

## DON'T DO THAT:

Erasers, Not Just For Pencil and Paper:

By: Gary A. Minker



If you are in the Broadcast Engineering business as an employee or contracting member of the Gainfully Self Unemployed, you are probably over the age of majority and are not too crazy about folks shaking their finger at you bellowing, Don't Do That!!

Get over it. It is these well meaning folks that are either trying to save you from killing yourself, your apprentice, or the station cat, and in this well meaning insubordination, you ought to listen to what they have to say and not just write it off as their childish folly. Those older, and some younger, may have been to the goat roping that you missed and in this series of articles, I will be that thorn in your side and welcome your thoughts by Email or voice toward the same content.

Erasers. When you say the word, so many things come to mind from making people disappear in movies to the chalk board. The word Eraser has wandered in and out of common use in today's vocabulary and the lowly white rubber and pink rubber pencil Eraser has nearly become a thing of the past. With so much of modern analog and digital technology still relying on the removable printed circuit card with some type of single or double sided edge connectors, cleaning these contacts is delicate and important work. While the green and gray scuz contaminate your dainty little card connections, there is no way to predict what might go wrong with your life.

## GOLDEN YEARS:

Advances in technology have all but left the leaded or tinned edge connector in the dust for newer equipment but, since money is tight, those older technology cards do pop up and do poop out because of tarnish and corrosion. There is nothing more sorry than a nasty tin plated connector shoved into a nice Gold plated mate. In a humid environment, we all know that this is a guaranteed recipe for disaster and eventually some form of cleaning will be required. In today's high speed world, Gold Plating (or stuff that looks and acts like gold) is all the rage and even this lofty material suffers from an attack of the scuz.

## CLEANERS:

Cleaning chemicals are often the first choice of resort and after deftly attaching your static ground wrist strap, you pop open some chemical cleaner and a nice terry cloth or cotton rag and proceed to rub the contacts until your fingers bleed, all the while making a zero change in the scuz that you have determined to be the problem. What next you ponder? Abrasives, cleansers, Emory paper, nail files, pumice, ScotchBrite, sand,, the possibilities rage on and you know they would remove the tarnish but they would also remove the contacts. We can all agree that we need to keep the contacts intact. (pun)



Chemicals that could also be considered might be a silver polish favorite called Tarnex. This is not technically a cleaner but works like a wolf in sheep's clothing. This genre' of chemical converters may turn tarnish in to something shiny but it contains preservatives and oils that can rot your circuit cards, delaminate your contacts and leave a shiny sheen of insulative slime behind that will cause more grief that you had in the first place. In any case of any chemical usage, a thorough cleaning is recommended to remove the nasty cleaner you might errantly select in the first place. This final cleaner needs to be something that is completely volatile which means that it evaporates and leaves no residue behind.

#### THE ANSWER:

Some masters of repair would have you believe that repetitive reinsertion of a card will suffice to clean the surfaces. This action may work a time or two but merely spreads the coating of crud around. No cheating here, don't look at the title of the article. Could it be the Eraser? From grade school we all remember the cute little white rubber eraser. Pencils come with a nifty little red rubber eraser, and in art class, we had gummy erasers. (no relation) In many larger dirty surface venues, the hand held versions of these erasers are just the ticket for non-destructive cleaning of metallic surfaces.



White rubber erasers have no discernable abrasive embedded in the compound and rely solely on the action of the micro rubber particles to do the cleaning. Red, or gray rubber erasers were sometimes called "Ink" Erasers. These types of Eraser have varying amounts of very fine grit embedded in the compound, and when prudently used, can remove the most stubborn of tarnish and corrosion problems but should be used sparingly on Gold or other fine contact surfaces such as Silver or Rhodium.

#### MACHINES TO THE RESCUE:

The ultimate cleaning tool is the Electric or Mechanical Drafting Motorized Eraser. This tool dates back to the early 1940's and the 120VAC motorized device is hand held and spins at around 1800 rpm. This small motor can use a number of available compounds of eraser "worms" that slide inside the rotating barrel or shaft of the tool, and can be dispensed with a simple slide of the gripping collar. As you clean a contact or surface, the Eraser is consumed, and the Eraser "dirt" flies away and you expose more new Eraser to do the dirty work. With the advent of keeping both white, red and other compound worms on hand, you have an extreme duty and very versatile tool for all of your connector maintenance work.



## CHOICES:

With a bit of research at your favorite brick or on-line office supply store you will find about 7 different insert compounds for your new favorite toy. While the colors of the inserts vary, the compounds are different and the Mechanical Eraser connoisseur will find just the right insert for every cleaning job. For the totally portable technician, both 120 VAC and battery models are available. Battery units are made in both replaceable and rechargeable models. 120VAC units typically rotate at 1800 rpm while some of the battery units use a hobby type motor which is merciless on the batteries but spin the rubber inserts at nearly 12,000 rpm.

Once your surfaces are shiny and clean again, a quick wipe with a generic contact cleaner is recommended to remove any finger or rubber oils that may be left behind.