



National Park Service
U.S. Department of the Interior



National Center for Preservation Technology and Training
Natchitoches, Louisiana

Basic Resetting Vol. 1: Stacked Base With Pins



Purpose and goals of the video

This video was made as part of a series of educational tools to protect and preserve cemeteries and houses of worship developed under NCPTT's National Cemetery Preservation Initiative.

The purpose of this video is to cover basic procedures for resetting a stone grave marker that has a stacked base with pins. There are three types of bases: (1)the buried stone which is placed on the ground, (2)the slotted base, and (3)the stacked base. The stacked base headstone usually has multiple smaller sections stacked together. They may or may not have reinforcements, such as metal pins, and can range widely in size.

The most important thing to remember with stone grave markers is that these are delicate structures and a great amount of care must be exercised when handling them. While stone seems to be a durable material, it can be affected by weather and pollution and may be in a more delicate and fragile condition than one may expect.

Do's and Don'ts

DON'T

- Don't do anything that will remove or damage the original surface of the stone.
- Don't lift heavy stones by yourself. Always lift between two people or more is necessary. If it is too heavy you may need to involve lifting equipment, such as a hoist and wench.

DO

- Do no harm
- Do make sure that all parts of the headstone are secured and stable.
- Do remove any failed corroded pins and mortar.
- Do consider cleaning the stone prior to resetting.
- Do select the gentlest cleaning method to clean the stone. Pay special attention to cleaning all the surfaces that connect.

Safety

Keep personal safety in mind above all else. Wear the appropriate safety equipment such as safety glasses, gloves, masks, and steel-toed shoes. Proper safety lifting procedures should be followed. Many of the safety supplies suggested are available for purchase at building supply, hardware, and some large chain stores.

Always follow the manufacturer's safety guidance and consult with the product's label and Material Safety Data Sheet to learn about any risks about the product. If you don't have one you can look up the MSDS sheet for the specific product at OSHA's website. Take proper safety precautions when dealing with power tools.

(<http://www.osha.gov/SLTC/hazardcommunications/>)

Resetting Methods

- Make sure that all parts are secured and stable. You will probably need to move the stone to a sturdy table to have enough room to work.



- The base must be stabilized and leveled before resetting.

- Remove any corroded pins. You can remove the pins with a pair of vise-grip pliers. If this doesn't work then you may need to drill out the pins using an electric angle grinder or drill fitted with a masonry coring bit. Make sure that the size of the coring bit is close to the size of the original hole. Do this to both the base and the headstone.



- Any old mortar needs to be removed. This will be done with a hammer and chisel. This procedure will need to be done to both the base and headstone.

Resetting Methods Cont.

- It is advisable to consider cleaning the stone prior to resetting. Pay particular attention to the two surfaces that need to bond together during the resetting.
- Insert new pins made out of stainless steel all- thread that are slightly shorter and smaller than the hole. The new pins can be set with epoxy, setting compound, lime mortar, or packed in lead.

Note: Please refer to the Basic Monument Cleaning Video.



- Lay out a monument builders setting compound half an inch inside the edge of the base and place two thin lead spacers in the middle of the opposite sides of the stone.
- Place the stone back on the base and remove any excess setting compound.
- Any gaps left in the seam of the stone will need to be pointed with setting compound or lime mortar to prevent water intrusion.

Note: If the stone is fragile (weathered, cracked, spalling, sugaring etc.) and resetting could cause further damage or repairs are needed, consult a professional conservator.



Before



After

Additional Sources of Information

NCPTT

<http://www.ncptt.nps.gov>

Association for Gravestone Studies

<http://www.gravestonestudies.org>

CHICORA Foundation

<http://chicora.org>

Elberton Granite Association

<Hppt://www.egaonline.com>

Books:

Lynette Strangstad, *A Graveyard Preservation Primer*, (Walnut Creek: Altamira Press, 1995).

Cemetery Preservation Initiative

In 2001, NCPTT identified the need for new technologies to protect and preserve cemeteries and houses of worship as one of six research priorities. In addition to developing new technologies there was a need to transfer and disseminate preservation technologies to preservation professionals and grass- roots cemetery enthusiasts. NCPTT has developed a suite of specialized training workshops for a wide range of audiences. Each workshop devotes special sessions to topics of significance to that region.



Through a joint effort with the National Cemetery Administration, NCPTT is evaluating the long- term effects of commercially available chemical cleaners for use in cemeteries. This nationwide effort looks at the effectiveness of different products for removing biological growth from federally- issued headstones. Additionally, researchers evaluate possible changes to the stones after cleaning. The results of this research effort will be recommendations that provide professionals with safe choices for cleaning headstones without long- term damage.

Materials Research Program

NCPTT's Materials Research Program consists of a group of researchers within the National Park Service who work in partnership with parks, laboratories, government agencies, universities and others to understand how cultural objects deteriorate with time. The program's goals are to understand cultural resources decay, to develop and evaluate new treatments to protect cultural resources and to disseminate scientific results and preservation technologies through presentations, publications, and training for preservation professionals nationwide.



A special interest within the program is the study of outdoor air pollution effects on cultural materials. Research projects are developed internally at the NCPTT Environmental Exposure Facility located on the campus of Northwestern State University, Natchitoches, Louisiana, and externally through cooperative and interagency agreements, contracts, and grants.

In addition to our laboratory research, we actively look at preservation issues in the field. As we evaluate new treatments and methodologies, we seek field test sites for further trials. Based on our research, we offer cemetery monument conservation workshops advancing the latest knowledge in cemetery preservation.





National Park Service
U.S. Department of the Interior



National Center for Preservation
Technology and Training
645 University Parkway
Natchitoches, LA 71457

www.ncptt.nps.gov
ph: (318)356- 7444
fax: (318)356- 9119

NCPTT advances the application of science and technology to historic preservation. Working in the fields of archeology, architecture, landscape architecture and materials conservation, the Center accomplishes its mission through training, education, research, technology transfer and partnerships.

NCPTT was created by Congress in 1992 to develop and disseminate preservation technologies and to train practitioners in new technologies. NCPTT promotes preservation technologies in the fields of archaeology, historic architecture, historic landscapes, and materials conservation.



NCPTT emphasizes preservation technology research. We support the use of innovative technologies in the preservation of cultural properties and the transfer of technology from arenas not readily identified within historic preservation.