RADIO - TELEVISION MANUFACTURERS ASSOCIATION

ENGINEERING DEPARTMENT

Release No.: 965

April 18, 1951

To
Tube Engineers:

Registration has been made by the RTMA Data Bureau of vacuum tube type designations

6CB6 (Registration No.2021)
6057 (Registration No.2022)
6060 (Registration No.2023)
6061 (Registration No.2024)
6062 (Registration No.2025)
6063 (Registration No.2026)
6064 (Registration No.2027)
6066 (Registration No.2028)

as defined by the characteristics and ratings given in the attached data on application of

Standard Telephones and Cables Limited
Footscray, Kent, England

Respectfully yours,

RTMA DATA BUREAU

By Ralph R. Batcher

RRBatcher:fh
Enc.

BRIMAR VALVES

TYPE 6CH6

DATE ISSUED 9.2.51.

R.M.A. REGISTRATION DATA

6CH6

VIDEO AMPLIFIER PENTODE

The 6CH6 is a miniature type amplifier pentode employing the 9-pin glass button base. Its low anode to grid capacitance and high slope make it particularly useful for high frequency and broad band application as may be met in television video output stages.

It has a high peak cathode current which makes it eminently suitable for pulse applications. A separate grid 3 connection is provided so that this electrode may be operated at other than cathode potential.

MECHANICAL DATA:

Coated unipotential cathode.
Outline drawing ..... 6-3 Bulb T-6½
Base ..... E9-1 Small glass button 9-pin.
Maximum diameter ..... 7/8"
Maximum overall length ..... 2.5/8"
Maximum seated height ..... 2.3/8"
Pin connections ..... Basing No. ~~9BA~~ 9AU

Pin 1 - I.C.	Pin 6 - I.C.
Pin 2 - Grid No. 1	Pin 7 - Anode
Pin 3 - Cathode	Pin 8 - Grid No. 2
Pin 4 - Heater	Pin 9 - Grid No. 3
Pin 5 - Heater	

Mounting position ..... any

ELECTRICAL DATA:

Direct Inter-electrode capacitances:

Grid to anode ..... .25 pF max.
Input ..... 14 pF
Output ..... 5.0 pF
(External shield not used)

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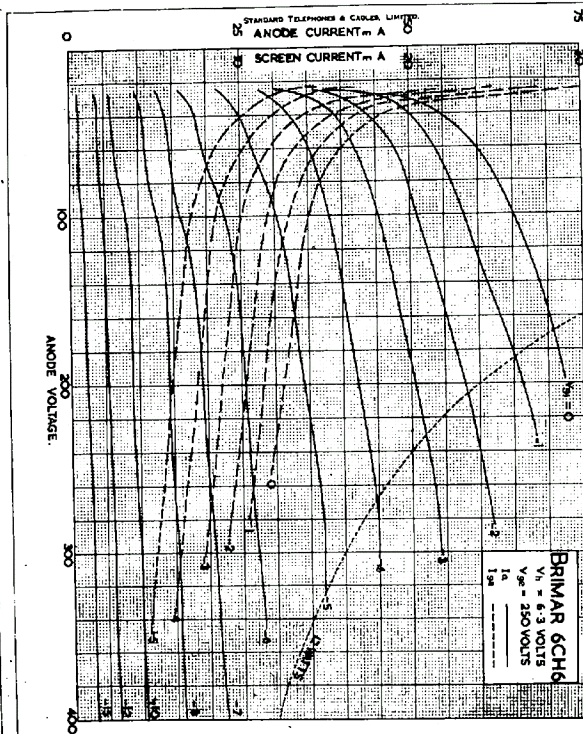
Ratings:

Heater voltage nominal (ac or dc)	6.3 volts
Maximum heater-cathode voltage	90 volts
Maximum anode voltage	275 volts
Maximum Grid No. 2 voltage	275 volts
Maximum anode dissipation	12 watts
Maximum Grid No. 2 dissipation	2.5 watts
Maximum bulb temperature	250°C
Peak instantaneous cathode current	1.5 amp

Typical operating conditions and characteristics:

Heater voltage	6.3 volts
Heater current	0.75 amp
Anode voltage	250 volts
Grid No. 2 voltage	250 volts
Grid No. 1 voltage	-4.5 volts
Grid No. 3 voltage	0 volts
Anode impedance	50,000 ohms
Transconductance	11,000μmhos
Anode current	40.0 mA
Grid No. 2 current	6.0 mA
Amplification factor (g2-g1)	26


STANDARD TELEPHONES & CABLES, LIMITED.
ANODE CURRENT m A
SCREEN CURRENT m A
ANODE VOLTAGE.
BRIMAR 6CH6
V_H = 6·3 VOLTS
V_{SG} = 250 VOLTS
I_a
I_{sg}
V_{SG} = 0
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10
-11
-12
-13
-14
-15
-16
-17
-18
-19
-20
-25
-30
-35
-40
0
100
200
300
400
5
10
15
20
25

BRIMAR VALVES

R.M.A. REGISTRATION DATA

TYPE 6057

DATE ISSUED 2.3.51.

6057
TWIN TRIODE

The 6057 is a twin triode with the same characteristics as type 12AX7. It is suitable for applications where important considerations are high voltage gain at low heater power, such as voltage amplifiers, phase inverters and multivibrators. It is designed for trustworthy operation under adverse conditions of vibration and mechanical shock.

MECHANICAL DATA

Coated unipotential cathode.
Outline drawing .....6-2 Bulb T-6½
Base ..... E9-1 Small glass button 9-pin
Maximum diameter ..... 7/8"
Maximum overall length ..... 2.3/16"
Maximum seated height ..... 1.15/16"
Pin connections ..... Basing Number 9A

Pin 1 - Plate (No. 2)
Pin 2 - Grid (No. 2)
Pin 3 - Cathode (No. 2)
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Plate (No. 1)
Pin 7 - Grid (No. 1)
Pin 8 - Cathode (No. 1)
Pin 9 - Heater centre tap

Mounting position ..... any
Maximum shock (in intermittent operation) ..... 550 g
Vibration (continuous service) ..... 2½ g
Mechanical resonance ..... None below 100 c/s

ELECTRICAL DATA

Direct interelectrode capacitances *

	Triode No. 1	Triode No. 2
Grid to plate (g to p)	1.7	1.7 μμF
Input (g to k+h)	1.6	1.6 μμF
Output (p to k+h)	0.46	0.34 μμF

* Without external shield.

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Ratings (each unit)

Heater voltage (ac or dc)	12.6 volts (series); 6.3 volts (parallel)
Maximum heater-cathode voltage	90 volts
Maximum plate voltage	300 volts
Maximum negative dc grid voltage	-50 volts
Maximum positive dc grid voltage	0 volts
Maximum plate dissipation	1.0 watt

Typical operating conditions and characteristics; class A_1 amplifier (each triode)

Heater voltage	12.6	6.3	12.6	6.3	volts
Heater current	150	300	150	300	mA
Plate voltage	100		250		volts
Grid voltage	-1		-2		volts
Plate current	0.5		1.2		mA
Plate resistance	80,000		62,500		ohms
Transconductance	1,250		1,600		µmhos
Amplification factor	100		100		

BRIMAR VALVES

R.M.A. REGISTRATION DATA

TYPE 6060

DATE ISSUED 2.3.51.

6060
DOUBLE TRIODE

The 6060 is a miniature type double triode employing the 9 pin glass button base, having the same general characteristics as the 12AT7, and as a frequency changer, operating at frequencies up to 500 Mc/s. Type 6060 is designed for trustworthy operation under adverse conditions of vibration and mechanical shock.

MECHANICAL DATA

Coated unipotential cathode.

Outline drawing	6-2	Bulb	T-6½
Base	E9-1	Small glass button 9-pin.	

Maximum diameter	7/8"
Maximum overall length	2.3/16"
Maximum seated height	1.15/16"
Pin connections	Basing number 9A

Pin 1 - Anode (No. 2)	Pin 6 - Anode (No. 1)
Pin 2 - Grid (No. 2)	Pin 7 - Grid (No. 1)
Pin 3 - Cathode (No. 2)	Pin 8 - Cathode (No. 1)
Pin 4 - Heater	Pin 9 - Heater centre tap
Pin 5 - Heater	

Mounting position	any
Maximum shock (in intermittent service)	500 g
Vibration (continuous service)	2½ g
Mechanical resonance	None below 100 c/s

ELECTRICAL DATA

Direct interelectrode capacitances

Anode 1 to Grid 1	1.6 pF
Anode 2 to Grid 2	1.6 pF
Input 1	2.25 pF
Input 2	2.25 pF
Output 1	0.4 pF
Output 2	0.4 pF
Anode 1 to Anode 2	0.2 pF

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Ratings

Heater voltage (ac or dc)	12.6/6.3 volts
Maximum negative dc grid voltage	-50 volts
Maximum heater-cathode voltage	90 volts
Maximum anode voltage	350 volts
Maximum anode dissipation	2.5 watts

Typical operating conditions and characteristics, class A_1 amplifier

(each section)

Heater voltage (both sections) (ac or dc)	12.6/6.3	12.6/6.3	12.6/6.3	volts
Heater current	0.15/0.3	0.15/0.3	0.15/0.3	amp
Anode voltage	100	180	250	volts
Anode current	3.7	11.0	10.0	mA
Grid voltage	-1	-1	-2	volts
Anode impedance	13,500	9,400	10,000	ohms
Mutual conductance	4.0	6.6	5.5	mA/V
Amplification factor	54	62	55	
Grid voltage (for anode current cut-off)	-6	-8	-12	volts

Operation as a frequency changer

Oscillator section

Anode supply voltage	250 volts
Anode de-coupling resistor	1,000 ohms
Grid resistor	10,000 ohms

Mixer section

Anode supply voltage	250 volts
Anode de-coupling resistor	1,000 ohms
Cathode bias resistor	2,000 ohms
Conversion conductance *	2.0 mA/V
Heterodyne voltage **	(See note)

* Exact value depends on circuit constants and input impedance considerations.

** Heterodyne voltage should be sufficient to just cause grid current in the mixer section.

BRIMAR VALVES

TYPE 6061

DATE ISSUED 22.2.51.

R.M.A. REGISTRATION DATA

6061
BEAM PENTODE

This valve is designed for trustworthy operation under conditions of vibration and mechanical shock. It is a miniature type beam power amplifier pentode designed for use in medium power audio amplifier applications. It has electrical characteristics which are identical to those of the 6V6G/GT. The use of the T-6½ bulb enables the 6061 to meet the full rating of the 6V6G/GT.

MECHANICAL DATA:

Coated unipotential cathode.
Outline drawing ..... 6-3 Bulb T-6½
Base ..... E9-1 Miniature glass button 9-pin.
Maximum diameter ..... 7/8"
Maximum overall length ..... 2.5/8"
Maximum seated height ..... 2.3/8"
Pin connections ..... Basing No. 9AM

Pin 1 - Grid No. 1	Pin 6 - Internally connected
Pin 2 - Grid No. 1	Pin 7 - Plate
Pin 3 - Cathode	Pin 8 - Grid No. 2
Pin 4 - Heater	Pin 9 - Grid No. 3
Pin 5 - Heater	

Mounting position ..... any
Maximum shock (in intermittent service) ..... 500 g
Vibration (continuous service) ..... 2½ g
Mechanical resonance ..... None below 100 c/s

ELECTRICAL DATA:

Ratings

Heater voltage (ac or dc) ..... 6.3 volts
Maximum heater-cathode voltage ..... 100 volts
Maximum plate voltage ..... 315 volts
Maximum Grid No. 2 voltage ..... 285 volts
Maximum plate dissipation ..... 12 watts
Maximum Grid No. 2 dissipation ..... 2 watts
Maximum external Grid No. 1 circuit resistance-self bias... 0.5 megohm
Maximum external Grid No. 1 circuit resistance-fixed bias.. 0.1 megohm
Maximum bulb temperature at any point ..... 250°C

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60060/100

Typical operating conditions and characteristics class A_1 amplifier

Heater voltage (ac or dc)	6.3	6.3	6.3 volts
Heater current	450	450	450 mA
Plate voltage	180	250	315 volts
Grid No. 3 voltage	0	0	0 volts
Grid No. 2 voltage	180	250	225 volts
Grid No. 1 voltage	-8.5	-12.5	-13 volts
Plate resistance (approx.)	58000	52000	77000 ohms
Transconductance	3700	4100	3750 µmhos
Peak a-f signal voltage	8.5	12.5	13 volts
Zero signal plate current	29	45	34 mA
Zero signal Grid No. 2 current	3	4.5	2.2 mA
Maximum signal plate current	30	47	35 mA
Maximum signal Grid No. 2 current	4	7	6 mA
Load resistance	5500	5000	8500 ohms
Total harmonic distortion (approx.)	8	8	12%
Power output	2.0	4.5	5.5 watts

BRIMAR VALVES

R.M.A. REGISTRATION DATA

TYPE 6062

DATE ISSUED 2.3.51.

DATA SHEET

Electron Tube Type 6062

These data are a part of JETEC General Data J1

The 6062 is a five-electrode tube designed for use as an amplifier, and as a frequency doubler and tripler in compact, low-power mobile transmitters. The anode is capable of dissipating 12 watts and cooling is accomplished by radiation. The cathode is a coated unipotential cathode. Maximum ratings apply up to 175 megacycles. The 6062 is designed for trustworthy operation under conditions of vibration and shock. It has electrical characteristics which are identical to those of the 5763.

GENERAL:

Electrical Data	Min.	Bogey	Max.
Heater voltage	5.4	6.0	6.6 volts
Heater current at bogey voltage	0.69	0.75	0.81 ampere
Amplification factor, - G1-G2 Mu, - at Eb=Ec2=250, Ec1=-7.5		16.0	
Direct interelectrode capacitances (No external shield)			
Grid-plate			0.3 μμF
Input	8	9.5	11 μμF
Output	3.8	4.5	5.2 μμF

Mechanical Data

Outline drawing ..... 6-3 Bulb T-6½

Base ..... E9-1 Miniature glass button 9-pin

Maximum diameter ..... 7/8"

Maximum overall length ..... 2.5/8"

Maximum seated height ..... 2.3/8"

Pin connections ..... Basing No... 9K

Pin 1 - Plate
Pin 2 - Internally connected.
Pin 3 - Grid No. 3
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Grid No. 2
Pin 7 - Cathode
Pin 8 - Grid No. 1
Pin 9 - Grid No. 1

Mounting position ..... any

Maximum shock (in intermittent operation) ..... 500 g

Vibration ..... 2½ g

Mechanical resonance ..... None below 100 c/s

Maximum glass temperature ..... 250°C

Net weight, approximate ..... 0.46 ounces

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BRIMAR VALVE WORKS, FOOTSCRAY, KENT, ENGLAND.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS:

Radio-Frequency Power Amplifier and Oscillator - Class C Telegraphy* and Radio-Frequency Power Amplifier - Class C Frequency Modulation Telephony

Key down conditions per tube without amplitude modulation.

Maximum continuous commercial service ratings, absolute values.

D.C. plate voltage	300 max.volts
D.C. Grid No. 3 voltage	0 max.volts
D.C. Grid No. 2 voltage	250 max.volts
D.C. Grid No. 1 voltage	-125 max.volts
D.C. plate current	50 max.mA
D.C. Grid No. 2 current	15 max.mA
D.C. Grid No. 1 current	5 max. mA
Plate input	15 max.watts
Grid No. 2 input	2 max.watts
Plate dissipation	12 max.watts
Peak heater-cathode voltage	
Heater negative with respect to cathode	100 max.volts
Heater positive with respect to cathode	100 max.volts

Typical Operation	At 50 megacycles
D.C. plate voltage	300 volts
Grid No. 3	Tied to cathode at socket
D.C. Grid No. 2 voltage	250 volts
D.C. Grid No. 1 voltage	-60 volts
From a resistor of	22000 ohms
Peak R.F. Grid No. 1 voltage	80 volts
D.C. plate current	50 mA
D.C. Grid No. 2 current	5 mA
D.C. Grid No. 1 current (approx.)	3 mA
Driving power (approx.)	0.35 watts
Power output (approx.) **	8 watts

* Modulation essentially negative may be used if the positive peak of the audio frequency envelope does not exceed 115 per cent of the carrier conditions.

** The useful power output is approximately 7 watts.

Frequency Multiplier

Maximum continuous commercial service, absolute values.

D.C. Plate voltage	300 max.volts
D.C. Grid No. 3 voltage	0 max.volts
D.C. Grid No. 2 voltage	250 max.volts
D.C. Grid No. 1 voltage	-125 max.volts
D.C. plate current	50 max.mA
D.C. Grid No. 2 current	15 max.mA
D.C. Grid No. 1 current	5 max.mA
Plate input	15 max.watts
Grid No. 2 input	2 max.watts
Plate dissipation	12 max.watts
Peak heater-cathode voltage	
Heater negative with respect to cathode	100 max.volts
Heater positive with respect to cathode	100 max.volts

Typical Operation	Doubler to 175 megacycles	Tripler to 175 megacycles
D.C. plate voltage	300	300 volts
Grid No. 3	Tied to cathode at socket	
D.C. Grid No. 2 voltage	*	* volts
D.C. Grid No. 1 voltage	-75	-100 volts
From a Grid No. 1 resistor of	75,000	100,000 ohms
Peak R.F. Grid No. 1 voltage	95	120 volts
D.C. plate current	40	35 mA
D.C. Grid No. 2 current	4.0	5.0 mA
D.C. Grid No. 1 current (approx.)	1.0	1.0 mA
Driving power (approx.)	0.6	0.6 watts
Power output (approx.) **	3.6	2.8 watts

* Obtained from plate supply voltage of 300 volts through a series resistor of 12,500 ohms.

** Useful power output is approximately 2.1 watts for doubler service and 1.3 watts for tripler service.

BRIMAR VALVES

R.M.A. REGISTRATION DATA

TYPE 6063

DATE ISSUED 22.2.51.

6063
FULL WAVE RECTIFIER

This valve is designed for trustworthy operation under conditions of vibration and mechanical shock. It is designed for use in equipment where the current drain does not exceed 70 mA. The general characteristics and performance are as Type 6X4.

MECHANICAL DATA:

Coated unipotential cathode.

Outline drawing ..... 5-3 Bulb	T-5½
Base ..... E7-1 Miniature Button 7-pin.	
Maximum diameter	3/4"
Maximum overall length	2.5/8"
Maximum seated height	2.3/8"
Pin connections	Basing No.5BS

Pin 1 - Plate No. 2
Pin 2 - Internally connected
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Internally connected
Pin 6 - Plate No. 1
Pin 7 - Cathode

Mounting position	any
Maximum shock (in intermittent service)	720 g.
Vibration (continuous service)	2.5 g.
Mechanical resonance	None below 100 c/s.

ELECTRICAL DATA:

Ratings

Heater voltage (ac or dc)	6.3 volts
Heater current	0.6 amp
D.C. heater-cathode voltage	450 volts
Peak plate current (per plate)	210 mA
D.C. output current	70 mA
Peak inverse plate voltage	1250 volts

60060/100

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Typical operating conditions

Condenser Input Filter

Maximum R.M.S. voltage(per plate)	325 volts
Minimum supply impedance (per plate)	150 ohms
Maximum direct current output	70 mA
Maximum reservoir condenser	32 µF

Choke Input Filter

Maximum R.M.S. voltage (per plate)	450 volts
Maximum direct current output	70 mA
Maximum choke inductance	8 Henries

BRIMAR VALVES

R.M.A. REGISTRATION DATA

TYPE 6064
6AK5

DATE ISSUED 9.2.51.

6064
HIGH SLOPE R.F. PENTODE

This valve is designed for trustworthy operation under conditions of vibration and mechanical shock. It is particularly suitable for use in wide band amplifiers and will function (in conjunction with a suitable oscillator) as a frequency changer at frequencies up to 100 m/cs.

MECHANICAL DATA:

Coated unipotential cathode.
Outline drawing ..... 5-2 Bulb T-5½
Base ..... E7-1 Miniature button 7-pin
Maximum diameter ..... 3/4"
Maximum overall length ..... 2.1/8"
Maximum seated height ..... 1.7/8"
Pin connections ..... Basing No. 7BB 7DB

Pin 1 - Grid No. 1	Pin 5 - Plate
Pin 2 - Cathode	Pin 6 - Grid No. 3 and internal shield
Pin 3 - Heater	
Pin 4 - Heater	Pin 7 - Grid No. 2

Mounting position ..... any
Maximum shock (in intermittent service) ..... 500 g
Vibration (continuous service) ..... 2½ g
Mechanical resonance ..... None below 100 c/s

ELECTRICAL DATA:

Direct inter-electrode capacitances:*

Grid to plate ..... 0.01 pF max.
Input ..... 7.8 pF
Output ..... 3.9 pF

* With shield No. 316 connected to cathode.

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BRIMAR VALVE WORKS, FOOTSCRAY, KENT, ENGLAND.

Ratings:

Heater voltage (ac or dc)	6.3 volts
Heater current	0.3 amp
Maximum heater-cathode voltage	90 volts
Maximum plate voltage	250 volts
Maximum plate dissipation	2.5 watts
Maximum Grid No. 2 voltage	250 volts
Maximum Grid No. 2 dissipation	0.8 watts

Typical operating characteristics:

Suppressor grid (Grid No. 3) connected to cathode

Anode voltage	200	250	volts
Anode current	9.0	10.0	mA
Screen voltage	200	250	volts
Control grid (Grid No. 1) voltage	-1.5	-2.0	volts
Cathode bias resistor	135	160	ohms
Plate impedance (approx.)	0.8	1.0	megohms
Mutual conductance	7.5	7.5	mA/V
Inner amplification factor (μg1-g2)	70	70	

BRIMAR VALVES

R.M.A. REGISTRATION DATA

TYPE 6066

DATE ISSUED 2.3.51.

6066
DOUBLE DIODE TRIODE

The 6066 is a miniature type, double diode triode, designed for trustworthy operation under conditions of vibration and mechanical shock. Characteristics are similar to the 6AT6.

MECHANICAL DATA

Coated unipotential cathode.
Outline drawing ..... 5-2 Bulb T-5½
Base ..... E7-1 Miniature button 7-pin
Maximum diameter ..... 3/4"
Maximum overall length ..... 2.1/8"
Maximum seated height ..... 1.7/8"
Pin connections ..... Basing No. 7BT

Pin 1 - Grid No. 1	Pin 5 - Diode No. 2
Pin 2 - Cathode	Pin 6 - Diode No. 1
Pin 3 - Heater	Pin 7 - Plate
Pin 4 - Heater	

Mounting position ..... any
Maximum shock (in intermittent service) ..... 500 g
Vibration (continuous service) ..... 2½ g
Mechanical resonance ..... None below 100 c/s

ELECTRICAL DATA

Interelectrode capacitances *

Grid to cathode ..... 2.3 pF
Anode to cathode ..... 1.1 pF
Grid to anode ..... 2.1 pF
Diode (D2) to grid ..... 0.025 pF max.

* With no external shield.

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BRIMAR VALVE WORKS, FOOTSCRAY, KENT, ENGLAND.

Ratings

Heater voltage (ac or dc)	6.3 volts
Maximum heater-cathode voltage	90 volts
Maximum plate voltage	300 volts
Maximum external Grid No. 1 circuit resistance - self bias	1 megohm

Typical operating characteristics

Anode voltage	100	250 volts
Anode current	0.8	1.0 mA
Grid voltage	-1	-3 volts
Anode impedance	54,000	58,000 ohms
Mutual conductance	1.3	1.2 mA/V
Amplification factor	70	70

Operation as a resistance coupled amplifier

Anode supply voltage	100	250	250 volts
Anode load resistor	0.5	0.25	0.25 megohm
Grid resistor	1.0	1.0	10 megohm
Cathode bias resistor	9,000	3,000	0 ohms
Peak output	16	43	40 volts
* Stage gain	33	42	42
* Harmonic distortion	2	1	5 %

* Figures are for 12 volts peak output.