

WAR DEPARTMENT

TECHNICAL MANUAL



**ORDNANCE MAINTENANCE
CRANE AND WINCHES
HEAVY WRECKING TRUCK M1
(Ward La France) (Kenworth)**

JANUARY 27, 1943

FOR ORDNANCE PERSONNEL ONLY

TECHNICAL MANUAL }
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ORDNANCE MAINTENANCE
CRANE AND WINCHES, HEAVY WRECKING TRUCK M1
(Ward La France)
(Kenworth)

PREPARED UNDER THE DIRECTION OF THE
 CHIEF OF ORDNANCE

(With the cooperation of the Ward La France Truck Corporation)

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CHAPTER 1

INTRODUCTION

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1. PURPOSE AND SCOPE.

a. The instructions contained in this manual are for the information and guidance of the personnel charged with the maintenance and repair of the Heavy Wrecking Truck M1, series 2. Information on the detailed construction of the unit, disassembly and assembly procedure, inspection, maintenance and repair is contained in four manuals—TM 9-1795A, TM 9-1795B, TM 9-1795C and TM 9-1795D. This manual covers a description of and procedure for the disassembly, inspection, repair and assembly of the crane, power take-off, drive lines, winches, and cables. It also covers instructions for storage and shipment of the Heavy Wrecking Truck M1. TM 9-1795A covers a description of the Heavy Wrecking Truck M1, series 2; including differences between series 1 and series 2; U.S.A. registration numbers of the vehicle, a description of and procedure for the disassembly, inspection, repair and assembly of the front axle, rear axle, universal joints and propeller shafts, transmission, transfer case, wheels and tires. TM 9-1795B contains a description of and procedure for the disassembly, inspection, repair and assembly of the engine, cooling system, electrical system, engine accessories, fuel and exhaust system, lubrication and clutch. TM 9-1795D covers a description of and procedure for the disassembly, inspection, repair and assembly of the brakes, frame, springs, shock absorbers, steering, body and sheet metal. It also contains instructions for packing, shipping and storage. Instructions for general decontamination of the unit are contained in TM 9-795.

2. DESCRIPTION AND NATURE OF MATERIEL.

a. In addition to the description and nature of this materiel contained in TM 9-1795 this manual contains detailed description of and procedure for disassembly, inspection, repair and assembly of the crane, power take-off, drive lines, winches and cables.

3. DIFFERENCES AMONG MODELS.

a. The differences among models are contained in TM 9-1795A.

4. SPECIFICATIONS, DATA AND U.S.A. REGISTRATION NUMBERS.

a. These are contained in TM 9-1795A.

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5. ORGANIZATION MAINTENANCE.

a. Scope. The scope of maintenance and repair by the crew and other units of the using arm is determined by the availability of suitable tools, availability of necessary parts, capabilities of the mechanics, time available and the tactical situation. All of these are variable and no exact system of procedure can be prescribed.

b. Allocation of Maintenance. Indicated below are the maintenance duties for which tools and parts have been provided for the using arm personnel. Other replacements and repairs are the responsibility of ordnance maintenance personnel but may be performed by using arm personnel when circumstances permit, within the discretion of the commander concerned. Echelons and words as used in this list of maintenance allocations are defined as follows:

(1) **SECOND ECHELON:** Line organization regiments, battalions, companies, detachments and separate companies (first and second echelons).

(2) **THIRD ECHELON:** Ordnance light maintenance companies, ordnance medium maintenance companies, ordnance divisional maintenance battalions and post ordnance shops.

(3) **FOURTH ECHELON:** Ordnance heavy maintenance companies and service command shops.

(4) **FIFTH ECHELON:** Ordnance base regiments, ordnance bases, arsenals and manufacturers' plants.

(5) **SERVICE** (including preventive maintenance—par. 23 a (1) and (2), AR 850-15): Consists of servicing, cleaning, lubricating, tightening bolts and nuts and making external adjustments of subassemblies or assemblies and controls.

(6) **REPLACE** (par. 23 a (4), AR 850-15): Consists of removing the part, subassembly or assembly from the vehicles and replacing it with a new or reconditioned or rebuilt part, subassembly or assembly, whichever the case may be.

(7) **REPAIR** (par. 23 a (3) and (5) in part, AR 850-15): Consists of making repairs to, or replacement of the part, subassembly or assembly that can be accomplished without completely disassembling the subassembly or assemblies, and does not require heavy welding, or riveting, machining, fitting and/or alining or balancing.

(8) **REBUILD** (par. 23 a (5) in part and (6) AR 850-15): Consists of completely reconditioning and replacing in serviceable condition any unserviceable part, subassembly or assembly of the vehicle—including welding, riveting, machining, fitting, alining, balancing, assembling and testing.

INTRODUCTION**ABSORBERS, SHOCK AND LINKAGE****ECHELONS**

	2nd	3rd	4th	5th
Absorber assembly, shock and linkage—replace.....	X			
Absorber assembly, shock and linkage—repair.....		X		
Absorber assembly, shock and linkage—rebuild.....			E	X

AXLE, FRONT

Alinement, wheel, camber and caster			E	X
Alinement, wheel, toe-in—adjust.....	X			
Arm, steering—replace	X			
*Axle, front assembly—service and replace	*	X		
Axle, front assembly—repair		X		
Axle, front assembly—rebuild.....			E	X
Bearings, wheel—adjust and replace.....	X			
Carrier, differential, with cross shaft and pinion cage assembly—replace and repair.....		X		
Carrier, differential, with cross shaft and pinion cage assembly—rebuild			E	X
Retainers, grease—replace	X			
Rod, tie—replace	X			
Rod, tie—repair		X		
Seals, oil—replace	X			
Shaft, axle—replace	E	X		
Stop, steering knuckle—adjust and replace..		X		

AXLE, REAR (TANDEM UNIT)

*Axle assembly, rear or intermediate—replace..	*	X		
Axle assembly, rear or intermediate—repair		X		
Axle assembly, rear or intermediate—rebuild			E	X
*Axles, rear assembly (tandem unit)—replace...	*	X		
Axles, rear assembly (tandem unit)—repair..		X		
Axles, rear assembly (tandem unit)—rebuild.....			E	X
Bearings, wheel or connecting tube—replace.....	X			
Carrier, differential, with cross shaft assembly (rear or intermediate)—replace and repair.....		X		
Carrier, differential, with cross shaft assembly (rear or intermediate)—rebuild.....			E	X
Retainers, grease—replace	X			
Rods, torque—replace	X			
Rods, torque—rebuild			X	
Seals, oil—replace	X			
Shaft, axle—replace	X			
Shaft, propeller, intermediate with universal joints—replace	X			
Shaft, propeller, intermediate with universal joints—repair		X		
*See last page of this section for explanatory notes.				

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AXLE, REAR (TANDEM UNIT) (Cont'd)

	ECHELONS			
	2nd	3rd	4th	5th
Shaft, propeller, intermediate with universal joints— rebuild			E	X
Tube, connecting, bogie—replace	E	X		

BRAKE GROUP

Adjuster, slack—adjust and replace	X			
Adjuster, slack—repair		X		
Adjuster, slack—rebuild			X	
Brakes—adjust	X			
Chamber, air brake assembly—replace	X			
Chamber, air brake assembly—repair		X		
Chamber, air brake assembly—rebuild			X	
Connections, trailer, front and rear, air brake—replace	X			
Connections, trailer, front and rear, air brake—repair		X		
Diaphragm, air brake chamber—replace	X			
Drum, brake—replace	X			
Governor, air pressure assembly—adjust and replace	X			
Governor, air pressure assembly—repair		X		
Governor, air pressure assembly—rebuild			X	
Lines and connections, air—replace	E	X		
Reservoir, air—service and replace	X			
Reservoir, air—repair		X		
Shoe assemblies, brake—adjust and replace	X			
Shoe assemblies, brake—repair (reline)		X		
Shoe assemblies, brake—rebuild			X	
Valves, air brake assembly—replace	X			
Valves, air brake assembly—repair		X		
Valves, air brake assembly—rebuild			X	

BRAKE GROUP (HAND OR EMERGENCY)

Controls and linkage, hand brake—adjust and replace	X			
Controls and linkage, hand brake—repair		X		
Shoe, hand brake assembly—replace	X			
Shoe, hand brake assembly—repair (reline)		X		

BODY

Bumper—replace	X			
Bumper—repair		X		
Cab assembly—replace and repair		E	X	
Cab assembly—rebuild			E	X
Glass, doors—replace		X		
Grill, protective—replace	X			
Grill, protective—repair		X		
Hoods and doors—replace	X			
Seat assembly—replace	X			

INTRODUCTION**BODY (Cont'd)**

	ECHELONS			
	2nd	3rd	4th	5th
Seat assembly—repair		X		
Seat assembly—rebuild			X	
Windshield assembly—replace glass		X		
Windshield assembly—rebuild			X	
Wipers, windshield assembly—replace	X			
Wipers, windshield assembly—rebuild		X		

CASE, POWER TAKE-OFF

Case, power take-off assembly—replace	X			
Case, power take-off assembly—repair		X		
Case, power take-off assembly—rebuild			E	X

CASE, TRANSFER

*Case, transfer assembly—replace	*	X		
Case, transfer assembly—repair		X		
Case, transfer assembly—rebuild			E	X
Controls and linkage—replace	X			
Controls and linkage—repair		X		
Disk, hand brake—replace	X			

CLUTCH

Clutch assembly—replace	E	X		
Clutch assembly—repair		X		
Clutch assembly—rebuild			E	X
Cylinder, air (winch operation)—adjust and replace	X			
Cylinder, air (winch operation)—repair		X		
Cylinder, air (winch operation)—rebuild			X	
Housing, clutch—replace	E	X		
Housing, clutch—rebuild (recondition)			E	X

CRANE AND BOOM ASSEMBLY

Boom and jack leg assembly—replace	X			
Boom and jack leg assembly—repair		X		
Boom and jack leg assembly—rebuild			E	X
*Boom pivot assembly—replace	*	X		
Boom pivot assembly—repair		X		
Boom pivot assembly—rebuild			E	X
Cables—replace	X			
Cables—repair		X		
Chains, drive—service, replace and repair	X			
*Crane and boom assembly—replace	*	X		
Crane and boom assembly—repair		X		
Crane and boom assembly—rebuild			E	X
Jack assembly—replace	X			
Jack assembly—repair		X		
Pulleys and lifting hook—replace	X			

*See last page of this section for explanatory notes.

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CRANE AND BOOM ASSEMBLY (Cont'd)

	ECHELONS			
	2nd	3rd	4th	5th
Pulleys and lifting hook—repair		X		
Sprockets, chain drive—replace	X			
Sprockets, chain drive—repair		X		
Topping pivot assembly—replace	X			
Topping pivot assembly—repair		X		
Topping pivot assembly—rebuild			X	
Winches, hand assembly—replace	X			
Winches, hand assembly—repair		X		
Winches, hand assembly—rebuild			E	X

CRANE AND WINCH DRIVE

Bearings and oil seals—replace	X			
Chains, drive—service, replace and repair	X			
Chain tightener assembly—replace and adjust	X			
Chain tightener assembly—repair		X		
Chain tightener assembly—rebuild			X	
Clutch assembly (front winch)—service and replace	X			
Clutch assembly (front winch)—repair		X		
Clutch assembly (front winch)—rebuild			X	
Sprockets, chain drive—replace	X			
Sprockets, chain drive—repair		X		
Transmission, auxiliary (rear and crane winch)— service and replace	X			
Transmission, auxiliary (rear and crane winch)—repair		X		
Transmission, auxiliary (rear and crane winch)— rebuild			E	X

ELECTRICAL SYSTEM

Battery—charge and service	X			
Battery—replace	X			
Battery—repair		X		
Battery—rebuild			E	X
Box, apparatus assembly (generator control)—replace	X			
Box, apparatus assembly (generator control)— repair and adjust		X		
Box, apparatus assembly (generator control)—rebuild			X	
Cables, battery—replace	X			
Horn assembly—service and replace	X			
Horn assembly—repair		X		
Lamps assembly—replace	X			
Lamps assembly—repair		X		
Siren assembly—replace	X			
Siren assembly—repair		X		
Switch assemblies—replace	X			
Switch assemblies—repair		X		
Wiring—replace and repair	X			