



KARUNYA MUSICALS

No. 86, *Haripriya*, First Floor, Temple Street, NGEF Layout, Sadanandanagar,
Bangalore-560038, Karnataka, INDIA.

SYNTHETIC TABLA

Product Specifications

TAB-S.R.I-G: Tuning range from F-G (Top Octave)

1. Description

The two parts of the Tabla set –the right side *Dayan* and the left side *Bayan*- are both fibreglass shells fitted with synthetic drumheads. The *Dayan* drumhead consists of three membranes-an inner membrane, a middle membrane, and an outer membrane with a large circular cutout called the *Chati*. The middle membrane has a centrally located circularly symmetric loaded region called the *Syahi* formed by bonding an elastomeric material on to it through a chemical process. The inner membrane which is in contact with the shell has a cut-out slightly smaller than the right aperture and serves to protect the middle membrane from wear and tear. The *Bayan* drumhead consists of two membranes, the main membrane which has an elastomeric eccentric loading on the



top side so as to be able to produce low pitched bass tones, and an outer membrane in the form of an annular ring. The drum heads are attached to the shell by means of a set of clamps on the drum heads, a set of lugs on the drum shell, and a set of bolts and nuts. Each drum is equipped with a side cover to conceal the clamps and provide support for the hands and fingers while playing the instrument.

2. Component parts of the Tabla



The shells of Dayan (Right) and Bayan (left) are made of fiberglass and a set of 16 lugs are attached on each of the shells. The bolts pass through the holes provided on the drum head clamps and through the holes provided on the lugs and the head is held in place and tightened using the long nuts. The shell material is chosen so as to provide negligible variation of pitch due to temperature variations. This was one of the key problems that needed to be solved in creating this instrument. The lugs are fixed to the shell from inside using bolts. In order to prevent the rotation of the lugs during tensioning, the lugs are recessed into the shells in a groove-like arrangement. The drum head clamps and other hardware are completely covered using detachable rings there by giving an aesthetic look and complete protection to the hands and fingers. The head is tensioned uniformly with the help of the long nuts using a single spanner. A challenge here was to prevent the rotation of the bolts while tightening or loosening the long nuts. This problem was solved using square head bolts and carefully designed drum head clamps.

One of the distinctive features of this design is the neat seating of the tuning hardware. In a conventional nut-bolt Tabla the hooks project out of the shell and may also cause injury to the fingers of the player. In the S.R.I Tabla the tuning hardware is concealed leaving access to only those parts that need access.

In contrast to the tuning system of western drums that use a hoop system for attaching and tensioning a drum head, the S.R.I Tabla uses a set of 16 metallic clamps on each drum head. The reason for this is follows:

The rim stroke is a very important stroke in the case of the Tabla. In a conventional Tabla, there are 16 points on the rim through which leather straps run back and forth between the head and the bottom of the shell to hold them together and provide tension to the head. In the case of the nut-bolt Tabla too there are sixteen hooks on each head which are tightened using the nuts. In the case of Western drums, a very precise adjustment of the pitches at various points on the rim is not necessary whereas it is required to be extremely precise in the case of the Tabla. The problem with the hoop system is that when a tension rod is adjusted for pitch at a given location it will alter the pitches at all other points on the rim as well. This makes perfect tuning a nearly impossible task.

In the case of the S.R.I. Tabla, each drum head has 16 metallic clamps. On the Dayan, for example, the pitch at each lug point (a lug point is the area on the rim of the drum head directly above or below the drum head) depends mostly on the tension of the corresponding bolt and does not significantly vary when the tension is altered at some other lug, provided that the variation is not too large. This enables easy tuning and it is not difficult to achieve a tuning accuracy of ± 1 Hz at each point on the rim. The 16 points of tuning provide equal tensioning. When all the lug points are aligned in pitch the instrument resonates beautifully. Western drums usually have a far fewer number of lugs because the tension of the drumhead is distributed to the lugs by the hoop. The Tablas are typically tuned to higher pitches and the 16 lugs help withstand this tension by distributing it among the 16 lugs. So these lugs help in load distribution, equal and precise tensioning and achieve excellent resonance.

3. Advantages of the S.R.I Tabla

1. Totally ethical as no animals are harmed in its construction.
2. Environment friendly, as there is no need to cut trees.
3. Rugged and light weight (total weight of the Dayan and Bayan, typically 6 Kgs)
4. Weather resistant; pitch is not much affected by temperature and humidity.
5. Easily tunable with a single spanner. It is possible to achieve a tuning accuracy of ± 1 Hz with some effort all along the circumference of the right drum head.
6. Excellent tonal clarity, resonance and sustain.
7. Easy to play without much strain on the hands.
8. The Syahi is chemically bonded to the drum head membrane, so that it would not fall off or wither away with time. This eliminates the need to run to the Tabla repairer for Syahi replacement. The head is also impervious to hand sweat.
9. Heads can be cleaned with a squeezed moist cloth.
10. Maintenance free.
11. Wide tuning range over 3-4 semitones.

4. Technical Specifications

1.	Tuning range	F-G (top octave)
2.	Dayan Head diameter	133 mm (5.25")
3.	Dayan external diameter	190 mm (7.48")
4.	Bayan head diameter	232 mm (9.13")
5.	Bayan external diameter	285 mm (11.22")
6.	Dayan height (without support ring)	270 mm (10.63")
7.	Bayan height (without support ring)	271 mm (10.67")
8.	No of tuning points on each head	16
9.	Shell material	Fibreglass
10.	Drum head material	Synthetic
11,	Material of Nuts and bolts	Stainless steel
12.	Weight (approx.)	Dayan: 2.9 Kgs; Bayan: 2.8

5. Tuning procedure:

5.1 Dayan head

Note: Follow the below instructions carefully. If you do not follow these instructions correctly, or try to take a short cut, the heads will detune rapidly while playing.

If the head is newly put it should be seated first. See the procedure for seating the head under “Replacing the Tabla Head”. If the head is already seated follow the procedure outlined below:

5.1.1 Tuning Up

Keep the Tabla in vertical position with the head facing up. A digital Tamboora will be very handy for the purpose of tuning the Tabla. Tuning is done one lug at a time and moving from one lug to the other in either clockwise or anti clockwise direction. First, ensure that all the

long nuts are hand tight. Then quickly check the pitches at different lug points. Then, using the spanner provided with the kit, start equalizing the pitches slowly at each lug point to a pitch that is still below the pitch to which you want to tune the instrument. This is usually done using the left hand. Let us say you want to set the pitch to F*, then you may start aligning all the lugs to, say, D or D* (or even below if the overall pitch of the head is lower). **DO NOT GIVE FULL TURNS TO THE LONG NUTS.** Go in for small fractional turns and align the pitches approximately to one particular pitch. It is not necessary to go for exact alignment of the pitches at this stage. Then slowly start moving up by one semitone at a time initially and later in smaller intervals by tightening all the 16 lugs in small increments. Then with the heel of your right hand whack the drum head at the centre firmly but gently. This will lower the pitch again. The idea of whacking is to ensure that the drum head skin is released from sticking to the bearing edge of the shell and the gaps in the tuning system (such as between the threads of the bolt and nut, between the bolt head and the clamp, etc.,) are closed. It may come down if there is still some slack at this lug point or it may remain same as before. As the desired pitch is approached keep the up tuning and whacking till the pitches at all the lug points are aligned to the desired pitch. Whack the head firmly once again at the centre and ensure that the pitches at the lug points do not go down. If they go down adjust slightly and align again. With some practice the tuning becomes quite easy to accomplish.

5.1.2 Tuning down

If the instrument is already tuned to a pitch higher than the desired one, start loosening the nuts. Tuning is done one lug at a time and moving from one lug to the other in either clockwise or anti clockwise direction. If the desired pitch is just one or two semi tones down start loosening in smaller steps. Otherwise, you can start with slightly larger steps first (in any case, not more than a ¼ turn) and later in smaller steps. At each stage in the tuning, ensure that the pitch is nearly the same at all the lug points. However, it is not necessary to do an exact alignment of the pitches at this stage. Continue the process till the desired pitch is reached. Align all the lug points to the given pitch. Whack the head with the heel of the right hand at the centre and then at each lug point. Do not whack too hard. If the pitch goes down adjust slightly and align again. With some practice the tuning becomes quite easy to accomplish.

5.2 Bayan head

The Bayan head is tuned essentially in the same way. Some Tabla players prefer to set the Bayan also to a specific pitch.

Please also watch the video on our website www.karunyamusicals.com to learn how to tune the S.R.I Mrudanga. The procedure for tuning the Tabla is similar.

6. Replacing the Tabla head

6.1 Dayan head

The head may get worn out after years of use or due to abuse and it may have to be replaced. The following is the procedure for fixing a new head. Note that it will take about 2-3 days for the new head to get seated properly and only then the Tabla will be ready for professional playing.

Keep the Dayan in the vertical position with the head facing up. Remove the outer cover (the brown ring) using the star screw driver. The drum head with the clamps will now be visible. Loosen all the long nuts and take out the old head.

With a clean soft cloth gently clean the rim of the Dayan and ensure that the bearing edges are free from dust.

Put on the new head and attach the nuts and bolts to secure the drum head. Hand-tighten all the nuts. Fix the cover back.

Then, using the spanner provided with the kit, start increasing the pitches at each lug point by giving about $\frac{1}{2}$ a rotation to each nut. A digital Tamboora will be very handy for the purpose of tuning the Tabla. Tuning is done one lug at a time and moving from one lug to the other in either clockwise or anti clockwise direction. If the pitch is a bit too low at some points tighten those nuts so that the feeling of the tension is same as the tension at other points. Now gently strike the head to produce the rim sound. If there is no musical sound produced at any lug point proceed with another $\frac{1}{4}$ turn. At this point a musical tone may be produced at some lug point. If not, repeat the quarter turn until a musical tone is produced at some lug point. Roughly align the other lug points to this pitch and then with the heel of your right hand whack the drum head at the centre firmly but gently a few times. This will lower the pitch again. The idea of whacking is to ensure that the drum head skin is released from sticking to the bearing edge of the shell and the gaps in the tuning system (such as between the threads of the bolt and nut, between the bolt head and the clamp, etc.,) are closed. From here on, go for small fractional turns and align the pitches approximately to the next higher semitone. It is not necessary to go for exact alignment of the pitches at this stage. Tighten the nuts again and gradually increase the pitch to the desired pitch. Whack the head gently but firmly a few times. Then retune and equalize the pitches at all the lug points and set the Tabla aside.

6.2 Bayan head

Follow the same procedure as above for the Bayan head too.

6.3 Seating the head

During the initial days of fixing a new head, it will keep detuning and the Tabla will not be fit to play. This is because the drum head keeps stretching and starts to lose its intrinsic slack. So retune the Tabla daily (if possible) to restore the pitch to the maximum pitch specified and let the head be under that condition for 2-3 days. This process will automatically seat the head and further detuning will not occur. After this initial period the Tabla can be used for solo or accompaniment. Tune the Tabla before each performance as outlined in the Tuning Procedure.

The Bayan head also needs to be seated in a similar way. Tune the Bayan head to a high pitch and leave the head in that state for 2-3 days. After that lower the pitch to the desired level and retune the head as per the desired bass tone.

7. Do's and Don'ts

Do's:

1. Use the support rings whenever the Tabla is used.
2. Always keep the Dayan head under moderate tension.
3. Follow the tuning instructions at all times.
4. When not in use, keep the Tabla in a protective casing or bag.
5. Always keep the Tabla set in the vertical position
6. Keep the Tabla in a protected environment away from direct sun light, heat, humid winds and extreme temperatures.
7. When removing the side covers for any reason, follow the instructions for removing and re-fixing the side covers.
8. Follow the instructions for removing and fixing the drum heads.
9. Always allow a new drum head to settle for 2-3 days before starting to play on them.

Don'ts

1. The drumheads do not have any serviceable parts. Do not poke into the them at any cost.
2. Do not scratch the Syahi which has a protective coating.
3. Do not abuse the drum heads by playing too hard.
4. Do not remove drumheads unnecessarily.
5. Do not remove the drum head from one shell and put on another.
6. Handle with care. Take extra care during transport. Do not keep heavy luggage on the top of The Tabla.