

Tools for Electronic Assembly

Safety Glasses

All tools must have insulated handles

Screwdriver Types – blade, phillips, robertson, torx, allen

Screwdriver Configurations – stubby, offset, jewelers, magnetic, ratchet

Safety - Never use on small objects in the hand

Never use as a chisel

The screwdriver must fit the screw head

Nut Driver Types – hollow shaft, magnetic insert

Nut Driver Configuration – long & short shank

Safety - The nutdriver must fit the hardware

Wrench Types – adjustable, open-end, box-end, allen

Wrench Configurations – combination, ratchet

Safety - Never use an extension on a wrench

Never use a box-end on a square nut

The wrench must fit the hardware

Plier Types – long nose, slip joint, vise grip, rib joint (Channel-lock), needle nose

Safety - Use on moderate hold jobs

Be careful not to pinch your hand

Diagonal Cutter – to remove excess component lead length

to cut a wire to a specific length

Safety - Never use a small diagonal cutter on large wire

The wire or lead to be cut should be pointed toward the floor

Wire Stripper – to remove insulation from a wire to prepare for connection

Safety - Never use as a wire cutter

Aim the insulation stripped from the wire toward the floor

Combination Square – to assist in the layout of a cabinet or chassis

Ball Peen Hammer – used to drive chisels and punches

used to shape and straighten soft metal

Safety - Position the hammer in the center of the striking surface

Avoid glancing blows that may cause chipping

The hammer head is firmly fixed to the shaft by a wedge

Center Punch – to place a small starting indentation at the place to be drilled

Safety - Avoid glancing blows that may cause chipping
Position your hand clear of the striking force of the hammer

Hand Reamer – to expand the diameter of a drilled hole

Safety – Careful with the sharp cutting edge especially in handling.
Turned in one direction, otherwise the tool may jam.

File – to remove sharp edges and corners and enlarge drilled openings

Safety – Cutting is done on the forward stroke.
It is very dangerous to use files without handles.
Use a file card to insure a clean cutting edge

Chassis Punch – to make holes in chassis and cabinets larger than 13mm

Safety – The box end wrench should fit snugly on the drive bolt
Never use an extension on a wrench
Position the chassis (cabinet) in a vise

Hacksaw – used to cut small metal shafts and pipes

Safety – The cutting action is carried on the forward action only.
The blade must be mounted with its teeth pointing forward.
Suitable tension should be applied on the blade –
to avoid breakage or loosen
Change the blade if some teeth are broken
Avoid rapid and erratic strokes of cut
Avoid too much pressure
Place the work piece in firmly in a vise

Hand Nibbler – used to cut openings in a chassis (cabinet)

Safety - Use on thin soft metals
Be careful not to pinch your hand

Drill Bits – used to create round holes in metal and wood (1mm –13mm)

Safety - Avoid handling the sharp flutes of the drill bit
Use the correct drilling speed and apply suitable drilling force
Release the drill occasionally, lift the drill, and clear the hole
Take care, when the drill is nearly penetrated through the -
work piece. The "screw in" action can lift up the work piece

Hand Drill – used with a drill bit to create round holes (< 9.5mm) in a work piece

Safety – Remove jewelry that may be caught during drilling

Tie back or net loose hair that may be caught during drilling

Use the correct drilling speed and apply suitable drilling force

Release the drill occasionally, lift the drill, and clear the hole

Take care, when the drill is nearly penetrated through the -

work piece. The "screw in" action can lift up the work piece

Place the work piece firmly in a vise

Drill Press - used with a drill bit to create round holes (> 9.5mm) in a work piece

Safety – Remove jewelry that may be caught during drilling

Tie back or net loose hair that may be caught during drilling

Use the correct drilling speed and apply suitable drilling force

Release the drill occasionally, lift the drill, and clear the hole

Take care, when the drill is nearly penetrated through the -

work piece. The "screw in" action can lift up the work piece

Place the work piece in firmly in a vise or clamp when drilling –

a hole larger the 9.5mm

Dremel Tool – used to drill round holes in printed circuit boards (#70 - #55)

Safety – Tie back or net loose hair that may be caught during drilling

Use the correct drilling speed and apply suitable drilling force

Release the drill occasionally, lift the drill, and clear the hole

Take care, when the drill is nearly penetrated through the -

Printed circuit board. The "screw in" action can lift up the board

Soldering Iron – used to join to metals together to form an electrically –
mechanically secure bond

Safety – Place the iron in a holder located for easy access

Avoid skin contact with the hot tip and heating element

Remove contamination from the tip of the iron with a damp sponge

Never place solder in the mouth