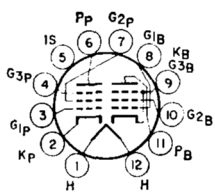


12BU

BEAM POWER TUBE— SHARP-CUTOFF PENTODE

6AL11

10AL11, 12AL11

Duodecar type used as FM detector and audio-frequency output amplifier in television receivers. **Outlines section, 8C; requires duodecar 12-contact socket. Types** 10AL11 and 12AL11 are identical with type 6AL11 except for heater ratings.

	6AL11	10AL11	12AL11	
Heater Voltage (ac/dc)	6.3	9.8	12.6	volts
Heater Current	0.9	0.6	0.45	ampere
Heater Warm-up Time (Average)	—	11	11	seconds
Heater-Cathode Voltage:				
Peak value	±200 max	±200 max	±200 max	volts
Average value	100 max	100 max	100 max	volts

Direct Interelectrode Capacitance:		
Beam Power Unit:		
Grid No.1 to Plate	0.26	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield	11	pF
Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield	12	pF
Pentode Unit:		
Grid No.1 to Plate	0.034	pF
Grid No.3 to Plate	3.2	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield	6.5	pF
Grid No.3 to Cathode, Heater, Grid No.1, Grid No.2, Plate, and Internal Shield	7.5	pF
Grid No.1 to Grid No.3	0.24	pF
Pentode Plate to Beam Power Plate	0.12	pF

Beam Power Unit as Class A_1 Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	275	volts
Grid-No.2 (Screen-Grid) Voltage	275	volts
Plate Dissipation	10	watts
Grid-No.2 Input	2	watts

TYPICAL OPERATION

Plate Voltage	250	volts
Grid-No.2 Voltage	250	volts
Grid-No.1 (Control-Grid) Voltage	—8	volts
Peak AF Grid-No.1 Voltage	8	volts
Zero-Signal Plate Current	35	mA
Maximum-Signal Plate Current	39	mA
Zero-Signal Grid-No.2 Current	2.5	mA
Maximum-Signal Grid-No.2 Current	7	mA
Plate Resistance (Approx.)	0.1	megohm
Transconductance	6500	μmhos
Load Resistance	5000	ohms
Total Harmonic Distortion	10	per cent
Maximum-Signal Power Output	4.2	watts

MAXIMUM CIRCUIT VALUE

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.25	megohm
For cathode-bias operation	0.5	megohm

Pentode Unit as Class A_1 Amplifier

CHARACTERISTICS

Plate Supply Voltage	150	volts
Grid-No.3 (Suppressor-Grid) Voltage	0	volts
Grid-No.2 (Screen-Grid) Supply Voltage	100	volts
Cathode-Bias Resistor	560	ohms
Plate Resistance (Approx.)	0.15	megohm
Transconductance, Grid No.1 to Plate	1000	μmhos
Transconductance Grid No.3 to Plate	400	μmhos
Plate Current	1.3	mA
Grid-No.2 Current	2.1	mA
Grid-No.1 Voltage (Approx.) for plate current of 30 μA	—4.5	volts
Grid-No.3 Voltage (Approx.) for plate current of 50 μA	—4.5	volts

Pentode Unit as FM Detector

MAXIMUM RATINGS (Design-Maximum Values)

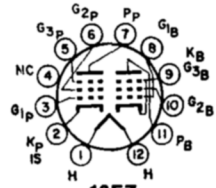
Plate Voltage	330	volts
Grid-No.3 Voltage	28	volts
Grid-No.2 Supply Voltage	330	volts
Grid-No.2 Voltage	See curve page 300	
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0	volts
Plate Dissipation	1.7	watts
Grid-No.2 Input:		
For grid-No.2 voltages up to 165 volts	1.1	watts
For grid-No.2 voltages between 165 and 330 volts	See curve page 300	

6T10

10T10, 12T10

BEAM POWER TUBE—SHARP-CUTOFF PENTODE

Duodecar type used as combined FM detector and audio-frequency output amplifier in color and black-and-white television receivers. The beam power unit is used in af output stages, and the sharp-cutoff, dual-control pentode unit is used as an FM detector. **Outlines section,** 8C; requires duodecar 12-contact socket. For maximum ratings and characteristics, refer to type 6AL11. Types 10T10 and 12T10 are identical with type 6T10 except for heater ratings.



12EZ

	6T10	10T10	12T10	
Heater Voltage (ac/dc)	6.3	9.8	12.6	volts
Heater Current	0.95	0.6	0.45	amperes
Heater Warm-up Time (Average)	—	11	11	seconds
Heater-Cathode Voltage:				
Peak value	±200 max	±200 max	±200 max	volts
Average value	100 max	100 max	100 max	volts
Direct Interelectrode Capacitances:				
Unit No.1:				
Grid No.1 to Plate			0.22	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield			11	pF
Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield			10	pF
Unit No.2:				
Grid No.1 to Plate			0.032	pF
Grid No.3 to Plate			3	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3 and Internal Shield			6.5	pF
Grid No.3 to Cathode, Heater, Grid No.1, Grid No.2, Plate, and Internal Shield			7.5	pF
Grid No.1 to Grid No.3			0.12	pF
Plate of Unit No.1 to Plate of Unit No.2			0.13	pF