

Procedure to Remove or Mount Plate in Cartridge

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The proper method to mount or remove a plug plate in a cartridge.

Instructions for which/how many plates to prepare are generated by the night Observers or someone higher in the chain-of-command. These instructions are sent via the sdss-plug mail list and should be sent out as early as possible so plug technicians have enough time to complete. The originator of the instructions should prioritize the order in which plates are to be plugged. If there are no plates to be plugged a message to that effect needs to be generated.

Each morning the plug technicians will check their e-mail for plugging instructions. The plug technician identifies which cartridge(s) and plate(s) are needed for the upcoming run. A paper copy of the daily plugging instructions is printed and kept at hand for easy reference.

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CAUTIONARY NOTES

You must be properly trained to accomplishing this procedure; see [training list](#).

TRIPPING HAZARDS are present. Clear the general work area.

CRUSH HAZARDS are present. Be sure to allow for enough room to accomplish the task.

FALL HAZARDS are present. There is a large trench (5' wide X 6' deep X 15' long) in the cartridge elevator bay - use caution when elevator doors are open.

THIS OPERATION CAN BE ACCOMPLISHED BY ONE PERSON; TWO PERSONS ARE REQUIRED IF THERE IS A HEAVY WORKLOAD.

SAFETY WEAR: (recommended) rubber-soled shoes

EQUIPMENT INVOLVED IN THIS PROCEDURE

Data cartridge; Location: stored on racks inside elevator bay, plugging station, or mapping station; Appearance: approx 4.5' dia X 3' thick., fiber optic wire interior, plate top, protected sides, top, and bottom; nine total; 320 lbs. each.

Plug plate; Location: stored in racks under work table on south wall ,or recently received freight shipment; Appearance: flat aluminum, approx 4.5' dia. X 1/8" thick, guide holes around outer surface, small guide tab on outer edge, mounting hole in center.

Plugging station; Location: free-standing; Appearance: large, grey, 2-standard mechanism, with turn wheel to raise and lower cartridge clamps.

Small hand tools; Location: free-standing red tool boxes; Appearance: as described in procedure. Torque wrench with 3/16 allen socket kept in bottom drawer of tan storage cabinet.

PROCEDURE: accomplish in numerical order

Plug Station

1. The plug station is stowed in a position half-way between the plate storage rack and the elevator bay doors.
2. Electrical power is supplied through an extension cord on a reel plugged to an outlet in the ceiling. The electrical cord limits how far the station can be moved.
3. To position the station, release the brake levers located on two of the wheels. Once the station is in place re-apply the brakes by pressing down on the levers.
4. The cartridge is placed on the station using the manipulator arm. The mounting is precise. If placed correctly, the cartridge lays flat with no uneven "wiggle". Use the manipulator arm to "even out" the cartridge.

5. Lock the cartridge to the station using the four red handles. Once the cartridge is successfully mounted on the station, stow the manipulator arm out of the way.

6. Press the red switch marked "up/down" to raise/lower the cartridge. Movement ceases when the limits are reached.

7. Press the brake handle (in a vertical position behind the crank) and turn the cranks in either direction to turn upside down or any other position.

8. Proceed to remove all the black plastic covers from the cartridge by releasing the cover latches or using the handles. Place them on the floor out of the way.

9. Push the "up/down" button to raise the cartridge to about waist height or a comfortable level for the operator to manipulate.

Remove

1. Unplug all fiber optic wires by grasping the metal ferrules on the ends of the wires. Do not grasp the red optic wire to unplug. **This activity should be demonstrated to the technician at least once prior to execution.** Continue until ALL wires are unplugged.

2. The plate is held to the cartridge by a small cap screw in the center of the plate and a large heavy bending ring . Using a 3/32" allen wrench, turn counter clockwise, and remove the screw.

3. Using a red colored "T" handle wrench, loosen the twelve bolts holding the bending ring in place. These bolts remove from the cartridge but not from the

ring. Once all bolts are loosened, remove the bending ring from the cartridge; the ring weighs approximately 20 lbs. **Do not lay the bending ring down flat; use the storage jig to hold the ring. Make sure that only the top surface of the ring comes in any contact with anything. The bottom surface of the ring is grooved and care must be taken that this surface is not damaged.**

4. Pushing up on the bottom surface of the plate, remove the unplugged plate from the cartridge. Note that there are four pins which align the plate to the cartridge and some force may be needed. However take care to not bend the plate.

5. Place the unplugged plate in the storage rack in its designated slot.

Mount

1. Remove a designated plate from the rack. Before resting the plate in the cartridge, be sure no fiber optic wires are trapped between the plate and the cartridge. If fibers are trapped they can be damaged.

2. The plates and cartridges are designed so that the plate only fits the correct way. The side with the markings on them are facing down. Once the plate is properly aligned it will rest flat against the upper lip of the cartridge.

3. Push down on the center of the plate until it rests against the center pin. This may require holding the plate in place.

4. Using a 3/32" allen wrench, replace and tighten clockwise the small center cap screw. The center pin is threaded so the cap screw easily aligns.

5. Place the bending ring on top of the plate. The bending ring is also designed so it fits only one way.

6. Using a red colored "T" handle wrench, tighten a bolt until it is flush with the ring upper surface. Then, skip two bolts forward and tighten this bolt flush to the upper surface, skip one bolt backwards and tighten this bolt flush to the upper surface.

7. Again using the star pattern, tighten the bolts one full turn using the red "T" handle wrench.

8. Set the torque wrench to 60 inch pounds before beginning. Again using the star pattern, tighten the bolts. Set the torque wrench to zero when finished.

9. When plugging operations are complete, secure the cartridge on the manipulator arm, release the four red handles from the plugging station and move the cartridge to storage on the rack (if empty) or to the mapping station (if plugged).

10. Return the manipulator arm to a stowed position.

END OF PROCEDURE
