

## HOW TO MAKE A LOW COST MUFFLER USING OFF-THE-SHELF PARTS

Genuine mufflers for stationary engines are becoming harder to source and if they can be found, cost too much or are damaged in some way that they require work to bring them up to working standard. There are reproduction mufflers available on EBay, from private sellers or overseas but they cost the 'earth' to obtain.

Over the years that I have been restoring stationary engines, the cost of buying mufflers has become quite high, so an alternative was required. I have made mufflers from aluminium castings and also using steel pipe and welding bafflers and ends and a pipe so they can be screwed into the head of the engine

However, a simpler muffler was required that did not look out of place and worked satisfactorily. Observing other engine restorers' what they had come up with and my own knowledge, the following may help you make a cheap and easily assembled muffler.

The picture below shows the components that you require for making a 75mm and 100mm muffler. (See Picture. M1)



Picture. M1

These parts are all off the shelf. The ends are pipe post caps; the pipe is about 150 mm long and a pipe cap.

**Costs:**

**75mm** x 2 off pipe caps \$12; ½" pipe x 150 long \$3.50; ½ " pipe cap \$2.30. Total \$17.80

**100mm** x 2 off pipe caps \$16; ¾" pipe x 150 long \$4.60; ¾" pipe cap \$3.40; Total \$24.00

Picture. M2

To start, one pipe cap of each size will need to be drilled to take the pipe. If using a drill press to drill the hole, first mark the centre and centre pop. If using a lathe this is not required. Drill the hole using the right size hole saw for the pipe required.

(See Picture. M2)



Picture. M3



The second cap has the gas escape holes drilled into it. Mark out between 8 to 12 holes on the formed raised ring on the cap, centre pop all holes and drill out on the drill press. Use a 1/4" drill for the small cap and 5/16" for the larger cap. The picture left shows both caps after holes drilled. Chamfer the holes on both sides. (See Picture. M3)

Next screw the pipe cap onto the pipe and a drill series of holes into the pipe as shown below. Use ¼" drill for the smaller pipe and 5/16" drill for the larger pipe. Tack weld the cap to the pipe.

Next weld or braze the pipe onto the 75mm or 100mm cap with the pipe cap protruding beyond the flat face about half the cap depth. See picture below. (See Picture. M4)



**Picture. M4**

**Picture. M5**



Put the two caps together using a 'G' clamp and weld or braze the two half's together.

When completed, clean up using a angle grinder and polish to remove all grinding marks. Clean properly and undercoat with an etching paint and recoat using a high temperature engine black mat paint.

Muffler now is finished and ready for use. It may not be a genuine part, and as such, judges at rallies will not award you any prizes, but at least you know that you have done the best you can in restoring the engine and showing it to the public.

The larger muffler can have a 25mm pipe if required. The finished unpainted mufflers are shown. (See Picture. M5)

I have a 25mm on my Lister D and it works and looks great!!

Warwick Ward 2013