
GB Operating instructions

EWM-QuickFix

Dent removal set for steel bodywork



N. B. These operating instructions must be read before commissioning.

Failure to do so may be dangerous.

Machines may only be operated by personnel who are familiar with the appropriate safety regulations.



The machines bear the conformity mark and thus comply with the

- **EG- Low Voltage Directive (73/23/EEC)**
- **EC EMC Directive (89/336/EEC)**

EG - Konformitätserklärung
EU - conformity declaration
Déclaration de Conformité de U.E.

Name des Herstellers:
Name of manufacturer:
Nom du fabricant:

EWM HIGHTEC WELDING GmbH
(nachfolgend EWM genannt)
(In the following called EWM)
(nommé par la suite EWM)

Anschrift des Herstellers:
Address of manufacturer:
Adresse du fabricant:

Dr.- Günter - Henle - Straße 8
D - 56271 Mündersbach – Germany
info@ewm.de

Hiermit erklären wir, daß das nachstehend bezeichnete Gerät in seiner Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheitsanforderungen der unten genannten EG- Richtlinien entspricht. Im Falle von unbefugten Veränderungen, unsachgemäßen Reparaturen und / oder unerlaubten Umbauten, die nicht ausdrücklich von EWM autorisiert sind, verliert diese Erklärung ihre Gültigkeit.

We herewith declare that the machine described below meets the standard safety regulations of the EU- guidelines mentioned below in its conception and construction, as well as in the design put into circulation by us. In case of unauthorized changes, improper repairs and / or unauthorized modifications, which have not been expressly allowed by EWM, this declaration will lose its validity.

Par la présente, nous déclarons que la conception et la construction ainsi que le modèle, mis sur le marché par nous, de l'appareil décrit ci - dessous correspondent aux directives fondamentales de sécurité de la U.E. mentionnées ci- dessous. En cas de changements non autorisés, de réparations inadéquates et / ou de modifications prohibées, qui n'ont pas été autorisés expressément par EWM, cette déclaration devient caduque.

Gerätebezeichnung:

Description of the machine:
Description de la machine:

Gerätetyp:

Type of machine:
Type de machine:

Artikelnummer EWM:

Article number:
Numéro d'article

Seriennummer:

Serial number:
Numéro de série:

Optionen:

Options:
Options:

Zutreffende EG - Richtlinien:

Applicable EU - guidelines:
Directives de la U.E. applicables:

keine
none
aucune

EG - Niederspannungsrichtlinie (73/23/EWG)

EU - low voltage guideline
Directive de la U.E. pour basses tensions

EG- EMV- Richtlinie (89/336/EWG)

EU- EMC guideline
U.E.- EMC directive

Angewandte harmonisierte Normen:

Used co-ordinated norms:
Normes harmonisées appliquées:

EN 60974 / IEC 60974 / VDE 0544
EN 50199 / VDE 0544 Teil 206

Hersteller - Unterschrift:

Signature of manufacturer:
Signature du fabricant:



Michael Szczesny ,

Geschäftsführer
managing director
gérant

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2 Safety instructions

2.1 For your safety



Observe accident prevention regulations!
Ignoring the following safety procedures can be fatal!

Proper usage

This machine has been manufactured according to the latest developments in technology and current regulations and standards. It is to be operated only for the use for which it was designed (see chapter Commissioning/Area of application).

Improper usage

However, this machine may be a hazard to persons, animals and property if it is

- not used as directed
- used by unskilled persons who have not been trained
- modified or converted improperly



Our operating instructions will provide you with an introduction into the safe use of the machine. Therefore please read them carefully and only start work when you are familiar with them.

Any person involved in the operation, maintenance and repair of this machine must read and follow these operating instructions, especially the safety precautions. Where appropriate, this should be confirmed by signature.

Furthermore, the

- relevant accident prevention regulations,
- generally accepted safety regulations,
- local regulations, etc. must be observed.



Please note:

These operating instructions do not replace the EWM training course; they are to be used solely as an information document and reference work!



If you do not observe the safety guidelines and basic precautionary measures, this can result in serious bodily injury and damage to property and equipment. Please ensure that staff working close to you cannot be injured, such as from the sparks, grinding dust, etc. which can be produced during the working process.

The place of work

- Keep the place of work clean and tidy. Make sure that the place at which you are working has safe and secure flooring.
- Ensure that the place of work is well lit.
- Avoid any area where there is a risk of explosion. To exclude the possibility of any risk, the system must not be used in the vicinity of flammable liquids, gases or other flammable and hazardous objects.
- The sparks which occur whilst using the system may otherwise result in explosions.

Warning!



- Do not carry out any repairs on metal sheets or containers containing flammable materials, such as a petrol tank.
- Any people watching should maintain a sufficient distance from the place of work!

Personal safety precautions

- Wear work clothes with long arms, gloves, safety shoes, head protection, safety glasses and if necessary, ear protection.
- The system heats metal sheets to high temperatures and sparks may be produced.
- To avoid burns and other possible injuries, the general safety regulations of welding technology and bodywork repair should be observed when working with the EWM dent removal set!

**Before undertaking welding tasks, put on the prescribed dry protective clothing, e.g. gloves.**

- Protect eyes and face with protective visor.
- The metal sheets being worked on can be heated to a very high temperature. In this process, poisonous steam or gases can also be produced depending on the composition of the surface coating on the upper side and on the rear of the metal sheet. E.g. by zinc, paint, sealing materials, anti-noise material, etc.
- To avoid poisons, the relevant precautionary measures – such as good ventilation at the place of work and wearing breathing masks in the case of insufficient ventilation – must be observed.
- Perform the work with care and with full concentration!

**Electric shocks can be fatal!**

- Do not touch any live parts in or on the machine!
- The machine may only be connected to correctly earthed sockets.
- Only operate with intact connection lead including protective conductor and safety plug.
- An improperly repaired plug or damaged mains cable insulation can cause electric shocks.
- The machine may only be opened by qualified and authorised specialist staff.
- Disconnect from the mains before opening. Switching off is not sufficient. Wait for 2 minutes until the capacitors have discharged.
- Always put down welding torch, stick electrode holder in an insulated condition.

**Even touching low voltages can cause you to get a shock and lead to accidents, so:**

- Protect yourself from falling before working on platforms or scaffolding.
- During welding ensure that you operate earth tongs, torch and workpiece correctly, and not in ways for which they are not intended. Do not touch live parts with bare skin.
- Only replace electrodes when wearing dry gloves.
- Never use torches or earth cables with damaged insulation.

**Smoke and gases can lead to breathing difficulties and poisoning.**

- Do not breathe in smoke and gases.
- Ensure that there is sufficient fresh air.
- Keep solvent vapours away from the arc radiation area. Chlorinated hydrocarbon fumes can be converted into poisonous phosgene by ultraviolet radiation.

**Workpiece, flying sparks and droplets are hot!**

- Keep children and animals well away from the working area. Their behaviour is unpredictable.
- Move containers with inflammable or explosive liquids away from the working area. There is a danger of fire and explosion.
- Never heat explosive liquids, dusts or gases by welding or cutting. There is also a danger of explosions when apparently harmless substances develop high pressures in enclosed containers by heating.

**Take care to avoid fire hazards**

- Any kind of fire hazards must be avoided. Flames can form e.g. when sparks are flying, when parts are glowing or hot slag is present.
- A constant check must be kept on whether fire hazards have arisen in the working area.
- Highly inflammable objects, such as matches and cigarette lighters for example, must not be carried in trouser pockets.
- You must ensure that fire extinguishing equipment - appropriate for the welding process - is available close to the welding work area and that this equipment can be accessed easily.
- Containers in which fuels or lubricants have been present must be thoroughly cleaned before welding begins. It is not sufficient simply for the receptacle to be empty.
- After a workpiece has been welded, it must only be touched or brought into contact with inflammable material when it has cooled down sufficiently.
- Loose welding connections can completely destroy protective conductor systems of interior installations and cause fires. Before beginning welding work, ensure that the earth tongs are properly fixed to the workpiece or welding bench and that there is a direct electrical connection from the workpiece to the power source.



Noise exceeding 70 dBA can cause permanent hearing damage!

- Wear suitable earmuffs or plugs.
- Ensure that other people who spend time in the working area are not inconvenienced by the noise.



Interference by electrical and electromagnetic fields is possible e.g. from the welding machine or from the high-voltage pulses of the ignition unit.

- As laid down in Electromagnetic Compatibility Standard EN 50199, the machines are intended for use in industrial areas; if they are operated in residential environments, for example, problems may occur in ensuring electromagnetic compatibility.
- The functioning of heart pacemakers can be adversely affected when you are standing near the welding machine.
- It is possible that electronic equipment (e.g. EDP, CNC equipment) in the vicinity of the welding site could malfunction.
- Other mains supply leads, control leads, signal and telecommunications leads above, under and near the welding device may be subject to interference.



Electromagnetic interference must be reduced to a level that no longer constitutes interference. Possible reduction measures:

- Welding machines must be serviced regularly. (see Chap. Maintenance and care)
- Welding leads should be as short as possible and run closely together on or near to the ground.
- Selective shielding of other leads and equipment in the environment can reduce radiation.



Repair and modifications may only be carried out by authorised, trained, specialist staff. The warranty becomes null and void in the event of unauthorised interference.

2.2 Notes on the use of these operating instructions

These operating instructions are arranged into chapters.

To help you find your way around more quickly, in the margins you will occasionally see symbols along with the sub-headings. These symbols refer to particularly important passages of text which are graded as follows depending on their importance:



Please note:

Technical features which users must observe.



Warning:

Working and operating procedures which must be followed precisely to avoid damaging or destroying the machine.



Caution:

Working and operating procedures which must be followed precisely to avoid risk to persons and includes the "Warning" symbol.

3 System description

3.1 Potential usage and applications

The new type of „**EWM-QuickFix**“ dent removal set revolutionises the reshaping of those deformed vehicle bodywork panels that can only be accessed from one side. It achieves high savings in cost and labour.

It eliminates all disadvantages of the hitherto known reshaping techniques.

Advantages over the existing techniques such as welding on tension pins, tension discs or corrugated wire: The pulling panels are brazed on to produce a larger braze area to the bodywork panel, which together with the low brazing temperature of around 1000° C produces an ideal pulling force characteristic. Due to the low shear resistance of the CuSi 3 brazing filler metal, the pulling panels can simply be sheared off following the reshaping process, without thereby tearing open the bodywork panel.

The dent removal set **EWM-QuickFix** and the program for brazing the pulling panel in our PHOENIX 300 CAR EXPERT PULS welding machine are adjusted optimally – you'll receive reproducible results only by the combination of both systems.

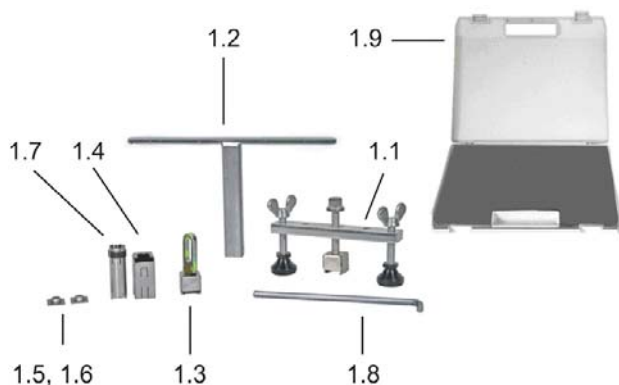


HIGHLIGHTS

- ⇒ Large brazing surface and no annealing of the edge area give rise to a large pulling force and prevent the bodywork panel from getting torn out
- ⇒ No outward “dents” are caused in thin panels
- ⇒ Excellent reshaping of thicker panels (outer rocker panel, long members and wheel arch areas) due to the higher pulling force
- ⇒ Pulling panels are simply sheared off after the repair - without tearing out and destroying the base material
- ⇒ Dent removal fixture, small: simple handling for small, difficult to access parts
- ⇒ Dent removal fixture, large easily removes dents from large surfaces, individually adaptable to the body panel shape, the pulling axis can be rotated, easily applicable without special tooling
- ⇒ Advantages due to MIG brazing, the professional alternative
- ⇒ No additional welding machine required for brazing

4 Components

EWM-QuickFix dent removal set (1) for steel bodywork



Dent removal fixture, large (2)



Dent removal accessories (3)

Lever tool (aluminium) with chain and carbine



MIG-Brazing, steel bodywork (dent removal set and dent removal accessories)

Dent removal set

Item	Order no.	Description
1	094-009962-00000	EWM-QuickFix dent removal set for steel bodywork: 1 Dent removal fixture, small, 1 Dressing tool, 5 Tie rod, 1 Brazing adapter, 200 Pulling panel Ø5mm, 200 Pulling panel Ø7mm, 1 Point gas nozzle, 1 Tie bolt, 1 Case for dent removal tools
1.1	094-009963-00000	Dent removal fixture, small
1.2	094-009964-00000	Dressing tool
1.3	094-009958-00000	Tie rod
1.4	094-009957-00000	Brazing adapter
1.5	094-009625-00000	Pulling panel D5 (PU = 200 Pieces)
1.6	094-009626-00000	Pulling panel D7 (PU = 200 Pieces)
1.7	094-009786-00000	Point gas nozzle
1.8	094-009935-00000	Tie bolt
1.9	094-009936-00000	Case for dent removal tools

Dent removal accessories

2	094-009965-00000	Dent removal fixture, large
3	094-008983-00000	Lever tool (aluminium) with chain and carbine

5 Working principle



Caution:

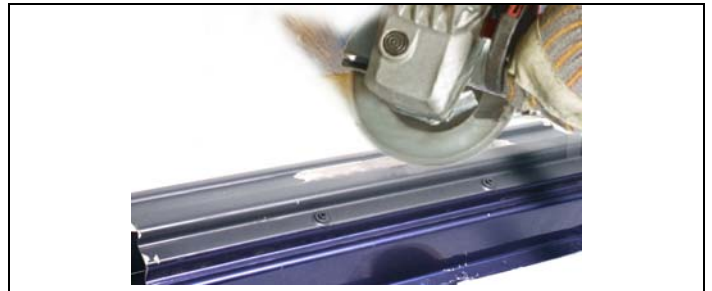
- Follow the safety instructions on the opening pages entitled “For your safety”!
- The vehicle battery should be disconnected before all welding work. Observe the relevant manufacturer guidelines in this regard. Failure to observe these can damage the vehicle electronics!!!
- During all work with the *EWM QuickFix*, observe the current accident prevention regulations!

5.1 Proper usage

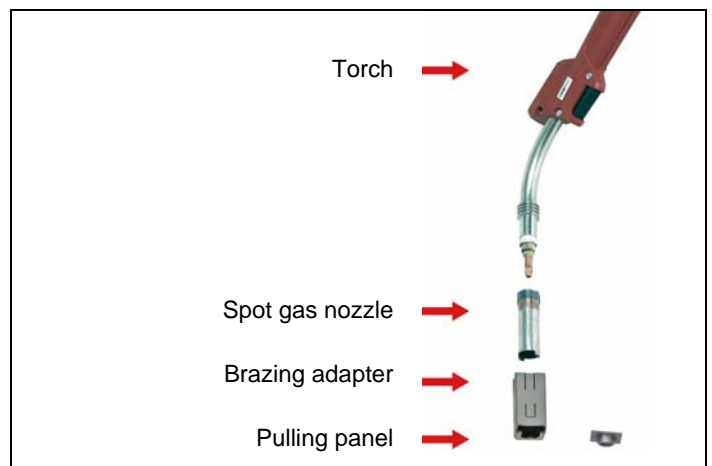
The *EWM QuickFix* must only be used to remove dents from vehicle body parts. We guarantee perfect functioning and operation of the dent removal set only in combination with the **PHOENIX 300 CAREXPERT PULSES**

5.2 Preparations

- Remove the paint layer from the dented part.



- Fit together the torch, spot gas nozzle and brazing adapter.
- Place the pulling panel into the brazing adapter by pushing it in at the side.



5.3 Brazing on pulling panels

Settings on the CAREXPERT

(see CAREXPERT operating manual, chapter 3.1.2)

- Material type = CuSi
- Wire electrode diameter
- Sheet metal thickness (bodywork)
- Seam type/program = plug weld / no. 6

Only once the gas post-flow time has ended (approx. 2.5 sec.), drag the spot gas nozzle upwards slightly from the brazing adapter and then remove the torch from the pulling panel completely at the side!

- Place the complete welding torch on the deepest part of the dent and braise on the pulling panel.
- Several pulling panels are brazed on in sequence, depending on the dent.

Guideline values for pulling panels used:

D5 = 0.7 – 1.2 mm panel thickness (bodywork)

D7 = 1.2 - approx. 2.5 mm panel thickness (bodywork)

Guideline values for the brazing time:

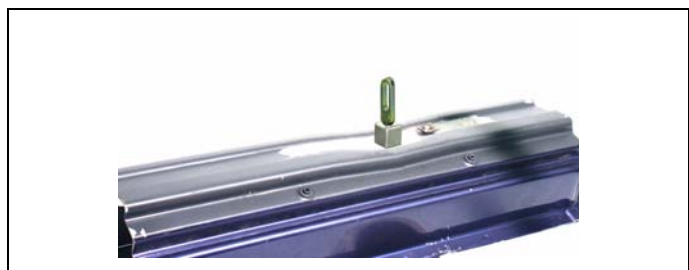
D5 approx. 1 sec.

D7 approx. 1.5 – 2.0 sec.



5.4 Reshaping

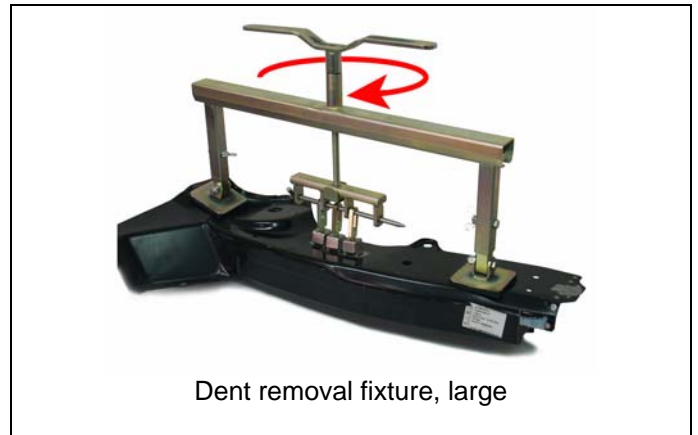
- The tie rod is pushed into the pulling panel. The reshaping work is carried out using a pulling hammer.



- The bodywork dent is reshaped by turning the hexagon bolt (anticlockwise) on the dent removal fixture.

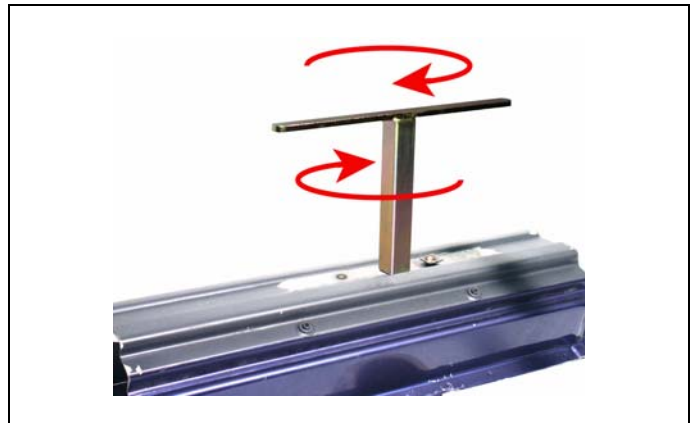


- Large dented areas are reshaped by turning the lever (clockwise) on the dent removal fixture.
- Several tie rods are connected together with the tie bolt.



5.5 Finishing work

- The pulling panel is sheared off with a dressing tool using a rotational movement.



- Grind off the small amounts of braze residue in the reshaped area.

