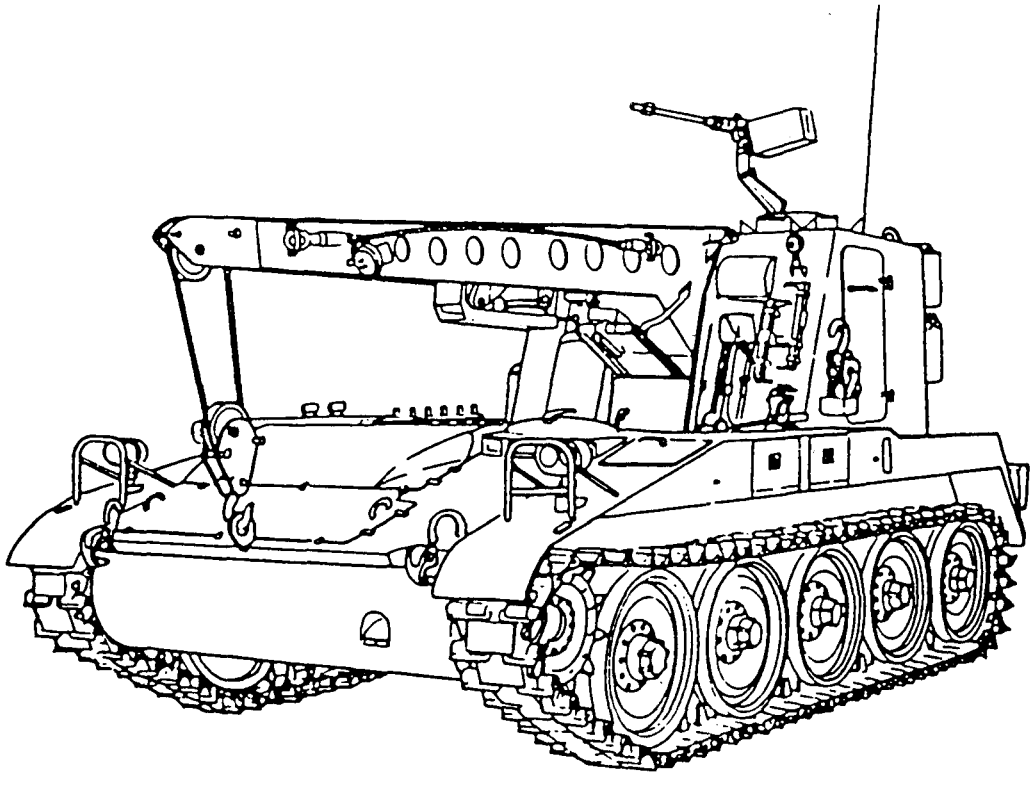
SUPERSEDES COPY DATED
18 DECEMBER 1981

TECHNICAL MANUAL
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

HULL AND RELATED COMPONENTS RECOVERY VEHICLE, FULL TRACKED: LIGHT, ARMORED, M578 (2350-00-439-6242) (EIC:3LA)



This Manual supersedes hull and related components portions of TM 9-2350-238-34-1, dated 18 December 1981, including all changes

HEADQUARTERS, DEPARTMENT OF THE ARMY
31 MARCH 1994

TECHNICAL MANUAL

No. 9-2350-238-34-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC , *31 March 1994*

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

HULL AND RELATED COMPONENTS
RECOVERY VEHICLE, FULL TRACKED:
LIGHT, ARMORED, M578
(2350-00-439-6242) (EIC:3LA)

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 letter, 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 Tank-Automotive Command, Attn: AMSTA-MB, Warren, MI 48597-5000. A reply will be furnished to you.

Table of Contents

*This manual supersedes TM 9-2350-238-34-1, dated 18 December 1981

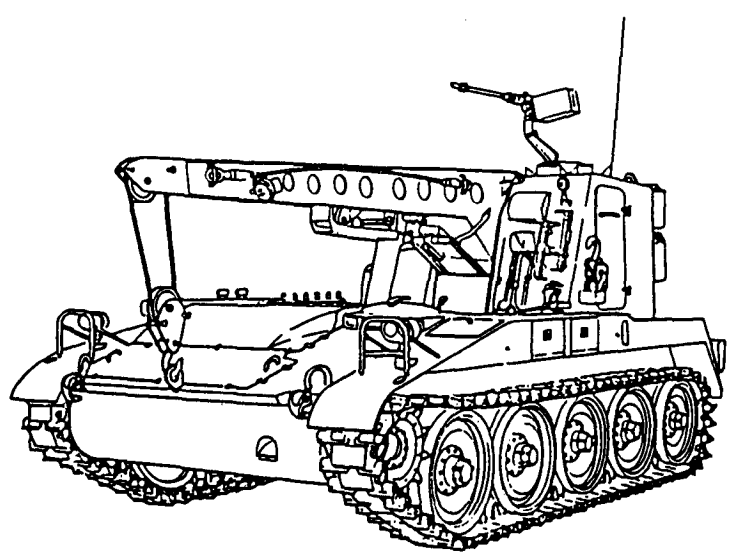
Table of Contents (cont)

HOW TO USE THIS MANUAL

This manual (TM 9-2350-238-34-1) contains direct support and general support maintenance procedures for the hull and related components of the M578 full tracked recovery vehicle. This manual is to be used in conjunction with TM 9-2350-238-20-1 and TM 9-2340-238-24P-1. Chapter 1 contains general information; information concerning repair parts special tools, TMDE, and support equipment; and equipment description and data. Chapter 2 contains direct support troubleshooting and direct support maintenance procedures. Chapter 3 contains general support maintenance procedures and information concerning preparation for storage or shipment.

Be sure to read and understand maintenance instructions before beginning any maintenance task. Also, read and understand information in Chapter 1 and general maintenance procedures on page 2-28 before beginning any maintenance task.

M578 ARMORED LIGHT, FULL TRACKED RECOVERY VEHICLE



CHAPTER 1

INTRODUCTION

CHAPTER INDEX

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. *Type of Manual:* Direct support and general supped maintenance.

b. *Model Number and Equipment Name:* M578 armored light full tracked recovery vehicle.

c. *Purpose of Equipment:* M578 armored light full tracked recovery vehicle is used to pick up or tow disabled mechanized equipment.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

a. *Tactical Situations.* Situations may arise in which it is necessary to abandon equipment in the combat zone. All abandoned equipment must be destroyed to prevent its use by the enemy. The destruction of equipment subject to capture or abandonment in the combat zone will be undertaken only upon authority delegated by a division or higher commander.

b. *Plans.*

(1) Plans for destruction of equipment must be adequate, uniform, and easily carried out in the field.

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE (CONT).

(2) Destruction must be as complete as the available time, equipment, and personnel will permit. Since complete destruction requires considerable time, priorities must be established so the more essential parts are destroyed first.

(3) The same essential parts must be destroyed on all like units to prevent the enemy from constructing a complete unit from undamaged parts.

(4) Spare parts and accessories must be given the same priority as parts installed on the equipment.

c. *Methods.* To destroy equipment adequately and uniformly, all personnel of the unit must know the plan and priority of destruction and be trained in the methods of destruction.

d. *References.* Read TM 750-244-6 for information on destruction of mechanical equipment. Read TM 750-244-5-1 for information on destruction of ammunition.

1-4. PREPARATION FOR STORAGE OR SHIPMENT. Administrative storage is restricted to 90 days and must not be extended. Refer to TM 9-2350-238-20-1 for detailed instructions on administrative storage.

1-5. OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS.

Nomenclature Cross-Reference List.

Common Name	*Official Nomenclature*
Compression spring	Outer contact set compression spring
Crossover vent tube	Metallic bent tube
Fuel filler neck cap	Fuel filler neck assembly cap
Fuel level transmitter	Fuel sending unit liquid quantity transmitter
Insulating ring	Cover contact set insulating plus
Left fabric fuel cell	Left hand fuel cell
Lockwire	Nonelectrical wire
Plug connector	Plug shell assembly
Right fabric fuel cell	Engine fuel tank
Snap ring spacer	Receptacle to terminal board snap ring spacer
Upper insulating ring	Upper insulating plus

1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR). If your M578 vehicle needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to us at Commander, US Army Tank-Automotive Command, ATTN: AMSTA-Q, Warren, MI 48397-5000. We will send you a reply.

1-7. CORROSION PREVENTION AND CONTROL (CPC).

a. *General.* Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in the future.

b. *Corrosion.* While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials maybe a corrosion problem.

c. *ReportIing.* If a corrosion problem is identified, it can be reported using SF 368, Product Quality Deficiency Report. Use of key words such as "corrosion," "rust," "deterioration," or "cracking" will assure that the information is identified as a CPC problem.

d. *Forms.* The form should be submitted to: Commander, US Army Tank-Automotive Command, ATTN: AMSTA-Q/Customer Feedback Center, Warren, MI 48397-5000.

Section II EQUIPMENT DESCRIPTION AND DATA

1-8. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

a. *Purpose.* The M578 vehicle is used to pickup or tow disabled mechanized equipment, as a crane at repair bases, and as a carrying platform for spare parts and maintenance personnel.

b. *Capabilities and Features.*

CAUTION

Do not ford water which exceeds 42.0 in. (106.7 cm) in depth. Check for soft mud or sandy bottoms.

(1) The M578 vehicle is a light, full tracked, self-propelled, diesel-powered vehicle with a 30,000-lb (13,614-kg) boom winch and a 60,000-lb (27,228-kg) tow winch mounted in an armored cab. It is highly mobile, maneuverable, and may be air transported. The vehicle is capable of long-range, high-speed operation on improved roads. It can traverse rough terrain, muddy or marshy ground, sand, and snow or ice. The M578 vehicle can ford streams up to 42.0 in. (106.7 cm) deep without auxiliary fording equipment.

(2) A suspension lockout system and spade assembly provide a stable platform and increase the lifting and winching capabilities of the vehicle. The suspension lockout system, boom, winches, cab, and spade are hydraulically powered.

(3) A machine gun mount support is installed on the rigger/gunner cupola to accommodate a Browning M2 caliber .50 machine gun.

1-9. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS. Refer to TM 9-2350-238-20-1.

1-10. EQUIPMENT DATA. Necessary equipment data not furnished in this manual can be found in TM 9-2350-238-10 or TM 9-2350-238-20-1.

a. *Engine.*

CAUTION

Do not let engine speed exceed 2300 RPM under any circumstances.

(1) Type . . . . . Two-cycle, V-8, turbocharged compression-ignition, diesel, liquid cooled
(2) Model 8V71T
(3) Weight, dry (as installed) . . . . . 2442 lb(1108 kg)
(4) Number of cylinders 8
(5) Displacement . . . . . 568 cu in. (9308 cm^3)
(6) Bore . . . . . 4.25 in. (10.80 cm)
(7) Stroke . . . . . 5.0 in. (12.7 cm)
(8) Compression ratio 17:1
(9) Maximum, gross brake horsepower (at 2300 rpm) 405 (302kW)
(10) Maximum, net brake horsepower. 345 (257kW)
(11) Maximum, rpm (governed):
(a) No load . . . . . 2300 rpm
(b) Hydraulic pump engaged . . . . . 1350 rpm
(12) Idle speed . . . . . 650 to 700 rpm
(13) Crankshaft rotation (viewed from front of engine) . . . . . Clockwise
(14) Firing order 1L-3R-3L-4R-4L-2R-2L-1R

b. *Power Takeoff.*

(1) Dimensions . . . . . 19.00 in. lg x 10.75 in. h x 8.50 in. w (48.26 cm lg x 27.30 cm h x 21.59 cm w)
(2) Engine rpm to power takeoff output ratio. 1.32:1

c. *Final Drives.*

(1) Type . . . . . Front drive sprocket
(2) Final drive ratio. 5.35:1
(3) Weight, dry:
(a) Left . . . . . 718 lb (326 kg)
(b) Right . . . . . 633 lb (287 kg)

d. *Transmission.*

(1) Type . . . . . Crossdrive, torque converter, planetary gear, all-torque shifting

(2) Model XTG-411-2A

(3) Transmission . . . . . Hydraulic and mechanical

(4) Weight, dry (as installed) . . . . . 2390 1b(1084 kg)

(5) Overall length . . . .61.386 in. (155.920 cm)

(6) Overall height . . . .26.07 in. (66.22 cm)

(7) Overall width (between output drive-to-hull mounting faces) . . . .83 in. (211 cm)

(8) Torque converter type . . . . . Hydraulic, single stage, polyphase, (three element, with automatic lockup clutch)

(9) Clutches . . . . . Multiplate wet, hydraulically applied

(10) Range selector . . . . . Four forward speeds, two reverse speeds

(11) Oil screen . . . . . Reusable, disk-type

(12) Lubrication pressure . . . . . 18 to 45 psi (124 to 310 kPa) at 1835 to 1900 engine rpm (minimum 10 psi (69 kPa) at 1000 engine rpm)

(13) Gear ratios:

(a) 1st 4.69:1

(b) 2nd 3.18:1

(c) 3rd 1.59:1

(d) 4th 0.794:1

(e) R1 . . . . . 5.60:1

(f) R2 . . . . . 3.79:1

(14) Maximum rating:

(a) Input torque . . . .880 ft-lb (1193 N-m)

(b) Input power (net) . . . . . .360 hp (269 kW)

(c) Input speed . . . .2300 rpm

(15) Steering system:

(a) Clutches applied by . . . . . Oil pressure

(b) Clutches released by . . . . . Spring pressure

(c) Steering brakes applied by . . . . . Oil pressure

(d) Brakes (service and parking) . . . . . Multiplate, wet, mechanically applied, sintered bronze on steel

(e) Oil pumps . . . .5 pumps

(f) Type of pump . . . . . Gear, positive displacement

e. *Auxiliary Drive Assembly.*

(1) Weight . . . .191 lb (87 kg)

(2) Input to generator output shaft ratio 1:3.48

(3) Input fan sheave output shaft ratio 1:0.69

(4) Magnetic clutch:

(a) Voltage . . . .24 V dc

(b) Ampere at 25 °C (77 °F) 4.76

(c) Resistance at 25 °C (77°F) . . . . . 5.04 ohms

1-10. EQUIPMENT DATA (CONT).

f. *Radiators.*

(1) Dimensions . . . . . 39.25 in. h x 24.00 in. w x 5.00 in. deep (99.70 cm h x 60.96 cm w x 12.70 cm deep)

(2) Coolant flow (each radiator) . . . .70 gpm (265 l/min)

(3) Top tank temperature . . . .210 °F(99 °C)

(4) Weight (each)..... . . . . ..73 lb(33 kg)

g. *Coolant Fan.*

(1) Design and construction data:

(a) Outside diameter . . . .27.0 in.(68.6cm)

(b) Overall length . . . .15.0 in. (38.1 cm)

(c) Weight . . . .120.0 lb(53.4 kg)

(2) Direction of rotation (viewed from pulley end) . . . . . Clockwise

(3) Direction of airflow . . . . . Through fan, into engine compartment

(4) Number of mounting holes 16

(5) Bolt circle diameter . . . .25.75 in. (65.41 cm)

h. *Hydraulic Rotary Pump.*

(1) Type . . . . Dual Vane

(2) Rate output pressure . . . .2000 psi (13,790 kPa)

(3) Rated flow at 2000 psi . . . .7.6 gpm(28.8 l/min)

(4) Maximum operating rpm . . . .1350 rpm

I. *Lockout Cylinder.*

(1) Length:

(a) Retracted . . . .25.94 in. (65.89 cm)

(b) Extended . . . .35.47 in. (90.09 cm)

(2) Outside diameter . . . .6.00 in. (15.24 cm)

(3) Weight, dry . . . .82 lb (37 kg)

(4) Operating pressure . . . . . .150 psi (1034kPa)