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TECHNICAL REPORT No. 492-45

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GERMAN ROCKET WRENCH FOR USE IN REMOVING BRITISH  
AND U.S. TYPE BOMB FUZES FROM UNEXPLODED BOMBS

September 1945



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To : Chief of Naval Operations (OP-16-PT).

Subject: U.S. Naval Technical Mission in Europe Technical  
Report No. 492-45, German Rocket Trunch for Use in  
Removing British and U.S. Type Bomb Fuzes from  
Unexploded Bombs - Forwarding of.

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*Henry D. Hoffman*  
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TECHNICAL REPORT No. 492-45

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GERMAN ROCKET WRENCH FOR USE IN REMOVING BRITISH  
AND U.S. TYPE BOMB FUZES FROM UNEXPLODED BOMBS

SUMMARY

This report consists of a translation of a German document giving the use and operation of the "Drehmoment Geraet" (Turning moment device)

September 1945

U. S. NAVAL TECHNICAL MISSION IN EUROPE.

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GERMAN ROCKET WRENCH FOR USE IN REMOVING BRITISH

AND U.S. TYPE BOMB FUZES FROM UNEXPLODED BOMBS

1. Introduction

It is known that the U. S. Navy Bomb Disposal School received some time ago a specimen of subject German Rocket Wrench. Certain modifications were made to the wrench in order to conform to the fuze removal procedures practiced in Navy Bomb Disposal. The Bomb Disposal School's modification of subject wrench is believed to be currently under procurement. In the view of these circumstances, this report will have primarily interest value.

This Technical Report was originally submitted as Letter Report No. 196-45(O), File No. AB-2(40/FPS), Serial 0640, dated 22 July, 1945. With the letter report were two enclosures, i.e., (A) Photograph of Rocket Wrench, and (B), Machine Drawing of Metal Parts, which may be consulted if necessary.

2. Translation of Document

(a) Use and Stowage Instructions for the "Drehmoment" Device in Use by the Kriegsmarine.

(1) General.

In furthering the methods of rendering unexploded enemy bombs harmless, a device was developed employing a turning moment principle and is known as "Drehmoment Gerat" (Turning Moment Device); or for short "D. M." device.

The D.M. device serves to unscrew and remove fuzes from unexploded enemy bombs by remote control without causing detonation of the bomb. This can be accomplished with the help of an explosive, an electric cap and demolition cable leading to protective cover. The application of the DM device is primarily for use by the Kriegsmarine for removal of British fuzes No. 27, 28, and 30 and American fuzes M 102 and M 103 in only those instances where possible detonation of the bomb would not damage buildings, military installations or similarly important structures. Otherwise, the Thermit process could be used.

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Translation of Document (Cont'd.)

Long delay time fuzes cannot as yet be extracted with the DM device, since in unscrewing these the danger exists of their firing.

The safety precautions to be observed with the DM are the same as those for blowing a bomb in situ.

(2) Description of the Device.

The device is of such size that it may be handled with relative ease. The maximum height is 140 mm including the fuze grip; the maximum diameter is 85 mm; and the weight is approximately  $2\frac{1}{2}$  kg. Component parts are as follows:

a. The turbine (chamber cover) screwed onto the rocket chamber with a left hand thread.

b. The propellant chamber which holds the propellant and is screwed loosely to the fuze grip piece.

c. The black powder propellant, a wire screen, felt ring, felt pads and felt strips.

d. The fuze grip has three radial, threaded holes accommodating gripping screws to fasten the device to the bomb fuze. Alternately, between the three radial holes are three holes drilled at an angle of 15 degrees also threaded for gripping screws and are provided for attaching the device to fuzes which have been sheared off.

e. The electric detonator with lead wires and the booster charge.

The propellant (black powder) which powers the device, is padded on its side with the felt strips and its base with the felt pad. This felt padding is glued to the black powder propellant and also to the propellant chamber. Hence, the rocket propellant and the propellant chamber are held together as one. The fuze gripping piece is located at the base of the propellant chamber and is threaded to the chamber by means of left hand thread. At the head of the turbine, four conical shaped openings are located in a plane 90 degrees to the longitudinal axis of the device; the openings are 90 degrees removed from one another and are canted.

Translation of Document (Cont'd.)

Internally, between the cup end of the turbine and the propellant is a wide screen, thus providing a space in which the burning gas can briefly accumulate before making its exit. A felt ring or pad is located between the propellant and the wire screen to prevent any friction occurring when the turbine is screwed onto the rocket chamber.

In the center of the inner cup of the turbine a black powder igniting charge and an electric squib are located. The electric lead wires from the squib are led out through one of the venturi holes and are pegged in place by a wooden wedge or plug.

The DM device is shipped completely assembled and should be stowed in accordance with regulations.

### (3) Use of the Device

After freeing the UXB to render it harmless and determining the type of fuze installed to check that the device can be applied to it, the DM device can then be attached to the fuze and the bomb placed at a workable angle.

Before attaching the device to the bomb fuze, care should be observed in that there is a clearance of from 1 to 3 threads between the fuze grip and the propellant chamber. In view of the possibility of a tightly screwed in fuze or one which has become tight, it will be necessary to develop especially great rotational moment which will be sufficient to break loose its hold. Screwing down of the turbine should be hand tight, yet not too tight.

Next, the electric detonator wires leading out of the turbine are connected to the leads of the unreeled demolition cable. Then the fuze grip is placed over the fuze in the bomb. The set screws, which should have already been approximately adjusted to fit the fuze, are hand tightened. Then, the one set screw with a hole drilled through its head, is tightened by using a small rod (or nail). Care should be taken that during this operation the entire bomb and fuze not be jarred.

As a source of electric power for this device, a standard exploder box is used. With a good demolition cable more than 1.5 mm in diameter and not more than 200 meters long, a fresh flashlight battery may be employed to set off the electric cap. However, for safety, this latter

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Translation of Document (Cont'd.)

procedure should be employed only as a last resort.

(4) Operation

For a fraction of a second upon igniting, the gas which has been generated by the burning of the black powder, escapes through the ports in the turbine into the open and through reaction, the turbine head and the rocket chamber are rotated at a sudden and high velocity. The rocket chamber is thus screwed down over the 1 to 3 threads and at the end of these threads the fuze grip piece together with the fuze are set into rotation with a sharp blow. The bomb fuze will therefore be unscrewed and withdrawn from the bomb. The device will become very hot and should not be touched for 10-15 minutes after use.

Re-use of once fired DM devices by installing a new rocket charge, wire screen, electric cap, etc., should not be attempted because tests have indicated that such a procedure is relatively dangerous as a result of possible damage to the device during its initial use.

Used DM devices can be saved and returned to the nearest depot at some future time.

(5) Stowage Instructions

Loaded DM devices, because they contain black powder, should be handled in accordance with munitions instructions for Group 1.

DM devices should be stowed separately. All of the instruction contained in M. Dv. No. 495 concerning the stowage of munitions ashore apply to the D.M. device.

Stowage and shipping can be effected in the air-tight containers in which supplied.

The above instructions do not apply to used DM devices.

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