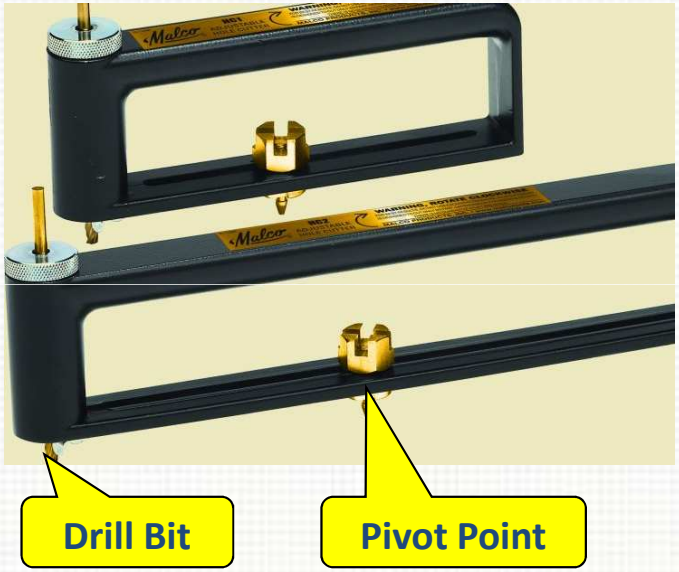
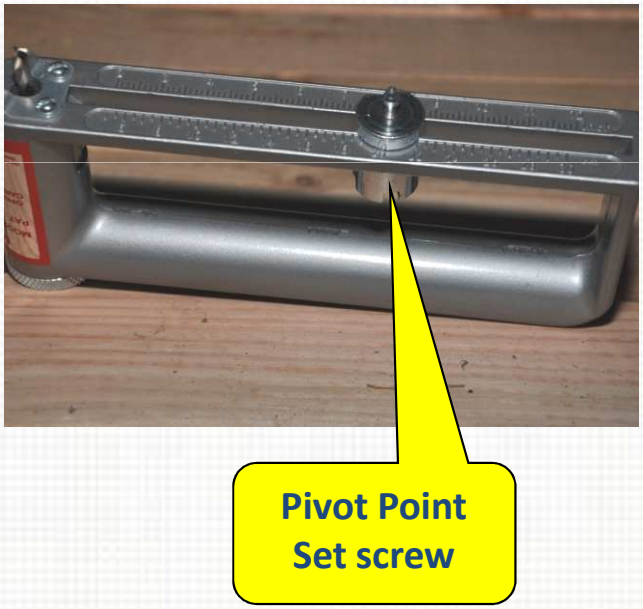
Using The Circle Cutter to Make Access Holes (Part 1)



Circle Cutters are used to cut circles in flat sheet metal. Using circle cutters to make access holes allows duct sealers to gain access to the inside of the duct, and seal the duct from the inside.

Step 1: Attach the Circle cutter drill bit to a drill. Using the drill bit, drill a hole in the center of the circle you will be cutting.



Step 2: Adjust the pivot point set screw to the size hole you will be cutting. Usually this is 12 inches.

Step 3: Place the pivot point into the hole drilled in Step 1, then drill a starting hole along the circumference of the circle you will be cutting.

Using The Circle Cutter to Make Access Holes (Part 2)

Step 4: Push the circle cutter around the intended circle until the hole is entirely cut out.

Inspect the hole for sharp edges before you start sealing.

Step 5: Begin to seal ALL seams by reaching through the access hole. A brush attached to a stick is often useful for sealing seams outside your reach.

Step 6: Close the gap between seams by screwing them together before sealing.

Step 7: Seal all seams with a thick coat of mastic.

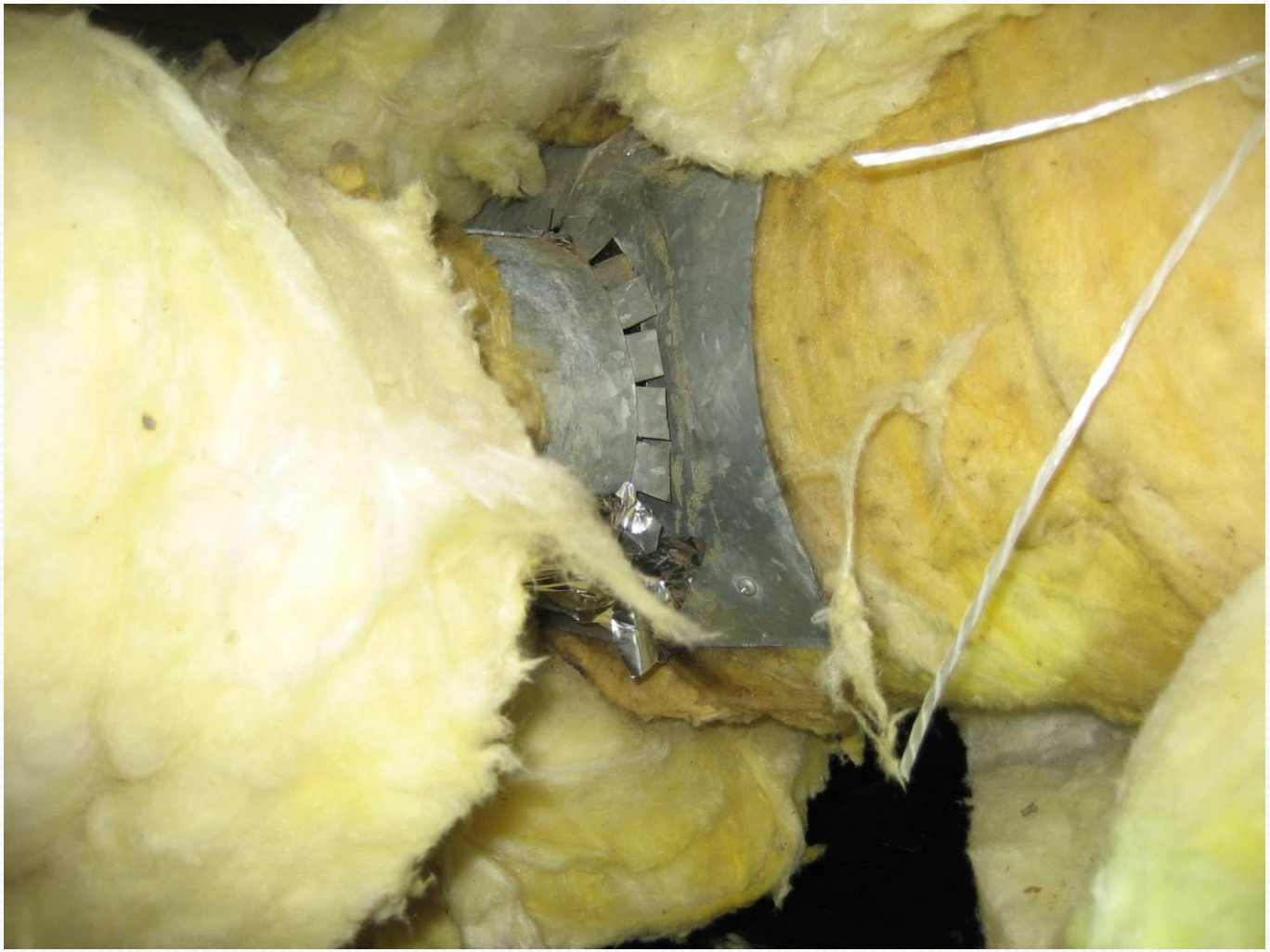
Using The Circle Cutter to Make Access Holes (Part 3)

Step 8: Be sure to reach up and seal the furnace to can connection on all four sides.

Step 9: Apply a thick coat of mastic around the rim of the access hole.

Step 10: Attach a rectangular plate over the hole. The plate should be large enough to cover the hole by at least 2 inches in all directions. Use at least three screws per side to ensure the plate lays flat. To finish the job apply a UL 181 metal tape along all four sides.

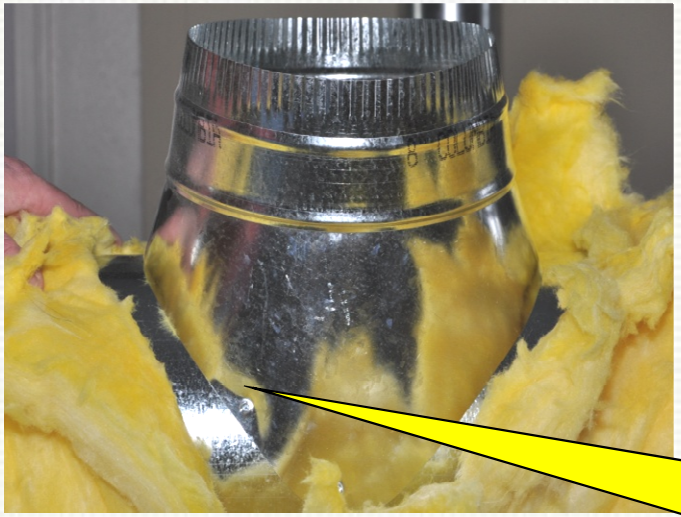
How Would You Seal This?



Sealing Cone Saddle Take Offs (Part 1)

Cone saddle take offs usually were attached to the duct with the insulation pinned between the take off and the duct it's attached to. Because insulation can't stop air from leaking, the insulation must be removed from under the take off before applying the mastic.

Step 1: Unscrew the takeoff and pull the insulation back far enough that the take off can be reattached without pinning the insulation under the take off.



Step 2: Place the take off onto the duct making sure there is no gap between the take off and the duct.

No gaps between the take off and the duct.

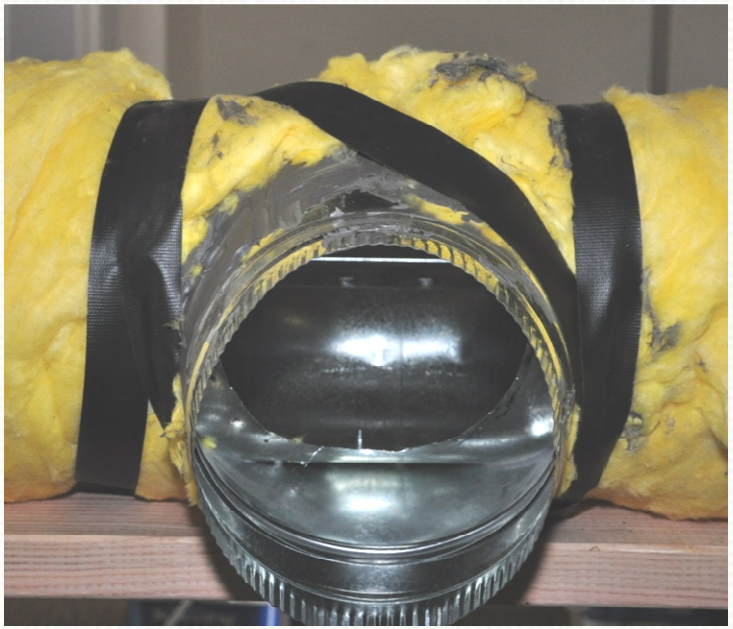
Step 3: Screw the take off back onto the duct making sure it remains flush with the duct.

Step 4: Apply mastic around the joint between the take off and the duct, including the surfaces of the take off and the duct.

Sealing Cone Saddle Take Offs (Part 2)

No insulation gaps on the duct

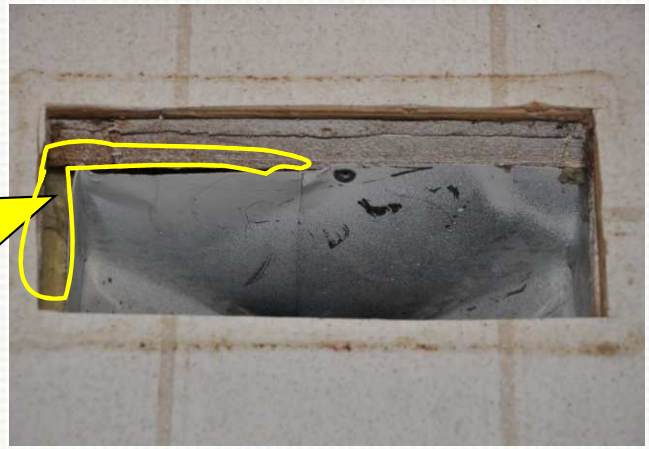
Step 5: Fold the pushed back insulation onto the duct section, using the wet mastic to glue the insulation to the duct work.



Step 6: Reattach the insulation with duct strapping or nylon tie.

Attaching the Boot to The Sub-Floor (Part 1)

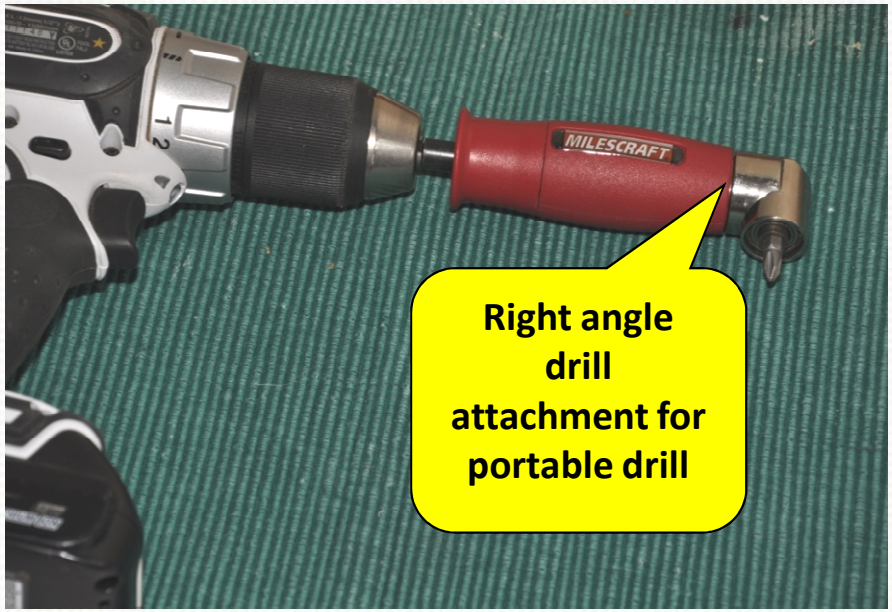
In many homes, the boots were never securely fastened to the sub-floor, leaving large gaps between the boot and the sub floor. In order to fix gaps between the boot and the sub floor roofing nails or sheetrock screws must be driven through the boot into the sub-floor.



Step 1: Using a punch or an awl, make a hole in the boot in order to make nailing the boot easier.

Step 2: Hammer the nail through the boot into the sub-floor using a sheet metal hammer. The side of the hammer is used to drive the nails on the long sides of the boot.

Attaching the Boot to The Sub-Floor (Part 2)



Step 3: Using a right angle drill, drive the screws flush with the boot so that the register fits into the boot after repairs are made.

Step 4: Place the register back into the boot making sure the register lays flat against the floor. If it does not, the nails or screws may need to be driven deeper into the boot.

Using The Crimping Tool

USE: The Crimper Tool is used to fit two sections of the same size metal duct together. One section of duct is “crimped” making its circumference slightly smaller. The smaller section can then be easily fit into the non- crimped section.

Step1: Seat a section of duct fully into the jaws of the crimper. Squeeze the handle tight.

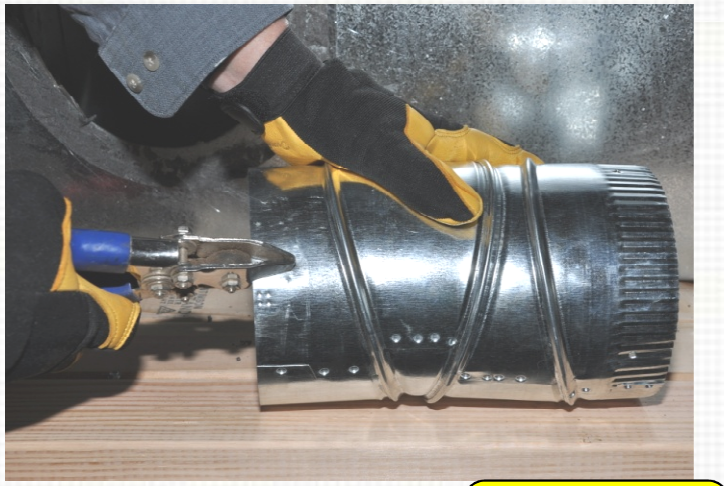
Step 2: Continue all the way around the duct with crimper ensuring complete coverage..

Step 3: Once the duct is fully “crimped” insert the crimped section of duct fully into the uncrimped section.

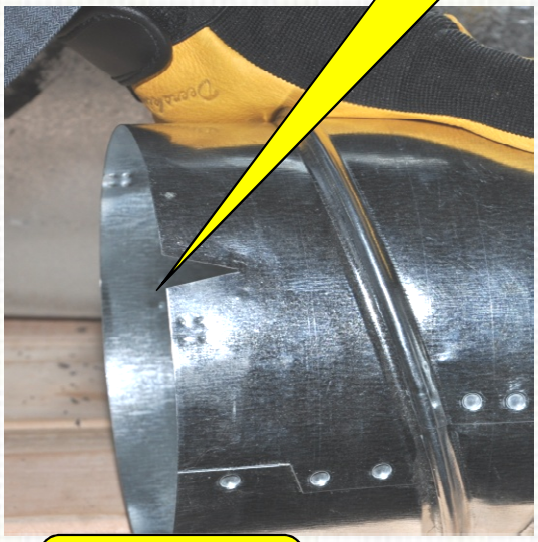
Step 4: Mechanically fasten the two sections together using at least three sheet metal screws equally spaced.

Using the Notcher (Part 1)

The notcher is used to take a triangle "bite" out of the edge of sheet metal. It is used to make start collars in the field from either straight pipe or elbows.



Step1: Insert the sheet metal fully into the jaws of the notcher. Squeeze the handles until a sheet metal triangle drops out.



Step2: Continue around the duct making the notches about 1-2 inches wide, Then fold every other tab back so it projects out at 90 degrees.

Step: 3 Insert the non-folded tabs into the duct opening, push the duct into the opening so the folded tabs are flush with duct.

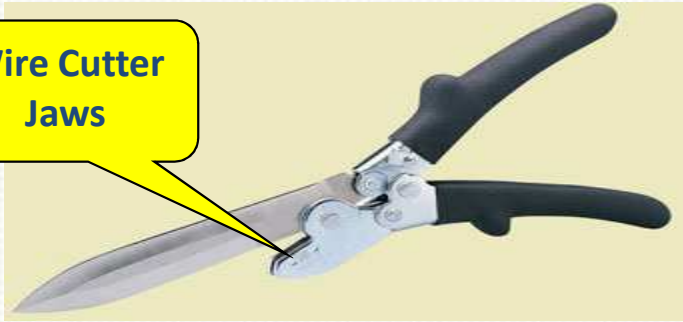
Using the Notcher (Part 2)

Step 4: Reach in to the take off and fold tabs back against the inside of the duct.

Step 5 : Screw the take off in place using at least 4 screws.

Tip: Always use gloves when working with sheet metal

Using The Flex Duct Knife



USE: The duct knife is used to cut flex duct and to cut the spiral wire of the flex duct. The knife has a dual edge blade that allows for cutting in two directions.

Step 1: Puncture the flex duct with the tip of the knife. Be sure to puncture the outer liner, the insulation and the inner liner.

Step 2: Cut around the duct. Be sure to cut through all the layers.

Step 3: Using the wire cutter, cut the wire inside the inner liner. NEVER use snips for this.

Step 4:

Use the knife to cut away any remaining materials. Don't pull the duct apart!

Using The Tensioning Tool and Nylon Ties (Part 1)

USE: Tensioning tools and tension ties are used to attach both the inner and outer liners of flex duct to sheet metal duct components such as start collars and boots.

Step1: Pull back the outer liner and the insulation exposing at least one foot of the inner liner.

Step 2: Pull the inner liner over the sheet metal duct part you are connecting to. Pull the liner up at least two inches.

Using The Tensioning Tool and Nylon Ties (Part 2)

Step 3: Place the tie around the duct (ribs to the inside) making sure the liner is under the tie and hand tighten.

Step 4: Insert the end of the tie into the tensioning tool. Squeeze the handle several times until tie is tight.

Step 5: Pull the duct insulation and the outer liner up over the metal pipe as much as possible.

Step 6: Place and hand tighten a tie around the outer liner. Using the tensioning tool, tightly secure the outer liner.