PVC Pipe Repair

Broken or damaged PVC pipe is an occasional reality in homes with underground irrigation (sprinkler) systems. Yard signs, landscaping stakes and shoveling holes in the yard can really do a number on fragile plastic pipe.

It can also happen inside or outside other homes where PVC pipe is used. Sometimes a pipe in the wall is cut or pierced by sawing, drilling or nailing.

In-ground and inside the house we find three common sizes off PVC pipe for water supply and irrigation: ½", ¾" and 1". Each is likely to be broken by digging or piercing with a sharp object in the ground or behind walls.

Repair is somewhat tricky because the pipe is usually fixed in space and not particularly flexible so that it is difficult or impossible to insert a solvent weld coupling. Instead, an slip-on fitting or expansion coupling is used.

This presentation will focus on smaller- diameter PVC pipe in the ground. Repairs above ground or indoors will use similar methods.

Larger PVC pipe such as for drains and sewer will need to be repaired in a different manner. Here it may be best to consult a plumber.

Metallic pipe can also be damaged but isn't as fragile so doesn't fail as often. Repairs to metal pipe can be accomplished in a similar manner but are not discussed here.

Repair steps are given on the following pages.

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1. Locate the broken pipe by observation. Gushing water usually erodes the soil around the break and partially uncovers itself.

Shut off water supply or irrigation controller to prevent water from interfering with repair efforts.

2. Carefully dig soil above and around the pipe. A narrow trenching shovel is ideal.

Cut tree and shrub roots from the area as needed to excavate and have clear working room.

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3. Uncovering the pipe reveals the damage. Here the sharp spike of a realty sign stabbed the pipe and caused a break at a coupling.

4. Once down to the pipe, carefully dig with a hand trowel to clear the area around and below the pipe.

Remove soil so that the repair coupling can move freely around the pipe. Also expose enough pipe for the length of the coupling beyond the damaged area.

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5. Cut the damaged pipe section out. Make sure any cracked sections are removed.

This is the time to determine the pipe size so the proper repair coupling can be purchased (compression type is shown to right). Sometimes the size is marked on the pipe. You can always take the cut section to the store for proper sizing.

6. Check the gap against the compression repair coupling. The gap is ideally very narrow. If it is too wide for the coupling to span with complete compression (as is the case in the photo below, one side must be lengthened.

Gap is too wide for coupling

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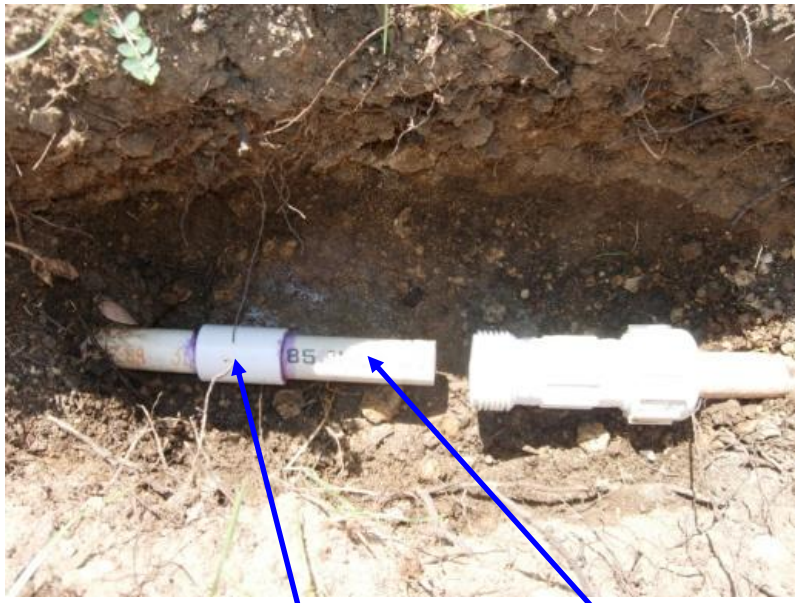
7. In case the gap is too wide for proper repair coupling span, add a stub of pipe to one side or the other.



Solvent weld socket coupling and pipe stub

8. Clean both ends of pipe with water and a rag. The rubber gaskets of a compression-type repair coupling need clean, smooth surfaces to seal completely.

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9. Slide one end of the repair coupling over the pipe. Slide the other end coupling nut and compression gasket over the other pipe.

If gap is very narrow, the pipes will need to be carefully bent away from each other for the coupling to be installed.

10. Once the ends are on the pipes and lined up, simply screw the coupling together, centered over the gap. Hand tight is usually adequate but if there are leaks the coupling nuts can be tightened with large pliers. In this case, make sure to restrain the pipes from twisting or they could break.

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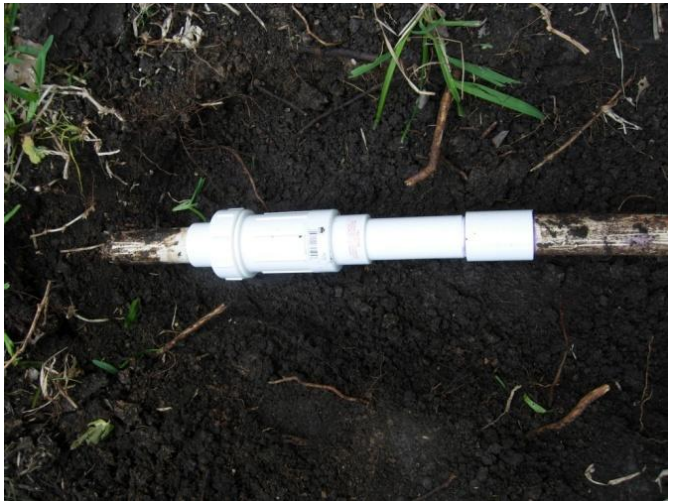
11. Turn water back on or run the irrigation zone to make sure there are no more leaks and that the coupling is tight.

Once all looks good, cover the repaired section with soil and sod or other landscaping. You're done!

An **alternative repair coupling** is shown at right. This type extends between two sections of pipe and is good for wider gaps without lengthening per step 7.

However, this coupler requires solvent welding (not difficult, but requires primer, cement and some knowledge).

The simpler compression coupling is easier to use for most homeowners.



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Yet another alternative repair is shown below. This is useful only where the damage is limited to a small hole. Less excavation is required for this repair as well.

Clean the area around the hole, prime it and cement a slip-on saddle fitting directly over the hole. Once it is set you can screw a pipe plug into the threaded fitting and the repair should be secure as long as the saddle clamp completely seals around the damaged area.