Operation Manual

TPL71-C34

ABB Turbo Systems Ltd
CH 5401 Baden

Type	TPL71-C34		HT842511		
n_{Mmax} 408 n_{Bmax} 389		**1/s**	t_{Mmax} 650 t_{Bmax} 620		**°C**
SFUS06	02040 **kg**		35	50	50
Year 2016			Application according to the Operation Manual		

made in Switzerland

HZTL2488 English
Original Operation Manual

ABB Turbocharging

Operating condition and replacement intervals

The operational limits for the turbocharger nBmax, tBmax, nMmax, tMmax, inspection- and replacement intervals for the components concerned on the rating plate are valid for the operational mode and compressor inlet condition, which has been agreed upon between the engine builder and ABB.

Note: Replacement intervals of components depends on the load profile, turbine inlet temperature, suction air temperature and turbocharger speed. In case the operation conditions differs significantly from what is considered to be normal for the current application, it is recommended to contact ABB for a re-calculation of replacement intervals. Frequent load alterations, high temperatures and high speed lower the life of components.
Unless otherwise agreed, the application limits nMmax, tMmax are valid for the test operation for a limited time.

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5 Maintenance

5.1 Foreword to Maintenance

Maintenance and servicing work involves regular visual checks and cleaning to ensure that the turbocharger and its attached units function trouble-free.

- The external condition and how dirty the cleaning points specified in this chapter are, must be established by visual checks at the specified intervals.
- The safety precautions must be observed during all maintenance and servicing work.

The cleaning points described in the following are:

- Filter silencer
- Compressor
- Turbine and nozzle ring

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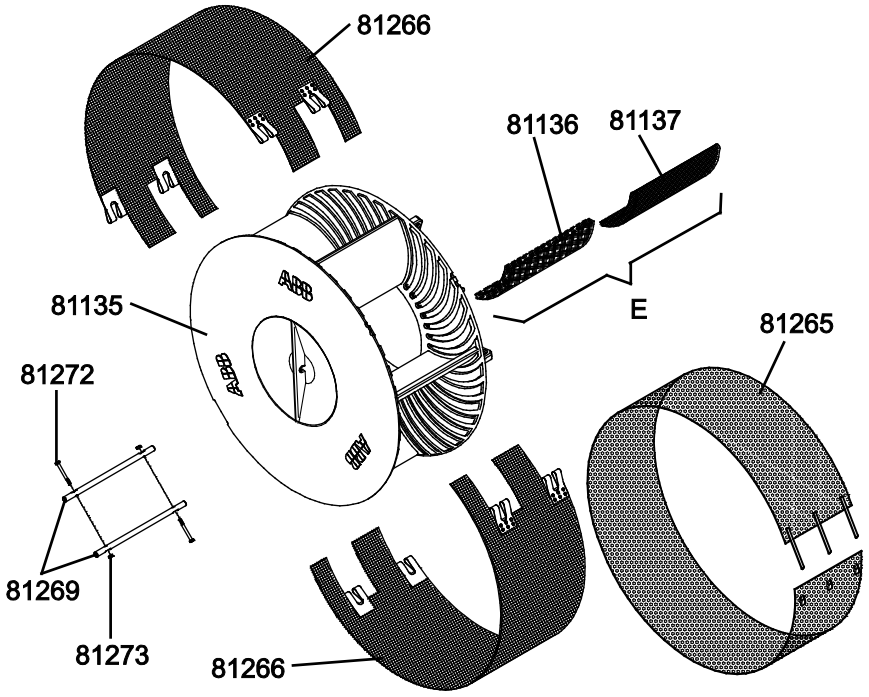
5.2 Cleaning the filter silencer

5.2.1 Filter silencer and connecting rod



81265	Filter ring (if provided)	81136	Absorption segment
81269	Connecting rods	81137	Sheet-metal covering
81266	Cover grid	81135	Filter silencer body
81272	Screwdriver	81273	Lock nut
E	Insert unit = absorption segment + sheet-metal covering		

Removing and cleaning filter silencer

If provided

- ▶ Remove filter strip (81265).
- ▶ Rinse filter strip (81265) using water with detergent additive or, if very dirty, soak it and squeeze out carefully. Rinse it in cold water. Avoid rough treatment (not a jet of water).

NOTICE

How dirty the filter strip (81265) is, depends on how clean the drawn-in air is. Clean filter strip every 500 hours of service or more frequently if necessary.

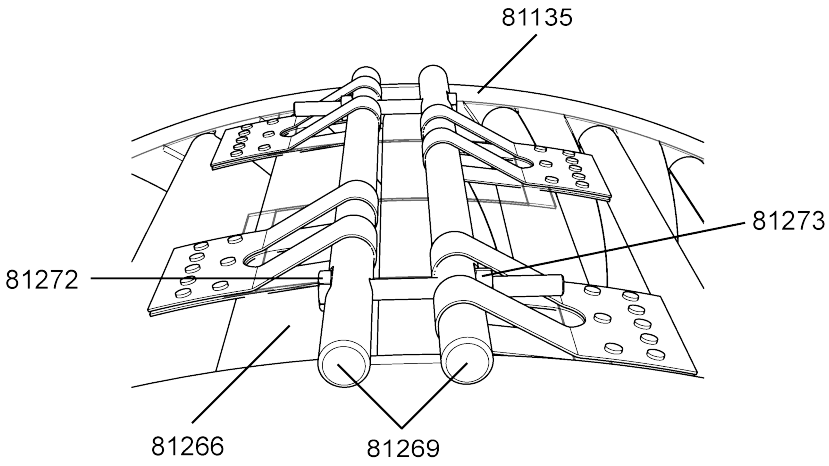
- ▶ Unscrew and remove lock nuts (81273).
- ▶ Unscrew and remove screws (81272) for connecting rods (81269).
- ▶ Remove connecting rods (81269).
- ▶ Carefully remove cover grids (81266).
- ▶ Pull out insert units (E), bend open sheet-metal coverings (81137) and then remove absorption segments (81136).
- ▶ Clean the absorption segments (81136).
  During cleaning, ensure that the absorption segments (81136) are only cleaned with a mild jet of compressed air, soft brush or a damp cloth. Otherwise there is a risk of damage or deformation.

NOTICE

Replace heavily contaminated or damaged parts with original parts from ABB Turbo Systems.

Fitting the filter silencer

- ▶ Assemble the insert units (E) by inserting the absorption segments (81136) into the sheet metal coverings (81137).
- ▶ Bend sheet metal coverings (81137) back to original shape.
- ▶ Insert the insert units (E) into slot guides in filter silencer unit (81135).



- ▶ Uniformly place cover grids (81266) in correct position.
- ▶ Push connecting rods (81269) through lugs of cover grids (81266).

CAUTION

If the connecting rods (81269) are not correctly positioned in their recesses on the filter silencer unit (81135), the cover grid (81266) can twist and shift. There is then a risk of foreign matter and contamination getting into the compressor.

- ▶ Join connecting rods (81269) using screws (81272). When tightening the screws (81272), ensure that connecting rods (81269) are located correctly in recesses in filter silencer body (81135). Now tighten screws (81272) alternately until the following maximum torque is reached:

Screw	Tightening torque [Nm]
81272	20

- ▶ Screw lock nuts (81273) onto screw (81272) and tighten to following torque:

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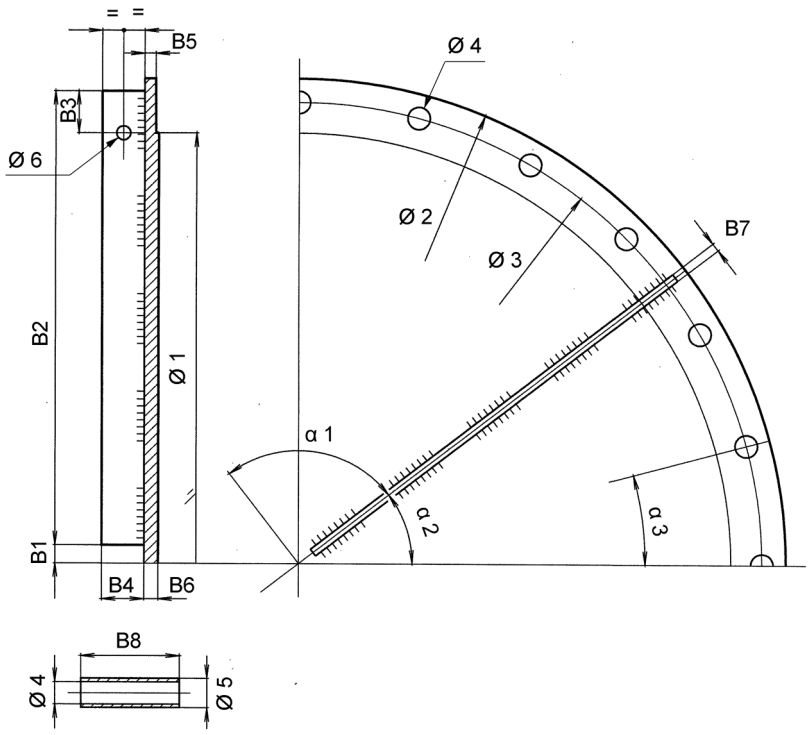
9.3 Fit cover plate

NOTICE

The cover plate (material: General structural steel, in accordance with DIN EN 10025-2) must be manufactured in-house according to the drawing.

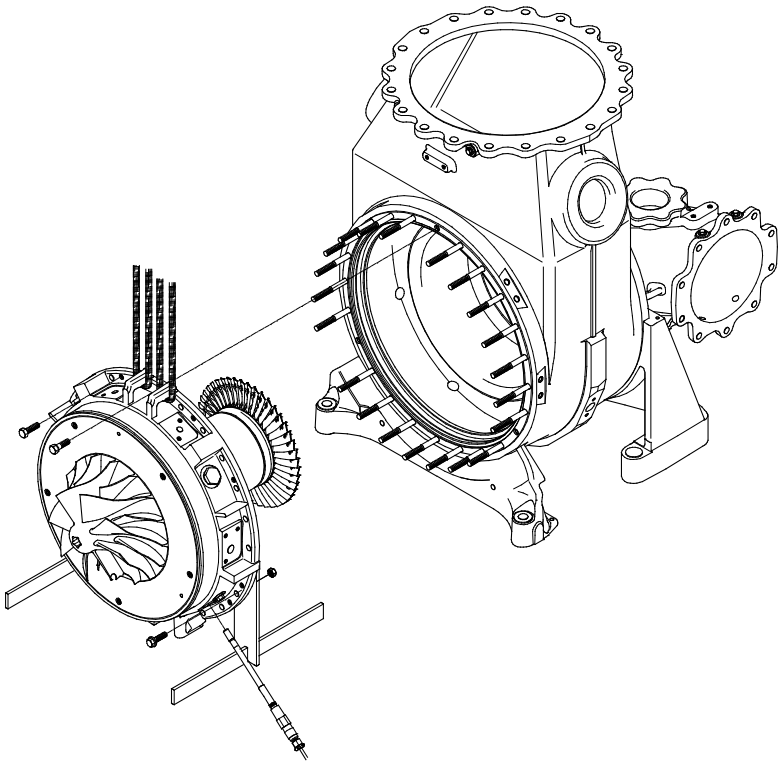


Cover plate dimensions [mm]

Product	B1	B2	B3	B4	B5	B6	B7	B8
TPL67-C	13	325	30	30	8	10	6	70
TPL71-C	13	385	30	30	8	10	6	84

Product	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5 min.	Ø 6 min.
TPL67-C	616	694	660	16	22	15
TPL71-C	726	818	779	18	25	15

Product	α 1	α 2	α 3
TPL67-C	4 x 90°	37.5°	24 x 15°
TPL71-C	4 x 90°	37.5°	24 x 15°



NOTICE

Carry out the work as described in the chapter **Disassembly and Assembly**.

▶ Removing the cartridge group

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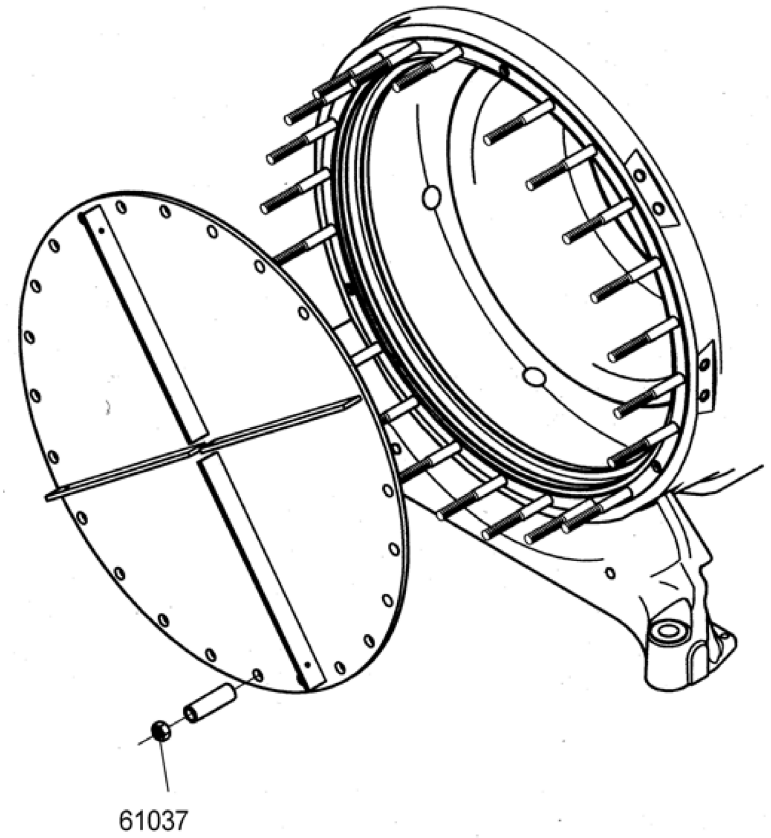

- ▶ Close opening in gas outlet casing using cover plate.
- ▶ Fasten cover plate using spacer sleeves and nuts (61037).

CAUTION

Shut off the supply of lubricating oil to the turbocharger.

Further measures and information for operation with a turbocharger with cover plate on 4-stroke engines

4-stroke engine with one turbocharger

No further measures are necessary. The engine can be operated as a naturally-aspirated engine according to the engine builder's instructions.

4-stroke engine with several turbochargers

Separate receivers

No further measures are necessary on engines with separate air and exhaust gas receivers. The engine can be operated as a naturally-aspirated engine according to the engine builder's instructions.

Common receiver

The air line must be closed off at the engine end because the undamaged turbochargers build up a receiver pressure.

CAUTION

The engine can be operated according to the engine builder's instructions. Attention must always be paid to the speed of the undamaged turbocharger. The speed limit n_{Bmax} given on the rating plate must not be exceeded.

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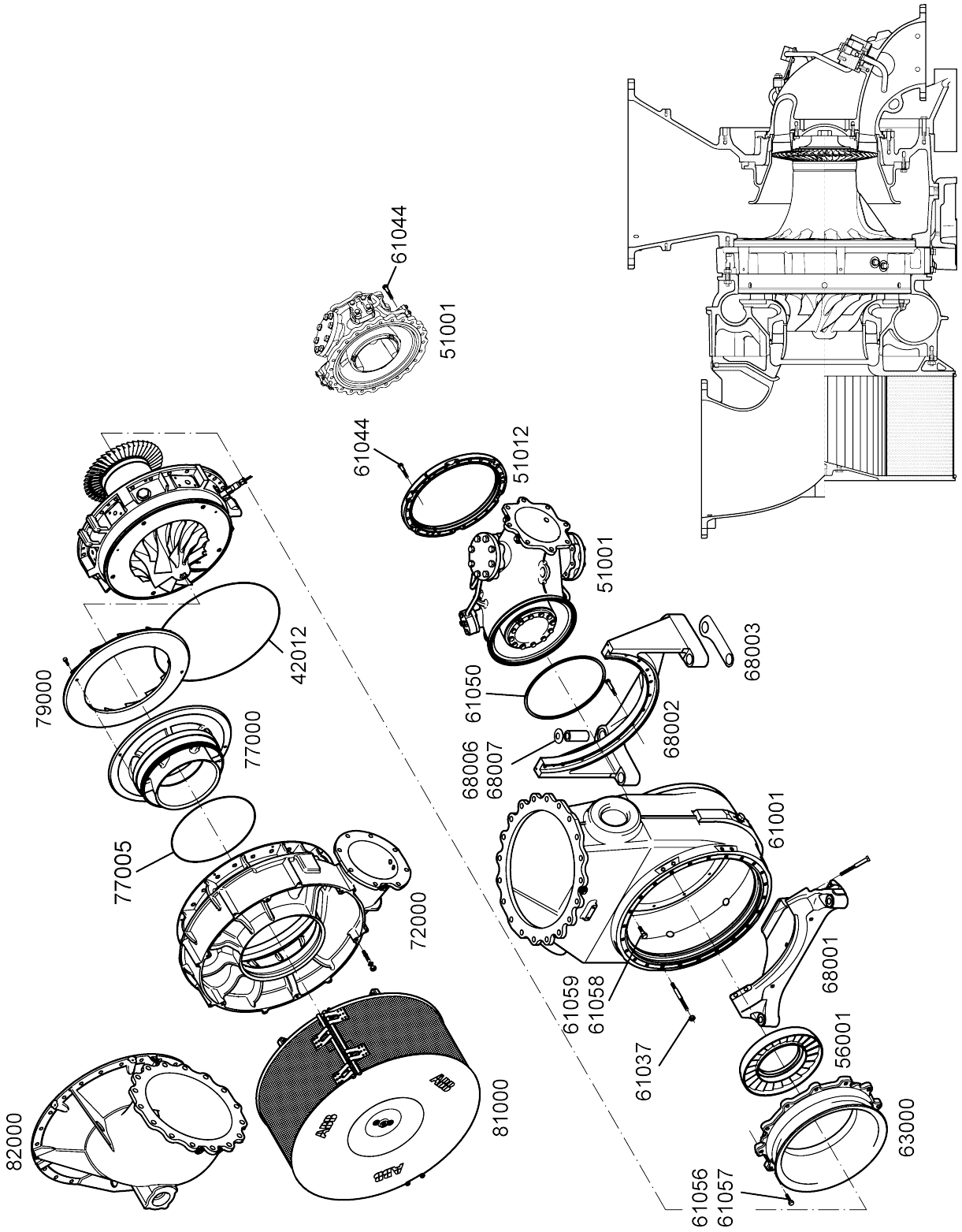
12.2 View of turbocharger with part numbers



Part number	Description
42012 (in customer spare part set)	O-ring
51001	Gas inlet casing
51012	Segment
56001	Nozzle ring
61001	Gas outlet casing
61037 (in customer spare part set)	Hexagon nut
61044	Hexagon-head screw
61050 (if provided)	Gasket
61056 (in customer spare part set)	Hexagon-head screw
61057 (in customer spare part set)	Verbus Ripp® Washer
61058 (in customer spare part set)	Verbus Ripp® Washer
61059 (in customer spare part set)	Hexagon-head screw
63000	Turbine diffuser
68001	Foot at compressor end
68002	Foot at turbine end
68003	Slide plate
68006	Cup spring
68007	Bush
72000	Compressor casing
77000	Wall insert
77005 (in customer spare part set)	O-ring
79000	Diffuser
81000	Filter silencer
82000	Radial air suction branch