NIOSH

HAZARD CONTROLS

HC15

Control of Ergonomic Hazards from Squeegee Handles in the Screen-Printing Industry

HAZARD

Repetitive use of hand tools (particularly those that compress the palm of the hand and are held with a pinch or precision grip) may result in the development of carpal tunnel syndrome and other musculoskeletal disorders of the hand, wrist, and arm. Workers in the screen-printing industry use wooden-handled squeegees to force ink through a screen and into a substrate. The industry standard handle is approximately 1 inch wide and is grasped in both hands using a pinch grip. The narrowness of the grip requires forceful contractions by muscles in the forearm and wrist. When the user exerts significant downward forces with the handle, the handle places pressure on the mid-palm of the hands, causing possible compression of the median nerve.

CONTROLS

Studies funded by the National Institute for Occupational Safety and Health (NIOSH) indicate that redesign of the squeegee handle can significantly reduce hand pain and fatigue.

MODIFIED SQUEEGEE HANDLE

Squeegee handles for manual screen print workers should be designed to conform to the shape of the hand when in a somewhat relaxed and open position (see ILLUSTRATION). The handle surface should make full contact with the fingers and surface of the palm of the hand. The diameter of the grip should be at least 18% wider than the grip diameter of the industry standard handle. Padding the handle with a compressible surface has been shown to reduce hand pain and fatigue significantly when used over time and may result in lower carpal tunnel pressures. Standard squeegee handles can be modified by adding compressible rubber grips. Handles/padding should be provided in varying widths and diameters to accommodate workers with different hand sizes.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

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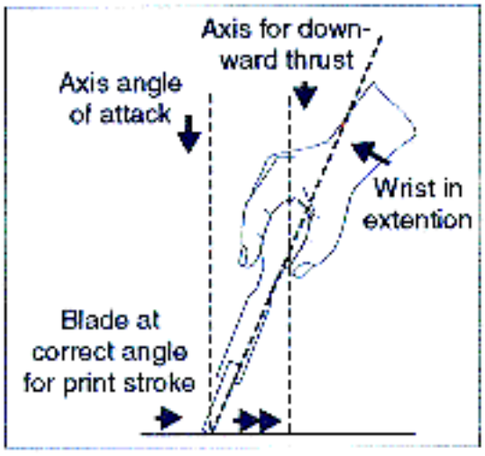
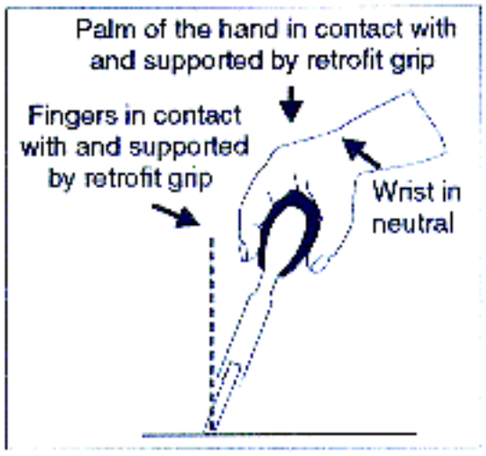
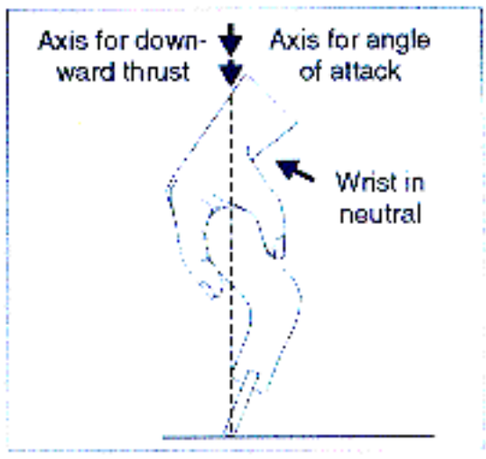
ILLUSTRATION: SQUEEGEE HANDLE DESIGNS



Industry standard handle



Padded ergo retrofit of
a standard handle



Ergonomically
designed handle

For More Information

To obtain more information about controlling this hazard, or for information about other occupational safety and health issues:

— call NIOSH* at **1-800-35-NIOSH (1-800-356-4674)**, or
— visit the NIOSH Home Page on the World Wide Web at
http://www.cdc.gov/niosh/homepage.html

*NIOSH is the Federal agency responsible for conducting research and making recommendations for preventing work-related illness and injuries. *HAZARD CONTROLS* are based on research studies that show how worker exposure to hazardous agents or activities can be significantly reduced.

Acknowledgements

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