PRIOR
Scientific

PL200

Automatic Slide loader
Manual Version 3.3

PRIOR
Scientific

bsi. ISO 9001 Quality Management
FM 61600

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CONTENTS

Many thanks for purchasing a PL200 slide loader – we hope and expect that it will prove to be useful, reliable and a valuable addition to your microscopy system. Please do take the time to read this manually thoroughly before attempting installation and use. This document contains both important safety information as well as advice on how to install and operate the product successfully to avoid damage. If you have any questions or concerns, please do not hesitate to contact Prior.

SAFETY INFORMATION

SECTION 1

- **Save this manual as it contains important safety information and operating instructions.**

- Use only as specified by these operating instructions or the intrinsic protection provided by the unit may be impaired.

- **Before using the stage system, please follow and adhere to all warnings, safety and operating instructions located on the product and in this User Manual.**

- It is safe for use in an ambient temperature from 5 to 40°C with relative humidity (RH) to 80% up to 31°C decreasing linearly to 50% above 31˚C.

- Do not expose the product to water or moisture while energised.

- Do not expose the product to extreme hot or cold temperatures.

- Do not expose the product to open flames.

- Do not allow objects to fall on or liquids to spill on the product.

- Connect the AC power cord only to designated power sources as marked on the product.

- Make sure the electrical cord is located so that it will not be subject to damage.

- Make sure the system in installed so that the front panel power switch is easily accessible.

- For use in a manner not specified in this manual contact Prior before any work is done.

- To reduce the risk of damage, unplug the product from the power source before connecting the components together.

- **DANGER – Never alter the AC cord or plug. The power cord set must be an appropriately rated and approved cord set in accordance in the regulations of the country it is used in. If the supplied plug adapter is not the correct fitting for your geographic area or if you are unsure about the relevant regulations, please contact your supplier for advice**

- The PL200 is class I and must be only connected to a power outlet which provides a protective earth (ground).

- Do not attempt to disassemble the product. Doing so will void the warranty. This product does not contain consumer serviceable components. Service should be performed by Authorised Service Centres.

- The unit is heavy (37 kg). Remove the microscope and use at least two people to lift; use side handle and lip of the rear cable entry area to lift safely. Follow good lifting practice when doing so.

- Keep fingers, hands, hair and loose clothing well clear of the PL200 when it is operating.

- If the slides contain Hazardous material the user must ensure that Good Laboratory Practice is followed.

- If a slide becomes misaligned do not correct this during the operation cycle. Turn off the mains power before correcting the slide position or removing an obstruction and then reinitialise the system. Be aware that the rotary arm may move unexpectedly when under automatic control.

This warning sign indicates there is a hazardous voltage.

This warning sign indicates that there is a potential hazard – read instructions before continuing

OVERVIEW

SECTION 2

The PL200 forms part of an automated microscopy system which may be used in either research or production laboratories. It will pick up, present, sort and return slides to any of the four preloaded racks positioned at the front.

Please remember that there may be other hazards associated with the system from other components; e.g. the microscope or illumination devices. The PL200 is designed and assessed to have no serious hazards.

The equipment should only ever be used indoors.

The Unit is 600 deep x 700 wide by 710 mm high

With all packaging and accessories the unit weights 57 kg. Without packaging, this is 37 kg. The weight of slides, microscope, &c is not included in these figures.

It has four racks each containing a maximum of 50 slides.

These slides are 75 mm x 25 mm conforming to ISO8037/1. Unless you are specifically advised otherwise DO NOT use this equipment with any other slides before contacting Prior.

The mean slide change time is approximately 25 seconds.

The Input voltage is 100v to 240v

The fuse rating for both fuses is T2A

Communication is via USB.

UNPACKING THE SYSTEM

SECTION 3

3.1 Unpacking and inspection

Carefully unpack the PL200 and retain the packaging should you need to return the unit. If it appears to be damaged, immediately return it in its original packaging. No responsibility for damage arising from the use of non-approved packaging will be accepted. The packaging includes a pallet and user appropriate pallet lifting equipment.

Ensure all items and accessories specified are present. If not contact either your sales outlet or Prior directly.

The system includes

i) A PL200 slide loader
ii) Microscope mounting plate
iii) 50 position slide cassette (x4)
iv) Setting up jigs
v) Microscope fitting kit
vi) A copy of this manual

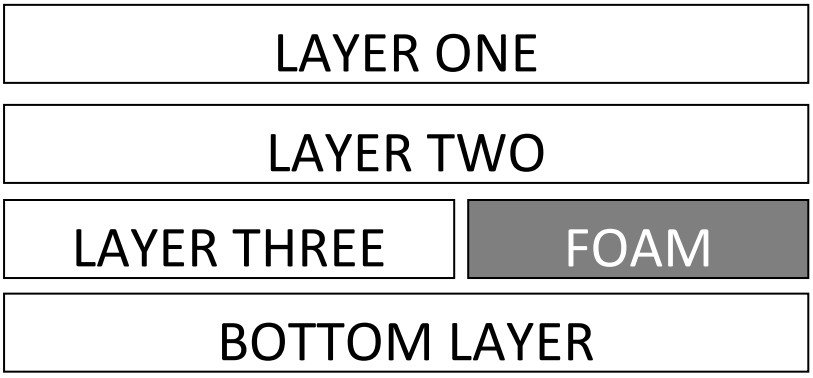
Be careful when transporting the unit.

Lift properly and do not attempt to lift it on your own!

The unit MUST be positioned close to the controlling PC terminal, such that the operator has a clear and unobstructed view of the slide loader. If the slide loader is to be operated remotely, ensure that either the operator can constantly view the loader, and/or that no unauthorised persons have access.

3.2 – Packaging layers

The Unit is packed in a specific manner. Layers 1 & 2 contain a multitude of small objects. Layer 3 consists of the slide loader tower and cover and the bottom consists of the slide loader mount, base and cover.



Layer 1

Slide cartridges (racks) (x4)

1 USB cable (plus screws and PTFE pads)

Quick start sheet

Layer 2

Slide on stage detector

Magnetic block

Sample holder

Microscope clamps (x5)

Actuator block (slide arm catch plate) (x1)

Alignment jig

Layer 3

Slide loader tower (arm and cover assembly)

Bottom layer

Slide loader base assembly.

3.3 Slide loader movement axis identification

Slide loader movement is defined as X,Y,Z. X is the rotational movement of the slide loader. Y is the up and down movement of the gripper arm. Z is the in and out movement of the extension on the gripper arm.

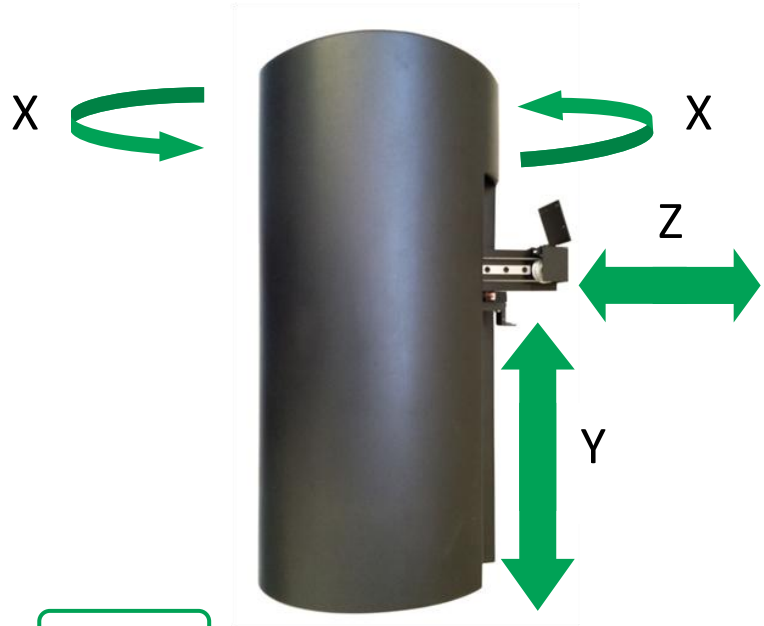


Figure 1

3.4 The Gripper Arm

The gripper arm is shown in Figure 2. Please note the fixed gripper arm is mostly covered and extends into the 'tower'. The detachable gripper arm connects to fixed gripper arm. When examining the gripper arm, it is suggested that you remove the cover in order to better be able to examine and note the positions of the parts.

The barcode reader allows slide information to be read in as the slides are loaded, and allows accurate records of slides and images to be kept. This helps fulfil Good Laboratory Practice. The Barcode reader can also be used to scan the slide cassette in order to ensure random sampling.

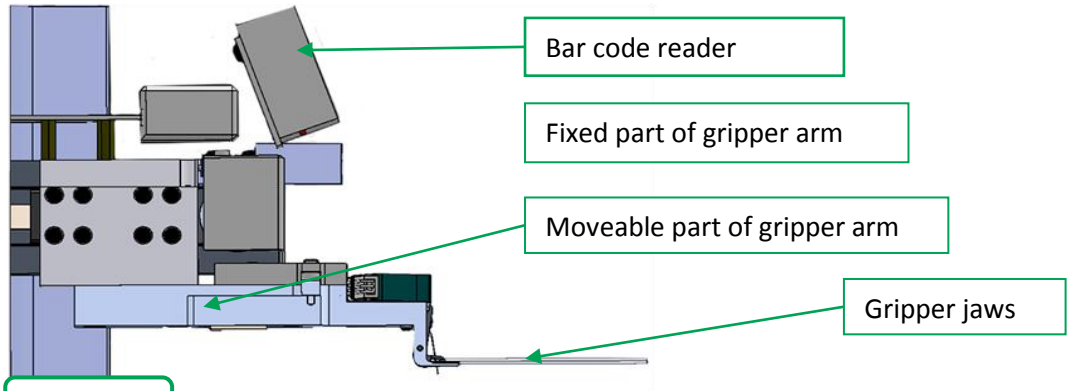


Figure 2

The gripper jaws which grasp the slide must be handled with care.

INSTALLATION

SECTION 4

4.1 – Installation safety

The PL200 requires a bench footprint of 70 cm by 60 cm as well as additional space for the PC. The bench must be level and strong enough to support the weight of the PL200 and microscope. Ensure that once mounted there is sufficient room around the PL200 and any other part of the system to enable reaching mains switch(es) or power outlets easily. Ensure that once mounted there is sufficient room around the system to enable connecting cables to be fitted without trapping or sharp bends. Ensure all cables are routed safely to avoid tripping or entanglement hazards. Ensure that only the specified cables are used for intercommunication of equipment. Ensure all covers are in place before operating the PL200.

4.2 – Installing the microscope.

Carefully position the base and base mount in its final resting place with the Prior logo facing the front as shown in Figure 3. It is also important to note that the switch and leads will need to be readily accessible from the back for later connection and that other Prior equipment will also be present.

Figure 3

Remove the transport screw (ringed in Figure 4) from the base and retain for future transport.

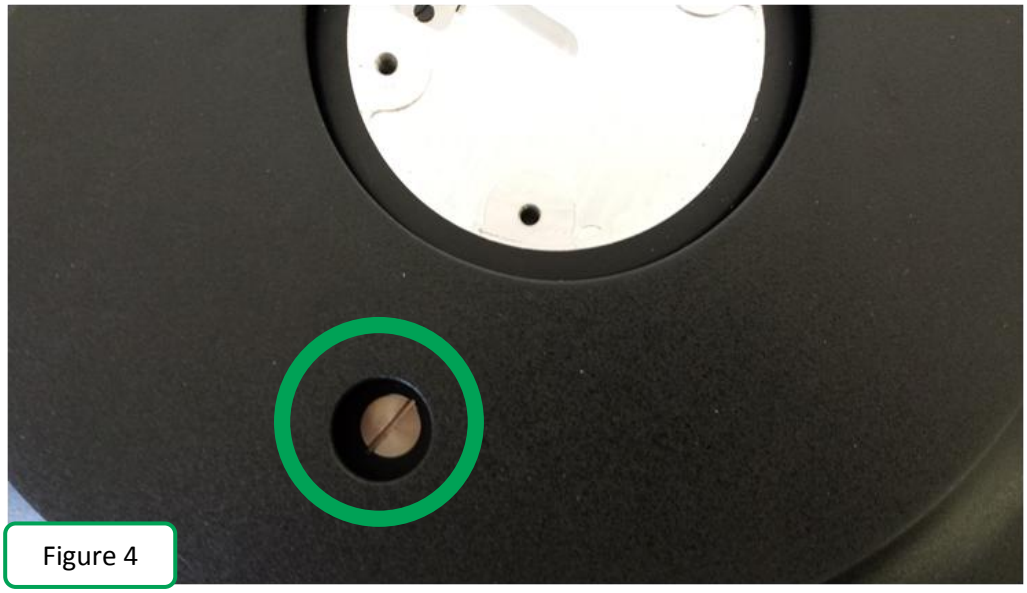


Figure 4

Remove the three screws (ringed in Figure 5) holding the Y axis cover. When doing this, beware that the cover might drop slightly once the final screw is removed. There, we suggest laying the Y axis cover horizontally on a flat surface. Slacken all the screws first, and then remove two of them. At this point, stand the cover back up in the vertical position, and ensure the cover is held or secured in some way before the final screw is removed.

Figure 5

Ensure that both the base of the Y arm and the adjoining face on the base are free from debris (Figure 6). Align the D connector on tower flange with the D connector on the base (Figure 7). Insert the screw (into the ringed socket). Once in place ensure that the bottom of the arm is level with the sides of the slide loader before tightening.

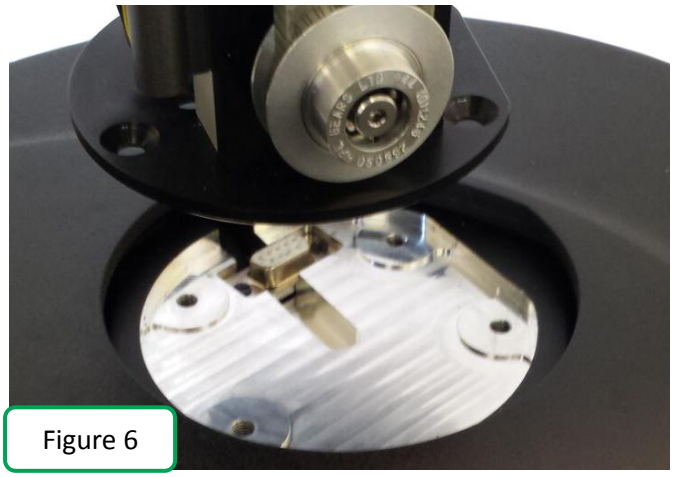


Figure 6

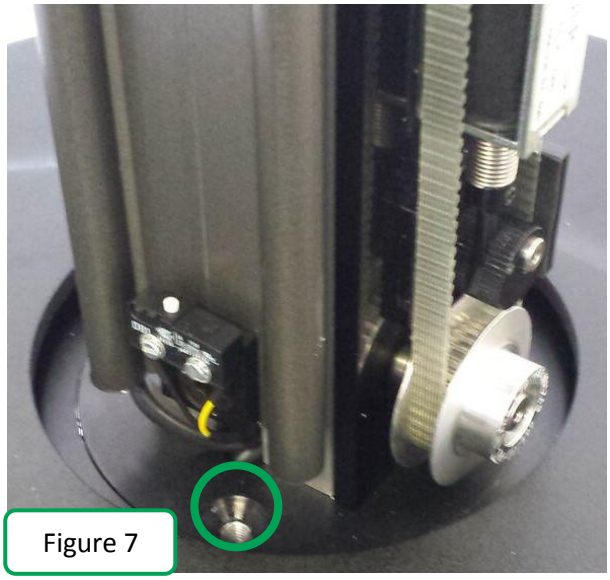


Figure 7

Remove the red locking arm (ringed in Figure 8).

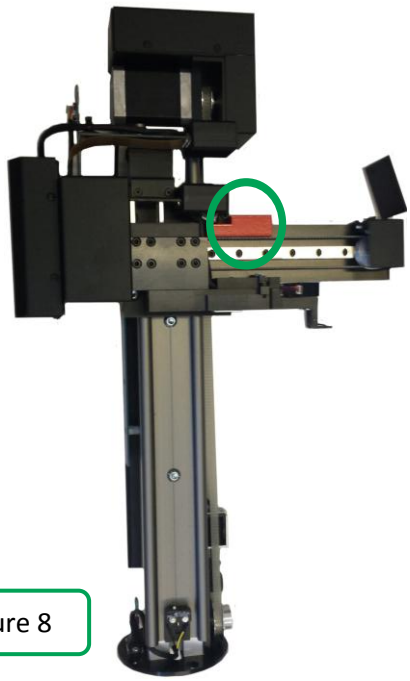


Figure 8

If you have ordered a slide loader with a bar code reader it will be fitted prior to shipment. If you have ordered it after the loader has already been installed, assembly will be covered in Section 6.

Replace the Y axis cover with the three screws provided.

Add the small PTFE pads to the feet of the microscope; this will allow the adjustment of the microscope position during set up.

4.3 Slide Preparation

To prepare the stage for slide loader operation the sample holder must first be attached to the stage. You may have to adjust the grub screws (ringed in Figure 9) to level the insert; these can be found next to the screws. It is not advisable to add the stage to the microscope until all the stage components are fitted.

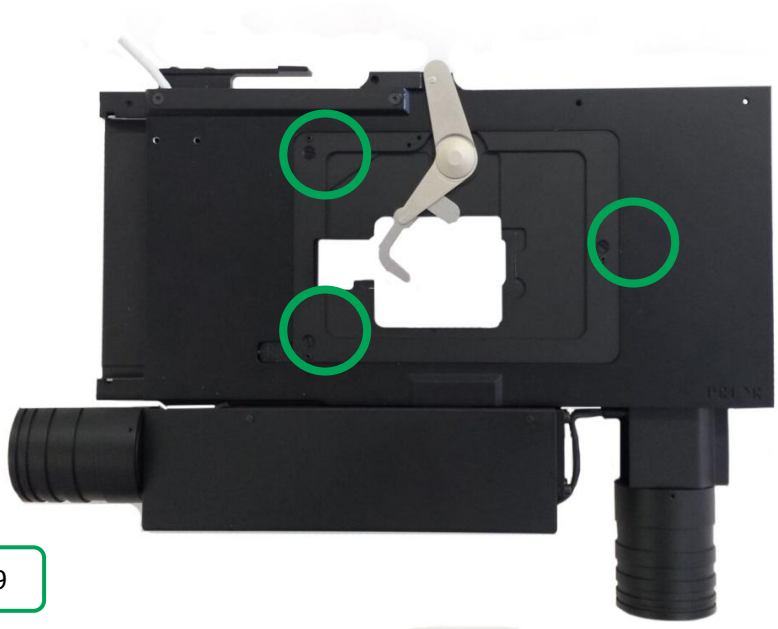


Figure 9

Attach the magnet block (figure 10) to the stage, pushed as far back as possible leaving the screws slightly loose for later adjustment.

Manually move the slide loader arm in a clockwise direction, away from the microscope. Install the stage onto the microscope using the model specific stage installation procedure.

Figure 10

4.4 Removing an existing stage

When removing an existing stage, avoid damage to the optics by moving it as far away from the objectives and condenser as possible. Removal of the stage is normally a straightforward procedure; in most cases it can be done just by the removal of fixing screws or the loosening of a clamp screw

4.5 Fitting the ProScan Stage and connecting to the controller

The Prior ProScan stage is supplied with the correct base plate to suit the microscope specified. Place the stage onto the microscope stage mount and attach using the fixing screws or clamping screw supplied. Confirm that the ProScan controller unit is switched off before connecting the stage to the controller with the cable provided.

The cable connections to the ProScan controller are located on the rear panel of the control box. Each connection is well labelled but before making any of these connections ensure that the ProScan controller is switched off. The RS232 connection from your computer should be made to the RS232-1 port on the controller.

Please see the ProScan III manual for details of how to control the controller via your computer and installing Prior software upon your computer.

4.6 Connecting the Slide loader

Ensure the system is switched off.

Connect the power connection with the supplied cables (Figure 11).

Connect the stage cable to the loader and to the magnetic block on the stage. Connect the USB cable to the loader and computer.

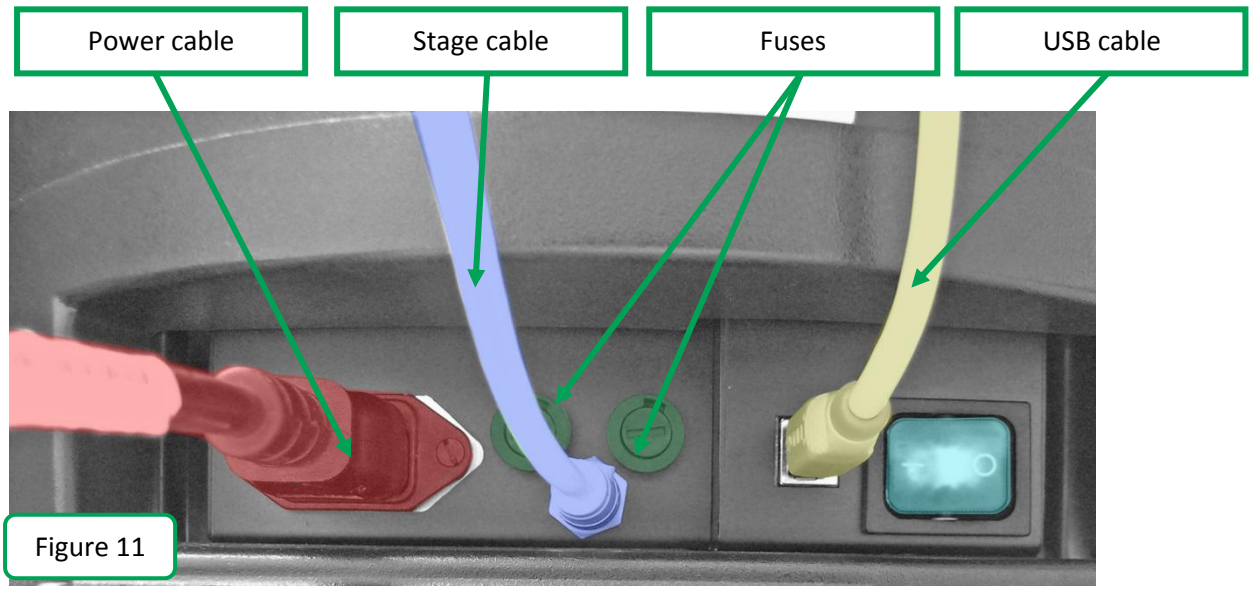


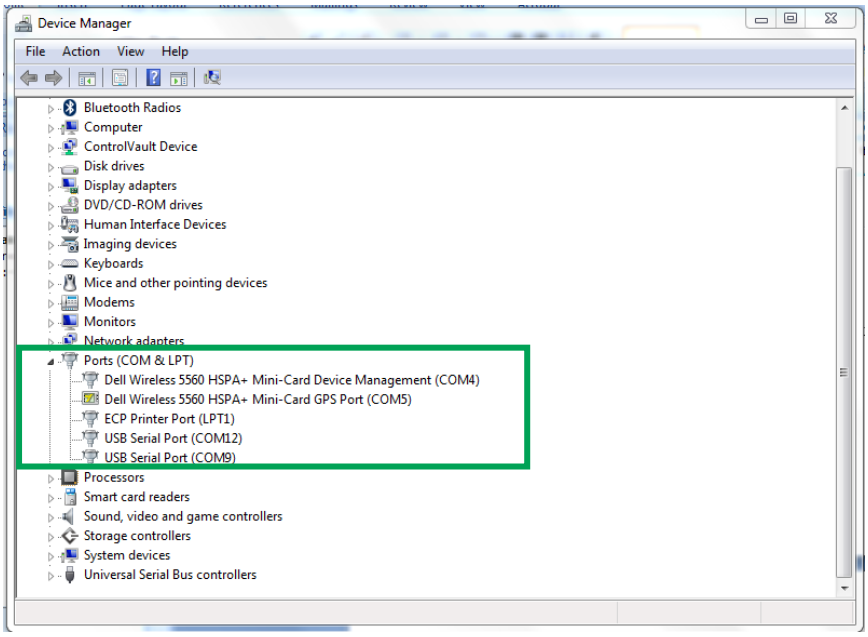
Figure 11

4.7 Setting up the Prior Communications Software

You must ensure that the software for controlling the slide loader is installed on your computer. It is contained in the same software download as the other Prior Software – for further advice, see our Installation Guide 'Installing and Using Prior Software'. This can be found at www.prior.com at http://www.prior-scientific.co.uk//files/Using%20Prior%20Software%20with%20Prior%20Products.pdfn.
If you are setting up the loader for the first time, plug in the USB and power on the slide loader. (The below guide is for Windows 7 only; for other versions of Windows please consult Prior Scientific).

4.8 Installing the Prior Demonstration and Setup Software

Install the Prior applications from the SDK download from www.prior.com. Ensure that you have connected both the slide loader and ProScan controller and that the correct Communications Port (COM) has been identified.

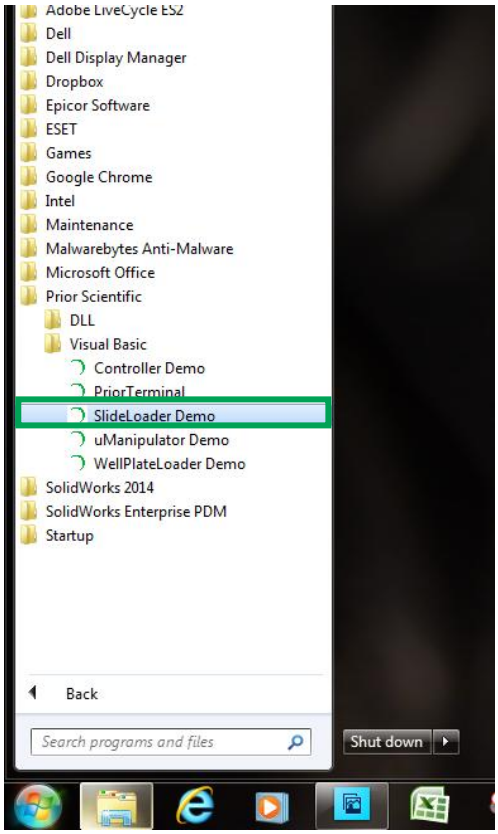


Com ports can be identified by entering the Windows Device Manager. The slide loader will be connected via a conventional Com Port; whilst the Prior controller might be found under either a

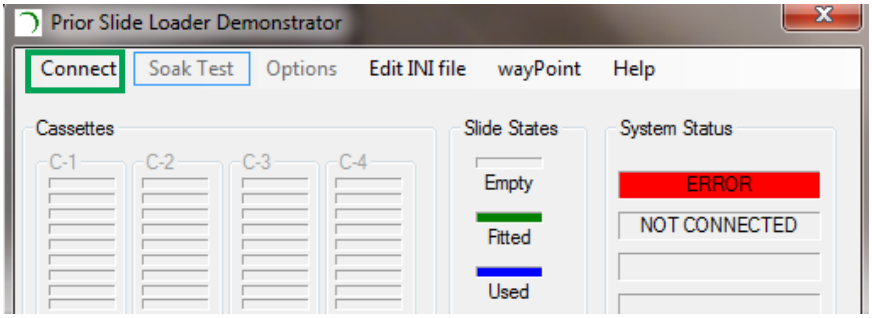
Conventional Com Port or a Virtual Com Port. Instructions for the ProScan are found in the ProScan manual.

Note down the port numbers for both the loader and controller.

Run ‘Slide loader demo’, which can be found at Start>All Programs>Prior Scientific>Visual Basic>Slide loader demo.

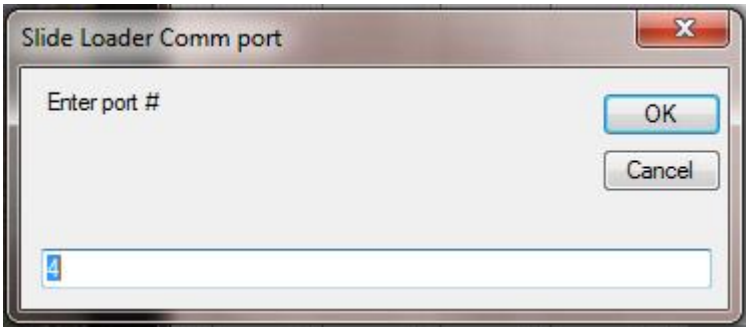


Select connect from the menu.

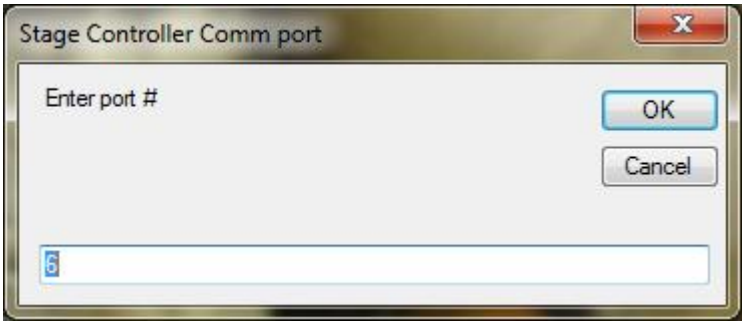


Enter the slide loader com port.

Press OK.



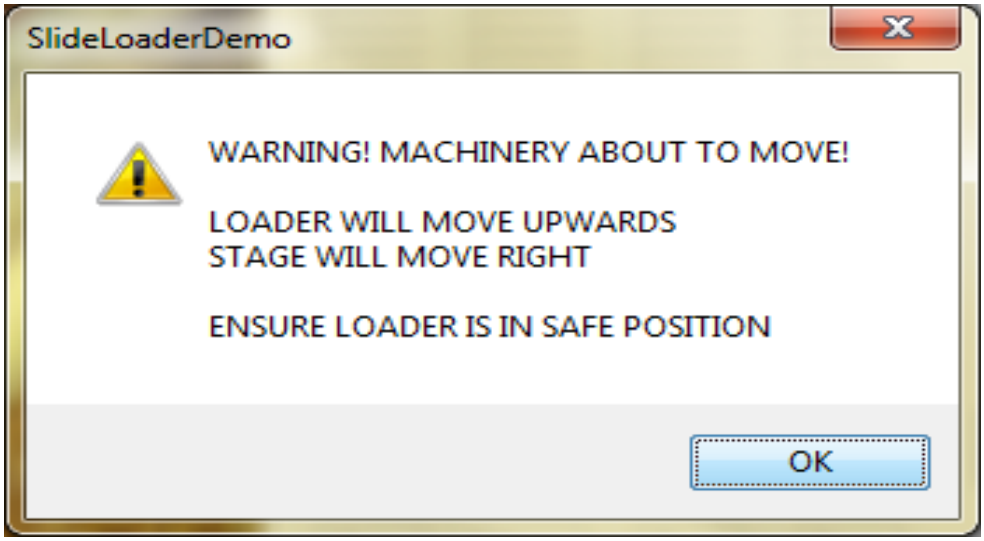
Enter the ProScan controller com port.



Press OK.

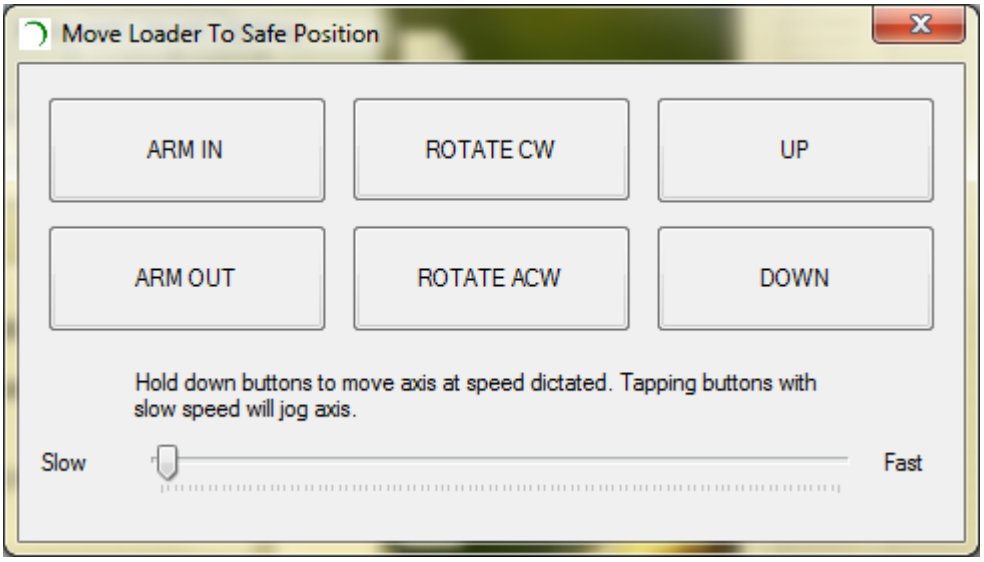
The slide loader will now initialise follow the instruction in the dialog boxes.

Ensure the arm of the slide loader can be retracted and raised safely and that the arm may be rotated. Pay particular attention to any obstructions. Remove any cassettes on the slide loader or any slides in the gripper on the arm. A message will appear warning that the arm will move.



Click 'OK'.

A new dialog box appears to allow you to move the arm to a safe position. If you need to move the arm use the controls in the dialog box. Check that the arm is in a safe location and is free from obstructions then close the dialog box.



The slide loader will now initialise. Wait until the arm has stopped and the arm is positioned at the first cassette. The PI200 is now initialised and ready to align with the microscope.

4.9 Overview of PL200 Alignment Procedure

To successfully align the PL200 slide loader an alignment jig is provided. This comes in two parts, A and B (see Figure 12 below)

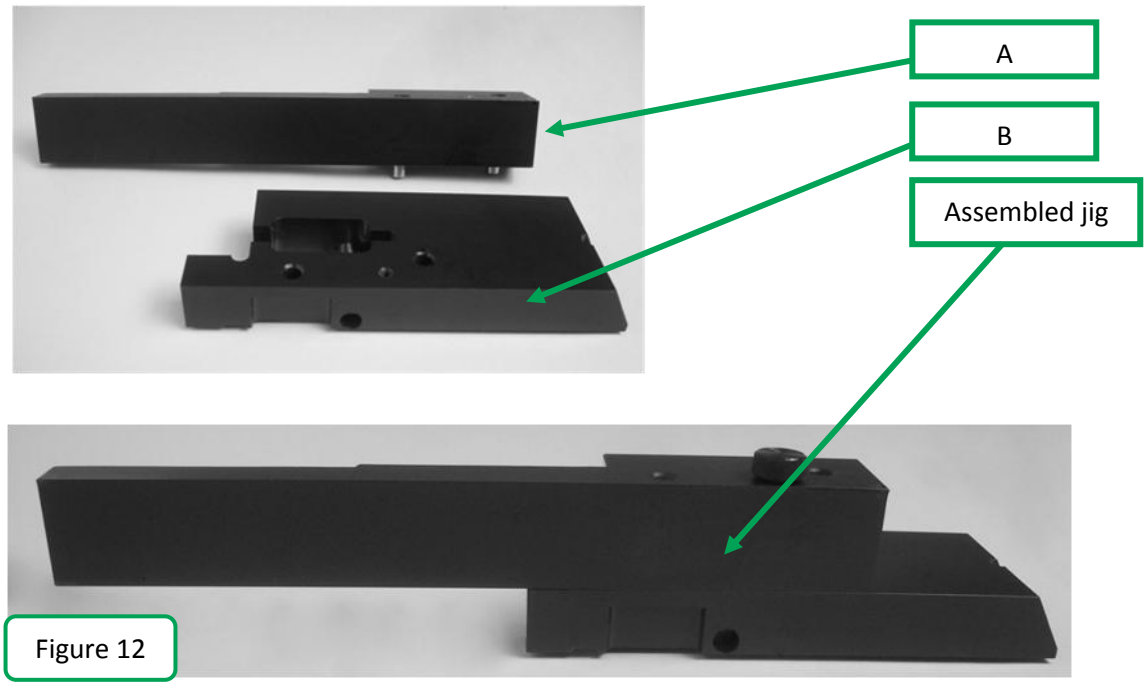


Figure 12

Part B only is used during cassette alignment and during the final alignment of the gripper with the stage. The entire jig is only used once, during the procedure for ensuring that the arm of the PL200 is parallel to the microscope.

The alignment procedure consists of two distinct stages.

Stage One is aligning the gripper with the cassettes as shown in Figure 13 and 14. This ensures that the gripper arm can remove and return slides to the slide cassettes..

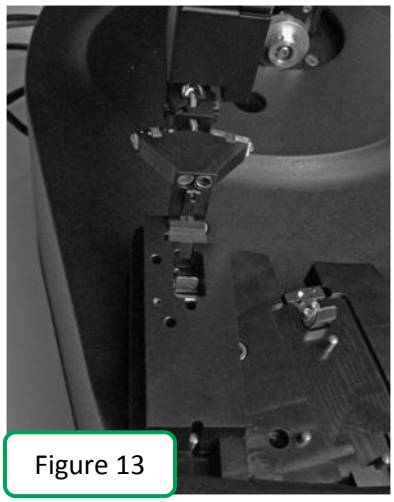


Figure 13

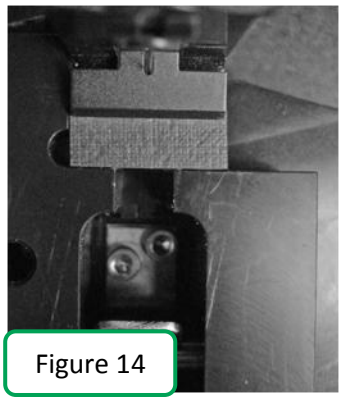


Figure 14

Stage two, aligns the PL200 to the microscope stage. There are three distinct parts to this alignment stage two; part one ensures that the distance between the microscope stage and the slide loader is correct (Figure 15), part 2 ensures the PL200 gripper arm is parallel to the microscope stage (Figure 16) and part 3 sets the correct height of the gripper arm required for placing and removing the slide from the microscope stage (Figure 17).

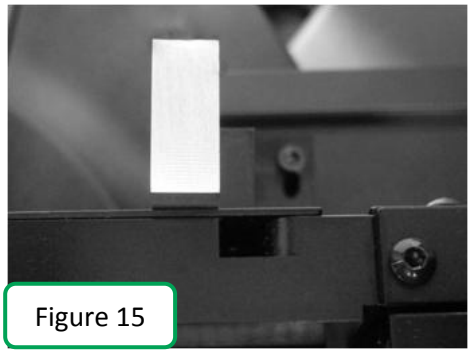


Figure 15

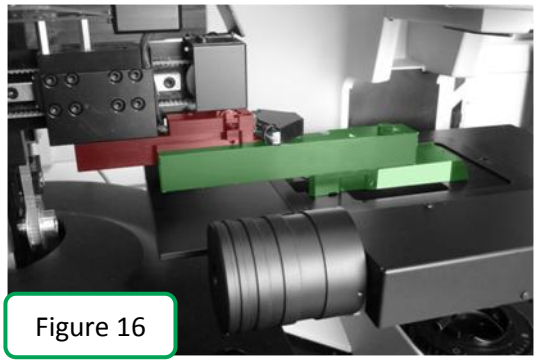


Figure 16

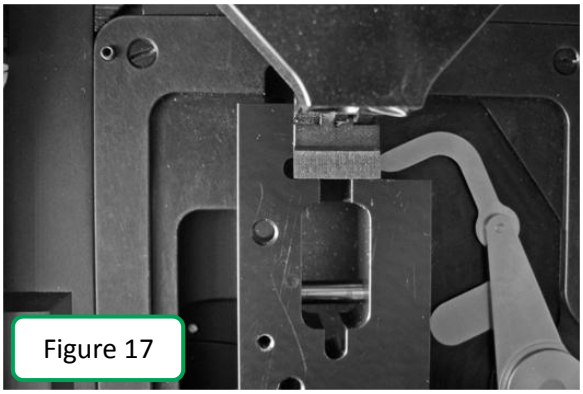


Figure 17

4.10 Aligning the Slide Cassettes

The purpose of this procedure is to ensure that the gripper arm is correctly calibrated and will position itself such that it will be able to place and receive slides accurately.

4.10.1 Set up jig position

Fit the bottom part of alignment jig to the slide cassette position on the PI200 highlighted in red. Place the jig such that the sloping edge is facing towards you, against the protruding pin, and then push down to secure it in place (Figure 18).

Figure 18

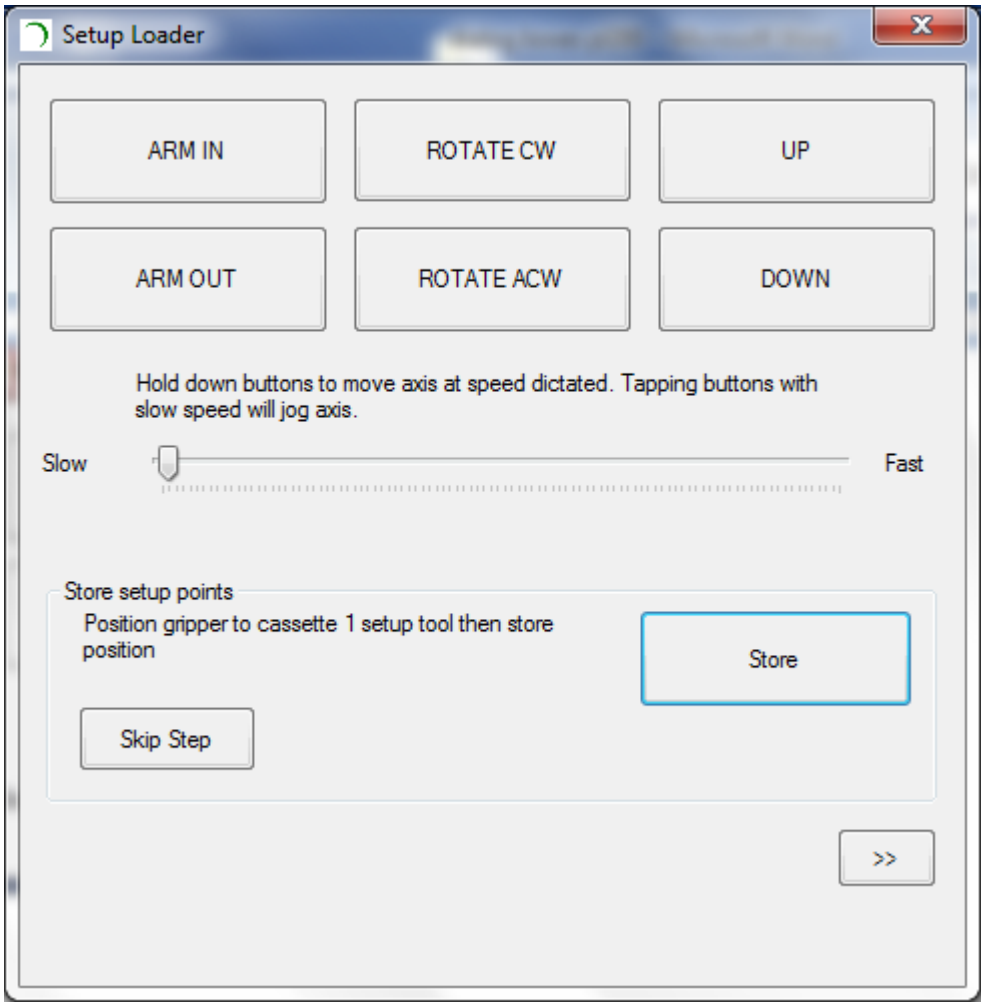
4.10.2 Cassette alignment.

The jig should snap into place and be sitting flat on the cassette mounting plate. Check it is secure; if not tighten the ball ended screw and lock with locking nut. Check all four cartridge positions before returning the setup jig to position I.

The software application will lead you through a series of windows for the alignment procedure.

Each window will have a control panel for you to operate the slide loader arm. The slide loader speed can be adjusted by using the on-screen slider. Care should be taken to ensure the loader is moved at an appropriate speed.

Place the lower portion of the set up jig firmly in place and move the gripper arm so that the lower jaw of the gripper is flush with the jig, as indicated in Figures 19 and 20.



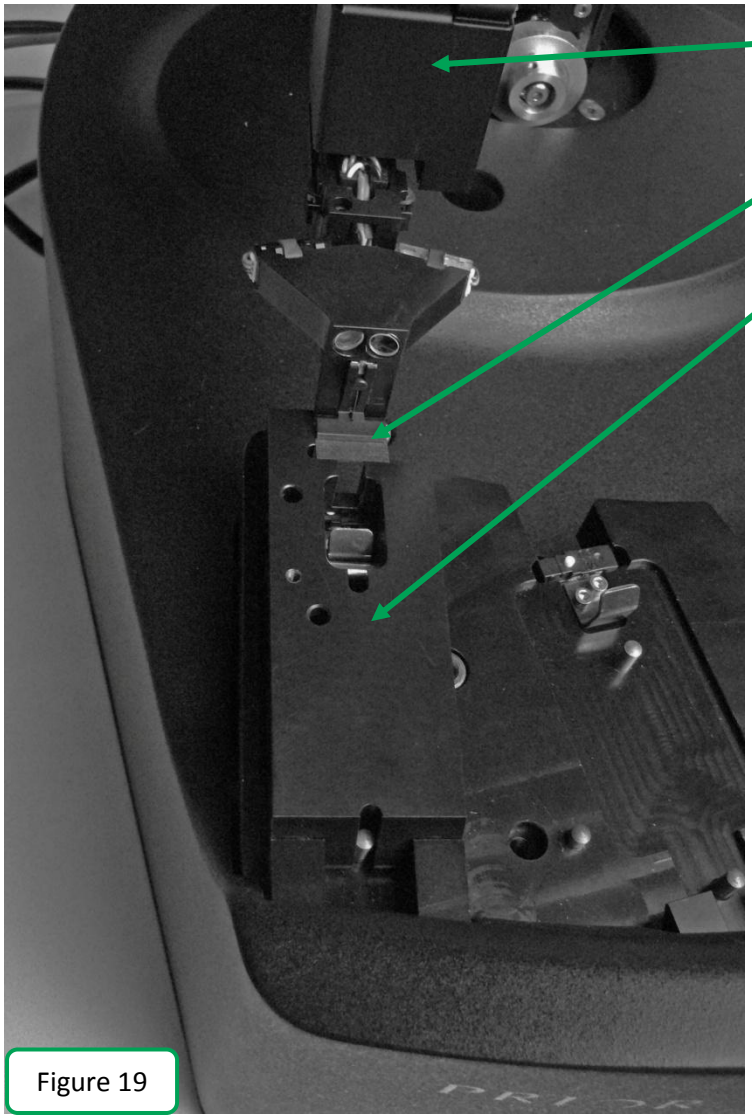


Figure 19

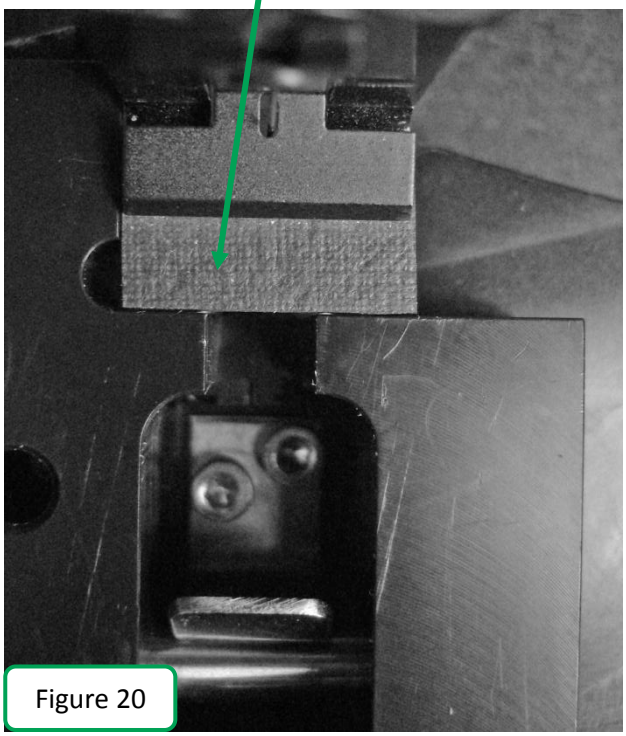
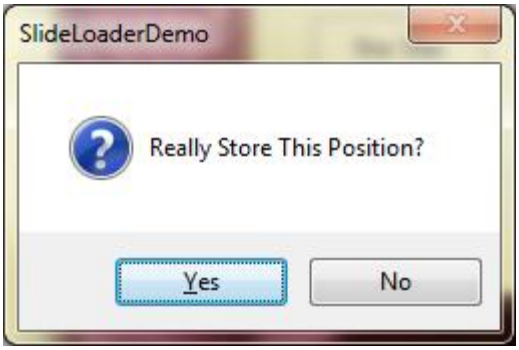


Figure 20

The alignment here is very important; ensure the gripper jaw is not pushing against the set up jig. Store the cassette position when you are confident the alignment is correct.



The software will store the position and move onto the next cassette position. Repeat the above procedure until all four cassettes have been aligned with the gripper.

The slide loader will now move so that the gripper arm points to the microscope.

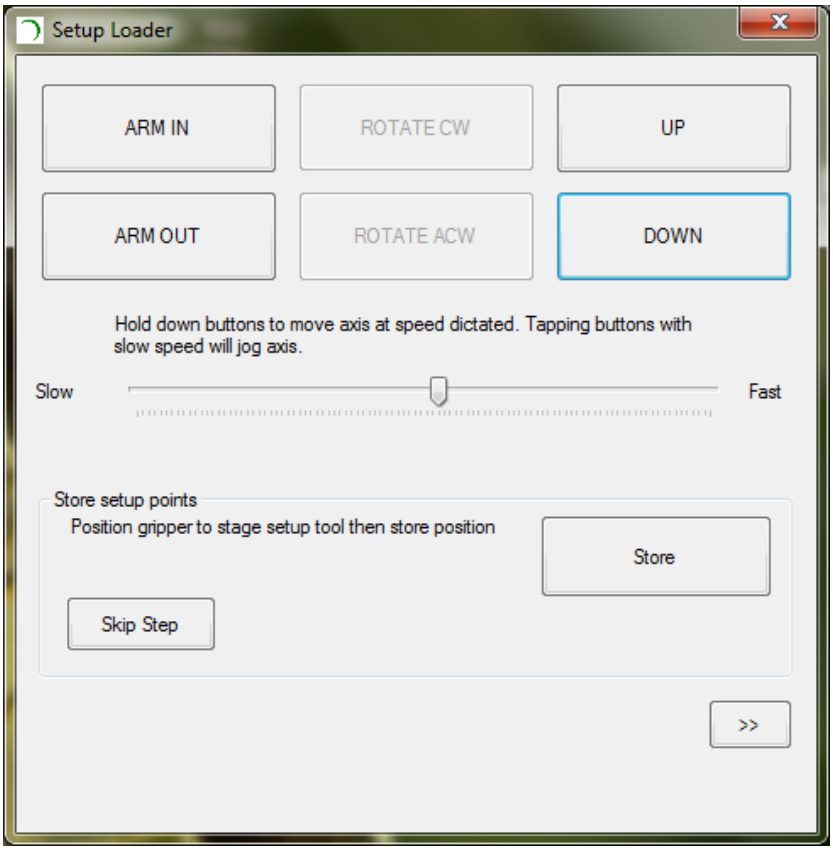
4.11 Aligning the PL200 with the microscope

Move the Stage to the load position; back and left limits, using the joystick. Drive the stage to the back and to the left, using the joystick, on to the limit switches to reach the load position; ensure that the stage cannot hit anything during this process.

It is advisable to remove the objectives before starting the rest of this process. Ensure the stage is at the uppermost focus position. ONLY MOVE THE MICROSCOPE, not the gripper arm. Failure to follow these instructions could lead to expensive damage.

4.11.1 Align the sensor located on the gripper arm to the magnet on the magnetic block.

The aim of this procedure is to make sure the gripper arm is the correct distance and the hall-effect sensor on the gripper arm is aligned with the magnet in the magnet block. In order to make this task easier, you may find it convenient to raise or lower the arm in order to check whether the distance is correct.



The hall-effect sensor on the gripper arm must be aligned with the magnetic block on the stage.To aid in this alignment, a silver block (shown in Figure 21) is available which simply slots into the magnetic block (as shown in Figure 22).

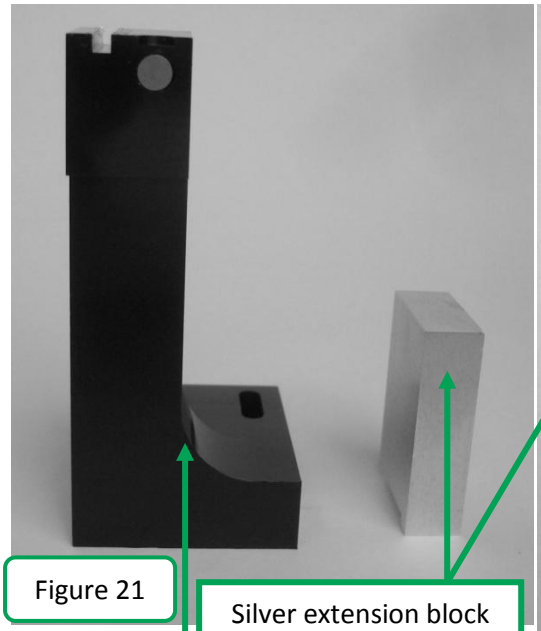


Figure 21

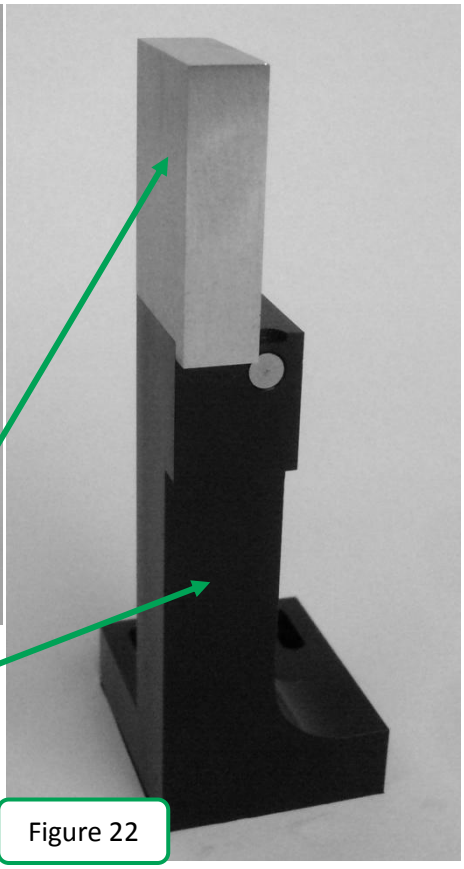


Figure 22

The slot in the gripper arm and the silver extension block are the reference points for the gripper arm and magnetic block respectively. The edge of the slot and the silver extension block should align, as shown in Figures 23 and 23. This procedure sets the distance between the gripper and stage, and also ensures that the distance between the sensors on the gripper arm and magnetic block is appropriate (approximately 3 mm).

At this point **DO NOT** press 'store position'.

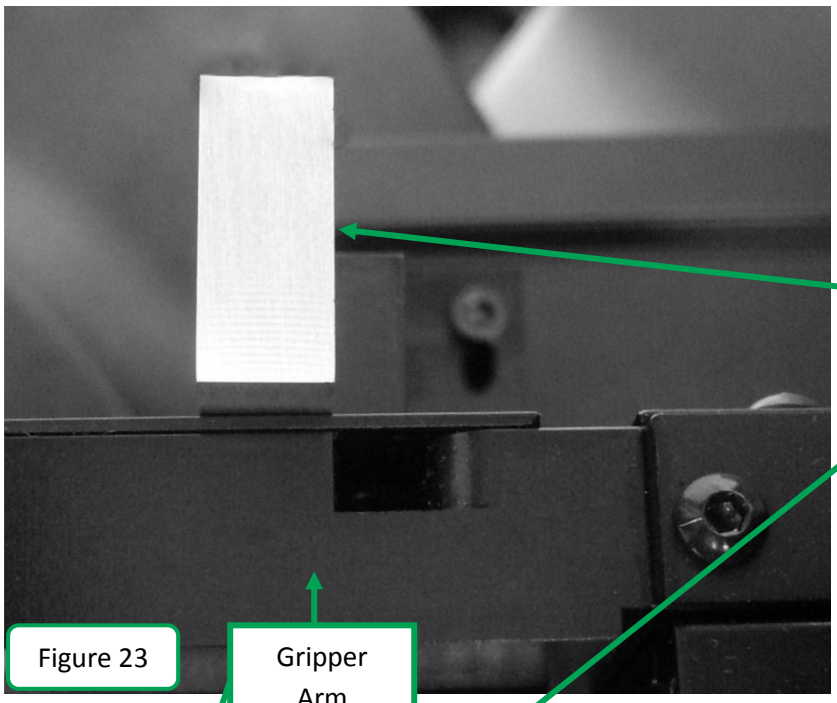


Figure 23

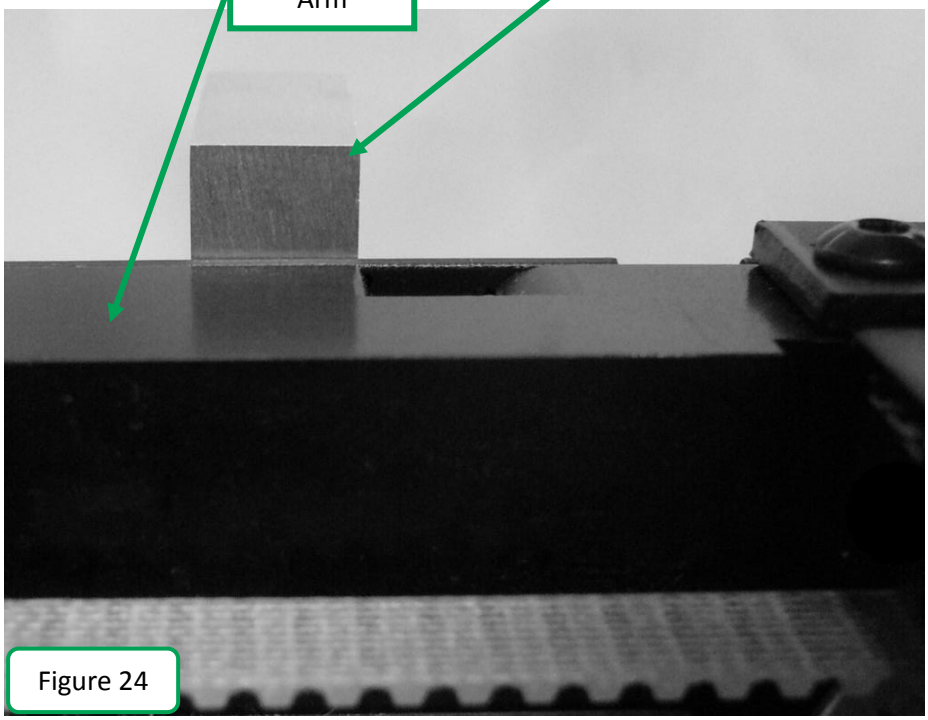


Figure 24

4.11.2 Ensure PL200 is parallel to microscope

After the distance has been set, we must ensure that the microscope and slide loader are in the correct orientation. To do this, we ensure that the gripper arm is flush with the alignment jig.

Assemble the alignment jig and position it in the slide position on the stage.

MOVE THE MICROSCOPE so that the alignment jig (green) is parallel and against the arm (red), as shown in Figure 26. Take care to ensure the alignment jig is correctly located in the sample holder. Do this by pulling the jig forwards and to the right (away from the loader). You may find it can be knocked away and moved, so continually check that this is located in the correct position during the following procedure.

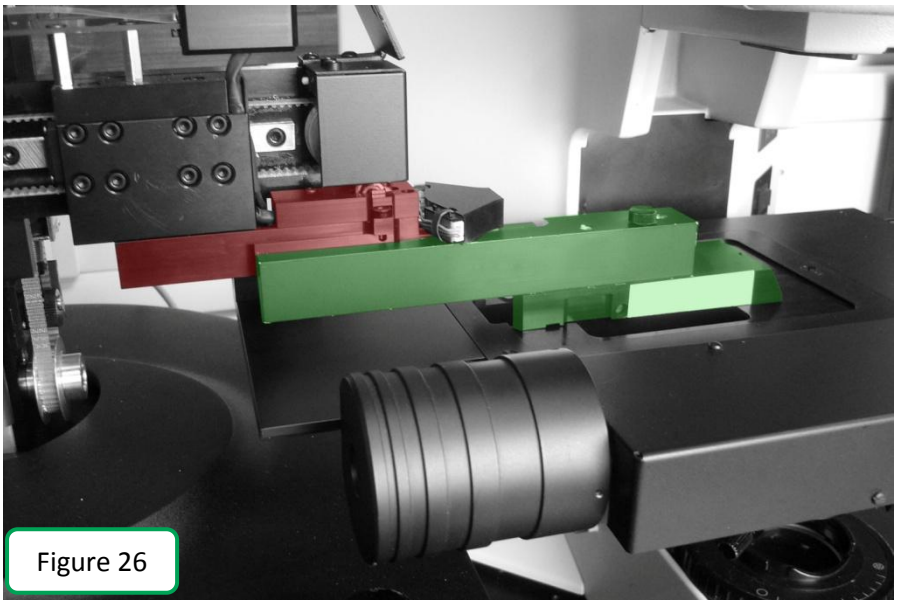


Figure 26

You have now aligned the microscope to the PL200, the distance is correct, i.e. sensor on the gripper arm is in line with the magnetic on the stage and the microscope is now parallel to the PL200.

You now must lock the magnet block to the stage by tightening the two cap screws at the base of the sensor. The silver extension block should be touching the gripper arm, ensuring that the sensors on the gripper and the magnetic block are the optimal distance (3 mm) apart.

4.11.3 Keeping microscope in position

To secure the microscope place the microscope locking blocks in position and gently rests on the rubber pads to hold the microscope in position as shown in Figure 27. The microscope should not be moved after this point.

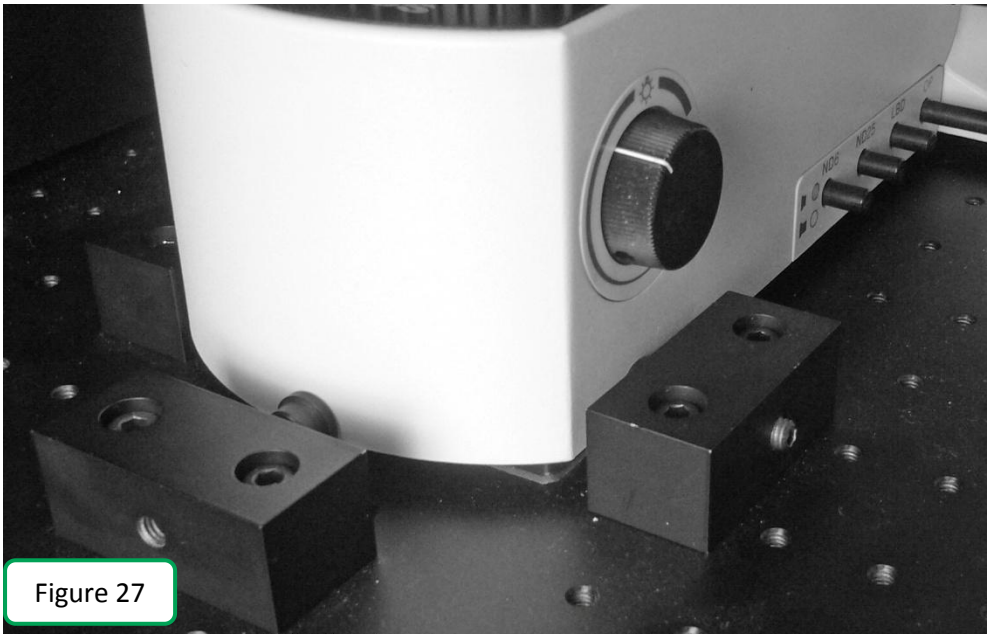


Figure 27

4.11.4 Aligning the PL200 to the stage

The purpose of this procedure is to ensure that the slide loader is calibrated to precisely place the slide on the stage. We already know that the distance from the slide loader to the microscope is correct; and that the loader arm will be parallel to the stage.

To align the gripper to the stage, remove the top section of the setup jig and replace the bottom section of the jig into the sample holder as shown in Figure 29. Fit the alignment jig to the stage sample holder by locating the 3 x 1 slide shaped protraction on the bottom of the alignment jig into the front right hand side corner of the slide holder. Be aware that during this process, it is easy to knock it loose, so ensure it remains in position throughout the alignment. (Note that in Figure 29 objectives are on the microscope; it is recommended to remove objectives during this process).

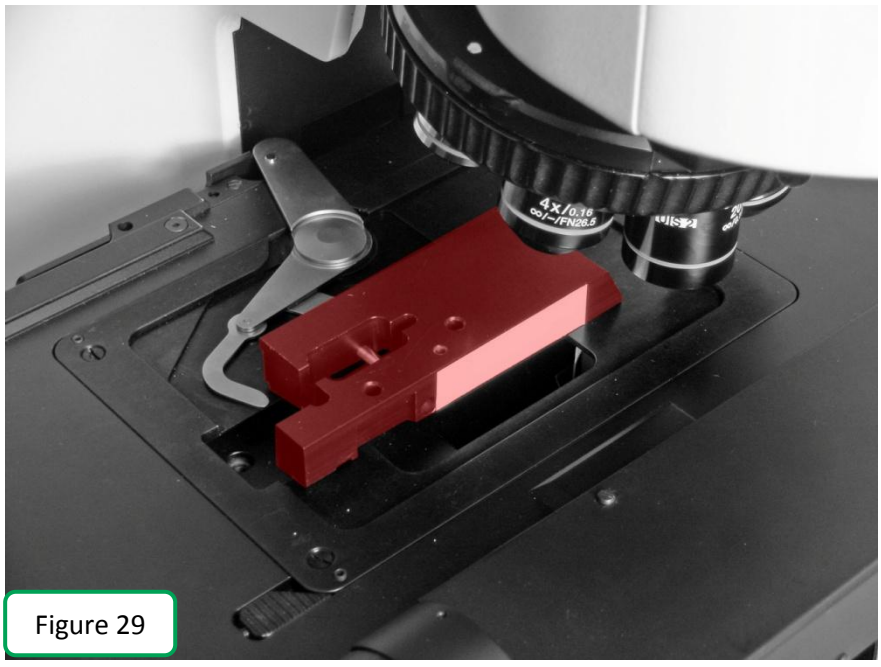


Figure 29

Move the gripper so that is flush with the jig. During the following procedure you are not able to rotate the arm. You can simply move up or down, or in and out.

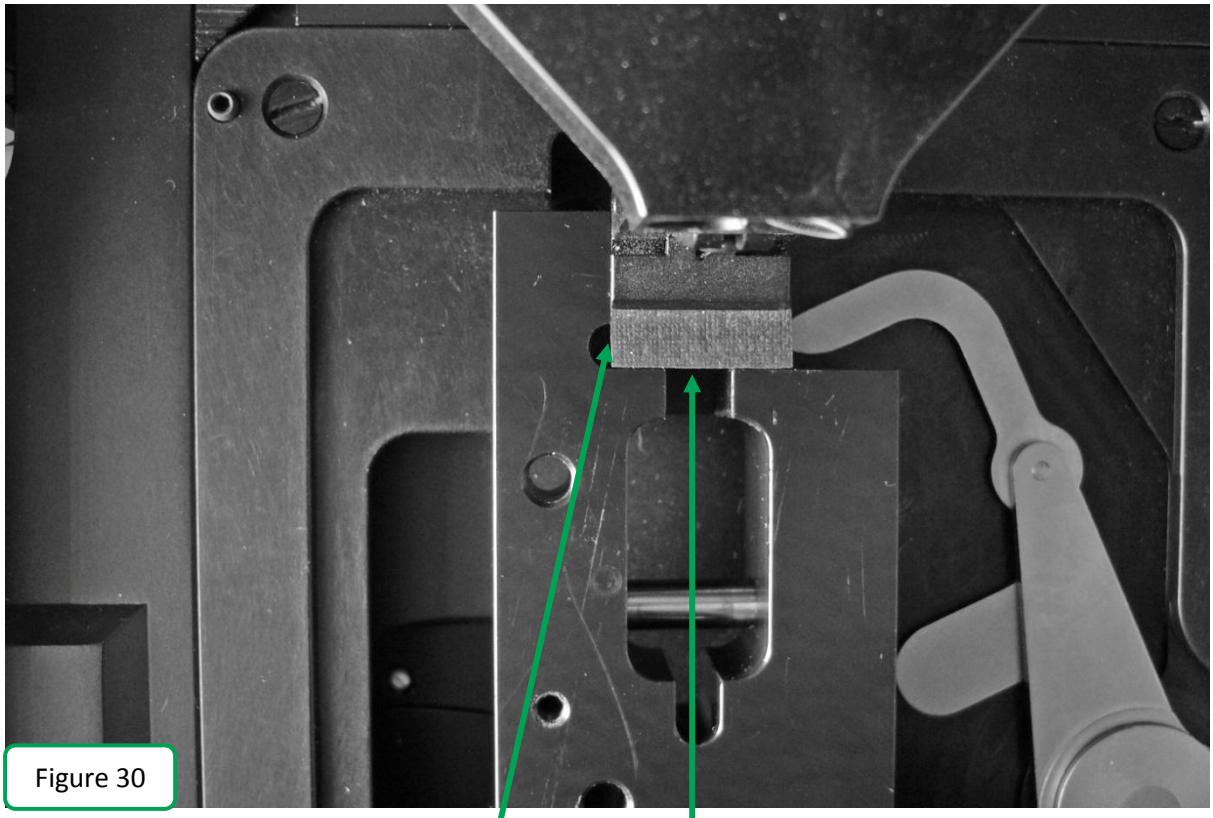
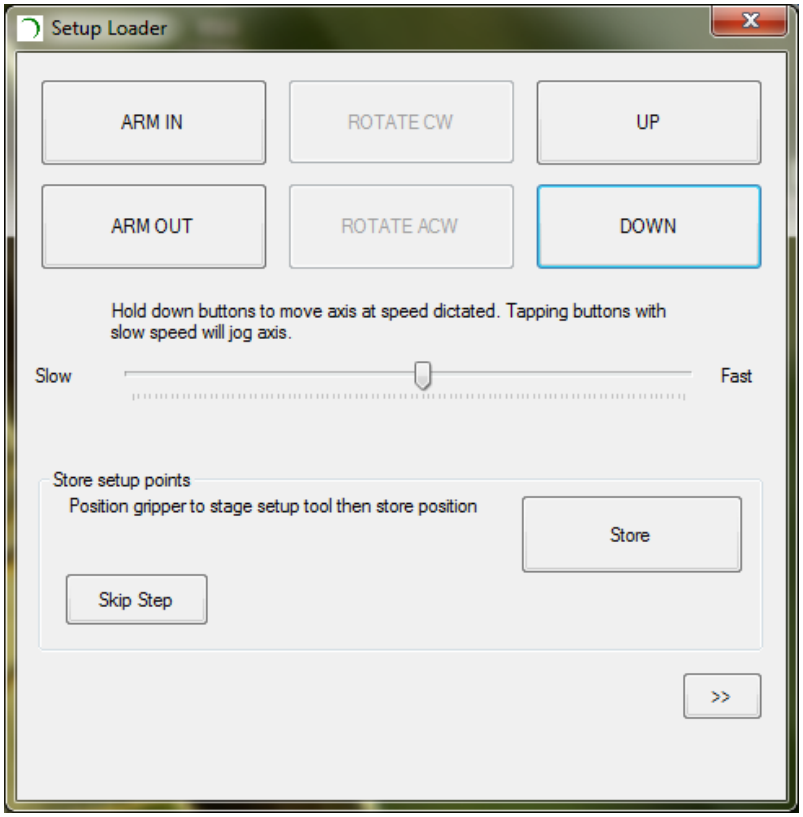


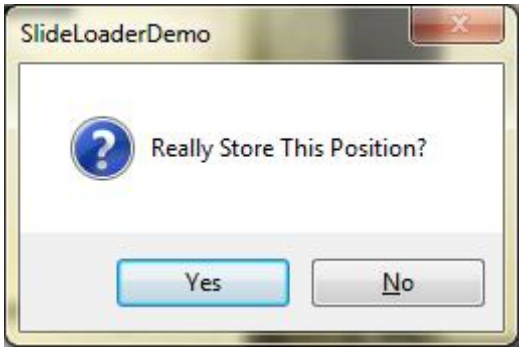
Figure 30

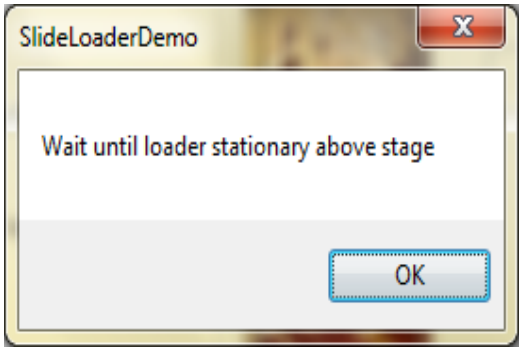
The top of the bottom jaw of the gripper should be level with the top of the alignment jig. This can be seen in Figure 30.

Click ‘Store this position’ and then click ‘Yes I am sure’, Click ‘OK’ on the subsequent dialogue box when the stage has stopped moving.

Remove the alignment jig. The slide loader is now ready to test.







4.12 – The Demonstration Software and getting started!

It is highly advisable to have a 'test' run; both for practice and to ensure your PL200 is aligned correctly and all the components work well together.

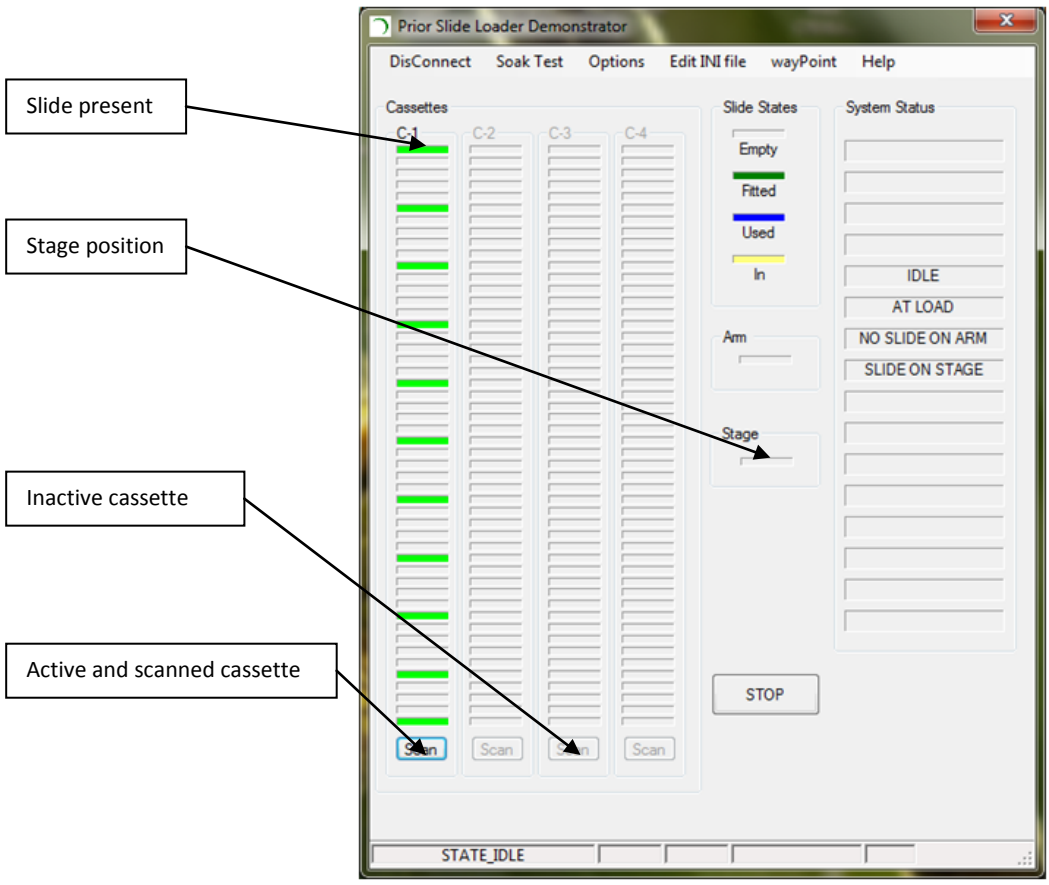
Place a number of blank slides in one or more cassettes and place them on any of the positions. Ensure that each of the cassettes sits firmly in its location; if not adjust the locking nut and ball headed screw.

Once the cassette is correctly loaded the Scan button will be highlighted in the program. Press Scan to search the cassette for slides, which will appear as green lines in the program.

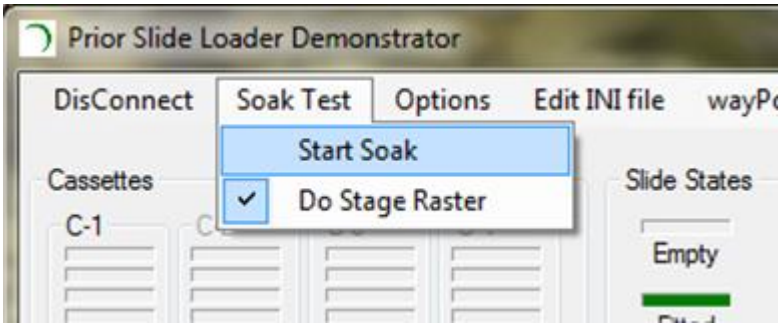
To move a single slide from the loader to the stage, ensure the stage is in load position. Click on the slide and then click on the stage position. The loader will load the slide onto the stage. Ensure the slide is in the correct position. If not, ensure the aligning process was done correctly, repeat if needed and consult the 'Troubleshooting' section of this manual.

Move to stage to the centre of its travel range; and note that the silver arm pushes the slide into the sample holder. If this does not happen consult troubleshooting.

To move a single slide from the stage to the loader ensure the stage has returned to the load position. Click on the stage position and then click on a cassette position. The loader will now remove the slide from the stage and return it to the allotted position in the chosen cassette. Repeat for every fifth position in the cassette.

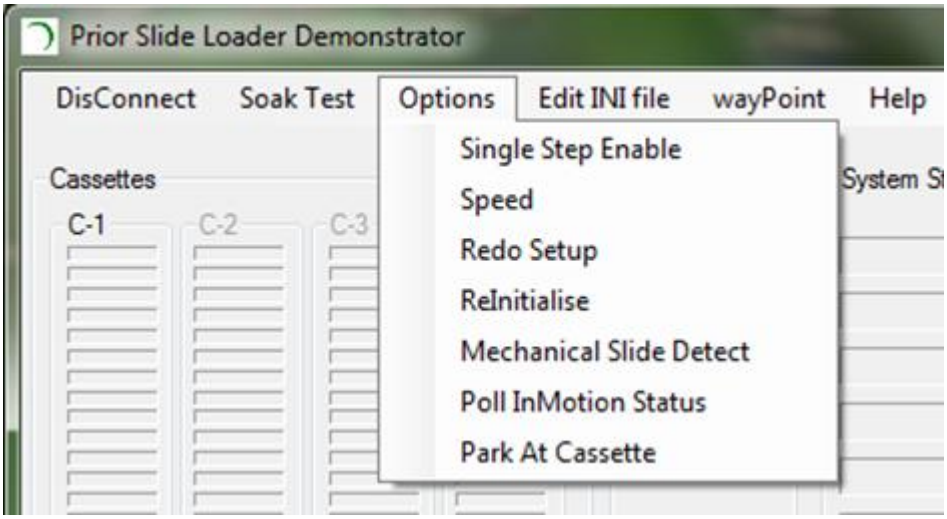


Repeat above, for each cassette position. To confirm the reliability of your setup now run a soak test; which will sequentially load and unload all of the slides placed in the attached cassettes. Choose the soak test with stage movement.



Your slide loader is now ready to use.

Should the slides not load correctly a complete realignment is needed. Select 'Redo Setup' from the Options menu on the setup program.



4.13 Integration into Third Party Software

The software required to integrate the PL200 is included in the software development kit, which can be downloaded from www.prior.com.

Please consult the third party software manual or provider for more detailed instructions on incorporating the slide loader into your system.

ROUTINE MAINTENANCE

SECTION 5

5.1 Important Basic Information.

Clean with a clean and slightly damp cloth. Do not wet, or allow moisture to penetrate, the unit.

Do not use solvents on the slide loader as these may stain or damage the plastic covers. To ensure correct slide handling it is important that the interface between the slide racks and the slide rack mounting face is kept clean and free of debris. Remove any dust and debris carefully using a brush.

If the slide racks should become soiled with slide mounting media they can be cleaned using your laboratory's standard cleaning procedure.

The PL200 only contains primary circuits with EMC filters. If PAT testing apply DC flash tests only. Avoid repeated application of such tests as this may damage insulation.

This equipment contains no user-serviceable parts. Refer all repairs to qualified service personnel. Opening the product voids the warranty.

5.2 Oil and Residue Removal

Rinse the slide racks in your laboratories designated cleaning solvent to remove oil and residue. Refer to your health and safety procedures on using this solvent.

TROUBLESHOOTING

SECTION 6

6.1 Removal & Replacement of Gripper Arm

The whole gripper arm assembly MUST be replaced even if there is only minimal damage to an area. Firstly, the Y axis cover must be removed.

Remove the lower cap by sliding the cover (red) forward as shown in Figure 31.

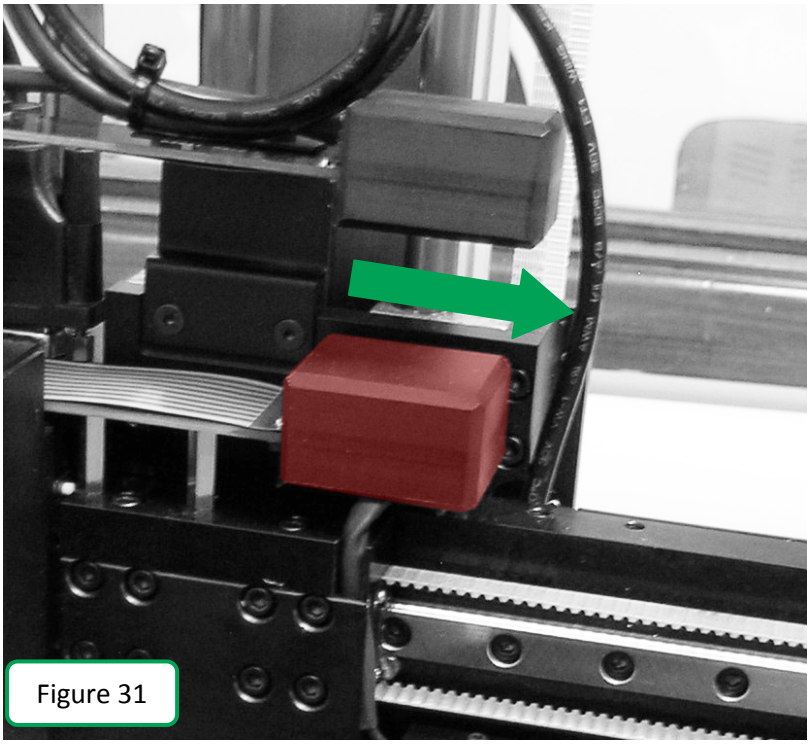


Figure 31

Disconnect the cable holder by pressing down until it clicks as indicated in Figure 32.

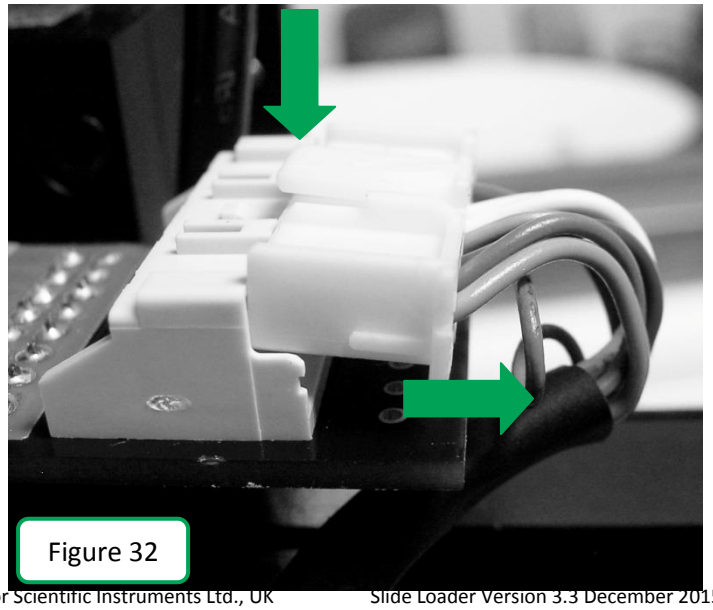


Figure 32

Undo the screws on the top bracket, circled in Figure 33.

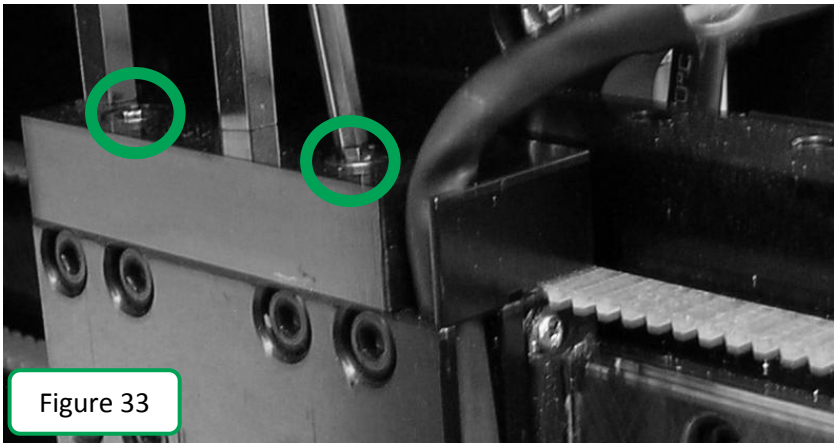


Figure 33

Move the cable out of the slot so that is stands free of the white connector. Then, undo the screws underneath the bracket.

CAUTION: SUPPORT THE GRIPPER ARM AND ENSURE THAT NO SCREWS GET LOST OR FALL INTO THE BASE UNIT.

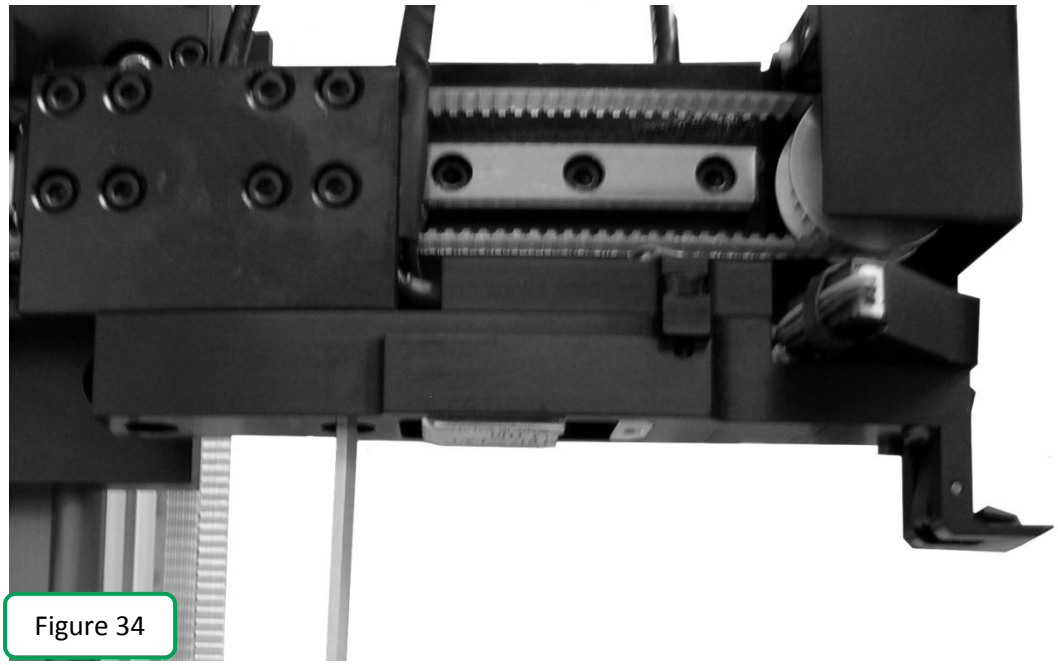


Figure 34

Remove the gripper arm carefully, and then replace it by inverting the above procedure. Ensure that the lower cap is properly fitted by moving the arm forwards – if a click is heard then the cap has been fitted correctly.

Fitting a barcode reader

Remove the Y axis cover and loosen the gripper arm cover by loosening the screws (circled in green.)

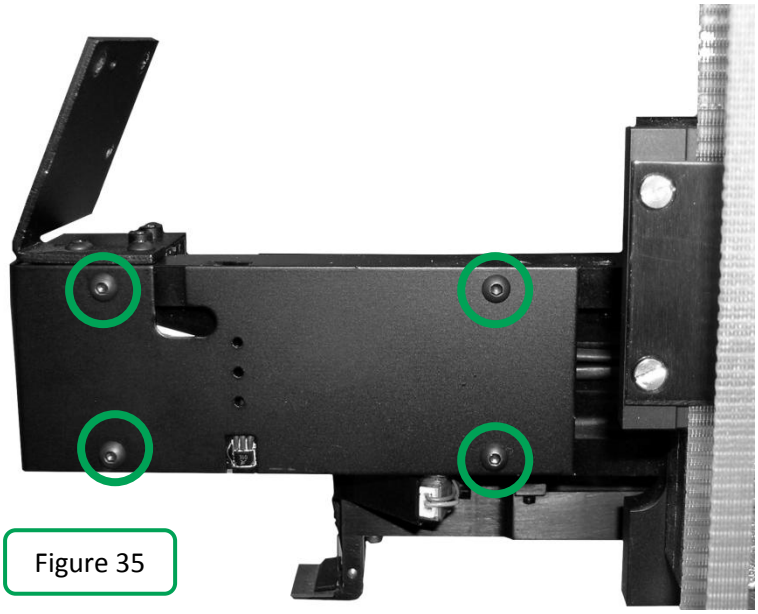


Figure 35

The cover does not have to be removed altogether, but the interior wiring should be visible as can be seen in Figure 36.

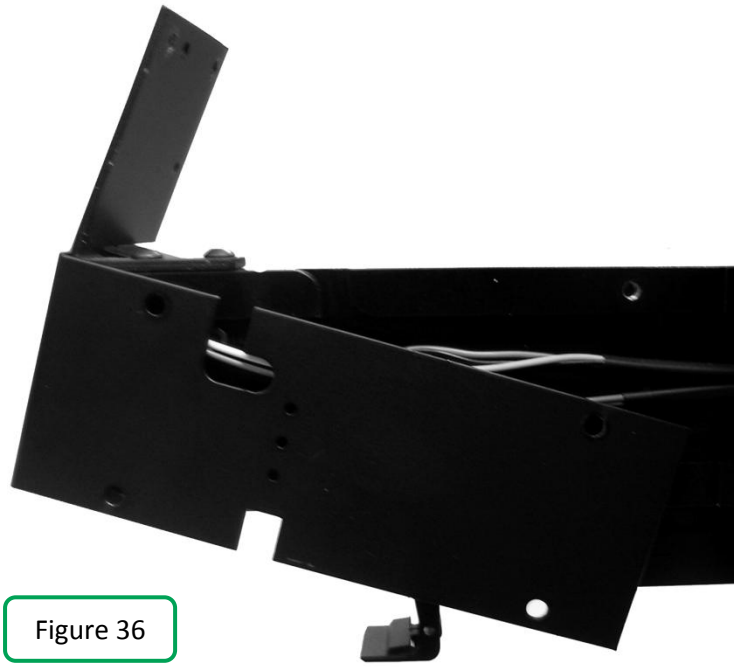


Figure 36

Attach the bar code reader using the two screws (green) provided to the plate. Figure 37 shows the barcode reader attached, with the location of the screws circled in green. Push the cable through the slot in the arm cover , lead it through the inside of the arm and then out at the other end – the image below highlights the cable in blue.

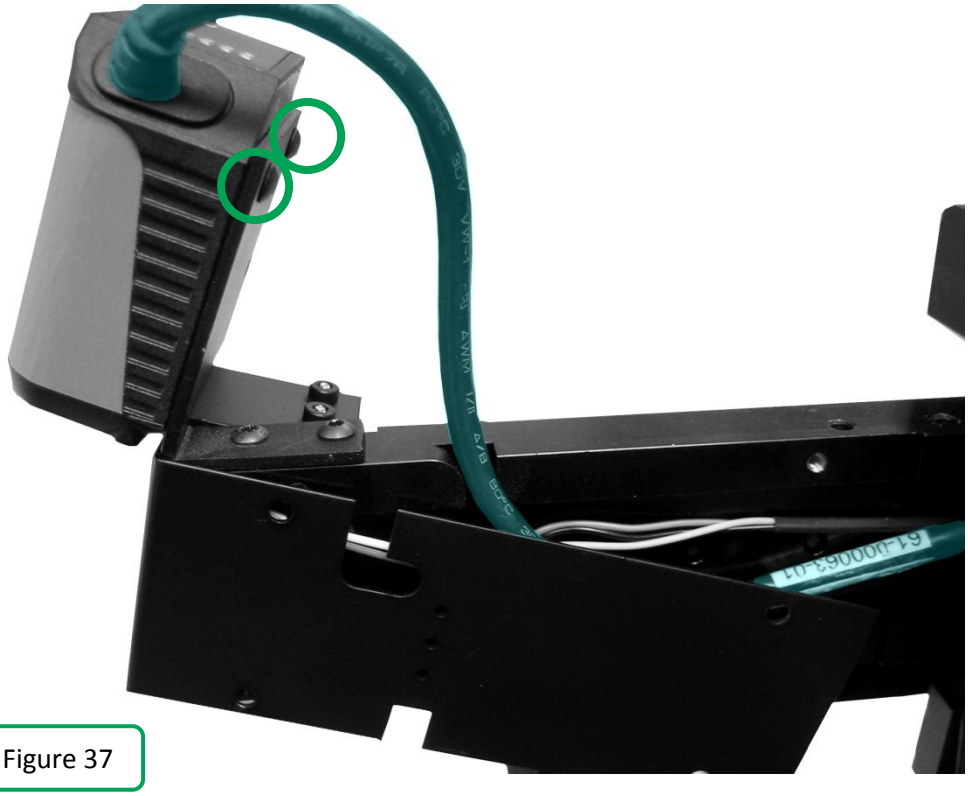


Figure 37

At this point, fasten he cover back onto the arm.

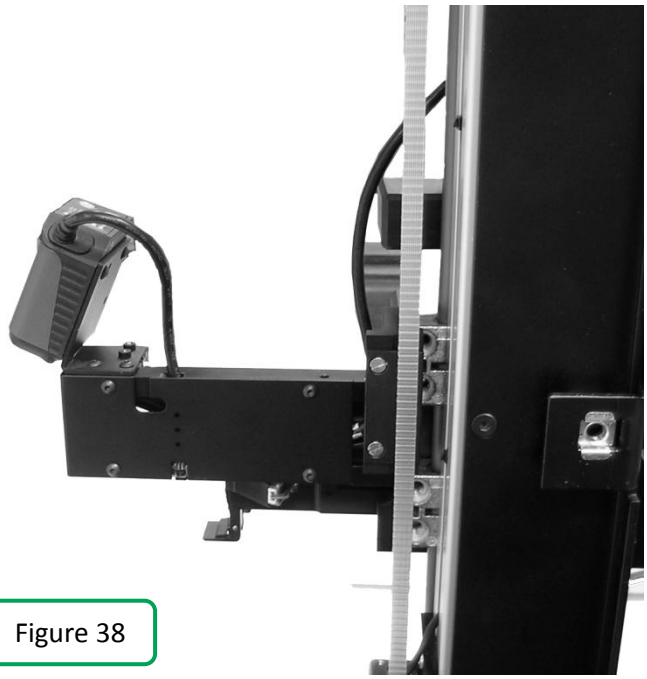


Figure 38

The barcode reader must be plugged into the connector on the other side of the arm (circled green in Figure 39). We suggest that the cable is looped around and tied using fastners to prevent it from spilling loose and interfering with the operation of the loader . A good place to do this is the cable running from the upper cover (circled orange in the diagram) – use fasteners to secure the barcode reader cable around to this cable. After the cable is plugged in and secured, the connector may needed to be fastened using a hex key. Insert

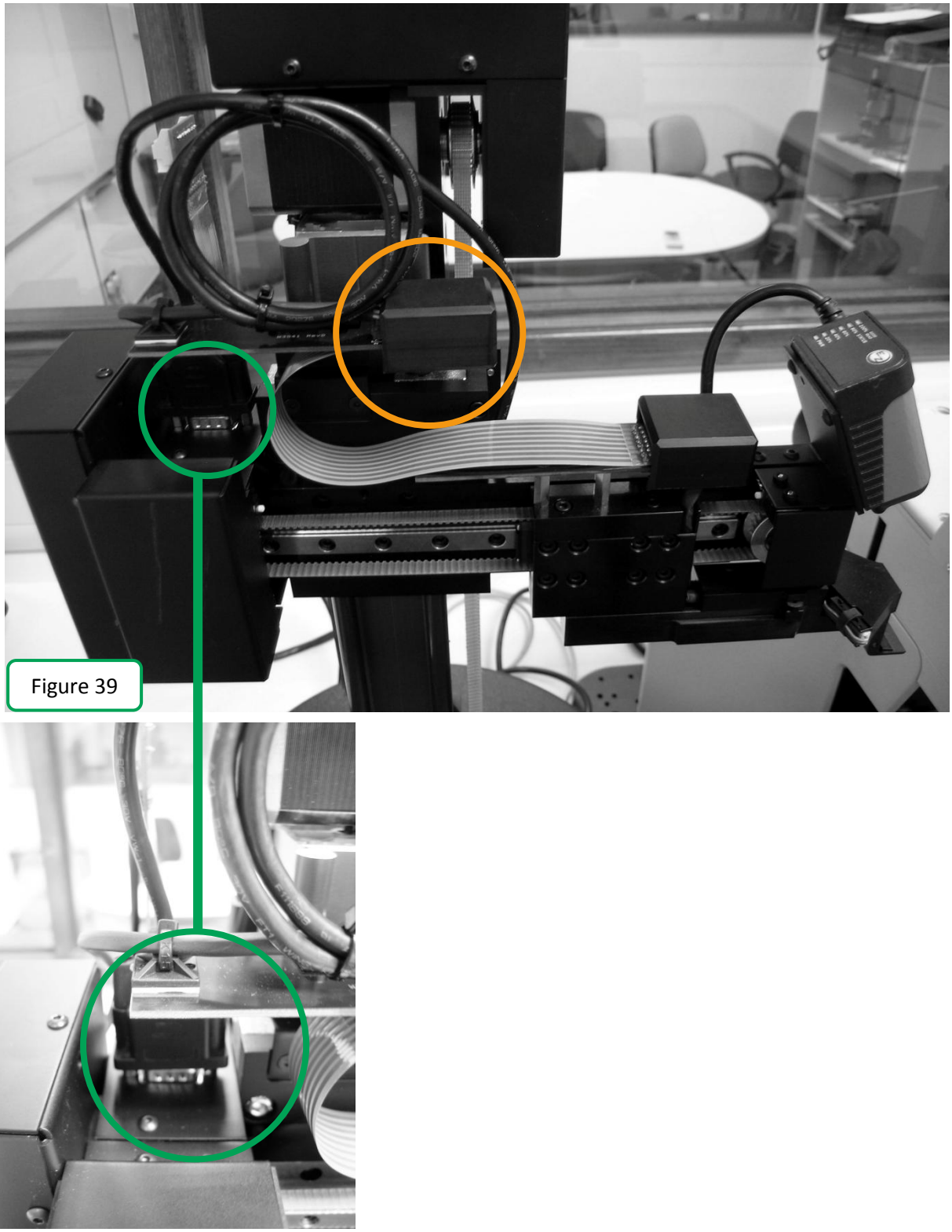


Figure 39

6.3 Other problems

As the PL200 is part of a system, the components of which will vary from user to user, we recommend contacting Prior if there is a problem with your loader. If the loader is not loading slides correctly, repeat the alignment process described in section four – if necessary, uninstall all software as well. If using third party software, we suggest that you also consult the documentation or provider of such software.

Please do not attempt repairs, maintenance, and replacements, beyond those described here, yourself, unless you have received training in how to do so from Prior.

REPLACEMENT PARTS

SECTION 7

Description	Part Number
USB cable	W3045
Slide Racks	PL303
Fuse T2A	W507

Accessories

Q-Mini Barcode reader	PL304
Focus Drive and Adapter	H122
Focus Drive and Adaptor with Rotary Encoder	H122E

REPAIRS AND RETURNS

SECTION 8

Should you experience problems with your product and want to send it back for service, warranty or otherwise, a Return Material Authorisation (RMA) number must be obtained from the appropriate Prior Scientific office before returning any equipment.

For North and South America contact Prior Scientific Inc., for Japan contact Prior KK, for Germany, Austria and Switzerland contact Prior GmbH and for the all other countries contact Prior Scientific Instruments Limited on the telephone numbers shown below.

Prior Scientific Instruments Ltd,
Unit 4,
Wilbraham Road,
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Cambridge,
ENGLAND,
CB1 5ET
Tel: 01223 881711
Fax: 01223 881710
email: uksales@prior.com

Prior Scientific Inc.
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Tel: 781 878 8442
Fax: 781 878 8736
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