

# GENERAL NOTES

1. ALL MATERIALS TO BE QUALIFIED BY RULE OF NIPPON KAIJI KYOKAI AND LLOYD'S REGISTER OF SHIPPING AND MANUFACTURED UNDER THE SPECIAL SUPERVISION OF THE SURVEYOR.

2. CRUST OF RUDDER TO BE WATER TIGHT. TIGHTNESS TO BE TESTED WITH WATER BY PRESSURE OF 1.85 KG/CM<sup>2</sup>.

3. WORKING SIGNS:  
 - SMOOTH NOT TO BE MACHINED  
 - ROUGHLY TO BE MACHINED  
 - PERFECTLY  
 - EXACTLY

4. INSIDE OF THE RUDDER TO BE COATED WITH BITUMASTIC SOLUTION.

5. ALL THE OUTER SURFACES OF RUDDER PLATING TO BE SHOT BLASTED.

HISTORY  
 1. AUG. 21. 59. ORIGINALLY DRAWN  
 2. SEP. 18. 59. APPROVED BY M.S.  
 3. SEP. 10. 59. APPROVED BY M.S.  
 4. OCT. 16. 59. APPROVED BY M.S.  
 5. JUNE 15. 60. FINALLY DRAWN

ITEM	MATERIAL	NO	WEIGHT	MAKING SHOP
1. RUDDER HEAD	FORGED ST	1	37.300 kg	S.M.I.
2. SLEEVE (FOR RUDDER HEAD)	FORGED ST	1	1.40 kg	"
3. UPPER RUDDER FRAME	CAST ST	1	"	"
4. LOWER RUDDER FRAME	"	1	"	"
5. UPPER RUDDER PINTLE & NUT	FORGED ST	1	"	S.M.I.
6. BUSH (LOWER)	LIGNUMVITAE	1	"	"
7. REAMER BOLT & NUT (FOR COUPLING)	FORGED ST	6	"	S.M.I.
8. 13.5 SPLIT PIN	MILD ST	6	"	S.M.I.
9. COVER BOX	"	1	"	"
10. COVER BOX GUIDE	"	1	"	S.M.I.
11. RUDDER PLATE	"	"	"	"
12. BUSH REST PLATE	"	1	"	S.M.I.
13. W 1/2 SET SCREW (FOR BUSH REST PL)	BRASS	8	"	"
14. W 1/2 SCREW (FOR DRAIN HOLE)	"	2	"	"
15. LINER (FOR DRAIN HOLE)	MILD ST	2	"	"
16. ZINC PLATE	CP2 - 6F	10	"	"
17. W 1/2 STUD BOLT & NUT (FOR ZINC PL)	MILD ST	20	"	"
18. WASHER (FOR ZINC PL)	"	20	"	"
19. 16mm SPRING WASHER (FOR ZINC PL)	"	20	"	"
20. PUTTY	VINYL PUTTY	"	"	"
21. SLEEVE (FOR UPPER PINTLE)	GUNMETAL	1	"	S.M.I.
22. LIFTING EYE BOLT (FOR RUDDER HEAD)	FORGED ST	1	"	"
23. LIFTING EYE BOLT (FOR UPPER PINTLE)	"	1	"	S.M.I.
24. STOPPER (FOR UPPER PINTLE NUT)	MILD ST	1	"	"
25. PLUG	BRASS	1	"	S.M.I.
26. ZINC PLATE (FOR RUDDER HEAD)	ZINC	4	"	"
27. W 1/2 STUD BOLT & NUT	MILD ST	8	"	"

CARBON CONTENT OF CAST STEEL TO BE NOT OVER .23% FOR WELDING.

PARTICULARS OF RUDDER			
1. RUDDER AREA	A	19.9 m <sup>2</sup>	
2. RUDDER AREA ABOARD CL OF PINTLE	A <sub>0</sub>	14.4 m <sup>2</sup>	
3. " " BEFORE " " "	A <sub>1</sub>	5.5 m <sup>2</sup>	
4. AREA RATIO	$\frac{A}{A_0}$	$\frac{19.9}{14.4}$	1.38
5. BALANCE RATIO	$\frac{A}{A_1}$	$\frac{19.9}{5.5}$	3.62
6. MAX. SEA SPEED		18 KTS	
7. RULED DIA OF RUDDER HEAD FOR NK	LR	328 mm	
8. " " " " " "		323 mm	
9. ACTUAL DIA OF RUDDER HEAD		330 mm	
10. CENTRE OF G OF AREA A FROM CL OF PINTLE		0.72 m	
11. " " " " " "		1.21 m	

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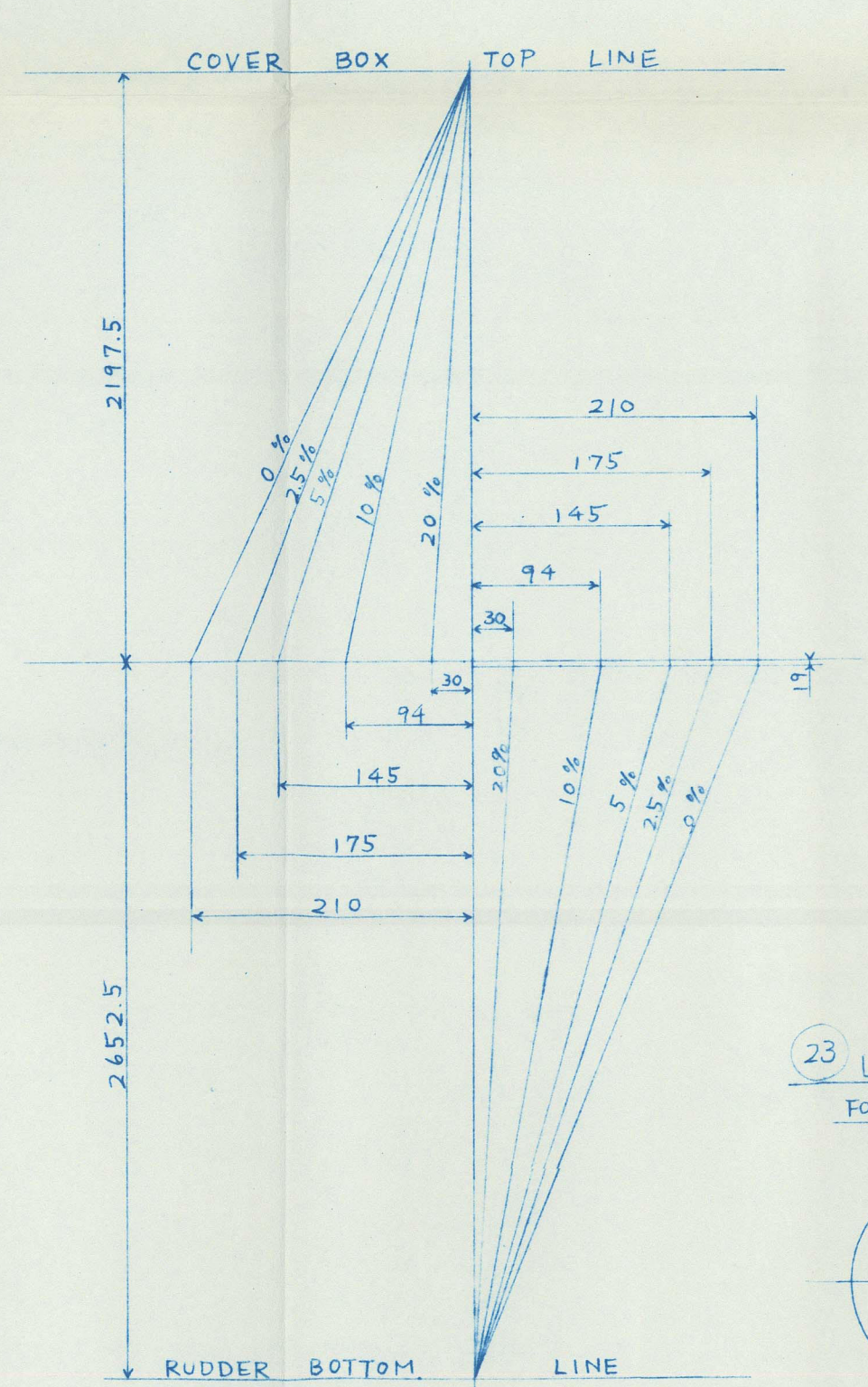
SUMIDA MARU

RUDDER

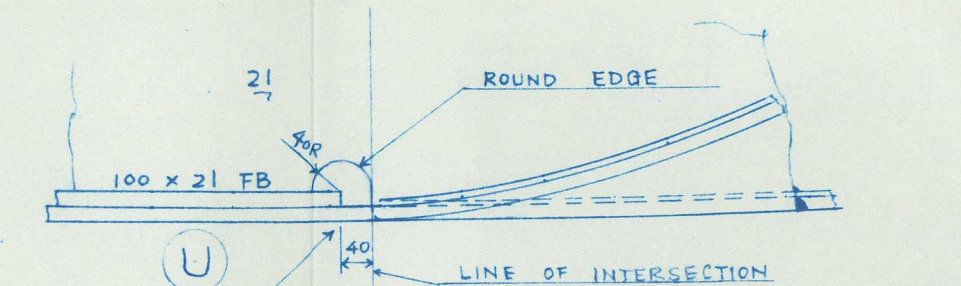
FINISHED PLAN

SCALE 1:25 DATE JUNE 15, 60  
 YOKOHAMA SHIPYARD & ENGINE WORKS  
 MITSUBISHI HEAVY INDUSTRIES LTD.  
 HULL DESIGNING DEPARTMENT  
 APPROVED R. Tanaka  
 CHECKED R. Tanaka  
 DRAWN Y. Kawaguchi  
 TRACED  
 DATE ISSUED  
 DRAWING NO. H02012 F  
 8/77 (145)

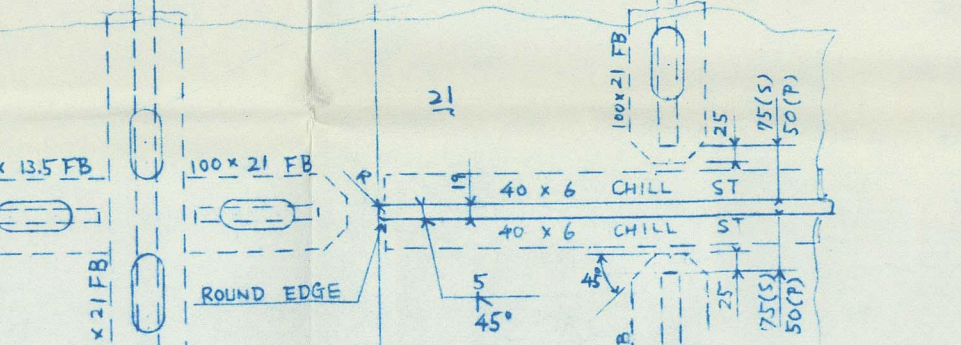
DEVIATION OF CENTRE LINE OF THICKNESS  
 LOOKING FORWARD  
 HOR. 1/8 VERT. 1/8



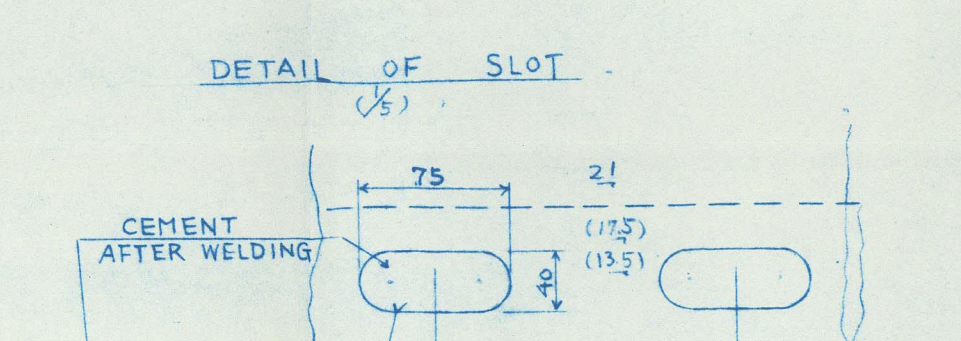
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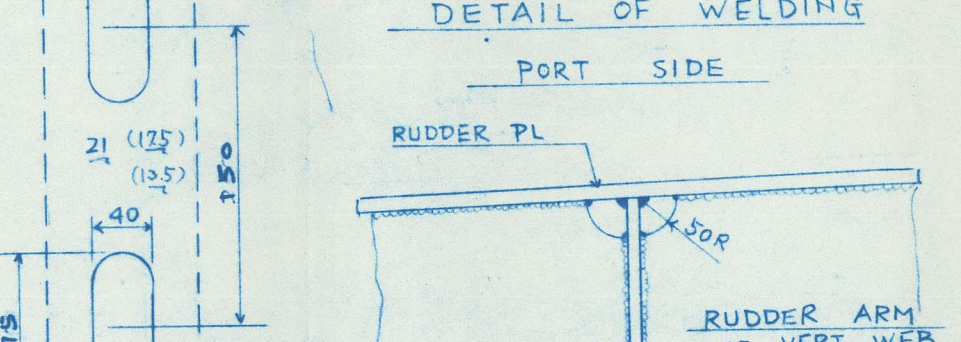
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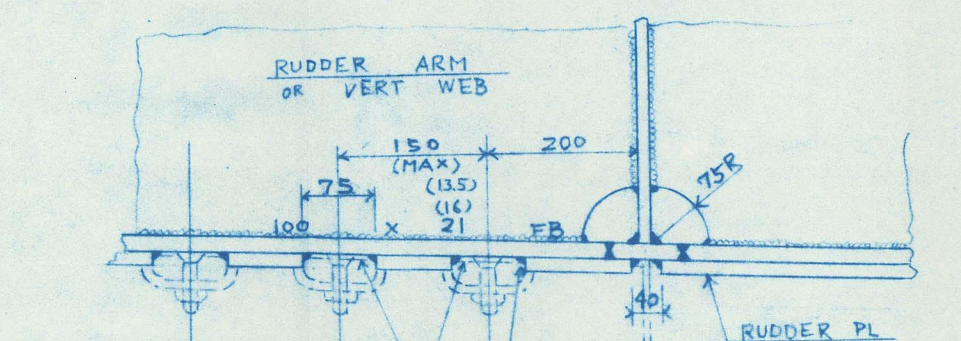
DETAIL OF SLOT



DETAIL OF WELDING



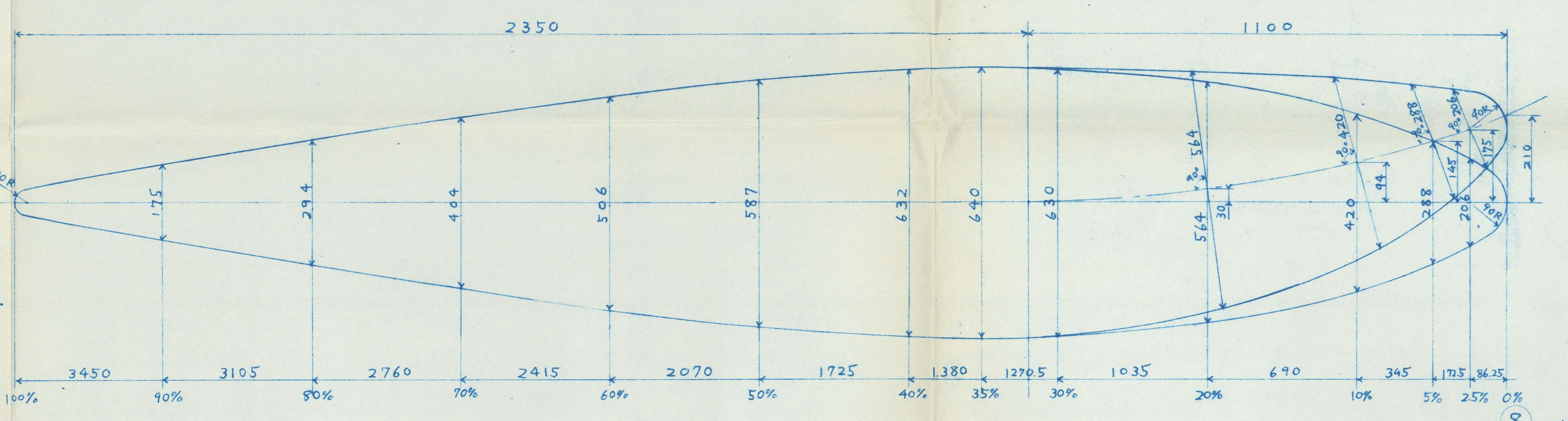
DETAIL OF CORNER



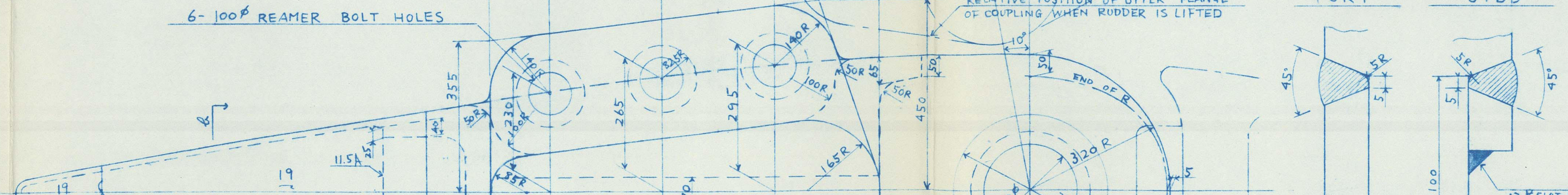
DETAIL OF LEADING EDGE



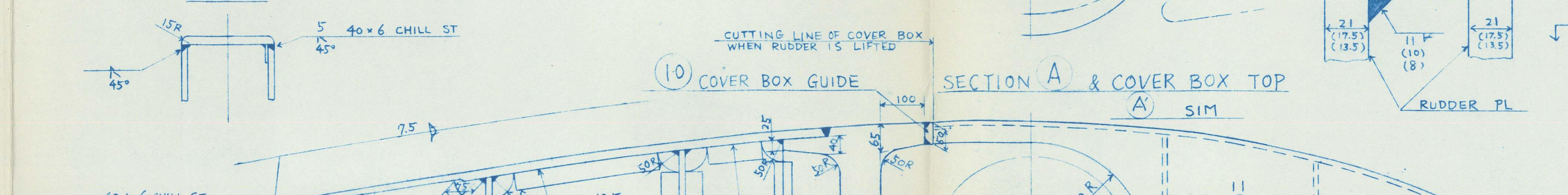
SECTIONAL FORM OF RUDDER (1/6)  
 SCANTLINGS ARE GIVEN TO OUTER SIDE PLATE



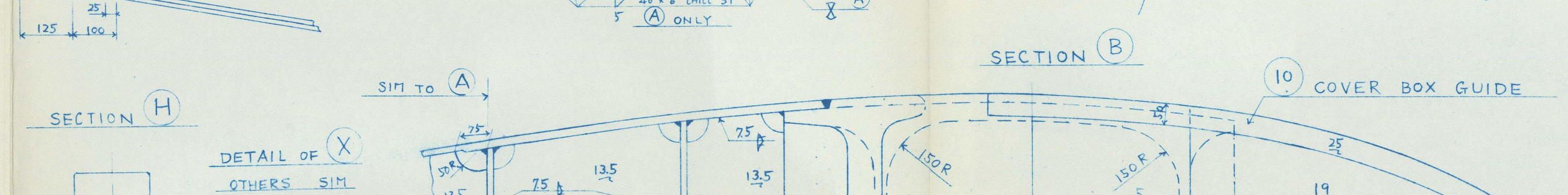
RUDDER TOP PLAN



DETAIL OF V WELD



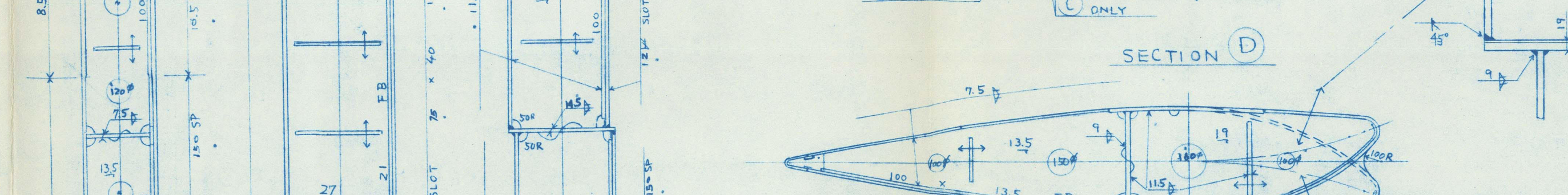
SECTION A & COVER BOX TOP



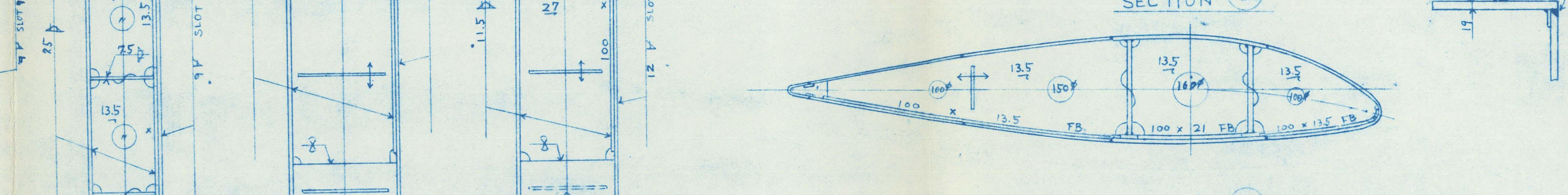
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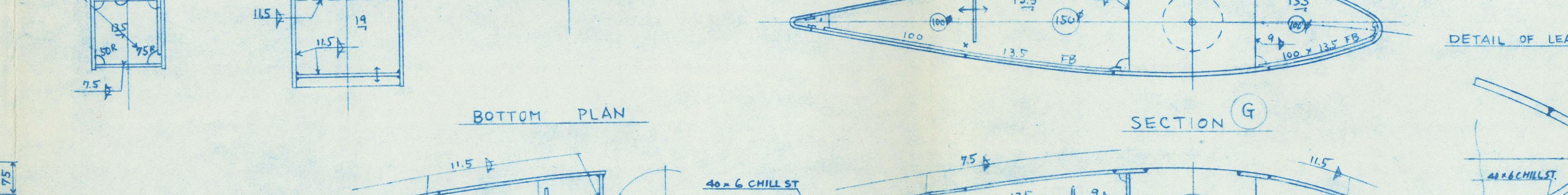
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SECTION D



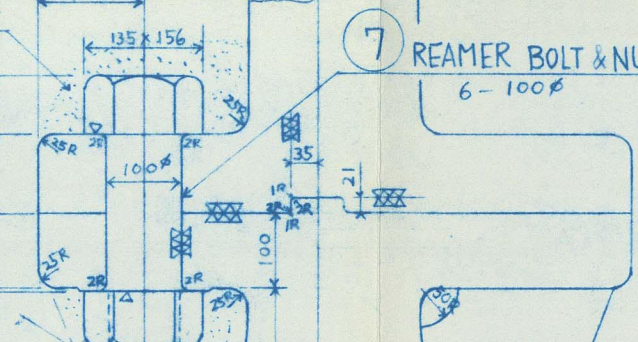
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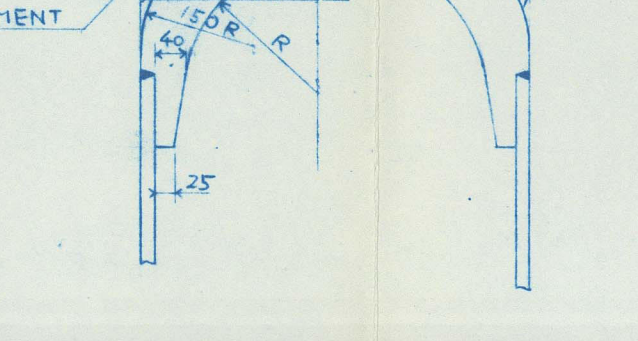
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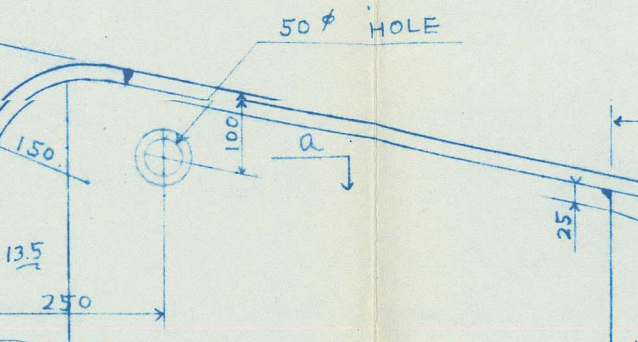
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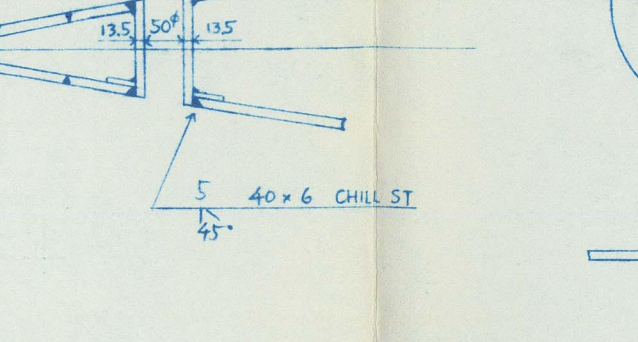
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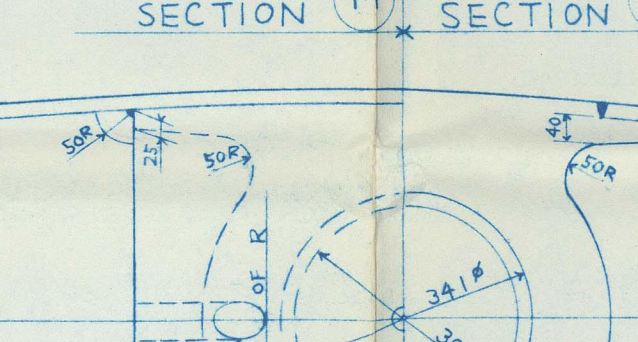
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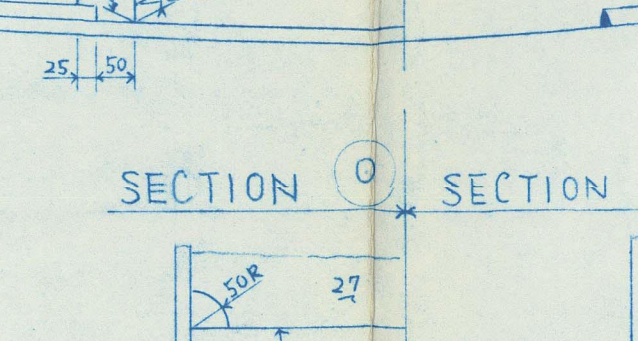
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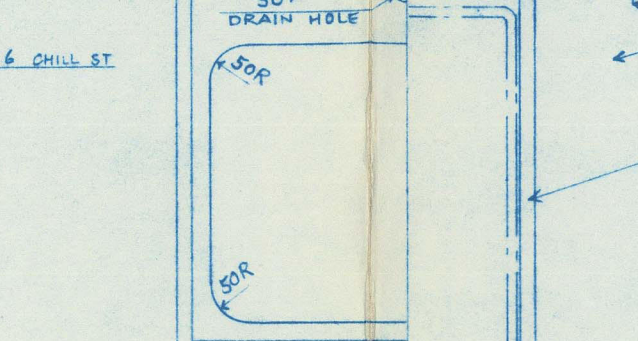
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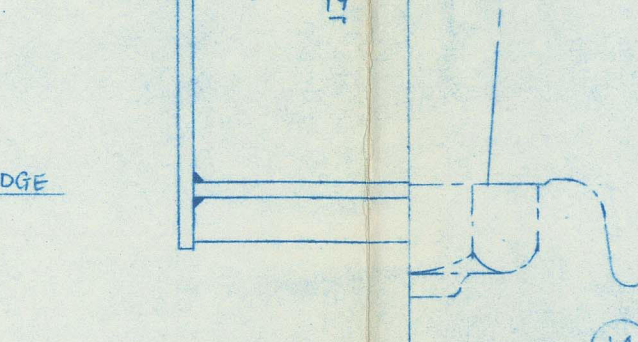
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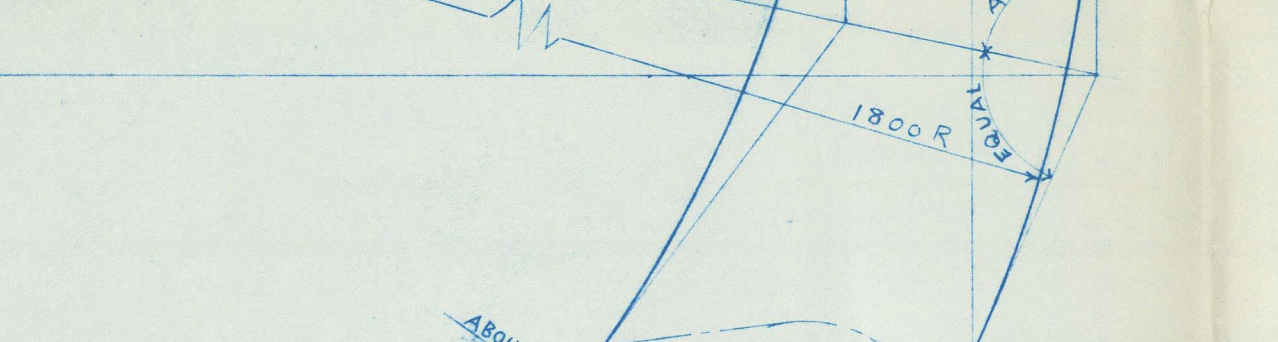
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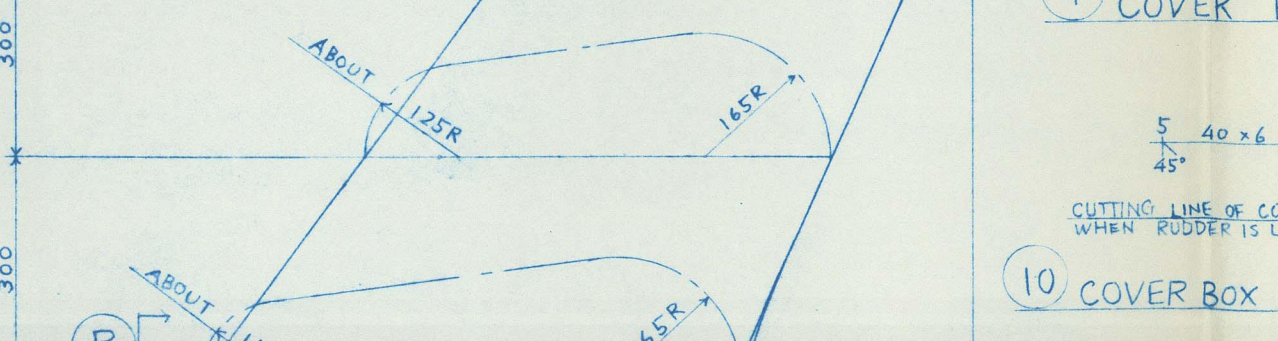
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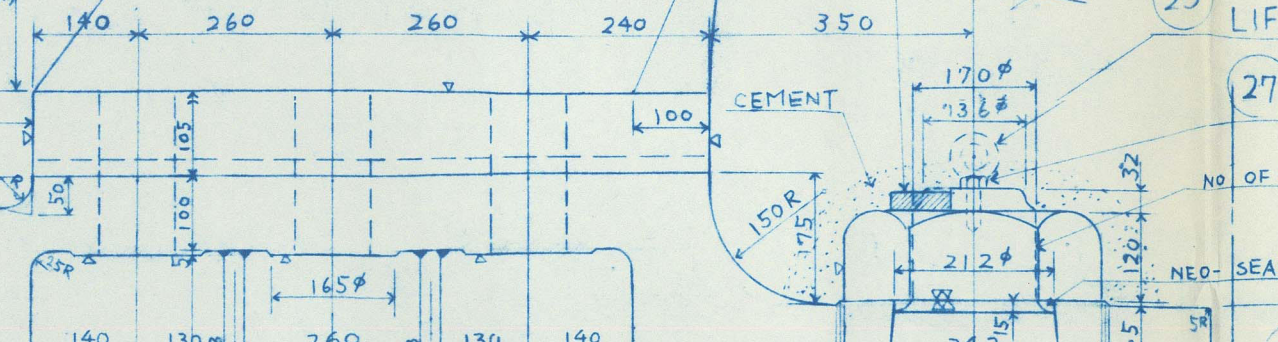
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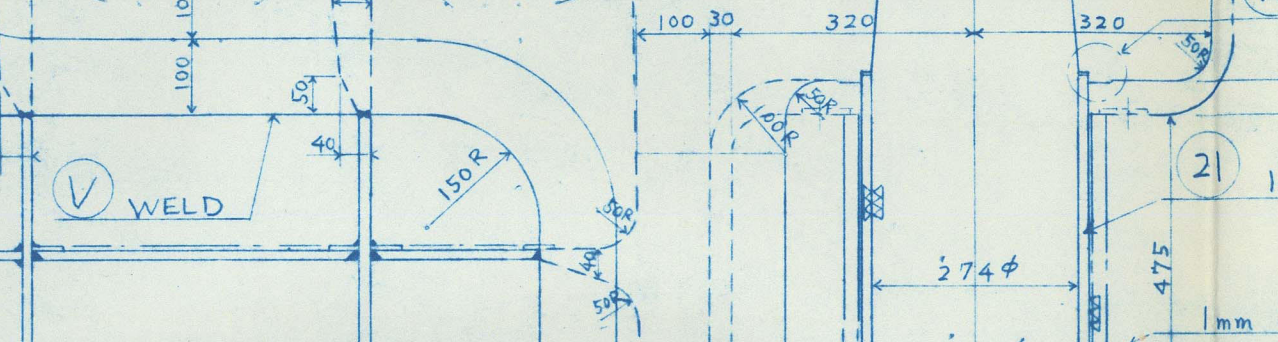
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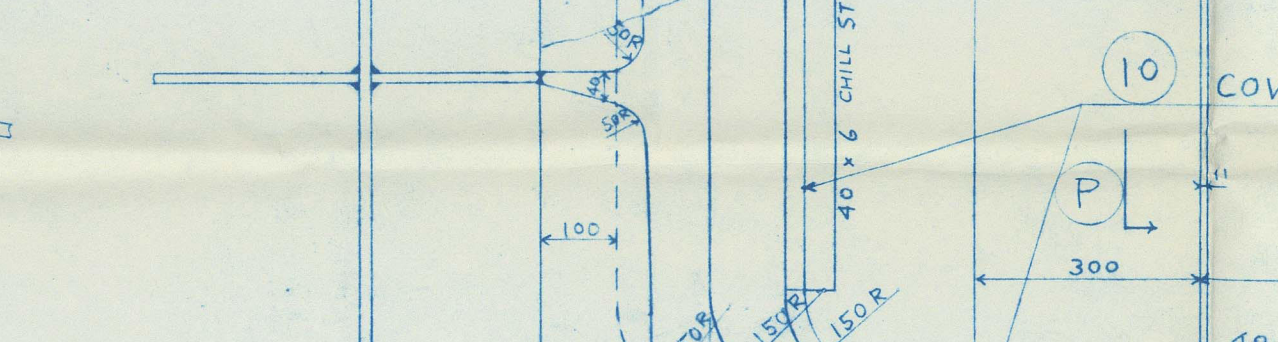
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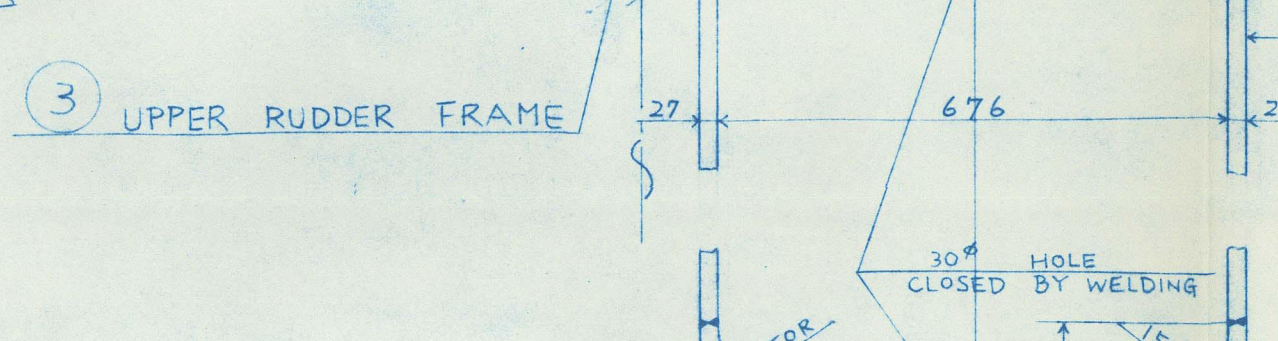
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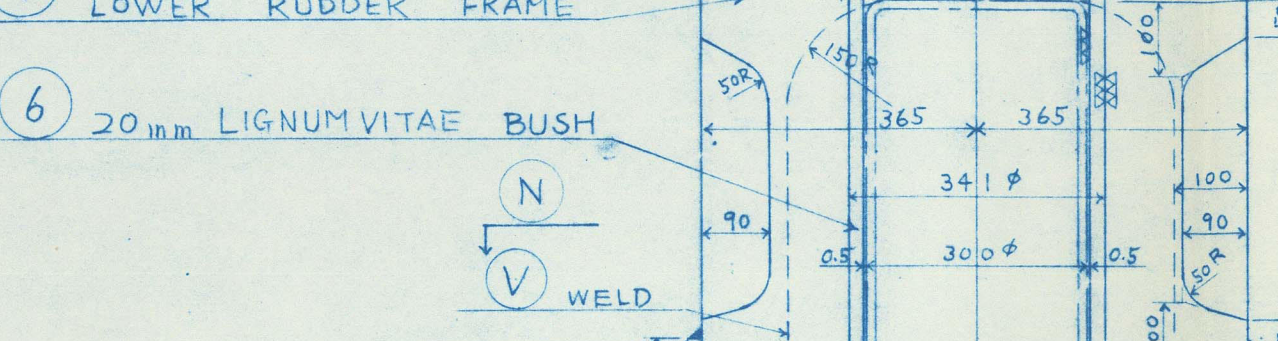
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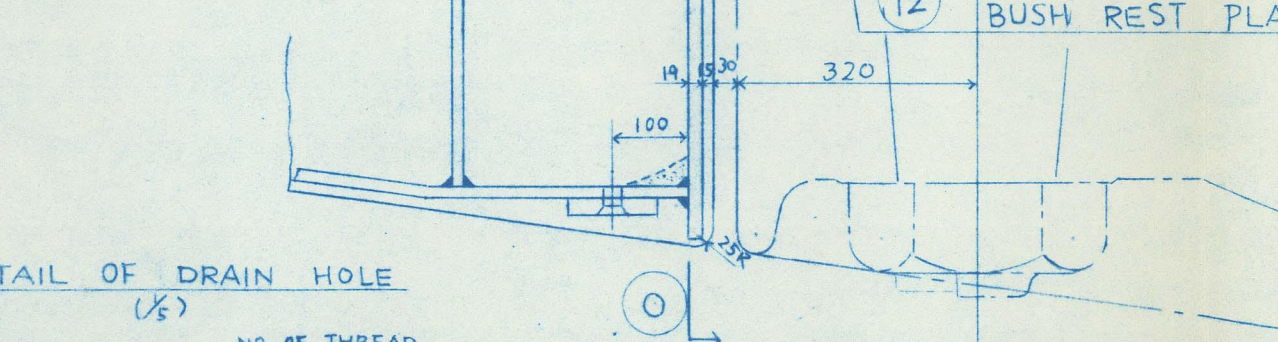
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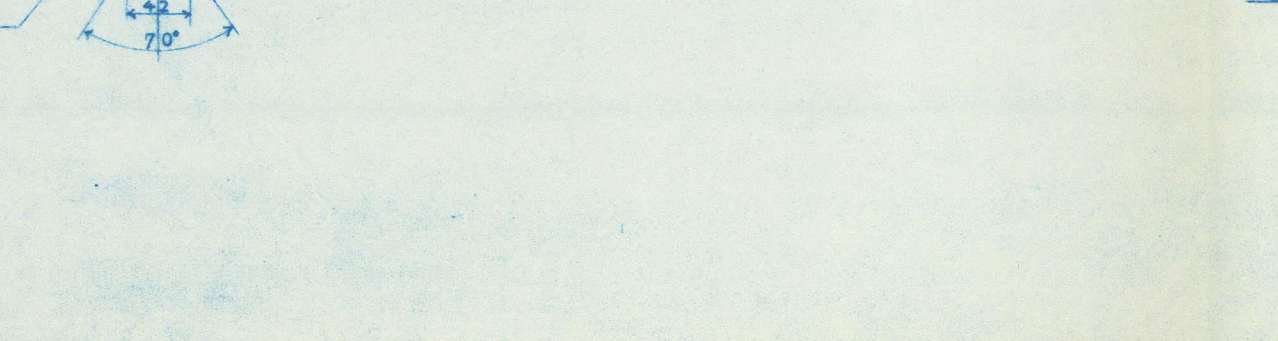
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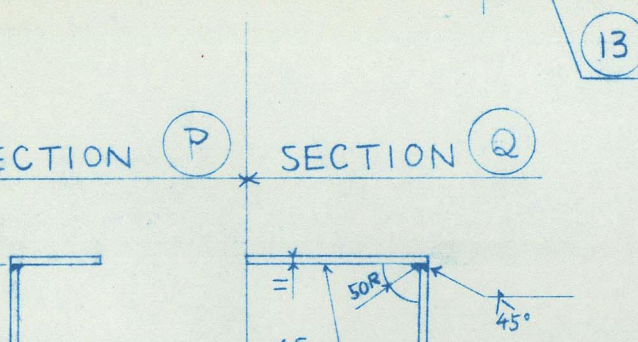
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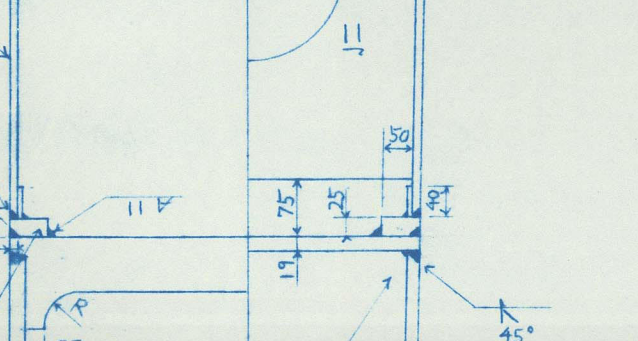
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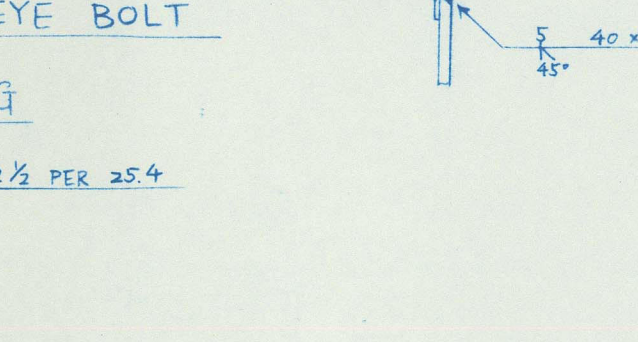
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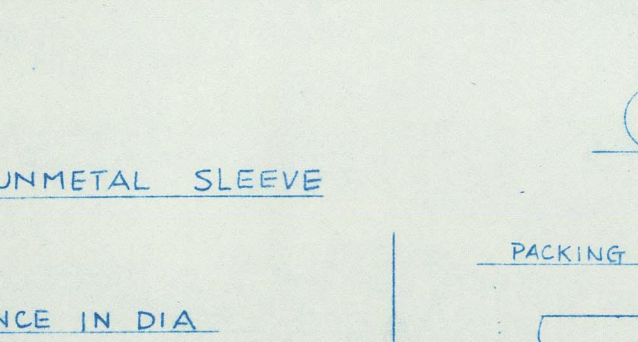
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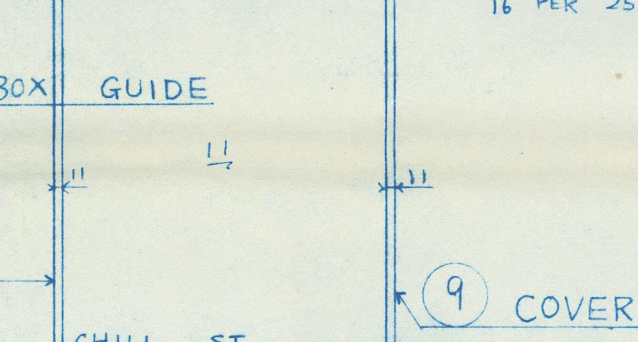
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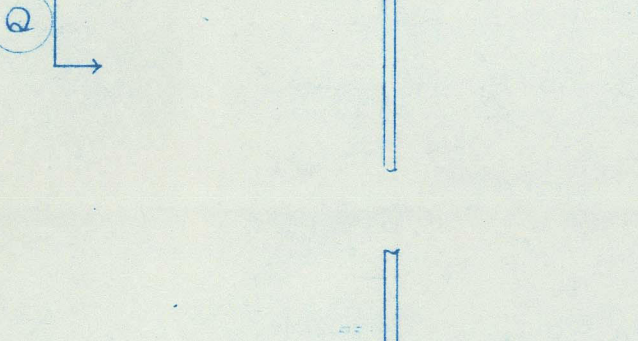
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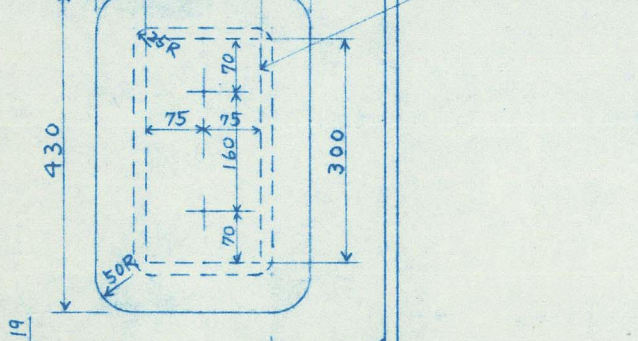
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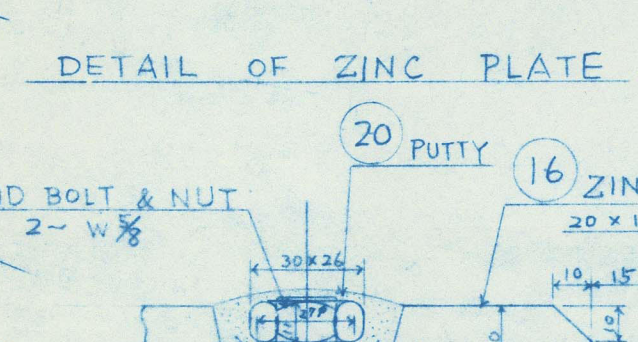
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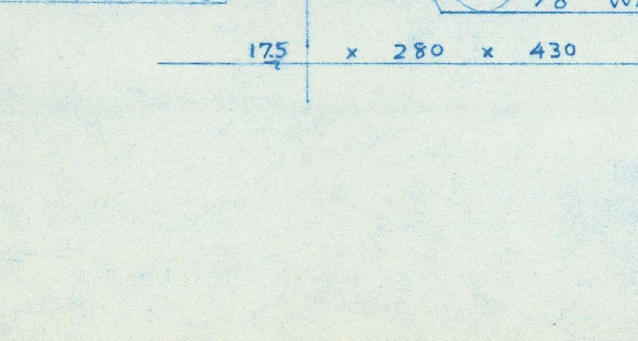
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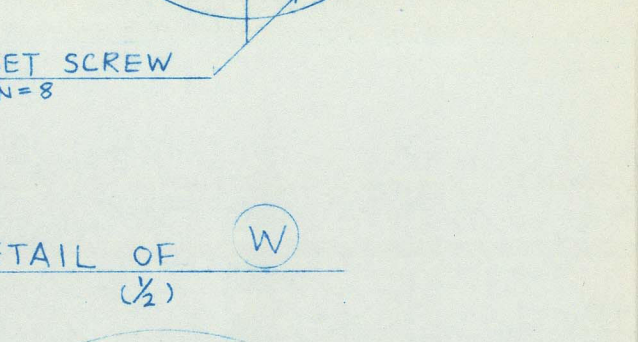
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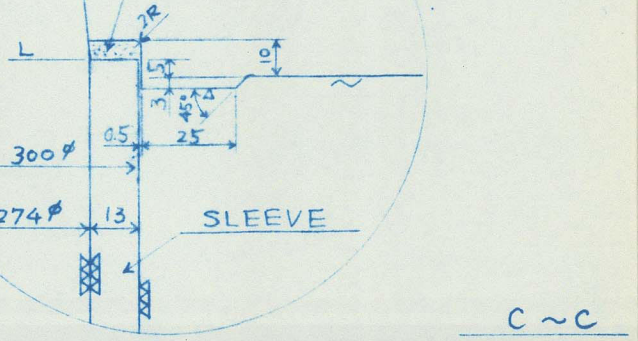
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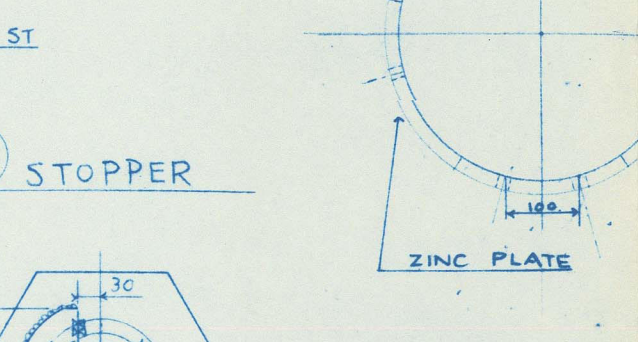
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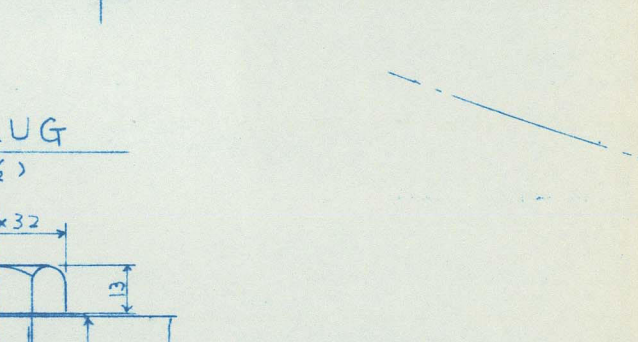
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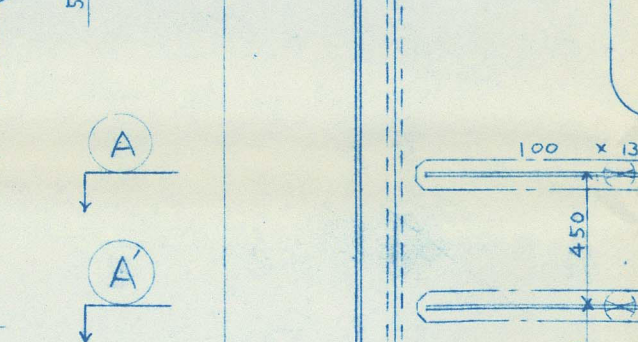
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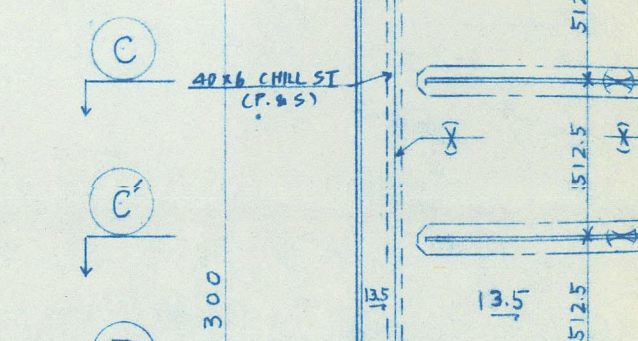
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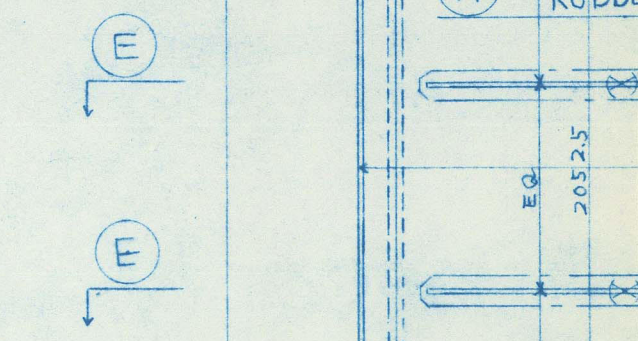
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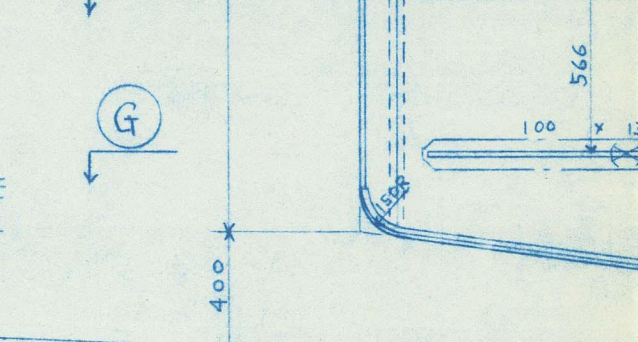
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SECTION N



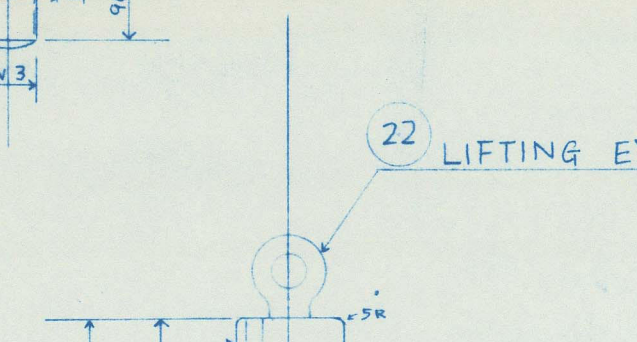
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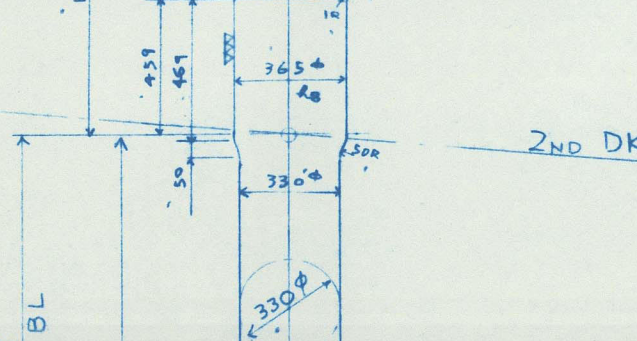
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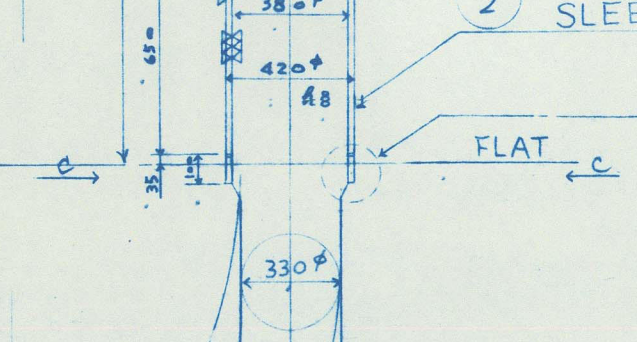
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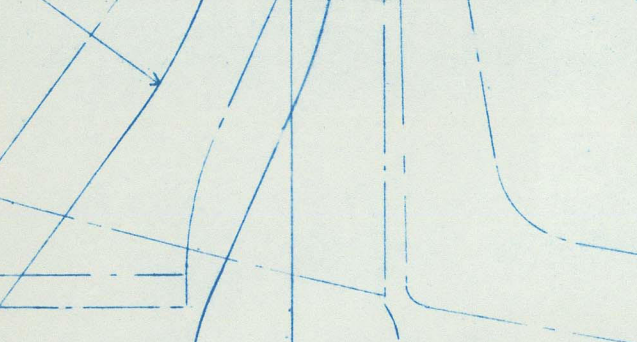
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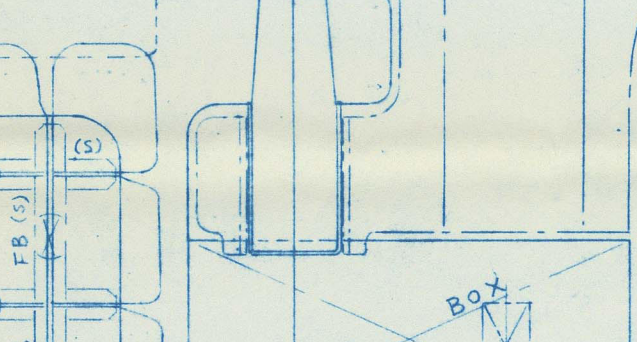
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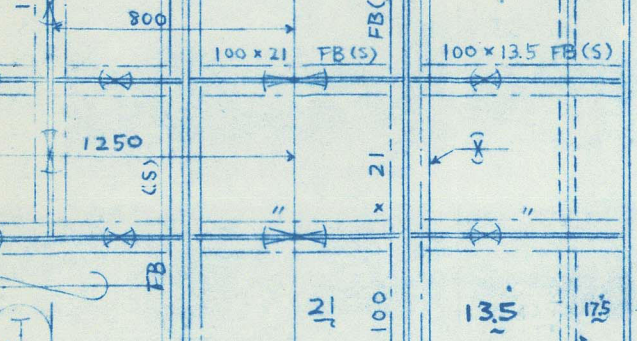
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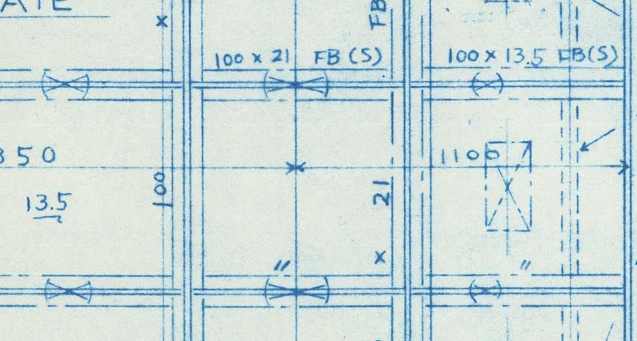
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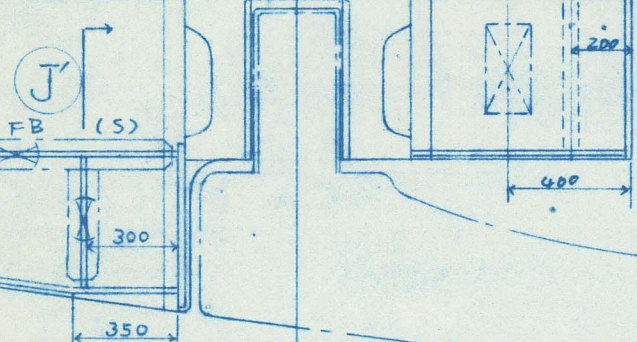
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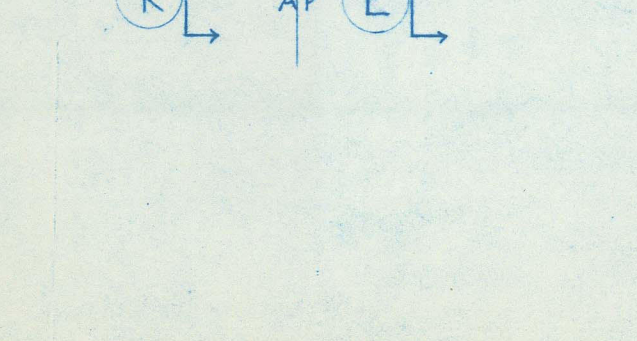
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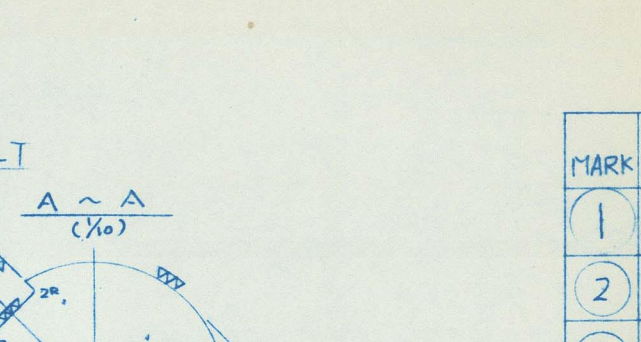
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SECTION Y



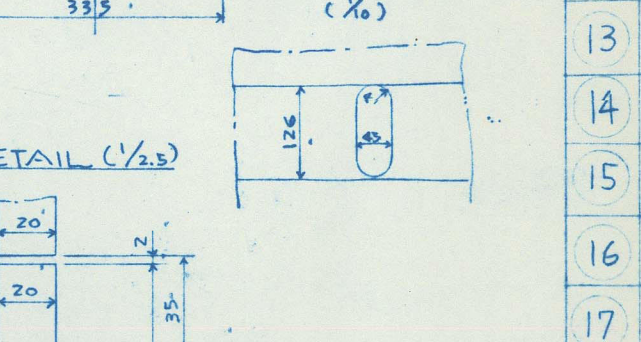
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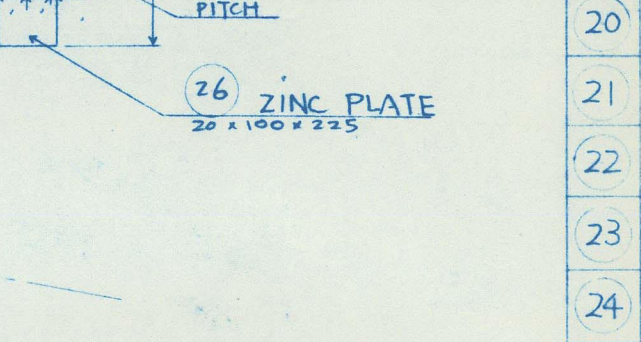
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SECTION B



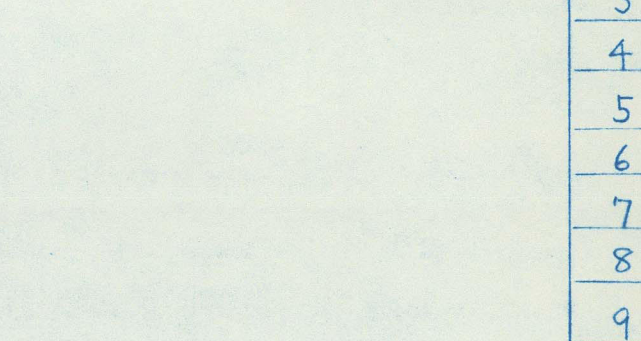
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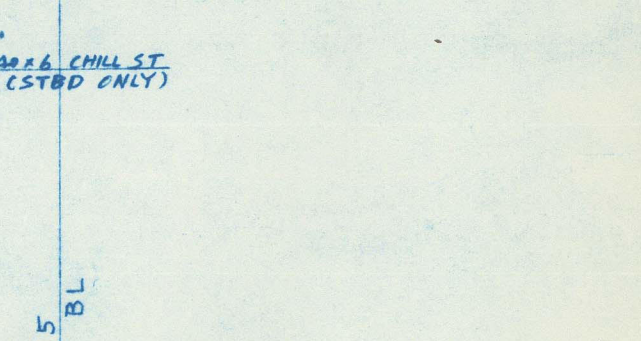
SECTION D



SECTION E



SECTION F



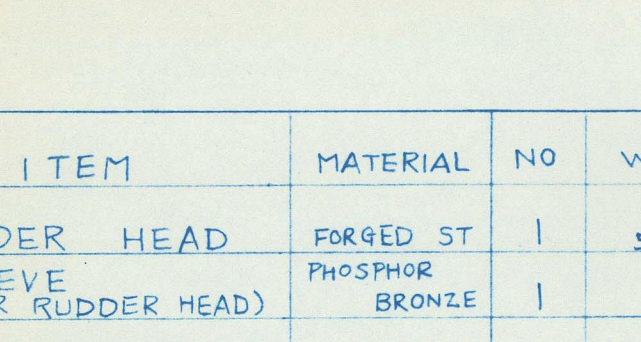
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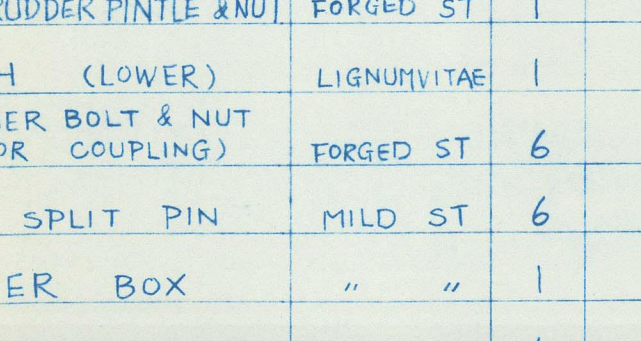
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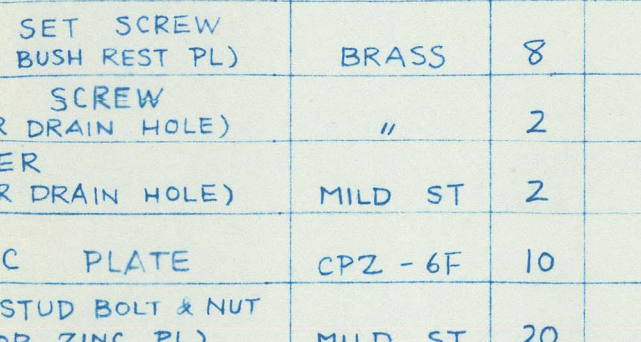
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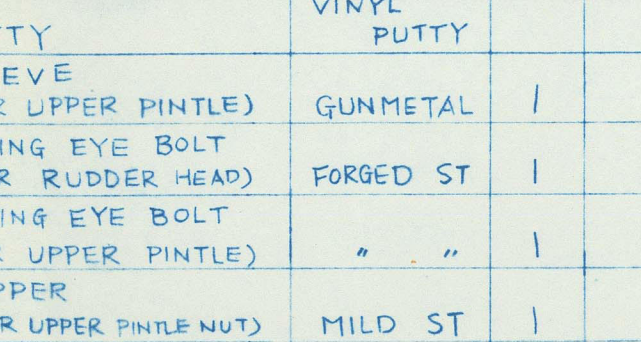
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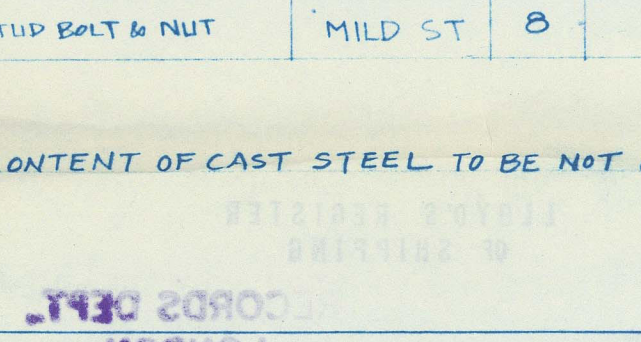
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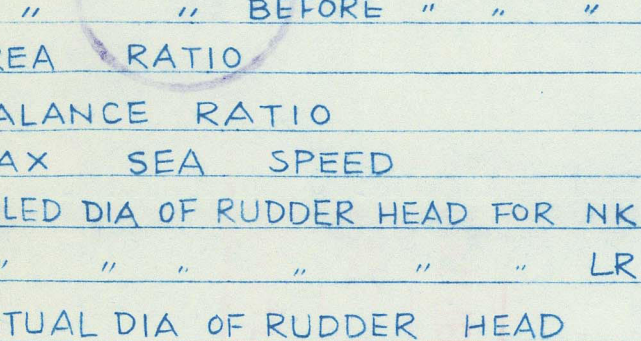
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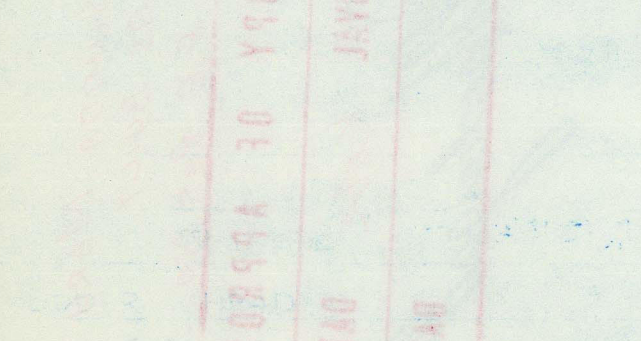
SECTION M



SECTION N



SECTION O



SECTION P



SECTION Q



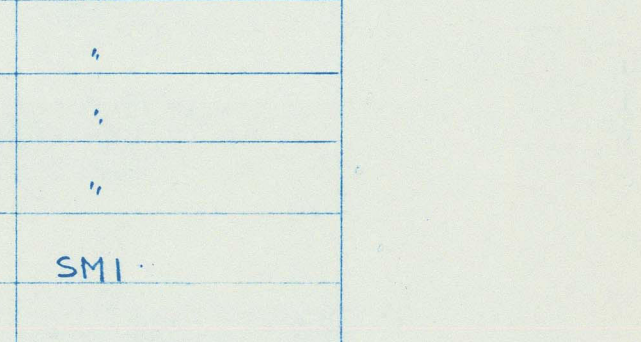
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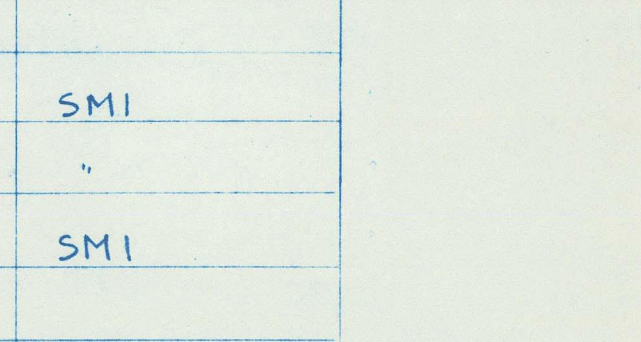
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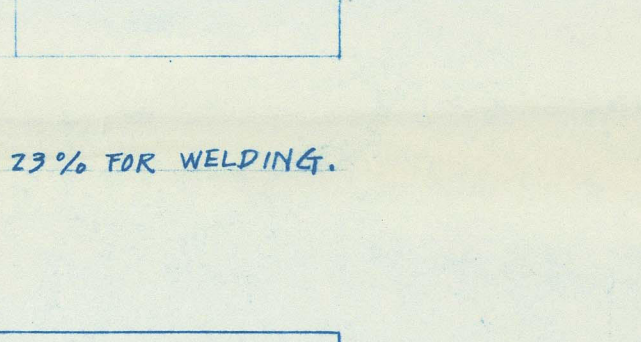
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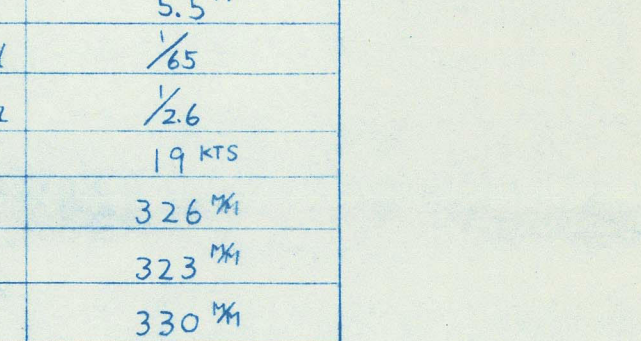
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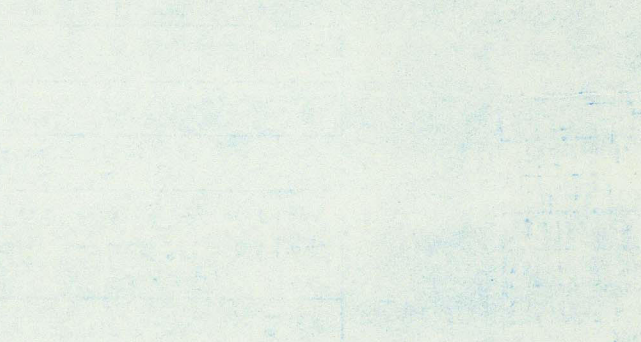
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SECTION X



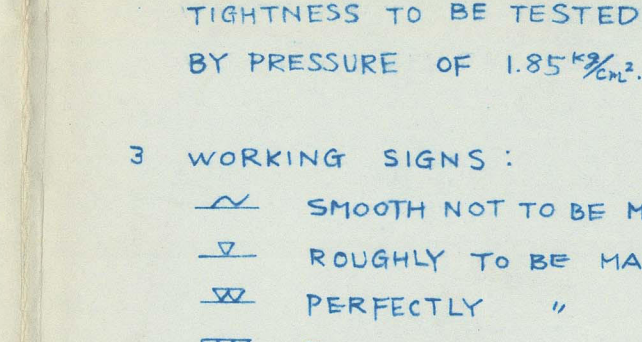
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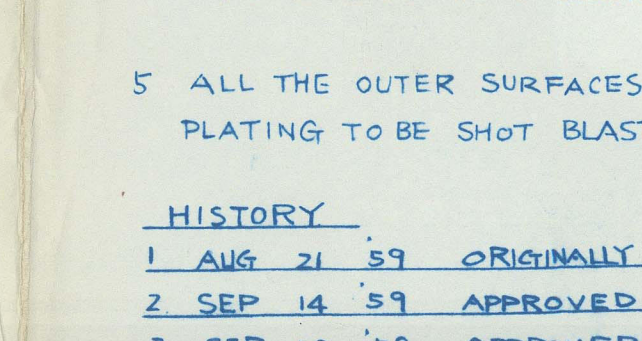
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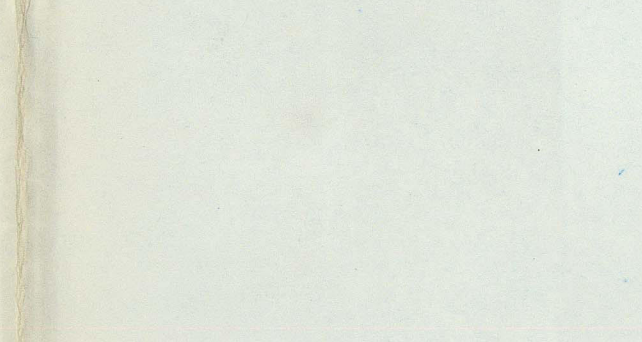
SECTION A



SECTION B



SECTION C



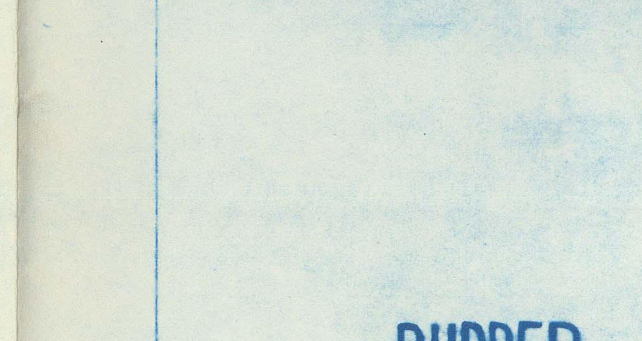
SECTION D



SECTION E



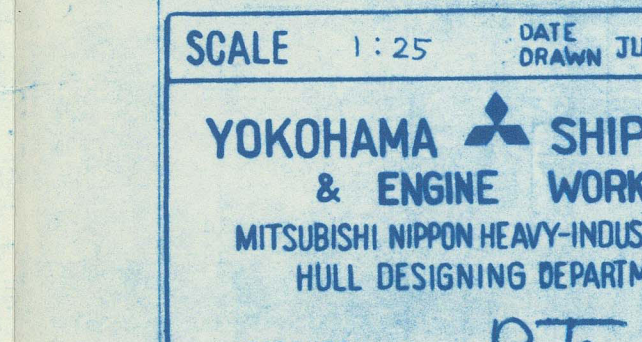
SECTION F



SECTION G



SECTION H



SECTION I



Lloyd's Register Foundation



S 836

SUMIDA MARU ★

RUDDER

FINISHED PLAN

SCALE 1:25 DATE DRAWN JUNE 15 '60

YOKOHAMA SHIPYARD  
& ENGINE WORKS

MITSUBISHI NIPPON HEAVY-INDUSTRIES, LTD.  
HULL DESIGNING DEPARTMENT

APPROVED

*R. Sumida*

CHECKED

*R. Arita*

DRAWN

*J. Kawasaki*

TRACED

*Y. Kumazawa*

DATE ISSUED

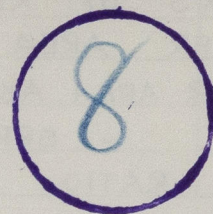
DRAWING NO H02012 F

495 x 565

012193-012202-0256

LLOYD'S REGISTER  
OF SHIPPING

RECORDS DEPT.  
LONDON.



CERTIFIED COPY OF APPROVED PLAN  
PLACE OF APPROVAL Kobe DATE 5.10.59  
CERTIFIED BY *[Signature]* DATE JUL 1, 1960

M.V. "SUMIDA Maru"  
AS BUILT  
YEA. F.E. Rot. No. 3311



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