# HEIRLOOM GUITAR KIT

## MODEL H6085

# INSTRUCTION MANUAL


#EW6237 PRINTED IN KOREA

# WARNING

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks, cement, and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

# Table of Contents

# SECTION 1: SAFETY

## ⚠WARNING

Always wear safety glasses or goggles when operating equipment. Everyday glasses or reading glasses are not safety glasses. Be certain the safety glasses you wear meet the appropriate standards of the American National Standards Institute (ANSI).

Because there are various ways to cut and join wood, you can make substitutions for the methods stated in this plan. We try to suggest the easiest methods possible. However, only you know your skills with each piece of machinery. Never compromise your safety by using a cutting method with which you are not comfortable. Instead, find an alternative approach that will yield the same result.

## ⚠WARNING

These instructions assume that you are intimately familiar with the safe operation and use of woodworking machinery and woodworking tools, and understand the techniques used to build this project. If you do not qualify for both of these criteria, **STOP building this project for your own safety.** Read and understand the owners manual for the machinery you intend to use, take a woodworking class or visit your local library for more information. Woodworking machinery and tools are inherently dangerous because they use sharp edges that can and will cause serious personal injury including amputation and death. Do not underestimate the ability of these tools and machinery to cause injury. Never operate any tool without all guards in place and always wear approved safety glasses. For your own safety, please heed this warning.

# SECTION 2: INTRODUCTION

## Foreword

We are proud to offer the Model H6085 Heirloom Electric Guitar Kit. This kit is a part of a growing Grizzly family of fine woodworking products. When assembled according to the guidelines set forth in this manual, you can expect years of enjoyment from your guitar.

We are pleased to provide this manual for the Model H6085 Heirloom Electric Guitar Kit. It was written to guide you through assembly, review safety considerations, and cover general information. It represents our effort to produce the best documentation possible.

## Contact Info

If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.
C/O Technical Documentation
P.O. Box 2069
Bellingham, WA 98227-2069

Most importantly, we stand behind our products. If you have any questions or parts requests, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
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The specifications, drawings, and photographs illustrated in this manual represent the Model H6085 Heirloom Electric Guitar Kit as supplied when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. For your convenience, we always keep current Grizzly manuals available on our website at www.grizzly.com. Any updates to products will be reflected in these manuals as soon as they are complete. Visit our site often to check for the latest updates to this manual!

# SECTION 3: PARTS INVENTORY

| REF | PART # | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | PH6085001 | Neck | 1 |
| 2 | PH6085002 | Guitar Body | 1 |
| 3 | PH6085003 | Pickguard Assembly | 1 |
| 4 | PH6085004 | Tremolo Bridge | 1 |
| 5 | PH6085005 | Tremolo Cover Plate | 1 |
| 6 | PH6085006 | Tremolo Springs | 4 |
| 7 | PH6085007 | Audio Jack | 1 |
| 8 | PH6085008 | Audio Jack Plate | 1 |
| 9 | PH6085009 | Spring Claw | 1 |
| 10 | PH6085010 | Tap Screw M5 X 45 | 2 |
| 11 | PH6085011 | Phlp Hd Scr M3.5 X 25 | 6 |
| 12 | PH6085012 | Tremolo Arm | 1 |
| 13 | PH6085013 | Neckplate | 1 |
| 14 | PH6085014 | Tap Screw M5 X 45 | 4 |
| 15 | PH6085015 | Tuners | 6 |
| 16 | PH6085016 | Tap Screw M2 X 12 | 6 |
| 17 | PH6085017 | Tap Screw M2 X 12 | 6 |
| 18 | PH6085018 | Tap Screw M3 X 12 | 2 |
| 19 | PH6085019 | Bushings | 6 |
| 20 | PH6085020 | Nut | 1 |
| 21 | PH6085021 | String Retainer | 2 |
| 22 | PH6085022 | Tap Screw M3 X 12 | 18 |
| 23 | PH6085023 | Hex Wrench 1.5MM | 1 |
| 24 | PH6085024 | Strings | 6 |
| 25 | PH6085025 | Hex Wrench 4MM | 1 |
| 26 | PH6085026 | Strap Buttons | 2 |

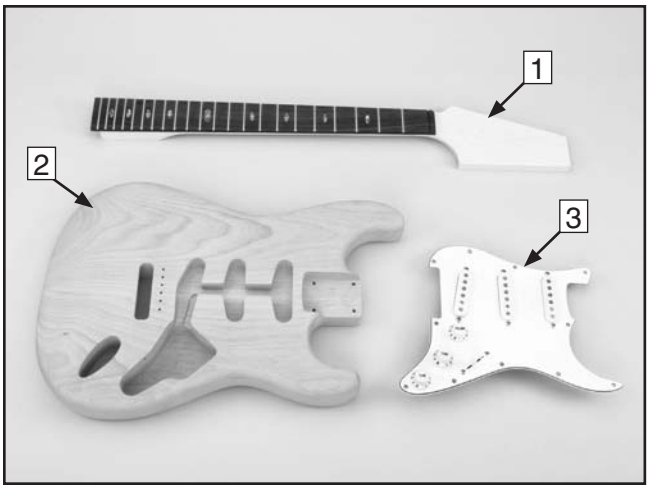



**Figure 1.** Boxed components.

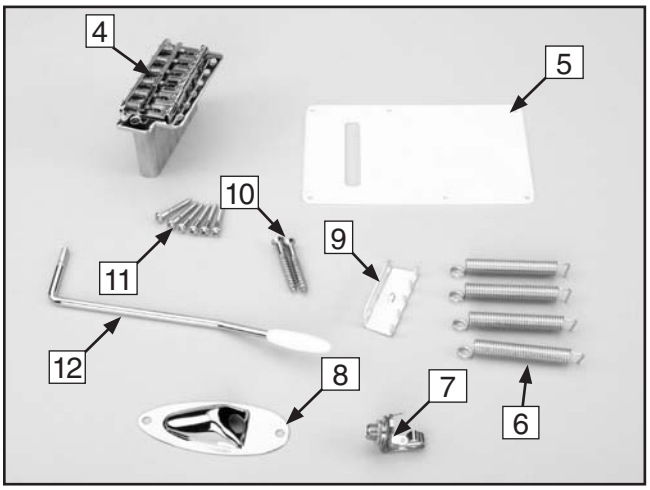



**Figure 2.** Guitar parts.

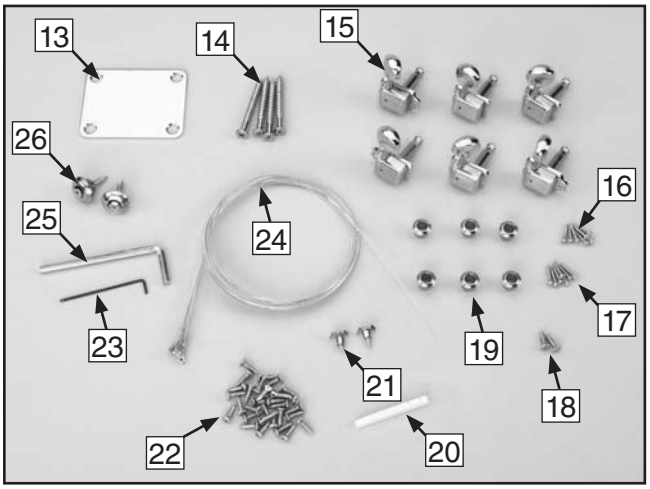



**Figure 3.** More guitar parts.

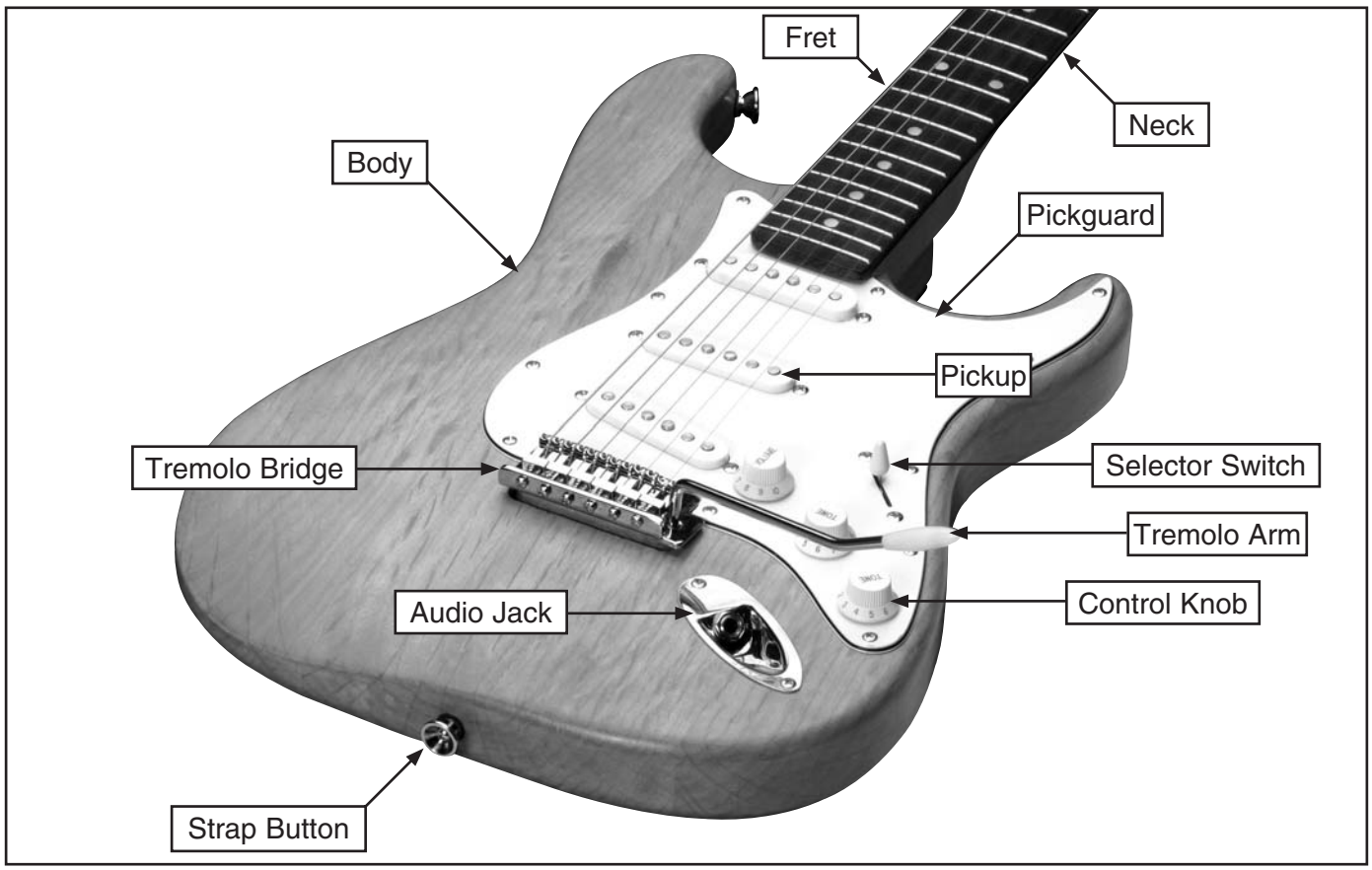
# Supplies/Tools

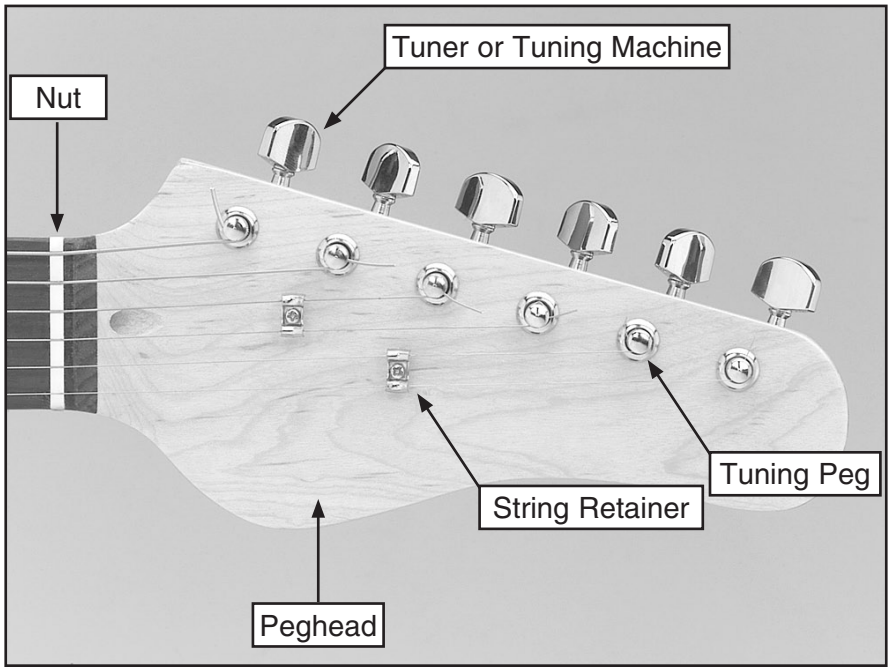
The majority of the wooden components in this kit are fully machined from the factory and are ready for assembly. A small amount of shaping, drilling, sanding and finishing will need to be performed to complete your guitar.

**Recommended Tools & Supplies:**

- Sharp Pencil
- Machinist's Square
- 18" Metal Straightedge with a 1/32" Resolution
- Hand Drill
- Drill Press
- Drill Bits: 1/16", 3/32", 1/8", 5/32", 3/16", 5/16"
- Depth Stop
- Bandsaw or Coping Saw with 1/4" Blade
- ANSI Approved Respirator
- ANSI Approved Safety Glasses
- Aluminum-Oxide Sanding Paper #150, #220, and #320 Grit
- Wet and Dry Sanding Paper #400, #600, and #1000 Grit
- Flexible Sanding Block
- Chisel or Razor Blade
- Phillips Screwdriver
- Temporary Wood Neck: Approx. 1" x 2" x 16"
- 1/4" Steel Rod, or a Coat Hanger
- Masking Tape
- Tack Cloth or Clean Soft Rag
- Sanding Sealer
- Assorted Wood Files
- Finishing Materials
- Buffing Compounds
- Oil Wood Finish
- Soldering Iron and Solder
- Peghead Reamer or a Round File
- Ratchet with a 12MM or 1/2" Socket
- C-Clamps
- Hammer
- Wooden Block: Approx. 4" x 8"
- Guitar Capo
- Feeler Gauge Set
- Wire Cutters

# Identification



# SECTION 4: ASSEMBLY

## Peghole Placement

The headstock is rough machined to fit all six tuners on one side. These instructions will guide you through the placement of the pegholes. The pegholes must be drilled slightly undersized so that the bushings will be tight. Correct placement of the pegholes will make the tuner installation easier.

**Components Needed** **Qty**
Guitar Neck ..... 1

**Tools Needed**
Sharp Pencil .....1
Machinist's Square .....1
Metal Straightedge .....1
Drill Press with a 5/16" Drill Bit .....1

**To drill the pegholes in the peghead:**

**1.** Center the nut in the nut slot and mark the string slots on the fretboard with a pencil.

**2.** Remove the nut and place a machinist's square against the edge of the nut slot. Use a pencil to extend the string slot marks onto the peghead as shown in **Figure 4**.

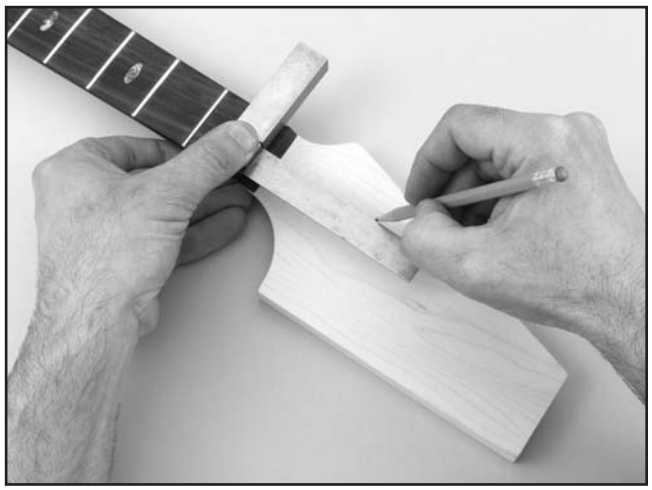


**Figure 4.** Marking string paths.

**3.** Make a mark 1¾" from the fretboard side of the nut slot on line "A" shown in **Figure 5.**

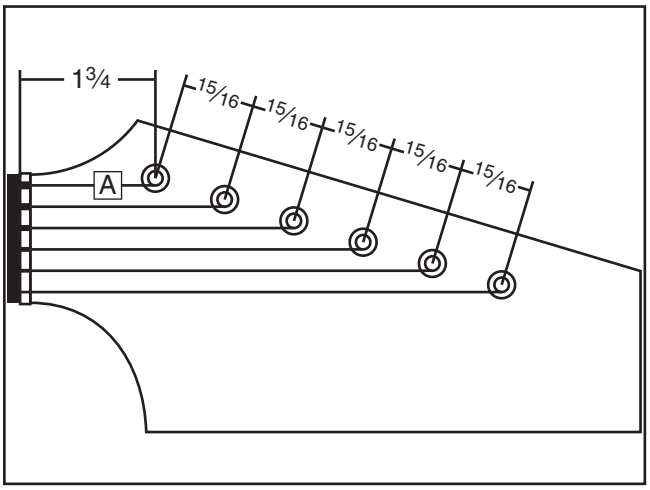



**Figure 5.** Peghole placement.

**4.** Place the machinist's square against the angled edge of the peghead and draw a light pencil line through the mark made in **step 3**.

**5.** Make a mark on the line made in **step 4,** 3/32" towards the peghead edge from the line made in **step 2** as shown in **Figure 6**, for the center of the first peghole.

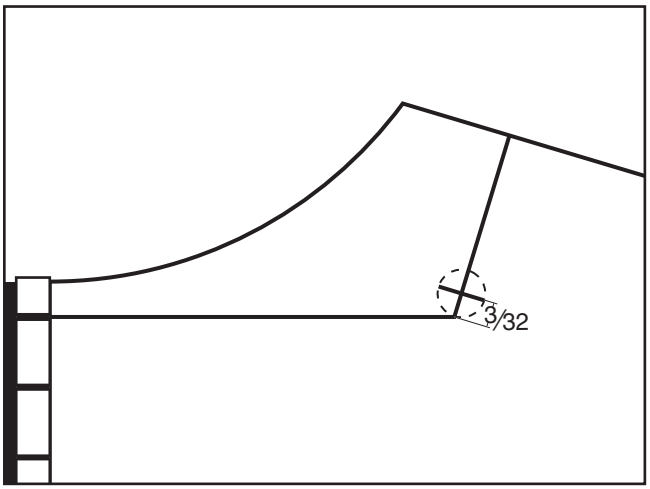



**Figure 6.** Peghole measurement.

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6. Draw a line through the center of the first peghole marks and parallel to the angled edge of the peghead.

7. Space the centers of the remaining pegholes 15/16" apart as shown in **Figure 5**.

8. Drill the pegholes with a 5/16" drill bit in a drill press. Use a fence on the drill press as shown in **Figure 7** to ensure consistency.

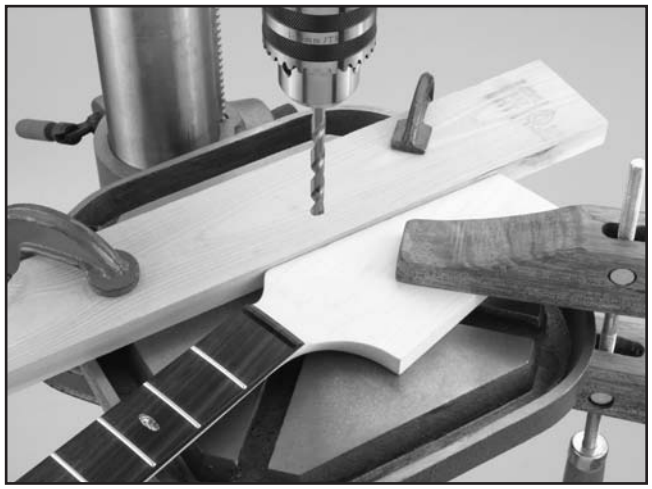


**Figure 7.** Drilling the pegholes.

# Shaping the Headstock

Once the pegholes are drilled, the headstock can be cut to any shape you would like. The only limitation is the strength of the wood. If the headstock is cut too close to the pegholes or in between the pegholes and the nut, the wood may crack under the pressure of the strings.

| **Components Needed** | **Qty** |
|---|---|
| Guitar Neck | 1 |

**Tools Needed**

| | |
|---|---|
| Sharp Pencil | 1 |
| Bandsaw/Coping Saw with a 1/4" Blade | 1 |
| Woodworking Files | Assorted |

**To shape the headstock:**

1. Trace the headstock onto a piece of paper or scrap wood to test your ideas before cutting into the headstock. Layout the tuners on the test pieces to make sure you have enough room for the tuner bodies and buttons to turn. You will need to take 1/4" off the angled side of the headstock to give enough room for the tuner buttons to turn.

2. Redraw your finalized headstock shape onto the headstock with a pencil.

3. Cut the headstock out with a bandsaw or coping saw. Be sure to cut to the outside edge of your pencil line.

Note—To cut sharp corners, cut several slots perpendicular to the corner, then cut out the small pieces. This will reduce binding on the blade.

4. Carefully hand file the headstock to finalize the shape.

# Sanding the Body

The guitar body has been rough sanded at the factory, but it is up to you to do the final sanding before the finish is applied. To get a good finish the body should be sanded with a series of sandpaper grits up to #320 grit.

**Components Needed** **Qty**
Guitar Body ..... 1

**Tools Needed**
Flexible Sanding Block.....1
Aluminum-Oxide Sanding Paper
#150, #220, and #320 Grit ..... Varies
Sanding Sealer..... Varies

**To sand the guitar body:**

1. **Wear an ANSI-approved respirator and safety glasses when sanding wood!**

2. Use a flexible sanding block with #150 grit aluminum-oxide sanding paper to sand the guitar body until there is a consistent scratch pattern on the entire surface. Note—When hand sanding, always sand in the same direction as the wood grain.

3. Resand the entire guitar body with #220 grit sanding paper and lightly round over the outside edges of the body. DO NOT round over the neck pocket or the body cavities.

4. Wipe the guitar body with a damp cloth to “raise” the wood grain, allowing the “raised” grain to be sanded smooth.

5. Wait until the wood is dry and resand the entire body with #220 grit sandpaper. Dampen again and resand. Note—If you want to add color to a natural wood finish, the stain or dye should be applied before continuing with the next step. Stains cannot be applied to the guitar body after the sanding sealer.

6. Apply a coat of sanding sealer according to the manufacturer's instructions or primer if you are using a solid color. Note—Make sure the sealer you are using is compatible with the finish that you are planning on using.

7. When the sanding sealer or primer is dry, use #320 grit sandpaper for final sanding. DO NOT sand through to bare wood.

# Sanding the Neck

Like the guitar body, the guitar neck has been rough sanded at the factory. Final sanding should be done as described in the previous sub-section "Sanding the Body". Consider applying inlays or additional design work on the fretboard and headstock before final sanding. Note—Take your time and test your designs on scrap wood before performing the work on the instrument.

The fretboard requires no sanding. Sanding the fretboard will affect the playability of the guitar and could lead to unrepairable damage.

# Finishing the Body

This style of guitar body is traditionally a solid color, but it will also look great with a clear finish. Solid color finishes are available through auto paint suppliers or luthier supply catalogs. Finish materials, and books on finishing instruments can be ordered through Grizzly Industrial. Painting an instrument is a difficult process with many options. If you are unsure of your skills, you can research finishing techniques and practice on scraps, or have a professional paint it for you.

**Components Needed** **Qty**
Guitar Body ..... 1

**Tools Needed**
Temporary Wood Handle .....1
Masking Tape..... Varies
Tack Cloth or a Clean Rag..... Varies
Finish and Tools for Application..... Varies
Wet/Dry Sandpaper #600, #1000 grit..... Varies
Buffing Supplies ..... Varies

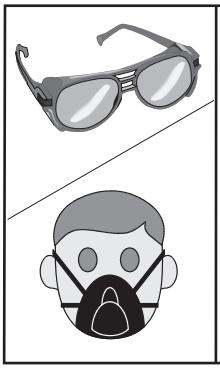
**To finish the guitar body:**

**1.** Mask off the neck pocket. Press the masking tape tight against the edges of the pocket so the finish does not seep under the tape.

**2.** Screw through the neck pocket screw holes into a long piece of wood, used for a handle during spraying. Drill a hole in the end of the handle for hanging from a hook.

**3.** Wipe the entire guitar body with a tack cloth or a soft clean rag to remove any dust.

**4.** Thread the hook through the temporary handle and hang the body in the finish room.



**⚠WARNING**

**Most finishes are hazardous to your health. Wear a NIOSH/OSHA approved respirator with particulate and gas/vapor filters, safety glasses, rubber gloves, and work in a well ventilated area when finishing.**

**5.** Apply several thin coats of the finish, following the manufacturers instructions. Multiple thin coats usually produce a better quality finish than one heavy coat.

**6.** Sand the entire body with #400 grit wet and dry sandpaper after at least three coats of finish have been applied. DO NOT sand through the finish—be especially careful on the edges.

**7.** Apply more finish, sanding between coats, until the finish is the desired thickness. Note—If finishing with a solid color, you may wish to apply several coats of a clear finish over the top, sanding between coats, to add depth to the finish.

**9.** When the final coat has dried at least a week, preferably a month, remove the temporary handle and masking.

**10.** Wet sand the finish using #600 grit wet and dry sandpaper on a sanding block, followed with #1000 grit wet and dry sandpaper.

**11.** Buff the finish by hand or with a buffer, starting with a medium polish and work up to a high gloss polish. Note—If using a buffing machine, be extremely careful to avoid going through the finish, especially on the edges.

# NOTICE

**Dust particles suspended in the air will settle on wet finishes, causing less than satisfactory results. To avoid this problem:**

- **Leave the finish room undisturbed for 24 hours prior to applying the finish.**
- **Avoid making unnecessary movements upon entering the finish room.**
- **Apply the finish to the guitar parts and immediately leave the finish room.**
- **DO NOT return to the room until the specified drying time has elapsed.**

# Finishing the Neck

Some of the finishing options include stains, lacquers, varnishes and oil finishes. Traditionally this style of guitar has a clear finish on the neck. Depending on the type of finish, they can be applied with a spray gun, brush, rag, or a spray can. Finish materials and books on finishing instruments can be ordered through Grizzly Industrial or numerous luthier supply catalogs.

**Components Needed** **Qty**
Guitar Neck ..... 1

**Tools Needed**
Masking Tape ..... Varies
¼" Steel Rod, or a Coat Hanger .....1
Tack Cloth or a Clean Rag..... Varies
Finish and Tools for Application ..... Varies
Narrow Chisel or Razor Blade.....1
Wet/Dry Sandpaper #600, #1000 grit..... Varies
Buffing Materials..... Varies

**To finish the guitar neck:**

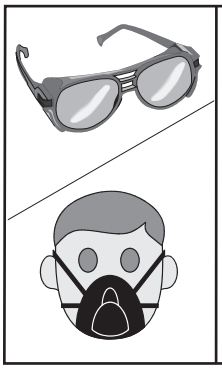
**1.** Mask off the surface of the fretboard. Carefully press all the masking tape edges securely to the fretboard. The finish coat can seep under these edges, especially near corners, uneven edges, and places where the frets meet the fingerboard.

**2.** Mask off the binding if you are using a solid color. Make sure the masking tape lines up with the edge of the binding. DO NOT mask the binding if using a clear finish.

**3.** Make an "S" shaped hook out of ¼" steel rod, or a coat hanger that has been folded in half.

**4.** Wipe the entire neck with a tack cloth or a soft clean rag to remove any dust.

**5.** Thread the hook through the upper peghole and hang the neck in the finish room.



**⚠WARNING**

**Most finishes are hazardous to your health. Wear a NIOSH/OSHA approved respirator with particulate and gas/vapor filters, safety glasses, rubber gloves, and work in a well ventilated area when finishing.**

**6.** Apply the finish according to "Finishing the Body"; **steps 5–11** on **page 10**. If you are using a solid color with a clear finish topcoat on the neck, remove the masking from the binding before applying the clear topcoat.

**7.** Before wet sanding, remove the masking tape from the fretboard and carefully scrape any excess finish off the fretboard with a razor blade or chisel as shown in **Figure 8**.

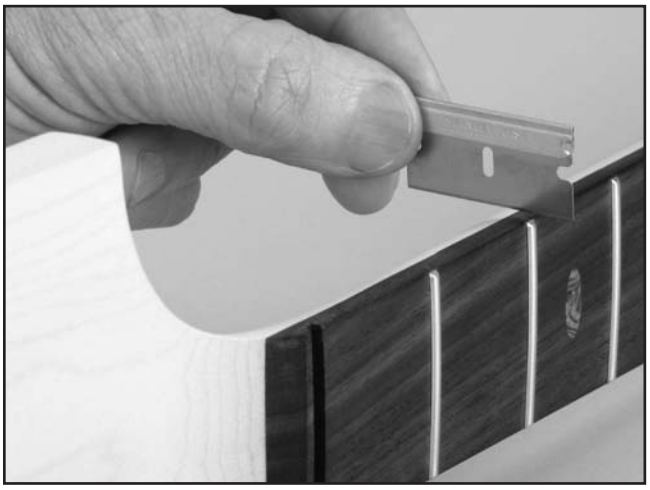


**Figure 8.** Scraping the fretboard.

**8.** Use a clean rag to wipe finishing oil on the surface of the fretboard.

# Installing the Tuners

Each tuner consists of the machine head and a bushing. The tuners are attached to the headstock with a small woodscrew that attaches between the tuners.

| **Components Needed** | **Qty** |
|---|---|
| Guitar Neck | 1 |
| Bushing | 6 |
| Tuner | 6 |
| Tap Screw M2 X 12 | 7 |

**Tools Needed**

| | |
|---|---|
| Peghead Reamer or Round File | 1 |
| Wooden Block | 1 |
| Hammer | 1 |
| Phillips Head Screwdriver | 1 |

**To install the tuners:**

**1.** Place the six bushings into the holes on the face of the headstock. The holes may need to be widened with a peghead reamer or a round file. DO NOT widen the holes too much—the bushings should fit snug.

**2.** Place the wooden block on the bushings and lightly tap the block with the hammer until the bushings are seated against the face of the headstock.

**3.** Slide each tuner through the bushings from the back face of the headstock.

**4.** Align the tuners and use a strip of masking tape on the edges to secure their position on the headstock.

**5.** Mark the centers of the screw holes shown in **Figure 9** with a punch or a sharp pencil.

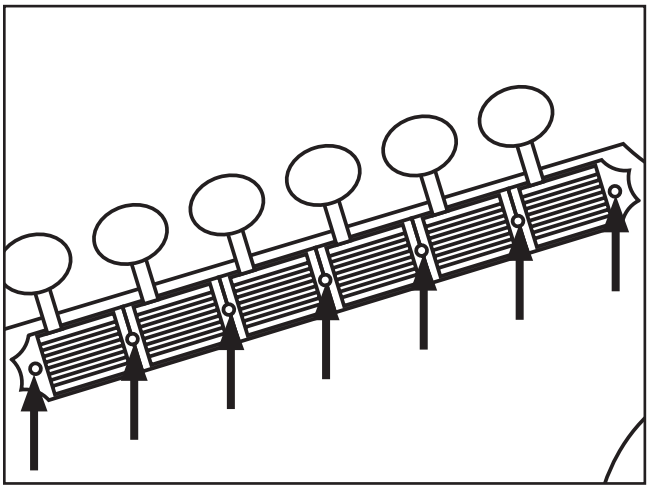


**Figure 9.** Tuning machine installation.

**6.** Using a 1⁄16" drill bit in a drill press, drill 3⁄8" deep holes into the headstock. Note—Drilling the holes deeper than 3⁄8" could result in drilling out through the front face of the headstock. Use a depth stop or tape wrapped around the drill bit at the correct depth as an indicator.

**7.** Secure the machine heads to the guitar headstock with the tap screws.

# Attaching the Pick Guard

The underside of the pick guard is already shielded with an aluminum foil. You may choose to shield the entire body cavity with aluminum or copper foil to reduce background hum from the pickups.

| **Components Needed** | **Qty** |
|---|---|
| Pick Guard | 1 |
| Guitar | 1 |

**Tools Needed**

| | |
|---|---|
| Drill with a 3/16" Drill Bit | 1 |
| Masking Tape | Varies |
| Soldering Iron and Solder | Optional |

**To attach the pick guard to the guitar body:**

1. Push one of the black wires through the hole that leads to the cavity in the back of the guitar.

2. Push the black shielded red wire through the hole shown in **Figure 10**.

**Figure 10.** Pick guard wire.

3. Secure the wires with masking tape so they do not fall back out through the holes.

4. If you shield the body cavity, the remaining wire must be soldered to copper foil later; or if you used aluminum foil the wire must be screwed to the shield. If you did not shield the body cavity, remove the extra wire.

5. Align the pick guard on the guitar body as shown in **Figure 11**. Pay special attention to the neck cutout alignment on the body.

**Figure 11.** Pick guard alignment.

6. Secure the position of the pick guard to the body with masking tape.

7. DO NOT drill the screws at this time! Final adjustments need to be made after installing and winding the strings.

# Installing the Neck

| Components Needed | Qty |
|---|---|
| Guitar Neck | 1 |
| Guitar Body | 1 |
| Neckplate | 1 |
| Tap Screw M5 X 45 | 4 |

**Tools Needed**

| | |
|---|---|
| Sandpaper #150 Grit | Varies |
| Drill with a 5⁄32" Drill Bit | 1 |
| Drill Stop | 1 |
| Phillips Head Screwdriver | 1 |
| C-Clamp | 1 |

**To attach the neck to the guitar body:**

1. Place the neck into the neck pocket (**Figure 12**). If there is a gap between the neck and the body, lightly sand the high points on the neck until it fits in the pocket.

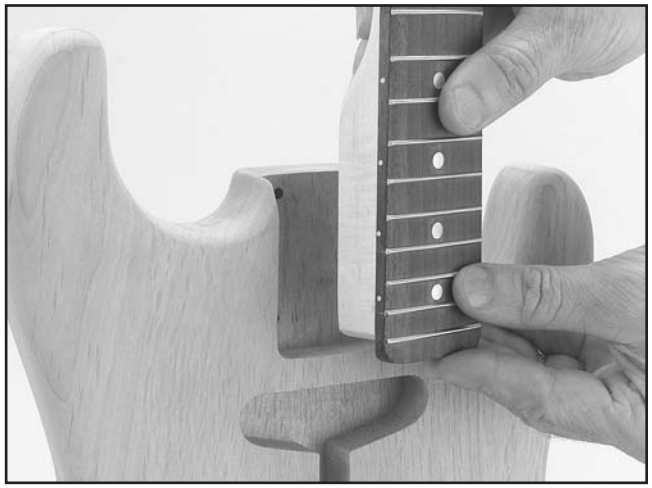


**Figure 12.** Neck installation.

2. Hold the neck to the body with a C-clamp and use a 5⁄32" drill bit to drill 1¾" deep holes through the four holes in the back of the body (**Figure 13**). Note—Use a drill stop to prevent drilling through the fingerboard.

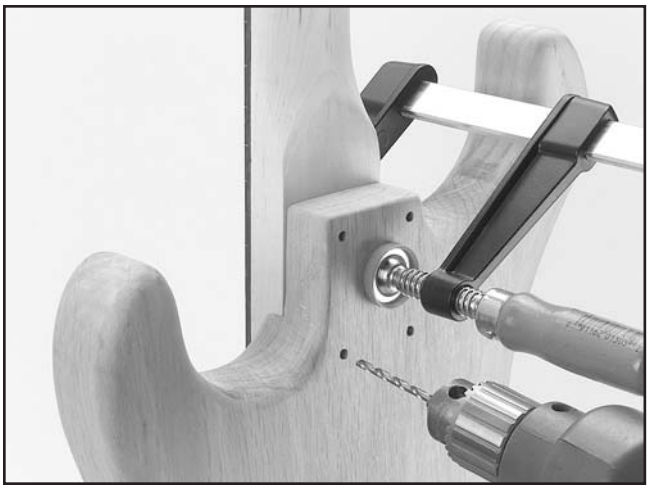


**Figure 13.** Drilling the screw holes.

3. Position the neckplate over the holes and thread M5 X 45 screws through the neckplate and guitar body, and into the neck. DO NOT use glue.

# Audio Jack

| Components Needed | Qty |
|---|---|
| Guitar | 1 |
| Tap Screw M3 x 12 | 2 |
| Audio Jack | 1 |
| Jack Plate | 1 |

**Tools Needed**

| | |
|---|---|
| Drill with a 3⁄32" Drill Bit | 1 |
| Drill Stop | 1 |
| Phillips Head Screwdriver | 1 |
| Wrench/Ratchet 12MM or ½" | 1 |
| Soldering Iron and Solder | 1 |

**To attach the audio jack to the guitar body:**

1. Solder the wires shown in **Figure 14** to the tabs on the audio jack.

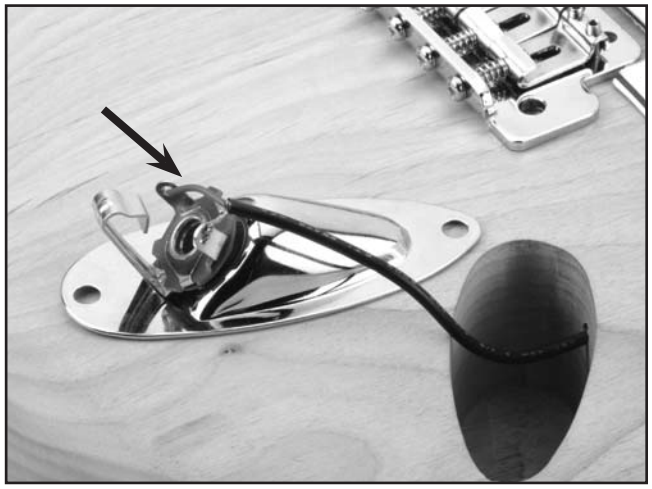


**Figure 14.** Soldered audio wire.

2. Remove the nut and washer from the audio jack.

3. Insert the audio jack into the hole in the jack plate, place the washer over the threads, and secure with the nut.

4. Insert the jack plate into the cavity on the guitar body.

5. Secure the position of the jack plate to the guitar body with masking tape.

6. Using a 3⁄32" drill bit, drill 3⁄8" deep holes straight through the two holes in the audio jack. Note—Drilling the holes deeper than ½" could result in drilling out through the back of the guitar body.

7. Secure the audio jack to the guitar body with two M3 x 12 tap screws.

# Strap Button

The strap buttons are positioned on the guitar as shown in **Figure 15**.

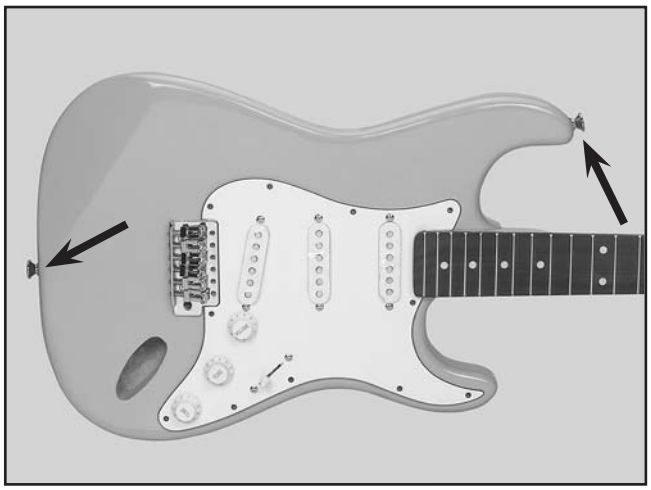


**Figure 15.** Strap buttons.

| Components Needed | Qty |
|---|---|
| Guitar | 1 |
| Tap Screw M3.5 X 25 | 2 |
| Strap Buttons | 2 |

**Tools Needed**

| | |
|---|---|
| Drill with a 1⁄8" Drill Bit | 1 |
| Phillips Head Screwdriver | 1 |

**To attach the strap buttons to the guitar:**

1. Using a 1⁄8" drill bit, drill 7⁄8" deep holes at each of the mounting locations.

2. Secure the strap buttons to the guitar body with two M3.5 X 25 tap screws.

# Tremolo Bridge

| Components Needed | Qty |
|---|---|
| Guitar | 1 |
| Tremolo Bridge | 1 |
| Tap Screw M3 X 12 | 6 |
| Spring Claw | 1 |
| Tap Screw M5 X 45 | 2 |
| Spring | 3 |

**Tools Needed**

| | |
|---|---|
| Phillips Head Screwdriver | 1 |
| Soldering Iron and Solder | 1 |

**To attach the tremolo bridge to the guitar body:**

**1.** Place the tremolo bridge in the cut-out shown in **Figure 16**.

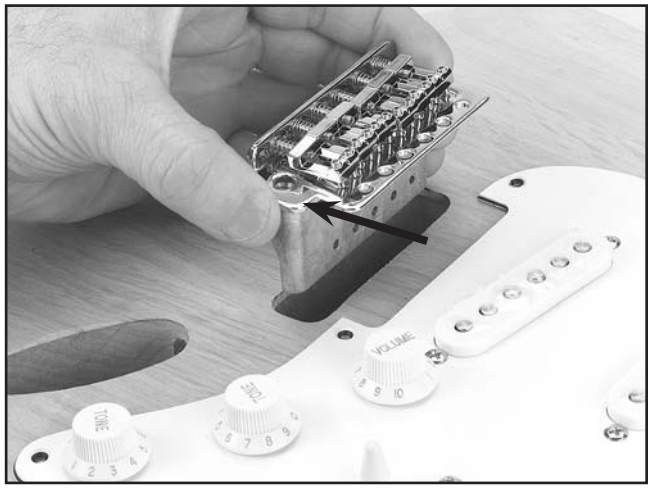



**Figure 16.** Tremolo bridge placement.

**2.** Secure the tremolo bridge to the guitar body with the included six M3 X 12 tap screws. Tighten the screws, then unscrew ½ turn.

**3.** Flip the guitar body over and place the spring claw in the cavity as shown in **Figure 17**.

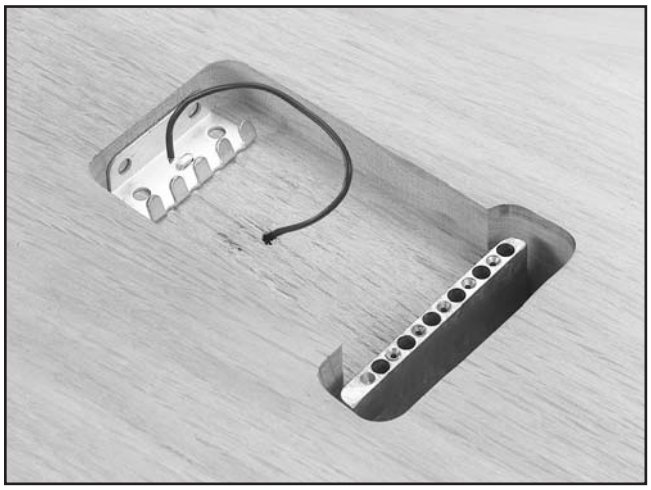


**Figure 17.** Spring claw placement.

**4.** Secure the spring claw to the guitar body with two M5 X 45 tap screws. Tighten the screws until the spring claw is 1" from the wall of the cavity. Note—These screws are used to adjust the spring tension.

**5.** Solder the black wire to the spring hanger.

**6.** Stretch the three springs from the spring claw to the tremolo bridge as shown in **Figure 18**.

**Figure 18.** Correct spring placement.

**7.** Screw the tremolo arm into the socket indicated by the arrow in **Figure 16**.

# Mounting Back Plate

Once mounted, the slot in the back plate needs to align with the string holes in the tremolo bridge. This will simplify the string installation and removal process.

| Components Needed | Qty |
|---|---|
| Guitar | 1 |
| Back plate | 1 |
| Tap Screw M3 X 12 | 6 |

**Tools Needed**

| | |
|---|---|
| Drill with a 3/32" Drill Bit | 1 |
| Phillips Head Screwdriver | 1 |

**To mount the back plate to the guitar body:**

1. Position the back plate over the tremolo cavity as shown in **Figure 19**.

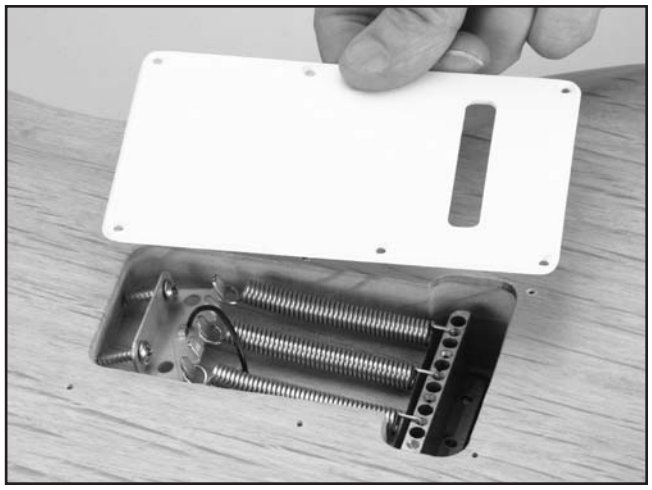


**Figure 19.** Mounting the back plate.

2. Secure the position of the back plate to the guitar body with masking tape.

3. Using a 3/32" drill bit, drill 3/8" deep holes through the six holes in the back plate.

4. Secure the back plate to the guitar body with the six M3 X 12 tap screws.

# Gluing the Nut

The nut holds the peghead end of the strings the correct distance above the frets. It is not necessary to cut the string notches in the nut that comes with this kit.

| Components Needed | Qty |
|---|---|
| Guitar Neck | 1 |

**Tools Needed**

| | |
|---|---|
| Narrow Chisel or Razor Blade | 1 |
| Glue | Varies |

**To install the nut:**

1. Use a chisel or razor blade to carefully scrape any finish overspray out of the nut slot (**Figure 20**). DO NOT remove any wood from the nut slot.

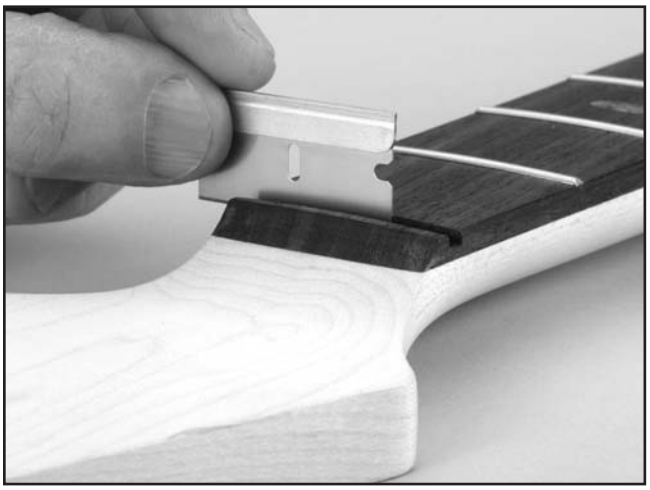


**Figure 20.** Cleaning out the nut slot.

2. Spread a thin layer of glue in the nut slot.

3. Center the nut in the nut slot.

4. Install the strings as described in the next section. The strings will hold the nut in place until the glue dries.

5. Wipe away the excess glue before it sets up, then allow the glue to dry for 24 hours.

# Winding Strings

The correct position of the guitar strings is shown in **Figure 21**. The thin High E string is called the "1st" string and the thick Low E string is called the "6th" string.

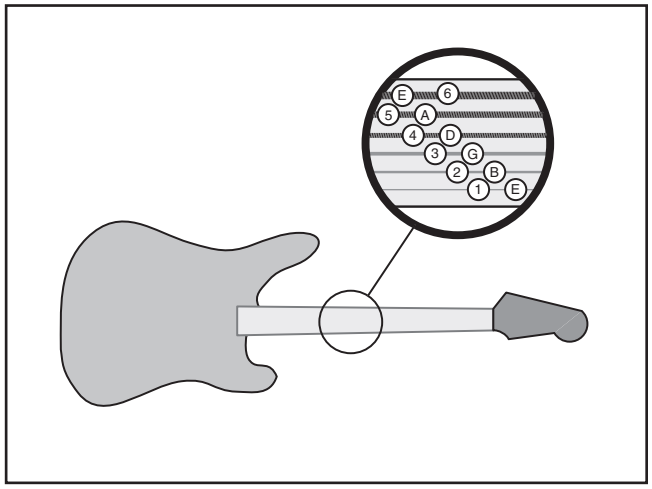



**Figure 21.** Correct string locations.

| **Components Needed** | **Qty** |
|---|---|
| Guitar | 1 |
| Strings | 6 |

**Tools Needed**

Wire Cutters ..... 1

**To install the guitar strings:**

1. Slide the 1st string through the corresponding hole in the bridge (**Figure 22**).

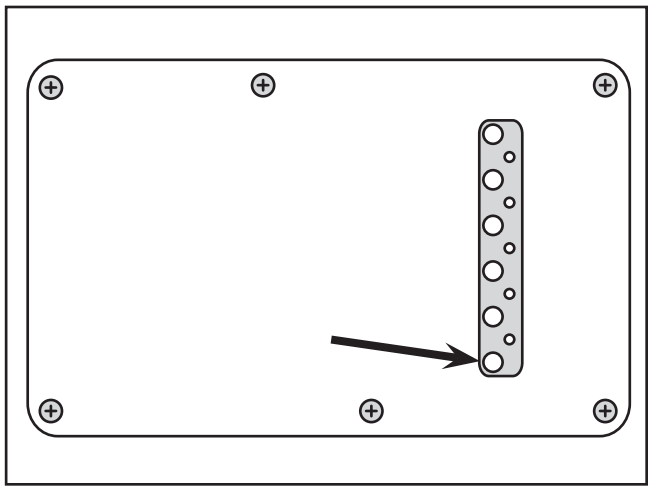


**Figure 22.** 1st string installation hole.

2. Guide the string through the tremolo bridge, over the saddle, over the nut, and through the hole in the corresponding tuner.

3. Allow only enough slack in the string for 2-3 rotations around the tuner. Note—If too much slack is allowed, then the string could wind off the machine head after many successive rotations. If not enough slack is allowed, then the string may not hold the winding tension.

4. Bend the string at a right angle across the edge of the machine head.

5. Rotate the tuners until the string just begins to hold the winding tension. Note—DO NOT tighten the strings beyond the initial tensioning at this time. Final tensioning should be completed during the string tuning process.

**Figure 23.** String wrapped around tuner.

6. Use wire cutters to cut off the excess string.

7. Repeat the above process for the remaining strings.

# Mounting Pick Guard

| Components Needed | Qty |
|---|---|
| Guitar | 1 |
| Pick Guard | 1 |
| Tap Screw M3 X 12 | 11 |

**Tools Needed**

| | |
|---|---|
| Drill with a 3/32" Drill Bit | 1 |
| Phillips Head Screwdriver | 1 |

**To secure the pick guard to the guitar body:**

1. Remove the protective plastic film from the pick guard.

2. Position the pick guard so the 1st string is centered over the corresponding round metal pick-up peg as shown in **Figure 24**.

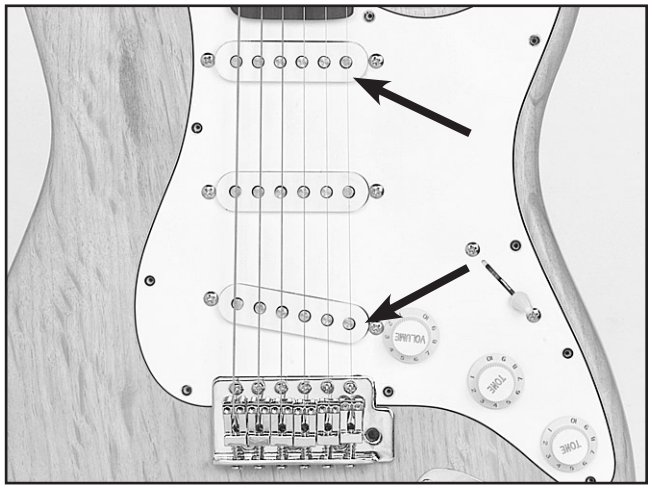


**Figure 24.** Pick guard mounting location.

3. Secure the position of the pick guard to the guitar body with masking tape.

4. Using a 3/32" drill bit, drill 1/2" deep holes straight through the eleven holes in the pick guard. Note—Drilling the holes deeper than 1/2" could result in drilling out through the back of the guitar body.

5. Secure the pick guard to the guitar body with eleven M3 X 12 tap screws.

# String Retainers

One string retainer mounts between the 1st and 2nd strings and the other spring retainer mounts between the 3rd and 4th strings (**Figure 25**).

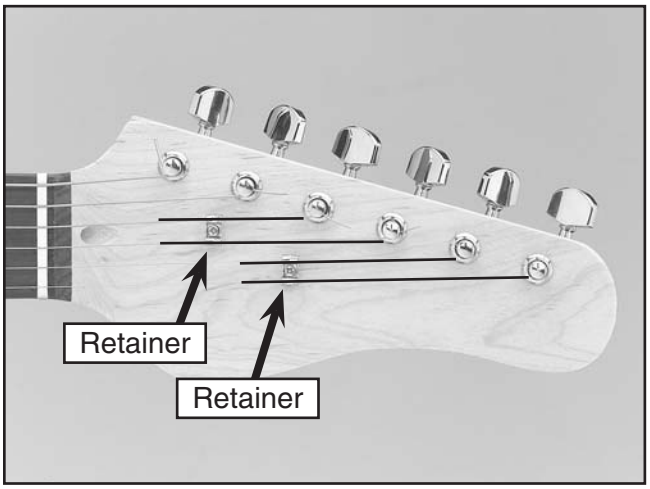



**Figure 25.** String retainer locations.

| Components Needed | Qty |
|---|---|
| Guitar | 1 |
| Retainers with Bushing | 2 |
| Tap Screw M2 X 12 | 2 |

**Tools Needed**

| | |
|---|---|
| Drill with a 1/16" Drill Bit | 1 |
| Phillips Head Screwdriver | 1 |

**To install the string retainers:**

1. Secure the position of the string retainers to the headstock with masking tape.

2. Using a 1/16" drill bit, drill 3/8" deep holes straight through the holes in the string retainers. Note—Drilling the holes deeper than 3/8" could result in drilling out through the back of the headstock.

3. Secure the string retainers to the guitar with two M2 X 12 tap screws.

# SECTION 5: SET UP

## General

Guitar set up is an art that requires skill, patience and experience. If you have the patience, you can acquire the skill and experience. If you don't have the patience, you may want to have your guitar set up by a qualified guitar technician.

This section on set up is a general overview of set up practices. It is highly recommended that you research more in-depth methods. Books on setting up electric guitars can be ordered through Grizzly Industrial, luthier supply catalogs, or may be available through your local library.

## Neck Adjustment

The guitar neck was adjusted perfectly straight before it was packaged; however, the moisture content of wood acclimates to the humidity of the surrounding environment. This characteristic results in movement of the wood components with regards to alignment. It is not uncommon for the neck to require adjustment several times each year, especially in regions where the seasonal climate changes are more drastic.

**Components Needed** **Qty**
Guitar with Strings Installed ..... 1

**Tools Needed**
Metal Straightedge 18" .....1
Hex Head Wrench 4MM .....1
Feeler Gauge Set .....1
Phillips Head Screwdriver.....1

**To adjust the bow of the guitar neck:**

**1.** Tighten the strings to playing tension.

**2.** Place a straightedge from the 1st fret to the 17th. Measure any gaps between the straightedge and the frets with the feeler gauge.
—If the neck is flat, or bowed up .012" or less, the neck is set up correctly.
—If the gap is greater than .012", or if the neck bows away from the straightedge, continue to **step 3**.

**3.** Remove the strings from the neck and the neck from the guitar body.

**4.** Turn the truss rod nut in the base of the neck (**Figure 26**) counterclockwise with a 4MM hex head wrench to release tension on the neck. Retighten until the nut begins to grab.

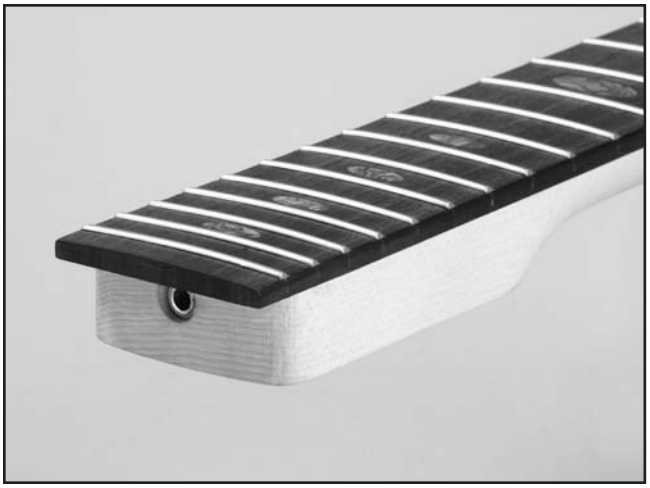


**Figure 26.** Truss rod nut.

**5.** To flatten a back bow, turn the truss rod nut a ¼ turn clockwise. To correct an up bow, turn the nut a ¼ turn counterclockwise.

**6.** Restring the guitar and recheck the neck with the straightedge.
—If the neck is correctly adjusted, go to the next section.
—Return to **step 3** for further adjustment.

# String Height

Correct string height is crucial for maximizing the playability of your electric guitar. The string height is the distance between the top face of the fret and the bottom face of the string (**Figure 27**).

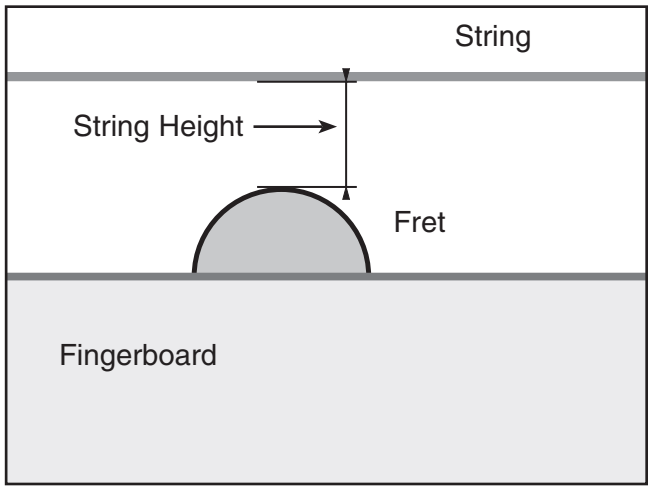



**Figure 27.** String height measurement.

| **Components Needed** | **Qty** |
|---|---|
| Guitar with Strings Installed | 1 |

**Tools Needed**

| | |
|---|---|
| Hex Head Wrench 1.5MM | 1 |
| Guitar Capo | 1 |
| Metal Straightedge | 1 |

**To adjust the string height:**

1. Remove the tremolo springs and place a wedge between the tremolo block and tremolo cavity back (**Figure 28**).

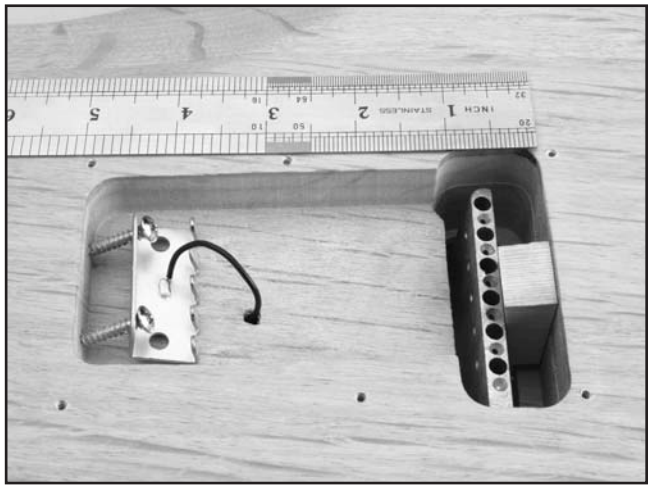


**Figure 28.** Tremolo wedge.

2. Adjust the wedge until there is a ⅜" gap between the tremolo block and the back of the tremolo cavity as shown in **Figure 28.**

3. Tension the strings and then re-adjust the wedge until there is a 3/32" gap between the guitar body and the underside of the bridge plate as shown in **Figure 29**. Re-tension the strings if necessary.

**Figure 29.** Tremolo wedge gap.

4. Place a capo on the 1st fret and measure the string height above the 17th fret as shown in **Figure 27**.

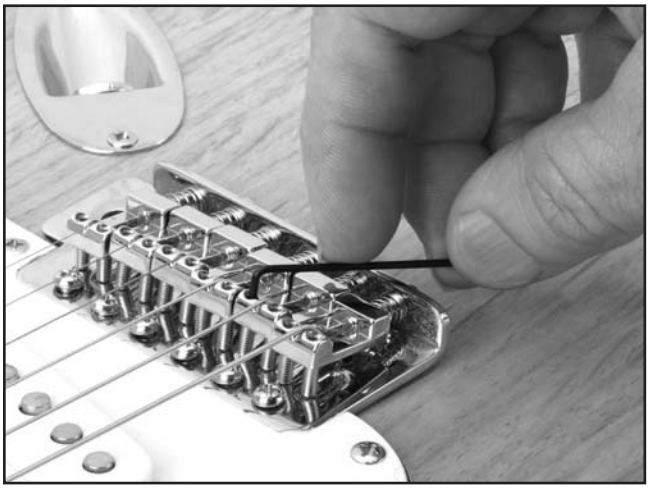


**Figure 30.** Adjusting string height.

5. Use the hex head wrench to adjust the saddle height until each string is 1/16" above the 17th fret.

6. Remove the capo.

# Pickup Height

Pickup height can have a dramatic effect on the audio output signal. The closer the strings are to the pickups, the higher the audio output signal will be. If the strings are too close, distortion is cuased by magnetic interference from the electronic components.The pickup height was adjusted correctly before it was packaged; however, future adjustments may be needed.

**Components Needed** **Qty**
Guitar with Strings Installed ..... 1

**Tools Needed**
Metal Straightedge .....1
Phillips Head Screwdriver.....1

**To measure the string height at the pickup:**

**1.** Measure the height of the 1st and 6th strings at the pickup while the strings are “fretted” at the 22nd fret (**Figure 31**).

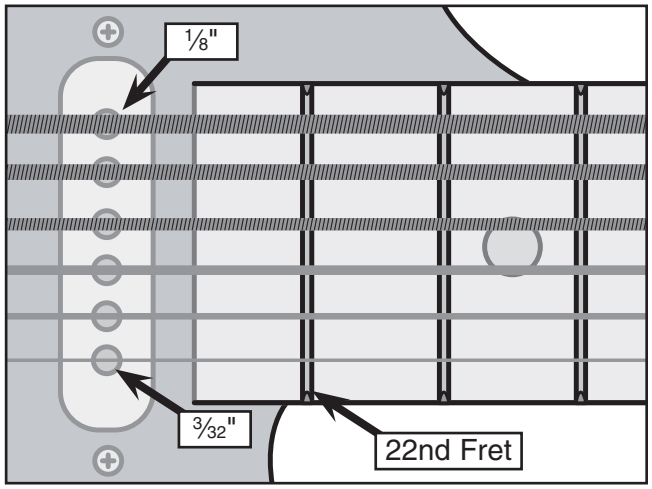



**Figure 31.** String heights over the pickup.

**2.** With a Phillips head screwdriver, adjust the screws on each side of the pickup until the 1st string is 3/32" above the pickup and the 6th string is 1/8" above the pickup.

**3.** Repeat **steps 1–2** for the other pickups.

# Setting Intonation

Setting the intonation adjusts the length of the string to correct for flatness/sharpness on each string. This is a simple process that takes a lot of trial and error.

**Components Needed** **Qty**
Guitar with Strings Installed ..... 1

**Tools Needed**
Phillips Head Screwdriver.....1

**To set the intonation:**

**1.** Lightly touch and then release the 1st string directly above the twelfth fret as you pluck the string to play a harmonic note.

**2.** Now pluck the string while holding it fretted at the twelfth fret. If this note is sharper than the note played in **step 1**, move the saddle away from the neck. If this note is flat in comparison, move the saddle toward the neck.

Note—This can also be done with an electronic tuner by tuning the harmonic note to be exactly in tune and then adjusting the saddle until the note played in **step 2** is also in tune.

**3.** Repeat **steps 1–2** until the string is in tune. Repeat the process for the rest of the strings.

**Figure 32.** Saddle adjustments.

# Tremolo Adjustment

**Components Needed** **Qty**
Guitar with Strings Installed ..... 1
Tremolo Springs ..... 3

**Tools Needed**
Phillips Head Screwdriver.....1

**To adjust the tremolo springs:**

**1.** Remove the tremolo cavity cover.

**2.** Install the tremolo springs. Insert the ends of the outside springs into the outside holes and the middle spring into the middle hole of the tremolo block as shown in **Figure 33**.

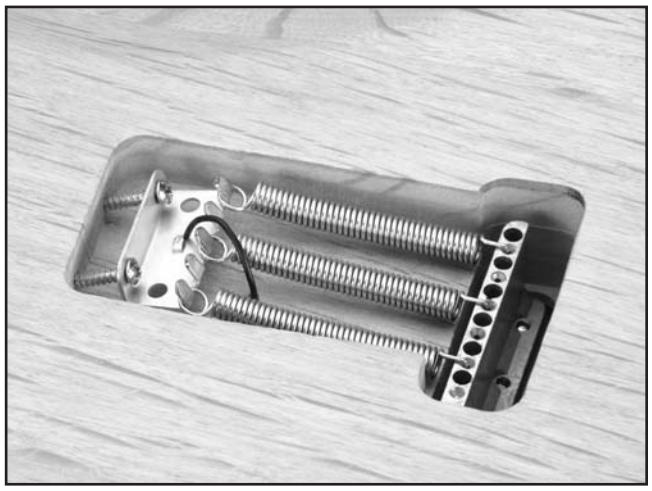


**Figure 33.** Correct spring placement.

**2.** Tighten the spring claw screws until the wedge loosens. Note—The spring claw should be approximately 5/8" from the front edge of the tremolo cavity.

**3.** Remove the wedge and replace the tremolo cavity cover.

# Tuning

Tuning is an important guitar concept. If the guitar is not in tune, the resulting sound is unpleasant. These instructions explain how to tune by ear. You can also tune using an electronic tuner such as the Grizzly H3097 Chromatic Tuner shown on **page 24**.

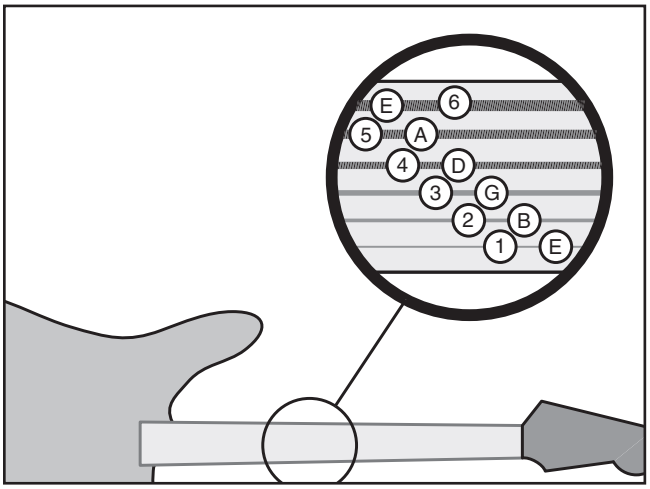



**Figure 34.** Standard tuning.

**To tune the guitar:**

**1.** Play a Low E pitch on a piano, a tuning fork, or an electronic computer file.

**2.** Play an open (non-fretted) 6th string and adjust the tuner to match the Low E. Note—Always tune up. If the string is tuned high, loosen the string to lower the pitch, then tune the string up to the correct note.

**3.** Tune the 5th string by playing the 6th string while it is being pressed (fretted) at the 5th fret, and then play the open 5th string. Adjust the 5th string tuner until the notes match.

**4.** Perform the same tuning steps on the 4th and 3rd strings.

**5**. When tuning the 2nd string, fret the 3rd string at the 4th fret instead of the 5th fret.

**6.** Tune the 1st string in the same manner as the 6th, 5th, 4th, and 3rd strings.

# SECTION 6: REFERENCE INFO

## Accessories

**G7984—Face Shield**
**H1298—Dust Sealed Safety Glasses**
**H1300—UV Blocking, Clear Safety Glasses**
**H2347—Uvex® Spitfire Safety Glasses**
**H0736—Shop Fox® Safety Glasses**
Safety Glasses are essential to every shop. If you already have a pair, buy extras for visitors or employees. You can't be too careful when it comes to shop safety!


**Figure 35.** Our most popular safety glasses.

**H1302—Standard Earmuffs**
**H4979—Deluxe Twin Cup Hearing Protector**
**H4977—Work-Tunes Radio Headset Earmuffs**
Protect yourself comfortably with a pair of cushioned earmuffs. Especially important if you or employees operate for hours at a time.


**Figure 36.** Our most popular earmuffs.

**H2499—Small Half-Mask Respirator**
**H3631—Medium Half-Mask Respirator**
**H3632—Large Half-Mask Respirator**
**H3635—Disposable Cartridge Filter Pair P100**
Wood dust is now considered a known carcinogen and has been linked to nasal cancer and severe respiratory illnesses. If you work around dust everyday, a half-mask respirator can be a lifesaver. Also compatible with safety glasses!


**Figure 37.** Half-mask respirator and disposable cartridge filters.

**H3097—Chromatic Tuner**
An absolute must for any guitar player, this tuner allows you to tune your acoustic or electric guitar dead on. Includes 9V battery.


**Figure 38.** Model H3097 Chromatic Tuner.

**H5750—Vinyl Washcoat/Sealer, 1Qt**
**H5751—Nitrocellulose Lacquer, Gloss, 1 Qt**
**H5752—Nitrocellulose Lacquer, Gloss, 1 Gal**
**H5753—Nitrocellulose Lacquer, Satin, 1 Qt**
**H5754—Nitrocellulose Lacquer, Satin, 1 Gal**
**H5755—Retarder for Lacquer, 1 Qt**
**H5756—Natural Filler, 1 Pint**
**H5757—Mahogany Filler, 1 Pint**
**H5759—Filler Reducer, 1Qt**
McFadden's nitrocellulose lacquer is the leading lacquer used by custom guitar builders. It sprays and buffs really well and is capable of giving you a finish that looks "wet."


**Figure 39.** Model H5750-59 McFadden's Lacquers and Fillers.

**H0818—Fine Prepolishing Paste, 1.85 lb**
**H4873—Medium Prepolish Liquid, 1 Qt**
**H0821—High Gloss Polishing Liquid, 1 Qt**
Menzerna professional polishing compounds will remove any fine scratches from the finish and give your instrument the incredibly high gloss finish that you are looking for.


**Figure 40.** Manzerna polishing compounds.

# Warranty & Returns

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty applies only to the hardware of this kit, all wood components of this kit are excluded from this warranty. This warranty does not apply to defects due directly or indirectly to assembly, finishing or modification of kits; misuse; abuse; negligence; accidents; repairs or alterations; or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone, provide proof of purchase, and give us all the details. We will then determine if any components need to be replaced. Kits are non-returnable.

The manufacturer's reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

# Warranty Card

Name_____

Street_____

City _____ State_____Zip_____

Phone Number_____E-Mail_____FAX_____

**MODEL #**_____ Order #_____

**The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. Of course, all information is strictly confidential.**

1. How did you learn about us?

___Advertisement
___Catalog
___World Wide Web
___Friend
___Card Deck

___Other_____

2. Which of the following magazines do you subscribe to.

___American Woodworker
___Cabinetmaker
___Family Handyman
___Fine Homebuilding
___Fine Woodworking
___Home Handyman
___Journal of Light Construction
___Old House Journal
___Popular Mechanics
___Popular Science
___Popular Woodworking
___Practical Homeowner
___Shop Notes
___Today's Homeowner
___WOOD
___Wooden Boat
___Woodshop News
___Woodsmith
___Woodwork
___Woodworker
___Woodworker's Journal
___Workbench

___Other_____

3. Which of the following woodworking/remodeling shows do you watch?

___Backyard America
___Home Time
___The American Woodworker
___The New Yankee Workshop
___This Old House
___Woodwright's Shop

___Other_____

4. What is your annual household income?

___$20,000-$29,999
___$30,000-$39,999
___$40,000-$49,999
___$50,000-$59,999
___$60,000-$69,999
___$70,000-$79,999
___$80,000-$89,999
___$90,000 +

5. What is your age group?

___20-29
___30-39
___40-49
___50-59
___60-69
___70 +

6. How long have you been a woodworker?

___0 - 2 Years
___2 - 8 Years
___8 - 20 Years
___20+ Years

7. How would you rank your woodworking skills?

___Simple
___Intermediate
___Advanced
___Master Craftsman

8. What stationary woodworking tools do you own? Check all that apply.

___Air Compressor
___Bandsaw
___Drill Press
___Drum Sander
___Dust Collector
___Horizontal Boring Machine
___Jointer
___Lathe
___Mortiser
___Panel Saw
___Planer
___Power Feeder
___Radial Arm Saw
___Shaper
___Spindle Sander
___Table Saw
___Vacuum Veneer Press
___Wide Belt Sander

Other_____

9. How many of your woodworking machines are Grizzly? _____

10. Which benchtop tools do you own? Check all that apply.

___1" x 42" Belt Sander
___5" - 8" Drill Press
___8" Table Saw
___8" - 10" Bandsaw
___Disc/Belt Sander
___Mini Jointer
___6" - 8" Grinder
___Mini Lathe
___10" - 12" Thickness Planer
___Scroll Saw
___Spindle/Belt Sander

___Other_____

11. How many of the machines checked above are Grizzly? _____

12. Which portable/hand held power tools do you own? Check all that apply.

___Belt Sander
___Biscuit Joiner
___Circular Saw
___Detail Sander
___Drill/Driver
___Orbital Sander
___Palm Sander
___Portable Planer
___Saber Saw
___Reciprocating Saw

___Miter Saw
___Router

___Other_____

13. What machines/supplies would you like Grizzly Industrial to carry?

_____

_____

14. What new accessories would you like Grizzly Industrial to carry?

_____

_____

15. What other companies do you purchase your tools and supplies from?

_____

_____

16. Do you think your purchase represents good value?

___Yes ___No

17. Would you recommend Grizzly Industrial to a friend?

___Yes ___No

18. Would you allow us to use your name as a reference for Grizzly customers in your area? **Note: We never use names more than three times.**

___Yes ___No

19. Comments:_____

_____

_____

_____

_____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

Place
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