

A Guide to Epee Repair and Maintenance

(How to Win Friends and Influence People on the Fencing Team)



By Katrina Cass

With special thanks to:
Hal "I have a box on my back" Aljibury
And Darby

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1. The Basics

Every fencer should have a basic understanding of how their weapon is put together and how it works. The following diagrams and explanations should clarify terms, so that anyone can easily maintain and repair their weapons.

1.1 The Epee

An epee consists of a few main parts: the tip, the blade, the wire and the guard. Let's take a look at it from the tip down.

Epee Point in Cross Section

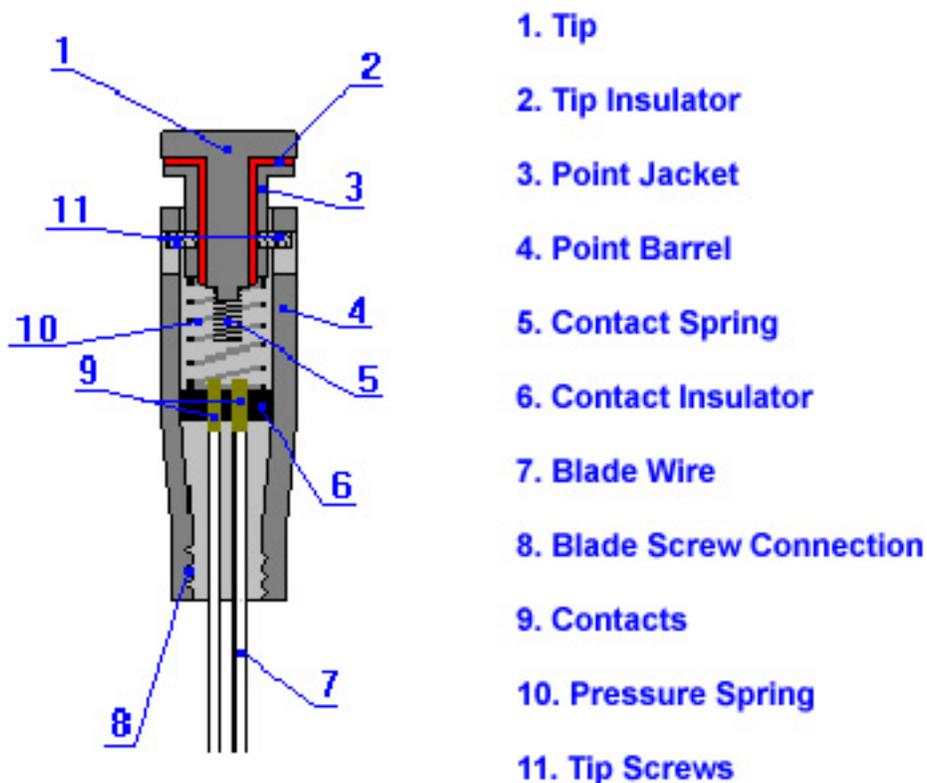


Diagram 1.1: Point Diagram courtesy of "Orde's Epee Repair Manual"

When the tip is depressed, it is resisted by the pressure spring. If there is enough pressure, the contact spring connects with the contacts and a circuit is completed, resulting in the box registering a hit.

You will mainly be concerned with the tip, tip screws, contact and pressure springs, and the barrel.

From the tip, the wire runs along the blade through a hole in the guard. You should note the way the guard is arranged on the blade. The hole on the guard is not centered. It should be slightly to the top and to the left (right-handed) or right (left-handed). (See Diagram 1.2). Basically, the guard should be arranged so that it covers the most of your hand.

Next the socket is placed on the blade. The socket is arranged so that it faces the palm of your hand when you grip the weapon. Spaghetti tubing covers the wire from the guard to the socket. No bare wire should be exposed.

The wires of your weapon run through the socket and attach to the socket from the outside (See Diagram 1.2). This way the socket is in full contact with the guard and the socket does not pinch the wires. The hole in the socket that's furthest apart from the other holes is the ground hole. The two holes close together are the contact sockets. The wires are connected to the contact sockets. Sockets usually have regular screws or hex nuts to keep the wire in place. Also make sure that the wires are on the topside of the socket. If your wires are not arranged like this you may be penalized during a tournament.

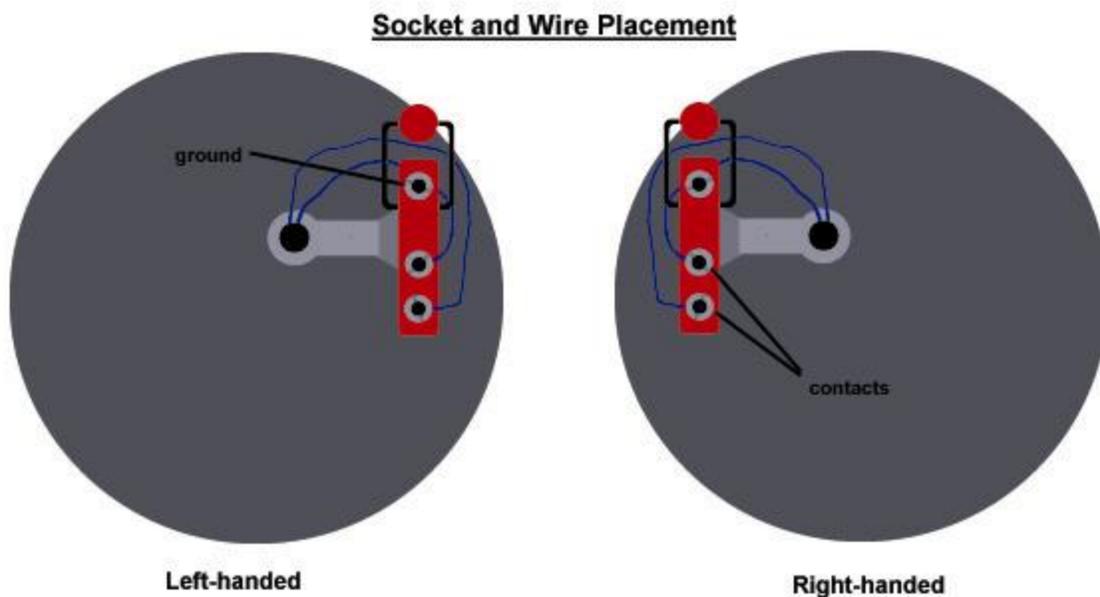


Diagram 1.2

Between the socket and the grip, there is a pad. The wires of your weapon are placed behind this pad but above the socket. Then comes the grip. Everything is then secured with a pommel nut.



Diagram 1.3

There are several different types of pommel nuts. (See Diagram 1.3).

Outside hex pommel nuts are the best. They are the easiest to tighten down and stay tightened for the longest amount of time. Plus, the tang of your weapon doesn't have to be cut to an exact length. An outside hex wrench or thin-walled nut driver is required to tighten these nuts.

Inside hex pommel nuts are all right and are tightened by a normal metric Allan wrench (6 mm). You can run into trouble with these if the tang of the weapon is not cut to the exact length. If the nut goes on too far, then you can't remove it because the hex socket is occupied by the tang.

Then there are the crap pommel nuts. These take a normal screwdriver but are a pain in the butt to use. You can't get enough torque to tighten them correctly.

Make sure you know what pommels you have and what tools to use with them. This is essential when asking for help.

1.2 Tools

If you are serious about fencing, you should invest in your own tool kit. It's up to you how elaborate you get, but here are my suggestions.

MUST HAVE:

Tip screwdrivers – These are precision/millimeter screwdrivers available in a cute little pack from the hardware store. You can also use the flathead screwdriver that comes in an eyeglasses repair kit. A screwdriver is pretty essential tool to have. Tip screws are constantly falling out and you don't want to be running around 30 seconds before you have to be looking for a tip screwdriver. The larger screwdrivers are also good for your body cord. (Lowe's \$4/Dollar store)

A flathead screwdriver – You should have one of these at home already. It's just your everyday all-purpose screwdriver. You'll need this for the socket screws. A big fat one is good for the crap pommel nuts, too. (\$1)

A knife – A knife is always a good thing to have. If you need to cut a wire, it's better than trying to use a car key. Also you might want to have an old one around, if you need to scrape off some old glue. (Dollar Store)

A pommel nut tool – Depending on what pommel nuts you have, you might need a flathead screwdriver, one of the following or all of them.

Allan wrench/hex key wrench – Again, the hardware store sells little sets, but you only need the 6 mm. Make sure to get the metric sizes. (\$4)

OR

Outside hex wrench – For a pommel nut, a regular nut-driver generally doesn't work because it won't fit between the tang and the inside of the grip. This wrench will also work if your socket has hex nuts instead of screws. (American Fencer \$8)

VERY GOOD TO HAVE:

An ohmmeter – You don't need anything elaborate here. A cheap \$5 one will do just fine. You just need to measure resistance. Without an ohmmeter or without a box, there's no real way of testing to see if your weapon will go off when you hit. (Walmart \$10)

Pliers/vise grips/locking pliers – When you want to tighten a barrel, you need something to get a good grip on the blade and the barrel. Therefore, I recommend having two. (Dollar Store)

Glue – Any kind of super glue that dissolves in acetone is good for rewiring blades. If you don't use the kind that dissolves in acetone, it's a pain getting the old glue off. Cement-It is a brand that a lot of people like. I like regular old Crazy glue because it has a fine tip that applies the glue nicely. (\$2-3)

Acetone – As explained above, it dissolves many types of glue.

A chain – If you're going to rewire a blade a chain is a nice thing to have, especially when you're on the road. Not that any of us fix weapons on the road at 5 in the morning of a tournament. No, that would be bad. Anyway, a "chain" is just some lightweight chain with plumbing caps attached on the ends and some s-hooks to adjust the length. All the parts are available at a hardware store. If you're interested in one, let me know. I've got a drill, yay. (\$2)

OTHER STUFF:

A sanding block – Some people don't have any problem with rust. Others do. This isn't essential, but good for getting rust off the weapon so that you don't

have any problems grounding out. Another way to avoid rust on your blade is to buy an FIE maraging blade. They are expensive, but don't rust. (Lowe's \$2)

PVC Pipe – A PVC pipe that's big enough to fit a blade into makes soaking the blade in acetone easy. You need a cap for the end that's sealed with silicon. This isn't necessary if you just want to pour as you scrape. PVC pipes are also good for transporting weapons to and from tournaments.

A ball pein hammer – If you lead with your head, as I often do, a hammer like this is good for banging the dents out of your mask. (Walmart \$6/Dollar Store)

Hacksaw – Sometimes someone will send you a new blade that's not cut for a pistol grip. In that case, you will need a saw to cut the tang to length. To prevent having to cut the tang, remember to ask the dealer to cut the tang for a pistol grip when you order the blade. (Lowe's \$9/Dollar Store)

Something to keep it all in – Once you have all this stuff, get something to keep it all in. I suggest a toolbox. (Walmart \$3) ☺ Also, for tip screwdrivers and little parts a nice thing to have is one of those micro-magnum fishing case things. These are good for when you are on the strip and want to have some essentials around. They have them at Walmart in the fishing section for \$2.

So if you wanted to buy everything on this list, it would be less than \$40. And since tip screwdrivers are available for \$1, everyone should have them without excuses.

1.3 Parts

Most importantly you should have extra parts. Although most fencers are willing to let you borrow a tip screw and such now and again, if you do this all the time you get on their bad side very quickly. Plus, there's nothing to guarantee someone will have the parts when you need them. The same is true for an extra weapon, body cord, knickers or anything else you might want to borrow.

I would suggest keeping extra tip screws with you at all times. This includes at practice. These aren't very expensive; 20 cents a piece. If you make sure you tighten them regularly, you shouldn't have to go through too many.

Wires are also good things to keep around. They cost about \$3. Wires have a tendency of breaking right before a tournament... or rather people have a way or noticing their wires are broken right before a tournament. So having the parts for a rewire can make your life a lot easier.

Also, save all your parts. If you find a tip or something lying on the ground, ask around to see if someone lost it. If no one claims, it's your lucky day. Now you have extra parts for free!

2. Maintenance Check

Tip screws fall out and blades break. But good maintenance should keep your epee in a condition where you don't have to stress out the night before a tournament.

Make sure nothing is loose. Every time you bout you should make a quick check to see that nothing is loose. This includes the grip, the barrel, and the screws on the socket. If you fence when these things are loose, chances are you will break the wire. See section 4.7 for tightening the barrel.

Check your tip screws. Tip screws seem to be the thing that people complain about the most. Check them regularly; before every bout in a tournament and before each practice. In a tournament, you will get a yellow card for missing tip screws and have to use another weapon. During practice, you might lose the tip and have to replace it. Tip screws shouldn't need to be tightened more than every two or three weeks. If you have to, you have a problem and should see section 4.8.

Make sure the wire isn't coming up. If your epee wire is detaching itself from the blade, don't fence with it until you fix it. The wire will continue to pull off, and more importantly, the wire will stretch. A stretched wire is hard to glue back down in the blade – it will bulge somewhere.

Make sure that no bare wire is showing on the blade. This will cause all kinds of problems, and you'll have to do a rewire before competing.

DAYS before a tournament check that your weapons actually function. Take out your handy-dandy multi-meter and set it to ohms (that's usually the green area on the dial). Then take the test probes and place them in the contact sockets. Make sure you have them in good contact. Press the tip down several times. If the little meter goes up, the weapon works! If not, you have problems and should refer to the Troubleshooting section. To be safe you should also perform the same test with the blade bent from different angles. You don't want a weapon that's intermittent.

You should also perform a shims test. If you don't have access to a shims gauge, your fingernail is a good estimate. Slide your fingernail between the barrel and the tip, and then press the tip. If the little meter goes up, you have problems and should refer to section 4.1.

Aside from checking the weapons regularly, you should be sure to take general good care of them.

3. Rewiring A Blade and How to Put Together An Epee

The main purpose of this section is to show how to rewire a blade. Putting together an epee should be evident from the “Basics” section, but this will give you step-by-step instructions.

1. Take apart the epee with the old blade on it. This involves removing the wires from the socket, the spaghetti tubing, the pommel nut, the tip and springs and the barrel. When a blade breaks, everything may be reused except the wire and the broken blade.
2. If only the wire is broken, you may reuse the same blade. Pull off the old wire. Then soak the blade in acetone to remove the old glue. The best way to do this is to use a PVC pipe with a sealed cap on the bottom. Be careful not to leave the acetone in the pipe too long, like overnight, because it will warp the pipe. Then scrape the old glue off. You may need to pour some more acetone as you scrape. You want to make sure you start with a clean blade, because often times the new glue doesn't like to stick to the old glue, and then the wire starts to detach from the blade.
3. Thread the wire through the barrel so that the contact rests comfortably in the barrel.
4. Slide the barrel onto the blade and screw it on tightly. Be careful not to break the wire. There is a groove in the blade where the wire should rest. Make sure the wire is in this groove before you screw down the barrel. You will also want to make sure the barrel is on tight, so use pliers or something else to give you a firm grip. If you have problems tightening the barrel, see section 4.7.
5. Since the blade will bend when you hit an opponent you want to make sure that there is enough wire on the blade so it does not stretch and break when you are fencing. Therefore, you must bend the blade slightly while you are gluing the wire down. The easiest way to do this is to use a chain. Place one end of the blade in each cap and adjust the length of the chain until the blade is sufficiently bent. In a pinch, a friend can bend the blade while you glue, and then you can stick it a doorframe or something while it dries. But really, it's much easier with a chain.
6. Now comes the fun part – gluing the wire down. Start at the tip and work your way down to the tang of the blade. Make sure the wire is taut and not twisted. It should lie flat without extra slack. Also make sure the wire stays in the groove. If the wire is coming up in a few places, especially near the guard, poke it back into the groove. An extra little screwdriver works well for this. Make sure not to glue the wire so that it prevents the guard from making a solid contact with the blade. Also try not to gum up the blade with too much glue. If there it tons of extra glue spilling out, there is the slight chance that your opponent will hit your blade and receive a touch because that area is not grounded. And remember, if you glue you fingers to the blade, or the chain, or the blade and the chain, acetone will solve the problem in a jiffy.

7. Once the glue is dry, you may finish assembling the weapon. Drying times vary. Krazy glue dries almost instantly. Cement-It will probably take an hour. But just make sure it isn't sticky anymore.
8. Slide the spaghetti tubing over the wires.
9. Slide the tang of the blade and the wire through the guard. Make sure you arrange the guard in the correct position. Refer to the Basics section, if you don't remember.
10. Slide the socket onto the tang so that it facing the palm of your hand if you were gripping the weapon. Make sure you bring the wires through the socket.
11. Slide the pad on the tang. Again, the wires will be behind the pad, but above the socket.
12. Slide the grip on the tang. Make sure that the wires are on the topside in the notch of the grip. Otherwise, they will be pinched and break.
13. If the lock washer fell out of the grip, make sure to slide it on next. Sometimes you don't need a lock washer, and sometimes you need several.
14. Put on the pommel nut to tighten everything down. Get it as tight as you can without twisting everything around and breaking the wires. Make sure that the top of the grip stays in line with the flat of the blade.
15. Remove excess wire, leaving about an inch of bare wire from the spaghetti tubing. You will have to remove the protective thread covering by stripping it off with a knife or burning it off. Excessive burning may lead to a weak wire. Also, some of the more expensive wires sometimes have a shiny coating on the bare wire. In this case, take a knife and gently scratch the bare wire to remove the coating. If you don't the weapon may fail to function or function intermittently.
16. Now wrap the wires around the contact sockets (the screws in the socket that are closest together. Remember, the other is the ground). Make sure that the wires attach from above the socket and from the outside, like in the illustration in the Basics section. When you tighten the screws be careful not to break the wire and make sure no bare wire is exposed.
17. Place a pressure spring in the barrel. Make sure it does not sit crooked.
18. Place the tip with contact spring in the barrel and secure with tip screws.
19. You're Done! You hope. ALWAYS check that everything is working when you've finished putting together a weapon. See the Maintenance section. If everything works, yay, buy yourself a Coke. If not, refer to the Troubleshooting section for ways to fix the problem.

4. Troubleshooting

Note: Whenever you remove tip screws, make sure to do it over something. Tip screws are notorious for falling on the ground and never being found. So remove them over something that they can be easily seen in.

4.1 The weapon fails the shims test.

The weapon fails the small shims test.

Cause: The contact spring is too long and needs to be shortened so that it makes contact within the last half-millimeter.

- Solution: Take out the tip, and slightly screw the contact spring a little further up the post it's on. If you screw the spring in too far, it's a little more difficult to bring it out. Basically, all you do is twist the spring inwards while pulling out – the idea is to make the spring jump a thread outwards. To test if you have it at the right length, remove the pressure spring and place your fingernail between the barrel and the tip. If the ohmmeter doesn't go off, you're set. Remember to save time, you don't have to test for the small shims with the pressure spring and tip screws in. Also, check that the weapon still works when your fingernail isn't in the way. If it doesn't, you've made the contact spring go too far up the post.

The weapon fails the big shims test.

Cause: The pressure spring is too short.

- Solution: Stretch the spring to increase its resistance. If you've tried stretching the spring several times, and the problem is still not fixed, you may need to replace the spring.

For more information about the shims test, see the Weapon Tests section.

4.2 The weapon fails the weight test.

Cause: The pressure spring is too weak.

- Solution: Stretch the spring to increase its resistance. If you've tried stretching the spring several times, and the problem is still not fixed, you may need to replace the spring.

For more information about the weight test, see the Weapon Tests section.

4.3 The epee completely fails to function.

Cause 1: The wires have come loose from the socket.

- Diagnosis: Check to see if (a) the wires have fallen out or if (b) the wire has fatigued and broken off.
- Solution A: If this happens, put them back in and tighten the washers back down. If your epee stops functioning, this should be the first thing you check, since it's the easiest to fix.
- Solution B: If the epee wire has fatigued and broken off, then you need to re-strip the wire. You need about an inch or so bare. If you can't get an inch of bare wire, then you need to rewire your blade. To re-strip the wire, cut an inch of spaghetti tubing off, but do not cut the wire inside. Then remove the protective thread covering from the wire. Wrap the wire around the socket screws, and tighten the screws down. Be careful not to break the wire and make sure there is no bare wire exposed.

Cause 2: The contact spring is too short.

- Diagnosis: Take off the tip, and then touch something metal, like a tip screwdriver, to both contacts. The contacts sit slightly higher than the contact insulator. If you place the head of the screwdriver next to them, instead of on top of them, and angle the screwdriver, it's easier to get a good contact. If you can get a proper connection in the socket, then you generally have to lengthen your contact spring.

Solution: Lengthen the contact spring.

Cause 3: A connection from one of the wires to ground exists.

- Diagnosis: Check for a connection between the ground wire and either of the two business wires. If you find a connection, then it's generally time to rewire your weapon.
- Solution: Rewire the blade. See section 3.

Cause 4: The wires are broken.

- Diagnosis: Sometimes you can make a visual survey of the weapon to find the break. If not, take off the tip, and then touch something metal, like a tip screwdriver, to both contacts. The contacts sit slightly higher than the contact insulator. If you place the head of the screwdriver next to them, instead of on top of them, and angle the screwdriver, it's easier to get a good connection. If you can't get a connection, then you need to rewire the blade, since one or both wires is broken.

Solution: Rewire the blade. See section 3.

4.4A light is produced when your opponent hits your weapon/bell.

This means the weapon/bell isn't grounded. If you have no connection between the ground hole and the bell, you have a problem.

Cause 1: A rusty or corroded bell guard isn't electrically conductive enough to behave as a ground to your opponent's tip.

- Solution: Sand off the rust to fix.

Cause 2: The ground hole in the socket isn't connected to the bell guard by something metallic.

- Solution: Sometimes caused by sockets using a thin metal strip from the ground hole to the metallic body of the socket. In this case, slip the strip back under the hole where it's supposed to go.

Cause 3: Something is in between the socket and the bell guard that is preventing an electrical connection.

- Diagnosis. If spitting at the base of the socket solves your problem, this is the cause.

Solution: Remove the electrical obstruction.

4.5 The grip keeps coming loose.

- Solution 1: Always carry a hex wrench or whatever fits your pommel.
- Solution 2: Simply crank it down. Sometimes having access to a vise will aid you in this task.
- Solution 3: If after cranking down the pommel, the grip comes loose again, chances are that your weapon lacks a lock-washer. You can obtain these pretty much anywhere. Lowe's carries them (take along somebody else's washer to size it), you can order them from catalogs, online, etc.

4.6 The wire is detaching.

Solution: The way to glue a detaching wire back to the blade is by putting a couple drops of superglue in the groove, then bending the blade to draw the wire into the groove. This task will be made much easier if you have chains. See the section 1.2. Once the glue has dried (a while after it stops being sticky to your fingers), the weapon is ready to use again.

4.7 The barrel is loose.

- Solution: A quick fix involves tightening the barrel with some pliers. Remember, righty tighty, lefty loosey – Don't unscrew the barrel. A more permanent fix (and what should be done when you have some time), is to use two pliers. One holds the blade near the barrel (don't squeeze the wires), and the other holds the flat notches in the barrel. Tighten. Hard. The Conans on the team might want to keep an eye on whether the blade tip is warping, but that really shouldn't be a problem. If your barrel re-loosens after this treatment, either you didn't tighten hard enough, or the threads don't have enough grip. After it has re-loosened, put a drop of glue on the edge of the barrel so that it wicks in along the threads, then crank it tight again.

4.8 The tip screws keep falling out.

In general, tip screws shouldn't need tightening more than every couple weeks or so. If they come loose more than this, you have a problem. (If you lose a tip screw, make sure the other is in tightly – normally it's almost worked itself loose as well).

Cause 1: Insufficient tightening.

- Solution: Sometimes it can be difficult to tighten the tip screws all the way with the little thin screwdrivers. It's easiest to use the largest flathead screwdriver that will fit into the groove on the screw. When you're tightening the screws, remember that they're not all THAT delicate – it's possible to strip the threads, but you really kind of have to try.

Cause 2: Stripped threads on either the screw or the tip.

- Solution: Figure out which it is, then discard the bad item. Keeping it around invites problems as people try to re-use parts.

Cause 3: This is less common, but sometimes french (prieur) screws don't fit into german tips.

Solution: To keep everything consistent, I advise french tips and parts – they're cheaper too.

4.9 Hitting the strip produces a light.

Cause 1: The strip is not grounded, or is dirty/corroded.

- Solution: Politely ask the director to check the strip.

Cause 2: The tip is dirty/corroded.

Solution: Use a sanding block to scrape away the rust.

4.10 The weapon produces lights when the tip is not depressed.

Cause 1: The scoring box is on the wrong weapon setting.

- Solution: Politely ask the director to check the setting.

Cause 2: The tip is jammed shut or there is grit in the tip is shorting the circuit.

- Solution: Take the tip apart and figure out what's going on. You might try cleaning it out by blowing firmly into the barrel.

Cause 3: The blade wires are shorting each other out.

Solution: Rewire the weapon. See section 3.

4.11 The weapon works intermittently (off and on)

One of the most irritating things about intermittence is that by the time you've noticed it, you've probably lost several touches already. It's much less a problem in foil, since an intermittent break in the circuit is immediately obvious in the white light.

Cause 1: The contact spring doesn't connect correctly with the contacts. If the spring comes down crooked, or if there's any sideways play in the tip, it could make an intermittent contact.

- Solution 1: To fix this, first try blowing into the barrel to clean it. If that doesn't work, clean out the barrel with a q-tip, and lightly scratch the contacts to clear out any oxidation that might be there. Try not to use acetone or other solvents, since the contact cup is made of plastic. Also, don't be too vigorous twisting that q-tip around, since the cup is only held in by a couple of thin wires. If cleaning doesn't fix the problem, then replace a crooked contact spring with a straight one, or a tip with play with a fresh tip. Remember to discard the unusable item.

Solution 2: Sometimes, it's hard to track down the cause of an intermittent weapon. If all else fails, rewire it – it's less aggravation in the long run. See section 3.

Cause 2: You have a faulty body cord.

- Solution: See section 5.2

Cause 3: Your pressure spring is really stiff.

Solution: If your pressure spring is really stiff, way stiffer than it needs to be, it might appear to you as if your weapon is intermittent when you are fencing. This is because it takes a lot more pressure/effort than usual to set off the box. It will be consistent when you check with an ohmmeter though, so it's not really intermittent. In this case, the best thing to do it to switch to an older spring or try pressing the tip over and over to decrease the resistance. This really doesn't have to be fixed, unless you score a lot with soft touches. Yeah, baby, scoring with soft touches.

5. The Body Cord

Body cords are very simple. They're wires that connect the socket in your weapon to the socket on the reel. The only way they have problems is if the wires break or pull out of the banana plugs.

The body cords with sockets of soft orange plastic (prieur) that you can peel back are probably the easiest body cords to work with. The ones with the hard plastic sockets are tougher, and they always seem to have the wires break right at the edge of the socket. The worst are probably those cheap ones from Blue Gauntlet that have the plugs simply split into two halves.

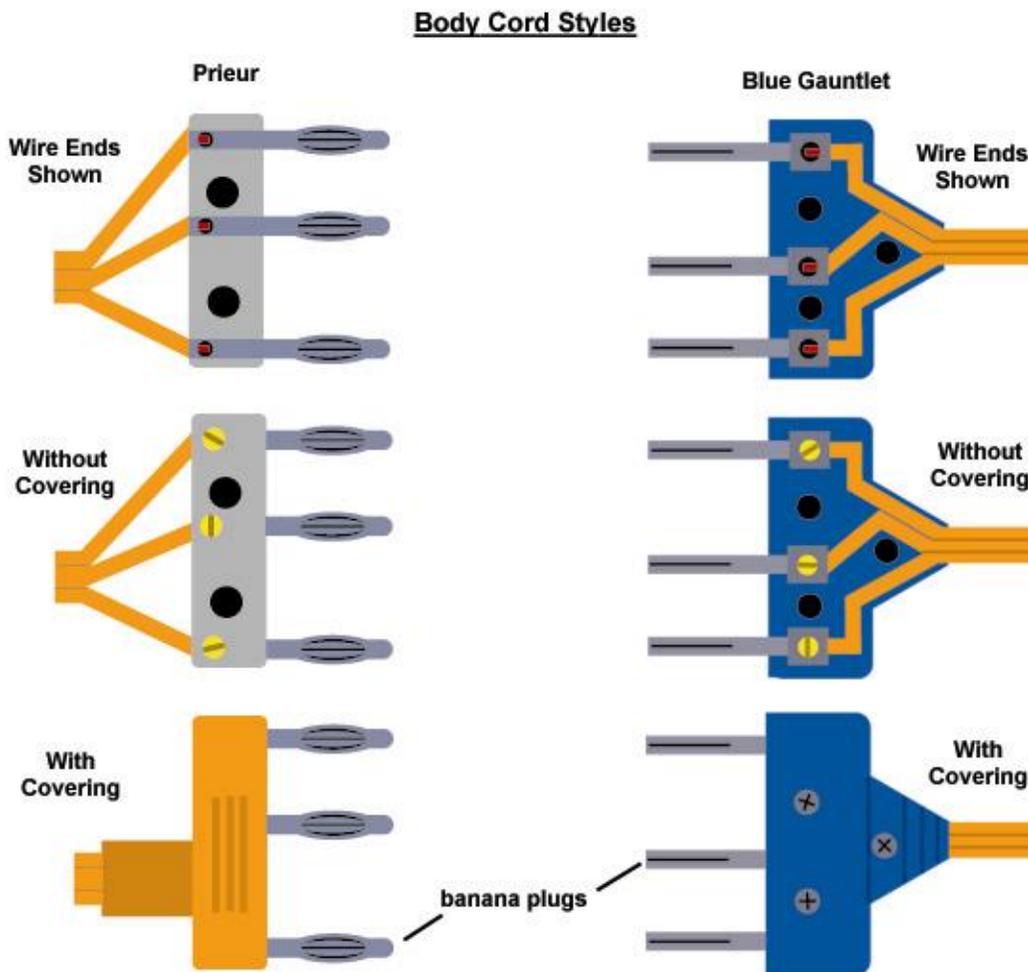


Diagram 5.1 Notice that the Blue Gauntlet body cord has two sets of screws to go through, whereas the Prieur only has one.

5.1 Maintenance

Before every tournament, take apart your body cords and make sure that everything's the way it should be. Pull on the wires and banana plugs one by one (be sure which wire is which just in case you get them confused). If the wire pulls out of the plug, stick it back in and tighten it down. If the wire pulls out of the insulation, it's a slightly more difficult problem – you need to trim the other wires to match the shortened wire (once you've re-stripped it and stuck it back into the banana plug.)

5.2 Repairing Body Cords/Fixing Intermittence

If you are suffering from a weapon that functions intermittently, the body cord could be the problem.

Problem 1

The typical method of body cord failure is either the wire fatigued and broke within the insulation at the edge of the plastic socket or the wire has mostly detached itself from the banana plug.

First, determine which end of the body cord has the problem. Hold one end straight and without tension, then fiddle around with the other end. Be sure to bend it hard at the socket/wire junction. If you lose a connection when that happens, you've found the right end.

Take the plastic socket apart and look inside. Remember which wire goes where. First, make sure the wires are firmly screwed into the banana plugs.

Then pull firmly to try and pull a severed wire from inside the insulation. If you can't, well, then the wire isn't broken inside the insulation.

If you've found and fixed a connection problem, don't just stop there, make sure the rest of the connections are correct, then put the plastic socket back together. Then, make sure the other end is free of problems in the same way... If one end has gone bad, the other end is likely to be in bad shape too.

Problem 2

Another problem with body cords – an oxidized banana plug in combination with a dirty reel plug can cause intermittence, or a plain bad connection. If your body cord inserts into the reel socket and is really kind of loose, you also have a problem, since you need firm contact between the banana plugs and the socket holes.

First, scratch the sides of the banana plugs with something sharp to remove some oxides (if they look bad). Then, using a small screwdriver or the equivalent, slip the screwdriver under the sides of the banana plug and spread it outwards slightly. Don't get too enthusiastic and break the thin outside of the plug. If you have the cheap Blue Gauntlet body, spread the prongs slightly apart so they make firm contact with the sides of the socket.

6. Weapon Tests

So what are these weapon tests for anyway? There has to be some sort of uniformity to weapons so that everyone is on the same playing field. Weapon tests aim to create the uniformity.

Before you bout in a tournament, the director will check your weapon with two tests: the weight test and the shims test. It's important to know what weapon tests check, because a) it will help you fix you weapon if it fails and b) you may be called upon to perform these tests yourself as a director.

The Weight Test

The pressure required on the point in order to complete the circuit, and thus score a touch, must be more than 750 grams. Therefore, the pressure spring must be able to lift 750 grams. When the director places the weight on the tip and pushed down, the light on the box will go on. If the light goes off, everything is in working order. If the light stays on, the pressure spring isn't strong enough to lift the weight. This means that it would take less pressure for you to score a touch. Now, that's not fair, which is why you'd have to fix it.

The Shims Test

There are two parts to the shims test. We'll call them big shims and little shims.

The big shims is to show that the total distance that the point must travel to score a touch is at least 1.5 mm. The travel distance is the distance between the tip and the barrel. If it was less than 1.5 mm, that extra millimeter or two might be just enough to give you a single touch instead of a double touch, or something of that nature. And again, that's not fair.

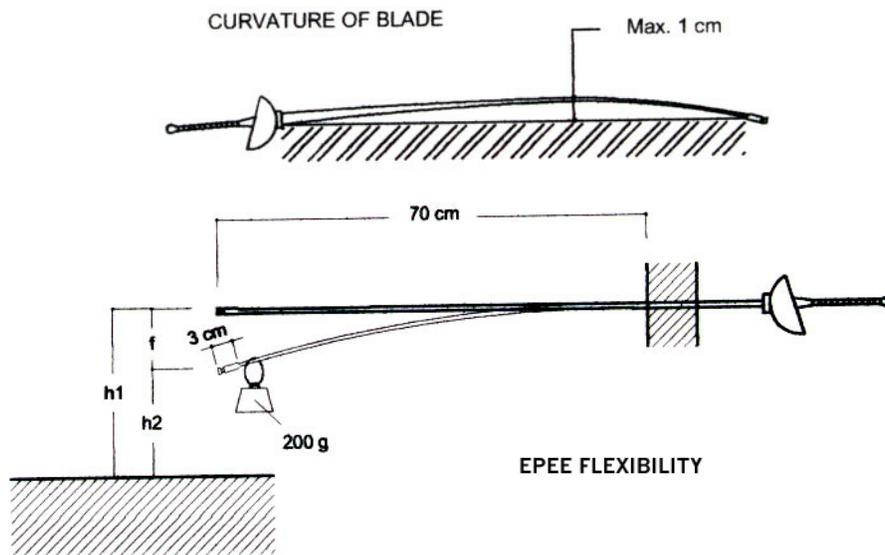
The little shims checks the "residual travel" which is 0.5 mm between the barrel and the tip. This is basically designed to make sure the contact spring doesn't rest on the contacts.

If you are performing a shims test, be sure to check once, and then again at a 90-degree angle from where you check the first time. This is to make sure that the tip isn't sitting crooked in the barrel so that one side might pass and another might fail.

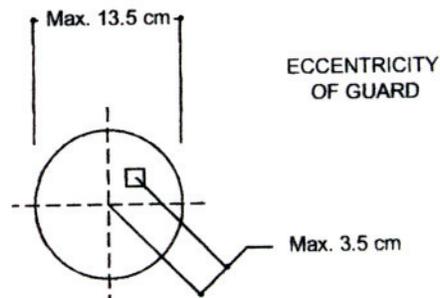
7. Dimension Diagrams

I've also included some dimension diagrams from the USFA Manual. It's available from the USFA Web site (www.usfa.org) and contains tons of technical information. Everything you ever wanted to know about fencing is in there; from chemical composition of blades to director's signals. If you are one of those that likes obscure reference knowledge, that's the fencing book for you.

Anyway, here's some stuff that I thought would be interesting to include.



Flexibility (f) of the epee is defined as $h1-h2$, measured between the unweighted and the weighted position of the tip. Minimum: 4.5 cm. Maximum: 7 cm.



8. Vendors

Vendors are listed on the USFA Web site at www.usfa.org. Everyone has their own personal favorites and experiences, so talk to people and decide for your self.