

#### GENERAL INFORMATION.

SR 51 has been especially designed to fill the need for a high quality replacement or custom tuner of such mechanical and circuit simplicity as to preclude the possibility of unit obsolescence. Separate standard components are used throughout.

No special instructions for circuit adjustment are necessary. There are no trick circuits. To any technician skilled in AM-FM the alignment procedure is obvious. Oscillator Parallel trimmer adjustment at 1500 KC. Series padder at 600 KC.

#### INSTALLATION INSTRUCTIONS.

SR 51 control shafts and escutcheon are designed for a face panel of not more than one quarter of an inch in thickness. Carefully check the unit with the proposed cabinet placement using the furnished paper templet for cut-out marking.

The machine screws which now hold the bronze escutcheon to the transparent dial are for shipping convenience only and may be discarded. Bronze oval head wood screws are supplied to fasten the escutcheon to the cabinet panel.

The transparent control designation strip should be placed over the control shafts and fastened into place after the tuner is in the cabinet to insure perfect placement.

Chassis mounting screws with retaining washers should not be so tight as to nullify the cushioning effect of the rubber feet.

#### CAUTION

VENTILATION IS EXTREMELY IMPORTANT. No multi-tube unit should be housed in an insufficiently ventilated cabinet. Damage to the unit and the cabinet will result.

USE ONLY 1/4 AMP. FUSE.

#### ANTENNA REQUIREMENTS.

For best non-directional standard AM broadcast results a simple wire ten to twenty ft. in length connected to antenna terminals D1 and D2. (GND also grounds unit.) A console type folded dipole is supplied with the tuner and will prove a satisfactory substitute in most cases where an external dipole is impractical.

For best P.M. results a 100 P.C. dipole should be installed well above surrounding obstructions. The twisted 300 ohm line from the dipole should be connected to antenna terminals D1 and D2. (GND also grounds unit.)

A console type folded dipole is supplied with the tuner and will prove a satisfactory substitute in most cases where an external dipole is impractical.

#### INPUT JACKS.

All phono or TV audio signals as well as the AM and FM radio are subject to the volume and tone controls of the tuner unless DETECTOR output is used.

The jack marked "MAG" is the input for a properly compensated pre amplifier when using the variable reluctance cartridge.

CRYSTAL is the phono input for a standard crystal pickup.

The TV jack makes it possible to channel the audio of a television tuner thru the radio's amplifier and speaker.

The OUTPUT jack should be connected to the high impedance input control (250,000 to 500,000 ohms) of a quality audio amplifier. Use the prepared shielded lead supplied with the tuner. Choose a speaker capable of wide range reproduction.

A.C. POWER. SR 51 is completely powered for 110-125 volts 50-60 cycles. The power switch (on the Volume Control) also controls the A.C. receptacle on the back of the chassis for convenience in amplifier installation.

The A.M. or Standard Broadcast section consists of a pre-stage tuner Radio Frequency section and one broad band stage of I.F. terminating in a new LOW DISTORTION detector for those who insist on the best in a Standard Broadcast Receiver. A "Null T" type 10 KC filter eliminates adjacent station whistle without impairing maximum frequency response.

The Frequency Modulation section employs a tuned R. F. stage preceeded by an input coupling tube for added sensitivity and stability. An A.F.C. controlled Triode Oscillator, two stages of permeability tuned I.F. for superior F.M. performance and fully balanced static free Ratio Detector.

Input jacks are for phono pickups, either crystal pickup or properly compensated pre-amp for Variable Reluctance type pickup and a jack for aural television.

Two output jacks, one direct from detector for feeding a high quality recording amplifier, etc., the other allowing for full tuner control. A phono pre-amplifier power supply socket is provided for SR3 or similar unit.

SR51 has the new SR tone-gate circuit for smooth electro-acoustical control of bass and treble emphasis allowing the controls of the audio amplifier to be pre-set. The newest in TWO TUBE tone control. Bass and treble variable from flat, minus 18 DB to plus 18 DB.

A.M. detector distortion only .35% at 400 cycles and .8% at 4000 cycles 100% modulation.

10 K.C. filter attenuation zero at 9 K.C. and -47 DB at 10 K.C.

F.M. Sensitivity: - 5 microvolts. Ratio Detector A.M. absorption 70%.

Tubes: - Three 6BA6; two 6SN7GT and one each 6BE6; 6C4; 6J6; 6AL5; 6SA7; 6SK7; 6SF7; 6E5 and 5Y3.

Power Consumption: - 85 watts, 110-125 volts, 50-60 cycles.



## Model 515 Radio-Phonograph

GENERAL FEATURES

The Model 515 is a combination designed for the reception of radio broadcast programs and for the reproduction of phonograph records, and other external sound. The receiver includes the following separate pieces of equipment: (1) radio-phono chassis, (2) power amplifier, (3) record changer, and (4) coaxial high fidelity speaker.

TECHNICAL DATA

<u>Power Input</u>	140-150 watts at 50-60 cycles. (Phono motor 60 cycles, 25 watts additional.) Taps are available to accommodate power line voltages of 105, 125, 150, 210, and 250.
<u>Tubes</u>	Total 11 and 2 rectifiers.
<u>Circuits</u>	Superheterodyne with RF amplifier stage (three gang tuning condenser) on all bands. Two stage AM-IF (455 kc). Push-pull output with 6 db inverse feedback. Separate B plus supplies for power amplifier and tuner sections for reduction of temperatures and to prevent damage to components through surges. Sound input for phono and other external sound.
<u>Tuning Range</u>	AM - 535 - 1620 kc SW - 2 - 6 mc SW - 6 - 18 mc
<u>Output</u>	20 watts (2-6L6 tubes in push-pull). Less than 5% distortion at full output.
<u>Sensitivity</u>	Less than 10 microvolts on any band. (Carrier modulated 30% at 400 cycles. Output 500 milliwatts with 10 db signal to noise ratio.)
<u>Fidelity</u>	Overall 30 to 20,000 cps plus or minus 1 db. Separate bass and treble control. Phono input equalized for elimination of objectionable scratch level.
<u>Speaker</u>	Hi-fidelity 12-inch coaxial PM. 8 ohm voice coil.
<u>General</u>	Tuner chassis 12 1/4" wide x 8 1/2" high x 13" deep. Weight 10 lbs. Polished chrome. Power amplifier chassis 12 1/4" wide x 7" high x 9" deep. Weight 23 lbs. Polished chrome. Five controls - Station Selector, Function Switch, Volume, Treble, Off-On Bass. Hum level 65 db below maximum output. Antenna - AM (built-in) loop and SW (built-in) antenna. Provision for connection of external antenna. Dial counter weighted - slide rule type - illuminated glass scale - full 7 inch travel - color dots to identify function - 0-100 logging scale. Unit construction of chassis, dial escutcheon, and knobs permits complete ease of installation, nothing to remove.

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### INSTALLATION

The Model 515 Radio-Phonograph comes complete with all equipment installed and ready for operation after taking the following few precautions:

1. Remove any packing material which may be used to hold the larger tubes in place.
2. Release the hold-down screws which hold the phono mechanism securely for shipment. These screws require only a few turns and when they are in the correct position the mechanism will be observed to float freely on the spring suspension. Do not remove the screws. Remove any tape or rubber bands which may be holding the pickup arm or accessories in place.
3. Check to make sure that power transformer tap is connected for the power line voltage.
4. Plug in the a.c. line cord.

### ANTENNA CONNECTION

The Model 515 is equipped with built-in antennas for both AM and SW reception. These antennas will be found adequate in most locations to receive all the stations in the service area. In locations remote from broadcast transmitters, or in locations shielded from the transmitters, outdoor antennas will give improved reception.

For reception under difficult conditions, the installation of a SCOTT Super Double Doublet All-Wave antenna is recommended. When this all-wave antenna system is used, connections to the antenna terminal strip should be as follows: One of the wires in the twisted pair is connected to terminal marked "GND". The other wire in the twisted pair is connected to the terminal marked "2". A short wire jumper should be connected from terminal "1" to terminal "2".

For single wire antenna installation the connections at the antenna terminal strip should be as follows: Connect antenna lead to terminal marked "2". A short wire jumper should be connected from terminal "1" to terminal "2".

### OPERATION OF CONTROLS

Station Selector - The large center knob serves to adjust the receiver to the desired station. The dial pointer follows the rotation of the knob and indicates the frequency to which the receiver is tuned. Assigned frequencies of broadcast stations are listed on the radio page of your newspaper.

Volume Control - The knob directly to the left of the large station selector knob serves to adjust the volume of sound. Turned to the right the volume is increased, and turned to the left the volume is decreased. The control is designed as to give a smooth and gradual control of the sound volume.

Service Functions - The knob directly to the right of the large station selector knob serves to adjust for the various functions desired. As indicated on the escutcheon, and identified by colored dots on escutcheon and dial glass, the functions are AM broadcast, shortwave 1, shortwave 2, phono reproduction, and an external connection which may be a separate record player or a crystal microphone.

Treble Control - Second knob to the left of station selector. This control acts to regulate the degree of higher audible tones sent to the loudspeaker. Turned completely to the right gives the maximum of high audio response. Turned to the left gives a minimum. The range of control gives the user an opportunity of adjusting the reproduction to his own desires.

Off-On Bass Control - This knob is the second to the right of the station selector. Turned slightly from its extreme left position it serves to turn on the power to the radio receiver. Turned further to the right it increases the amount of low frequency audio, or bass reproduction. The control may, therefore, be set at the position giving the listener the amount of bass reproduction he desires. Generally the treble and bass controls, being independent, can be individually adjusted for the best balance in reproduction which, naturally, will vary somewhat with individual preferences.

#### TUNING THE RECEIVER

To receive broadcast stations after the Model 515 is installed proceed as follows:

1. Turn the knob marked "OFF-ON BASS" to the right and advance about half-way. The dial lights will illuminate indicating the receiver is correctly connected to a power source. Allow about thirty seconds as a warm-up time for the radio tubes.
2. Turn the function knob to the position where the arrow points to the blue dot on the escutcheon.
3. Turn the large knob, or station selector, to the frequency position of one of the local broadcasting stations.
4. Turn the knob marked "VOLUME" slowly to the right until the station is heard. Then readjust the large knob until reception is clearest.
5. Adjust "BASS" and "TREBLE" controls until the reproduction is most pleasing.

To receive shortwave stations turn the function knob to the green or yellow positions and proceed exactly as described.

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RECORD CHANGER

The motor of the changer is permanently connected to the 125 volt tap so that it will not be necessary to modify this for various power line voltages. For 50 cycle operation a special drive wheel is required and is available.

FUSE REPLACEMENT

A fuse is provided for protection of the receiver against excessive power line voltages and against failure of any component in the receiver which would cause heavy current drain and fire hazard. This fuse is accessible at the rear panel of the tuner chassis. CAUTION: Always replace the fuse with one of the same rating in the event the fuse is blown. If the fuse continues to blow after replacement trouble is indicated and the equipment should be removed from the cabinet for examination.

TUBE REPLACEMENT

The Model 515 has the following tube complement:

Symbol	Tube	Application	Symbol	Tube	Application
V1	6BA6	RF Amplifier	V7	6SN7	2nd Audio Amplifier
V2	6C4	Converter	V8	6SN7	3rd Audio Amplifier
V3	6C4	Oscillator	V9	6L6G	Audio Power Output
V4	6BA6	IF Amplifier	V10	6L6G	Audio Power Output
V5	6BA6	IF Amplifier	V11	5Y3GT	Rectifier
V6	6SQ7	2nd Detector and 1st Audio Amplifier	V12	25Z6GT	Rectifier
			V13	6SC7	Preamplifier, reluctance pickup

ALIGNMENT PROCEDURETest Equipment

1. Electronic type voltmeter for DC measurements - RCA Voltohmyst.
2. AM signal generator for 455 kc, 600 kc, 1000 kc, 1500 kc, 2 mc, 6 mc, and 16 mc.
3. AC voltmeter such as Ballantine Output Meter.
4. An aligning tool is included with each receiver and is taped on the 1st IF transformer can. Additional aligning tools may be ordered under part number 94V4707.

Alignment Procedure

The alignment is preferably performed in the following order: See Figures 1 and 2 for location of adjustments on chassis.

1. 455 KC I.F.
2. Band 1 R.F.
3. Band 2 R.F.
4. Band 3 R.F.

455 KC I.F. Alignment

A signal generator should be connected through a .01 MFD mica capacitor to the junction of converter grid coupling capacitor (C11) and middle gang condenser section (C2) which can be found on band selector switch (SW2). A good ground point for the generator is the rear support bracket of the switch assembly.

The AC voltmeter is connected across the secondary of the audio output transformer, which is loaded with an 8 ohm 10 watt resistor connected in place of the speaker voice coil. In the event this resistor is not available the speaker may be used if the sound volume can be tolerated. The volume, bass, and treble controls must be full on, the band selector switch in Band 1 position, and the receiver dial set at 1600 kc.

Apply sufficient input signal at 455 kc 400 cycles 30% modulation to give an indication of 2 volts r.m.s. AC on the AC output meter. With the use of the aligning tool peak the primary (bottom core) and secondary (top core) of the 455 kc I.F. transformers for maximum reading on the output meter. Begin alignment with peaking 3rd I.F. (T7), next the 2nd I.F. (T6) and last the 1st I.F. (T5). As the I.F. stages approach correct alignment, reduce the input signal level so the output never exceeds 2 volts AC. Repeat above procedure if stages have been found to be badly mis-aligned.

The normal 455 kc I.F. sensitivity is 5 uv for 10 db signal to noise ratio with 400 cycles 30% modulation. An alternative method for determining sensitivity is to measure with the electronic voltmeter the DC voltage applied to the AGC line (solid white wiring in tuner chassis). With this method the 455 kc I.F. input is 15 uv for a reading of 1 V DC

#### Band 1 R.F. Alignment

Connect the signal generator to terminal 1 on the antenna terminal strip through a .01 MFD mica capacitor. The Band 1 loop antenna must be plugged into the receiver. Operating controls and AC voltmeter connections remain as for 455 kc I.F. alignment.

Set the signal generator and receiver dial at 1000 kc and adjust Band 1 oscillator (T3) core for maximum indication on the output meter. Reset generator and receiver dial at 600 kc and adjust Band 1 low frequency trimmer (C14). Reduce input signal so the output never exceeds 2 V AC. The Band 1 converter transformer (T1) is now adjusted for maximum reading. The signal generator and receiver dial are re-set to 1500 kc and the Band 1 oscillator trimmer (C58), Band 1 converter trimmer (C55) and Band 1 loop trimmer (C52) are adjusted. Repeat C55 and C52 if considerable increase in output reading has been noted.

Normal sensitivity at any frequency on Band 1 is less than 0.5 uv for 10 db signal to noise ratio with 400 cycles 30% modulation.

#### Band 2 R.F. Alignment

Connect signal generator to terminal 2 on the antenna terminal strip through a dummy antenna load of 100 ohms resistor in series with 125 MMFD capacitor. Operating controls setting and AC voltmeter connections remain as for Band 1 R.F. alignment.

Set the signal generator and receiver dial at 2.2 mc and adjust in step procedure Band 2 oscillator coil (T4) core, next Band 2 converter transformer (T2) core and Band 2 antenna coil (L2) for maximum reading on output meter.

Reset signal generator and receiver dial at 5 mc and adjust in step procedure Band 2 oscillator trimmer (C59), Band 2 converter trimmer (C56) and Band 2 antenna trimmer (C53). Repeat above procedure until no further adjusting of cores and trimmers is needed.

Normal sensitivity at any frequency on Band 2 is less than 8 uv for 10 db signal to noise ratio with 400 cycles 30% modulation.

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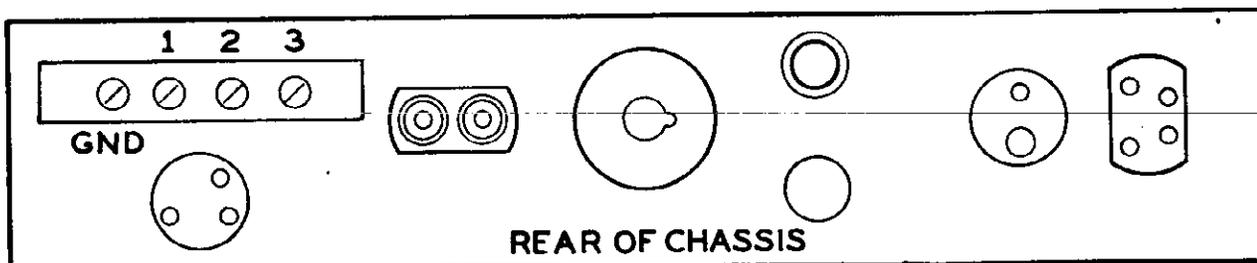
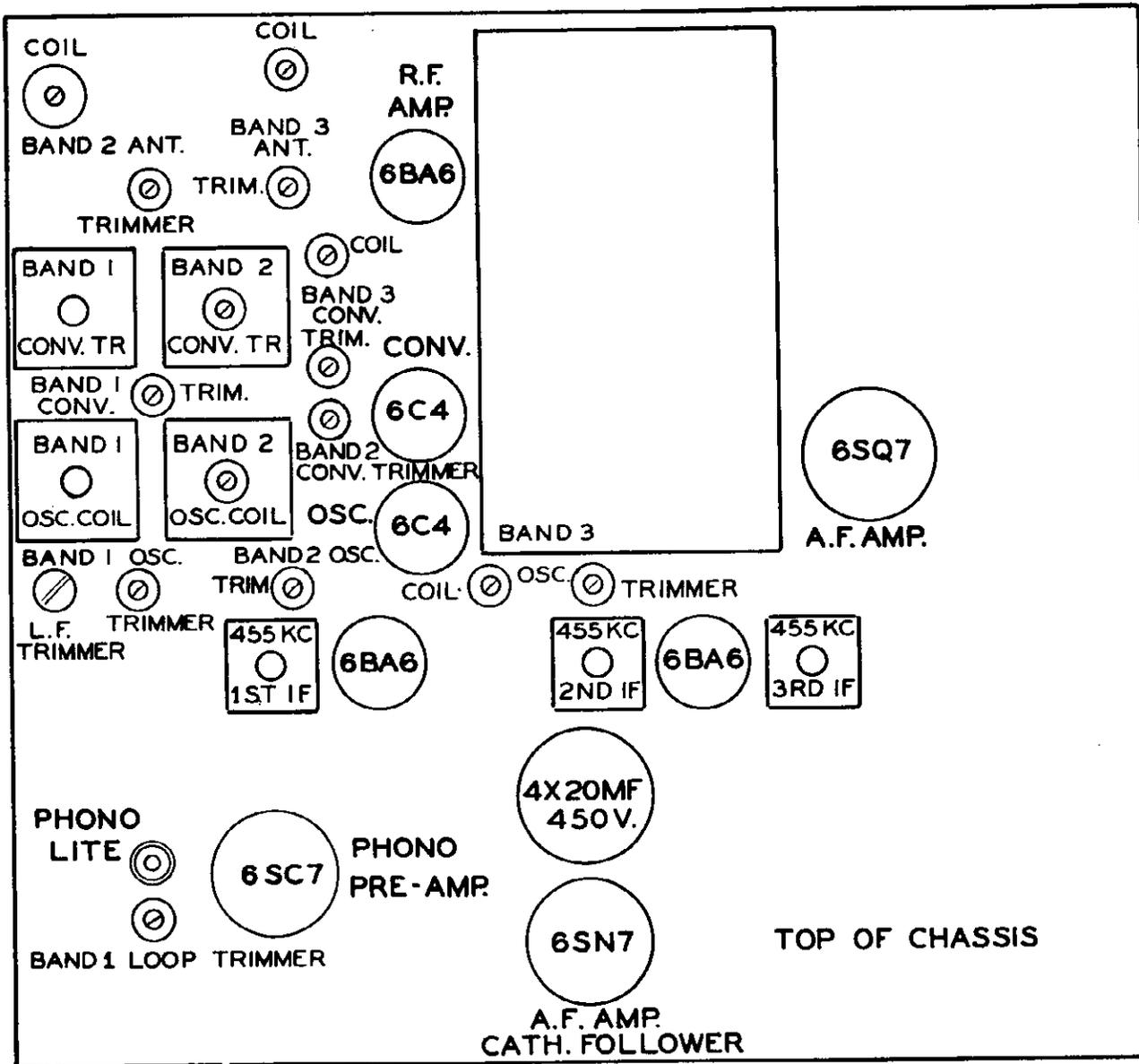


FIG. 1

Model 515 Tuner Assembly

Band 3 R.F. Alignment

The signal generator connection through dummy antenna, AC output voltmeter connections and operating controls setting remain as for Band 2 R.F. alignment.

Set signal generator and receiver dial at 6 mc and adjust in step procedure Band 3 oscillator coil (L5) core, next Band 3 converter transformer (L4) core and Band 3 antenna coil (L3) core for maximum indication on output meter.

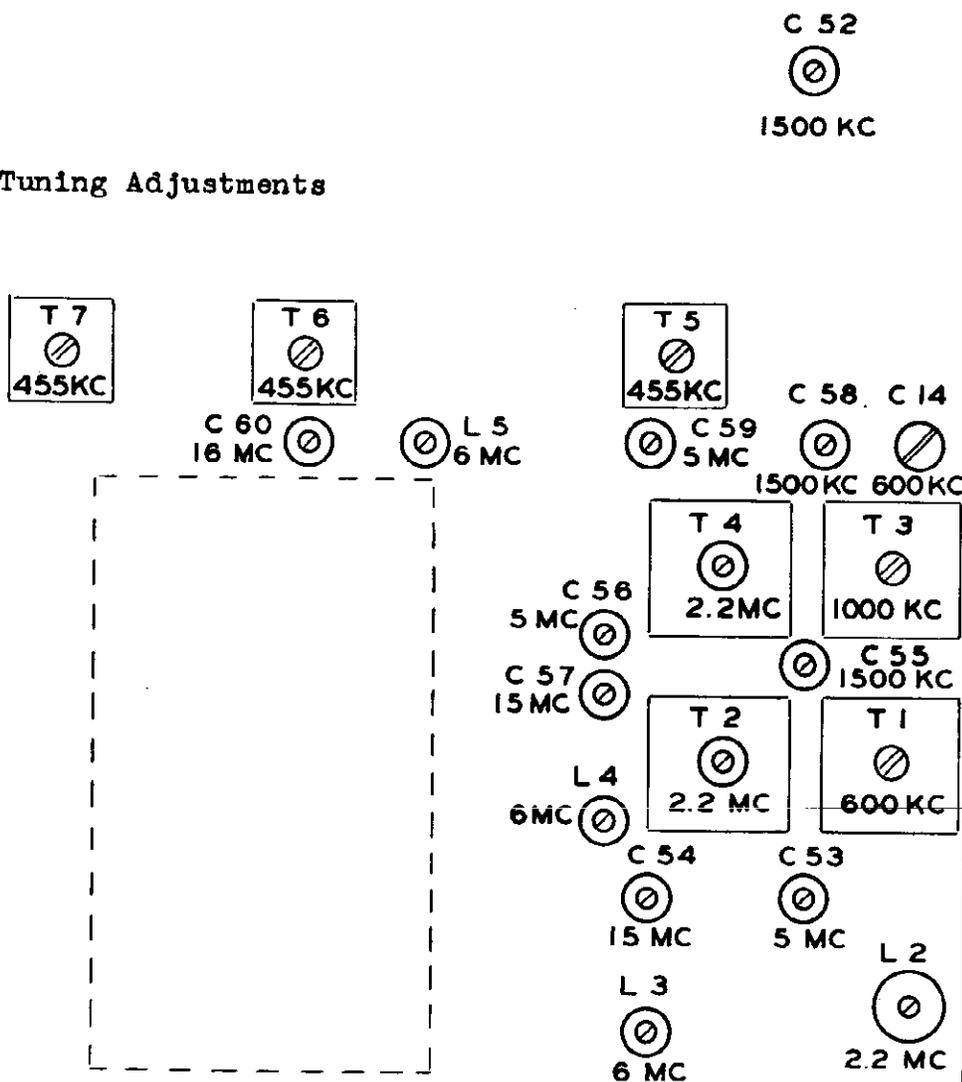
Reset the signal generator and receiver dial at 15 mc and adjust in step procedure Band 3 oscillator trimmer (C60), Band 3 converter trimmer (C57), and Band 3 antenna trimmer (C54).

Repeat above procedure until the 6 mc and 15 mc points require no further adjusting of cores and trimmers.

Normal sensitivity at any frequency on Band 3 is less than 10 uv for 10 db signal to noise ratio with 400 cycles 30% modulation.

FIG. 2

Location Of Tuning Adjustments



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VOLTAGE TABLE

Tube	Type	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6BA6	-.3	0	AC 6.5	0	120	120	1.25	-
V2	6C4	140	0	AC 6.5	0	140	-.2	7	-
V3	6C4	130	0	AC 6.5	0	130	-3.5	0	-
V4	6BA6	-.3	0	AC 6.5	0	120	120	3	-
V5	6BA6	0	0	AC 6.5	0	110	110	2.5	-
V6	6SQ7	0	-.8	0	0	0	90	AC 6.8	0
V7	6SN7	0	110	5	35	235	50	AC 6.8	0
V13	6SC7	0	110	-.5	-.5	90	0	0	AC 6.8
V8	6SN7	66	210	78	66	210	78	0	AC 6.8
V9	6L6G	0	AC 6.8	360	275	0	73	0	15
V10	6L6G	0	AC 6.8	360	275	0	73	0	15
V11	5Y3	0	400	0	AC 390	0	AC 390	0	400
V12	25Z6	0	0	AC 170	200	AC 170	0	0	200

Voltage readings made with Voltohmyst. Line voltage adjusted to 117 V AC. All voltages measured between indicated pin and chassis frame. Unless noted all voltages are DC and positive to chassis.

No signal input.

Voltages taken with the service selector switch in Band 1 position.  
Volume control in the counterclockwise position.

Tone controls clockwise.

RESISTANCE TABLE

Tube	Type	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6BA6	1.75 M	0	0	0	inf.	inf.	82	-
V2	6C4	inf.	inf.	0	0	inf.	3.5 M	4.7 K	-
V3	6C4	inf.	inf.	0	0	inf.	33 K	0	-
V4	6BA6	1.4 M	0	0	0	inf.	inf.	220	-
V5	6BA6	0	0	0	0	inf.	inf.	220	-
V6	6SQ7	0	4.7 M	0	0	0	inf.	0	0
V7	6SN7	19 K	inf.	2.2 K	500 K	inf.	12 K	0	0
V13	6SC7	0	inf.	3.3 M	3.3 M	inf.	0	0	0
V8	6SN7	230 K	inf.	11 K	230 K	inf.	11 K	0	0
V9	6L6G	inf.	.2	inf.	inf.	470 K	10 K	0	170
V10	6L6G	inf.	.2	inf.	inf.	470 K	10 K	0	170
V11	5Y3	inf.	inf.	inf.	5	inf.	5	inf.	inf.
V12	25Z6	inf.	inf.	2	inf.	2	inf.	inf.	inf.

Resistance readings taken with Voltohmyst connected between pin indicated and chassis frame. Values given are in ohms except where K indicates times 1000 and M indicates times 1 megohm.

All controls to the counterclockwise or off position.  
Range switch in Band 1 position.

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## Parts List By Symbol Designation

Symbol Desig.	Function	Description	Part No.
(C1 (C2 (C3	Main tuning capacitor	Capacitor, variable, 3 gang	15W4895
C4	Grid coupling, RF	Capacitor, mica 240 MMFD 10% 500 V	15A366
C5	Cathode bypass, RF	Capacitor, paper, .05 MFD 400 V, miniature tubular	15L3466
C6	Grid decoupling, RF	Same as C5	
C7	Cathode bypass, RF	Capacitor, ceramic 5000 MMFD hi-kap 500 V	15L3462
C8	Screen bypass, RF	Capacitor, paper .05 MFD 600 V, miniature tubular	15L3467
C9	Screen bypass, RF	Same as C7	
C10	Shunt capacity	Capacitor, mica 10 MMFD 10% 500 V	15E3207
C11	Grid coupling, Conv.	Capacitor, ceramic 100 MMFD 10% 500 V	15L3460
C12	Grid decoupling, Conv.	Same as C5	
C13	Cathode coupling, Conv.	Capacitor, paper 5000 MMFD 20% 600 V	15H2603
C14	Variable padder, Band 1, Osc.	Capacitor, mica trimmer, 30-200 MMFD	15E2675
C15	Fixed padder, Band 1, Osc.	Capacitor, mica 460 MMFD 10% 500 V	15E1935
C16	Shunt capacity	Capacitor, ceramic 30 MMFD 5%	15W4936
C17	Fixed padder, Band 2, Osc.	Capacitor, mica 1000 MMFD 20% 500 V	15A35
C18	Fixed padder, Band 3, Osc.	Capacitor, mica 6200 MMFD 20% 500 V	15A40
C19	Grid coupling, Osc.	Capacitor, ceramic 51 MMFD 5% 500 V	15L3458
C20	Plate decoupling, Osc.	Capacitor, ceramic 1500 MMFD 350 V	15L3459
C21	Feedback coupling, Osc. plate	Same as C13	
C22	Plate decoupling, IF	Same as C8	
C23	Grid decoupling, IF	Same as C5	
C24	Plate decoupling, IF	Same as C8	
C25	Plate decoupling, IF	Same as C8	
C26	RF bypass, Diode	Same as C11	
C27	Bypass, AGC	Capacitor, paper .1 MFD 200 V, miniature tubular	15S4298
C28A	RF filter	Capacitor, silver ceramic, 2x100 MMFD 20% 500 V, 3 wire leads	15D2923
C28B	RF filter		
C29	Audio input coupling	Same as C5	
C30	Grid coupling, Phono Preamplifier	Same as C5	
C31	Grid coupling, Phono Preamplifier	Same as C5	
C32	Equalizing capacity	Capacitor, paper .015 MFD 400 V, miniature tubular	15L3464

## Parts List By Symbol Designation

Symbol Desig.	Function	Description	Part No.
C33	Coupling, Audio Amp.	Capacitor, paper .1 MFD 600 V, miniature tubular	15L3468
C34	Coupling, Audio Amp.	Capacitor, paper .02 MFD 200 V, miniature tubular	15U4580
C35	Grid coupling, Audio Amp.	Capacitor, paper .01 MFD 200 V, miniature tubular	15L3463
C36	RF filter, Audio Amp.	Same as C11	
C37	Grid coupling, Audio Amp.	Same as C33	
C38	Bypass, Treble control	Same as C35	
C39	Bypass, Treble control	Same as C13	
C40	Bypass, Bass control	Same as C13	
C41	Bypass, Bass control	Same as C34	
C42A	Decoupling	Capacitor, electrolytic, 4x20 MFD, 450 V	15L3588
C42B	Filter, low frequency		
C42C	Filter, low frequency		
C43	Cathode bypass, Audio Amp.	Capacitor, electrolytic, 25 MFD, 25 V, tubular	15B795
C44	Grid coupling, Audio Amp.	Same as C8	
C45	Coupling, cathode follower	Same as C5	
C46	Shunt capacity	Capacitor, mica 25 MMFD 10% 500 V	15E1849
C47	Grid coupling, Audio Amp.	Same as C8	
C48	Grid coupling, Audio Amp.	Same as C8	
C49	Cathode bypass, Power Amp.	Capacitor, electrolytic 25 MFD, 50 V, tubular	15B638
C50A	Filter, low voltage	Capacitor, electrolytic, 2x60 MFD 200 V	15L3438
C50B	Filter, low voltage		
C51A	Filter, high voltage	Same as C42	
C51B	Filter, high voltage		
C51C	Filter, high voltage		
C52	Trimmer, Band 1 Ant.	Capacitor, trimmer, 1-8 MMFD	15W5079
C53	Trimmer, Band 2 Ant.	Same as C52	
C54	Trimmer, Band 3 Ant.	Same as C52	
C55	Trimmer, Band 1 Conv.	Same as C52	
C56	Trimmer, Band 2 Conv.	Same as C52	
C57	Trimmer, Band 3 Conv.	Same as C52	
C58	Trimmer, Band 1 Osc.	Same as C52	
C59	Trimmer, Band 2 Osc.	Same as C52	
C60	Trimmer, Band 3 Osc.	Same as C52	
C61	RF bypass, Audio	Same as C20	
E1	Dial light	Lamp, 6-8 V .150 A #47 brown	49A168
E2	Dial light	Same as E1	
E3	Phono compt. light	Same as E1	
E4	Overload protection	Fuse, 3 amp, 3 AG	37A162

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Parts List By Symbol Designation

Symbol Desig.	Function	Description	Part No.
E5	Main tuning knob	Knob, station selector 1 7/8" dia. brass	47V4603
E6	Control knob	Knob, 1 1/8" dia. black bakelite, push-on type	47V4604
E7	Align IF	Aligning tool	94V4707
J1	Loop connector to receiver	Receptacle, 3 contact	67U4716
J2	Phono pickup, external audio sound connector	Receptacle, dual, insulated	67V4657
J3	Phono compartment light connector	Receptacle, single, insulated	67E3226
J4	Power cable connector	Socket, 12 contact	82S4305
J5	Speaker connector	Receptacle, 2 contact	67V4673
J6	Phono motor power connector	Receptacle, 4 contact	67B645
L1	Signal interceptor	Loop	1V4594
L2	Band 2 antenna tuning	Coil	20W4915
L3	Band 3 antenna tuning	Coil	20W4916
L4	Band 3 conv. tuning	Transformer	20W4918
L5	Band 3 osc. tuning	Coil	20W4920
L6	Filter choke, ripple	Choke	17L3312
LS1	Loudspeaker	Speaker, 12" coaxial, PM 8 ohm voice coil	85V4593
P1	Loop connector to receiver	Plug, 3 contact	65U4714
P2	Phono compartment light connector	Plug, single contact	65E3225
P3	Amplifier connector to tuner	Plug, 12 contact	65S4301
R1	Grid load, RF	Resistor, composition, .47 meg, 10% 1/2 watt	70L3404
R2	Grid decoupling, RF	Resistor, composition, .1 meg, 10% 1/2 watt	70L3401
R3	Cathode bias, RF	Resistor, composition, 82 ohms 5% 1/2 watt	70L3391
R4	Plate decoupling, RF	Resistor, composition, 1000 ohms 10% 1/2 watt	70L3393
R5	Grid load, Conv.	Resistor, composition, 2.2 meg, 20% 1/2 watt	70L3408

## Parts List By Symbol Designation

Symbol Desig.	Function	Description	Part No.
R6	Grid decoupling, Conv.	Same as R2	
R7	Cathode bias, Conv.	Resistor, composition, 4700 ohms, 10% $\frac{1}{2}$ watt	70L3395
R8	Plate decoupling, Conv.	Same as R4	
R9	Grid decoupling, IF	Same as R2	
R10	Grid load, Osc.	Resistor, composition, 33,000 ohms, 10% $\frac{1}{2}$ watt	70L3398
R11	Plate load, Osc.	Same as R4	
R12	Cathode bias, IF	Resistor, composition, 220 ohms, 5% $\frac{1}{2}$ watt	70V4783
R13	Plate decoupling, IF	Same as R4	
R14	Cathode bias, IF	Same as R12	
R15	Plate decoupling, IF	Resistor, composition, 3300 ohms, 10% $\frac{1}{2}$ watt	70L3394
R16	Diode load, IF	Resistor, composition, .22 meg 10% $\frac{1}{2}$ watt	70L3403
R17	Diode decoupling, IF	Resistor, composition, 47,000 ohms 10% $\frac{1}{2}$ watt	70L3399
R18	Decoupling, AGC	Resistor, composition, 1 meg 20% $\frac{1}{2}$ watt	70L3406
R19	Decoupling, Audio	Resistor, composition, 22,000 ohms 10% $\frac{1}{2}$ watt	70L3397
R20	Power filter	Resistor, 750 ohms, 10% 5 watt, wirewound	70W4912
R21	Compensation, Phono Pickup	Resistor, composition, 6800 ohms, 10% $\frac{1}{2}$ watt	70L3534
R22	Grid load, Phono Preamplifier	Resistor, composition, 3.3 meg, 20% $\frac{1}{2}$ watt	70L3422
R23	Plate load, Phono Preamplifier	Resistor, composition, 68,000 ohms, 10% $\frac{1}{2}$ watt	70L3515
R24	Plate load, Phono Preamplifier	Same as R10	
R25	Equalizing, Phono Audio Freq.	Same as R16	
R26	Grid load, Phono Preamplifier	Same as R22	
R27	Equalizing, Phono Audio Freq.	Same as R19	
R28	Volume control	Potentiometer, volume, .5 meg, 20%	70V4583
R29	Grid load, Audio Amp.	Resistor, composition, 4.7 meg, 20% $\frac{1}{2}$ watt	70L3530
R30	Plate load, Audio Amp.	Same as R2	
R31	Tone control network	Same as R17	
R32	Treble control	Potentiometer, treble, .5 meg, 20%	70V4584
R33	Bass control	Potentiometer, bass off-on, .5 meg, 20%	70V4585
R34	Bass control network	Same as R19	
R35	Grid load, Audio Amp.	Same as R2	
R36	Cathode follower	Resistor, composition, 56 ohms, 10% $\frac{1}{2}$ watt	70V4628

MODEL 515

## Parts List By Symbol Designation

Symbol Desig.	Function	Description	Part No.
R37	Cathode bias, Audio Amp.	Resistor, composition, 2200 ohms, 10% $\frac{1}{2}$ watt	70L3432
R38	Plate load, Audio Amp.	Same as R17	
R39	Cathode follower decoupling	Resistor, composition, 560 ohms, 10% $\frac{1}{2}$ watt	70L3527
R40	Cathode circuit	Resistor, composition, 10,000 ohms, 10% $\frac{1}{2}$ watt	70L3396
R41	Cathode bias, Cathode Follower	Resistor, composition, 1800 ohms, 10% $\frac{1}{2}$ watt	70V4700
R42	Grid load, Cathode Follower	Same as R1	
R43	Plate decoupling, Audio Amp.	Same as R4	
R44	Grid load, Phase Inverter	Same as R16	
R45	Cathode bias, Phase Inverter	Resistor, composition, 680 ohms, 10% $\frac{1}{2}$ watt	70V4691
R46	Cathode coupling	Resistor, composition, 10,000 ohms, 10% 1 watt	70L3427
R47	Plate load, Phase Inverter	Same as R46	
R48	Grid load, Power Amp.	Same as R1	
R49	Grid load, Power Amp.	Same as R1	
R50	Cathode bias, Power Amp.	Resistor, 167 ohms, 10% 5 watt, wirewound	70W4910
R51	Filter	Resistor, 375 ohms, 10% 5 watt, wirewound	70W4911
R52	Filter	Resistor, composition, 3900 ohms, 10% 2 watt	70V4693
SW1	Band 1, 2, 3, Phono Switching	Switch, range, 4 position	89W4899
T1	Interstage coupling, Band 1 Conv.	Transformer	20V4620
T2	Interstage coupling, Band 2 Conv.	Transformer	20W4917
T3	Oscillator, Band 1	Coil	20V4621A
T4	Oscillator, Band 2	Coil	20W4919
T5	Interstage coupling, IF	Transformer	20V4622A
T6	Interstage coupling, IF	Same as T5	
T7	Interstage coupling, IF	Same as T5	
T8	Power	Transformer	91W4900
T9	Output	Transformer	91V4667

V1	RF Amplifier	Tube - 6BA6	92G2871
V2	Converter	Tube - 6C4	92B597
V3	Oscillator	Same as V2	
V4	IF Amplifier	Same as V1	
V5	IF Amplifier	Same as V1	
V6	2nd detector, 1st Audio Amp.	Tube - 6SQ7	92V4632
V7	2nd Audio Amp.	Tube - 6SN7	92A230
V8	Phase Inverter	Same as V7	
V9	Audio Power Output	Tube - 6L6G	92A233
V10	Audio Power Output	Same as V9	
V11	Low Voltage Rectifier	Tube - 25Z6GT	92E1419
V12	High voltage Rectifier	Tube - 5Y3GT	92B480
* V13	Phono Pickup Preamplifier	Tube - 6SC7	92E4695
X1	Socket for V1	Socket, 7 contact, miniature, bakelite	82B663
X2	Socket for V2	Socket, 7 contact, miniature mica filled bakelite	82V4636
X3	Socket for V3	Same as X2	
X4	Socket for V4	Same as X1	
X5	Socket for V5	Same as X1	
X6	Socket for V6	Socket, 8 contact octal, black bakelite, type MIP8	82S4412
X7	Socket for V7	Same as X6	
X8	Socket for V8	Socket, 8 contact octal, bakelite	82E1322
X9	Socket for V9	Same as X8	
X10	Socket for V10	Same as X8	
X11	Socket for V11	Same as X8	
X12	Socket for V12	Same as X8	
X13	Socket for V13	Same as X6	

\* In some models 6SL7 tube is substituted for the 6SC7 tube with changes in socket wiring.

ALL RESISTORS 1/2 W UNLESS NOTED  
ALL CAPACITORS IN MMF UNLESS NOTED

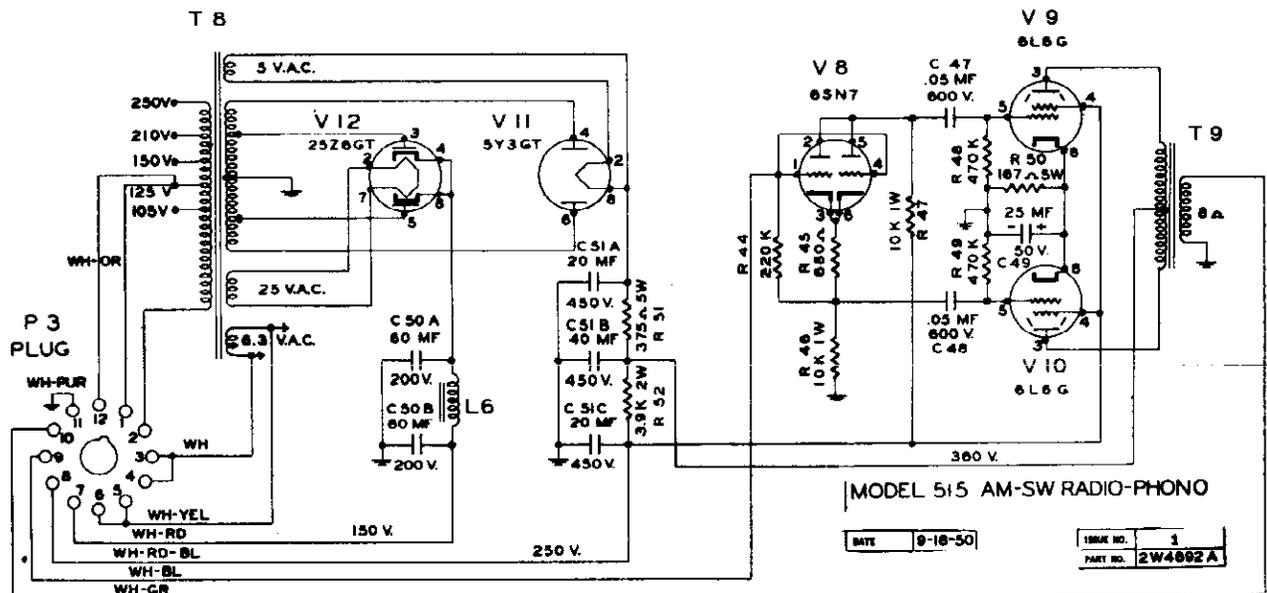
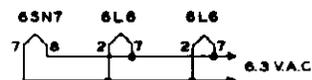
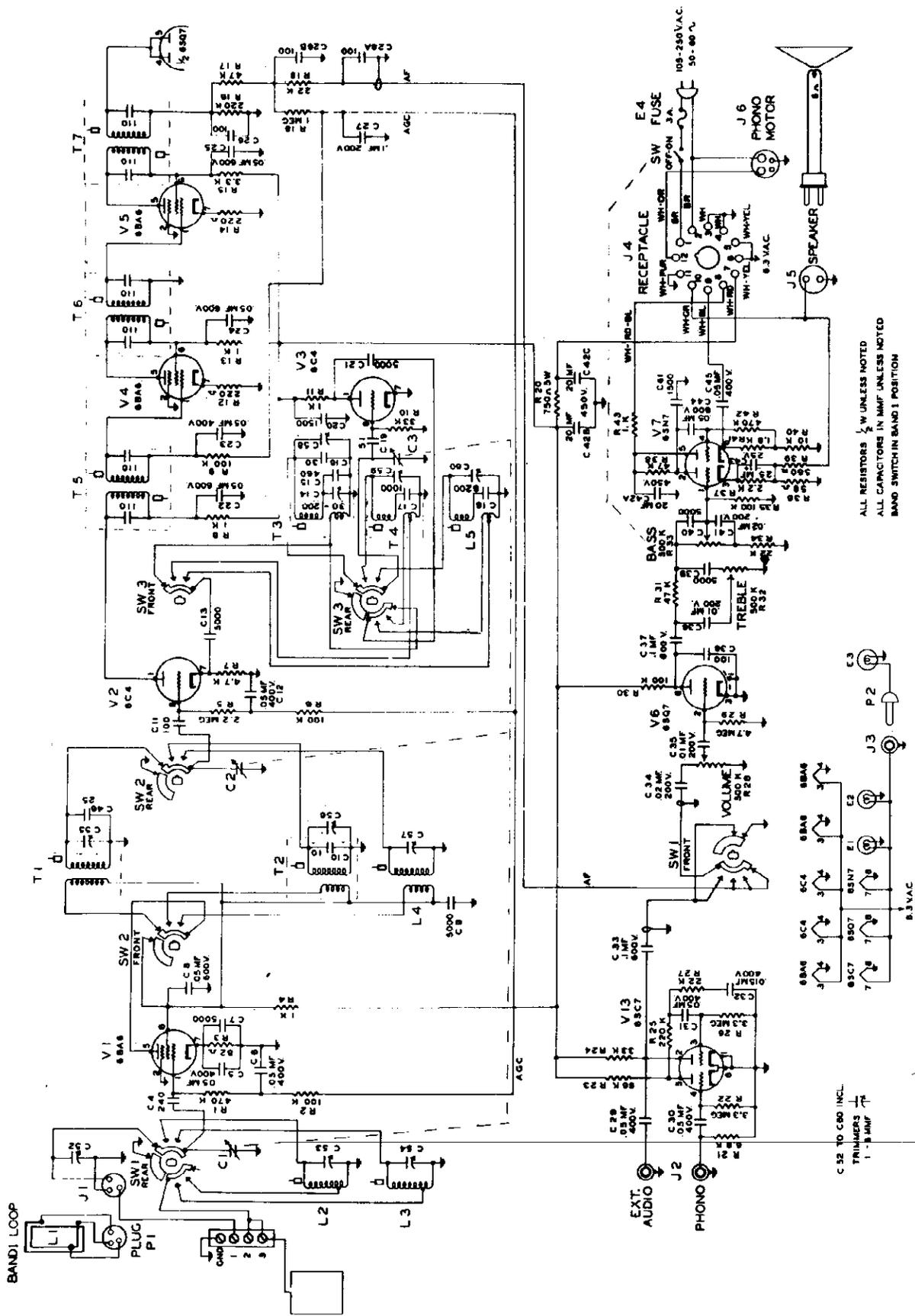


Figure 3 Schematic Diagram Model 515 Amplifier



ALL RESISTORS 1/2 W UNLESS NOTED  
ALL CAPACITORS IN MMF UNLESS NOTED  
BAND SWITCH IN BAND 1 POSITION

Figure 4 Schematic Diagram Model 515 Tuner

MODEL 515 AM-SW RADIO-PHONO

REV.	6-13-35
DATE	5-27-35

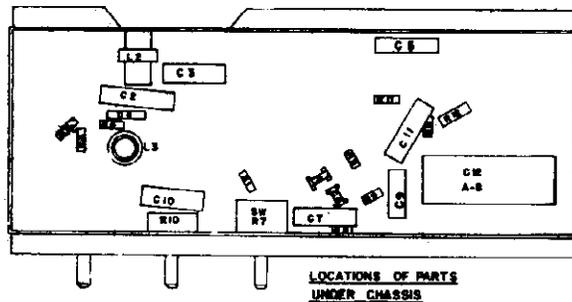
MODELS 15, 16  
Ch. 132.844-1,  
132.844-1

Specifications		Power Output	
Power Supply	105-125 Volts AC-DC 35 Watts	Undistorted	1.0 Watt
Frequency Range	Broadcast 540-1600 KC	Maximum	2.0 Watt
		Speaker Voice Coil Impedance	3.2 ohms

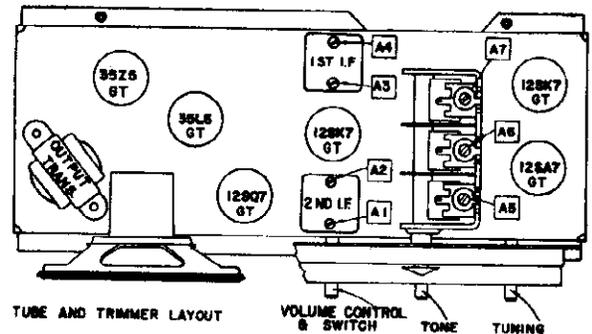
## ALIGNMENT DATA

With variable condenser closed, set the pointer horizontally to the left. Generator ground lead connected to floating ground.

Position of Variable	Generator Frequency	Dummy Antenna	Generator Connections	Adjust Trimmers (In order shown for max. output)	Trimmer Function
Open	455 Kc	.05 mfd.	Mixer Grid	A1, A2, A3, A4,	I.F.
1400 Kc	1400 Kc	50 mmfd.	Ext. Ant. Conn.	A5, A6, A7	Osc. R.F., Ant.
600 Kc	600 Kc	50 mmfd.	Ext. Ant. Conn.	Check Point	



LOCATIONS OF PARTS  
UNDER CHASSIS



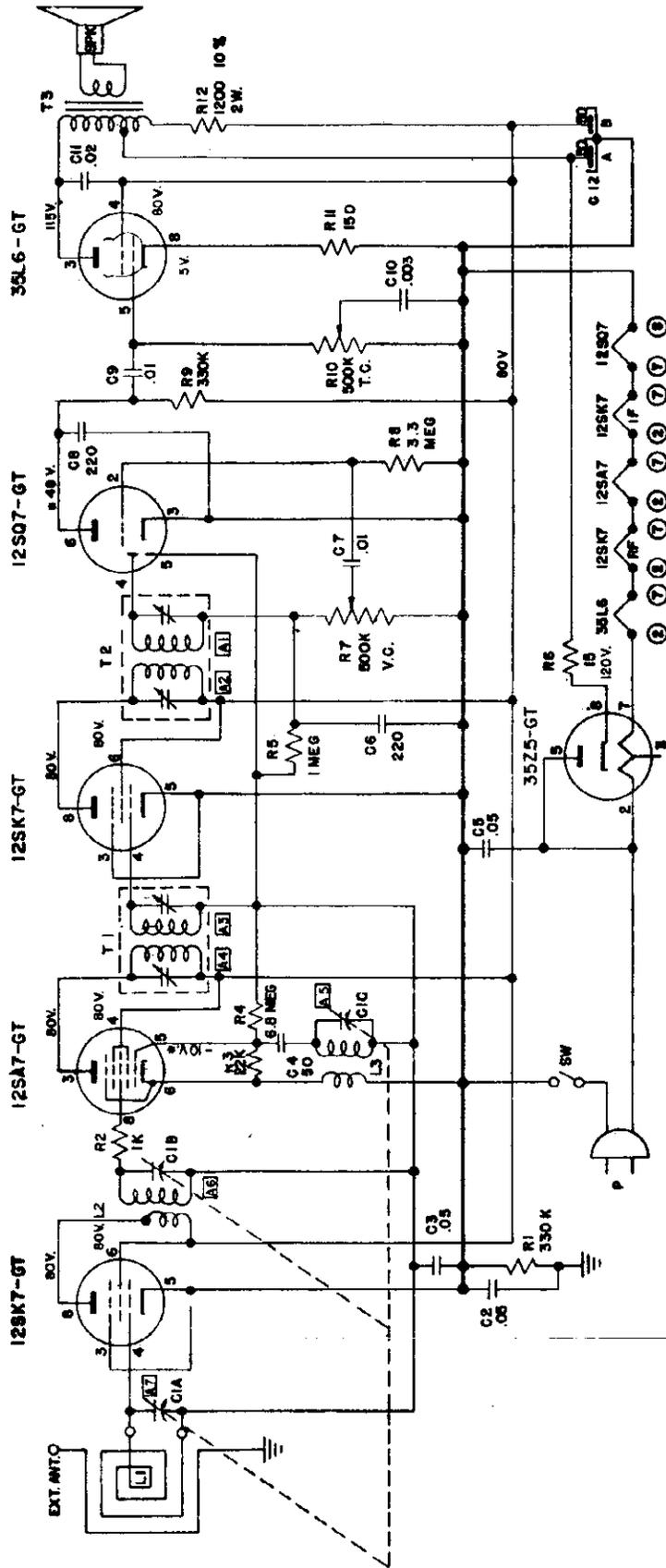
TUBE AND TRIMMER LAYOUT

VOLUME CONTROL &amp; SWITCH TONE TUNING

## REPAIR PARTS LIST

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
L1	N23159	Antenna Loop Assembly		N22940-2	Cover, Rear Cabinet (Ivory - Cat. No. 16)
	N22953	Bracket, Antenna Loop Mtg.		N22604-5A	Knob, On-Off-Volume (Brown - Cat. No. 15)
	N23207	Bracket, Var. Con. Mtg.		N22604-5B	Knob, Tone (Brown - Cat. No. 15)
	N22964	Bracket, Dial Scale Mtg. (left)		N22604-5C	Knob, Tuning (Brown - Cat. No. 15)
	N22965	Bracket, Dial Scale Mtg. (right)		N22604-3A	Knob, On-Off-Volume (Ivory - Cat. No. 16)
	N23561	Cabinet Assembly (Brown - Cat. No. 15)		N22604-3D	Knob, Tone (Ivory - Cat. No. 16)
	N23562	Cabinet Assembly (Ivory - Cat. No. 16)		N22604-3C	Knob, Tuning (Ivory - Cat. No. 16)
	N22823-2	Cabinet (Brown - Cat. No. 15)		N23144	Leaflet, Instruction
	N22923-1	Cabinet (Ivory - Cat. No. 16)		N20138-15	Line Cord with Plug
	N22369-1	Cloth, Grille (Brown - Cat. No. 15)	P	N22956	Pointer, Dial
	N22369-2	Cloth, Grille (Ivory - Cat. No. 16)	R1, R9		Resistor, 330,000 ohms, 1/2 watt
	N22937	Crystal, Dial	R2		Resistor, 1000 ohms, 1/2 watt
	N22939	Crystal, Dial	R3		Resistor, 22,000 ohms, 1/2 watt
L2	N19361	Clip, Hairpin	R4		Resistor, 6.8 megohms, 1/2 watt
L3	N23163	Coil, R.F.	R5		Resistor, 1 megohm, 1/2 watt
C1A, C1B, C1C, C1D, C1E, C1F, C1G, C1H, C1I, C1J, C1K, C1L, C1M, C1N, C1O, C1P, C1Q, C1R, C1S, C1T, C1U, C1V, C1W, C1X, C1Y, C1Z, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C12A, C12B	N23155	Condenser, Variable, 1 gang	R6		Resistor, 15 ohms, 1/2 watt
		Condenser, .05 mfd., 400 Volt	R7	N22963	Resistor, Volume Control & Switch, 500,000 ohms
		Condenser, .05 mfd., 200 Volt	R8		Resistor, 3.3 megohms, 1/2 watt
		Condenser, .00005 mfd., 500 Volt	R10	N23156	Resistor, Tone Control, 500,000 ohms
		Mica	R11		Resistor, 150 ohms, 1/2 watt
		Condenser, .0002 mfd., 350 Volt	R12		Resistor, 1200 ohms, 2 watt
		Ceramic		N22954-2	Scale, Dial
		Condenser, .01 mfd., 400 Volt		N22957	Shaft, Tuning
		Condenser, .003 mfd., 600 Volt		N22760-1	Speaker, 5" P.M.
		Condenser, Electrolytic, 50-50 mfd. 150 Volt		N19133	Spring
	N22111	Coils, Dial Drive		N23161	Transformer, 1st I.F.
	N19132	Cover, Rear Cabinet (Brown - Cat. No. 15)		N23162	Transformer, 2nd I.F.
	N22940-1	Cover, Rear Cabinet (Ivory - Cat. No. 16)		N23164	Transformer, Output

MODELS 15, 16,  
Ch. 132.844,  
132.844-1



**SUBJECT:** Parts Changes and addition of -1 to the Chassis Number

Chassis No. 132.884-1 incorporates the following changes to prevent micro-phonics:

1. Part No. N23160 Oscillator Coil changed to Part No. N23751 Oscillator Coil.
2. Part No. N23155 Variable Condenser changed to Part No. N23743 Variable Condenser.

Variable Condenser N23743 has a wide spaced oscillator section with a lower capacity than N23155, and Oscillator Coil N23743 has a higher inductance than N23160.

Therefore, for proper tracking, N23155 and N23160 should be used together, and N23743 and N23751 should be used together when making service replacements of the Variable Condenser or Oscillator Coil.

## TECHNICAL INFORMATION

## Specifications

Power Supply  
105-120 Volts AC 50 Watts  
Frequency Range  
Broadcast . . . . . 540-1600 Kc  
FM . . . . . 88- 108 Mc

Power Output  
Undistorted . . . . . 1.0 Watt  
Maximum . . . . . 2.5 Watt  
Speaker Voice Coil Impedance 3.2 ohms

**AM** Tuning range - 540 Kc to 1600 Kc. Intermediate Frequency - 455 Kc. I.F. and R.F. measurements made at 500 milliwatts output - approximately 1.27 volts on a rectifier type voltmeter connected across speaker voice coil.

Approximately input for 500 MW output: I.F. 300 uv; R.F. with standard loop: at 600 Kc, 1200 uv/m at 1000 Kc, 1050 uv/m; at 1400 Kc, 800 uv/m.

**FM** Tuning range - 88 megacycles to 108 megacycles. Intermediate Frequency 10.7 megacycles. I.F. and R.F. measurements made at 500 milliwatts output - approximately 1.27 volts on a rectifier type voltmeter connected across speaker voice coil. Approximate input for 500 MW output: I.F. 300 uv; R.F. "Absolute Measurements": 91 megacycles, 125 uv; 105 megacycles, 100 uv.

## ALIGNMENT PROCEDURE

## PRELIMINARY:

Output meter connection ----- Across speaker voice coil  
Output meter reading to indicate 500 MW ----- 1.27 volt  
Generator Modulation ----- 30%, 400 cycle  
Position of volume control ----- Fully clockwise  
Set dial pointer ----- Horizontal, variable condenser closed  
Set-band switch ----- To left for AM alignment, to right for FM alignment

## AM ALIGNMENT

Position of Variable	Generator Frequency	Dummy Ant.	Generator Connection (high)	Generator Connection Ground Lead	Adjust Trimmer In Order Shown For Max. Output	Trimmer Function
Open	455 Kc	.05 mfd.	Mixer Grid	Chassis	A1, A2, A3, A4,	I.F. Oscillator
Open	1650 Kc		*Test Loop	Test Loop	A5	Antenna
1400 Kc	1400 Kc		*Test Loop	Test Loop	A6	Antenna
**600 Kc	600 Kc		*Test Loop	Test Loop	Check Point	Antenna

\* Connect generator lead to a Standard Hazeltine Test Loop, Model 1150, placed two feet from the set loop, or three turns wire about six inches in diameter, placed about one foot from the set loop. Or the generator can be connected with the high side lead to the AM antenna screw terminal and the ground lead to the chassis.

\*\* With a generator signal of 600 Kc, tune the set to the point where maximum output is obtained, which should be approximately 600 Kc on the dial. Adjust antenna section places of variable for maximum output.

The alignment procedure should be repeated in the original order for greatest accuracy.

Always keep the output from the signal generator at its lowest possible value to make the A. V. C. action of the receiver effective.

## FM ALIGNMENT

Detector and I.F. alignment using Signal Generator and Oscilloscope.

1. Connect FM Generator, High side, to grid (pin 1) of 6BA6 2nd I.F. tube through .005 mfd. dummy.
2. Set generator frequency to 10.7 Mc. modulated either 60 cycles or 400 cycles, 250 Kc sweep (125 Kc. deviation).
3. Connect vertical input of scope across volume control of receiver (grounded terminal to chassis, ungrounded terminal to high side of control).
4. Set scope switch for internal synchronization and set horizontal oscillator to 2X frequency of modulating voltage of generator. (120 or 800 cycles)
5. Turn variable condenser fully open, and band switch to right (FM).
6. Adjust frequency vernier of horizontal oscillator on scope until the pattern becomes stationary.
7. Adjust ratio detector primary slug No. A7 for maximum vertical sweep of the scope pattern.
8. Adjust ratio detector secondary slug No. A8 to center the cross over point of the pattern. Pattern should look like Fig. 1, with the same amount of curve on both ends, and the cross over point in the center.
9. Connect generator, high side, to center antenna screw terminal on bottom of chassis.
10. Adjust I.F. slugs A9, A10 and All for the greatest vertical sweep of the pattern, consistent with linearity. If the I.F. slugs are adjusted for maximum sweep of the pattern, the pattern may become non-linear. Therefore, adjustment should be made for the greatest sweep which can be obtained and still have all four ends of the "X" pattern similar in size and shape.
11. Check the alignment of the I.F. and detector circuits by varying the signal generator frequency above and below the center frequency of 10.7 Mc. If the receiver is perfectly aligned, two smaller "X" patterns of similar size and shape will result, one on either side of the center frequency. See Figure 2.

X PATTERN  
CENTER FREQUENCY

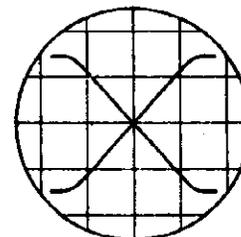


FIG 1

SMALL X PATTERN  
ABOVE AND BELOW  
CENTER FREQUENCY

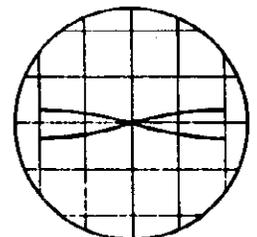
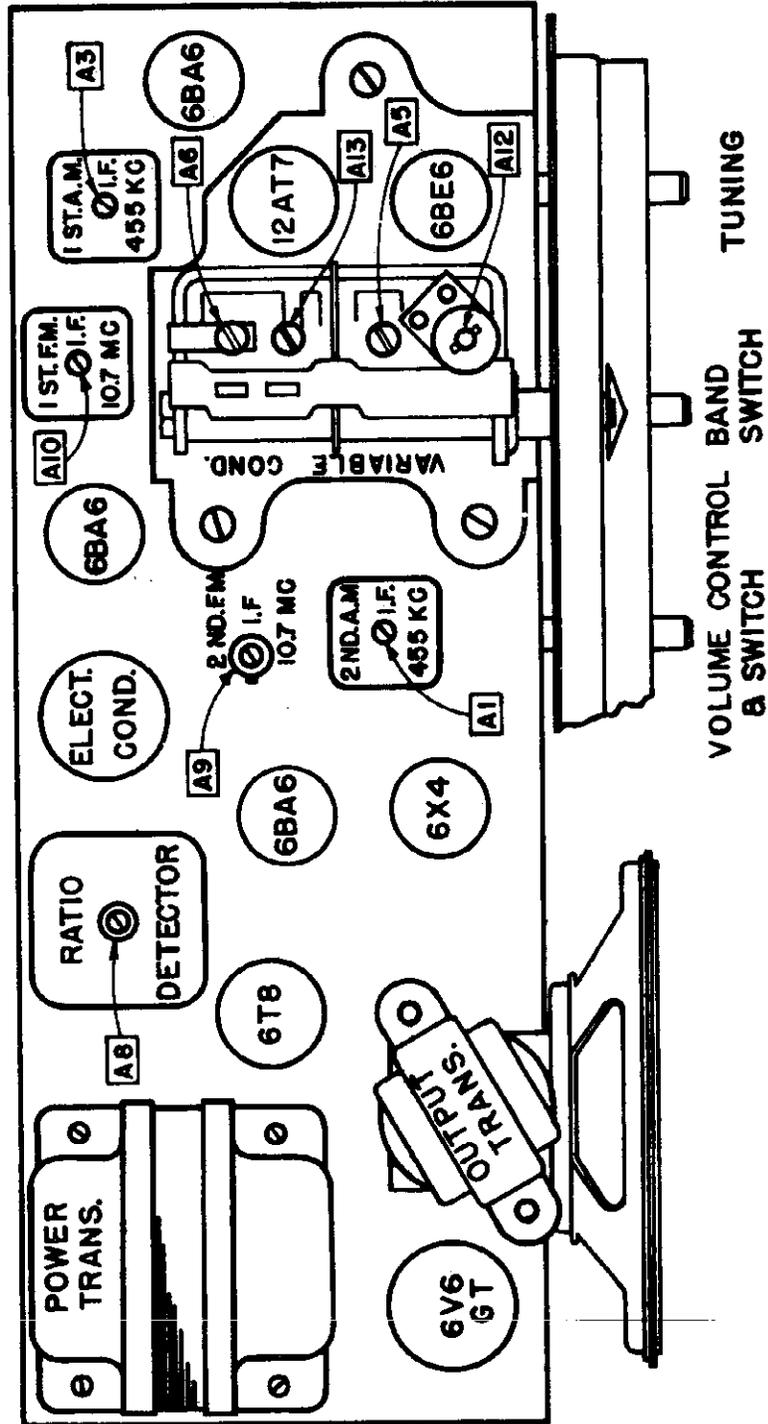


FIG 2

MODELS 18, 20,  
Ch. 132.877

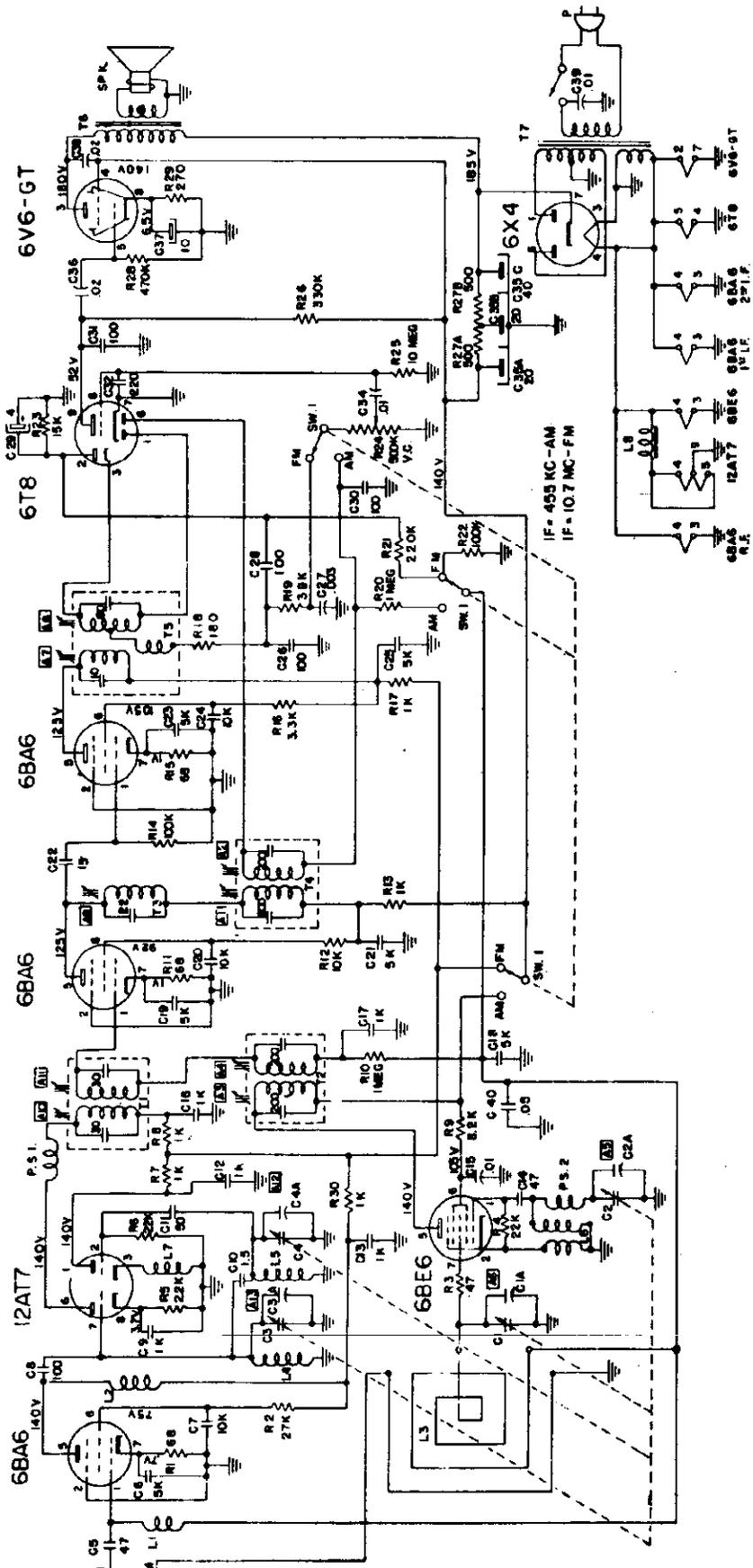
Position of Variable	Generator Frequency	Dummy Ant.	Generator Connection High Side Ant. (FM) Terminal	Generator Connection Ground Lead Ground (C) Terminal	Adjust Trimmers In Order Shown	Trimmer Function
Fully Open	108.5 Mc.	*300 ohm	Ant. (FM) Terminal	Ground (C) Terminal	A12	Oscillator
Fully Closed	87.5 Mc.	*300 ohm	Ant. (FM) Terminal	Ground (C) Terminal	Check Point A13	Oscillator R.F.
105 Mc.	105 Mc.	*300 ohm	Ant. (FM) Terminal	Ground (C) Terminal	Check Point	R.F.
91 Mc.	91 Mc.	*300 ohm	Ant. (FM) Terminal	Ground (C) Terminal	Check Point	R.F.

For R.F. alignment use FM generator signal modulated with 400 cycles 45 Kc. sweep (22.5 Kc. deviation).  
 \* The 300 ohm dummy should be made up to two 150 ohm resistors, one placed in each lead at the receiver antenna terminals



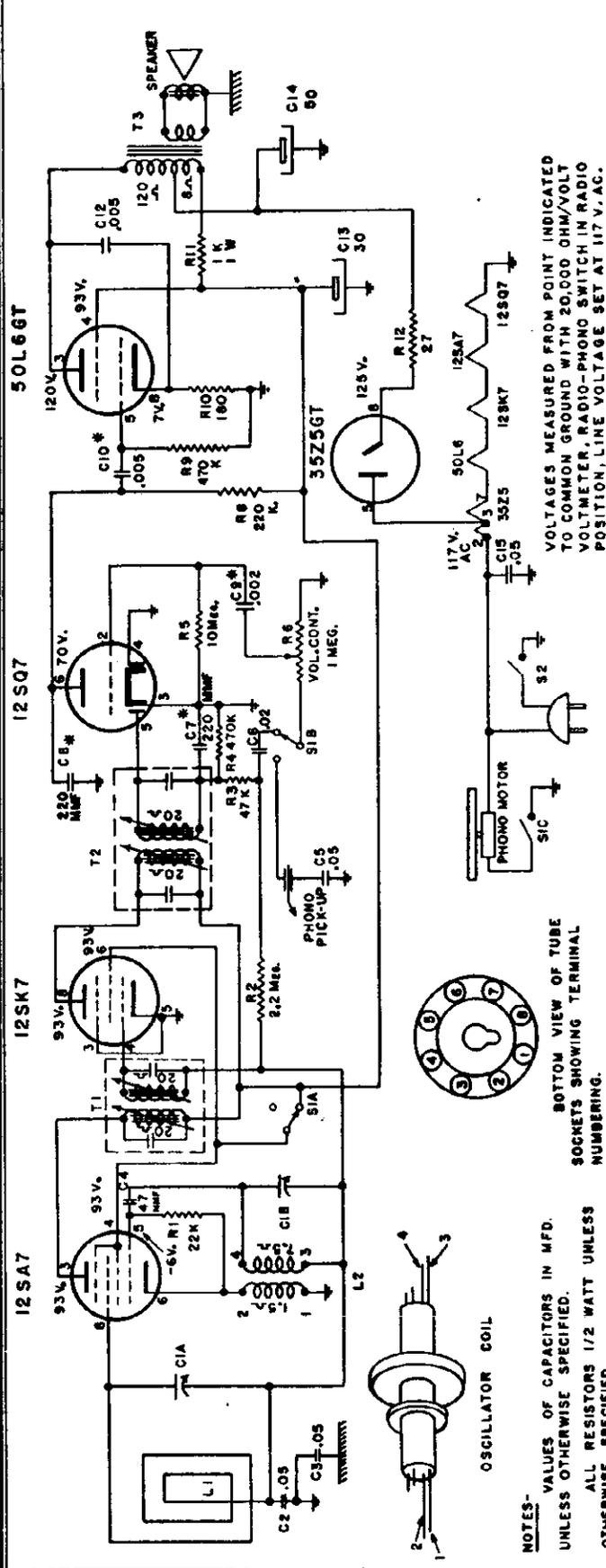


MODELS 18, 20,  
Ch. 132.877



ALL VOLTAGE MEASUREMENTS ARE MADE WITH AN ELECTRONIC VOLTMETER WITH A LINE VOLTAGE OF 117 V. AC WITH NO LOAD.  
ALL VOLTAGE READINGS GIVEN ARE POSITIVE  
⊕ INDICATES NICA OR CERAMIC COND. VALUES SHOWN IN MFD.  
⊖ INDICATES PAPER TUBULAR COND. VALUES SHOWN IN MFD.  
⊚ INDICATES ELECTROLYTIC COND. VALUES SHOWN IN MFD.

MODEL 1032,  
Ch. 528.196



VOLTAGES MEASURED FROM POINT INDICATED TO COMMON GROUND WITH 20,000 OHM/VOLT VOLTMETER, RADIO-PHONO SWITCH IN RADIO POSITION, LINE VOLTAGE SET AT 117 V. AC.

PHONO MOTOR

OSCILLATOR COIL

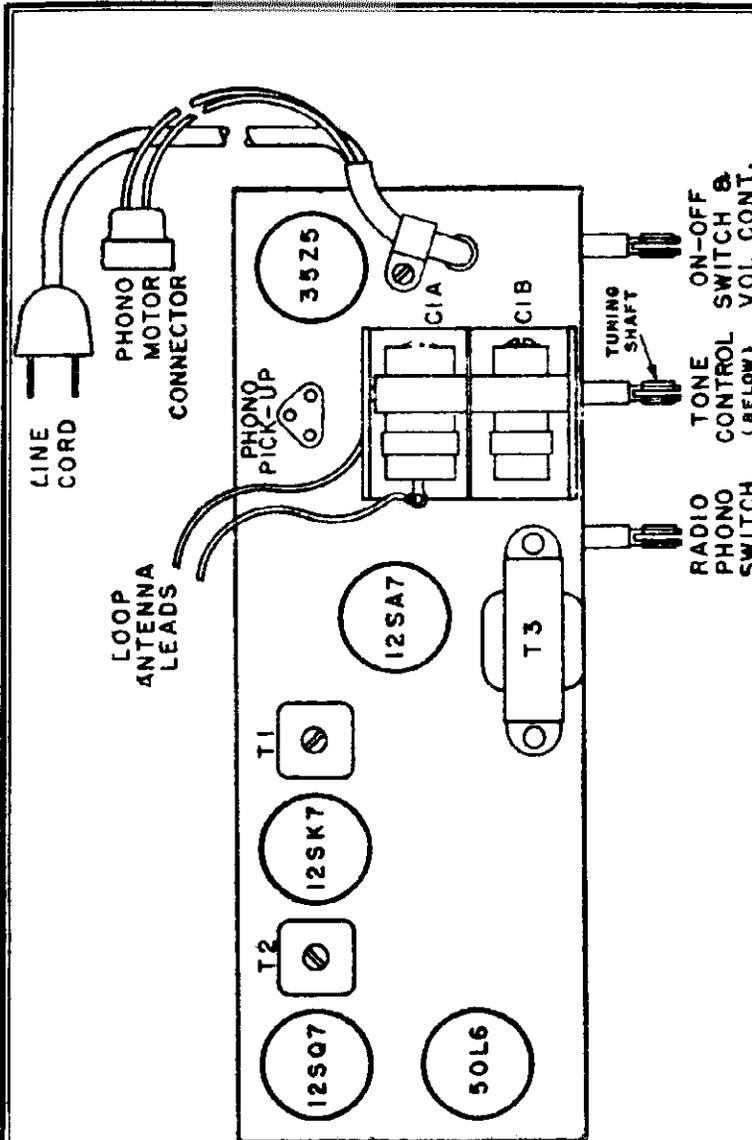
NOTES-  
VALUES OF CAPACITORS IN MFD.  
UNLESS OTHERWISE SPECIFIED.  
ALL RESISTORS 1/2 WATT UNLESS OTHERWISE SPECIFIED.

\* THESE CAPACITORS ARE IN CERAMIC UNIT PART NO. T17-104.

**PARTS LIST FOR CHASSIS**

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
C1A, C1B	T63-699	Adapter, 45 RPM
C2	T44-15	Baffle, cardboard
C3, C5, C15	T11-456	Bracket, tone arm rest
C4	T62-17	Bumper, foot
C6	T42-485	Cabinet
C7, C8, C9, C10	T19-213	Capacitor, variable (2 gang)
C12	T16-197	Capacitor, .05 mfd. 200 v.
C13, C14	T16-189	Capacitor, .05 mfd. 400 v.
	T15-229	Capacitor, 47 mmfd. mica
	T16-150	Capacitor, .02 mfd. 400 v.
	T17-104	Capacitor, ceramic unit
	T16-190	Capacitor, .005 mfd. 600 v.
	T18-304	Capacitor, electrolytic, 50-30 mfd. 150 v.
	T83-702	Cartridge
	T11-187	Clamp, line cord
	T63-421	Clip, IF transformer mounting
	L2	T10-572
	R6, S2	T24-195
	R10	T23-151
	R11	T21-169
	R12	T98-18
	R8	T47-108
	R9	T52-324
	R10	T52-323
	R11	T52-328
	R12	T88-186
	R13	T88-187
	R14	T88-217
	R15	T82-71
	R16	T59-25
	R17	T83-703
	R18	T83-124
	R19	T22-143
	R20	T39-289
	R21	T60-659
	R22	T60-726
	R23	T60-730
	R24, R9	T60-731
	R25	T60-728
	S1A	S1B, S1C
	T1	T11-508
	T2	T10-479
	T3	T80-268
	T4	T83-691
	T5	T86-146
	T6	T39-288
	T7	T60-667
	T8	T60-774
	T9	T60-732
	T10	T60-690
	T11	T22-142
	T12	T68-11
	T13	T68-61
	T14	T77-151
	T15	T79-393
	T16	T70-175
	T17	T69-189
	T18	T83-692
	T19	T11-508
	T20	T10-479
	T21	T80-268
	T22	T83-691
	T23	T86-146
	T24	T39-288

- Cell, oscillator
- Control, VOLUME and ON-OFF
- Cord, power line
- Cover, plate, chassis
- Grille cloth
- Grommet (gang mounting)
- Knob, TUNING
- Knob, VOLUME and ON-OFF
- Knob, RADIO-PHONO
- Label, tube position
- Label, schematic
- Label, parts list
- Loop, antenna
- Motor, phono, 3 speed
- Needle
- Plug, phono
- Plug, phono motor
- Pulley, 3 speed, stepped
- Resistor, 22K ohm, 1/2 w.
- Resistor, 2.2 megohm, 1/2 w.
- Resistor, 47K ohm, 1/2 w.
- Resistor, 10 megohm, 1/2 w.
- Resistor, 220K ohm, 1/2 w.
- Resistor, 180 ohm, 1/2 w. 10%
- Resistor, 1000 ohm, 1 w. 10%
- Resistor, 27 ohm, 1/2 w. 10%
- Socket, phono motor
- Socket, octal, tube
- Socket, phono
- Spacer, (gang mounting)
- Speaker, 4" P.M.
- Spring, hair pin
- Switch, RADIO-PHONO
- Tone arm (with cartridge)
- Transformer, 1st I.F.
- Transformer, 2nd I.F.
- Transformer, output
- Turntable, 8" dia.
- Washer, "C", turntable spindle
- Wheel idler



**IMPORTANT ALIGNMENT NOTES:**

The alignment must be done in the order given.

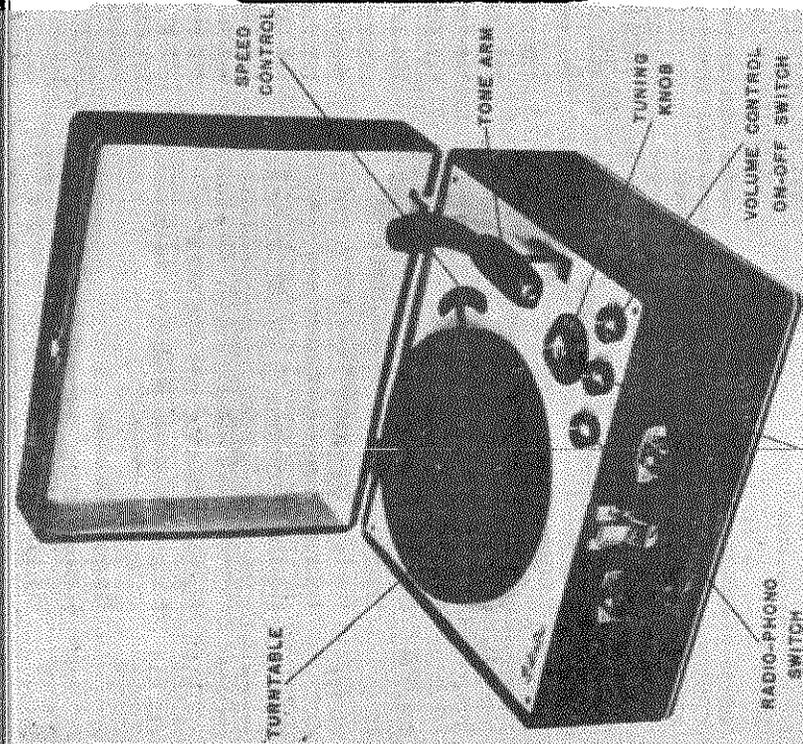
The entire alignment procedure should be repeated step by step in the original order for greatest accuracy.

Always keep the output of the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment.

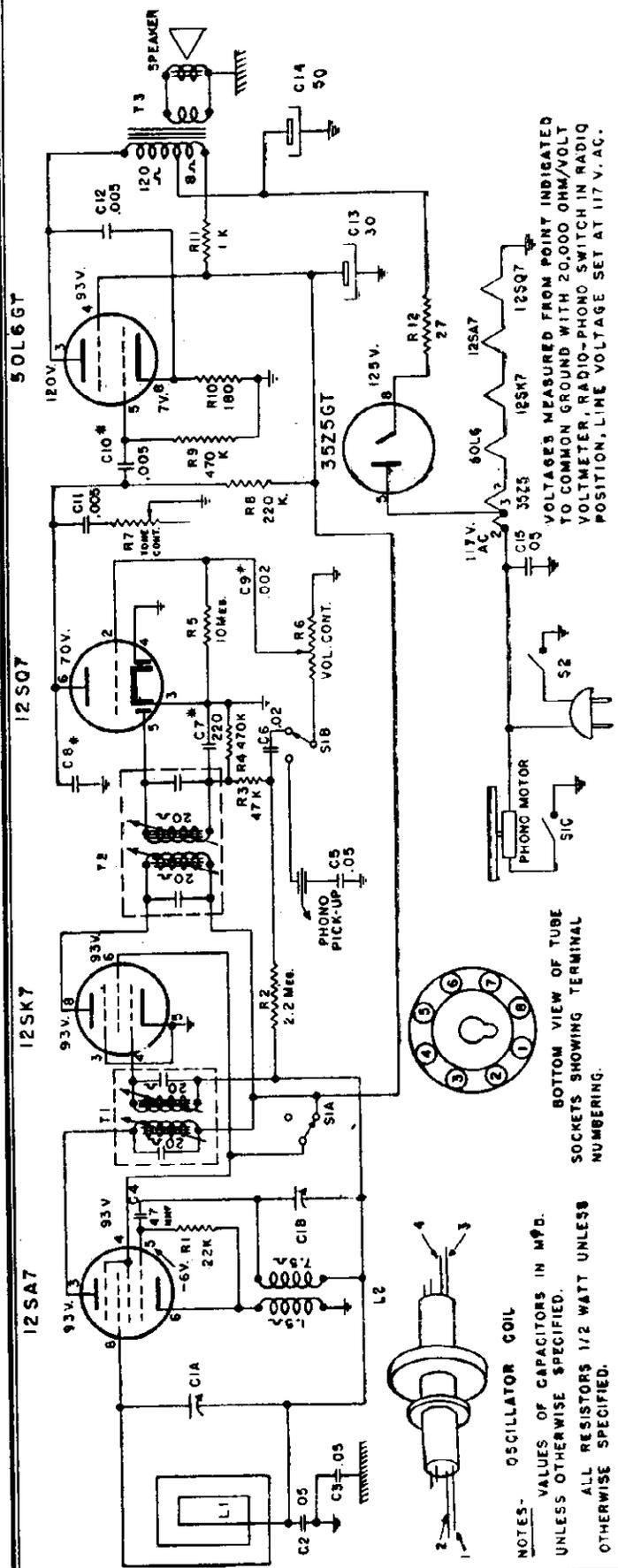
**ALIGNMENT PROCEDURE**

- Preliminary:**
- Output meter reading to indicate 0.05 watt across voice coil . . . 0.4 volt
- Generator ground lead connection . . . . . common ground
- Generator modulation . . . . . 30%, 400 cycles
- Position of Volume Control . . . . . Fully on

GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENT	TRIMMER FUNCTION
455 KC	.1 mfd.	Pin 8 12SA7	T1 and T2 top & bottom	I.F.
1630 KC	.1 mfd.	Pin 8 12SA7	C1B	Oscillator
1400 KC	HAZETTINE LOOP	C1A	C1A	Antenna



MODEL 1035,  
Ch. 528.195



- RESISTOR VALUES:
- T60-730 Resistor, 47K ohm, 1/2 w.
  - T60-731 Resistor, 470K ohm, 1/2 w.
  - T60-728 Resistor, 10 megohm, 1/2 w.
  - T60-667 Resistor, 220K ohm, 1/2 w.
  - T60-774 Resistor, 180 ohm, 1/2 w, 10%
  - T60-732 Resistor, 1000 ohm, 1 w, 10%
  - T60-690 Resistor, 27 ohm, 1/2 w, 10%
  - T22-142 Socket, phono motor
  - T68-11 Socket, octal, tube
  - T68-41 Socket, phono
  - T77-151 Spacer (gang mounting)
  - T79-392 Speaker, 4" x 6", P.M.
  - T70-175 Spring, hair pin
  - T69-190 Switch, RADIO-PHONO
  - T83-692 Tone arm, with cartridge
  - T83-701 Tone arm (less cartridge)
  - T10-508 Transformer, 1st I.F.
  - T10-479 Transformer, 2nd I.F.
  - T80-268 Transformer, output
  - T83-691 Turntable, 8" dia.
  - T86-146 Washer, "C," turntable spindle
  - T39-288 Wheel, idler

- COMPONENT VALUES:
- R3 T10-572 Coil, oscillator
  - R4, R9 R6, S2 T24-196 Control, VOLUME and ON-OFF
  - R5 T26-128 Control, TONE
  - R8 T23-151 Cord, power line
  - R10 T21-168 Cover, plate, chassis
  - R11 T36-128 Grille, flocked screen
  - R12 T47-108 Grommet (gang mounting)
  - S1A, S1B, S1C T52-322 Knob, TUNING
  - S1A, S1B, S1C T52-327 Knob, VOLUME and ON-OFF
  - S1A, S1B, S1C T52-328 Knob, RADIO-PHONO
  - T1 T88-188 Label, tube position
  - T2 T88-189 Label, schematic
  - T3 T82-70 Loop, antenna
  - T1 T83-696 Motor-board, masonite
  - T1 T59-27 Motor, phone, 3 speed
  - T1 T83-703 Needle
  - T1 T22-143 Plug, phono motor
  - T1 T35-289 Pulley, 3 speed stepped
  - T1 T60-659 Resistor, 22K ohm, 1/2 w.
  - T1 T60-726 Resistor, 2.2 megohm, 1/2 w.

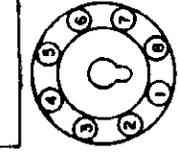
- OTHER PARTS:
- L2 T10-572 Coil, oscillator
  - L1 C1A, C1B } Capacitor, ceramic unit
  - C2 T119-214 Capacitor, variable (2 gang)
  - C3, C5, C15 T116-197 Capacitor, .05 mfd. 200 v.
  - C4 T115-229 Capacitor, .05 mfd. 400 v.
  - C6 T116-150 Capacitor, .02 mfd. 400 v.
  - C7, C8 } Capacitor, ceramic unit
  - C9, C10 } Capacitor, .005 mfd. 600 v.
  - C11, C12 T118-304 Capacitor, electrolytic, 50-30 mfd. 150 v.
  - C13, C14 T83-702 Cartridge
  - R1 T111-187 Clamp, line cord
  - R2 T83-421 Clip, IF transformer mounting

NOTES- OSCILLATOR COIL  
VALUES OF CAPACITORS IN MFD.  
UNLESS OTHERWISE SPECIFIED.  
ALL RESISTORS 1/2 WATT UNLESS OTHERWISE SPECIFIED.

\* THESE CAPACITORS ARE IN CERAMIC UNIT PART NO. T17-104

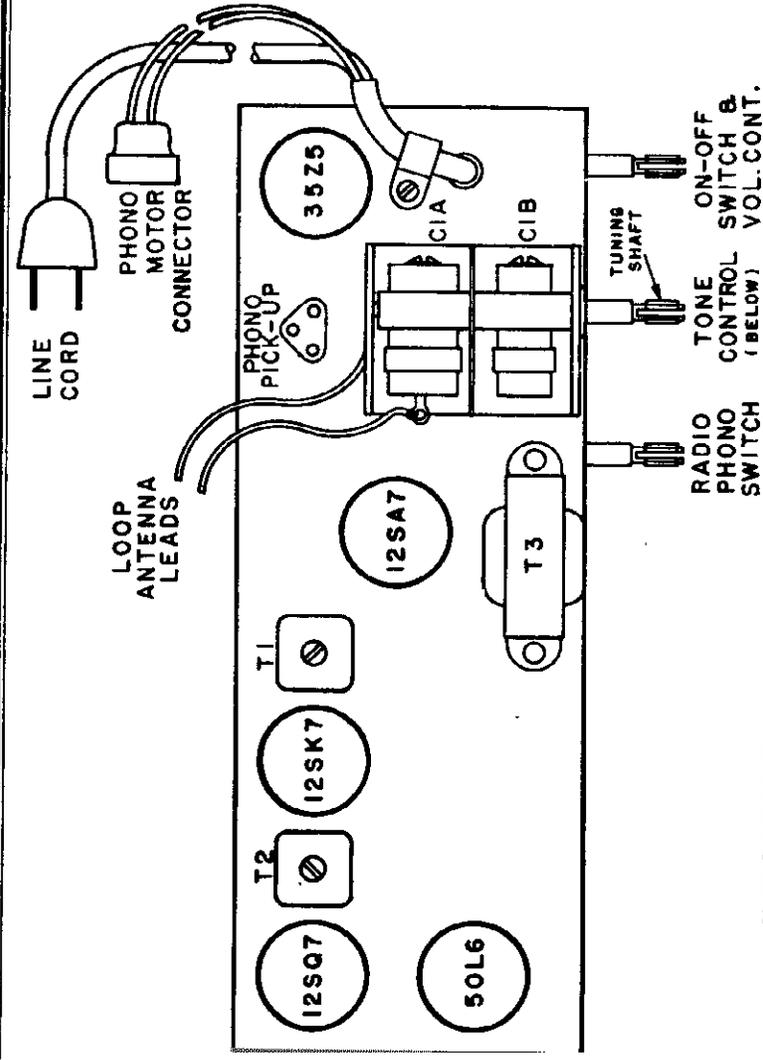
### PARTS LIST FOR CHASSIS

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
C1A, C1B	T117-104	Capacitor, ceramic unit
C2	T119-214	Capacitor, variable (2 gang)
C3, C5, C15	T116-197	Capacitor, .05 mfd. 200 v.
C4	T115-229	Capacitor, .05 mfd. 400 v.
C6	T116-150	Capacitor, .02 mfd. 400 v.
C7, C8 } C9, C10 }	T117-104	Capacitor, ceramic unit
C11, C12	T116-190	Capacitor, .005 mfd. 600 v.
C13, C14	T118-304	Capacitor, electrolytic, 50-30 mfd. 150 v.
T83-702		Cartridge
T111-187		Clamp, line cord
T83-421		Clip, IF transformer mounting
R1	T111-187	Clamp, line cord
R2	T83-421	Clip, IF transformer mounting
R3	T10-572	Coil, oscillator
R4, R9	T24-196	Control, VOLUME and ON-OFF
R5	T26-128	Control, TONE
R6, S2	T24-196	Control, VOLUME and ON-OFF
R7	T26-128	Control, TONE
R8	T23-151	Cord, power line
R10	T21-168	Cover, plate, chassis
R11	T36-128	Grille, flocked screen
R12	T47-108	Grommet (gang mounting)
S1A, S1B, S1C	T52-322	Knob, TUNING
S1A, S1B, S1C	T52-327	Knob, VOLUME and ON-OFF
S1A, S1B, S1C	T52-328	Knob, RADIO-PHONO
T1	T88-188	Label, tube position
T2	T88-189	Label, schematic
T3	T82-70	Loop, antenna
T1	T83-696	Motor-board, masonite
T1	T59-27	Motor, phone, 3 speed
T1	T83-703	Needle
T1	T22-143	Plug, phono motor
T1	T35-289	Pulley, 3 speed stepped
R1	T60-659	Resistor, 22K ohm, 1/2 w.
R2	T60-726	Resistor, 2.2 megohm, 1/2 w.



BOTTOM VIEW OF TUBE SOCKETS SHOWING TERMINAL NUMBERING.

MODEL 1035A,  
Ch. 528.195-1



**IMPORTANT ALIGNMENT NOTES:**

The alignment must be done in the order given.

The entire alignment procedure should be repeated step by step in the original order for greatest accuracy.

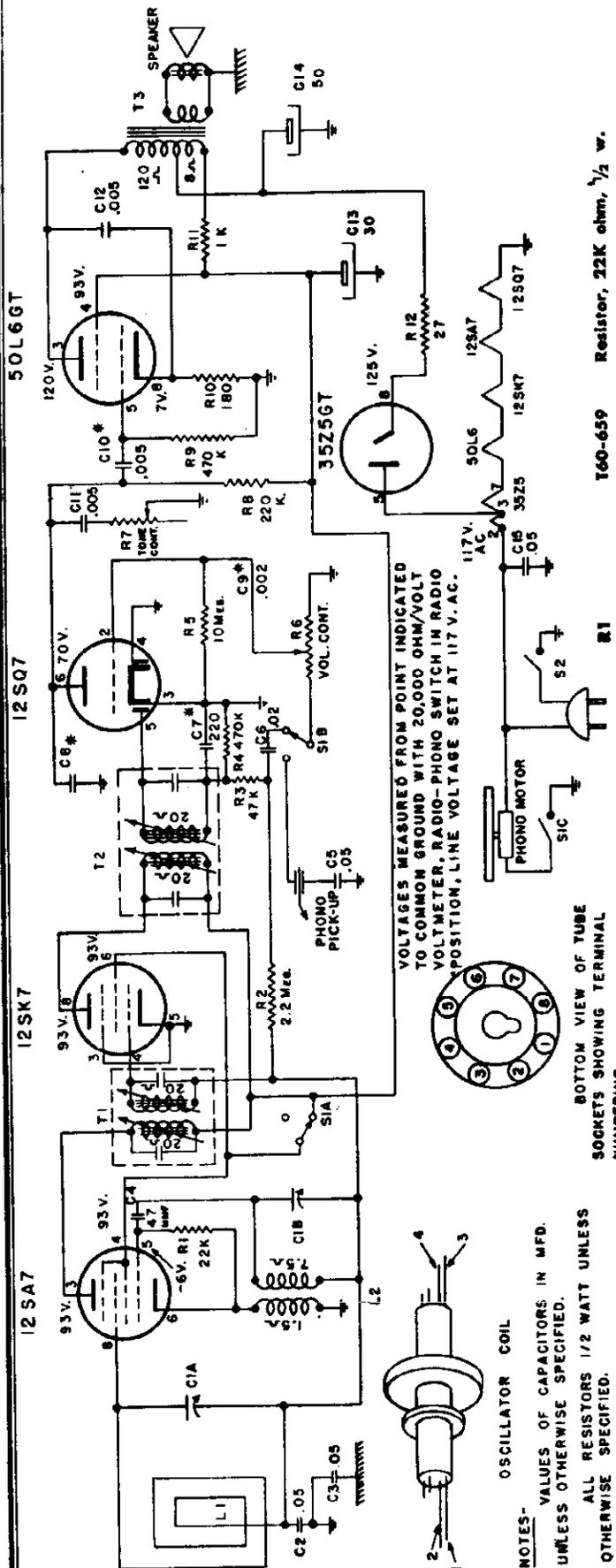
Always keep the output of the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment.

**ALIGNMENT PROCEDURE**

**Preliminary:**  
 Output meter reading to indicate 0.05 watt across voice coil... 0.4 volt  
 Generator ground lead connection... common ground  
 Generator modulation... 30%, 400 cycles  
 Position of Volume Control... Fully on

POSITION OF TUNER	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENT	TRIMMER FUNCTION
Open	455 KC	.1 mfd.	Pin 8 12SA7	T1 and T2 top & bottom	I.F.
Open	1630 KC	.1 mfd.	Pin 8 12SA7	C1B	Oscillator
1400 KC	1400 KC	HAZELTINE LOOP	C1A	C1A	Antenna

MODEL 1035A,  
Ch. 528.195-1



- 160-659 Resistor, 22K ohm, 1/2 w.
- 160-726 Resistor, 2.2 megohm, 1/2 w.
- 160-730 Resistor, 47K ohm, 1/2 w.
- 160-731 Resistor, 470K ohm, 1/2 w.
- 160-728 Resistor, 10 megohm, 1/2 w.
- 160-667 Resistor, 220K ohm, 1/2 w.
- 160-774 Resistor, 180 ohm, 1/2 w. 10%
- 160-732 Resistor, 1000 ohm, 1 w. 10%
- 160-690 Resistor, 27 ohm, 1/2 w. 10%
- 183-709 Retainer, centering discs, 45 RPM
- T22-142 Socket, phono motor
- T68-11 Socket, octal, tube
- T68-41 Socket, phono
- T77-151 Spacer (gang mounting)
- T79-392 Speaker, 4" x 6", P.M.
- T70-175 Spring, hair pin
- T69-189 Switch, RADIO-PHONO
- T83-492 Tone arm, with cartridge
- T83-701 Tone arm (less cartridge)
- T10-508 Transformer, 1st I.F.
- T10-479 Transformer, 2nd I.F.
- T80-268 Transformer, output
- T83-691 Turntable, 8" dia.
- T86-146 Washer, "C," turntable spindle
- T39-288 Wheel, idler

- R1 T83-421 Clip, IF transformer mounting
- R2 T10-572 Coil, oscillator
- R3 T24-195 Control, VOLUME and ON-OFF
- R4, R9 R26-127 Control, TONE
- R5 T23-151 Cord, power line
- R8 T21-168 Cover, plate, chassis
- R10 T36-128 Grille, flocked screen
- R11 T47-108 Grammer (gang mounting)
- R12 T52-322 Knob, TUNING
- T1 T52-323 Knob, VOLUME and ON-OFF
- T2 T52-327 Knob, TONE
- T3 T52-328 Knob, RADIO-PHONO
- T4 T88-172 Label, tube position
- T5 T88-173 Label, schematic
- T6 T82-70 Loop, antenna
- T7 T83-688 Motor-board, plastic
- T8 59-25 Motor, phono, 3 speed
- T9 T83-703 Needle
- T10 T45-124 Plug, phono
- T11 T22-143 Plug, phono motor
- T12 T39-289 Pulley, 3 speed stepped
- T13

- C1, C18 C11A, C18 Capacitor, ceramic unit
- C2 T16-190 Capacitor, .005 mfd. 600 v.
- C3, C5, C15 C11B, C15 Capacitor, electrolytic, 50-30 mfd. 150 v.
- C4 T18-304 Capacitor, electrolytic, 50-30 mfd. 150 v.
- C6 T15-229 Capacitor, 47 mmfd. mica
- C7, C8 T16-150 Capacitor, .02 mfd. 400 v.
- C9, C10 T17-104 Capacitor, ceramic unit
- L1 T83-699 Adapter, 45 RPM
- L2 T11-456 Bracket, tone arm rest
- T1 T42-488 Cabinet
- T2 T19-213 Capacitor, variable (2 gang)
- T3 T16-197 Capacitor, .05 mfd. 200 v.
- T4 C3, C5, C15 T16-189 Capacitor, .05 mfd. 400 v.
- T5 T15-229 Capacitor, 47 mmfd. mica
- T6 T16-150 Capacitor, .02 mfd. 400 v.
- T7 T17-104 Capacitor, ceramic unit
- T8 T16-190 Capacitor, .005 mfd. 600 v.
- T9 T18-304 Capacitor, electrolytic, 50-30 mfd. 150 v.
- T10 T83-702 Cartridge
- T11 T11-187 Clamp, line cord

**PARTS LIST FOR CHASSIS**

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
	T83-699	Adapter, 45 RPM
	T11-456	Bracket, tone arm rest
	T42-488	Cabinet
	T19-213	Capacitor, variable (2 gang)
	T16-197	Capacitor, .05 mfd. 200 v.
	C3, C5, C15	T16-189 Capacitor, .05 mfd. 400 v.
	T15-229	Capacitor, 47 mmfd. mica
	T16-150	Capacitor, .02 mfd. 400 v.
	T17-104	Capacitor, ceramic unit
	T16-190	Capacitor, .005 mfd. 600 v.
	T18-304	Capacitor, electrolytic, 50-30 mfd. 150 v.
	T83-702	Cartridge
	T11-187	Clamp, line cord

NOTES-  
VALUES OF CAPACITORS IN MFD.  
UNLESS OTHERWISE SPECIFIED.  
ALL RESISTORS 1/2 WATT UNLESS OTHERWISE SPECIFIED.

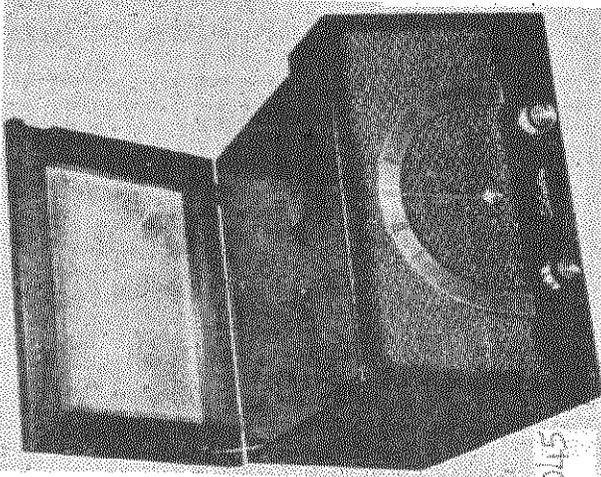
\* THESE CAPACITORS ARE IN CERAMIC UNIT PART NO. T17-104

VOLTAGES MEASURED FROM POINT INDICATED TO COMMON GROUND WITH 20,000 OHM/VOLT VOLTMETER, RADIO-PHONO SWITCH IN RADIO POSITION, LINE VOLTAGE SET AT 117 V. AC.

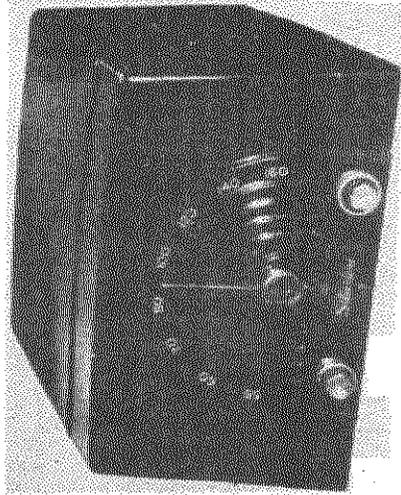
OSCILLATOR COIL  
BOTTOM VIEW OF TUBE SOCKETS SHOWING TERMINAL NUMBERING.

PHONO PICK-UP C5  
VOL. CONT. R6  
TONE CONT. R7

MODELS 1040, 1045,  
Ch. 528.194

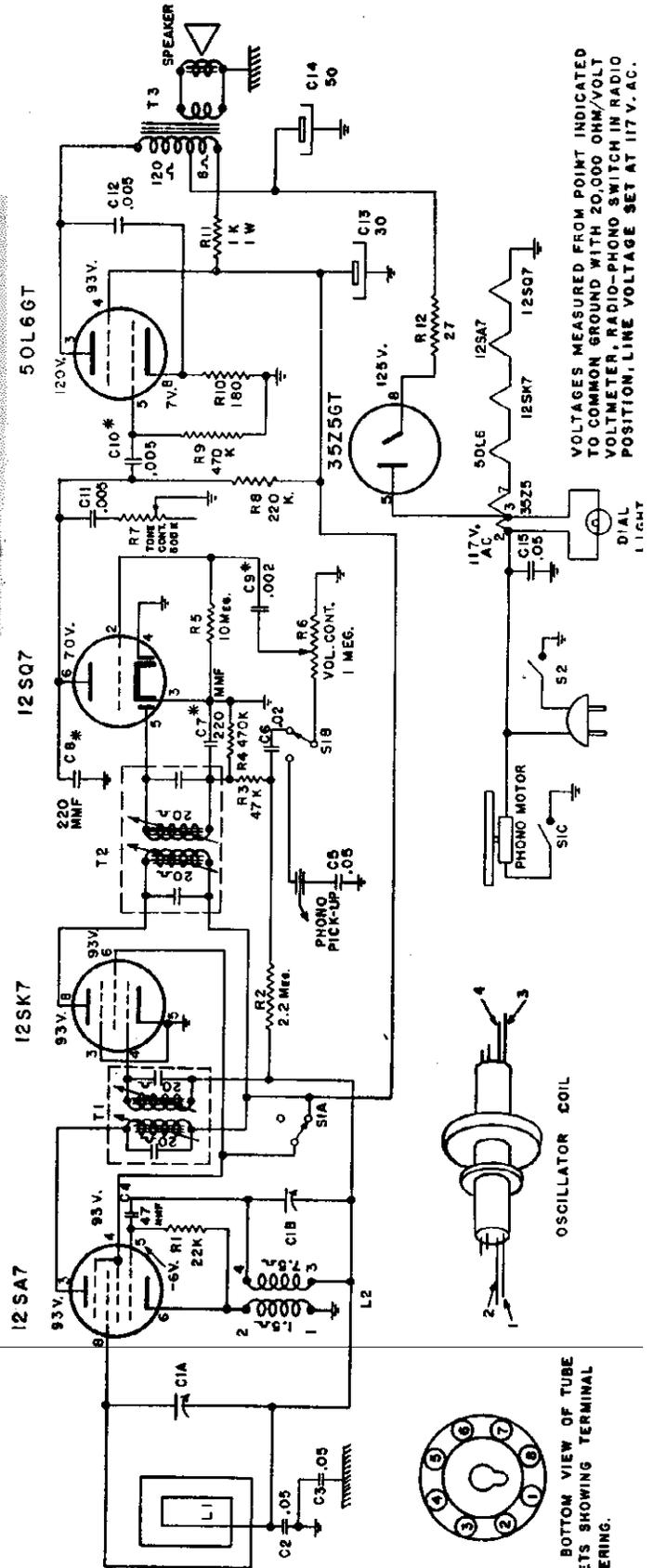


MODEL 1045



MODEL 1040

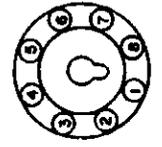
NOTES-  
VALUES OF CAPACITORS IN MFD  
UNLESS OTHERWISE SPECIFIED.  
ALL RESISTORS 1/2 WATT UNLESS  
OTHERWISE SPECIFIED.  
\* THESE CAPACITORS ARE IN CERAMIC  
UNIT PART NO. T.17-104.



VOLTAGES MEASURED FROM POINT INDICATED  
TO COMMON GROUND WITH 20,000 OHM/VOLT  
VOLTMETER, RADIO-PHONO SWITCH IN RADIO  
POSITION, LINE VOLTAGE SET AT 117 V. AC.



OSCILLATOR COIL



BOTTOM VIEW OF TUBE  
SOCKETS SHOWING TERMINAL  
NUMBERING.

MODELS 1040, 1045,  
Ch. 528.194

### ALIGNMENT PROCEDURE

**PRELIMINARY:**

Output meter reading to indicate 0.05 Watt across Voice Coil.....0.4 Volt  
 Generator ground lead connection..... Floating Ground  
 Generator Modulation .....30%, 400 cycles  
 Position of Volume Control..... Fully on

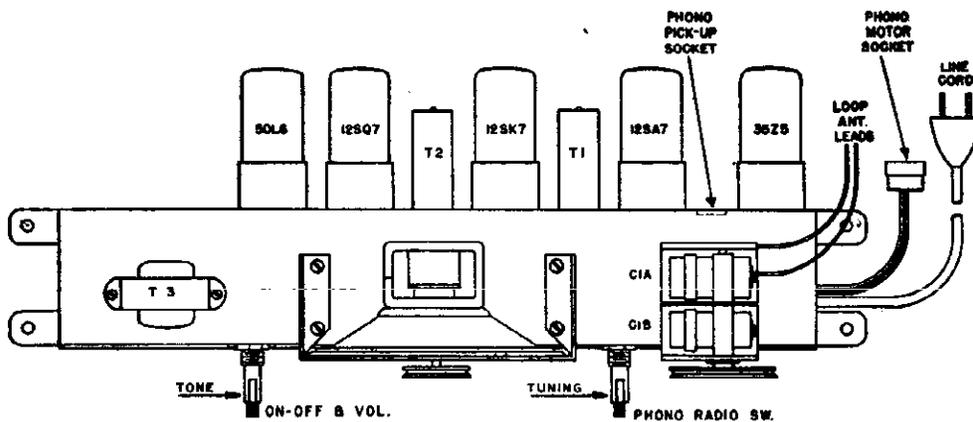
**IMPORTANT ALIGNMENT NOTES:**

The Alignment must be done in the order given.

The entire Alignment Procedure should be repeated step by step in the original order for greatest accuracy.

Always keep the output from the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment.

POSITION OF TUNER	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENT	TRIMMER FUNCTION
open	455 KC	.1 mfd.	pin 8 12SA7	T1 and T2 top and bottom	I.F.
open	1630 KC	.1 mfd.	pin 8 12SA7	C1B	Oscillator
1400 KC	1400 KC	HAZELTINE TEST LOOP		C1A	Antenna



LOCATION OF PARTS OF TOP OF CHASSIS

MODEL 1040

MODELS 1040, 1045  
Ch. 528.194

## PARTS LIST

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION	SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
	T62-17	Bumper, foot .....		T88-171	Label, schematic .....
	T72-56	Bushing, pulley .....		T89-7	Lamp, pilot .....
	T42-486	Cabinet, less cover .....		T82-69	Loop, antenna .....
C1A, C1B	T19-212	Capacitor, variable (2 gang)...		T58-83	Pointer, dial .....
C2	T16-197	Capacitor, .05 mfd. 200 v....		T39-287	Pulley, pointer drive .....
C3, C5, C15	T16-189	Capacitor, .05 mfd. 400 v....	R1	T60-659	Resistor, 22K ohm, 1/2 w....
C4	T15-229	Capacitor, 47 mmfd. mica....	R2	T60-726	Resistor, 2.2 megohm, 1/2 w....
C6	T16-150	Capacitor, .02 mfd. 400 v....	R3	T60-730	Resistor, 47K ohm, 1/2 w....
C7, C8, C9, C10	T17-104	Capacitor, ceramic unit .....	R4, R9	T60-731	Resistor, 470K ohm, 1/2 w....
C11, C12	T16-190	Capacitor, .005 mfd. 600 v....	R5	T60-728	Resistor, 10 megohm, 1/2 w....
C13, C14	T18-304	Capacitor, electrolytic, 50-30 mfd. 150 v....	R8	T60-667	Resistor, 220K ohm, 1/2 w....
	T11-187	Clamp, line cord, chassis.....	R10	T60-774	Resistor, 180 ohm, 1/2 w. 10%
	T11-232	Clamp, line cord, cabinet.....	R11	T60-732	Resistor, 1000 ohm, 1 w. 10%
	T83-421	Clip, I.F. transformer mounting	R12	T60-690	Resistor, 27 ohm, 1/2 w. 10%
L2	T10-572	Coil, oscillator .....	T75-85	Shaft, pulley .....	
R6, R7, S2	T24-194	Control, dual, ON-OFF- VOLUME and TONE .....	T71-39	Shield, pilot lamp .....	
	T51-109	Cord, dial drive, approx. 30" ..	T87-33	Socket, pilot lamp .....	
	T23-151	Cord, power line .....	T68-11	Socket, octal, tube .....	
	T21-167	Cover, plate, chassis .....	T68-41	Socket, phono .....	
	T42-487	Cover, cabinet .....	T22-142	Socket, phono motor .....	
	T47-108	Grommet (gang mounting)....	T77-151	Spacer (gang mounting)....	
	T83-690	Hinge, cabinet cover .....	T79-391	Speaker, 5" P.M. ....	
	T48-54	Jewel, pilot light .....	T70-135	Spring (dial cord) .....	
	T52-321	Knob, ON-OFF-VOLUME and PHONO-RADIO .....	T84-513	Support, lid .....	
	T52-320	Knob, TUNING and TONE .....	T69-188	Switch, RADIO-PHONO .....	
	T88-170	Label, tube position .....	T10-479	Transformer, 2nd I.F. ....	
			T1	T10-508	Transformer, 1st I.F. ....
			T3	T80-268	Transformer, output .....

MODEL 1045

## PARTS LIST

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION	SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
	T44-16	Baffle, wood .....	R1	T60-659	Resistor, 22K ohm, 1/2 w....
	T44-18	Baffle, cardboard .....	R2	T60-726	Resistor, 2.2 megohm, 1/2 w....
	T72-56	Bushing, pulley .....	R3	T60-730	Resistor, 47K ohm, 1/2 w....
	T42-506	Cabinet .....	R4, R9	T60-731	Resistor, 470K ohm, 1/2 w....
C1A, C1B	T19-212	Capacitor, variable (2 gang)...	R5	T60-728	Resistor, 10 megohm, 1/2 w....
C2	T16-197	Capacitor, .05 mfd. 200 v....	R8	T60-667	Resistor, 220K ohm, 1/2 w....
C3, C5, C15	T16-189	Capacitor, .05 mfd. 400 v....	R10	T60-774	Resistor, 180 ohm, 1/2 w. 10%
C4	T15-229	Capacitor, 47 mmfd. mica....	R11	T60-732	Resistor, 1000 ohm, 1 w. 10%
C6	T16-150	Capacitor, .02 mfd. 400 v....	R12	T60-690	Resistor, 27 ohm, 1/2 w. 10%
C7, C8, C9, C10	T17-104	Capacitor, ceramic unit .....		T97-171	Screw, wood—#8 x 3/4"— chassis mounting .....
C11, C12	T16-190	Capacitor, .005 mfd. 600 v....		T97-172	Screw, wood—#6 x 3/4"— cleat mounting .....
C13, C14	T18-304	Capacitor, electrolytic, 50-30 mfd. 150 v....		T74-228	Screw, 6-32 x 1/2"— dial plate mounting .....
	T83-700	45 RPM Record Inserts (package of 12) .....		T75-85	Shaft, pulley .....
	T11-187	Clamp, line cord, chassis.....		T71-39	Shield, pilot lamp .....
	T83-710	Cleat, wood (triangular piece, supports baffle .....		T87-33	Socket, pilot lamp .....
	T83-421	Clip, I.F. transformer mounting		T68-11	Socket, octal, tube .....
L2	T10-572	Coil, oscillator .....		T68-41	Socket, phono .....
R6, R7, S2	T24-194	Control, dual, ON-OFF- VOLUME and TONE .....		T22-142	Socket, phono motor .....
	T51-109	Cord, dial drive, approx. 30" ..		T77-151	Spacer (gang mounting)....
	T23-151	Cord, power line .....		T79-391	Speaker, 5" P.M. ....
	T21-167	Cover, plate, chassis .....		T70-135	Spring (dial cord) .....
	T98-20	Grille cloth .....	S1A, S1B, S1C	T69-188	Switch, RADIO-PHONO .....
	T47-108	Grommet (gang mounting)....	T2	T10-479	Transformer, 2nd I.F. ....
	T48-54	Jewel, pilot light .....	T1	T10-508	Transformer, 1st I.F. ....
	T52-342	Knob, ON-OFF-VOLUME and PHONO-RADIO .....	T3	T80-268	Transformer, output .....
	T52-341	Knob, TUNING and TONE .....		T86-125	Washer, flat—7/16" O.D.— dial plate screws .....
	T88-218	Label, tube position .....		T86-120	Washer, flat—3/4" O.D.— shipping bolts .....
	T88-219	Label, schematic .....		T86-151	Washer, "C"—shipping bolts ..
	T89-7	Lamp, pilot .....		T56-161	Wing-nut—1/4"-28— shipping bolts .....
	T82-72	Loop, antenna .....			
	T67-564	Plate, dial scale .....			
	T58-83	Pointer, dial .....			
	T39-287	Pulley, pointer drive .....			

MODELS 6286, Ch. 528.6286;  
6287, Ch. 528.6287

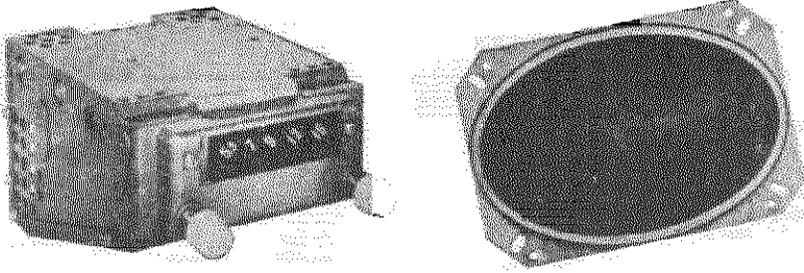


Fig. 1. Radio and Speaker

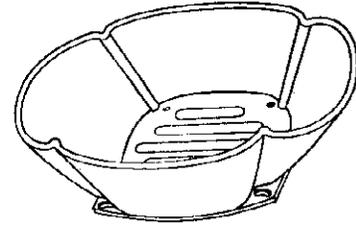


Fig. 2. Universal baffle.  
Catalog No. 6275T

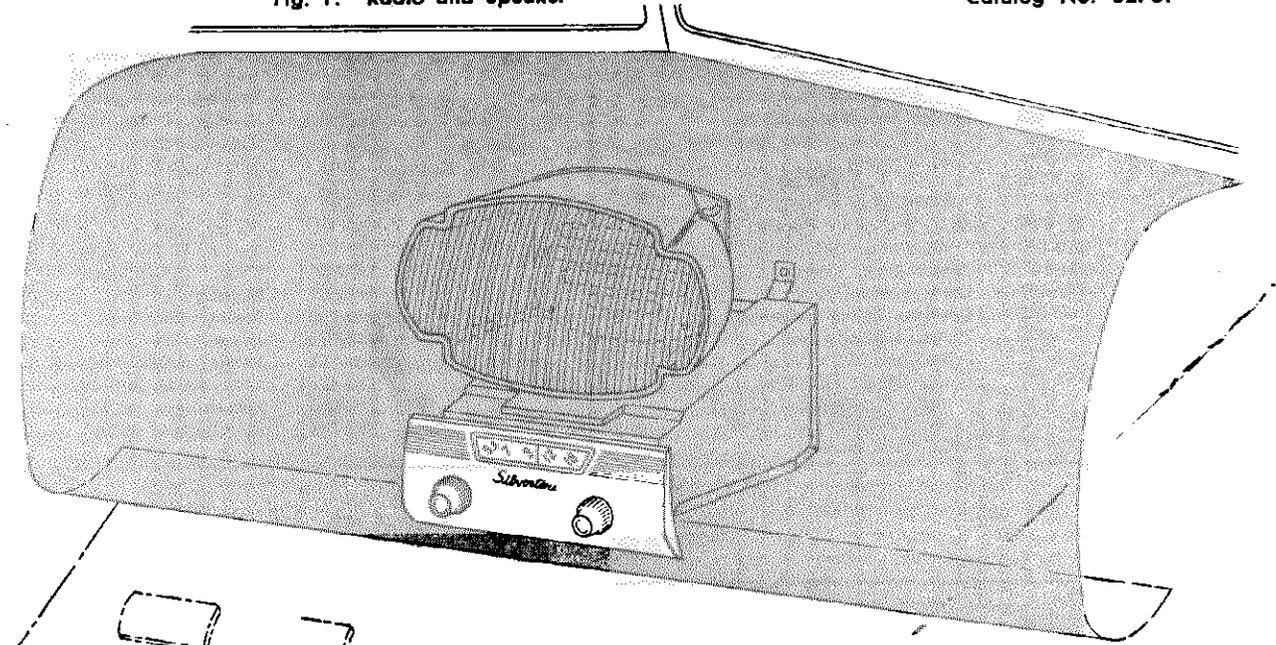


Fig. 3. Custom Style Mounting

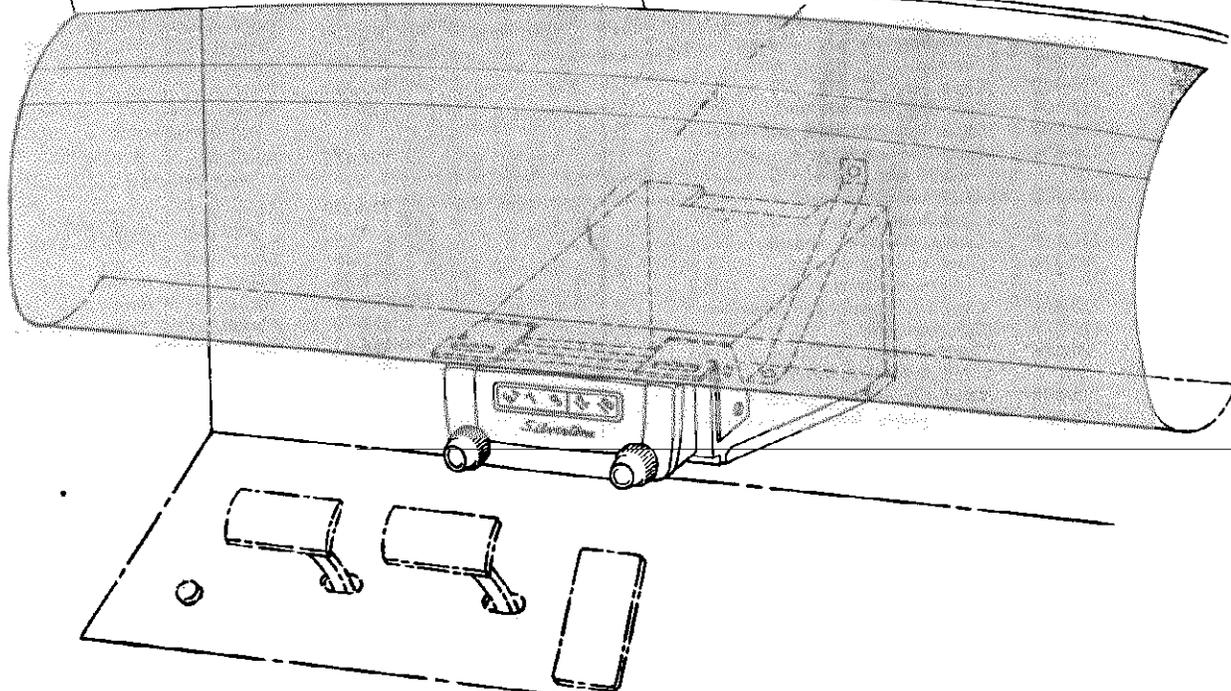


Fig. 4. Underdash Mounting

## INSTALLATION

The speaker is mounted inside the radio case when it is shipped from the factory. The radio may be installed in your car with the speaker inside the case and it will render very satisfactory service. However, if you wish to take advantage of the finer acoustical improvement that results when the speaker is mounted on the instrument panel it is simple to do so. Simply take off the top cover of the radio case and remove the speaker, then replace the top cover. The speaker may then be mounted on the instrument panel by means of an adapter plate and baffle kit (see Fig. 2) which is available at the Sears Retail or Mail Order Store where you bought the radio. The special speaker baffle adapter plate and kit is sold as a separate item so that the purchaser of the radio is not put to unnecessary expense if he does not wish to mount the speaker on the instrument panel.

**SPECIFIC INSTRUCTIONS PERTAINING TO THE MOUNTING OF THE SPEAKER AND RADIO IN THE CAR FOR WHICH YOU ORDERED YOUR RADIO ARE CONTAINED IN THE LEAFLET PACKED IN THE ESCUTCHEON KIT.**

### CONNECTING THE RADIO

When the radio is mounted in the car, the antenna cable should be connected to the radio by inserting the plug into the antenna receptacle on the side of the case. See Fig. 5. Then connect the "A" lead to the ignition switch. (If the "A" lead is connected to the switched or "cold" side of the ignition switch, the radio can be turned on only when the ignition switch is on. There is no danger then that the radio will be left on inadvertently while the car is parked and the battery unnecessarily drained.) The fuse should then be inserted into the fuse holder in the "A" lead. See Fig. 5.

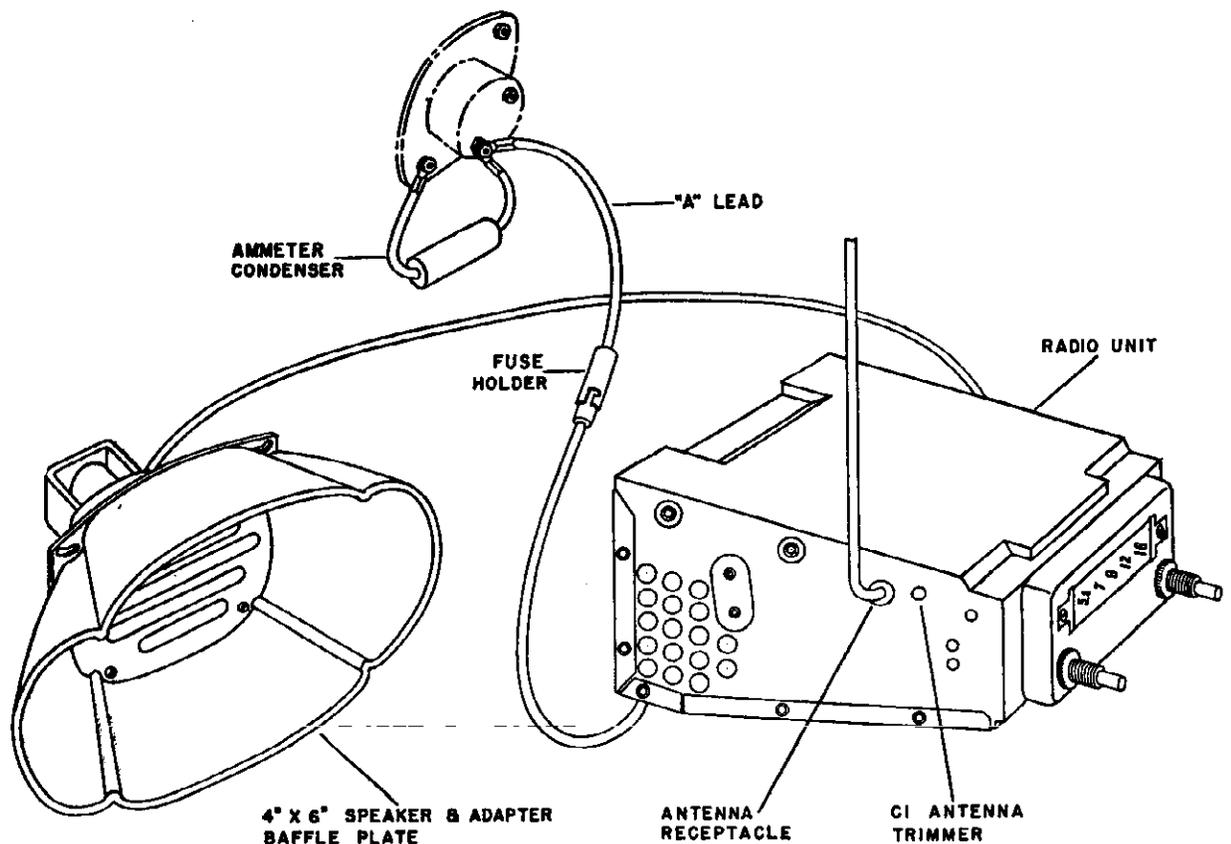


Fig. 5. Connecting the Radio

MODELS 6286, Ch. 528.6286;  
6287, Ch. 528.6287

## OPERATION

### THE ON-OFF SWITCH AND VOLUME CONTROL

This is the righthand knob. When it is turned all the way to the left the receiver is switched off and there is no drain from the car's battery. Rotating the knob part of a turn toward the right switches the receiver on and illuminates the dial. Further rotation of the knob increases the volume. After a station has been tuned in properly the volume control knob should be adjusted to give the desired volume.

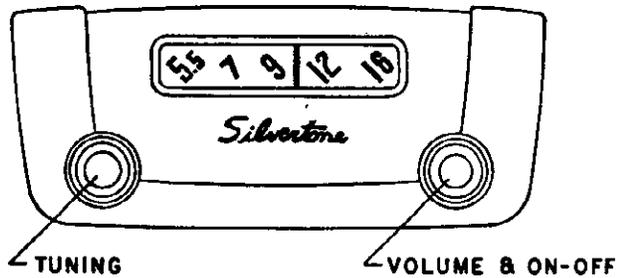


Fig. 6. Radio Front View

The Automatic Volume Control circuit, built into this receiver, will tend to maintain the volume once it has been adjusted by means of the Volume Control knob. However, because of the very great differences in receiving conditions encountered when driving a car, the volume may change beyond the limits for which automatic compensation is possible. As the sensitivity of the receiver automatically changes to compensate for changes in station strength, the background noise may also vary. When the station is strong, there will be little or no background noise but as the station becomes weaker, the background noise will increase. Reception may also be noisy when driving in "electrically noisy" districts. This will be particularly true when driving near trolley lines, high tension power lines, and power stations, etc.

### TUNING IN STATIONS

Use the left knob to tune in stations. The dial is numbered in kilocycles minus the final two zeroes. Always tune carefully for the clearest sound and minimum background noise. This can be best accomplished by tuning in a station with the Volume Control turned down. The volume can be adjusted to the proper level when the station has been tuned in. Do not detune the station to reduce volume; use the Volume Control knob.

### MATCHING THE ANTENNA

An adjusting screw for matching the receiver to the particular antenna used is accessible through a hole in the case. (See Fig. 5). Set the dial pointer between 1300 KC and 1400 KC, where no station is heard with the Volume Control fully on. Use a small screwdriver to turn the adjusting screw to the point giving the most hiss or noise. The set is now ready for operation.

### S84—509 SUPPRESSION KIT AND MISCELLANEOUS PARTS

- 1 S84-233—"A" lead assembly
- 1 A43-10—Fuse
- 1 A81-13—Sleeve (for fuse)
- 2 A16-183—.5 MFD condensers
- 1 A96-4—Distributor Suppressor
- 20" wire braid

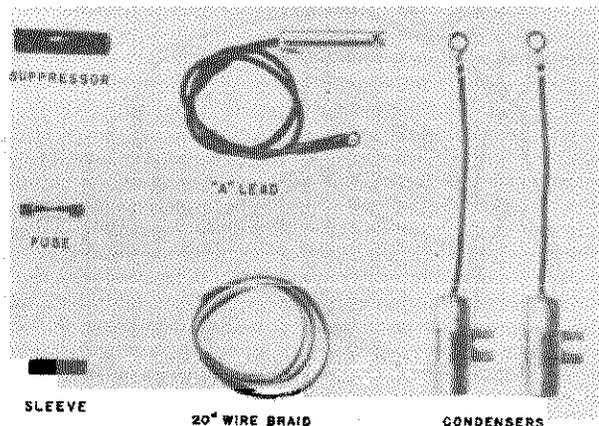


Fig. 7. Suppression Kit and Miscellaneous Parts

## ELIMINATING MOTOR NOISE

Every precaution was taken in the design of this radio to eliminate motor noise interference. However, in the remote instance that it may be found desirable to take further steps, the following notes are added for your guidance. It may not be necessary to use all of the following suggestions to correct a noise condition in any one car. We recommend using these helpful hints in the manner of a process of elimination, using only those methods that correct your condition.

**IMPORTANT:** Special care should be taken when mounting the radio to make sure all paint, grease, rust, etc., is removed from all mounting points. A good electrical contact at these points will aid materially in eliminating motor noise.

### GENERATOR CONDENSER

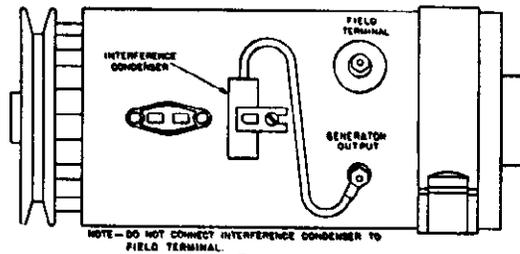


Fig. 8

The generator condenser must be connected to the battery terminal of the generator in all cases. If your car is equipped with a generator using an automatic regulator, make sure the condenser IS NOT fastened to the field winding terminal. If in doubt, your local car dealer can advise you as to where the car manufacturer recommends connecting it.

### DISTRIBUTOR SUPPRESSOR

Remove from distributor cap the high tension lead from coil to distributor. Cut the lead two inches from the end, and screw the distributor resistor on to the coil lead, then screw the short length into the resistor and plug the cable into the distributor cap.

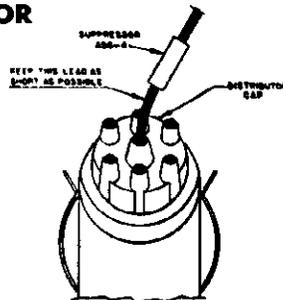


Fig. 9

### AMMETER CONDENSER

A .5 MFD bypass condenser is furnished for attaching to the ammeter. This should be connected to either side of the ammeter with the ground lug fastened to a good ground nearby. In most cases the use of this condenser, the distributor suppressor, and the generator condenser, will eliminate all objectionable ignition interference.

### VOLTAGE REGULATOR

It is normal to connect a .5 mfd condenser from the battery terminal on the voltage regulator to ground; however, in a number of cars the voltage regulator is mounted on rubber grommets. In such instances, the condenser should be grounded directly to the case of the regulator, rather than to some other ground point. Do not use a larger condenser than .5 mfd or else it will affect the timing of the regulator rendering it less useful.

### ELECTRICAL ACCESSORIES

In some cases, it may be found that car accessories such as electric heaters, lighters, automatic relays, or gauges, may cause interference while in operation. Proper procedure in such cases is to try another by-pass condenser from ground to the suspected accessory until the source of the interference is found. The condenser then should be permanently mounted in this location.

### HIGH AND LOW TENSION LEADS

Considerable ignition interference is experienced from leads in cables that run along the inside of the fire wall near the auto radio. For example, the battery lead to the low voltage side of the ignition coil on a 1950 Model Oldsmobile '88' runs through the fire wall and along the inside past the auto radio to a point beyond the steering column. This lead has heavy radiation. It can be disconnected at the ignition coil and pulled through the fire wall and pushed back through the fire wall at a point to the left of the steering column and run along the outside to its original point of connection on the ignition coil. Such types of leads should be watched for in all installations. They should be rerouted, if possible, or shielded with braid material. It is advisable in extreme cases to bond all leads by wrapping braid around them, and grounding the braid at the closest point. In wrapping a braid around a lead, do not remove the insulation from the leads as this is a radiation type of shield. Keep all ground leads as short as possible, or they will pick up interference.

### IGNITION COILS

In cars where the ignition coil is located on the back side of the instrument panel it is often necessary to use an additional condenser. It must be installed from the battery side of the ignition coil to the closest ground on the instrument panel.

Short leads are very important. Where coils are mounted either on the instrument panel or in the driver's compartment, it may be necessary to shield the high tension lead from the coil to the distributor.

### WHEEL STATIC

Wheel Static is a form of interference caused by the rotation of the front wheels of the car, and it is, of course, only noticed when the car is in motion. If this form of interference is present it can be eliminated by installing wheel static collector springs between the inner hub cap and the spindle shaft.

### Bonding of Ungrounded Engine and Body Parts

The best rule is to keep the ignition interference underneath the hood as much as possible. This is best accomplished by using filters and suppressors on all points that would produce radiation as well as effectively bonding the hood, motor block, and any engine and body parts that are isolated from each other. It would be advisable to check all bolt-on fenders on which antennas are mounted, in that these fenders frequently are not sufficiently well grounded to the rest of the car. Use bonding braid wherever necessary to ground such fenders. Use wide bonding braid and keep all such braid as short as possible. Bonding all cables and tubes that go through the fire wall is necessary in some cases.

MODELS 6286, Ch. 528.6286;  
6287, Ch. 528.6287

### ELECTRICAL SPECIFICATIONS

Power Supply.....6.3 volts DC  
 Current.....5.1 amp. average  
 Frequency Range.....535 to 1605 KC  
 I. F. Frequency.....455 KC  
 Speaker.....4" x 6" P.M.  
 Power Output.....1.25 watts, undistorted  
 2 watts, maximum  
 Sensitivity.....5 microvolt average  
 for 1 watt output  
 Selectivity......44KC broad at 1000  
 times signal at 1000KC

The set contains the following:

- 1—6BA6—R.F. Amplifier.
  - 1—6BE6—Converter.
  - 1—6BA6 or 6AU6—I.F. Amplifier.
  - 1—6AT6 or 6AV6—Detector—1st audio—AVC.
  - 1—6AQ5—Power Output.
- 
- 1—6X5—Rectifier.

### SERVICE NOTES

Voltages taken at the various points of the circuit to chassis are measured with the volume control in maximum position, all tubes and the rectifier in their sockets and no signal applied. The voltages are shown on the schematic diagram (Fig. 12) and were measured with a Vacuum Tube Voltmeter. An input voltage of 6.6 volts D.C. should always be used when checking voltages.

### ALIGNING INSTRUCTIONS

Never attempt any adjustments on this receiver unless it becomes necessary to replace the coils or transformer, or if the adjustments have been tampered with in the field. Always make certain that other circuit components, such as tubes, the rectifier, condensers, resistors, etc., are normal before proceeding with realignment.

If realignment is necessary follow the instructions given under the heading "ALIGNMENT PROCEDURE." After realignment has been completed repeat the procedure as a final check.

### INSTRUCTIONS FOR REMOVING THE CHASSIS FROM THE CASE

Remove the two control knobs by pulling them straight from their shafts. Remove the cover. It is held in place by nine (9) screws; four (4) on each side and one at the back. Remove the four (4) screws, two (2) on each side which hold the chassis in place. Now to remove the chassis, hold the case with one hand, grasp the chassis by the power transformer, lift up and pull back and the chassis will slide out.

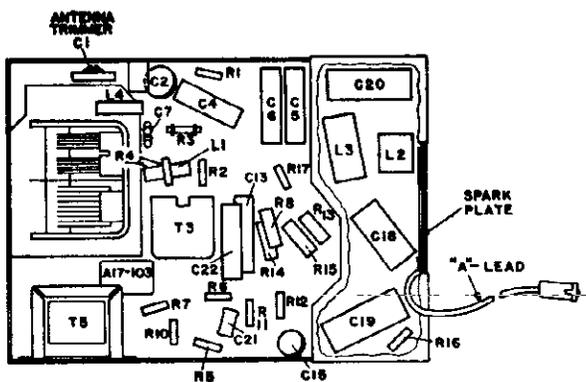


Fig. 10 Chassis—Bottom View

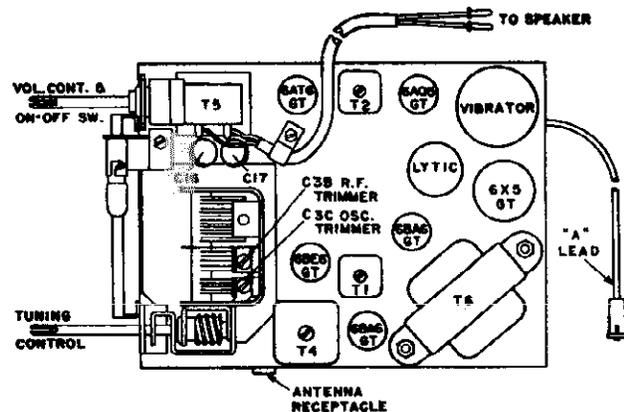


Fig. 11. Chassis—Top View

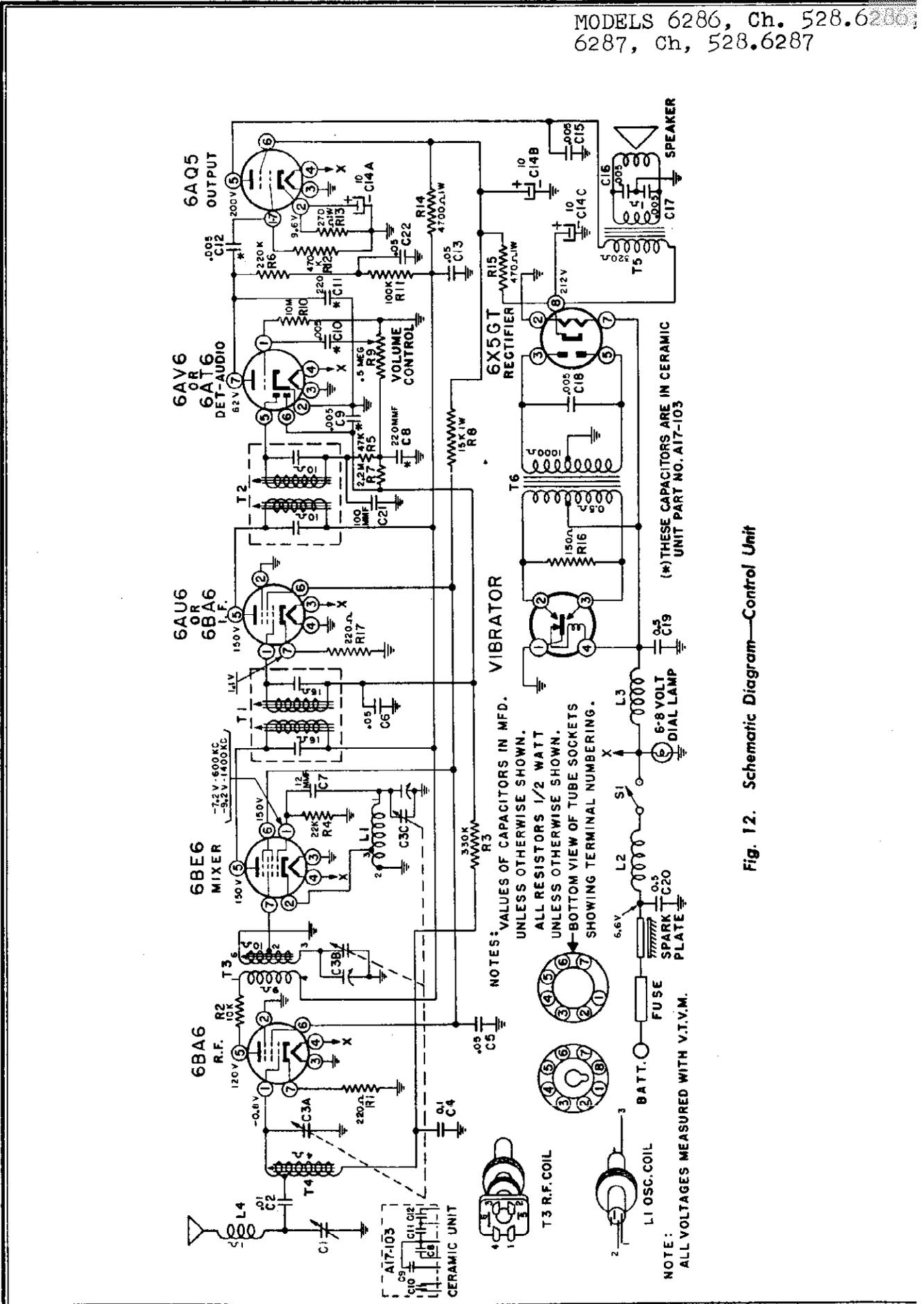


Fig. 12. Schematic Diagram—Control Unit

NOTES: VALUES OF CAPACITORS IN MFD.  
UNLESS OTHERWISE SHOWN.  
ALL RESISTORS 1/2 WATT  
UNLESS OTHERWISE SHOWN.  
BOTTOM VIEW OF TUBE SOCKETS  
SHOWING TERMINAL NUMBERING.

NOTE:  
ALL VOLTAGES MEASURED WITH V.T.V.M.

(\* THESE CAPACITORS ARE IN CERAMIC  
UNIT PART NO. A17-103

MODELS 6286, Ch. 528, 6286;  
6287, Ch. 528, 6287

## ALIGNMENT PROCEDURE

**Volume control**—Maximum, all adjustments.  
**No signal** applied to antenna.  
**Power input**—6.6 volts.  
**Connect dummy antenna** in series with output lead of signal generator.  
**Connect output meter** across voice coil.  
**Connect ground lead** of signal generator to chassis.  
**Repeat alignment procedure** as a final check.

The following equipment is necessary for proper alignment:  
 Signal generator that will provide the test frequencies as listed, modulated 400 cycles, 30%.  
 Non-metallic screwdriver.  
 Output meter. (1.8 volt for 1 watt output.)  
 Dummy antennas—.1 MFD., 75 MMFD., 30 MMFD.  
 For alignment points refer to Figures 10 and 11.

Gang Position	Generator Frequency	Dummy Antenna	Generator Connections	Trimmer Reference	Trimmer Adjustment	Trimmer Function
1—Fully Open	455KC	.1 MFD	6BE6 GRID (Pin 7)	T2 Top & bottom	Maximum	Output I.F.
2—Fully Open	455KC	.1 MFD	6BE6 GRID (Pin 7)	T1 Top & bottom	Maximum	Input I.F.
3—Fully Open	1605KC	*	Antenna Input	C3C (Trimmer)	Maximum	Oscillator
4—Tune in Signal from Generator	1400KC	*	Antenna Input	C3B (Trimmer)	Maximum	R.F.
5—Tune in Signal from Generator	1400KC	*	Antenna Input	C1	Maximum	Antenna
6—Tune in Signal from Generator	600KC	*	Antenna Input	T4	Maximum	R.F.
7—Tune in Signal from Generator	600KC	*	Antenna Input	T3	Maximum	Antenna

Repeat steps 5 through 7 until adjustment is correct at both 600KC and 1400 KC.  
 \*30 MMFD across input terminals and 75 MMFD in series with "hot" side of generator leads.

MODELS 6286, Ch. 528.6286;  
6287, Ch. 528.6287

## PARTS LIST

Schematic Location	Part Number	Description	Schematic Location	Part Number	Description
	84-233	"A" lead assembly	R7	60-726	Resistor, 2.2 megohm, 1/2 W.
	11-373	Clamp—"A" lead	R8	60-716	Resistor, 15K ohm, 1 W. 10%
	11-380	Clamp—Speaker leads	R10	60-728	Resistor, 10 megohm, 1/2 W.
	83-421	Clip—L.F. Transformer mounting	R11	60-727	Resistor, 100K ohm, 1/2 W.
L1	10-569	Coil—Oscillator	R12	60-731	Resistor, 470K ohm, 1/2 W.
L2	33-229	Coil—"A" line choke	R13	60-754	Resistor, 270 ohm, 1 W. 10%
L3	33-234	Coil—Vibrator hash choke	R14	60-765	Resistor, 4700 ohm, 1 W. 10%
L4	10-527	Coil—Antenna noise choke	R15	60-694	Resistor, 470 ohm, 1 W. 10%
C1	20-150	Capacitor, antenna trimmer	R16	60-767	Resistor, 150 ohm, 1/2 W. 10%
C2	15-211	Capacitor, ceramic—.01—600 V.		83-646	Retainer, dial scale—left
C3A, C3B, C3C	19-211	Capacitor, variable (3 gangs)		83-647	Retainer, dial scale—right
C4	16-203	Capacitor, .1 mfd.—200 V. 85°C		83-316	Retainer, vibrator
C5, C6, C13	16-189	Capacitor, .05 mfd.—400 V. 85°C		75-84	Shaft—tuning, chassis 528.6286
C7	15-205	Capacitor, ceramic—12 mmfd.		75-86	Shaft—tuning, chassis 528.6287
C8, C9, C10, C11, C12	17-103	Capacitor, ceramic unit		70-172	Sleeve—rubber—tuning shaft
C14A, C14B, C14C	18-303	Capacitor, electrolytic—10-10 mfd. 250 V. 10 mfd. 25 V.		81-13	Sleeve—fuse
C15, C16, C17	16-177	Capacitor, ceramic—.005 mfd.		68-39	Socket—miniature—wafer
C18	16-185	Capacitor, .005 mfd.—1600 V. oil filled		68-11	Socket—octal—wafer
C19	16-215	Capacitor, .5 mfd.—100 V. 85°C		68-33	Socket—vibrator
C20	16-214	Capacitor, .5 mfd.—100 V. 100°C		87-46	Socket & bracket—pilot lamp, chassis 528.6286
C21	15-196	Capacitor, ceramic—100 mmfd.		87-37	Socket—pilot lamp, chassis 528.6287
C22	16-197	Capacitor, .05 mfd.—200 V. 85°C		77-135	Spacer—variable condenser mounting
R9, S1	24-192	Control—volume, 500 K Chassis 528.6286		79-390	Speaker—"4" x 6" P.M.
R9, S1	24-193	Control—volume, 500K chassis 528.6287		70-173	Spring—dial cord, chassis 528.6286
	67-559	Dial scale		70-174	Spring—dial cord, chassis 528.6287
	43-10	Fuse—15 amp.—3AG		88-163	Sticker—schematic
	47-112	Grommet—Variable condenser mounting		88-178	Sticker—tube location, chassis 528.6287
	52-326	Knob, volume and tuning		88-164	Sticker—tube location, chassis 528.6286
	89-7	Lamp—pilot—No. 47 Bayonet		88-179	Sticker—parts list, chassis 528.6287
	56-146	Non-knobbed—control shafts		88-166	Sticker—parts list, chassis 528.6286
	31-180	Plate—dial backing, chassis 528.6286		31-185	Strap—rear mounting
	31-182	Plate—dial backing, chassis 528.6287		51-109	String—palater drive—12"
	45-129	Plug—speaker leads		84-809	Suppression Kit
	23-153	Plugbutton—antenna trimmer hole		96-4	Suppressor resistor—10K ohm
	58-84	Pointer	T1	10-821	Transformer—1st L.F.
	87-38	Receptacle—antenna	T2	10-829	Transformer—2nd L.F.
	60-753	Resistor, 220 ohm, 1/2 W. 10%	T3	10-570	Transformer—L.F.
	60-760	Resistor, 10K ohm, 1/2 W. 10%	T4	10-568	Transformer—antenna
	60-661	Resistor, 330K ohm, 1/2 W.	T5	80-267	Transformer—output
	60-744	Resistor, 22K ohm, 1/2 W. 10%	T6	80-266	Transformer—power
	60-730	Resistor, 47K ohm, 1/2 W.		34-105	Vibrator
	40-447	Resistor, 220K ohm, 1/2 W.			

IMPORTANT: All tubular condensers must be high temperature (85°C.) wax type.

MODELS 1U338-I, 1U338-R,  
1U338-W, 338-I, 338-R,  
338-W

# OPERATION AND SERVICE INSTRUCTIONS

FOR

## MODELS 338-W, 338-I, 338-R, 1U338-W, 1U338-I, 1U338-R, AC-DC SUPERHETERODYNE RECEIVER

### VOLTAGE RATING

THIS RADIO IS DESIGNED FOR USE ON EITHER:  
110-120 VOLTS 50-60 CYCLES ALTERNATING CURRENT (AC)  
OR  
110-120 VOLTS DIRECT CURRENT (DC)

### SPECIAL INSTRUCTIONS FOR "DIRECT CURRENT" OPERATION:

If the current supply is DIRECT CURRENT, and the radio does not play after it has been turned on for approximately one minute, simply reverse radio power cord plug in electric power receptacle.

### LOOP AERIAL

THE LOOP AERIAL SUPPLIED with the radio should provide ample reception in average locations.

Loop aerials are directional—the volume of a weak station may be improved, or undesired electrical noise may be reduced, by lifting and turning the radio to a different position. A trial will reveal position of best reception with least interference.

### FUNCTION OF CONTROLS ON RADIO

THE LEFT HAND KNOB controls the volume control and off-and-on switch.

THE RIGHT HAND KNOB is the station selector.

### OPERATING INSTRUCTIONS

PLACE VOLUME CONTROL KNOB IN one-half to maximum volume position.

TURN TUNING CONTROL KNOB until the desired station is heard with greatest volume and clearest tone.





MODELS 1U338-I, 1U338-R,  
1U338-W, 338-I, 338-R,  
338-W

TO SERVICE TUBES, it is necessary to remove the cabinet back by gently pulling out the two trimount studs, used to hold the back to the cabinet, and detaching the two leads from the loop.

Before remounting the back on the cabinet, be sure to properly re-connect these leads. The green-white wire must be attached to the terminal which has the word "GREEN" printed close to it.

TO REMOVE CHASSIS FROM CABINET:

- (A) Remove cabinet back.

(B) Unscrew the two screws holding the chassis to the rear of the cabinet.

(C) Remove pointer by gently pulling it away from cabinet.

(D) Full knobs off of control shafts.

(E) Unscrew and remove slotted nut on volume control shaft—accessible when knob is removed.

(F) Slide Chassis out of cabinet.

TO REINSTALL, reverse the above procedure. DO NOT tighten nut too much—otherwise, cabinet may crack.

PARTS LIST

Qty. No.	Part No.	Part Name	Description
1	64E33	Antenna	Loop and cabinet back
2	20E402	Coil	1st I. F. Transformer
3	20E402	Coil	2nd I. F. Transformer
4	20E333	Coil	Oscillator
4	20E346	Coil	Oscillator (used in 1U338 only)
5	24E45	Condenser	Two Gang, Tuning
6	25E24	Condenser	Dry Electrolytic, 50-50 Mfd. 150 Volt.
7	23E2041-2	Condenser	Ceramic, Coupling Plate
8	23E42	Condenser	Mica, .00025 Mfd. 500 V.
	OR		
8	23E2027	Condenser	Ceramic, .00025 Mfd. 500 V.
9	23E411	Condenser	Tubular, .01 Mfd. 400 V.
10	23E211	Condenser	Tubular, .01 Mfd. 200 V.

Qty. No.	Part No.	Part Name	Description
11	23E216	Condenser	Tubular, .05 Mfd. 200 V.
12	23E416	Condenser	Tubular, .05 Mfd. 400 V.
13	27E151	Resistor	Carbon, 150 Ohm, 1/3 W.
14	27E222-3	Resistor	Carbon, 2200 Ohm, 1 W.
15	27E223	Resistor	Carbon, 22,000 Ohm, 1/3 W.
16	27E335	Resistor	Carbon, 33 Megohm, 1/3 W.
17	27E335	Resistor	Carbon, 33 Megohm, 1/3 W.
18	1E32	Speaker	3/2" P.M.
19	22E49	Transformer	Output
20	28E27	Volume Control	500,000 Ohm, with Switch
21	23E2027	Condenser	Ceramic, .00025 Mfd. 500 V. (used in 1U338 only)
22	27E105	Resistor	Carbon, 1 Megohm, 1/3 W. (used in 1U338 only)
23	23E2021	Condenser	Tubular, .2 Mfd. 400 V. (used in 1U338 only)

IMPORTANT: When ordering complete cabinet or cabinet parts, be sure to mention required color in addition to part number.

MISCELLANEOUS PARTS

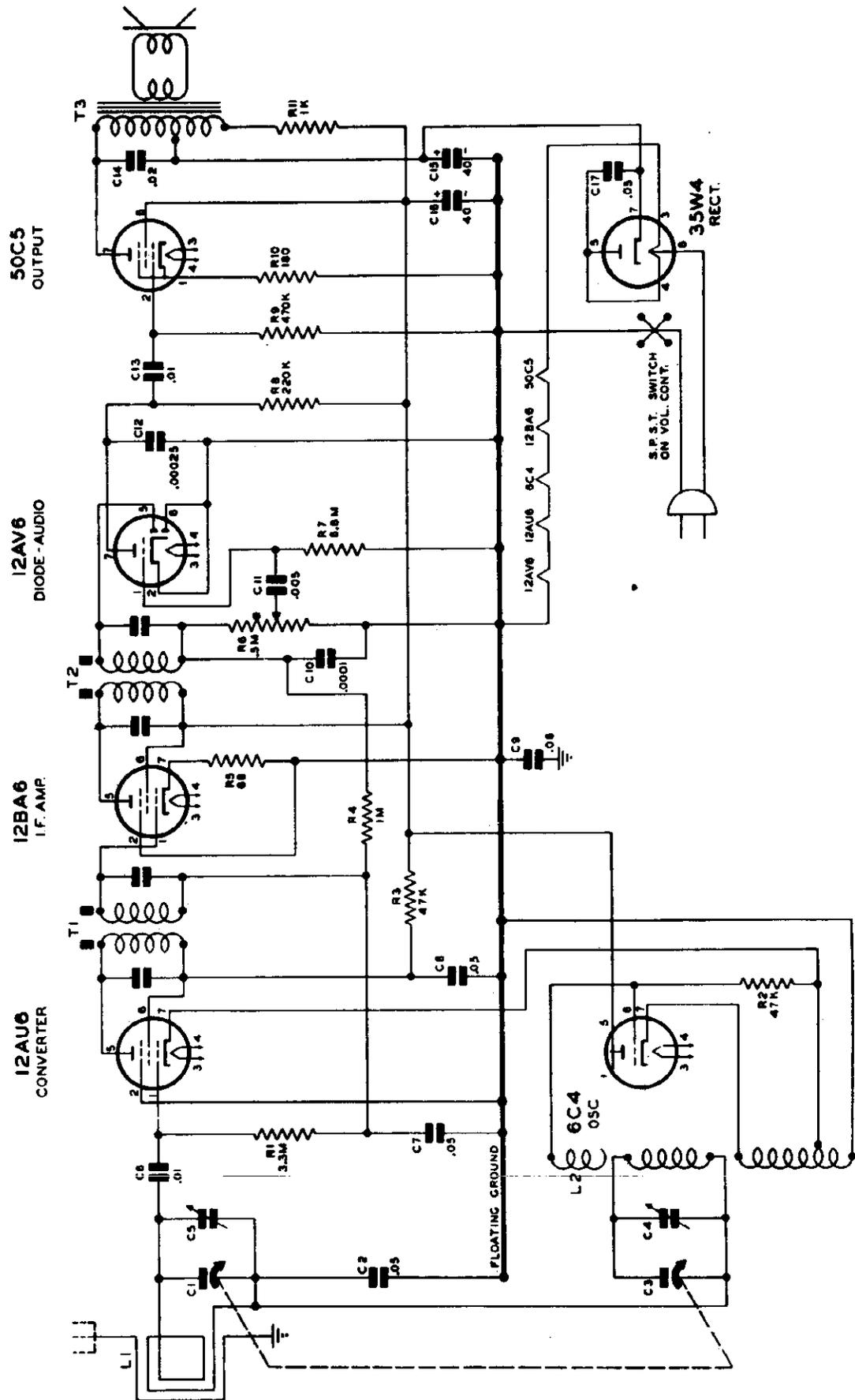
Part No.	Part Name	Description
7E248	Cabinet	Walnut Plastic
7E248-2	Cabinet	Ivory Plastic
7E248-3	Cabinet	Red Plastic
41E14	Line Cord	5 Ft. Rubber Line Cord
20E253-25	Dial Cord	Dial Drive Cord
20E348-3	Dial Shaft Assembly	Dial Drive Shaft with Bracket
35E29	Dial Pointer	Dial Indicator

Part No.	Part Name	Description
33E99	Pointer Insulator	Plastic, used to mount and insulate Pointer from Chassis
13E103-8	Pointer Tension Clip	Tension Spring for 33E99 Pointer Insulator
65E2	Dial Spring Knob	Tension Spring for Dial Cord
37E52-15	Knob	For Walnut Cabinet
37E52-16	Knob	For Ivory and Red Cabinet
20E512	Speaker Baffle	Baffle Assembly with Grille Cloth

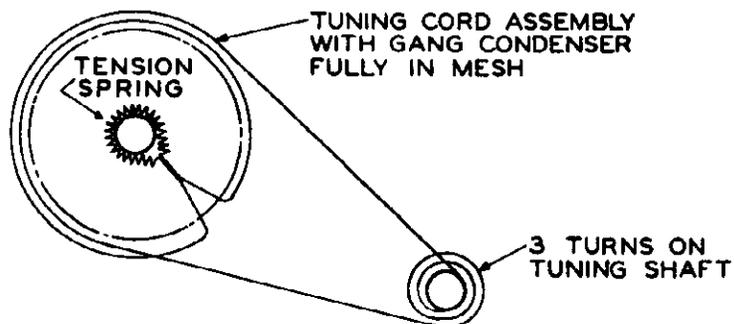
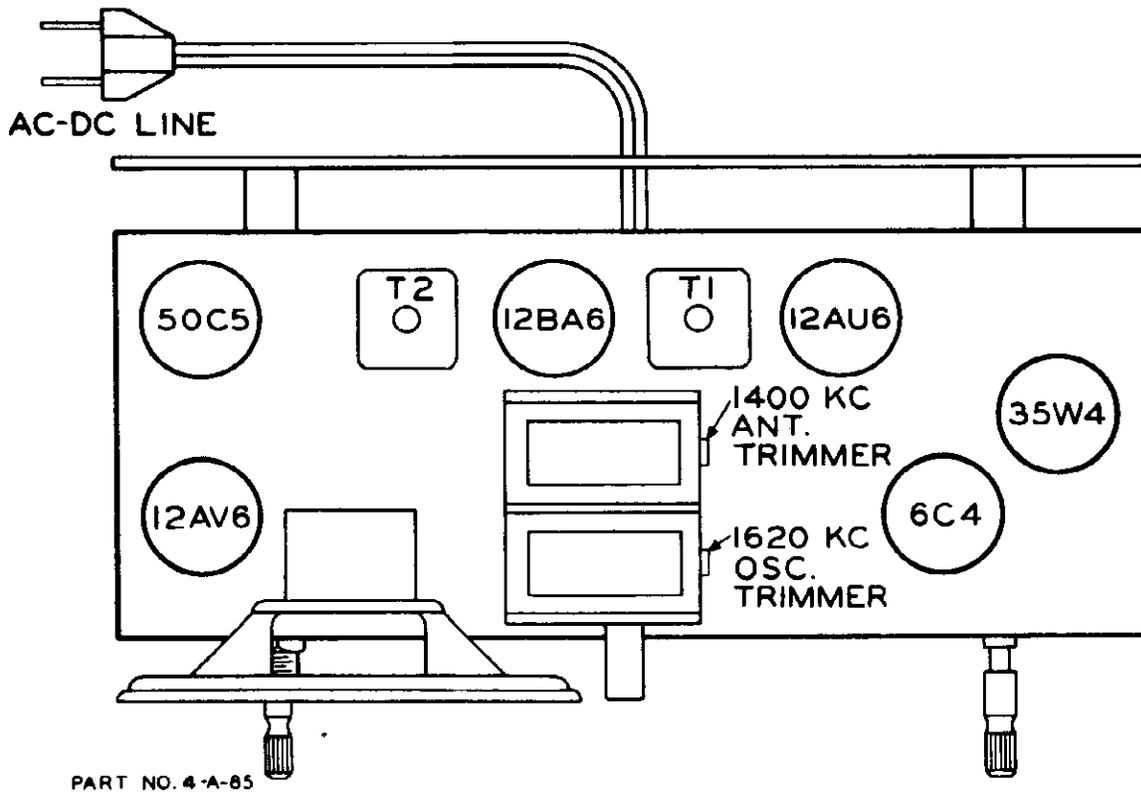
MOUNTING HARDWARE

Part No.	Part Name	Description
10E42	Stud	Trimount Stud for mounting Loop and Cabinet Back to Cabinet
82E37-F10	Screw	Recessed 6-20 x 3/8 holds Chassis in Cabinet

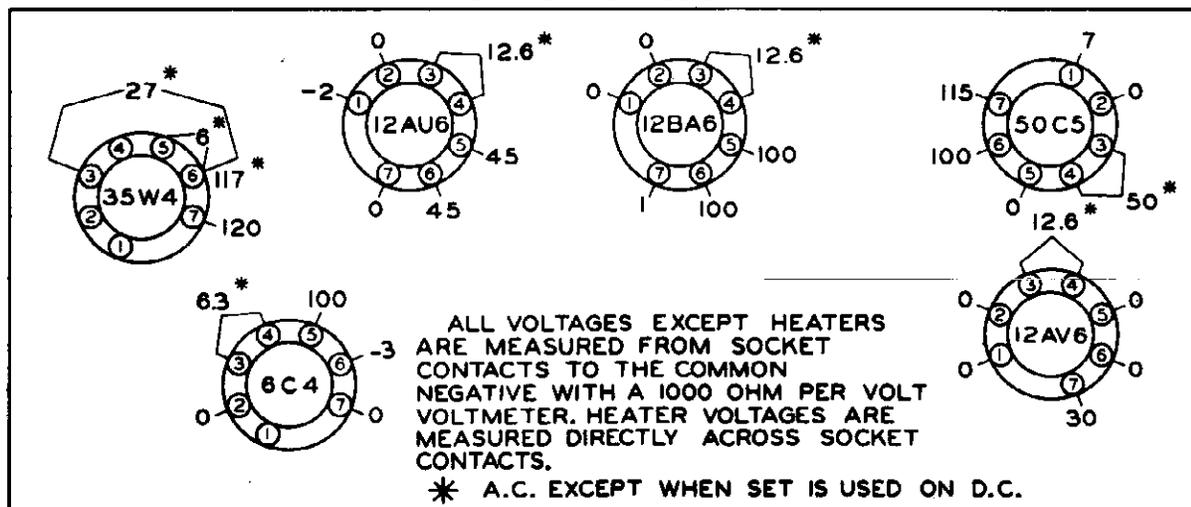
Part No.	Part Name	Description
19E29	Nut	Slotted Head, used to hold Chassis in Cabinet



MODELS 314,  
315



REAR OF CHASSIS



VOLTAGE TABLE  
(BOTTOM VIEW OF CHASSIS)

ALIGNMENT PROCEDURE

For alignment procedure read tabulations from left to right and make the adjustments marked (1) first, (2) next, (3) third.

Before starting alignment:

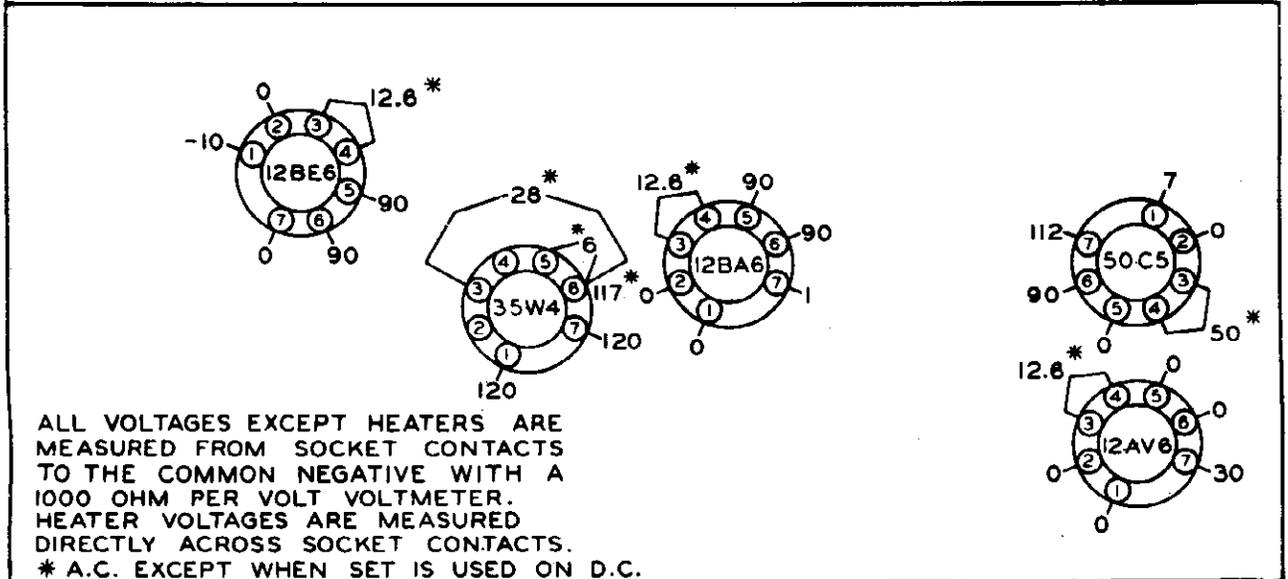
(A) Remove the chassis and loop antenna from the cabinet at the same time. To accomplish this, remove the two fasteners holding the top of the back to the cabinet and remove the two screws on the rear apron of the chassis which fasten the chassis to the cabinet.

(B) Use an accurately calibrated test oscillator with some type of output measuring device.

STEP	Set Receiver dial to:	TEST OSCILLATOR		DUMMY ANTENNA	ADJUSTMENT
		Adjust test oscillator Frequency to:	Attach output of test oscillator to:		
1	Any point where no interfering signal is received.	Exactly 455 KC.	High side to grid of 12AU6 Tube. Low side to common negative.	.05 MFD Conden-ser.	Adjust slugs at top and bottom of 2nd. I.F. (T2) and then each of the slugs of the 1st. I.F. (T1) for maximum output.
2	Exactly 1620 KC.	Exactly 1620 KC.	External Antenna. Blue lead on loop.	100 MMFD Conden-ser	Adjust 1620 KC Oscillator trimmer for maximum output.
3	Approx. 1400 KC.	Approx. 1400 KC.	External Antenna. Blue lead on loop.	100 MMFD Conden-ser	Adjust 1400 KC Antenna trimmer for maximum output.

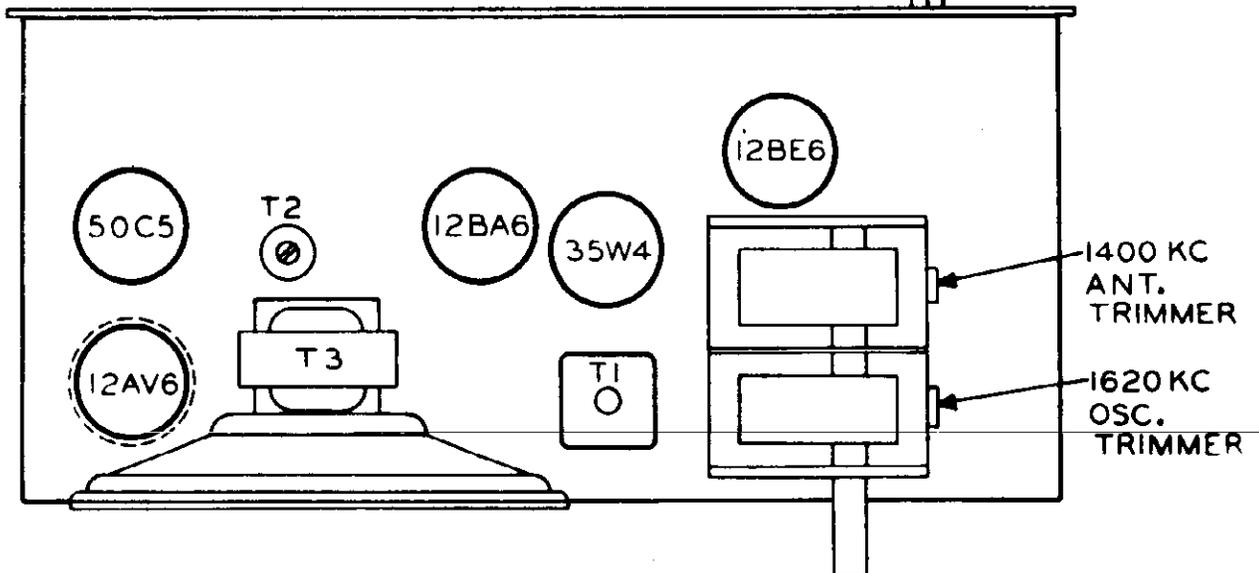
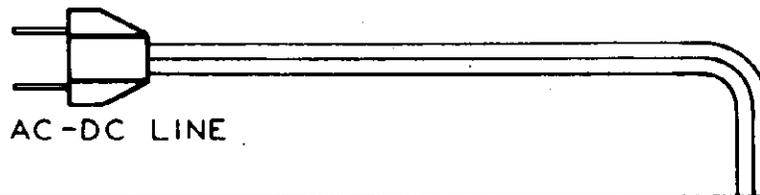


REAR OF CHASSIS



PART NO. 4-A-90

VOLTAGE TABLE  
(BOTTOM VIEW OF CHASSIS)



PART NO. 4-A-90

MODELS 316, 317,  
Ch. YHU, YHAU

ALIGNMENT PROCEDURE

For alignment procedure read tabulations from left to right and make the adjustments marked (1) first, (2) next, (3) third.

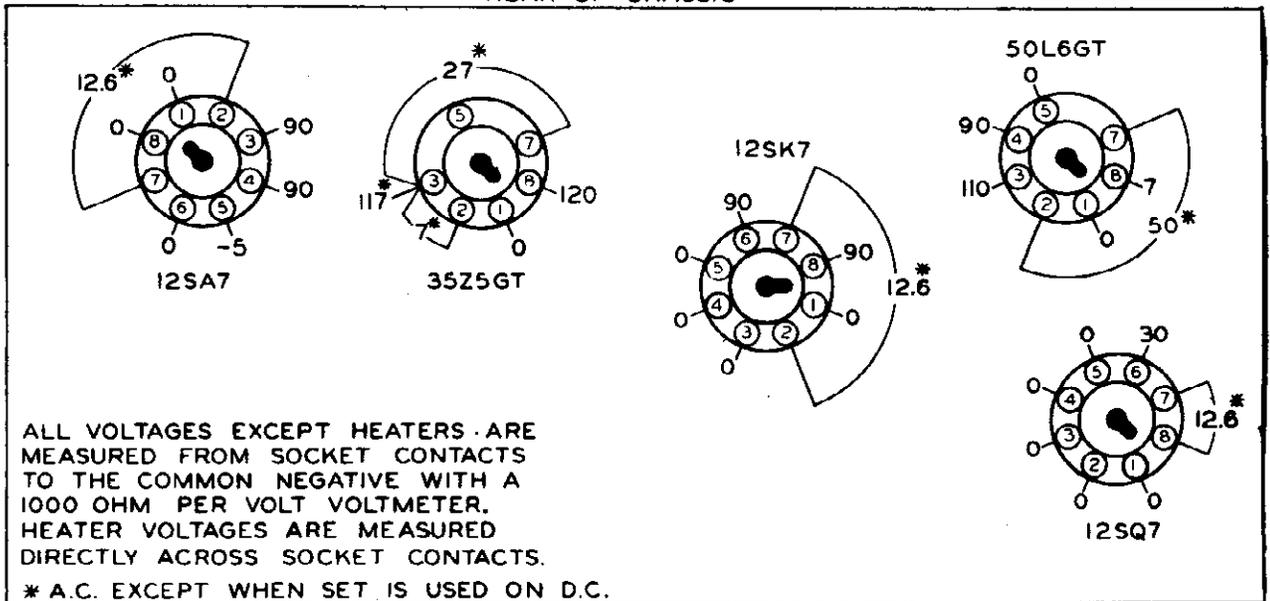
BEFORE STARTING ALIGNMENT:

- (A) Remove the chassis and loop antenna from the cabinet at the same time by removing the two screws on the rear apron of the chassis which fasten the chassis to cabinet.
- (B) Use an accurately calibrated test oscillator with some type of output measuring device.

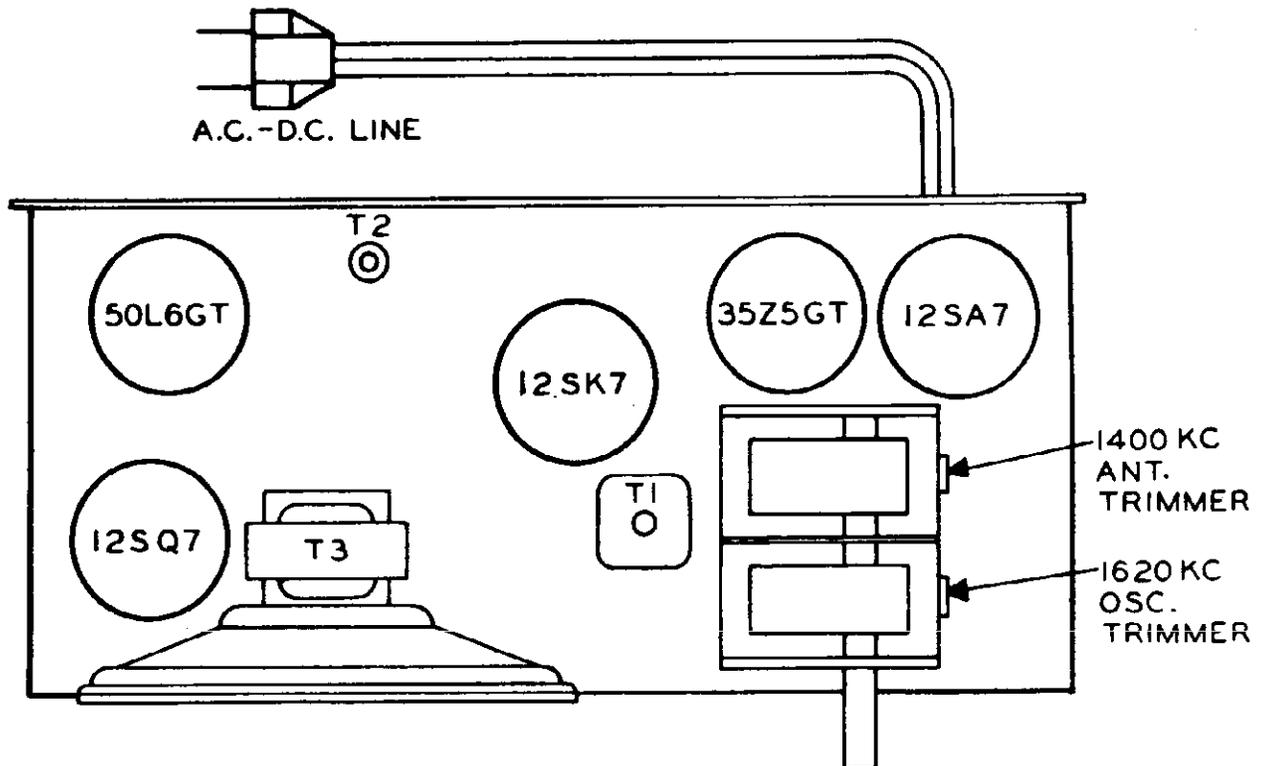
S T E P S	Set Receiver dial to:	TEST OSCILLATOR		Refer to parts designations in schematic drawing for trimmers mentioned below:
		Adjust test Oscillator Frequency to:	Attach Output of test oscillator to:	
1	Any point where no interfering signal is received.	EXACTLY 455 KC	High side to grid of Converter tube ( * ). Low side to common negative	Dummy Antenna  .1 MFD CONDENSER
2	Exactly 1620 KC	Exactly 1620 KC	Dummy Antenna	Adjust 2nd. I. F. (T2) and then each of the slugs of the 1st. I.F. (T1) for maximum output.
3	Approx. 1400 KC	Approx. 1400 KC	Dummy Antenna	Adjust 1620 KC oscillator trimmer for maximum output.  Adjust 1400 KC antenna trimmer for maximum output.

\* Insert 12AU6 for S.R. & T.C. No. YHU. Insert 12SA7 for S.R. & T.C. No. YHAU

REAR OF CHASSIS

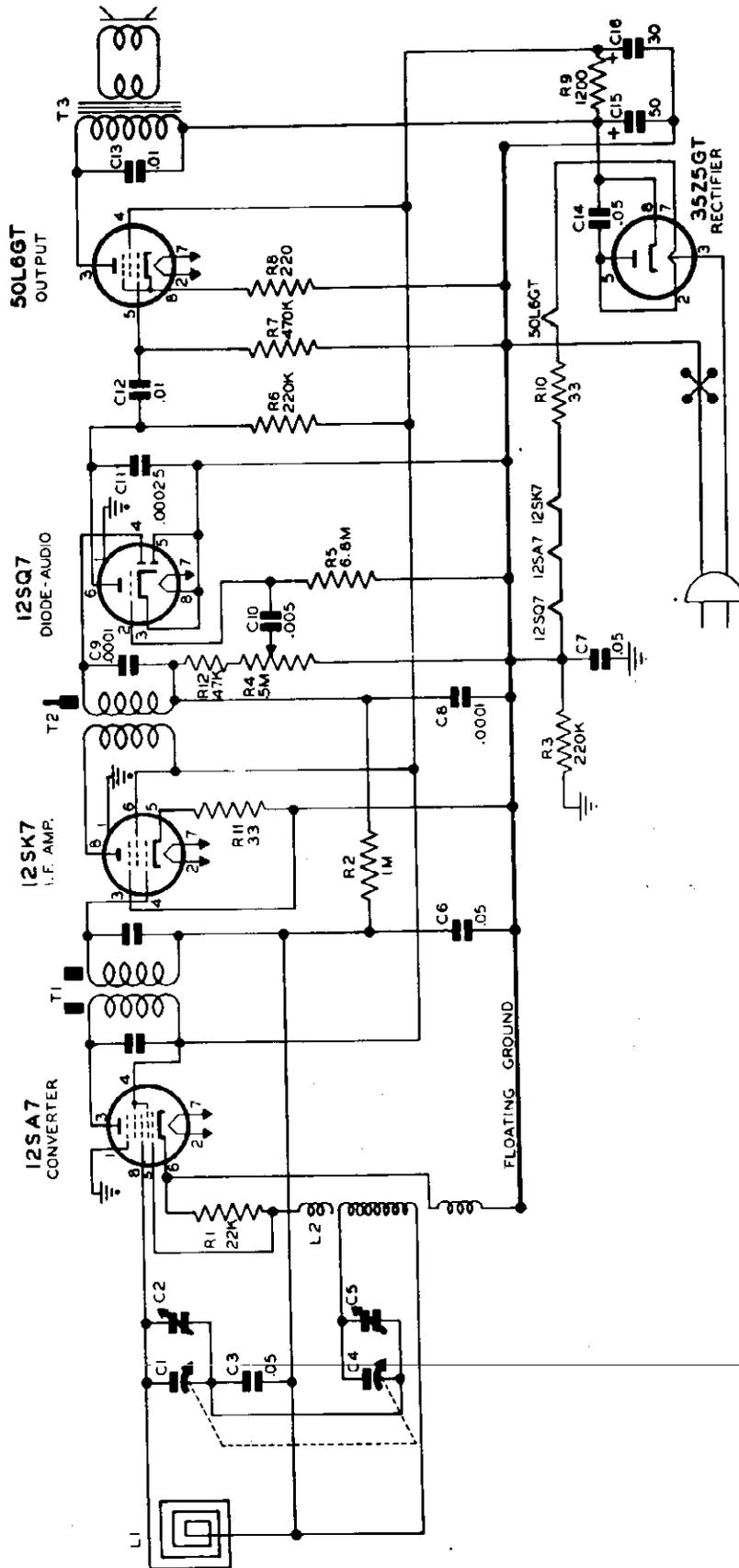


VOLTAGE TABLE  
(BOTTOM VIEW OF CHASSIS)



PART NO. 4-A-90A

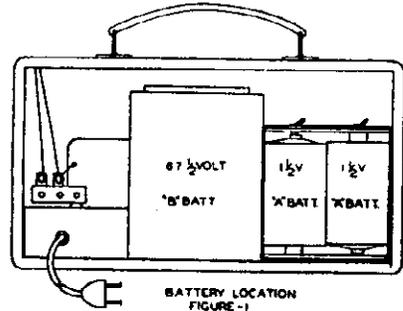
MODELS 316,  
317, Ch. YHAU



### BATTERY SUPPLIERS

The batteries for this receiver may be purchased from any reliable dealer. For proper operation this receiver requires two "A" batteries and one "B" battery. The "A" batteries are size "D" flashlight cells and are made by all battery manufacturers. The "B" battery is a 67 1/2 volt battery and is made by the following manufacturers.

- Eveready 67 1/2 vlt. #467
- Surgess 67 1/2 vlt. #XX45
- General 67 1/2 vlt. #W45A
- Ray-O-Vac 67 1/2 vlt. #4367
- Aircastle 67 1/2 vlt. #1523



### BATTERY SERVICING

(See Fig. No. 1)

To replace the batteries in this receiver. Remove the back. To the right, looking into the gear of the cabinet is the "A" or flashlight battery container. To the left is the "B" or 67 1/2 volt battery. To replace the "A" batteries, pull the old batteries out of the container. Replace with fresh batteries, making sure the batteries are inserted according to the diagram on the inside of the container. To replace the "B" battery, disconnect the snap fastener connectors. Replace with a fresh battery and snap the connectors into place. Replace the battery in the cabinet as shown in Fig. No. 1, making sure that the connector end faces the top of the cabinet. After the batteries have been installed, replace the back, making sure that the two washers in the bottom of the back fit into the slot near the bottom edge of the cabinet.

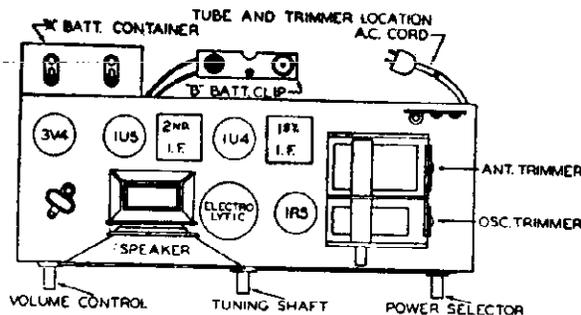
### ALIGNMENT AND SERVICE DATA

Remove chassis from cabinet for alignment. A Signal Generator is required having the following frequencies: 455 KC, 1400 KC, 1650 KC. An output meter should be connected across the speaker. The volume control of the receiver should be turned to maximum during the I. F. and all subsequent alignment and the generator output as low as possible to prevent the A. V. C. from working and giving false readings.

**FIRST STEP:** Connect the hot lead from the generator to the ANT. Section of the gang condenser through a .1 MFD. condenser. The ground lead from the generator must be connected to "B" minus under the chassis. Turn the gang condenser to complete minimum capacity. Set the generator to 455 KC. Adjust the movable iron cores in the IF cans. These IF adjustments are made in the top and in the bottom of the can under the chassis. Adjust the cores until a maximum reading is noted on the output meter.

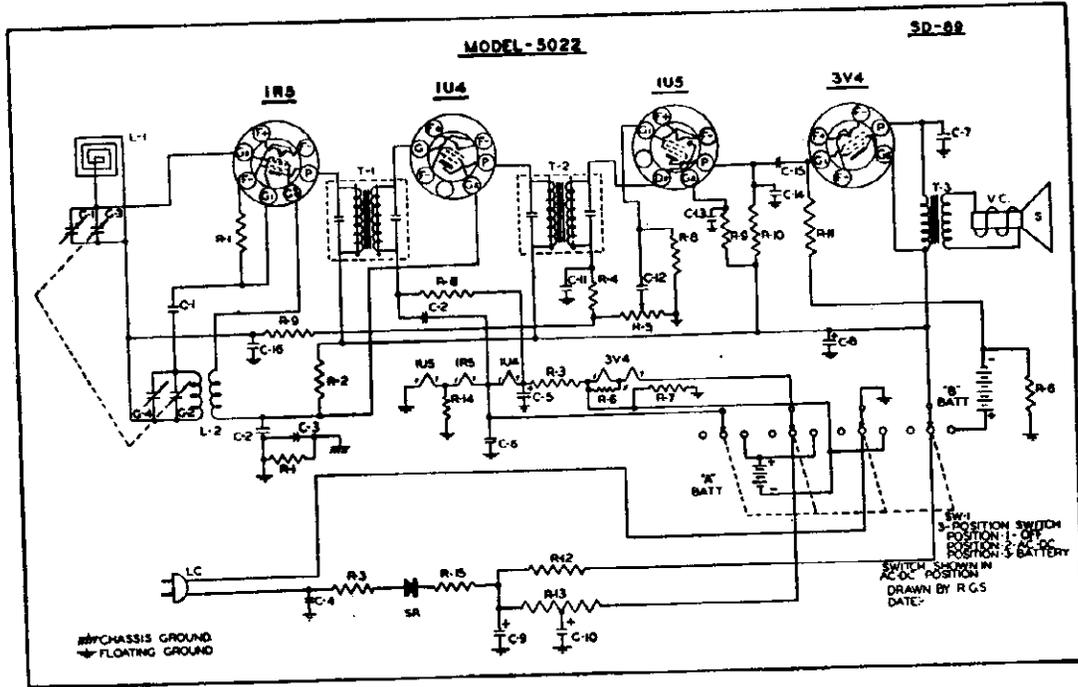
**SECOND STEP:** With the leads from the generator still connected in the same manner, adjust the Signal Generator to 1650 KC. Adjust the OSC. trimmer until the 1650 KC signal is tuned in. The gang condenser must be at complete minimum capacity for this adjustment.

**THIRD STEP:** Remove the generator leads from the gang condenser and replace the chassis in the cabinet. Loosely couple the generator to the receiver loop by making a complete turn of wire over the outside of the cabinet. With the receiver and generator set at 1400 KC, increase the generator output. Adjust the ANT. trimmer through the hole which is provided in the end of the cabinet until a maximum signal is noted on the output meter. The ANT. trimmer hole in the side of the cabinet is covered by a small plug button. Replace this button after adjustment has been made. No further adjustment should be made as the coils and gang condenser in this receiver have been specially handled at the factory to insure proper alignment at the lower frequencies.



MODEL 459.5022

SCHEMATIC DIAGRAM - Model No. 459.5022



PARTS LIST

PART NO.	SCHEMATIC LOCATION	DESCRIPTION.	PART NO.	SCHEMATIC LOCATION	DESCRIPTION
IR-20	R-1	220MΩ RESISTOR 1/2W 20%		C-11	150MMFD.
IR-37	R-2	10MΩ RESISTOR 1/2W 20%		C-12	.002MFD.
IR-17	R-3	33Ω RESISTOR 1/2W 20%	MC-7	C-13	.005MFD.
IR-31	R-4	82MΩ RESISTOR 1/2W 10%		C-14	100MFD.
VC-11	R-5	MEG. VOLUME CONTROL		C-15	.005MFD.
IR-33	R-6	270Ω RESISTOR 1/2W 10%	PC-2	C-16	.05MFD. CONDENSER 200W.V.
IR-39	R-7	620Ω RESISTOR 1/2W 5%		G-1	ANT. TRIMMER
IR-3	R-8	10MEG. RESISTOR 1/2W 20%	GC-6	G-2	GANG CONDENSER
IR-23	R-9	3.3MEG. RESISTOR 1/2W 20%		G-3	
IR-12	R-10	1MEG. RESISTOR 1/2W 20%	LL-23	L-1	LOOP ANTENNA
IR-13	R-11	2.2MEG. RESISTOR 1/2W 20%	LO-8	L-2	OSC. COIL
IR-40	R-12	3900Ω RESISTOR 1W 10%	SR-2	SR	SELENIUM RECTIFIER
WR-7	R-13	1050-1050 CANDOHM RESISTOR 5W 5%	CO-1	LC	LINE CORD
IR-1	R-14	470Ω RESISTOR 1/2W 20%	SW-8	SW-1	4 POLE 3 POSITION SWITCH
IR-41	R-15	47Ω RESISTOR 1W 10%		"A" BATT.	2 "D" SIZE FLASHLITE CELLS 1½ VOLTS
MC-2	C-1	100MMFD MICA CONDENSER		"B" BATT.	1-67½ VOLT BATTERY
PC-7	C-2	.01MFD. CONDENSER 400W.V.	LI-5	T-1	INPUT IF TRANSFORMER
PC-8	C-3	.1MFD. CONDENSER 400W.V.	LI-5	T-2	OUTPUT IF TRANSFORMER
PC-5	C-4	.05MFD. CONDENSER 400W.V.		T-3	SPEAKER OUTPUT TRANSFORMER
EC-6	C-5	70MFD. 10WV ELECTROLYTIC	SPK-16	VC	VOICE COIL
PC-3	C-6	.1MFD. CONDENSER 200W.V.		S	3½" P.M. SPEAKER
PC-6	C-7	.005MFD. CONDENSER 600W.V.		G-4	OSC. TRIMMER
	C-8	40MFD.	TU-39		1R5-1U4-1U5-3V4
EC-14	C-9	40MFD. -150W.V. ELECTROLYTIC			
	C-10	20MFD.			

# OPERATING INSTRUCTIONS

**POWER SOURCES:** This combination will operate on alternating (AC) current only, of 105 to 125 volts at 60 cycles.

**CAUTION:** Always predetermine voltage of power source. Never try to plug this combination into a 220 volt line, this will cause serious damage. (Check your local power company if voltage is not known)

Never try to operate this combination on 50 cycle current, as this will cause the motor to rotate at an incorrect speed. The normal speed is 78 R.P.M. (revolutions per minute) and to insure proper reproduction of recordings 60 cycle current must be used.

Never plug the combination into a direct current (DC) source, this will seriously damage the motor which has been designed for AC operation only.

This receiver is equipped with a short hank of wire for an antenna and under ordinary conditions further external antenna is not required. However, in steel constructed buildings or if located some distance from station, the reception may be improved by using an outside antenna. This should be a single wire not more than 50 feet long and should be connected to the antenna lead that projects from the back of the receiver. Do not attach to Radiator or other grounded object as this can burn out the antenna coil. No ground wire is required at any time.

**INSTALLATION:** Unwind power cord and plug into a convenient power outlet. Follow instructions under 'controls' to operate receiver.

**CONTROLS:** Three controls are provided on the front panel for operation of this combination. The right hand control is the station selector which is used only in 'Radio' operation. The left hand control is a switch which selects operation of either 'Radio' or 'Phonograph'. The center control is used to adjust volume on either 'Radio' or 'Phonograph' and is also used as a power switch to turn the combination 'On' or 'Off.'

**RADIO RECEPTION:** After the power cord plug has been connected to your power outlet, turn the center control to the right in a clockwise direction and a click will be heard. This indicates that the power is turned on, and the pilot light in the dial should begin to glow. After about 30 seconds, the set will be ready for operation.

Make sure that the left hand control is turned to the left, in 'Radio' position. Turn the center control about halfway on, in a clockwise direction to increase volume. Rotate the right hand control to the right or left to select the desired station. By mentally adding a zero to the figures on the upper half of the dial, the result will be read directly in kilocycles (i.e., 60 plus 0 equals 600KC or 140 plus 0 equals 1400KC). After a station has been tuned in, adjust the center control to your desired volume.

## ALIGNMENT AND SERVICE DATA

Remove chassis from cabinet for alignment.

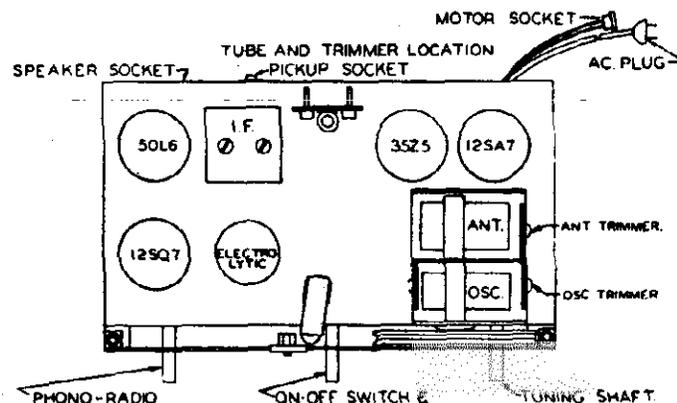
A Signal Generator is required having the following frequencies: 455 KC, 1400 KC, 1720 KC. An output meter should be connected across the speaker.

The receiver volume control should be turned to maximum during the I.E. and all subsequent alignments to keep the AVC from working and giving false readings. Keep the generator output as low as possible to prevent overloading.

**FIRST STEP:** Connect the hot lead from the generator to the ANT. section of the gang condenser, through a .1 MFD condenser. The ground lead from the generator must be connected to the floating ground buss under the chassis. Turn the gang condenser to complete minimum capacity. Adjust the generator to 455KC and adjust the trimmers of the 1st and 2nd I.F. transformers until a maximum reading is noted on the output meter.

**SECOND STEP:** With the leads from the generator still connected in the same manner, adjust the Signal Generator to 1720 KC. The OSC. trimmer is located on the front of the chassis. Adjust this trimmer until the 1720 KC signal is tuned in.

**THIRD STEP:** Remove the hot lead of the generator from the ANT section of the gang condenser. Connect this lead to the primary of the loop antenna through a 200 MMFD condenser. Adjust the Signal Generator to 1400 KC. Rotate the tuning control until this signal is tuned in. The ANT trimmer is located on the top of the ANT. section of the gang condenser. Adjust this trimmer until a maximum reading is noted on the output meter. No further adjustment should be necessary, unless the set has been damaged, as the coils and condenser in this receiver have been specially handled at the factory to insure proper alignment at the lower frequencies.





MODELS 594-306  
594-307

### Instructions for Using Your RADIO-ALARM CLOCK Combination Receiver

This skillfully designed and carefully constructed combination will give you long and enjoyable service. This Receiver can perform the following services for the user:

1. Provide accurate time.
2. Receive broadcast programs being transmitted and within range—at any time.
3. Turn off radio program at will of user up to 60-minute interval or less.
4. Turn on radio program for awakening.
5. Turn buzzer alarm on 10 minutes after radio starts playing.
6. Turn on buzzer alarm for awakening — with radio silenced.

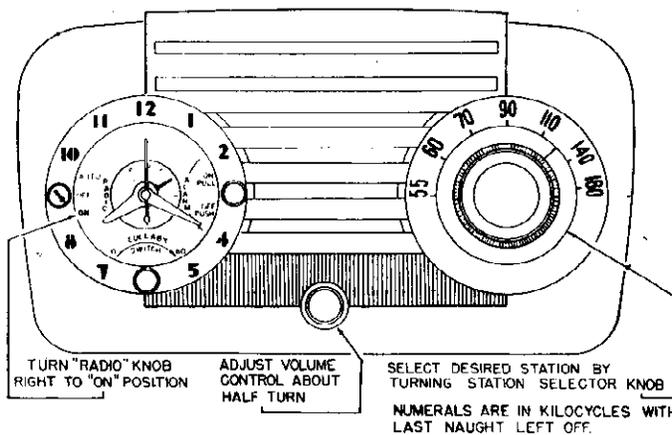
**INSTALLATION**—Check the voltage and cycles of the electric power supplied to your home. This combination will operate ONLY on 60 cycle alternating current (ac), from 105 to 125 volts. THIS SET WILL NOT OPERATE ON ANY OTHER TYPE OF CURRENT OR CYCLES. Your electric company will help you make certain that you have the correct kind of power.

This combination includes a sensitive five multi-purpose tube super-heterodyne radio including a rectifier tube. Your radio has a self contained duro-loop antenna capable of supplying sufficient volume in areas of normal reception. If you live in an area where radio reception is poor, you can improve the performance by connecting an outside antenna to the screw marked EXT. ANT. which you will find on the right hand side of the rear of the cabinet.

#### (1) TO SET THE CLOCK

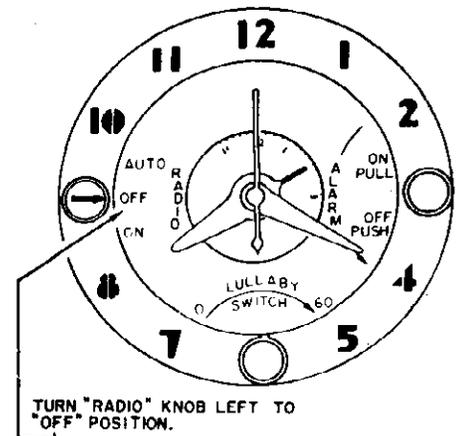
Your self-starting TELECHRON movement will begin operating when the set is plugged into the proper outlet and your sweep second hand begins to rotate. Set the correct time by means of the small knob at the right REAR of the cabinet. Turn ONLY in the direction shown on the back cover.

#### (2) TO TURN RADIO ON MANUALLY

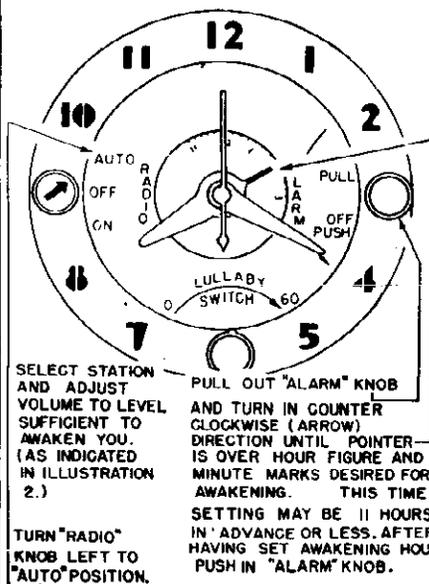


16015-76F

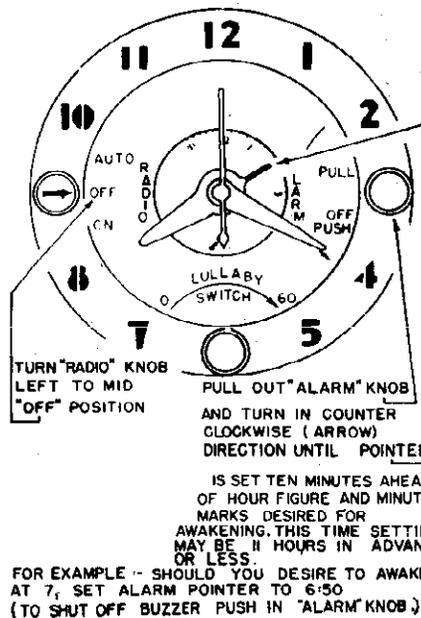
#### (3) TO TURN OFF RADIO MANUALLY



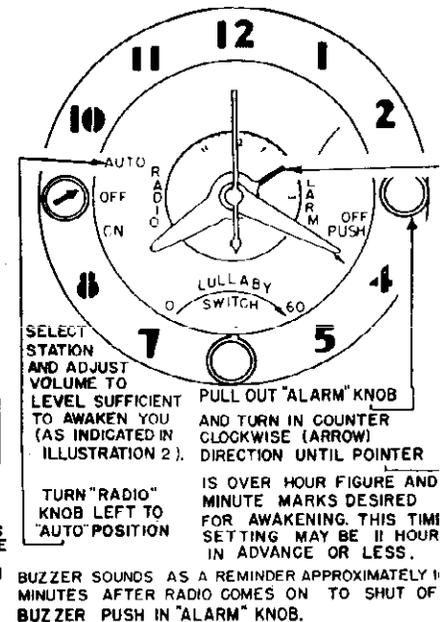
#### (4) TO AWAKEN TO MUSIC



#### (5) TO AWAKEN TO BUZZER ALARM

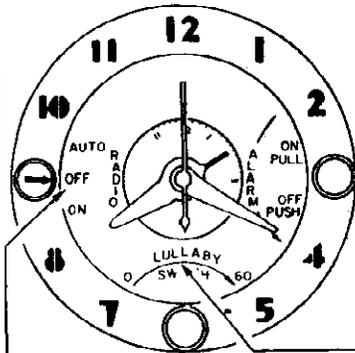


#### (6) TO AWAKEN TO MUSIC AND BUZZER ALARM



MODELS 594-306,  
594-307

**(7) TO TURN RADIO OFF AUTOMATICALLY WHEN RETIRING**



TURN "RADIO" KNOB TO MID "OFF" POSITION

TURN LULLABY KNOB CLOCKWISE (TO RIGHT) FOR PLAYING TIME DESIRED. ESTIMATE TIME BETWEEN 0 AND 60 MARKS ALONG ARROW

**(8) - To Turn Radio Off Automatically When Retiring and Awaken to Music**

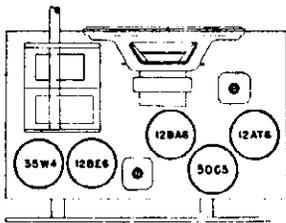
Set Controls as in Illustration 4.  
Set "Lullaby" Knob as in Illustration 7.

**(9) - To Turn Radio Off Automatically When Retiring and Awaken to Buzzer Alarm**

Set Controls as in Illustration 5.  
Set "Lullaby" Knob as in Illustration 7.

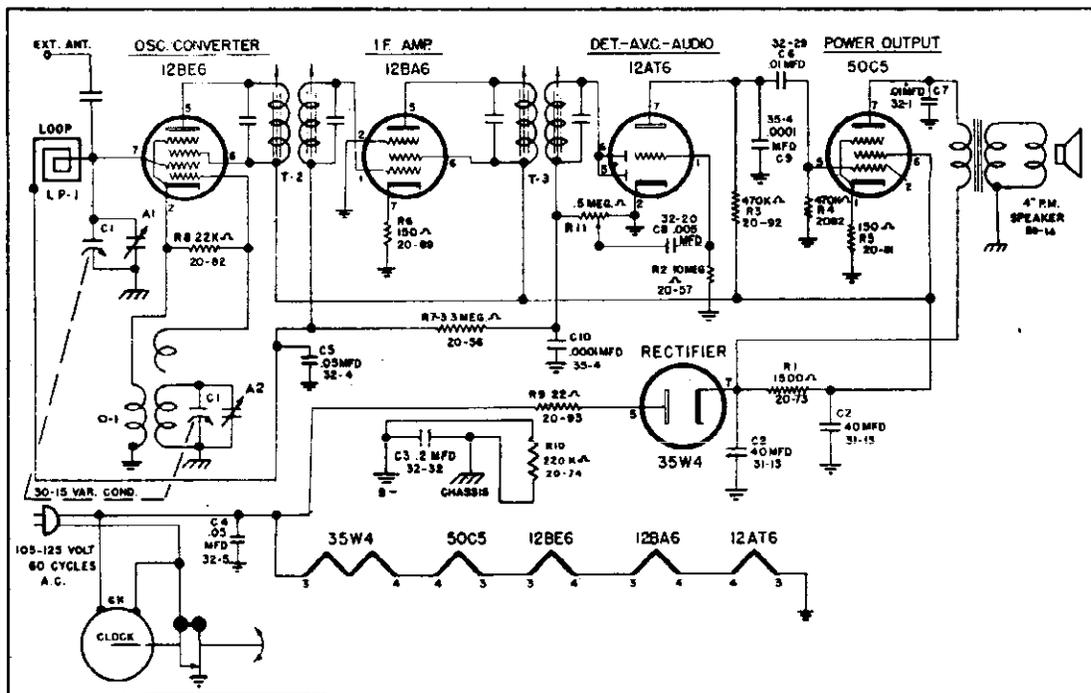
**(10) - To Turn Radio Off Automatically When Retiring, Awaken to Music and Buzzer Alarm**

Set Controls as in Illustration 6.  
Set "Lullaby" Knob as in Illustration 7.



**TUBE COMPLEMENT**

- |                      |                   |
|----------------------|-------------------|
| 12BE6 Converter      | 50C5 Power Output |
| 12BA6 I.F. Amplifier | 35W4 Rectifier    |
| 12AT6 Det. AVC-AUDIO |                   |



SERVICE DATA

ALIGNMENT PROCEDURE

- Output meter across voice coil (3.2 ohm)
- Volume control at maximum for all adjustments.
- Align for maximum output. Reduce input as needed to keep output near 1.28 volts (0.5 watt).

SIGNAL GENERATOR				TUNER SETTING	ADJUST TRIMMERS TO MAXIMUM OUTPUT (in order shown)
Frequency	Coupling Capacitor	Connections to Receiver	Ground Connection		
455 kc	0.1 mfd.	12BE6 grid	B—	Rotor full open (Plates out of mesh)	Input and output slugs of IF cans
1650 kc	0.1 mfd.	12BE6 grid	B—	Rotor full mesh (Plates out of mesh)	Oscillator trimmer A2
1500 kc		Radiating Loop		1500 kc*	Antenna trimmer A1

\* Seven markings on the dial bracket represent respectively 550 kc, 600 kc, 700 kc, 900 kc, 1100 kc, 1400 kc, and 1600 kc reading from left to right. These points are to be used for the alignment of the receiver.

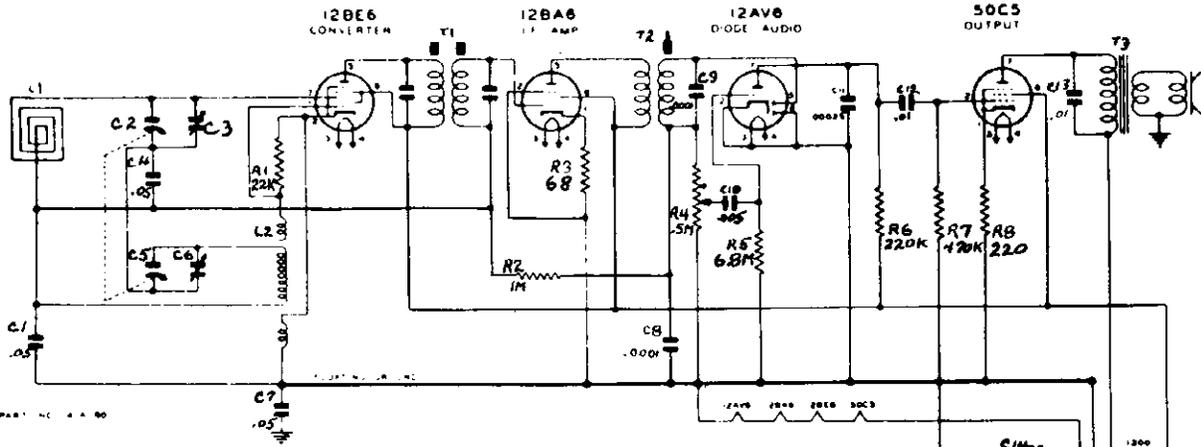
REPLACEMENT PARTS LIST

When ordering parts, specify part number and model number.

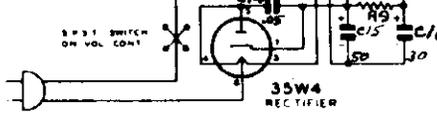
Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
CAPACITORS			RESISTORS — (Continued)		
C1	30-15	Variable Condenser, 2 gang .....	R8	20-82	22,000 ohm, 1/4 watt 20% .....
C2	31-13	40 mfd.—40 mfd., 150 volt dual electrolytic condenser .....	R9	20-93	22 ohm, 1/2 watt 20% .....
C3	32-32	.2 mfd., 200 volt, paper .....	R10	20-74	220,000 ohm, 1/4 watt 20% .....
C4	32-5	.05 mfd., 400 volt, paper .....	R11	50-15B	1/2 meg. volume control with switch
C5	32-4	.05 mfd., 200 volt, paper .....	COILS AND TRANSFORMERS		
C6	32-1	.01 mfd., 400 volt, paper .....	O-1	60-9	Oscillator coil .....
C7	32-1	.01 mfd., 400 volt, paper .....	T-2	61-11	Input IF transformer .....
C8	32-20	.005 mfd., 600 volt, paper .....	T-3	61-11	Output IF transformer .....
C9	35-4	.0001 mfd., 500 volt, mica .....	LP-1	62-15	Loop antenna .....
C10	35-4	.0001 mfd., 500 volt, mica .....	MISCELLANEOUS		
RESISTORS			80-14	80-14	4 inch P.M. speaker with output transformer .....
R1	20-73	1500 ohm, 1 watt 20% .....	122-19		Selector knob .....
R2	20-57	10 megohm, 1/4 watt 20% .....	122-15		Volume knob .....
R3	20-92	470,000 ohm, 1/4 watt 20% .....	120-33		Cabinet—walnut .....
R4	20-92	470,000 ohm, 1/4 watt 20% .....			ivory .....
R5	20-81	150 ohm, 1/2 watt 20% .....			(Specify color)
R6	20-89	150 ohm, 1/4 watt 20% .....	CK	140-6	Clock .....
R7	20-56	3.3 megohm, 1/4 watt 20% .....			

\* Prices subject to change.

MODELS 607-316, 607-316-1,  
607-317, 607-317-1



In receivers 607.316.1 and 607.317.1 a 35Z5GT or 35Z4GT rectifier tube and a 35B5 output tube is used with a 68 Ohm resistor in the heater string.



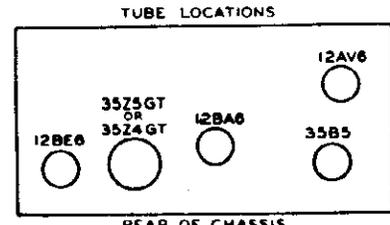
ILLUS. NO.	PART NUMBER	DESCRIPTION
C1,C4,C7	N-1345	Condenser, Paper .05 MFD. 200 V.
C8	N-6015	Condenser, Ceramic 100 MMFD. 500 V. 20%
* C9	N-7549	Condenser, Ceramic 100 MMFD. 500 V. 10%
C10	N-4894	Condenser, Paper .005 MFD. 600 V.
C11	N-6488	Condenser, Ceramic 250 MMFD. 500 V. 20%
C12,C13	N-1344	Condenser, Paper .01 MMFD. 400V.
C14	N-1346	Condenser, Paper .05 MFD 400 V.
C15	N-7889	Condenser, Dry Electrolytic (50 MFD. 150 V.)
C16		(30 MFD. 150 V.)
R1	N-4025	Resistor, Carbon 22,000 Ohm 1/2 W. 20%
R2	N-1282	Resistor, Carbon 1.0 Megohm 1/2 W. 20%
R3	N-6485	Resistor, Carbon 68 Ohm 1/2 W. 10%
R4	N-7890	Volume Control 500,000 Ohm with Switch
R5	N-4028	Resistor, Carbon 6.8 Megohm 1/2 W. 20%
R6	N-4026	Resistor, Carbon 220,000 Ohm 1/2 W. 20%
R7	N-4027	Resistor, Carbon 470,000 Ohm 1/2 W. 20%
R8	N-4024	Resistor, Carbon 220 Ohm 1/2 W. 10%
R9	N-4800	Resistor, Carbon 1,200 Ohm 1.0 W. 10%
T1	N-7888	Transformer, 1st I.F.
* T2	(N-7542 OR N-8150)	Transformer, 2nd I.F.
T3		Output Transformer (Part of N-7824 Speaker Assembly)
L1	N-8138	Coil, Loop Antenna and Cabinet Back
L2	N-7139	Coil, Oscillator
#316		Cabinet, Ivory Plastic
#317		Cabinet, Walnut Plastic
N-7824		Speaker, 4" PM with Output Transformer

\* C9 (N-7549 Ceramic Condenser) is required only with N-7542 Transformer. This capacity is included in N-8150 Transformer.

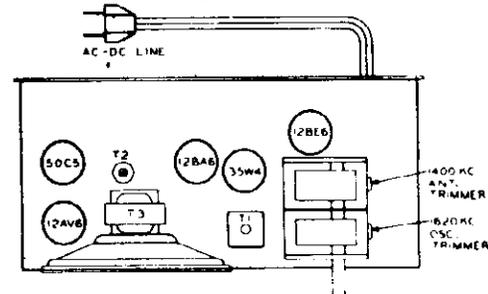
Note: In some receivers the following components - R6,R7,C11, and C12 are replaced by the assembly listed below:

N-6477 Audio Coupling Plate

TUBE LOCATION CHART



607.316.1  
607.317.1



PART NO. 4 A 90 607.316  
607.317

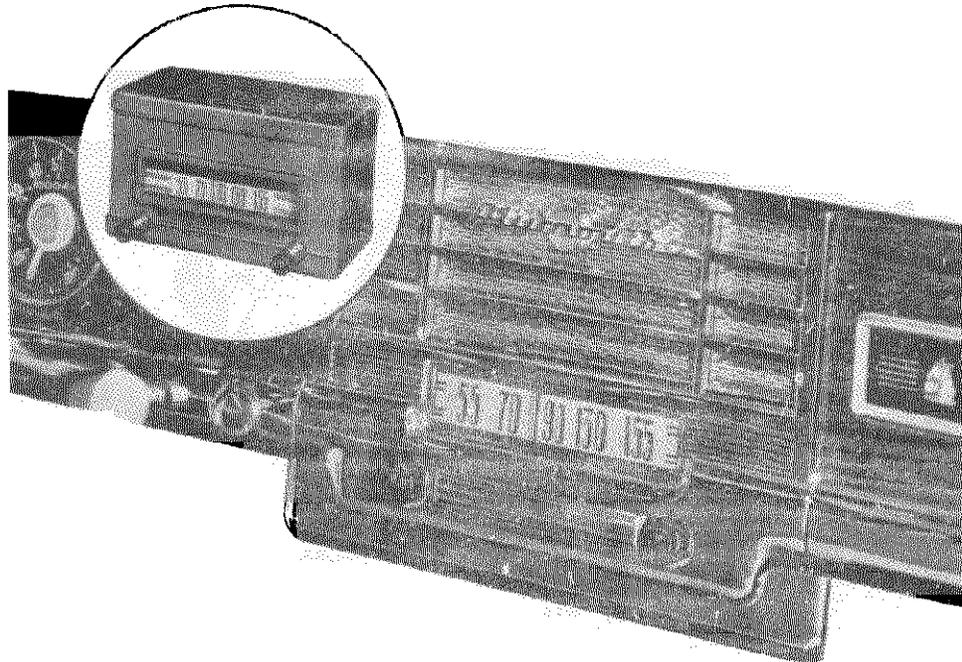
ALIGNMENT PROCEDURE

Step No.	Position of Gang	Signal Generator Frequency	Generator Connection	Dummy Antenna	Adjustment	Type of Adjustment
1.	Open	455 KC.	Rear Gang Terminal	.1 Mfd.	I.F. Slugs	Adjust for Maximum Output
2.	Open	1620 KC.	Dummy Antenna	2 Turns of Hookup Wire 6" in Dia. (Place Approx. a Foot from & parallel to loop.)	Front Gang Trimmer	Adjust for Maximum Output
3.	1400 KC	1400 KC.			Rear Gang Trimmer	Adjust for Maximum Output
4.	600 KC	600 KC.				Check Gang Alignment

## DESCRIPTION

Your new AIRCASTLE Receiver is a 6-tube (including rectifier) superheterodyne, designed to operate from the 6-volt storage battery in your car. It is custom-built to mount behind the instrument panel in the place provided for a radio by the automobile manufacturer. It has a self-contained PM oval speaker and covers the frequency range 538 to 1600 KC. Two simple controls are provided for operating the receiver. (See Fig. 1.)

This receiver has been designed with a tuned RF stage and a 3-gang tuning condenser thereby insuring the finest in sensitivity and selectivity. Any standard two or three section whip or "fish pole" antenna will provide good reception of distant or weak stations. The unit is simple to install and requires no electrical adjustment after installation.



## OPERATION

### VOLUME CONTROL KNOB

This knob is located on the left side of the radio. Turning this knob slightly to the right until a slight click is heard will put the radio into operation. Turning this knob further to the right will increase the volume and turning it to the left will decrease the volume. After a station has been selected, the volume control should be adjusted to the required loudness. The volume should never be reduced by detuning the station selector knob.

### STATION SELECTOR KNOB

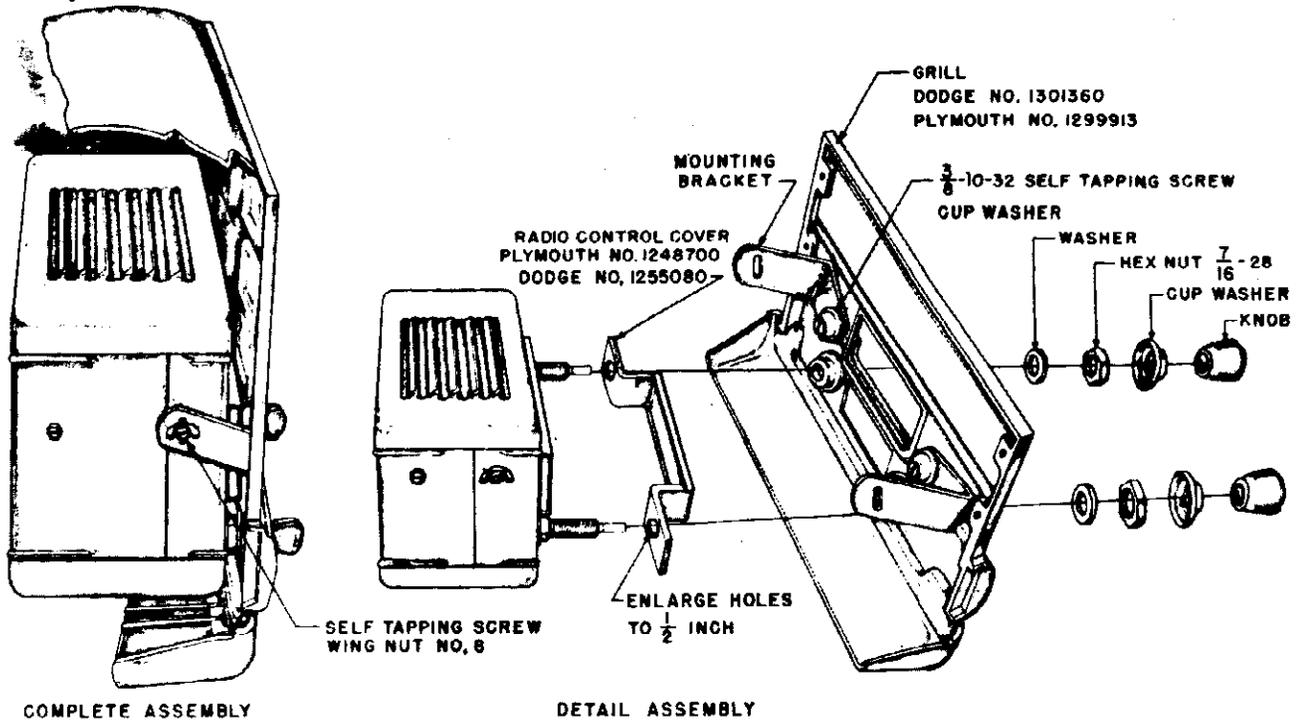
This knob is located on the right side of the radio. This knob should be turned until a desired station has been selected. Adjust this knob very carefully until the station comes in with the most natural tone.

## INSTALLATION

### PLYMOUTH P18 SPECIAL DELUXE

1. Remove four screws securing Radio Grill in place and remove Radio Grill.
2. Remove dummy plates covering radio dial and control openings.
3. Enlarge holes in radio control cover plate to  $\frac{1}{2}$  inch.
4. Remove knobs, cup washers, hex nuts and washers from control shafts and mounting bushings.
5. Secure two mounting brackets to Radio Grill with  $\frac{3}{8}$  inch long 10-32 self-tapping screws and cup washers as shown in detail assembly drawing.
6. Place radio control cover plate over mounting bushings.
7. Position receiver behind Radio Grill so that mounting bushings and shafts protrude through the grill.
8. Attach receiver by replacing washers and hex nuts on mounting bushings.
9. Replace cup washers and knobs over shafts.
10. Secure receiver to mounting brackets with two No. 8 self-tapping wing nuts.
11. Insert radio with attached grill through front opening on instrument panel.
12. Replace grill mounting screws.
13. Connect battery lead to terminal marked "ACC" on ignition switch.
14. Plug antenna cable into receiver.

MODEL 610.D200,  
Dodge, Plymouth



**DODGE "CORONET"**

Install in the same manner as outlined for the P18 DeLuxe Plymouth except do not remove radio grill.

**PLYMOUTH P17, P18 4-DOOR DELUXE AND  
P18 CLUB COUPE DELUXE  
DODGE "WAYFARER" AND "MEADOWBROOK"**

These models are not equipped by the car manufacturers with a radio grill or a radio control cover plate. The following parts must be obtained from any authorized Plymouth or Dodge dealer before an installation can be made in any of these cars.

- Plymouth P17, P18 4-Door DeLuxe, P18 Club Coupe DeLuxe
  - Radio Grill No. 1299913
  - Radio control cover No. 1248700
- Dodge "Meadowbrook" or "Wayfarer"
  - Radio Grill No. 1301360
  - Radio control cover No. 1255080

**ACCESSORIES FURNISHED FOR INSTALLATION**

**MOUNTING PARTS KIT**

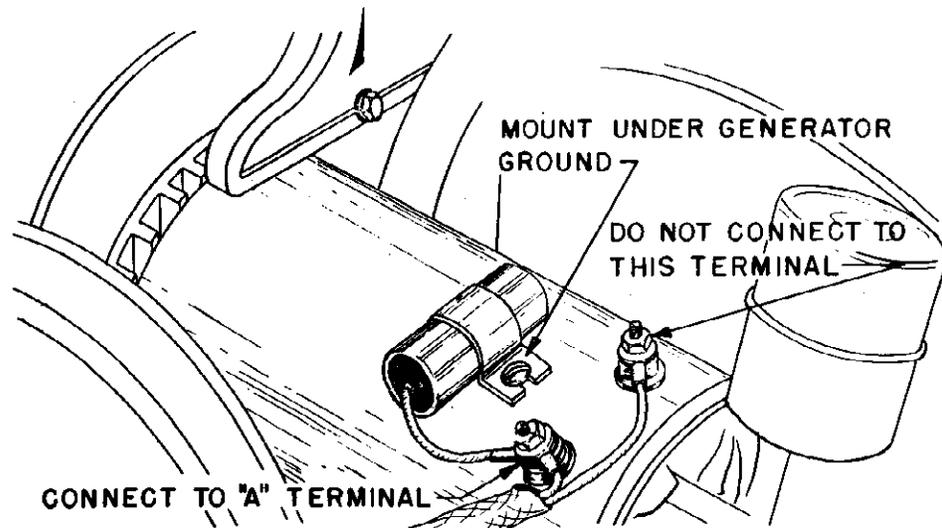
The following mounting hardware parts are shipped attached to the receiver.  
(See detail assembly drawing FIG. 2)

- 2 Washers
- 2 7/16-28 hex nuts
- 2 Cup washers
- 2 Knobs
- 2 Mounting Brackets
- 2 No. 8 self-tapping wing nut screws

An envelope containing additional mounting hardware is supplied with this receiver.

# MOTOR NOISE ELIMINATION

## GENERATOR CONDENSER



## DISTRIBUTOR SUPPRESSOR

**NOTE:** 1950 Dodge and Plymouth automobiles do *not* require distributor suppressors.

### 1949 DODGE AND PLYMOUTH

Remove metal tip from the distributor center tower lead and screw lead into the suppressor. Plug suppressor with attached lead back into distributor head.

The generator condenser and distributor suppressor should eliminate all objectionable motor noise in most cases. If the motor noise persists the following steps should be taken. Check operation of radio as each step is made.

### WHEEL STATIC

Wheel static is a form of interference caused by the rotation of the front wheels of the car, and it is, of course, only noticed when the car is in motion. If this form of interference is present, it can be eliminated by installing wheel static collector springs between the inner hub cap and the spindle shaft.

### AMMETER CONDENSER

A .5 MFD by-pass condenser should be connected to either side of the ammeter with the ground lug fastened to a good ground nearby.

### ELECTRICAL ACCESSORIES

In some cases, it may be found that car accessories such as electric heaters, lighters, automatic relays or gauges, may cause interference while in operation. Proper procedure in such cases is to connect a .5 MFD by-pass condenser from ground to the suspected accessory until the source of interference is found. The condenser then should be permanently mounted in this location.

MODEL 610.D200,  
Dodge, Plymouth

## ALIGNMENT PROCEDURE

Volume control—Maximum, all adjustments.  
No signal applied to antenna.  
Power input—6.3 volts.  
Connect dummy antenna in series with output lead of signal generator.  
Connect ground lead of signal generator to chassis.  
Repeat alignment procedure as a final check.

The following equipment is necessary to proper alignment:  
Signal generator that will provide the test frequencies as listed, modulated 400 cycles, 30%.  
Non-metallic screwdriver.  
Output meter. (1.8 volt for 1 watt output.)  
Dummy antennas—.1 MFD., 100 MMFD.  
For alignment points refer to *Schematic Diagram*

Dial Setting	Generator Frequency	Dummy Ant.	Generator Connector	Trimmer Reference	Trimmer Adjustment	Trimmer Function
1) Fully open	455 KC	.1 MFD	6BE6 Grid	T4 Top & bottom	Maximum	Output I.F.
2) Fully open	455 KC	.1 MFD	6BE6 Grid	T3 Top & bottom	Maximum	Input I.F.
3) Fully open	1600 KC	100 MMFD	Ant. lead	CV2	Maximum	Oscillator
4) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV3	Maximum	RF Stage
5) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV1	Maximum	Antenna
6) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	T2	Maximum	RF Stage
7) Tune in Signal from generator	600 KC	100 MMFD	Ant. lead	T1	Maximum	Antenna
8) Repeat steps 4 and 5						

## PARTS AND PRICE LIST

### CONDENSERS

Schematic Diagram Reference	Part No.	Description	
C2, C3, C4	C207	.05 MFD 200 volt condenser	
C5	CC200	100 MMFD ceramic condenser	D200
C6, C13, C14	CC201	200 MMFD ceramic condenser	PS200
C7	C203	.002 MFD 200 volt condenser	DS200
C8, C9	C206	.01 MFD 600 volt condenser	H201
C10, C11	C209	.5 MFD 100 volt condenser	T51
C12	C205	.008 MFD 1600 volt condenser	H202
CE-86	CE-86	20 MFD 350 volt electrolytic condenser	H203
		20 MFD 350 volt electrolytic condenser	H204
		20 MFD 25 volt electrolytic condenser	H205
CV-200	CV-200	3 section variable tuning condenser	

### DIAL PARTS

Dial Scale	.....
Dial Pointer	.....
Drive shaft assembly	.....
Grommet, rubber drive	.....
Pilot light	.....
Pilot light socket	.....
Pulley, idler	.....
Spring, Dial Drive Spring Tension	.....
String	.....

### RESISTORS

R1	R309	1 megohm 1/2 watt 20% resistor	A200
R2	R306	20K ohm 1/2 watt 20% resistor	H206
R3	R305	2K ohm 1/2 watt 20% resistor	H207
R4	R310	2 megohm 1/2 watt 20% resistor	H208
R5	R311	10 megohm 1/2 watt 20% resistor	H209
R6	R307	250K ohm 1/2 watt 20% resistor	H210
R7	R308	500K ohm 1/2 watt 20% resistor	A201
R8	R303	330 ohm 1/2 watt 20% resistor	H211
R9	R313	20K ohm 2 watt 20% resistor	H212
R10, R11	R301	100 ohm 1/2 watt 20% resistor	PM-200
R12	R312	1K ohm 1 watt 20% resistor	V-83
RV-200	RV-200	Volume control 3/4 megohm with switch	

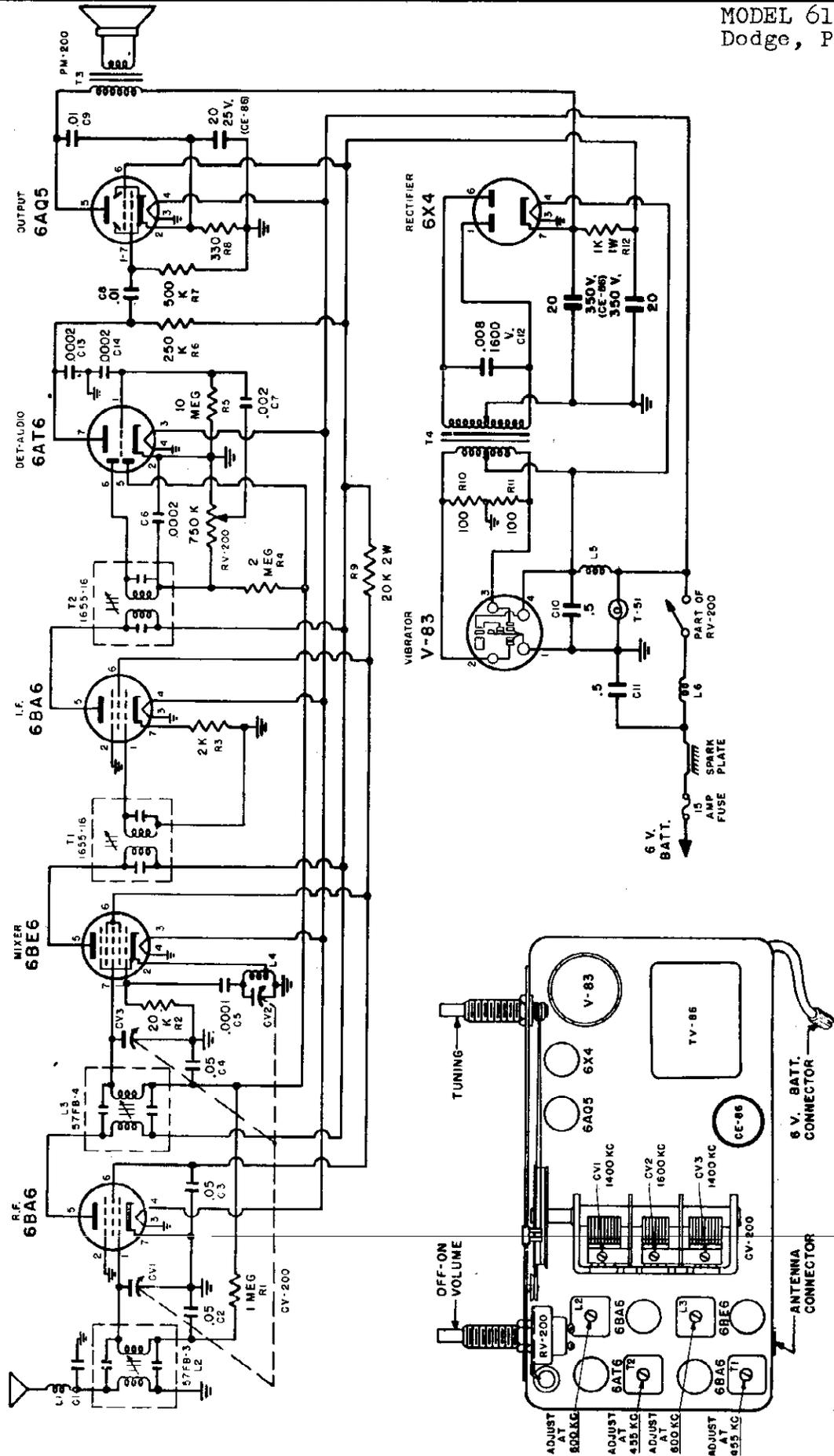
### MISCELLANEOUS

"A" lead assembly	.....
Case (less covers)	.....
Clip, anti-rattle	.....
Clip, coil mounting	.....
Cover, bottom case	.....
Cover, top case (with speaker louvres)	.....
Fuse, 15 Amp.	.....
Grommet, rubber, gang mounting	.....
Receptacle, antenna cable	.....
Speaker 4" x 6" PM (includes output transformer)	.....
Vibrator	.....

### COILS AND TRANSFORMERS

L1-C1	L200	Motor noise elimination unit	.....
L2	57FB-3	Antenna Coil	.....
L3	57FB-4	RF coil	.....
L4	L201	RF Oscillator coil	.....
L5	L202	Choke, vibrator hash	.....
L6	L203	Choke, "A" line	.....
T1	1655-16	1st IF transformer	.....
T2	1655-16	2nd IF transformer	.....
T3		Output transformer (Part of speaker not furnished separately)	.....
T4	TV-200	Vibrator transformer	.....

MODEL 610.D200,  
Dodge, Plymouth



MODELS 610,  
F151, 1951 Ford

### DESCRIPTION

Your new Automobile Receiver is a 6-tube (including rectifier) superheterodyne, designed to operate from the 6-volt storage battery in your car. It is custom-built to mount behind the instrument panel in the place provided for a radio by the automobile manufacturer. It has a self-contained PM speaker and covers the frequency range 538 to 1600 KC. Two simple controls are provided for operating the receiver. (See Fig. 1.)

This receiver has been designed with a tuned RF stage and a 3-gang tuning condenser thereby insuring the finest in sensitivity and selectivity. Any standard two or three section whip or "fish pole" antenna will provide good reception of distant or weak stations. The unit is simple to install and requires no electrical adjustment after installation.

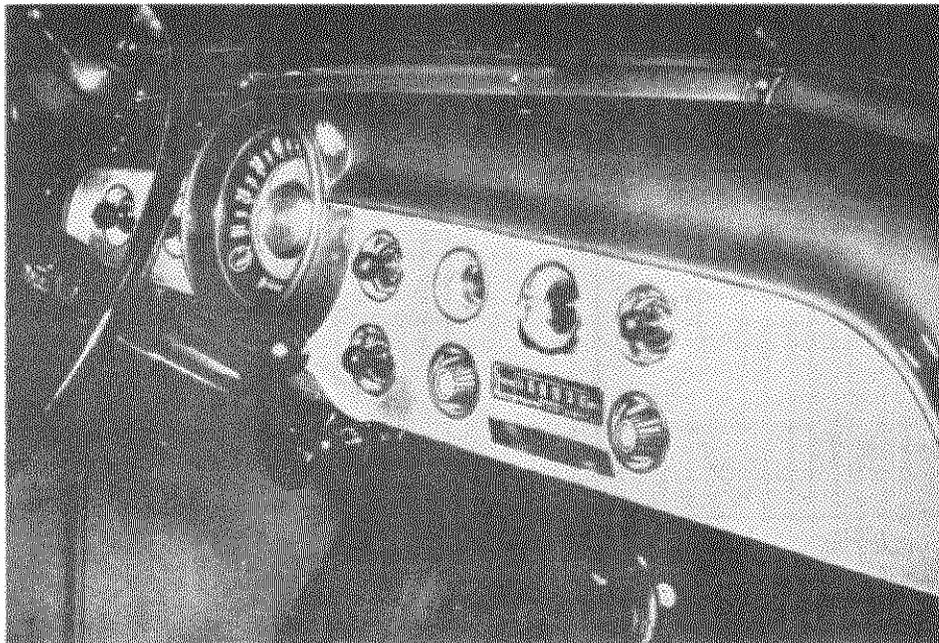


Fig. 1

### OPERATION

#### VOLUME CONTROL KNOB

This knob is located on the left side of the radio. Turning this knob slightly to the right until a slight click is heard will put the radio into operation. Turning this knob further to the right will increase the volume and turning it to the left will decrease the volume. After a station has been selected, the volume control should be adjusted to desired level. The volume should never be reduced by detuning the station selector knob.

#### STATION SELECTOR KNOB

This knob is located on the right side of the radio. This knob should be turned until a desired station has been selected. Adjust this knob very carefully until the station comes in with the most natural tone.

### INSTALLATION

1. Remove the radio opening cover plate by removing the speed nuts at the rear of the instrument panel.
2. Remove and discard radio bezel cups on car by removing hex nuts securing bezel cups to instrument panel.
3. Remove knobs, hex nuts, and bezel cups from tuning unit.
4. Carefully position tuning unit behind instrument panel so the mounting bushings and shafts protrude through the front panel.
5. Place bezel cups over mounting bushings.
6. Attach tuning unit and bezel cups to instrument panel with a hex nut on each mounting bushing.
7. Replace knobs.
8. Position mounting bracket over mounting stud located behind instrument panel and secure with a  $\frac{1}{4}$ " lockwasher and a  $\frac{1}{4}$ " - 20 nut.
9. Secure mounting bracket to side of tuning unit with hex head No. 8 self tapping screw, as shown in Fig. 2
10. Place speaker and power pack unit over three threaded stud bolts behind the instrument panel. (Position power pack unit so that power cable is located near the tuning unit.) See Fig. 2.
11. Secure power pack into position with the wing nuts supplied in the kit of mounting hardware.
12. Insert power cable plug into socket on rear of tuning unit.
13. Secure power cable under cable clamp and tighten clamp screw.
14. Plug antenna cable into tuning unit.
15. Connect "A" lead to terminal on ignition switch.

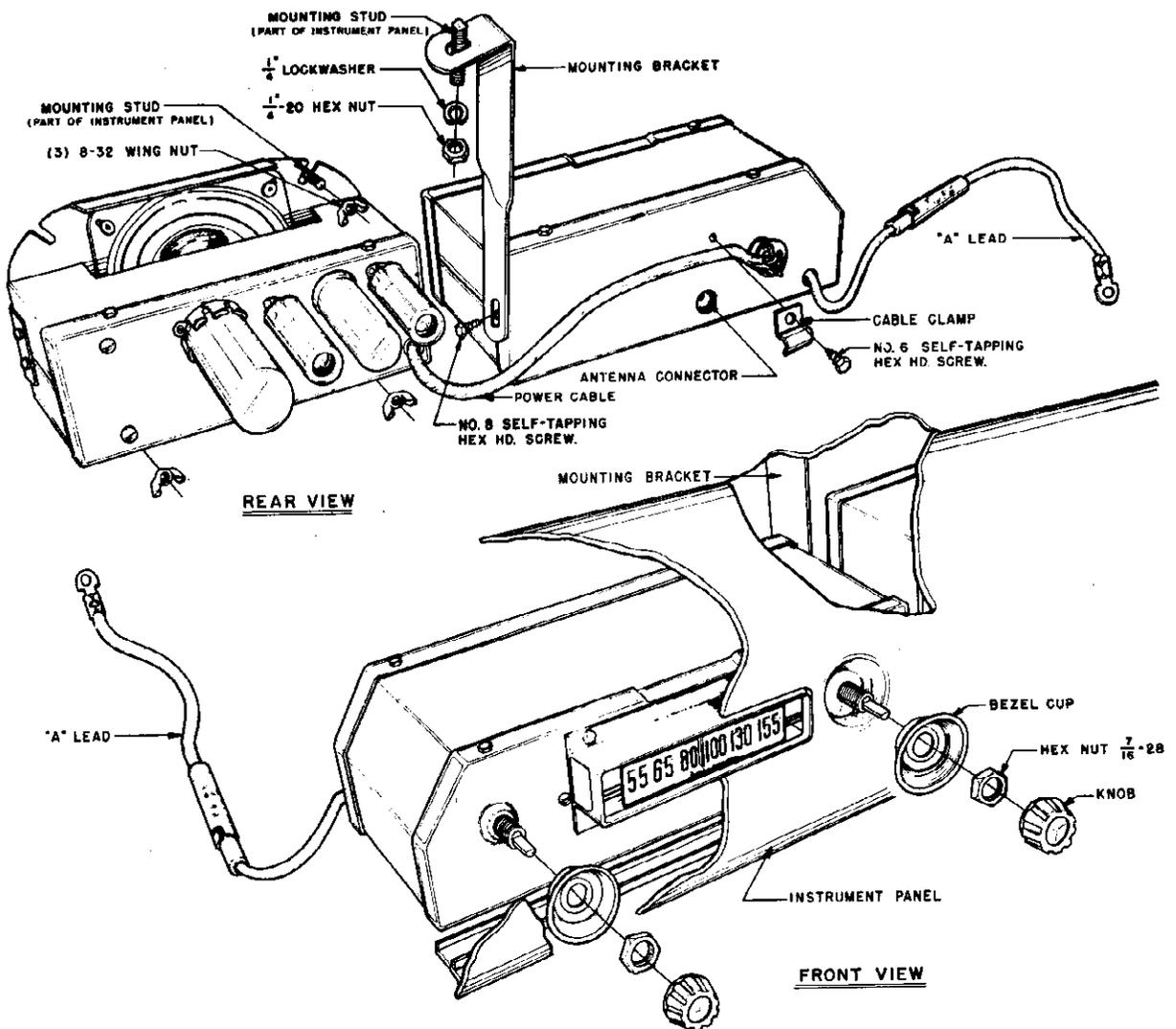


Fig. 2 DETAIL ASSEMBLY

**ACCESSORIES FURNISHED FOR INSTALLATION**

**MOUNTING PARTS KIT**

The following mounting hardware parts are shipped attached to the receiver.

(See detail assembly drawing FIG. 2)

- 2 Bezel cups
- 2 7/16 — 28 hex nuts
- 2 Knobs
- 1 Cable clamp

An envelope containing additional mounting hardware is supplied with this receiver. It contains the following parts:

- 1 Supporting bracket
- 1 No. 8 self-tapping screw
- 1 1/4" lockwasher
- 1 1/4 — 20 nut
- 3 No. 8 — 32 wing nuts

**MOTOR NOISE ELIMINATION**

**SUPPRESSION KIT**

A suppression kit is shipped with this receiver. It contains the following parts:

- 1 Generator Condenser
- 1 Distributor suppressor

Disconnect high tension wire that runs from the ignition coil to the center hole of the distributor head. Cut lead one and one-half inches back from metal tip end for 8 cylinder Ford or two and one-half inches back for 6 cylinder Ford. Screw suppressor into cut end of long lead. Screw cut end of short lead into suppressor. Plug lead with attached suppressor, back into distributor head.

MODELS 610,  
F151, 1951 Ford

**DISTRIBUTOR SUPPRESSOR**

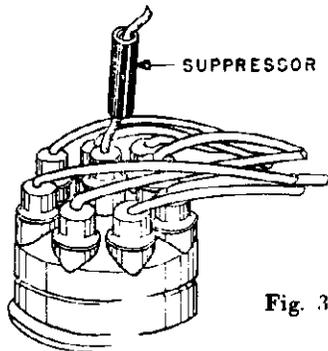


Fig. 3

DISTRIBUTOR 8 CYLINDER

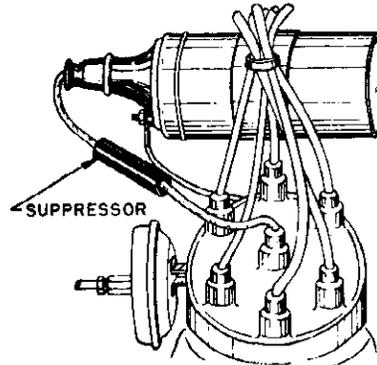


Fig. 4

DISTRIBUTOR-6 CYLINDER

GENERATOR  
CONDENSER  
.5 MFD.

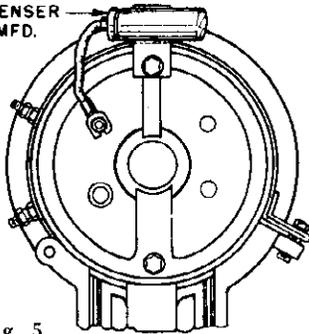


Fig. 5

**GENERATOR CONDENSER**

Loosen the top assembly bolt from the rear end plate of the generator. **DO NOT REMOVE.** Mount .5 MFD generator condenser under this bolt. Tighten bolt and connect condenser lead to the armature terminal of the generator.

The generator condenser and distributor suppressor will normally eliminate all objectionable motor noise. If the motor noise persists, a .5 MFD by-pass condenser may be connected to either side of the ammeter with the ground lug fastened to a good ground nearby.

**WHEEL STATIC**

Wheel static is a form of interference caused by the rotation of the front wheels of the car, and it is, of course, only noticed when the car is in motion. If this form of interference is present, it can be eliminated by installing wheel static collector springs between the inner hub cap and the spindle shaft.

**ELECTRICAL ACCESSORIES**

In some cases, it may be found that car accessories such as electric heaters, lighters, automatic relays or gauges, may cause interference while in operation. Proper procedure in such cases is to connect a .5 MFD by-pass condenser from ground to the suspected accessory until the source of interference is found. The condenser then should be permanently mounted in this location.

**SERVICE DATA  
ELECTRICAL SPECIFICATIONS**

Power Supply .....	6.3 Volts DC
Current .....	5.5 Amp. average
Frequency Range .....	538-1600 KC
Speaker .....	5 1/4" PM
Power Output .....	2 watts, undistorted
	3 watts, maximum
Sensitivity .....	2-3 microvolts average for 1 watt output
Selectivity .....	40 KC broad at 1000 times signal, at 1000 KC

This receiver contains the following:

- 1-6BA6—RF Amplifier
- 1-6BE6—Converter
- 1-6BA6—I. F. Amplifier
- 1-6AT6—Detector—AVC—1st Audio
- 1-6AQ5—Power Output
- 1-6X4—Rectifier
- (6AV6 used in place of 6AT6 on some models)

**SERVICE NOTES**

Voltage taken from the different points of the circuit to the chassis are measured with volume control in maximum position, all tubes in their sockets, no signal applied, and with a voltmeter having a resistance of 20,000 Ohms per volt. These voltages are clearly shown on the voltage chart, (Fig. 7 and 7A).

All voltages should be measured with an input voltage of 6.3 volts DC.

To check for open by-pass condensers, shunt each condenser with another one having the same capacity and voltage rating which is known to be good until the defective unit is located.

**ALIGNING INSTRUCTION**

Never attempt any adjustments on this receiver unless it becomes necessary to replace a coil or transformer, or the adjustments have been tampered with in the field. Always make certain that other circuit components, such as tubes, condensers, resistors, etc., are normal before proceeding with realignment.

If realignment is necessary follow the instructions given under the heading "Alignment Procedure." After realignment has been completed repeat the procedure as final check.

**DIAL CORD DRIVE**

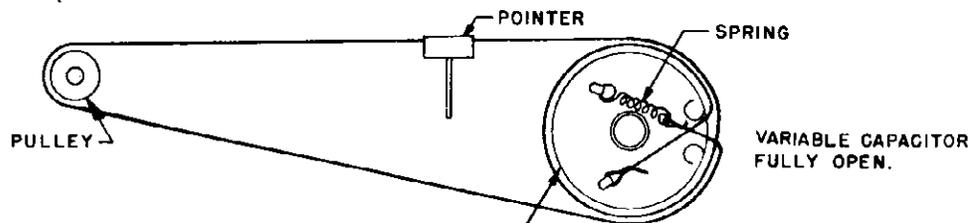


Fig. 6

**DIAL DRUM  
HOW TO ORDER PARTS**

Always give the part No. (No. printed on the part if different from that shown on this list) and the name of the part. When No. is not available, give complete description of part and the Model No. of this receiver.

**REPLACEMENT PARTS LIST**

SCHEMATIC DIAGRAM REF. NO.	PART NO.	DESCRIPTION
<b>CONDENSERS</b>		
C2, C3, C5	C207	.05 MFD 200 volt condenser
C4, C12	C209	.5 MFD 100 volt condenser
C6	CC200	100 MMFD ceramic condenser
C7, C9	CC201	200 MMFD ceramic condenser
C8	C203	.002 MFD 400 volt condenser
C10, C13	C206	.01 MFD 400 volt condenser
C11	C205	.008 MFD 1600 volt condenser
CE-86	CE-86	20 MFD 350 volt electrolytic condenser
		20 MFD 350 volt electrolytic condenser
		20 MFD 25 volt electrolytic condenser
CV1-CV2, CV3	CV-100A	3 section variable
<b>RESISTORS</b>		
R1	R309	1 megohm 1/2 watt 20% resistor
R2, R14	R303	330 ohm 1/2 watt 20% resistor
R3	R306	20K ohm 1/2 watt 20% resistor
R4	R314	1.5K ohm 1/2 watt 20% resistor
R5	RV-100	Volume control 3/4 megohm with switch
R6	R310	2 megohm 1/2 watt 20% resistor
R7	R311	10 megohm 1/2 watt 20% resistor
R8	R313	20K ohm 2 watt 20% resistor
R9	R307	250K ohm 1/2 watt 20% resistor
R10, R11	R301	100 ohm 1/2 watt 20% resistor
R12	R312	1K ohm 1 watt 20% resistor
R13	R303	500K ohm 1/2 watt 20% resistor
<b>COILS AND TRANSFORMERS</b>		
L1-C1	L200	Motor noise elimination unit
L2	15353 or 57FB-3	Antenna coil
L3	15054 or 57FB-4	R.F. coil
L4	L201	R.F. oscillator coil
L5	L203	Choke "A" line
L6	L202	Choke, vibrator hash

PART NO.	DESCRIPTION
T2	14977 or 1655-16 2nd IF transformer
T1	14977 or 1655-16 1st IF transformer
T3	TV-100 or 318V-2 Vibrator transformer
T4	Output transformer (Part of speaker not furnished separately)
<b>DIAL PARTS</b>	
D151	Dial Scale
H151	Dial Scale Holder
PS151	Dial Pointer
T47	Pilot Light
H114	Pilot Light Socket
H203	Pulley, idler
H204	Spring, Dial drive String Tension
H115	String, dial drive
<b>MISCELLANEOUS</b>	
A300	"A" lead assembly
H152	Bezel Cup
H153	Case, less covers for Power Supply Unit
H154	Case, complete with covers for R.F. tuning unit
H207	Clip, Anti-rattle
H208	Clip, coil mounting
H102	Cover, power supply unit mounting (with speaker louvres)
A201	Fuse 15 Amp.
H155	Knob
H156	Mounting Bracket
504PC-300	Power Cable Assembly (complete with plug)
H212	Receptacle, Antenna cable
504-FC	Socket, power cable
PM-705	Speaker, 5/4" PM (includes output transformer)
V-83	Vibrator
H311	Cup washer
H113	7/16-28 Hex nut
C100	.5 MFD generator condenser
R100	Distributor suppressor

MODELS 610, F151,  
1951 Ford

# ALIGNMENT PROCEDURE

**Volume control**—Maximum, all adjustments.  
**No signal** applied to antenna.  
**Power input**—6.3 volts.  
 Connect dummy antenna in series with output lead of signal generator.  
 Connect ground lead of signal generator to chassis.  
 Repeat alignment procedure as a final check.

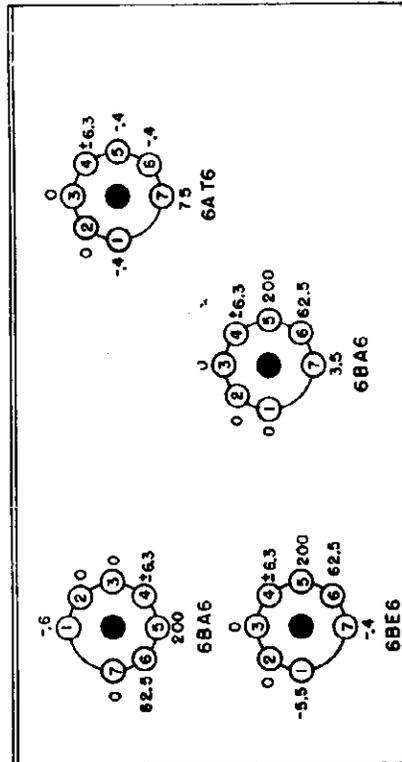
The following equipment is necessary for proper alignment:  
 Signal generator that will provide the test frequencies as listed, modulated 400 cycles, 30%.  
 Non-metallic screwdriver.  
 Output meter. (1.8 volt for 1 watt output.)  
 Dummy antennas—1 MFD., 100 MMFD.

For alignment points refer to Schematic Diagram.

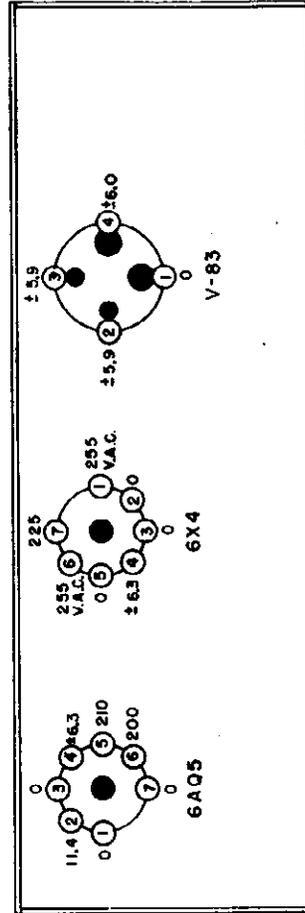
Dial Setting	Generator Frequency	Dummy Ant.	Generator Connection	Trimmer Reference	Trimmer Adjustment	Trimmer Function
1) Fully open	455 KC	.1 MFD	6BE6 Grid	T2 Top & bottom	Maximum	Output I.F.
2) Fully open	455 KC	.1 MFD	6BE6 Grid	T1 Top & bottom	Maximum	Input I.F.
3) Fully open	1600 KC	100 MMFD	Ant. lead	CV2	Maximum	Oscillator
4) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV3	Maximum	RF Stage
5) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV1	Maximum	Antenna
6) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	L3	Maximum	RF Stage
7) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	L2	Maximum	Antenna

8) Repeat steps 4 and 5

## BOTTOM VIEW OF CHASSIS



## BOTTOM VIEW OF POWER PACK



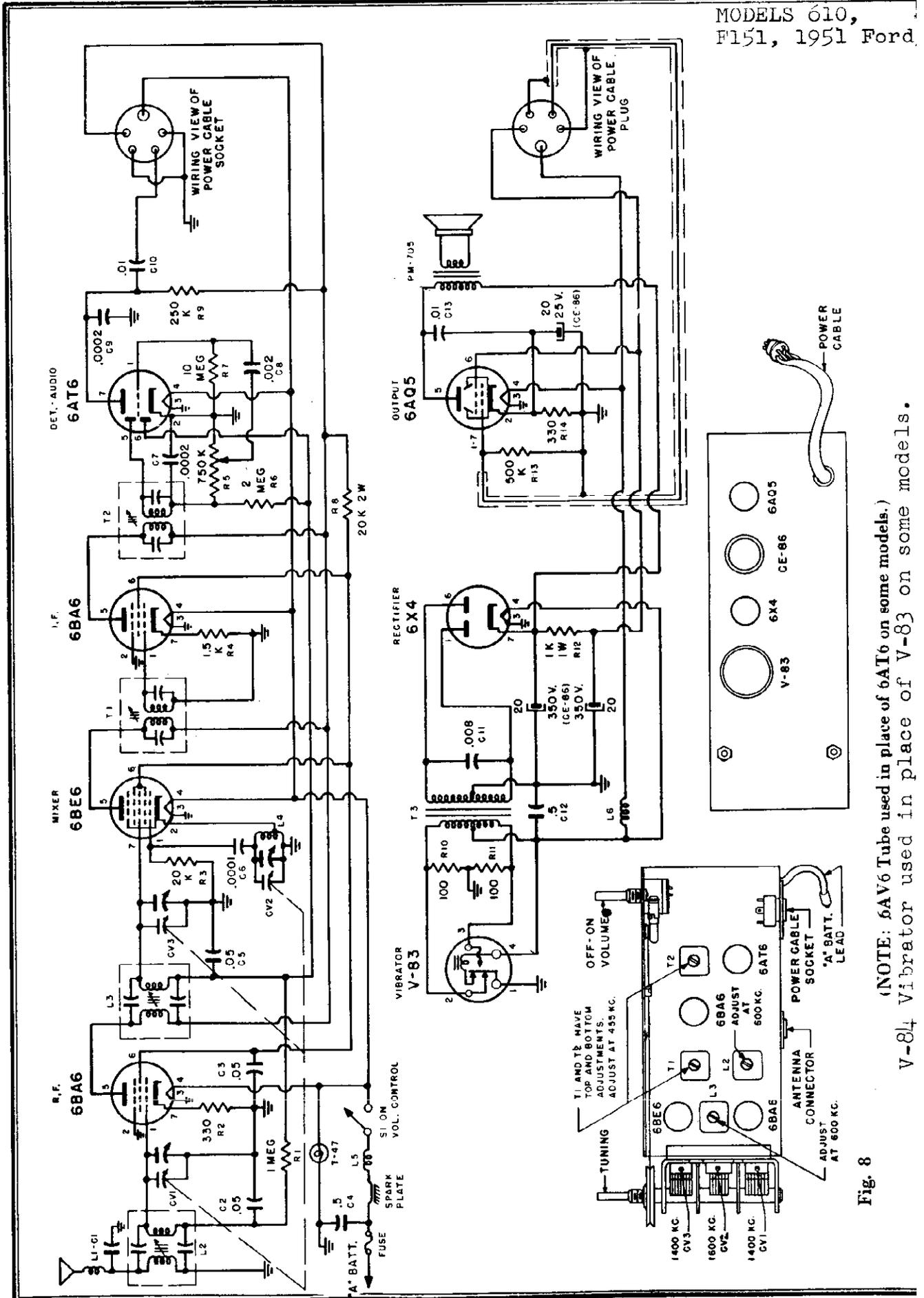
FRONT OF CHASSIS

Fig. 7

SOCKET VOLTAGES

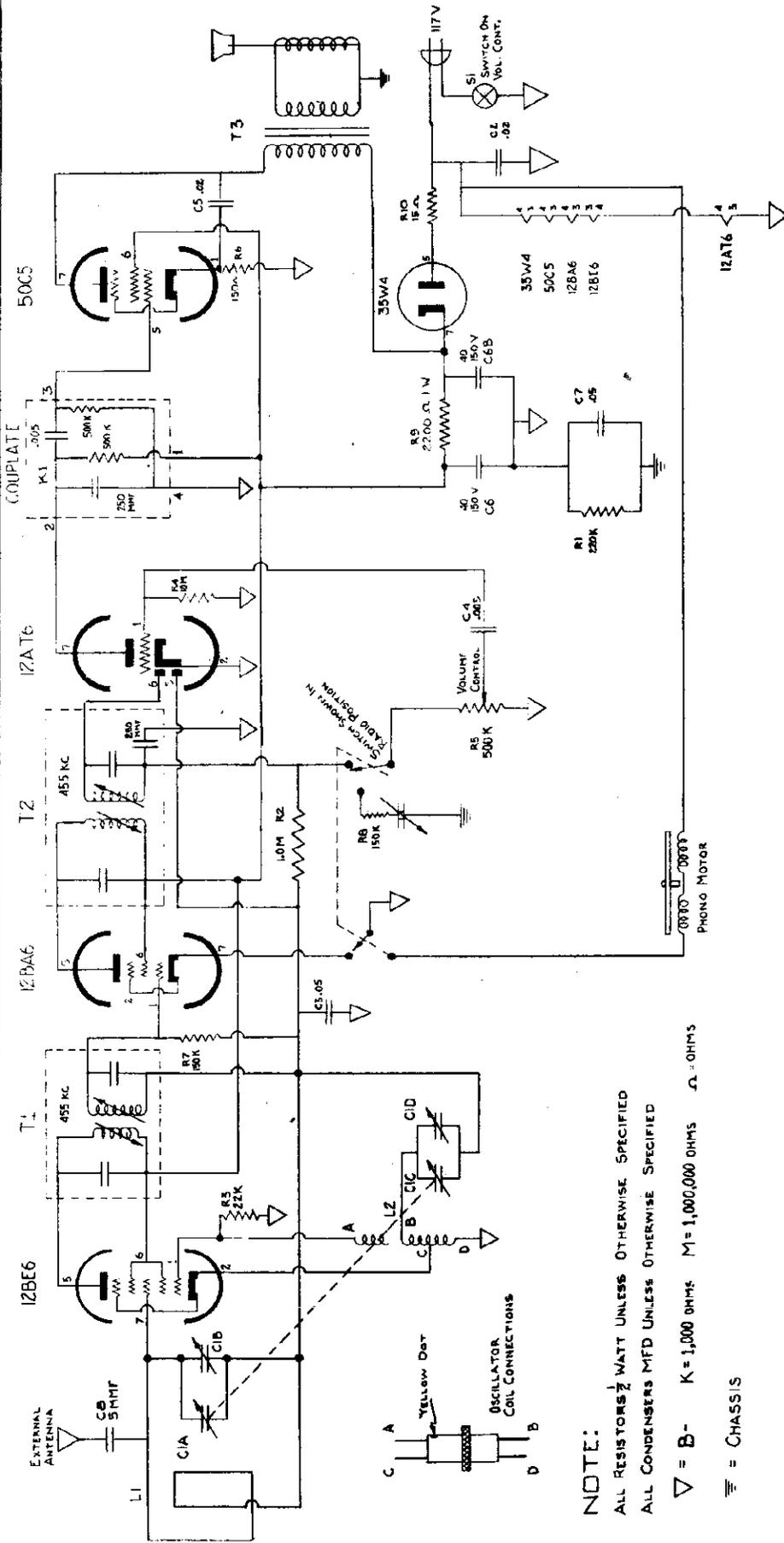
Fig. 7A

MODELS 610,  
F151, 1951 Ford



(NOTE: 6AV6 Tube used in place of 6AT6 on some models.)  
V-84 Vibrator used in place of V-83 on some models.

MODEL 672.053



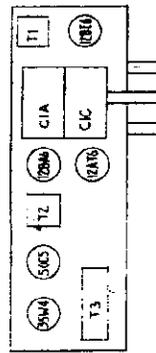
**ALIGNMENT PROCEDURE**

Feed a 455 K.C. modulated signal from grid (pin No. 7 12BE6 through a .01 M.F.D. condenser) and B-. Connect an output meter across the voice coil. Tune slugs on first and second I.F. transformers for maximum indication on meter. Set signal generator to 1600 KC. modulated signal and couple loosely to loop antenna. Set dial to 1600 K.C. and tune oscillator trimmer for maximum indication on meter.

Set signal generator and dial to 1400 K.C. and tune R.F. trimmer, for maximum indication on meter. Check tracking at 600 K.C., knife gang if necessary. Repeat these adjustments until the receiver tracks correctly.

**NOTE:**  
 ALL RESISTORS 1/2 WATT UNLESS OTHERWISE SPECIFIED  
 ALL CONDENSERS MFD UNLESS OTHERWISE SPECIFIED

▽ = B- K = 1,000 OHMS M = 1,000,000 OHMS Ω = OHMS  
 ≡ = CHASSIS



TOP VIEW OF CHASSIS

**VOLTAGE CHART**

PIN	#1	#2	#3	#4	#5	#6	#7
12BE6	-7.5	0	12AC	23AC	90	90	0
12BA6	-0.8	0	23AC	35AC	90	90	0
12AT6	-0.8	0	0	12AC	-0.8	-0.5	45
50C5	6	0	35AC	83AC	0	90	120
35W4	0	0	83AC	117AC	115AC	0	130

**NOTES:**

1. Measured with VTVM from indicated pin to B - line.
2. Phono-radio switch in radio position.
3. Line voltage set at 117V 60~AC.
4. Voltages may vary considerably due to variations in line voltage and components.

**PARTS LIST**

**CAPACITORS**

REF. NO.	PART NO.	DESCRIPTION
C <sub>1</sub>	A-1200-6	TUNING CAPACITOR
C <sub>2</sub>	CWZ 04203 M	.02 Mfd 400 volts
C <sub>3</sub>	CWZ 04503 M	.05 Mfd 400 volts
C <sub>4</sub>	CWZ 06502 M	.005 Mfd 600 volts
C <sub>5</sub>	CWZ 04203 M	.02 Mfd 400 volts
C <sub>6</sub>	CED-4415	DUAL 40 Mfd 150 volt electrolytic capacitor
C <sub>7</sub>	CWR - 04503 M	.05 Mfd resonant
C <sub>8</sub>	CCC, 05050 M	5 Mmf ceramic or mica

**RESISTORS**

REF. NO.	PART NO.	DESCRIPTION
R <sub>1</sub>	RCC 224 M	220,000 ohms ± 20% ½ watt Resistor
R <sub>2</sub>	RCC 105 M	1.0 megohms ± 20% ½ watt Resistor
R <sub>3</sub>	RCC 223 M	22,000 ohms ± 20% ½ watt Resistor
R <sub>4</sub>	RCC 106 M	10 megohms ± 20% ½ watt Resistor
R <sub>5</sub>	RVC - 301 S	500,000 ohms volume control audio taper with switch
R <sub>6</sub>	RCC 151 M	150 ohms ± 20% ½ watt
R <sub>7</sub>	RCC 154 M	150,000 ohms ± 20% ½ watt
R <sub>8</sub>	RCC 154 M	150,000 ohms ± 20% ½ watt
R <sub>9</sub>	RCF 222 M	2,200 ohms ± 20% 1 watt
R <sub>10</sub>	RCC 150 M	15 ohms ± 20% ½ watt

**COILS AND TRANSFORMERS**

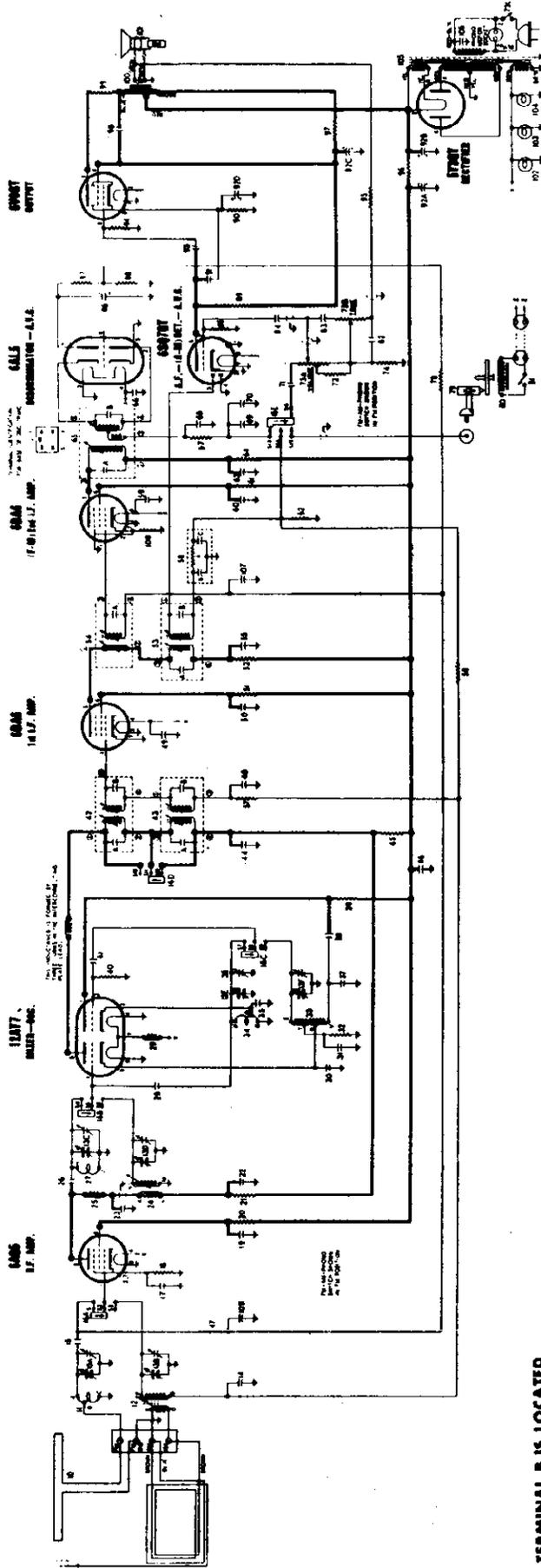
REF. NO.	PART NO.	DESCRIPTION
L <sub>1</sub>	A - 1493 - 10	Loop Antenna
L <sub>2</sub>	A - 1492 - 10	Oscillator Coil
T <sub>1</sub>	A - 1490 - 10	Input IF Transformer
T <sub>2</sub>	A - 1491 - 10	Output IF Transformer
T <sub>3</sub>	A - 1656 - 13	Audio Output Transformer 2500 <sub>Ω</sub> to 3.2

**MISCELLANEOUS**

C-2500-14	Record changer - VM
A-1059-4	Control knob
A-1060-4	Pointer knob
100-84	Record Changer - Webster

MODELS 9150-D  
9150-DZ

**SERVICE DATA FOR STEWART-WARNER MODELS 9150-D & 9150-DZ**

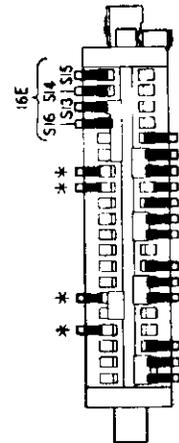


### SOCKET VOLTAGES

Voltages measured at certain tube socket terminals on 9150-D and 9150-DZ chassis will differ as follows from those shown on the voltage chart for Model 9150-B on Page 1950-47; all other socket voltages remain unchanged.

Pin 1 of 12A17 Mixer Osc.....	203 v.
Pin 7 of 12BA6 (FM) 2nd I.F. Amp.....	1 v.

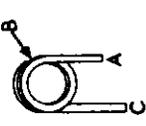
**NOTE:** For additional data, See Model 9150-B, Pgs. 21-1 to 21-8.



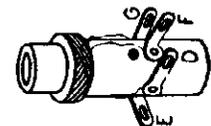
★ Not used; may serve as wiring junction point.  
**BAND SWITCH**  
506347

Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

**TERMINAL B IS LOCATED**  
1 1/2 TURN FROM  
TERMINAL A

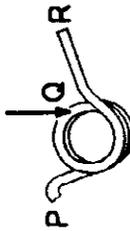


**FM ANT. COIL**  
506353

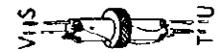


**AM ANT. COIL**  
506354

**TERMINAL Q IS LOCATED**  
3/4 TURN FROM  
TERMINAL R



**FM OSC. COIL**  
506352



**AM OSC. COIL**  
506355

MODELS 9150-D,  
9150-DZ

## PRODUCTION CHANGES

The Models 9150-D and 9150-DZ chassis have been designed to provide greater stability in the oscillator circuit and to adapt a single needle, ceramic type cartridge in the phono circuit, making it possible to play both standard and long playing records without changing cartridge or needle position. The phono pick-up filter circuit has been eliminated.

The circuit shown on this page applies to Models 9150-D and 9150-DZ chassis.

The following tabulation furnishes complete details on the circuit differences between the Model 9150-B chassis and the Models 9150-D and 9150-DZ chassis. Chassis incorporating these changes have the letter "A" stamped on rear surface of the chassis.

Diagram No.	Description	Used On 9150-B	Used On 9150-D and/or 9150-DZ
39	Resistor	1,000 Ohms	4,700 Ohms
75	Resistor	68,000 Ohms	Omitted
76	Condenser	.01 MFD	Omitted
77	Resistor	220,000 Ohms	Omitted
95	Resistor	4,700 Ohms $\pm 20\%$	4,700 Ohms $\pm 10\%$
108	Resistor	Omitted	68 Ohms
109	Condenser	Omitted	5000 Mmfd.
79	Pick-Up Cartridge	Crystal	Ceramic
80	Phono Motor	508120—Used with VM-508222 Record Changer.	509301—Used with VM-509032 Record Changer on Model 9150-D. 520053—Used with GI-509522 Record Changer on Model 9150-DZ.
81	Switch—"ON-OFF" for Record Changer	505269—Used with VM-508222 Record Changer.	509205—Used with VM-509032 Record Changer on Model 9150-D. 520037—Used with GI-509522 Record Changer on Model 9150-DZ.

## PARTS LIST

These parts are common to Models 9150-D and 9150-DZ only.

(Complete parts list given on service data sheet for Model 9150-B, Page 1950-48.)

DIA-GRAM PART NO.	DESCRIPTION
-------------------	-------------

### ELECTRICAL PARTS

39.....510249	Resistor—carbon 4,700 ohms $\pm 20\%$ , 1 W.....
95.....510148	Resistor—carbon 4,700 ohms $\pm 10\%$ , 1/2 W.....
108.....510115	Resistor—carbon 68 ohms $\pm 10\%$ , 1/2 W.....
109.....513013	Condenser—ceramic 5,000 Mmfd. 450 Volt.....

### RECORD CHANGER PARTS

(For mechanical parts, see page 129 in Record Changer Section of manual for information on VM-509032 used on Model 9150-D; or page 145 in Record Changer Section of manual for information on GI-509522 used on Model 9150-DZ.)

509032	Record Changer (3 speed) for Model 9150D.....
509522	Record Changer (3 speed) for Model 9150-DZ.....
79.....509160	Cartridge, ceramic (includes needle).....
80.....509301	Motor—115 Volt, 60 Cycle; Model 9150-D.....
520053	Motor—115 Volt, 60 Cycle; Model 9150-DZ.....
509161	Needle, phonograph; Models 9150-D and 9150-DZ.....
81.....509205	Switch-changer, "OFF-ON"; Model 9150-D.....
520037	Switch-changer, "OFF-ON"; Model 9150-DZ.....
508533	Inserts for 45 R.P.M. records; package of 12.....

### CABINET PARTS

508991	Bracket-tie, for record changer pull-out mechanism; Models 9150-D and 9150-DZ.....
509033	Cabinet for Model 9150-D.....
509533	Cabinet for Model 9150-DZ.....
509025	Door, changer compartment; Models 9150-D and 9150-DZ.....
509026	Door, radio tilt, assembly (less pivot screws and door pull); Models 9150-D and 9150-DZ.....
509027	Door, record compartment; Models 9150-D and 9150-DZ.....
509051	Record changer base assembly; Model 9150-D.....
509781	Record changer base assembly; Model 9150-DZ.....
508990	Rod-tie, for record changer pull-out mechanism; Models 9150-D and 9150-DZ.....

## ALIGNMENT PROCEDURE

1. With the gang condenser fully meshed, the dial pointer should be in a horizontal position at low end of dial, parallel to the bottom edge of dial scale. If it is set incorrectly, merely hold tuning control shaft steady and turn pointer to correct position.
2. Connect an output meter across the speaker voice coil or from the plate of the 6V6GT tube to chassis through a .1 Mfd. condenser.
3. Connect the ground lead of signal generator to the receiver chassis.
4. Set volume control at maximum position and use a weak signal from the signal generator.

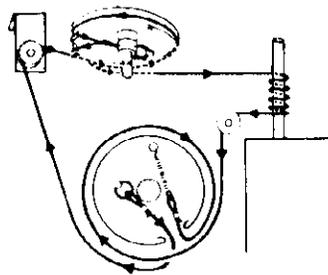
DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIG. GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
.1 MFD. Condenser	Lug on trimmer No. 6 on antenna section of gang (see figure below for location of trimmer).	455 KC 400 cycle Modulation	Any point where it does not affect the signal.	1-2 3-4	2nd I.F. 1st I.F.	Adjust for maximum output. Then repeat adjustment.
200 MMFD. Mica Condenser	External Antenna Clip	1400 KC 400 cycle Modulation	1400 KC	5	Broadcast Oscillator	Adjust for maximum output.
200 MMFD. Mica Condenser	External Antenna Clip	1400 KC 400 cycle Modulation	Tune to 1400 KC generator signal	6	Broadcast Antenna	Adjust for maximum output.

To string dial cord, set gang condenser to fully open position and use the following parts:  
114955 Clip on end of cord  
117057 Cord (3 feet)  
119087 Ring for dial cord  
505161 Tension spring

To replace and properly position pointer see step 1 in "Alignment Procedure" above.

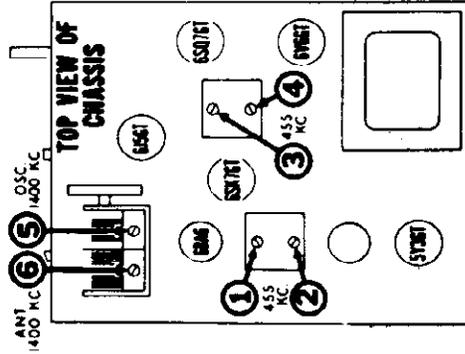
### DIAL AND POINTER DRIVE CORD ARRANGEMENT

SIDE VIEW



### AUDIO OSCILLATION

The audio system of this receiver utilizes a two stage type of inverse feed-back arrangement and should it ever be necessary to replace the speaker or output transformer, it is important to maintain a definite phase relationship in the feed-back circuit. If the connections to the output transformer are reversed or if the feed-back connection is made to the wrong side of the output transformer secondary, the system will become regenerative instead of degenerative. Under those conditions, audio oscillation may result. If that occurs, oscillation may be prevented by reversing the connections to the speaker.

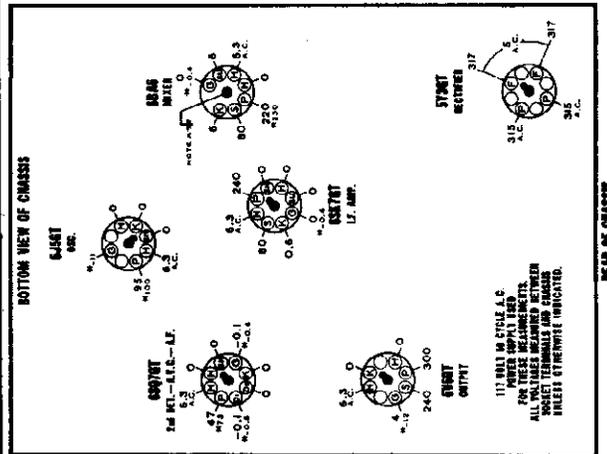


TRIMMER LOCATIONS

### SOCKET VOLTAGES

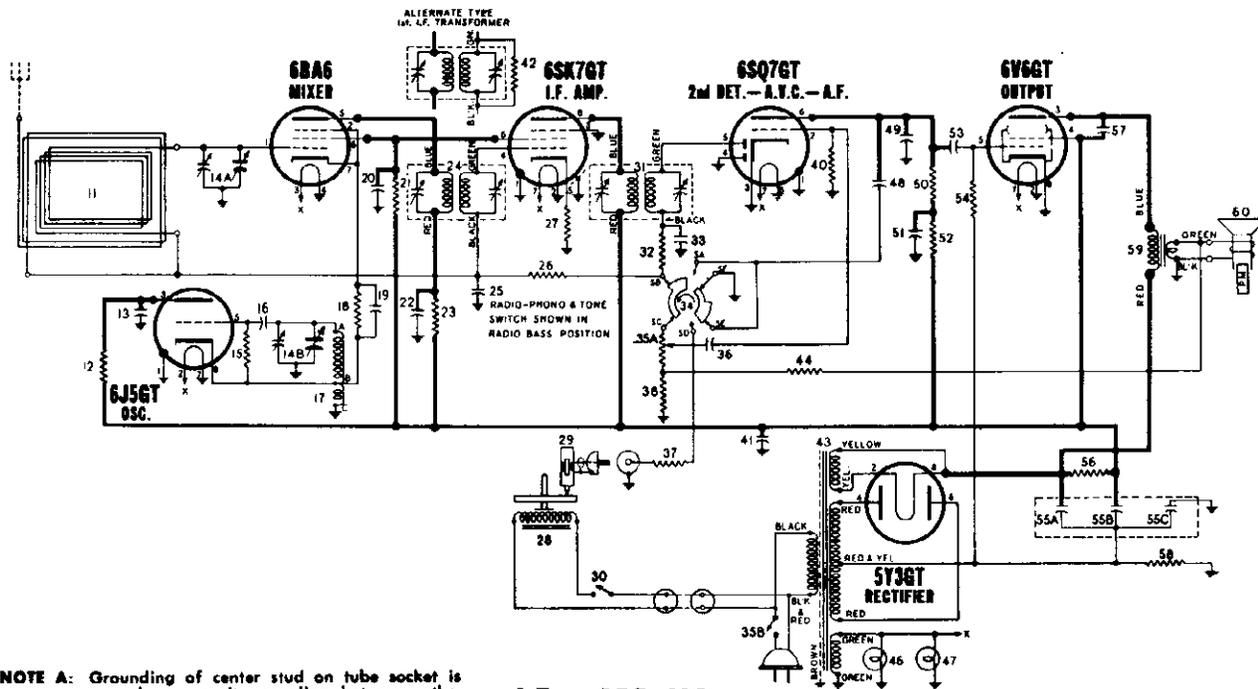
All measurements made with a voltmeter having a sensitivity of 1000 ohms per volt except where indicated by (\*). The (\*) symbol designates a vacuum tube voltmeter measurement.

DIAL TUNED TO 540 KC.  
VOLUME ON FULL WITH NO SIGNAL IN "RADIO-BASS" POSITION



REAR OF CHASSIS

MODELS 9154-C,  
9154-CZ

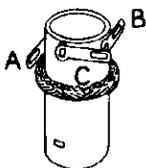


NOTE A: Grounding of center stud on tube socket is necessary to reduce capacity coupling between other pins. Oscillation may result if this ground is omitted.

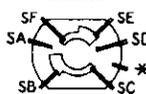
I.F. 455 KC.

PARTS LIST

OSCILLATOR COIL 505326



RADIO-PHONO & TONE SWITCH 505317



REAR VIEW

\*Not used; may serve as wiring junction point.

Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

DIA-GRAM. NO.	PART NO.	DESCRIPTION
<b>CONDENSERS</b>		
13	512010	Condenser—.01 Mfd. 400 volt
14-A, B.	505315	Condenser-variable gang (with drum)
16	512503	Condenser-mica 100 Mmfd. 500 volt
19	512026	Condenser—.05 Mfd. 200 volt
20	512028	Condenser—.05 Mfd. 400 volt
22	512016	Condenser—.02 Mfd. 400 volt
25	512026	Condenser—.05 Mfd. 200 volt
33	512503	Condenser-mica 100 Mmfd. 500 volt
36	512006	Condenser—.005 Mfd. 600 volt
41	512028	Condenser—.05 Mfd. 400 volt
48	512006	Condenser—.005 Mfd. 600 volt
49	512509	Condenser-mica 260 Mmfd. 500 volt
51	512034	Condenser—.1 Mfd. 400 volt
53	512016	Condenser—.02 Mfd. 400 volt
55-A, B, C.	502207	Condenser-electrolytic A—20 Mfd.—400 volt B—10 Mfd.—400 volt C—20 Mds—25 volt
57	512006	Condenser—.005 Mfd. 600 volt
<b>RESISTORS</b>		
12	510263	Resistor—carbon 33,000 Ohms ± 10% 1 watt
15	510167	Resistor—carbon 47,000 Ohms 1/2 watt
18	510143	Resistor—carbon 2,200 Ohms 1/2 watt
21	510267	Resistor—carbon 47,000 Ohms 1 watt
23	510152	Resistor—carbon 6,800 Ohms 1/2 watt
26	510194	Resistor—carbon 3.3 Meg. 1/2 watt
27	510112	Resistor—carbon 47 Ohms ± 10% 1/2 watt
32	510167	Resistor—carbon 47,000 Ohms 1/2 watt
35 A, B.	505318	Volume Control 1 Meg. (with switch)
37	510185	Resistor—carbon 470,000 Ohms 1/2 watt
38	510122	Resistor—carbon 150 Ohms 1/2 watt
40	510195	Resistor—carbon 4.7 Meg. 1/2 watt
42	510191	Resistor—carbon 1 Meg. 1/2 watt
44	510146	Resistor—carbon 3,300 Ohms 1/2 watt
50, 52	510179	Resistor—carbon 220,000 Ohms 1/2 watt
54	510185	Resistor—carbon 470,000 Ohms 1/2 watt
56	510346	Resistor—carbon 3,300 Ohms 2 watt
58	510707	Resistor—wire wound 200 Ohms ± 5% 2 watt
<b>COILS AND TRANSFORMERS</b>		
11	505306	Loop antenna
17	505326	Coil-oscillator
24	502657	Transformer—1st I.F.
31	502658	Transformer—2nd I.F.
43	502174	Transformer—power
59	505305	Transformer—output

OTHER ELECTRICAL PARTS

509301	Motor—115 V., 60 cycle, for type VM-509032 record changer; used on Model 9154-C
28	520053 Motor—115 V., 60 cycle, for type GI-509522 record changer; used on Model 9154-CZ
29	509160 Pick-up cartridge
30	509205 Switch—"OFF-ON" for type VM-509032 record changer; used on Model 9154-C
	520037 Switch—"OFF-ON" for type GI-509522 record changer; used on Model 9154-CZ
34	505317 Switch—radio-phonograph-tone
46, 47	110629 Lamp—dial (Mazda #44) 6.3 V. 0.25 A.
60	508174 Speaker—P. M. dynamic (6" x 9")

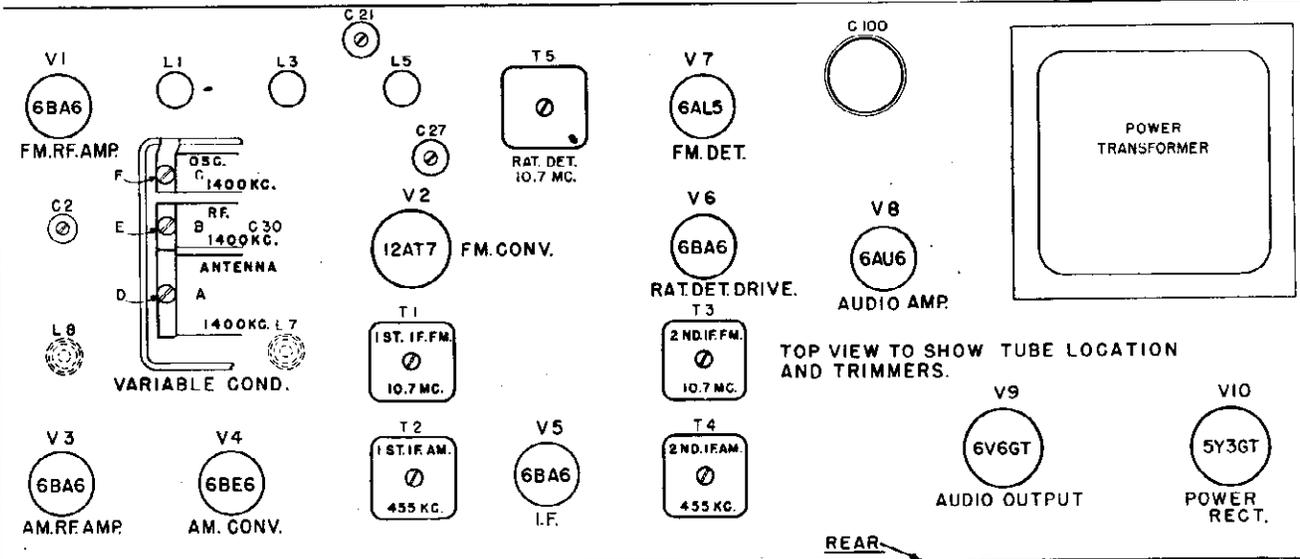
MISCELLANEOUS PARTS

116467	Base for mfg. electrolytic condenser
505165	"C" Washer
509300	Cabinet for Model 9154-C
509530	Cabinet for Model 9154-CZ
112745	Clip for mounting oscillator coil
114955	Clip—retainer on end of dial cord
160326	Clip—retains dial background
117057	Cord—dial drive (3 ft. required)
509471	Dial scale (foil)
509819	Drawer assembly for Model 9154-C
509473	Drawer assembly for Model 9154-CZ
508350	Escutcheon and dial window assembly
508404	Handle for record changer drawer
505344	Knob—tuning
505345	Knob—"VOLUME"
505346	Knob—"RADIO-PHONO"
509161	Needle for record changer
500966	Plug—phonograph pick-up cable
501031	Plug—phonograph motor cable
505686	Pointer
509472	Rail for drawer
509032	Record changer (3 speed) for Model 9154-C
509522	Record changer (3 speed) for Model 9154-CZ
119087	Ring for dial cord
505944	Rubber pad for mounting chassis
79993	Screw—No. 8 x 1/4" for mfg. chassis
162054	Shaft and drum for pointer
505313	Shaft, tuning
117716	Shield—tube
504397	Socket—miniature
116690	Socket—octal base
160392	Socket—octal (rectifier)
160039	Socket—phonograph input
505307	Socket and phonograph motor cable
505459	Socket—dial lamp
505161	Spring—dial cord tension
111456	Washer—spring washer for tuning shaft

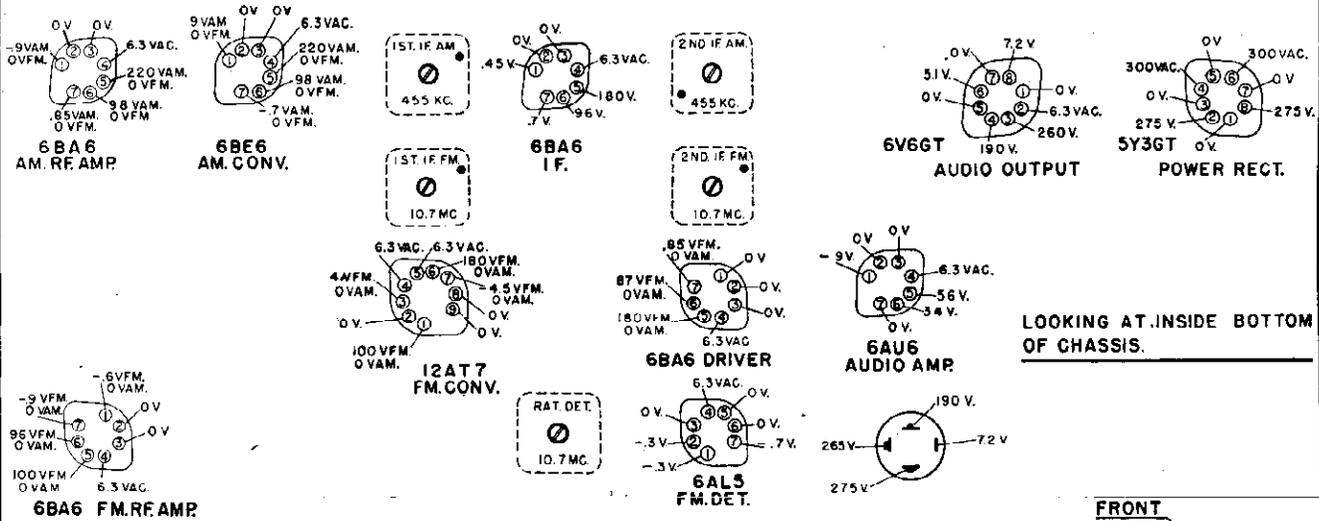


MODELS 1507PLA,  
1507PLM, Ch. 112113

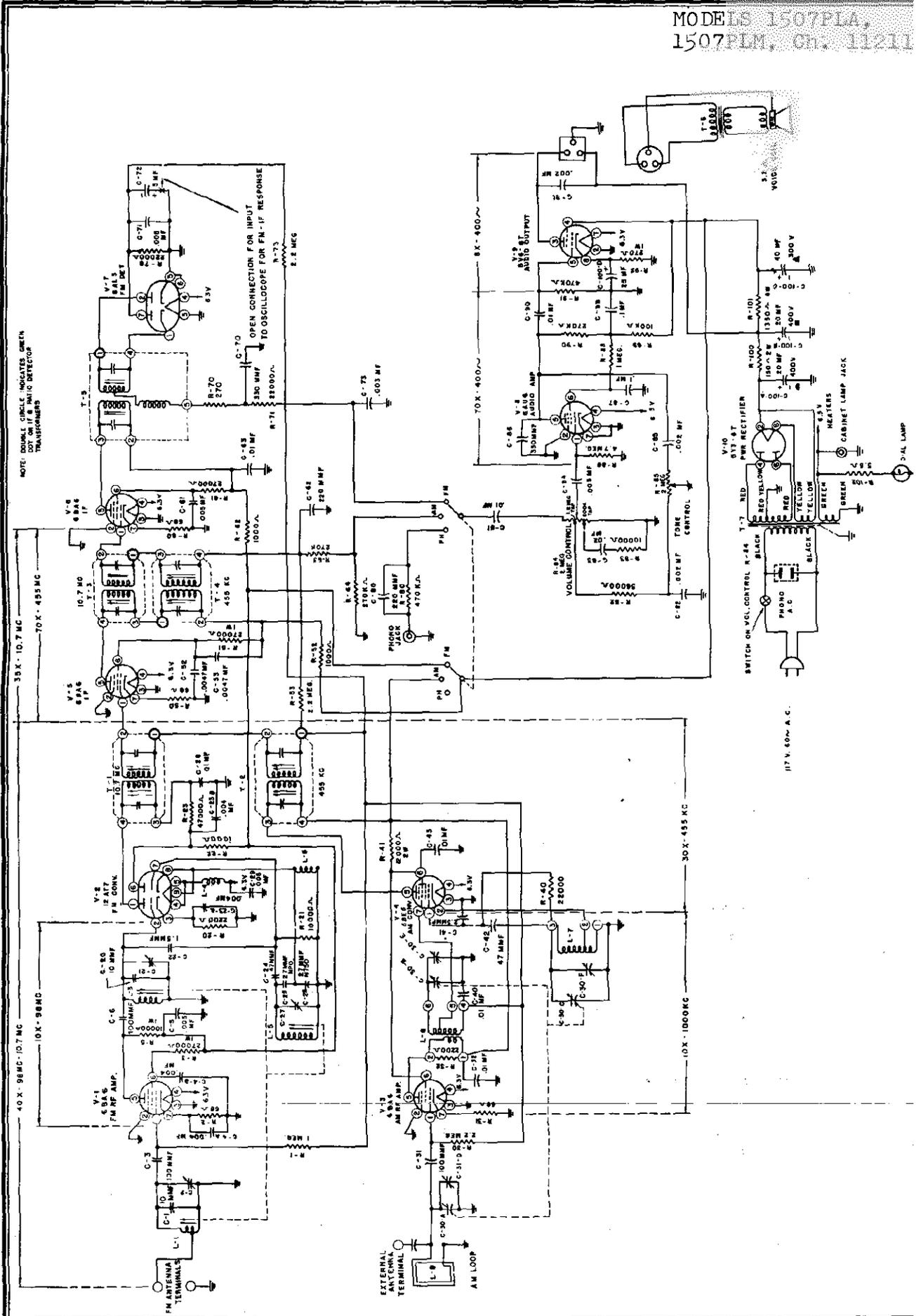
No. 1507 TUBE LOCATION CHART



No. 1507 VOLTAGE CHART



ALL MEASUREMENTS MADE WITH SWITCH IN FM POSITION UNLESS OTHERWISE SPECIFIED. VOLTAGES MEASURED WITH RESPECT TO CHASSIS GROUND. DOTS ON I.F. TRANSFORMERS INDICATE THE POSITION OF THE COLOR CODED TERMINAL.



MODELS 1507PLA,  
1507PLM, Ch. 112113

**Resistors**

Circuit Symbol	S-C Part No.	Resistance	Watt	Tol.
R-80	149117	470K ohms	1/2	20%
R-82	28178	56K ohms	1/2	10%
R-83	149107	10K ohms	1/2	20%
R-84	114118	2 Meg.	Pat.	
R-85	145119	2 Meg.	Pat.	
R-86	149123	4.7 Meg.	1/2	20%
R-88	149119	1 Meg.	1/2	20%
R-89	149113	100K ohms	1/2	20%
R 90	28184	270K ohms	1/2	10%
R-91	149117	470K ohms	1/2	20%
R-92	149170	270 ohms	1W	10%
R-100	149071	150 ohms	2W	20%
R 101	149321	1350 ohms	4W	10%
R 102	149374	5.6 ohms	1/2	10%

**Coils**

Circuit Symbol	S-C Part No.	Type
L-1	114097	ANT. COIL (FM)
L-3	114098	RF COIL (FM)
L-4	114693	RF CHOKE (HEATER)
L-5	114098	OSC. COIL (FM)
L-6	114693	RF CHOKE (CATHODE)
L-7	114096	OSC. COIL (AM)
L-8	114095	RF COIL (AM)
L-9	139043	LOOP ASM.

**Transformers**

Circuit Symbol	S-C Part No.	Description
T-1	114403	1st IF (10.7 Mc. FM)
T-2	114364	1st IF (455 KC. AM)
T-3	114363	2nd IF (10.7 Mc. FM)
T-4	114337	2nd IF (455 KC. AM)
T-5	114404	RATIO DETECTOR
T-6	161257	AUDIO OUTPUT TRANSFORMER
T-7	161032	POWER TRANSFORMER

**Miscellaneous Chassis Parts**

Description	Chassis Model
Chassis Assembly	112113
Dial Lamp	29956
Phono Socket	31539
Dial Cord	81702
IF Transformer Mtg. Clip	113030
Core, FM Tuner Coil	118045
Dial Glass	122039
Pointer	144022
Drum Pulley Assembly	147072
Shield, 12AT7	151067
Shield Base, 12AT7	151069
Socket, Octal	152014
Socket, Speaker	152033
Socket, 12AT7	152076
Socket, 7 Pt. min.	152098
Socket, Dial Lamp	152099
Spring, Dial Cord	156042
Switch, Range	158044

**General Assembly Parts**

Description	PLM	PLA
Phono Back Panel	101165	101165
Phono Drawer Panel Bracket, Left	105263	105263
Phono Drawer Panel Bracket, Right	105264	105264
Cabinet Assembly	108184	108183
Escutcheon	125057	125057
Phono Slide	132160	132160
Knob	134058	134058
Knob — Indicator	134070	134070
Phono Assembly	148045	148045
Cab light Socket & Plug Assem.	152009	152009
Speaker Assembly	155190	155190
Speaker	155154	155154
Lamp Cap Red	801401	801401

**Capacitors**

Circuit Symbol	S-C Part No.	Capacity	Type	Voltage
C-1	110469	10 MMF	NPO Ceramic	500
C-2	110045	1-12 MMF	Trimmer	
C-3	110460	100 MMF	GP Ceramic	500
C-4	110685	.004 MF Dual	Disc Ceramic	
C-5	110586	.005 MF	Disc Ceramic	500
C-6	110451	100 MMF	GP Ceramic	500
C-20	110469	10 MMF	NPO Ceramic	400
C-21	110045	1-12 MMF	Trimmer	
C-22	110438	1.5 MMF		500
C-23	110685	.004 MF Dual	Disc Ceramic	
C-24	110458	47 MMF	GP Ceramic	500
C-25	110689	27 MMF	NPO Ceramic	400
C-26	110690	27 MMF	N750 Ceramic	400
C-27	110045	1-12 MMF	Trimmer	
C-28	110687	.01 MF	Tubular	400
C-29	110586	.005 MF	Disc Ceramic	500
C-30	110044	3 Gang Variable		
C-31	110451	100 MMF	GP Ceramic	500
C-32	110687	.01 MF	Tubular	400
C-40	110672	.01 MF	Disc Ceramic	450
C-41	110412	2.5 MMF	N750 Ceramic	400
C-42	110458	47 MMF	GP Ceramic	500
C-43	110687	.01 MF	Tubular	400
C-52	110538	.0047 MF	Tubular	400
C-53	110538	.0047 MF	Tubular	400
C-61	110586	.005 MF	Disc Ceramic	
C-62	110462	220 MMF	GP Ceramic	350
C-63	110540	.01 MF	Tubular	400
C-70	110463	330 MMF	GP Ceramic	350
C-71	110586	.005 MF	Disc Ceramic	500
C-72	111047	5 MF	Electrolytic	50
C-73	46315	.003 MF	Tubular	400
C-80	110462	220 MMF	GP Ceramic	
C-81	110687	.01 MF	Tubular	400
C-82	27646	.002 MF	Tubular	600
C-83	25150	.02 MF	Tubular	400
C-84	110688	.005 MF	Tubular	400
C-85	27646	.002 MF	Tubular	600
C-86	110463	330 MMF	GP Ceramic	
C-87	25483	.1 MF	Tubular	400
C-88	25483	.1 MF	Tubular	400
C-90	25485	.01 MF	Tubular	600
C-91	27646	.002 MF	Tubular	600
C-100	111090	20-20 MF	Electrolytic	450
		40 MF	Electrolytic	350
		25 MF	Electrolytic	25

**Resistors**

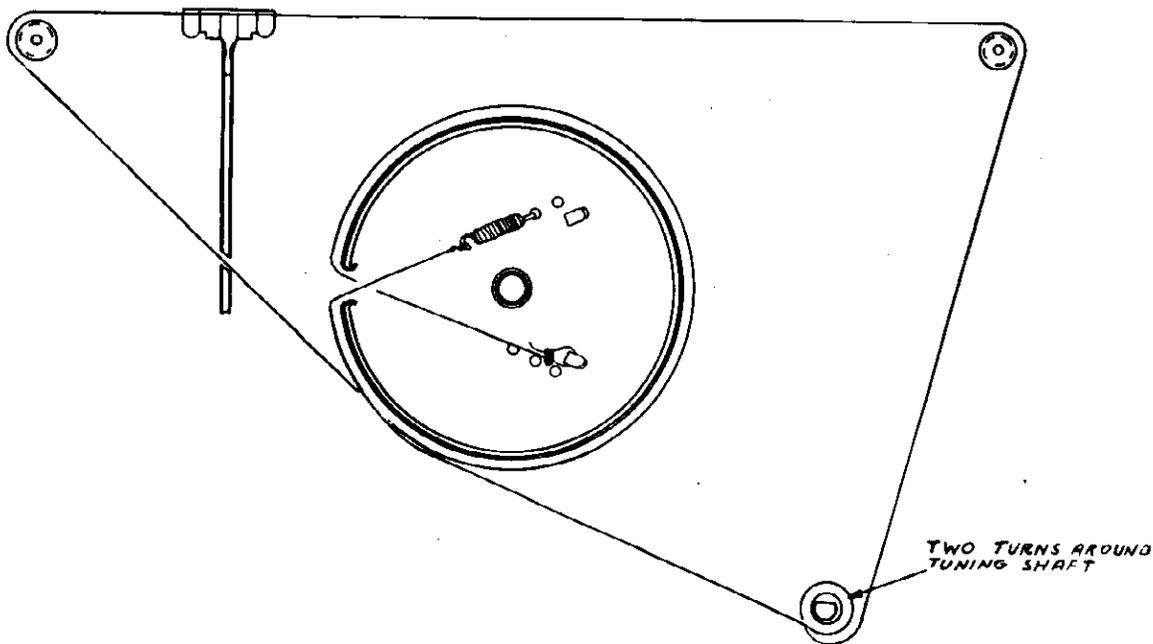
Circuit Symbol	S-C Part No.	Resistance	Watt	Tol.
R-1	149119	1 Meg.	1/2	20%
R-2	28144	68 ohms	1/2	10%
R-3	34578	27K ohms	1W	10%
R-5	30417	10K ohms	1W	10%
R-20	28162	2200 ohms	1/2	10%
R-21	149107	10K ohms	1/2	20%
R-22	149101	1000 ohms	1/2	20%
R-23	149111	47K ohms	1/2	20%
R-30	149121	2.2 Meg.	1/2	20%
R-31	28144	68 ohms	1/2	10%
R-32	28162	2200 ohms	1/2	10%
R-40	149109	22K ohms	1/2	20%
R-41	149055	12K ohms	2W	10%
R-50	28144	68 ohms	1/2	10%
R-51	34578	27K ohms	1W	10%
R-52	149101	1000 ohms	1/2	20%
R-55	149121	2.2 Meg.	1/2	20%
R-60	28144	68 ohms	1/2	10%
R-61	34578	27K ohms	1W	10%
R-62	149101	1000 ohms	1/2	20%
R-63	28184	270K ohms	1/2	10%
R-64	28184	270K ohms	1/2	10%
R-70	28151	270 ohms	1/2	10%
R-71	149109	22K ohms	1/2	20%
R-72	149107	10K ohms	1/2	20%
R-73	149121	2.2 Meg.	1/2	20%

**TUBE COMPLEMENT**

- 1 6BA6 RF Amplifier
- 1 6BE6 Converter
- 1 6BA6 IF Amplifier
- 1 6AV6 Detector and Phase Inverter
- 1 6AV6 Audio Amplifier
- 2 6V6-GT Push Pull Power Output
- 1 5Y3-GT Rectifier

**SPECIFICATIONS**

- Voltage Rating ..... 117 Volts, 60 Cycle
- Type of Circuit ..... Superheterodyne
- Tuning Range ..... 540 KC to 1630 KC
- Input Power Rating ..... 115 Watts
- Intermediate Frequency ..... 455 KC
- Speaker Voice Coil Impedance ..... 3.2 Ohms
- Power Output ..... 10 Watts at 10% distortion



*POSITION OF PULLEY SHOWN WITH VARIABLE CONDENSER CLOSED AND POINTER AT MARK ON DIAL*

**ALIGNMENT PROCEDURE 1608**

Adjust dial pointer to marker at extreme low frequency end of dial with variable condenser fully meshed.

Adjust AM loop trimmer after chassis is in cabinet for best reception at 1500 Kc.

Use a non-metallic screwdriver and light pressure for slug adjustment.

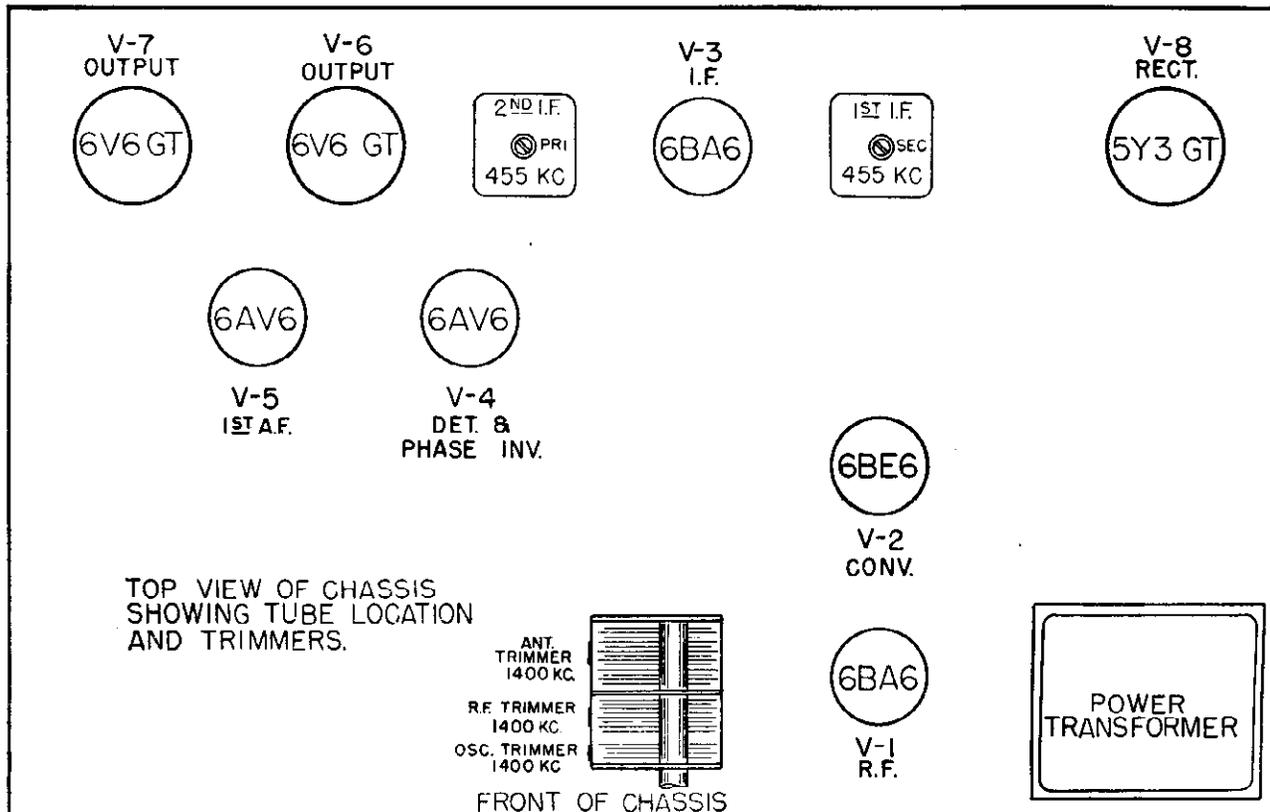
Set volume and tone controls for maximum.

**A.M. - I.F.**

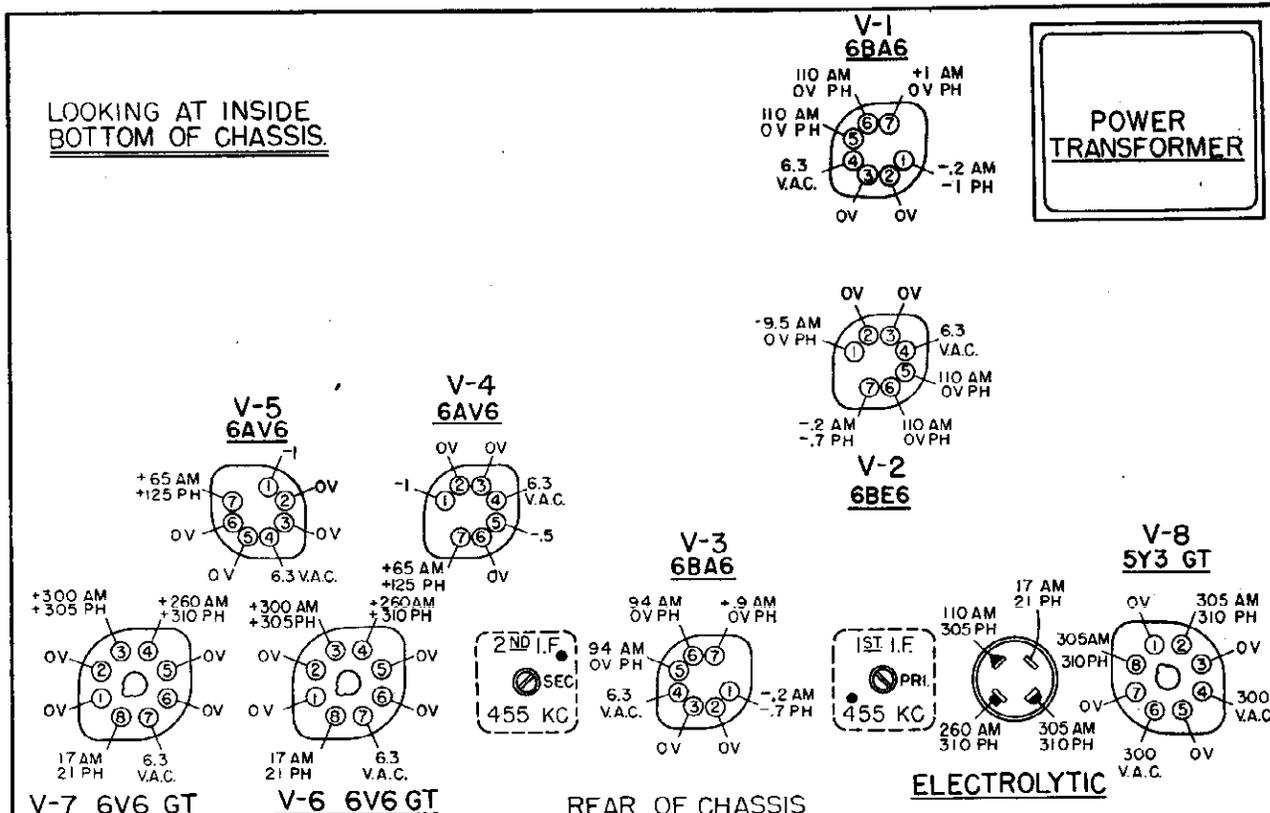
Pointer	Signal Generator	VTVM Connection	Adjustment and Notes
1. Pointer at 1000 Kc. approx.	455 Kc.-400 cy. modulation to grid of converter (pin 7 of V-2, 6BE6).	Terminal 2 of T-3.	Adjust top and bottom slugs of T-3 and T-4 for maximum output on VTVM.
2. Pointer at 1400 Kc.	1400 Kc.-400 cy. modulation to stator terminal of C-1-A.	Same as 1.	Adjust C-1-F and C-1-D for maximum output on VTVM.
3. Pointer at 1400 Kc.	1400 Kc.-400 cy. coupled through radiating loop.	Same as 1.	Readjust C-1-F, C-1-D, and C-1-B for maximum output on VTVM.

MODEL 1608,  
Ch. 112125

No. 1608 TUBE LOCATION CHART



No. 1608 VOLTAGE CHART



VOLTAGES MEASURED TO CHASSIS GROUND WITH VTVM TYPE METER.  
DOTS ON I.F. TRANSFORMERS INDICATE THE POSITION OF COLOR CODED TERMINAL.



MODEL 1608,  
Ch. 112125

No. 1608 PARTS LISTS

CAPACITORS

Circuit Symbol	S-C Part No.	Capacity	Type	Voltage
C-1	110051	3 Gang	Variable	
C-2	110694	100 MMF	Ceramic GP	
C-3	110695	47 MMF	Ceramic GP	
C-5	110801	.05 MF	Paper	400
*C-6	See M-3	.005 MF	Paper	400
C-7	110806	.01 MF	Paper	600
C-8	110804	.002 MF	Paper	600
C-9	110694	100 MMF	Ceramic GP	
*C-10	See M-2	100 MMF	Ceramic GP	
C-11	110676	750 MMF	Ceramic GP	350
*C-12	See M-2	100 MMF	Ceramic GP	
C-13	111090		Electrolyt	
C-15	110801	.05 MF	Paper	400
C-17	110698	.003 MF	Paper	400
C-20	110687	.01 MF	Paper	400
C-21	110463	330 MMF	Ceramic GP	350
*C-22	See M-1	.005 MF	Paper	400
C-23	110694	100 MMF	Ceramic GP	500
C-24	110688	.005 MF	Paper	400
C-25	110688	.005 MF	Paper	400
C-31	110806	.01 MF	Paper	600

RESISTORS

Circuit Symbol	S-C Part No.	Resistance	Watt	Tol.
R-1	149121	2.2 Meg.	1/2	20%
R-2	149094	68 ohms	1/2	20%
R-3	149109	22K ohms	1/2	20%
R-4	149094	68 ohms	1/2	20%
R-5	149121	2.2 Meg.	1/2	20%
*R-6	See M-3	10 Meg.	1/2	20%
R-7	149117	470K ohms	1/2	20%
R-8	149117	470K ohms	1/2	10%
R-9	28169	8200 ohms	1/2	10%
R-10	149115	220K ohms	1/2	20%
R-11	149115	220K ohms	1/2	20%
*R-12	See M-1	10 Meg.	1/2	20%
R-13	149020	330 ohms	2 W	10%
*R-14	See M-2	47K ohms	1/2	10%
R-15	149101	1000 ohms	1/2	20%
R-16	149121	2.2 Meg.	1/2	20%
R-17	149101	1000 ohms	1/2	20%
R-18	149101	1000 ohms	1/2	20%
R-20	149117	470K ohms	1/2	20%
R-21	149117	470K ohms	1/2	20%
R-22	145135	1 Meg., Pot. Volume Control		
R-23	149109	22K ohms	1/2	20%
R-24	145137	1 Meg., Pot. Treble Control		
R-30	149076	1000 ohms	2 W	20%
R-31	149330	4000 ohms	5 W	
R-32	145136	2 Meg., Pot. Bass Control		

TUBES

Circuit Symbol	S-C Part No.	Description
V-1	162012	6BA6 — RF AMPLIFIER
V-2	162013	6BE6 — CONVERTER
V-3	162012	6BA6 — IF AMPLIFIER
V-4	162066	6AV6 — DET & PHASE INVERT.
V-5	162066	6AV6 — 1st AF AMP.
V-6	162136	6V6-GT — AUDIO OUTPUT
V-7	162136	6V6-GT — AUDIO OUTPUT
V-8	162108	5Y3-GT — RECTIFIER

COILS

Circuit Symbol	S-C Part No.	Type
L-1	139051	LOOP ANTENNA
L-2	114405	RF COIL
L-3	114096	OSC. COIL

TRANSFORMERS

Circuit Symbol	S-C Part No.	Description
T-1	161032	POWER TRANSFORMER
T-2	161261	AUDIO OUTPUT
T-3	114364	1st AM IF (455 Kc.)
T-4	114364	2nd AM IF (455 Kc.)

MISCELLANEOUS

Circuit Symbol	S-C Part No.	Description
M-1	128201	CIRCUIT NETWORK
M-2	110478	DIODE FILTER
M-3	128201	CIRCUIT NETWORK

Note:

For substitution of networks with separate components, use the following:

R-6 S-C #149125	C-6 S-C #110688
R-12 S-C #149125	C-10 S-C #110694
R-14 S-C # 28177	C-12 S-C #110694
	C-22 S-C #110688

GENERAL ASSEMBLY

Description	SC Part No.
Pilot Lamp	29956
Back Panel	101191
Cabinet Assembly	108216
Chassis Assembly	112125
Escutcheon	125061
Phono-Slide	132160
Knob-off-on-volume	134171
Knob-Bass-Tone	134171
Knob-Treble-Tone	134171
Knob-Tuning	134171
Knob-Phono-Radio	134172
Phono-Assembly	148050
Pilot Lamp Socket and Plug	152050
Speaker Assembly	155199
Grille Cloth	130166
Bullet Catch	132016
Door Pull	132188
Hinge, R-H	132186
Hinge, L-H	132187
Door Set	81789

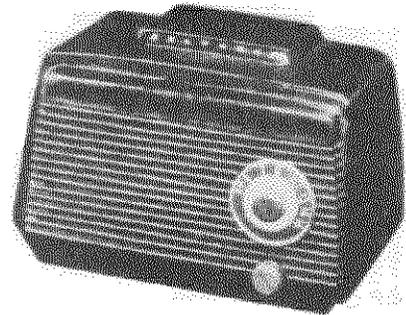
CHASSIS PARTS

Description	SC Part No.
Tuning Shaft C-Washer	27668
Dial Lamp	29956
Speaker Socket	31539
Phono Socket	34421
Bracket — R. H. Dial	105337
Bracket — L. H. Dial	105338
Bracket — Antenna	105341
IF Transformer Clip	113030
Antenna Loop Asm.	139051
Dial Plate	142172
Pointer Assembly	144023
Idler Pulley	147029
Dial Light Shield	151001
Tube Shield Base	151077
Tube Shield	151094
Socket-octal	152014
Socket — AC outlet	152038
Socket — 7 pt min.	152098
Socket — Dial Light Assem.	152109
Dial Cable Spring	156042
Dial Cable	81791

MODELS 1-250, 1-251,  
1-252, Ch. 1-215

### GENERAL DESCRIPTION

Models 1-250, 1-251 and 1-252 are compact, 5 tube AC-DC type broadcast receivers. The models are the same except for cabinet color. Model 1-250 is a black molded plastic. Model 1-251 is walnut finish and Model 1-252 is finished in ivory. The receiver has a built-in loop antenna and once the station is tuned in, the receiver should be rotated and left in the position where the signal is received with maximum volume. There is no provision for an external antenna connection. The circuit is of the isolated chassis type. Controls are provided for tuning and on-off and volume.



### SPECIFICATIONS

POWER SUPPLY ..... 117 Volts DC,  
60 cycle AC, 30 Watts

FREQUENCY RANGE ..... 535-1620 Kc.

INTERMEDIATE FREQUENCY ..... 455 Kc.

POWER OUTPUT  
Undistorted ..... 1.0 Watt  
Maximum ..... 1.5 Watts

SPEAKER ..... 5" P.M., 4.7 oz. magnet

### SYLVANIA TUBE COMPLEMENT

Function	Type
Converter	12BE6
I. F. Amplifier	12BA6
2nd Det. - A. V. C. 1st A. F.	12AT6
Audio Output	50C5
Rectifier	35W4

### ALIGNMENT PROCEDURE

#### PRELIMINARY ADJUSTMENTS

Set volume control to maximum position.

Allow chassis and signal generator to warm up for several minutes.

No output meter need be used.

#### I. F. ALIGNMENT

1. Tune receiver to approximately 1000 Kc.; where no audible reception is heard.
2. Tune signal generator to 455 Kc. with 400 cycle modulation and connect output between receiver B- and control grid (pin 7) of 12BE6 converter tube through a 0.1 mfd. capacitor.
3. Align I. F. transformers T1 & T2 by aligning first the cores accessible from under

the chassis and then the top cores.

4. Keep the output from the generator at its lowest possible value to prevent the AVC from interfering with accurate alignment.

#### R. F. ALIGNMENT

1. Connect a Hazeltine Loop to the output of the signal generator to radiate the signal into the receiver.
2. Set receiver variable capacitor to minimum capacity.
3. Tune the signal generator to 1650 Kc. with 400 cycle modulation and adjust the oscillator trimmer C4 for maximum output.
4. Tune the receiver to a frequency between 1420 Kc. and 1500 Kc.; where no audible reception is heard.
5. Adjust antenna trimmer C2 for maximum output.

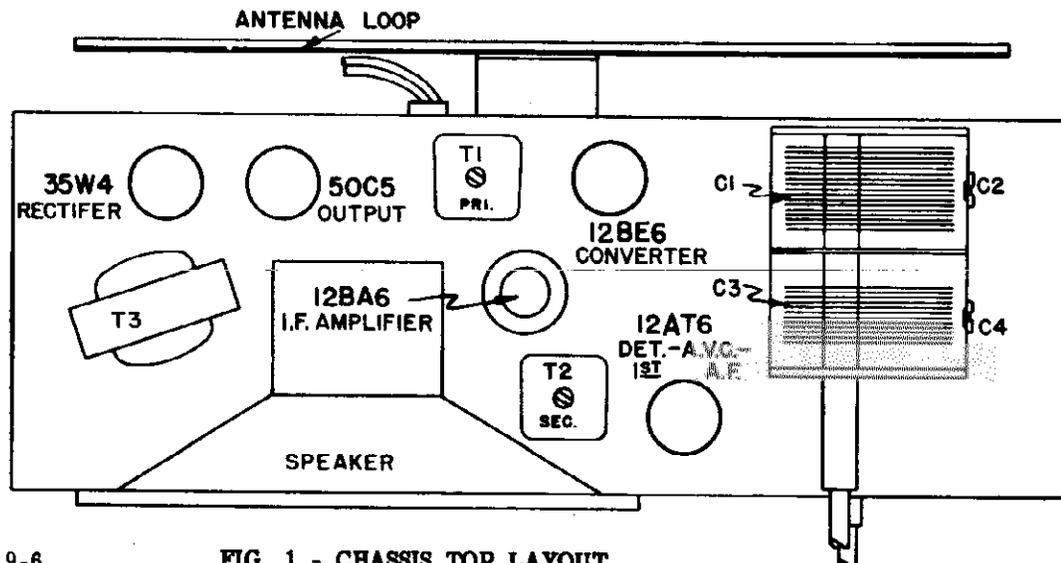


FIG. 1 - CHASSIS TOP LAYOUT

MODELS 1-250, 1-251, 1-252, 510B, 510H, 510W, Ch. 1-215

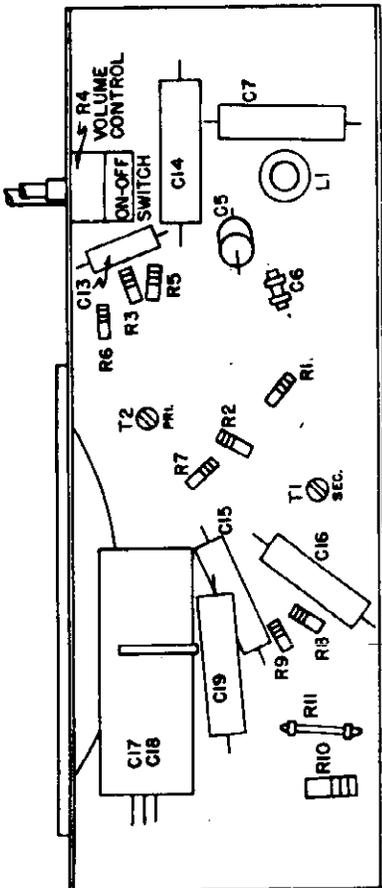


FIG. 2 - CHASSIS BOTTOM LAYOUT

- 189-0013 Resistor - 25 Ohm - 1 W.
- 482-0003 Shield - 12BA6 Tube
- 412-0015 Socket - Tube - 7 Prong Miniature
- 539-0501 Speaker - 5" P. M.
- 121-0013 Transformer - I. F. #1
- 122-0013 Transformer - I. F. #2
- 168-0100P Capacitor - .0001 Mfd. - Ceramic
- 143-0011 Transformer - Output
- 623-0012 Tube - 12BA6
- 623-00139 Tube - 12BE6
- 623-0016C Tube - 12AT6
- 623-0015G Tube - 50C5
- 634-00029 Tube - 35W4

12-21-50 SUPPLEMENT NO. 1 TO - 9-6

ADDITION TO SERVICE INFORMATION FOR CHASSIS 1-215

Repair Parts for the I. F. Transformers in the Repair Parts List should read as follows:

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
T1	121-0013	Transformer - I. F. #1 (R69301) matched
T2	122-0013	Transformer - I. F. #2 (R69302) pair
T1	121-0016	Transformer - I. F. #1 (R69303) matched
T2	122-0016	Transformer - I. F. #2 (R69304) pair

These two sets of I. F. transformers are matched pairs and must be matched for replacement. The "R" number above is stamped on the shield in each case. Replacement must be made only with a transformer having the same "R" number stamped on the shield as the old part.

CODE CHANGES FOR CHASSIS 1-215

- C01 - certain changes to meet Underwriter's requirements
- C02 - factory information only, does not affect service

ADDITION OF NEW MODELS

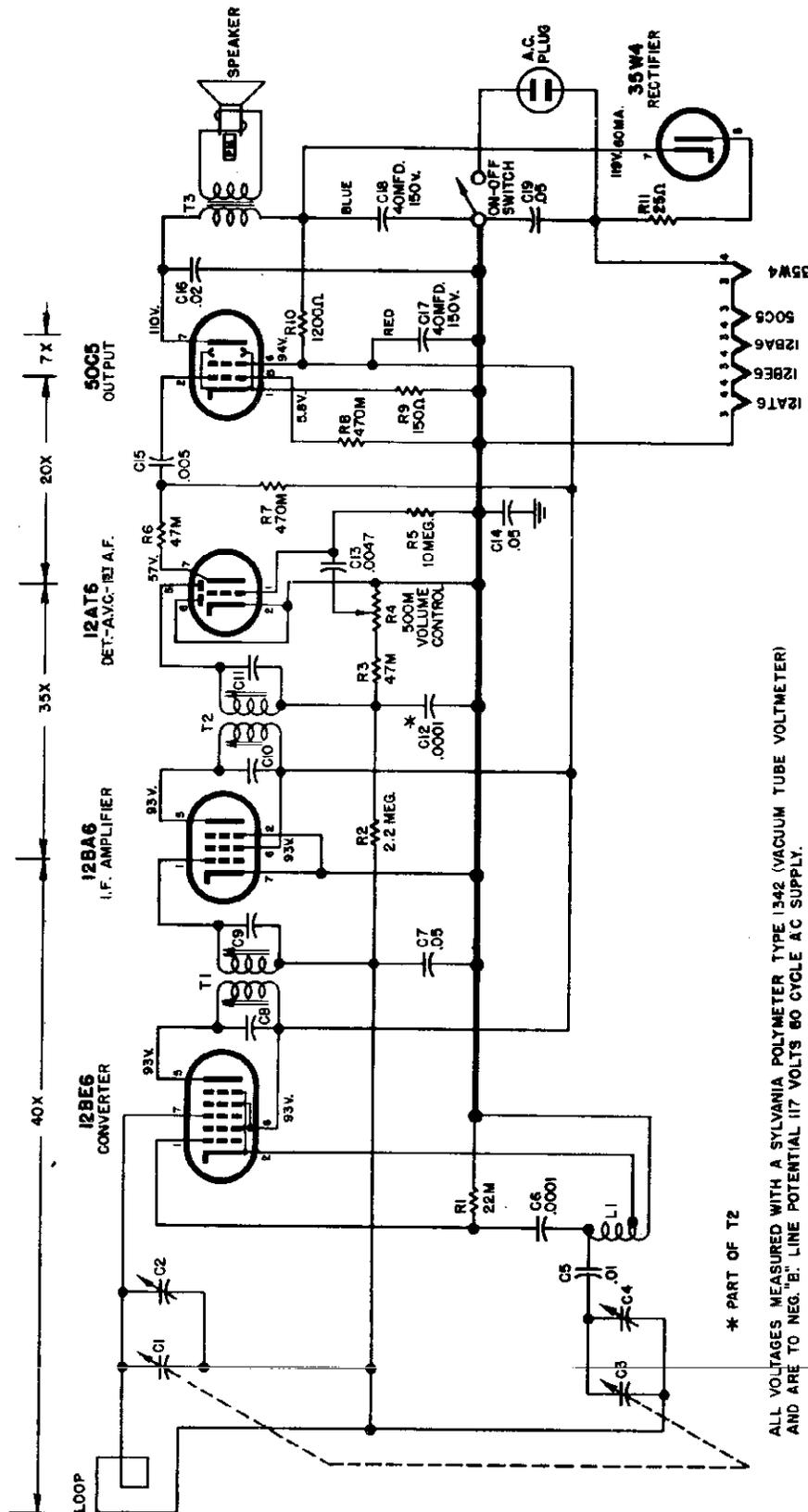
Models 510B, 510H, 510W are compact 5 tube AC-DC type broadcast receivers which supersede models 1-250, 1-251 and 1-252 in later production. Model 510B is finished in black, model 510H in ivory, and 510W in walnut.

Reference for all service data and repair parts should be made to Bulletin 9-6.

REPAIR PARTS LIST

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
	482-0002	Base - 12BA6 Tube Shield
	497-0005	Bushing & Retainer - Line Cord
	813-0001	Cabinet - Black - Molded
	813-0002	Cabinet - Walnut - Molded
	813-0003	Cabinet - Ivory - Molded
	162-04247	Capacitor - Paper - .0047 Mfd. - 400 V.
	162-0625	Capacitor - Paper - .005 Mfd. - 600 V.
	162-0411M	Capacitor - Paper - .01 Mfd. - 400 V.
	162-0612	Capacitor - Paper - .02 Mfd. - 600 V.
	162-0615	Capacitor - Paper - .05 Mfd. - 600 V.
	166-0100P	Capacitor - Ceramic - .0001 Mfd. - 500 V.
	161-2002	Capacitor - Electrolytic - 40 Mfd. - 150 V. 40 Mfd. - 150 V.
	170-0002	Capacitor - 2 Gang Variable
	487-0004	Clip - I. F. Transformer Mtg.
	113-0015	Coil - Oscillator
	152-0004	Control - On-Off & Volume
	195-0002	Cord - A. C. Line
	722-0010	Dial - Station - Plastic
	740-0005	Knob (For Black Cabinet)
	740-0007	Knob (For Walnut Cabinet)
	740-0008	Knob (For Ivory Cabinet)
	582-0002	Loop - Antenna
	181-0151	Resistor - 150 Ohm - 1/2 W.
	182-0122	Resistor - 1,200 Ohm - 1 W.
	181-0223	Resistor - 22,000 Ohm - 1/2 W.
	181-0473	Resistor - 47,000 Ohm - 1/2 W.
	181-0474	Resistor - 470,000 Ohm - 1/2 W.
	181-0225	Resistor - 2.2 Megohm - 1/2 W.
	181-0106	Resistor - 10 Megohm - 1/2 W.
C13		Capacitor - Paper - .0047 Mfd. - 400 V.
C15		Capacitor - Paper - .005 Mfd. - 600 V.
C5		Capacitor - Paper - .01 Mfd. - 400 V.
C6		Capacitor - Paper - .02 Mfd. - 600 V.
C7, C14, C19		Capacitor - Paper - .05 Mfd. - 600 V.
C6		Capacitor - Ceramic - .0001 Mfd. - 500 V.
C17		Capacitor - Electrolytic - 40 Mfd. - 150 V.
C18		Capacitor - Electrolytic - 40 Mfd. - 150 V.
C1, C3		Capacitor - 2 Gang Variable
L1		Coil - Oscillator
R4		Control - On-Off & Volume
R9		Cord - A. C. Line
R7, R8		Knob (For Black Cabinet)
R7, R8		Knob (For Walnut Cabinet)
R7, R8		Knob (For Ivory Cabinet)
R9		Loop - Antenna
R10		Resistor - 150 Ohm - 1/2 W.
R1		Resistor - 1,200 Ohm - 1 W.
R3, R6		Resistor - 22,000 Ohm - 1/2 W.
R7, R8		Resistor - 47,000 Ohm - 1/2 W.
R7, R8		Resistor - 470,000 Ohm - 1/2 W.
R2		Resistor - 2.2 Megohm - 1/2 W.
R5		Resistor - 10 Megohm - 1/2 W.

SCHEMATIC DIAGRAM FOR 1-215



\* PART OF T2

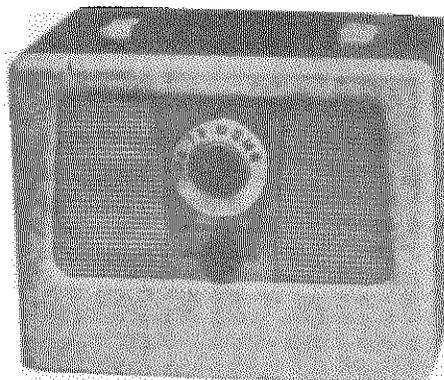
ALL VOLTAGES MEASURED WITH A SYLVANIA POLYMER TYPE 1342 (VACUUM TUBE VOLTMETER) AND ARE TO NEG. B. LINE POTENTIAL 117 VOLTS 60 CYCLE AC SUPPLY. THE GAIN PER STAGE VALUES AS NOTED ABOVE ARE APPROXIMATE VALUES FOR AN AVERAGE STAGE, RATHER THAN AN ABSOLUTE VALUES.

FIG. 3 - SCHEMATIC DIAGRAM OF 1-215 CHASSIS

MODEL 430L,  
Ch. 1-254

### GENERAL DESCRIPTION

Model 430-L is a compact 4 tube AC-DC-Battery 3 way portable type broadcast receiver. The receiver has a built-in loop antenna and once the station is tuned in, the receiver should be rotated and left in the position where the signal is received with maximum volume. There is no provision for an external antenna. Battery operation is obtained by inserting the line cord plug in the socket at the rear of the chassis. Controls are provided for tuning and on-off and volume.



### SPECIFICATIONS

#### POWER SUPPLY

AC-DC Operation, 117 Volts DC, 60 cycle AC  
Battery Operation

"A" Battery, 7 1/2 Volt Eveready 717

"B" Battery, 90 Volt Eveready 490

FREQUENCY RANGE ..... 540 - 1650 KC.

INTERMEDIATE FREQUENCY ..... 455 KC:

SPEAKER ..... 4" P. M., 0.68 oz. magnet

#### SYLVANIA TUBE COMPLEMENT

<u>Function</u>	<u>Type</u>
Converter	1R5
I. F. Amplifier	1U4
2nd Det. -AVC-1st A. F.	1U5
Audio Output	3V4

### ALIGNMENT PROCEDURE

#### PRELIMINARY ADJUSTMENTS

Set volume control to maximum position.

Allow chassis and signal generator to warm up for several minutes.

No output meter need be used.

#### I. F. ALIGNMENT

1. Tune receiver to 540 Kc. (variable capacitor fully closed).
2. Tune signal generator to 455 Kc. with 400 cycle modulation and connect output between receiver ground and control grid of 1R5 converter tube (pin 6 or antenna trimmer) through a 0.25 capacitor.
3. Align I. F. transformers T1 & T2 by adjusting the top and bottom slugs to give maximum readings.

4. Keep the output from the generator at its lowest possible value to prevent the AVC from interfering with accurate alignment.

#### R. F. ALIGNMENT

1. Connect a Hazeltine Loop to the output of the signal generator to radiate the signal into the receiver.
2. Set receiver variable capacitor to minimum capacity.
3. Tune the signal generator to 1650 Kc. with 400 cycle modulation and adjust the oscillator trimmer for maximum output.
4. Close the variable capacitor and check for 540 Kc.
5. Set signal generator to 1500 Kc. Rotate variable capacitor until signal is brought in and peak antenna trimmer to give maximum reading.

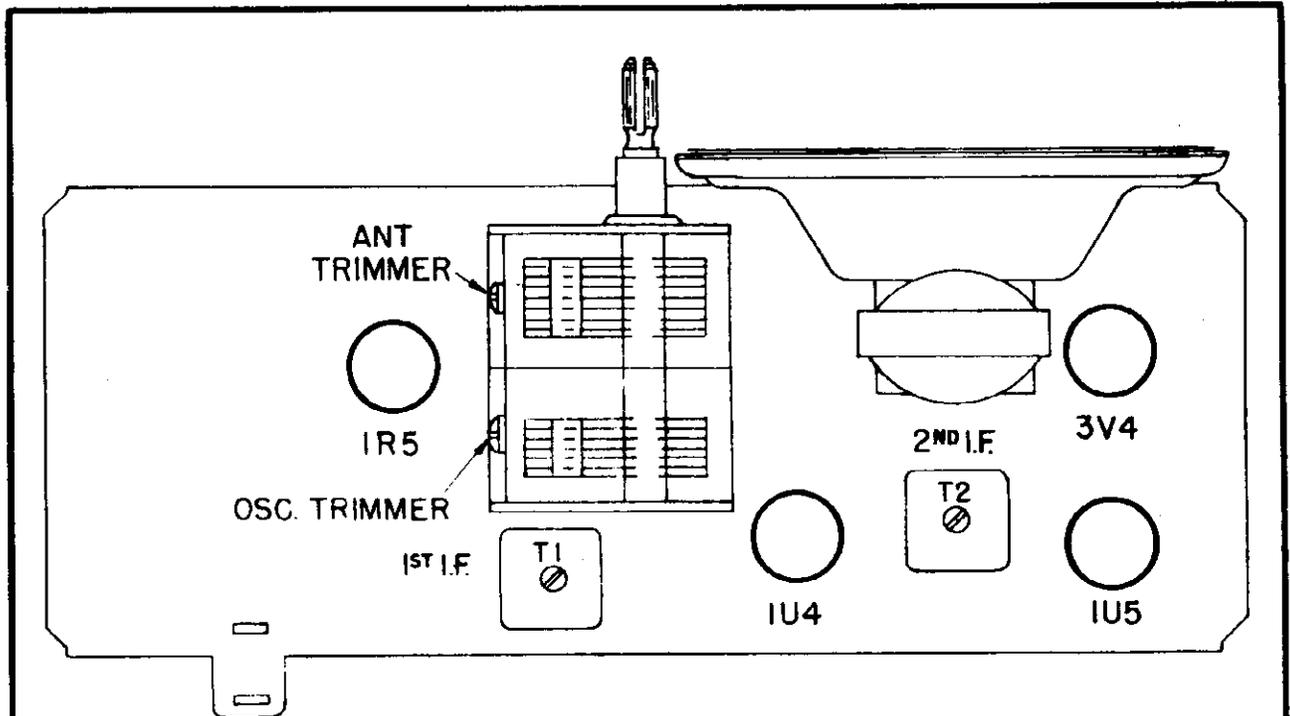


FIG. 1 - CHASSIS TOP LAYOUT

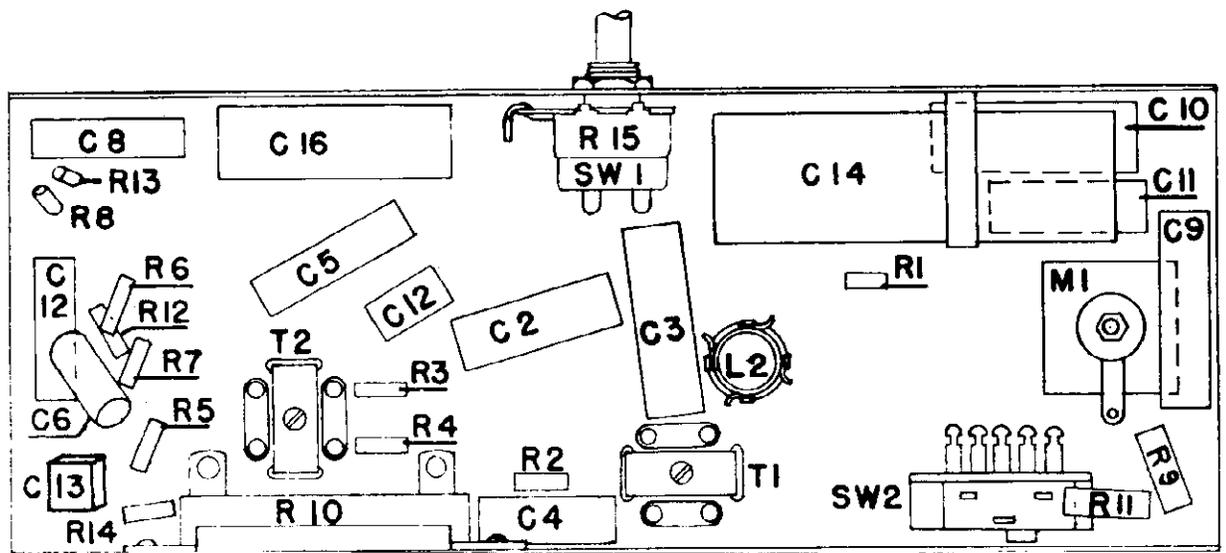
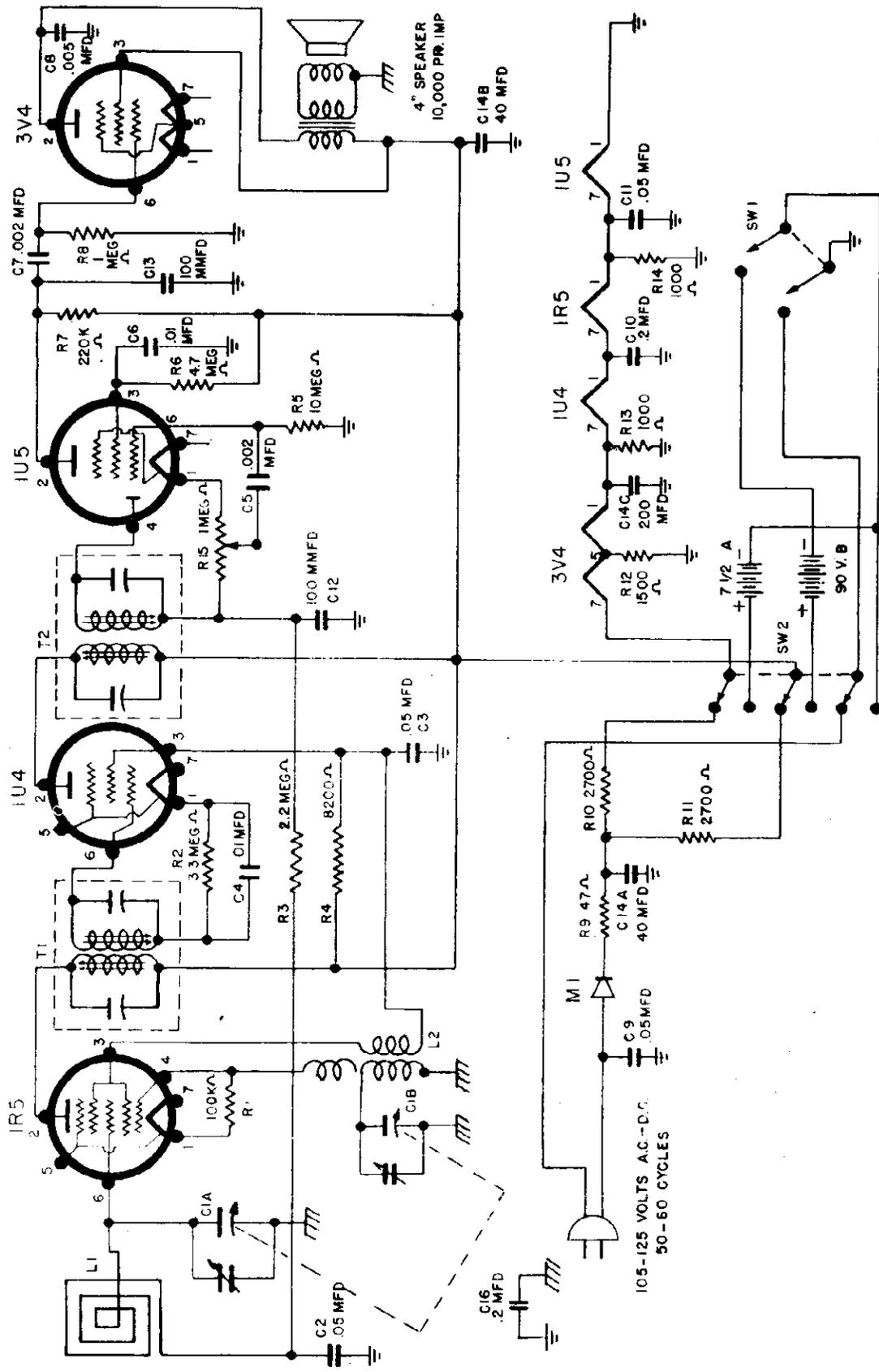


FIG. 2 - CHASSIS BOTTOM LAYOUT

MODEL 430L,  
Ch. 1-254



SCHEMATIC DIAGRAM FOR MODEL 430L

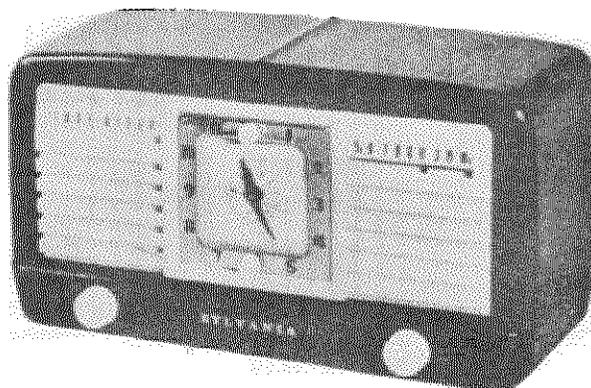
## REPAIR PARTS LIST

<u>SCHEMATIC LOCATION</u>	<u>SERVICE PART NUMBER</u>	<u>DESCRIPTION</u>
	814-0001	Cabinet - Wood
C5, C7	162-0622	Capacitor - Paper - .002 Mfd. - 600 V.
C8	162-0425	Capacitor - Paper - .005 Mfd. - 400 V.
C4, C6	162-0411	Capacitor - Paper - .01 Mfd. - 400 V.
C2	162-0215	Capacitor - Paper - .05 Mfd. - 200 V.
C3, C9, C11	162-0415	Capacitor - Paper - .05 Mfd. - 400 V.
C10, C16	162-0402	Capacitor - Paper - .2 Mfd. - 400 V.
C12, C13	163-0100	Capacitor - Mica - .0001 Mfd. - 500 V.
	170-0003	Capacitor - 2 Gang - Variable
C14	161-3009	Capacitor - Electrolytic - 40 Mfd. - 150 V. 40 Mfd. - 150 V. 200 Mfd. - 15 V.
L2	113-0017	Coil - Oscillator
R15	152-0009	Control - On-Off & Volume
	195-0002	Cord - Line
	722-0016	Dial
	776-0001	Front Plate & Baffle Board Assy. (with Metal Trim Plate)
	740-0009	Knob - Dial
	740-0010	Knob - On-Off & Volume
L1	581-0001	Loop - Antenna (without back cover)
	196-0008	Plug - Lead Assy. - "A" Battery
	196-0009	Plug - Lead Assy. - "B" Battery
M1	517-0002	Rectifier - Selenium
R9	182-0470	Resistor - 47 Ohm - 1 W.
R13, R14	181-0102	Resistor - 1,000 Ohm - 1/2 W.
R12	181-0152	Resistor - 1,500 Ohm - 1/2 W.
R10	189-0022	Resistor - 2,700 Ohm - W. W.
R11	182-0272	Resistor - 2,700 Ohm - 1 W.
R4	181-0822	Resistor - 8,200 Ohm - 1/2 W.
R1	182-0104	Resistor - 100,000 Ohm - 1 W.
R7	181-0224	Resistor - 220,000 Ohm - 1/2 W.
R8	181-0105	Resistor - 1 Megohm - 1/2 W.
R3	181-0225	Resistor - 2.2 Megohm - 1/2 W.
R2	181-0335	Resistor - 3.3 Megohm - 1/2 W.
R6	181-0475	Resistor - 4.7 Megohm - 1/2 W.
R5	181-0106	Resistor - 10 Megohm - 1/2 W.
	412-0013	Socket - Tube
	539-0400	Speaker
SW2	573-0002	Switch - 3 P. D. T. (AC -DC-Bat.)
	143-0015	Transformer - Output
	623-0018G	Tube - 1R5
	623-0019G	Tube - 1U4
	623-0020G	Tube - 1U5
	623-0021G	Tube - 3V4

MODELS 540B, 540H,  
540M, Ch. 1-253

**GENERAL DESCRIPTION**

Models 540B (Black), 540H (Ivory), and 540M (Mahogany) are plastic-cased 5 tube clock radios which tune the standard broadcast band. The receivers have built-in loop antennas and once a station is tuned in, the receiver should be rotated and left in position where the signal is received with maximum volume. If desired, an external antenna may be connected to the terminal provided for that purpose on the back cover.



The clock may be used to:

- (A) Provide correct time.
- (B) Turn on radio program for awakening.
- (C) Turn the buzzer alarm on 10 minutes after the radio starts playing.
- (D) Turn on the buzzer alarm for awakening with the radio silenced.

Front panel controls are provided for tuning and volume. On the clock face are the alarm set and operating selector controls.

**SPECIFICATIONS**

**POWER SUPPLY**  
105-125 Volts, 60 cycle AC, 30 Watts

**FREQUENCY RANGE**..... 540-1650 Kc.

**INTERMEDIATE FREQUENCY**..... 455 Kc.

**SPEAKER**.....4" P.M., 1.0 oz. Magnet

**SYLVANIA TUBE COMPLEMENT**

<u>Function</u>	<u>Type</u>
Oscillator-Converter	12BE6
I.F. Amplifier	12BA6
Detector - AVC - 1st Audio	12AT6
Audio Output	50C5
Rectifier	35W4

**ALIGNMENT PROCEDURE**

**PRELIMINARY INSTRUCTIONS**

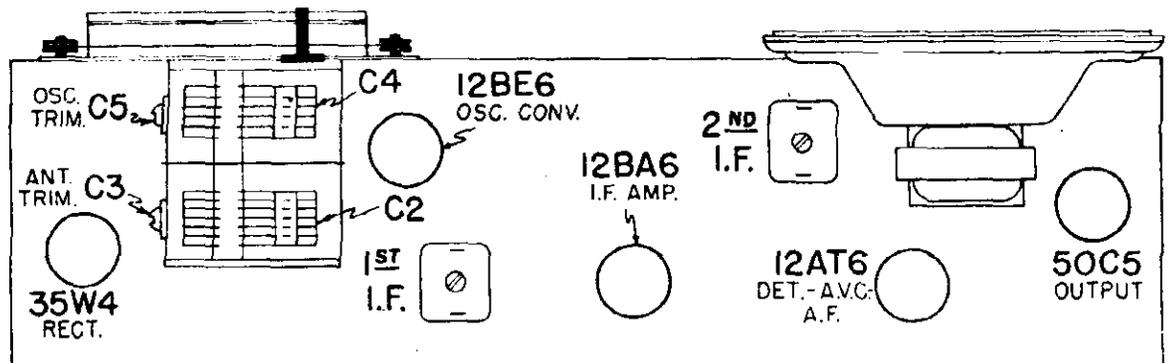
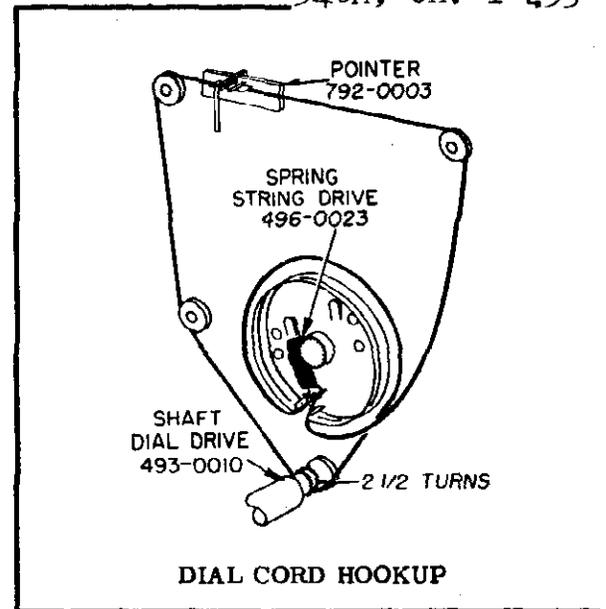
- Set volume control to maximum position.
- Allow chassis and signal generator to warm up for several minutes.
- Connect an A.C. voltmeter across voice coil terminals.

**I.F. ALIGNMENT**

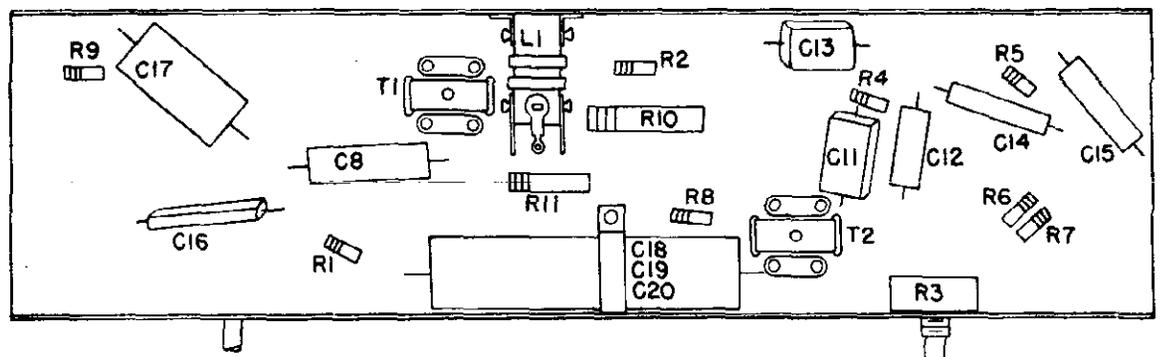
1. Set the variable tuning capacitor to fully open position (capacitor plates out of mesh).
2. Tune signal generator to 455 Kc. with 400 cycle modulation and connect output between receiver B- and control grid (pin 7) of 12BE6 converter tube through a 0.1 mfd. capacitor.
3. Align I.F. transformers T1 and T2 by aligning first the cores accessible from under the chassis and then the top cores.
4. Keep the output from the generator at its lowest possible value to prevent the AVC from interfering with accurate alignment.

**R.F. ALIGNMENT**

1. With the variable tuning capacitor fully open and the signal generator connected between receiver B- and control grid (pin 7) of 12BE6 converter tube through a 0.1 mfd. capacitor, tune signal generator to 1650 Kc.
2. Adjust the oscillator trimmer C5 (on front section of variable capacitor) for maximum output.
3. Tune the receiver to 1500 Kc.
4. Connect a Hazeltine Loop to the output of the signal generator to radiate a 1500 Kc. signal into the receiver.
5. Adjust antenna trimmer C3 (on rear section of variable capacitor) for maximum output.

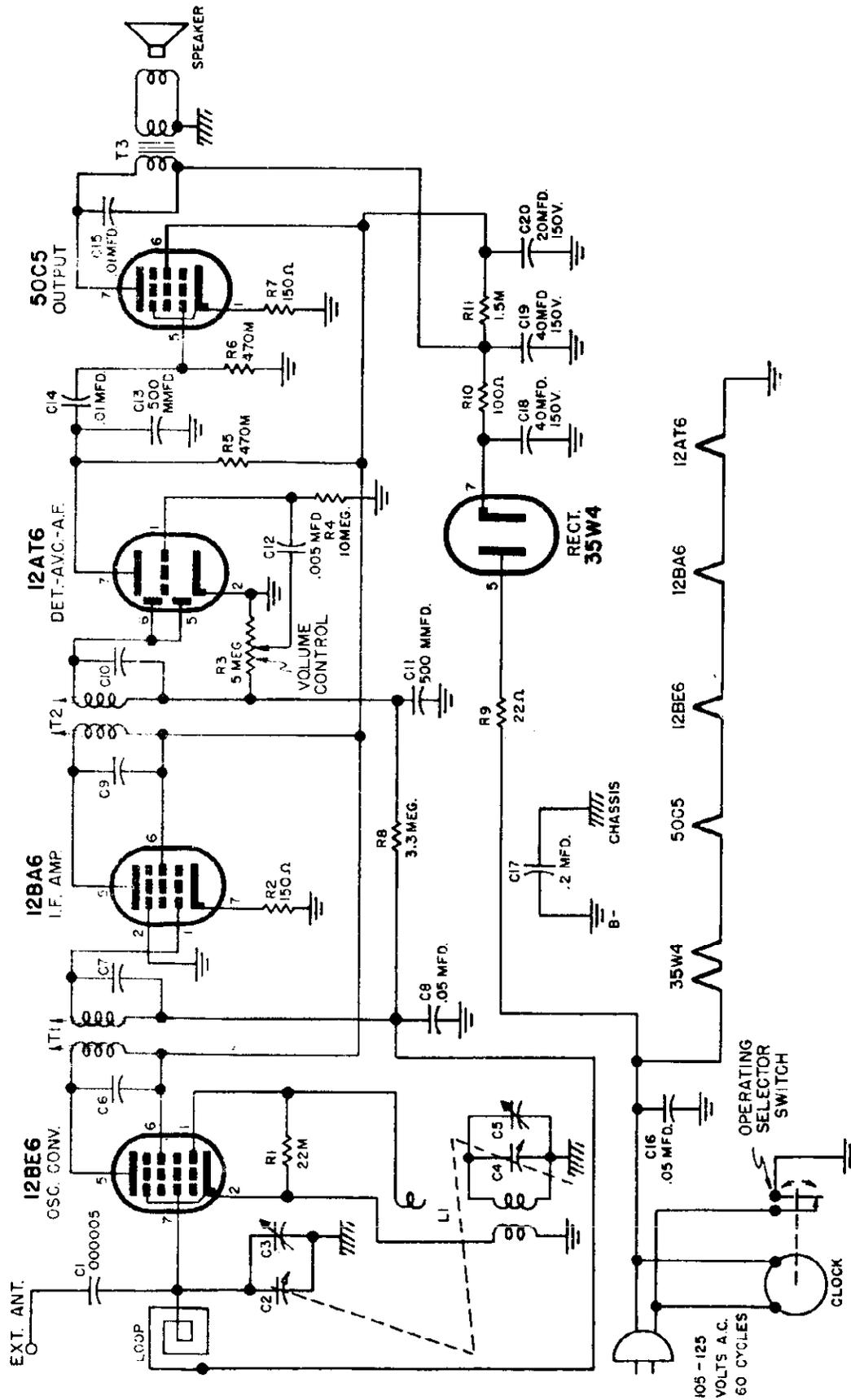


**CHASSIS TOP LAYOUT**



**CHASSIS BOTTOM LAYOUT**

MODELS 540B, 540H,  
540M, Ch. 1-253



SCHEMATIC DIAGRAM FOR MODELS 540B, 540H, 540M

<u>SCHEMATIC PART</u> <u>LOCATION NUMBER</u>	<u>DESCRIPTION</u>
	813-0004 Cabinet - Plastic - Mahogany (Grille Insert not included)
	813-0005 Cabinet - Plastic - Black (Grille Insert not included)
	813-0006 Cabinet - Plastic - Ivory (Grille Insert not included)
C2,C4	172-0004 Capacitor - Variable
C18	161-3010 Capacitor - Electrolytic - 40 Mfd. - 150 V.
C19	40 Mfd. - 150 V.
C20	20 Mfd. - 150 V.
C12	162-0625 Capacitor - Paper - .005 Mfd. - 600 V.
C14,C15	162-0411 Capacitor - Paper - .01 Mfd. - 400 V.
C8	162-0415 Capacitor - Paper - .05 Mfd. - 400 V.
C16	160-0415 Capacitor - Phenolic - .05 Mfd. - 400 V.
C17	162-0402 Capacitor - Paper - .2 Mfd. - 400 V.
C11,C13	163-0500 Capacitor - Mica - .0005 Mfd. - 500 V.
L1	113-0018 Coil - Oscillator
R3	153-0012 Control - Volume - 500,000 Ohm
	195-0002 Cord - Line
	717-0001 Glass (Clock Crystal)
	776-0002 Insert - Plastic (Grille - Dial - Cloth Insert)
	740-0015 Knob - Alarm Set
	743-0005 Knob - Operating Selector
	740-0008 Knob - Volume and Tuning Controls
	582-0004 Loop & Back Cover Assembly
C1	Capacitor - .000005 Mfd.
	714-0002 Metal Bezel (Clock Numerals)
	792-0003 Pointer - Dial
R9	181-0220 Resistor - 22 Ohm - 1/2 W.
R10	183-0101 Resistor - 100 Ohm - 2 W.
R2,R7	181-0151 Resistor - 150 Ohm - 1/2 W.
R11	182-0152 Resistor - 1,500 Ohm - 1 W.
R1	181-0223 Resistor - 22,000 Ohm - 1/2 W.
R5,R6	181-0474 Resistor - 470,000 Ohm - 1/2 W.
R8	181-0335 Resistor - 3.3 Megohm - 1/2 W.
R4	181-0106 Resistor - 10 Megohm - 1/2 W.
	493-0010 Shaft - Dial Drive
	412-0013 Socket - Tube
	539-0401 Speaker (includes Output Transformer)
	496-0023 Spring - String Drive
T1,T2	121-0101 Transformer - I.F. - Input & Output
T3	143-0016 Transformer - Output
	623-0016G Tube - 12AT6
	623-0012G Tube - 12BA6
	623-0013G Tube - 12BE6
	634-0002G Tube - 35W4
	623-0015G Tube - 50C5

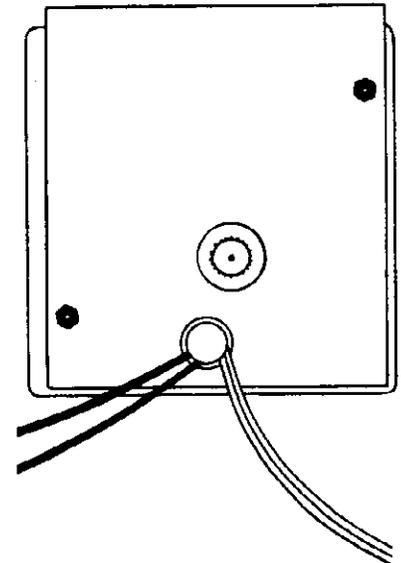


FIGURE A

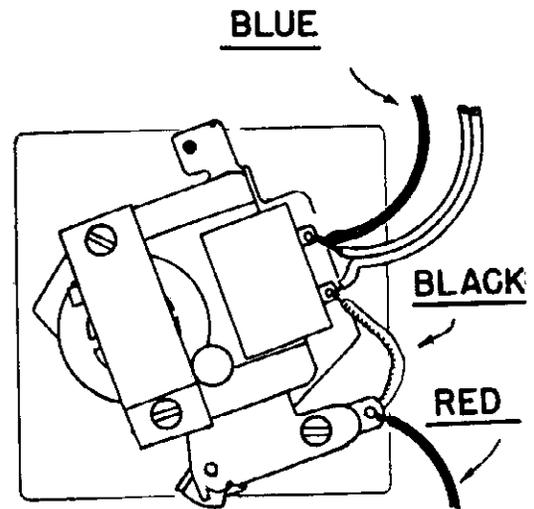


FIGURE B

To take clock movement out of cabinet proceed as follows:

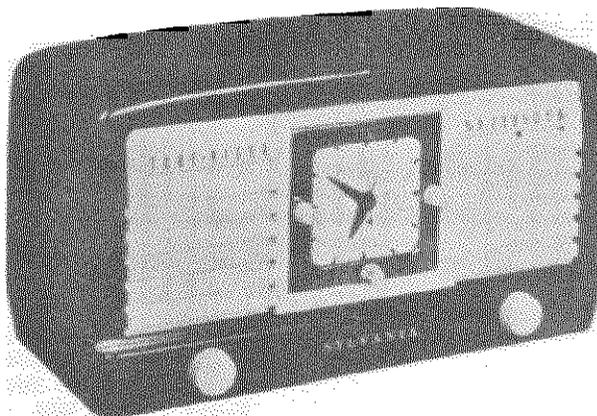
**Remove the following:**

- A - Line cord from power line
- B - Tuning knob, volume control knob, and chassis from cabinet.
- C - 2 nuts holding clock clamping shield shown in Figure A.
- D - As this shield is sufficiently pulled back, unsolder red and blue wires and power cord shown in Figure B
- E - The movement may then be withdrawn through the opening in the front of the cabinet.
- F - In shipping a movement to a service station, be certain that it is suitably packed to withstand transportation. Care should be taken with the glass crystal so that it is not subject to strain during shipment.

MODELS 540BA, 540HA,  
540MA, Ch. 1-253

**GENERAL DESCRIPTION**

Models 540BA (Black), 540HA (Ivory), and 540MA (Mahogany) are plastic cabinet 5 tube clock radios which tune the standard broadcast band. Each receiver has a built-in loop antenna, and once a station is tuned in, the radio should be rotated and left in position where the signal is received with maximum volume. If desired, an external antenna may be connected to the terminal provided for that purpose on the back cover.



The clock may be used to:

- (A) Provide accurate sweep second time.
- (B) Turn off radio or appliance up to 60 minute period or less.
- (C) Turn on radio program for awakening.
- (D) Turn on buzzer alarm 10 minutes after radio starts playing.
- (E) Turn on buzzer alarm for awakening with radio and appliance turned off.

- (F) Turn radio off automatically after retiring.
- (G) Turn radio off automatically and awaken to music with appliance operating.
- (H) Turn appliance on and off with radio off.

Front panel controls are provided for tuning and volume. On the clock face are the alarm set, operating selector, and rock-a-bye controls.

**SPECIFICATIONS**

**POWER SUPPLY**  
105-125 Volts, 60 Cycle AC, 30 Watts

**LOUD SPEAKER.....** 4" P.M., 1.0 oz. Magnet

**APPLIANCE OUTLET**  
Maximum Load 1100 Watts

**SYLVANIA TUBE COMPLEMENT**

**FREQUENCY RANGE.....** 540-1650 Kc.

Function	Type
Oscillator-Converter	12BE6
I.F. Amplifier	12BA6
Detector - AVC - 1st Audio	12AT6
Audio Output	50C5
Rectifier	35W4

**INTERMEDIATE FREQUENCY.....** 455 Kc.

**ALIGNMENT PROCEDURE**

**PRELIMINARY INSTRUCTIONS**

Set volume control to maximum position.

Allow chassis and signal generator to warm up for several minutes.

Connect an A.C. voltmeter across voice coil terminals.

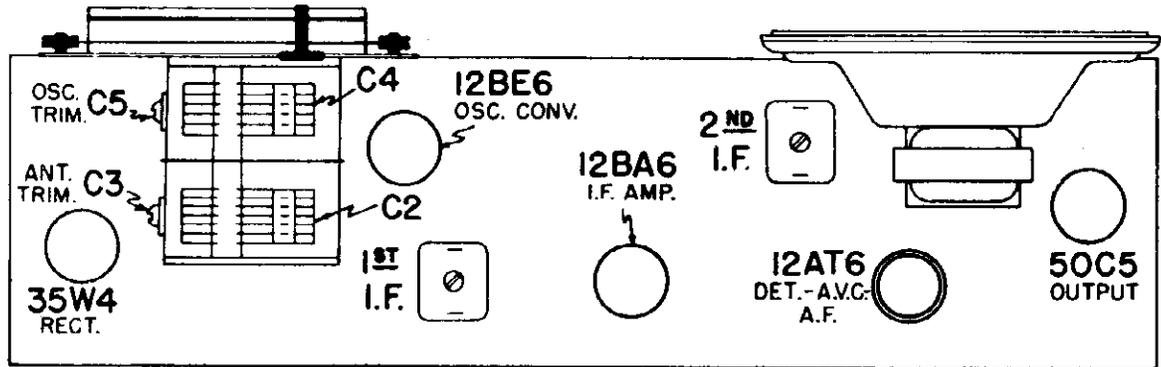
**I.F. ALIGNMENT**

1. Set the variable tuning capacitor to minimum capacity position (plates fully out of mesh).
2. Tune signal generator to 455 Kc. with 400 cycle modulation and connect output between receiver B- and control grid (pin 7) of 12BE6 converter tube through a 0.1 mfd. capacitor.
3. Align I.F. transformers T1 and T2 by aligning first the cores accessible from under the chassis and then the top cores.

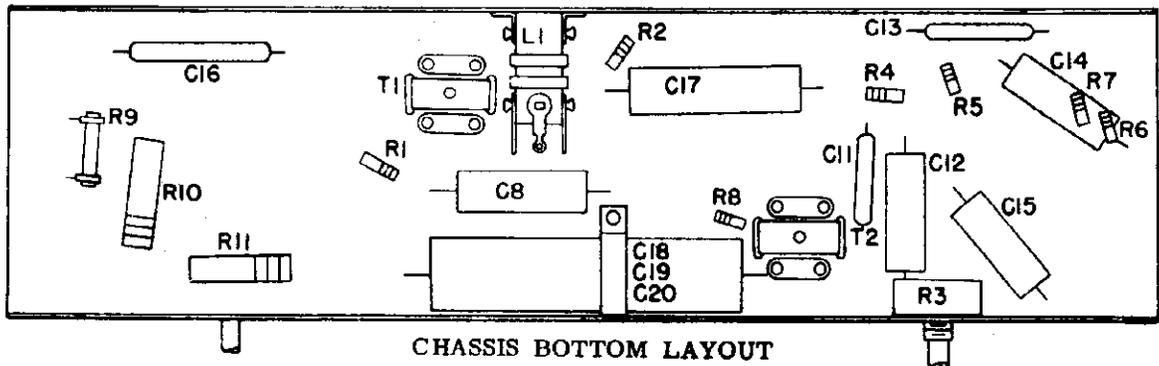
4. Keep the output from the generator at its lowest possible value to prevent the AVC from interfering with accurate alignment.

**R.F. ALIGNMENT**

1. With the variable tuning capacitor fully open and the signal generator connected between receiver B- and control grid (pin 7) of 12BE6 converter tube through a 0.1 mfd. capacitor, tune signal generator to 1650 Kc.
2. Adjust the oscillator trimmer C5 (on front section of variable capacitor) for maximum output.
3. Tune the receiver to 1500 Kc.
4. Connect a Hazeltine Loop to the output of the signal generator to radiate a 1500 Kc. signal into the receiver.
5. Adjust antenna trimmer C3 (on rear section of variable capacitor) for maximum output.

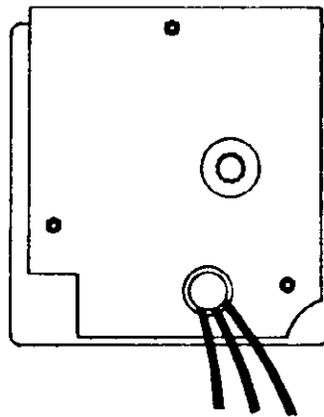


**CHASSIS TOP LAYOUT**



**CHASSIS BOTTOM LAYOUT**

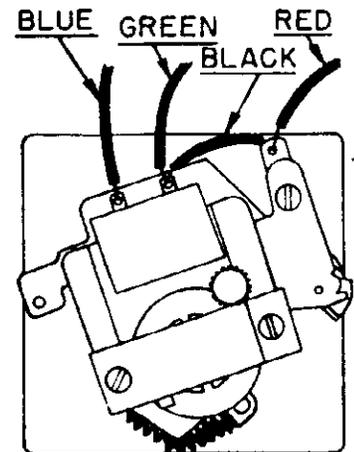
**FIGURE A**



**To take clock movement out of cabinet proceed as follows:**

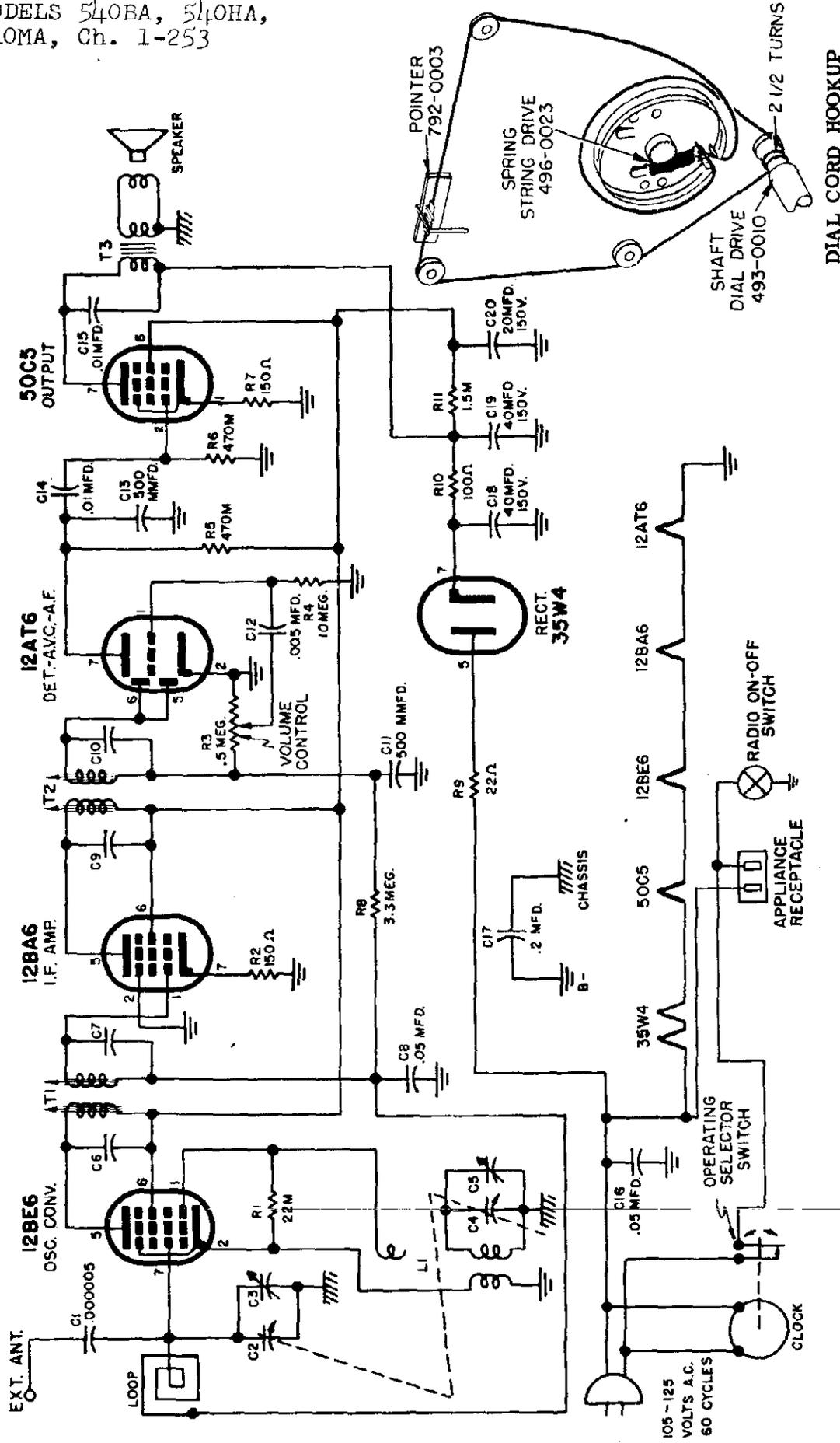
**Remove the following:**

- A - Line cord from power line.
- B - Tuning knob, volume control knob, and chassis from cabinet.
- C - Three nuts holding clock clamping shield shown in Figure A above.
- D - As this shield is sufficiently pulled back, unsolder red, blue, and green wires shown in Figure B above.
- E - Before movement can be withdrawn from the cabinet, it is necessary to have the rock-a-bye control in the full 60 minute position.
- F - In shipping a movement to a service station, be certain that it is suitably packed to withstand transportation. Care should be taken to insure that the glass crystal is not subject to strain during shipment.



**FIGURE B**

MODELS 540BA, 5410HA,  
540MA, Ch. 1-253



SCHEMATIC DIAGRAM FOR CHASSIS 1-253

MODELS 540BA, 540HA,  
540MA, Ch. 1-253

## REPAIR PARTS LIST

<u>SCHEMATIC LOCATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
	813-0004	Cabinet - Plastic - Mahogany (Grille Insert not included)
	813-0005	Cabinet - Plastic - Black (Grille Insert not included)
	813-0006	Cabinet - Plastic - Ivory (Grille Insert not included)
C2,C4	172-0004	Capacitor - Variable
C18	161-3010	Capacitor - Electrolytic - 40 Mfd. - 150 V.
C19		40 Mfd. - 150 V.
C20		20 Mfd. - 150 V.
C12	162-0625	Capacitor - Paper - .005 Mfd. - 600 V.
C14,C15	162-0411	Capacitor - Paper - .01 Mfd. - 400 V.
C8	162-0415	Capacitor - Paper - .05 Mfd. - 400 V.
C16	160-0415	Capacitor - Phenolic - .05 Mfd. - 400 V.
C17	162-0402	Capacitor - Paper - .2 Mfd. - 400 V.
C11,C13	163-0500	Capacitor - Mica .0005 Mfd. - 500 V.
L1	113-0018	Coil - Oscillator
R3	153-0012	Control - Volume - 500,000 Ohm
	195-0005	Cord - Line
	717-0001	Glass (Clock Crystal)
	776-0002	Insert - Plastic (Grille - Dial - Cloth Insert)
	740-0015	Knob - Alarm Set
	743-0005	Knob - Operating Selector & Rock-A-Bye Switch
	740-0008	Knob - Volume and Tuning Controls
	582-0007	Loop & Back Cover Assembly
C1		Capacitor - .000005 Mfd.
	714-0004	Metal Bezel (Clock Numerals)
	792-0003	Pointer - Dial
R9	181-0220	Resistor - 22 Ohm - 1/2 W.
R10	183-0101	Resistor - 100 Ohm - 2 W.
R2,R7	181-0151	Resistor - 150 Ohm - 1/2 W.
R11	182-0152	Resistor - 1,500 Ohm - 1 W.
R1	181-0223	Resistor - 22,000 Ohm - 1/2 W.
R5,R6	181-0474	Resistor - 470,000 Ohm - 1/2 W.
R8	181-0335	Resistor - 3.3 Megohm - 1/2 W.
R4	181-0106	Resistor - 10 Megohm - 1/2 W.
	493-0010	Shaft - Dial Drive
	482-0006	Shield - Miniature Tube
	417-0013	Socket - Appliance
	412-0013	Socket - Tube
	539-0401	Speaker (includes Output Transformer)
	496-0023	Spring - String Drive
	571-0006	Switch - Radio
T1,T2	121-0101	Transformer - I.F. - Input & Output
T3	143-0016	Transformer - Output
	623-0016G	Tube - 12AT6
	623-0012G	Tube - 12BA6
	623-0013G	Tube - 12BE6
	634-0002G	Tube - 35W4
	623-0015G	Tube - 50C5

Some cases have been reported where the chassis hold-down bolts plus their washers were longer than the plastic legs. To remedy, remove washers, as required.

MODEL CH749,  
Hudson #225908

## TECHNICAL SERVICE BULLETIN

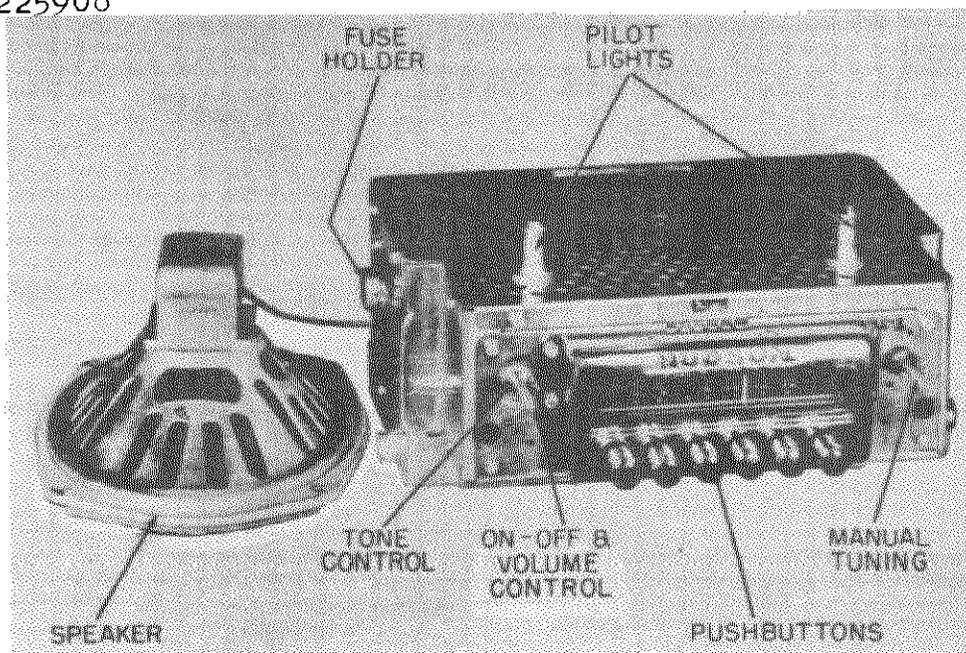


FIG. 1 MODEL 225908

**GENERAL**

The Hudson model 225908 receiver is a six tube, twin unit, superhetrodyne receiver. The antenna, RF, and oscillator circuits are inductively tuned (manually and push button) by iron cores over a frequency range of 540 to 1600 kilocycles.

The speaker is mounted above the receiver and both units are mounted behind the instrument panel. The on-off, volume and tone controls are on concentric shafts at the left of the receiver. The manual tuning control and trim knob are at the right.

A special compensating capacitor in the oscillator circuit minimizes frequency drift due to normal variations in temperature and car battery voltage.

Sylvania built CH749 Hudson receiver serial numbers start at CH1001 and up.

**TUBE COMPLEMENT**

6SK7GT	R. F. Amplifier
6SA7GT	Converter
6SK7GT	I. F. Amplifier
6SQ7GT	Detector, AVC & AF Amplifier
5V6GT	Output
6X5GT	Full Wave Rectifier

**POWER SUPPLY**

The power supply uses a 6X5GT full wave rectifier tube in conjunction with a four prong, full wave primary type vibrator.

**ALIGNMENT**

Maximum performance depends on accurate alignment of the receiver; therefore, follow these instructions carefully.

**CAUTION:** Make all alignment adjustments to the receiver with the "A" lead connected to a 6.6 volt negative source and ground the chassis to the positive side of this source. Rotate the volume and tone controls

to their maximum clockwise positions. Keep the output from the signal generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment. Use an insulated screw driver, or the prescribed tool, for making all alignment adjustments.

**IF ALIGNMENT PROCEDURE**

**1. IF ALIGNMENT AT 265 KILOCYCLES**

- (a) Remove top and bottom covers from the receiver.
- (b) Set the signal generator at 265 kilocycles.
- (c) Connect the signal lead of the signal generator through a 0.1 Mfd. capacitor to the 6SA7GT converter grid (pin #8 on the socket). Connect output indicator across speaker voice coil.
- (d) Connect the ground lead of the signal generator to the chassis or case.
- (e) Position the dial pointer at the high frequency end of the dial.
- (f) With core alignment tool 898-0003 adjust the IF cores "A," "B," "C," and "D" in order named for maximum output. (See Parts Layout - Bottom of Chassis, page 5).

Repeat this adjustment until maximum output reading does not change.

**2. RF AND OSCILLATOR ALIGNMENT**

- (a) Connect the signal lead of the signal generator through the dummy antenna, illustrated in Fig. 2 to the antenna connector on the receiver.
- (b) Adjust the signal generator to 535 kilocycles.
- (c) Rotate the manual tuning control to tune the receiver at 535 kilocycles.
- (d) Adjust the oscillator trimmer C9 for maximum response (See Parts Layout - Bottom of Chassis, Page 5).
- (e) Adjust the signal generator to 1400 kilocycles.
- (f) Rotate the manual tuning control to tune the receiver at 1400 kilocycles.

- (g) Adjust the converter trimmer C6 and the antenna trimmer C1 for maximum output (See Parts Layout - Top and Bottom of Chassis, Pages 4 and 5).
- (h) If dial calibration is off after making the above adjustments, corrections can be made by turning the eccentric screw at the fulcrum of the dial pointer (See Parts Layout - Top of Chassis, Page 4).

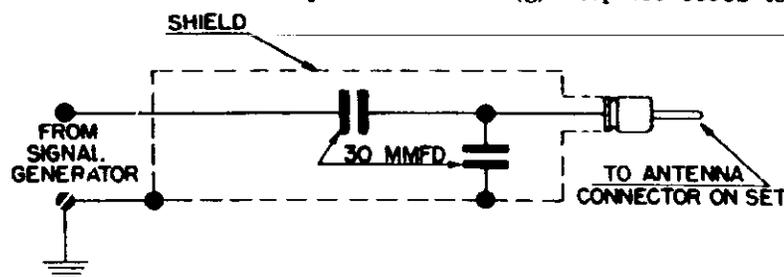
**SENSITIVITY CONTROL**

Sensitivity control R9 is factory set and should not be changed. If it is necessary for this control to be readjusted, it should be set to 2 volts DC positive on the cathode of the 6SK7GT IF Amplifier tube.

**ALIGNMENT AFTER CORE REPLACEMENT**

**WARNING:** The following adjustments are to be made **ONLY** if a core has been replaced.

- (a) Adjust the signal generator to 1675 kilocycles.
- (b) Connect the signal lead of the signal generator through the dummy antenna, see Fig. 2, to the antenna connector of the receiver.
- (c) Rotate the manual tuning control to stop at 1600 kilocycles (maximum high frequency end of the dial).
- (d) Screw the cores completely out of the antenna coil, the converter coil, and the oscillator coil.
- (e) Adjust the oscillator trimmer C9 at 1675 kilocycles (see Parts Layout - Bottom of Chassis, Page 5).
- (f) Adjust the converter trimmer C6, and the antenna trimmer C1 for maximum output (see Parts Layout - Top of Chassis and Bottom of Chassis).
- (g) Replace cores to approximately their



**FIG. 2 DUMMY ANTENNA**

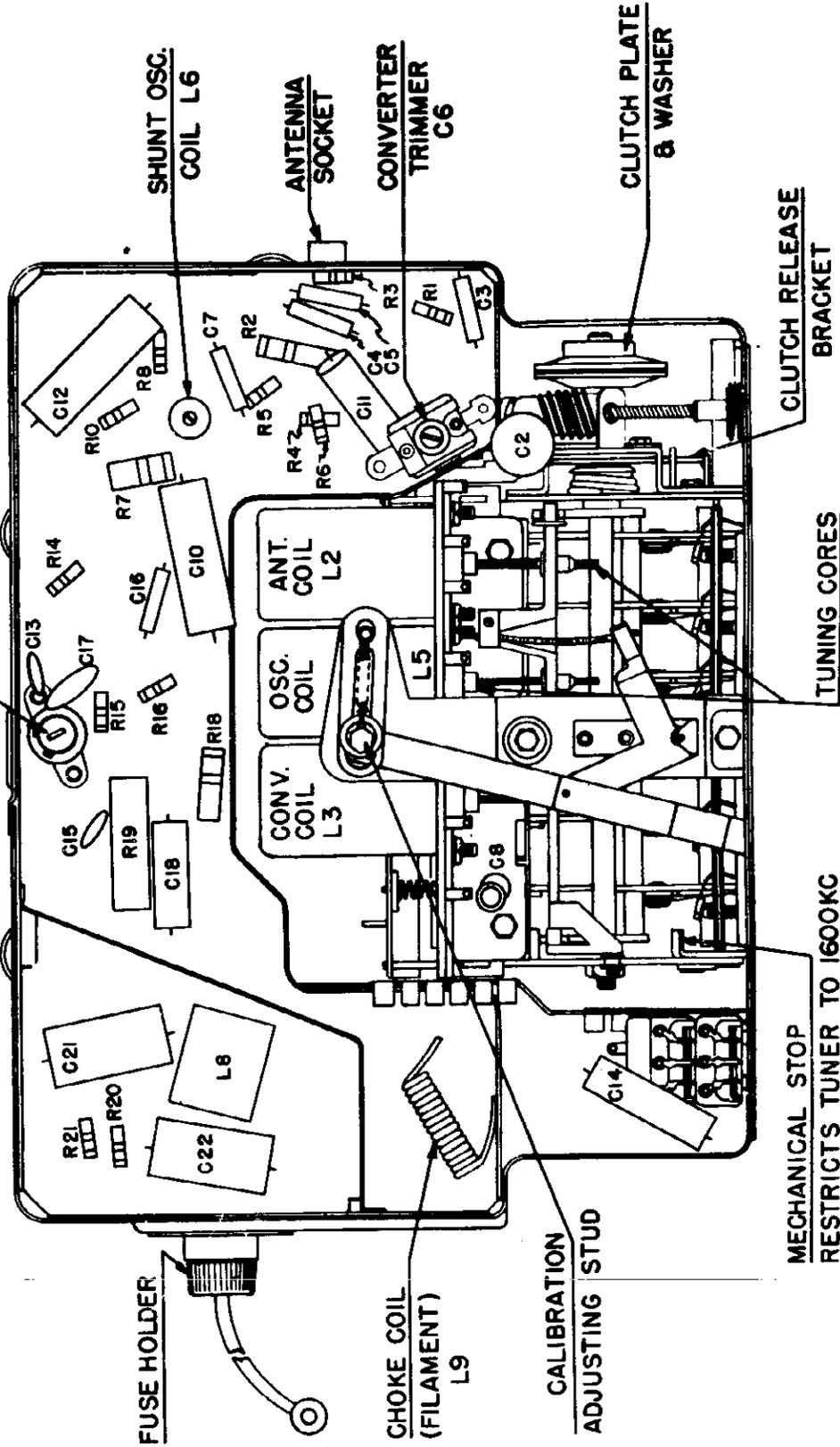
MODEL CH749,  
Hudson #225908

- (m) "Rock in" shunt oscillator coil L6 for maximum output. This should be done only as a last resort. This is the same as rocking in the padder capacitor on a capacitor tuned receiver.
- (n) Check the receiver for calibration and gain. If the receiver is off scale or weak, repeat operations (j), (k) and (l).

- (k) Adjust the antenna core L2 and converter coil L3 for maximum output (see Parts Layout - Top of Chassis, Page 4).
- (l) Adjust the signal generator to 600 kilocycles.

- (h) Adjust the signal generator to 1400 kilocycles.
- (i) Rotate the manual tuning control to position dial pointer at 1400 kilocycles.
- (j) Adjust the oscillator core L5 to scale at 1400 kilocycles (see Parts Layout - Top of Chassis, Page 4).

FIG. 3 PARTS LAYOUT - TOP OF CHASSIS



**SENSITIVITY CONTROL R9**

**FUSE HOLDER**

**CHOKO COIL (FILAMENT) L9**

**CALIBRATION ADJUSTING STUD**

**MECHANICAL STOP RESTRICTS TUNER TO 1600KC**

**TUNING CORES**

**CLUTCH RELEASE BRACKET**

**CLUTCH PLATE & WASHER**

**SHUNT OSC. COIL L6**

**ANTENNA SOCKET**

**CONVERTER TRIMMER C6**

(o) After alignment is complete, the maximum high frequency tuning range should be checked. If the range is higher or lower than 1605 kilocycles, the lug stop on the tuner unit near the volume control should be bent to limit the frequency coverage to 1605 kilocycles.

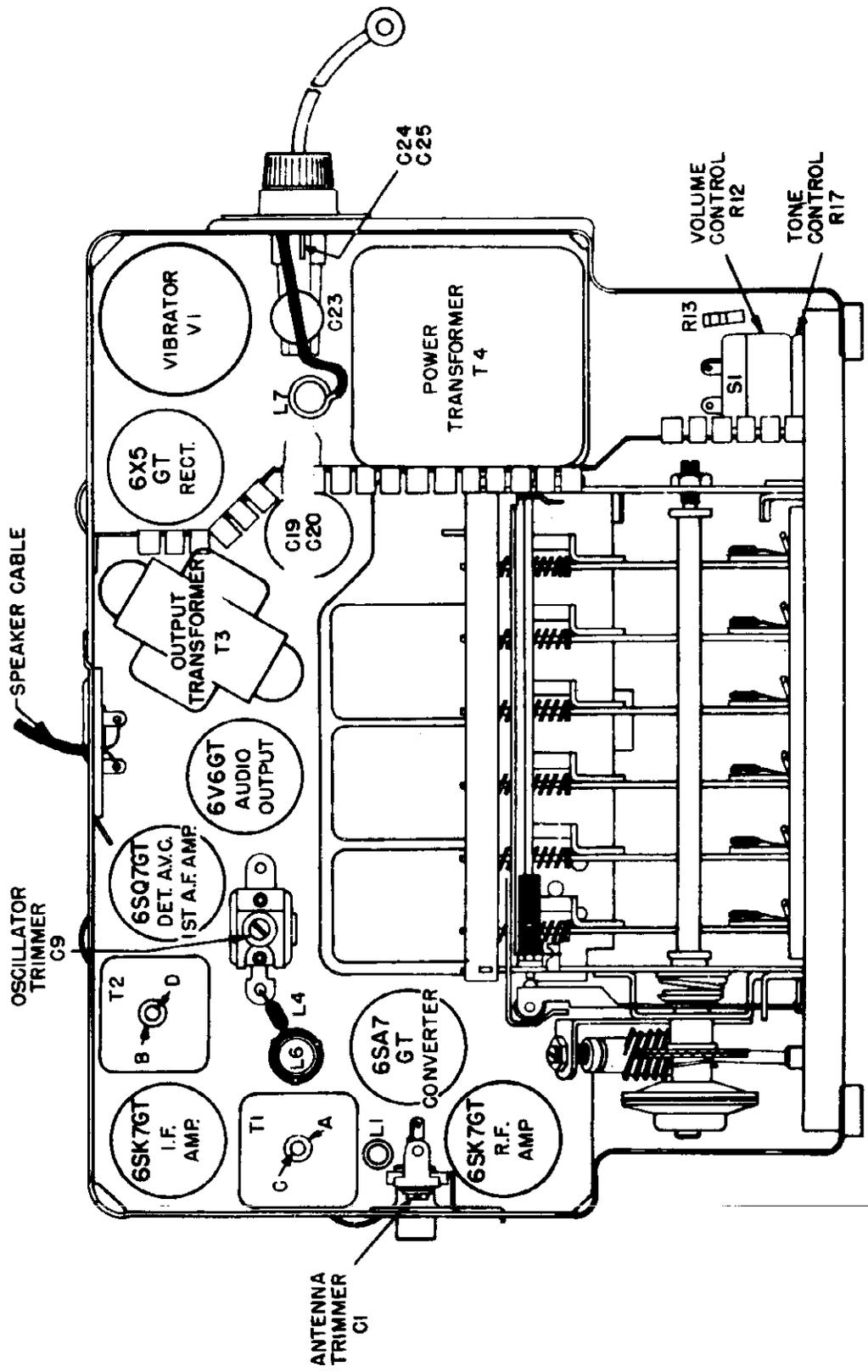
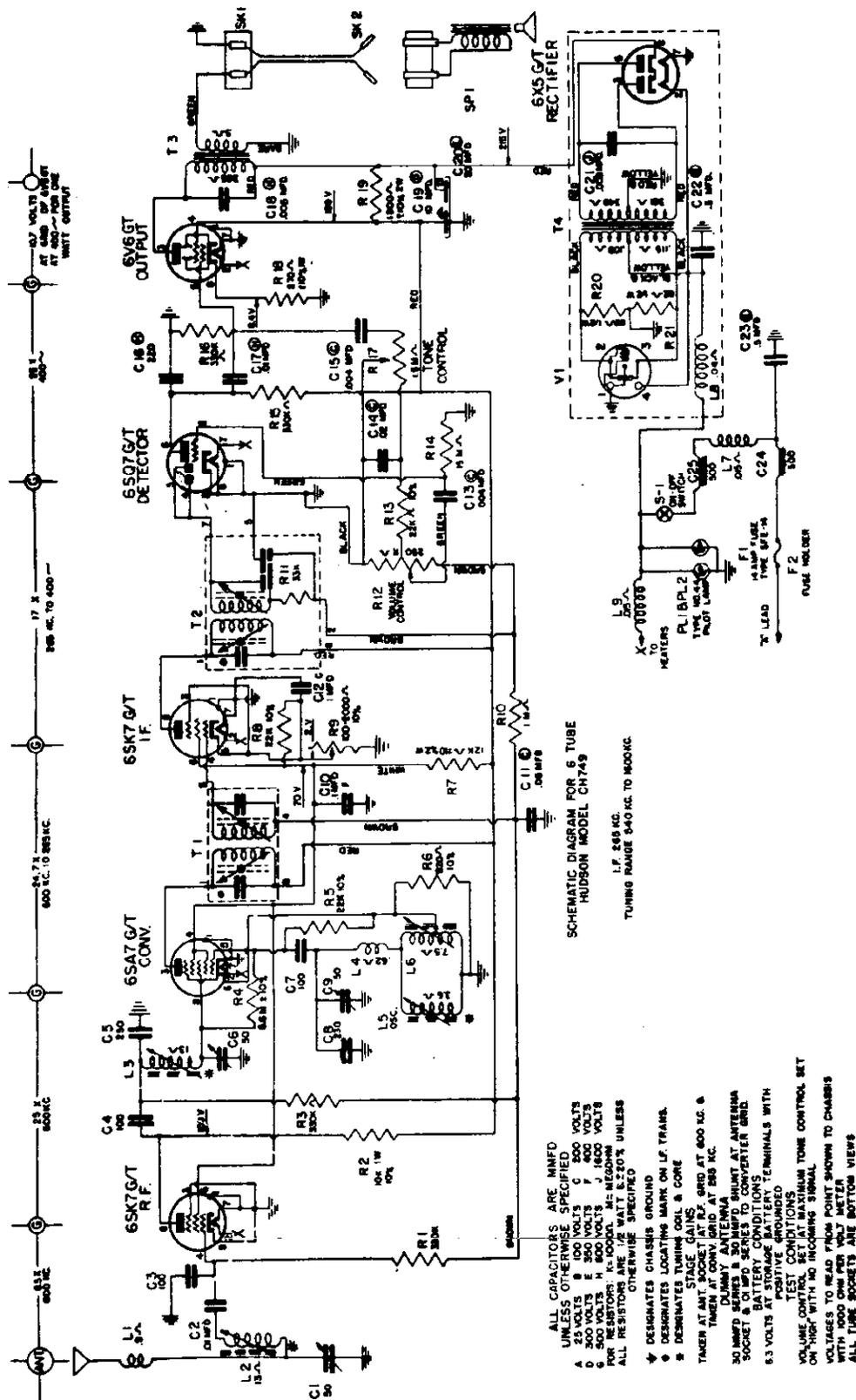


FIG. 4 PARTS LAYOUT - BOTTOM OF CHASSIS

MODEL CH749,  
Hudson #225908



SCHEMATIC DIAGRAM FOR 6 TUBE HUDSON MODEL CH749  
TUNING RANGE 540 KC. TO 1600 KC.

- ALL CAPACITORS ARE MMFD UNLESS OTHERWISE SPECIFIED
- A 25 VOLTS B 100 VOLTS C 500 VOLTS
- D 500 VOLTS E 1000 VOLTS F 1000 VOLTS
- G 1000 VOLTS H 1000 VOLTS J 1000 VOLTS
- K 1000 VOLTS L 1000 VOLTS M 1000 VOLTS
- N 1000 VOLTS O 1000 VOLTS P 1000 VOLTS
- FOR RESISTORS: K=1000Ω, M=10000Ω, N=100000Ω
- ALL RESISTORS ARE 1/2 WATT ±20% UNLESS OTHERWISE SPECIFIED
- ↓ DESIGNATES CHASSIS GROUND
- ◆ DESIGNATES LOCATING MARK ON I.F. TRANS.
- \* DESIGNATES TUNING COIL & CORE
- STAGE GAINS
- TUNER AT ANT. SOCKET AT R.F. GRID AT 600 KC. & 1000 KC.
- CONVERTER AT 600 KC.
- 30 MMFD SERIES & 30 MMFD SHUNT AT ANTENNA SOCKET & 50 MMFD SERIES TO CONVERTER GRID.
- SOCKET & 50 MMFD SERIES TO CONVERTER GRID.
- BATTERY CONDITIONS
- 6.3 VOLTS AT POSITIVE TERMINALS WITH POSITIVE GROUND
- TEST CONDITIONS
- VOLUME CONTROL SET AT MAXIMUM TONE CONTROL SET ON "HIGH" WITH NO INCOMING SIGNAL
- VOLTAGES TO READ FROM POINT SHOWN TO CHASSIS WITH 1000 OHM PER VOLT METER
- ALL TUNE SOCKETS ARE BOTTOM VIEWS

FIG. 5 SCHEMATIC DIAGRAM - MODEL 225908

**PARTS LIST**

MODEL CH749,  
Hudson #225908

COILS AND CHOKES

<u>SCHEMATIC LOCATION</u>	<u>PRODUCTION PART NO.</u>	<u>SERVICE PART NO.</u>	<u>DESCRIPTION</u>
L9	71630	148-0007	Choke - Filament
L8	71628	147-0007	Choke - Main Hash
L7	71629	147-0001	Choke - Motor Noise
L1	71642	148-0001	Choke - Motor Noise - Antenna
L5	71517	113-0016	Coil - Oscillator
L4	71949	146-0010	Coil - Oscillator Series
L6	71631	116-0002	Coil - Oscillator Shunt
L2, L3	71515	112-0007	Coil - RF
L2, L3, L5	75060	117-0011	Coil Assembly - Tuner Unit

CAPACITORS

C13, C15	71915	166-4000D	Capacitor - Ceramic - .004 Mfd. - 500 V.
C2, C17	71632	168-0002D	Capacitor - Ceramic - .01 Mfd. - 500 V.
C4, C7	14140	163-0100	Capacitor - Mica - .0001 Mfd. - 500 V.
C3	13228	163-0100	Capacitor - Mica - .0001 Mfd. - 500 V.
C16	71660	163-0220	Capacitor - Mica - .00022 Mfd. - 500 V.
C5	11691	163-0250	Capacitor - Mica - .00025 Mfd. - 500 V.
C8	71920	165-0230	Capacitor - Compensating - .000230 Mfd.
C21	71662	160-16282	Capacitor - Molded Paper - .0082 Mfd. - 1600 V.
C18	71950	162-0625	Capacitor - Paper - .005 Mfd. - 600 V.
C14	20987	162-0212	Capacitor - Paper - .02 Mfd. - 200 V.
C11	71955	162-0215	Capacitor - Paper - .05 Mfd. - 200 V.
C12	71954	162-0401	Capacitor - Paper - .1 Mfd. - 200 V.
C10	71953	162-0401	Capacitor - Paper - .1 Mfd. - 400 V.
C22, C23	71763	169-0001	Capacitor - Paper - .5 Mfd. - 100 V.
C19, C20	71916	161-2000	Capacitor - Electrolytic 10 Mfd. - 300 V. 20 Mfd. - 350 V.
C1	71917	172-0027	Capacitor - Trimmer - Antenna
C6	71918	172-0028	Capacitor - Trimmer - Converter
C9	71919	172-0029	Capacitor - Trimmer - Oscillator

RESISTORS

R20, R21	BY38201	181-0820	Resistor - insulated - 82 Ohm - 1/2 W.
R6	BY38211	181-0821	Resistor - insulated - 820 Ohm - 1/2 W.
R5, R8, R13	BY32231	181-0223	Resistor - insulated - 22,000 Ohm - 1/2 W.
R11	BY33331	181-0333	Resistor - insulated - 33,000 Ohm - 1/2 W.
R1, R3, R15, R16	BY33342	181-0334	Resistor - insulated - 330,000 Ohm - 1/2 W.
R10	BY31052	181-0105	Resistor - insulated - 1 Megohm - 1/2 W.
R4	BY35651	181-0565	Resistor - insulated - 5.6 Megohm - 1/2 W.
R14	BY31562	181-0156	Resistor - insulated - 15 Megohm - 1/2 W.
R18	ZY32711	182-0271	Resistor - insulated - 270 Ohm - 1 W.
R2	ZY31031	182-0103	Resistor - insulated - 10,000 Ohm - 1 W.
R19	VY31821	183-0182	Resistor - insulated - 1,800 Ohm - 2 W.
R7	VY31231	183-0123	Resistor - insulated - 12,000 Ohm - 2 W.

MISCELLANEOUS

SP1	71964	539-0006	Speaker - 6" x 9" PM
SK2	71926	193-0008	Cable - Speaker
	71640	562-0006	Cable - Battery - Fuse
R12, R17, S1	75752	157-0013	Control - Volume, Tone and On-Off
R9	71645	159-0004	Control - Sensitivity
	71503	192-0002	Core - Perm. Tuner
	71699	416-0002	Socket - Antenna Connector
	71696	412-0016	Socket - Octal - Tube
	71697	413-0003	Socket - Vibrator

**PAGE 22-22 SYLVANIA**MODEL CH749,  
Hudson #225908

T1	71702	121-0015	Transformer - 1st I. F.
T2	71703	122-0015	Transformer - 2nd I. F.
T3	71938	143-0004	Transformer - Output
T4	71941	141-0012	Transformer - Power
V1	71942-1	511-0001	Vibrator

**INSTALLATION & SUPPRESSION**

75744	569-0014	Installation Kit Assembly (complete) includes mounting brackets, hardware and volume and tuning knob
75759	561-0008	Cable - Battery - Fuse to Circuit Breaker
71961	569-0004	Capacitor - Generator and Ignition Coil
75152	191-0002	Fuse - 14 Amp. - Type SFE - 14
71962	744-0009	Knob - Tone Control
71963	744-0010	Knob - Trim
75133	749-0012	Knob - Volume and Tuning
75756	496-0050	Spring - Knob Tension
71899	563-0004	Suppressor - Distributor

**TUNER ASSEMBLY**

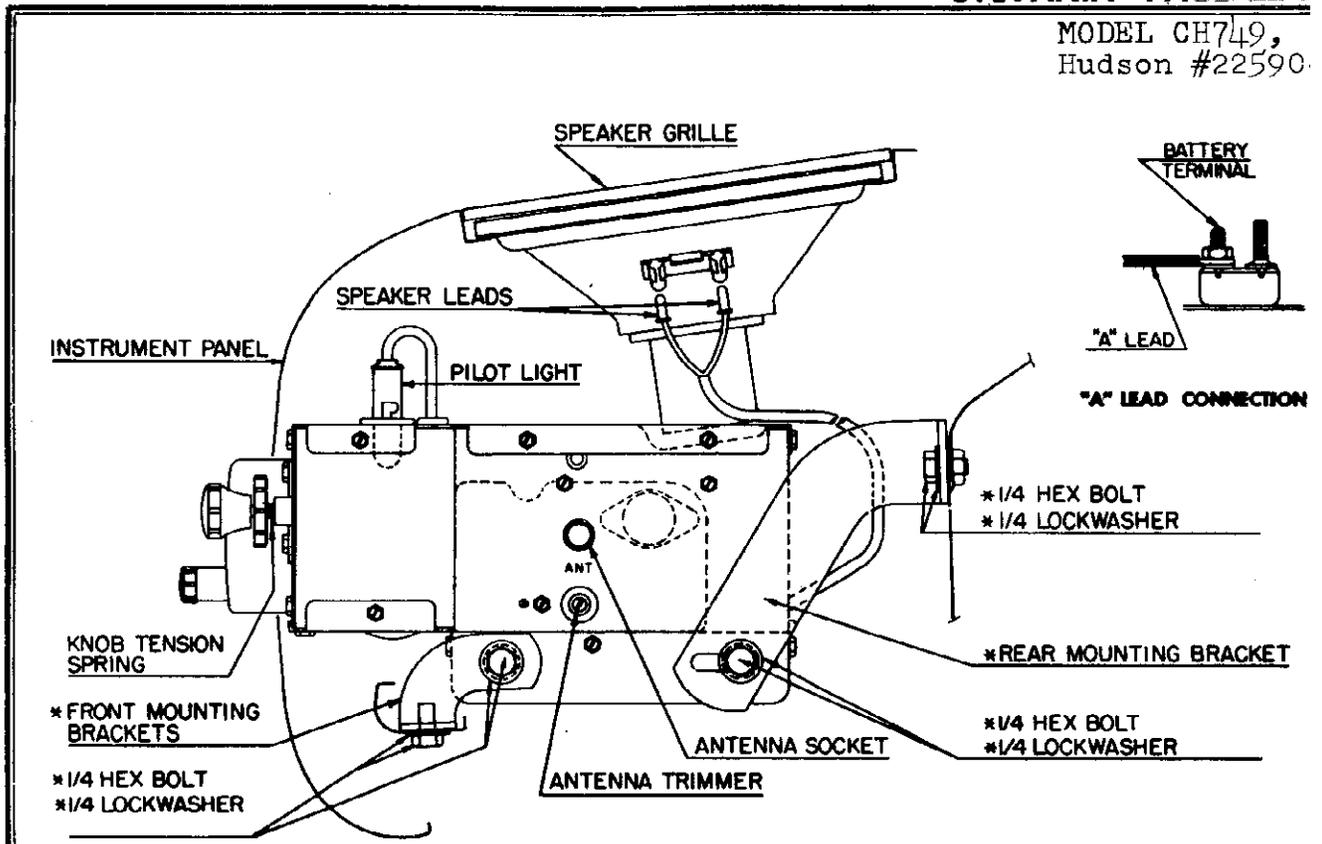
71819	333-0008	Clutch Plate & Washer Assembly
71818	333-0007	Clutch Release Bracket & Roller Assembly
71823	333-0006	Gear & Bushing Assembly
71587	331-0003	Lock - Cam
71979	752-0021	Plunger Screw & Knob Assembly
71991	493-0009	Shaft - Drive
71835	496-0045	Spring - Release Bar
71990	313-0015	Unit - Tuner Assembly
71847	554-0015	Washer - "C"
44638	553-0010	Washer - Fiber
71846	553-2008	Washer - Tuning Shaft
71815	484-0005	Worm Gear & Bracket Assembly

**DIAL ASSEMBLY**

PL1, PL2	71907	711-0020	Escutcheon Assembly (complete)
	14914	611-0044	Light - Dial (Mazda #44)
	75007	472-0003	Link - Pointer Drag & Stud Assembly
	71929	477-0003	Escutcheon Window Retaining
	75057	791-0013	Pointer & Bracket Assembly
	75063	722-0014	Scale - Dial
	71948	411-0011	Socket - Dial Light & Lead Assembly
	75036	496-0048	Spring - Pointer Tension
	75039	553-2009	Washer - Pointer Tension Spring
	71940	489-0012	Window - Escutcheon

**TUBE COMPLEMENT**

45238G	622-0001G	6SK7GT - R. F. Amplifier
41332G	622-0002G	6SA7GT - Converter
45238G	622-0001G	6SK7GT - I. F. Amplifier
45239G	622-0003G	6SQ7GT - Detector, AVC & A. F. Amplifier
71226G	622-0004G	6V6GT - Audio Output
71227G	633-0001G	6X5GT - Rectifier



\* INDICATES PARTS FURNISHED BY HUDSON MOTOR CAR CO.

**FIG. 6 RECEIVER INSTALLATION**

**INSTALLATION**

Figure 6 illustrating the installed receiver and its related parts is given here to facilitate removal and reinstallation of the receiver when service or repairs are necessary.

1. Loosen set screws and remove volume control knob, tone control knob, tuning knob, trim knob, and knob tension spring.
2. Remove speaker leads, antenna lead and

"A" lead.

3. Remove four speaker mounting screws and speaker grille.
4. Lift speaker out of recess in dash panel.
5. Remove four 1/4" hex bolts and slide receiver to the rear, down and remove.

**OPERATING INSTRUCTIONS**

**VOLUME CONTROL**

To turn the receiver on, turn the volume control knob to the right until it clicks and the dial is illuminated. Allow the receiver to reach the operating stage and adjust the volume control knob for the desired volume. To turn the receiver off, rotate the volume control knob to the left until the control clicks.

**MANUAL TUNING**

To tune the receiver manually it is only necessary to rotate the manual tuning knob (smaller of the two right hand knobs). Tune the receiver to the exact frequency for the best tonal quality. Manual tuning can be done at any time and will not disturb the setting of the push buttons.

MODEL CH749,  
Hudson #225908

### tone control

The tone control knob is located directly behind the volume control knob. Rotating this control to the right or left will change the tone

of the receiver. Right hand rotation will emphasize the high notes, left hand rotation emphasizes the bass notes. Turn in either direction for most pleasing tone.

### AUTOMATIC TUNING

There are six automatic tuning positions, each of which may be adjusted to a desired station. In order to simplify station identification, it is advisable to set the automatic tuning mechanism in sequence according to frequencies of the stations, beginning with the station broadcasting on the lowest frequency, and progressing to the station broadcasting on the higher frequency. If these positions have not been previously adjusted, proceed as follows:

1. Loosen the first push button (left side of receiver) by turning it counterclockwise with your fingers, not more than two turns.

2. Turn the manual tuning control knob to tune in the desired station. (Carefully tune to the middle of the signal for clearest reception).
3. Push this push button in to its extreme bottom position and then release. Tighten the push button by turning it clockwise (with fingers only). This completes the operation of setting this push button.
4. Repeat the above procedure for each of the five remaining push buttons.

### INTERFERENCE SUPPRESSION

There should be no motor noise or interference from the ignition system if the receiver has been installed in the car according to the instructions furnished with it. The interference suppression equipment may be further checked for proper installation by referring to the following instructions and illustration.

**IMPORTANT:** Use the utmost care in the following operations to insure freedom from motor noise. Be sure that good ground contacts are made between the interference capacitors and the car body. If necessary, clean away paint and dirt with emery paper. Tighten all nuts and bolts securely.

The voltage regulator capacitor 569-0004 should be installed as shown in Fig. 7. Make certain the contacts are clean and the capacitor is attached to the terminal marked A.

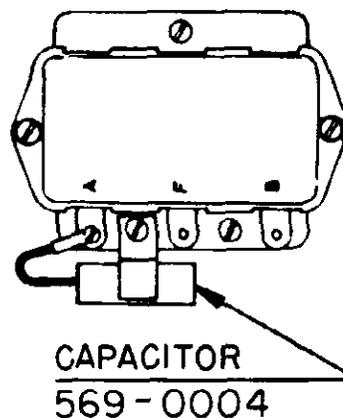
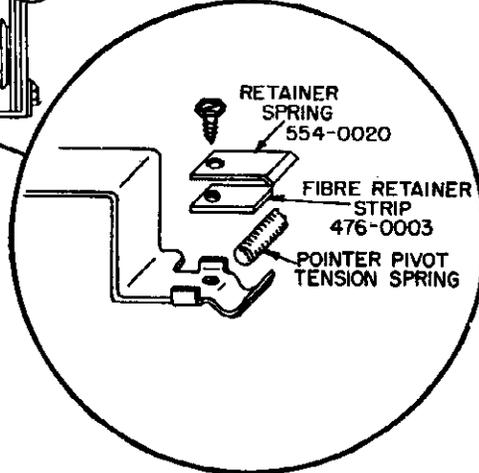
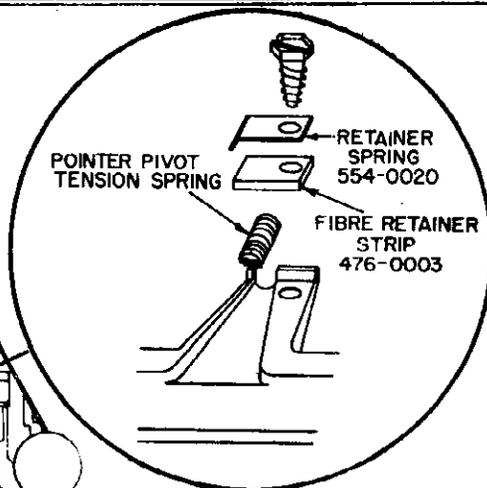
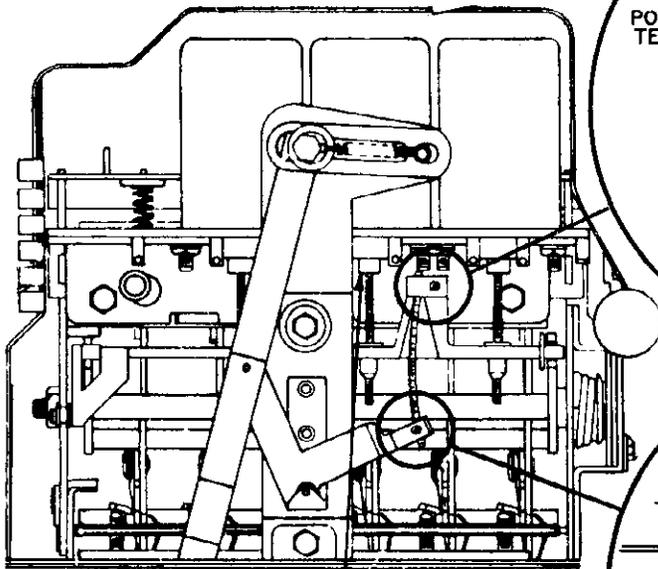


FIG. 7 VOLTAGE REGULATOR

MODEL CH749,  
Hudson #225908

BOTTOM VIEW OF TUNER SHOWING RETAINER STRIP



4-16-51 2-17

*Supplement No. 2  
to  
Technical Service Bulletin*

Item 1. Interference suppression.

All 6 cylinder Hudson cars have a suppressor built into the distributor cap; thus the information given on page 12, for installation of Suppressor 563-0004 applies only to eight cylinder models.

Item 2. The following revisions should be made to the Repair Parts List:

<u>SCHEMATIC LOCATION</u>	<u>PRODUCTION PART NUMBER</u>	<u>SERVICE PART NUMBER</u>	<u>DESCRIPTION</u>
			Delete
L1	71640	562-0006	Cable - Battery - Fuse
	71642	148-0001	Choke - Motor Noise - Antenna
	71907	711-0020	Escutcheon Assembly (complete)
	71929	477-0003	Escutcheon Window Retaining
	75063	722-0014	Scale - Dial
	71991	493-0009	Shaft - Drive
	71990	313-0015	Unit - Tuner Assembly
	71815	484-0005	Worm Gear and Bracket Assembly
			Add
L1	75955	148-0001	Choke - Motor Noise - Antenna
	75725	722-0018	Dial
	75741	711-0024	Escutcheon
	71640	562-0006	Holder - Fuse
	71929	477-0003	Plate - Escutcheon Window Retaining
	75757	493-0014	Shaft Assembly - Drive
	75730	313-0019	Tuner Unit Assembly - mechanical portion only - includes push buttons, driven clutch disc, worm gear, tuning control shaft
	75523	484-0005	Worm Gear and Bracket assembly

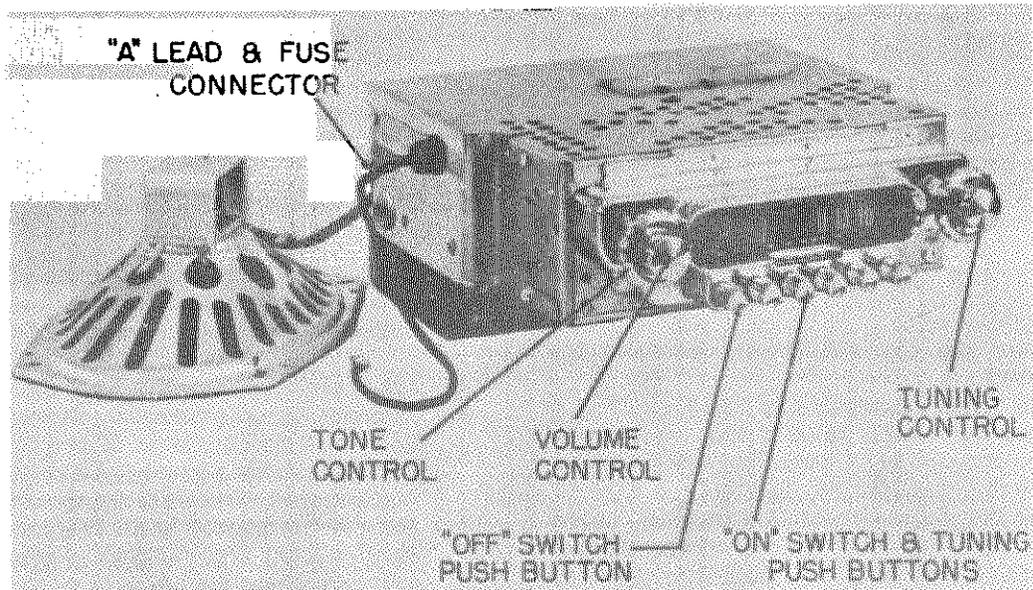


FIG.1 OCF751-1

## GENERAL

The Ford model 1A-18805-D receiver is designed for use in the 1951 Ford Station Wagons and cars. If Adapter Kit 1C-18819-A is used, this receiver may be installed in all 1951 Ford Trucks except parcel delivery trucks. The Sylvania serial numbers of the model covered in this bulletin are OCF40,001 and up.

This receiver is a twin unit, 8 tube super-heterodyne with a vibrator power supply and a push pull output stage employing 6V6GT tubes. The antenna, radio frequency and oscillator circuits in this receiver are tuned by means of iron cores both manually and with push buttons, over a range from 540 to 1600 kilocycles.

## TUBE COMPLEMENT

6SK7GT	R. F. Amplifier
6SA7GT	Converter
6SK7GT	I. F. Amplifier
6SQ7GT	Det., AVC & 1st A.F. Amplifier
6J5GT	Inverter
6V6GT	Output - Push Pull (2)
6X5GT	Rectifier

## POWER SUPPLY

The power supply uses a 4 prong, full wave, non-synchronous vibrator in conjunction with a 6X5GT full wave rectifier tube. The wiring for the power transformer and vibrator, the main hash choke and its by-pass, and the buffer capacitor are mounted in a shielded compartment on the chassis to reduce interference.

## ALIGNMENT

Optimum performance depends on accurate alignment of the receiver; therefore, follow these instructions carefully.

### PRELIMINARY INSTRUCTIONS

Make all alignment adjustments to the receiver with the "A" lead connected to a 7.2 volt negative source and ground the chassis to the positive

side of this source. Rotate the volume control to its maximum clockwise position. Rotate the tone control fully clockwise. Connect the output meter across the speaker voice coil. Keep the output from the signal generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment. Use an insulated screw driver and special alignment tool 898-0003 for making adjustments.

MODEL OCF751-1,  
Ford #1A-18805-D

## SENSITIVITY CONTROL

The sensitivity control R6 is factory preset and should not be readjusted unless it has been tampered with. If it is definitely determined that readjustment is necessary, set the control to obtain 3.5 volts at the cathode of the I.F. Amplifier (pin #5 of the second 6SK7GT tube).

## I F ALIGNMENT

1. Remove the top and bottom covers of the receiver.
2. Set the signal generator to 265 Kc.
3. Connect the signal lead of the signal generator through a .1 Mfd. capacitor to the converter grid (pin #8, 6SA7GT).
4. Adjust the primary and secondary IF cores "A," "B," "C" and "D" in order named for maximum output. Both the primary and secondary of each transformer are adjusted from the top of the transformer using special alignment tool. (See Parts Layout - Bottom of Chassis, Page 3).

Repeat this operation until no further increase in output is obtained.

## R F AND OSCILLATOR ALIGNMENT

1. Connect the signal generator leads through a dummy antenna which consists of two, 30 Mmfd. capacitors in a grounded shield, wired so that one is between the antenna lead-in socket of receiver and the signal generator, and the other is shunted from antenna lead to ground.
2. Turn the manual control until the high frequency stop is reached.
3. Set the signal generator to 1625 Kc.
4. Adjust the oscillator trimmer C7, the converter trimmer C6, and the antenna trimmer C1, respectively for maximum response.
5. If dial calibration is off after making above adjustments, corrections can be made by turning eccentric stud of fulcrum of dial pointer.

## IRON CORE AND ADJUSTING SPRING

### ADJUSTMENT OR REPLACEMENT

1. Remove the top cover from the receiver.
2. Remove the escutcheon assembly.
3. Break cement seal and screw the core in or out to the desired position.

4. If the cores are replaced or have been tampered with, the adjustments under coil and core replacement must be made.
5. After all adjustments have been made re-cement core springs.

## CORE ALIGNMENT

**CAUTION:** The following adjustments are to be made only after a core or coil has been replaced or tampered with.

1. Set signal generator to 1625 Kc.
2. Connect signal generator through a dummy antenna which consists of two 30 Mmfd. capacitors inside a grounded shield so that one is connected directly from antenna socket on receiver to ground while the other capacitor is connected from signal generator to receiver antenna socket.
3. Rotate the manual tuning control to set dial pointer at 1610 Kc. (Maximum high frequency end of dial).
4. Screw the cores completely out of the antenna coil, the converter coil, and the oscillator coil.
5. Adjust the oscillator trimmer C7 at 1625 Kc.
6. Adjust the converter trimmer C6 and the antenna trimmer C1 for maximum output reading.
7. Set the signal generator and the receiver dial to 1410 Kc.
8. Replace the cores to their original position (approximately 11/16" from the end of the coil form.)
9. Adjust the oscillator core L6 to scale at 1410 Kc.
10. Adjust the antenna core L2 and RF core L5 for maximum output reading.
11. Repeat steps 9 and 10 to insure that tracking and calibration are correct.
12. After alignment is complete, the maximum high frequency tuning range should be checked. If the range is greater or less than 1610 Kc., the lug stop near the volume control should be bent to limit the frequency coverage to 1610 Kc.

**IMPORTANT:** After installing the receiver in the car, allow it to operate for approximately 15 minutes to reach normal operating temperature. Extend antenna to maximum height. Check the antenna trimmer alignment on a weak station at approximately 1410 Kc.

MODEL OCF751-1,  
Ford #1A-18805-D

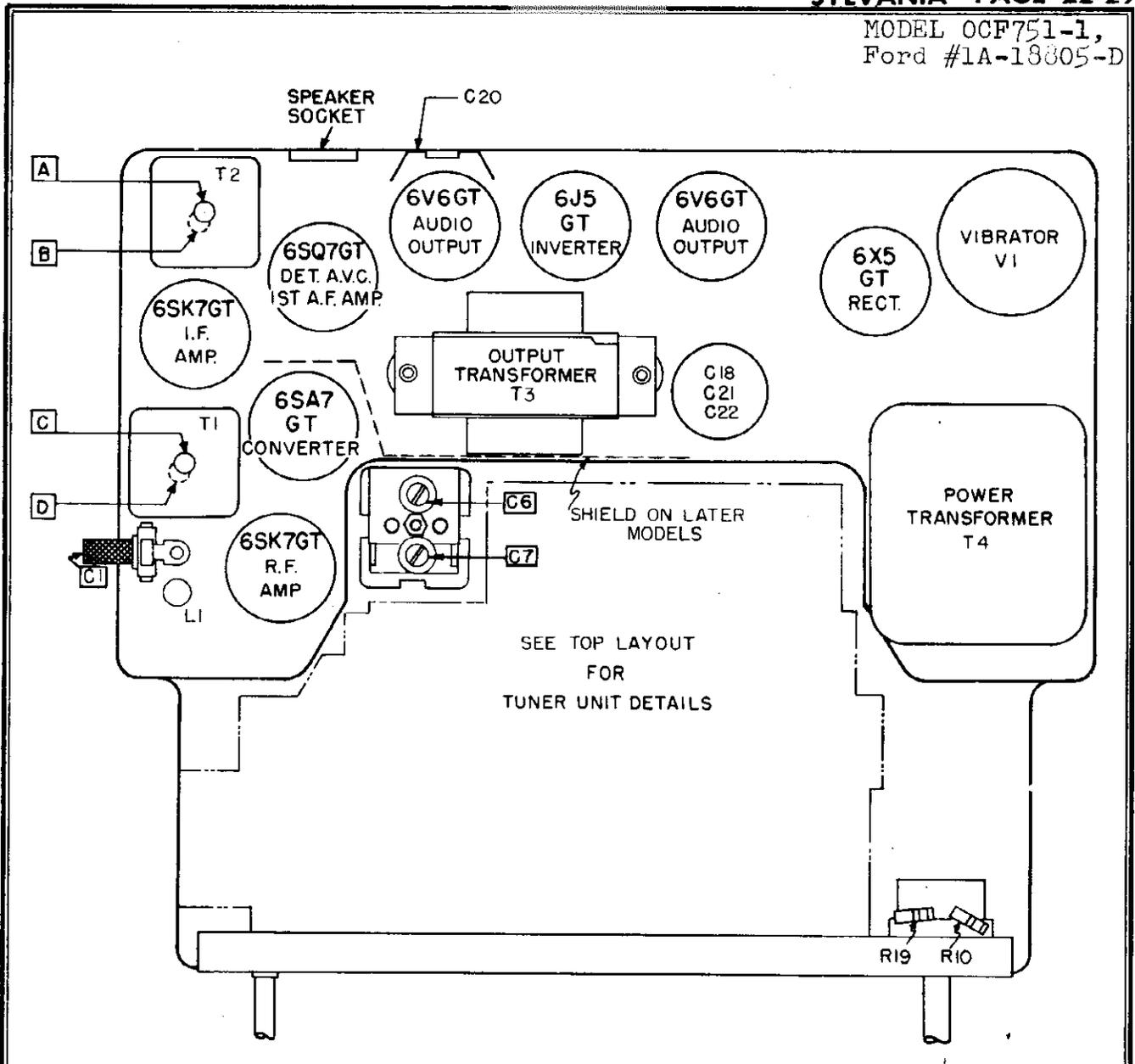


FIG. 2 PARTS LAYOUT - BOTTOM OF CHASSIS

## REPAIR PARTS LIST

### TUNER UNIT AND PARTS

<u>SCHEMATIC LOCATION</u>	<u>PRODUCTION PART NUMBER</u>	<u>SERVICE PART NUMBER</u>	<u>DESCRIPTION</u>
	75900	313-0016	Tuner Unit Assembly - Mechanical portion only (includes clutch plate, push buttons, On-Off switch, worm gear and bracket, tuning control shaft)
	60493	481-0011	Ball - bearing - .125"
	71818	333-0007	Bracket - Clutch release and Roller Assembly

MODEL OCF751-1,  
Ford #1A-18805-D

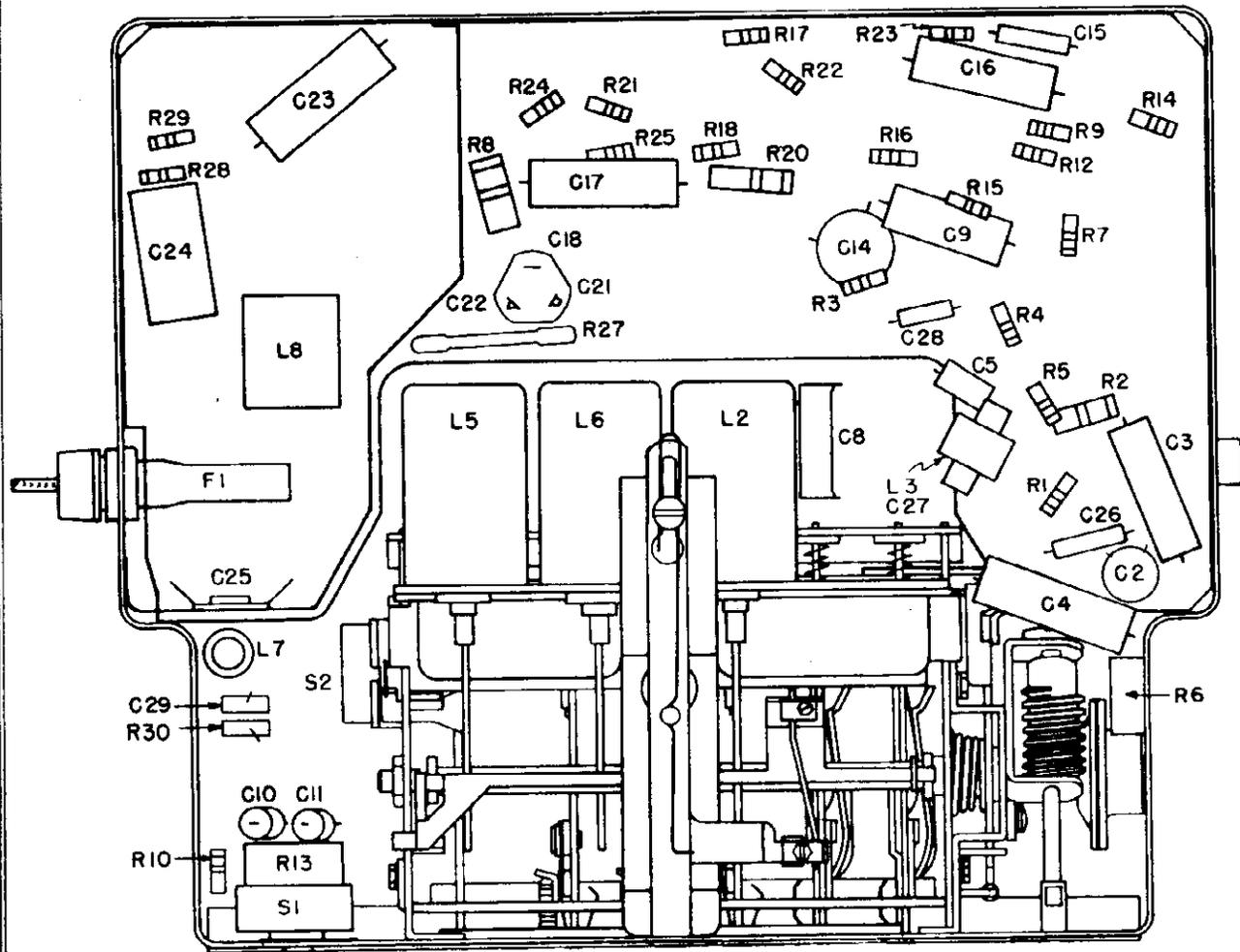
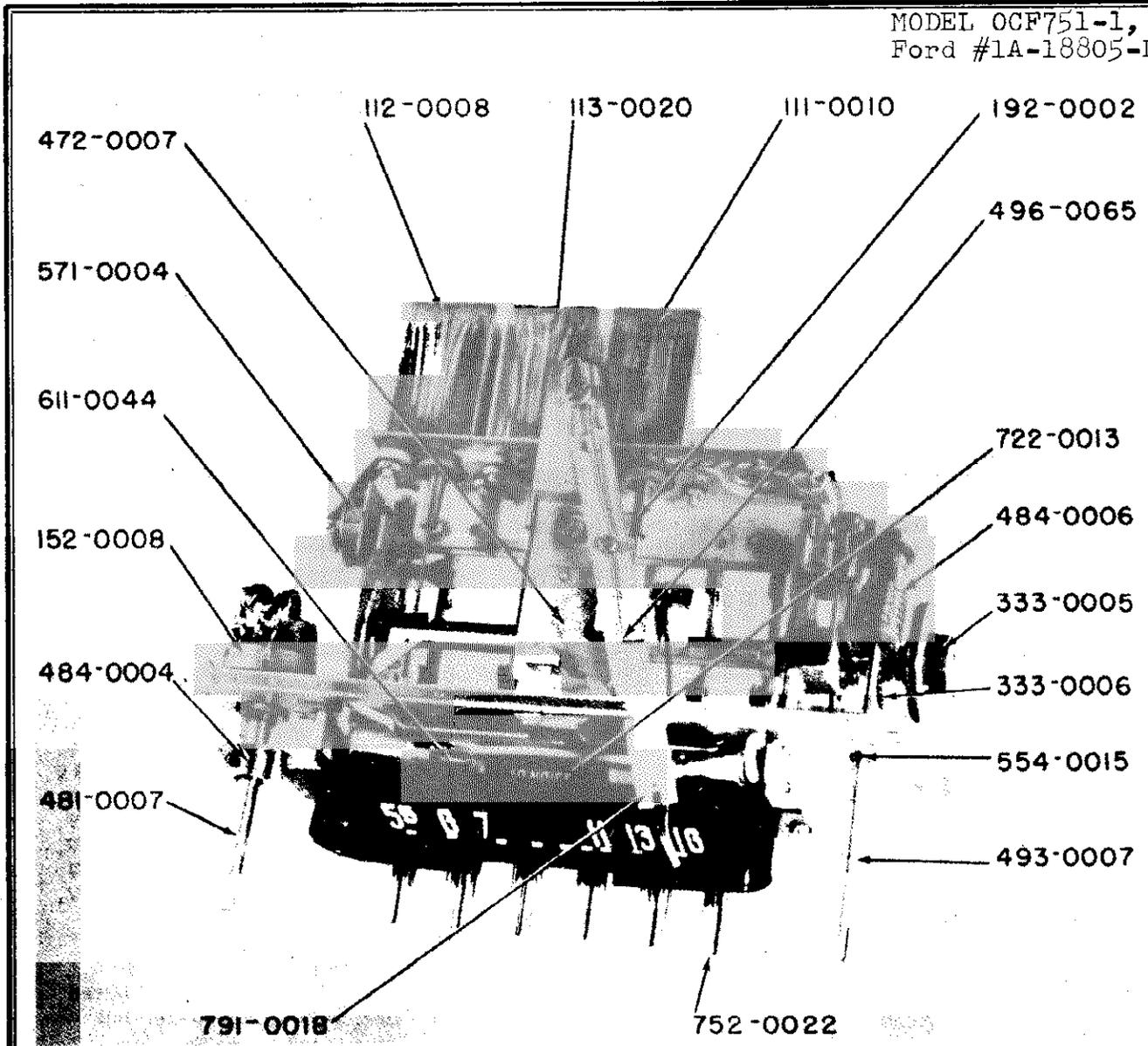


FIG. 3 PARTS LAYOUT - TOP OF CHASSIS

75842	492-0027	Bracket - Pointer Support Assembly
71626	481-0006	Bushing - Tuning Shaft
71627	481-0007	Bushing - Volume Control Shaft
75082	752-0022	Button - Push and Screw Assembly
71650	487-0010	Clip - Dial Window Retaining (L. H.)
71649	487-0009	Clip - Dial Window Retaining (R. H.)
65966	333-0005	Clutch and Disc Assembly - Driven
71503	192-0002	Core & Adjusting Spring Assembly
75094	722-0013	Drum - Tone Shaft and Gear Assembly
71651	711-0019	Escutcheon
75106	485-0002	Filter - Dial Scale
75530	333-0006	Gear - Drive and Bushing Assembly
75009	484-0004	Gear - Tone Assembly
75531	484-0006	Gear - Worm
71723	489-0011	Glass - Dial Window
71652	744-0008	Knob - Control - Tone
71653	741-0004	Knob - Control - Tuning - includes Spring - Knob retaining
71654	742-0002	Knob - Control - Volume - includes Spring - Knob retaining
75797	472-0007	Link - Pointer Drag & Stud Assembly
71587	331-0003	Lock - Cam



**FIG. 4 OCF751 - 1 TUNER**

75031	552-0023	Nut - 3/8 - 32 Hex
71847	791-0018	Pointer Assembly
75103	554-0015	Ring - Retaining - Tuning Shaft
65975	722-0011	Scale - Dial
71838	551-0017	Screw - Adjusting
75873	551-0017	Screw - Pivot
71701	493-0007	Shaft Assembly - Manual Drive
71700	497-0007	Sleeve - Tuning Shaft
75102	497-0006	Sleeve - Volume Control Shaft
71827	411-0009	Socket - Dial Light
71831	496-0043	Spring - Clutch Release
75037	496-0046	Spring - Clutch Release Bracket
75793	496-0065	Spring - Cross Arm Tension
71529	496-0066	Spring - Pointer Tension
71865	476-0003	Strip - Fibre Retainer ( Pointer Pivot Tension Spring )
71837	571-0004	Switch - On-Off
71180	553-3000	Washer - Felt
71853	553-4009	Washer - Shim
	553-5005	Washer - Tension

MODEL OCF751-1,  
Ford #1A-18805-D

TUBE COMPLEMENT

<u>SCHEMATIC LOCATION</u>	<u>PRODUCTION PART NUMBER</u>	<u>SERVICE PART NUMBER</u>	<u>DESCRIPTION</u>
	45238H	622-0001H	6SK7GT - R.F. Amplifier
	41332H	622-0002H	6SA7GT - Converter
	45238H	622-0001H	6SK7GT - I.F. Amplifier
	45239H	622-0003H	6SQ7GT - Detector - AVC - 1st A. F. Amplifier
	44547H	622-0010H	6J5GT - Inverter
	71226H	622-0004H	6V6GT - Audio Output
	71226H	622-0004H	6V6GT - Audio Output
	71227H	633-0001H	6X5GT - Rectifier

CAPACITORS

C8	75961	165-0230	Capacitor - Ceramic - Temp. Comp. - .00023 Mfd.
C2	71632	168-0002D	Capacitor - Ceramic - .01 Mfd. - 200 V.
	75825 or 71633	161-3005	Capacitor - Electrolytic
C18			20 Mfd. - 25 V.
C21, C22			20 Mfd. - 350 V.
C5	71472	163-0033	Capacitor - Mica - .000033 Mfd. - 500 V.
C15	71660	163-0220	Capacitor - Mica - .00022 Mfd. - 500 V.
C29	20548	163-0250	Capacitor - Mica - .00025 Mfd. - 500 V.
C28	71399	164-0010	Capacitor - Silver Mica - .00001 Mfd. - 500 V.
C26	71661	164-0150	Capacitor - Silver Mica - .00015 Mfd. - 500 V.
C10	75064	160-04215	Capacitor - Molded Paper - .0015 Mfd. - 400 V.
C11, C14	75098	160-02256	Capacitor - Molded Paper - .0056 Mfd. - 200 V.
C23	71662	160-16282	Capacitor - Molded Paper - .0082 Mfd. - 1600 V.
C3	71666	160-02122	Capacitor - Molded Paper - .022 Mfd. - 200 V.
C16, C17	71664	160-06122	Capacitor - Molded Paper - .022 Mfd. - 600 V.
C9	71663	160-0201	Capacitor - Molded Paper - .1 Mfd. - 200 V.
C4	71665	160-0401	Capacitor - Molded Paper - .1 Mfd. - 400 V.
C24	HT71763	169-0001	Capacitor - Paper - .5 Mfd. - 100 V.
C1	71636	172-0026	Capacitor - Trimmer - Antenna
C6, C7	75824	173-0002	Capacitor - Trimmer and Fixed
C20, C25		167-0008	Capacitor - Spark Plate Kit Consists of Silvered mica washer, Shouldered washer, flatwasher, screw, lockwasher-nut

MISCELLANEOUS CHASSIS PARTS

	71639	561-0003	Cable - Battery (Fuse to Ammeter)
F2	75786	562-0007	Holder - Fuse
	71699	416-0002	Socket - Antenna Connector
SK1	71698	414-0001	Socket - Speaker
	71693	412-0016	Socket - Tube - 8 Prong Octal - Molded Bakelite
	66423	413-0005	Socket - Vibrator

MISCELLANEOUS ELECTRICAL PARTS

PL1, PL2	14914	611-0044	Bulb - Dial Light (Mazda #44)
L1	75955	148-0001	Choke - Antenna
L8	71628	147-0007	Choke - Hash - Main
L7	75850	145-0005	Choke - Heater
	75796	117-0012	Coils - Permeability Tuning (includes)
L2		111-0010	Antenna Coil
L5		112-0008	R. F. Coil
L6		113-0020	Oscillator Coil
L3, C27	75918	118-0008	I. F. Trap Coil

MISCELLANEOUS ELECTRICAL PARTS (continued)

<u>SCHEMATIC LOCATION</u>	<u>PRODUCTION PART NUMBER</u>	<u>SERVICE PART NUMBER</u>	<u>DESCRIPTION</u>
R6	71645	159-0004	Control - Sensitivity
R13, S1	71893	152-0008	Control - Volume and Tone Switch
F1	17392	191-0002	Fuse - 14 Amp
SP1	75674-2	539-0001	Speaker - 6" x 9" PM
T1	71702	121-0015	Transformer - 1st I.F.
T2	71703	122-0015	Transformer - 2nd I.F.
T3	75931	143-0012	Transformer - Output
T4	75787	141-0010	Transformer - Power
V1	71712	511-0001	Vibrator

INSTALLATION PARTS

75938	569-0015	Installation and Suppression Kit (includes)
71617	492-0014	Bracket - Installation
75162	567-0005	Capacitor - Fuel Gauge
71456	564-0002	Capacitor - Generator
71604	569-0012	Capacitor - Oil Gauge
75156	569-0004	Capacitor - Voltage Regulator
71460	568-0003	Collector - Wheel Static
71610	552-0006	Nut - Hex - 1/4-20
75663	552-0001	Nut - Wing - 8-32
75935	563-0006	Suppressor Lead - Distributor
71615	553-2006	Washer - Flat
400-14	553-0003	Washer - Lock - 1/4 Split
71669	552-0020	Nut - Hex - 1/2 - 28
71414	563-0004	Suppressor-Distributor
71491	553-1250	Washer - Lock - 1/2 - Int. Tooth

RESISTORS

R16	BY34701	181-0470	Resistor - 47 Ohm - 1/2 W. - insulated
R28, R29	BY38201	181-0820	Resistor - 82 Ohm - 1/2 W. - insulated
R21	BY31521	181-0152	Resistor - 1,500 Ohm - 1/2 W. - insulated
R18	BY32221	181-0222	Resistor - 2,200 Ohm - 1/2 W. - insulated
R4	BY32231	181-0223	Resistor - 22,000 Ohm - 1/2 W. - insulated
R7, R11	BY33331	181-0333	Resistor - 33,000 Ohm - 1/2 W. - insulated
R25	BY33931	181-0393	Resistor - 39,000 Ohm - 1/2 W. - insulated
R17	BY35631	181-0563	Resistor - 56,000 Ohm - 1/2 W. - insulated
R10, R19	BY31041	181-0104	Resistor - 100,000 Ohm - 1/2 W. - insulated
R12	BY32241	181-0224	Resistor - 220,000 Ohm - 1/2 W. - insulated
R3, R22, R23, R24	BY33341	181-0334	Resistor - 330,000 Ohm - 1/2 W. - insulated
R14	BY34741	181-0474	Resistor - 470,000 Ohm - 1/2 W. - insulated
R1, R9	BY31051	181-0105	Resistor - 1.0 Megohm - 1/2 W. - insulated
R5	BY31061	181-0106	Resistor - 10 Megohm - 1/2 W. - insulated
R15	BY31561	181-0156	Resistor - 15 Megohm - 1/2 W. - insulated
R20	ZY33311	182-0331	Resistor - 330 Ohm - 1 W. - insulated
R2	ZY31031	182-0103	Resistor - 10,000 Ohm - 1 W. - insulated
R30	71676	189-0014	Resistor - 5.1 Ohm - 2 W. - W. W.
R27	VY31821	183-0182	Resistor - 1,800 Ohm - 2 W. - insulated
R8	VY31231	183-0123	Resistor - 12,000 Ohm - 2 W. - insulated



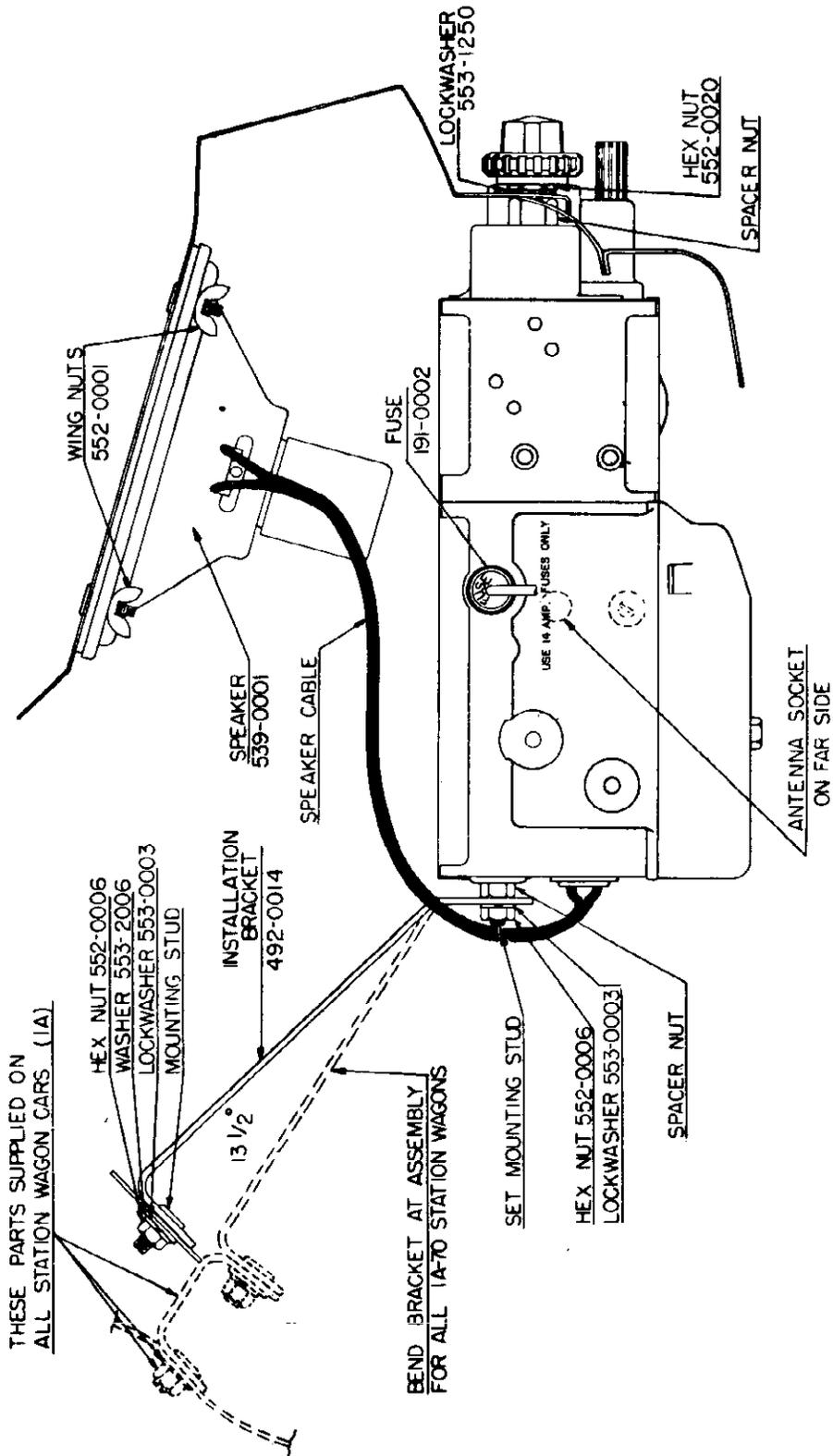


FIG. 6 MODEL OCF751-1 INSTALLATION

MODEL OCF751-1,  
Ford #1A-18805-D

## RECEIVER INSTALLATION

Figure 6 illustrates the installed receiver to facilitate removal and reinstallation of the receiver when service is necessary.

### TO REMOVE THE RECEIVER FROM THE CAR:

1. Disconnect the "A" lead at the receiver. Remove the speaker plug from the receiver.
2. Remove control knobs, front mounting nuts and lockwashers from the radio control

shafts. (See Fig. 6)

3. Disconnect the bottom of the set rear mounting bracket by removing the hex nut and lockwasher from the set rear mounting stud. (See Fig. 6)
4. Remove set by pushing it back and down behind instrument panel.
5. To take the speaker from the Ford car, remove the four wing nuts that hold the speaker to the rear of the instrument panel.

## OPERATING INSTRUCTIONS

### TO TURN RADIO ON

The radio is connected to the accessory terminal of the ignition switch, therefore, it is necessary to turn the ignition key to the left, if the engine is not running, before turning the radio on. Press any one of the five automatic push-buttons. Allow approximately 20 seconds for the receiver to reach operating temperature.

To turn the receiver off, press the "Off" push-button. (See Fig. 1)

### MANUAL TUNING

To operate the manual tuning control simply turn the tuning knob (see Fig. 1). When tuning

in a station, be sure to tune to the exact frequency for the best tone quality.

### VOLUME CONTROL

Turn the volume control knob for the desired volume.

### TONE CONTROL

The tone control knob is located directly behind the volume control knob. Turning this control to the right or left will change the tone of the receiver. This control has four positions and the position to which the control is set is indicated in the window in the center of the dial scale.

## AUTOMATIC TUNING

Automatic push button tuning is provided by means of 5 push buttons located directly under the dial scale and to the right of the "Off" push button (see Fig. 1). These five buttons permit the selection of five favorite local stations. When the push buttons have been set to the desired stations it is only necessary to press a push button to turn the set "On" and to receive the station for which the adjustment was made. The dial pointer will automatically indicate the frequency of the selected station.

### SETTING THE PUSH BUTTON TUNER

The five push buttons may be adjusted to any of the desired stations. In order to simplify the identification of these stations, it is ad-

visable to set the push buttons in sequence according to their frequencies, beginning with the station broadcasting on the lowest frequency and progressing to the station broadcasting on the highest frequency.

The push buttons should be set up during the daytime because at night, distant stations will be heard with the same volume as local stations, making it difficult to identify local stations.

Allow the receiver to operate for at least fifteen minutes before adjusting the push buttons. This will allow each part in the receiver to reach normal operating temperature.

- a. Collapse the antenna.
- b. Select a station at the low end of the broadcast band and manually tune it in so its signal is heard without distortion.
- c. Loosen the second push button from the left side by turning it, with your fingers, counterclockwise one turn.
- d. Press the loosened push button in firmly to its extreme position and release. Tighten the push buttons as much as possible by turning clockwise with your fingers.
- e. The push button is now set for this sta-

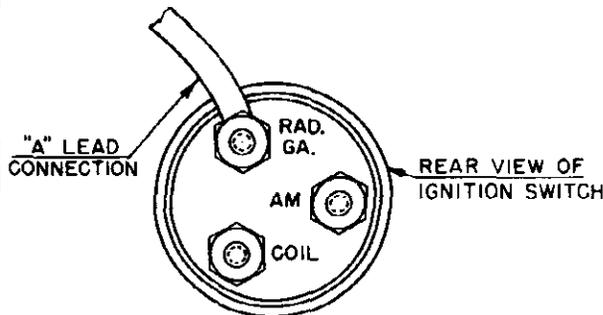
tion selection. Follow the above procedure for setting each of the four remaining push buttons.

- f. Check that the push button setting corresponds to the best manually tuned signal for each station and repeat steps "b" through "e" where necessary.

When the five push buttons have been set to the desired stations, return the antenna to the lowest position necessary for good reception. It is only necessary to press a push button to receive the station for which the adjustment was made. The dial pointer will automatically indicate the frequency of the selected station.

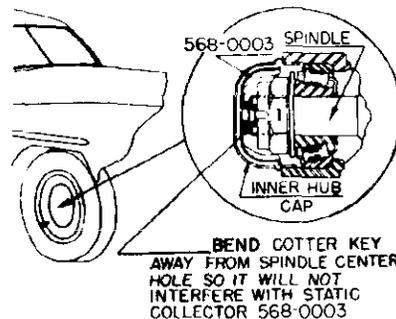
## INTERFERENCE ELIMINATION

There should be no motor noise or interference from the ignition system if the receiver has been installed in the car according to the instructions furnished with the receiver. The interference suppression equipment may be checked for proper installation by referring to the following instruction and illustrations.



**FIG. 7 "A" LEAD CONNECTION**

The "A" lead to the receiver should be installed in each car as illustrated in Fig. 7.



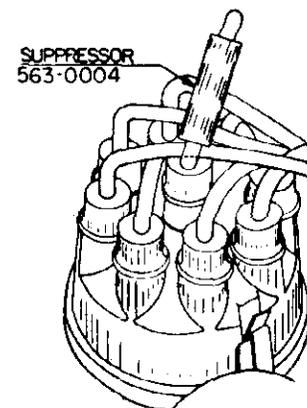
**FIG. 8 WHEEL STATIC COLLECTOR**

Remove both the outer and the inner hub caps from both front wheels. Clean the inner caps

and spindles. Snap static collector spring 568-0003 in inner hub caps.

**IMPORTANT:** Bend cotter key away from center hole so it will not interfere with static collector. Replace hub caps.

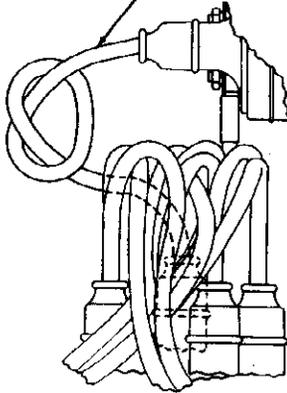
Two types of distributor suppressors are used with the Ford model OCF751-1 receiver. Suppressor 563-0004 was used for receivers with serial numbers up to OCF-51,341-751-1. Suppressor 563-0006 is used for all receivers with serial numbers above this number. Suppressor 563-0004 may be replaced with suppressor 563-0006.



**FIG. 9 DISTRIBUTOR SUPPRESSOR 563-0004**

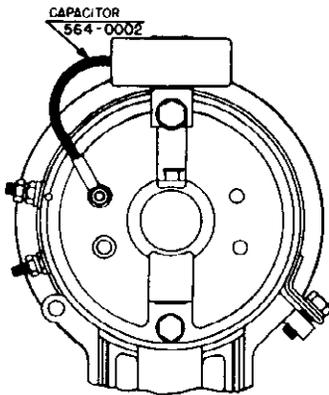
To install Suppressor 563-0004 shown in Fig. 9 cut the high tension wire running from the ignition coil to the center hole of the distributor cap, one and one half inches from the coil. Cut one inch from the coil end of the wire. Screw the cut ends of the wire into both ends of Suppressor 563-0004. Replace the wire in the coil.

MODEL OCF751-1,  
Ford #1A-18805-D  
SUPPRESSOR LEAD  
563-0006



**FIG. 10 DISTRIBUTOR SUPPRESSOR LEAD 563-0006**

To install Suppressor lead 563-0006, remove the high tension wire that runs between the ignition coil and the center hole of the distributor cap. Thoroughly clean the contacts on the coil and distributor. Make an overhand loop in Suppressor lead 563-0006 as shown in Fig. 10 and insert the lead in place of the high tension wire.



**FIG. 11 GENERATOR CAPACITOR**

The generator capacitor 564-0002 is installed by loosening (do not remove) the top assembly bolt from the rear end plate of the generator. Mount the capacitor under this bolt and connect the lead to the armature terminal of the generator.

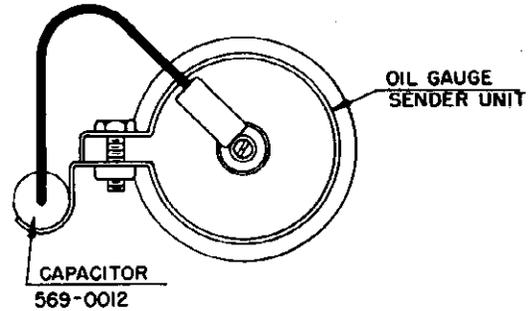
*Supplement No. 1*

3-20-51 2-19

to

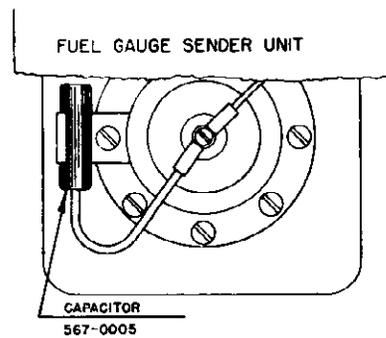
*Technical Service Bulletin*

Suppressor Lead 563-0006 was available for production earlier than originally anticipated. As a result, the serial numbers given under "Interference Elimination" in Bulletin 2-19 are changed. Distributor Suppressor 563-0004 is used with receivers having serial numbers up to and including OCF 49,260 751-1. Receivers with serial numbers above OCF 49,260 751-1 use Suppressor Lead 563-0006.



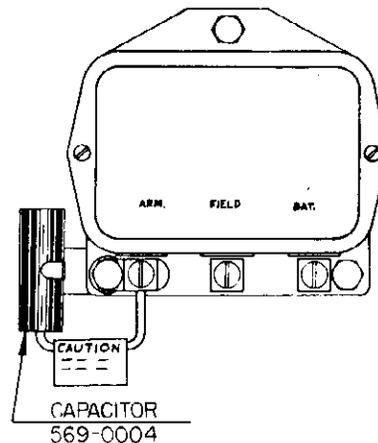
**FIG. 12 OIL GAUGE CAPACITOR**

Connect capacitor 569-0012 to the oil gauge sender unit as shown.



**FIG. 13 FUEL GAUGE CAPACITOR**

Connect capacitor 567-0005 to the fuel gauge sender unit as shown in Fig. 13 and seal tightly with compound.



**FIG. 14 VOLT. REG. CAPACITOR**

Mount capacitor 569-0004 between voltage regulator and dash panel. Connect lead to "ARM" terminal on regulator as shown.

MODELS 1CF743, Ford #1A-18805-B; 1CM747, Mercury #1M-18805; 1CH748, Lincoln #1H-18805

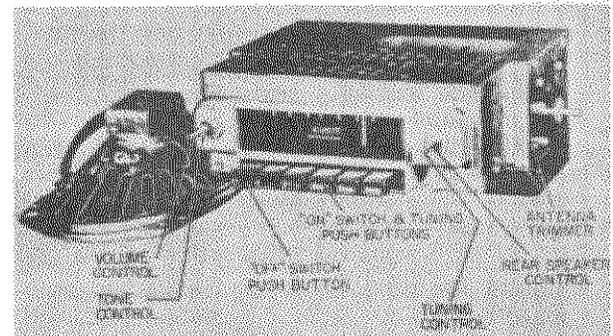
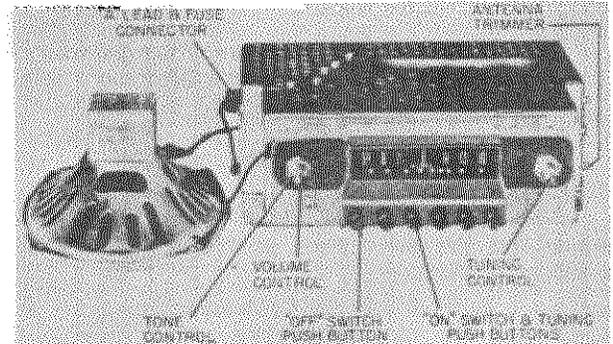
**GENERAL**

The Ford model 1A-18805-B, Mercury model 1M-18805, and Lincoln model 1H-18805 radio receivers are designed for use in the 1951 Ford, Mercury, and Lincoln cars respectively. The serial numbers covered by this bulletin are: Ford 1CF 1001 and up; Mercury 1CM 1001 and up; and Lincoln 1CH 1001 and up. These receivers are all similar electrically, but differ mechanically, in the appearance of the control knobs, escutcheon and dial assemblies, and method of mounting the receivers and speakers in the cars.

These radios are eight tube, two unit, super-hetrodyne receivers with vibrator power supply and full wave rectifier. The antenna, RF, and oscillator circuits are inductively tuned (push button and manual) over a frequency range of 540 to 1600 kilocycles by means of iron cores. A special compensating capacitor in the oscillator circuit minimizes frequency drift due to normal variations in temperature and battery voltage.

**TUBE COMPLEMENT**

6SK7GT	R. F. Amplifier
6SA7GT	Converter
6SK7GT	I. F. Amplifier
6SQ7GT	Det., AVC, & A. F. Amplifier
6J5GT	Phase Inverter
6V6GT	Output - Push Pull (2)
6X5GT	Rectifier



**FIG. 2 1CM747 & 1CH748**

**POWER SUPPLY**

The power supply uses a 6X5GT full wave rectifier tube in conjunction with a four prong, full wave, non-synchronous vibrator.

**ALIGNMENT**

Maximum performance depends on accurate alignment of the receiver; therefore, follow these instructions carefully.

**PRELIMINARY INSTRUCTIONS**

Make all alignment adjustments to the receiver with the "A" lead connected to a 7.2 volt negative source and ground the chassis to the positive side of this source. Rotate the volume control to its maximum clockwise position. Rotate the tone control to the treble position. Connect the output meter across the speaker voice coil. Keep the output from the signal generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment. Use an insulated screw driver and special alignment tool 898-0003 for making adjustments.

**SENSITIVITY CONTROL**

The sensitivity control R8 is factory preset and should not be readjusted unless the control has been tampered with. If it is definitely determined that readjustment is necessary, set the control to obtain 3.5 volts at the cathode of the IF Amplifier (pin #5 of the second 6SK7GT tube).

**I F ALIGNMENT**

1. Remove the top and bottom cover of the receiver.
2. Set the signal generator to 265 Kc.
3. Connect the signal lead of the signal generator through a .01 Mfd. capacitor to the converter grid (pin #8, 6SA7GT).
4. Adjust the primary and secondary IF cores "A," "B," "C" and "D" in order named

MODELS ICF743, Ford #1A-18805-B; ICM747, Mercury #1M-18805; ICH748, Lincoln #1H-18805

for maximum output. Both the primary and secondary of each transformer are adjusted from the top of the transformer using special alignment tool. (See Parts Layout - Top of Chassis & Bottom of Chassis,

Repeat this operation until no further increase in output is obtained.

### RF AND OSCILLATOR ALIGNMENT

1. Connect the signal generator leads through the dummy antenna illustrated in Fig. 3, to antenna lead-in socket on receiver.
2. Set signal generator to 535 Kc.
3. Rotate the manual tuning control to stop at 535 Kc.
4. Adjust oscillator trimmer C8 for maximum response.
5. Set signal generator to 1300 Kc.
6. Rotate the manual tuning control to stop at 1300 Kc.
7. Adjust the converter trimmer C5 and antenna trimmer C2 for maximum response.
8. If dial calibration is off after making above adjustments, corrections can be made by turning eccentric stud of fulcrum of dial pointer.

### IRON CORE AND ADJUSTING SPRING ADJUSTMENT OR REPLACEMENT

1. Remove the top cover from the receiver.
2. Remove the escutcheon assembly.
3. Break cement seal and screw the core in or out to the desired position.
4. If the cores are replaced or have been tampered with, the adjustments under coil and core replacement must be made.
5. After all adjustments have been made re-cement core springs.

### CORE ALIGNMENT

CAUTION: The following adjustments are to be made only after a core or coil has been replaced or tampered with.

1. Set signal generator to 1675 Kc.
2. Connect signal generator leads through dummy antenna illustrated in Fig. 3, to antenna lead in socket of receiver.
3. Rotate the manual tuning control to set dial pointer at 1600 Kc. (Maximum high frequency end of dial).

4. Screw the cores completely out of the antenna coil, the converter coil, and the oscillator coil.
5. Adjust the oscillator trimmer C8 at 1675 Kc.
6. Adjust the converter trimmer C5 and the antenna trimmer C2 for maximum output reading.
7. Set the signal generator and the receiver dial to 1300 Kc.
8. Replace the cores to their original position (approximately 11/16" from the end of the coil form.
9. Adjust the oscillator core L4 to scale at 1300 Kc.
10. Adjust the antenna core L2 and RF core L3 for maximum output reading.
11. Set the signal generator to 600 Kc.
12. "Rock in" the shunt oscillator core L6 for maximum output reading. Note: This is the same as rocking in the padder capacitor in a four gang capacitor receiver.
13. Check receiver at 1300 Kc. for calibration and gain. If the receiver is off scale or weak, repeat operations 9, 10 and 11.
14. After alignment is complete, the maximum high frequency tuning range should be checked. If the range is greater or less than 1605 Kc., the lug stop near the volume control should be bent to limit the frequency coverage to 1605 Kc.

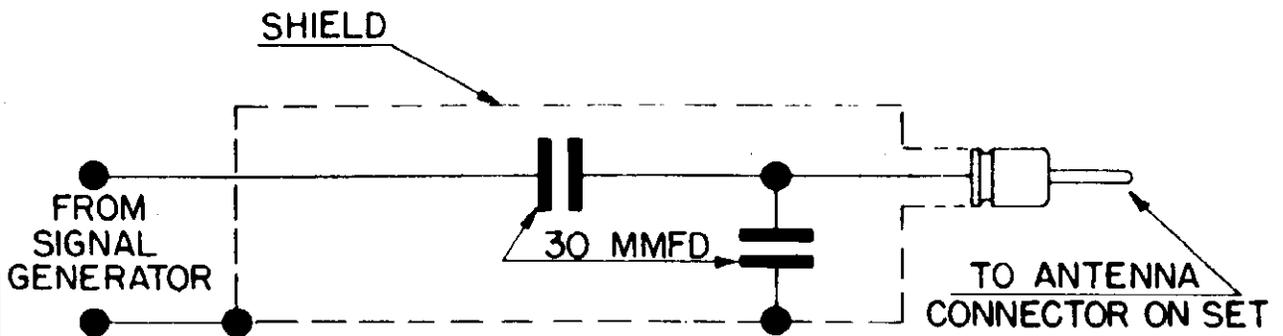
### IF TRAP ADJUSTMENT

1. Set the signal generator to 265 Kc.
2. Connect the signal generator leads through the dummy antenna as illustrated in Fig. 3, to antenna lead-in socket on receiver.
3. Rotate the manual tuning control to tune the set to approximately 900 Kc.
4. Connect the output meter across the speaker voice coil and tune the IF trap core T1 with alignment tool 898-0003 for minimum output.

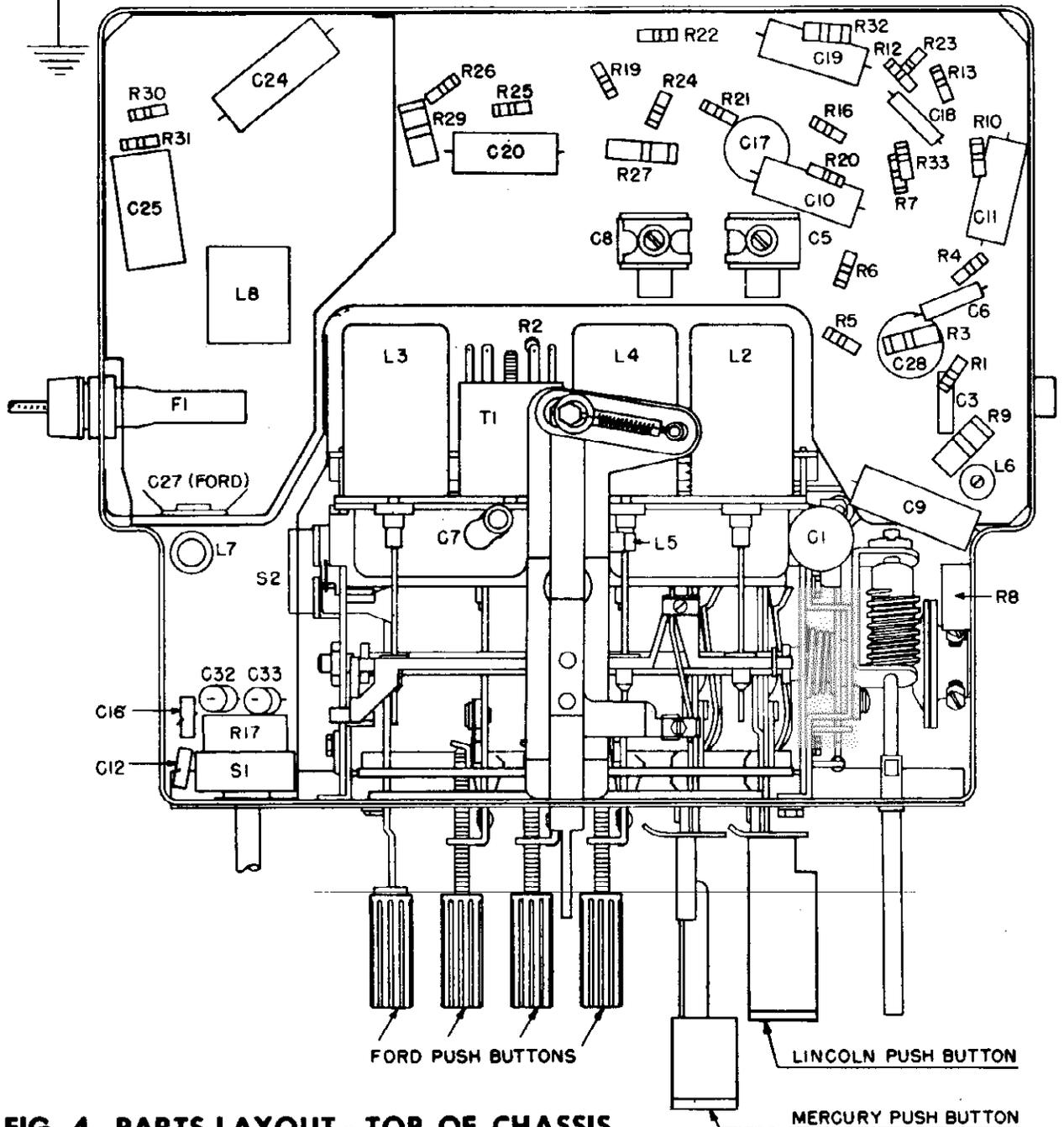
Note: In certain localities it may be necessary to shift the IF trap adjustment slightly in order to reject the interfering signal from a local station whose broadcasting frequency, or range frequency, is a few kilocycles higher or lower than 265 Kc.

IMPORTANT: After installing the receiver in the car, allow it to operate for approximately 15 minutes to reach normal operating temperature. Extend antenna to maximum. Check the antenna trimmer alignment on a weak station at approximately 1300 Kc.

MODELS 1CF743, Ford #1A-18805-B; 1CM747, Mercury #1M-18805; 1CH748, Lincoln #1H-18805



**FIG. 3 DUMMY ANTENNA**



**FIG. 4 PARTS LAYOUT - TOP OF CHASSIS**

MODELS 1CF743, Ford;  
 1CM747, Mercury;  
 1CH748, Lincoln

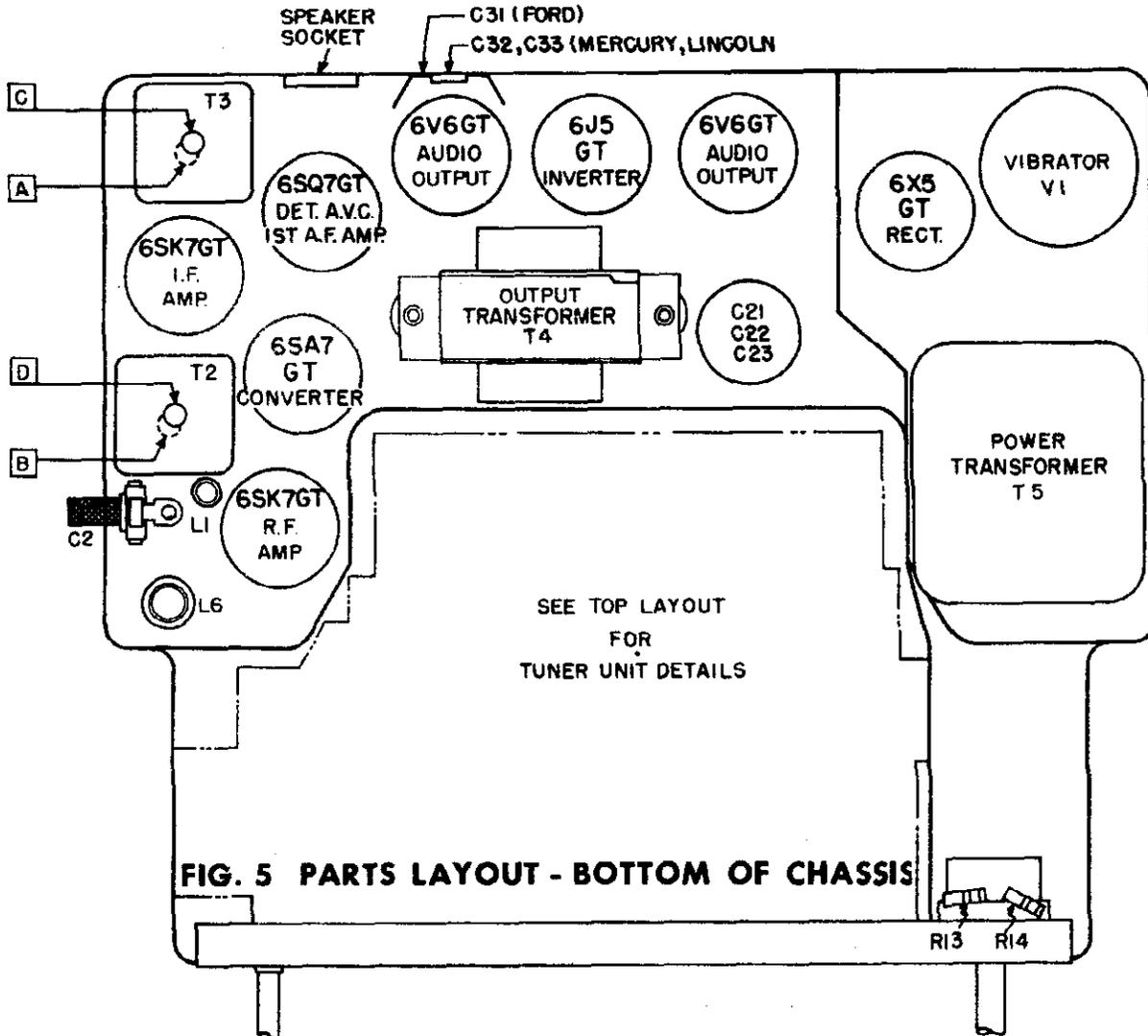


FIG. 5 PARTS LAYOUT - BOTTOM OF CHASSIS

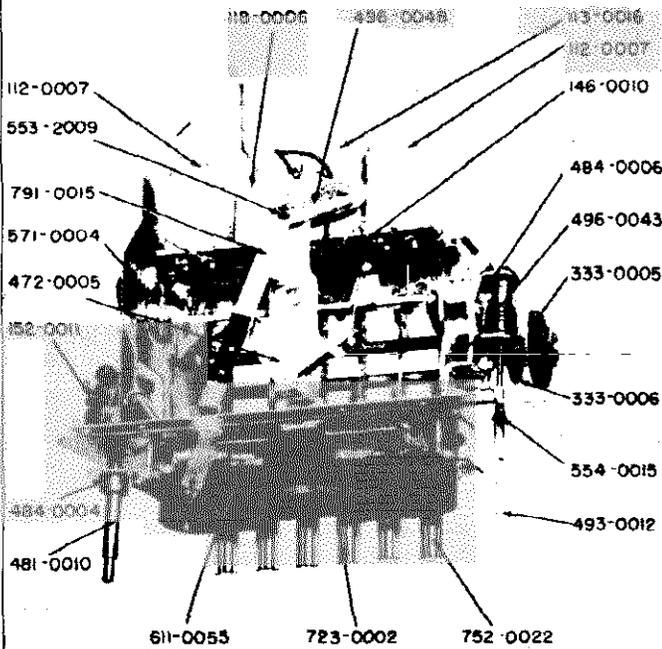


FIG. 6 1CF743 TUNER

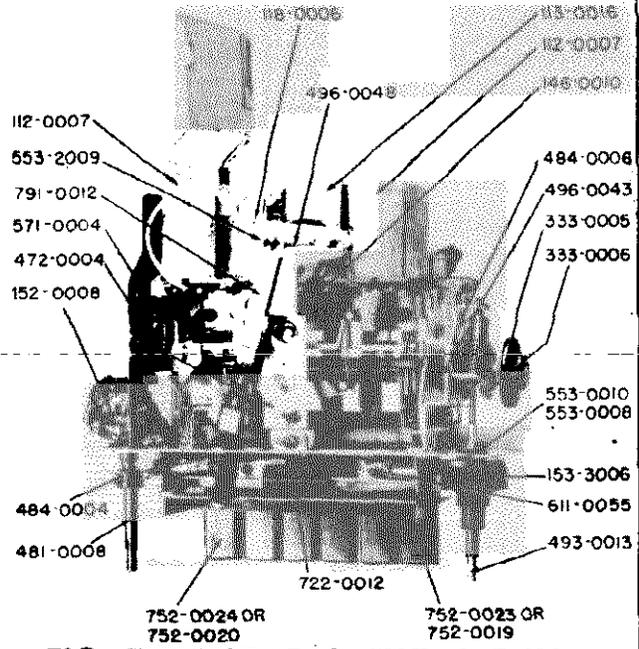


FIG. 7 1CM747, 1CH748 TUNER





MODELS ICF743,  
ICM747, ICH748

SCHMATIC LOCATION	PRODUCTION PART NO.	SERVICE PART NO.	DESCRIPTION	MISCELLANEOUS ELECTRICAL PARTS	SCHEMATIC LOCATION	PRODUCTION PART NO.	SERVICE PART NO.	DESCRIPTION
PL1, PL2	15362 75386		Bulb - Dial Light (Mazda #55)			71456	564-0002	Capacitor - Generator
L2			Coils - Permeability Tuning (includes)			71604	569-0012	Capacitor - Oil Gauge
L3			Antenna Coil			75156	569-0004	Capacitor - Voltage Regulator
L4			R. F. Coil			75162	747-0005	Capacitor - Fuel Gauge
L5			Oscillator Coil			75751	744-0007	Knob - Tone Switch & Speaker Control
L6			Oscillator Series Coil			75707	740-0016	Knob - Volume & Tuning
T1			I. F. Trap Coil			552-0006	552-0007	Nut - #10-32 Hex
L6	71631		Oscillator Shunt Coil			552-0006	552-0006	Nut - #8-32 Wing
C2	71636		Antenna Trimmer			75663	552-0001	Nut - #8-32 Wing
C8	71634		Oscillator Trimmer			71669	552-0020	Nut - 1/2-28 - Special
C5	71635		R. F. Trimmer			402-8	563-0004	Suppressor - Distributor
L8	75644		Choke - Hash - Main			402-8	553-1206	Washer - Lock - #8 - Int. Tooth
L7	71628		Choke & Core Assembly - Heater			402-10	553-1210	Washer - Lock - #10 - Int. Tooth
L1	71630		Choke - Motor Noise			71741	553-2007	Washer - Serrated
R28	71642		Choke - Motor Noise			75673	553-1014	Washer - Lock - 1/4 - Split
R8	71863		Control - Dual - Speaker (ICM747, ICH748)			71460	568-0003	Spring - Wheel Static Grounding
R17, S1	71862		Control - Sensitivity					
F1	75614		Control - Volume and Tone Switch (ICM747, ICH748)					
T2	71732		Control - Volume and Tone Switch (ICM747, ICH748)					
T3	71702		Control - Volume and Tone Switch (ICM747, ICH748)					
T4	71703		Control - Volume and Tone Switch (ICM747, ICH748)					
T5	71705		Control - Volume and Tone Switch (ICM747, ICH748)					
T5	75787		Control - Volume and Tone Switch (ICM747, ICH748)					
V1	71712		Control - Volume and Tone Switch (ICM747, ICH748)					
			Fuse - 14 Amp.					
			Speaker - PM - 6" x 9" (ICF743)					
			Speaker - PM - 6" x 9" (ICM747, ICH748)					
			Transformer - 1st I. F.					
			Transformer - 2nd I. F.					
			Transformer - Output					
			Transformer - Power					
			Vibrator					
			Bezel - Control					
			Capacitor - Generator					
			Capacitor - Oil Gauge					
			Capacitor - Voltage Regulator					
			Capacitor - Fuel Gauge					
			Knob - Tuning (complete)					
			Knob - Volume Control (complete)					
			Knob - Tone Control					
			Nut - 1/4-20 Hex					
			Nut - 1/2-28 Special					
			Nut - #8-32 Wing					
			Bracket - Mounting - Receiver - R. H.					
			Bracket - Mounting - Receiver - L. H.					
			Suppressor - Distributor					
			Washer - Serrated					
			Washer - Lock - 1/4 - Split					
			Spring - Wheel Static Grounding					
			Baffle and Gasket Assembly - Speaker					
			Bracket - Speaker Mounting					
			Bracket - Receiver Mounting - L. H.					
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MODELS 1CF743, Ford;  
1CM747, Mercury;  
1CH748, Lincoln

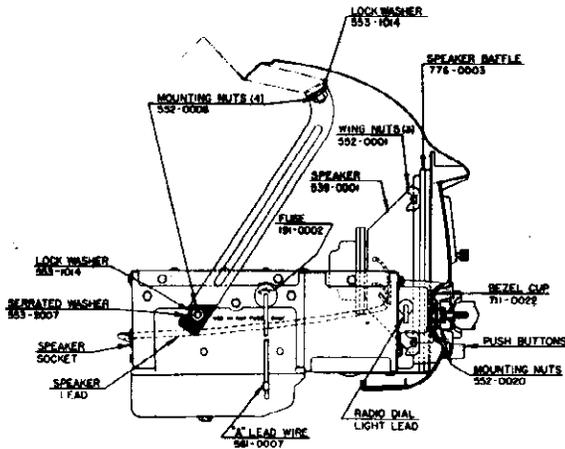


FIG. 9 1CF743 INSTALLATION

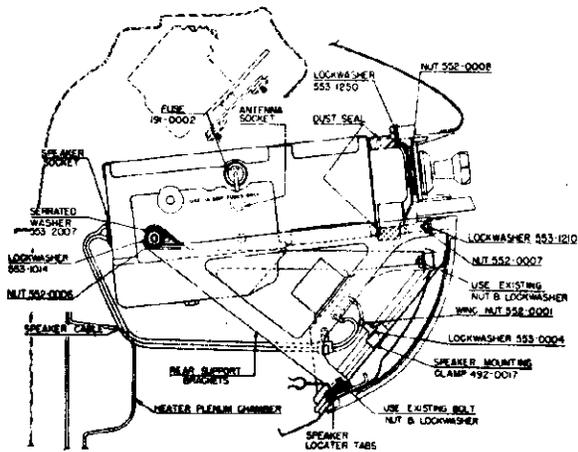


FIG. 10 1CM747 INSTALLATION

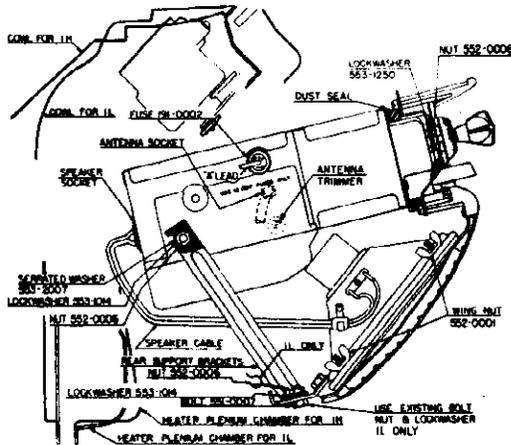


FIG. 11 1CH748 INSTALLATION  
RECEIVER INSTALLATION

Figures 9, 10, and 11 illustrate the installed receivers to facilitate removal and reinstallation when service is necessary.

**TO REMOVE THE FORD RECEIVER**

1. Disconnect the speaker plug, dial light lead, antenna lead, and "A" lead.
2. Remove control knobs, front mounting nuts, and lockwashers from the radio control shafts.
3. Disconnect the receiver from the receiver mounting brackets by removing the hex nut and lockwasher from the receiver mounting stud.
4. Remove receiver by sliding it back and down behind the instrument panel.
5. To remove the speaker, remove the four wing nuts holding the speaker to the instrument panel.

**TO REMOVE THE MERCURY RECEIVER**

1. Remove the car heater plenum chamber.
2. Disconnect speaker plug, antenna lead, and

- "A" lead.
3. Loosen the two speaker mounting clamps and remove the speaker.
  4. Remove control knobs, front mounting nuts and lockwashers from the radio control shafts.
  5. Loosen the nuts holding the receiver to the mounting brackets.
  6. Remove receiver by sliding it back and down behind the instrument panel.

**TO REMOVE THE LINCOLN RECEIVER**

1. Remove the car heater plenum chamber.
2. Disconnect the speaker plug, antenna lead, and "A" lead.
3. Remove control knobs, front mounting nuts and lockwashers from the radio control shafts.
4. Loosen the hex nuts holding the receiver to the mounting brackets.
5. Remove receiver by sliding it back and down behind the instrument panel.
6. To remove the speaker, remove the four wing nuts holding it to the instrument panel.

**OPERATING INSTRUCTIONS**

**TO TURN RADIO ON**

The radio is connected to the accessory terminal of the ignition switch, therefore, it is necessary to turn the ignition key to the left, if the engine is not running, before turning the radio on. Press any one of the five automatic push buttons. Allow approximately 20 seconds for the receiver to reach operating temperature.

To turn the receiver off, press the "Off" push-button.

MODELS ICF743, Ford;  
 ICM747, Mercury;  
 ICH748, Lincoln

**MANUAL TUNING**

To operate the manual tuning control simply turn the tuning knob (see Fig. 1). When tuning in a station, be sure to tune to the exact frequency for the best tone quality.

**VOLUME CONTROL**

Turn the volume control knob for the desired volume.

**TONE CONTROL**

The tone control knob is located directly behind the volume control knob. Turning this control to the right or left will change the tone of the receiver. This control has four positions and the position to which the control is set is

**AUTOMATIC TUNING**

Automatic push button tuning is provided by means of push buttons located directly under the dial scale and to the right of the "Off" push button (see Fig. 1). These five buttons permit the selection of five favorite local stations. When the push buttons have been set to the desired station it is only necessary to press a push button to turn the set "on" and to receive the station for which the adjustment was made. The dial pointer will automatically indicate the frequency of the selected station.

**SETTING THE PUSH BUTTON TUNER**

The five push buttons may be adjusted to any of the desired stations. In order to simplify the identification of these stations, it is advisable to set the push buttons in sequence according to their frequencies, beginning with the station broadcasting on the lowest frequency and progressing to the station broadcasting on the highest frequency.

The push buttons should be set up during the day since at night distant stations will be heard with the same volume as local stations, making it difficult to identify local stations.

Allow the receiver to operate for at least fifteen minutes before adjusting the push buttons. This will allow each part in the receiver to reach normal operating temperature.

**TO SET THE PUSH BUTTONS**

**1. ICF743 RECEIVER**

- a. Collapse the antenna.
- b. Select a station at the low end of the broadcast band and manually tune it in so its signal is heard without distortion.
- c. Loosen the second push button from the left side by turning it counter-

indicated in the window in the center of the dial scale.

**REAR SPEAKER CONTROL**

The rear speaker control disc, located behind the tuning control knob on the Mercury and Lincoln receivers, is provided to control an auxiliary rear shelf speaker (available from Mercury-Lincoln dealer).

The speaker socket located on the rear of the receiver case will accommodate both the front speaker and rear speaker. When the rear speaker is plugged into the socket, a switch in the socket connects the rear speaker control into the circuit.

- d. Press the loosened push button in firmly to its extreme position and release. Tighten the push button as much as possible by turning clockwise with your fingers.
- e. The push button is now set for this station selection. Follow the above procedure for setting each of the four remaining push buttons.
- f. Check that the push button setting corresponds to the best manual tuned signal for each station and repeat steps "b" through "e" where necessary.

**2. ICM747 & ICH748 RECEIVERS**

- a. Collapse the antenna.
- b. Select a station at the low end of the broadcast band and manually tune it in so its signal is heard without distortion.
- c. Unlock the second push button from the left by pushing the button to the left and pulling it out.
- d. Press the unlocked push button in firmly to its extreme position and release.
- e. The push button is now set for this station selection. Follow the above procedure for setting each of the four remaining push buttons.
- f. Check that the push button setting corresponds to the best manual tuned signal for each station and repeat steps "b" through "e" where necessary.

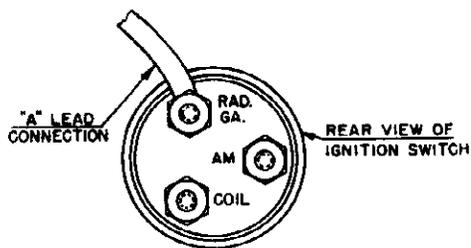
When the five push buttons have been set to the desired stations, return the antenna to the lowest position necessary for good reception. It is only necessary to press a push button to receive the station for which the adjustment was made. The dial pointer will automatically indicate the frequency of the selected station.

MODELS 1CF743, Ford;  
 1CM747, Mercury;  
 1CH748, Lincoln

### INTERFERENCE ELIMINATION

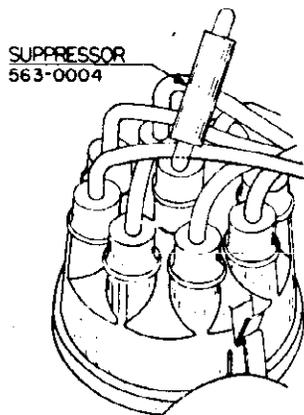
There should be no motor noise or interference from the ignition system if the receiver has been installed in the car according to the instructions furnished with the receiver. The interference suppression equipment may be checked for proper installation by referring to the following instructions and illustrations.

The "A" lead to the receiver should be installed in each car as illustrated in Fig. 12.



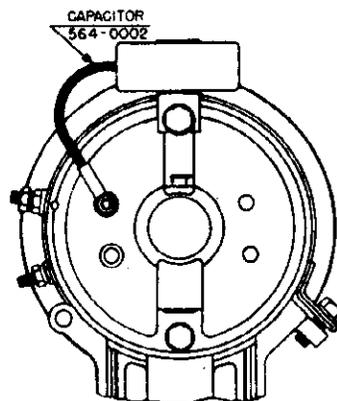
**FIG. 12 "A" LEAD CONNECTION**

Cut the high tension wire running from the ignition coil to the center hole of the distributor cap, one and one half inches from the coil for the Ford "8", two and one half inches from the coil for the Ford "6", and one and one half inches from the cap for the Mercury and Lincoln. Cut one inch from the coil end of the wire. Screw the cut ends of the wire into both ends of suppressor, 563-0004. Replace the wire in the coil.



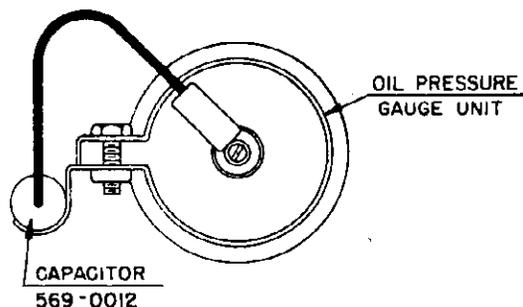
**FIG. 13 DISTRIBUTOR SUPPRESSOR**

The generator capacitor 564-0002 is installed by loosening (do not remove) the top assembly bolt from the rear end plate of the generator. Mount the capacitor under this bolt and connect the lead to the armature terminal of the generator.



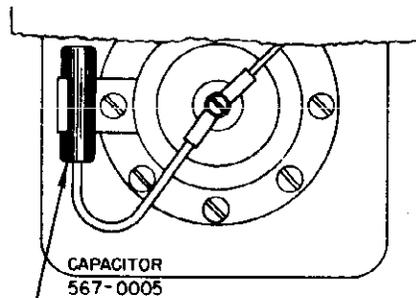
**FIG. 14 GENERATOR CAPACITOR**

Connect capacitor 569-0012 to the oil pressure gauge unit as shown.



**FIG. 15 OIL GAUGE CAPACITOR**

Connect capacitor 567-0005 to the fuel gauge unit as shown.

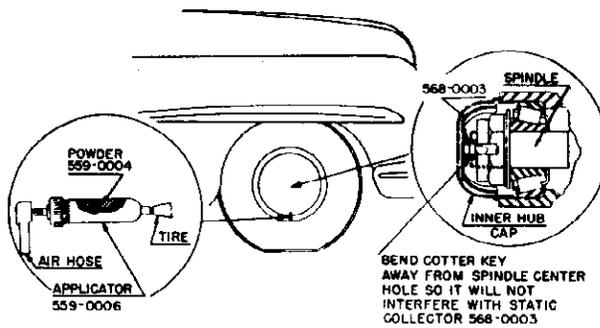


**FIG. 16 FUEL GAUGE CAPACITOR**

MODELS 1CF743, Ford;  
1CM747, Mercury;  
1CH748, Lincoln

Remove both outer and inner hub caps from both front wheels. Clean inner caps and spindles. Snap static collector springs 568-0003 in inner hub caps.

**IMPORTANT:** Bend cotter key away from center hole so it will not interfere with static collector. Replace hub caps.



**FIG. 17 WHEEL STATIC EQUIPMENT**

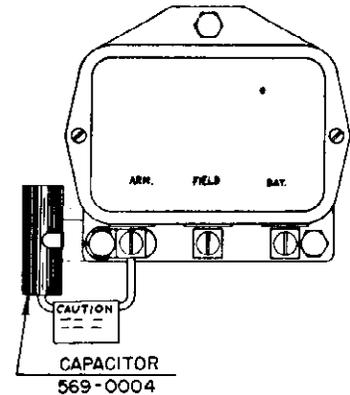
Install wheel static powder as needed. Available at your Ford, Lincoln or Mercury dealer. Place one package of anti-static powder 559-0004 in applicator 559-0006. Deflate tire to about 10 pounds. Attach applicator to tire as shown. Reinflate tire to normal pressure. Tap applicator gently while reinflating tire to allow all of the powder to be blown into the tube. Inject powder into all five tubes. One injection is good for the life of the tube.

Remove the screw from the hood pad on the cowl and install the hood bonding spring 193-0007.



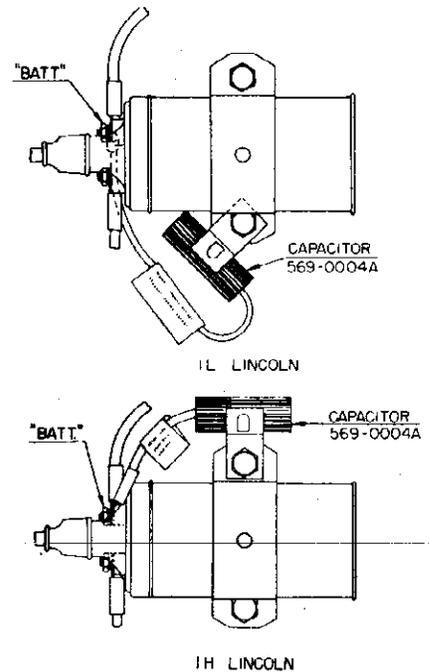
**FIG. 18 LINCOLN HOOD BOND**

Mount capacitor 569-0004 between voltage regulator and dash panel. Connect lead to "ARM" terminal on regulator as shown.



**FIG. 19 VOLT. REG. CAPACITOR**

Mount capacitor 569-0004A as shown for the 1H or 1L Lincoln. Be sure to connect the lead to the battery terminal of the coil. If the lead is connected to the Distributor terminal the performance of the car engine will be impaired.



**FIG. 20 IGNITION COIL CAPACITOR - LINCOLN**

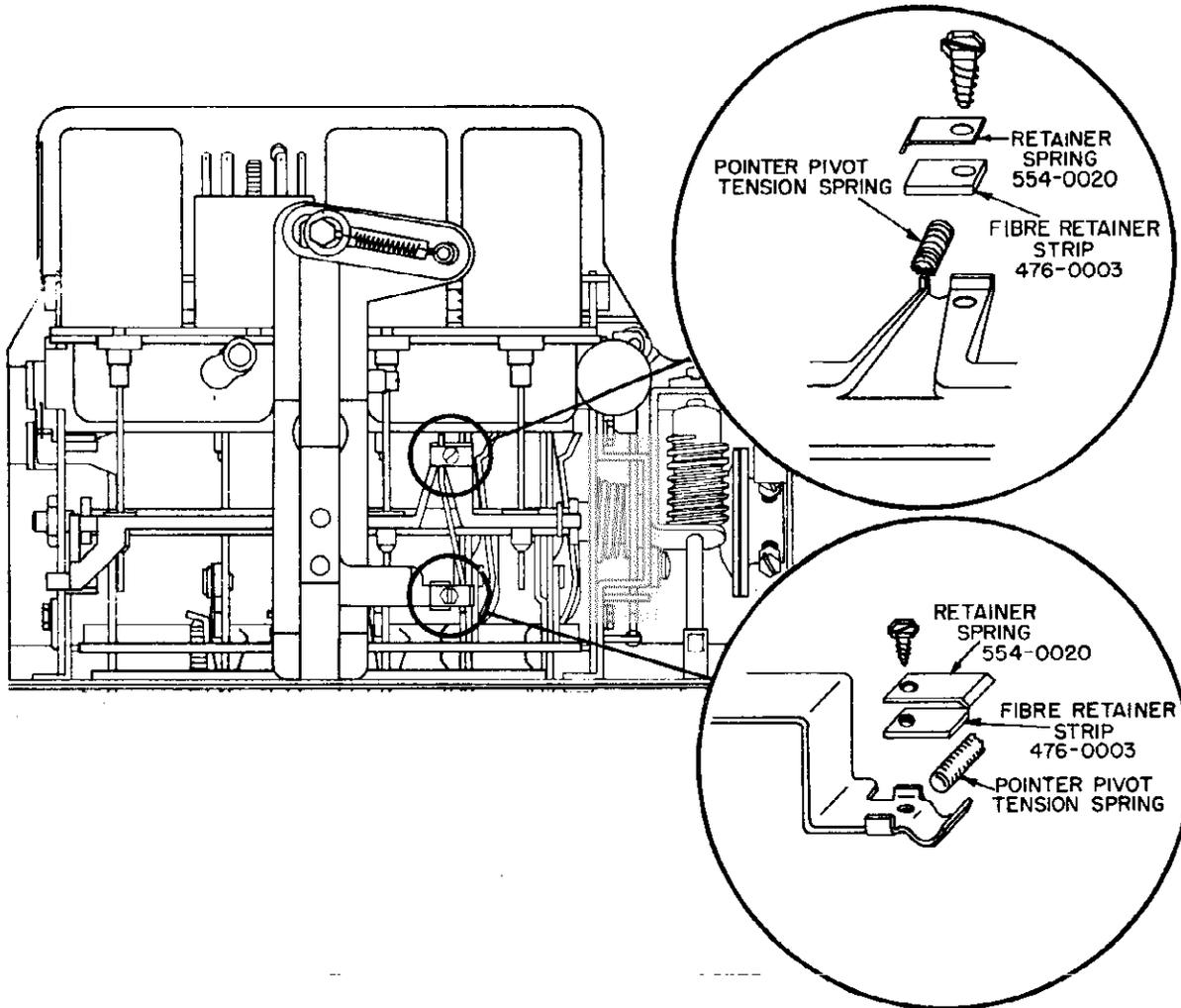
MODELS 1CF743, Ford;  
 1CM747, Mercury;  
 1CH748, Lincoln

*Supplement No. 1*  
 to  
*Technical Service Bulletin*

2-16  
 11-10-50

Subject: Pointer Slippage and Binding

In order to prevent pointer slippage and binding due to warping of the two red fibre re-tainer strips which hold the pointer pivot tension spring in place, metal guard springs have been incorporated in the production of sets with the serial numbers which are listed below. The guard springs are inserted between the screws which secure the retainer strips, and the retainer strips themselves. These guard springs prevent warping of the retainer strips and consequent pointer slippage. Both the retainer strips and the metal guard springs are available through local Sylvania Parts Distributors.



Ford 1CF743  
 Mercury 1CM747  
 Lincoln 1CH748

Serial 1CF10982 (approx.) and up  
 Serial 1CM29771 (approx.) and up  
 Serial 1CH5837 (approx.) and up

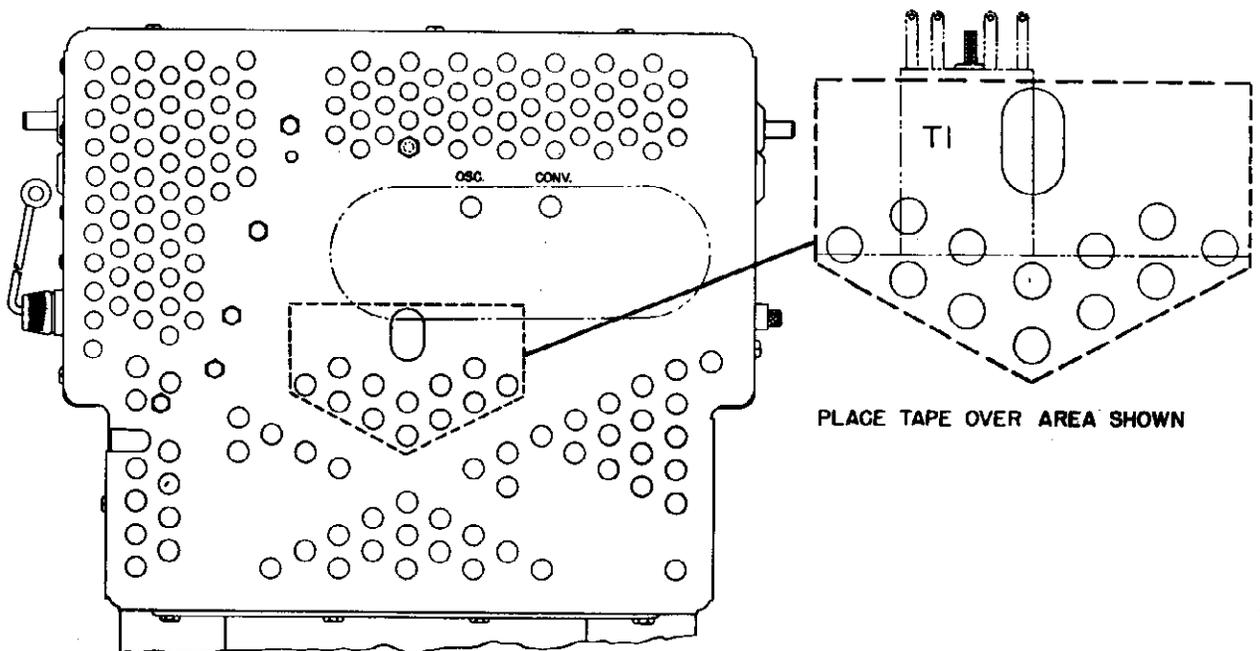
<u>SCHEMATIC LOCATION</u>	<u>PRODUCTION PART NUMBER</u>	<u>SERVICE PART NUMBER</u>	<u>DESCRIPTION</u>
	75866	554-0020	Spring - Metal Guard
	71529	476-0003	Strip - Fibre Retainer

MODELS 1CF743, Ford;  
 1CM747, Mercury;  
 1CH748, Lincoln

*Supplement No. 2*  
 to  
*Technical Service Bulletin*  
 2-16  
 4-16-51

**Subject:** Water Seepage into Mercury and Lincoln Receivers

In order to prevent seepage of water into Mercury 1CM747 and Lincoln 1CH748 receivers, with consequent damage to the I.F. Trap Coil (T1), a piece of waterproof cellulose tape may be placed over the ventilating holes in the top cover of the receiver directly above the I.F. Trap Coil, as shown in the figure below. In later production of Lincoln and Mercury cars this seepage has been eliminated. A new design replacement I.F. Trap Coil will shortly be available through your local Sylvania Parts Distributor. If the I.F. Trap Coil is replaced by one of the new design, the tape may be removed from the ventilating holes in the receiver top cover.



TOP VIEW OF RECEIVER SHOWING I. F. TRAP COIL

<u>SCHEMATIC LOCATION</u>	<u>PRODUCTION PART NUMBER</u>	<u>SERVICE PART NUMBER</u>	<u>DESCRIPTION</u>
T1	76094	118-0009	I. F. Trap Coil

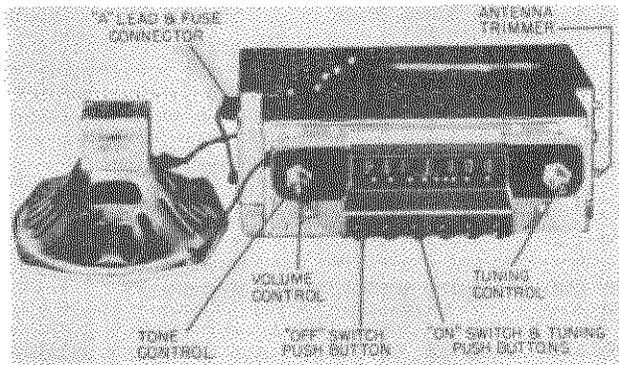
MODELS 1CF743-1, Ford  
 1A-18805-B; 1CM747-1,  
 Mercury 1M-18805;  
 1CH748-1, Lincoln 1H-  
 18805

TECHNICAL SERVICE BULLETIN

1-24-51

2-18

FIG. 1 1CF743-1



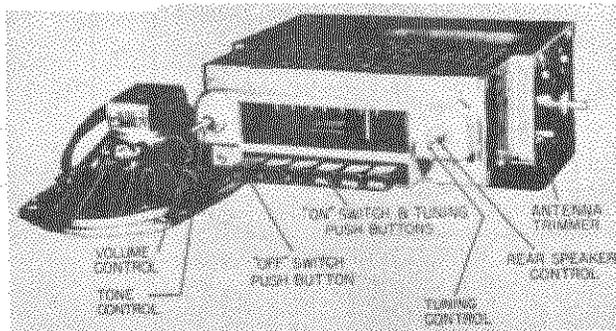
GENERAL DESCRIPTION

The Ford model 1A-18805-B, Mercury model 1M-18805, and Lincoln model 1H-18805 radio receivers are designed for use in the 1951 Ford, Mercury and Lincoln cars respectively. The serial numbers covered by this bulletin are: Ford 1CF 28,001, and up; Mercury 1CM 51,001, and up; and Lincoln 1CH 9,501, and up. These differ mechanically, in the appearance of the control knobs, escutcheon and dial assemblies, and method of mounting the receivers and speakers in the cars.

These radios are eight tube, two unit, super-hetrodyne receivers with vibrator power supply and full wave rectifier. The antenna, RF, and oscillator circuits are inductively tuned (push button and manual) over a frequency range of 540 to 1610 kilocycles by means of iron cores.

A special compensating capacitor in the oscillator circuit minimizes frequency drift due to normal variations in temperature and battery voltage.

FIG. 2 1CM747-1  
 & 1CH748-1



TUBE COMPLEMENT

6SK7GT	R. F. Amplifier
6SA7GT	Converter
6SK7GT	I. F. Amplifier
6SQ7GT	Det. , AVC. & 1st. A.F. Amplifier
6J5GT	Inverter
6V6GT	Push Pull (2) - Audio Output
6X5GT	Rectifier

POWER SUPPLY

These receivers employ a four prong, full wave, non-synchronous vibrator in conjunction with a 6X5GT full wave rectifier tube. The wiring for the power transformer and vibrator, the main hash choke and its by-pass, and the buffer capacitor are mounted in a shielded compartment on the chassis to reduce interference.

ALIGNMENT

Optimum performance depends on accurate alignment of the receiver; therefore, follow these instructions carefully.

PRELIMINARY INSTRUCTIONS

Make all alignment adjustments to the receiver with the "A" lead connected to a 7.2 volt negative source and ground the chassis to the positive side of this source. Rotate the volume

control to its maximum clockwise position. Rotate the tone control to the treble position. Connect the output meter across the speaker voice coil. Keep the output from the signal generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment. Use an insulated screw driver and special alignment tool 898-0003 for making adjustments.

MODELS 1CF743-1, Ford 1A-18805-B; 1CM747-1, Mercury 1M-18805; 1CH748-1, Lincoln 1H-18805

**SENSITIVITY CONTROL**

The sensitivity control R6 is factory preset and should not be readjusted unless it has been tampered with. If it is definitely determined that readjustment is necessary, set the control to obtain 3.5 volts at the cathode of the I.F. Amplifier (pin #5 of the second 6SK7GT tube).

**I F ALIGNMENT**

1. Remove the top and bottom covers of the receiver.
2. Set the signal generator to 265 Kc.
3. Connect the signal lead of the signal generator through a .1 Mfd. capacitor to the converter grid (pin #8, 6SA7GT).
4. Adjust the primary and secondary IF cores "A," "B," "C" and "D" in order named for maximum output. Both the primary and secondary of each transformer are adjusted from the top of the transformer using special alignment tool. (See Parts Layout - Bottom of Chassis, Page 3).

Repeat this operation until no further increase in output is obtained.

**R F AND OSCILLATOR ALIGNMENT**

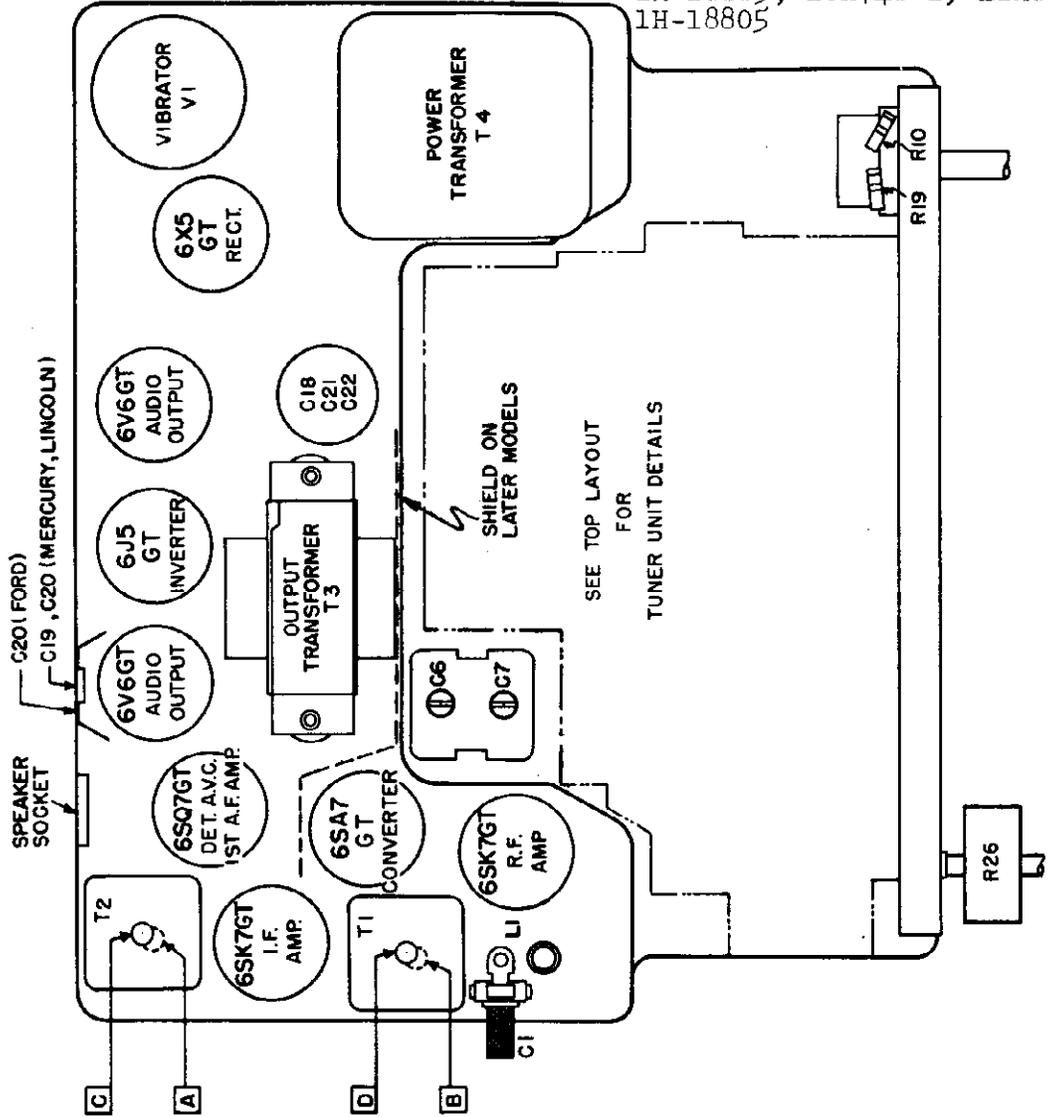
1. Connect the signal generator leads through a dummy antenna which consists of two, 30 Mmfd. capacitors in a grounded shield, wired so that one is between the antenna lead-in socket of receiver and the signal generator, and the other is shunted from antenna lead to ground.
2. Turn the manual control until the high frequency stop is reached.
3. Set the signal generator to 1625 Kc.
4. Adjust the oscillator trimmer C7, the converter trimmer C6 and the antenna trimmer C1, respectively for maximum response.
5. If dial calibration is off after making above adjustments, corrections can be made by turning eccentric stud of fulcrum of dial pointer.

**IRON CORE AND ADJUSTING SPRING**

1. Remove the top cover from the receiver.
2. Remove the escutcheon assembly.
3. Break cement seal and screw the core in or out to the desired position.

**ADJUSTMENT OR REPLACEMENT**

4. If the cores are replaced or have been tampered with, the adjustments under coil and core replacement must be made.
5. After all adjustments have been made recement core springs.



**FIG. 3 PARTS LAYOUT - BOTTOM OF CHASSIS**

MODELS 1CF743-1,  
1CM747-1, 1CH748-1

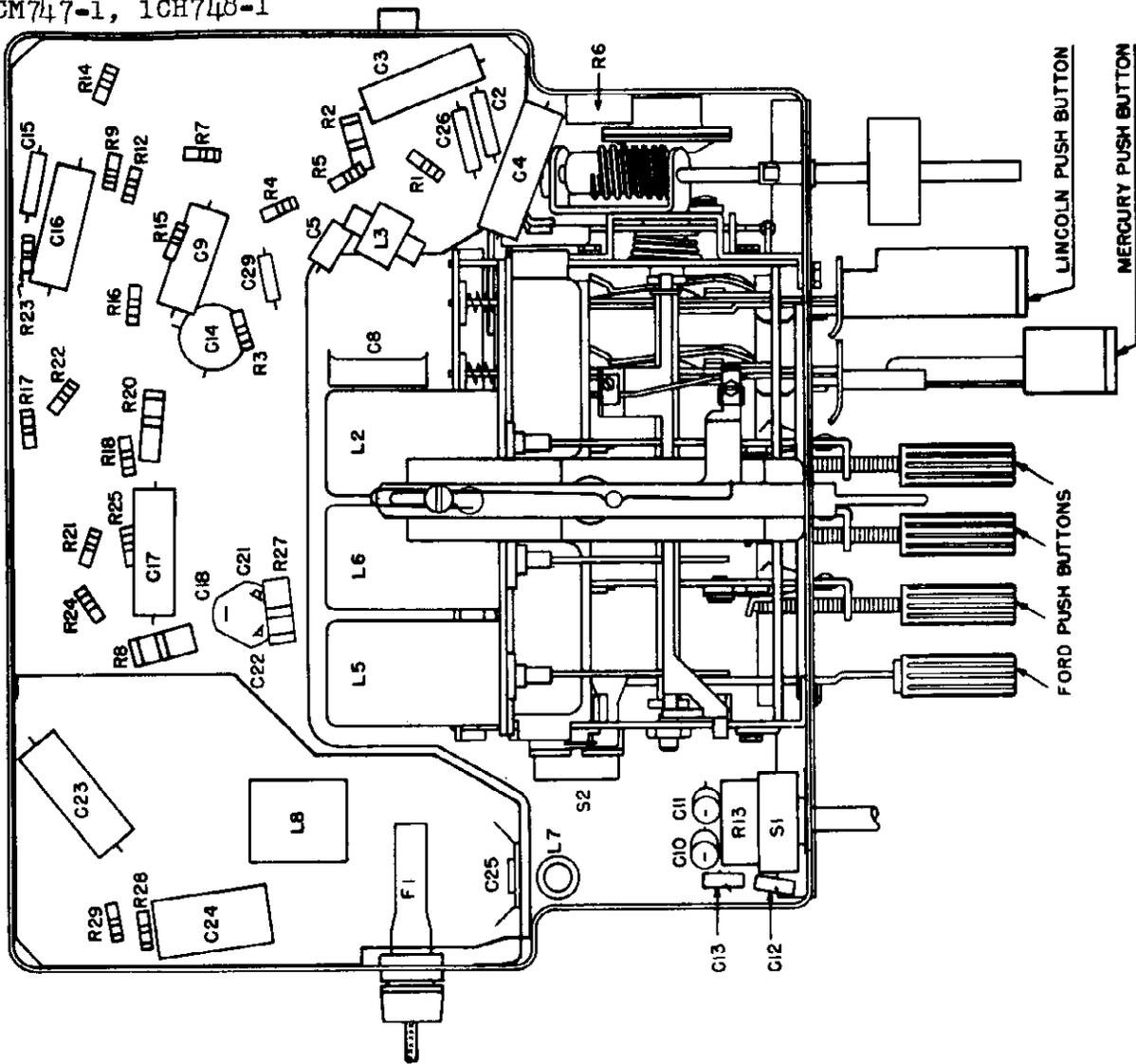


FIG. 4 PARTS LAYOUT - TOP OF CHASSIS

**CORE ALIGNMENT**

**CAUTION:** The following adjustments are to be made only if a core or coil has been replaced or tampered with.

1. Set signal generator to 1625 Kc.
2. Connect signal generator to receiver lead-in socket through dummy antenna described above.
3. Rotate the manual tuning control to set dial pointer at 1610 Kc. (Maximum high frequency end of dial).
4. Screw the cores completely out of the antenna coil, the converter coil, and the oscillator coil.
5. Adjust the oscillator trimmer C7 at 1625 Kc.
6. Adjust the converter trimmer C6 and the antenna trimmer C1 for maximum output reading.
7. Set the signal generator and the receiver dial to 1410 Kc.
8. Replace the cores to their original position (approximately 11/16" from the end of the coil form).
9. Adjust the oscillator core L6 to scale at 1410 Kc.
10. Adjust the antenna core L2 and RF core L5 for maximum output reading.
11. Repeat steps 10 and 11 to insure that tracking and calibration are correct.
12. After alignment is complete, the maximum high frequency tuning range should be checked. If the range is greater or less than 1610 Kc., the lug stop near the volume control should be bent to limit the frequency coverage to 1610 Kc.

**IMPORTANT:** After installing the receiver in the car, allow it to operate for approximately 15 minutes to reach normal operating temperature. Extend antenna to maximum height. Check the antenna trimmer alignment on a weak station at approximately 1410 Kc.

MODELS 1CF743-1,  
1CM747-1, 1CH748-1

FIG. 5 1CF743-1 TUNER

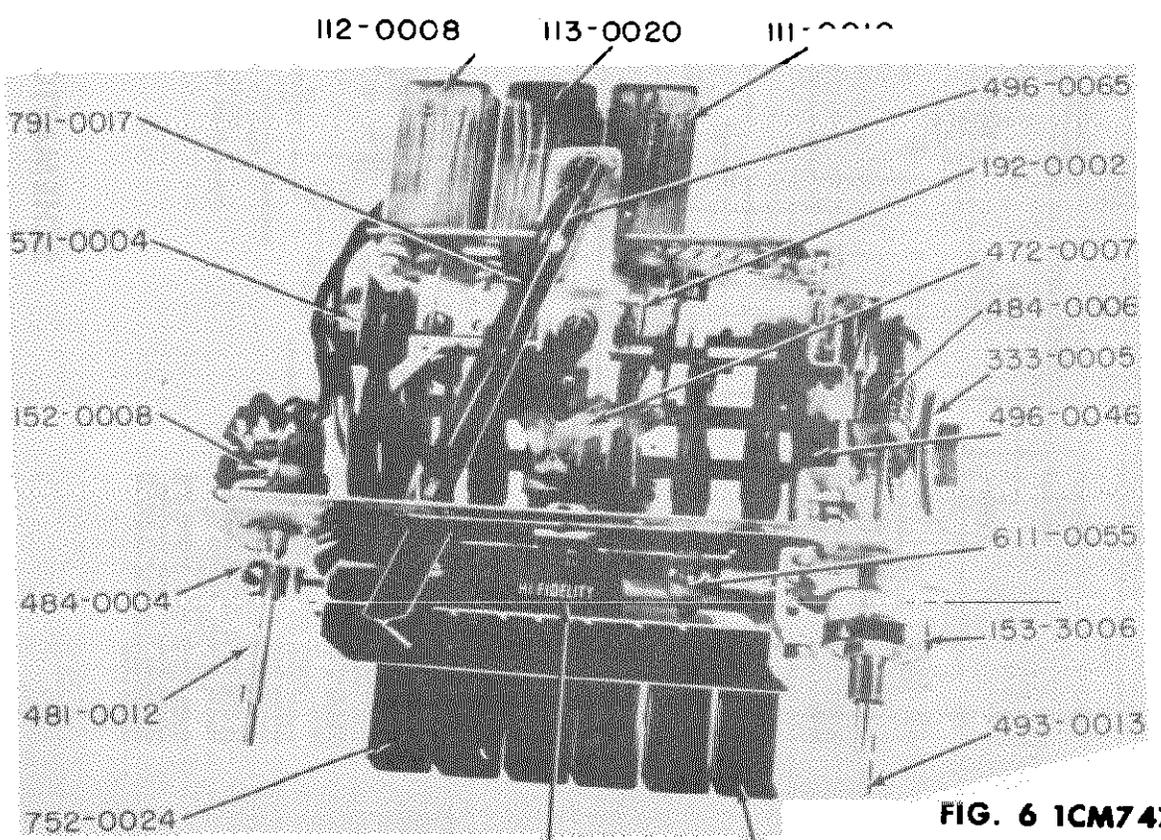
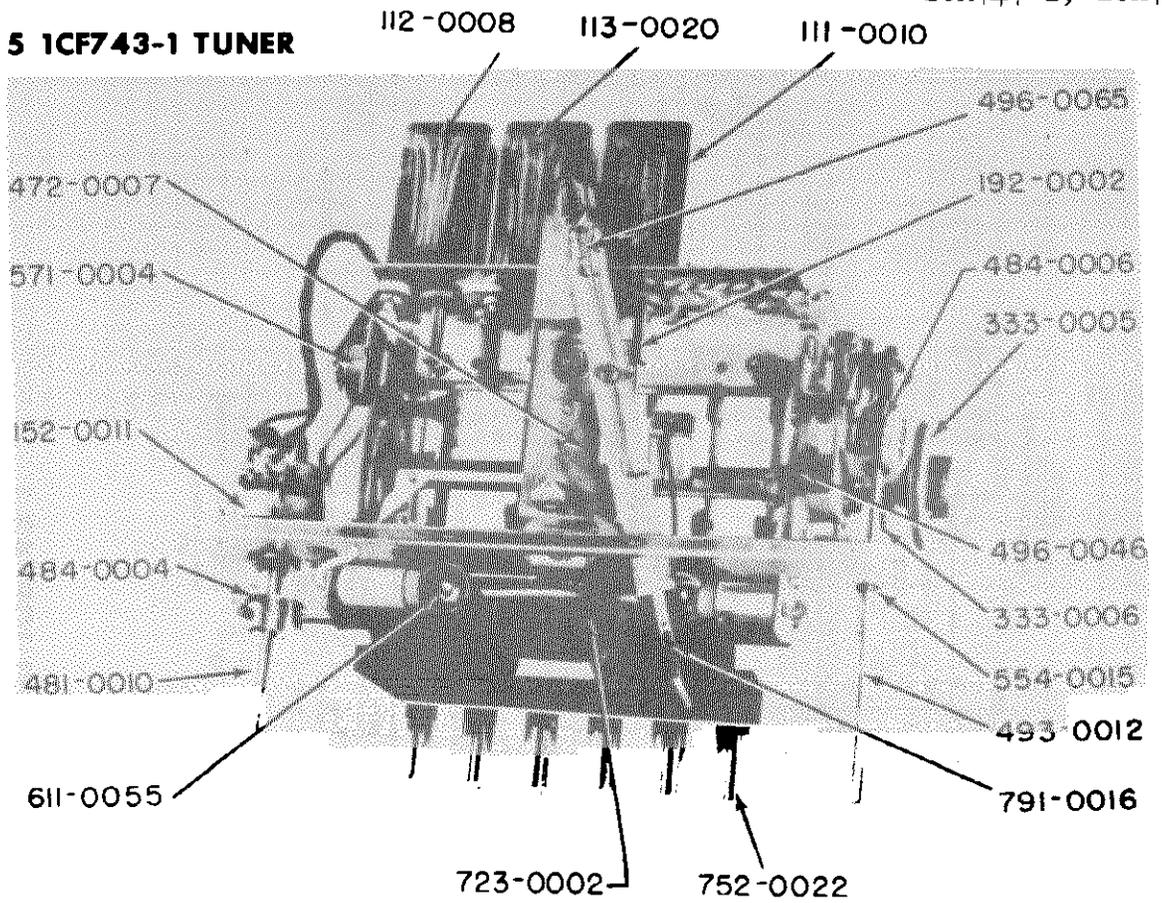


FIG. 6 1CM747-1 &  
1CH748-1 TUNER

OR  
752-0020                      722-0012                      752-0023                      OR  
752-0019









MODELS 1CF743-1,  
1CM747-1, 1CH748-1

SCHEMATIC LOCATION	PRODUCTION PART NUMBER	SERVICE PART NUMBER	DESCRIPTION
<b>CAPACITORS (continued)</b>			
C8	75961	165-0230	Capacitor - Temp. Compensating - .00023 Mfd.
C19, C20, C25	71696	167-0008	Capacitor - Kit - Spark Plate
C1	75824	172-0026	Capacitor - Trimmer - Antenna
C6, C7		173-0002	Capacitor - Trimmer & Fixed Capacitor
<b>MISCELLANEOUS CHASSIS PARTS</b>			
F2	75785	562-0007	Holder - Fuse
	75642	561-0007	Lead - "A" (1CF743-1)
	71639	561-0003	Lead - "A" (1CM747-1, 1CH748-1)
	71699	416-0002	Socket - Antenna Connector
	71693	412-0016	Socket - Tube - 8 Prong Octal
SP2	71698	414-0001	Socket - Speaker (1CF743-1)
SK1	71754	414-0005	Socket - Speaker (1CM747-1, 1CH748-1)
	66423	413-0005	Socket - Vibrator
<b>MISCELLANEOUS ELECTRICAL PARTS</b>			
PL1, PL2	15362	611-0055	Bulb - Dial Light (Mazda #55)
L2	75796	117-0012	Coils - Permeability tuning (includes)
L5		111-0010	Antenna Coil
L6		112-0008	R. F. Coil
L1	75985	113-0020	Oscillator Coil
L8	71628	148-0001	Choke - Antenna
L7	75850	147-0007	Choke - Hash
R26	71883	145-0005	Choke & Core Assembly - Heater
R6	71645	153-3006	Control - Dual - Speaker (1CM747-1, 1CH748-1)
R13, S1	75604	159-0004	Control - Sensitivity
		152-0008	Control - Volume & Tone Switch (1CM747-1, 1CH748-1)
R13, S1	75791	152-0011	Control - Volume & Tone Switch (1CF743-1)
F1	17392	191-0002	Fuse - 14 Amp
SP1	75674	539-0001	Speaker - PM - 6"x9" (1CF743-1)
SP1	71733	539-0005	Speaker - PM - 6"x9" (1CM747-1, 1CH748-1)
T1	71702	121-0015	Transformer - 1st I. F.
T2	71703	122-0015	Transformer - 2nd I. F.
T3	75931	143-0012	Transformer - Output
T4	75787	141-0010	Transformer - Power
L3, C27	75918	118-0008	Trap Coil - I. F.
V1	71712	511-0001	Vibrator
<b>INSTALLATION PARTS 1CF743-1</b>			
75667		776-0003	Baffle and Gasket Assembly - Speaker
75162		567-0005	Capacitor - Fuel Gauge
71456		564-0002	Capacitor - Generator
71804		569-0012	Capacitor - Oil Gauge
75158		569-0004	Capacitor - Voltage Regulator
71460		568-0003	Collector - Wheel Static
75661		711-0022	Cup - Bezel
75662		744-0012	Knob - Tone Control
75655		741-0005	Knob - Tuning (Complete)
75656		742-0003	Knob - Volume Control (Complete)
71810		552-0006	Nut - 1/4 - 20 Hex.
71669		552-0020	Nut - 1/2 - 28 - Mounting
75663		552-0001	Nut - #8-32 - Wing
75648		492-0023	Support - Mounting - Receiver - L.H.
<b>INSTALLATION PARTS 1CM747-1</b>			
75643		492-0022	Support - Mounting - Receiver - R.H.
71414		563-0004	Suppressor - Distributor
75935		563-0006	Suppressor Lead - Distributor
75873		553-1014	Washer - Lock - 1/4 Split
71741		553-2007	Washer - Serrated
<b>INSTALLATION PARTS - 1CH748-1</b>			
71737		492-0015	Bracket - Mounting - Receiver - L.H.
71730		492-0016	Bracket - Mounting - Receiver - R.H.
75162		567-0005	Capacitor - Fuel Gauge
71456		564-0002	Capacitor - Generator
71604		569-0012	Capacitor - Oil Gauge
75156		569-0004	Capacitor - Voltage Regulator
71731		492-0017	Clamp - Speaker Mounting
71460		568-0003	Collector - Wheel Static
71751		744-0007	Knob - Tone Switch & Speaker Control
411-10		552-0007	Nut - #10-32 Hex
71610		552-0006	Nut - 1/4-20 Hex
75663		552-0001	Nut - #8-32 Wing
71733		552-0008	Nut - 1/2-28 - Special
75935		563-0004	Suppressor - Distributor
402-8		563-0006	Suppressor Lead - Distributor
402-10		553-1208	Washer - Lock - #8 - Int. Tooth
		553-2007	Washer - Lock #10 - Int. Tooth
71741		553-2007	Washer - Serrated
75673		553-1014	Washer - Lock - 1/4 - Split
71491		553-1250	Washer - Lock - 1/2 - Int. Tooth
<b>INSTALLATION PARTS - 1CH748-1</b>			
71744		492-0019	Bracket - Mounting - Receiver - L.H.
71745		492-0018	Bracket - Mounting - Receiver - R.H.
75162		567-0005	Capacitor - Fuel Gauge
71456		564-0002	Capacitor - Generator
71457		569-0012	Capacitor - Ignition Coil
71604		569-0004	Capacitor - Oil Gauge
71460		568-0003	Collector - Wheel Static
71751		744-0007	Knob - Tone Switch & Speaker Control
75711		740-0017	Knob - Volume & Tuning
71610		552-0006	Nut - 1/4-20 Hex
75663		552-0001	Nut - #8-32 Wing
71753		552-0008	Nut - 1/2-28 Hex
71747		559-0003	ScREW - #8-1/2 Binder Head Self-Tapping
71748		551-0007	Bolt - 1/4-20 x 1/2 - Hex Head
71746		193-0007	Spring - Hood Bonding
71414		563-0004	Suppressor - Distributor
75935		563-0006	Suppressor Lead - Distributor
71741		553-2007	Washer - Serrated
75673		553-1014	Washer - Lock - 1/4 - Split
71491		553-1250	Washer - Lock - 1/2 - Int. Tooth

<u>SCHEMATIC LOCATION</u>	<u>PRODUCTION PART NUMBER</u>	<u>SERVICE PART NUMBER</u>	<u>DESCRIPTION</u>
<b>RESISTORS</b>			
R16	BY34701	181-0470	Resistor - insulated - 47 Ohm - 1/2 W.
R28, R29	BY38201	181-0820	Resistor - insulated - 82 Ohm - 1/2 W.
R21	BY31521	181-0152	Resistor - insulated - 1,500 Ohm - 1/2 W.
R18	BY32221	181-0222	Resistor - insulated - 2,200 Ohm - 1/2 W.
R4	BY32231	181-0223	Resistor - insulated - 22,000 Ohm - 1/2 W.
R7, R11	BY33331	181-0333	Resistor - insulated - 33,000 Ohm - 1/2 W.
R25	BY33931	181-0393	Resistor - insulated - 39,000 Ohm - 1/2 W.
R17	BY35631	181-0563	Resistor - insulated - 56,000 Ohm - 1/2 W.
R10, R19	BY31041	181-0104	Resistor - insulated - 100,000 Ohm - 1/2 W.
R12	BY32242	181-0224	Resistor - insulated - 220,000 Ohm - 1/2 W.
R3, R23	BY33342	181-0334	Resistor - insulated - 330,000 Ohm - 1/2 W.
R22, R24	BY33341	181-0334	Resistor - insulated - 330,000 Ohm - 1/2 W.
R14	BY34741	181-0474	Resistor - insulated - 470,000 Ohm - 1/2 W.
R1, R9	BY31052	181-0105	Resistor - insulated - 1.0 Megohm - 1/2 W.
R5	BY31061	181-0106	Resistor - insulated - 10 Megohm - 1/2 W.
R15	BY31562	181-0156	Resistor - insulated - 15 Megohm - 1/2 W.
R20	ZY33311	182-0331	Resistor - insulated - 330 Ohm - 1 W.
	or	or	
	66041	189-0011	Resistor - insulated - 330 Ohm - 1 W. (W. W.)
R2	ZY31031	182-0103	Resistor - insulated - 10,000 Ohm - 1 W.
R27	VY31821	183-0182	Resistor - insulated - 1,800 Ohm - 2 W.
	or	or	
	71677	189-0002	Resistor - insulated - 1,800 Ohm - 2 W. (W. W.)
R8	VY31231	183-0123	Resistor - insulated - 12,000 Ohm - 2 W.

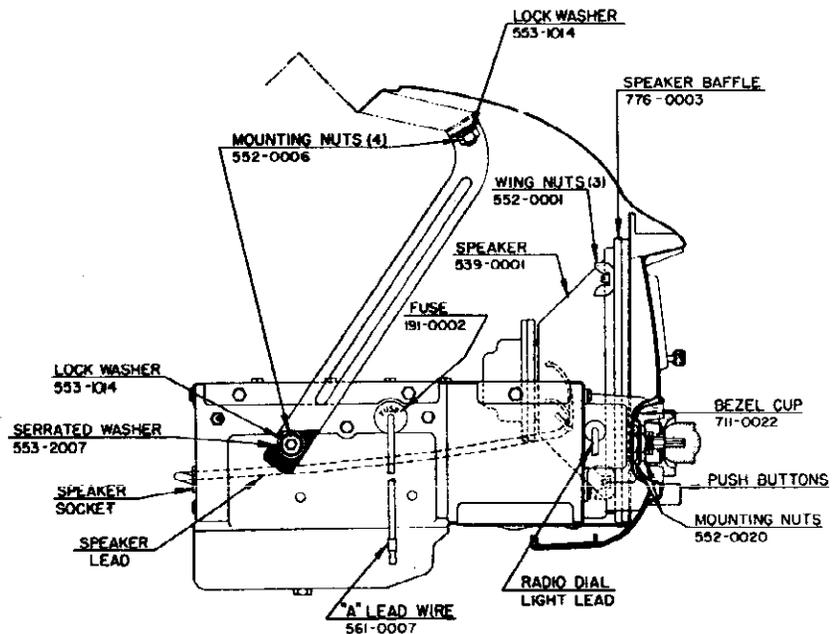


FIG. 7 ICF743-1 INSTALLATION

MODELS ICF743-1,  
ICM747-1, ICH748-1

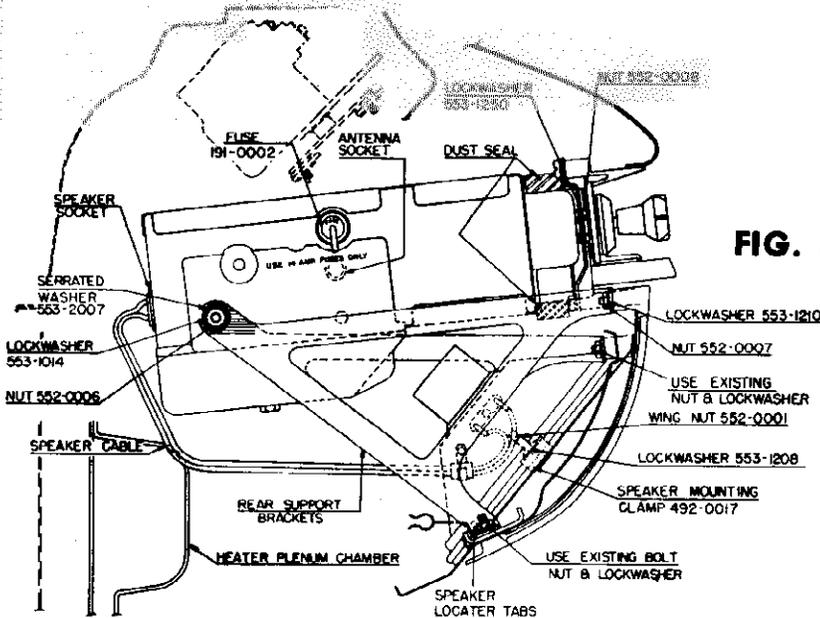


FIG. 8 ICF747-1 INSTALLATION

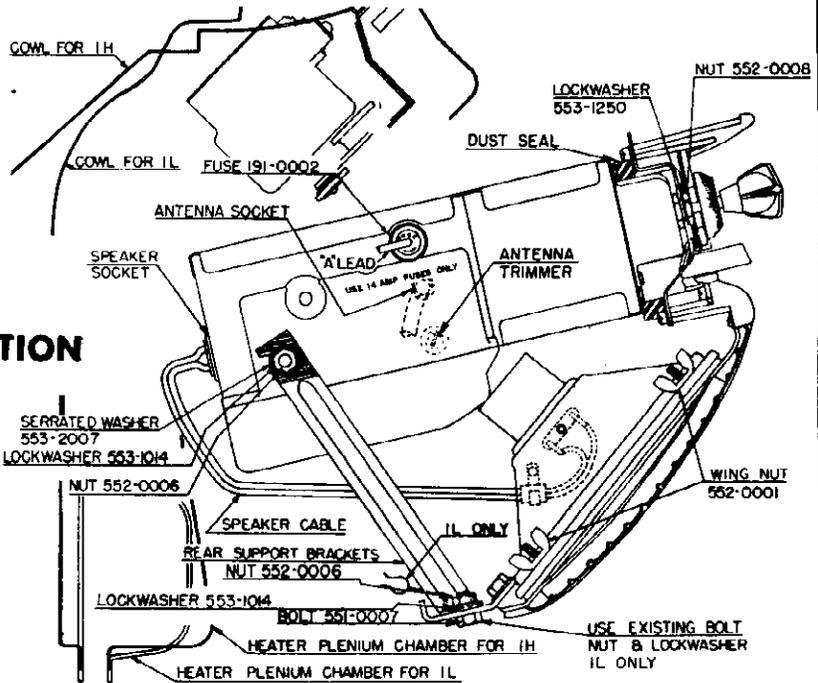


FIG. 9 ICH748-1 INSTALLATION

### RECEIVER INSTALLATION

Figures 7, 8 and 9 illustrate the installed receivers to facilitate removal and reinstallation when service is necessary.

#### TO REMOVE THE FORD RECEIVER

1. Disconnect the speaker plug, dial light lead, antenna lead, and "A" lead.
2. Remove control knobs, front mounting nuts, and lockwashers from the radio control shafts.
3. Disconnect the receiver from the receiver mounting brackets by removing the hex

nut and lockwasher from the receiver mounting stud.

4. Remove receiver by sliding it back and down behind the instrument panel.
5. To remove the speaker, remove the four wing nuts holding the speaker to the instrument panel.

#### TO REMOVE THE MERCURY RECEIVER

1. Remove the car heater plenum chamber.
2. Disconnect speaker plug, antenna lead, and "A" lead.

MODELS 1CF743-1,  
1CM747-1, 1CH748-

3. Loosen the two speaker mounting clamps and remove the speaker.
  4. Remove control knobs, front mounting nuts and lockwashers from the radio control shafts.
  5. Loosen the nuts holding the receiver to the mounting brackets.
  6. Remove receiver by sliding it back and down behind the instrument panel.
- TO REMOVE THE LINCOLN RECEIVER**
1. Remove the car heater plenum chamber.
2. Disconnect the speaker plug, antenna lead, and "A" lead.
  3. Remove control knobs, front mounting nuts and lockwashers from the radio control shafts.
  4. Loosen the hex nuts holding the receiver to the mounting brackets.
  5. Remove receiver by sliding it back and down behind the instrument panel.
  6. To remove the speaker, remove the four wing nuts holding it to the instrument panel.

## OPERATING INSTRUCTIONS

### TO TURN RADIO ON

The radio is connected to the accessory terminal of the ignition switch, therefore, it is necessary to turn the ignition key to the left, if the engine is not running, before turning the radio on. Press any one of the five automatic push buttons. Allow approximately 20 seconds for the receiver to reach operating temperature.

To turn the receiver off, press the "Off" push-button.

### MANUAL TUNING

To operate the manual tuning control simply turn the tuning knob. When tuning in a station, be sure to tune to the exact frequency for the best tone quality.

### VOLUME CONTROL

Turn the volume control knob for the desired volume.

### TONE CONTROL

The tone control knob is located directly behind the volume control knob. Turning this control to the right or left will change the tone of the receiver. This control has four positions and the position to which the control is set is indicated in the window in the center of the dial scale.

### REAR SPEAKER CONTROL

The rear speaker control disc, located behind the tuning control knob on the Mercury and Lincoln receivers, is provided to control an auxiliary rear shelf speaker (available from Mercury-Lincoln dealer).

The speaker socket located on the rear of the receiver case will accommodate both the front speaker and rear speaker. When the rear speaker is plugged into the socket, a switch in the socket connects the rear speaker control into the circuit.

## AUTOMATIC TUNING

Automatic push button tuning is provided by means of push buttons located directly under the dial scale and to the right of the "Off" push button (see Fig. 1). These five buttons permit the selection of five favorite local stations. When the push buttons have been set to the desired station it is only necessary to press a push button to turn the set "on" and to receive the station for which the adjustment was made. The dial pointer will automatically indicate the frequency of the selected station.

### SETTING THE PUSH BUTTON TUNER

The five push buttons may be adjusted to any of the desired stations. In order to simplify

the identification of these stations, it is advisable to set the push buttons in sequence according to their frequencies, beginning with the station broadcasting on the lowest frequency and progressing to the station broadcasting on the highest frequency.

The push buttons should be set up during the day since at night distant stations will be heard with the same volume as local stations, making it difficult to identify local stations.

Allow the receiver to operate for at least fifteen minutes before adjusting the push buttons. This will allow each part in the receiver to reach normal operating temperature.

MODELS 1CF743-1,  
1CM747-1, 1CH748-1

**TO SET THE PUSH BUTTONS**

**1. 1CF743 RECEIVER**

- a. Collapse the antenna.
- b. Select a station at the low end of the broadcast band and manually tune it in so its signal is heard without distortion.
- c. Loosen the second push button from the left side by turning it counter-clockwise one turn with your fingers.
- d. Press the loosened push button in firmly to its extreme position and release. Tighten the push button as much as possible by turning clockwise with your fingers.
- e. The push button is now set for this station selection. Follow the above procedure for setting each of the four remaining push buttons.
- f. Check that the push button setting corresponds to the best manual tuned signal for each station and repeat steps "b" through "e" where necessary.

**2. 1CM747 & 1CH748 RECEIVERS**

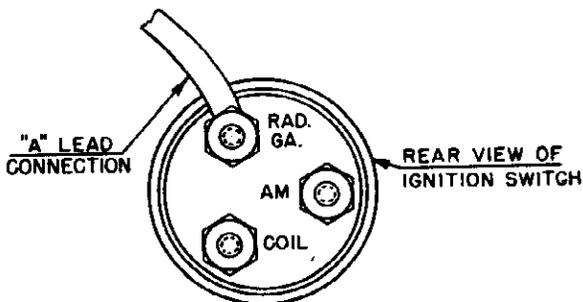
- a. Collapse the antenna.

- b. Select a station at the low end of the broadcast band and manually tune it in so its signal is heard without distortion.
- c. Unlock the second push button from the left by pushing the button to the left and pulling it out.
- d. Press the unlocked push button in firmly to its extreme position and release.
- e. The push button is now set for this station selection. Follow the above procedure for setting each of the four remaining push buttons.
- f. Check that the push button setting corresponds to the best manual tuned signal for each station and repeat steps "b" through "e" where necessary.

When the five push buttons have been set to the desired stations, return the antenna to the lowest position necessary for good reception. It is only necessary to press a push button to receive the station for which the adjustment was made. The dial pointer will automatically indicate the frequency of the selected station.

**INTERFERENCE ELIMINATION**

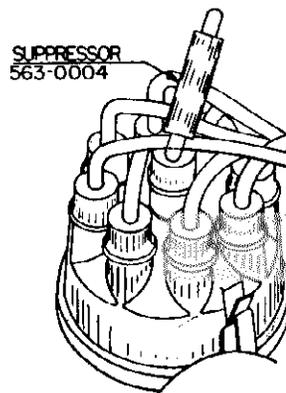
There should be no motor noise or interference from the ignition system if the receiver has been installed in the car according to the instructions furnished with the receiver. The interference suppression equipment may be checked for proper installation by referring to the following instructions and illustrations.



**FIG. 10 "A" LEAD CONNECTION**

The "A" lead to the receiver should be installed in each car as illustrated in Fig. 10.

Two types of distributor suppressors are used with the Ford (743-1), Mercury (747-1) and Lincoln (748-1) receivers. Suppressor 563-0004 was used for Ford receivers with serial numbers up to 1CF 60757 743-1 (approx.), Mercury receivers with serial numbers up to 1CM 103,500 747-1 (approx.) and Lincoln receivers with serial numbers up to 1CH 15,500 748-1 (approx.). All Ford, Lincoln and Mercury receivers with serial numbers above those listed use suppressor lead 563-0006.

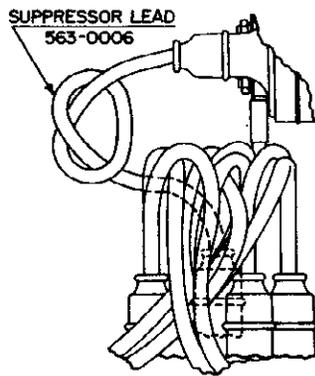


**FIG. 11 DISTRIBUTOR SUPPRESSOR 563-0004**

To install suppressor 563-0004 shown in Fig. 11, cut the high tension wire running from the ignition coil to the center hole of the distributor cap one and one half inches from the coil for the Ford "8", two and one half inches from the cap for the Mercury and Lincoln. Cut one inch from the coil end of the wire. Screw the cut ends of the wire into both ends of suppressor 563-0004. Replace the wire in the coil.

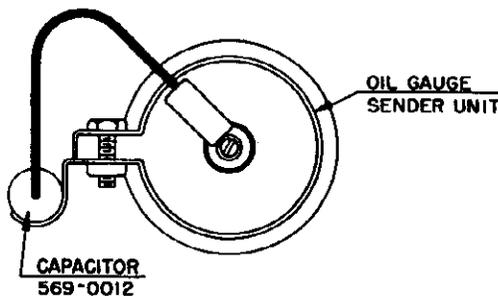
MODELS 1CF743-1,  
1CM747-1, 1CH748-

Connect capacitor 567-0005 to the fuel gauge sender unit as shown in Fig. 14 and seal tightly with compound.



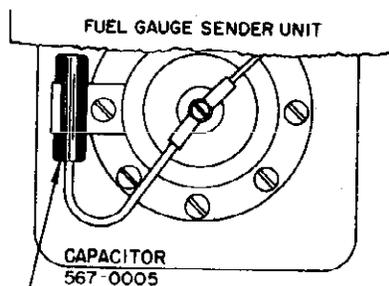
**FIG. 12 DISTRIBUTOR SUPPRESSOR LEAD 563-0006**

To install suppressor lead 563-0006, remove the high tension wire that runs between the ignition coil and the center hole of the distributor cap on the Ford, Lincoln and Mercury cars. Thoroughly clean the contacts on the coil and distributor. Make an overhand loop in suppressor lead 563-0006 as shown in Fig. 12 and insert the lead in place of the high tension wire.

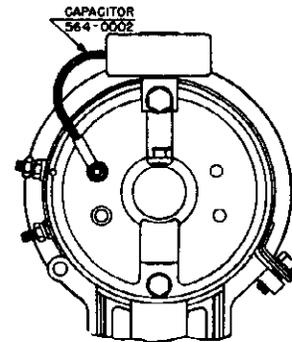


**FIG. 13 OIL GAUGE CAPACITOR**

Connect capacitor 569-0012 to the oil gauge sender unit as shown.

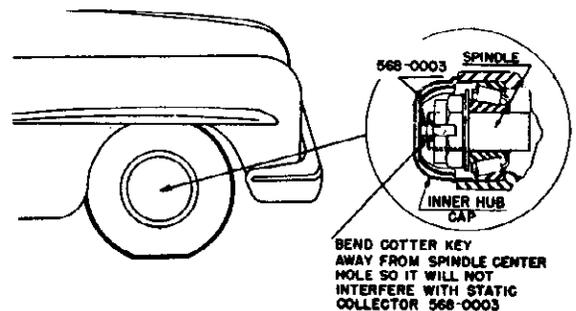


**FIG. 14 FUEL GAUGE CAPACITOR**



**FIG. 15 GENERATOR CAPACITOR**

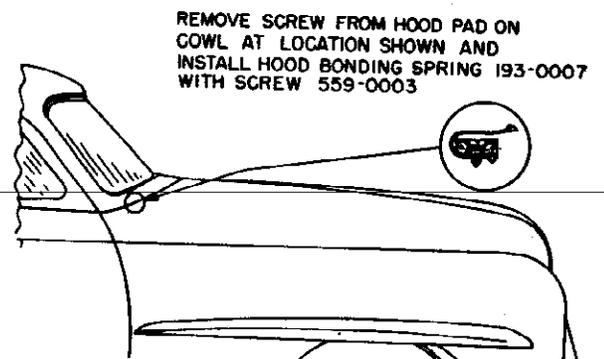
The generator capacitor 564-0002 is installed by loosening (do not remove) the top assembly bolt from the rear end plate of the generator. Mount the capacitor under this bolt and connect the lead to the armature terminal of the generator.



**FIG. 16 WHEEL STATIC COLLECTOR**

Remove both outer and inner hub caps from both front wheels. Clean inner caps and spindles. Snap static collector springs 568-0003 in inner hub caps.

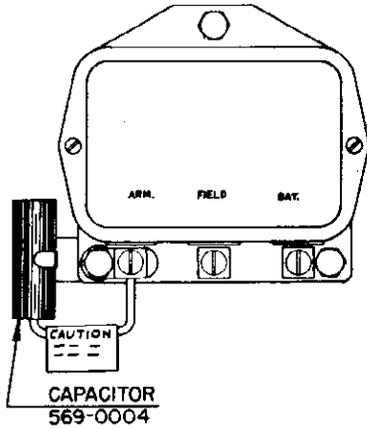
**IMPORTANT:** Bend cotter key away from center hole so it will not interfere with static collector. Replace hub caps.



**FIG. 17 LINCOLN HOOD BOND**

MODELS 1CF743-1,  
1CM747-1, 1CH748-1

Remove the screw from the hood pad on the cowl and install the hood bonding spring 193-0007.



Mount capacitor 569-0004 between voltage regulator and dash panel. Connect lead to "ARM" terminal on regulator as shown.

Mount capacitor 569-0004A as shown for the 1H or 1L Lincoln. Be sure to connect the lead to the battery terminal of the coil. If the lead is connected to the Distributor terminal the performance of the car engine will be impaired.

FIG. 18 VOLT. REG. CAPACITOR

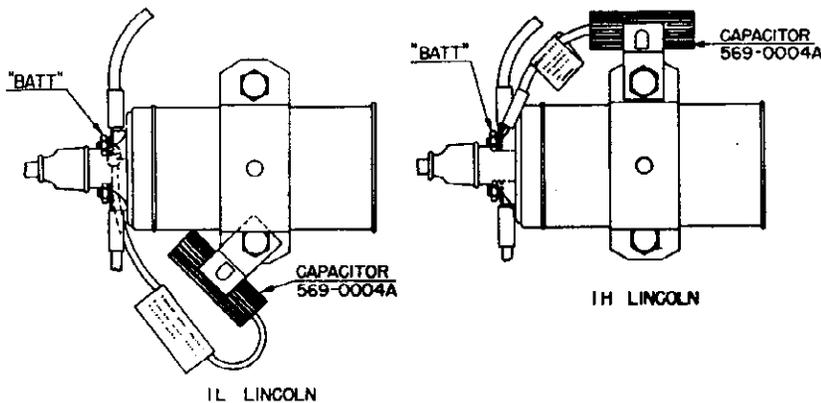


FIG. 19 IGNITION COIL CAPACITOR - LINCOLN

*Supplement No. 1*  
*to*  
*Technical Service Bulletin*

Suppressor Lead 563-0006 was available for production earlier than originally anticipated. As a result, the serial numbers given under "Interference Elimination" in Bulletin 2-18 are changed. Distributor Suppressor 563-0004 is used with receivers having the following serial numbers:

- Ford (743-1) receivers with serial numbers up to and including 1CF 49, 221 743-1
- Mercury (747-1) receivers with serial numbers up to and including 1CM 86, 501 747-1
- Lincoln (748-1) receivers with serial numbers up to and including 1CH 17, 865 748-1

Receivers with serial numbers higher than those listed above use Suppressor Lead 563-0006.







MODEL 100170, 1951  
Kaiser-Frazer

SERVICE PARTS LIST

Illus. No.	Production Part No.	Service Part No.	Description
<b>ELECTRICAL PARTS</b>			
<b>Coils</b>			
1	7258914	7258914	Antenna
2	7255738	7255738	Antenna Series Choke
3	7240251	7240251	Antenna Spark Choke
4	7258914	7258914	R.F.
5	7258911	7258911	Oscillator
6	7258188	1218725	1st I.F.
7	7258198	1218726	2nd I.F.
8	7260510	1217846	"A" Spark Choke
9	7260511	1217846	Hash Choke
<b>Condensers</b>			
11	7259597	7259597	Antenna Trimmer
12	7236842	E 503	.05 mfd 200 V Tubular
13	1219293	G 100	.000010 mfd Molded
14	7242454	7242454	Dual Trimmer
15	7258223	G 390	.000039 mfd Molded
16	7257424	7257424	.000180 mfd Compensating
17	7258125	E-503	.05 mfd 400 V Tubular
18	7258602	G 470	.000047 mfd Molded
19	1217848	1217848	Chassis Plate Condenser
20	7238789	E 104	.1 mfd 400 V Tubular
21	7257699	E 302	.003 mfd 600 V Tubular
22	7237836	E 202	.002 mfd 600 V Tubular
23	7237836	E 202	.002 mfd 600 V Tubular
24	1209309	E 103	.01 mfd 400 V Tubular
25	7240724	M 908	Electrolytic
25A			20 mfd 25 V
25B			20 mfd 400 V
25C			20 mfd 400 V
26	7258124	E 203	.02 mfd 400 V Tubular
27	1219084	H 602	.006 mfd 800 V Tubular
28	1219822	1219822	Spark Plate
29	1217848	1217848	Chassis Plate
30	7240906	H 602	.006 mfd 1600 V Tubular
<b>Resistors</b>			
35	1215558	1215558	68 Ohms 1/2W Insulated
36	12111147	A 225	2.2 Megohms 1/2W Insulated
37	7237595	B 153	15,000 ohms 1W Insulated
38	7240732	A 334	330,000 ohms 1/2W Insulated
39	1211192	A223	22,000 ohms 1/2W Insulated
40	7233653	C 153	15,000 ohms 2W Insulated
41	7238873	A 105	1 Megohm 1/2W Insulated
42	1214555	A 224	220,000 ohms 1/2W Insulated
43	1213270	A 104	100,000 ohms 1/2W Insulated
44	1214555	A 224	220,000 ohms 1/2W Insulated
45	7237835	A 221	220 ohms 1/2W Insulated
46	7241937	A 685	6.8 Megohms 1/2W Insulated
47	1214555	A 224	220,000 ohms 1/2W Insulated
48	7238873	A 105	1 Megohm 1/2W Insulated
49	1215560	1215560	180,000 ohms 1/2W Insulated
50	1219690	1219690	390 ohms 2W Wire Wound
51	1214555	A 224	220,000 ohms 1/2W Insulated
52	1214556	A 274	270,000 ohms 1/2W Insulated
53	1213270	A 104	100,000 ohms 1/2W Insulated
54	1214543	A 681	680 ohms 1/2W Insulated
55	1214545	A 222	2200 ohms 1/2W Insulated
56	1213483	1213483	6800 ohms 1/2W Insulated
57	1219738	B 221	220 ohms 1W Insulated
58	1214573	{ B 562 { C 272	1800 ohms 2W Wire Wound (Replace with 5600 ohm 1W and 2700 ohm 2W in parallel).

SERVICE PARTS LIST

Illus. No.	Production Part No.	Service Part No.	Description
		<b>Tubes</b>	
	1217690	5252	6BA6
	1217691	5253	6BE6
	1218506	5262	6AV6
	1211924	5003	0Z4
	1213793	5241	6V6GT
		<b>Miscellaneous Electrical</b>	
65	7260564	7260328	"A" Lead and Fuse Holder (Male)
65A	7260674	7260674	Control - Volume, Tone and Switch
65B			Tone Control
65C			Volume Control
			Switch
66	187189	44	Dial Light
67	7260563	7260563	Speaker, PM
68	7260545	7260545	Sensitivity Control
69	7260531	7260531	Transformer - Output
70	7259614	6060	Transformer - Power
71	7239124	8542	Vibrator

MECHANICAL PARTS

Illus. No.	Production Part No.	Service Part No.	Description
		<b>Chassis</b>	
80	1219760	1219760	Plug - Speaker
	7256742	7256742	Socket - Antenna
	7260565	1219758	Socket - Dial Light
	7258073	7258073	Socket - 7-Pin Miniature Tube
	7236279	7236279	Socket - Octal Tube
81	7258498	7258498	Socket - Speaker
	7239125	7239125	Socket - Vibrator
		<b>Tuner</b>	
85	147481	147481	Ball Bearings (10)
86	7260507	7260507	Bushing - Manual Drive
87	7258072	7258072	Clutch Disc - Driven
88	7258203	7258203	Connecting Link - Core Bar
	7258211	7258211	Core Guide Bar Assembly
89	7256271	7256271	Connecting Link - Pointer
90	7255992	7255992	Spring - Pointer Connecting Link
91	7258468	7258468	Core - Iron Tuning
92	7260560	7260560	Drive Shaft - Manual
93	7260579	7260579	Escutcheon Assy.
94	7260509	7260509	Dial Backplate
95	7260514	7260514	Dial Gasket
96	7260524	7260524	Dial Glass
97	7257718	7257718	Dial Retainer
98	7256495	7256495	Gear and Bushing - Clutch
99	7256705	7256705	Gear and Bracket - Worm
100	7260558	7260558	Pointer Assembly
	1219759	1219759	Pointer Tip Package
101	7260517	7260517	Pointer Backplate
102	1219757	1219757	Push Button and Slide Assy.
103	7258756	7258756	Spring - Clutch
104	7257415	7257415	Spring - Core Bar Connecting Link
105	7255984	7255984	Spring - Slide Return

INSTALLATION PARTS

7260585	7260585	"A" Lead and Fuse Holder
7260781	7260781	Condenser - Ammeter
1911095	6030	Condenser - Generator
1912900	6030	Condenser - Ignition Coil
1912900	6030	Condenser - Voltage Regulator
7260586	7260586	Hood Ground Clip
7260559	7260559	Knob - Control
7260535	7260535	Knob - Dummy
7260537	7260537	Knob - Tone Control
7260534	7260534	Mounting Bracket - Left Hand
7260533	7260533	Mounting Bracket - Right Hand
7260512	7260512	Mounting Bracket - Front
7260835	7260835	Suppressor - Distributor
7260659	7260659	Trim Plate

## PAGE 22-6 UNITED MOTORS

MODEL 100205,  
1951 Henry J

### GENERAL

**MOUNTING**—All 1951 Henry J cars.

**TUBES**—Five, plus rectifier.

**SPEAKER**—6" x 9" Elliptical, Permanent Magnet.

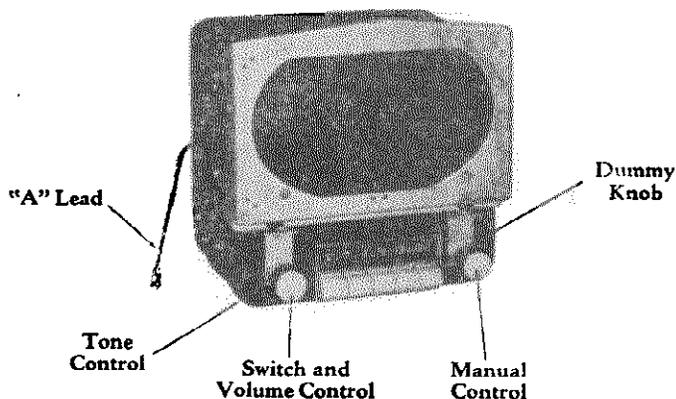
**TUNING**—Manual and 5 P. B. Mechanical.

**ANTENNA TRIMMER COMPENSATION**—For Antennas Between 0.000058 - 0.000090 Mfd.

**TUNING RANGE**—550-1600 KC.

### PUSH BUTTON SET-UP PROCEDURE

Pull Push Button right and out. Tune in desired station manually. Push button all the way in.



MODEL 100205

### ALIGNMENT PROCEDURE

Output Meter Connections ..... Across Voice Coil  
 Generator Return ..... To Receiver Chassis  
 Dummy Antenna ..... In Series With Generator  
 Volume Control Position ..... Maximum Volume  
 Tone Control Position ..... Treble  
 Generator Output ..... Minimum for Readable Indication

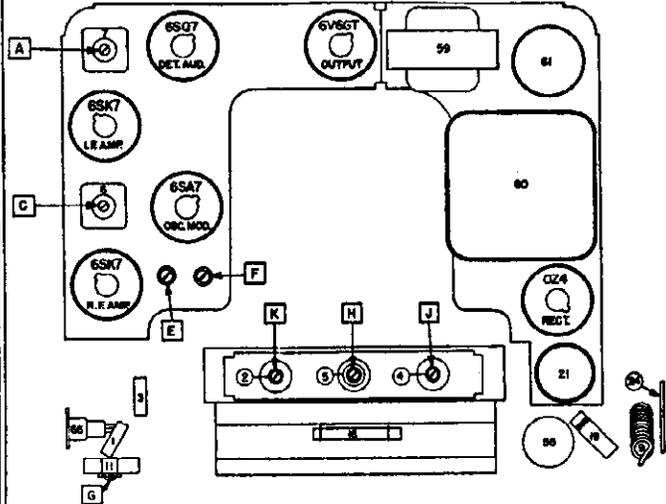
Steps	Series Condenser or Dummy Antenna	Connect Signal Generator to	Signal Generator Frequency	Tune Receiver to	Adjust in Sequence for Max. Output
1	0.1 Mfd.	6SA7 Grid (Pin #8)	260 KC	High Frequency Stop	A, B, C, D
2	0.000068 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	*E, F, G
3	0.000068 Mfd.	Antenna Connector	1000 KC	Signal Generator Signal	J, K
4	0.000068 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	F, G
5	0.000068 Mfd.	Antenna Connector	1100 KC	Signal Generator Signal	L**

\*Before making this adjustment check mechanical setting of oscillator core "H." The rear of the core should be 1 1/2" from the mounting end of the coil form. (This measurement is readily made by inserting a suitable plug in the mounting end of the coil form.) If adjustment is necessary, first dissolve the glyptal seal on the core studs. Core adjustments should be made with an insulated screw driver, and core studs should be cemented in place with glyptal or household cement after alignment.

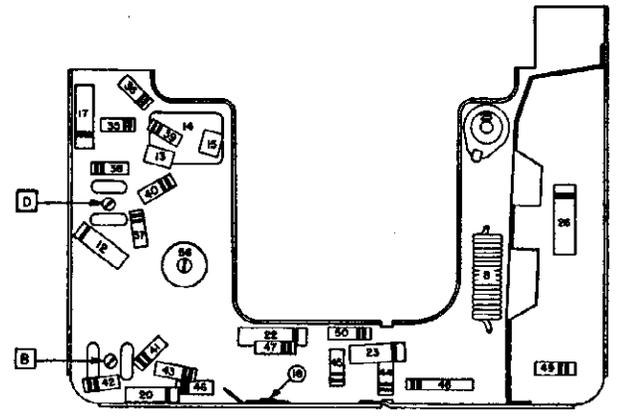
\*\*L is the pointer adjustment screw which is on the connecting link, between the pointer assembly and core guide bar (See tuner Dwg.) It should be adjusted so that when looking directly at the dial the pointer is on the 1100 KC mark. This setting is to give the correct relationship between the pointer and the dial when the radio is installed in a car.

With the radio installed and the car antenna plugged in adjust the antenna trimmer "G" for maximum volume with the radio tuned to a weak station between 600 and 1000 KC (see sticker on case).

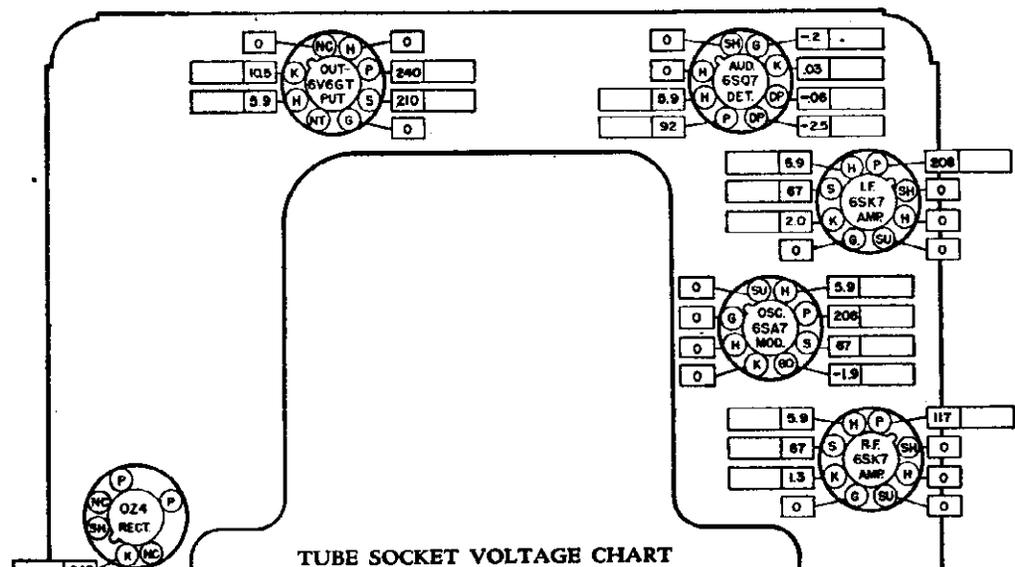
MODEL 100205  
1951 Henry J



PARTS LAYOUT—TUBE VIEW

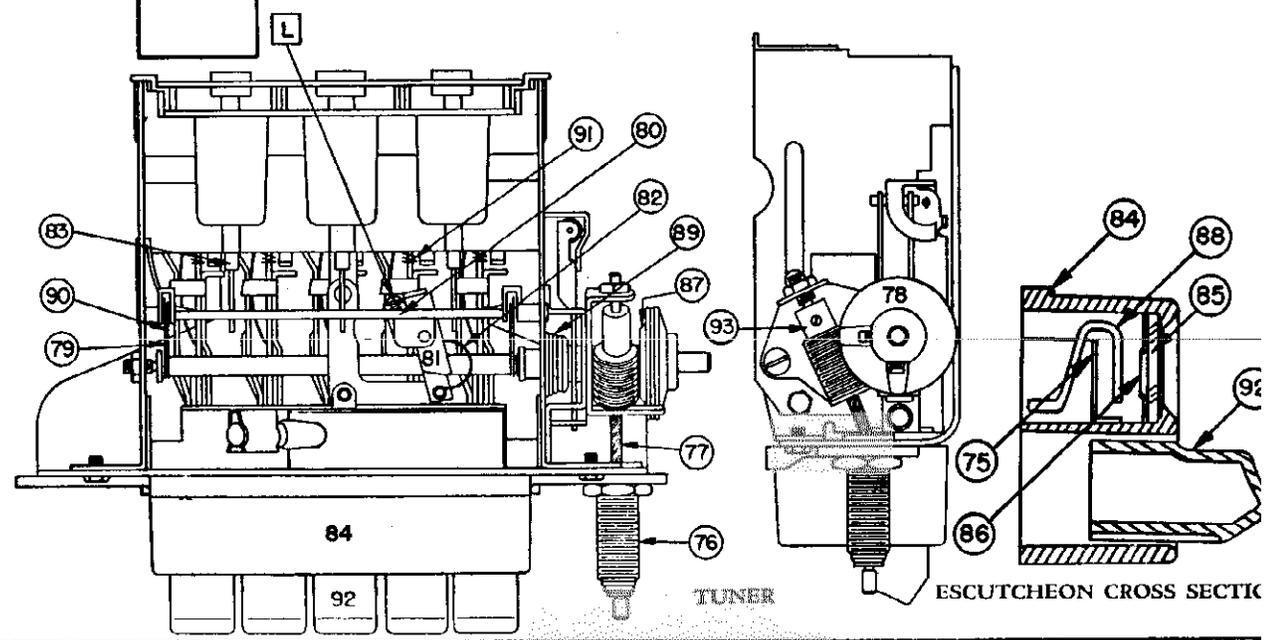


PARTS LAYOUT—CHASSIS VIEW



TUBE SOCKET VOLTAGE CHART

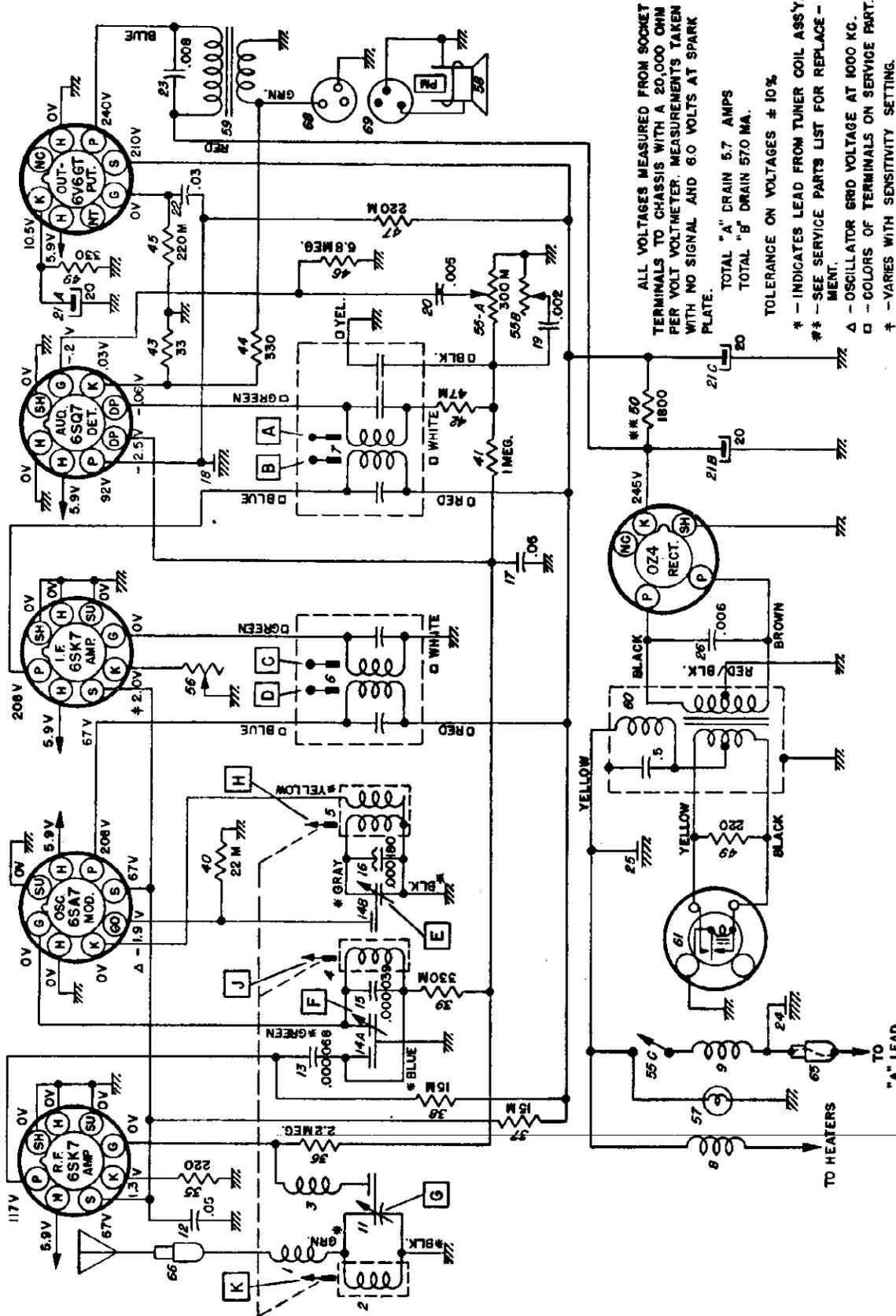
Voltage measured from socket terminals to chassis and are positive unless marked otherwise.



TUNER

ESCUTCHEON CROSS SECTIC

MODEL 100205,  
1951 Henry J



ALL VOLTAGES MEASURED FROM SOCKET TERMINALS TO CHASSIS WITH A 20,000 OHM PER VOLT VOLTMETER. MEASUREMENTS TAKEN WITH NO SIGNAL AND 60 VOLTS AT SPARK PLATE.

TOTAL "A" DRAIN 5.7 AMPS  
TOTAL "B" DRAIN 570 MA.

TOLERANCE ON VOLTAGES ± 10%

\* - INDICATES LEAD FROM TUNER COIL ASSY.  
\*\* - SEE SERVICE PARTS LIST FOR REPLACE-  
MENT.  
Δ - OSCILLATOR GRID VOLTAGE AT 1000 KC.  
□ - COLORS OF TERMINALS ON SERVICE PART.  
\* - VARIES WITH SENSITIVITY SETTING.

KAISER-FRAZER 100205

SERVICE PARTS LIST

Illus. No.	Production Part No.	Service Part No.	Description
<b>ELECTRICAL PARTS</b>			
<b>Coils</b>			
1	7255738	7255738	Ant. Series Choke
2	7258914	7258914	Antenna
3	7240251	7240251	Ant. Spark Choke
4	7258914	7258914	R. F.
5	7259687	7259687	Oscillator
6	7258188	1218725	1st I.F.
7	7258198	1218726	2nd I.F.
8	7255912	7241708	Hash Choke
9	7241118	1217846	"A" Spark Choke
<b>Condensers</b>			
11	7257959	7257959	Antenna Trimmer
12	7258125	E 503	.05 Mfd. 400 V. Tubular
13	1219550	G 680	.000068 mfd. Mica
14	7242454	7242454	Dual Trimmer
14A			R.F. Section
14B			Oscillator Section
15	7258221	G 390	.000039 mfd. Mica
16	7257424	7257424	.000180 mfd. Compensating
17	7236842	E 503	.05 mfd. 200 V Tubular
18	1217848	1217848	Chassis Plate Condenser
19	1219632	E 202	.002 mfd. 600V Tubular
20	7230767	E 502	.005 mfd. 600V Tubular
21	7240724	M 908	Electrolytic
21A			20 mfd. 25V
21B			20 mfd. 400V
21C			20 mfd. 400V
22	7242448	E 303	.03 mfd. 400V Tubular
23	1219594	H 802	.008 mfd. 800V Tubular
24	1219825	1219825	Spark Plate Condenser
25	1217848	1217848	Chassis Plate Condenser
26	7240906	H 602	.006 mfd. 1600 V Tubular
<b>Resistors</b>			
35	7237835	A 221	220 ohms 1/2W Insulated
36	1211147	A 225	2.2 megohms 1/2W Insulated
37	1219678	C 153	15,000 ohms 2W Insulated
38	1211091	B 153	15,000 ohms 1W Insulated
39	7240732	A 334	330,000 ohms 1/2W Insulated
40	1211192	A 223	22,000 ohms 1/2W Insulated
41	7238873	A 105	1 megohm 1/2W Insulated
42	7240731	A 473	47,000 ohms 1/2W Insulated
43	1214538	A 330	33 ohms 1/2W Insulated
44	1213224	A 331	330 ohms 1/2W Insulated
45	1213479	A 224	220,000 ohms 1/2W Insulated
46	7241937	A 685	6.8 megohms 1/2W Insulated
47	1213479	A 224	220,000 ohms 1/2W Insulated
48	7233773	C 331	330 ohms 1W Wire Wound
49	1219738	B 221	220 ohms 1W Insulated
50	1214573	{ C 272 { B 562	1800 ohms 2W Wire Wound (Replace with 2700 ohm, 2W and 5600 ohm, 1W in parallel.)
<b>Tubes</b>			
	7237751	5229	6SK7
	7237752	5222	6SA7
	1214293	5232	6SQ7GT
	1213793	5241	6V6GT
	1211924	5003	0Z4

MODEL 100205,  
1951 Henry J

SERVICE PARTS LIST

Illus. No.	Production Part No.	Service Part No.	Description
<b>MISCELLANEOUS ELECTRICAL PARTS</b>			
55	7260651	7260651	Control - Volume, Tone & Switch
55A			Volume Control
55B			Tone Control
55C			Switch
56	7242204	7242204	Control - Sensitivity
57	187189	44	Lamp - Dial Light
58	7260819	7260819	Speaker 6 x 9 Elliptical P. M.
59	7260712	7260712	Transformer - Output
60	7259375	7255881	Transformer - Power
61	7239124	8542	Vibrator
<b>MECHANICAL PARTS</b>			
<b>Chassis</b>			
65	7260133	7260328	"A" Lead & Fuse Holder Assy. (Male)
66	7256742	7256742	Connector - Antenna
67	1219758	1219758	Socket - Dial Light
	7236279	7236279	Socket - Octal
	7239125	7239125	Socket - Vibrator
<b>Tuner</b>			
75	7257722	7257722	Backplate - Pointer
	147481	147481	Ball Bearing Pkg. (10)
76	7260635	7260635	Bushing & Drive Shaft Assembly
77	7260636	7260636	Manual Drive Shaft Assembly
78	7258072	7258072	Clutch Disc - Driven
79	7258203	7258203	Connecting Link - Core Bar
80	7258210	7258210	Core Guide Bar - Parallel
81	7256271	7256271	Conn. Link - Pointer Adj.
82	7255992	7255992	Spring - Conn. Link - Pointer
83	7258468	7258468	Core Assy. - Powdered Iron
84	7260643	7260643	Escutcheon Assy.
85	7260653	7260653	Dial Glass
86	7257719	7257719	Mask Plate
	7257718	7257718	Spring - Dial Retainer
87	7256495	7256495	Gear & Bushing - Clutch
88	7257742	7257742	Pointer Assy.
	1219120	1219120	Pointer Tip Package
89	7258756	7258756	Spring - Clutch
90	7257415	7257415	Spring - Core Bar Conn. Link
91	7255984	7255984	Spring - Slide Return
92	1219824	1219824	Tuner Slide and Push Button
93	7257711	7257711	Worm Gear and Bracket
<b>INSTALLATION PARTS</b>			
	7260743	7260743	"A" Lead and Fuse Holder
	7259644	7259644	Condenser - Generator
	7259643	7259643	Condenser - Ignition Coil
	7260814	7260814	Condenser - Ignition Switch
	1912900	6030	Condenser - Voltage Regulator
	7260599	7260599	Eye Bolt
	147685	147685	Fuse - 14 Amp.
	7260667	7260667	Knob - Control
	7260665	7260665	Knob - Dummy
	7260666	7260666	Knob - Tone Control
	7260835	7260835	Suppressor - Distributor
	7260671	7260671	Trim Plate

MODELS 982697,  
982698, Oldsmobil

**GENERAL**

**MOUNTING**—982698 - All 1951 - 88 Series Oldsmobile Cars.  
982697 - All 1951 - 98 Series Oldsmobile Cars.

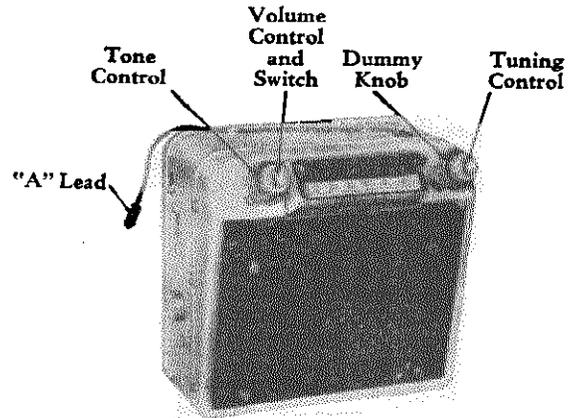
**TUBES**—Six, Plus Rectifier.

**SPEAKER**—6" x 9" Elliptical Permanent Magnet.

**TUNING**—Manual and 5 P. B. Mechanical.

**ANTENNA TRIMMER COMPENSATION**—For Antennas Between 0.000050 - 0.000070 Mfd.

**TUNING RANGE**—540 - 1600 KC



MODELS 982697  
982698

**PUSHBUTTON SET-UP**

Pull pushbutton to the left and out. Tune in desired station manually. Push button all the way in.

**ALIGNMENT PROCEDURE:**

Output Meter Connection ..... Across Voice Coil  
 Generator Return ..... To Receiver Chassis  
 Dummy Antenna ..... In Series With Generator  
 Volume Control Position ..... Maximum Volume  
 Tone Control Position ..... Treble  
 Generator Output ..... Minimum for Readable Indication

Steps	Series Condenser or Dummy Antenna	Connect to	Signal Generator Frequency	Tune Receiver to	Adjust in Sequence For Max. Output
1	0.1 Mfd.	6SA7 Grid (Pin #8)	260 KC	High Frequency Stop	A, B, C, D
2	0.000068 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	*E, F, G
3	0.000068 Mfd.	Antenna Connector	1400 KC	Signal Generator Signal	J, K
4	0.000068 Mfd.	Antenna Connector	1615 KC	High Frequency Stop	F, G
5	0.000068 Mfd.	Antenna Connector	1000 KC	Signal Generator Signal	**L

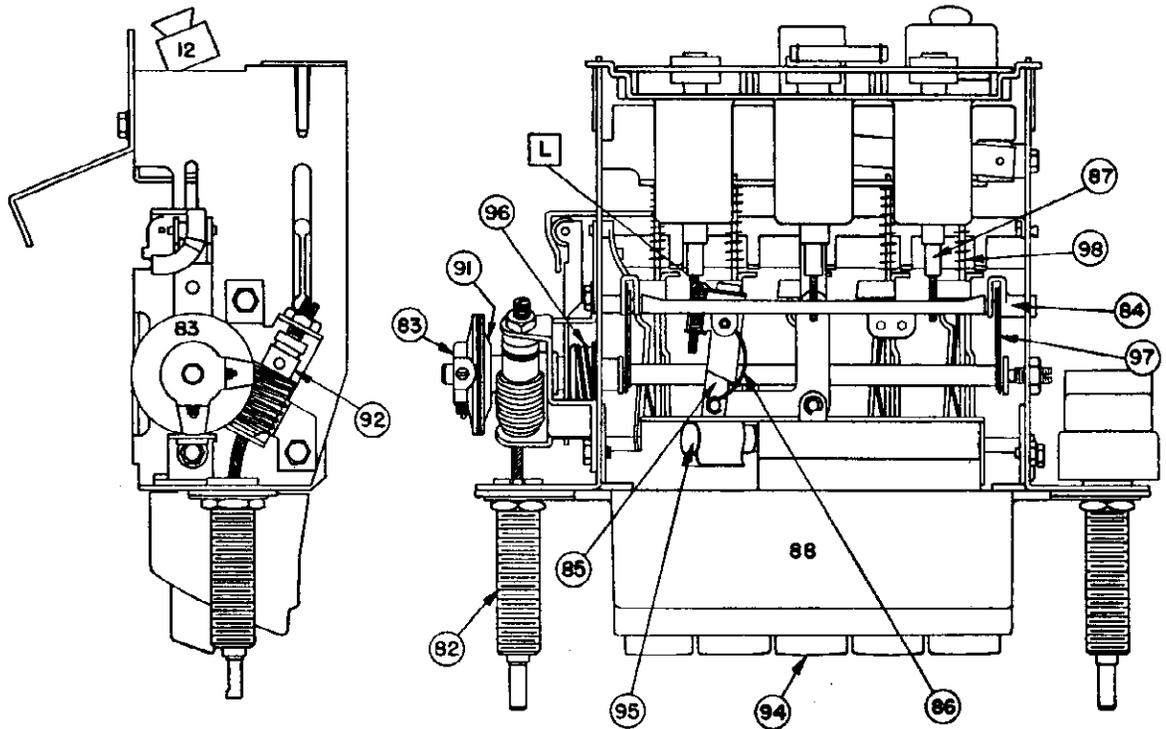
\*Before making this adjustment check the mechanical setting of the oscillator core "H." The slotted end of core should be 1 3/8" from the mounting end of the coil form. (This measurement is readily made by inserting a suitable plug in the mounting end of the coil form.) If adjustment is necessary, first dissolve the glyptal seal on the studs. Core adjustments should be made with an insulated screwdriver and core studs should be re-sealed in place with glyptal or household cement after alignment.

\*\*"L" is the pointer adjustment screw which is on the pointer connecting link (see tuner drawing) and should be adjusted so the pointer reads 1000 KC. (On first "0" of "100.")

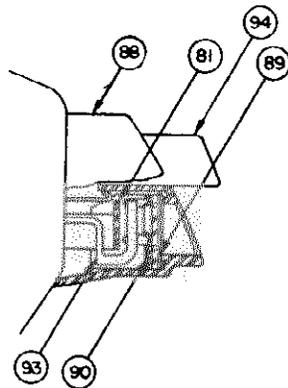
With the radio installed and the car antenna plugged in adjust the antenna trimmer "G" for maximum volume with the radio tuned to a weak station between 600 and 1000 KC. (See sticker on case.)



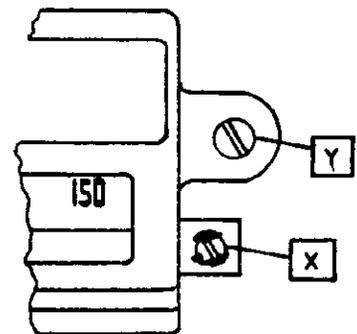
MODELS 982697,  
982698, Oldsmobile



TUNER



ESCUTCHEON CROSS SECTION



ESCUTCHEON MOUNTING

### SPECIAL INSTRUCTIONS

Unless special precautions are taken in removing the dial escutcheon, there is a possibility that the dial pointer tip will be broken. Therefore, in removal of the escutcheon, the following procedure is recommended:

1. Loosen, but do not remove, the two screws holding the pointer back plate ("X" in Escutcheon Mounting drawing above) and loosen the shellac so that the back plate is free to move.
2. Remove the escutcheon mounting screws "Y" (see Escutcheon Mounting).
3. Carefully lift off the escutcheon (DO NOT FORCE). If the dial backplate is free to move slightly downward the escutcheon will come off easily.

The same caution should be exercised when replacing the escutcheon.



SERVICE PARTS LIST

Ill. No.	Production Part No.	Service Part No.	Description
<b>ELECTRICAL PARTS</b>			
<b>Coils</b>			
1	7255738	7255738	Antenna Series Choke
2	7240251	7240251	Antenna Spark Choke
3	7258914	7258914	Antenna
4	7258914	7258914	R.F.
5	7259687	7259687	Oscillator
6	7258849	1219508	1st I.F.
7	7258850	1219509	2nd I.F.
8	7237846	1217846	Hash Choke
*9	7259187	*7259187	Spark Choke
<b>Condensers</b>			
*12	7260251	*7260251	Antenna Trimmer
13	7236842	6537	.05 mfd 200V Tubular
14	7258221	G 390	.000039 mfd Molded
15	7242454	7242454	Dual Trimmer
15A			R.F. Section
15B			Oscillator Section
16	7258221	G 390	.000039 mfd Molded
17	7257424	7257424	.000180 mfd Compensating
18	7230892	6537	.05 mfd 400V Tubular
19	1217848	1217848	Chassis Plate
20	1215189	G 100	.000010 mfd Molded
21	7237870	6533	.01 mfd 400V Tubular
22	1219495	6539	.1 mfd 400V Tubular
23	7232956	6531	.005 mfd 600V Tubular
24	7238881	6533	.01 mfd 400V Tubular
25	7237836	E 202	.002 mfd 600V Tubular
26	7240724	M 908	Electrolytic
26A			20 mfd 25V
26B			20 mfd 400V
26C			20 mfd 400V
27	7236134	7236134	.0015 mfd 800V Tubular
28	7241259	1219768	Spark Plate
29	1217848	1217848	Chassis Plate
30	7240906	H 602	.006 mfd 1600V Tubular
<b>Resistors</b>			
35	1213217	A 101	100 Ohms 1/2W Insulated
36	1211147	A 225	2.2 Megohms 1/2W Insulated
37	7237595	B 153	15,000 Ohms 1W Insulated
38	7240732	A 334	330,000 Ohms 1/2W Insulated
39	1211192	A 223	22,000 Ohms 1/2W Insulated
41	7233653	C 153	15,000 Ohms 2W Insulated
42	1213220	A 151	150 Ohms 1/2W Insulated
43	7238873	A 105	1 Megohm 1/2W Insulated
44	7240731	A 473	47,000 Ohms 1/2W Insulated
45	7238873	A 105	1 Megohm 1/2W Insulated
46	1213235	A 102	1,000 Ohms 1/2W Insulated
47	1213235	A 102	1,000 Ohms 1/2W Insulated
48	1214561	1214561	820,000 Ohms 1/2W Insulated
49	7238873	A 105	1 Megohm 1/2W Insulated
50	1213480	A 393	39,000 Ohms 1/2W Insulated
51	7236080	B 273	27,000 Ohms 1W Insulated
52	7234563	7234563	360 Ohms 1W Insulated
53	1219738	B 221	220 Ohms 1W Insulated
54	1214573	{ C 272 B 562	1800 Ohms 2W Wire Wound (Or replace with 2700 Ohm 2W and 5600 Ohm 1W in parallel).
<b>Tubes</b>			
	7237751	6SK7	R.F. and I.F. Amplifier
	7237752	6SA7	Oscillator Modulator
	1218107	6SR7	Detector - Audio
	1213793	6V6GT	Output
	1211924	0Z4	Rectifier

MODELS 982697,  
982698, Oldsmobile

SERVICE PARTS LIST

Ill. No.	Production Part No.	Service Part No.	Description
<b>Miscellaneous Electrical</b>			
*60	7260270	*7260270 (Model 982697)	Control - Volume, Tone, & Switch
*60	7260250	*7260250 (Model 982698)	Control - Volume, Tone, & Switch
60A			Volume Control
60B			Tone Control
60C			Switch
61	187189	44	Lamp - Dial Light
62	7258146	7258146	Speaker - 6 x 9 P. M.
63	7258941	7258941	Transformer - Input
64	7259419	7259419	Transformer - Output
65	7259375	725881	Transformer - Power
66	7239124	8542	Vibrator - Non-Synchronous
<b>MECHANICAL PARTS</b>			
<b>Chassis</b>			
*70	7260133	*7260328	Connector - "A" Lead
71	7256742	7256742	Connector - Antenna
	7236279	7236279	Socket - Octal Tube
	7239125	7239125	Socket - Vibrator
<b>Tuner</b>			
*81	7260134	*7260134 (Model 982697)	Backplate-Pointer
*81	7260247	*7260247 (Model 982698)	Backplate-Pointer
	147481	147481	Ball Bearings (12)
*82	7260352	*7260352 (Model 982697)	Bushing and Manual Drive Shaft
*82	7260354	*7260354 (Model 982698)	Bushing and Manual Drive Shaft
	7260351	*7260351 (Model 982697)	Manual Drive Shaft
	7260238	*7260238 (Model 982698)	Manual Drive Shaft
83	7258072	7258072	Clutch Disc-Driven
84	7258211	7258211	Core Guide Bar - Parallel
85	7256271	7256271	Pointer Connecting Link
86	7255992	7255992	Spring - Pointer Connecting Link
87	7258468	7258468	Core - Powdered Iron
*88	7260371	*7260371 (Model 982697)	Escutcheon Assy.
*88	7260367	*7260367 (Model 982698)	Escutcheon Assy.
89	7260245	*7260245	Dial
90	7259496	7259496	Dial Backplate
91	7256495	7256495	Gear and Bushing - Clutch
*92	7260212	*7260212	Gear and Bracket - Worm
*93	7260360	*7260360 (Model 982697)	Pointer Assy.
*93	7260361	*7260361 (Model 982698)	Pointer Assy.
	1219174	1219174	Pointer Tip Pkg.
94	1219173	1219173 (Model 982697)	Push Button and Slide Assy.
*94	1219856	*1219856 (Model 982698)	Push Button and Slide Assy.
95	1219758	1219758	Socket - Dial
96	7258756	7258756	Spring - Clutch
97	7257415	7257415	Spring - Core Bar Connecting Link
98	7255984	7255984	Spring - Slide Return
<b>INSTALLATION PARTS</b>			
	7260632	*7260632	"A" Lead and Condenser Assy.
	1911095	6030	Condenser - Generator
	1912757	6030	Condenser - Ignition Coil
	7260190	6030	Condenser - Voltage Regulator
	120151	120151	Fuse - 15 Amps
	555348	555348	Hood Ground Clip
	7259818	*7259818	Knob - Control
	7260192	*7260192	Knob - Tone Control and Dummy
	7240138	7240138	Static Collector
	7258815	7258815	Trim Plate Model 982697
	7259789	*7259789	Trim Plate Model 982698

\* Parts first used in 1951

MODELS 982699,  
982700, Oldsmobile

**GENERAL**

**MOUNTING**—982700 - All 1951 88 Series Oldsmobile Cars.  
982699 - All 1951 98 Series Oldsmobile Cars.

**TUBES**—Seven, Plus Rectifier.

**SPEAKER**—6" x 9" Elliptical Permanent Magnet.

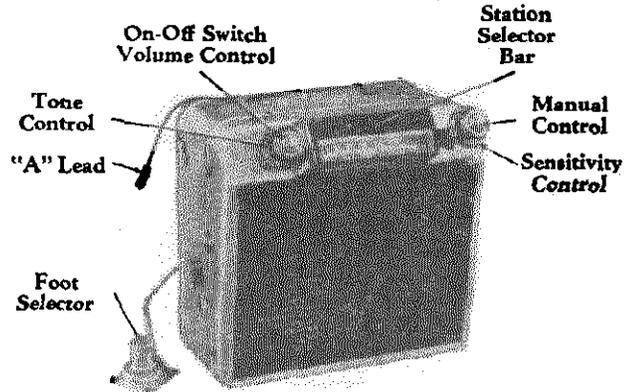
**TUNING**—Manual and Electronic.

**ANTENNA TRIMMER COMPENSATION**—For Antennas Between 0.000050 - 0.000070 Mfd.

**TUNING RANGE**—540 - 1600 KC.

**PUSHBUTTON SET-UP**

No Pushbutton Set-up is required. However, the number of stations on which the tuner will stop can be regulated by use of the Sensitivity Control.



MODELS 982699  
982700

**SIGNAL SEEKING TUNER ALIGNMENT PROCEDURE:**

NOTE: When aligning the signal seeker tuner type radio, be sure to use a vacuum tube voltmeter as indicated and be sure to follow the alignment sequence given—(Notice that the primary of the 2nd I.F. is aligned first.)

- Output Meter Connection .....VTVM From **2** To Chassis (see Parts layout page 2)
- Generator Return ..... Receiver Chassis
- Dummy Antenna ..... In Series With Generator
- Volume Control ..... Maximum Volume
- Tone Control ..... Treble
- Generator Output ..... Not to Exceed 2 Volts at VTVM

Step	Dummy Antenna	Connect To	Signal Generator Frequency	Tune Receiver To	Adjust in Sequence For Max. Output
1	0.1 mfd	6SA7 Grid (Pin 8)	260 KC	*High Frequency Stop	A, B, C, D
2	0.000068 mfd	Antenna Connector	1615 KC	High Frequency Stop	**E, F, G
3	0.000068 mfd	Antenna Connector	600 KC	Signal Generator Signal	J, K
4	0.000068 mfd	Antenna Connector	1615 KC	Signal Generator Signal	F, G
5	0.000068 mfd	Antenna Connector	1000 KC	Signal Generator Signal	***L

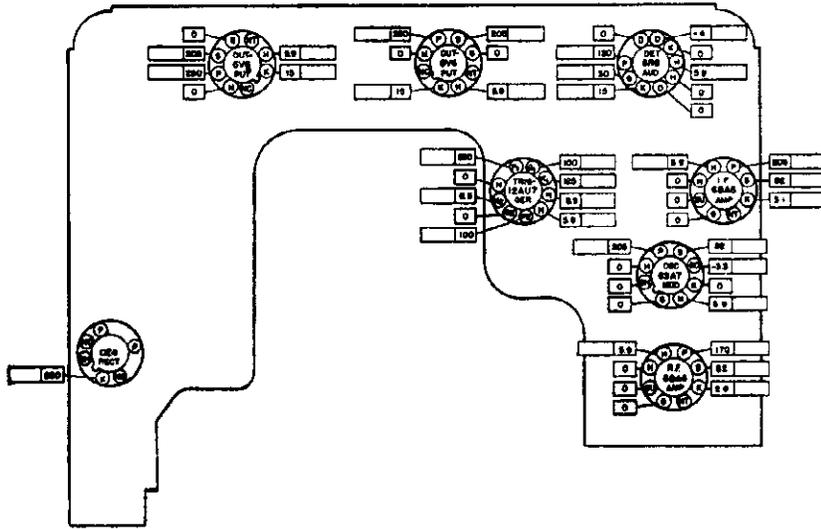
\*To tune to high frequency, put a 0.070" feeler gauge (or bare #13 wire) in slot against the high frequency stop. (See tuner pictures). Depress station selector bar and allow the planetary arm to run against the feeler gauge. Turn the radio off and then on.

\*\*Before making this adjustment, check the setting of oscillator core "H." The rear of the core should be 1 1/32" from the mounting end of the coil form. This measurement is readily made by inserting a suitable plug in the mounting end of the coil form. The core adjustment is made from the mounting end of the coil form with an insulated screw driver. (It will be necessary to steady the core guide bar by applying a downward pressure at the antenna core end of the bar while making these adjustments.) If this adjustment is necessary, first dissolve the glyptal seal on the core stud and be sure to re-seal after making the adjustment.

\*\*\*"L" is the pointer adjustment screw on the end of the core guide bar—adjust so pointer reads 1000 KC. With the radio installed and the antenna plugged in, adjust the antenna trimmer "C" for maximum volume with the radio tuned to a weak station between 600 and 1000 KC (see sticker on case).

MODELS 982699,  
982700, Oldsmobile

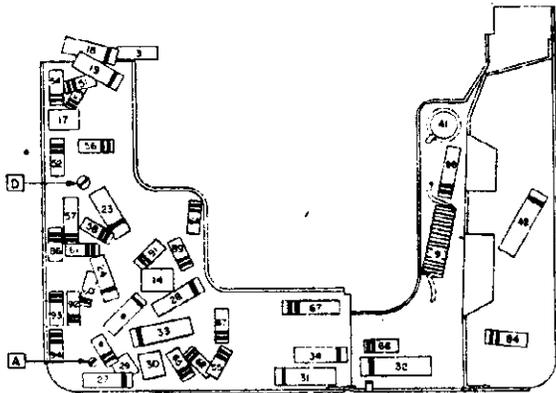
**TUBE SOCKET VOLTAGE CHART**



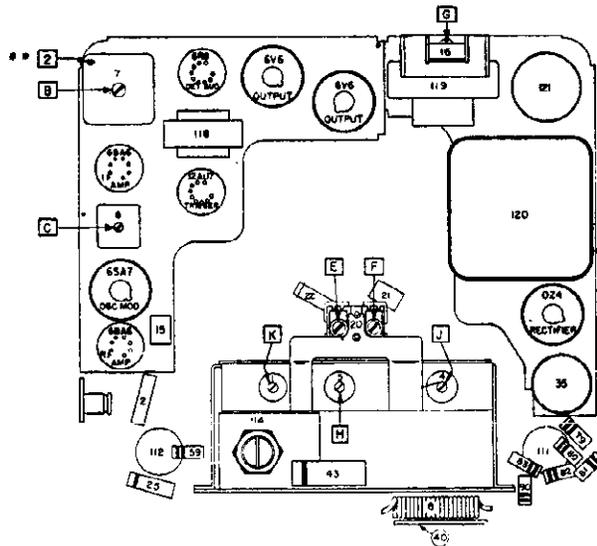
The tube socket voltages, as measured at the factory and under the conditions shown on the schematic diagram, are shown above. The blank spaces are provided so that the serviceman may fill in actual voltage readings as taken with his own equipment. A normal operating radio should be used for these measurements.

Voltmeter resistance..... Ohms Per Volt.  
Readings taken with.....Volts at Spark Plate.  
All voltages measured from socket terminals to chassis.

NOTE: For Complete Tuner Information See Bulletin 6D-620.



**PARTS LAYOUT — CHASSIS VIEW**



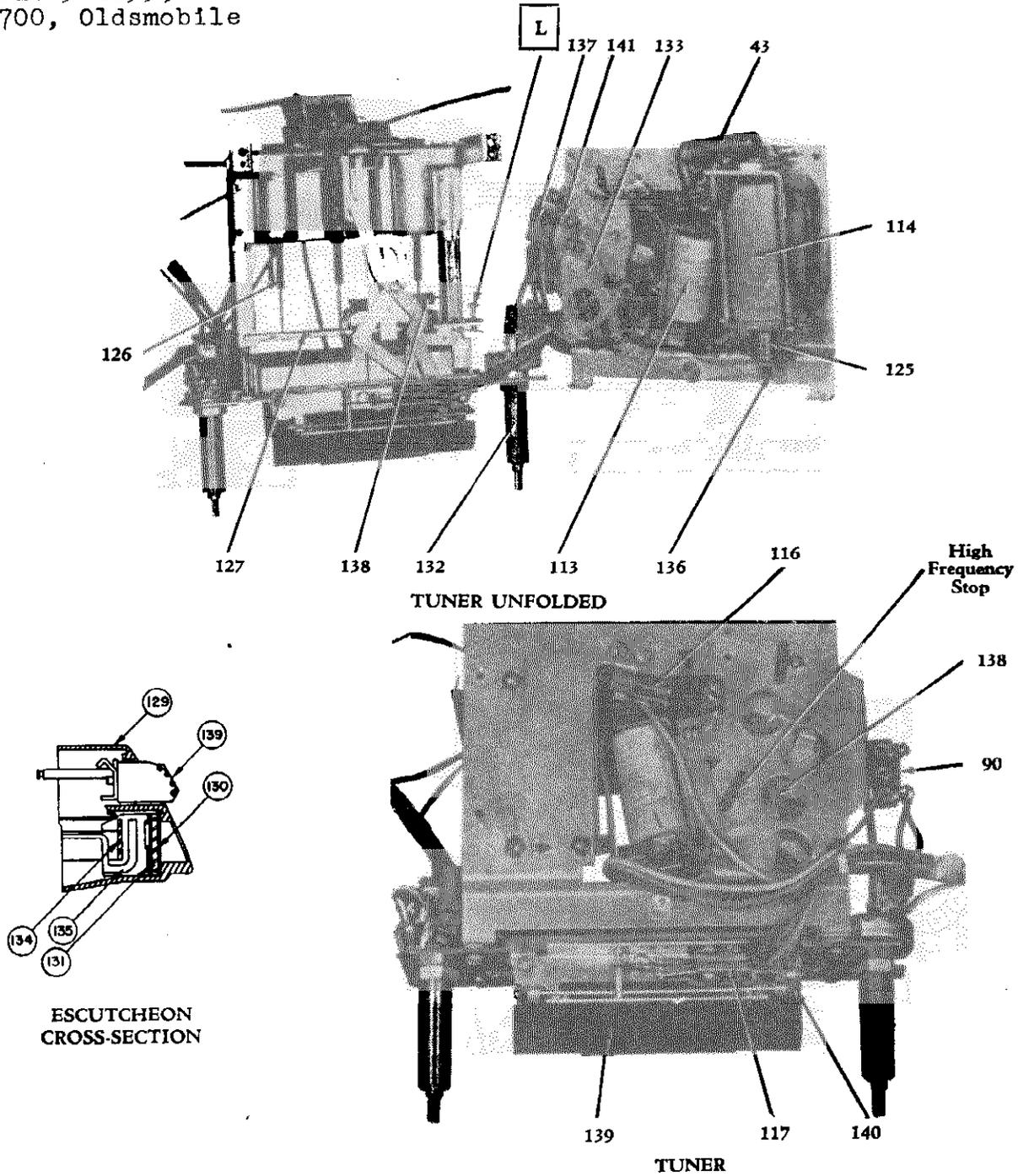
**PARTS LAYOUT — TUNER VIEW**

\*Resistor and condenser are included in the 2nd IF Assy.

\*\*Connect vacuum tube voltmeter between this point and ground during alignment.



MODELS 982699,  
982700, Oldsmobile



NOTE: For a complete discussion of the Signal Seeking Tuner see Bulletin 6D-620.

**SERVICE PARTS LIST**

Illus. No.	Production Part No.	Service Part No.	Description
<b>ELECTRICAL PARTS</b>			
<b>Coils</b>			
1	7257979	7257979	Antenna
2	7255738	7255738	Antenna Series Choke
3	7240251	7240251	Antenna Spark Choke
4	7257979	7257979	R.F.
5	7259184	7259184	Oscillator
6	1219508	1219508	1st I.F. Assy.
7	1219602	1219602	2nd I.F. Assy.
8	7259190	1217846	"A" Spark Choke
9	7259187	1217846	Hash Choke

SERVICE PARTS LIST

Illus. No.	Production Part No.	Service Part No.	Description
<b>Condensers</b>			
15	7239184	G 100	.000100 mfd molded
16	7258160	7258160	Antenna Trimmer
17	1219550	G 680	.000068 mfd molded
18	7236842	6537	.05 mfd 200 V Tubular
19	7236842	6537	.05 mfd 200 V Tubular
20	7242454	7242454	Dual Trimmer
20A			R.F. Section
20B			Oscillator Section
21	7258221	G 390	.000039 mfd molded
22	7257567	7257567	.000260 mfd compensating
23	7238788	6539	.1 mfd 400 V Tubular
24	1209306	6539	.1 mfd 200 V Tubular
25	1218883	6527	.001 mfd 600 V Tubular
27	7238881	6533	.01 mfd 600 V Tubular
28	7237836	E 202	.002 mfd 600 V Tubular
29	7238792	G 221	.000220 mfd molded
30	1219550	G 680	.000068 mfd molded
31	1219660	1219660	20 mfd 50 V Electrolytic
32	7239495	6539	.1 mfd 400 V Tubular
33	7237719	7237719	.015 mfd 600 V Tubular
34	7246134	7236134	.0015 mfd 800 V Tubular
35	7259128	7259128	Electrolytic
35A			20 mfd 100 V
35B			20 mfd 400 V
35C			20 mfd 400 V
40	7241259	7241259	Spark Plate Assy.
41	1217848	1217848	Chassis Plate
42	7240906	H 602	.006 mfd 1600 V Tubular
43*	7259954	7259954*	.5 mfd 100 V Tubular
44	7239184	G 101	.000100 mfd molded
<b>Resistors</b>			
51	1211147	A 225	2.2 Megohms 1/2W Insulated
52	1211085	B 103	10,000 Ohms 1W Insulated
53	1213217	A 101	100 Ohms 1/2W Insulated
54	7240732	A 334	330,000 Ohms 1/2W Insulated
55	1211142	A 155	1.5 Megohms 1/2W Insulated
56	1211192	A 223	22,000 Ohms 1/2W Insulated
57	1212491	1212491	12,000 Ohms 2W Insulated
58	1219755	A 100	10 Ohms 1/2W Insulated
59	1213271	1213271	120,000 Ohms 1/2W Insulated
60	1213217	A 101	100 Ohms 1/2W Insulated
61	1215558	1215558	68 Ohms 1/2W Insulated
62	1219488	1219488	1500 Ohms 1/2W Insulated
64*	1219756	1219756*	2700 Ohms 1/2W Insulated (± 5%)
65	7238873	A 105	1 Megohm 1/2W Insulated
66	1213342	B 273	27,000 Ohms 1W Insulated
67	7234563	7234563	360 Ohms 1W Wire Wound
79	1219766	1214540	56 Ohms 1/2W Insulated
80	1219767	1213489	47 Ohms 1/2W Insulated
81	7257376	A 101	100 Ohms 1/2W Insulated
82	1219769	1215559	180 Ohms 1/2W Insulated
83	1219770	A 221	220 Ohms 1/2W Insulated
84	1219738	B 221	220 Ohms 1W Insulated
86	1213220	A 151	150 Ohms 1/2W Insulated
87	1211142	A 155	1.5 Megohms 1/2W Insulated
88	1214573	{ C 272 B 562	1800 Ohms 2W Wire Wound. (Replace with C 272 and B 562 in parallel)
89	1214564	A 335	3.3 Megohms 1/2W Insulated
90	7231539	7231539	13,000 Ohms 1W Insulated
91	1213271	1213271	120,000 Ohms 1/2W Insulated
92	1216157	B 473	47,000 Ohms 1W Insulated
93	1216154	1216154	6800 Ohms 1W Insulated
94	1216157	B 473	47,000 Ohms 1W Insulated
<b>Tubes</b>			
	1217690	5252	6BA6
	7237752	5222	6SA7
	1219485	5328	12AU7
	1219496	5541	6R8
	1213793	5241	6V6GT
	1211924	5003	0Z4

MODELS 982699,  
982700, Oldsmobile

SERVICE PARTS LIST

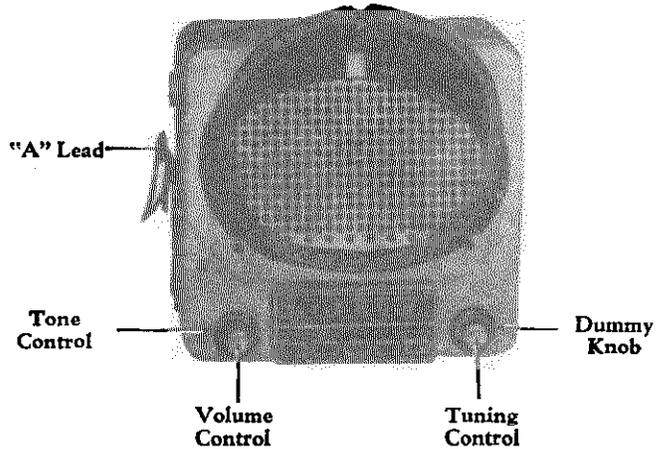
Illus. No.	Production Part No.	Service Part No.	Description
<b>Miscellaneous Electrical</b>			
*	7260133	7260328*	"A" Lead and Fuse Holder Assy.
111*	7260300	7260300* (Model 982699)	Control - Sensitivity
111*	7260285	7260285* (Model 982700)	Control - Sensitivity
112*	7260301	7260301* (Model 982699)	Control - Volume - Tone and Switch
112*	7260294	7260294* (Model 982700)	Control - Volume, Tone and Switch
112A			Volume
112B			Tone
112C			Switch
113	7259009	7259009	Relay
114	7259010	1219661	Solenoid
125	7259164	7259164	Solenoid Plunger Assy.
115	7258146	7258146	Speaker
116	7259011	7259011	Switch - Tuner Return
117	7259012	7259012	Switch - Station Selector
122*	7260813	7260813*	Switch - Foot Station Selector
118	7258941	7258941	Transformer - Input
119	7259324	7259324	Transformer - Output
120	7259375	7255881	Transformer - Power
121	7239124	8542	Vibrator - Non-Synchronous
<b>MECHANICAL PARTS</b>			
<b>Chassis</b>			
	7256742	7256742	Antenna Connector
	1217820	1217820	Socket - Dial Light
124*	7260840	7260840*	Socket - Foot Switch
	7236279	7236279	Socket - Octal
	7259307	7259307	Socket - 9 Pin Miniature
	7258073	7258073	Socket - 7 Pin Miniature
	7239125	7239125	Socket - Vibrator
<b>Tuner</b>			
126	7259201	7259201	Core - Tuning
127	7259178	7259178	Core Guide Bar
128	187189	44	Dial Light
129*	7260372	7260372* (Model 982699)	Escutcheon
129*	7260297	7260297* (Model 982700)	Escutcheon
130	7259344	7259344	Dial
131	7259496	7259496	Dial Backplate
132*	7260374	7260374* (Model 982699)	Manual Drive Shaft Assy.
132*	7260282	7260282* (Model 982700)	Manual Drive Shaft Assy.
133	1219610	1219610	Motor Gear Train Assy.
134*	7260134	7260134* (Model 982699)	Pointer Backplate
134*	7260247	7260247* (Model 982700)	Pointer Backplate
135	1219174	1219174	Pointer Tip Pkg.
136	7259100	6047	Spring Clip
137	7259207	7259207	Spring - Worm Anti-rattle
138	7259055	7259055	Spring - Motor Power
	1219611	1219611 (Model 982699)	Station Selector Bar Pkg.
*	1219849	1219849* (Model 982700)	Station Selector Bar Pkg.
139	7259028	7259028 (Model 982699)	Station Selector Bar and Shaft Assy.
139*	7260289	7260289 (Model 982700)	Station Selector Bar and Shaft Assy.
	7259125	7259125	Switch Operating Ring
			Toggle Plate
140	7259111	7259111	Spring (2)
	7256121	7256121	"C" Washer
141	7259026	7259026	Worm Gear and Brkt. Assy.
<b>INSTALLATION PARTS</b>			
	7260632	7260632*	"A" Lead and Condenser Assy.
	1911095	6030	Condenser - Generator
	1912757	6030	Condenser - Ignition
	7260190	6030	Condenser - Regulator
	555348	555348	Clip - Hood Grounding
	120151	120151	Fuse - 15 Amp
	7259818	7259818*	Knob - Control
	7260191	7260191*	Knob - Tone Control
	7260193	7260193*	Knob - Sensitivity
	7240138	7240138	Static Collector
	7258815	7258815 (Model 982699)	Trim Plate - 98 Series
	7259789	7259789* (Model 982700)	Trim Plate - 88 Series

\* Parts first used in 1951

MODEL 984592,  
1951 Pontiac

**GENERAL**

- MOUNTING—All 1951 Pontiac Cars.
- TUBES—Seven, Plus Rectifier.
- SPEAKER—6" x 9" Elliptical, Permanent Magnet.
- TUNING—Manual and 5 Push Button Mechanical.
- ANTENNA TRIMMER COMPENSATION — For Antennas Between 0.000060 - 0.000090 Mfd.
- TUNING RANGE — 550-1600 KC.



MODEL 984592

**PUSHBUTTON SET-UP**

Pull button to the right and out. Tune in desired station manually. Push button in as far as it will go.

**ALIGNMENT PROCEDURE**

- Output Meter Connections ..... Across Voice Coil
- Generator Ground ..... Receiver Chassis
- Dummy Antenna ..... In Series With Generator
- Volume Control Position ..... Maximum Volume
- Tone Control Position ..... Treble
- Generator Output ..... Minimum for Readable Indication

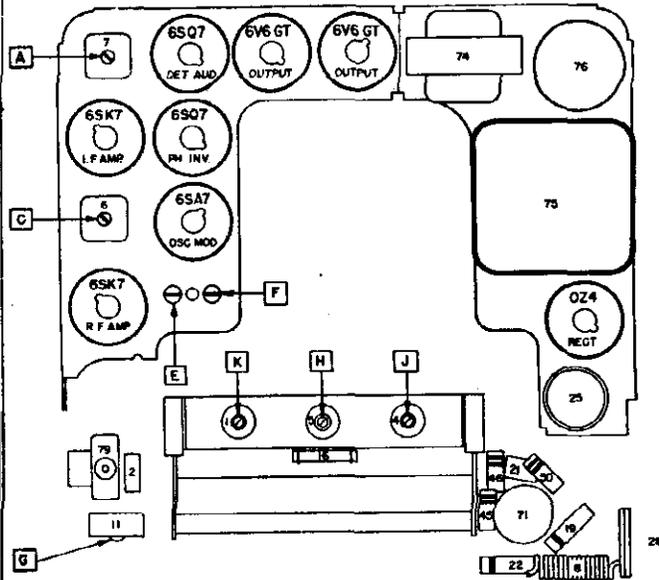
Steps	Series Condenser or Dummy Antenna	Connect to	Signal Generator Frequency	Tune Receiver To	Adjust in Sequence for Max. Output
1	0.1 Mfd.	6SA7 Grid (Pin #8) or 7Q7 Grid (Pin #6)	260 KC	High Freq. Stop	A, B, C, D
2	0.000068 Mfd.	Antenna Connector	1615 KC	High Freq. Stop	*E, F, G
3	0.000068 Mfd.	Antenna Connector	1000 KC	Signal Gen. Signal	J, K
4	0.000068 Mfd.	Antenna Connector	1615 KC	High Freq. Stop	F, G
5	0.000068 Mfd.	Antenna Connector	1100 KC	Signal Gen. Signal	L**

\*Before making this adjustment check the mechanical setting of the oscillator core "H." The slotted end of the core should be 1 25/32" from the mounting end of the coil form. (This measurement is readily made by inserting a suitable plug in the mounting end of the coil form). If adjustment is necessary be sure to first dissolve the glyptal seal on the core studs. Core adjustments are made from the mounting end of the coil form with an insulated screwdriver, and core studs should be resealed with glyptal or household cement after alignment.

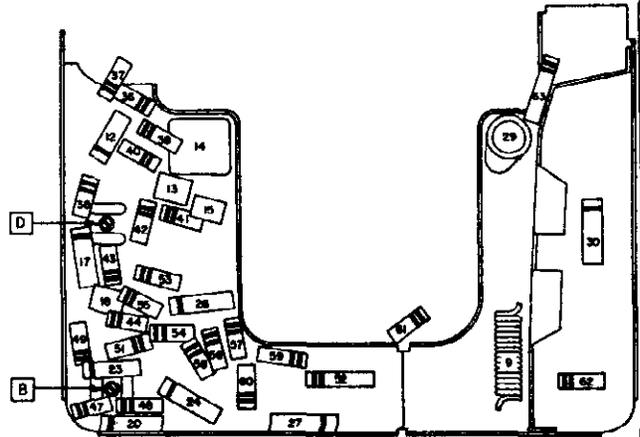
\*\*"L" is the pointer adjustment screw on the pointer connecting link (see tuner drawing). Adjust so pointer reads 1100 KC.

With the radio installed and the car antenna plugged in adjust antenna trimmer "G" (see sticker on case) for maximum volume with the radio tuned to a weak station between 600 and 1000 KC.

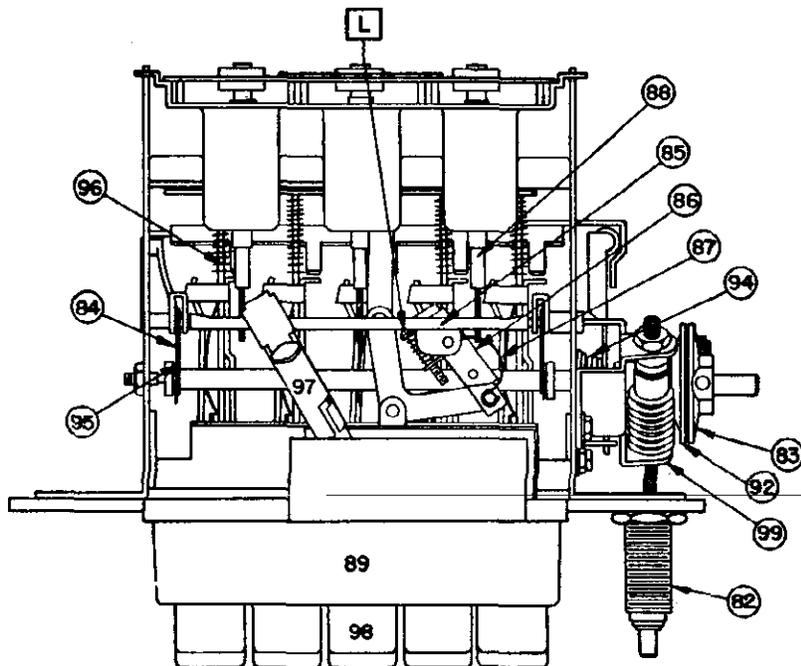
MODEL 984592,  
Pontiac 1951



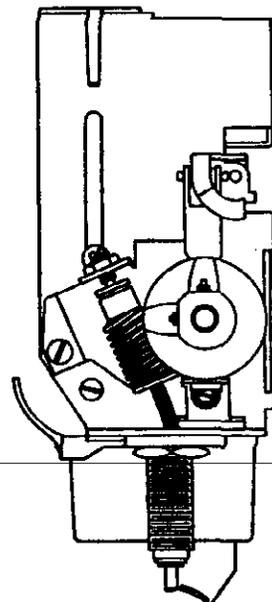
PARTS LAYOUT — TUBE VIEW



PARTS LAYOUT — CHASSIS VIEW



TUNER







SERVICE PARTS LIST

Illus. No.	Production Part No.	Service Part No.	Description
<b>ELECTRICAL PARTS</b>			
<b>Coils</b>			
1	7258914	7258914	Antenna
2	7255738	7255738	Antenna Series Choke
3	7240251	7240251	Antenna Spark Choke
4	7258914	7258914	R.F.
5	7258911	7258911	Oscillator
6	7258849	1219508	1st I.F.
7	7258850	1219509	2nd I.F.
8	1217846	1217846	"A" Spark Choke
9	7241708	7241708	Hash Choke
<b>Condensers</b>			
11	7257959	7257959	Antenna Trimmer
12	7236842	6537	.05 mfd 200 V Tubular
13	1218348	G 330	.000033 mfd ceramic
14	7242454	7242454	Dual Trimmer
14A			R. F. Section
14B			Oscillator Sec.
15	7258221	G 390	.000039 mfd Ceramic
16	7257424	7257424	.000180 mfd compensating
17	7258125	6537	.05 mfd 400 V Tubular
18	1215189	G 100	.000010 mfd Mica
19	7237954	E 202	.002 mfd 600 V Tubular
20	7257699	E 302	.003 mfd 600 V Tubular
21	1219691	G 680	.000068 mfd Mica
22	7240578	7240578	.0025 mfd 400 V Tubular
23	7239188	6527	.001 mfd 600 V Tubular
24	1208600	6533	.01 mfd 600 V Tubular
25	7238830	M 908	Electrolytic
25A			20 mfd 25 V
25B			10 mfd 400 V
25C			15 mfd 400 V
26	7258124	6534	.02 mfd 400 V Tubular
27	1219692	H 602	.006 mfd 1000 V Tubular
28	1219768	1219768	Spark Plate
29	1217848	1217848	Chassis Plate
30	7240906	H 602	.006 mfd 1600 V Tubular
<b>Resistors</b>			
36	1213220	A 151	150 ohms 1/2W Insulated
37	1211147	A 225	2.2 Megohm 1/2W Insulated
38	7237595	B 153	15,000 ohms 1W Insulated
39	7240732	A 334	330,000 ohms 1/2W Insulated
40	7241937	A 685	6.8 megohms 1/2W Insulated
41	1211192	A 223	22,000 ohms 1/2W Insulated
42	7233653	C 153	15,000 ohms 2W Insulated
43	1214542	A 271	270 ohms 1/2W Insulated
44	7238873	A 105	1 megohm 1/2W Insulated
45	1213267	A 563	56,000 ohms 1/2W Insulated
46	1215560	1215560	180,000 ohms 1/2W Insulated
47	7240731	A 473	47,000 ohms 1/2W Insulated
48	1214557	A 334	330,000 ohms 1/2W Insulated
49	1214538	A 330	33 ohms 1/2W Insulated
50	1215560	1215560	180,000 ohms 1/2W Insulated
51	1214555	A 224	220,000 ohms 1/2W Insulated
52	1216149	B 391	390 ohms 1W Insulated
53	1214555	A 224	220,000 ohms 1/2W Insulated
54	7238873	A 105	1 Megohm 1/2W Insulated
55	1215560	1215560	180,000 ohms 1/2W Insulated
56	1214543	A 681	680 ohms 1/2W Insulated
57	1213270	A 104	100,000 ohms 1/2W Insulated
58	1214545	A 222	2200 ohms 1/2W Insulated
59	1214556	A 274	270,000 ohms 1/2W Insulated
60	1214555	A 224	220,000 ohms 1/2W Insulated
61	1214542	A 271	270 ohms 1/2W Insulated
62	1219738	B 221	220 ohms 1W Insulated
63	1214573	{ C 272 } B 562	1800 ohms 2W Wire Wound (Use 2700 ohm 2W Insulated and 5600 ohm 1W Insulated)

MODEL 984592,  
1951 Pontiac

SERVICE PARTS LIST

Illus No.	Production Part No.	Service Part No.	Description
			<b>Tubes</b>
	7237751	5229	6SK7
	7237753	5231	6SQ7
	7237752	5222	6SA7
	1213981	5301	7Q7 (Alternate)
	1213793	5241	6V6GT
	1213568	5295	7C5 (Alternate)
	1211924	5003	0Z4
			<b>Miscellaneous Electrical</b>
*71	7260043	*7260043	Control - Volume, Tone and Switch
71A			Tone Control
71B			Volume Control
71C			Switch
72	187189	44	Lamp - Dial Light
*73	7260410	*7260410	Speaker 6x9 Elliptical PM
74	7259249	7240453	Transformer - Output
75	7259375	7255881	Transformer - Power
76	7239124	8542	Vibrator - Non-Synchronous

MECHANICAL PARTS

Illus No.	Production Part No.	Service Part No.	Description
			<b>Chassis</b>
79	7257746	7257746	Socket - Antenna
	7241356	7241356	Socket - Octal Tube
	7236279	7236279	Socket - Octal Tube
	7239125	7239125	Socket - Vibrator
			<b>Tuner</b>
81	7257722	7257722	Back Plate - Pointer
*82	7260039	*7260039	Bushing & Manual Drive Shaft
83	7258072	7258072	Clutch Disc - Driven
84	7258203	7258203	Connecting Link - Core Bar
85	7258210	7258210	Core Guide Bar - Parallel
86	7256271	7256271	Pointer Connecting Link
87	7255992	7255992	Spring - Pointer Conn. Link
88	7258468	7258468	Core - Tuning
89	7257717	7257717	Escutcheon Assy.
90	7257721	7257721	Dial
91	7257719	7257719	Dial Backplate
	7257718	7257718	Spring - Dial Retainer
92	7256495	7256495	Gear and Bushing - Clutch
*93	7260209	*7260209	Pointer Assy.
	1219120	1219120	Pointer Tip Pkg.
94	7258756	7258756	Spring - Clutch
95	7257415	7257415	Spring - Core Bar Conn. Link
96	7255984	7255984	Spring - Slide Return
*97	1219740	*1219740	Socket - Dial Light
*98	1219739	*1219739	Push Button & Slide Assy.
*99	7260037	*7260037	Worm Gear & Bracket Assy.

INSTALLATION PARTS

1911095	6030	Condenser - Generator
1913140	6030	Condenser - Voltage Regulator
147685	147685	Fuse 14 Amps.
514608	*514608	Knob - Control
514782	*514782	Knob - Dummy
514784	*514784	Knob - Tone Control
511836	*511836	Trim Plate
513486	513486	Washer - Anti Rattle

\*Parts first used in 1951

**GENERAL**

**MOUNTING**—All 1951 Pontiac Cars.

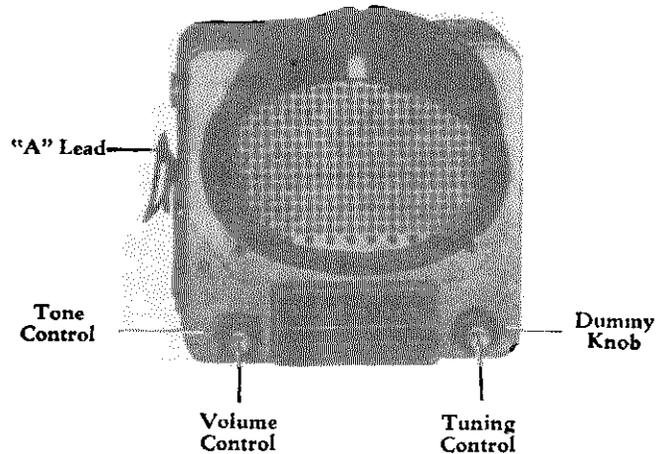
**TUBES**—Seven, Plus Rectifier.

**SPEAKER**—6" x 9" Elliptical, Permanent Magnet.

**TUNING**—Manual and 5 Push Button Mechanical.

**ANTENNA TRIMMER COMPENSATION**—For Antennas Between 0.000060 - 0.000090 Mfd.

**TUNING RANGE**—550-1600 KC.



MODEL 984688

**PUSHBUTTON SET-UP**

Pull button to the right and out. Tune in desired station manually. Push button in as far as it will go.

**SERVICE INFORMATION:** This model is identical to the 1951 Pontiac Model 984592 radio covered in Bulletin 6D-1035 except for the parts shown below. However, it may use several miniature tubes on an alternate basis and when these are used additional components are altered as shown. For service information reference should be made to Bulletin 6D-1935 except that the schematic diagram using the miniature tubes is included on page 2 of this bulletin.

**Parts changed on all 984688 radios**

Illus. No.	Production Part No.	Service Part No.	Description
98	1218885	1218885	Push Button and Slide Assy.
	515718	515718	Knob - Control
	511831	511831	Knob - Dummy
	511833	511833	Knob - Tone

**Additional parts changed only when miniature tubes are used**

*13	1219862	*1219862	*.000005 Mfd. Molded Capacitor
36	1213217	A 101	100 Ohms 1/2 W. Insulated Res.
40	1215548	A 106	10 Megohms 1/2 W Insulated Res.
	1217690	6BA6	R.F. and I.F. Tube
	1217691	6BE6	Oscillator-Modulator Tube
	1218506	6AV6	Detector-Auto & P.H. Inv. Tube
	7261021	*7261021	*Socket - Miniature Tube.

\* Parts first used in 1951



CHEVROLET DELUXE PUSH BUTTON RADIO  
MODEL 986515

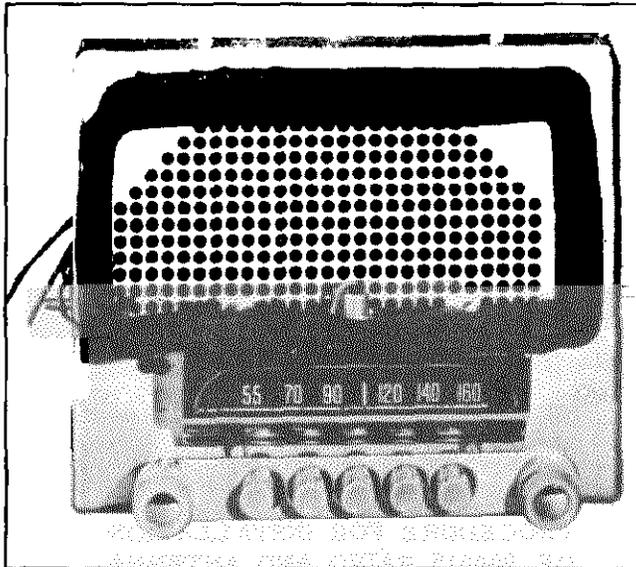


Figure 1

This radio is a five tube (plus rectifier) super-heterodyne automobile receiver designed expressly for 1951 Chevrolet passenger car installation. The receiver is of the single unit design for ease of installation and service. In this type of design the speaker is integral with the receiver and instrument panel by means of a special rubber gasket which, due to location and baffling, permits exceptionally good tone quality.

ELECTRICAL DESCRIPTION

The circuit used in this receiver is the super-heterodyne type and uses no regeneration. The tuning circuits are of the permeability type and are tuned by varying the iron cores in and out of the antenna, radio frequency and oscillator coils like pistons. (See Figure 2.)

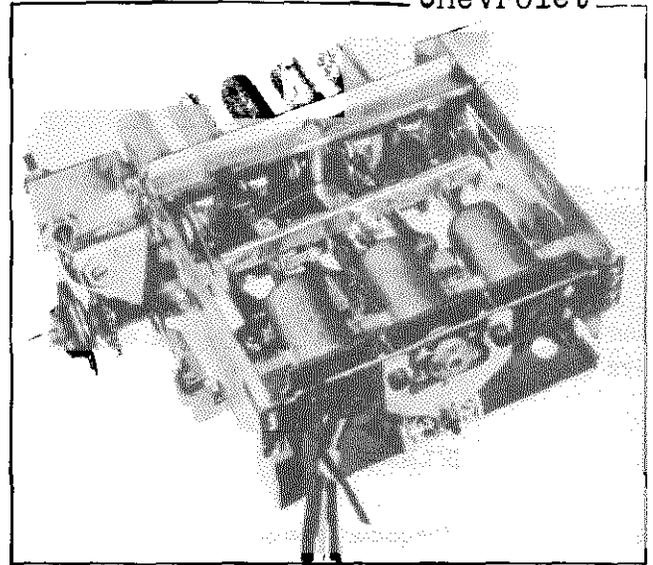


Figure 2

The Intermediate frequency stages are tuned by means of two iron cores being adjusted from the top and bottom sides of the I.F. transformer, both the first (input) and second (output) Intermediate frequency transformers are tuned by this method. (See Figure 3.)

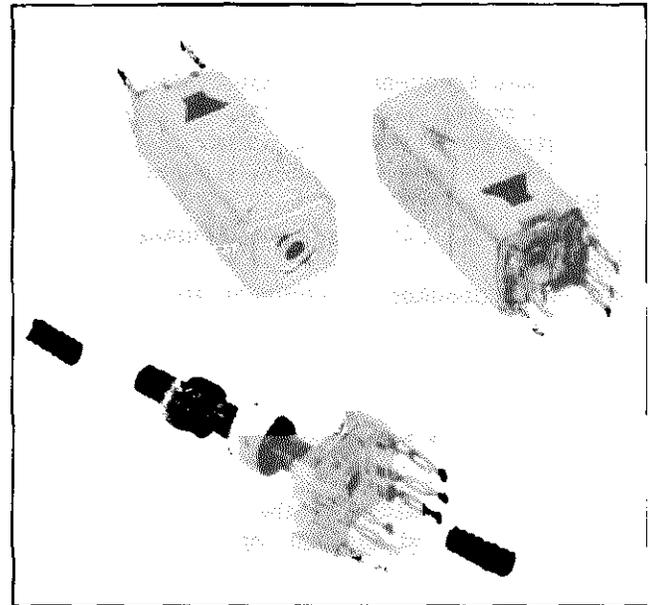


Figure 3

The antenna circuit is capacity coupled to the antenna by means of an antenna trimmer condenser to take care of normal variations in antenna and antenna coil capacity. The antenna condenser is adjustable by means of a small screwdriver, and is located on the bottom of the radio case. The audio stage is transformer coupled to the output tube to take advantage of all the gain and tone quality that the receiver

## PAGE 22-32 UNITED MOTORS

MODEL 986515,

Chevrolet

is capable of developing. The automatic volume control is of the delayed signal type and is very capable of maintaining a constant level of volume at all times. Very high frequency filter chokes are used in the radio frequency and oscillator grid circuits to discriminate against ignition interference in the receiver, thus eliminating the use of spark plug suppressors. The vibrator is the full wave non-synchronous type using an OZ4 rectifier tube and will operate on either a negative or positive ground.

### TUBE COMPLEMENT AND FUNCTION

6BA6	Radio frequency amplifier.
6BE6	Oscillator - modulator.
6BA6	Intermediate frequency amplifier.
6AV6	Detector - automatic volume control - and first audio
6V6GT	Audio output.
OZ4	Cold cathode rectifier.

### GENERAL INFORMATION

Tuning range 540 - 1615 Kilocycles.  
 Intermediate frequency 262 Kilocycles.  
 Maximum power output 5 watts.  
 Undistorted power output 3 watts.  
 Current drain with permanent magnet speaker 6.5 amperes at 6 volts.  
 Speaker size 6" x 9" elliptical permanent magnet type.  
 Voice coil impedance 4 ohms at 400 cycles.  
 Fuse protection 14 amperes 25 volt.

### PUSH BUTTON TUNING

An outstanding feature of the 986515 radio is the new simplified method of setting up the push buttons, which can be done easily by anyone, without any tools. With this type of push button tuning which is completely mechanical, no cords or pulleys are used thus assuring trouble-free operation and constant calibration of the radio stations set on the push buttons at all times.

### PROCEDURE FOR SETTING PUSH BUTTONS

Turn on the receiver for ten minutes or long-

1. Pull button slightly to the left and out as far as it will go.

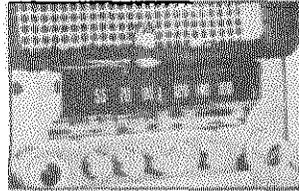


Figure 5

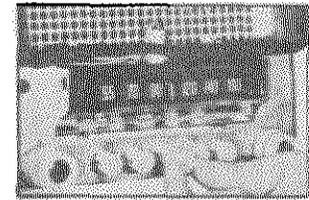


Figure 4

2. Tune in station desired with manual tuning knob to clearest point.

3. Push button in firmly to end of travel. Repeat same procedure for remaining four buttons

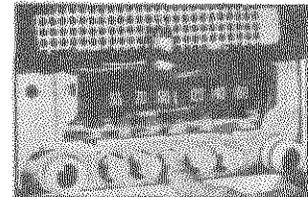


Figure 6

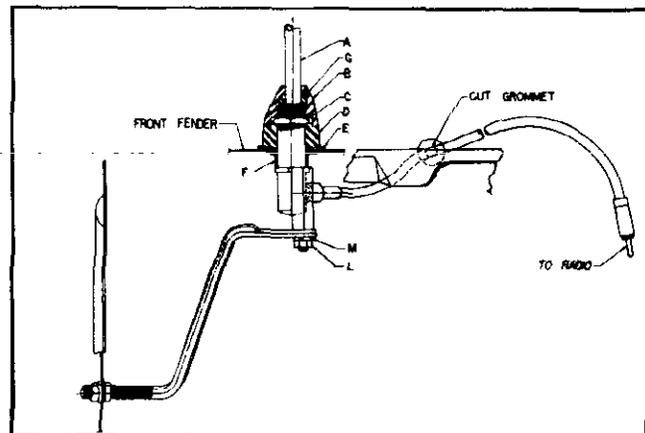
### PROCEDURE FOR INSTALLATION OF 986515 RADIO AND ANTENNA

All 1951 Chevrolet passenger cars will use the fender type antenna which will mount on the left front fender.

### INSTALLATION PROCEDURE 986257 ANTENNA

After the antenna has been unpacked, proceed as follows:

1. Assemble lead-in cable to antenna mast and tighten securely, place spacer "F" over antenna rod assembly. (See Figure 7.)



MODEL 986515  
Chevrolet

2. Place template on top of left front fender, at front door edge and line up template as indicated. Center punch and drill 13/16 inch hole.
3. Locate two dimples in top of left front fender baffle and drill two 5/16 inch holes for mounting brackets.
4. Place antenna thru 13/16 inch hole from bottom side of fender.
5. Place rubber pad "E," insulator "D" and nut "C" on antenna rod and tighten securely, making sure antenna is in a vertical position. (See Figure 7.)

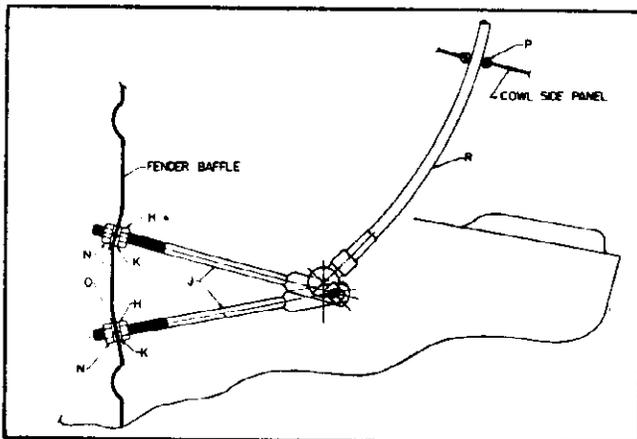


Figure 8

6. Be sure seal "G" is in place, then screw insulator "B" in place. (See Figure 7.)
7. Place nuts "H" and lockwashers "K" on braces "J" and place in 5/16 inch holes in fender baffle. (See Figure 8.)
8. Place braces "J" to stud on antenna mast base with washer "M" and nut "L," place washers "O," nuts "N" and tighten securely. (See Figure 8.)

**INSTALLATION OF RECEIVER AND NOISE SUPPRESSION EQUIPMENT**

After unpacking and checking radio, place on bench and hook-up radio to 6 volt power unit (or fully charged battery) and allow radio to play while installing suppression equipment. Fill out the warranty label on the cover to show owner's name and date of installation. **RADIOS THAT WILL PLAY FOR 15 MINUTES BEFORE INSTALLATION WILL GIVE MANY MONTHS OF UNINTERRUPTED SERVICE. CHECK ALL RADIOS BEFORE INSTALLATION.**

**INSTALLATION NOISE SUPPRESSION EQUIPMENT**

1. Mount voltage regulator condenser on voltage regulator. (See Figure 9.)

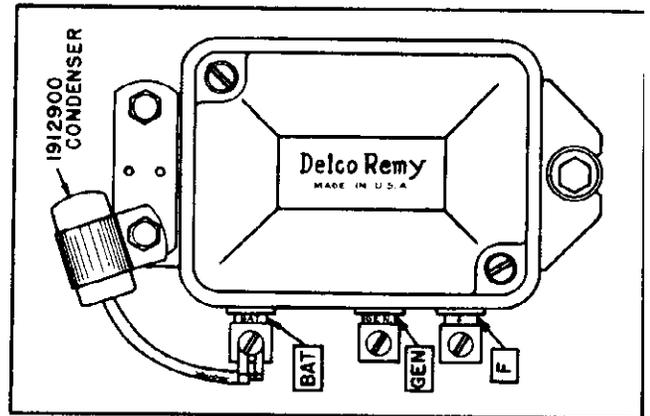


Figure 9

2. Mount generator condenser on generator. (See Figure 10.)

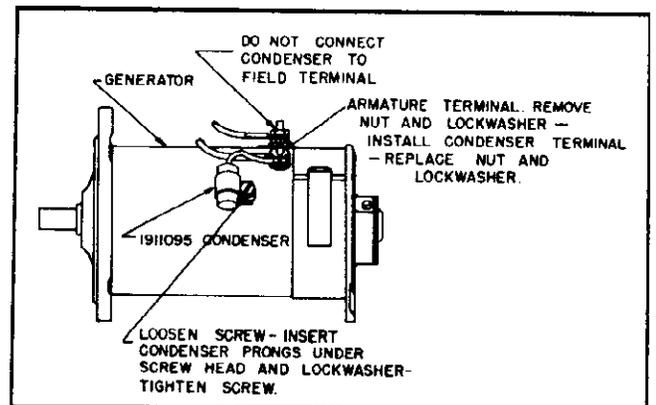


Figure 10

3. Install rubber nipple and distributor suppressor on high tension coil wire. (See Figure 11.)

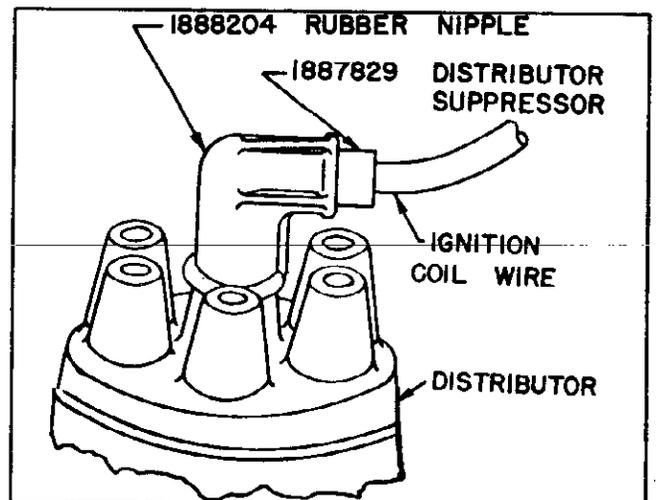


Figure 11

MODEL 986515,  
Chevrolet

- Remove front wheel hub and dust caps and install front wheel static collectors. Remove any grease from hole center of spindle to make a good connection, bend cotter pin to clear static collector. (See Figure 12.)

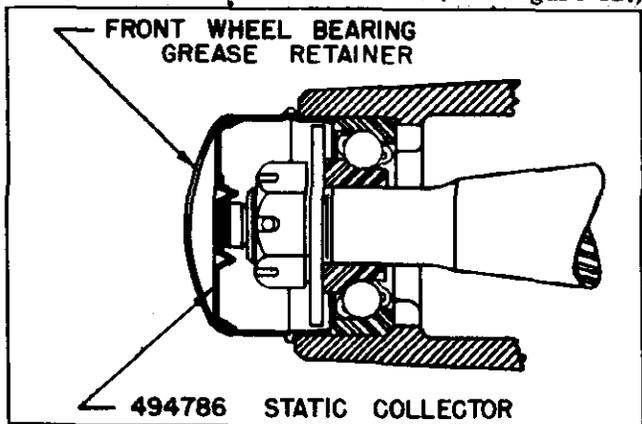


Figure 12

- Drill  $11/32$  inch hole on right hand side of dash and pierce dash mat for radio mounting bracket. (See Figure 14.)

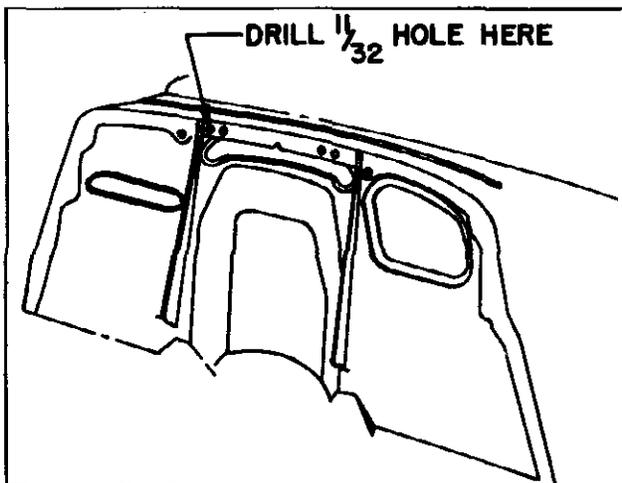


Figure 14

- Mount ignition coil condenser on ignition coil. (See Figure 13.)

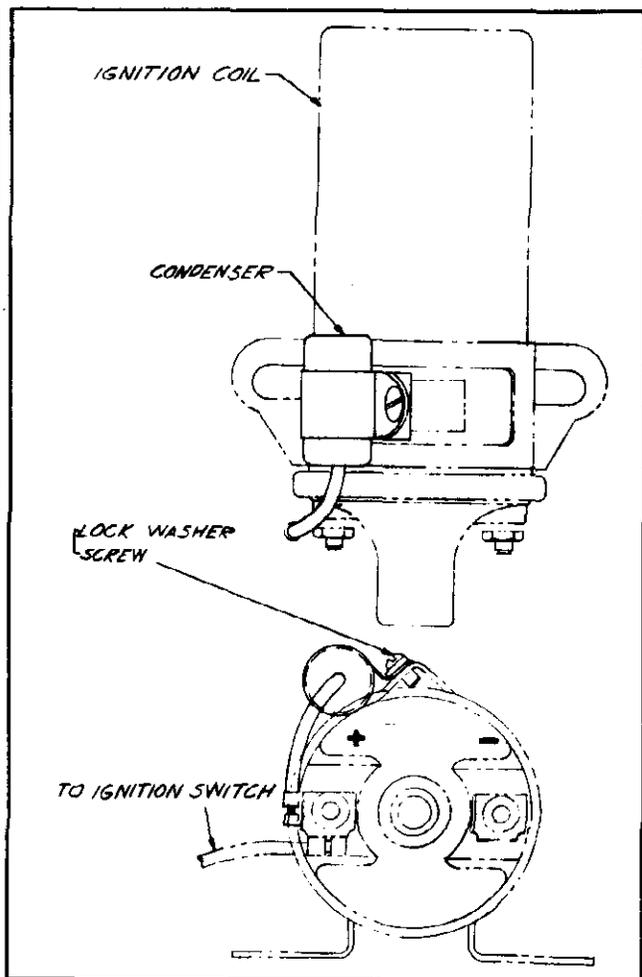


Figure 13

- From inside of car cut dash mat around  $11/32$  inch hole, large enough to insert tubing spacer. (See Figure 16.)

- Remove nut and lockwasher from two studs located on inside of instrument panel on lower portion of radio grille. DO NOT REMOVE SPECIAL SPACERS. Save nuts and washer for reassembling. (See Figure 16.)

- Remove cardboard radio grille cover from inside of radio grille and discard. (THIS IS IMPORTANT.)

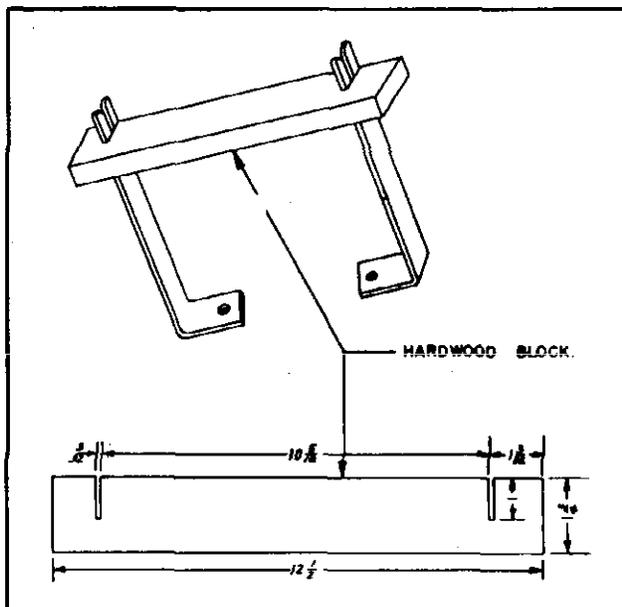


Figure 15



MODEL 986515,  
Chevrolet

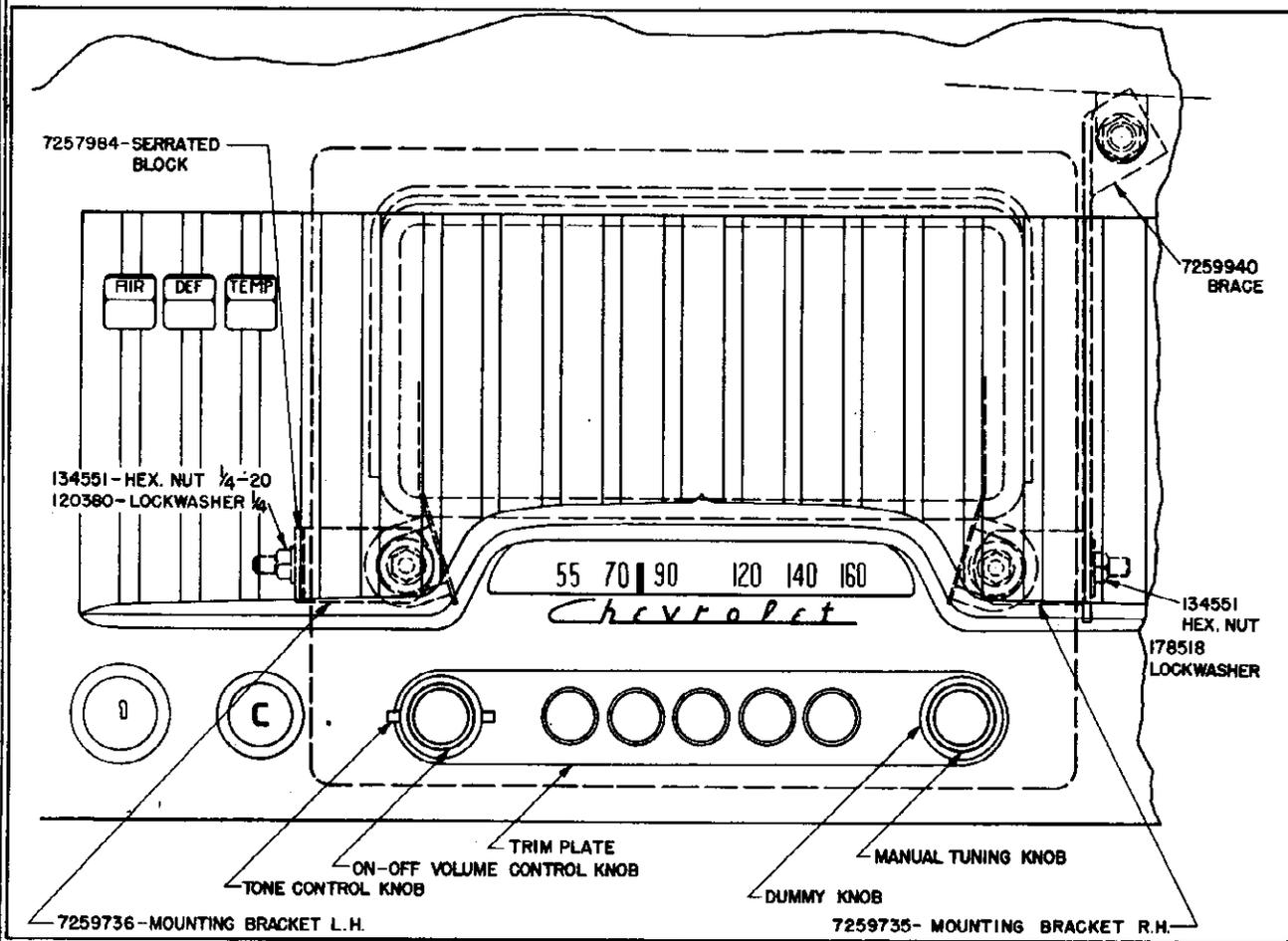


Figure 17

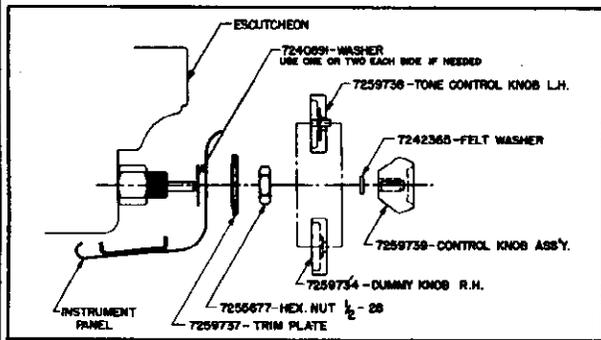


Figure 18

19. Attach male end of fuse holder to accessory junction block in either of optional positions (Figures 16 and 21) and then, insert fuse in male end of fuse holder and screw female end with "A" lead onto male fuse holder. (See Figures 20 and 21.)

20. Plug antenna into antenna socket on side of receiver (Figure 20), turn on receiver and tune in a weak station near 140 on the dial with volume in maximum position and an-

tenna extended to full height. With a small screwdriver adjust antenna trimmer for maximum volume. (See Figure 19).

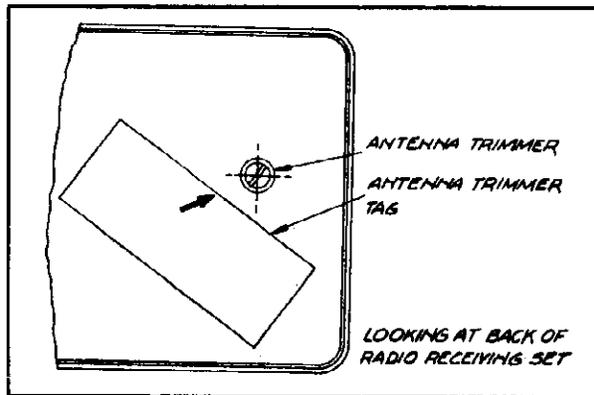


Figure 19

Select five good stations and set push buttons starting with left-hand button and a station near 55 on the dial, set remaining buttons in sequence with stations on dial, refer to page 4 for procedure to set push buttons.

MODEL 986515,  
Chevrolet

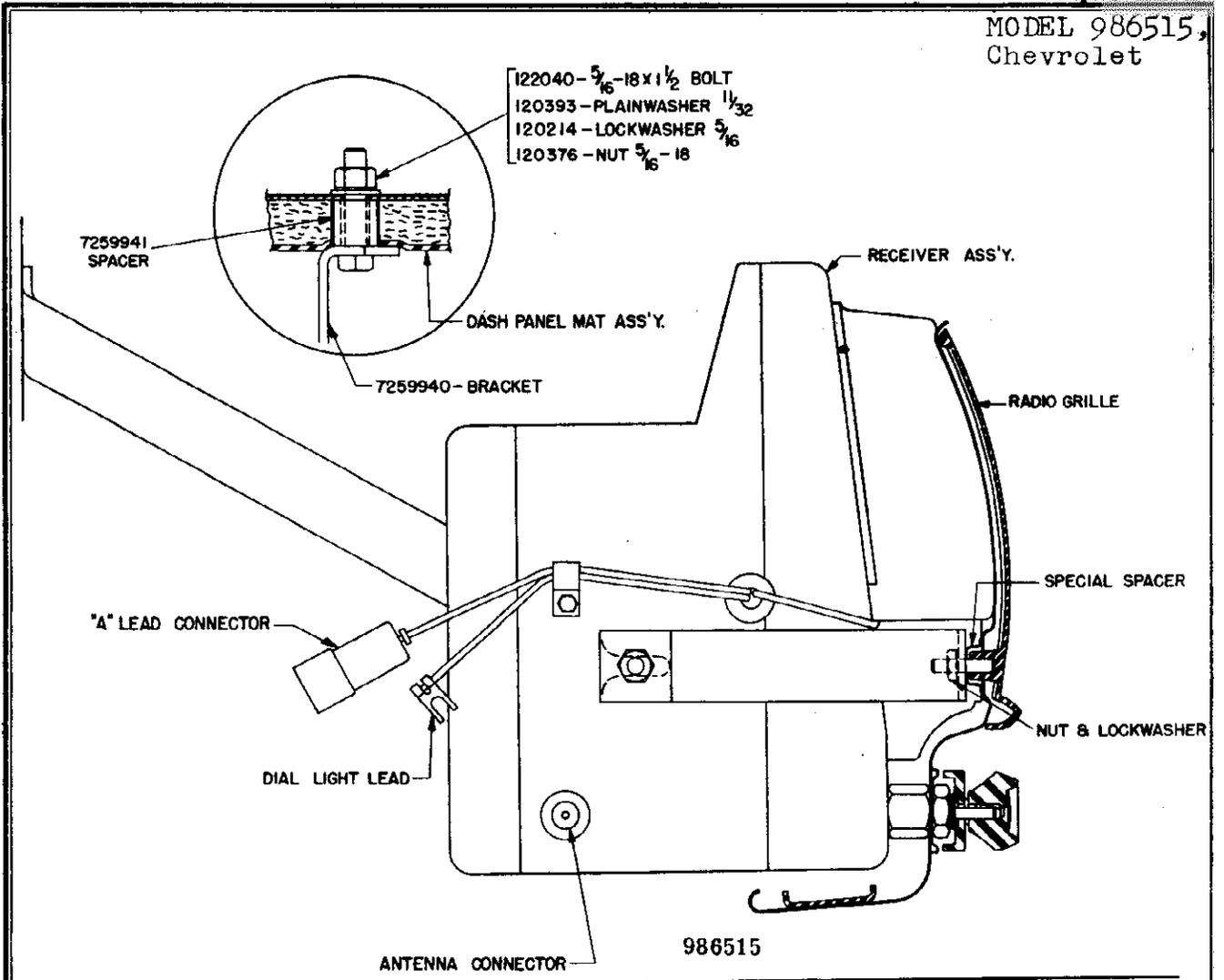


Figure 20

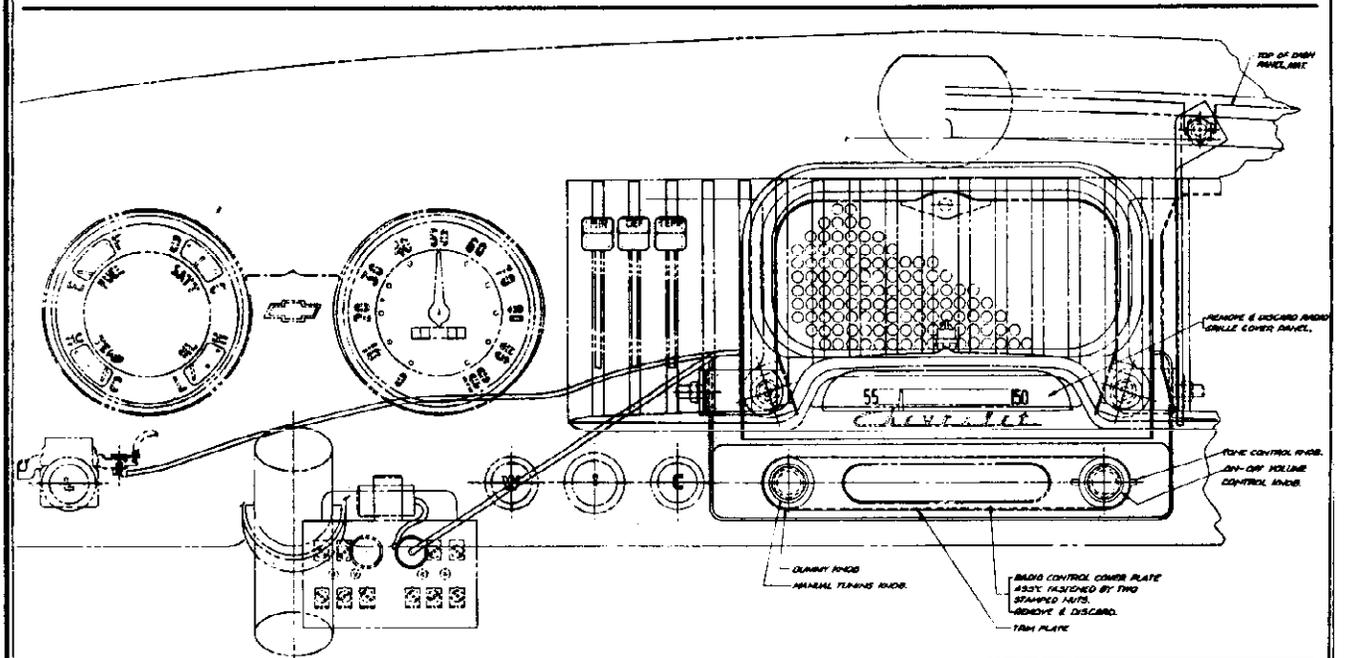


Figure 21

MODEL 986515,  
Chevrolet

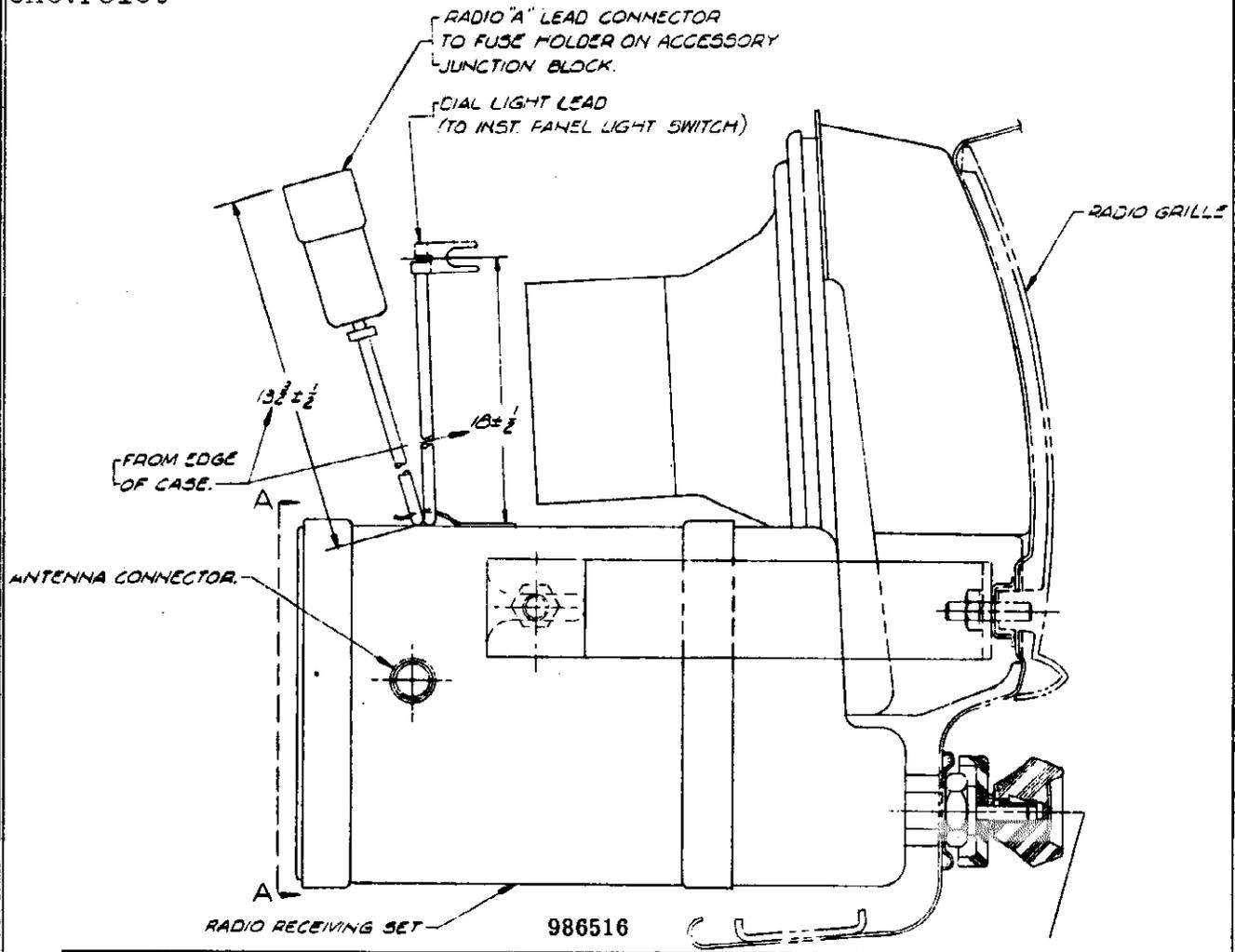


Figure 22

USE SAME INSTRUCTIONS FOR INSTALLING BOTH 986515 AND 986516 RADIOS.

**PROCEDURE FOR CHECKING AND SERVICING 986515 RADIO**

The most important operation in servicing automobile radios is, to talk with the customer and let him tell you what is wrong with his radio. The customer will save you untold time in locating the trouble and fixing the radio. You will find that complaints will come under one of the four following categories:

1. Fuse blown.
2. Noisy.
3. Weak, no volume.
4. Receiver completely dead.

Blown fuse is caused by one of the following three:

1. Vibrator points sticking or burning. Check vibrator on a vibrator analyzer, or if none is available, remove vibrator from radio

and replace fuse, turn on radio and if the fuse does blow, replace vibrator with new one.

2. Excessive voltage from generator. Check voltage regulator and set to proper voltage, as outlined in Chevrolet shop manual.
3. Short in 6 volt circuit of radio. It will be necessary to remove radio from car and check all 6 volt wires, hash condensers and chokes in radio.

**NOISY RADIOS**

The noise can be caused by one or more of the following:

1. **TIRE STATIC** is caused by friction between the tires and pavement, is almost a continuous roar while car is in motion, and does not vary appreciably with car speed.

The intensity of the noise is greater on a dry sunny day and not so noticeable on humid or rainy days. To eliminate this noise be sure that the front wheel static collectors have been installed, being sure that they are free of grease at the spindle and are making good contact to the front wheel spindle. If the static still persists, install tire static powder in all five tires. It is impossible to determine in advance which cars will need tire static powder and for this reason it is recommended that the static powder be installed in all cars and trucks in which a radio is to be installed,

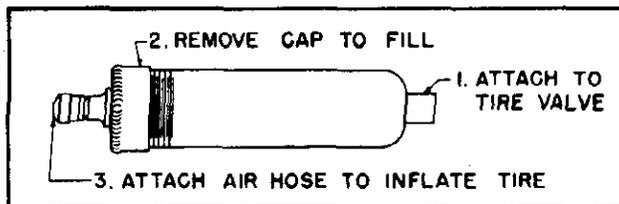


Figure 23

Tire static powder part number 986087 and injector part number 986033 are both available through General Motors Parts Warehouses.

2. **NOISY ANTENNAS** can be located by turning on the radio receiver and tuning in a station, then by tapping the antenna rod with a screwdriver handle, if noisy will crash in the radio each time you tap the antenna rod. The antenna lead-in can also cause noise in the radio if the shield is broken or unsoldered from the ends or if the lead-in wire in cable is loose or broken. Replace antenna rod or lead-in.
3. **MOTOR INTERFERENCE** in Chevrolet radios is usually caused by poor grounds when installing the antenna or receiver, or not using all the suppression material furnished with the receiver. Check to make sure all suppression material has been installed and that all grounds are bright, clean and tight.
4. **GENERATOR INTERFERENCE** is a whining noise similar to a siren and increases or decreases with speed of the engine. Install or replace generator condenser. (If generator brushes and armature are worn, true armature and replace generator brushes.)
5. **NOISY RADIO TUBES** can be located by turning on the radio and tuning in a station, then remove the tube inspection plate and

with a small screwdriver, use the handle end to tap each of the tubes lightly. If noisy, it will cause a crashing noise in the radio as you tap the tube. Replace tube or tubes. If the foregoing does not eliminate the noise, it will be necessary to remove the radio from the car and hook-up radio on service bench, remove covers and check for loose or poorly soldered connections.

6. **WEAK - NO VOLUME** usually is caused by three things, weak tubes or vibrator or antenna being partially grounded.

#### PROCEDURE FOR CHECKING THE VOLTAGE OF 986515 RADIO

The same procedure is used for operating radio test equipment as outlined on pages 9 through 14 of the 1950 Chevrolet Radio Service and Shop Manual (P&A 15).

It will be necessary to remove the front cover of the radio case to check the voltages. Hook-up the radio on the service bench to a 6 volt power unit, or a fully charged battery. It is important that you have 6 volts at the spark plate of the radio or the voltage readings will be correspondingly lower.

Set the master selector switch of the volt-ohm-meter to the 12 position, set the voltage selector switch to D.C. 1K  $\sim$  /v. Place the test leads in jack marked "Test Leads," ground the "-" negative lead to radio chassis for ground, with red lead check all tube pins marked "H" which show a reading on the voltage chart. (See Figure 24.)

If no voltage or incorrect check or replace the following:

1. Check or replace On and Off switch (Item 51C on circuit diagram and 51 on parts layout).
2. Check or replace Condensers. (Items 26A - 26B - 27 on circuit diagram and parts layout.)
3. Check or replace chokes. (Items 8 and 9 on circuit diagram and parts layout.)

Next check will be the A.C. voltage on secondary winding of the power transformer. Set the Master selector switch to the 600 position, set the voltage selector switch to A.C. 1K  $\sim$  /v. With red lead check the tube pins marked "P"





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Chevrolet

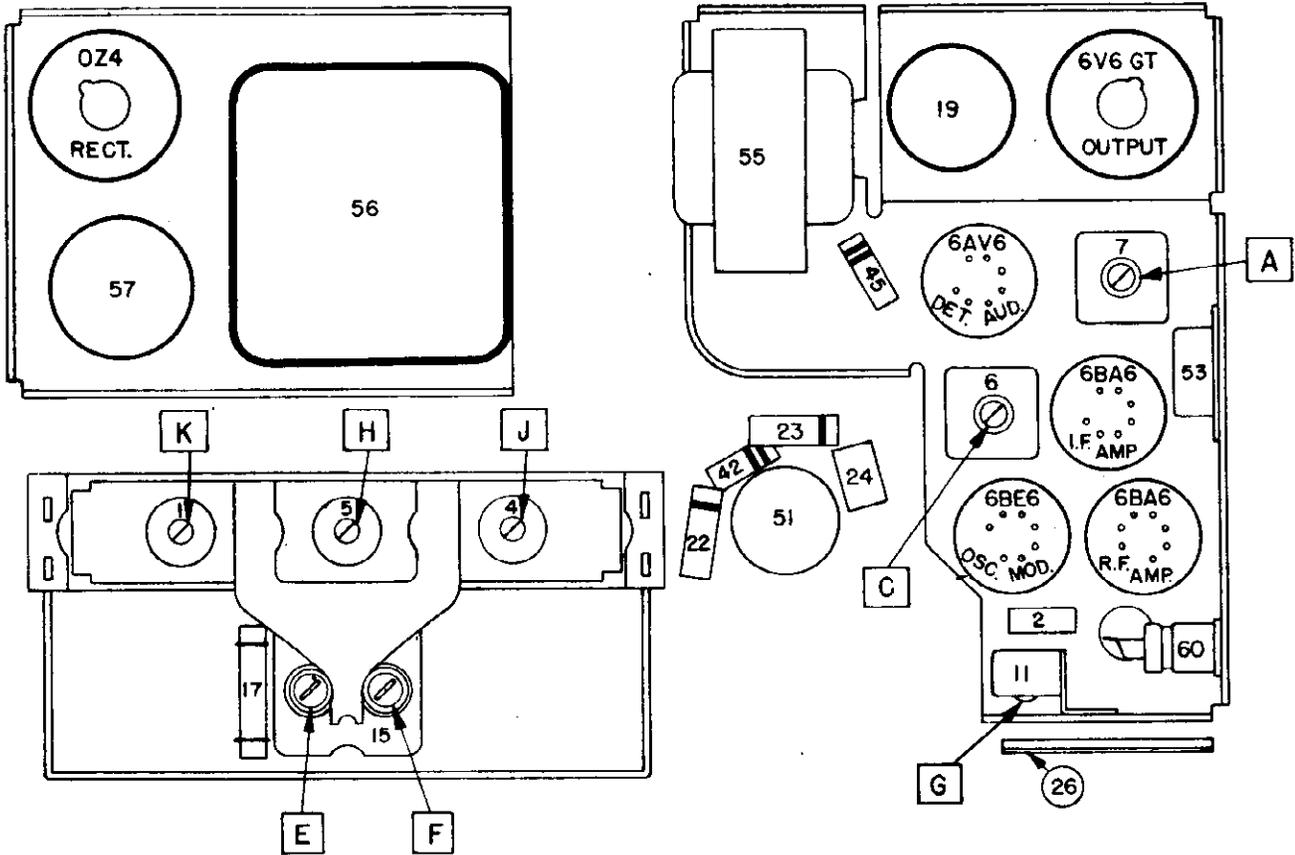


Figure 26

1. Check or replace resistor. (Item 33 on circuit diagram and parts layout.)
2. Check or replace condenser. (Item 12 on circuit diagram and parts layout.)

We have now checked the tubes, vibrator and voltages, with these being correct and the radio still does not play, the trouble will be in the grid circuit of the radio. To continue, it will be necessary to check the grid circuit by means of Signal Tracing.

**PROCEDURE FOR SIGNAL TRACING  
986388 RADIO**

Turn on Signal Generator On and Off switch, place the modulation switch in the modulated position, set Signal Generator tone control to .5, place the shielded lead assembly in jack marked "Audio." Ground the black lead of Signal Generator to the radio chassis.

With the red lead touch tube pin marked "P" on 6V6GT tube. If no signal check or replace

the following:

1. Check or replace Audio transformer. (Item 55 on circuit diagram and parts layout.)
2. Check or replace speaker. (Item 54 on circuit diagram and parts layout.)

Next touch tube pin marked "G" on 6V6GT tube. If no signal check or replace the following:

1. Check or replace 6V6GT tube.
2. Check or replace 6V6GT tube socket.

Next touch tube pin marked "P" on 6AV6 tube. If no signal check or replace the following:

1. Check or replace condenser. (Item 18 on circuit diagram and parts layout.)
2. Check or replace resistor. (Item 41 on circuit diagram and parts layout.)

Next touch tube pins marked "G" and "DP" on 6AV6 tube. If no signal at either point check

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or replace the following:

1. Check or replace 6AV6 tube.
2. Check or replace 6AV6 tube socket.
3. Check or replace resistors. (Items 45 and 46 on circuit diagram and parts layout.)

Next remove the shielded lead-in assembly from the audio jack, and move to the jack marked "I.F." Set the band switch to "A" position, turn Signal Generator volume control about a third open, tune Signal Generator to exactly 262 Kilocycles.

With the red lead, touch tube pin marked "P" on 6BA6 Intermediate Frequency Amplifier tube. If no signal, check or replace the following:

1. Check or replace Intermediate Frequency Transformer. (Item 7 on circuit diagram and parts layout.)

2. Check or replace resistors. (Items 38, 39 42 and 44 on circuit diagram and parts layout.)
3. Check or replace condensers. (Items 22 23, 24 and 25 on circuit diagram and parts layout.)
4. Check or replace volume and tone control (Items 51A and 51B on circuit diagram and 51 on parts layout.)

Next touch tube pin marked "G" on 6BA6 I.F. tube. If no signal check or replace the following:

1. Check or replace 6BA6 tube.
2. Check or replace 6BA6 tube socket.
3. Check or replace sensitivity control. (Item 53 on circuit diagram and parts layout.)

Next touch tube pin marked "P" on 6BE6 tube. If no signal check or replace the following:

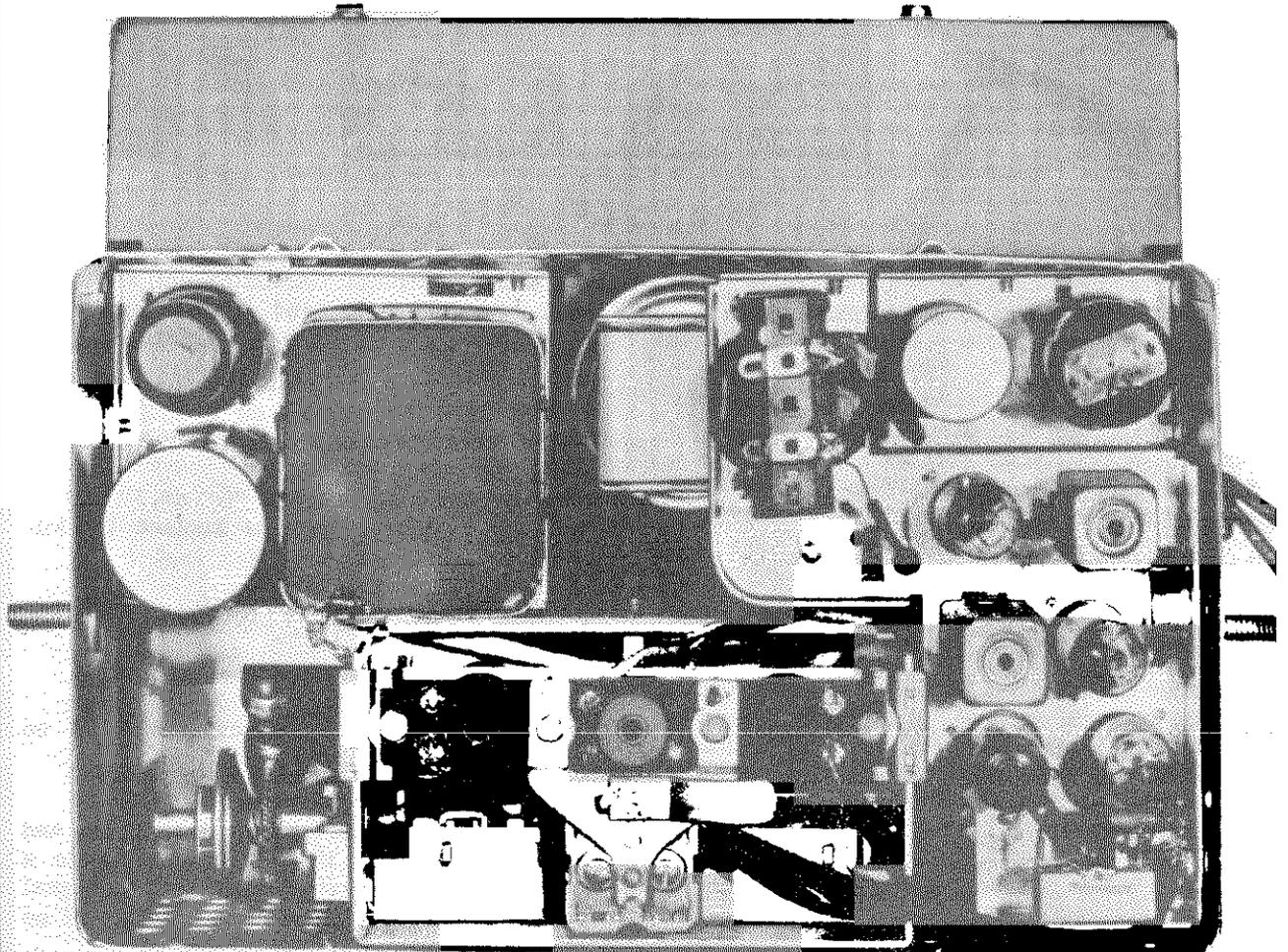


Figure 27

MODEL 986515,  
Chevrolet

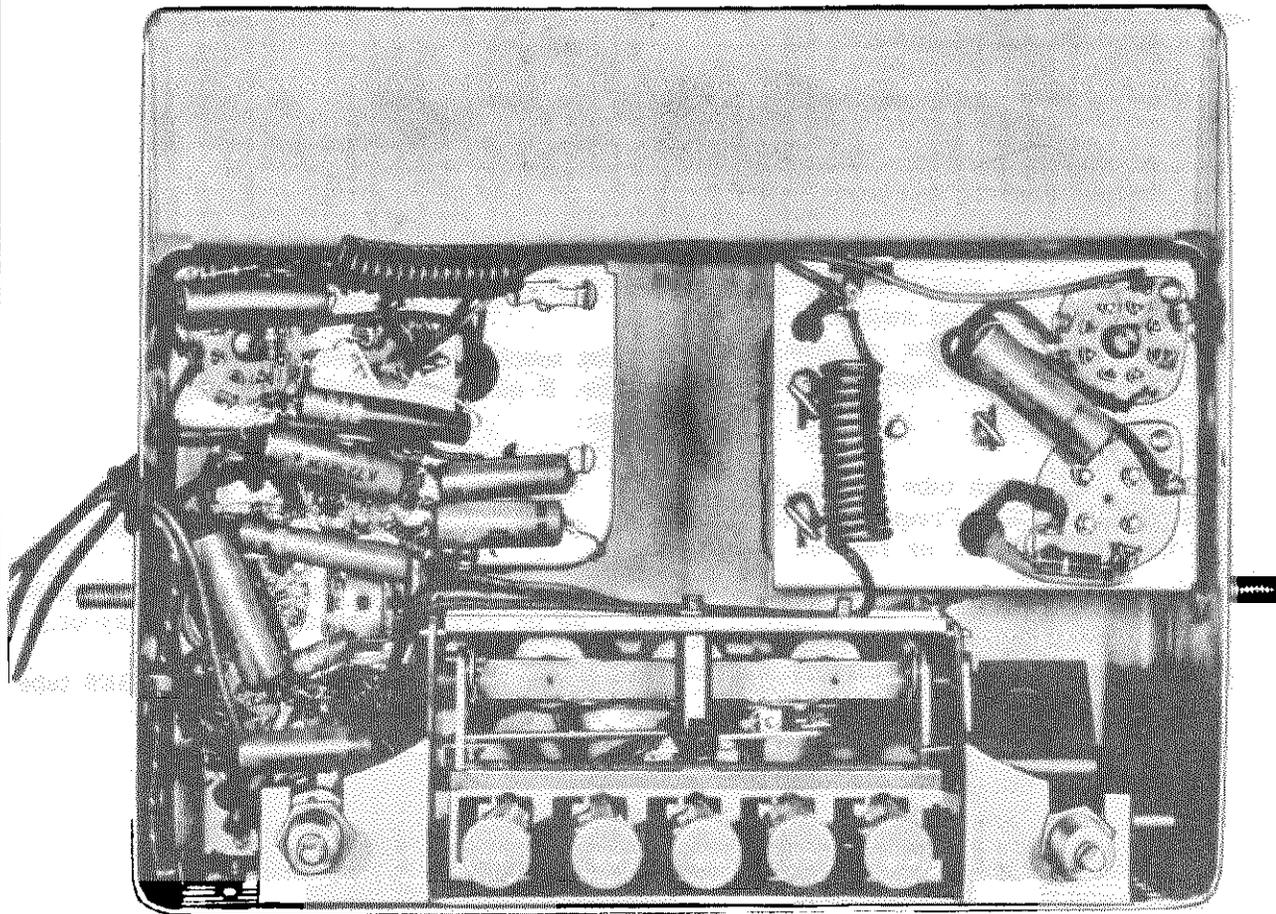


Figure 28

1. Check or replace Intermediate Frequency transformer. (Item 6 on circuit diagram and parts layout.)

2. Check or replace resistor. (Item 37 on circuit diagram and parts layout.)

Next touch tube pin marked "G" on 6BE6 tube. If no signal check or replace the following:

1. Check or replace 6BE6 tube.

2. Check or replace 6BE6 tube socket.

Now change the shielded lead-in assembly from I.F. jack to jack marked "R.F.," tune Radio receiver and Signal Generator to 1000 kilocycles, set band switch to "B" position. Next touch tube pin marked "P" on 6BA6 Radio Frequency Amplifier tube. If no signal check or replace the following:

1. Check or replace Radio Frequency Coil. (Item 4 on circuit diagram and parts layout.)

2. Check or replace Oscillator coil. (Item 5 on circuit diagram and parts layout.)

3. Check or replace condensers. (Items 14, 15A, 15B, 16 and 17 on circuit diagram and parts layout.)

Next touch tube pin marked "G" on 6BA6 R.F. tube. If no signal check or replace the following:

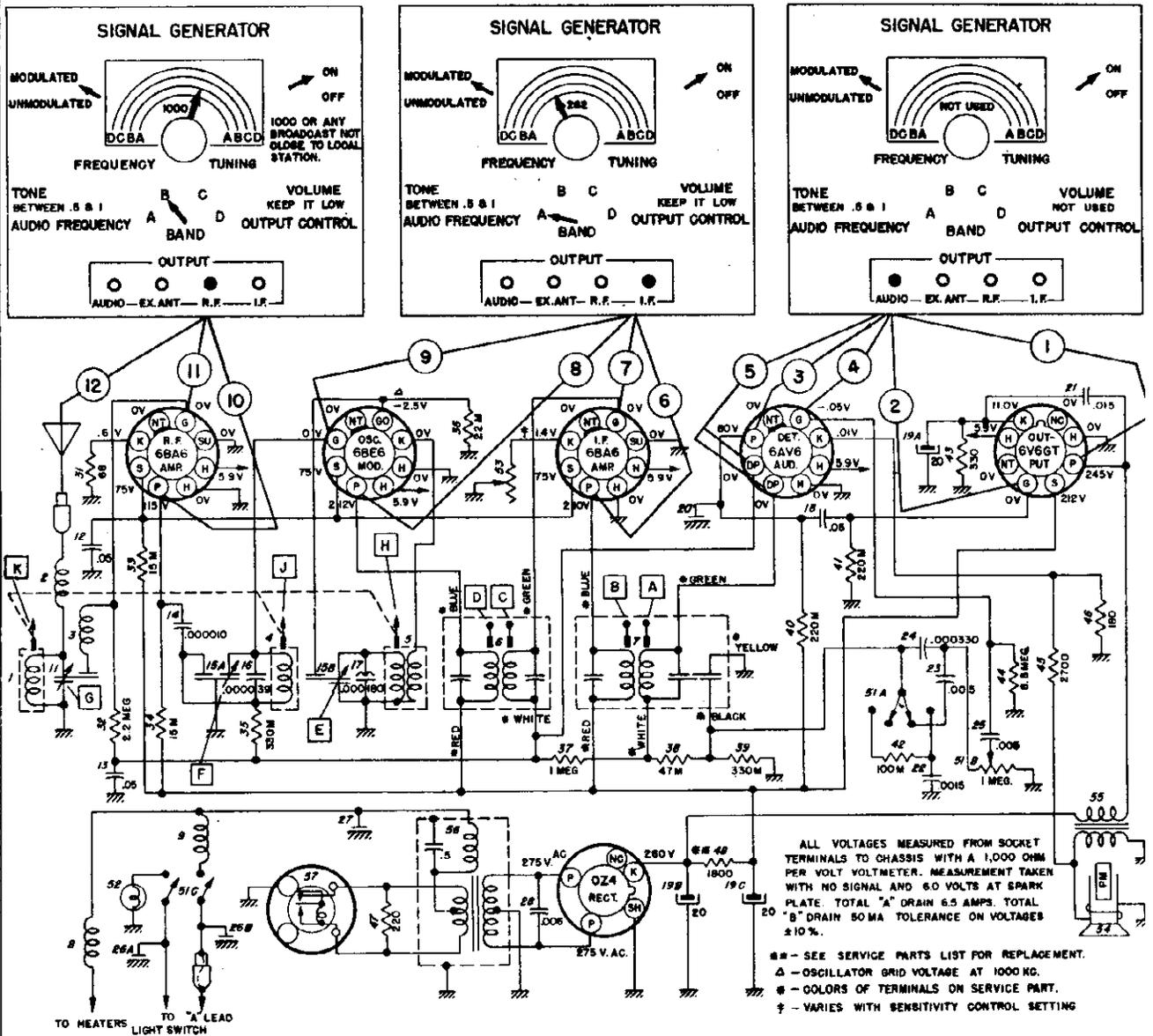
1. Check or replace 6BA6 tube.

2. Check or replace 6BA6 tube socket.

3. Check or replace resistor. (Item 31 on circuit diagram and parts layout.)

Leaving the Signal Generator set as above and radio still tuned to 1000 kilocycles, place a .000075 mfd. condenser on red lead of Signal Generator and plug into antenna socket. If no signal check or replace the following:

Tune radio to 1000 kilocycles



POINT SIGNAL STOPS - CHECK OR REPLACE ITEMS LISTED

No signal at point 1 - check or replace - items - 21-54-55	No signal at point 7 - check or replace - item - 53-6BA6 tube or tube socket
No signal at point 2 - check or replace - 6V6GT tube or tube socket	No signal at point 8 - check or replace - items - 6-37
No signal at point 3 - check or replace - items - 18-41	No signal at point 9 - check or replace - 6BE6 tube or tube socket
No signal at point 4 - check or replace - items - 45-46-6AV6 tube or tube socket	No signal at point 10 - check or replace - items - 4-5-14-15A-15B-16-17-35-36
No signal at point 5 - check or replace - 6AV6 tube or tube socket	No signal at point 11 - check or replace - item - 31-6BA6 tube or tube socket
No signal at point 6 - check or replace - items - 7-22-23-24-25-38-39-42-44-51A-51B	No signal at point 12 - check or replace - items - 1-2-3-11-13-32

Figure 29

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1. Check or replace antenna coil. (Item 1 on circuit diagram and parts layout.)
2. Check or replace chokes. (Items 2 and 3 on circuit diagram and parts layout.)
3. Check or replace condensers. (Items 11 and 13 on circuit diagram and parts layout.)
4. Check or replace resistor. (Item 32 on circuit diagram and parts layout.)

**PROCEDURE FOR ALIGNMENT OF  
986515 RADIO**

All receivers are properly aligned at the factory and should require no further adjustments, unless the adjustments have been tampered with, or new coils, I.F. Transformers or tuning cores have been installed.

To properly align the receiver, it will be necessary to have an output meter and signal generator. If any of the tuning coils or cores have been replaced, see "Capacity and Inductance Alignment Procedure." If only the adjustments have been tampered with or an I.F. transformer has been replaced the receiver is aligned as follows:

Set the Volt-Ohm-Milliammeter Master selector switch in the 30 position, the voltage selector switch in A.C. 1K ~ /V position and place the leads in the jack marked "output meter," place the other end of the black lead to radio chassis for ground. Place the red lead to the terminal of the speaker to which the green lead of the audio output transformer is connected, as outlined in the 1950 Chevrolet Radio Service and Shop Manual. (Speaker is item 54 and audio output transformer item 55 on circuit diagram and parts layout.)

Turn on the Signal Generator On and Off switch and turn on the radio receiver, turn volume control to maximum position. Set modulation switch in the modulated position, turn the band selector to the "A" position and tune the Signal Generator to exactly 262 Kilocycles. Place the Signal Generator shielded lead in jack marked "I.F." and place the black lead to the radio chassis for ground. Place red lead to tube pin marked "G" on the 6BE6 tube.

Adjust the Signal Generator volume control so that the meter reads about 10 on the meter scale. Adjust in sequence trimmers "A, B, C and D" (on circuit diagram and parts layout)

for maximum meter reading. Repeat adjustment to get best alignment. (Keep the Signal Generator volume turned down so that during adjustments, the meter does not read more than 10 on the meter scale.)

Now place Signal Generator shielded lead assembly in the jack marked "R.F.", set the band selector switch in "B" position, tune the Signal Generator to exactly 1615 kilocycles, place a .000075 mfd. condenser on the red lead and connect to the antenna connector. Tune the radio receiver to the stop at the 1600 kilocycle end of the dial. (Keep the Signal Generator volume control adjusted so the meter reads about 10 on the meter scale.)

Now adjust trimmers "E, F and G" (on circuit diagram and parts layout), in sequence for maximum reading on the meter scale. Repeat for best alignment. Tune the Signal Generator and radio receiver to exactly 1000 kilocycles and repeat adjustments of trimmers "F and G" only for maximum meter reading.

After the receiver has been installed in the car, tune in a weak station near 1000 kilocycles, with volume control turned to maximum position and antenna extended to full height. Re-adjust trimmer "G" only for maximum volume.

**CAPACITY AND INDUCTANCE  
ALIGNMENT PROCEDURE**

This alignment procedure is to be used only when any of the following parts have been replaced in the radio, antenna coil, radio frequency coil, oscillator coil or any of the tuning cores.

The Intermediate Frequency alignment at 262 kilocycles are the same as outlined in "Alignment procedure" on page 18. After completing the alignment at 262 kilocycles for the intermediate frequency transformers "A, B, C and D" proceed as follows:

Connect Signal Generator red lead to a .000075 mfd. condenser and connect to antenna connector.

Mechanically align iron cores "H, J and K" (on circuit diagram and parts layout) to measure 1-25/32 inches in coil forms from rear mounting edge of coil forms. (See Figure 26.) Now set the Signal Generator to exactly 1615 kilocycles, set band switch to "B" position, tune radio receiver to the stop on the 1600 kilocycle end of the dial. Have output meter

hooked up as outlined in "Alignment Procedure." Now adjust iron cores "H, J and K" (on circuit diagram and parts layout) in sequence for maximum meter reading.

Now adjust trimmers "E, F and G" (on circuit diagram and parts layout) in sequence for maximum reading on meter scale. Now tune Signal Generator and radio receiver to 1000 kilocycles, and readjust iron cores "J and K" only for maximum reading on meter scale. **DO NOT READJUST IRON CORE "H" ON THIS ADJUSTMENT.** Repeat the adjustment of iron cores "J and K" at 1000 kilocycles for maximum reading on meter scale.

Reset Signal Generator to 1615 kilocycles and tune radio receiver to stop on 1600 kilocycle end of dial, then readjust trimmers "F and G" only until no further increase in the meter reading can be obtained.

After the radio receiver has been installed in the car, tune in a weak station near 1000 kilocycles, with volume control turned to maximum position and antenna extended to full height. Readjust trimmer "G" only for maximum volume.

SERVICE PARTS LIST 986515 RADIO

Illus. No.	Service Part No.	Description
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COILS

1	7258914	Antenna
2	7258502	Antenna Series Choke
3	7240251	Antenna Spark Choke
4	7258914	Radio Frequency
5	7258911	Oscillator
6	1218725	1st. I.F.
7	1218726	2nd I.F.
8	7260470	Hash Choke
9	7260090	Hash Choke

CONDENSERS

11	7260172	Antenna Trimmer
12	7230592	.05 mfd. 600V. Tubular
13	7230592	.05 mfd. 600V. Tubular
14	1215189	.000010 mfd. molded
15	7242454	Dual Trimmer
15A		R.F. Section
15B		Oscillator Section
16	1217736	.000039 Mfd. Molded
17	7257424	.000180 Mfd. Compensating
18	7230592	.05 mfd. 600V. Tubular

19	7260065	Electrolytic
19A		20 mfd. 25 V.
19B		20 mfd. 400 V.
19C		20 mfd. 400 V.
20	1217848	Hash plate (chassis)
21	1219693	.015 mfd. 800V. Tubular
22	1218499	.0015 mfd. 200V. Tubular
23	7230767	.005 mfd. 600V. Tubular
24	7232957	.000330 mfd. molded
25	7230767	.005 mfd. 600V. Tubular
26	1219369	Dual Spark Plate
27	1217848	Hash plate (chassis)
28	7240906	.006 mfd. 1600V. Tubular

RESISTORS

31	1215558	68 ohms 1/2W. Insulated
32	1214563	2.2 megohms 1/2W. Insulated
33	7233653	15,000 ohms 2W. Insulated
34	7237595	15,000 ohms 1W. Insulated
35	1214557	330,000 ohms 1/2W. Insulated
36	1214550	22,000 ohms 1/2W. Insulated
37	1213282	1 megohm 1/2W. Insulated
38	1214553	47,000 ohms 1/2W. Insulated
39	1214557	330,000 ohms 1/2W. Insulated
40	1214555	220,000 ohms 1/2W. Insulated
41	1214555	220,000 ohms 1/2W. Insulated
42	1213270	100,000 ohms 1/2W. Insulated
43	7233773	330 ohms 1W. Insulated
44	1215563	6.8 megohms 1/2W. Insulated
45	1213240	2,700 ohms 1/2W. Insulated
46	1215559	180 ohms 1/2W. Insulated
47	7237994	220 ohms 1W. Insulated
48	USE	7242844 - 2700 ohms 2W. 7240918 - 5600 ohms 1W. in parallel

TUBES

1217690	6BA6 R.F. and I.F. Amplifier
1217691	6BE6 Oscillator-Modulator
1218506	6AV6 Detector-A.V.C.-1st Audio
1213793	6V6GT Audio Output
1211924	Rectifier

MISCELLANEOUS ELECTRICAL PARTS

51	7260084	Control - Volume, Tone and Switch
51A		Tone Control
51B		Volume Control
51C		Switch
52	125588	Lamp - Dial
53	7242204	Sensitivity Control
54	7259381	Speaker - 6" x 9" P.M.
55	7260060	Transformer - Audio Output

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- 56 7260100 Transformer - Power
- 57 7239124 Vibrator

MECHANICAL PARTS

- 60 7239475 Socket - Antenna
- 7258073 Socket - 7 Pin Miniature
- 7236279 Socket - Octal Tube
- 7239125 Socket - Vibrator

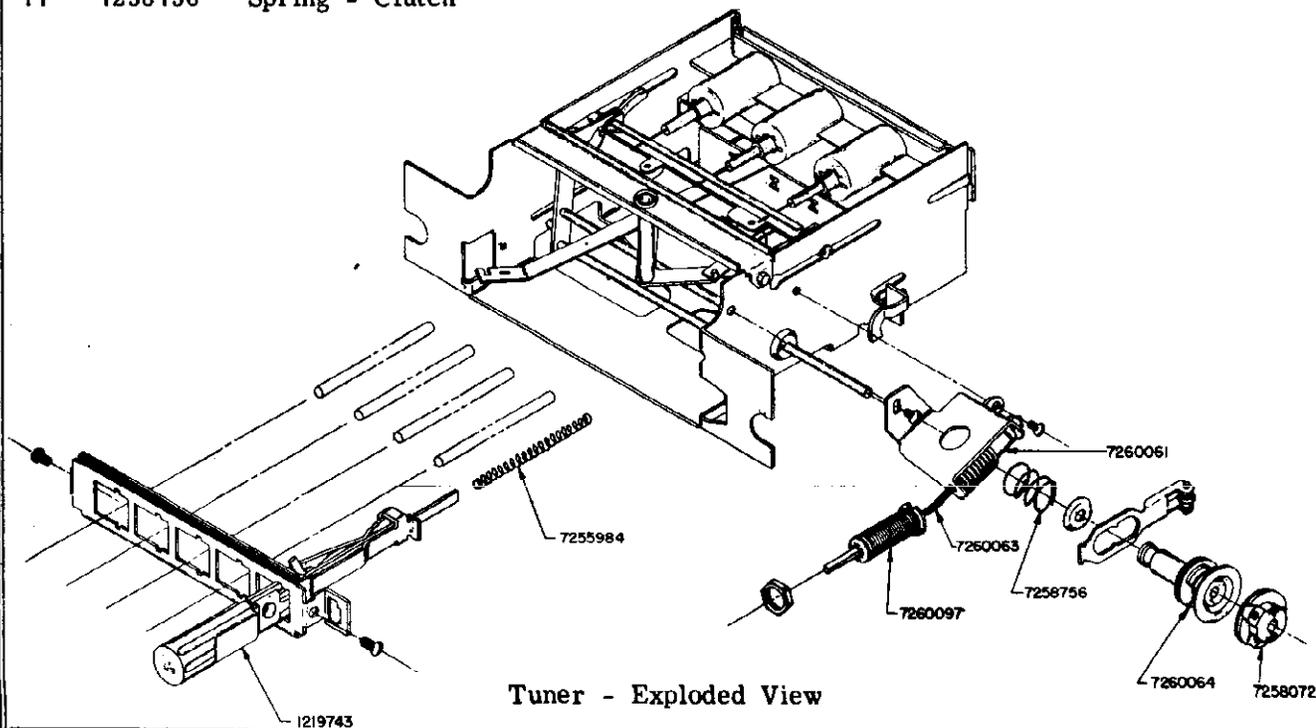
TUNER PARTS

- 62 7260018 Backplate - Pointer
- 147481 Ball bearing (10 to Unit)
- 63 7260097 Bushing & Manual Drive Shaft Assy.
- 64 7260068 Manual Drive Shaft
- 65 7258072 Clutch - Disc, Driven
- 66 7258203 Connecting Link Core Bar
- 67 7258210 Core Guide Bar
- 68 7256271 Pointer Connecting Link
- 69 7255992 Spring Pointer Connecting Link
- 70 7258468 Core Iron Tuning
- 71 7260076 Escutcheon Assembly
- 72 1219744 Dial Package
- 73 7260064 Gear and Bushing - Clutch
- 74 7260074 Pointer Assembly
- 75 7260093 Pointer Tip
- 76 1219742 Push Button and Slide Assembly
- 77 7258756 Spring - Clutch

- 78 7257415 Spring - Core Bar Connecting Link
- 79 7255984 Spring Slide Return
- 80 1219743 Socket - Dial Light
- 81 7260061 Worm Gear and Bracket

INSTALLATION PARTS

- 7259728 Installation Package
- Contains the following:
- 1912900 Condenser - Ammeter
- 1910147 Condenser - Generator
- 1910147 Condenser - Ignition Coil
- 1912900 Condenser - Voltage Regulator
- 1887829 Suppressor - Distributor
- 147685 Fuse
- 7257921 Fuse Holder Body - Male
- 7259733 Knob - Control
- 7259734 Knob - Dummy
- 7259738 Knob - Tone Control
- 7259736 Mounting Bracket L.H.
- 7259735 Mounting Bracket R.H.
- 7259940 Brace - Receiver Mounting, Rear
- 1888204 Nipple - Rubber - Distributor
- 7257984 Serrated Pad
- 7259941 Spacer - Mounting
- 494786 Collector - Static



Tuner - Exploded View

Figure 30

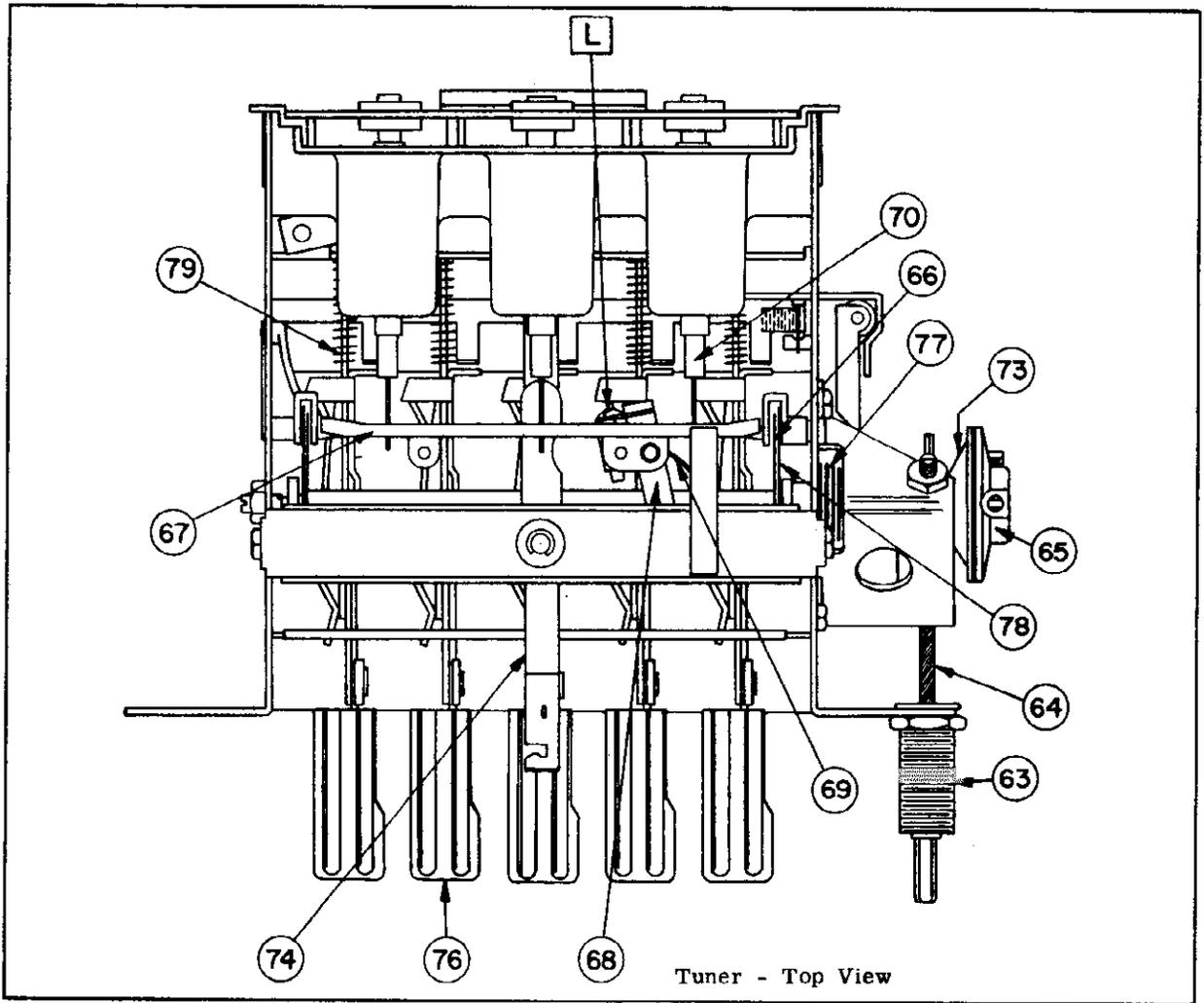


Figure 31

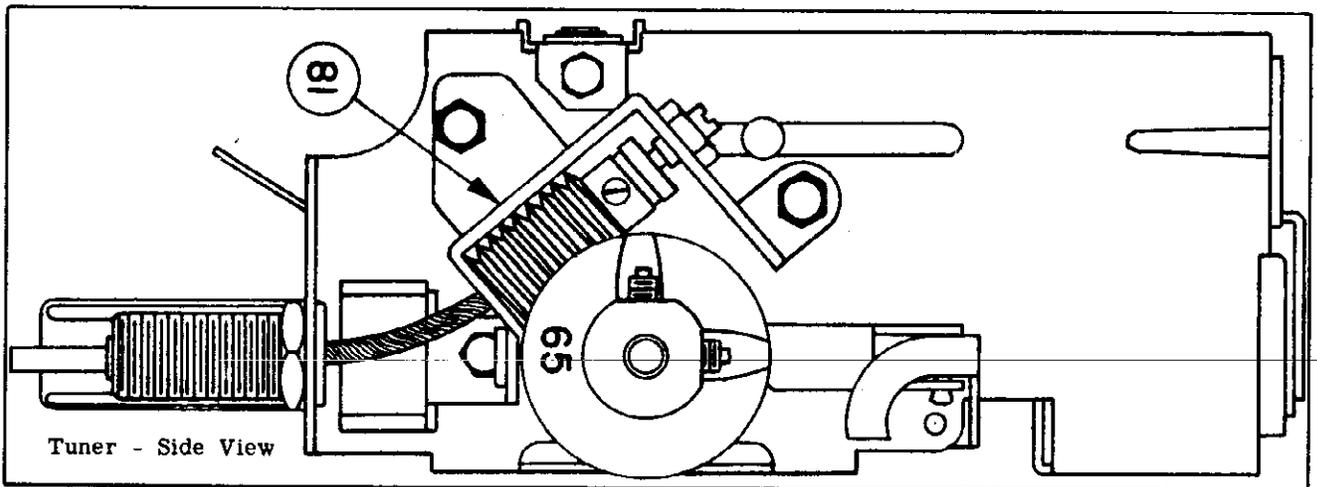


Figure 32



MODEL 986516,  
Chevrolet

**CUSTOM DELUXE RADIO  
MANUAL TUNING 986516**

This radio is a single unit five tube (plus rectifier) superheterodyne automobile receiver designed expressly for 1951 Chevrolet passenger car installation. In this type of design the speaker is integral with the receiver and instrument panel by means of a special rubber gasket which, due to location and baffling, permits exceptionally good tone quality.

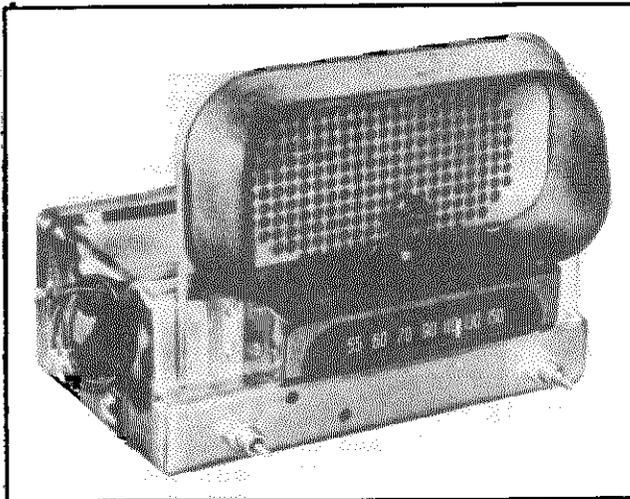


Figure 34

**ELECTRICAL DESCRIPTION**

The circuit used in this receiver is the superheterodyne type and uses no regeneration. The tuning circuits are of the permeability type and tuned by varying the iron cores in and out of the antenna, radio frequency and oscillator coils like pistons. (See Figure 35.)

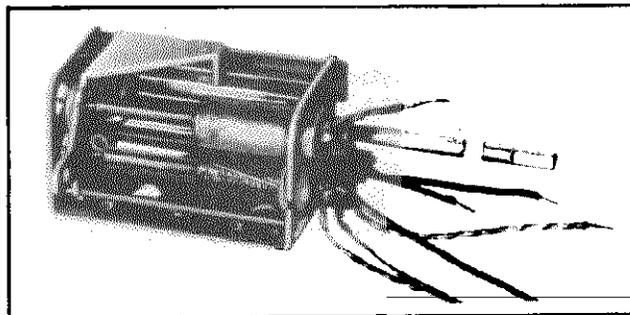


Figure 35

The Intermediate Frequency stages are tuned by means of two iron cores being adjusted the top and bottom sides of the I.F. transformer, both the first (input) and second (output) Intermediate Frequency transformers are tuned by this method. (See Figure 36.)

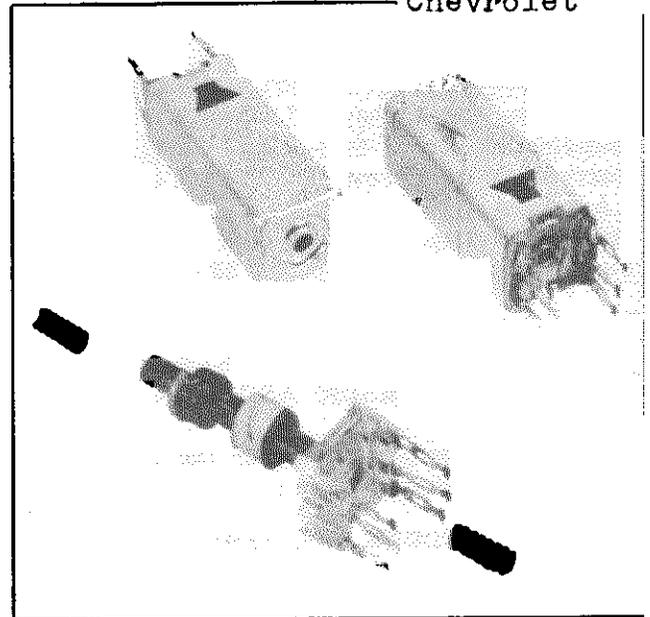


Figure 36

The antenna circuit is capacity coupled to the antenna by means of an antenna trimmer condenser to take care of normal variations in antenna and antenna coil capacity. The antenna condenser is adjustable by means of a small screw driver, and is located at the rear of the radio case. The audio stage is transformer coupled to the output tube to take advantage of all gain and tone quality that the receiver is capable of developing. The automatic volume control is of the delayed signal type and is very capable of maintaining a constant level of volume at all times. Very high frequency filter chokes are used in the radio frequency and oscillator grid circuits to discriminate against ignition interference in the receiver, thus eliminating the use of spark plug suppressors. The vibrator is the full wave non-synchronous type using a 6X5GT rectifier tube and will operate on either a negative or positive ground.

**TUBE COMPLEMENT AND FUNCTION**

6BA6	Radio Frequency Amplifier
6BE6	Oscillator - Modulator
6BA6	Intermediate Frequency Amplifier
6AT6	Detector - Automatic Volume Control and First Audio
6V6GT	Audio Output
6X5GT	Rectifier

**GENERAL INFORMATION**

Tuning range 540 - 1610 Kilocycles.

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MODEL 986516,  
Chevrolet

Intermediate Frequency 257.5 Kilocycles.  
Maximum Power Output 3.5 Watts.  
Undistorted Power Output 2.5 Watts.  
Current Drain Permanent Magnet Speaker 6.5  
Amperes at 6 Volts.  
Voice Coil Impedance 3.2 ohms at 400 Cycles  
Fuse protection 14 Amperes 25 Volt.

### PROCEDURE FOR INSTALLATION OF 986516 RADIO AND ANTENNA

The installation procedure for the antenna and receiver are the same as for 986515 receiver.

### PROCEDURE FOR SERVICING 986516 RADIO

The same procedure for operating radio test equipment as outlined for 986515

### PROCEDURE FOR CHECKING THE VOLTAGE OF 986516 RADIO

It will be necessary to remove the front cover with the dial and speaker assembly to check the voltages.

Hookup radio on the service bench to a 6 volt power-unit, or a fully charged battery. It is important that you have at least 5.9 volts at the spark plate of the radio, or the voltage readings will all be low.

First set the Master selector switch of the volt-ohm-milliammeter to the 12 position, set the voltage selector switch to D.C. 1K  $\sim$  /V. Place the test leads in jack marked "test leads," ground the "-" negative lead to radio chassis for ground, with the red lead check all tube pins marked "H" which show a reading on the voltage chart. (See Figure 37.) If no voltage or incorrect, check or replace the following:

1. Check or replace On and Off switch. (Item 51C on circuit diagram and 51 on parts layout.)
2. Check or replace condensers. (Items 24, 25 and 26 on circuit diagram and parts layout.)
3. Check or replace choke. (Item 5 on circuit diagram and parts layout.)

Now set the Master selector switch to the 600 position and the voltage selector switch to A.C. 1K  $\sim$  /V. position. With the red lead check the two terminals marked "P" on the 6X5GT tube, both terminals should read 270 to 280 volts A.C. If incorrect or no voltage check the following:

1. Check or replace condensers. (Item 26 and 27 circuit diagram and parts layout.)
2. Check or replace choke. (Item 5 on circuit diagram and parts layout.)
3. Check or replace power transformer. (Item 55 on circuit diagram and parts layout.)
4. Check or replace resistors. (Items 43 and 44 on circuit diagram and parts layout.)
5. Check or replace vibrator. (Item 56 on circuit diagram and parts layout.)

Now change the Master selector switch to the 300 position, and the voltage selector switch to D.C. 1K  $\sim$  /V. position, leaving the leads in the same jacks and the black lead grounded to the radio chassis. Now with the red lead check the voltage on the 6X5GT tube, pin marked "K." It should read 245 to 255 volts D.C. If incorrect or no voltage check the following:

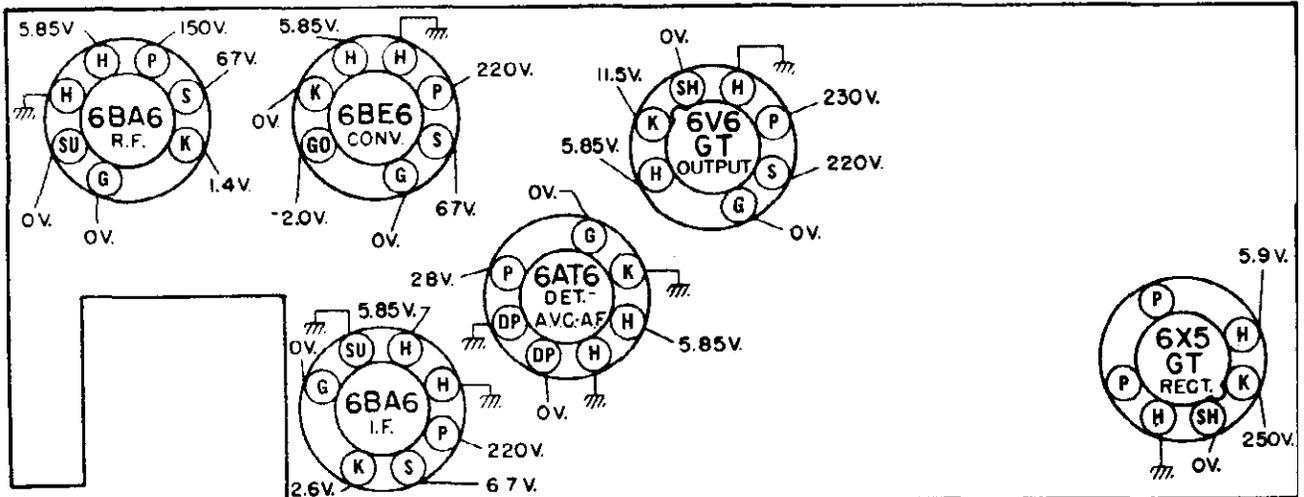
1. Check or replace 6X5GT tube.
2. Check or replace 6X5GT socket.

Next check the voltage on the 6V6GT tube, pin marked "P." It should read 225 to 235 volts D.C. If incorrect or no voltage check the following:

1. Check electrolytic condenser. (Item 21 on parts layout, 21A on circuit diagram.)
2. Check or replace audio transformer. (Item 54 on circuit diagram and parts layout.)
3. Check or replace condenser. (Item 23 on circuit diagram and parts layout.)
4. Check or replace "B" choke. (Item 6 on circuit diagram and parts layout.)

Now check pin marked "S" on 6V6GT tube, should read 215 to 225 volts D.C. If incorrect or no voltage check the following:

1. Check or replace electrolytic condenser.



READINGS TAKEN FROM TUBE SOCKET CONTACTS TO CHASSIS WITH A D.C. VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT. "A" SUPPLY AT SPARK PLATE 5.9 VOLTS, "B" SUPPLY DRAIN APPROXIMATELY 50 MA.

Figure 37

(Item 21B on circuit diagram, 21 on parts layout.)

2. Check or replace resistor. (Item 42 on circuit diagram and parts layout.)

Next check pin marked "K" on 6V6GT tube, should read 10 to 12 volts D.C. If incorrect or no voltage, check the following:

1. Check or replace electrolytic condenser. (Item 21A on circuit diagram, 20 on parts layout.)
2. Check or replace resistor. (Item 40 on circuit diagram and parts layout.)

Now check pin marked "P" on 6AT6 tube, should read 25 to 28 volts D.C. If incorrect or no voltage check the following:

1. Check or replace condensers. (Item 19 and 20 on circuit diagram and parts layout.)
2. Check or replace resistor. (Item 39 on circuit diagram and parts layout.)

Next check pin marked "P" on 6BA6 I.F. tube, should read 215 to 225 volts D.C. If incorrect or no voltage check the following:

1. Check or replace Intermediate frequency transformer. (Item 4 on circuit diagram and parts layout.)

Now check pin marked "S" on 6BA6 I.F. tube,

should read 62 to 72 volts D.C. If incorrect or no voltage check the following:

1. Check or replace resistor. (Item 35 on circuit diagram and parts layout.)

2. Check or replace condenser. (Item 11 on circuit diagram and parts layout.)

Next check pin marked "P" on 6BE6 tube should read 215 to 225 volts D.C. If incorrect or no voltage check the following:

1. Check or replace Intermediate frequency transformer. (Item 3 on circuit diagram and parts layout.)

Next check pin marked "S" on 6BE6 tube should read 62 to 72 volts D.C. If incorrect or no voltage check the following:

1. Check or replace resistor. (Item 35 on circuit diagram and parts layout.)
2. Check or replace condenser. (Item 11 on circuit diagram and parts layout.)

Next check pin marked "P" on 6BA6 radi frequency tube, should read 145 to 155 volts D.C. If incorrect or no voltage check or replace the following:

1. Check or replace condensers. (Items 11 and 13 on circuit diagram and parts layout.)

MODEL 986516,  
Chevrolet

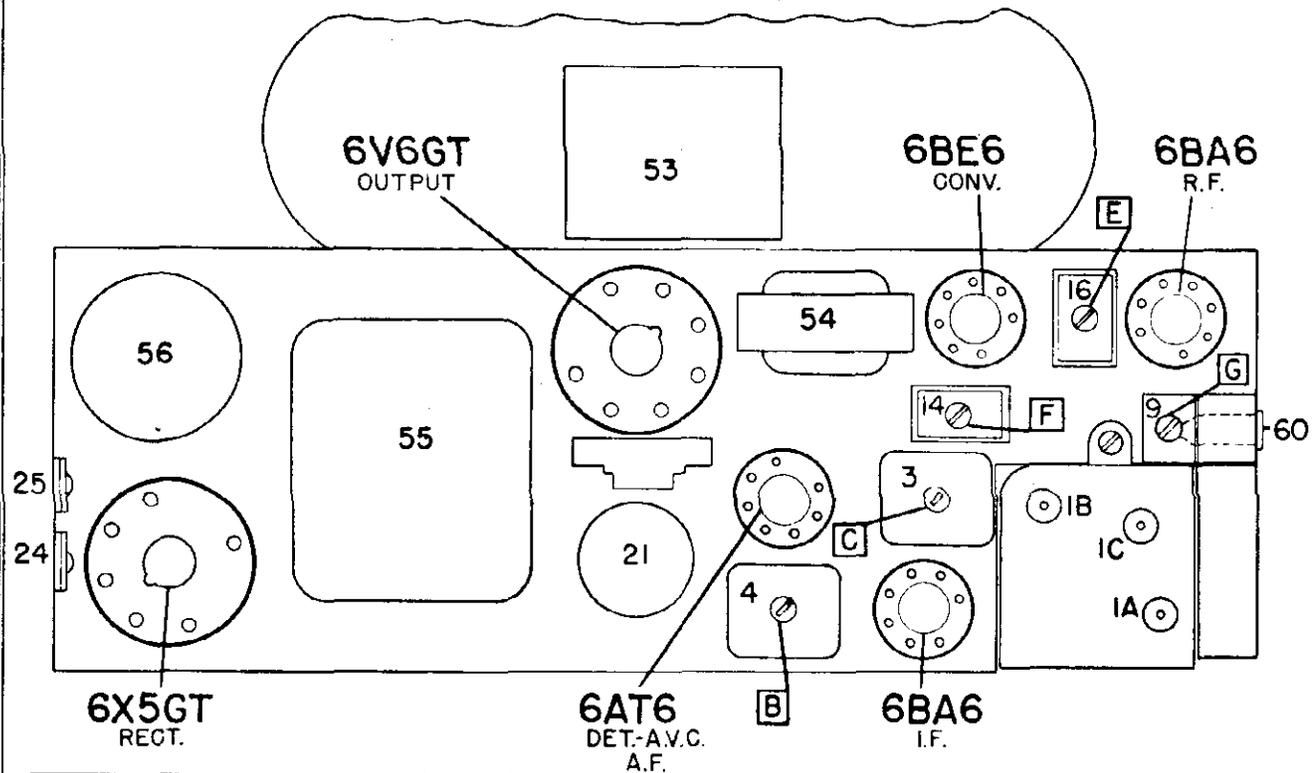


Figure 38

2. Check or replace resistor. (Item 31 on circuit diagram and parts layout.)

2. Check or replace condenser. (Item 11 on circuit diagram and parts layout.)

Next check pin marked "S" on 6BA6 radio frequency tube, should read 62 to 72 volts D.C. If incorrect or no voltage check or replace the following:

1. Check or replace resistor. (Item 35 on circuit diagram and parts layout.)

We have now checked the tubes, vibrator and voltages, with these being correct and radio does not play, the trouble will be in the grid circuit of the radio. To continue it will be necessary to check the grid circuit by means of Signal Tracing.

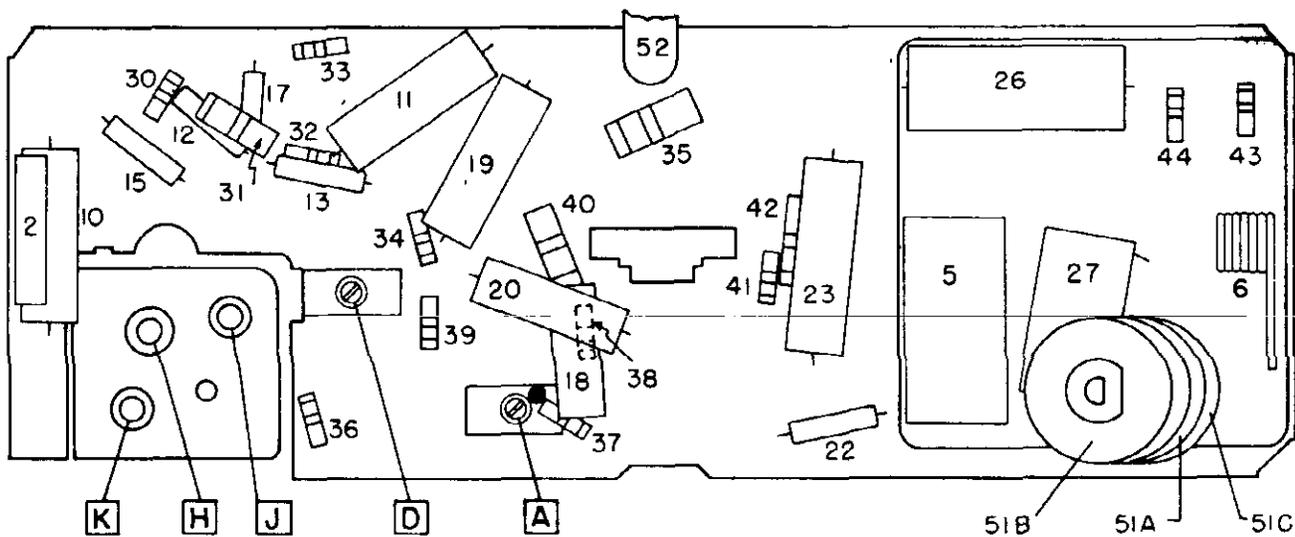


Figure 39

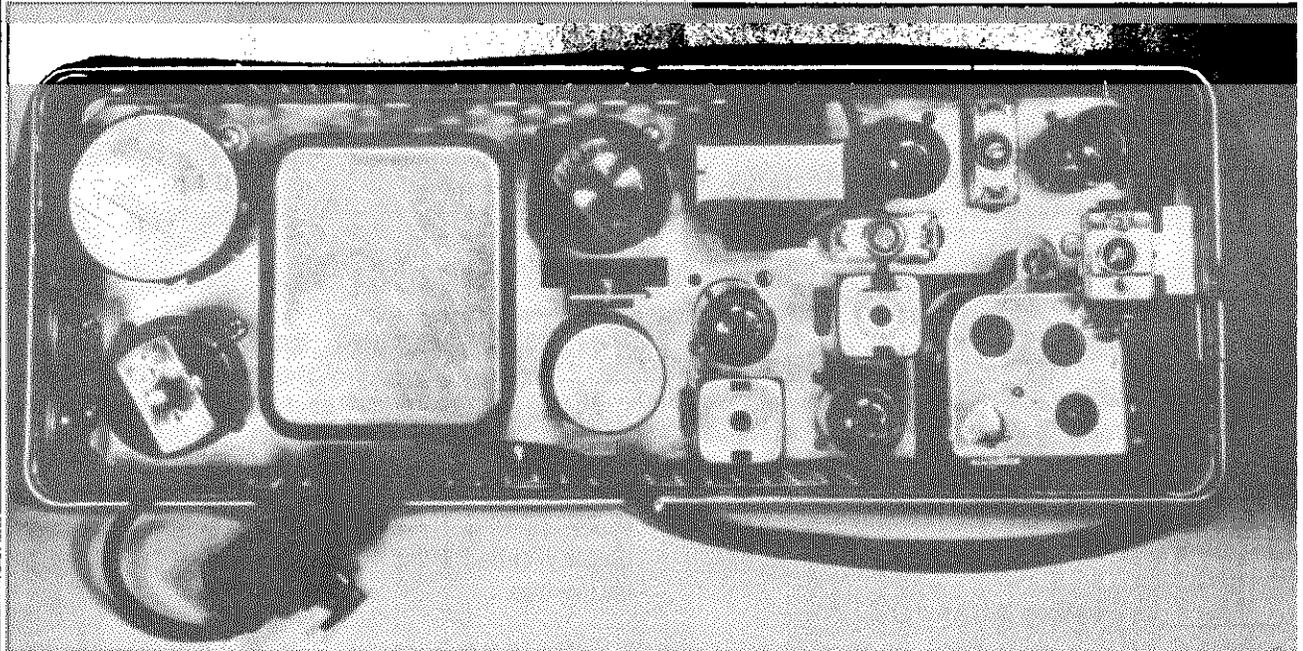


Figure 40

**PROCEDURE FOR SIGNAL TRACING  
RADIO 986516**

Turn on Signal Generator On and Off switch, place the modulation switch in the modulated position, set Signal Generator tone control to .5, place shielded lead assembly in jack marked "Audio." Ground the black lead of Signal Generator to the radio chassis.

With red lead touch tube pin marked "P" on 6V6GT tube. If no signal check or replace the following:

1. Check or replace condenser. (Item 23 on circuit diagram and parts layout.)
2. Check or replace audio transformer. (Item 54 on circuit diagram and parts layout.)
3. Check or replace speaker. (Item 53 on circuit diagram and parts layout.)

Next touch tube pin marked "G" on 6V6GT tube. If no signal check or replace the following:

1. Check or replace 6V6GT tube.
2. Check or replace 6V6GT tube socket.

Next touch tube pin marked "P" on 6AT6 tube. If no signal check or replace the following:

1. Check or replace condensers. (Items 19, 20 and 22 on circuit diagram and parts layout.)
2. Check or replace resistor. (Item 41 on circuit diagram and parts layout.)
3. Check or replace tone control. (Item 51E on circuit diagram and 51 on parts layout.)

Next touch tube pin marked "G" on 6AT6 tube. If no signal check or replace the following:

1. Check or replace 6AT6 tube.
2. Check or replace 6AT6 tube socket.

Next touch the ungrounded tube pin marked "DP" on the 6AT6 tube. If no signal check or replace the following:

1. Check or replace 6AT6 tube.
2. Check or replace 6AT6 tube socket.

Now change the shielded lead assembly to the jack marked "I.F." Intermediate Frequency on the Signal Generator, tune the Signal Generator to exactly 257.5 kilocycles, set band switch in "A" position, turn Signal Generator volume control about one third open.

Next touch tube pin marked "P" on 6BA6 I.F. amplifier tube. If no signal check or replace

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MODEL 986516,  
Chevrolet

the following:

1. Check or replace intermediate frequency transformer. (Item 4 on circuit diagram and parts layout.)
2. Check or replace resistors. (Items 37 and 38 on circuit diagram and parts layout.)
3. Check or replace condenser. (Item 18 on circuit diagram and parts layout.)
4. Check or replace volume control. (Item 51A on circuit diagram and 51 on parts layout.)

Next touch tube pin marked "G" on 6BA6 I.F. amplifier tube. If no signal check or replace the following:

1. Check or replace 6BA6 tube.
2. Check or replace 6BA6 tube socket.
3. Check or replace resistor. (Item 36 on circuit diagram and parts layout.)

Next touch tube pin marked "P" on 6BE6 tube. If no signal check or replace the following:

1. Check or replace intermediate frequency transformer. (Item 3 on circuit diagram and parts layout.)

Next touch tube pin marked "G" on 6BE6 tube. If no signal check or replace the following:

1. Check or replace 6BE6 tube.
2. Check or replace 6BE6 tube socket.

Now change shielded lead assembly to the "R.F." radio frequency jack on the Signal Generator, set band switch to "B" position, tune Signal Generator to 1000 kilocycles.

Tune radio receiver to 1000 kilocycles. Next touch tube pin marked "P" on 6BA6 radio frequency tube. If no signal check or replace the following:

1. Check or replace coil and core assembly. (Item 1A, 1B and 1C on circuit diagram and 1 on parts layout.)
2. Check or replace condensers. (Items 12, 13, 14, 15, 16 and 17 on circuit diagram and parts layout.)

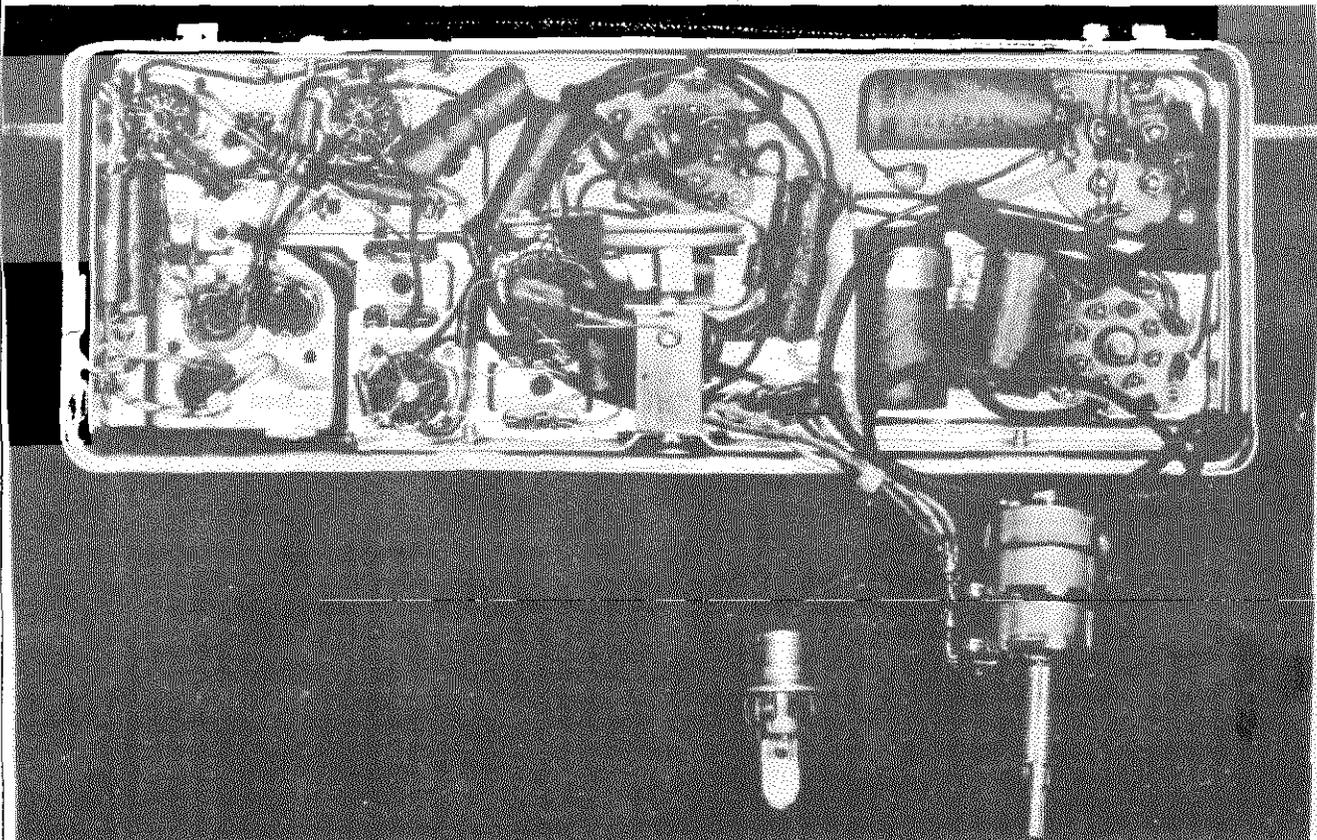


Figure 41



MODEL 986516,  
Chevrolet

3. Check or replace resistors. (Items 32 and 34 on circuit diagram and parts layout.)

Next touch tube pin marked "G" on 6BA6 radio frequency tube. If no signal check or replace the following:

1. Check or replace 6BA6 tube.
2. Check or replace 6BA6 tube socket.
3. Check or replace resistor. (Item 30 on circuit diagram and parts layout.)

Next place red lead to antenna socket. If no signal check or replace the following:

1. Check or replace coil assembly. (Items 1A, 1B and 1C on circuit diagram and 1 on parts layout.)
2. Check or replace condensers. (Items 9 and 10 on circuit diagram and parts layout.)
3. Check or replace choke. (Item 2 on circuit diagram and parts layout.)

#### PROCEDURE FOR ALIGNMENT OF 986516 RADIO

All receivers are aligned at the factory and should require no further adjustment, unless the adjustments have been tampered with, or new coils, I.F. Transformers or tuning cores have been installed.

To properly align the receiver it will be necessary to have an output meter and signal generator. If any of the tuning coils or cores have been replaced, see "Capacity and Inductance Alignment Procedure." If only the adjustments have been tampered with or an I.F. transformer has been replaced, the receiver is aligned as follows: Set the volt-ohm-meter Master selector switch in 30 position, the voltage selector switch in A.C. 1K  $\sim$ /V., place leads in jacks marked "output meter." Place the other end of the black lead to the radio chassis for ground. Place red lead to the terminal of the speaker to which the green wire of the Audio transformer is connected, as outlined in the 1950 Chevrolet Radio Service and Shop Manual. (Speaker is item 53 and audio output transformer item 54 on circuit diagram and parts layout.)

Turn on the On and Off switch of the Signal Generator, turn radio receiver on with volume

control turned to maximum position, set modulation switch in modulated position, turn band selector switch to "A" position, tune Signal Generator to exactly 257.5 kilocycles. Place shielded lead in "I.F." jack, place black lead to radio chassis for ground, red lead to 6BE6 tube pin marked "G."

Adjust Signal Generator volume control so that the meter reads about 10 on the meter scale. Adjust in sequence trimmers "A, B, C and D" (on circuit diagram and parts layout) for maximum reading on the meter scale. (Keep the Signal Generator volume control turned down so that during adjustments the meter does not read more than 10 on the meter scale.)

Now place Signal Generator shielded lead assembly in the jack marked "R.F.", set band selector in "B" position, tune Signal Generator to exactly 1610 kilocycles, place the red lead to a .000075 mfd. condenser and connect to the antenna connector. Tune radio receiver to stop on the 1600 kilocycle end of dial. (Keep Signal Generator volume control adjusted so the meter reads about 10 on the meter scale.)

Now adjust trimmers "E, F and G" (on circuit diagram and parts layout) for maximum reading on meter scale. Repeat for best alignment. After the receiver has been installed in the car tune in a weak station near 1400 kilocycles, with volume control turned to maximum and antenna extended to full height. Re-adjust trimmer "G" only for maximum volume.

#### CAPACITY AND INDUCTANCE ALIGNMENT

This alignment procedure is to be used only when the tuner unit with the antenna, radio frequency, oscillator coils and tuning cores have been changed.

The intermediate frequency alignment at 257.5 kilocycles is the same as outlined in "Alignment Procedure" on page 18. After completing the alignment at 257.5 kilocycles for the intermediate frequency transformers "A, B, C and D" proceed as follows: Connect Signal Generator red lead to a .000075 mfd. condenser, and connect to antenna connector. Set Signal Generator to exactly 1610 kilocycles, tune radio receiver to stop at 1600 kilocycle end of dial. Have output meter hooked-up as outlined in "Alignment Procedure." Adjust trimmers "E, F and G" for maximum reading on meter scale.

MODEL 986516,  
Chevrolet

Next tune Signal Generator to exactly 1400 kilocycles, tune radio receiver to exactly 1400 on the dial and adjust iron cores "H, J and K" for maximum reading on output meter scale. NOTE: The front end of the iron cores are slotted so that these adjustments can be made with a non-metallic screw driver that fits loosely in the coil form.

Repeat alignment procedure at 1610 and 1400 kilocycles until the maximum reading has been attained at 1600 and 1400 kilocycles adjustments.

After the receiver has been installed in the car, tune in a weak station near 1400 kilocycles, with volume control turned to maximum position and antenna extended to full height. Readjust trimmers "G" only for maximum volume.

SERVICE PARTS LIST 986516 RADIO

Illus. No.	Service Part No.	Description
1	1219701	Coil Assembly - Permability Tuning
1A		Antenna Coil
1B		R.F. Coil
1C		Oscillator Coil
2	1218639	Antenna Spark Choke
3	1219702	1st I.F. Transformer
4	1219703	2nd I.F. Transformer
5	1219704	Hash Choke
6	1219705	B Choke
CONDENSERS		
9	1219706	Antenna Trimmer
10	7230592	.05 mfd. 600V. Tubular
11	7230592	.05 mfd. 600V. Tubular
12	1215189	.0001 mfd. Molded
13	7232957	.0003 mfd. Molded
14	1218636	R.F. Trimmer
15	1219566	.00033 mfd. Temperature Compensating
16	1218635	Oscillator Trimmer
17	1207625	.00005 mfd. Molded
18	7230767	.005 mfd. 100V. Tubular
19	7230592	.05 mfd. 600V. Tubular
20	7230767	.005 mfd. 400V. Tubular
21	1218009	Electrolytic Condenser
21A		20 mfd. 25V.
21B		15 mfd. 350V.
21C		10 mfd. 350 V.
22	1216881	.0005 mfd. Molded
23	1208600	.01 mfd. 600V. Tubular
24	1219707	Spark Plate
25	1219707	Spark Plate
26	1214939	.5 mfd. 100V. Tubular
27	7240906	.006 mfd. 1600V. Tubular

RESISTORS

30	1213224	330 ohm 1/2W. Insulated
31	1216156	22,000 ohm 1W. Insulated
32	1213282	1 megohm 1/2W. Insulated
33	1214550	22,000 ohm 1/2W. Insulated
34	1213282	1 megohm 1/2W. Insulated
35	7240590	22,000 ohm 2W. Insulated
36	1213235	1000 ohm 1/2W. Insulated
37	1213289	15 megohm 1/2W. Insulated
38	1213282	1 megohm 1/2W. Insulated
39	1213846	270 ohm 1W. Insulated
40	1214555	220,000 ohm 1/2W Insulated
41	1214573	1800 ohm 2W. Insulated
42	1214541	82 ohm 1/2W. Insulated
43	1214541	82 ohm 1/2W. Insulated
44	1214553	47,000 ohm 1/2W. Insulated
TUBES		

1217690	6BA6 R.F. Amplifier
1217691	6BE6 Oscillator - Modulator
1217690	6BA6 I.F. Amplifier
1218105	6AT6 Detector A.V.C. 1st Audio
1213793	6V6GT Audio Output
1213794	6X5GT Rectifier

MISCELLANEOUS ELECTRICAL PARTS

51	1219708	Control-Volume, Tone, Switch
51A		Volume Control
51B		Tone Control
51C		On-Off Switch
52	125588	Lamp - Dial (Mazda 44)
53	1219709	Speaker 5"x7" Permanent Magnet
54	1219710	Transformer - Audio Output
55	1219711	Transformer - Power
56	7239124	Vibrator

MECHANICAL PARTS

60	1218651	Socket - Antenna Connector
	7236279	Socket - Octal Tube
	1219570	Socket - Miniature Tube
	7239125	Socket - Vibrator
	1219713	Socket - Pilot Lamp
	1219714	Case - Wraparound (includes spark plates)
	1219586	Clip - I.F. Transformer Mtg.
	1219716	Cover - Front
	1219717	Cover - Rear
	1219718	Spring - Tension, Pointer Return
	1219719	Link - Pointer
	1219720	Pointer
	1219722	Dial
	1219723	Escutcheon
	1219724	Nut - Control Mounting
	1219725	Background - Dial
	1219727	Clip - Pointer Adjust
	1219728	Lever - Pointer
	1219731	Spring - Dial Retaining R.H.
	1219732	Spring - Dial Retaining L.H.

MODEL 986516,  
Chevrolet

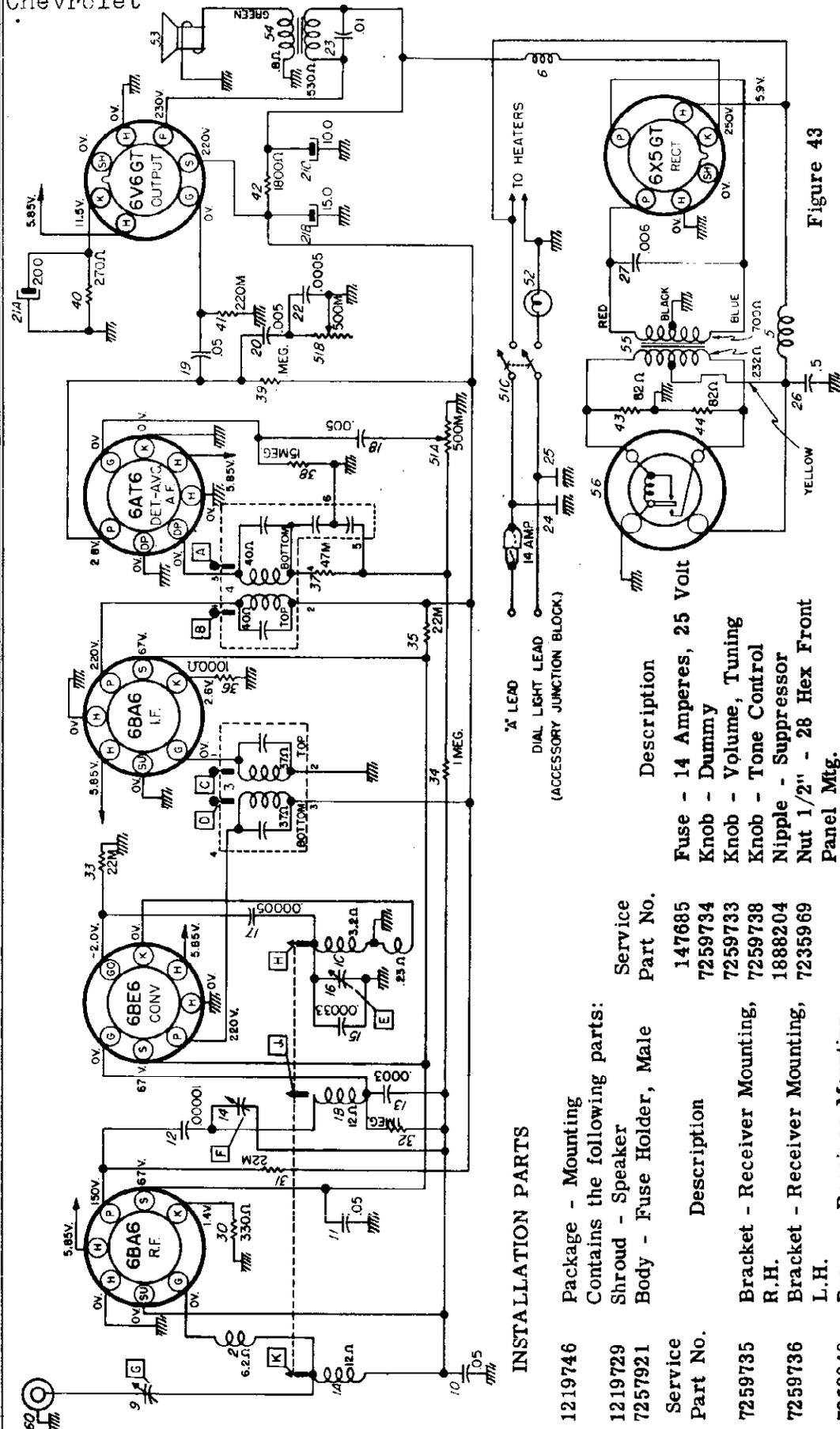


Figure 43  
Circuit Diagram - 986516 Radio

INSTALLATION PARTS

1219746	Package - Mounting	
1219729	Contains the following parts:	
7257921	Shroud - Speaker	
	Body - Fuse Holder, Male	
Service Part No.	Description	Service Part No.
7259735	Bracket - Receiver Mounting, R.H.	147885
7259736	Bracket - Receiver Mounting, L.H.	7259734
7259940	Brace - Receiver Mounting, Rear	7259733
1912900	Condenser - Generator	7259738
1910147	Condenser - Ignition Coil	1888204
1912900	Condenser - Voltage Regulator	7235969
494786	Static Collector - Front Wheel	Panel Mtg. 1219737
		Trim Plate 1887829

Description

- Fuse - 14 Amperes, 25 Volt
- Knob - Dummy
- Knob - Volume, Tuning
- Knob - Tone Control
- Nipple - Suppressor
- Nut 1/2" - 28 Hex Front
- Panel Mtg.
- Trim Plate
- Suppressor - Distributor

TUBE SOCKETS VIEWED FROM TERMINAL SIDE. VOLTAGES MEASURED FROM SOCKET TERMINALS TO CHASSIS WITH A DC VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT. ALL VOLTAGES POSITIVE UNLESS OTHERWISE DESIGNATED. READINGS TAKEN WITH 5.9 VOLTS AT SPARK PLATE. TOLERANCE ON VOLTAGES ± 10 %

TOTAL CURRENT DRAIN (PERMANENT MAGNET SPEAKERS) 6.5 AMPS.  
"B" SUPPLY DRAIN 50 MA

MODEL 986443,  
Chevrolet Truc

**CUSTOM DELUXE TRUCK  
PUSH BUTTON RADIO  
MODEL 986443**

This radio is single unit five tube (plus rectifier) radio designed expressly for 1951 Chevrolet Trucks, and can also be installed on 1947-48-49 and 50 Chevrolet Trucks. The receiver has been designed in conjunction with the truck and when installed, becomes an integral part of the instrument panel, with dial, push buttons and controls extending through the instrument panel. In this type of design, the speaker is integral with the receiver and instrument panel by means of a special rubber gasket which, due to location and baffling, permits exceptionally good tone quality. The receiver incorporates a five station mechanical tuning unit which permits easy instant tuning.

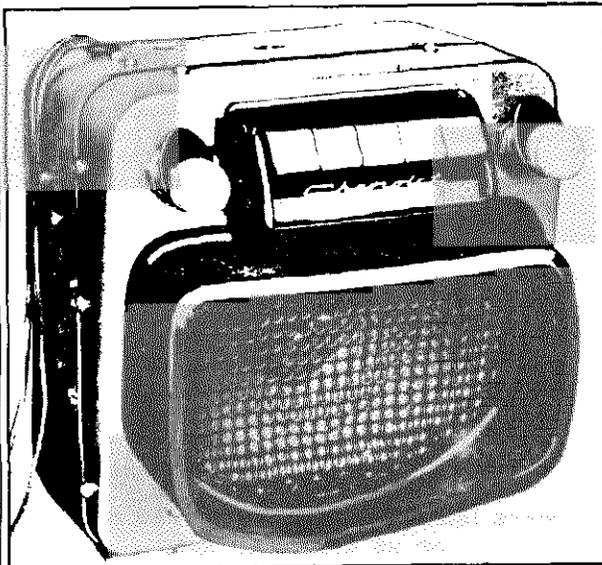


Figure 52

**PUSH BUTTON TUNING**

An outstanding feature of the 986443 radio is the new simplified method of setting up the push buttons, which can be done easily by anyone, without any tools. With this type of push button tuning which is completely mechanical, (no cords or pulleys are used), assures trouble free operation and constant calibration of the radio stations set on the push buttons at all times.

**PROCEDURE FOR SETTING  
PUSH BUTTONS**

Turn on the receiver for ten minutes or longer to allow circuits to stabilize.

1. Pull button slightly to the left and out as far as it will go.
2. Tune in station desired with manual tuning knob to clearest and loudest point.
3. Push button in firmly to end of travel. Repeat same procedure for remaining four buttons.

**ELECTRICAL DESCRIPTION**

The circuits used in this receiver are of the super-heterodyne type and use no regeneration. The tuning circuits are of the permeability type and are tuned by varying the iron tuning cores in and out of the antenna, radio frequency and oscillator coils, like pistons. (See Figure 53.)

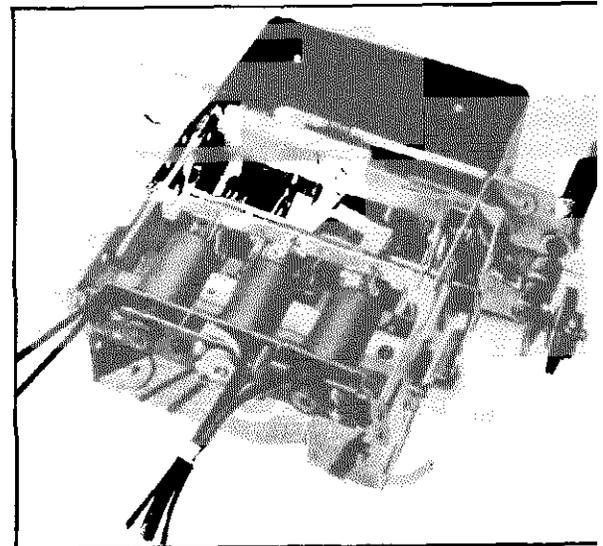


Figure 53

The intermediate frequency stages are tuned by means of two adjustable iron cores, or located on the top side and the other on the bottom side of the transformer. Both the first (input) and second (output) intermediate frequency transformers are tuned by this method. (See Figure 54.)

The antenna circuit is capacity coupled to the antenna by means of an antenna trimmer condenser to take care of normal variations in antenna and antenna coil capacity. The antenna condenser is adjustable by means of a small screw driver, and is located on the bottom side of the radio case. The audio stage is transformer coupled to the output tube to take advantage of all the gain and tone quality the

MODEL 986443,  
Chevrolet Truck

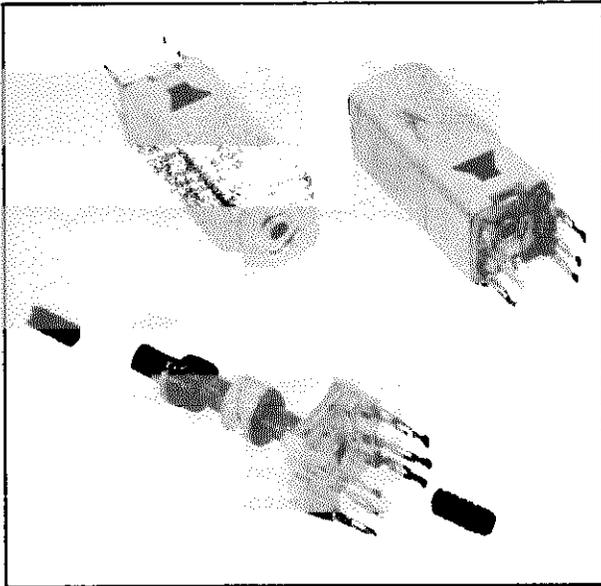


Figure 54

the receiver is capable of developing. The automatic volume control is of the delayed signal type and is very capable of maintaining a constant level of volume at all times. Very high frequency filter chokes are used in the radio frequency and oscillator grid circuits to discriminate against ignition interference in the receiver, thus eliminating the use of spark plug suppressors. The vibrator is the full wave non-synchronous type using an OZ4 rectifier tube and will work on either a negative or positive ground.

**TUBE COMPLEMENT AND FUNCTION**

6SK7	Radio Frequency Amplifier
6SA7	Oscillator - Modulator
6SK7	Intermediate Frequency Amplifier
6SQ7GT	Second Detector - Automatic Volume Control, First Audio
6V6GT	Audio Output
OZ4	Cold Cathode Rectifier

**GENERAL DESCRIPTION**

Tuning range 540 to 1615 kilocycles.  
Intermediate frequency 262 kilocycles.  
Maximum power output 4.5 watts.  
Undistorted power output 3 watts.  
Current drain with permanent magnet speaker 6.1 amperes at 6 volts.  
Speaker size 6" x 9" Elliptical type, permanent magnet.  
Voice coil impedance 4 ohms at 400 cycles.

Fuse protection 14 amperes 25 volt.

**INSTALLATION PROCEDURE  
TRUCK RADIO AND ANTENNA**

All 1951 Chevrolet trucks will use the cowl type antenna, which will mount on the left-hand side of cab cowl. (See Figure 55.)

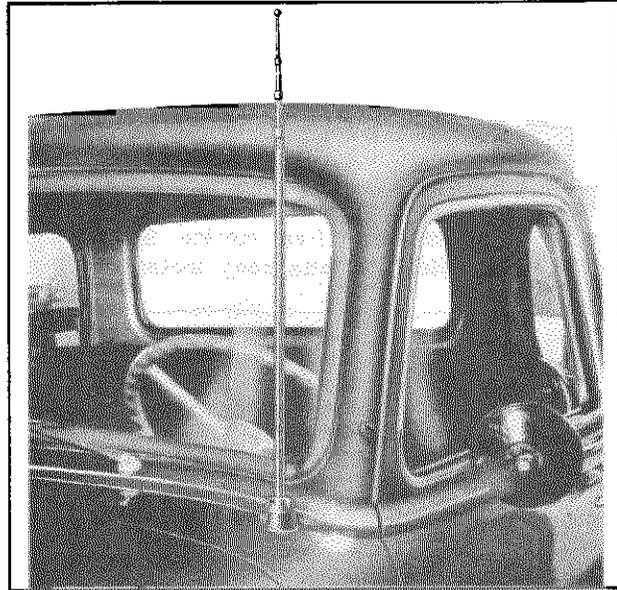


Figure 55

1. Assemble lead-in cable "P" and bracket "N" to antenna mast, then place spacer "F" over rod assembly
2. Place template on outside of cowl, left-hand side, lining up with body contour as indicated and drill 13/16" hole, scrape sound deadening from underside of cowl to insure good ground for antenna.
3. Pass antenna mast from inside cab thru 13/16" hole in cowl and attach bracket "O" to bracket "N" with bolt and nut "J" and "Q," fasten bracket "O" to side panel with self-tapping screws "L" and "M." DO NOT TIGHTEN. (See Figure 56.)
4. Place rubber pad "E," spacer "D" and nut "C" over antenna mast and tighten nut "C," make sure seal "G" is placed, then slip top insulator "B" over antenna and tighten. (See Figure 56.)
5. Tighten self-tapping screws "L" and "M" also bolt and nut "J" and "Q" making sure antenna is perpendicular.

MODEL 986443,  
Chevrolet Truck

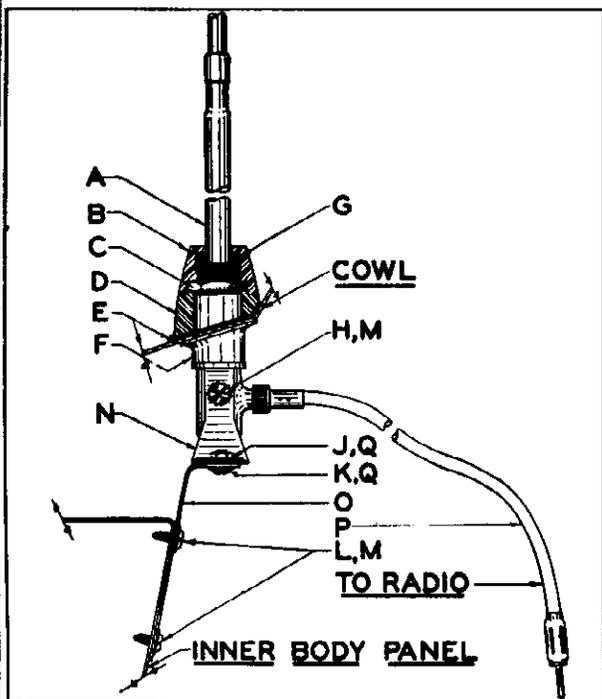


Figure 56

**INSTALLATION OF RECEIVER AND NOISE SUPPRESSION EQUIPMENT**

After unpacking and checking radio, place on bench and hook-up radio to 6 volt power unit (or fully charged battery) and allow radio to play while installing suppression equipment. Fill out the warranty label on the rear cover to show owner's name and date of installation.

RADIO THAT WILL PLAY FOR 15 MINUTES BEFORE INSTALLATION WILL GIVE MANY MONTHS OF UNINTERRUPTED SERVICE. CHECK ALL RADIOS BEFORE INSTALLATION.

1. Mount generator condenser on generator. (See Figure 57.)

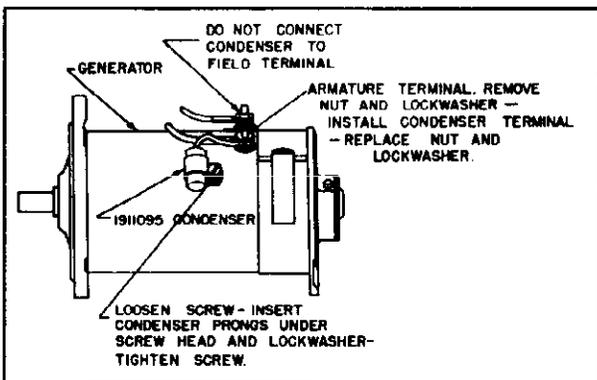


Figure 57

2. Install distributor suppressor and rubber nipple on high tension coil wire. (See Figure 58.)

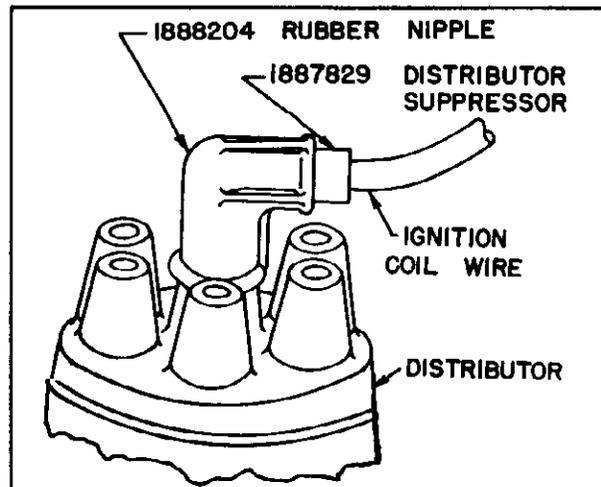


Figure 58

3. Remove front wheel hub and dust caps and install front wheel static collectors. Remove any grease from hole center of spindle to make a good connection, bend cotter pin to clear static collector. (See Figure 59.) These cannot be used on the 1-1/2 and 2 ton models.

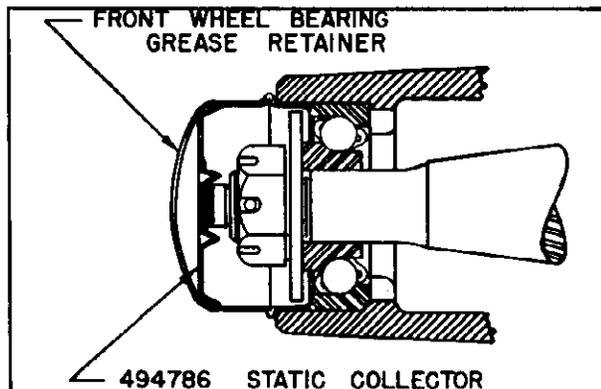


Figure 59

4. Install ignition coil condenser on ignition coil. (See Figure 60.)

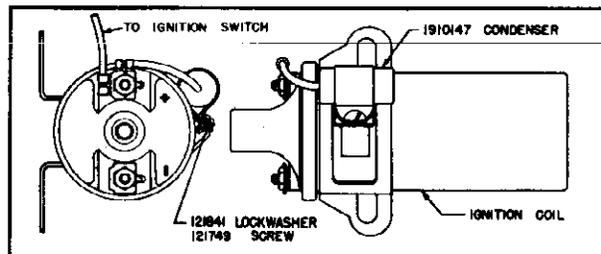


Figure 60

MODEL 986443,  
Chevrolet Truck

5. Install voltage regulator condenser on voltage regulator. (See Figure 61.)

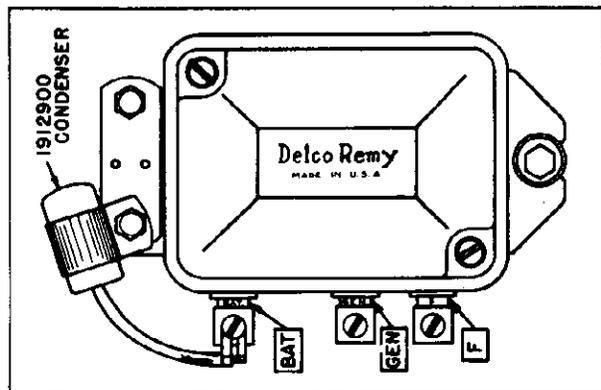


Figure 61

6. Install ammeter condenser and male fuse holder body to ammeter by first placing hex nut on discharge terminal of ammeter about 3/8." Connect one lug of ammeter condenser to same terminal and then assemble male portion of fuse holder to ammeter stud. Connect other end of ammeter condenser to instrument panel for ground. (See Figure 62.)

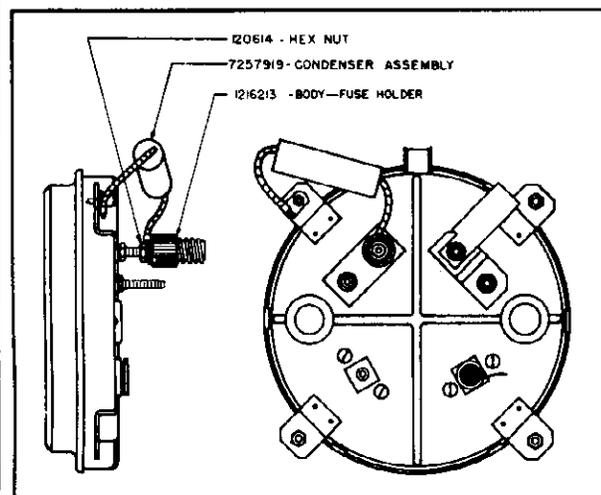


Figure 62

7. Remove the decorative plate, the two buttons from the center of the instrument panel and the black cardboard baffle from the rear side of the radio grille.
8. Assemble the two lower mounting spacers with the bolts, lockwashers and rubber washers, to the proper holes in lower flange of instrument panel, with the bolts just short of sticking through the spacers. (See Figure 63.)

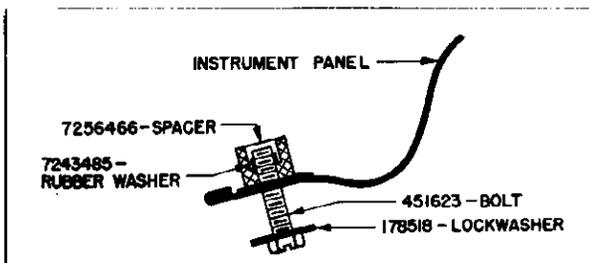


Figure 63

9. Assemble the two upper mounting spacers on the manual tuning control and volume control bushings. (See Figure 64.)

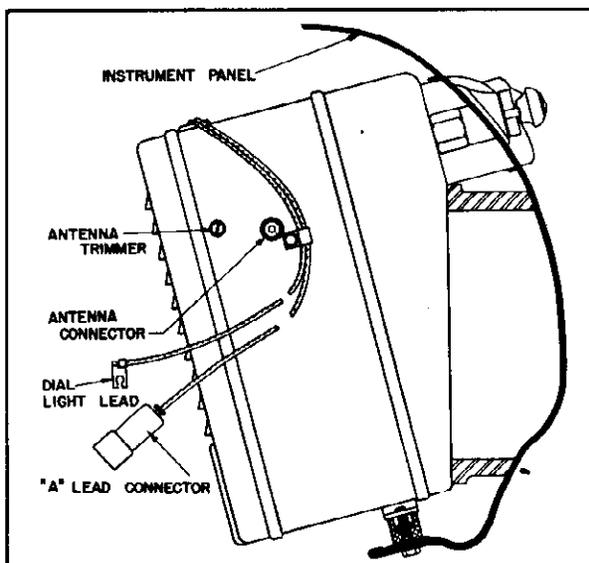


Figure 64

10. Open cowl ventilator. Place the receiver behind the instrument panel and insert the control bushings and dial escutcheon into the proper panel openings. (See Figure 65.)
11. Assemble one control bushing escutcheon and one hex nut on each control bushing. Tighten hex nuts. (See Figure 65.)
12. Assemble the two lower mounting bolts in the weld nuts in bottom of receiver and tighten securely. (See Figure 64.)
13. Install the tone control knob, felt washer and volume control knob on the left-hand shaft. Install the dummy knob, felt washer and manual tuning knob on the right-hand shaft. (See Figure 65.)
14. Insert fuse in male fuse holder on ammeter, connect female fuse holder on receiver

MODEL 986443,  
Chevrolet Truck

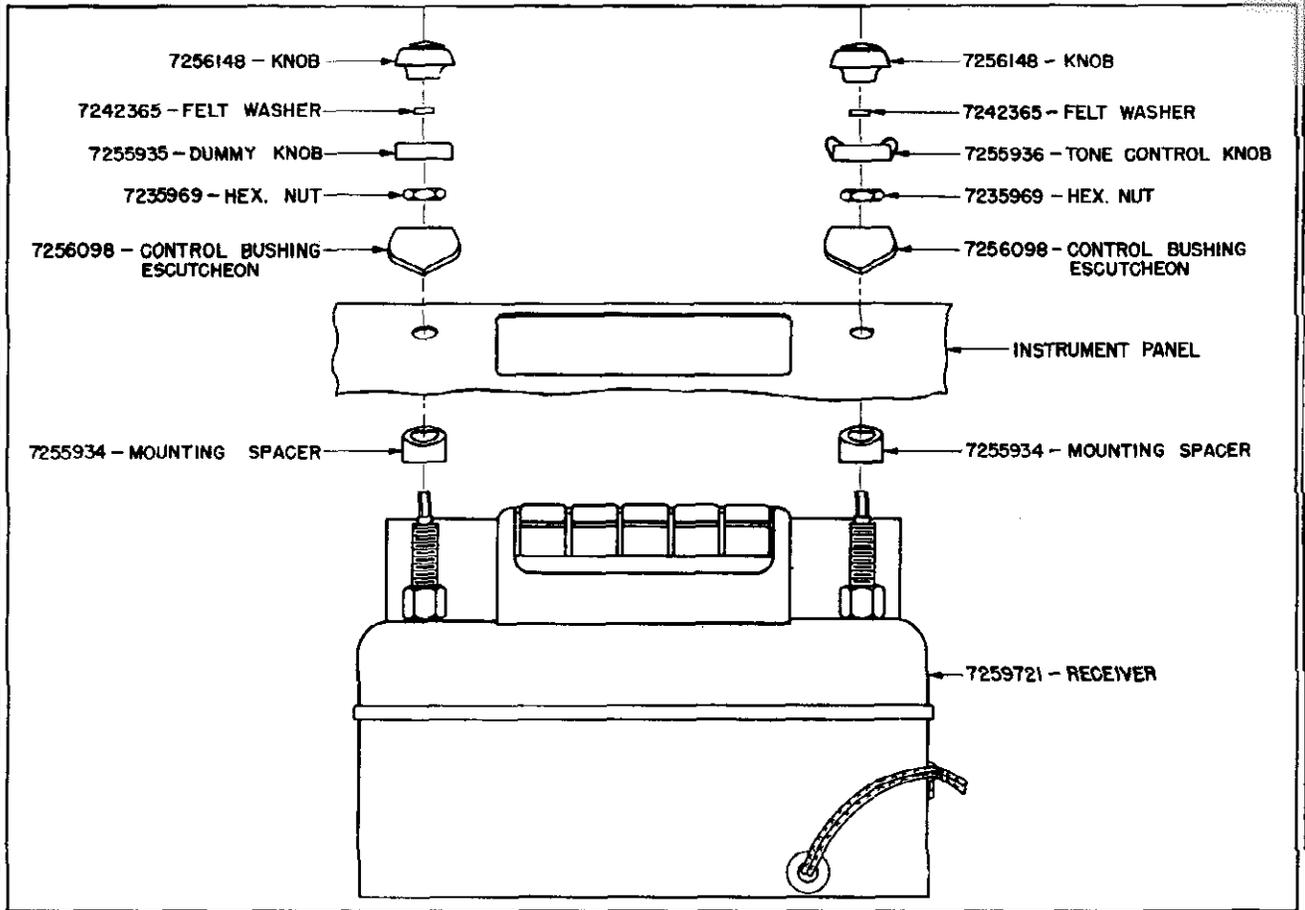


Figure 65

- "A" lead to male fuse holder. (See Figure 64.)
15. Plug the antenna lead into the antenna socket on side of the receiver. (See Figure 64.)
  16. Connect dial light lead to the instrument panel light terminal on the truck lighting switch. (See Figure 66.)

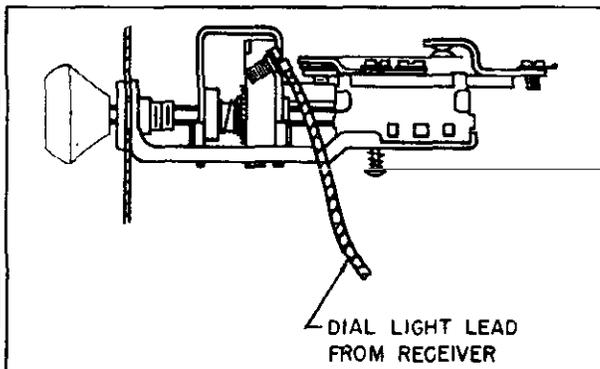


Figure 66

17. Raise antenna to full height and tune in a weak station near 140 on the dial, with volume turned to maximum position. Adjust antenna trimmer for maximum volume.

**PROCEDURE FOR SERVICING  
986443 TRUCK RADIO**

The same procedure for operating radio test equipment as outlined for 986515

**PROCEDURE FOR CHECKING VOLTAGES  
OF 986443 TRUCK RADIO**

It will be necessary to remove the front cover of the receiver.

Hook-up radio on the service bench to a 6 volt power unit or a fully charged battery.

Now set the Master selector switch of the

MODEL 986443,  
Chevrolet Truck

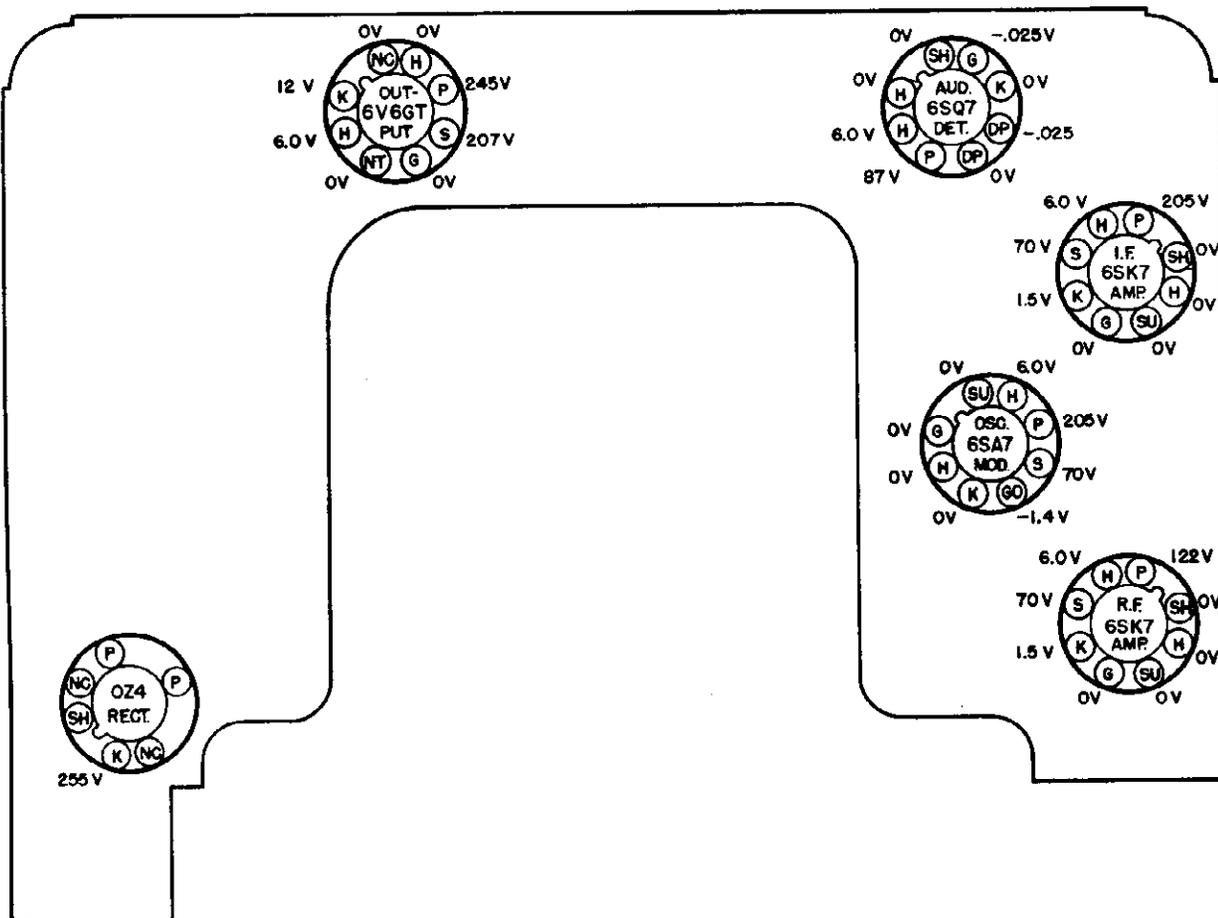


Figure 67

volt-ohm-milliammeter to the 12 position, set the voltage selector switch to D.C. 1K  $\sim$ /V. position. Place test leads in jacks marked "Test leads," ground the "-" negative lead to the radio chassis for ground, with the red lead check all tube pins marked "H" which show a reading on the voltage chart. (See Figure 67.)

If no voltage or incorrect check or replace the following:

1. Check or replace On and Off switch. (Item 55C on circuit diagram and 55 on parts layout.)
2. Check or replace condensers. (Items 26A, 26B and 27 on circuit diagram and parts layout.)
3. Check or replace choke. (Item 10 on circuit diagram and parts layout.)
4. Check or replace condensers 26A, 26B and 27 on circuit diagram and parts layout.
5. Check for open or loose connection in the 6 volt circuit.

Now set the Master selector switch to 600 position and the voltage selector switch to A.C. 1K  $\sim$ /V. position. With red lead check the OZ4 tube pins marked "P," each should read 270 to 280 volts A.C. If incorrect or no voltage check or replace the following:

1. Check or replace condenser. (Item 28 on circuit diagram and parts layout.)
2. Check or replace resistor. (Item 48 on circuit diagram and parts layout.)
3. Check or replace power transformer. (Item 60 on circuit diagram and parts layout.)
4. Check or replace vibrator. (Item 61 on circuit diagram and parts layout.)
5. Check or replace vibrator socket.

MODEL 986443,  
Chevrolet Truck

Now change the Master selector switch to the 300 position and the voltage selector switch to D.C. 1K  $\sim$ /V. position. Now check the voltage on tube pin marked "K" of the OZ4 tube. It should read 250 to 260 volts D.C. If incorrect or no voltage check or replace the following:

1. Check or replace OZ4 tube.
2. Check or replace OZ4 tube socket.

Next check tube pin marked "P" of the 6V6GT tube. It should read 240 to 250 volts D.C. If incorrect or no voltage, check or replace the following:

1. Check or replace electrolytic condenser. (Item 20B on circuit diagram and Item 20 on parts layout.)

2. Check or replace audio output transformer. (Item 59 on circuit diagram and parts layout.)

Next check tube pin marked "S" on 6V6GT tube, should read 202 to 212 volts D.C. If incorrect or no voltage, check or replace the following:

1. Check or replace electrolytic condenser. (Item 20C on circuit diagram and Item 20 on parts layout.)
2. Check or replace resistor. (Item 49 on circuit diagram and parts layout.)

Next check tube pin marked "K" on 6V6GT tube, should read 10 to 14 volts D.C. If incorrect or no voltage, check or replace the following:

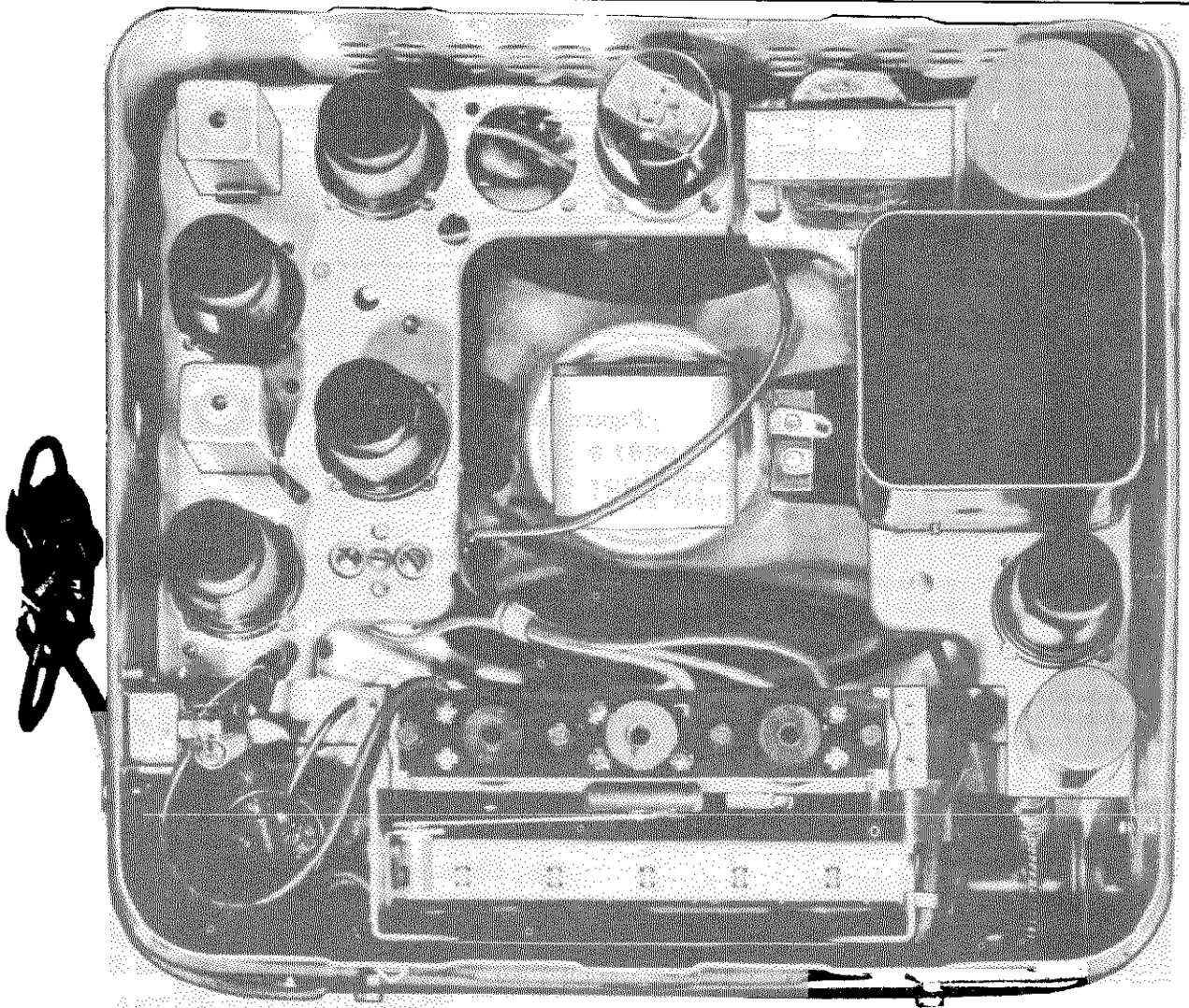


Figure 68

MODEL 986443,  
Chevrolet Truck

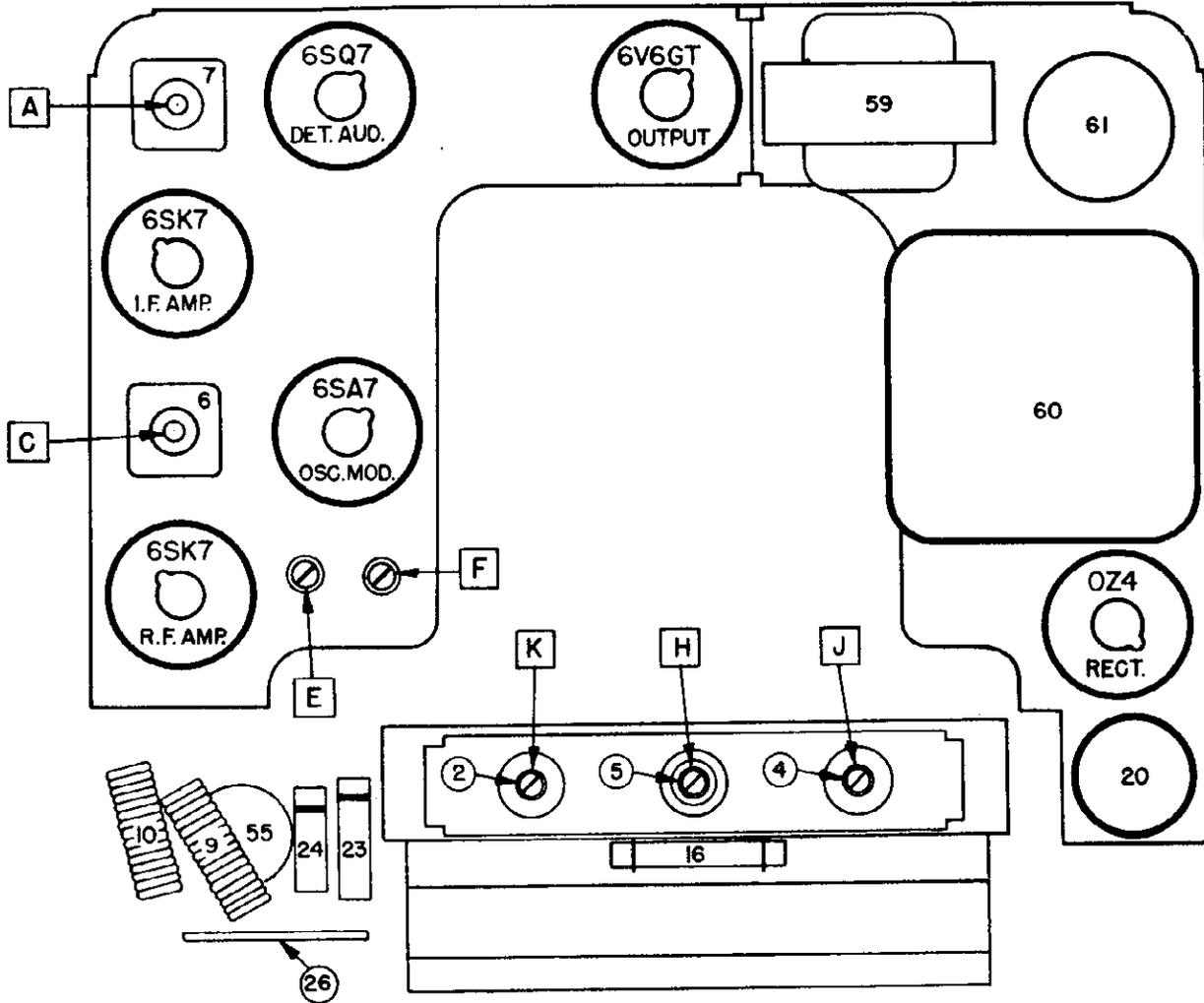


Figure 69

1. Check or replace electrolytic condenser. (Item 20A on circuit diagram and Item 20 of parts layout.)
2. Check or replace resistor. (Item 46 on circuit diagram and parts layout.)

Next check tube pin marked "P" on 6SQ7GT tube, should read 82 to 90 volts D.C. If incorrect or no voltage, check or replace the following:

1. Check or replace condensers. (Items 19, 21, 22, 23 and 24 on circuit diagram and parts layout.)
2. Check or replace resistor. (Item 44 on circuit diagram and parts layout.)

Next check tube pin marked "P" of the 6SK7 intermediate frequency amplifier tube, should

read 200 to 210 volts D.C. If incorrect or no voltage, check or replace the following:

1. Check or replace intermediate frequency transformer. (Item 7 on circuit diagram and parts layout.)

Next check tube pin marked "S" of the 6SK7 I.F. amplifier tube, should read 65 to 75 volts D.C. If incorrect or no voltage check or replace the following:

1. Check or replace resistor. (Item 37 on circuit diagram and parts layout.)
2. Check or replace condenser. (Item 12 on circuit diagram and parts layout.)

Next check tube pin marked "P" of the 6SA7 tube, should read 200 to 210 volts D.C. If incorrect or no voltage check or replace the following:

MODEL 986443,  
Chevrolet Truck

1. Check or replace intermediate frequency transformer. (Item 6 on circuit diagram and parts layout.)

Next check tube pin marked "S" on 6SA7 tube, should read 65 to 75 volts D.C. If incorrect or no voltage check or replace the following:

1. Check or replace resistor. (Item 37 on circuit diagram and parts layout.)
2. Check or replace condenser. (Item 12 on circuit diagram and parts layout.)

Next check tube pin marked "P" on 6SK7 radio frequency amplifier tube, should read 117 to 127 volts D.C. If incorrect or no voltage, check or replace the following:

1. Check or replace resistor. (Item 38 on circuit diagram and parts layout.)
2. Check or replace condenser. (Item 13 on circuit diagram and parts layout.)

Next check tube pin marked "S" on 6SK7 R.F. amplifier tube, should read 65 to 75 volts D.C. If incorrect or no voltage, check or replace the following:

1. Check or replace resistor. (Item 37 on circuit diagram and parts layout.)
2. Check or replace condenser. (Item 12 on circuit diagram and parts layout.)

We have now checked the tubes, vibrator and

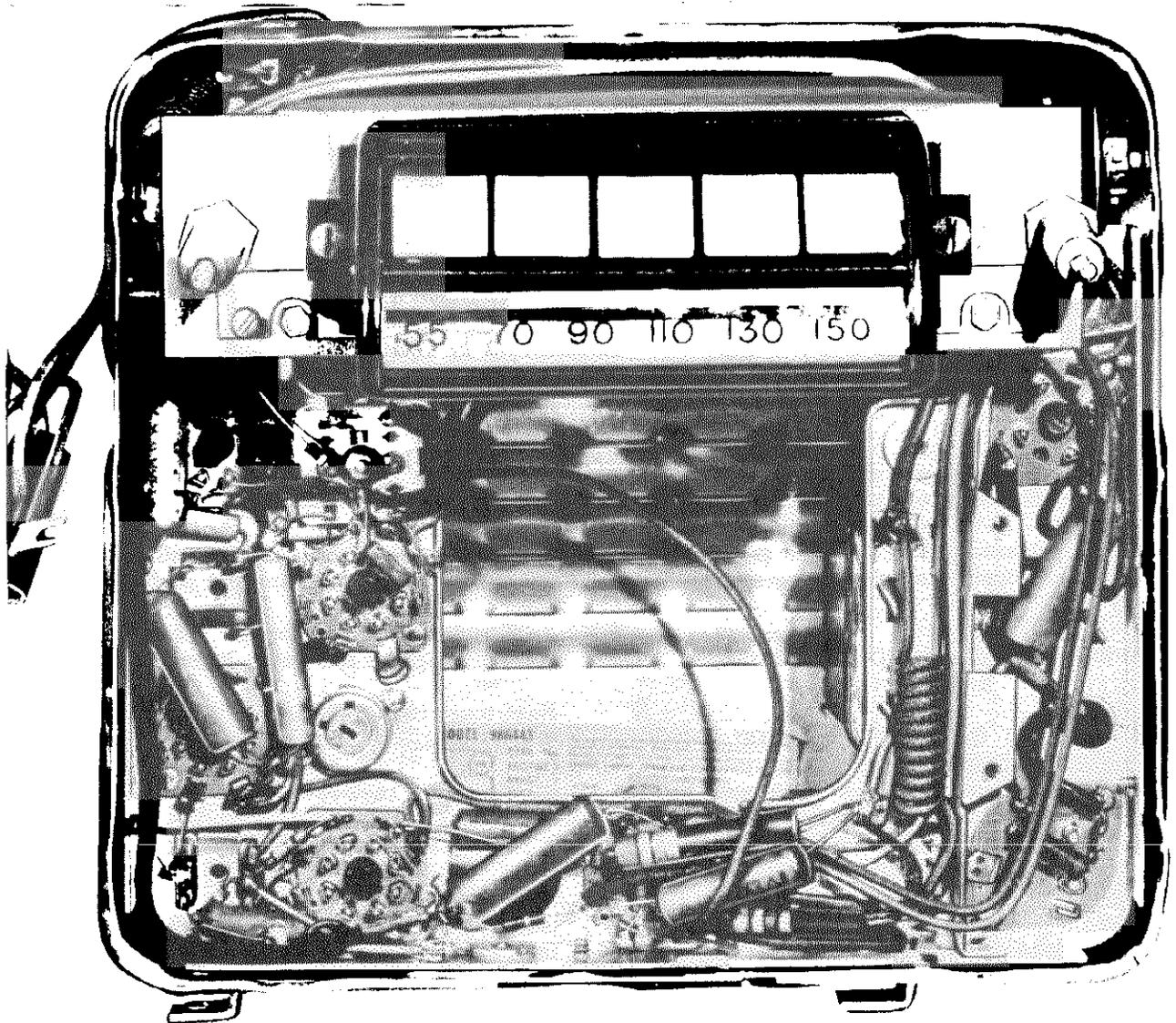


Figure 70

MODEL 986443,  
Chevrolet Truck

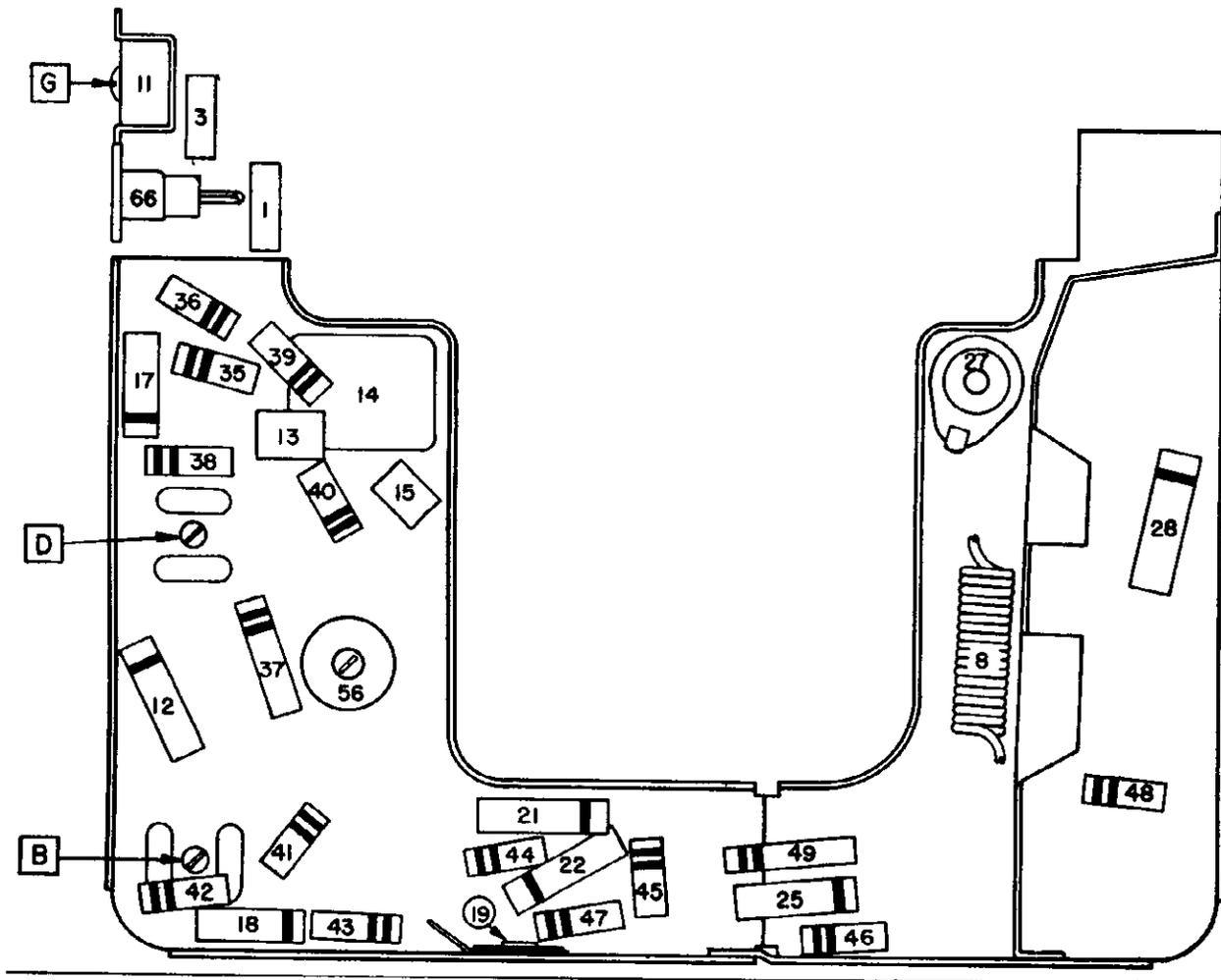


Figure 71

voltages of the receiver, with these being correct and radio does not play, the trouble will be in the grid circuit of the radio. To continue, it will be necessary to check the grid circuit by means of signal tracing.

**PROCEDURE FOR SIGNAL TRACING  
RADIO 986443**

Turn on Signal Generator On and Off switch, place the modulation switch in the modulated position, set Signal Generator tone control to .5, place shielded lead assembly in jack marked "Audio." Ground the black lead to radio chassis for ground. Turn on radio receiver with volume to maximum position.

With red lead touch tube pin marked "P" of 6V6GT tube, if no signal, check or replace the following:

1. Check or replace condenser. (Item 25 on circuit diagram and parts layout.)
2. Check or replace audio transformer. (Item 59 on circuit diagram and parts layout.)
3. Check or replace speaker. (Item 58 on circuit diagram and parts layout.)

Next touch tube pin marked "G" of 6V6GT tube, if no signal, check or replace the following:

1. Check or replace 6V6GT tube.
2. Check or replace 6V6GT tube socket.

Next touch tube pin marked "P" of 6SQ7GT tube, if no signal, check or replace the following:

1. Check or replace condensers. (Items 19,

MODEL 986443,  
Chevrolet Truck

21, 22, 23 and 24 on circuit diagram and parts layout.)

2. Check or replace tone control. (Item 55B on circuit diagram and 55 on parts layout.)

Next touch tube pin marked "G" of 6SQ7GT tube, if no signal, check or replace the following:

1. Check or replace 6SQ7 tube.
2. Check or replace 6SQ7 tube socket.
3. Check or replace resistor. (Item 45 on circuit diagram and parts layout.)

Now change the Signal Generator shielded lead to the intermediate frequency "I.F." jack, then tune Signal Generator to exactly 262 kilocycles, set band switch on "A" position.

Turn the Signal Generator volume control about 1/3 open. Next touch tube pin marked "P" of 6SK7 intermediate frequency amplifier tube, if no signal, check or replace the following:

1. Check or replace intermediate frequency transformer. (Item 7 on circuit diagram and parts layout.)
2. Check or replace volume control. (Item 55A on circuit diagram and 55 on parts layout.)
3. Check or replace condenser. (Item 18 on circuit diagram and parts layout.)
4. Check or replace resistors. (Items 42 and 43 on circuit diagram and parts layout.)

Next touch tube pin marked "G" of 6SK7 I.F. amplifier tube, if no signal, check or replace the following:

1. Check or replace 6SK7 tube.
2. Check or replace 6SK7 tube socket.
3. Check or replace sensitivity control. (Item 56 on circuit diagram and parts layout.)

Next touch tube pin marked "P" of 6SA7 tube, if no signal, check or replace the following:

1. Check or replace intermediate frequency transformer. (Item 6 on circuit diagram and parts layout.)

Next touch tube pin marked "G" of 6SA7 tube, if no signal, check or replace the following:

1. Check or replace 6SA7 tube.
2. Check or replace 6SA7 tube socket.

Now change the Signal Generator shielded lead to the radio frequency "R.F." jack, tune signal generator to exactly 1000 kilocycles, set band switch to "B" position.

Now tune radio receiver to 1000 kilocycles, then touch tube pin marked "P" of the 6SK7 radio frequency amplifier tube, if no signal check or replace the following:

1. Check or replace radio frequency coil. (Item 4 on circuit diagram and parts layout.)
2. Check or replace oscillator coil. (Item 5 on circuit diagram and parts layout.)
3. Check or replace condensers. (Items 14A, 14B, 15 and 16 on circuit diagram and parts layout.)
4. Check or replace resistors. (Items 39 and 40 on circuit diagram and parts layout.)

Next touch tube pin marked "G" of 6SK7 radio frequency amplifier tube, if no signal, check or replace the following:

1. Check or replace 6SK7 tube.
2. Check or replace 6SK7 tube socket.
3. Check or replace resistor. (Item 35 on circuit diagram and parts layout.)

Now place a .000075 mfd. condenser on the end of red lead and plug in antenna socket, if no signal, check or replace the following:

1. Check or replace chokes. (Items 1 and 2 on circuit diagram and parts layout.)
2. Check or replace antenna coil. (Item 2 on circuit diagram and parts layout.)
3. Check or replace condenser. (Item 11 on circuit diagram and parts layout.)
4. Check or replace resistor. (Item 36 on circuit diagram and parts layout.)

MODEL 986443,  
Chevrolet Truck

PROCEDURE FOR ALIGNMENT  
986443 RADIO

All receivers are aligned at the factory and should require no further adjustments, unless the adjustments have been tampered with, or new coils, I.F. transformers or tuning cores have been installed. To properly align the receiver it will be necessary to have an output meter and Signal Generator. If any of the tuning coils or cores have been replaced, see "Capacity and Inductance Alignment Procedure." If only the adjustments have been tampered with or an I.F. transformer has been replaced, the receiver is aligned as follows:

Set the volt-ohm-milliammeter Master selector switch in the 30 position, the voltage selector switch in A.C. 1K  $\sim$  /V. position, and place the leads in the jacks marked "output meter," place the other end for the black lead to radio chassis for ground. Place the red lead to the terminal of the speaker to which the green lead of the audio output transformer is connected, as outlined in the 1950 Chevrolet Radio Service and Shop Manual. (Speaker Item 48, audio output transformer 59 on circuit diagram and parts layout.)

Turn on the Signal Generator On and Off switch and turn on the radio receiver, turn volume control to maximum position. Set modulation switch in the modulated position, turn the band selector to the "A" position and turn the Signal Generator to exactly 262 kilocycles. Place the Signal Generator shielded lead in the jack marked "I.F." and place the black lead to the

radio chassis for ground. Place red lead to tube pin marked "G" on the 6SA7 tube.

Adjust the Signal Generator volume control so that the meter reads about 10 on the meter scale. Adjust in sequence trimmers A, B, C and D (on circuit diagram and parts layout) for maximum meter reading. Repeat adjustment to get best alignment. (Keep the Signal Generator volume turned down so that during adjustments the meter does not read more than 10 on the meter scale.)

Now place Signal Generator shielded lead in the jack marked "R.F.," set the band selector switch in "B" position, tune the Signal Generator to exactly 1615 kilocycles, place a .000075 mfd. condenser on the red lead and connect it to the antenna connector. Tune the radio receiver to the stop at the 1600 kilocycle end of the dial. (Keep the Signal Generator volume control adjusted so the meter reads about 10 on the meter scale.)

Now adjust trimmers "E, F and G" (on circuit diagram and parts layout) in sequence for maximum reading on the meter scale. Repeat for best alignment. Tune the Signal Generator and radio receiver to exactly 1000 kilocycles and repeat adjustments of trimmers "F and G" only for maximum meter reading.

After the receiver has been installed in the truck, tune in a weak station near 1000 kilocycles, with volume control turned to maximum position and antenna extended to full height, readjust trimmer "G" only for maximum volume.

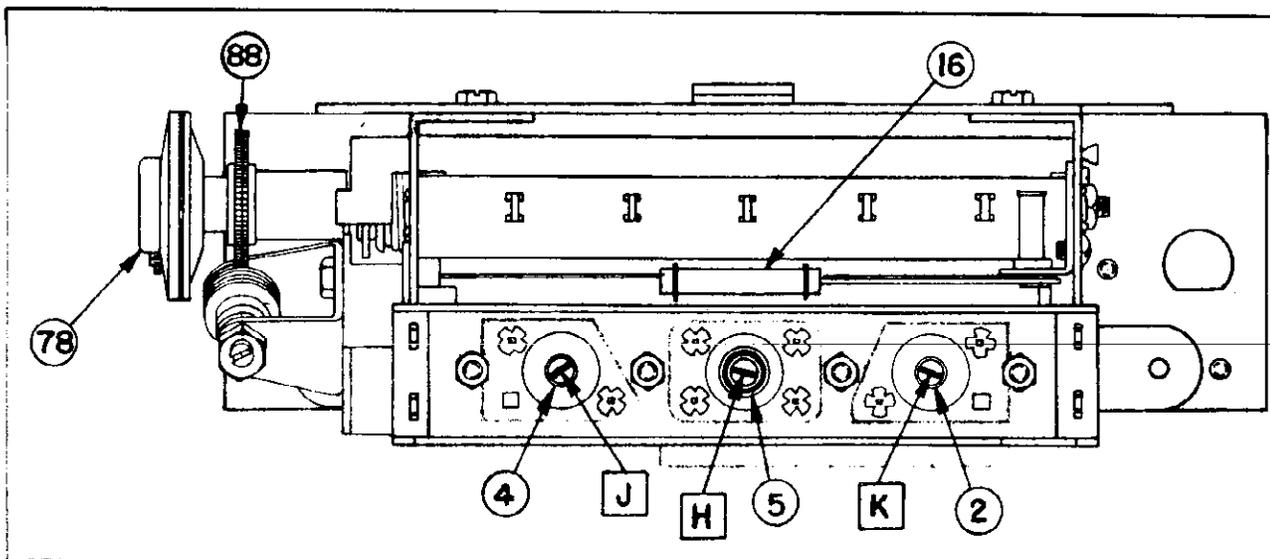


Figure 72

MODEL 986413,  
Chevrolet Truck

**CAPACITY AND INDUCTANCE  
ALIGNMENT PROCEDURE**

**SERVICE PARTS LIST 986443**

This alignment procedure is to be used only when any of the following parts have been replaced in the radio; antenna coil, radio frequency coil, oscillator coil or any of the tuning cores.

The intermediate frequency alignment at 262 kilocycles is the same as outlined in "Alignment Procedure" on page 18. After completing the alignment at 262 kilocycles for the intermediate frequency transformers "A, B, C and D" proceed as follows:

Connect Signal Generator red lead to a .000075 mfd. condenser and connect to antenna connector.

Mechanically align iron cores "H, J and K" (on circuit diagram and parts layout) to measure 1-25/32 inches in coil forms from rear mounting edge of coil forms. (See Figure 72.) Now set Signal Generator to exactly 1615 kilocycles, set band switch to "B" position, tune radio receiver to the stop on the 1600 kilocycle end of the dial. Have output meter hooked up as outlined in "Alignment Procedure." Now adjust iron cores "H, J and K" (on circuit diagram and parts layout) in sequence for maximum meter reading.

Now adjust trimmers "E, F and G" (on circuit diagram and parts layout) in sequence for maximum reading on meter scale. Now tune Signal Generator and radio receiver to 1000 kilocycles, and readjust iron cores "J and K" only for maximum reading on meter scale. **DO NOT READJUST IRON CORE "H" ON THIS ADJUSTMENT.**

Repeat the adjustment of iron cores "J" and "K" only at 1000 kilocycles for maximum reading on meter scale.

Reset Signal Generator to 1615 kilocycles and tune radio receiver to stop on 1600 kilocycle end of dial, then readjust trimmers "F and G" only until no further increase in the meter reading can be obtained. After the radio receiver is installed in the truck, tune in a weak station near 1000 kilocycles, with volume control turned to maximum position and antenna extended to full height, readjust trimmer "G" only for maximum volume.

Illus. No.	Service Part No.	Description
<b>COILS</b>		
1	7255738	Antenna Choke
2	7258914	Antenna
3	7240251	Antenna Spark Choke
4	7258914	R.F.
5	7258911	Oscillator
6	1218725	1st I.F.
7	1218726	2nd I.F.
8	7241708	Hash Choke
9	1217846	"A" Spark Choke
10	1217846	"A" Spark Choke
<b>CONDENSERS</b>		
11	7257959	Antenna Trimmer & Bracket
12	7230592	.05 mfd. 600V. Tubular
13	1212359	.000068 mfd. Mica
14A	7242454	Dual Trimmer - R.F.
14B	7242454	Dual Trimmer - Oscillator
15	1217736	.000039 mfd. Mica
16	7257424	.000180 mfd. Compensating
17	7230592	.05 mfd. 600 V. Tubular
18	7230767	.004 mfd. 600V. Tubular
19	1217848	Chassis Plate Condenser
20	7240724	Electrolytic
20A		20 mfd. 25V.
20B		20 mfd. 400V.
20C		20 mfd. 400V.
21	1217790	.001 mfd. 600V. Tubular
22	7230592	.04 mfd. 600V. Tubular
23	7237836	.002 mfd. 600V. Tubular
24	7230767	.004 mfd. 600V. Tubular
25	7233243	.004 mfd. 800V. Tubular
26	7258332	Spark Plate Condenser
26A		Pilot Light Section
26B		"A" Lead Section
27	1217848	Chassis Plate Condenser
28	7240906	.005 mfd. 1600V. Tubular
<b>RESISTORS</b>		
35	7237835	220 ohms 1/2W. Insulated
36	1214563	2.2 megohms 1/2W. Insulated
37	7233653	15,000 ohms 2W. Insulated
38	7237595	15,000 ohms 1W. Insulated
39	1214557	330,000 ohms 1/2W. Insulated
40	1214550	22,000 ohms 1/2W. Insulated
41	1213282	1 megohm 1/2W. Insulated
42	1214553	47,000 ohms 1/2W. Insulated
43	1215563	6.8 megohm 1/2W. Insulated
44	1214555	220,000 ohms 1/2W. Insulated



MODEL 986443,  
Chevrolet Truck

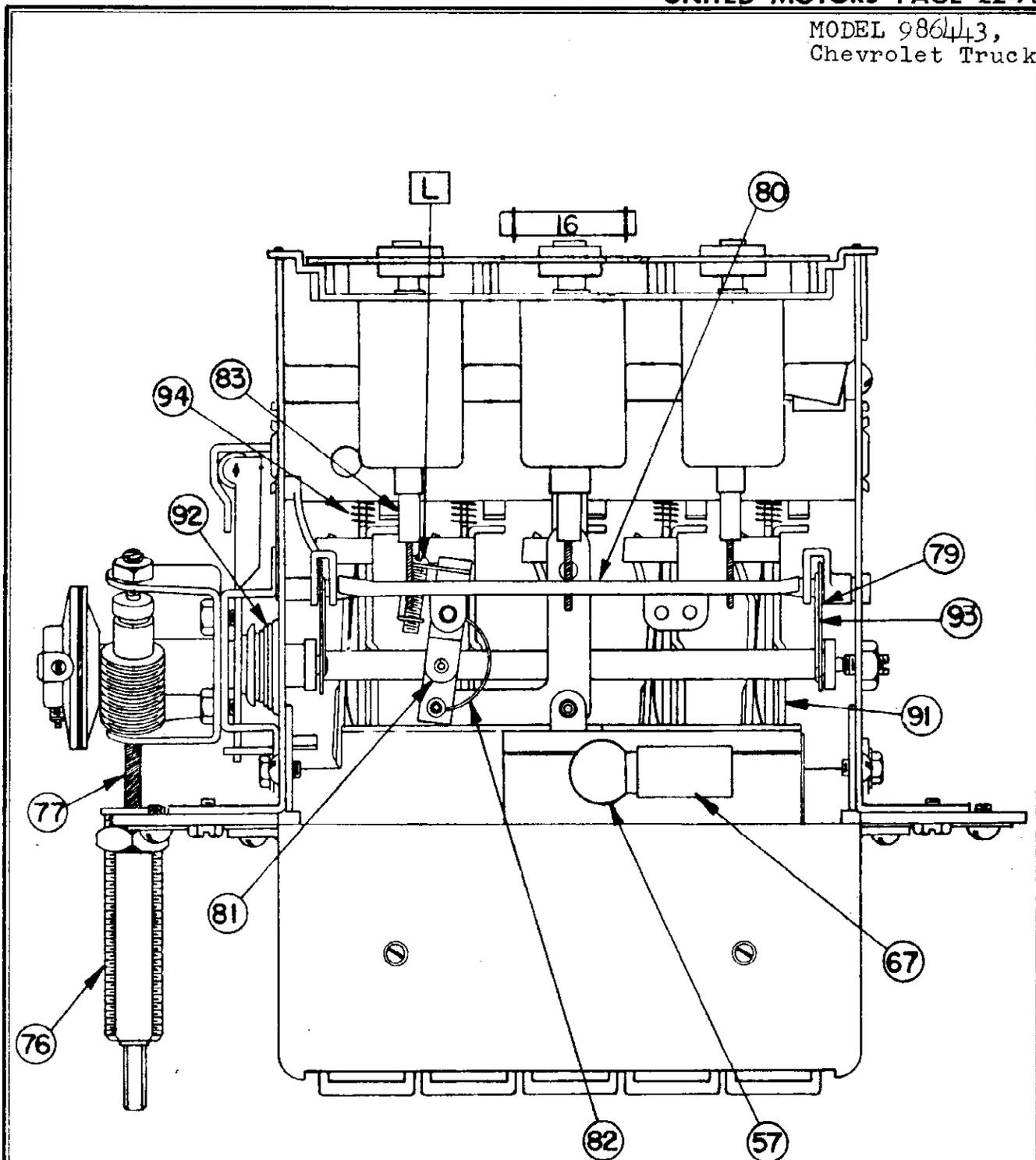


Figure 73

Tuner Unit - Top View

MODEL 986443,  
Chevrolet Truck

Figure 74  
Tuner Unit - Exploded View

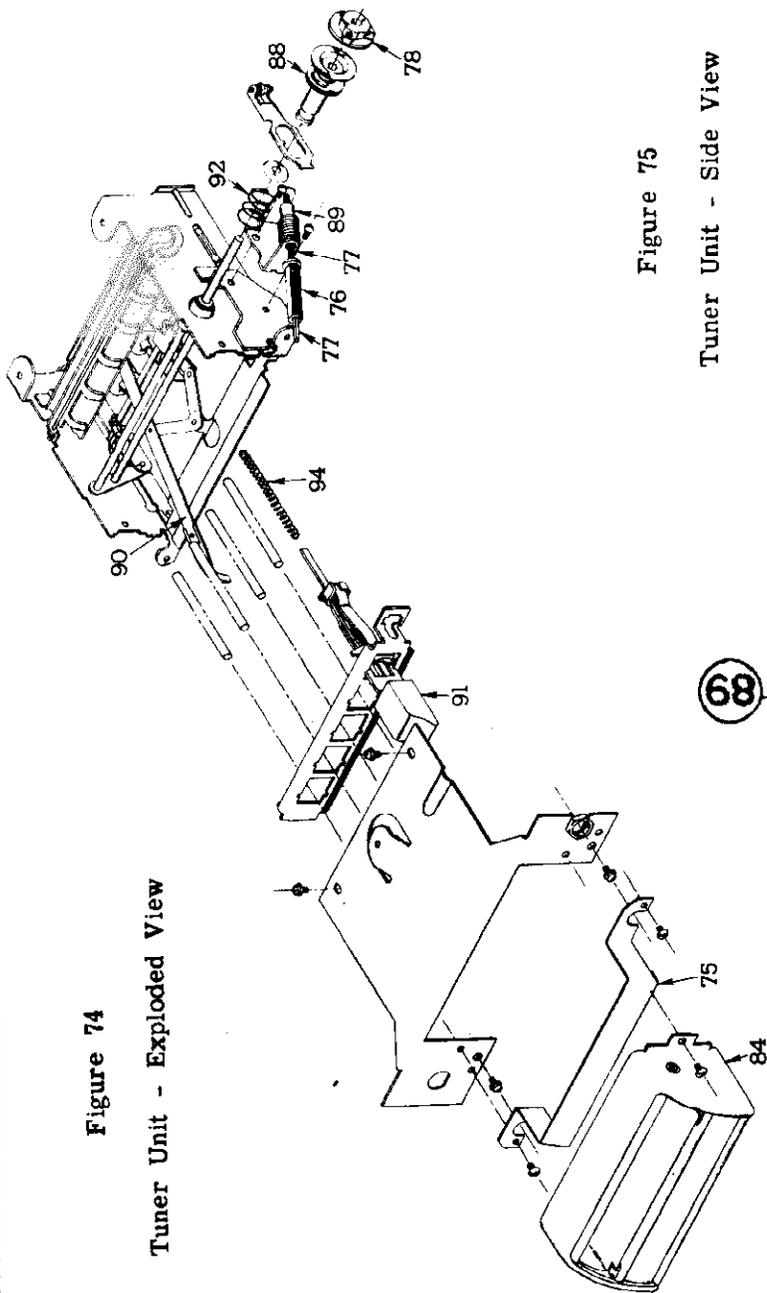
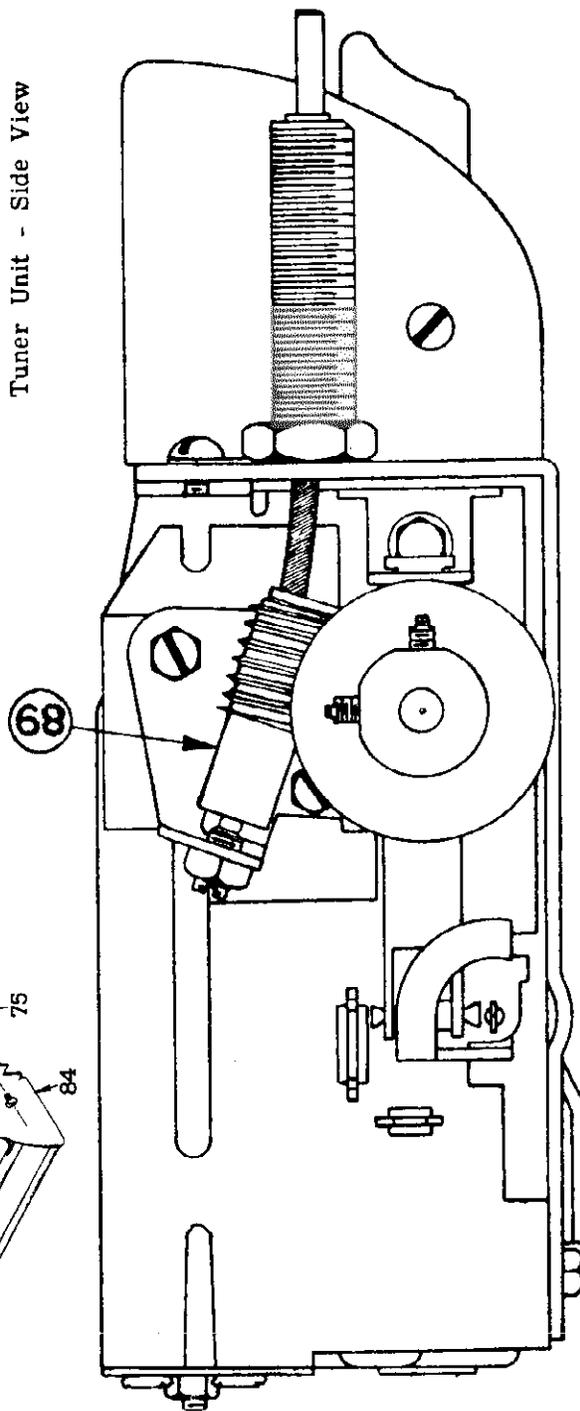
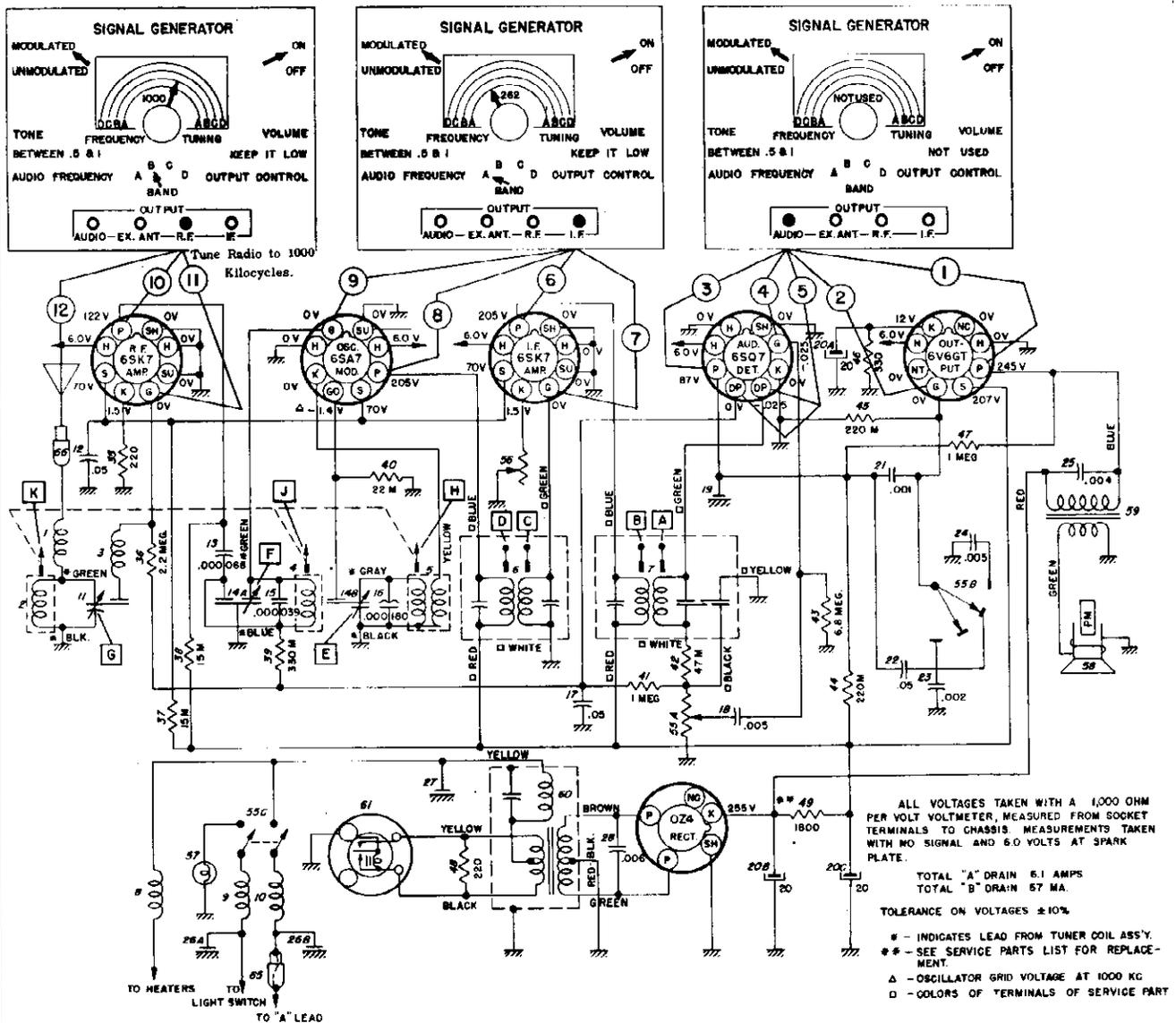


Figure 75  
Tuner Unit - Side View



MODEL 986443,  
Chevrolet Truck



POINT SIGNAL STOPS - CHECK OR REPLACE ITEMS LISTED

No signal at point 1 - check or replace - items 25-58-59.	No signal at point 7 - check or replace - 6SK7 tube or tube socket.
No signal at point 2 - check or replace - 6V6GT tube or tube socket	No signal at point 8 - check or replace - item 6
No signal at point 3 - check or replace - items 21-22-23-24-55B.	No signal at point 9 - check or replace - 6SA7 tube or tube socket.
No signal at point 4 - check or replace - 6SQ7 tube or tube socket.	No signal at point 10 - check or replace - items 4-5-13-14A-14B-15-16-39.
No signal at point 5 - check or replace - 6SQ7 tube or tube socket.	No signal at point 11 - check or replace - 6SK7 tube or tube socket.
No signal at point 6 - check or replace - items 7-18-42-43-55A.	No signal at point 12 - check or replace - items 1-2-3-11-17-36-41

Figure 76

Signal Tracing Procedure 986443 Truck Radio

MODEL 986443,  
Chevrolet Truck

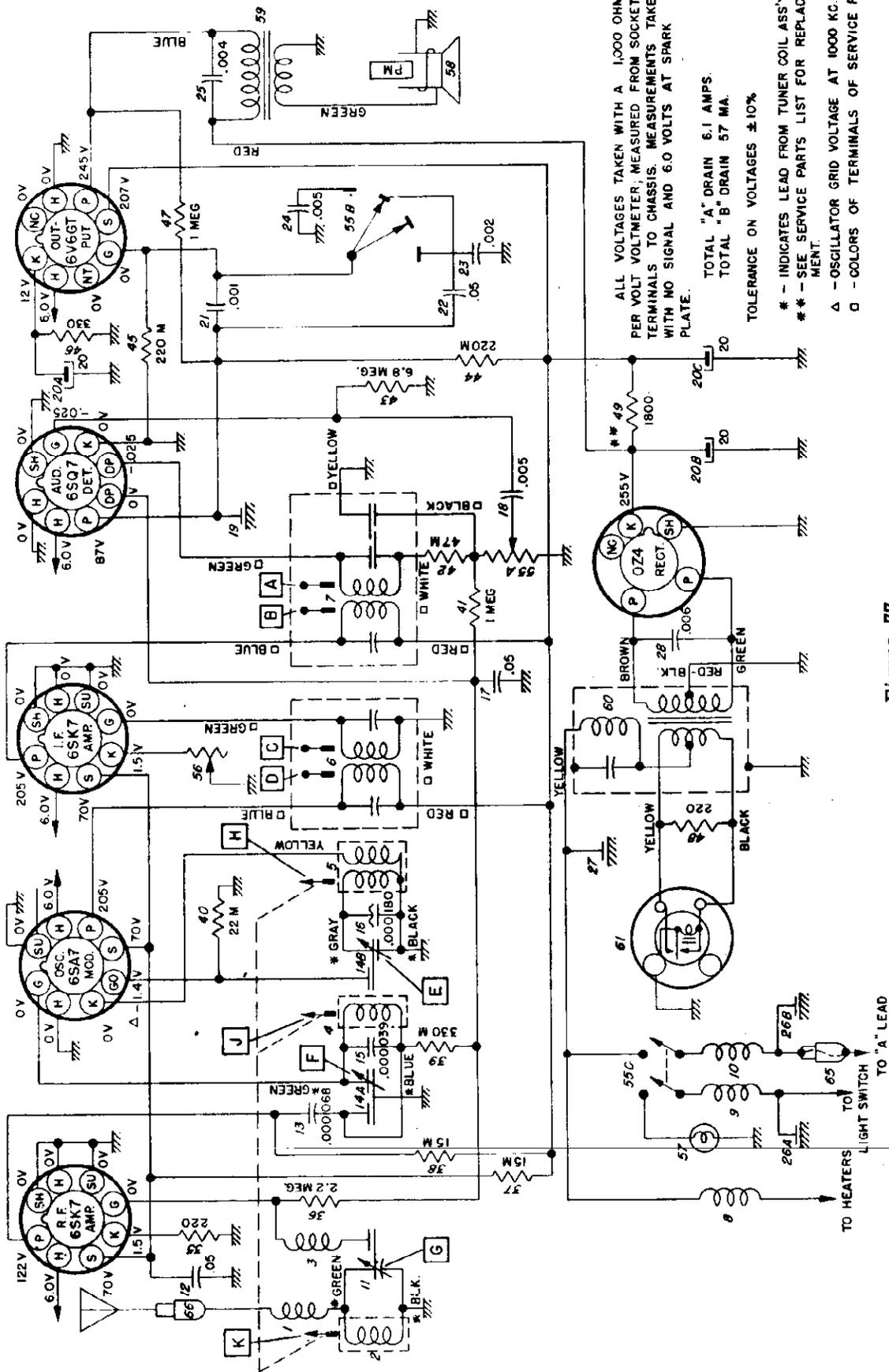


Figure 77

Circuit Diagram 986443 Truck Radio

MODELS 7260405,  
7260905, 1951  
Cadillac

**GENERAL**

**MOUNTING**—Model 7260405 - All 1951 Cadillac Sedans. Model 7260905 - All 1951 Cadillac Convertibles.

**TUBES**—Seven, plus Rectifier and Trigger.

**SPEAKER** — 6" x 9" Elliptical, Permanent Magnet.

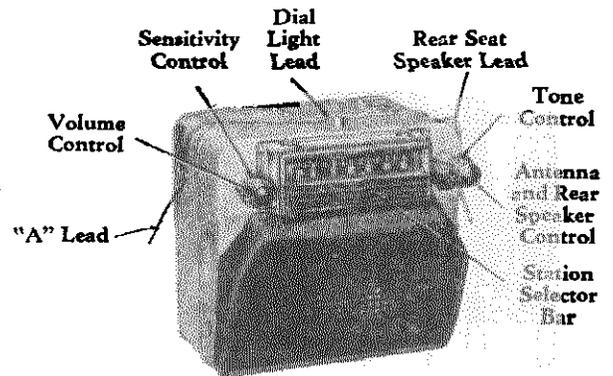
**TUNING**—Electronic.

**ANTENNA TRIMMER COMPENSATION** — 0.000060 - 0.000085 Mfd.

**TUNING RANGE**—540 - 1600 KC.

**PUSHBUTTON SET-UP**

No pushbutton set-up is necessary. However, the number of stations on which the tuner will stop can be controlled by the use of the Sensitivity Control.



MODEL 7260405

**SIGNAL SEEKING TUNER ALIGNMENT PROCEDURE:**

**NOTE:** When aligning the signal seeker tuner type radio, be sure to use a vacuum tube voltmeter as indicated and be sure to follow the alignment sequence given—(Notice that the primary of the 2nd I.F. is aligned first.)

- Output Meter Connection .....VTVM From **[2]** To Chassis (see parts layout page 2)
- Generator Return .....Receiver Chassis
- Dummy Antenna .....In Series With Generator
- Volume Control .....Maximum Volume
- Sensitivity Control .....Maximum Sensitivity
- Tone Control .....Treble
- Generator Output .....Not To Exceed 2 Volts at VTVM

Step	Dummy Antenna	Connect To	Signal Generator Frequency	Tune Receiver To	Adjust in Sequence for Max. Output
1	0.1 mfd	6SA7 Grid (Pin 8)	260 KC	*High Frequency Stop	A, B, C, D
2	0.000068 mfd	Antenna Connector	1615 KC	High Frequency Stop	**E, F, G
3	0.000068 mfd	Antenna Connector	600 KC	Signal Gen. Signal	J, K
4	0.000068 mfd	Antenna Connector	1615 KC	Signal Gen. Signal	F, G
5	0.000068 mfd	Antenna Connector	1000 KC	Signal Gen. Signal	***L

\*To tune to high frequency, put a 0.070" feeler gauge (or bare #13 wire) in slot against the high frequency stop. (See tuner picture). Depress station selector bar and allow the planetary arm to run against the feeler gauge. Turn the radio off and then on.

\*\*Before making this adjustment, check the setting of oscillator core "H." The rear of the core should be 132" from the mounting end of the coil form. This measurement is readily made by inserting a suitable plug in the mounting end of the coil form. The core adjustment is made from the mounting end of the coil form with an insulated screwdriver. (It will be necessary to steady the core guide bar by applying a downward pressure at the antenna core end of the bar while making these adjustments.) If this adjustment is necessary, first dissolve the glyptal seal on the core stud and be sure to re-seal after making the adjustment.

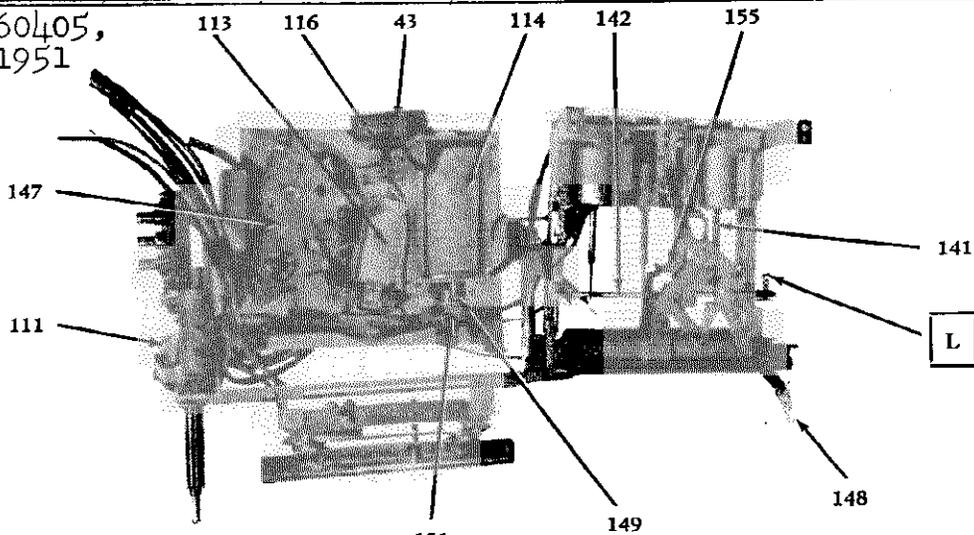
\*\*\*"L" is the pointer adjustment screw on the end of the core guide bar—adjust so pointer reads 1000 KC.

With the radio installed and the antenna plugged in, adjust antenna trimmer "G" (See sticker on case) for maximum volume with the radio tuned to a weak station between 600 and 1000 KC.



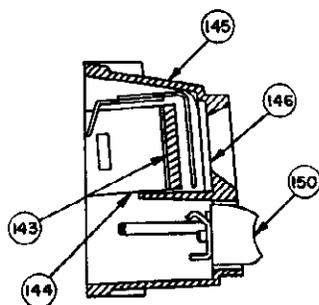


MODELS 7260405,  
7260905, 1951  
Cadillac

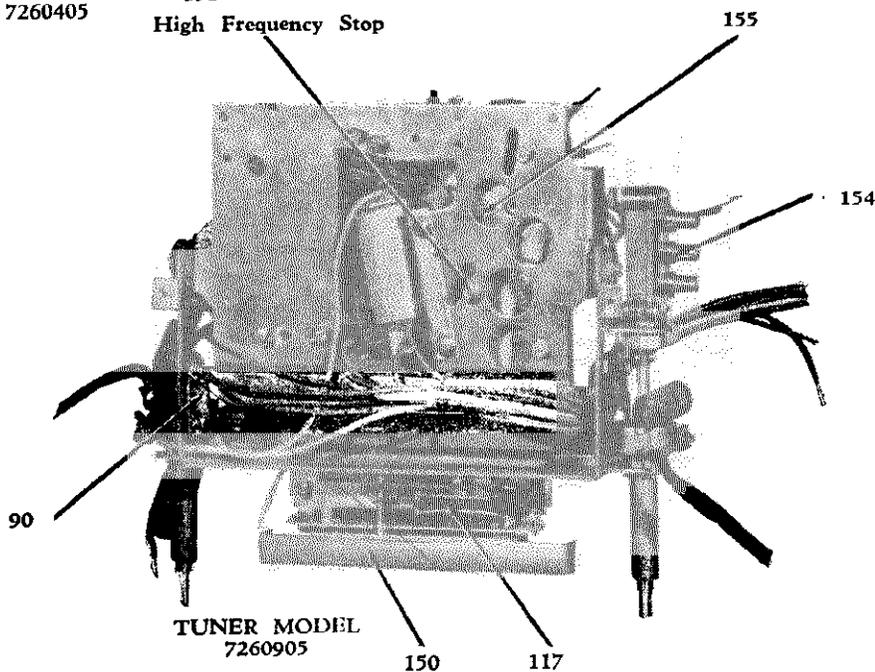


TUNER — OPEN — MODEL 7260405

High Frequency Stop



ESCUTCHEON  
CROSS-SECTION



TUNER MODEL  
7260905

NOTE: For complete service information on the Signal Seeking Tuner see Bulletin 6D-620

**SERVICE PARTS LIST**

Illus. No.	Production Part No.	Service Part No.	Description
<b>ELECTRICAL PARTS</b>			
<b>Coils</b>			
1	7257979	7257979	Antenna
2	7255738	7255738	Antenna Series Choke
3	7240251	7240251	Antenna Spark Choke
4	7257979	7257979	R.F.
5	7259184	7259184	Oscillator
6	7259790	1219508	1st I.F. Assy.
7	7259290	1219602	2nd I.F. Assy.
8	7241118	1217846	"A" Spark Choke
9	7256931	1217846	Hash Choke
<b>Condensers</b>			
*16	7259988	*7259988	Antenna Trimmer & Brkt.
17	1219550	G 680	.000068 mfd Molded
18	1210697	6537	.05 mfd 200V Tubular
19	1210697	6537	.05 mfd 200V Tubular
20	7242454	7242454	Dual Trimmer
20A			R.F. Section
20B			Oscillator Section
21	7258221	G 390	.000039 mfd Ceramic
22	7257567	7257567	.000260 mfd Compensating
23	7238788	6539	.1 mfd 400V Tubular

SERVICE PARTS LIST

MODELS 7260405,  
7260905, 1951  
Cadillac

Illus. No.	Production Part No.	Service Part No.	Description
<b>Condensers (Continued)</b>			
24	7238789	6539	.1 mfd 200V Tubular
25	1219550	G 680	.000068 mfd Molded
26	1218969	E 402	.004 mfd 600V Tubular
27	1218883	6527	.001 mfd 600V Tubular
28	1219553	1219553	.0022 mfd 600V Tubular
29	7230767	6531	.005 mfd 600V Tubular
30	7233770	6534	.02 mfd 600V Tubular
31	1219660	1219660	20 mfd 50V Electrolytic
32	1219463	1219463	.008 mfd 600V Tubular
33	7238792	G 221	.000220 mfd. Molded
34	7237719	7237719	.015 mfd 600V Tubular
35	7240724	M 908	Electrolytic
35A			20 mfd 25V
35B			20 mfd 400V
35C			20 mfd 400V
36	1209817	E 254	.25 mfd 200V Tubular
†37	†1219084	†H 602	†.006 mfd 800V Tubular
**37	**1219594	**H 802	** .008 mfd 800V Tubular
38	1218880	1218880	.15 mfd 100V Tubular
†39	†1218882	†1218882	†.4 mfd 100V Tubular
**39	**1211202	**1211202	** .25 mfd 200V Tubular
40	1219768	1219768	Spark Plate Assy.
41	1217848	1217848	Chassis Plate Condenser
42	7240906	H 602	.006 mfd 1600V Tubular
43	7259954	7259954	.5 mfd 100V Tubular
44	1219499	G 101	.000100 mfd Molded

**Resistors**

51	1211147	A 225	2.2 Megohms ½W Insulated
52	1211085	B 103	10,000 ohms 1W Insulated
53	1213217	A 101	100 ohms ½W Insulated
54	7240732	A 334	330,000 ohms ½W Insulated
55	1213283	A 155	1.5 Megohms ½W Insulated
56	1211192	A 223	22,000 ohms ½W Insulated
57	1212491	1212491	12,000 ohms 2W Insulated
58	1214557	A 334	330,000 ohms ½W Insulated
59	1219755	A 100	10 ohms ½W Insulated
60	1213217	A 101	100 ohms ½W Insulated
61	1215558	1215558	68 ohms ½W Insulated
62	1211142	A 155	1.5 Megohms ½W Insulated
63	1211118	A 104	100,000 ohms ½W Insulated
64	1214542	A 271	270 ohms ½W Insulated
65	1214556	A 274	270,000 ohms ½W Insulated
66	7241937	A 685	6.8 Megohms ½W Insulated
67	1219504	1219504	1600 ohms ½W Insulated
68	1213509	1213509	56,000 ohms 1W Insulated
69	7241937	A 685	6.8 Megohms ½W Insulated
70	1213224	A 331	330 ohms ½W Insulated
71	1214545	A 222	2200 ohms ½W Insulated
72	1214555	A 224	220,000 ohms ½W Insulated
73	1214555	A 224	220,000 ohms ½W Insulated
74	1213220	A 151	150 ohms ½W Insulated
75	1214555	A 224	220,000 ohms ½W Insulated
76	1214555	A 224	220,000 ohms ½W Insulated
78	1211142	A 155	1.5 Megohms ½W Insulated
79	1216150	B 471	470 ohms 1W Insulated
80	1213480	A 393	39,000 ohms ½W Insulated
81	1213481	A 332	3300 ohms ½W Insulated
82	1213236	1213236	1200 ohms ½W Insulated
83	1218969	A 221	220 ohms ½W Insulated
84	1219763	A 391	390 ohms ½W Insulated
85	1219764	1213235	1200 ohms ½W Insulated
86	1219765	A 332	3300 ohms ½W Insulated
87	1219738	B 221	220 ohms 1W Insulated
88	1214573	{ C 272 B 562	1800 ohms Wire Wound (Replace with 2700 ohms 2W and 5600 ohms 1W in parallel)
89	1211150	A 335	3.3 Megohms ½W Insulated
90	7231539	7231539	13,000 ohms 1W Insulated
91	1213271	1213271	120,000 ohms ½W Insulated
92	1216157	B 473	47,000 ohms 1W Insulated
93	1216154	1216154	6800 ohms 1W Insulated
94	1216157	B 473	47,000 ohms 1W Insulated

**Tubes**

1217690	5252	6BA6
7237752	5222	6SA7
1218505	5262	6AV6
1219484	5278	6AQ7GT

† Use with 7258488 and 7259675 Speakers  
\*\* Use with 7260502 Speaker

MODELS 7260405,  
7260905, 1951  
Cadillac

SERVICE PARTS LIST

Production Part No.	Service Part No.	Description
	Tubes (Continued)	
	1213793	5241 6V6GT
	1211924	5003 0Z4
	1219485	5328 12AU7
	Miscellaneous Electrical Parts	
	7260328	*7260328 "A" Lead Assy. and Fuse Connector
110	7259408	7259408 Adjuster - Cathode Delay
*111	7260682	*7260682 Control - Tone, Speakers (Model 7260405 only)
111A		Tone Control
111B		Speakers Control
	7259239	7259239 Control - Tone (Model 7260905 only)
112	7259240	7259240 Control - Volume, Sensitivity and Switch
112A		Volume Control
112B		Switch
112C		Sensitivity Control
113	7259009	7259009 Relay
114	1219661	1219661 Solenoid
115	7258488	7258488 Speaker - Front Seat
*115	7260502	*7260502 Speaker - Front Seat (Alternate)
*115A	7260849	*7260849 Speaker - Rear Seat (Model 7260405 only)
116	7259011	7259011 Switch - Tuner Return
117	7259012	7259012 Switch - Station Selector
*118	7260629	*7260629 Switch - Foot Station Selector
119	7259336	7259336 Transformer - Output
120	7259375	7255881 Transformer - Power
121	7239124	8542 Vibrator
122	125588	55 Lamp - Dial Light

MECHANICAL PARTS

Chassis

132	7258520	7258520 Antenna Connector
	7236279	7236279 Socket - Octal Tube
	7259307	7259307 Socket - 9 Pin Miniature Tube
	7258073	7258073 Socket - 7 Pin Miniature Tube
	7239125	7239125 Socket - Vibrator
133	1219603	1219603 Socket - Dial Light
*134	7260698	*7260698 Socket - Foot Switch
	7260677	*7260677 Socket and Wire Assy. - to R. S. Speaker Plug

Tuner

141	7259201	7259201 Core - Iron Tuning
142	7259178	7259178 Core - Guide Bar
143	7259319	7259319 Dial Calibrated
*144	7260806	*7260806 Dial Backplate Assy.
	187189	44 Pilot Light
*145	7260808	*7260808 Escutcheon Assy.
146	7258236	7258236 Dial Glass
	7258232	7258232 Dial Glass Retainer (2)
147	1219610	1219610 Motor Gear Train
*148	1219847	*1219847 Pointer Tip Pkg.
149	7259164	7259164 Plunger Solenoid
150	1219604	1219604 Station Selector Bar Pkg.
	7259125	7259125 Station Selector Bar
	7259111	7259111 Switch Operating Collar
	7256121	7256121 Toggle Plate
	7259100	7259100 Spring (2)
151	7257361	7257361 "C" Washer
	7258239	7258239 Spring Clip
*154	7260675	*7260675 Spring - Vacuum Valve Anti-Rattle
	7258260	7258260 Spring - Calibrated Dial Retainer
	7260676	*7260676 Vacuum Valve (Model 7260405 Only)
	7259264	7259264 Vacuum Valve (Model 7260905)
155	7259055	7259055 Vacuum Valve Shaft (Model 7260405-Only)
		7259055 Vacuum Valve Shaft (Model 7260905)
		7259055 Spring - Motor Power

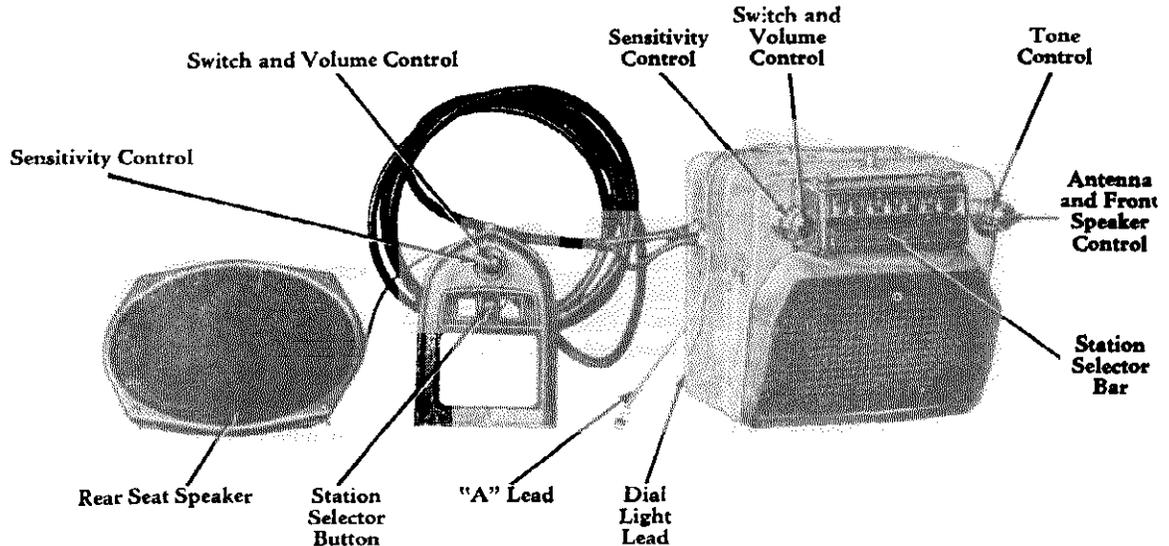
INSTALLATION PARTS

	7240138	6013 Static Collector
	1911095	6030 Condenser - Generator
	1910147	6030 Condenser - Ignition Coil
	1917580	6030 Condenser - Regulator
	5289849	5289849 Connector - Dial Light Lead
	7259510	7259510 Escutcheon - Sensitivity Control
	7259509	7259509 Escutcheon - Tone Control
	147685	147685 Fuse - 14 Amperes
	1219822	1219822 Fuse Holder Pkg.
	7259369	7259369 Knob - Control
	7259508	7259508 Knob - Sensitivity Control
	7259507	7259507 Knob - Tone Control
	7259514	7259514 Spring - Knob Retainer

\* Parts First Used in 1951

MODELS 7260705,  
7261005, Cadillac

This Model Same as Model 7260905, Bulletin 6D-1064, Except as Indicated by This Bulletin



MODELS 7260705 and 7261005

**GENERAL**

**MOUNTING**—1951 Cadillac 75 Series Cars.

**TUBES**—Seven, Plus Rectifier and Trigger.

**SPEAKER**—6" x 9" Elliptical, Permanent Magnet, Front — 6" x 9" Elliptical, Permanent Magnet, Rear.

**TUNING**—Electronic.

**ANTENNA TRIMMER COMPENSATION**—

0.000060 - 0.000085 Mfd.

**TUNING RANGE**—540 - 1600 KC.

**PUSHBUTTON SET-UP**—No pushbutton set-up is necessary. However, the number of stations on which the tuner will stop can be controlled by the use of the Sensitivity Controls.

**ALIGNMENT PROCEDURE**—Alignment procedure same as that of Model 7260905, Bulletin 6D-1064.

**FUNCTIONAL OPERATION**

The Cadillac remote control signal seeker type radio has all the controls of the Cadillac Syncro-Matic Model 7260905 Radio for front seat operation and in addition has a control head mounted in the left or right rear seat arm rest for rear seat operation. This remote control head has a switch, volume control, and station selector button.

After the rear seat control switch is turned on, only the rear controls operate the radio. The radio cannot be operated from the front seat again until the rear control switch is turned off. Two controls that are always operated at the receiver are the tone control and the antenna control.

This radio operates from the front instrument panel in exactly the same manner as the 7260905 Model except for a front speaker switch on the right hand control knob. This switch is used only when the rear control is in operation, and it gives the front seat occupants the choice of listening at a reduced volume from normal output to the stations selected by the person operating the rear selector button or completely disconnecting the front speaker.

**THEORY OF OPERATION**

The energizing of relays, illustration numbers 125 and 126, is accomplished by turning the rear control switch (123C) to the "on" position. When this switch is turned on, the "A" voltage is applied across the relays, energizing the relays and closing the contacts to the rear controls. With the relays 125 and 126 energized, the rear seat controls are operative and not the front seat controls.

Once these relays are energized, the "A" supply is connected to the power transformer center-tap through contacts 1-2 and 3-4 of relay 126, regardless of the position of the front switch (112B); therefore the radio cannot be turned off until the relays are de-energized by turning off the rear switch (123C). With the relays in the de-energized position, all controls are operative at the receiver, while all remote controls in the rear arm rest are inoperative.

MODELS 7260705,  
7261005, Cadillac

SCHMATIC DATA

All voltages measured from sockets terminals to chassis with a 20,000 Ohm per volt voltmeter. Measurements taken with no signal and 6.0 volts at spark plate. Oscillator grid voltage taken with the set tuned to 1000 KC. Tuner not seeking and remote controls in "off" position.

Total "A" Drain 7.3 Amps.

Total "B" Drain 67MA.

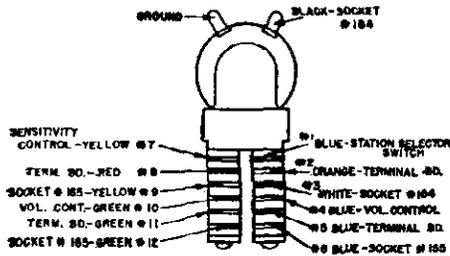
Tolerance on voltages  $\pm 10\%$ .

\*—Indicates lead from tuner coil assy.

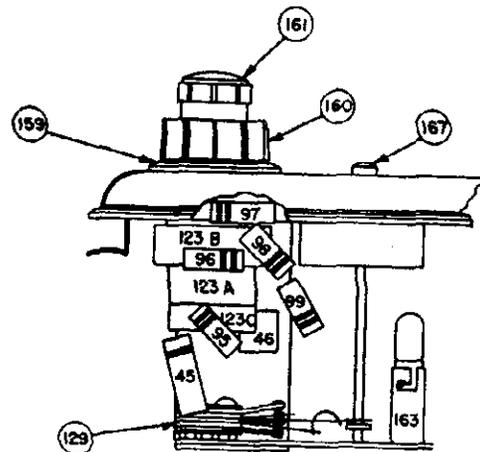
□—Colors of terminals on service part.

Note the red and black circuits are exactly the same as those of Model 7260905. The blue circuit has been added so that the tuner can be controlled from the rear seat location. This circuit is switched in or out of control by the relays which are energized from the rear seat.

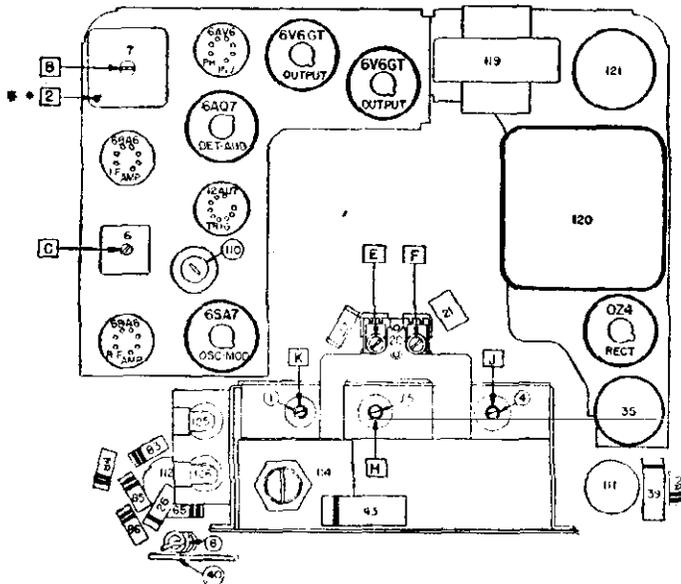
Relay leads' destinations and colors are to the respective contacts as numbered on the schematic.



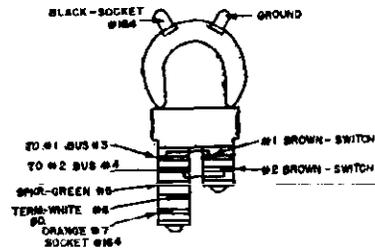
RELAY 125



PARTS LAYOUT — REAR CONTROL



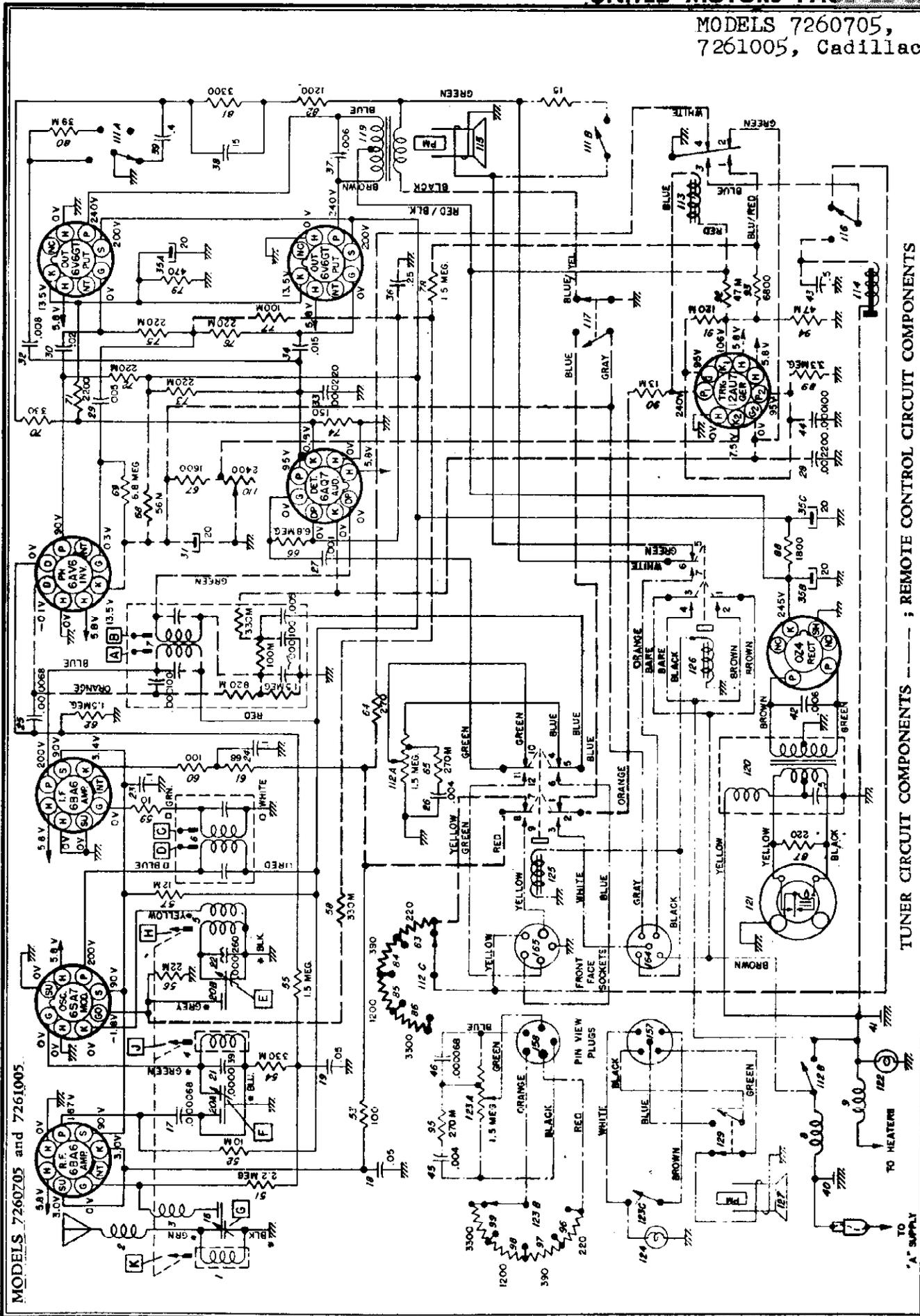
PARTS LAYOUT — TUBE VIEW



RELAY 126

\*\*Connect a VTVM from this point to ground for output indications during alignment.

MODELS 7260705,  
7261005, Cadillac



MODELS 7260705 and 7261005.

TUNER CIRCUIT COMPONENTS - - - ; REMOTE CONTROL CIRCUIT COMPONENTS

TO HEATER

TO SUPPLY

MODELS 7260705,  
7261005, Cadillac

**CADILLAC REMOTE CONTROL SYNCROMATIC MODEL SERVICE PARTS LIST**

The Service Parts List of the Cadillac Remote Control Syncromatic Radios are identical to the Cadillac Syncromatic Radio, Model 7260905, except for the illustration numbers and parts listed below: Those parts marked with a cross (†) are changed from Model 7260905—the others are added parts.

Illus. No.	Production Part No.	Service Part No.	Description
<b>ELECTRICAL PARTS</b>			
<b>Capacitors</b>			
45	1218969	E-402	.004 mfd 600V Tubular
46	1219550	G 680	.000068 mfd Molded
<b>Resistors</b>			
95	1214556	A-274	270,000 ohms ½W Insulated
96	7237835	A 221	220 ohms ½W Insulated
97	1213482	A 391	390 ohms ½W Insulated
98	1213236	1213236	1200 ohms ½W Insulated
99	1213481	A 332	3300 ohms ½W Insulated
<b>Miscellaneous</b>			
†*111	7260703	*7260703	Tone and Front Speaker Control
111A			Tone Control
111B			Front Speaker Switch
†118	7260629	7260629	Foot Switch Assembly (Omitted)
123	7259947	7259947	Control - Volume, Sensitivity, and Switch—Remote Unit
123A			Volume
123B			Sensitivity
123C			Switch
124	187189	44	Lamp - Remote Dial Light
125	7259951	7259951	Relay - 4 Section
126	7259952	7259952	Relay - 3 Section
*127	7260849	*7260849	Speaker 6 x 9 Elliptical P. M. Rear
129	7259012	7259012	Switch - Station Selector - Remote Unit
<b>MECHANICAL PARTS</b>			
<b>Chassis</b>			
†134	7260698	7260698	Foot Switch Socket (Omitted)
<b>Remote Control</b>			
*	7259946	7259946	Cable - Rear Seat - Model 7260705
	7260870	*7260870	Cable - Rear Seat - Model 7261005
157	1219682	1219682	Plug and Shell Pkg.
158	1219679	1219679	Plug and Shell Pkg.
*	4599418	*4599418	Escutcheon - Arm Rest
159	7259510	7259510	Escutcheon - Sensitivity Control
160	7259508	7259508	Knob - Sensitivity Control
161	7259369	7259369	Knob - Control
163	1219686	1219686	Socket Pkg. - Dial Light
164	7259944	7259944	Socket - Cable
165	7259943	7259943	Socket - Cable
167	1219687	1219687	Station Selector Button Pkg. Push Button Assy.
	7259125	7259125	Retaining Ring
	7256121	7256121	Washer Felt Washer "C" Washer

\* Parts First Used in 1951.