



5553-B

5553-B IGNITRON

WATER-COOLED, STEEL-JACKETED, MERCURY-POOL-CATHODE
TYPE HAVING MOUNTING PLATE FOR THERMOSTATIC CONTROL

For resistance-welding control

GENERAL DATA

Electrical:

Cathode Excitation. Cyclic
Cathode-Spot Starting. By Ignitor

Minimum Requirements for Cathode Excitation:

Peak ignitor voltage required to fire	200	volts
Peak ignitor current required to fire	30	amp
Starting time at required voltage or current.	100	μ sec

Tube Voltage Drop:

At peak anode current of 13600 amperes.	36	volts
At peak anode current of 1115 amperes	17	volts

Mechanical:

Operating Position. Vertical, flexible lead up

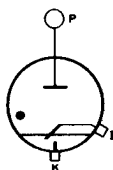
Maximum Overall Length (Including
flexible lead). 31-3/8"

Maximum Radius (Including water connections). 4-11/16"

Weight. 21 lbs

Terminal Connections (*See Dimensional Outline*):

P - Anode
Terminal
(Flexible
lead)
K - Cathode
Terminal
(Bar oppo-
site anode
terminal)



I - Ignitor
Terminal
(Within
jacket
skirt at
cathode
end)

Cooling:

Type.	Water
Minimum inlet water temperature	10 °C
Maximum outlet water temperature.	40 °C
Minimum water flow.	3 gpm
Maximum water-temperature rise.	9 °C
Maximum pressure drop	5.1 psi

INTERMITTENT RECTIFIER SERVICE and FREQUENCY-CHANGER WELDER SERVICE

Maximum Ratings, Absolute-Maximum Values:

*For zero phase-control angle and frequencies
from 50 to 60 cps*

RATING I

PEAK ANODE VOLTAGE:

Forward	600 max.	600 max.	volts
Inverse	600 max.	600 max.	volts



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ANODE CURRENT:

Peak.	1140 max.	4000 max.	amp
Average (Averaged over any interval of 6.25 seconds maximum)	190 max.	54 max.	amp
Average (Averaged over any interval of 0.2 second maximum)	190 max.	666 max.	amp
Fault, for duration of 0.15 second maximum.	50000 max.	50000 max.	amp

RATING II**PEAK ANODE VOLTAGE:**

Forward	1200 max.	1200 max.	volts
Inverse	1200 max.	1200 max.	volts

ANODE CURRENT:

Peak.	840 max.	3000 max.	amp
Average (Averaged over any interval of 6.25 seconds maximum)	140 max.	40 max.	amp
Average (Averaged over any interval of 0.2 second maximum)	140 max.	500 max.	amp
Fault, for duration of 0.15 second maximum.	37500 max.	37500 max.	amp

RATING III**PEAK ANODE VOLTAGE:**

Forward	1500 max.	1500 max.	volts
Inverse	1500 max.	1500 max.	volts

ANODE CURRENT:

Peak.	672 max.	2400 max.	amp
Average (Averaged over any interval of 6.25 seconds maximum)	112 max.	32 max.	amp
Average (Averaged over any interval of 0.2 second maximum)	112 max.	400 max.	amp
Fault, for duration of 0.15 second maximum.	30000 max.	30000 max.	amp

RESISTANCE-WELDING-CONTROL SERVICE®

Two Tubes in Inverse-Parallel Circuit

Maximum Ratings, Absolute-Maximum Values:

For frequencies from 25 to 60 cps

Ratings I-A and I-B Apply to Operation Either (1) Without Water-Saving Thermostat, or (2) With Water-Saving Thermostat Shunted by Auxiliary Contactor

RATING I-A

	Column 1*	Column 2*	
SUPPLY VOLTAGE (RMS).	250 max.	250 max.	volts



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	Column 1*	Column 2*	
DEMAND POWER (During conduction)	800 max.	2400 max.	kva
DUTY†.	24.6 max.	4.4 max.	%
ANODE CURRENT (Per tube):			
Peak.	4530 max.	13600 max.	amp
Demand (RMS, during conduction)‡.	3200 max.	9600 max.	amp
Average (Averaged over any interval of 11 sec- onds maximum)§.	355 max.	192 max.	amp
Fault, for duration of 0.15 second maximum.	27000 max.	27000 max.	amp

RATING I-B

	Column 1*	Column 2*	
SUPPLY VOLTAGE (RMS).	600 max.	600 max.	volts
DEMAND POWER (During conduction)	800 max.	2400 max.	kva
DUTY†.	59 max.	10.7 max.	%
ANODE CURRENT (Per tube):			
Peak.	1890 max.	5660 max.	amp
Demand (RMS, during conduction)‡.	1330 max.	4000 max.	amp
Average (Averaged over any interval of 4.6 sec- onds maximum)§.	355 max.	192 max.	amp
Fault, for duration of 0.15 second maximum.	11200 max.	11200 max.	amp

Ratings II-A and II-B Apply to Operation with Water-
Saving Thermostat Not Shunted by Auxiliary Contactor

RATING II-A

	Column 1*	Column 2*	
SUPPLY VOLTAGE (RMS).	250 max.	250 max.	volts
DEMAND POWER (During conduction)	800 max.	2400 max.	kva
DUTY†.	12.2 max.	2.2 max.	%
ANODE CURRENT (Per tube):			
Peak.	4530 max.	13600 max.	amp
Demand (RMS, during conduction)‡.	3200 max.	9600 max.	amp
Average (Averaged over any interval of 22.4 sec- onds maximum)§.	175 max.	96 max.	amp
Fault, for duration of 0.15 second maximum.	27000 max.	27000 max.	amp

•, †, ‡, §: See next page.



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RATING II-B

	Column 1*	Column 2*	
SUPPLY VOLTAGE (RMS)	600 max.	600 max.	volts
DEMAND POWER (During conduction)	800 max.	2400 max.	kva
DUTY†	29 max.	5.3 max.	%
ANODE CURRENT (Per tube):			
Peak	1890 max.	5660 max.	amp
Demand (RMS, during conduction)*	1330 max.	4000 max.	amp
Average (Averaged over any interval of 9.4 sec- onds maximum)*	175 max.	96 max.	amp
Fault, for duration of 0.15 second maximum	11200 max.	11200 max.	amp

IGNITOR

Maximum Ratings, Absolute-Maximum Values:

PEAK IGNITOR VOLTAGE:

Positive	Equal to anode volts
Negative	5 max. volts

IGNITOR CURRENT:

Peak	100 max.	amp
Average (Averaged over any interval of 5 seconds maximum)	1 max.	amp
RMS	10 max.	amp

* RMS voltage, current, and demand kva are on the basis of full-cycle conduction (no phase delay) regardless of whether or not phase control is used.

† Defined as (cycles "on")/(cycles "on" + cycles "off") during the specified averaging time.

‡ For supply voltages between 250 volts and 600 volts, duty is proportional to supply voltage. For supply voltages lower than 250 volts, the values for 250 volts apply.

* Column 1 represents operation at maximum average anode current; Column 2 represents operation at maximum demand power.

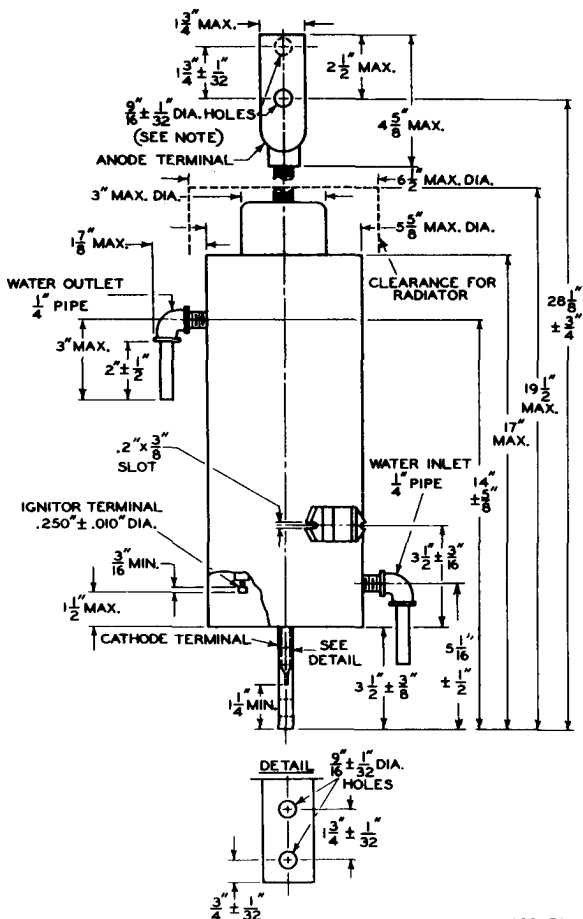
* For supply voltages between 250 volts and 600 volts, demand anode current and averaging time are each inversely proportional to supply voltage. For supply voltages lower than 250 volts, the values for 250 volts apply.

OPERATING CONSIDERATIONS
for the 5553-B are the same as
those shown for Type 5551-A



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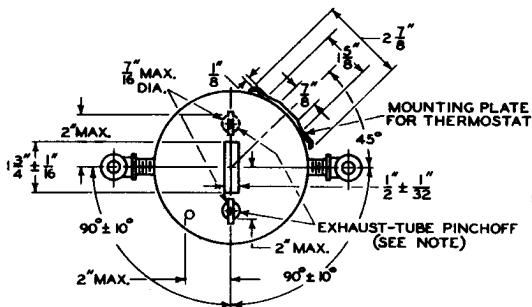
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BOTTOM VIEW



NOTE: DASHED POSITION AT MANUFACTURER'S OPTION.

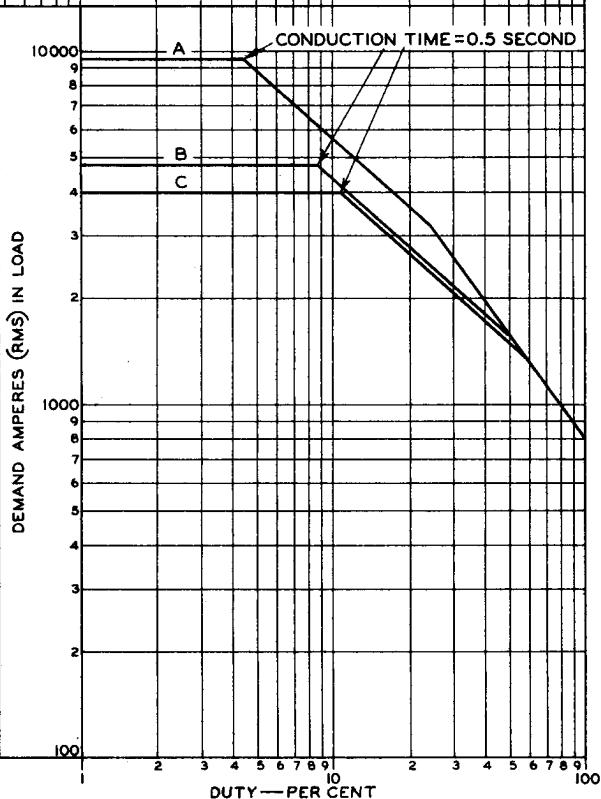


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5553-B
RATING CHART
RESISTANCE-WELDING-CONTROL SERVICE

TWO TUBES CONNECTED IN INVERSE PARALLEL.
NO WATER-SAVING THERMOSTAT, OR WATER-
SAVING THERMOSTAT SHUNTED BY
AUXILIARY CONTACTOR.
PROTECTIVE THERMOSTAT OPTIONAL.

CURVE	RMS ANODE- SUPPLY VOLTS	MAXIMUM AVERAGING TIME— SECONDS
A	250	11
B	500	9.2
C	600	4.6



ELECTRON TUBE DIVISION

92CM-9822

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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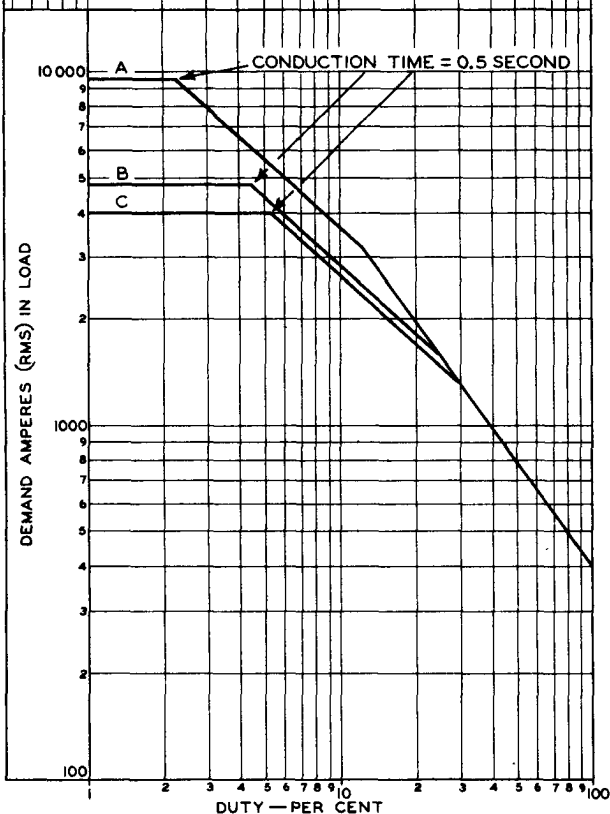
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RATING CHART

RESISTANCE-WELDING-CONTROL SERVICE

TWO TUBES CONNECTED IN INVERSE PARALLEL.
WATER-SAVING THERMOSTAT WITHOUT
AUXILIARY CONTACTOR.
PROTECTIVE THERMOSTAT OPTIONAL.

CURVE	RMS ANODE- SUPPLY VOLTS	MAXIMUM AVERAGING TIME- SECONDS
A	250	22.4
B	500	18.8
C	600	9.4



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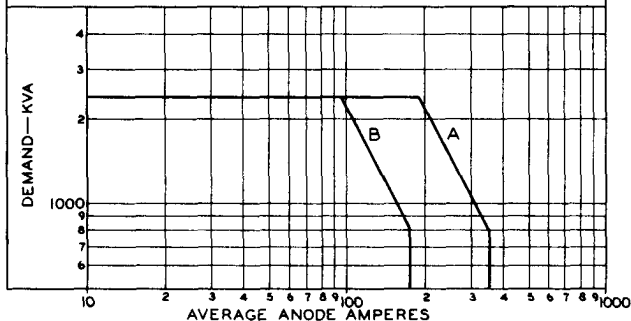


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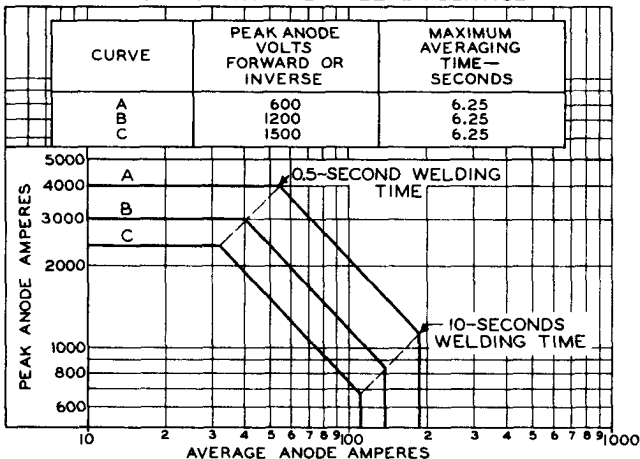
RATING CHARTS RESISTANCE-WELDING-CONTROL SERVICE

TWO TUBES CONNECTED IN INVERSE PARALLEL.
 RMS ANODE-SUPPLY VOLTS = 250 TO 600
 CURVE A: NO WATER-SAVING THERMOSTAT, OR WATER-SAVING THERMOSTAT SHUNTED BY AUXILIARY CONTACTOR.
 CURVE B: WATER-SAVING THERMOSTAT WITHOUT AUXILIARY CONTACTOR.



92CS-9825

FREQUENCY-CHANGER WELDER SERVICE



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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CS-9824