

# SCINI Deployment Cheatsheet

**Organization:** [Project SCINI](#) at [Moss Landing Marine Labs](#)  
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## Tucker Configuration

### People

The Pilot and Navigator sit in the back seat of the tucker, and the optional scientist can squeeze in with them. If deploying with a VideoRay and separate pilot, that pilot would squeeze into the cabin as well and the scientist could sit in the front. The Tether tender hangs out in the front seat or dive hut when not handling the tether itself.

**Tether Tender** At least one person is required to keep the tether tensioned correctly and physically lower SCINI down the hole. This person should also do the regular transponder hole checks, monitor radio communications, check generator fuel level, boil water as needed, etc.

**Pilot** This person does the actual driving, manages video capture, and monitors ROV stats (eg, flood detection, buoyancy issues).

**Navigator** Keeps the navigation system running, takes notes on times and positions, mission goals, and is generally the “executive” in terms of calling the end of a dive, ensuring that the transponder holes are checked, knowing the limits of fuel and food, treaty and environmental compliance, etc.

**Scientist (optional)** A present scientist can monitor the video and discuss mission goals with the pilot and navigator. If they aren’t available/practical, they can discuss mission goals before hand with the navigator. They can help the tether tender with chores as they are able.

### Packing List

- Misc
  - Mechanical Timer
  - (2) Handheld VHF radios, extra batteries
  - Food and beverages (stove?)
  - Blanket and foot warmers for cabin if it is cold/windy
- Power system
  - Generator

- Fuel
- Donkey dick, funnel, berm, and spill kit
- Uninterruptable Power Supply (preferably charged)
- Long extension cord
- “History eraser button” power strip with emergency off
- Regular power strip
- Anti-hole-freeze kit
  - Tent pole
  - Flexible plastic tubing
  - Duct tape
  - Funnel
  - Either:
    - 5+ gallons hot water
  - Or:
    - Stove and ample fuel
    - Bucket of water

## Setup

The first task is to get the transponder holes surveyed and drilled. This can be done before hand, but the holes may have to be melted out or cleared if they begin to freeze up before the dive. The Navigator and Tender should work on this if they aren’t prepared in advance, and run out the transponder cables either way. The main hole should also be drilled at this point, or checked for ice or slush and cleared out.

Next other equipment can be unpacked and the power system setup; generator fueled and started in it’s berm, extension cables run, etc.

The pilot should start setting up the computers and all other electronics in the control cabin at this point; they can also start up the cabin heater. If the others have extra time they could prepare food, review mission objectives, or even prepare navigation annotations.

Once the computer systems are running, SCINI can be unpacked and given a pre-dive shakedown, checking lights, camera, motor control, etc. This should be done within visual or shouting distance of the pilot. The transducer battery should be checked and it’s programmed mode checked at this point, but not left powered up. During or after the pre-dive shakedown, the Navigator should start an entry in SCINI’s master dive log with the date, ROV condition, etc.

The last thing to check before beginning a dive is that the transducer is powered up. Then the Tether Tender and Navigator can lower SCINI straight down it’s launch hole while the pilot gives forward thrust.

## Breakdown

After a successful dive, once SCINI is back out of the water, breakdown can begin. The transponders should be pulled up and coiled as soon as possible, to make sure the cables don’t get tripped over. The holes should be marked if they are going to be reused. Before going back in it’s case SCINI should be dried and have it’s transducer shutdown.

The Navigator should complete the dive log before the Tucker leaves the dive area, including and problems that were encountered.

## **Procedures**

### **Generator Maintenance**

The oil level should be checked before deployment.

The generator needs to be checked for fuel level regularly, perhaps every time the transponder holes are cleared. The Navigator is responsible for ensuring that there will be enough fuel to complete the mission, and that the generator's fuel tank gets refilled on time (probably by the tether tender).

### **Transponder Holes**

The Navigator is responsible for making sure that the Transponder holes do not get iced shut, usually by having the Tether Tender check every *30 minutes*. The Navigator should setup the mechanical timer to go off at this time interval and remind the tender to check. Obviously checks should be done more frequently in cold or windy/snowy weather when the hole could freeze faster, or less frequently if there is no slush accumulation over the span of several checks.

When checking, look for slush building up in the hole, and make sure the transponder could cleanly be pulled out, either by pulling it all the way to the surface (would require a pause in acoustic navigation) or by pushing a similarly sized object down the hole on with a stick (assuming the hole is big enough for both). Slush can be cleared out with an extra drill flight.

In the event that a transponder can't easily be recovered, or it looks like the hole is getting too thin, the Tender and possibly a helper should immediately begin recovery efforts using the hot water kit. If the hole is thin but the transponder is recovered, a new hole can be drilled at a 1 meter offset; a helper will definitely be needed.

### **Breaks**

During long missions breaks are almost certainly required. If the pilot or navigator gets cold at any point they should get moving and warmed up sooner rather than later. At least one person needs to be monitoring SCINI at all times to check for leaks, floods, large animal interactions, current drift, ice formation, over heating, etc. SCINI's lights should be turned off during a break and video recording paused. Transponder and generator checks always need to be continued.

Any time there is a crew swap, the old crew member needs to explicitly pass on their responsibilities to the reliever, along with any other information about the dive thus far.