

Make Your Own Bucket Scope

You Will Need:

- clean 5 gallon black bucket (OR black flat spray paint)
- 1/8" Plexiglas, pre-cut to proper size (see step two)
- 100% silicone sealant (clear)
- three stainless steel, #8-32 machine screws (1/2" long) with #8-32 nuts
- six stainless steel #8 washers
- saber saw, jig saw, or other appropriate tool
- electric drill and 3/16" drill bit as well as a large (ideally 1/2") drill bit.



Directions

1. If your bucket scope is not already black, paint the inside of the bucket black to prevent glare and light filtering through the material. Let dry.
2. Find the diameter of the bottom of the bucket. The Plexiglas when placed over the bottom of the bucket should fit almost perfectly within the lip of the bucket bottom. Usually, measuring the bucket diameter and subtracting 1/8" will provide the correct size.
3. Draw a circle on the bottom of the bucket that has a diameter that is at least 1 1/4" less than the diameter of the Plexiglas. This is the area that will be cut out of the bottom of the bucket to make the viewing window. If you plan to make a large number of buckets, it will be useful to create a template out of cardboard or some other stiff material for marking the circle.
4. Using the largest drill bit you have, drill a starting hole just inside the drawn circle. With the saw, cut the circle out of the bottom of the bucket. (Figure 1)
5. Center the Plexiglas over the hole in the bucket – the hole should be completely covered, as well as the majority of the bucket lip.
6. Holding the Plexiglas in place, mark three points of relatively equal distance from each other around the edge of the Plexiglas circle. Use the 3/16" drill bit to make a hole in the Plexiglas and bucket at one of these points. (Figure 2) [Be careful to avoid cracking the Plexiglas. You may wish to drill the three holes in the Plexiglas and then place that on the bucket and use those holes as the guide for the holes in the bucket.] Place one of the bolts in the hole.
7. Use the first bolt to hold the Plexiglas in place – the Plexiglas should be loosely fastened with the screw & nut assembly. Drill the second hole and place the second bolt in this hole. Repeat procedure with the third hole.



Figure 1



Figure 2

8. There should be protective plastic on the Plexiglas. Remove the Plexiglas from the bucket and, being very careful to keep the right side up as well as the orientation of the holes correct, peel off the protective plastic.
9. Make a continuous ring of silicone – roughly ¼” wide – along the edge of the bucket’s lip as well as around the screw holes. (Figure 3)
10. Seat the Plexiglas back onto the bucket and fit the screws (w/ washers) through the holes. If you maintained the correct alignment this should be relatively easy. Attach the washer and nut assembly to the bolts and tighten (Figure 4), forming a continuous ring of silicone between the bucket and the glass.
11. Tighten the nuts firmly (two wrenches may be necessary to do this). Do not over-tighten the nuts – this may cause the Plexiglas to crack.
12. Allow the silicone to cure for the amount of time directed (usually 24-48 hours). Check for leaks (figure 5). The bucket scope is now ready for use!



Figure 3



Figure 4



Figure 5