TECHNICAL MANUAL

OPERATOR'S MANUAL

DEMOLITION KIT

PROJECTED CHARGE

M173

(NSN 1375-00-812-3972)

HEADQUARTERS, DEPARTMENT OF THE ARMY
DECEMBER 1979

WARNINGS

DEMOLITION KIT M173 CONTAINS ELECTRICALLY-INITIATED EXPLOSIVE ELEMENTS. UNNECESSARY, ROUGH, OR CARELESS HANDLING OF THIS EQUIPMENT IS TO BE AVOIDED TO MINIMIZE THE POSSIBILITY OF DAMAGE RENDERING THIS MATERIEL UNSAFE FOR FUTURE USE. NORMAL PRECAUTIONS IN ACCORDANCE WITH TM 9-1300-206 THAT ARE APPLICABLE TO HANDLING OF LIVE AMMUNITION WILL PREVAIL.

THE KIT CONTAINS A TOTAL OF OVER 1500 POUNDS OF EXPLOSIVES AND MUST BE TREATED ACCORDINGLY. DUE TO THE ELECTRO-EXPLOSIVE DEVICES, THE KIT SHOULD NOT BE EXPOSED TO STRONG ELECTROMAGNETIC RADIATION OF NEARBY RADIO AND RADAR TRANSMITTERS (I.E., RADIO/RADAR FREQUENCY (RF) SIGNALS MORE POWERFUL THAN THOSE NORMALLY EMITTED BY LOCAL ARMY FIELD COMMUNICATION SYSTEMS, SUCH AS WALKI-TALKIES.) KEEP THE KIT FAR AWAY FROM RADAR INSTALLATIONS AND COMMUNICATIONS VANS. REFER TO TM 9-1300-206, APPENDIX C FOR SAFE DISTANCES FROM VARIOUS TYPES OF TRANSMITTERS.

Technical Manual)
)
No. 9-1375-202-10)

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 14 December 1979

OPERATOR'S MANUAL
DEMOLITION KIT
PROJECTED CHARGE
M173
(NSN 1375-00-812-3972)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS-MA, Dover, New Jersey 07801. A reply will be furnished to you.

*This manual supersedes TM 9-1375-202-10, 22 September 1966,

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS -- Continued

LIST OF TABLES

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. SCOPE

a. This manual contains a description of and instructions for towing, inspection and operation of projected charge demolition kit M173.

b. Appendix A contains a list of current references including supply catalogs, technical manuals, forms, and other available publications applicable to the demolition kit.

c. Appendix B contains an abbreviated check list (table B-1) for preparing the kit for firing.

1-2. RESPONSIBILITIES

Responsibility of operating personnel is limited to 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 operating personnel.

1-3. FORMS, RECORDS, AND REPORTS

a. Forms. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Field Report of Accidents. Accidents involving injury to personnel or damage to materiel will be reported on DA Form 285 in accordance with AR 385-40.

c. Report of Damaged or Improper Shipment. Materiel received in damaged or otherwise unsatisfactory condition because of deficiencies in preservation, packaging, marking, loading, storage, or handling will be reported on DD Form 6 in accordance with AR 700-58. Reports of improper shipment or damage caused by transportation discrepancies will be reported on SF 361 in accordance with AR 55-38.

d. Malfunctions Involving Explosives.

(1) Ammunition malfunction reports from Army activities will be reported as prescribed in AR 75-1.

(2) A malfunction is the failure of a demolition charge, item or device to function in accordance with the expected performance when fired, or when explosive components function during a nonfunctional test. A critical malfunction is one which may cause a hazard in the circumstances described above. Malfunctions do not include accidents and incidents resulting from negligence, malpractice, or implication in other situations such as vehicle accidents or fires. However, malfunctions do include abnormal or premature function of explosive items during normal handling, maintenance, storage, transportation, and tactical deployment.

(3) If a malfunction involving this materiel occurs, firing of the affected lot will be halted immediately. The commanding officer or senior individual in charge of the unit will immediately contact the officer under whose supervision the ammunition for the unit involved is maintained or issued and will report all available malfunction facts.

e. Report of Defective, or Unsatisfactory Nonexplosive Equipment. Report and turn-in for replacement or repair of non-explosive equipment (e.g., blasting machines, tools, etc.) which is found defective or develops problems in use. Report such equipment by completing DA Form 2407 as prescribed in TM 38-750. Forward completed DA Form 2407 to managing activity having managing supply responsibility for the equipment. Managing activity is specified in SC 1375-94-CL-P02.

Section II. DESCRIPTION AND DATA

1-4. DESCRIPTION

a. General. Projected charge demolition kit F173 (fig. 1-1) is an antitank minefield clearing device designed to be towed (dragged by means of a tow cable) by a vehicle to the edge of a minefield. The kit, an expendable item is used to clear a path in antitank minefields emplanted with single-impulse, pressure-type mines. It may be towed (over land or water) by any adequate land or amphibious vehicle containing a suitable 24-volt direct current, bayonet-type receptacle. Firing of the kit (fig. 1-2) is accomplished by remote control from the towing vehicle, by means of a firing control switch included with the kit.

b. Demolition Kit M173. Each demolition kit fig. 1-3) is fundamentally composed of a waterproof skid M3, a linear charge propulsion system, a linear demolition charge, and necessary accessories to tow and fire the kit. These are described in paragraph 1-5.

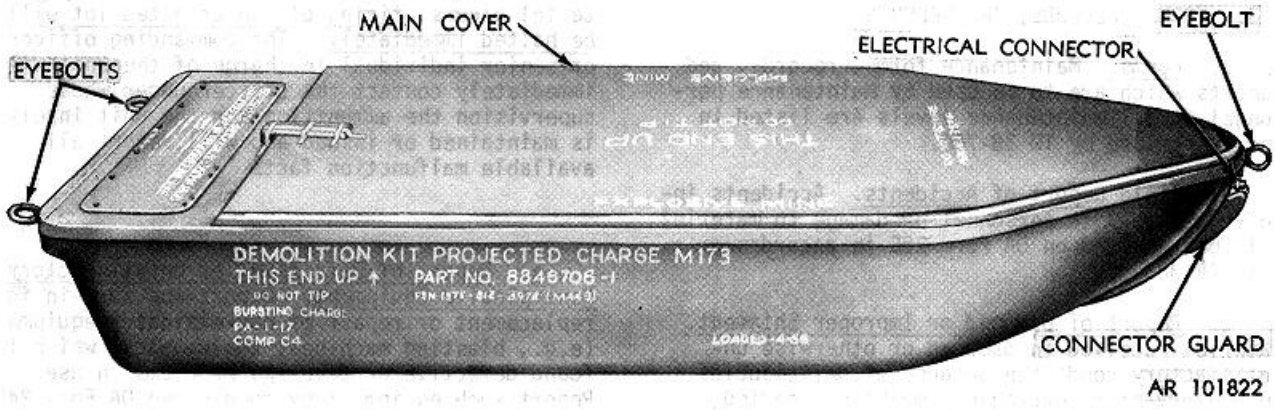

Figure 1-1. Projected charge demolition kit M173.

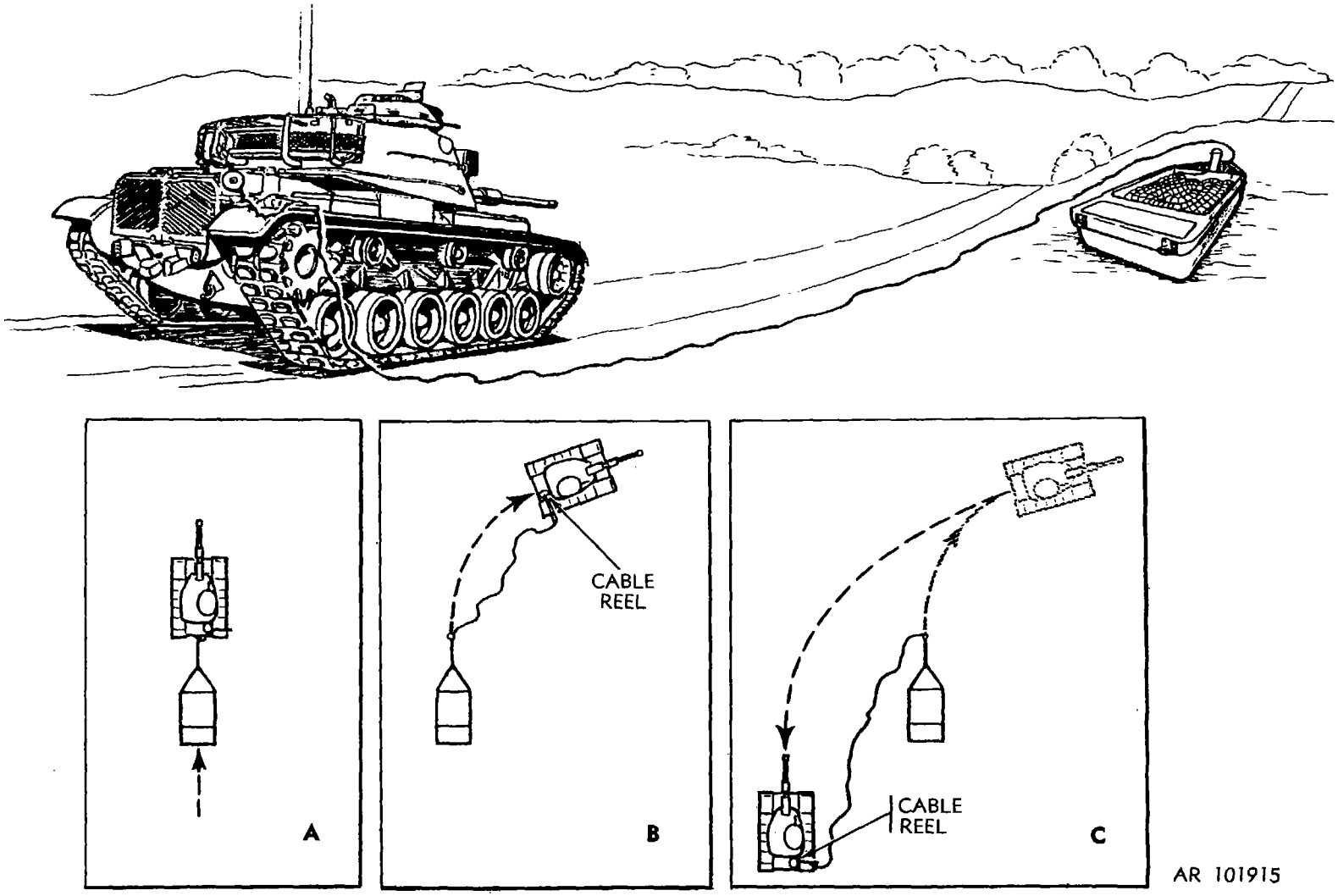

Figure 1-2. Demolition kit in firing position.

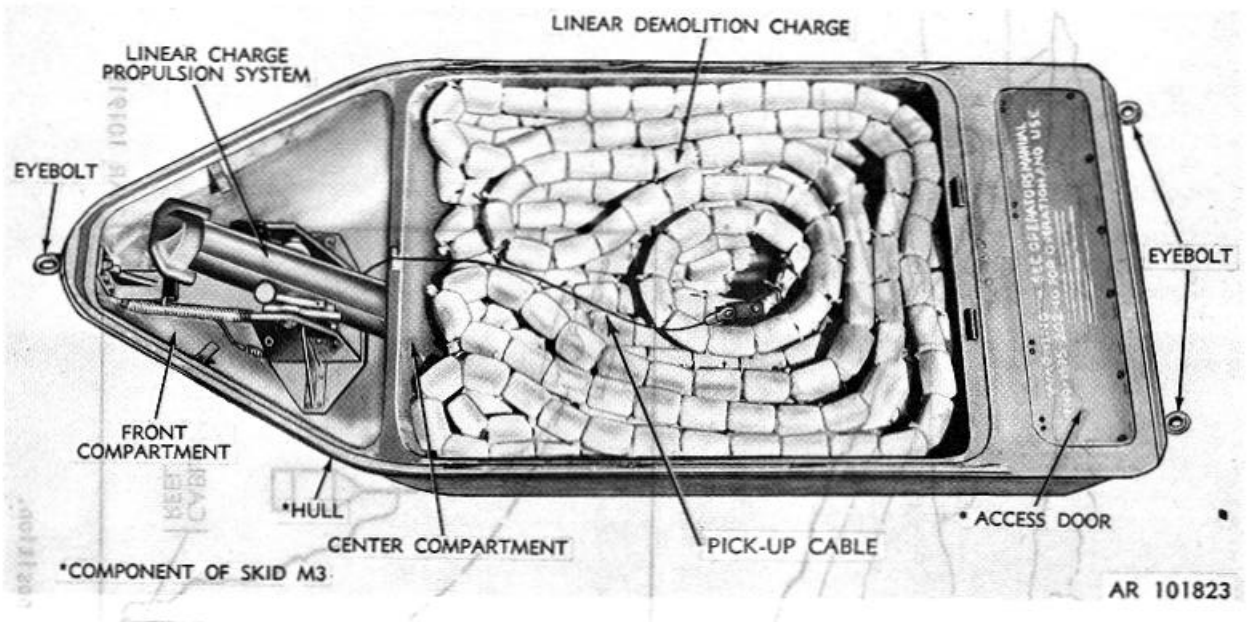

Figure 1-3. Projected charge demolition kit M173 with main cover removed.

1-5. COMPONENT DESCRIPTION

a. Skid M3. The basic component of each skid M3 is the waterproof and flotable, three compartmented, boat-shaped hull (front compartment, center compartment, and accessory compartment) (fig. 1-3). The hull serves as the container or carrier for the other components of the kit. Three eyebolts (two in rear and one in front) are affixed to the upper edge of the hull to aid in lifting, towing, or other required handling of the kit. Three steel runners are secured lengthwise to the bottom of the hull to prevent damage or excessive wear during transportation over rough terrain. Two covers (a main cover and an access door) close the top of the hull. The main cover (fig. 1-1) protects the front and center hull compartments (fig. 1-3). The access door may be opened at any time that access to the accessory (rear) compartment (fig. 1-3) is required. The three hull compartments are used as described in (1) through (3) below.

(1) The front compartment of the hull houses the linear charge propulsion system (b below).

(2) The center compartment houses the linear demolition charge (c below).

(3) The accessory (rear) compartment serves to house and carry the various accessories used with the kit (d below) and provides access for fuzing the linear demolition charge.

b. Linear Charge Propulsion System. The linear charge propulsion system located in the front compartment of the hull consists of a launcher assembly and a rocket motor M95 (fig. 1-4).

(1) The launcher assembly (fig. 1-4) is composed of a launcher tube mounted on trunnions which support and elevate rocket motor M95 for firing. A trip latch mounted on the right trunnion locks the launcher tube in a horizontal position when the main cover is on the hull. Removal of the cover releases the trip latch and automatically permits the launcher tube and the contained rocket motor to elevate. Automatic elevation is accomplished by a connected tension spring; the amount of elevation permitted is controlled by an elevation preset mechanism which is mounted on the left side of the tube. A change of elevation may be made whenever required by rotation-of the elevation handwheel. A launcher microswitch, mounted on the left side of the launcher assembly provides an open circuit when the tube is horizontal and, as an added safety feature, the rocket motor side of the switch is shorted out until elevation of the tube is accomplished. The switch provides a closed circuit for the electrical firing of the rocket motor from the launcher tube when the tube is elevated.

(2) Rocket motor M95 (fig. 1-4), mounted in the launcher tube of the launcher assembly, is electrically ignited after elevation of the tube. After ignition, the rocket motor is restrained

in the launch tube by a rocket restraining screw until sufficient force is built up by the rocket motor to break the screw, thus insuring sufficient thrust for proper flight. The rocket motor is used to propel the linear demolition charge across the minefield.

c. Linear Demolition Charge M96. Linear demolition charge (fig. 1-5) is located in the center hull compartment. The demolition charge is connected at one end to rocket motor M95 in the front compartment of the hull by means of a 9-1/2-foot steel pickup cable (fig. 1-5). The opposite end of the demolition charge is connected to a 100-foot nylon arresting cable which contains internal electrical cables for initiation of the M1134 fuze. The arresting cable is anchored to the floor of the hull and its nylon construction provides sufficient stretch to permit gradual arrestment of the linear demolition charge in flight. Tension on the arresting cable during arrestment of the demolition charge also arms the fuze (para 1-5d(2)).

d. Accessories and Equipment. The accessory compartment (fig. 1-6) serves as an easily accessible storage area for the items identified in table 1-1 and figure 1-7. Standard hand tools will be obtained from the tow vehicle. Four major items contained in the accessory compartment are described in (1) through (4) below. Additional items are listed in table 1-1.

NOTE

The use of the M173 demolition kit requires the following standard items and a vehicle tow cable which are not in the kit:

(1) Band cutting tool.
(2) Screwdriver, cross-tip,(Phillips head).
(3) Screwdriver, flat tip.
(4) Pliers.
(5) Wrench, adjustable (2 required).
(6) Key, 3/16 socket head (Allen wrench).
(7) Tape PPP-T-60, 2 in. wide cloth backed.*
(8) Tow cable (for pre-operation towing).

*Used to secure electrical cable to tow vehicle. The weather seal tape from the skid covers may be reused for this purpose.

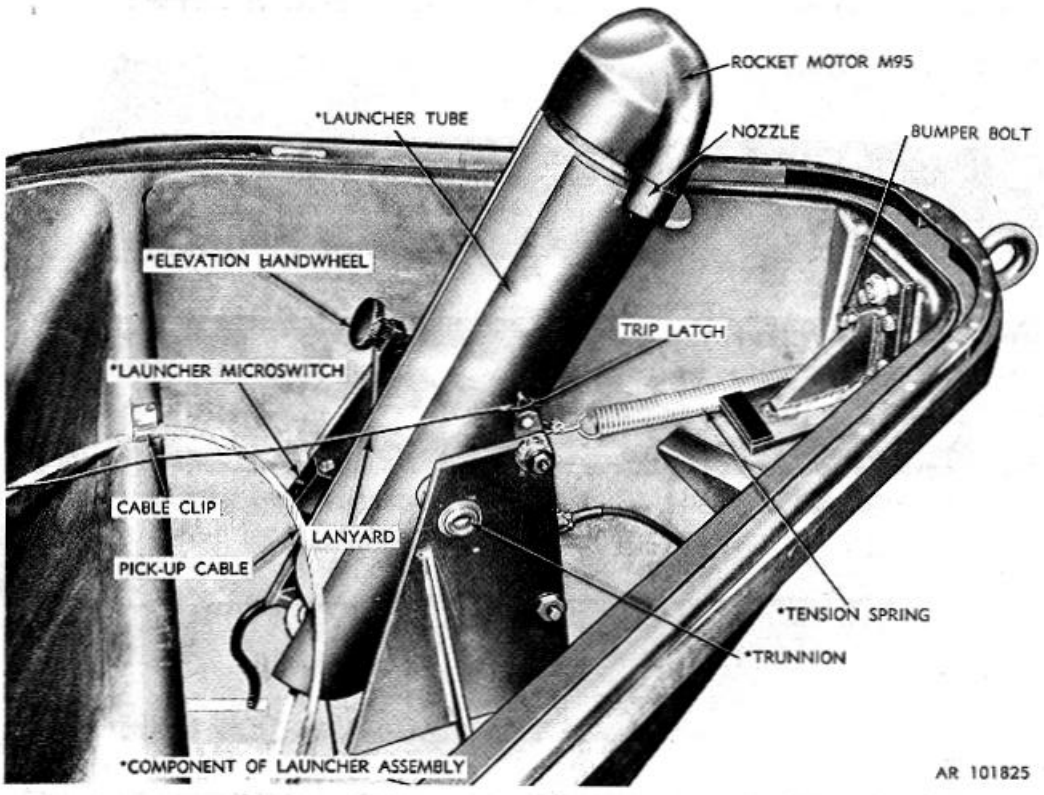

Figure 1-4. Launcher assembly and rocket motor M95 in elevated position.

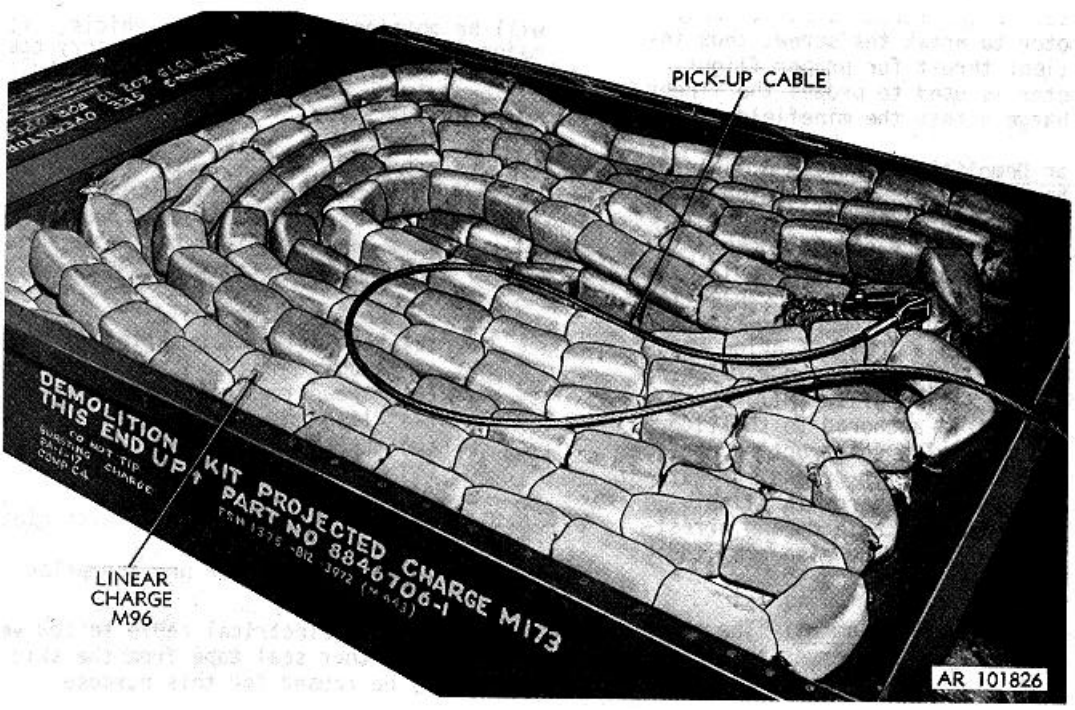

Figure 1-5. Linear demolition charge M96 coiled in center compartment.

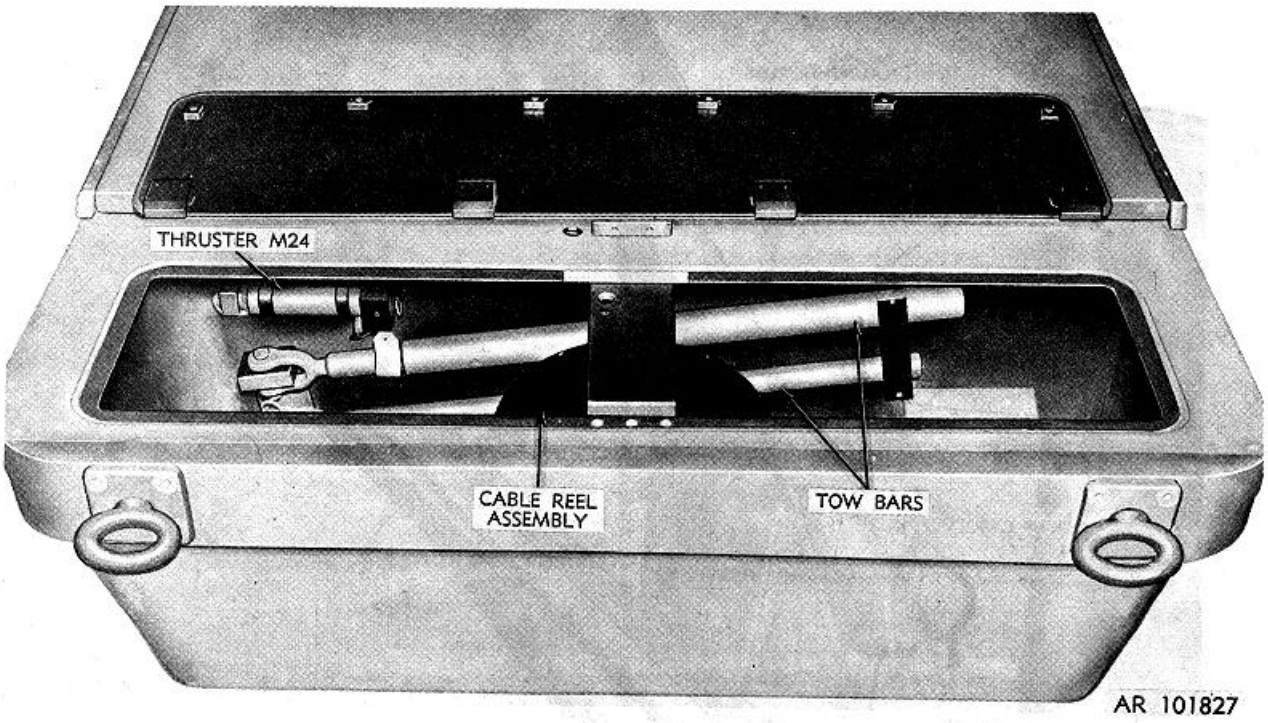

Figure 1-6. Partial arrangement of accessories and equipment in accessory compartment (all accessories are shown in figure 1-7).

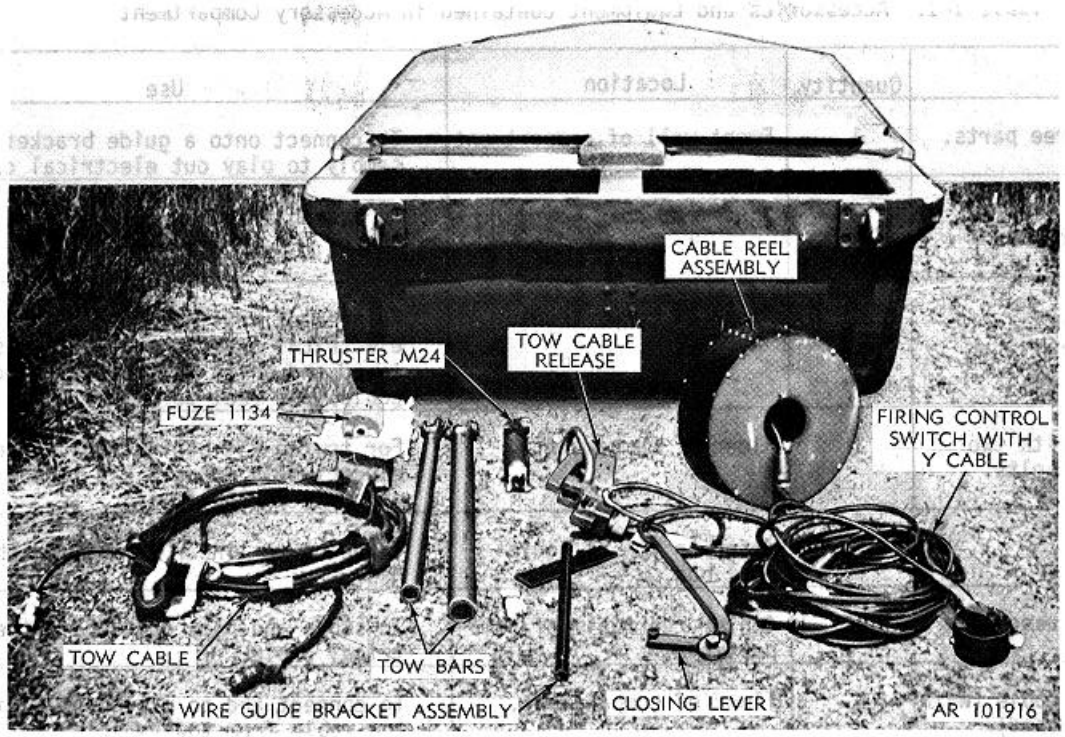

Figure 1-7. Accessories and equipment stored in accessory compartment.

(1) Thruster, propellant actuated, M24. Propellant actuated thruster is provided to propel the main cover rearward from the hull during firing of kit. At time of use, it is secured in its mounting bracket on the rear edge of the main cover and is electrically ignited to remove the cover.

(2) Fuze M1134. The fuze is mounted in the linear demolition charge M96 fuze holder prior to firing of the kit and is used to detonate the linear demolition charge. The fuze is mechanically armed by projection of the linear demolition charge and then is electrically initiated by operation of the firing control switch.

(3) Tow cable release. The tow cable release is used to connect and explosively disengage the tow cable from the tow vehicle prior to wiring of the kit. Two linear explosive actuators M2, within this device are electrically initiated by the firing control switch, resulting in disengagement of the kit from the towing vehicle.

(4) Firing control switch. The firing control switch is used to fire all the electroexplosive devices from inside the tow vehicle.

1-6. FUNCTIONING

a. The demolition kit is initially coupled to the tow vehicle by means of a tow cable. Electrical connection of kit to tow vehicle is via a 250-foot coiled electrical cable for initiation of explosive items within the kit. The towing vehicle's electrical system is used to set off the explosive charges. A branch of the firing cable is provided for supplying power to the (electrically initiated) explosive devices within the tow cable release. After kit has been towed to the desired area, it is (electrically initiated) explosively released from its coupling by means of the firing control switch operated from within the vehicle. After movement of vehicle to a safe distance from the kit, removal of the main cover is accomplished by electrically activating the propellant actuated thruster M24 using the fire control switch. Automatic elevation of the launcher tube occurs as the cover slides from the kit.

b. Rotation of the firing control switch handle to its ROCKET position causes ignition of rocket motor M95. When sufficient thrust is built up by rocket motor, it breaks its restraining screw and carries the connected linear demolition charge M96 across the minefield. After the linear demolition charge is in place, the firing control switch handle is rotated to its CHARGE position. This action initiates fuze M1134.

Table 1-1. Accessories and Equipment Contained in Accessory Compartment

Item	Quantity	Location	Use
BAR, tow, three parts.	1	Front wall of compartment	To connect onto a guide bracket assembly to play out electrical cable.
BOLT, 7/16 x 2-23/32, w/ nut, self-locking, 7/16 in.	2	Equipment box.	To assemble tow bar (three parts).
BRACKET, assembly, (Wire Guide).	1	Floor of compartment.	To prevent fouling of or damage to the electrical cable when the kit is being towed and while playing out electrical cable from reel to kit.
CABLE, tow, with two shackles and bolts. assembly during towing.	1	Floor of compartment.	For towing kit behind vehicle and to electrically connect kit to cable reel
FUZE, M1134.	1	Taped on top of equipment box.	To detonate linear demolition charge M96.
REEL, cable, assembly. .	1	Center rear wall of compartment	To store and play out 250-foot electrical cable.
RELEASE, tow cable (with tow ring attached).	1	Floor of compartment.	To connect and to explosively disengage tow cable from tow vehicle.
THRUSTER, Propellant actuated M24.	1	Left front wall of compartment.	To unlock and remove main cover of demolition kit.
SWITCH, firing control (with Y cable attached).	1	Switch in equipment box; cable extending outside equipment box.	To channel electrical current necessary to (1) check power supply, (2) release kit from tow vehicle, (3) remove main cover, (4) fire rocket motor M95, and (5) initiate fuze M1134.
LEVER, closing.	1	Equipment box.	To manually remove and install main cover.

1-7. TABULATED DATA FOR DEMOLITION KIT PROJECTEDCHARGE M173

Complete Assembly:
- Length ..... 145 in.
- Height..... 24 in.
- Width..... 56.5 in.
- Weight..... 3,100 lb (approx)
- Cube..... 200 cu ft
- Color ..... OD/yel marking
- Firing temperature limits..... 40°F to +125°F

Launcher Tube Elevation Adjustment:
- Full adjustment possible- ..... 20 to 80 deg
- Normal setting- ..... 55 deg

Cable Lengths: .....
- Arresting cable- ..... 100 ft
- Electrical cable- ..... 250 ft
- Pickup cable- ..... 9.5 ft
- Tow cable ..... 15 ft

Linear Demolition Charge M96:

Total length- .....300 ft
Total weight- .....1,720 lb
Weight of comp C4 explosive.....1,500 lb
Number of explosive blocks on line-.....1,200 (600 pairs)
Electrical power supply- 24 vdc
Shipping and Storage Data:
Quantity-distance class-1.1
Storage compatibility group .....D
DOT shipping classification.....A
DOT designation-.....HIGH EXPLOSIVE MINE, SP5409
DODAC 1375-M443
NSN.....1375-00-812-3972
Drawing 8846706

Packaging.....Plywood crate on pallet
.....w/skids (12 ft 8 in, x
.....5 ft 4 in. x 2 ft 11 in.)

1-8. SHIPPING AND STORAGE DATA FOR DEMOLITION KIT PROJECTED CHARGE M174 W/INERT FUZE*

Quantity- distance class.....1.3
Storage compatibility group.....C
DOT shipping classification.....B
DOT designation.....JET THRUST UNIT, SP5409
DODAC.....1375-M442
NSN 1375-00-812-3973

*The M174 demolition kit is a practice item for the M173 demolition kit and is referenced here for storage and shipping purposes only.

Section III. SAFETY, CARE AND HANDLING

1-9. GENERAL

The general precautions for handling transporting, storing and firing explosives are defined in TM 9-1300-206, TM 9-1375-213-12, and FM 5-25. Additional safety, care and handling requirements are specified as applicable in chapters 2, 3 and 4 of this manual.

1-10. SAFETY

WARNING

THE KIT CONTAINS A TOTAL OF OVER 1500 POUNDS OF EXPLOSIVES AND MUST BE TREATED ACCORDINGLY. DUE TO THE ELECTRO-EXPLOSIVE DEVICES, THE KIT SHOULD NOT BE EXPOSED TO STRONG ELECTROMAGNETIC RADIATION OF NEARBY RADIO AND RADAR TRANSMITTERS (I.E., RADIO/RADAR FREQUENCY (RF) SIGNALS MORE POWERFUL THAN THOSE NORMALLY EMITTED BY LOCAL ARMY FIELD COMMUNICATION SYSTEMS, SUCH AS WALKI-TALKIES.) KEEP THE KIT FAR AWAY FROM RADAR INSTALLATIONS AND COMMUNICATIONS VANS. REFER TO TM 9-1300-206, APPENDIX C FOR SAFE DISTANCES FROM VARIOUS TYPES OF TRANSMITTERS.

1-11. CARE

a. The usual precautions taken to avoid exposing ammunition to high temperatures in accordance with TM 9-1300-206 should be observed. For example, avoid long exposure of the kit to the hot summer sun. Provide overhead cover with ventilation, don't just place a tarpaulin over the kit. Allow approximately 18 inches of airspace between the top of the kit and tarpaulin being used for ventilation. The firing temperature limits for the kit apply to the temperature limits of the kit itself not the temperature of the surrounding air. Several hours of direct exposure of a strong summer sun can heat the kit to a temperature well over its limit even though the air temperature is well below the kit limit. Malfunction of the kit (especially its thruster and rocket) could result when it is operated beyond its limit. Storage in unventilated shelter (such as a box car) can also raise component item's temperature well beyond that of the surrounding air in a strong summer sun.

b. The kit is reasonably waterproof but the size of the main cover makes waterproof sealing under some circumstances difficult (e.g., thermal stress can cause warping). Blowing snow or sleet could penetrate the tape seal around the cover and prevent operation of the kit. Therefore, provide a waterproof tarpaulin cover when the kit is exposed to heavy rain, sleet, or snow, even for a short period of time.

1-12. HANDLING

Because of its size and weight, extra care should be exercised in handling of the kit.

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

2-1. GENERAL

a. Whenever a new, used, or reconditioned demolition kit, component, or equipment item 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 hazardous manner.

b. Inspections and services described in paragraph 2-2 are to be performed, with adequate assistance by the operating crew, upon initial receipt of the kit component, or equipment item as applicable.

c. Appendix B Table B-1 contains a foldout operator's checklist for quick reference. This checklist is a condensation of detailed instructions required in preparing the demolition kit for firing. Operators must be familiar with the detailed operator instructions in this chapter and use the checklist only after being THOROUGHLY familiar with the detailed instructions.

2-2. INSPECTIONS AND SERVICES

a.

WARNING

DEMOLITION KIT M173 CONTAINS ELECTRICALLY-INITIATED EXPLOSIVE ELEMENTS. UNNECESSARY, ROUGH, OR CARELESS HANDLING OF THIS EQUIPMENT IS TO BE AVOIDED TO MINIMIZE THE POSSIBILITY OF DAMAGE RENDERING THIS MATERIEL UNSAFE FOR FUTURE USE. NORMAL PRECAUTIONS IN ACCORDANCE WITH TM 9-1300-206 THAT ARE APPLICABLE TO HANDLING OF LIVE AMMUNITION WILL PREVAIL.

CAUTION

REPAIR OR CORRECTION, BEYOND THOSE INSTRUCTIONS CONTAINED IN THIS CHAPTER, OF ANY DAMAGE OR MALADJUSTMENT WHICH IS DETECTED BY INSPECTION MUST NOT BE ATTEMPTED AT THIS LEVEL.

Damaged or maladjusted materiel, requiring repair or correction beyond the scope of the instructions contained herein, will be sent to an ammunition depot for required service.

b. All inspections and services itemized in (T) through (7) below must be performed upon receipt of the materiel.

(1) Remove overpack plywood panels, if present, from wooden shipping pallet using hammer, prybar or other suitable tools.

NOTE

Plywood overpack panels assembled to the skids for rail shipment within CONUS give the kits an appearance of a large box.

(2) Carefully inspect all external portions of the hull, main cover, and access door (fig. 2-1). There must be no indication of cracks, tears, punctures, ruptures, or any other sign of external physical damage to the hull, main cover, or access door. The three eyebolts (two rear and one front) and the three steel runners must be properly and securely attached to the hull. Remove protector from thruster mounting bracket, inspect mounting bracket, and reinstall protector. (Some kits have felt protectors, other kits have plastic protectors.) The mounting bracket on the main cover must be clean and undamaged to permit easy assembly of the propellant actuated thruster. Inspect electrical connector under front eyebolt. Unscrew shorting plug and make certain plug and connector are not damaged. Replace and secure shorting plug in connector. Plug must be properly attached by a connected chain.

(3)

CAUTION

ALWAYS CUT THE BANDS. DO NOT ATTEMPT TO BREAK OR TEAR THEM. THE TYPE OF TOOL OR OTHER IMPLEMENT NORMALLY USED FOR BREAKING OR TEARING CAN DAMAGE THE HULL, MAIN COVER, OR ACCESS DOOR.

Using any suitable cutting tool (tin snips, cutting pliers, shears, etc.), cut the 1-1/8-inch steel bands (fig. 2-1) around the hull and covers, Use care to avoid injury when cutting bands. Discard the bands.

(4) Remove adhesive tape covering seam around access door. Save tape for securing electrical cables to tow vehicle. See figure 2-2 for marking on access door.

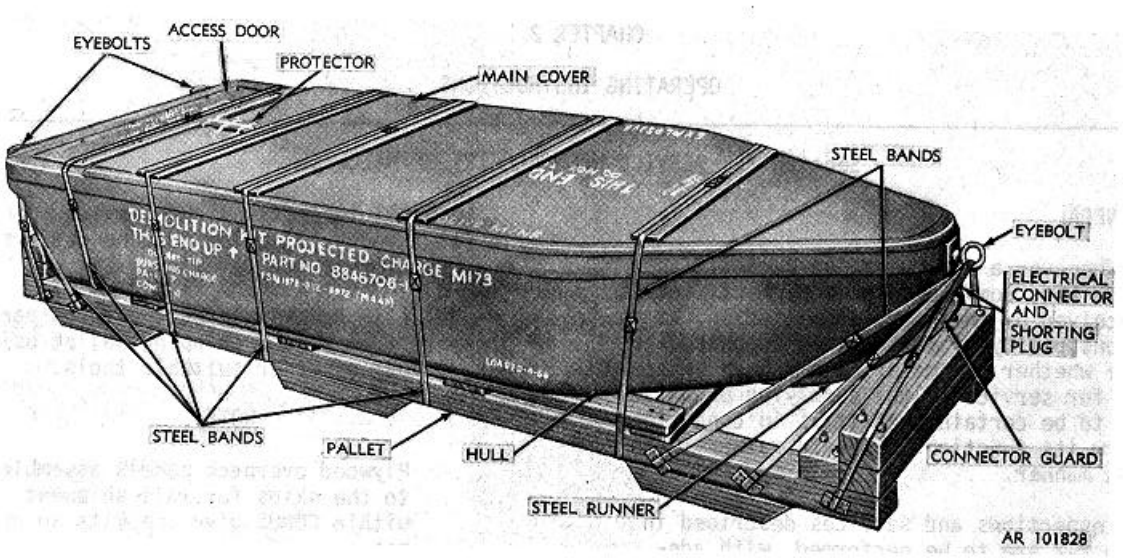

Figure 2-1. External inspection and service points

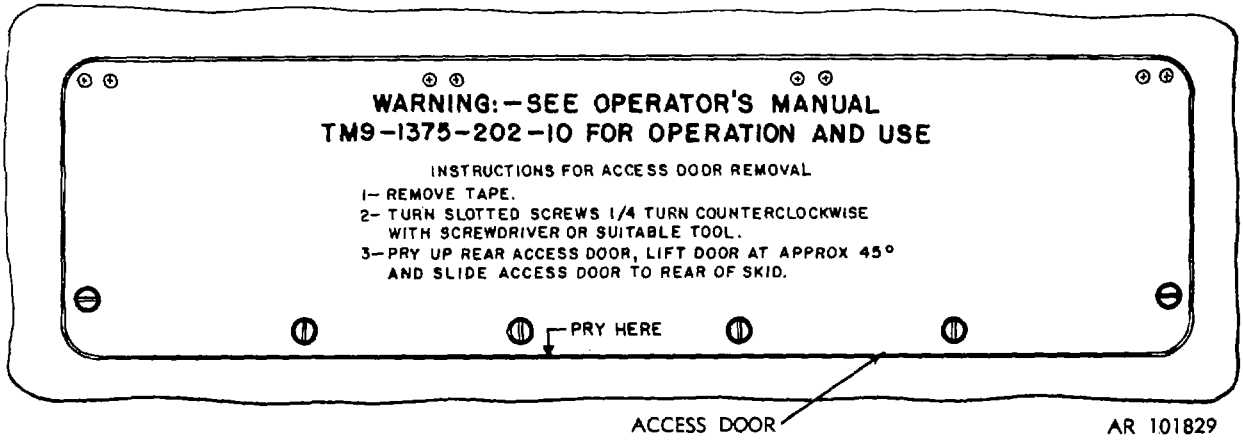

Figure 2-2. Marking on access door.

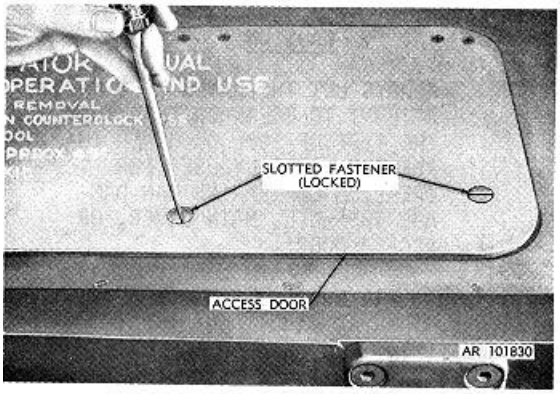

Figure 2-3. Loosening slotted head fasteners in access door.

NOTE

Save tape for securing the electrical cables to tow vehicle.

(5) With a screwdriver, turn the six, slotted head fasteners on the access door (fig. 2-3), one-quarter turn counterclockwise, then pry the access door upwards along its rear edge (fig. 2-4) until rear edge of door can be tilted up and away from hull. Disengage the four lugs on forward edge of door, lift the door away from hull, and place it on main cover in an upside-down position.

NOTE

Do not place access door on thruster bracket.

(6) Carefully inspect interior of accessory compartment and interior of equipment box. Assure all accessories and equipment listed in table 1-1 are in the accessory compartment and no dirt, condensation, or other foreign matter is present. Inspect color-matched connectors on Y cable and firing control switch to assure they are properly connected.

(7) Upon determination that the accessory compartment contains all required accessories and equipment as listed in table 1-1, install access door by hooking the four lugs on its front edge under front edge of compartment. Lower rear edge until access door is properly seated. With a screwdriver, turn the six slotted fasteners one-quarter turn clockwise to secure door (fig. 2-3). Reinstall tape around access door if kit is not to be fired immediately.

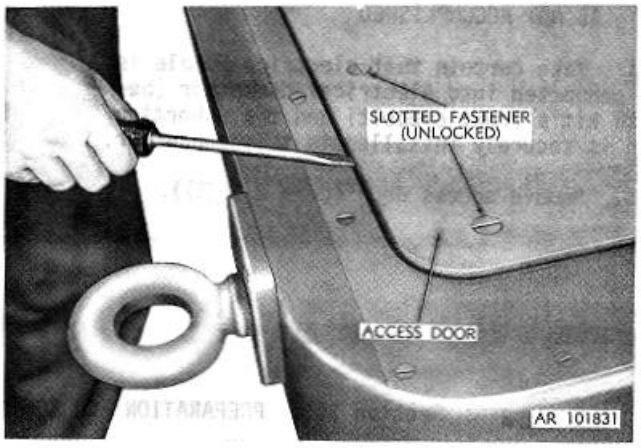

Figure 2-4. Removing access door.

Section II. OPERATION UNDER USUAL CONDITIONS

2-3. GENERAL

This section contains instructions necessary for the proper operation of projected charge demolition kit M173 under normal conditions. For operation under unusual conditions, see section V.

2-4. PREPARATION FOR TOWING WHEN IMMEDIATE FIRING IS NOT TO BE ACCOMPLISHED

The instructions contained in this paragraph describe those operations necessary for towing a kit when immediate firing of the kit is not to be accomplished. The instructions are applicable when it is necessary to tow the kit a considerable distance to a combat area.

NOTE

For instructions pertinent to towing preparations prior to immediate firing, see section III.

a. Remove access door as described in paragraph 2-2b(5).

b. Remove one of the shackles from the cable in accessory compartment. Leave the cable in accessory compartment.

c. Make certain access door gasket and its seat around the compartment are clean. Install and secure door as described in paragraph 2-2b(7).

d. Obtain tow cable from tow vehicle and attach one end to tow vehicle. Using shackle, secure other end of tow cable to front eyebolt of kit (fig. 2-5).

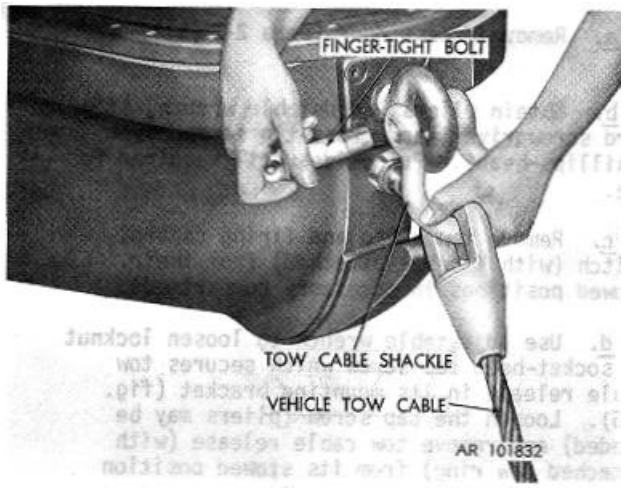

Figure 2-5. Securing vehicle tow cable to eyebolt.

2-5. REMOVAL FROM TOW VEHICLE WHEN FIRING IS NOT ACCOMPLISHED

a. Make certain that electrical cable is not connected into electrical connector (beneath kit's front eyebolt) and that shorting plug is securely installed in this-connector.

b. Remove access door (para 2-2b(5)).

c. Unbolt and remove shackle that secures tow vehicle's towing cable to front eyebolt of kit.

d. Place shackle on kit's tow cable located in accessory compartment.

e. Install access door (para 2-2b(7)).

Section III. PREPARATION FOR TOWING PRIOR TO IMMEDIATE FIRING

2-6. PREPARATION

Instructions contained in paragraphs 2-7 through 2-12 describe those operations necessary to prepare the demolition kit for towing prior to immediate firing. These instructions are applicable when it is necessary to tow a kit to the edge of a minefield and to fire and detonate the kit in order to clear a path through the minefield. If these operations are to be performed under unusual conditions, see section V and combine those instructions with the ones contained in this paragraph. For instructions pertinent to towing preparations when immediate firing is not to be accomplished, see paragraph 2-4.

2-7. REMOVAL OF ACCESSORIES FROM ACCESSORY COMPARTMENT

a. Remove access door (para 2-2bg5)).

b. Obtain pliers, adjustable wrench, standard screwdriver, and cross-tip screwdriver (Phillips-head). Put aside until required for use.

c. Remove tow cable and firing control switch (with Y cable attached) from their stowed positions in accessory compartment.

d. Use adjustable wrench to loosen locknut on socket-head cap screw which secures tow cable release in its mounting bracket (fig. 2-6). Loosen the cap screw (pliers may be needed) and remove tow cable release (with attached tow ring) from its stowed position on floor of compartment. Put aside until required for use.

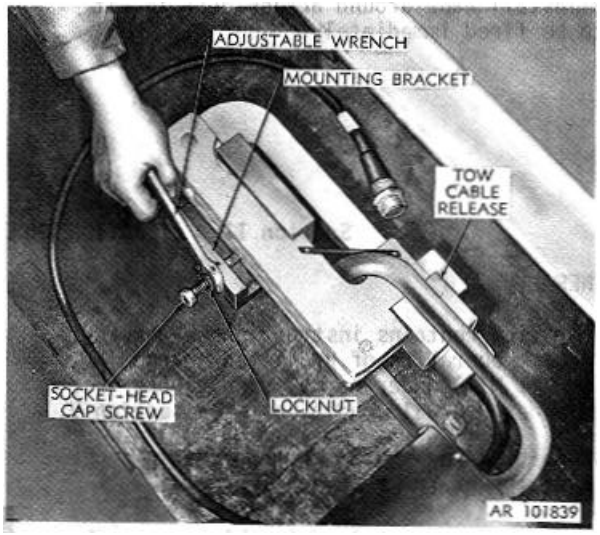

Figure 2-6. Loosening locknut and cap screw which secure tow cable release.

NOTE

If cap screw is difficult to loosen with pliers, back off locknut until its head seats against the cap screw head and use wrench to loosen.

e. Unscrew, remove and set aside the two T-handle special nuts securing cable reel assembly in accessory compartment (fig. 2-7).

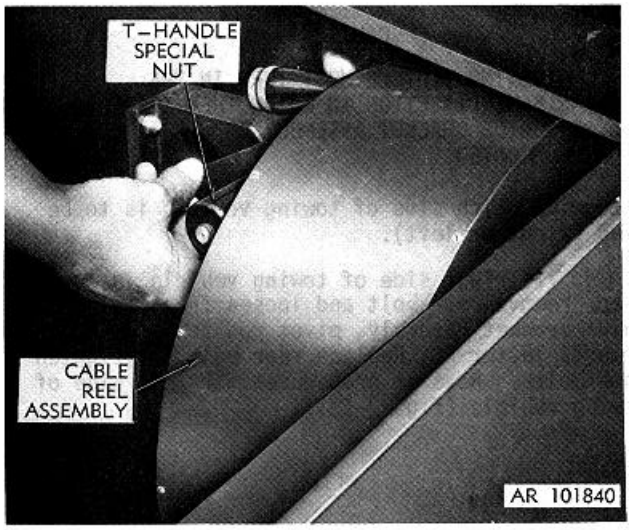

Figure 2-7. Removing T-handle special nut.

f. Lift cable reel assembly, remove and set aside both wedge screws (fig. 2-8).

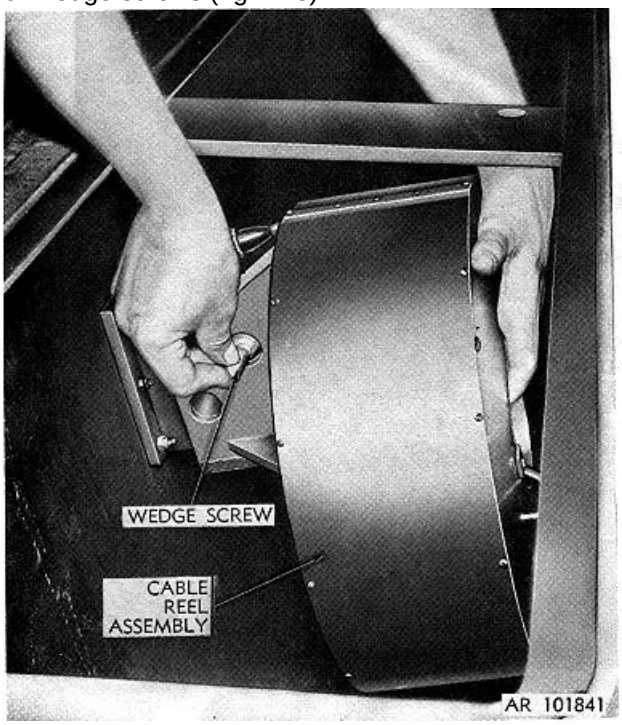

Figure 2-8. Removing wedge screw.

g. Push cable reel assembly forward and move it to the right to obtain clearance. Remove it from compartment (fig. 2-9).

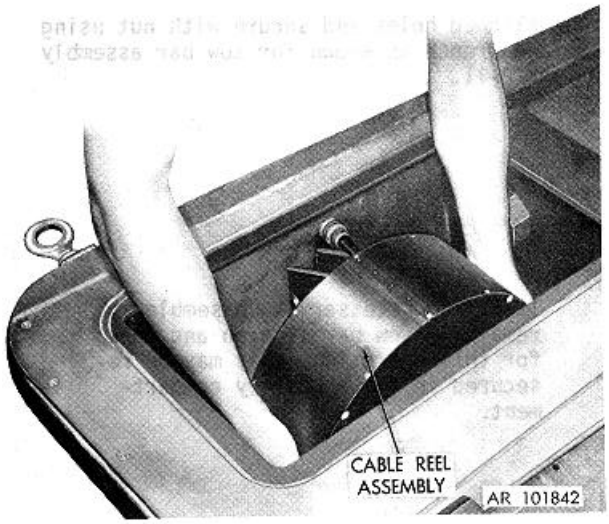

Figure 2-9. Removing cable reel assembly.

2-8. INSTALLATION OF GUIDE BRACKET ASSEMBLY

a. Obtain pliers and adjustable wrench.

(1) Remove the two 7/16-inch bolts with attached nuts from equipment box.

(2) Loosen tow bar sections (two shackle-ended bars and one tube) from mounting bracket by removing cotter pin and shackle pin which hold them in place (fig. 2-10). Slide tow bar sections out from brackets and remove from kit. Retain cotter pin and shackle pin.

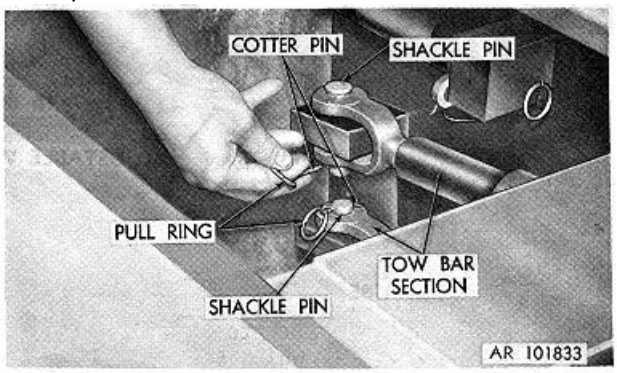

Figure 2-10. Removing cotter pin from shackle pin.

(3) Remove wire guide bracket assembly from accessory compartment.

b. Slide tube tow bar section over guide bracket assembly. Insert a 7/16 inch bolt

through aligned holes and secure with nut using pliers and wrench as shown for tow bar assembly in figure 2-11.

NOTE

It is NOT necessary to assemble the remaining tow bar section and tube for this operation, they may be resecured in the accessory compartment.

c.

CAUTION

TOWING VEHICLE MUST TURN IN THE SAME DIRECTION IN WHICH THE WIRE GUIDE BRACKET ASSEMBLY IS MOUNTED.

Determine which side of towing vehicle is to be used (right or left).

d. If right side of towing vehicle is to be used-remove rear bolt and loosen front bolt on guide bracket assembly, pivot rod to be angled towards letter R. Replace rear bolt and tighten both bolts. Reverse procedures for left side of towing vehicle (fig. 2-12).

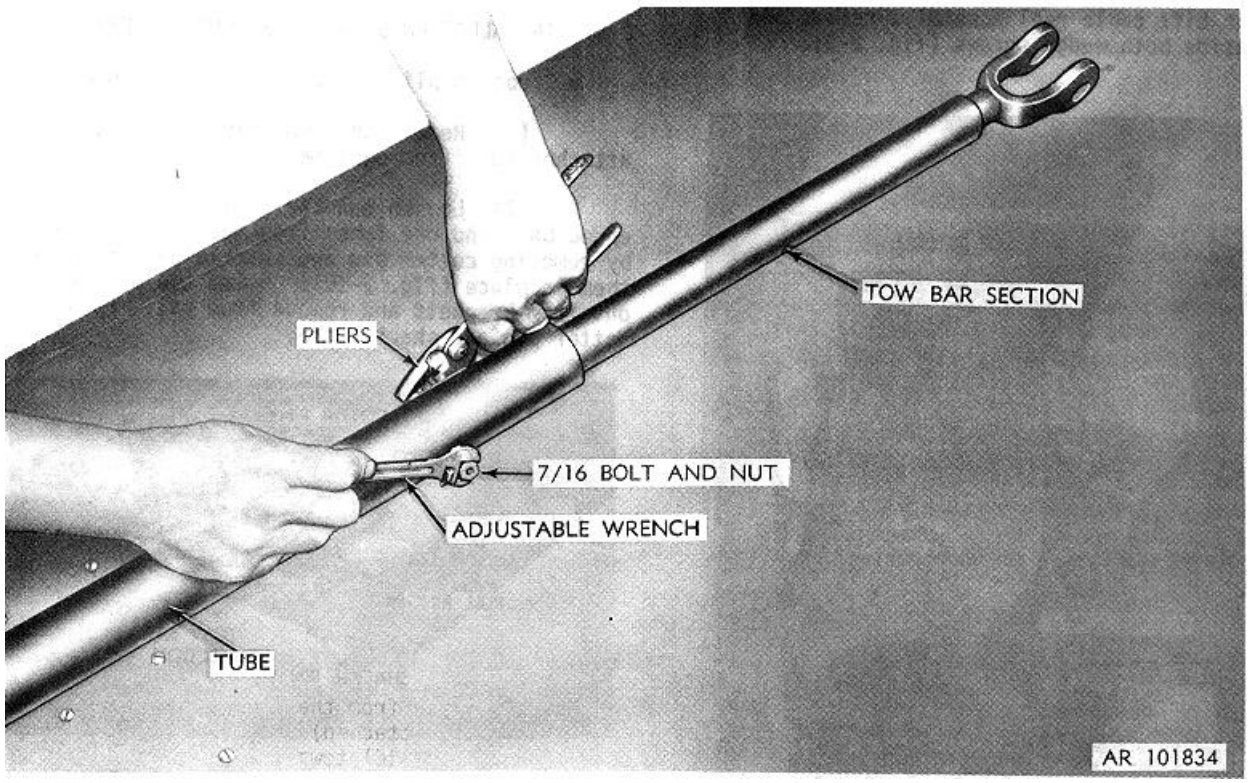

Figure 2-11. Securing tube to tow bar section.

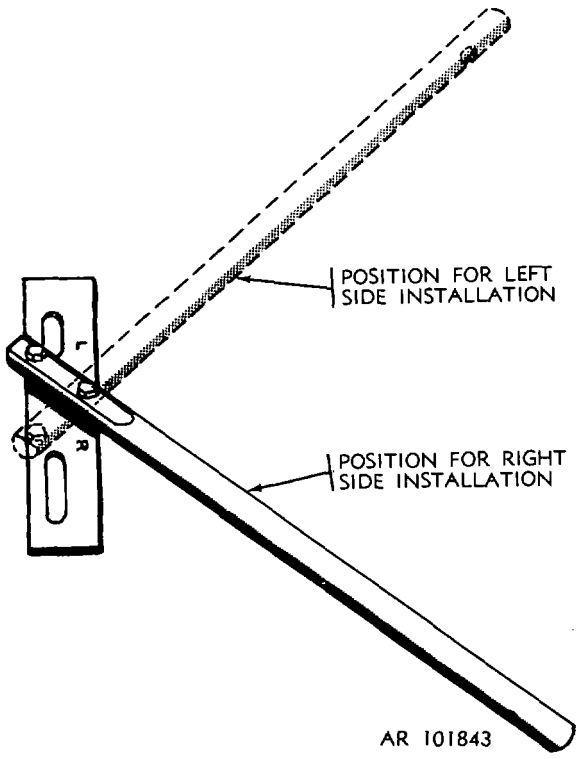

Figure 2-12. Guide bracket assembly.

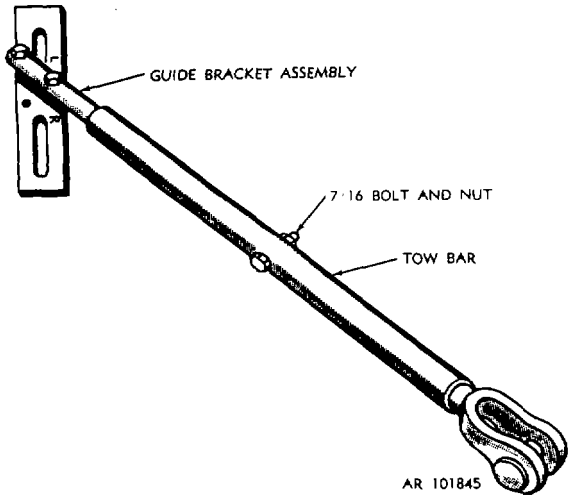

Figure 2-13. Tow bar assembled to Guide bracket.

e. Secure tow bar and tube onto (wire) guide bracket using 7/16 bolt and nut (fig. 2-13).

f. Remove two conveniently located bolts and nuts from rear fender of towing vehicle and attach guide bracket assembly to fender and bolt down (fig. 2-14).

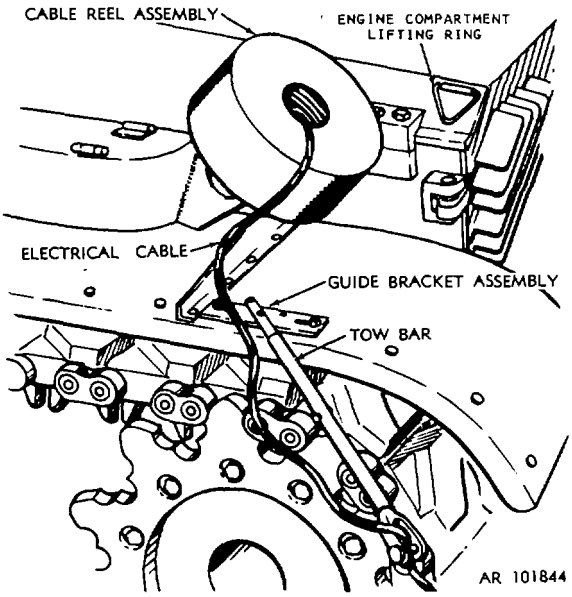

Figure 2-14. Left rear view of towing vehicle with guide bracket assembly attached.

2-9. CONNECTING DEMOLITION KIT TO TOW VEHICLE

a. Position tow vehicle within eight feet of the front of kit and carry firing control switch into driver's compartment of tow vehicle. Push Y cable and attached cable from firing control switch through any suitable port, window, or other opening in driver's compartment of vehicle (fig. 2-15).

b.

WARNING

DO NOT CONNECT SWITCH TO VEHICLE'S POWER SUPPLY AT THIS TIME.

Place the cable from the firing control switch (with Y cable attached) along the side of tow vehicle (fig. 2-16) toward rear of vehicle and secure with tape. If tow vehicle is a tank, make absolutely certain cable is clear of turret in order to permit traversing of turret. Secure cable to side of tow vehicle by taping or tying. Use tape removed from access door or main cover if no other tape is available.

c. If the center tube of cable reel will be difficult to remove after securing cable reel assembly, reverse steps d and e below.

Figure 2-15. Pushing Y cable through left vision block hole.

Figure 2-16. Placing firing control switch electrical cable along side of tow vehicle.

d. Mount cable reel assembly on rear lifting eye or any other convenient eye or bracket of tow vehicle. Mount reel assembly with one or two wedge screws and T-handle special nuts previously removed (fig. 2-17).

NOTE

Installation of the cable reel on a typical tank is illustrated in figure 2-14. If cable reel does not fit properly on lifting eye, use Improvised shim such as a piece of wood to wedge reel in upright position. If cable reel does not fit properly on a tank lifting eye, use the engine compartment lifting ring.

Figure 2-17. Securing cable reel assembly.

e. With cross-tip screwdriver (Phillips-head), remove the two screws holding center tube in cable reel (fig. 2-18). Remove thumb screw from center of tube and pull out center tube (fig. 2-19). Handle cable reel carefully to prevent cable from escaping.

f. Thread electrical cable through shackle of the tow bar attached to guide bracket assembly.

g. Connect cable on underside of cable reel assembly to matched color-coded receptacle of Y cable (fig. 2-20).

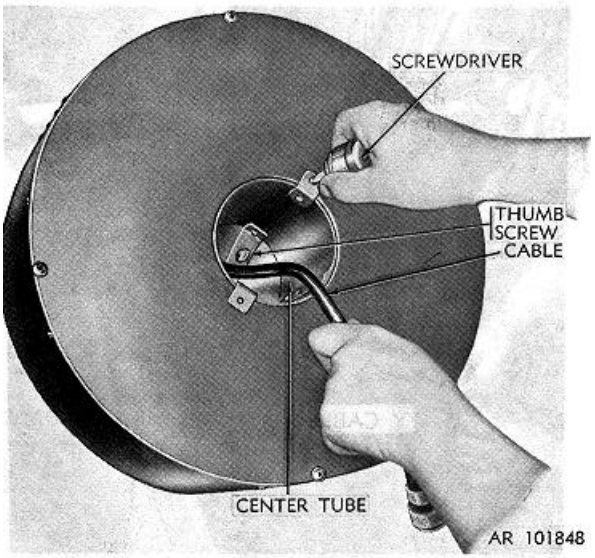

Figure 2-18. Removing screws which hold center tube in cable reel.

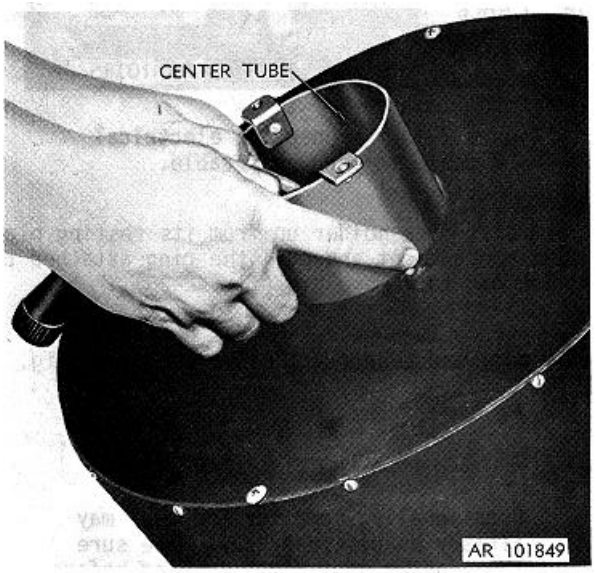

Figure 2-19. Removing center tube from cable reel.

NOTE

The mating plugs and receptacles are color-coded and are keyed to fit easily together when properly aligned. Do not use force or excessive pressure to fit cables together.

Figure 2-20. Connecting cable of cable reel assembly to matched color-coded receptacle of Y cable.

h. Lay tow cable between demolition kit and tow vehicle so electrical connector with larger sheath is toward kit. Make certain cable is not twisted or kinked.

i.

CAUTION

MAKE CERTAIN ELECTRICAL CABLE ON TOW CABLE RELEASE IS NOT PUSHED OR STRUNG THROUGH PINTLE AND/OR TOW CABLE RELEASE.

Secure tow ring (with attached tow cable release in rear pintle of tow vehicle (fig. 2-21).

j. Secure vehicle end of tow cable to tow cable release (fig. 2-22) with shackle and bolt. Secure other end of tow cable to front eyebolt of kit with shackle and bolt.

NOTE

Front eyebolt on most kits will be oriented horizontally not vertically as shown in figures in this manual. Either orientation is acceptable so do not attempt to change the orientation.

k. Remove shorting plug from electrical cable of tow cable release. Remove protective cap from unconnected plug on the "Y" cable. Connect these color-matched connectors (fig. 2-23).

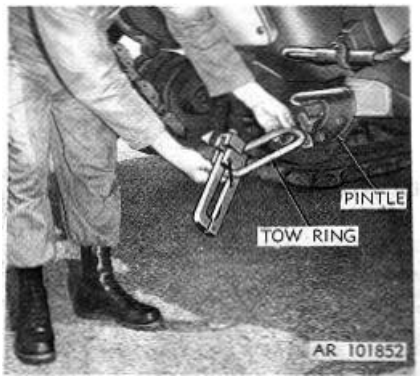

Figure 2-21. Inserting tow ring into pintle of tow vehicle.

Figure 2-22. Securing shackle to tow cable release.

l. Connect the yellow connectors, one from vehicle end of tow cable electrical cable and the other from cable reel assembly (fig. 2-24).

m. Loosely coil any slack if any, in Y cable and tape it to tow vehicle.

n. Loosely coil any slack, if any, in cable from cable reel to tow cable and tape to a flat surface on tow vehicle. Use only one or two strips of tape to hold cable to vehicle and do not wrap tape around anything. This is done to prevent cable from snagging on weeds, etc., and pulling cable from reel.

2-10. CONNECTION OF FUZE M1134

a. In the accessory compartment, lift, twist, and swing the four hook latches out of engagement with fuze compartment cover and remove cover (fig. 2-25).

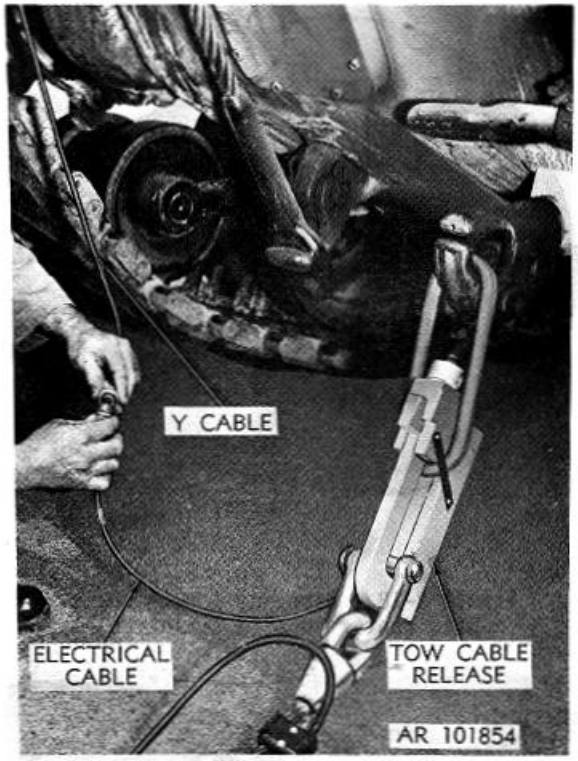

Figure 2-23. Connecting electrical cable to plug on Y cable.

b. Lift fuze holder up from its resting place in fuze compartment and pull the ring attached to ball-lok pin to remove pin (fig. 2-26).

c. Grasp fuze holder (shaft end and connector end) and separate the two sections (fig. 2-27).

NOTE

Occasionally, some fuze holders may already be disconnected. Make sure they can be properly assembled before proceeding with assembly of fuze holder.

d. Remove fuze M1134 from top of equipment box from accessory compartment and unwrap.

e. Unscrew and remove protector cap on fuze electrical plug. Straighten cotter pin but DO NOT pull cotter pin from arming rod of fuze at this time.

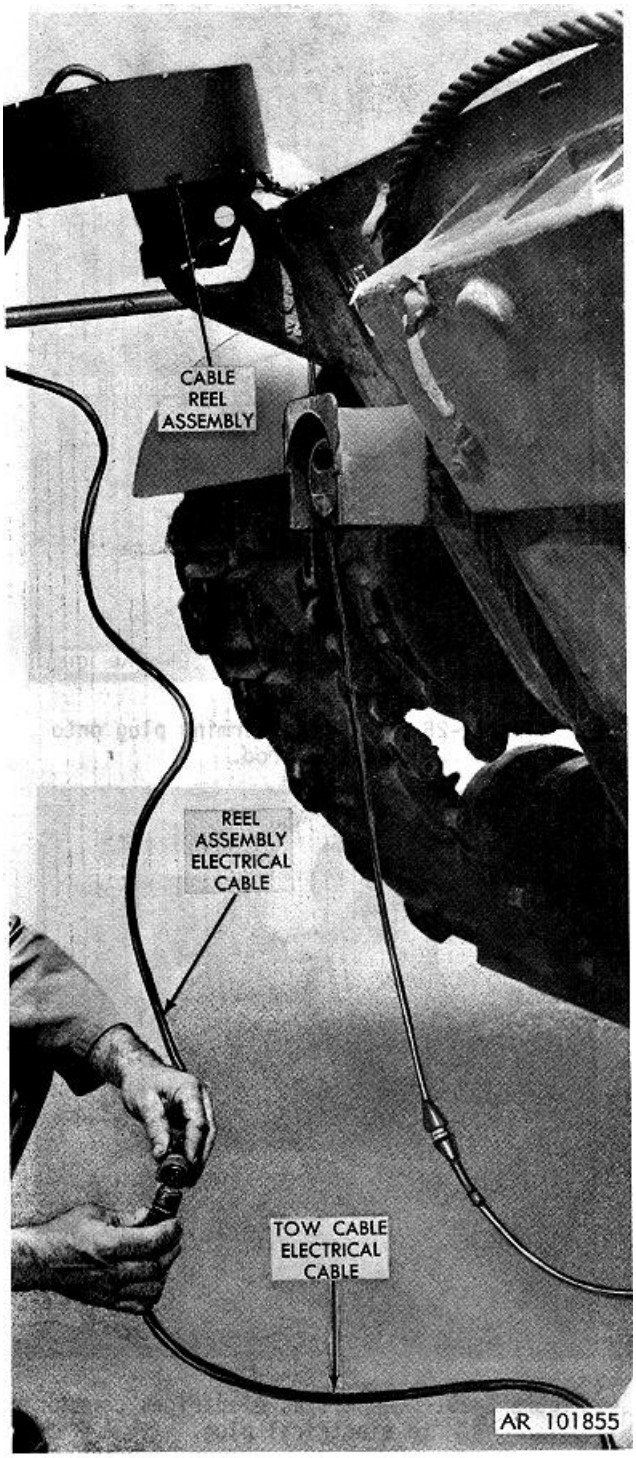

Figure 2-24. Connecting tow cable electrical cable to reel assembly electrical cable.

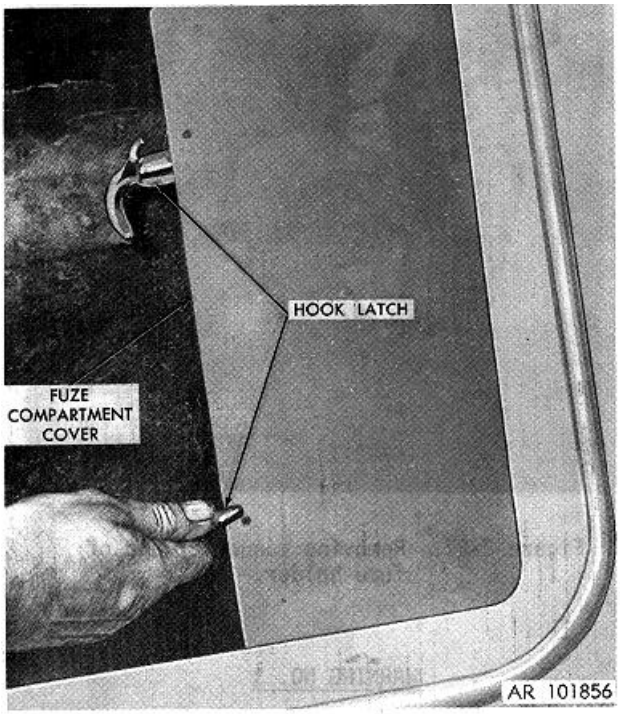

Figure 2-25. Lifting and swinging hook latch of fuze compartment cover.

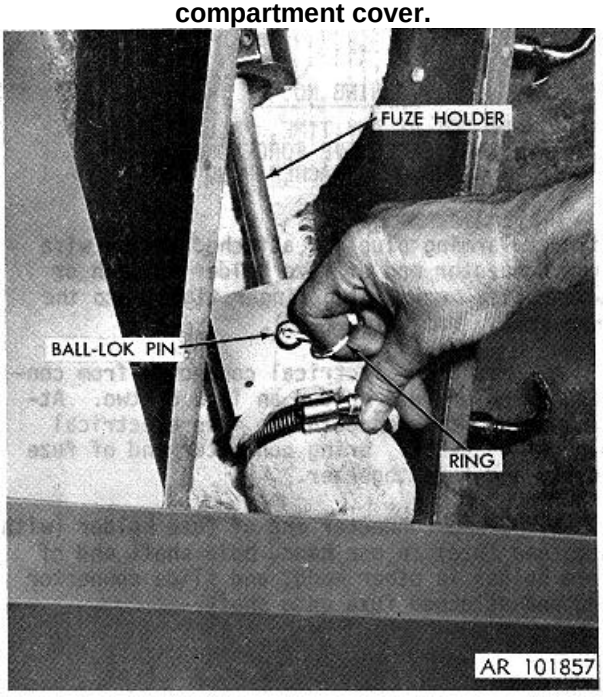

Figure 2-26. Removing ball-lok pin from fuze holder.

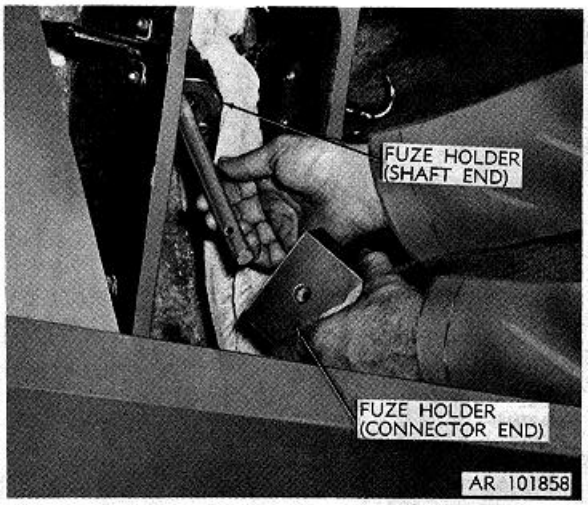

Figure 2-27. Removing connector end of fuze holder.

f.

WARNING NO. 1
DO NOT UNDER ANY CIRCUMSTANCES REMOVE ARMING ROD SAFETY COTTER PIN UNTIL SPECIFICALLY INSTRUCTED TO DO SO IN i BELOW.

WARNING NO. 2
DO NOT AT ANY TIME PULL OR EXERT EXCESSIVE FORCE ON ARMING ROD OR ATTACHED PLUG AND WIRE.

Withdraw arming plug and attached arming wire from connector end of fuze holder an inch or two. Screw arming plug finger tight onto the fuze arming rod (fig. 2-28).

g. Withdraw electrical connector from connector end of fuze holder an inch or two. Attach electrical connector to fuze electrical plug (fig. 2-29). Bring connector end of fuze holder and fuze together.

h. Grasp connector end of fuze holder (with attached fuze) in one hand, hold shaft end of fuze holder in other hand, and slide connector end and attached fuze onto shaft.

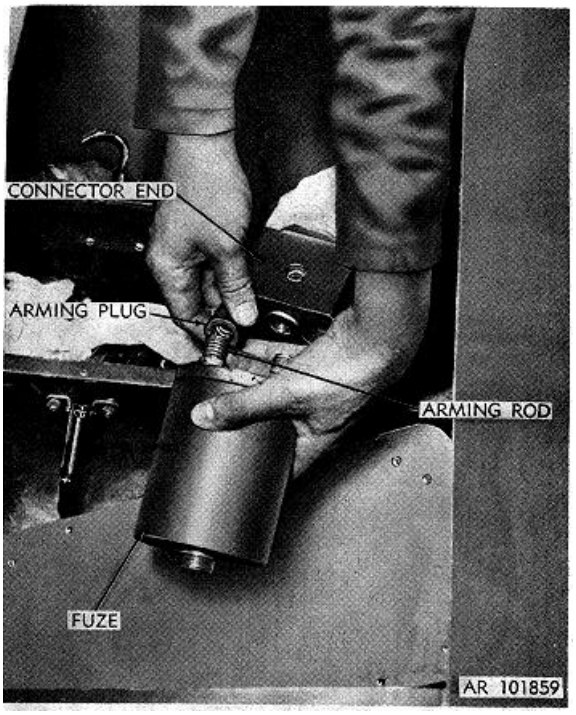

Figure 2-28. Threading arming plug onto arming rod.

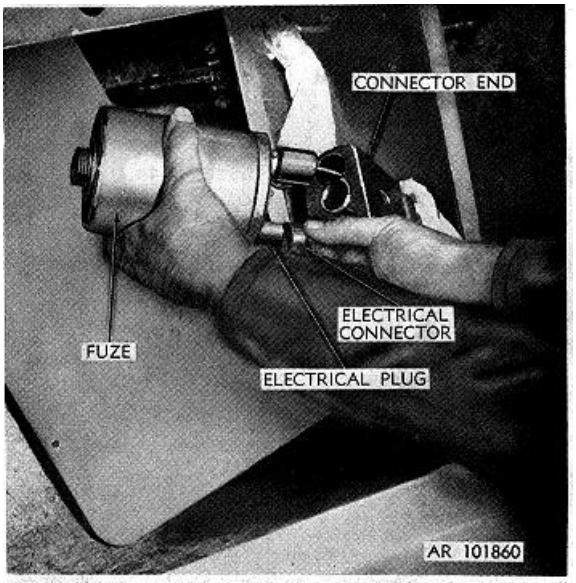

Figure 2-29. Connecting electrical connector to electrical plug.

i.

WARNING

KEEP CONNECTOR END OF FUZE HOLDER AND FUZE TOGETHER AT ALL TIMES TO PREVENT ARMING OF FUZE.

Strictly observing Warning No. 2 in f above, use pliers to pull safety cotter pin from arming rod of fuze (fig. 2-30).

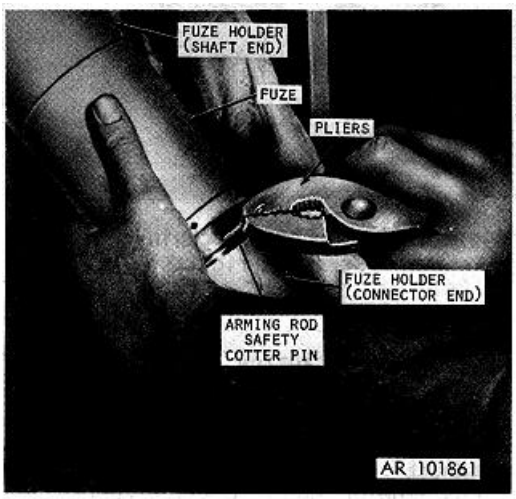

Figure 2-30. Removing safety cotter pin from arming rod of fuze.

j. Hold shaft end of fuze holder with one hand and rotate fuze and connector end of fuze holder with other hand until connector pins in shaft end of fuze holder align with slots in fuze When properly aligned and seated, fuze cannot rotate on shaft. Push both ends of fuze holder together to seat firmly.

k. If shaft end of fuze holder does not seat firmly in fuze (so that fuze firmly contacts both ends of fuze holder), proceed as follows:

(1) Grasp fuze and connector end of holder in one hand so they cannot separate.

(2) Withdraw shaft 1/2 to 1 inch and rotate shaft back and forth slowly while attempting to align connector pins in shaft end with slots in fuze.

(3) If unsuccessful, disassemble fuze completely from holder; return accessories to original location; repack and forward kit to an ammunition depot.

l. When fuze and fuze holder are properly aligned and seated, slide ball-lok pin into its hole in connector end of fuze holder and through shaft.

m.

CAUTION

PULLING OF ARMING ROD OUTWARD FROM FUZE BODY ARMS THE FUZE. THUS, IF ARMING ROD IS FOUND EXTENDED BEYOND 1/8 INCH, FUZE IS CONSIDERED ARMED.

Pull on fuze holder ends to assure that they are properly locked into position. Separation of the end is an indication of improper assembly and/or improper insertion of ball-lok pin.

n. If fuze is armed, proceed as follows:

(1) Remove ball-lok pin and pull connector end of fuze holder from shaft.

(2) Disconnect electrical plug from fuze.

(3) Remove arming wire from fuze by unscrewing arming plug.

(4) Use any practical object available to push arming rod back into fuze. Do not pound on arming rod, Just push hard. The fuze will now be in the safe position and can be reassembled to fuze holder as previously described.

o. Place fuze holder with attached fuze in its resting position in fuze compartment (fig. 2-31).

p. Replace cover on fuze compartment and secure with the four hook latches as shown in figure 2-25.

2-11. CONNECTION OF PROPELLANT ACTUATED THRUSTER M24

a. Remove thruster M24 from its stowage mounting bracket on forward bulkhead of accessory compartment by pulling pull ring toward rear of kit (to position marked UNSAFE TO FIRE) and sliding thruster out of bracket (fig. 2-32).

NOTE

Before mounting thruster, cover lock-pin must be protruding into hole in thruster mounting bracket on cover of kit. If cover lockpin is in depressed position (i.e., not locking cover), use screwdriver to push lockpin release screw to the right (fig. 2-33) to release cover lock-pin from its depressed position.

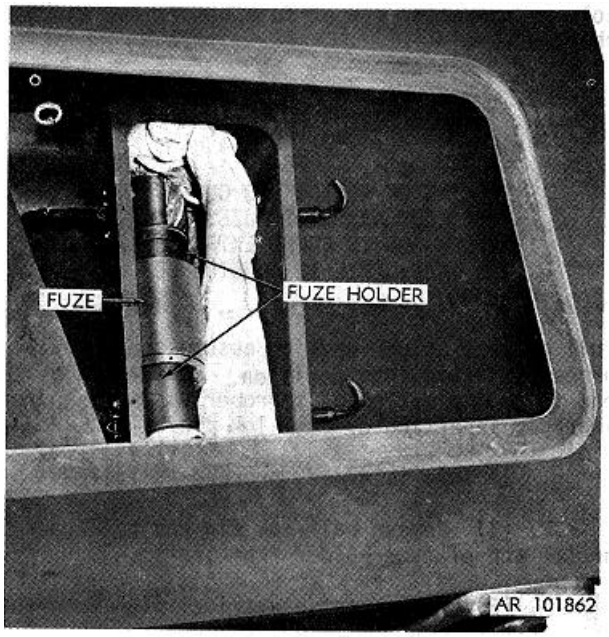

Figure 2-31. Fuze holder with attached fuze in position within fuze compartment.

Figure 2-32. Disengaging thruster from its mounting bracket.

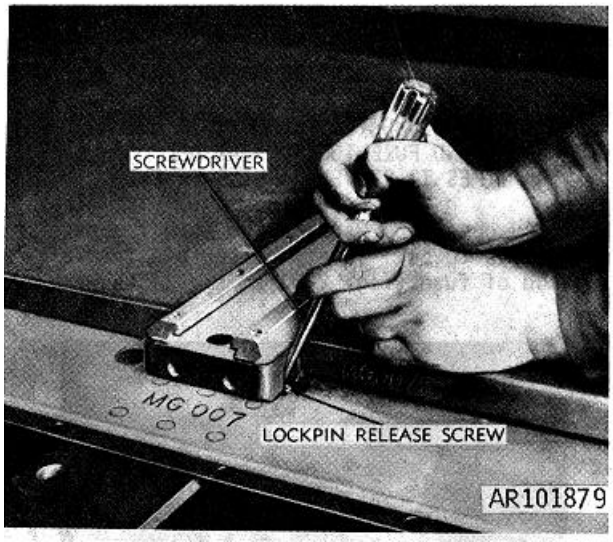

Figure 2-33. Pushing lockpin release screw to right.

b.

CAUTION

MAKE CERTAIN SPRING-LOADED PLUNGER IS FULLY SEATED IN ITS HOLE IN BRACKET. THIS IS INDICATED BY THE POSITION OF SHAFT TO WHICH PULL RING IS CONNECTED. SHAFT MUST BE POSITIONED IN AREA MARKED, "SAFE", ON REAR BLOCK OF THRUSTER (FIG. 2-34).

Mount thruster in mounting bracket atop cover with pull ring end toward rear of kit. Pull ring must be pulled toward UNSAFE TO FIRE position before thruster can slide into bracket (fig. 2-34). When thruster is fully within bracket, release pull ring and slide thruster back and forth slightly until spring-loaded plunger attached to pull ring seats in hole in mounting bracket. This locks the thruster firmly in position (fig. 2-35).

c. Reach into accessory compartment, under the cover, and push shorting plug out of its seated position. Lift plug from its socket and place it in equipment box (fig. 2-36). Check socket from which shorting plug was removed to assure spring contact was not bent out of position. The spring contact may be inspected by locking in accessory compartment. Use shorting plug to assure contact is being made.

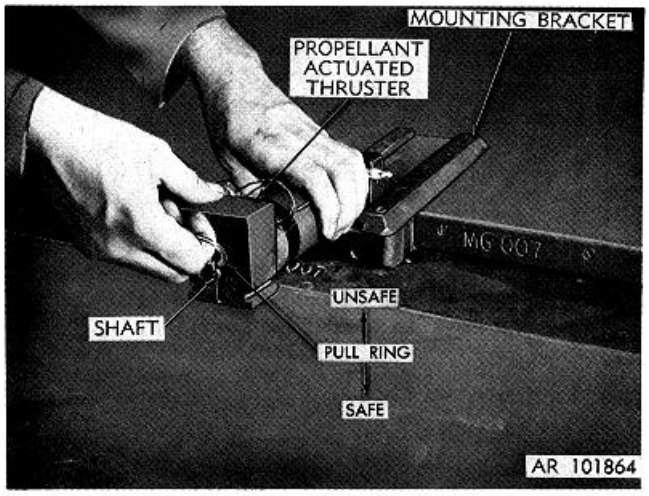

Figure 2-34. Pulling pull ring toward the UNSAFE TO FIRE position.

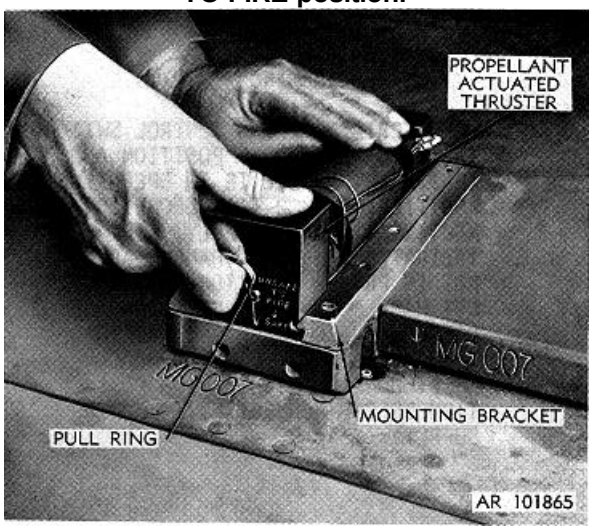

Figure 2-35. Seating thruster in mounting bracket.

d. Remove safety cotter pin on left side of thruster (fig. 2-37) and place in equipment box.

e.

WARNING

MAKE CERTAIN ALL PERSONNEL STAND CLEAR OF REAR OF KIT DURING THIS OPERATION IN CASE OF ACCIDENTAL FIRING OF THRUSTER.

Standing at left side of kit, pull electrical plug from its shorting jack on left side of thruster and insert it into socket from which shorting plug was previously removed (fig. 2-38).

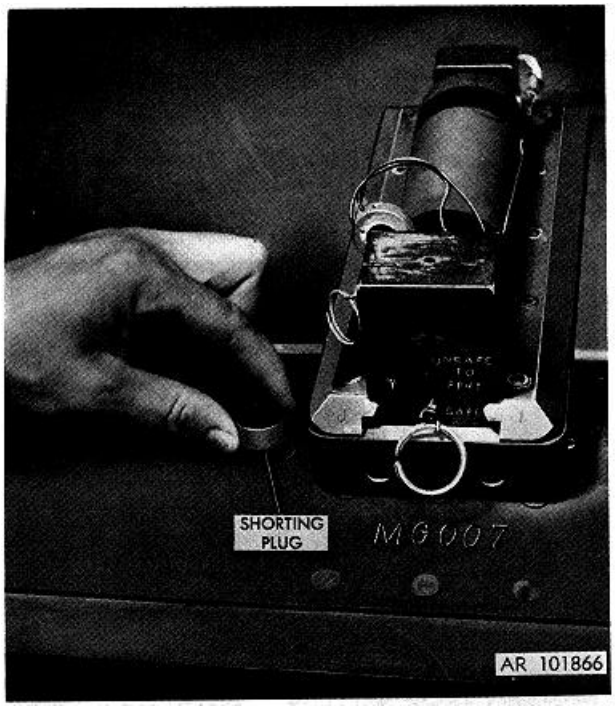

Figure 2-36. Removing shorting plug from socket.

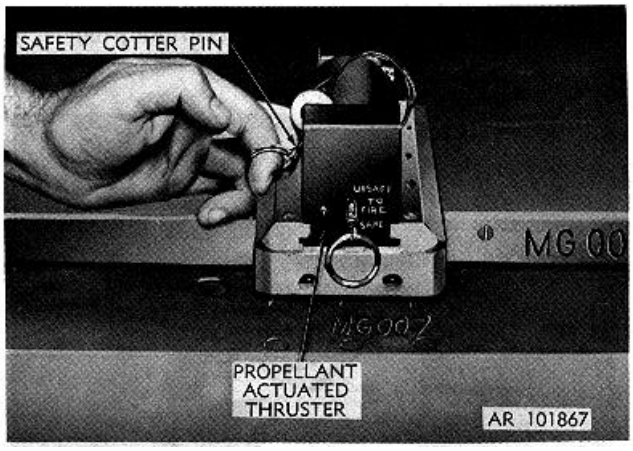

Figure 2-37. Removing safety cotter pin.

2-12. FINAL PREPARATION

a. Install access door on kit (para 2-2b(7)).

b. Unscrew shorting plug from electrical connector beneath front eyebolt (fig. 2-39).

Screw free end of (tow cable) electrical cable connector into the electrical connector (fig. 2-40).

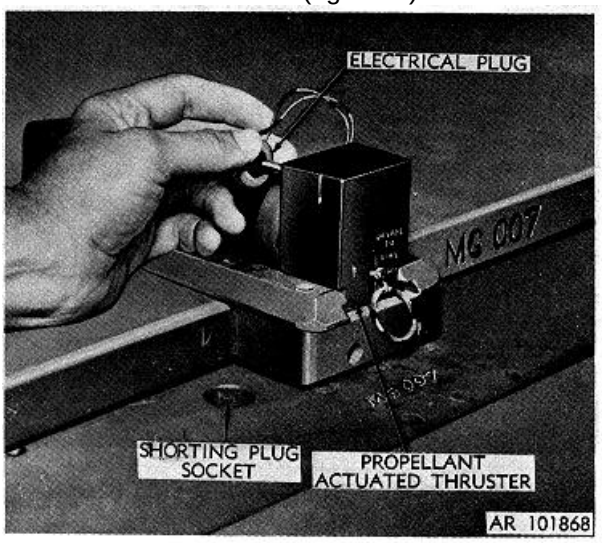

Figure 2-38. Pulling electrical plug from its shorting jack.

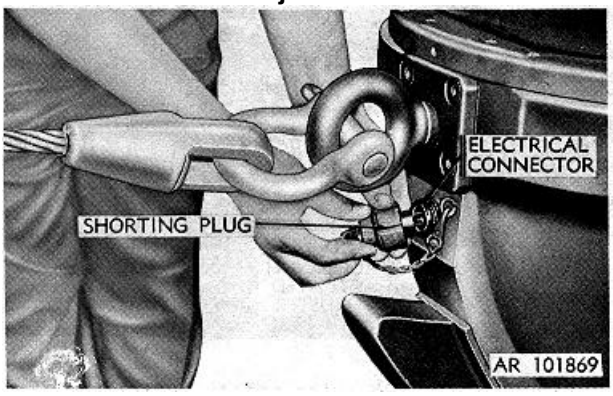

Figure 2-39. Unscrewing shorting plug from electrical connector.

c. If reset handle of firing control switch (fig. 2-41) is not in operating position. lift it up and move to operating position.

d.

WARNING

MAKE CERTAIN FIRING CONTROL SWITCH INDICATOR IS AT OFF POSITION AND THAT RESET HANDLE IS IN OPERATING POSITION (FIG. 2-41) BEFORE CONNECTING TO POWER SUPPLY. IF INDICATOR AND RESET HANDLE ARE NOT IN PROPER POSITION, MOVE RESET HANDLE TO RESET POSITION AND RATCHET SWITCH BACK AND FOURTH TO OFF POSITION. THEN REPLACE RESET HANDLE IN OPERATING POSITION BEFORE CONNECTING TO POWER SUPPLY.

With indicator of firing control switch at OFF position and reset handle in operating position, connect bayonet plug on power cable to the mating 24-volt direct current utility power outlet of tow vehicle.

e. Remove adhesive tape covering seams around main cover. Save tape for securing electrical cables to tow vehicle if necessary.

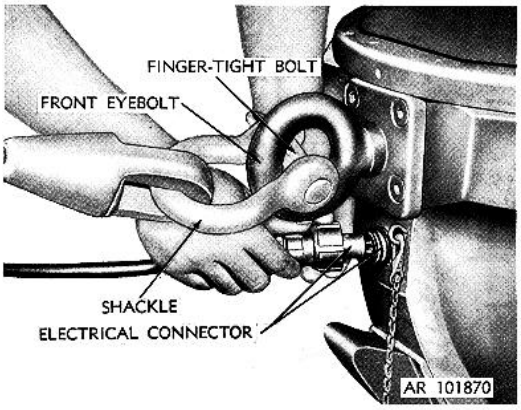

Figure 2-40. Securing electrical connector.

2-13. TOWING

a.

CAUTION NO. 1

NEVER TOW IN EXCESS OF 20 MILES PER HOUR.

CAUTION NO. 2

NEGOTIATE DITCHES AND OBSTRUCTIONS WITH EXTREME CARE.

NOTE

Remainder of this paragraph applies only to those kits which are connected to towing vehicle in accordance with instructions contained in paragraphs 2-7 through 2-12 and which are to be towed directly to mined area for immediate firing. Above cautions, however, apply equally as well to all other situations when these kits are being towed.

b. Observing above cautions, tow kit to minefield. Park kit on a level spot approximately 125 feet from edge of minefield at point where pathway is to be cleared. Make certain that nose of kit is pointing along pathway to be cleared through minefield.

c. If a level spot is unavailable (e.g., minefield is on slope of hill), an effort should be made to adjust the elevation angle of the M95 rocket so that, when the kit is parked for firing and the rocket is in an elevated position, the elevation angle will be approximately 55u from the horizon. Change in elevation angle should be accomplished prior to towing kit to mined area. When it is impossible to determine setting required prior to towing to minefield, elevation angle may be changed at edge of minefield only after kit has been electrically disconnected from tow vehicle. See paragraph 2-18 for instructions concerning change of elevation angle.

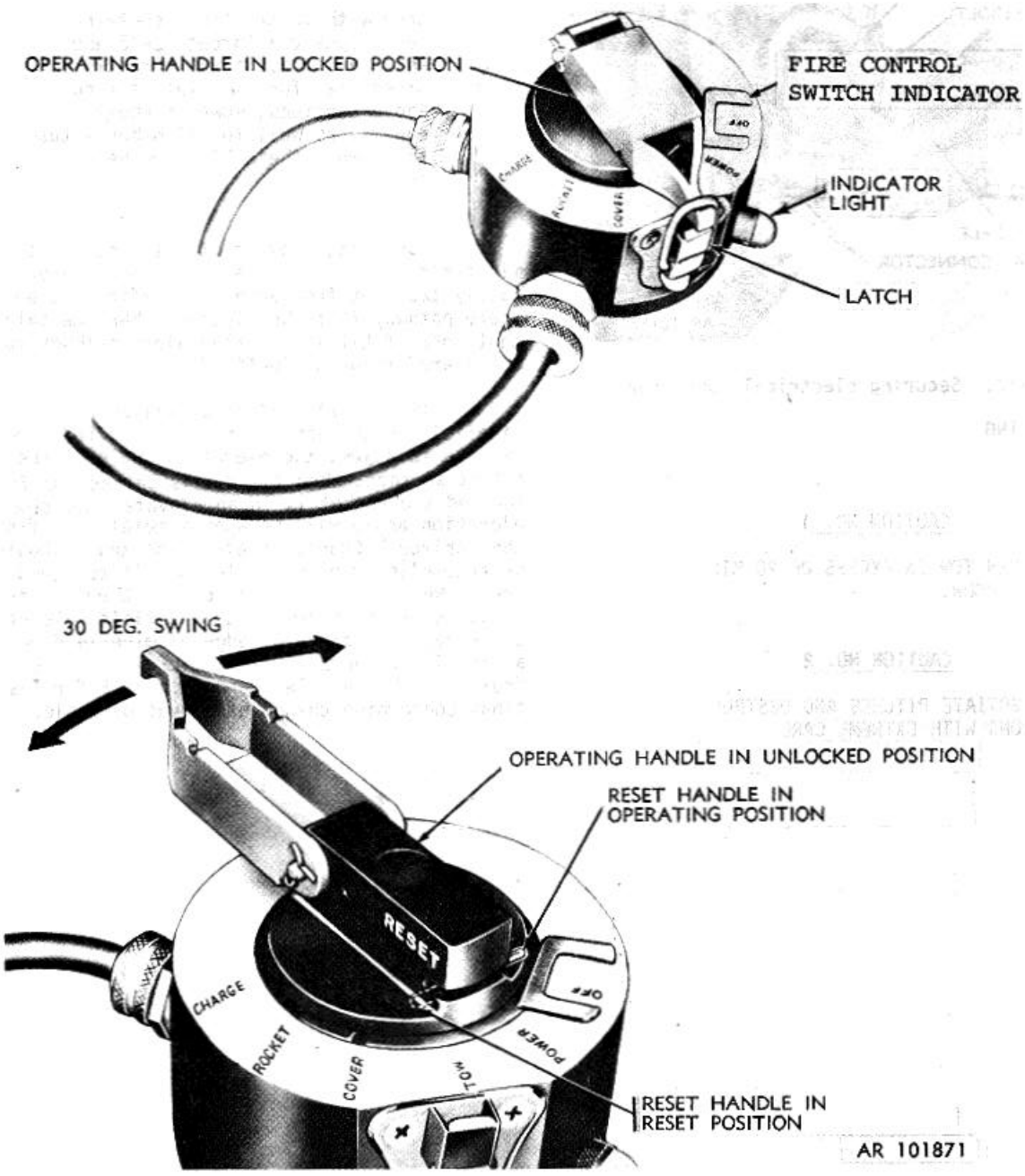

Figure 2-41. Firing control switch.

Section IV. FIRING OF DEMOLITION KIT

2-14. FIRING INSTRUCTIONS

If any action described below does not occur, refer to table 2-1 for corrective action.

a. When kit is in desired position for firing, back up towing vehicle to slacken tow cable (fig. 1-2, insert A).

b.

WARNING

ALL PERSONNEL MUST REMAIN UNDER COVER DURING FIRING OF PROPELLANT ACTUATED THRUSTER M24, PROJECTION OF ROCKET MOTOR M95 WITH ATTACHED LINEAR DEMOLITION CHARGE, AND DETONATION OF CHARGE.

Open latch on firing control switch and open operating handle to its unlocked position (fig. 2-41). Make sure reset handle is in its operating position.

c. Rotate operating handle clockwise until indicator stops at POWER position. This action should turn on indicator light. This light does NOT remain on during other portions of firing sequence.

NOTE

If indicator light does not go on, check electric supply and correct deficiency.

d. Rotate operating handle counterclockwise to its stop, then clockwise until indicator stops at TOW position. This action detonates two explosive actuators M2 in tow cable release, thus disconnecting tow cable from tow vehicle.

e.

CAUTION

PREVENT CUTTING OR FOULING THE 250-FOOT ELECTRICAL CABLE BY AVOIDING SHARP TURNS OR EXCESSIVE SPEED WHEN CIRCLING AWAY FROM KIT. THE LAST 25 FEET OF ELECTRIC CABLE IN CABLE REEL IS RED. STOP TOW VEHICLE WHEN RED CABLE IS SIGHTED.

After towing the kit into firing position and disconnecting the tow cable, drive the tow vehicle approximately 120 to 150 feet to the rear of the kit. Position the tow vehicle so the operation of the kit may be observed (fig. 1-2). One of the following procedures will be used to perform this maneuver, depending on the tactical situation.

(1) To avoid exposing the rear of the vehicle to enemy fire, perform the following maneuver:

(a) Drive the tow vehicle forward a short distance while turning approximately 45° from the line of tow in the direction the wire guide is pointing (fig. 1-2, insert B).

(b) Then carefully avoiding running over the electrical cable, back the tow vehicle around the front of the kit (fig. 1-2, insert C).

(2) If there is no problem with enemy fire, the tow vehicle may be driven around and in back of the kit in the direction of the wire guide. Assure the electrical cable feeds out smoothly and is not fouled, broken, or run over.

f.

WARNING

ALL PERSONNEL MUST REMAIN UNDER COVER DURING FIRING OF PROPELLANT ACTUATED THRUSTER M24.

Rotate operating handle counterclockwise to its stop, then clockwise until indicator stops at COVER position. This action fires propellant actuated thruster M24 on main cover, thus removing cover and automatically raising launcher tube in front hull compartment. Visually determine that rocket motor has raised to preset elevation.

WARNING

ALL PERSONNEL MUST REMAIN UNDER COVER DURING PROJECTION OF ROCKET MOTOR M95 WITH ATTACHED LINEAR DEMOLITION CHARGE.

Rotate operating handle counterclockwise to its stop, then clockwise until indicator stops at ROCKET position. This action fires rocket motor M95 which carries attached linear demolition charge M96 over minefield along target path and arms attached fuze.

h.

WARNING

ALL PERSONNEL MUST REMAIN UNDER COVER DURING DETONATION OF LINEAR DEMOLITION CHARGE.

After the linear demolition charge is on the ground, rotate operating handle counterclockwise to its stop, then clockwise until indicator stops at CHARGE position. This action detonates fuze M1134. Fuze detonation fires linear demolition charge M96 to clear desired path in minefield.

2-15. IMMEDIATE ACTION IN EVENT OF FAILURE

Should a failure to function occur, follow action prescribed in table 2-1.

NOTE

When instructions require a second attempt to fire, firing control switch must first be completely reset to its initial OFF position. Move reset handle to reset position and ratchet the switch back and forth to OFF position. Then replace reset handle in operating position and continue firing sequence.

Table 2-1. Immediate Action in the Event of Failure

Type of failure	Action
1. Tow cable release fails to function.	a. If not under enemy observation, attempt to release manually. b. If under enemy observation or if unable to release manually, Tow kit to authorized munitions personnel for appropriate disposition.
2. Propellant actuated thruster M24 fails to fire.	a. If not under enemy observation, wait two minutes, check all electrical connections, and make another attempt to fire. b. Should second attempt to fire fail, wait two minutes, disconnect fire control switch from tow vehicle's power outlet and manually remove main cover as follows: (1) Perform procedures described in paragraph 2-18b through k; (2) carefully lift front of cover, avoiding any contact with trip latch (see caution in para 2-17i); (3) set cover on ground. Elevate rocket motor M95 as described in 3a below. c. If unable to remove main cover manually, reconnect tow cable and tow the kit to authorized munitions personnel for appropriate disposition. d. If under enemy observation, disconnect fire control switch from tow vehicle while taking safe cover, move tow vehicle at least 300 feet from kit, and destroy kit by gunfire if considered necessary.
3. Rocket motor M95 fails to raise up into firing position.	a. If not under enemy observation, proceed as follows: Be sure firing control switch is at COVER position. Disconnect fire control switch from tow vehicle. Push down on rocket nose to be sure trip latch is engaged. If bumper bolt (fig. 1-4) is restraining rocket, screw bolt down far enough to allow rocket motor to raise up. Then press rocket downward and rearward with one hand and manually disengage trip latch, letting rocket come up slowly. b. If under enemy observation, disconnect fire control switch from tow vehicle while taking safe cover, move tow vehicle at least 300 feet from kit, and destroy by gunfire if considered necessary.

Table 2-1. Immediate Action in the Event of Failure -- Continued

Type of failure	Action
4. Rocket motor M95 fails to fire.	a. Same as in item 3a above. b. Should second attempt to fire fail, wait two minutes, disconnect fire control switch from tow vehicle, reconnect tow cable and tow the kit to authorized munitions personnel for appropriate disposition. c. If under enemy observation, disconnect fire control switch from tow vehicle while taking safe cover, move tow vehicle at least 300 feet from kit, and destroy by gunfire if considered necessary.
5. Fuze M1134 fails to function.	Attempt to destroy charge by gunfire (using HE or HEAT round when practical).
6. Linear charge fails to detonate	Attempt to destroy charge by gunfire (using HE or HEAT round although fuze does. when practical).

Section V. OPERATION UNDER UNUSUAL CONDITIONS

2-16. GENERAL

Special instructions for operating the projected charge demolition kit M173 under unusual conditions are given below.

2-17. OPERATION DURING EXTREME COLD-WEATHER CONDITIONS

a. General. Although projected charge demolition kits M173 are designed to operate under cold weather conditions to a temperature of minus 400F., additional care and special handling are required for proper functioning and to minimize possibility of damaging kits.

b. References. FM 31-70 and FM 31-71 contain information pertinent to the operation of munitions materiel under arctic conditions. Operating personnel responsible for use of demolition kits under extreme cold weather conditions should become familiar with the contents of these publications.

c. Care and Handling. Four fundamental procedures must always be observed in the care and handling of demolition kits under conditions of extreme cold, as follows:

(1) Do not suddenly transfer demolition kit from cold to warm temperatures or vice versa. Condensation induced by this action and subsequent freezing of condensation may hinder operation of kit or may even render kit completely unserviceable.

(2) During use of kit, avoid unnecessary handling of electrical cables. When handling of cables is required, do not bend, twist, or flex them more than is absolutely necessary. Since electrical cable insulation becomes brittle and subject to cracking at low temperatures, cables can become irreparably damaged by such rough treatment.

(3) Covering of kit is advised, if possible, to prevent accumulation of snow and ice on kit and to maintain kit in a state of readiness. If covering is not possible, remove accumulated snow and ice as often as required.

(4) Snow and ice should not be allowed to accumulate around electrical connector under front eyebolt and the main cover thruster mounting bracket.

(5) Avoid placing kit in area where kit might freeze to ground (puddles, slush, etc.).

2-18. CHANGING ELEVATION ANGLE OF ROCKET M95

Whenever conditions are such that a change of elevation angle is required, proceed as follows:

a. First make sure kit is NOT electrically connected to tow vehicle (i.e., fire control switch is disconnected).

b. Remove adhesive tape, if present, around edges of main cover and access door.

c. Remove access door (para 2-2b(5).

d. If thruster is mounted on cover, push its electrical plug out of socket and replace electrical plug in shorting jack on body of thruster.

e. Pull the pull-ring, located at end of thruster, toward the UNSAFE TO FIRE position until attached spring-loaded plunger is fully lifted out of the recess in mounting bracket (fig. 2-34) and slide thruster out of mounting bracket.

f. Pull the pull-ring of thruster toward UNSAFE TO FIRE position and slide it into its mounting bracket on left front wall of accessory compartment as shown in figure 2-32.

g. With screwdriver depress main cover lockpin (fig. 2-42).

NOTE

A snap or click will be heard when pin is properly depressed.

h. Remove closing lever from equipment box in accessory compartment. Insert pin on short link of closing lever into lockpin hole and insert pin on long link into hole in accessory compartment brace. Swing locking clip under brace to lock lever in position (fig. 2-43.

i. Standing behind kit, pull back on handle of closing lever to pull cover back from its locked position (fig. 2-44).

j. If unable to remove cover with closing lever, obtain a 3/16-inch key, for socket head screw (allen wrench) and turn setscrew (fig. 2-45) in front of kit to loosen cover and force it rearward. Then repeat operation in i above.

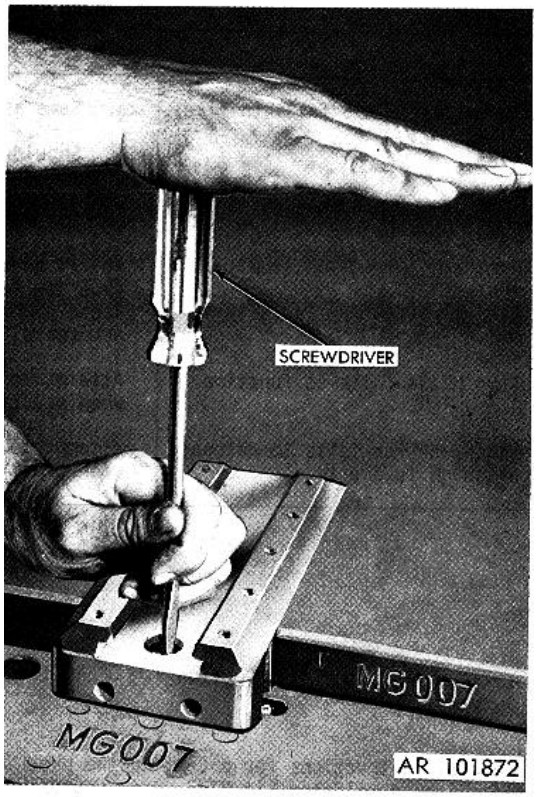

Figure 2-42. Depressing main cover lockpin.

k. Swing locking clip from under brace to unlock closing lever from its installed position and remove lever (fig. 2-46).

l.

WARNING

ACTUATION OF TRIP LATCH WILL CAUSE LAUNCHER TUBE TO SPRING UP QUICKLY AND WITH SUFFICIENT FORCE TO INJURE ANYONE WHO HAPPENS TO BE IN THE WAY.

Lift front of cover upwards, taking care to avoid contacting trip latch (fig. 2-47) on right side of launcher tube and also taking care to avoid pulling lanyard between trip latch and rear of cover. Cover may be set down in any convenient

position as long as it is kept away from trip latch and lanyard is not tensioned or broken.

NOTE

If launcher is accidentally elevated, use right hand to push down on locking latch (fig. 2-47) while simultaneously pushing down and rearward on nose of rocket with left hand until launcher tube is in a horizontal position and trip latch engages. If trip latch does not automatically engage, manually turn its protruding point to vertical position to lock launcher tube.

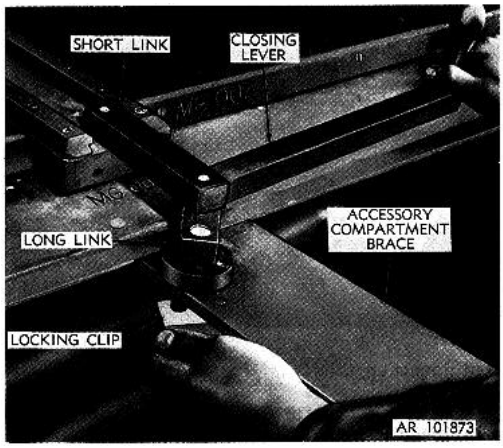

Figure 2-43. Swinging locking clip under brace.

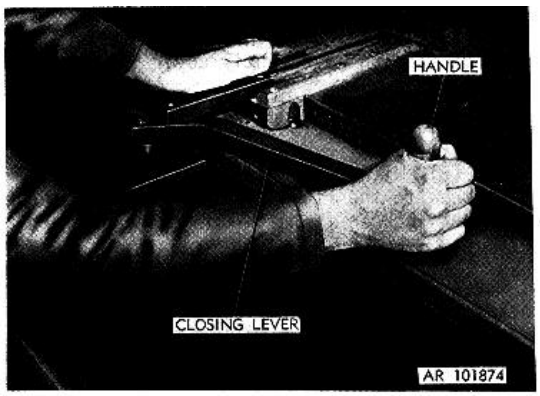

Figure 2-44. Pulling back on handle of closing lever.

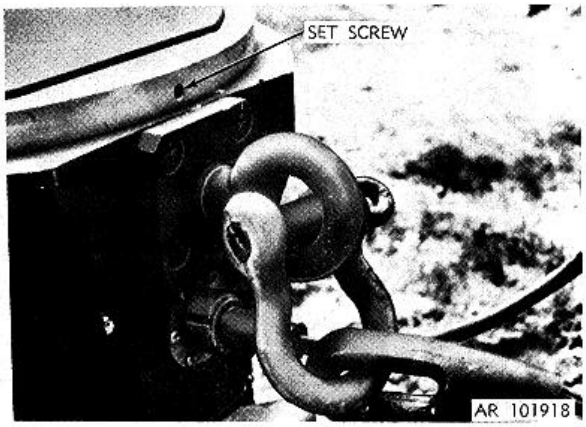

Figure 2-45. Setscrew for the cover.

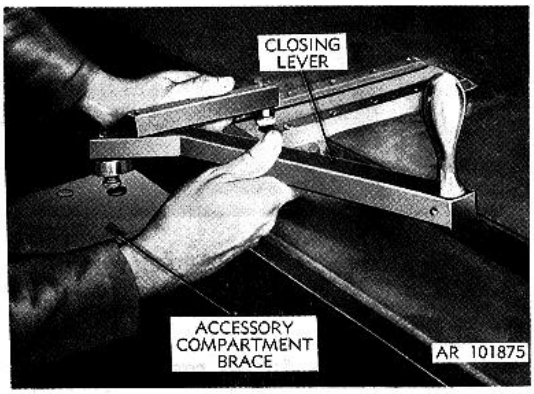

Figure 2-46. Removing closing lever.

m. Adjust elevation as follows:

(1) If to be towed, make required elevation adjustment from left side of kit, using handwheel (fig. 2-48), and proceed to step n.

(2) If elevation adjustment is being made on the site from which kit will be fired, disregard step n below and proceed as follows:

(a) Completely remove main cover from kit and place on ground.

(b) Holding nose of rocket with one hand, actuate trip latch with the other and allow rocket to slowly rise into launch position. Locking latch will automatically lock launcher in position for launching.

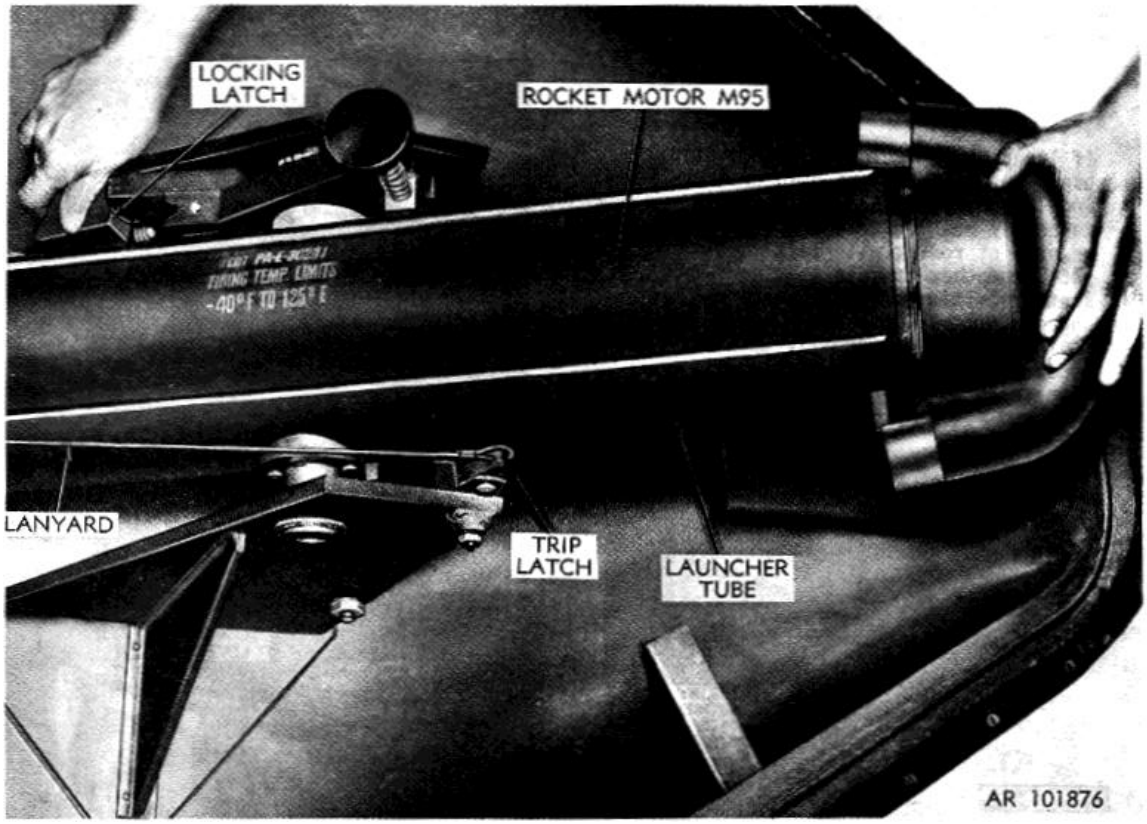

Figure 2-47. Lowering elevated launcher tube.

(c) Reconnect kit electrically and proceed with firing.

(d) After firing, remove thruster from stowage mounting bracket in accessory compartment and dispose of in accordance with local regulations n. If kit is to be towed after adjustment of elevation angle, proceed as follows:

(1)

CAUTION

PRIOR TO LOWERING AND SEATING COVER, MAKE CERTAIN NO ICE, SNOW, WATER, DIRT, OR OTHER FOREIGN MATERIAL IS PRESENT IN OR AROUND GUIDE NOTCHES WHICH WOULD PREVENT PROPER ENGAGEMENT OR CAUSE SUBSEQUENT BINDING OF COVER.

Lower main cover into position so its locking lugs are aligned with guide notches in rim of hull (fig. 2-49) while avoiding contact with trip latch and taking care not to pull on lanyard.

(2) Install closing lever.

(3) Standing behind kit, push forward on handle of closing lever until cover is properly seated.

(4) Remove closing lever.

(5) With screwdriver, push lockpin release screw to the right (fig. 2-50), to release main cover lockpin from its depressed position.

(6) Make sure that main cover lockpin has moved upward into hole in thruster mounting bracket on main cover. If lockpin has not moved upward, proceed as follows:

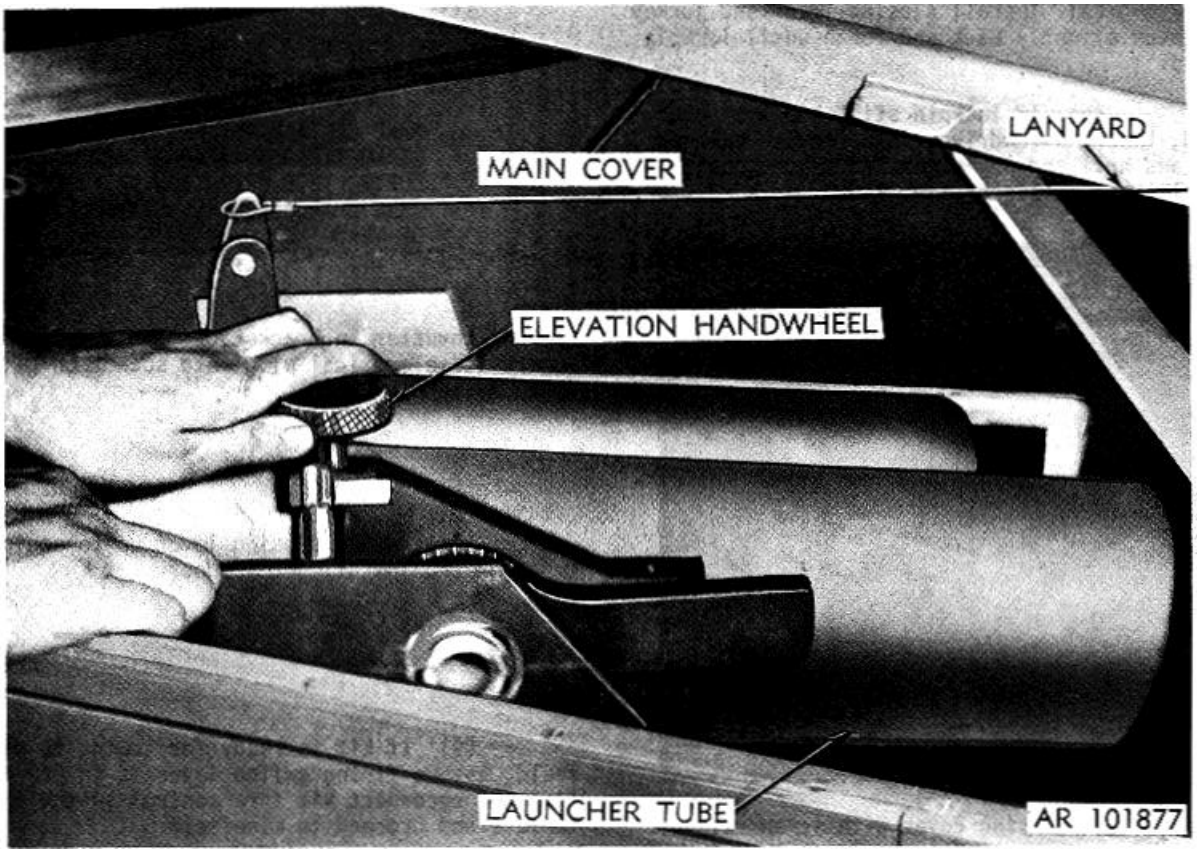

Figure 2-48. Adjusting elevation.

Figure 2-49. Lowering main cover into position.

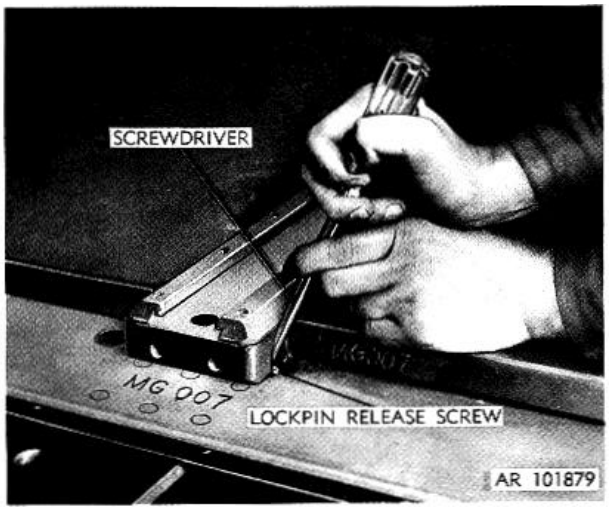

Figure 2-50. Pushing lockpin release screw to right.

(a) Install closing lever and jockey main cover slightly back and forth until lockpin pops up.

(b) If lockpin still has not moved upward, insert screwdriver into crevice between cover and hull and pry cover from side to side until lockpin releases (fig. 2-51).

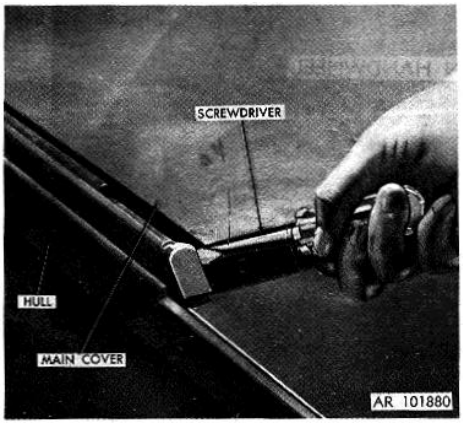

Figure 2-51. Prying cover with screwdriver.

(7)

WARNING

MAKE CERTAIN ALL PERSONNEL STAND CLEAR OF REAR OF KIT DURING THIS OPERATION IN CASE OF ACCIDENTAL FIRING OF THRUSTER.

Remount thruster in bracket on main cover and insert its electrical plug into socket on kit (para 2-11a and 2-11b).

(8) Return closing lever up to equipment box and install access door.

(9) If kit is ready for towing to minefield, assure firing switch lever is in OFF position and reconnect kit fire control switch to tow vehicle and proceed to minefield.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

3-1. GENERAL

Equipment, spare parts, and repair parts, other than those issued for use with the demolition kits (table 1-1), are not supplied to the using organization for maintenance of equipment. Absolutely no maintenance or service other than that expressly stated in chapter 2 is to be attempted by operating personnel.

3-2. PROCEDURE

Whenever service, maintenance, or reconditioning of a demolition kit is required, the kit will be sent to an ammunition depot for necessary action.

CHAPTER 4

SHIPMENT AND DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

4-1. GENERAL SHIPPING INSTRUCTIONS

When shipping demolition kit M173, the unit commander is responsible for materiel being shipped in a serviceable condition and properly processed for shipment, including preparation of Army shipping documents. For general shipment instructions refer to TM 9-1300-206 and to the appropriate organizational maintenance manual for the transporting vehicle to be used.

4-2. DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

Procedures for destruction of materiel to prevent enemy use is detailed in TM 750-244-5-1.

APPENDIX A

REFERENCES

A-1. PUBLICATION INDEXES

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

Index of Administrative Publications.....DA Pam 310-1
Index of Blank Forms.....DA Pam 310-2
Index of Doctrinal, Training, and Organizational Publications.....DA Pam 310-3
Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.....DA Pam 310-4
Index of Supply Catalogs and Supply Manuals (excluding types 7, 8, and 9).....DA Pam 310-6

A-2. ARMY REGULATIONS

Reporting of Transportation Discrepancies in Shipments.....AR 55-38
Transportation by Water of Explosives and Hazardous Cargo.....AR 55-228
Military Traffic Management Regulation.....AR 55-355
Malfunctions Involving Ammunition and Explosives.....AR 75-1
Interservice Responsibilities for Explosive Ordnance Disposal.....AR 75-14
Responsibilities and Procedures for Explosive Ordnance Disposal.....AR 75-15
Administration AR 210-10
Accident Reporting and Records.....AR 385-40
Procedures for Firing Ammunition for Training, Target Practice, and Combat.....AR 385-63
Identification of Inert Ammunition and Ammunition Components.....AR 385-65
Packaging Improvement Report.....AR 700-58

A-3. BLANK FORMS

Accident Report.....DA Form 285
Record of Injury.....DA Form 1051
Recommended Changes to Publications and Blank Forms.....DA Form 2028
Equipment Inspection and Maintenance Worksheet.....DA Form 2404
Maintenance Request.....DA Form 2407
Equipment Maintenance Log.....DA Form 2409
Ammunition Condition Report.....DA Form 2415
Fire Report.....DA Form 3985
Packaging and Improvement Report.....DD Form 6
Discrepancy in Shipment Report.....SF 361

A-4. DOCTRINAL, AND ORGANIZATIONAL PUBLICATIONS

Field Manuals
Camouflage, Basic Principles and Field Camouflage.....FM 5-20
Explosives and Demolitions.....FM 5-25
Engineering Field Data.....FM 5-34
Military Symbols.....FM 21-30
Grenades and Pyrotechnics Signals.....FM 23-30
Basic Cold Weather Manual.....FM 31-70
Northern Operations.....FM 31-71
Mountain Operations.....FM 31-72

A-5. EQUIPMENT MANUALS

a. Technical Manuals.

Operation and Maintenance of Army Materiel in Extreme Cold Weather, 0 to -65F ..... FM 9-207
Ammunition and Explosive Standards ..... TM 9-1300-206
Demolition Materials ..... TM 9-1375-213-12
Demolition Materials ..... TM 9-1375-213-34
The Army Maintenance Management System (TAMMS) ..... TM 38-750
Destruction of Conventional Ammunition and Improved Conventional Munitions to Prevent Enemy Use ..... TM 750-244-5-1

b. Supply Bulletins.

Preservation Packaging, Packing, and Marking Supplies, and Equipment Used by the Army ..... SB 38-100
Department of Defense Ammunition Code ..... SB 708-30

c. Supply Catalogs.

Ammunition and Explosives: Classes 1340 thru 1398 ..... SC 1340/98-IL
Demolition Equipment Set, Explosive Initiating, Electric and Nonelectric ..... SC 1375-94-CL-P02

APPENDIX B

OPERATOR'S CHECK LIST

Table B-1. Operator's Check List for Preparing the M173 Kit for Firing

Item	Description	References	
		Figure	Paragraph
1	Inspect all external portions of Kit for damage.	2-1	2-2
2	Cut Bands around Kit.	2-1	2-2
3	Remove access door (save tape).	2-3 2-4	2-2
4	Remove tow cable and firing control switch (with "Y" cable attached) from accessory compartment and put aside	1-8	2-7
5	Remove tow cable release from accessory compartment.	2-6	2-7
6	Remove cable reel assembly and T-Handle special nut and wedge screws from accessory compartment and put aside	2-7 2-8 2-9	2-7
7	Remove tow bar and (wire) guide bracket from accessory compartment.	2-10	2-8
8	Determine which side of towing vehicle to be used and assemble guide bracket accordingly.	2-10	2-8
9	Assemble (wire) guide bracket and tow bar.	2-11	2-8
10	Assemble (wire) guide and tow bar to tow vehicle.	2-12	2-8
11	Position tow vehicle within 8 ft of front of Kit.	1-2	2-9
12	Carry firing control switch into driver compartment of tow vehicle.	2-12 2-13 2-14	2-9
13	Do not connect firing control switch to vehicle's power supply at this time.		2-9
14	Place firing control switch cable along side of vehicle. Toward rear of vehicle. Make sure cable is clear of turret if tank is used.	2-14	2-9
15	Pick up cable reel and mount on tow vehicle, using T-Handle nuts and wedge screws.	2-15	2-9
16	Remove center tube from cable reel.	2-18 2-19	2-9
17	Thread cable from reel through shackle on (wire) guide bracket.	2-24	2-9
18	Connect cable on underside of reel to matched (red) color receptacle of "Y" cable of firing control switch.	2-20	2-9

Item	Description	References	
		Figure	Paragraph
19	Pick up and place tow cable between Kit and tow vehicle. Put larger connector towards Kit. Do not twist or kink cable.		2-9
20	Secure tow ring (with attached tow cable release) to rear pintle of tow vehicle.	2-21	2-9
21	Secure tow cable of tow cable release.	2-22	2-9
22	Connect colored matched connectors on tow release and "Y" cable.	2-23	2-9
23	Connect vehicle end tow cable to unattached reel assembly cable.	2-24	2-9
24	Remove fuze compartment cover.	2-25	2-10
25	Lift fuze holder from compartment and remove Ball-Lok pin.	2-26	2-10
26	Separate fuze holder from connector holder.	2-27	2-10
27	Remove fuze M1134 from top of equipment box.		2-10
28	Unscrew cap from fuze electrical plug.		2-10
29	Screw arming plug finger tight on fuze arming rod (Do not remove cotter pin at this time).	2-28	2-19
30	Screw electrical connector to electrical plug	2-29	2-10
31	Slide shaft from fuze holder thru fuze and into other half of fuze holder (connector end) until aligned and seated. (Fuze cannot rotate).		2-10
32	Remove cotter pin from arming rod.	2-30	2-10
33	Replace Ball-Lok pin into fuze holder thru shaft.		2-10
34	Place assembled fuze holder and fuze into fuze compartment.	2-31	2-10
35	Remove M24 thruster from accessory compartment	2-32	2-11
36	Mount thruster on mounting bracket rear of cover.	2-35	2-11
37	Remove shorting plug, check its socket to assure contact spring was not bent.	2-36	2-11
38	Remove safety cotter pin (left side of thruster). Pull electrical plug from shorting jack on thruster.	2-37	2-11
39	Insert electrical plug into socket from which shorting plug was removed.	2-38	2-11
40	Replace access door.		2-11
41	Unscrew shorting plug from electrical connection under front eyebolt.	2-39	2-11
42	Connect cable from tow cable to connector under eyebolt.	2-40	2-12
43	Remove tape around cover (save tape).		2-12
44	Check firing control switch, (must be in OFF position).Connect bayonet plug to power source in tow vehicle.	2-41	2-14
45	Firing sequence -- Tow kit to minefield; fire tow cable release; maneuver tank to rear of kit; fire thruster; fire M95 rocket; and fire fuze.	2-41	2-14

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

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

Distribution:

To be distributed in accordance with DA Form 12-40, Operator Maintenance Requirements for Demolition Materials.

☆U.S. GOVERNMENT PRINTING OFFICE: 1979-603-128/1402

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

DA FORM 1 JUL 79 2028-2

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.

PIN: 026677-000

This fine document...

Was brought to you by me:

Liberated Manuals -- free army and government manuals

Why do I do it? I am tired of sleazy CD-ROM sellers, who take publicly available information, slap “watermarks” and other junk on it, and sell it. Those masters of search engine manipulation make sure that their sites that sell free information, come up first in search engines. They did not create it... They did not even scan it... Why should they get your money? Why are not letting you give those free manuals to your friends?

I am setting this document FREE. This document was made by the US Government and is NOT protected by Copyright. Feel free to share, republish, sell and so on.

I am not asking you for donations, fees or handouts. If you can, please provide a link to liberatedmanuals.com, so that free manuals come up first in search engines:

<A HREF=http://www.liberatedmanuals.com/>Free Military and Government Manuals</A>

- Sincerely
  Igor Chudov
  http://igor.chudov.com/
- Chicago Machinery Movers