Truss Rod

Construction and Installation Details (Double Rod Type)

Function: Truss rods are used to counteract the bending force of the string tension on the neck. Adjustable truss rods should never be used to adjust the action. Expensive repairs are often the result of such mis-use.
Description: This truss rod is comprised of a steel bar bent tightly back upon itself with one end fixed in a stopped hole in a brass block, the other end passing through the block and protruding by 1/8“.The through rod is threaded and has a barrel nut attached. When the nut is turned clock-wise the through rod is shortened, forcing the fixed rod to bend thus providing a counter force to the bending action on the neck by the string tension.The two rods are wrapped with fibre glass tape causing them to act in concert.
Materials: 3/16“ Bright Mild Steel bar; Brass block; Truss Rod Nut; Fibre-glass re-inforced tape
Tools: LP gas torch; Hack saw; 3/16“ UNF(10-32) die; Die holder; 3/16“ drill bit; 5/32“ or 4mm Allen key
Construction: 1: The steel rod should be slightly more than twice the length of the finished rod. Using a gas torch, heat the rod at its half way point to red hot, slowly bend and finish by clenching it with a vice or hammer until the two arms are hard against each other. Allow to cool slowly.

2: Lay the bent rod, the block and the nut along a ruler or on the neck itself, grouped as shown in Fig.1, so that they occupy their respective finished positions at the desired length of the rod. Mark one rod so that about 1/8“(3mm) (more rather than less) is protruding past the block and mark the other rod so that it will fit into the stopped hole in the block. Cut the rods to these marks. Install the rods into the block to check that the through rod does have about 1/8“(3mm) of freeboard. Adjust if necessary.

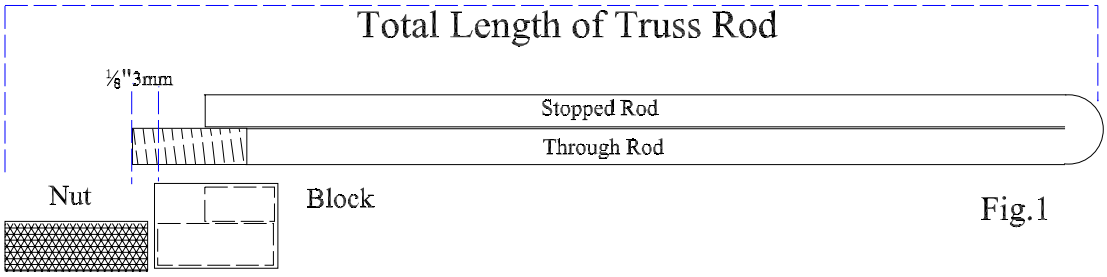
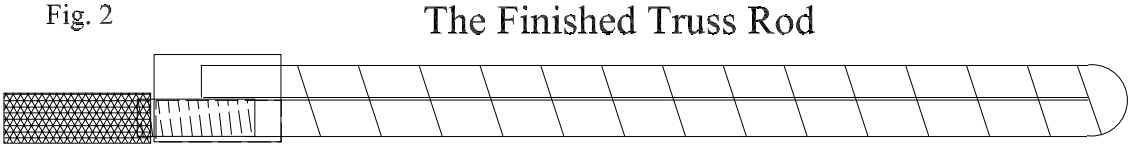


Fig.1

3. Before cutting the thread it is advisable to champfer the cut ends of the rods using a file or grinder. Seize the through rod vertically in a vice leaving the stopped rod free. Place the die on the end of the rod making sure that the die is perfectly square to the rod and using firm downwards pressure begin turning clockwise. After every four turns, rotate the die backwards about half a turn to break the swarf so keeping the cutting teeth clean. The use of a lubricant such as light oil is desirable. A minimum of twelve turns is required but cut as many threads as possible up to about twenty four. The free rod can be gently pulled to one side to enable more turns to be cut, as long as the bend is not distorted or strained in doing so.The finished job should look like that shown in Fig 1. Check to ensure that the nut turns smoothly on the threads; if there is any binding, adjust the die (a good quality die will allow of adjustment) and re-cut the threads taking care to correctly engage the existing threads so as not to“cross- thread“.

4. Assemble the block and nut with the rod, then using a fibre-glass re-inforced tape begin to wrap the two rods, starting at either end, sloping the tape on a diagonal, the exact angle being determined by ‘trial and error‘ (see Fig. 2). The narrower the tape the less angle is required. Make sure that the two rods are drawn tightly together. Do not overlap the winds as this may add excessive bulk. Place in a vice, gripping only the block and using a 5/32“ or 4mm allen key, give the nut a few turns to see that all is well. The through rod will be shortened causing both rods to bend as a consequence. The truss rod is finished and ready to be installed; please refer to page two for hints and suggestions on installation.

Fig. 2



Note: 1. Block shown in cross section for clarity.
2. Diagonal lines represent the strapping tape.

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Construction and Installation Details (Double Rod Type)

Installation: 1.The rod is relatively easy to install needing a 7/32”x 3/8” (5mm x 10mm) slot routed in the neck. This size will ensure a snug fit. To accomodate the adjustment nut and the block, the rout will need to be widened and deepened where necessary. This can be done with a chisel or a suitable router template.

2.The truss rod should not, under any circustances, be glued or fixed in the slot; it is only necessary that it be a neat fit. If the slot is too big use shims of veneer to obtain a satisfactory fit.

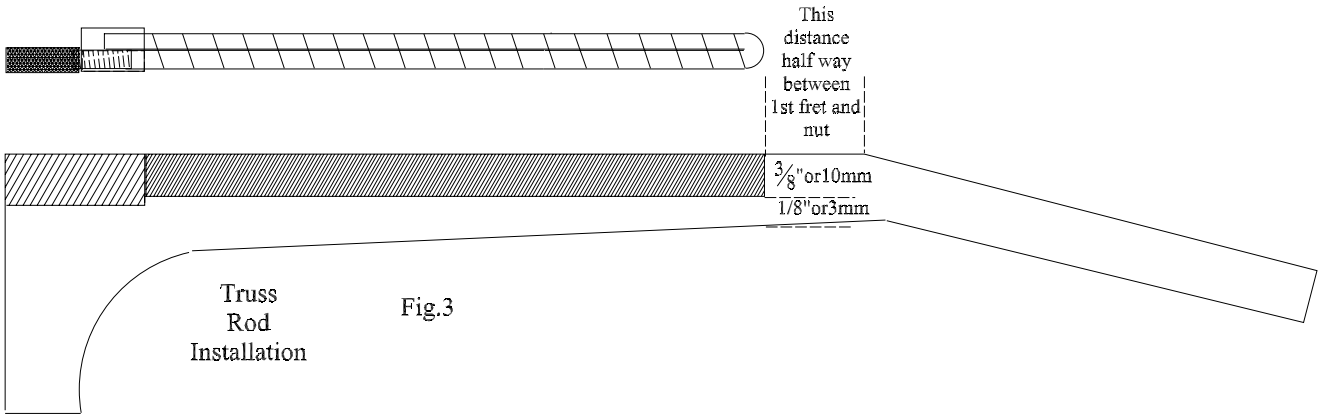
3. Care must be taken that the rod is flush with the top surface of the neck. If the rod is higher than the surface of the neck, the fingerboard may be cracked when it is glued down. If the rod is below the surface its effectiveness may suffer.

4.It is recommended that wherever possible the adjustment nut be positioned at the bridge end of the neck so as to avoid weakening the headstock. As shown in fig.3 the slot is best stopped about halfway between the 1st fret and the nut.

5. Note carefully the orientation of the truss rod, the nut must be placed towards the bottom of the channel.

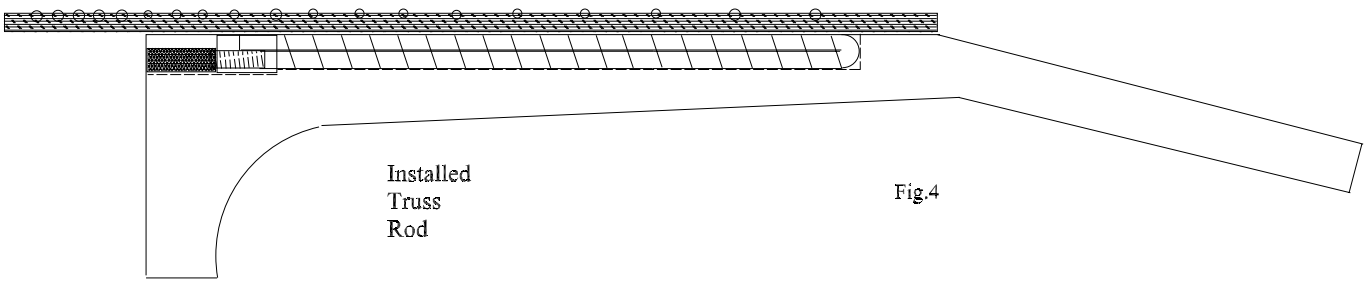
6.The block must sit on a firm base, as shown in the diagram (fig.3), as it is one of the springing points from which the rod is able to exert pressure and as the other end is the second springing point there should be at least 1/8” or 3mm of wood under this end for sufficient strength; if there is less, the neck is probably too thin to be servicable in any case.

7. The only purpose of the truss rod is to allow adjustment to made for the straightness of the neck. It should never be used to adjust the action unless the neck has an excessive forward bow and is therefore in need of such adjustment.



Truss Rod Installation

Fig.3



Installed Truss Rod

Fig.4