

& SE FIELD REPORT

TYPE OF REPORT		ACTION REQUIRED	
Weekly Progress	☐	DIST. OR PROD.	
Job Summary	☐	OFF.	DEPT.
Mat'l Shortage	☐	☐	☐
Info. Request	☐	Date _____	

Use a separate report for each subject.

REPORT NO. _____ PAGE _____

CUST. Newport News Shipbuilding & Dry Dock Company

EQUIP. Feed Pump Turbines S/N 126191-92 575 HP

SUBJECT SS Exxon Lexington

FSR 339M1713

CONTR. NO. _____

T T. Gusek

cc: L.A. Crowell

O MDTD-Fitchburg, Mass.

cc: _____

Reported to Newport News Shipyard on June 27, 1974 at 0800 to board the SS Exxon Lexington, for survey of turbine feed pumps. Reported to Chief Engineer and Mr. Cassel of Newport News Shipyard and was informed that the pumps to be surveyed were #1 and #3 turbines.

Started to disassemble number three turbine and found that shaft could not be rotated more than 1/8 of a turn. Removed turbine casing and coupling bolts and still found that turbine could not be rotated. Removed bearing covers and found that oil pump was bound with dirt and sludge. Removed rotor and oil pump, rotor first stage blades had been depressed as if something had gone through and rubbed blades; journals of shaft had bad grooves. Rotor was sent to shop to be balanced and journals built up.

Oil pump was removed and rebuilt with new parts, used new impeller, casing halves, pins, and ball bearing. Cleaned pump and oil holes and reassembled pump in housing of casing. Examination of nozzle block showed very bad erosion of block at last four nozzles. Removed intermediate blades and nozzle block, after removed deterioration was taking place in other nozzles throughout. Replaced with new block from ships spares, intermediate stage replaced.

Opened throttle governor valve and replaced worn valve stem and spring and valve cup. Cleaned pressure regulator chamber and lines and reassembled with new trip springs. Sent to shop to replace old oil pump gear, new drive gear on end of rotor, journals being built up to 2.499 and balancing and cleaning of rotor being done. Oil cooler tested for leaks as collar had leak before shut down and machine run with water in oil. Started to disassemble #1 feed pump turbine and found rotor to have bad grooves on both forward and aft journals. Sent rotor to shop to have cleaned and balanced, journals built up to 2.499. Examination of nozzle block showed deterioration and was removed for better examination. Nozzle block

Earl Dunlop
SIGNED

New York Office
LOCATION

7/18/74
DATE

FIELD SERVICE REPORT

Installation and Service Engineering
Department

(CONTINUATION)

PAGE NO.

2

FSR - 339M1713

ordered from New York and new bolts after examination showed very bad deterioration of nozzles.

Removed oil pump for examination which showed no wear or deterioration, replaced pump.

Opened throttle governor valve, replaced with new spring on lower half and cleaned all parts and lines. New nozzle block installed with new bolts and washers, cleaned all flanges on both turbines, waiting for rotors to be returned from shop for installation.

C Cargo pump turbine open for inspection and to find where noise was coming from. Examination after opening forward bearing cap, found oil pump driven gear nut loose and broken washer. Removed nut and replaced washer and nut and locked. Opened turbine casing for examination, rotor and nozzle block in good condition. Closed up casing and bearings. Throttle governor valve freed up and new springs installed. A cargo pump turbine governor valve disassembled and seat removed as top valve guide broken. New seat to be installed with new cups and valve stems.

Left Newport News to return to New York with both #1 and #3 feed pump turbine rotors still to be returned from shop and be installed. A cargo pump turbine throttle valve to have seat installed and reassembled.

DATA from each unit:

GEI58434

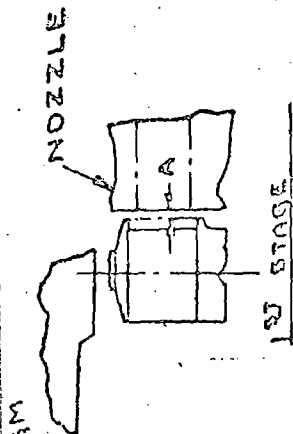
#1 Feed pump turbine S/N 126192 575 HP 4700 RPM MOD7TDPY125MR47

#3 Feed pump turbine S/N 126191 575 HP 4700 RPM MOD7TDPY125MR47
MOD7TDPY125MR49

A cargo pump turbine S/N 126412 400 HP 6002 RPM

C cargo pump turbine S/N 126413 700 HP 6002 RPM MOD7TDPY125MR49

EXXON LEXINGTON 473-E BEFORE OVERHAUL JULY 1974



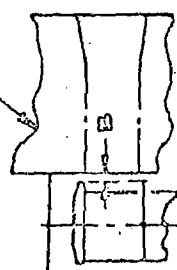
MEAS.	DESIGN
A	.0431035"

BRG. WEAR MIC.

FORD. 3.994

AFT 3.993

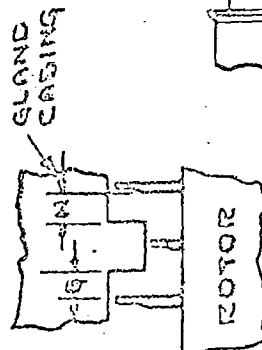
DIAPHRAGM



2ND TO 9TH STAGE

STG	MEAS.	DESIGN
2	B	.075 .070"
3	B	.075 .070"
4	B	.077 .070"
5	B	.081 .070"
6	B	.077 .070"
7	B	.078 .070"
8	B	.076 .070"
9	B	.081 .070"

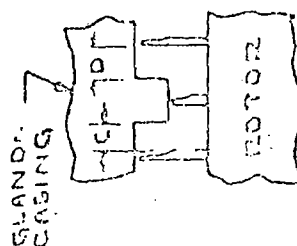
FOR D



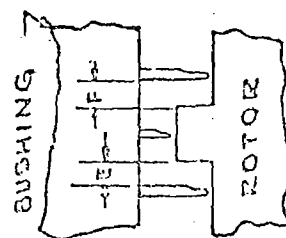
MEAS.	DESIGN
G	.115-.125"
H	.138-.125"

H.P. TURBINE

STG	MEAS.	DESIGN
2	E	.147 .141"
3	F	.134 .141"
4	E	.142 .141"
5	F	.138 .141"
6	E	.132 .141"
7	F	.151 .141"
8	E	.132 .141"
9	F	.154 .141"
10	E	.137 .141"
11	F	.147 .141"
12	E	.143 .141"
13	F	.152 .141"
14	E	.133 .141"
15	F	.155 .141"
16	E	.144 .141"
17	F	.151 .141"



MEAS.	DESIGN
C	.138 .141"
D	.140 .141"



BRIDGE CASE
THRUST END 4.686"
CPL END 4.510"

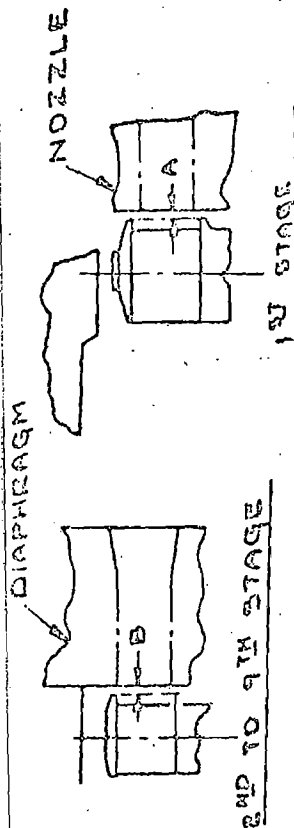
SEALING STRIP RADIAL CLEARANCES	DESIGN	BEFORE SPINNING	AFTER SPINNING
FORD GLAND	.010"		
DIAPHR. GUSHINGS	.010"		
AFT. GLAND	.010"		

BEARING ON BAFFLES RADIAL CLEARANCES	DESIGN	BEFORE SPINNING	AFTER SPINNING
FORD BEARING	.010"	.009	
AFT BEARING	.010"	.011	

(ENCLOSURE No 7)

EXXON LEXINGTON 473-E
JULY 1974

AFTER OVERHAUL

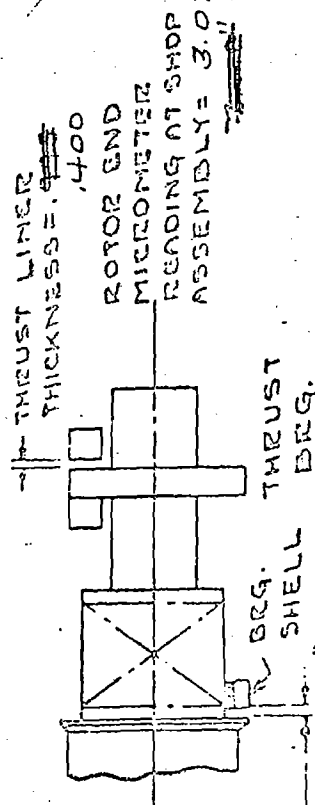


MEAS.	DESIGN
A	.036 .035

BRG. WEAR MIC
FORD 3.992
AFT 3.992

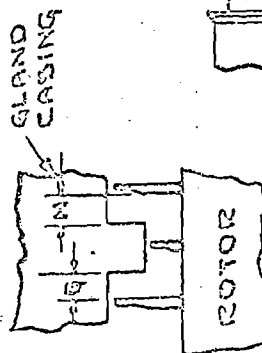
STG	MEAS.	DESIGN
2	B	.070 .070
3	B	.071 .070
4	B	.069 .070
5	B	.070 .070
6	B	.070 .070
7	B	.070 .070
8	B	.069 .070
9	B	.071 .070

THRUST CLEARANCE	DESIGN	MEAS.
	.000 TO .010	.008



AXIAL CLEARANCES ARE FOR AHEAD
RUNNING POSITION. ROTOR HARD AFT.
IN THIS POSITION.
STAMPED .505
ACTUAL .506

FOR D

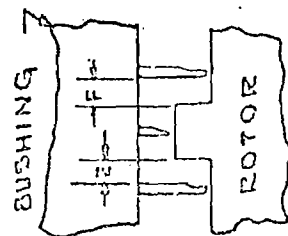


MEAS.	DESIGN
A	.115 .125
B	.138 .125

H.P. TURBINE

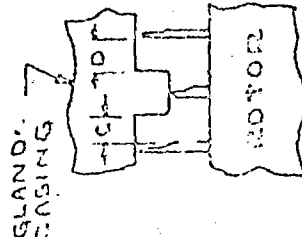
SEALING STEEP RADIAL CLEARANCES	DESIGN	BEFORE SPINNING	AFTER SPINNING
FORD GLAND	.010"		
DIAPH. BUSHINGS	.010"		
AFT. GLAND	.010"		

BEARING OIL BAFFLES RADIAL CLEARANCES	DESIGN	BEFORE SPINNING	AFTER SPINNING
FORD BEARING	.010"	.009	
AFT BEARING	.010"	.011	



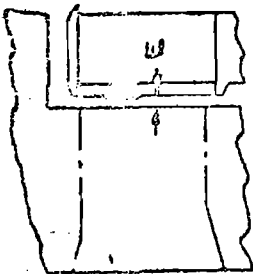
BRIDGE GAGE
THRUST END 4.606"
C/P L END 4.510"

STG	MEAS.	DESIGN
2	E	.147 .141
	F	.134 .141
3	E	.142 .141
	F	.138 .141
4	E	.132 .141
	F	.151 .141
5	E	.132 .141
	F	.154 .141
6	E	.132 .141
	F	.147 .141
7	E	.143 .141
	F	.162 .141
8	E	.133 .141
	F	.155 .141
9	E	.144 .141
	F	.151 .141



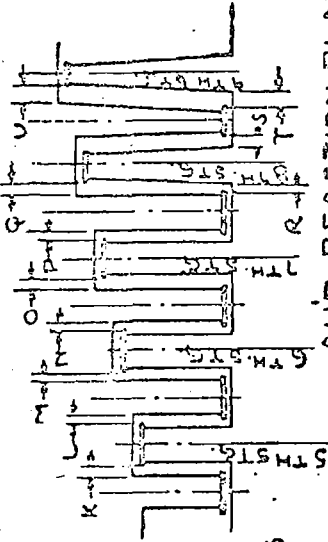
MEAS.	DESIGN
C	.138 .141
D	.140 .141

4519 720.55



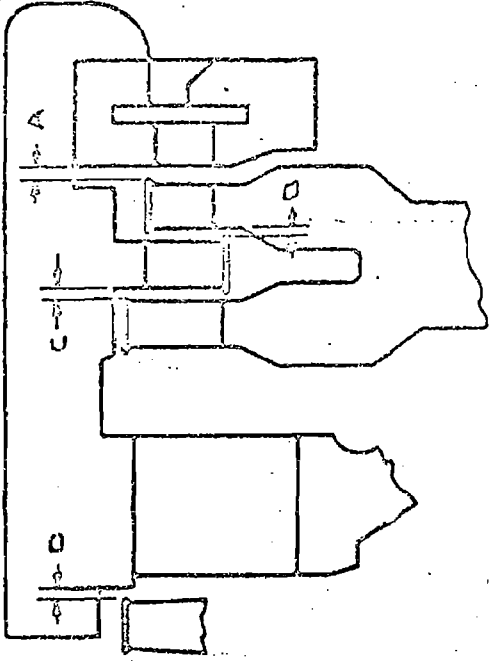
AHEAD IMPULSE STAGUS
6127 REACTION STAGUS

STC	DATE	DEBIT	CREDIT
1	12		2.00
2	12		2.00
3	12		2.00
4	12		3.44



ALD. REACTION BLADES

	MEAS.	DESIGN
K	354	314
L		344
M	340	213
N		313
O	482	464
P		342
Q	572	602
R		007
S	654	470
T		216
U		205



ASPER 2 STAGUES

4.152

1545

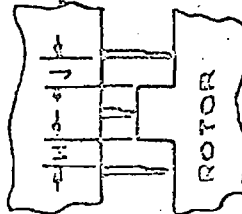
THRUST. END 4-2-66

3,9885

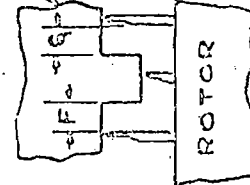
	A	0220	091'
	D	220'	087'
	C	220'	061'
	B	220'	031'

	DESIGN	TYPE	DATE	BY
TORD ERG.	010			
AFT DRG.	010			

Doc



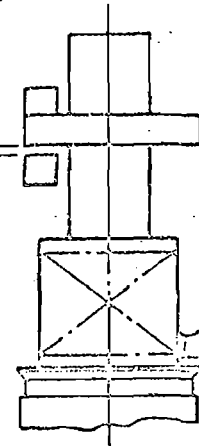
UNIVERSITY



0205

[illegible]

FOOT GLAND	HEAD DESIGN
F 131	125"
G 119	125"
NOSE GLAND	HEAD DESIGN
F 121	202"
G 208	202"



THURSDAY

○ ○ ○ ○ ○

471 ACTUAC

STAMPED .465

ALL CLEARANCES ARE FOR ANCO

RUNNING POSITION, ROYCE HANQ FORD.

2013000 514221

STC	CLASS	DESIGN	SPANNING	POSITION	CLIMATE
5	C50	060"			050
	ROTAR	060"			045
6	C50	060"			048
	ROTAR	060"			051
7	C50	060"			048
	ROTAR	060"			050
8	C50	060"			050
	ROTAR	060"			047
9	C50	060"			050
	ROTAR	060"			048
4	ROTAR	060"			047

AND APP. CUSKINS

L.P. TURBINE

BEFORE OVERHAUL

8017
~~SECRET~~ = SECRET:12144
222419 45000000

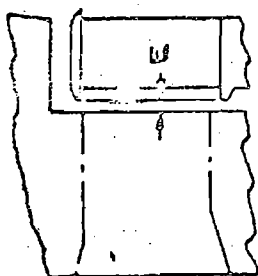
0000000000

READING AT 5400
ACCESSION 2 7100

3.093

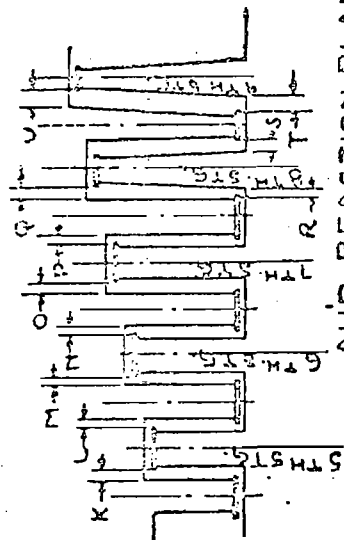
EXXON LEXINGTON
473-E
JULY 1974

10019 CLEVER



AHEAD IMPULSE STAGES
G11 REACTION STAGE

STG	MEAS.	DESIGN
1	E 193	.200
2	E 193	.200
3	E 194	.200
4	E 339	.347

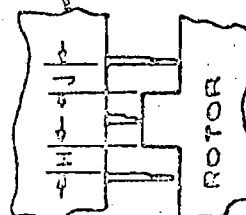


AHEAD REACTION BLADES

	MEAS.	DESIGN
K	340	.314
L		.346
M	303	.313
N		.313
O	451	.359
P		.347
Q	597	.602
R		.607
S	465	.470
T		.314
U		.563

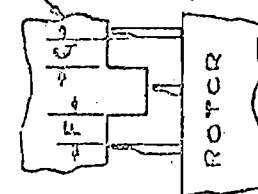
SEALING STRIP RADIAL CLEARANCES	DESIGN	MEAS. AFTER SPINNING	MEAS. AFTER SPINNING
FORD GLAND	.010"		.0105
AST. DIAPH.	.023"		.030
AHD. DIAPH. DUSH. 2ND STG.	.010"		.013
AHD. DIAPH. DUSH. 3RD STG.	.010"		.012
AHD. DIAPH. DUSH. 4TH STG.	.010"		.015
AFT. GLAND	.010"		.011

SEALING STRIP RADIAL CLEARANCES	DESIGN	MEAS. AFTER SPINNING	MEAS. AFTER SPINNING
5	C5A .060"		.050
6	C5A .060"		.045
7	C5A .060"		.048
8	C5A .060"		.051
9	C5A .060"		.048
4	C5A .060"		.050
	C5A .060"		.050
	C5A .060"		.047
	C5A .060"		.050
	C5A .060"		.048
	C5A .060"		.047



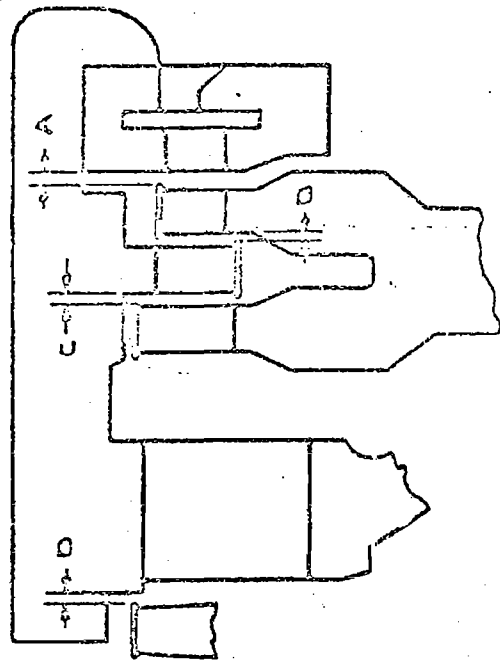
AHEAD IMPL. CUSHINGS

STG	MEAS.	DESIGN
1	H 204	.204
2	H 204	.204
3	H 204	.204



FORD GLAND	MEAS.	DESIGN
F	125	.125
G	125	.125
AFT. GLAND	MEAS.	DESIGN
F	203	.203
G	203	.203

L.P. TURBINE



ASTERN STAGES

MEAS.	DESIGN
A	.220
B	.220
C	.220
D	.194

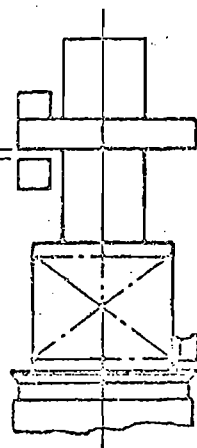
BRIDGE GAGE
THRUST END ~~3.262~~
C/P L END ~~3.262~~
3.988

BEARING OIL GAP FLEES	RADIAL CLEARANCES	DESIGN	MEAS. AFTER SPINNING
FORD	.010"		
AFT	.010"		

FORD

THRUST CLEARANCE	DESIGN	MEAS.
	.012" TO .016"	.012

THRUST LINER
THICKNESS = 1.1145



THRUST ORG.

STAMPED .465 ACTUAL .466
AIRIAL CLEARANCES ARE FOR AHEAD
RUNNING POSITION, ROTOR HAND POUND
IN THIS POSITION.

AFTER OVERHAUL