

Star Trek TOS communicator MOTOR upgrade kit

Install instructions

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Package

Your package should include:

- Moiré motor
- Button cell battery holder with 357 1.5V battery
- wires for switch hookup
- Magnetic switch
- Small circular magnet
- Extra 1.5V 357 battery

Tools

The tools you will need to complete the install:

- Dremel with cutting and sanding wheels
- Sandpaper
- Drill
- Hot glue gun

Install

This install is delicate and needs to be done properly. Please follow all the steps to ensure that your board gets installed properly!!!!

COMM Prep

These steps are extra steps that you have to do above and beyond a static buildup. Do these first so they are out of the way when it comes time to install the electronics board.

- 1) Drill a hole where you want the moiré motor to be centered. This will be where the motor shaft extends to connect up to the moiré paper pattern and the mounting disc.
- 2) If you are going to install a light upgrade, you may want to cut the midplate metal cross member so you have more room to install your electronics. Below is a pic of this done on a roddenberry.com unit.



Now your comm. is prepped for the electronic upgrade install.

Electronics install

The next step is to dremel out the motor shape in the top shell (if necessary). **You have to determine if you have thin comm. shells or thick ones.**

On some of the roddenberry.com units, the shells are very thin (not very deep), and you will have to cut out the motor shape in the top shell. On other kits (such as a JTK comm. kit), the shells are deep enough so that you do not have to dremel the motor shape out, just drill a hole for the motor shaft itself.

MOTOR INSTALL

To cut out the motor shape: Place the motor through the moiré hole cut in step 1). The motor will be sitting on the inside of the top comm. half. You should have the motor shaft pointing out where the moiré ring would typically go. Now try and sandwich both comm. halves together with the motor inside (also use the midplate, as if you were assembling the comm. up). If the comm. will not close flush, then you have thin shells and will have to dremel out the top comm. half in order to fit the motor in. If your comm. closes flush already, goto step 4) and just glue down the motor to the inside of the top comm. half.

- 1) For thin shelled comms, you have to dremel out the exact shape of the motor so it will sit up enough so the comm. shells can close flush. With the motor sitting in the drilled moiré hole, take a pencil and draw an outline of the motor on the inside of the top comm. half. This will help guide you while cutting.
- 2) Take a dremel sanding tool and drill bit and route out the shape of the motor, using the penciled outline as a guide. Work slowly! Check the shape by test fitting the motor often so you don't overcut. Once you are done cutting, place the motor through the cut out shape so it fits nicely. Below is a picture:



- 3) Now retest the comm. fitting by taking the 2 shells again (with the midplate) and trying to close them flush (as if you were assembling the comm.). The motor should sit up a small amount from the front of the comm. shell, and the 2 shells should now sit flush on the midplate (so you can close up the comm. later without problems).

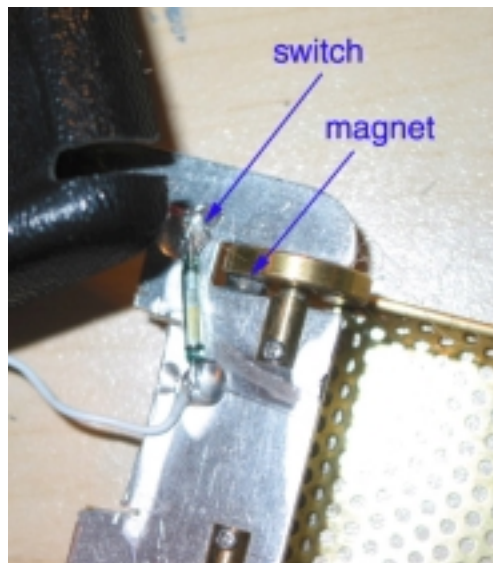


- 4) Hot glue the motor from the inside of the top comm. shell. If you hot glue the black plastic sheath that the motor is housed in, then you will be able to fine tune the motor's position. This is because the sheath moves up and down on the motor, which will provide you with some leeway. Here is a picture of the glued down motor. You can also see the properly drilled holes for the backlit jewels and the middle knob hole.



MAGNETIC SWITCH INSTALL

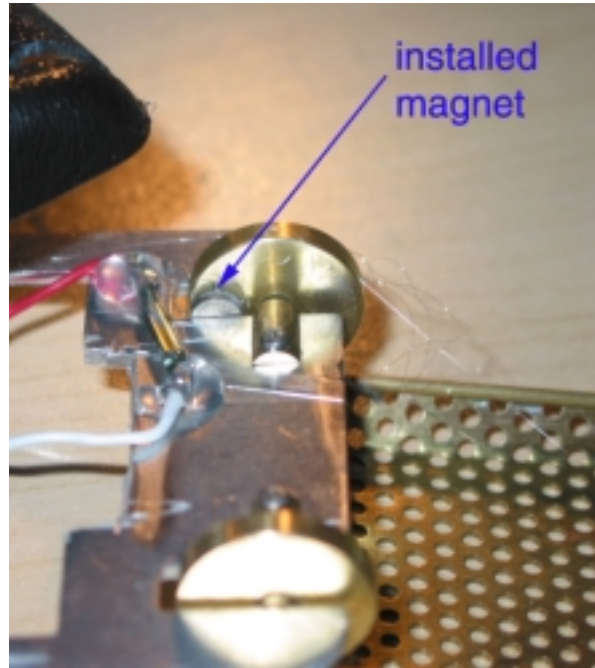
- 5) Take the magnetic switch that is connected to the power wires and run it up to the midplate next to one of the wheels. Test out the switch by bringing the magnet close to the switch. The circuit should come on. Position the switch close enough to one of the grill wheels so that the board comes on when the magnet is on the inside of one of the wheels. Hot glue the switch in place.



- 6) You may have to cut a larger notch out of the comm. halves and the midplate in order to fit the magnet. The magnet should ride on one of the wheels and be able to pass through the midplate and the comm. shells without any impedance. Most of the roddenberry.com kits will need extra filing on the midplate and the comm. halves in order to have the magnet pass through without “catching”.
- 7) To install the magnet, place the back comm. shell on the midplate and remove the top comm. half (so you can see what you are doing). To get the on/off switch to work, you want the magnet to activate the switch when the grill is in the full open position. So, with the bottom comm. half in place, flip open

the grill and mark on the wheel where the magnet should go so it activates the switch when the grill is fully open (which is when the grill is touching the bottom comm. plate).

- 8) Now glue (or epoxy) the magnet to that location of the grill wheel. When you flip open the grill again, the magnet should be in a location close to the switch, which will activate the comm.! **Take your time with this step so you do it right. Measure twice, cut once!** Next is a picture of the installed magnet.

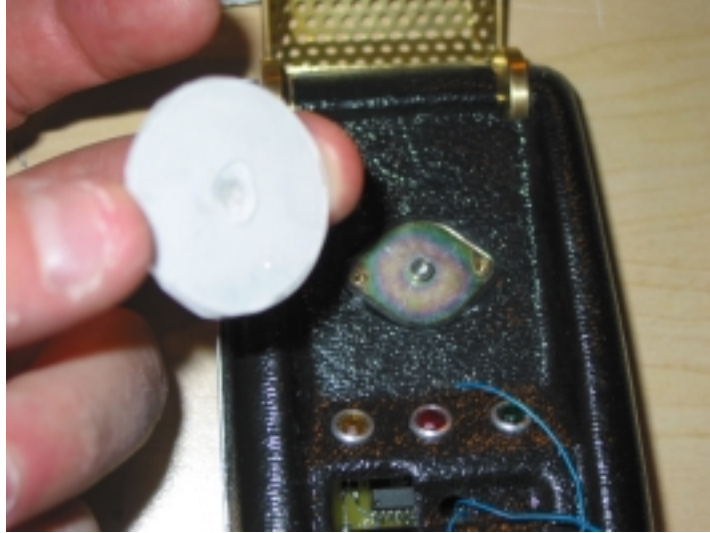


TOP SHELL INSTALL

- 9) Now you are ready to secure the top shell to the midplate. Take the midplate (which now has the magnetic switch attached) and place it on the top comm. half so it is centered to your liking. Make sure the bottom comm. half still fits flush with the midplate too.
- 10) Take some epoxy and run it along the inside edge of the top comm. half. Secure this to the metal midplate and let it dry overnight! Wipe up any excess epoxy on the midplate. Use a small vise to provide pressure if necessary. You want the top comm. half to be secure so it doesn't pop off at a later time.

MOIRE INSTALLATION

- 11) Prepare the moiré ring for installation. Cut the paper moiré to the proper shape. Also, take the clear disc (on a rodd.com unit) and cut it so it is much smaller than the moiré ring (to prevent it from rubbing!). Place it in the moiré ring with the transparency to make sure the disc and paper moiré do not rub.
- 12) You can drill out a small centered hole in the clear disc so the motor shaft will engage the disc in that nub. Here is a picture:



- 13) Now take a small bead of super glue (or epoxy) and glue the paper moiré to the clear plastic disc. You are ready to glue the moiré ring onto the motor.
- 14) **THE NEXT STEPS ARE VERY IMPORTANT.** Take the moiré disc and place it on the motor shaft. Now take the moiré ring and place it over the disc. **MAKE SURE** the moiré ring sits flush on the top comm. half. If it does not, you may have to sand down the motor shaft a little.
- 15) If the motor shaft needs sanding, **BE CAREFUL.** The motor is very delicate. You need to shave a small amount of shaft off until the moiré ring will fit flush onto the comm. You need to do this properly in order for the moiré disc to spin without getting caught up on the inside of the ring! I use a **small sanding disc with a dremel tool** to lightly sand down the motor shaft.
- 16) Now you can epoxy the moiré disc to the motor shaft. Make sure you center the disc on the shaft. Use strong epoxy or other glue so the disc doesn't jar loose later down the line. Also make sure the disc goes on straight and has no pitch to it when on the motor shaft. **DO NOT glue the shaft to the motor body** (just put glue on the shaft nub), or you will have glued the motor down so it won't turn. Let this dry overnight!

Here is a picture of a moiré disc installed and the top shell glued to the midplate:



- 17) After drying, turn on the comm. and make sure the moiré disc spins correctly. Also make sure the disc is well secured on the shaft.
- 18) Now you can attach the moiré ring to the top comm. half. First put the moiré ring on the top shell and hold it in place. Turn on the comm. for at least 30 seconds and make sure the moiré does not get snagged on the ring. The moiré disc should freely spin with no interference from the ring. If it does snag, you will have to remove the ring and cut the moiré disc more or reposition the ring so this does not happen. TAKE YOUR TIME.
- 19) When the moiré is spinning well, you can glue the moiré ring down. Put a small amount of glue on the moiré ring and glue it down to the top shell. While you are waiting for the glue to take hold, turn on the comm. again and make sure that the disc spins freely. The disc will make one revolution in 30 sec, so you can tell in 30 sec if any part of the disc is getting caught up on the ring.

YOU ARE DONE.

Enjoy!

BATTERY REPLACEMENT

You can use any 1.5V button cell to run the motor. Included is a 357 button cell battery, which should last around 3-4 hours in the comm. on continuous operation. You can run the motor up to 2V with a different battery source if you wish. Any voltage greater than 2V will cause the motor to run much faster and decrease its life.