The following procedure is used to set up the ripple tank for further experiments. The more carefully you follow this procedure, the better your results will be!

The ripple tank consists of three major components:

1. The tank itself.
2. The wave generator
3. The light source.

The waves are generated on a thin layer of water in the tank by the wave generator. The light source illuminates the tank and allows you to see the shadows of the waves on the tabletop below. You will manipulate the waves in various ways, but first let’s get the basic setup done:

Because of the weight and fragility of the glass wave tank, two people should work together to assemble it. As you complete each step in the setup, check the box in front of the step.

Procedure to assemble and ready the ripple tank:

- Lift the wave tank and frame from the packing foam. *It’s not heavy, but be sure to hold it securely so the glass does not fall out of its frame!*
- While one person holds the wave tank and frame on one edge, the other person should install the four legs on the threaded studs. Tighten these firmly.
- Place a sheet of paper under the wave tank. *Center the paper (more or less) under the tank.*
- Install the wave generator on the shorter ring stand, with the generator pointing in the same direction as the stand’s base. *Do not over tighten the clamp screw! Place a weight on the base to prevent the stand from toppling.*
- Install the actuator forearms (the S-shaped wires) on the ripple arms of the ripple generator. *Either end just slides into the clip.*
- Install the Plane Wave Actuator Bar (The metal strip with several screws through it) on the ends of the actuator forearms. *The forearms just slide into the holes on the actuator bar.*
- Place the wave generator on the end of the wave table that has the drain hole. *You will have to adjust its height so that the actuator bar is a fraction of an inch above the glass surface of the tank bottom.*
- Install the horizontal rod onto the taller ring stand with an angle rod clamp. *The rod should point in the direction opposite the base, and be as high as possible on the ring stand rod.*
- Place the taller ring stand on the opposite side of the ripple tank from the short ring stand and wave generator. Place a weight on the base to prevent the stand from toppling.
- Install the light source on the horizontal rod. Center it over the tank. Do not over tighten the clamp screw!

Now you will level the tank. This is a crucial step!
- Place the circular bubble level in the center of the tank. Screw the “feet” at the end of the tank’s legs out (downward) to move the bubble away from that leg. Repeat the process until the bubble is centered and all four legs are firmly on the tabletop. You don’t want a wobbly ripple tank! Don’t lean on the table while using the ripple tank.
- Put a rubber stopper in the drain hole. Forgetting this step is embarrassing!
- Pour 1500ml of water into the ripple tank. This is a good starting amount, but you’ll probably have to fine-tune the amount later on.
- Slide the ripple generator down until the wave actuator bar just touches the surface of the water. Don’t worry if the bar isn’t perfectly level, you’ll fix this presently!
- Using the three thumbscrews on the top of the ripple generator, level the wave actuator bar and fine-tune its height until it just touches the surface of the water. You don’t want the screw heads touching the water at all!
- Turn the Frequency knob on the wave generator counterclockwise until it stops. This ensures that the unit is off.
- Plug in the wave generator.
- Plug in the light source.
- Turn on the light source.
- Set the wave generator phase adjustment to zero and tighten the phase lock knob. This will probably already be done, but check it to make sure.
- Set the amplitude adjustment slider to “4” on both sides of the generator. Again, this will probably be done, but check to be sure.
- Start the wave generator by turning the Frequency knob clockwise until a regular wave pattern appears on the paper below the tank. The waves should all be straight across the tank and parallel to each other as they travel across the tank. If they aren’t, figure out why and fix the situation before proceeding!

Questions:
What was the most difficult part of setting up the wave generator?

What would you change in the written procedure to make the setup easier?