DESIGN STRUCTURE TABLES FOR LARGE STEAM TURBINE-GENERATOR LAMINAR BUCKETS

BY

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JANUARY 4, 1960

GENERAL ELECTRIC

001

REV NO.

CONT ON SHEET SH NO. 1

TITLE

DESIGN STRUCTURE TABLE FOR **Laminar Buckets**

CONT ON SHEET SH NO.

FIRST MADE FOR LSTG

LINE	COLUMN NUMBER 1	2	3	4	5				
1	Dovetail No. =	48	49	50	51				
2	AA	0.090	0.110	0.150	0.230				
3	D.F	0.704	0.874	1.275	3.190				
4	D.CH	1.000	1.250	1.875	3.875				
5	G	0.500	0.578	1.000	2.562				
6	UHW	0.335	0.425	0.430	0.800				
7	Next Table	002 ←			→ 002				

REVISIONS

NOTES:

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TITLE

DESIGN STRUCTURE TABLE FOR **Laminar Buckets**

CONT ON SHEET SH NO.

FIRST MADE FOR LSTG

REVISIONS

LINE	COLUMN NUMBER 1	2	3	4	5
1	Vane Section No.	106D	106D	106D	106D
		72210	72211	72212	72213
2	E	0.379	0.471	0.349	0.429
3	Vane Sec. Thick, TV	0.490	0.583	0.407	0.501
4	D. CK	1.290	1.600	1.300	1.600
5	M Base	0.790	0.828	0.572	0.704
6	J	0.045	0.033	0.024	0.033
7	Next Table	003 ←			→003

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TITLE

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CONT ON SHEET SH NO.

DESIGN STRUCTURE TABLE FOR **Laminar Buckets**

FIRST MADE FOR **LSTG**

LINE	COLUMN NUMBER 1		2							REVISIONS
1			All							
2	Normal pitch PN		$\frac{2\pi[R_c - C_w]}{N_s}$							
3	Next Table		004							

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TITLE

DESIGN STRUCTURE TABLE FOR Laminar Buckets

FIRST MADE FOR LSTG

LINE	COLUMN NUMBER 1	2	3	4					
1	Normal Pitch PN ≤	0.751	1.751	2.751					
2	Clearance Factor C_F	0.065	0.270	0.380					
3	Next Table	005	005	005					

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GENERAL ELECTRIC

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REV NO.

CONT ON SHEET SH NO. 1

TITLE

DESIGN STRUCTURE TABLE FOR Laminar Buckets

CONT ON SHEET SH NO.

FIRST MADE FOR LSTG

REVISIONS

LINE	COLUMN NUMBER 1		COLUMN NUMBER 2
1			All
2	Bucket Arc	$A_B =$	$\frac{2\pi [R_c - C_w] - C_F}{N_s}$
3	Bucket Blade Ang	$\theta_B =$	$A_B \left[\frac{57.2957}{R_c - C_w}\right]$
4	Rad. at Crush Surf	$R_S =$	$R_c - H_D$
5	1/2 Buc. Bl. Chord at CS	$\phi_B =$	$R_s \tan \theta_B/2$
6	Buck. Blade Width	$W_B =$	$\phi_B \tan \theta_B/2$
7	Rad. at Vane Root	$R_V =$	$R_P - 0.5 L_A$
8	Root of active lng	$W_R =$	$(R_V - W_B) \tan \theta_B$
9	Vane Clear Back of Dut	$C_V =$	$\phi_B - E$
10	Bucket Thickness	$T_B =$	$M_B / T_V / C_V$
11	Edge interference distance	$D_E =$	$T_B - W_R$
12	Next Table		006

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CONT ON SHEET SH NO. 1

GENERAL ELECTRIC

006

REV NO.

CONT ON SHEET SH NO. 1

TITLE

DESIGN STRUCTURE TABLE FOR Laminar Buckets

CONT ON SHEET SH NO.

FIRST MADE FOR LSTG

REVISIONS

LINE	COLUMN NUMBER 1		2		3				
1	Edge Int. Dist.		≤0.125		>0.125				
2	Edge		Chamfer		Tied In				
3	Next Table		?		007				

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GENERAL ELECTRIC

007

REV NO.

CONT ON SHEET SH NO. 1

TITLE

DESIGN STRUCTURE TABLE FOR Laminar Buckets

CONT ON SHEET SH NO.

FIRST MADE FOR LSTG

LINE	COLUMN NUMBER 1		2	3	4					
1	D. CK	≤	1.300	1.300	1.000					
2	D. E	≤	1.999	1.999	2.999					
3	A	≤	0.124	0.999	0.999					
4	D. DA		0	0.062	0.062					
5	D. DB		0	0.094	0.094					
6	D. DD		0	0.125	0.125					
7	D. DE		0.047	0.125	0.125					
8	D. DG		0.062	0.062	0.062					
9	D. DH		0.062	0.062	0.062					

REVISIONS

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