

**SECTION 43****ESTIMATING THE POSITION OF A BURIED UXB**

4301. Before deciding what damage a buried bomb is likely to do and before a shaft can be sunk, it is necessary to estimate the bomb's position and depth. Bomb locators are in service but are unlikely to be issued to units other than Bomb Disposal units of Engineers.

**The Path of A Bomb Through the Ground**

4302. Figure 43-1 illustrates a typical bomb trace. The general direction of the trace continues along the line of flight of the aircraft. Marked lateral movement from this line is uncommon and only likely to occur if the bomb is deflected by an underground obstacle. In almost every instance, however, the trace turns up towards the surface shortly before the bomb comes to rest. Long thin missile have less tendency to turn than short stumpy ones.

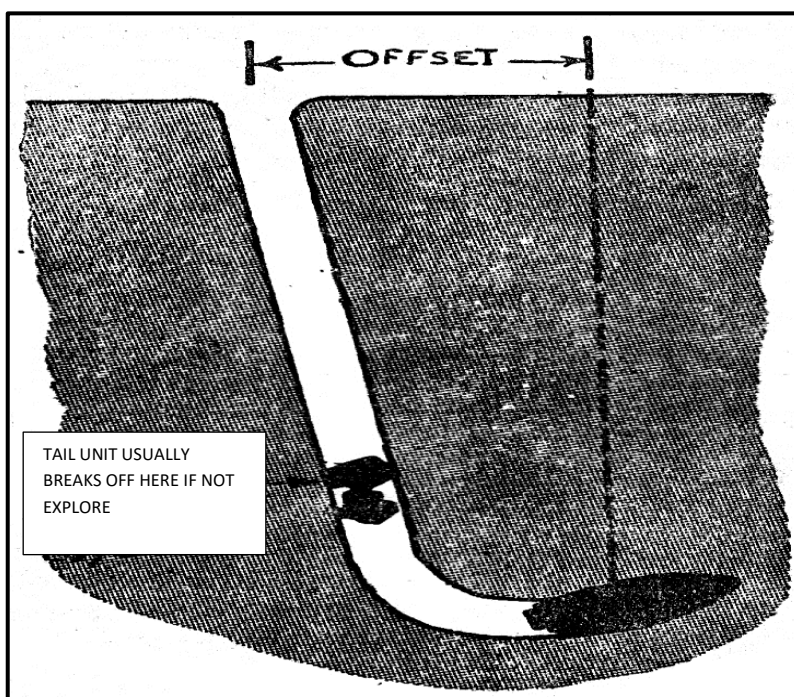


Fig 43-1: Normal Trace of a Bomb Through the Ground  
When Dropped from a High Level

**Depth**

4303. Table 12 gives the average depths at which bombs are likely to be found when dropped from a high level. Bombs penetrate less if they are dropped in low level attacks, pass through buildings or hard surfaces, or are fitted with parachutes or other retarding devices. Armour piercing and rocket assisted bombs may penetrate further.

**TABLE 12 - DEPTHS AT WHICH UXB ARE LIKELY TO BE FOUND WHEN DROPPED FROM 15,000 FEET OR MORE**

weight of bomb	Average depth
(a)	(b)
lb	ft
100	12
250	15
500	20
1,000	30
2,000	35
4,000	40
8,000	50
12,000	55
22,000	70

**Multiplication Factors**

4304. For gravel, soft rock and multiply by  $2/3$ .

4305. For moist clay multiply by  $3/2$ .

4306. For very wet clay or silt where there is also negligible offset multiply by 2.

**Offset**

4307. The horizontal distance between the entry hole at the surface and the centre of the bomb is known as the offset (Fig 43-1). The average offset when a bomb is dropped from high level is about  $1/3$  of the depth (Table 12). Larger offset can sometimes be anticipated. They are likely to occur when the bomb has entered the ground at a slight angle to the horizontal as a result of a low level attack or a ricochet from an intervening structure, or

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where hard underground surfaces exist which may cause deflection. Offsets as large as the figures given for the average depth in Table 12 may occur. (From a high level attack, a bomb usually enters the ground at about 10 to 15 degrees to the vertical. From a low level attack, the angle may be 45 degrees or more).

### **Procedure For Estimating Position**

4308. a. Estimate the weight of bomb from the diameter of the entry hole (Table 3) and any other available evidence (Chap 3).
- b. Probe to determine the angle of the hole of entry and the direction in which the bomb lies. Where probing is not possible, as in rubble or shingle, these factors may be deduced from a knowledge of the direction of flight and altitude of the aircraft.
- c. Determine the average depth and offset from Table 12.
- d. Make adjustment to these figures to allow for the type of ground, low level release, small angle of and any known structural features of the bomb which will affect penetration (e.g. rocket population attachments or parachutes).

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