Pneumatic, hydraulic
Universal Riveting Tool
PNP 90 UN 2.0

Instruction manual
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**Accessories and spare parts:**

[www.tkr-powertools.com](http://www.tkr-powertools.com)
1.1 Information regarding this manual

**Information**
Legislation stipulates that workers handling hydraulically-driven riveting tools must be protected. If desired, training can be provided at TKR in Gevelsberg or on site at the customer.

**State of the technology**
This riveting tool represents state-of-the-art technology. To ensure the functionality of the equipment, it must be operated in a proper and safe manner.

Read the instruction manual
Read the instruction manual carefully before using the riveting tool.

**Handling**
All handling necessary to ensure correct operation is described in the instruction manual. No work method other than that expressly approved by the manufacturer may be used.

**Faults**
In the event of a fault, the user or owner may only carry out repair work for faults for which the relevant maintenance process is laid out in the instruction manual.

1.2 Explanation of symbols

Some sections of this instruction manual use internationally known warning symbols, warning notes and general instructional symbols.

The individual symbols are explained below. Follow all instructions and safety rules.

- **Observe Instruction manual**
  - Warning! General source of danger
  - Please note the following!

- **Observe General instructions**
  - Warning! Hand could become trapped
  - Arrow to clarify compression

- **Wear face mask**
  - Warning! Fingers could become trapped
  - Arrow showing direction

- **Wear gloves**
  - Warning! Danger of environmental contamination
  - For further information see chapter...

- **System under pressure**
  - Audibly engage
1.3 Designations

Designations on the stamping and riveting tool

2.1 Operating principles

The pneumatic/hydraulic universal tool PNP 90 UN 2.0 was specially developed for all common riveting operations in thin sheet metal structures.

The equipment’s universal technology enables adaption of various attachments for different applications.

The basic tool kit comprises the pneumatic-hydraulic pressure intensifier PNP 90 and a hydraulic actuator with hose assembly. The kit is completed by an NB 40 rivet clamp and a fully equipped RIVKIT UN 2.0 riveting tool kit.

The hydraulic pump is a pneumatically-driven pressure intensifier with a pressure ratio of 1:100. This means that a hydraulic output pressure of 600 bar is generated with an input air pressure of 6 bar. When the equipment’s preset final pressure is reached, the pump stops automatically and keeps this pressure constant. The hydraulic pump has a pneumatically-controlled pressure relief valve.

The hydraulic actuator is connected to the hydraulic pump via a high-pressure hose. The hose is connected to the pump via a leak-free quick release coupling. The coupling can only be connected to the equipment when it is depressurized.

The two pneumatic control lines are also connected to the pump. Make sure that the black and the blue hoses are inserted in the couplings with the relevant markings.

Compressed air can be connected to the equipment as soon as the hydraulic hose and the control lines are connected to the pump.

If the valve is activated, the pump begins to run and the hydraulic plunger extends.

The hydraulic actuator is equipped with a control valve that activates pump operation. The operating lever is equipped with a safety catch to prevent unintended operation.

If the valve is activated, the pump begins to run and the hydraulic plunger extends.

If the operating lever is released, the pump is deactivated and the hydraulic plunger retracts to its original position.
### 2.2 Scope of Supply and Accessories

**Scope of supply, basic kit PNP 90 – UN 2.0**

- 1x Pressure intensifier PNP 90
- 1x Hydraulic actuator HP 35 UN
- 1x Rivet clamp NB 40
- 1x Riveting tool kit RIVKIT UN 2.0
- 2x Locking bolts
- 1x Instruction Manual

**Accessories (not part of the basic kit)**

- 1x Rivet clamp NB 115
- 1x Rivet clamp NB 230
- 1x Pop rivet adaptor RIVPULL 2.0**
- 1x Oval hole punch tool PUNCH-OV**

**Technical specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissible hydraulic oil</td>
<td>Filling capacity 280 cm³</td>
</tr>
<tr>
<td></td>
<td>Branded hydraulic oils as per DIN 51524</td>
</tr>
<tr>
<td></td>
<td>ATF as per DIN 51562-1</td>
</tr>
<tr>
<td></td>
<td>Viscosity approx. 68 mm²/s at 40 °C (104°F), Example: Shell Tellus TX 68, Dexron, Mercon, Hydroclear</td>
</tr>
<tr>
<td>Max. air pressure</td>
<td>6 bar / 87 psi</td>
</tr>
<tr>
<td>Compressed air</td>
<td>Quality class 2 as per ISO 8573-1</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>5–50 °C / 41 –122 °F</td>
</tr>
<tr>
<td>Prescribed safety clothing</td>
<td>Protective gloves, face mask</td>
</tr>
<tr>
<td>Noise emissions level</td>
<td>LPAI &lt; 75 db(A)</td>
</tr>
</tbody>
</table>

The effective value of the acceleration assessed at the hydraulic tool measured in accordance with ISO/FDIS B662-11 is < 2.5 m/s².
2.3 Safety instructions

The hydraulic tool kit is strictly approved only for the purposes intended by the manufacturer.

Only genuine accessories may be used. Use of non-genuine tools or accessories presents a major safety hazard.

Ensure that only trained and instructed personnel use the equipment!

Use of the equipment by personnel that have not been trained and instructed is prohibited.

Ensure that the instruction manual is made available to operating personnel.

Observe the applicable national regulations for accident prevention.

Do not use any hoses or fittings that are not permitted for the equipment’s operating pressure.

Because metallic parts can break up and fly off with high energy if the tool is faulty or operated incorrectly, protective gloves and a face mask must strictly be worn for all applications of the equipment.

As a result, there is a risk of severe physical injury! See also ANSI Z87.1-1989.

Never throw the tool or allow it to fall. Never misuse the tool or lend it to untrained personnel.

The tool must only be used in ambient temperatures of above 5°C (41°F) and up to a maximum of 50°C (122°F). The tool must never be used in potentially explosive areas.
2.4 Principles for Handling the PNP 90 UN 2.0 Tool Kit

Risk of injury
Route all supply lines in a manner that prevents people from tripping over them. Correctly route and attach the compressed air hose. If a compressed air hose whips around wildly, it could cause severe physical injury.

Before starting work, check the preset air pressure! Incorrectly set air pressure could cause equipment damage or physical injury!

Max. air pressure
Make sure that the maximum permissible operating air pressure of 6 bar / 87 psi is never exceeded. Check the setting of the pressure regulating valve before each riveting operation!

Clean compressed air
Make sure that the pump is always supplied with clean and dry compressed air. Moisture and contamination could cause equipment malfunction and/or damage. Only use compressed air of quality class 2 as per ISO 8573-1.

Always disconnect the riveting tool from pressure when leaving the work site!

Warranty
The manufacturer accepts no liability for damage or injury caused by improper repair or use of replacement parts made by other manufacturers.

Incorrect usage of the riveting tool that leads to equipment damage invalidates the warranty.

Declaration of Conformity
Riveting tool PNP 90 UN 2.0 has been tested and manufactured in accordance with European guidelines. The Declaration of Conformity has been included with this instruction manual.

The compressed air supply must be disconnected from the equipment before any adjustment or maintenance work is performed.
2.5 Maintenance

The tool’s hydraulic system, pneumatic control systems, hoses and couplings must all be kept free of dirt and other contamination. Foreign bodies in the hydraulic oil or in the control air can cause the tool system to malfunction.

All maintenance and service work on the stamping and riveting tool must only be performed with the pump disconnected.

All maintenance and service work on the pump must only be performed with the air disconnected and the oil drained.

Oil that is not properly disposed of could harm the environment.

The user must only perform the maintenance and repair measures outlined in this instruction manual.

Maintenance and repair work not covered in this instruction manual may only be performed by professionals with proper training by TKR. For further information on servicing and training, please contact us at our Service address:

TKR Automotive GmbH
Am Walderstand 9–11
D-58285 Gevelsberg (Germany)
Phone +49 2332 66607-60
Fax +49 2332 66607-90
Email info@www.tkrgroup.com
Internet www.tkrgroup.com

With normal use of the pump, hydraulic oil should be changed every 80 operating hours or every 12 months. Make sure that used oil is disposed of as required by national environmental legislation.

6.1 Normally, pump maintenance only entails a regular oil change (see 2.2 for permissible oils).

All other necessary maintenance work and/or repairs should be performed by the manufacturer or properly trained personnel.
2.6 Warranty

Stamping and riveting tools from TKR Automotive GmbH come with a 12-month warranty against material and manufacturing defects.

This does not cover wearing parts (rivet mandrels, rivet dies, spacing bolts and spacing sleeves) or hydraulic oil.

The warranty period begins on the date of delivery, as specified on the invoice or delivery note.

The warranty is valid for the user/customer provided that the tool is obtained from an authorized sales outlet and is used as described in the instructions and for the purposes for which it was designed.

The warranty becomes invalid if the tool is used for purposes other than those for which it was designed.

In addition, the warranty becomes invalid if the tool is not used as described in the instruction manual.

In the event of defect or fault, TKR Automotive GmbH will only repair or replace faulty parts at its own discretion.

Your supplier and service partner:
TKR Automotive GmbH
Am Waldesrand 9–11
D-58285 Gevelsberg (Germany)

Phone  +49 2332 66607-60
Fax    +49 2332 66607-90
Email  info@www.tkrgroup.com
Internet www.tkrgroup.com
3.1 Technical Data Pump PNP 90 UN 2.0

Pump PNP 90 UN 2.0

<table>
<thead>
<tr>
<th>Length</th>
<th>330 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>230 mm</td>
</tr>
<tr>
<td>Height (incl. handle)</td>
<td>213 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>8 kg</td>
</tr>
<tr>
<td>Max. input pressure</td>
<td>5.5 bar</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>550 bar</td>
</tr>
</tbody>
</table>

3.2 Technical Data, Hydraulic Actuator HP 35 UN

Hydraulic actuator HP 35 UN

<table>
<thead>
<tr>
<th>Length</th>
<th>246.5 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>50 mm</td>
</tr>
<tr>
<td>Height (incl. handle)</td>
<td>104.7 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2 kg</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>600 bar</td>
</tr>
<tr>
<td>Travel</td>
<td>15 mm</td>
</tr>
</tbody>
</table>

Length and weight without hoses
### 3.3 Technical Data, Riveting Tool Kit RIVKIT UN 2.0

#### 3.3.1 WZS-TKR-00000024

**Riveting Tool Kit RIVKIT UN 2.0**

<table>
<thead>
<tr>
<th>Kit number</th>
<th>Pos./Description/Item number</th>
<th>Pos./Description/Item number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kit: BGR-TKR-00000024</td>
<td>A Die head, 3 mm rivet BGR-TKR-00000244</td>
<td>B Closing head, 3 mm rivet 01-00000707</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kit: BGR-TKR-00000023</td>
<td>C Die head, 5 mm rivet BGR-TKR-00000245</td>
<td>D Closing head, 5 mm rivet 01-00000706</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kit: BGR-TKR-00000048</td>
<td>E Die head, flow form rivet Marked with 3 rings 01-00000917</td>
<td>F Closing head, flow form rivet Marked with 3 rings 01-00000918</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kit: BGR-TKR-00000098</td>
<td>G Punch and calibration mandrel Marked with 2 rings 01-00000922</td>
<td>H Punch and calibration die Marked with 2 rings 01-00000923</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kit: BGR-TKR-00000128</td>
<td>I Extraction mandrel Marked with 1 ring 01-00000788</td>
<td>K Extraction die Marked with 1 ring 01-00000784</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>L Replacement elastomer rings 06-00000112</td>
<td>M Set of installation wrenches BGR-TKR-00000239</td>
</tr>
<tr>
<td>Kit: BGR-TKR-0000025</td>
<td>N Spacing adaptor composed of: 1 Bushing, 01-00000744</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Spacing bolt 01-00000704</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Spacing sleeve 01-00000705</td>
</tr>
</tbody>
</table>
3.4 Technical Data, Rivet Clamp

3.4.1 Rivet clamp NB 40

3.4.2

3.4.3

3.4.4 Rivet clamp NB 115

3.4.5

3.4.6
### Technical data

<table>
<thead>
<tr>
<th></th>
<th>Rivet clamp NB 40*</th>
<th>Rivet clamp NB 115</th>
<th>Rivet clamp NB 230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item number</td>
<td>05-00000026</td>
<td>05-00000031</td>
<td>05-00000027</td>
</tr>
<tr>
<td>Length*</td>
<td>106 mm</td>
<td>213 mm</td>
<td>364.1 mm</td>
</tr>
<tr>
<td>Width</td>
<td>45 mm</td>
<td>44 mm</td>
<td>44.5 mm</td>
</tr>
<tr>
<td>Height</td>
<td>158.8 mm</td>
<td>220.3 mm</td>
<td>347.9 mm</td>
</tr>
<tr>
<td>Clamp opening</td>
<td>80 mm</td>
<td>80 mm</td>
<td>140 mm</td>
</tr>
<tr>
<td>Opening depth</td>
<td>40 mm</td>
<td>115 mm</td>
<td>230 mm</td>
</tr>
<tr>
<td>Weight*</td>
<td>1.5 kg (3.3 lbs)</td>
<td>3 kg (6.6 lbs)</td>
<td>9.5 kg (20.9 lbs)</td>
</tr>
</tbody>
</table>

*Length and weight without hoses
*Included in the basic kit
The equipment is supplied from the factory without a compressed air connection. The pressure regulator has a G1/4” (internal thread) connection thread.

4.1.1/4.1.2
The pressure regulator is supplied with a closing cap fitted. Remove the closing cap.

4.1.3/4.1.4
Use a compressed air connection with R1/4” thread and seal. Screw this into the regulator.
4.2 Riveting Tool Preparation and Hydraulic Actuator Connection

Before using the equipment, check the condition of the hydraulic actuator with add-on component and hoses. Risk of severe physical injury if the pump or the rivet clamp is damaged.

Check the hoses and couplings for damage.

In the event of any noticeable damage, the hydraulic components must be replaced. Damaged hoses or couplings could cause severe injury!

Incorrectly attached hoses could come loose and cause severe physical injury.

Connect the pneumatic hoses. Make sure that the black hose is attached to the marked coupling.

Before using the equipment, check the condition of the hydraulic actuator with add-on component and hoses. Risk of severe physical injury if the pump or the rivet clamp is damaged.

Check the hoses and couplings for damage.

In the event of any noticeable damage, the hydraulic components must be replaced. Damaged hoses or couplings could cause severe injury!

Incorrectly attached hoses could come loose and cause severe physical injury.
4.2 Riveting Tool Preparation and Hydraulic Actuator Connection

4.2.7
Connect compressed air to the pressure regulating valve and set the pressure.

4.2.8
Never use pressure over the permitted value of 6 bar or 87 psi. This could cause equipment damage or even physical injury.

max. 6 bar / 87 psi
4.3 Safe Set-Up and Positioning of Equipment

4.3.1

Ensure that the high-pressure pump is always placed on a non-slip surface and that the hoses are routed in a way that prevents them from getting damaged or pinched off. The hoses must also be routed in a way that prevents people from tripping over them.

4.3.2

Make sure that the pump and hydraulic actuator are set up in a work area that is free from heat sources (max. 50°C / 120°F), corrosive liquids, greases and oils.

4.3.3

Before using the equipment, make sure that the pump is standing on a secure surface.
4.4 Connecting the Tool to the Hydraulic Actuator

4.4.1 Select tool and prepare locking pins. The tool is carefully pushed onto the mounting adapter by the mounting hole. The indexing pin in the mounting adaptor must engage in the corresponding slots in the mounting hole.

4.4.2 The two locking pins are inserted in the locking holes with the release button pressed. The tool must be pressed gently in the direction of the clamp while doing so. The pin must lock automatically once inserted and must not fall out of the locking hole by itself.

The tool is now ready for use.

Warning!
The mounting adaptor on the hydraulic actuator must be clean and free from damage!
The locking bolts must also be free from contamination and damage.
The mounting hole in each tool must be free from contamination and damage!

Warning!
Damaged or defective locking pins must not be used!
4.5 Riveting Tool Kit RIVKIT UN 2.0 – Mounting and Intended Use

Three rivet clamps are currently available for use with the RIVKIT UN 2.0 riveting tool kit:

<table>
<thead>
<tr>
<th>Rivet clamp</th>
<th>Item no.</th>
<th>Opening depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB 40</td>
<td>05-00000026</td>
<td>up to 40 mm</td>
</tr>
<tr>
<td>NB 115</td>
<td>05-00000031</td>
<td>up to 115 mm</td>
</tr>
<tr>
<td>NB 230</td>
<td>05-00000027</td>
<td>230 mm</td>
</tr>
</tbody>
</table>

*Included in the basic kit

4.5.1/4.5.2
Screw the riveting tool needed for the working process into a holder in the rivet clamp as required. Hand-tighten the riveting head using the special wrenches provided. Do not use force. Counterhold the nut using a screwdriver if necessary.

4.5.3/4.5.4
Screw the corresponding counterpart to the rivet insert into the opposite side of the rivet clamp (plunger rod) with the spacing bushing and bolt. Tighten by hand. Do not use force!

Each time rivet inserts are to be installed, the bolt and die must first be checked for a correct match! Refer to the usage matrix in the RIVKIT UN 2.0 case for details.

Check that the riveting heads are firmly seated after each riveting operation. Rivet inserts that have come loose present a hazard and can lead to equipment damage.
5.1 Pressing out Rivets

Old or defective rivets often need to be removed from the sheet metal structure when repairing body panels.

5.1.1 – 5.1.6
Instead of drilling out the old rivets, they can be pressed out of the sheet metal structure using the extraction mandrel (item no. 01-00000788) and extraction die (item no. 01-00000784) (kit BGR-TKR-0000128), thereby minimizing damage.
5.2 Punching and Calibration of Holes for Flow Form Rivets

5.2.1 – 5.2.5
There is no need to drill holes in sheet joints when using flow form rivets. Punch (item no. 01-00000922) and punch die (item no. 01-00000923) (Kit BGR-TKR-00000098) enable precise hole punching and simultaneous calibration of rivet holes.

Warning!
The punch will be stuck in the sheets to be joined after punching. Moving the riveting tool (hydraulic actuator and clamp) back and forth frees the punch, allowing it to be drawn back out of the sheets.
5.3 Setting Flow Form Rivets

5.3.1, 5.3.2
The flow form rivets are installed using the die head (item no. 01-00000917) and corresponding closing head (item no. 01-00000918) (kit BGR-TKR-00000048) intended for this purpose.

5.3.3
It is important that the die head with the centering lug engages in the corresponding depression in the rivet.

5.3.4 – 5.3.6
During the riveting operation, the die head is positioned on the rivet until the closing head upsets and hardens the rivet. The diameter of the closing head should be at least 7.5 mm for a 6-mm rivet.

The closing head has a relief hole for adhesive residue. The hole must be blown clear after riveting; otherwise a stable riveting process can no longer be ensured.
5.4 Installation of Semi-Tubular Punch Rivets

5.4.1 – 5.4.4
Extra care must be taken to ensure that the rivets that are used are properly seated when installing semi-tubular punch rivets. The die head (item no. BGR-TKR-00000244 (3 mm) / item no. BGR-TKR-00000245 (5 mm)) and closing head (item no. 01-00000707 (3 mm) / item no. 01-00000706 (5 mm)) must not be damaged because this would make correct riveting impossible. If in doubt, always replace the defective rivet punch with genuine replacement parts (3 mm: Kit BGR-TKR-00000024, 5 mm: Kit BGR-TKR-00000023).

5.4.6, 5.4.7
For each riveting operation, ensure that it is the rivet die – rather than the rivet – that is placed onto the sheets to be joined. In addition, the rivet clamp should be placed onto the sheets to be joined as close to a right angle as possible.
5.5 Checking Riveting Results

5.5.1 – 5.5.3
The results must be checked after the riveting operation. If the installed rivet does not meet quality requirements, the reason for the fault must be determined.

If the quality of the installed rivet is acceptable, the work process can be repeated.

After each riveting operation, check that the rivet mandrel and rivet die are firmly seated. If they have come loose, they must be re-tightened using the wrenches from the RIVKIT.

5.6 Cleaning the Riveting Tools

5.6.1
Remove adhesive residue from all contaminated tools after each completed riveting operation.

5.6.2
To do this, remove all affected tool components and clean using acetone or other solvents.

If adhesive residue is allowed to remain on the riveting tool, it will eventually cause a malfunction. Before starting work, any rivet punches requiring replacement must be replaced with genuine replacement parts.
5.7 Completing an Operation and Riveting Tool Storage

5.7.1 Always disconnect the compressed air supply from the pump after riveting and during work interruptions.

5.7.2 Then disconnect the control hoses and seal the openings.

Make sure that the disconnected hoses never make contact with the dirty floor or the ground.

5.7.3 Before and after each operation, check the system for oil leaks. An oil leak indicates a fault in the system. In such cases, discontinue work and locate the fault or submit the equipment for repair at an authorized specialist dealer.

Foreign bodies or contamination in the hydraulic oil or in the control lines could cause the equipment to malfunction.

5.7.4/5.7.5 Always store the tool in the transport case designed for this purpose. Make sure that the hoses do not become kinked!

Never transport the tool by the hoses!
6.1 Hydraulic Pump Maintenance

6.1.1

6.1.2

6.1.3

6.1.4
6.1.2 – 6.1.4 Draining oil
Undo the sealing plug on the top of the pump and let the used hydraulic oil flow into a suitable container.

6.1.5, 6.1.6 Filling oil
Fill with fresh oil that complies with the specifications. The nominal filling volume is around 280 cm³.

6.1.7, 6.1.8
The oil level should reach the filler port when filling, but the thread of the sealing plug must remain visible. Re-seal the filler port with the sealing plug.

Note that the oil must be free from contamination. Make sure that no dirt or foreign bodies enter the pump reservoir when changing oil!
## 6.2 Replacement Part List

<table>
<thead>
<tr>
<th>Pos. no.</th>
<th>Item no.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HYW-TKR-0000010</td>
<td>PNP 90 pressure intensifier (pump)</td>
</tr>
<tr>
<td>2</td>
<td>HYW-TKR-0000017</td>
<td>Hydraulic actuator HP 35 UN</td>
</tr>
<tr>
<td>3</td>
<td>HAW-TKR-00000121</td>
<td>Ball lock pin</td>
</tr>
<tr>
<td>4</td>
<td>05-00000026</td>
<td>Rivet clamp NB 40</td>
</tr>
<tr>
<td>5</td>
<td>05-0000031</td>
<td>Rivet clamp NB 115</td>
</tr>
<tr>
<td>6</td>
<td>05-0000027</td>
<td>Rivet clamp NB 230</td>
</tr>
<tr>
<td>7</td>
<td>01-00001674</td>
<td>Spacer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pos. no.</th>
<th>Kit no.</th>
<th>Item no.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>WZS-TKR-0000024</td>
<td>Rivet insert repair kit (complete)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>BGR-TKR-00000239</td>
<td>Wrench kit</td>
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</tr>
<tr>
<td>10</td>
<td>BGR-TKR-0000024</td>
<td>BGR-TKR-00000244</td>
<td>Rivet bolt Ø 3 mm</td>
</tr>
<tr>
<td>11</td>
<td>(composed of pos. 10 + 11)</td>
<td>01-00000707</td>
<td>Rivet die Ø 3 mm</td>
</tr>
<tr>
<td>12</td>
<td>BGR-TKR-0000023</td>
<td>BGR-TKR-00000245</td>
<td>Rivet bolt Ø 5 mm</td>
</tr>
<tr>
<td>13</td>
<td>(composed of pos. 12 + 13)</td>
<td>01-00000706</td>
<td>Rivet die Ø 5 mm</td>
</tr>
<tr>
<td>14</td>
<td>BGR-TKR-0000048</td>
<td>01-00000917</td>
<td>Flow form bolt</td>
</tr>
<tr>
<td>15</td>
<td>(composed of pos. 14 + 15)</td>
<td>01-00000918</td>
<td>Flow form die</td>
</tr>
<tr>
<td>16</td>
<td>BGR-TKR-0000098</td>
<td>01-00000922</td>
<td>Punch Ø 6 mm</td>
</tr>
<tr>
<td>17</td>
<td>(composed of pos. 16 + 17)</td>
<td>01-00000923</td>
<td>Punch die Ø 6 mm</td>
</tr>
<tr>
<td>18</td>
<td>BGR-TKR-00000128</td>
<td>01-00000788</td>
<td>Extraction mandrel</td>
</tr>
<tr>
<td>19</td>
<td>(composed of pos. 18 + 19)</td>
<td>01-00000784</td>
<td>Extraction die</td>
</tr>
<tr>
<td>20</td>
<td>BGR-TKR-0000025</td>
<td>01-00000744</td>
<td>Bushing</td>
</tr>
<tr>
<td>21</td>
<td>(composed of pos. 20 + 21 + 22)</td>
<td>01-00000704</td>
<td>Spacing bolt</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td>01-00000705</td>
<td>Spacing sleeve</td>
</tr>
<tr>
<td>23</td>
<td></td>
<td>06-00000112</td>
<td>Elastomer ring</td>
</tr>
</tbody>
</table>
## 6.3 Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Remedy</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump does not run</td>
<td>No air connected</td>
<td>Connect compressed air</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Control lines not connected or incorrectly connected</td>
<td>Connect control lines correctly and make sure they are properly seated</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Insufficient air pressure</td>
<td>Check air supply</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Hydraulic hose not connected</td>
<td>Connect hydraulic hose as described in the instruction manual</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Air pressure not correctly set</td>
<td>Set air pressure to prescribed value</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Defective drive piston</td>
<td>Repair through manufacturer</td>
<td>--</td>
</tr>
<tr>
<td>Hydraulic pump will not shut off</td>
<td>Control hoses incorrectly connected or mixed up</td>
<td>Connect control hoses as described in the instruction manual</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Defective control valves</td>
<td>Repair through manufacturer</td>
<td>--</td>
</tr>
<tr>
<td>Rivet not affixed correctly</td>
<td>Rivet mandrel or rivet die defective</td>
<td>Replace rivet mandrel or rivet die</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Rivet mandrel or rivet die not functional due to adhesive residue</td>
<td>Clean or replace rivet mandrel and/or rivet die</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Insufficient press pressure</td>
<td>Too little air pressure or air pressure incorrectly set</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Press cylinder does not travel far enough</td>
<td>Too little oil in the pump. Check oil level and fill if necessary</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Oil leak from the pump</td>
<td>Repair through manufacturer</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Air leak from the pump and/or control valve</td>
<td>Repair through manufacturer</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Wrong rivet length</td>
<td>Observe repair guidelines</td>
<td>--</td>
</tr>
<tr>
<td>The rivet plunger travels too slowly or not at all</td>
<td>Too little oil in the pump</td>
<td>Check oil level and fill if necessary</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Hydraulic seal in the pump is worn</td>
<td>Repair through manufacturer</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Defective valves in the pump</td>
<td>Repair through manufacturer</td>
<td>--</td>
</tr>
<tr>
<td>Air leak</td>
<td>Defective hose</td>
<td>Replace hose</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Defective couplings</td>
<td>Replace coupling</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Defective seals</td>
<td>Repair through manufacturer</td>
<td>--</td>
</tr>
<tr>
<td>Oil leak</td>
<td>Defective hose</td>
<td>Replace hose</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Defective coupling</td>
<td>Replace coupling</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Pump loses oil</td>
<td>Repair through manufacturer</td>
<td>--</td>
</tr>
</tbody>
</table>
EU Declaration of Conformity
In accordance with the EU Machinery Directive
2006/42/EG

Manufacturer: TKR Automotive
Am Waldesrand 9-11
58285 Gevelsberg, Germany

Equipment type:
Tool type: Pneumatic/hydraulic stamping and riveting tool
Type designation: PNP 90 UN 2.0

Developed and manufactured in accordance with the standards and guidelines listed below by TKR Automotive GmbH
Am Waldesrand 9-11
58285 Gevelsberg (Germany)

Applied
harmonized Standards:
Tool Safety Law (GPSG)
EN 693; EN 792-1; EN 792-13
EN ISO 4413; EN ISO 4414; ISO 11200; ISO 11202; EN ISO 12100

EU Machinery Directive: 2006/42/EG

As manufacturer, we declare that the products marked accordingly comply with the requirements of the referenced guidelines and standards.

Gevelsberg, July 22, 2011 Torsten Kreischer
CEO