

# MAZDA

## 30C13

### TRIODE PENTODE V.H.F. CHANGER

Indirectly heated—for series operation

### TENTATIVE

#### GENERAL

The 30C13 is a miniature based indirectly heated Triode Pentode Frequency Changer. The base connections are arranged for maximum suitability in Printed Circuit applications, and give the pentode cathode lead a minimum of inductance. It is intended for use in V.H.F. Printed Circuits in AC or DC powered Television Receivers having series connected heater chains.

#### RATING

			Triode	Pentode
Heater Current	(amps)	$I_h$		0.3
Heater Voltage	(volts)	$V_h$		9.0
Maximum Anode Voltage	(volts)	$V_a(\max)$	250	250
Maximum Screen Voltage	(volts)	$V_{g2}(\max)$		175
Maximum Cathode Current	(mA)	$I_k(\max)$	14	14
Maximum Anode Dissipation	(watts)	$P_a(\max)$	1.5	1.7
Maximum Screen Dissipation	(watts)	$P_{g2}(\max)$		0.5
Mutual Conductance	(mA/V)	$g_m$	5.0*	6.2†
Amplification Factor		$\mu$	20	
Maximum Heater/Cathode Voltage	(volts)	$V_{h,k}(\max)$		200

\* Measured at  $V_a = 100$  V.  $I_a = 14$  mA.  
 † Measured at  $V_a = 170$  V.  $V_{g2} = 170$  V.  $I_a = 10$  mA.

#### INTER-ELECTRODE CAPACITANCES (pF)

		§	†
Grid 1/All	$c_{g1-all}$	6.3	7.4
Anode Pentode/All	$c_{ap-all}$	5.2	6.35
Grid 1/Anode Pentode	$c_{g1-ap}$	0.016	0.019
Grid Triode/All	$c_{gt-all}$	3.5	4.3
Anode Triode/All	$c_{at-all}$	3.3	4.1
Grid Triode/Anode Triode	$c_{gt-at}$	1.7	2.0
Grid Triode/Anode Pentode	$c_{gt-ap}$	0.004	0.006
Grid 1/Anode Triode	$c_{g1-at}$	0.009	0.016
Anode Pentode/Anode Triode	$c_{ap-at}$	0.019	0.026
Grid 1/Grid 2	$c_{g1-g2}$	2.25	2.25
Grid 1/Grid Triode	$c_{g1-gt}$	0.027	0.059

§ Capacities with holder capacity balanced out but with a cylindrical screening can.

† Total capacity including a B9A Nylon Phenolic Printed Circuit holder with a cylindrical screen (Ediswan Clix VH9/1).

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**TENTATIVE**DIMENSIONS

Maximum Overall Length	(mm)	56
Maximum Diameter	(mm)	22.2
Maximum Seated Height	(mm)	49

MOUNTING POSITION — Unrestricted

TYPICAL OPERATION — As Frequency Changer with  
Oscillator Volts applied to Grid 1.

Pentode

Supply Voltage	(volts)	$V_{a(b)}$	200	200
Anode Voltage	(volts)	$V_a$	170	170
(Decoupling Resistance 4.7 k $\Omega$ )				
Screen Voltage	(volts)	$V_{g2}$	145	150
(R $_{g2}$ 27 k $\Omega$ )				
Grid 1 Resistance for	(k $\Omega$ )	R $_{g1}$	33	100
Grid Current Bias	( $\mu$ A)	I $_{g1}$	130	42
Grid 1 Current	( $\mu$ A/V)	g $_c$	2000	2150
Conversion Conductance		V $_{het(pk)}$	5.0	4.5
Heterodyne Volts Peak	(mA)	I $_a$	6.8	6.3
Anode Current (approx)	(mA)	I $_{g2}$	2.0	1.9
Screen Current (approx)				

Triode

Anode Voltage	(volts)	$V_a$	120	120
Anode Current (mean)	(mA)	I $_a$	6.0	6.0

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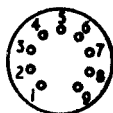
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**TENTATIVE**

BULB—Clear

BASE—NOVAL (B9A)



Viewed from Free End of Pins

## VALVE HOLDER

Ediswan Clix : Printed Circuit Type : VH9/1  
" " Standard Circuit Types : VH499/9  
and  
VH599/9  
series.

## CONNECTIONS

Pin 1	Pentode Cathode and Pin 8	$k_p$ and Pin 8
Pin 2	Pentode Grid 2	$\delta_{2p}$
Pin 3	Pentode Anode	$a_p$
Pin 4	Heater	h
Pin 5	Heater	h
Pin 6	Triode Anode	$a_t$
Pin 7	Triode Grid	$\delta_{1t}$
Pin 8	Triode Cathode, Shield, Pentode Cathode and Grid 3	$k_t, \delta_{3p}, s, k_p$
Pin 9	Pentode Grid 1	$\delta_{1p}$

The basing has been specially arranged to minimise pentode cathode lead inductance effects.