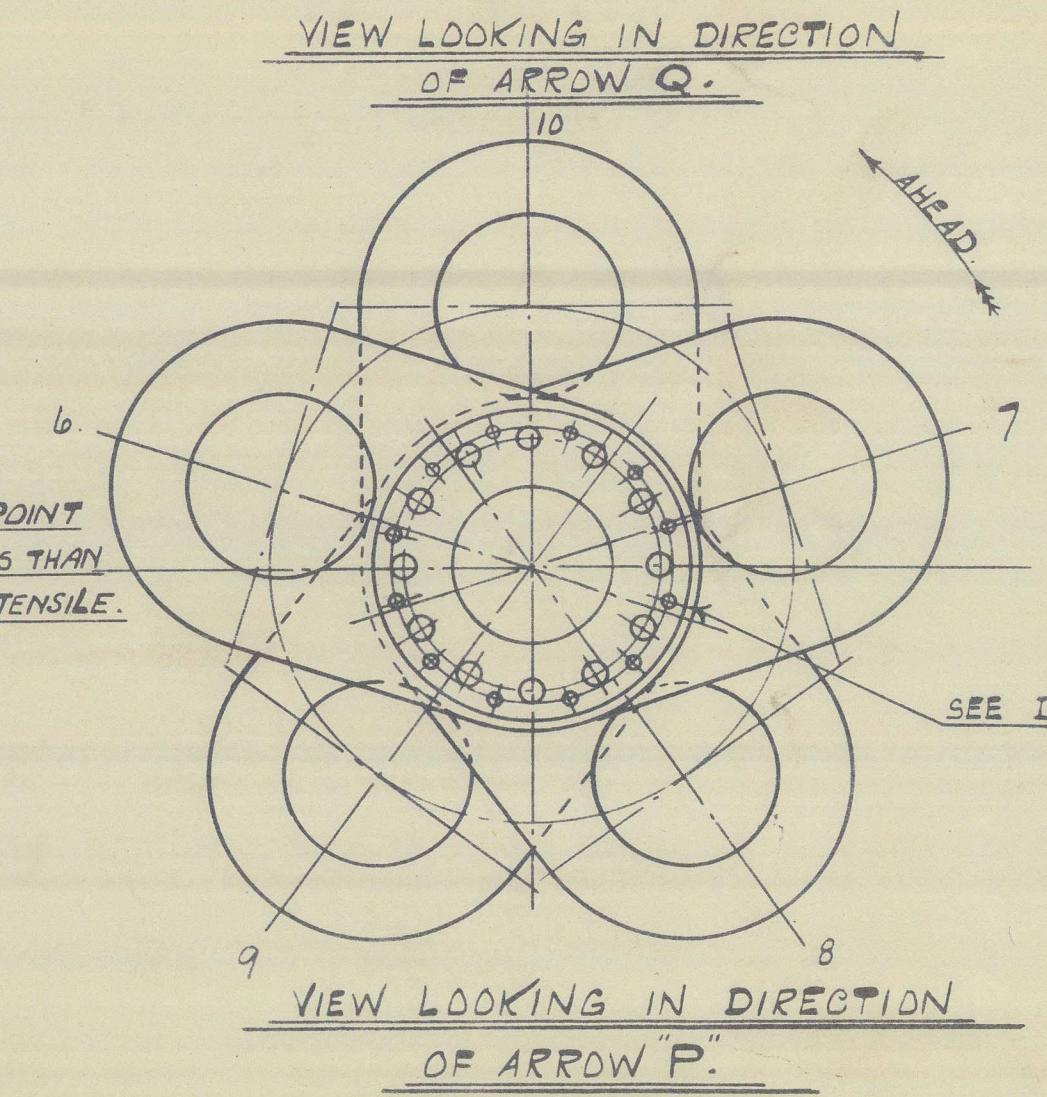
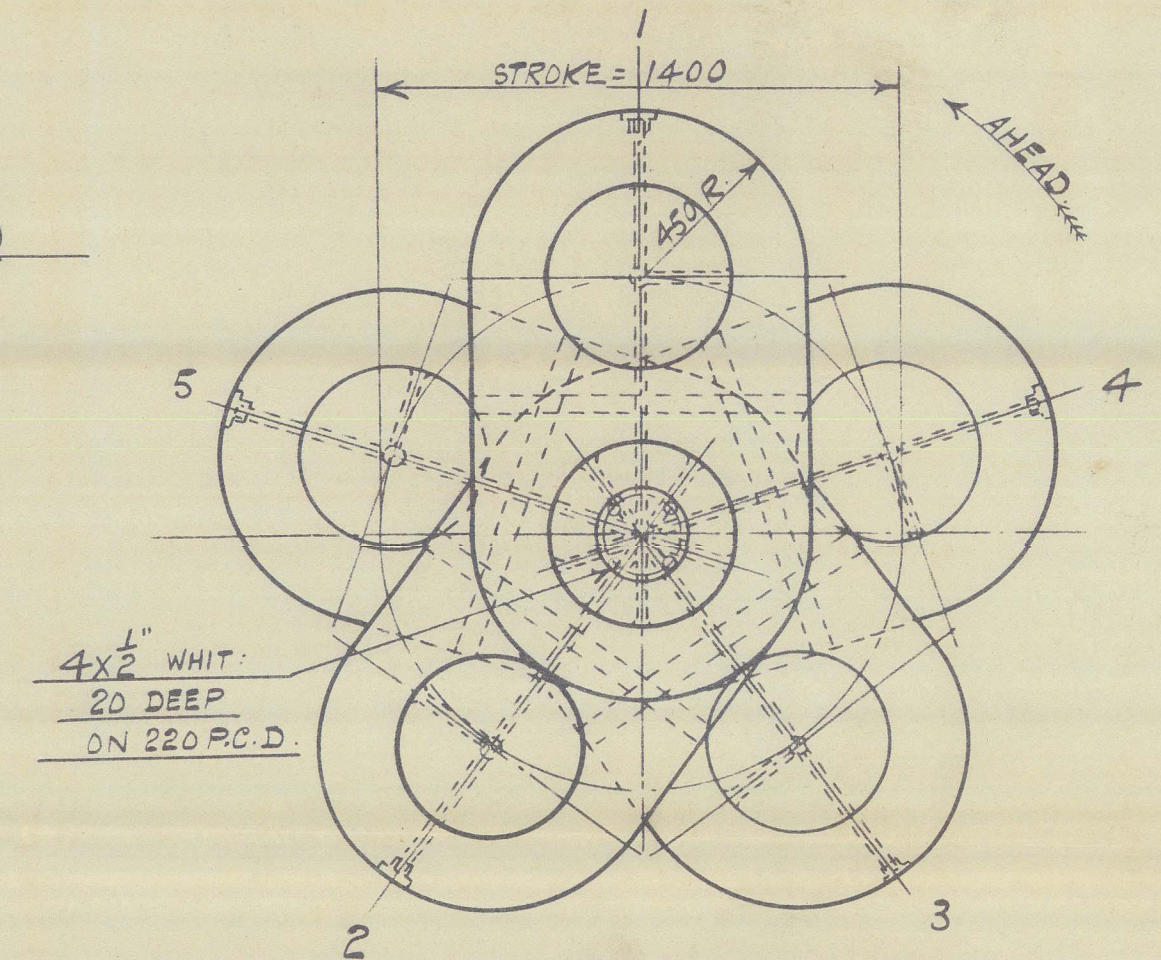
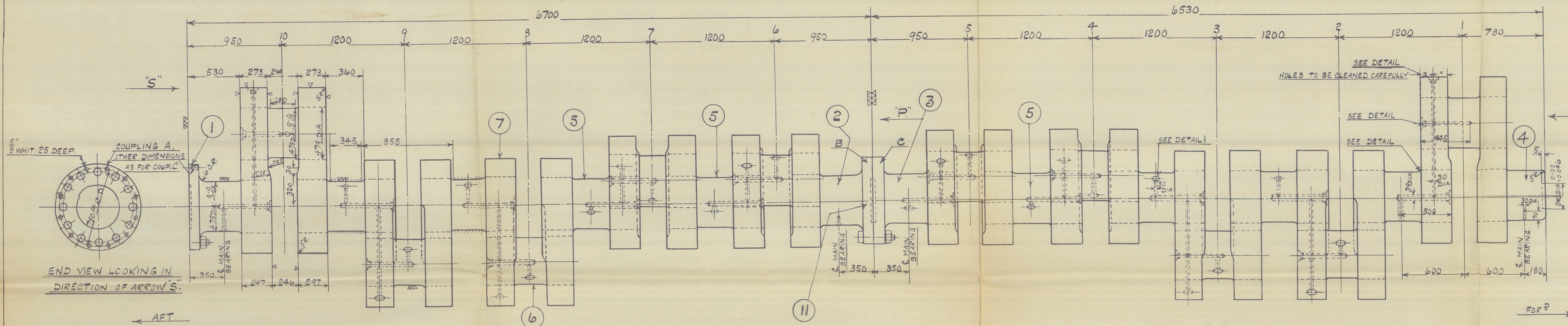
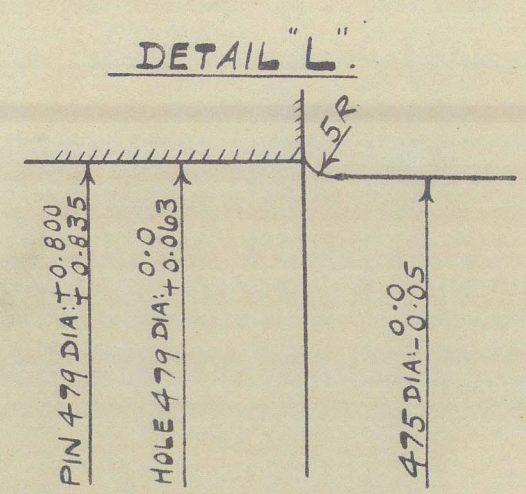


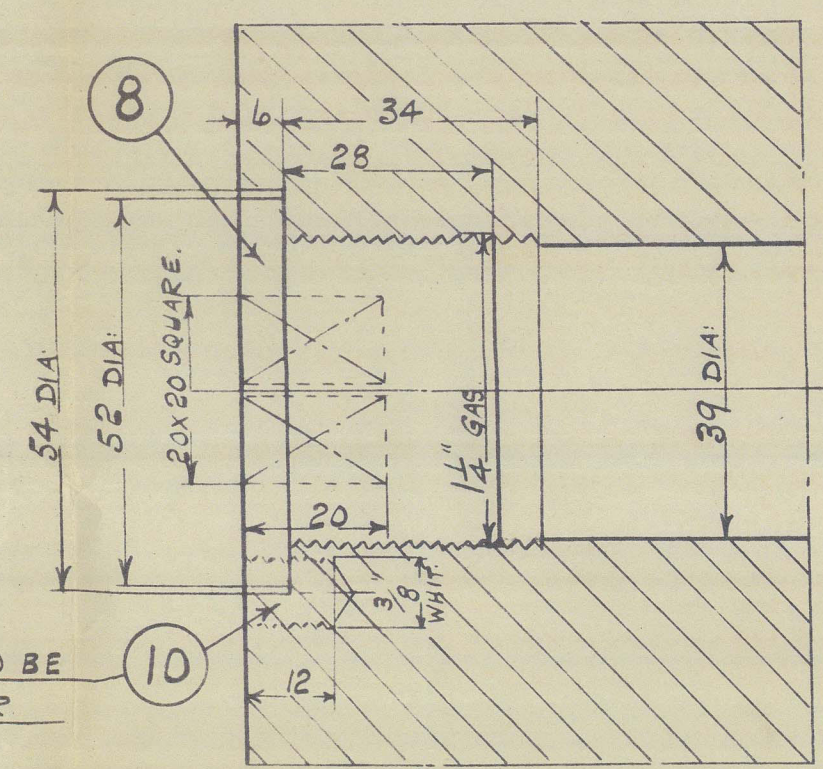
ORDER OF FIRING - AHEAD									
1	7	3	9	5	10	4	8	2	6



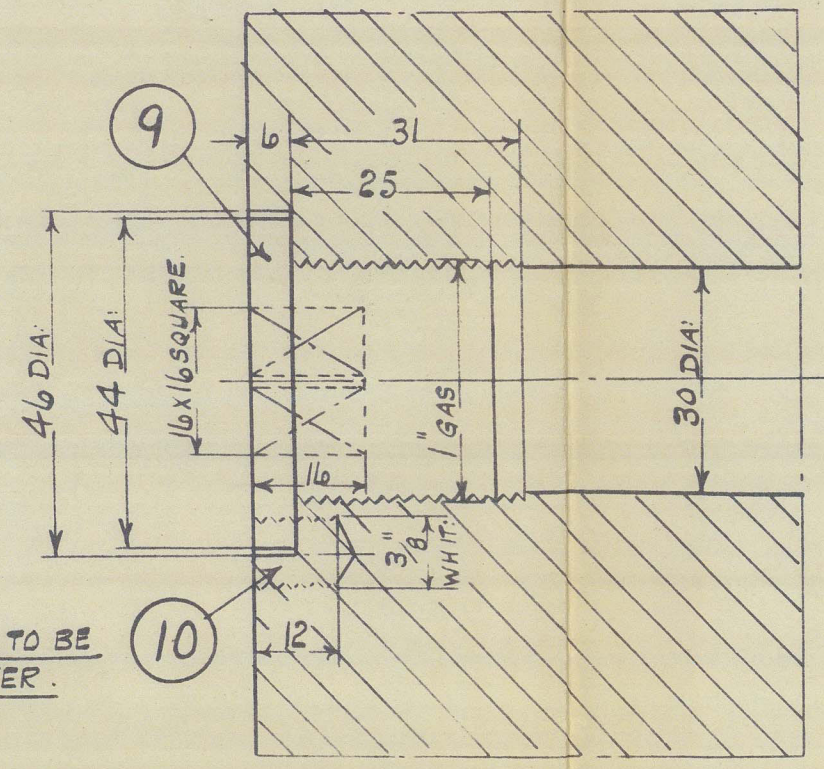
END VIEW LOOKING IN DIRECTION OF ARROW'S



DETAIL N



DETAIL M

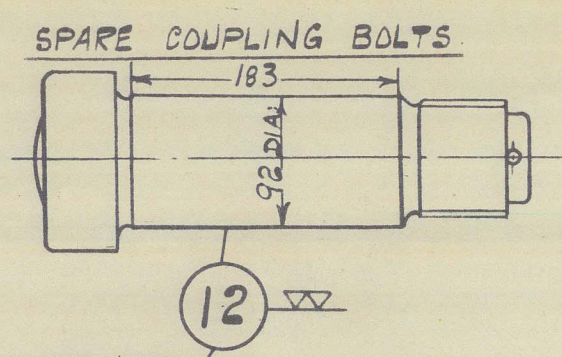
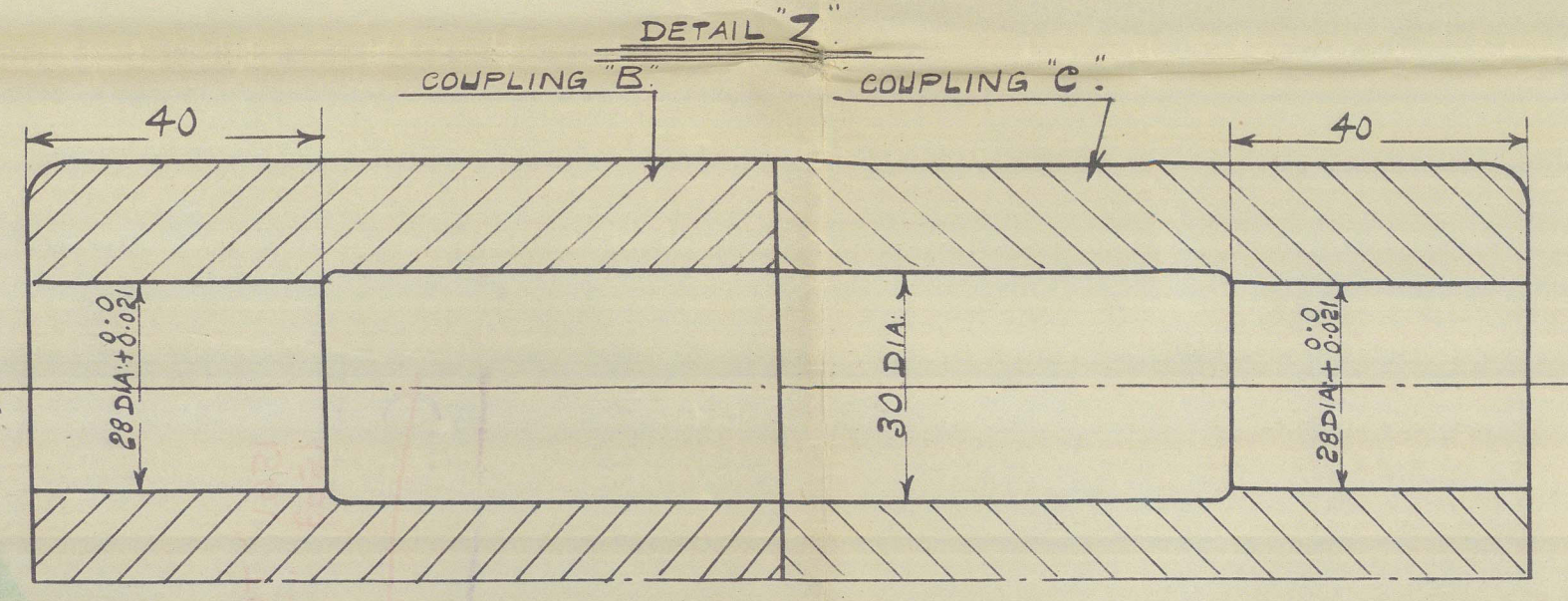


NOTE:-  
CRANKSHAFT TO BE FINISHED MACHINED ALL OVER TO BE TO LLOYDS SURVEY REQUIREMENTS & INSPECTION & TO R&W HAWTHORN LESLIE & CO'S SATISFACTION LLOYDS CERTIFICATE TO BE FORWARDED TO R&W.H.L. & CO

DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE OTHERWISE STATED  
ALL PARTS TO BE FORGED FROM THE BEST SIEMENS MARTIN INGOT STEEL FORGINGS TO BE ANNEALED & TO HAVE THE FOLLOWING QUALITIES:-  
ULTIMATE TENSILE STRENGTH 28-32 TONS/IN<sup>2</sup> WITH AN ELONGATION OF NOT LESS THAN 29% TO 25% ON STANDARD TEST PIECE. BENDING TEST ANGLE 180° WHEN HEATING THE WEBS FOR SHRINKING THEY SHOULD BE RAISED TO A UNIFORM TEMPERATURE WHICH SHOULD NOT AT ANY TIME EXCEED 375°C. EACH WEB TO BE HEATED ONCE ONLY & PINS & JOURNALS TO BE ENTERED SIMULTANEOUSLY. FINISHED CRANKSHAFT TO BE EXAMINED BY OWNERS REPRESENTATIVE & MUST PROVE TO BE FREE FROM ALL FLAWS & OTHER DEFECTS.

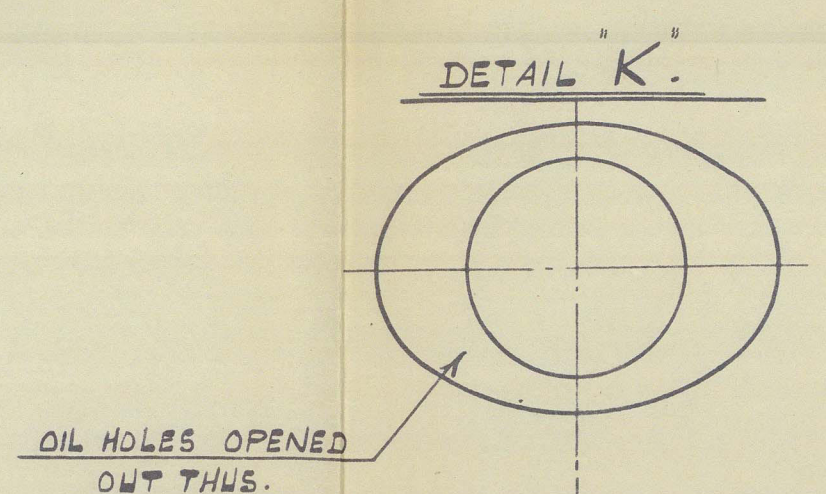
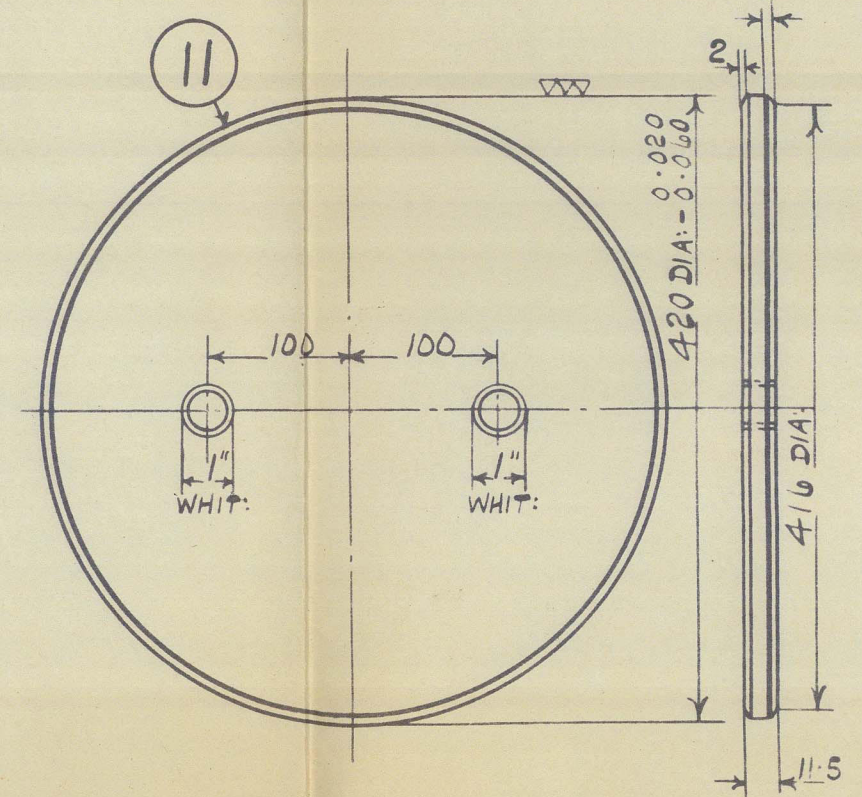
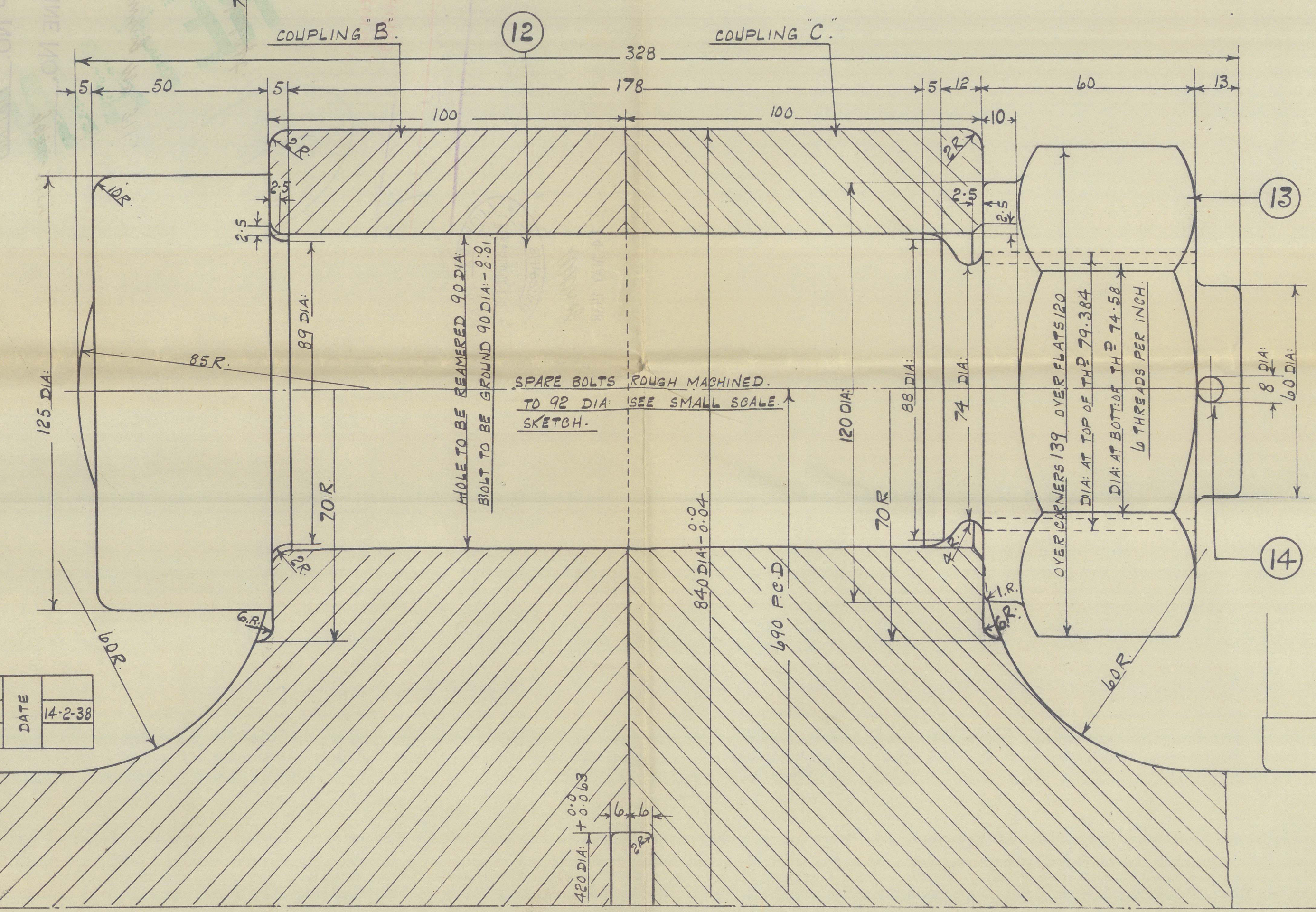
YIELD POINT NOT LESS THAN 50% OF TENSILE.

SHRINKAGE 1/600 - 1/650 ON DIAM.



TOLERANCE NOTES  
CYL TOLERANCE FOR PINS & JOURNALS 0.025 mm  
OUT OF LINE TOLERANCE FOR PINS & JOURNALS NOT TO EXCEED 0.15 mm IN 1 METRE  
MAXIMUM VARIATION OF THE JOURNALS WHEN TURNED AROUND 0.03 mm  
MAXIMUM VARIATION OF THE DISTANCE OF CENTRES OF THE CRANKPINS 0.2 mm  
MAXIMUM VARIATION OF THE DISTANCE OF CRANK 1 TO CRANK 5 = 1 mm  
ANGLE OF CRANKS TO BE 72° ± 5'

FOUR STROKE SINGLE ACTING	
10 CYL SUPERCHARGED DIESEL ENGINE	
BORE OF CYL	160
STROKE	1400
NUMBER OF REV. PER MIN.	120
MAX PRESSURE PER SQ IN.	700 LBS
M.I.P	135 LBS PER SQ IN. 4660 B.H.P.



OIL HOLES OPENED OUT THUS.

LIST OF PARTS.

QUANTITIES GIVEN ARE FOR ONE ENGINE NO ONLY.	
DIST MARK	DESCRIPTION
1	AFT JOURNAL AFT SHAFT
2	FORD JOURNAL AFT SHAFT
3	AFT JOURNAL FORD SHAFT
4	FORD JOURNAL FORD SHAFT
5	JOURNALS - PLAIN
6	CRANK PINS
7	CRANK WEBS
8	PLUG 1/4 GAS
9	PLUG 1/4 GAS
10	LOCKING PINS
11	SPIGOT PLATE
12	COUPLING BOLTS
13	NUTS
14	SPWIT PINS
15	

DRAWN BY  
TRACED BY E.PURVIS  
CHECKED BY  
DATE 14-2-38

CRANKSHAFT.

SCALE:- FULL SIZE, 20/5.

DRAWING NO 311-I

ENGINE NO 3956-7





W1150-0154 1/2

ENCLOSURE TO

*Lloyd's Register of Shipping*

*Newcastle*

5,000 486 11/36

From R. & W. HAWTHORN, LESLIE & Co., Ltd.,

ST. PETER'S WORKS, NEWCASTLE-ON-TYNE.

*Prints in triplicate and data sheet.*



W1150-0154

R. & W. HAWTHORN, LESLIE  
& CO. LTD.

*Swan Hunter & Wigham Richardson Ltd.*

SHIP No. 1561-1563

ENGINE No. 3956-3954

*Drawing No 311.1*

*Crankshaft.*

1561 "TORINIA"  
1563 "THIARA"



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Lloyd's Register  
Foundation  
14 MAY 1938