

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL
DEMOLITION KIT,
PROJECTED CHARGE, M157

This reprint includes all changes in effect at the time of
publication; change 1

HEADQUARTERS, DEPARTMENT OF THE ARMY
JUNE 1962

TECHNICAL MANUAL

Operator's Manual
DEMOLITION KIT, PROJECTED CHARGE, M157

TM 9-1375-204-10

CHANGES NO. 1

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 26, D.C., 23 April 1963

TM 9-1375-204-10, 11 June 1962, is changed as follows:

4. Description of Projected Charge Demolition Kit M 157 Parts

a. *General.* The demolition kit * * * through (5) below.

(4) *Impact fuse section assembly.* Each impact fuse section assembly (fig. 7) is similar to the center loading section assembly in the following respects: Length, width, component parts, and two insert tubes continuing explosives (composition B and composition C-4).

The basic difference * * * approximately 153 pounds.

(5) (Superseded) *Tail section assembly.*

The tail section assembly (fig. 8) is similar to the nose section assembly in the following respects: length, width, height, weight, and joint system. The joint system, located at the front end of the tail section assembly, is identical to the joint system located at the rear end of the nose section assembly. The tail section assembly has a two position (push and pull) sliding rear hook assembly and a hinge assembly. The front notch of the rear hook assembly is used when dragging or pulling the demolition kit backward, while the rear notch of the rear hook assembly is used when pushing the demolition kit over a minefield. Chain assembly No. 1 pushing against the rear notch of the rear hook assembly causes this assembly to slide to the PUSH position, thereby causing the rear hook base to make contact with the last pushing bar, which in turn transmits

pushing force to the pushing bar within each section. The hinge plate of the hinge assembly, fastened to a hinge and a spring at the rear of the tail section assembly, allows chain assembly No. 1 to slide over the tail section assembly and engage the rear notch of the rear hook assembly. The rear hook plate and the hinge plate rests against the bottom of the tank hull when the demolition kit is pushed, thereby preventing the tail section assembly from being crushed as the demolition kit is pushed over varied terrain.

b. (Superseded) *Tank Accessories.* The tank accessories are described in (1) through (7) below.

Note 1

The key letters and numerals shown in parentheses in the paragraphs below, refer to figure 9.

Note 2

For assembly procedures for tank accessories, see paragraph 11.

(1) *Chain assembly No. 1.* Chain assembly No. 1 (L) is a 7-foot length (approx.) of 5/8-inch chain with two round shackle pins at its ends. This assembly is used for pushing demolition kit M157 into the minefield area. Cable No. 1 (G) and the cam cleats (F-4) of gear box assembly (F) are used for raising or lowering chain assembly

No. 1 (L). Chain assembly No. 1 is secured to the front towing lugs of the tank.

(2) *Drag plate assembly.* The drag plate assembly (E) consists of a semicircular plate with a bar welded to one surface. This assembly is used for dragging or towing the demolition kit to the edge of the minefield. Chain assembly No. 2 (C) and shackle No. 1 (A-1) of the extension bar assemblies (A) are secured to the drag plate assembly (E) with shoulder screws (B).

(3) *Chair assembly No. 2.* Chain assembly No. 2 (C) consists of two 2-foot lengths of Y4-inch chain, one y4 X 2inch ring, and two modified eye nuts. Each of the two modified eye nuts are fastened to shackle No. 1 of the extension bar assemblies (A) with shoulder screws (B) while the ring is fastened to one of the snap-hooks of the spring assembly (D). Chain assembly No. 2 (C) together with the spring assembly (D), cable No. 2 (P), and gear box assembly (F) are used for raising or lowering the drag plate assembly (E).

(4) *Extension bar assembly.* The two 6foot extension bar assemblies (A), consisting of shackle No. 1 (A-1), extension bar (A-2), and shackle No. 2 (A-3), are used to secure the drag plate assembly (E) to the rear of the tank. Shackle No. 1 (A-i) of each extension bar assembly (A) is fastened to the drag plate assembly with a shoulder screw (B), while shackle No. 2 (A-3) of each assembly is secured to one of the rear tank towing lugs with a clevis pin assembly (K).

(5) *Gear box assembly.* The gear box assembly (F) consists of a body (F-i) which contains a ratchet wrench (F2), a wrench assembly (F-3), two cam cleats (F-4), gear spool assembly (F-), and a pulley assembly (F-6). One end of cable No. 2 (P) is secured to the gear spool assembly (F-) while cable No. 1 (G) is held in the pulley assembly (F-6) of the gear box assembly (F) by the cam cleats (F4). The ratchet wrench (F-2) and wrench assembly (F3) assist the operator

when raising or lowering the drag plate assembly (E) and chain assembly No. 2 (C). The gear box assembly (F) is installed in the port periscope fitting in the front of the tank.

(6) *Cable No. 1 and cable No. 2.* Cable No. 1 (G) consists of an 8-foot length of 1/2-inch diameter wire. Safety snap hook (H) is secured to Cable No. 1 (G) at one end. Cable No. 2 (P) consists of a 27-foot length of 1/4-inch diameter wire rope. Safety hook (Q) is secured to cable No. 2 (P) at one end. One end of cable No. 1 (G) is fastened to the cam cleats (F-4) of the gear box assembly (F), and the safety snap hook (H) at the other end is fastened to chain assembly No. 1 (L). Cable No. 2 (P) is fastened to the gear spool assembly (F-5) of the gear box assembly (F) at one end, and the safety hook (Q) at the other end to the spring assembly (D).

(7) *Single sheave, multiple sheave, and pulley support post assemblies.* These three assemblies (M, N, and J) assist the other accessory items when raising or lowering the drag plate assembly (E) and chain assembly No. 2 (C). Each assembly consists of a support or bracket and pulley assembly. Each of the three assemblies are bolted to the tank hull when preparing the tank for demolition operations and can be removed when demolition operations are finished. Location of each assembly mentioned above depends on the tank model.

* * * * *

e. *Effectiveness.*

(1) *Most suitable terrain.* Demolition kit M157 is more effective in flat or moderately rolling, open, or lightly wooded terrain. This type of * * * for maneuvering tanks.

* * * * *

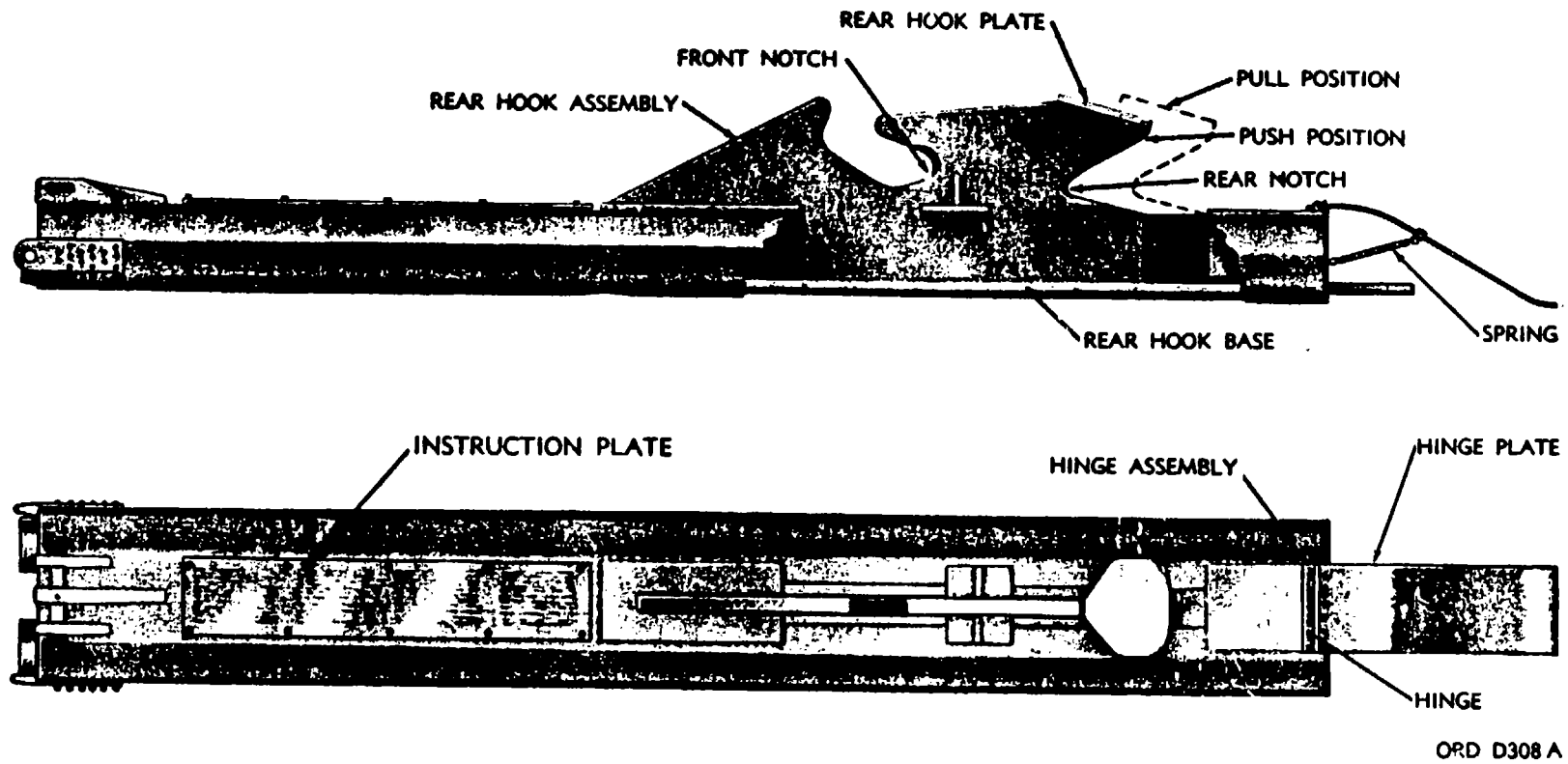


Figure 8 (Superseded) Tail section assembly.

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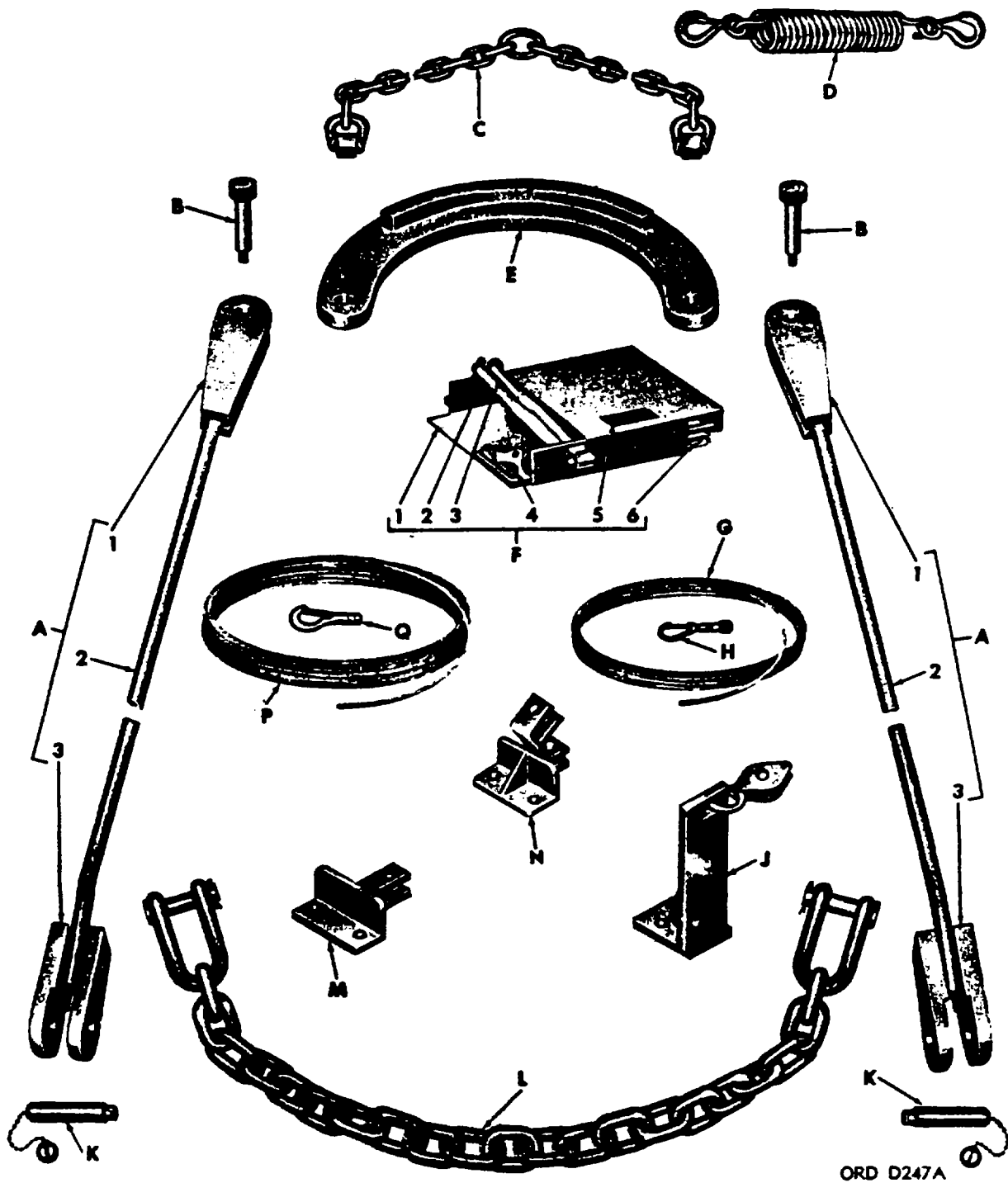


Figure 9. (Superseded) Tank accessories.

- A - Extension bar assembly
 - 1 - Shackle No 1
 - 2 - Extension bar
 - 3 - Shackle No. 2
- B - Shoulder screws
- C - Chain assembly No. 2
- D - Spring assembly
- E - Drag plate assembly
- F - Gear box assembly
 - 1 - Body
 - 2 - Ratchet wrench
 - 3 - Wrench assembly
 - 4 - Can cleats
 - 5 - Gear spool assembly
 - 6 - Pulley assembly
- C - Cable No. 1
- H - Safety snap hook
- J - Pulley support post assembly
- K - Clevis pin assembly
- L - Chain assembly No. 1
- M - Single sheave assembly
- N - Multiple sheave assembly
- P - Cable No. 2
- Q - Safety hook

Figure 9 -- Continued.

Delete the scale from figure 10.

Paragraph 7 (Warning). Change "life" in line seven to read live.

10. Fuzing
(Superseded)

Fuzing procedures for the demolition kit are as follows:

a. Remove fuse M603 and fuse explosive container loading assembly containing booster M120 from packing box, and inspect for presence of dirt

and/or moisture. Remove dirt or moisture when possible. Replace unserviceable fuze explosive container or fuze.

b. Unlatch and open impact fuze housing door (fig. 7).

c. Remove bullet impact fuze assembly and dummy container from fuze housing assembly.

d. Unscrew knurled fuze cap from fuze cup of fuze explosive container, and retain for future use.

Note. Check to assure fuse cap travels over full length of threads on fuse cur without binding.

e. Insert explosive fuze container into fuze housing assembly with knurled fuze cap facing outward.

f. Remove safety clip from fuze and place fuze in fuze cup with nomenclature on fuze facing outward.

**Warning 1:
Handle fuzed explosive fuze container carefully.**

**Warning 2:
Do not press on pressure plate of fuze.**

g. Replace and secure fuze cap to fuze cup.

h. Insert bullet impact fuze assembly into fuze housing with flat side facing outward.

i. Check position of fuze explosive container assembly and bullet impact fuze assembly to assure that they are seated properly in fuze housing. Make corrections if needed.

j. Secure fuze housing door assembly to fuze housing assembly.

By Order of the Secretary of the Army:

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NC: State AG (8); units fWase u active Army except allowances is one (1) copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 820-60.

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DEMOLITION KIT, PROJECTED CHARGE, M157

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CHAPTER 1 INTRODUCTION

Section I. GENERAL

1. Scope

a. This technical manual contains instructions for operation and first echelon maintenance of projected charge demolition kit M157.

b. The appendix contains a list of current references, including supply manuals, technical manuals, forms, and other available publications applicable to the projected charge demolition kit M157.

c. This first edition is being published in advance of complete technical review. Any errors or omissions will be forwarded on DA Form 2028 to the Commanding Officer, Raritan Arsenal, Metuchen, New Jersey, ATTN: ORDJR-OPRA.

2. Responsibilities

a. Responsibility of first echelon (operator) personnel is limited to the inspection, attachment of accessories, and operation of the demolition kits as described in this technical manual. Operations above and beyond the scope of those described herein must not be attempted by operator personnel.

b. At any time that service beyond the scope of the using personnel is required, the demolition kit will be sent to the supporting Ordnance depot maintenance unit for the required service.

3. Forms, Records, and Reports

a. *General.* Responsibility for the proper execution of forms, records, and reports rests upon the officers of all units maintaining this equipment. However, the value of accurate records must be fully appreciated by all personnel responsible for their compilation, maintenance, and use. Properly executed forms convey authorization and serve as records for the materiel in the hands of troops and for delivery of materiel requiring

repair to Ordnance depot maintenance shops. The forms, records, and reports establish the work required, the progress of the work within the shop, and the status of the materiel upon completion of its repair.

b. *Authorized Forms.* The forms generally applicable to units operating this materiel are listed in the appendix. For instructions on use of these forms, refer to FM 9-3 and FM 9-4. For a listing of all forms, refer to DA Pam 310-2.

c. *Field Report of Accidents.*

(1) *Injury to personnel or damage to materiel (general).* The reports necessary to comply with the requirements of the Army safety program are prescribed in detail in AR 385-40. These reports are required whenever accidents of a general nature (other than those involving ammunition) occur, resulting in injury to personnel or damage to materiel.

(2) *Ammunition.* Upon the occurrence of any accident and/or malfunction involving ammunition, utilization of the affected kit, lot, etc. will be immediately discontinued. All applicable reports required in (1) above will be made and in addition, complete details of the accident and/or malfunction will be reported as prescribed in AR 7001300-8.

d. *Report of Unsatisfactory Equipment or Materials.* Any deficiencies detected in the equipment covered herein, which occur under the circumstances indicated in AR 700-38, should be immediately reported in accordance with the applicable instructions in cited regulation.

Section II. DESCRIPTION AND DATA

4. Description of Projected Charge Demolition Kit M157 Parts

a. *General.* The demolition kit M157 (fig. 1) is an antitank minefield clearing device which is designed to be towed (dragged) and pushed for emplacement by a medium tank (M48 or the M60 series) with accessories. This demolition kit is utilized to clear a path large enough for tanks, vehicles, and personnel to travel through minefields planted with single pulse pressure-type mines. This demolition kit is flexible enough in the vertical plane to permit it to pass over rough terrain and rigid enough in the horizontal plane so that it will maintain a relatively true course when being pushed. The flexibility and rigidity is accomplished by the following: the use of a joint system (fig. 2) consisting of side and top joints, which join the section assemblies, and the use of a series of pushing bars running through rectangular enclosures or tunnels in each section assembly. The side joints are male and female connecting lugs which act as a pivot when fastened by means of the side joint pins. The top joints consist of top joint supports (top side joints and top center joint), top bearing bars, top joint studs, and links. A unique feature of the joint is that the degree of slack between the top joints (fig. 3) can be altered by positioning the top bearing bar in the top joint supports and links. The top bearing bar has one milled surface and a notch on each of its sides corresponding to the milled surface. The notches are used not only to check the amount of slack of the top joints, but also for assembling and inspecting the body section assemblies in the darkness. The most slack is obtained when both milled surfaces are facing outward, the medium amount of slack is achieved when one milled surface is facing in and one is facing out, and the least amount of slack is achieved when the milled surfaces are facing inward. During pushing operations, the force applied to the rear hook assembly by the pushing chain of the tail section assembly is transferred to the pushing bars going through each section and finally acts on the pushing bar stop in the nose section. This demolition kit consists of 79 irregular hexagonal tubes (section assemblies) which, when assembled (fig. 2), are approximately 12 inches wide, 7 inches high, 400 feet in length and weigh approximately 11,000 pounds, including approximately 2,880 pounds of composition B and approximately 320

pounds of composition C-4. The section assemblies are as follows: nose section, 13 body sections, 62 center loading sections, two impact fuze sections, and tail section. Each of the 62 center loading section assemblies and the two fuze section assemblies are loaded with 50 pounds of explosive material. A list of parts issued with each demolition kit is included in table I. These section assemblies mentioned above are described in (1) through (5) below.

Table I. Tank Accessories, Tools, and Component Parts for Assembly of OO-Foot (Approximately) Projected Charge Demolition Kit M157

Item	Quantity
Kit parts:	
Nose section assembly	1
Body section assembly	1
Center loading section assembly	62
Impact fuze section assembly -	2
Tail section assembly	1
Fuzing:	
Fuze, mine, M603	2
Fuze explosive container loading	2
assembly	
Tank accessories:	
Cable, assembly No. 1	1
Cable, assembly No. 2	1
Chain assembly No. 1	1
Chain assembly No. 2	1
Clevis pin assembly -	2
Drag plate assembly	
Extension bar assembly	2
Gear box assembly	1
Multiple sheave assembly	
Pulley support post assembly	1
Safety snap hook	3
Shoulder screw -	
Single sheave assembly	1
Spring assembly	
Tools:	
Hammer (rawhide or rubber) -	2
Screwdriver	4
Socket wrench assembly	2
Structural wrench assembly	2

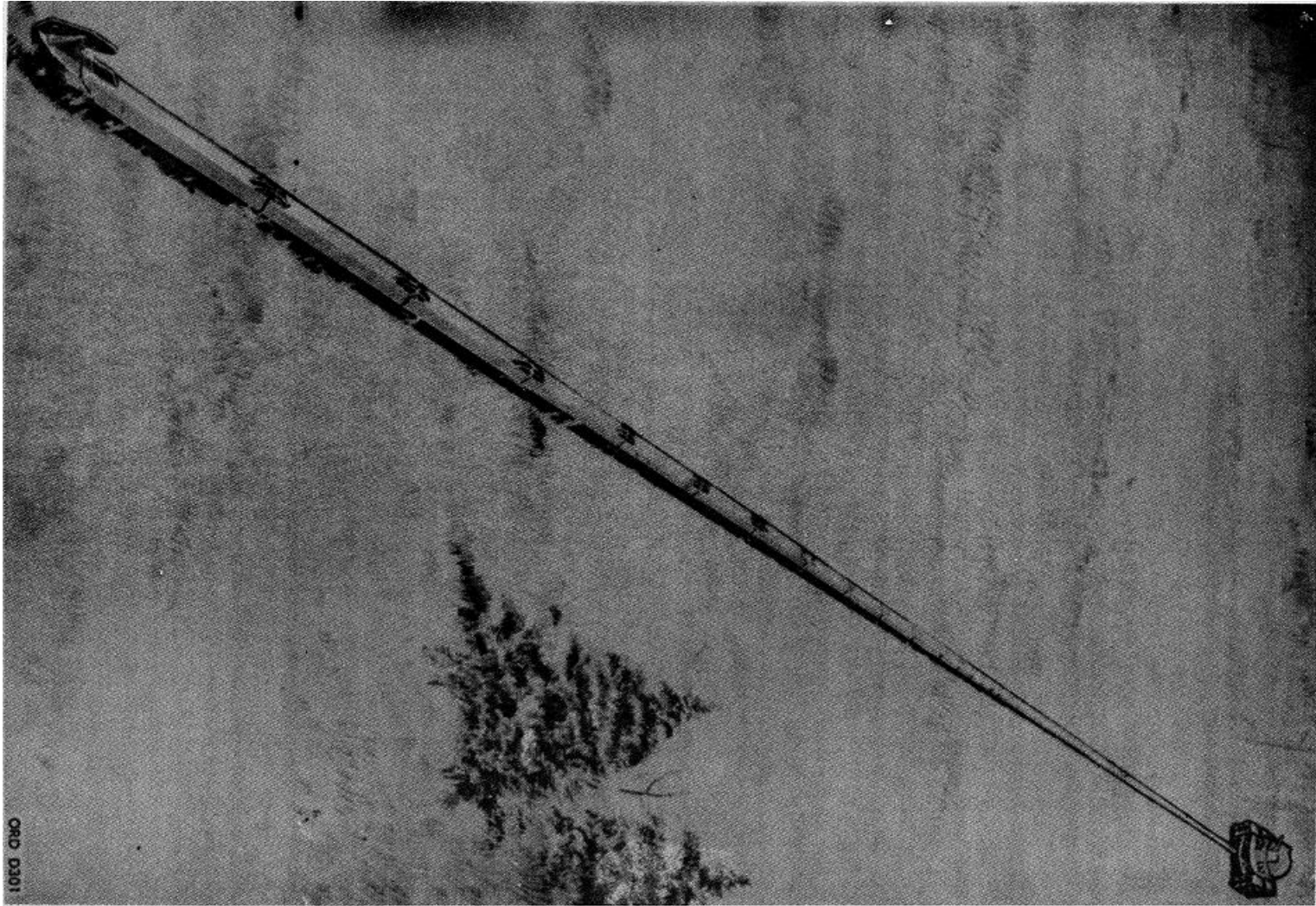


Figure 1. Medium tank pushing the demolition kit M157.

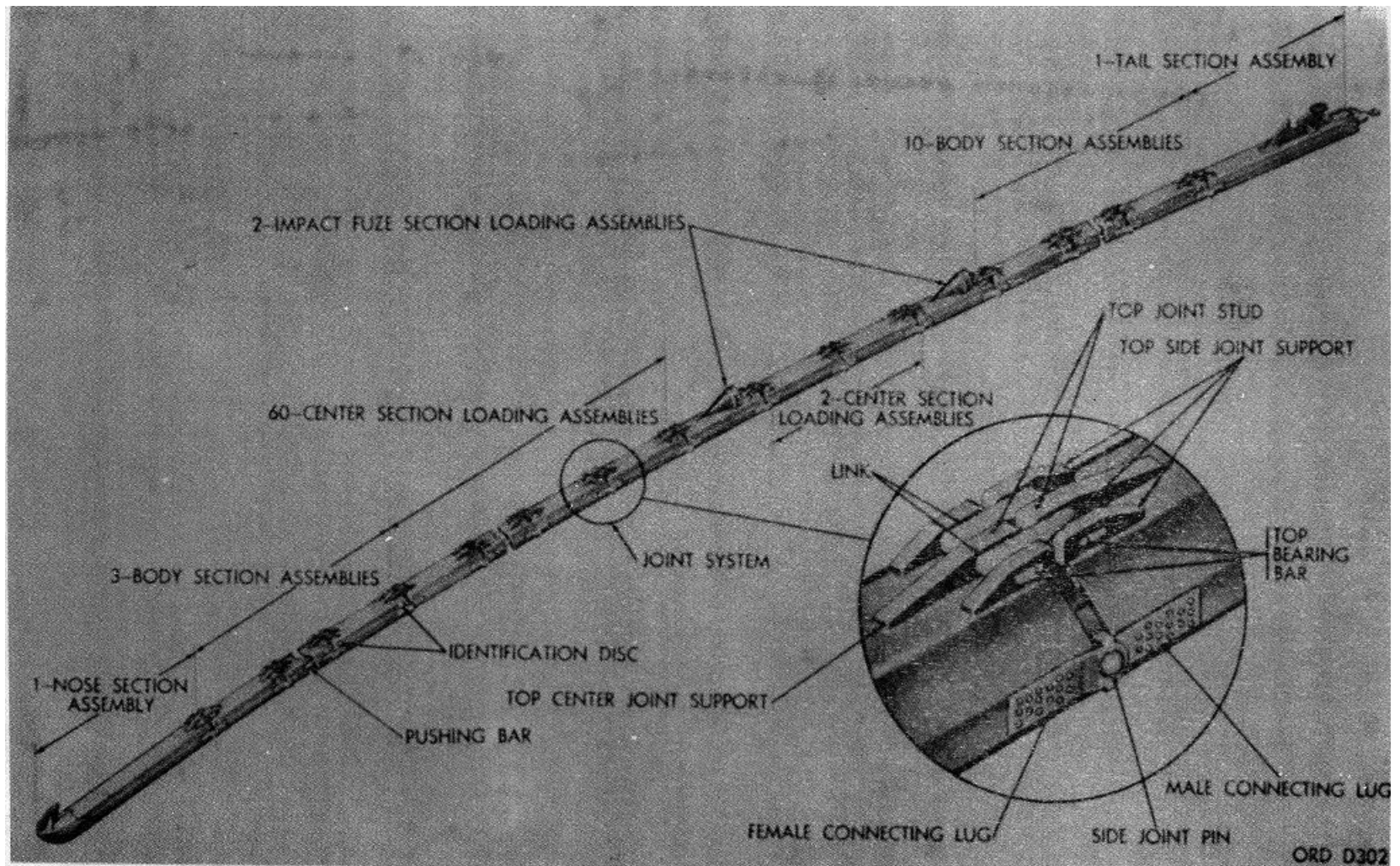


Figure 2. Assembly demolition kit M157.

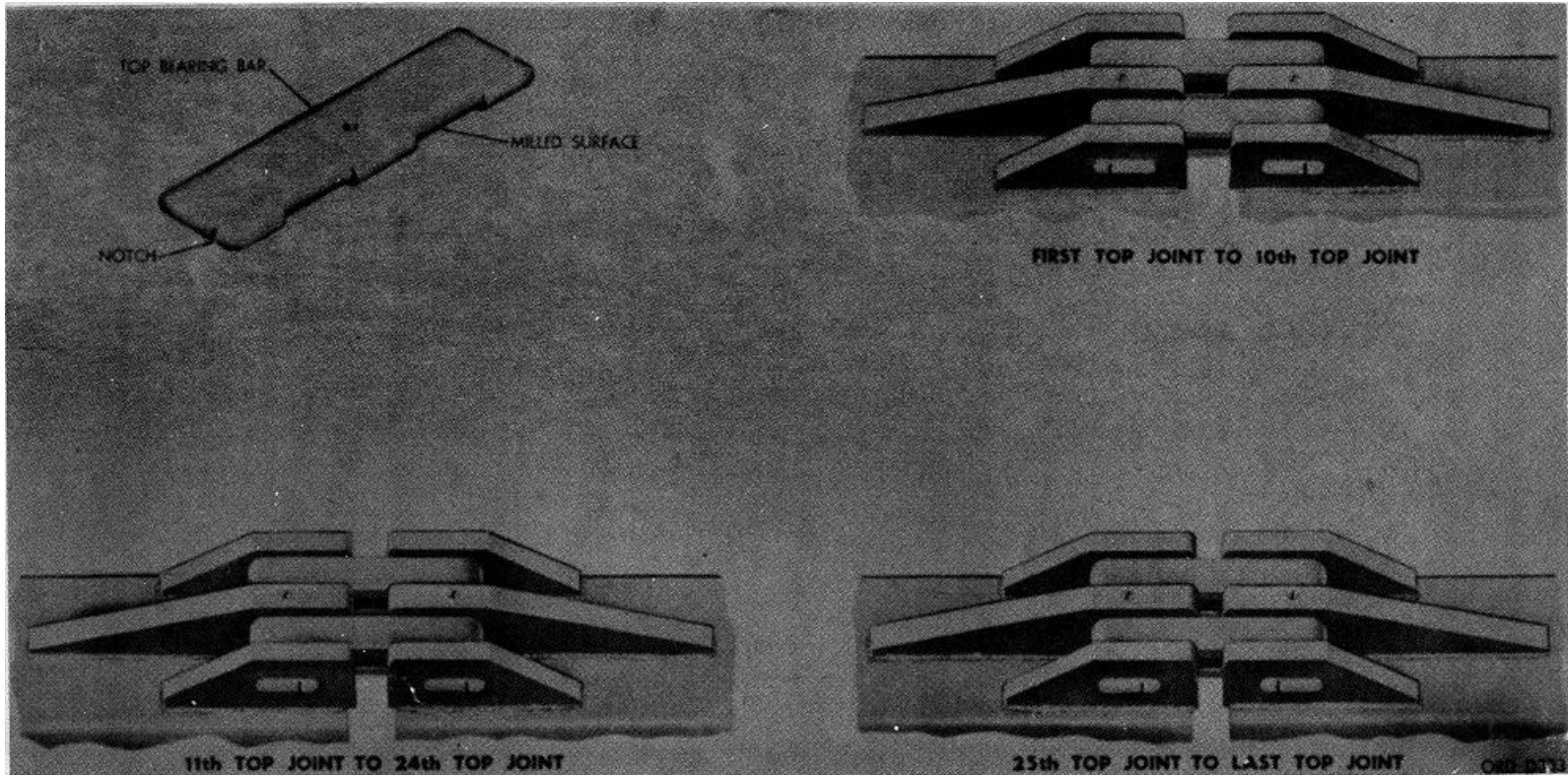


Figure 3. Top bearing bar and slack adjustment.

- (1) Nose section assembly. The nose section assembly (fig. 4), made of aluminum alloy, is approximately 12 inches wide, 8 inches high, and 8-feet long, and weighs approximately 155 pounds. The components of this assembly are as follows: nose hook assembly, instruction plate, top center joint support, two top side joint supports, one top bearing bar, one top joint stud, two links, two side joint pins, two connecting lugs (female), and a pushing bar stop. The nose hook assembly is used for towing the demolition kit to the edge of the minefield, while the instruction plate provides assembly, emplacement, and operational procedures. The female connecting lugs, top side joint supports and top center joint supports are permanently fixed to the section assembly body. The top supports (top center joint and two top side joints), top joint stud, top bearing bar, and links are used to secure the top components of the nose section to the top components of the first body section. The top bearing bar is held firmly in place in the top supports by the top joint stud.
- (2) Body section assembly. Each body section assembly (fig. 5), made of aluminum alloy, is approximately 12 inches wide, 7 inches high, 5-feet long, and weighs approximately 79 pounds. The components of this assembly are: two top bearing bars, two top center joint supports, four top side joint supports, four painted (white) identification discs, two top joint studs, four connecting lugs (two females and two males), two side joint pins, one pushing bar, and two dirt shields. When assembling the body section to the nose section, the top bearing bar on the male end of the body section is removed. The side joint pins are removed from the female connecting lugs of the nose section. The four painted identification disks, located on the side of the body section, provide a means of easily identifying these unloaded sections of the demolition kit. The pushing bar of the first body section is pushed against the pushing bar stop of the nose section. The dirt shields provide a means for keeping dirt from entering the empty space in the various sections, while the demolition kit is being towed or pushed.
- (3) Center loading section assembly. Each center loading section assembly (fig. 6) is similar to the body section assembly in the following respects: physical size, number of component parts, and the location of the component parts. The basic difference between the body section and the center loading section is that the center loading section has two insert tube assemblies welded to its upper inside walls. These longitudinal semicircular insert tubes, running the full length of the center loading section, are each loaded with approximately 22.5 pounds of composition B and approximately 2.5 pounds of composition C-4. The shape of the lower portion of the insert tubes provides the shape charge effect desired. The axis of action of the shaped charges is outward and downward at an angle of 45 degrees from each side of the demolition kit. The center loading section assembly weighs approximately 142 pounds.
- (4) Impact fuze section assembly. Each impact fuze section assembly (fig. 7) is similar to the center loading section assembly in the following respects: physical size, component parts, and two insert tubes containing explosives (composition B and composition C-4). The basic difference between the impact fuze section assembly and the center loading section assembly is that the impact fuze section assembly has a fuze housing assembly located at one end.

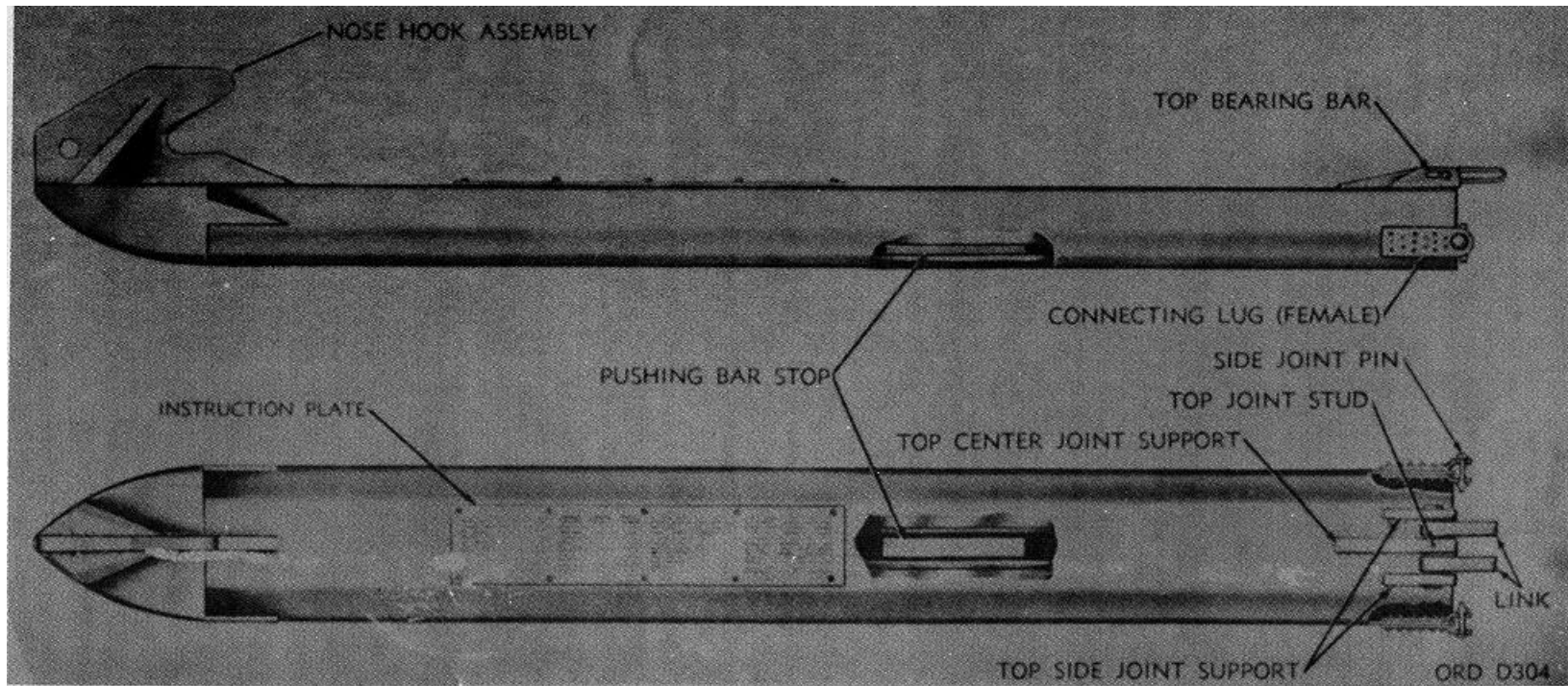


Figure 4. Nose section assembly.

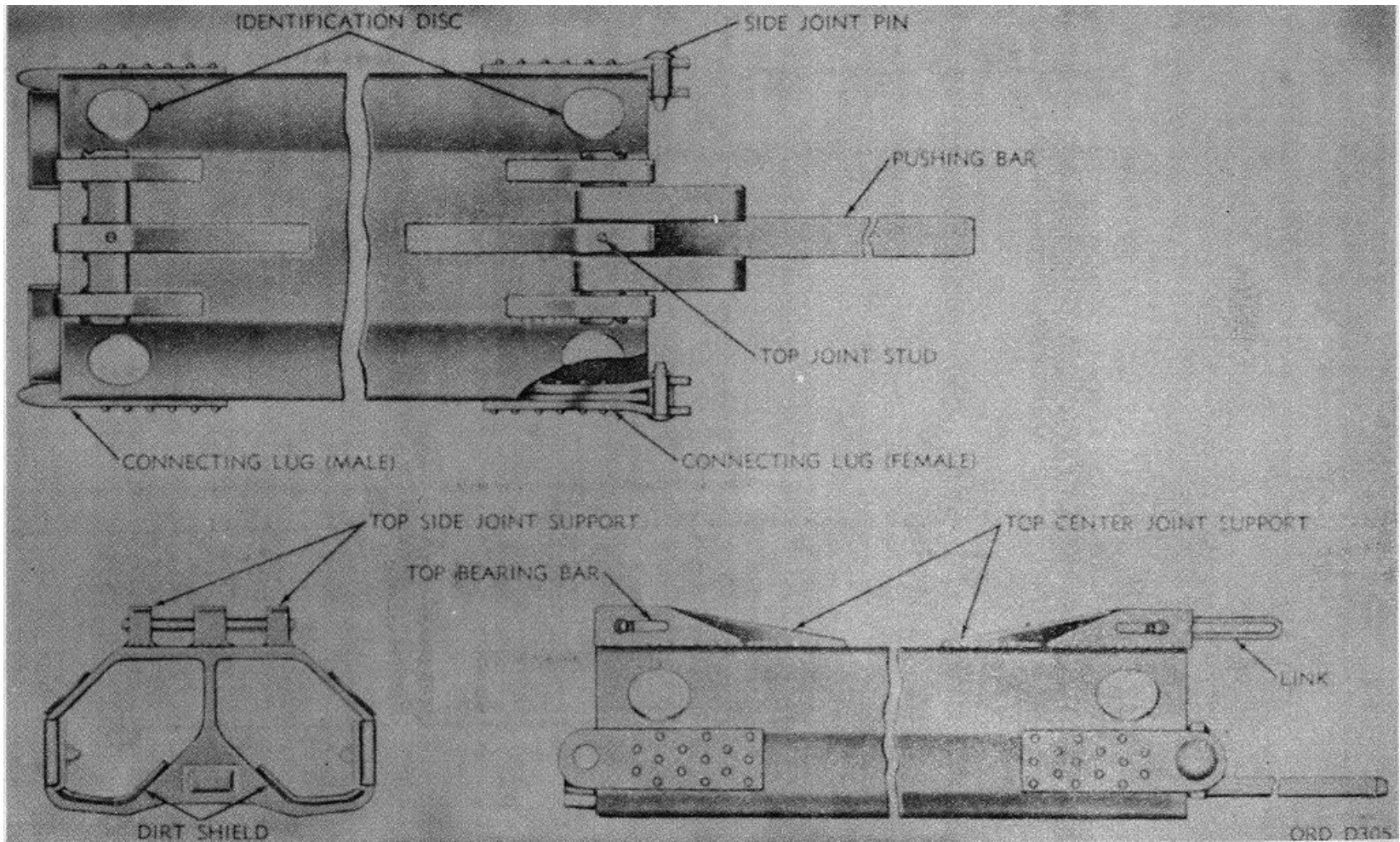


Figure 5. Body section assembly.

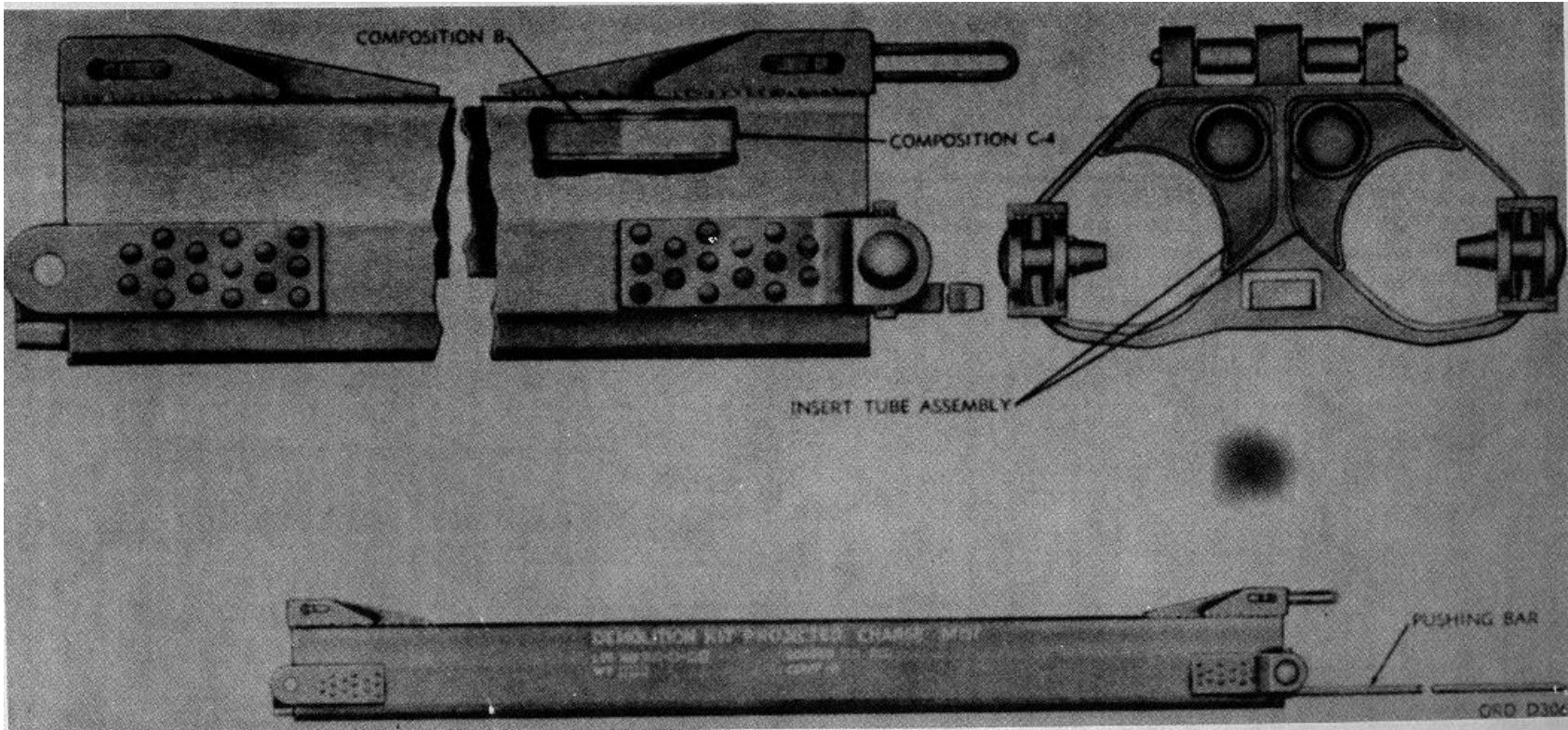


Figure 6. Center loading section assembly.

This fuze housing assembly contains the bullet impact fuze assembly and the Jimmy container. The dummy container is removed and the fuze explosive container loading assembly put in its place when the demolition kit is prepared for operation, (par. 10). The fuze explosive container loading assembly is designed to provide a shape charge effect (downward) upon detonation of the composition B contained within. The bullet impact fuze assembly and dummy container are held securely in the fuze housing assembly by the fuze housing door assembly. A white cross is painted on the fuze housing door to facilitate sighting. The impact fuze spring provides the necessary protection for the fuze when the demolition kit is towed or pushed over rough terrain. The impact fuze section assembly weighs approximately 153 pounds.

- (5) *Tail section assembly.* The tail section assembly (fig. 8) is similar to the nose section assembly except for the following differences: the tail section assembly has a sliding rear hook assembly and a hinge assembly. Cable assembly No. 1 pushing against the rear portion of the rear hook assembly causes the rear hook assembly to slide forward until its lower front edge makes contact with the last pushing bar, which in turn transmits the pushing force to the pushing bars enclosed within each section. The front portion of the rear hook assembly is used to drag or pull the demolition kit backward for short distances. The hinge plate of the hinge assembly, fastened to a hinge and a spring at the rear of the tail section assembly, allows the pushing chain to slide over the body and engage the rear portion of the rear hook assembly. The rear hook plate and the hinge plate rests against the bottom of the tank hull when the demolition kit is pushed, thereby preventing the tail section from being crushed as the demolition kit is pushed over varied terrain.

Note

The key letters and numerals shown in parentheses in b below refer to figure 9.

- b. *Tank Accessories.* The tank accessories are described in (1) through (7) below.

Note

For assembly procedures for tank accessories, refer to paragraph 11.

- (1) *Chain assembly No. 1.* Chain assembly No. 1 (M) is a 7-foot length (approx.) of 5/8-inch chain with two round shackle pins at its ends. This assembly is used for pushing the demolition kit M157 into the minefield area. Cable No. 1 (H) and the cam cleats of gear box assembly (G) are used for raising or lowering chain assembly No. 1 (M). Chain assembly No. 1 (M) is secured to the front towing lugs of the tank.
- (2) *Drag plate assembly.* The drag plate assembly (C) consists of a semicircular plate with a bar welded to one surface. This assembly is used for dragging or towing the demolition kit to the edge of the minefield. Chain assembly No. 2 (D) and the front portion (shackle No. 1) of the extension bar assemblies (right and left, B and F) are secured to the drag plate assembly with shoulder screws (A).
- (3) *Chain assembly No. 2.* Chain assembly No. 2 (D) consists of two 2-foot lengths of 1/4-inch chain, one 1/4 x 2-inch ring, and two modified eye nuts. The two modified eye nuts are fastened to the shoulder screws while the ring is fastened to one end of the spring assembly. This assembly (D) is used with the spring assembly (E), cable N. 2 (Q), and gear box assembly (G) for raising or lowering the drag plate assembly (C). Chain assembly No. 2 (D) is secured to the rear towing lugs of the tank.

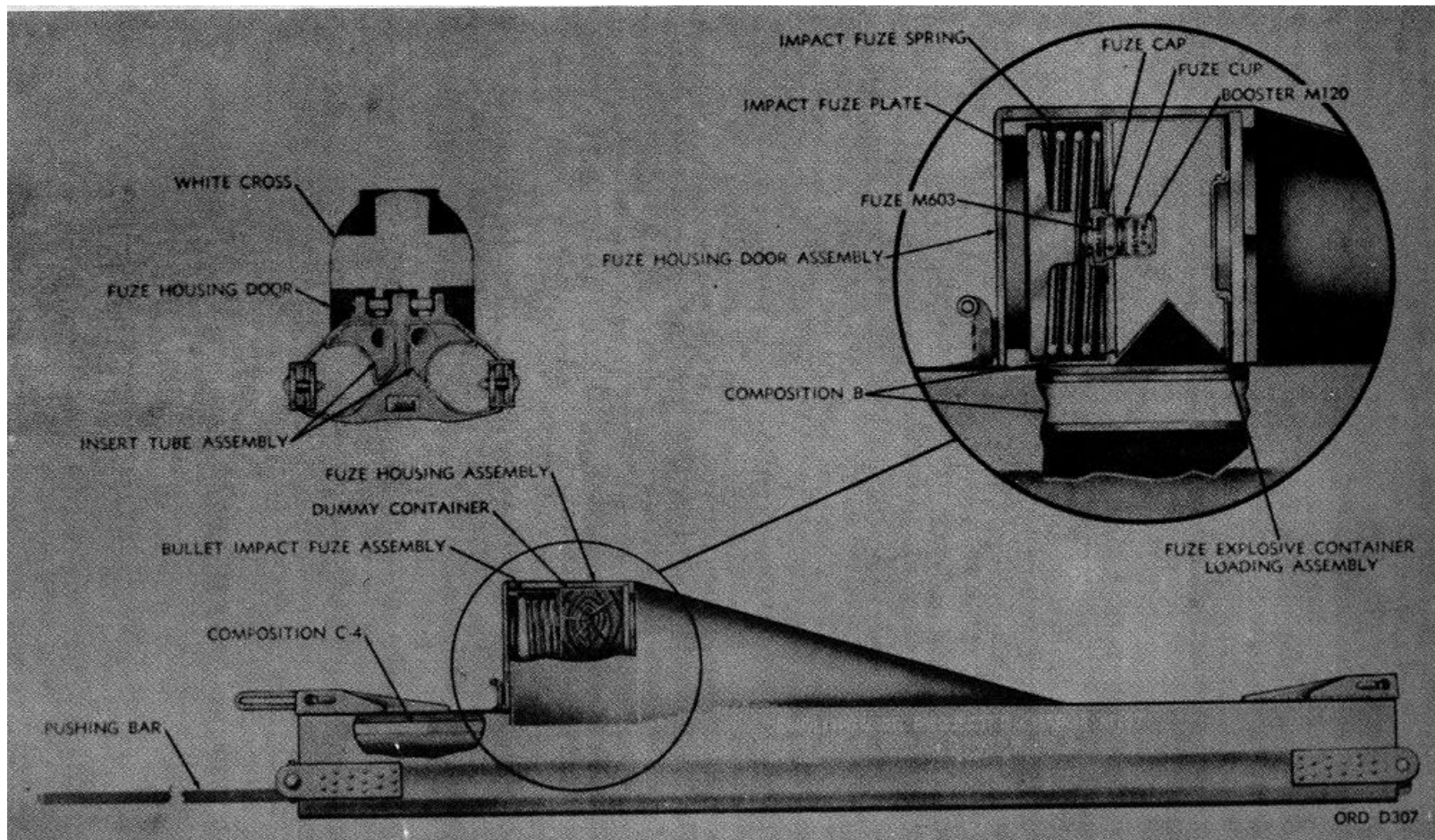


Figure 7. Impact fuze section assembly.

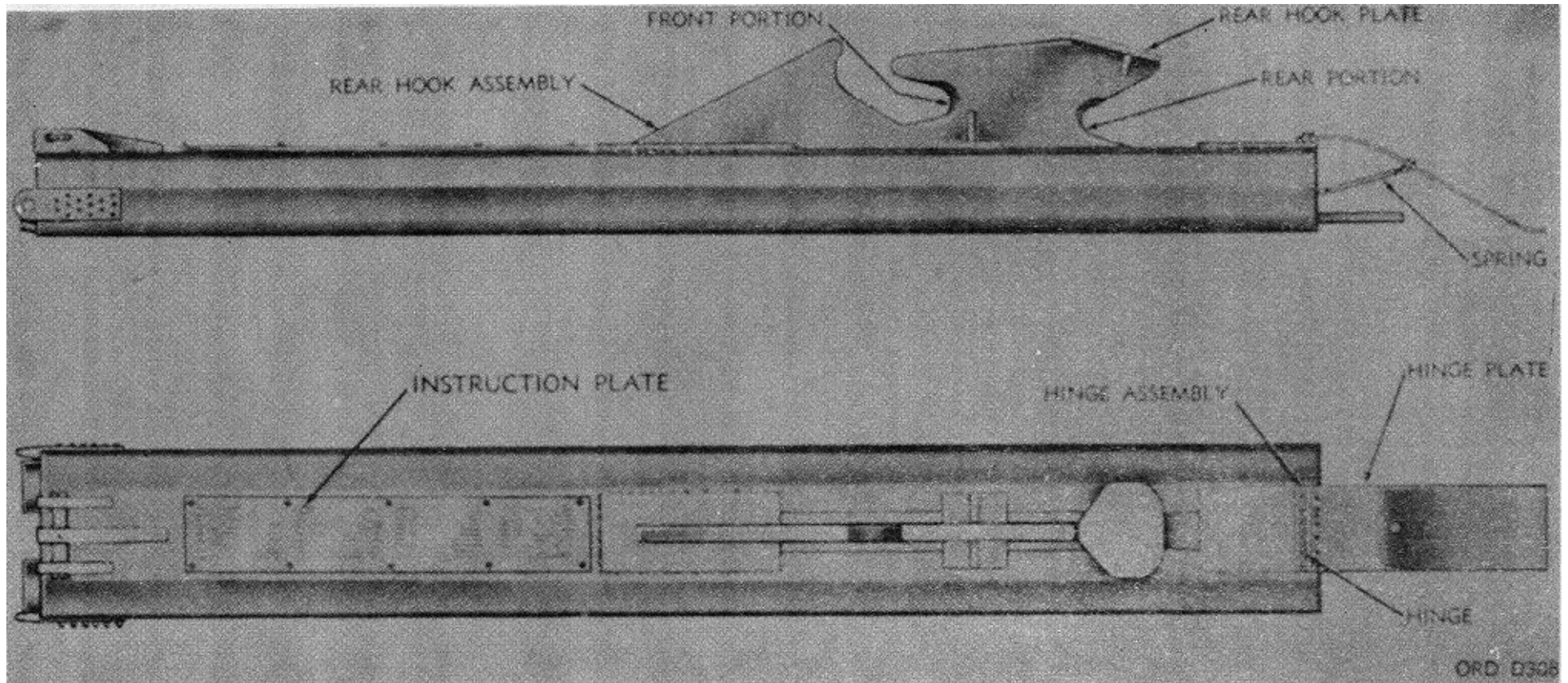
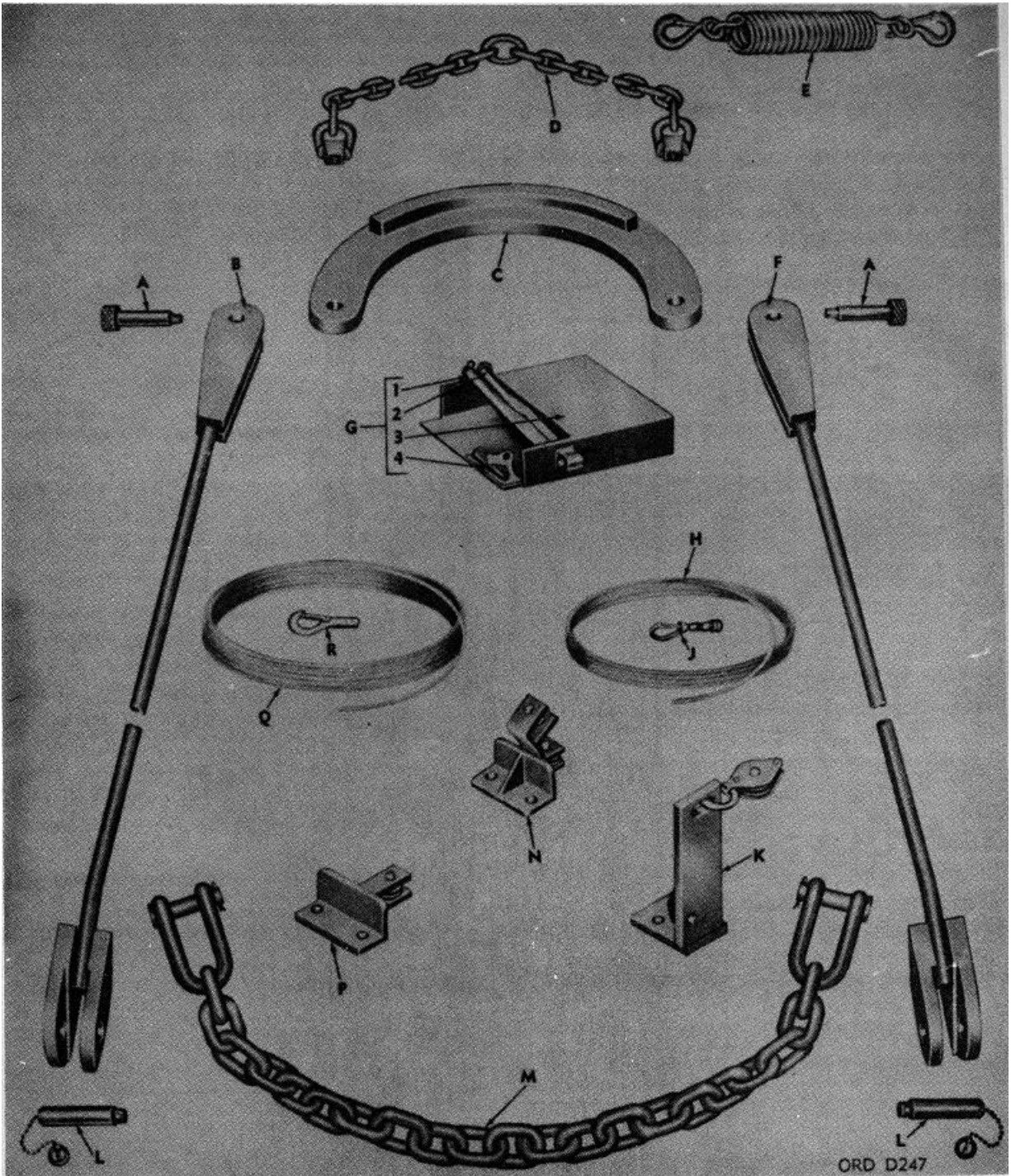


Figure 8. Tail section assembly.



A--Shoulder screws
 B--Extension bar assembly (right)
 C--Drag plate assembly
 D--Chain assembly No. 2
 E--Spring assembly
 F--Extension bar assembly (left)

G--Gear box assembly
 1--Ratchet wrench
 2--Wrench assembly
 3--Body
 4--Cam cleats
 H--Cable No. 1
 J--Safety snap hook

K--Pulley support post assembly
 L--Clevis pin assembly
 M--Chain assembly No. 1
 N--Multiple sheave assembly
 P--Single sheave assembly
 Q--Cable No. 2
 R--Safety hook

Figure 9. Tank accessories.

- (4) *Extension bar assemblies (right and left).* The two 6-foot extension bar assemblies (B and F) each consisting of a bar (front portion and rear portion, shackle No. 1 and shackle No. 2, respectively), are used to secure the drag plate assembly (C) to the rear of the tank. The front portion (shackle No. 1) of each extension bar (B and F) is fastened to the drag plate assembly (C) with a shoulder screw (A) while the rear portion (shackle No. 2) of each bar is secured to one of the rear tank towing lugs with a clevis pin assembly (L).
- (5) *Gear box assembly.* The gear box assembly (G) consists of a body (3) which contains a pulley assembly and a gear spool assembly, two cam cleats (4), a ratchet wrench (1), and a wrench assembly (2). The rear portion of cable No. 2 (Q) is secured to the gear spool assembly while cable No. 1 (H) is held in the pulley assembly of the gear box assembly (G) by the cam cleats (4). The ratchet wrench (1) and wrench assembly (2) assist the operator when raising or lowering the drag plate assembly (C) and chain assembly No. 2 (D). The gear box assembly (G) is installed in the port periscope fitting in the front of the tank.
- (6) *Cable No. 1 and cable No. 2.* Cable No. 1 (H) consists of an 8-foot length of 1/4-inch diameter wire rope. Safety snap hook (J) is secured to cable No. 1 (H) at one end. Cable No. 2 (Q) consists of a 27-foot length of 1/4-inch diameter wire rope. Safety hook (R) is secured to cable No. 2 (Q) at one end. Cable No. 1 (H) is fastened to the cam cleats (4) of the gear box assembly (G) and chain assembly No. 1 (M). Cable No. 2 (Q) is fastened to the gear spool assembly of the gear box assembly (G) at one end and the spring assembly (E) at the other.

- (7) *Single sheave (P), multiple sheave (N), and pulley support post (K) assemblies.* These three assemblies assist the other accessory items when raising or lowering the drag plate assembly (C) and chain assembly No. 2 (D). Each assembly consists of a support or bracket and pulley assembly. These assemblies are bolted to the tank hull, and can be removed when demolition operation is finished. Location of each assembly mentioned above depends on the tank model.

c. *Assembly Tools (fig. 10).* Two rawhide or rubber hammers, four screwdrivers, two double-socket wrench assemblies, and two structural wrench assemblies are supplied for assembling the demolition kit and its accessories to the tank.

d. *Functional Description.* The force of the bullet (cal. 30 or .50, ball) striking the impact plate of the bullet impact fuze assembly drives the impact plate forward, which in turn, strikes and detonates the impact fuze M603 and booster M120. The detonation of the booster, in turn, detonates the composition B of the fuze explosive container loading assembly. The container shatters downward in a manner which produces a narrow, concentrated detonating jet. This jet stream has the force necessary to penetrate the insert tube walls of the impact fuse section assembly, thereby assuring detonation of the composition B and composition C-4 contained within. Detonation of either of the explosive fuze container loading assemblies will initiate detonation of the other loaded sections (center loading and impact fuze) of the demolition kit.

Note. The bullets fired must strike one of the impact plates in order for the demolition kit to be detonated.

e. *Effectiveness.*

- (1) *Most suitable terrain.* Demolition kit 157 is more effective in flat or moderately rolling, open, or lightly wooded terrain. This type of terrain, moreover, is

suitable for maneuvering tanks.

(2) *Crater.* The size of the crater blasted by the demolition kit depends on the type of soil and its moisture content. In most soils, the crater will be approximately 320-feet long, 12 to 16-feet wide, with the maximum depth of 3 to 5 feet. The crater provides a well-marked path for tanks, vehicles, and personnel.

(3) *Breaching obstacles.*

(a) Though the principal use of the demolition kit is to breach mine fields, the kit can also be used to breach bands of log posts, steel rails, antitank ditches, and some small concrete obstacles. Effectiveness of the kit depends upon type, shape, height, weight, spacing and emplacement depth of the individual obstacles, and the ground characteristics. The kit is either pushed through or over the obstacle. Length of the kit used depends on the length of the obstacle. When fired, the sections of the kit loaded with explosives must be over or adjacent to the obstacle. When the kit is detonated, a crater is blasted and the obstacles in the crater are generally shattered or blown out of the crater, depending on the characteristics of the obstacles.

(b) Against reinforced-concrete obstacles interconnected by ground sills

and against large reinforced-concrete blocks, detonation of a single demolition kit may not produce an adequate breach, because of the weight and strength of the blocks and because good contact of explosives with surface of concrete is not obtained.

(c) Success in breaching antitank ditches depends on the depth, width, and revetting of the ditch and whether the nose of the demolition kit clears the far side of the ditch. Detonation of a demolition kit breaks down the sides of the ditch. In an average unrevetted ditch 5-feet deep, a single kit will blast a gap passable by tanks. Deeper ditches may require the detonation of a second kit in the crater of the first. It is generally not practicable to breach ditches deeper than 8 feet.

5. Tabulated Data

a. Complete Assembly.

Length	400 ft (approx)
Height	7 in. (approx)
Width	ft (approx)
Weight	11,000 lb (approx)

b. Demolition Charge.

Length.....	320 ft (approx)
Weight	3200 lb (approx)
Weight of composition B.....	2880 lb (approx)
Weight of composition C-4.....	320 lb (approx)

Total number of loaded section assemblies - 64

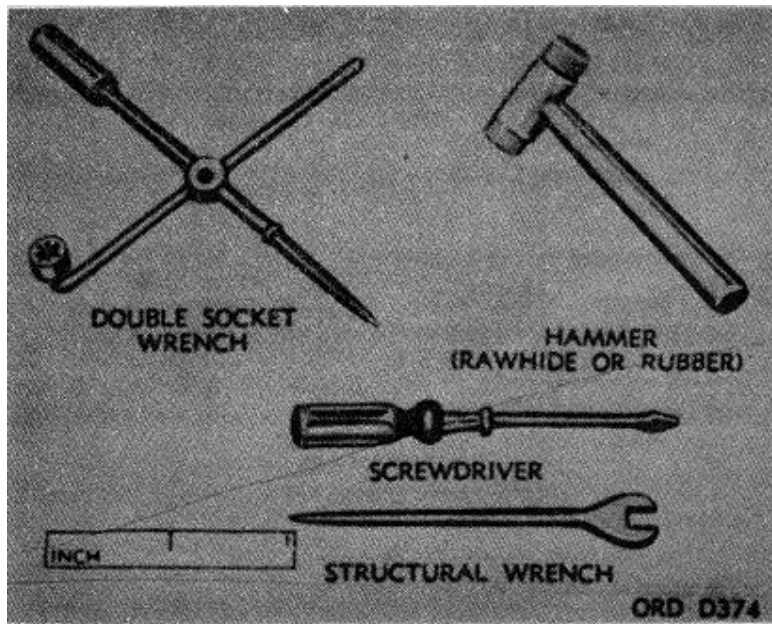


Figure 10. Assembly tools for demolition kit M157.

CHAPTER 2 OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

6. General

a. Whenever a new demolition kit is first received by the using organization, it is the responsibility of the officer-in-charge to determine whether the materiel has been properly prepared for service by the supplying organization and to be certain that it is in condition to perform its function in a safe rather than a hazardous manner.

b. Inspections and services described in paragraph 7 are to be performed, with adequate assistance by the operating crew upon initial receipt of the kit as applicable.

7. Inspections and Services

Warning: Unnecessary, rough, and/or careless handling of this equipment is to be avoided to minimize the possibility of accidental detonation and to minimize the possibility of damage rendering this materiel unsafe for future use. Normal precautions applicable to handling of life ammunition will prevail.

All inspections and services itemized in a through h below are to be performed upon receipt of the materiel. Repair or correction, beyond the instructions contained in this chapter, of any damage or maladjustment which is detected by the inspection must not be attempted at this level. Damage or maladjusted materiel requiring repair or correction beyond the scope of the instructions contained herein, will be sent to the supporting Ordnance depot maintenance unit for the required service.

a. Carefully inspect the packing boxes (fig. 11) containing the nose section assembly, tail section assembly, impact fuze section assemblies, fuze explosive containers with booster M120, and fuzes M603 for signs of damage.

Warning: Packing boxes and crates badly damaged will be opened and their contents checked thoroughly before being used.

Note. Each impact fuze section assembly is packed in a packing box similar to those used for the nose and tail section assemblies when shipped or stored.

b. Carefully inspect exposed portions of the section assemblies (body and center) for cracks, punctures, ruptures, or any other sign of external physical damage. Damaged section assemblies (body or center) will not be used.

Note. The length of the assembled demolition kit can be altered to meet operational requirements.

c. Open and inspect packing boxes and containers of the tank accessories. Unserviceable-items will be replaced.

d. Using any convenient suitable cutting tool (tin -snips, pliers, shears, etc.), cut the steel bands around the packing boxes and crates.

e. Cut the seals on the hasps of the packing boxes.

f. Open the crates and packing boxes, remove packing materials, and remove all section assemblies and components.

Note. The packing boxes for the nose section, the tail section, and the impact fuze section assemblies will be opened and the contents inspected before opening other packing boxes and crates and inspecting contents. Badly damaged nose section, tail section, and/or impact fuze section assemblies will be replaced.

Warning: The packing boxes containing the fuze explosive container loading assemblies and fuzes will only be opened when the assembled kit is ready to be fuzed (refer to paragraph 10).

g. Place packing boxes, crates, and packing materials in the rear of the assembling area once the contents have been removed.

h. Inspect all section assemblies for damage and missing component parts such as side joint pins, links, top joint studs, pushing bars, etc.

Note 1. The pushing bar of the nose section assembly is strapped to the section body during shipment.

Note 2. The time required to unpack and uncrate the demolition kit is approximately 6 man-hours.

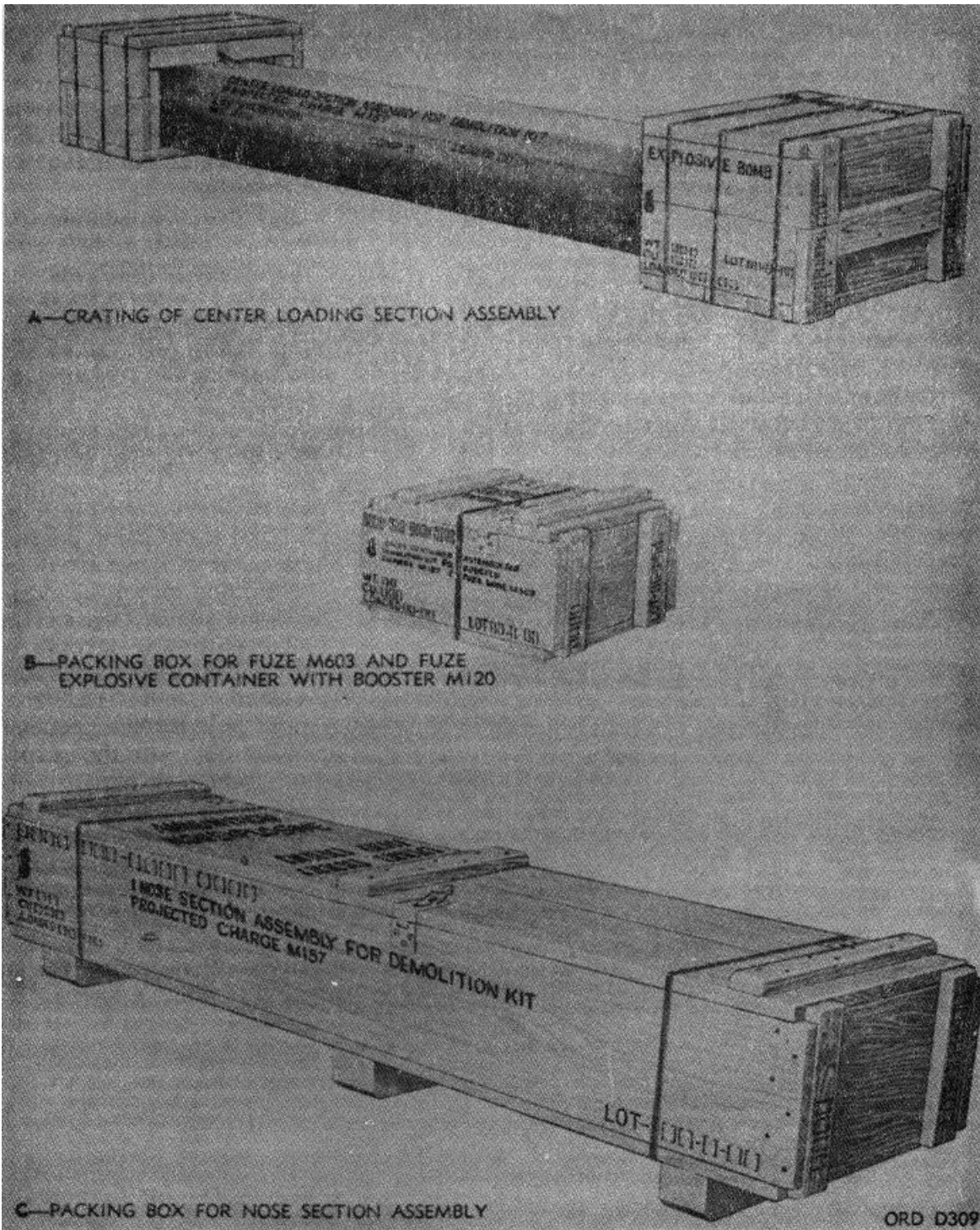


Figure 11. Packing and crating of demolition kit M157.

Section II. OPERATION UNDER USUAL CONDITIONS

8. General

This section contains instructions necessary for the proper operation of the demolition kit M157 under normal conditions. Refer to paragraphs 17 and 18 for operation under unusual conditions.

9. Assembly Procedures for Demolition Kit M157

a. Unpack the sections from the packing boxes and crates as described in paragraph 7. After reading the instruction plates on the nose or the tail section, proceed as shown in figure 12.

Warning: Do not assemble the demolition kit within 280 feet of the storage area of the section assemblies.

b. Choose a flat area (rear area) large enough to contain the assembled kit when possible. When assembly space is limited, assemble the sections at selected locations, and have assembled sections towed away. The site should be as near as possible to the point of anticipated detonation, preferably within 1 mile and defiladed from enemy fire and observation.

Note. Use plank decking where possible when assembling the demolition kit on muddy or wet terrain.

c. Lay all sections on the ground (fig. 12) in the following order: one nose section, three body sections, 60 center loading sections, one fuze impact section, two center loading sections, one fuze impact section, 10 body sections, and one tail section.

Note 1. Point the nose section in the direction of the mine-field.

Note 2. A body section assembled between any of the center loading sections will interrupt the detonating propagation of the charge.

Note 3. The male connecting lugs of the sections should always point towards the nose section.

Warning: The center loading and impact fuze sections contain high explosives and must be handled in accordance with applicable safety regulations (refer to TM 9-1903 and AR 385-63).

d. Use the step by step procedures (figures 13 and 14) listed below when joining the sections:

Step 1. Remove the side joint pins using a rawhide or rubber hammer, and retain the pins for future use.

Step 2. Bring the sections together mating the male and female connecting lug. Using the rawhide or rubber hammer, drive the side joint pins in the holes of the connection lugs.

Step 3. Place the pushing bar in the rear of the first body section and push it against the pushing bar of this section until its front end makes contact with the pushing bar stop in the nose section. Remove the pushing bar inserted in the body section.

Step 4. Unscrew and remove the top joint stud (fig. 14). Remove the top bearing bar of the body section and pull the links over the Joint.

Step 5. Check the notch position of the bearing bar removed in step 4 above, then insert the bar in the top supports and through the links. The notch position is used when adjusting the top joint for the required slack adjustments (fig. 3).

Step 6. Inspect for the presence of the pushing bar with the screwdriver, then inspect the general condition of the joint system.

e. Check the notch position of the top bearing bar of the nose section for the correct slack adjustment position (fig. 3). If slack adjustment is required, refer to the instructions in paragraph 14b.

f. Join all sections using the instructions provided in *d* and above.

Note 1. Leave the pushing bar inserted in the rear of the last body section.

Note 2. The time required to assemble the demolition kit is approximately 6 man-hours.

10. Fuzing

Fuzing procedures for the demolition kit are as follows:

a. Remove fuse M603 and the fuze explosive container loading assembly containing booster M120 from packing box, and inspect for presence of dirt and/or moisture. Remove dirt or moisture when

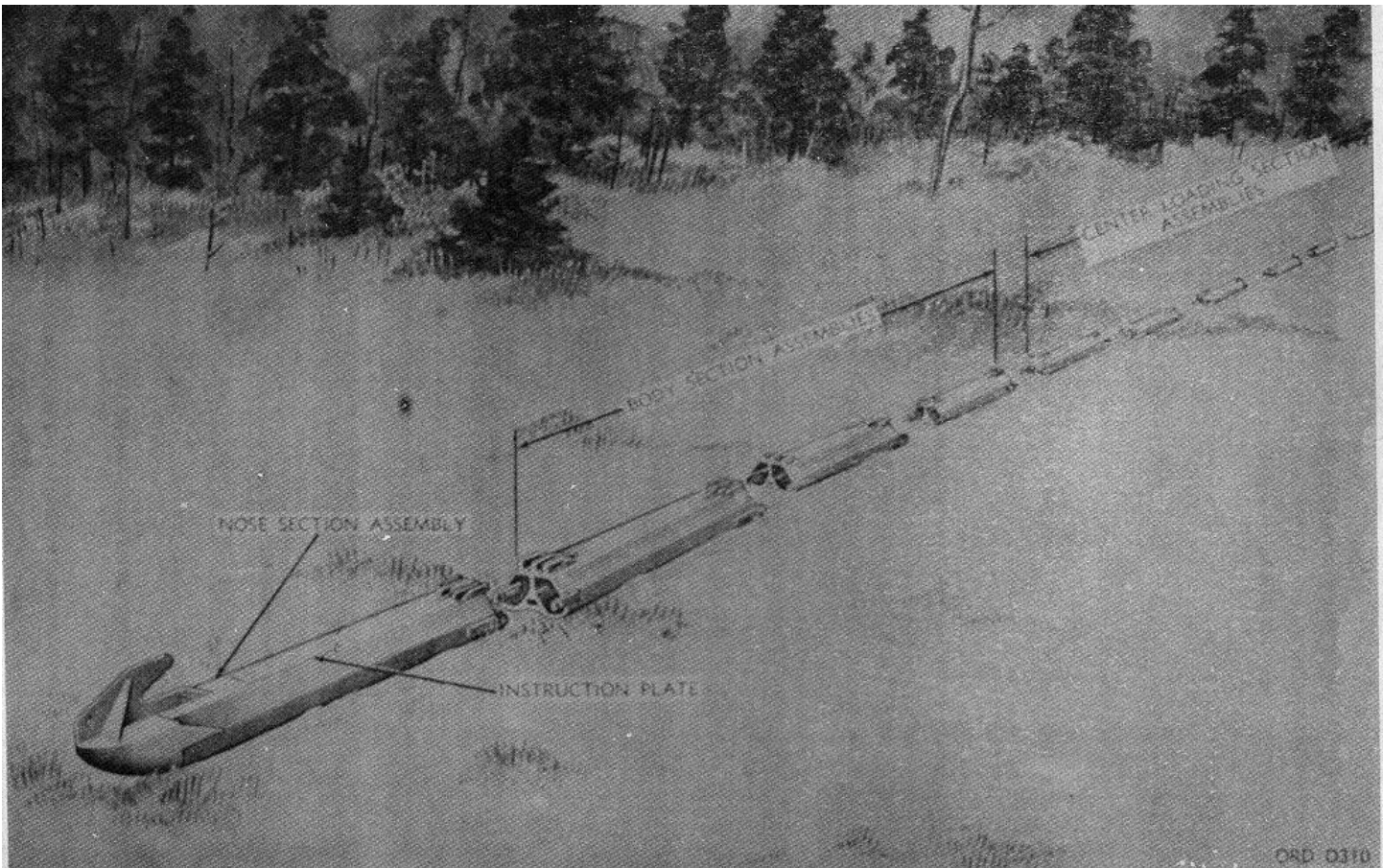


Figure 12. Section assembly sequence on terrain.

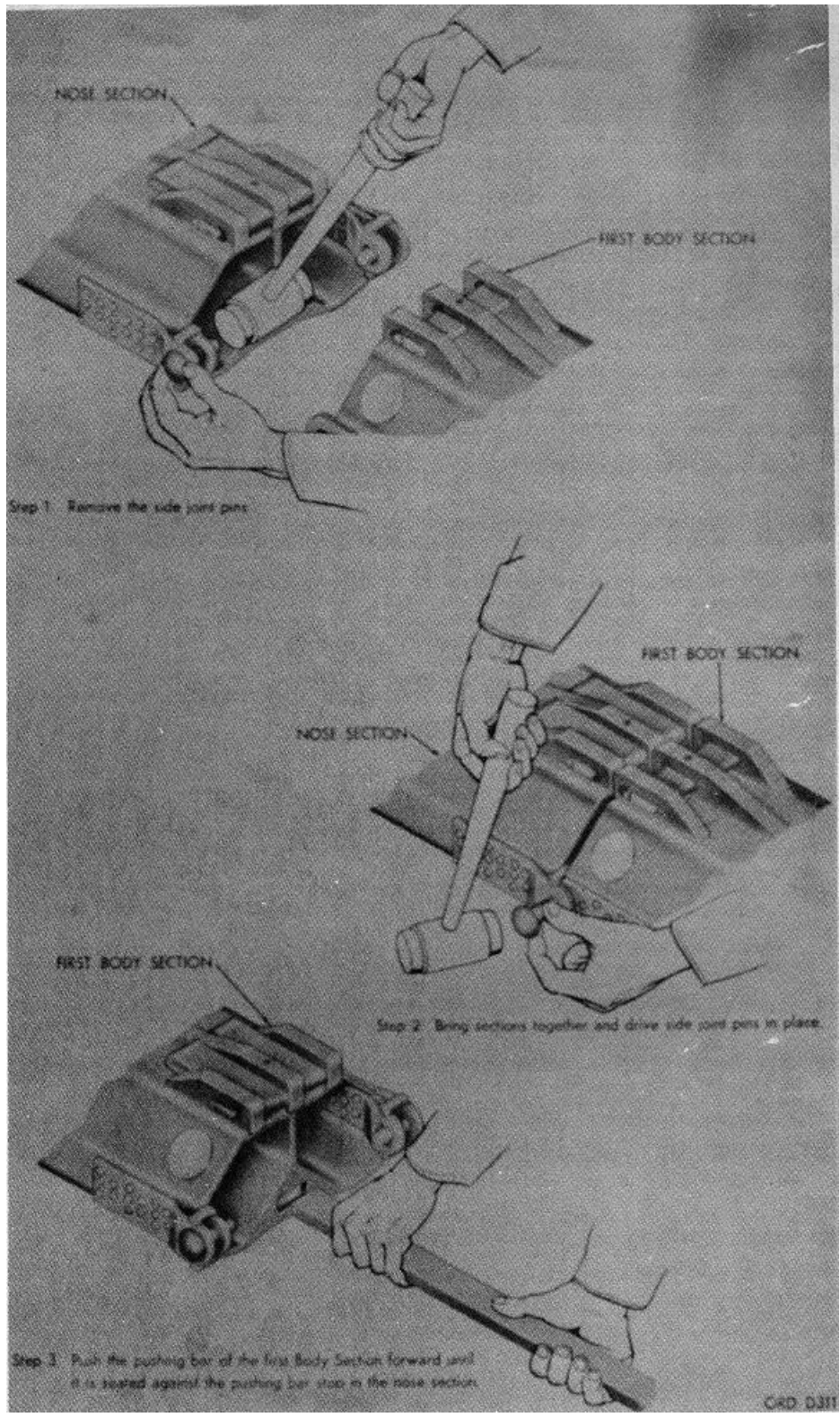


Figure 13. Assembly operations - step 1 through step 3.

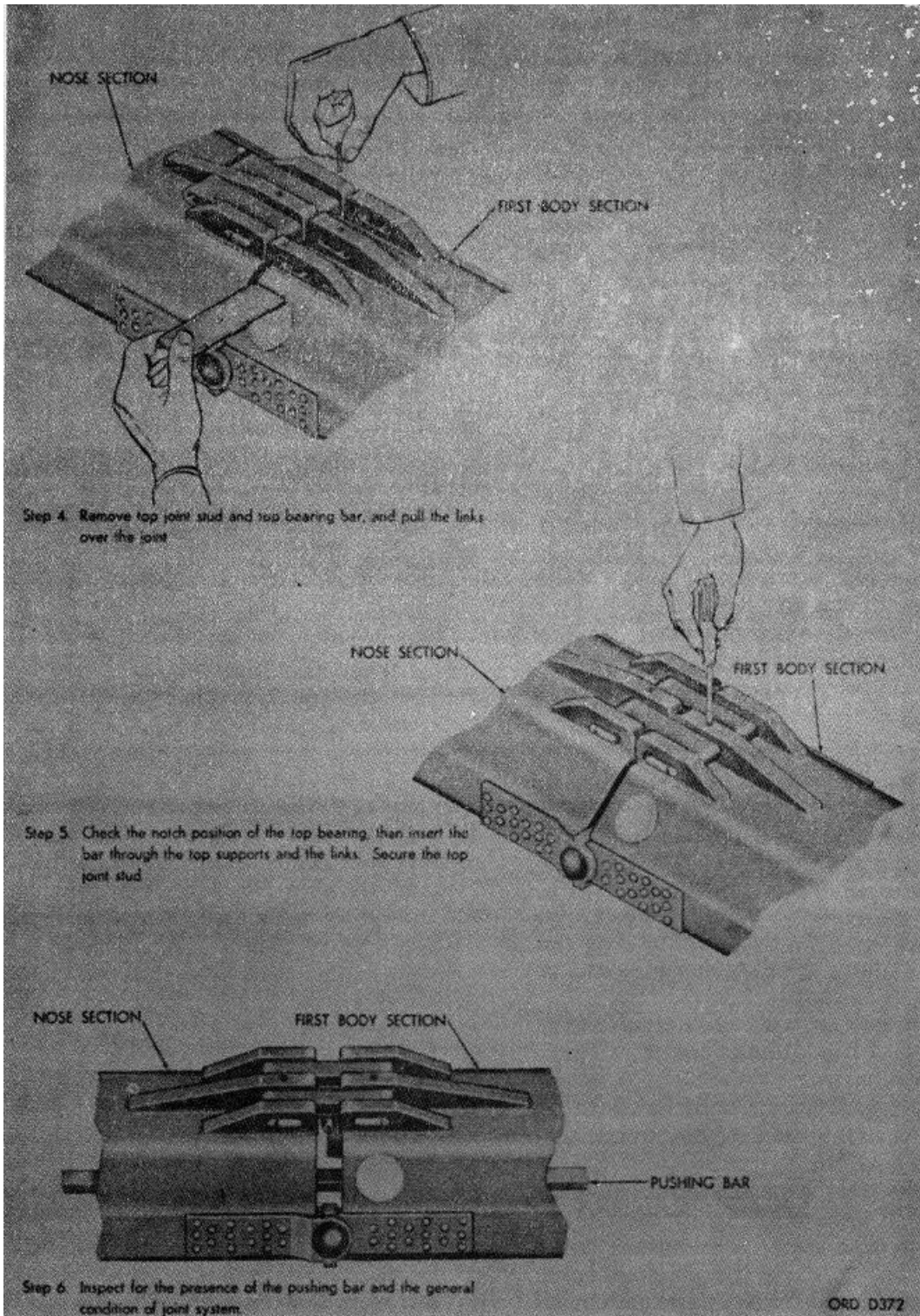


Figure 14. Assembly operations - step 4 through step 6.

possible. Replace unserviceable fuze explosive container or fuze.

- b. Unlatch and open the impact fuze housing door (fig. 7).
- c. Remove the safety clip from the fuze.
- d. Unscrew the knurled fuze cap from the fuze cup of the fuze explosive container and place the fuze in the fuze cup.
- e. Replace and secure the fuze cap to the fuze cup.
- f. Remove the bullet impact fuze assembly and the dummy container from the fuze housing assembly.
- g. Insert the fuze explosive container loading assembly and the bullet impact fuze assembly into the fuze housing, with the fuze and the flat side of the impact fuze plate facing outward.

Warning: Handle fuzed fuze explosive container loading assembly carefully.

- h. Check the position of the fuze explosive container assembly and the bullet impact fuze assembly to assure that they are seated properly in the fuze housing. Make corrections if needed.
- i. Secure the fuze housing door assembly to the fuze housing assembly.

11. Assembly Procedures for Tank Accessories

(fig. 165)

- a. Bolt the front portion (shackle No. 1) of the extension bar assemblies (right and left) and chain assembly No. 2 to the drag plate assembly using the shoulder screws.
- b. Place the rear portion (shackle No. 2) of each extension bar assembly over the rear towing lug of the tank and secure with a clevis pin assembly.
- c. Secure the spring assembly to chain assembly No. 2, using the ring of the chain assembly.
- d. Install the safety hook on cable No. 2 and fasten the free end of the spring assembly to cable No. 2.
- e. Remove pins from the round shackle pins of chain assembly No. 1, and retain pins and cotter pins for future use.
- f. Align the holes of the round shackle pins of chain assembly No. 1 with the holes of the front towing lugs of the tank.
- g. Insert the pins removed in e above and secure with the cotter pins.

- h. Install safety snap hook on cable No. 1 and fasten cable No. 1 to chain assembly No. 1 using the hook. Locate this hook approximately at the midpoint of the chain assembly.

- i. Insert and secure the gear box assembly in the port periscope fitting.

Note. The center periscope may be removed in place of port periscope.

- j. Remove required screws from the tank for placement of sheave and support assemblies and retain screws for future use.

Note. The location of the pulley of the multiple sheave assembly will be altered when this assembly is assembled to tank M48A2.

- k. Place the single and multiple sheave assemblies in locations (required) and secure them to the tank with the screws removed in j above.

- l. Place the pulley support post assembly on the tank and fasten down.

- m. Thread the free end of cable No. 1 through the pulley assembly of the gear box assembly and the cam cleats of the gear box assembly.

- n. Thread the free end of cable No. 2 through the pulley support post, the multiple sheave, and the single sheave assemblies.

- o. Push the free end of cable No. 2 in the opening of the gear box assembly and secure the cable to the gear spool assembly of the gear box assembly.

- p. Wind cable No. 2 on the gear spool assembly using the wrench assembly of the gear box assembly.

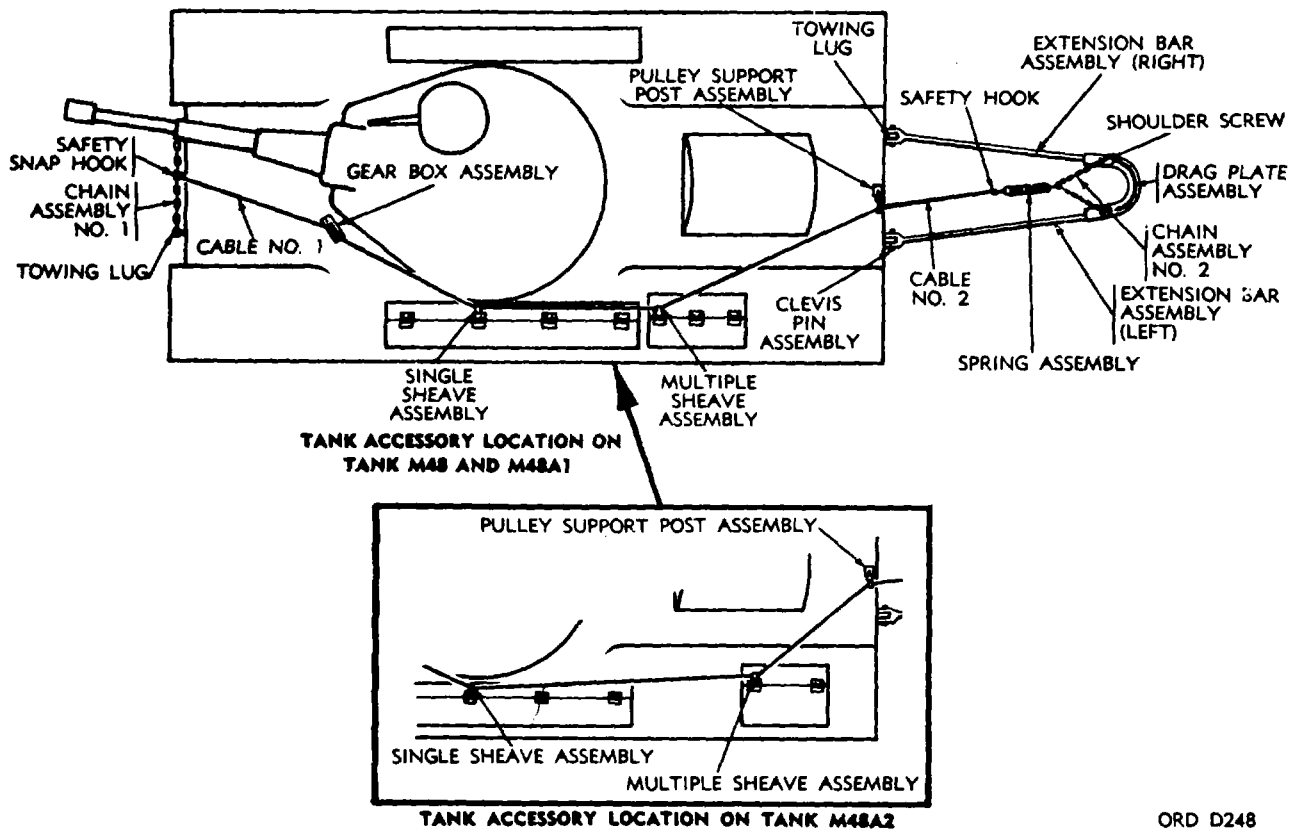
Note: The gear spool assembly operates by moving the wrench assembly of the gear box assembly from left to right.

12. Night Assembly Procedures

- a. Night assembly procedures are the same as those during the day, but the time required is one and a half to two times as long as day assembly. Close supervision is important to assure the correct section assembly sequence.

Note 1. The time required for night assembly is approximately 9 to 12 man-hours.

Note 2. A body section assembly inserted between any of the center loading sections will interrupt the detonating propagation of the charge.



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Figure 15. Location of rigging on the tank hull.

b. The 3-inch white cross on the fuze housing door of each of the impact fuze sections is painted with luminous paint that can be seen from inside the tank at night.

Note. Eight hours of sunlight exposure of the cross will provide hours of luminescence at night.

c. The presence of the pushing bars can be readily checked with a screwdriver or similar tool at night.

13. Safety Precautions

When the demolition kit is detonated, the blast pressure is minimum toward the rear and maximum on the sides of the kit. Blast pressure from the detonation causes the tank crew a minimum of discomfort. If the kit is detonated immediately after it is released by the tank, flames from the explosion may enter the tank, if any ports are open. However, there will be no damage to the tank or injuries to personnel, if the safety precautions listed in a through c below are observed.

Detonation will throw fragments as far as 740 meters laterally or 460 meters to the rear, but most of the fragments are thrown at right angles to the line of the kit. It should be remembered that fragments may occasionally be thrown as far as 1000 meters. The precautions in a through c below must be taken when handling this demolition kit.

a. Towing and Pushing.

- (1) All loose oil and fuel drippings be removed from inside the tank.
- (2) Tank fire extinguishers must be in good working condition and ready to use.
- (3) All direct vision slots must be closed.
- (4) Fuel-tank filler covers must be properly fastened.
- (5) Gaskets and latches on all latch covers must be in good condition.
- (6) Hatch doors must be securely latched.

Detonation of the demolition kit will blow open improperly latched doors.

- (7) Periscopes must be fitted in all periscope holders.
- (8) The turret machine guns must be in place or wooden plugs wedged in the openings.
- (9) Canvas or asbestos should be stuffed around hull and turret ventilators to minimize dirt blowing into tank.
- (10) Canvas or asbestos should be stuffed in gun shield opening behind rotor shield to prevent flame from explosion from entering tank.

b. Tanks Close to the Tank Pushing or Firing the Demolition Kit.

- (1) The minimum safety lateral distance for tanks or vehicles is 100 meters.
- (2) Tanks within 460 meters should have all ports and slits closed and all hatch doors securely latched.

c. Personnel Outside of Tanks.

- (1) Only those personnel who are involved with the assembly of the demolition kit should be in the immediate area.
- (2) No personnel must be within 300 meters of kits in firing position or armed kits being towed or pushed.
- (3) Personnel within 275 to 740 meters to the sides of armed kit or 275 to 460 meters to the rear of the armed kit must take cover at all times.
- (4) All personnel within the limits specified in (3) above must be notified prior to detonation of the demolition kit.
- (5) All personnel should be equipped with steel helmets and positioned to the rear of the demolition kit, if possible, rather than to the sides.

Warning: Personnel should take advantage of available cover.

- (6) A 1 minute fallout period should be allowed for falling fragments prior to the advancement of tanks, vehicles, or troops by foot through the cleared area.

14. Emplacement Procedures

Warning: Before a live demolition kit is towed or pushed, the safety precautions listed in paragraph 13 should be taken.

a. Inspection. Before towing the demolition kit to the desired mine area, the assembled demolition kit and its component parts should also be inspected to assure that:

- (1) All demolition kit sections are arranged correctly.
- (2) All side joint pins and pushing bars are in place.
- (3) All links are securely held by the top bearing bars.
- (4) The two fuze impact sections are in the correct location.
- (5) Each of the fuze impact sections are fused.
- (6) The impact fuze housing door is held securely with the latch.
- (7) The slack has been adjusted for all joints in accordance with *b* below.

Caution: The above inspections are necessary to prevent damage to the demolition kit when it is towed or pushed.

b. Adjustment. The slack adjustment procedures are as follows:

- (1) Check the top bearing barnotches for the correct slack adjustment as shown in figure 3.
- (2) If slack adjustment is needed, remove the top joint stud, slide the top bearing bar through the top joint supports and links, and position correctly.
- (3) Secure the top bearing bar with the top joint stud one the correct slack adjustment has been made.

c. Towing.

- (1) Aline the rear of the tank with the nose section of the kit and then back the tank until the drag plate assembly is behind the nose hook assembly.
- (2) Using the wrench assembly (fig. 17) of the gear box assembly, release cable No. 2 holding the drag plate assembly, allowing it to settle behind the nose hook assembly (fig. 16).

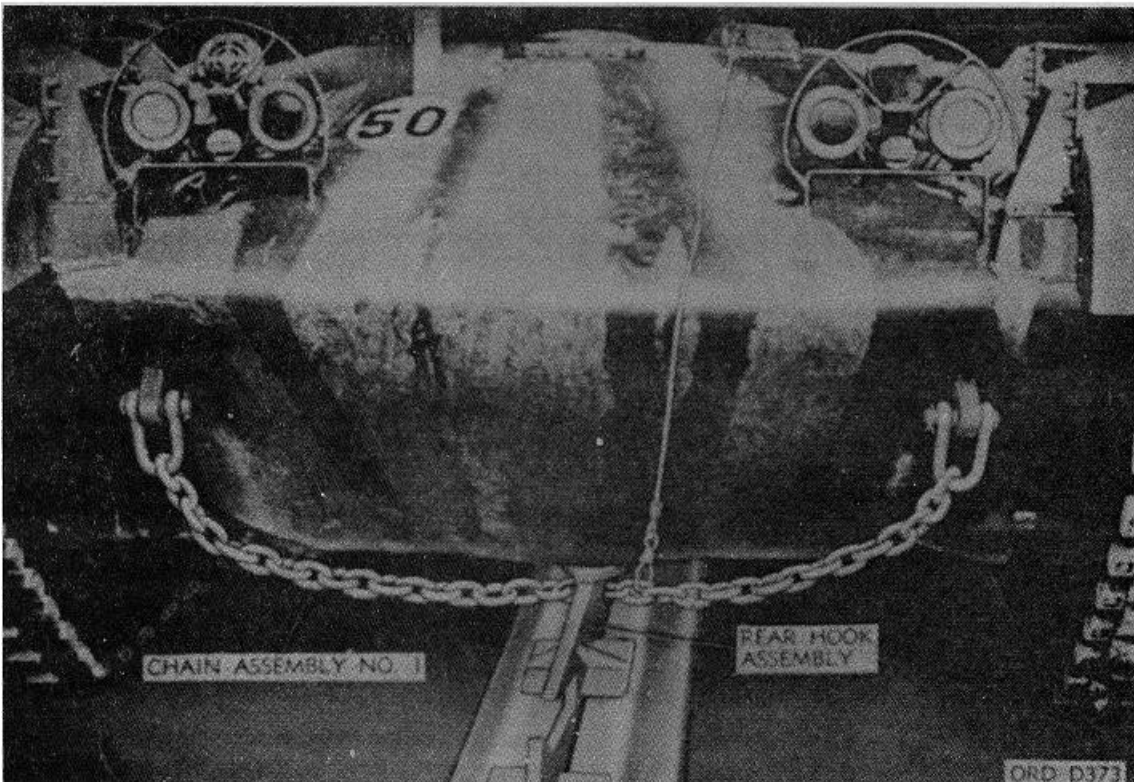
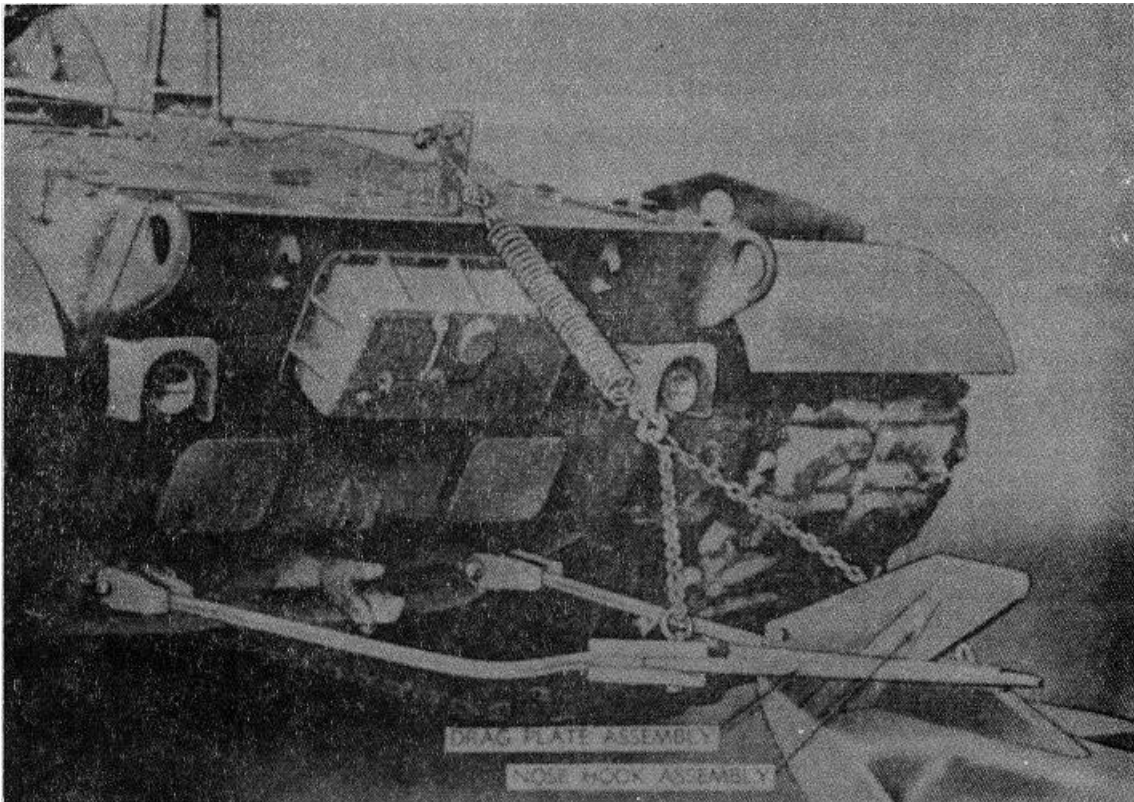


Figure 16. Towing and pushing attachments attached to the demolition kit M157 nose and tail section assemblies.

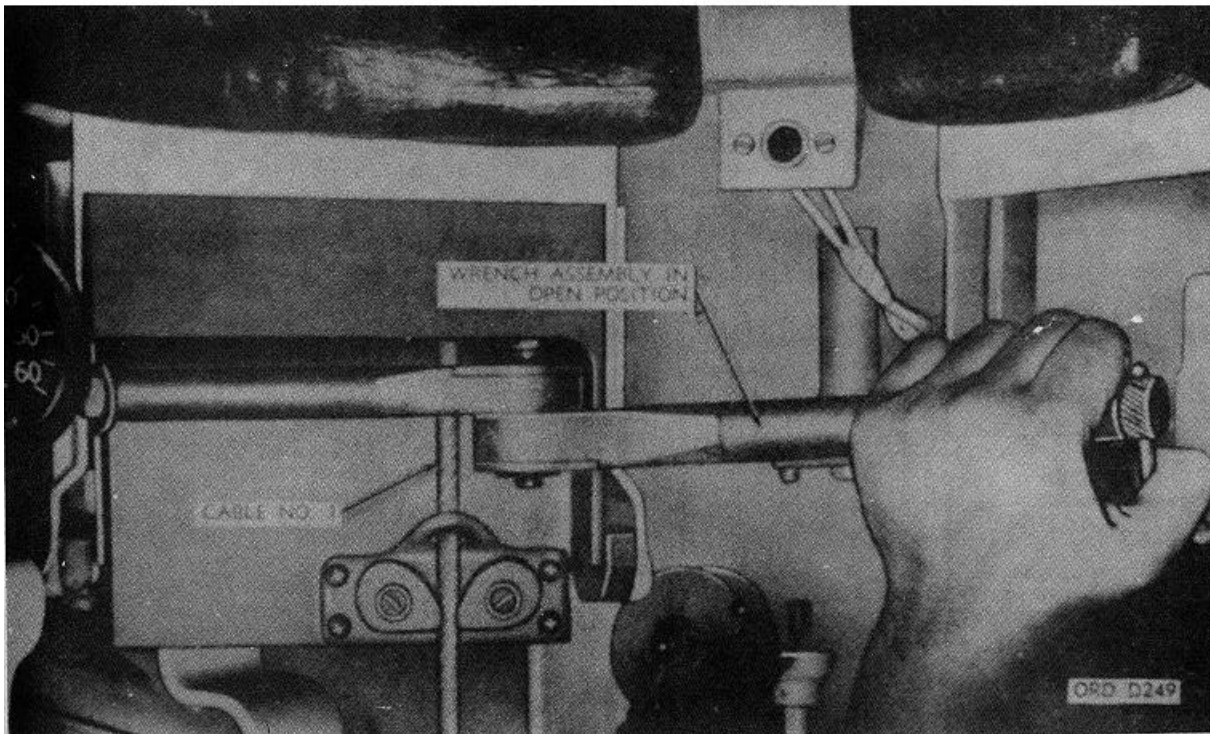
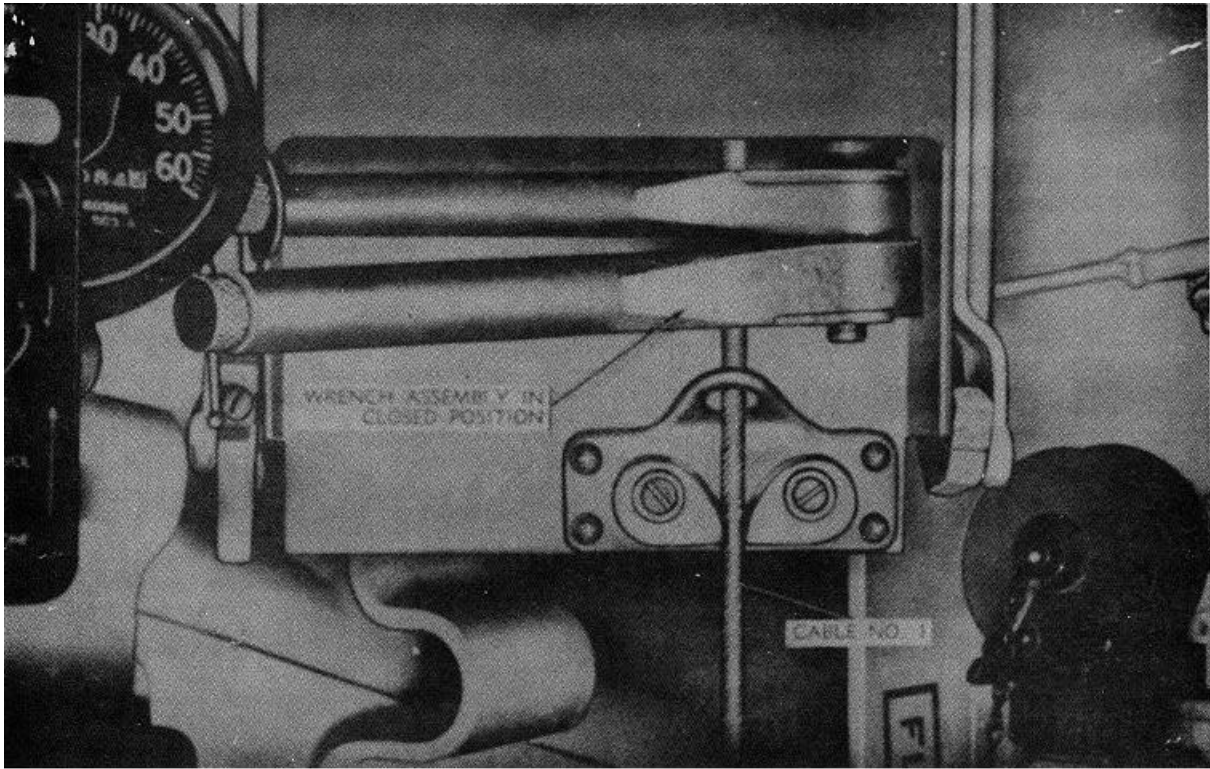


Figure 17. Raise drag plate assembly using the wrench assembly.

- (3) When the drag plate assembly falls behind the nose hook assembly, move the tank forward slowly until the drag plate assembly engages the nose hook assembly.

Caution 1:

Do not back the tank over the nose section and crush it.

Caution 2:

When towing a demolition kit, it is important that changes in direction and speed be made gradually and without jerking.

- (4) Tow the demolition kit as close as possible to the edge of the minefield.

Caution

The final towing (approximately 150 meters of the demolition kit should be as straight as possible so as to straighten the demolition kit for easier pushing and to minimize the chances of damaging the demolition kit.

- (5) Stop the tank and back it about 1 meter to disengage the drag plate assembly from the nose hook assembly.
- (6) Using the wrench assembly (fig. 17) of the gear box assembly, shorten cable No. 2 holding the drag plate assembly until this assembly is clear of the nose section hook.
- (7) Once the drag plate assembly has cleared the nose hook assembly, move the tank forward a sufficient distance to clear the nose section before turning.

d. Pushing.

- (1) Approach the tail section of the kit and align the center of the tank over the center of the kit.
- (2) Before reaching the tail section, release cable No. 1 holding chain assembly No. 1 (fig. 17).
- (3) Advance the tank slowly until chain assembly No. 1 (fig. 16) engages the rear portion of the rear hook assembly, and the rear hook plate rests against the tank hull.

Caution

The rear hook plate should rest securely against the bottom of the tank

hull when the demolition kit is being pushed.

- (4) Push the demolition kit into the desired mine area.

Caution

Do not attempt to straighten the kit by force. Steer the tank so as to minimize any bending of the kit. Keep the last 35 meters of the kit as straight as possible.

15. Misalignment Correction Procedures When Pushing the Demolition Kit

- a. Back the tank at least 2 meters from the tail section. Raise the chain assembly No. 1 (fig. 17).
- b. Move the tank forward slowly until chain assembly No. 1 engages the front portion of the rear hook assembly (fig. 8) of the tail section. Lower chain assembly No. 1.
- c. Back the tank for a sufficient distance to realign or straighten the demolition kit.
- d. Disengage chain assembly No. 1 and follow the procedures outlined in paragraph 14d(1) through (4) above.

16. Detonation Procedures

Warning:

Before a live demolition kit is detonated, precaution listed in paragraph 13 should be taken.

- a. Back tank approximately 25 meters to avoid damaging the lights and/or other accessories.

Note:

Raise chain assembly No. 1 clear of the ground.

- b. Fire a bullet from one of the machine guns into either bullet impact fuze plate.

Note 1.

The gunner should aim the gun at the center of the white cross painted on the fuze housing door.

Note 2.

The thin aluminum fuze housing door offers minimum resistance to the bullet.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

17. General

In addition to the operating procedures described for usual conditions in paragraphs 8 through 16, special instructions of a technical nature for operating the projected charge demolition kit M157 under unusual conditions are contained or referred to herein.

18. Operation During Extreme Cold Weather Conditions

a. General. Although the demolition kit M157 is designed to operate under cold weather conditions to a temperature of minus 65°F., additional care and special handling is required for proper functioning and to minimize the possibility of causing damage to the kit under cold weather conditions.

b. References. FM 31-70, FM 31-71, and TM 9-207 all contain information pertinent to the operation of Ordnance materiel under arctic conditions. First echelon personnel responsible for the operation of the demolition kit under extreme cold weather conditions

should become familiar with the contents of these publications.

c. Care and Handling. Three fundamental procedures ((1) through (3) below) must always be observed in the care and handling of the demolition kit under conditions of extreme cold.

- (1) Do not suddenly transfer the demolition kit from cold to warm temperatures or vice versa. Condensation induced by this action and subsequent freezing of this condensation may hinder the utility of the kit or it may even render the kit completely unserviceable.
- (2) Avoid placing the kit in area where possible freezing to the ground may take place (water puddles, slush, ice, etc.).
- (3) Remove snow and ice from section assemblies and component parts before attempting to assemble the demolition kit.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

19. General

Tools, equipment, spare parts, and repair parts, other than those issued for use with the demolition kits (see table 1) are not supplied to the using organization for maintenance of the equipment. Absolutely no

maintenance or service other than that expressly states in paragraph 7 is to be attempted by first echelon personnel. Whenever service and/or maintenance of any demolition kit is required, the affected kit will be sent to the supporting Ordnance depot maintenance unit for the necessary service or maintenance.

CHAPTER 4
SHIPMENT AND DESTRUCTION OF MATERIEL
TO PREVENT ENEMY USE

Section I. SHIPMENT

20. General

This chapter contains information applicable to the using organization for the shipment of the demolition kits back to the supporting Ordnance depot maintenance unit for service and/or maintenance. It also contains information to be utilized when destruction of the kits is required to prevent capture or abandonment of the kits in a combat zone.

21. Shipment

If it is necessary to ship the demolition kits back to the supporting Ordnance depot maintenance unit for service and/or maintenance, make certain that the kit(s) are adequately lashed to the truck, flatcar, or other vehicle to prevent movement or shifting during transit.

Section II. DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

22. General

Destruction of the demolition kits, when subject to capture or abandonment in a combat zone, will be undertaken by the using arm only when, in the judgment of the unit commander concerned, such action is necessary in accordance with orders of, or policy established by, the Army commander.

23. Methods

The information which follows is for guidance only. Of the several means of destruction, those most generally applicable are as follows:

a. Burning--Requires gasoline, oil, or other flammables..

b. Gunfire--Includes artillery, machine guns, rifles using rifle grenades, and launchers using antitank rockets.

c. Demolition --Requires ammunition.

- (1) In general, destruction of essential parts, followed by burning, will usually be sufficient to render the demolition kits useless. However, selection of the particular method of destruction requires imagination and resourcefulness in the

utilization of the facilities at hand under the existing conditions. Time is usually critical.

- (2) If destruction to prevent enemy use is resorted to, the demolition kit must be so badly damaged that it cannot be restored to a usable condition in the combat zone either by repair or by cannibalization. Adequate destruction requires that parts essential to the operation of the kit including essential components, equipment, and accessories be destroyed or damaged beyond repair. However, when lack of time and personnel prevents destruction of those parts essential to the operation of the kit, priority must be given those parts most difficult to replace. Equally important, when more than one kit requires destruction, the same essential parts must be destroyed on each kit so the enemy cannot reconstruct one complete unit from several damaged ones.
- (3) If destruction is to be accomplished, due consideration should be given to:
 - (a) Selection of a point of destruction that will cause the greatest

obstruction or danger to enemy movement while minimizing the hazard or inconvenience to friendly troops from fragments or obstruction.

- (b) Observance of appropriate safety precautions.

d. *Destruction.*

- (1) *General.* The methods of destruction outlined below pertain to the demolition kit M157.

Warning

Prior to the initiation of destruction of any demolition kit, it must first be ascertained that the kit has been detached from the tow vehicle.

- (2) *Method 1--by burning.*

Warning:

Remove fuze explosive container loading assembly prior to initiating destruction proceeding of an assembled kit.

- (a) Explosive ammunition, if available nearby, should be removed from its packing or other protective material. Place the ammunition on and about the demolition kit so that it will be fully exposed to the fire, and in such locations that the greatest damage will result from its detonation. Remove any safety devices from the ammunition. Place combustible material such as wood, paper, rags, etc., on and about the demolition kit.

Note.

Cross stack the section assemblies of demolition kit M157 when preparing it for burning.

- (b) Pour a substantial quantity of gasoline or oil into and over the kit on combustible materials, and the ammunition; and on the immediate area surrounding the kit.
- (c) Ignite by means of an incendiary grenade, a combustible train of suitable length, or other appropriate means. Take cover immediately.

Warning 1

Cover must be taken immediately.

Warning 2

Due consideration must also be given to the highly flammable nature of gasoline and its vapor. Carelessness in its use may result in painful burns. The danger zone is approximately 300 meters.

Elapsed time: about 10 minutes.

- (3) *Method 2--by gunfire.* Destroy the demolition kit by gunfire using adjacent gun tanks, self-propelled guns or howitzers, firing HE ammunition. Machine guns, rifles using rifle grenades, or rocket launchers using antitank rockets may also be used. Fire on the demolition kit aiming at the impact fuze plate. Several direct hits may be required to completely destroy the demolition kit.

Warning.:

All firing at the demolition kit should be conducted from a minimum distance of 100 meters if the firing is from a tank or tank-like vehicle. Firing of rifle grenades, antitank rockets, machine guns, or other nonenclosed weapons must always be accomplished from cover.

Elapsed time: about 5 minutes.

- (4) *Method 3 - by detonation.*

- (a) Cross stack (cased or uncased section assemblies in one or more piles in order to facilitate complete destruction.
- (b) For complete details on the use of demolition materials and methods of priming and detonating demolition charges, refer to FM 5-25. Training and careful planning are essential.

Warning:

Danger area is about 300 meters.

Elapsed time: about 5 minutes.

APPENDIX REFERENCES

1. Publication Indexes

The following indexes should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to materiel covered in this technical manual.

Index of Army Motion Pictures, Film Strips, Slides and Phono-Recordings.....	DA Pam 108-1
Military Publications:	
Index of Administrative Publications.....	DA Pam 310-1
Index of Blank Forms.....	DA Pam 310-2
Index of Graphic Training Aids and Devices.....	DA Pam 310-5
Index of Supply Manuals; Ordnance Corps.....	DA Pam 310-29
Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.....	DA Pam 310-4
Index of Training Publications.....	DA Pam 310-3

2. Supply Manuals

The following supply manuals of the Department of the Army supply manuals pertain to this equipment:

a. Ammunition.

Ammunition (Class 1375 Explosives, Bulk Propellants, and Explosive Devices).....	SM 9-5-1375
Ammunition and Explosives (Class 1340 Rockets and Rocket Ammunition).....	SM 9-5-1340
Ammunition and Explosives (Class 1390 Fuzes and Primers).....	SM 9-5-1390
Ammunition and Explosives: Land Mines.....	SM 9-5-1345
Grenades, Hand and Rifle, and Related Components.....	SM 9-5-1330
Stock List of All Items, Price List, FSC Groups 10 through 28.....	SM 9-2-1

b. Destruction to Prevent Enemy Use.

Ammunition (Class 1375 Explosives, Bulk Propellants, and Explosive Devices).....	SM 9-5-1375
Ammunition and Explosives: Land Mines.....	SM 9-5-1345

c. General.

Introduction	ORD 1
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d. Maintenance and Repair.

Tool Kit, Field Maintenance, Explosive Ordnance Disposal Squad (FSN 5180-754-0644).....	SM 9-4-5180-J8-1
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e. Training Aids.

Training Aid Catalog.....	TO 28-1-3
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3. Forms

The following forms pertain to this materiel:

DA Form 9-1, Materiel Inspection Tag	
DA Form 468, Unsatisfactory Equipment Report	
DA Form 2028, Recommended Changes to DA Technical Manual Parts Lists or Supply Manual 7, 8, or 9 (Cut Sheet)	

4. Other Publications

The following explanatory publications contain information pertinent to this materiel and associated equipment:

a. General.

Dictionary of United States Army Terms.....	AR 320-5
Military Symbols.....	FM 21-30
Military Terms, Abbreviations, and Symbols: Authorized.....	AR 320-50
Abbreviations and Brevity Codes.	
Military Training.....	FM 21-5
Techniques of Military Instruction.....	FM 21-6

b. Ammunition.

Ammunition and Explosives Material; Surveillance and Safety.....	AFR 136-6
Ammunition, General.....	TM 9-1900
Ammunition: Restricted or Suspended.....	TB 9-AMM-2
Ammunition Supply.....	AFR 67-28
Basic Cold Weather Manual.....	FM 31-70
Care, Handling, Preservation and Destruction of Ammunition.....	TM 9-1903
	TO 11A-1-37
Demolition Materials.....	TM 9-1946
Disposal of Supplies and Equipment: Ammunition.....	SR 755-140-1
Explosives and Demolition.....	FM 5-25
Explosives: Disposal by Dumping at Sea.....	SR 75-70-10
	AFR 68-3
Grenades and Pyrotechnics.....	FM 23-30
Issue of Supplies and Equipment: Preparation, Processing, and.....	AR 725-5
Documentation for Requisitioning, Shipping, and Receiving.	
Logistics (General):	
Malfunctions Involving Ammunition and Explosives.....	AR 700-1300-8
(Reports Control Symbol ORD-43).	
Unsatisfactory Equipment Report.....	AR 700-38
Marking and Packing of Supplies and Equipment: Marking of.....	AR 746-80
Supplies for Shipment.	
Northern Operations.....	FM 31-71
Operation and Maintenance of Ordnance Materiel in Extreme.....	TM 9-207
Cold Weather, 0° to -65°F.	
Ordnance Direct Support Service.....	FM 9-3
Ordnance General and Depot Support Service.....	FM 9-4
Protection of Ordnance General Supplies in Open Storage.....	TB ORD 379
Safety:	
Regulations for Firing Ammunition for Training, Target.....	AR 385-63
Practice, and Combat.....	AFR 50-13
Reporting and Records.....	AR 385-40
Transportation and Travel:	
Military Traffic Management Regulation.....	AR 55-355
Transportation by Water of Explosives and Hazardous Cargo.....	AR 55-228

By Order of Secretary of the Army:

G. H. DECKER,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution:

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5-7	17-66


NG: State AG (3); Units - Same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

 <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block; margin-left: 20px;"> <p style="margin: 0;"><i>THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.</i></p> </div>		SOMETHING WRONG WITH PUBLICATION	
		FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)	
PUBLICATION NUMBER		DATE SENT	
PUBLICATION DATE		PUBLICATION TITLE	
BE EXACT PIN-POINT WHERE IT IS			
PAGE NO.	PARA- GRAPH	FIGURE NO.	TABLE NO.
<div style="border: 1px solid black; height: 400px; margin-top: 10px;"> <p style="text-align: center; font-weight: bold; margin-top: 10px;">IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.</p> </div>			
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PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 decagram = 10 grams = .35 ounce
 1 hectogram = 10 decagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 24.2 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	To	Multiply by	To change	To	Multiply by
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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