Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AERONAUTICAL STANDARD AS 91B

PROPELLER SHAFT ENDS, DUAL ROTATION (PROPELLER SUPPLIED BEARING)

Issued 7-1-43
Revised 4-15-50

CONCENTRICITY NOTES:
WITH EITHER SHAFT MOUNTED ON DIA G AND REAR BEARING SURFACE, DIA H, KK (APPLIES TO OUTBOARD SHAFTS ONLY) OTHER BEARING SURFACES, AND DIA A ON STRAIGHT SPLINES SHALL BE CONCENTRIC WITHIN .001 FIR., THREAD T-PITCH DIA S SHALL BE CONCENTRIC WITHIN .005 FIR., AND DIA Z ON INVOLUTE SPLINES SHALL BE CONCENTRIC WITHIN .002 FIR.

WITH SHAFTS UNSUPPORTED BY PROPELLER BEARING, DIA KK ON OUTBOARD SHAFT AND DIA G ON INBOARD SHAFT SHALL BE CONCENTRIC WITHIN .048 FIR.

DIA H ON INBOARD SHAFT AND DIA HH SHALL BE CONCENTRIC WITHIN .007 FIR.

ENGINE MFR TO PROVIDE OIL SEAL BETWEEN SHAFTS, AND BETWEEN INBOARD SHAFT AND ENGINE NOSE

SURFACE MUST BE FREE FROM HOLES OR SLOTS. SHOULDER NEED NOT BE INTEGRAL WITH SHAFT. SURFACE MUST BE SQUARE WITH DIA KK WITHIN .002 FIR. SELF ALIGNING NON-INTEGRAL SHOULDERS SHALL BE CHECKED WHEN HELD RIGIDLY IN PLACE. FOR INSPECTION PURPOSES IT IS PERMISSIBLE TO ADJUST PARTS BY THE APPLICATION OF NORMAL ALIGNING FORCES TO MEET THIS REQUIREMENT

ENGINE PARTS, AND ENGINE MOUNTED ACCESSORIES OR SAE ACCESSORY CLEARANCE ENVELOPES IF AVAILABLE, NOT TO EXTEND OUTBOARD OF THIS LINE

SURFACE MUST BE SQUARE WITH DIA H OF INBOARD SHAFT WITHIN .015 FIR. AND FREE FROM HOLES OR SLOTS OTHER THAN THOSE SPECIFIED

ENCLOSED SPACE EXCEPT FOR THAT SHOWN ON FIG. 3 RESERVED FOR ENGINE NOSE MFR. BOLTS, CAP SCREWS OR STUDS OPTIONAL WITH MFR

SURFACE MUST BE SQUARE WITH DIA H OF INBOARD SHAFT WITHIN .005 FIR. AND FREE FROM HOLES OR SLOTS

TAPER NOTE:
SURFACE AT DIA G AND H NOT TO TAPER MORE THAN .0005 PER INCH OF LENGTH

ENGINE MANUFACTURER TO PLUG SHAFT TO PREVENT LEAKAGE IN EITHER DIRECTION UNDER 12 INCH HEAD OF SAE NO. 10 OIL. FRONT SURFACES OF PLUG TO BE WITHIN THIS LENGTH

8 SLOTS EQUALLY SPACED CIRCUMFERENTIALLY WITHIN .010 OF TRUE LOCATION

THREAD T NS, PITCH DIA S
SEE ALSO FIG. 2

CENTER OPTIONAL WITH MFR

DRILL W THRU 8 HOLES EQUALLY SPACED CIRCUMFERENTIALLY WITHIN .010 OF TRUE LOCATION

.375

SECTION AA

ARROWS INDICATE REQUIRED DIRECTION OF ROTATION. SHAFT GEAR RATIOS TO BE IDENTICAL

THREAD UNDERCUT OPTIONAL. THREADING METHOD OPTIONAL

BREAK SHARP EDGES .016

UNLESS OTHERWISE SPECIFIED	
ALLOWABLE TOLERANCE ON:-	
LINEAR DIMENSIONS	±.01
ANGULAR DIMENSIONS	±2°

FOR ADDITIONAL DUAL ROTATION PROPELLER SHAFT SIZES SEE ARP 375

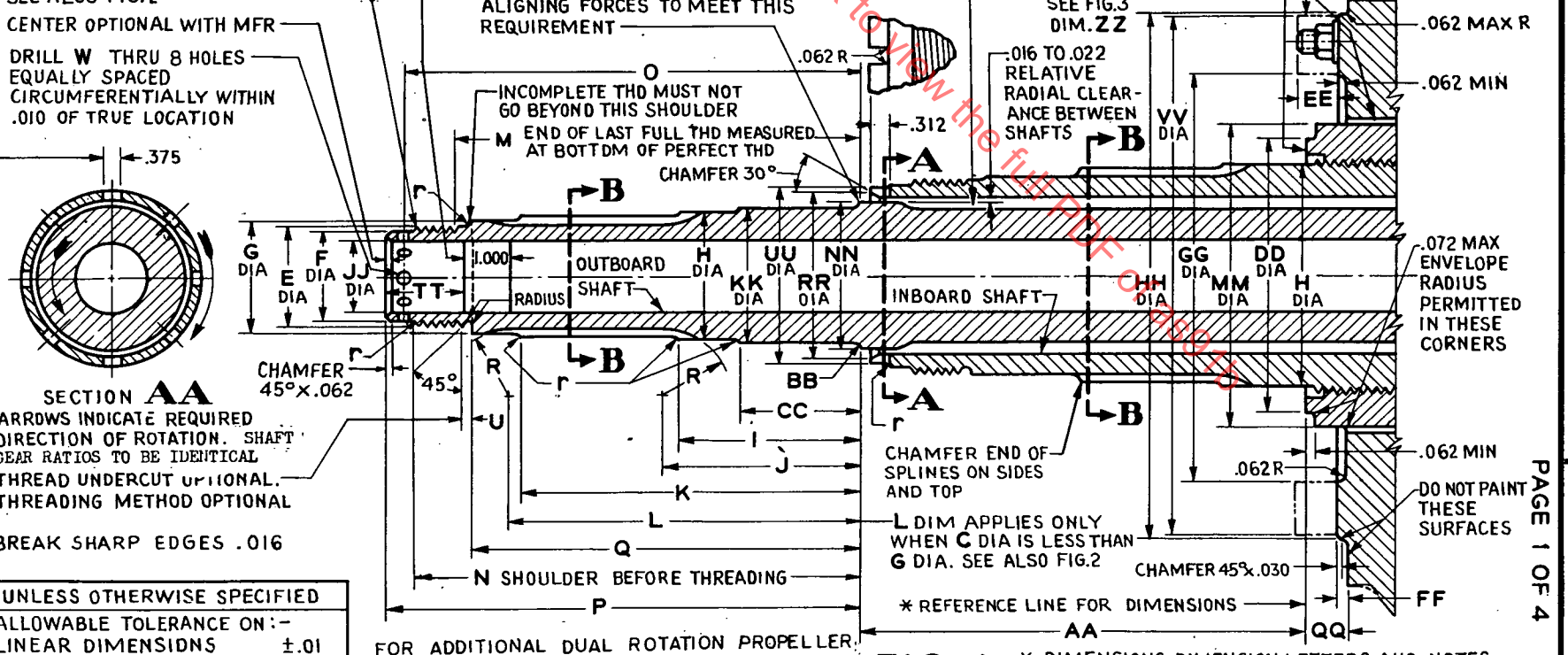


FIG. 1

* DIMENSIONS, DIMENSION LETTERS AND NOTES ARE FOR BOTH SHAFTS AS APPLICABLE

AS 91B	Issued 7-1-43 Revised 4-15-50	PROPELLER SHAFT ENDS, DUAL ROTATION (PROPELLER SUPPLIED BEARING)

LET	TOLERANCE		40 — 60***		50 — 70***		60 — 80		60L — 80	
	OUTBOARD SHAFT	INBOARD SHAFT	STRAIGHT SPLINES	INVOLUTE SPLINES	STRAIGHT SPLINES	INVOLUTE SPLINES	INVOLUTE SPLINES	INVOLUTE SPLINES	INVOLUTE SPLINES	INVOLUTE SPLINES
A	+.000	-.002	3.117	—	3.804	—	—	—	—	—
	+.000	-.005	—	4.680	—	5.539	4.680	6.411	4.680	6.411
B	MAX		2.875	4.436	3.554	5.294	4.436	6.151	4.436	6.151
C	MIN		2.783	—	3.462	—	—	—	—	—
	+.010	-.020	—	4.321	—	5.179	4.321	6.036	4.321	6.036
D	±.0008		.3040	—	.375	—	—	—	—	—
	+.0000	-.0030	—	.2233	—	.2233	.2233	.2233	.2233	.2233
E	+.000	-.004	2.807	4.245	3.432	5.120	4.245	5.995	4.245	5.995
F	+.000	-.005	2.688	4.062	3.312	4.938	4.062	5.812	4.062	5.812
G	+.000	-.002	2.812	4.296	3.500	5.156	4.296	6.011	4.296	6.011
H	+.000	-.002	3.125	4.687	3.812	5.562	4.687	6.426	4.687	6.426
I	±.020	±.025	4.438	1.812	7.375	1.812	8.250	3.250	13.250	3.250
J	±.030	±.040	4.938	2.312	7.875	2.312	8.750	3.750	13.750	3.750
K	±.020		8.250	5.375	11.188	5.375	12.297	7.400	17.297	7.400
L	±.020	—	8.375	—	11.312	—	—	—	—	—
M	+.000-*	+.010-*	9.475	8.360	12.412	8.360	13.808	10.360	18.808	10.360
N	+.010	-.030	10.641	9.735	13.578	9.735	15.183	11.610	20.183	11.610
O	±.015	—	10.938	—	13.812	—	15.438	—	20.438	—
P	±.020		11.312	10.625	14.250	10.625	15.688	12.500	20.688	12.500
Q		±.020	9.375	8.250	12.312	8.250	13.688	10.250	18.688	10.250
R	MAX		1.530	2.030	1.530	2.030	2.030	2.030	2.030	2.030
	MIN		1.125	1.125	1.125	1.125	1.125	1.125	1.125	1.125
r	+.030	-.000	.062	.062	.062	.062	.062	.062	.062	.062
S	+.0000	-.0030	2.7560	—	3.3810	—	—	—	—	—
	+.0000	-.0050	—	4.1668	—	5.0418	4.1668	5.9168	4.1668	5.9168
T	—		2.8125-12	4.250-8	3.4375-12	5.125-8	4.250-8	6.000-8	4.250-8	6.000-8
U	±.030		.170	.250	.170	.250	.250	.250	.250	.250
V	APPROX		—	.068	—	.068	.068	.068	.068	.068
W	±.0100	—	.2656	—	.2656	—	.2656	—	.2656	—
X	—		16	32	16	38	32	44	32	44
Y	—		—	7/16	—	7/16	7/16	7/16	7/16	7/16
Z	THEO		—	4.5714	—	5.4286	4.5714	6.2857	4.5714	6.2857
AA	±.040		10.688		10.688		12.562		12.562	
BB	MAX	—	.094	—	.094	—	.094	—	.094	—
CC	±.020	—	2.375	—	2.375	—	4.938	—	5.938	—
DD			5.812		6.688		7.562		7.562	
EE	MAX		.750		.750		.750		.750	
FF			.312		.312		.312		.312	
GG	MIN		7.750		8.750		9.625		9.625	
HH	±.001		10.123		11.123		12.625		12.625	
JJ	+.005 -.000	—	2.188	—	2.812	—	3.562	—	3.562	—
KK	+.0000 -.0005	—	3.1498 (80MM BRG)		3.8191 (97MM BRG)		4.7246 (120 MM BRG)		4.7246 (120MM BRG)	
LL	MIN		2.062 **		2.062 **		2.062 **		2.062 **	
MM	MAX		6.188		7.062		7.938		7.938	
NN	MIN	—	3.594	—	4.344	—	5.375	—	5.375	—
PP	MIN		35° **		35° **		35° **		35° **	
QQ	±.035		.938		.938		.938		.938	
RR			—	3.852	—	4.602	—	5.688	—	5.688
SS	MIN		.500		.500		.500		.500	
TT	±.030	—	3.000	—	3.000	—	3.000	—	3.000	—
UU			—	4.000	—	4.812	—	5.781	—	5.781
VV	MAX		10.102		11.072		12.574		12.574	

INBOARD AXIAL DIMENSIONS ARE FROM THRUST NUT

M DIM. MAX LIMIT GIVES MIN FULL THREAD

* MINUS VALUE DEPENDS ON METHDD OF THREADING AND THD RUNOUT RELATION TO SHOULDER Q

TO OBTAIN DIM. FOR FULL NUMBER OF PITCHES, WHEN DESIRED, DEDUCT BASIC M FROM BASIC N

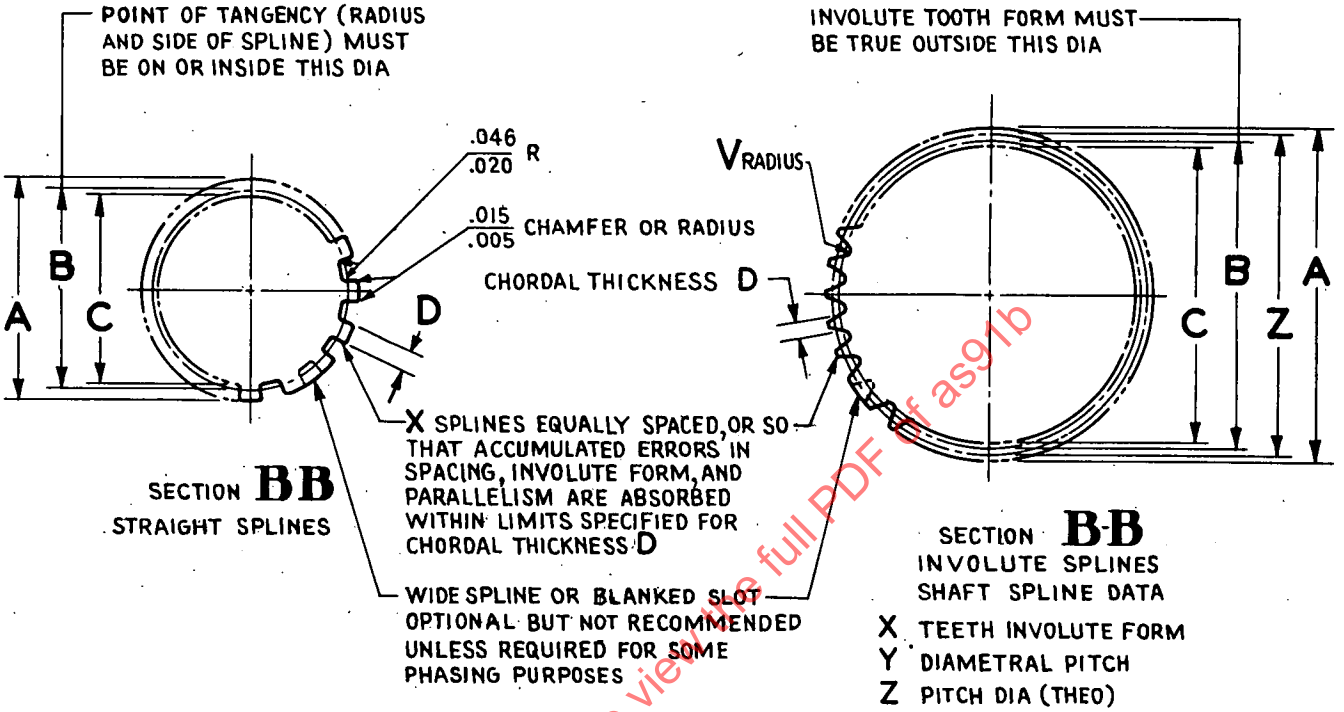
M DIM. DOES NOT APPLY WHEN UNDERCUT IS USED

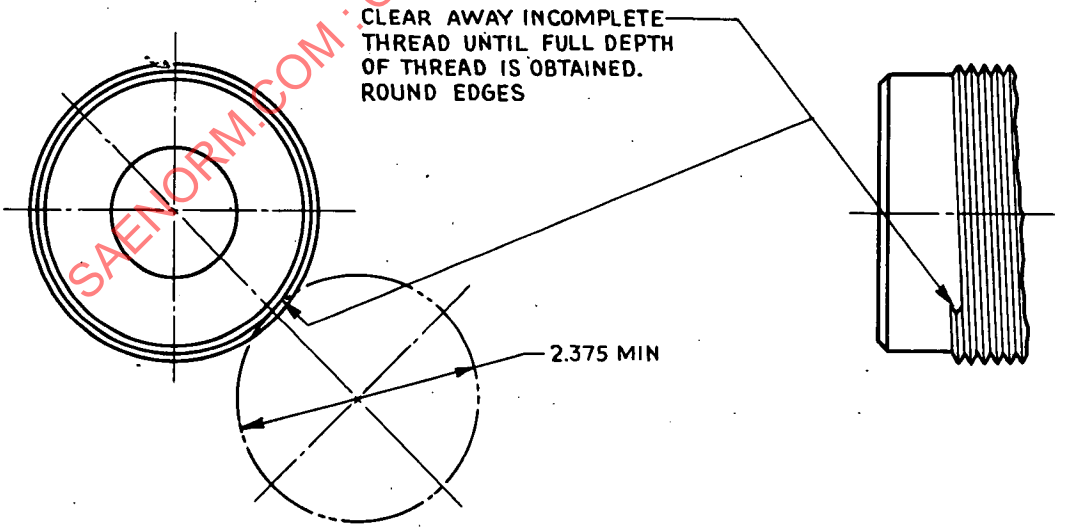
** LL TO BE 4.000 AND PP TO BE 45° WHEN PRACTICABLE

*** INACTIVE FOR NEW DESIGN

TABLE FOR FIG. 1 AND 2

UNLESS OTHERWISE SPECIFIED	
ALLOWABLE TOLERANCE ON:-	
LINEAR DIMENSIONS	±.01
ANGULAR DIMENSIONS	±2°





REMOVAL OF INCOMPLETE THREAD
METHOD OF REMOVAL OPTIONAL

FIG. 2

UNLESS OTHERWISE SPECIFIED	
ALLOWABLE TOLERANCE ON :-	
LINEAR DIMENSIONS	±.01
ANGULAR DIMENSIONS	±2°