

Please read these instructions all the way through, and take your time...this isn't a race, and like juggling, familiarity is your friend. Actually, I think you'll find it interesting, pleasant, and information worth knowing. First, look at your camera to see how the manufacturer's original seal was installed and where. Make mental notes, and if necessary draw a sketch. In most cases, the seal material will be gummy and gooey—generally a mess. The obvious places to look are the long slots on the top and bottom of the door openings, the hinge side opening and the latch side opening. The seal may be on the camera body or on the door itself. If your camera is an SLR, it may also have seal material as a mirror damper. Let's start at square one—prepare your work area. I like to use a piece of cardboard (about 1.5' x 1.5'), but you can also work on newspaper or fiberboard. The main thing is to be sure and protect the surface beneath you. Always work under good light...an old gooseneck desk lamp is excellent.

Two—get your tools ready. You'll need: round toothpicks or small bamboo skewers, maybe a small screwdriver or two, a small hobby knife (like a basic X-Acto knife), a safety razor blade, a paper towel or two, some naphtha (lighter fluid is the same thing), a metal ruler or straightedge, maybe an old rag, a piece of wood, masonite, or heavy cardboard to cut on, rubber cement (or contact cement or plain household cement—if you think you will need to glue anything), a small paintbrush, a pair of scissors and a wooden or plastic scraper—small. If you have a wooden ladies cuticle tool, it is actually very handy. A pair of tweezers is also very good to have, preferably plastic ones (look for them at the 99cent store, drug store, places like that).

Three—think positive thoughts and focus on the job at hand. You'll need your finest mental powers—concentration, observation, memory, patience, judgement...avoid distractions.

Four—how to cut seal material: Lay it on a piece of fiberboard, wood, Masonite or heavy cardboard. Be sure to protect the surface underneath you! Place your ruler on top and carefully set it and hold it so as to cut the width of strip you need. Using a sharp hobby knife or a sharp new safety razor blade, cut the strip (holding the blade so that it is perpendicular to your cutting surface). For curved or odd-shaped pieces, use scissors. You can always cut the first piece (a template) out of paper to make sure you're on the right track...it saves wasted material.

Five—can you reduce the thickness of your seal material? Yes, but the materials in your kit were chosen so that you shouldn't have to, and I really don't suggest doing this as it is frustrating and often pointless. Still, if you must...here's what I do: get a double edged razor blade and two flat surfaces with straight edges (I use either two microscope slides or two unembossed "credit" cards...you can get these free by signing up for supermarket "frequent shopper" cards—actually you can use anything you wish as long as both pieces are perfectly flat, the same height with straight edges. Cut your seal material to the width you need. Tape one of your slides to your work surface to keep it from moving. Then butt the seal material up next to the edge of that microscope slide and place the other microscope slide on the other side of the seal material. You can change the height of the seal material or the height of your flat surface by placing sheets of paper or business cards cut in strips under either one until you get the height of cut you need. Now carefully slice by moving your razor blade back & forth in small passes on top of your flat surface. You'll be cutting next to your fingers, so take it slowly. Speed is not as important as safety and precision. Here's a picture so you can get a better idea:



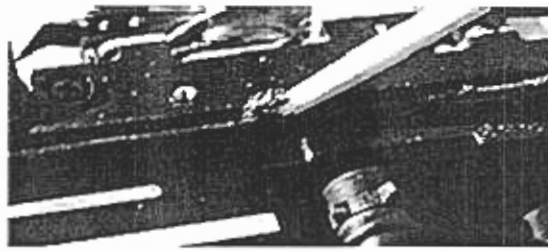
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Speaking of safety, an important diversion...When working in the mirror area of an SLR camera, please remember some essential things:

1. The mirrors are always top-plated (for focus accuracy) and can easily be scratched. If you need to clean one, do it ever-so-carefully with the least amount of pressure possible and a soft, lint-free cloth like an old pair of men's cotton jockey shorts or a cloth diaper...and Windex works fine as a cleaner.
2. The focusing screen must not get dirty, either. I have seen people try to place or tape paper and things to the mirror and screen to prevent them from getting dirty, but I don't suggest this—stiff paper can scratch your mirror and get in your way while you are working. Further, paper on your focus screen gives a false sense of security. I say simply work very carefully and slowly, and remove any dirt or "junk" as you go. A sharp pointed X-Acto blade is great and a pair of plastic tweezers is perfect for this. Also a Q-tip can be used—the cotton fibers will pick up bits of trash and hold them. Use your small paintbrush to remove dirt or debris. Mainly be careful, methodical and use your powers of concentration and patience. Have you seen the PBS specials showing archaeologists carefully removing sand from an artifact so as to preserve it? Think of your work as being just as important.
3. DO NOT USE ANY SOLVENT near your focus screen. Many of these were plastic, and solvent can ruin them or make a large mess. Remove any seal material slowly with a knife and tweezers.
4. What is the mirror damper, anyway? Primarily a sound deadener, secondarily a light seal. Want to know if it is sealing? Remove your lens and hold the viewfinder opening next to a bright light in a dark room so the light enters where you would normally look. With shutter on "B" setting, press and hold the shutter open. If you don't see light around the mirror, there are no leaks.

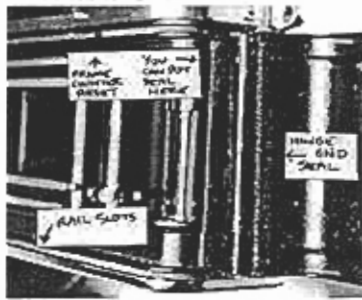
Okay, back to step six—copy your old seal and cut the new seals. Your door rails will normally use a strip 2mm square, although some cameras will use a completely different method. If your camera uses the long thin strip method, the seals you use should be just slightly wider than the slot they fit in...you want them to stay without adhesive. They'll last longer and do a better job of sealing that way, plus the end product is more professional and easier to install by far. Hinge and latch end seals are not generally too complicated, and mirror dampers aren't either. The main thing is to observe and measure carefully and choose the seal material you think will do the best job for you. For long thin slots, non-adhesive material is what I prefer. For all other applications, I make the call based on what was there and how it looks like it was designed to work.

Step seven—remove your old seal. Normally I use a toothpick and a piece of paper towel with some naphtha on it. Run the toothpick down the slots. Take a look:

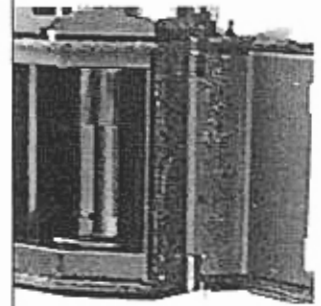


The old seal will come out in a gummy glob. Use the paper towel & naphtha to keep the toothpick clean, and when the old goo is removed, clean the slots with a paper towel and naphtha, too. Don't forget to clean the edges of the door with naphtha...they will normally have gummy residue on them from the old seals, and you don't want this fouling your new seals. Other than the rail slots, you may use a wooden or plastic scraper, small hobby knife or small screwdriver to remove old seal material. Be careful and work slowly. Plastic tweezers are handy. Use your screwdriver to drop a little naphtha on the seal material you're removing. You don't want the naphtha running all over the place, just enough to soak and loosen. While you're waiting for it to loosen, why not enjoy an "Arnold Palmer" drink? Half ice tea & half lemonade. Nice any time of year and sensible, too.

Hinge end seals: There will almost always be a hinge end seal. These are usually simple. Here are a few examples:



Generally they're just a simple strip of seal material attached to the body or door.  
 Personal note: even if your camera's seal was originally attached to the door, attaching it to the body is not a bad idea sometimes. I like to butt the seal up to the hinge itself so that dust is kept out of the camera too.



Latch end seals: Occasionally more elaborate than the hinge end seals, and other times not used at all. This depends entirely on the maker/designer of the camera. The main thing to keep in mind is this...your power of observation (and your creativity) can be vitally important here. Sometimes you will be able to duplicate a latch end seal easily. Other times, it may be more challenging. Remember your seal material may be cut, shaped, laminated, folded over, etc, and latch end challenges may be handled in many different ways. Camera sealing (like any other sealing) is nothing more than locating a piece of foam rubber where it will be compressed in a predictable and/or recurring manner. Latch end seals don't always photograph extremely well, but let's look at some examples:



Left: Olympus XA series...seal tucks into a narrow slot.  
 Middle: Typical Yashica SLR...seal sits on a little ledge



Right: the Canon GIII QL17. Seal is stuck to a latch plate behind a baffle.



SLR Mirror pads: Like latch end seals, sometimes simple and sometimes less simple. The main two things to keep in mind are to carefully duplicate the replacement seal you need and carefully

remove the old seal. Sometimes the mirror damper is nothing more than a simple strip of foam mounted where the front edge of the mirror will land on its upward journey. Other times you will see foam extending partially or completely along the sides of the viewing screen, and occasionally you'll see no foam where the mirror lands, but foam sealing the area where the beveled corners of the mirror land. Hint: use your power of observation and don't get too clever. Some folks think if a strip at the front is good, a strip all the way around would be better. Remember...somebody designed your camera to function in a specific manner. Fixing problems that don't exist may not be good for you or your camera. Let's look at two examples of mirror pads:



Left: Fujica ST605n. Damper extends around the focus screen. Not a fun job...generally best done during a CLA service when focus screen is removed. Hint: generally, just replacing the front pad will suffice. Right: Yashica SLR. Easy and sensible.



Installing new seals: once you have cut your new seals to the size and shapes you need and cleaned the mounting surfaces, this is not difficult. For seals going into thin long slots, I tuck them carefully into their grooves, making sure they don't twist or turn in the process. Sometimes I use a toothpick or small screwdriver blade to help guide them in, but be careful not to damage them. After this, I use a toothpick and gently trace the length of the seal to make sure it is seated properly. On the hinge end, I usually butt it up to the hinge itself and don't let it overlap the ridges of the long rail grooves, as this can make closing the door difficult and will reduce the seal's effectiveness. If not using self-adhesive material, glue this seal in place with either rubber cement, contact cement or household cement...generally any of these will work fine. On the latch end, the same rules apply. Use your common sense here, and don't worry if there is no seal. Many cameras were designed without one. Around the mirror...whether you are using self-adhesive seals or whether you are gluing a seal in place is not as important as using the proper width and length seal (too wide and it obstructs the viewfinder). Remember to keep it neat and clean and work carefully—like the archaeologist.

#### A word about the seal material in your kit

You have one strip of non-adhesive material and some square strips cut from this. It is 2mm thick. Normally, I use this in applications where installing self-adhesive material will be cumbersome, awkward or unnecessary. You have three strips of closed-cell self-adhesive material, 1/32", 1/16" and 1/8". I use these on hinge ends, latch ends and anywhere else I need a good compression seal. They may be used also as mirror dampers. You have two sheets of 1/8" open cell ester foam in different weights. While this is normally used as mirror dampers, it is also good for hinge end seals and film canister window seals. This material is 90% compressible, and is very adaptable. Do not worry that it appears "open." When compressed only minimally it forms a very good light seal. The material in your kit was carefully selected to provide the ultimate in sealing capability, long life, resistance to environmental pollutants and ease of use. The adhesive on your material is the strongest available. To start release of the backing paper, use the edge of a razor blade or the sharp tip of a hobby knife to carefully pick up a corner...it is generally too strong to pick off with a fingernail, and trying this may cause damage and be frustrating to you. If you have questions, or need more guidance, I'm always happy to help: [jgood21967@aol.com](mailto:jgood21967@aol.com). If you need more material or a more robust booklet, please look at my Master Light Seal Kit on E-Bay. Thanks for your business!