



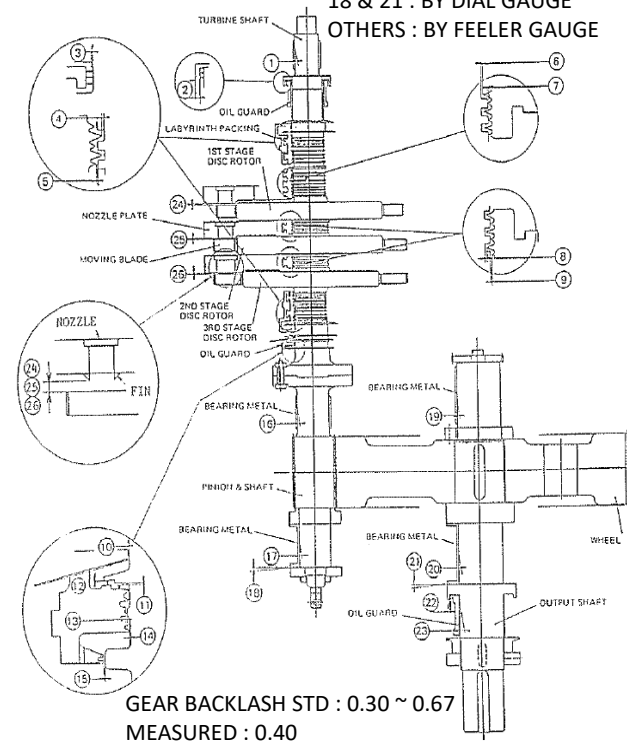
K-MARINE ENGINEERING PTE LTD
 4 PENJURU PLACE, #01-17 SINGAPORE 608782
 Tel. : +65 6250 2501 Fax : +65 6250 4839
 Email : sales@kmarine.com.sg/kmarine@singnet.com.sg

CUSTOMER ORDER REF. : SAC2024255

JOB RECORD

CUSTOMER		VESSEL	M.T. "SA CAPRICORN"	JOB NO.	2058
ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	19/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	BOBBY/C.Y.TOK
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFRUBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE MEASUREMENT DATA AT DISASSEMBLY	DIMENSIONS	MM
INSTRUMENT	LEAD WIRE, DIAL GAUGE & FEELER GAUGE			I.D. NO.	DG-10

MEASUREMENT METHOD :
 1, 16, 17, 19 & 20 : BY LEAD WIRE
 18 & 21 : BY DIAL GAUGE
 OTHERS : BY FEELER GAUGE



GEAR BACKLASH STD : 0.30 ~ 0.67
 MEASURED : 0.40

		1	16	17	19	20
STD CLEARANCE		0.15 ~ 0.20 (ON DIA.)				
CLEARANCE UPPER LIMIT		0.23				
CLEARANCE	TOP	0.21	0.22	0.21	0.22	0.20
	BTM	0.22	0.22	0.20	0.23	0.19

		2	3	4	5	6	7	8	9
STD CLEARANCE		0.20 ~ 0.25	0.15 ~ 0.25			0.15 ~ 0.25			
CLEARANCE UPPER LIMIT		0.35	0.35			0.45			
CLEARANCE	PORT	-	-	-	-	-	-	-	-
	STBD	-	-	-	-	-	-	-	-

		10	11	12	13	14	15	18	21
STD CLEARANCE		0.20 ~ 0.25	0.20 ~ 0.50			0.20 ~ 0.25		0.20 ~ 0.30 (OVERALL)	0.20 ~ 0.30 (OVERALL)
CLEARANCE UPPER LIMIT		0.35	0.65			0.35		0.40	0.40
CLEARANCE	PORT	-	-	-	-	-	-	0.33	0.36
	STBD	-	-	-	-	-	-		

		22	23	24	25	26	BACKLASH
STD CLEARANCE		0.20 ~ 0.30	0.40 ~ 0.60	1.0 ~ 1.60 (2.20 ~ 2.80)			0.30 ~ 0.67
CLEARANCE UPPER LIMIT		0.40	0.70	2.30 (3.50)			-
CLEARANCE	PORT	-	-	-	-	-	0.40
	STBD	-	-	-	-	-	



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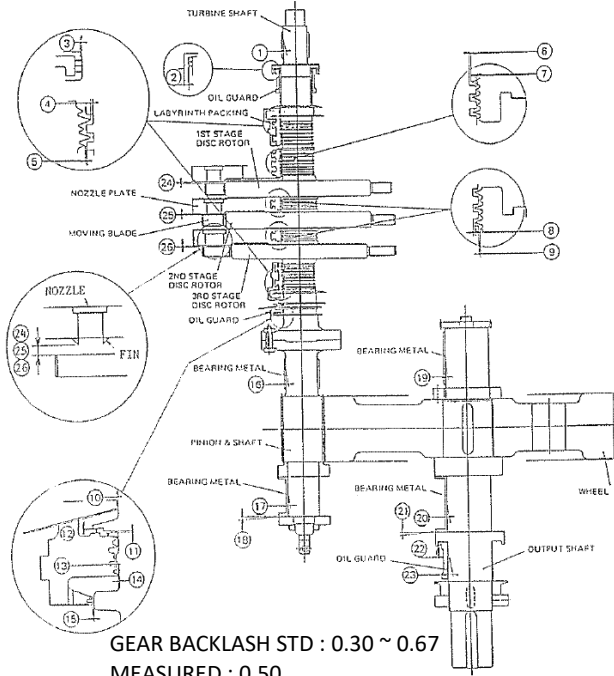
CUSTOMER ORDER REF. : SAC2024255

JOB RECORD

CUSTOMER		VESSEL	M.T. "SA CAPRICORN"	JOB NO.	2058
ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	27/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	RAO/L.W.LOW
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFRUBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE MEASUREMENT DATA AT REASSEMBLY	DIMENSIONS	MM
INSTRUMENT	LEAD WIRE, DIAL GAUGE & FEELER GAUGE			I.D. NO.	DG-10

MEASUREMENT METHOD :

1, 16, 17, 19 & 20 : BY LEAD WIRE
 18 & 21 : BY DIAL GAUGE
 OTHERS : BY FEELER GAUGE



GEAR BACKLASH STD : 0.30 ~ 0.67
 MEASURED : 0.50

		1	16	17	19	20
STD CLEARANCE		0.15 ~ 0.20 (ON DIA.)				
CLEARANCE UPPER LIMIT		0.23				
CLEARANCE	TOP	0.19	0.22	0.21	0.18	0.20
	BTM	0.18	0.22	0.20	0.18	0.19

		2	3	4	5	6	7	8	9
STD CLEARANCE		0.20 ~ 0.25	0.15 ~ 0.25			0.15 ~ 0.25			
CLEARANCE UPPER LIMIT		0.35	0.35			0.45			
CLEARANCE	PORT	0.20	0.30	0.35	0.35	0.35	0.40	0.35	0.40
	STBD	0.20	0.35	0.35	0.30	0.35	0.40	0.35	0.40

		10	11	12	13	14	15	18	21
STD CLEARANCE		0.20 ~ 0.25	0.20 ~ 0.50		0.20 ~ 0.25			0.20 ~ 0.30 (OVERALL)	0.20 ~ 0.30 (OVERALL)
CLEARANCE UPPER LIMIT		0.35	0.65		0.35			0.40	0.40
CLEARANCE	PORT	0.20	0.30	0.35	0.20	0.25	0.20	0.20	0.21
	STBD	0.20	0.30	0.35	0.20	0.25	0.20		

		22	23	24	25	26	BACKLASH
STD CLEARANCE		0.20 ~ 0.30	0.40 ~ 0.60	1.0 ~ 1.60 (2.20 ~ 2.80)		0.30 ~ 0.67	
CLEARANCE UPPER LIMIT		0.40	0.70	2.30 (3.50)		-	
CLEARANCE	PORT	-	-	1.15	1.20	2.20	0.50
	STBD	-	-	1.15	1.20	2.20	

- NOTE : (1) TURBINE ROTOR PERFORMED FLY-ASH BLASTING IN WAY OF TURBINE WHEEL & LABYRINTH JOURNALS, & SUBSEQUENTLY DYNAMIC BALANCING WITH THE RESIDUAL UNBALANCE MASS ADJUSTED TO WITHIN LIMITS.
 (2) PINION GEAR ROTOR TOP BEARING METALS AT POSITION 1, & WHEEL GEAR ROTOR TOP BEARING METALS AT POSITION 19 NEW.
 (3) ALL LABYRINTH PACKING SEGMENTS OF SHIP'S USED ONES; MOST OF THE EXISTING LABYRINTH SEGMENTS WERE FOUND BADLY SEIZED IN RESPECTIVE POSITION.

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CUSTOMER ORDER REF. : SAC2024255**JOB RECORD**

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MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	RAO/L.W.LOW
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE RUNNING TEST DATA UPON REASSEMBLY	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.

DATE	TIME OF RECORDING	R.P.M	L.O. PRESSURE (MPa)	TEMPERATURE (°C)				
				TURBINE PINION ROTOR			TURBINE OUTPUT ROTOR	
				TOP BEARING	MID BEARING	BOTTOM BEARING	TOP BEARING	BOTTOM BEARING
27/12/2024	2230 HRS	0	0.08	30	30	30	30	30
	2245 HRS	100	0.08	32	32	32	32	32
	2250 HRS	100	0.08	32	32	32	32	32
	2255 HRS	200	0.08	35	35	35	35	35
	2300 HRS	350	0.08	37	37	37	37	37
	2305 HRS	380	0.08	37	37	37	37	37



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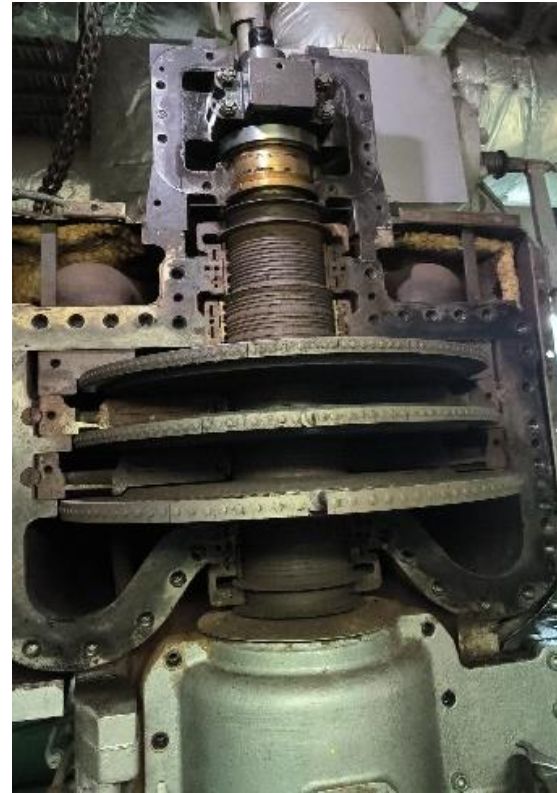
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ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	19/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	BOBBY LAI/C.Y.TOK
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE DISASSEMBLY IN PROGRESS (1)	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.





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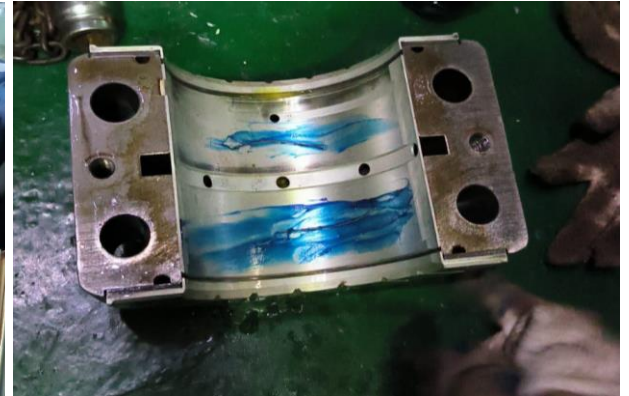
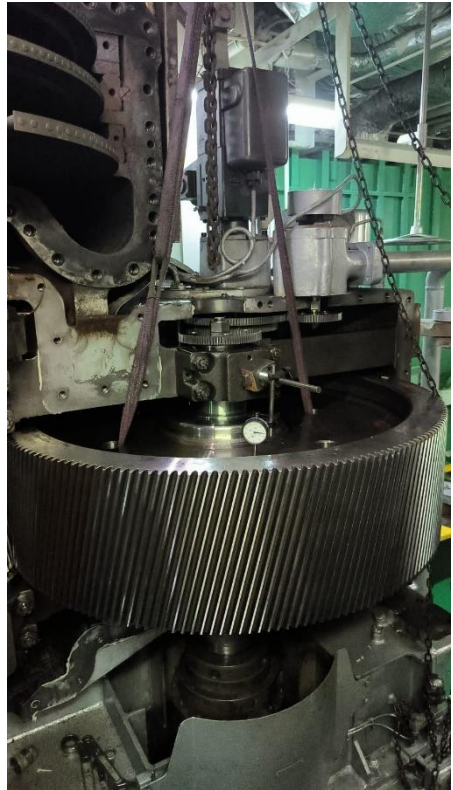
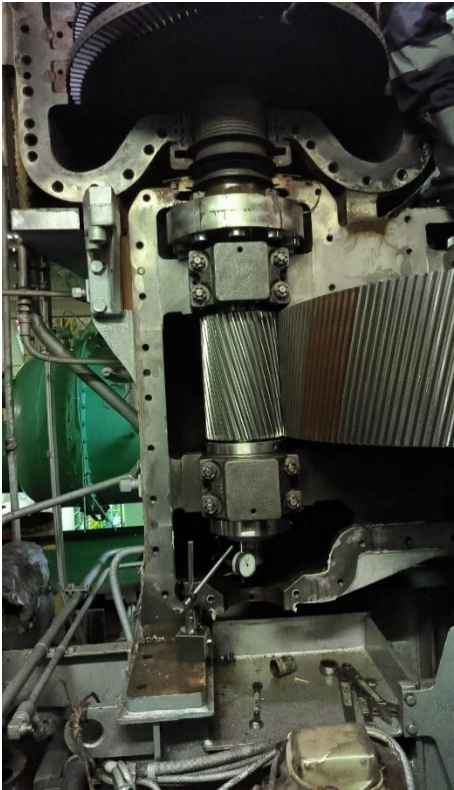
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JOB RECORD

CUSTOMER		VESSEL	M.T. "SA CAPRICORN"	JOB NO.	2058
ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	19/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	BOBBY LAI/C.Y.TOK
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE DISASSEMBLY IN PROGRESS (2)	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.





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JOB RECORD

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ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	19/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	BOBBY LAI/C.Y.TOK
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE PINION ROTOR ASSEMBLY TRANSFERRING TO DECK AT DISASSEMBLY	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.





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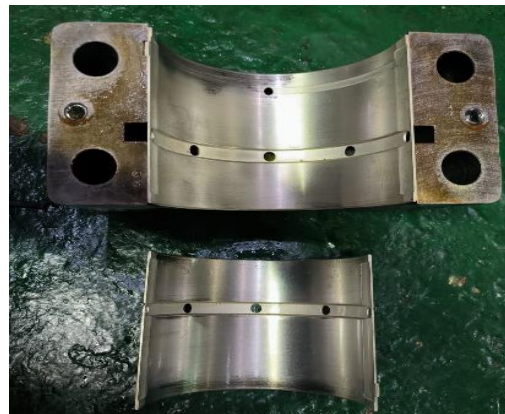
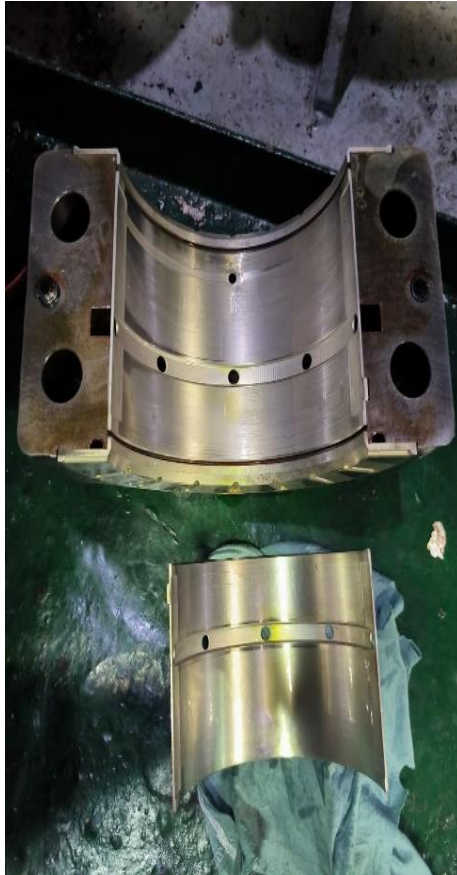
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ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	19/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	BOBBY LAI/C.Y.TOK
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	WHEEL GEAR ROTOR BEARING METALS AT REASSEMBLY	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.





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JOB RECORD

CUSTOMER		VESSEL	M.T. "SA CAPRICORN"	JOB NO.	2058
ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	23/12 & 24/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	BOBBY LAI/C.Y.TOK
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFRUBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE PINION ROTOR BEFORE & AFTER FLY-ASH BLASTING & DYNAMIC BALANCING	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.



BEFORE



AFTER



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JOB RECORD

CUSTOMER		VESSEL	M.T. "SA CAPRICORN"	JOB NO.	2058
ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	26/12 & 27/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	RAO/L.W.LOW
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	EXISTING LABYRINTH PACKING SEGMENTS UPON DISMANTLING	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.



CASING SIDE SEGMENTS



COVER SIDE SEGMENTS





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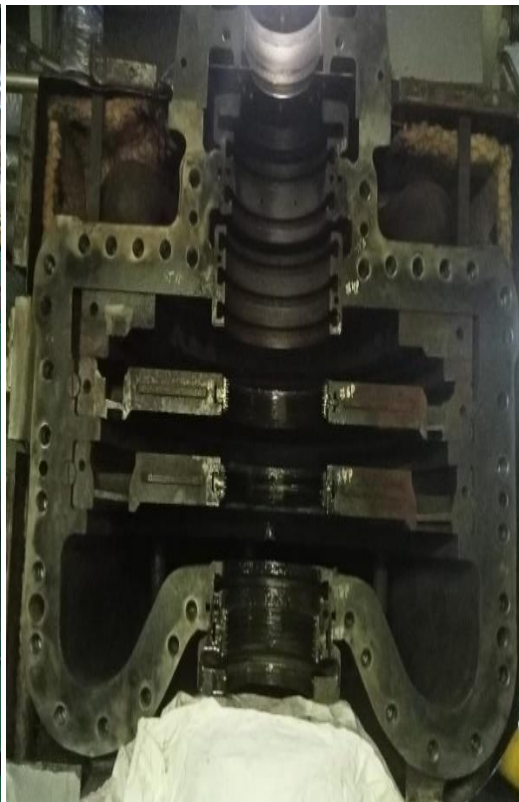
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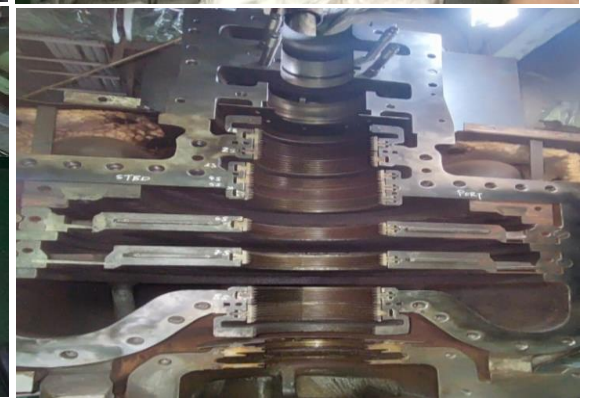
CUSTOMER		VESSEL	M.T. "SA CAPRICORN"	JOB NO.	2058
ITEM	CARGO OIL PUMP TURBINE NO.3	CLASS	L.R.S.	DATE	26/12 & 27/12/2024
MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	RAO/L.W.LOW
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RSETURN	STATUS	TURBINE CASING LABYRINTH POCKETS BEFORE & AFTER CLEANING	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.



BEFORE



AFTER





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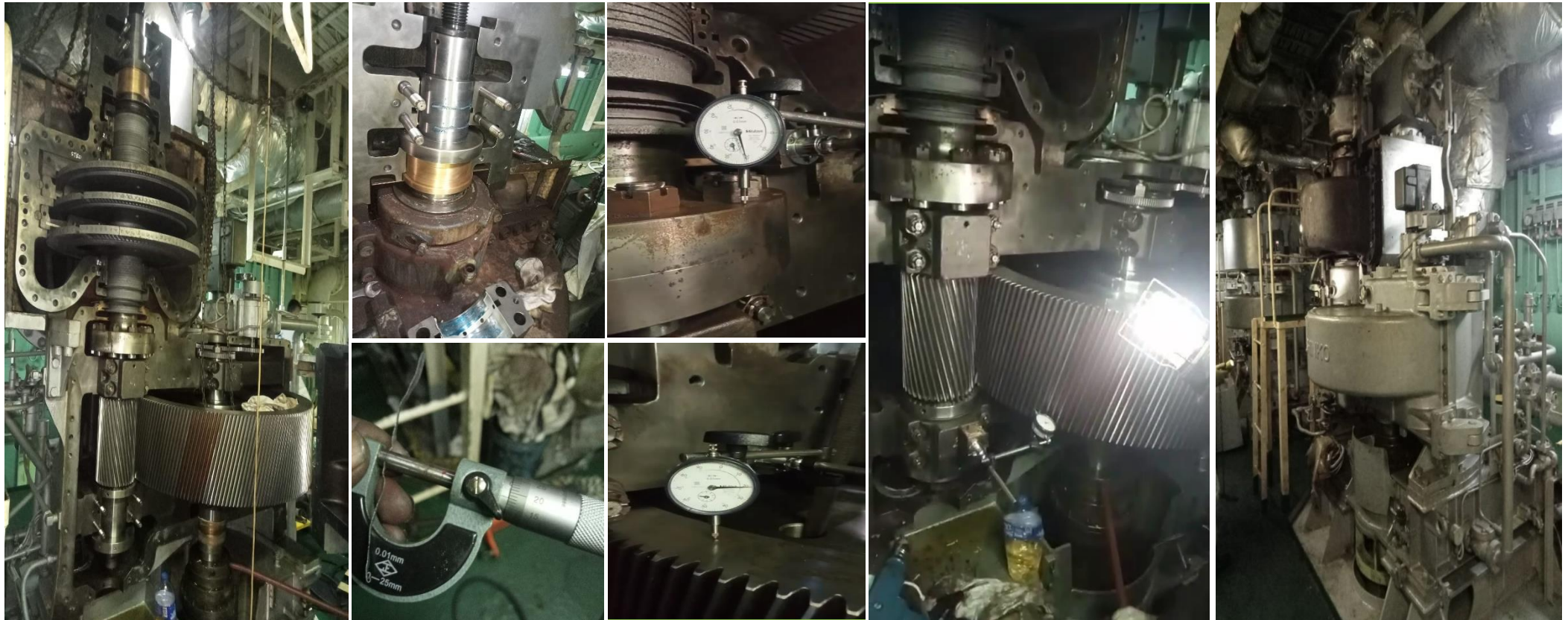
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MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	RAO/L.W.LOW
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE PINION ROTOR ASSEMBLY REINSTALLATION IN PROGRESS	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.



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MAKE/MODEL	SHINKO/RVR2	S. NO.	119641	RECORDED BY	RAO/L.W.LOW
COMPONENT	TURBINE OVERHAULING WITH PINION ROTOR REMOVAL FOR SHORE REFURBISHMENT WORKS, & SUBSEQUENT REINSTALLATION AT RETURN	STATUS	TURBINE RUNNING TEST UPON REASSEMBLY	DIMENSIONS	N.A.
INSTRUMENT	N.A.			I.D. NO.	N.A.

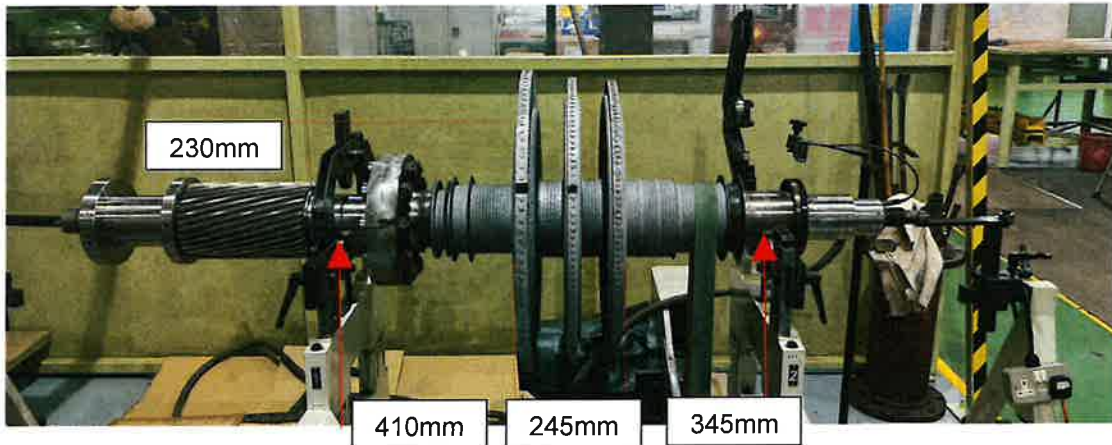


DYNAMIC BALANCING REPORT

CUSTOMER: _____ **DATE:** 24th DEC 2024
SHIP/JOB NAME: SA CAPRICORN **JOB NO:** J24-S-122109
SHINKO RVR-2 **INCHARGE:** ALVIN
ITEM: CARGO PUMP TURBINE ROTOR

ITEM SPECIFICATION: _____ **RATED SPEED:** 7500 RPM **WEIGHT:** 602 KG

BALANCING SPECIFICATION: _____ **BALANCING MACHINE NO.:** CAB 920
CORRECTION METHOD: REMOVE WEIGHT **BALANCING RPM:** 500
BALANCING STANDARD: ISO 1940/1- 2003 (E) - GRADE: G2.5



	PLANE 1	ANGLE	PLANE 2	ANGLE
MAX. ALLOWABLE UNBALANCE	4.16g		4.16g	
INITIAL UNBALANCE	94.40g	0°	89.60g	15°
FINAL UNBALANCE	303mg	350°	893mg	261°

Remarks: 0 marking on the coupling is 0° reference for the dynamic balancing point.

Technician: MISRAN

Verified by: ALVIN

Witnessed by: SUPERINTENDENT

⌘ Date: 24th DEC 2024