



## CARTER Gear-Down Explanation

If you do not use a 'Gear-Down' on a Carter to balance the pulls of the G#'s to A's (normally activated with the 'B' pedal of the standard E9th tuning), then you would need to use a wound .022w for your 6th string. Otherwise, if you are using a plain .020 or .022 for your 6th string with no Gear-Down, then you will have an un-balanced pull when raising your G#'s to A's...meaning that you will feel a definite 'chuck' in the action, because the 6th string will not start to engage until the 3rd string is almost at its full pitch raise.

(The only other way to achieve balanced pulls on the G#'s to A's without using a Gear-Down, would be to use a higher hole in the 3rd string rod puller. This would create a stiffer action & shorter throw...& be very unpleasant.)

The proper rodding on a Carter for the 3rd (G#) string is in hole #2 of the rod puller (Pull Bar) counting out from the cross-shaft. Since you need less travel for the 6th string to pull evenly to pitch with the 3rd string...you only have one lower position remaining in the 6th string rod puller (hole #1 counting out from the cross-shaft). This position will not achieve the necessary leverages for a balanced pull.

Therefore, with a Carter, ideally one would have to lower the pull rod of the 6th string down below the cross-shaft to achieve the balanced pulls. Since this is not possible, we achieve the balanced pulls by installing the Gear-Down, so that you still have the nice short & easy action along with the balanced pulls.

The Gear-Down is required due to the fact that a Carter has a short pedal action (throw). For instance, an Emmons guitar (& many other brands), have about twice the amount of travel in their foot pedals to achieve the same amount of string pull. That may be why you have never used it before.

I would never question Bud Carter on anything to do with pedal steel, as I consider him one of the most knowledgeable people in the pedal steel business. Remember, he designed the original MSA changer with nylon tuners (which is the standard used by most manufacturers today), as well as designing the MCI/EMCI guitars in the 1980's, then the Carter guitars in the mid 1990's, & now he is assisting Larry Agan with the production of the ETS pedal steel guitar.

Most every E9th Carter player has used the Gear-Down since its introduction, as it sure makes the action easier & nicer.