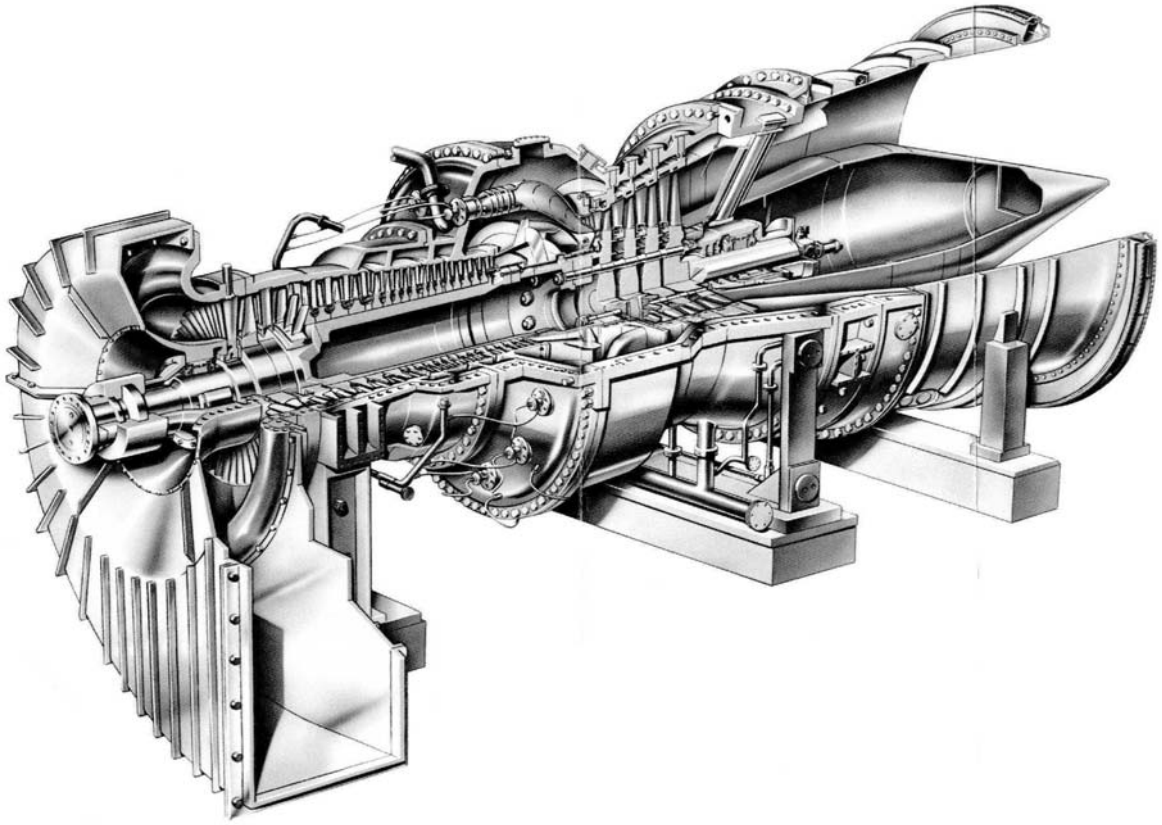
TurboCare®

# *TG50D5 – Std*

***GT Serial Number 354***

***POWER PLANT** ex Turbigo group "G"*

*Major Overhaul*



# *TECHNICAL REPORT TR014-08*

***TURIN 03/09/2008***

**Issued by**
Operations – Field Service

**Document**
I-TLG/TG50D5-354/TR014-08

**Title:** TG50D5 Std S/N:354 GR "G" – MAJOR OVERHAUL

**Author/s**
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**Approved by**
F.FRANCESCHINI

## SUMMARY



| **Customer Distribution** | **Circulation List** | **Sign** | **Date** |
|---|---|---|---|
| | Ing. Merola | | |

***Circulation copy to return back to:*** *Operations – Field Service*

| ***Turbocare Representative*** | ***Signature*** | ***Report*** | ***Date*** |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## 1.0 - FOREWORD

The gas turbine TG50D5 S/N 354, Unit GR "G" at Turbigo Power Plant, was definitively stopped on 03/05/2006. Major overhaul was started on 01/10/2007 and finished on 05/03/2008 in Porto Marghera (VE). All the activities have been done without removal the rotor, by TurboCare employees. The turbine was running on gas fuel, and at the time of the stoppage, it had cumulated the following running data:

| | | |
|---|---|---|
| BHG: | Firing hours on fuel gas base | 25738 |
| PHG: | Firing hours on gas peak load | 9 |
| BHO: | Firing hours on liquid fuel base | 64 |
| PHO | Firing hours on liquid peak load | 6 |
| NS: | Number of start | 1183 |
| ET: | Number of emergency trip | 187 |
| LR | Number of load rejection | 73 |
| EH: | Equivalent hours | 49064 |

## 2.0 COMPRESSOR INSPECTION

### 2.1 COMPRESSOR BODIES

The compressor bodies and the air inlet casing upper part, were removed and the relevant compressor diaphragms disassembled. Upper and lower parts of the bodies were found in good conditions, only cleaning was required. The IGV system, on the inlet casing, was checked and found in good condition too, the relevant mechanism was lubricated at the end of the overhaul.

### 2.2 COMPRESSOR DIAPHRAGMS

Diaphragms were thoroughly cleaned by steam, and checked according to the Field Inspection and Repair Guidelines F I 028/94e. Some of them were found with rubbing marks and air seal surface corrosion, slight dent and small limited area without coating on vane coated surface. Moreover, diaphragms from first to fifth have been ultrasonic tested on the outer shroud tenon welding, reporting no problems. The corrosion was removed by grinding and polishing, finally the diaphragms were reassembled in the same positions. See pages from 22 to 23 for assembly clearances.

### 3.0 - COMBUSTION SYSTEM INSPECTION

All the components of the combustion system have been disassembled and sent to TurboCare factory for inspections and repair if any. Combustion System components ready to be reassembled, Transitions Pieces, Combustor Baskets, Cylinders, Cross-Flame Tubes etc, have been received in Marghera and consequently assembled. Assembly activities have been performed according to the procedures mentioned on the TG50D5 Instruction & Maintenance Manual. For assembly data and clearances, see pages from 37 to 44

**Note:** The Dual Fuel Injectors have been put in preservation, and therefore they have not been reassembled. In place of the Injectors, temporarily steel blind flanges have been installed for turbine protection and preservation.

### 3.1 - ROTOR COOLING FLEXIBLE PIPES

The four flexible pipes, have been removed from the inside combustor body, cleaned by steam and inspected. The coils were visually tested while the welded joints were contrast dye checked.
No indications or damaged have been found, thus the components have been reassembled at the same positions.

### 3.2 - DIFFUSER COMPRESSOR BODY AND INTERMEDIATE SHAFT GUARD

The upper part, was removed from the inside combustor body, cleaned and inspected. No problems have been found on the remaining air seals. For assembling data see page 30.

### 4.0 - TURBINE INSPECTION

The Turbine Body upper part has been removed, thoroughly cleaned and visually inspected. No problems were reported.

### 4.1 - BLADE RINGS

The Blade Rings 1st, 2nd, 3rd and 4th stage upper and lower part have been removed, fully dismantled, cleaned and the relevant components visually inspected. The spacer ring segments, 1st and 2nd row have been found with a light corrosion, which was eliminated through sandblasting. No other particular problems were reported, thus all the components were put back in the same positions. See pages from 66 to 69

### 4.2 - 1st AND 2nd STAGE VANE SEGMENTS

The vanes have been removed from the blade ring and sent to TurboCare factory for inspections and repair. Two complete set of vanes ready to be assembled, were received in Marghera and consequently installed on the engine. For the general information you see page 45

### 4.3 – 3rd STAGE VANE SEGMENTS

The vanes have been removed, cleaned and inspected, according to prescriptions of the Field Inspection and Repair Guidelines F I 013/94e. The inspection, reported some cracks on the vane segments third row. The dimensions and positions of the defects, were falling into the acceptance criteria of the F I 013/94e, therefore no actions were taken and the vanes were put back in the same position without repairing.

For the general information and defects location chart, see pages 46 to 61

### 4.4 – 4th STAGE VANE SEGMENTS

Vanes have been removed cleaned and inspected, according to prescriptions of the Field Inspection and Repair Guidelines F I 013/94e.
Vanes were free of defect, thus they were put back in the same position cleared for running.
For general information see page 45.

### 4.5 – TURBINE AIR LABYRINTH SEAL HOLDER

Turbine Air Labyrinth Seal Holder 2nd, 3rd and 4th stage have been removed from the blade ring and sent to TurboCare factory for inspections and repair. After repair, they have been received at Marghera and reassembled. For assembling data see page 35.

### 5.0 GT ROTOR INSPECTION

Before removal of any bolt, first stage compressor and fourth stage turbine blades tip clearances have been checked out. The axial and radial clearances of the spindle were registered either at the opening or at the closing of the engine. Spindle position was with the compressor side thrust pads loaded and with the diffuser and inlet casing firmly close. See pages from 18 to 34

### 5.1 COMPRESSOR SHAFT - DISKS AND BLADES INSPECTION

The Compressor section, was thoroughly cleaned by diesel oil and steam, the following visual inspection reported some minor damage on few blades which have been repaired according to the Field Inspection and Repair Guidelines F I 014/94e.

### 5.2 TURBINE ROTOR INSPECTION

### 5.2.1 - TURBINE ROTOR DISKS

The turbine rotor disks have been thoroughly cleaned with a steel brush and inspected by contrast dye check. No indications were reported on the four disks and the relevant fir tree.

The disk to disk air baffle seals were reporting an extensive wear all around and they have been replaced according to air baffles replacement procedure FI 001-03e.

### 5.2.2 - TURBINE ROTATING BLADES

### 52.2.1 - 1ST STAGE BLADES

The 1st stage turbine rotating blades have been removed from the disks and sent to TurboCare factory for inspections and repair. A complete set of blades ready to be assembled was received in Marghera and consequently installed on the rotor. Locking plates and seal pins were sandblasted and checked according to the Field Inspection and Repair Guidelines FI 007/85e. No defects were detected.
For the general information, see page 62

### 5.2.2 - 2ND STAGE BLADES

The 2nd stage turbine rotating blades have been removed from the disks and sent to TurboCare factory for inspections and repair. A complete set of blades ready to be assembled was received in Marghera and consequently installed on the rotor. Locking plates inlet and exhaust side and seal pins were sandblasted and checked according to the field inspection and repair guidelines FI 007/85e.
No defects were detected.
For the general information, see page 63

### 5.2.2.2 - 3RD STAGE BLADES

The 3rd stage turbine rotating blades have been removed from the disks, cleaned by sandblast and contrast dye checked. No indications were found, thus the blades were put back in the same position cleared for running. For general information data see page 63.
Inlet and exhaust side locking plates and seal pins were sandblasted and checked out according to the field inspection and repair guidelines FI 007/85e. Ten locking plates outlet side were replaced because out of the acceptance criteria. All the other components have been reassembled. For the general information, see page 64

### 5.2.2.3 - 4TH STAGE BLADES

The 4th stage turbine rotating blades have been removed from the disks, cleaned by sandblast and contrast dye checked. As for the third stage the blades were found free of defect thus put back in the same positions cleared for running. For general information data, see page.64.
Inlet and exhaust side locking plates and seal pins were sandblasted and checked out according to the field inspection and repair guidelines FI 007/85e.
Fifty-two locking plates outlet side were replaced because out of the acceptance criteria. All the other components have been reassembled. For the general information, see page 65

## 6.0 - BEARINGS INSPECTION

### 6.1 - JOURNAL BEARING

Both compressor and turbine side bearings have been removed and completely dismantled.
Ultrasonic test and contrast dye check have been performed on the tilting pads Babbitt metal and the floating seals, the pins spherical and the relevant liners were contrast dye check too.
Due to the non perfect sealing between the pads and the Babbitt metal both bearing have been replaced with new ones. For the general information, see pages17

### 6.2 - THRUST BEARING

Both parts turbine and generator side have been removed, completely dismantled cleaned and inspected. N.D.T. (ultrasonic test and contrast dye check) were carried out on the thrust pads and found in good condition. No problems have been found on the leveling links, pillars and retainer pads. All components have been reinstalled in the same positions. The two Oil Seal Rings left and right groove were replaced.

## 7. AIR & OIL SEALS INSPECTION

All air and oil seals assembled on Inlet Casing and Diffuser Body have been removed, cleaned and inspected. The seals on Inlet Casing have been found damaged and replaced with the new ones. No other problems have been found on remain seals on Diffuser Body. For assembling data see pages 19-20-21-30.

## 8. DIFFUSER BODY AND EXHAUST MANIFOLD FRONT END

The diffuser casing and the exhaust manifold have been cleaned and inspected according to the Field Inspection and Repair Guidelines FI 009/85e. Dye check has been performed on the exhaust diffuser strut shield and exhaust manifold access airfoil. Some cracks were found on the welded joint and field repaired by, as per the FI above mentioned.

## 9. CONCLUSION

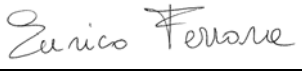
All the maintenance activities on the engine have been performed according to the field inspection and repair guidelines applicable and the TG50D5 instruction & maintenance manual.
After the activities completion the complete engine was put into preservation for long term storage.

**Notice that the spindle axial travel must be double checked at the time of re-location of the engine on a solid foundation block**.

## *12. LIST OF ATTACHMENTS FOR TG50* MAJOR OVERHAUL

## *REPLACED PARTS LIST*

| GROUP | ITEM | DESCRIPTION | QT.Y | DWG |
|---|---|---|---|---|
| 1C | 1 | Oil seal ring | 1 | 4213T45.001 |
| 1C | 4 | Oil seal ring | 1 | 4213T77.001 |
| 1C | 5 | Oil seal ring | 1 | 4213T61.001 |
| 1D | 1 | Compressor side bearing | 1 | 4210T10.101 |
| 2A | 4 | Tie rod 2”- 8Nx350 | 1 | 4214T17.001 |
| 3A | 1 | Allen Screw M24x65 | 1 | 41T0060.565 |
| 3A | 0 | Rotor cooling Thermocouple | 1 | 4217T380.001 |
| 3A | 0-7 | Gasket | 1 | 4212T66.002 |
| 3A | 0-8 | Support for R-C thermocouple | 1 | 4272T89.001 |
| 3A | 0-2 | Bracket for R-C thermocouple | 40 | 4272T90.001 |
| 3A | 0-3 | Safety bracket for R-C thermocouple | 1 | 4272T88.001 |
| 3A | 0-6 | Safety washer | 8 | 4212T59.001 |
| 3A | 9 | Cap nut 2”1/2 8Nx130 | 2 | 4214T18.001 |
| 3A | 10 | Washer 2”1/2 | 1 | 4214T20.064 |
| 3A | 11 | Tie rod 2”1/2-8Nx380 | 1 | 4214T30.001 |
| 3A | 19 | Cap nut 3”-8N x 143 | 2 | 4214T25.001 |
| 3A | 25 | Nut 2”-8Nx111 | 2 | 4214T16.001 |
| 3A | 26 | Washer 2” | 1 | 4214T20.048 |
| 3A | 27 | Tie rod 2” – 8Nx350 | 1 | 4214T17.001 |
| 3A | 31 | Special screw M 10 | 2 | 4214T63.001 |
| 3A | 48 | Allen screw M24x58 | 2 | 4214T61.001 |
| 3C | 5 | Nut M16 | 2 | 4214T82.016 |
| 3C | 7 | Calibrated bolt M16x50 | 2 | 4214T75.001 |
| 3C | 8 | Screw M16x30 | 3 | 41T0057.530 |

| ***Turbocare Representative*** | ***Signature*** | ***Report*** | ***Date*** |
|---|---|---|---|
| Enrico Ferrara |  | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *REPLACED PARTS LIST*

| GROUP | ITEM | DESCRIPTION | QT.Y | DWG |
|---|---|---|---|---|
| 3C | 10 | Bushing | 2 | 4217T24.001 |
| 3C | 13 | Pin diam. 4x17 | 18 | 4270T07.001 |
| 3C | 15 | Pin diam. 4x23 | 18 | 4270T08.001 |
| 3C | 19 | Special screw | 72 | 4216T21.001 |
| 3C | 20 | Safety plate | 36 | 4216T22.001 |
| 3C | 22 | Self locking nut M12x1,75 | 72 | 4214T43.001 |
| 3C | 23 | Safety plate | 18 | 4216T49.001 |
| 3D | 6 | Self locking nut M10x1,5 | 48 | 4275T81.001 |
| 3D | 7 | Allen screw M10x45 | 10 | 41T0054.545 |
| 3D | 12 | Spring | 3 | 4216T48.001 |
| 4A | 56 | Cap nut M52x3x120 | 2 | 4214T91.001 |
| 4A | 57 | Washer 2”1/4 | 2 | 4214T20.057 |
| 4A | 58 | Allen screw M52x3x380 | 2 | 41T0256.880 |
| 4B | 14 | Allen screw M20x60 | 2 | 41T0247.560 |
| 4B | 22 | Allen screw M12 | 5 | 4288T02.001 |
| 4B | 36 | Helicoil | 2 | 4087T93.001 |
| 4D | 5 | Spring | 12 | 4276T90.001 |
| 4D | 29 | Safety washer | 8 | 4214T87.001 |
| 4D | 30 | Allen screw M10 | 4 | 4277T58.001 |
| 4D | 41 | Spacer ring segment retaining block | 8 | 4088T03.001 |
| 4D | 42 | Allen screw M20x60 | 2 | 41T0247.560 |
| 4D | 45 | Countersunk head slotted screw M10 | 4 | 4088T07.001 |
| 4F | 29 | Safety washer | 8 | 4214T87.001 |
| 4F | 30 | Special screw M10 | 2 | 4277T57.001 |

## *REPLACED PARTS LIST*

| GROUP | ITEM | DESCRIPTION | QT.Y | DWG |
|---|---|---|---|---|
| 4F | 39 | Allen screw M20x60 | 2 | 41T0247.560 |
| 4G | 21 | Allen screw M12x30 | 2 | 41T0244.530 |
| 4G | 29 | Safety washer | 8 | 4214T87.001 |
| 4G | 30 | Special screw | 4 | 4277T57.001 |
| 4G | 37 | Straight pin diam. 6x25 | 4 | 41T0187.025 |
| 4G | 38 | Thermocouple guide | 1 | 4277T03.001 |
| 5A | 14 | Air seal ring | 1 | 4213T73.001 |
| 5A | 16 | Air seal ring | 1 | 4213T27.001 |
| 5A | 17 | Oil seal ring | 1 | 4213T70.001 |
| 5B | 1 | Turbine side bearing | 1 | 4210T10.101 |
| 6 | 0-1 | Gasket | 1 | 4272T22.001 |
| 6 | 0-2 | Gasket | 2 | 4272T28.001 |
| 6 | 0-3 | Gasket | 2 | 4279T69.001 |
| 7D | 4 | Screw for plate first stage | 4 | 4216T03.001 |
| 7D | 5 | Safety washer | 16 | 4216T05.001 |
| 7D | 7 | Safety washer | 16 | 4216T04.001 |
| 7D | 12 | Screw for plate | 16 | 4216T01.001 |
| 7D | 18 | Safety washer | 78 | 4216T06.001 |
| 7D | 19 | Screw for plate | 78 | 4216T00.001 |
| 7D | 25 | Screw for plate | 12 | 4216T02.001 |
| 7D | 36 | Sealing plate for 3rd. stage blades | 10 | 4223T45.001 |
| 7D | 37 | Sealing plate for 4rd. stage blades | 52 | 4223T49.001 |
| 20 | 27 | Cap nut M52x3x120 | 3 | 4214T91.001 |
| 20 | 28 | Washer M52 | 3 | 4212T84.052 |

| ***Turbocare Representative*** | ***Signature*** | ***Report*** | ***Date*** |
|---|---|---|---|
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## *REPLACED PARTS LIST*

| GROUP | ITEM | DESCRIPTION | QT.Y | DWG |
|---|---|---|---|---|
| 20 | 29 | ScrewM52x3x260 | 3 | 41T0256.260 |
| 20 | 30 | Washer M48 | 3 | 4212T84.148 |
| 20 | 31 | Screw M48x3x256 | 1 | 4212T42.001 |
| 20 | 32 | Washer M48 | 1 | 4212T84.048 |
| 20 | 33 | Nut M48x3 | 1 | 4212T83.148 |
| 20 | 40 | Bolt M42x3x290 | 8 | 42T0190.240 |
| 20 | 42 | Nut M42x3 | 8 | 4212T83.142 |
| 20 | 43 | Washer M42 | 2 | 4212T84.142 |
| 20 | 54 | Bolt M16x35 | 2 | 42T0177.535 |
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| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
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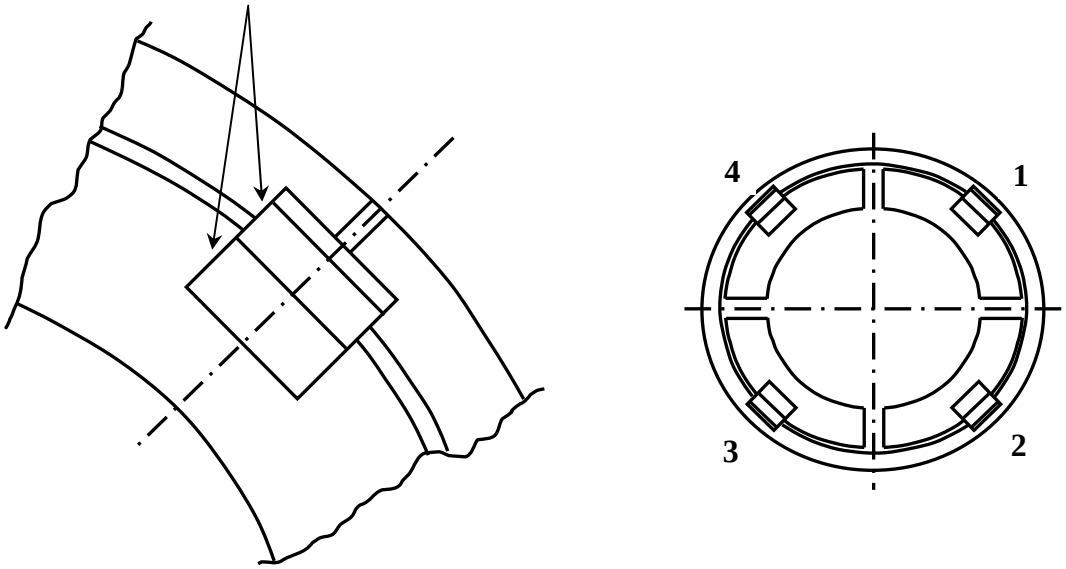
## *JOURNAL BEARINGS – LEVELLING BLOCKS*

**LEVELLING BLOCKS**

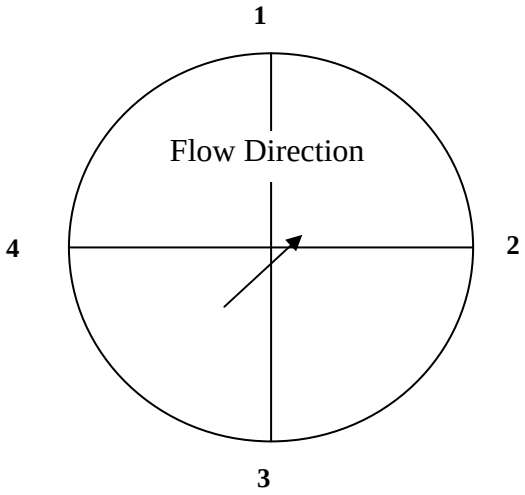



| LEVELLING BLOCKS CONDITIONS | | | | |
|---|---|---|---|---|
| **BLOCK POSITION** | **1** | **2** | **3** | **4** |
| **COMPRESSOR SIDE** | Good | Good | Good | Good |
| **TURBINE SIDE** | Good | Good | Good | Good |

**Notes:**

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

# *1st STAGE COMPRESSOR AND 4th STAGE TURBINE BLADES CLEARANCES*




| BEFORE DISASSEMBLY | | | | |
|---|---|---|---|---|
| Measuring point / Stage | **1** | **2** | **3** | **4** |
| First stage compressor | | | | |
| Fourth stage turbine | | | | |

| AFTER REASSEMBLY | | | | |
|---|---|---|---|---|
| Measuring point / Stage | **1** | **2** | **3** | **4** |
| First stage compressor | 2.3 | 2.3 | 2.2 | 2.0 |
| Fourth stage turbine | 7.5 | 7.1 | 7.0 | 7.6 |

**Notes:** READINGS MUST BE TAKEN ON COMPRESSOR FIRST STAGE BLADES AND TURBINE FOURTH STAGE BLADES, BETWEEN BLADES TIP AND CASINGS. THE TURBINE MUST BE COMPLETELY ASSEMBLED; ONLY THE INLET AND THE EXHAUST DUCTS UPPER PARTS, CAN BE MISSING.

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
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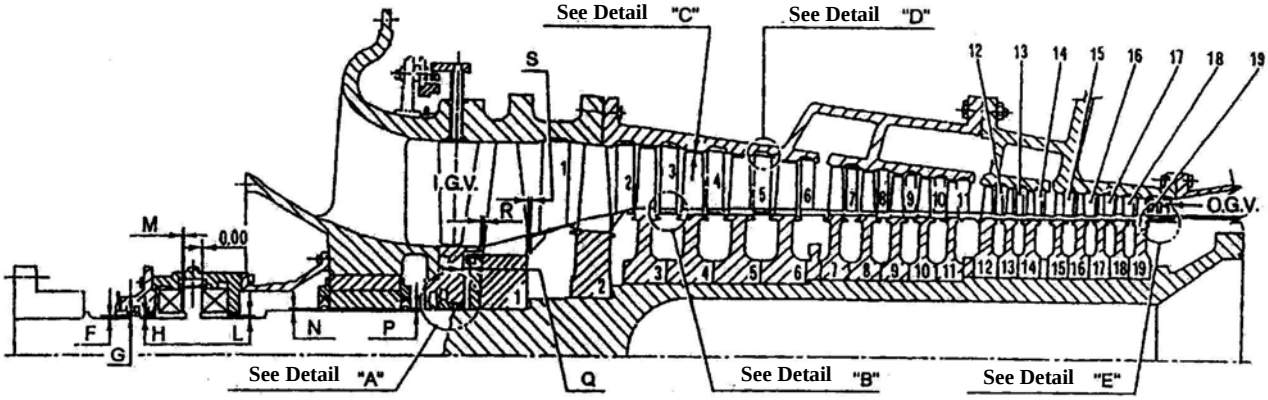
## *COMPRESSOR ROTOR CLEARANCES - BEFORE OVERHAUL*




| *LEFT* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Position** | | **F** | **G** | **H** | **L** | **M** | **N** | **P** | **Q** | **R** | **S** |
| **Readings** | | | | *0,2* | *0,19* | | *0,95* | *1,0* | --- | *7,5* | |
| **Permitted Clearances (diameter)** | **Min.** | 1,28 | 1,28 | 0,16 | 0,16 | 0,35 | 0,97 | 0,97 | 23,8 | 5,50 | 11,17 |
| | **Max** | 1,44 | 1,44 | 0,22 | 0,22 | 0,61 | 1,07 | 1,07 | 26,32 | 7,65 | (Ref.) |

| *RIGHT* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Position** | | **F** | **G** | **H** | **L** | **M** | **N** | **P** | **Q** | **R** | **S** |
| **Readings** | | | | *n.a* | *n.a.* | ---- | *n.a.* | *n.a.* | --- | *7,7* | |
| **Permitted Clearances (diameter)** | **Min.** | 1,28 | 1,28 | 0,16 | 0,16 | 0,35 | 0,97 | 0,97 | 23,8 | 5,50 | 11,17 |
| | **Max** | 1,44 | 1,44 | 0,22 | 0,22 | 0,61 | 1,07 | 1,07 | 26,32 | 7,65 | (Ref.) |

Values different from those listed in the table, must be submitted to Turbocare for approval. All the readings must be taken with the rotor pushed against the thrust bearing (exhaust side).

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
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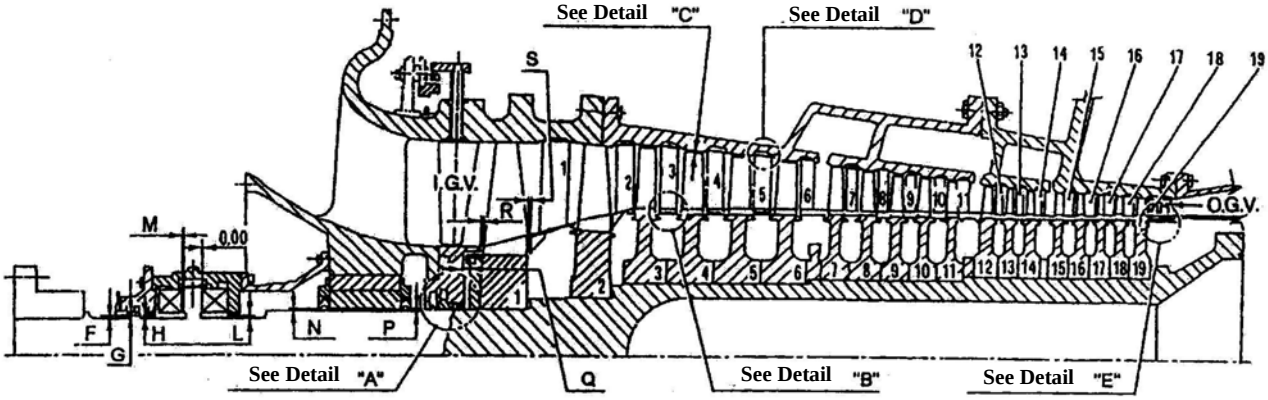
## *COMPRESSOR ROTOR CLEARANCES - AFTER OVERHAUL*




| *LEFT* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Position** | | **F** | **G** | **H** | **L** | **M** | **N** | **P** | **Q** | **R** | **S** |
| **Readings** | | | | *0,2* | *0,19* | | | | | *7,3* | |
| **Permitted Clearances** | **Min.** | 1,28 | 1,28 | 0,16 | 0,16 | 0,35 | 0,97 | 0,97 | 23,8 | 5,50 | 11,17 |
| | **Max** | 1,44 | 1,44 | 0,22 | 0,22 | 0,61 | 1,07 | 1,07 | 26,32 | 7,65 | (Ref.) |

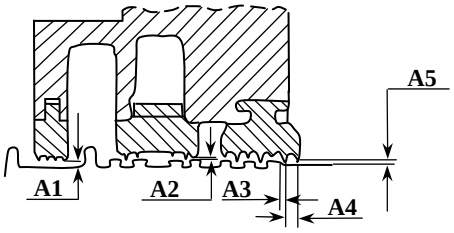
| *RIGHT* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Position** | | **F** | **G** | **H** | **L** | **M** | **N** | **P** | **Q** | **R** | **S** |
| **Readings** | | | | *n.a.* | *n.a.* | | | | | *7,5* | |
| **Permitted Clearances** | **Min.** | 1,28 | 1,28 | 0,16 | 0,16 | 0,35 | 0,97 | 0,97 | 23,8 | 5,50 | 11,17 |
| | **Max** | 1,44 | 1,44 | 0,22 | 0,22 | 0,61 | 1,07 | 1,07 | 26,32 | 7,65 | (Ref.) |

Values different from those listed in the table, must be submitted to Turbocare for approval. All the readings must be taken with the rotor pushed against the thrust bearing (exhaust side).

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

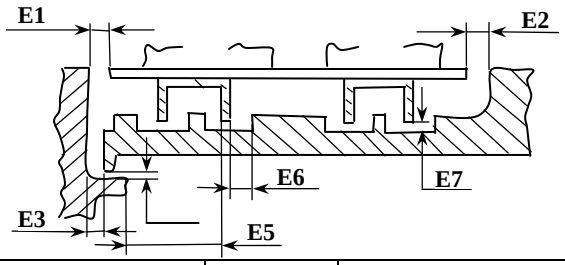
## INLET CASING LABYRINTH SEALS - DETAIL "A"

1. Readings must be taken looking downstream, left and right side
2. Defects must be specified (i.e. inlet and outlet side looking downstream)
3. Values different from those listed in the table below must be submitted to Turbocare




| | CLEARANCES | | | | | Admitted clearances | SHAFT VISUAL INSPECTION |
|---|---|---|---|---|---|---|---|
| | Pos. | Before overhaul | | After overhaul | | | |
| | | Left | Right | Left | Right | | |
| Detail "A" | A1 | *0,5* | *0,6* | *0,25* | *0,9* | 1,25 – 1,38 | |
| | A2 | *0,8* | *0,8* | *0,4* | *1,0* | 1,55 – 1,78 | |
| | A3 | | | | | 2,10 – 5,85 | |
| | A4 | | | | | 2,55 – 6,05 | |
| | A5 | *0,8* | *0,8* | *0,5* | *1,2* | 1,55 – 2,05 | |

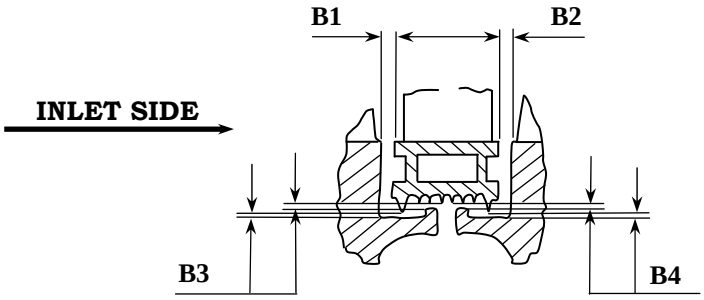
## COMPRESSOR OGV LABYRINTH SEAL - DETAIL "E"




| | CLEARANCES | | | | | Admitted clearances | SHAFT VISUAL INSPECTION |
|---|---|---|---|---|---|---|---|
| | Pos. | Before overhaul | | After overhaul | | | |
| | | left | right | left | right | | |
| Detail "E" | E1 | | | | | 6,15 | |
| | E2 | | | | | 6,50 | |
| | E3 | | | | | 10,90 | |
| | E4 | | | | | 2,05 – 4,62 | |
| | E5 | | | | | 10,20 | |
| | E6 | | | | | 1,00 - 3,75 | |
| | E7 | *2,2* | *1,8* | *2,0* | *2,0* | 1,60 – 2,70 | |

| Turbocare Representative | Signature | Report | Date |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *COMPRESSOR ROTOR CLEARANCES - DETAIL "B" - BEFORE OVERHAUL*



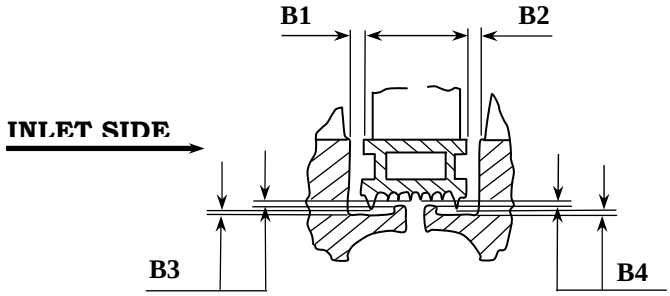

Sketches enclosed: yes ☐ no ☐ Photo enclosed: yes ☐ no ☐

| Stage | left | | | | Right | | | | Admitted values | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B1 | B2 | B3 | B4 | B1 | B2 | B3 | B4 | B1 | B2 | B3 | B4 |
| **S1** | *9,9* | *6,9* | *0,7* | *0,7* | *9,0* | *9,2* | *0,6* | *0.5* | **10,47 12,77** | **6,68 - 8,28** | **1,32 - 1,72** | **1,32 - 1,72** |
| **S2** | *7,9* | *5,0* | *0,9* | *1,2* | *6,3* | *6,3* | *1,1* | *1,2* | **5,55 - 7,96** | **6,46 - 8,06** | **1,32 - 1,72** | **1,32 - 1,72** |
| **S3** | *5,1* | *10,5* | *1,3* | *1,4* | *5,4* | *10,7* | *1,4* | *1,5* | **5,55 - 7,93** | **10,1-11,74** | **1,37 - 1,77** | **1,53 - 1,93** |
| **S4** | *9,0* | *7,1* | *1,4* | *1,4* | *8,6* | *7,5* | *1,5* | *1,6* | **8,5 - 10,93** | **7,14 - 8,74** | **1,38 - 1,78** | **1,51 - 1,91** |
| **S5** | *6,5* | *6,6* | *1,7* | *1,7* | *5,5* | *7,4* | *1,7* | *1,7* | **5,53 - 7,93** | **7,15 - 8,75** | **1,63 - 2,03** | **1,53 - 1,93** |
| **S6** | *6,6* | *6,5* | *1,7* | *1,8* | *6,1* | *7,7* | *1,8* | *1,9* | **5,53 - 7,93** | **7,16 - 8,76** | **1,62 - 2,02** | **1,54 - 1,94** |
| **S7** | *6,6* | *7,1* | *1,7* | *1,8* | *5,2* | *8,0* | *1,9* | *1,9* | **5,53 - 7,93** | **7,15 - 8,75** | **1,66 - 2,06** | **1,75 - 2,15** |
| **S8** | *6,1* | *8,4* | *1,5* | *1,5* | *5,2* | *8,9* | *2,0* | *1,9* | **5,53 - 7,93** | **8,32 - 9,92** | **1,70 - 2,10** | **1,73 - 2,13** |
| **S9** | *7,0* | *8,5* | *1,5* | *1,5* | *7,0* | *8,7* | *1,85* | *1,9* | **6,72 - 9,10** | **8,36 - 9,96** | **1,68 - 2,08** | **1,70 - 2,10** |
| **S10** | *7,3* | *7,3* | *1,7* | *1,6* | *6,8* | *7,8* | *1,9* | *2,0* | **6,7 - 9,08** | **7,19 - 8,79** | **1,90 - 2,30** | **1,90 - 2,30** |
| **S11** | *5,7* | *8,0* | *1,7* | *1,7* | *5,5* | *7,9* | *2,0* | *2,0* | **5,38 - 7,68** | **7,31 - 8,91** | **1,94 - 2,34** | **1,87 - 2,27** |
| **S12** | *6,1* | *7,8* | *1,5* | *1,6* | *5,4* | *8,7* | *1,1* | *1,1* | **5,47 - 7,87** | **8,5 - 10,11** | **1,90 - 2,30** | **1,90 - 2,30** |
| **S13** | *6,6* | *7,1* | *2,0* | *2,0* | *6,0* | *7,5* | *1,6* | *1,7* | **5,33 - 7,73** | **8,9 - 10,51** | **2,23 - 2,63** | **2,23 - 2,63** |
| **S14** | *6,5* | *8,2* | *2,1* | *2,1* | *6,6* | *9,2* | *1,6* | *1,7* | **5,34 - 7,74** | **9,2 - 10,65** | **2,21 - 2,61** | **2,23 - 2,63** |
| **S15** | *6,5* | *8,0* | *2,1* | *2,0* | *5,4* | *8,9* | *1,7* | *1,6* | **5,34 - 7,74** | **8,32 - 9,92** | **2,03 - 2,43** | **2,03 - 2,43** |
| **S16** | *6,1* | *10,5* | *1,9* | *1,9* | *5,2* | *10,5* | *1,7* | *1,7* | **5,33 - 7,73** | **10,3 - 11,9** | **2,03 - 2,43** | **2,03 - 2,43** |
| **S17** | *5,6* | *9,7* | *1,8* | *1,8* | *5,5* | *9,4* | *1,7* | *1,8* | **5,33 - 7,73** | **10,3 - 11,9** | **2,03 - 2,43** | **2,03 - 2,43** |
| **S18** | *6,5* | *10,5* | *1,5* | *1,5* | *6,5* | *9,9* | *1,7* | *1,7* | **5,33 - 7,73** | **10,3 - 11,9** | **2,03 - 2,43** | **2,03 - 2,43** |
| **S19** | *6,1* | | | | *5,9* | | | | **5,34 - 7,74** | --- | --- | --- |

Values different from those listed in the above table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *COMPRESSOR ROTOR CLEARANCES - DETAIL "B" - AFTER OVERHAUL*



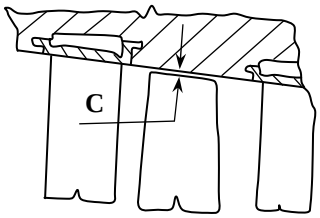

Sketches enclosed: yes ☐ no ☐ Photo enclosed: yes ☐ no ☐

| Stage | left | | | | right | | | | Admitted values | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B1 | B2 | B3 | B4 | B1 | B2 | B3 | B4 | B1 | B2 | B3 | B4 |
| **S1** | *10,2* | *7,5* | *0,4* | *0,25* | *9,65* | *8,5* | *0,85* | *0,85* | **10,47 12,77** | **6,68 - 8,28** | **1,32 - 1,72** | **1,32 - 1,72** |
| **S2** | *7,4* | *5,2* | *0,6* | *0,85* | *7,2* | *5,85* | *1,35* | *1,7* | **5,55 - 7,96** | **6,46 - 8,06** | **1,32 - 1,72** | **1,32 - 1,72** |
| **S3** | *6,3* | *10,0* | *1,15* | *1,2* | *6,6* | *9,8* | *1,7* | *1,7* | **5,55 - 7,93** | **10,1-11,74** | **1,37 - 1,77** | **1,53 - 1,93** |
| **S4** | *9,9* | *6,2* | *1,2* | *1,3* | *9,6* | *6,6* | *1,8* | *1,9* | **8,5 - 10,93** | **7,14 - 8,74** | **1,38 - 1,78** | **1,51 - 1,91** |
| **S5** | *7,5* | *5,8* | *1,5* | *1,6* | *6,95* | *6,0* | *1,6* | *1,6* | **5,53 - 7,93** | **7,15 - 8,75** | **1,63 - 2,03** | **1,53 - 1,93** |
| **S6** | *7,0* | *6,0* | *1,5* | *1,75* | *7,1* | *6,3* | *2,0* | *2,3* | **5,53 - 7,93** | **7,16 - 8,76** | **1,62 - 2,02** | **1,54 - 1,94** |
| **S7** | *6,7* | *6,4* | *1,7* | *1,8* | *6,0* | *7,3* | *2,2* | *2,3* | **5,53 - 7,93** | **7,15 - 8,75** | **1,66 - 2,06** | **1,75 - 2,15** |
| **S8** | *7,1* | *7,3* | *1,3* | *1,3* | *6,1* | *7,9* | *2,2* | *2,1* | **5,53 - 7,93** | **8,32 - 9,92** | **1,70 - 2,10** | **1,73 - 2,13** |
| **S9** | *8,0* | *7,3* | *1,3* | *1,3* | *7,4* | *7,9* | *2,1* | *2,1* | **6,72 - 9,10** | **8,36 - 9,96** | **1,68 - 2,08** | **1,70 - 2,10** |
| **S10** | *7,6* | *7,2* | *1,5* | *1,65* | *7,4* | *7,0* | *2,1* | *2,2* | **6,7 - 9,08** | **7,19 - 8,79** | **1,90 - 2,30** | **1,90 - 2,30** |
| **S11** | *6,1* | *7,2* | *1,7* | *1,9* | *6,2* | *7,0* | *2,2* | *2,2* | **5,38 - 7,68** | **7,31 - 8,91** | **1,94 - 2,34** | **1,87 - 2,27** |
| **S12** | *6,4* | *7,5* | *1,35* | *1,4* | *5,7* | *8,3* | *1,5* | *1,6* | **5,47 - 7,87** | **8,5 - 10,11** | **1,90 - 2,30** | **1,90 - 2,30** |
| **S13** | *7,1* | *7,4* | *1,85* | *1,9* | *6,7* | *7,8* | *1,8* | *1,9* | **5,33 - 7,73** | **8,9 - 10,51** | **2,23 - 2,63** | **2,23 - 2,63** |
| **S14** | *6,9* | *8,3* | *1,9* | *2,0* | *6.0* | *9,0* | *2,0* | *1,9* | **5,34 - 7,74** | **9,2 - 10,65** | **2,21 - 2,61** | **2,23 - 2,63** |
| **S15** | *7,3* | *7,4* | *1,85* | *1,85* | *7,4* | *7,0* | *2,3* | *2,3* | **5,34 - 7,74** | **8,32 - 9,92** | **2,03 - 2,43** | **2,03 - 2,43** |
| **S16** | *6,6* | *9,7* | *1,0* | *1,1* | *6,1* | *9,9* | *1,5* | *1,5* | **5,33 - 7,73** | **10,3 - 11,9** | **2,03 - 2,43** | **2,03 - 2,43** |
| **S17** | *6,0* | *9,3* | *1,0* | *1,1* | *6,4* | *9,0* | *2,1* | *2,2* | **5,33 - 7,73** | **10,3 - 11,9** | **2,03 - 2,43** | **2,03 - 2,43** |
| **S18** | *7,1* | *9,8* | *1,4* | *1,4* | *7,2* | *9,7* | *1,8* | *1,7* | **5,33 - 7,73** | **10,3 - 11,9** | **2,03 - 2,43** | **2,03 - 2,43** |
| **S19** | *7,1* | *5,7* | --- | --- | *6,4* | *6,5* | --- | --- | **5,34 - 7,74** | --- | --- | --- |

Values different from those listed in the above table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## COMPRESSOR ROTOR CLEARANCES – DETAIL "C" – BEFORE OVERHAUL

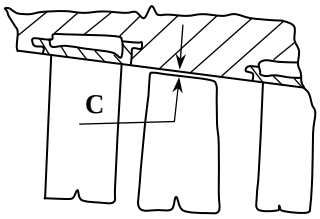



| Stage | Right | | Left | | Permitted Values | |
|---|---|---|---|---|---|---|
| | Horinz. CL | Upper CL | Horinz. CL | Upper CL | Horinz. CL | Upper CL |
| **S1** | *1,8* | | *2,1* | | **2,25 – 3,02** | **2,05** |
| **S2** | *2,2* | | *2,2* | | **2,46 – 3,22** | |
| **S3** | *1,9* | | *2,2* | | **2,62 – 3,38** | |
| **S4** | *1,8* | | *2,2* | | **2,62 – 3,38** | |
| **S5** | *2,1* | | *2,1* | | **2,62 – 3,38** | |
| **S6** | *2,1* | | *2,1* | | **2,62 – 3,38** | |
| **S7** | *2,1* | | *2,3* | | **2,89 – 3,65** | |
| **S8** | *2,0* | | *2,0* | | **2,89 – 3,65** | |
| **S9** | *2,1* | | *2,3* | | **2,89 – 3,65** | |
| **S10** | *2,4* | | *2,5* | | **3,39 – 4,15** | **2,90** |
| **S11** | *2,5* | | *2,5* | | **3,39 – 4,15** | |
| **S12** | *2,1* | | *2,7* | | **3,39 – 4,15** | |
| **S13** | *2,3* | | *2,7* | | **3,64 – 4,4** | |
| **S14** | *2,4* | | *2,7* | | **3,64 – 4,4** | |
| **S15** | *2,1* | | *2,4* | | **3,64 – 4,4** | |
| **S16** | *2,1* | | *2,4* | | **3,64 – 4,4** | |
| **S17** | *2,1* | | *2,2* | | **3,64 – 4,4** | |
| **S18** | *2,2* | | *2,2* | | **3,64 – 4,4** | |
| **S19** | *2,2* | | *2,2* | | **3,64 – 4,4** | **2,80** |

Values different from those listed in the table must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

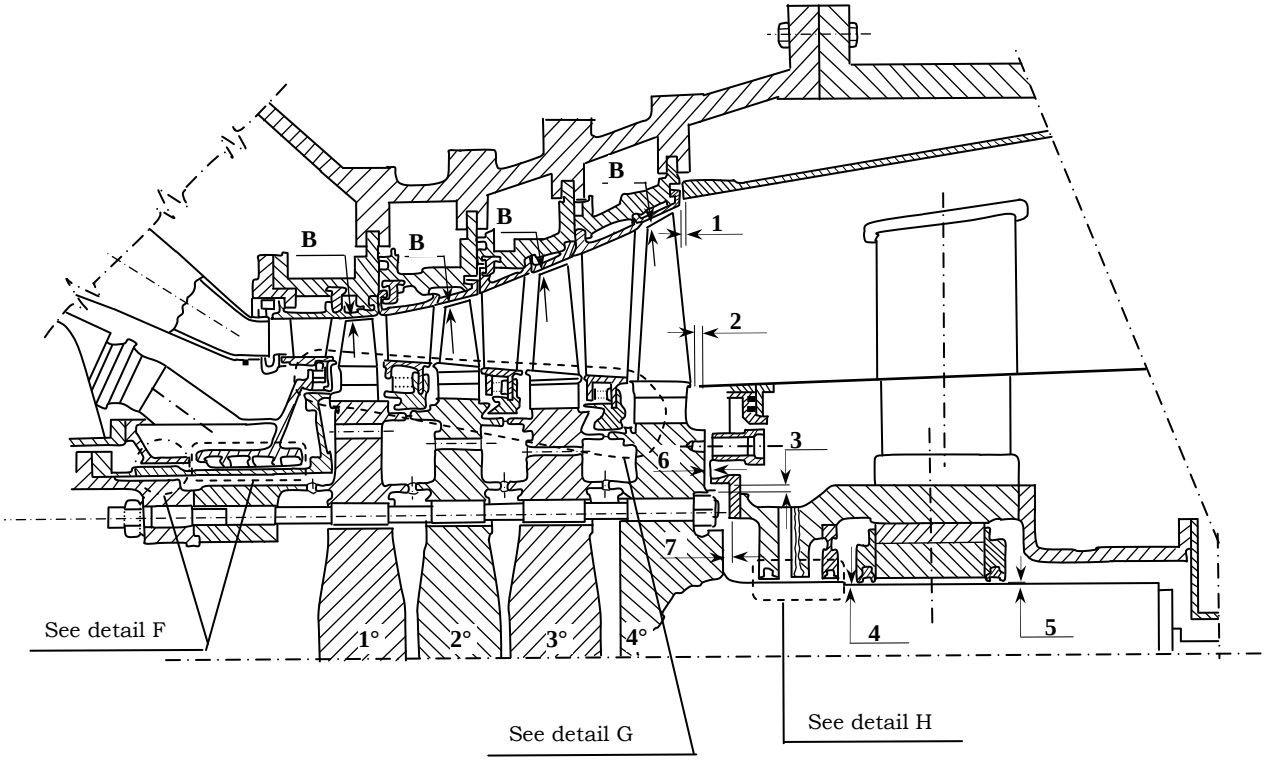
## *COMPRESSOR ROTOR CLEARANCES – DETAIL "C" – AFTER OVERHAUL*




| Stage | Right | | Left | | Permitted Values | |
|---|---|---|---|---|---|---|
| | Horinz. CL | Upper CL | Horinz. CL | Upper CL | Horinz. CL | Upper CL |
| **S1** | *2,1* | | *1,4* | | **2,25 – 3,02** | **2,05** |
| **S2** | *2,1* | | *1,9* | | **2,46 – 3,22** | |
| **S3** | *2,3* | | *1,7* | | **2,62 – 3,38** | |
| **S4** | *2,3* | | *1,8* | | **2,62 – 3,38** | |
| **S5** | *2,4* | | *1,9* | | **2,62 – 3,38** | |
| **S6** | *2,4* | | *1,9* | | **2,62 – 3,38** | |
| **S7** | *2,3* | | *1,9* | | **2,89 – 3,65** | |
| **S8** | *2,0* | | *1,7* | | **2,89 – 3,65** | |
| **S9** | *2,3* | | *2,0* | | **2,89 – 3,65** | |
| **S10** | *2,5* | | *2,4* | | **3,39 – 4,15** | **2,90** |
| **S11** | *3,0* | | *2,4* | | **3,39 – 4,15** | |
| **S12** | *2,6* | | *2,6* | | **3,39 – 4,15** | |
| **S13** | *2,5* | | *2,7* | | **3,64 – 4,4** | |
| **S14** | *2,6* | | *2,7* | | **3,64 – 4,4** | |
| **S15** | *2,5* | | *2,5* | | **3,64 – 4,4** | |
| **S16** | *2,4* | | *2,3* | | **3,64 – 4,4** | |
| **S17** | *2,5* | | *2,4* | | **3,64 – 4,4** | |
| **S18** | *2,4* | | *2,3* | | **3,64 – 4,4** | |
| **S19** | *2,5* | | *2,2* | | **3,64 – 4,4** | **2,80** |

Values different from those listed in the table must be submitted to Turbocare for evaluation.

## *TURBINE ROTOR CLEARANCES – RIGHT SIDE - BEFORE OVERHAUL*




| STAGE ("B" value) | | 1ST | 2ND | 3RD | 4TH |
|---|---|---|---|---|---|
| Horizontal centerline readings | | 1,95 | 3,55 | 4,75 | 6,0 |
| **Horizontal centerline permitted values** | **Min** | **3,30** | **4,50** | **6,35** | **7,85** |
| | **Max** | **3,80** | **5,35** | **7,20** | **8,70** |
| Upper centerline readings | | | | | |
| **Upper centerline permitted values** | **Min** | **3,40** | **5,05** | **7,30** | **7,90** |
| | **Max** | **4,00** | **5,90** | **8,15** | **8,75** |
| Lower centerline reading | | | | | |
| **Lower centerline permitted values** | **Min** | **3,20** | | | **7,80** |
| | **Max** | **3,70** | | | **8,65** |

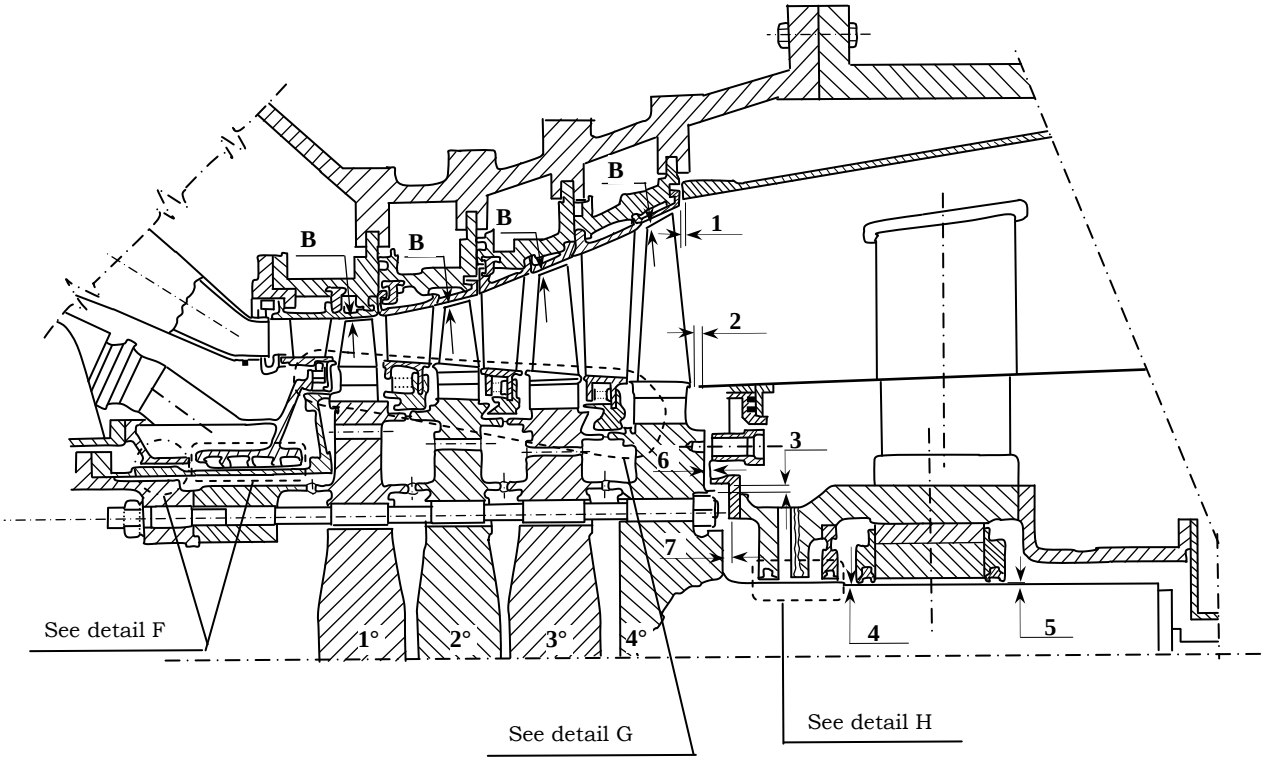
| POSITION | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Readings | | | | | | | | |
| **Permitted values (diameter)** | **Min** | **11,4** | **19,4** | **6,60** | **1,0** | **1,0** | **26,0** | **23,6** |
| | **Max** | **12,8** | **27,1** | **7,0** | **1,1** | **1,1** | **ref** | **ref** |

**Notes:**

**Notes:** All the clearances must be taken with rotor and blade rings pushed toward the exhaust side.
Values not complying with those listed in the table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE ROTOR CLEARANCES – RIGHT SIDE - AFTER OVERHAUL*




| STAGE ("B" value) | | 1ST | 2ND | 3RD | 4TH |
|---|---|---|---|---|---|
| Horizontal centerline readings | | 1,5 | 3,2 | 4,2 | 5,0 |
| **Horizontal centerline permitted values** | **Min** | **3,30** | **4,50** | **6,35** | **7,85** |
| | **Max** | **3,80** | **5,35** | **7,20** | **8,70** |
| Upper centerline readings | | | | | |
| **Upper centerline permitted values** | **Min** | **3,40** | **5,05** | **7,30** | **7,90** |
| | **Max** | **4,00** | **5,90** | **8,15** | **8,75** |
| Lower centerline reading | | | | | |
| **Lower centerline permitted values** | **Min** | **3,20** | | | **7,80** |
| | **Max** | **3,70** | | | **8,65** |

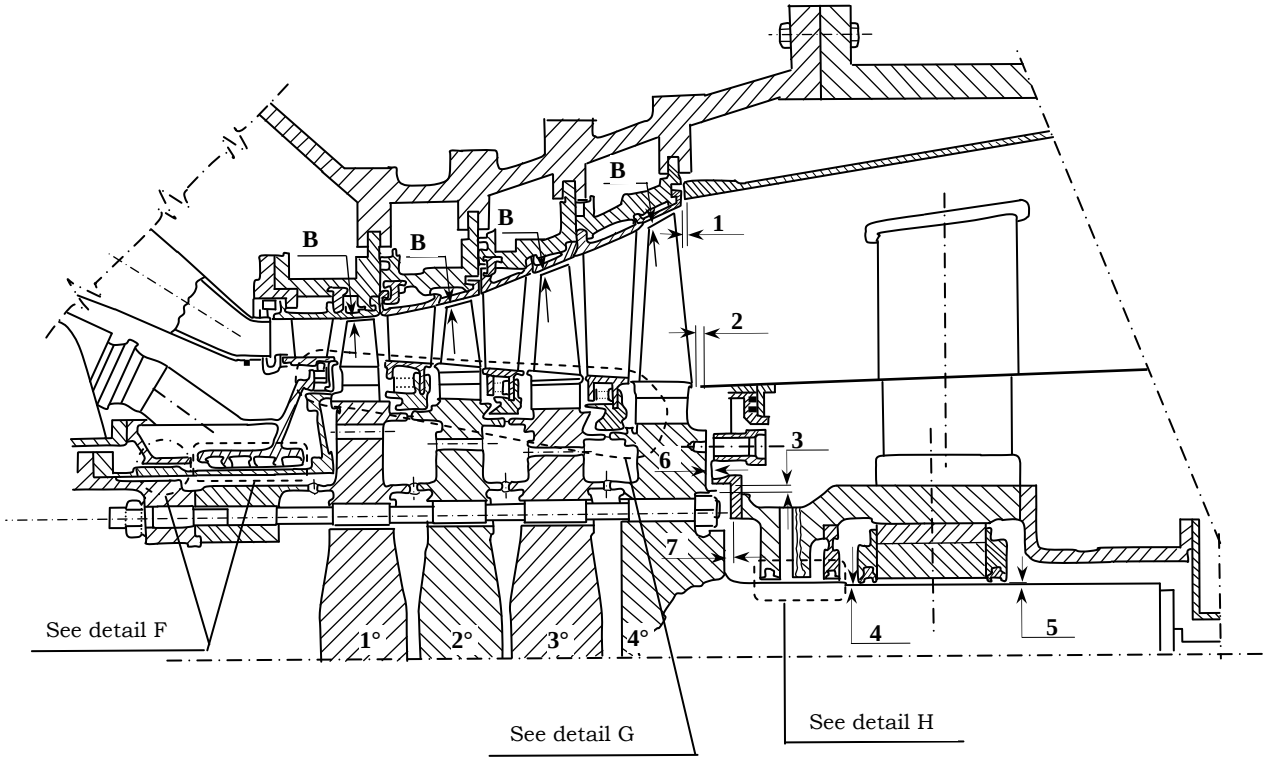
| POSITION | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Readings | | | | | | | | |
| **Permitted values (diameter)** | **Min** | **11,4** | **19,4** | **6,60** | **1,0** | **1,0** | **26,0** | **23,6** |
| | **Max** | **12,8** | **27,1** | **7,0** | **1,1** | **1,1** | **ref** | **ref** |

**Notes:**

**Notes:** All the clearances must be taken with rotor and blade rings pushed toward the exhaust side.
Values not complying with those listed in the table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE ROTOR CLEARANCES – LEFT SIDE - BEFORE OVERHAUL*




| STAGE ("B" value) | | 1ST | 2ND | 3RD | 4TH |
|---|---|---|---|---|---|
| Horizontal centerline readings | | 2,35 | 3,25 | 4,1 | 5,8 |
| **Horizontal centerline permitted values** | **Min** | **3,30** | **4,50** | **6,35** | **7,85** |
| | **Max** | **3,80** | **5,35** | **7,20** | **8,70** |
| Upper centerline readings | | | | | |
| **Upper centerline permitted values** | **Min** | **3,40** | **5,05** | **7,30** | **7,90** |
| | **Max** | **4,00** | **5,90** | **8,15** | **8,75** |
| Lower centerline reading | | | | | |
| **Lower centerline permitted values** | **Min** | **3,20** | | | **7,80** |
| | **Max** | **3,70** | | | **8,65** |

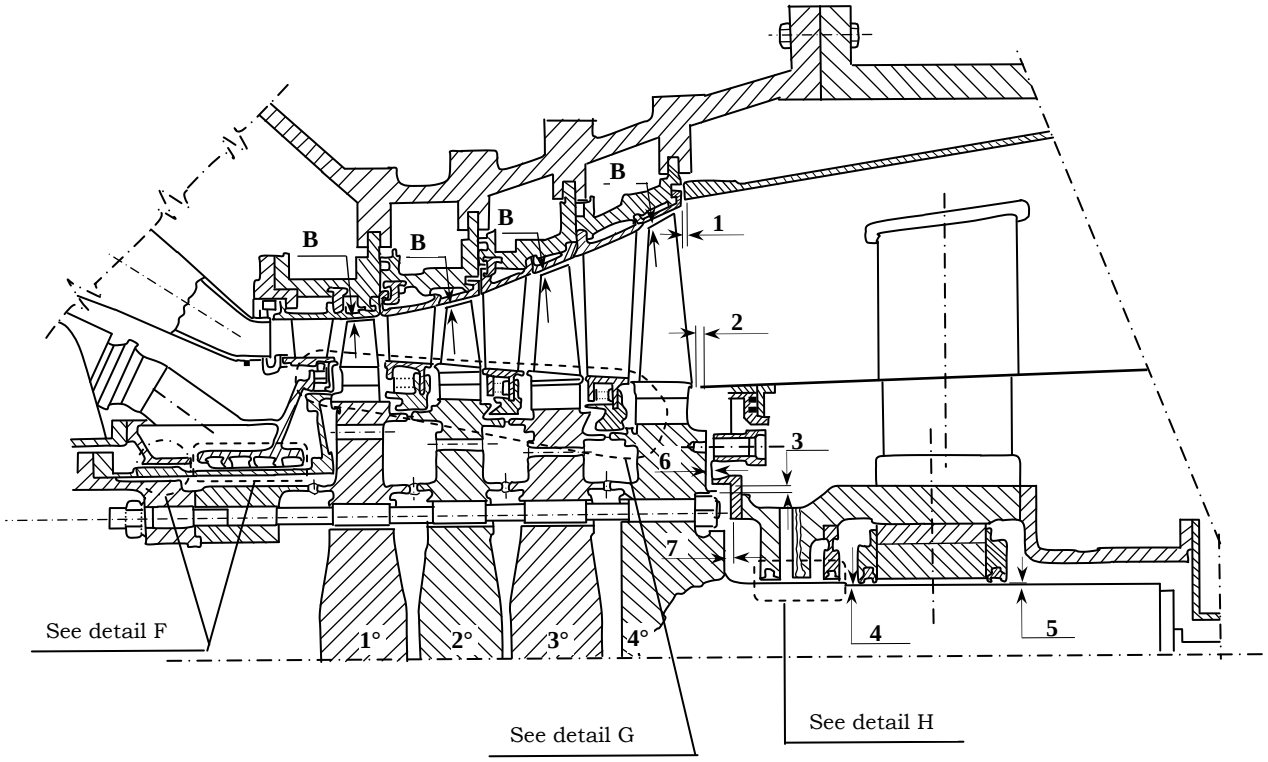
| POSITION | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Readings | | | | | | | | |
| **Permitted values (diameter)** | **Min** | **11,4** | **19,4** | **6,60** | **1,0** | **1,0** | **26,0** | **23,6** |
| | **Max** | **12,8** | **27,1** | **7,0** | **1,1** | **1,1** | **ref** | **ref** |

**Notes:**

**Notes:** All the clearances must be taken with rotor and blade rings pushed toward the exhaust side.
Values not complying with those listed in the table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE ROTOR CLEARANCES – LEFT SIDE - AFTER OVERHAUL*




| STAGE ("B" value) | | 1ST | 2ND | 3RD | 4TH |
|---|---|---|---|---|---|
| Horizontal centerline readings | | 1,0 | 3,0 | 4,5 | 4,7 |
| **Horizontal centerline permitted values** | **Min** | **3,30** | **4,50** | **6,35** | **7,85** |
| | **Max** | **3,80** | **5,35** | **7,20** | **8,70** |
| Upper centerline readings | | | | | |
| **Upper centerline permitted values** | **Min** | **3,40** | **5,05** | **7,30** | **7,90** |
| | **Max** | **4,00** | **5,90** | **8,15** | **8,75** |
| Lower centerline reading | | | | | |
| **Lower centerline permitted values** | **Min** | **3,20** | | | **7,80** |
| | **Max** | **3,70** | | | **8,65** |

| POSITION | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Readings | | | | | | | | |
| **Permitted values (diameter)** | **Min** | **11,4** | **19,4** | **6,60** | **1,0** | **1,0** | **26,0** | **23,6** |
| | **Max** | **12,8** | **27,1** | **7,0** | **1,1** | **1,1** | **ref** | **ref** |

**Notes:**

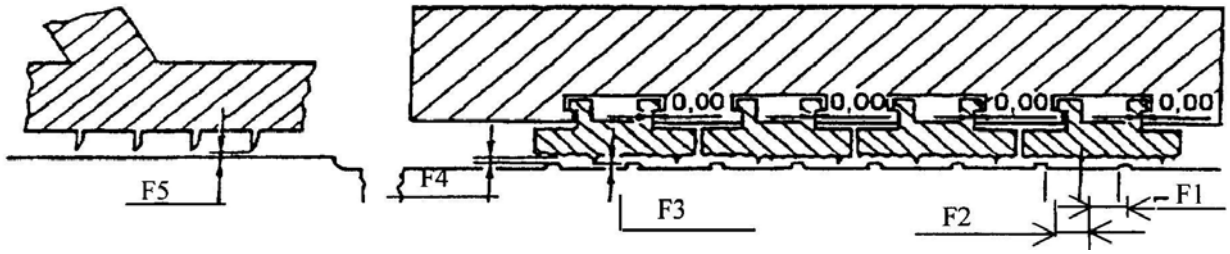
**Notes:** All the clearances must be taken with rotor and blade rings pushed toward the exhaust side.
Values not complying with those listed in the table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

**Form Ref. N°: *D5TR0026-D***

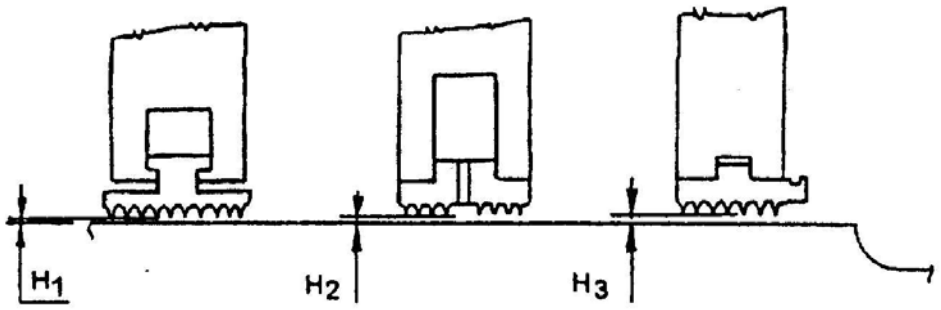
## *INTERMEDIATE SHAFT GUARD LABYRINTH SEALS - DETAIL "F"*

1 Readings must be taken looking downstream, left and right side
2 Defects must be specified (i.e. inlet and outlet side looking downstream)
3 Values different from those indicated in the table must be submitted to Turbocare for approval




| CLEARANCES | | | | | | Permitted clearances | SHAFT VISUAL INSPECTION |
|---|---|---|---|---|---|---|---|
| | Pos. | Before overhaul | | After overhaul | | | |
| | | left | right | left | Right | | |
| DETAIL "F" | **F1** | | | | | 12,95 – 18,90 | |
| | **F2** | | | | | 12,85 – 18,15 | |
| | **F3** | | | | | 2,95 – 3,95 | |
| | **F4** | | | | | 2,95 – 3,95 | |
| | **F5** | | | | | 3,80 – 4,35 | |

## *DIFFUSER BODY LABYRINTH SEALS -DETAIL"H"*

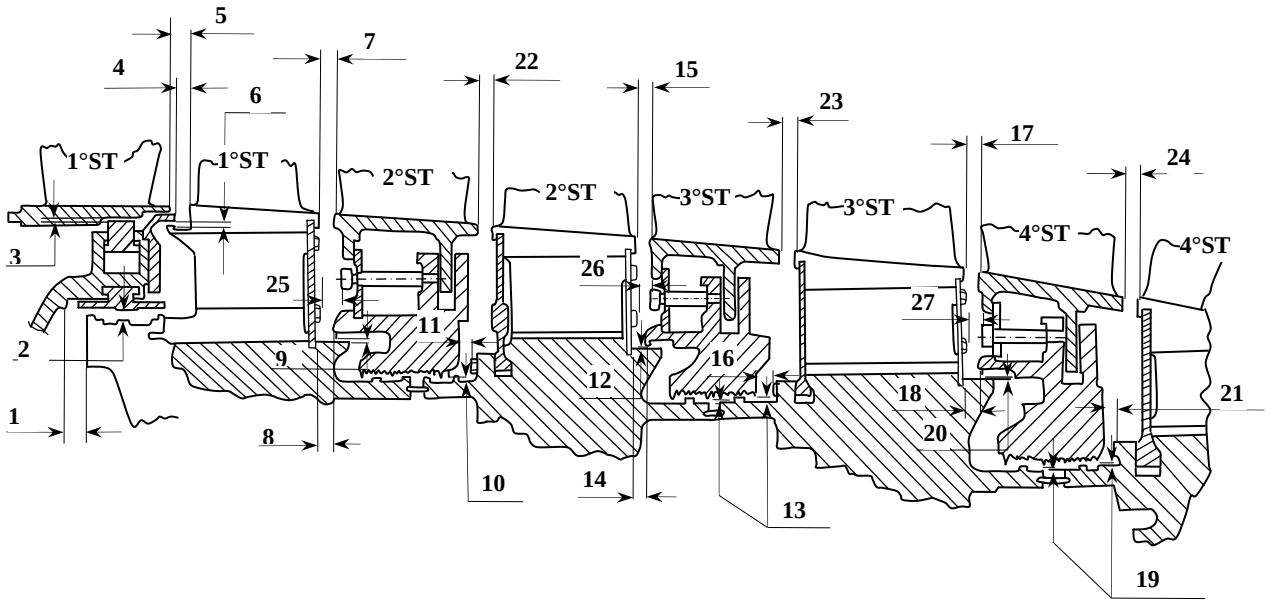



| CLEARANCES | | | | | | Permitted clearances | SHAFT VISUAL INSPECTION |
|---|---|---|---|---|---|---|---|
| | Pos. | Before overhaul | | After overhaul | | | |
| | | left | Right | Left | right | | |
| DETAIL "H" | **H1** | 1,3 | 0,65 | 0,95 | 0,9 | 1,80 – 2,02 | |
| | **H2** | 0,8 | 0,6 | 0,9 | 0,7 | 1,35 – 1,51 | |
| | **H3** | 0,8 | 0,5 | 0,5 | 0,6 | 1,40 – 1,63 | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

**Form Ref. N°:** *D5TR0026-E*

## *TURBINE ROTOR CLEARANCES – "DETAIL G" RIGHT SIDE - BEFORE OVERHAUL*



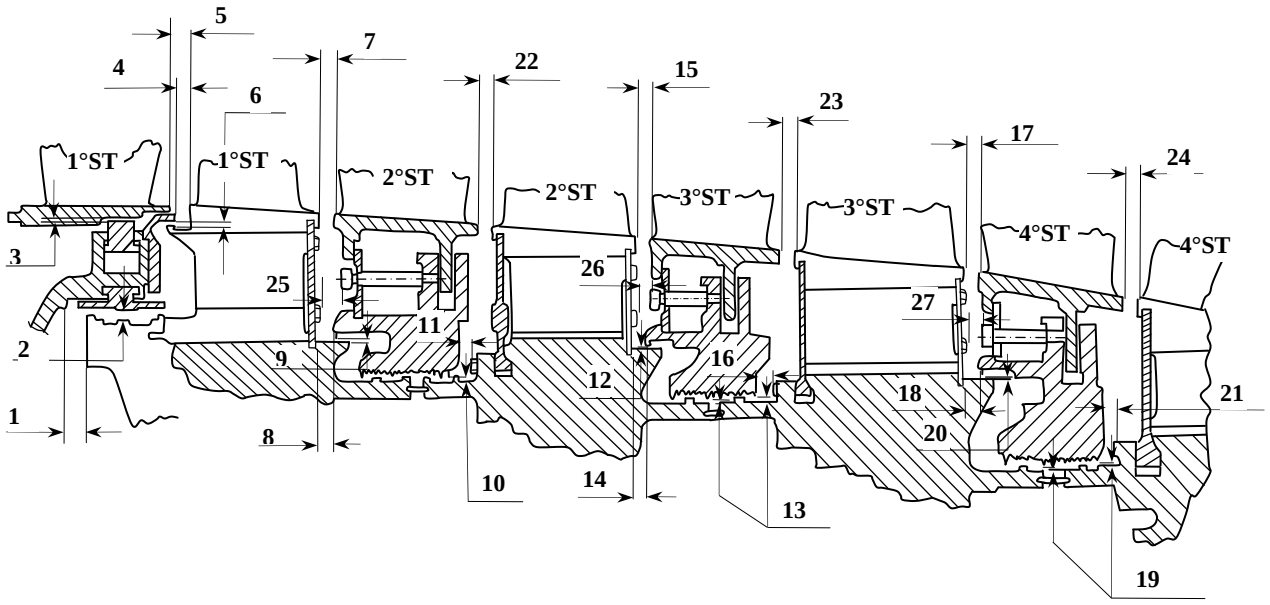

| Location | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Readings | | --- | --- | --- | 14 | --- | 3,6 | 13,7 | 15,5 | 1,6 | 1,6 | 19,5 | 1,3 | 1,3 | 11,7 |
| **Permitted values** | **Min** | **11,35** | **11,85** | **0,00** | **14,00** | **18,51** | **3,06** | **10,10** | **12,95** | **2,40** | **2,40** | **17,30** | **2,40** | **2,40** | **8,35** |
| | **Max** | **15,7** | **ref.** | **0,20** | **18,40** | **23,40** | **3,62** | **17,65** | **19,75** | **2,95** | **2,60** | **22,30** | **2,95** | **2,60** | **15,25** |

| Location | | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Readings | | 11,1 | 21,5 | 17,6 | 12,8 | 1,3 | 1,3 | 2,03 | 12,85 | 18,5 | 17,5 | --- | --- | --- | |
| **Permitted values** | **Min** | **7,85** | **19,65** | **10,50** | **8,75** | **2,40** | **2,40** | **19,50** | **14,82** | **20,30** | **20,55** | **14,30** | **5,30** | **9,00** | |
| | **Max** | **15,60** | **24,70** | **19,45** | **15,80** | **2,60** | **2,95** | **24,65** | **19,84** | **25,94** | **26,50** | **23,45** | **14,50** | **18,75** | |

**Notes:** All the clearances must be taken with rotor and blade rings pushed toward the exhaust side.
Values not complying with those listed in the table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE ROTOR CLEARANCES – "DETAIL G" RIGHT SIDE - AFTER OVERHAUL*



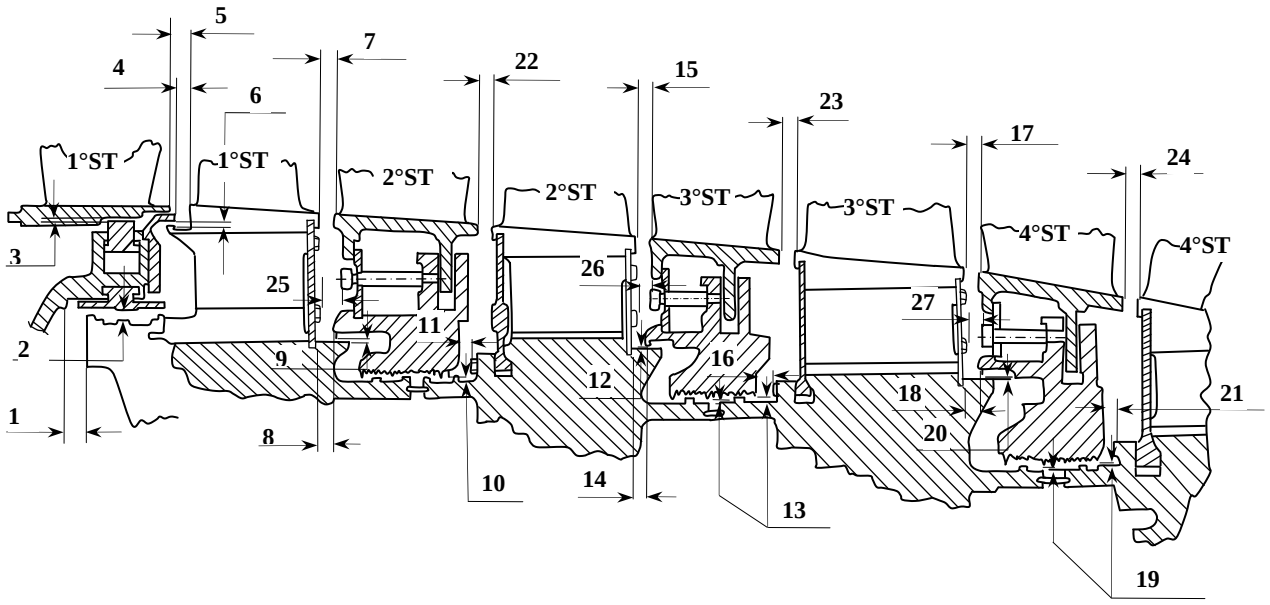

| Location | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Readings | | --- | --- | --- | 13,9 | 18,5 | --- | 14,5 | 16,0 | 1,0 | 1,0 | 20,0 | 1,4 | 1,3 | 12,0 |
| **Permitted values** | **Min** | **11,35** | **11,85** | **0,00** | **14,00** | **18,51** | **3,06** | **10,10** | **12,95** | **2,40** | **2,40** | **17,30** | **2,40** | **2,40** | **8,35** |
| | **Max** | **15,7** | **ref.** | **0,20** | **18,40** | **23,40** | **3,62** | **17,65** | **19,75** | **2,95** | **2,60** | **22,30** | **2,95** | **2,60** | **15,25** |

| Location | | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Readings | | 11,2 | 21,5 | 14,8 | 14,4 | 1,0 | 1,0 | 20,0 | 13,5 | 18,2 | 18,3 | --- | --- | --- | |
| **Permitted values** | **Min** | **7,85** | **19,65** | **10,50** | **8,75** | **2,40** | **2,40** | **19,50** | **14,82** | **20,30** | **20,55** | **14,30** | **5,30** | **9,00** | |
| | **Max** | **15,60** | **24,70** | **19,45** | **15,80** | **2,60** | **2,95** | **24,65** | **19,84** | **25,94** | **26,50** | **23,45** | **14,50** | **18,75** | |

**Notes:** All the clearances must be taken with rotor and blade rings pushed toward the exhaust side.
Values not complying with those listed in the table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE ROTOR CLEARANCES – "DETAIL G" LEFT SIDE - BEFORE OVERHAUL*

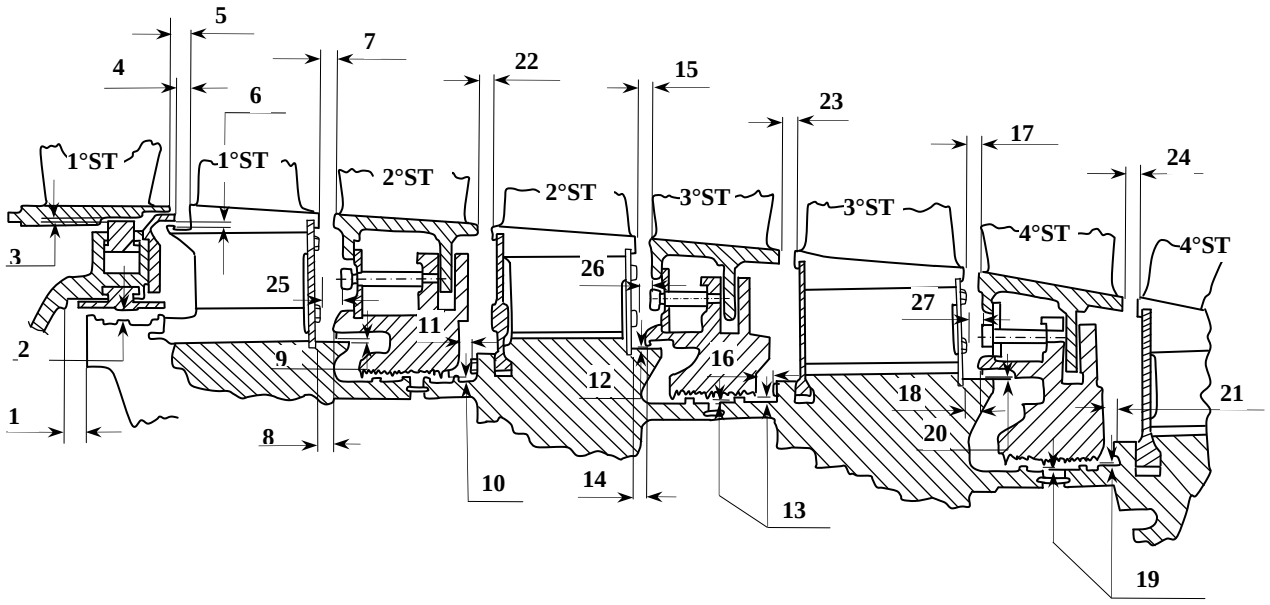



| Location | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Readings | | --- | --- | --- | 13,7 | --- | --- | 16,0 | 12,9 | 1,3 | 1,3 | 19,3 | 1,6 | 1,6 | 12,6 |
| **Permitted values** | **Min** | **11,35** | **11,85** | **0,00** | **14,00** | **18,51** | **3,06** | **10,10** | **12,95** | **2,40** | **2,40** | **17,30** | **2,40** | **2,40** | **8,35** |
| | **Max** | **15,7** | **ref.** | **0,20** | **18,40** | **23,40** | **3,62** | **17,65** | **19,75** | **2,95** | **2,60** | **22,30** | **2,95** | **2,60** | **15,25** |
| **Location** | | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** | **23** | **24** | **25** | **26** | **27** | |
| Readings | | 13,4 | 20,6 | 17,2 | 14,4 | 1,9 | 1,9 | 19,6 | --- | 18 | 16,7 | --- | --- | --- | |
| **Permitted values** | **Min** | **7,85** | **19,65** | **10,50** | **8,75** | **2,40** | **2,40** | **19,50** | **14,82** | **20,30** | **20,55** | **14,30** | **5,30** | **9,00** | |
| | **Max** | **15,60** | **24,70** | **19,45** | **15,80** | **2,60** | **2,95** | **24,65** | **19,84** | **25,94** | **26,50** | **23,45** | **14,50** | **18,75** | |

**Notes:** All the clearances must be taken with rotor and blade rings pushed toward the exhaust side.
Values not complying with those listed in the table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE ROTOR CLEARANCES – "DETAIL G" LEFT SIDE - AFTER OVERHAUL*



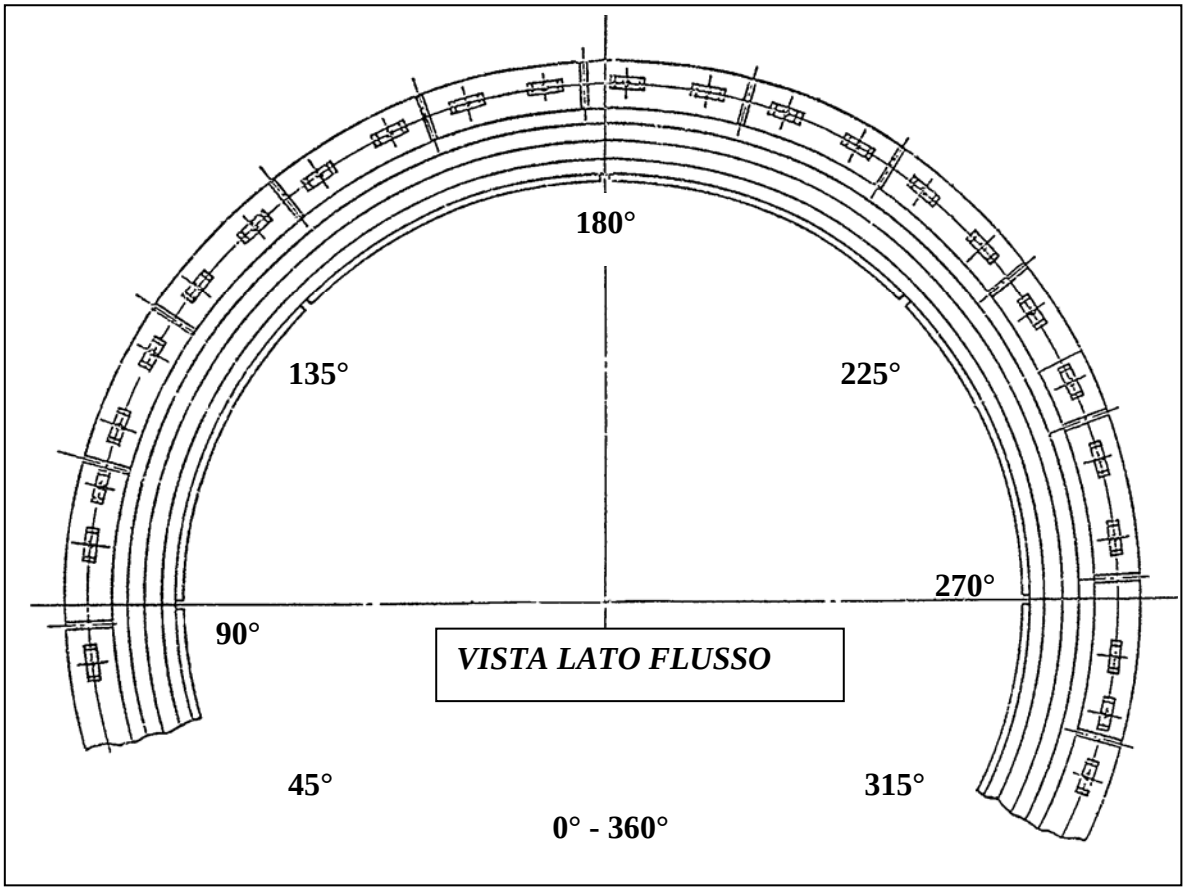

| Location | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Readings | | --- | --- | --- | 13,4 | 16,0 | --- | 16,7 | 17,7 | 1,9 | 1,7 | 19,8 | 1,6 | 1,5 | 14,3 |
| **Permitted values** | **Min** | **11,35** | **11,85** | **0,00** | **14,00** | **18,51** | **3,06** | **10,10** | **12,95** | **2,40** | **2,40** | **17,30** | **2,40** | **2,40** | **8,35** |
| | **Max** | **15,7** | **ref.** | **0,20** | **18,40** | **23,40** | **3,62** | **17,65** | **19,75** | **2,95** | **2,60** | **22,30** | **2,95** | **2,60** | **15,25** |

| Location | | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Readings | | 14,0 | 21,0 | 17,5 | 14,9 | 2,1 | 2,2 | 21,0 | 10,7 | 16,4 | 19,0 | --- | --- | --- | |
| **Permitted values** | **Min** | **7,85** | **19,65** | **10,50** | **8,75** | **2,40** | **2,40** | **19,50** | **14,82** | **20,30** | **20,55** | **14,30** | **5,30** | **9,00** | |
| | **Max** | **15,60** | **24,70** | **19,45** | **15,80** | **2,60** | **2,95** | **24,65** | **19,84** | **25,94** | **26,50** | **23,45** | **14,50** | **18,75** | |

**Notes:** All the clearances must be taken with rotor and blade rings pushed toward the exhaust side.
Values not complying with those listed in the table, must be submitted to Turbocare for evaluation

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

# 2nd, 3rd & 4 th STAGE AIR SEAL RING CENTERING

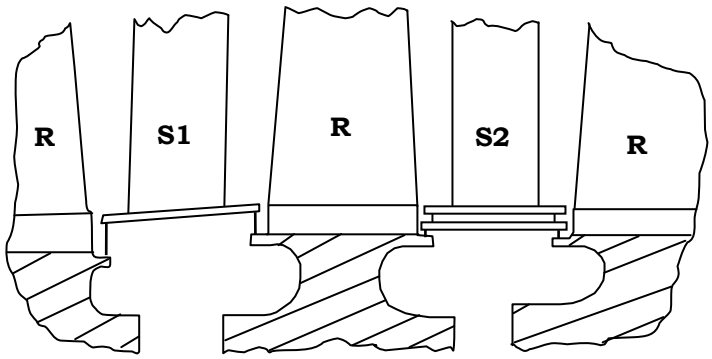



| ANGLE POS. / STAGE | 0° 360° | 45° | 90° | 135° | 180° | 225° | 270° | 315° |
|---|---|---|---|---|---|---|---|---|
| 2nd STAGE | -0,05 | | -1,5 | | 0,00 | | -1,5 | |
| 3rd STAGE | 0,11 | | -1,1 | | 0,00 | | -1,15 | |
| 4th STAGE | 0,08 | | -0,57 | | 0,00 | | -0,65 | |

**NOTES:**

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *COMPRESSOR SEALS AND DISCS – VISUAL INSPECTION*




CONDITION

M = material loss
W = worn
CR = cracked

ACTIONS

N = to be replaced with a new seal
R = repairable
RN = no action required

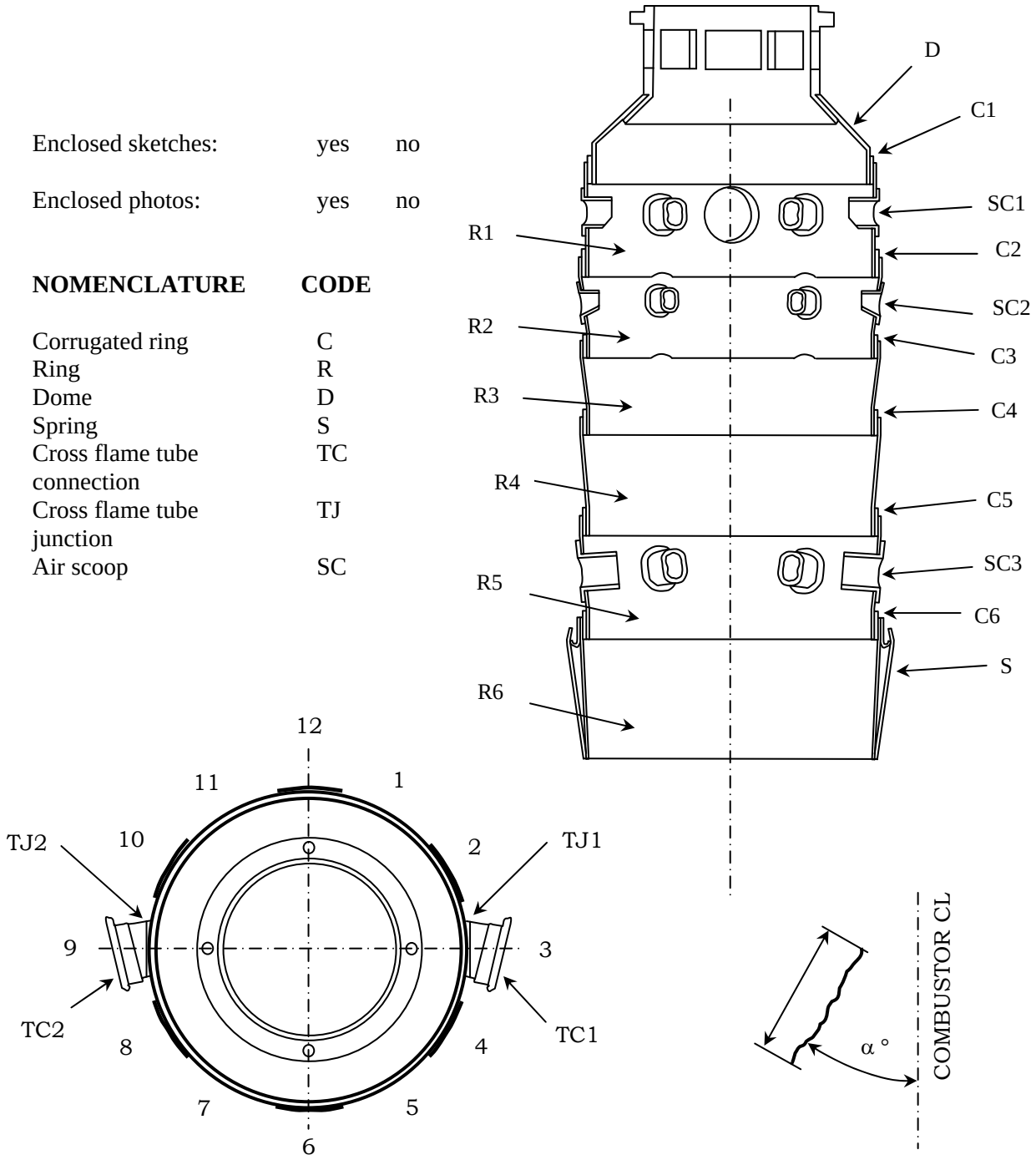
| ROW | SEALS VISUAL INSPECTION | | DISCS VISUAL INSPECTION | |
|---|---|---|---|---|
| | CONDITIONS | ACTIONS | CONDITIONS | ACTIONS |
| 1 | good | | good | |
| 2 | good | | good | |
| 3 | good | | good | |
| 4 | good | | good | |
| 5 | good | | good | |
| 6 | good | | good | |
| 7 | good | | good | |
| 8 | good | | good | |
| 9 | good | | good | |
| 10 | good | | good | |
| 11 | good | | good | |
| 12 | good | | good | |
| 13 | good | | good | |
| 14 | good | | good | |
| 15 | good | | good | |
| 16 | good | | good | |
| 17 | good | | good | |
| 18 | good | | good | |
| 19 | good | | good | |

## *STANDARD COMBUSTOR BASKET – IDENTIFICATION OF COMPONENTS*

Enclosed sketches: yes no

Enclosed photos: yes no

| **NOMENCLATURE** | **CODE** |
|---|---|
| Corrugated ring | C |
| Ring | R |
| Dome | D |
| Spring | S |
| Cross flame tube connection | TC |
| Cross flame tube junction | TJ |
| Air scoop | SC |




| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *COMBUSTOR BASKET – ASSEMBLY*

| BASKETS | | | FROM THE FIRST INSTALLATION | | | FROM THE LAST INSPECTION | | | COMING FROM | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| POS | S/N | DRAWING | DATE | STARTS NO. | FIRING HRS. | DATE | STARTS NO. | FIRING HRS | GR | STARTS NO. | FIRING HRS. |
| **1** | RO – 91K – 001M | 4219T92 | | | | | | | | | |
| **2** | ILT - 000309 | 4219T92 | | | | | | | | | |
| **3** | ILL - 059581 | 4219T92 | | | | | | | | | |
| **4** | ILL - 059582 | 4219T92 | | | | | | | | | |
| **5** | ILL - 059585 | 4219T92 | | | | | | | | | |
| **6** | ILL - 059591 | 4219T92 | | | | | | | | | |
| **7** | ILT - 119670 | 4219T94 | | | | | | | | | |
| **8** | ILL - 059598 | 4219T94 | | | | | | | | | |
| **9** | ILT - 0003198 | 4219T92 | | | | | | | | | |
| **10** | ILL - 059589 | 4219T92 | | | | | | | | | |
| **11** | ILL - 129164 | 4219T92 | | | | | | | | | |
| **12** | ILL - 059584 | 4219T92 | | | | | | | | | |
| **13** | ILL - 1295145 | 4219T92 | | | | | | | | | |
| **14** | ILL - 059593 | 4219T92 | | | | | | | | | |
| **15** | ILL - 059592 | 4219T92 | | | | | | | | | |
| **16** | RO – 90K175 | 4219T92 | | | | | | | | | |
| **17** | ILT - 000317 | 4219T93 | | | | | | | | | |
| **18** | RO – 91K015M | 4219T93 | | | | | | | | | |

**Notes: Refurbished parts**

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

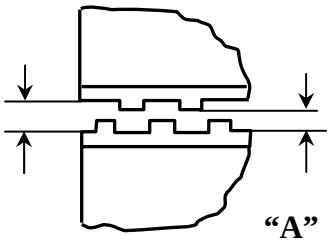
## *TRANSITION PIECES – AT REASSEMBLY*

| TRANSITION PIECES | | | FROM THE FIRST INSTALLATION | | | FROM THE LAST INSPECTION | | | COMING FROM | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| POS | S/N | DRAWING | DATE | STARTS NO. | FIRING HRS. | DATE | STARTS NO. | FIRIING HRS | GR. | STARTS NO. | FIRING HRS. |
| **1** | 345 | 4220T99 | | | | | | | | | |
| **2** | 495 | 4220T99 | | | | | | | | | |
| **3** | 067 | 4220T99 | | | | | | | | | |
| **4** | illegible | 4220T99 | | | | | | | | | |
| **5** | 072 | 4220T99 | | | | | | | | | |
| **6** | 645 | 4220T99 | | | | | | | | | |
| **7** | 323 | 4220T99 | | | | | | | | | |
| **8** | illegible | 4220T99 | | | | | | | | | |
| **9** | 066 | 4220t99 | | | | | | | | | |
| **10** | 500 | 4220T99 | | | | | | | | | |
| **11** | 504 | 4220T99 | | | | | | | | | |
| **12** | 056 | 4220T99 | | | | | | | | | |
| **13** | 068 | 4220T99 | | | | | | | | | |
| **14** | 491 | 4220T99 | | | | | | | | | |
| **15** | 507 | 4220T99 | | | | | | | | | |
| **16** | 069 | 4220T99 | | | | | | | | | |
| **17** | 496 | 4220T99 | | | | | | | | | |
| **18** | 505 | 4220T99 | | | | | | | | | |

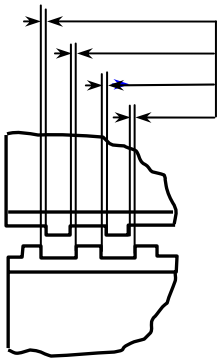
**Notes: Refurbished parts**

## *TRANSITION PIECE LATERAL SEALS – CLEARANCES*

**"A"** 6 – 10 mm.



**"A"** 6 – 10 mm

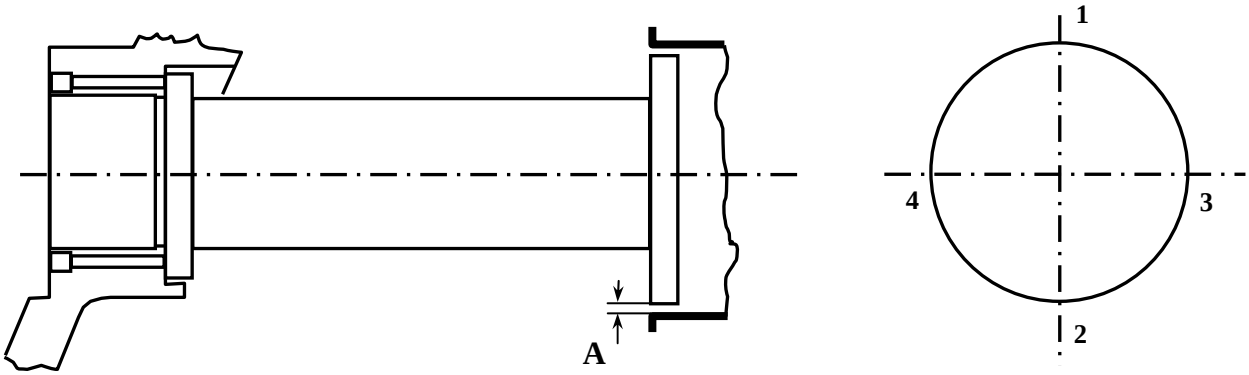


**"B"** 1,5 – 5,5 mm.

| TRANSITION | AT DISASSEMBLY | | | AT RE -ASSEMBLY | |
|---|---|---|---|---|---|
| | PRESENCE OF CRACKS ON LATERAL SEALS | VALUE "A" | VALUE "B" | VALUE "A" | VALUE "B" |
| **1 – 2** | | | | 7,8 | |
| **2 – 3** | | | | 7,8 | |
| **3 – 4** | | | | 8,3 | |
| **4 – 5** | | | | 7,7 | |
| **5 – 6** | | | | 7,5 | |
| **6 – 7** | | | | 7,5 | |
| **7 – 8** | | | | 7,5 | |
| **8 – 9** | | | | 7,5 | |
| **9 – 10** | | | | 7,5 | |
| **10 – 11** | | | | 7,5 | |
| **11 – 12** | | | | 8,0 | |
| **12 – 13** | | | | 7,5 | |
| **13 – 14** | | | | 8,0 | |
| **14 – 15** | | | | 8,4 | |
| **15 – 16** | | | | 7,7 | |
| **16 – 17** | | | | 7,3 | |
| **17 – 18** | | | | 7,5 | |
| **18 – 1** | | | | 5,8 | |

**Notes:**

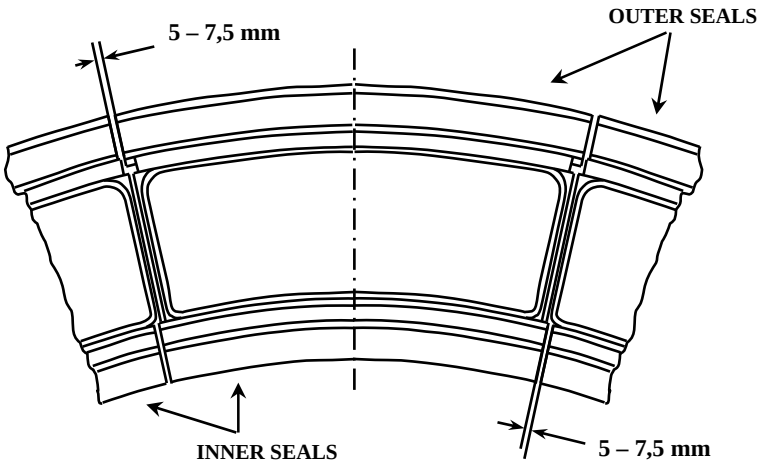
## *TRANSITION PIECES – ALIGNMENT CHECK*




**NUMBERING IS REFERRED TO TURBINE CENTERLINE (i.e.: position 2 is always toward the internal support)**

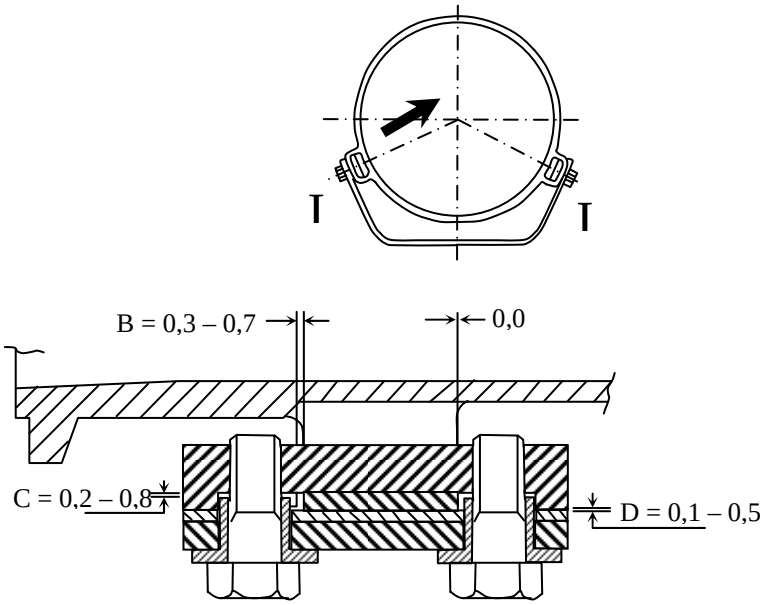
| POSITION | GAP READING "A" | | | | DIFFERENCE | | NOTES |
|---|---|---|---|---|---|---|---|
| | A1 | A2 | A3 | A4 | A1-A2 | A3-A4 | |
| 1 | 4,8 | 5,5 | 4,3 | 4,7 | 0,8 | 0,4 | |
| 2 | 4,5 | 4,5 | 5,8 | 5,5 | 0,0 | 0,3 | |
| 3 | 4,2 | 5,0 | 5,3 | 5,5 | 0,8 | 0,2 | |
| 4 | 4,7 | 4,5 | 5,7 | 6,2 | 0,2 | 0,5 | |
| 5 | 4,0 | 4,5 | 5,3 | 5,5 | 0,5 | 0,2 | |
| 6 | 4,3 | 4,6 | 5,3 | 5,3 | 0,3 | 0,0 | |
| 7 | 3,6 | 4,5 | 5,3 | 5,0 | 0,9 | 0,3 | |
| 8 | 4,9 | 5,0 | 4,9 | 5,0 | 0,1 | 0,1 | |
| 9 | 4,5 | 4,8 | 5,0 | 4,3 | 0,3 | 0,7 | |
| 10 | 4,3 | 4,5 | 5,6 | 5,0 | 0,2 | 0,6 | |
| 11 | 5,0 | 5,5 | 5,4 | 4,7 | 0,5 | 0,7 | |
| 12 | 5,4 | 4,9 | 4,3 | 4,6 | 0,5 | 0,3 | |
| 13 | 4,7 | 4,3 | 5,0 | 5,5 | 0,4 | 0,5 | |
| 14 | 4,0 | 4,3 | 5,2 | 5,8 | 0,3 | 0,6 | |
| 15 | 4,5 | 4,3 | 5,2 | 5,5 | 0,2 | 0,3 | |
| 16 | 4,7 | 4,2 | 4,8 | 5,1 | 0,5 | 0,3 | |
| 17 | 4,3 | 4,9 | 4,9 | 5,3 | 0,6 | 0,4 | |
| 18 | 4,3 | 4,7 | 5,8 | 5,2 | 0,4 | 0,6 | |

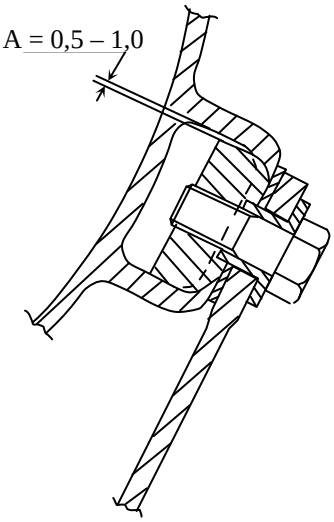
## *TRANSITION PIECES – INNER AND OUTER SEALS CLEARANCES*




| TRANSITION PIECE | OUTER SEALS CLEARANCE | INNER SEAL CLEARANCE | NOTES |
|---|---|---|---|
| **1 - 2** | 3,0 | 6,0 | |
| **2 – 3** | 5,0 | 6,5 | |
| **3 – 4** | 6,0 | 6,0 | |
| **4 – 5** | 5,5 | 5,7 | |
| **5 – 6** | 8,0 | 6,7 | |
| **6 – 7** | 8,0 | 5,0 | |
| **7 – 8** | 7,5 | 6,0 | |
| **8 – 9** | 6,7 | 5,0 | |
| **9 – 10** | 8,0 | 5,0 | |
| **10 – 11** | 9,0 | 6,5 | |
| **11 - 12** | 9,0 | 7,0 | |
| **12 – 13** | 6,5 | 5,0 | |
| **13 – 14** | 6,8 | 6,5 | |
| **14 – 15** | 6,5 | 5,9 | |
| **15 – 16** | 6,5 | 8,0 | |
| **16 – 17** | 5,5 | 5,0 | |
| **17 – 18** | 5,0 | 6,0 | |
| **18 – 1** | 3,0 | 6,0 | |

## *TRANSITION PIECES – "C" SUPPORTS ASSEMBLY CLEARANCES*



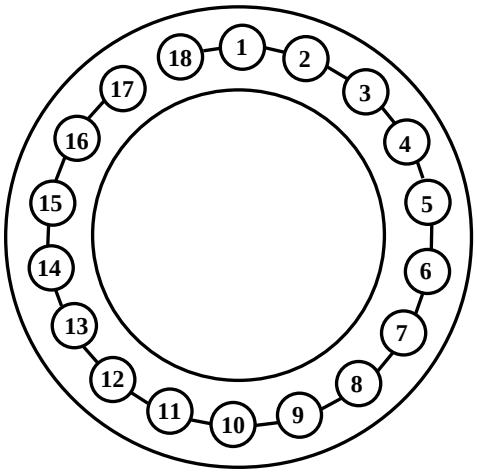



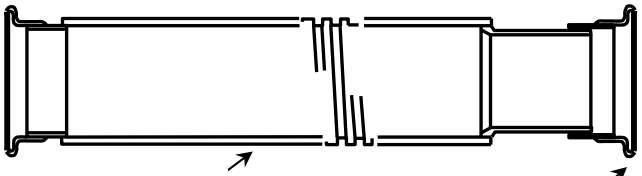

| POS N° | Clearance **A** | | Clearance **B** | | Clearance **C** | | Clearance **D** | | POS. N° | Clearance **A** | | Clearance **B** | | Clearance **C** | | Clearance **D** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | I | II | I | II | I | II | I | II | | I | II | I | II | I | II | I | II |
| **1** | 0,5 | 0,5 | | | | | 0,2 | 0,3 | **10** | 0,3 | 0,1 | | | | | 0,5 | 0,3 |
| **2** | 0,5 | 0,4 | | | | | 0,3 | 0,5 | **11** | 0,3 | 0,2 | | | | | 0,4 | 0,5 |
| **3** | 0,4 | 0,3 | | | | | 0,4 | 0,3 | **12** | 0,3 | 0,3 | | | | | 0,5 | 0,5 |
| **4** | 0,2 | 0,2 | | | | | 0,5 | 0,5 | **13** | 0,4 | 0,4 | | | | | 0,50 | 0,4 |
| **5** | 0,2 | 0,4 | | | | | 0,5 | 0,5 | **14** | 0,2 | 0,2 | | | | | 0,3 | 0,4 |
| **6** | 0,3 | 0,4 | | | | | 0,3 | 0,5 | **15** | 0,4 | 0,3 | | | | | 0,5 | 0,4 |
| **7** | 0,2 | 0,3 | | | | | 0,5 | 0,4 | **16** | 0,2 | 0,3 | | | | | 0,5 | 0,2 |
| **8** | 0,3 | 0,4 | | | | | 0,3 | 0,4 | **17** | 0,4 | 0,3 | | | | | 0,4 | 0,3 |
| **9** | 0,2 | 0,2 | | | | | 0,5 | 0,5 | **18** | 0,1 | 0,2 | | | | | 0,5 | 0,5 |

**Notes:**

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

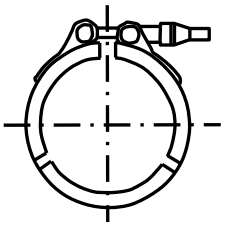
## *CROSS FLAME TUBE – INSPECTION*



Cross flame tube

Flanged tube



Junction clamp

| Cross flame tube position | Cross flame tube condition | Flanged tube condition | Junction clamp condition | Remarks |
|---|---|---|---|---|
| **1 – 2** | Good | Good | Good | |
| **2 – 3** | Good | Good | Good | |
| **3 – 4** | Good | Good | Good | |
| **4 – 5** | Good | Good | Good | |
| **5 – 6** | Good | Good | Good | |
| **6 – 7** | Good | Good | Good | |
| **7 – 8** | Good | Good | Good | |
| **8 – 9** | Good | Good | Good | |
| **9 – 10** | Good | Good | Good | |
| **10 – 11** | Good | Good | Good | |
| **11 – 12** | Good | Good | Good | |
| **12 – 13** | Good | Good | Good | |
| **13 – 14** | Good | Good | Good | |
| **14 – 15** | Good | Good | Good | |
| **15 – 16** | Good | Good | Good | |
| **16 – 17** | Good | Good | Good | |
| **1 – 18** | Good | Good | Good | |

| ***Turbocare Representative*** | ***Signature*** | ***Report*** | ***Date*** |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

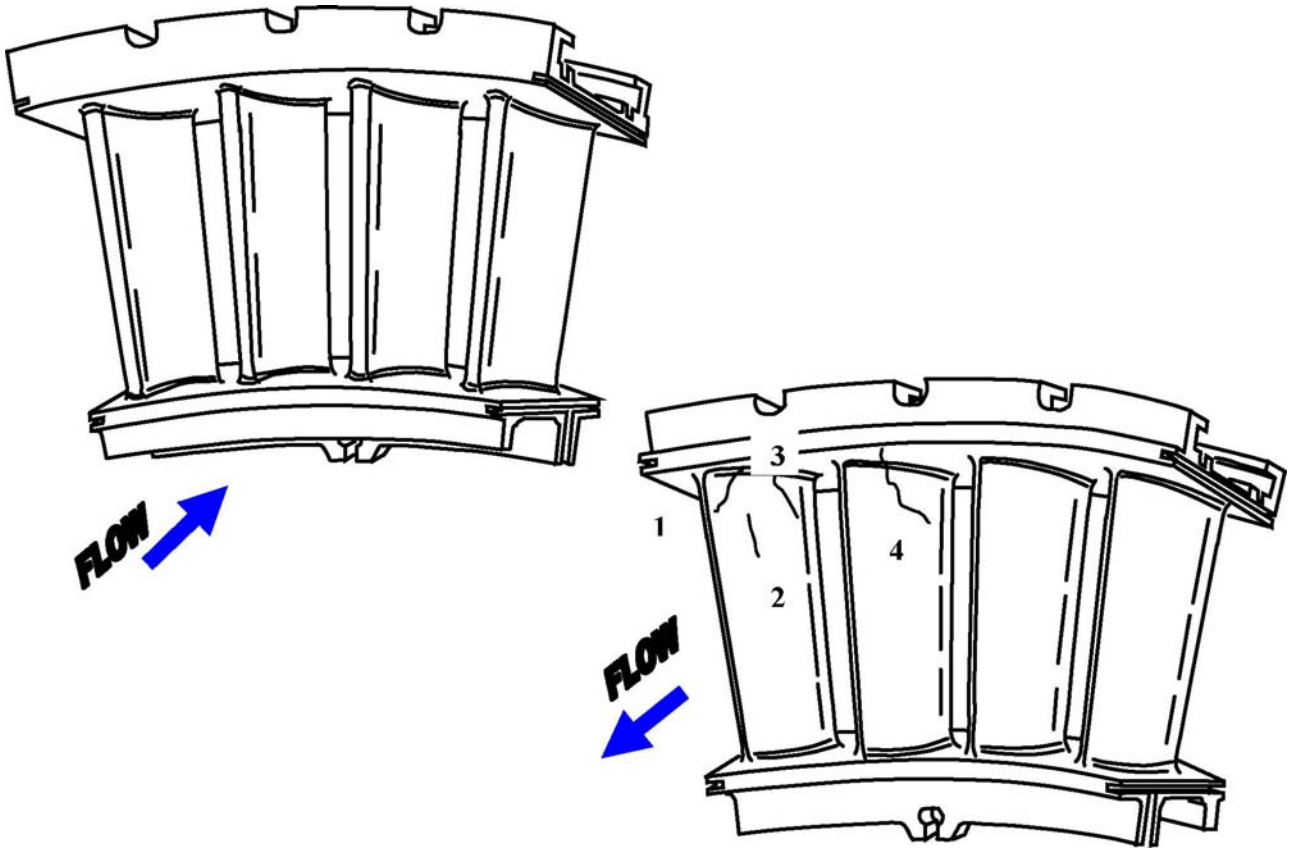
## *TURBINE VANES – SERIAL NUMBERS*

**DISASSEMBLY** ☐ **ASSEMBLY** ■

| 1ST STAGE | | | | 2ND STAGE | | 3RD STAGE | | 4TH STAGE | |
|---|---|---|---|---|---|---|---|---|---|
| POS. | S/N | POS. | S/N | POS. | S/N | POS. | S/N | POS. | S/N |
| 1 | U4141 | 31 | U4038 | 1 | 945U2310 | 1 | U3K433 | 1 | U4T485 |
| 2 | UB1835 | 32 | U4092 | 2 | 945U2304 | 2 | U3K434 | 2 | U4T511 |
| 3 | U1K3217 | 33 | U4089 | 3 | 945U2305 | 3 | U3K443 | 3 | U4T490 |
| 4 | U4480 | 34 | U5651 | 4 | 945U2307 | 4 | U3K435 | 4 | U4T487 |
| 5 | U4478 | 35 | U1K2665 | 5 | 945U2313 | 5 | U3K436 | 5 | U4T489 |
| 6 | U4706 | 36 | UB1030 | 6 | 945U2312 | 6 | U3K437 | 6 | U4T486 |
| 7 | U4675 | 37 | U1K2674 | 7 | 945U2308 | 7 | U3K438 | 7 | U4T491 |
| 8 | U4045 | 38 | U4138 | 8 | 945U2325 | 8 | U3K439 | 8 | U4T483 |
| 9 | U4083 | 39 | U4067 | 9 | 945U2499 | 9 | U3K440 | 9 | U4126 |
| 10 | U3896 | 40 | U4154 | 10 | 945U2309 | 10 | U3K441 | 10 | U4118 |
| 11 | U4094 | 41 | UB1039 | 11 | 945U2295 | 11 | U3K442 | 11 | U4114 |
| 12 | U1K2651 | 42 | U1K3219 | 12 | 945U2314 | 12 | U3K444 | 12 | U4T492 |
| 13 | U1K2656 | 43 | U1K2668 | 13 | 945U2303 | 13 | U3K445 | 13 | U4T497 |
| 14 | U1K2643 | 44 | UB1009 | 14 | 945U2317 | 14 | U3K446 | 14 | U4T484 |
| 15 | U4678 | 45 | U4629 | 15 | 945U2316 | 15 | U3K447 | 15 | U4100 |
| 16 | U1K2639 | 46 | U4034 | 16 | 945U2315 | 16 | U3K448 | 16 | U4T493 |
| 17 | U3965 | 47 | UB842 | 17 | 945U2306 | 17 | U3K449 | | |
| 18 | UB1046 | 48 | U4360 | 18 | 945U2301 | 18 | U3K450 | | |
| 19 | U4670 | 49 | U4092 | 19 | 945U2296 | | | | |
| 20 | U4672 | 50 | U1K2689 | 20 | 945U2311 | | | | |
| 21 | U4095 | 51 | U1K4579 | | | | | | |
| 22 | U4070 | 52 | UB1045 | | | | | | |
| 23 | U1K2345 | 53 | U1K2665 | | | | | | |
| 24 | U1K2688 | 54 | U1K2682 | | | | | | |
| 25 | U1K2663 | 55 | U1K2641 | | | | | | |
| 26 | U1K2793 | 56 | U1K4688 | | | | | | |
| 27 | U1K3178 | 57 | U4039 | | | | | | |
| 28 | U1K3039 | 58 | U1K2691 | | | | | | |
| 29 | U1K3186 | 59 | U4139 | | | | | | |
| 30 | U1K3193 | 60 | U1K2687 | | | | | | |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K433 | 4282T81 | 1 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

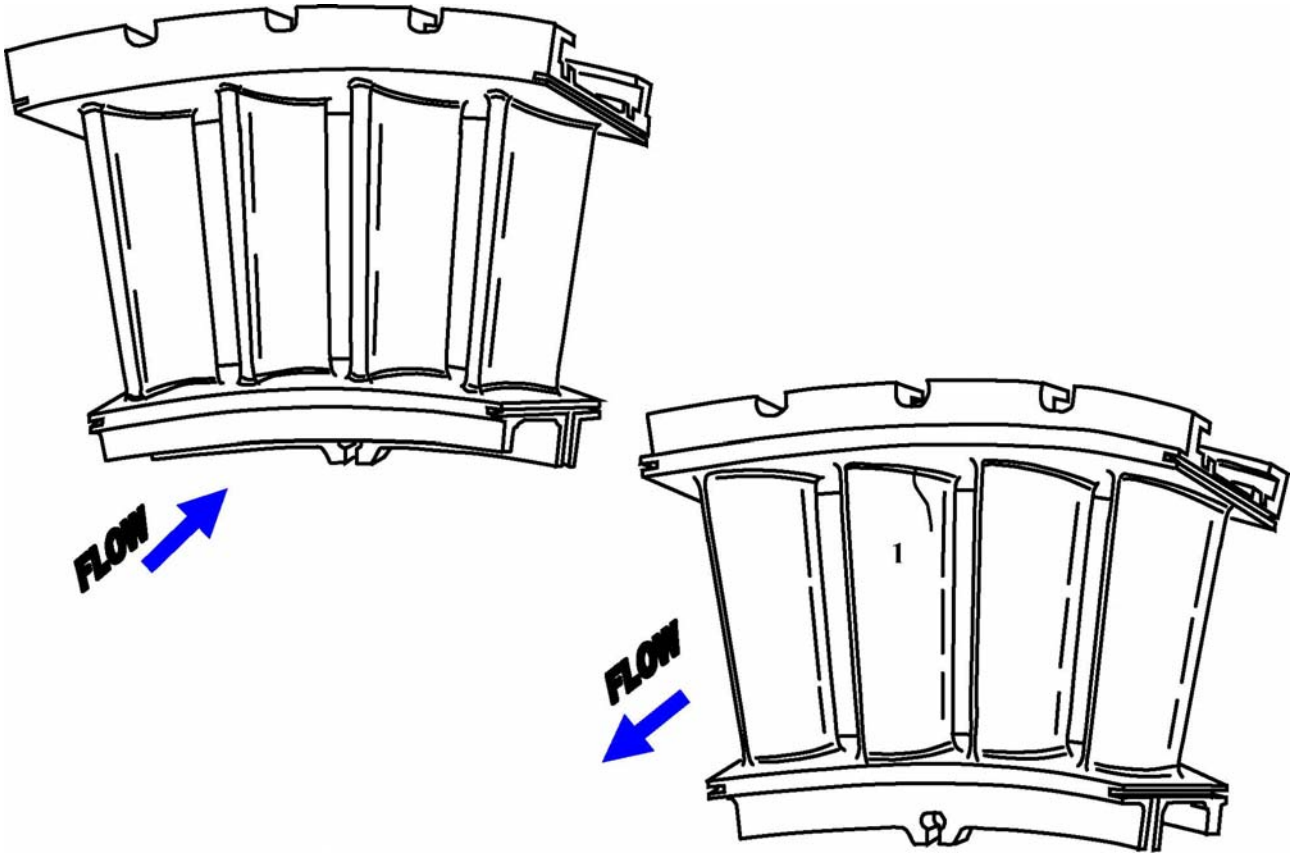



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | CRICCA 5mm | 10 | |
| 2 | CRICCA 5mm | 11 | |
| 3 | CRICCA 4mm | 12 | |
| 4 | CRICCA 80mm | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K434 | 4282T81 | 2 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

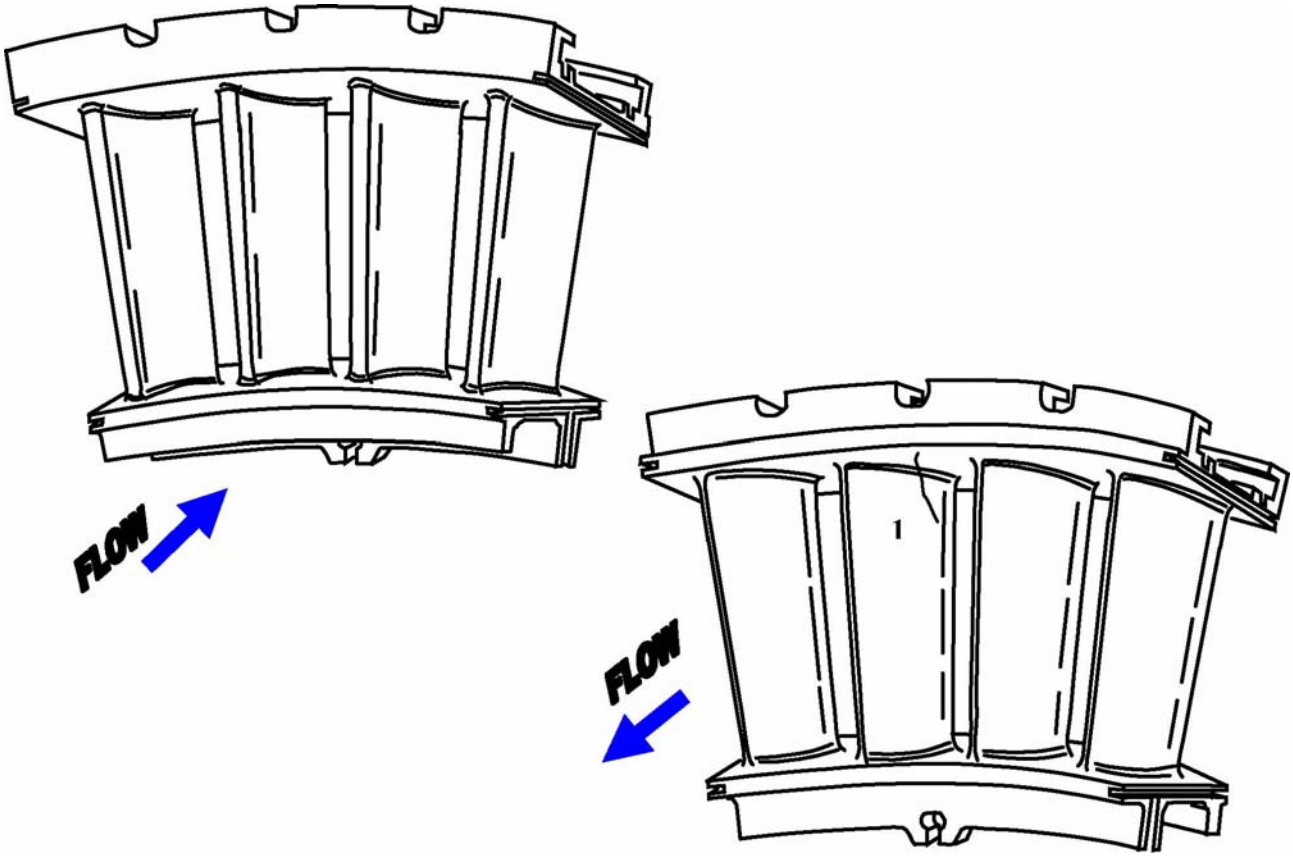



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | CRICCA 28mm | 10 | |
| 2 | | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K443 | 4282T81 | 3 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

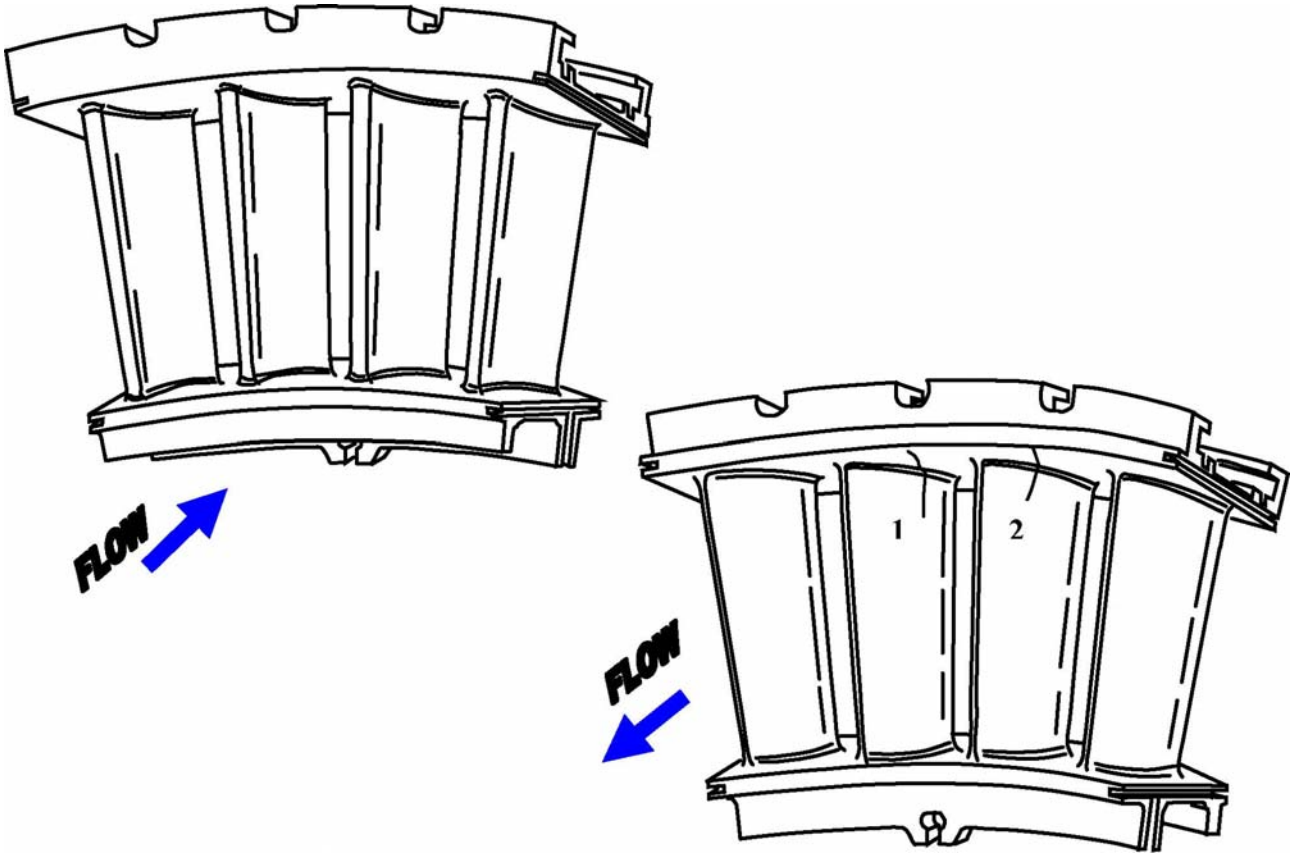



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 62 mm. | 10 | |
| 2 | | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K435 | 4282T81 | 4 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

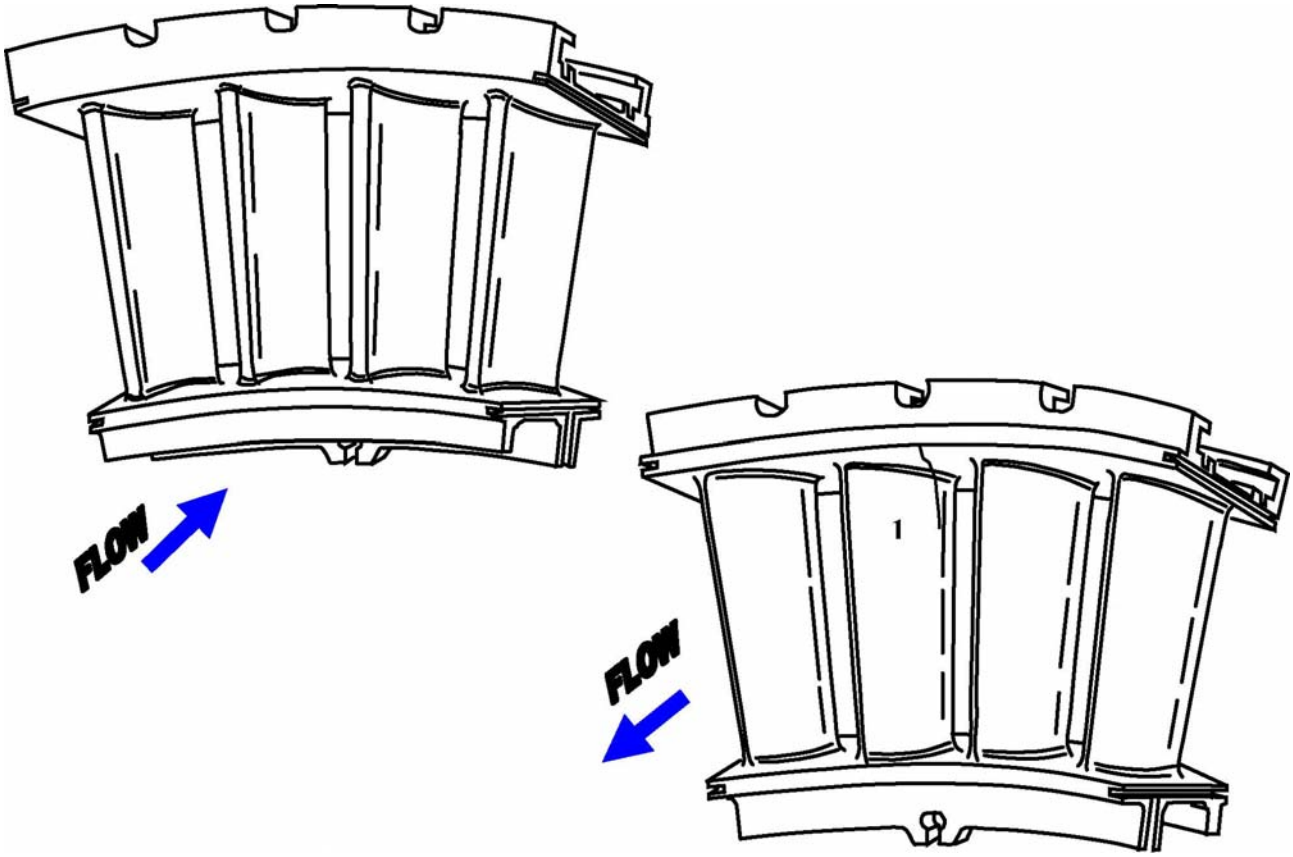



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 95mm. | 10 | |
| 2 | Crack 15 mm. | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K436 | 4282T81 | 5 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

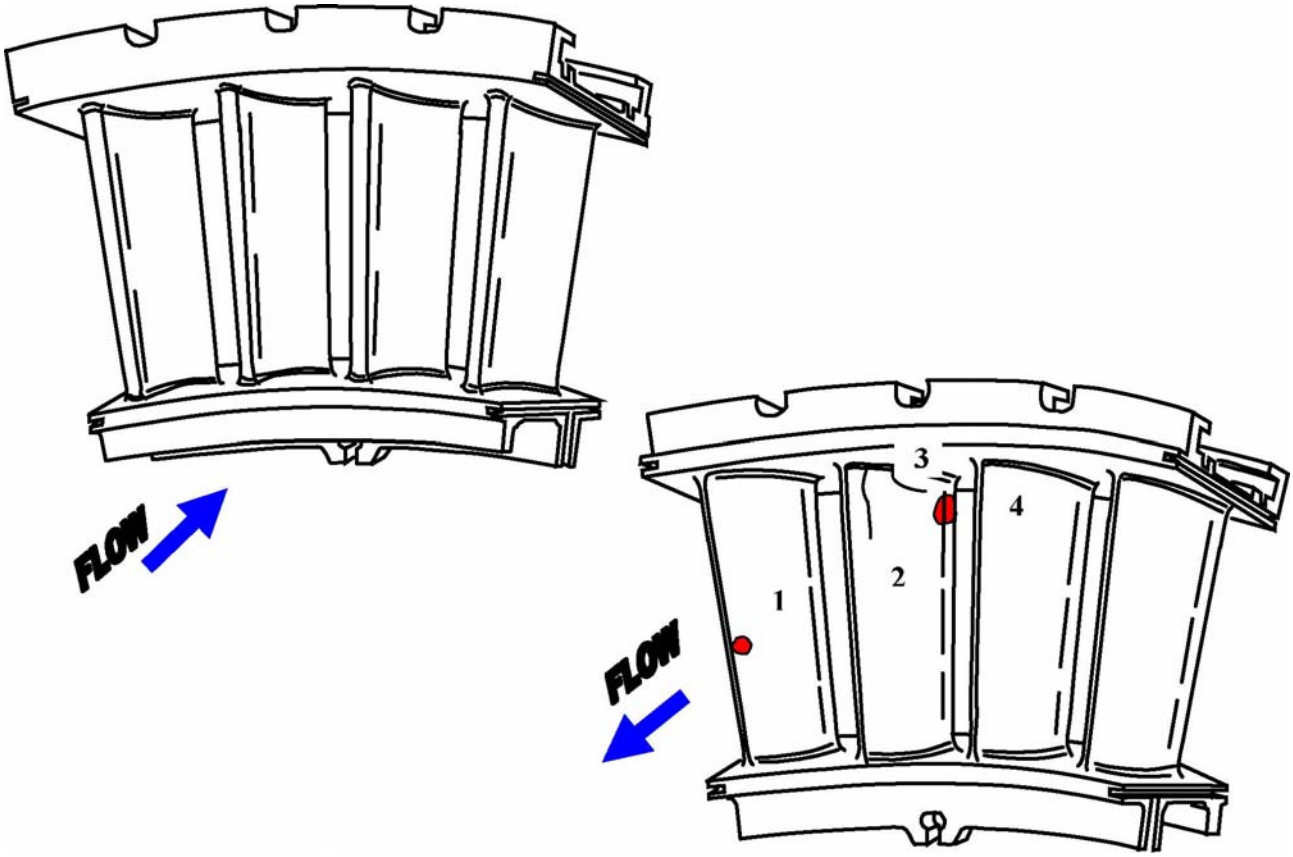



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 70mm. | 10 | |
| 2 | | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K437 | 4282T81 | 6 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

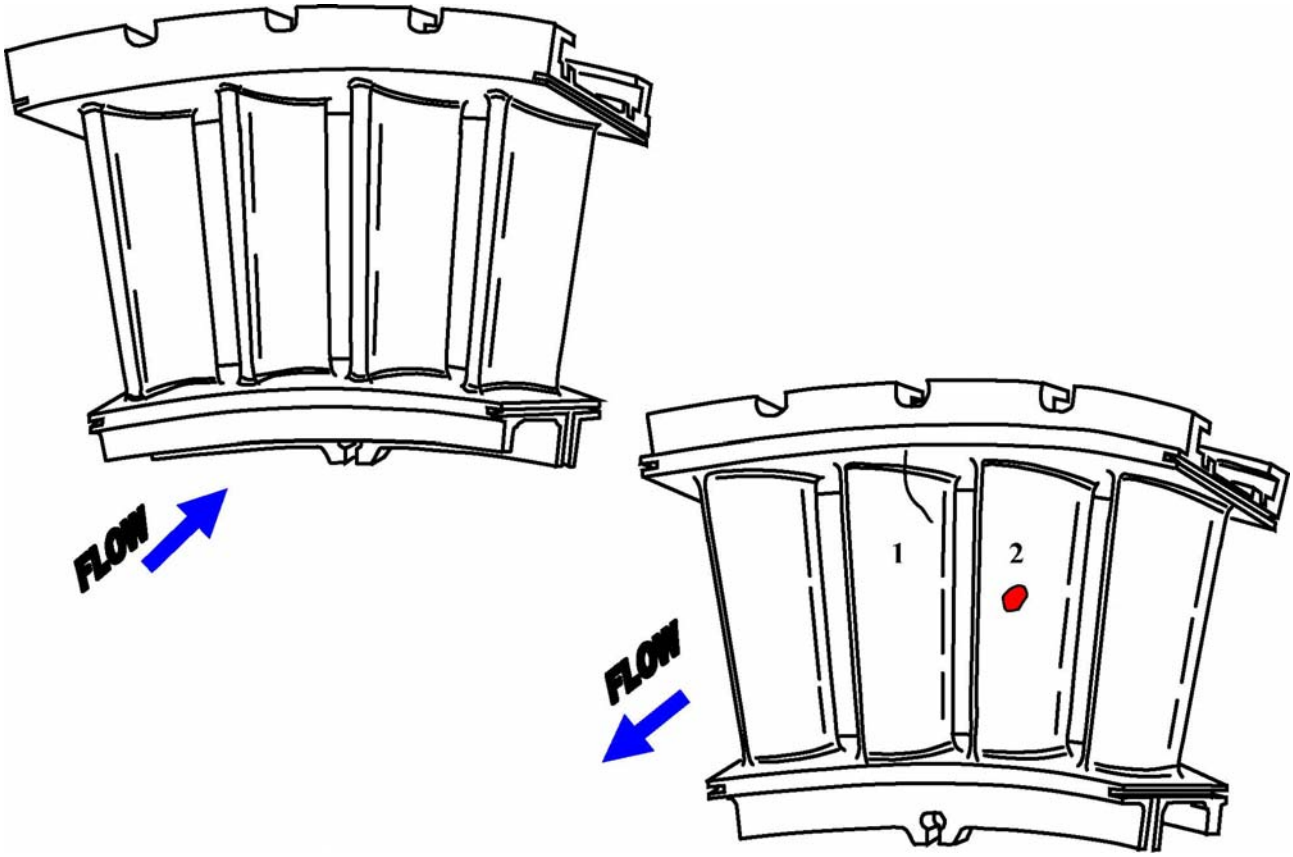



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | f.o. impact dia. 3 mm. | 10 | |
| 2 | Crack 15mm. | 11 | |
| 3 | Crack 22mm. | 12 | |
| 4 | f.o. impact dia. 7 mm. | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K438 | 4282T81 | 7 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

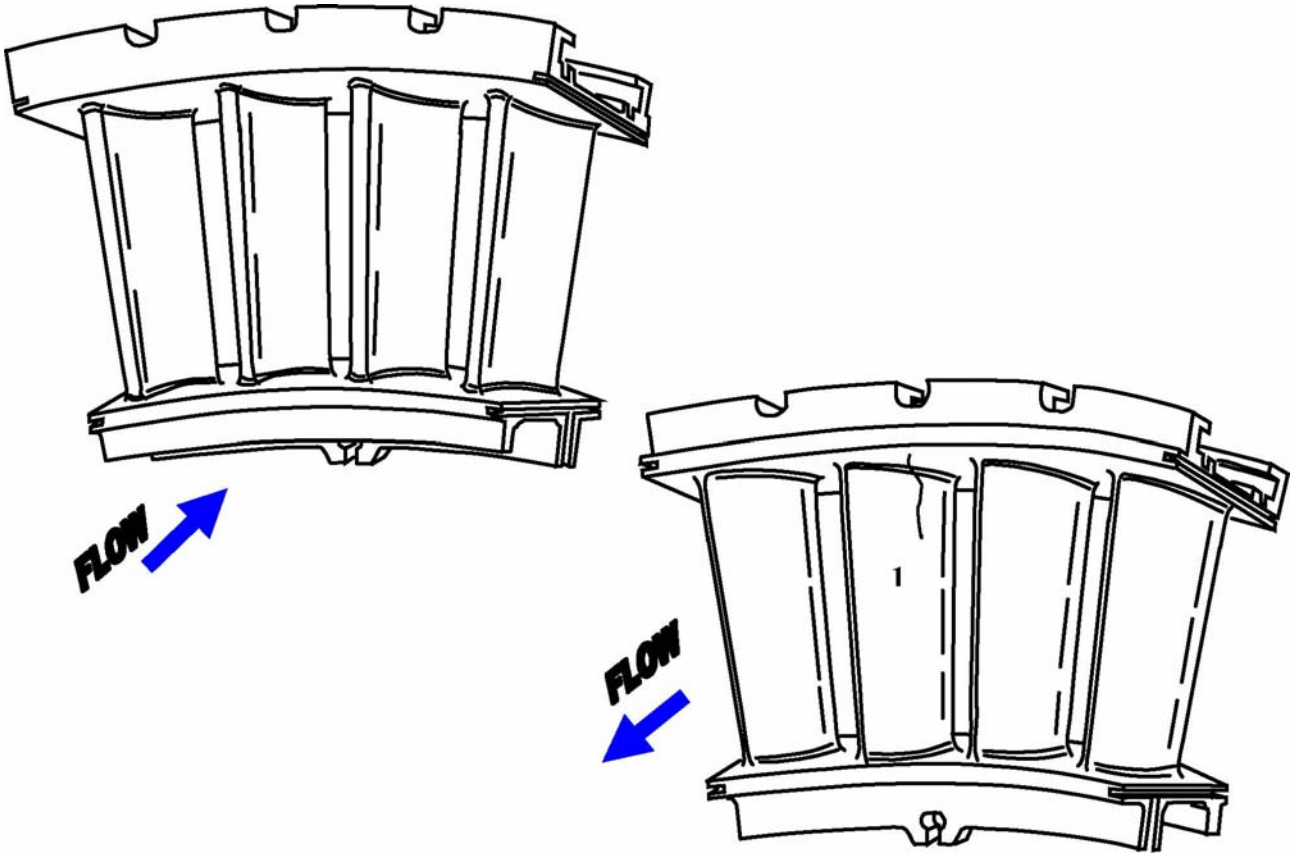



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 87 mm. | 10 | |
| 2 | f.o. impact dia. 8 mm, | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K440 | 4282T81 | 9 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

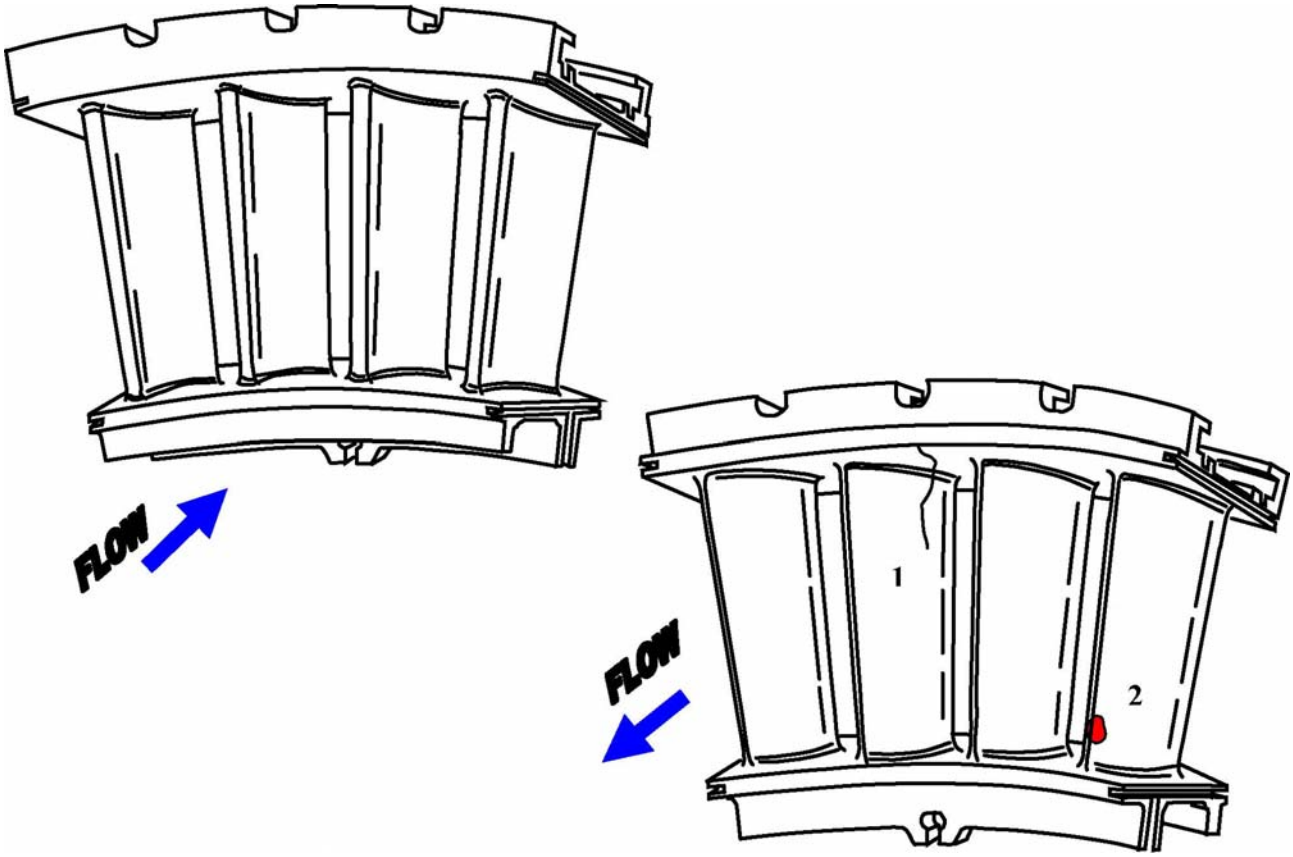



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 70 mm. | 10 | |
| 2 | | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K441 | 4282T81 | 10 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

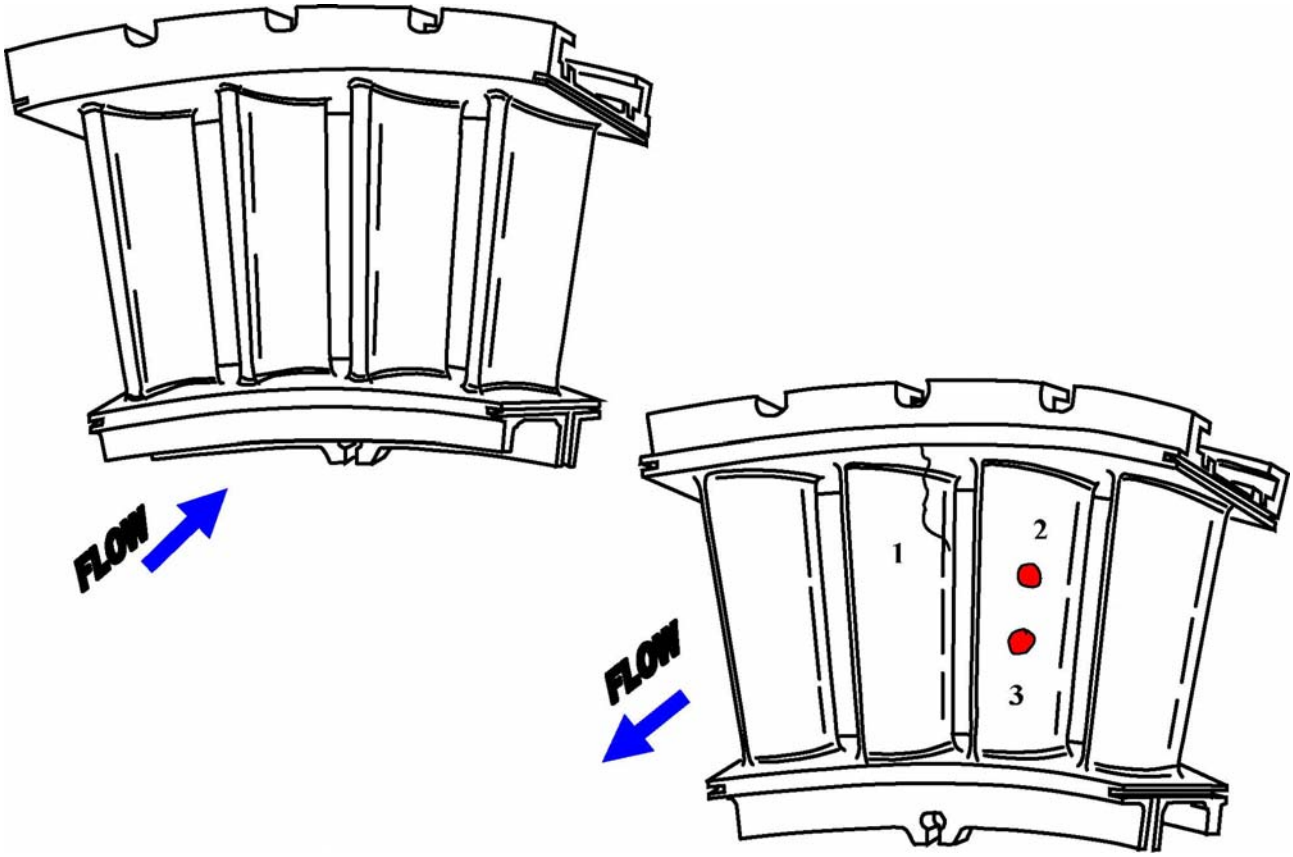



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 96 mm. | 10 | |
| 2 | f.o. impact dia. 3 mm. | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K442 | 4282T81 | 11 | 48954 | **1295** | **PT** ☐ **VT** ☐ |



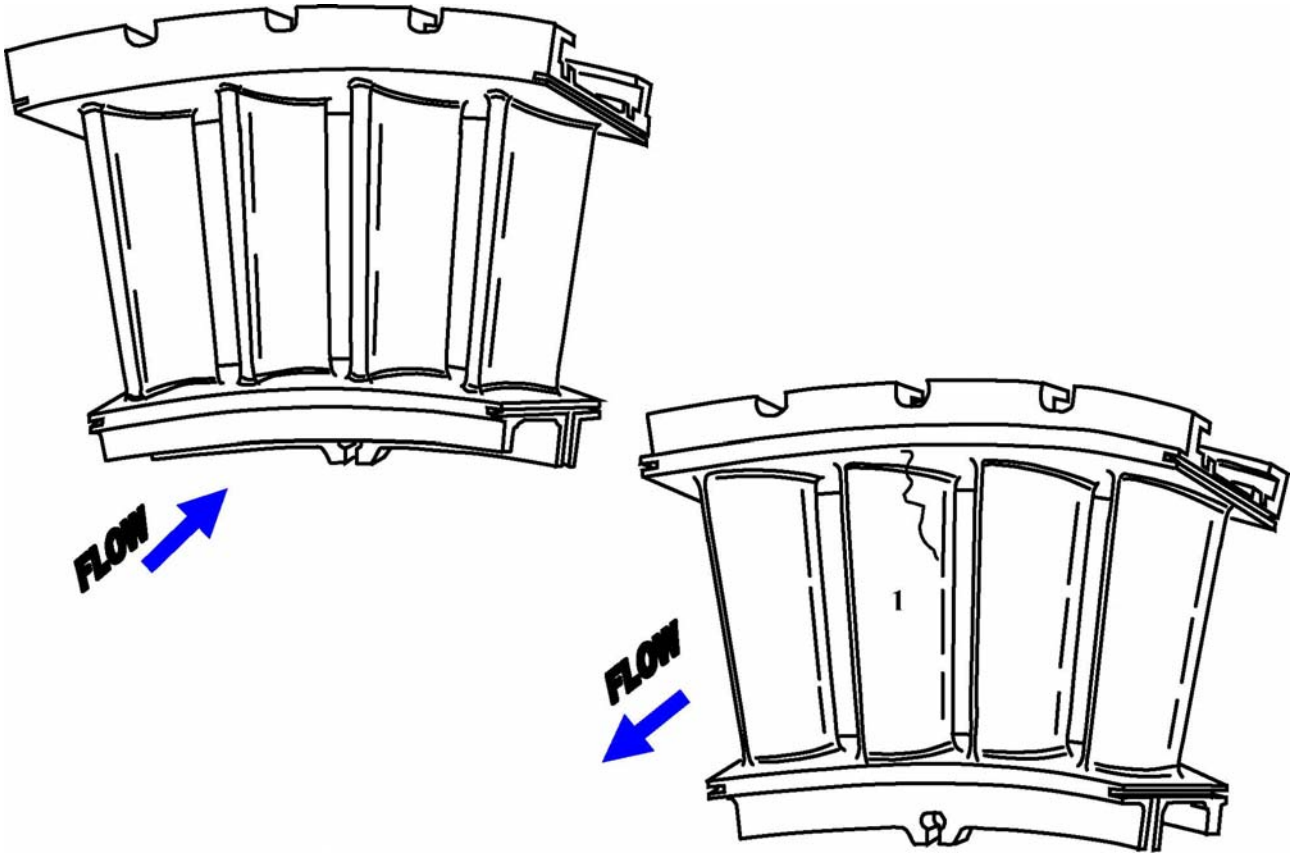

| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 73 mm. | 10 | |
| 2 | f.o. impact dia. 5 mm. | 11 | |
| 3 | f.o. impact dia. 3 mm. | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

**Form Ref. N°:** ***D5TR0065***

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K444 | 4282T81 | 12 | 48954 | **1295** | **PT** ☐ **VT** ☐ |



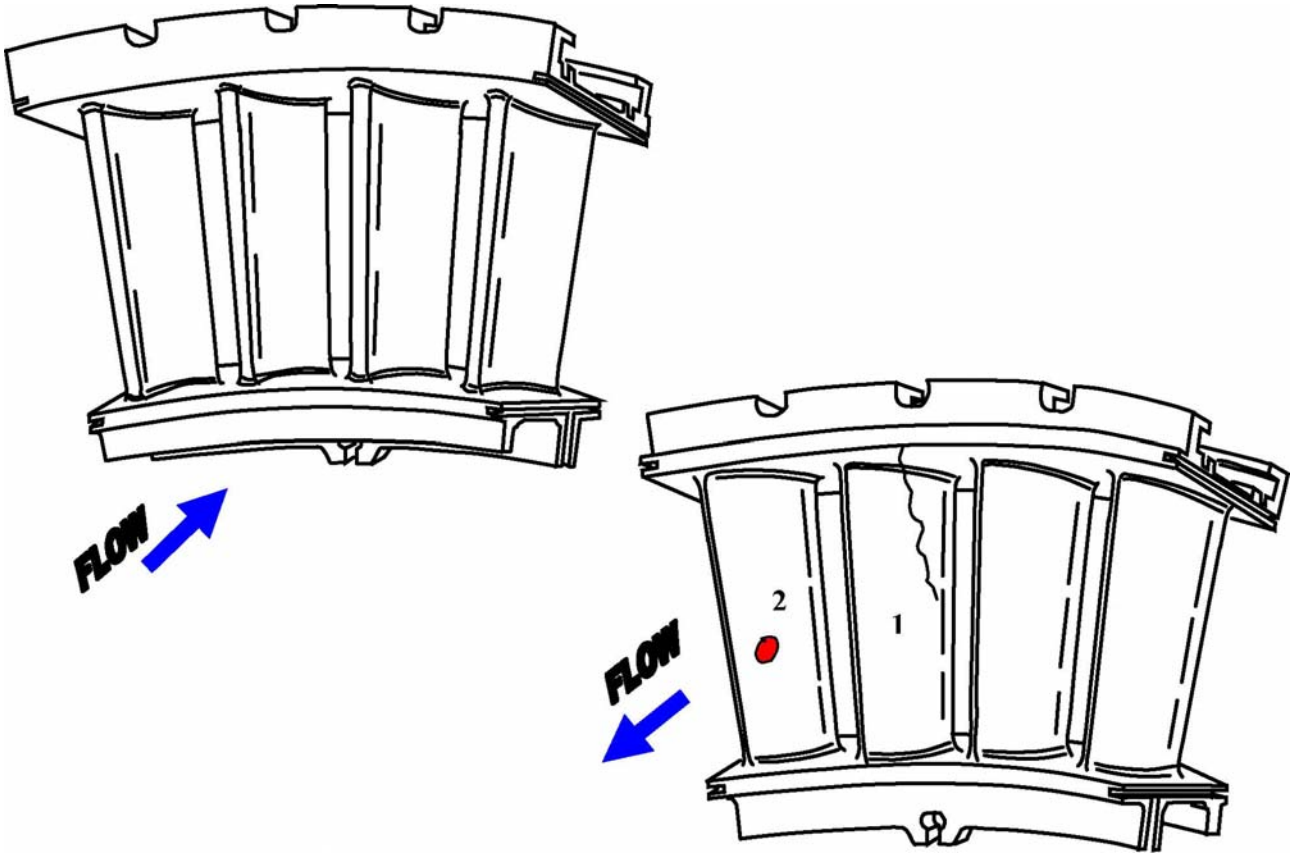

| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 62 mm. | 10 | |
| 2 | | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

**Form Ref. N°:** ***D5TR0065***

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K445 | 4228T81 | 13 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

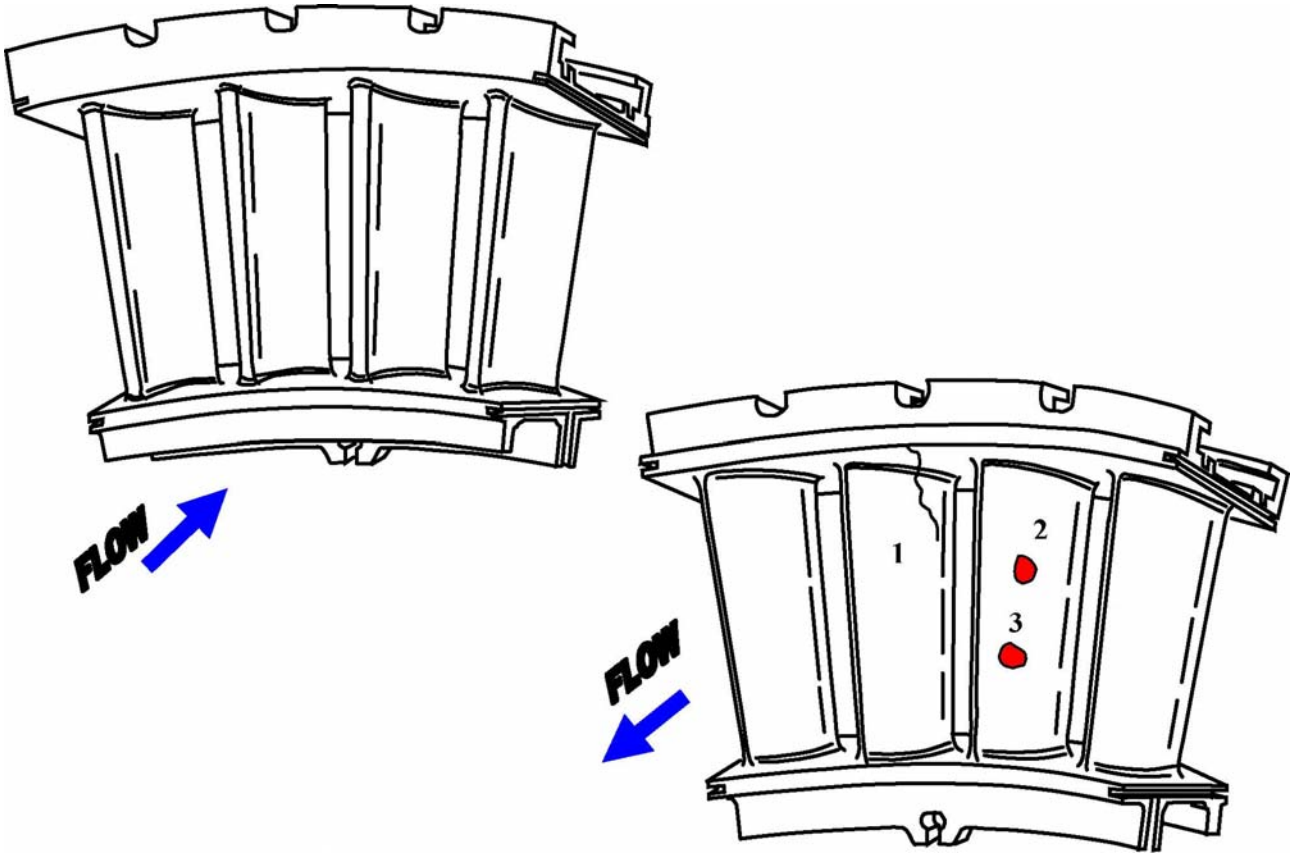



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 98 mm. | 10 | |
| 2 | f.o. impact dia. 3 mm. | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K446 | 4228T81 | 14 | 48954 | **1295** | **PT** ☐ **VT** ☐ |

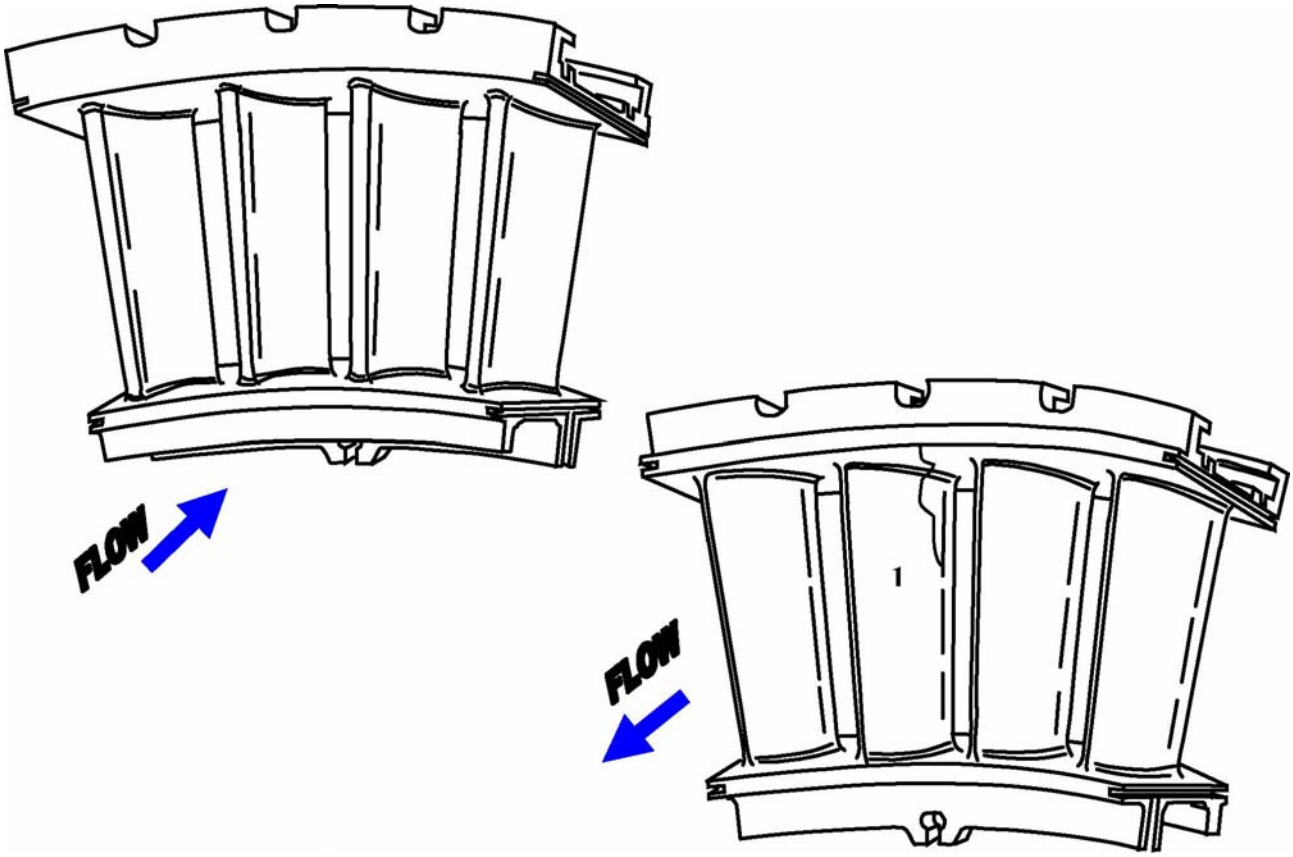



| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 35 mm. | 10 | |
| 2 | f.o. impact dia. 8 mm. | 11 | |
| 3 | f.o. impact dia. 3 mm. | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K447 | 4228T81 | 15 | 48954 | **1295** | **PT** ☐ **VT** ☐ |



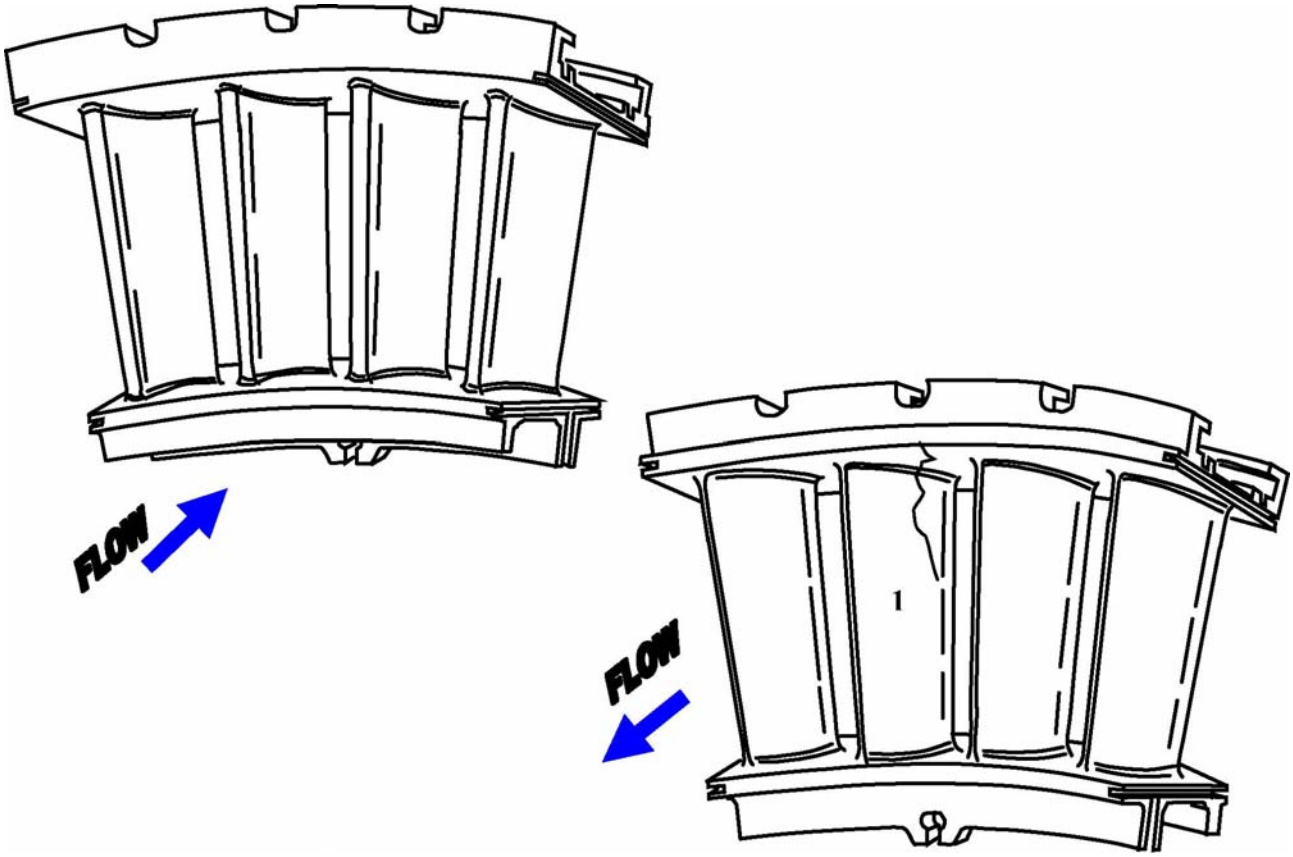

| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 64 mm. | 10 | |
| 2 | | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

**Form Ref. N°:** ***D5TR0065***

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K448 | 4228T81 | 16 | 48954 | **1295** | **PT** ☐ **VT** ☐ |



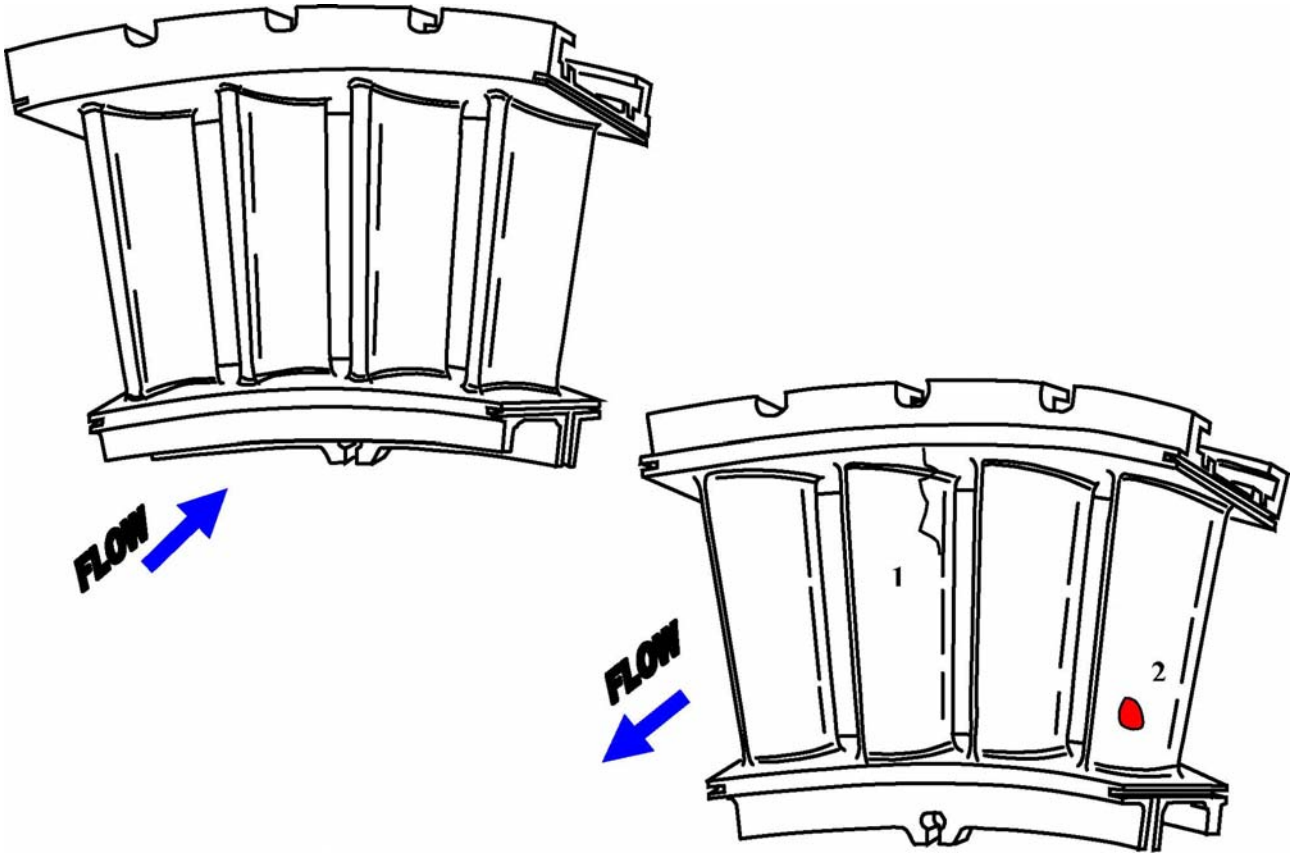

| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 87 mm. | 10 | |
| 2 | | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

**Form Ref. N°:** ***D5TR0065***

## *TURBINE 3RD STAGE VANES - INSPECTION*

| S/N: | DWG: | POSITION : | FIRING HRS : | STARTS NO.: | TESTED: |
|---|---|---|---|---|---|
| U3K449 | 4282T81 | 17 | 48954 | **1295** | **PT ☐ VT ☐** |




| Position | Damage description | Position | Damage description |
|---|---|---|---|
| 1 | Crack 46 mm. | 10 | |
| 2 | f.o. dia 3 mm. | 11 | |
| 3 | | 12 | |
| 4 | | 13 | |
| 5 | | 14 | |
| 6 | | 15 | |
| 7 | | 16 | |
| 8 | | | |
| 9 | | | |

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

# *TURBINE 1ST STAGE BLADES – GENERAL INFORMATION*

**DRAWING N°:** **4215T76R**

**BLADES MATERIAL:** **UDIMET-520 (coated NICOCRALY)**

**ASSEMBLY**

| Pos. | moment weight | serial number | Pos. | moment weight | serial number | Pos. | moment weight | serial number | Pos. | moment weight | serial number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 5723 | KO100475 | **29** | 5679 | KO100268 | **57** | 5737 | KO100177 | **85** | 5768 | KO100485 |
| **2** | 5687 | KO100249 | **30** | 5726 | KO100422 | **58** | 5735 | KO100328 | **86** | 5773 | KO100093 |
| **3** | 5700 | KO100228 | **31** | 5727 | KO100232 | **59** | 5706 | KO100243 | **87** | 5767 | KO100042 |
| **4** | 5682 | KO100229 | **32** | 5738 | KO100348 | **60** | 5694 | KO100407 | **88** | 5747 | KO100085 |
| **5** | 5715 | KO102332 | **33** | 5725 | KO100414 | **61** | 5672 | KO100224 | **89** | 5614 | KO100217 |
| **6** | 5701 | KO100216 | **34** | 5704 | KO100259 | **62** | 5733 | KO100492 | **90** | 5740 | KO100377 |
| **7** | 5706 | KO100469 | **35** | 5721 | KO100387 | **63** | 5732 | KO100428 | **91** | 5744 | KO100418 |
| **8** | 5702 | KO100257 | **36** | 5722 | KO100365 | **64** | 5748 | KO100306 | **92** | 5675 | KO100234 |
| **9** | 5697 | KO9866 | **37** | 5715 | KO100354 | **65** | 5695 | KO100218 | **93** | 5707 | KO100251 |
| **10** | 5715 | KO100119 | **38** | 5772 | KO100137 | **66** | 5722 | KO100953 | **94** | 5707 | KO100322 |
| **11** | 5732 | KO100497 | **39** | 5746 | KO100385 | **67** | 5747 | KO100250 | **95** | 5733 | KO100303 |
| **12** | 5727 | KO100386 | **40** | 5739 | KO100311 | **68** | 5721 | KO100426 | **96** | 5710 | KO100456 |
| **13** | 5704 | KO100219 | **41** | 5748 | KO100026 | **69** | 5685 | KO100247 | **97** | 5740 | KO100338 |
| **14** | 5742 | KO100204 | **42** | 5773 | KO100037 | **70** | 5738 | KO100369 | **98** | 5768 | KO100291 |
| **15** | 5753 | KO100439 | **43** | 5746 | KO100134 | **71** | 5723 | KO100295 | **99** | 5746 | KO100126 |
| **16** | 5719 | KO100325 | **44** | 5748 | KO100154 | **72** | 5723 | KO100473 | **100** | 5761 | KO100404 |
| **17** | 5747 | KO100593 | **45** | 5696 | KO100227 | **73** | 5716 | KO100361 | **101** | 5752 | KO100212 |
| **18** | 5689 | KO100258 | **46** | 5713 | KO100452 | **74** | 5716 | KO100222 | **102** | 5747 | KO100405 |
| **19** | 5716 | KO100349 | **47** | 5693 | KO100296 | **75** | 5702 | KO100444 | **103** | 5726 | KO100314 |
| **20** | 5733 | KO100420 | **48** | 5717 | KO09782 | **76** | 5725 | KO100255 | | | |
| **21** | 5710 | KO100355 | **49** | 5718 | KO100297 | **77** | 5728 | KO100474 | | | |
| **22** | 5719 | KO100287 | **50** | 5727 | KO100409 | **78** | 5707 | KO100337 | | | |
| **23** | 5704 | KO100226 | **51** | 5718 | KO100367 | **79** | 5691 | KO100240 | | | |
| **24** | 5689 | KO100242 | **52** | 5717 | KO100430 | **80** | 5717 | KO100381 | | | |
| **25** | 5704 | KO100453 | **53** | 5727 | KO100436 | **81** | 5691 | KO100449 | | | |
| **26** | 5716 | KO100379 | **54** | 5710 | KO100392 | **82** | 5699 | KO9915 | | | |
| **27** | 5713 | KO100464 | **55** | 5676 | KO100269 | **83** | 5741 | KO100370 | | | |
| **28** | 5729 | KO100424 | **56** | 5716 | KO100479 | **84** | 5738 | KO100515 | | | |

**Notes:** The Moment weight is expressed in Kgmm

# *TURBINE 2ND STAGE BLADES – GENERAL INFORMATION*

**DRAWING N°:** 4215T77

**BLADES MATERIAL:** **UDIMET-520 (coated NICOCRALY)**

**ASSEMBLY**

| Pos. | moment weight | serial number | Pos. | moment weight | serial number | Pos. | moment weight | serial number | Pos. | moment weight | serial number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 5074 | 891U2124 | **29** | 5062 | 891U2184 | **57** | 5060 | 891U2119 | **85** | 5053 | 891U2109 |
| **2** | 5044 | 891U2111 | **30** | 5055 | 891U2188 | **58** | 5069 | 891U2192 | **86** | 5040 | 891U2135 |
| **3** | 5050 | 891U2133 | **31** | 5049 | 891U2131 | **59** | 5063 | 891U2120 | **87** | 5080 | 891U2163 |
| **4** | 5103 | 901U2499 | **32** | 5096 | 891U2182 | **60** | 5092 | 891U2197 | **88** | 5103 | 901U2471 |
| **5** | 5047 | 891U2110 | **33** | 5073 | 901U2407 | **61** | 5085 | 891U2191 | **89** | 5066 | 891U2128 |
| **6** | 5070 | 891U2168 | **34** | 5066 | 891U2103 | **62** | 5091 | 891U2137 | **90** | 5114 | 901U2478 |
| **7** | 5052 | 891U2122 | **35** | 5075 | 891U2145 | **63** | 5047 | 891U2153 | **91** | 5070 | 891U2117 |
| **8** | 5044 | 891U2156 | **36** | 5050 | 891U2178 | **64** | 5069 | 891U2138 | **92** | 5092 | KO9398 |
| **9** | 5057 | 891U2176 | **37** | 5063 | 891U2125 | **65** | 5085 | 891U2106 | **93** | 5049 | 891U2154 |
| **10** | 5057 | 891U2134 | **38** | 5067 | 891U2173 | **66** | 5071 | 891U2130 | | | |
| **11** | 5077 | 891U2143 | **39** | 5090 | 891U2139 | **67** | 5047 | 891U2165 | | | |
| **12** | 5092 | 891U2152 | **40** | 5087 | 891U2127 | **68** | 5067 | 891U2114 | | | |
| **13** | 5061 | 891U2116 | **41** | 5065 | 891U2123 | **69** | 5063 | 891U2181 | | | |
| **14** | 5046 | 891U2187 | **42** | 5046 | 891U2141 | **70** | 5068 | 891U2157 | | | |
| **15** | 5096 | 900U2681 | **43** | 5058 | 891U2150 | **71** | 5074 | 891U2177 | | | |
| **16** | 5051 | 891U2186 | **44** | 5054 | 891U2199 | **72** | 5080 | 891U2113 | | | |
| **17** | 5087 | 891U2115 | **45** | 5053 | 891U2121 | **73** | 5095 | 891U2136 | | | |
| **18** | 5075 | 901U2462 | **46** | 5071 | 891U2105 | **74** | 5074 | 901U2419 | | | |
| **19** | 5050 | 891U2196 | **47** | 5041 | 891U2148 | **75** | 5056 | 891U2146 | | | |
| **20** | 5118 | 891U2162 | **48** | 5120 | 901U2505 | **76** | 5060 | 891U2126 | | | |
| **21** | 5183 | 891U2154 | **49** | 5061 | 891U2107 | **77** | 5051 | 891U2183 | | | |
| **22** | 5096 | 891U2132 | **50** | 5105 | 901U2423 | **78** | 5085 | 891U2166 | | | |
| **23** | 5070 | 891U2189 | **51** | 5049 | 891U2194 | **79** | 5110 | 901U2498 | | | |
| **24** | 5082 | 891U2193 | **52** | 5123 | 901U2457 | **80** | 5100 | 891U2170 | | | |
| **25** | 5069 | 891U2179 | **53** | 5084 | 901U2493 | **81** | 5092 | 901U2503 | | | |
| **26** | 5049 | 891U217T | **54** | 5072 | 891U2140 | **82** | 5046 | 891U2185 | | | |
| **27** | 5055 | 901U2451 | **55** | 5077 | 891U2160 | **83** | 5076 | 891U2144 | | | |
| **28** | 5097 | 891U2159 | **56** | 5065 | 891U2172 | **84** | 5081 | 891U2158 | | | |

**Notes:** The Moment weight is expressed in Kgmm

# *TURBINE 3RD STAGE BLADES – GENERAL INFORMATION*

**DRAWING N°: 4215T78**

**BLADES MATERIAL: UDIMET 520 (not coated)**

**ASSEMBLY**

| Pos. | moment weight | serial number | Pos. | moment weight | serial number | Pos. | moment weight | serial number |
|---|---|---|---|---|---|---|---|---|
| **1** | | 900T3613 | **26** | | 900T3629 | **51** | | KO5225 |
| **2** | | 900T3608 | **27** | | 900T3584 | **52** | | 900T3647 |
| **3** | | 900T3610 | **28** | | KO5246 | **53** | | 900T3632 |
| **4** | | 900T3646 | **29** | | 900T3588 | **54** | | 900T3591 |
| **5** | | 900T3621 | **30** | | 900T3626 | **55** | | 900T3635 |
| **6** | | 900T3645 | **31** | | 900T3600 | **56** | | 900T3622 |
| **7** | | 900T3579 | **32** | | 900T3636 | **57** | | 900T3638 |
| **8** | | 900T3585 | **33** | | 900T3648 | **58** | | 900T3653 |
| **9** | | 900T3606 | **34** | | 900T3631 | **59** | | 900T3633 |
| **10** | | 900T3650 | **35** | | 900T3580 | **60** | | 900T3649 |
| **11** | | 900T3582 | **36** | | 900T3586 | **61** | | 900T3616 |
| **12** | | 900T3609 | **37** | | 900T3615 | **62** | | 900T3596 |
| **13** | | 900T3590 | **38** | | 900T3640 | **63** | | 900T3617 |
| **14** | | 900T3599 | **39** | | 900T3627 | **64** | | 900T3625 |
| **15** | | 900T3628 | **40** | | 900T3619 | **65** | | 900T3643 |
| **16** | | 900T3612 | **41** | | 900T3623 | **66** | | 900T3578 |
| **17** | | 900T3614 | **42** | | 900T3581 | **67** | | 900T3604 |
| **18** | | 900T3595 | **43** | | 900T3651 | **68** | | 900T3602 |
| **19** | | 900T3644 | **44** | | 900T3607 | **69** | | 900T3589 |
| **20** | | 900T3634 | **45** | | 900T3601 | **70** | | 900T3652 |
| **21** | | 900T3592 | **46** | | 900T3639 | **71** | | 900T3637 |
| **22** | | 900T3641 | **47** | | 900T3603 | | | |
| **23** | | 900T3583 | **48** | | 900T3593 | | | |
| **24** | | 900T3594 | **49** | | 900T3598 | | | |
| **25** | | 900T3630 | **50** | | 900T3587 | | | |

**Notes:** The Moment weight is expressed in Kgmm

# *TURBINE 4TH STAGE BLADES – GENERAL INFORMATION*

**DRAWING N°:** **4217T25**

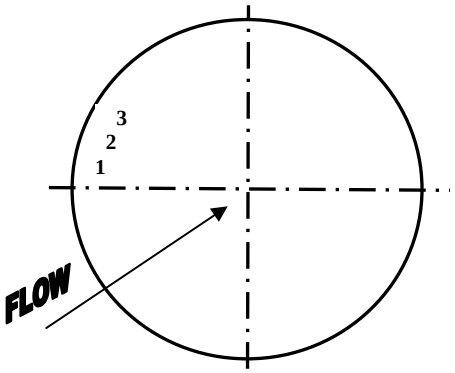
**BLADES MATERIAL:** **INCONEL-X**

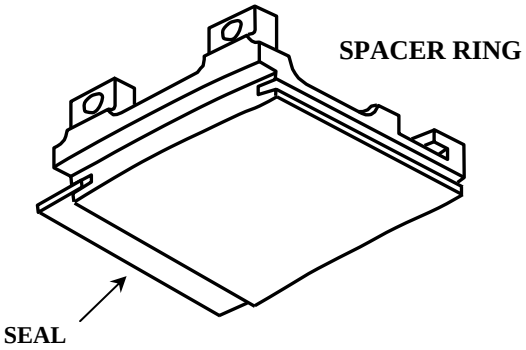
**ASSEMBLY**

| Pos. | moment weight | serial number | Pos. | moment Weight | serial number | Pos. | moment weight | serial number |
|---|---|---|---|---|---|---|---|---|
| **1** | | 910UA4619 | **26** | | 910UA4588 | **51** | | 910UA4630 |
| **2** | | 910UA4592 | **27** | | 910UA4605 | **52** | | 910UA4646 |
| **3** | | 910UA4622 | **28** | | 910UA4650 | **53** | | 910UA4623 |
| **4** | | 910UA4625 | **29** | | 910UA4608 | **54** | | 910UA4627 |
| **5** | | 910UA4654 | **30** | | 910UA4599 | **55** | | 910UA4639 |
| **6** | | 910UA4628 | **31** | | 910UA4656 | **56** | | 910UA4635 |
| **7** | | 910UA4636 | **32** | | 910UA4653 | **57** | | 910UA4651 |
| **8** | | 910UA4618 | **33** | | 910UA4615 | **58** | | 910UA4602 |
| **9** | | 910UA4609 | **34** | | 910UA4621 | **59** | | 910UA4614 |
| **10** | | 910UA4631 | **35** | | 910UA4648 | **60** | | 910UA4594 |
| **11** | | 910UA4589 | **36** | | 910UA4634 | **61** | | 910UA4655 |
| **12** | | 910UA4632 | **37** | | 910UA4629 | **62** | | 910UA4597 |
| **13** | | 910UA4606 | **38** | | 910UA4585 | **63** | | 910UA4598 |
| **14** | | 910UA4638 | **39** | | 910UA4633 | **64** | | 910UA4600 |
| **15** | | 910UA4617 | **40** | | 910UA4610 | **65** | | 910UA4637 |
| **16** | | 910UA4644 | **41** | | 910UA4590 | **66** | | 910UA4613 |
| **17** | | 910UA4603 | **42** | | 910UA4640 | **67** | | 910UA4626 |
| **18** | | 910UA4616 | **43** | | 910UA4596 | **68** | | 910UA4593 |
| **19** | | 910UA4604 | **44** | | 910UA4649 | | | |
| **20** | | 910UA4647 | **45** | | 910UA4591 | | | |
| **21** | | 910UA4624 | **46** | | 910UA4620 | | | |
| **22** | | 910UA4643 | **47** | | 910UA4587 | | | |
| **23** | | 910UA4601 | **48** | | 910UA4611 | | | |
| **24** | | 910UA4645 | **49** | | 910UA4595 | | | |
| **25** | | 910UA4612 | **50** | | 910UA4607 | | | |

**Notes:** The Moment weight is expressed in Kgmm

# *TURBINE 1ST STAGE VANE HOLDER – SPACERS AND SEALS*




**CONDITIONS:**

**I = Deposits**
**B = Burned**
**R= Rubbing**
**C = Crack/corrosion**

**ACTIONS:**

**N = No action required**
**R = Repaired/Cleaned**
**RN = Replaced by a new one**

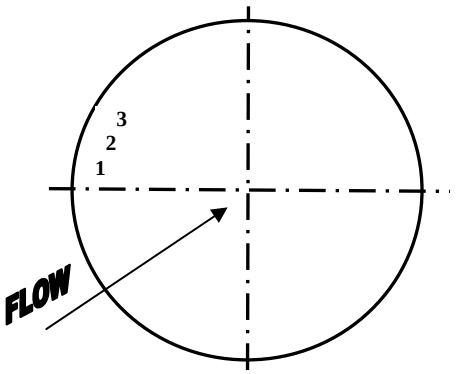
| Pos n° | Segment | | Seal between segments | | Pos n° | Segment | | Seal between segments | | Pos n° | Segment | | Seal between segments | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cond. | Action | Cond. | Action | | Cond. | Action | Cond. | Action | | Cond. | Action | Cond. | Action |
| **1** | I | R | | | **21** | I | R | | | **41** | I | R | | |
| **2** | I | R | | | **22** | I | R | | | **42** | I | R | | |
| **3** | I | R | | | **23** | I | R | | | **43** | I | R | | |
| **4** | B | R | | | **24** | I | R | | | **44** | I | R | | |
| **5** | I | R | | | **25** | I | R | | | **45** | I | R | | |
| **6** | I | R | | | **26** | I | R | | | **46** | I | R | | |
| **7** | I | R | | | **27** | I | R | | | **47** | I | R | | |
| **8** | I | R | | | **28** | I | R | | | **48** | I | R | | |
| **9** | I | R | | | **29** | I | R | | | **49** | I | R | | |
| **10** | I | R | | | **30** | I | R | | | **50** | I | R | | |
| **11** | I | R | | | **31** | I | R | | | **51** | I | R | | |
| **12** | I | R | | | **32** | I | R | | | **52** | I | R | | |
| **13** | I | R | | | **33** | I | R | | | **53** | I | R | | |
| **14** | I | R | | | **34** | I | R | | | **54** | I | R | | |
| **15** | I | R | | | **35** | I | R | | | **55** | I | R | | |
| **16** | I | R | | | **36** | I | R | | | **56** | I | R | | |
| **17** | I | R | | | **37** | I | R | | | **57** | I | R | | |
| **18** | I | R | | | **38** | I | R | | | **58** | I | R | | |
| **19** | I | R | | | **39** | I | R | | | **59** | I | R | | |
| **20** | I | R | | | **40** | I | R | | | **60** | I | R | | |

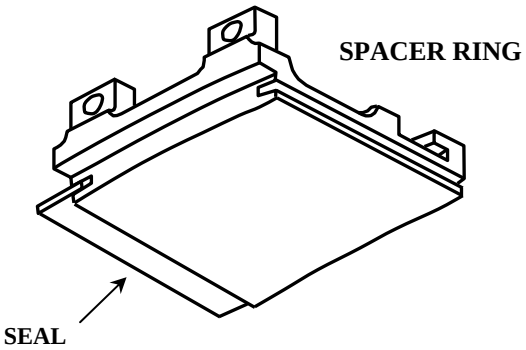
**Notes:**

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

**Form Ref. No.:** ***D5TR0085-A***

## *TURBINE 2ND STAGE VANE HOLDER – SPACERS AND SEALS*




**CONDITIONS:**

**I = Deposits**
**B = Burned**
**R = Rubbing**
**C = Crack/Corrosion**

**ACTIONS:**

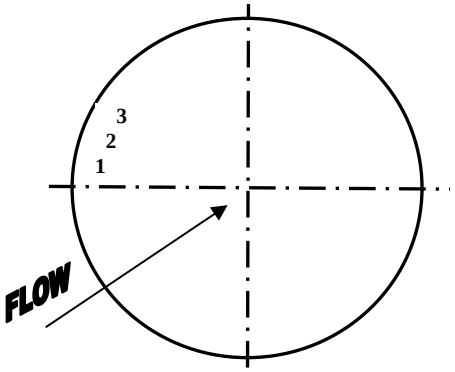
**N = No action required**
**R = Repaired/Cleaned**
**RN = Replaced by a new one**

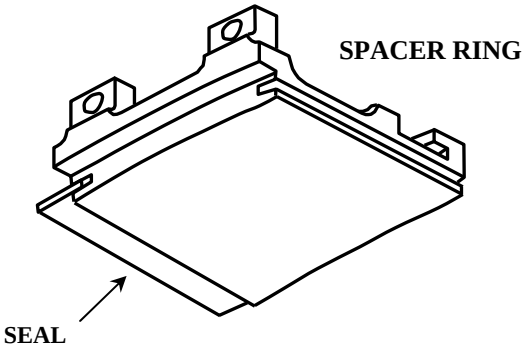
| Pos n° | Segment | | Seal between segments | | Pos n° | Segment | | Seal between segments | | Pos n° | Segment | | Seal between segments | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cond. | Action | Cond. | Action | | Cond. | Action | Cond. | Action | | Cond. | Action | Cond. | Action |
| **1** | I | R | | | **21** | C | R | | | **41** | I | R | | |
| **2** | C | R | | | **22** | C | R | | | **42** | C | R | | |
| **3** | C | R | | | **23** | C | R | | | **43** | C | R | | |
| **4** | C | R | | | **24** | I | R | | | **44** | I | R | | |
| **5** | I | R | | | **25** | I | R | | | **45** | C | R | | |
| **6** | C | R | | | **26** | C | R | | | **46** | C | R | | |
| **7** | C | R | | | **27** | C | R | | | **47** | C | R | | |
| **8** | C | R | | | **28** | C | R | | | **48** | C | R | | |
| **9** | C | R | | | **29** | C | R | | | **49** | C | R | | |
| **10** | C | R | | | **30** | C | R | | | **50** | C | R | | |
| **11** | I | R | | | **31** | I | R | | | **51** | C | R | | |
| **12** | C | R | | | **32** | C | R | | | **52** | C | R | | |
| **13** | C | R | | | **33** | C | R | | | **53** | C | R | | |
| **14** | I | R | | | **34** | C | R | | | **54** | C | R | | |
| **15** | C | R | | | **35** | C | R | | | **55** | C | R | | |
| **16** | C | R | | | **36** | C | R | | | **56** | C | R | | |
| **17** | C | R | | | **37** | C | R | | | **57** | C | R | | |
| **18** | C | R | | | **38** | C | R | | | **58** | C | R | | |
| **19** | C | R | | | **39** | C | R | | | **59** | C | R | | |
| **20** | C | R | | | **40** | C | R | | | **60** | C | R | | |

**Notes:**

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

# *TURBINE 3RD STAGE VANE HOLDER – SPACERS AND SEALS*




**CONDITIONS:**

**I = Deposits**
**B = Burned**
**R = Rubbing**
**C = Crack/Corrosion**

**ACTIONS:**

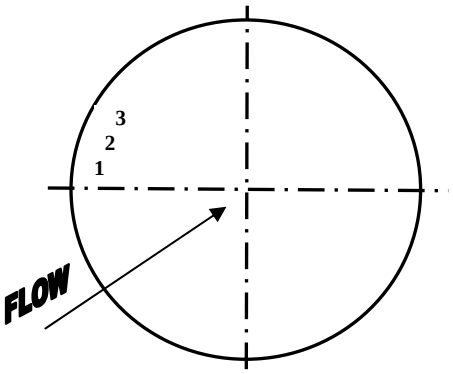
**N = No action required**
**R = Repaired/Cleaned**
**RN = Replaced by a new one**

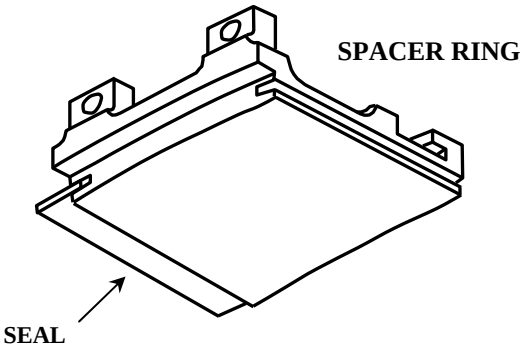
| Pos n° | Segment | | Seal between segments | | Pos n° | Segment | | Seal between segments | | Pos n° | Segment | | Seal between segments | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cond. | Action | Cond. | Action | | Cond. | Action | Cond. | Action | | Cond. | Action | Cond. | Action |
| 1 | I | R | | | 13 | I | R | | | 25 | I | R | | |
| 2 | I | R | | | 14 | I | R | | | 26 | I | R | | |
| 3 | I | R | | | 15 | I | R | | | 27 | I | R | | |
| 4 | I | R | | | 16 | I | R | | | 28 | I | R | | |
| 5 | I | R | | | 17 | I | R | | | 29 | I | R | | |
| 6 | I | R | | | 18 | I | R | | | 30 | I | R | | |
| 7 | I | R | | | 19 | I | R | | | 31 | I | R | | |
| 8 | I | R | | | 20 | I | R | | | 32 | I | R | | |
| 9 | I | R | | | 21 | I | R | | | 33 | I | R | | |
| 10 | I | R | | | 22 | I | R | | | 34 | I | R | | |
| 11 | I | R | | | 23 | I | R | | | 35 | I | R | | |
| 12 | I | R | | | 24 | I | R | | | 36 | I | R | | |

**Notes:**

Form Ref. No.: *D5TR0085-C*

# *TURBINE 4TH STAGE VANE HOLDER – SPACERS AND SEALS*




**CONDITIONS:**

**I = Deposits**
**B = Burned**
**R = Rubbing**
**C = Crack/Corrosion**

**ACTIONS:**

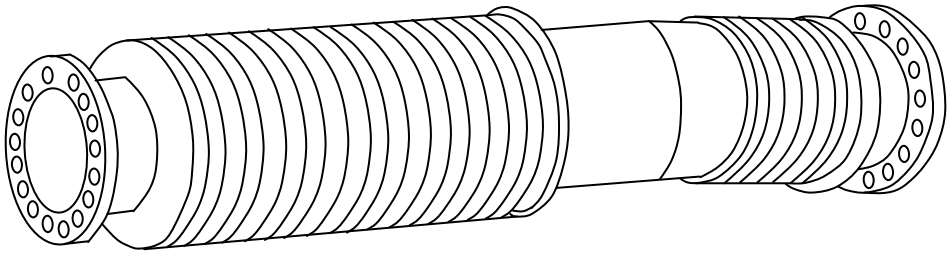
**N = No action required**
**R = Repaired/Cleaned**
**RN = Replaced by a new one**

| Pos n° | Segment | | Seal between segments | | Pos n° | Segment | | Seal between segments | | Pos n° | Segment | | Seal between segments | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cond. | Action | Cond. | Action | | Cond. | Action | Cond. | Action | | Cond. | Action | Cond. | Action |
| 1 | I | R | | | 13 | I | R | | | 25 | I | R | | |
| 2 | I | R | | | 14 | I | R | | | 26 | I | R | | |
| 3 | I | R | | | 15 | I | R | | | 27 | I | R | | |
| 4 | I | R | | | 16 | I | R | | | 28 | I | R | | |
| 5 | I | R | | | 17 | I | R | | | 29 | I | R | | |
| 6 | I | R | | | 18 | I | R | | | 30 | I | R | | |
| 7 | I | R | | | 19 | I | R | | | 31 | I | R | | |
| 8 | I | R | | | 20 | I | R | | | 32 | I | R | | |
| 9 | I | R | | | 21 | I | R | | | 33 | I | R | | |
| 10 | I | R | | | 22 | I | R | | | 34 | I | R | | |
| 11 | I | R | | | 23 | I | R | | | 35 | I | R | | |
| 12 | I | R | | | 24 | I | R | | | 36 | I | R | | |

**Notes:**

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

## *ROTOR COOLING FLEXIBLE PIPES – INSPECTION*



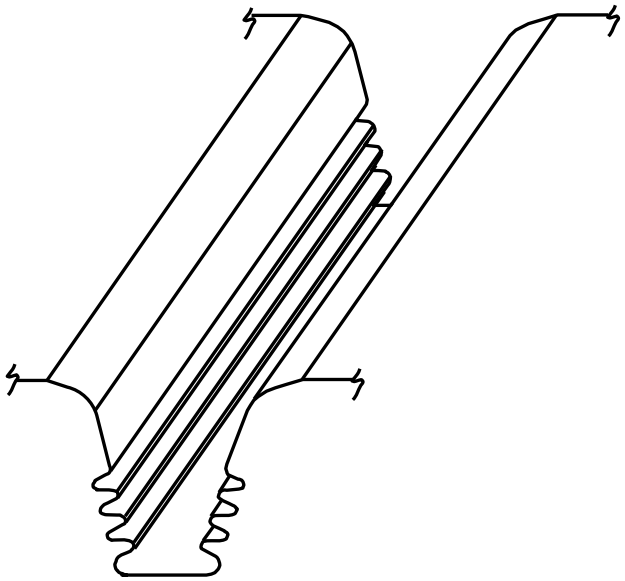
| TUBE N° | VISUAL CHECK | DAMAGE DESCRIPTION | REPAIRED | REPLACED |
|---|---|---|---|---|
| 1 | Good | | | |
| 2 | Good | | | |
| 3 | Good | | | |
| 4 | Good | | | |

**NOTES: Contrast dye check were performed on the welding, no indications found**

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |

**Form Ref. No.:** ***D5TR0096***

## *TURBINE DISKS – INSPECTION*



| TEST CARRIED OUT | DYE TEST | VISUAL CHECK | MAGNETIC CHECK |
|---|---|---|---|
| **1ST STAGE** | **Good** | **Good** | |
| **2ND STAGE** | **Good** | **Good** | |
| **3RD STAGE** | **Good** | **Good** | |
| **4TH STAGE** | **Good** | **Good** | |

NOTES:

| *Turbocare Representative* | *Signature* | *Report* | *Date* |
|---|---|---|---|
| Enrico Ferrara | Enrico Ferrara | I-TLG/TG50D5-354/TR014-08 | 03/09/2008 |