

STREAM HYDROLOGY TRAILER

Teaching Guide

Stream Education Team Leaders:

Marley Beem
Billie Chambers
Michael Smolen
Bill Ross
Mitch Fram
Kevin Shelton
Tim Propst

Oklahoma State University
Cooperative Extension Service

This program is a part of the Caring for Planet Earth environmental education effort of the Oklahoma 4-H organization, a part of the Oklahoma Cooperative Extension Service and Oklahoma State University.

The stream trailer program was funded in part by the USEPA through educational grant NE-986242-01-0

The stream hydrology trailer described in this document was built by Wayne Kiner and crew of the Biosystems and Agricultural Engineering Laboratory of Oklahoma State University. The design is based on a model from the Kansas Conservation Commission.

April 2001

SETUP INSTRUCTIONS

- Always practice your setup and lessons in advance to familiarize yourself with the controls, observe the response of the model, and avoid problems. If grit is dry setup early and allow it to run. Dry grit floats making for poor appearance.
- Save a large cupful of dry grit to sprinkle as a “tracer” into the flow to show where the current is fastest.
- The law requires the trailer to have working taillights, brake lights and turn signals. Safety chains must be used and the trailer driven in a safe and reasonable manner.
- Spare tire is on a crank down hanger under the trailer tongue. The Lug Wrench fits spare tire hanger, lug nuts and rear jack stands. To change a tire, use rear stands to jack up trailer.
- If 110-120 volt service is available, the trailer can be plugged in at the front using an ordinary extension cord. Charger and battery are located in the drawer at the front. Charger should be set for 2 amp operation. The drawer may be closed during operation.
- A garden hose will be needed to fill the reservoir. Open the rear door and insert hose in the opening of the tank. A clear plastic tube shows the water depth in tank. If the grit is dry, you may need to run the pump to wet it then add water. Do not overfill, or it will leak when shut off.
- It is important that the trailer axle be level so that the stream will stay in the middle of the grit bed. On uneven ground, pick a spot where the trailer is level side to side. Use the small hand level provided.
- Level the trailer side-to-side using the rear jack stands. First pull the pin on each rear jack; then reinsert the pin and crank jack using the lug wrench until it contacts the ground.
- Set front-to-back slope using the hitch jack.



Jacks at rear of trailer are used to level side-to-side. They can also be used to replace a tire.

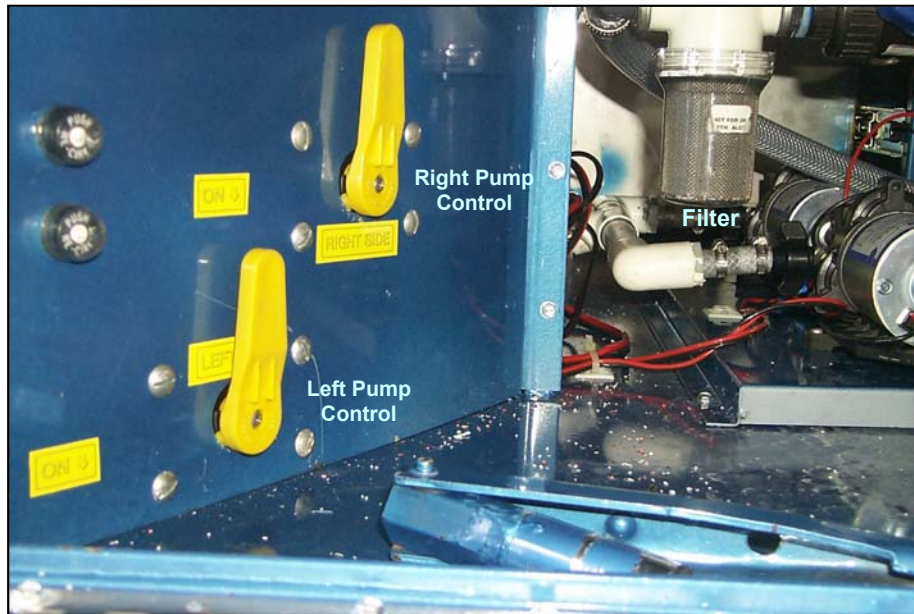


Outlet filter keeps grit out of water tank below. Clear filter by rotating swirling, or washing it with water.

- Outlet filter (above, right) occasionally requires cleaning. Even when covered with grit, it has a flow rate that matches the pump. A scoopful of clean water sashed against the filter is the most effective means of cleaning it. Do not remove the outlet filter or grit may clog internal filters. Try to keep the immediate area

around the filter free of grit. Occasionally a more thorough cleaning may be needed to remove “lint” – seek further advice.

- Two cartridge filters are located inside the access door on the left at the front of the trailer (see photo). A large blue valve handle points to the active filter. Filters can be switched without shutting off pumps. Filter cleaning is only required occasionally – if you do clean them be certain to remove all grit, because the pumps are very sensitive to grit. In cold weather, empty filter canisters to prevent freeze damage.
- Take care not to spill too much grit – it is expensive.



- Signs are available for most lessons to help point out features. These are especially useful if the model will be left unattended at a fair. There are plastic bases (pvc pipe sections) for Signs that will be placed in middle of the stream.
- The screed board and other large items (such as the stream channel board) are stored inside the trailer in the area visible through the access door on the left side.

CLEAN UP

- Keep trailer neat for the next person
 - Wash teaching materials at inlet to remove grit.
 - Return materials to the appropriate lesson box. Check inside lid of each box for list of contents.
 - Rocks should be returned to the box marked “Rocks” to avoid damaging delicate teaching materials.
 - Place small laminated signs back into protective envelopes. Remove any sign bases and store them loose in their lesson box.
- Drain the reservoir through the flexible tube that is attached to it. If it is necessary to drain the trailer while it is indoors, attach a garden hose to the flexible tube.
- In cold weather, remove filter canisters and start pump to expel water so they will not freeze.
- Before driving away:
 - Make sure the hitch jack and rear jacks are fully up and locked
 - Make sure hitch is fully engaged, safety lock, and safety chains are engaged and tail light hookups are working properly
- Fill out report form recording audience size, ages, etc. and give to person who checked the trailer out to you.
- Report any missing or broken items.

PROBLEMS

If you need assistance contact the Extension office where you checked out the trailer. If that is not possible, the following individuals may also be able to help:

Marley Beem, Ada, (580) 332-4100

Mitch Fram, Muskogee, (918) 687-2458

Mike Smolen, Stillwater (405) 744-8414

Billie Chamber, Stillwater (405) 744-8885