RADIO MANUFACTURERS ASSOCIATION
SUITE 701-4 AMERICAN BUILDING
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WASHINGTON, D. C.

E. I. A.
REGISTRATION
FILE

R.M.A. DATA BUREAU
50 West Street
New York, N. Y.

Release No. 445

October 25, 1945

To
Tube Engineers:

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

6AT6	(Registration No. 915)
6AU6	" " 916)
6BA6	" " 917)
6BE6	" " 918)
12AT6	" " 919)
12BA6	" " 920)
12BE6	" " 921)
35W4	" " 922)
50B5	" " 923)

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

RCA Victor Division
Radio Corporation of America
Harrison, New Jersey

Respectfully yours,

RMA DATA BUREAU

By [signature]

LCFHorle/CAP

5567-J

RCA-6AT6
DUPLEX-DIODE HIGH-MU TRIODE
Miniature Type
(Tentative Data)

RCA-6AT6 is a miniature multi-unit tube containing two diodes and a high-mu triode in one envelope. It is intended for use as a combined detector, amplifier, and avc tube.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3	Volts
Current	0.3	Ampere
Direct Interelectrode Capacitances:*		
Triode Unit — Grid to Plate	2.1	μμf
Grid to Cathode and Heater	2.3	μμf
Plate to Cathode and Heater	1.1	μμf
Diode Plate No. 2 to Triode Grid	0.025 max.	μμf

Mechanical

Mounting Position		Any
Maximum Overall Length		2-1/8"
Maximum Seated Length		1-7/8"
Length from Base Seat to Bulb Top (excluding tip)		1-1/2" ± 3/32"
Maximum Diameter		3/4"
Bulb		T-5-1/2
Base	Miniature Button 7-Pin	7BT

Basing Designation

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

TRIODE UNIT

Maximum Ratings, Design-Center Values

PLATE VOLTAGE	300 max.	Volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	Volts
Heater positive with respect to cathode	90 max.	Volts

Characteristics — Class A1 Amplifier

Plate Voltage	100	250	Volts
Grid Voltage	-1	-3	Volts
Amplification Factor	70	70	
Plate Resistance	54000	58000	Ohms
Transconductance	1300	1200	Micromhos
Plate Current	0.8	1.0	Milliamperes

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* With no external shield.

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TUBE DIVISION
Radio Corporation of America
Harrison, New Jersey

10-13-46

DIODE DATA -- TW

The two diode plates are placed around a cathode, the sleeve of which is common to the triode unit. Each diode plate has its own base pin. The minimum diode current per plate with an applied dc voltage of 10 volts is 0.8 milliampere.

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Radio Corporation of America
Harrison, New Jersey

RCA-6AU6

RF AMPLIFIER PENTODE WITH SHARP CUTOFF

Miniature Type

(Tentative Data)

RCA-6AU6 is a miniature rf triple-grid tube with a sharp cutoff characteristic, low grid-plate capacitance, and high transconductance. The low value of grid-plate capacitance minimizes regenerative effects, while the high transconductance makes possible a high signal-to-noise ratio. Because of its high transconductance and sharp cutoff, the 6AU6 is particularly useful as a limiter tube in FM receivers.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3	Volts
Current	0.3	Amperes
Direct Interelectrode Capacitances:*		
Grid No. 1 to Plate $[C_{g_1p}]$	0.0035 max.	$\mu\mu f$
Input $[C_{g_1}(k + h + g_2 + g_3 + \text{internal shield})]$	5.5	$\mu\mu f$
Output $[C_p(k + h + g_2 + g_3 + \text{internal shield})]$	5.0	$\mu\mu f$

Mechanical

Mounting Position		Any
Maximum Overall Length		1-13/32"
Maximum Seated Length		1-7/32"
Length from Base Seat to Bulb Top (excluding tip)		1-1/2" ± 3/32"
Maximum Diameter		3/4"
Bulb		T-5-1/4
Base		Miniature Button 7-Pin
Mating Designation		7BM
Pin 1 - Grid No. 1	Pin 4 - Heater	
Pin 2 - Grid No. 3, Internal Shield	Pin 5 - Plate	
	Pin 6 - Grid No. 2	
Pin 3 - Heater	Pin 7 - Cathode	

AMPLIFIER

Maximum Ratings, Design-Center Values

PLATE VOLTAGE	300 max.	Volts
GRID-No. 2 (SCREEN) VOLTAGE	150 max.	Volts
GRID-No. 2 SUPPLY VOLTAGE	300 max.	Volts
PLATE DISSIPATION	3 max.	Watts
GRID-No. 2 DISSIPATION	0.65 max.	Watt
GRID-No. 1 (CONTROL GRID) VOLTAGE:		
Negative Bias Value	50 max.	Volts
Positive Bias Value	0 max.	Volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	Volts
Heater positive with respect to cathode	90 max.	Volts

* With no external shield.

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Radio Corporation of America
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Typical Operation and Characteristics — Class A1 Amplifier

Plate Voltage	100	250	250	Volts
Grid No. 3 (Suppressor)	Connected to cathode at socket			
Grid-No. 2 Voltage	100	125	150	Volts
Grid-No. 1 Voltage	-1	-1	-1	Volts
Plate Resistance (Approx.)	0.6	2.5	2.0	Megohms
Transconductance	3900	4450	5200	Micromhos
Grid-No. 1 Bias for plate current of 10 microamperes	-4.2	-5.2	-6.2	Volts
Plate Current	5.2	7.6	10.8	Milliamperes
Grid-No. 2 Current	2.0	3.0	4.3	Milliamperes

RCA-6AU6
RF AMPLIFIER PENTODE WITH REMOTE CUTOFF
Miniature Type
(Tentative Data)

RCA-6AU6 is a miniature rf triple-grid tube with a remote cutoff characteristic. Its high transconductance and low grid-plate capacitance are desirable features for the design of hf receivers. The low value of grid-plate capacitance minimizes regenerative effects, while the high transconductance makes possible a high signal-to-noise ratio.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3	Volts
Current	0.3	Ampere
Direct Interelectrode Capacitances:*		
Grid No. 1 to Plate $[C_{g_1p}]$	0.0035 max.	μμf
Input $[C_{g_1(k + h + g_2 + g_3 + \text{internal shield})}]$	5.5	μμf
Output $[C_{p(k + h + g_2 + g_3 + \text{internal shield})}]$	5.0	μμf

Mechanical

Mounting Position	Any
Maximum Overall Length	2-1/8"
Maximum Seated Length	1-7/8"
Length from Base Seat to Bulb Top (excluding tip)	1-1/2" ± 3/32"
Maximum Diameter	3/4"
Bulb	T-5-1/2
Base	Miniature Button 7-Pin
Basing Designation	7DC

Pin 1 - Grid No. 1
Pin 2 - Grid No. 3, Internal Shield
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Grid No. 2
Pin 7 - Cathode

AMPLIFIER

Maximum Ratings, Design-Center Values

PLATE VOLTAGE	300 max.	Volts
GRID-No. 2 (SCREEN) VOLTAGE	125 max.	Volts
GRID-No. 2 SUPPLY VOLTAGE	300 max.	Volts
PLATE DISSIPATION	3 max.	Watts
GRID-No. 2 DISSIPATION	0.6 max.	Watt
GRID-No. 1 (CONTROL GRID) VOLTAGE:		
Negative Bias Value	50 max.	Volts
Positive Bias Value	0 max.	Volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	Volts
Heater positive with respect to cathode	90 max.	Volts

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* With no external shield.

Commercial Engineering Department
Tube Division
Radio Corporation of America
Harrison, New Jersey

10-14-45

Typical Operation and Characteristics -- Class A1 Amplifier

Plate Voltage	100	250	Volts
Grid-No. 3 (Suppressor)	Connected to cathode at socket		
Grid-No. 2 Voltage	100	100	Volts
Cathode-Bias Resistor	68	68	Ohms
Plate Resistance (Approx.)	0.25	1.5	Megohms
Transconductance	4300	4400	Micromhos
Grid-No. 1 Bias (Approx.) for transconductance of 40 micromhos	-20	-20	Volts
Plate Current	10.8	11	Milliamperes
Grid-No. 2 Current	4.4	4.2	Milliamperes

RCA-6BE6
PENTAGRID CONVERTER
Miniature Type
(Tentative Data)

RCA-6BE6 is a miniature multi-electrode vacuum tube of the single-ended type designed to perform simultaneously the functions of a mixer (first detector) tube and of an oscillator tube in superheterodyne circuits.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3	Volts
Current	0.3	Amperes
Direct Interelectrode Capacitances:*		
Grid No. 3 to All Other Electrodes (RF Input) $[C_{g_3(h+k+g_1+g_2+g_4+g_5)}]$	7.2	μμf
Plate to All Other Electrodes (Mixer Output) $[C_{p(h+k+g_1+g_2+g_3+g_4+g_5)}]$	8.6	μμf
Grid No. 1 to All Other Electrodes (Oscillator Input) $[C_{g_1(h+k+g_2+g_3+g_4+g_5+p)}]$	5.5	μμf
Grid No. 3 to Plate $[C_{g_3p}]$	0.30 max.	μμf
Grid No. 1 to Grid No. 3 $[C_{g_1g_3}]$	0.15 max.	μμf
Grid No. 1 to Plate $[C_{g_1p}]$	0.05 max.	μμf
Grid No. 1 to All Other Electrodes Except Cathode $[C_{g_1(h+g_2+g_3+g_4+g_5+p)}]$	2.7	μμf
Grid No. 1 to Cathode $[C_{g_1k}]$	2.8	μμf
Cathode to All Other Electrodes Except Grid No. 1 $[C_{k(h+g_2+g_3+g_4+g_5+p)}]$	15	μμf

Mechanical

Mounting Position	Any
Maximum Overall Length	2-1/8"
Maximum Seated Length	1-7/8"
Length from Base Seat to Bulb Top (excluding tip)	1-1/2" ± 3/32"
Maximum Diameter	3/4"
Bulb	T-5-1/2
Base	Miniature Button 7-Pin 7GM
Basing Designation	

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

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* With no external shield.

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Harrison, New Jersey

10-18-45

CONVERTER

Maximum Ratings, Design-Center Values

PLATE VOLTAGE	300 max.	Volts
GRIDS-No. 2 & No. 4 VOLTAGE	100 max.	Volts
GRIDS-No. 2 & No. 4 SUPPLY VOLTAGE	300 max.	Volts
PLATE DISSIPATION	1.0 max.	Watt
GRIDS-No. 2 & No. 4 DISSIPATION	1.0 max.	Watt
TOTAL CATHODE CURRENT	14 max.	Milliamperes
GRID-No. 3 VOLTAGE:		
Negative Bias Value	50 max.	Volts
Positive Bias Value	0 max.	Volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	Volts
Heater positive with respect to cathode	90 max.	Volts

Characteristics — Separate Excitation**

Plate Voltage	100	250	Volts
Grids-No. 2 & No. 4 (Screen) Voltage	100	100	Volts
Grid-No. 3 (Control Grid) Voltage	-1.5	-1.5	Volts
Grid-No. 1 (Oscillator Grid) Resistor	20000	20000	Ohms
Plate Resistance (Approx.)	0.5	1.0	Megohms
Conversion Transconductance	455	475	Micromhos
Conversion Transconductance (Approx.)#	4	4	Micromhos
Plate Current	2.8	3.0	Milliamperes
Grids-No. 2 & No. 4 Current	7.3	7.1	Milliamperes
Grid-No. 1 Current	0.5	0.5	Milliamperes
Total Cathode Current	10.6	10.6	Milliamperes

NOTE: The transconductance between grid No. 1 and grids No. 2 & No. 4 connected to plate (not oscillating) is approximately 2200 micromhos under the following conditions: grids No. 1 & No. 3 at 0 volts; grids No. 2 & No. 4 and plate at 100 volts. Under the same conditions, the plate current is 25 milliamperes, and the amplification factor is 20.

** The characteristics shown with separate excitation correspond very closely with those obtained in a self-excited oscillator circuit operating with zero bias.

With grid-No. 3 bias of -30 volts.

Commercial Engineering Department
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Radio Corporation of America
Harrison, New Jersey

RCA-12AT6
DUPLEX-DIODE HIGH-MU TRIODE
Miniature Type
(Tentative Data)

RCA-12AT6 is a miniature multi-unit tube containing two diodes and a high-mu triode in one envelope. It is intended for use as a combined detector, amplifier, and avc tube.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	12.6	Volts
Current	0.15	Ampere
Direct Interelectrode Capacitances:*		
Triode Unit — Grid to Plate	2.1	μμf
Grid to Cathode and Heater	2.3	μμf
Plate to Cathode and Heater	1.1	μμf
Diode Plate No. 2 to Triode Grid	0.025 max.	μμf

Mechanical

Mounting Position	Any
Maximum Overall Length	2-1/8"
Maximum Seated Length	1-7/8"
Length from Base Seat to Bulb Top (exclud tip)	1-1/2" ± 3/32"
Maximum Diameter	3/4"
Bulb	T-5-1/2
Base	Miniature Button 7-Pin 7BT
Basing Designation	

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

TRIODE UNIT

Maximum Ratings, Design-Center Values

PLATE VOLTAGE	300 max.	Volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	Volts
Heater positive with respect to cathode	90 max.	Volts

Characteristics — Class A1 Amplifier

Plate Voltage	100	250	Volts
Grid Voltage	-1	-3	Volts
Amplification Factor	70	70	
Plate Resistance	54000	58000	Ohms
Transconductance	1300	1200	Micromhos
Plate Current	0.8	1.0	Milliampere

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* With no external shield.

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Harrison, New Jersey

DIODE UNITS — Two

The two diode plates are placed around a cathode, the sleeve of which is common to the triode unit. Each diode plate has its own base pin. The minimum diode current per plate with an applied dc voltage of 10 volts is 0.8 milliampere.

RCA-12BA6

RF AMPLIFIER PENTODE WITH REMOTE CUTOFF
Miniature Type
(Tentative Data)

RCA-12BA6 is a miniature rf triple-grid tube with a remote cutoff characteristic. Its high transconductance and low grid-plate capacitance are desirable features for the design of hf receivers. The low value of grid-plate capacitance minimizes regenerative effects, while the high transconductance makes possible a high signal-to-noise ratio.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	12.6	Volts
Current	0.15	Ampere
Direct Interelectrode Capacitances:*		
Grid No. 1 to Plate $[C_{g_1p}]$	0.0035 max.	μμf
Input $[C_{g_1}(k + h + g_2 + g_3 + \text{internal shield})]$	5.5	μμf
Output $[C_p(k + h + g_2 + g_3 + \text{internal shield})]$	5.0	μμf

Mechanical

Mounting Position		Any
Maximum Overall Length		2-1/8"
Maximum Seated Length		1-7/8"
Length from Base Seat to Bulb Top (excluding tip)		1-1/2" ± 3/32"
Maximum Diameter		3/4"
Bulb		T-3-1/2
Base		Miniature Button 7-Pin
Basing Designation		7CQ
Pin 1 - Grid No. 1	Pin 4 - Heater	
Pin 2 - Grid No. 3, Internal Shield	Pin 5 - Plate	
	Pin 6 - Grid No. 2	
Pin 3 - Heater	Pin 7 - Cathode	

AMPLIFIER

Maximum Ratings, Design-Center Values

PLATE VOLTAGE	300 max.	Volts
GRID-No. 2 (SCREEN) VOLTAGE	125 max.	Volts
GRID-No. 2 SUPPLY VOLTAGE	300 max.	Volts
PLATE DISSIPATION	3 max.	Watts
GRID-No. 2 DISSIPATION	0.6 max.	Watt
GRID-No. 1 (CONTROL GRID) VOLTAGE:		
Negative Bias Value	50 max.	Volts
Positive Bias Value	0 max.	Volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	Volts
Heater positive with respect to cathode	90 max.	Volts

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* With no external shield.

Commercial Engineering Department
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Harrison, New Jersey

10-16-45

Typical Operation and Characteristics -- Class A1 Amplifier

Plate Voltage	100	250	Volts
Grid No. 3 (Suppressor)	Connected to cathode at socket		
Grid-No. 2 Voltage	100	100	Volts
Cathode-Bias Resistor	68	68	Ohms
Plate Resistance (Approx.)	0.25	1.5	Megohms
Transconductance	4300	4200	Micromhos
Grid-No. 1 Bias (Approx.) for transconductance of 40 micromhos	-20	-20	Volts
Plate Current	10.8	11	Milliamperes
Screen Current	4.4	4.2	Milliamperes

Commercial Engineering Department
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Radio Corporation of America
Harrison, New Jersey

RCA-12BE6
PENTAGRID CONVERTER
Miniature Type
(Tentative Data)

RCA-12BE6 is a miniature multi-electrode vacuum tube of the single-ended type designed to perform simultaneously the functions of a mixer (first detector) tube and of an oscillator tube in superheterodyne circuits.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	12.6	Volts
Current	0.15	Ampere
Direct Interelectrode Capacitances:*		
Grid No. 3 to All Other Electrodes (RF Input) $[C_{g3(h+k+g_1+g_2+g_4+g_5)}]$	7.2	μμf
Plate to All Other Electrodes (Mixer Output) $[C_{p(h+k+g_1+g_2+g_3+g_4+g_5)}]$	8.6	μμf
Grid No. 1 to All Other Electrodes (Oscillator Input) $[C_{g_1(h+k+g_2+g_3+g_4+g_5+p)}]$	5.5	μμf
Grid No. 3 to Plate $[C_{g_3p}]$	0.30 max.	μμf
Grid No. 1 to Grid No. 3 $[C_{g_1g_3}]$	0.15 max.	μμf
Grid No. 1 to Plate $[C_{g_1p}]$	0.05 max.	μμf
Grid No. 1 to All Other Electrodes Except Cathode $[C_{g_1(h+g_2+g_3+g_4+g_5+p)}]$	2.7	μμf
Grid No. 1 to Cathode $[C_{g_1k}]$	2.8	μμf
Cathode to All Other Electrodes Except Grid No. 1 $[C_{k(h+g_2+g_3+g_4+g_5+p)}]$	15	μμf

Mechanical

Mounting Position	Any
Maximum Overall Length	2-1/8"
Maximum Seated Length	1-7/8"
Length from Base Seat to Bulb Top (excluding tip)	1-1/2" ± 3/32"
Maximum Diameter	3/4"
Bulb	T-5-1/2
Base	Miniature Button 7-Pin
Basing Designation	7CH

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

* With no external shield.

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10-18-45

CONVERTER

Maximum Ratings, Design-Center Values

PLATE VOLTAGE	300 max.	Volts
GRIDS-No. 2 & No. 4 VOLTAGE	100 max.	Volts
GRIDS-No. 2 & No. 4 SUPPLY VOLTAGE	300 max.	Volts
PLATE DISSIPATION	1.0 max.	Watt
GRIDS-No. 2 & No. 4 DISSIPATION	1.0 max.	Watt
TOTAL CATHODE CURRENT	14 max.	Milliamperes
GRID-No. 3 VOLTAGE:		
Negative Bias Value	50 max.	Volts
Positive Bias Value	0 max.	Volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	Volts
Heater positive with respect to cathode	90 max.	Volts

Characteristics — Separate Excitation**

Plate Voltage	100	250	Volts
Grids-No. 2 & No. 4 (Screen) Voltage	100	100	Volts
Grid-No. 3 (Control Grid) Voltage	-1.5	-1.5	Volts
Grid-No. 1 (Oscillator Grid) Resistor	20000	20000	Ohms
Plate Resistance (Approx.)	0.5	1.0	Megohms
Conversion Transconductance	455	475	Micromhos
Conversion Transconductance (Approx.)#	4	4	Micromhos
Plate Current	2.8	3.0	Milliamperes
Grids-No. 2 & No. 4 Current	7.3	7.1	Milliamperes
Grid-No. 1 Current	0.5	0.5	Milliampere
Total Cathode Current	10.6	10.6	Milliamperes

NOTE: The transconductance between grid No. 1 and grids No. 2 & No. 4 connected to plate (not oscillating) is approximately 7250 micromhos under the following conditions: grids No. 1 & No. 3 at 0 volts; grids No. 2 & No. 4 and plate at 100 volts. Under the same conditions, the plate current is 25 milliamperes, and the amplification factor is 20.

** The characteristics shown with separate excitation correspond very closely with those obtained in a self-excited oscillator circuit operating with zero bias.

With grid-No. 3 bias of -30 volts.

RCA-35W4
HALF-WAVE HIGH-VACUUM RECTIFIER
Miniature Type
(Tentative Data)

RCA-35W4 is a miniature, half-wave, high-vacuum rectifier of the heater-cathode type for use in ac/dc receivers. The heater is provided with a tap for operation of a panel lamp.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:	Without Panel Lamp	With No. 40 or No. 47 Panel Lamp	
Voltage (AC or DC):			
Entire Heater (pins 3 & 4)	35	32	Volts
Panel-Lamp Section (pins 4 & 6)	7.5	5.5	Volts
Current: between pins 3 & 4	0.15	-	Ampere
Current: between pins 3 & 6	-	0.15	Ampere

Tube Voltage Drop: 18 volts, measured with applied dc at 200 ma. plate current.

Mechanical

Mounting Position	Any
Maximum Overall Length	2-5/8"
Maximum Seated Length	2-3/8"
Length from Base Seat to Bulb Top (excluding tip)	2" ± 3/32"
Maximum Diameter	1-1/4"
Bulb	T-5-1/2
Base	Miniature Button 7-Pin
Basing Designation	5B

Pin 1 - No Connection
Pin 2 - No Connection
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Heater Tap
Pin 7 - Cathode
Panel-Lamp Heater Section is between pins 4 & 6

HALF-WAVE RECTIFIER

Maximum Ratings, Design-Center Values

PEAK INVERSE PLATE VOLTAGE	330 max.	Volts
PEAK PLATE CURRENT	600 max.	Milliamperes
DC OUTPUT CURRENT:		
With Panel Lamp and: No Shunting Resistor	60 max.	Milliamperes
With Panel Lamp and: Shunting Resistor*	90 max.	Milliamperes
Without Panel Lamp	100 max.	Milliamperes
PANEL-LAMP-SECTION VOLTAGE (RMS): When panel lamp fails	15 max.	Volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	330 max.	Volts
Heater positive with respect to cathode	330 max.	Volts

* See next page under Maximum Circuit Values.

Commercial Engineering Department
TUBE DIVISION
Radio Corporation of America
Harrison, New Jersey

10-18-45

Typical Operation With No. 40 or No. 47 Panel Lamp in Circuit Below with Condenser-Input Filter

AC Plate-Supply Voltage (RMS)	117	117	117	117	Volts
Filter-Input Capacitor	40	40	40	40	µf
Min. Total Effective Plate-Supply Impedance	15	15	15	15	Ohms
Panel-Lamp Shunting Resistor	-	300	150	100	Ohms
DC Output Current	60	70	80	80	Milliamperes

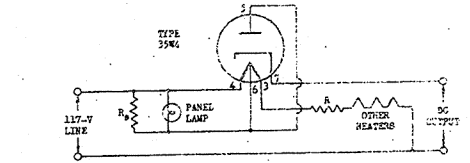
Typical Operation Without Panel Lamp in Conventional Half-Wave Circuit with Condenser-Input Filter

AC Plate-Supply Voltage (RMS)	117	Volts
Filter-Input Capacitor	40	µf
Min. Total Effective Plate-Supply Impedance	15	Ohms
DC Output Current	100	Milliamperes
DC Output Voltage at Input to Filter (Approx.):		
At half-load current (50 ma.)	140	Volts
At full-load current (100 ma.)	120	Volts
Voltage Regulation (Approx.):		
Half-load to full-load current	20	Volts

Maximum Circuit Values

Panel-Lamp Shunting Resistor:*		
For dc output current of 70 ma.	300 max.	Ohms
For dc output current of 80 ma.	200 max.	Ohms
For dc output current of 90 ma.	250 max.	Ohms

* Required when dc output current is greater than 60 ma.



DROP ACROSS R AND ALL HEATERS (WITH PANEL LAMP) SHOULD EQUAL 117 VOLTS AT 0.15 AMPERE.
R_s = SHUNTING RESISTOR REQUIRED WHEN DC OUTPUT CURRENT EXCEEDS 60 MA.

The license extended to the purchaser of tubes appears in the License Notice accompanying them. Information contained herein is furnished without assuming any obligations.

Commercial Engineering Department
TUBE DIVISION
Radio Corporation of America
Harrison, New Jersey

RCA-50B5
BEAM POWER AMPLIFIER
Miniature Type
(Tentative Data)

RCA-50B5 is a miniature beam power amplifier of the heater-cathode type for use in the output stage of ac/dc receivers. At the relatively low plate and screen voltages available in such receivers, the 50B5 is capable of providing high power output because of its high power sensitivity and high efficiency.

GENERAL DATA

Electrical

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	50	Volts
Current	0.15	Ampere
Direct Interelectrode Capacitances (Approx.):*		
Grid No. 1 to Plate	0.5	μμf
Input $[C_{g1}(k + h + g_2 + g_3)]$	13	μμf
Output $[C_p(k + h + g_2 + g_3)]$	6.5	μμf

Mechanical

Mounting Position	Any
Maximum Overall Length	2-5/8"
Maximum Seated Length	2-3/8"
Length from Base Seat to Bulb Top (excluding tip)	2" ± 3/32"
Maximum Diameter	3/4"
Bulb	T-5-1/2
Base	Miniature Button 7-Pin
Basing Designation	7BZ

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

AMPLIFIER

Maximum Ratings, Design-Center Values

PLATE VOLTAGE	117 max.	Volts
GRID-No. 2 (SCREEN) VOLTAGE	117 max.	Volts
PLATE DISSIPATION	5.5 max.	Watts
GRID-No. 2 DISSIPATION	1.25 max.	Watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	Volts
Heater positive with respect to cathode	90 max.	Volts

* With no external shield.

Commercial Engineering Department
TUBE DIVISION
Radio Corporation of America
Harrison, New Jersey

10-18-45

Typical Operation and Characteristics — Class A1 Amplifier

Plate Voltage	110	Volts
Grid-No. 2 Voltage	110	Volts
Grid-No. 1 Voltage	-7.5	Volts
Peak AF Grid-No. 1 Voltage	7.5	Volts
Zero-Signal Plate Current	49	Milliamperes
Max.-Signal Plate Current	50	Milliamperes
Zero-Signal Grid-No. 2 Current (Approx.)	4	Milliamperes
Max.-Signal Grid-No. 2 Current (Approx.)	8.5	Milliamperes
Plate Resistance (Approx.)	14000	Ohms
Transconductance	7500	Micromhos
Load Resistance	2500	Ohms
Total Harmonic Distortion	9	Per cent
Max.-Signal Power Output	1.9	Watts

Maximum Circuit Values (for maximum rated conditions)

Grid-No. 1-Circuit Resistance:		
For fixed bias	0.1	Megohm
For cathode bias	0.5	Megohm

Commercial Engineering Department
TUBE DIVISION
Radio Corporation of America
Harrison, New Jersey

RADIO MANUFACTURERS ASSOCIATION

SUITE 701-4 AMERICAN BUILDING
1317 F STREET, N.W.
WASHINGTON, D. C.

R.M.A. DATA BUREAU
90 West Street
New York, N. Y.

Release No. 446A

August 23, 1946

To
Tube Engineers:

On October 25, 1945 in Release No. 446 the Data Bureau announced the registration of the tube type designation

6AU6

under the sponsorship of Radio Corporation of America, RCA Victor Division, Harrison, N. J.

Sponsor now proposes correction of errors in measurement of the plate-resistance values registered by re-registration on the basis of values shown below.

	As Registered			Proposed for Re-registration.		
At Plate Volts	100	250	250	100	250	250
Grid-No. 2 Volts	100	125	150	100	125	150
Grid-No. 1 Volts	-1	-1	-1	-1	-1	-1
Plate Resistance (Megohms, Approx.)	0.6	2.5	2.0	0.5	1.5	1.0

Unless valid objection to this re-registration is submitted to the Data Bureau prior to September 23, 1946, the indicated re-registration will be made without further announcement.

Respectfully yours,

RMA DATA BUREAU

By [illegible]

LCFHorle/CAP

JOINT ELECTRON TUBE ENGINEERING COUNCIL

630 Sixth Avenue
11 West Forty-Second Street
New York 36, N.Y.
Telephone: LOngacre 5-3450

Announcement
of
Electron Device Type Reregistration

Release No. 446B (Tentative)*

June 17, 1957

The Joint Electron Tube Engineering Council announced the registration of the following JETEC tube type designation

50B5

on October 25, 1945, in Release No. 446, under the sponsorship of the Radio Corporation of America, Harrison, New Jersey.

The modifications found on the attached data sheets are now proposed by JTC-5, Committee on Receiving Tubes.

*Unless valid objection to this reregistration is lodged with the RETMA Engineering Office prior to July 17, 1957, this reregistration will be made and this information will be considered "FINAL" WITHOUT FURTHER NOTICE!

JETEC TYPE 50B5

PENTODE

MECHANICAL DATA

Coated unipotential cathode
Outline drawing . . . . . 5-3 Bulb . . . . . T 5-1/2
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 TBZ

Pin 1 - Grid #1	Pin 5 - Plate
Pin 2 - Cathode, Grid #3	Pin 6 - Grid #2
Pin 3 - Heater	Pin 7 - Grid #1
Pin 4 - Heater	

Mounting position . . . . . Any

ELECTRICAL DATA

Direct Interelectrode Capacitances

Grid to plate: (g1 to p)	0.6	μμf
Input: g1 to (h+k+g2+g3)	13.0	μμf
Output: p to (h+k+g2+g3)	8.5	μμf

Heater Characteristics

Heater voltage (ac or dc)	50	volts
Heater current	150	ma

Ratings*

Maximum plate voltage	135	volts
Maximum grid #2 voltage	117	volts
Maximum plate dissipation	6.0	watts
Maximum grid #2 dissipation	1.25	watts
Maximum positive grid #1 voltage	0	volts
Maximum heater-cathode voltage		
Heater negative with respect to cathode: Total DC and peak	200	volts
Heater positive with respect to cathode: DC	100	volts
Total DC and peak	200	volts
Maximum grid #1 circuit resistance		
Cathode bias	0.5	megohm
Fixed bias	0.1	megohm
Maximum bulb temperature (at hottest point)	220°	C.

ELECTRICAL DATA (Continued)

Typical operating conditions and characteristics, class A1 amplifier

Plate voltage	120	volts
Grid #2 voltage	110	volts
Grid #1 voltage	-8	volts
Peak AF grid #1 voltage	8	volts
Plate resistance (approx.)	10,000	ohms
Transconductance	7,500	µmhos
Zero signal plate current	49	ma
Maximum signal plate current	50	ma
Zero signal grid #2 current	4	ma
Maximum signal grid #2 current	8.5	ma
Load resistance	2,500	ohms
Total harmonic distortion	10	%
Maximum signal power output	2.3	watts

*All values are evaluated on design center system except where absolute maximum is stated.

NOTE: All Electrical Data except Heater Characteristics for type 50B5 are identical with those of types 12C5, 12CU5, 17C5, 25C5, and 50C5.

Refer to "Interpretation of Receiving Tube Ratings"

JETEC TYPE 6BA6

PENTODE

MECHANICAL DATA

Coated unipotential cathode

Outline drawing	5-2	Bulb	T-5 1/2
Maximum diameter			3/4"
Maximum overall length			2-1/8"
Maximum seated height			1-7/8"
Pin connections			Basing 7CC

Pin 1 - Grid #1
Pin 2 - Grid #3, internal shield
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Grid #2
Pin 7 - Cathode

Mounting position . . . . . any

ELECTRICAL DATA

Direct interelectrode capacitances

	*With shield	Without shield	
Grid to plate: g1 to p (max.)	.0035	.0035	μμf
Input: g1 to (h+k+g2+g3+i.s.)	5.5	5.5	μμf
Output: p to (h+k+g2+g3+i.s.)	5.5	5.0	μμf

* External shield #316 connected to pin 7

Ratings

Heater voltage (ac or dc)	6.3	volts
Maximum heater-cathode voltage	90	volts
Maximum plate voltage	300	volts
Maximum grid #2 voltage	See J5-C4	
Maximum grid #2 supply voltage	300	volts
Maximum negative dc grid #1 voltage	50	volts
Maximum positive dc grid #1 voltage	0	volts
Maximum plate dissipation	3	watts
Maximum grid #2 dissipation	0.6	watts

Continued on page 2

Typical operating conditions and characteristics, class A1 amplifier

Heater voltage	6.3	6.3	volts
Heater current	300	300	ma
Plate voltage	100	250	volts
Grid #3 voltage	0	0	volts
Grid #2 voltage	100	100	volts
Cathode bias resistor	68	68	ohms
Plate resistance (approx.)	0.25	1.0	megohm
Transconductance	4300	4400	μmhos
Plate current	10.8	11.0	ma
Grid #2 current	4.4	4.2	ma
Grid #1 voltage (approx.) for Gm = 40 μmhos	-20	-20	volts

Refer to "Interpretation of Receiving Tube Ratings"

JETEC TYPE 12BA6

PENTODE

MECHANICAL DATA

Coated unipotential cathode
Outline drawing. . . . . J5-2 Bulb. T-5 1/2
Base . . . . . X7-1 miniature button 7-pin
Maximum diameter . . . . . 3/4"
Maximum overall length . . . . . 2-1/8"
Maximum seated height. . . . . 1-7/8"
Pin connections. . . . . Basing TCC

Pin 1 - Grid #1	Pin 5 - Plate
Pin 2 - Grid #3, internal shield	Pin 6 - Grid #2
Pin 3 - Heater	Pin 7 - Cathode
Pin 4 - Heater	

Mounting position. . . . . any

ELECTRICAL DATA

Direct Interelectrode Capacitances* — Without Shield

Grid to plate: (g1 to p) max.	.0035	μμf
Input: (g1 to h+k+g2+g3 and i.s.)	5.5	μμf
Output: (p to h+k+g2+g3 and i.s.)	5.0	μμf

*With or without shield #316 connected to pin #7.

Ratings

Heater voltage (ac or dc).	12.6	volts
Maximum heater-cathode voltage	90	volts
Maximum plate voltage.	300	volts
Maximum grid #2 supply voltage	300	volts
Maximum grid #2 voltage.	See J5-04	
Maximum grid #3 voltage. . . . . Pin #2 connected to pin #7 at socket		
Maximum positive dc grid #1 voltage.	0	volts
Maximum negative dc grid #1 voltage.	-50	volts
Maximum plate dissipation.	3.0	watts
Maximum grid #2 dissipation.	0.6	watt

Typical Operating Conditions and Characteristics, Class A1 Amplifier

Heater voltage.	12.6	12.6	volts
Heater current.	150	150	ma.
Plate voltage.	100	250	volts
Grid #2 voltage.	100	100	volts
Cathode bias resistor.	68	68	ohms
Grid #3 voltage.	0	0	volts
Transconductance	4300	4400	μmhos
Plate current	10.8	11.0	ma.
Grid #2 current.	4.4	4.2	ma.
Plate resistance (approx.)	0.25	1.0	megohm
Grid #1 voltage (approx.) for Gm = 40 μmhos.	-20	-20	volts

Refer to "Interpretation of Receiving Tube Ratings"

JETEC DATA
JOINT ELECTRON TUBE ENGINEERING COUNCIL
COMMITTEE ON RECEIVING TUBES

JETEC TYPE 6BA6

HEPTODE

MECHANICAL DATA

Coated unipotential cathode

Outline drawing	5-2	Bulb	T-5 1/2
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 TCH

Pin 1 - Grid #1
Pin 2 - Cathode, grid #5
Pin 3 - Heater
Pin 4 --Heater
Pin 5 - Plate
Pin 6 - Grids #2 and #4
Pin 7 - Grid #3

Mounting position . . . . . Any

ELECTRICAL DATA

Direct interelectrode capacitances

	With shield*	Without shield	
Mixer grid to plate: (g3 to p) max	0.25	0.30	μμf
Mixer grid to oscillator grid: (g3 to g1) max	0.15	0.15	μμf
RF input: g3 to (h+k+g1+g2+4+g5+p)	7.0	7.0	μμf
Oscillator input: g1 to (h+k+g2+4+g3+g5+p)	5.5	5.5	μμf
Mixer output: p to (h+k+g1+g2+4+g3+g5)	13	8.0	μμf
Oscillator grid to cathode: (g1 to k+g5)	3.0	3.0	μμf
Oscillator output: K to (h+g2+4+g3+p)	20	15	μμf
Oscillator grid to plate: (g1 to p) max	.05	.1	μμf

* External shield #316

Ratings

Heater voltage (ac or dc)	6.3	volts
Maximum heater-cathode voltage	90	volts
Maximum plate voltage	300	volts
Maximum grids #2 and #4 voltage	100	volts
Maximum grids #2 and #4 supply voltage	300	volts
Maximum negative dc grid #3 voltage	-50	volts
Maximum positive dc grid #3 voltage	0	volt
Maximum plate dissipation	1.0	watt
Maximum grids #2 and #4 dissipation	1.0	watt
Maximum cathode current	14	ma

Continued on page 2

Typical operating conditions and characteristics*

Heater voltage	6.3	6.3	volts
Heater current	300	300	ma
Plate voltage	100	250	volts
Grid #3 voltage	-1.5	-1.5	volts
Grids #2 and #4 voltage	100	100	volts
Oscillator grid (grid #1) voltage r.m.s.	10	10	volts
Oscillator grid (grid #1) resistance	20,000	20,000	ohms
Plate resistance (approx.)	0.4	1.0	megohms
Oscillator grid (grid #1) current	0.5	0.5	ma
Conversion transconductance	455	475	µmhos
Plate current	2.6	2.9	ma
Grids #2 and #4 current	7.0	6.8	ma
Cathode current	10.1	10.2	ma
Grid #3 voltage (approx.) for Gc= 10 µmhos	-30	-30	volts
Grid #3 voltage (approx.) for Gc= 100 µmhos	-8	-6	volts

*Characteristics shown are obtained in the standard R.M.A. Conversion Conductance Test Set which uses separate excitation. The characteristics under these conditions correspond very closely with those obtained in a self-excited oscillatory circuit operating with zero bias.

Oscillator characteristics (not oscillating)

Grid #3 voltage	0	volts
Oscillator (grid #1) voltage	0	volts
Grids #2 and #4 connected to plate	100	volts
Cathode current	25	ma
Transconductance between grid #1 and grids #2 and #4 connected to plate	7250	µmhos
Amplification factor	20	
Grid #1 voltage (approx.) for Ib= 10 µa	-11	volts

Refer to "Interpretation of Receiving Tube Ratings"

JEDEC DATA
JOINT ELECTRON TUBE ENGINEERING COUNCIL
COMMITTEE ON RECEIVING TUBES

JEDEC TYPE 12AT6

DOUBLE DIODE TRIODE

MECHANICAL DATA

Coated unipotential cathode	
Outline drawing	5-2
Bulb	T 5-1/2
Base	ET-1 miniature button 7-pin
Maximum diameter	3/4"
Maximum overall length	2-1/8"
Maximum seated height	1-7/8"
Pin connections	Basing 7HT
Pin 1 - Triode grid	
Pin 2 - Cathode	
Pin 3 - Heater	
Pin 4 - Heater	
Pin 5 - #2 diode plate	
Pin 6 - #1 diode plate	
Pin 7 - Triode plate	
Mounting position	Any

ELECTRICAL DATA

	With Shield*	Without Shield	
Direct Interelectrode Capacitances			
Grid to plate: (g to triode plate)	2.0	2.0	μμf
Input: g to (h+k)	2.2	2.2	μμf
Output: p to (h+k)	1.2	0.8	μμf
Coupling: #2 diode plate to grid (max.)	0.04	0.04	μμf

*External shield #316 connected to pin #2.

Ratings:

Heater voltage (ac or dc)	12.6	volts
Maximum plate voltage	300	volts
Maximum heater-cathode voltage	90	volts
Maximum plate dissipation	0.5	watt
Maximum positive dc grid #1 voltage	0	volts
Maximum diode current each unit for continuous operation	1.0	ma

Typical Operating Conditions And Characteristics, Class A1 Amplifier

Heater voltage (ac or dc)	12.6	12.6	volts
Heater current	150	150	ma
Plate voltage	100	250	volts
Grid #1 voltage	-1	-3	volts
Plate resistance	54,000	58,000	ohms
Amplification factor	70	70	
Transconductance	1,300	1,200	μmhos
Plate current	0.8	1.0	ma
Average diode current (each unit) at 10 volts dc	2.0	2.0	ma

Continued on Page 2

ELECTRICAL DATA (Continued)

Triode unit as resistance coupled amplifier

Heater voltage	12.6	12.6	volts
Plate supply voltage	90	250	volts
Control grid voltage	0	0	volts
Plate load resistor	220,000	470,000	ohms
Control grid resistor	10.0	10.0	megohms
Input condenser	0.01	0.01	µf
Output condenser	0.01	0.01	µf
Grid resistor of following stage	470,000	470,000	ohms
Signal source impedance	1000	1000	ohms
Distortion	5	5	%
Output voltage	8	34	volts
Voltage gain at 400 cps	35	46	

Refer to "Interpretation of Receiving Tube Ratings"

Release No. 4460

~~D-6AL6~~

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REGISTRATION
FILE

JETEC DATA
JOINT ELECTRON TUBE ENGINEERING COUNCIL
COMMITTEE ON RECEIVING TUBES

JETEC TYPE 6AL6

DOUBLE DIODE TRIODE

MECHANICAL DATA

Coated unipotential cathode
Outline drawing . . . . . 5-2 Bulb T-5 1/2
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 7BZ
Pin 1 - Triode grid
Pin 2 - Cathode
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - #2 diode plate
Pin 6 - #1 diode plate
Pin 7 - Triode plate

Mounting position. . . . . Any

ELECTRICAL DATA

Direct Interelectrode Capacitances	With Shield*	Without Shield	
Grid to plate: (g to triode plate).	2.0	2.0	μμf
Input: g to (k+h)	2.2	2.2	μμf
Output: p to (k+h).	1.2	0.8	μμf
Coupling: #2 diode plate to grid (max.)	0.04	0.04	μμf

*External shield #316 connected to pin #2.

Ratings

Heater voltage (ac or dc).	6.3	volts
Maximum plate voltage	300	volts
Maximum heater-cathode voltage	90	volts
Maximum plate dissipation.	0.5	watt
Maximum positive dc grid #1 voltage.	0	volts
Maximum diode current each unit for continuous operation	1.0	ma

Typical Operating Conditions and Characteristics, Class A1 Amplifier

Heater voltage (ac or dc).	6.3	6.3	volts
Heater current	300	300	ma
Plate voltage.	100	250	volts
Grid #1 voltage.	-1	-3	volts
Plate resistance	54,000	58,000	ohms
Amplification factor	70	70	
Transconductance.	1,300	1,200	μmhos
Plate current	0.8	1.0	ma
Average diode current (each unit) at 10 volts dc	2.0	2.0	ma

Continued on Page 2

ELECTRICAL DATA (Continued)

Triode Unit as Resistance Coupled Amplifier

Heater voltage	6.3	6.3	volts
Plate supply voltage	90	250	volts
Control grid voltage	0	0	volts
Plate load resistor	220,000	470,000	ohms
Control grid resistor	10.0	10.0	megohms
Input condenser	0.01	0.01	µf
Output condenser	0.01	0.01	µf
Grid resistor of following stage	470,000	470,000	ohms
Signal source impedance (max.)	1000	1000	ohms
Distortion	2	5	%
Output voltage	8	34	volts
Voltage gain at 400 cps	35	46	

Refer to "Interpretation of Receiving Tube Ratings"

JEDEC DATA
JOINT ELECTRON TUBE ENGINEERING COUNCIL
COMMITTEE ON RECEIVING TUBES

JEDEC TYPE 6AD6

PENTODE

MECHANICAL DATA

Coated unipotential cathode
Outline drawing. . . . . 5-2 Bulb T-5 1/2
Base . . . . . .87-1 miniature button 7-pin
Maximum diameter . . . . . 3/4"
Maximum overall length . . . . . 2-1/8"
Maximum seated height. . . . . 1-7/8"
Pin connections. . . . . Basing 7BK

Pin 1 - Grid #1	Pin 5 - Plate
Pin 2 - Grid #3 and internal shield	Pin 6 - Grid #2
Pin 3 - Heater	Pin 7 - Cathode
Pin 4 - Heater	

Mounting position. . . . . .Any

ELECTRICAL DATA

Direct Interelectrode Capacitances	With Shield*	Without Shield	
Pentode connection:			
Grid to plate: (g1 to p) max.	.0035	.0035	µµf
Input: g1 to (h+k+g2+g3+i.s.)	5.5	5.5	µµf
Output: p to (h+k+g2+g3+i.s.)	5.0	5.0	µµf
Triode connection: (g2 and g3 tied to plate)			
Grid to plate: g1 to (p+g2+g3+i.s.)	2.6	2.6	µµf
Input: g1 to (h+k).	3.2	3.2	µµf
Output: (p+g2+g3+i.s.) to (h+k)	8.5	1.2	µµf

*External shield #916 connected to pin #7.

Ratings	Triode**	Pentode	
Heater voltage (ac or dc).	6.3	6.3	volts
Maximum heater-cathode voltage			
heater negative with respect to cathode	180	180	volts
heater positive with respect to cathode	100	100	volts
Maximum plate voltage.	250	300	volts
Maximum grid #2 supply voltage	Plate	300	volts
Maximum grid #2 voltage.	Plate	See J5-04	
Maximum grid #3 voltage. . . . . Pin #2 connected to:	Plate	Cathode	
Maximum plate dissipation.	3.2	3.0	watts
Maximum grid #2 dissipation.	-	0.65	watt
Maximum positive dc grid #1 voltage.	0	0	volts

**Triode connection: g2 and g3 connected to plate.

Continued on Page 2

ELECTRICAL DATA (Continued)

Typical Operating Conditions and Characteristics, Class A1 Amplifier

	Triode**	Pentode			
Heater voltage	6.3	6.3	6.3	6.3	volts
Heater current	300	300	300	300	ma
Plate voltage	250	100	250	250	volts
Grid #2 voltage	Plate	100	125	150	volts
Cathode resistor	330	150	100	68	ohms
Grid #3 voltage	Plate	Pin #2 connected to pin #7 at socket			
Transconductance	4800	3900	4500	5200	µmhos
Grid #1 voltage (approx.) for Ib=10 µa	-	-4.2	-5.5	-6.5	volts
Plate current	12.2	3.0	7.6	10.6	ma
Grid #2 current	-	2.1	3.0	4.3	ma
Plate resistance (approx.)	-	0.5	1.5	1.0	megohm
Amplification factor	36	-	-	-	

**Triode connection: g2 and g3 connected to plate.

Refer to "Interpretation of Receiving Tube Ratings"

JETEC DATA
JOINT ELECTRON TUBE ENGINEERING COUNCIL
COMMITTEE ON RECEIVING TUBES

JETEC TYPE 12BR6

HEPTODE

MECHANICAL DATA

Coated unipotential cathode
Outline drawing. . . . . 5-2 Bulb. T-5 1/2
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 7CK
Pin 1 - Grid #1 Pin 5 - Plate
Pin 2 - Cathode, grid #3 Pin 6 - Grids #2 and #4
Pin 3 - Heater Pin 7 - Grid #3
Pin 4 - Heater

Mounting position. . . . . any

ELECTRICAL DATA

Direct Interelectrode Capacitances	With Shield*	Without Shield	
Mixer grid to plate: (g3 to p) max.	0.25	0.30	μμf
Mixer grid to oscillator grid: (g3 to g1) max.	0.15	0.15	μμf
RF input: g3 to (h+k+g1+g2+k+g3+p).	7.0	7.0	μμf
Oscillator input: g1 to (h+k+g2+k+g3+g3+p). .	5.5	5.5	μμf
Mixer output: p to (h+k+g1+g2+k+g3+g3). . . .	13	8.0	μμf
Oscillator grid to cathode: (g1 to k+g3). . .	3.0	3.0	μμf
Oscillator output: k to (h+g2+k+g3+p)	20	15	μμf
Oscillator grid to plate: (g1 to p) max. . .	.05	.1	μμf

*External shield #316 connected to pin #2.

Ratings

Heater voltage (ac or dc)	12.6	volts
Maximum heater-cathode voltage.	90	volts
Maximum plate voltage.	300	volts
Maximum grids #2 and #4 voltage	100	volts
Maximum grids #2 and #4 supply voltage.	300	volts
Maximum negative dc grid #3 voltage	-50	volts
Maximum positive dc grid #3 voltage	0	volts
Maximum plate dissipation.	1.0	watt
Maximum grids #2 and #4 dissipation	1.0	watt
Maximum cathode current.	14	ma

Continued on Page 2

ELECTRICAL DATA (Continued)

Typical Operating Conditions and Characteristics*

Heater voltage	12.6	12.6	volts
Heater current	150	150	ma
Plate voltage	100	250	volts
Grid #3 voltage	-1.5	-1.5	volts
Grids #2 and #4 voltage	100	100	volts
Grid #1 (oscillator grid) voltage r.m.s.	10	10	volts
Grid #1 (oscillator grid) resistance	20,000	20,000	ohms
Plate resistance (approx.)	0.4	1.0	megohms
Grid #1 (oscillator grid) current	0.5	0.5	ma
Conversion transconductance	455	475	µmhos
Plate current	2.6	2.9	ma
Grids #2 and #4 current	7.0	6.8	ma
Cathode current	10.1	10.2	ma
Grid #3 voltage (approx.) for Gc = 10 µmhos	-30	-30	volts
Grid #3 voltage (approx.) for Gc = 100 µmhos	-6	-6	volts

*Characteristics shown are obtained in the standard E.M.A. Conversion Conductance Test Set which uses separate excitation. The characteristics under these conditions correspond very closely with those obtained in a self-excited oscillatory circuit operating with zero bias.

Oscillator Characteristics (not oscillating)

Grid #3 voltage	0	volts
Grid #1 (oscillator grid) voltage	0	volts
Grids #2 and #4 connected to plate	100	volts
Transconductance between grid #1 and grids #2 and #4 connected to plate	7250	µmhos
Amplification factor between grid #1 and grids #2 and #4 connected to plate	20	
Cathode current	25	ma
Grid #1 voltage (approx.) for Ib = 10 µa	-11	volts

Refer to "Interpretation of Receiving Tube Ratings"

JETEC DATA
JOINT ELECTRON TUBE ENGINEERING COUNCIL
COMMITTEE ON RECEIVING TUBES

JETEC TYPE 35W4

DIODE

RECLASSIFICATION FILE

MECHANICAL DATA

Coated unipotential cathode
Outline drawing. . . . . 5-3 Bulb T-5 1/2
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 5BQ
Pin 1 - No connection Pin 5 - Plate
Pin 2 - No connection *Pin 6 - Heater tap
Pin 3 - Heater Pin 7 - Cathode
Pin 4 - Heater

*Panel lamp heater section is between pins 4 and 6

Mounting position. . . . . any

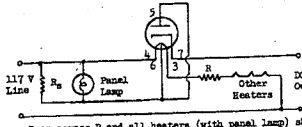
ELECTRICAL DATA

Ratings	Without Panel Lamp	With No. 40 or No. 47 Panel Lamp	
Heater voltage (ac or dc)			
Entire heater (pins 3 and 4)	35	32	volts
Panel lamp section (pins 4 and 6).	7.5	5.5	volts
Heater current			
Between pins 3 and 4	150	---	ma
Between pins 3 and 6	---	150	ma
Maximum peak inverse voltage	330		volts
Maximum steady-state peak plate current.	600		ma
Maximum peak heater-cathode voltage.	330		volts
Maximum panel lamp section RMS voltage when panel lamp fails.	15		volts
Maximum steady-state dc output current			
With panel lamp and no shunting resistor	60		ma
With panel lamp and shunting resistor.	90		ma
Without panel lamp	100		ma
Maximum value of panel lamp shunting resistor			
For dc output current of 70 ma	800		ohms
For dc output current of 80 ma	400		ohms
For dc output current of 90 ma	250		ohms
Tube voltage drop with tube conducting 200 madc plate current	18		volts

Continued on Page 2

Typical Operation with No. 40 or No. 47 panel lamp in Circuit Below with Capacitor Input to Filter

AC plate supply voltage (RMS)	117	117	117	117	volts
Filter input capacitor	40	40	40	40	µf
Minimum total effective plate supply impedance	15	15	15	15	ohms
Panel lamp shunting resistor	—	300	150	100	ohms
DC output current	60	70	80	90	ma



Drop across R and all heaters (with panel lamp) should equal 117 volts at 0.15 ampere. Rs = shunting resistor required when DC output current exceeds 60 milliamperes.

Typical Operation Without Panel Lamp in Conventional Half-size Circuit with Capacitor Input to Filter (Plate current must not flow through tap section)

AC plate supply voltage (RMS)	117	volts
Filter input capacitor	40	µf
Minimum total effective plate supply impedance	15	ohms
DC output voltage at input to filter (approx.)	135	volts
At 50 ma (half load)	120	volts
At 100 ma (full load)	100	ma
DC output current		

Refer to "Interpretation of Receiving Tube Ratings,

JOINT ELECTRON DEVICE ENGINEERING COUNCIL

650 SOUTHERN TOWER
11 WEST FORTY-SECOND STREET
NEW YORK 36, N.Y.
TELEPHONE: LONGACRE 5-3450

Announcement
of
Electron Device Type Reregistration

Release No. 446g (Tentative)*

December 7, 1959

The Joint Electron Device Engineering Council announced the registration of the following electron device designation

6BA6

on October 25, 1945, Release No. 446, under the sponsorship of Radio Corporation of America, Harrison, New Jersey.

The sponsor now proposes reregistration based on the following data:

ITEM:	AS REGISTERED: On Basis of Design-Center Rating System Except as Noted	AS PROPOSED: On Basis of Design-Maximum Rating System	
Under GENERAL DATA:			
Ratings			
Heater voltage (ac or dc)	6.3	6.3 ± 10%	volts
Maximum heater-cathode voltage	90	Delete	volts
Peak heater-cathode voltage:			
Heater negative with respect to cathode	none	200 max.	volts
Heater positive with respect to cathode	none	200# max.	volts
Maximum plate voltage	300	330	volts
Maximum grid #2 voltage	See J5-C4	See J5-C4	
Maximum grid #2 supply voltage	300	330	volts
Maximum negative dc grid #1 voltage	50	55	volts
Maximum positive dc grid #1 voltage	0	0	volts
Maximum plate dissipation	3	3.4	watts
Maximum grid #2 dissipation	0.6	Delete	watts
Maximum grid No. 2 dissipation:			
For voltages up to 165 volts	none	0.7 max.	watts
For voltages between 165 and 330 volts	none	See J5-C4	

The dc component must not exceed 100 volts.

*Unless valid objection to this reregistration is lodged with the EIA Engineering Office prior to January 7, 1960, this reregistration will be made and this information will be considered "FINAL" WITHOUT FURTHER NOTICE!

JOINT ELECTRON DEVICE ENGINEERING COUNCIL

[illegible]
11 West Forty-Second Street
New York 36, N. Y.
Telephone: LOngacre 5-[illegible]

Announcement

of

Electron Device Type Reregistration

Release No. 446F (Tentative)*

December 14, 1959

The Joint Electron Device Engineering Council announced the registration of the following electron device designations

6HS6
12BR6
12BA6

on October 25, 1945, Release No. 446, under the sponsorship of Radio Corporation of America, Harrison, New Jersey.

The sponsor now proposes reregistration based on the attached data sheet.

*Unless valid objection to this reregistration is lodged with the EIA Engineering Office prior to January 14, 1960, this reregistration will be made and this information will be considered "FINAL" WITHOUT FURTHER NOTICE!

ITEM: TYPE 12BA6

Under ELECTRICAL DATA:	AS REGISTERED: On Basis of Design-Center Rating System	AS PROPOSED: On Basis of Design-Maximum Rating System	
Ratings			
Heater Voltage	12.6	12.6 ± 10%	volts
Maximum Heater-Cathode Voltage	90	Delete	volts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	none	200 max.	volts
Heater positive with respect to cathode	none	200* max.	volts
Maximum Plate Voltage	300	330	volts
Maximum Grid #2 Supply Voltage	300	330	volts
Maximum Grid #2 Voltage	See #5-C4	See #5-C4	
Maximum Grid #3 Voltage	Pin #2 connected to pin #7 at socket		
Maximum Positive DC Grid #1 Voltage	0	0	volts
Maximum Negative DC Grid #1 Voltage	-50	-55	volts
Maximum Plate Dissipation	3.0	3.4	watts
Maximum grid #2 Dissipation	0.6	Delete	watt
Maximum Grid-No.2 Dissipation:			
For voltages up to 165 volts	none	0.7 max.	watt
For voltages between 165 and 330 volts	none	See #5-C4	

TYPE 6BR6

Ratings			
Heater voltage (ac or dc)	6.3	6.3±10%	volts
Maximum heater-cathode voltage	90	Delete	volts
Peak heater-cathode voltage:			
Heater negative with respect to cathode	none	200 max.	volts
Heater positive with respect to cathode	none	200* max.	volts
Maximum plate voltage	300	330	volts
Maximum grids #2 and #4 voltage	100	110	volts
Maximum grids #2 and #4 supply voltage	300	330	volts
Maximum negative dc grid #3 voltage	-50	-55	volts
Maximum positive dc grid #3 voltage	0	0	volt
Maximum plate dissipation	1	1.1	watts
Maximum grids #2 and #4 dissipation	1	1.1	watts
Maximum cathode current	14	16.5	ma

TYPE 12BR6

Ratings			
Heater voltage (ac or dc)	12.6	12.6±10%	volts
Maximum heater-cathode voltage	90	Delete	volts
Peak heater-cathode voltage:			
Heater negative with respect to cathode	none	200 max.	volts
Heater positive with respect to cathode	none	200* max.	volts
Maximum plate voltage	300	330	volts
Maximum grids #2 and #4 voltage	100	110	volts
Maximum grids #2 and #4 supply voltage	300	330	volts
Maximum negative dc grid #3 voltage	-50	-55	volts
Maximum positive dc grid #3 voltage	0	0	volt
Maximum plate dissipation	1	1.1	watts
Maximum grids #2 and #4 dissipation	1	1.1	watts
Maximum cathode current	14	15.5	ma

* The dc component must not exceed 100 volts.

JOINT ELECTRON DEVICE ENGINEERING COUNCIL

Please reply to:
620 Balfour Tower
11 West Forty-Second Street
New York 36, N.Y.
Telephone: LOngacre 5-9430

Announcement

of

Electron Device Type Reregistration

Release No. 446G (Tentative)*

January 25, 1960

The Joint Electron Device Engineering Council announced the registration of the following electron device designation

6AU6

on October 25, 1945, Release No. 446, under the sponsorship of Radio Corporation of America, Harrison, New Jersey.

The sponsor now proposes reregistration based on the attached data sheet.

*Unless valid objection to this reregistration is lodged with the EIA Standards Laboratory prior to February 25, 1960, this reregistration will be made and this information will be considered "FINAL" WITHOUT FURTHER NOTICE!

Release No. 4460
Type 6AU6

ITEM Under ELECTRICAL DATA	AS REGISTERED On Basis of Design-Center Rating System		AS PROPOSED On Basis of Design-Maximum Rating System		
Ratings	Triode**	Pentode	Triode**	Pentode	
Heater voltage (ac or dc) . . .	6.3	6.3	6.3 ± 10%	6.3 ± 10%	volts
Maximum heater-cathode voltage					
Heater negative with respect to cathode	180	180	200	200	volts
Heater positive with respect to cathode	100	100	200△	200△	volts
Maximum plate voltage	250	300	275	330	volts
Maximum grid #2 supply voltage.	Plate	300	-	330	volts
Maximum grid #2 voltage	Plate	See J5-04-2	-	See J5-04-2	
Maximum grid #3 voltage (Pin #2 connected to)... .	Plate	Cathode	Plate	Cathode	
Maximum plate dissipation . . .	3.2	3.0	3.5	3.5	watts
Maximum grid #2 dissipation . .	-	0.65	-	delete	watt
++Maximum grid #2 input:					
For grid #2 voltages up to 165 volts	-	none	-	0.75	watt
For grid #2 voltages between 165 and 330 volts. . .	-	none	-	See J5-04-2	
Maximum positive dc grid #1 voltage	0	0	0	0	volts

** Triode connection: g2 and g3 connected to plate.

△ The dc component must not exceed 100 volts.

JOINT ELECTRON DEVICE ENGINEERING COUNCIL

1260 Salmon Tower
11 West Forty-Second Street
New York 36, N. Y.
Telephone: LOngacre 3-0717

Announcement
of
Electron Device Type Reregistration

Release No. 446H (Tentative)*

March 29, 1960

The Joint Electron Device Engineering Council announced the registration on the following electron device designations

6AT6
12AT6

on October 25, 1945, Release No. 446, under the sponsorship of Radio Corporation of America, Harrison, New Jersey.

The sponsor now proposes reregistration based on the following data:

ITEM	AS REGISTERED	AS PROPOSED	
Under ELECTRICAL DATA			
Direct Interelectrode Capacitances			
		Without Shield	
Coupling: #1 diode plate to grid (max.)	none	0.07	μμf
#2 diode plate to heater and cathode	none	0.95	μμf
#1 diode plate to heater and cathode	none	0.66	μμf

*Unless valid objection to this reregistration is lodged with the EIA Standards Laboratory prior to April 29, 1960, this reregistration will be made and this information will be considered "FINAL" WITHOUT FURTHER NOTICE!

JOINT ELECTRON DEVICE ENGINEERING COUNCIL

2360 Railway Towers
11 West Forty-Second Street
New York 36, N. Y.
Telephone: LOngacre 5-0717

Announcement

of

Electron Device Type Reregistration

Release No. 446I (Tentative)*

April 4, 1960

The Joint Electron Device Engineering Council announced the registration of the following electron device designation

35W4

on October 25, 1945, Release No. 446, under the sponsorship of Radio Corporation of America, Harrison, New Jersey.

The sponsor now proposes reregistration based on the attached data.

*Unless valid objection to this reregistration is lodged with the EIA Standards Laboratory prior to May 4, 1960, this reregistration will be made and this information will be considered "FINAL" WITHOUT FURTHER NOTICE!

TYPE 35W4

	AS REGISTERED On Basis of Design-Center Rating System	AS PROPOSED On Basis of Design-Maximum Rating System	
Under ELECTRICAL DATA			
Ratings			
Heater voltage (ac or dc)			
Entire heater (pins 3 and 4):			
Without Panel Lamp	35	35 ± 10%	volts
With No. 40 or No. 47 Panel Lamp	32	32 ± 10%	volts
Maximum peak inverse voltage .	330	360	volts
Maximum steady-state peak plate current	600	660	ma
Maximum peak heater-cathode voltage	330	delete	volts
Maximum peak heater-cathode voltage:			
Heater negative with respect to cathode	-	360	volts
Heater positive with respect to cathode	-	360	volts
Maximum panel lamp section RMS voltage when panel lamp fails	15	17	volts
Maximum steady-state dc output current:			
With panel lamp and no shunting resistor . . .	60	66	ma
With panel lamp and shunting resistor	90	100	ma
Without Panel lamp	100	110	ma
Maximum value of panel lamp shunting resistor:			
For dc output current of 70 ma	800	800	ohms
For dc output current of 80 ma	400	400	ohms
For dc output current of 90 ma	250	250	ohms