



'Seat & Lid'

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Fig 1 shows a valve chamber where the lid was stolen and presumably sold for scrap. This problem can be overcome by installing a concrete 'slab-top lid', so long as the manhole is not too large, as in this case a hand lid would be too heavy to lift out. The solution in the case of a large manhole is to provide a 'seat & lid' combination, as in fig 2, where the seat is large enough to overlap the manhole on all sides, and at the same time provide a 'seat' for smaller and lighter hand lid that *can* be lifted manually out of the seat (see fig 7), allowing human access for such tasks as cleaning, inspections & minor maintenance.

Occasionally however, it may be necessary to replace a large item such as a valve or pipe, and for this the 'seat' must be removable, to return to the larger original manhole. This is achieved by removing the bolts of the brackets that are installed to connect the seat to the walls of the valve-chamber – see fig 3. (Note that these brackets are required to ensure that no attempt to push/pull the seat off the roof-slab will succeed). With the brackets removed, the seat may be removed by means of attaching slings to the to the lifting points indicated in figure 2.

The removal of the hand lid is described in the sequence illustrated in fig 4 through 7. In fig 4, the magnet at the one end of the opening tool is used to lift out the steel plug/seal from the access tube. This opens the way for the opening tool to be inserted into the access tube (see fig 5), until such time as the tool's pinion engages the rack-levers below. Now upon turning the tool (see fig 6), the rack levers will go from their locked/extended position (indicated in fig 9), to their unlocked/retracted position (indicated in fig 8). The lid may now be lifted out manually – see fig 7.

It may be seen that the lid is only half the depth of the seat, but what it lacks in thickness it makes up for in reinforcing, as indicated in figure 8, where the volume of reinforcing exceeds 5% (vol/vol), making the lid extremely strong and chisel resistant.

Note that other lid designs are also available, depending on the application, as well as various concrete doors and vaults for securing pump stations, sub-stations, transformers, borehole installations, stand alone control panels - see www.damsforafrica.com. Products can be made to any size, all from 60MPa with up to 5% reinforcing.

