



TOLEDO FIRE & RESCUE DEPARTMENT



D-6 Tools and Equipment

Maintenance Manual

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TOOLS AND EQUIPMENT

Tools and Equipment — Identification

All tools and equipment should be marked with the apparatus designation by painting, stamping, etching or burning.

Hand Tools/Forcible Entry Tools

Proper cleaning, maintaining and storage of hand tools and forcible entry tools is very important. The proper care of these tools will increase their service life depending upon the intensity of their use. These tools should be cleaned and inspected after every use and on tool day.

- **Wooden Handles**
 - If handles are cracked the tool should be sent in to the Maintenance Bureau for repair.
 - Splinters on wooden handles must be sanded to make handles smooth.
 - All wooden handles should have a varnish or linseed oil finish. Wooden handles should never be entirely painted as cracks and defects would be difficult to detect.
 - Check to see that the head is on tight.
- **Cutting Edges**
 - Check to see if edge is free of nicks.
 - File the edges. Grinding takes the temper out of metal.

- Painted and Plated Surfaces
 - Keep painted surfaces painted.
 - Inspect for damage.
- Plated surfaces should be wiped clean or washed with soap and water.
- Unprotected Metal Surfaces
 - Keep clean of rust.
 - Keep lightly coated with oil.
 - Do not completely paint; it hides cracks.
 - Should be free of burred or sharp edges. File off when found,
- Collapsible wheel chocks shall be cleaned, rinsed and all pivot points lubricated every tool day.

Gas Powered Tools

All gasoline powered devices shall be carried on the vehicle with the fuel valve in the off position. This prevents fuel from siphoning from carburetor into the oil crankcase contaminating the oil.

When using for ventilation, PPV fans should be placed so that debris is not sucked through the blades, and properly secured if used on an elevated surface, i.e.; porches.

Maintenance considerations for power tools:

Gasoline powered equipment should be **operated weekly on tool day** to check the operation of the engine and equipment to which it is connected.

Included are:

- Generators: plug in flood lights to check generating capability.
- Saws: Do not store abrasive cutting blades in areas where gasoline vapors are present.
 - These vapors have been known to dissolve the glue and resin that are used to bond these blades.
 - At high speeds the blades could fly apart.
- Hydraulic pumps:
 - Connect the associated tools to the pump and operate the tools.
- Maintain proper oil level when applicable
- Check engine pull-starter for recoil and rope condition.
- Make sure tank is full with the proper fuel or fuel/oil mixture. Inspect fuel lines or carburetor for signs of leaking.

Ventilation chain saw

- Carbide tipped chain will cut through most asphalt and wood type roofs but will not cut metal, tile or masonry.

Guidelines for all chain saws:

- Chain saws shall be thoroughly cleaned after each use.
- As a matter of chain saw daily maintenance, check the throttle trigger for smooth operation.
 - If any binding occurs, or if engine fails to return to idle, remove saw from service.
- Clean the chain brake and check its function according to the manufacturers' instructions.
 - Make sure that the chain catcher is undamaged.
- The chain bar should be turned frequently for more even wear.
 - Check the lubrication hole in the bar to be sure it is not clogged.
 - Clean the bar groove.
- Check the function of the chain lubrication system to be sure the bar and chain receive proper lubrication.
 - Whenever the bar oil reservoir is refilled, aim the tip of the saw at a light colored surface about 8 inches away and run the saw with 3/4 throttle.
 - You should see a distinct line of oil on the light surface.
- Check the chain's tension and condition.
 - Lift up on chain with a gloved hand,
 - You should not be able to see light between the chain and bar.
 - If so, tighten chain and recheck
- Replace the chain if missing **7** carbide teeth or more.
 - New chain will stretch.
 - After installing new chain, start saw and run at % throttle to heat the chain up.
 - Shut saw off and recheck tension and adjust as necessary.
- Check the starter cord for wear or damage.
- Clean the air intake slots on the starter housing.
- Check for any loose nuts and screws and retighten, if necessary.
- Test the stop switch to be sure it shuts off the engine.

Tree saw - standard chains that are for cutting clean wood only such as trees and branches.

Rotary type multi-purpose saws - Cut wood, metal, masonry/concrete, etc. If the saw does not have a Diamond tip blade, make the proper selection of blade or abrasive cutting wheel for the material to be cut.

- Diamond tip blades
 - Needs to be checked regularly.
 - Watch for cracks or potential breaks on edges.
 - Make sure blade is not bent.
 - Make sure blade has protruding segments before cutting.
 - If build up of debris on blade or the blade glazes over and cuts poorly. Make a few cuts in an abrasive material such as asphalt or cinder block.
- Handle abrasive cutting wheels carefully
 - They may break if nicked, scratched, subjected to heavy side pressure, or contaminated with moisture or certain fluids.
 - Store straight up in a dry atmosphere.
- Examine cutting wheels before each use.
 - The wheel should have no cracks, nicks, or flaws.
 - The Center hole should be undamaged.
 - Clean the wheel and both wheel flanges when installing the wheel.
 - If a wheel shatters, carefully examine the wheel guard for damage. A damaged wheel guard must be replaced to protect the operator.
 - Never operate unit without the safety guard.
 - Avoid getting in direct line with the wheel.
 - When setting the saw down after use, make sure the wheel does not come in contact with the ground or any other surface.

Always keep the equipment in good, clean, serviceable condition.

For powered equipment used at the stations such as lawn mowers, snow blowers and string trimmers, maintain fuel/oil levels per the manufacturers' instructions. Copies of the manufacturers' instructions can be obtained from the Maintenance Bureau.

Electrical Equipment - Care and Maintenance

- Check for efficient operation of electrical tools.
 - Problems include arcing or sparking, grinding noise, or loose connections,
- Check cords for any damage or deformities and loose, bent or damaged sockets.
- For battery operated devices such as reciprocating saws, drills and saws.
 - Batteries should not be charged until they have been substantially discharged.
 - You should stop using a battery as soon as you feel a substantial decrease in power from the tool.
 - Completely running down a battery may damage it.
- As of this writing most cordless tools on the department are DeWalt. The DeWalt chargers have a maintenance mode which allows batteries to remain in the charger.
 - This maintains a fully charged pack until the user is ready to work.
 - If the batteries are stored outside of the charger they will discharge naturally;

- 15-20% the first 24 hours
- 7-10% the next day
- 1% every day there after

Nozzles and Appliances - Care and Maintenance

- Nozzles and appliances shall be inspected daily as part of the 0700 check, and after each use. This will ensure that they are maintained in good operating condition.
- As of this writing every nozzle should be an AKRON Assault Nozzle.
 - These nozzles feature the simplicity of a fixed orifice, and provide enhanced stream performance at a variety of nozzle pressures.
 - Every nozzle on a 1 3/4" line is rated to flow 200 GPM at 75 psi nozzle pressure.
 - Nozzles on the 2 1/2" line are rated to flow 250 GPM at 75 psi nozzle pressure.
 - Make sure that the pattern change sleeve and the bail operate freely.
- Conditions that indicate nozzle repair is in order include:
 - Controls that are either inoperable or difficult to operate
 - Excessive wear
 - Poor discharge and/or stream performance
 - Water leaks
- All nozzles, appliances, and hydrant connections added to hose lines and apparatus ports should be **disconnected for cleaning and lubrication on tool day**.
 - The threads on all nozzles and appliance connections should be cleaned and lubricated before they are re-connected. Pay special attention to the threads on exposed apparatus ports during the winter months.
- On tool day, nozzles should be soaked in hot soapy water.
 - After soaking, nozzles should be rinsed with clean water to remove grit and dirt from around exterior moving parts. This will allow the nozzle to operate properly.
 - The nozzle should also be checked for internal debris and obstruction.
 - If anything is found it should be flushed out, if possible. Open the bail and run warm water through the nozzle opening, rinsing debris out the open end.
- After **any** foam operation, it is necessary to flush both the eductor and nozzle thoroughly for at least five minutes after each use. Soaking as described above is also recommended.
- If any issues are encountered that cannot be resolved at the station level, the nozzle or appliance should be taken out of service and sent to the Maintenance Bureau with [form 300-15](#) describing in detail the problem found.

Hydrant Connections/Wrenches

- The Water Department and the Fire and Rescue Department have developed specifications for the replacement of hydrants. These new hydrants have a STORZ fitting in place of the conventional threaded large discharge of the hydrant barrel. They continue to have two threaded 2 1/2" side ports.
- The installed replacement hydrants are randomly located throughout the city and are increasing in number as the replacement program proceeds.
 - When responding to a fire it is imperative that firefighters visually observe the hydrant style to assure that they take the proper wrench(es) from the rig to make the hydrant connection.
 - When a hydrant with a STORZ connection is present, the threaded hydrant adapter carried on the last section of LDH must be removed. This will allow the STORZ coupling on the LDH to be attached directly to the STORZ equipped hydrant.
- During the 0700 check, the hydrant adapter should be removed from the LDH and inspected. Clean and lubricate as needed, then check for ease of connecting and disconnecting adapter to the LDH.
 - It is crucial that the action of disconnecting the adapter can be done by hand. This will ensure that connecting LDH to a STORZ equipped hydrant poses no unnecessary problems or delays, especially as the number of these hydrants increases.

See Also:

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