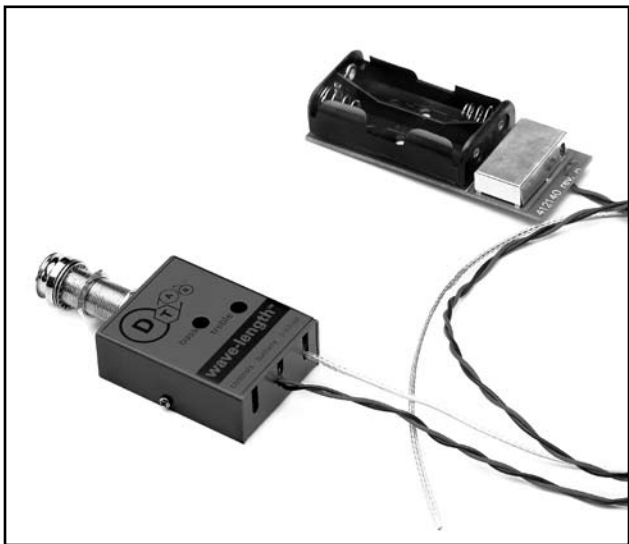


www.dtar.com

D-TAR – Installation Instructions

Wave-Length™

Under Saddle Transducer



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P/N 501055-140 Rev. B

Contents

Important Notes – Read First.....	4
Introduction.....	6
Tools required.....	7
Installation.....	8

Important Notes – Read First

1. Although it is possible for a skilled end user to install this pickup system, for optimum results, we recommend installation by a professional luthier.
2. Avoid any rough handling of the pickup. Bending, kinking or other physical damage could cause problems with string balance and output level.
3. For optimum performance and balance, the bridge slot must have a clean and flat bottom surface. It should be free of overspray or debris and be a minimum of 1/8" deep with 3/16" or more being preferred. The proper depth slot helps avoid excessive saddle tilt and maintains better saddle contact with the pickup. A minimum of 50% of the total saddle height must be below the top of the slot.
4. Check the saddle-to-slot fit before you begin work. If the saddle is too loose in the slot, it will cause excessive saddle tilt and will usually result in poor coupling to the pickup, low output and unbalanced string response. It is advisable to replace the saddle if it is too loose.
5. The last 1/8" at the end of the pickup is not active. At least 1/4" of saddle must project beyond the E strings for the pickup to produce a balanced string response. If your guitar has inadequate saddle slot extension beyond the outside strings, it will be necessary to drill a small horizontal hole at the appropriate end of the slot to extend the inactive region of the pickup beyond the saddle.

It is important to avoid disrupting the floor of the saddle slot when doing this. To protect the slot, lay a narrow slotted screwdriver under the tip of the drill bit before drilling the horizontal hole. (refer to Fig. 1)

6. The two trim pots are pre-set for 3dB of both bass and treble boost. You can adjust these to you personal preference through the two holes on the top cover of the preamp.

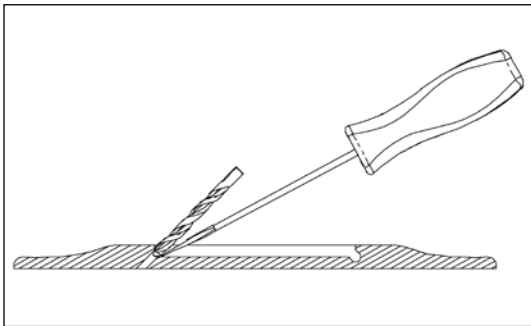


FIGURE 1

Introduction

This pickup system has a number of unique features:

- It utilizes a proprietary 18-volt power supply that operates on two “AA” batteries. This provides exceptionally high headroom, which is needed to accurately reproduce the sound of an acoustic guitar, and does so with a compact and lightweight package.
- The pickup is only .034” thick, in most cases making it unnecessary to route the saddle slot deeper.
- The preamp contain two trim pots, one for bass, one for treble; allowing the performer to tailor the sound to best complement their instrument and playing style.

Tools required

1. Electric Drill with ½" chuck.
2. 7/64" and 1/8" drill bits for drilling pickup hole.
3. An acceptable cutting bit to enlarge the endpin hole, some recommendations are:
 - a. Step Drill
 - b. 2 step endpin reamer (Stewart MacDonald #4323)
 - c. 15/32" drill bit with flutes ground for 0-degree rake
4. Small screwdriver with 1/8" wide blade or slightly narrower.
5. Small Crescent wrench for tightening nut on endpin jack.
6. Small Phillips head screwdriver, allen wrench or finishing nail to prevent jack from turning as you tighten the nut.
7. Special home-made preamp insertion tool:
 - a. A modified ¼" plug attached to a 2 ft. length of 3/16" dia. wooden dowel or stiff copper wire (solid conductor). This will help guide the endpin jack through the hole in the end block from the outside.

Installation

1. Remove the strings from the guitar. If you wish to exactly duplicate the string height, you can scribe a line on the front side of the saddle where it extends above the bridge. You can later use that line as a guide to remove material from the bottom of the saddle to compensate for the thickness of the pickup (~.034").
2. Remove the saddle.
3. Remove the end pin or current end pin jack. If necessary, ream or drill out the hole to 15/32" to accommodate the DTAR preamp.
4. Drill the pickup hole at a 45 degree angle at the very end of the saddle slot (either end is OK). If you have a 1/8" saddle, a 1/8" drill bit should be used assuming it fits into the slot smoothly. If it feels tight, use a 7/64" bit. Place the blade of the narrow screwdriver under the tip of the drill bit when drilling to avoid removing material from the bottom of the slot. (Refer to Fig. 1).
5. Blow out the slot with compressed air and check for debris or obstructions.
6. Round the inside of the hole where it meets with the bottom of the slot using a small file or knife. This will allow the pickup to make a more gradual transition into the slot and promote better balance. (Refer to Fig. 2).

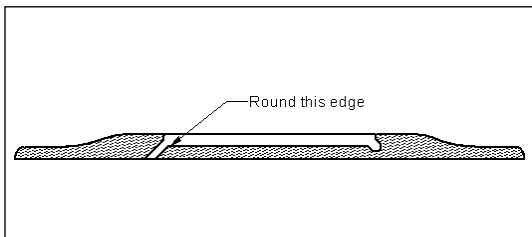


FIGURE 2

7. Using the custom preamp insertion tool, test fit and adjust the nut and lock washer on the end pin jack so that the larger diameter of the jack body is completely within the hole.
8. When the jack depth has been properly set up, slide it into the endpin hole and finger tighten the small flat washer and nut. Place a phillips screwdriver (or allen wrench, finishing nail, etc) through the cross-drilled hole to keep the jack from turning and tighten the retaining nut securely. Do not attempt to keep the jack from rotating by holding the chassis of the preamp. This will damage the preamp and void any warranty.
9. Install the strap button securely. A small length of the threaded portion of the jack should protrude slightly beyond the strap button or minimally be flush with the outer surface. This will insure that the instrument patch cord can be fully plugged into the jack.

Installation

10. Select a location on the back or sides of the guitar and secure the battery holder/power supply. Clean the surface using rubbing alcohol before applying the Velcro.
11. Working from the inside of the guitar, insert the pickup through the hole drilled in Step 4. Continue sliding the pickup into the slot until it reaches the opposite end or, in the case of a short saddle, until it slides into the shallow hole that was drilled at the far end of the slot. (Refer to note 5 under “Important Notes”).
12. Insert the saddle into the slot. If you intend to adjust the height, proceed to Steps 13 and 14. If you do not intend to adjust the height, skip to Step 15.
13. Note the height of the previously scribed line in relation to the top surface of the bridge. This is an indicator of the amount of material that needs to be removed. Leave a small amount of material (.005” to .010”) to be removed by hand sanding.
 - a. The preferred method is to use a vertical mill with a sharp 1/4” diameter end mill turning at around 1000 RPM. Set up your work carefully to ensure even material removal.
 - b. A second method is to use a belt sander with an approx. 150 grit belt. Be careful to keep the saddle perpendicular to the belt and remove material evenly from the entire surface.

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14. Carefully finish-sand the bottom by hand using 320 grit sandpaper on a piece of plate glass or any flat, machined surface. Check flatness of the saddle bottom by marking the entire surface with a pencil and then sanding a few extra strokes. The pencil should be removed evenly. At this point, lightly chamfer all bottom edges of the saddle to remove the sharpness.

 15. You now must carefully inspect and adjust the fit of the saddle in the slot.
 - a. The saddle should slide into the slot smoothly and with very little resistance. You should be able to insert and remove it with your fingertips.
 - b. If the fit seems very tight, the sides of the saddle can be sanded with 320 grit sandpaper.
 - c. Polishing or waxing the sides of the saddle will help it to seat properly under string tension and can enhance string balance and output.
 - d. Under some conditions, it can be beneficial to sand a small amount of tilt on the bottom of the saddle to compensate for the natural tilt of the saddle under string tension.
 - e. If the saddle is too loose in the slot, it will cause excessive saddle tilt and will usually result in poor coupling to the pickup, low output and unbalanced string response. It is advisable to replace the saddle if it is too loose.

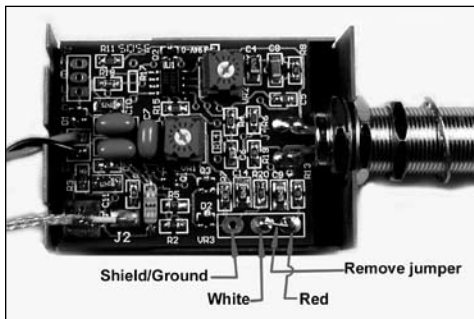
Installation

16. Double check to make sure the saddle slot is free of debris and that the pickup is fully seated along its entire length. Insert the saddle into the slot in the proper orientation and temporarily tape it in place.
17. Use a cable clip to secure the excess lead wire from the pickup to the bottom of the bridge plate. This will prevent any extraneous noises from being generated by the loose lead.
18. Install a fresh set of strings. Before you are completely up to pitch, pull firmly back and down on the saddle to help seat it fully in the slot. Finish tuning, seat the saddle one additional time, install two AA batteries, plug in to a good system and check it out. Any remaining string balance problems can usually be corrected by tapping on the front side of the saddle (after first unplugging, of course) using a wooden dowel and a small hammer.
19. If desired, you can make adjustments to the tonal balance by adjusting the Bass and/or Treble controls. Install your home-made preamp insertion tool then remove the endpin strap button and nut and washer. Slowly slide the preamp forward, into view of the sound hole, being careful not to tug the pickup cable. Use a small screwdriver to adjust the appropriate trim pot. Re-install the endpin jack and play.

Installing the Optional Volume & Tone Module (Not Included)

We recommend that the V&T Module be installed by a qualified technician or luthier. The V&T Module installation is best performed prior to installing the pickup in the guitar. If the unit has already been installed in the instrument, it will be necessary to remove the pickup from the saddle slot, being careful not to damage or distort the pickup in any way. Next, separate the battery holder from the guitar body. Finally, remove the outer fasteners of the end pin jack and carefully remove the entire pickup/preamp assembly from the guitar.

1. Remove the chassis cover by removing the two screws.
2. Remove the jumper wire indicated in the illustration below.
3. Solder the V&T Module cable following the color code in the illustration below.



Installing the Optional Volume & Tone Module (Not Included)

4. Route the V&T Module cable through the same slot as the pickup cable. It is desirable to secure the cable to the inside of the chassis with a small amount of hot glue.
5. It may be useful to turn up the treble response of the preamp slightly in order to allow more usable range of the external tone control you will be installing.
6. Replace the cover and secure the screws. Be sure to align the holes with the trimpots.
7. Install the Wave-Length system in the guitar according to the instruction sheet included with the Wave-Length.
8. Determine the proper location for the V&T Module by dry-fitting it underneath the bass side of the soundhole. When you have found a location that will give you comfortable access to the controls, clean the area with alcohol to remove any oils or sawdust.
9. Remove the release liner of the double backed tape and apply the module to the chosen location. If there is excessive cable length, it should be secured using one of the cable clamps included with the Wave-Length.

Limited Warranty / Disposal Guidelines

D-TAR offers the original purchaser a one-year limited warranty on both labor and materials starting from the day this product is purchased from an authorized D-TAR Dealer or as original equipment in an instrument, provided that a qualified, professional repairperson or luthier performed the installation. D-TAR will repair or replace this product, at its option, if it fails due to faulty workmanship or materials during this period. Defective products should be returned to your USA dealer, international distributor, or sent direct to our factory postage prepaid along with dated proof of purchase (e.g., original store receipt) and a RMA number clearly written on the outside of the box. Please call our factory for issuance of an RMA number.

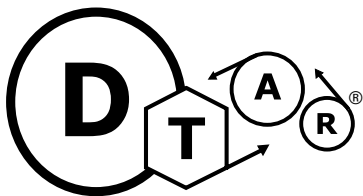
This warranty does not apply to damage to this product or an instrument caused by misuse, mishandling, accident, abuse, alteration, faulty installation or installation by a non-qualified repairperson.

Product appearance and normal wear and tear (worn pain, scratches, etc.) are not covered by this warranty.

D-TAR reserves the right to be the sole arbiter as to the misuse or abuse of this product. D-TAR assumes no liability for any incidental or consequential damages, which may result from the failure of this product. Any warranties implied in fact or by law are limited to the duration of this express limited warranty.

This product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased this product.





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