

INSPECTION REPORT

NOTICE: Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

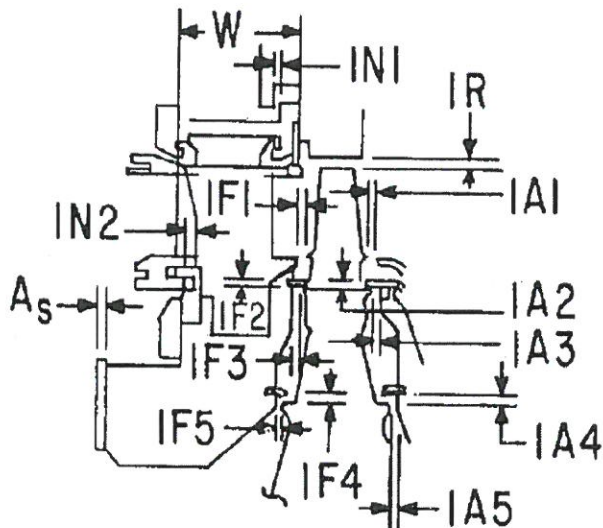
ISE/GT-FF 6022
FOR FIELD USE ONLY

GAS TURBINE MAINTENANCE

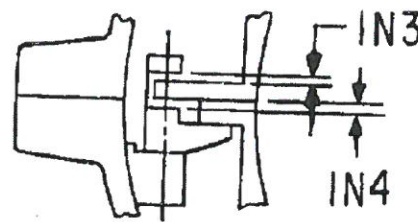
MS 5001 Turbine Rotor Clearances

FSR NO. _____ TURBINE NO. 296274 (05528) Dededo #2 DATE 2016.10.21

SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO



FIRST STAGE TURBINE

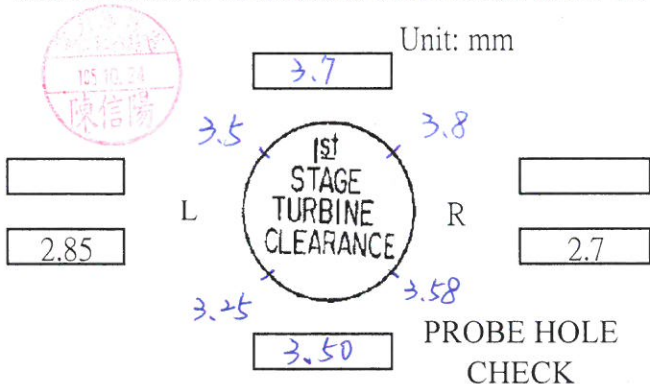


FIRST STAGE NOZZLE CLAMP

1. All axial clearances are to be measured with the rotors in contact with the loaded thrust faces.
2. All views with turbine flow.
3. Refer to clearance diagram for specified dimensions.

1ST STAGE S/N									
Unit: mm	INITIAL		FINAL			INITIAL		FINAL	
	Left	Right	Left	Right		Left	Right	Left	Right
W	120	140	/		IF4	2.6	2.8	/	
IN1	1	0.5			IF5	6.8	6.5		
IN2	4.3	3.5			1A1	8.3	8.2		
IN3	0.4	0.28			1A2	3.3	2.95		
IN4	0.52	0.43			1A3	8.8	8.7		
R	2.85	2.7			1A4	3.35	5		
IF1	7.6	6.6			1A5	10.5	10.5		
IF2	2.3	2.6			AS	8.3	8.1		
IF3	4.1	4.3							

After all upper casings are bolted in place and the unit placed on its own supports, the first stage rotor tip clearances are to be measured and recorded below when probe holes exist.



COMMENTS: - opening clearances.
 - W, IN1, IN2 are a little off but no major concern at this point
 - R is somewhat tight but no evidence of rubbing present
 - IF4 is a little open on this seal, should consider replacing seal
 by Juan Castellanos

(Continued on back of form)

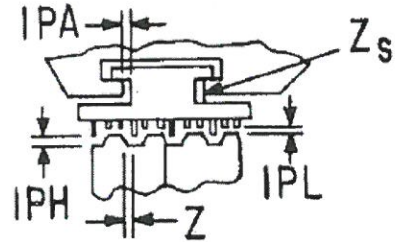
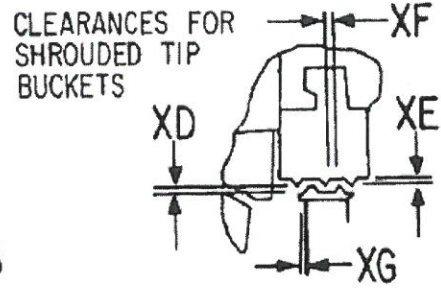
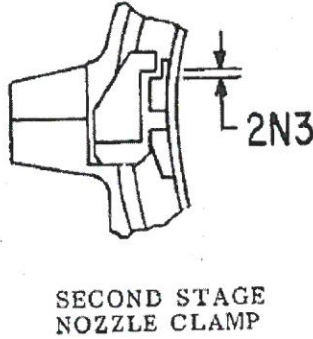
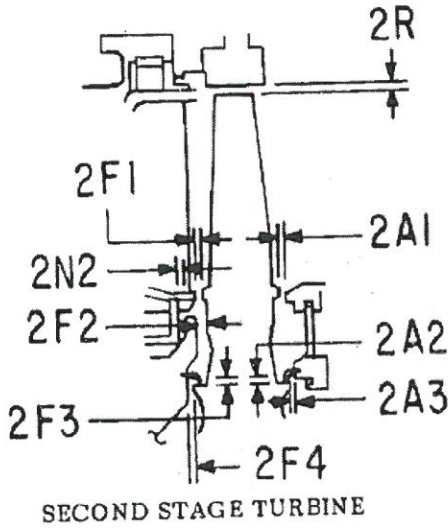
NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

INSPECTION REPORT

GAS TURBINE MAINTENANCE

MS 5001 Turbine Rotor Clearances

Dededo #2



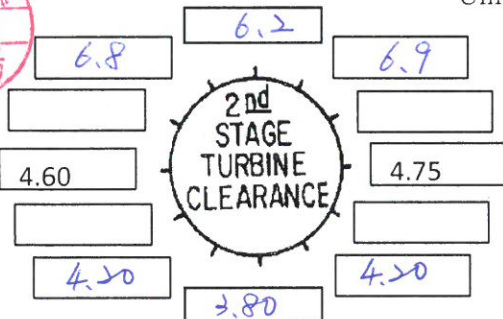
SECOND STAGE PACKING SEALS

2ND STAGE S/N									
Unit: mm	INITIAL		FINAL			INITIAL		FINAL	
	Left	Right	Left	Right		Left	Right	Left	Right
2N2	0.24	0.27			Z	6.8	8.2		
2N3	1	0.9			Zs	10.6	10.5		
2R	4.6	4.75			IPA	0.35	0.85		
2F1	11.3	11.4			IPH	1.3	1.15		
2F2	12.5	12.5			IPL	1	0.6		
2F3	2.4	2.05			XD	5.7	6.1		
2F4	11.7	11.5			XE	4.8	4.8		
2A1	10.5	10.3			XF	11.5	12		
2A2	6.7	6.9			XG	5.9	6.5		
2A3	11.3	11.5							

After all upper casings are bolted in place and the unit placed on its own supports, the second stage rotor tip clearances are to be measured using feeler gages and recorded below.

Unit: mm

COMMENTS: -2F3 looks like the seal is broken
 -2A2 is a little open
 -Z needs to be modified at closing if necessary
 -XD+XF are off. need to be verified at closing
 JAC



NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

Verified but not witnessed 10/25/2016

Juan Castellanos GE



INSPECTION REPORT

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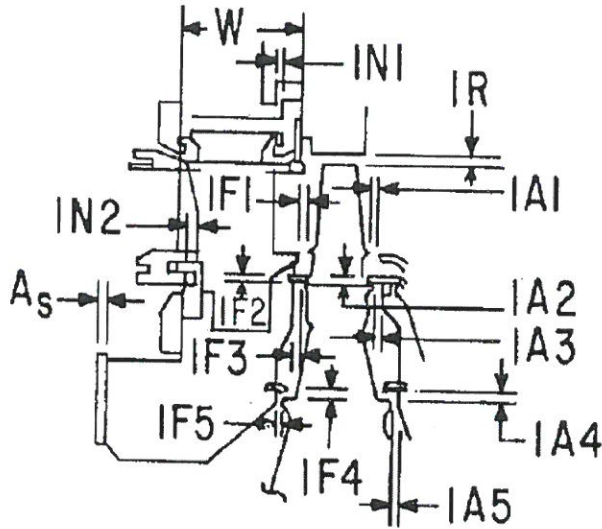
GAS TURBINE MAINTENANCE

MS 5001 Turbine Rotor Clearances

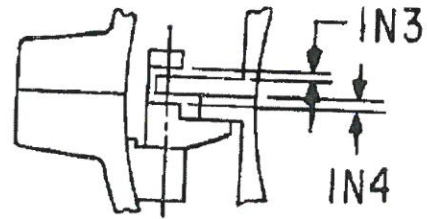
FSR NO. _____ TURBINE NO. 296274(05528 Dededo #2) DATE 2016.11.7

SKETCHES ENCLOSED: YES NO

PHOTOS ENCLOSED: YES NO



FIRST STAGE TURBINE



FIRST STAGE NOZZLE CLAMP

1. All axial clearances are to be measured with the rotors in contact with the loaded thrust faces.
2. All views with turbine flow.
3. Refer to clearance diagram for specified dimensions.

1ST STAGE S/N									
Unit: mm	INITIAL		FINAL			INITIAL		FINAL	
	Left	Right	Left	Right		Left	Right	Left	Right
W	120	140	134	135	IF4	2.6	2.8	2.6	2.85
IN1	1	0.5	1.2	0.6	IF5	6.8	6.5	7.0	6.8
IN2	4.3	3.5	2.5	2.7	IA1	8.3	8.2	7.9	8.2
IN3	0.4	0.28			IA2	3.3	2.95	2.6	3.6
IN4	0.52	0.43			IA3	8.8	8.7	8.0	8.6
R	2.85	2.7	2.9	3.0	IA4	3.35	5	2.7	4.5
IF1	7.6	6.6	7.6	6.8	IA5	10.5	10.5	10.0	10.2
IF2	2.3	2.6	2.7	2.8	AS	8.3	8.1	8.2	8.2
IF3	4.1	4.3	4.6	4.4					

After all upper casings are bolted in place and the unit placed on its own supports, the first stage rotor tip clearances are to be measured and recorded below when probe holes exist.

Unit: mm

3.5

PROBE HOLE CHECK

COMMENTS: - W & IN1 are a little off, but not of major concern
 - R it's a little tight, but there is no evidence of rubbing
 - IF4 is a little open, seal needs to be replaced

(Continued on back of form)

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

Witnessed & Revised 11/8/2016

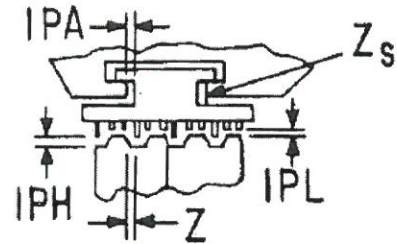
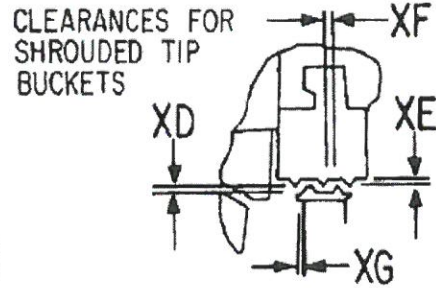
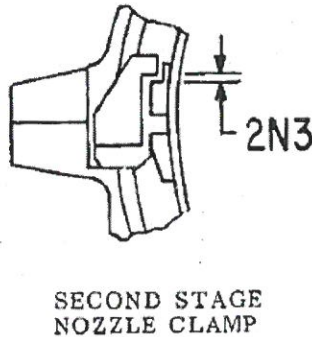
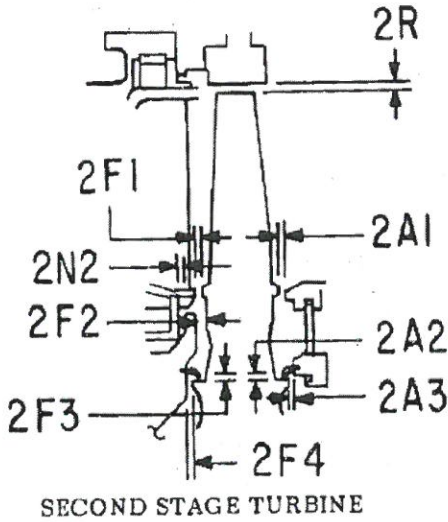
Juan Castellanos GE

INSPECTION REPORT

GAS TURBINE MAINTENANCE

MS 5001 Turbine Rotor Clearances

(05528 Dededo #2)

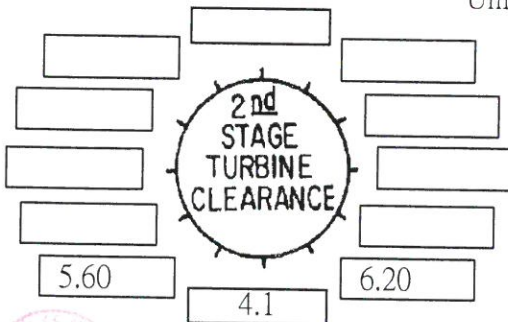


SECOND STAGE PACKING SEALS

		2ND STAGE S/N								
		INITIAL		FINAL		INITIAL		FINAL		
Unit: mm		Left	Right	Left	Right	Left	Right	Left	Right	
	2N2	0.24	0.27	0.22	0.27	Z	6.8	8.2	7.2	7.3
	2N3	1	0.9			Zs	10.6	10.5	11.0	11.0
N/A →	2R	4.6	4.75	4.45	4.5	IPA	0.35	0.85	0.25	0
	2F1	11.3	11.4	11.6	11.3	IPH	1.3	1.15	0.9	1.2
	2F2	12.5	12.5	12.9	12.5	IPL	1	0.6	0.7	1.0
	2F3	2.4	2.05	2.1	2.6	XD	5.7	6.1	6.0	6.2
	2F4	11.7	11.5	11.9	11.6	XE	4.8	4.8	4.7	4.8
	2A1	10.5	10.3	10.4	10.3	XF	11.5	12	11.4	11.9
	2A2	6.7	6.9	6.6	6.9	XG	5.9	6.5	5.9	6.0
	2A3	11.3	11.5	11.7	11.5					

After all upper casings are bolted in place and the unit placed on its own supports, the second stage rotor tip clearances are to be measured using feeler gages and recorded below.

Unit: mm



COMMENTS: -2R is not applicable on this turbine
 -2F3 the seal has wear
 -2A2 the seal has wear
 -XD close but no evidence of rubbing
 -XF open but no evidence of rubbing

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

Verified & Witnessed 11/8/2016
 Juan Castellanos, GE

INSPECTION REPORT

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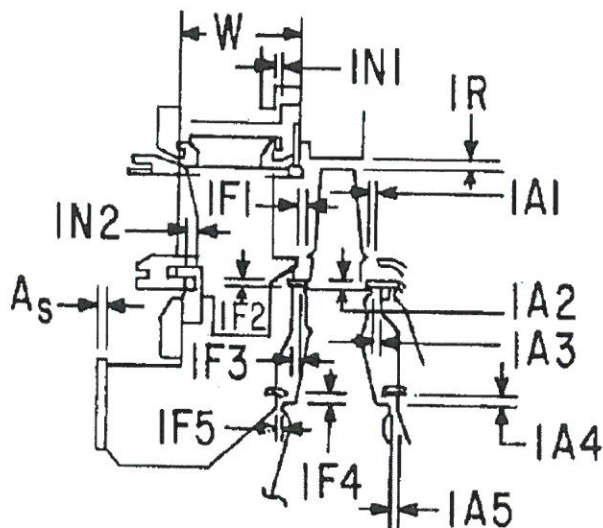
GAS TURBINE MAINTENANCE

MS 5001 Turbine Rotor Clearances

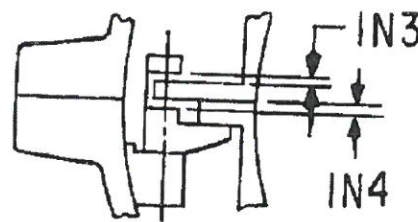
FSR NO. _____ TURBINE NO. 296274(05528 Dededo #2) DATE 2016.11.7

SKETCHES ENCLOSED: YES NO

PHOTOS ENCLOSED: YES NO



FIRST STAGE TURBINE



FIRST STAGE NOZZLE CLAMP

1. All axial clearances are to be measured with the rotors in contact with the loaded thrust faces.
2. All views with turbine flow.
3. Refer to clearance diagram for specified dimensions.

1ST STAGE S/N									
Unit: mm	INITIAL		FINAL			INITIAL		FINAL	
	Left	Right	Left	Right		Left	Right	Left	Right
W	120	140	134	135					
IN1	1	0.5	1.2	0.6					
IN2	4.3	3.5	2.5	2.7					
IN3	0.4	0.28	0.4	0.30					
IN4	0.52	0.43	0.5	0.45					
R	2.85	2.7	2.9	3.0					
IF1	7.6	6.6	7.6	6.8	IF4	2.6	2.8	2.6	2.85
IF2	2.3	2.6	2.7	2.8	IF5	6.8	6.5	7.0	6.8
IF3	4.1	4.3	4.6	4.4	IA1	8.3	8.2	7.9	8.2
					IA2	3.3	2.95	2.6	3.6
					IA3	8.8	8.7	8.0	8.6
					IA4	3.35	5	2.7	4.5
					IA5	10.5	10.5	10.0	10.2
					AS	8.3	8.1	8.2	8.2

After all upper casings are bolted in place and the unit placed on its own supports, the first stage rotor tip clearances are to be measured and recorded below when probe holes exist.

Unit: mm

3.6

3.62

L

2.9

3.5

3.5

1st
STAGE
TURBINE
CLEARANCE

3.13

R

3.0

3.5

PROBE HOLE CHECK

COMMENTS: *- R is a little tight, but there is no evidence of the 1st bucket rubbing*
- IF4 is open. The seal should be replaced as soon as feasible
Witnessed + Revised
Juan Castellanos 11/10/2016 GE

(Continued on back of form)

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

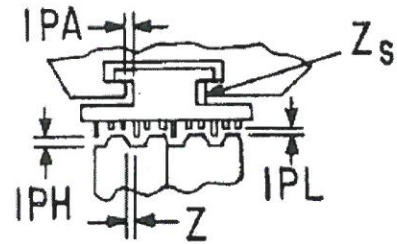
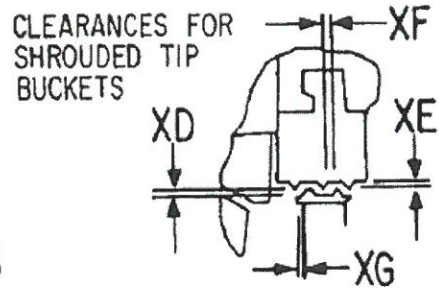
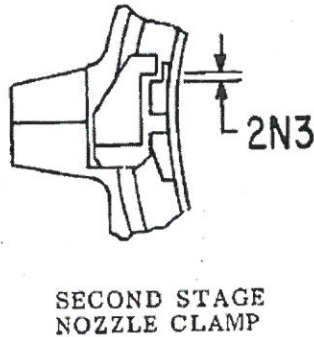
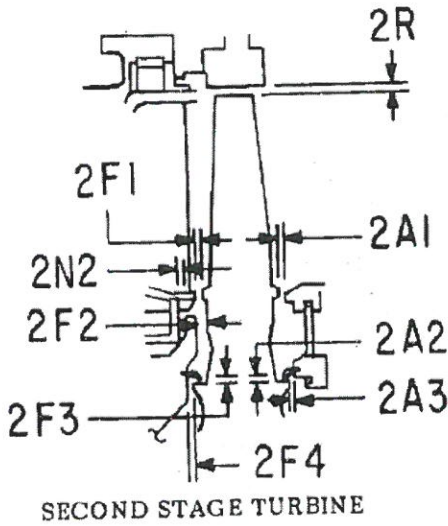


INSPECTION REPORT

GAS TURBINE MAINTENANCE

MS 5001 Turbine Rotor Clearances

Dededo #2



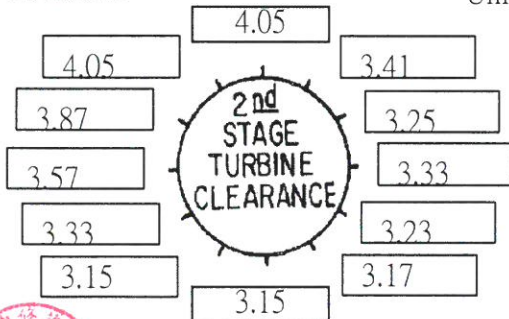
SECOND STAGE PACKING SEALS

2ND STAGE S/N									
Unit: mm	INITIAL		FINAL			INITIAL		FINAL	
	Left	Right	Left	Right		Left	Right	Left	Right
2N2	0.24	0.27	0.22	0.27	Z	6.8	8.2	7.2	7.3
2N3	1	0.9	<i>0.95</i>	<i>0.9</i>	Zs	10.6	10.5	11.0	11.0
2R	4.6	4.75	4.45	4.5	IPA	0.35	0.85	0.25	0
2F1	11.3	11.4	11.6	11.3	IPH	1.3	1.15	0.9	1.2
2F2	12.5	12.5	12.9	12.5	IPL	1	0.6	0.7	1.0
2F3	2.4	2.05	2.1	2.6	XD	5.7	6.1	6.0	6.2
2F4	11.7	11.5	11.9	11.6	XE	4.8	4.8	4.7	4.8
2A1	10.5	10.3	10.4	10.3	XF	11.5	12	11.4	11.9
2A2	6.7	6.9	6.6	6.9	XG	5.9	6.5	5.9	6.0
2A3	11.3	11.5	11.7	11.5					

After all upper casings are bolted in place and the unit placed on its own supports, the second stage rotor tip clearances are to be measured using feeler gages and recorded below.

2016.11.9

Unit: mm



COMMENTS: *2N2 - tight, no major concern*
2F3 & 2A2 - the seal has wear
Z, IPA + IPH - clearances are off, but
no major concern on this
XD - tight, but no evidence of rubbing

Witnessed & Revised

Juan Castellanos 11/14/16
GE



INSPECTION REPORT

NOTICE - Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

GAS TURBINE MAINTENANCE

MS 5000 Series 1st-stage Nozzle & Support Ring (General Conditions and Ellipticity)

FSR NO. _____ TURBINE NO. 05528 (Dededo #2) DATE 2016.11.2

SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO

FIRST STAGE NOZZLE

COMPONENT S/N (on outer ring) _____ Nozzle Arrangement Dwg. N: _____

Has this nozzle stage been replaced during the life of the gas turbine unit?

NO YES - At _____ fired hours.

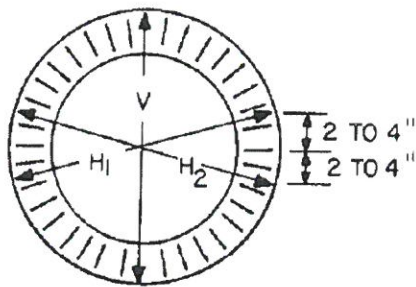
GENERAL SURFACE EFFECTS - Check (v) appropriate column.

	NONE	LIGHT	MED.	HEAVY	COMMENTS
DEPOSITS	V				
CORROSION	V				
EROSION	V				
NICKS & DENTS	V				

DEPOSITS/ CORROSION:

Laboratory Analysis of Deposit/Corrosion Material Attached to Report: YES NO

ELLIPTICITY:



Vertical dimension V = 1603.8
 Horizontal dimension H (Average of H₁ and H₂) = 1605.16
 (H₁:1604.67 ; H₂:1605.65)
 Ellipticity (difference between H and V) = 1.36

Unit: mm

DISPOSITION OF NOZZLE:

- No repair or replacement necessary.
- Repaired. - NOTE: If nozzle repaired, specify weld rod used _____
Repaired (On-site, Vendor or GE Service Shop).
- Replaced with new component.

COMMENTS: - Visual and NDT inspections are reported on the NDT reports (separate)
- Ellipticity is good. Spec is 2.54mm max. JRC

(Continued on back of form)

量測者: 李鶴濂、林宗賢、曾成毅

ES-GAS-D7.A1.12 Rev. 1(9/78)



GENERAL ELECTRIC



NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

Witnessed & Approved
Juan Castellanos 11/4/16
 GE

INSPECTION REPORT

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GAS TURBINE MAINTENANCE

MS5001 Series 2nd-stage Nozzle (General Conditions and Ellipticity)

FSR NO. _____ TURBINE NO. 05528 (Dededo #2) DATE 2016.11.2
 SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO
 COMPONENT S/N (on outer ring) _____ Nozzle Arrangement Dwg. N: _____
 Has this nozzle stage been replaced during the life of the gas turbine unit?
 NO YES - At _____ fired hours.

GENERAL SURFACE EFFECTS - Check (v) appropriate column.

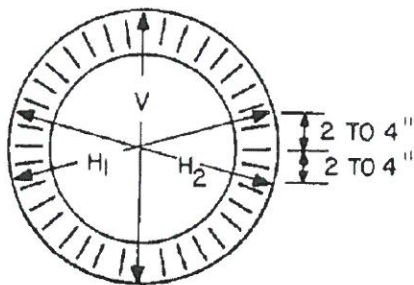
	NONE	LIGHT	MED.	HEAVY	COMMENTS
DEPOSITS	V				
CORROSION	V				
EROSION	V				
NICKS & DENTS	V				

DEPOSITS/ CORROSION:

Laboratory Analysis of Deposit/Corrosion Material Attached to Report: YES NO

Unit: mm

ELLIPTICITY:



Vertical dimension V = 1700.41
 Horizontal dimension H (Average of H₁ and H₂) = 1693.97
 (H₁:1694.5 ; H₂:1693.44)
 Ellipticity (difference between H and V) = 6.44

DISPOSITION OF NOZZLE:

- No repair or replacement necessary.
- Repaired. - NOTE: If nozzle repaired, specify weld rod used _____
Repaired (On-site, Vendor or GE Service Shop).
- Replaced with new component.

COMMENTS: - Visual + NDT inspections reported on separate NDT report.
- Ellipticity is double the specification, but the tool to measure was too short and (cont.)

量測者: 李鶴濂、林宗賢、曾成毅

ES-GAS-D7 .AI.16 Rev. 1(9/78)



GENERAL ELECTRIC

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID

(cont.) the measurements were extended using a ruler. This might have added measurements - errors. No major concern with this. *[Signature]*
 - Witnessed & Approved *[Signature]* 11/4/16
 Juan Castellanos GE

INSPECTION REPORT

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GAS TURBINE MAINTENANCE

MS 5000 Series Compressor Rotor Clearances

FSR NO. _____ TURBINE NO. 296274 (055>8) Dededo #2 DATE 2016.10.20

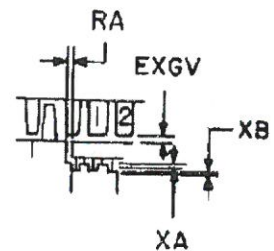
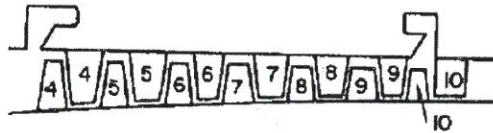
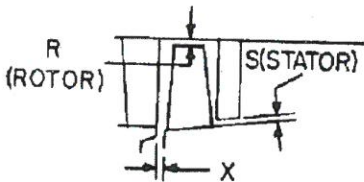
SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO

Opening Clearances *APC*
Closing Clearances



POSITION 1 WITH #1 BOLT HOLE OF COMP ROTOR AT LEFT

- All axial clearances are to be measured with rotor in forward position against the loaded thrust face.
- Refer to clearance diagram for specified dimensions.
- Take readings with rotor positioned as follows:
 - Position 1L with #1 bolt hole of comp. rotor at left horizontal joint.
 - Position 1R with #1 bolt hole of comp. rotor at right horizontal joint.
- After all upper casings are bolted in place and the unit placed on its own supports, the rotor tip clearances are to be measured and recorded at the right below. All views are with turbine flow.



COMPRESSOR STUB SHAFT S/N 16TH STAGING WHEEL S/N

Stage	1L	1R	Stage	1L	1R
RO*	0.9	0.9	R11	0.9	1
SO*	1	1	S11	0.8	0.9
R1	0.8	1.2	R12	0.9	1
S1	1.2	1.4	S12	0.8	1.1
R2	1	1.3	R13	1	0.9
S2	1	1.5	S13	0.9	1.1
R3	1.2	1.4	R14	1	1.2
S3	1	1.5	S14	1	1.2
R4	1.1	1.1	R15	1	1
S4	0.9	1.2	S15	1.1	1.2
R5	0.9	1.4	R16	1	1.2
S5	1	1.2	S16	0.55	0.4
R6	0.8	1.1	EXGV1	0.55	0.5
S6	0.7	1.1	EXGV2	0.55	0.4
R7	0.7	1.2	X	4.55	4.8
S7	0.8	0.9	XA	1	1.4
R8	1	0.8	XB	1	1.4
S8	1.1	0.9	RA	10.1	10.2
R9	0.7	0.8			
S9	0.7	0.9			
R10	0.7	0.9			
S10	0.5	1			

Unit: mm

Initial

0.95

0.85

0.8

0.95

0.95

0.8

0.75

0.65

0.65

PROBE HOLE CHECK

1.9

1.2

2.25

0.7

0.7

0.9

1.1

0.9

PROBE HOLE CHECK

2.3

2.1

1.95

1.0

1.0

1.50

1.55

1.60

Revised but not witnessed. 10/25/2016
Juan Castellanos

*MS5001 N, P, & MS5002 B

ES-GAS-D7.A1.23 Rev. 1 (9/78)

GENERAL ELECTRIC

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

Comments: 1. The rotor could not be rotated.
2. The probe hole check was only taken on stg. "0".
3. Both S&R clearances on stg 11 to 16 are somewhat tight but no evidence of rubbing.



INSPECTION REPORT

NOTICE: Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

GAS TURBINE MAINTENANCE

MS 5000 Series Compressor Rotor Clearances

FSR NO. _____ TURBINE NO. 296274 (05528 Dededo #2) DATE 2016.11.4

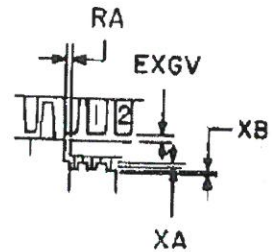
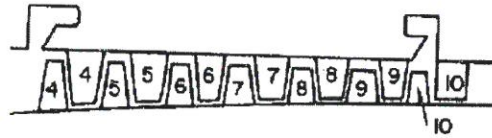
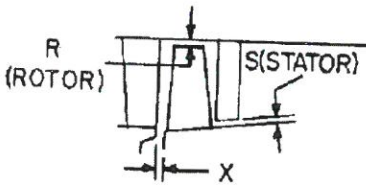
SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO

Opening Clearances
Closing Clearances

- All axial clearances are to be measured with rotor in forward position against the loaded thrust face.
- Refer to clearance diagram for specified dimensions.
- Take readings with rotor positioned as follows:
 - Position 1L with #1 bolt hole of comp. rotor at left horizontal joint.
 - Position 1R with #1 bolt hole of comp. rotor at right horizontal joint.
- After all upper casings are bolted in place and the unit placed on its own supports, the rotor tip clearances are to be measured and recorded at the right below. All views are with turbine flow.



POSITION 1 WITH #1 BOLT HOLE OF COMP ROTOR AT LEFT



COMPRESSOR STUB SHAFT S/N
16TH STAGING WHEEL S/N

Stage	1L	1R	Stage	1L	1R
RO*	1.0	1.3	R11	0.8	1.0
SO*	1.2	1.2	S11	0.7	0.8
R1	1.2	0.8	R12	0.9	1.1
S1	1.2	1.4	S12	0.75	0.9
R2	1.0	1.4	R13	0.9	1.1
S2	1.0	1.15	S13	0.8	0.9
R3	1.2	1.5	R14	1.0	1.3
S3	1.0	1.1	S14	0.8	1.1
R4	0.9	1.0	R15	1.0	1.3
S4	0.85	1.05	S15	0.9	1.1
R5	1.0	1.0	R16	1.1	1.5
S5	1.0	1.0	S16	0.45	0.25
R6	1.0	1.2	EXGV1	0.45	0.40
S6	0.75	1.05	EXGV2	0.45	0.35
R7	1.0	1.1	X	4.7	5.0
S7	0.65	1.0	XA	0.7	1.45
R8	0.6	1.0	XB	0.7	1.45
S8	0.7	0.8	RA	10.4	10.2
R9	0.8	0.9			
S9	0.6	0.85			
R10	0.8	0.9			
S10	0.6	0.85			

Unit: mm

Initial 2016.11.7

PROBE HOLE CHECK

PROBE HOLE CHECK

*MS5001 N, P, & MS5002 B

ES-GAS-D7.A1.23 Rev. 1 (9/78)

GENERAL ELECTRIC

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID

Note: Rotor position was obtained by wire crush method (gage wire).

Witnessed + Approve *[Signature]* 11/19/2016
Juan Castellanos GE



INSPECTION REPORT

GAS TURBINE MAINTENANCE

MS 5001 RUN OUT

FSR NO.

TURBINE NO.

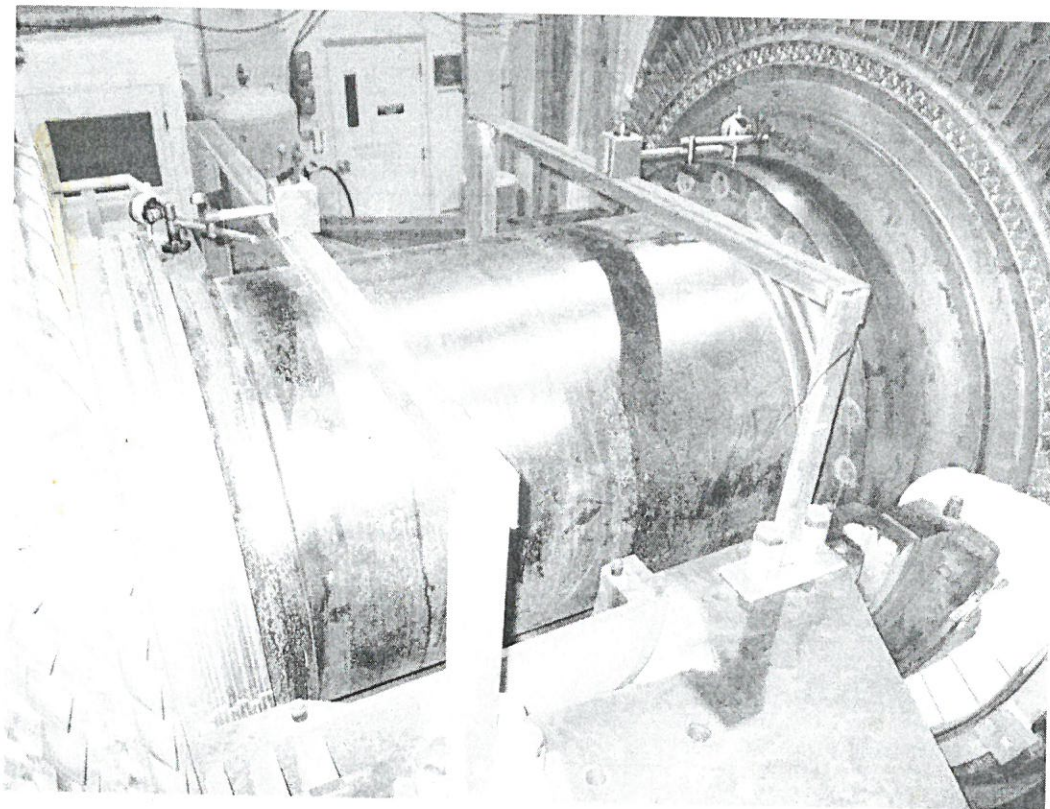
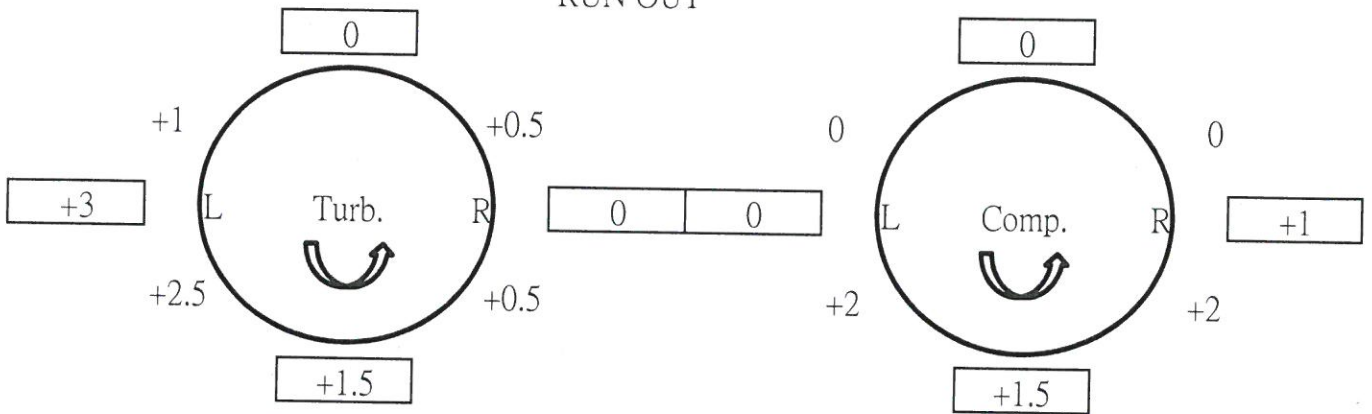
296274 (055>8)
Dededo #2

DATE: 2016.10.25

Unit: 1/100 mm

Angle	0	45	90	135	180	225	270	315	360
Turb.	0	+1	+3	+2.5	+1.5	+0.5	0	+0.5	0
Comp.	0	0	0	+2	+1.5	+2	+1	0	0

RUN OUT



Comp.

Turb.



The run out is acceptable.

Witnessed + verified 10/27/2016

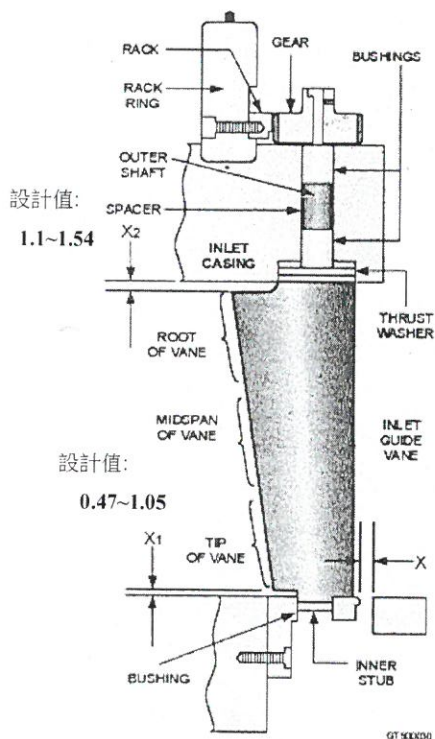
Juan Castellanos
Juan Castellanos GE

I.G.V.葉片間隙

檢修前(Initial)日期: 2016.10.31

氣渦輪機序號: 05528 (Dededo #2)

單位: mm



位置	R	L
X		

位置	X1	X2	齒隙 Gear gap	位置	X1	X2	齒隙 Gear gap
1	1.0	1.2	0.02	33	0.9	1.2	0.04
2	1.0	1.2	0.07	34	0.9	1.3	0.07
3	1.0	1.3	0	35	0.95	1.2	0.08
4	1.0	1.2	0	36	0.9	1.1	0.05
5	1.05	1.3	0.06	37	0.9	1.2	0.09
6	0.75	1.2	0	38	0.9	1.2	0.07
7	0.9	1.4	0.05	39	0.9	1.2	0.05
8	0.75	1.2	0.06	40	0.9	1.25	0.08
9	0.75	1.4	0.06	41	0.9	1.2	0.06
10	0.75	1.2	0.05	42	0.9	1.2	0.08
11	0.85	1.3	0.04	43	0.95	1.2	0.06
12	0.80	1.3	0.07	44	0.9	1.2	0.07
13	1.15	1.3	0.08	45	0.9	1.2	0.06
14	0.9	1.2	0	46	1.0	1.2	0.06
15	0.95	1.2	0	47	0.9	1.2	0.05
16	0.95	1.2	0	48	1.0	1.2	0.06
17	0.95	1.4	0	49	0.9	1.2	0.07
18	1.1	1.2	0	50	0.65	1.3	0.05
19	1.05	1.2	0.06	51	1.0	1.2	0.06
20	0.95	1.2	0	52	0.9	1.2	0.02
21	0.75	1.2	0	53	1.0	1.2	0
22	0.85	1.3	0.02	54	1.0	1.2	0.04
23	0.85	1.2	0.07	55	1.0	1.2	0.07
24	1.1	1.2	0	56	0.75	1.3	0
25	1.15	1.2	0.07	57	0.85	1.15	0.04
26	1.2	1.2	0	58	0.9	1.2	0
27	1.0	1.1	0.03	59	0.85	1.1	0
28	1.0	1.2	0	60	0.9	1.3	0.06
29	0.8	1.2	0	61	0.85	1.3	0.03
30	0.8	1.1	0.12	62	0.95	1.3	0.02
31	0.9	1.2	0.15	63	0.9	1.1	0.01
32	0.95	1.3	0.2	64	1.0	1.4	0

註: 齒隙設計值 ~ < 0.76mm ■表小於設計值 ■表大於設計值

Note: X1 is bigger & X2 is shorter than spec. The thrust washers should be adjusted when the IGV blades are disassembled. No concern to run like that at the moment of 11/8/2016



量具編號: FP-2190(量錶)、FP-1871(外徑分厘卡)、厚薄規 量測者: 翁漢陽、柳葉揚、藍世臻

Witnessed & Approved 11/8/2016

Juan Castellanos
GE

表格: QT-MW1-039-F25

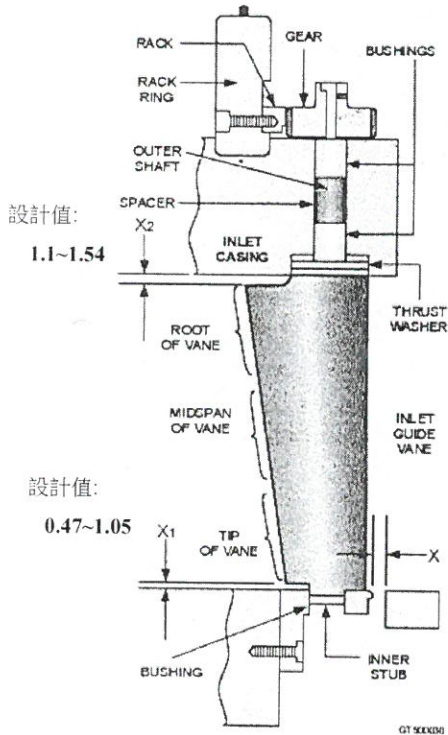
版次: 0

I.G.V.葉片間隙

檢修後(Final)日期: 2016.11.1

氣渦輪機序號: 05528 (Dededo #2)

單位:mm



位置	R	L
X		

位置 編號	X1	X2	齒隙 Gear gap	位置 編號	X1	X2	齒隙 Gear gap
1	1.0	1.2	0.08	33	0.9	1.2	0.1
2	1.0	1.2	0.13	34	0.9	1.3	0.12
3	1.0	1.3	0.1	35	0.95	1.2	0.15
4	1.0	1.2	0.11	36	0.9	1.1	0.1
5	1.05	1.3	0.15	37	0.9	1.2	0.18
6	0.75	1.2	0.12	38	0.9	1.2	0.15
7	0.9	1.4	0.10	39	0.9	1.2	0.18
8	0.75	1.2	0.12	40	0.9	1.25	0.22
9	0.75	1.4	0.11	41	0.9	1.2	0.15
10	0.75	1.2	0.11	42	0.9	1.2	0.2
11	0.85	1.3	0.10	43	0.95	1.2	0.18
12	0.80	1.3	0.12	44	0.9	1.2	0.17
13	1.15	1.3	0.12	45	0.9	1.2	0.13
14	0.9	1.2	0.11	46	1.0	1.2	0.15
15	0.95	1.2	0.1	47	0.9	1.2	0.16
16	0.95	1.2	0.1	48	1.0	1.2	0.14
17	0.95	1.4	0.1	49	0.9	1.2	0.12
18	1.1	1.2	0.12	50	0.65	1.3	0.11
19	1.05	1.2	0.10	51	1.0	1.2	0.1
20	0.95	1.2	0.12	52	0.9	1.2	0.11
21	0.75	1.2	0.10	53	1.0	1.2	0.1
22	0.85	1.3	0.10	54	1.0	1.2	0.15
23	0.85	1.2	0.19	55	1.0	1.2	0.18
24	1.1	1.2	0.10	56	0.75	1.3	0.2
25	1.15	1.2	0.10	57	0.85	1.15	0.12
26	1.2	1.2	0.14	58	0.9	1.2	0.1
27	1.0	1.1	0.13	59	0.85	1.1	0.12
28	1.0	1.2	0.1	60	0.9	1.3	0.18
29	0.8	1.2	0.12	61	0.85	1.3	0.15
30	0.8	1.1	0.12	62	0.95	1.3	0.12
31	0.9	1.2	0.15	63	0.9	1.1	0.15
32	0.95	1.3	0.2	64	1.0	1.4	0.13

註:齒隙設計值 $\sim < 0.76\text{mm}$ ■表小於設計值 ■表大於設計值

Note: X1 is bigger & X2 is smaller than spec. The thrust washers should be adjusted when the IGV blades are disassembled. No concern for run like that at the moment APE 11/8/2016



量具編號: FP-2190(量錶)、FP-1871(外徑分厘卡)、厚薄規 量測者: 翁漢陽、柳葉揚、藍世臻

Witnessed and approved 11/8/2016

Juan Castellanos
Juan Castellanos GE

表格: QT-MW1-039-F25

版次: 0

INSPECTION REPORT

NOTICE · Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

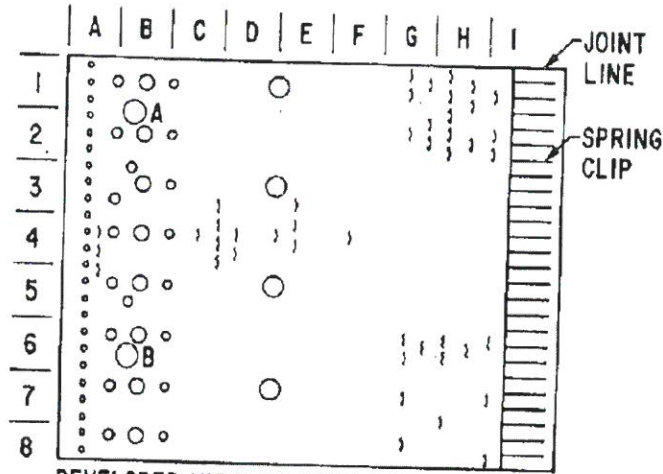
ISE/GT-FF 6003
FOR FIELD USE

GAS TURBINE MAINTENANCE

Combustion System (Liner)

FSR NO. _____ TURBINE NO. 05528 (Dededo #2) DATE 2016.11.2

SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO



DEVELOPED VIEW OF HOLE, LOUVER & SPRING CLIP PATTERN

PART NUMBER OUT* _____

PART NUMBER IN* _____

*Note: If Part (Drawing) Number IN (installed) is different than Part (Drawing) Number OUT (removed), check with G. T. C. S. D.

DEFECT CODES:

- | | |
|---------------|---------------------|
| BU - Burned | LO - Louvers open |
| CO - Corroded | LC - Louvers closed |
| CR - Cracked | BR - Broken |
| BK - Buckled | BT - Bent |
| H - Hot Spots | M - Missing |
| | W - Worn |

DISPOSITION CODES:

- N - No repairs or replacement necessary
R - Repaired (on site, vendor, or GE Service Shop)
RN - Replaced with new component

Chamber No.	Serial Number		Liner Defects (Code and Location for cracks, also indicate if hole to hole, louver to louver or louver to hole)	X-Fire Tube Collar Defect (Code and Location)
	Out	In		
1	G17972L	G17972L		
	G17972L	G17972L		
2	01-10-252	01-10-252		
	01-11-265	01-11-265		
3	G17325L	G17325L		
	G17325L	G17325L		
4	05-04-602	05-04-602		
	05-04-622	05-04-622		
5	05-07-139	05-07-139		
	05-07-147	05-07-147		
6	05-04-603	05-04-603		
	05-04-624	05-04-624		
7	05-09-400	05-09-400		
	05-09-393	05-09-393		
8	05-07-137	05-07-137		
	05-07-156	05-07-156		
9	05-07-042	05-07-042		
	05-07-149	05-07-149		
10	G17145L	G17145L		
	G17145L	G17145L		
11	NA	NA		
12	NA	NA		

(Continued on Back of Form)

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

INSPECTION REPORT

NOTICE: Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

ISE/GT-FF 6005
FOR FIELD USE ONLY

GAS TURBINE MAINTENANCE

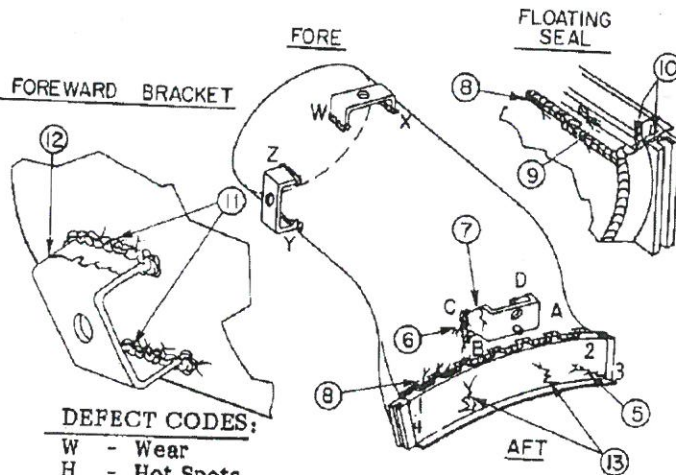
MS 5000 Series Transition Piece

FSR NO. _____ TURBINE NO. 05528 (Dededo #2) _____ DATE 2016.11.2

SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO

CRACK LOCATION CODES:

- A, B, C, D-Positions on aft brackets.
- W, X, Y, Z-Positions on forward brackets.
- 1, 2, 3, 4-Positions on aft corners.
- 5-Casting corner cracks.
- 6-Aft bracket weld cracks.
- 7-Aft bracket body cracks.
- 8-Seal retainer weld cracks.
- 9-Seal retainer pin hole cracks (Floating seal only).
- 10-End cover (ear) weld cracks (Floating Seal only).
- 11-Forward bracket weld cracks.
- 12-Forward bracket breaking.
- 13-Transition piece rupture.



DEFECT CODES:
W - Wear
H - Hot Spots

DISPOSITION CODES:
N - No Repair or replacement necessary
R - Repaired (On-site, Vendor or GE Service Shop)
RN - Replaced w/new component

PART NUMBER OUT* _____


PART NUMBER IN* _____

*Note: If Part Number IN is different than Part Number OUT, Check with G.T.C.S.D.

Chmbr. No.	Serial		Cracks (State Location & Length)
	Out	In	
1	E12525L	E12525L	
2	E12526L	E12526L	
3	E12527L	E12527L	
4	E12528L	E12528L	
5	E12530L	E12530L	
6	E12531L	E12531L	
7	E12532L	E12532L	
8	E12533L	E12533L	
9	E12534L	E12534L	
10	E12547L	E12547L	
11	NA	NA	
12	NA	NA	

(Continued on Back of Form)

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.


 ES-GAS-D7 A1.5 Rev. 1(9/78)

GENERAL  ELECTRIC

INSPECTION REPORT

NOTICE - Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

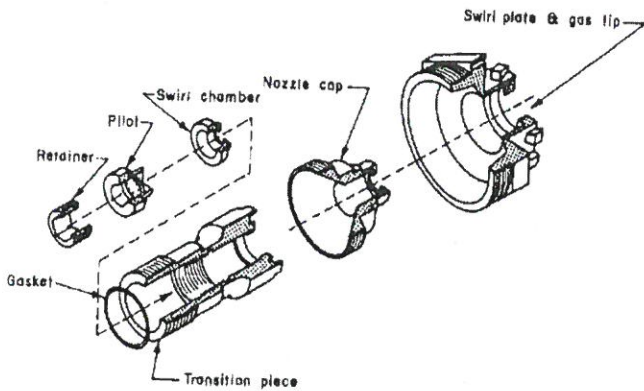
ISE/GT-FF 6001
FOR FIELD USE

GAS TURBINE MAINTENANCE

Fuel Nozzle

FSR NO. _____ TURBINE NO. 05528 (Dededo #2) DATE 2016.11.9

SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO



NOZZLE TYPE:

- Mechanical Atomizing
- Air Atomizing
- Gas
- Distillate only
- Gas/Dist
- Gas/Dist/Residual

Vendor Out _____

Vendor In _____

Part Number:

*Out _____

*In _____

*Note: If Part Number In is different than Part Number Out, Check with G.T.C.S.D.

DISPOSITION CODES:

- N - No repair or replacement necessary.
- R - Repaired/cleaned (On-site, Vendor or GE Service Shop).
- RN - Replaced with new component.

EROSION & DEPOSIT CONDITION CODES:

- No Erosion - N - No Deposits
- Slight Erosion - S - Slight Deposits
- Heavy Erosion - H - Heavy Deposits

Chamber No.	Serial Number		Nozzle Cap		Transition Piece Erosion	Body Leakage		Disposition	Replacement Recommended (Check v if yes)
	Out	In	Deposits	Erosion		Yes	No		
1	1	1	S, v	N			v	R	
2	2	2	S, v	N			v	R	
3	3	3	S, v	N			v	R	
4	4	4	S, v	N			v	R	
5	5	5	S, v	N			v	R	
6	6	6	S, v	N			v	R	
7	7	7	S, v	N			v	R	
8	8	8	S, v	N			v	R	
9	9	9	S, v	N			v	R	
10	10	10	S, v	N			v	R	
11	NA	NA							
12	NA	NA							

COMMENTS: _____

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID. 35

Witnessed & Approved
Juan Castellanos GE
11/21/16

INSPECTION REPORT

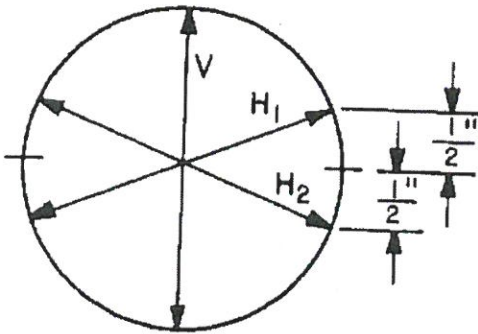
NOTICE - Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

GAS TURBINE MAINTENANCE

Sleeve Journal Bearings

FSR NO. _____ TURBINE NO. 296274(05528 Dededo #2) DATE 2016.10.27
 SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO
 (NOTE: SEE ADDITIONAL INSTRUCTIONS ON BACK OF FORM)

DIMENSIONAL CHECKS



1. Measure horizontal (H_1 & H_2) and vertical (V) dimensions of bearing shell inner diameter at both the forward and the aft ends. Bearing halves must be clamped together for measurement.
2. Measure thrust bearing clearance dimension by jacking rotor axially and monitoring axial movement with dial indicator. Dial indicator to be mounted on the bearing housing containing the thrust bearing.

CONDITION CODES:

Using the figures on the back of this form for reference, indicate **by number** the babbitt conditions observed. If more than one number is used, keep damage and zones in respective order.

DISPOSITION CODES:

- N - No repair or replacement necessary
- R - Repaired (On-site, Vendor or GE Service Shop)
- RN - Replaced with new component

JOURNAL BEARINGS NOTE: Use Form ISE/GT FF 6044 for Tilting-Pad Journal Bearings Unit: mm

LINER NO.	1		2		3		4		5	
PART NO.										
MEASUREMENTS	FWD	AFT	FWD	AFT	FWD	AFT	FWD	AFT	FWD	AFT
H_1	203.96	203.96	203.94	203.94						
H_2	203.96	203.95	203.94	203.94						
V	203.59	203.59	203.59	203.6						
CONDITION	CODE	ZONE	CODE	ZONE	CODE	ZONE	CODE	ZONE	CODE	ZONE
A. BURNISH										
B. CRACKS										
C. BABBITT LOSS										
D. BABBITT SMEAR										
DISPOSITION										

JOURNAL NO.	1		2		3		4		5	
MEASUREMENTS	FWD	AFT	FWD	AFT	FWD	AFT	FWD	AFT	FWD	AFT
H	203.19	203.19	203.18	203.18						
V	203.18	203.18	203.17	203.18						
CONDITION	(CHECK \checkmark IF CONDITION IS OBSERVED)									
SCORED										
PITTED										
DISPOSITION										

THRUST BEARINGS See Form ISE/GT-FF6029

COMMENTS: All clearances are good.
The visual inspection is reported on the NDT report

量測者: 李鶴濂、林宗賢、曾成毅
 ES-GAS-D7.A1.9 Rev. 1(9/78)



GENERAL



ELECTRIC

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

Witnessed & Revised
Juan Castellanos 11/09/2016
 Juan Castellanos GE

INSPECTION REPORT

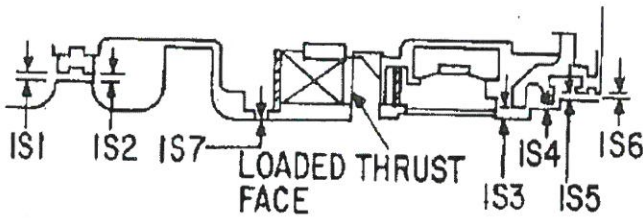
NOTICE - Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

GAS TURBINE MAINTENANCE

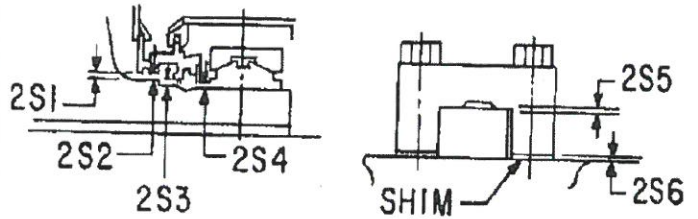
MS 5001 Seals

FSR NO. _____ TURBINE NO. 296274 (05528) Dededo #2 DATE 2016.10.24

SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO



No. 1 BEARING AREA



(VIEW AT #2 BEARING STRAP)
No. 2 BEARING AREA

CONDITION CODE:

M - Missing Metal
W - Worn
CR - Cracked

Unit: mm

DISPOSITION CODES:

N - No repairs or replacement necessary
R - Repaired /cleaned (On-site, or GE Service Shop).
RN - Replaced with new component

	CLEARANCES		VISUAL INSPECTION		COMMENTS
	Left	Right	Condition	Disposition	
1S1	0.15	0.25			good
1S2	0.2	0.25			good
1S3	0.2	0.25			good
1S4	0.18	0.25			good
1S5	0.1	0.2			good
1S6	0.15	0.2			good
1S7	0.12	0.15			good
2S1	0.2	0.2			good
2S2	0.18	0.3			good
2S3	0.2	0.2			good
2S4	0.18	0.2			good
2S5	0	0			good
2S6	0	0			need shim thickness

ADDITIONAL COMMENTS

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.



Revised but not witnessed 10/25/2016

Juan Castellanos
Juan Castellanos, GE

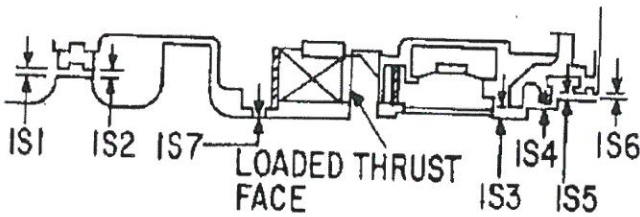
INSPECTION REPORT

NOTICE: Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

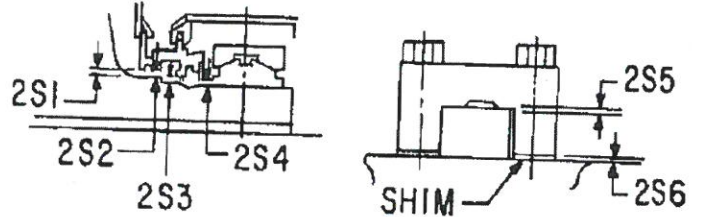
GAS TURBINE MAINTENANCE

MS 5001 Seals

FSR NO. _____ TURBINE NO. 296274 (05528 Dededo #2) DATE 2016.11.4
 SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO



No. 1 BEARING AREA



(VIEW AT #2 BEARING STRAP)
No. 2 BEARING AREA

CONDITION CODE:

M - Missing Metal
W - Worn
CR - Cracked

Unit: mm

DISPOSITION CODES:

N - No repairs or replacement necessary
R - Repaired /cleaned (On-site, or GE Service Shop).
RN - Replaced with new component

	CLEARANCES		VISUAL INSPECTION		COMMENTS
	Left	Right	Condition	Disposition	
1S1	0.14	0.26		N	
1S2	0.12	0.26		N	
1S3	0.16	0.25		N	
1S4	0.2	0.25		N	
1S5	0.15	0.23		N	
1S6	0.19	0.25		N	
1S7	0	0		N	
2S1	0.2	0.27		N	
2S2	0.2	0.25		N	
2S3	0.2	0.2		N	
2S4	0.2	0.2		N	
2S5	0	0		N	
2S6	0	0			

ADDITIONAL COMMENTS



ES-GAS-D7.A1.10 Rev. 1(9/78)

GENERAL  ELECTRIC

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

Witnessed & Reviewed
[Signature] 11/18/16
Juan Castellanos GE

9

INSPECTION REPORT
Gas Turbine Maintenance

Accessory Gear

(FOR FIELD USE ONLY)

Notice: Any alterations to this form must be approved by the Mgr. Tech Prog, PGSD, and the Mgr. MPS, PSD, PGCSD

Date 2016.10.28

Turbine S/N 296274

Prepared by 李鶴濂、林宗賢、曾成毅

FSR # _____

Sketches Enclosed? No

Dededo # 1
(05528)

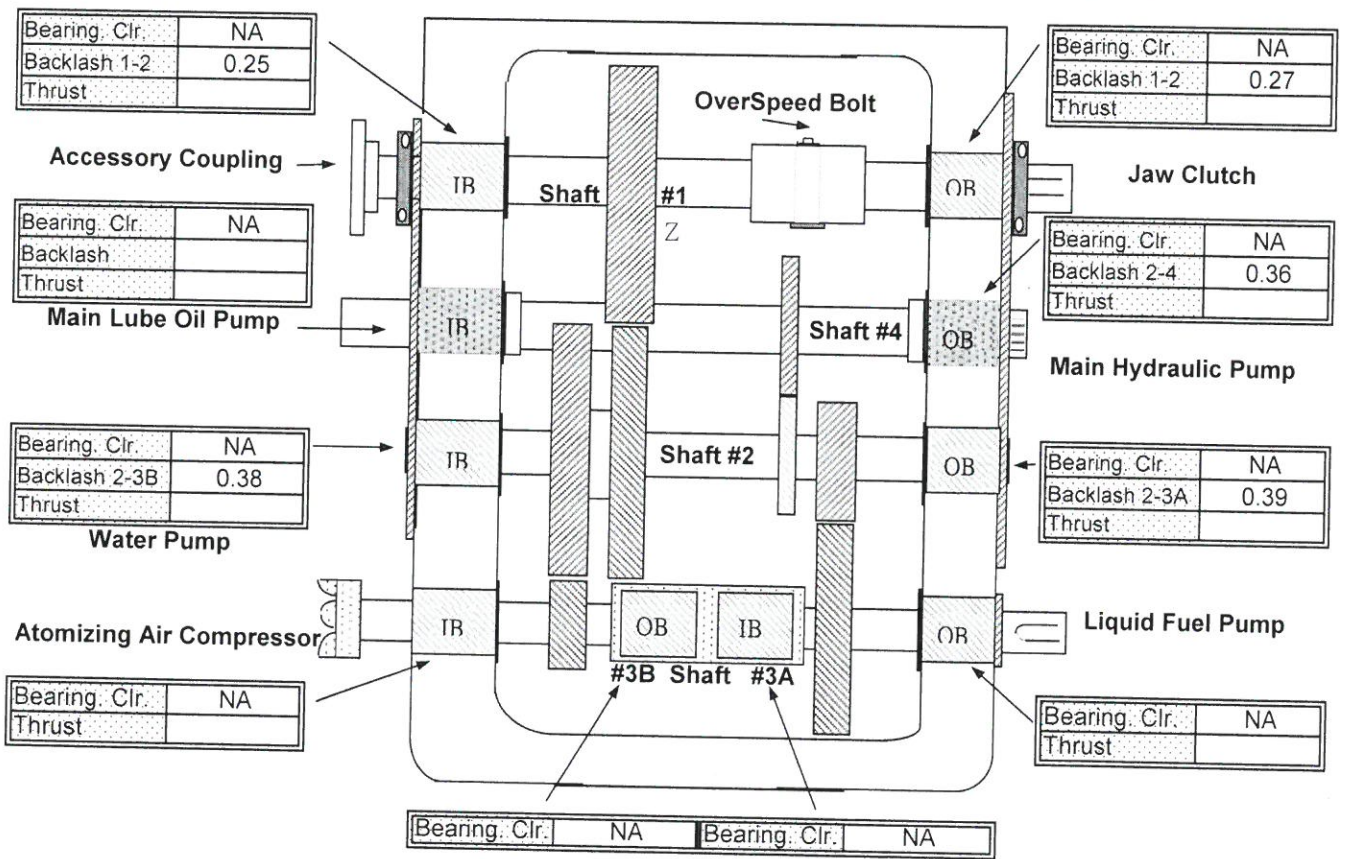
Photos Enclosed? on NDT

report

Accessory Gear Model _____

Accessory Gear S/N _____

Unit: mm



Comments:
 - Backlash is good. spec is 0.13 to 0.40 mm
 - Thrust or Brg clearance could not be obtained

量測者: 李鶴濂、林宗賢、曾成毅

複查者:



GE TA:

"ES-GAS-D7Thib.A34Gas2

Witnessed & Approved 11/8/2016

PGS/GT- FF-6000a

Juan Castellanos GE

INSPECTION REPORT

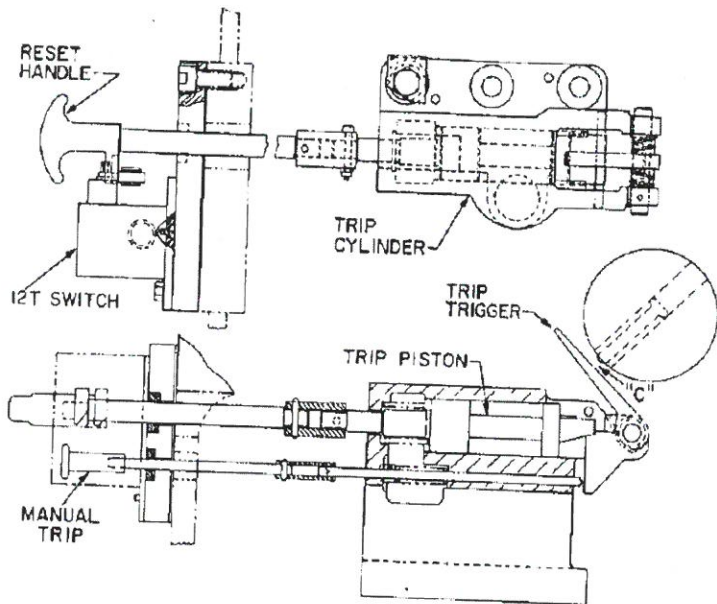
ISE/GT-FF 6028
FOR FIELD USE ONLY

NOTICE: Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

GAS TURBINE MAINTENANCE

Overspeed Bolt and Trip Assembly

FSR NO. _____ TURBINE NO. 296274 (055-8 Dededo #2) DATE 2016.10.28
 SKETCHES ENCLOSED: YES NO PHOTOS ENCLOSED: YES NO



CONDITION CODE:

- M - Missing Metal
- W - Worn
- CR - Cracked
- N - Normal
- J - Jammed
- BR - Broken
- AJ - Adjustment Required

DISPOSITION:

- N - No repair or replacement necessary.
- R - Repaired.
- RN - Replaced with new component.
- RR - Recommend replace/repair at next outage (explain reason)

MANUAL STATIC TRIP TEST

Piston Stroke: NORMAL
 STICKY

HP *APC* LP

OPERATIONAL CHECK

	HP	LP
Overspeed Test	1st _____	_____
	2nd _____	_____
	3rd _____	_____
	_____	_____

This to be done later & reported on the start up report. APC

Previous Test Date _____

VISUAL INSPECTION

Trip Trigger
 Trip Piston
 Trip Cylinder
 12 T Switch

CONDITION		DISPOSITION	
HP	LP	HP	LP
<i>N</i>		<i>N</i>	
<i>N</i>		<i>N</i>	
<i>N</i>		<i>N</i>	
<i>N</i>		<i>N</i>	

TRIP TRIGGER CLEARANCE "C": 1.9mm

COMMENTS: *- The bolt was in good condition & stacked properly*
- The clearance is high by 0.13mm. No major concern here. APC

量測者: 林宗賢



ES-GAS-D7. AI. 28 Rev. 1 (3/79) GENERAL ELECTRIC

Witnessed & approved.
John Castellanos GE 11/02/16

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID. 40

INSPECTION REPORT

NOTICE - Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T M.D.

GAS TU]

Coupling Alignment

FSR NO. _____ TURBINE NO. 296274 (05528 Dededo #2) DATE _____

1. Checks to be made facing in direction of turbine flow.
2. Reference all "face" readings to 12" diameter.
3. "Rim" readings should reflect indicator riding at coupling O. D. or on male rabet; if indicator rides on female rabet, the sign conventions must be changed.

INITIAL CHECK		Date: 2016.10.25	FINAL CHECK	
LOAD COUPLING	0	Unit: 1/100mm	Diagram with handwritten 'APL' and a large 'X' over it.	
	7			
	FACE: 3, 0			
	RIM: -237, -320			
	-4.5			
	-550			
ALIGNMENT FIXTURE MOUNTED ON:				
<input checked="" type="checkbox"/> GAS TURBINE				
<input type="checkbox"/> LOAD GEAR/ DRIVEN EQUIPMENT				

INITIAL CHECK		Date: 2016.10.21	FINAL CHECK	
ACCESSORY COUPLING	0	Unit: 1/100mm	Diagram with handwritten 'APL' and a large 'X' over it.	
	0			
	FACE: 3, 0			
	RIM: -3, -32			
	12			
	-22			
ALIGNMENT FIXTURE MOUNTED ON:				
<input type="checkbox"/> GAS TURBINE				
<input checked="" type="checkbox"/> ACCESSORY GEAR				



量測者: 李鶴濂、林宗賢、曾成毅

COMMENTS: Alignment is a little off on both load + accs. *APL*

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.



Witnessed & revised 11/2/2016

[Signature]
Juan Castellanos

INSPECTION REPORT

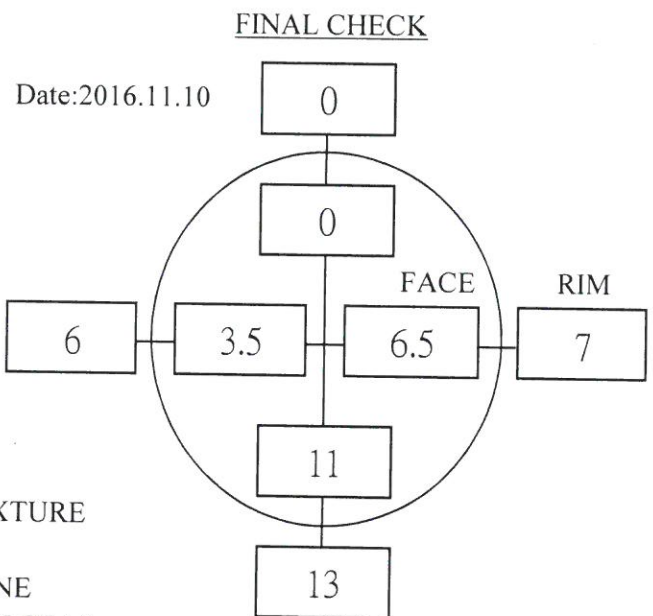
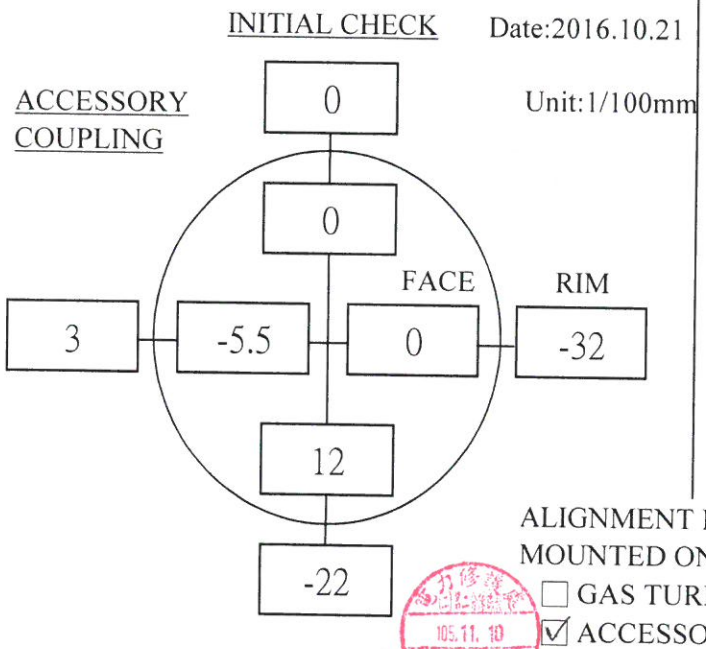
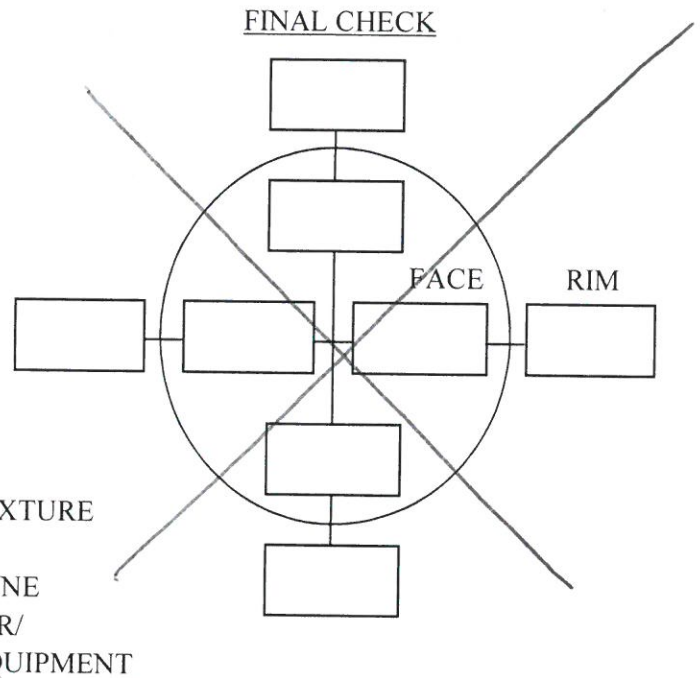
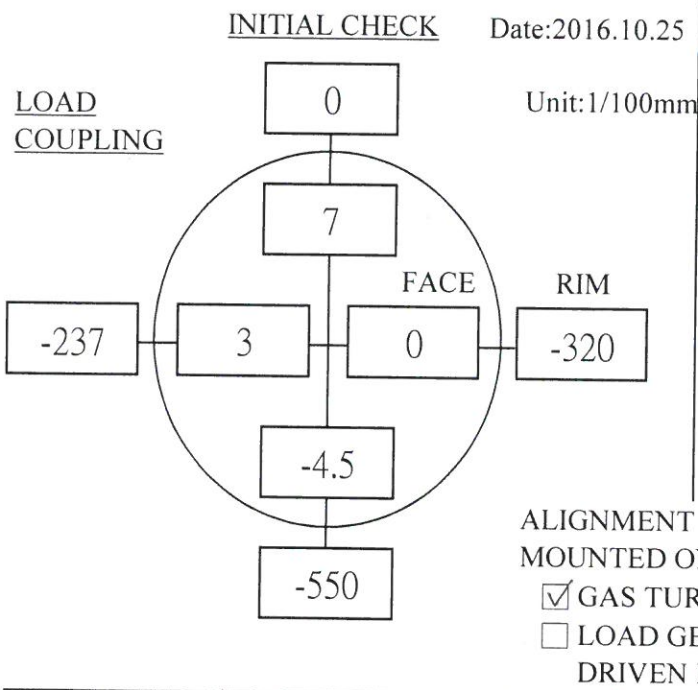
NOTICE - Any alterations to this form must be approved by the Manager, Program Support Engineering, I&SE and the Manager, Technical Information and Procedures, G.T.M.D.

GAS TU]

Coupling Alignment

FSR NO. _____ TURBINE NO. 296274 (05528 Dededo #2) DATE 2016.11.10

1. Checks to be made facing in direction of turbine flow.
2. Reference all "face" readings to 12" diameter.
3. "Rim" readings should reflect indicator riding at coupling O. D. or on male rabet; if indicator rides on female rabet, the sign conventions must be changed .



量測者:李鶴濂、林宗賢、曾成毅



COMMENTS: _____

NOTE: Assistance in obtaining the data to complete this form can be obtained from I&SE/I&SEID.

Witnessed + Approved
Juan Castellanos
 Juan Castellanos GE 11/11/2016

電力修護處量具清單

作業地點/機組：Dededo 發電廠 / GT#1,#2			
工號：IE53322055658			
工具名稱	編號	使用範圍	校驗有效日期
扭力扳手	F00327	300~800 N-M	106.3.31
扭力扳手	F02472	60-300 Nm	106.4.1
電子式游標卡尺	F02297	0~150mm	106.3.22
游標卡尺	FP0277	0~150mm	106.5.24
游標卡尺	F01396	0~300mm	106.5.20
外徑分厘卡	FP1871	0~25mm	106.3.17
外徑分厘卡(共 12 只)	F02288	0~300mm	106.4.17
外徑分厘卡	F01589	300~400mm	106.3.17
內徑分厘卡	F01711	50~1500mm	106.5.24
量表	FP1675	0~10mm	106.4.12
量表	FP2188	0~10mm	106.4.12
量表	FP2190	0~10mm	106.4.21
量表	FP2328	0~10mm	106.5.19
量表	FP2319	0~5mm	106.5.19
量表	FP2320	0~5mm	106.5.19
量表	FP2321	0~5mm	106.5.19
厚薄規			NA
斜度規		0.2~5mm	NA
斜度規		0.2~15mm	NA
斜度規		15~30mm	NA