

## Q: Lapel Mics: Where Do You Hide Them?

**In their hair:** The lavs to look for are Sennheiser, Tram, Countryman, and Sennheiser. For which is best, that's the subject of a lot of discussion here. My favorite place for hiding a lav is in the hair. You get rid of much of the clothing noise and the hair even gives a measure of wind protection – those small lav elements are highly sensitive to wind noise. You also don't get the additional chest cavity resonance that can color the sound. Place the mic as far forward of the ears as possible. I usually put it on the side, but sometimes have positioned them on top at the front of the hair. Hair placement also gives the added advantage that the sound doesn't change as much when the actor turns his or her head. **John Blankenship**

**Tape Inside Clothes:** A well known mixer who I recently bought some used gear from said that his boom ops did not use the rubber mounts and always just taped the COS-11s inside the clothes. I've tried both ways and still haven't come up with a "magic" solution for my tastes. It is still "whatever works in the situation." I've found that the rubber mount tapes into place nicely, such as in the recess of the chest. I've had no problem getting it to stick. I usually use Transpore (or whatever that clear, plastic, surgical type tape is called). **John Blankenship**

**Use Moleskin:** After a recent test (on the Sancken COS-11) we found that sandwiching the mic between two pieces of moleskin isolated the mic much better. First we put the mic in the rubber mount and taped it to a shirt. I ran my fingers up and down the shirt around the mic. Lots of noise. Then we did the same test with moleskin and it actually isolated my hand movements more. Another reason the COS-11s are a good choice is they are the absolute best mics for mounting in tie knots. And for light wind protection, the ball that comes with the Sancken works pretty good. **Devendra Damon Cleary** Moleskin is a product sold in the Dr. Scholl's foot care part of the pharmacy. Yes, it's that sticky fat cloth-like stuff, used to protect skin from [and even after] blistering, etc. Don't stick it directly to an actor's skin until you've tried it on yourself. It goes on great; it comes off...well, it comes off, uh, just a minute...ahh, uh, aah, AAAAAUUUGGGGGHHH! **John Garrett** Another helpful "Dr. Scholl's" item are "corn pads", flesh colored oval 1/8" thick adhesive backed pads with a hole in the middle. Great for attaching mics to skin/clothing. When you see the pads you'll figure out how to use it. **Eric Toline**

**Use Transpore:** Just put a piece of transpore or similar tape dead center over the head of the B-6 and tape it directly to the inside of outer most layer of clothing. Wind noise won't be a problem and the B-6 suffers less from clothing noise and rubbing than any other mic I've used. Using that method, I just completed a 9 day shoot for an HGTV cable show and the host commented to me on how quickly and easily I miced him up and on how rarely I came back to futz with him compared to the other mixers he's been working with on the 48 segments of the show he's shot around the country. **Charles Tomaras**

## Q: Clothing Noise: How Do I Prevent it?

*I ended up working on a shoot this past week that just absolutely drove me nuts. The situation? One person, talking to camera, walking in and out of a house, up and down stairs, in and out of a car, etc... Totally unboomable because of the lighting, location, lens choice, etc... Anyways, this would have been a fairly normal "hidden wireless lav" situation except for one thing: The clothing noise coming from the talent's shirt was absolutely horrible. At times, the rustle and scratching that I'd hear on the headphones sounded almost like crunching corn flakes.*

*So, did I try different mics? Yup... But with no real improvement in sound quality. My first choice was the Sancken... It was mighty, mighty crunchy. I then tried the Sancken in its flat rubber holder, but that was still just as crunchy. I then pulled out one of my B-6 lavs and ran that through the button hole, but I was still hearing quite a bit of noise from the shirt whenever the talent raised or moved his arms -- I also ended up hearing lots and lots of breath pops on the mic. Next choice? Well, I tried using a Tram, but that too was pretty dang scratchy. I then asked the director if there was any way that we could please, please, please change the talent into a different shirt... His response was a very firm "No, the shirt looks great on camera." So, in the end, I went back to the Sancken. The amount of clothing noise was incredible. And I hate the people who invented synthetic fabrics... My big question for all of you is as follows: Can clothing noise somehow be removed in the post-production arena?*

**Contact Noise or Acoustic Noise:** One of the ever-present difficulties of hiding lavaliers under wardrobe is clothing noise. In actuality, there are two different causes of "clothing noise": Contact noise and acoustic noise. Contact noise is the result of garments rubbing against either the mic capsule itself or the leading few inches of cable (equally sensitive to friction). Contact noise can usually be controlled - if not completely eliminated - by careful positioning and taping down of the mic and cable. Begin by securing the clothing on both sides of the mic capsule. This can be done by sandwiching the mic between two sticky triangles of cloth, camera, or gaffers tape. Form these triangles by folding a few inches of 1" wide tape corner over corner, similar to folding a flag.

Form sticky triangles to secure mic on both sides.



By immobilizing the mic between both layers of clothing, you have eliminated the possibility of either layer of clothing rubbing against or flapping onto the microphone. If the lavalier must be positioned between skin and clothing, or attached directly to the skin, then a professional medical/surgical tape should be used against the skin.

Once the mic capsule has been secured, the next step is to form a strain relief for the thin cable. Make a small loop just under the mic capsule. In the case of very sensitive mics, such as the Sony ECM-77, the Sennheiser MKE 2, and the Sancken COS-11, make the loop go around twice. Tie a small thread or use a thin strip of camera tape (sticky side out) to preserve the loop. Tie the loop loose enough so that it can "breathe" (change diameter to absorb tugs). Apply a few inches of tape along the cable below the loop. Any tension on the cable will be absorbed by the garment, rather than by the microphone (which is somewhat isolated by the floating loop). The remainder of the mic cable can be run under clothing and can terminate either at the waist or the ankle. The end of the mic connector should be secured so that it does not dangle freely. **Location Sound Corp**

**Acoustic Clothing Noise** is the sound generated by the clothing itself as garments or layers rub against each other when the actor moves. Noise is much more prevalent from synthetic fabrics than from natural cottons or wools. There is no simple remedy, only prevention, so it is wise to consult early with the wardrobe department. However, here are a couple of tricks that may help. Anti-static sprays, such as Static Guard™, will reduce static electric discharge, clinging, and reduce friction. Dry silicon spray lubricants sometimes help, but be careful of staining. Stiff or starched clothing can be softened with water or alcohol (make sure the colors don't bleed). Saddle soap, silicon, or light oil can take the bite out of hard leather. Another noise problem common to lavaliers is that of wind noise. Manufacturers usually supply small foam or metal mesh windscreens with their lavaliers, but these are usually more effective against breath pops than against outdoor gusts of wind. Lavaliers used under clothing have the advantage of being partially shielded from the wind, but may still require added protection. Clothing rubbing against windscreens can be extremely noisy, so great care must be taken when using hidden lavaliers out of doors. Surrounding the windscreen with sticky tape and securing it to both layers of clothing, as you would a bare mic, will reduce the friction noise. However, the tape may destroy a foam windscreen when it is removed! Inexpensive, expendable windscreens can be made by wrapping the mic in acoustafoam, or by pulling the foam booties off of video cleaning swabs. Cheesecloth over a mic works very well against wind. Another Hollywood variation is to snip the finger tips off children's woolen gloves, and pull the wool tips over a lavalier wrapped in foam or cheesecloth. **Location Sound Corp**

**Make Director/Producer Aware Of Problem Early:** Removing the noise is very difficult, time consuming and expensive. It should be dealt with in Production, making the Director and Producer aware of the problems. Also note it on the track sheets and slate it ahead of the first take, therefore you have covered yourself incase any questions should arise. **Marti D. Humphrey**

**Question If It's The Mic Or The Clothes:** Your story reminds me of a scene where I decided to get rid of lav clothing noise by putting a Senn. 416 on an overhead boom. I heard the same noise with the boom!!!! Sometimes clothing noise heard on a lav is not because of the clothing rubbing against the lav, but just the sound of the clothing rubbing against itself. In this case, not much is going to make a significant difference, except for changing the clothes. **Glen Trew**

**Use Double Sided Tape:** The best you can hope for is to nail down the mic and as much of the clothing as you can. The 'mic in the necktie knot' trick is sometimes useful, and I've taped more than one tie in my day...putting doublestick and/or paper tape along the length of the tie to keep it from rubbing against the shirt/itself. **John Garrett**

**Avoid Silk, Rayon and Corduroy:** Clothing rustling and rubbing are also one of the most common challenges. A lot of this can be mitigated if the correct types of clothing are used. The "sound mixer's nightmares" are silk, rayon and corduroy. Trying to mic a female talent wearing a silk blouse will test the patience of even the most experienced sound person. The other half of this equation is just learning basic mic techniques. There are many different "tricks of the trade" when it comes to learning how to put a mic on talent and no having it rub and pickup extraneous noise. More on this later in the article. **Dan Brockett (White Paper: Location Sound)**

**Build 'Shelters':** In the beginning I suffered as you. I came up with a method of building in Lav mikes using a unique double sided tape cut to basic shapes. called "hole in the wall" and "little boat", with these two shapes you could hide a mike anywhere with minimal clothing noise. The only other accessory was a small piece of black lighting felt from the Sparks between skin and shirt taped to the inside of the shirt etc with the same tape as above. Any sound recordist here who knows the method is still using it so it must be OK. The tape is very special because it is a fabric base and bends with the clothes, its easy to peel off clothes and leaves no residue and the same goes for getting the mike out of the tape again. The mike can be peeled out. I have a sketch showing how it is done and can make some mock ups to send to you with a bit of tape. The tape is made in Germany by Beiersdorf and is 50 usd a roll which will last about 2 years shooting 365 days a year. **Chris Price**

**Avoid Hairy Chests:** Clothing isn't always the culprit. Shooting the CEO of a company in Balt. I found the noise was from his chest hair rubbing on the inside of his shirt. **Ty Ford**

**Hide it in the hair:** Did the guy have enough hair to try to rig the mic in his hairline? Always a life saver for me. The other thing that helps is moleskin wrapped around the mic (not blocking the element obviously) but on a seriously noisy shirt, that's a minor bandaidd....

**Q:** Last weeks nightmare was an outdoor reality shoot. Male talent in a starched dress shirt and a HAIRY chest. He was not open to the razor method. I tried moleskin, overcovers, undercovers, etc. If anyone has ANY input, it would be greatly appreciated.

**Pin Mic from Ricsonic:** how about the pin mic or button mic from ricsonix? i imagine a hair mic probably wont stay in place for too long in a reality type show. **Rich**

**B6 through a button hole:** I just dealt with this problem a couple of days ago...B6 through a button hole improved the sound/clothes rustle by 80%. The director I am working with says " I'd rather see the mic and

hear the voice than not see the mic and not understand the voice". He can shoot around the mic! **Jason Porter**

**Get the shirt washed:** My guess is that it's not the hair causing the majority of the problems. Have them wash the shirt several times, and ask them NOT to starch the shirt. Explain, nicely, that THAT is what is causing most of the problems. Starch will always cause problems for mics, whether it's hidden or not. If you can hear the shirt moving around by your own ears standing next to the guy/gal, then how can you possibly eliminate it, unless you topstick their whole body;) And I'm not sure that would solve it either, but fun to see their look when you suggest it! **Michael Clark**

**Get as far from source as possible:** If they won't change the wardrobe then the only solution for a lav mic is to get it as far from the source of the noise as possible. B6 buttonhole, pin mic, placement in a collar, a boom mic. **Philip Perkins**

**Q:** *Could you help me find a solution to using the sound from wires on skiers with their loud jackets?? I am using wires on the actors and they will be wearing these jackets for some of the movie. Is there any kind of fabric treatment that will soften the noise level?*

**Put Lapel In Different Place:** How about the wire in a less susceptible spot? Ski hat/helmet, inside the temple of sun glasses. Even just being a bit farther away might make a lot of difference. That noise is, of course, fabric on fabric and prepping the mic probably won't go far to getting the track quiet. **Douglas Tourtelot**

**Leave Jacket Open:** I did a feature in the snow, and had the same worries as you have on forehead.. Once I was there ( the clothing department took my comments about noisy jackets rather serious, about 3 months before shooting ) and to my surprise, we filmed most of the time when it was sunny, otherwise you would not see a bloody thing.. Most of the time the jackets are half open, ( it's warm , snow reflects 95 % of the sun's warmth ) and under it they wear these sweater things, and these are perfect to stash almost anything away without any noise what so ever..Always try to boom ( if you boom ) from below, since the footsteps in the snow are a far bigger pain. **Roberto**

**Wrap In Soft Fabric:** A few days ago we had to wire an actor with an extremely loud tie and starched shirt on. My boom operator wrapped the mic in very soft cotton fabric. We cut up the cloth booties that we had on the cart. That took care of virtually all the noise and we ended up with some great sound. **Jon Ailetcher**

**Use A Fleece Add-on:** On the last one I did with Gortex type jackets, the jackets had anti chaffing material (soft) on the high part of both sides of the collar at the front to stop chaffing on the chin / neck. The collars were only occasionally zipped up completely to the top which was handy, but then I could boom OK anyway. I arranged with the costume department to pad these out further with fleece like material and cut an exit for the cable inside the jacket. This worked very well - near the mouth / protected from the wind, and only occasionally a problem with lunging about in scenes inside small tents etc. but anything might have problems in this confined space. **John**

## Q: On-set Noise: How do I minimise it?

**Soft breathing:** Make sure that your talent and crew holds still and breathes softly during takes. This can be tough during long takes and having an assistant director on the crew can really help enforce this. Most crews are fairly savvy about this but at times, observers, crowds and even clients can cause a lot of off-set noise that can be a nightmare to deal with in post so deal with it before you roll. **Dan Brockett** ([White Paper: Location Sound](#))

**Talent Takes Shoes Off:** Creacking floorboards can be challenging. If the talent's feet are not seen in shot, carpet or "dance floor", a portable type of flooring system can be laid down for crew and talent. Squeaking shoes can be remedied by removing them if they are out of frame, using baby powder or even a lubricant like WD-40 or silicon spray although these can stain shoes. Shoes squeaking on floors can be tougher to deal with than squeaking shoes themselves. A bit of sawdust or even once again, removing the offending shoes can help although it's a little strange to see a crew and talent doing scenes in their socks. I've done it though and it can lighten the mood although it's probably not the safest way to shoot a scene. Grip equipment can be heavy and dangerous. **Dan Brockett** ([White Paper: Location Sound](#))

**Eat Granny Smith Apples!** Mouth sounds are more of a problem when doing voiceovers but can be a problem on set as well. Water helps. Always make sure that all talent has easy access to water as they shoot scenes. Depending on the person, water alone may not remedy "sticky" mouth. One of the best solutions for sticky mouth is, believe it or not, green (Granny Smith) apple slices. The acidity and sugar content balance of this particular variety tends to stabilize the saliva and make it so that mouth clicking and smacking is reduced or eliminated. I work with several VO talents who have been using this method for years and swear by it. It works. **Dan Brockett** ([White Paper: Location Sound](#))

## Q: Attaching Lapel: How do I attach it so subject is picked up as well?

*I am currently on a reality show where two host run up to people, sometime large groups of people, to talk to them. I am wired to the camera and often the camera keeps it distance. The result being that it's often impossible to play the boom. So therefore I can only rely on each talent's lav mic to also pick up the audio of those to whom they are speaking (I have each host wired with B6's hidden in their lapels). Often the audio quality from these 'non-miced / non-boomed people on the street' is less than ideal....Wondering about better solutions...?And, no, I cannot go wireless to the camera...too pricey. And, no, they don't want the hosts to use hand holds...so what else is out there? Hosts are very physically active and do not currently carry anything...And, unfortunately, it seems they're mostly dressed in tight-fitting shirts/t-shirts ... nor can I plant a mic - as the hosts roam freely & spontaneously...and I don't have access to the locations beforehand.*

**Use open mic such as the Tram on host:** I would try a much more "open" lav mic such as a tram. I think you would better pick up the people your hosts are talking to. A hidden B6 under the lapel certainly will not pick up distant voices. It would also help if you can expose the trams instead of hiding them. If production has a problem with the mics being visible, just explain that you do not have many options. Plan number two, I have once placed (hidden) a MKH 60 with a wireless cube in a large purse which the host pointed in the right direction to pick up dialogue. Do your hosts carry any type of bags, purses, backpacks when the run up to people? How are they dressed? Wearing coats, jackets etc can certainly help in hiding shotgun mics to their bodies and just sticking out the tip of the mic thru their coat.... How close do they get to the people they are talking to? I think the trams could do the job if the hosts can get close enough and the street noise is at a minimum. Is it possible to plant mics in certain areas of the street (lampposts, stop signs, etc..) and tell your hosts to try and stick to those areas.....or do they run up to people in a spontaneous manner never knowing where you will end up? **Joe Cancilla**

**4th Button Down:** Yeah, get the mic out of the lapel. They sound universally crappy there, IMO. If it's a B6, why not just poke it out from behind a button and tape the cable inside the shirt?? I'm sure the pin mic would work in this case, but you already have mics that work. Just put them where they belong. In this case probably the 4th button [bottom of the pocket]. **John Garrett**

I have just today done a shoot with the pin mic (exterior capsule) in the very way you are proposing. In my opinion was more than satisfactory. Wind is always the enemy, however I have found pin mic to be much more wind tolerant than the tram, even when tram is hidden. When wind does hit, it's not nearly as ugly as lots of others I have used. In the situation you describe, presenter still needs to be within 1 metre of subject to get decent sound. Naturally presenter will have greater presence on tape (or disk). I like the idea of hidden shotgun, in a bag, with wireless. What about a stuffed toy?