World Class Steels, Inc.

CARTER™

Owner's Manual

(800) 969-7332 *Order Line*
(972) 288-9100 *Tech Line*
Talk Line (972) 475-2324
Fax Line (972) 412-7353

CARTER STEEL GUITARS

P.O. Box 851324
Mesquite, TX 75185-1324 U.S.A.
E-Mail: psgbuilder@steelguitar.com

617 West Kearney Street, Suite 101
Mesquite, TX 75149 U.S.A.
Web Site: www.SteelGuitar.com

CONGRATULATIONS!

You are now the lucky owner of the best pedal steel guitar available anywhere in the world today!

With normal care and maintenance, your CARTER STEEL GUITAR should last a lifetime.

Please take a few minutes to *read* through and familiarize yourself with this Owner's Manual so you can become familiar with the general mechanics and care requirements of your new CARTER STEEL GUITAR.

For your convenience, we keep computer and video records of each guitar and setup so we can assist you in answering any questions or helping you make any changes to your setup.

Once you have read through this Owner's Manual, please feel free to call us with any questions you might still have.

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CARTER STEEL GUITARS

The CARTER STEEL GUITAR is carried in a single case divided into two (2) sections for maximum protection. The guitar fits into the back section with the divider and blocking securing the guitar. The pedal bar and pouch containing the legs and pedal pull rods fit in the front section. This arrangement provides maximum protection against possible damage while transporting the CARTER STEEL GUITAR.

ASSEMBLY & SETUP

Upon opening the case, **note** the position of the guitar in the case: *as you face the case,* notice that the changer is on the left side of the case, with the pedal bar side *(front of guitar)* to the back of the case, *and* the underside of the instrument facing upward. This position allows easy and convenient removal from the case. The guitar should *always* be put back into the case in this position.

Remove the pouch containing the legs and rods from the pedal bar section of the case and screw the legs snugly into the end-plates. **Please Note:** the FRONT legs are easily distinguished from the back legs by the BLACK marking on the threaded slugs of the FRONT legs. Next, remove the pedal bar from its compartment with the pedal surfaces facing down and the pedals extending toward you. While maintaining the pedal bar in this position, place it at the bottom of each of the two (2) front legs by fitting the notched portion of the bar to the thinner portion of each leg. Next, slide the pedal bar locks outward and tighten the wing nuts. *(See Figure 1, Page 2.)*

Now, look at the pedal rods. The number tags near the quick-disconnect end indicate which pedal they are adjusted for. Pedal number one (1) is farthest from the changer, or the extreme right. Hook the rod into the pedal rod pull hole *(See Figure 3, Page 5)* so that the hook faces toward the left end (changer) of the guitar. To hook the pedal disconnect to the pedal *(See Figure 1, Page 2):* first: depress the spring-loaded outer shell of the disconnect. Next: slide the pedal ball-joint into the exposed slot *and* release the outer shell. This will lock the ball-joint into place. Repeat this procedure for each of the other rods. Raise the knee levers to their respective vertical positions.

The guitar is now fully assembled. *Please refer to the next page for instructions on removing the guitar from its case.*

To remove the guitar from the case: lean over the guitar, *and* grasp one (1) of the front legs in one hand *and* one (1) of the rear legs in the other hand [hold these two (2) legs close to the body of the guitar]. Carefully lift the guitar straight up. Now, slowly allow the guitar to turn over to its vertical position, setting the front legs on the floor first *and* then allowing the back legs to settle onto the floor.

NECK SELECTOR

Double-neck guitars are equipped with a 2-position neck selector switch, which lets you select:

1. The *front* neck only: extreme *left* position; and
2. The *back* neck: extreme *right* position.

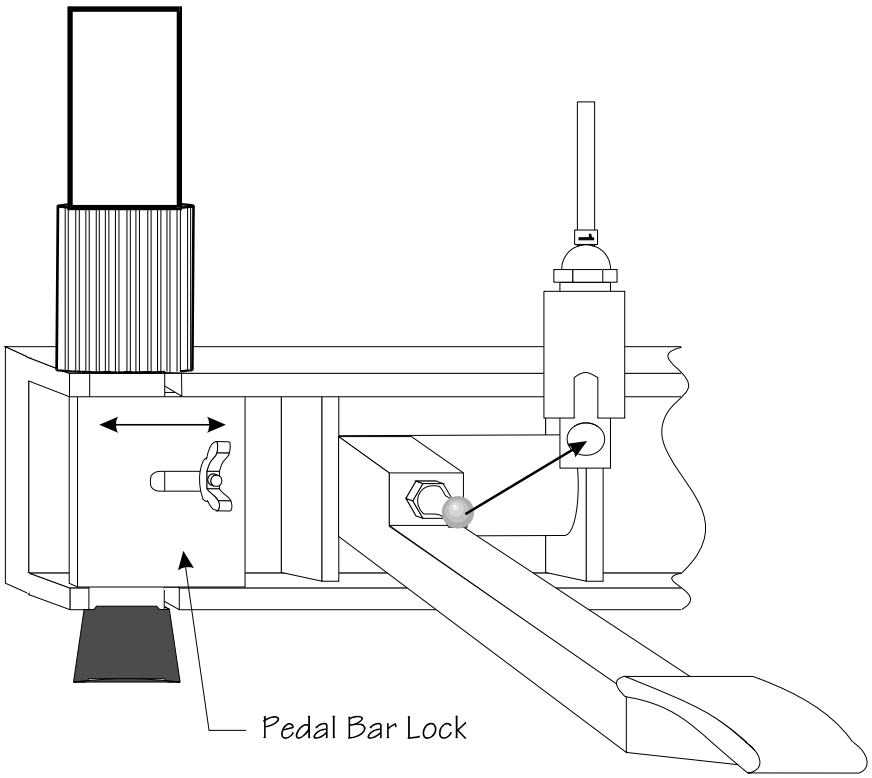

Figure 1

TUNING YOUR CARTER STEEL GUITAR

Tuning Pedals, Knee Levers & Open Strings

The following procedure is used for tuning your CARTER STEEL GUITAR. (CARTER STEEL GUITARS equipped with half-stops and/or tuneable splitters are described later.)

1. **Tuning the strings:** *Without* depressing any pedals, tune each string to the desired pitch by using the tuning keys. Work the pedals up and down occasionally while tuning to insure that the strings are properly stretched.

2. **Tuning the pedals & knee levers:** Depress the pedal to be tuned *and* note the movement of the tuning nuts on the right end-plate. The holes in the end-plate correspond to the string positions. There are six (6) holes for each string. The three (3) bottom rows lower string pitch and the three (3) top rows raise string pitch. To lower the string pitch further, use the tuning wrench on the three (3) bottom rows *and* turn the tuning nuts in a clockwise direction. Repetition of this procedure on the three (3) top rows of tuning nuts (and turning in a clockwise direction) raises the string pitch. With the pedal fully depressed, turn the proper tuning nut by using the tuning wrench provided, until the desired pitch is reached. Turning the nut clockwise will increase the movement of the string. Turning the nut counterclockwise will decrease the movement of the string. Repeat this procedure for the *knee levers.*

   Note: A slight amount of slack is necessary in the linkage system to provide room for normal tuning. This slack has been pre-adjusted at the factory for your gauges and tuning(s). *(See "Your Personal Tuning Chart", Page 13.)*

   There should be slack in the pulling train. If the adjusting nut is turned too far in the clockwise direction, the string will not return to proper pitch after the pedal is released. If this happens, the tuning nuts should be turned in a counterclockwise direction until they no longer affect the pitch of the string with the pedal not depressed *and* the total pedal travel should be readjusted. *(See also **Pedal Stop Adjustment** on Page 5, Number 2.)*

Tuning the "Half-Stop"

The "half-stop" on the 2nd string ($E^{\flat}$) string of the E^{9} tuning is adjusted as follows:

1. Tune the open tuning with the key as usual.
2. Tune the full-tone change ($E^{\flat}$ to $C^{\sharp}$) with the respective nylon hex nut.
3. Tune the half-tone lower "feel" by adjusting the nylon hex nut for the half-stop. This nut should be adjusted to contact the half-stop changer finger when the 2nd string reaches its half-tone change ($E^{\flat}$ to D). *(See Figure 2, Below.)*

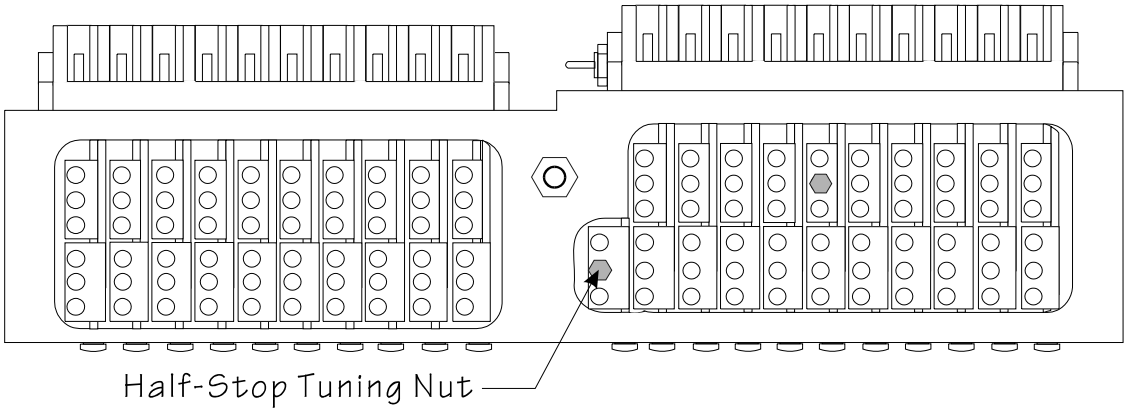

Figure 2

Tuning the Tuneable-Splits

This optional feature allows you to have a combination tuning on strings which are raised one (1) full tone and lowered one-half (½) tone (or vice versa).

The tuning procedure for guitars equipped with tuneable-splits is as follows:

1. Tune open tuning keys with the keys as usual.
2. Tune raises with the nylon nuts as usual.
3. When both the raise and lower function are engaged at the same time, the resultant note is tuned with the nylon nut that ***lowers*** the string. Turn clockwise to lower the note.
4. Finally, tune the lowered note alone with the respective *Black* ***raise*** nylon nut.

1. ***Pedal Height:*** The height of the pedals from the floor can be adjusted by loosening the lock nut on the pull rod at the ball-joint connection. Once the lock nut has been loosened, the ball-joint can be screwed in or out as desired. The lock nut should then be re-tightened. *(See Figure 1, Page 2.)*

2. ***Pedal Stop Adjustment:*** To get more travel out of a pedal, the pedal stop must be readjusted under the guitar by using a 1/16" Allen Wrench for the pedal stop set screw. Turning the screw clockwise will decrease the travel of the pedal. Turning the screw counterclockwise will increase the pedal travel. *(See Figure 3, below.)*

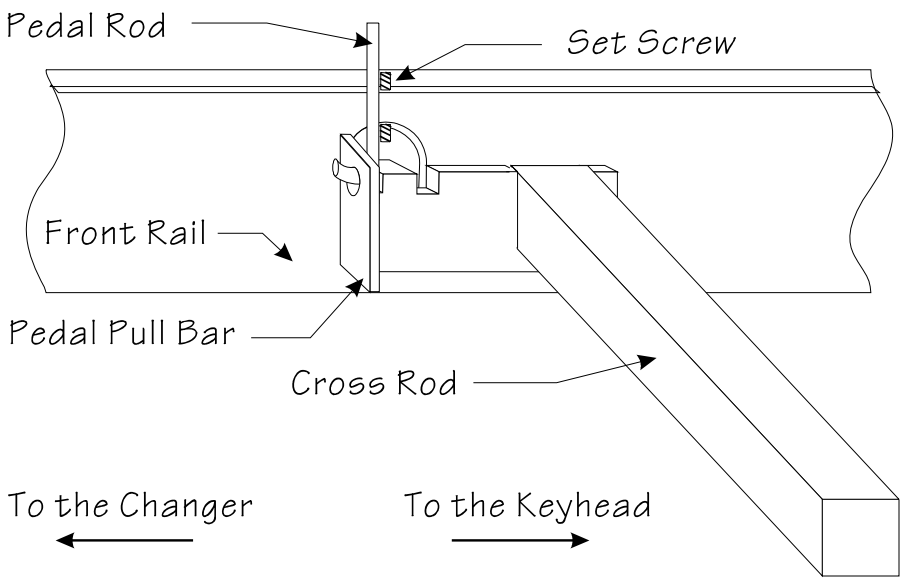

Figure 3

3. ***Knee Lever Travel:*** Knee Levers can have their amount of travel increased or decreased in either *or* both of the following ways *(See Figure 4, below.):*

   (a) Adjust the stop adjustment screw; and/or

   (b) Loosen one (1) of the hex screws in the linkage, changing the position of the pin or barrel nut, *and* realigning the lever by allowing the linkage rod to slide in or out of the pull pin until the desired amount of travel is obtained. The hex screw should then be re-tightened.
   Please Note: Method (b) will change the ease, as well as the amount, of travel.

4. ***Knee Lever Tilt:*** Each knee lever has an individual tilt adjustment screw. This screw does *not* affect the tuning or function of the knee lever; it only affects the position of the knee lever. Adjust the screw to bring the knee lever to the position you desire and re-tighten the locking nut. *(See Figure 4, below.)*

5. ***Knee Lever Slack:*** Knee lever "back-slack" is fixed and preset at the Factory. The slack stop screw is NOT adjustable. *(See Figure 4, below.)*

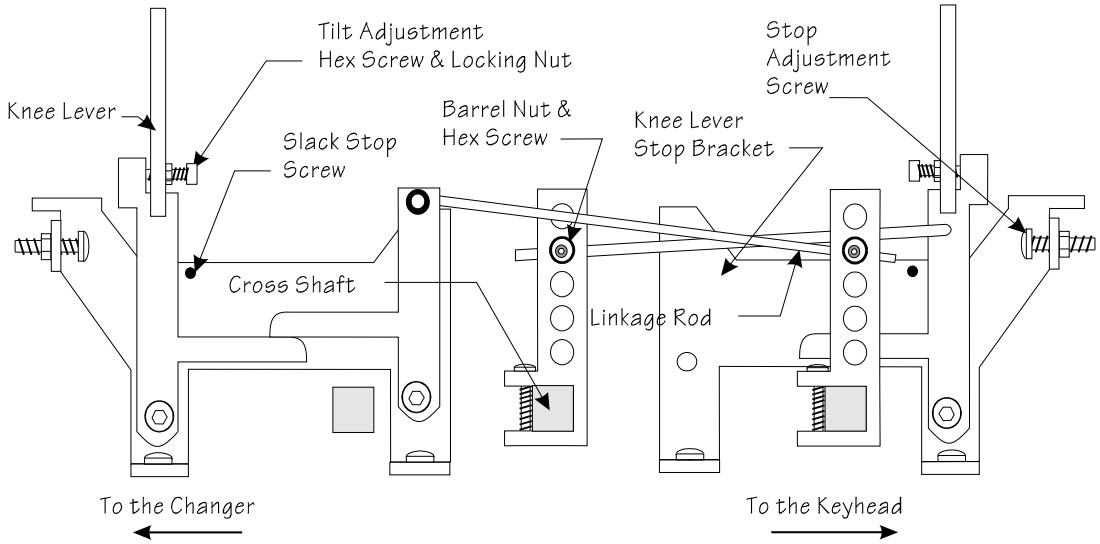

Figure 4

6. ***Leverage Options:*** Your CARTER STEEL GUITAR has more leverage options than most other pedal steel guitars available. All rods have been placed in pull and finger holes that give the most balanced and even pulls for your setup. The pull-finger has five (5) holes, which are used for balancing two (2) or more pulls, *and* for desired speed of pull. Each of the five (5) holes has two (2) adjustments: pull-rod *over* the pull-pin *and* pull-rod *under* the pull-pin. This design makes possible ten (10) different pull adjustments. If you want to relocate a pull-rod: merely unscrew the nylon tuning-nut, reposition the rod in the desired position, and re-tune.
(See Figure 5, below and *Figure 6, Page 8.)*

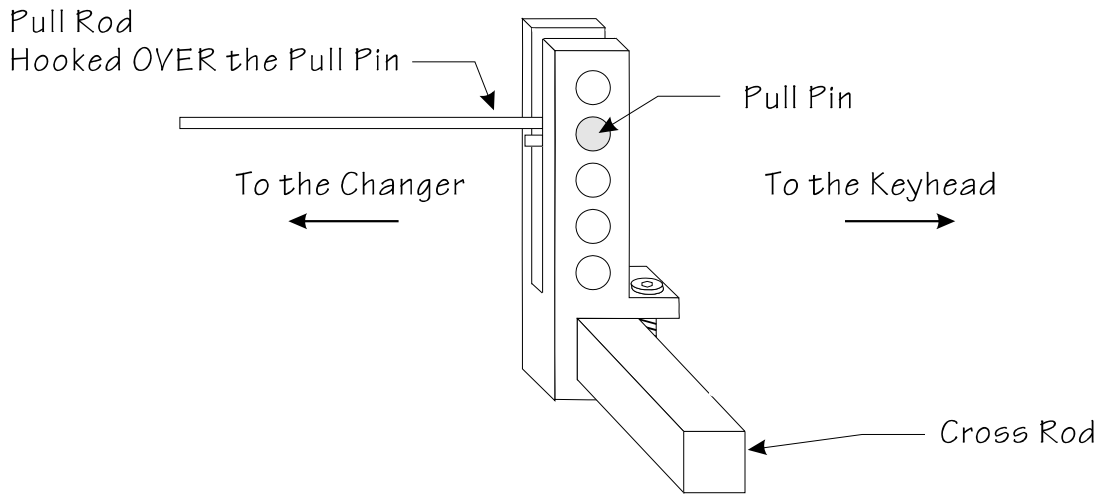

Figure 5

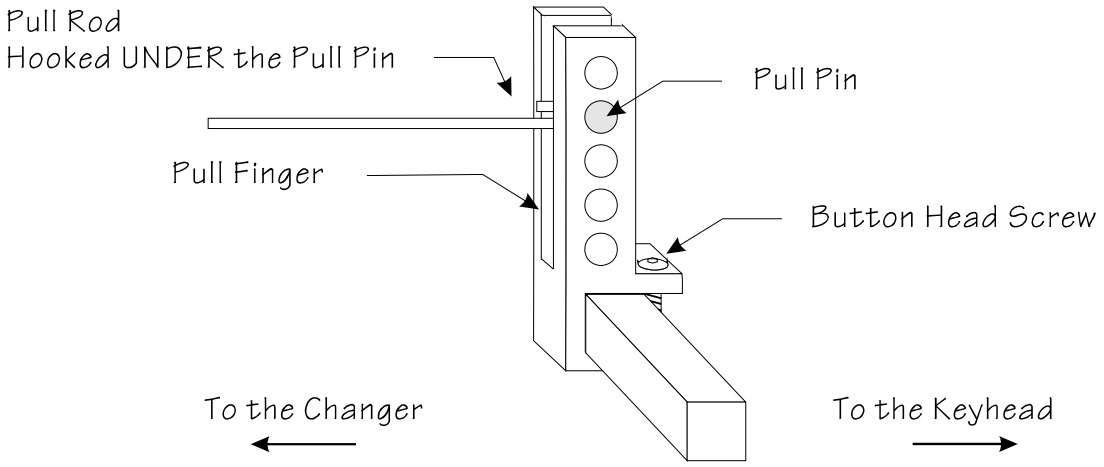

Figure 6

REVISING OR ADDING TO YOUR PEDAL SETUP

The CARTER STEEL GUITAR *all-pull system* is designed to allow changes or additions with a minimum of effort. This is done by using a "pull finger" [the part with the five (5) holes] which can be inserted on the square crank shaft without removing anything else on that shaft. Once in place in the desired position on the shaft, insert the button-head screw *and* tighten snugly, plus ¼-turn. **NOTE: Do NOT attempt to over-tighten this screw.** Insert the threaded end of the pull rod into the proper changer finger hole. The pull-pin may then be inserted into the proper finger hole, the rod hooked onto the pull-pin, *and* the tuning nut attached. *(See Figure 6, Above.)* {If you order additional knee levers and pedals in the future, instructions for adding them will be sent to you at that time.}

GENERAL CARE & MAINTENANCE

Your new CARTER STEEL GUITAR is a precision instrument. Like any precision instrument, proper care and lubrication will greatly enhance the guitar's appearance, performance, and value. Generally, on laminate or lacquered finishes, *never* use any type of abrasive cleaner. Laminate and wood can be cleaned and polished by using a good "show car" finish, like Meguiar's Mirror Glaze Professional®#7 [1] and buffing with a soft, clean cloth. Aluminum and chrome can be be cleaned and polished with a good, non-abrasive cleaner, such as Alumag-Chrome Metal Polish®.[2]

Note: When using SPRAY-type polishes or cleaners, NEVER spray them directly at or onto any part of the guitar. Instead, spray the product onto a soft cloth and apply to the appropriate part of the guitar with the cloth.

Since your new CARTER STEEL GUITAR has been pre-lubricated and fully adjusted at the factory, it requires very little, if any, further adjustment except for personal "feel".

Lubrication must be done on all pivot points under the guitar, about two *or* three times per year. A light, high-grade machine oil is *recommended* and 30W motor oil is okay.

Lubrication

1. **Undercarriage:** All moving parts in the pull system are on Delrin®, nylon or bronze bushings and have been lubricated as needed. *Lubricate several times each year with a light oil.*

2. **Changer:** The changer has been pre-lubricated during assembly. *Lubricate with lightweight machine oil (3-in-1 or equivalent) several times per year.*

3. **Roller Nut:** This area requires occasional lubrication to insure proper string return. A liquid Teflon®-based lube is recommended (a light machine oil also is okay). ***WARNING:*** **DO NOT use WD-40** (or the equivalent) on the rollers or any part of the guitar because this evaporates and leaves a gummy residue, which eventually causes the moving parts to stop moving freely.

4. **Pedals:** The pedals are mounted on a Delrin® shaft. To keep the pedals working freely, use a small drop of light oil at each pedal-end a couple times each year. ***Please Note:*** The ball joint connection at the pedal rod-end is *not* lubricated. If a slight squeak should occur in one of these, use a *small drop* of light oil.

[1]Available at most auto parts stores. Or: Meguiar's, Inc., Irvine, CA 92714, USA.
[2]Available through Karseal Corp., 11552 N. Hart St., N. Hollywood, CA 91605, USA; (800) 276-5474, (818) 765-7681 FAX.

Adjusting the Changer Return Springs

<u>NOTE</u>: Do NOT attempt this until you have exhausted all other possible remedies to this problem (such as lubrication, string ball ends stuck in mechanism, etc.)

The return springs for the lowering finger of the changer have been adjusted at the factory, and normally *require no further adjustment.* No helper springs are needed on CARTER STEEL GUITARS.

The return spring must always be tight enough to hold the lowering finger against the stop bar while the raise finger makes its complete travel. If the lowering finger pulls away from the stop bar slightly: unhook the spring from the finger, cut one coil from the return spring, and then re-hook the spring on the lowering finger.

Strings

Unless you've specified otherwise, CARTER STEEL GUITARS come from the factory in the gauges listed in the two (2) charts below.

When replacing strings, we recommend using strings in the gauges listed in the two (2) charts below *(See Pages 11 and 12).* A deviation from these may require a slight adjustment of the nylon tuning nuts; or it might require relocation of a pull rod in the 5-hole pull finger. *(See also **Leverage Options** on Page 7, Number 6.)*

STRING GAUGES USED ON CARTER STEEL GUITARS'

Standard 10-String Tunings

E^9			C^6		
String Number	**Basic Tuning**	**String Gauge**	**String Number**	**Basic Tuning**	**String Gauge**
1	F♯	.012	1	G (or D)	.012 (or .015)
2	E♭	.015	2	E	.014
3	G♯	.011R	3	C	.017
4	E	.014	4	A	.020
5	B	.017	5	G	.024W
6	G♯	.022	6	E	.030W
7	F♯	.026W	7	C	.036W
8	E	.030W	8	A	.042W
9	D	.034W	9	F	.054W
10	B	.036W	10	C	.068W

***R** = **R**einforced*

***W** = **W**ound*

STRING GAUGES USED ON CARTER STEEL GUITARS'

Standard 12-String Tuning

E^9 / B^6		
String Number	**Basic Tuning**	**String Gauge**
1	F♯	.012
2	E♭	.015
3	G♯	.011R
4	E	.014
5	B	.017
6	G♯	.020
7	F♯	.024W
8	E	.030W
9	B	.036W
10	G♯	.042W
11	E	.054W
12	B	.068W

***R** = **R**einforced*

***W** = **W**ound*

Re: Model No.: _____

Serial No.: _____

Limited One-Year Warranty

This new CARTER STEEL GUITAR is warranted to the Original Purchaser, _____, to be free from defects in both material and workmanship for a period of ONE (1) YEAR from Date of Original Purchase. Date of Original Purchase is determined by adding seven (7) days to date of shipment from factory *or*, if received at the factory, date of receipt. The Original Purchaser must be an individual person. Names of bands, clubs, churches, groups, institutions, organizations, etc. are not acceptable as the Original Purchaser.

Should any part of your new CARTER STEEL GUITAR be defective, it will be repaired or replaced free-of-charge (except transportation), provided it has been operated according to the instructions in this Owner's Manual, which accompanied the guitar when delivered to Original Purchaser. Should any trouble develop during this one-year period, return the COMPLETE guitar, freight prepaid, to **World Class Steels, Inc.** *dba* CARTER STEEL GUITARS' (hereinafter "WCSI") factory or to an Authorized Service Center. You may obtain in the location of the Authorized Service Center nearest you by contacting the factory.

This Warranty does *not* apply to: guitar cases, strings, tunings, adjustments, or surface finishes. Additionally, this Warranty does *not* apply where repairs are required because of normal wear and tear. This Warranty is void if, in the sole judgment of WCSI:

1. Guitar has been damaged by abuse, accident, misuse, mishandling, the elements, or improper maintenance;
2. Repairs or alterations have been made or attempted by anyone other than the WCSI factory or Authorized Service Center; or
3. Adaptation or accessories, other than those provided or recommended by WCSI, have been made or attached.

In no event shall WCSI be liable for any indirect, incidental or consequential damages from the sale or use of the product. This disclaimer applies *both* during *and* after the term of this Warranty.

WCSI disclaims liability for any implied warranties, including, but not limited to, implied warranties of "merchantability" and "fitness for a specific purpose," after the one-year term of this Warranty.

This Warranty gives you specific legal rights, and you may also have other rights which vary by geographic location. Some areas do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. Some areas do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.