



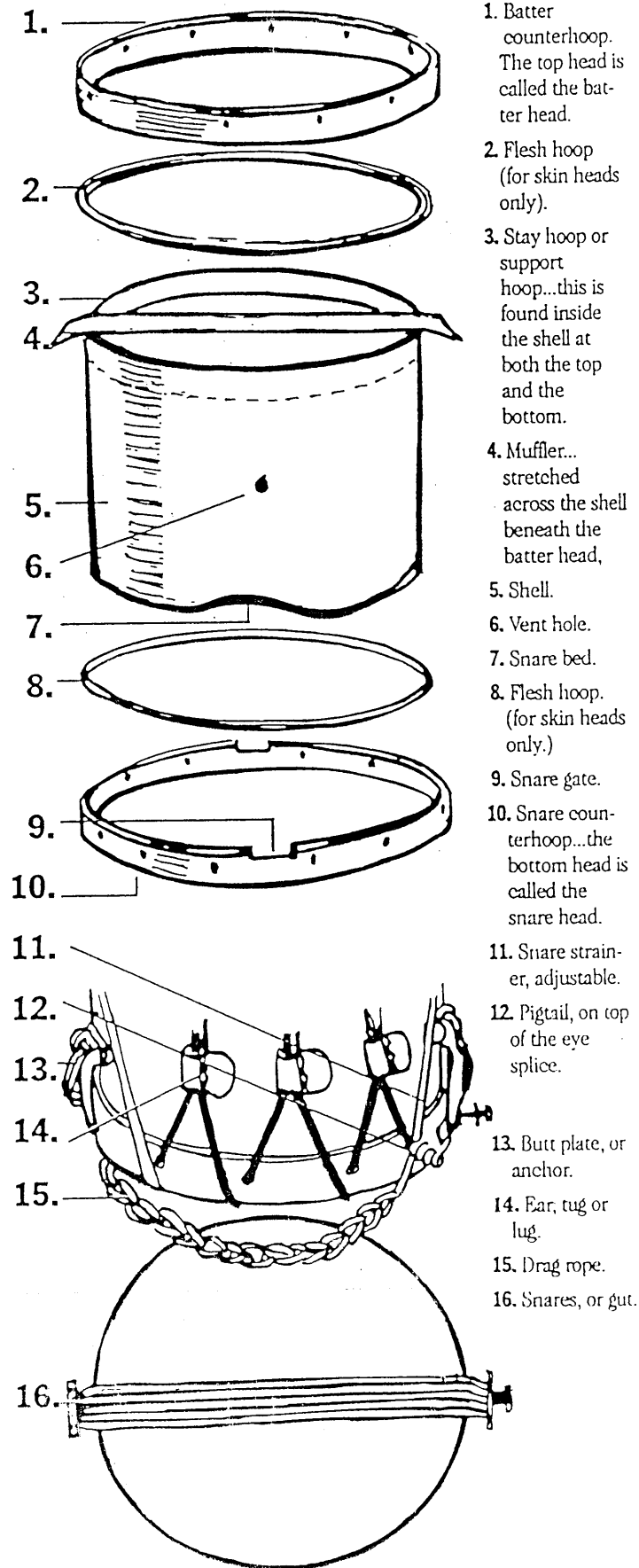
*Cooperman*TM

Rope Tension Field Drums Care and Maintenance



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Parts of the Drum



1. Batter counterhoop. The top head is called the batter head.

2. Flesh hoop (for skin heads only).

3. Stay hoop or support hoop...this is found inside the shell at both the top and the bottom.

4. Muffler... stretched across the shell beneath the batter head,

5. Shell.

6. Vent hole.

7. Snare bed.

8. Flesh hoop. (for skin heads only.)

9. Snare gate.

10. Snare counterhoop...the bottom head is called the snare head.

11. Snare strainer, adjustable.

12. Pigtail, on top of the eye splice.

13. Butt plate, or anchor.

14. Ear, tug or lug.

15. Drag rope.

16. Snares, or gut.

Preparing to Play

- **Breaking the seal**

It is critical that the batter head move freely down over the top of the shell when the drum is braced for play. This movement is impeded if the rim of the head is sticking on the finished or waxed portion of the shell. You will need to break the seal every time you brace the drum for playing; the process is especially important when you have a Kevlar® batter head. You can accomplish this by pressing firmly with both your palms on the center of the head, exerting firm, even pressure. You may hear a light cracking sound as the seal is broken.

- **Bracing the drum**

It is important to brace the drum evenly to maintain consistent pressure on the heads and to prevent the counterhoops from becoming unbalanced. This is accomplished by pushing the ears down on opposite sides of the drum in pairs, rather than pushing the ears in sequence around the drum, while the drum is placed firmly in an upright position.

Place the drum on the floor or ground, batter head up. Grasp two ears, one in each hand in opposite pairs. Pull the ears away from the shell as you push down to prevent the laces from scratching the shell. Push the ears down only about half the depth of the shell; this is far enough if the drum has been properly pulled. Only push the ears down further if you absolutely need to in order to tighten the heads sufficiently; too much pressure can break the snare head. Reverse this procedure to loosen the drum. It is very important that you brace the drum in this way, by pushing down opposite pairs of ears, so that even pressure is maintained on the counterhoops. Loosen your drum when it's not in use. Relieving excess tension will prolong the life of your heads, prevent the rope from overstretching, and will permit the shell, hoops, rope and heads to come to equilibrium with ambient temperature changes.

- **Adjusting the snares**

After bracing the drum, release tension on the snare strainer so that the snares fall away from the head and no snare response is present. Tapping lightly on the batter head with your stick, slowly tighten the strainer until the sound you hear is clear and sharp.

Overtightening will create an overtone resembling a ring or a hum.

Maintaining your instrument

- **Replacing the rope**

The rope should be checked frequently for broken or frayed strands. If these conditions occur, the rope should be replaced. If you're not going to save the old rope, you'll save a lot of time and effort by simply cutting it off the drum. Otherwise, unrope the drum by undoing the drag rope and feeding the rope back through the holes in the counterhoops.

Make an eye splice with at least three tucks in one end of the new rope. If you don't know how to make an eye splice, ask to have it put in when you order your rope. Thread the end of the new rope without the eye splice, from the inside of the counterhoop, through the hole in the snare counterhoop to the right of the snare strainer. Pull the rope through the hole until the braid of the eye splice rests against the inside of the snare counterhoop. Slide one ear onto the rope. Take the free end of the rope and pass it over the batter counterhoop and back through the hole in that hoop. Pull the rope completely through, making the first part of the "V" somewhat tight.

Thread the end of the rope through the ear once more, then over the snare counterhoop and back through the hole in that hoop. This completes one "V", with the ear holding both sides.

Continue this way around the drum until you reach the eye splice. Pass the remaining rope through the splice and tie a simple knot in it to keep the rope from coming back through the splice in next round of pulling. Don't pull the rope too tight in this first round; it is important that tension be applied evenly, which will be accomplished in the final pull.

Starting again at the eye splice, pull all the surplus rope around the drum, still being careful not to pull the rope too tight. When the second turn is completed, align the ears so that the sides of the "V"s will come straight together when the ears are pushed down. Do this by rotating the counterhoops to the right or the left until the ears are aligned.

Proceed to pull your drum.

- **Pulling the drum**

Pulling the drum removes the slack in the rope caused by the stretching of the rope and heads. You need to use your judgement to decide how much tension to put on your drum, and how rigorously to pull it; a drum with new heads and/or new rope needs to be pulled more aggressively, while an older instrument or one with old heads and/or rope may need a gentler hand.

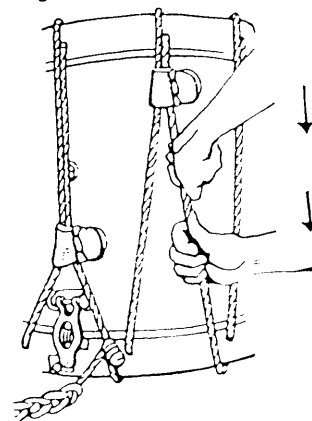
Don't try to remove all the slack in the rope in one round of pulling the drum. You'll need to repeat this process several times to achieve the tension you want.

- Place the drum on the floor or ground, batter head up. Grasp an ear and its opposite, one in each hand, and push them down as far as they will go. Pull the ears away from the shell as you push down to prevent the laces from scratching the shell.

When all the ears are down, place the drum on a table. Starting at the pigtail and moving counterclockwise, push up half the complement of ears.

Grasp the second line directly to the right of the pigtail (Fig. 1), and pull firmly downward. When you have pulled this line tight, hold it steady with your right hand. At the same time, apply pressure against the rope

Fig. 1



and the batter counterhoop with the thumb and forefinger of the left hand at the point shown in Fig. 2.

Remove your right hand and pull the slack of the rope through the next hole in the snare counterhoop with an upward motion (Fig. 3). Maintaining tension on this line with your left hand, remove your right hand and pull the slack of the rope through the next hole in the batter counterhoop. Now with both hands positioned as shown in Fig. 1, pull downward firmly and repeat the above procedure, continuing until you reach the first ear that is down. Now proceed by loosening one ear at a time. When you come to the last ear, undo the pigtail and turn the drum upside down. Pull all of the slack through the eye-splice and replace the pigtail.

The second time around the drum, leave the pigtail in place and start pulling at the bay after the one you started at the time before (at the fourth line after the pigtail), and continue skipping forward bay by bay for the following pulls. This will help keep the tension even on the counterhoops. When you've reached the desired final tension, replace the pigtail carefully and go on to make your drag rope.

- **Making a pigtail**

The function of the pigtail is to maintain the tension in the rope after the drum has been pulled. Tightening or increasing the size of the pigtail will not increase the tension on your drum; that can only be accomplished by pulling the drum.

Twist the rope counterclockwise until the lay of the rope becomes so tight that it causes a loop to form (Fig. 7). Place this loop against the eye splice and continue to twist the rope to form a second loop. Place this loop behind the first loop, forcing it between the eye splice and the first loop. Fig. 8 illustrates several loops, each placed between the eye splice and the preceding loop. Continue until all the slack is removed and the last length of rope from the batter counterhoop to the eye splice is taut. The remaining rope is then pulled between the hoop and the pigtail, and can function as the drag rope, its position being illustrated in both Fig. 8 and Fig. 9.

Fig. 2

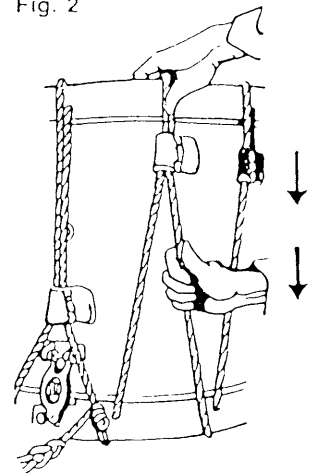


Fig. 3

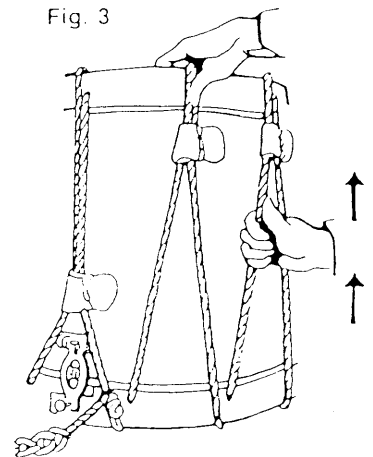


Fig. 7

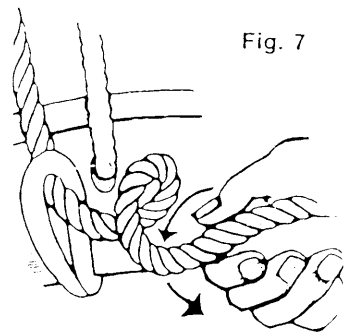
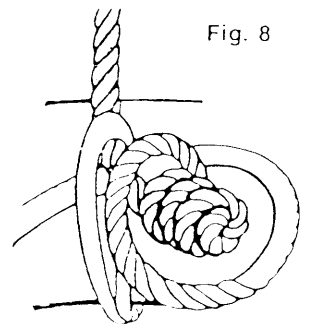


Fig. 8



- **Making a drag rope**

The drag rope consists of a series of slipknots (Fig. 9), forming a long chain knot across the bottom of the drum. When you reach the last slipknot, draw the end of the line through it and make an overhand knot. Tuck this overhand knot between the rope and the hoop opposite the pigtail, thus securing the drag rope at both ends.

- **Replacing the batter head**

Place the drum on a table, snare side up. Undo the chain knot and pigtail, and slide the surplus rope through the eye splice.

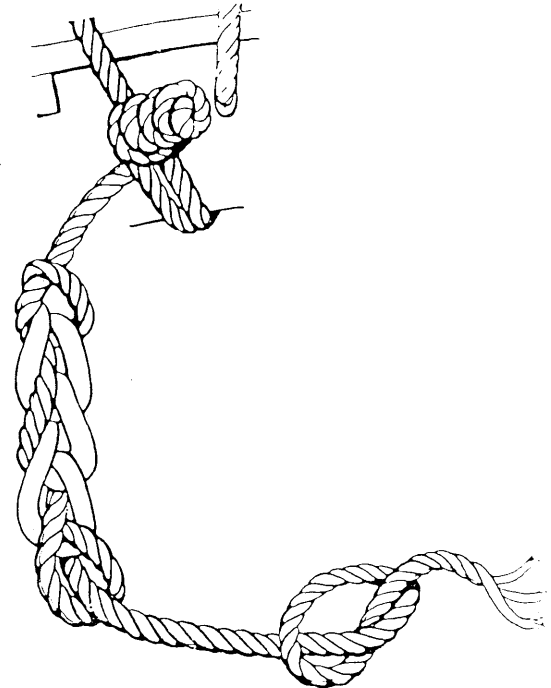
Turn the drum over so it's batter side up. Pull the rope out through at least one ear and feed the surplus rope around the shell, allowing enough slack at each ear so that the batter counterhoop can be lifted to clear the rim of the head

Tap the rim of the head lightly upward. Lift the head clear of the shell, sliding it toward the part of the shell where you removed the ear so that the head can slip through the loosened ropes. Clean if necessary and wax the upper outside edge of the shell, and check the condition of your muffler as instructed in **Checking and replacing your muffler.**

If you have skin heads, follow the instructions for Tucking and mounting a skin head.

If you are mounting a synthetic head, place it in position and align the batter counterhoop so that the holes come in-between the holes in the snare counterhoop to form the rope "V". Lightly re-tighten the ropes, moving counterclockwise, pulling the end of the rope back through the ear you removed and through the eye splice. Tie a simple knot in the rope to prevent it from coming back through the splice, then pull your drum.

Fig. 9



- **Replacing the Snare Head**

Place the drum on a table, snare side up. Undo the chain knot and pigtail, and slide the surplus rope through the eye splice. Pull the rope out through at least one ear and feed the surplus rope around the shell, allowing enough slack at each ear so that the snare counterhoop can be lifted to clear the rim of the head

Remove one side of the snare strainer to release the snares, leaving the gut snares themselves mounted in the hardware if at all possible. Proceed to remove the snare head as instructed in **Replacing the batter head**.

If you have skin heads, follow the instructions for tucking and setting the collar on skin heads.

Proceed to replace the snare head as instructed in **Replacing the batter head**, reattaching the part of the snare strainer that you removed before pulling the drum. Then follow the instructions for **Adjusting the snares**.

- **Checking and replacing the muffler**

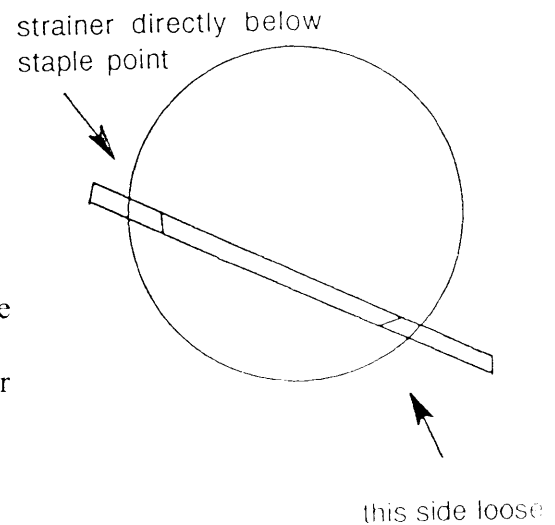
The muffler is a strip of material stretched tightly across the shell in such a way that it comes into contact with the underside of the batter head; it may be secured to the shell by tape or staples, or may be wedged on between the rim of the batter head and the shell.

It's difficult to assess the condition of the muffler without removing the batter head. Carefully note where and how your muffler is positioned when you remove the batter head, so that you can replace it if necessary or tighten it if it has sagged.

Our recommendation for muffler material and placement is:

SNARE DRUMS

We use a length of cotton canvas webbing to which is glued, off-center, a shorter strip of the same material. Place the shell with the adjustment side of the snare strainer on the left. Staple the left side of the muffler strip to the shell directly over the strainer, holding the muffler strip so it crosses the shell off-center as shown.



The right side of the muffler is not stapled to the shell. Leave enough of the strip hanging so that, once the drum is assembled; you can adjust the tightness of the muffler by pulling on this loose end. Be sure that the part of the muffler that touches the edge of the shell, right or left, is not the double-thick part.

BASS DRUMS

We use the same concept for muffling bass drums, except instead of gluing an additional strip of canvas webbing to the basic muffler strip, we add a short strip of foam material in its place. One muffler is used on each side of the bass, and, unlike the snare drum muffler, each strip is stapled at both ends

The reasons for changing the muffler or its position are covered under **Troubleshooting.**

- **Replacing the snare gut**

The reasons for resetting your existing gut snares or for replacing them with new gut snares are covered under **Troubleshooting.** Every style of strainer will have its own specific instructions for mounting snare gut; these instructions will work for the Cooperman Liberty strainer, and will provide valuable guidelines for working with other strainers.

Place the new gut (or the old gut removed from your strainer) in cold water until the strands are just becoming pliable; soaking too long will cause the gut to unravel. Set the snare strainer adjustment screw halfway to its tightest position. Replace the strands one at a time on the strainer, drawing each snare across the head and placing it loosely in the butt plate. Put only enough pressure on the butt plate by tightening the screw so that each piece of gut can be pulled tight without slipping back. Use your fingers or a pair of pliers to pull the complete set of strands even and tight against the snare head

Fully tighten the butt plate screw. The strands of gut will shrink as they dry, so check and retighten the butt plate screw the next day. Proceed to **Adjusting the snares.**

- **Tucking and mounting a skin head**

Place the new skin in enough cold water (not warmer than room temperature) to cover it, and allow it to soak until the skin changes color and becomes soft and pliable. This change should take place within 10 to 20 minutes for snare drum heads, depending upon the thickness of the skin, and somewhat longer for bass drum heads.

When the skin is pliable, spread it on a smooth clean surface. Smooth out all the air bubbles and wrinkles with your hand.

FOR BASS SIZES ONLY:

Place a shim under the center of the head, app. 1 ¼" tall and 3 ½" diameter, creating a "tent" effect. Re-smooth the skin to remove air bubbles.

Center the flesh hoop on the skin so that there is a margin of about 2 ½" of skin outside the flesh hoop for snare drum sizes, and about 3" of skin outside the flesh hoop for bass drum sizes (Fig. 4).

Fold the skin toward the center over the part of the flesh hoop nearest you and, using a tucking tool, press lightly downward. Slide the skin back under the flesh hoop just far enough to prevent the skin from coming loose (Fig. 5).

Repeat this folding and tucking procedure on the part of the flesh hoop directly opposite from where you began, and continue on to quarter the circle (Fig. 4), until the skin has been evenly stretched from point to point. Snare sizes should be stretched as tightly as possible; bass sizes should be stretched firmly but not overly tight.

Starting now at any point, use your tucking tool to gently force all the surplus skin under and around the flesh hoop (Fig. 6), making it tight against the hoop. The bend in the end of your tucking tool will help you to push the skin all around the flesh hoop. This part of the tucking operation will take practice, and you will improve as you gain experience.

Fig. 4

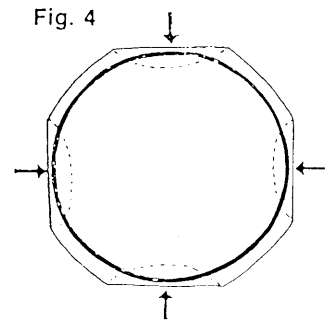


Fig. 5

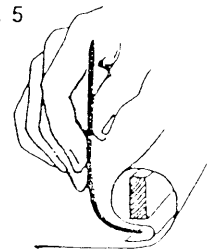
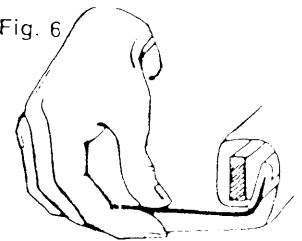


Fig. 6



Proceed to **Checking and replacing your muffler** (if you've replaced a batter head). Slip the wet skin onto the shell, and align the batter counterhoop so that the holes come in-between the holes in the snare counterhoop to form the rope "V". Moving counterclockwise, lightly re-tighten the ropes with only just enough pressure to cause the wet skin to bend over the edge of the shell, forming what is known as the "collar". Be sure that the batter counterhoop is being pulled evenly around the shell. Do not over pull.

Pull the end of the rope back through the ear you removed and through the eye splice, tying a simple knot in the rope to prevent it from coming back through the splice. Pull all of the ears halfway down, two at a time in opposite pairs, making sure that the batter counterhoop is even. The ears are "set" in this way to insure that the proper amount of pressure is provided while the head is drying. If this pressure is not applied, the shrinking of the skin as it dries will cause the loss of the collar.

When the head is completely dry (if possible leave it overnight), loosen the drum and break the seal. Proceed to **Pulling your drum**, and **Adjusting the snares** if you've replaced a snare head.

Troubleshooting

Rope tension field drums are complex musical instruments with many interdependent parts and settings. Unfortunately the first symptoms of a problem are usually as simple and nonspecific as the drum is complicated: you can hear a slight ring where you think it shouldn't be, or the response of the head doesn't feel quite right but you're not sure why, or you feel your drum just doesn't sound its best. The most successful strategy for diagnosing your problem is also the easiest one. Start with simple adjustments and changes, and keep eliminating possible solutions until you've solved the problem. If you can't solve the problem yourself, seek advice from an experienced drummer or drum technician.

Check the ropes

The rope on your drum should give strong resistance when you try to squeeze together the sides of the rope “V” made by the ears. Loose rope leads to a lack of tension and so a lack of responsive overall.

- If the rope is new and hasn't reached its full stretch yet, the drum needs to be pulled.
- If the rope is stretched out from age or from being left braced for a long period of time, the drum needs to be pulled.
- If the head(s) are overstretched, the rope won't tighten properly. The head(s) may need to be replaced.
- If the rope is frayed or damaged in some way, it needs to be replaced.
- see also **Check the ears**; loose or missing ears will prevent the rope from being tensioned properly.

Check the muffler

- The original position of the muffler, or indeed whether any muffler has been used at all, depends on the type of heads used and the personal sound preference of the drum's owner. If you're not sure about what type of muffler should be used, or where it should be placed, ask the owner of the drum or the maker of the drum.
- A muffler needs to be in contact with the underside of the batter head to function properly in reducing overtones. A sagging muffler is a common culprit in “ringing” drums.
- See also **Check the snare gut**. Overtightened gut will cause ringing in the drum.
- See also **Check the heads**. If the “seal” isn't broken between the rim of the head and the shell, it will cause ringing in the drum.

Check the snare gut

- When you adjust your gut, you start from a position where the gut is loose, fully off the snare head, and continue to tighten it until the sound is clear and sharp. If gut is overtightened past the optimal point it will cause the drum to ring.
- Overtightened gut will also result in the drum having little or no audible snare response.

- If the snare gut has been mounted too tightly or too loosely, you will lose the ability to fine tune it with the snare strainer. The gut may need to be remounted (follow the instructions for **Replacing the gut**).
- See also **Check the hardware**. A snare strainer that is mounted improperly or mis-adjusted can cause problems that at first seem to be caused by the snare gut itself.
- See also **Check the heads**. A snare head that has a too-large collar will interfere with the adjustment of the snare strainer, resulting in an overtightening or lack of adjustment for the snares.

Check the heads

- Synthetic heads that are worn or dimpled are clearly suspicious if your drum doesn't sound good, but a synthetic head may be unresponsive even if it looks fine, especially if it's been on the drum a long time. Many drummers forget that synthetic heads are not designed to last for years on end under tension. The manufacturers of most plastic heads expect that the drummers will replace the head routinely, usually at the end of every season, whether or not the head shows signs of wear; the exception to this is the Swiss Kevlar batter head, which is designed to be extremely durable.
- Calfskin heads can also be unresponsive even if you can't see a tear or dimple, particularly if the head is old and dry. Sometimes a calfskin head can be successfully soaked off the flesh hoop and re-tucked, but after several re-tuckings the natural hide glue in the head will be gone and the head will have to be replaced.
- If a skin head is pocketed, you may be able to perform a "quick fix" in the field by moistening the head while it's still on the drum, and letting it dry completely before playing on it.
- Synthetic heads and skin heads can develop a rip or tear under or close to the edge of the counterhoop. This type of damage is not easily seen but can clearly be heard, as the rip or tear reduces tension on the head.
- Synthetic or skin heads can experience a "seal" between the rim of the end and the finished or waxed outside edge of the shell. Follow the instructions for "breaking the seal" when preparing to play the drum to prevent this problem. If the head can't move freely, the drum will experience a range of unresponsiveness, most notably a ring.

- If the collar on a snare head is too deep, it can interfere with the adjustment range of the snare strainer. This will result in the snares being overtightened and/or having no adjustment range possible.

Check the hardware

All kinds of problems can be caused by loose, missing or improperly mounted hardware.

Hardware can vibrate loose simply by the vibration of the instrument over time, so it's wise to routinely examine your drum to find any problems of this kind. Just a few examples:

- Loose snare strainer parts will result in poor snare response or ringing.
- Loose drum legs will fall off the counterhoop.
- Loose carry hooks can cause the drum to swivel or drop to the ground.

Check the ears

Loose or damaged ears will affect the proper tensioning of the drum.

- Replace the ear if it's cracked, torn or out of shape.
- Replace the ear if it's very stretched out.
- Retie the ear if the lace is broken or very loose, but the ear itself is sound.

Check the counterhoops

- If a drum has been pulled or braced unevenly, the counterhoops will not be able to exert even tension on the heads. If left in this condition, over time the counterhoops will warp.
- Counterhoop(s) that are too thin will tend to "toe out", resulting in uneven pressure on the heads.
- Cracked counterhoop(s) can lead to lack of tension on the ropes.