



# Atlas™ Heated Platens Heating Element Repair Kit

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## *Instruction Manual*



2I-15512-4



Atlas™ Heated Platens Heating  
Element Repair Kit

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*Instruction Manual*

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## 1. Introduction

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The Atlas™ Heated Platens P/N GS15515 are supplied for use in all Specac presses to convert the presses for provision of heated pressing surfaces of 10 cms diameter up to 300°C temperatures and a maximum tonnage load of 15 tons.

This instruction manual is for the fitting of replacement heating elements within the top and bottom heated platen assemblies of the Atlas™ Heated Platens. The replacement heating elements provided (one for each heated platen assembly) will be specific for either:-  
220volt Atlas™ Heated Platens when ordered as P/N GS15512 or  
110volt Atlas™ Heated Platens when ordered as P/N GS15522.



**Warning!** *The dismantling or repair of the Atlas™ Heated Platens or their 4000 Series controller system **must** only be performed by suitably qualified personnel and the items **must** be adjusted and safely tested using appropriate equipment before actually being used.*

**Specac Ltd does not accept liability for any injury or damage during or after customer modification or repair.**

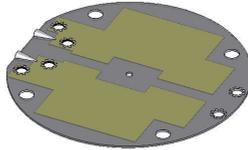
## 2. Checklist of Parts

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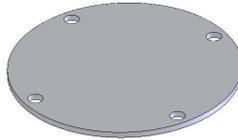
The following items have been supplied to replace both heating elements in the Atlas Heated Platens P/N's GS15515 (top and bottom platen assemblies.)

**For P/N GS15512 (220 volts Atlas™ Heated Platens) and P/N GS15522 (110 volts Atlas™ Heated Platens).**

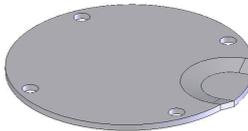
- Heating Element (2 off)



- Element Support Disc (2 off)



- Spacing Disc (2 off)



- Bootlace ferrules (wire insulators - 4 off)

Remove the parts carefully from their packaging and set to one side for use in the replacement procedure.

## *3. Heating Element Replacement Procedure*

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### **Tools Required**

The following tools and parts are necessary to carry out the heating element replacement procedure for the Atlas™ Heated Platens.

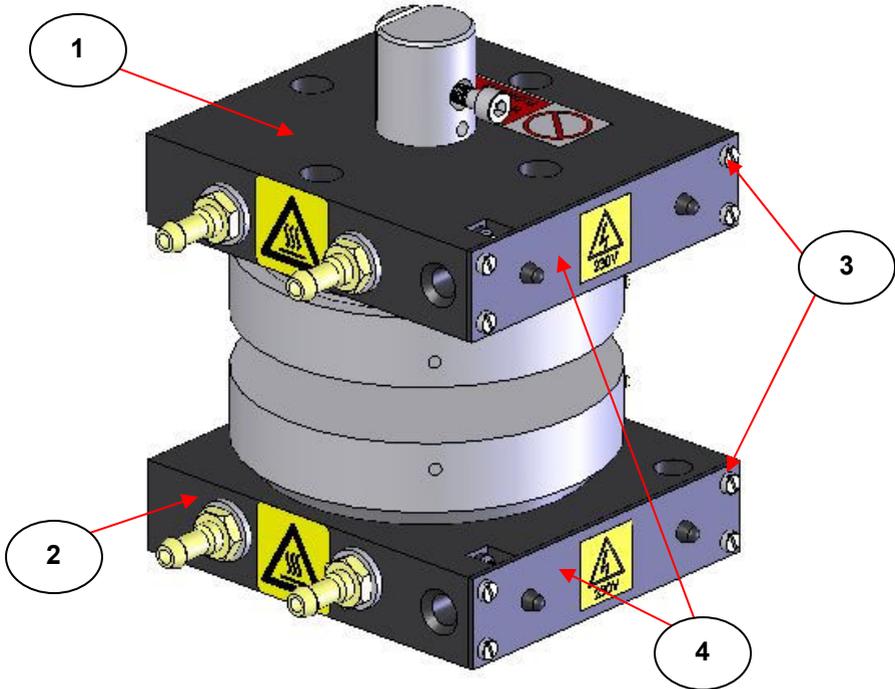
- A crimp tool. (Specific tool item to be used to crimp bootlace ferrules 8mm pin, 1sq mm size supplied.)
- A torque screwdriver with M4 hexagonal head socket attachment pre-set to 120cNm torque.
- A Specac Ltd 15 ton manual hydraulic press P/N GS15011.
- The appropriate temperature controller unit (220 volts or 110 volts unit) used to provide power and to heat the Atlas™ Heated Platens.
- A Flash Test Unit (for checking dielectric breakdown).
- An Earth Bonding Test Unit

### **Heating Element Replacement**

The following procedure can be adopted for replacement of a heating element in either the top (1) or bottom (2) heated platen assembly of the Atlas™ Heated Platens. (See Fig 1).

Before working on a heated platen assembly (top or bottom assembly) ensure that it is disconnected from any incoming power supply.

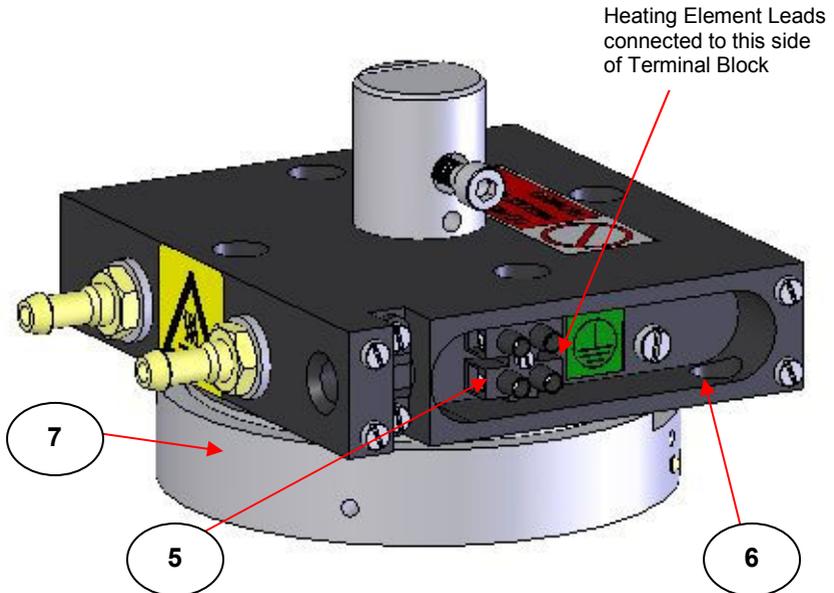
Remove the four slot head screws (3) that secure the cover (4) to the side of the platen body. Place the cover (4) and screws (3) safely to one side for re-use later.



**Fig 1. Top and Bottom Atlas™ Heated Platen Assemblies**

With removal of the cover (4) an internal terminal block (5) is now exposed. (See Fig 2.) Release the two screws in the terminal block that secure and connect to the heating element leads. Remove the leads from the terminal block and withdraw the leads through their access hole (6) in the body.

**Note:** When working on the bottom platen assembly you need to be careful of the thermocouple assembly when removing the heating element leads from the connecting terminal block (5). The thermocouple can be withdrawn from the bottom heated platen surface (7) for easier working if desired.

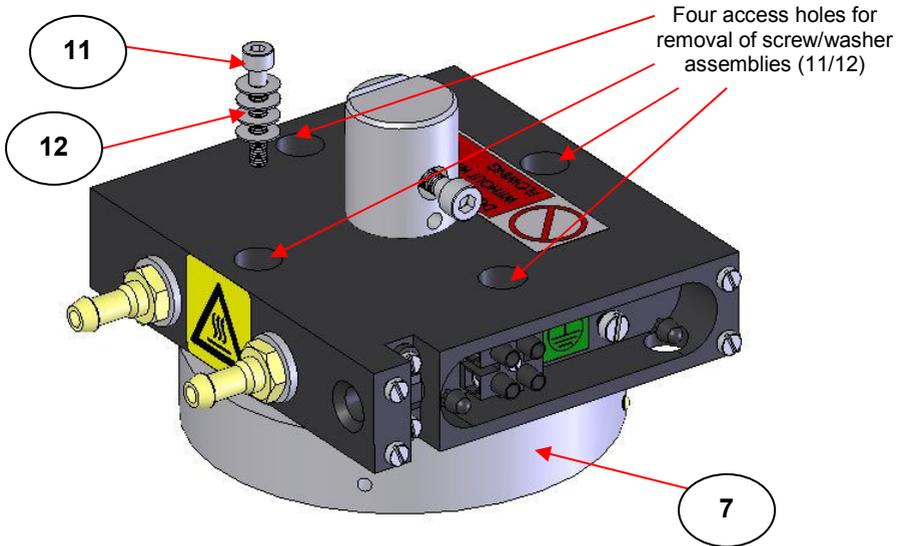


**Fig 2. Cover (4) Removed from Top Platen Assembly to Show Terminal Block (5)**

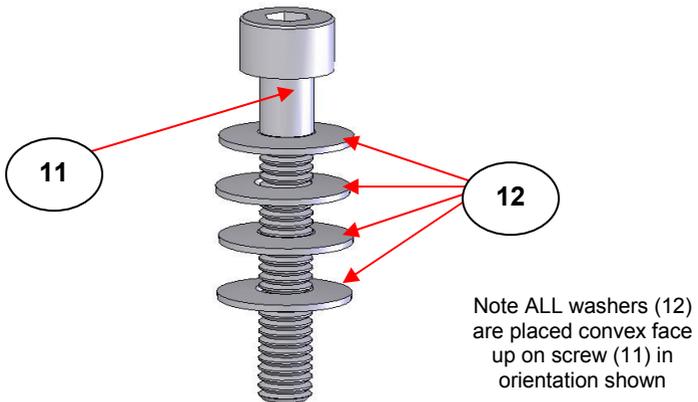
With the heating element leads disconnected the silver coloured aluminium heating surfaces (7), are removed to gain access to the internal parts (the heating element (8), element support disc (9) and spacing disc (10)) to change in the platens.

To gain access, remove the four M4 size socket cap head screws (11) with their individual stack of four Belville type spring washers (12). (See Fig 3.)

**Note:** *In removal of the screws (11) note the way the four spring washers are stacked. It is very important that for reassembly of the components these spring washers (12) are stacked correctly to provide the correct loading. (See Fig 4. to show the way these washers (12) are placed in sequence on the screw (11)).*

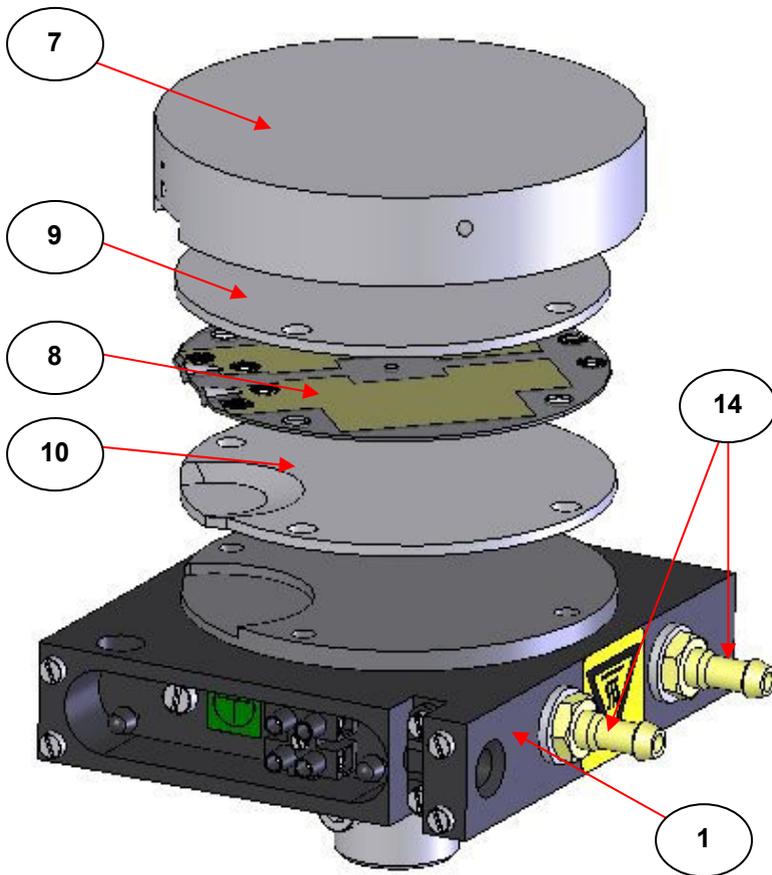


**Fig 3. Removal of the Four Screw/Washer (11/12) Assemblies to Remove Heated Platens Surface (7)**



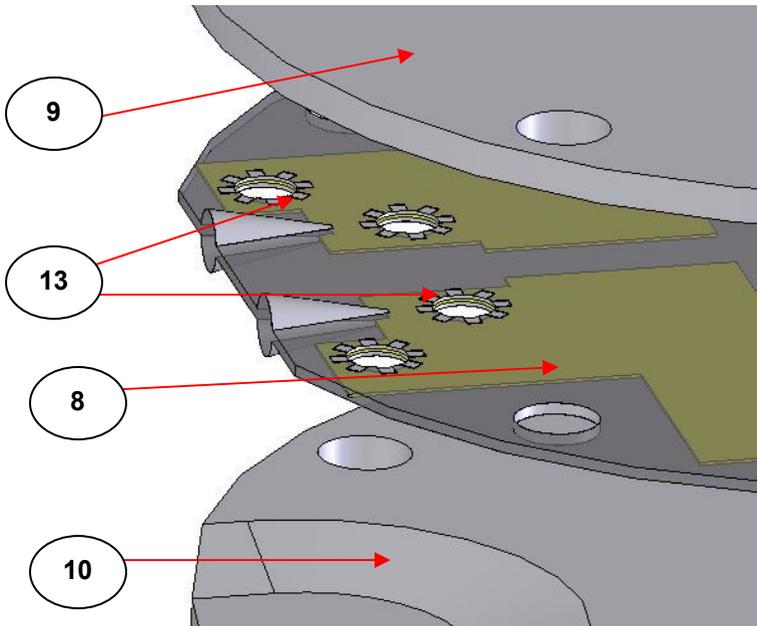
**Fig 4. Stacking of the Four Washers (12) on the Screw (11)**

When the four screw/washer (11/12) assemblies have been removed the heated platen surface cover (7) can be removed to reveal the internal components. (See Fig 5. for an exploded view – the top heated platen assembly has been inverted to show the sequence of internal component parts more clearly).



**Fig 5. Exploded View for Sequence of Internal Parts of Heated Platens**

Remove the platen cover (7), the element support disc (9), the heating element (8) and finally the spacing disc (10), noting this sequence of construction and the way that these parts have been fitted. **Most especially** the heating element (8) is placed a particular way up. Ensure that the swaged eyelet connections (13) that have been “flared open” were in contact with the flat surface of the element support disc (9). (Please see detail of the heating element (8) from Fig 6.)



**Fig 6. Correct Way Up for Heating Element (8) Fitting**

From the kit of parts supplied under GS15512 or GS15522, take a new spacing disc (10), new heating element (8) and new element support disc (9) and build up in the same order and orientation for parts that were removed, noting particular attention to the way the heating element is to be fitted. (As shown at Fig 6.) To locate the new parts correctly the four screws (11) with their washers (12) in their correct sequence can be pushed back into their location holes to act as stud locations for correct alignment of the internal component parts.

Feed the two heating element (8) electrical leads through their access hole (6) in the platen body and route them towards their screw fixings in the terminal block (5).

Cut the leads to a correct length for attaching to the terminal block (5). Strip back the outer insulation shrouding and expose the inner wire to a length of 6mm. From the kit take two of the bootlace ferrules and crimp them into place, using a suitable crimping tool, over the exposed wires. Then reconnect the heater element (8) leads into the terminal block (5) and secure into position by tightening the two screws.

Now, the heated platen cover (7) can be placed over the assembly of replacement internal components and screwed into position using the four screw/washers (11/12). At this stage tighten the four screw/washer assemblies (11/12) to a hand tightness.

**Note:** *If working on the bottom heated platen assembly and the thermocouple has been removed for easier disassembly and removal of old parts, the thermocouple can now be relocated into the heated platen cover (7).*



### **Important**

*Re-assembly of the heated platen is now complete, but before proper use it **must** be pre-load adjusted and safety tested.*

## **Pre-loading and Adjustment**

The following procedure is adopted to test a reconstructed heated platen assembly.

- 1) Check all of the screw/washer (11/12) assemblies for tightness.
- 2) Check the thermocouple has been fitted correctly to the bottom heated platen assembly.

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- 3) Using a Specac 15 ton manual hydraulic press (P/N GS15011) and the temperature controller of the heated platens connected to both the top and bottom platen assemblies, place both heated platens into the press for use.
- 4) Bring both heated surface plates of the heated platen assemblies together by adjustment of the lead screw on the press. Set a temperature of 60°C on the temperature controller to heat the platens and apply a load of 5 tons on the press as indicated at the load gauge on the press. Leave under these test conditions for 15 minutes.
- 5) Turn off heating power to the platens (set temperature to 10°C on the controller), reduce the load from the press to zero tons and allow the heated platens to cool.
- 6) Remove the platen assemblies from the press and retighten the four screw/washer (**11/12**) assemblies using a torque screwdriver fitted with an M4 socket head piece to a preset torque of 120cNm.

## Safety Tests

### Bonding Test

For the bonding test both top and bottom heated platen assemblies are connected to their temperature controller, but the equipment is not switched on.

Using an earth bonding test unit (EBTU), connect one lead of the EBTU to the earth pin of the mains power plug lead that is connected to the temperature controller. Connect the second EBTU lead to one of the four screws (**11**) that secures the platen cover surface (**7**) into position.

Switch on the EBTU and hold for approximately 5 seconds. The reading should be less than 0.1 Ohms (resistance).

Repeat this procedure for the three remaining screws (**11**) and the water connection fittings (**14**) on the platen body. (See Fig 5).

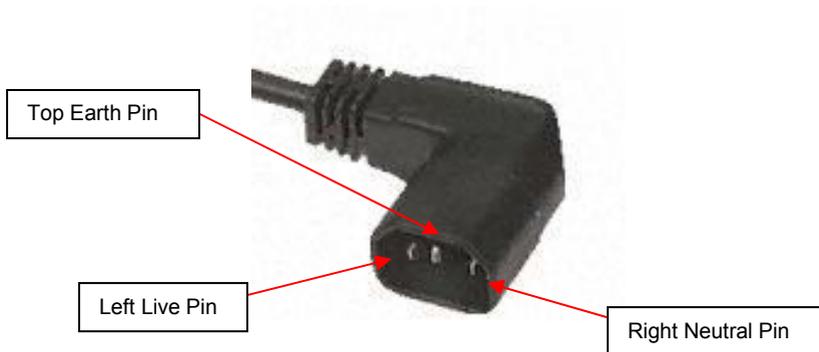
If this reading is not obtained check the following:

- 1) The anodizing has been cleared from the four slot head screws (3) that hold the cover (4) into position.
- 2) That there is no break in the earth lead itself.

### Breakdown Test

For the breakdown test the top and bottom heated platen assemblies are tested alone. They are not connected to the rear of their temperature controller.

Use a flash test unit (FTU) set to 2.1KV. Connect the grounded test lead to the earth pin of the power connection plug of the heated platen assembly. (See Fig 7.)



**Fig 7. Power Connection Plug to Heated Platen Assemblies**

Connect the second FTU lead to the live pin of the connection plug.

Switch on the FTU test unit for approximately 3 seconds. The test unit should stay stable at 2.1KV, but if not check the platens heater for insulation problems.

Repeat the procedure for the neutral pin in place of the live pin.

## 4. Spare Parts

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P/N GS15512 Heating Element replacement kit for 220 volts Atlas™ Heated Platens.

P/N GS15522 Heating Element replacement kit for 110 volts Atlas™ Heated Platens.

### Legend for GS15512/GS15522 Heating Element Kit

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- (1) Top heated platen assembly
- (2) Bottom heated platen assembly
- (3) Slot head screw
- (4) Cover plate
- (5) Terminal block
- (6) Access hole
- (7) Heated platen surface cover
- (8) Heating element
- (9) Element support disc
- (10) Spacing disc
- (11) M4 cap head screw
- (12) Spring washer
- (13) Swaged eyelet connection
- (14) Water connection fitting





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