

1250N (69H1207) MANUAL



VERSION 1.0

Register of changes

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AMADA WELD TECH has the right to change parts of the machine at any time without prior or direct notice to the client. The content of this publication is subjected to change without notice.

For extra information as to adjustments, maintenance, and repair, contact the technical department of your supplier.

This user manual has been composed with great care. However, **AMADA WELD TECH** cannot be held responsible either for any shortcomings occurring in this user manual or for their consequences.






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1 SAFETY PRECAUTIONS

1.1 GENERAL SAFETY PRECAUTIONS

	<p style="text-align: center;">WARNING</p> <p>Read this manual carefully before doing work on the Desktop system. Your supplier has no liability for injuries, damage and/or excessive wear, due to incorrect maintenance, unintended use, modifications and deactivation of safety devices.</p>
	<p style="text-align: center;">WARNING</p> <p>The bond head system and its safety devices may not be extended, modified, or changed without written permission from your supplier.</p>
	<p style="text-align: center;">WARNING</p> <p>It is forbidden to place the bond head system in an area where there is a possibility of explosion.</p>
	<p style="text-align: center;">WARNING</p> <p>Repair or maintenance of electrical circuit or component must only be done by qualified and trained personnel. Covers must only be removed and installed by a qualified technician.</p>
	<p style="text-align: center;">NOTE</p> <p>If the bond head is being used by a third party, you, as the owner/user, are responsible unless it is agreed otherwise.</p>

1.2 WARNINGS ON THE BOND HEAD

To warn the user/owner of the bond head for certain dangers/risks several warning pictograms have been mounted on the bond head.

	WARNING Risk of getting crushed between moving parts. Labels are placed near moving parts.
	HOT SURFACE Burning risk at the thermode and machine covers. Make sure that the machine has cooled sufficiently before you carry out maintenance work.

Pictograms on the bond head


1.3 POSSIBLE CRUSH INJURIES

If the head is in the down position, it will move upwards after activation of the emergency stop.

1.4 HOT PARTS

When touching the thermode there is a real danger of burning injuries. The temperature of the thermode can rise until 600 °C. The thermode area has been shielded (option). Additional warning pictograms have been placed on the head guarding, warning you for this risk.

1.5 PICTOGRAM CHECKS

	NOTE Regularly check if all pictograms are still in place on the unit. If they are not, replace them as quick as possible.
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1.6 GUARDS

The head, quick connect box (QCB) and thermode are equipped with safety covers to prevent burns or crush injuries.

2 INTRODUCTION

This user manual is intended for the operators responsible for production processes using the 1250N Bond Head.

This user manual makes sure new users are familiar with the operating and maintenance procedures, while experienced users may use this document as a reference work. References to other documents are made when necessary.




Operators using the machine for the first time should study this manual carefully, in particular the safety instructions given in section 1.

Additional training by **AMADA WELD TECH** is recommended if the user wants to become quickly familiar with the system. The training course consists of, among other things, training in the completely independent operation of the system. Knowledge transfer should not only take place by circulating this manual among the operators, but by practicing with the equipment and doing practical work with the machine.

The manual is based on current techniques. **AMADA WELD TECH** retains the right to make changes to the documentation without being obliged to alter all previous versions.

Keep this instruction manual carefully for future use.

To underline certain subjects or actions the following markings are used in the text.

	<p style="text-align: center;">INDICATION</p> <p>Provides information to facilitate the execution of certain tasks.</p>
	<p style="text-align: center;">NOTE</p> <p>The statement concerned is to draw the user's attention to possible problems.</p>
	<p style="text-align: center;">CAUTION</p> <p>The system could be damaged if procedures are not followed carefully.</p>

2.1 GENERAL

This user manual is intended for operators (competent persons) and service personnel (qualified technicians).


Competent persons are persons who:

- have a certain level of knowledge gained by training/education, and
- have certain skills necessary to operate the bond head.

The operator has to be a competent person.

Qualified technicians are persons who:

- are competent, and
- have a certain level of technical knowledge gained by training/education, and
- are familiar with techniques in the unit, and
- are aware of the possible risks and are trained **AMADA WELD TECH** personnel.

	<p style="text-align: center;">WARNING</p> <p>Installation, technical maintenance, repair and (de) mounting may only be done by qualified technicians, unless specified otherwise.</p>
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Operating the 1250N Bond head involves, controlling the machine, cleaning the unit and simple maintenance operations.

Purpose of this user manual is to create a safe and an efficient interaction between man and system.

2.2 INTENDED USE

The 1250N Bond Head can be used for all Hot-Bar Reflow Soldering and Heat-Seal Bond applications. The Bond Head offer maximum productivity and consistent process control.

The Bond Head is modular, compact, rigid and easily adjustable. The modular approach enables you to upgrade or reconfigure your system when necessary. The compactness makes it possible to build a system with optimum floor space usage.

The rigidity gives you the highest connection accuracy with fine pitch applications, long hot-bar lengths and even the highest bonding forces.

The Bond Head is controlled by a pneumatic cylinder (SH Series). A force-firing switch controls the presence of the bonding force during the whole bonding process.

2.3 SOUND LEVEL

The sound level has been measured according to the directive requirements of the head.

The A-weighted equivalent continuous sound pressure has been measured at the working place during normal operating conditions. The sound level has been measured at a distance one meter from the head and at a height of 1,60 m above the reference plane. The measured A-weighted equivalent continuous sound pressure level (LAeq) will not exceed 70 dB(A).

2.4 REQUIREMENTS FOR THE SURROUNDINGS

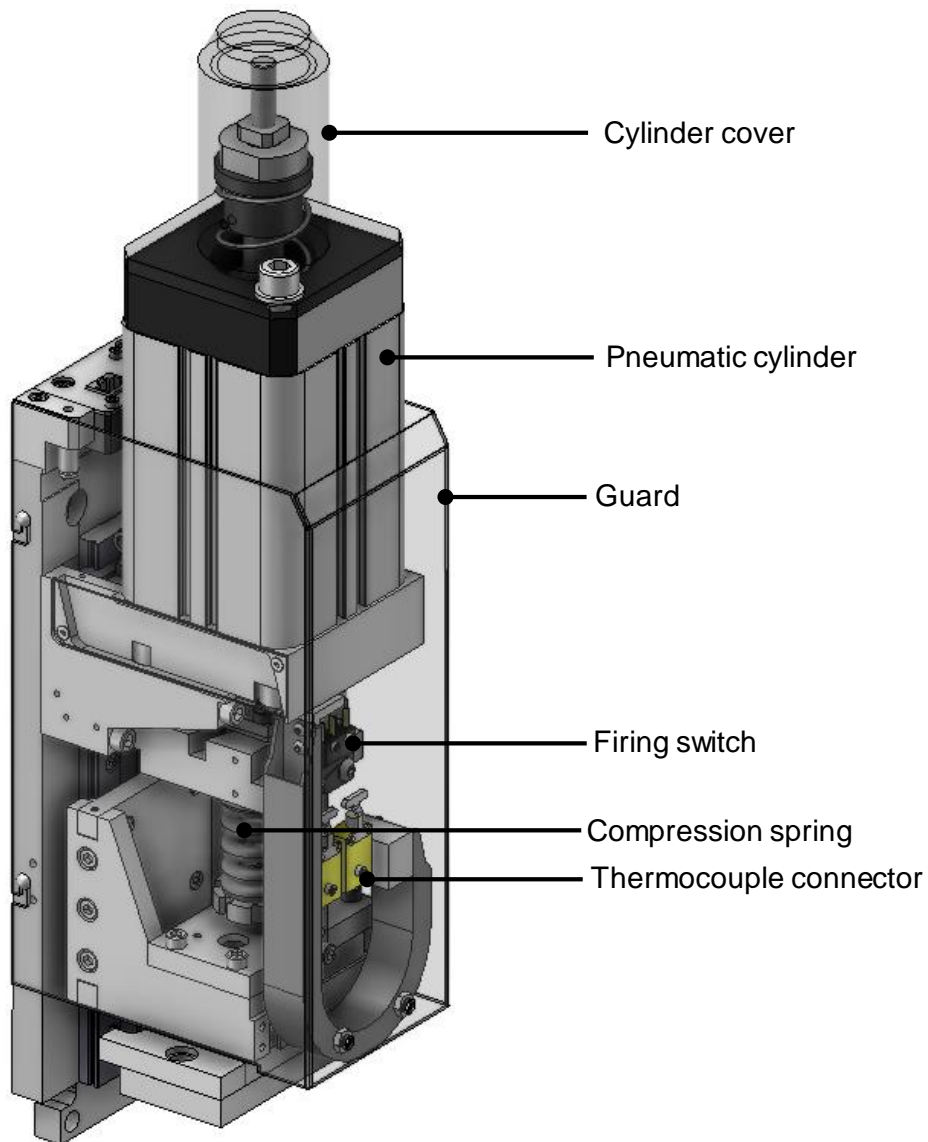
Generally, the equipment requires no special foundation; a level concrete surface is sufficient. During production, the machine and the near surroundings must be well illuminated.

The module is not suitable for use in the open air. The module is unsuitable for use in a potentially explosive environment.

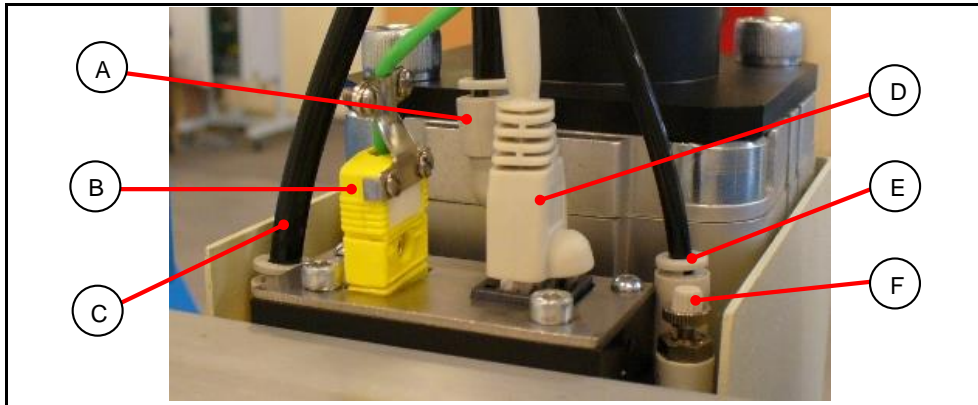
3 GENERAL CONSTRUCTION

3.1 GENERAL VIEW

The main parts of the 1250N Bond head are shown below.



3.2 CONNECTIONS



- A. Air connection (head down) and speed adjuster head up
- B. Upper thermocouple connector
- C. Cooling air
- D. RJ45 connector (home and firing switch)
- E. Air connection (head up)
- F. Speed adjust - head down

3.3 PRINCIPLE OF OPERATION

The Bond head is a modular system. The operator is responsible for positioning the products in the fixtures, for controlling the machine, for assembling the products, taking the finished products out, for cleaning the unit and for simple maintenance operations.

3.4 PURPOSE AND ACTIONS

The 1250N Bond Head can be used for all Hot-Bar Reflow Soldering and Heat-Seal Bond applications.

4 TRANSPORT AND INSTALLATION

4.1 TRANSPORT






The unit is transported as a single unit for installation to the user's requirements.

4.2 ENVIRONMENTAL REQUIREMENTS



The module is unsuitable for use in the open air.


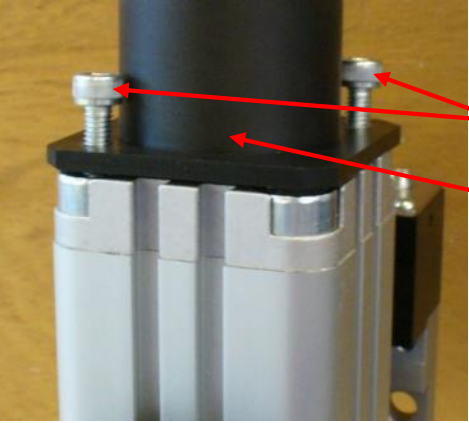
The module is unsuitable for use in a potentially explosive environment.

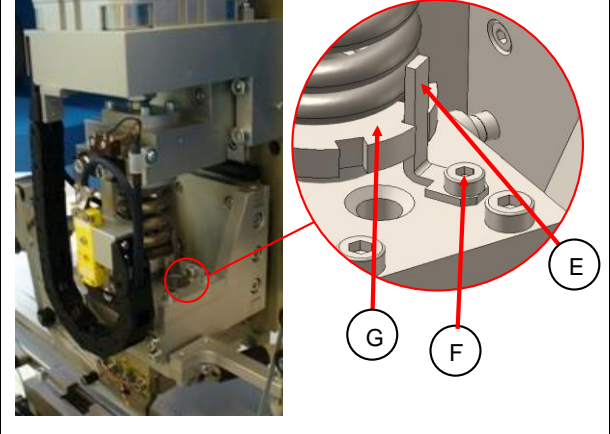
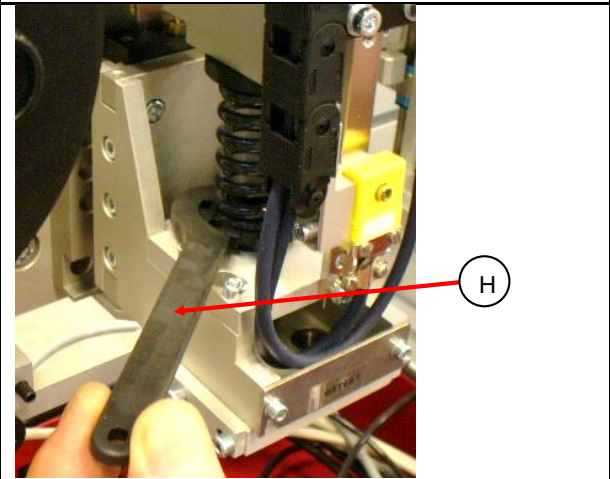
4.3 INSTALLATION

	WARNING Installation and adjustment of the 1250N Bond head may only be done by a qualified, Amada Weld Tech trained technician.
	CAUTION Transport and handling the system must be carried out carefully to avoid any damage.
	WARNING The unit may only be operated if it is completely and correctly installed.
	CAUTION In case of reinstallation on another location at least all safety measures described in this chapter have to be considered.
	NOTE Find a place for this manual, in such a way, that it is within reach when operating the unit.

5 ADJUSTMENTS

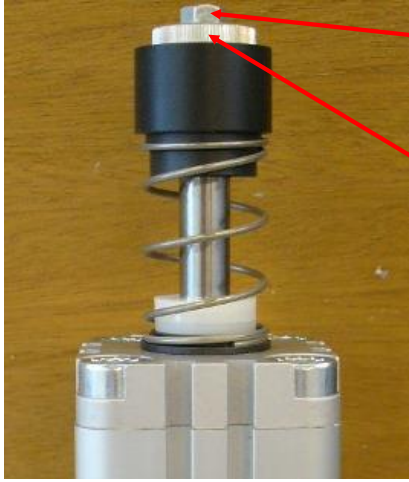
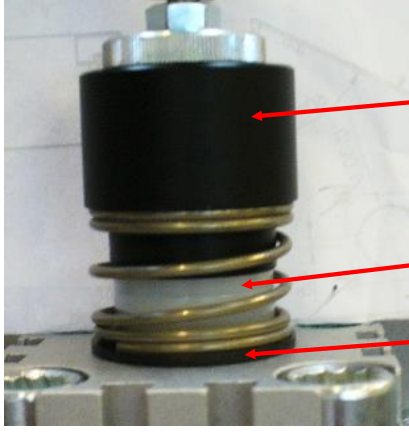

	<p style="text-align: center;">CAUTION</p> <p>Make sure you remove air pressure supply to the head before you do work on the Bond head.</p>
	<p style="text-align: center;">NOTE</p> <p>The illustrations that follow may not be exactly the same as your version, but the thermode adjustment is similar.</p>

	<ol style="list-style-type: none"> 1. Set the air supply to the head to off. 2. Slightly loosen the screw (B). 3. Slide up the safety cover and remove it from the three mushroom head pins (A) and the screw (B).
	<ol style="list-style-type: none"> 4. Remove the two screws (C). 5. Remove the cap (D).

	<ol style="list-style-type: none">6. Loosen the lock tab screw (F).7. Turn out the lock tab (E).
	<ol style="list-style-type: none">8. Use the supplied C-spanner (H) or a flathead screwdriver to turn the pretension ring (G) until you have a pretension on the spring. This means you cannot move the spring in the vertical direction.9. Do not turn in the lock tab you opened.

5.1 SET THE STROKE LIMIT

The illustrations that follow may not be the same as shown.

 <p>(A)</p> <p>(B)</p>	<ol style="list-style-type: none"> 1. Make sure that the correct thermode is attached. 2. Make sure the thermode makes full contact with ('hits') the product when the head is fully down. If this is not done, the distance setting of the fire switch is not correct. 3. Hold the adjustment ring (B) and loosen the lock nut (A).
 <p>(C)</p> <p>(D)</p> <p>(E)</p>	<ol style="list-style-type: none"> 4. Make sure the air supply is connected to the Bond head. 5. Activate the system to move the Bond head fully down. 6. Make sure the top block (C) is fully in contact with the white washers (D). If the white washers are not present, make sure the top block (C) is fully in contact with the black washer (E).
 <p>(F)</p>	<ol style="list-style-type: none"> 7. Make sure the gap (F) between the firing switch and the striker plate is between 0.5 and 1 mm. <p>Note: If the gap is very large, the thermode connector cables may be damaged when the bond head moves.</p> <ol style="list-style-type: none"> 8. If necessary, turn the adjustment ring (B) counter clockwise to increase the gap or clockwise to reduce it. <p>Note: It may be necessary to remove one or more of the white washers (D).</p> <ol style="list-style-type: none"> 9. Tighten the locknut (A). 10. Do the Force Calibration.

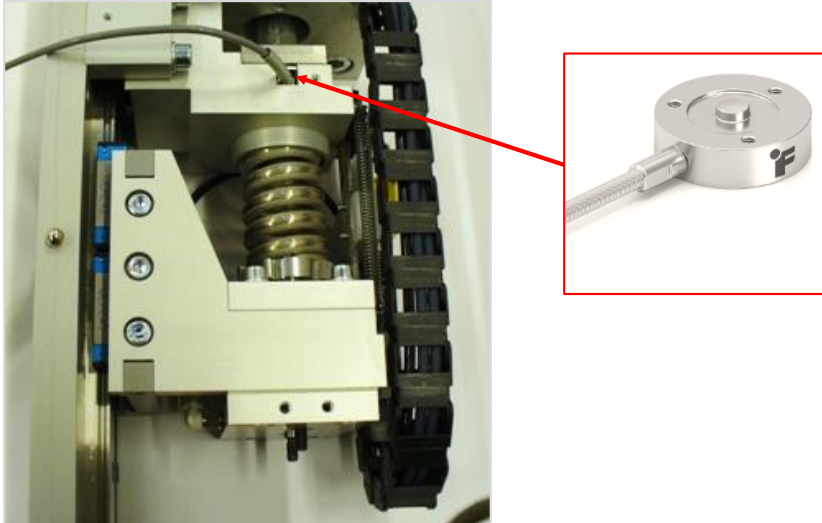
5.2 FORCE CALIBRATION

All items mounted on the QCB contribute to the down-force and therefore have to be present when force calibration is performed.

Thus, make sure:

- The head has the correct thermode installed
- There is no strain on the flexible cables to the QCB in all possible positions.

The system has a load cell integrated in the system.



1. Connect the load cell to the meter and set it to on. The connector position system dependent.
2. Make sure the thermode is up.
3. If necessary, set the meter to zero.
4. Put a product in the fixture or use a block of product height.
5. Use air pressure to lower the thermode until it is fully down on the fixture or block.

	<ol style="list-style-type: none"> 6. Make sure there is a reading on the meter.
	<ol style="list-style-type: none"> 7. Use the supplied C-spanner or a flat blade screwdriver to turn the adjuster at the base of the spring. Turn it clockwise (looking down on the adjuster) to decrease pressure or counter clockwise to increase pressure. 8. Lift and lower the thermode a few times to make sure the pressure readings are constant. 9. Remove all the tools.


5.3 PLANARITY ADJUSTMENT

There are two planarity adjustments. Tilt planarity adjustment and left/right planarity adjustment. Most of the time both need to be fixed. A small misalignment of the thermode cannot be seen by naked eye and therefore, a pressure paper should be used under the thermode. This paper can show easily the misalignment of the thermode. When the thermode press on the paper, the paper shows a pattern depending on the pressure distribution.

The tilt, and left/right planarity adjustments can be done one after the other or simultaneously depending on what is easier for the technician.

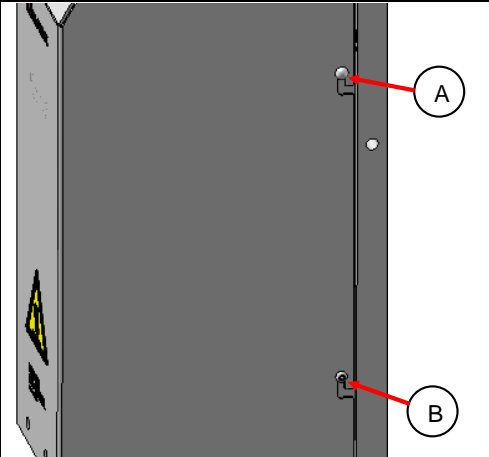
The photo below shows a homogenous thermode imprint.

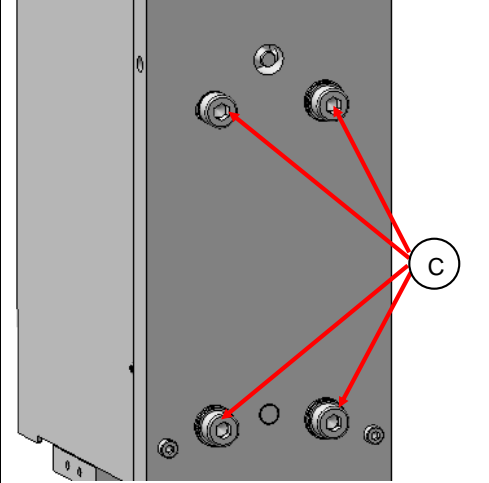
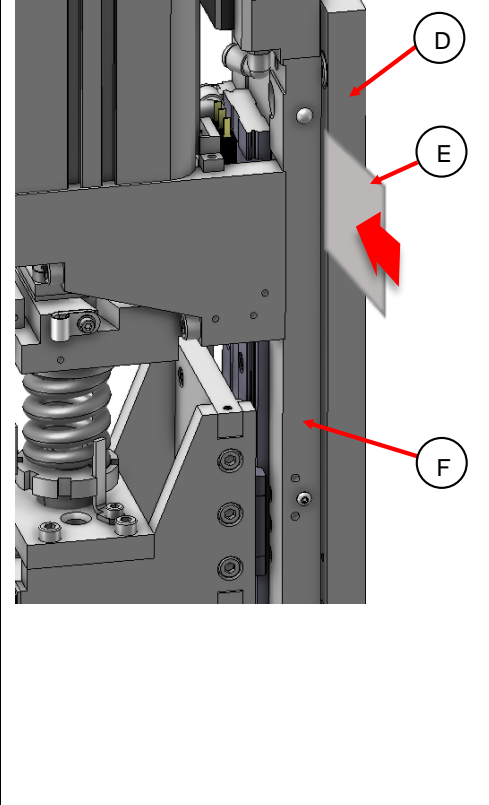


	<p style="text-align: center;">NOTE</p> <p>If there is no distinctive pattern on the pressure paper, you must check if the thermode hits the surface. If still no imprint, increase the force.</p>
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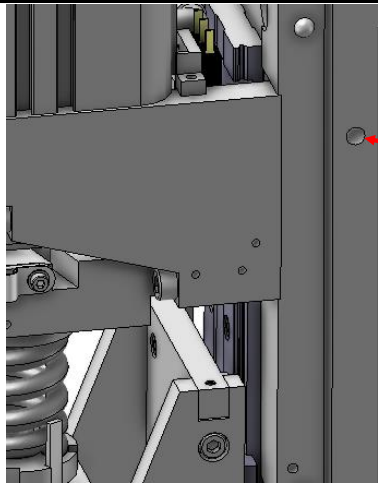
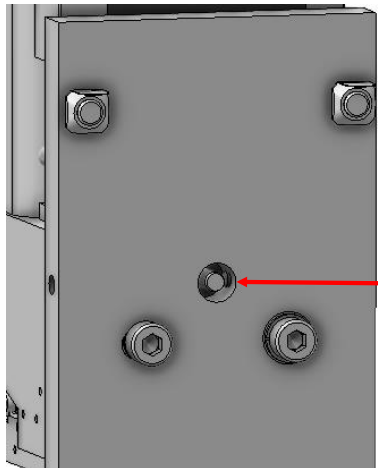
Follow the next steps to adjust the thermode planarity.

5.4 TILT PLANARITY ADJUSTMENT

	<ol style="list-style-type: none"> 1. Make sure the force calibration has been done. 2. If there is no fixture installed, put a filler block below the thermode. 3. Put the pressure paper above the filler block. 4. Set the air supply of the head to OFF. 5. Slightly loosen the screw (B). 6. Slide up the safety cover and remove it from the three mushroom head pins (A) and the screw (B).
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 <p>A technical drawing of a grey metal panel with four circular bolt heads. Red arrows point from a circled 'C' to each of the four bolts. The bolts are arranged in a 2x2 grid.</p>	<p>7. Slightly loosen the four bolts (C).</p>
 <p>A detailed technical drawing of a mechanical assembly. A vertical mounting plate (D) is shown on the right. A grey shim (E) is being inserted between the mounting plate and a head baseplate (F). A red arrow points to the shim. The head assembly is on the left, with a spring and various components visible.</p>	<p>8. Make a test imprint by sending the Head down by activating the pressure of the head, then move the head up again by removing the pressure. Examine the imprint.</p> <p>9. If the imprint is darker from the back side than the front side, then the head needs to be tilted to the front. Insert a shim (E) between the head baseplate (F) and the mounting plate (D). Make sure you insert it as near to the top bolts as possible.</p> <p>10. If the imprint is darker from the front side than the back side, then the head needs to be tilted to the back. Insert a shim (E) between the head baseplate (F) and the mounting plate (D). Make sure you insert it as near to the bottom bolts as possible.</p> <p>11. Hold the head in position and tighten the four bolts (C).</p> <p>12. Set the air supply of the head back to ON.</p> <p>13. Make a test imprint and examine the imprint again. If it is homogenous then the alignment is done. If it is still not good, repeat steps 7-13 until getting a homogenous imprint.</p>

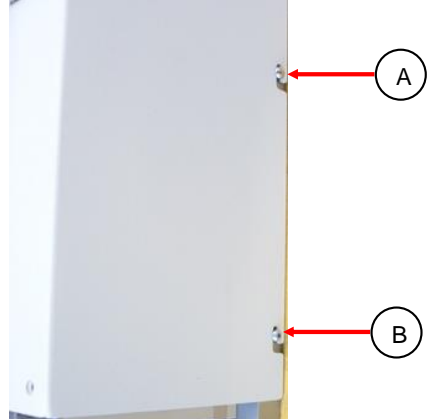
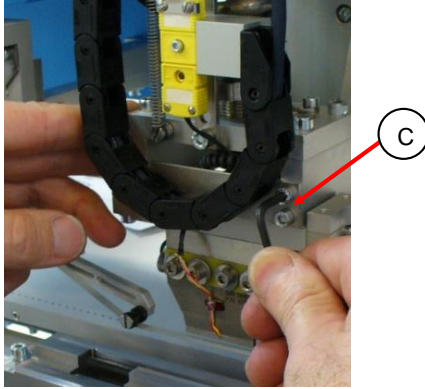
5.5 LATERAL PLANARITY ADJUSTMENT

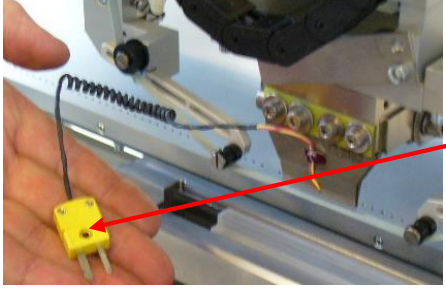
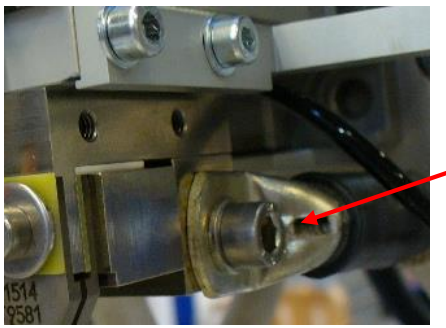

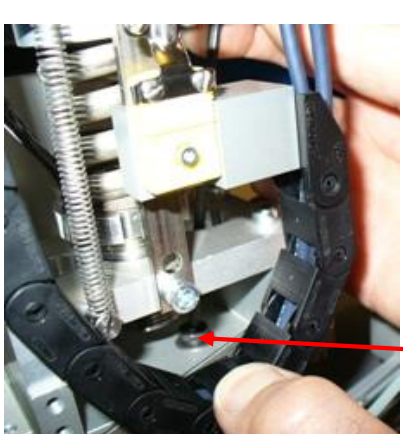
	<p>14. Slightly loosen the four bolts (C).</p> <p>15. Make a test imprint by sending the Head down by activating the pressure of the head, then move the head up again by removing the pressure. Examine the imprint.</p> <p>16. If the imprint is darker from the left side than the right side, then the head needs to be tilted to the right. Get access to the lateral adjustment holes (G) (there are two holes, one on the left side and one on the right side). Inside each hole there is a small adjustment hex screw.</p>
	<p>17. On the right hole, use a hex key to turn the adjustment screws in (CCW) a half turn. This gives a space for the left side screw to be turn in.</p> <p>18. On the left hole, use the hex key to turn the screw in (CW) until that it cannot be turned in anymore. You can see the adjustment hex screws from the hole (H) on the back side of the mounting plate.</p> <p>19. If the imprint is darker from the right side than the left side, then the head needs to be tilted to the left.</p> <p>20. On the left hole, use a hex key to turn the adjustment screws in (CCW) a half turn. This gives a space for the right-side screw to be turn in.</p> <p>21. On the right hole, use the hex key to turn the screw in (CW) till that it cannot be turned in anymore. You can see the adjustment hex screws from the hole (H) on the back side of the mounting plate.</p> <p>22. Tighten back the four bolts (C).</p> <p>23. Make a test imprint and examine the imprint again. If it is homogenous then the alignment is done and you can skip the next steps. If it is still not good, repeat step 14-23 getting a homogenous imprint.</p>

6 REPLACEMENT AND MAINTENANCE

6.1 REPLACEMENT OF THE THERMODE AND QCB

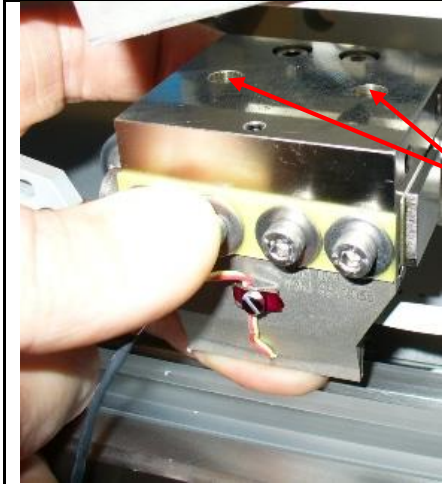
	<p style="text-align: center;">WARNING</p> <p>Burning risk by touching hot surfaces.</p>
	<p style="text-align: center;">NOTE</p> <p>The thermode and the Quick Connector Block (QCB) are normally replaced as a single part.</p>
	<p style="text-align: center;">NOTE</p> <p>The head and QCB may not be exactly as shown in the illustrations that follow.</p>

	<ol style="list-style-type: none"> 1. Set the air supply to the head to off. 2. Make sure the thermode is fully cooled. 3. Slightly loosen the screw (B). 4. Slide up the safety cover (B) and remove it from the three mushroom head pins (A) and the screw (B).
	<ol style="list-style-type: none"> 5. Remove the cover plate screws (C).

 <p>(D)</p>	<p>6. Disconnect the yellow thermocouple connector (D).</p>
 <p>(E)</p>	<p>7. Disconnect the two thermode power cables (E).</p>
 <p>(F)</p>	<p>8. Fully loosen but do not remove the left QCB attachment bolt (F).</p>
 <p>(G)</p>	<p>9. Put your hand below the thermode. 10. Get access as shown and fully loosen the right QCB attachment bolt (G). Do not remove the bolt.</p>



11. Carefully lower the QCB and remove it from the system.
12. Clean the mating surfaces of the head and the QCB with alcohol.
13. Put the replacement QCB below the head.





14. Lift the QCB into position.

Note: The shafts of the two attachment bolts (F and G) must be correctly installed in the recesses (H) before they are fully tightened.

15. Loosely install the two bolts (F and G).
16. Move the QCB slightly as you hand tighten one of the bolts. Do the same for the other bolt.
17. When you are sure the bolts are correctly installed in the recesses (H), fully tighten both bolts.
18. Do steps 1-7 in reverse.

6.2 PREVENTIVE MAINTENANCE

It is essential to do regular maintenance to maintain the optimum performance of the system at high level. This maintenance must be done in accordance with the maintenance instructions. This will prevent premature failure of the system.

	CAUTION Do not replace parts yourself. They must be replaced by a qualified technician.
	WARNING Preventive maintenance may only be done by competent persons.


The extended bond head has no parts that need service / adjustment / lubrication during normal operation.

Cleaning and preventive checks though could identify and prevent possible problems.


6.2.1 CLEANING THERMODE PROCEDURE

1. Heat thermode for 1 minute at 250⁰C by applying schedule 10 in the Uniflow-4.
2. Remove polymer from both tips with a tissue and/or cotton bud. (be aware of the high temperature)
3. Repeat heat up to 250⁰C for 1 minute if time period was too short for proper cleaning .
4. Be careful that thermocouple will be not damaged.

6.3 TECHNICAL MAINTENANCE

	WARNING Removal, installation, technical maintenance and repair to parts may only be done by qualified technicians, unless specified otherwise.
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Contact **AMADA WELD TECH** for maintenance activities. Conditions will be quoted after receipt of information or requirements.

	WARNING Having performed maintenance activities, the system must not be started until all guarding has been mounted correctly.
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7 CALL AMADA WELD TECH

When an emergency call is received at **AMADA WELD TECH**, the caller will be guided through the actions that are required to solve the problem.

Authorized and highly qualified technicians from **AMADA WELD TECH** will provide the assistance and support to solve the problem via the telephone as first attempt.

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