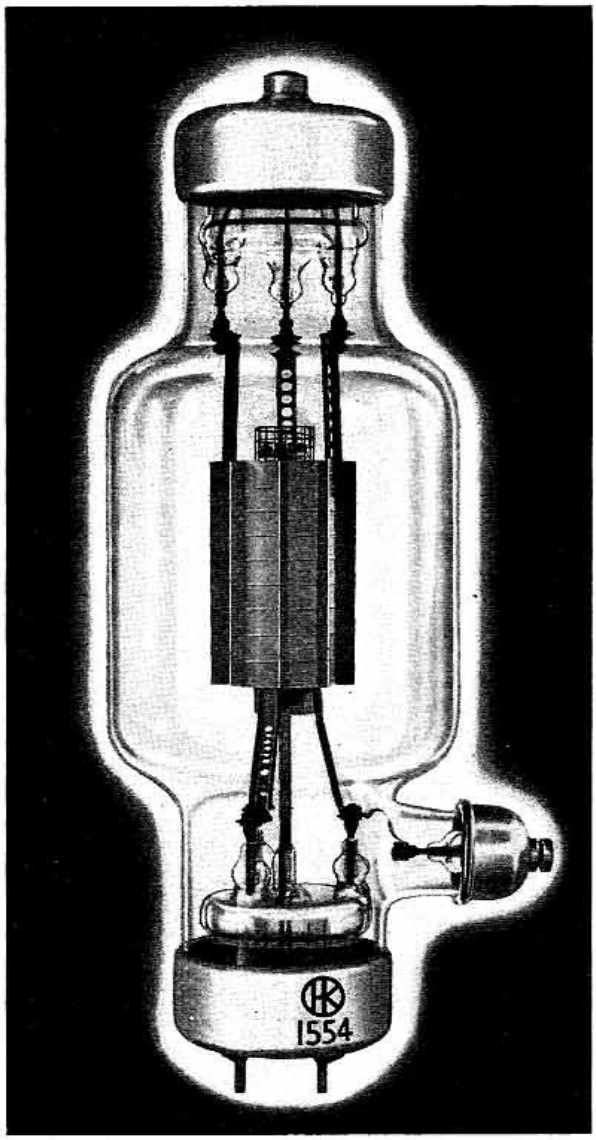
GAMMATRON TYPE 1554



GENERAL PURPOSE TRIODE

1000 watt radiation cooled universal triode, low mu. Special design permits high voltage operation.

PHYSICAL DATA

Plate	Cylindrical Tantalum
Grid	Braced Vertical Bar Tantalum
Filament	Thoriated Tungsten
Envelope	Nonex Glass
Filament Clips (mounted)	Type HK-255-65
Net Weight	3½ Pounds
Shipping Weight	23 Pounds
Maximum Height	19 Inches
Maximum Width	$7\frac{15}{16}$ Inches

ELECTRICAL DATA

Filament Voltage	11.0 Volts
Filament Current	22.5 Amps.
Normal Plate Dissipation	1000 Watts
Maximum Average Plate Current	1 Amp.
Maximum Average Plate Voltage	5000 Volts
Maximum Average Grid Current	0.25 Amp.
Average Dynamic Plate Resistance	1800 Ohms
Average Amplification Constant	12.5

INTER-ELECTRODE CAPACITIES

Grid-Plate	11.5 mmfd.
Grid-Filament	15.2 mmfd.
Plate-Filament	1.2 mmfd.

The type HK-1554 GAMMATRON is a radiation cooled low mu triode of sturdy construction and long life. It is capable of withstanding severe overloads in continuous use without "softening."

Check these points:

- √ Plate and grid mounted on heavy tantalum channels anchored to sturdy solid leads which are brought through the tube envelope. No internal insulators are employed. The heavy H & K special base is full cemented and tested to eliminate "loose base" annoyance.
- √ The use of tantalum for grid and plate, together with the absence of internal insulators, permits extremely high exhaust temperatures through a new and improved pumping technique. Hence, de-gassing is carried to a point which cannot be reached when internal insulators, other plate and grid material or conventional "getters" are utilized. This is your assurance of a tube which will not go soft when subjected to heavy overloads. Too, this permits filament operation in a manner consistent with high thermionic efficiency and long life.
- √ Capacitances are extremely low for a tube of this plate dissipation. The use of new and improved capacity measuring equipment insures accurate capacity data.

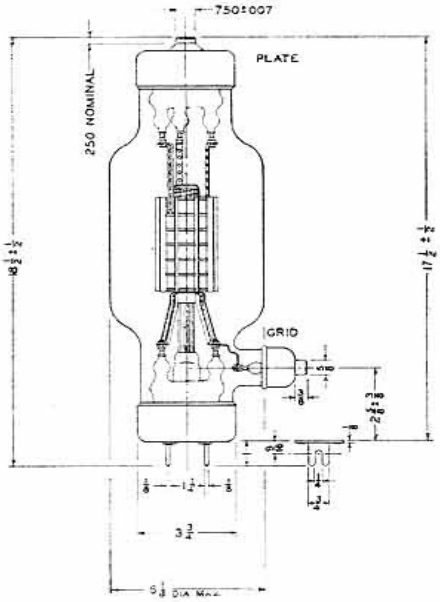
Here is a tube that has the years of Heintz and Kaufman engineering experience built into it. The HK-1554 has given an excellent account of itself in the field. A GAMMATRON is your assurance of the best in medium power radiation cooled transmitting tubes.

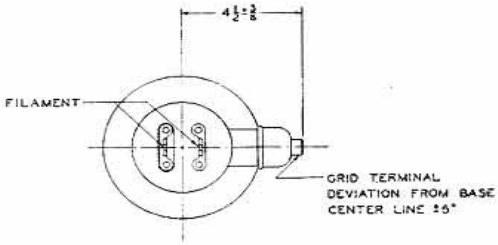
3000 1-46

HEINTZ AND KAUFMAN LTD.
SOUTH SAN FRANCISCO, CALIFORNIA, U · S · A

TYPE HK-1554

The information on this and the following page does not represent exact conditions of operation to be imposed for any particular situation. Because tubes are used under many widely different conditions Heintz and Kaufman will gladly furnish information for applications which differ appreciably from the illustrative examples given.





RADIO FREQUENCY POWER AMPLIFIER
CLASS "C" UNMODULATED

	Maximum Rating Per Tube	TYPICAL OPERATION, 1 TUBE			
Power Output		3600	2900	2200	Watts
Driving Power		100	96	100	Watts
DC Plate Voltage	5000	5000	4000	3000	Volts
DC Plate Current	1.000	.900	.950	1.000	Amps
DC Grid Current	250	85	95	110	M. A.
DC Grid Voltage	−1500	−850	−650	−500	Volts
Peak R.F. Grid Voltage		1250	1075	970	Volts
Plate Dissipation	1000	900	900	800	Watts
Plate Input	4500	4500	3800	3000	Watts

RADIO FREQUENCY POWER AMPLIFIER
CLASS "C" PLATE MODULATED*

	Maximum Rating Per Tube	TYPICAL OPERATION, 1 TUBE			
Power Output		2500	1800	2200	Watts
Driving Power		150	130	105	Watts
DC Plate Voltage	4000	4000	3000	2000	Volts
DC Plate Current	.800	.800	.800	.800	Amps
DC Grid Current	250	120	120	120	M. A.
DC Grid Voltage	−1500	−700	−550	−500	Volts
Peak R.F. Grid Voltage		1300	1130	930	Volts
Plate Dissipation	750	700	600	500	Watts
Plate Input	3200	3200	2400	1600	Watts

*Carrier conditions for use with 100% modulation.

RADIO FREQUENCY POWER AMPLIFIER
CLASS "B" LINEAR*

	Maximum Rating Per Tube	TYPICAL OPERATION, 1 TUBE			
Power Output		550	530	510	Watts
Driving Power**		35	44	56	Watts
DC Plate Voltage	5000	5000	4000	3000	Volts
DC Plate Current	.800	.300	.375	.500	Amps
DC Grid Current	250	0	2	4	M. A.
DC Grid Voltage	−1500	−350	−275	−210	Volts
Peak R.F. Grid Voltage		315	305	305	Volts
Plate Dissipation	1000	950	970	990	Watts
Plate Input	1500	1500	1500	1500	Watts

*Carrier conditions for 100% modulation.
**At crest of audio cycle.

AUDIO FREQUENCY POWER AMPLIFIER
CLASS "B"*

	Maximum Rating Two Tubes	TYPICAL OPERATION, 2 TUBES			
Power Output		4700	4000	3000	Watts
Driving Power**		155	135	115	Watts
DC Plate Voltage	5000	5000	4000	3000	Volts
DC Plate Current Zero Signal		140	150	160	M. A.
DC Plate Current Max. Signal	2.000	1.340	1.500	1.660	Amps
DC Grid Voltage		−330	−260	−180	Volts
Peak A.F. Grid to Grid Voltage		1240	1170	980	Volts
Plate Input Maximum Signal	6700	6700	6000	5000	Watts
Load Resistance Plate to Plate		8600	5800	3500	Ohms

*All data for two tubes.
**Instantaneous power at crest of cycle; effective driving power is about one-half this value.

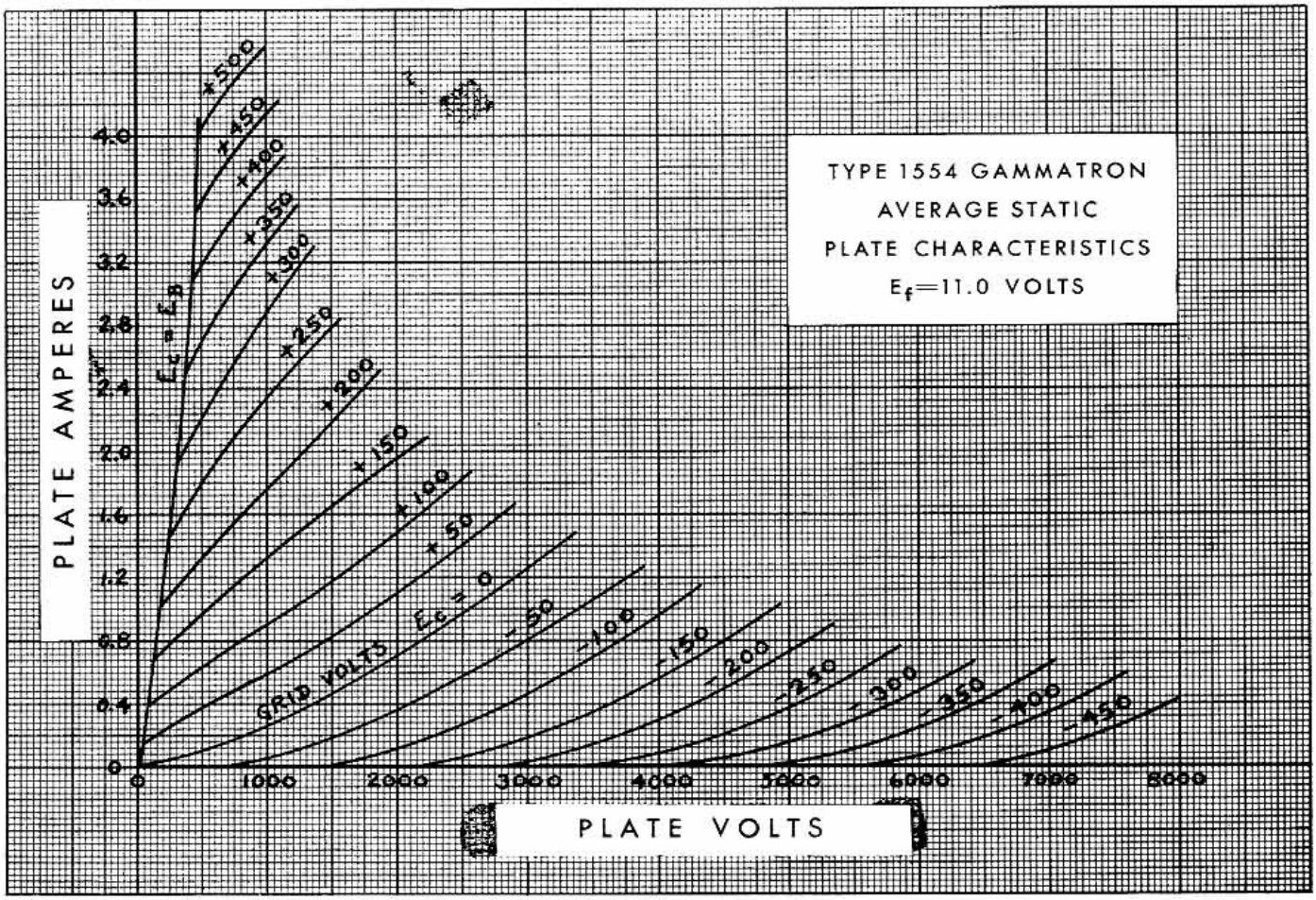
AUDIO FREQUENCY POWER AMPLIFIER
CLASS "A"—SINGLE TUBE

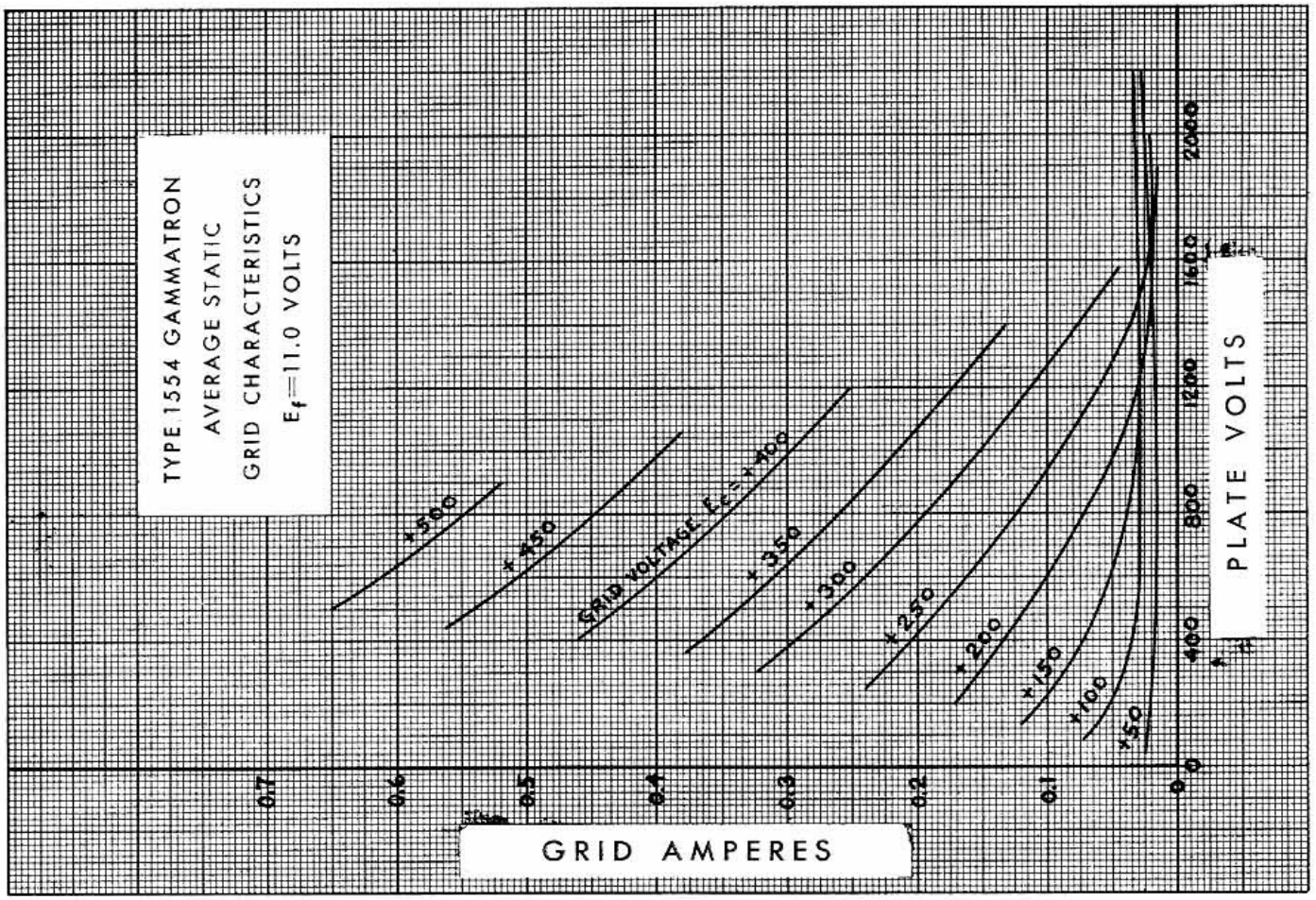
	Maximum Rating Per Tube	TYPICAL OPERATION, 1 TUBE		
Power Output		350	280	180
DC Plate Voltage	5000	5000	4000	3000
DC Plate Current		200	250	300
DC Grid Voltage		−300	−210	−130
Peak A.F. Grid Voltage		295	205	125
Load Resistance		18500	9500	4000

ULTRA HIGH FREQUENCY RATINGS
CLASS "C" UNMODULATED

Frequency	15 M. C.	30 M. C.	
Max. Input	2300	1800	Watts
Max. Plate Volts	3800	3000	Volts

For plate modulated telephone the input *MUST* be 85% for a 60% average modulation level and preferably should be 67% of the rated unmodulated inputs. Plate voltage for plate modulation operation should be reduced to about 75% of the unmodulated value.


TYPE 1554 GAMMATRON
AVERAGE STATIC
PLATE CHARACTERISTICS
E_f=11.0 VOLTS
PLATE AMPERES
PLATE VOLTS
GRID VOLTS
+500
+450
+400
+350
+300
+250
+200
+150
+100
+50
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
4.0
3.6
3.2
2.8
2.4
2.0
1.6
1.2
0.8
0.4
0
1000
2000
3000
4000
5000
6000
7000
8000


TYPE 1554 GAMMATRON
AVERAGE STATIC
GRID CHARACTERISTICS
E_f=11.0 VOLTS
GRID AMPERES
PLATE VOLTS
GRID VOLTAGE E_c=+100
+500
+450
+350
+300
+250
+200
+150
+100
+50
0
2000
1600
1200
800
400
0
0.7
0.6
0.5
0.4
0.3
0.2
0.1