Purpose
The assembly instructions explain how the low- and high-pressure stage of ABB Turbo Systems is fitted to the engine correctly and without any health and safety risks.

Target group
The assembly instructions are intended for engineers and mechanics responsible for fitting the low- and high-pressure stage on the engine.

Power2 performance package
Two-stage turbocharging solution for highest turbocharging efficiency.
# Assembly Instructions

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<th>Title</th>
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1 Introduction

1.1 Purpose of the assembly instructions

The assembly instructions explain how the low- and high-pressure stage of ABB Turbo Systems is fitted to the engine correctly and without any health and safety risks. This element of the documentation is supplied with the product, as is required for partly completed machinery in accordance with machinery directive 2006/42EC.

The assembly instructions are a complement to and expansion of existing national regulations for occupational safety, accident prevention and environmental protection.

1.2 Definition of target group

The assembly instructions are intended for engineers and mechanics responsible for fitting the low- and high-pressure stage on the engine. Basic mechanical training is a prerequisite.

All persons who are involved in the transportation and installation of the low and high-pressure stage have read and understood the assembly instructions.

1.3 Symbols, definitions

Symbols

The following symbols are used in this document:

- Indicates an action step.
- Indicates a numbered action step.
- Indicates a list.
- Refers to a page number

Terms used

The following terms are used in this document:

- Two-stage turbocharging (Power2)
- Low-pressure stage (Power2 LP)
- High-pressure stage (Power2 HP)
- Low-pressure and high-pressure stage

The trademarks of outside companies are used in this document. These are marked with the ® symbol.
Design variants

This document is valid for different design variants of low and high-pressure stages. There may be sections and descriptions of components that are not relevant for a specific low or high-pressure stage.

ABB Turbocharging Service Stations will be happy to provide information about questions regarding a design variant (see "Contact Information" on our website www.abb.com/turbocharging).

Accuracy of illustrations

The illustrations in this document are general in nature and intended for ease of understanding. Differences in detail are therefore possible.

ABB Turbo Systems

ABB Turbo Systems Ltd is identified as ABB Turbo Systems in this document.

Official service stations of ABB Turbo Systems

Official service stations are identified in this document as ABB Turbocharging Service Stations. They are regularly audited and certified by ABB Turbo Systems. See "Contact Information" on our website at www.abb.com/turbocharging.

Definition of pictograms

The following pictograms can occur in this document. These point out actions that must be taken in accordance with the meaning of the relevant pictogram.

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>Meaning</th>
<th>Pictogram</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Tighten with specified torque" /></td>
<td>Tighten with specified torque</td>
<td><img src="image2" alt="Oil free, grease free and dry" /></td>
<td>Oil free, grease free and dry</td>
</tr>
<tr>
<td><img src="image3" alt="Tighten over specified tightening angle" /></td>
<td>Tighten over specified tightening angle</td>
<td><img src="image4" alt="Affix" /></td>
<td>Affix</td>
</tr>
<tr>
<td><img src="image5" alt="Hand-tight, tighten without tools" /></td>
<td>Hand-tight, tighten without tools</td>
<td><img src="image6" alt="Measure" /></td>
<td>Measure</td>
</tr>
<tr>
<td><img src="image7" alt="Oil" /></td>
<td>Oil</td>
<td><img src="image8" alt="Note" /></td>
<td>Note</td>
</tr>
<tr>
<td><img src="image9" alt="Apply screw locking paste (e.g. Loctite)" /></td>
<td>Apply screw locking paste (e.g. Loctite)</td>
<td><img src="image10" alt="Visually inspect" /></td>
<td>Visually inspect</td>
</tr>
<tr>
<td><img src="image11" alt="Apply high-temperature grease" /></td>
<td>Apply high-temperature grease</td>
<td><img src="image12" alt="See document" /></td>
<td>See document</td>
</tr>
<tr>
<td><img src="image13" alt="Apply other paste in accordance with specifications" /></td>
<td>Apply other paste in accordance with specifications</td>
<td><img src="image14" alt="Dispose of in an environmentally compatible, professional way and in compliance with locally applicable regulations." /></td>
<td>Dispose of in an environmentally compatible, professional way and in compliance with locally applicable regulations.</td>
</tr>
</tbody>
</table>

Table 1: Definition of pictograms
1.4 Definition of warning, caution, note

⚠️ WARNING

Definition of Warning
Non-compliance or inaccurate compliance with working or operating instructions indicated by this symbol and the word WARNING can lead to serious injuries to personnel and even to fatal accidents.

- Warning signs must always be observed.

⚠️ CAUTION

Definition of Caution
Non-compliance or inaccurate compliance with working or operating instructions indicated by this symbol and the word CAUTION can lead to serious damage to engine or property with grave consequences.

- Caution signs must always be observed.

1.5 Definition of mandatory signs

<table>
<thead>
<tr>
<th>To be worn at all times</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective clothing</td>
<td>Safety footwear</td>
</tr>
<tr>
<td></td>
<td>to protect against</td>
</tr>
<tr>
<td></td>
<td>mechanical hazard</td>
</tr>
<tr>
<td></td>
<td>and risk of falling</td>
</tr>
</tbody>
</table>

Table 2: Personal protective equipment to be worn at all times

<table>
<thead>
<tr>
<th>To be worn specific to the respective task</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety glasses</td>
<td>Safety goggles</td>
</tr>
<tr>
<td>Safety gloves to protect</td>
<td>Respiratory mask</td>
</tr>
<tr>
<td>against</td>
<td>to protect against</td>
</tr>
<tr>
<td>- Mechanical hazard</td>
<td>- Dusts</td>
</tr>
<tr>
<td>- Chemical hazard</td>
<td>- Gases</td>
</tr>
<tr>
<td>- Thermal hazard</td>
<td></td>
</tr>
</tbody>
</table>

| Safety helmet                            | Ear protection            |

Table 3: Personal protective equipment to be worn specific to the respective task
2 Safety

2.1 Introduction

The two-stage turbocharging system (Power2) manufactured by ABB Turbo Systems is state of the art and complies with the respective health and safety standards in effect at the time the system was built. Thus Power2 is safe to operate. Nevertheless, there may be some residual risks during operation of the Power2 and work on Power2 components, such as low-pressure stage and high-pressure stage, which:

- Are caused by Power2 itself or its accessories.
- Are caused by the operating equipment used or supplies and materials.
- Are a consequence of insufficient compliance with safety instructions.
- Are a consequence of insufficient or inappropriate performance of maintenance and inspection work.

The operating company is responsible for defining measures that regulate safe access to and safe handling of the Power2.

All instructions contained in this chapter must be observed for safe and trouble-free operation of the Power2 and during all work on the Power2 components.

All further safety instructions contained and specifically identified in every chapter of this document (see section Definition of safety instructions) must also be observed.

Information

Low-pressure and high-pressure stages from ABB Turbo Systems comply with the Machinery Directive 2006/42/EC and are partly completed machinery as defined by Article 2 g.

Responsibility of the operating company

In awareness of its responsibility, the operating company must ensure that only authorised personnel work on the Power2, who:

- Are versed in the general and locally applicable regulations for occupational safety and accident prevention
- Are equipped with the prescribed personal protective equipment
- Have read and understood the Operation Manual
- Have been instructed in the use of the Power2.

The safety-conscious work of the personnel and adherence to the Operation Manual must be checked periodically.

Suitable working materials and personal protective equipment must be kept in a perfect condition.

Only authorised personnel may remain in the vicinity of the Power2 when the engine is running.
2.2 Lifting of loads

**WARNING**

**Suspended loads**

Loads that are not attached according to regulations can cause injury to personnel or fatal accidents.

- Loads must always be fastened to properly functional lifting gear with a sufficient load limit.
- Pay attention to the correct attachment of loads on the crane hook.
- People must not stand beneath suspended loads.

Wear safety gloves to protect against mechanical hazards.

Wear safety helmet.

---

**Fig. 1: Attachment of loads on the crane hook**

If there are two or more suspension points, the attachment angle of 45° must not be exceeded. This prevents excessive loading due to diagonal pull.

- Use a suitable edge guard if there are sharp edges.
- The assembly devices must be completely screwed in and must not unscrew during use.
- Use assembly devices only for the described applications.
2.3 Occupational safety

**Occupational safety**

**WARNING**

**Injuries to persons**
Severe injuries to personnel or fatal accidents can be caused by mechanical influences as a consequence of hazardous and inadequate operational procedures or non-compliance with safety and health standards.

- When working on the Power2, always wear safety footwear and protective clothing to protect against mechanical hazards.
- Keep personal protective equipment in perfect condition.
- Obey mandatory signs.
- Observe the general rules for occupational safety and prevention of accidents.
- Only perform operations that are described in this chapter.
- Only perform operations for which you have received instruction or training.

**WARNING**

**Risk of falling**
When work is performed on the low-pressure or high-pressure stage, there is a risk of falling.

- Do not climb onto the low-pressure or high-pressure stage or onto attached parts and do not use them as climbing aids.
- Use suitable climbing aids and working platforms for work above body height.

- Only perform work on the low-pressure or high-pressure stage when you are in a physically and psychologically stable condition.
- Only work with suitable tools, equipment and appliances that function properly.
- Keep the workplace clean; clear away any loose objects and obstacles on the floor.
- Keep the floor, equipment and the low-pressure and high-pressure stage clean.
- Have oil binding agents ready and provide or keep oil pans at hand.
Welding work

- Wear personal protective equipment (PPE) for welding operations.
- When performing welding work in the vicinity of the low-pressure stage, always cover the filter silencer to prevent the filter mat from being damaged.
- Keep flammable objects and substances out of the vicinity of flying sparks.
- Cover all connections on the low-pressure and high-pressure stage so that no foreign objects can enter the low-pressure or high-pressure stage.

Mechanical hazards when working on the low-pressure and high-pressure stage

**WARNING**

**Physical hazards due to rotating parts**

The rotor can rotate due to the stack draught alone. Contact with rotating parts can cause severe injury.

- Secure rotor against turning.

**WARNING**

**Mechanical hazard**

Severe injuries to personnel or fatal accidents can be caused by mechanical influences as a consequence of hazardous and inadequate operational procedures.

- Observe the general rules for occupational safety and prevention of accidents.
- Ensure workplace safety.
- Only perform operations that are described in this chapter.
- Only perform operations for which you have previously received instruction or training.
Hazards due to operating materials and supplies

Operating materials and supplies can include: Oils, greases, coolants, cleaning agents and solvents, acids or similar substances.

⚠️ WARNING

Handling operating materials and supplies

Swallowing or inhaling vapours of operating materials and supplies or contact with them may be harmful to health. Flammable and combustible operating materials and supplies can catch fire or resulting vapours can lead to an explosion.

- Do not breathe in these substances and avoid contact with the skin.
- Ensure proper ventilation.
- Observe the information in the material safety data sheet for the operating materials and supplies.
- Comply with local legislation.

- Wear safety goggles.
- Wear safety gloves to protect against mechanical hazards.
- Wear a respiratory mask to protect against gases.
3 Weight and transportation of the low-pressure and the high-pressure stages

Lifting gear with a sufficient load limit must be used for installing the low-pressure and high-pressure stages. The following weight specifications apply to the heaviest variant possible. Depending on the specification, the weight specified on the rating plate may be lower than the standard values specified here.

Fig. 3: Suspending the low-pressure and high-pressure stages

A1 Low-pressure stage variant with axial air suction branch
A2 Low pressure stage variant with filter silencer
B High-pressure stage

<table>
<thead>
<tr>
<th>Power2</th>
<th>Product</th>
<th>Weight [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>650 LP</td>
<td>Low-pressure stage</td>
<td>1900</td>
</tr>
<tr>
<td>650 HP</td>
<td>High-pressure stage</td>
<td>750</td>
</tr>
</tbody>
</table>

Table 4: Weights of the low-pressure and high-pressure stages
Swivel lifting eyes to be used

Two swivel lifting eyes (S) are required for the safe lifting of loads. These are not included in the ABB Turbo Systems scope of delivery.

The requirements of the swivel lifting eyes are listed in the table. The operating instructions provided by the swivel lifting eye manufacturer should be observed.

<table>
<thead>
<tr>
<th>Swivel lifting eye (S)</th>
<th>Power2</th>
<th>Thread</th>
<th>Length</th>
<th>Minimum load limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lmin</td>
<td>Lmax</td>
</tr>
<tr>
<td>650 LP</td>
<td></td>
<td>M24</td>
<td>30 mm</td>
<td>40 mm</td>
</tr>
</tbody>
</table>

Table 5: Swivel lifting eyes to be used

<table>
<thead>
<tr>
<th>Swivel lifting eye (S)</th>
<th>Power2</th>
<th>Thread</th>
<th>Length</th>
<th>Minimum load limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lmin</td>
<td>Lmax</td>
</tr>
<tr>
<td>650 HP</td>
<td></td>
<td>M16</td>
<td>20 mm</td>
<td>30 mm</td>
</tr>
</tbody>
</table>

Table 6: Swivel lifting eyes to be used
Installing the low-pressure stage

Fixing elements and installation force

The fixing screws for fastening the low-pressure stage are not included in the ABB Turbo Systems scope of delivery and must be designed by the enginebuilder in accordance with the following details.

![Fixing elements diagram]

**Figure 4: Fixing elements**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixing elements</td>
<td>Plug bolt or screw with washer</td>
</tr>
<tr>
<td>Washers under the screw head or nut</td>
<td>Use hardened washers, thickness ≥ 15% of the nominal thread diameter</td>
</tr>
</tbody>
</table>

**Table 7: Fixing elements**

The required installation pre-tension force for the fixing elements of the low-pressure stage are defined in table (see Table 8: Fixing element requirements →12). An appropriate tightening method must be chosen for assembly.

<table>
<thead>
<tr>
<th>Power2</th>
<th>Subject</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>650 LP</td>
<td>Thread size</td>
<td>M20</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Low-pressure stage foot clamping length a</td>
<td>70 mm</td>
</tr>
<tr>
<td></td>
<td>Minimum screw-in depth b</td>
<td>30 mm</td>
</tr>
<tr>
<td></td>
<td>Installation pre-tensioning force $F_M$</td>
<td>190 kN</td>
</tr>
<tr>
<td></td>
<td>Tightening torque $M_a$ (in accordance with VDI 2230, M20, 10.9, $\mu_c=0.12$)</td>
<td>600 Nm</td>
</tr>
</tbody>
</table>

**Table 8: Fixing element requirements**

For the case of the torque-controlled tightening method, an appropriate tightening torque is defined in table (see Table 8: Fixing element requirements →12) in accordance with VDI2230.
4.1 Gaskets

Oil supply

The oil is supplied and drained through the bracket.

Gaskets are required in the bracket for sealing the interface of the oil pipes between the bracket and the low-pressure stage. These gaskets are not included in the ABB Turbo Systems scope of delivery and must be provided by the enginebuilder.

O-rings in the bracket are recommended as seals. The dimensions of the sealing surfaces provided at the low-pressure stage are defined in the table (see Table 9: Oil supply gaskets →13).

![Fig. 5: Oil supply gaskets](image)

<table>
<thead>
<tr>
<th>Power2</th>
<th>Oil supply</th>
<th>Oil drain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inside diameter</td>
<td>Outside diameter</td>
</tr>
<tr>
<td>650 LP</td>
<td>46 mm</td>
<td>76 mm</td>
</tr>
</tbody>
</table>

Table 9: Oil supply gaskets

⚠️ CAUTION

Inserting the gaskets

Gaskets that are forgotten, damaged or improperly inserted will lead to oil leaks.

- Always use new gaskets and insert them carefully into the slot.
### Gas and air lines

The gas and air line gaskets are not included in the ABB Turbo Systems scope of delivery and must be provided by the enginebuilder.

### 4.2 Assembly procedure

- Attach one lifting gear to each of the two bearing casing suspension points.
- Check that the orifices specified for the low-pressure stage have been installed in both oil supply lines.
- Check that the gaskets have been correctly fitted at the oil inlet and the oil outlet in the bracket.
- Align the low-pressure stage on the engine.
- Tighten the fixing elements on the foot (see Table 8: Fixing element requirements →12).
- Secure all gas, air, water and oil pipes.
- Connect cable connector to the speed sensor.

![Fig. 6: Installing the low-pressure stage](image-url)
5 Installing the high-pressure stage

Fixing elements and installation forces

Fixing elements

The following fixing elements are included in the ABB Turbo Systems scope of delivery.

42190 Expansion bush
42191 Threaded rod
42193 Centering bush
42201 Clamping nut (with thrust washer)

**NOTICE**

Clamping nut (42201)

Using a clamping nut (42201), the required initial tension is achieved with commercially available torque spanners.
5.1 Gaskets

CAUTION

Oil leak

Damaged or improperly inserted gaskets lead to oil leaks.

- Always use new gaskets and insert them carefully into the slot.

Fig. 8: Gaskets

01 Oil supply
02 Oil drains
42001 Bearing casing
42198 O-ring
42199 O-ring

The oil is supplied (01) and drained (02) through the bracket.

The necessary sealing is performed by O-rings which are located in the slots of the bearing casing. The O-rings are included in the scope of delivery of the high-pressure stage.
Gas and air lines
The gas and air line gaskets are not included in the ABB Turbo Systems scope of delivery and must be provided by the enginebuilder.

5.2 Assembly procedure

![Diagram](image)

Fig. 9: Placing the high-pressure stage on the bracket

**Step A – Preparing the fixing screws**

1. Insert expansion bush (42190) into bearing casing.
2. Screw the clamping nut (42201) flush onto the threaded rod (42191). The hexagon of the thread screw is at the top.
3. Place the thrust washer (01) of the clamping nut on the expansion bush and, with the clamping nut screwed on, guide the threaded rod through the thrust washer, expansion bush and bearing casing.

**Step B – Preparing the positioning**

- Screw the centering bush (42193) flush onto the threaded rod from below.
- Clean the surface of the bracket, the bearing casing, the centering bush and the centering holes in the bracket.
- Make sure that the covers of the oil connections are removed.
- Make sure that the position of the oil inlet of the bracket matches the oil inlet hole in the bearing casing.
- Make sure that the O-rings are placed correctly in the slots.
Step C – Aligning the turbocharger on the bracket

1. Lightly lubricate the hole, into which the centering bush (42193) is inserted, with screw grease.
2. Position threaded rod with centering bush in the bracket.
3. Insert centering bush into bracket until the stop is reached.
4. Carefully lower turbocharger onto bracket and position using the centering bushes (42193) located in the bracket.
5. Check value x.
   ▶ If value x is not reached, the turbocharger must be lifted up from the bracket and re-aligned.

Step D – Fixing the threaded rod in place in the bracket

▶ Using the hexagon, screw the threaded rod into the bracket up to value L.
▶ If value L is not reached or the threaded rod jams while being screwed in, the threaded rod must be loosened by no more than ½ revolution (this will loosen the centering bush which may have jammed the rod). Then continue screwing in the threaded rod.
▶ If value L is not reached, undo the screw connection, carefully take the turbocharger off the bracket and repeat the procedure starting with Step A.

<table>
<thead>
<tr>
<th>Power2</th>
<th>Value X [mm]</th>
<th>Value L [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>135 ±2</td>
<td>70 ±2</td>
</tr>
</tbody>
</table>

Table 10
5 Installing the high-pressure stage / 5.2 Assembly procedure

Fig. 11: Attaching the turbocharger

1. Tighten the clamping nuts (42201) (see section Tightening the clamping nut →20).
2. Connect the cable connector (86515) to the speed sensor (86505).
   ▶ Connect all gas pipes and air lines.
5.2.1 Tightening the clamping nut

⚠️ CAUTION

Do not clean pressure screws (04)
The pressure screws are equipped with a permanent sliding layer that must not be removed.

Do neither clean nor lubricate the pressure screws. In case of non-compliance, it cannot be ensured that the necessary tension force is reached.
- Do not clean pressure screws.
- Do not lubricate pressure screws.

In order to correctly fit the clamping nuts, the pressure screws (04) must not protrude from the clamping nuts (03) in the direction of the thrust washer (02).

- Make sure the pressure screws do not protrude in the direction of the thrust washer.

![Diagram of tightening process]

1. Clean the thread of the bolt (01) and the contact surface.
2. Lightly oil the bolt thread.
3. Position the thrust washer (02) in place.
4. Tighten the clamping nut (03) by hand and then unscrew it again by ¼ of a turn (90°).

The distance between the thrust washer and the clamping nut is now about 1 mm.
Hand-tighten the pressure screws crosswise.

- Tighten two opposite pressure screws to 50 % of the tightening torque specified in the table.
- Tighten two other opposite pressure screws to 100 % of the tightening torque specified in the table.
- Work in a circle to tighten all pressure screws to 100 % of the tightening torque specified in the table.
- Repeat until all pressure screws are evenly tightened (less than 20° of remaining distance).

<table>
<thead>
<tr>
<th>Power2</th>
<th>Fixing screw [mm]</th>
<th>Tightening torques [Nm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M30</td>
<td>43</td>
</tr>
</tbody>
</table>

Table 11: Tightening torque of clamping nut pressure screws
6 Storage of new low-pressure and high-pressure stages

Storage of new low-pressure and high-pressure stages and cartridge groups for up to 6 months

New low-pressure and high-pressure stages and cartridge groups from ABB Turbo Systems can be stored in their closed packages for 6 months from the date of delivery without additional mothballing measures (indicated by VCI label on package).

Only dry rooms with 40...70 % atmospheric humidity, in which no water condensation can form, are suitable as storage locations.

Storage of new low-pressure and high-pressure stages and cartridge groups for more than 6 months (VCI)

![Volatile Corrosion Inhibitor (VCI)](image)

**WARNING**

Health protection when handling VCI

VCI products are not hazardous in terms of the Ordinance on Hazardous Substances. Nevertheless, the following points must be observed when handling VCI:

- Ensure proper space ventilation.
- Do not eat, drink or store food at the workplace while working with VCI.
- Wear safety gloves.
- Clean hands and face after working with VCI.
- For more information, see [www.branopac.com](http://www.branopac.com).

Every 6 months, the following mothballing measures are required:

- Open package.
- Remove VCI corrosion protection emitter from package and replace with a new VCI corrosion protection emitter of the same kind. New VCI corrosion protection emitters can be obtained from [www.branopac.com](http://www.branopac.com).
- Old VCI corrosion protection emitters must be disposed of in an environmentally compatible, professional way and in compliance with locally applicable regulations.
- Close package. The more tightly the package is sealed, the longer the protection duration.
Long-term storage of replacement low-pressure and high-pressure stages or replacement cartridge groups

ABB Turbo Systems will prepare low-pressure and high-pressure stages or cartridge groups for long-term storage if requested in the purchase order. The package is equipped with a hygrometer (see illustration).

![Fig. 15: Package with hygrometer](image)

Every 6 months, the following measures are required:

- Check the hygrometer (02) in the sight-glass. There is an opening (01) in the wooden crate to enable you to perform this check. If the 70% indicator field has changed colour, the maximum admissible atmospheric humidity has been exceeded. In this case, the low-pressure or high-pressure stage or the cartridge group must be checked and repackaged by an ABB Turbocharging Service Station.

- Check the package for damage. If the package is damaged, the low or high-pressure stage or the cartridge group must be checked and repackaged by an ABB Turbocharging Service Station.

After every 3 years, the following steps must be carried out by an ABB Turbocharging Service Station:

- Checking the component
- Replacing the desiccant
- Repackaging the component.

Replacement components which are ready for operation

If the 70% field of the hygrometer (02) has not changed colour and the package is not damaged, the replacement low-pressure or high-pressure stage or the replacement cartridge group can be put into operation without previously having been checked by an ABB Turbocharging Service Station.
7 Further information

The Operation Manual must be observed with regard to commissioning, operation, maintenance and ordering spare parts.

Online Operation Manual

The Operation Manual for the low-pressure and high-pressure stage with the relevant serial number is available online on our website www.abb.com/turbocharging.

Low-pressure stage

![Fig. 16: Serial number of low-pressure stage on rating plate](image)

1. Read the serial number (02) on the rating plate (01) of the low-pressure and high-pressure stage.

   ▶ The Operation Manual can be found online in accordance with the details on the following page.
2A. www.abb.com/turbocharging

2B. www.abb.com/turbocharging

3.

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5. Follow the instructions on the website.

Fig. 18: Finding the Operation Manual online
Further information

Find your local service team on our website (see section “contact us” / “Contact information”).

Find and download the Operation Manual of your product on our website (see “Need product information” / “Operating Instructions”).

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