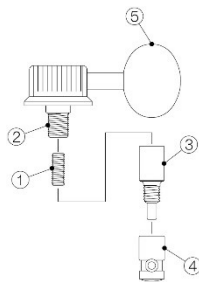


GOTOH H.A.P.M (Height Adjustable Post + Magnum Lock)

Common to SD90 + SD91 / SD510 + SDS510



- Component parts
 (1) Locking screw
 (2) Fixed shaft
 (3) Adjustable post
 (4) Locking cap
 (5) Button

1. Replacing the bushings and attaching the machine heads

- 1) If the string post diameter of the machine head being replaced is different from the SD90 / SD510 HAPM string post then you will need to replace the old bushings. A standard string post in this style is usually $\phi 6.35\text{mm}$ (1/4"). SD90/SD510 HAPM string posts are $\phi 6\text{mm}$.

If you continue to use bushings with a different inner diameter, the performance and durability of the machine head will be impaired. Please be sure to remove the old bushings with the included special tool and replace them with the correct bushings.

Please take care when removing and installing bushings as excessive force may result in damage to the paint, finish, or headstock.

※The included tool cannot be used if the peg-holes in the headstock have been counter-bored. In that case please contact a professional.

- 2) Locking caps (4) with narrow string holes ($\phi 1.2\text{mm}$) are for strings 1 to 3; those with larger string holes ($\phi 1.8\text{mm}$) are for strings 4 to 6. *An identification sticker is attached to the back side of the machine head for strings 1 to 3.
- 3) Please ensure the string post runs flush through the bushing. A skewed installation can impair the performance and durability of the machine head. Symptoms such as stiff turn motion are usually due to incorrect installation. Also, when attaching the machine head with the included wood screws, please ensure a correct diameter and depth of pilot hole. If they are not appropriate for the screws there is a risk of breakage to the screw and screw head.

***Please perform the above work carefully to ensure there is no damage to the instrument. If you do not have confidence or experience it is highly recommended that you use the services of a professional. Please be aware that we do not take responsibility for damage to musical instruments or any other issues during installation.

2. Locking and unlocking the height-adjustable post

To lock or unlock the adjustable post (3) insert the hex wrench into the hole in the body cap and turn the locking screw (1). It is important to remember that the turn direction for locking and unlocking is different for left and right gears. (See Figure A)

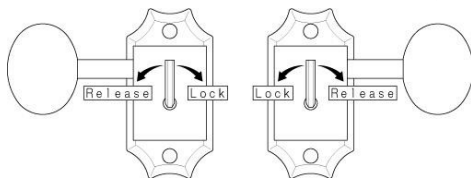


Figure A

3. Post height adjustment

As described in the previous section, you must first loosen the locking screw (1) to be able to set the height of the adjustable post (3). In order to lower the adjustable post (3) the locking screw (1) must first be lowered sufficiently to not impede movement. Once the lock is released the adjustable post (3) can be rotated by hand to raise or lower its height.

The adjustment direction depends on which side-left or right-the gears turn. (See Figure B)

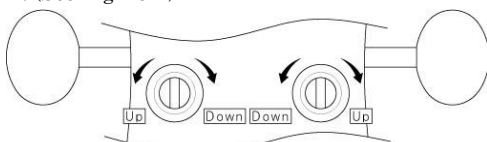


Figure B

After setting the post length to the desired height as described above, the adjustable post (3) can be securely locked and the process finished.

***The travel amount for each string post is 4.5 - 5 mm. Please set it only within that range. In addition, there is no stopper. Please be careful as the adjustable post (3) might fall off the fixed shaft (2) if loosened too much.

If only the locking cap (4) turns when trying to adjust the height, use the locking screw (1) to lock the adjustable post (3) and then lightly tighten the locking cap (4) against the adjustable post (3) using a coin or similar. Release the lock and try again. The rotation direction of the locking cap (4) is the same as the adjustable post (3).

CAUTION: When setting the adjustable post (3) to an extended height, make sure there are at least 2 turns of the screw threading between the fixed shaft (2) and the adjustable post (3). If the contact between them is any less there is the possibility of breakage or disconnect due to string tension.

If the adjustable post (3) is lowered to the lowest limit and the string is pulled tight without having tightened the locking screw, the fixed shaft (2) and the adjustable post (3) will be locked by the tension of the string and it will be impossible to readjust manually. Please make sure that the locking screw is locked before winding the string tight.

4. How to lock and tune strings

***Magnum Lock is an auto-locking system that uses string tension.

If the locking cap (4) cannot be locked, even if forcibly turned with a coin or similar.

- 1) Loosen the locking cap (4) until there is enough space for the string. If it is difficult to loosen by hand, use a coin or similar. It is important to remember that the turn direction for locking and unlocking is different for left and right gears. (See Figure C)

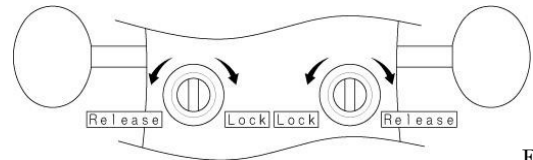


Figure C

- 2) Thread the string through the locking cap (4), pull it tight, and turn the button (5) in the same direction you would wind it to tighten the string. Although locking is possible even when the string is not pulled tight, it will require more turns and the primary function of the locking post is not being utilized. This process is made simpler with a winder.

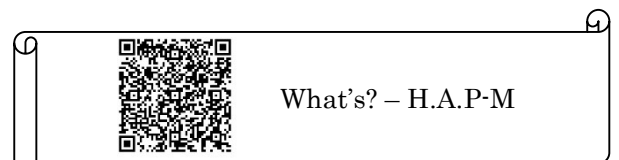
When the locking cap (4) begins to turn after the string is locked, let go of the string with your hand. Stretch the strings before tuning to lock reliably (Figure 7). After that, tune as usual.

5. Changing strings

■ String change when the string has broken
 Forcibly release the locking cap (4) using a coin or similar. It is important to remember that the turn direction for locking and unlocking is different for left and right gears. (See Figure C)

■ String change with string tension
 Turn button (5) in the direction of loosening the string to unlock it.

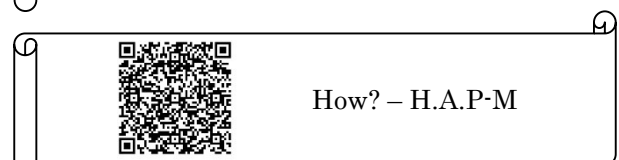
※There is a video manual on our website. If you have any questions, please refer to that as well.



What's? - H.A.P-M



Why? - H.A.P-M



How? - H.A.P-M