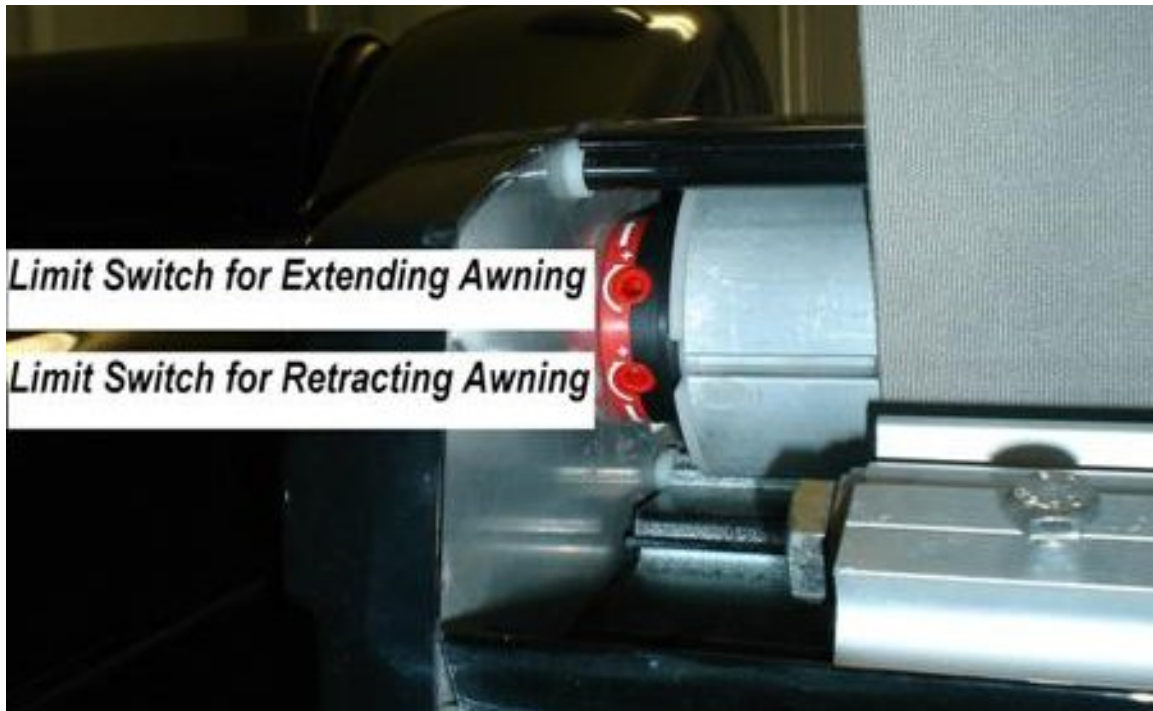


## **Adjusting the OTD (Over the Door) Motor Limit Switches**

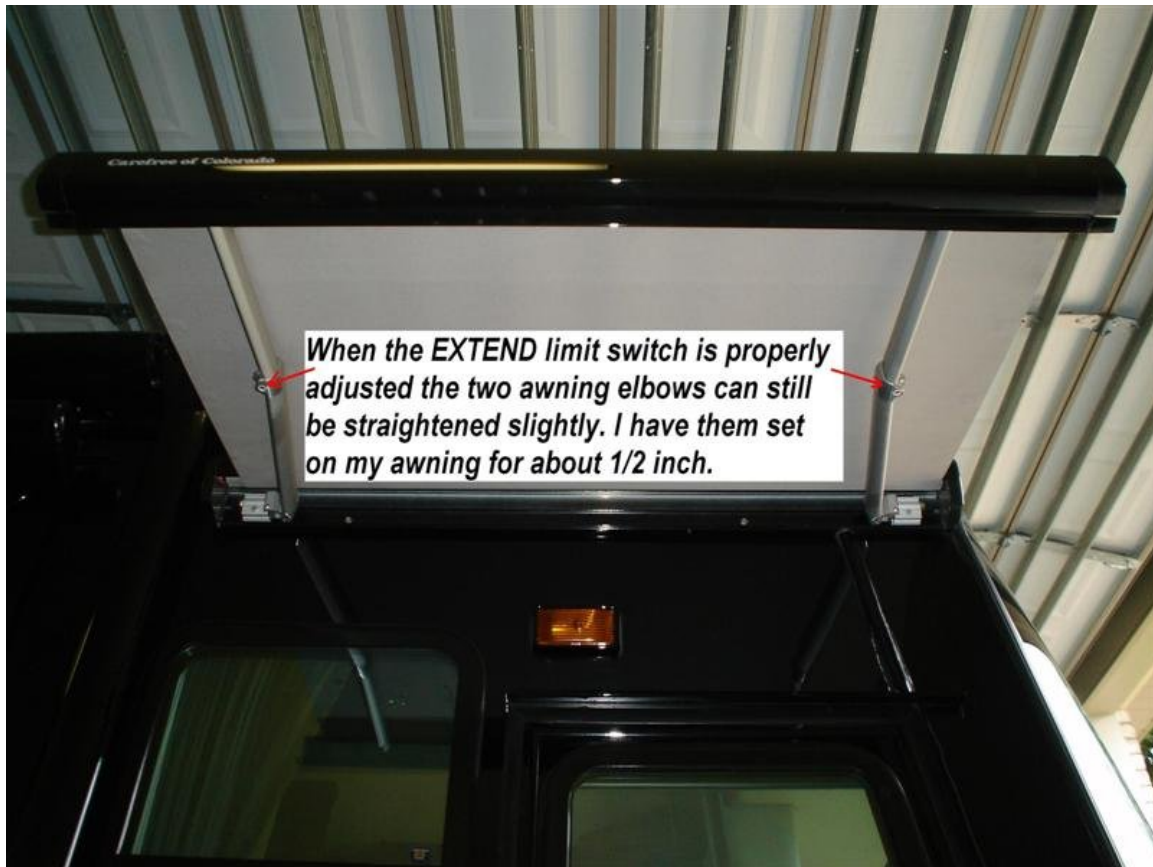
**Last year the drive motor mechanism broke on our Carefree of Colorado (Over the Door) awning which left the awning extended. We did not know it had broken until we attempted to retract the awning. Fortunately we were at the FMCA rally in Perry, GA., Carefree had a booth at the rally after speaking to the local rep we were able to schedule a warranty motor replacement for the next afternoon. The next day when the two technicians came out to replace the motor I asked them what happened to cause this problem. After removing the motor they showed it and the gears to me and what had happened to cause the failure. The motor is internal to the awning tube. The inside of the tube has a square socket into which a plastic spacer is installed then the motor has an aluminum projection (kind of like a bladed arrow tip) which mates with the plastic spacer. Below is a picture of the limit switches on my awning, the picture was taken looking up.**



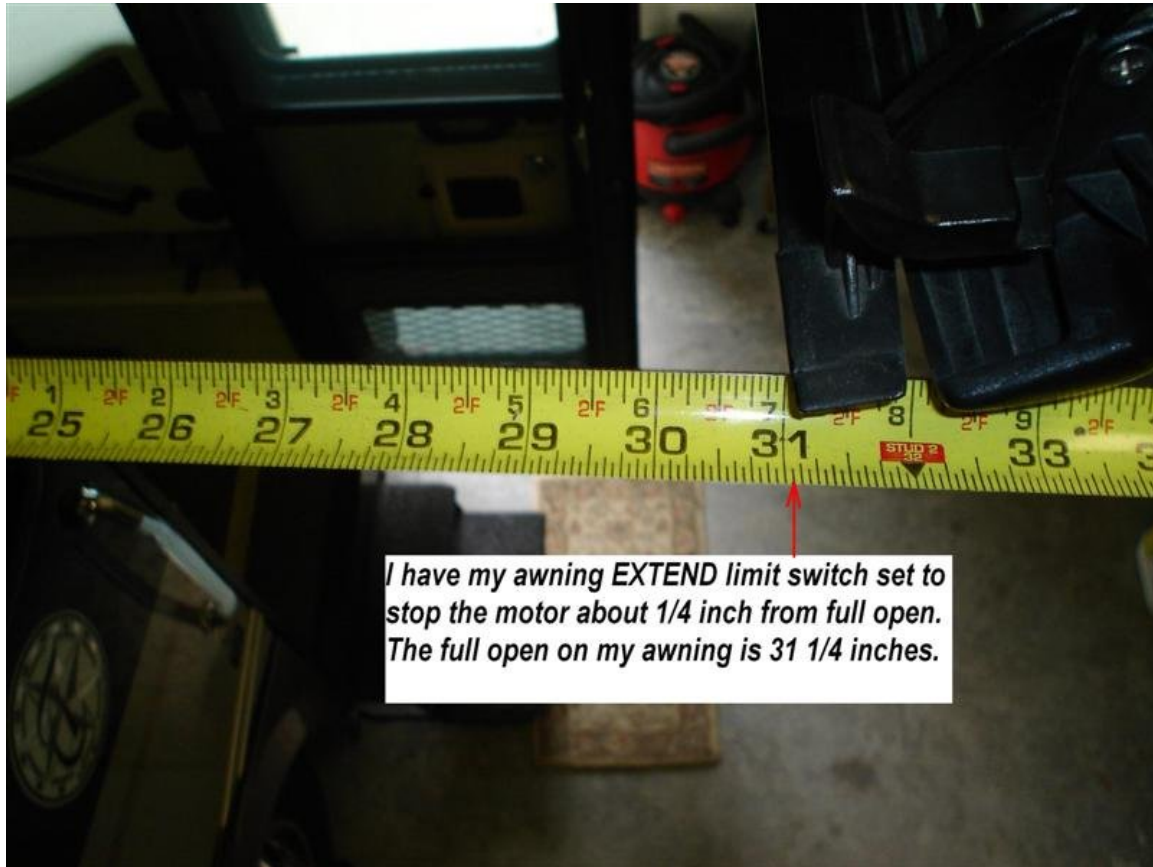
**Why does the aluminum and plastic break? Tiffin when they install the awning DOES NOT TAKE THE TIME TO PROPERLY ADJUST THE TWO LIMIT SWITCHES, one limit switch stops the motor during awning RETRACT and a second limit switch stops the motor during**

awning EXTEND. A 4 MM Allen wrench is used for adjusting the limit switches.

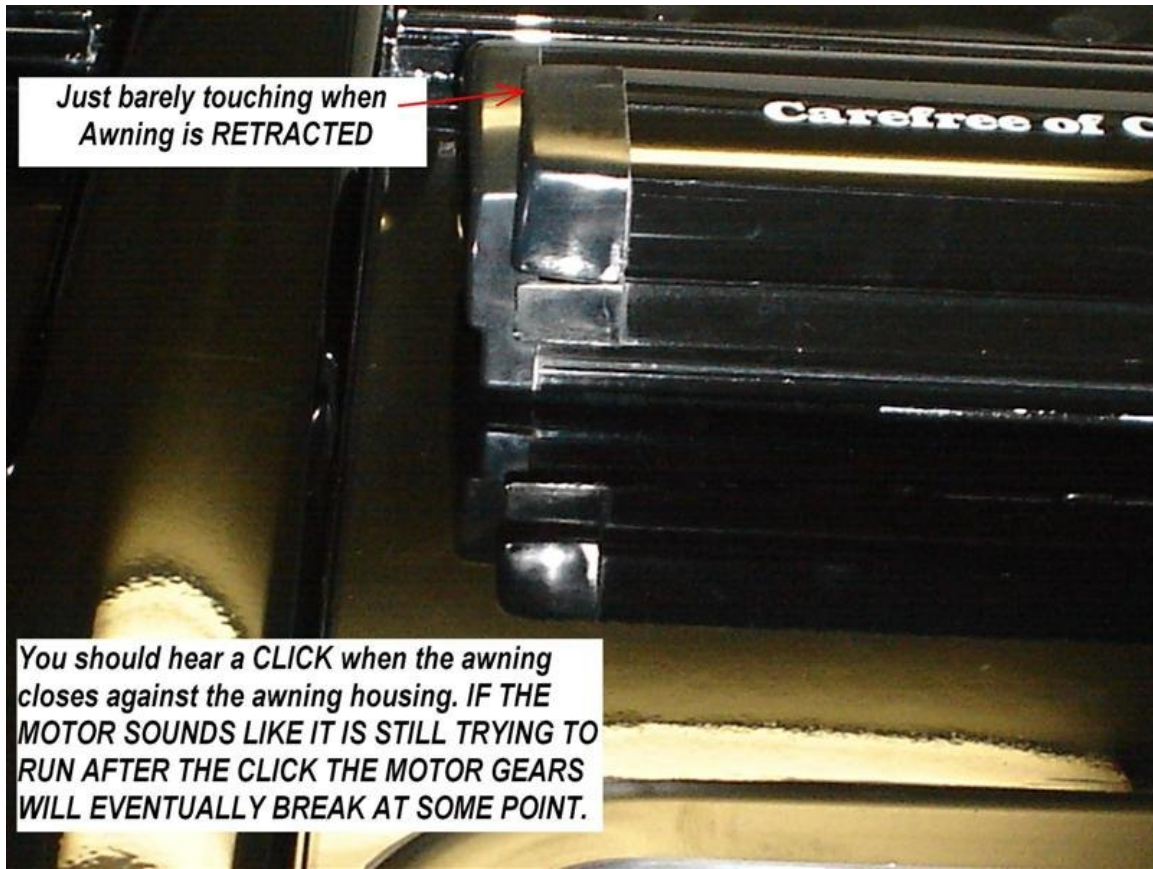
The gear and spacers are broken when the motor is driven until the motor stalls instead of turning the motor power off by adjusting the limit switch to stop the motor when the awning is fully retracted. The component damage is done during RETRACTION not during EXTENSION. Each time the motor is stalled to a stop, stress is placed on the aluminum and plastic pieces until they break when they break the motor spins but the aluminum and plastic pieces get chewed up and therefore are no longer able to drive the awning tube which closes the awning. If the limit switch for EXTENSION is not set properly, however the limit switch was set close to being correct the only problem would be a loose awning fabric. The awning tube would rotate until the fabric was loose after the awning elbows had reached full extension. So you want to set the extend limit switch to stop the motor just before the awning elbows have reached full extension. I can take the awning elbows on my awning and manually straighten them about 1/2 inch more then I have the limit switch set to turn off the motor.



**In the next picture I show where I have set the full open awning position to slightly over 31 inches, on my awning full open with awning elbows fully extended is 31 1/4 inches. The 31 inches is measured from the wall of the coach to the inside metal lip on the awning.**



**I found multiple retract and extend operations are necessary to properly set the limit switches. After a few operations and listening really close I was able to HEAR a CLICK when the two metal pieces of the awning housing met. If I allowed the motor to operate after I heard the CLICK the motor could run until it stalled. Allowing the motor to continue operating until it stalled is what is breaking the aluminum and plastic parts. The RETRACT limit switch should be adjusted where the motor shuts off at the CLICK. When you have the limit switch set in that manner the motor and drive components should last a long time. Carefree of Colorado had a long four year warranty on the OTD awning motor installed on the 2007 coaches. However after OEM's like Tiffin not properly installing and setting the limit switches on the awning that warranty period has been drastically shortened.**



As already stated, if you set the **RETRACT** limit switch to turn off power to the motor when you hear the **CLICK** of the housing closing and you have the **EXTEND** limit switch set to stop the motor just before the awning elbows are fully extended you should have many happy years of use from your Carefree of Colorado (OTD) Over the Door awning.

I do not have the damaged pieces from the original awning motor and plastic spacer. If I had those pieces I would attempt manufacturing parts in order to repair the original motor and spacer.

The next time you **RETRACT** your door awning listen for the **CLICK**, if you hear it and the motor is still running after the **CLICK** it just a matter of time until the parts are going to break.

Listen for the **CLICK** and then if needed get the limit switches adjusted prior to the next time you use the awning. The limit switches can be seen and are accessible while the awning is partially open.

The replacement motor limit switches are mounted slightly different than the limit switches on the OEM motor.