SERVICE DATA
MODEL 460 6 TUBE
G.M. PORTABLE RADIO

This six tube superheterodyne receiver is of a new design which can be operated either as a portable battery set or as an AC-DC set obtaining power from an outlet of 105-125 volts 25, 60 cycle or direct current.

On battery operation the 35 volt tubes are not used and the remaining four tubes function in the ordinary manner, the 1T5G feeding the complete primary of the output transformer.

On AC-DC operation the power switch connects the four 1.4 volt tube filaments in series between the cathode of the 35L6GT tube and "B" negative. This supplies the bias for the 35L6GT as well as the filament current for the other tubes. The switch also disconnects the 1T5G screen grid, rendering it inoperative and the output transformer is fed at the low impedance tap from the plate of the 35L6GT, The circuit is otherwise the same as on battery operation.

In order to make the chassis "dead" from a shock-proof standpoint, the circuits are all returned to a "B" negative line which is by-passed to the chassis through C17 and C14 in series and also through the tuned filter circuit L5 and C13. This filter has a very low impedance at the I.F. frequency and renders the complete circuit quite stable during operation. The "adjustment of this filter circuit" is quite simple. First unscrew the core of the filter coil a few turns to the left. Then after aligning the second I.F. transformer and first I.F. transformer in that order screw in the filter coil core until oscillation or severe swish ceases. Then readjust the first I.F. transformer again for maximum output (do not touch second stage transformer). If the receiver becomes unstable again, screw in the filter core a little further. These operations should be repeated until maximum sensitivity with good stability is obtained. The same adjustments should hold for battery operation.

The loop is placed in the end of this cabinet so that it may be peaked to the oscillator circuit and will not thereafter be disturbed when the back is removed to replace batteries or the AC cord.

The chassis must be removed from the case for alignment. To do this pull off the three knobs, disconnect the AC plug and batteries and remove the three screws under the chassis shelf. The speaker cord is long enough to allow the chassis to be slid out of the case far enough for alignment.

ALIGNMENT: A well shielded oscillator and suitable output meter are required. The output meter may be connected across the speaker voice coil terminals. Proceed with alignment as follows using the weakest possible signal that will give readable output and having the volume control full on. It is preferable to align the chassis on AC-DC because under those conditions the tuned filter (L5) adjustment will be proper for battery operation also.

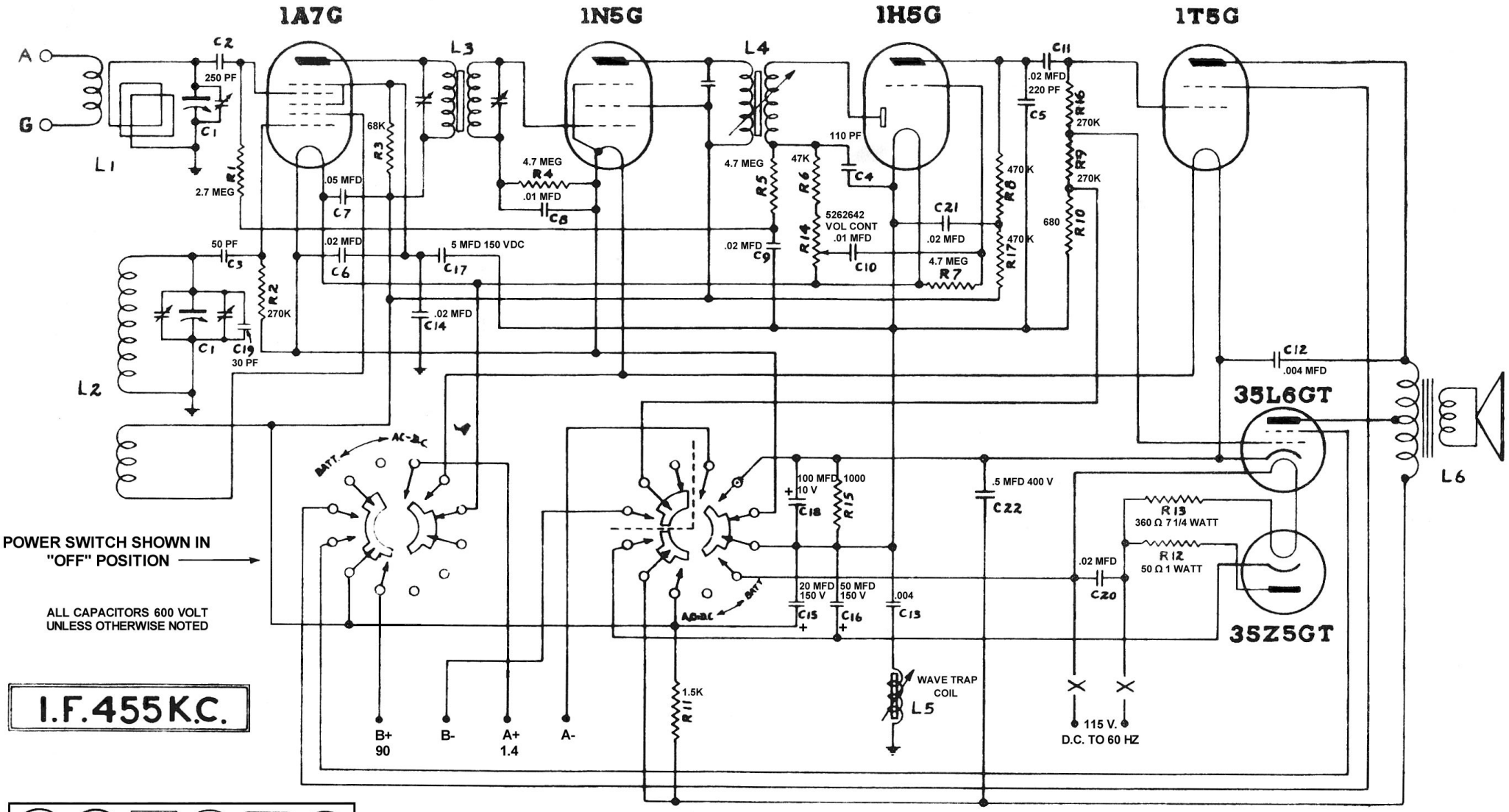
No.	Dummy Antenna	Connection of Signal Generator to Receiver	Signal Generator Frequency	Receiver Dial Setting	Trimmer to be Adjusted	Description of Adjustment
1.	.1 mfd condenser	1A7G grid cap	455 kc	High frequency end	Core on top of 2nd I.F. transformer	Peak for maximum output with the filter coil core (L5) screwed well out
2.	.1 mfd condenser	1A7G grid cap	455 kc	High frequency end	1st I.F. trimmers	Peak for maximum output
3.	.1 mfd condenser	1A7G grid cap	455 kc	High frequency end		Screw in L5 core until there is no oscillation, squeal or excess swish
4.	.1 mfd condenser	1A7G grid cap	455 kc	High frequency end	Repeat operation 2	
5.	.1 mfd condenser	1A7G grid cap	455 kc		Repeat operation 3	
6.	.1 mfd condenser	1A7G grid cap	1550 kc	High frequency end	Trimmer on oscillator (front) section of gang Condenser	Adjust to bring in signal
7.	Tune in a weak broadcast station between 1450 and 1500 kc				Trimmer on antenna (rear) section of gang condenser	Peak for maximum output while rocking the gang slightly back and forth

NOTE: This last operation should be performed with the chassis replaced in the case in its normal operating location.

NOTE 2: When replacing the chassis make sure that the speaker leads are kept clear of the speaker cone but at the same time well toward the front corner of the case and away form the 1H5G grid lead.

NOTE 3: In order to obtain correct calibration on the dial scale, the red pointer line on the pointer disc should be set just above the horizontal position when the gang condenser is fully meshed.

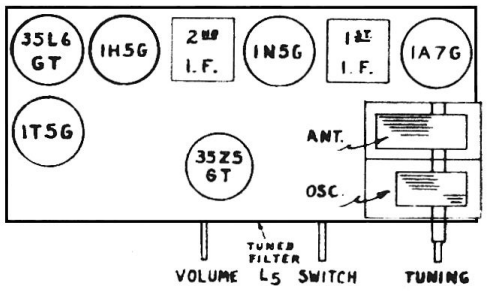
MODEL
R-460 - R-461



POWER SWITCH SHOWN IN "OFF" POSITION →

ALL CAPACITORS 600 VOLT UNLESS OTHERWISE NOTED

I.F. 455 K.C.



NOTE : ALL VOLTAGES MEASURED FROM TUBE SOCKET TO "B−" TERMINAL WITH 1000 OHM PER VOLT METER.

BATTERY OPERATION = A.C - D.C. OPERATION
"A" DRAIN = 200 MILS INPUT - 20 WATTS
"B" DRAIN = 8.3 MILS

R-460-1 CIRCUIT DIAGRAM
PORTABLE MODEL No R-4602

PARTS LIST

GM PORTABLE RADIO #460

		Item No.	No. Used
5262638	Gang Condenser Assy.	C1	1
5262639	1st I.F. Transformer	L3	1
5262640	2nd I.F. Transformer	L4	1
5262641	Oscillator Coil	L2	1
5262642	Volume Control	R14	1
5262643	Power Switch		1
5262644	Wave Trap Coil	L5	1
5262645	DEC 20-50-5 MFD 150 V Condenser	C15, 16, 17	1
5262646	DEC 100 MFD 10 V Condenser	C18	1
5262647	AC Attachment Cord		1
5262648	250 MMF 900 V Mica Condenser	C2	1
5262649	50 MMF 900 V Mica Condenser	C3	1
1783231	110 MMF Mica Condenser	C4	1
5262651	210 MMF Mica Condenser	C5	1
5262652	30 MMF Mica Condenser	C19	1
5262653	.5-400 V Tubular Condenser	C22	1
5262654	.01-600 V " "	C8-C10	2
5262655	.02-600 V " "	-9-11-20-6-14-21	6
5262656	.05-600 V " "	C7	1
5262657	.004-600 V " "	C13-12	2
5262658	2.7 Meg. 1/4 W Resistor	R1	1
5262659	4.7 Meg. 1/4 W "	R4-5-7	3
5262660	470000 OHM 1/4 W Resistor	R8-R17	2
5262661	270000 OHM 1/4 W "	R2-R9-R16	3
5262662	68000 OHM 1/4 W "	R3	1
1795709	47000 OHM 1/4 W "	R6	1
5262664	1500 OHM 1/2 W "	R11	1
5262665	680 OHM 1/2 W "	R10	1
5262666	50 OHM 1 W "	R12	1
1782578	1000 OHM 1/4 W "	R15	1
5262630	Tube 35L6GT		1
5262631	Tube 1A7G		1
5262632	Tube 1N5G		1
5262633	Tube 1H5G		1
5262634	Tube 1T5GT		1
5262635	Tube 35Z5GT		1
5262668	Tube Shield		3
5262669	Tube Shield Cap		3
5262670	.004 MFD Mica Condenser Type "W"		1
5262671	360 OHM 7 1/4 W Candohm Resistor	R13	1
5262672	Output Transformer		1
5262673	VC & Diaphragm Assy.		1
5262674	Speaker & Plug	L6	1
5262675	Control Knobs		2
5262637	Switch Knob		1
5262676	Loop Aerial Assy.	L1	1
5262680	Dial GM		1
5262679	Pointer Disc & Drum Assy.		1
5262678	Battery Cable		1