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GENERAL ELECTRIC COMPANY
SCHENECTADY, N. Y., U. S. A.

DES PAS
RHBs RWB

BUFFALO TUBE WORKS

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DATA FOLDER No. 86905

Title PROJECT REPORT G-124. THE EFFECT OF 6SK7 GRID EMISSION ON RECEIVER PERFORMANCE

By

ELECTRONIC TUBE ENGINEERING Div.

Information prepared for APPLICATION SECTION

Tests made by H. M. OWREN

Information prepared by H. M. OWREN

Countersigned by C. R. KNIGHT

Date JULY 22, 1946

PROJECT REPORT G-124

OBJECT:

The purpose of this project was to investigate the effect that 6SK7 grid emission had on receiver performance.

RESULTS:

1. The overall gain was only lowered by 2.2 db when the line voltage was raised to 119% of normal.

2. The overall gain was lowered by 11 db by raising the 6SK7 heater voltage to 143% of normal.

3. On signals large enough to produce avc action the output was constant with extreme changes in heater voltage.

4. At normal voltages the output was practically independent of grid emission.

5. The test results indicate that the tubes should operate satisfactorily in normal receiver applications.

PROCEDURE:

A GE Model 221 receiver was modified to use a 6SK7 tube as an IF amplifier with separate heater control. A 12SG7 was used as the RF amplifier instead of a 12SK7. Changes in line voltages were approximated by changing the 6SK7 heater voltage by the same percent as the line voltage. An 8 megacycle signal, modulated with 1,000 c.p.s., was supplied to the antenna from a Ferris Model 18FS-101 microvolter and the voice coil output voltage and the 6SK7 grid to cathode bias were measured with changes in line and heater voltage.

Table I shows the results of the tests and Fig. 1 shows the revised circuit used for the test.

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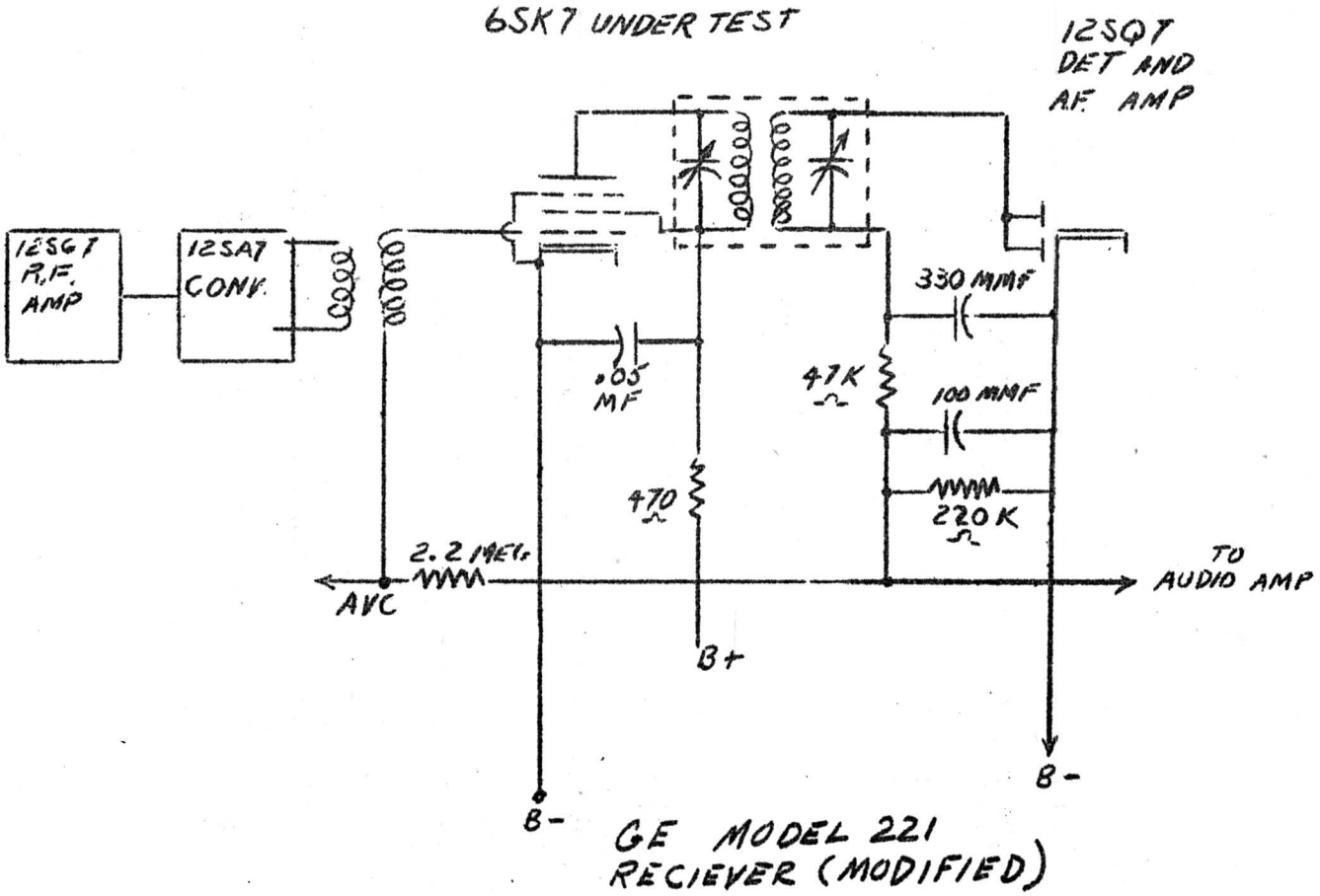
TABLE I

Tube	Static Grid Emission. ua	Voice Coil Volts AC	6SK7 DC Bias	8 Mc input microvolts	6SK7 heater volts AC	Line Volts AC
1	6.0	0.080		50	6.3	117
2	4.2	0.060		50	6.3	117
3	0.5	0.065		50	6.3	117
4	0.7	0.074		50	6.3	117
5	0.45	0.061		50	6.3	117
6	0.1	0.060		50	6.3	117
7	0.2	0.061		50	6.3	117
8	2.9	0.052		50	6.3	117
9	4.6	0.064		50	6.3	117
10	0.15	0.057		50	6.3	117
1	6	0.225	1.4	1200	9.0	120
1	6	0.220	2.15	1200	7.5	120
1	6	0.220	2.4	1200	6.3	120
1	6	0.064	0.86	50	6.3	120
1	6	0.051	0.90	50	7.5	120
1	6	0.035	0.10	50	9.0	120
6	0.1	0.060	1.00	50	6.3	120
6	0.1	0.053	1.18	50	7.5	120
6	0.1	0.040	1.14	50	9.0	120
6	0.1	0.076	1.3	50	6.3	130
6	0.1	0.067	1.4	50	7.5	130
6	0.1	0.056	1.45	50	9.0	130
1	6	0.082	1.0	50	6.3	130
1	6	0.044	0.95	50	7.5	130
1	6	0.022	0.90	50	9.0	130
1	6	0.083	0.83	50	6.3	117
1	6	0.065	0.86	50	7.5	139



GE MODEL 221
RECIEVER (MODIFIED)

CIRCUIT FOR CHECKING 6SK7 TUBES
WITH GRID EMISSION

FIG. 1 7-22-45
FILE G-124
By H. M. OWREN