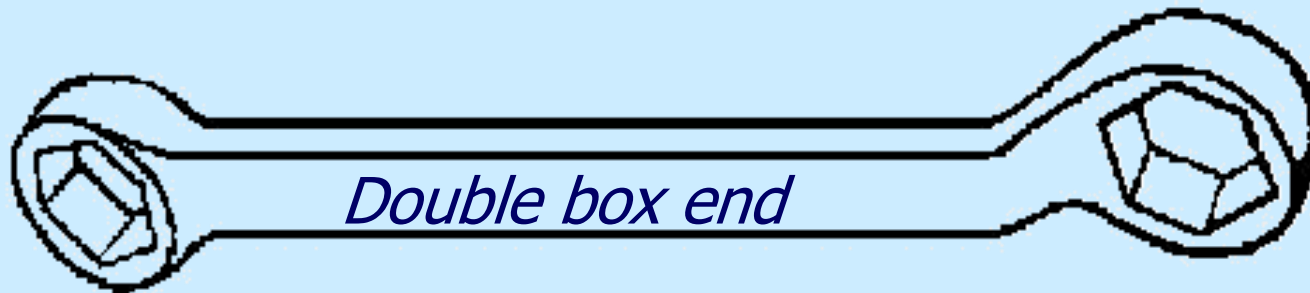
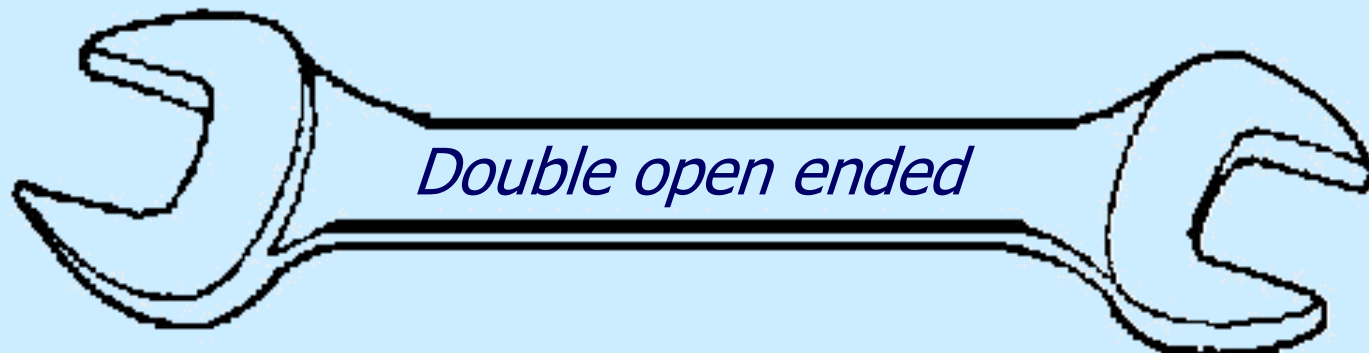
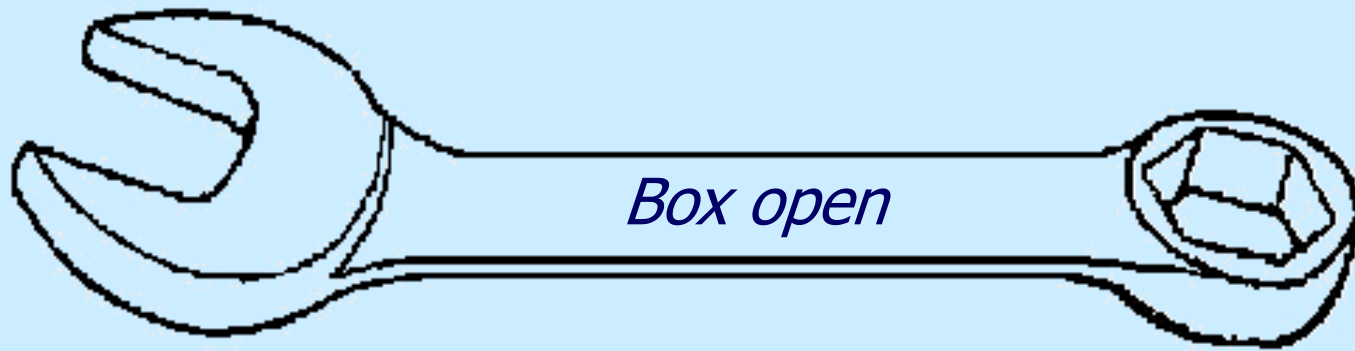




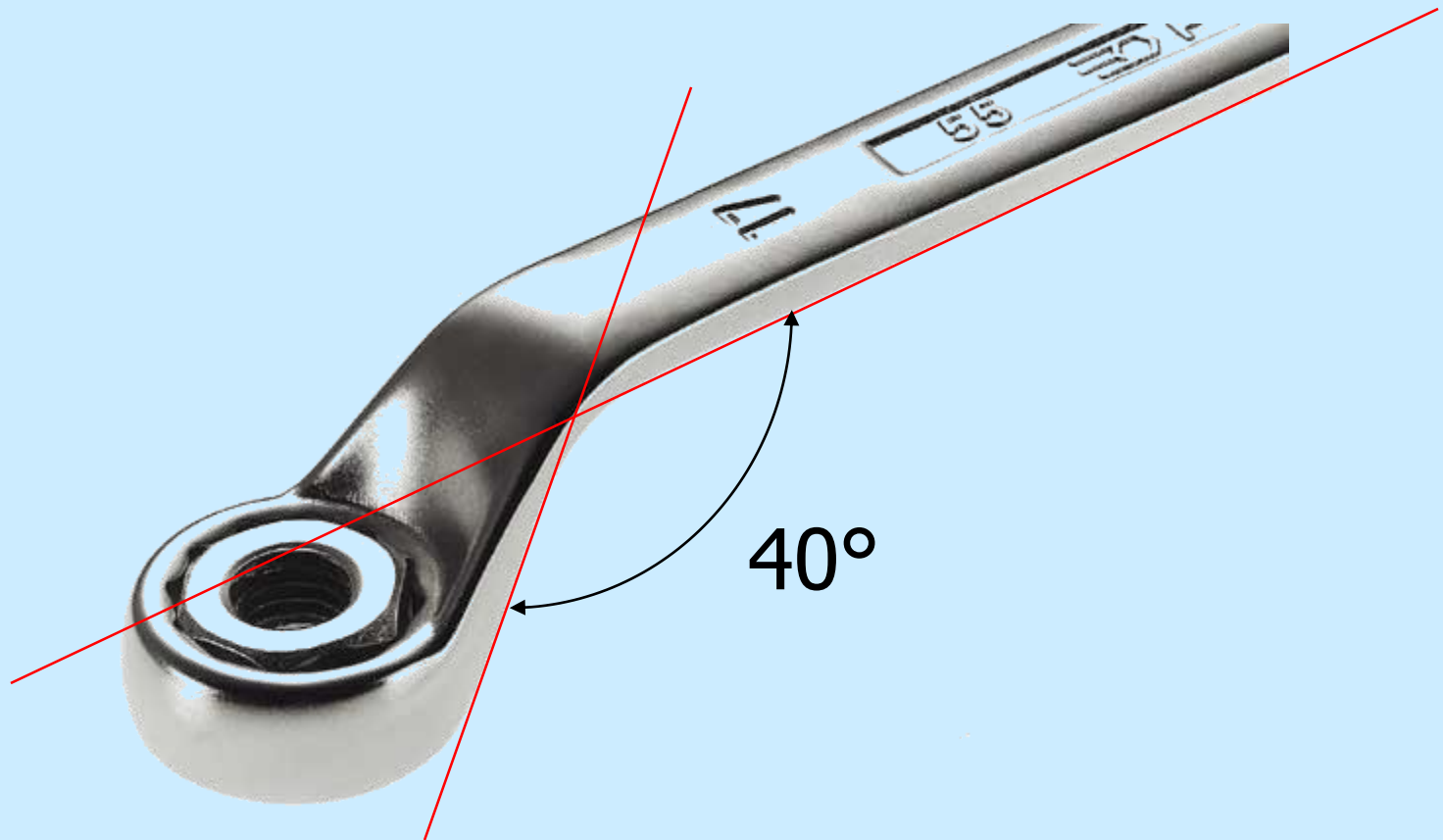
ELECTRICAL WORKSHOP

G ASHOK

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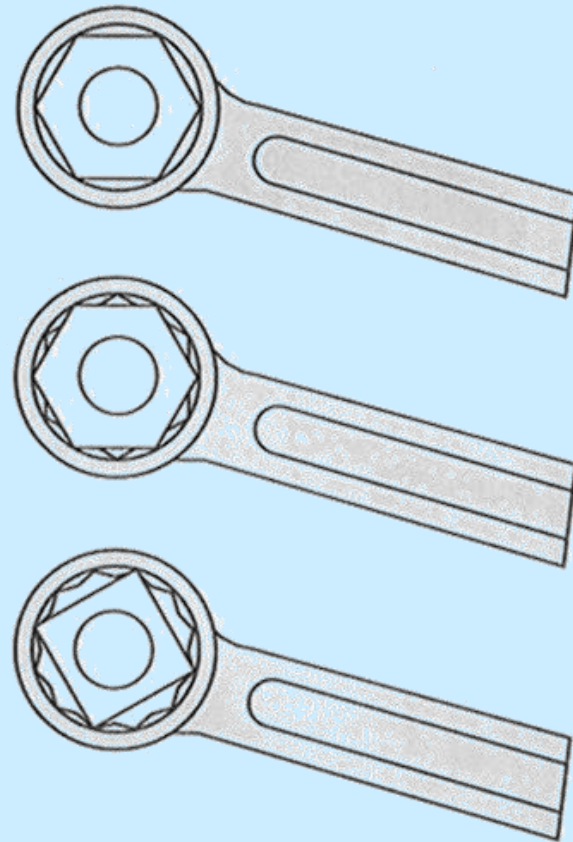


Offset wrench



6 and 12 point ends

- See how much greater flexibility a 12 point box end gives the operator
- 12 point gives the advantage of moving the fastener in 30° degree increments as opposed to 60° for the 6 point



Box-end Wrenches

- Made to grip all sides of nut or bolt head
- Prevents slippage
- Must be slipped over the end of nut or bolt-head
- Box end wrenches will normally have two different sizes per wrench
- Size of wrench refers to nut or bolt head dimensions

Box-end Wrenches

- Available as 6 or 12 point design
- 6 point gives better grip
- 12 point gives more versatility as it is only required to turn 30° to its next available position while 6 point must turn 60°
- Available as ratchet design

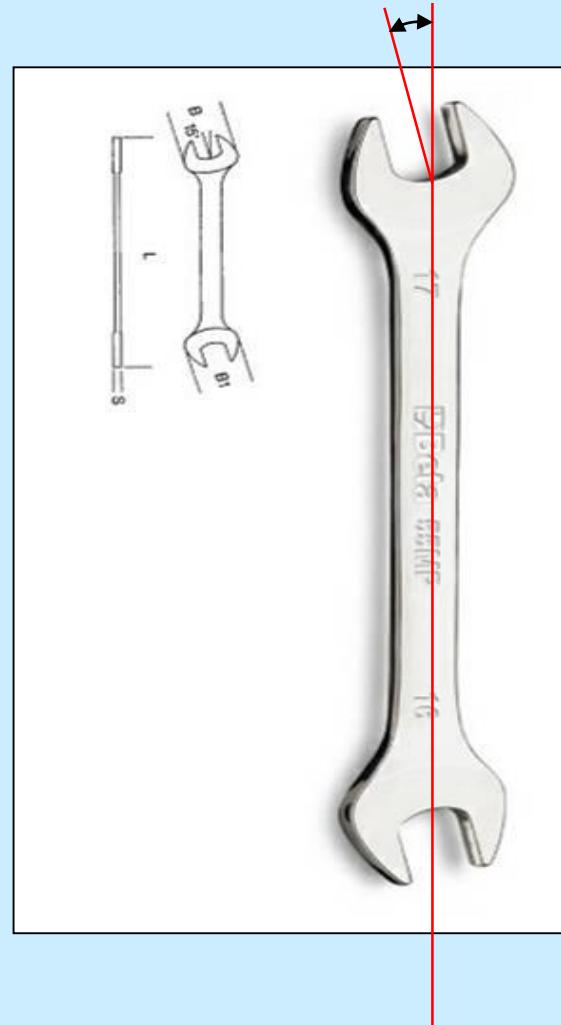


Open-end wrenches

- do not provide as strong a grip as a box-ended wrench
- slip on the nut or bolt head from the side
- two flat surfaces parallel to each other hold onto parallel sides of nut or bolt-head
- tend to slip or round the corners if too much pressure is required
- easier to use most instances

Double Open End

- Wrench angle may vary from 15-80 degrees
- Wrench will have two different sizes listed on the handle





Combination Wrench

- box end on one end and open end on the other
- both ends will usually be the same size
- gives the advantage of wrench that will not slip as easily to start a nut, but one that is easier to slide on and off the nut once it has been loosened



Adjustable Wrench

- (crescent wrench)
- has provision for adjusting the opening for different size nuts or bolt heads
- length of wrench will correspond with jaw capacity
- do not use where components are tight and will require sizeable force to break them free

Adjustable Wrench

- unless jaw is tightened to nut, etc, there is potential for slipping on fastener, which will usually damage fastener
- do not use on brass or soft material

Adjustable Wrench

- for light loads can be used in either direction
- greatest strength is with pressure being applied to side of wrench with fixed jaw
- adjustment mechanism should be cleaned periodically and lightly oiled



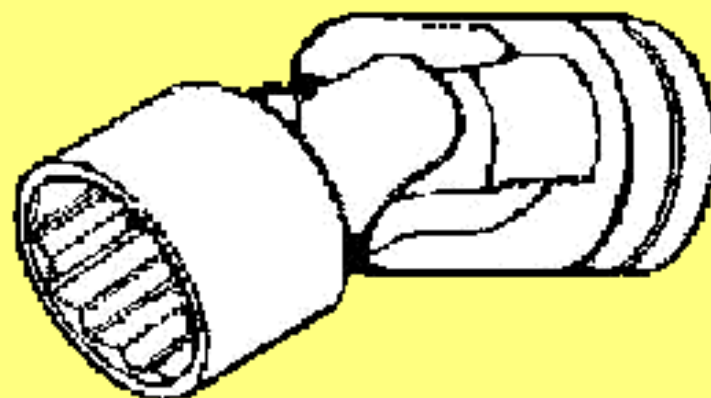
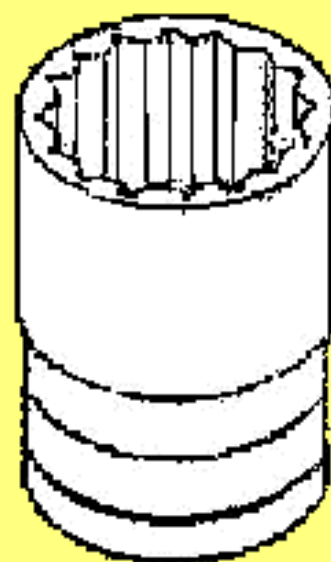
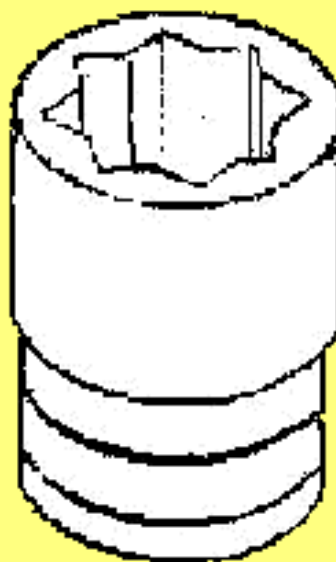
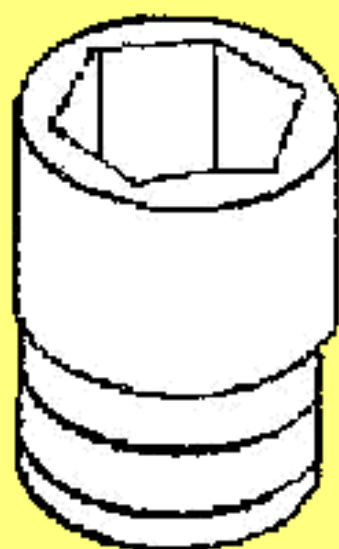
Tubing Wrench

- half way between a box-end and combination wrench
- designed to grab on five of the six sides of a fitting
- especially designed for used on line fittings
- always use for brass and copper fittings
- less chance of damage to fitting



Socket Wrench

- come in a great variety
- designed to fit around the fastener and give force to all sides
- will fit into recesses
- have swivel attachments
- deep sockets where longer number of threads are showing



Socket Wrench

- different number of points available
- 4 and 8 point sockets are designed for 4 sided fasteners
- 6 and 12 point sockets are designed for 6 sided fasteners
- 4 and 6 point sockets will be stronger because of the amount of metal

Socket Wrench

- two types of construction - regular and impact
- impact sockets are designed for use with impact wrenches
- thicker walls and heavier construction allow them to absorb the shock of an impact gun
- impact sockets are not chrome plated as the plating may crack and flake off
- never use regular sockets with impact tool

Socket Wrench

- sockets attach to a handle with a square drive
- common drive sizes range from 1/4" to 3/4"
- drive handle are the same for both metric and imperial
- several types of handles available
- flex handle, ratchet, speed
- many adapters available
- extensions, u-joints etc.





