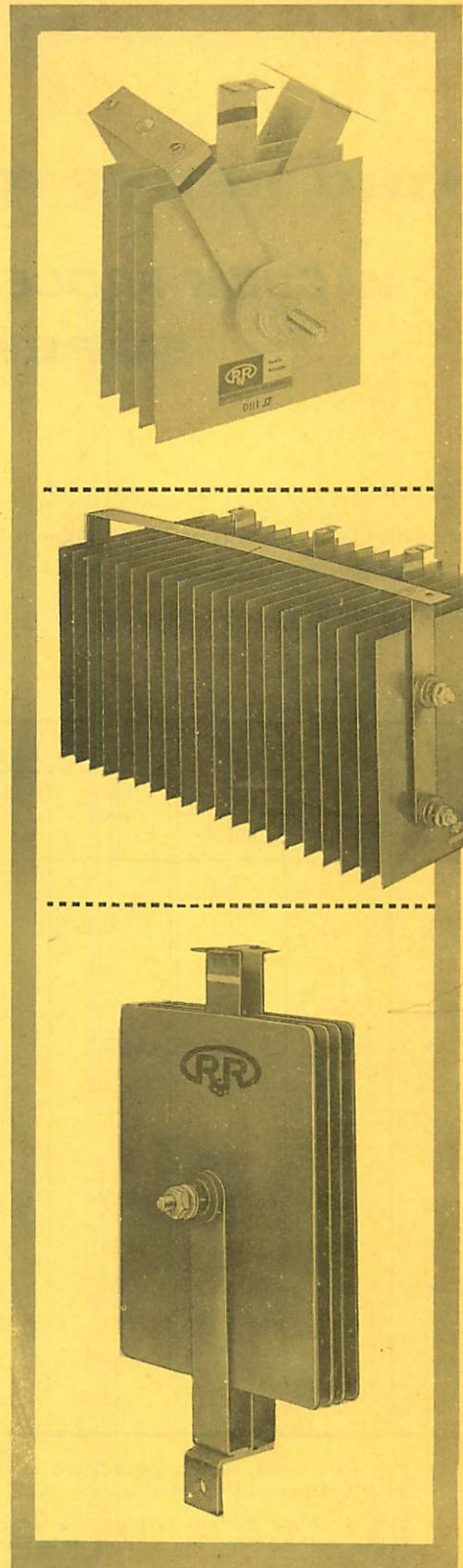


**RADIO
RECEPTOR**
**selenium
rectifiers**



RADIO RECEPTOR COMPANY, INC.



Semiconductor Division

Subsidiary of General Instrument Corporation

240 WYTHE AVENUE, BROOKLYN 11, N. Y. EVERgreen 8-6000

GENERAL
INSTRUMENT
SEMICONDUCTORS



RADIO RECEPTOR

Tri-AMP

VACUUM PROCESS SELENIUM RECTIFIERS

SUPER HIGH CURRENT DENSITY

Cell Ratings . . .

Continuous D.C. Amperes at 35° C Ambient Temperature
 Into a Resistive-Inductive Load
 Convection Cooling

**100,000 HOUR
 LIFE EXPECTANCY**

RRco. CELL CODE	NOMINAL CELL SIZE (INCHES)		SINGLE PHASE			THREE PHASE			
			HALF WAVE	CENTER TAP	BRIDGE	HALF WAVE	CENTER TAP	BRIDGE	6 ϕ HW W/IPT
	VERT.	HORIZ.							
C6	1.0	1.0	0.3	0.6	0.6	0.9	1.4	0.9	1.8
C11	1.3	1.3	0.75	1.5	1.5	2.2	3.6	2.2	4.4
C16	1.6	1.6	1.1	2.2	2.2	3.3	5.4	3.3	6.6
C25	2.0	2.0	1.7	3.4	3.4	5.1	8.4	5.1	10.2
C44	2.6	2.6	3.3	6.6	6.6	10.	16.	10.	20.
C57	2.3	4	4.5	9.	9.	13.5	22.5	13.5	27.
C100	4.	4.	6.	12.	12.	18.	30.	18.	36.
C133	4.	5.3	9.	18.	18.	27.	45.	27.	54.
C200	4.	8.	12.	24.	24.	36.	60.	36.	72.
C300	4.	12.	18.	36.	36.	54.	90.	54.	108.
C401	4.	16.	24.	48.	48.	72.	120.	72.	144.
C402	8.	8.	24.	48.	48.	72.	120.	72.	144.
C600	8.	12.	35.	70.	70.	105.	175.	105.	210.
C800	8.	16.	45.	90.	90.	135.	225.	135.	270.

NOTES: For half wave, motor, capacitive or battery charging circuits where back emf is present divide the given RMS voltage rating of the cell by 2.

Single phase current ratings are for resistive or inductive loads; ratings for motor, battery or capacitive loads are 80% of the values tabulated above.

Ratings are for convection cooled cells mounted in a vertical position with the longer side of the cell in the horizontal plane.

RADIO RECEPTOR

Tri-AMP

VACUUM PROCESS SELENIUM RECTIFIERS

SUPER HIGH CURRENT DENSITY

Cell Ratings . . .

Continuous D.C. Amperes at 35° C Ambient Temperature
 Into a Resistive-Inductive Load
 Forced Air Cooling — with air flowing across narrow dimension of cell

**100,000 HOUR
 LIFE EXPECTANCY**

With Air Velocity — 500 Linear Feet per Minute

RRco. CELL CODE	NOMINAL CELL SIZE (INCHES)		SINGLE PHASE			THREE PHASE			
			HALF WAVE	CENTER TAP	BRIDGE	HALF WAVE	CENTER TAP	BRIDGE	6 ϕ HW W/IPT
	VERT.	HORIZ.							
C100	4	4	10	20	20	30	50	30	60
C133	4	5.3	15	30	30	45	75	45	90
C200	4	8	20	40	40	60	100	60	120
C300	4	12	30	60	60	90	150	90	180
C401	4	16	40	80	80	120	190	120	230
C402	8	8	40	80	80	120	190	120	230
C600	8	12	57	114	114	170	290	170	350
C800	8	16	75	150	150	225	370	225	450

With Air Velocity — 1100 Linear Feet per Minute

RRco. CELL CODE	NOMINAL CELL SIZE (INCHES)		SINGLE PHASE			THREE PHASE			
			HALF WAVE	CENTER TAP	BRIDGE	HALF WAVE	CENTER TAP	BRIDGE	6 ϕ HW W/IPT
	VERT.	HORIZ.							
C100	4	4	18	36	36	54	90	54	110
C200	4	8	36	72	72	110	180	110	220
C300	4	12	55	110	110	165	270	165	320
C401	4	16	73	145	145	220	350	220	430
C402	8	8	73	145	145	220	350	220	430
C600	8	12	105	210	210	310	500	310	620
C800	8	16	135	270	270	400	650	400	800

PARALLEL CELL DERATING (for 1100 LFPM only):

- For 1 through 4 cells in parallel, use 100% of the ratings shown.
- For 5 through 7 cells in parallel, use 95% of the ratings shown.
- For more than 7 cells in parallel, use 90% of the ratings shown.

All cells rated at 26 volts A.C. RMS



INDUSTRIAL RECTIFIER STACK CODING SYSTEM

Tri-AMP

SELENIUM RECTIFIERS

Manufactured Feb. 1957.
See Note 1.

C100 S 1 B 3 S 1 G

B7

CELL SIZE	CELL SPACING		STACK CONNECTION		TYPE OF MOUNTING	TYPE OF FINISH	REVERSE VOLTAGE PER CELL (RMS)
C6: 1" sq. C11: 1.3" sq. C16: 1.6" sq. C25: 2" sq. C44: 2.6" sq. C57: 2.3" x 4" C100: 4" sq. C133: 4" x 5.3" C200: 4" x 8" C300: 4" x 12" C401: 4" x 16" C402: 8" x 8" C600: 8" x 12" C800: 8" x 16"	F: Fan N: Narrow S: Standard X: Special	NUMBER OF SERIES CELLS PER ELEMENT	H: Half Wave B: Bridge C: Center Tap D: Doubler HA: 3 Phase wye (Half Wave +) HB: 3 Phase wye (Half Wave -) BA: 3 Phase Bridge CA: 3 Phase Center Tap (6 Phase Star)	NUMBER OF PARALLEL CELLS PER ELEMENT	E: Eyelet G*: Bracket (One end) H*: Bracket (Both ends) M: Bracket (One end) N: Bracket (Both ends) S: Stud *NEMA standard	1: Standard 2: Extra 3: Marine 4: #2 plus Fungicide 5: #3 plus Fungicide 6: #1 plus Fungicide 7: High Temperature 8: Embedded	G: 26 volts K: *33 volts L: *36 volts M: *40 volts P: *45 volts

Note 1: Standard NEMA Date Code Symbol:

First position: Letter indicates month of manufacture - A = Jan. B = Feb. C = Mar. D = April, E = May, F = June, G = July, H = Aug. J = Sept. K = Oct. L = Nov. M = Dec.

Second position: Numeral indicates year of manufacture - 6 = 1956, 7 = 1957, 8 = 1958, etc.

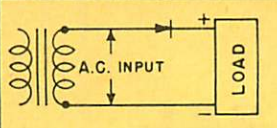
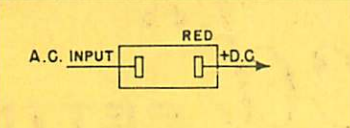
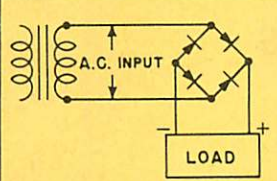
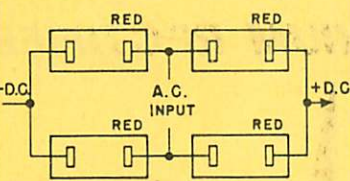
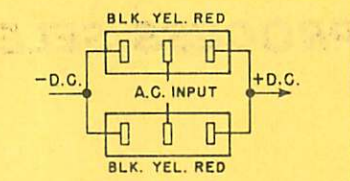
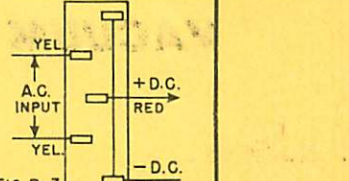
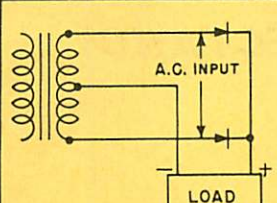
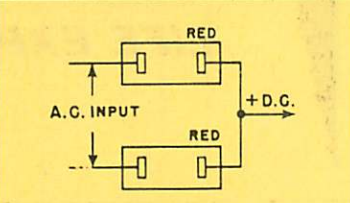
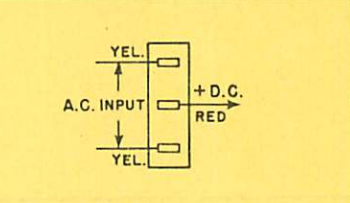
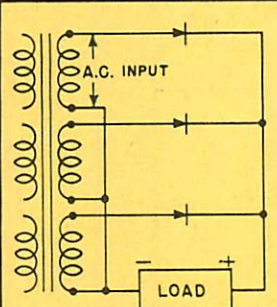
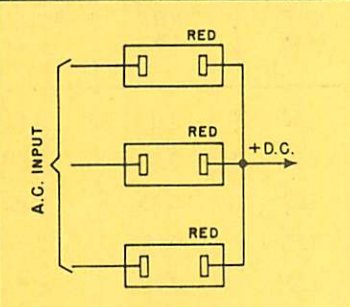
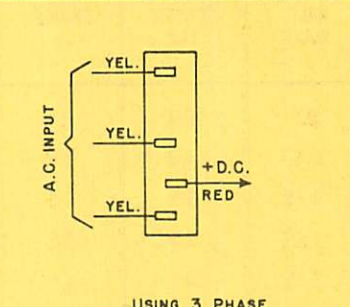
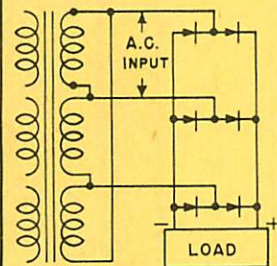
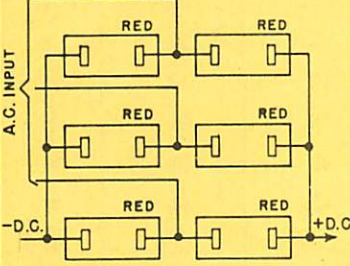
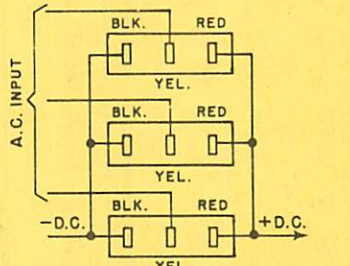
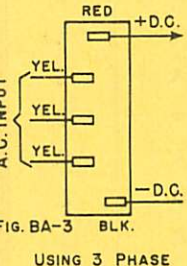
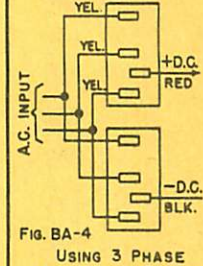
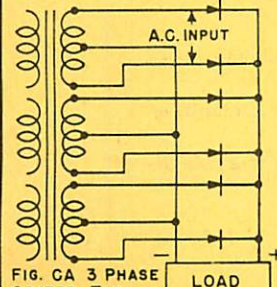
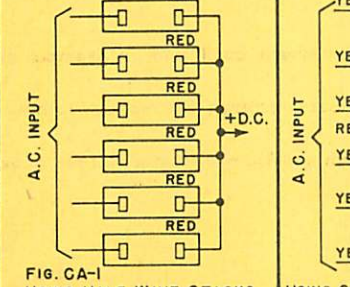
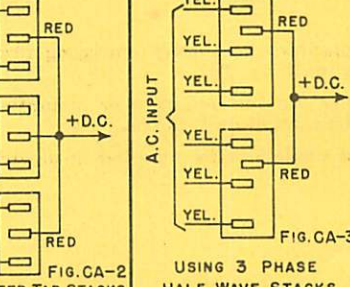
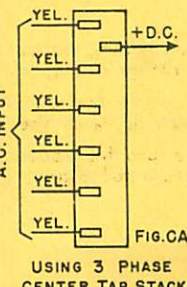

For example: A6 is Jan. 1956, J7 is Sept. 1957. (Letter "I" is not used.)

*Note 2: At present, Tri-AMP cells are available only in the "G" voltage (26 volts). Other ratings will become available in the future and they are shown for reference only.

STACK CONNECTION	ELEMENTS (ARMS) PER RECTIFIER
H: Half Wave	1
C: Center Tap	2
D: Doubler	2
B: Bridge	4
HA: 3 Phase wye (Half Wave) (+)	3
HB: 3 Phase wye (Half Wave) (-)	3
BA: 3 Phase Bridge	6
CA: 3 Phase Center Tap (6 Phase Star)	6

TOTAL NUMBER OF CELLS PER RECTIFIER CONNECTION = NUMBER OF ARMS x CELLS IN SERIES x CELLS IN PARALLEL.

Conventional Rectifier Circuits and Methods of Connecting Stacks

TYPE OF CIRCUIT	STACK CONNECTIONS			
 <p>FIG. H HALF WAVE</p>	 <p>FIG. H-1</p>			
 <p>FIG. B BRIDGE</p>	 <p>FIG. B-1 USING HALF WAVE STACKS</p>	 <p>FIG. B-2 USING DOUBLER STACKS</p>	 <p>FIG. B-3 USING BRIDGE STACK</p>	
 <p>FIG. C CENTER TAP</p>	 <p>FIG. C-1 USING HALF WAVE STACKS</p>	 <p>FIG. C-2 USING CENTER TAP STACKS</p>		
 <p>FIG. HA 3 PHASE HALF WAVE</p>	 <p>FIG. HA-1 USING HALF WAVE STACKS</p>	 <p>FIG. HA-2 USING 3 PHASE HALF WAVE STACK</p>		
 <p>FIG. BA 3 PHASE BRIDGE</p>	 <p>FIG. BA-1 USING HALF WAVE STACKS</p>	 <p>FIG. BA-2 USING DOUBLER STACKS</p>	 <p>FIG. BA-3 BLK.</p>	 <p>FIG. BA-4 USING 3 PHASE HALF WAVE STACKS</p>
 <p>FIG. CA 3 PHASE CENTER TAP</p>	 <p>FIG. CA-1 USING HALF WAVE STACKS</p>	 <p>FIG. CA-2 USING CENTER TAP STACKS</p>	 <p>FIG. CA-3</p>	 <p>FIG. CA-4</p>

RADIO & ELECTRONIC



PRODUCTS SINCE 1922

RADIO RECEPTOR *hcd** PETTI-SEL

*high current density

VACUUM PROCESS SELENIUM RECTIFIERS

Cell Ratings . . .

Continuous D.C. Amperes at 35° C Ambient Temperature
 Into a Resistive-Inductive Load
 Convection Cooling

**100,000 HOUR
 LIFE EXPECTANCY**

RRco. CELL CODE	NOMINAL CELL SIZE (INCHES)		SINGLE PHASE			THREE PHASE			
			HALF WAVE	CENTER TAP	BRIDGE	HALF WAVE	CENTER TAP	BRIDGE	6φHW W/IPT
	VERT.	HORIZ.							
6	1.0	1.0	0.2	0.4	0.4	0.6	1.0	0.6	1.2
11	1.3	1.3	0.5	1.0	1.0	1.5	2.5	1.5	3.
16	1.6	1.6	0.75	1.5	1.5	2.25	3.75	2.25	4.5
25	2.0	2.0	1.25	2.5	2.5	3.75	6.25	3.75	7.5
44	2.6	2.6	2.25	4.5	4.5	6.75	11.25	6.75	13.5
57	2.3	4.	3.	6.	6.	9.	15.	9.	18.
100	4.	4.	4.	8.	8.	12.	20.	12.	24.
133	4.	5.3	6.	12.	12.	18.	30.	18.	36.
200	4.	8.	8.	16.	16.	24.	40.	24.	48.
300	4.	12.	12.	24.	24.	36.	60.	36.	72.
401	4.	16.	16.	32.	32.	48.	80.	48.	96.
402	8.	8.	16.	32.	32.	48.	80.	48.	96.
600	8.	12.	22.5	45.	45.	67.5	112.5	67.5	135.
800	8.	16.	30.	60.	60.	90.	150.	90.	180.

NOTES: For half wave, motor, capacitive or battery charging circuits where back emf is present divide the given RMS voltage rating of the cell by 2

Single phase current ratings are for resistive or inductive loads; ratings for motor, battery or capacitive loads are 80% of the values tabulated above.

Ratings are for convection cooled cells mounted in a vertical position with the longer side of the cell in the horizontal plane.

Pages 7 and 8 have been depleted.

RADIO RECEPTOR

hcd *

Tri-AMP

PETTI-SEL

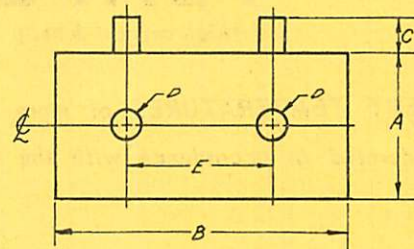
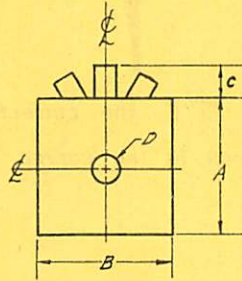
**high current density*

TERMINAL

AND
STUD

ARRANGEMENTS

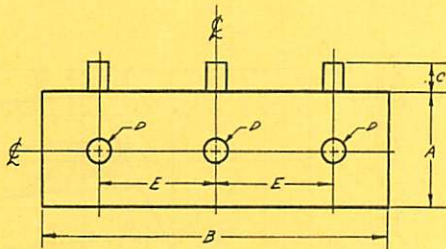
Fig. 1



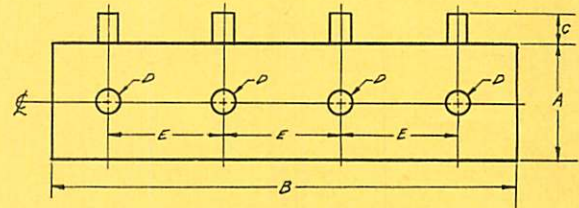
200 cell size (approx. 4" x 8")

Fig. 2

Fig. 3



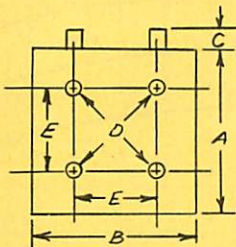
300 cell size (approx. 4" x 12")



401 cell size (approx. 4" x 16")

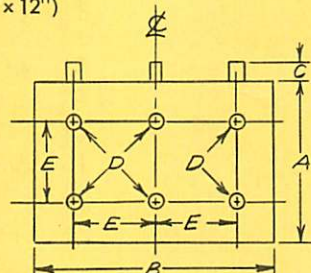
Fig. 4

Fig. 5

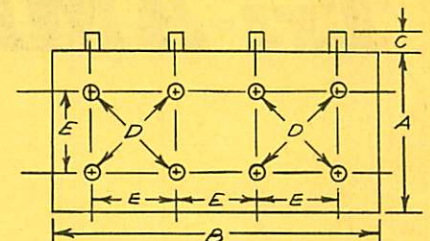


402 cell size (approx. 8" x 8")

Fig. 6



600 cell size (approx. 8" x 12")



800 cell size (approx. 8" x 16")

Fig. 7

CELL CODE NO.	FIG.	A INCHES	B INCHES	C INCHES	D STUD	E INCHES
6	1	1.0	1.0	$\frac{7}{16}$	10-32	—
11	1	1.3	1.3	$\frac{7}{16}$	10-32	—
16	1	1.6	1.6	$\frac{1}{2}$	10-32	—
25	1	2.0	2.0	$\frac{5}{16}$	10-32	—
44	1	2.6	2.6	$\frac{7}{16}$	10-32	—
57	1	2.3	3.9	$\frac{5}{16}$	10-32	—
100	1	3.9	3.9	$1\frac{5}{16}$	$\frac{5}{16}$ -18	—
133	1	3.9	5.3	$1\frac{5}{16}$	$\frac{5}{16}$ -18	—
200	2	3.9	7.8	$1\frac{5}{16}$	$\frac{5}{16}$ -18	$3\frac{15}{16}$
300	3	3.9	11.8	$1\frac{5}{16}$	$\frac{5}{16}$ -18	$3\frac{15}{16}$
401	4	3.9	15.8	$1\frac{5}{16}$	$\frac{5}{16}$ -18	$3\frac{15}{16}$
402	5	7.9	7.9	$1\frac{5}{16}$	$\frac{5}{16}$ -18	$3\frac{15}{16}$
600	6	7.9	11.8	$1\frac{5}{16}$	$\frac{5}{16}$ -18	$3\frac{15}{16}$
800	7	7.9	15.8	$1\frac{5}{16}$	$\frac{5}{16}$ -18	$3\frac{15}{16}$

NOTE: Terminal arrangements shown are typical; other arrangements are possible. Dimension "C" is terminal lug height and does not include bus bar where required. Terminals for # 6 through # 44 cells are solder lug type. For # 100 through # 800 terminals are both solder and screw type.

RADIO RECEPTOR

*hcd**

Tri-AMP

PETTI-SEL

**high current density*

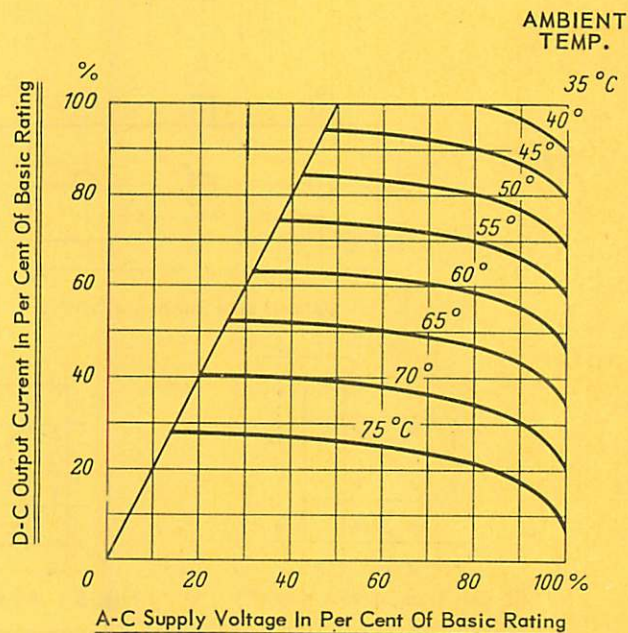
TEMPERATURE

DERATING

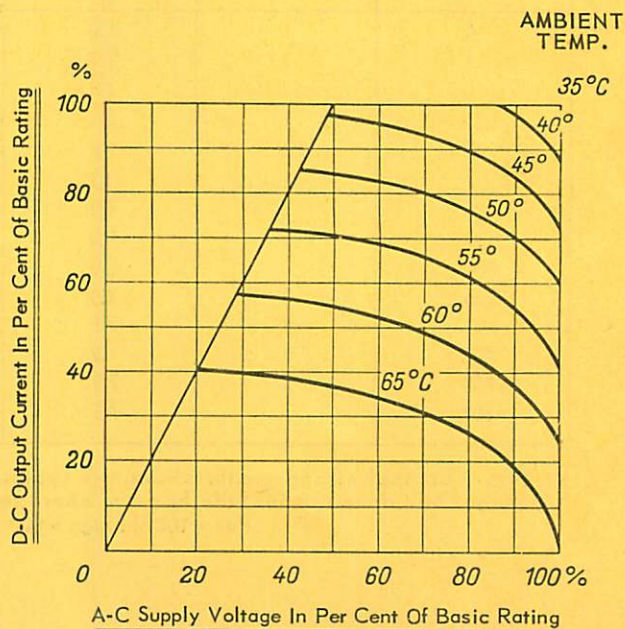
CURVES

At AMBIENT TEMPERATURES of more than + 35°C, the currents or voltages must be derated in accordance with the values given in the curves shown below.

Tri-AMP



PETTI-SEL



RADIO RECEPTOR

Power-AMP

VACUUM-BARRIER SELENIUM RECTIFIERS

Cell Ratings . . .

Continuous D.C. Amperes at 35° C Ambient Temperatures
 Into a Resistive-Inductive Load
 Convection Cooling

RRco. CELL CODE	NOMINAL CELL SIZE (INCHES)		SINGLE PHASE			THREE PHASE				SPACING (SEE NOTE 1)
	VERT.	HORIZ.	HALF WAVE	CENTER TAP	BRIDGE	HALF WAVE (WYE)	CENTER TAP (STAR)	BRIDGE	6 ϕ HW W/IPT	
D6	1.0	1.0	.11	.22	.22	.29	.40	.33	.58	Standard
			.075	.15	.15	.20	.27	.225	.4	Narrow
D8	1.13	1.13	.23	.45	.45	.60	.81	.67	1.2	Standard
			.15	.30	.30	.40	.55	.45	.8	Narrow
D11	1.3	1.3	.30	.60	.60	.80	1.1	.90	1.6	Standard
			.20	.40	.40	.53	.73	.60	1.16	Narrow
D16	1.6	1.6	.45	.90	.90	1.2	1.6	1.3	2.4	Standard
			.30	.60	.60	.80	1.1	.90	1.6	Narrow
D25	2.0	2.0	.70	1.4	1.4	1.8	2.5	2.1	3.6	Standard
			.50	1.0	1.0	1.3	1.8	1.5	2.6	Narrow
D58	3.0	3.0	1.6	3.2	3.2	4.2	5.8	4.8	8.4	Standard
			1.2	2.4	2.4	3.2	4.3	3.6	6.4	Narrow
D100	4.0	4.0	3.0	6.0	6.0	8.0	10.8	9.0	16	Standard
			2.25	4.5	4.5	6.0	8.1	6.7	12	Narrow
D164	4.25	6.0	4.2	8.5	8.5	11.0	15.0	12.5	22	Standard
			3.35	6.7	6.7	8.9	12.5	10.0	17.8	Narrow
D193	5.0	6.0	5.0	10.0	10.0	13.3	18.0	15.0	26.6	Standard
			4.0	8.0	8.0	10.6	14.4	12.0	21.2	Narrow
D280	6.0	7.25	7.5	15.0	15.0	20.0	27.0	22.5	40	Standard
			6.0	12.0	12.0	15.9	21.6	18.0	31.8	Narrow
D388	6.0	10.0	9.8	19.6	19.6	26.8	36.6	29.4	53.6	Standard
			8.7	17.4	17.4	24.0	32.7	26.1	48	Narrow
D465	6.0	12.0	11.8	23.6	23.6	31.8	43.9	35.4	63.6	Standard
			10.4	20.8	20.8	28.3	39.2	31.2	56.6	Narrow

NOTES: 1. For stacks having a total of eight cells or less, the higher currents for standard spacing would also apply with narrow spacing.

2. For half wave, motor, capacitive or battery charging circuits where back emf is present divide the given RMS voltage rating of the cell by 2.

Single phase current ratings are for resistive or inductive loads; ratings for motor, battery or capacitive loads are 80% of the values tabulated above.

Ratings are for convection cooled cells mounted in a vertical position with the longer side of the cell in the horizontal plane. For fan cooling (500 linear FPM) multiply the standard current rating for each cell size by 2.5.



INDUSTRIAL RECTIFIER STACK CODING SYSTEM

Power-AMP VACUUM-BARRIER SELENIUM RECTIFIERS

D100 S 1 B 3 S 1 G

Manufactured Feb. 1959.
See Note 1.

B9

CELL SIZE	CELL SPACING		STACK CONNECTION		TYPE OF MOUNTING	TYPE OF FINISH	REVERSE VOLTAGE PER CELL (RMS)
D6: 1" sq. D8: 1.13" sq. D11: 1.3" sq. D16: 1.6" sq. D25: 2" sq. D58: 3" sq. D100: 4" sq. D164: 4 1/4" x 6" D193: 5" x 6" D280: 6" x 7 1/4" D388: 6" x 10" D465: 6" x 12"	F: Fan N: Narrow S: Standard X: Special	NUMBER OF SERIES CELLS PER ELEMENT	H: Half Wave B: Bridge C: Center Tap D: Doubler HA: 3 Phase wye (Half Wave +) HB: 3 Phase wye (Half Wave -) BA: 3 Phase Bridge CA: 3 Phase Center Tap (6 Phase Star)	NUMBER OF PARALLEL CELLS PER ELEMENT	E: Eyelet G : Bracket (One end) H : Bracket (Both ends) M : Bracket (One end) N : Bracket (Both ends) S: Stud NEMA standard	1: Standard 2: Extra 3: Marine 4: #2 plus Fungicide 5: #3 plus Fungicide 6: #1 plus Fungicide 7: High Temperature 8: Embedded	G: 26 volts K: 33 volts L: 36 volts M: 40 volts P: 45 volts

Note 1: Standard NEMA Date Code Symbol:

First position: Letter indicates month of manufacture — A = Jan. B = Feb. C = Mar. D = April, E = May, F = June, G = July, H = Aug. J = Sept. K = Oct. L = Nov. M = Dec.

Second position: Numeral indicates year of manufacture—6= 1956, 7= 1957, 8= 1958, etc.

For example: A6 is Jan. 1956, J7 is Sept. 1957. (Letter "I" is not used.)

TOTAL NUMBER OF CELLS PER RECTIFIER CONNECTION =
NUMBER OF ARMS x CELLS IN SERIES x CELLS IN PARALLEL.

STACK CONNECTION	ELEMENTS (ARMS) PER RECTIFIER
H: Half Wave	1
C: Center Tap	2
D: Doubler	2
B: Bridge	4
HA: 3 Phase wye (Half Wave) (+)	3
HB: 3 Phase wye (Half Wave) (-)	3
BA: 3 Phase Bridge	6
CA: 3 Phase Center Tap (6 Phase Star)	6

RADIO RECEPTOR COMPANY, INC.

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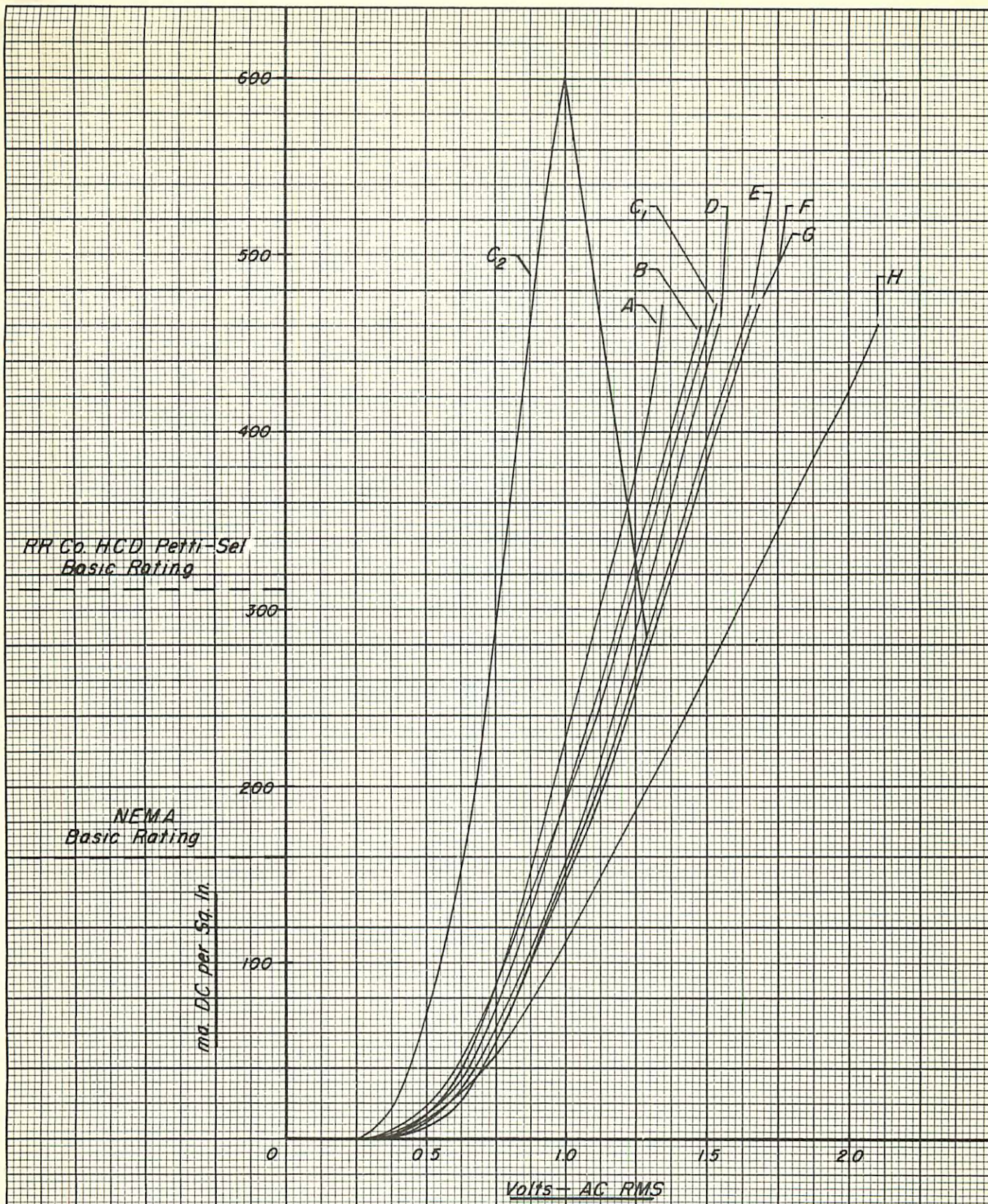
COMPUTATION TABLE FOR APPROXIMATE STACK DIMENSIONS

PETTI-SEL & TRI-AMP RECTIFIERS

Cell Size	C/C	Add Factor for Mounting Dimension			Max No. of Cells Per Stack	Stud Size	
		1-18 Cells	19-36 cells	Over 36			
6	0.226	1.265	1.265	-	32	10-32	
11	0.265	0.951	0.951	-	32	10-32	
16, 25, 44, 57	0.365	0.829	0.829	-	32	10-32	
100, 133, 200	(convection) (cooled and)	0.534	1.483	1.719	-	32	5/16-18
300, 401	(fan cooled) (at)	0.525	1.838	2.115	-	32	"
402, 600, 800	(500 LFPM)	0.835	1.438	1.645	-	32	"
100, 200	(fan cooled)	0.430	1.735	1.918	2.130	36	"
300, 401	(at)	"	"	"	"	36	"
402, 600	(1100)	"	"	"	"	54	"
800	(LFPM)	"	"	"	"	54	"

In order to compute the dimensions of a typical stack, multiply the number of cells by the cell center to center (C/C) dimension, and add the "add factor." This will give the mounting dimension. The over-all length will be approximately 3/4" longer for all sizes 6 - 57 and 1-3/8" for cells 100 - 800.

It is stressed that dimensions obtained by the above method are only approximate. Actual stack dimensions may vary as much as 1/4" and, in some rare cases, even more from the calculated dimensions. The reason for this variation is that in an attempt to standardize tubing and stud lengths, a stack may be somewhat shorter or longer than the above dimensions.



Comparative Voltage of HCD Petti-Sel (Curve C₂), as Compared with other American Cells made by the Vacuum Process

Radio Receptor Company, Inc.