

DRAFT

K-10 TELEROBOTICS MISSION

SCOUTING AND TELESCOPE DEPLOYMENT



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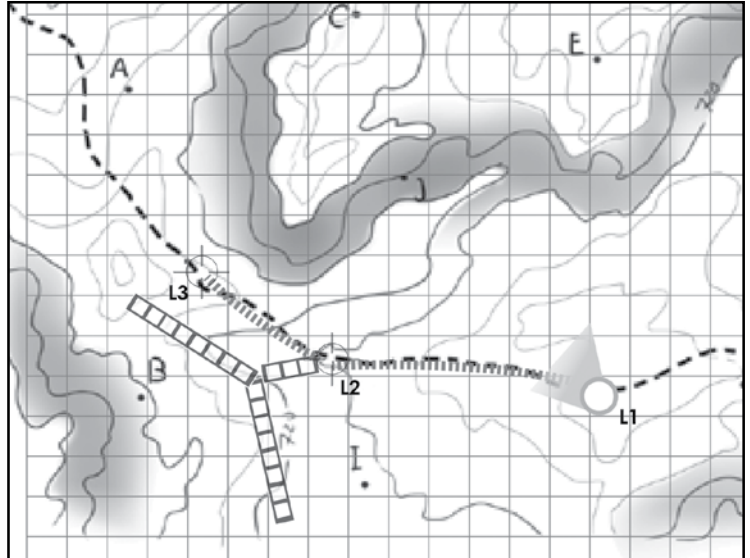
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Mark Bolick
Shiz Kobara

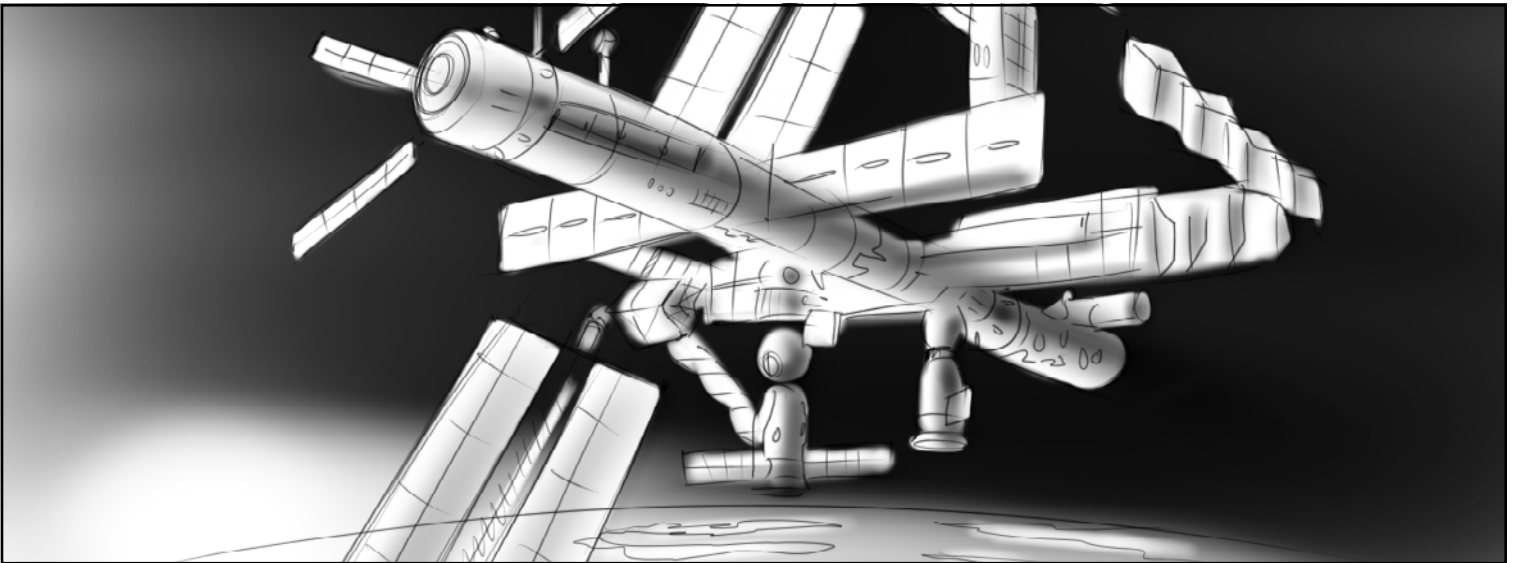
PRE-DEPLOYMENT SCOUTING



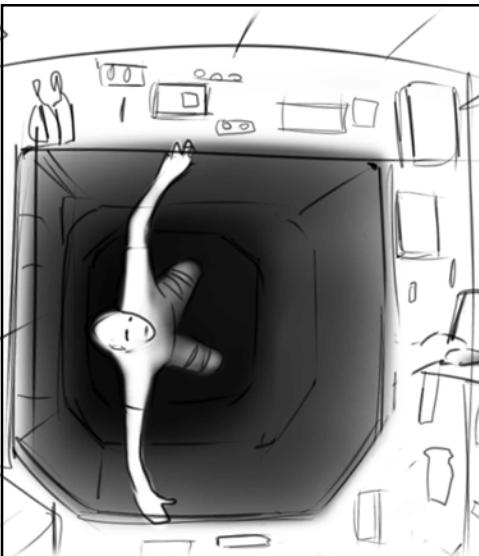
Ground control creates exploration plan for K10 to scout the telescope deployment path for obstacles.



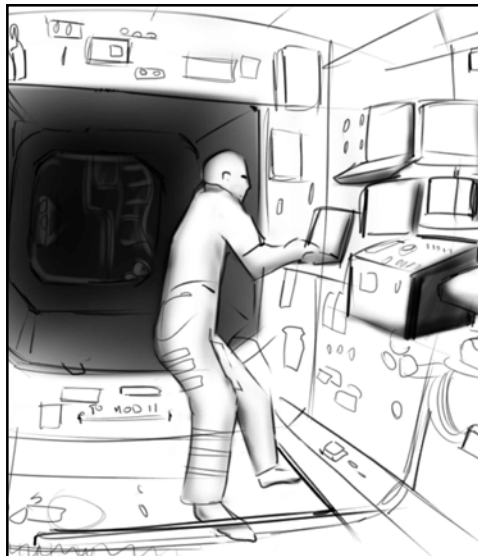
Stations and rover actions are laid out to scout a proposed telescope deployment path.



Ground control uploads route plan and experiment procedure to the International Space Station.



Astronaut orients to the workstation in preparation for mission 1.



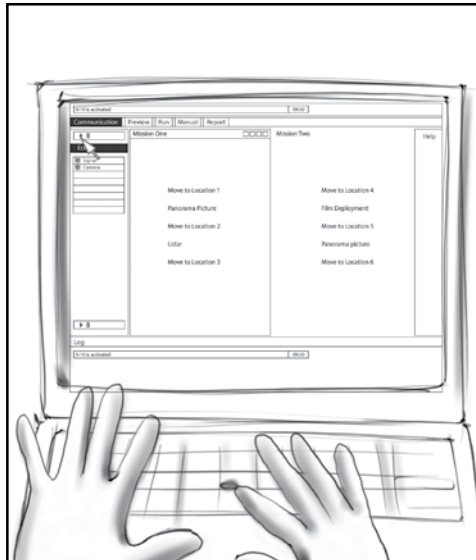
Astronaut secures himself at the workstation in preparation for the mission.



Astronaut previews and down loads scouting plan to K10.



K10 receives down load and is ready to run scouting plan.



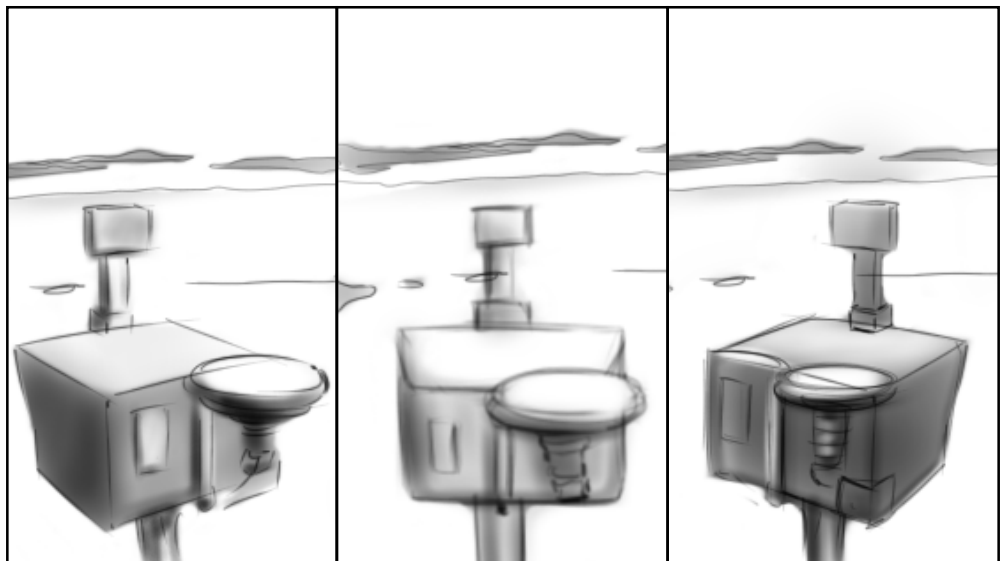
Astronaut tells K10 to run traverse and panorama sequence 1.



Astronaut monitors K10 rover as it traverses between way points.



Astronaut confirms rover has arrived at station 1.



K10 rover takes pictures that will make up the panorama.



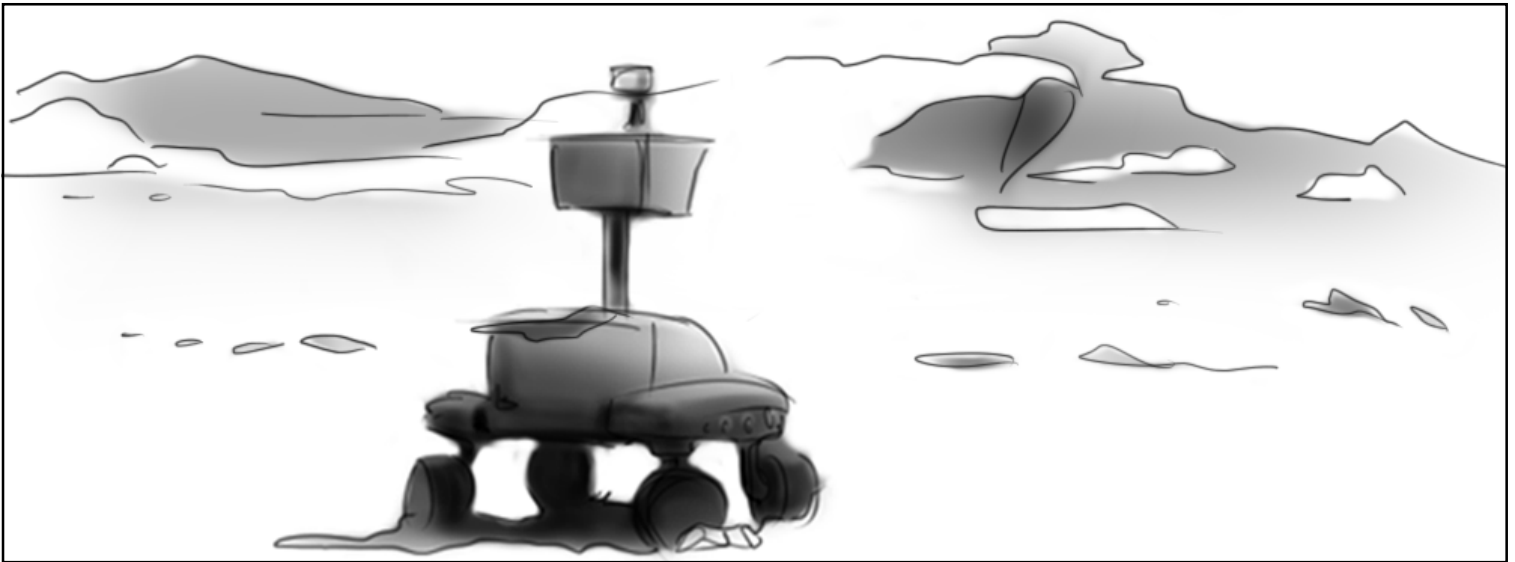
K10 uplinks panorama data to the ISS.



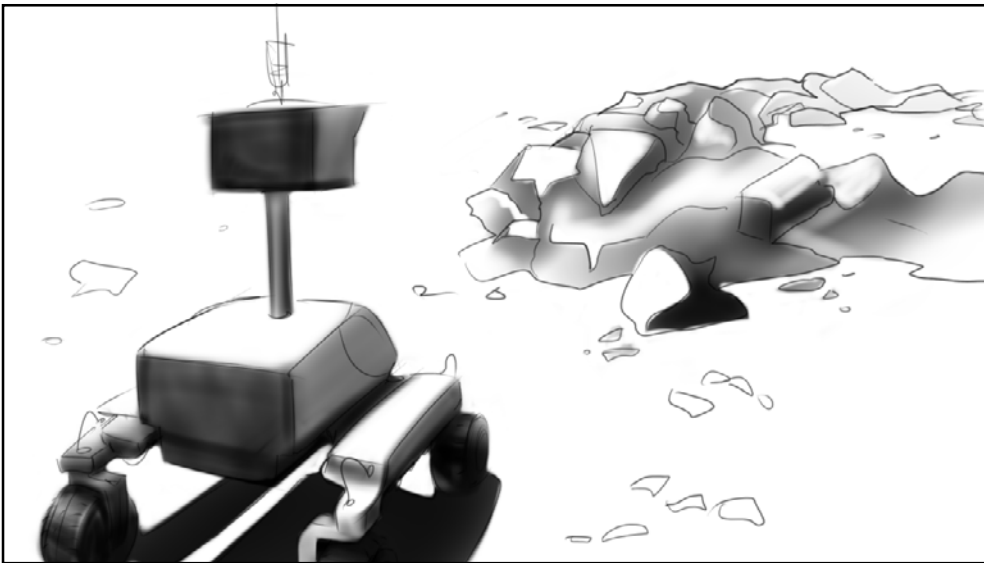
Astronaut monitors stitching and confirms target has been imaged.



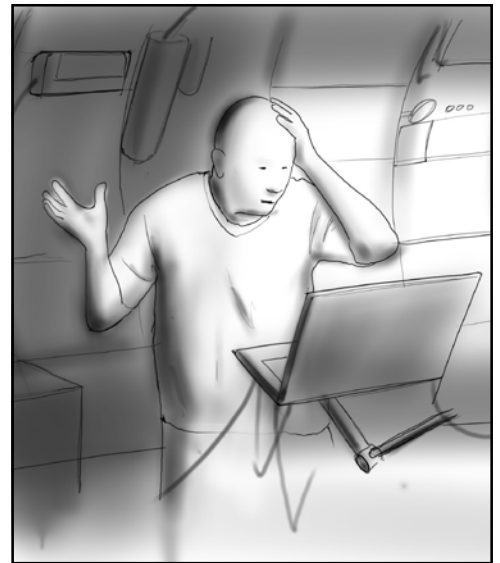
Astronaut tells K10 to resume exploration sequence.



Astronaut monitors K10 rover as it traverses between way points.



K10 encounters large obstacle and is unable to calculate a viable route.



Astronaut sees that K10 is stuck and must switch to edit mode.



Astronaut inputs way points to aid K10 in reaching location 2.



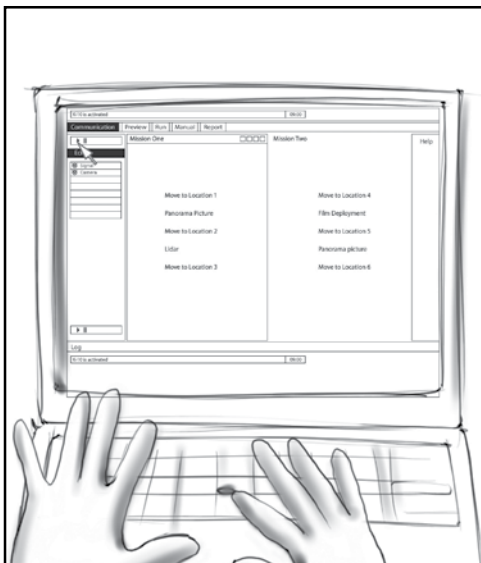
Astronaut confirms rover has arrived at location 2 and is prepared to take a Lidar scan.



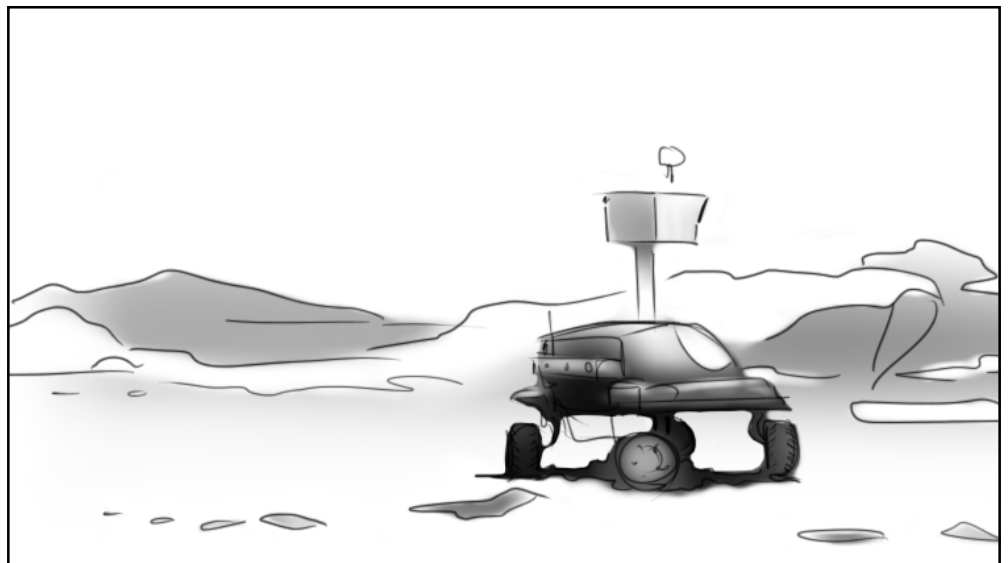
K10 takes Lidar scan of crater's far wall.



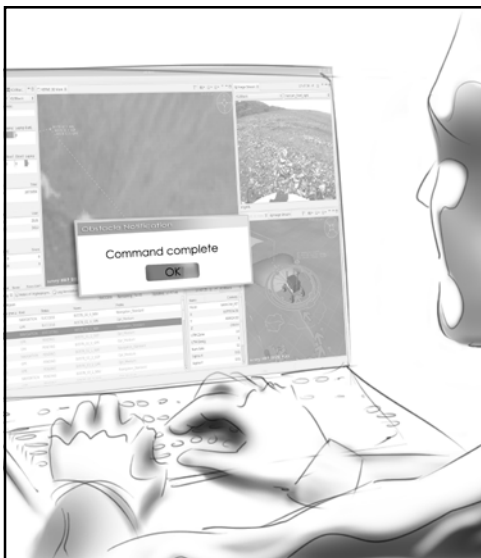
Astronaut monitors Lidar progress and confirms target captured.



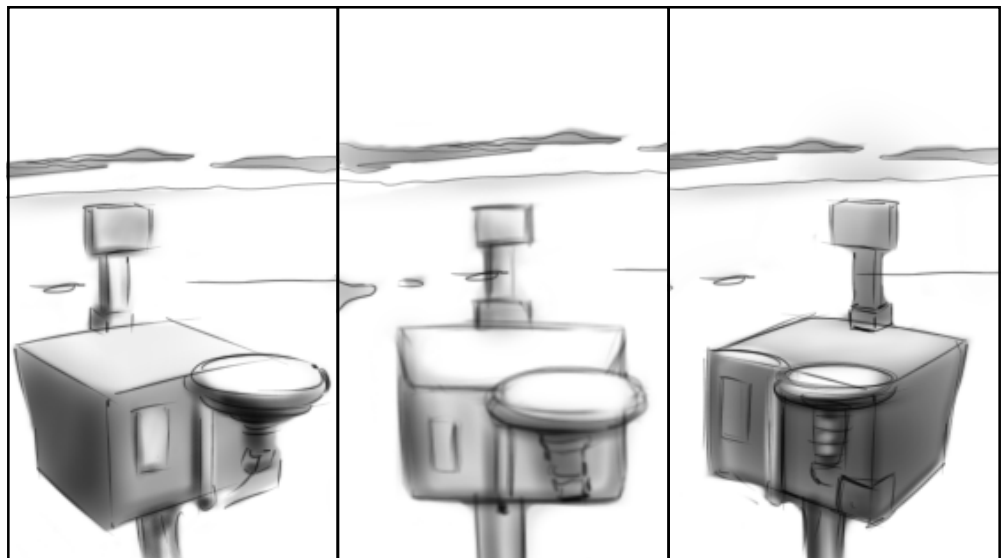
Astronaut tells K10 to resume sequence and travel to next station.



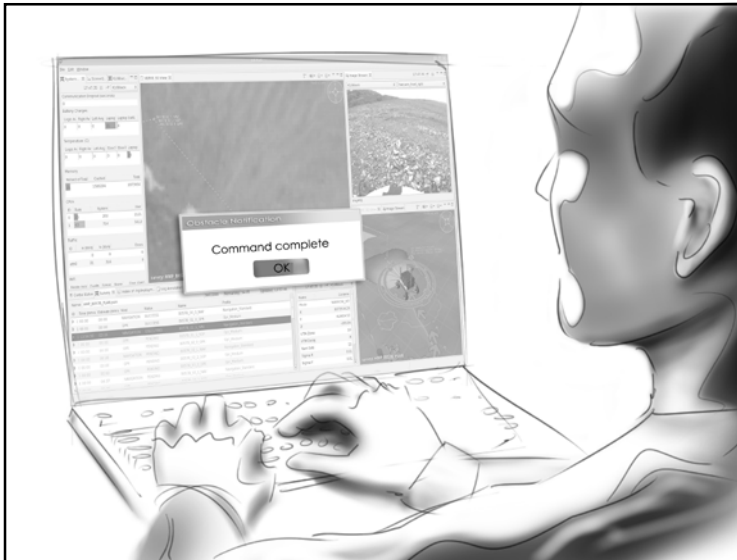
Astronaut monitors K10 rover as it traverses.



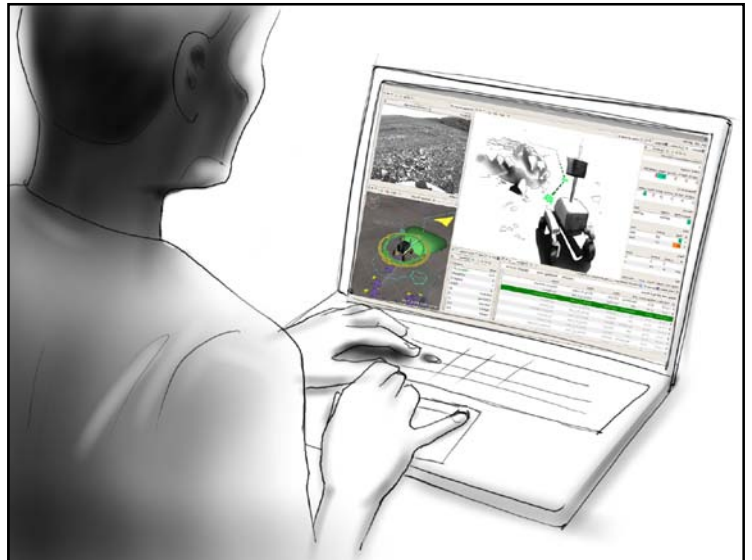
Astronaut confirms rover at location and prepared to take a panorama.



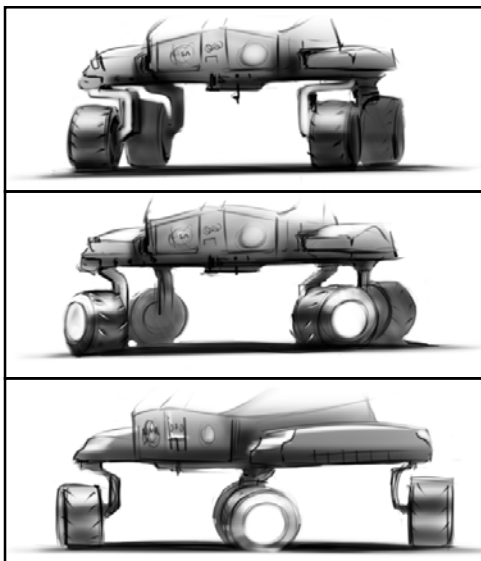
K10 rover takes pictures that will make up the panorama.



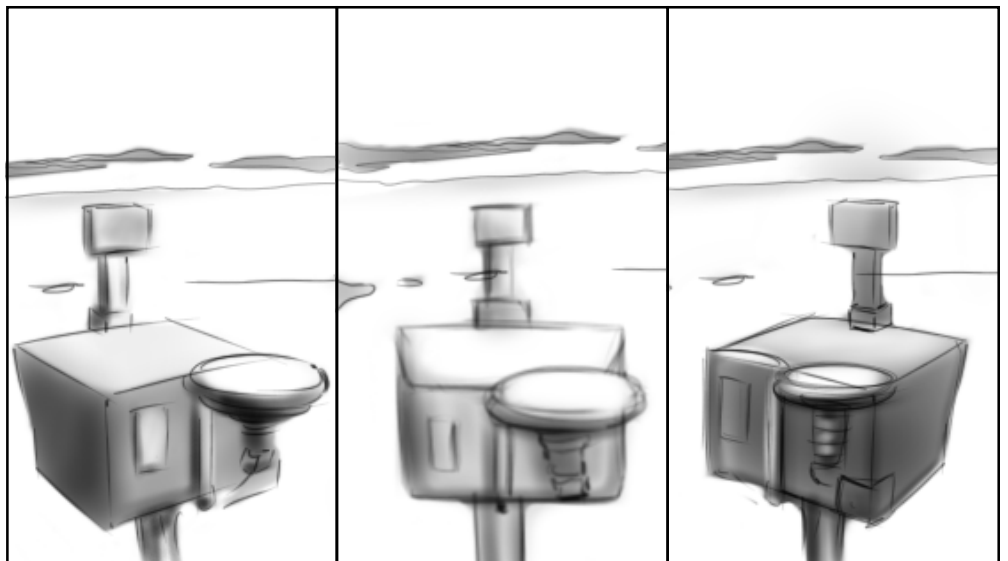
Panorama upload and stitch is successful but target is not captured.



Astronaut enters semi-manual mode to aim rover to retake panorama.



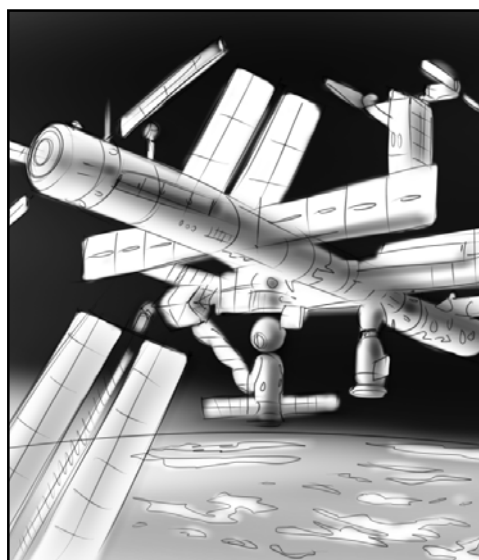
K10 rotates in place to center panorama target.



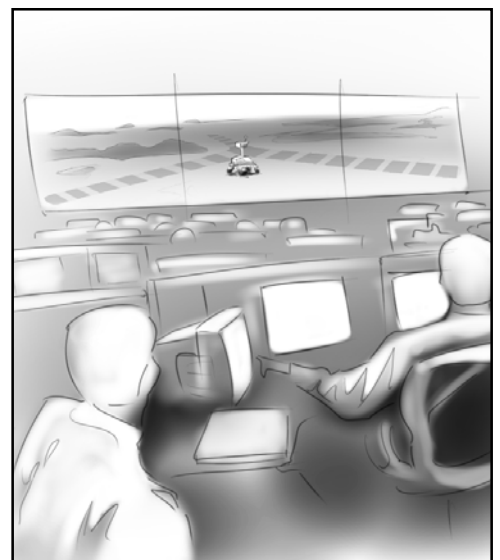
K10 rover takes pictures that will make up the panorama.



Astronaut confirms successful upload and stitch and target is imaged



Scouting data is down linked to ground crew from the ISS.

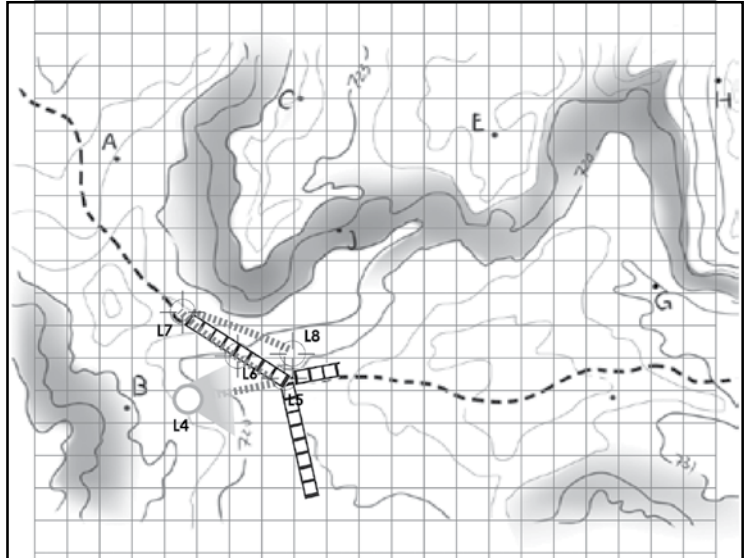


Ground crew use scouting data to plan telescope deployment.

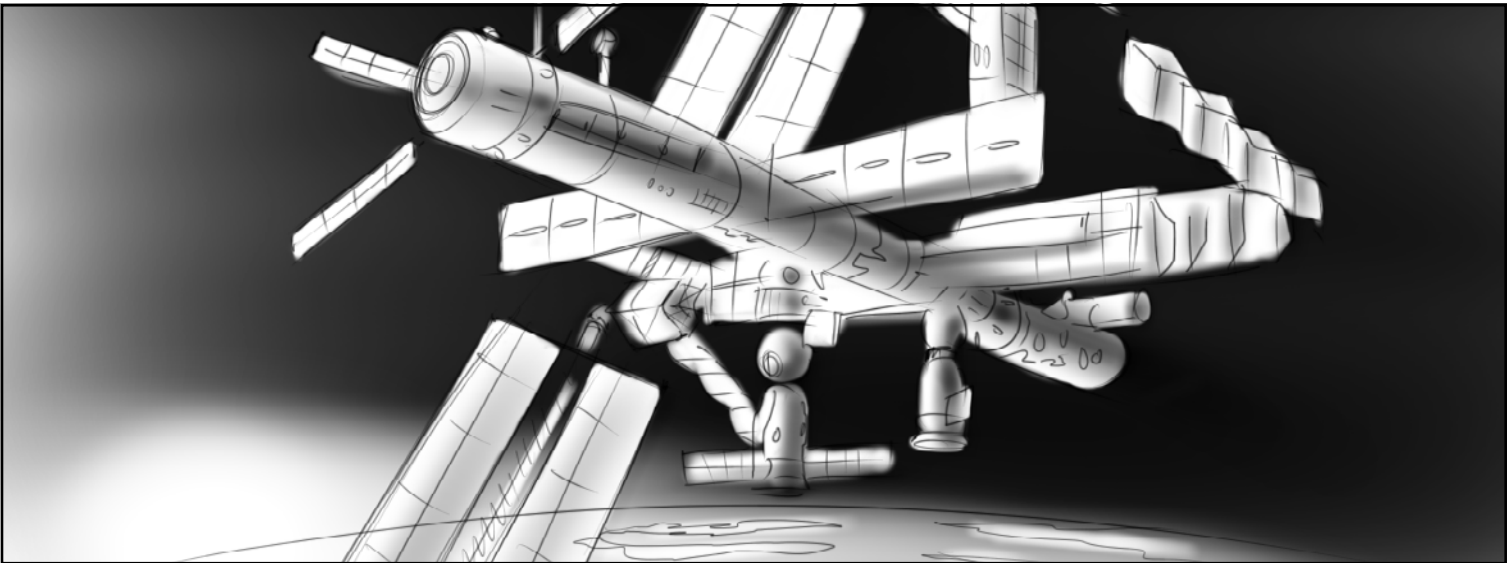
TELESCOPE DEPLOYMENT



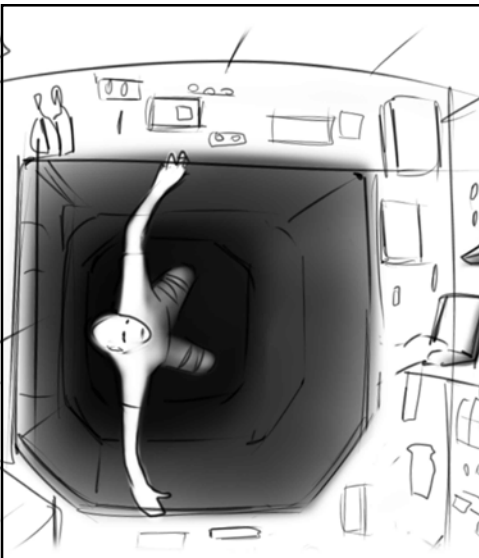
Ground control adjusts deployment plan based on the data from the scouting mission.



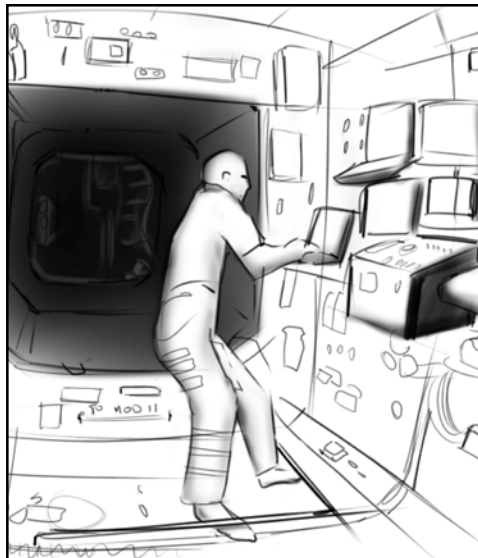
Ground control lays out way points and rover actions to install an antenna on a flexible polyimide film.



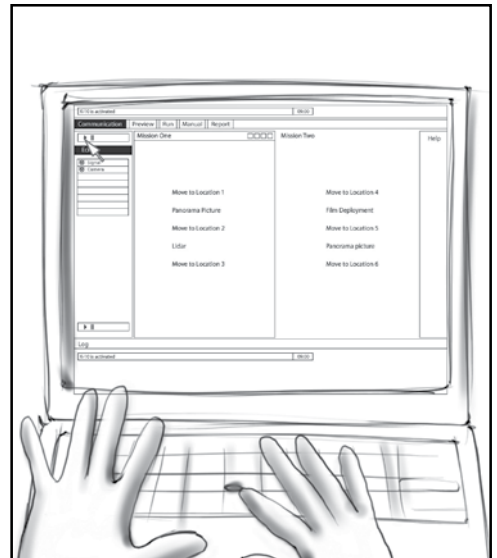
Ground control uploads route plan and experiment procedure to the International Space Station.



Astronaut orients to the workstation in preparation for mission 2.



Astronaut secures himself at the work station in preparation for the mission.



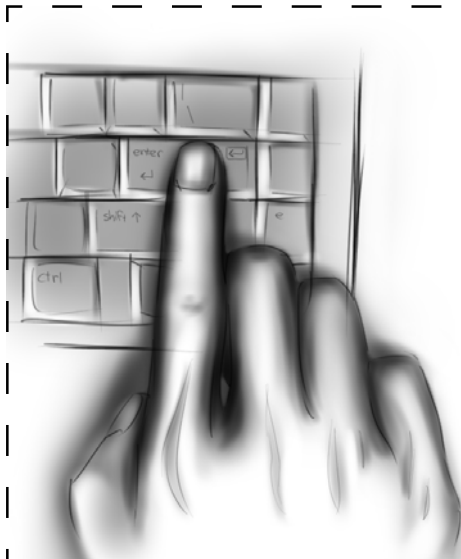
Astronaut selects and initiates deployment sequence 1.



Astronaut monitors K10 rover as it traverses between way points.



Rover arrives at location 4, astronaut pauses deployment sequence.



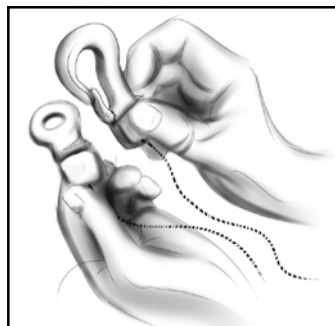
Astronaut contacts ground and the experiment goes out of simulation.



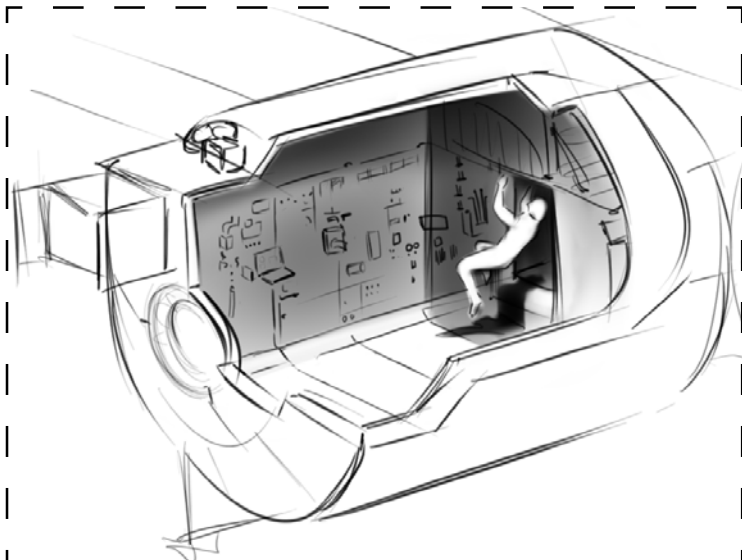
Ground crew places e-package.



Ground crew installs the e-package and attaches it to the rover.



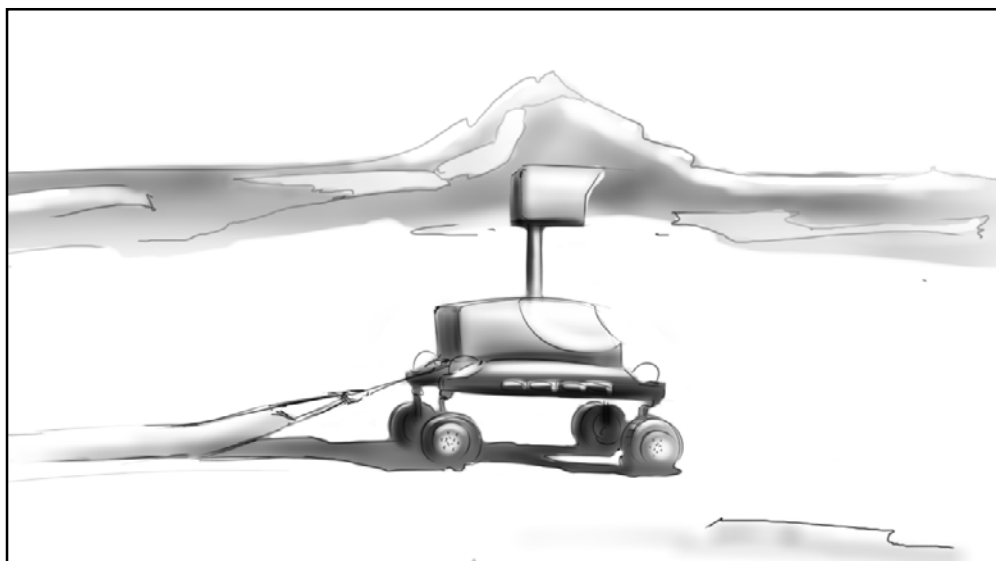
Ground crew tells the ISS that the e-package has been placed.



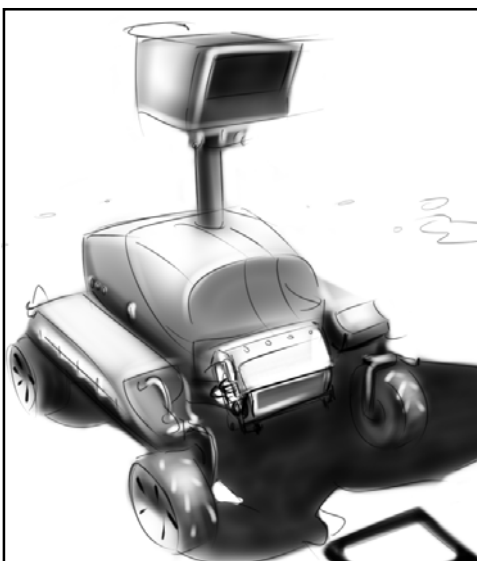
ISS receives communication and astronaut confirms e-package placement.



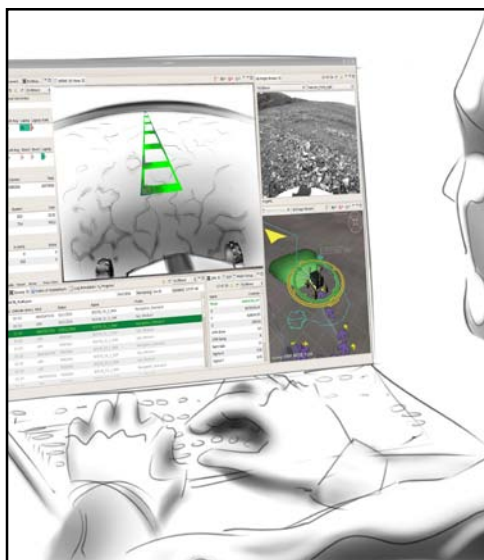
The experiment enters simulation. Astronaut runs deployment sequence.



Astronaut monitors K10 rover as it traverses between way points.



Upon reaching location 6 K10 disengages film.



Astronaut confirms rover has disengaged using rear camera.



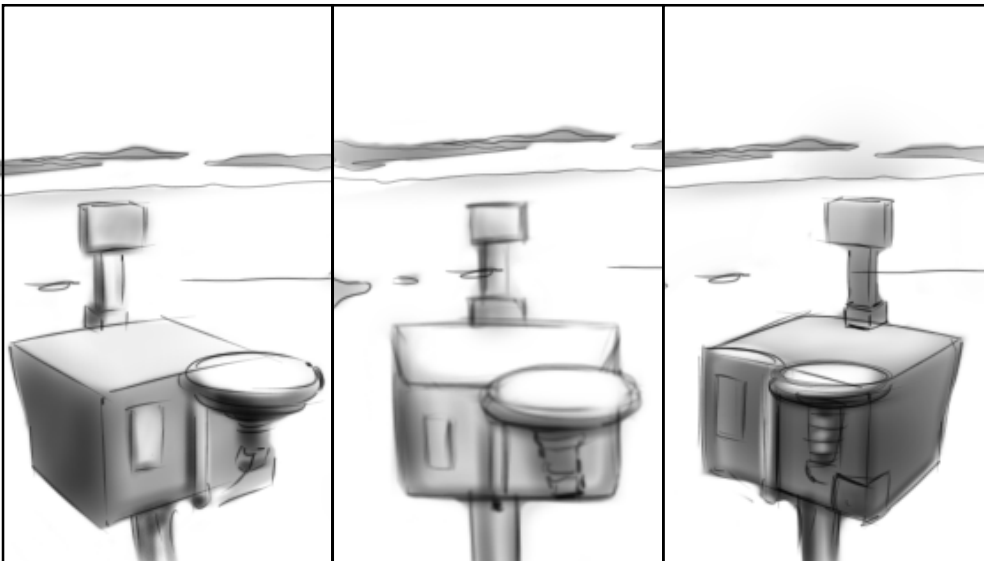
Astronaut tells rover to resume deployment sequence.



Astronaut monitors K10 rover as it traverses to station 8 where it will take a panorama of the telescope.



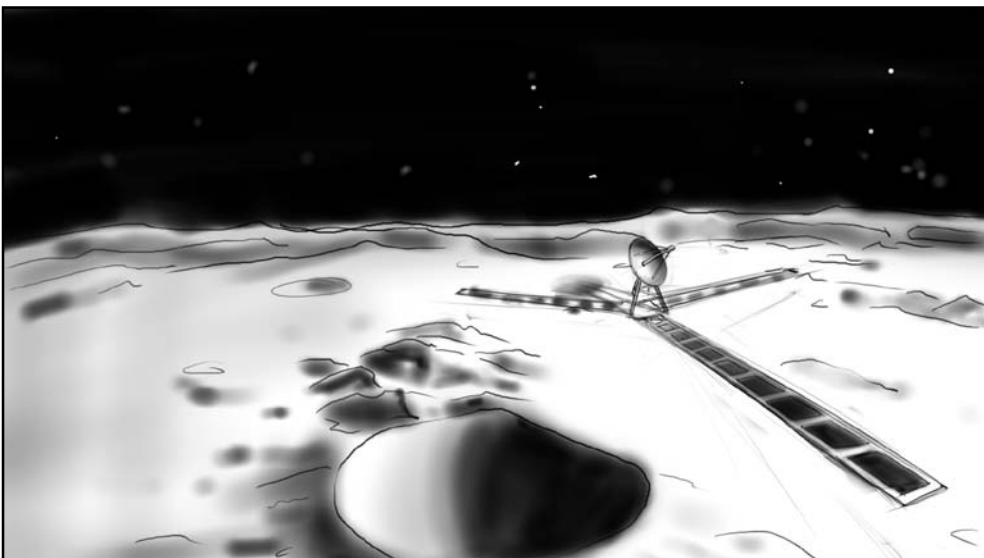
Astronaut confirms rover at location and prepared to take a panorama.



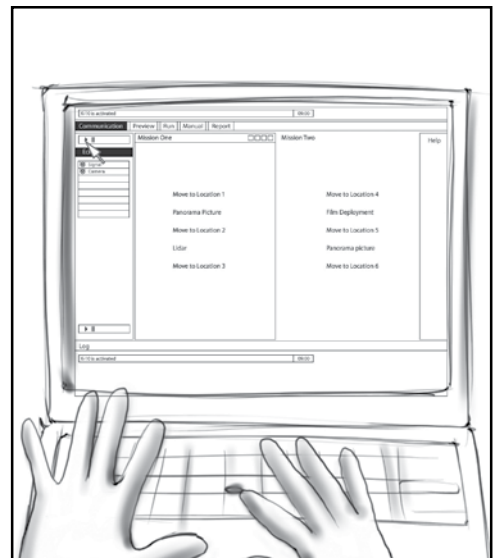
K10 rover takes pictures that will make up the panorama.



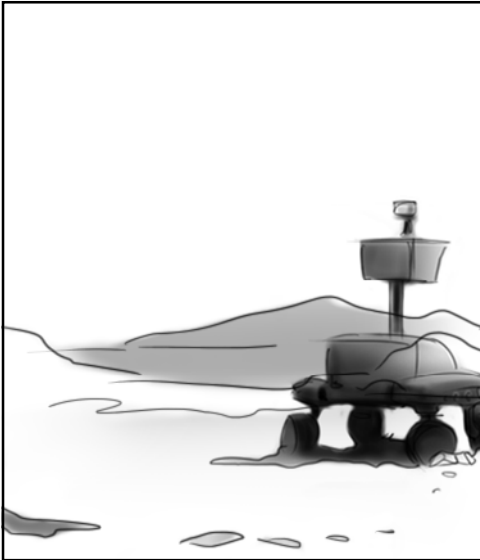
Astronaut confirms successful panorama upload and stitch.



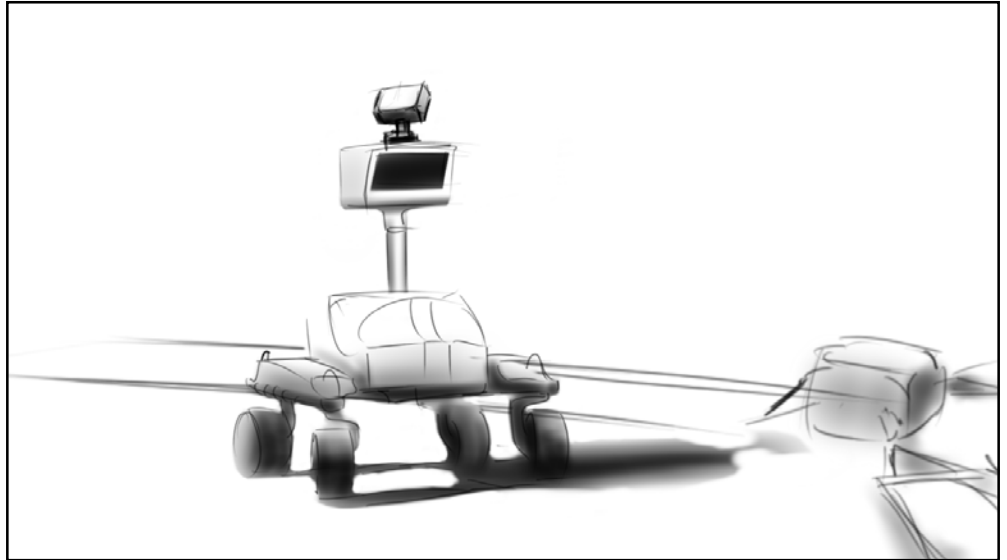
Astronaut confirms telescope deployment is successfully imaged.



Astronaut tells K10 to continue deployment sequence.



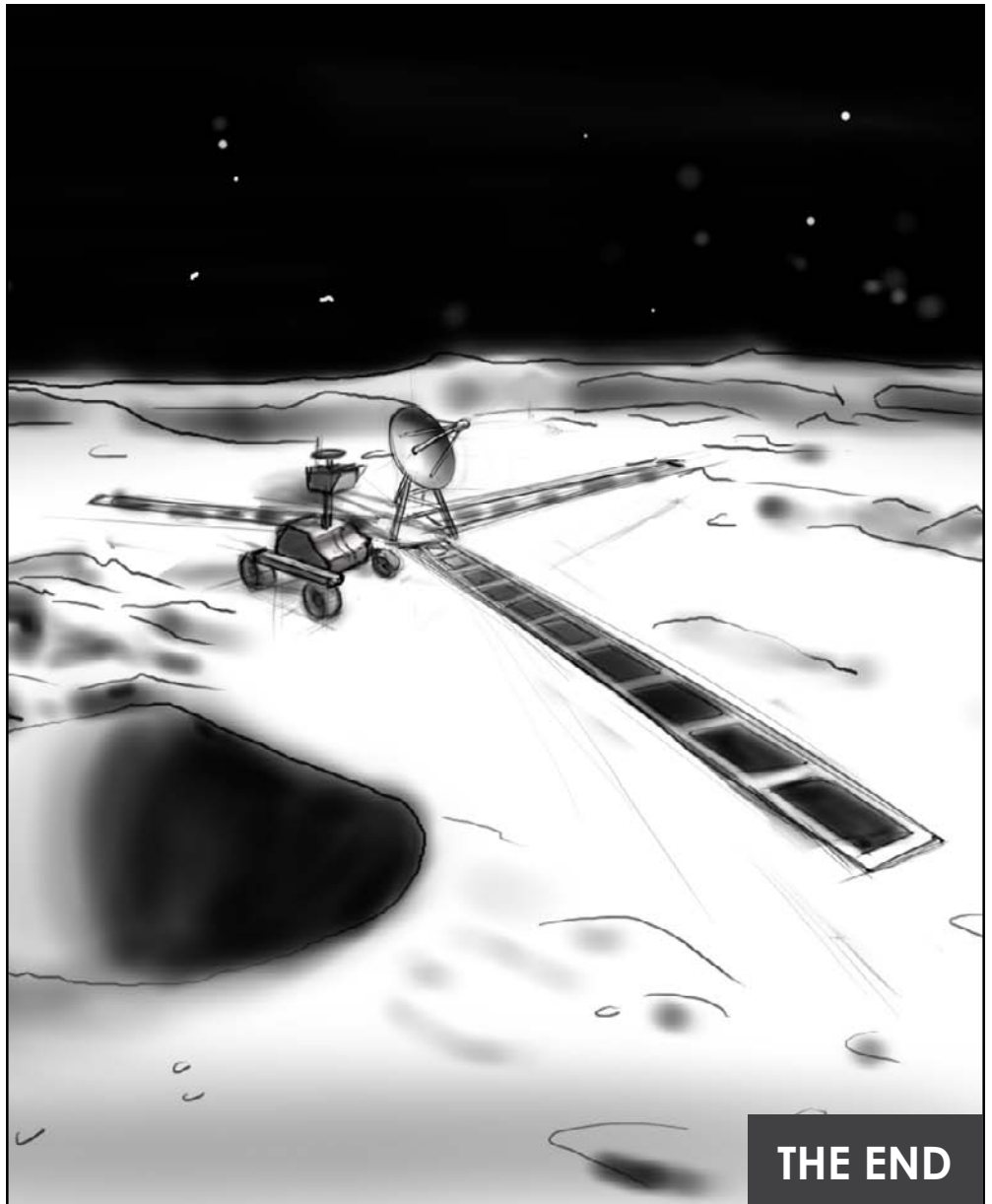
Astronaut monitors K10 rover as it traverses to the film.



Astronaut monitors K10 as it traverses along the film taking inspection images to allow ground crew to inspect the installation.



Astronaut confirms rover has arrived at the telescope hub.



THE END

Radio telescope is successfully deployed and rover is standing by.