### Page 1 (No. of pages: - 3)

GENERAL POST OFFICE: E-IN-C(S)

Issue 1. Dated July, 1959	<u>Valve</u>
To be read in conjunction with K 1001, BS 448 and BS 1409	Unclassified

### → Indicates a change

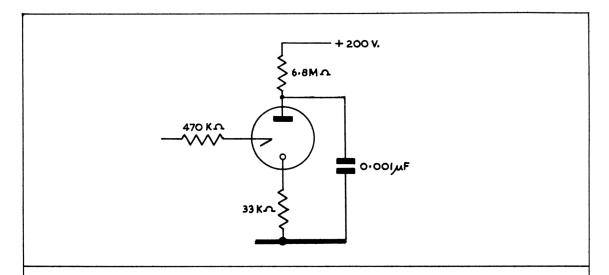
TYPE OF VALVE - Cold cathode triode with flexible leads  CATHODE - Cold  ENVELOPE - Glass - Unmetallised  PROTOTYPE - CCT6   RATINGS and CHARACTERISTICS (Not for inspection purposes)  All limiting values are absolute  Note  Anode supply voltage range  (V)  Anode operating current range  (mA)  Max. peak anode current  (mA)  4.0  250  Average ionisation time, tii (µSec)  Average ionisation time, ti (µSec)  Control gap breakdown voltage  (V)  Main gap maintaining voltage  (V)  Main gap maintaining voltage  (V)  A. Measured at: Va = 200V, Vt = 100V, trigger load = 4,70FA  B. Anode load open-circuited; trigger load 4,7Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 4,70Kaor trigger biased +60V w.r.t. cathode Electrode  Any. See Notes F and G.  See Notes F and G.	> Indicates a change									
ENVELOFE - Glass - Unmetallised  RATINGS and CHARACTERISTICS (Not for inspection purposes) All limiting values are absolute  Anode supply voltage range  (V) 190 250  Anode operating current range  (mA) 1 to 5  Average ionisation time. tdi. (µSec)  Average ionisation time. ti (µSec)  Control gap breakdown voltage  (V) 70  Author B  Min. main gap breakdown voltage  (V) 65  Main gap maintaining voltage  (V) 65  B. Anode load open-circuited  B. Anode load open-circuited; trigger load = 4,70Kg  C. Suddenly applied 250 volts, with trigger connected to cathode through 4,70Kg  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  See K 1001/4  Anode  BS 448/BTG/F/F   CONNECTIONS  1 Anode  2 NC  5 NO  6 Cathode  7 NC  5 NO  6 Cathode  7 NC  DIMENSIONS  BS 4448/BTG/F/2.1  Dimensions (m.m) Min. Max.  A. Seated Height - 38  C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING FOSITION  See Noter F and 6	TYPE OF VALVE - Cold cathode triode with flexible leads				MARKING					
RATINGS and CHARACTERISTICS (Not for inspection purposes)  All limiting values are absolute Anode supply voltage range  (V) 190 to 250  Anode operating current range  (mA) 1 to 5  Max. peak anode current  (mA) 40 2 coc 3 Trigger  4 NC 3 Trigger  4 NC 5 NC Average ionisation time. tid. (µSec) 220 A.E. 6 Cathode Control gap breakdown voltage  (V) 70 to 85  Min. main gap breakdown voltage  (V) 275 C Main gap maintaining voltage  (V) 65 to B A. Measured at: Va = 200V, Vt = 100V, trigger load = 4,70Kg B. Anode load open-circuited; trigger load 4,7Kg C. Suddenly applied 250 volts, with trigger connected to cathode through 4,70Kg D. Ia = 5mA, and trigger open-circuited E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  See Notage F and 6	CATHODE - Cold									
RATINGS and CHARACTERISTICS (Not for inspection purposes)  All limiting values are absolute Note  Note  RASE  BS 448/B7G/F  Anode supply voltage range (W) 190 to 250  Anode operating current range (mA) 1 to 5  Max. peak anode current (mA) 40 3 Trigger Max. de-ionisation time. tdi. (µSec) 220 A.E. 6 Cathode  Control gap breakdown voltage (V) 70 7 NC  Main main gap breakdown voltage (V) 275 C  Main gap maintaining voltage (V) 65 to 8  B. Anode load open-circuited  B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn trigger pleased +60V w.r.t. cathode through 470Kn trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  RASE  BS 448/B7G/F  BC CONNECTIONS  Lead Electrode  1 Anode 2 NC 3 Trigger 1 NC  5 NC 6 Cathode 7 NC  DIMENSIONS  ES 448/B7G/F/2.1  Dimensions (m.m) Min. Max.  A. Seated Height - 38 C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING FOSITION  Any.  See Notes F and G.	ENVELOPE - Glass - Unmetallised			See K 1001/4						
All limiting values are absolute  Anode supply voltage range  (V) 190 to 250  Anode operating current range (mA) 1 to 5  Max. peak anode current (mA) 40 20 3 Trigger  Max. de-ionisation time. tdi. (µSec) 220 A.E. 6 Cathode  Control gap breakdown voltage (V) 70 70 70 70 70 70 70 70 70 70 70 70 70	PROTOTYPE - CCT6									
All limiting values are absolute  Anode supply voltage range  (V) 190 to 250  Anode operating current range (mA) 1 to 5  Max. peak anode current (mA) 40 20 3 Trigger  Max. de-ionisation time. tdi. (µSec) 220 A.E. 6 Cathode  Control gap breakdown voltage (V) 70 70 70 70 70 70 70 70 70 70 70 70 70	D.M.T.W.C. J. CV									
Anode supply voltage range  (V) 190 to 250  Anode operating current range  (mA) 1 to 5  Max. peak anode current  (mA) 40	(Not for inspec	ction pur	rposes)			BASE				
Anode operating current range (mA) 1 to 5  Max. peak anode current (mA) 40  Average ionisation time. tdi. (µSec) 220  A.E. 6  Control gap breakdown voltage (V) 70  Main gap maintaining voltage (V) 275  Main gap maintaining voltage (V) 65  B. Anode load open-circuited; trigger load = 470Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn or trigger biased +60V w.r.t. cathode through 470Kn or circuits rather than those obtained for "pulse bias" operation.  Lead Electrode  1 Anode  2 NC  3 Trigger  4 NC  5 NC  6 Cathode  7 NC  DIMENSIONS  ES 448/ B7G/ F/2.1  Dimensions (m.m) Min. Max.  A. Seated Height - 38  C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING FOSITION  Any.  See Notes F and 6	All limiting valu	ues are a	absolute		BS 448/I	37 <b>G∕ F</b>				
Anode operating current range (mA) 1 to 5  Max. peak anode current (mA) 40  Max. de-ionisation time. tdi. (pSec) 220  Average ionisation time. ti (pSec) 220  A.E. 6  Control gap breakdown voltage (V) 70  Main gap maintaining voltage (V) 65  to 80  Min. main gap breakdown voltage (V) 65  to 80  Montes  A. Measured at: Va = 200V,Vt = 100V,trigger load = 470Ka  B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Ka trigger biased +60V w.r.t. cathode through 470Ka trigger biased +60V w.r.t. cathode through 470Ka  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  See Notes E and G	Anode supply voltage range	(v)			CONNECTIONS					
Max. peak anode current  (mA) 40  Average ionisation time. tii (µSec) 220  A.E. 6  Cathode  7  Main gap breakdown voltage  (V) 70  Main gap maintaining voltage  (V) 65  B. Anode load open-circuited; trigger load = 470Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  Max. 42  A. E. 6  C. A.E. 6  C. Cathode  7  NC  DIMENSIONS  BS 448/B7G/F/2.1  Dimensions (m.m) Min. Max.  A. Seated Height - 38  C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING POSITION  Any.  See Noter F and G.	Anode operating oursent range	(mA)	1 1		Lead	Electr	ode			
Max. peak anode current  (mA)  (pSec)  Max. de-ionisation time. tdi. (pSec)  Average ionisation time. ti (pSec)  A.E.  (Cathode  7 NC  Cathode  7 NC  Min. main gap breakdown voltage  (V)  Main gap maintaining voltage  Max.  A. Seated Height - 38  C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING FOSITION  MOUNTING FOSITION  Any.  See Notes F and G.	mode operating current range	(1111)	1 to 5		·					
Max. de-ionisation time. tdi. (µSec)  Average ionisation time. ti (µSec)  Control gap breakdown voltage  (V)  TO  TO  TO  Main gap maintaining voltage  (V)  A.E.  6  Cathode  7  NC  Cathode  7  NC  Min. main gap breakdown voltage  (V)  Assumed at: Va = 200V, Vt = 100V, trigger load = 470Kn  B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  See Notes F and G	Max. peak anode current	(mA)								
Control gap breakdown voltage  (V) 70 to B 85  Min. main gap breakdown voltage (V) 275 C  Main gap maintaining voltage (V) 65 to B D  NOTES  A. Measured at: Va = 200V, Vt = 100V, trigger load = 470Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn trigger biased +60V w.r.t. cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  7 NC  DIMENSIONS  BS 448/B7G/F/2.1  Dimensions (m.m) Min. Max.  A. Seated Height - 38  C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING FOSITION  Any.  See Notes F and G	Max. de-ionisation time. tdi.	(µSec)			4	NC				
Control gap breakdown voltage  (V) 70 to B 85  Min. main gap breakdown voltage (V) 275 C  Main gap maintaining voltage (V) 65 to B DIMENSIONS  BS 448/B7G/F/2.1   NOTES  A. Measured at: Va = 200V, Vt = 100V, trigger load = 470Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn trigger biased +60V w.r.t. cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  7 NC  DIMENSIONS  BS 448/B7G/F/2.1  Dimensions (m.m) Min. Max.  A. Seated Height - 38  C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING FOSITION  Any.  See Notes F and G	Average ionisation time. ti	(µSec)	220	A.E.	6	1				
Min. main gap breakdown voltage  (V) 275 C  Main gap maintaining voltage  (V) 65 to BS 448/B7G/F/2.1  NOTES  A. Measured at: Va = 200V, Vt = 100V, trigger load = 470Kn  B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn trigger biased +60V w.r.t. cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  See Notes F and G	Control gap breakdown voltage	(v)		_	7	NC				
Min. main gap breakdown voltage  (V) 275 C  Main gap maintaining voltage  (V) 65 to 80  DIMENSIONS  BS 448/B7G/F/2.1  Dimensions (m.m) Min. Max.  A. Seated Height - 38  A. Measured at: Va = 200V,Vt = 100V, trigger load = 470Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn trigger biased +60V w.r.t. cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  See Notes F and G				В						
NOTES  A. Measured at: Va = 200V, Vt = 100V, trigger load = 470Kn  B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn trigger biased +60V w.r.t. cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  Any.  See Notes E and G	Min. main gap breakdown voltage	(v)		C						
NOTES  A. Measured at: Va = 200V, Vt = 100V, trigger load = 470Kn  B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn trigger biased +60V w.r.t. cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  BE 448/B7G/F/2.1  Dimensions (m.m) Min. Max.  A. Seated Height - 38  C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING FOSITION  Any.  See Notes F and G	Main gap maintaining voltage	(v)	65							
A. Measured at: Va = 200V,Vt = 100V, trigger load = 470Kn  B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Kn trigger biased +60V w.r.t. cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  A. Seated Height - 38  C. Diameter 16.0 19.0  E. Lead Length 38.1 - MOUNTING FOSITION  Any. See Notes F and G				D						
A. Measured at: Va = 200V, Vt = 100V, trigger load = 470Ka  B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Ka or trigger biased +60V w.r.t. cathode through 470Ka  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  A. Seated Height - 38  C. Diameter   16.0   19.0  E. Lead Length   38.1   -  MCUNTING FOSITION  Any.  See Notes F and G	MOTES				Dimensio	ons (m.m)	Min.	Max.		
B. Anode load open-circuited; trigger load 47Kn  C. Suddenly applied 250 volts, with trigger connected to cathode through 470Ka or trigger biased +60V w.r.t. cathode through 470Ka  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  C. Diameter 16.0 19.0  E. Lead Length 38.1 -  MOUNTING FOSITION  Any.				A. Seated Height -		_	38			
C. Suddenly applied 250 volts, with trigger connected to cathode through 470Ka or trigger biased +60V w.r.t. cathode through 470Ka  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  See Notes E and G						16.0	19.0			
cathode through 470Kn  D. Ia = 5mA, and trigger open-circuited  E. Typical conditions in "Voltage level transfer" circuits rather than those obtained for "pulse bias" operation.  See Notes F and G	C. Suddenly applied 250 volts, with trigger connected					-,				
circuits rather than those obtained for "pulse bias" operation.	cathode through 470Ka									
operation.	circuits rather than those obtained for "pulse bias"			Any.						
	operation.									
metal spring clip which must be electrically	metal spring clip which must be electrically									
G. The valve must not be used under conditions of										
total darkness or direct bright sunlight.							-			

# CV 6016

TESTS

## To be performed in addition to those applicable in K 1001

K 1001	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits		
		Test Conditions				Min.	Max.	Units
	GROUP A							
	Notes 1, 2 & 3							
	Main gap breakdown voltage	Note 4		100%	Vb	275	-	v
	Main gap maintaining voltage	Note 5		100,0	<b>V</b> m	65	80	v
	Ionisation time	Note 9		100%	ti	-	220	u <sub>S</sub> ec
	GROUP B							
1	Notes 1, 2 & 3							
	Main gap breakdown voltage	Note 6	6.5	Ia	Vb	275	-	v
	Control gap breakdown voltage	Note 7	6.5		Vс	<b>7</b> 0	85	v
	Main gap maintaining voltage	Note 8	6.5		Vm	65	80	v
	GROUP C							
	Notes 1, 2 & 3							
	De-ionisation time			TA	tđi	-	2000 1 <del>000</del>	uSec
	GROUP D							
	Omitted							
	GROUP E						-	
5.12	Lead Fragility	No Voltages	6.5	Ic				
	GROUP F							
	Omitted							
	GROUP G							
	Omitted							
		L	<u> </u>		L			



### NOTES

- 1. The tests should not be performed until 28 days after the completion of manufacture of the valve.
- 2. The tests should be performed under the illumination of a tungsten light of 10 + 1 ft. candles.
- 3. During testing the envelope is held in a "U" shaped metal clip, 15-18mm wide, around the centre of the bulb and touching it over the semi-circular portion. The clip is electrically connected to the cathode.
- 4. The trigger is connected to cathode via a resistance of 470 K $\mathbf{n}$  and the anode is connected to +275V via a resistance of 100 K $\mathbf{n}$ . The valve shall not conduct.
- 5. The anode is connected to H.T. via 150 K $\alpha$ . The valve is fired and the trigger electrode open circuited. H.T. is adjusted for Ia = 1mA and the main gap maintaining voltage must be within the limits specified.
- 6. The trigger is connected to +60V via a resistance of 470 Km and the anode is connected to +275V via a resistance of 100 Km. The valve shall not conduct.
- 7. The anode is open circuited, and the trigger to H.T. via a resistance of 47 Kn.
- 8. The anode is connected to H.T. via a resistance of 22 Kn. The valve is fired and the trigger electrode open circuited. H.T. is adjusted for Ia = 5mA and the main gap maintaining voltage must be within the limits specified.
- 9. A pulse of sensibly square shape, of + 100V amplitude and of long duration compared with the ionisation time shall be applied to the trigger electrode in the circuit shown. The valve shall strike within the specified time after the trigger pulse has attained its maximum value.