

WAR DEPARTMENT TECHNICAL MANUAL

TM 9-733

MINE EXCAVATOR T5E3

DEMO
Dimensione ridotta

WAR DEPARTMENT



4 JANUARY 1945

~~RESTRICTED~~ DISSEMINATION OF RESTRICTED MATTER—

The information contained in restricted documents and the essential characteristics of restricted materiel may be given to any person known to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work, but will not be communicated to the public or to the press except by authorized military public relations agencies. (See also paragraph 23 *b*, AR 380-5, 15 March 1944.)

Contents

PART ONE—INTRODUCTION

		<u>Paragraphs</u>	<u>Pages</u>
SECTION	I. General	1- 2	1- 3
	II. Description and data.....	3	3- 5
	III. Tools, parts, and accessories.....	4- 6	5- 7

PART TWO—OPERATING INSTRUCTIONS

SECTION	IV. General	7	8
	V. Service upon receipt of equipment.....	8-10	8- 9
	VI. Controls	11	10-12
	VII. Operation under ordinary conditions...	12	13-14
	VIII. Demolition to prevent enemy use.....	13-14	14-15

PART THREE—MAINTENANCE INSTRUCTIONS

SECTION	IX. General	15	15
	X. Special organizational tools and equipment	16	15
	XI. Lubrication	17	15
	XII. Preventive maintenance services	18-24	16-24
	XIII. Trouble shooting	25-28	24-26
	XIV. Hydraulic system	29-52	26-44

PART FOUR—AUXILIARY EQUIPMENT

SECTION	XV. General	53	45
---------	-------------------	----	----

PART FIVE—REPAIR INSTRUCTIONS

SECTION	XVI. General	54	45
	XVII. Miscellaneous parts	55-56	45-46
	XVIII. Pump and control valve.....	57-59	47-52

APPENDIX

SECTION	XIX. References	60-62	53-57
	INDEX		58

PART ONE

INTRODUCTION

Section I

General

1. SCOPE.

a. These instructions are published for the information and guidance of all concerned. They contain information on operation and maintenance of the equipment as well as descriptions of major units and their functions in relation to other components of the vehicle to which this device is attached. They apply only to Mine Excavator T5E3 and are arranged in five parts; Part One, Introduction; Part Two, Operating Instructions; Part Three, Maintenance Instructions; Part Four, Auxiliary Equipment; Part Five, Repair Instructions.

b. The appendix at the end of the manual contains instructions for shipment and limited storage, and a list of references including standard nomenclature lists, technical manuals, and other publications applicable to this mine excavator.

c. The stock and part numbers which appear throughout the manual are extracted from ORD 7, SNL G-228 and C-1 1 December 1944.

d. The Mine Excavator T5E3 is used in conjunction with the Medium Tank M4A3. This manual does not contain information on the operation and maintenance of the Medium Tank M4A3 since such information is available in TM 9-759.

2. RECORDS.

a. Forms and records applicable for use in performing prescribed operations are listed below with a brief explanation of each:

(1) WAR DEPARTMENT FORM NO. 48, DRIVER'S TRIP TICKET AND PREVENTIVE MAINTENANCE SERVICE RECORD. This form, properly executed, will be furnished to the driver when his vehicle is dispatched on nontactical missions. The driver and the official user of the vehicle will complete in detail appropriate parts of this form. These forms need not be issued for vehicles in convoy or on tactical missions. The reverse side of this form contains the driver's daily and weekly preventive maintenance service reminder schedule.

(2) W.D., A.G.O. FORM NO. 478, MWO AND MAJOR UNIT ASSEMBLY REPLACEMENT RECORD. This form, carried with the vehicle, will be used by all personnel completing a modification or major unit assembly replacement to record clearly the description of work completed,



RA PD 344693

Figure 1—Mine Excavator T5E3—Blade Lowered

Introduction

date, vehicle hours and/or mileage, and MWO number or nomenclature of unit assembly. Personnel performing the operation will initial in the column provided. Minor repairs, parts, and accessory replacement will not be recorded.

(3) W.D., A.G.O. FORM NO. 462, PREVENTIVE MAINTENANCE SERVICE AND TECHNICAL INSPECTION WORK SHEET FOR FULL-TRACK AND TANK-LIKE WHEELED VEHICLES. This form will be used for all 50-hour (500-mile) or 100-hour (1000-mile) services and for technical inspections of these vehicles.

(4) WAR DEPARTMENT LUBRICATION ORDER. A War Department Lubrication Order prescribes lubrication maintenance for this vehicle. A Lubrication Order is issued with each vehicle and is to be carried with it at all times.

(5) W.D., A.G.O. FORM NO. 9-70, SPOT-CHECK INSPECTION REPORT FOR ALL MOTOR VEHICLES. This form may be used by all commanding officers or their staff representatives in making spot-check inspections on all vehicles.

(6) W.D., A.G.O. FORM NO. 468, UNSATISFACTORY EQUIPMENT REPORT. This form will be used for reporting manufacturing, design, or operational defects in materiel with a view to improving and correcting such defects, and for use in recommending modifications on materiel. This form will not be used for reporting failures, isolated materiel defects, or malfunctions of materiel resulting from fair wear and tear or accidental damage; nor for the replacement, repair, or the issue of parts and equipment. It does not replace currently authorized operational or performance records.

(7) W.D., A.G.O. FORM NO. 9-81, EXCHANGE PART OR UNIT IDENTIFICATION TAG. This tag, properly executed, may be used when exchanging unserviceable items for like serviceable assemblies, parts, vehicles, and tools.

Section II*Description and Data***3. DESCRIPTION AND DATA.**

a. Description. The Mine Excavator T5E3 consists of a V-shaped rake-type blade for removing land mines ahead of the tank while the tank is in motion. The blade has twenty-two teeth extending forward at an angle equally spaced along the lower edge of the blades (fig. 2). At either side of the blade and on a line with the mouldboard, folding wings are attached (fig. 8) to prevent the land mines from falling backward under the tank tracks. Because of the favorable torque characteristics, the mine excavator



RA PD 344694

Figure 2—Mine Excavator T5E3—Blade Raised

Description and Data

will preferably be mounted on the Medium Tank M4A3. Tanks to which the mine excavators are to be attached will be modified by removing the main generator from the floor behind the driver and installing two generators on side mountings in the engine compartment (fig. 3). The side arms of the mine excavator are attached to the outside of the tank suspension brackets on pivot-type mountings (fig. 9). The mine excavator blade is raised and lowered by a telescopic hydraulic jack. The hydraulic jack is supported on a trunnion which is attached to the front of the tank by a support assembly (fig. 14).

b. Data.

Over-all width, wings extended	168 in.
Over-all width, wings folded	130 in.
Over-all length, including tank	313 in.
Depth of penetration below ground line	14 in.
Height of mouldboard	32 in.
Raise of front tooth	60½ in.
Raise of rear tooth	41½ in.
Angle of approach	27 deg, 30 min
Maximum drop of front tooth	28¾ in.
Maximum drop of rear tooth	23½ in.
Tooth spacing, between centers	6 in.
Height of mouldboard	32 in.
Distance between teeth	4¾ in.
Weight of each tooth	117 lb
Outside diameter of jack	62 ⁵ / ₃₂ in.
Jack length, contracted	20½ in.
Maximum stroke	46 ⁷ / ₈ in.
Weight of complete blade assembly	9960 lb

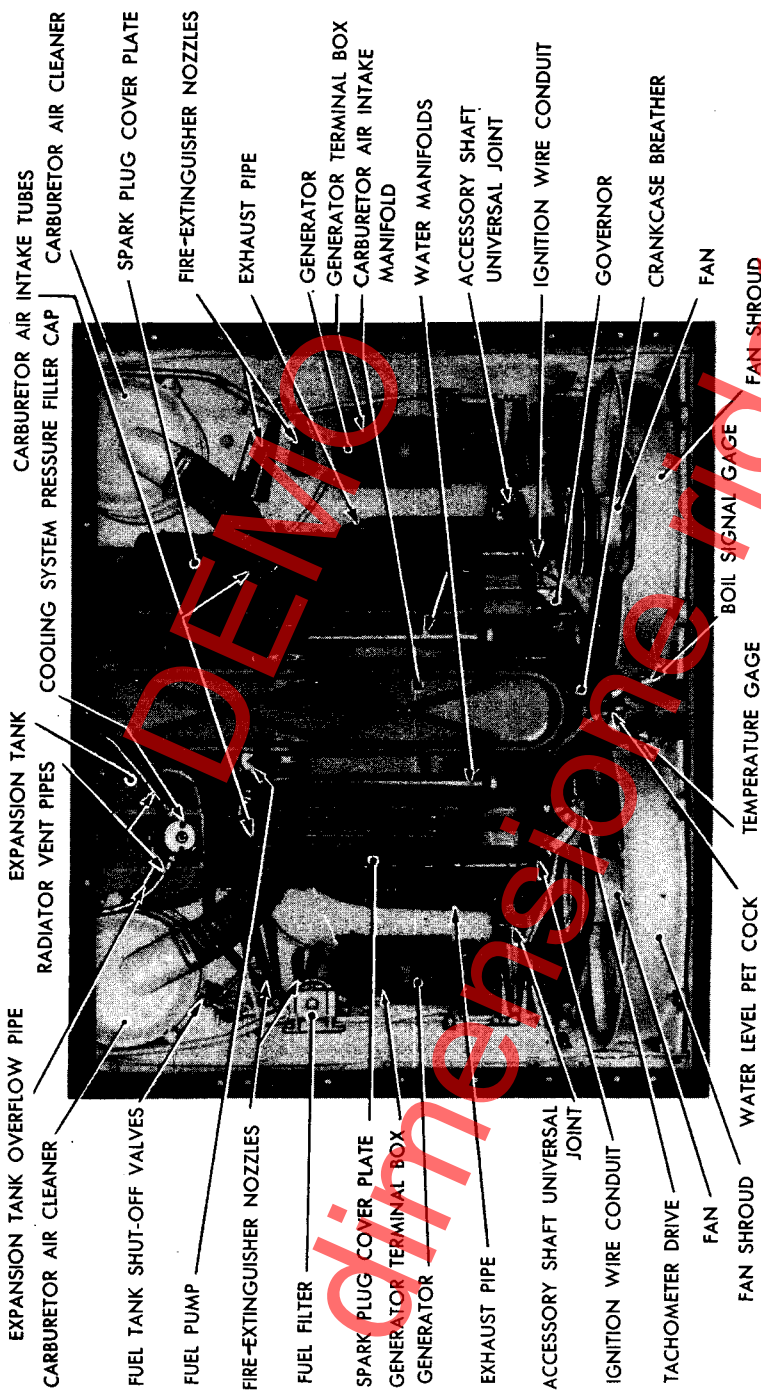


Section III

*Tools, Parts, and Accessories***4. TOOLS.**

a. The lists in this section are for information only and must not be used as a basis for requisition.

b. Due to the construction of the Mine Excavator T5E3, the tools issued with the accompanying vehicle are adequate for the mine excavator's maintenance.



RA PD 27355

Figure 3—Engine Compartment of Medium Tank M4A3

Section VI
Controls

11. CONTROLS.

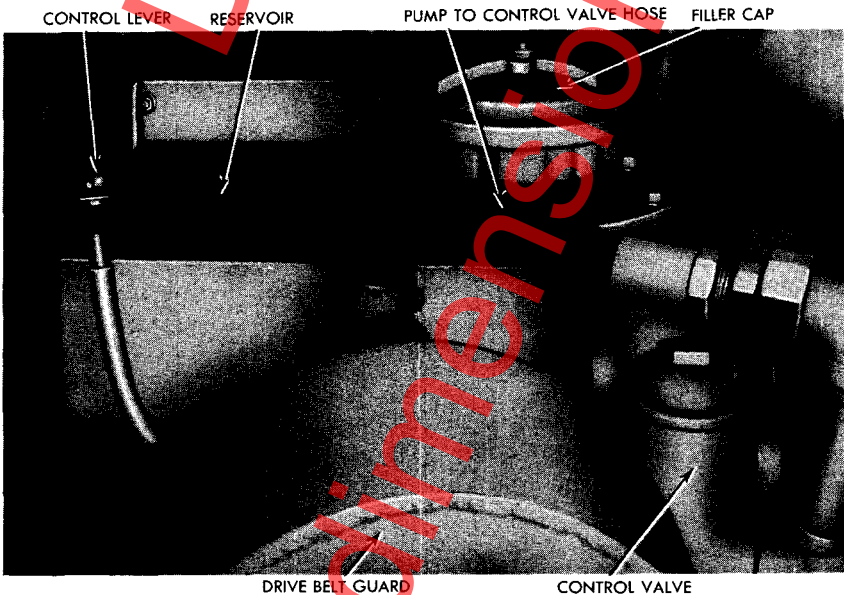
a. The control units of the hydraulic system are mounted within the tank and consist of the following units:

(1) RESERVOIR. A reservoir containing the supply of oil for the hydraulic system is mounted on brackets above the front of the transmission case (fig. 4).

(2) PUMP. The pump receives the oil supplied by the reservoir, and forces the oil under pressure through pipe lines as required. It is mounted on brackets above the rear of the transmission case (fig. 5).

(3) CONTROL VALVE. The control valve diverts the flow of oil to raise the jack and locks the jack in any position, at the discretion of the operator. The valve, mounted on the rear of the reservoir, returns the oil to the reservoir, allowing the jack to lower (fig. 4).

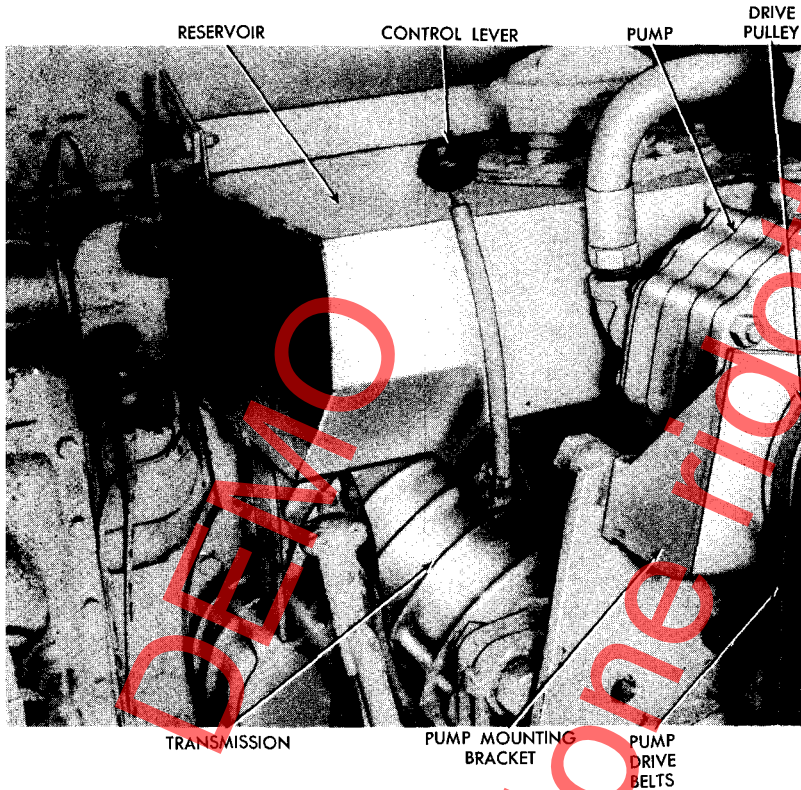
(4) OPERATING LEVERS. The mine excavator blade is operated through the control valve by dual control levers mounted on the rear of the reservoir and connected to the control valve by shafting and linkage. One control lever is located on the right side of the operator, near the operator's seat,



RA PD 344695

Figure 4—Reservoir and Control Valve Installed

Controls



RA PD 344696

Figure 5—Control Lever and Pump Installed

for convenience and ease of operation (fig. 5). The other control lever is located within easy reach at the left of the assistant operator. The control levers have three positions:

(a) *Hold position.* To hold or carry the blade, place the control lever in the neutral or vertical position.

(b) *Raise Position.* To raise the blade, pull the control lever backward.

(c) *Lower Position.* To lower the blade, push the control lever forward.

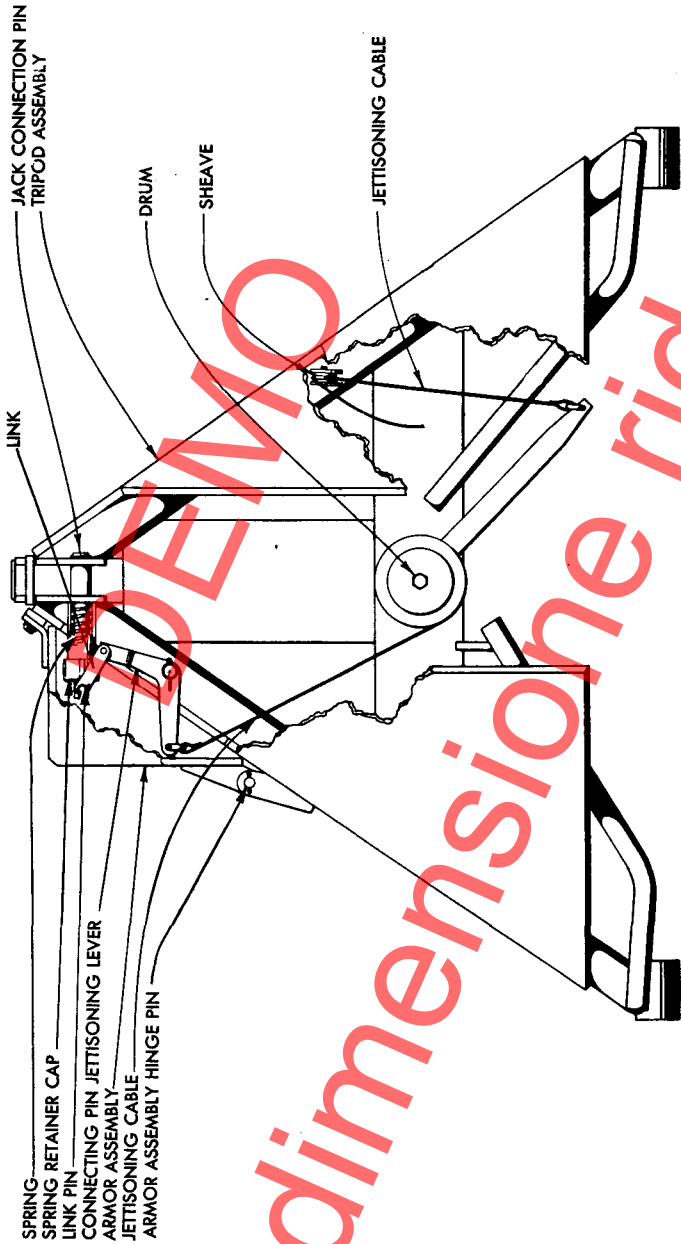
NOTE: *When free, the control lever will return to the neutral or vertical position.*

(5) **JETTISONING LEVER.** A control lever attached to the jettisoning cable is mounted within reach of the assistant operator. By pulling the lever backward, the jack piston to tripod connecting pin (fig. 6) and the latches on the side arm pivot bearings (fig. 9) are released, at the same time allowing the mine excavator to be jettisoned without emerging from the tank.



Figure 6—Jack Piston to Tripod Connecting Pin

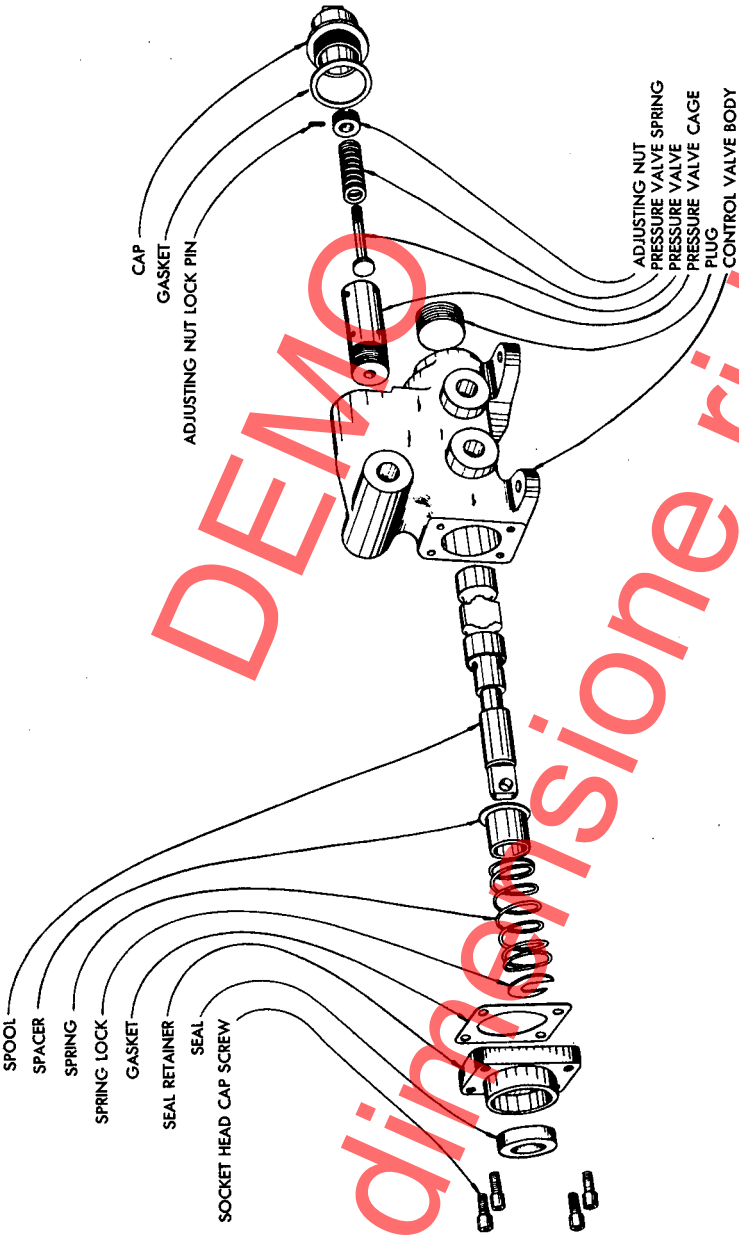
RA PD 344697



RA PD 344704

Figure 12—Tripod Assembly

dimensione ridotta



RA PD 344710

Figure 20—Control Valve Disassembled