Backbox Installation

- Translated from the German original, using Google Translate.

*(My interpretation and casting of the machine-translated phrases into better English appears in italics. In some cases, I have added additional instructions, based on my experience as a luthier and guitarist, to clarify the original instructions given.)*

**Description and Installation Instructions**

By Backbox every Fender-style tremolo system returns (System of Stratocaster with Tremolo Block and extension springs, as well as Floyd Rose etc.) always return to a well-defined rest position.

*(With the Backbox, every Fender-style tremolo system (e.g. Stratocaster with tremolo block and extension springs, or Floyd Rose, etc.) always returns to a well-defined rest position (or “zero point”).)*

The Backbox is a way-pushable abutment which makes the rest position of Tremolos within a certain range regardless of the string tension, because the stop is seated against a spring which yields from cffem some force - namely when one pulls up the tremolo arm.

*(The Backbox is a spring-loaded tremolo block stop, which maintains the zero point of the tremolo within a certain range, regardless of the string tension, because the stop is seated against a spring which yields to an applied force, namely when one pulls the tremolo arm upwards.)*

**Benefits**

1. Regardless of whether the palm rests tuning stability of all strings when playing on the bridge or whether a string is pulled or tears
2. Better vibration behaviour of all strings (as in the case of a non-tremolo guitar)
3. Jump Significantly Faster retuning or string changes.

*(1. Tuning stability of all strings, regardless of whether your palm rests on the bridge, when playing, while bending strings or picking them)
(2. Better vibration behaviour (i.e. better sustain, consistent vibrato) of the strings (similar to a non-tremolo guitar)
(3. Significantly faster retuning or string changes.)*

**Spring Tension**

The "normal" Strat tremolo is that by string tension and tension spring balance, in a determined position.

*(The normal Strat tremolo is a balanced by string tension and tremolo tension springs, set to balance at a resting position or zero point.)*

The train of the strings is a fixed, unvariable force that is determined by the mood.
The tension of the strings is a fixed, constant force that is determined by the tuning of the guitar (unless you are bending strings, during which time the aggregate force exerted by the strings changes momentarily).

The spring tension but is far variable, as it determines the rest position of the system, i.e. how far the strings can be vibrated down.

However, the spring tension is variable, as it determines the rest position, or zero point, of the system - i.e. how far the strings can be tuned up or down, by movement of the tremolo arm.

The spring tension can be obtained by the number of springs or are regulated by the bias voltage.

The spring tension can be obtained by the number of tremolo tension springs used, or by the extension of the springs, determined by adjustment of the tremolo spring claw, which sets the balance point.

The less you use the softer springs is the use of the system.

The fewer tremolo tension springs you use, the softer is the action of the tremolo arm.

But if we take less feathers, so they must be more excited to be able to pull the system in the same position of rest can.

But, if you use fewer tension springs, they must be under more tension to pull the tremolo back to the same zero point.

This is done by, continues to rotate the two screws holding the spring retaining plate is taken are in the wood.

This is done by screwing the two screws holding the tremolo spring claw deeper into the wood of the guitar body.

String Tension

The string tension changes as to by tuning the guitar, but even if only one string is pulled while playing, even if you already hangs up the heel of your hand on the individual riders, strictly speaking, even if you even just strikes a chord.

The string tension changes according to the tuning of the guitar, but it will even change if you bend a string, while playing, or rest the palm of your picking hand on the bridge saddles, or even if you just strike a chord.

Because all operations just described are force effects that alter the string tension and thus the rest position of the tremolo system.

Because all the operations described above are force effects that alter the string tension, they therefore alter the resting position of the tremolo, moving it away from the nominal zero point.

Subtracting a string, so the mood of all the other strings goes down.
(Bend or remove a string and all the other strings detune.)

Tear a string, so the string tension is reduced in relation to the stroke of the pen, and the mood of all the other strings goes up.

(Pick a string and the aggregate tension of the strings is reduced, due to the action of the plectrum, so the pitch of all the remaining strings goes up.)

But already swinging a string represents a lasting change in string tension.

(Applying vibrato to a string represents a significant change in string tension.)

This change is indeed minimal, and blazing fast, but the tremolo system quasi acts as a kind of shock absorber.

(The change is, indeed, minimal and rapid, but the tremolo acts as a kind of shock absorber, fighting the vibrato the player is trying to articulate and partially negating it.)

This allows the generally accepted thesis that the guitars without tremolo sound a shade better than those with tremolo, harden.

(This allows the generally accepted idea that guitars without a tremolo sound a shade better than those with tremolos to solidify.)

Of course, this refers to a free swing-bend suspended system in which one can vibrate both upwards and downwards.

(Of course, this refers to a free-floating tremolo, with which one can move the tremolo arm both upwards and downwards.)

To sample can be very strong-tear on a string while watching the vibrator lever.

(To observe this, strike a string with a strong picking stroke and watch the end of the tremolo arm.)

It will be seen that it in turn starts to vibrate and hear that the string unclean "whirring" sound (flutter and sag).

(You can see it vibrate in response to the note struck and hear that the string has an unclean “whirring” sound as it decays, due to the flutter and sag of the tremolo springs, which are barely dampened, especially if a low mass, low inertia tremolo block is fitted.)

All these problems are eliminated by the Backbox.

(All these problems are eliminated by the Backbox.)

Installation Preparation

Especially the installation tremolo system with the spring tension screws should be so-is that its base plate be not resting on the body, so you can vibrate both downwards and upwards sufficiently.
(You must set up your tremolo bridge so that it is floating. You should be able to both pull up and push down on the tremolo arm. The base of the bridge should not be resting on the body.)

This is important to note that you have to retune the guitar with every change of the spring tension.

(It is important to note that whenever you change the tremolo spring tension, you have to retune the guitar.)

Two tremolo tension springs are usually sufficient to achieve the necessary tension.

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For thicker strings but can be a third or even the fourth spring are needed.

(For thicker strings, a third or even a fourth spring may be needed.)

After these initial adjustments you take the Backbox at hand:

(After these initial adjustments, notice the following about the Backbox.)

She has not much space between the springs, so it is so small.

(There is not much space between the springs, so the Backbox is small.)

It is secured by two screws, but also can be simple or additionally be attached with superglue.

(It is secured by two small screws, but can alternatively be attached with Superglue, or both Superglue and screws.)

Here the individual components:

(The individual components are described here:)

One end of the threaded rod ends in the stop pins, in the end of a piece of felt is glued, which prevents the result is a clicking sound when the tremolo block moves against the stop bolt.

(One end of the threaded rod has a stop pin, which has a piece of felt glued to it, to prevent a clicking sound being heard when the tremolo block makes contact with the stop pin.)

At the other end of the piston rod sits the adjustable stop nut that virtually defines the zero position of the tremolo.

(At the other end of the piston rod there is an adjustable stop nut that sets the “zero” position of the tremolo.)

It is spring loaded with a small rubber ring, which prevents both a clicking sound.

(It is spring loaded and has a small rubber ring, which prevents a clicking sound during actuation)

On the threaded sitting the pressure spring, the pressure force is regulated by the spring pressure-adjusting nut knurled.
(The pressure spring sits on the threaded rod. The spring force is adjusted using the adjusting knurled nut.)

The spring will cause the stop nut rests in zero position at the base housing.

(The spring causes the stop nut to rest at the zero position, in the base housing.)

Placement and Installation

1. Setting the threaded rod: The stop bolt should be approximately 12mm (plus felt) from the housing protrude. So to correct turn the stop nut accordingly (clockwise or counter-clockwise) until those 12mm are achieved.

2. Now you put the Backbox in the tremolo milling (preferably in the middle, but need not necessarily) and pushes them to the extent that the felt contacts the tremolo block. Attention! Lay the guitar so or feed that it rests neither with the tremolo or with the lever! Using a fine felt tip pen or pencil is now marked the two mounting holes. This can cause difficulties when the Tremolo cut-out is painted. In such a case it is advisable to stick to only a piece of paper or tape on the coat because you can mark the better it. The smaller hole (front, side) drilling with a drill of 1.5 or 2 mm in diameter, the larger (rear) drilling with a 2 or 2.5 mm drill and screw the Backbox on.

3. Now it is time to adjust the compression spring correctly. There are two possible failure features:
   a. The tremolo block pushes away the stop pin and the stop nut is not in the case of: Here the Pressure has come to attract until the stop nut against the housing.
   b. The tremolo block has no contact with the felt insert of the stop pin: Either one pulls the tension springs to (but that should not be necessary because they had that beforehand the tremolo set correctly) or (meaningful) turning the stopper nut out something to the felt the tremolo block touches. The stop nut can be had best turn, if she has no contact with the housing. So just press lightly with the tremolo block against the felt. Then the spring pressure adjusting nut is again readjust accordingly.

4. Lastly, should the spring retaining plate screws a bit further into the body, and in such an extent that the tremolo block when pulling a string no longer detached from the felt. Here is a sensitive readjustment. In addition, the spring is further to be observed. The stop nut must be present at rest on the housing. In addition, proof of the pudding: A string all relax! Now, if the stop nut is pushed, the spring tension of the Backbox is still to increase a little, namely so far that the stop nut is restored.

All this requires some time and sensitiveness since only small area to be fixed. But the more beautiful should then be the result. Further, it will have to his style of play with a slight tremolo change a little. Then it will work though!

(1. Setting the treaded rod: The stop pin should protrude approximately 12mm [1/2"] (plus the thickness of the felt pad) from the housing. Adjust the stop nut accordingly (either clockwise or counter-clockwise) until the correct length is set.)

(2. Now, place the Backbox in the tremolo spring cavity (preferably in the middle tremolo spring position, but it need not be) and adjust the position of the Backbox base plate so that the felt on the end of the stop pin contacts the tremolo block. Attention! Lay the guitar so that the
tremolo and tremolo arm remain in their zero position or your measurements will be incorrect! Using a fine felt-tipped pen or pencil, mark the two mounting holes. This can be difficult, when the tremolo spring cavity is painted. In such cases, it is advisable to stick a piece of paper or tape to the painted surface, because you can mark it more accurately. Drill the smaller hole (offset from the centre of the Backbox base plate, located closest to the tremolo block) with a 1.5 or 2mm drill bit and the larger (closest to the tremolo spring claw and centred, at the rear of the Backbox base plate) with a 2 or 2.5mm drill bit. Be careful not to drill too deeply, as you might drill through the front of the guitar body or the back of the bridge pickup! Use a piece of tape wrapped around the drill bit as a depth stop indicator. Drill the smaller hole (offset from the centre of the Backbox base plate, located closest to the tremolo block) with a 1.5 or 2mm drill bit and the larger (closest to the tremolo spring claw and centred, at the rear of the Backbox base plate) with a 2 or 2.5mm drill bit. Be careful not to drill too deeply, as you might drill through the front of the guitar body or the back of the bridge pickup! Use a piece of tape wrapped around the drill bit as a depth stop indicator. 

3. Now it is time to adjust the compression spring correctly. There are two possible failure modes:
   a. The tremolo block pushes the stop pin away and the stop nut is not in the housing. Here the tremolo spring pressure has overcome the Backbox tension spring. The tension spring knurled nut needs to be adjusted until the stop nut rests against the housing.
   b. The tremolo block has no contact with the felt insert of the stop pin: either one adjusts the tremolo tension spring claw to increase the tension on the tremolo springs (but that should not be necessary, because the tremolo was correctly centred / zeroed before installing the Backbox) or (more usually) loosening the stop nut until the felt pad contacts the tremolo block. It is best to turn he stop nut when it has no contact with the housing. When correctly adjusted, the felt pad should press lightly on the tremolo block. Then, the spring pressure adjusting nut should be readjusted accordingly.

4. Finally, screw the tremolo spring tensioning claw screws a little further into the body, so that when bending strings, the tremolo block does not lose contact with the felt pad on the stop pin of the Backbox. This is a sensitive readjustment, so do not screw the tensioning screws too far into the body. Having made the adjustment, ensure that the stop nut remains at rest on the housing, while bending strings. An additional proof of correct adjustment is to loosen all the strings by pushing the tremolo arm down. If the stop nut moves, increase the spring tension of the Backbox a little, so that the stop nut returns to its normal position, at rest on the housing.

(All this requires some time and sensitivity, since the adjustments to be made are very fine. However, the results will be worth it. You will have to modify your playing style slightly, when using the tremolo, because the action of the tremolo arm will now have a different feel, with a “sticky”, rather than vague, zero point. Then it will work, though.)