PORTABLE ELECTRIC TOOLS

Inspection Checklist

GENERAL

- Low voltage equipment used in tanks and wet areas? ☐
- Tools well maintained? ☐
- Motors in good condition? ☐
- Approved tools used in explosive atmospheres? ☐
- Tools left where they cannot fall? ☐

CORDS

- Insulation and plugs unbroken? ☐
- Cords protected against trucks and oil? ☐
- Cords not in aisles? ☐

GROUNDING

- Ground wire fastener in safe condition? ☐
- 3-wire plug extension cord (if a 3-wire tool)? ☐
- Ground wire used? ☐
- Defects or minor shocks reported? ☐

GUARDING

- Guards used on grinders and saws? ☐
- Movable guards operate freely? ☐
- Eye or face protection worn? ☐

FIG 32-18 — An inspection checklist card can be used for portable electric tools Such a card encourages workers to inspect equipment before and after use More specific cards or tags simplify the prompt recording of defects and result in better maintenance records

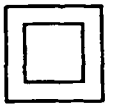
resultant degree of hazard The current is regulated by the resistance to the ground of the body of the operator and by the conditions under which he is working It is possible for a tool to operate with a defect or short in the wiring, and the use of a ground wire protects the operator under all conditions

Insulating platforms, rubber mats, and rubber gloves provide an additional factor of safety when tools are used in wet locations, such as in tanks or boilers and on wet floors

Low voltage of 6, 12, 24, or 32 volts through portable transformers will reduce the shock hazard in wet locations Standing orders should be issued to supervisors and employees to use low-voltage equipment on work in such locations Portable low-voltage transformers may be provided

Electric tools used in wet areas or in metal tanks expose the operator to conditions favorable to the flow of current through his body, particularly if he is wet with perspiration Most electric shocks from tools have been caused by the failure of insulation between the current-carrying parts and the metal frames of the tools Only tools listed by Underwriters' Laboratories, Inc , should be used

Double insulated tools. Protection from electric shock, while using portable power tools, has been described as depending upon third wire protective grounding "Double insulated" tools, however, are available which provide more reliable shock protection without third-wire grounding An amendment to the *National Electrical Code* permits unrestricted application of the "double insulation" idea Tools in this category are permanently marked by the words "double insulation" or "double insulated" Units designed to this category which have been tested and listed by Underwriters' Laboratories, Inc , will also employ the use of the UL symbol Many U S manufacturers are also using the symbol



to denote "double insulation" This symbol is also being widely used in most European countries

Conventional electric tools have a single layer of functional insulation and are metal encased For small-capacity tools, "double insulation" can be provided by encasing the entire tool in a nonconductive material which is also shatterproof The switch is also nonconductive, so that no metal part comes in contact with the operator

Large capacity electric tools require a more rigid design in order to provide for greater stress requirements where more power and high-torque gearing are involved Double-insulated tools with metal housings have an internal layer of protecting insulation completely isolating the electrical components