Honda Rear Window Fix

For those Honda Odyssey owners tired of replacing rear window motors at approximately $200 to $300 each here is a simple fix. A design flaw creates the failure. A PTC Thermistor was used to limit motor drive current when the motor reached end limits. For you “non Engineer” types that is a Positive Temperature Coefficient Thermistor, (thermal resistor). This device presents a low cold resistance of approximately 10 to 15 Ohms in series with the motor to limit motor current. As temperature increases resistance increases to over 150 Ohms when hot. The motor assembly was engineered this way to limit current to a stalled motor when the window is fully open or closed. This prevents a motor burn out or fire. The problem is thermostats are notoriously unstable over time with repeated temperature cycling. The failure mode of these devices is to increase resistance, decrease current flow and render the motor inoperable. The fix is actually very simple. One of the nice characteristics of a light bulb is that it too has a PTC. Unlike the thermistor, a light bulb resistance curve is very stable over time with repeated temperature cycling. The trick is to choose a light bulb with sufficient wattage and voltage rating that will pass the required current for normal operation but limit over current to prevent a motor burnout or fire. Here is the procedure I used to modify both of my window actuators on my 2002 Odyssey. To modify both actuators you will need a 2 pack of 194LL turn signal/marker lamps from Autozone, NAPA etc., a 3’ length of ½” heat shrink tubing, 2’ of 18 Ga. High temperature insulation stranded wire, rosin core solder and a soldering iron. Carefully pry apart the actuator as shown in the photo. Remove the motor and plug as an assembly from the actuator. Before removing the plug from the motor, make certain you mark one side of the plug and the corresponding side of the motor with a permanent marker so they go back together in the correct polarity/orientation. Carefully remove the plug from the back of the motor. Remove the thermistor from the plug body by pushing the plug pin back through the plug body. The plug body will require drilling a small hole large enough to pass 2 pieces of #18 Ga. stranded wire as shown, (approximately 1/8”). After soldering the pigtails to the thermistor, thread both wires through the hole drilled in the plug body making certain there are no frayed wires or shorts across the thermistor. Route wires to most direct path through the drilled hole and reinsert the pin and thermistor assembly into the plug body. The leads on the 194LL bulb will not accept solder. If you can get a different 12volt bulb with a slightly higher wattage rating that will accept solder, or a socket for the 194LL bulb the fix will work even better. (This is all I had in the junk bin.) Loop and crimp the pigtails wires through the looped wire at the base of the bulb. Place one wire on each side of the bulb, (to prevent a possible short) and crimp each pigtail to the bulb wire loops with needle nosed pliers. Apply solder to both connections and make certain there are no shorts. (Note, routing the wires as shown in the photo will add strain relief to the connection with the addition of the heat shrink tubing.) Apply a 1½” length of heat shrink tubing and shrink around the bulb as shown in the photo. Plug the motor into the plug assembly, (observe the polarity you marked) and test with a 12volt current limited, (2 amps) power supply. The motor should run but the light
will illuminate only slightly on initial startup or if the motor is stalled. MAKE CERTAIN THE LIGHT WILL ILLUMINATE IF THE MOTOR IS STALLED, THIS IS VERY IMPORTANT! You do not want to proceed if it does not light. If everything works, reassemble the actuator. During disassembly you broke loose a glued seal. The actuator mounting bolts will hold everything in place after reinstallation and re-gluing with CA glue will not be necessary unless you really want to. As far as bulb replacement goes, using a turn signal lamp in this manner will probably out last the car. I would not worry too much about replacement. After remounting the actuator make certain the bulb hangs free and does contact the side of the vehicle. (Eliminates possible rattles or damage to the bulb from vibration.) One more time retest and make certain THE BULB LIGHTS WHEN THE WINDOW IS FULLY OPEN OR CLOSED! (Once again, THIS IS VERY IMPORTANT THAT THE BULB LIGHTS WHEN THE ACTUATOR IS STALLED!) Remember, this is a do it yourself project and I make no warranties implied or otherwise. I have no control over your workmanship or abilities. You burn it, break it, damage it or anything else, you bought it. That said if done correctly this fix would probably last as long as the vehicle. Motor current was marginal with the fix as shown. A slightly higher wattage 12volt bulb would work better. Two of the 194LL bulbs in parallel or the equivalent wattage single bulb would be about the optimum combination. A higher wattage 12volt bulb than the equivalent of 2 paralleled 194LL’s would be too much and may damage the actuator or create a fire hazard. The photos illustrate a step-by-step procedure for making this modification to the rear window actuators. Use at your own risk.

Un-modified actuator

Pry apart here.
After actuator is apart ..... lift motor and plug out as shown.

Motor and plug assembly.  Mark 1 end of plug and motor, (polarity)
PTC Thermistor visible, (Diaogonal brass piece) and removed from plug body

PTC Thermistor W/pigtail leads.  Plug body with drilled hole.  (Note hole location.)
Two pack of lamps.

Lamp and pigtail installed. (Note orientation of the lamp.)

Lamp with heat shrink tubing.

Reinstalled motor and lamp.
Completed actuator assembly. Reinstalled and ready to go.