



SERVICE SCOPE

WASHING YOUR TEKTRONIX INSTRUMENT



By Charles Phillips, Product Service Technician

Have you ever noticed how much better your car seems to run when it has just been washed or polished? This is a psychological reaction of course, but the improved appearance does cause us to value our car more highly and take better care of it until the next rain storm messes it up again.

Test equipment gets dirty, too. Not as rapidly as our car, perhaps, but with a more detrimental effect on its operation. Thorough cleaning of a dirty instrument not only improves its appearance, but improves its performance and reliability as well.

Many of you are aware that Tektronix has, for many years, been washing instruments sent to our service centers for repair and calibration. Some customers with large numbers of instruments have installed their own wash facilities as an aid in keeping their instruments in top shape.

With the advent of printed circuit boards and solid state devices in instruments comes the question, "Is it still necessary to wash instruments and, if so, what precautions do I need to observe?" While it is true that solid state instruments do not usually get dirty as quickly as their vacuum tube counterparts, they too, can benefit from a periodic cleaning. We find they are easy to wash and no particular precautions, other than those applying to vacuum tube type instruments, need be observed.

Equipment Needed

Chuck Phillips is pictured at right washing a 7000-Series instrument in the wash booth of our factory service center. The booth includes an exhaust system to remove the dust and mist generated during cleaning and is typical of the wash booths used in our other centers.

There are several items you will need to do an effective job. They are as follows:

- (a) Liquid silver cleaner used to remove tarnish from connectors.
- (b) Brushes used to clean knobs and connectors.
- (c) Paint brush used for dry method of cleaning, etc.
- (d) Sponge for applying cleaner to remove marks on aluminum.
- (e) Non-sterile cotton-tip applicators used for miscellaneous cleaning chores.
- (f) Piece of plastic light filter or graticule used to remove labels and adhesive after soaking them with solvent.
- (g) No-noise applied sparingly to pots and switches as needed.
- (h) Kimwipes or equivalent for wiping off front panel, etc.
- (i) WD-40 used for several applications.
- (j) Spray paint used to touch up cabinets and side panels.
- (k) Flux remover or any solvent that will soften adhesive used with calibration stickers and other labels.
- (l) Ajax cleaner or equivalent used for removing marks on aluminum chassis, etc.
- (m) Screwdriver for removing slotted screws.
- (n) Screwdriver for removing Phillips screws.

The other items needed in the wash area are:

A source of compressed air with approximately ten feet of hose.

A spray gun with eight feet of hose (Devilbiss Type GDV Series 510 or equivalent).

A rubber siphon hose three to four feet in length.

Hot and cold water.

Detergent (Kelite or equivalent, mixed approximately 1 part detergent to 20 parts water).

The drying oven is pictured at right. There are a number of commercially available ovens suitable for this purpose. The primary considerations in selecting one are size and the capability of providing circulating air at a temperature of 125°F to 150°F.

Steps Prior to Washing

Some early TEKTRONIX instruments used water soluble ink for chassis markings. The chassis have a shiny appearance as compared to those with permanent markings. If you suspect you are washing such an instrument use very little detergent and cold water.

Paper covers on electrolytic capacitor should be replaced with plastic covers or sprayed with a water repellent such as WD-40.

Leather handles should be sprayed with WD-40 or other type water repellent to prevent cracking.

Capacitors leaking oil should be tagged for replacement.

Labels and adhesive should be removed unless specified otherwise.

We no longer consider it necessary to remove the CRT, shields, vacuum tubes, etc. to do a thorough cleaning job. Experience has shown that warm water and detergent under pressure penetrates these areas adequately without completely exposing them.

The cabinet sides and bottom are removed and washed separately. They can be put back on the instrument before placing the instrument in the oven for drying, if desired. The 7000-Series plug-ins are washed with the side panels in place. This saves time and prevents a mix-up in panels.

Washing Procedure

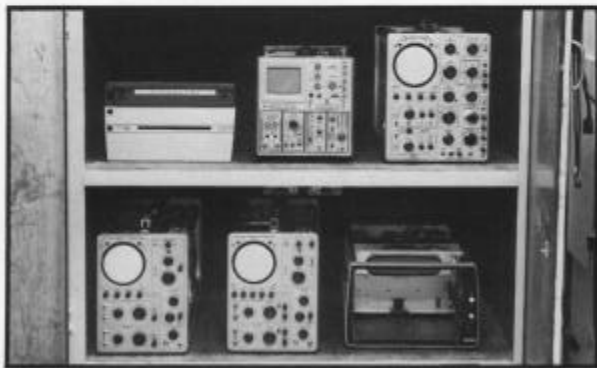
After preparation, place the instrument in the wash booth and spray lightly with detergent and warm water. (Do not spray detergent directly on power transformers or paper items.)

Clean connectors and knobs using appropriate brushes. Rinse thoroughly with warm water.

Remove excess water from the instrument (especially the front panel) with air.

Place the instrument (with washed plug-ins installed) in the oven and dry for at least 24 hours.

The graticule and light filter are cleaned at the work bench using a glass or plastic cleaner.



After Washing and Drying

It is well to take a few minutes to apply lubricant to the switches, motors, etc., particularly on the older instruments. A lubrication kit designed specifically for this purpose is available under Tektronix Part No. 003-0342-01.

Switches—Lube detents with a light grease and contacts with No-noise.

Motors—Apply 1-2 drops of thin oil. (WD-40 is suitable).

Potentiometers—Apply 1-2 drops of No-noise to the shaft, contacts and open spots around the cover. Use a hypo and needle, or spray can with nozzle. Cover removal is neither necessary nor desirable.

The appearance of the instrument can be enhanced by applying WD-40 or furniture polish to the front panel. The polish should be sprayed on an absorbent towel, not directly on the instrument panel. A small amount sprayed on the one-inch paint brush is handy to get around the knobs.

Summary

You will find that the time spent in properly cleaning an instrument will result in fewer calibration problems, a longer period between calibrations and greater operator satisfaction with both the instrument and the service center.

About our author

Charles Phillips—Chuck has just completed 10 years with TEK. His career at TEK has been devoted entirely to service center activities. After serving six years in field service centers he transferred to Factory Service where he has contributed much to improving servicing techniques and solving new instrument problems. Chuck's "off-work" hours are filled with Laymen for Christ activities, managing his own TV sales and service business, and his family.

