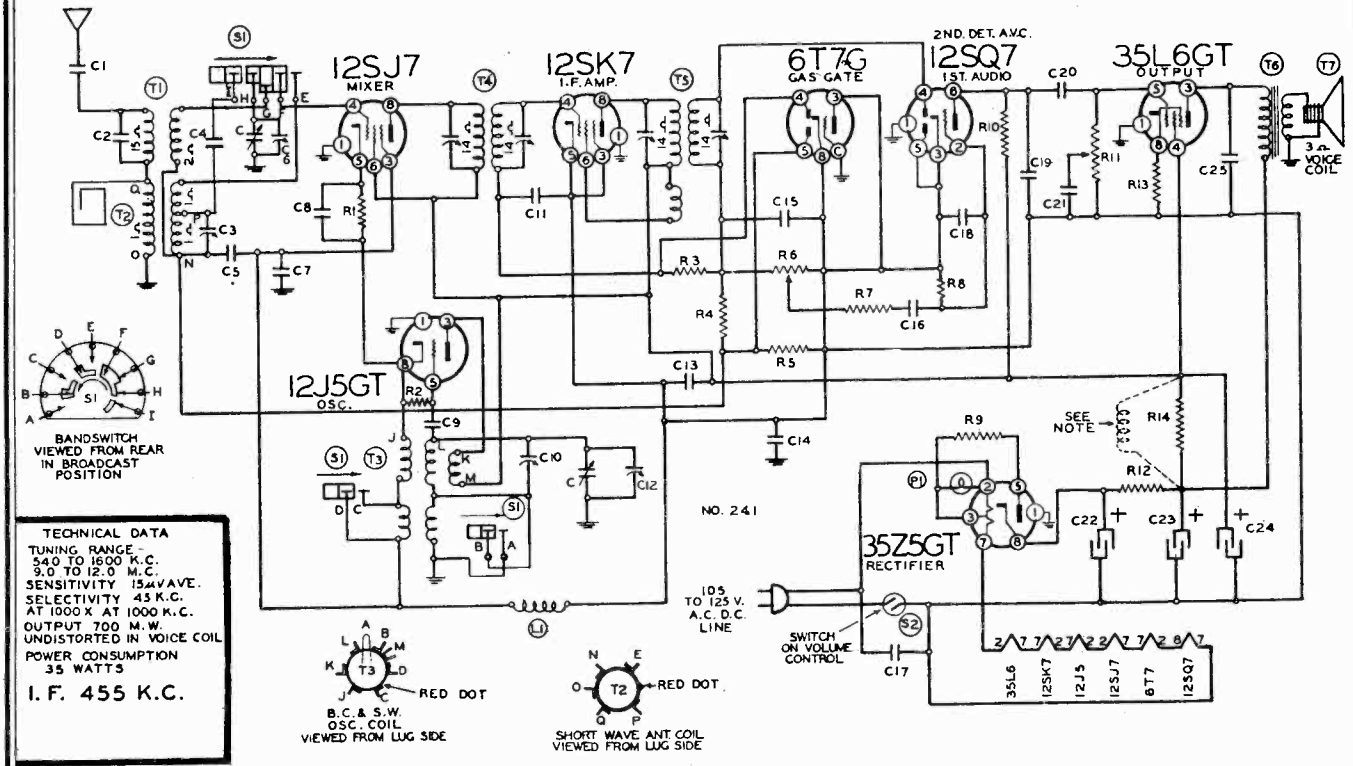
For best results, an outside antenna approximately 50 to 75 feet long including lead-in is recommended. It should be erected as high as possible and as far from surrounding objects as practical. For minimum interference it should be at right angles to street car lines, incoming power lines and other electrical apparatus which may be in the vicinity. A ground is necessary. The ground wire should be connected with a clamp to a well cleaned water pipe or to a piece of pipe driven several feet into damp earth.



VOLTAGE CHART

MONTGOMERY-WARD & CO.

MODELS 14BR-734A, 14BR-735A



On sets which have an electrodynamic speaker, R12 is eliminated and the hot side of C22 is connected in parallel with C23. R14 is replaced by the speaker field.

IS YOUR LINE VOLTAGE CORRECT?

MAY 1941

Unless your radio is marked otherwise, it must be operated from 10. to 125 volts, 50 to 60 cycle current or the same D. C. Voltage. If in doubt, phone your electric light company. Receivers of this same model which are for use on special voltages are marked accordingly. When using your radio on A. C. current, reversing the plug may reduce station hum. If set does not operate in one minute on direct current reverse the plug.

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect B—of radio chassis to ground post of signal generator through .1 Mfd. condenser.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Maximum
I. F.	455 Kc.	.1 MFD.	Grid of 12SK7 I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 12SJ7 Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
SHORT WAVE BAND	12 Mc.	400 Ohms	External Antenna and B—	Short Wave	Set Dial at 12 Mc.	S.W. Osc. trimmer C10 S.W. Ant. trimmer C3
BROAD-CAST BAND	1600 Kc.	.1 mmf.	Grid of 12SJ7	Broadcast	Rotor full open (Plates out of mesh)	B.C. Osc. trimmer C12 on Gang
	1400 Kc.	200 mmf.	External Antenna and B—	Broadcast	Set Dial at 1400 K. C.	B.C. Ant. trimmer C6

NOTE: The Oscillator Frequency is lower than the signal frequency and should be aligned accordingly.

The loop antenna should be connected to the radio when making all adjustments.

MODELS 14BR-734A, 14BR-735A

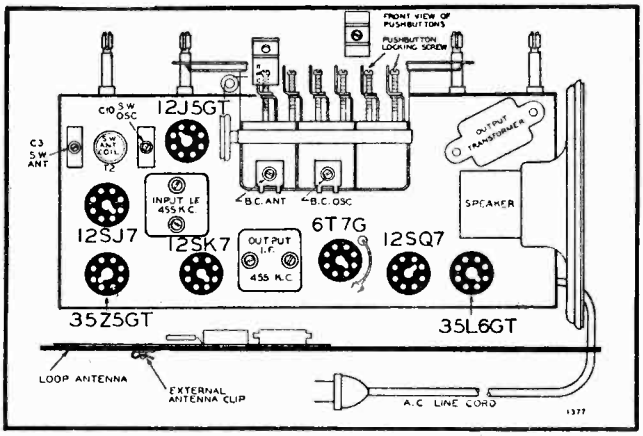
MONTGOMERY-WARD & CO.

SETTING THE PUSHBUTTONS

Make a list of your 6 favorite stations—push out the call letters of these stations from the call letter sheets supplied. Next insert a long slim screw driver into the hole in front of one of the pushbuttons and unscrew the pushbutton locking screw (to the left) several turns. Now with the screw driver still engaged in the locking screw slot push it all the way in. Hold it in this position and tune in the station you want with the tuning knob. Now tighten up the pushbutton locking screw by turning it to the right. Tighten firmly. Continue setting each button in the same way. When you have set your stations insert the call letter of each station in the front of the proper button and put one of the celluloid tabs over the station call letter.

To change stations simply repeat the above procedure.

If you are unable to set a station on any particular button it is probably because the pushbutton locking screw has not been fully unloosened (turned to the left).



Chassis View, showing Tube Location and the Outside Antenna Clip.

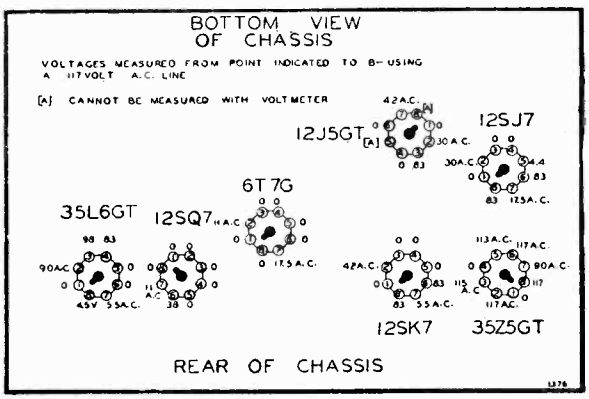
REPLACEMENT PARTS LIST

Part No.	Schematic Reference	Description	No. Used In Set	Selling Price Each
		CONDENSERS		
BE1009	C11	.05 x 200 Volt Tubular Condenser	1	.12
BE10019	C16, C21	.006 x 600 Volt Tubular Condenser	2	.12
BE10020	C13	.1 x 200 Volt Tubular Condenser	1	.12
BE10026	C25, C20	.02 x 400 Volt Tubular Condenser	1	.12
BE10037	C1	.003 x 600 Volt Tubular Condenser	1	.12
BE100119	C7, C14	.1 x 400 Volt Tubular Condenser	2	.12
BE100127	C8	.01 x 120 Volt Tubular Condenser	1	.12
BE100128	C5	.05 x 120 Volt Tubular Condenser	1	.12
BE100138	C17	.03 x 400 Volt Tubular Condenser	1	.12
BE119129		Electrolytic Filter Cond. added for 25 cycle only. 40 mfd. x 150 Volts across C22 and 20 Mfd. x 150 Volts across C23		.70
BE119128	C22, C23, C24	Electrolytic Filter Condenser—40 mfd.—20 mfd.—20 mfd. x 150 Volts	1	.70
BE124139	C3, C10	S. W. Antenna and Oscillator Trimmer Condenser	2	.16
BE1295	C9, C18	.0001 Mica Type Condenser—20%	2	.12
BE12921	C15	.0002 Mica Type Condenser—20%	1	.12
BE12960	C2	.00015 Mica Type Condenser—10%	1	.12
BE129181	C4	.000445 Mica Type Condenser—3%	1	.18
BE12912	C19	.00025 Mica Type Condenser	1	.12
		RESISTORS		
BE1309	R10	200M ohm—1/3 Watt Resistor—20%	1	.10
BE13012	R2, R7	50M ohm—1/3 Watt Resistor—20%	2	.10
BE13038	R4	2 Megohm—1/3 Watt Resistor—20%	1	.10
BE13084	R12	200 Ohm—1/3 Watt Resistor—20%	1	.10
BE130128	R9	20 Ohm—1/3 Watt Resistor—20%	1	.10
BE130166	R13	150 Ohm—1/3 Watt Resistor—10%	1	.10
BE130218	R1	5M Ohm—1/3 Watt Resistor—10%	1	.10
BE130257	R8	5 Megohm—1/3 Watt Resistor—25%	1	.10
BE130287	R14	1200 Ohm—1 Watt Resistor—10%	1	.10
BE130350	R3, R5	3, 2 Megohm—1/3 Watt Resistor—20%	2	.10
		SOCKETS		
BE121210		Eight Prong Molded Octal Socket	6	.10
BE121273		Eight Prong Wafer Octal Socket—with Shield for Guide Pin	1	.10
		SPEAKER		
BE114247	T7	Six inch P. M. Dynamic Speaker (less Output Transformer)	1	2.50
		OR		
BE114264	T7	Six Inch Electro Dynamic Speaker. Less Output Transformer.		
BE105134	T6	Output Transformer for Speaker	1	.50
		COILS		
BE108206	T4	Input I. F. Coil Complete in Can	1	.76
BE108205	T5	Output I. F. Coil Complete in Can	1	.76
BE110184	T3	B. C. - S. W. Oscillator Coil	1	.60
BE111249	T2	S. W. Antenna Coil	1	.30
BE111250	T1	Loop Antenna Assembly	1	.90
BE12316	L1	Choke Coil	1	.18

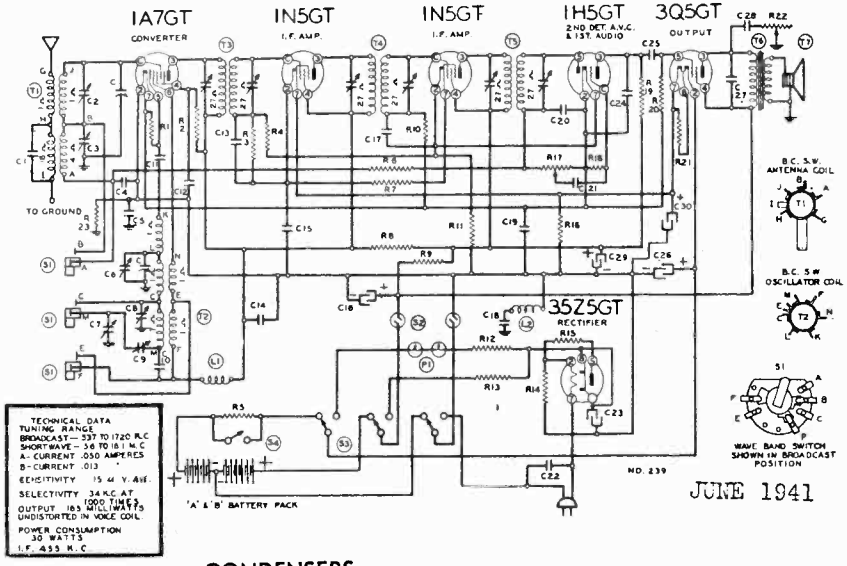
ANTENNA

This radio is designed to pick up strong local stations without requiring an outside antenna. For best results, however, an outside antenna approximately 50 to 75 feet long including lead-in is recommended. It should be erected as high as possible and as far from surrounding objects as practical. For minimum interference it should be at right angles to street car lines, incoming power lines and other electrical apparatus which may be in the vicinity. A ground is not required.

Periodic inspection of the antenna system is recommended to be sure that all connections are clean and tight, and that the antenna is well insulated from the ground at all points.



Voltage Chart

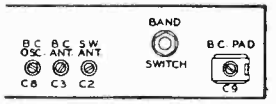


SETTING THE PUSHBUTTONS

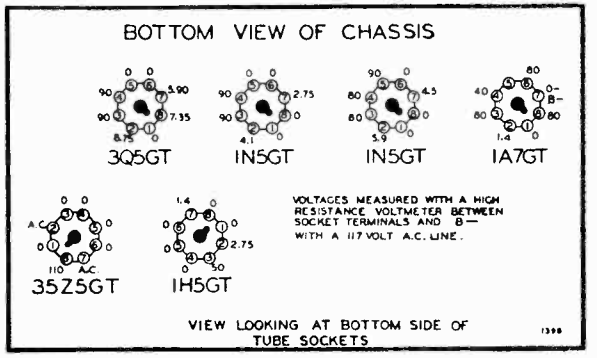
Make a list of your 6 favorite stations. Push out the call letters of these stations from the call letter sheets supplied. Insert a call letter in the slot on top of each pushbutton.

Next pull one of the pushbuttons all the way out as far as it will come. Now tune in the station you want with the tuning knob—Tune back and forth until the station is clear and distinct. Now push the button hard all the way in to lock the station in place. Continue setting each pushbutton in the same way. Pressing the proper button will now tune the station you want. If it does not do so you did not push the button hard enough to lock it in place when setting up the station.

To change stations simply repeat the procedure above.



TRIMMER VIEW
Looking at front of chassis.



CONDENSERS

BE100133	C10, C14	.1 x 120 Volt Tubular Condenser	2	.12	
BE100135	C15, C19	.25 x 120 Volt Tubular Condenser	2	.12	
BE100128	C13, C17	.05 x 120 Volt Tubular Condenser	2	.12	BE108204 T3
BE100105	C22	.02 x 400 Volt Tubular Condenser	1	.12	BE108204B T5
BE100127	C28	.01 x 120 Volt Tubular Condenser	1	.12	BE108188B T4
BE100097	C18	.02 x 600 Volt Tubular Condenser	1	.12	BE110183 T2
BE10071	C27	.004 x 600 Volt Tubular Condenser	1	.12	BE111248 T1
BE10019	C21	.006 x 600 Volt Tubular Condenser	1	.12	BE1233 L1
BE10026	C25	.02 x 400 Volt Tubular Condenser	1	.12	BE105137 L2
BE1009	C4, C12	.05 x 200 Volt Tubular Condenser	2	.12	
BE100140	C5	.2 x 400 Volt Tubular Condenser	1	.12	
BE119132	C30	Electrolytic Filter Condenser. 20 Mfd. x 25 Volts	1	.28	
BE119131	C16, C23, C26, C29	Electrolytic Filter Cond. 50-60 Cycles. 40 Mfd. x 150 V.; 40 Mfd. x 150 V.; 200 Mfd. x 10 V.; 10 Mfd. x 150 V.	1	.90	
BE124171	C2, C3, C8	Triple Unit Trimmer Cond. C2, S.W. Ant. Trimmer. C3, B.C. Ant. Trimmer. C8, B.C. Osc. Trimmer	1	.40	
BE124173	C9	B.C. Series Pad. 580 Mmfd.	1	.24	
BE1295	C1	.0001 Mica Type Condenser—20%	1	.12	
BE12912	C20, C24	.00025 Mica Type Condenser—20%	2	.12	
BE12939	C11	.00005 Mica Type Condenser—20%	1	.12	
BE129125	C7	S.W. Padder Condenser	1	.50	

RESISTORS

BE130223	R3	10 Megohm—⅓ Watt Resistor—20%	1	.10
BE130235	R13	1500 Ohm—⅓ Watt Resistor—10%	1	.10
BE1309	R1	200M Ohm—⅓ Watt Resistor—20%	1	.10
BE13012	R2	50M Ohm—⅓ Watt Resistor—20%	1	.10
BE130257	R4, R10, R18	5 Megohm—⅓ Watt Resistor—25%	3	.10
BE130347	R7	15 Ohm—⅓ Watt Resistor—10%	1	.10
BE1305	R23	300M Ohm—⅓ Watt Resistor—20%	1	.12
BE130192	R11	2M Ohm—⅓ Watt Resistor—10%	1	.10
BE1303	R19	500M Ohm—⅓ Watt Resistor—20%	1	.10
BE1304	R6, R20	3 Megohm—⅓ Watt Resistor—20%	2	.10
BE130200	R16	700 Ohm—⅓ Watt Resistor—10%	1	.10
BE130197	R5	20 Ohm—⅓ Watt Resistor—10%	1	.10
BE130345	R9	1000 Ohm—⅓ Watt Resistor—10%	1	.10
BE130343	R14	545 Ohm—14 Watt Resistor—5%	1	.28
BE130353	R12	2075 Ohm—6 Watt Resistor—5%	1	.22
BE130233	R15	60 Ohm—⅓ Watt Resistor—10%	1	.10
BE130222	R21	350 Ohm—⅓ Watt Resistor—10%	1	.10
BE130193	R8	3M Ohm—⅓ Watt Resistor—10%	1	.10

COILS

Input I.F. Complete in Can	1	.76
Interstage I.F. Complete in Can	1	.76
Output I.F. Complete in Can	1	.76
B.C.-S.W. Oscillator Coil	1	.60
B.C.-S.W. Antenna Coil	1	.60
R.F. Choke Coil	1	.26
Choke Coil	1	.08

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator.

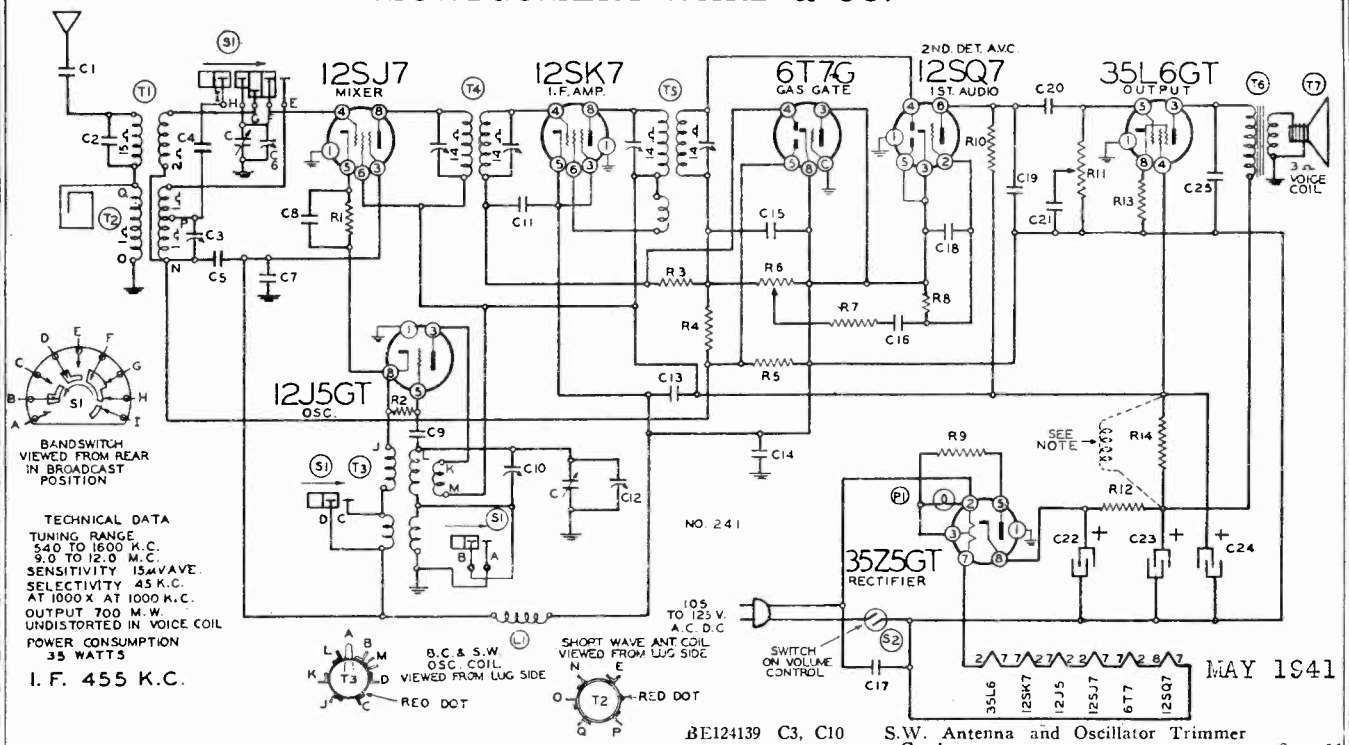
ALIGNMENT PROCEDURE

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Max.
I. F.	455 Kc.	.1 MFD.	Grid of 1N5G 2nd I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 1N5G 1st I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Interstage I. F.
	455 Kc.	.1 MFD.	Grid of 1A7G Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
SHORT WAVE BAND	16 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 16 Mc.	Trimmer C6—S. W. osc. Top of front section of gang
	16 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 16 Mc.	Trimmer C2 S. W. antenna
	6 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 6 Mc.	Trimmer C7 S. W. osc. series pad (See note "A")
BROAD-CAST BAND	1720 Kc.	200 mmf.	Antenna lead	Broadcast	Rotor full open (Plates out of mesh)	Trimmer C8 B. C. osc.
	1500 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1500 Kc.	Trimmer C3 B. C. antenna
	600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer C9 B. C. osc. series pad (See note "A"

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

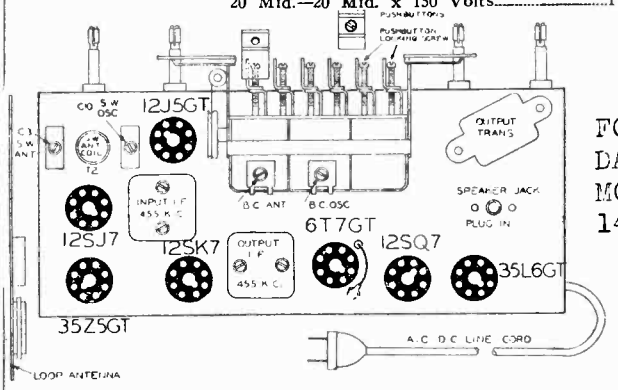
MODEL 14BR-736A

MONTGOMERY-WARD & CO.

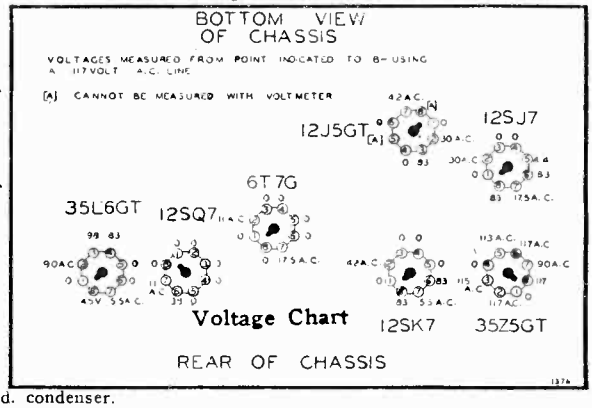


BE100128	C5	.05 x 120 Volt Tubular Condenser	1	.12
BE100119	C7, C14	.1 x 400 Volt Tubular Condenser	2	.12
BE100127	C8	.01 x 120 Volt Tubular Condenser	1	.12
BE10020	C13	.1 x 200 Volt Tubular Condenser	1	.12
BE1009	C11	.05 x 200 Volt Tubular Condenser	1	.12
BE100138	C17	.03 x 400 Volt Tubular Condenser	1	.12
BE10026	C25, C20	.02 x 400 Volt Tubular Condenser	1	.12
BE10019	C16, C21	.006 x 600 Volt Tubular Condenser	2	.12
BE10037	C1	.003 x 600 Volt Tubular Condenser	1	.12
BE119129		Electrolytic Filter Cond. Added for 25 Cycle Only. 40 Mfd x 150 Volts Across C22 and 20 Mfd. x 150 Volts Across C23	1	.70
BE119128	C22, C23, C24	Electrolytic Filter Condenser. 40 Mfd.—20 Mfd.—20 Mfd. x 150 Volts	1	.70

BE124139	C3, C10	S.W. Antenna and Oscillator Trimmer Condenser	2	.16
BE129181	C4	.000445 Mica Type Condenser—3%	1	.18
BE12921	C15	.0002 Mica Type Condenser—20%	1	.12
BE1295	C9, C18	.0001 Mica Type Condenser—20%	2	.12
BE12960	C2	.00015 Mica Type Condenser—20%	1	.12
BE12912	C19	.00025 Mica Type Condenser	1	.12
BE130218	R1	5M Ohm—⅓ Watt Resistor—10%	1	.10
BE130166	R13	150 Ohm—⅓ Watt Resistor—10%	1	.10
BE13084	R12	200 Ohm—⅓ Watt Resistor—20%	1	.10
BE130128	R9	20 Ohm—⅓ Watt Resistor—20%	1	.10
BE13012	R2, R7	50M Ohm—⅓ Watt Resistor—20%	2	.10
BE130287	R14	1200 Ohm—1 Watt Resistor—10%	1	.10
BE130350	R3, R5	3.2 Megohm—⅓ Watt Resistor—20%	2	.10
BE13038	R4	2 Megohm—⅓ Watt Resistor—20%	1	.10
BE130257	R8	5 Megohm—⅓ Watt Resistor—25%	1	.10
BE1309	R10	200M Ohm—⅓ Watt Resistor—20%	1	.10



FOR TUNER DATA SEE MODEL 14BR-734A



ALIGNMENT PROCEDURE

Connect B— of radio chassis to ground post of signal generator through .1 Mfd. condenser.

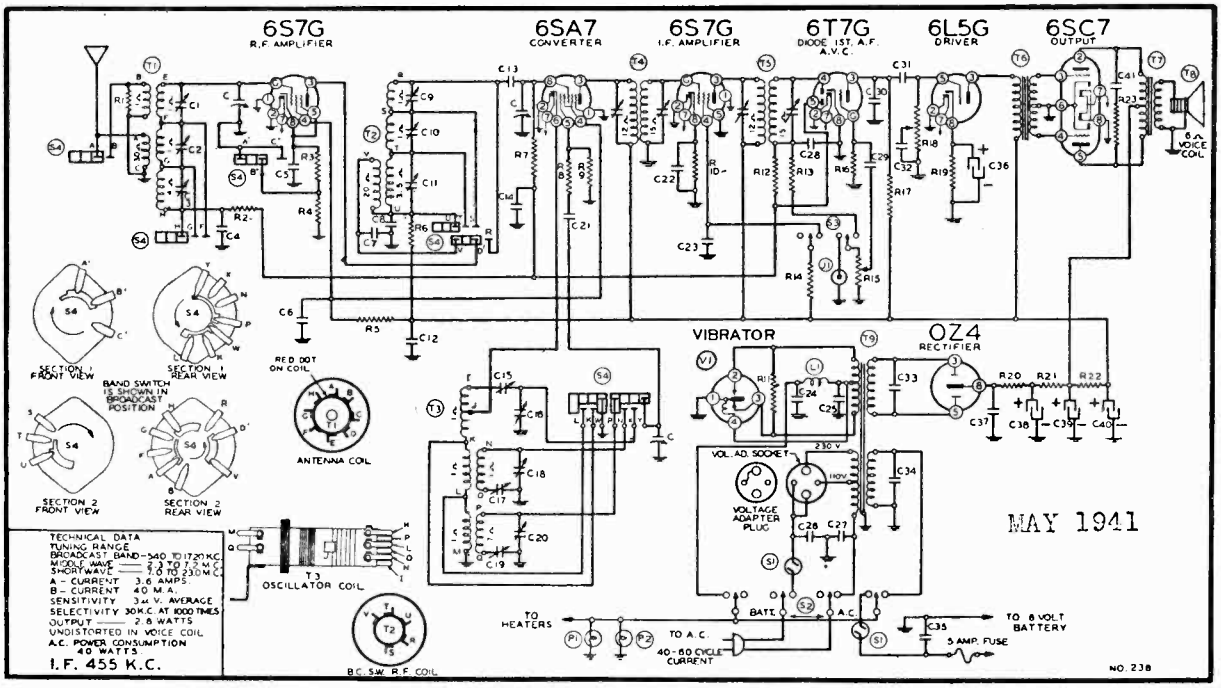
BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Maximum
I. F.	455 Kc.	.1 MFD.	Grid of 12SK7 I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 12SJ7 Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
SHORT WAVE BAND	12 Mc.	400 Ohms	External Antenna and B—	Short Wave	Set Dial at 12 Mc.	S.W. Osc. trimmer C10 S.W. Ant. trimmer C3
BROAD-CAST BAND	1400 Kc.	.1 mmf.	Grid of 12SJ7	Broadcast	Rotor full open (Plates out of mesh)	B.C. Osc. trimmer C12 on Gang
	1400 Kc.	200 mmf.	External Antenna and B—	Broadcast	Set Dial at 1400 Kc.	B.C. Ant. trimmer C6

NOTE: The Oscillator Frequency is lower than the signal frequency and should be aligned accordingly.

The loop antenna should be connected to the radio when making all adjustments.

MODEL 14BR-742A

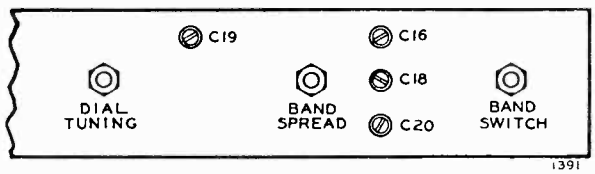
MONTGOMERY-WARD & CO.



REPLACEMENT PARTS LIST

Part No.	Schematic Diagram Reference	Description	In Set	Selling Price Each
CONDENSERS				
BE1001	C6, C37	.1 x 400 Volt Tubular Condenser	2	.12
BE10011	C26, C27, C31, C32, C34	.01 x 400 Volt Tubular Condenser	5	.12
BE10013	C8, C23	.05 x 400 Volt Tubular Condenser	2	.12
BE10020	C5	.1 x 200 Volt Tubular Condenser	1	.12
BE10022	C4, C22, C35	.05 x 200 Volt Tubular Condenser	3	.12
BE10025	C29	.002 x 600 Volt Tubular Condenser	1	.12
BE10026	C13, C14	.02 x 400 Volt Tubular Condenser	2	.12
BE10031	C24, C25	.5 x 120 Volt Tubular Condenser	2	.36
BE10071	C41	.004 x 600 Volt Tubular Condenser	1	.12
BE100100	C33	.008 x 1600 Volt Tubular Condenser	1	.12
BE100117	C12	.25 x 400 Volt Tubular Condenser with Bracket	1	.20
BE119127	C36, C38, C39, C40	Electrolytic Filter Condenser, 40 Mfd. x 25 V.; 40 Mfd. x 300 V.—20 Mfd. x 300 V.—20 Mfd. x 300 V.	1	.90
BE124169	C9, C10, C11	S.W.—M.W.—B.C.—Triple Unit R. F. Trimmer Condenser Strip	1	.48
BE124170	C1, C2, C3	S.W.—M.W.—B.C.—Triple Unit Antenna Trimmer Strip	1	.48
BE124172	C16, C18, C20	S.W.—M.W.—B.C.—Triple Unit Antenna Trimmer Strip	1	.44
BE129178	C19	B.C. Osc. Series Pad Condenser	1	.16
BE129179	C17	M.W. Osc. Series Pad Condenser	1	.36
BE129180	C15	S.W. Osc. Series Pad Condenser	1	.44
BE1295	C21, C28	.0001 Mica Type Condenser—20%	2	.12
BE12912	C30	.00025 Mica Type Condenser—20%	1	.12
BE12940	C7	.0001 Mica Type Condenser—10%	1	.12
RESISTORS				
BE1304	R12	3 Megohm—1/3 Watt Resistor—20%	1	.10
BE1309	R17	200M Ohm—1/3 Watt Resistor—20%	1	.10
BE13012	R13	50M Ohm—1/3 Watt Resistor—20%	1	.10
BE13019	R7	1 Megohm—1/3 Watt Resistor—20%	1	.10
BE13020	R2	100M Ohm—1/3 Watt Resistor—20%	1	.10
BE13027	R20	50 Ohm—1/3 Watt Resistor—20%	1	.10
BE13031	R6	1500 Ohm—1/3 Watt Resistor—20%	1	.10
BE13057	R9	35M Ohm—1/3 Watt Resistor—20%	1	.10
BE13064	R4	3500 Ohm—1/3 Watt Resistor—20%	1	.10
BE13066	R14	75M Ohm—1/3 Watt Resistor—10%	1	.10
BE13084	R11, R21	200 Ohm—1/3 Watt Resistor—20%	2	.10
BE13099	R3	300 Ohm—1/3 Watt Resistor—20%	1	.10
BE130199	R22	1500 Ohm—1 Watt Resistor—10%	1	.10
BE130235	R19	1500 Ohm—1/3 Watt Resistor—10%	1	.10
BE130257	R16	5 Megohm—1/3 Watt Resistor—25%	1	.10
BE130304	R5	12M Ohm—2 Watt Resistor—10%	1	.10
BE130345	R10	1M Ohm—1/3 Watt Resistor—10%	1	.10
BE13023	R1	2M Ohm—1/3 Watt Resistor—20%	1	.10
BE130149	R23	15M Ohm—1/3 Watt Resistor—20%	1	.10
BE130327	R8	10 Ohm—1/3 Watt Resistor—20%	1	.10

PRICES SUBJECT TO CHANGE WITHOUT NOTICE



1391

TRIMMER VIEW—Looking at front of chassis.

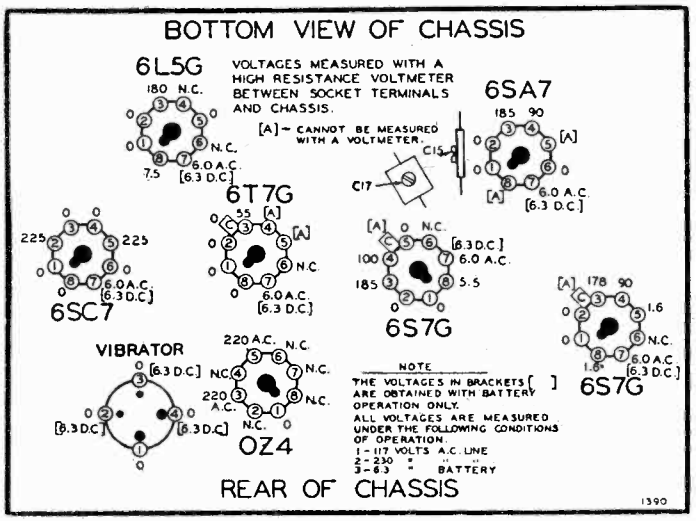
ANTENNA

For best results, an outside antenna approximately 50 to 75 feet long including lead-in is recommended. It should be erected as high as possible and as far from surrounding objects as practical. For minimum interference it should be at right angles to street car lines, incoming power lines and other electrical apparatus which may be in the vicinity. A ground is advisable. A good ground will often reduce noise. The ground wire should be connected with a clamp to a well cleaned water pipe or to a piece of pipe driven several feet into damp earth.

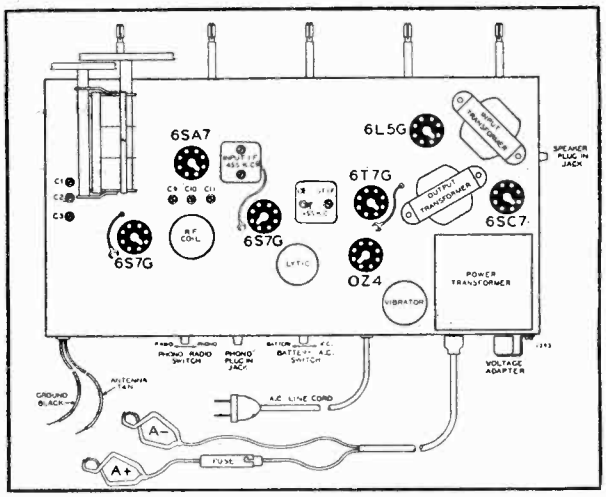
Part No.	Schematic Diagram Reference	Description	In Set	Selling Price Each
SPEAKER				
BE114250	T8	Eight Inch P.M. Dynamic Speaker Less Output Transformer	1	4.00
COILS				
BE108207	T4	Input I.F. Coil Complete in Can	1	1.00
BE108208	T5	Output I.F. Coil Complete in Can	1	1.00
BE10968	T2	B.C. R.F. Coil Complete in Can	1	.80
BE110181	T3	B.C.—M.W.—S.W. Oscillator Coil in Can	1	.60
BE111246	T1	B.C.—M.W.—S.W. Antenna Coil in Can	1	.72
TRANSFORMERS				
BE104265	T9	Power Transformer	1	2.50
BE105101B	T6	Input Audio Transformer	1	1.12
BE105133	T7	Output Transformer for Speaker	1	1.00

MODEL 14BR-742A

MONTGOMERY-WARD & CO.



VOLTAGE CHART



CHASSIS VIEW showing tube location.
NOTE: Antenna and ground leads at back of chassis.

POWER SUPPLY

Unless your radio is marked otherwise it is designed to operate on the following power supplies:

6 volt storage battery
105 to 125 volts 40 to 60 cycles (A.C.)
200 to 250 volts 40 to 60 cycles (A.C.)

For 6 Volt Battery Operation—The Batt-A.C. switch (see chassis view) must be in battery position and battery cables connected to battery.

For 105 to 125 Volt Operation—The red dot on "Adapter Plug" (see chassis view) must point to 110 V.

For 200 to 250 Volt Operation—The red dot on "Adapter Plug" must point to 230 V.

To Change "Adapter Plug" loosen the bracket, pull the plug out and replace it in the desired position.

Caution: The Batt-A.C. switch must be in the proper position before connecting receiver to the electrical supply.

ALIGNMENT PROCEDURE

● Volume control—Maximum all adjustments.

● Connect radio chassis to ground post of signal generator.

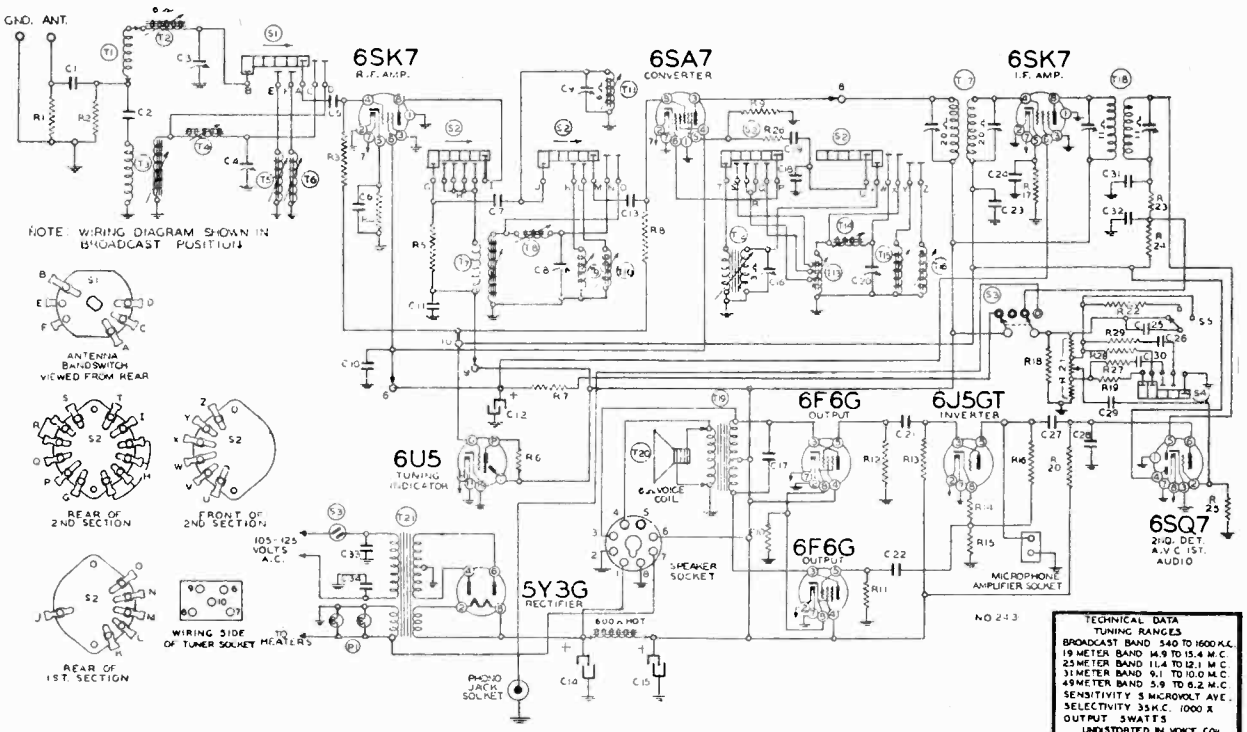
BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Max.
I. F.	455 Kc.	.1 MFD.	Grid of 6S7 I. F.	Broadcast	Tuning & Bandspread Plates out of mesh	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 6SA7 I. F.	Broadcast	Tuning & Bandspread Plates out of mesh	Two trimmers on top of Input I. F.
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 17 Mc.	Trimmer C16—S. W. osc. (See Note A)
	17 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 17 Mc.	Trimmer C1-C9 S. W. ant. and R. F.
	8 Mc.	400 ohms	Antenna lead	Short Wave	Set Dial at 8 Mc.	Trimmer C15 S. W. osc. series pad (See note "B")
MEDIUM WAVE BAND	6 Mc.	400 ohms	Antenna lead	Medium Wave	Set Dial at 6 Mc.	Trimmer C18 M. W. osc.
	6 Mc.	400 ohms	Antenna lead	Medium Wave	Set Dial at 6 Mc.	Trimmer C2-C10 ant. and R. F.
	2.5 Mc.	400 ohms	Antenna lead	Medium Wave	Set Dial at 2.5 Mc.	Trimmer C17 osc. series pad (See note "B")
BROADCAST BAND	1720 Kc.	200 mmf.	Antenna lead	Broadcast	Tuning & Bandspread Plates out of mesh	Trimmer C20 B. C. osc.
	1400 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1400 Kc.	Trimmer C3-C11 B. C. ant. R. F.
	600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 600 Kc.	Trimmer C19 B. C. osc. series pad (See note "B")

NOTE "A"—It is extremely necessary that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental.

NOTE "B"—Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained. **After each range is completed, repeat the procedure as a final check.**

MODEL 14BR-911A

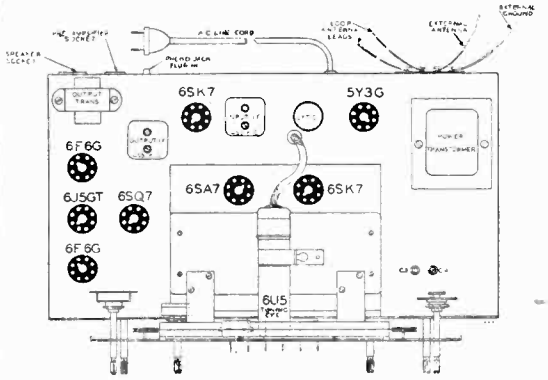
MONTGOMERY-WARD & CO.



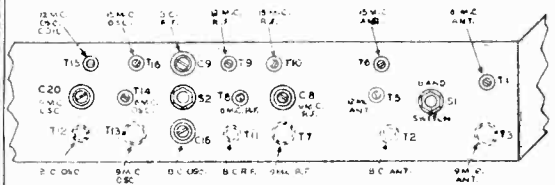
TECHNICAL DATA

TUNING RANGES

BROADCAST BAND 540 TO 1600 K.C.
19 METER BAND 14.9 TO 15.4 M.C.
25 METER BAND 11.4 TO 12.1 M.C.
31 METER BAND 9.1 TO 10.0 M.C.
49 METER BAND 5.9 TO 6.2 M.C.
SENSITIVITY 5 MICROVOLT AVE.
SELECTIVITY 35 K.C. 1000 X
OUTPUT 3 WATTS
UNDISTORTED IN VOICE COIL.
POWER CONSUMPTION 100 WATTS.
I.F. 455 K.C.



TRIMMER VIEW



FRONT VIEW CHASSIS

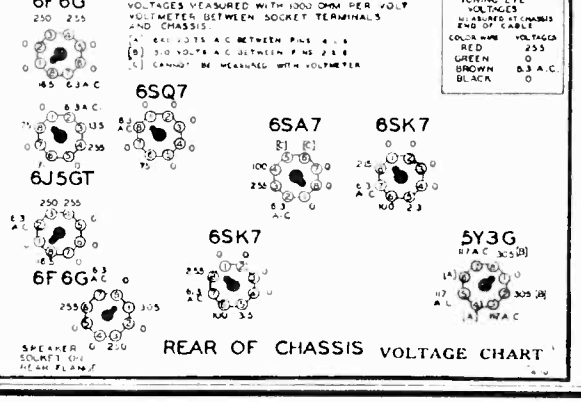
JUNE 1941

R1	BE1301	25M ohm—½ w.
R2	BE1301	25M ohm—½ w.
R3	BE13019	1 Megohm—½ w.
R4	BE130239	250 ohm—½ w.
R5	BE130218	5M ohm—½ w.
R6		1 megohm in tuning indicator cable
R7	BE10662	12,500 ohm—3 w.
R8	BE13019	1 megohm—½ w.
R9	BE130232	25M ohm—½ w.
R10	BE130220	300 ohm—1 w.
R11	BE1303	500M ohm—½ w.
R12	BE1303	500M ohm—½ w.
R13	BE130103	100M ohm—½ w.
R14	BE130218	5M ohm—½ w.
R15	BE130103	100M ohm—½ w.
R16	BE13019	1 megohm—½ w.
R17	BE13070	500 ohm—½ w.
R18	BE1303	500M ohm—½ w.
R19	BE1303	500M ohm—½ w.
R20	BE13011	250M ohm—½ w.
R21	BE101267	2.8 megohm—Volume control
R22	BE130191	1.5 megohm—½ w.
R23	BE13012	50M ohm—½ w.
R24	BE1304	3 megohm—½ w.
R25	BE130257	5 megohm—½ w.
R26	BE130174	50 ohm—½ w.
R27	BE1307	40M ohm—½ w.
R28	BE130352	150M ohm—½ w.
R29	BE130351	80M ohm—½ w.

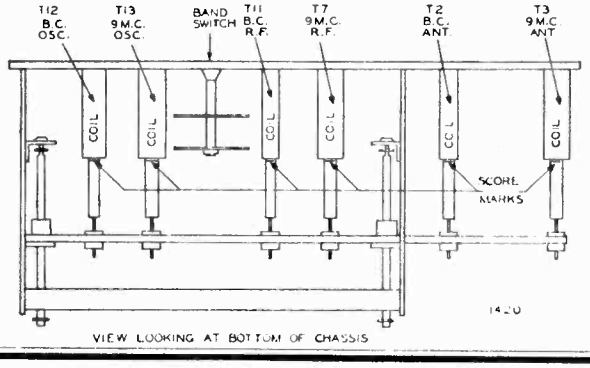
C1	BE1292	.0005 mica
C2	BE10047	.002 x 600 v.
C3	BE124143	B.C. antenna trimmer
C4	BE124143	9 mc. antenna trimmer
C5	BE1292	.0005 mica
C6	BE10020	.1 x 200 v. tubular condenser
C7	BE129168	.00001 mica
C8	BE124138	9 mc. R.F. trimmer
C9	BE124139	B.C. R.F. trimmer
C10	BE10074	.1 x 400 v.
C11	BE10074	.1 x 400 v.
C12	BE119109	10.0 mfd. x 350 w. v. lytic
C13	BE1292	.0005 mica
C14	BE119109	15.0 mfd. x 450 w. v. lytic
C15	BE119109	15.0 mfd. x 450 w. v. lytic
C16	BE124144	B.C. oscillator trimmer
C17	BE10071	.004 x 600 v.
C18	BE129167	.0002 silver mica
C19	BE129165	.00005 mica
C20	BE124145	9 mc. oscillator trimmer
C21	BE10013	.05 x 400 v.
C22	BE1009	.05 x 200 v.
C23	BE10026	.02 x 400 v.
C24	BE10020	.1 x 200 v.
C25	BE12951	.000125 mica
C26	BE1003	.003 x 300 v.
C27	BE10026	.02 x 400 v.
C28	BE12921	.0002 mica
C29	BE10019	.006 x 600 v.
C30	BE100139	.0015 x 200 v.
C31	BE129165	.00005 mica
C32	BE129165	.00005 mica
C33	BE10061	.02 x 600 v. Bakelite
C34	BE10061	.02 x 600 v. Bakelite

C12, C14 and C15 are in same unit

BOTTOM VIEW OF CHASSIS



REAR OF CHASSIS VOLTAGE CHART

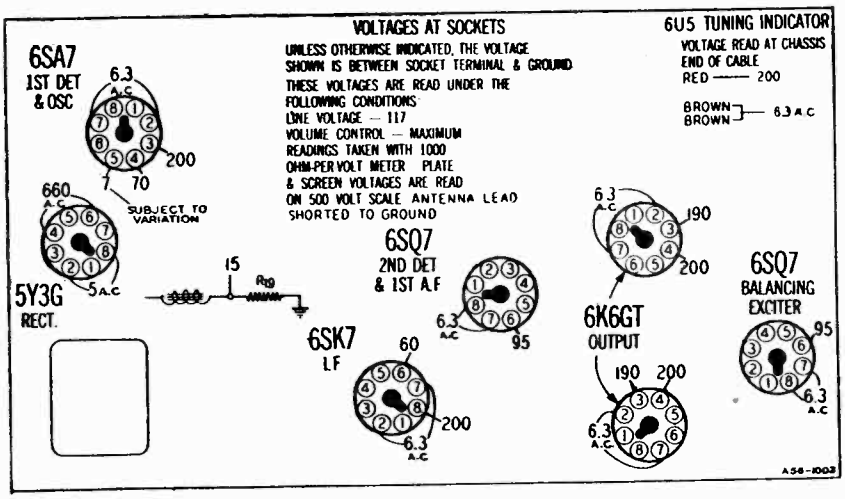


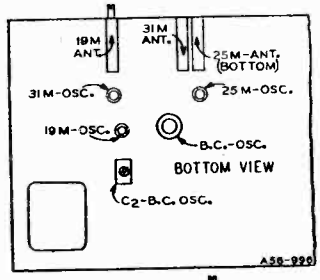
VIEW LOOKING AT BOTTOM OF CHASSIS

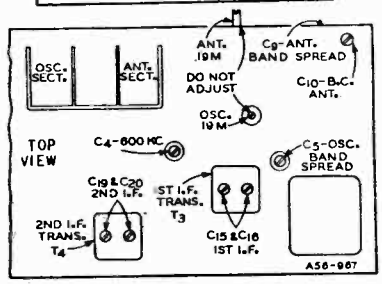
MODEL 14BR-911A

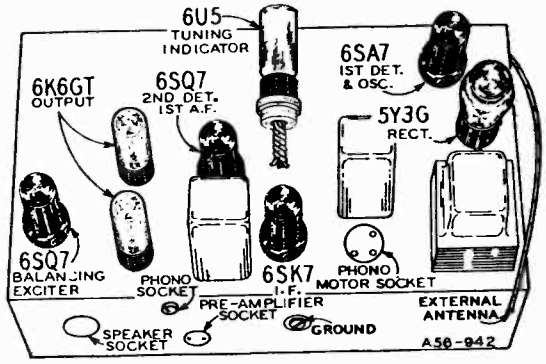
MODELS 14WG-808M, 14WG-808W

MONTGOMERY-WARD & CO.









ALIGNMENT FOR MODELS 14WG-808M, 14WG-808W IS THE SAME AS THAT FOR MODEL 14WG-807

FOR SEEBURG C RECORD CHANGER SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".

SPECIFICATIONS

Power Consumption	57 Watts (at 117 volts 60 cycles) 77 Watts (Phonograph Operating)
Power Output	3.0 Watts Undistorted 4.5 Watts Maximum
Selectivity	38 KC Broad at 1000 times Signal
Intermediate Frequency	456 KC
Speaker	10" Electro-Dynamic

Band	Tuning Frequency Range	Sensitivity External Antenna (For 0.5 Watt Output)
B Range	535 to 1610 KC	15 Microvolts Aver.
19 Meter	14.6 to 15.8 MC	26 Microvolts Aver.
25 Meter	11.1 to 12.0 MC	25 Microvolts Aver.
31 Meter	9.3 to 10.05 MC	22 Microvolts Aver.

- Tone control—Treble
- Volume control—Maximum all adjustments.
- Use an all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.

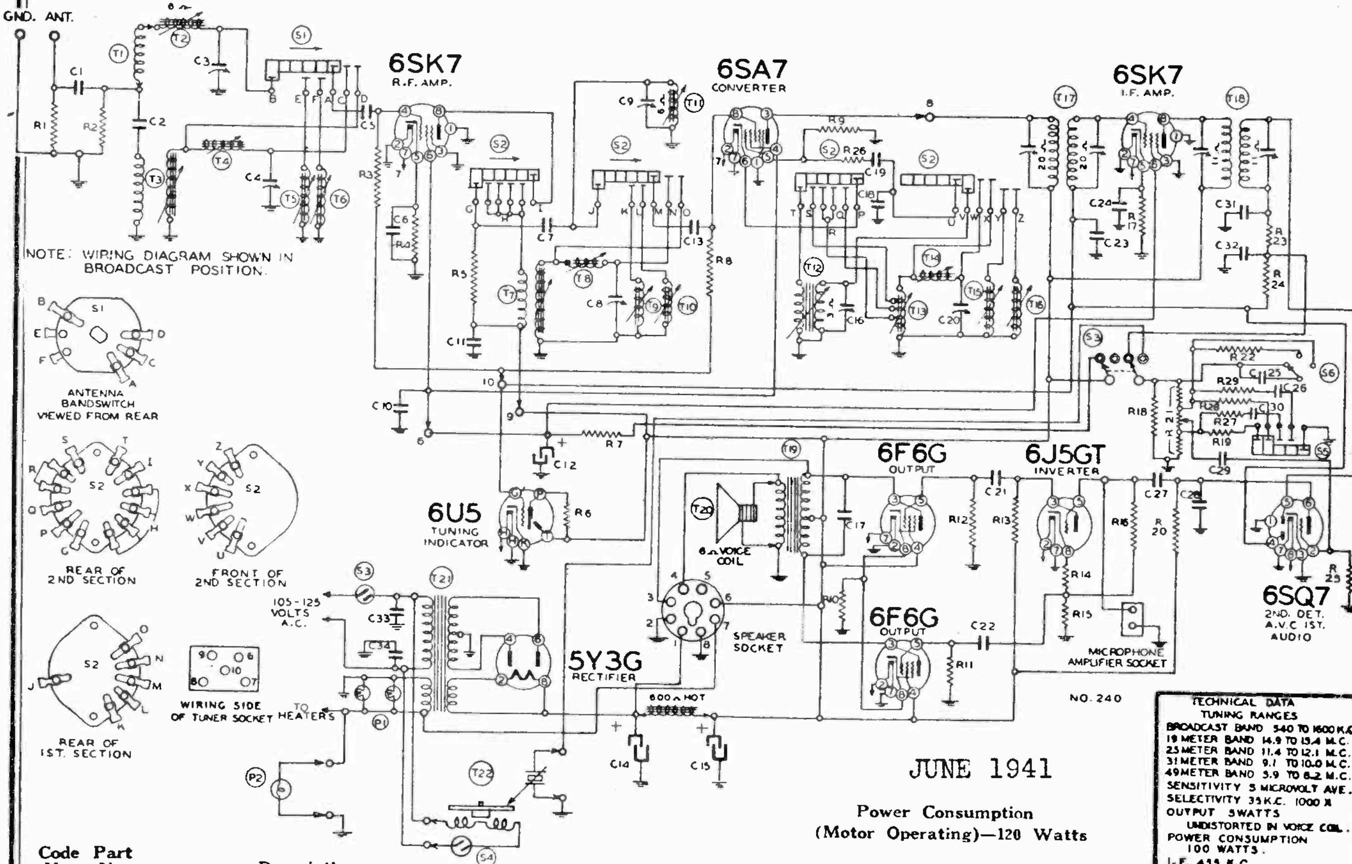
MODEL 14BR-911A

ALIGNMENT PROCEDURE

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Dial Pointer Setting	Trimmers Adjusted To Maximum
I. F.	455 Kc.	.1 MFD.	Grid of 6SK7 (I.F.)	Broadcast	Set Dial at 1600 Kc.	On Top of Output I.F.
	455 Kc.	.1 MFD.	Grid of 6SA7	Broadcast	Set Dial at 1600 Kc.	On Top of Input I.F.
31 METER BAND	9.6 Mc.	400 ohms	Antenna lead	31M	Set Dial at 9.6 Mc.	(See Trimmer View) C20—Osc. (See Trimmer View) C8—R.F. (See Chassis View) C4—Ant.
49 METER BAND	6.1 Mc.	400 ohms	Antenna lead	49M	Set Dial at 6.1 Mc.	(See Trimmer View) T14—Osc. (See Trimmer View) T8—R.F. (See Trimmer View) T4—Ant.
25 METER BAND	11.8 Mc.	400 ohms	Antenna lead	25M	Set Dial at 11.8 Mc.	(See Trimmer View) T15—Osc. (See Trimmer View) T9—R.F. (See Trimmer View) T5—Ant.
19 METER BAND	15.2 Mc.	400 ohms	Antenna lead	19M	Set Dial at 15.2 Mc.	(See Trimmer View) T16—Osc. (See Trimmer View) T10—R.F. (See Trimmer View) T6—Ant.
BROAD-CAST BAND	1600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1600 Kc.	(See Trimmer View) C16—Osc. (See Trimmer View) C9—R.F. (See Chassis View) C3—Ant.
	1400 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1400 Kc.	Rotate Core T11—R.F. Rotate Core T2—Ant. (See Iron Core Adjustment View)

MODEL 14BR-912A

MONTGOMERY-WARD & CO.



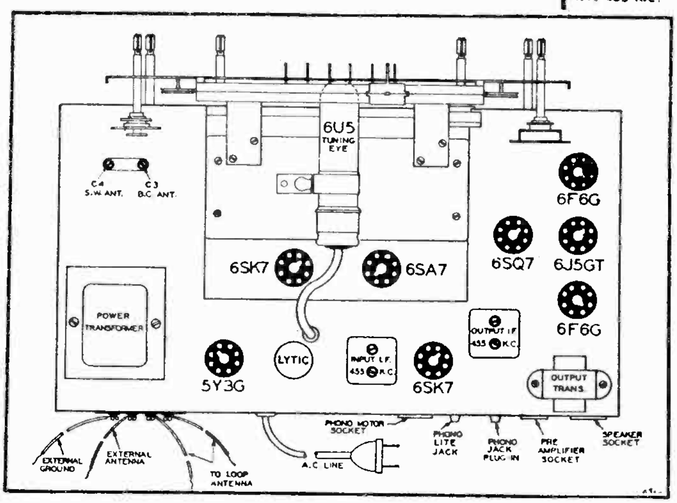
JUNE 1941

Power Consumption
(Motor Operating)—120 Watts

TECHNICAL DATA
TUNING RANGES
BROADCAST BAND 540 TO 1600 K.C.
19 METER BAND 14.9 TO 15.4 M.C.
25 METER BAND 11.4 TO 12.1 M.C.
31 METER BAND 9.1 TO 10.0 M.C.
49 METER BAND 5.9 TO 6.2 M.C.
SENSITIVITY 5 MICROVOLT AVE.
SELECTIVITY 35 K.C. 1000 X
OUTPUT 5 WATTS UNDISTORTED IN VOICE COIL.
POWER CONSUMPTION 100 WATTS.
I.F. 455 K.C.

RESISTORS

Code No.	Part No.	Description
R1	BE1301	25M ohm—1/3 w.
R2	BE1301	25M ohm—1/3 w.
R3	BE13019	1 megohm—1/3 w.
R4	BE130239	250 ohm—1/3 w.
R5	BE130218	5M ohm—1/3 w.
R6		1 megohm in tuning indicator cable
R7	BE10662	12,500 ohm—3 w.
R8	BE13019	1 megohm—1/3 w.
R9	BE130232	25M ohm—1/3 w.
R10	BE130220	300 ohm—1 w.
R11	BE1303	500M ohm—1/3 w.
R12	BE1303	500M ohm—1/3 w.
R13	BE130103	100M ohm—1/3 w.
R14	BE130218	5M ohm—1/3 w.
R15	BE130103	100M ohm—1/3 w.
R16	BE13019	1 megohm—1/3 w.
R17	BE13070	500 ohm—1/3 w.
R18	BE1303	500M ohm—1/3 w.
R19	BE1303	500M ohm—1/3 w.
R20	BE13011	250M ohm—1/3 w.
R21	BE101267	2.8 megohm—volume control
R22	BE130191	1.5 megohm—1/3 w.
R23	BE13012	50M ohm—1/3 w.
R24	BE1304	3 megohm—1/3 w.
R25	BE130257	5 megohm—1/3 w.
R26	BE130174	50 ohm—1/3 w.
R27	BE1307	40M ohm—1/3 w.
R28	BE130352	150M ohm—1/3 w.
R29	BE130351	80M ohm—1/3 w.



CHASSIS VIEW. Showing Tube Location
Note: Antenna and Ground Terminals at Back of Chassis

CONDENSERS

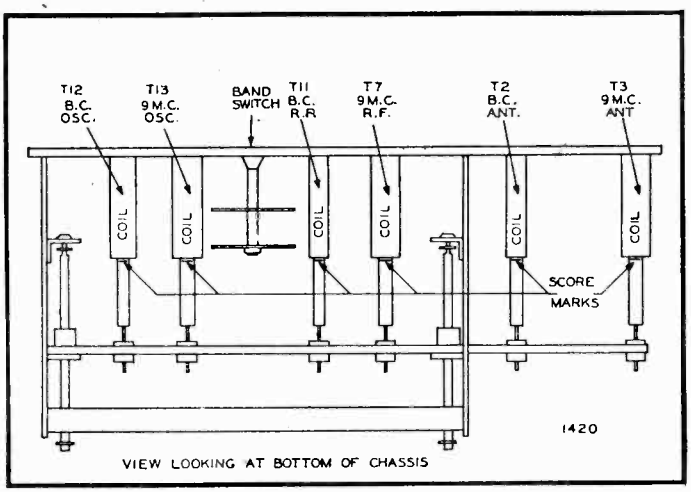
Code No.	Part No.	Description
C1	BE1292	.0005 mica
C2	BE10047	.002 x 600 v.
C3	BE124143	B.C. antenna trimmer
C4	BE124143	9 mc. antenna trimmer
C5	BE1292	.0005 mica
C6	BE10020	.1 x 200 v. tubular condenser
C7	BE129168	.00001 mica
C8	BE124138	9 mc. R.F. trimmer
C9	BE124139	B.C. R.F. trimmer
C10	BE10074	.1 x 400 v
C11	BE10074	.1 x 400 v.
C12	BE119109	10.0 mfd. x 350 w. v. lytic
	—or—	
C12	BE119109B	10.0 mfd. x 350 w. v. lytic
C13	BE1292	.0005 mica
C14	BE119109	15.0 mfd. x 450 w. v. lytic
	—or—	
C14	BE119109B	15.0 mfd. x 450 w. v. lytic
C15	BE119109	15.0 mfd x 450 w. v. lytic
	—or—	
C15	BE119109B	15.0 mfd. x 450 w. v. lytic
C16	BE124144	B.C. oscillator trimmer
C17	BE10071	.004 x 600 v.
C18	BE129167	.0002 silver mica
C19	BE129165	.00005 mica
C20	BE124145	9 mc. oscillator trimmer
C21	BE10013	.05 x 400 v.
C22	BE1009	.05 x 200 v.
C23	BE10026	.02 x 400 v.
C24	BE10020	.1 x 200 v.
C25	BE12951	.000125 mica
C26	BE1002	.003 x 300 v.
C27	BE10026	.02 x 400 v.
C28	BE12921	.0002 mica
C29	BE10019	.006 x 600 v.
C30	BE100139	.0015 x 200 v.
C31	BE129165	.00005 mica
C32	BE129165	.00005 mica
C33	BE10061	.02 x 600 v. Bakelite
C34	BE10061	.02 x 600 v. Bakelite

C12, C14 and C15 are in same unit

FOR PUSH-BUTTON DATA SEE THAT OF MODEL 14BR-688A

FOR SEEBURG B RECORD CHANGER SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".

MONTGOMERY-WARD & CO.



IRON CORE ADJUSTMENT VIEW

ALIGNING INSTRUCTIONS

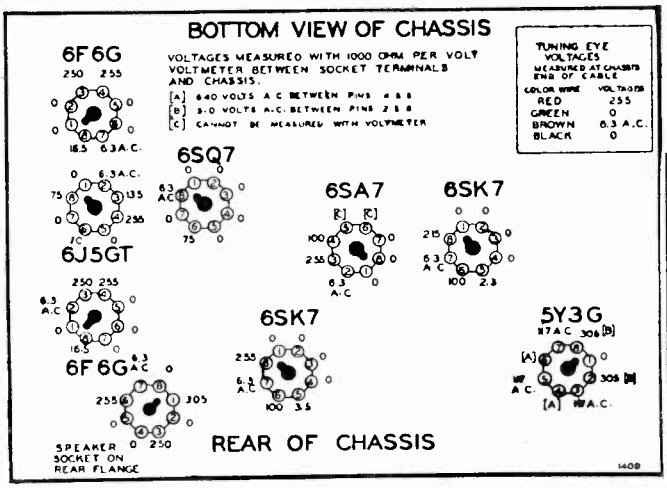
CAUTION:—No Aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low line voltage, defective tubes, condensers and resistors. In order to properly align this radio, the chassis should be removed from the cabinet. Although the short wave bands on this radio are of the band spread type the Alignment Procedure is not difficult. However because each short wave scale covers only a small portion of the short wave spectrum you must do the work carefully and your oscillator must be accurate.

Do not realign the band spread scales unless you are positive they are out of adjustment. When adjustment is necessary proceed as follows.

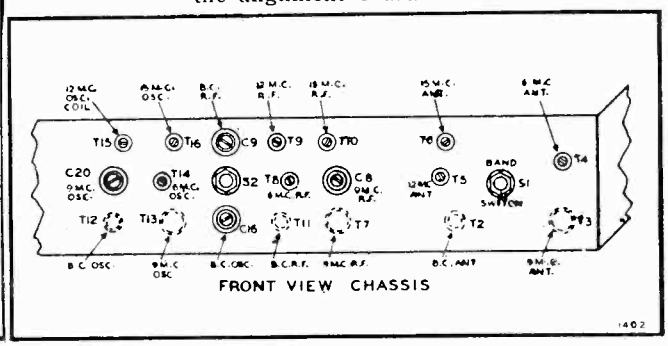
Tune set to high frequency end of dial scale on any band.

Rotate each iron core until the fine score marks are even with the edge of the coil forms.

You are now ready to continue with the trimmer adjustments as shown on the alignment chart.



VOLTAGE CHART



TRIMMER VIEW

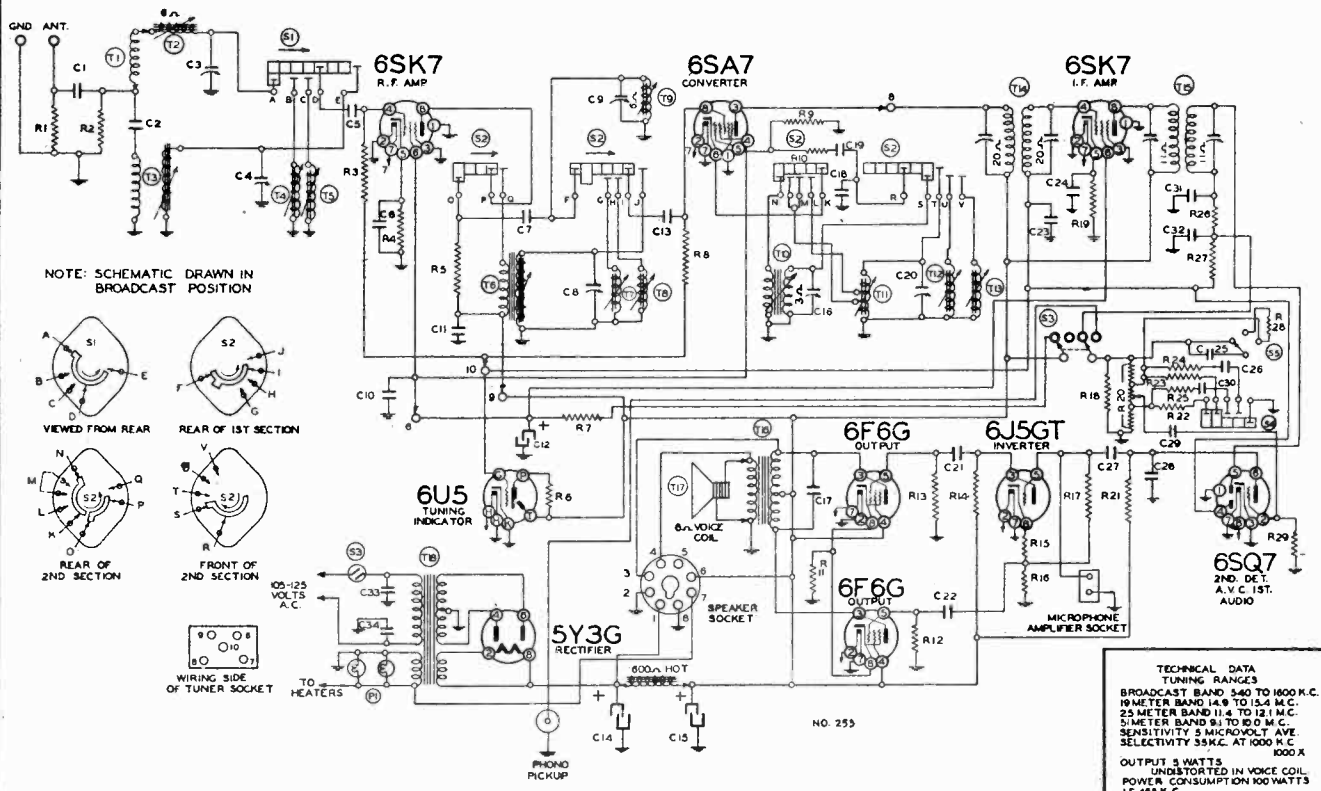
ALIGNMENT PROCEDURE

- Tone control—Treble.
- Volume control—Maximum all adjustments.
- Connect dummy antenna value in series with generator output lead.
- Use an all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.

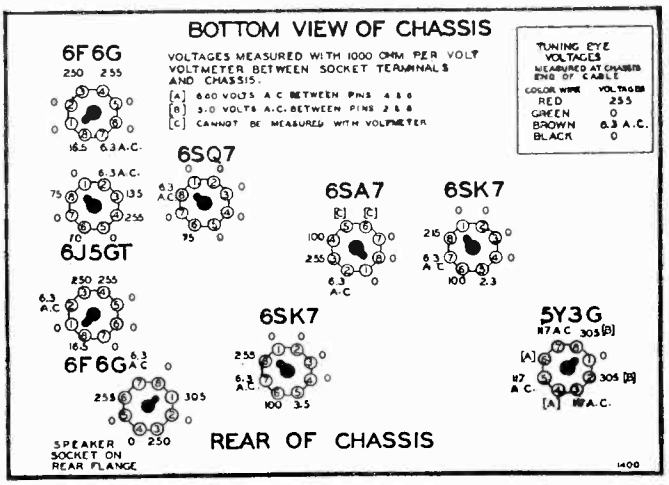
BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Dial Pointer Setting	Trimmers Adjusted To Maximum in Order Shown
I. F.	455 Kc.	.1 MFD.	Grid of 6SK7 (I.F.)	Broadcast	Set Dial at 1600 Kc.	On Top of Output I.F.
	455 Kc.	.1 MFD.	Grid of 6SA7	Broadcast	Set Dial at 1600 Kc.	On Top of Input I.F.
31 METER BAND	9.6 Mc.	400 ohms	Antenna lead	31M	Set Dial at 9.6 Mc.	(See Trimmer View) C20—Osc. (See Trimmer View) C8—R.F. (See Chassis View) C4—Ant.
49 METER BAND	6.1 Mc.	400 ohms	Antenna lead	49M	Set Dial at 6.1 Mc.	(See Trimmer View) T14—Osc. (See Trimmer View) T8—R.F. (See Trimmer View) T4—Ant.
25 METER BAND	11.8 Mc.	400 ohms	Antenna lead	25M	Set Dial at 11.8 Mc.	(See Trimmer View) T15—Osc. (See Trimmer View) T9—R.F. (See Trimmer View) T5—Ant.
19 METER BAND	15.2 Mc.	400 ohms	Antenna lead	19M	Set Dial at 15.2 Mc.	(See Trimmer View) T16—Osc. (See Trimmer View) T10—R.F. (See Trimmer View) T6—Ant.
BROADCAST BAND	1600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1600 Kc.	(See Trimmer View) C16—Osc. (See Trimmer View) C9—R.F. (See Chassis View) C3—Ant.
	1400 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1400 Kc.	Rotate Core T11—R.F. Rotate Core T2—Ant. (See Iron Core Adjustment View)

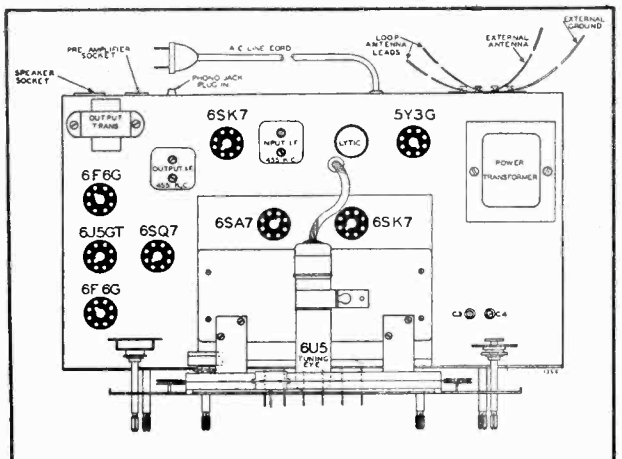
MODEL 14BR-913A

MONTGOMERY-WARD & CO.



TECHNICAL DATA
TUNING RANGES
BROADCAST BAND 540 TO 1600 K.C.
19 METER BAND 14.9 TO 15.4 M.C.
25 METER BAND 11.4 TO 12.1 M.C.
51 METER BAND 9.1 TO 10.0 M.C.
SENSITIVITY 5 MICROVOLT AVE
SELECTIVITY 35 K.C. AT 1000 K.C.
1000 K
OUTPUT 5 WATTS
UNDISTORTED IN VOICE COIL.
POWER CONSUMPTION 100 WATTS
I.F. 455 K.C.





VOLTAGE CHART

R1	BE1301	25M ohm—½ w.
R2	BE1301	25M ohm—½ w.
R3	BE13019	1 megohm—½ w.
R4	BE130239	250 ohm—½ w.
R5	BE130218	5M ohm—½ w.
R6		1 megohm—in tuning indicator cable
R7	BE10662	12,500 ohm—3 w.
R8	BE13019	1 megohm—½ w.
R9	BE130232	25M ohm—½ w.
R10	BE130174	50 ohm—½ w.
R11	BE130220	300 ohm—1 w.
R12	BE1303	500M ohm—½ w.
R13	BE1303	500M ohm—½ w.
R14	BE130103	100M ohm—½ w.
R15	BE130218	5M ohm— ½ w.
R16	BE130103	100M ohm—½ w.
R17	BE13019	1 megohm—½ w.
R18	BE1303	500M ohm—½ w.
R19	BE13070	500 ohm—½ w.
R20	BE101267	2.8 megohm volume control
R21	BE13011	250M ohm—½ w.
R22	BE1303	500M ohm—½ w.
R23	BE130352	150M ohm—½ w.
R24	BE130351	80M ohm—½ w.
R25	BE1307	40M ohm—½ w.
R26	BE13012	50M ohm—½ w.
R27	BE1304	3 megohm—½ w.
R28	BE139191	1.5 megohm—½ w.
R29	BE130257	5 megohm—½ w.

C14	BE119109	15.0 x 450 w. v.
	—or—	
C14	BE119109B	15.0 x 450 w. v.
C15	BE119109	15.0 x 450 w. v.
	—or—	
C15	BE119109B	15.0 x 450 w. v.
C16	BE124144	B.C. oscillator trimmer
C17	BE10071	.004 x 600 v.
C18	BE129167	.0002 silver mica
C19	BE129165	.00005 mica
C20	BE124145	9 mc. osc. trimmer
C21	BE10013	.05 x 400 v.
C22	BE1009	.05 x 200 v.
C23	BE10026	.02 x 400 v.
C24	BE10020	.1 x 200 v.
C25	BE12951	.000125 mica
C26	BE1002	.003 x 300
C27	BE10026	.02 x 400 v.
C28	BE12921	.0002 mica
C29	BE10019	.006 x 600 v.
C30	BE100139	.0015 x 200 v.
C31	BE129165	.00005 mica
C32	BE129165	.00005 mica
C33	BE10061	.02 x 600 v. bakelite
C34	BE10061	.02 x 600 v. bakelite

C12, C14 and C15 are in same unit
C31 and C32 are in same unit

JUNE 1941

C1	BE1292	.0005 mica
C2	BE10047	.002 x 600 v.—10%
C3	BE124143	B.C. antenna trimmer
C4	BE124143	9 mc. antenna trimmer
C5	BE1292	.0005 mica
C6	BE10020	.1 x 200 v. tubular
C7	BE129168	.00001 mica
C8	BE124138	9 mc. R.F. trimmer
C9	BE124139	B.C. R.F. trimmer
C10	BE10074	.1 x 400 v.
C11	BE10074	.1 x 400 v.
C12	BE119109	10.0 x 350 w. v.
	—or—	
C12	BE119109B	10.0 x 350 w. v.
C13	BE1292	.0005 mica

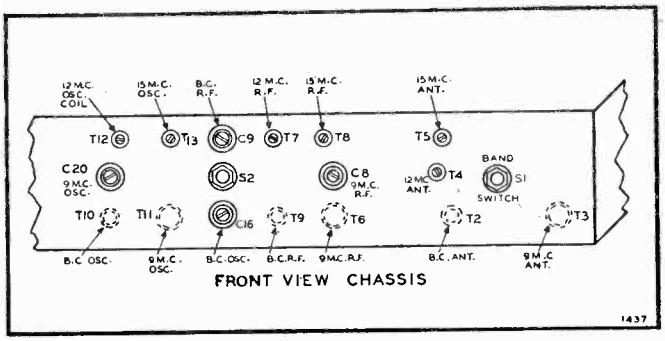
MODEL 14BR-913A

MONTGOMERY-WARD & CO.

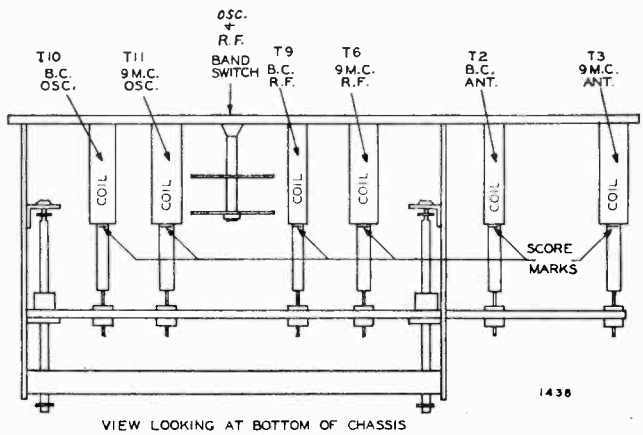
ALIGNMENT PROCEDURE

- Tone control—Treble
- Volume control—Maximum all adjustments.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Dial Pointer Setting	Trimmers Adjusted To Maximum
I. F.	455 Kc.	.1 MFD.	Grid of 6SK7 (I.F.)	Broadcast	Set Dial at 1600 Kc.	On Top of Output I.F.
	455 Kc.	.1 MFD.	Grid of 6SA7	Broadcast	Set Dial at 1600 Kc.	On Top of Input I.F.
31 METER BAND	9.6 Mc.	400 ohms	Antenna lead	31M	Set Dial at 9.6 Mc.	(See Trimmer View) C20—Osc. (See Trimmer View) C8—R.F. (See Chassis View) C4—Ant.
25 METER BAND	11.8 Mc.	400 ohms	Antenna lead	25M	Set Dial at 11.8 Mc.	(See Trimmer View) T12—Osc. (See Trimmer View) T7—R.F. (See Trimmer View) T4—Ant.
19 METER BAND	15.2 Mc.	400 ohms	Antenna lead	19M	Set Dial at 15.2 Mc.	(See Trimmer View) T13—Osc. (See Trimmer View) T8—R.F. (See Trimmer View T5—Ant.
BROAD-CAST BAND	1600 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1600 Kc.	(See Trimmer View) C16—Osc. (See Trimmer View) C9—R.F. (See Chassis View) C3—Ant.
	1400 Kc.	200 mmf.	Antenna lead	Broadcast	Set Dial at 1400 Kc.	Rotate Core T9—R.F. Rotate Core T2—Ant. (See Iron Core Adjustment View)



TRIMMER VIEW



IRON CORE ADJUSTMENT VIEW

ANTENNA

This radio is designed to pick up strong local stations without requiring an outside antenna. The built-in aerial may be slightly directional therefore try the radio in several positions. For best results, however, an outside antenna approximately 50 to 75 feet long including lead-in is recommended. It should be erected as high as possible and as far from surrounding objects as practical. For minimum interference it should be at right angles to street car lines, incoming power lines and other electrical apparatus which may be in the vicinity. A ground is advisable. A good ground will often reduce noise. The ground wire should be connected with a clamp to a well cleaned water pipe or to a piece of pipe driven several feet into damp earth.

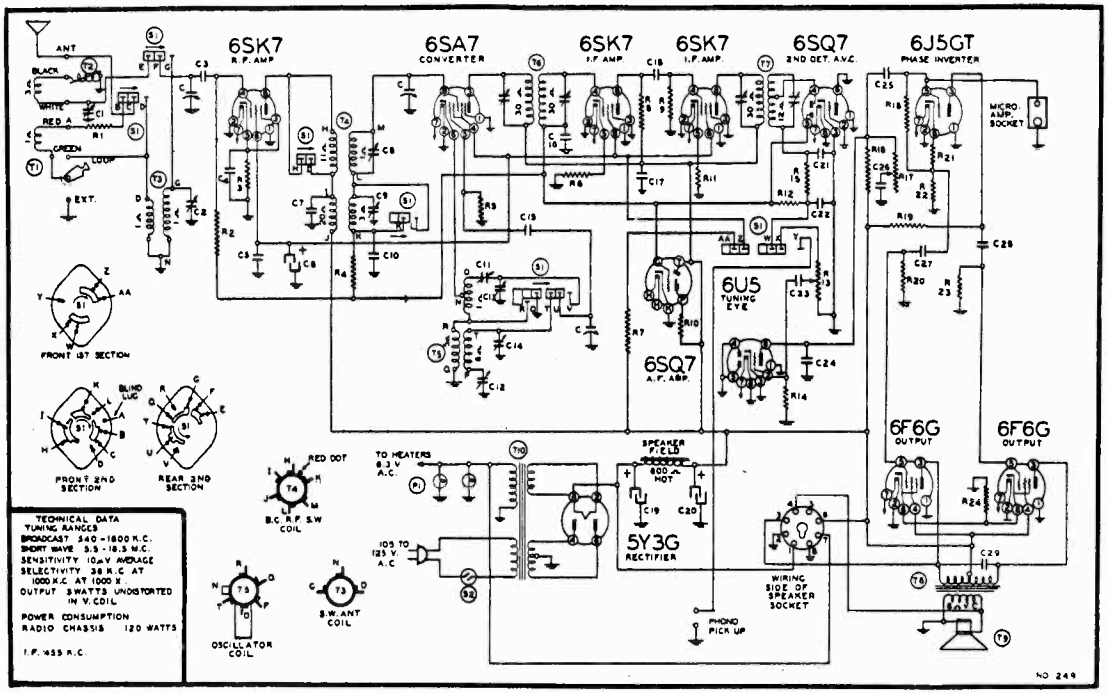
Periodic inspection of the antenna system is recommended to be sure that all connections are clean and tight, and that the antenna is well insulated from the ground at all points.

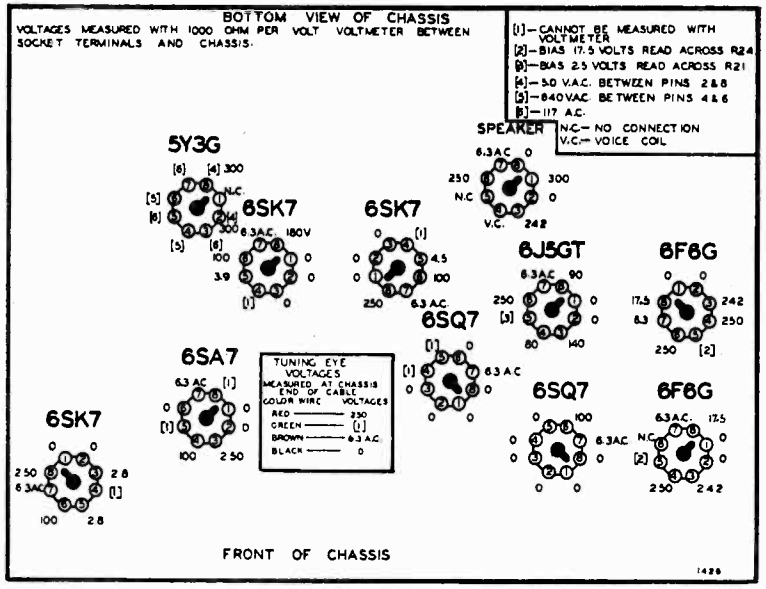
PHONOGRAPH-TELEVISION AND FM. JACK

Should you wish to use an external phonograph it should be plugged into the phono jack shown in the chassis view. The radio-phono-on-off knob on the front panel will then switch from radio to phono operation.

If television or frequency modulation (FM) programs ever become available in your community this radio may still be used in conjunction with the necessary converters.

The jack marked phono-jack plug in in the chassis view will accommodate either the Phono or a television or FM converter.





PRICES SUBJECT TO CHANGE WITHOUT NOTICE

Part No.	Schematic Diagram Reference	Description	No. Used In Set	Selling Price Each
		CONDENSERS		
BE102152	C	Three Gang Variable Condenser	1	3.00
BE10020	C4	.1 x 200 Volt Tubular Condenser	1	.10
BE10026	C10, C16, C25	.02 x 400 Volt Tubular Condenser	3	.10
BE10025	C23	.002 x 600 Volt Tubular Condenser	1	.10
BE1009	C27	.05 x 200 Volt Tubular Condenser	1	.10
BE10013	C28	.05 x 400 Volt Tubular Condenser	1	.10
BE10011	C26	.01 x 400 Volt Tubular Condenser	1	.10
BE10071	C29	.004 x 600 Volt Tubular Condenser	1	.10
BE100117	C5, C17	.25 x 400 Volt Tubular Condenser	2	.20
BE119124	C6, C19, C20	Electrolytic Filter Condenser—10 Mfd. x 350 V.; 25 Mfd. x 450 V.; 25 Mfd. x 450 V.	1	.90
BE124180	C2	S.W. Antenna Trimmer	1	.44
BE124179	C8, C9	S.W. and B.C. R.F. Trimmer—Dual	1	.36
BE124181	C13, C14	S.W. and B.C. Osc. Trimmer—Dual	1	.24
BE124182	C1	B.C. Antenna Trimmer	1	.12
BE129157	C12	.000525 Compression Cond.—B.C. Pad	1	.22
BE1292	C3, C18	.0005 Mica Type Condenser—20%	2	.12
BE129160	C7	.0004 Mica Type Condenser—20%	1	.12
BE12939	C15	.00005 Mica Type Condenser—20%	1	.12
BE1295	C21, C22	.0001 Mica Type Condenser—20%	2	.12
BE129156	C11	.0024 Compression Mica Condenser	1	.30
BE12912	C24	.00025 Mica Type Condenser—20%	1	.12
		RESISTORS		
BE101270	R13, S2	Volume Control and Switch (500M Ohms)	1	.62
BE101271	R17	Tone Control (1 Megohm)	1	.50
BE13019	R2, R18	1 Megohm—⅓ Watt Resistor—20%	2	.10
BE1305	R4	300M Ohm—⅓ Watt Resistor—20%	1	.12
BE130208	R5	40M Ohm—⅓ Watt Resistor—20%	1	.10
BE13054	R6, R11	500 Ohm—⅓ Watt Resistor—20%	2	.10
BE130263	R8	12M Ohm—⅓ Watt Resistor—20%	1	.10
BE13020	R9, R19, R22	100M Ohm—⅓ Watt Resistors—20%	3	.10
BE130304	R7	12M Ohm—2 Watt Resistor—10%	1	.10
BE13012	R15	50M Ohm—⅓ Watt Resistor—20%	1	.10
BE130170	R12	3 Megohm—⅓ Watt Resistor—25%	1	.10
BE130225	R14	15 Megohm—⅓ Watt Resistor—30%	1	.10
BE13043	R21	2500 Ohm—⅓ Watt Resistor—20%	1	.10
BE1303	R20, R23	500M Ohm—⅓ Watt Resistor—20%	2	.10
BE13011	R16	250M Ohm—⅓ Watt Resistor—20%	1	.10
BE130311	R24	300 Ohm—1 Watt Resistor—20%	1	.10
BE13099	R3	300 Ohm—⅓ Watt Resistor—20%	1	.10
BE13024	R1	400 Ohm—⅓ Watt Resistor—20%	1	.10
	R10	1 Megohm—In Eye Socket	1	.10
		COILS		
BE108169J	T6	Input I.F. Coil Complete in Can	1	.76
BE108130C	T7	Output I.F. Coil Complete in Can	1	.76
BE10957	T4	B.C.—S.W. R.F. Coil Complete in Can	1	.70
BE110149	T5	B.C.—S.W. Oscillator Coil	1	.50
BE111176	T3	S.W. Antenna Coil	1	.30
BE111153	T2	Loop Adjusting Coil With Iron Slug	1	.30
BE111257	T1	Loop Antenna Assembly	1	1.20
		SPEAKER		
BE114261	T9	Ten Inch Electrodynamic Speaker (Less Output Transformer)	1	4.00
		TRANSFORMERS		
BE10554F	T8	Output Transformer for Speaker	1	1.00
BE104202C	T10	Power Transformer. 50 to 60 Cycles 105-125 Volt Primary	1	3.00
BE104203C		Power Transformer 25 to 60 Cycles 105-125 Volt Primary		

MODEL 14BR-1109A

MONTGOMERY-WARD & CO.

ALIGNMENT PROCEDURE

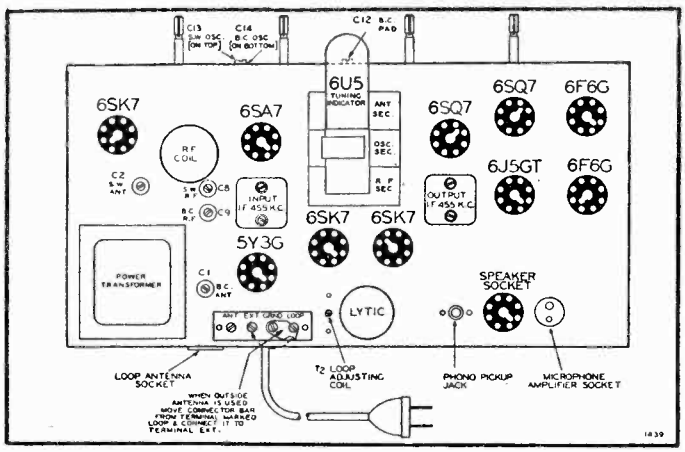
- Volume control—Maximum all adjustments.
- Connect dummy antenna value in series with generator output lead.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)
I. F.	455 Kc.	.1 MFD.	Grid of 6SK7 I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top Output I. F.
	455 Kc.	.1 MFD.	Grid of 6SA7 Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top Input I. F.
SHORT WAVE BAND	17 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 17 Mc.	C13, S.W. Osc.
	17 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 17 Mc.	C8, S.W. R.F., C2 S.W. Antenna
	6 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 6 Mc.	C11 S.W. Osc. Series Pad See Note "A"
BROAD-CAST BAND	1600 Kc.	200 mmf.	Grid of 6SK7 R. F. Tube	Broadcast	Rotor full open (Plates out of mesh)	C14 B.C. Osc.
	540 Kc.	200 mmf.	Grid of 6SK7 R. F. Tube	Broadcast	Set Dial at 540 Kc. (Plates in Mesh)	C12 B.C. Osc. Series Pad
	1400 Kc.	200 mmf.	Grid of 6SK7 R. F. Tube	Broadcast	Set Dial at 1400 Kc.	C9 B.C. R.F.
LOOP ALIGN-MENT	1400 Kc.	200 mmf.	External Antenna and Ground	Broadcast	Set Dial at 1400 Kc.	C1 B.C. Ant.
	600 Kc.	200 mmf.	External Antenna and Ground	Broadcast	Set Dial at 600 Kc.	T2 Iron Core Tracking Coil

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.

JUNE 1941



CHASSIS VIEW

ANTENNA AND GROUND TERMINALS

When using an external antenna and ground, move the metal strap (connector bar) from terminal marked LOOP and connect it to terminal marked EXT.

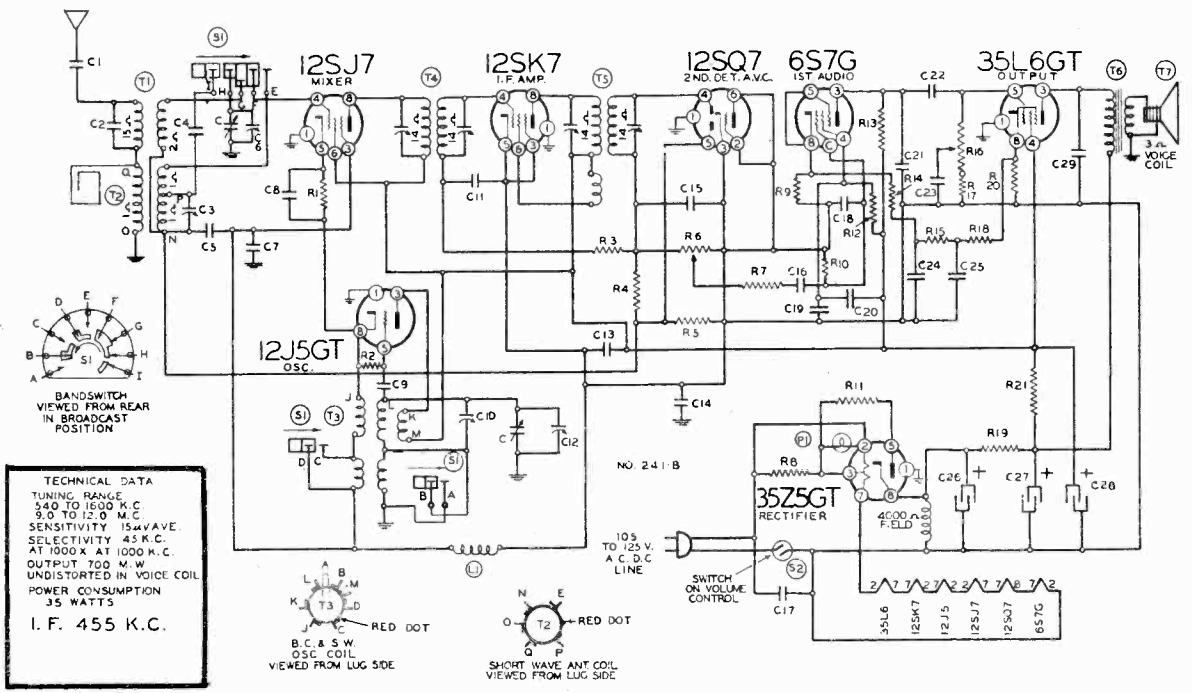
The antenna and ground wires should then be connected to the terminals marked "Ant."—"Gnd."

ANTENNA

This radio is designed to pick up strong local stations without requiring an outside antenna. The built-in aerial may be slightly directional therefore try the radio in several positions. For best results, however, an outside antenna approximately 50 to 75 feet long including lead-in is recommended. It should be erected as high as possible and as far from surrounding objects as practical. For minimum interference it should be at right angles to street car lines, incoming power lines and other electrical apparatus which may be in the vicinity. A ground is advisable. A good ground will often reduce noise. The ground wire should be connected with a clamp to a well cleaned water pipe or to a piece of pipe driven several feet into damp earth.

Periodic inspection of the antenna system is recommended to be sure that all connections are clean and tight, and that the antenna is well insulated from the ground at all points.

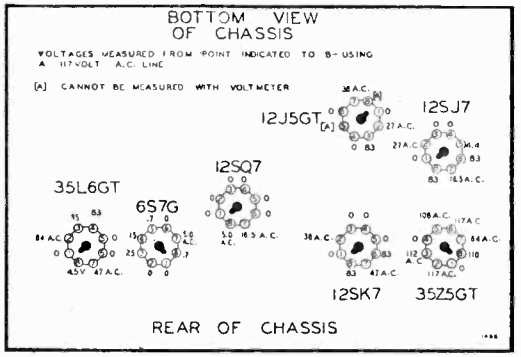
POWER SUPPLY—Unless your radio is marked otherwise, it must be operated from 105 to 125 volts, 50 to 60 cycle A.C. If in doubt, phone your electric light company. Receivers of this same model which are for use on special voltages are marked accordingly.



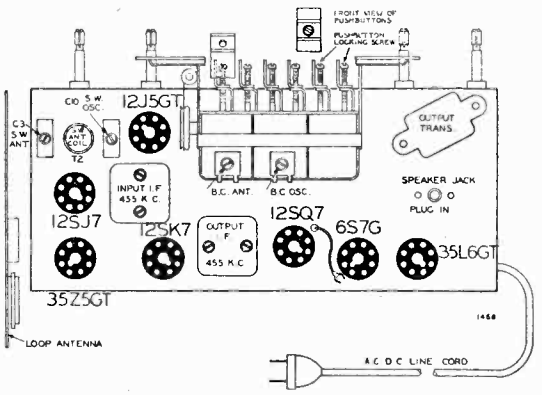
TECHNICAL DATA

TUNING RANGE
540 TO 1600 K.C.
9.0 TO 12.0 M.C.
SENSITIVITY 15μ WAVE
SELECTIVITY 45 K.C. AT 1000 X AT 1000 K.C.
OUTPUT 700 M.W. UNDISTORTED IN VOICE COIL
POWER CONSUMPTION 35 WATTS

I. F. 455 K.C.



Voltage Chart



BE100142	C20	.04 x 200 Volt Tubular Condenser	.12
BE100130	C21, C22	Dual Condenser—.00025 x .02 x 400 Volt	.24
BE10011	C29	.01 x 400 Volt Tubular Condenser	.12
BE100128	C5	.05 x 120 Volt Tubular Condenser	.12
BE100119	C7, C14	.1 x 400 Volt Tubular Condenser—2	.12
BE100127	C8	.01 x 120 Volt Tubular Condenser	.12
BE10020	C13, C19, C24, C25	.1 x 200 Volt Tubular Condenser—4	.12
BE1009	C11	.05 x 200 Volt Tubular Condenser	.12
BE100138	C17	.03 x 400 Volt Tubular Condenser	.12
BE10019	C16, C23	.006 x 600 Volt Tubular Condenser—2	.12
BE10037	C1	.003 x 600 Volt Tubular Condenser	.12
BE119129		Electrolytic Filter Cond. Added for 25 Cycle Only. 40 Mfd x 150 Volts Across C22 and 20 Mfd. x 150 Volts Across C23	.70
BE119128	C26, C27, C28	Electrolytic Filter Condenser. 40 Mfd.—20 Mfd.—20 Mfd. x 150 Volts	.70
BE124139	C3, C10	S.W. Antenna and Oscillator Trimmer Condenser—2	.16
BE129181	C4	.000445 Mica Type Condenser—3%	.18
BE12921	C15	.0002 Mica Type Condenser—20%	.12
BE1295	C9, C18	.0001 Mica Type Condenser—20%—2	.12
BE12960	C2	.00015 Mica Type Condenser—20%	.12
BE12912	C19	.00025 Mica Type Condenser	.12
BE130218	R1	5M Ohm—½ Watt Resistor—10%	.10
BE130166	R8, R20	150 Ohm—½ Watt Resistor—10%—2	.10
BE13084	R19	200 Ohm—½ Watt Resistor—20%	.10
BE130128	R11	20 Ohm—½ Watt Resistor—20%	.10
BE13012	R2, R7	50M Ohm—½ Watt Resistor—20%—2	.10
BE130287	R21	1200 Ohm—1 Watt Resistor—10%	.10
BE130350	R3, R5	3.2 Megohm—½ Watt Resistor—20%—2	.10
BE13038	R4	2 Megohm—½ Watt Resistor—20%	.10
BE130257	R10	5 Megohm—½ Watt Resistor—25%	.10
BE13092	R9	1M Ohm—½ Watt Resistor	.10
BE130354	R12	525M Ohm—½ Watt Resistor	.10
BE130103	R13	100M Ohm—½ Watt Resistor	.10
BE130193	R14, R18	3M Ohm—½ Watt Resistor—2	.10
BE130355	R15	8M Ohm—½ Watt Resistor	.10
BE130100	R17	150M Ohm—½ Watt Resistor	.10

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

OCTOBER 1941

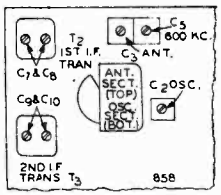
ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect B—of radio chassis to ground post of signal generator through .1 Mfd. condenser.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Maximum
I. F.	455 Kc.	.1 MFD.	Grid of 12SK7 I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 12SJ7 Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
SHORT WAVE BAND	12 Mc.	400 Ohms	External Antenna and B—	Short Wave	Set Dial at 12 Mc.	S.W. Osc. trimmer C10 S.W. Ant. trimmer C3
BROAD-CAST BAND	1600 Kc.	.1 mmf.	Grid of 12SJ7	Broadcast	Rotor full open (Plates out of mesh)	B.C. Osc. trimmer C12 on Gang
	1400 Kc.	200 mmf.	External Antenna and B—	Broadcast	Set Dial at 1400 Kc.	B.C. Ant. trimmer C6

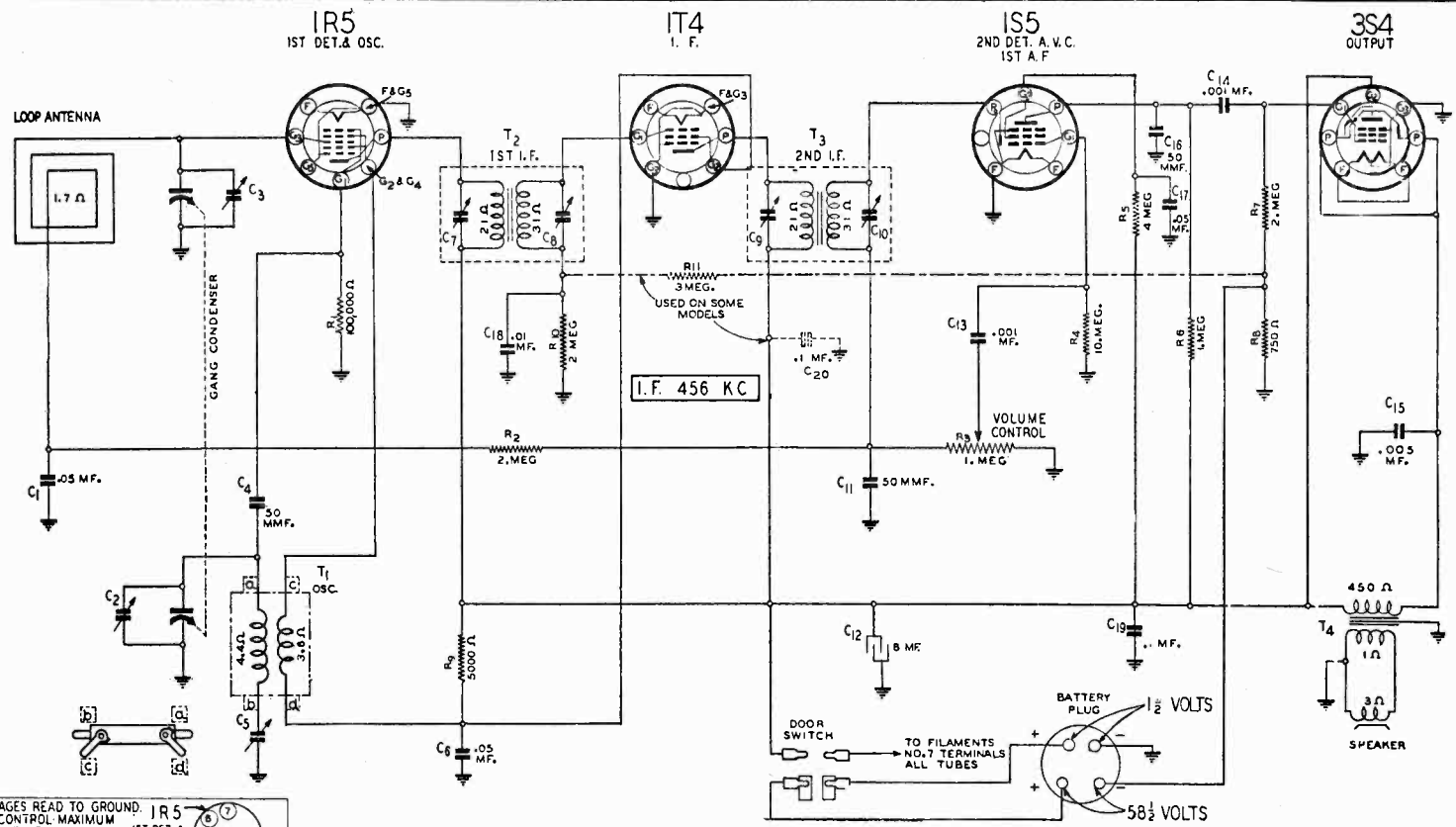
NOTE: The Oscillator Frequency is lower than the signal frequency and should be aligned accordingly.

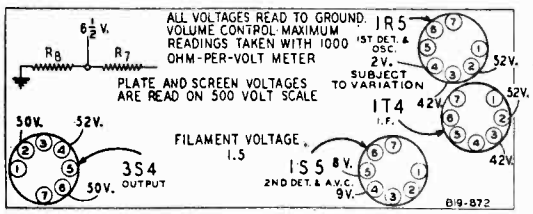
The loop antenna should be connected to the radio when making all adjustments.



NOTE A—Connect a loop approximately one foot in diameter across the antenna and ground posts of the signal generator. Place radio approximately 2 feet (6" for I.F. adjustment) from loop.

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





SPECIFICATIONS

Input Voltages and Currents
"A" Battery - - 1.5 Volts—.25 Amperes
"B" Battery - - - - 58½ Volts—8 Ma.
Power Output - - 55 Milliwatts Undistorted
110 Milliwatts Maximum
Selectivity - 40 KC Broad at 1000 Times Signal
Intermediate Frequency - - - - 456 KC
Speaker - - - - - - 4" P.M. Dynamic
Tuning Frequency Range - 528 to 1610 KC
Sensitivity - 400 Microvolts per Meter Average (For .05 Watt Output)

ALIGNMENT PROCEDURE

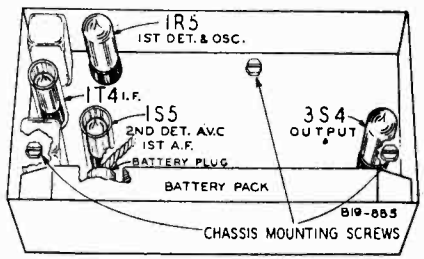
Volume Control—Maximum All Adjustments.
Allow Chassis and Signal Generator to "Heat Up" for several minutes.
The following equipment is required for aligning:
A Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
Output Indicating Meter—Non-Metallic Screwdriver.

Use Loop for All Adjustments—See Note "A"

Signal Gen. FREQUENCY SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
456 KC	Turn Rotor to Full Open	1st I.F. (C7) & (C8) 2nd I.F. (C9) & (C10)
1610 KC	Turn Rotor to Full Open	Oscillator (C2)
1500 KC	Turn Rotor to Max. Output Set Knob to 1500 KC	Antenna (C3)
600 KC	Turn Rotor to Max. Output	600 KC (C5) Rock Rotor—See Note B
1500 KC	Turn Rotor to Max. Output	Antenna (C3)

TUBES

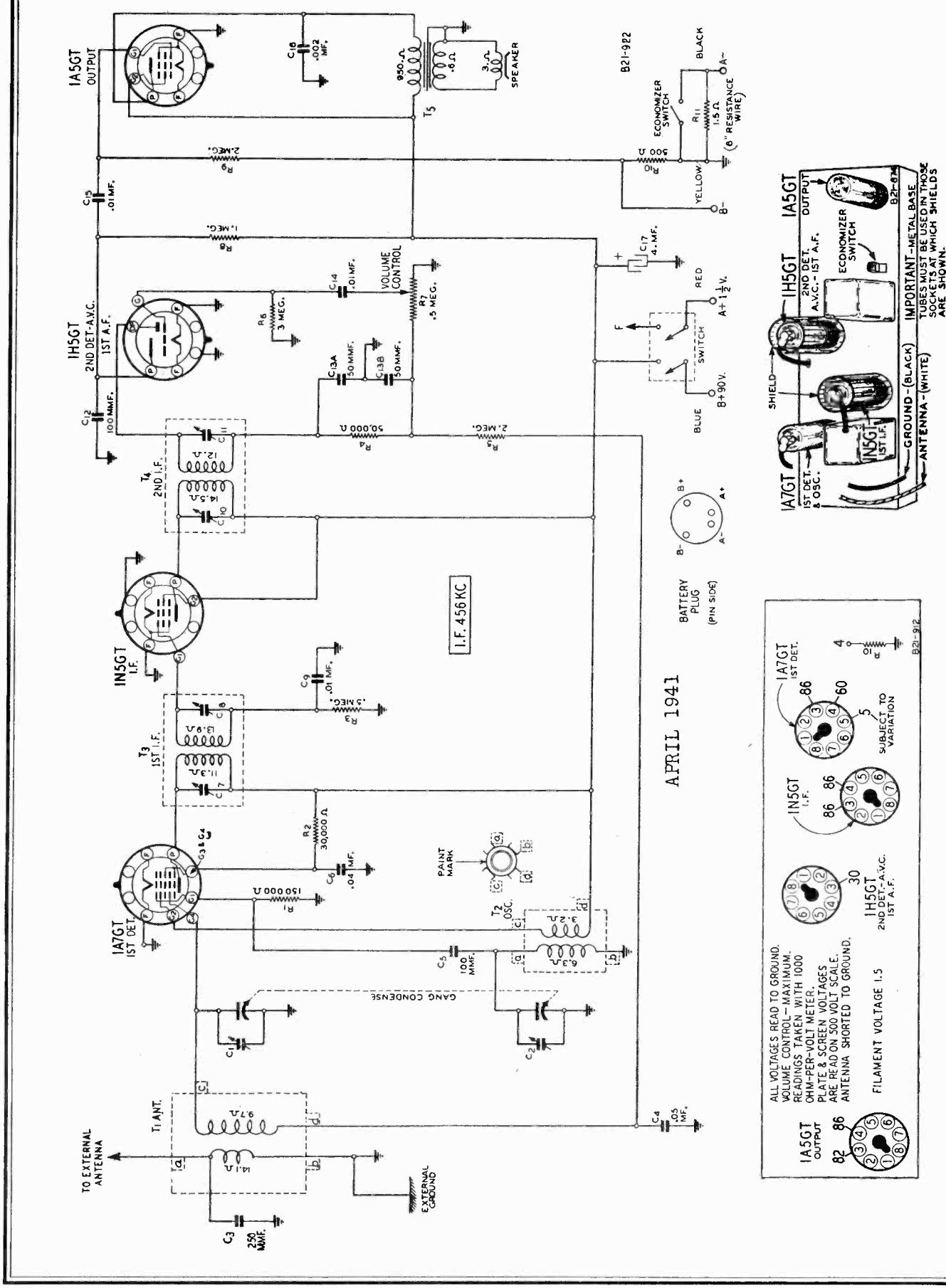
The tube types and position of the tubes and tube shields are shown in the illustration below.



APRIL 1941

MODEL 14WG-469

MONTGOMERY-WARD & CO.



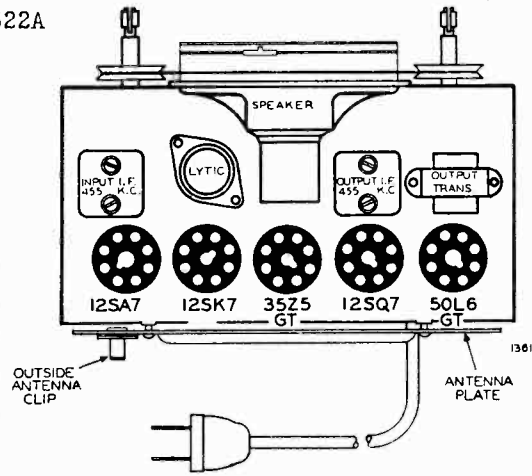
ALIGNMENT PROCEDURE, MODELS 14BR-521A, 14BR-522A

- Volume control—Maximum all adjustments.
- Connect B—of radio chassis to ground post of signal generator through .1 Mfd. condenser.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Iron Cores (Dial Setting)	Adjust Trimmers to Maximum (in Order Shown)
I. F.	455 Kc.	.1 MFD	Connect to Metal Antenna Backplate	Iron Cores All the way out	Two trimmers on top of output I. F. can
	455 Kc.	.1 MFD	Connect to Metal Antenna Backplate	Iron Cores All the way out	Two trimmers on top of input I. F. can
BROAD-CAST BAND	1720 Kc.	.1 MFD	Connect to Metal Antenna Backplate	Iron Cores All the way out	Osc. Trimmer (C7) (See voltage chart)
	1720 Kc.	200 MMF.	Connect to Outside Antenna Clip	Iron Cores All the way out	Ant. Trimmer (C3) (See voltage chart)
	1400 Kc.	200 MMF.	Connect to Outside Antenna Clip	Turn Dial to 1400 Kc.	Adjust position of antenna coil (See coil assembly view)
	1720 Kc.	200 MMF.	Connect to Outside Antenna Clip	Turn Dial to 1720 Kc.	Adjust trimmer (C3) (See voltage chart)

NOTE "A"—The antenna coil assembly is made so that it is movable. When making the adjustment as given in the alignment procedure move the coil assembly very slowly. It can be moved by hand or by pivoting one edge of the blade of a screwdriver in the hole and engaging the blade in the gear teeth of the coil form.

NOTE "B"—After the antenna coil has been tracked at 1400 Kc. it is necessary to check the antenna trimmer (C3) adjustment again at 1720 Kc. If no appreciable change in trimmer adjustment is made the coil is in track, if the trimmer requires considerable change it will be necessary to again adjust the position of the antenna coil at 1400 Kc. These two adjustments should be tried several times until no change of trimmer adjustment is required at 1720 Kc.



SPECIFICATIONS

Input Voltages and Currents

"A" Battery - - 1.5 Volts—.2 Amperes

"B" Battery - - - - 90 Volts—8.5 Ma.

Power Output - - 70 Milliwatts Undistorted
160 Milliwatts Maximum

Selectivity - 40 KC Broad at 1000 Times Signal

Intermediate Frequency - - - - - 456 KC

Speaker - - - - - - - 5" P.M. Dynamic

Tuning Frequency Range - 528 to 1730 KC

Sensitivity - - - - - 50 Microvolts Average (For .05 Watt Output)

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

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

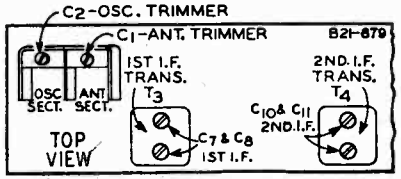
Allow Chassis and Signal Generator to "Heat Up" for several minutes.

The following equipment is required for aligning:

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

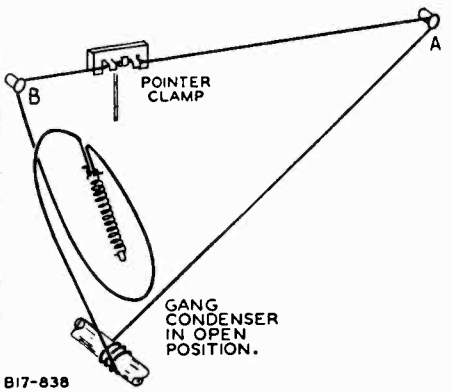
Output Indicating Meter—Non-Metallic Screwdriver.

Dummy Antennas—.1 mf. & 200 mmf.



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. (Top Cap)	.1 mf.	Turn rotor to full open	1st I.F. (C7) & (C8) 2nd I.F. (C10) & (C11)
1730 KC	Signal Grid of 1st Det.	.1 mf.	Turn rotor to full open	Oscillator (C2)
1400 KC	Antenna Lead	200 mmf.	Turn Rotor to Max. Output Set Indicator to 1400 KC—See Note A	Antenna (C1)

NOTE A—If the pointer is not at 1400 KC on the dial, remove pointer from drive cord. Set pointer at the 1400 KC mark on the dial scale. Attach pointer to drive cord.



MODEL 14WG-469

DRIVE CORD REPLACEMENT

Use a new drive cord approximately 38 inches in length. Tie one end to tension spring. Secure other end of spring to hook on gang condenser drive pulley. Thread free end of cord through hole in pulley rim. Turn gang condenser to full open position—See illustration.

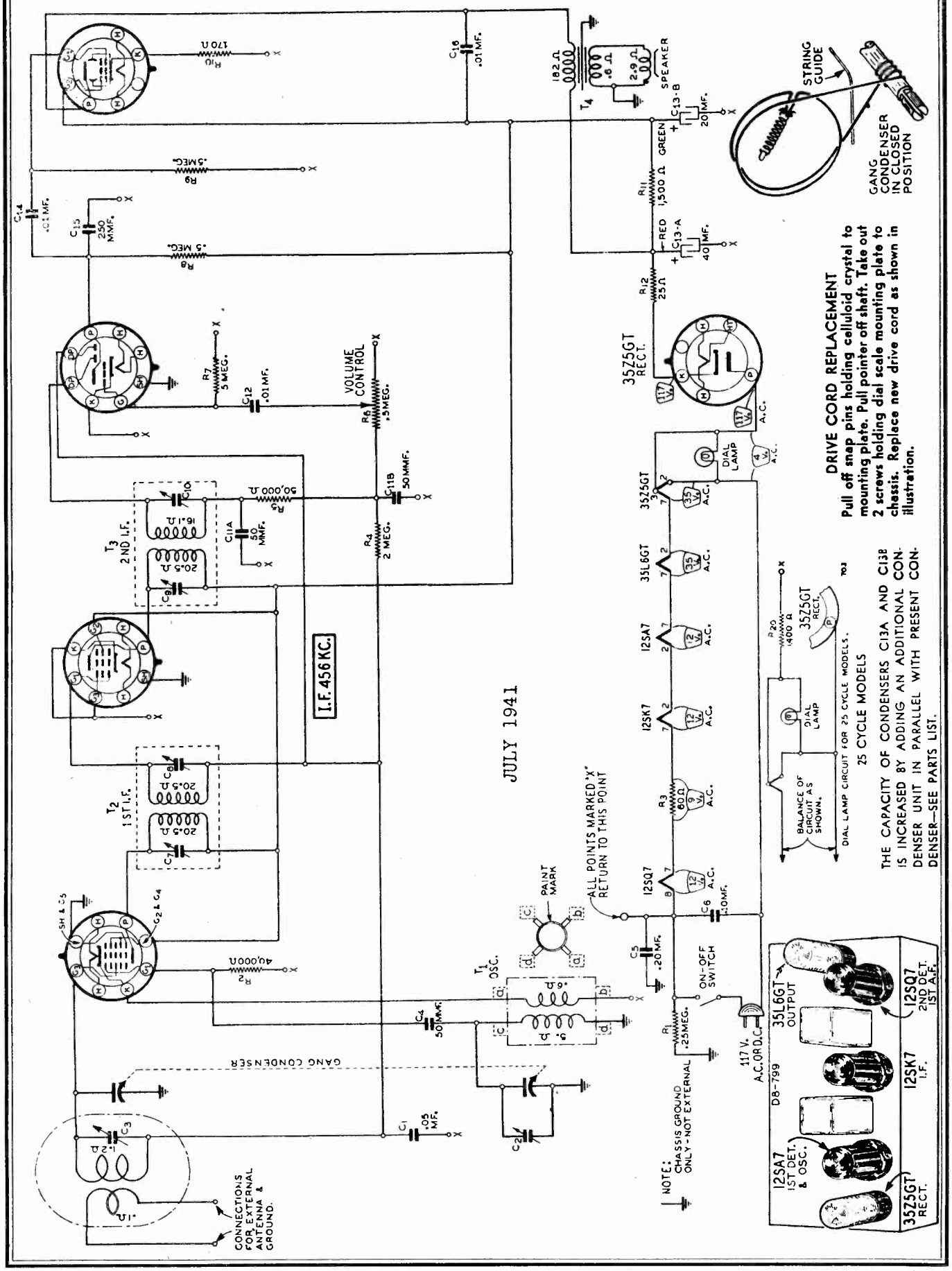
Wind cord ⅛ turn counter-clockwise (from gang condenser end of chassis) around drive pulley. Wind cord 3½ turns counter-clockwise (from rear of chassis) around tuning control shaft. Turns should progress toward front of chassis. Pass cord over idler studs A and B as shown in illustration. Wind cord ¾ turn counter-clockwise (from gang condenser side of chassis) around drive pulley. Turn should be on right side (from rear of chassis) of pulley groove.

Pass cord through hole in pulley rim. Stretch tension spring and tie cord to tension spring.

DIAL POINTER ATTACHMENT—Tune in a signal of known frequency. Set the pointer at this frequency on the dial scale. Attach pointer to cord. —See illustration.

MODELS 14WG-518, 14WG-519

MONTGOMERY-WARD & CO.



ISSUE "C" June 12, 1941

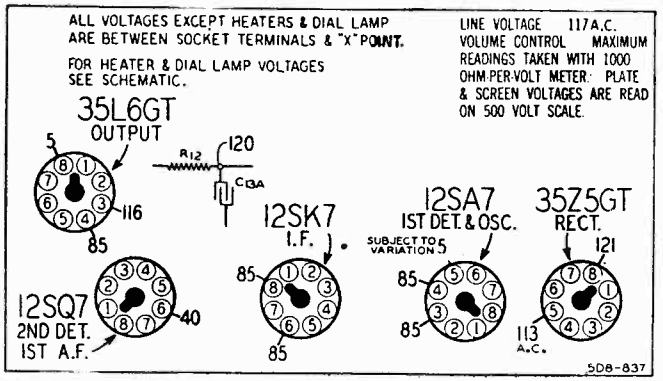
When the 4" Electro-Dynamic Speaker replaces the 4" P.M. Speaker on the above chassis, the issue letter advances to "C". The speaker field replaces the 1500 ohm B+ filter resistor with additional changes in the B+ circuit connections to the 35L6GT Output tube. A 20 mf. 25 volt electrolytic condenser is placed across the 170 ohm 35L6GT cathode resistor. A 60 ohm 1.5 watt resistor is inserted in the heater circuit between the 12SK7 and 12SA7 tube heaters.

Part No.		Description	
The following NEW PARTS are used on the issue "C" chassis:			
12A408	4"	Electro-Dynamic Speaker.....	$ 1.76
45X317	C17	20 mf. 25 Volt Dry Electrolytic....	.24
D95600	R13	60 ohm 1.5 Watt Carbon Resistor....	.12
The following parts are used on issues "A" and "B" chassis only:			
12A380	4"	P.M. Speaker.....	1.46
C95152	R11	1500 Ohm 1.0 Watt Carbon Resistor..	.06

Issues "A," "B" and "C" chassis of the above models used an antenna trimmer (C3) mounted on the loop aerial assembly, On issue "D" chassis, the antenna trimmer (C3) has been replaced by a "Gimmick" fixed capacitance, consisting of 2 wires, one wrapped around the other. The 1400 KC adjustment is made at the factory and need not be made in the field.

The following part is used on issues "A," "B" and "C" chassis only:

17A116	C3	2.5-23 mmf. antenna trimmer	$0.06



SPECIFICATIONS

Power Consumption - 28 Watts (At 117 volts AC Supply)
Power Output - - - - - - - .8 Watt Undistorted
Selectivity - - 55 KC Broad at 1000 times Signal
Intermediate Frequency - - - - - - - - 456 KC
Speaker - - - - - - - - - - 4" P.M. Dynamic
Tuning Frequency Range - - - 528 to 1600 KC
Sensitivity (For .05 Watt Output)
External Antenna - - - - - - 20 Microvolts Average

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

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

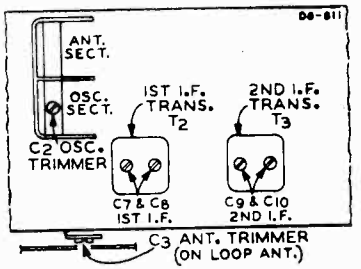
The equipment in column at right is required for aligning:

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., 50 mmf.

SIGNAL GENERATOR			DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
FREQUENCY SETTING	ANTENNA CONNECTION	GROUND CONNECTION			
456 KC	Control Grid 12SK7—I.F.	Point "X" (12SK7—I.F. Prong No. 3	.1 mf.	Turn Rotor to full open	2nd I.F. (C9) & (C10)
456 KC	Control Grid 12SA7—1st Det.	Same As Above	.1 mf.	Turn Rotor to full open	1st I.F. (C7) & (C8)
1600 KC	Control Grid 12SA7—1st Det.	Same As Above	.1 mf.	Turn Rotor to full open	Oscillator (C2)
1400 KC	External Antenna Clip On Loop —See Note A	External Ground Clip On Loop	50 mmf.	Turn Rotor to Max. Output Set Indicator to 1400 KC— See Note B	Antenna (C3)

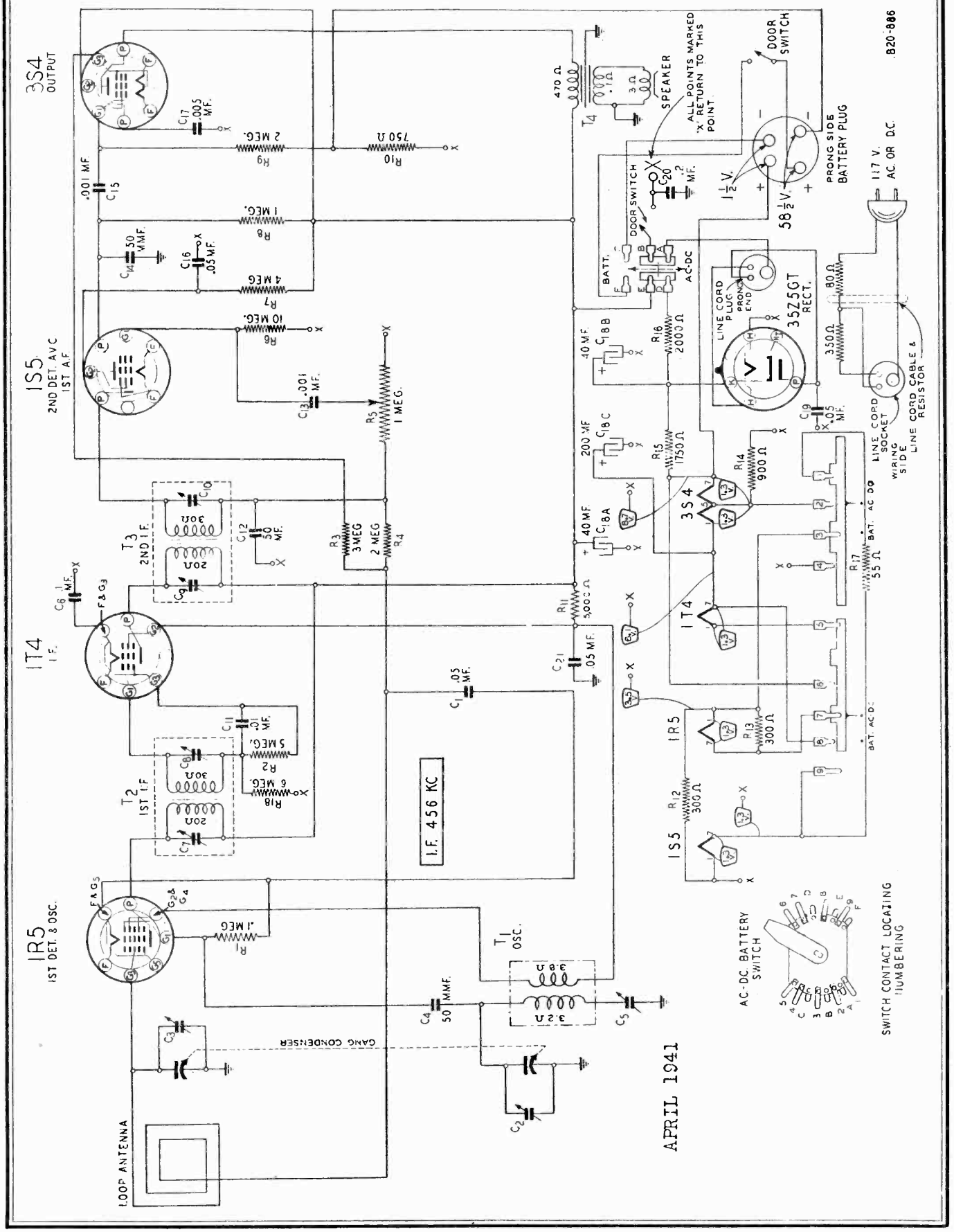


NOTE A—Re-assemble chassis in cabinet. Replace back on cabinet.

NOTE B—Tune in a 1400 KC signal. If pointer is not at the 1400 KC mark on the dial scale, remove chassis and pull pointer off shaft. Set pointer at the 1400 KC mark and push back on shaft.

MODEL 14WG-538

MONTGOMERY WARD & CO



PERSONAL PORTABLE RADIO WITH BUILT-IN AIR WAVE LOOP AERIAL

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

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

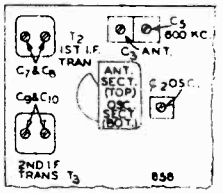
The following equipment is required for aligning:

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

Output Indicating Meter—Non-Metallic Screwdriver.

Use Loop for All Adjustments—See Note "A"

Signal Gen. FREQUENCY SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
456 KC	Turn Rotor to Full Open	1st I.F. (C7) & (C8) 2nd I.F. (C9) & (C10)
1610 KC	Turn Rotor to Full Open	Oscillator (C2)
1500 KC	Turn Rotor to Max. Output Set Knob to 1500 KC	Antenna (C3)
600 KC	Turn Rotor to Max. Output	600 KC (C5) Rock Rotor—See Note B
1500 KC	Turn Rotor to Max. Output	Antenna (C3)



NOTE A—Connect a loop approximately one foot in diameter across the antenna and ground posts of the signal generator. Place radio approximately 2 feet (6" for I.F. adjustment) from loop.

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

SPECIFICATIONS

Input Voltages and Currents—Battery Operation

"A" Battery - - - - 1½ Volts—.25 Amp.

"B" Battery - - - - 58½ Volts—8. Ma.

Power Consumption - - - - - - 30 Watts (At 117 Volts AC Supply)

Power Output

Battery Operation - 55 Mw. Undistorted 110 Mw. Maximum

AC Operation - - 80 Mw. Undistorted 170 Mw. Maximum

Selectivity - 40 KC Broad at 1000 Times Signal

Intermediate Frequency - - - - - 456 KC

Speaker - - - - - - - - 4" P.M. Dynamic

Tuning Frequency Range - 528 to 1610 KC

Sensitivity - 400 Microvolts per Meter Average (For .05 Watt Output)

ANTENNA

An Airwave Loop Aerial is built inside the front cover of this radio.

With the built-in loop aerial, directional effects are obtained. The signal pickup may be increased and interference from nearby stations can be reduced by rotating the radio until the signal is at a maximum.

BATTERY OPERATION

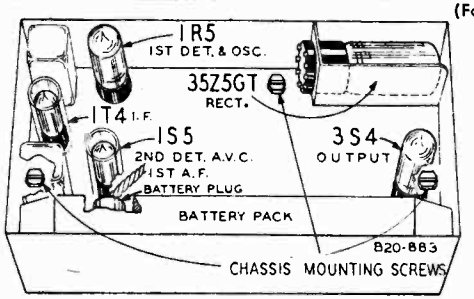
The following battery pack is required:

Battery Pack Catalog No. 62-5032.

To install battery pack, grasp case handle and pull open back cover at handle side of case. Note position of prongs on battery cable plug and holes in socket on battery. Then insert plug in socket. Install battery pack in case as shown in illustration on page 2. Close back cover tightly, first getting bottom hooks in place in slots.

AC-DC OPERATION

Line Cord—Plug 3 hole socket on line cord into 3 prong plug which can be seen through a hole in the side of the case.



Check Your Line Voltage—Unless otherwise marked, this radio must be operated on a power supply of **105-125 volts AC**, 50 to 60 cycles only, or **105-125 volts DC.**

Radios for 25 cycle AC operation are so marked.

When using the radio on AC, if there appears to be excessive hum, **reverse the** plug. Leave the plug inserted **the way** which gives the least hum.

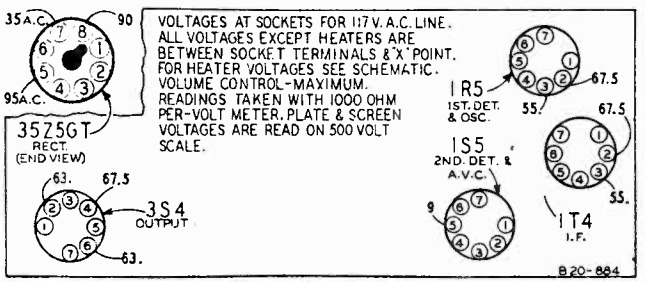
110 Volt DC Operation—Insert plug so that red mark is on positive side of the line.

CAUTION — If polarity of line is not known, insert plug; if set does not operate after one minute, reverse plug.

TUBES

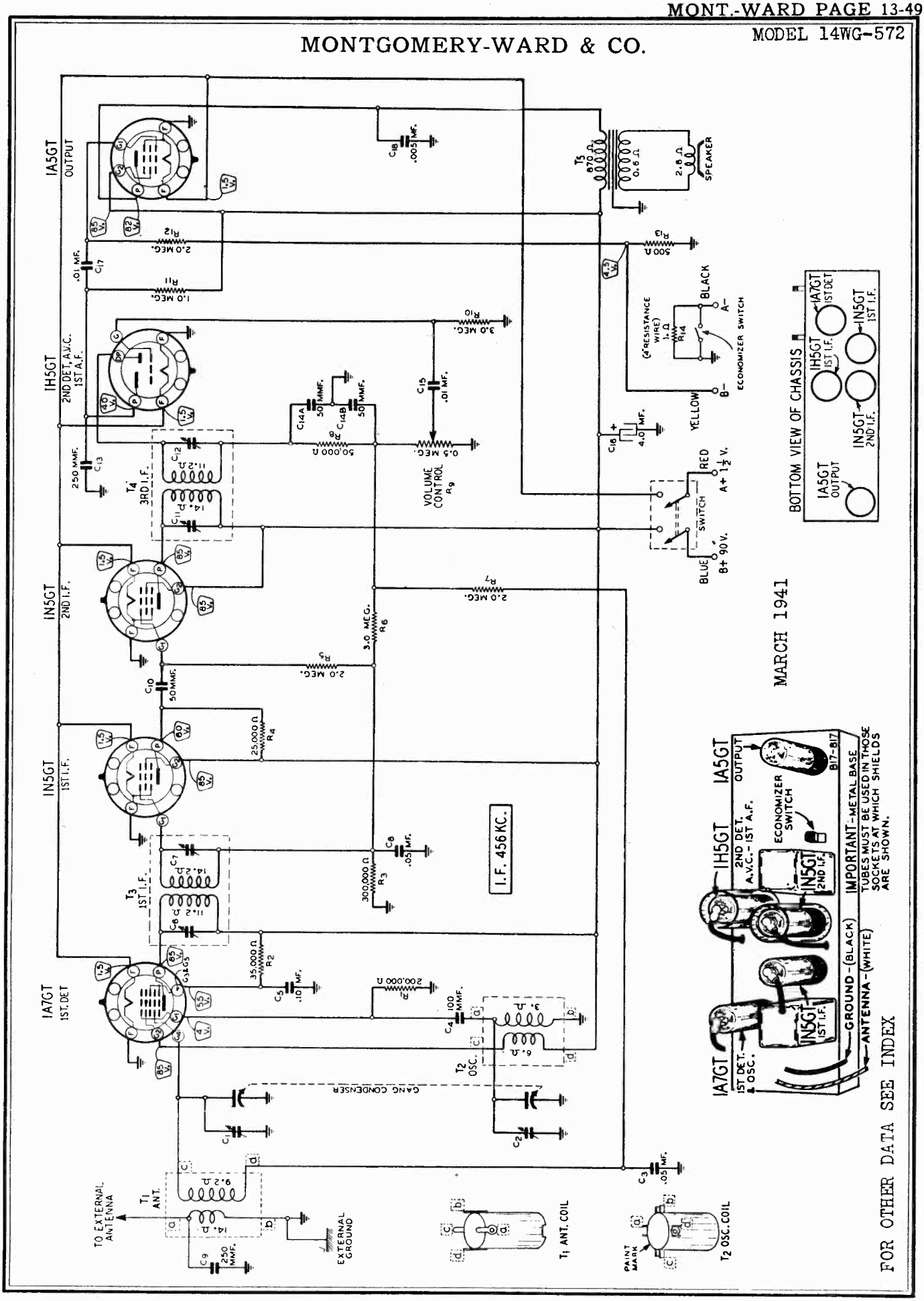
The tube types and position of the tubes and tube shields are shown in the illustration.

To replace the 35Z5GT rectifier tube, pull line cord plug out of case. Carefully pry off the 2 control knobs. Then take out the 3 chassis screws (shown in illustration) with a ¼ inch socket wrench. Carefully lift chassis, tilting it at the same time, as far as connecting wires permit. Insert a screwdriver between rectifier tube and socket and pry tube out of socket.



MONTGOMERY-WARD & CO.

MODEL 14WG-572



MARCH 1941

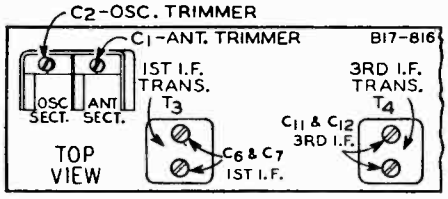
FOR OTHER DATA SEE INDEX

MODEL 14WG-572
MODEL 14WG-575
MODEL 14WG-572

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:
A 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.



SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR CONNECTION AT RADIO	DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
456 KC	Signal Grid of 1st Det. (Top Cap)	.1 mf.	Turn rotor to full open	1st I.F. (C6) & (C7) 3rd I.F. (C11) & (C12)
1730 KC	Signal Grid of 1st Det.	.1 mf	Turn rotor to full open	Oscillator (C2)
1400 KC	Antenna Lead	200 mmf.	Turn Rotor to Max. Output Set Indicator to 1400 KC— See Note A	Antenna (C1)

Models having a new drive cord stringing arrangement in which the drive cord has been shortened to 23 1/8 inches and the drive drum has been rotated 90 degrees from its previous position, should have the issue letter advanced to "D".

SPECIFICATIONS

Input Voltages and Currents
"A" Battery.....1.5 Volts—.25 Amperes
"B" Battery.....90 Volts—11 Ma.
Power Output.....{70 Milliwatts Undistorted / 160 Milliwatts Maximum}
Selectivity.....40 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)...14 Microvolts Average

MODEL 14WG-575

ALIGNMENT PROCEDURE

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

SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR CONNECTION AT RADIO	DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
456 KC	Signal Grid of 1st Det.	.1 mf.	Turn rotor to full open	1st I.F. (C6) & (C7) 2nd I.F. (C11) & (C12)
1730 KC	Grid of 1st Det.	.1 mf.	Turn rotor to full open	Oscillator (C4)
1500 KC	Antenna Lead	200 mmf.	Turn rotor to max. output	Antenna (C3)

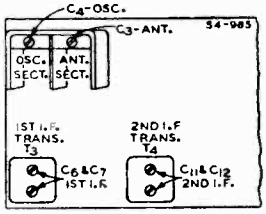
The following equipment is required for aligning:

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.

CALIBRATION—If it is necessary to calibrate the radio, tune in an 800 KC signal. If the pointer is not at the 800 KC mark on the dial, remove it from drive cord and set it at the 800 KC mark.

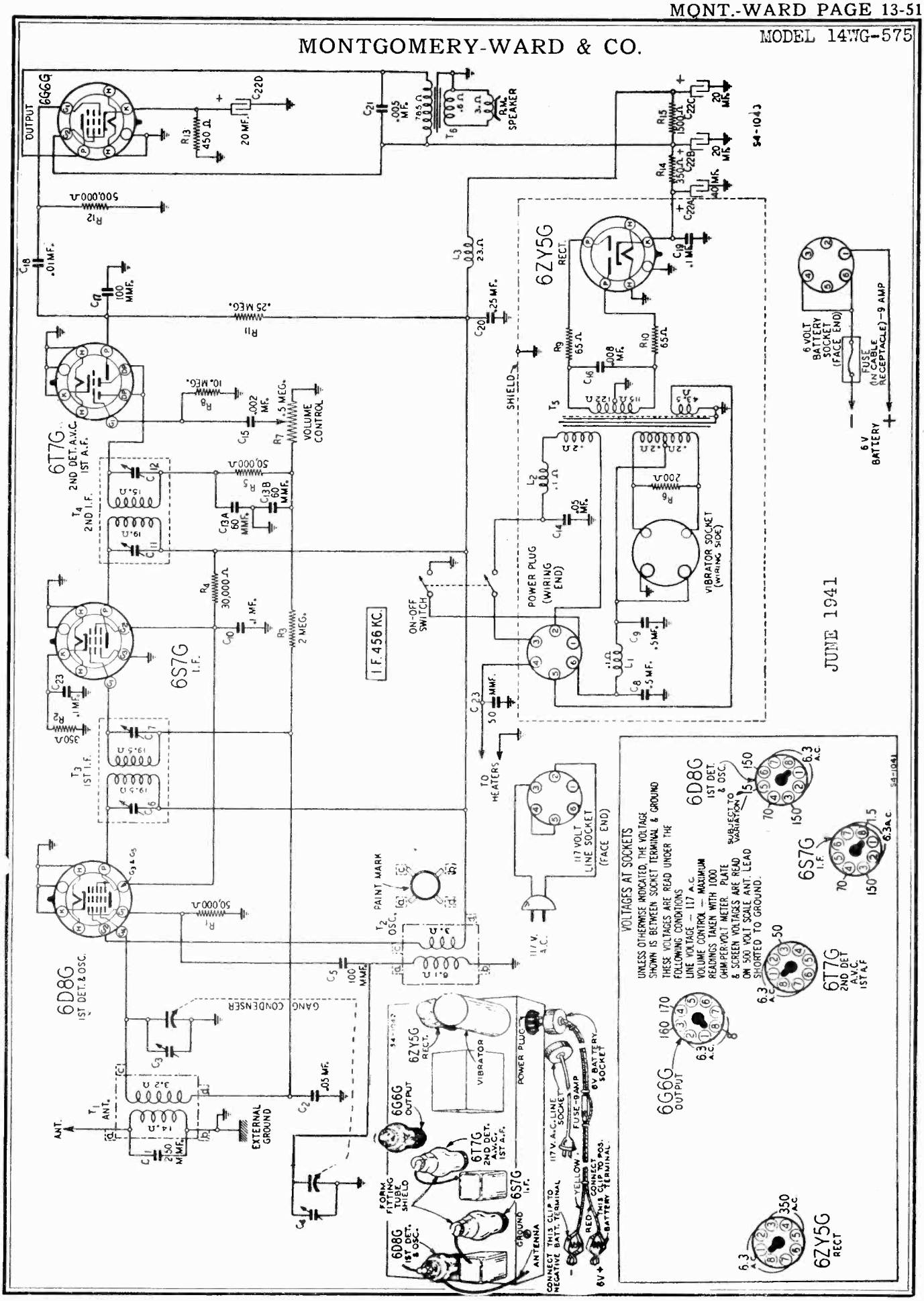


SPECIFICATIONS

Power Consumption
Battery Operation - 2.2 Amp. at 6.3 Volts
AC Operation - - 32 Watts at 117 Volts AC
Power Output - - - - .5 Watt Undistorted / 1.0 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) - 10 Microvolts Aver.

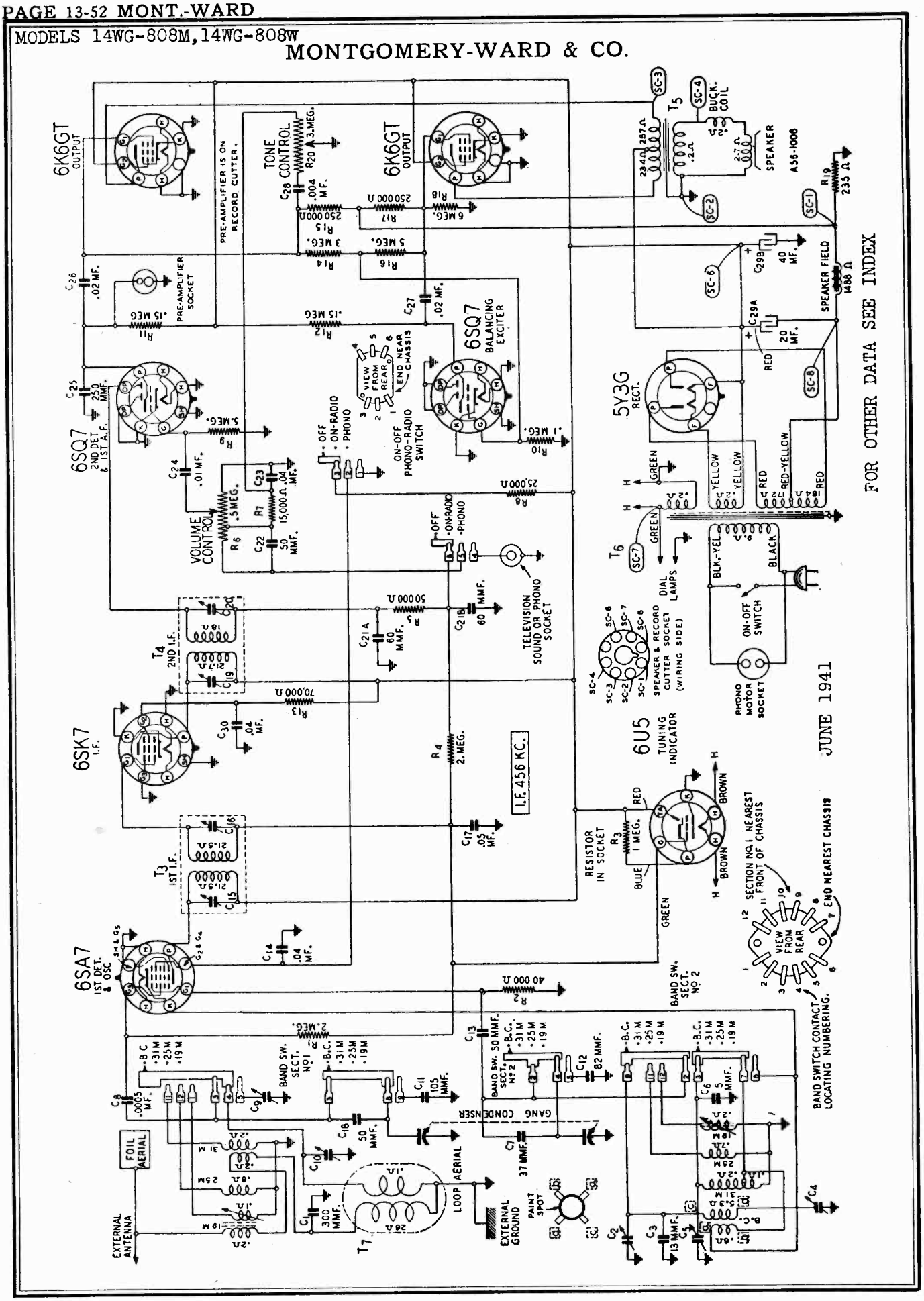
MONTGOMERY-WARD & CO.

MODEL 14WG-575



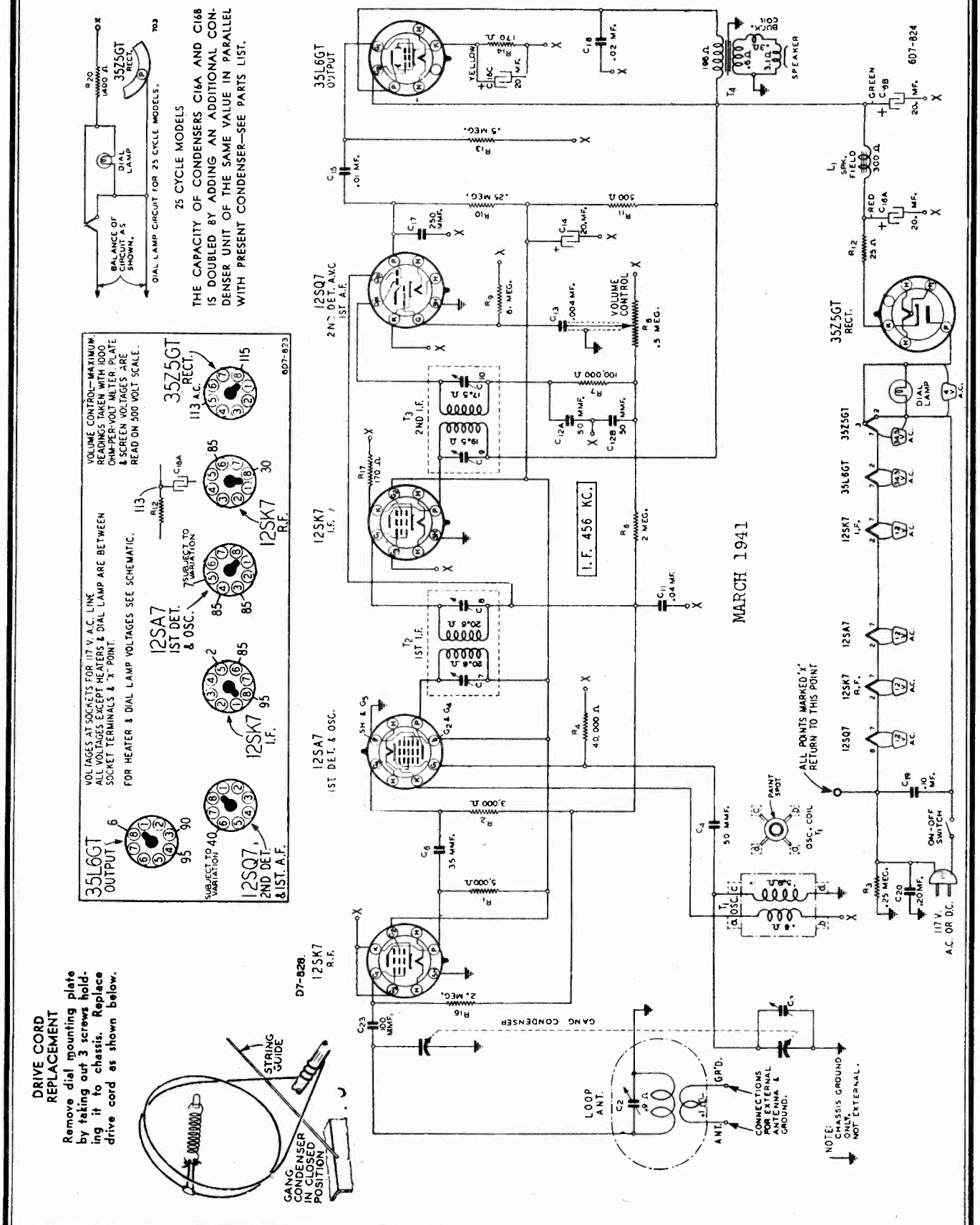
MODELS 14WG-808M, 14WG-808W

MONTGOMERY-WARD & CO.



MONTGOMERY WARD & CO.

MODELS 14WG-624A, 14WG-625A, 14WG-628A



MODELS 14WG-624A, 14WG-625A, 14WG-628A

MONTGOMERY-WARD & CO.

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

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

The equipment in column at right is required for aligning:

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

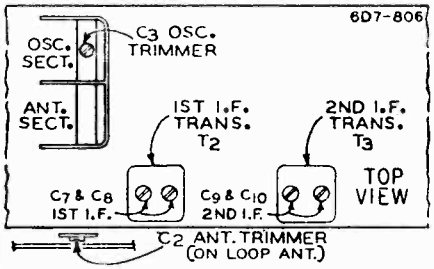
Output Indicating Meter; Non-Metallic Screwdriver.

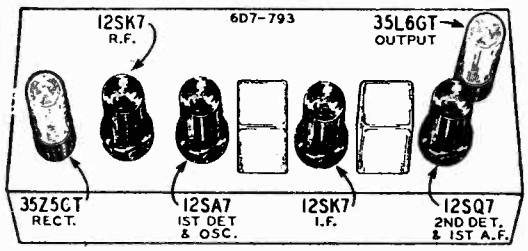
Dummy Antennas—.1 mf., 50 mmf.

SIGNAL GENERATOR					
FREQUENCY SETTING	ANTENNA CONNECTION	GROUND CONNECTION	DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
456 KC	Control Grid 12SK7—I.F.	Point "X" 12SK7—R.F. Prong No. 3	.1 mf.	Turn Rotor to full open	2nd I.F. (C9) & (C10)
456 KC	Control Grid 12SA7—1st Det.	Same As Above	.1 mf.	Turn Rotor to full open	1st I.F. (C7) & (C8)
1600 KC	Control Grid 12SA7—1st Det.	Same As Above	.1 mf.	Turn Rotor to full open	Oscillator (C3)
1400 KC	External Antenna Clip On Loop —See Note A	External Ground Clip On Loop	50 mmf.	Turn Rotor to Max. Output Set Indicator to 1400 KC See Note B	Antenna (C2)

SPECIFICATIONS

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 1600 KC
Sensitivity (For .05 Watt Output)
External Antenna - - - - - - 10 Microvolts Average





When using the radio on AC, if there appears to be excessive hum, reverse the plug. Leave the plug inserted the way which gives the least hum.

Radios for 25 cycle AC operation are so marked.

110 Volt D.C. Operation—Insert plug so that prong on same side as *ribbed* side of *cord* is on the positive side of the line. *CAUTION*—If polarity of line is not known, insert plug. If set does not operate after one minute, reverse plug.

NOTE A—Re-assemble chassis in cabinet. Fasten loop assembly to back of cabinet.

NOTE B—Tune in a 1400 KC signal. If pointer is not at the 1400 KC mark on the dial scale, pull pointer off shaft. Set pointer and push back on shaft.

ANTENNA

An Air Wave Loop Aerial is built on the inside of the back cover of the cabinet of this radio. For reception of local or powerful nearby stations no other antenna or ground is usually required.

However, more stations will be heard and noise will often be reduced by using an outside antenna and a good ground. For locations in the city or close to the broadcasting stations, the antenna should be 20 to 35 feet in length while for locations in the country or at a distance from the broadcasting stations, use a 35 to 60 foot antenna.

CHECK YOUR LINE VOLTAGE

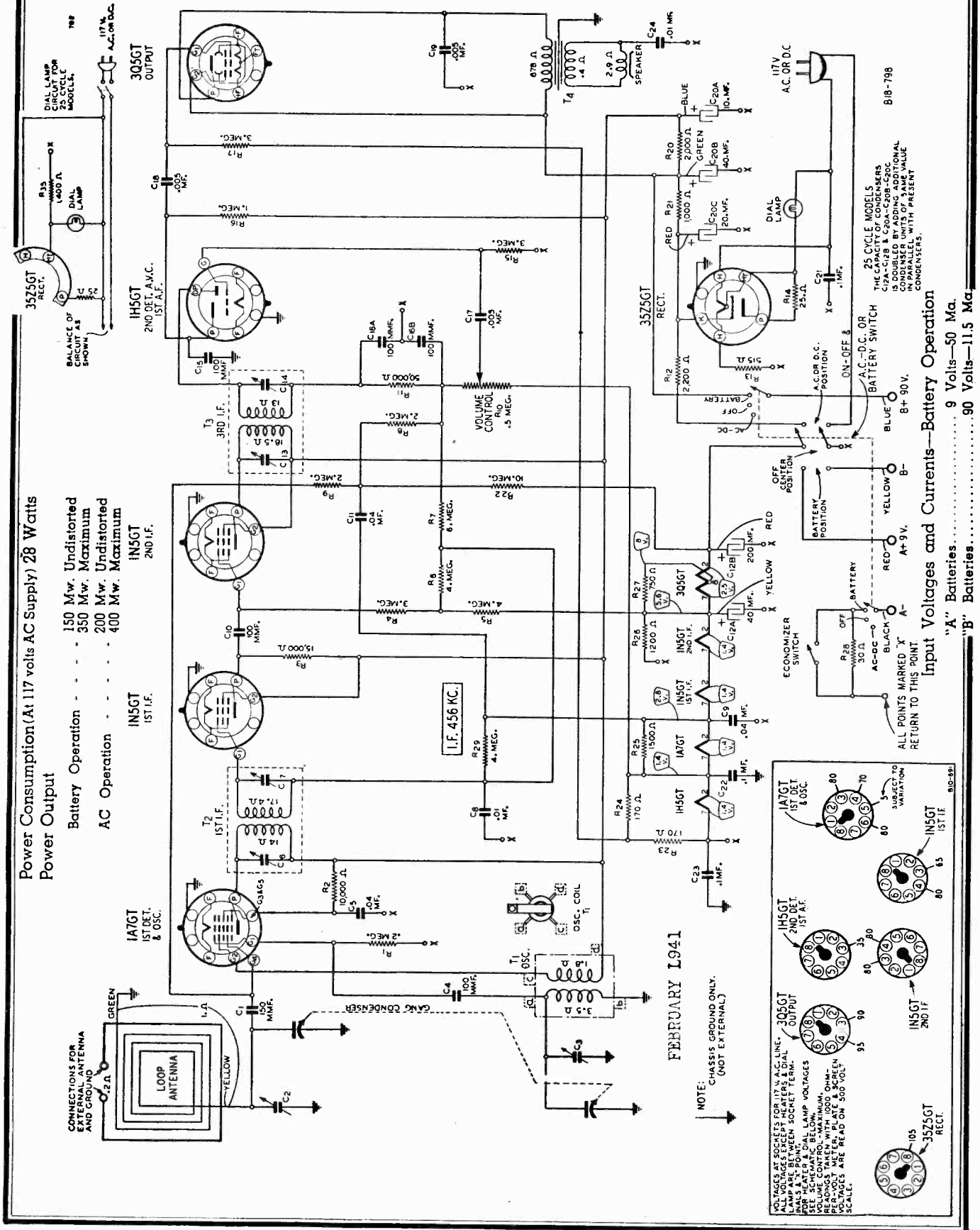
Unless otherwise marked, this radio must be operated on a power supply of 105-125 Volts AC, 50 to 60 cycles only, or 105-125 Volts DC.

A GROUND CONNECTION IS REQUIRED if an external antenna is used. A ground connection may be obtained by connecting to a water pipe, radiator, or a pipe driven into the ground.

The antenna and ground connections are made at the clips marked "External Antenna" and "External Ground" on the cabinet back.

MONTGOMERY-WARD & CO.

MODEL 14MG-672C



CHANGES MADE FOR ISSUE "D"

Starting with Issue "D", chassis of the above series will use a plug-in resistor to replace the former dual wire wound type. In addition a new oscillator coil and 2 section dry electrolytic are used with this issue chassis. Listed below are the parts changes:

Date 2/21/41

New Parts used on "D" Issue Chassis:

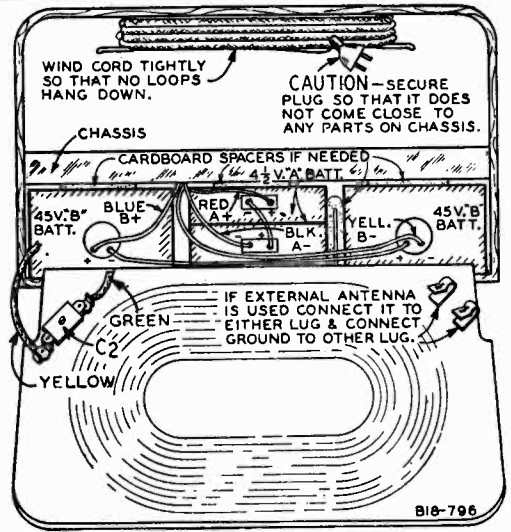
Part No.	Description	Selling Price
9A1396	T1 Oscillator Coil Assembly.....	.76
45X301	(C12A 40 mf. 35 V.) (C12B 200 mf. 35 V.) Dry Electrolytic...	.34
43X106	(R12 2200 Ohm 5 Watts) (R13 515 Ohm 12 Watts) Plug-in Resistor	.34

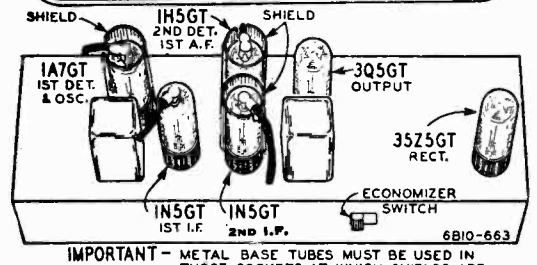
The following Parts are used on "C" Issue Chassis only:

Part No.	Description	Selling Price
32X217	Tubular Shield for Wire Wound Resistor....	.12
9A1375	T1 Oscillator Coil Assembly.....	.22
45X284	(C12A 40 mf. 35 V.) (C12B 200 mf. 35 V.) Dry Electrolytic....	.36
43X105	(R12 2200 Ohm 5 Watts) (R13 515 Ohm 12 Watts) Wire Wound Resistor	.42

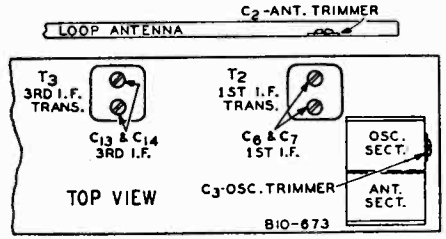
ALIGNMENT PROCEDURE

SIGNAL GENERATOR			DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration below)
FREQUENCY SETTING	ANTENNA CONNECTION	GROUND CONNECTION			
456 KC	External Antenna Clip on Loop	External Ground Clip on Loop	.1 mf.	Turn Rotor to full open	1st I.F. (C6) & (C7) 3rd I.F. (C13) & (C14)
1600 KC	External Antenna Clip	External Ground Clip	.1 mf.	Turn Rotor to full open	Oscillator (C3)
1400 KC	External Antenna Clip See Note A	External Ground Clip	50 mmf.	Turn Rotor to max. output	Antenna (C2)





IMPORTANT- METAL BASE TUBES MUST BE USED IN THOSE SOCKETS AT WHICH SHIELDS ARE SHOWN.



Selectivity - 50 KC Broad at 1000 Times Signal

Intermediate Frequency - - - - - - 456 KC

Speaker - - - - - - - - - 6" P.M. Dynamic

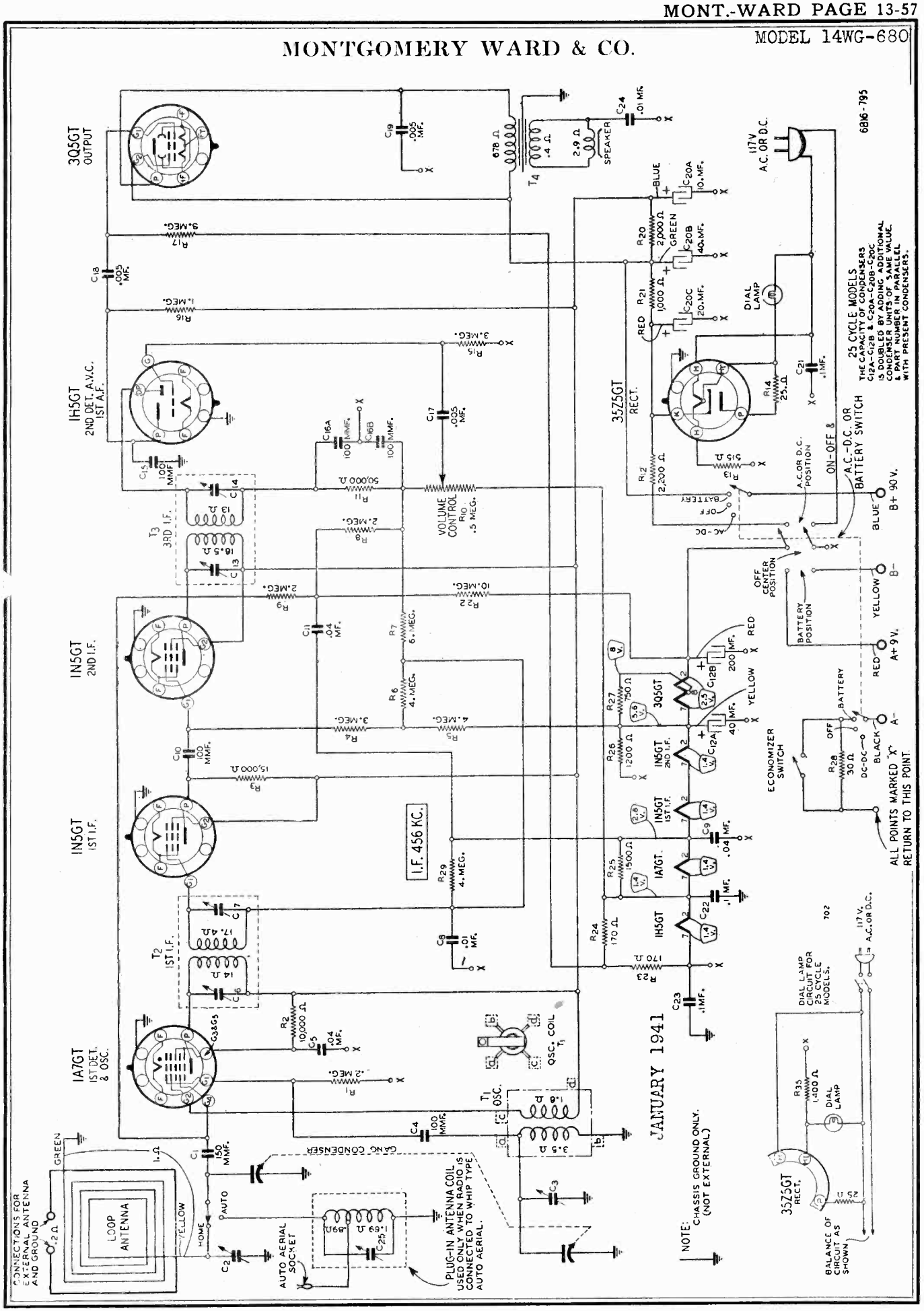
Tuning Frequency Range - - 540 to 1600 KC

Sensitivity (For .05 Watt Output)

External Antenna - - - 10 Microvolts Average

MONTGOMERY WARD & CO.

MODEL 14WG-680



SPECIFICATIONS

Input Voltages and Currents—Battery Operation
"A" Battery ..... 9 Volts—50 Ma.
"B" Battery ..... 90 Volts—11.5 Ma.

Power Consumption (At 117 volts AC Supply) 28 Watts

Power Output
Battery Operation - - - - 150 Mw. Undistorted, 350 Mw. Maximum
AC Operation - - - - - - 200 Mw. Undistorted, 400 Mw. Maximum

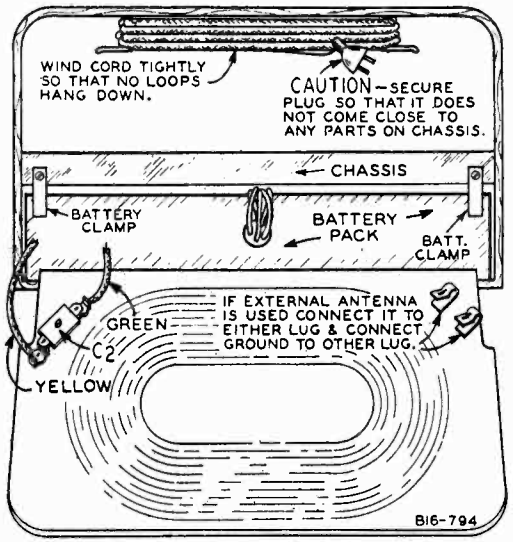
Selectivity - 50 KC Broad at 1000 Times Signal

Intermediate Frequency - - - - - - 456 KC

Speaker - - - - - - - - - 6" P.M. Dynamic

Tuning Frequency Range - - 540 to 1600 KC

Sensitivity (For .05 Watt Output)
External Antenna - - - 10 Microvolts Average



ALIGNMENT PROCEDURE

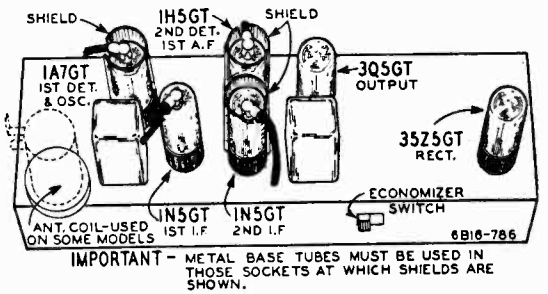
Volume Control—Maximum All Adjustments.

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

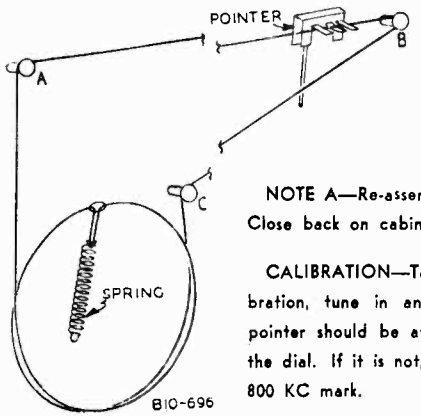
The following equipment is required for aligning:
A Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
Output Indicating Meter—Non-Metallic Screwdriver.
Dummy Antennas—.1 mf., 50 mmf.

SIGNAL GENERATOR FREQUENCY SETTING	ANTENNA CONNECTION	GROUND CONNECTION	DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration below)
456 KC	External Antenna Clip on Loop	External Ground Clip on Loop	.1 mf.	Turn Rotor to full open	1st I.F. (C6) & (C7) 3rd I.F. (C13) & (C14)
1600 KC	External Antenna Clip	External Ground Clip	.1 mf.	Turn Rotor to full open	Oscillator (C3)
1400 KC	External Antenna Clip See Note A	External Ground Clip	50 mmf.	Turn Rotor to max. output	Antenna (C2)

Car Antenna Adjustment—Tune in weak signal near 1400 KC—Adjust Car Antenna Trimmer C25 for maximum output. This trimmer is in special antenna coil can at left side of chassis (See illustration in Auto Installation Sheet).



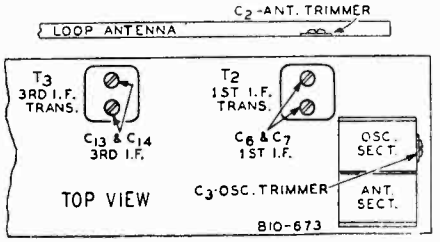
IMPORTANT - METAL BASE TUBES MUST BE USED IN THOSE SOCKETS AT WHICH SHIELDS ARE SHOWN.



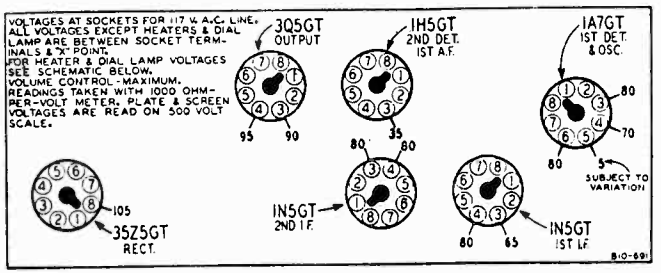
Dial Pointer Attachment—Tune in a signal of known frequency. Set pointer to this frequency mark on dial scale. Attach pointer to drive cord—See illustration.

NOTE A—Re-assemble chassis in cabinet. Close back on cabinet.

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, set the pointer at the 800 KC mark.

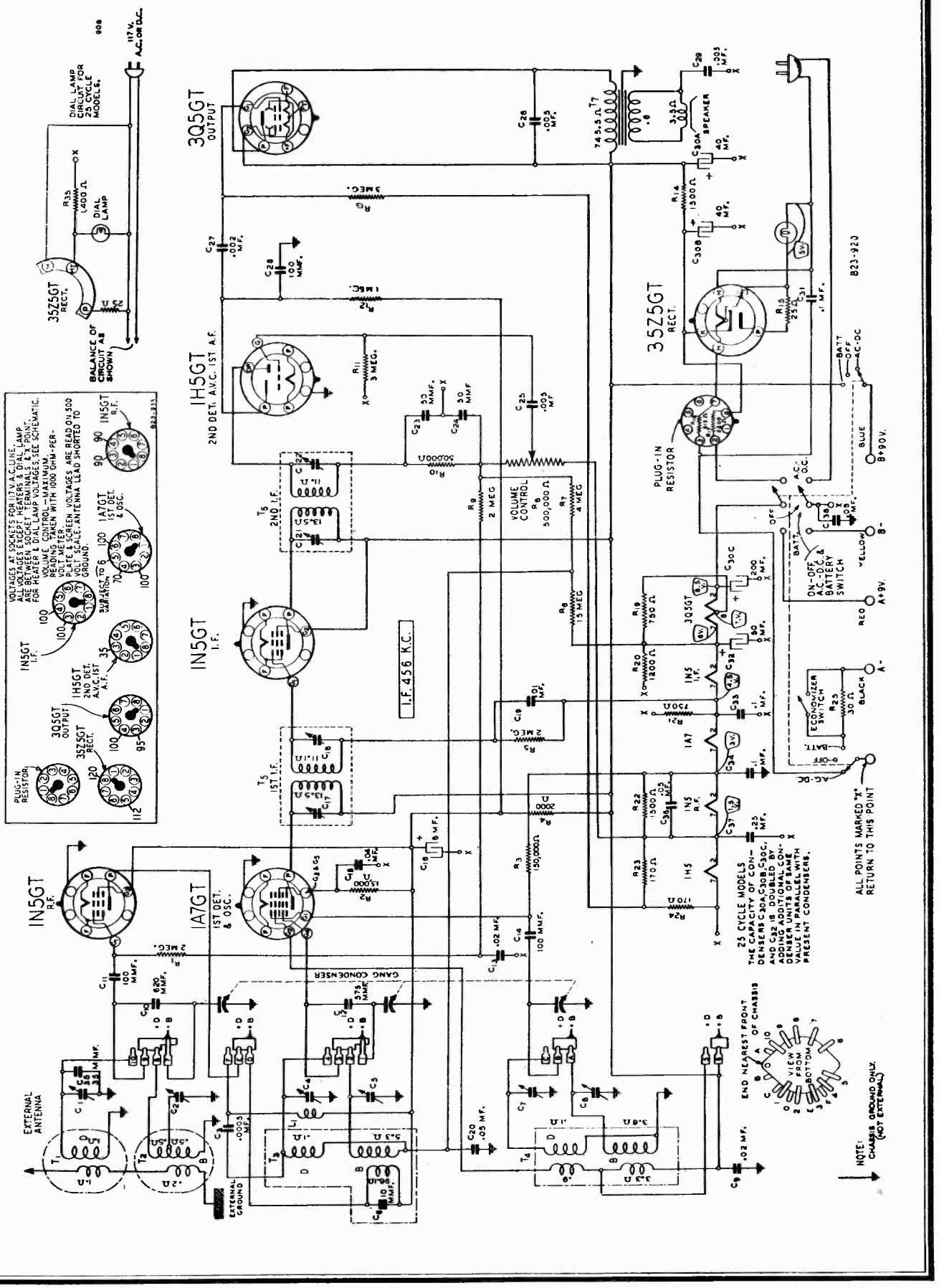


If radio is equipped with special antenna coil for use in car, make the following additional adjustment after the radio is installed in the car and the car antenna is connected.



MODEL 14WG-683B

MONTGOMERY-WARD & CO.



MODEL 14WG-683B

MONTGOMERY-WARD & CO.

SERVICE DATA (For Professional Service Men)

ALIGNMENT PROCEDURE MAY 1941

Volume Control—Maximum All Adjustments.

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

The equipment in column at right 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.

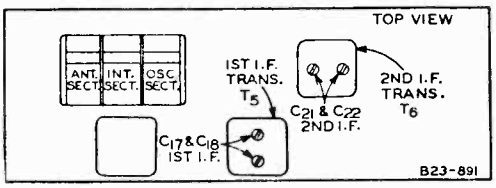
Dummy Antennas—.1 mf., 100 mmf., and 400 ohms.

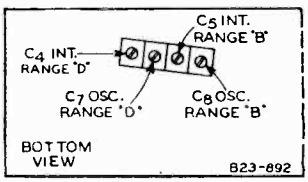
After each range is completed, repeat the procedure as a final check.

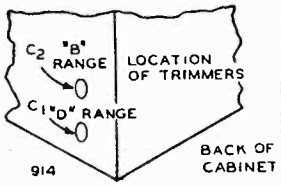
NOTE A—If the pointer is not at 1400 KC. set it at the 1400 KC mark on the dial scale.

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

SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR ANTENNA CONNECTION	SIGNAL GENERATOR GROUND CONNECTION	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER OR DIAL SETTING	ADJUST TRIMMERS TO MAXIMUM
Remove chassis from cabinet—disconnect the 3 loop leads at terminal strip on chassis.						
I.F. 456 KC	Top Grid 1A7GT 1st Det.	Point "X" {1H5GT—2nd Det. Prong No. 7}	.1 mf.	B Range	Turn Rotor to Full Open	2nd I.F. (C21) & (C22) 1st I.F. (C17) & (C18)
RANGE B 1610 KC	Top Grid 1N5GT RF Tube	Same as Above	.1 mf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C8)
1400 KC	Same as Above	Same as Above	.1 mf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC—See Note A	Int. Range B (C5)
RANGE D 18,300 KC	Same as Above	Same as Above	.1 mf.	D Range	Turn Rotor to Full Open	Oscillator Range D (C7)
17,500 KC	Same as Above	Same as Above	.1 mf.	D Range	Turn Rotor to Max. Output	Int. Range D (C4) Rock Rotor—See Note B
Reassemble chassis in the cabinet. Resolder loop leads. Both antenna terminals are reached through openings in the side of cabinet.						
LOOP RANGE B 1400 KC	External Antenna Clip	External Ground Clip	100 mmf.	B Range	Turn Rotor to Max. Output	Ant. Range B (C2)
LOOP RANGE D 17,500 KC	External Antenna Clip	External Ground Clip	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1)







Issue "B" Service Manual Supplement

JUNE 1941

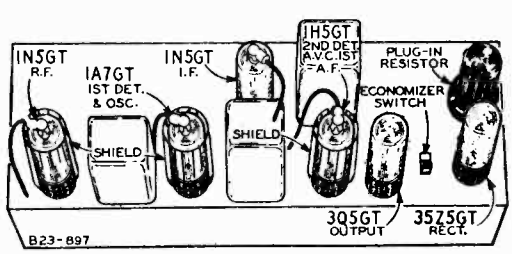
In the issue "B" chassis, a loading coil with an adjustable iron core is connected across the secondary winding of the shortwave loop aerial—See partial schematic circuit diagram below.

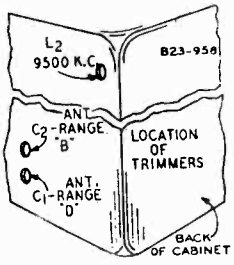
The interstage range "D" and interstage range "B" trimmers have been relocated—See trimmer illustrations below.

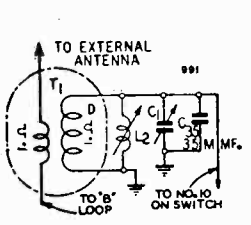
ADDITIONAL ALIGNMENT PROCEDURE

First complete the alignment procedure through Loop Range "B" as given in the instruction manual. Then make the following adjustment:

SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR ANTENNA CONNECTION	SIGNAL GENERATOR GROUND CONNECTION	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER OR DIAL SETTING	ADJUST TRIMMERS TO MAXIMUM
LOOP RANGE D 17,500 KC	External Antenna Clip	External Ground Clip	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1) Int. Range D (C4) Rock Rotor—See Note B
9,500 KC	Same as Above	Same as Above	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D Loading Coil

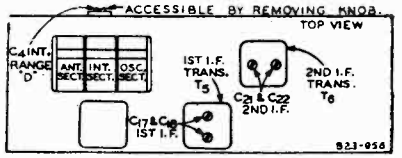


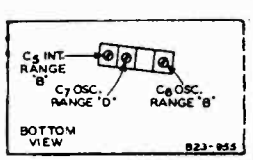




The following NEW PARTS are used in issue "B" models:

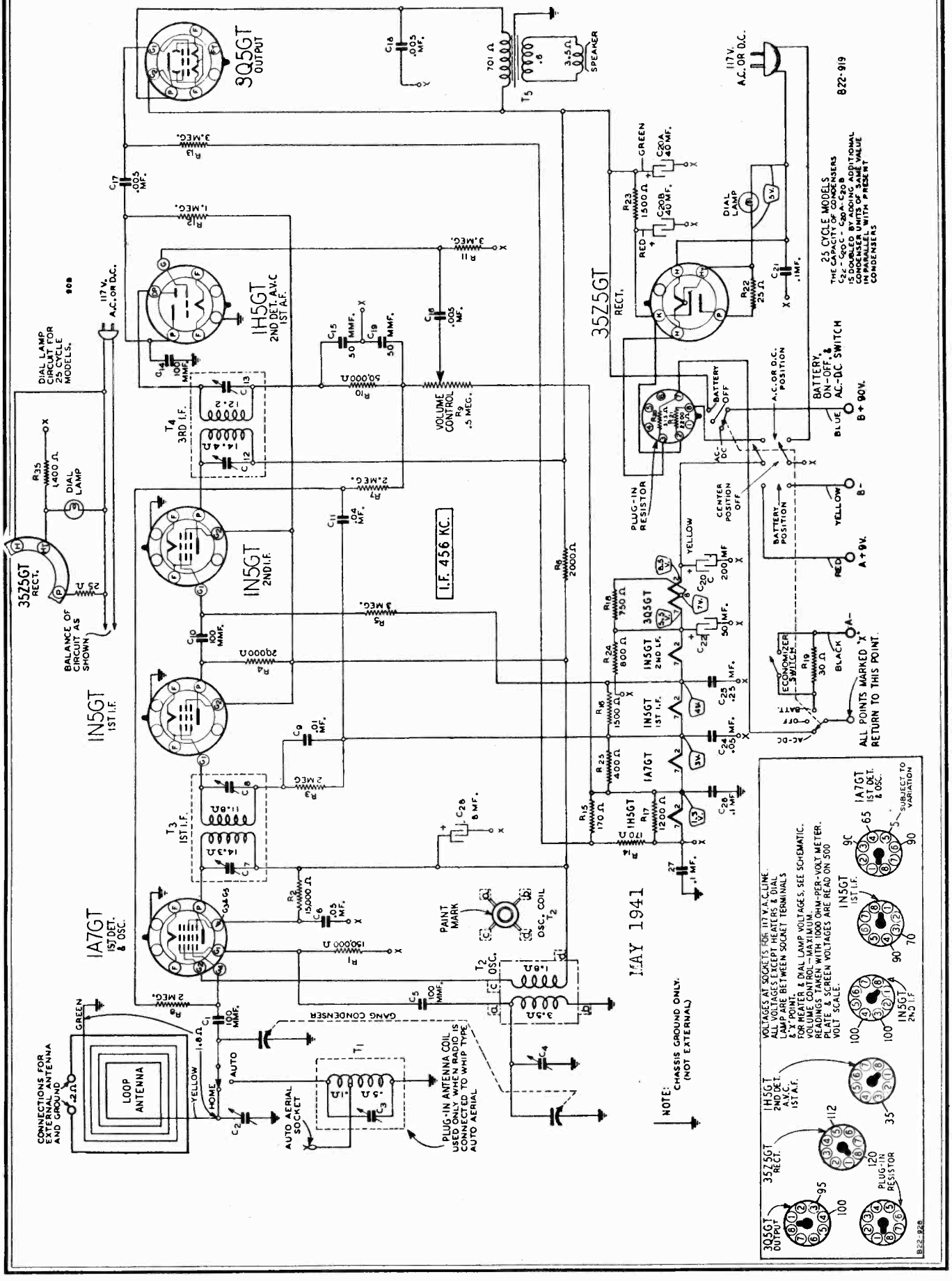
Part No.	Description	Selling Price
9A1437	L2 Loading Coil Assembly	$0.36
17A116	C4 Trimmer Condenser	.10





MODEL 14WG-690

MONTGOMERY-WARD & CO.



SPECIFICATIONS

Input Voltages and Currents—Battery Operation

"A" Battery - - - - 9 Volts—50 Ma.

"B" Battery - - - - 90 Volts—11.5 Ma.

Power Consumption - - - - - - 28 Watts (At 117 volts AC Supply)

Power Output

Battery Operation - 150 Mw. Undistorted, 350 Mw. Maximum

AC Operation - - - 200 Mw. Undistorted, 400 Mw. Maximum

Selectivity - 50 KC Broad at 1000 Times Signal

Intermediate Frequency - - - - - 456 KC

Speaker - - - - - - 5¼" P.M. Dynamic

Tuning Frequency Range - - 540 to 1600 KC

Sensitivity (For .05 Watt Output)

External Antenna - 10 Microvolts Average

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

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

The following equipment is required for aligning:

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

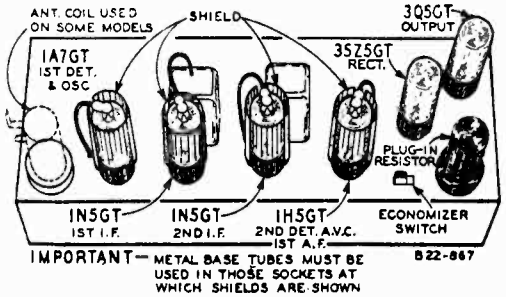
Output Indicating Meter—Non-Metallic Screwdriver.

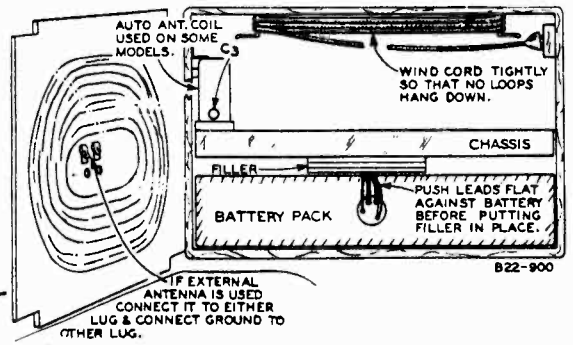
Dummy Antennas—.1 mf., 50 mmf.

Signal Gen. FREQUENCY SETTING	Signal Gen. ANTENNA CONNECTION	Signal Gen. GROUND CONNECTION	DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
456 KC	External Antenna Clip on Loop	External Ground Clip on Loop	.1 mf.	Turn Rotor to full open	1st I.F. (C7) & (C8) 3rd I.F. (C12) & (C13)
1600 KC	External Antenna Clip	External Ground Clip	.1 mf.	Turn Rotor to full open	Oscillator (C4)
If radio is equipped with special antenna coil for use in car, make the following additional adjustment after the radio is installed in the car and the car antenna is connected.					
Car Antenna Adjustment—Tune in weak signal near 1400 KC—Adjust Car Antenna Trimmer C3 for maximum output. This trimmer is in special antenna coil can at left side of chassis (See Illustration in Auto Installation Sheet).					

NOTE A—Reassemble chassis in Cabinet. Close back on cabinet.

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, set the pointer at the 800 KC mark.



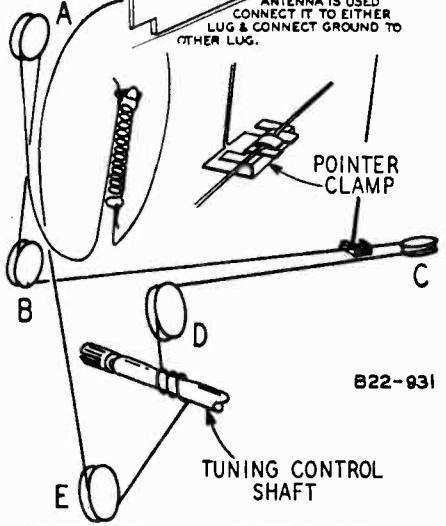


IF EXTERNAL ANTENNA IS USED CONNECT IT TO EITHER LUG & CONNECT GROUND TO OTHER LUG.

DRIVE CORD REPLACEMENT

Turn gang condenser to completely closed position—See illustration. Use a new drive cord 35 inches in length. Tie a knot with small loop at one end of drive cord. Secure loop to hook on drive pulley. Thread cord through hole in rim of drive pulley. Pass cord clockwise (from pulley side of chassis) around drive pulley and around pulleys A, B, C, and D as shown.

Wind cord 3½ turns clockwise (from rear of chassis) around tuning control shaft. Turns should progress toward back of chassis. Continue cord around pulley E and around gang condenser drive pulley as shown. Thread cord through hole in pulley rim and tie to tension spring. Fasten other end of spring to hook on pulley.



ANTENNA

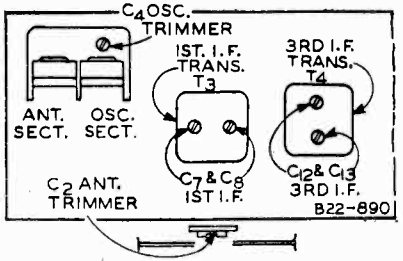
This radio is equipped with a built-in Airwave Loop Aerial. For reception of local or powerful nearby stations, no other antenna or ground is usually required. Directional effects are obtained when using the loop aerial. Rotate the radio until signal pickup is at a maximum and there is least interference from nearby stations.

More stations will be heard and noise will often be reduced by using an outside antenna and a good ground.

For locations in the city or close to broadcasting stations, the antenna should be 20 to 35 feet in length while for locations in the country or at a distance from the broadcasting stations, use a 35 to 60 foot antenna.

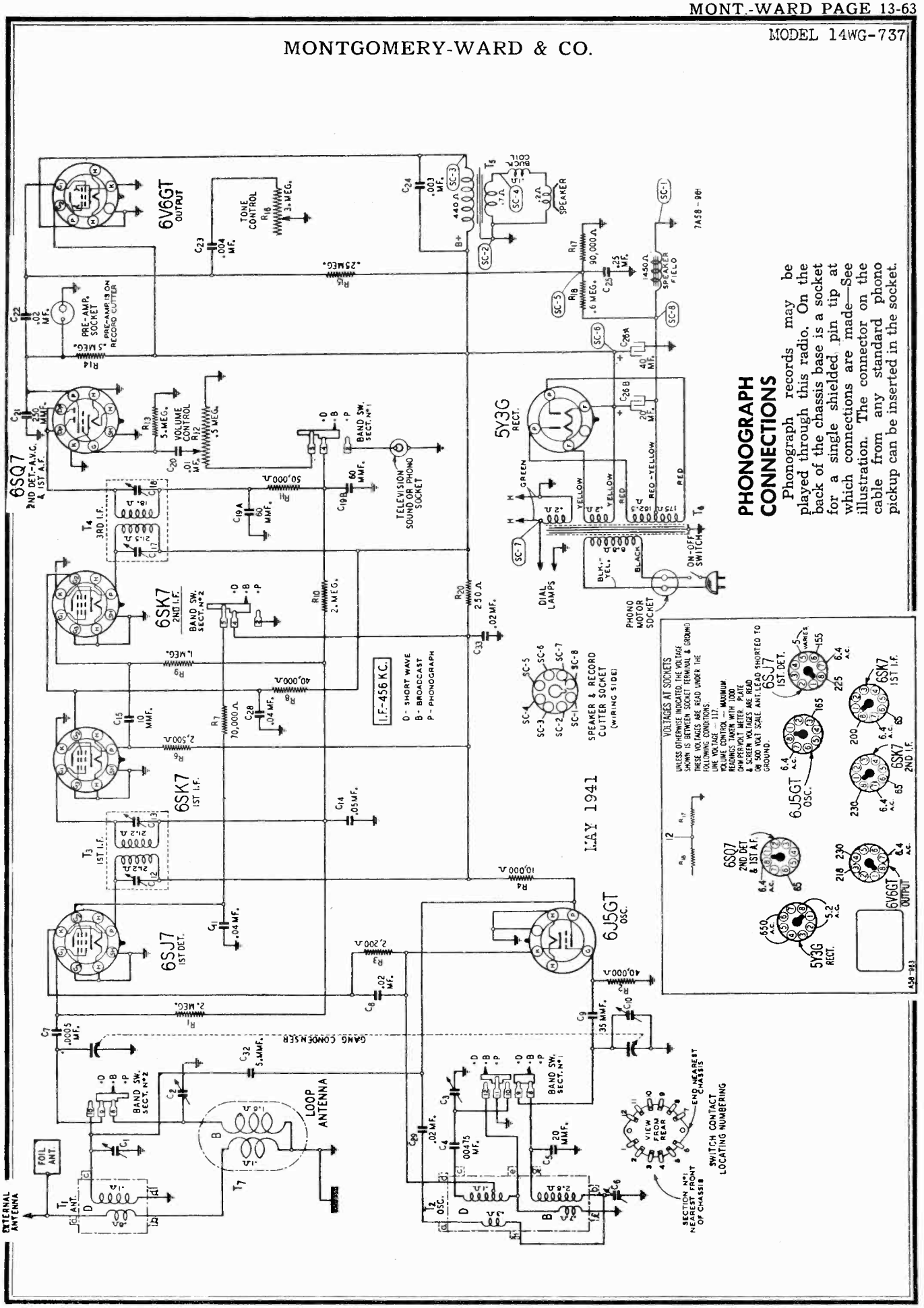
A GROUND CONNECTION IS REQUIRED if an external antenna is used. A ground connection may be obtained by connecting to a water pipe, radiator, or pipe driven into the ground.

The antenna and ground connections are made at the clips on the loop aerial. Open the cabinet back and pass the antenna and ground leads through the holes in the cabinet back—See illustration. Connect the antenna lead to either clip and the ground lead to the other clip.



MONTGOMERY-WARD & CO.

MODEL 14WG-737



PHONOGRAPH CONNECTIONS

Phonograph records may be played through this radio. On the back of the chassis base is a socket for a single shielded pin tip at which connections are made—See illustration. The connector on the cable from any standard phono pickup can be inserted in the socket.

ALIGNMENT PROCEDURE

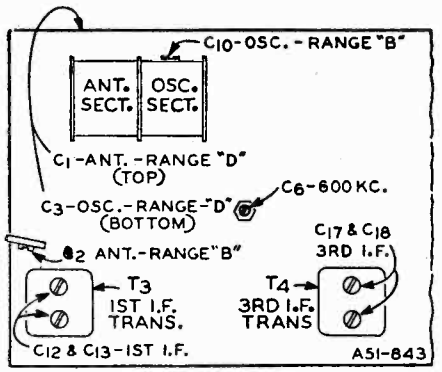
Volume Control—Maximum All Adjustments.

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., 100 mmf., and 400 ohms.

	SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
I.F.	456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C12) & (C13) 3rd I.F. (C17) & (C18)
RANGE B	1600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C10)
	1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC See Note A	Ant. Range B (C2)
	600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C6) Rock Rotor—See Note B
RANGE D	18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C3)
	17,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1) Rock Rotor—See Note B
LOOP RANGE B	Reassemble chassis in cabinet. 1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	Ant. Range B (C2)



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

NOTE A—If the pointer is not at 1400 KC on the dial, remove pointer from drive cord. Set pointer at the 1400 KC mark on the dial scale. Attach pointer to drive cord.

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

TELEVISION SOUND AND FREQUENCY MODULATION CONNECTIONS

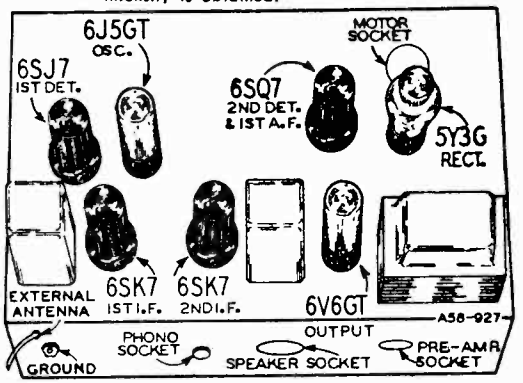
If Television or Frequency Modulation programs become available in your community, this radio may be used in conjunction with a Television Picture Receiver and Sound Converter, or a Frequency Modulation Converter to reproduce these programs.

On the back of the chassis base is a single pin tip socket. The connector on the cable from a television receiver or a frequency modulation converter can be inserted in this socket.

DIAL AND DRIVE ASSEMBLY

26A317	Pulley Mounting Plate Assembly complete with Idler Pulleys, Idler Studs, and Brace Bracket	
58X539	Dial Scale Glass	.28
58X541	Cardboard Background for Dial Scale Glass	.04
28X56	Snap Pins (To hold Background to Mounting Plate)	Doz. .06
30X184	Clamps for Dial Scale Glass	Ea. .06
4X627	Escutcheon for Dial Scale Glass	
	6 Escutcheon Screws—No. 2 x 3/8" Phillips Fr. Oval Hd. Stat. Bronze	Doz. .06
41X62	Lucite Light Intensifier (on Escutcheon)	.54
15X190	Pointer for Dial Scale	.06
	Drive Cord (18 lb. Test)	
28X44	Tension Spring for Drive Cord	.02
25X580	Tuning Shaft	.04
19X192	"C" Washers for Above Shaft	Doz. .06
7A142	Dial Lamp Socket and Cable Assembly	.10
7A32	Dial Lamp (No. 51)	in

PRICES SUBJECT TO CHANGE WITHOUT NOTICE



SPECIFICATIONS

Power Consumption
60 Watts (At 117 volts 60 cycles)
80 Watts (Phonograph Operating)

Power Output - - - - - - - 2.5 Watts Undistorted
3.5 Watts Maximum

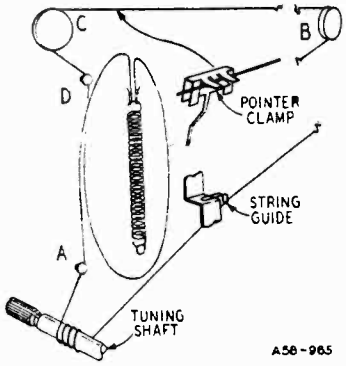
Selectivity - 40 KC Broad at 1000 times Signal

Intermediate Frequency - - - - - - - 456 KC

Speaker - - - - - - - - 8" Electro-Dynamic

Tuning Frequency Range
B Range - - - - - - - 528 to 1600 KC
D Range - - - - - - - 5750 to 18300 KC

Sensitivity—External Antenna
(For 0.5 Watt output)
B Range - - - - - - - 3 Microvolts Average
D Range - - - - - - - 5 Microvolts Average



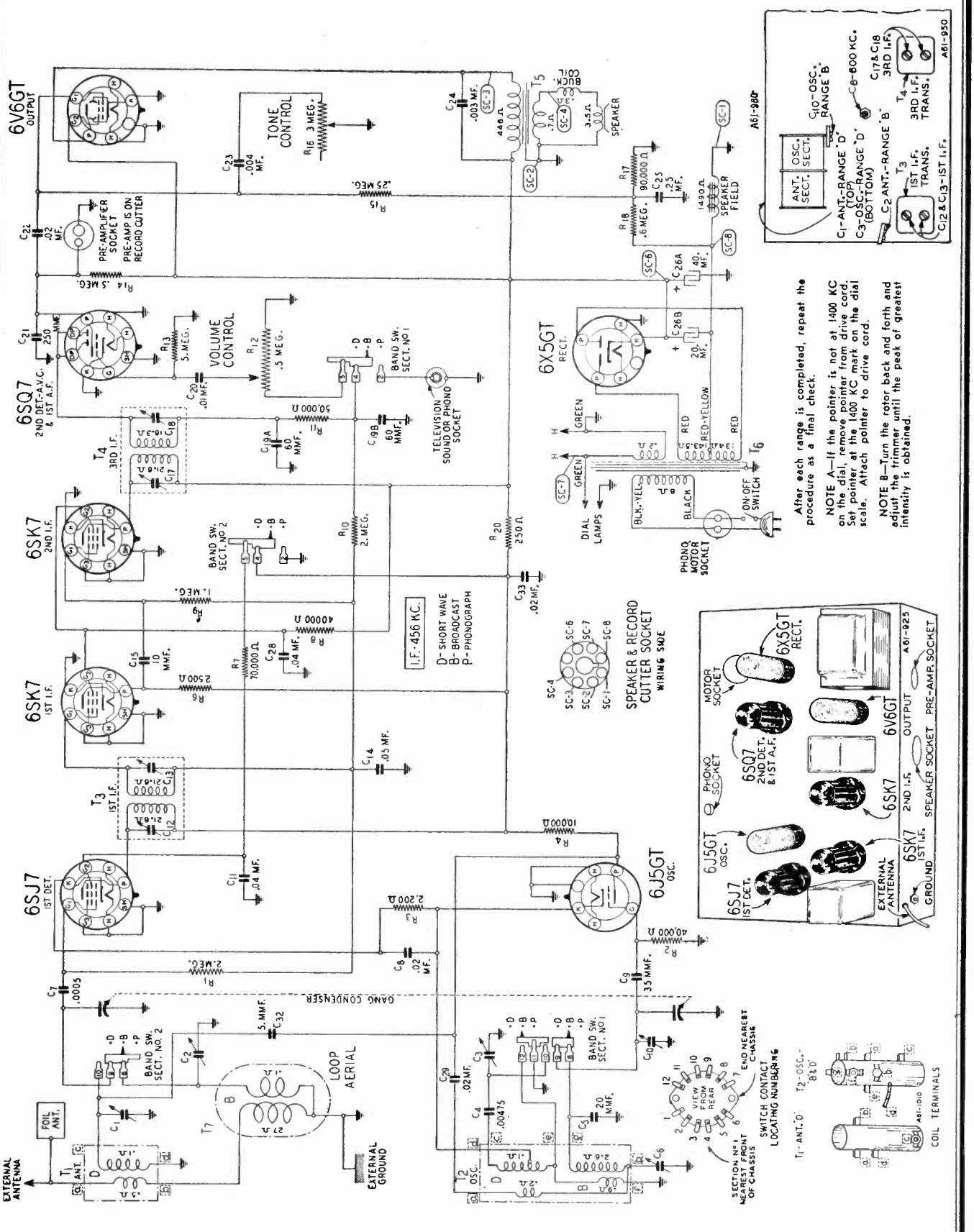
DRIVE CORD REPLACEMENT

Turn gang condenser to full open position. Using a new drive cord 43" in length, tie one end to tension spring. Fasten other end of tension spring to hook on drive pulley. Pass cord through slot in drive pulley rim and continue ¼ turn around drive pulley toward front of chassis. Continue cord around idler stud "A." Wind 3½ turns clockwise (from front of chassis) around tuning shaft. Turns should progress toward rear of chassis.

Pass cord through string guide, around idler pulleys "B" and "C" and idler stud "D"—See Illustration. Continue cord ¾ turn counter-clockwise (from gang end of chassis) around drive pulley. Cord should be on left side of pulley groove (from front of chassis). Pass cord through slot in pulley rim. Stretch tension spring and tie free end of cord to spring.

MODEL 14WG-739

MONTGOMERY-WARD & CO.



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

NOTE A—If the pointer is not at 1400 KC on the dial, remove pointer from drive cord. Set pointer at the 1400 KC mark on the dial scale. Attach pointer to drive cord.

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

MODEL 14WG-739

MONTGOMERY-WARD & CO.

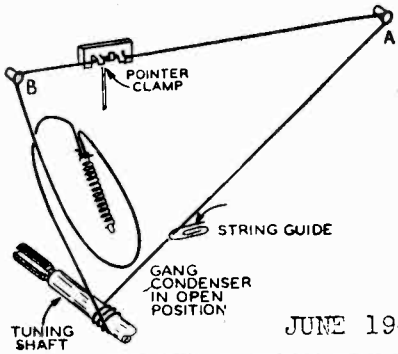
DRIVE CORD REPLACEMENT

Turn gang condenser to full open position—See illustration. Use a new drive cord 37 inches in length.

Tie one end of cord to tension spring. Pass other end of cord up through hole in groove of drive pulley. Pull cord through hole until spring is flush against inside of pulley rim.

Wind cord ¼ turn counter-clockwise (from gang end of chassis) around drive pulley. Then wind 3½ turns clockwise (from front of chassis) around tuning control shaft. These turns should progress away from chassis. Pass cord through wire string guide and over idler studs A and B as shown, then wind cord ¾ turn counter-clockwise (from gang end of chassis) around drive pulley. This turn should be on right side (from front of chassis) of pulley groove.

Pass cord through hole in groove of drive pulley. Tie cord to tension spring. Fasten other end of spring to hook on drive pulley.



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., 100 mmf., and 400 ohms.

	SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
I.F.	456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C12) & (C13) 3rd I.F. (C17) & (C18)
RANGE B	1600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C10)
	1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC See Note A	Ant. Range B (C2)
	600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C6) Rock Rotor—See Note B
RANGE D	18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C3)
	17,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1) Rock Rotor—See Note B
LOOP RANGE B	Reassemble chassis in cabinet. 1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	Ant. Range B (C2)

FOR RECORD CHANGER SIMILAR TO SEEBURG C SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".

SPECIFICATIONS

Power Consumption: 60 Watts (At 117 volts 60 cycles) 80 Watts (Phonograph Operating)

Power Output - - - 2.5 Watts Undistorted 3.5 Watts Maximum

Selectivity - 40 KC Broad at 1000 times Signal

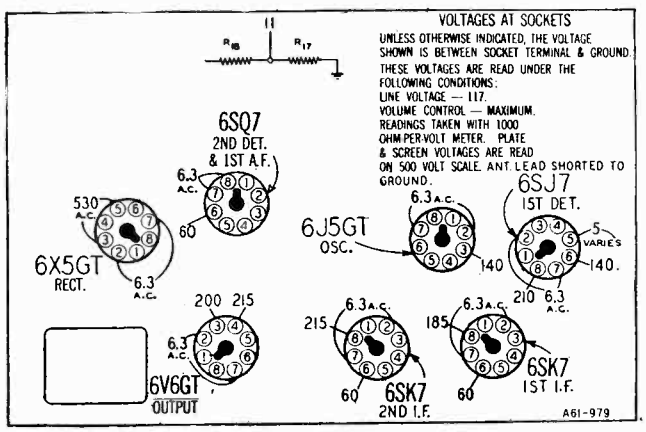
Intermediate Frequency - - - - - - - 456 KC

Speaker - - - - - - - - 6" Electro-Dynamic

Tuning Frequency Range
B Range - - - - - - 528 to 1600 KC
D Range - - - - - - 5750 to 18300 KC

Sensitivity—External Antenna—
(For 0.5 Watt output)
B Range - - - - - - 3 Microvolts Average
D Range - - - - - - 5 Microvolts Average

JUNE 1941



Unless otherwise marked, this radio must be operated on 105 to 125 volt, 60 cycle AC supply only. If there is any doubt, consult the local power company before inserting the plug. Radios of this model which are to be used on 25 cycle, 230 volt, or other service are so marked.

ANTENNA AND GROUND

Two built-in Air Wave Aerials are incorporated in the cabinet.

One of these, the loop aerial, is used for broadcast band reception. The other, a counterpoise foil aerial, is used for reception on the short wave band. For the reception of local or nearby stations, an outside antenna and ground are usually not required.

In general, however, more stations will be heard by using an outside antenna and ground. To receive distant short wave stations, an outside antenna is essential.

If an outside antenna is used, it should be 50 to 60 feet long, including the lead-in.

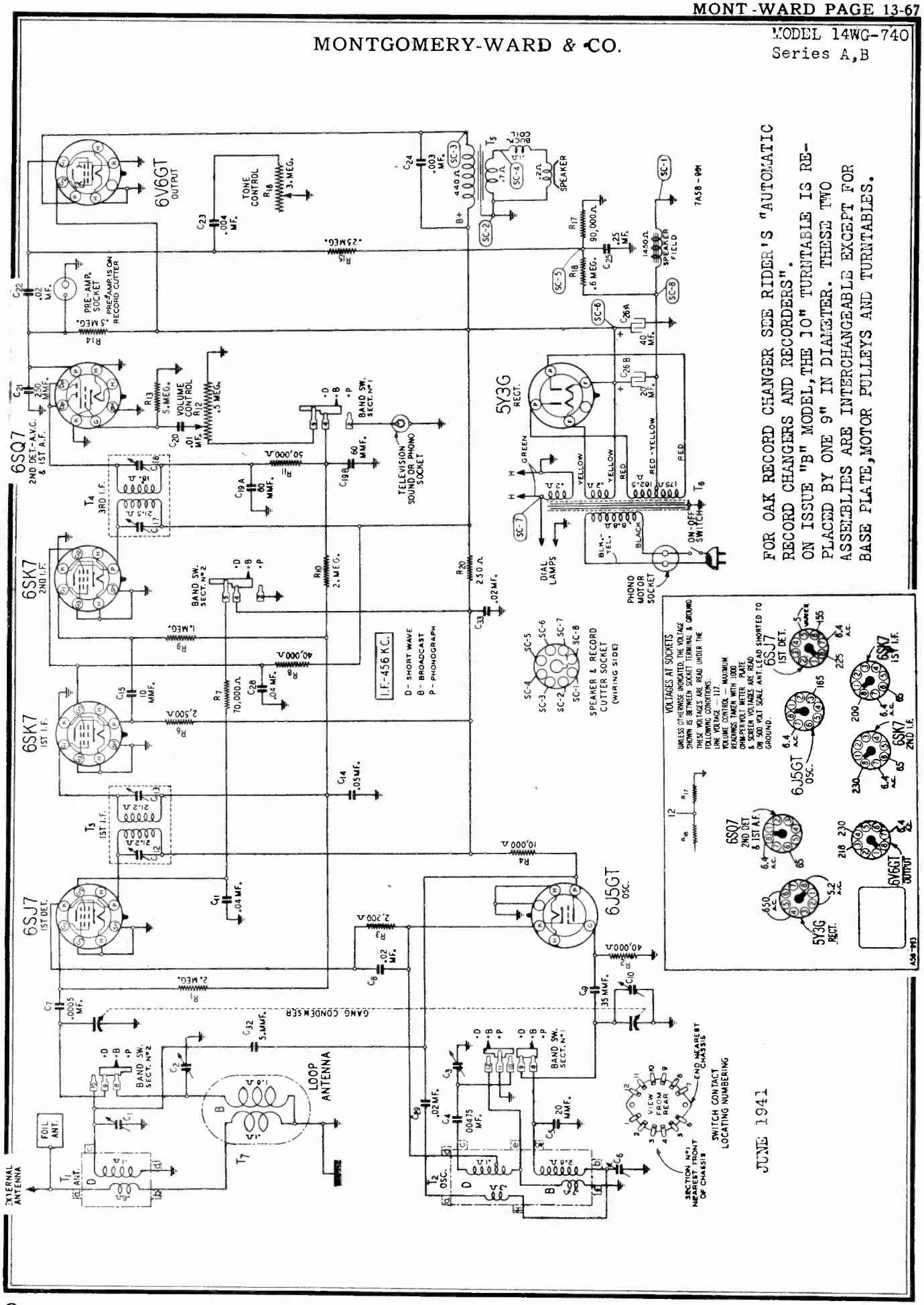
A good ground connection is recommended if an outside antenna is used. A ground connection may be obtained by connecting to a water pipe, radiator, or a pipe driven into the ground.

Avoid using gas pipes or electrical conduits for grounds.

The ground connection is made under the screw (marked GND) on the back panel of the chassis base.

MONTGOMERY-WARD & CO.

MODEL 14WG-740
Series A,B



FOR OAK RECORD CHANGER SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".
ON ISSUE "B" MODEL, THE 10" TURNTABLE IS REPLACED BY ONE 9" IN DIAMETER. THESE TWO ASSEMBLIES ARE INTERCHANGEABLE EXCEPT FOR BASE PLATE, MOTOR PULLEYS AND TURNTABLES.

JUNE 1941

ANTENNA AND GROUND

Two built-in Air Wave Aerials are incorporated in the cabinet.

A white wire with black tracer and an antenna marker will be found coming out of the chassis. If it is desired to operate the radio using the loop and counterpoise foil antennas, do not connect this wire to anything. If it is desired to operate the radio using an outside antenna, connect this wire to the lead from the outside antenna.

The wire which is connected to the counterpoise foil antenna should never be disconnected.

If an outside antenna is used, it should be 50 to 60 feet long, including the lead-in.

A good ground connection is recommended if an outside antenna is used. A ground connection may be obtained by connecting to a water pipe, radiator, or a pipe driven into the ground.

Avoid using gas pipes or electrical conduits for grounds.

The ground connection is made under the screw (marked GND) on the back panel of the chassis base.

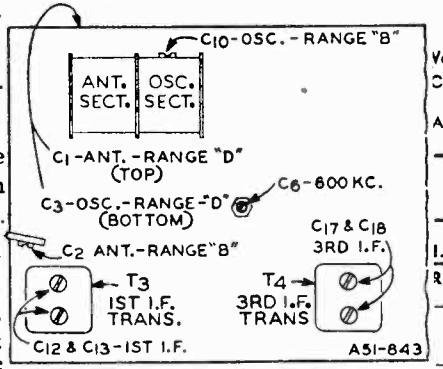
One of these, the loop aerial, is used for broadcast band reception. The other, a counterpoise foil aerial, is used for reception on the short wave band. For the reception of local or nearby stations, an outside antenna and ground are usually not required.

SPECIFICATIONS

Power Consumption	60 Watts (At 117 volts 60 cycles) 80 Watts (Phonograph Operating)
Power Output	2.5 Watts Undistorted 3.5 Watts Maximum
Selectivity	40 KC Broad at 1000 times Signal
Intermediate Frequency	456 KC
Speaker	8" Electro-Dynamic
Tuning Frequency Range	
B Range	528 to 1600 KC
D Range	5750 to 18300 KC
Sensitivity—External Antenna—(For 0.5 Watt output)	
B Range	3 Microvolts Average
D Range	5 Microvolts Average

In general, however, more stations will be heard by using an outside antenna and ground. To receive distant short wave stations, an outside antenna is essential.

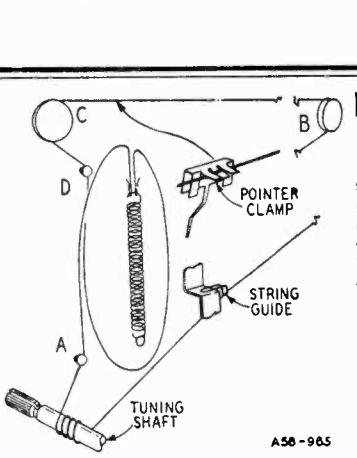
TELEVISION SOUND AND FREQUENCY MODULATION CONNECTIONS



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

NOTE A—If the pointer is not at 1400 KC on the dial, remove pointer from drive cord. Set pointer at the 1400 KC mark on the dial scale. Attach pointer to drive cord.

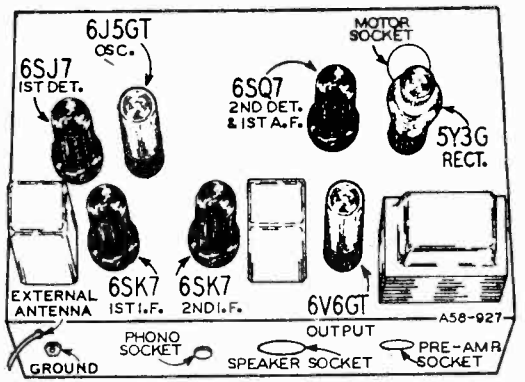
NOTE B—Turn the rotor back and forth and adjust the trimmer until the peak of greatest intensity is obtained.



DRIVE CORD REPLACEMENT

Turn gang condenser to full open position. Using a new drive cord 43" in length, tie one end to tension spring. Fasten other end of tension spring to hook on drive pulley. Pass cord through slot in drive pulley rim and continue ¾ turn around drive pulley toward front of chassis. Continue cord around idler stud "A." Wind 3½ turns clockwise (from front of chassis) around tuning shaft. Turns should progress toward rear of chassis.

Pass cord through string guide, around idler pulleys "B" and "C" and idler stud "D"—See Illustration. Continue cord ¾ turn counter-clockwise (from gang end of chassis) around drive pulley. Cord should be on left side of pulley groove (from front of chassis). Pass cord through slot in pulley rim. Stretch tension spring and tie free end of cord to spring.



On the back of the chassis base is a socket to which is connected the phono cable shielded pin tip. Upon removal of this pin tip, the connector on the cable from a television receiver or a frequency modulation converter can be inserted in the socket.

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.

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

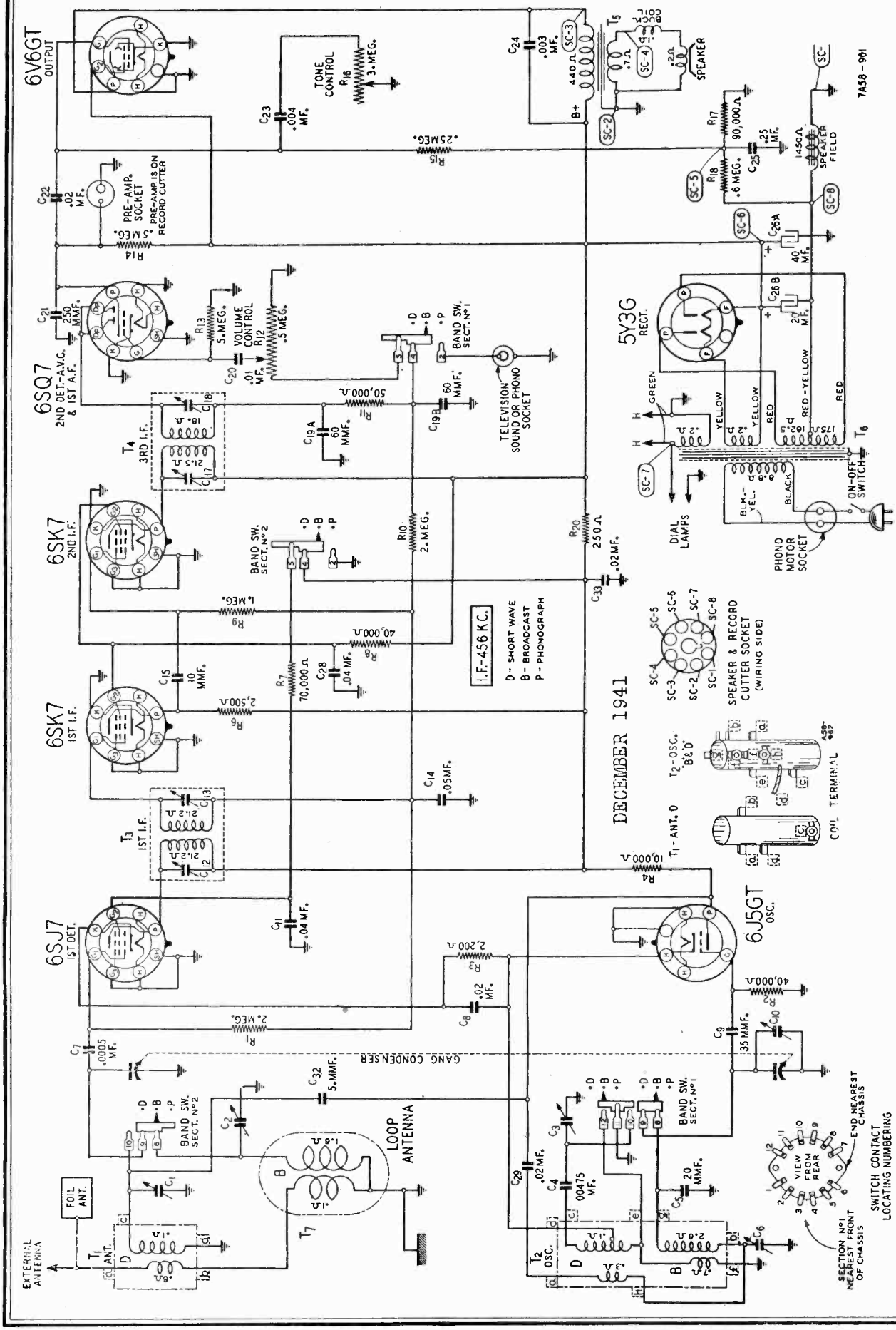
Allow Chassis and Signal Generator to "Heat Up" for several minutes.

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., 100 mmf., and 400 ohms.

	SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
I.F.	456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C12) & (C13) 3rd I.F. (C17) & (C18)
RANGE B	1600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C10)
	1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC See Note A	Ant. Range B (C2)
	600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C6) Rock Rotor—See Note B
RANGE D	18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C3)
	17,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1) Rock Rotor—See Note B
LOOP RANGE B	Reassemble chassis in cabinet.					
	1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	Ant. Range B (C2)

MONTGOMERY-WARD & CO.

MODEL 14WG-741



CHECK YOUR LINE VOLTAGE

Unless otherwise marked, this radio must be operated on 105 to 125 volt, 60 cycle AC supply only. If there is any doubt, consult the local power company before inserting the plug. Radios of this model which are to be used on 25 cycle, 230 volt, or other service are so marked.

MODEL 14WG-741

MONTGOMERY-WARD & CO.

ALIGNMENT PROCEDURE

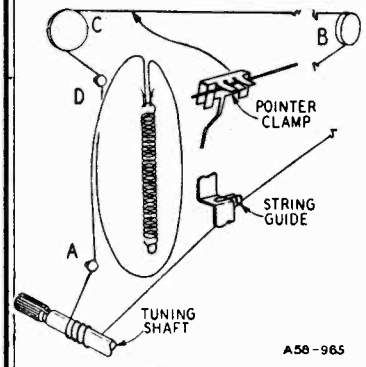
Volume Control—Maximum All Adjustments.

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., 100 mmf., and 400 ohms.

	SIGNAL GENERATOR FREQUENCY SETTING	SIGNAL GENERATOR CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
I.F.	456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C12) & (C13) 3rd I.F. (C17) & (C18)
RANGE B	1600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C10)
	1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC See Note A	Ant. Range B (C2)
	600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C6) Rock Rotor—See Note B
RANGE D	18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C3)
	17,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1) Rock Rotor—See Note B
LOOP RANGE B	Reassemble chassis in cabinet. 1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	Ant. Range B (C2)



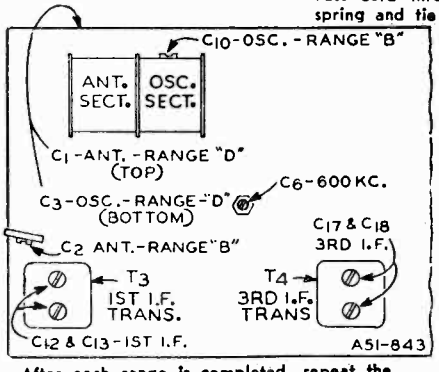
DRIVE CORD REPLACEMENT

Turn gang condenser to full open position. Using a new drive cord 43" in length, tie one end to tension spring. Fasten other end of tension spring to hook on drive pulley. Pass cord through slot in drive pulley rim and continue ¼ turn around drive pulley toward front of chassis. Continue cord around idler stud "A." Wind 3½ turns clockwise (from front of chassis) around tuning shaft. Turns should progress toward rear of chassis.

Pass cord through string guide, around idler pulleys "B" and "C" and idler stud "D"—See Illustration. Continue cord ¾ turn counter-clockwise (from gang end of chassis) around drive pulley. Cord should be on left side of pulley groove (from front of chassis). Pass cord through slot in pulley rim. Stretch tension spring and tie free end of cord to spring.

A white wire with black tracer and an antenna marker will be found coming out of the chassis. If it is desired to operate the radio using the loop and counterpoise foil antennas, do not connect this wire to anything. If it is desired to operate the radio using an outside antenna, connect this wire to the lead from the outside antenna.

The wire which is connected to the counterpoise foil antenna should never be disconnected.

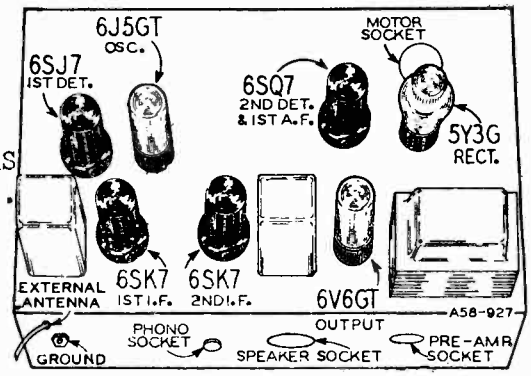


After each range is completed, repeat the procedure as a final check.

NOTE A—If the pointer is not at 1400 KC on the dial, remove pointer from drive cord. Set pointer at the 1400 KC mark on the dial scale. Attach pointer to drive cord.

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

FOR SEEBURG MODEL J RECORD CHANGER SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".



SPECIFICATIONS

Power Consumption — 60 Watts (At 117 volts 60 cycles) 80 Watts (Phonograph Operating)

Power Output — 2.5 Watts Undistorted 3.5 Watts Maximum

Selectivity - 40 KC Broad at 1000 times Signal

Intermediate Frequency — 456 KC

Speaker — 8" Electro-Dynamic

Tuning Frequency Range

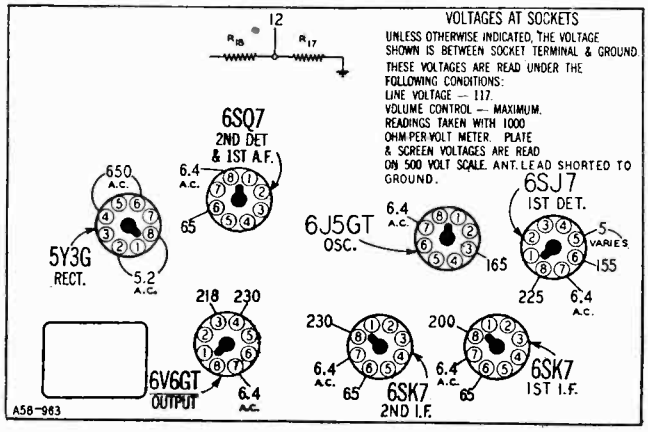
B Range — 528 to 1600 KC

D Range — 5750 to 18300 KC

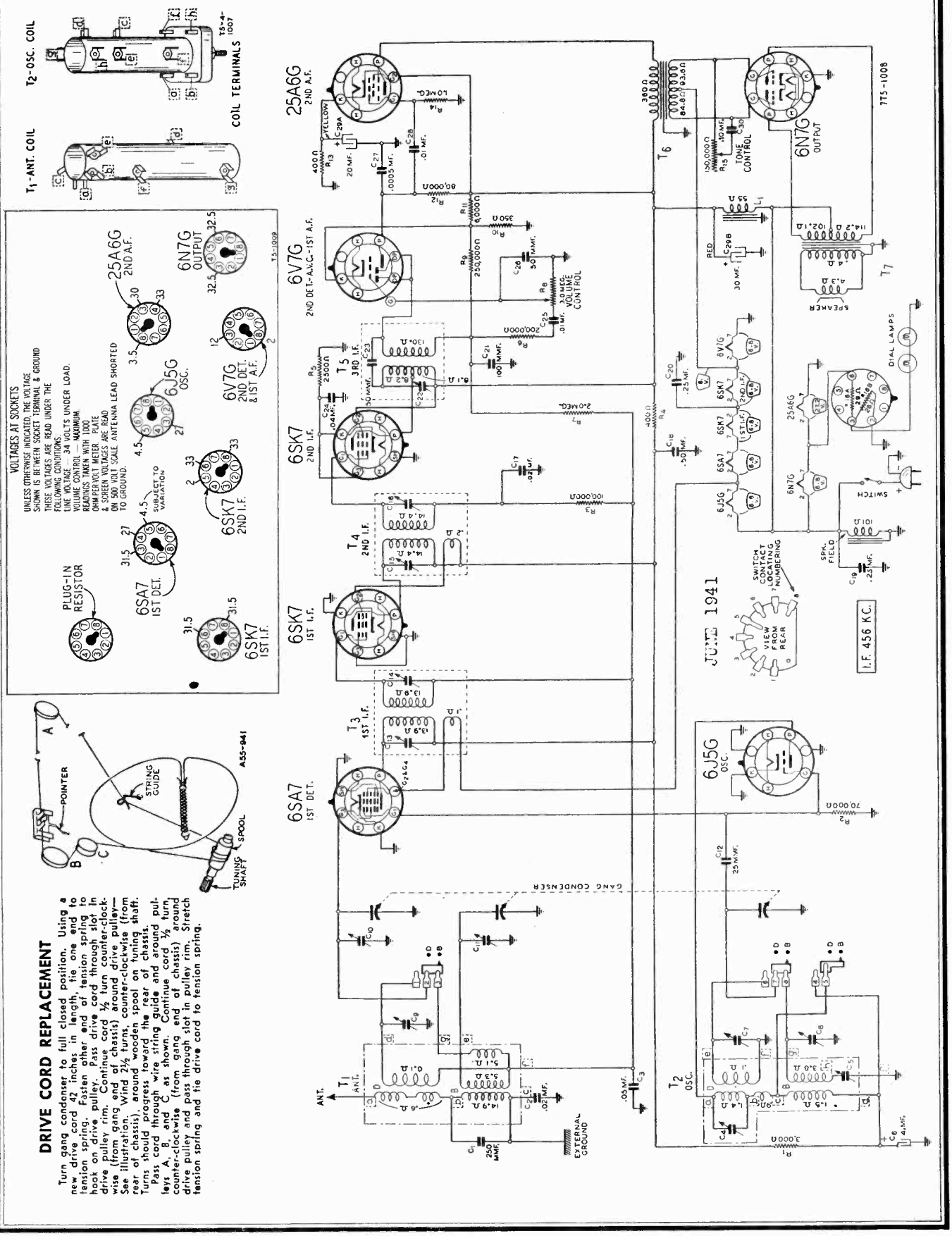
Sensitivity—External Antenna—
(For 0.5 Watt output)

B Range — 3 Microvolts Average

D Range — 5 Microvolts Average



MONTGOMERY-WARD & CO.



DRIVE CORD REPLACEMENT

Turn gang condenser to full closed position. Using a new drive cord 42 inches in length, tie one end to tension spring. Fasten other end of tension spring to hook on drive pulley. Pass drive cord through slot in drive pulley rim. Continue cord ½ turn counter-clockwise (from gang end of chassis) around drive pulley—See illustration. Wind 2½ turns, counter-clockwise (from rear of chassis), around wooden spool on tuning shaft. Turns should progress toward the rear of chassis.

Pass cord through wire string guide and around pulleys A, B, and C as shown. Continue cord ½ turn, counter-clockwise (from gang end of chassis) around drive pulley and pass through slot in pulley rim. Stretch tension spring and tie drive cord to tension spring.

ANTENNA AND GROUND

For best results, an outside antenna 50 to 60 feet long, including the lead-in, should be used. An inside antenna is not satisfactory for this radio. The antenna should be as high and as far from surrounding objects as possible.

Run the antenna at right angles to any 32 volt lines and keep it as far away from these lines as possible in order to avoid line noise being carried into the radio via the antenna.

A good ground connection is required. A ground connection may be obtained by connecting to a water pipe, a pipe driven into the ground, or to the metal jacket of a water pump. *Do not ground the radio to the 32 volt system conduit or fittings at any point.*

Two wires will be found coming out of the chassis. Connect the wire with the antenna marker to the antenna lead and the wire with the ground marker to the ground lead.

32 VOLT POWER SUPPLY

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. The radio may not be satisfactory on plants which do not use storage batteries.

Polarity of 32 Volt Power Supply—Insert plug so that prong on same side as *ribbed* side of cord is on the positive side of the line.

If the polarity of the line is not known, insert plug. If the tubes light but no sounds are heard from the speaker after the plug has been in one minute, reverse the plug.

ALIGNMENT PROCEDURE

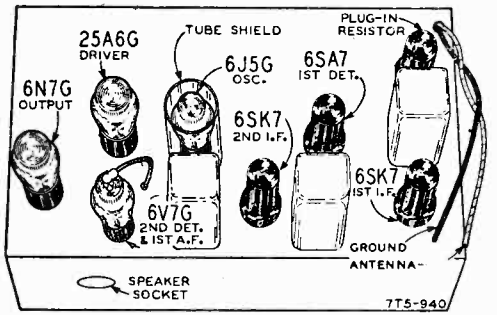
Volume Control—Maximum All Adjustments.
Connect Radio Chassis to Ground Post of Signal Generator with a Short Heavy Lead.
Allow Chassis and Signal Generator to "Heat Up" for several minutes.

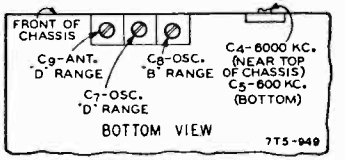
The following equipment is required for aligning:
An All Wave Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
Output Indicating Meter—Non-Metallic Screwdriver.
Dummy Antennas—.1 mf., 200 mmf., and 400 ohms.

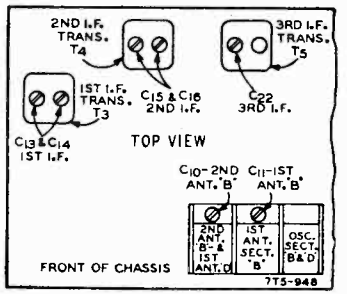
	SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
I. F.	456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C13) & (C14) 2nd I.F. (C15) & (C16) 3rd I.F. (C22)
RANGE B	1610 KC	Antenna Lead	200 mmf.	B Range	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	1st Ant. Range B (C11) 2nd Ant. Range B (C10)
	600 KC	Antenna Lead	200 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C5) Rock Rotor—See Note B
RANGE D	18,300 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C7)
	16,000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C9) Rock Rotor—See Note B
	6000 KC	Antenna Lead	400 Ohm	D Range	Turn Rotor to Max. Output	6000 KC (C4) Rock Rotor—See Note B

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.







SPECIFICATIONS

Power Consumption	1.60 Amperes at 36 Volts DC
Power Output	.17 Watt Undistorted .40 Watt Maximum
Selectivity	30 KC Broad at 1000 times Signal
Sensitivity (For .05 watt output)	
B Range	6.0 Microvolts Average
D Range	8.0 Microvolts Average
Intermediate Frequency	456 KC
Speaker	6" or 8" Electro-Dynamic
Tuning Frequency Range	
B Range	535 to 1610 KC (Kilocycles)
D Range	5750 to 18300 KC (Kilocycles)

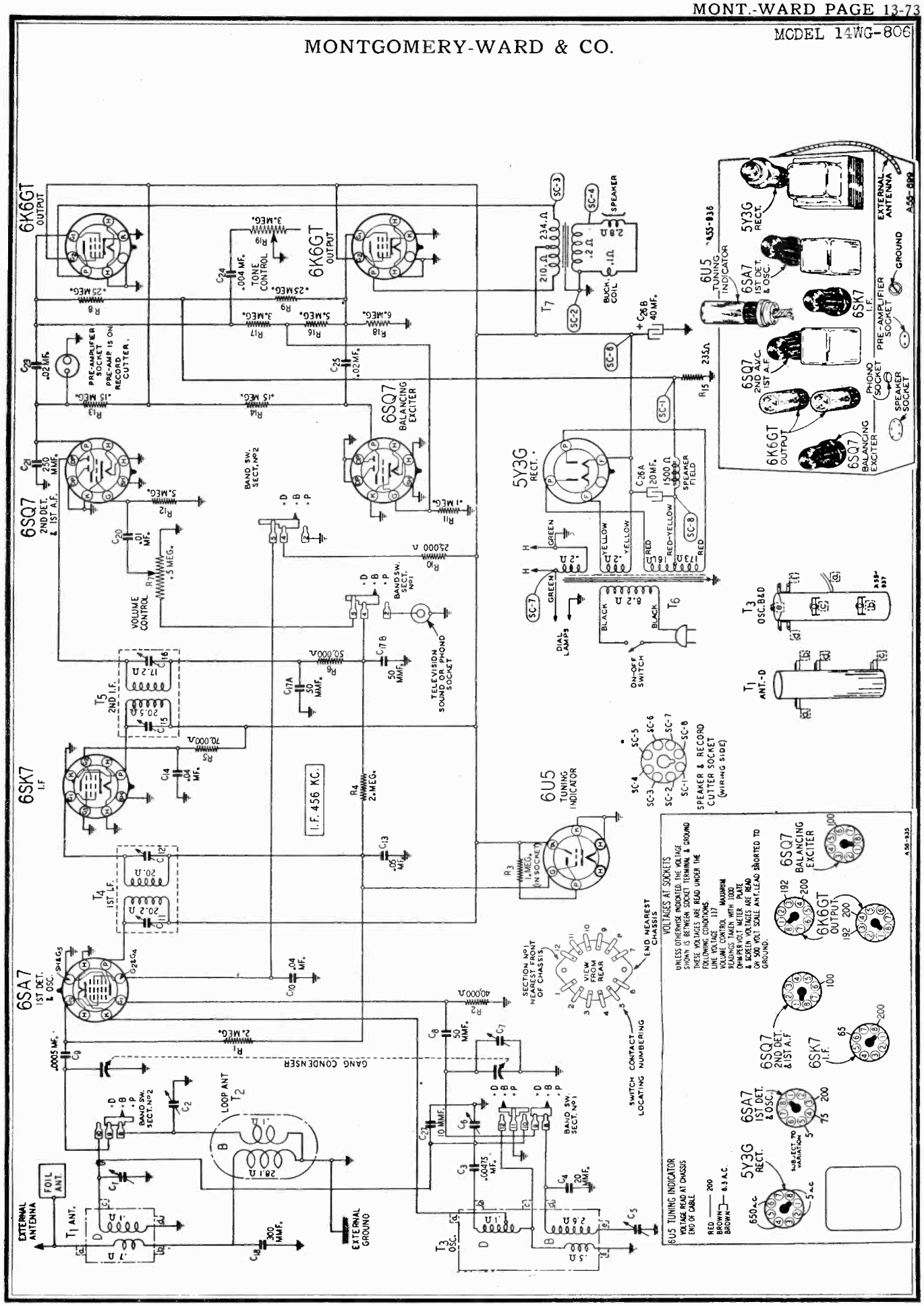
After each range is completed, repeat the procedure as a final check.

NOTE A—If the pointer is not at 1500 KC on the dial, remove pointer from drive cord. Set pointer at the 1500 KC mark on the dial scale. Attach pointer to drive cord.

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

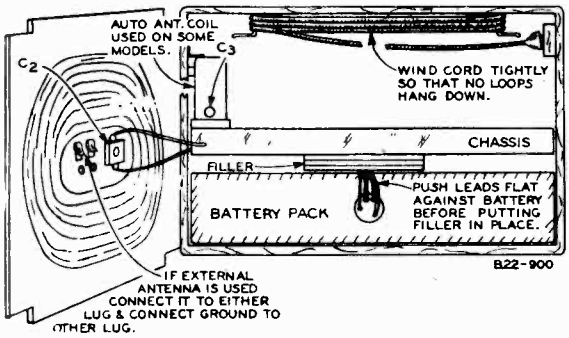
MODEL 14WG-806

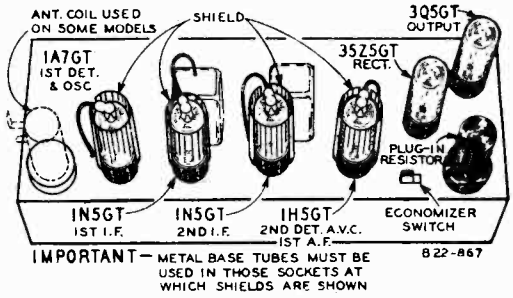
MONTGOMERY-WARD & CO.



MODEL 14WG-690
MODEL 14WC-806

MONTGOMERY-WARD & CO.





MODEL 14WG-690

Input Voltages and Currents—Battery Operation

"A" Battery - - - - 9 Volts—50 Ma.

"B" Battery - - - - 90 Volts—11.5 Ma.

Power Consumption - - - - - - 28 Watts (At 117 volts AC Supply)

Power Output

Battery Operation - 150 Mw. Undistorted, 350 Mw. Maximum

AC Operation - - - 200 Mw. Undistorted, 400 Mw. Maximum

Selectivity - 50 KC Broad at 1000 Times Signal

Intermediate Frequency - - - - - 456 KC

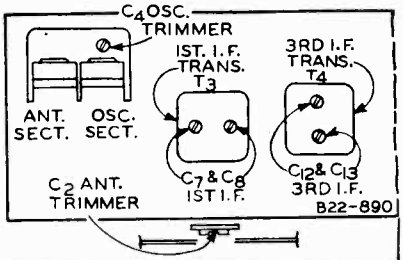
Speaker - - - - - - 5¼" P.M. Dynamic

Tuning Frequency Range - - 540 to 1600 KC

Sensitivity (For .05 Watt Output)
External Antenna - 10 Microvolts Average

ALIGNMENT PROCEDURE

Volume Control—Maximum All Adjustments.
Allow Chassis and Signal Generator to "Heat Up" for several minutes.
The following equipment is required for aligning:
A 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., 50 mmf.

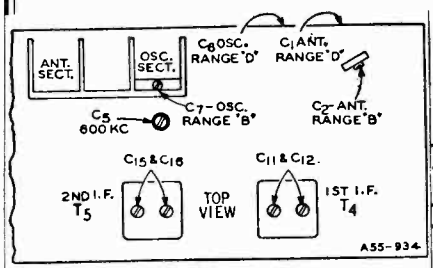


Signal Gen. FREQUENCY SETTING	ANTENNA CONNECTION	GROUND CONNECTION	DUMMY ANTENNA	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
456 KC	External Antenna Clip on Loop	External Ground Clip on Loop	.1 mf.	Turn Rotor to full open	1st I.F. (C7) & (C8) 3rd I.F. (C12) & (C13)
1600 KC	External Antenna Clip	External Ground Clip	.1 mf.	Turn Rotor to full open	Oscillator (C4)
1400 KC	External Antenna Clip See Note A	External Ground Clip	50 mmf.	Turn Rotor to max. output	Antenna (C2)
If radio is equipped with special antenna coil for use in car, make the following additional adjustment after the radio is installed in the car and the car antenna is connected.					
Car Antenna Adjustment—Tune in weak signal near 1400 KC—Adjust Car Antenna Trimmer C3 for maximum output. This trimmer is in special antenna coil can at left side of chassis (See illustration in Auto Installation Sheet).					

NOTE A—Reassemble chassis in Cabinet. Close back on cabinet.

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, set the pointer at the 800 KC mark.

MODEL 14WG-806



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

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

NOTE B—If the pointer is not at 1400 KC on the dial, remove pointer from drive cord. Set pointer at the 1400 KC mark on the dial scale. Attach pointer to drive cord.

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., 100 mmf., and 400 ohms.

SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
Loosen chassis mounting bolts and swing chassis back a sufficient amount to get at the trimmers.					
I.F. 456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C11) & (C12) 2nd I.F. (C15) & (C16)
RANGE D 18,300 KC	External Antenna Clip or Lead	400 Ohm	D Range	Turn Rotor to Full Open	Oscillator Range D (C6)
17,000 KC	External Antenna Clip or Lead	400 Ohm	D Range	Turn Rotor to Max. Output	Ant. Range D (C1) Rock Rotor—See Note A
Reassemble chassis in cabinet.					
RANGE B 1600 KC	External Antenna Clip or Lead	100 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C7)
1400 KC	External Antenna Clip or Lead	100 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC—See Note B	Ant. Range B (C2)
600 KC	External Antenna Clip or Lead	100 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C5) Rock Rotor—See Note A

SPECIFICATIONS

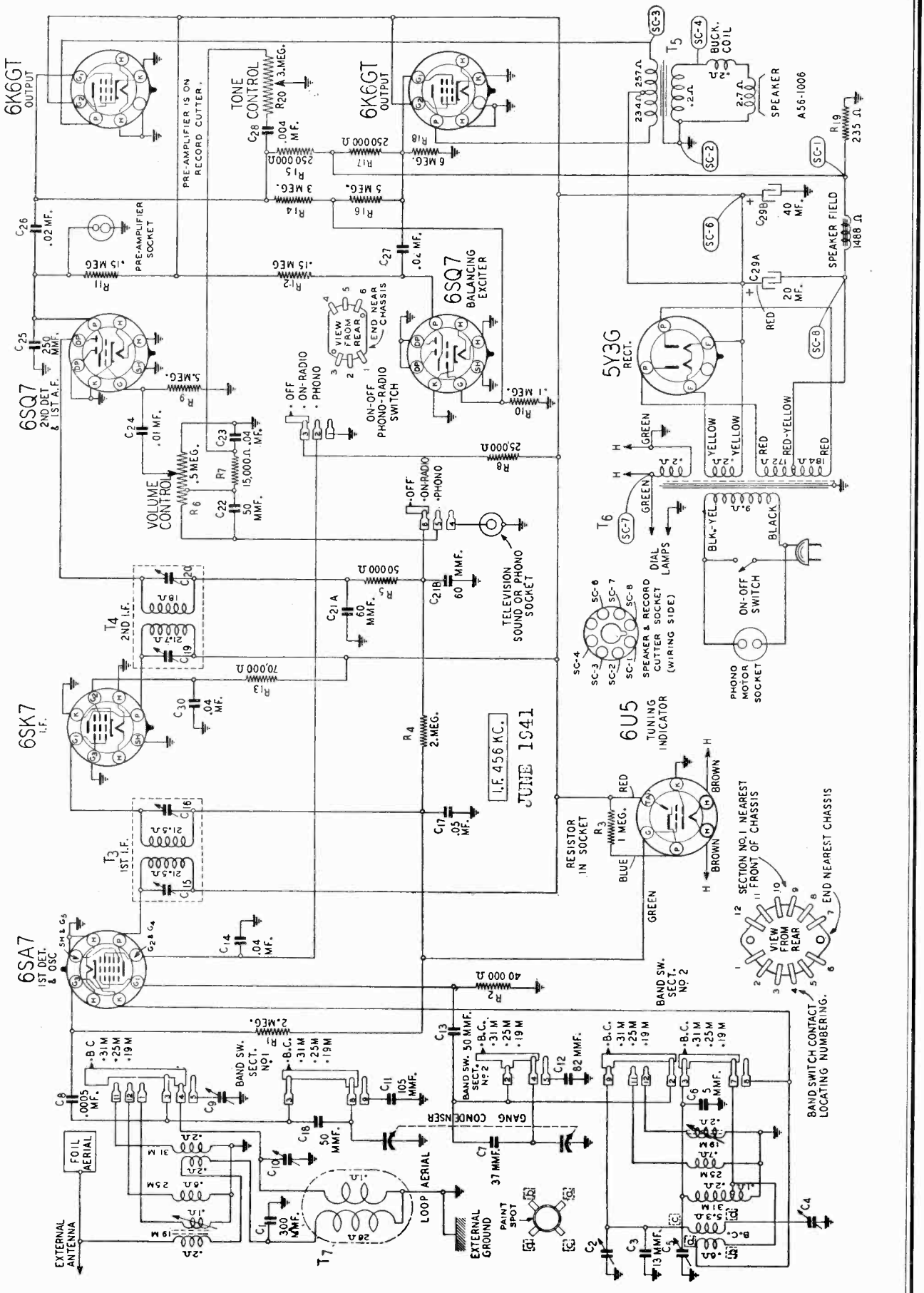
Tuning Frequency Range
B Range - - - - - - - 528 to 1600 KC
D Range - - - - - - - 5750 to 18300 KC

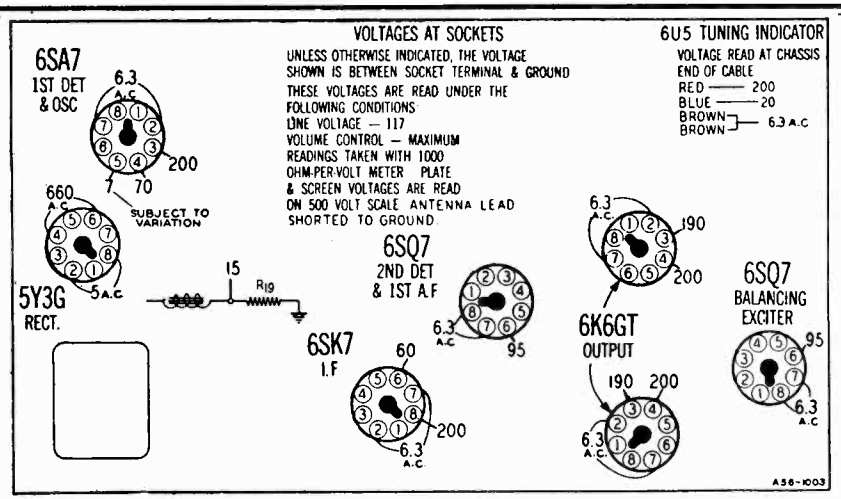
Sensitivity—External Antenna—(For 0.5 Watt output)
B Range - - - - - - - 15 Microvolts Average
D Range - - - - - - - 25 Microvolts Average

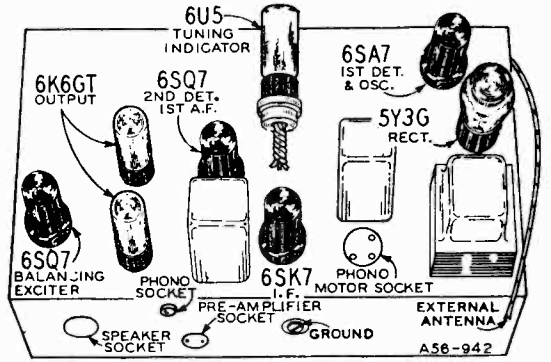
Power Consumption 57 Watts (At 117 volts 60 cycles)
Power Output - - - - - - - - - 3.0 Watts Undistorted, 4.0 Watts Maximum
Selectivity - - - - - - 40 KC Broad at 1000 times Signal
Intermediate Frequency - - - - - - - - - 456 KC
Speaker - - - - - - - - - 6" Electro-Dynamic

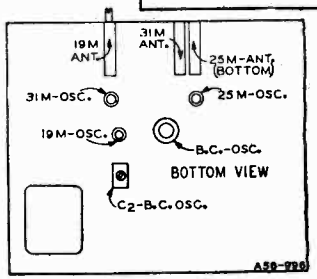
MONTGOMERY-WARD & CO.

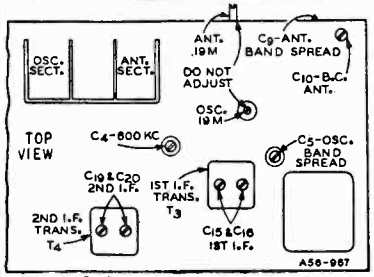
MODEL 14WG-807











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., 100 mmf., and 400 ohms.

	SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
Remove chassis from cabinet but do not disconnect leads to loop aerial.						
I.F.	456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C15) & (C16) 2nd I.F. (C19) & (C20)
RANGE B	1610 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C2)
	1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC—See Note A	Ant. Range B (C10)
	600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C4) Rock Rotor—See Note B
SHORT WAVE BANDS	9700 KC	Antenna Lead	400 Ohm	31 Meter	Turn Tuning Knob until Pointer is at 9.7 MC	Oscillator Band Spread (C5)
	9700 KC	Antenna Lead	400 Ohm	31 Meter	Leave Setting as above	Antenna Band Spread (C9)
LOOP RANGE B	1400 KC	Antenna Lead See Note C	100 mmf.	B Range	Turn Rotor to Max. Output	Ant. Range B (C10)

CAUTION—Two of the coils in the band spread coil assembly, the 19 Meter Antenna and Oscillator coils, have adjustable iron cores. One of the adjusting screws extends out from the front panel of the chassis base at the left of the band switch. The other adjusting screw extends up from the chassis base in front of the 1st I.F. Transformer.

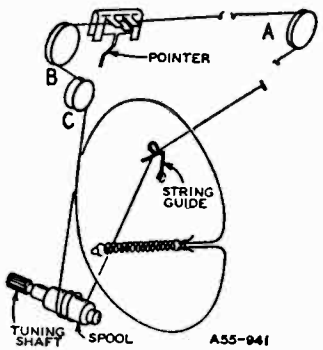
DO NOT CHANGE THE POSITION OF THESE ADJUSTING SCREWS as they have been properly set at the factory and cannot be satisfactorily re-adjusted in the field.

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

NOTE A—If the pointer is not at 1400 KC on the dial, remove pointer from drive cord. Set pointer at the 1400 KC mark on the dial scale. Attach pointer to drive cord.

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

NOTE C—Reassemble chassis in cabinet.



REPLACING BAND SPREAD COILS

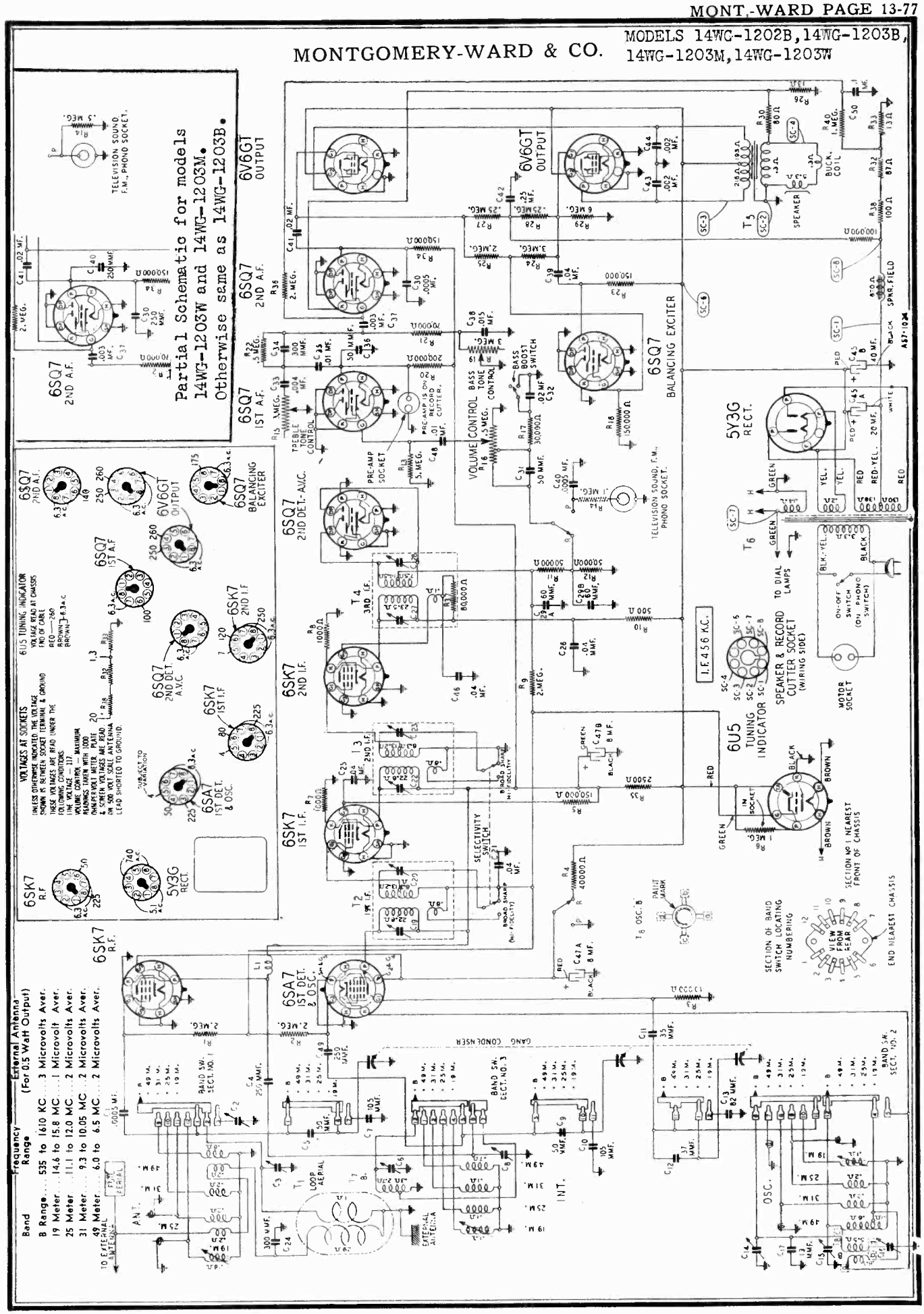
It is not practicable to make field replacements of the individual antenna and oscillator coils in the Band Spread Assembly Unit.

Should one of these coils be damaged in any way, remove the Band Spread Assembly Unit (consisting of the 3 antenna and 4 oscillator coils, the right-angle mounting plate, and the band switch) from the chassis and return to the factory for replacement.

SPECIFICATIONS

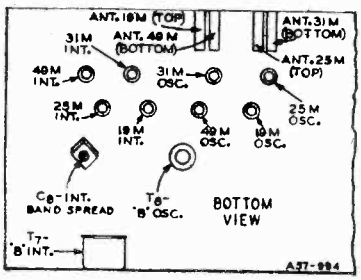
Power Consumption	57 Watts (At 117 volts 60 cycles)
Power Output	3.0 Watts Undistorted 4.5 Watts Maximum
Selectivity	38 KC Broad at 1000 times Signal
Intermediate Frequency	456 KC
Speaker	10" Electro-Dynamic

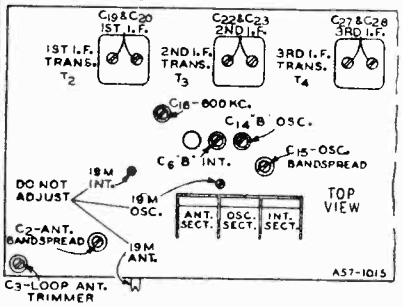
Band	Tuning Frequency Range	Sensitivity External Antenna (For 0.5 Watt Output)
B Range	535 to 1610 KC	15 Microvolts Aver.
19 Meter	14.6 to 15.8 MC	26 Microvolts Aver.
25 Meter	11.1 to 12.0 MC	25 Microvolts Aver.
31 Meter	9.3 to 10.05 MC	22 Microvolts Aver.



MODELS 14WG-1202B, 14WG-1203B, 14WG-1203M, 14WG-1203W

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.
Selectivity Control—In Sharp Position.

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., 100 mmf., and 400 ohms.

SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	BAND SWITCH SETTING	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM
Remove chassis from cabinet but do not disconnect leads to loop aerial.					
I. F.					
456 KC	Grid of 2nd I.F. Tube	.1 mf.	B Range	Turn Rotor to Full Open	3rd I.F. (C27) & (C28)
456 KC	Grid of 1st I.F. Tube	.1 mf.	B Range	Turn Rotor to Full Open	2nd I.F. (C22) & (C23)
456 KC	Grid of 1st Det.	.1 mf.	B Range	Turn Rotor to Full Open	1st I.F. (C19) & (C20)
RANGE B					
1610 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Full Open	Oscillator Range B (C14)
1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output Set Indicator to 1400 KC—See Note A	Ant. Range B (C3) Int. Range B (C6)
600 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	600 KC (C16) Rock Rotor—See Note B
SHORT WAVE BANDS					
6300 KC	Antenna Lead	400 Ohm	49 Meter	Turn Tuning Knob until Pointer is at 6.3 MC	Ant. Band Spread (C2) Int. Band Spread (C8) Rock Rotor—See Note B
6300 KC	Antenna Lead	400 Ohm	49 Meter	Leave Setting as above	Antenna Band Spread (C2)
LOOP RANGE B—Reassemble chassis in cabinet.					
1400 KC	Antenna Lead	100 mmf.	B Range	Turn Rotor to Max. Output	Ant. Range B (C3)

REPLACING BAND SPREAD COILS

It is not practicable to make field replacements of the individual Antenna, R.F. Interstage or Oscillator coils in the Band Spread Assembly Unit.

Should one of these coils be damaged in any way, remove the Band Spread Assembly Unit (consisting of the Antenna, R. F. Interstage and Oscillator Coils, the right-angle mounting plate, and the band switch) from the chassis and return to the factory for replacement.

CAUTION — Three of the coils in the band spread coil assembly, the 19 Meter Antenna, R. F. Interstage, and Oscillator Coils, have adjustable iron cores. One of the adjusting screws extends out from the front panel of the chassis base at the right of the band switch. The other two adjusting screws extend up from the chassis base.

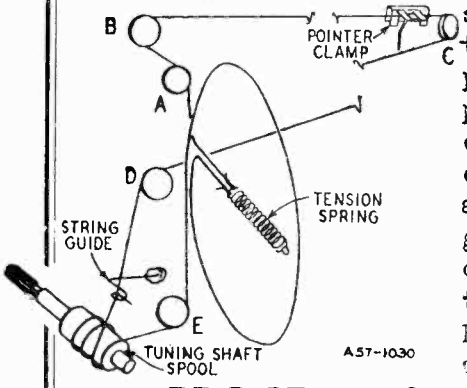
DO NOT CHANGE THE POSITION OF THESE ADJUSTING SCREWS as they have been properly set at the factory and cannot be satisfactorily re-adjusted in the field.

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

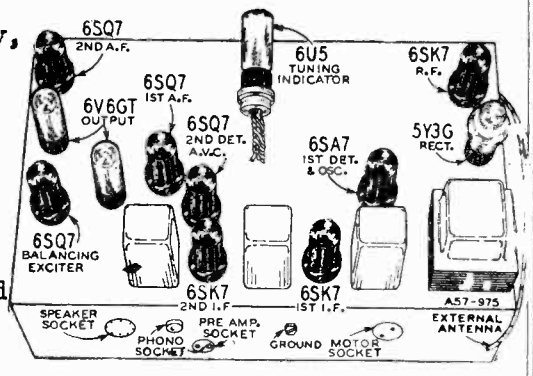
NOTE A — If the pointer is not at 1400 KC on the dial, remove pointer from drive cord. Set pointer at the 1400 KC mark on the dial scale. Attach pointer to drive cord.

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

DRIVE CORD REPLACEMENT



Tie 57" drive cord to spring. Thread other end thru hole in drive pulley, pull flush with inside pulley rim. Gang cord in open pos.-pass cord around idler pulley A,B,C, and D,and thru string guide. Wind 21/2 turns counterclockwise around tuning shaft spool,around E. Wind 1 turn clockwise around drive pulley.



PROCEDURE FOR SETTING THE STATION BUTTONS

Make a list of your six favorite stations, those which you tune in regularly. It is better to list the station with the highest kilocycle number first, the station with the next lower kilocycle number next, and so on.

The selectivity control should be in the Sharp Position.

Grasp the left-hand button at the sides (depress the adjacent button) and pull it out as far as it will go. A click will be heard. If it is impossible to depress the button which is adjacent to the button you are setting, rotate the tuning knob a few turns.

Select the first station from the list you have prepared. *Carefully* tune in this station by means of the manual tuning knob until the dark sector in the tuning eye is narrowest.

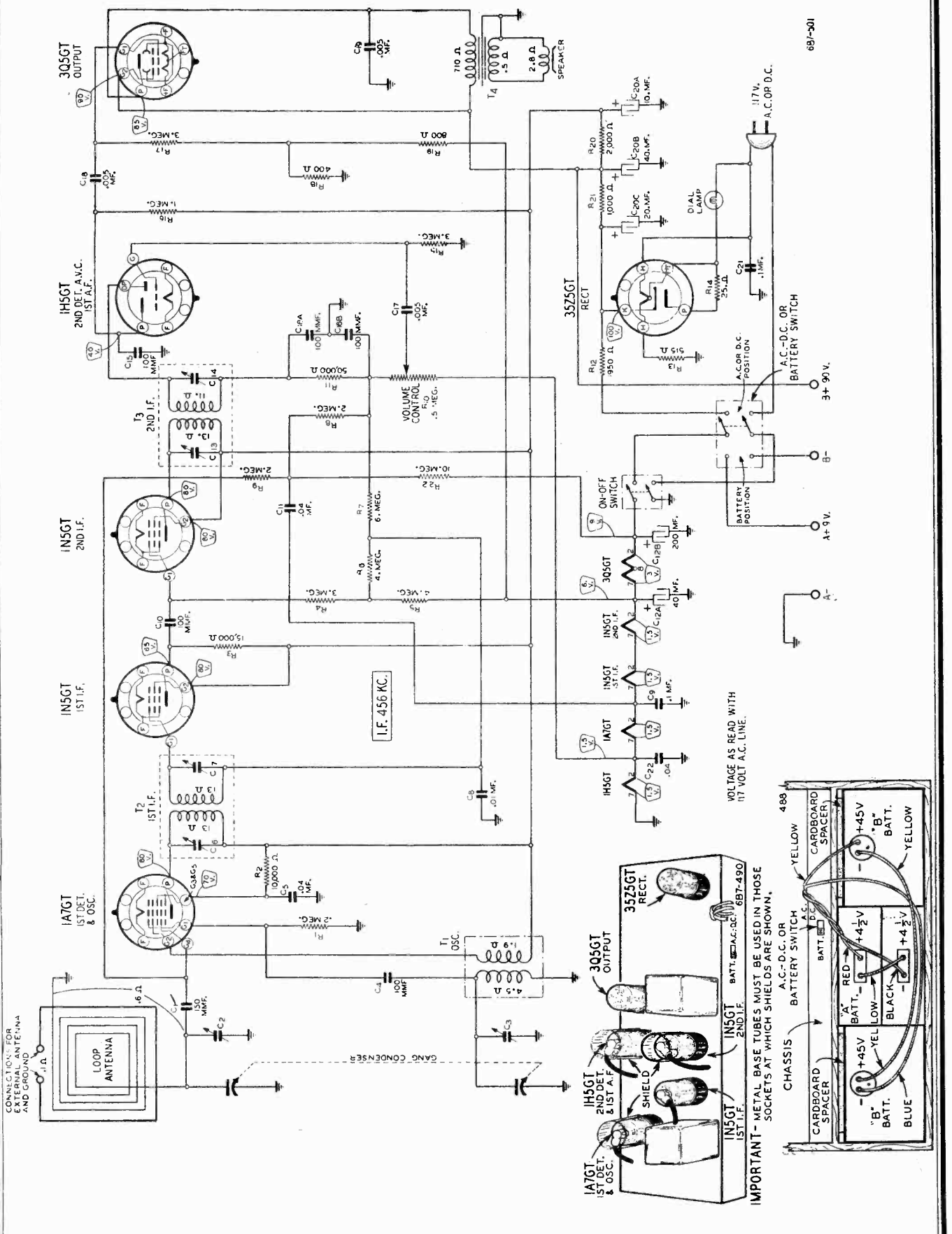
Now lock the mechanism by pushing the button all the way in until it is felt to lock into place.

Proceed in the same manner to set stations on any of the remaining buttons. Any button may be used for any station you can receive, although it will be more convenient to set the stations so that the kilocycle numbers decrease from left to right.

EACH MODEL EXCEPT 14WG-1202B, HAS A SEEBURG B-3A RECORD CHANGER INCORPORATED. FOR DATA ON THIS SEE RIDER'S "AUTOMATIC RECORD CHANGERS AND RECORDERS".

MODELS 93WG-663, 93WG-668

MONTGOMERY-WARD & CO.



MODELS 93WG-663, 93WG-668

MONTGOMERY-WARD & CO.

Input Voltages and Currents—Battery Operation

"A" Battery..... 9 Volts—50 Ma.
"B" Battery.....90 Volts—11.5 Ma.

Power Consumption (At 117 volts AC Supply) 28 Watts

Power Output

Battery Operation - - - - 150 Mw. Undistorted, 350 Mw. Maximum
AC Operation - - - - - 200 Mw. Undistorted, 400 Mw. Maximum

Selectivity - 50 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)
External Antenna - - - 10 Microvolts Average

Removing Chassis from Cabinet

Take out the 2 screws, one at each rear corner of the chassis shelf. Grasp the chassis shelf at each rear corner and edge it away from the cabinet front until the chassis shelf and chassis slide easily out of the cabinet.

To remove the shelf from the chassis, take out the bolt and the 2 screws at the bottom of the shelf.

CAUTION—When Operated on AC or DC Power. As the chassis is connected to one side of the line, in any service work, keep the chassis on a wood or other insulated surface to avoid contacts with ground.

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:

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

Output Indicating Meter—Non-Metallic Screwdriver.

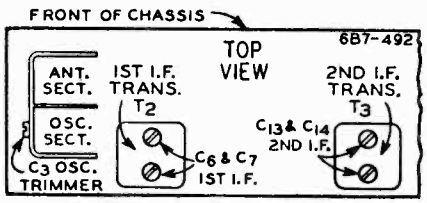
Dummy Antenna—.1 mf.

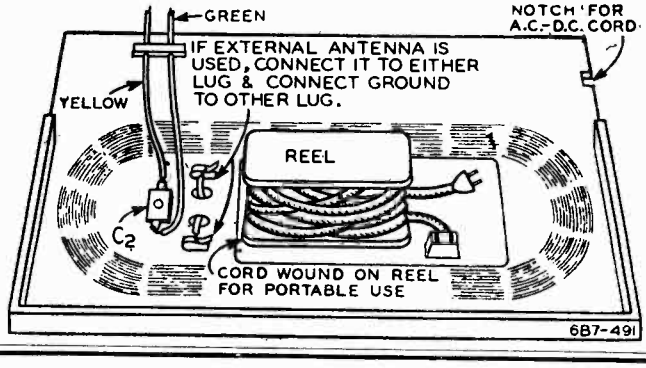
The chassis may be aligned on either AC-DC or Battery power. If AC-DC power is used, see precaution above about avoiding external grounds. Also do not connect the signal generator to any outside ground as the ground terminal of the generator will be connected to the chassis.

SIGNAL GENERATOR				ADJUST TRIMMERS TO MAXIMUM
FREQUENCY SETTING	CONNECTION AT RADIO	DUMMY ANTENNA	CONDENSER SETTING	(See Trimmer Illustration below and Illustration of Back—Page 1)
456 KC	Signal Grid of 1st Det. (Top Cap)	.1 mf.	Turn Rotor to full open	1st I.F. (C6) & (C7) 2nd I.F. (C13) & (C14)
1600 KC	Signal Grid of 1st Det.	.1 mf.	Turn Rotor to full open	Oscillator (C3)
1500 KC	None—See Note A		Turn Rotor to max. output	Antenna (C2)

NOTE A—Chassis must be in cabinet. Connect a loop approximately one foot in diameter across the antenna and ground posts of the signal generator. The back of the cabinet must be in place. 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 (For models with pointer in front of dial scale)—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, hold the pulley at the back of the dial and loosen the pointer screw. Set the pointer at the 800 KC mark. Hold the pointer and retighten the pointer screw.



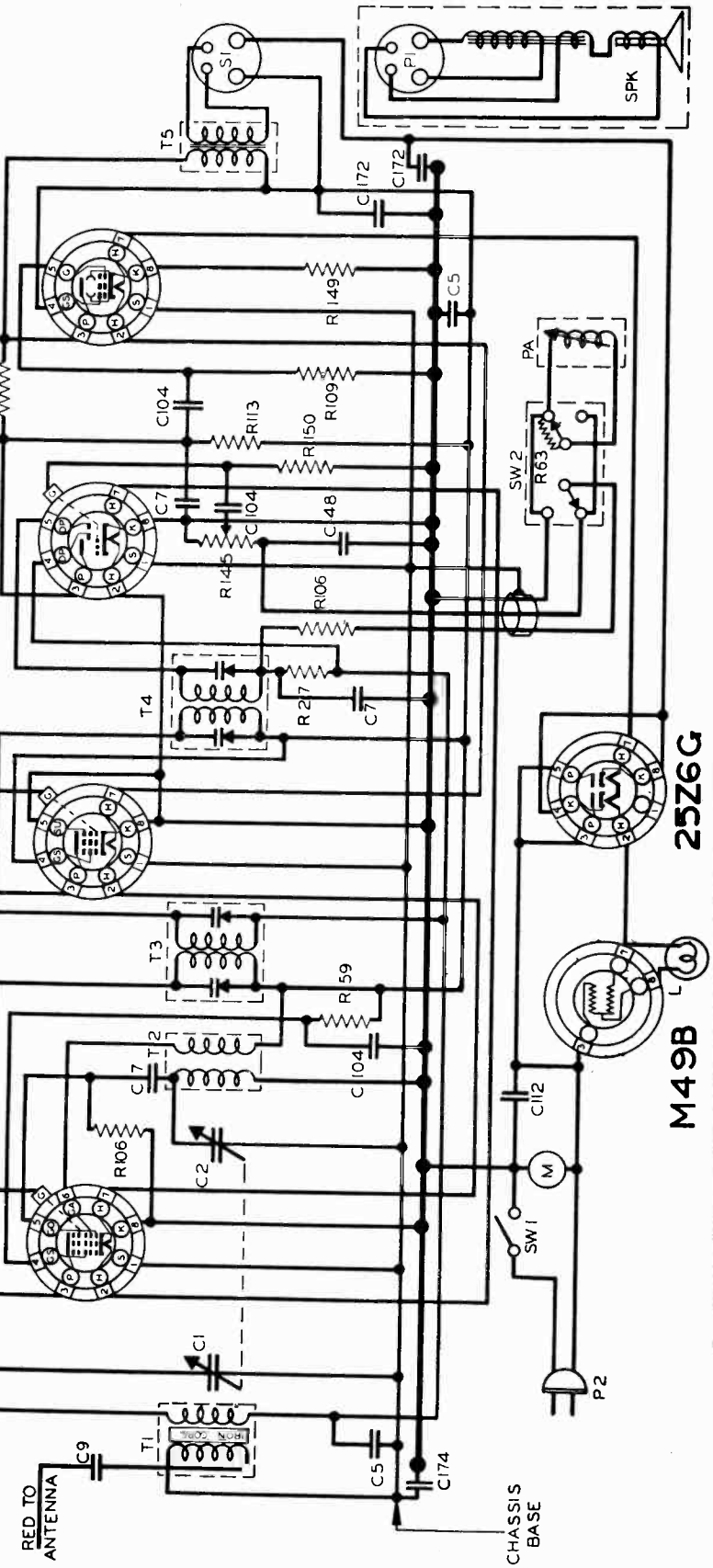


INSIDE VIEW OF BACK COVER

NOBLITT-SPARKS INDUSTRIES, INC.

MODEL 88
Chassis RE35

SCHEMATIC CIRCUIT DIAGRAM
ARVIN HOME RADIO CHASSIS RE35



RESISTORS

R	OHM	W	PART NO
27	2M	1/4	17-4788
59	15K	1/4	17-4191
63	25K	1/4	17-1409
106	50K	1/4	17-14171
109	500K	1/4	17-14174
113	250K	1/4	17-14178
145	500K	V.C.	17-15926A
149	150	1/2	17-14241
150	5M	1/4	17-14242
154	1.5M	1/4	17-14244

CONDENSERS

C	CAPACITY	VOLT	PART NO
1	TWO-GANG		17-15900
2	VARIABLE		
5	.05	200	17-14015
7	.0001	600	17-2084
9	.001	600	17-4292
48	.00025	600	17-4207
104	.01	200	17-4206
112	.05	400	17-4139
172A	20 MFD	150	
172B	20 MFD	150	17-14239
174	.2	400	17-14248

TRANSFORMERS

T	TYPE	PART NO
1	ANTENNA COIL	00-16083
2	OSCILLATOR COIL	00-15979
3	FIRST I.F. COIL	00-16080
4	SECOND I.F. COIL	00-16061
5	OUTPUT TRANS	00-16078

MISCELLANEOUS UNITS

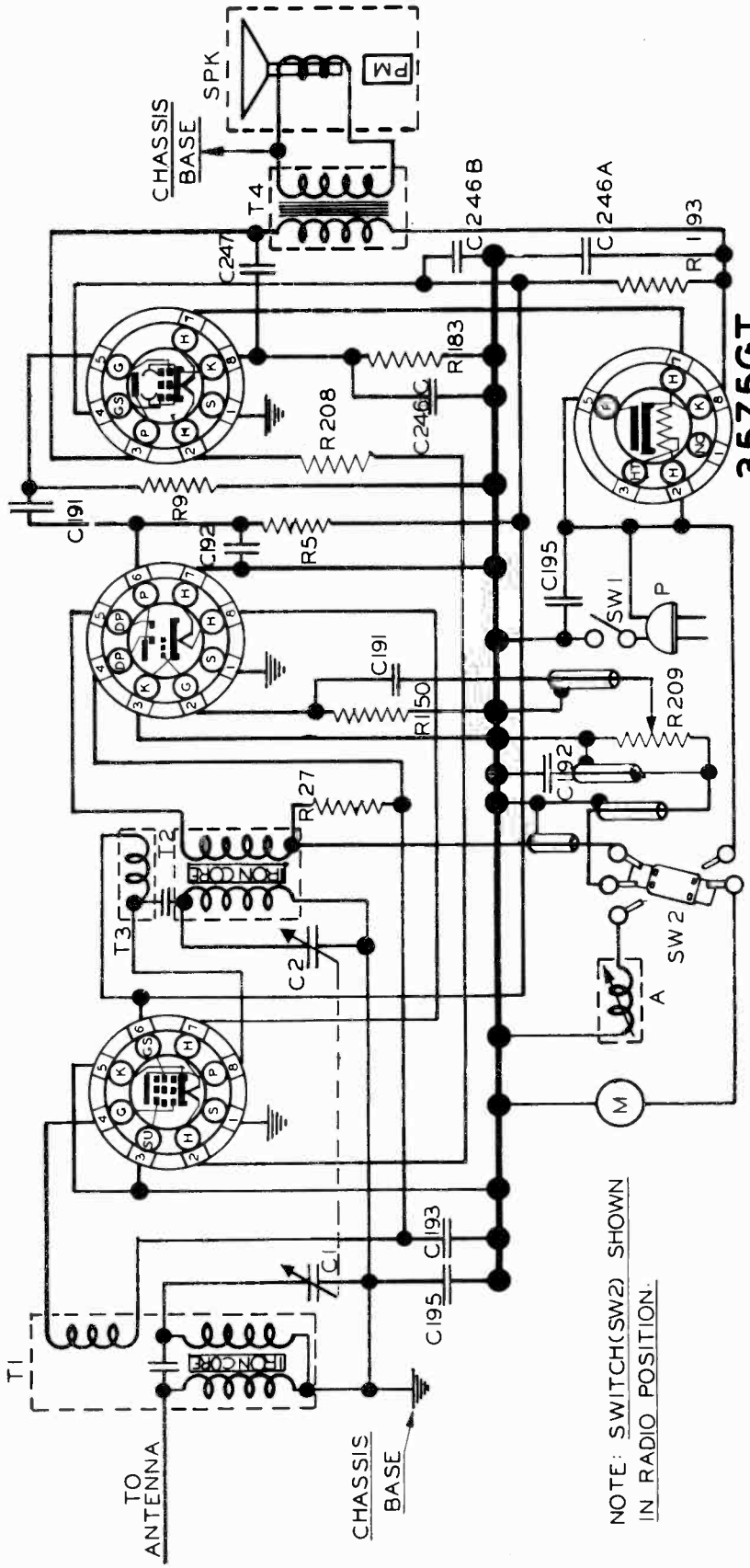
SYMBOL	DESCRIPTION	PART NO
L	DIAL LIGHT BULB - MAZDA 51	17-13904
M	PHONOGRAPH MOTOR & TURNTABLE	17-16022
PA	PHONOGRAPH PICK-UP ARM	17-16021
P1	SPEAKER PLUG	———
P2	LINE CORD & PLUG ASSEMBLY	17-1579IE
S1	SPEAKER SOCKET	17-13249
SPK	SPEAKER ASSEMBLY	17-15989
SW1	LINE SWITCH	17-15926A
SW2	PHONOGRAPH-RADIO SWITCH	17-16065

I.F. PEAK 455 K.C.
BROADCAST BAND: BALANCE 1400 K.C.
CHECK AT 600 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.,
COLUMBUS, INDIANA.

NODELS 302, 302A
Chassis RE64

NOBLITT-SPARKS INDUSTRIES, INC.

ARVIN HOME RADIO CHASSIS RE-64
12SK7 12SQ7 50L6GT 35Z5GT



RESISTORS			
R	OHM	W	PART NO.
5	500K	1/4	17 2070
9	1 M	1/4	17 2080
27	2 M	1/4	17 4788
150	5 M	1/4	17 14242
183	150	1/4	17 14316
193	2 K	1/4	17 14337
208	75	1 3/4	17 14362
209	250 K	V C	17 16650

CONDENSERS				
C	CAPACITY	VOLT	PART NO.	
1	TWO GANG		17 16619	
2	VARIABLE			
191	01	400	17 14272	
192	.00025	600	17 14273	
193	.05	200	17 14274	
195	.05	400	17 14276	
246A	40 MFD	150		
246B	20 MFD	150	17 16637	
246C	20 MFD	25		
247	.04	400	17 14363	

MISCELLANEOUS UNITS		
SYMBOL	DESCRIPTION	PART NO.
A	PHONO PICK-UP ARM	17 16597
M	PHONO TURNTABLE MOTOR	17 16611
P	LINE CORD & PLUG ASSEMBLY	17 16632
SPK	SPEAKER 4" P.M.	17 16621
SW1	LINE SWITCH	17 16650
SW2	CHANGE OVER SWITCH	17 16651
T1	ANTENNA COIL	00 16634
T2	R F COIL	00 16635
T3	PLATE CHOKE	00 16507
T4	OUTPUT TRANSFORMER	00 16636

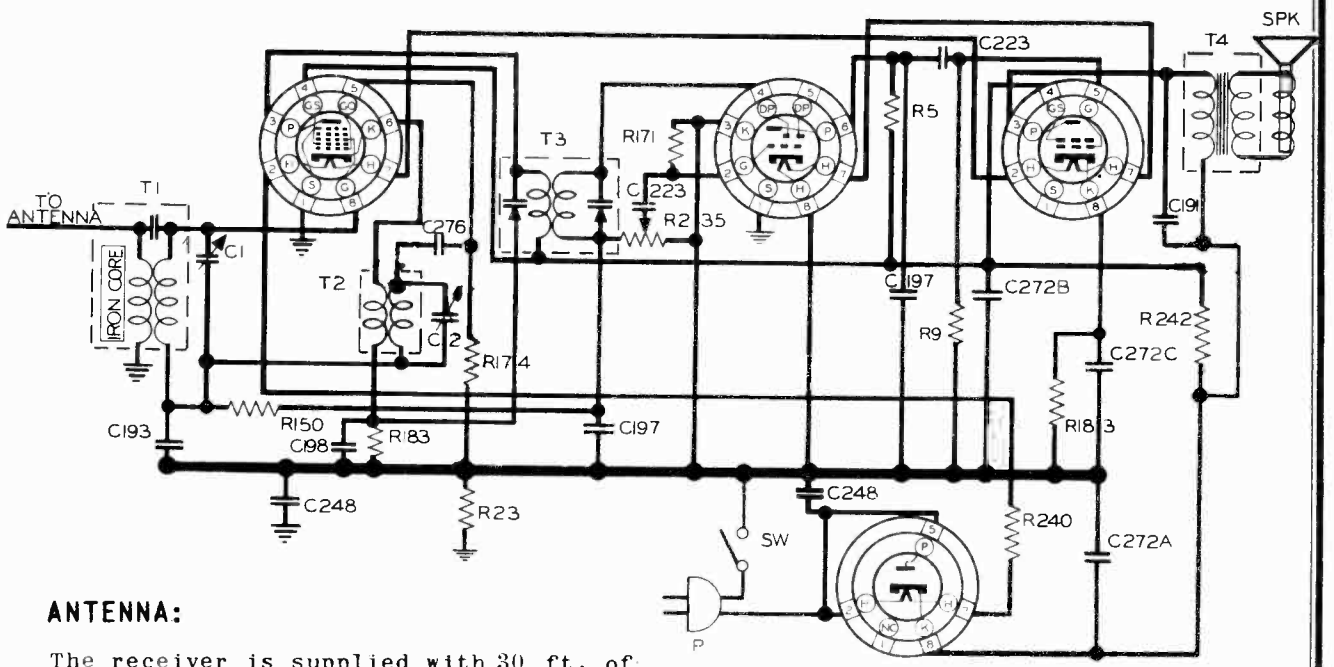
FREQUENCY RANGE 1700 K.C. TO 540 K.C.

NOBLITT SPARKS INDUSTRIES, INC.,
COLUMBUS, INDIANA.

NOBLITT-SPARKS INDUSTRIES, INC.

MODELS 422, 422A
Chassis RE-91

12SA7 12SQ7 50L6GT



ANTENNA:

The receiver is supplied with 30 ft. of aerial wire fixed to the chassis. This wire is in the form of a tightly wrapped bundle and should be stretched out full length under a rug or around the edge of the room for best operation of the receiver. When practical, although not necessary, even better results will be obtained if a small outside aerial is used.

In rural areas, or in areas where signal strengths are low, use of a small outside antenna will result in better reception.

GENERAL: 35Z4GT OR 35Z5GT

This carton contains one superheterodyne radio receiver.

It is designed for operation on 115 volts AC or DC. Power consumption is 30 watts.

This receiver is complete and ready to operate when installed as described in the following paragraphs.

RESISTORS			
R	OHM	W	PART NO.
174	20 K	1/4	17-14291
9	1 M	1/4	17-2080
171	15 M	1/4	17-14288
5	500K	1/4	17-2070
183	150	1/4	17-14316
235	2 M	V.C.	17-17117
23	250K	1/4	17-3011
240	47	1	17-14397
150	5 M	1/4	17-14242
242	2000	1	17-14399

CONDENSERS			
C	CAPACITY	VOLT	PART NO.
193	.05	200	17-14274
248	.05	400	17-14366
198	.005	400	17-14279
223	.002	400	17-14318
191	.01	400	17-14272
1	TWO GANG		17-17115
2	VARIABLE		
272A	40 MFD.	150	17-14398
272B	20 MFD.	150	
272C	20 MFD.	25	
197	.0001	600	17-14278
276	.00005	600	17-14404

MISCELLANEOUS UNITS		
SYMBOL	DESCRIPTION	PART NO.
T1	ANTENNA COIL	00-17130
T2	OSCILLATOR COIL	00-17223
T3	I.F. COIL	00-17210
T4	OUTPUT TRANSFORMER	00-17131
SPK.	SPEAKER	17-17209

FREQUENCY RANGE
1750 TO 540 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.
COLUMBUS, INDIANA

RESISTORS

Schematic Location	Part No.	Description	Price
R-235	17-17117	Volume Control 2 meg.	$1.00
R-183	17-14316	150 ohm 1/4 watt	.20
R-174	17-14291	20,000 ohm 1/4 watt	.20
R-5	17-2070	500,000 ohm 1/4 watt	.20
R-9	17-2080	1 megohm 1/4 watt	.20
R-171	17-14288	15 megohm 1/4 watt	.20
R-240	17-14397	47 ohm 1 watt	.40
R-23	17-3011	250,000 ohm 1/4 watt	.20
R-150	17-14242	5 megohm 1/4 watt	.20
R-242	17-14399	2000 ohm 1 watt	.30

CONDENSERS

C-1 & 2	17-17115	Variable Condenser	1.75
C-272	17-14398	Electrolytic Condenser 40-20 uf. 150 V	
		20 uf. 25 V	.75
C-223	17-14318	.002 uf. 400 V	.30
C-248	17-14366	.05 uf. 400 V	.30
C-193	17-14274	.05 uf. 200 V	.30
C-198	17-14279	.005 uf. 400 V	.30
C-197	17-14278	.0001 uf. 600 V	.30
C-191	17-14272	.01 uf. 400 V	.30

COILS & TRANSFORMERS

Schematic Location	Part No.	Description	Price
T-1	00-17130	Antenna Coil	.50
T-2	00-17223	Oscillator Coil	.40
T-3	00-17210	I.F. Coil	.75
T-4	00-17131	Output Transformer	1.25

MISCELLANEOUS

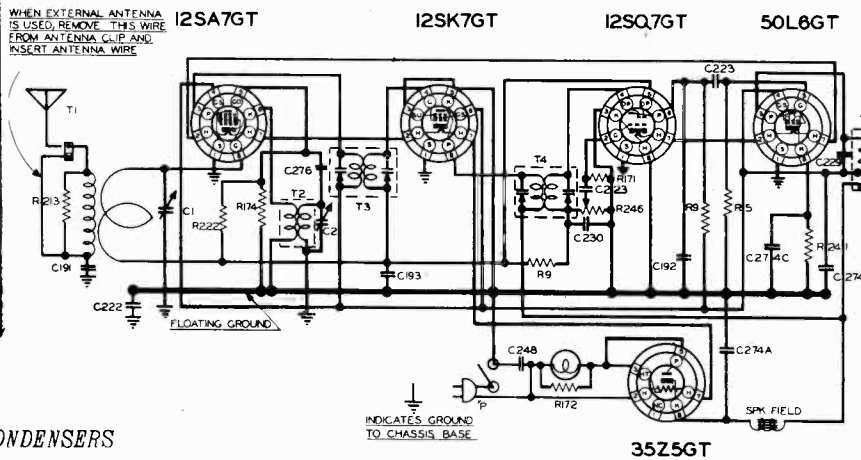
Part No.	Description	Price
17-17118	Line Cord and Plug Assembly	.40
17-17209	Speaker 4"	2.50
31-16511	Cabinet (mahogany)	1.00
31-16511-A	Cabinet (ivory)	1.00
29-16545	Knob (dial)	.20
29-16281	Knob (volume)	.15
29-17116	Dial Emblem	.15
31-16361	Cabinet rear cover (mahogany)	.25
31-16361-A	Cabinet rear cover (ivory)	.25

ARVIN HOME RADIO — CHASSIS RE-92

MODEL 520, Chassis RE-64

NOBLITT-SPARKS INDUSTRIES, INC.

MODELS 532, 532A Chassis-92



CONDENSERS

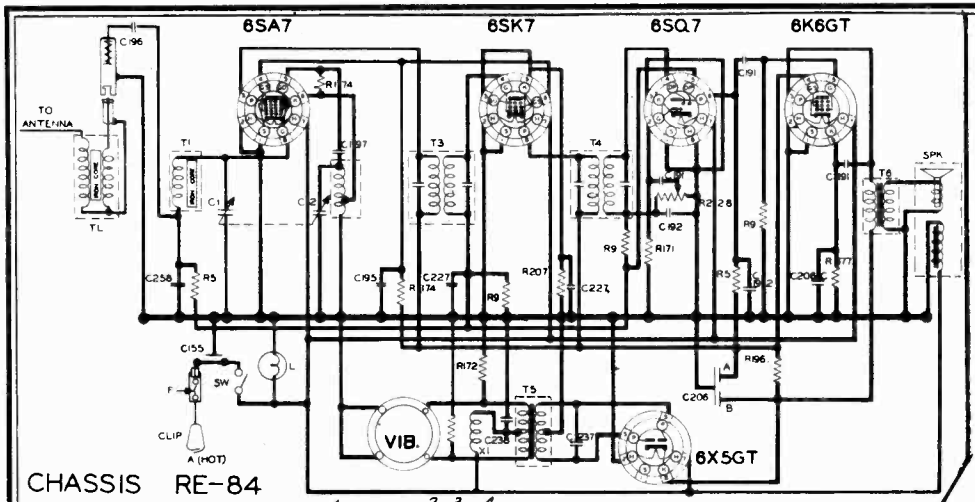
C-1 & 2	17-17194	Variable Condenser
C-274-A,B,C	17-17140	Electrolytic Condenser 20-10 mfd. 150V 20 mfd. 25V
C-223	17-14318	Condenser .002 mfd. 400 V
C-229	17-14327	Condenser .02 mfd. 400 V
C-230	17-14328	Condenser .0005 mfd. 400 V
C-222	17-14317	Condenser .2 mfd. 400 V
C-193	17-14274	Condenser .05 mfd. 200 V
C-248	17-14366	Condenser .05 mfd. 400 V
C-191	17-14272	Condenser .01 mfd. 400 V

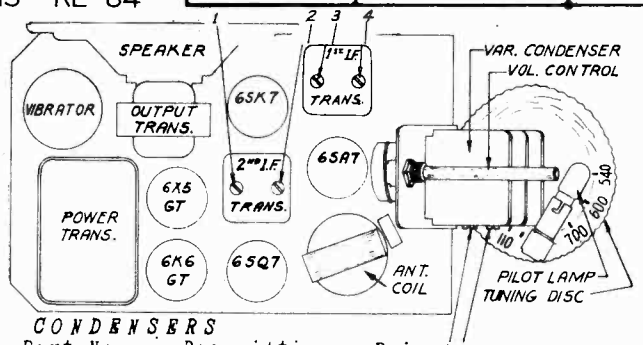
RESISTORS

R-246	17-17193	Volume control and switch 1 megohm
R-9	17-2080	Resistor 1 megohm 1/4 watt
R-241	17 14395	Resistor 175 ohm 1/4 watt
R-5	17-2070	Resistor 500,000 ohm 1/4 watt
R-171	17-14288	Resistor 15 megohm 1/4 watt
R-174	17-14291	Resistor 20,000 ohm 1/4 watt
R-172	17-14289	Resistor 100 ohm 1/4 watt
R-222	17-14377	Resistor 10 megohm 1/4 watt

The power consumption of this radio is 30 watts.

CHASSIS RE-84





CONDENSERS

Ref.No	Part No.	Description	Prices
C1-2	17-16421	Tuning Condenser	2.50
C155	17-14217	.0002 mfd. 200 V	.25
C237	17-14345	.005 mfd. 1200 V	.50
C206	17-14297	10-10 mfd. 300 V, 20 mfd. 25 V	1.25
C191	17-14272	.01 mfd. 400 V	.35
C192	17-14273	.00025 mfd. 600V	.25
C195	17-14276	.05 mfd. 400 V	.35
C196	17-14277	.1 mfd. 200 V	.35
C197	17-14278	.0001 mfd. 600 V	.25
C238	17-14346	.5 mfd. 150 V	.40
C227	17-14323	.05 mfd. 200 V	.30
C258	17-14381	.004 mfd. 600 V	.30

I.F. PEAK 455 K.C.
FREQUENCY RANGE 1575 TO 540 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.
COLUMBUS, INDIANA

RESISTORS

Ref. No.	Part No.	Description	Price
R5	17-2070	500,000 ohm 1/4W	.20
R9	17-2080	1,000,000 ohm 1/4W	.20
R171	17-14288	15,000,000 ohm 1/4W	.20
R172	17-14289	100 ohm 1/4W	.20
R174	17-14291	20,000 ohm 1/4W	.20
R177	17-14296	650 ohm 1/4W	.20
R228	17-17006	1,000,000 ohm Vol.Con.	1.00
R196	17-14340	500 ohm 1W	.30
R207	17-14361	300 ohm 1/4W	.20

Balancing Instructions

All sensitivities given for 1/2 watt output = 1.4 across Voice Coil

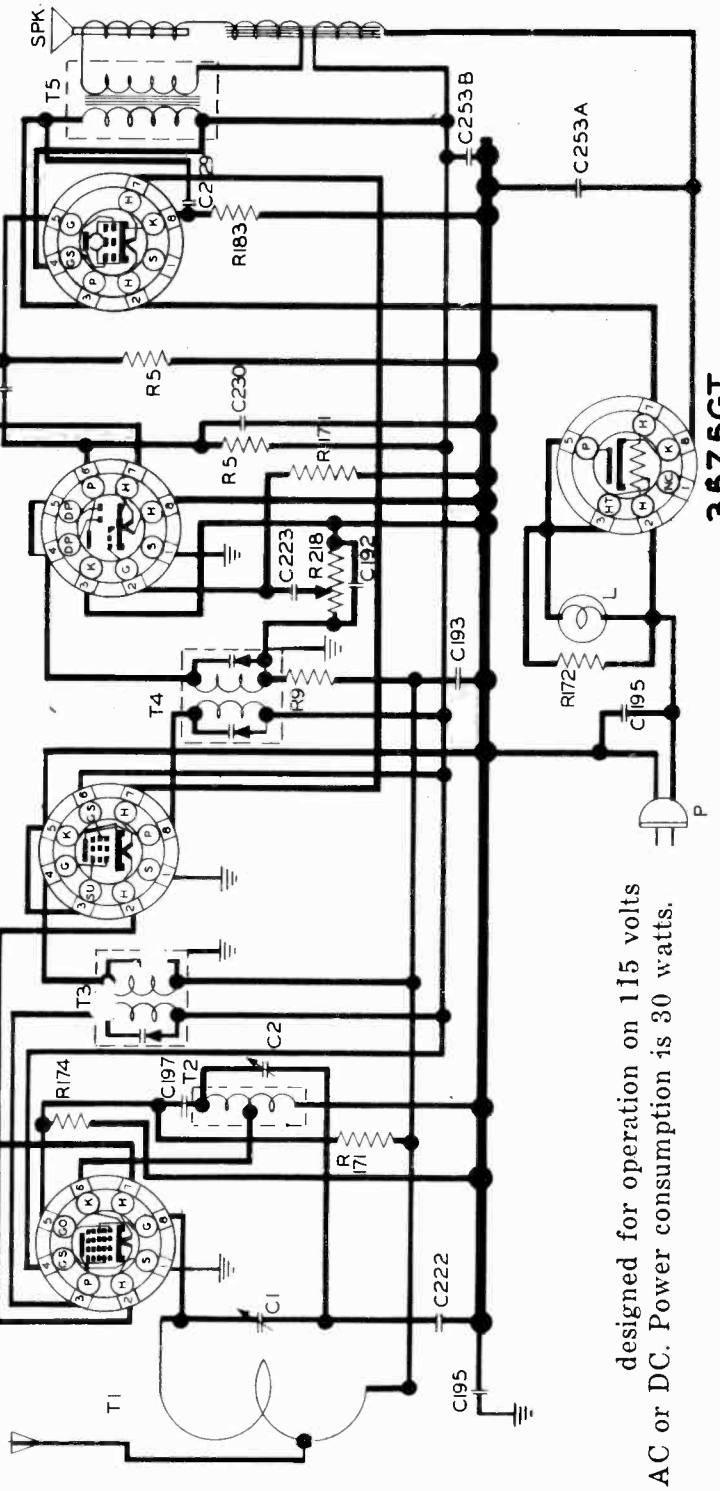
Operation No.	Connect Bal. Oscillator To	Bal. Oscillator Frequency	Adjust Padder No.	Dial Setting	Sensitivity
1	6SA7 Grid	455	1,2,3 & 4	550 KC	50uv
2	Antenna Coupler Through 20 uuf	1400	5	1400	
3	"	1400	6	1400	10uv

NOBLITT-SPARKS INDUSTRIES, INC.

MODELS 522, 522A
Chassis RE-76

ARVIN HOME RADIO CHASSIS RE-76

12SA7 12SK7 12SQ7 50L6GT 35Z5GT



designed for operation on 115 volts AC or DC. Power consumption is 30 watts.

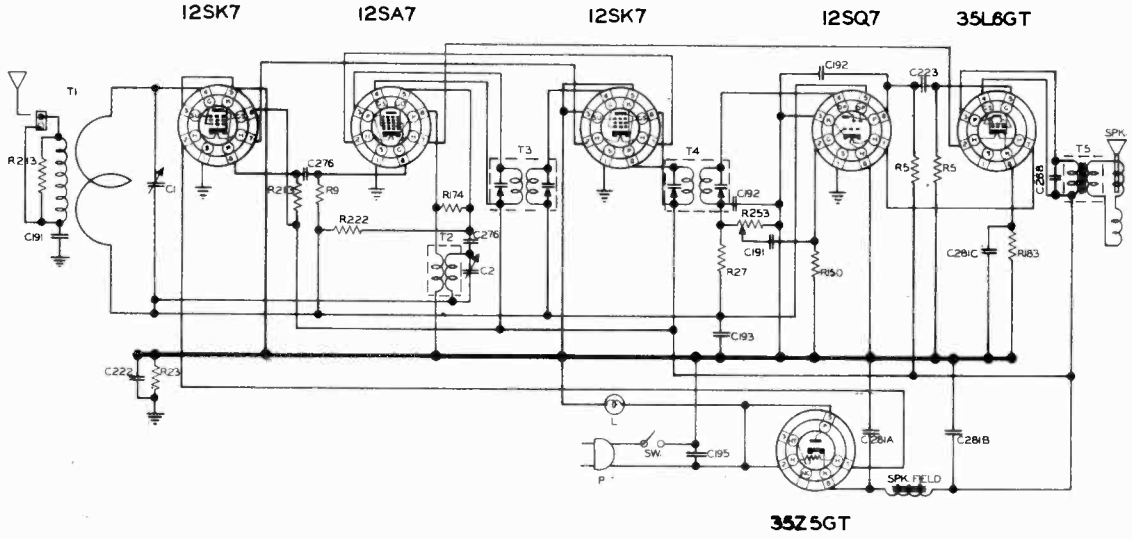
RESISTORS			CONDENSERS				TRANSFORMERS			MISCELLANEOUS UNITS		
R	OHMS	W	PART NO	C	CAPACITY	VOLT	PART NO	T	TYPE	PART NO	SYMBOL	DESCRIPTION	PART NO
28	1 M	VC	17-6857	1	TWO GANG		17-6841	1	ANTENNA LOOP	00-6851	L	DIAL LIGHT BULB MAZDA #47	7-6378
5	500K	1/4	17-2070	2	VARIABLE			2	OSCILLATOR COIL	00-6852	P	LINE CORD & PLUG ASSY	7-6844
183	150	1/4	17-4316	253A	20 MFD	150	17-4375	3	FIRST IF COIL	29-6853	SPK	SPEAKER ASSY	17-6843
174	20K	1/4	17-4291	253B	10 MFD	150		4	SECOND IF COIL	29-6854			
172	100	1/4	17-4289	192	.00025	600	17-4273	5	OUTPUT TRANSF	00-6609			
171	6 M	1/4	17-4288	195	.05	400	17-4276						
9	1 M	1/4	17-2080	222	.2	400	17-4317						
				229	.02	400	17-4327						
				223	.002	400	17-4318						
				193	.05	200	17-4274						
				197	.001	600	17-4278						
				230	.0005	400	17-4328						

I.F. PEAK 455 K.C.
BALANCE 1400 K.C. - CHECK AT 600 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.
COLUMBUS, INDIANA

MODELS 524, 524A
Chassis RE-99
MODELS 616, 616A
Chassis RE-98

NOBLITT-SPARKS INDUSTRIES, INC.

ARVIN HOME RADIO - CHASSIS RE-98

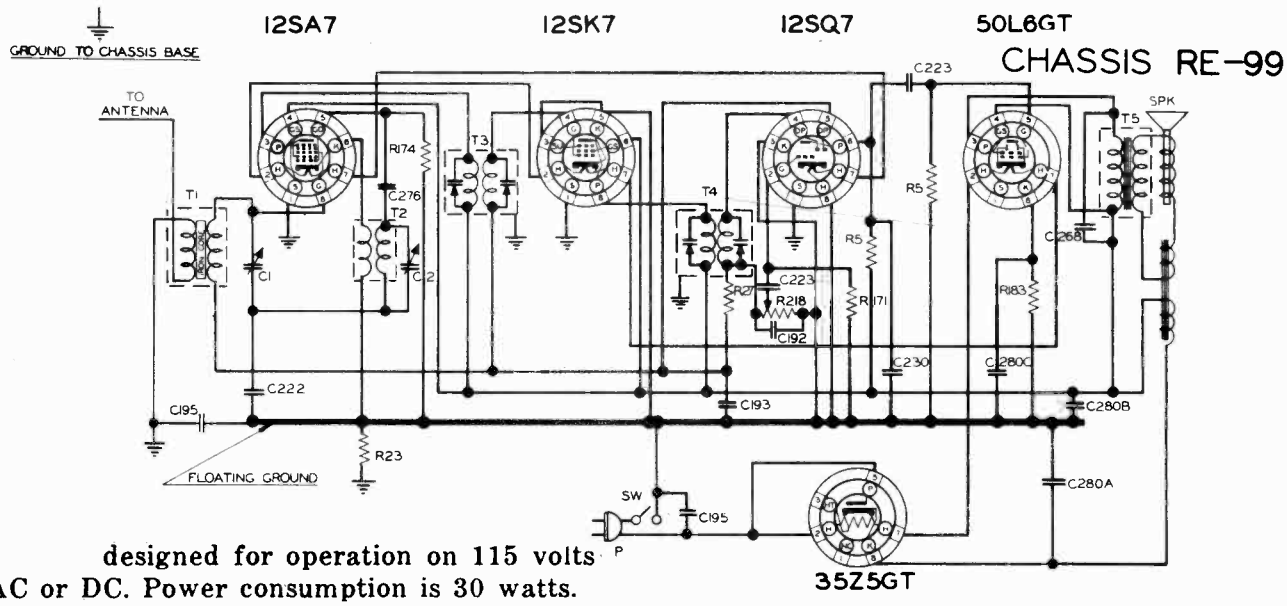


RESISTORS				CONDENSERS				COILS & TRANSFORMERS			MISCELLANEOUS UNITS		
R	OHM	W	PART NO	C	CAPACITY	VOLT	PART NO.	T	DESCRIPTION	PART NO.	SYMBOL	DESCRIPTION	PART NO.
9	1MEG.	1/4	17-2080	222	.2	400	17-14317	1	ANTENNA LOOP ASSY.	00-17298	SPK.	SPEAKER 5 INCH E.M.	17-17251
222	10 MEG.	1/4	17-14377	192	.00025	600	17-14273	2	OSCILLATOR COIL	00-17299	P	LINE CORD & PLUG ASSY.	17-17303
174	20 K	1/4	17-14291	191	.01	400	17-14272	3	FIRST I.F. COIL	00-17300	L	DIAL LIGHT - MAZDA C-7 7 WATTS	17-10701
27	2 MEG.	1/4	17-4788	193	.05	200	17-14274	4	SECOND I.F. COIL	00-17301	SW.	VOLUME CONTROL & SW.	17-17291
150	5 MEG.	1/4	17-14242	223	.002	400	17-14318	5	OUTPUT TRANSF.	00-17302			
5	500 K	1/4	17-2070	268	.03	400	17-14392						
183	150	1/4	17-14318	195	.05	400	17-14276						
213	10 K	1/4	17-14389	278	.00005	600	17-14404						
23	250 K.	1/4	17-3011	1	TWO GANG		17-17248						
253	1 MEG.	V.C.	17-17291	2	VARIABLE								
				281A	40 MFD.	150							
				281B	20 MFD.	150	17-14417						
				281C	20 MFD.	25							

I.F. PEAK 455 K.C.
BALANCE 1400 K.C. - CHECK AT 600 K.C.

NOBLITT-SPARKS INDUSTRIES, INC.
COLUMBUS, INDIANA

CHASSIS RE-99

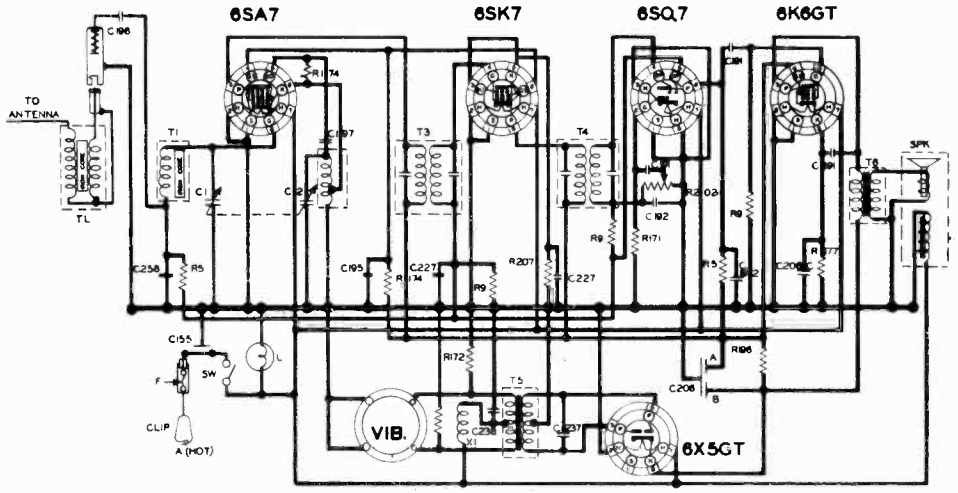


designed for operation on 115 volts AC or DC. Power consumption is 30 watts.

RESISTORS				CONDENSERS				TRANSFORMERS			MISCELLANEOUS UNITS		
R	OHM	W	PART NO.	C	CAPACITY	VOLT	PART NO	T	TYPE	PART NO.	SYMBOL	DESCRIPTION	PART NO
218	1M	V.C.	17-16857	1	TWO GANG		17-17279	1	ANTENNA COIL	00-17284	SW	LINE SWITCH	17-16857
5	500K	1/4	17-2070	2	VARIABLE			2	OSCILLATOR COIL	00-17285	P	LINE CORD & PLUG ASSEMBLY	17-18844
183	150	1/4	17-14318	280A	40 MFD	150		3	FIRST I.F. COIL	29-16853	SPK	SPEAKER ASSEMBLY	17-16843
174	20K	1/4	17-14291	280B	20 MFD	50	17-14415	4	SECOND I.F. COIL	29-16854			
171	1.5M	1/4	17-14288	280C	20 MFD	25		5	OUTPUT TRANSF	00-16889			
23	250K	1/4	17-3011	195	.05	400	17-14278						
27	2M	1/4	17-4788	222	.2	400	17-14317						
				192	.00025	600	17-14273						
				223	.002	400	17-14318						
				193	.05	200	17-14274						
				268	.03	400	17-14392						
				230	.0005	400	17-14328						
				278	.00005	600	17-14404						

I.F. PEAK 455 K.C.
BALANCE 1400 K.C. - CHECK AT 600 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.
COLUMBUS, INDIANA

SCHEMATIC CIRCUIT DIAGRAM
ARVIN CAR RADIO CHASSIS RE-85



DESCRIPTION:

The Arvin Model 620 is a five tube combination dial and push button single unit Car Radio Receiver. This receiver is designed to mount under the lower edge of the instrument panel on most models of cars.

The radio may be tuned either by rotating the calibrated thumb wheel on the lower front of the radio, or by pressing any one of the four push buttons which are disposed vertically along the left front of the radio.

BALANCING INSTRUCTIONS:

All sensitivities given for ½ watt output=1.4 across Voice Coil

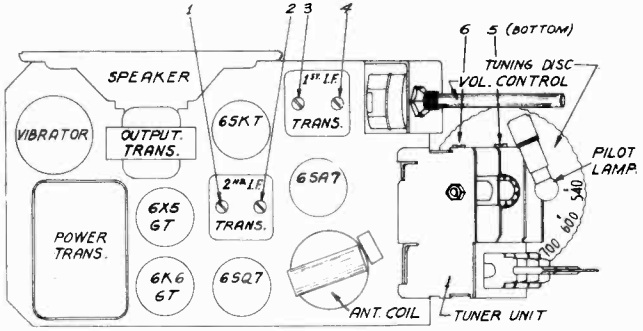
Operation No.	*Connect Bal. Oscillator To*	*Bal. Oscillator Frequency*	*Adjust Padder No.*	*Dial Setting*	*Sensitivity*
1	6SA7 Grid	455	1,2,3 & 4	550 KC	50 uv
2	Ant. Coupler Through 20 uuf	1400	5	1400	
3	"	1400	6	1400	10 uv

RESISTORS

Ref.No.	*Part No.*	*Description*	*Price*
R5	17-2070	500,000 ohm ½W	.20
R9	17-2080	1,000,000 ohm ½W	.20
R171	17-14288	15,000,000 ohm ½W	.20
R172	17-14289	100 ohm ½W	.20
R174	17-14291	20,000 ohm ½W	.20
R177	17-14296	650 ohm ½W	.20
R202	17-16488	1,000,000 Vol.Con.	1.00
R196	17-14340	500 ohm 1W	.30
R207	17-14361	300 ohm ½W	.20

CONDENSERS

Ref.No.	*Part No.*	*Description*	*Price*
C1-2	17-16471	Tuner Unit	4.00
C155	17-14217	.0002 mfd.200V	.25
C237	17-14345	.005 mfd.1200V.	.50
C206	17-14297	10-10 mfd.300V., 20 mfd. 25V	1.25
C191	17-14272	.01 mfd 400V	.35
C192	17-14273	.00025 mfd. 600V	.25
C195	17-14276	.05 mfd. 400V	.35
C196	17-14277	.1 mfd.200V	.35
C197	17-14278	.0001 mfd.600V	.25
C238	17-14346	.5 mfd. 150V	.40
C227	17-14323	.05 mfd. 200V	.30
C258	17-14381	.004 mfd. 600V	.30



PUSH BUTTON ADJUSTMENT:

Any button may be set to any station desired. First, tune in the desired station by means of the thumb wheel. Second, turn the push button counter-clockwise two full turns. Then depress this button the full length of its stroke, and while depressed, tighten the button again by turning it clockwise.

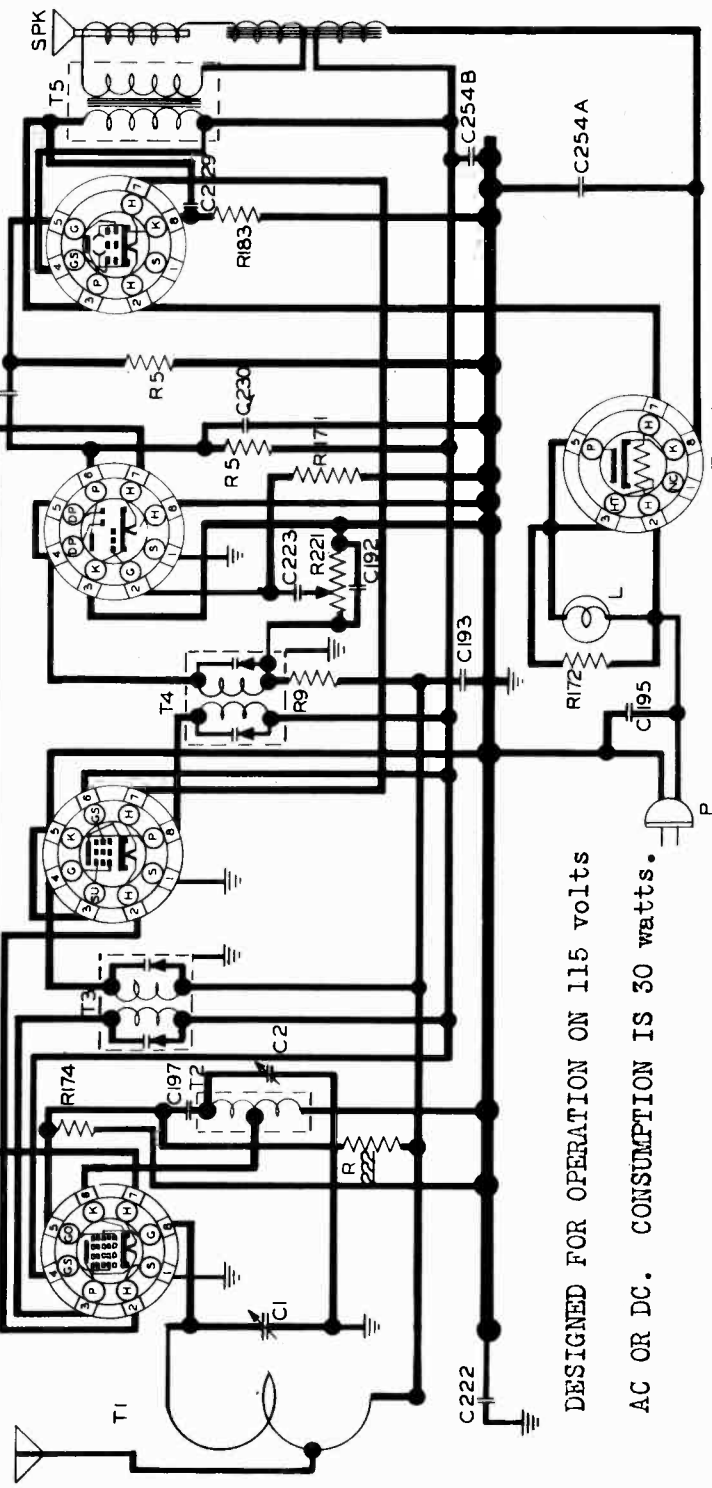
The button may now be released. To check the correct setting for this button, turn the thumb wheel to some other point and depress the push button. This will return the tuning mechanism to the station just set up. If it does not, repeat the foregoing sequence of operations more carefully. Each of the remaining buttons may be set to other statons in a like manner.

MODEL 632
Chassis RE-79

NOBLITT-SPARKS INDUSTRIES, INC.

ARVIN HOME RADIO - CHASSIS RE-79

12SA7 12SK7 12SQ7 50L6GT 35Z5GT



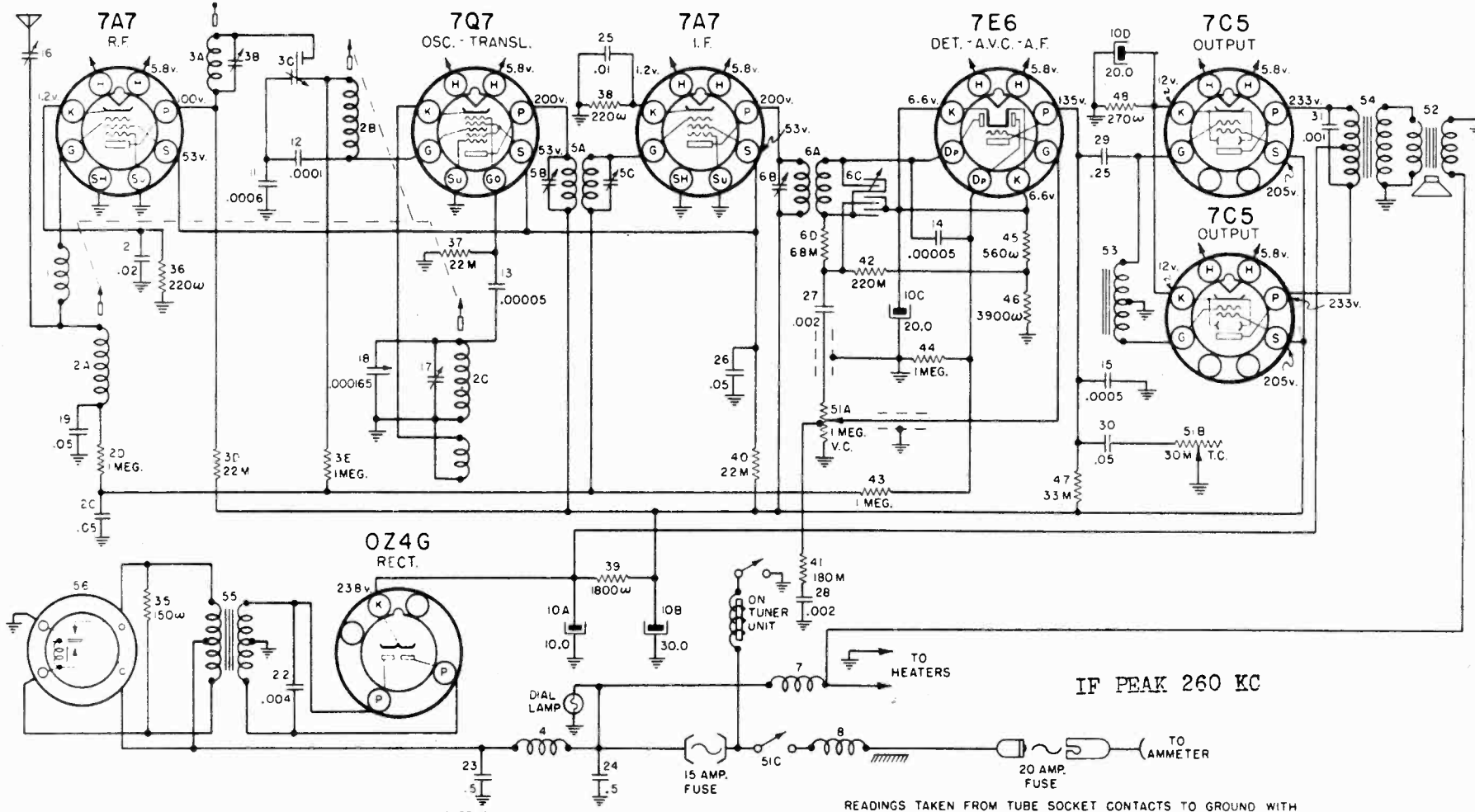
RESISTORS			
R	OHM	W	PART NO
221	1 M	V/C	17-16899
5	500K	1/4	17-2070
183	150	1/4	17-14316
174	20 K	1/4	17-14291
172	100	1/4	17-14289
222	10 M	1/4	17-14317
9	1 M	1/4	17-2080

CONDENSERS			
C	CAPACITY	VOLT	PART NO
1	TWO GANG		17-16841
2	VARIABLE		
254A	20 MFD.	150	17-14376
254B	10 MFD.	150	
192	.00025	600	17-14273
195	.05	400	17-14276
222	.2	400	17-14317
229	.02	400	17-14327
223	.002	400	17-14318
193	.05	200	17-14274
197	.0001	600	17-14278
230	.0005	400	17-14328

TRANSFORMERS			
T	TYPE	PART NO	
1	ANTENNA LOOP	00-16900	
2	OSCILLATOR COIL	00-16891	
3	FIRST I.F. COIL	00-16885	
4	SECOND I.F. COIL	00-16886	
5	OUTPUT TRANSF.	00-16883	

MISCELLANEOUS UNITS		
SYMBOL	DESCRIPTION	PART NO
L	DIAL LIGHT BULB MAZDA #47	17-16378
P	LINE CORD & PLUG ASSY	17-16874
SPK	SPEAKER ASSY.	17-16867

I.F PEAK 455 K.C.
BALANCE 1400 K.C. - CHECK AT 600 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.
COLUMBUS, INDIANA



OLDSMOBILE MODEL 982282 CIRCUIT DIAGRAM

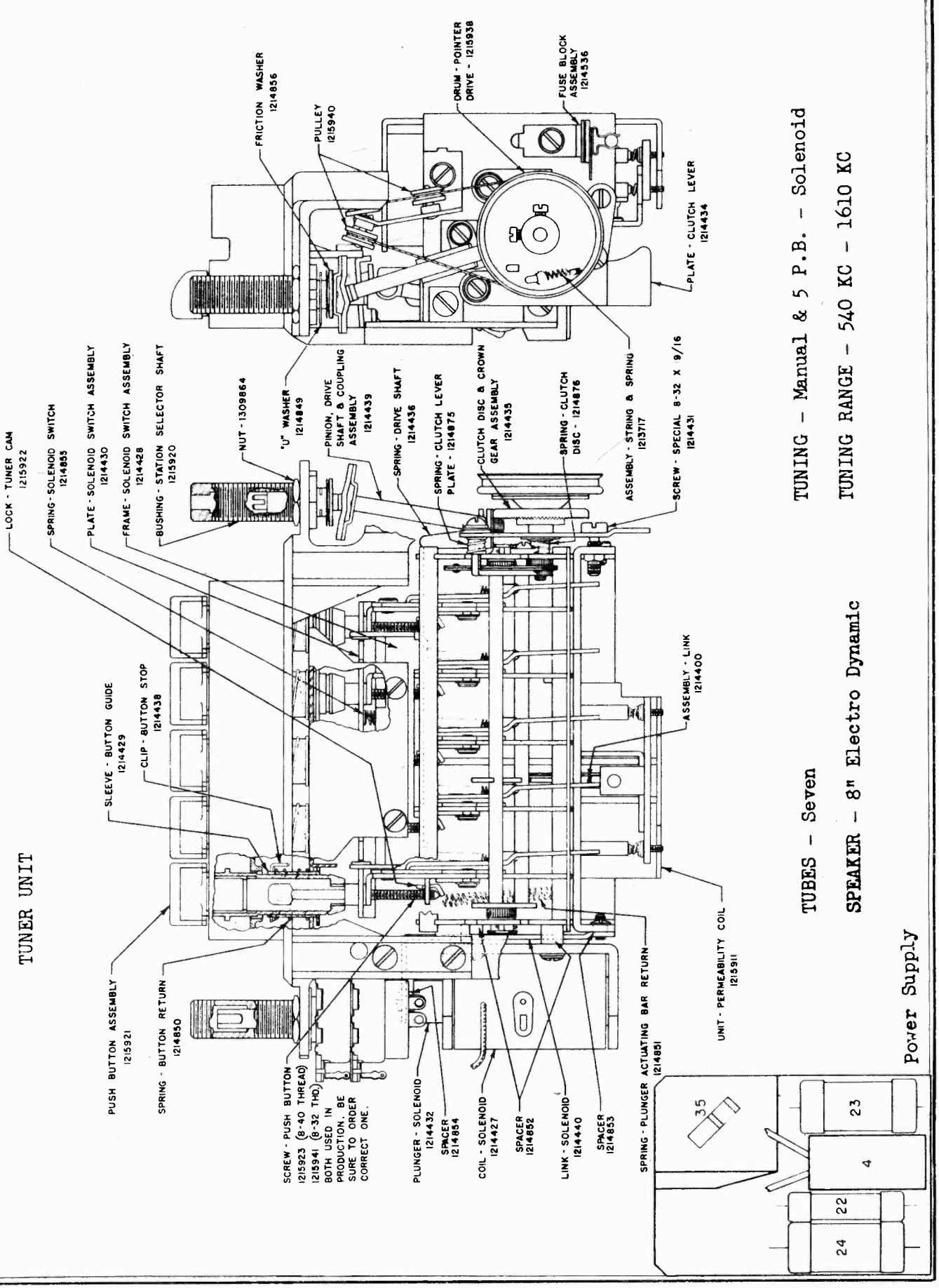
READINGS TAKEN FROM TUBE SOCKET CONTACTS TO GROUND WITH A 1000 OHMS PER VOLT D.C. VOLTMETER. "A" BATTERY — 6.0 VOLTS. CURRENT DRAIN — 8.1 AMPERES. "B" SUPPLY DRAIN — APPROX. 60 MA. ALL READINGS ±10%.

PUSH BUTTON SET UP

Pull button out - turn counter-clockwise until definite latching is observed - Loosen two turns - Tune in desired station manually - Depress loosened button - Pull button out again and tighten by turning clockwise - Return to normal position

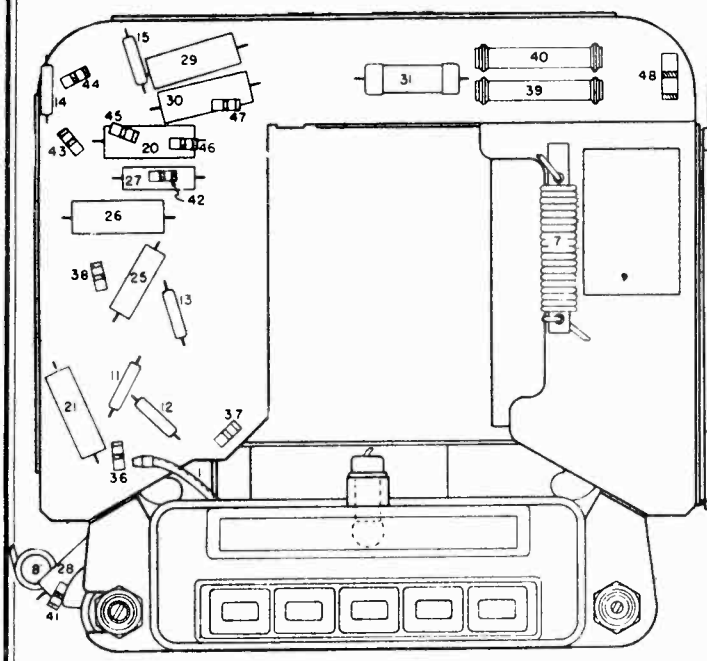
MODEL 982282

OLDSMOBILE DIV.—GEN. MOTORS

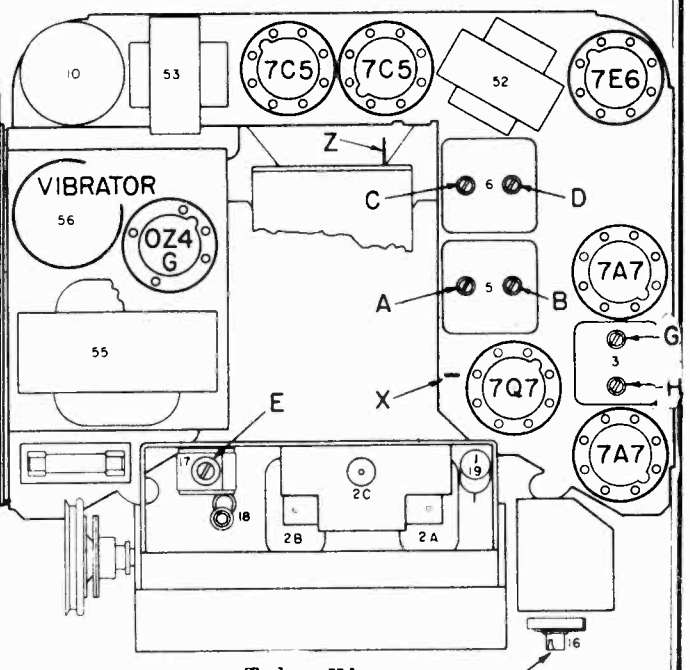


MODEL 982282

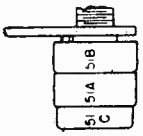
OLDSMOBILE DIV.—GEN. MOTORS

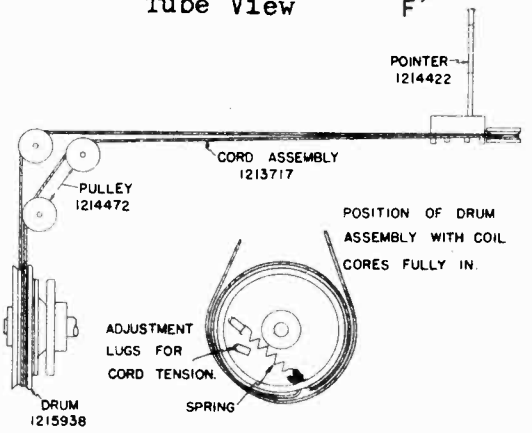


Chassis View



Tube View





Pointer and Tuner Drive String Hookup

CAR ANTENNA CAPACITY - 75 mmfd.

FOR COMPLETE ALIGNMENT PROCEDURE
SEE UNITED MOTORS SERVICE
MODEL R-698

ALIGNMENT PROCEDURE

Volume Control Maximum

Signal Generator Output minimum for satisfactory output indication

Series Condenser Or Dummy Antenna	Connect To	Signal Generator Frequency	Adjust Screws In Order
0.1 mfd.	Terminal X	260 KC	A-B-C-D
.000075 mfd.	Antenna Terminal	1610 KC	E-F-H
.000075 mfd.	Antenna Terminal	260 KC	G *

* Adjust for minimum output indication.

Low frequency alignment not required.

Adjust Trimmer E to match car antenna (1400 KC) when radio is installed.

MODEL 982283

OLDSMOBILE DIV.—GEN. MOTORS

ALIGNMENT PROCEDURE

Volume Control Maximum-Tone Control on treble.

Signal Generator minimum for satisfactory output indication.

Series Condenser Or Dummy Antenna	Connect To	Signal Generator Frequency	Adjust Screws In Order
0.1 MFD	Grid side of Trimmer F	262 KC	A B C D
.000070 MFD	Antenna Terminal	1615 KC	E
.000070 MFD	Antenna Terminal	1400 KC	F G

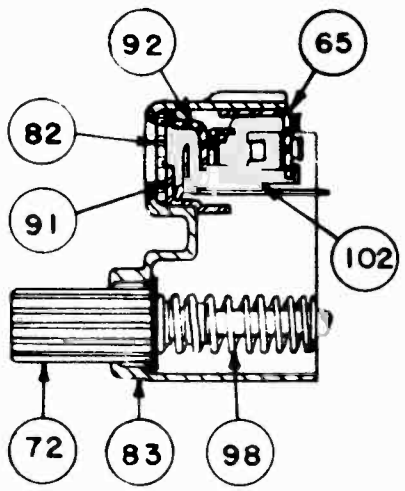
Adjust trimmer G to match car antenna (1400 KC) when radio is installed. For complete alignment procedure see United Motors Service Model R698

SPECIAL INSTRUCTIONS

Mechanical alignment of iron cores. Tune to stop at H.F. end of dial. Adjust cores H, J, & K to extend 1-5/32" out from end of coil form. Adjust trimmer E, F, & G, (1615 KC). Adjust cores H & J for maximum output at 1400 KC. Repeat alignment of trimmers E, F, & G at 1615 KC. Repeat alignment of cores H & J at 1400 KC. Align trimmers F & G at 1400 KC.

TUNER MECHANICAL PARTS

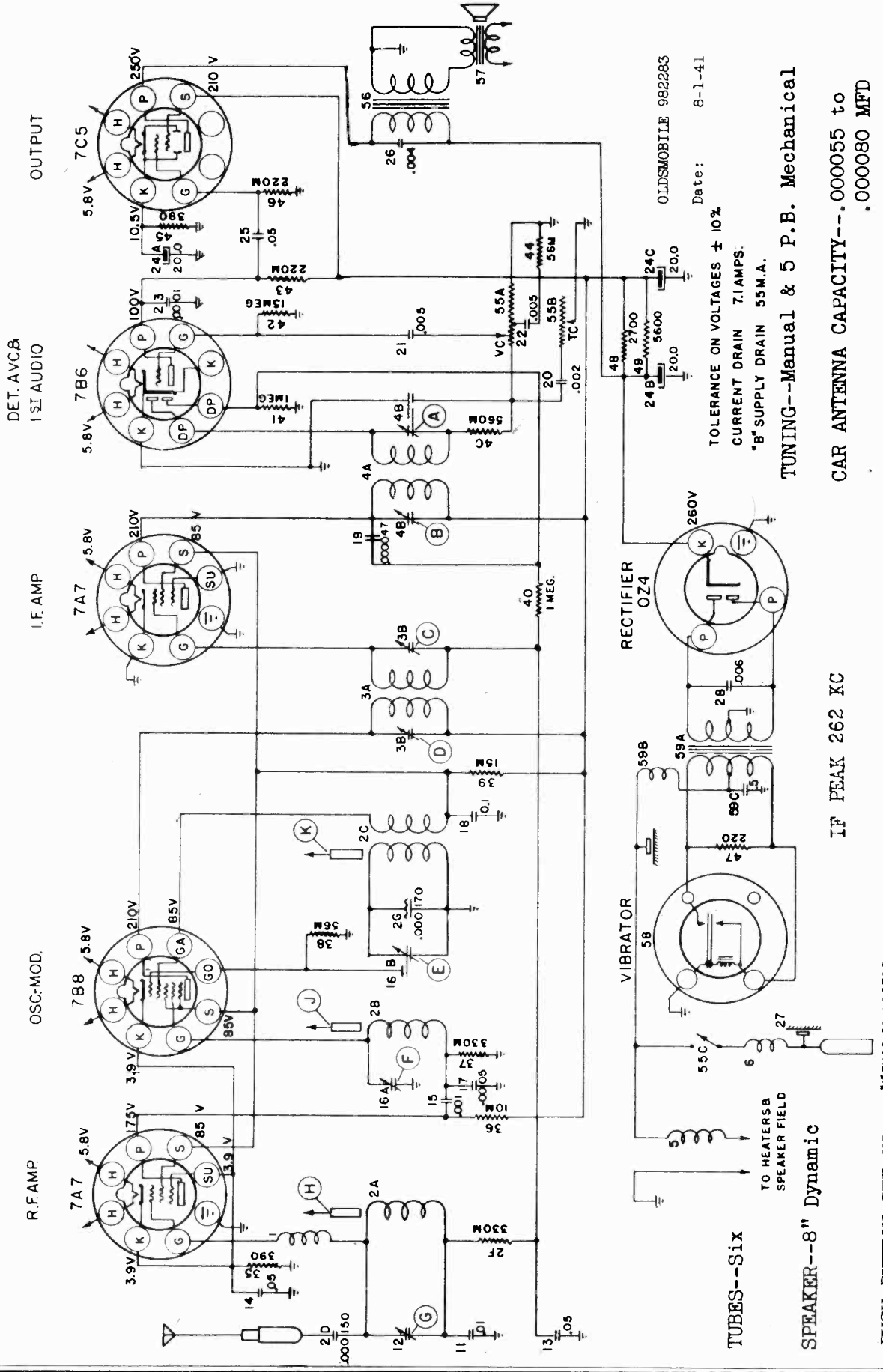
Illus. No.	Part No.	Part Name	Description
65	7241046	Baffle	Light Shield
66	7241029	Bar	Parallel Guide
67	7241957	Bearing	Face Worm
68	7242033	Bracket	Outrigger Assy.
69	7241265	Bracket	Slide Assy.
70	7242420	Bumper	Button Shock Absorber
71	7240998	Bushing	Man Drive
72	7242436	Button	P.B. Assy.
74	7242847	Clamp	Core
75	7240893	Clutch	Assy.
76	7241267	Collar	Man. Shaft
77	7241675	Cord	Pointer
78	7242138	Core	Antenna, & Oscillator Coil Tuning
79	7242139	Core	R.F. Coil Tuning
80	7240921	Coupling	Core
82	7242340	Dial	Calibrated
83	7240774	Escutcheon	
84	7241658	Extension	Control Shafts
86	7241370	Lever	String Drive
87	7240922	Link	Connecting
88	7242516	Nut	Spacer
90	7241956	Plate	Tuner Mounting
91	7242441	Plate	Dial Back Plate
92	7242545	Plate	Pointer Back Plate
93	7242214	Pointer	Assy. Comp.
95	7241657	Screw	Shaft Extension
96	7241276	Shaft	Man. Drive Assy.
97	7240882	Spacer	Shoulder Spacing Slide Bracket
98	7241044	Spring	Button Return
99	7240915	Spring	Clutch Shaft Tension
100	7241042	Spring	Connecting Link-Also Slide Bracket Return
101	7241045	Spring	Core Coupling
102	7240947	Spring	Dial Retainer
103	7241178	Spring	Pointer Return
105	7242475	Tuner	Assy. Includes items 106-111
106	7241037	Screw	Push Button Screws
107	7241039	Spring	Latch Bar
108	7241169	Spring	P.B. Screw Return
109	7241835	Spring	Tuning Nut Yoke
110	7242426	Tip	Latching Button
111	7240548	Yoke	Tuning Nut



ESCUTCHEON CROSS SECTION

OLDSMOBILE DIV.—GEN. MOTORS

MODEL 982283



PUSH BUTTON SET-UP

Push button in and latch. Allow to return to normal position. Turn button until desired station is brought in. Do not hold button in while adjusting.

MODEL 982283

OLDSMOBILE DIV.—GEN. MOTORS

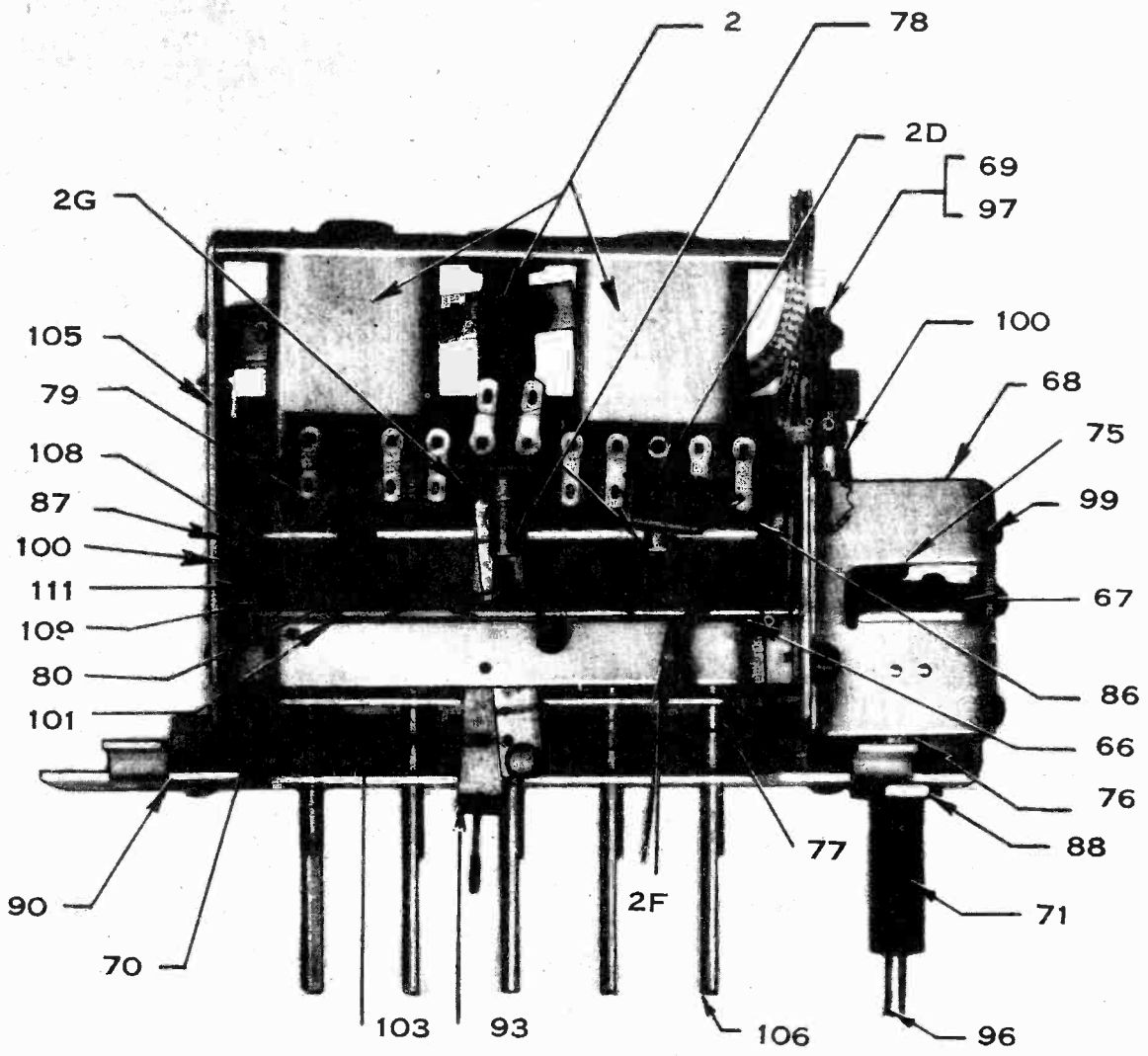
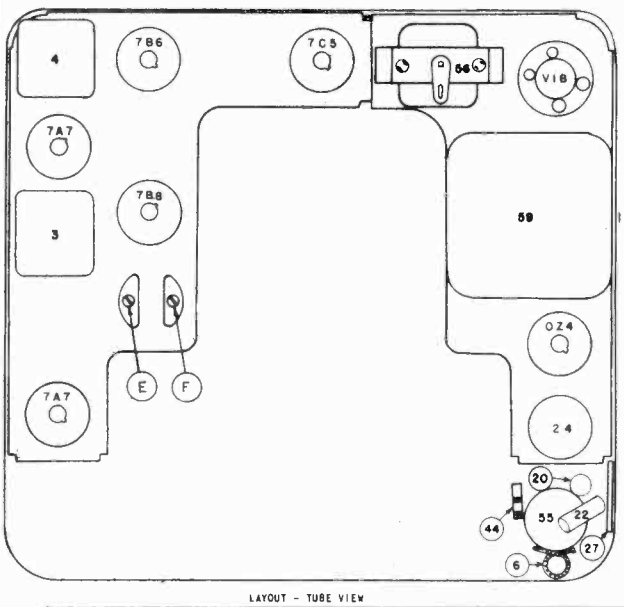
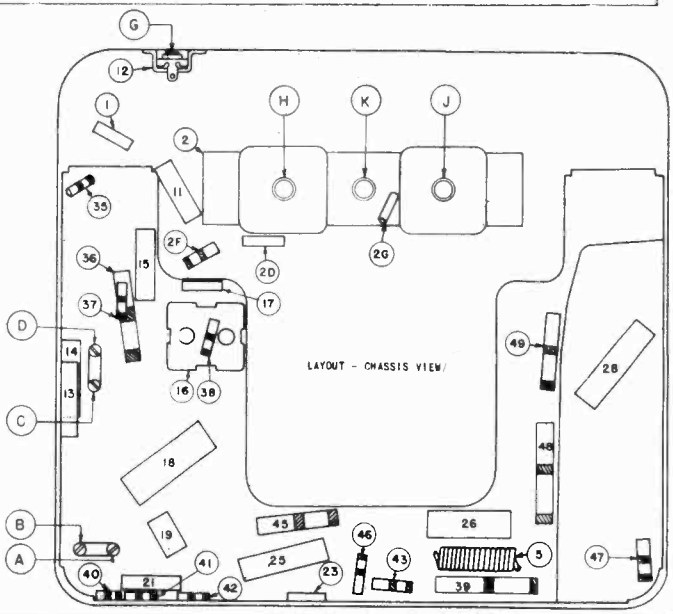


Fig. 5 - Tuning Control Unit - 982283





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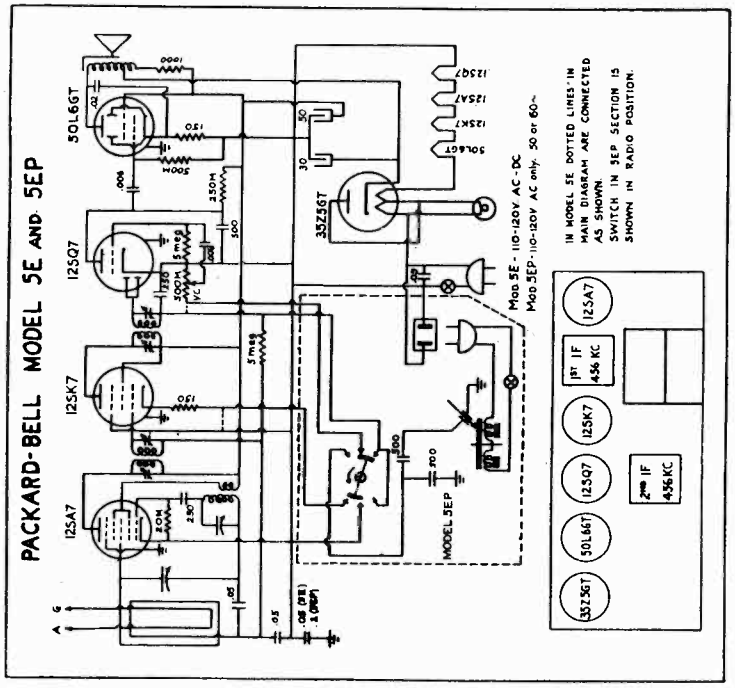
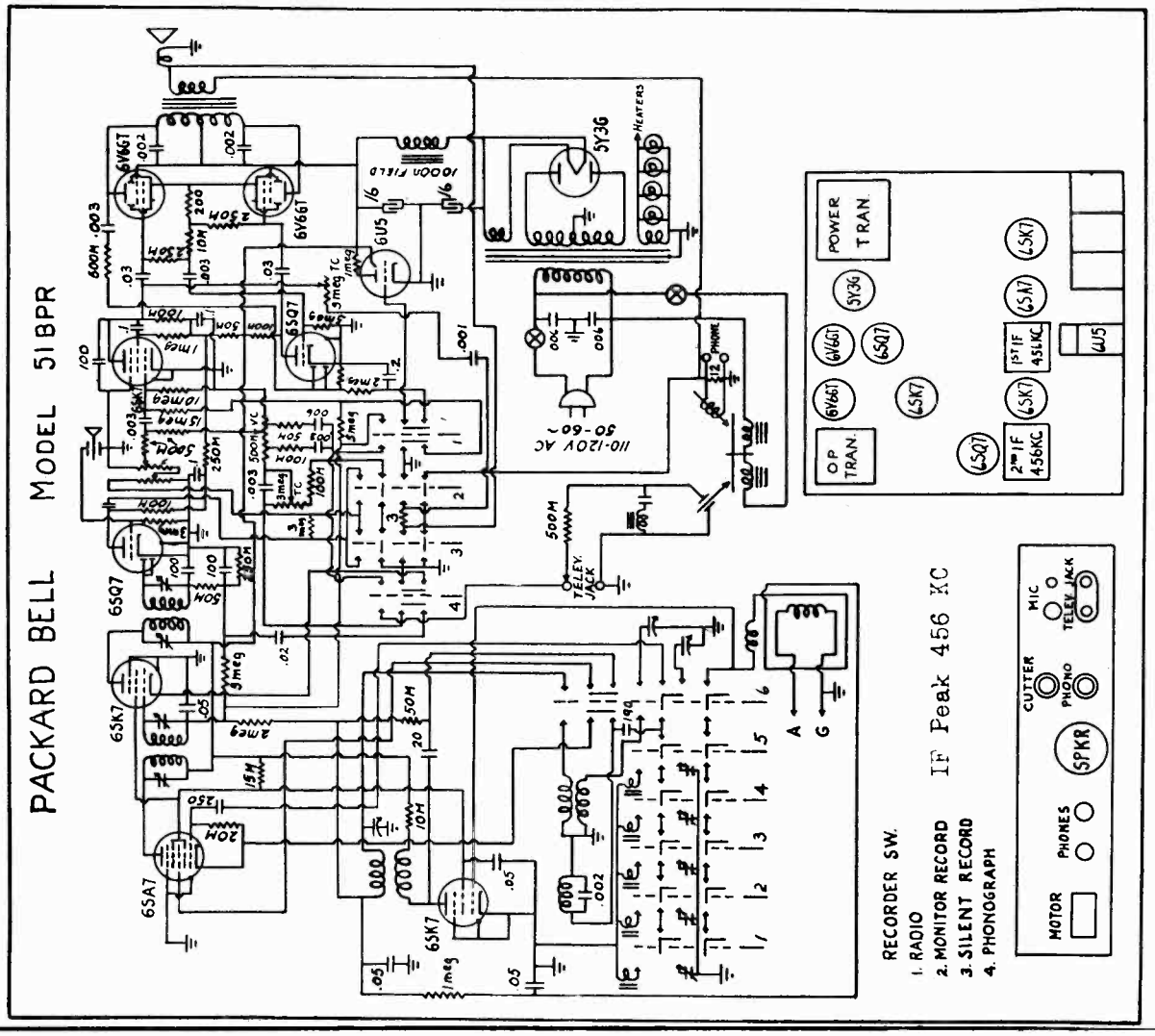
MODELS 5E, 5EP
MODEL 51BPR



IF Peak 456 KC



IF Peak 456 KC

MODEL 6B
MODEL 65AP

PACKARD BELL CO.