

SAFE WORKING METHODS  
REMOVING AND REPLACING  
MANHOLE COVERS

1. GENERAL

1.01 This practice describes the removal and replacement of manhole covers with the standard manhole cover hooks. The wide variety of manhole covers in service precludes an illustration of every type.

1.02 In general, however, the observation of these safety principles should promote the safe handling of any type of cover.

2. PRECAUTIONS

2.01 Before removing a manhole cover, be sure that the proper safe guards and warning devices have been placed, to adequately protect the location against accidents. Also conduct the prescribed gas detection tests.

2.02 Never leave an open manhole unattended for even a short period. Always replace the cover before removing guards and warning devices.

2.03 Manhole covers are heavy, and the method of handling described in this practice should be carefully followed to avoid injury. When deemed necessary two men may be utilized in removing manhole covers.

2.04 If snow, ice or other surface conditions make footing around the manhole opening insecure, clear the working area with a shovel or broom. If this is impractical, scatter ashes, sand, or other suitable material around the opening to ensure firm footing.

2.05 Do not use an open flame, or salt to thaw ice around or over a cover. An open flame is hazardous because of the possibility of an explosion should a combustible mixture be present in the manhole. Salt solution dripping into the manhole may contribute to cable corrosion. To remove ice use only a hardened bronze cold chisel, never a steel chisel.

2.06 Because of the hazard of sparks never strike a seated cover directly with a steel or iron implement. To loosen a cover that will not lift readily, first be sure the cover is not locked by a locking bolt. Then place a block of wood on the cover near the rim and strike it with a heavy hammer. Do this at several points

around the circumference while the other workman pries the cover with a bar or a manhole hook inserted in one of the hook holes.

2.07 In moving covers always use manhole hooks; never place any part of the hands under a cover for the purpose of moving it. All lifting should be done with the leg and arm muscles, not with the back. Pay particular attention to the position of the feet, always placing them so as to be in the clear, should the cover slip or drop.

2.08 Ordinarily the cover should be left near the opening, if it will not be a hazard to workmen, pedestrians, or vehicles. Otherwise, skid the cover to a safe location, and provide warning signs if necessary.

3. REMOVING MANHOLE COVERS

3.01 Covers may be removed by two men, using manhole hooks as described in the following paragraphs. Where the cover is in the street or highway use the hook holes on the side away from the traffic. If this is not possible, move the cover in line with the direction of traffic. In moving the cover in the direction of traffic, should a manhole hook slip, the cover will tend to fall away from traffic rather than toward it.

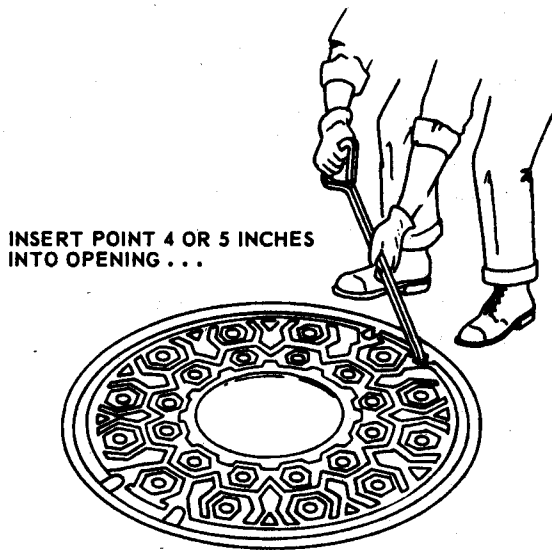
Round Covers

3.02 Round manhole covers furnished with hook holes in the rim are removed as follows:

(1) Insert the tip of the manhole hook through the hole so that it passes the outer reinforcing rib of the cover. See Figure 1a. The hook can then be turned and raised to engage the rib. See Figure 1b.

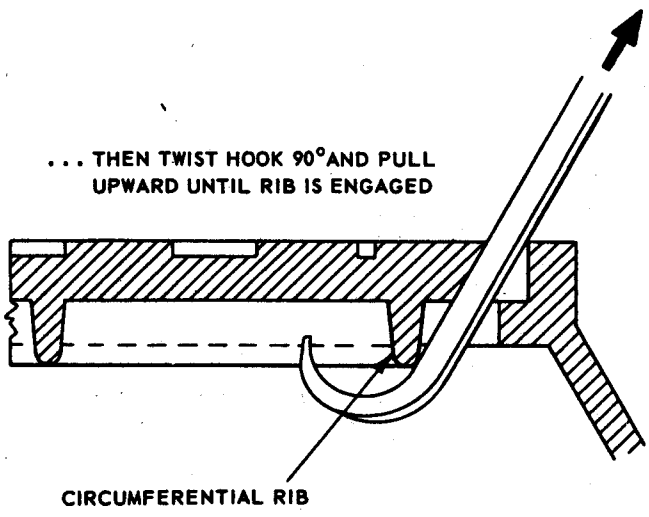
(2) If the hook holes are too small to allow the manhole hooks to enter far enough to engage the reinforcing rib, use the point of one hook to pry the cover at the hook hole and raise it while the second hook is entered far enough to engage the rib. Hold the cover with this hook while the first hook is being engaged. Be sure that both hooks are engaged before starting to pull. See Figure 2.

(3) The cover should then be unseated ap-



INSERT POINT 4 OR 5 INCHES INTO OPENING . . .

Figure 1a. Placing Hook.



. . . THEN TWIST HOOK 90° AND PULL UPWARD UNTIL RIB IS ENGAGED

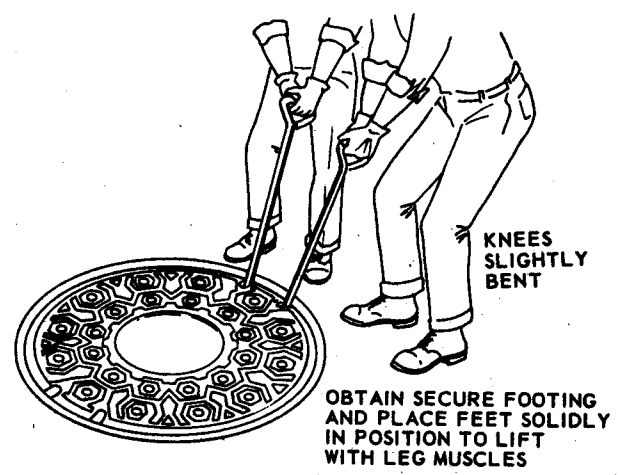
CIRCUMFERENTIAL RIB

Figure 1b. Hook Engaged.

Figure 1. Inserting Manhole Hook.

proximately 4 inches by pulling on the manhole hook. See Figure 3.

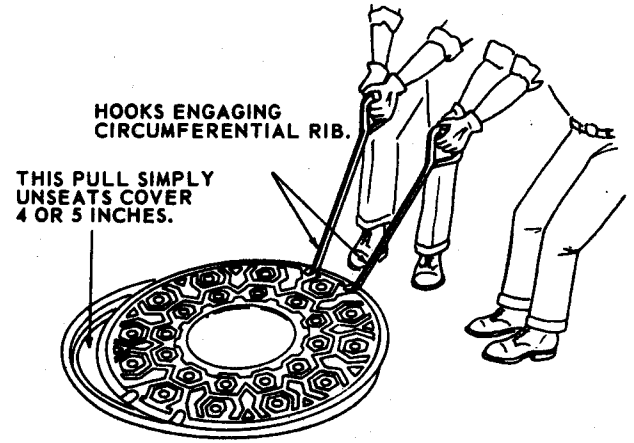
- (4) The men then assume safe positions so that the cover can be skidded clear of the frame. See Figure 4. Both men then pull the cover to a location that will not interfere with work operations or be a hazard to vehicular or pedestrian traffic. The hooks should be placed in a safe location. See Figure 4.



KNEES SLIGHTLY BENT

OBTAIN SECURE FOOTING AND PLACE FEET SOLIDLY IN POSITION TO LIFT WITH LEG MUSCLES

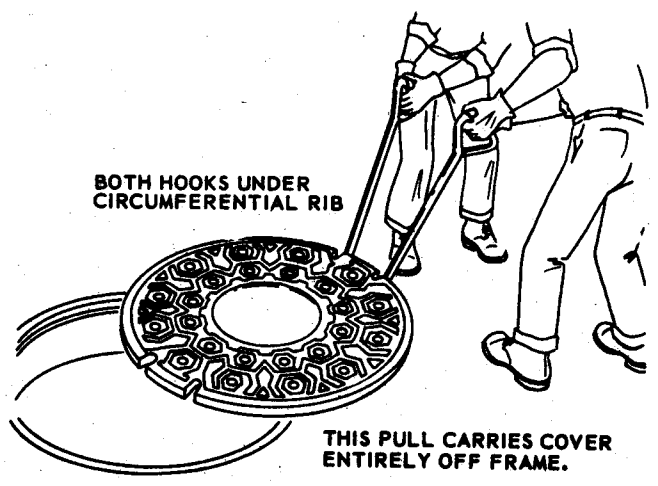
Figure 2. Pulling Cover with Small Holes.



HOOKS ENGAGING CIRCUMFERENTIAL RIB.

THIS PULL SIMPLY UNSEATS COVER 4 OR 5 INCHES.

Figure 3. Unseating Manhole Cover.



BOTH HOOKS UNDER CIRCUMFERENTIAL RIB

THIS PULL CARRIES COVER ENTIRELY OFF FRAME.

Figure 4. Pulling Cover to a Safe Location.

3.03 Some round covers have lifting holes in the surfaces of the covers instead of notched holes in the rims. To remove this type cover, insert the manhole hooks in the holes and lift to unseat the cover about 4 inches. One hook is then engaged under the reinforcing rib on the under side of the cover to hold it unseated. Thereafter, proceed as covered in paragraph 3.02, step 4. See Figure 5.

#### Rectangular Covers

3.04 In removing rectangular covers, the two workmen should insert their hooks in the vent holes located along the narrow edge of the cover, on the side toward which they wish to pull the cover. Both workmen then lift and pull slightly toward themselves to unseat the cover. Having unseated the cover they then pull from the narrow side and remove the cover from the frame. In removing a rectangular cover, care should be taken to keep the edges of the cover parallel to the sides of the frame as the cover slides along the frame seat. Otherwise, the cover may drop into the manhole. See Figure 6.

#### 4. REPLACING MANHOLE COVERS

4.01 Remove all loose material from the frame seat, and from the sides and seat of the cover so that the cover will rest evenly on the frame.

#### Round Covers

4.02 Replace the cover as follows:

- (1) Stand slightly over the cover while facing approximately at right angles to the direction the cover is to be moved with the feet spread well apart.
- (2) Place the point of the manhole hook under the rim of the cover, lift slightly and swing the cover toward the manhole while the cover pivots on its opposite edge. See Figure 7.
- (3) Change to the opposite side and repeat the procedure until the cover rests practically over the opening at the manhole. See Figure 8.
- (4) Place the hook under the rim of the cover at the point farthest from the opening and lift until the cover slides into place.

4.03 If the cover has to be moved several feet, it can be skidded along the opening as shown in Figure 9.

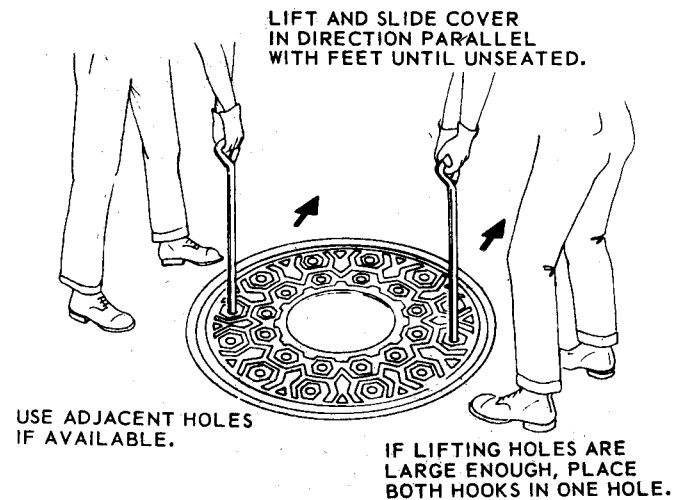


Figure 5. Pulling Cover with Lifting Holes in Surface.

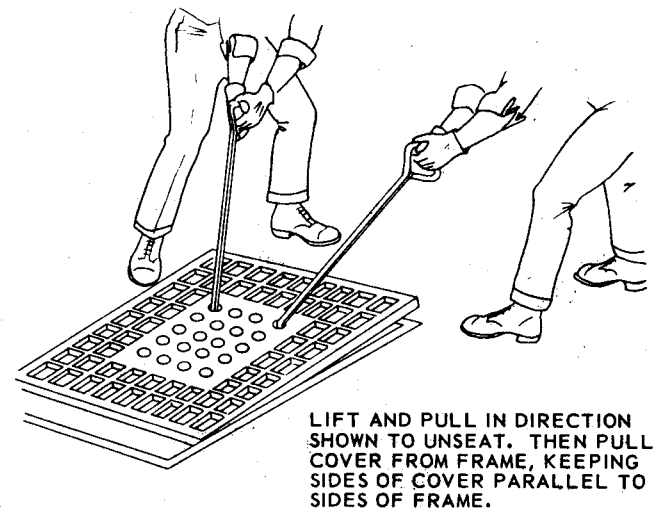


Figure 6. Removing Rectangular Cover.

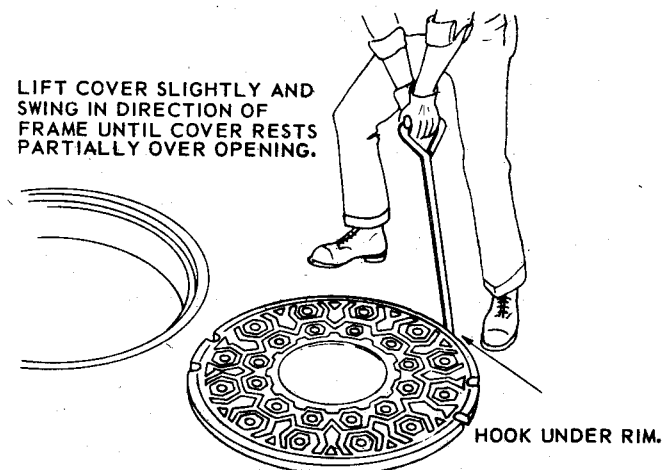


Figure 7. Swinging Cover Towards Manhole.

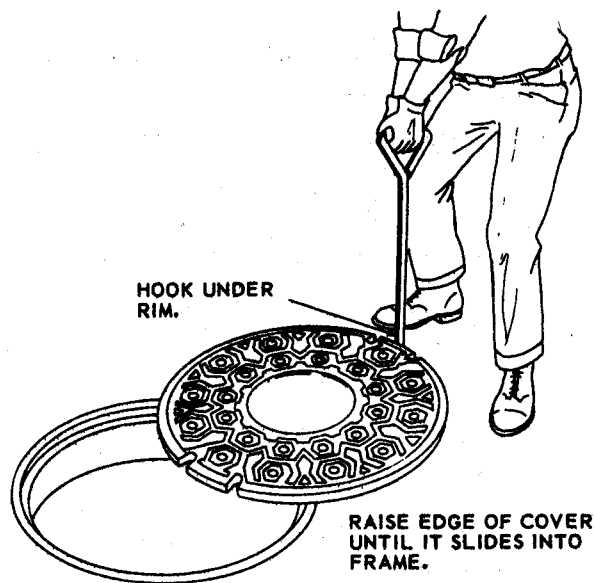


Figure 8. Cover Partially Over Hole.



Figure 9. Moving Cover Along Ground.

Rectangular Covers

4.04 To replace a rectangular cover proceed as follows:

- (1) Place manhole hooks in the vent holes along the narrow edge of the cover, on the side in the direction in which the cover is to be moved.
- (2) Pull the cover to the edge of the opening with the long sides of the cover ap-

proximately in line with the long sides of the frame.

- (3) The workmen should take positions, one on each side of the frame, and carefully work the forward end of the cover into the frame seat. Slide the cover along the frame seat while keeping the cover parallel to the sides of the frame. See Figure 10.
- (4) Both men must pull evenly on the cover until it is properly seated.

NOTE: Extreme care should be exercised in replacing a rectangular cover so that it does not twist, as it can easily fall into the manhole.

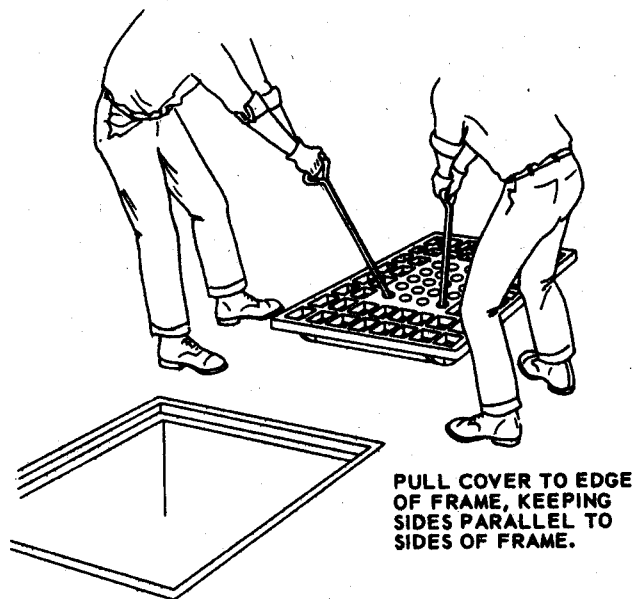


Figure 10. Replacing a Rectangular Cover.