

NOTES:

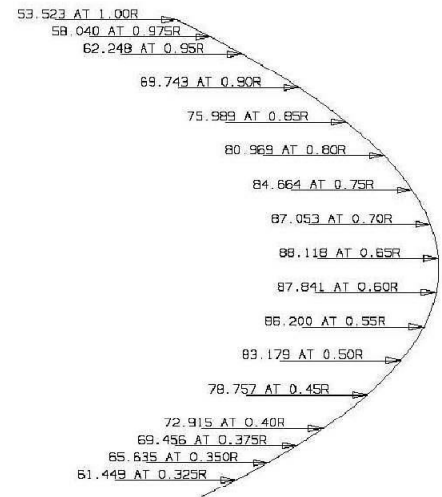
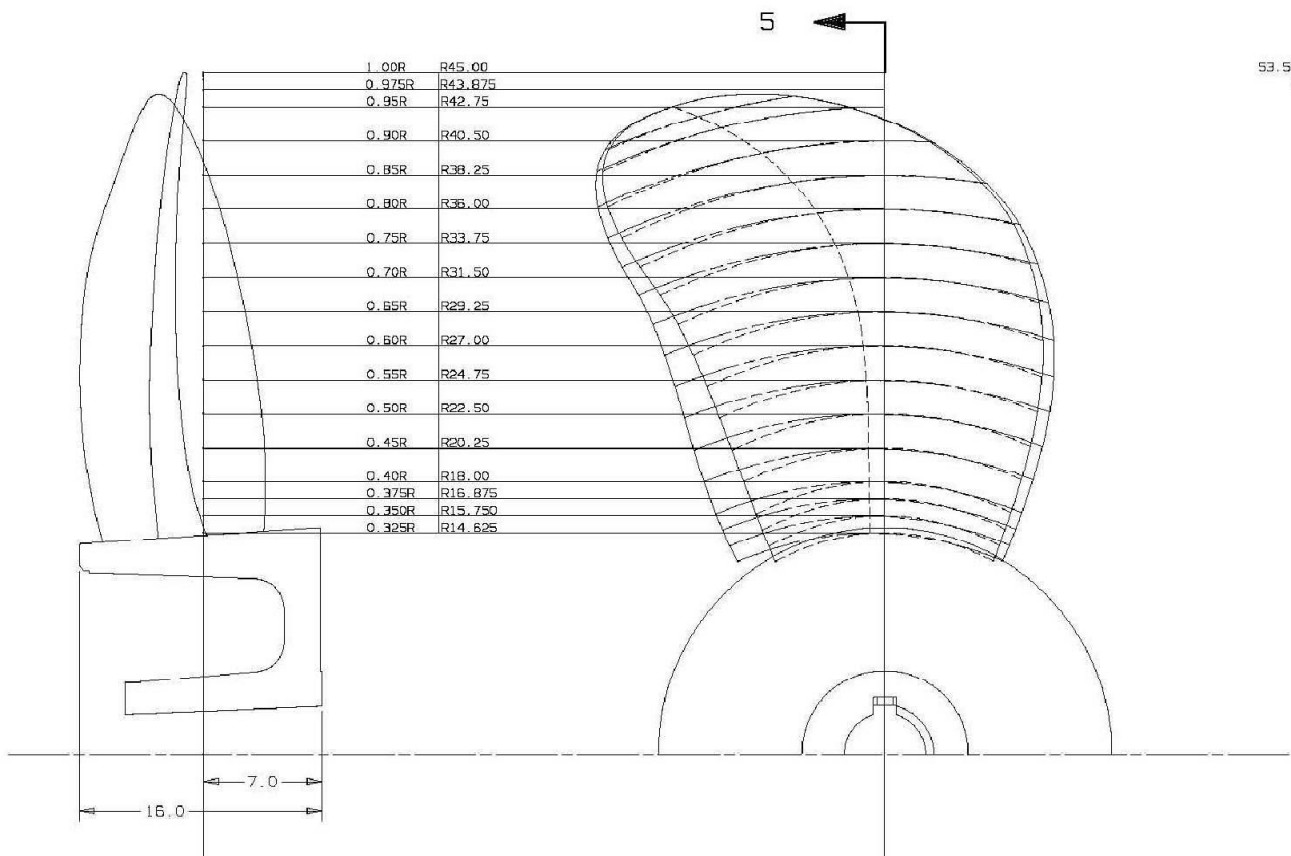
1. THIS DRAWING CONTAINS DETAILS OF THE ORIGINAL PROPELLER AS DESIGNED BY ROLLS ROYCE NAVAL MARINE, WALPOLE MA, AND PROPELLER MODIFICATIONS AS DEVELOPED BY NSWC CODE 5800. SHEETS 3 THROUGH 5 ARE THE ORIGINAL PROPELLER DESIGN FROM ROLLS ROYCE (DRAWINGS 100044043 AND 100044044B), AND ARE PROVIDED FOR REFERENCE. THE PURPOSE OF THIS DRAWING IS FOR MODIFICATION OF THE ORIGINAL PROPELLER TO MEET SHIP PERFORMANCE REQUIREMENTS.
2. TEMPLATES ARE REQUIRED FOR EXECUTION OF THE PROPELLER TRAILING EDGE MODIFICATION AS SHOWN IN DETAIL 10-8D.
3. AFTER MODIFICATION, THE PROPELLER SHALL BE STATICALLY BALANCED IN ACCORDANCE WITH ISO 484/2 AND THE PROPELLER DRAWING. MATERIAL SHALL BE REMOVED FROM THE SUCTION FACE OF THE BLADE SURFACES SPREAD OVER AS LARGE AN AREA AS POSSIBLE. MATERIAL SHALL NOT BE REMOVED IN THE FIRST OR LAST 10 PERCENT OF THE BLADE WIDTH OR THE 0.95R TO THE TIP. THE BALANCE TOLERANCE SHALL BE 162 OZ-IN. AFTER PROPELLER BALANCE IS ACHIEVED, SENSITIVITY OF THE BALANCE PROCESS SHALL BE VERIFIED BY PLACING A WEIGHT EQUAL TO 4 OUNCES AT THE TIP OF A SINGLE BLADE AND VISUALLY VERIFYING THAT THE WEIGHTED BLADE ROTATES TO THE BOTTOM. THE SENSITIVITY CHECK SHALL BE PERFORMED ON EACH BLADE.
4. AFTER ANY REPAIR, THE PROPELLER SHALL BE BALANCED IN ACCORDANCE WITH NOTE 3.
5. REPAIR TOLERANCES SHALL BE IN ACCORDANCE WITH NAVSEA S9245-AR-TSM-010/PROP, CLASS II.

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TECH APPROVAL TM	DEPARTMENT OF THE NAVY WASHINGTON, D.C. 20376-5100			
DRAWN PRM	NAVAL SEA SYSTEMS COMMAND			
CHECKED TM	TITLE			
SUPVR	NOAA CSV PROPELLER			
DATE				
EXAMINED	APPROVAL CATEGORY 1		CONTRACT	
DATE AUTHORIZED	APPROVED			
LEVEL 3	DATE			
WORKING DRAWING	SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
	B	N00167	245	8445988
SCALE: NONE		SHEET 1 OF 11		

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VIEW 3-7H
ORIGINAL PROPELLER DESIGN DWG 100044043



PROPELLER DATA

DIAMETER (IN)	90
PITCH AT 0.70R (IN)	87.05
NUMBER OF BLADES	5
DAR	0.60
ROTATION	RH/LH
STYLE	NGWW
FINISHED WT (LBS)	2890
WR ² (LB-FT ² IN AIR)	8400
WR ² (LB-FT ² IN WATER)	10950

ENGINE DATA

MODEL	CATERPILLAR C32
RATED BHP	1450
RATED RPM	2100
REDUCTION RATIO	7.838:1

ABS CALCULATIONS

CHORD AT 0.35R (IN)	19.025
THICKNESS AT 0.35R (IN)	2.870
PITCH AT 0.35R	65.635
MODULUS COEFF. C _m	0.098
AREA COEFF. C _s	0.750
MAT'L. CONSTANT f	68.0
MAT'L. CONSTANT w	0.30
A:	9.392
B:	66.813
C:	1,7634.5

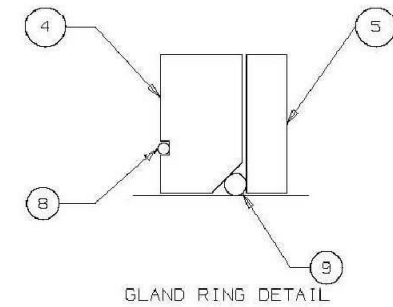
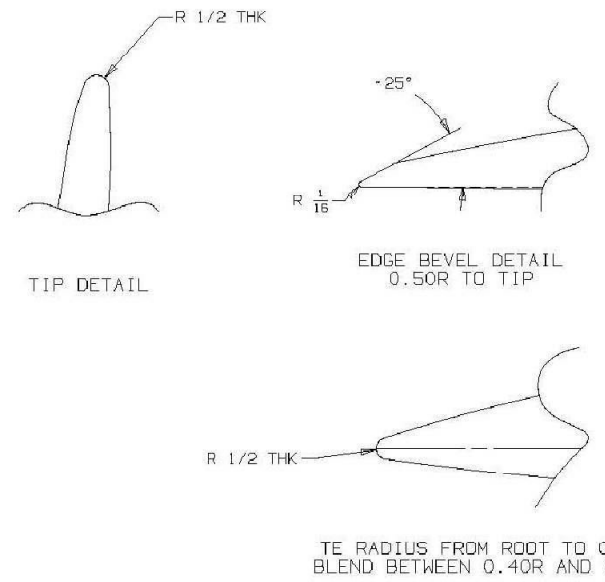
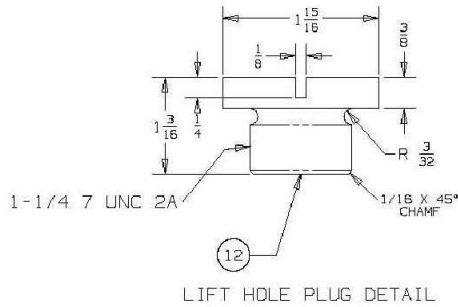
REQ'D THICKNESS 0.35R (IN) 2.706

MATERIAL

MN-BRZ ABS TYPE 2 WITH THE FOLLOWING PROPERTIES:

MIN. TENSILE STRENGTH	65,000 PSI
MIN. YIELD STRENGTH	25,000 PSI
ELONGATION (IN 2")	20%

ABS CERTIFICATE REQUIRED



#	ITEM	QTY	Description	MATL	
1	PROPELLER - RH	1	990 X 87 Pitch 0.60 DAR	MN-BRZ	
2	PROPELLER - LH	1	990 X 87 Pitch 0.60 DAR	MN-BRZ	
3	FAIRWATER CAP	1	1		
4	GLAND RING A	1	1	1/16" X 1" THK	
5	GLAND RING B	1	1	1/16" X 1/2" THK	
6	CAP SCREW, GLAND RING	12	12 SH SCH 812-13 UNC 28 1-1/4" LG	K-Monol	
7	CAP SCREW, FAIRWATER	18	18 SH SCH 812-13 UNC 28 2" LG	K-Monol	
8	O-Ring, GLAND RING	1	1	7.5 ID X 1.8	Buna-N
9	O-Ring, GLAND RING	1	1	6.5 ID X 1.4	Buna-N
10	O-Ring, FAIRWATER	1	1	24.5 X 0.210" (Special)	Buna-N
11	NUT, PROPELLER	1	1		
12	PLUG, SIDE LIFT HOLE	1	1		

* SUPPLIED BY OTHERS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES GREAT. ALL SURFACES UNLESS NOTED OTHERWISE.

TOLERANCES:
15U 484/2 CLASS I

APPROVALS: JAE 9-11-07

DATE: 9-11-07

DESIGN APVD: JAE 9-11-07

APVD FOR PRINT:

SEE NOTES

DEPARTMENT OF NAVY WASHINGTON, D.C. 20376-5100

NAVAL SEA SYSTEMS COMMAND

NOAA CSV PROPELLER

SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
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SCALE: NONE SHEET 3 OF 11

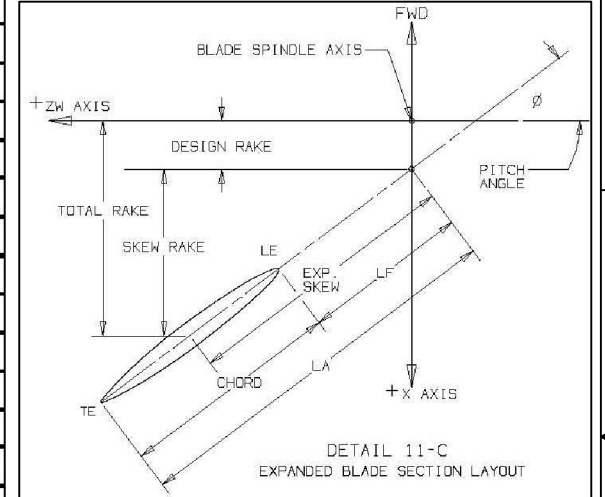
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R/O	0.325	0.350	0.375	0.400	0.450	0.500	0.550	0.600	0.650	0.700	0.750	0.800	0.850	0.900	0.950	0.975	0.990	0.995	0.998	0.999	1.000
RADIUS	14.625	15.750	16.875	18.000	20.250	22.500	24.750	27.000	29.250	31.500	33.750	36.000	38.250	40.500	42.750	43.875	44.550	44.775	44.910	44.977	45.000
PITCH ANGLE	33.771	33.554	33.228	32.810	31.757	30.471	29.000	27.375	25.616	23.742	21.764	19.695	17.546	15.327	13.048	11.889	11.189	10.954	10.814	10.743	10.720
CHORD	18.070	19.025	19.925	20.772	22.303	23.618	24.718	25.603	26.271	26.724	26.961	26.892	25.649	22.792	17.503	13.038	8.750	6.512	4.498	2.752	1.000
LF	-9.008	-9.462	-9.887	-10.282	-10.973	-11.507	-11.852	-11.968	-11.811	-11.329	-10.466	-9.114	-6.768	-3.132	2.291	6.157	9.361	10.855	12.088	13.078	14.024
LA	9.062	9.563	10.038	10.489	11.330	12.112	12.867	13.634	14.460	15.395	16.495	17.779	18.881	19.660	19.794	19.195	18.111	17.367	16.586	15.830	15.024
EXP. SKEW	0.027	0.051	0.075	0.103	0.179	0.302	0.508	0.833	1.325	2.033	3.015	4.332	6.056	8.264	11.043	12.676	13.736	14.111	14.337	14.454	14.524
DESIGN RAKE	1.264	1.349	1.434	1.518	1.677	1.814	1.918	1.978	1.985	1.936	1.833	1.688	1.519	1.357	1.245	1.225	1.230	1.234	1.237	1.239	1.233
SKEW RAKE	0.015	0.028	0.041	0.056	0.094	0.153	0.246	0.383	0.573	0.818	1.118	1.460	1.826	2.184	2.493	2.611	2.665	2.682	2.690	2.694	2.702
TOTAL RAKE	1.279	1.377	1.476	1.574	1.771	1.967	2.164	2.361	2.558	2.754	2.951	3.148	3.345	3.542	3.738	3.837	3.896	3.915	3.927	3.933	3.935

VIEW 4-2H

ORIGINAL PROPELLER
DESIGN DWG 100044043

	%CHD	RLE	0.000	0.250	1.000	1.250	2.500	3.750	5.000	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	95.00	98.00	100.0
	SS		0.000	0.006	0.011	0.012	0.017	0.020	0.023	0.030	0.037	0.041	0.042	0.042	0.041	0.038	0.032	0.023	0.017	0.013	0.010
1.000	PS	0.007	0.000	-0.006	-0.011	-0.012	-0.017	-0.020	-0.022	-0.029	-0.036	-0.039	-0.040	-0.040	-0.039	-0.036	-0.030	-0.022	-0.016	-0.013	-0.010
	THK		0.000	0.012	0.022	0.024	0.034	0.040	0.045	0.059	0.073	0.080	0.082	0.082	0.080	0.074	0.062	0.045	0.033	0.026	0.020
	SS		0.000	0.026	0.051	0.057	0.079	0.095	0.109	0.146	0.189	0.211	0.221	0.222	0.215	0.195	0.158	0.099	0.062	0.037	0.020
0.995	PS	0.020	0.000	-0.024	-0.044	-0.049	-0.065	-0.077	-0.085	-0.108	-0.128	-0.136	-0.138	-0.136	-0.131	-0.118	-0.098	-0.068	-0.047	-0.032	-0.020
	T		0.000	0.050	0.095	0.106	0.144	0.172	0.194	0.254	0.317	0.347	0.359	0.358	0.346	0.313	0.256	0.167	0.109	0.069	0.040
	SS		0.000	0.032	0.065	0.073	0.102	0.124	0.143	0.194	0.254	0.286	0.302	0.305	0.295	0.269	0.219	0.138	0.089	0.057	0.035
0.990	PS	0.022	0.000	-0.028	-0.052	-0.058	-0.076	-0.088	-0.098	-0.120	-0.138	-0.143	-0.142	-0.139	-0.133	-0.121	-0.103	-0.079	-0.061	-0.046	-0.035
	T		0.000	0.060	0.117	0.131	0.178	0.212	0.241	0.314	0.392	0.429	0.444	0.444	0.428	0.390	0.322	0.217	0.150	0.103	0.070
	SS		0.000	0.043	0.089	0.100	0.144	0.177	0.205	0.286	0.384	0.440	0.468	0.475	0.461	0.419	0.341	0.210	0.132	0.083	0.050
0.975	PS	0.024	0.000	-0.034	-0.060	-0.065	-0.083	-0.094	-0.101	-0.115	-0.117	-0.110	-0.101	-0.094	-0.087	-0.080	-0.073	-0.073	-0.067	-0.058	-0.050
	T		0.000	0.077	0.149	0.165	0.227	0.271	0.306	0.401	0.501	0.550	0.569	0.569	0.548	0.499	0.414	0.283	0.199	0.141	0.100
	SS		0.000	0.054	0.114	0.129	0.189	0.235	0.274	0.391	0.536	0.621	0.666	0.678	0.659	0.600	0.488	0.299	0.188	0.120	0.075
0.950	PS	0.025	0.000	-0.038	-0.064	-0.068	-0.083	-0.089	-0.093	-0.092	-0.069	-0.044	-0.023	-0.010	-0.005	-0.006	-0.019	-0.059	-0.074	-0.077	-0.075
	T		0.000	0.092	0.178	0.197	0.272	0.324	0.367	0.483	0.605	0.665	0.689	0.688	0.664	0.606	0.507	0.358	0.262	0.197	0.150
	SS		0.000	0.067	0.146	0.166	0.246	0.309	0.363	0.526	0.733	0.855	0.920	0.940	0.913	0.831	0.673	0.403	0.247	0.152	0.090
0.900	PS	0.028	0.000	-0.043	-0.069	-0.073	-0.084	-0.086	-0.085	-0.067	-0.016	0.030	0.065	0.084	0.089	0.080	0.047	-0.036	-0.072	-0.086	-0.090
	T		0.000	0.110	0.215	0.239	0.330	0.395	0.448	0.593	0.749	0.825	0.855	0.856	0.824	0.751	0.626	0.439	0.319	0.238	0.180
	SS		0.000	0.082	0.179	0.204	0.303	0.381	0.448	0.651	0.911	1.063	1.145	1.169	1.133	1.028	0.828	0.489	0.293	0.173	0.094
0.800	PS	0.035	0.000	-0.053	-0.087	-0.093	-0.109	-0.115	-0.116	-0.104	-0.056	-0.008	0.030	0.054	0.063	0.059	0.031	-0.051	-0.084	-0.093	-0.094
	T		0.000	0.135	0.266	0.297	0.412	0.496	0.564	0.755	0.967	1.071	1.115	1.115	1.070	0.969	0.797	0.540	0.377	0.266	0.188
	SS		0.000	0.094	0.204	0.232	0.343	0.431	0.506	0.734	1.022	1.191	1.280	1.304	1.261	1.140	0.914	0.539	0.320	0.184	0.094
0.700	PS	0.048	0.000	-0.066	-0.112	-0.121	-0.149	-0.165	-0.175	-0.187	-0.170	-0.138	-0.107	-0.084	-0.068	-0.055	-0.057	-0.102	-0.111	-0.105	-0.094
	T		0.000	0.160	0.316	0.353	0.492	0.596	0.681	0.921	1.192	1.329	1.387	1.388	1.329	1.195	0.971	0.641	0.431	0.289	0.188
	SS		0.000	0.108	0.234	0.266	0.393	0.494	0.581	0.844	1.176	1.370	1.471	1.496	1.445	1.302	1.040	0.609	0.356	0.199	0.093
0.600	PS	0.067	0.000	-0.077	-0.136	-0.148	-0.187	-0.211	-0.228	-0.260	-0.267	-0.247	-0.220	-0.195	-0.172	-0.145	-0.126	-0.143	-0.134	-0.114	-0.093
	T		0.000	0.185	0.370	0.414	0.580	0.705	0.809	1.104	1.443	1.617	1.691	1.691	1.617	1.447	1.166	0.752	0.490	0.313	0.186
	SS		0.000	0.124	0.269	0.305	0.453	0.569	0.669	0.973	1.359	1.583	1.698	1.725	1.663	1.496	1.190	0.693	0.400	0.216	0.093
0.500	PS	0.096	0.000	-0.091	-0.163	-0.177	-0.229	-0.262	-0.286	-0.341	-0.372	-0.364	-0.341	-0.314	-0.282	-0.241	-0.199	-0.187	-0.158	-0.125	-0.093
	T		0.000	0.215	0.432	0.482	0.682	0.831	0.955	1.314	1.731	1.947	2.039	2.039	1.945	1.737	1.389	0.880	0.558	0.341	0.186
	SS		0.000	0.141	0.302	0.341	0.500	0.626	0.732	1.053	1.455	1.685	1.799	1.821	1.750	1.569	1.245	0.730	0.422	0.227	0.094
0.400	PS	0.154	0.000	-0.114	-0.214	-0.236	-0.317	-0.374	-0.418	-0.536	-0.647	-0.687	-0.688	-0.666	-0.620	-0.541	-0.433	-0.316	-0.224	-0.152	-0.094
	T		0.000	0.255	0.516	0.577	0.817	1.000	1.150	1.589	2.102	2.372	2.487	2.487	2.370	2.110	1.678	1.046	0.646	0.379	0.188
	SS		0.000	0.154	0.320	0.360	0.521	0.645	0.749	1.061	1.442	1.652	1.752	1.764	1.690	1.509	1.196	0.713	0.418	0.226	0.094
0.350	PS	0.218	0.000	-0.138	-0.269	-0.299	-0.414	-0.498	-0.567	-0.759	-0.970	-1.070	-1.103	-1.090	-1.030	-0.909	-0.722	-0.471	-0.303	-0.183	-0.094
	T		0.000	0.292	0.589	0.659	0.935	1.143	1.316	1.820	2.412	2.722	2.855	2.854	2.720	2.418	1.918	1.184	0.721	0.409	0.188



NOTE:
SKEW AS SHOWN IN THIS ILLUSTRATION IS POSITIVE.
RAKE AS SHOWN IN THIS ILLUSTRATION IS POSITIVE.

DEPARTMENT OF NAVY WASHINGTON, D.C. 20376-5100

NAVAL SEA SYSTEMS COMMAND

NOAA CSV PROPELLER

SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
B	N00167	245 8445988	—
SCALE: NONE		SHEET 4 OF 11	

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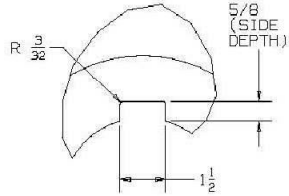
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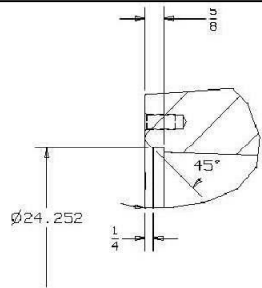
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VIEW 5-7H

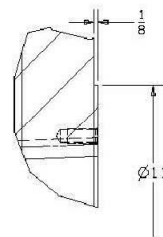
ORIGINAL PROPELLER DESIGN 100044044B



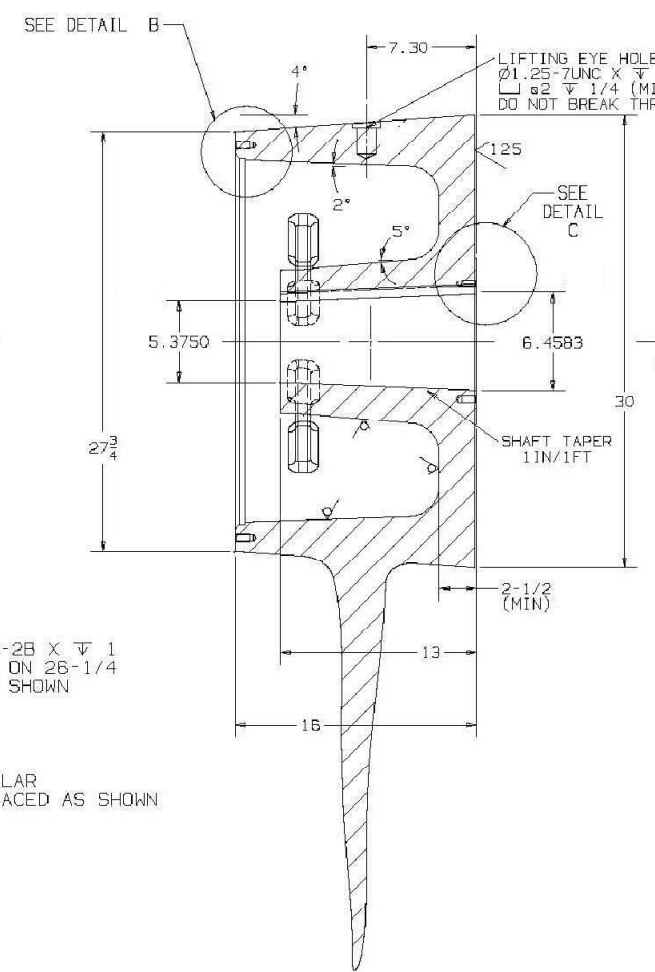
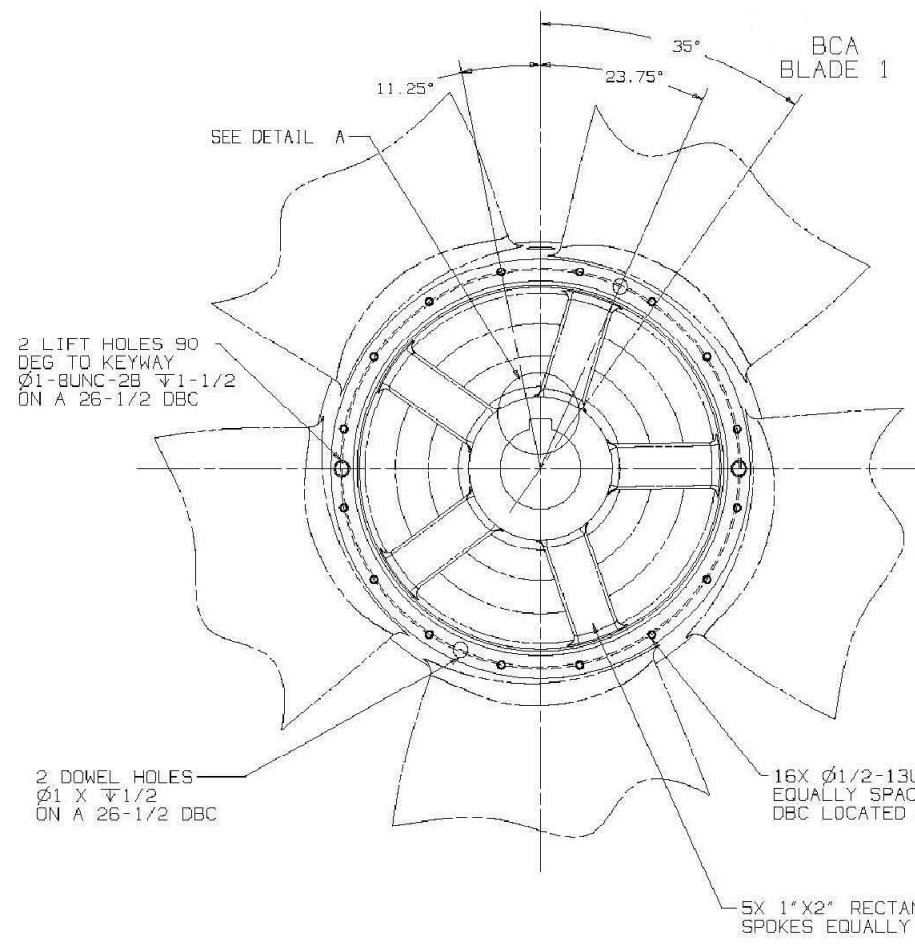
DETAIL A
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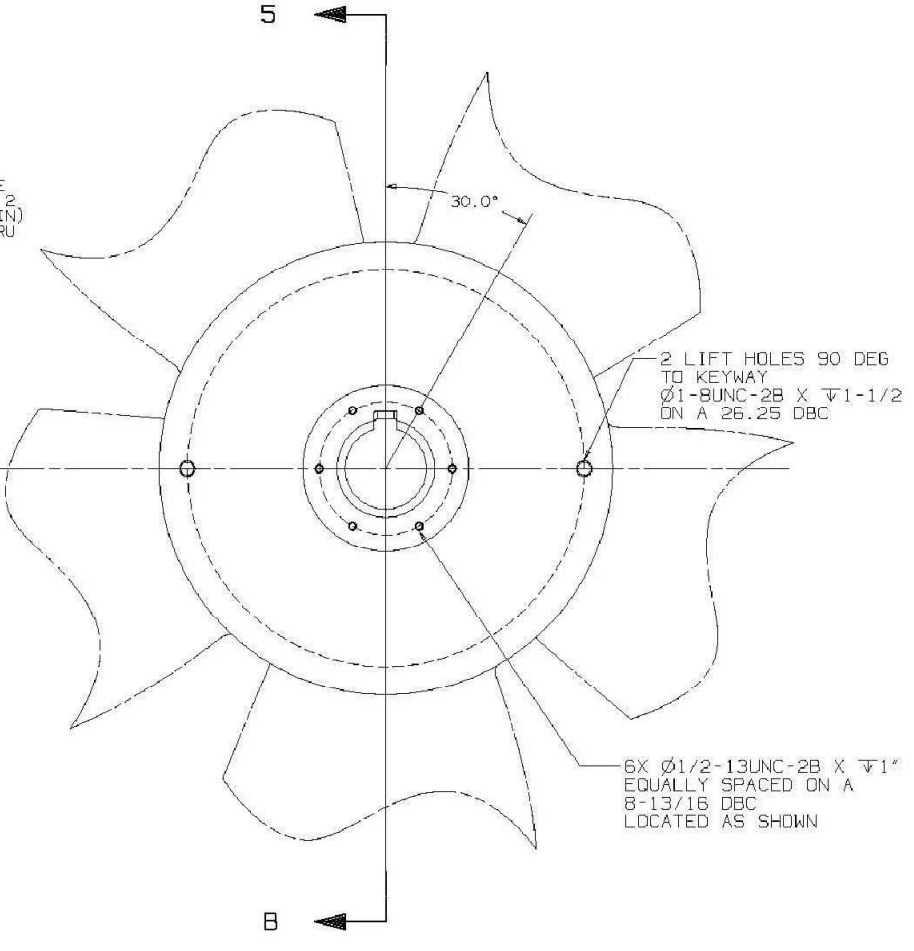
DETAIL B
SCALE 0.375



DETAIL C
SCALE 0.375



SECTION 5-B



DEPARTMENT OF NAVY WASHINGTON, D.C. 20376-5100

NAVAL SEA SYSTEMS COMMAND

NOAA CSV PROPELLER

SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
B	N00167	245 8445988	—
SCALE: NONE		SHEET 5 OF 11	

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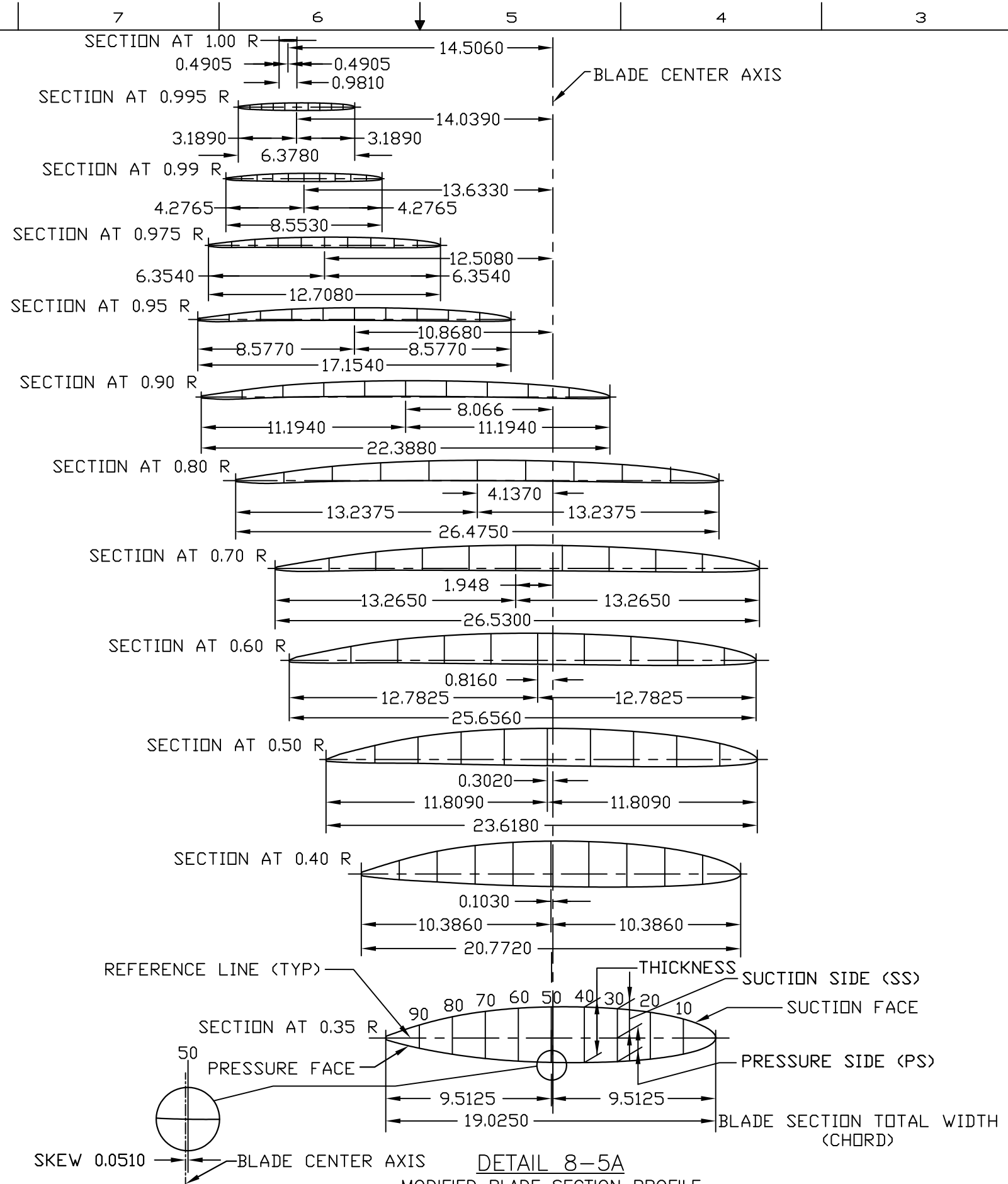
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TABLE 6-7H
MODIFIED PROPELLER RAKE, SKEW AND PITCH TABLE

R/R0	0.325	0.350	0.375	0.400	0.450	0.500	0.550	0.600	0.650	0.700	0.750	0.800	0.850	0.900	0.950	0.975	0.990	0.995	0.998	0.999	1.000
RADIUS	14.625	15.750	16.875	18.000	20.250	22.500	24.750	27.000	29.250	31.500	33.750	36.000	38.250	40.500	42.750	43.875	44.550	44.775	44.910	44.955	45.000
PITCH ANGLE	33.771	33.554	33.228	32.810	31.757	30.471	29.069	27.388	25.560	23.628	21.598	19.494	17.333	15.114	12.850	11.710	11.035	10.808	10.683	10.618	10.528
CHORD	18.070	19.025	19.925	20.772	22.303	23.618	24.716	25.565	26.159	26.530	26.662	26.475	25.226	22.388	17.154	12.708	8.553	6.378	4.410	2.699	0.981
LF	-9.008	-9.462	-9.887	-10.282	-10.973	-11.507	-11.844	-11.967	-11.802	-11.317	-10.451	-9.101	-6.759	-3.128	2.290	6.154	9.357	10.850	12.083	13.073	14.015
LA	9.062	9.563	10.038	10.489	11.330	12.112	12.872	13.598	14.357	15.213	16.210	17.374	18.467	19.260	19.445	18.862	17.909	17.228	16.493	15.772	14.996
EXP. SKEW	0.027	0.051	0.075	0.103	0.179	0.302	0.514	0.816	1.277	1.948	2.879	4.137	5.854	8.066	10.868	12.508	13.633	14.039	14.288	14.423	14.506
DESIGN RAKE	1.264	1.349	1.434	1.518	1.677	1.814	1.899	1.971	1.963	1.902	1.793	1.647	1.486	1.340	1.248	1.241	1.253	1.259	1.263	1.266	1.282
SKEW RAKE	0.015	0.028	0.041	0.056	0.094	0.153	0.250	0.375	0.551	0.781	1.060	1.380	1.744	2.103	2.417	2.539	2.610	2.633	2.649	2.657	2.650
TOTAL RAKE	1.279	1.377	1.476	1.574	1.771	1.967	2.149	2.346	2.514	2.683	2.852	3.027	3.230	3.443	3.665	3.780	3.863	3.891	3.911	3.924	3.932

TABLE 6-7F
MODIFIED PROPELLER TABLE OF OFFSETS

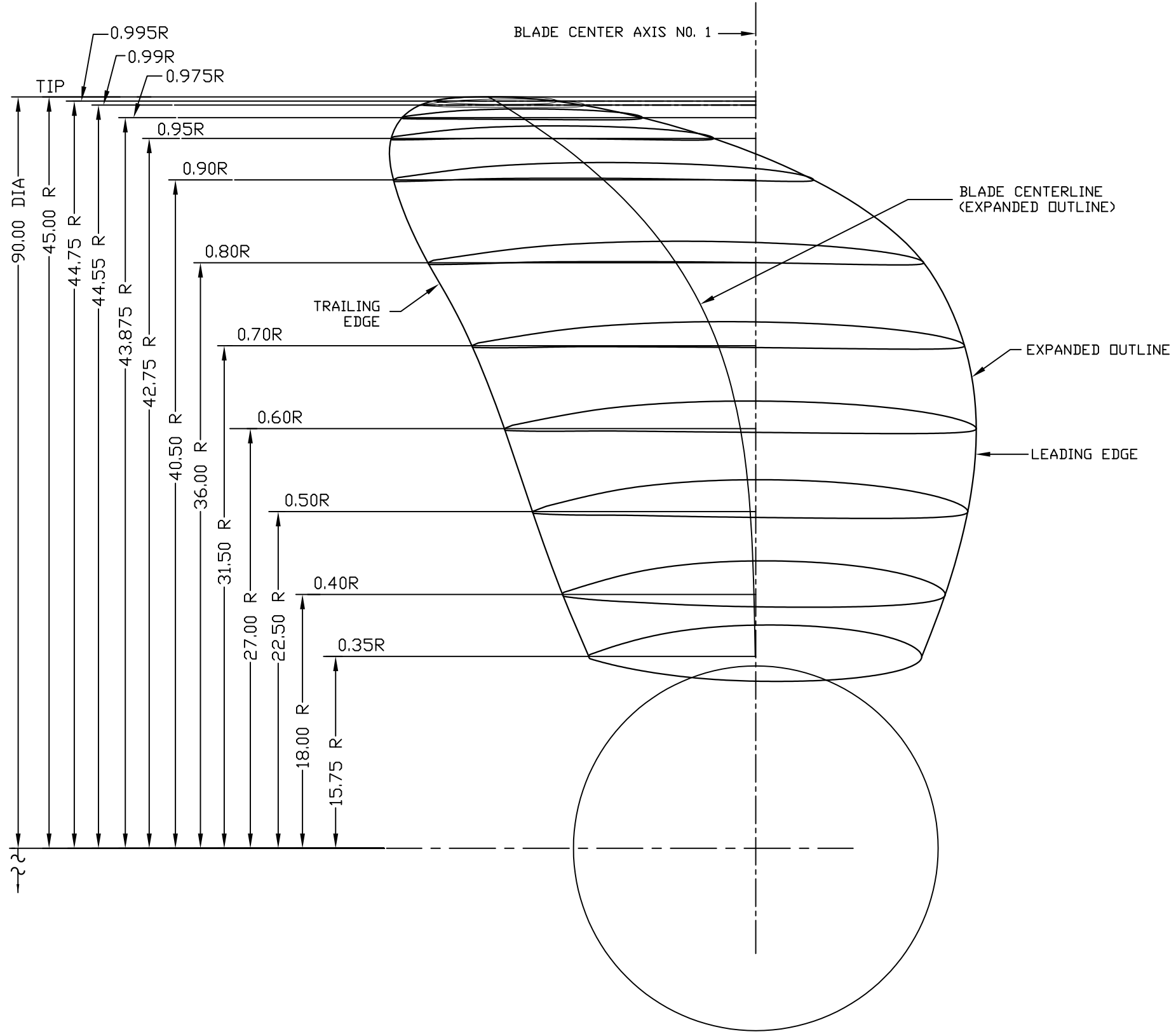
RADIUS	LE RADIUS	%CHD	RADIUS																				TE RADIUS			
			0.000	0.250	1.000	1.250	2.500	3.750	5.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	95.000	96.000	97.000	98.000		99.000	100.000	
1.000	0.007	SS	0.000	0.007	0.012	0.013	0.017	0.020	0.023	0.030	0.037	0.041	0.041	0.041	0.040	0.037	0.031	0.023	0.017	0.016	0.014	0.013	0.012	0.000	0.012	
		PS	0.000	-0.005	-0.010	-0.011	-0.016	-0.019	-0.021	-0.029	-0.036	-0.039	-0.041	-0.041	-0.041	-0.038	-0.033	-0.026	-0.020	-0.018	-0.016	-0.014	-0.012	0.000		0.047
		THK	0.000	0.012	0.022	0.024	0.033	0.039	0.044	0.059	0.073	0.080	0.082	0.082	0.081	0.075	0.064	0.049	0.037	0.034	0.030	0.027	0.024	0.000		
0.995	0.020	SS	0.000	0.028	0.054	0.061	0.086	0.103	0.119	0.159	0.201	0.224	0.233	0.233	0.226	0.207	0.172	0.116	0.080	0.073	0.065	0.057	0.049	-0.001	0.039	
		PS	0.000	-0.030	-0.054	-0.060	-0.081	-0.095	-0.105	-0.134	-0.163	-0.175	-0.180	-0.180	-0.177	-0.167	-0.146	-0.119	-0.095	-0.086	-0.075	-0.063	-0.052	-0.001		0.055
		THK	0.000	0.058	0.108	0.121	0.167	0.198	0.224	0.293	0.364	0.399	0.413	0.413	0.403	0.374	0.318	0.235	0.175	0.159	0.140	0.120	0.101	0.000		
0.990	0.022	SS	0.000	0.030	0.062	0.070	0.098	0.119	0.138	0.187	0.244	0.274	0.289	0.291	0.280	0.255	0.209	0.133	0.086	0.076	0.066	0.055	0.045	-0.003	0.062	
		PS	0.000	-0.029	-0.054	-0.060	-0.078	-0.091	-0.101	-0.124	-0.145	-0.153	-0.154	-0.154	-0.151	-0.142	-0.128	-0.108	-0.093	-0.084	-0.072	-0.059	-0.047	-0.003		0.062
		THK	0.000	0.059	0.116	0.130	0.176	0.210	0.239	0.311	0.389	0.427	0.443	0.445	0.431	0.397	0.337	0.241	0.179	0.160	0.138	0.114	0.092	0.000		
0.975	0.024	SS	0.000	0.041	0.085	0.096	0.139	0.170	0.197	0.275	0.369	0.421	0.446	0.451	0.437	0.397	0.326	0.205	0.129	0.113	0.097	0.081	0.065	0.000	0.062	
		PS	0.000	-0.035	-0.062	-0.068	-0.086	-0.098	-0.106	-0.122	-0.129	-0.127	-0.122	-0.119	-0.116	-0.113	-0.109	-0.113	-0.110	-0.103	-0.091	-0.077	-0.063	0.000		0.062
		THK	0.000	0.076	0.147	0.164	0.225	0.268	0.303	0.397	0.498	0.548	0.568	0.570	0.553	0.510	0.435	0.318	0.239	0.216	0.188	0.158	0.128	0.000		
0.950	0.025	SS	0.000	0.053	0.110	0.125	0.183	0.227	0.265	0.377	0.515	0.595	0.635	0.644	0.623	0.565	0.460	0.280	0.171	0.148	0.125	0.102	0.079	0.002	0.062	
		PS	0.000	-0.039	-0.067	-0.071	-0.088	-0.095	-0.100	-0.103	-0.087	-0.068	-0.053	-0.045	-0.045	-0.052	-0.067	-0.110	-0.121	-0.113	-0.100	-0.086	-0.071	0.002		0.062
		THK	0.000	0.092	0.177	0.196	0.271	0.322	0.365	0.480	0.602	0.663	0.688	0.689	0.668	0.617	0.527	0.390	0.292	0.261	0.225	0.188	0.150	0.000		
0.900	0.028	SS	0.000	0.066	0.142	0.162	0.239	0.300	0.352	0.509	0.706	0.820	0.878	0.893	0.863	0.781	0.631	0.373	0.217	0.185	0.153	0.121	0.089	0.005	0.062	
		PS	0.000	-0.045	-0.073	-0.077	-0.090	-0.094	-0.094	-0.081	-0.040	-0.003	0.024	0.036	0.034	0.018	-0.017	-0.103	-0.126	-0.117	-0.103	-0.088	-0.073	0.005		0.062
		THK	0.000	0.111	0.215	0.239	0.329	0.394	0.446	0.590	0.746	0.823	0.854	0.857	0.829	0.763	0.648	0.476	0.343	0.302	0.256	0.209	0.162	0.000		
0.800	0.035	SS	0.000	0.081	0.175	0.199	0.295	0.371	0.436	0.632	0.880	1.023	1.098	1.116	1.077	0.972	0.781	0.454	0.259	0.219	0.178	0.138	0.097	0.016	0.062	
		PS	0.000	-0.055	-0.091	-0.098	-0.116	-0.124	-0.126	-0.120	-0.083	-0.045	-0.016	-0.001	0.000	-0.012	-0.043	-0.129	-0.148	-0.137	-0.120	-0.099	-0.078	0.016		0.062
		THK	0.000	0.136	0.266	0.297	0.411	0.495	0.562	0.752	0.963	1.068	1.114	1.117	1.077	0.984	0.824	0.583	0.407	0.356	0.298	0.237	0.175	0.000		
0.700	0.048	SS	0.000	0.095	0.202	0.230	0.338	0.424	0.498	0.721	1.002	1.165	1.249	1.270	1.225	1.104	0.884	0.515	0.295	0.250	0.204	0.158	0.112	-0.008	0.062	
		PS	0.000	-0.066	-0.115	-0.125	-0.155	-0.172	-0.183	-0.199	-0.189	-0.163	-0.137	-0.119	-0.108	-0.100	-0.105	-0.154	-0.167	-0.160	-0.146	-0.126	-0.098	-0.008		0.062
		THK	0.000	0.161	0.317	0.355	0.493	0.596	0.681	0.920	1.191	1.328	1.386	1.389	1.333	1.204	0.989	0.669	0.462	0.410	0.350	0.284	0.210	0.000		
0.600	0.067	SS	0.000	0.114	0.237	0.268	0.393	0.494	0.580	0.840	1.170	1.363	1.464	1.490	1.441	1.300	1.044	0.617	0.364	0.311	0.259	0.206	0.126	-0.022	0.062	
		PS	0.000	-0.073	-0.137	-0.149	-0.190	-0.215	-0.233	-0.266	-0.274	-0.254	-0.227	-0.201	-0.178	-0.150	-0.129	-0.145	-0.137	-0.132	-0.125	-0.118	-0.108	-0.022		0.062
		THK	0.000	0.187	0.374	0.417	0.583	0.709	0.813	1.106	1.444	1.617	1.691	1.691	1.619	1.450	1.173	0.762	0.501	0.443	0.384	0.324	0.234	0.000		
0.500	0.096	SS	0.000	0.124	0.269	0.305	0.453	0.569	0.669	0.973	1.359	1.583	1.698	1.725	1.663	1.496	1.190	0.693	0.404	0.342	0.278	0.187	0.096	-0.037	0.062	
		PS	0.000	-0.091	-0.163	-0.177	-0.229	-0.262	-0.286	-0.341	-0.372	-0.364	-0.341	-0.314	-0.282	-0.241	-0.199	-0.187	-0.159	-0.150	-0.139	-0.126	-0.111	-0.037		0.094
		THK	0.000	0.215	0.432	0.482	0.682	0.831	0.955	1.314	1.731	1.947	2.039	2.039	1.945	1.737	1.389	0.880	0.563	0.492	0.417	0.313	0.207	0.000		
0.400	0.154	SS	0.000	0.141	0.302	0.341	0.500	0.626	0.732	1.053	1.455	1.685	1.799	1.821	1.750	1.569	1.245	0.730	0.427	0.360	0.293	0.226	0.161	0.000	0.094	
		PS	0.000	-0.114	-0.214	-0.236	-0.317	-0.374	-0.418	-0.536	-0.647	-0.687	-0.688	-0.666	-0.620	-0.541	-0.433	-0.316	-0.222	-0.200	-0.177	-0.152	-0.124	0.000		0.094
		THK	0.000	0.255	0.516	0.577	0.817	1.000	1.150	1.589	2.102	2.372	2.487	2.487	2.370	2.110	1.678	1.046	0.646	0.560	0.470	0.379	0.285	0.000		
0.350	0.218	SS	0.000	0.154	0.320	0.360	0.521	0.645	0.749	1.061	1.442	1.652	1.752	1.764	1.690	1.509	1.19									



DETAIL 8-5A

MODIFIED BLADE SECTION PROFILE

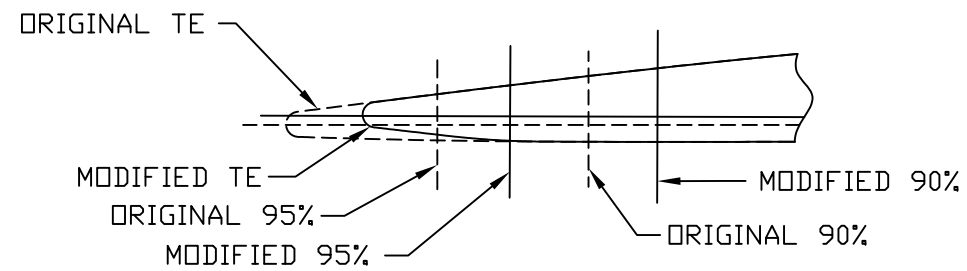
DEPARTMENT OF NAVY		WASHINGTON, D.C. 20376-5100	
NAVAL SEA SYSTEMS COMMAND			
NOAA CSV PROPELLER			
SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
B	N00167	245 8445988	—
SCALE: NONE		SHEET 7 OF 11	



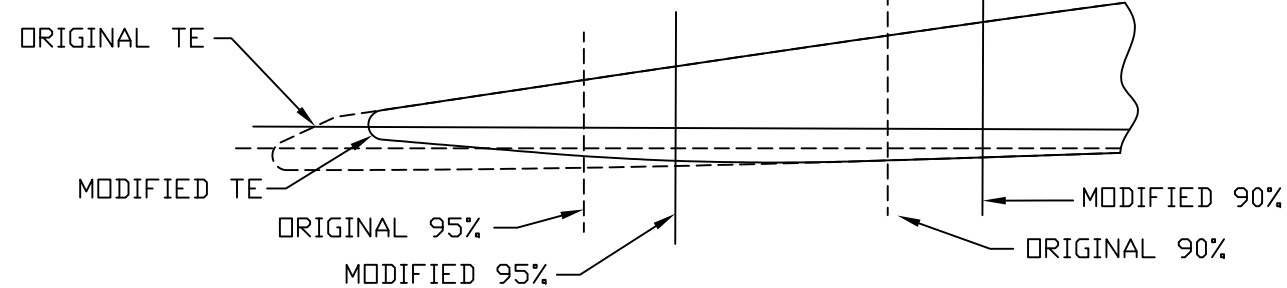
SECTION 8-5A
 RIGHT HAND LOOKING FWD
 MODIFIED PROPELLER HUB OUTLINE AND BLADE PROFILE
 (LEFT HAND PROPELLER OPP HAND)
 (FOR PROPELLER HUB DETAILS SEE SHEET 5)

DEPARTMENT OF NAVY		WASHINGTON, D.C. 20376-5100	
NAVAL SEA SYSTEMS COMMAND			
NOAA CSV PROPELLER			
SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
B	N00167	245 8445988	—
SCALE: NONE		SHEET 8 OF 11	

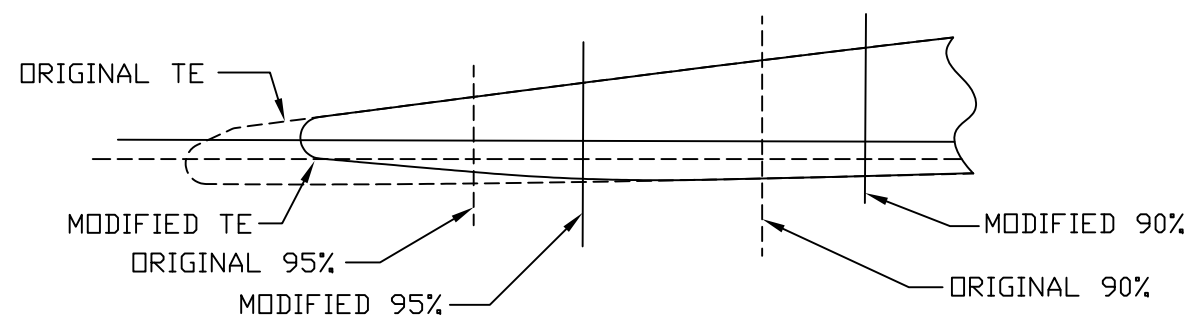
TRAILING EDGE MODIFICATION COMPARISON



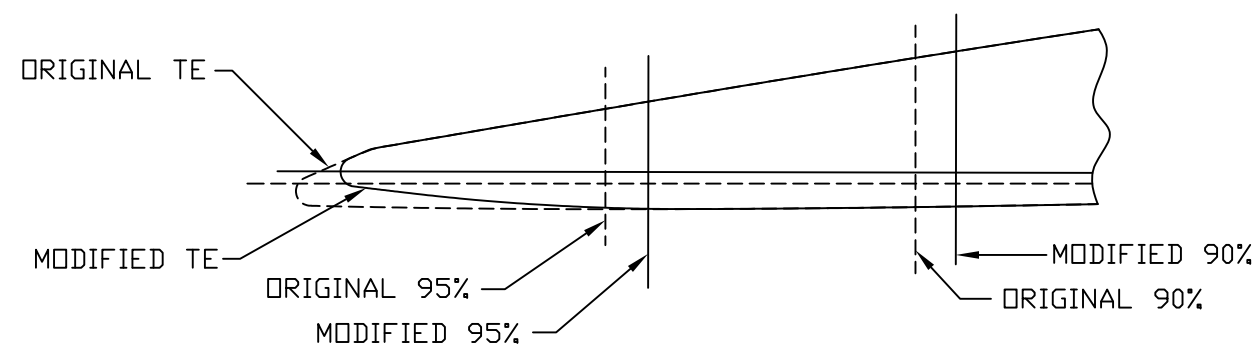
SECTION 9-9F
TE AT 0.975R



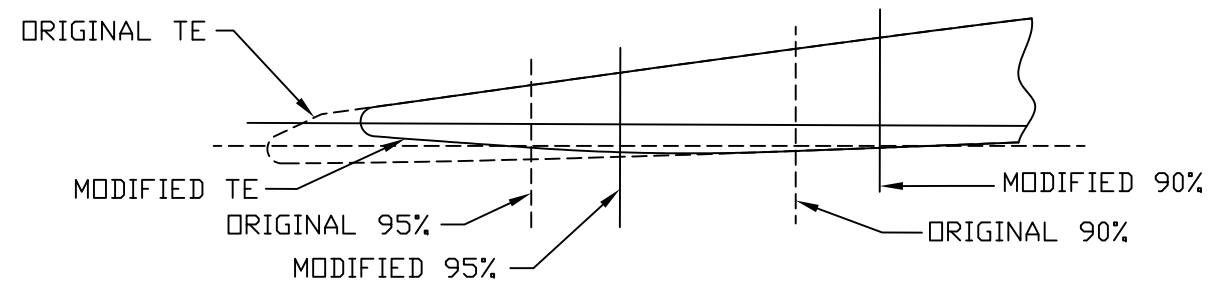
SECTION 9-4F
TE AT 0.80R



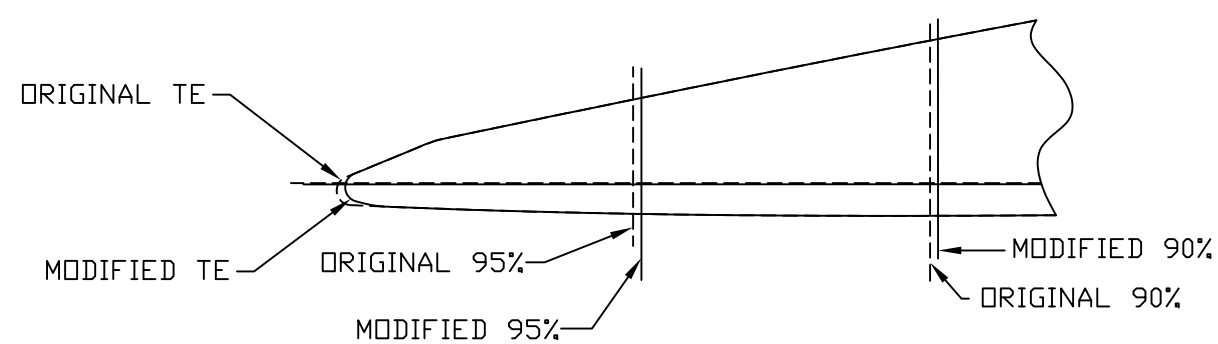
SECTION 9-9D
TE AT 0.95R



SECTION 9-4D
TE AT 0.70R



SECTION 9-9B
TE AT 0.90R



SECTION 9-4B
TE AT 0.60R

DEPARTMENT OF NAVY WASHINGTON, D.C. 20376-5100

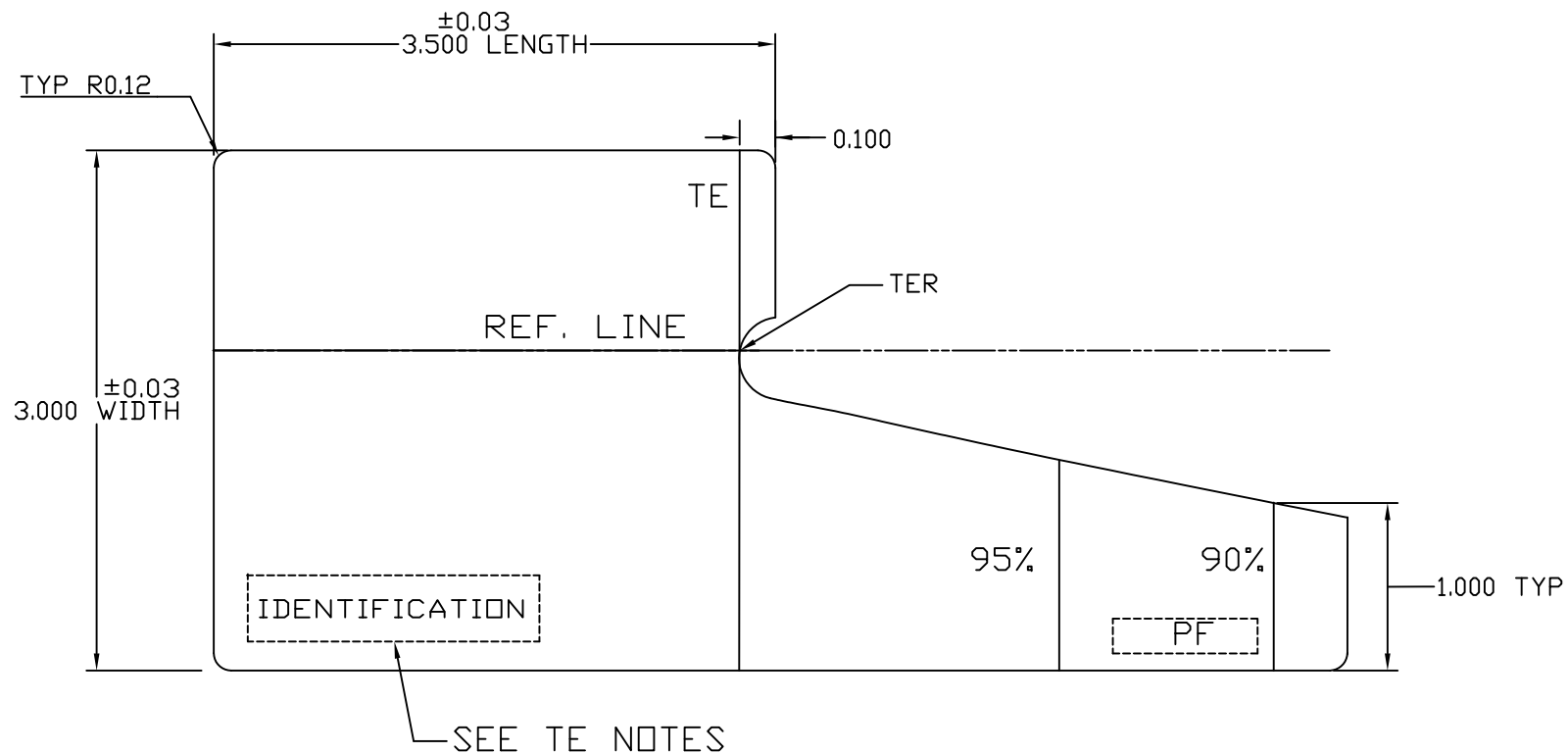
NAVAL SEA SYSTEMS COMMAND

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SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
B	N00167	245 8445988	—

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DETAIL 10-8D
TYPICAL TRAILING EDGE GAGE

TRAILING EDGE GAGE NOTES

1. THE GAGE CONTOUR HAS BEEN DEVELOPED FROM THE BLADE SURFACE MODEL BY INTERSECTING THE BLADE SURFACE WITH A PLANE WHICH PASSES THROUGH THE 90% CHORD POINTS ON THE PRESSURE FACE AND SUCTION FACE AND THE TRAILING EDGE POINT.
2. GAGES SHALL BE FLAT AND MANUFACTURED USING PLANER CUT DATA. DATA VERIFICATION TABLES ARE IN TABLE 11-7H.
3. GAGES SHALL BE GALVANIZED SHEET METAL IN ACCORDANCE WITH ASTM A653, CS TYPE B, 18 GAGE.
4. GAGES SHALL BE FOR THE PRESSURE FACE ONLY, 0.6R, 0.7R, 0.8R, 0.9R, 0.95R AND 0.975R.
5. THE FOLLOWING LINES AND IDENTIFYING CHARACTERS SHALL BE ENGRAVED ON BOTH SIDES OF EACH TRAILING EDGE GAGE AS SHOWN IN DETAIL 10-8D:
 - (A) A REFERENCE LINE EXTENDING FROM THE TE TO THE CLOSED EDGE OF THE GAGE AND LABELED "REF LINE".
 - (B) A LINE PERPENDICULAR TO THE REFERENCE LINE AT THE TRAILING EDGE LABELED "TE".
 - (C) LINES PERPENDICULAR TO THE REFERENCE LINE MARKING THE LOCATION OF THE 90 PERCENT AND 95 PERCENT OFFSET STATION ON THE PF.
 - (D) LETTERS "PF", IN THE LOWER CORNER TO INDICATE THE PRESSURE FACE CONTOUR.
 - (F) GAGE IDENTIFICATION AS FOLLOWS: (ONE SIDE ONLY).
 1. "NOAA CSV PROP DWG 245-8445988 REV _" (AS APPLICABLE).
 2. "R/Ro___" (RADIUS AS APPLICABLE).
6. TRAILING EDGE GAGES SHALL BE APPLIED IN ACCORDANCE WITH NAVSEA S9245-AR-TSM-010/PROP.

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SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
B	N00167	245 8445988	—

SCALE: NONE SHEET 10 OF 11

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TABLE 11-7H

TRAILING EDGE GAGE COORDINATES
NOTE: THE LAST TWO POINTS AT EACH RADIUS
CORRESPOND TO THE 90% CHORD AND 95% CHORD
STATIONS RESPECTIVELY.

0.60R	
X	Y
0.0336	0.0342
0.0103	0.0130
0.0000	-0.0219
0.0100	-0.0563
0.0402	-0.0789
0.0899	-0.0932
0.1602	-0.1041
0.2568	-0.1083
0.3824	-0.1131
0.4994	-0.1172
0.6293	-0.1214
0.7707	-0.1256
0.9224	-0.1295
1.0831	-0.1332
1.2518	-0.1366
1.4276	-0.1395
1.5636	-0.1414
1.7029	-0.1430
1.8451	-0.1444
1.9900	-0.1455
2.1375	-0.1463
2.2872	-0.1468
2.4390	-0.1472
2.5928	-0.1473
2.5558	-0.1473
1.2779	-0.1370

0.70R	
X	Y
0.0346	0.0463
0.0072	0.0187
0.0000	-0.0097
0.0117	-0.0469
0.0492	-0.0718
0.1179	-0.0808
0.1931	-0.0900
0.2847	-0.1010
0.3730	-0.1112
0.4876	-0.1232
0.6055	-0.1341
0.7432	-0.1449
0.8646	-0.1528
1.0058	-0.1602
1.1175	-0.1646
1.2490	-0.1681
1.4136	-0.1703
1.5059	-0.1703
1.6324	-0.1695
1.8013	-0.1681
1.9634	-0.1663
2.1297	-0.1642
2.3277	-0.1612
2.5038	-0.1582
2.6699	-0.1551
2.6534	-0.1554
1.3272	-0.1695

0.80R	
X	Y
0.0497	0.0637
0.0128	0.0401
0.0000	0.0025
0.0179	-0.0422
0.0844	-0.0647
0.1833	-0.0728
0.2865	-0.0818
0.4122	-0.0924
0.5334	-0.1025
0.6905	-0.1153
0.8520	-0.1280
0.9732	-0.1362
1.0900	-0.1429
1.2068	-0.1483
1.4001	-0.1547
1.4944	-0.1566
1.6023	-0.1579
1.7326	-0.1580
1.8583	-0.1568
1.9570	-0.1549
2.0827	-0.1512
2.1960	-0.1471
2.3177	-0.1424
2.4919	-0.1355
2.6508	-0.1289
2.6489	-0.1290
1.3254	-0.1526

0.90R	
X	Y
0.0506	0.0638
0.0130	0.0403
0.0000	0.0014
0.0112	-0.0345
0.0553	-0.0609
0.1347	-0.0677
0.2218	-0.0744
0.3279	-0.0823
0.4303	-0.0898
0.5632	-0.0993
0.7000	-0.1087
0.8027	-0.1156
0.9017	-0.1212
1.0007	-0.1257
1.1647	-0.1308
1.2448	-0.1322
1.3364	-0.1330
1.4470	-0.1327
1.5538	-0.1311
1.6377	-0.1290
1.7444	-0.1253
1.8303	-0.1216
1.9309	-0.1171
2.0714	-0.1105
2.2432	-0.1023
2.2396	-0.1024
1.1204	-0.1297

0.95R	
X	Y
0.0518	0.0634
0.0229	0.0500
0.0076	0.0314
0.0000	0.0002
0.0114	-0.0354
0.0591	-0.0621
0.1208	-0.0679
0.1959	-0.0747
0.2685	-0.0811
0.3627	-0.0893
0.4597	-0.0976
0.5326	-0.1038
0.6028	-0.1093
0.6732	-0.1141
0.7817	-0.1199
0.8468	-0.1224
0.9121	-0.1243
0.9909	-0.1256
1.0671	-0.1259
1.1270	-0.1255
1.2032	-0.1242
1.3290	-0.1209
1.4523	-0.1174
1.5833	-0.1135
1.7185	-0.1093
1.7153	-0.1094
0.8577	-0.1228

0.975R	
X	Y
0.0455	0.0544
0.0116	0.0341
0.0000	-0.0005
0.0124	-0.0348
0.0520	-0.0549
0.1007	-0.0606
0.1479	-0.0661
0.2091	-0.0732
0.2722	-0.0805
0.3197	-0.0859
0.3654	-0.0910
0.4113	-0.0959
0.4732	-0.1017
0.5247	-0.1056
0.5673	-0.1083
0.6190	-0.1109
0.6689	-0.1127
0.7082	-0.1136
0.7582	-0.1142
0.8551	-0.1143
0.9525	-0.1142
1.0664	-0.1139
1.1839	-0.1134
1.2758	-0.1128
1.2700	-0.1129
0.6346	-0.1115

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NAVAL SEA SYSTEMS COMMAND

NOAA CSV PROPELLER

SIZE	FSCM NO	NAVSEA DRAWING NO.	REV
B	N00167	245 8445988	—

SCALE: NONE SHEET 11 OF 11

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