



ARES-G2 Peltier Plate Kit Installation Instructions

Tools Required

- Tools supplied with Peltier Plate kit

Installation Procedure



Consult TRIOS online help for details on operation of this accessory and configuration of the Julabo circulator.



Refer to your circulator's documentation for specific filling and operating guidelines, as well as other options for your application.

These procedures describe how to install the Peltier Plate Kit on the TA Instruments ARES-G2 Rheometer.



CAUTION: Do not operate the ARES-G2 Peltier Plate accessory unless coolant is circulating through the device. Operation of this device without coolant may cause permanent damage to the Peltier Plate unit.

MISE EN GARDE: N'utilisez pas la plaque Peltier ARES-G2 APS tant que le fluide caloporteur ne circule pas dans le dispositif. L'utilisation de ce dispositif sans fluide caloporteur peut provoquer des dégâts irréversibles sur la plaque Peltier.



WARNING: Depending on the circulating fluid used, the temperature range of the Peltier Plate is -40 to 180°C . To prevent injury, do not touch the plate while it is in operation.

AVERTISSEMENT: En fonction du fluide de circulation utilisé, la plage de température de la plaque Peltier est comprise entre -40 et 180°C . Pour éviter des blessures, ne touchez pas la plaque lorsqu'elle est en fonctionnement.

Prepare the Instrument



Refer to your instrument documentation for detailed procedures on removing and reassembling components.

- 1 Raise the stage to maximum height.
- 2 Remove all upper and lower test geometries, and loosen the anvil tightening knob on the motor anvil.
- 3 Thoroughly inspect the geometry mounting surfaces (that is, the transducer anvil and the motor anvil) and clean off any material that may interfere with the mounting of the Peltier Plate. This is essential to ensure proper mechanical alignment between the Peltier Plate and the instrument.

Install the Peltier Plate

The Peltier Plate (assembly shown below) mounts onto the motor using a threaded collar. The motor anvil knob (thumbscrew) fastens the rotating shaft of the Peltier Plate to the instrument, and the threaded collar secures it to the motor housing.

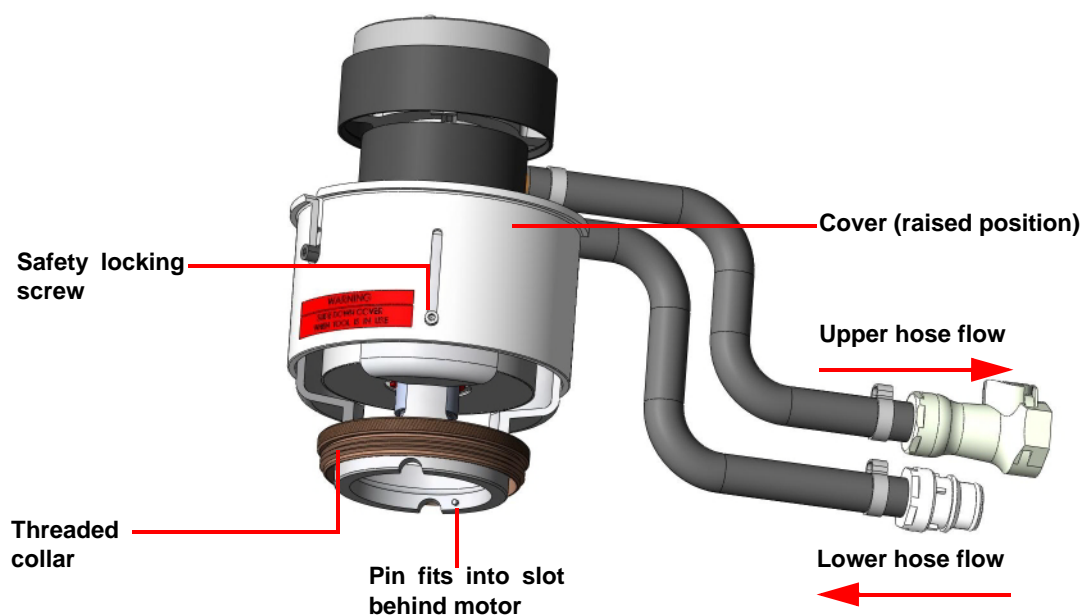


Figure 1 Peltier Plate assembly

The two hoses shown in [Figure 1](#) above supply fluid between the Peltier Plate and the fluid source (typically a computer-controlled circulator).

Refer to [Figure 2](#) for an illustrated parts and assembly breakdown.

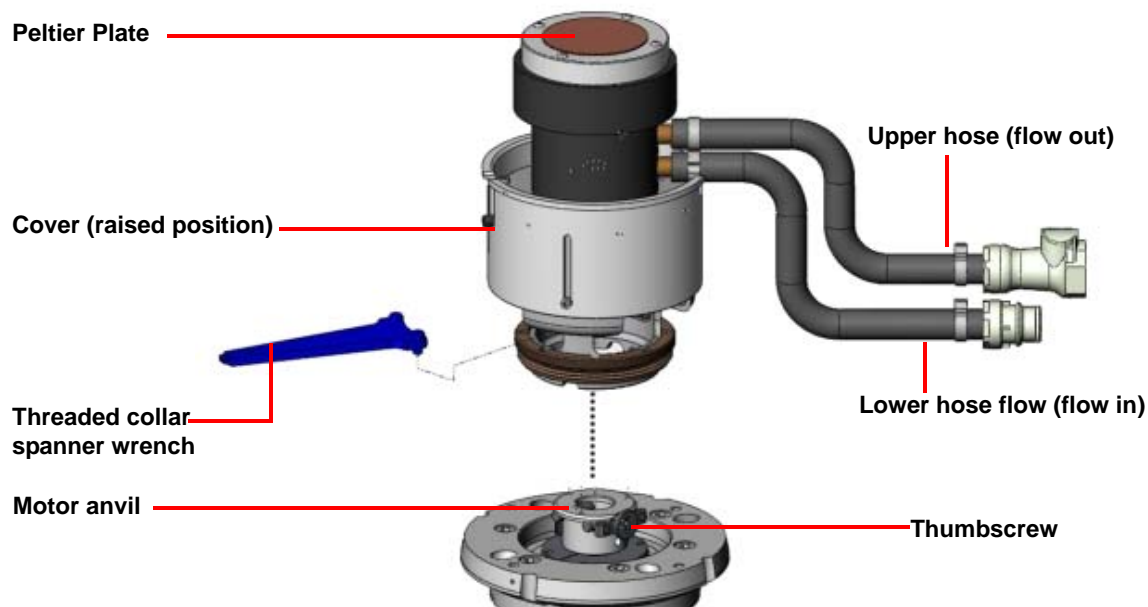


Figure 2 Overview of Peltier Plate assembly and installation

Follow these instructions to install the Peltier Plate:

- 1 From the back of the ARES-G2, remove the two Phillips screws (located to the left of the **ACCESSORY CONTROL** plug). Align the hose management bracket holes with the ARES-G2 screw holes and use the screws to install the bracket onto the back of the instrument, as shown below.



Figure 3 Hose management bracket installed properly on back on ARES-G2

- 2 Loosen the safety locking screw (located beneath the lower hose clamp on the Peltier Plate cover, shown in [Figure 2](#)), raise the cover, and then tighten the safety locking screw to lock it into position.
- 3 Position the Peltier Plate assembly so that the bath hoses are facing right as you face the instrument.

- 4 Rotate the Peltier Plate shaft to align the notches on the shaft with the pin on the base, as shown below.

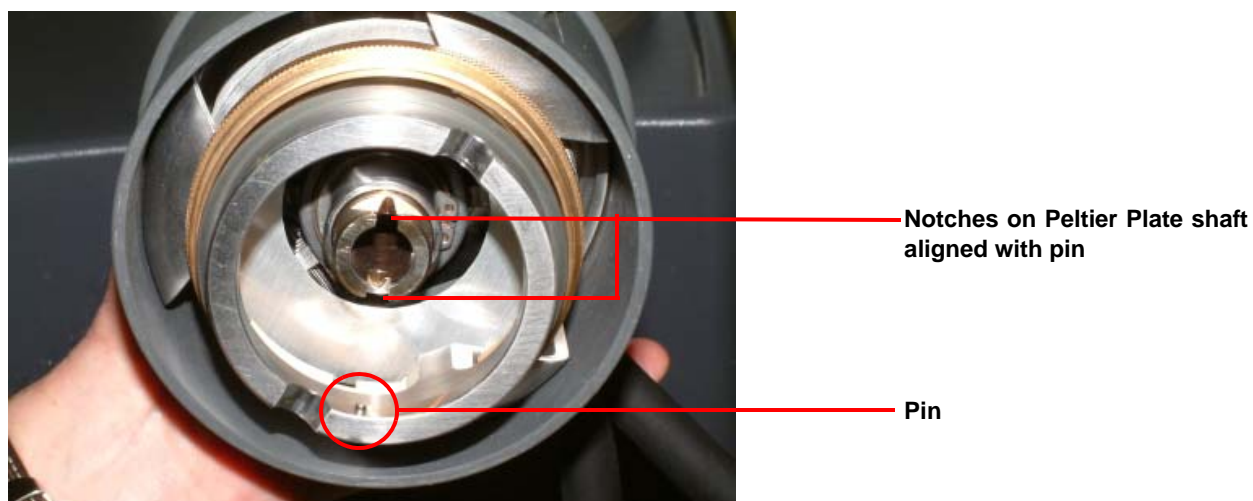


Figure 4 Proper alignment of Peltier Plate assembly shaft

- 5 Rotate the motor anvil to ensure that the flat side of the anvil and the thumbscrew are facing you as you face the instrument. Refer to [Figure 6](#) for proper thumbscrew orientation.
- 6 Slowly lower the Peltier Plate onto the motor housing, ensuring that the pin is towards the back of the instrument.
- a Align the Peltier Plate shaft with the flat portion of the motor anvil.
 - b Push down on the top of the Peltier Plate to seat the Peltier's shaft into the motor anvil.
 - c Seat the pin machined into the bottom of the Peltier Plate (see [Figure 5](#)) into the notch in the motor housing (the pin and notch should be located toward the rear of the instrument). It may be necessary to rotate the Peltier Plate assembly back and forth until the pin falls into the notch.

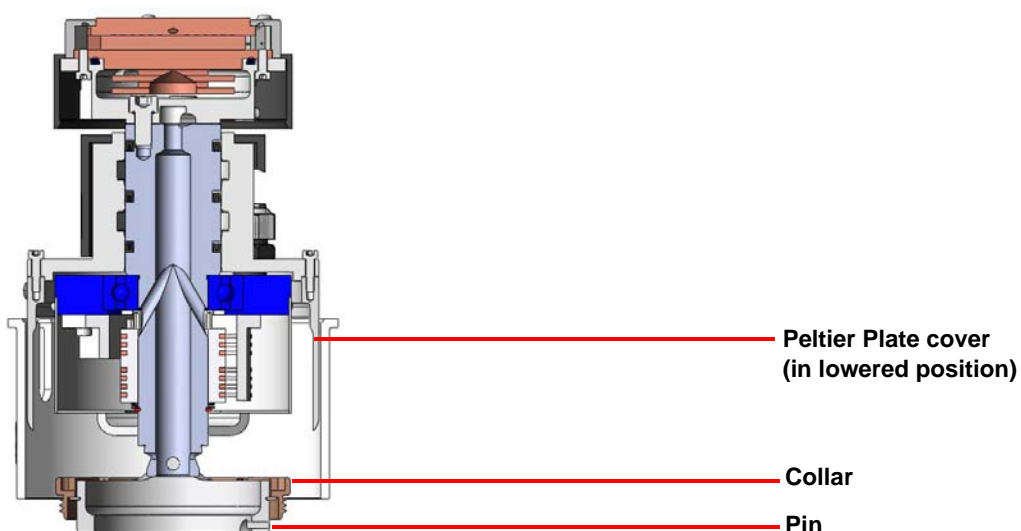


Figure 5 Peltier Plate alignment pin configuration (cross section shown for visibility)

- d Verify that the threaded collar rests in the threaded portion of the motor housing and ensure that the Peltier Plate does not spin or rotate. Tighten the threaded collar and motor anvil thumbscrew by hand, then continue to tighten the thumbscrew with a flat head screwdriver. **Do not over tighten.**

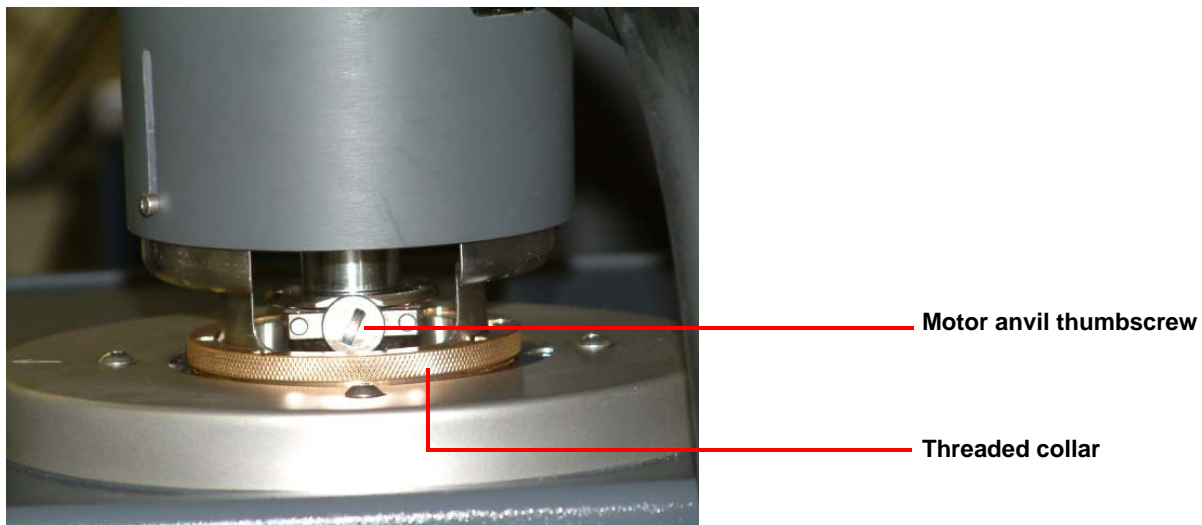


Figure 6 Peltier Plate secured to ARES-G2

- e Once the Peltier is secured, place the two pins on the spanner wrench into two of the holes machined into the threaded collar. Rotate the wrench clockwise to tighten. Do not overtighten the collar.
- 7 Loosen the safety locking screw on the Peltier cover and lower the cover to the down position. Tighten the safety screw to lock the cover into position.
 - 8 Power off the instrument.
 - 9 Connect the Environmental Control power supply box by connecting the cable to the **ACCESSORY** port on the Control Box and the other end of the cable to the **ACCESSORY CONTROL** port on the back of the ARES-G2, as shown below.

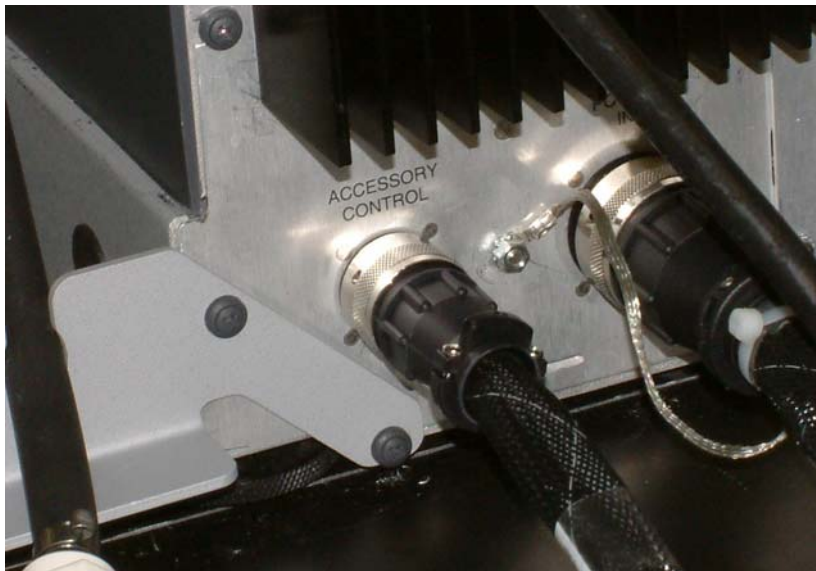


Figure 7 Environmental Control Box connection to make on rear panel of ARES-G2

- 10 Connect the USB cable between the Environmental Controller and the Power Chassis.
- 11 Connect the 2-foot power cord from the Environmental Controller and the Power Chassis.
- 12 Turn on the Environmental Controller using on/off switch located on the back of the controller.

Connect the Circulator

Follow these steps to connect the circulator to the Peltier Plate:

- 1 Position the circulator on the floor below the ARES-G2 work area, allowing yourself ample room to work.
- 2 Power off both the instrument and the circulator before making any connections.
- 3 Connect the lower hose to the outward flow port of the circulator and the upper hose to the inward flow port of the circulator. Refer to your circulator's documentation for identification of the ports.
- 4 Ensure that all hoses are installed completely onto their respective hose barbs and that the hose clamps are tight.
- 5 Connect the Smart Swap plug (shown in figure below) into the Smart Swap connection (shown in figure below) on the left side of the ARES-G2.

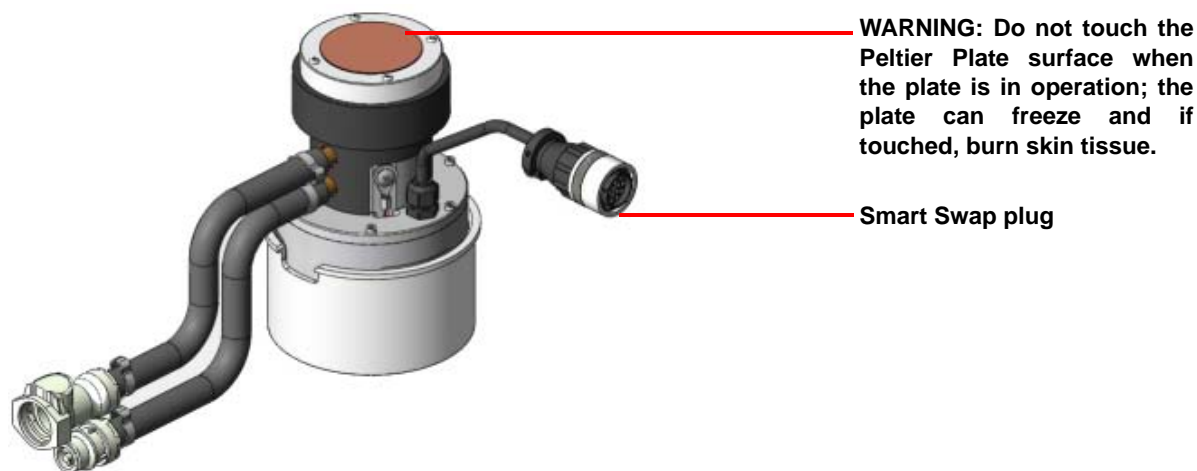


Figure 8 Peltier Plate with bath accessory cable

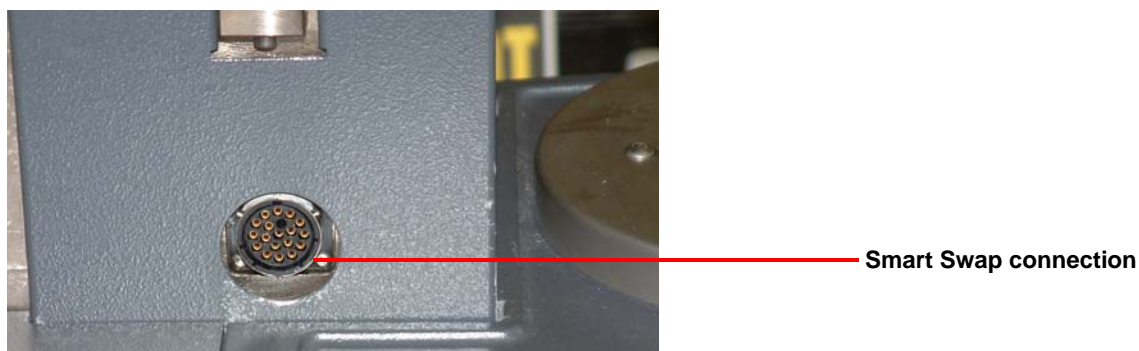


Figure 9 Lower accessory connector on ARES-G2

Fill the Circulator

Fill the circulator with fluid; the fluid to use depends on the type of circulator in use and the desired operating range of the circulator.

The Julabo FP35-MC circulator requires about 2 liters of fluid, and should be filled to within 20 mm from the top.

Because of the construction of the Peltier Plate, the seals are very delicate. Use an ethylene glycol / water solution with a minimum ethylene glycol concentration of 50%. **Using pure water is not recommended**, as it will significantly reduce the lifetime of the seals. In the event of a seal failure, the bath must be returned to TA Instruments for service and repair.

Restore the Instrument to Operating Condition

- 1 Power on the instrument and circulator.
- 2 Turn on the Environment button from the Instrument Control panel.
- 3 Turn on the motor from the Instrument Control panel on the touch screen or in TRIOS software.
- 4 From within TRIOS software, perform the **Bath Friction Check**.