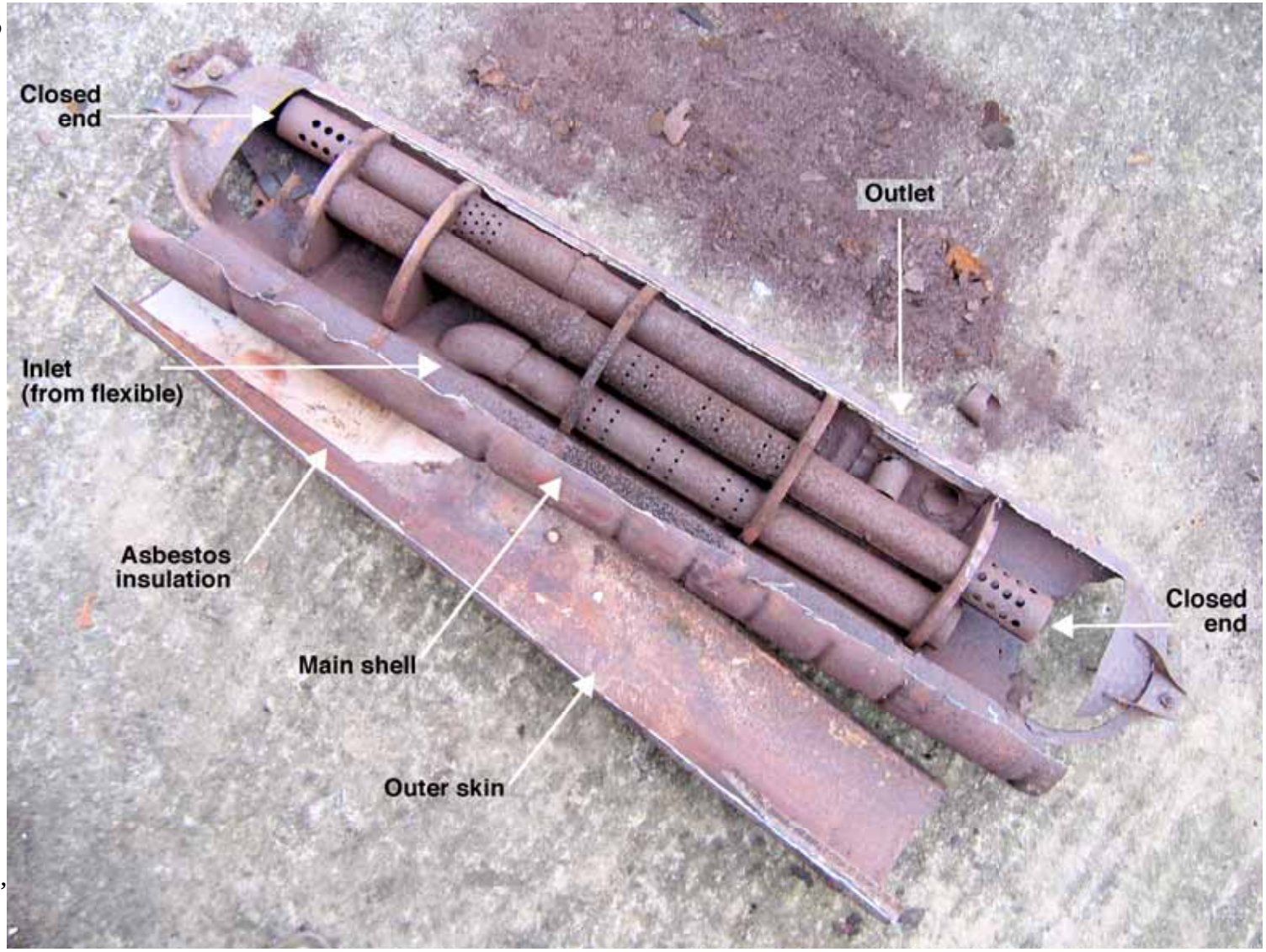
Silencers for 5 Bearing cars

This I take to be the standard 5-bearing, twin-exhaust silencer, part number DX 183-0 as fitted to all 1985 cc cars, and to 2175 cc cars pre 9/68. There is a different part number, DX 182-1, for post September 1968 DX and DJ types with the 2,175cc engine. In the last parts list DX 183-0 no longer gets a mention, even for 1,985 cc cars, so I guess that after June 1971 the big-engine silencer became universal.

I've opened up a DX 183-0 to see what is inside and how it is made. The basic structure is of two pressed half-shells spot-welded over a series of bulkheads. through which three tubes are threaded. Inlet and outlet pipes are welded to pressed-through holes in the lower half-shell, which is locally reinforced with small rectangles of steel on the inside. A secondary skin is spot-welded to the outside, with a thin layer of asbestos between it and the main shell. Gaps are left in this outer shell around the inlet and outlet pipes.

The internal tubes are formed from sheet, rolled and arc-welded together at a few points along their length.



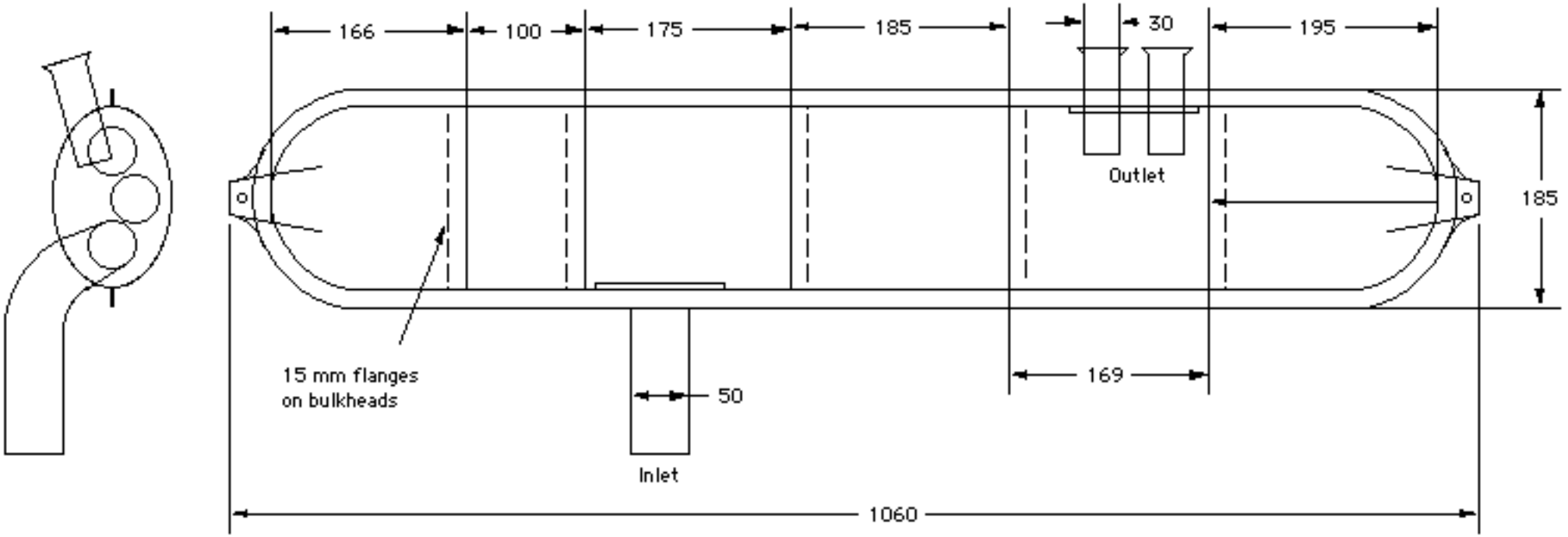
I found no sign of any wadding. The design is based on a number of communicating chambers and differently sized (8 mm and 2.5 mm) holes in the three 40 mm tubes. (One chamber, the second from the left in the photo, does not communicate with any of the tubes). There are three intentional discontinuities, at the ends of the first, second and third tubes. The outlet pipes are particularly restrictive; at 30 mm diameter they are 40% smaller in combined area than the 50 mm inlet pipe, and they protrude into the casing in such a way as to cause gas entering them to be turbulent and obstructed. One of these intruding pipes has rusted free, leaving a somewhat less obstructive path. This could be further improved by forming a radius of 3 - 6 mm where the outer wall blends into the outlet pipe. I don't think this would have an important effect on the noise output of the silencer.

Here you see the outlet pipe, which is only 20 mm clear of the central resonator tube.

In the later silencer this weakness is a great deal worse: As you see the outlet pipes are also extended inwards, but now the inboard end lies much closer to the pipe inside. It is possible to reach with a finger only around half of the circumference of the outlet pipe.

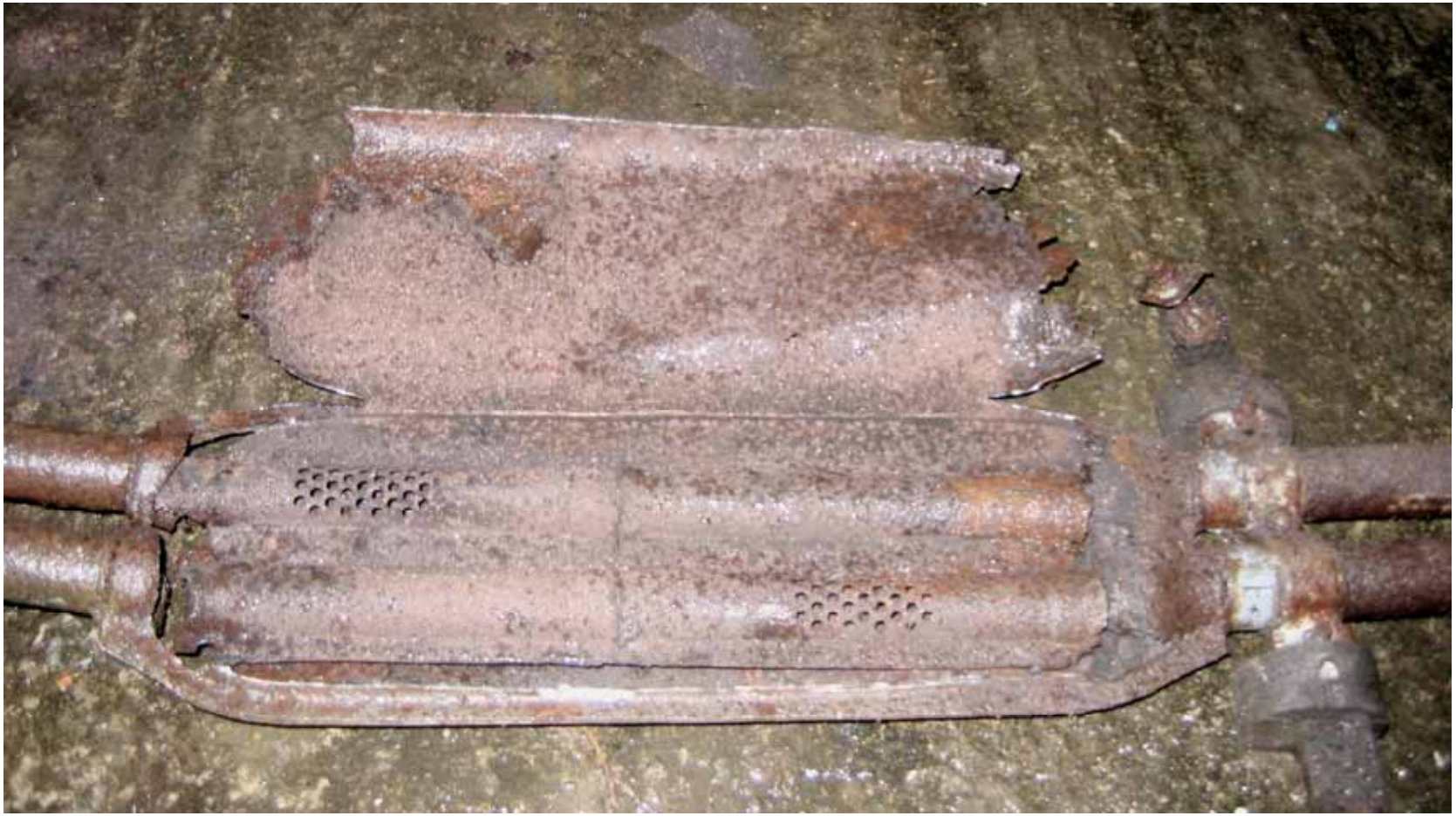
I think the later silencer, DX 182-1 is the one shown beside the opened early one here - it is distinguishable by a straight edge one one side of the curved end, and it is around 5 mm narrower. I've not yet found one of these to open ...

Here are the main dimensions of silencer DX183-0



Rear silencer DX 18-2 C

(DX 183-2 B, DX 182-0 and DX 182-0 A are similar)



Here is the tail silencer, as fitted to all but the 1985 cc cars (by the end of production they were fitted to all cars). Again I'm pretty sure it contains no wadding - I have a NOS one which does not sound 'dead' when tapped. This silencer comprises a pair of tubes, each perforated, but one at the upstream end, the other at the downstream end. Only archaeological evidence of it remains, but there was once a bulkhead across the middle, so that the box essentially amounted to two small expansion chambers. Its purpose will have been to remove the high-frequency component of the exhaust noise. I would guess that filling it with wadding might be beneficial as to silence, and possibly also as to flow. The theory is that the flexing of the filling converts some of the acoustic energy in the exhaust into thermal energy in the wadding.

Perhaps of interest, the internal tubes are made from two pieces of sheet which have been perforated (5 mm holes), and were then pressed into two shallow '_n_n_' forms, with their ends of greater diameter than the main run, to generate a socket into which the inlet and outlet pipes will later fit. The two pieces are not the same, but handed, as the perforations or the lack of them on the upper and lower parts align. The partition in the centre was in two parts, each welded to its respective half-tube piece before the half-tubes were spot-welded together. The partition does not make a seal against the tubes. The skin was then fitted over the core. Again, two pressed halves, spot-welded along their edges and to the socket-ends of the core. The half-way partition is also welded the outer shell (essential to avoid rattling).