

Planet Finder Spectrograph De-installation Instructions

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Following are instructions for removing PFS from the nasmyth platform and moving it to its storage location. An abbreviated version of these instructions is available on the last pages of this manual.

Four people are required to complete this procedure.

Execute the following steps deliberately and **slowly**.

If there are any problems or questions, do not hesitate to call a member of the instrument team, in the order listed below. Suggestions or comments concerning these instructions or the procedure described are very welcome. Please send them to crane@obs.carnegiescience.edu.

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1. Four people are required for the instrument deinstallation.
2. Turn off the ion pump controller, which can be found on the instrument's wooden shelf just above the gray electronics box.
3. Turn off the iodine cell temperature controller, which sits next to the ion pump controller. The power switch is on the left, rear side of the controller. It can be accessed (with some difficulty) by reaching between the ion pump controller and temperature controller.
4. Turn off the power to the electronics enclosure. The switch is located on the back of the electronics enclosure, near the bottom on the left side.
5. Turn off the CCD power supply. This is an HP bench supply sitting on the wooden shelf on the side of the instrument nearest the telescope.
6. Unplug the instrument's power cable. This is plugged into an orange outlet on the telescope side of the platform near the stairs. Collect the power cable, which is attached to a power strip on the wooden shelf, and put the cable on the shelf.
7. Unplug the ethernet cable from the back side of the instrument's gray electronics enclosure.
8. Unplug the fiber optic from the CCD electronics package hanging beneath the PFS pre-slit assembly (the black box facing the telescope guider box).
9. Turn off the guider camera power supply. Unplug the guider power and communication cables on the top of the camera. Detach the glycol lines from the connection on the nasmyth platform (not at the instrument end). Coil the glycol hoses and attach to the handle on the side of PFS using a cable tie.
10. Remove the baffles from the front of the instrument. The baffles are held in place magnetically. One baffle is attached to the telescope guider box cover plate. The other, smaller baffle is attached to the front of the pre-slit assembly. The second baffle contains an AR-coated filter. Take care not to touch it. Place this baffle in a plastic bag located in the wooden drawer on the instrument. Put both baffles in the drawer.
11. Handles for the caster jacks are located in the wooden drawer. The black handle is for the caster jack nearest the telescope guider. Using the handles, raise the instrument off of its hard mounts. Be very careful not to tilt the instrument into the telescope guider. A total of approximately 25 turns of each jack handle will be required to raise the instrument enough. Start by turning the handles closest to the guider 5 turns, followed by the other handle near the telescope. Then cycle around the instrument, turning all of the cranks the same number of turns until the instrument is adequately raised.
12. Collect the spherolinder blocks (the instrument hard mounts) from their base plates on the nasmyth platform. Put these three assemblies and the four caster jack handles in the wooden drawer.

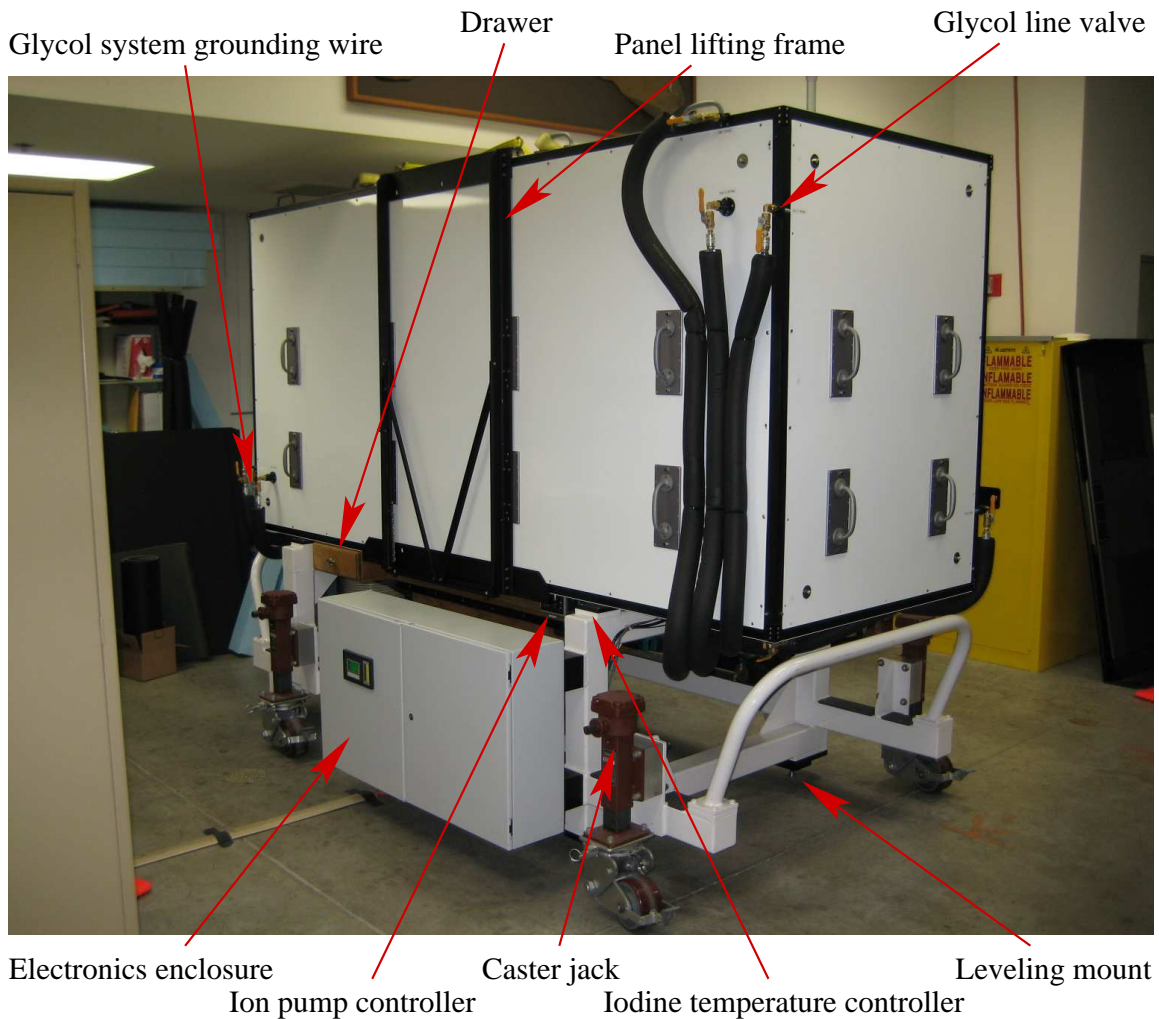


Figure 1: The side of PFS that faces the edge of the nasmyth platform.

13. PFS will barely fit onto the elevator with all of the elevator hand rails in place. However, the rails closest to the telescope must be completely removed in order to move the instrument off of the nasmyth platform. It is also very difficult to roll the instrument straight off of the platform onto the elevator with both side rails in place. The simplest procedure is therefore to remove the hand rail on one side of the elevator as well as those closest to the telescope, ideally at the observing floor level. If this is done, the crew must obviously be very careful when working near the unprotected edges of the elevator. Raise the elevator to the nasmyth platform. Ensure that it is level with the platform.
14. Remove the nasmyth platform hand rails nearest the elevator.
15. If the crew has decided to raise the elevator with the elevator hand rails in place, the rails must now be removed. Removing and replacing the side hand rail with the elevator at platform level can be hazardous, and the technician who does so should be belayed to a fixed hand rail to prevent falling.

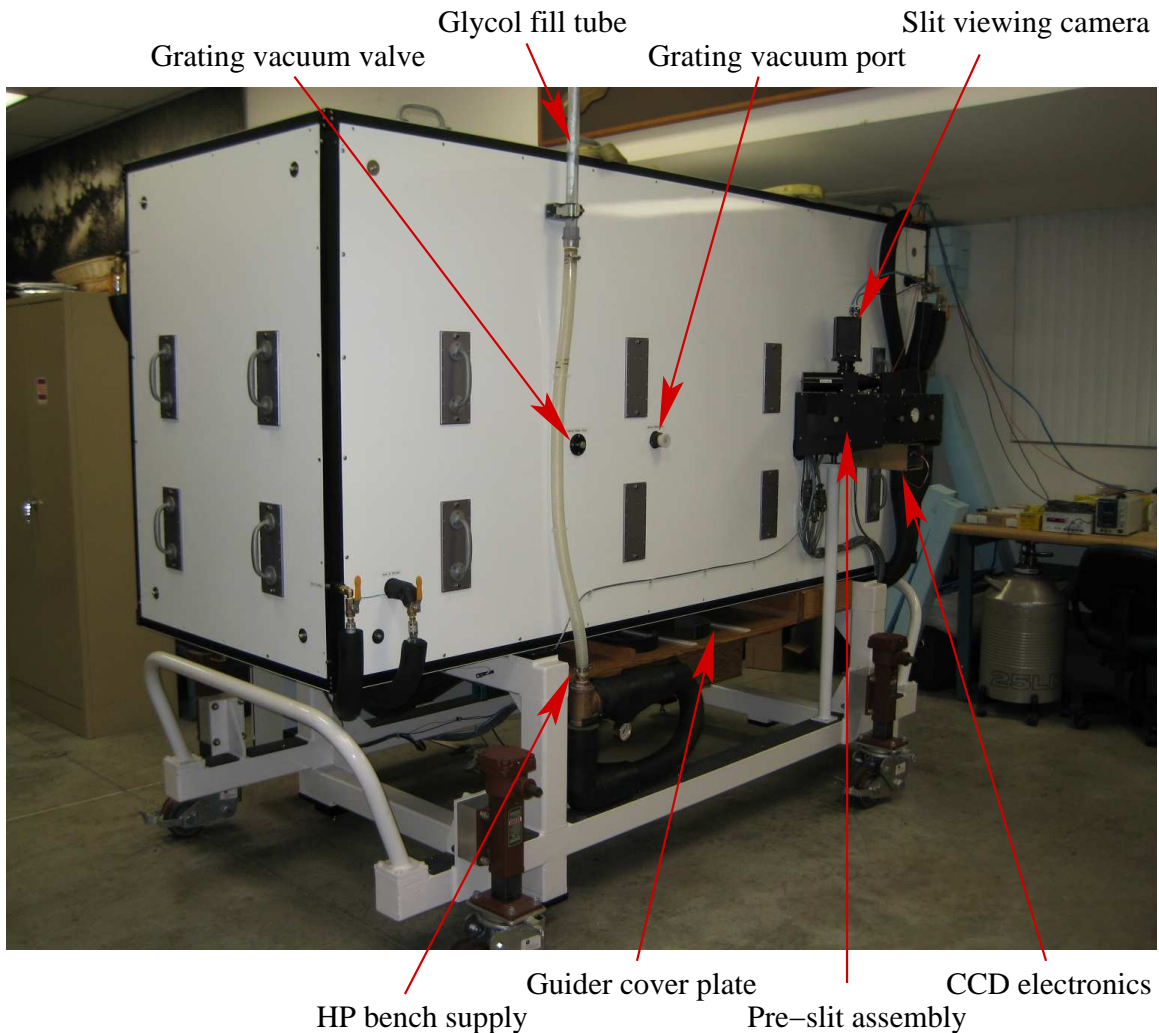


Figure 2: The side of PFS that faces the telescope.

16. Place steel plates (normally stored on the instrument's wooden shelf) on the threshold between the platform and the elevator, separated by the same distance as that between the instrument casters.
17. Roll the instrument away from the telescope toward the edge of the nasmyth platform.
18. Attach the cover to the aperture on the front of the pre-slit assembly. The cover can be found in the drawer.
19. Remove the telescope guider cover plate. There are bolts holding it in place as well as alignment bolts. Place all bolts in the appropriate plastic bag in the wooden drawer on the instrument. Slide the cover plate onto the wooden shelf along the white plastic skids.
20. Detach the liquid nitrogen fill hose and attached stinger and place it on the wooden shelf. This hose and particularly the stinger is dedicated to PFS.

21. Very, very carefully and SLOWLY, and with the combined effort of four people, roll the instrument halfway onto the elevator. Ensure that the casters roll across the steel plates on the threshold. Also, during any instrument move, ensure that the leveling mounts underneath the four corners of the instrument cart will not hit any low profile objects on the ground.
22. Readjust the elevator height as necessary to level it with the nasmyth platform.
23. Very, very carefully and SLOWLY, roll the instrument all the way to the back of the elevator. **It must be pushed far enough onto the elevator so that the black pre-slit assembly facing the telescope will not hit the nasmyth platform when the elevator is lowered.**
24. Apply the brakes for at least two of the casters.
25. Place the steel plates on the elevator.
26. Lower the elevator. **Make sure that the pre-slit assembly does not clip the nasmyth platform on the way down.**
27. Lower the elevator to the dome or ground floor, depending on where it is to be stored. Ensure that it is level with the floor. Place the steel plates across the threshold. Roll the instrument off of the elevator, ensuring that the casters cross the steel plates. If the elevator level changes when the instrument is half off of it, adjust the elevator height to level it with the floor before fully removing the instrument.
28. Place the steel plates on foam on top of the guider cover plate on the instrument's wooden shelf.
29. Push PFS to its storage position. If it is to be stored in the auxiliary building, move very SLOWLY out of the elevator door and across the concrete. Four people should handle the instrument, one at each corner. Ensure that no part of the instrument hits anything en route. Pay particular attention to the black pre-slit assembly that extends from the side of the thermal enclosure. Also watch the glycol fill tube above the thermal enclosure.
30. When the instrument is parked, plug an ethernet cable into the back of the instrument's electronics enclosure. Plug the power cord into the wall outlet. Ensure that the power is on.
31. Check the glycol level. It should be visible in the clear PVC pipe extending upward near the top of the instrument. A target level is marked with tape, about one foot below the top of the pipe. If the level is low, add liquid. The proper mixture is 15% Dowtherm SR-1 glycol combined with 85% deionized water. Pre-mixed solution can be found in labeled plastic bottles in the PFS storage cabinet in the Auxiliary Building.

1 PFS De-Installation Checklist

Four people required

1. Turn off the ion pump controller.
2. Turn off the iodine cell temperature controller.
3. Turn off the CCD power supply.
4. Turn off power to the electronics enclosure.
5. Unplug the instrument power cable from the outlet.
6. Unplug the ethernet cable from the rear of the electronics enclosure.
7. Unplug the fiber optic cable for the CCD electronics package.
8. Turn off the guide camera power supply.
9. Unplug the power and communication cables and glycol hoses from the guider camera.
10. Remove the small baffles from the guider cover plate and instrument entrance aperture.
11. Raise the instrument away from the spherolinder blocks.
12. Place the spherolinder blocks and jack handles in the wooden drawer.
13. Remove the elevator hand rails closest to the nasmyth platform and the elevator door.
14. Raise the elevator to the nasmyth platform.
15. Roll the instrument away from the telescope.
16. Attach the small cover for the instrument entrance aperture.
17. Remove the guider cover plate and place it on the wooden shelf.
18. Place the liquid nitrogen fill hose and stinger on the wooden shelf.
19. Roll the instrument onto the elevator with steel plates laid across the threshold.
20. Verify safe positioning of the instrument. Engage at least two caster brakes.
21. Lower the elevator to the ground floor.
22. Roll PFS off of the elevator, using steel plates across the elevator threshold.
23. Place the steel plates on the wooden shelf.
24. Roll PFS to its storage position.

25. Plug in an ethernet cable to the rear of the electronics enclosure.
26. Plug the power cord into a UPS-supplied wall outlet.
27. Power the instrument on.
28. Fill the glycol in the clear pipe on the side of the instrument.