

# TM 10-3930-235-10

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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## OPERATOR'S MANUAL

TRUCK, LIFT, FORK, GASOLINE

4,000 LBS CAPACITY

TOWMOTOR MODELS	ARMY MODEL	FSN
462SG4024-100 (SOLID TIRE)	MHE-191	3930-781-3856
462SG4024-144 (SOLID TIRE)	MHE-191	3930-781-3855
502PG4024-144 (PNEUMATIC TIRE)	MHE-190	3930-073-9222

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This copy is a reprint which includes current  
pages from Changes 3, 5 and 6.

HEADQUARTERS, DEPARTMENT OF THE ARMY  
SEPTEMBER 1964

# SAFETY PRECAUTIONS

## Before Operation

When servicing battery, do not smoke or use flame in the vicinity. Batteries generate hydrogen, a highly explosive gas.

Check to be sure there is sufficient engine coolant and engine lubricant before starting the engine.

Do not fill fuel tank while engine is running. Provide metallic contact between the fuel container and fuel tank to prevent a static spark from igniting the fuel.

## During Operation

Do not shift directional shift lever while truck is in motion.

Be alert for other workers to be sure they are not in the way of the load or the moving truck. Face in the direction of travel.

Be sure there is sufficient clearance overhead and on each side of the truck.

Always travel with the mast tilted back and with forks raised just high enough to clear any uneven floor conditions.

Avoid sudden starting and stopping of the truck. Reduce speed when making a turn.

Know the rated capacity of the truck and do not overload it. Never pick up a load until certain it can be carried safely.

Make sure the load is steady before lifting it and keep the load against the carriage backrest.

When transporting bulky loads, travel in reverse. Always descend ramps in reverse when carrying a load.

When unloading a heavy elevated load, position the load directly over the unloading spot, as low as possible before tilting the mast forward.

Be very careful when high-tiering.

Do not butt loads with the forks or with the rear of the truck.

## After Operation

Make sure forks are lowered to the ground and handbrake is engaged firmly.

If the truck is parked on an incline, block at least two wheels in the event of handbrake failure.

Do not remove the radiator cap from an overheated radiator; stop engine and allow radiator to cool before removing cap to avoid injury by scalding. Allow the engine to cool before filling the radiator, otherwise there is danger of cracking the cylinder head or block.

CHANGE

NO. 6

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington D. C., 12 January 1990

**Operator's Manual  
TRUCK, LIFT, FORK, GASOLINE,  
4,000-LB CAPACITY**

<b>TOWMOTOR MODELS</b>	<b>ARMY MODEL</b>	<b>NSN</b>
502PG4024-100 (PNEUMATIC TIRE)	MHE-190	3930-00-926-3807
502PG4024-144 (PNEUMATIC TIRE)	MHE-190	3930-00-073-9222
502PG4024-144 (PNEUMATIC TIRE)	MHE-190A	3930-01-044-0075
502PG4024-144 (PNEUMATIC TIRE)	MHE-190B	3930-01-089-8001
462SG4024-144 (SOLID TIRE)	MHE-191	3930-00-781-3855
462SG4024-100 (SOLID TIRE)	MHE-191	3930-00-781-3856
502PG4024-144 (PNEUMATIC TIRE)	MHE-220	3930-00-419-5738

TM 10-3930-235-10, 4 September 1964, is changed as follows:

*Cover and page 1.* The manual title is changed to read as shown above.

*Page 3.*

Paragraph 1a is superseded as follows:

a. This manual is for your use in operating and maintaining all models of the forklift truck. It provides information on the operation, lubrication, and preventive maintenance services of the equipment, accessories, components, and attachments.

Paragraph 1c is superseded as follows:

c. 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 or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, US. Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

Paragraph 1d is superseded as follows:

d. If your forklift truck 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. Tell us why a procedure is hard to perform. Put it on a SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-QRD, Warren, MI 48397-5000. We'll send you a reply.

Paragraph 2 is superseded as follows:

**2. Maintenance Forms, Records, and Reports**

Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by DA Pam 738-750.

*Page 17, Figure 9.*

Item 10 is superseded as follows:

BATTERY AND CABLES. Inspect battery for cracks or leaks. Level of electrolyte should be 1/2 inch above plates. If level is low, notify organizational maintenance. Check cables for

broken strands, defective insulation, damaged terminals, and corrosion. Report all problems to organizational maintenance (Weekly).

cracked belt. Proper adjustment is a deflection of 1/2 inch midway between pulleys. If adjustment or replacement is required, notify organizational maintenance.

Item 12 is superseded as follows:

DRIVE BELTS. Inspect for a worn, frayed, or

Add the following after Item 18.

ITEM	LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER	PAR REF
19	WATER PUMP, Visually inspect water pump for leaks.	
20	STEERING HYDRAULIC LINES AND FITTINGS, Inspect for leaks.	
21	OVERHEAD GUARD, Inspect overhead guard for damage and secure mountings.	

Page 19. Appendix I is superseded as follows:

#### APPENDIX I REFERENCES

##### 1. Fire Protection

TB 5-4200-200-100

Hand Portable Fire Extinguisher Approved for Army Users

##### 2. Maintenance

DA Pam 738-750

The Army Maintenance Management System (TAMMS)

##### 3. Safety

TB MED 501

Hearing Conservation

Page 21. Appendix II is superseded as follows:

#### APPENDIX II COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST

##### SECTION I. INTRODUCTION

##### 1. SCOPE

This appendix lists components of end items and basic issue items for the "forklift" to help you inventory items required for safe and efficient operation.

##### 2. GENERAL

The Components of End Item and Basic Issue Lists are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the "forklift" in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the "forklift" during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOW/MTOE authorization of the end item.

### 3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

a. Column (1) -- Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

b. Column (2) -- National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) -- Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the

item. The last line for each item indicates the FSCM (in parentheses) followed by the part number. (Enter portions of next two sentences, only if applicable.) If item needed differs for different models of this equipment, the model is shown under the "Usable On" heading in this column. These codes are identified as:

Code	Used On
ANG	MODEL MHE 191
ANH	MODEL MHE 191
ANJ	MODEL MHE 190
ANK	MODEL MHE 190
CRC	MODEL MHE 220
CRD	MODEL MHE 190A
CRE	MODEL MHE 190B

d. Column (4) -- Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g. ea, in, pr).

e. Column (5) -- Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

## SECTION II. COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST

(NONE)				
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	(4) Usable On Code	(5) Qty rqr

*New Page 24 is added as follows:*

APPENDIX III  
ADDITIONAL AUTHORIZATION LIST

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**SECTION I. INTRODUCTION**

**1. SCOPE**

This appendix lists additional items you are authorized for the support of the (enter short item name).

**2. GENERAL**

This list identifies items that do not have to accompany the (enter short item name) and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

**3. EXPLANATION OF LISTING**

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name

under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you. (Enter portions of next three sentences only if applicable.) If the item you require differs between serial numbers of the same model, effective serial numbers are shown in the last line of the description. If item required differs for different models of this equipment, the model is shown under the "Usable on" heading in the description column. These codes are identified as:

Code	Used On
ANG	MODEL MHE 191
ANH	MODEL MHE 191
ANJ	MODEL MHE 190
ANK	MODEL MHE 190
CRC	MODEL MHE 220
CRD	MODEL MHE 190A
CRE	MODEL MHE 190B

**SECTION II. ADDITIONAL AUTHORIZATION LIST**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION  CAGEC & PART NUMBER                      USABLE ON CODE	(3)  U/M	(4) QTY AUTH
	<u>MTOE AUTHORIZED ITEMS</u> (List items in alphabetical sequence by item name)		
	7510-00-889-3494 BINDER, Looseleaf	EA	1
	7520-00-559-9618 CASE, Maintenance and Operation Manuals	EA	1
	4210-00-889-2222 EXTINGUISHER, Fire	EA	1
	<u>CTA AUTHORIZED ITEMS</u> (List items in alphabetical sequence by item name)		

By Order of the Secretary of the Army:

CARL E. VUONO  
*General, United States Army*  
*Chief Of Staff*

Official:

WILLIAM J. MEEHAN II  
*Brigadier General, United States Army*  
*The Adjutant General*

Distribution:

To be distributed in accordance with DA Form 12-25F-R (Block No. 2158),  
Operator maintenance requirements for Fork Lift, 4000 lb Capacity, Pneumatic &  
Solid, Gas Tire (Model MHE 190A, 190B, 191, 220).



CHANGE }  
No. 5 }HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC, 27 March 1974**Operators's Manual****TRUCK, LIFT, FORK GASOLINE  
4,000 LB CAPACITY**

<b>Towmotor Model</b>	<b>Army Model</b>	<b>FSN</b>
<b>462SG4024-100 (Solid Tire)</b>	<b>MHE-191</b>	<b>3930-781-3856</b>
<b>462SG4024-144 (Solid Tire)</b>	<b>MHE-191</b>	<b>3930-781-3855</b>
<b>502PG4024-144 (Pneumatic Tire)</b>	<b>MHE-190 MHE-190A MHE-190B</b>	<b>3930-073-9222</b>
<b>502PG4024-144 (Pneumatic Tire)</b>	<b>MHE-220</b>	<b>3930-419-5738</b>

TM 10-3930-235-10, 4 September 1964, is changed as follows:

*Inside Front Cover.* Add the following warning to the list of safety precautions:

**WARNING**

Operation of this equipment presents a noise hazard to personnel in the area. The noise level exceeds the allowable limits for unprotected personnel. Wear ear muffs or ear plugs which were fitted by a trained professional.

*Page 3.* Paragraph 1c is superseded as follows:

*c. Recommendation for Maintenance Publications Improvements.* You can help to improve this manual by calling attention to errors and by recommending improvements. Your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) should be mailed direct to: Commander US Army Troop Support Command, ATTN: AMSTS-MPP, 4300 Goodfellow Blvd., St. Louis, MO 63120. A reply will be furnished direct to you.

*Page 10.* Immediately after Section III title, add the following warning:

**WARNING**

Operation of this equipment presents a noise hazard to personnel in the area. The noise level exceeds the allowable limits for unprotected personnel. Wear ear muffs or ear plugs which were fitted by a trained professional.

*Page 20.* paragraph 6. Add the following reference:

"TB MED 251, Noise and Conservation of Hearing".

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS  
*General, United States Army*  
*Chief of Staff*

Official:

VERNE L. POWERS  
*Major General, United States Army*  
*The Adjutant General*

Distribution:

To be distributed in accordance with DA Form 12-25A, (qty rqr block No. 895) Operator maintenance requirements for Warehouse Equipment.

TM 10-3930-235-1  
C 3

CHANGE

No. 3

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 14 February 1971

# Operator's Manual TRUCK, LIFT, FORK, GASOLINE 4,000 LB CAPACITY

Towmotor Model	Army Model	FSN
462SG4024-100 (Solid Tire)	MHE-191	3930-781-3856
462SG4024-144 (Solid Tire)	MHE-191	3930-781-3855
502PG4024-144 (Pneumatic Tire)	MHE-190 MHE-190A MHE-190B	3930-073-9222
502PG4024-144 (Pneumatic Tire)	MHE-220	3930-419-5738

TM 10-3930-235-10, 4 September 1964, is changed as follows:

The cover and title page is changed to read as above.

Page 3. Paragraph 3 is superseded as follows:

## 3. Description.

The Towmotor forklift trucks are nontactical trucks designed for warehouse operation. These trucks (figs. 1, 2, 3, 4, 5, 5.1 and 5.2) can be used to load, transport, unload, and stack loads weighing as much as 4,000 pounds at a load center of 24 inches.

(The load center is measured from the heel of

the forks.) The model 462SG4024-100 can lift the load to a height of 100 inches; other models can lift to 144 inches. The trucks are powered by a four cylinder, in-line, four-stroke cycle, I-head liquid cooled gasoline engine and equipped with a single speed automatic transmission.

Page 5. Subparagraph (3) manufacturer's identification plate (Model 502PG4024-144) is superseded, as follows:

(3) Manufacturer's identification plate (model 502PG4024-144, MHE 190, MHE 190A and MHE 190B).

Page 6. Subparagraph (5) Dimensions and Weight is superseded as follows:

### (5) Dimensions and weight

#### Ground clearance (at mast center)

Model 462SG4024-100	3 inches
Model 462SG4024-144	3.5 inches
Model 502PG4024-100	4 inches
Model 502PG4024-144	4 inches

#### Height

##### With mast column extended (less backrest)

Model 462SG4024-100	123 inches
Model 462SG4024-144	167 inches
Model 502PG4024-100	123 inches
Model 502PG4024-144	166.5 inches

Page 6, Figure 3. Title is superseded as follows:

Figure 3, Truck,  $\frac{3}{4}$  front and right side view (Model 502PG4024-144, MHE 190, MHE 190A and MHE 190B).

Page 6. Subparagraph (5) under weight after line 3, add the following:

Model 502PG4024-144	8,700 pounds
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Page 7. Subparagraph (5) under height after line 3, add the following:

Model 502PG4024-144	165.12 inches
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Line 8, add

Model 502PG4024-144	192.12 inches
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Page 8. Figure 5. Title is superseded as follows:

Figure 5, Truck,  $\frac{3}{4}$  rear and left side view (model 502PG4024-144, MHE 190, MHE 190A and MHE 190B).

Page 9. Subparagraph (7) under air pressure line 1, change 70 PSI to read 100 PSI.

Paragraph 5 is superseded as follows:

### 5. Differences in Models

This manual covers the Towmotor models 462SG4024-100 (Army model MHE-191), 462SG4024-144 (Army model MHE-191, 502PG4024-144 (Army model MHE-190, MHE-190A and MHE-190B) and 502PG4024-144 (Army model MHE-220). Differences in models are covered in the applicable maintenance sections of this manual.

Page 9 New subparagraph (8) is added as follows:

(8) Manufacturers identification plate (model 502PG4024-144, MHE 220 Only).

Capacity.....4000 lb at 24 L.C.  
3500 lb at 30 L.C.

#### Delivery data

FSN.....3930-419-5738  
Service wt.....8300 lb.  
Contract or Order No.....DAAK01-70-C-7985(A3)  
Maintenance manual.....TM 10-3930-235 series

#### Registration No.:

U.S. Army Model No.....MHE 220

#### Wheel loading (no load on forks):

Drive wheels—each.....1675 lb.  
Steer wheels—each.....2410 lb.

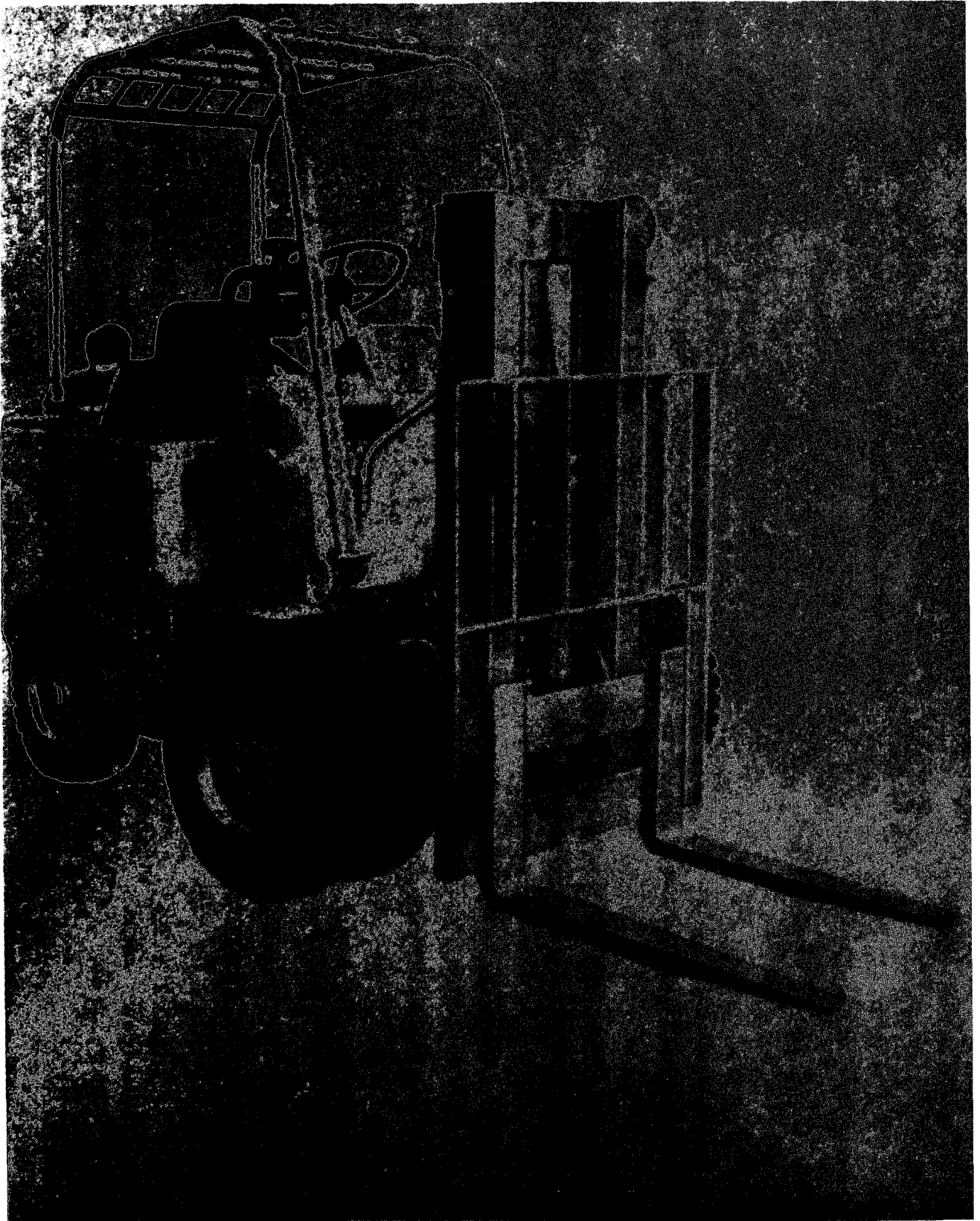
#### Wheel loading (rated load on forks):

Drive wheels—each.....5435 lb.  
Steer wheels—each.....640 lb.

#### Center of gravity (no load on forks):

Horizontal.....29.5 in. from axle of  
drive wheels  
Vertical.....27.7 in. above axle of  
drive wheels

New figures 5.1 and 5.2 are added as follows:



*Figure 5.1 Truck  $\frac{3}{4}$  front and right side view (model 502PG4024-144, MHE 220)*

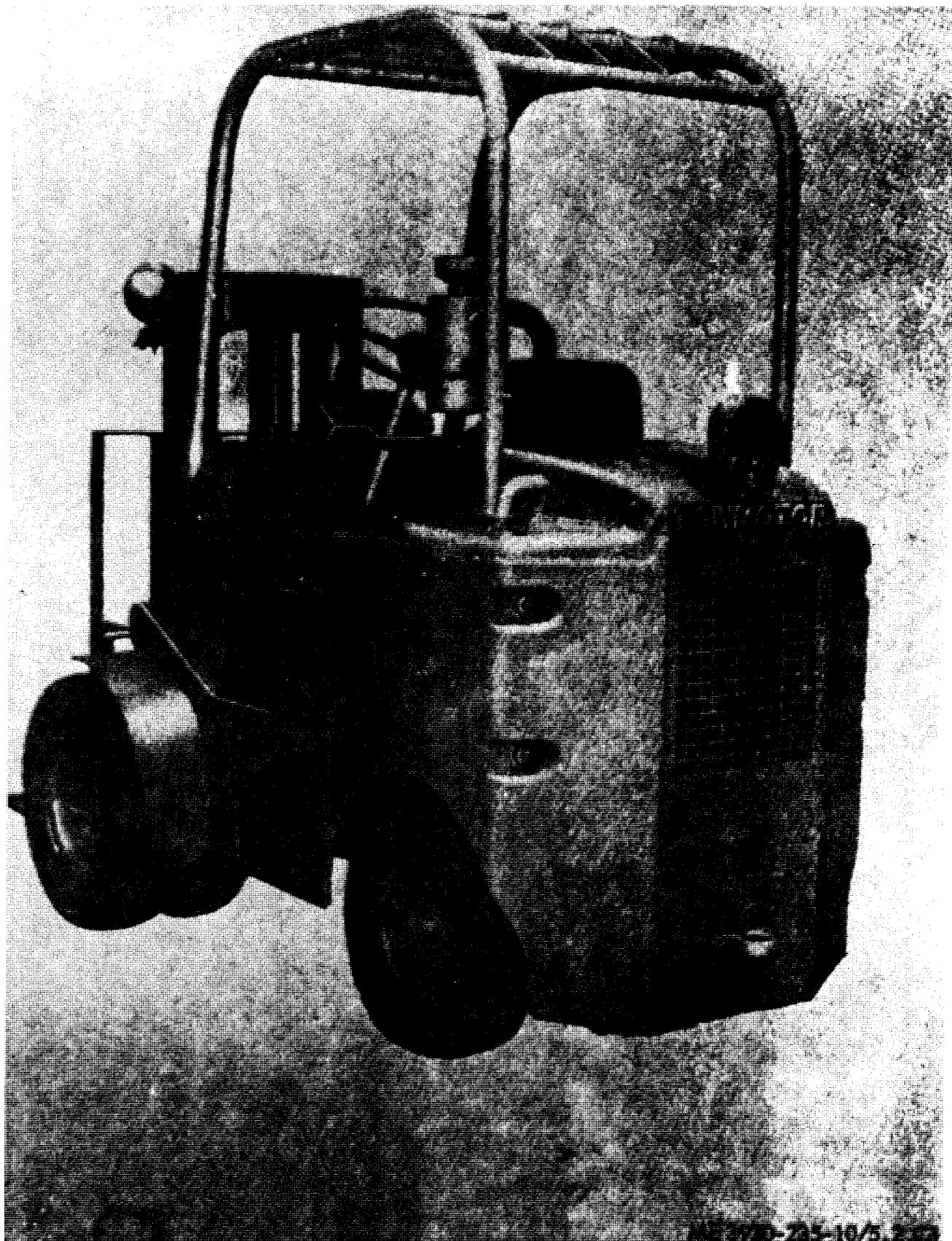


Figure 5.2 Truck,  $\frac{3}{4}$  rear and left side view (model 502PG4024-144, MHE 220)

*Page 17.* Figure 9 (sheet 2), Item 14. Delete  
“70 PSI”.

*Page 23.* So much of Section III, Maintenance  
and Operating Supplies, as reads “OE” is changed  
to read “OE/HDO”

**By Order of the Secretary of the Army:**

**Official:**

**VERNE L. BOWERS,**  
*Major General, United States Army,*  
*The Adjutant General.*

**W. C. WESTMORELAND,**  
*General, United States Army,*  
*Chief of Staff.*

**Distribution:**

To be distributed in accordance with DA Form 12-25A (qtr rqr Block No. 893), Operator requirements for Warehouse.



**TECHNICAL MANUAL**

**No. 10-3939-235-10**

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 4 September 1964

**TRUCK, LIFT, FORK, GASOLINE, 4,000 LBS CAPACITY**

<b>TOWMOTOR MODELS</b>	<b>ARMY MODEL</b>	<b>FSN</b>
<b>462SG4024-100 (Solid Tire)</b>	<b>MHE 191</b>	<b>3930-781-3856</b>
<b>462SG4024-144 (Solid Tire)</b>	<b>MHE 191</b>	<b>3930-781-3855</b>
<b>502PG4024-144 (Pneumatic Tire)</b>	<b>MHE 190</b>	<b>3930-073-9222</b>

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# CHAPTER 1

## INTRODUCTION

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### Section I. GENERAL

#### 1. Scope

a. These instructions are published for the use of the personnel to whom Towmotor models 462SG4024-100 (Army model MHE-191), 462SG4024-144 (Army model MHR-191), or 502PG4024-144 (Army model MHE-190) forklift truck is issued. They provide information on the operation, lubrication, and preventive maintenance service of the equipment, accessories, components, and attachments.

b. Appendix I contains a list of references applicable to this manual. Appendix II contains the basic issue items authorized for use by the operator and the maintenance and operating supplies required for initial operation. The maintenance allocation chart is published in TM 10-3930-235-20.

c. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and en-

couraged. DA Form 2028 (Recommended Changes to DA Publication) will be used for reporting these improvements. This form will be completed in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to the Commanding Officer, U.S. Army Mobility Equipment Center, ATTN: SMOME-MM, P.O. Drawer 58, St. Louis, Mo., 63166. One information copy will be provided to the individual's immediate supervisor (officer, noncommissioned officer, supervisor, etc.).

d. Report all equipment improvement recommendations as prescribed by TM 38-750.

#### 2. Record and Report Forms

For record and report forms applicable to the operator, refer to TM 38-750.

**Note. Applicable forms, excluding SF 46 which is carried by the operator, will be kept in a canvas bag mounted on the equipment.**

### Section II. DESCRIPTION AND DATA

#### 3. Description

Army model MHE-191 (Towmotor models 462SG4024-100 and 462SG4024-144) and Army model MHE-190 (Towmotor model 502PG4024-144) is a nontactical forklift truck designed for warehouse operation. These trucks (figs. 1, 2, 3, 4, and 5) can be used to load, transport, unload, and stack loads weighing as much as 4,000 pounds at a load center of 24 inches. (The load center is measured from the heel of the forks.) The model 462SG4024-100 can lift the load to a height of 100 inches and the 462SG4024-144 and 502PG4024-144 can lift the load to a height of 144 inches. The trucks are powered by a four cylinder, in-line, four-stroke cycle, L-head, liquid cooled, gasoline engine and equipped with a single speed automatic transmission.

#### 4. Identification and Tabulated Data

a. *Identification.* The forklift truck has one identification plate, located on the right front of the unit housing. It specifies serial number, model, capacity, Federal stock number, service weight, contract or order number, loading data and center of gravity.

##### b. *Tabulated Data.*

##### (1) *Manufacture's identification plate (model 462SG4024-100).*

Serial No. :	
Model -----	462SG4024-144.
Capacity -----	4000 lb at 24-inch LC.
Delivery date:	
FSN -----	3930-781-3856.

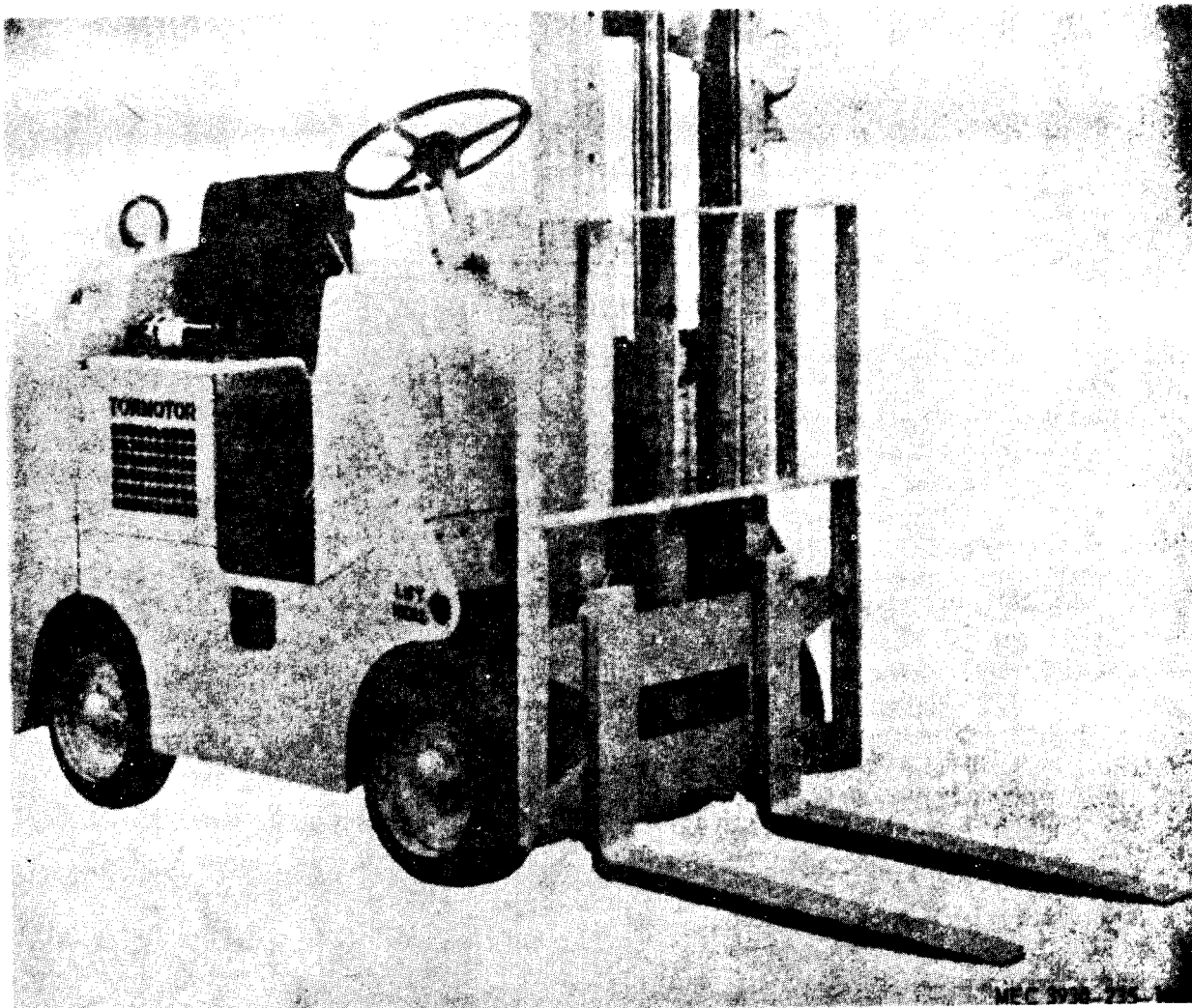


Figure 1. Truck, 3/4 front and right side view (model 462SG4024-100).

Delivery date-Continued  
 Service wt ----- 6606 lb.  
 Contractor order No ----- DSA 4-014877  
 MP310.  
 Maintenance manual ----- TM 10-3930-  
 235-series.  
 Registration No.:  
 U.S. Army model No ----- MHE 191.  
 Wheel loading (no load on  
 forks):  
 Drive wheels-each ----- 1075 lb.  
 Steer wheels-each ----- 2228 lb.  
 Wheel loading (rated load on  
 forks):  
 Drive wheels-each ----- 4713 lb.  
 Steer wheels-each ----- 6005 lb.  
 Center of gravity (no load on  
 forks):  
 Horizontal ----- 31 in. from  
 axle of drive  
 wheels.

Center of gravity (no load on  
 forks) -Continued  
 Vertical ----- 25.9 in. above  
 axle of drive  
 wheels.

Warranty expiration date  
 Type G truck

(2) *Manufacture's identification plate (model 462SG4024-144).*

Serial No.:  
 Model ----- 462SG4024-  
 144.  
 Capacity ----- 4000 lb at 24  
 in. LC.

Delivery date:  
 FSN ----- 3930-781-  
 3855.  
 Service wt ----- 6935 lb.  
 Contractor order No ----- DSA 4-014877  
 MP310.



Figure 2. Truck,  $\frac{3}{4}$  front and right side view (model 462SG4024-144).

Delivery-Continued  
Maintenance manual ----- TM 10-3930-  
235-series.

Registration No.  
U.S. Army model No ----- MHE 191.

Wheel loading (no load on  
forks):  
Drive wheels-each ----- 1215 lb.  
Steer wheels-each ----- 2255 lb.

Wheel loading (rated load on  
forks):  
Drive wheels-each ----- 4860 lb.  
Steer wheels-each ----- 615 lb.

Center of gravity (no load on  
forks):  
Horizontal ----- 29.8 in. from  
axle of drive  
Wheels.  
Vertical ----- 27 in. above  
axle of drive  
wheels.

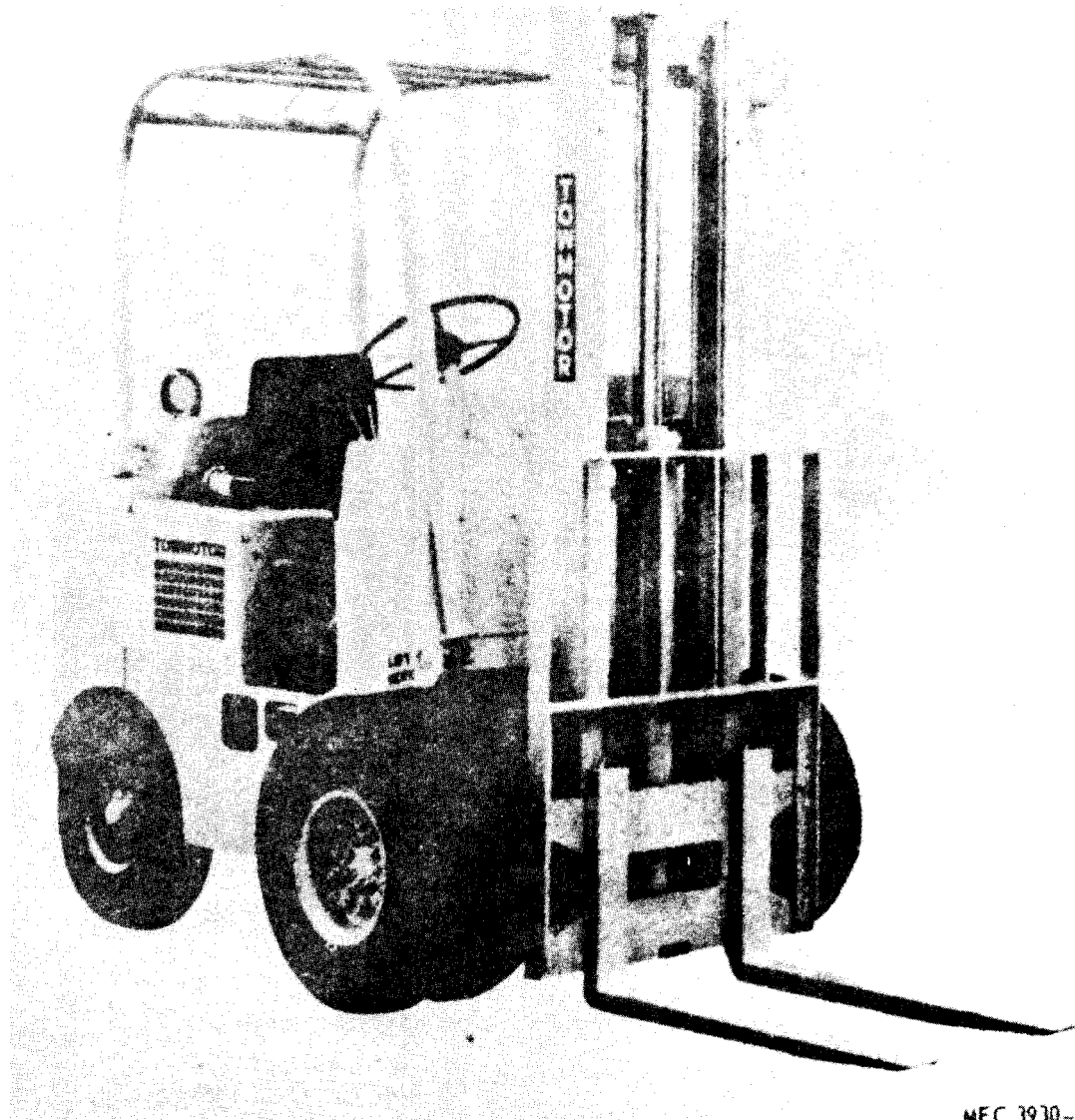
Warranty expiration date  
Type G truck

(3) Manufacture's identification plate (model  
502PG4024-144).

Serial No. :  
Model ----- 502PG4024-  
144.  
Capacity ----- 4000 lb at 24  
LC.

Delivery date  
FSN ----- 3930-073-  
9222.  
Service wt ----- 7800 lb.  
Contract or order No ----- DSA 4-014863  
MP310.  
Maintenance manual ----- TM 10-3930-  
235-series

Resigistration No.:  
U.S. Army model No ----- MHE 191.  
Wheel loading (no load on  
forks):  
Drive wheels-each ----- 1570 lb.  
Steer wheels-each ----- 2335 lb.



MEC 3930-235-10/3

Figure 3. Truck,  $\frac{3}{4}$  front and right side view (model 502 PG4024-144).

Wheel loading (rated load on forks):  
 Drive wheels—each ..... 5230 lb.  
 Steer wheels—each ..... 670 lb.  
 Center of gravity (no load on forks):  
 Horizontal ..... 29.9 in. from axle of drive wheels.  
 Vertical ..... 30.2 in. above axle of drive wheels.  
 Warranty expiration date .....  
 Type G truck .....

#### Capacities.

Cooling system ..... 11 qt.  
 Crankcase (with filter) ..... 5 qt.

Differential .....  $2\frac{1}{2}$  qt.  
 Fuel tank ..... 5.8 gal.  
 Air cleaner .....  $\frac{1}{2}$  qt.  
 Hydraulic system .....  $6\frac{1}{2}$  gal.  
 Transmission ..... 12 qt.  
 Steering gearcase .....  $2\frac{1}{2}$  pt.  
 Power steering system ..... 2 qt.

#### (5) Dimensions and weight.

Ground clearance (at mast center):  
 Model 462SG4024-100 ..... 3 in.  
 Model 462SG4024-144 .....  $3\frac{1}{2}$  in.  
 Model 502 PG4024-144 ..... 4 in.  
 Height:  
 With mast column extended (less backrest):  
 Model 462SG4024-100 ..... 123 in



Figure 4. Truck,  $\frac{3}{4}$  rear and left side view (model 462SG4024-144).

**Height—Continued**

With mast column extended  
(less backrest—Continued)

Model 462SG4024-144..... 167 in.

Model 502 PG4024-144..... 166 $\frac{1}{2}$  in.

With mast column extended  
(with backrest):

Model 462SG4024-100..... 150 $\frac{1}{2}$  in.

Model 462SG4024-144..... 194 $\frac{1}{2}$  in.

Model 502PG4024-144..... 193 $\frac{1}{2}$  in.

With mast column retracted:

Model 462SG4024-100..... 68 in.

Model 462SG4024-144..... 91 in.

Model 502 PG4024-144..... 91 in.

**Length:**

Overall (less forks):

Models 462SG4024-100 83 in.  
and 462SG4024-144.

Model 502 PG4024-144..... 90 in.

Forks ..... 40 in.

Fork spread (max) ..... 32 in.

**Width:**

Models 462SG4024-100 and 38 $\frac{1}{4}$  in.  
462SG4024-144.

Model 502 PG4024-144..... 58 $\frac{1}{2}$  in.

**Weight:**

Model 462 SG4024-100..... 6,725 lb.

Model 462 SG4024-144..... 7,050 lb.

Model 502 PG4024-144..... 8,200 lb.

**(6) Performance.**

Aisle width (min):

Intersecting:

Models 462 SG4024-100 65 in.  
and 462SG4024-144.

Model 502 PG4024-144..... 77 in.

Right angle stacking:

Models 462SG4024-100 127 $\frac{1}{2}$  in.  
and 462SG4024-144.

Model 502 PG4024-144..... 134 $\frac{1}{2}$  in.



Figure 5. Truck  $\frac{3}{4}$  rear and left side view (model 502PG4024-144).

**Lift height (max):**

Model 462 SG4024-100.....	100 in.
Model 462 SG4024-144.....	144 in.
Model 502 PG4024-144.....	144 in.

**Free lift:**

Model 462 SG4024-100.....	47 $\frac{1}{2}$ in.
Model 462 SG4024-144.....	69 $\frac{1}{2}$ in.
Model 502 PG4024-144.....	68 $\frac{1}{2}$ in.

**Load capacity (max)** ..... 4,000 lb.

**Maximum speed (loaded):**

<b>Models 462 SG4024-100 and 462SG4024-144:</b>	
Forward.....	8 mph.
Reverse.....	7.5 mph.

**Model 502 PG4024-144:**

Forward.....	10 mph.
Reverse.....	9.25 mph.

**Number of speeds:**

Forward.....	1.
Reverse.....	1.

**Maximum speed (loaded)—Continued**

**Tilt limitation:**

Backward.....	10°.
Forward.....	3°.

**Turning radius:**

<b>Models 462SG4024-100 and 462SG4024-144:</b>	
Inside.....	8 $\frac{1}{2}$ in.
Outside.....	76 $\frac{1}{2}$ in.

**Model 502 PG4024-144:**

Inside.....	0 in.
Outside.....	78 in.

**(7) Tires.**

**Models 462SG4024-100 and 462SG4024-144:**

Type.....	Solid.
Number.....	4.

**Size:**

Drive (front axle).....	18 x 7 x 12 $\frac{1}{4}$ .
Steer (rear axle).....	16 $\frac{1}{4}$ x 5 x 11 $\frac{1}{4}$ .



Model 502PG4024-144:

Type ----- Pneumatic.  
Number ----- 6.

Size:

Drive (front axle) ----- 7:00 x 12.

Steer (rear axle) ----- 6:50 x 10.

Air pressure:

Drive (front axle) ----- 70 psi.

Steer (rear axle) ----- 100 psi.

## 5. Difference in Models

This manual covers the Towmotor models 462SG4024-100 (Army model MHE-191), 462SG4024-144 (Army model MHE-191) and 502PG4024-144 (Army model MHE-190). Where difference exist, each model is covered separately in the applicable maintenance section of this manual.

## CHAPTER 2

# INSTALLATION AND OPERATING INSTRUCTIONS

---

### Section I. SERVICE UPON RECEIPT OF EQUIPMENT

#### 6. Unloading Equipment

The operator of the truck may assist in unloading the equipment from the carrier. The operator will help remove tiedown cables, strapping, blocking, and the like which secure the equipment. The operator will drive the truck down the ramp when hoisting equipment is not available.

#### 7. Inspecting and Servicing the Equipment

- a. Remove all preservatives.
- b. Perform the preventive maintenance services (par. 30).

c. Inspect to see that the required tools, repair parts, publications, accessories, and attachments are with the forklift truck.

d. Report all damage or deficiencies to organizational maintenance.

#### 8. Installation or Setting-Up Instructions

There are no installation or setting-up instructions necessary for the operator to perform on the forklift truck.

#### 9. Movement to a New Worksite

The forklift truck is self-propelled and may be moved to a new worksite by the operator.

### Section II. CONTROLS AND INSTRUMENTS

#### 10. General

This section describes, locates, illustrates, and furnishes the operator sufficient information about the various controls and instruments for proper operation of the truck.

#### 11. Controls and Instruments

Refer to figures 6 and 7 for the controls and instruments.

### Section III. OPERATION OF EQUIPMENT

#### 12. General

A person selected to operate this forklift truck must be an experienced operator of materials handling equipment or heavy-duty equipment. In addition, each operator must undergo a thorough training program to acquaint him with the specific operating characteristics of this truck.

#### 13. Starting the Truck

a. Pull back on parking brake lever (par. 11) to make certain truck will remain stationary while being started.

b. Make certain transmission shift lever (par. 11) is in neutral position. (Shift lever must be in neutral position to operate a safety switch which

closes the electrical circuit to the starting motor.)

c. Pull choke control button out halfway. Pull choke out all the way if engine does not start with choke button in halfway position.

d. Turn ignition switch to ON.

e. Press accelerator pedal slightly, then push starter switch button.

f. When engine starts, immediately check oil pressure gage (par. 11) for pressure reading.

**Caution: Do not operate starting motor continuously for more than 30 seconds. If engine fails to start after 30 seconds, allow starting motor to cool for at least 2 minutes before attempting to start the engine again.**

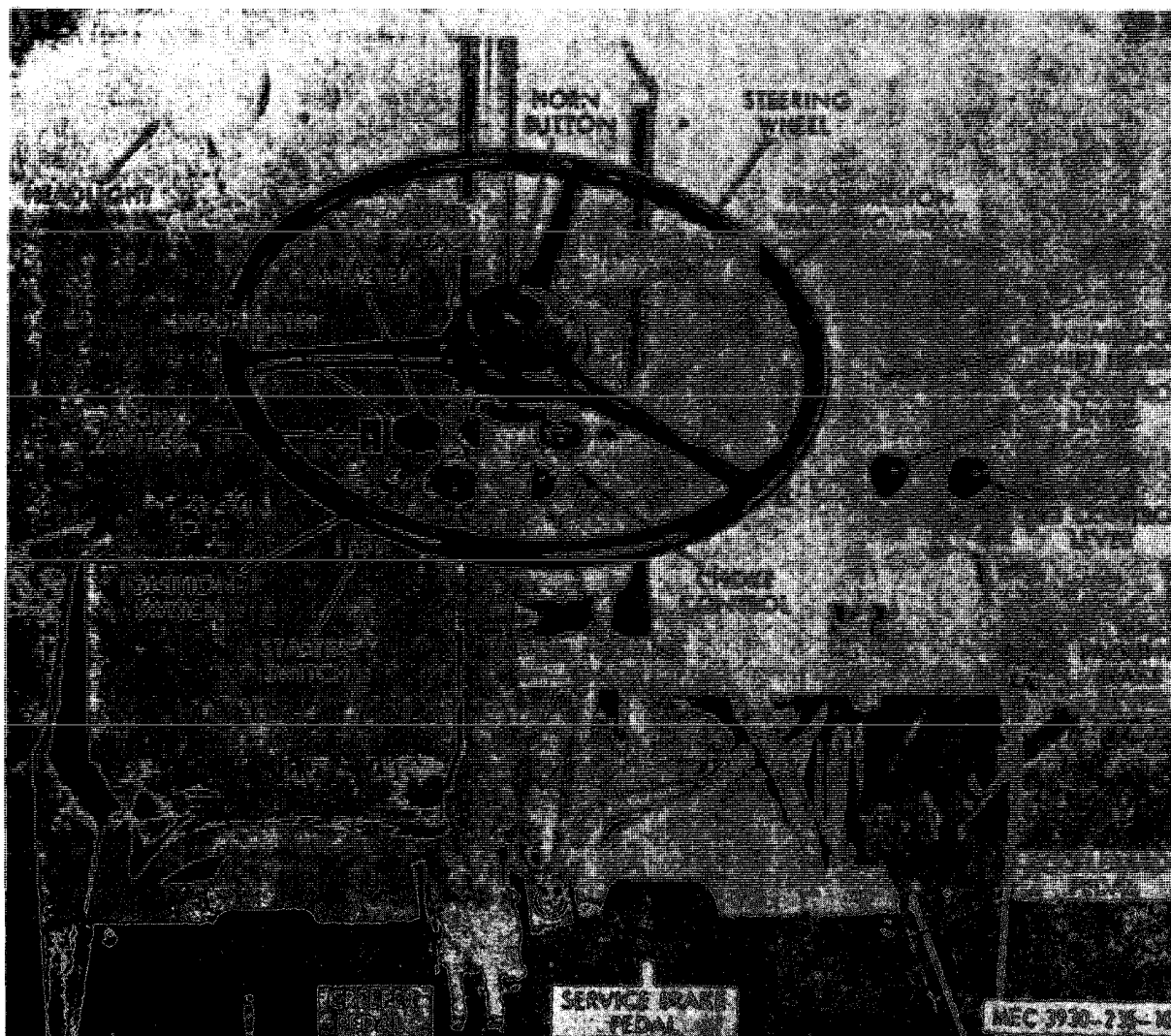


Figure 6. Operating controls and instruments.

g. Operate engine at low speed, pushing choke button in as engine warms up.

h. Check for proper readings on ammeter, engine oil pressure gage (par. 11), temperature gage, and fuel gage. Be sure hour meter is operating properly.

i. Check transmission oil temperature warning light (par. 11) for indications of trouble. (If light glows red, shut off engine and report this to the proper authority.)

j. Report any malfunctions to the proper authority.

#### 14. Driving the Truck

a. Accelerate the engine slightly and move the lift control lever (par. 11) gradually to the rear

and raise the forks to normal traveling position (approx. 8 to 10 in. above floor level).

b. Move the tilt lever (par. 11) backward to tilt the forks backward.

c. Move the transmission shift lever (par. 11) to the desired direction of travel (forward for forward travel and to the rear for reverse travel).

d. Place foot on the accelerator pedal, and release the parking brake lever. Gradually press the accelerator pedal until truck begins to move. Continue to press on accelerator pedal until safe operating speed is attained. If the truck fails to move, shut off the engine immediately and report this to the proper authority.

e. To change travel direction at high engine speeds, press brake pedal to decrease vehicle speed

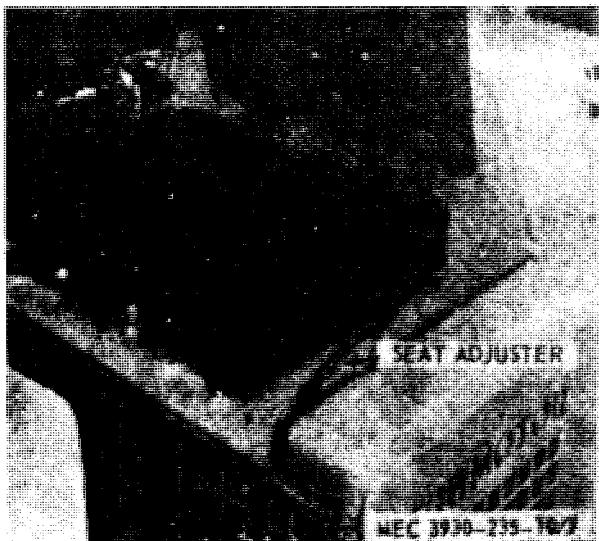


Figure 7. Seat adjuster.

or stop vehicle. Move transmission shift lever to position for desired travel direction.

**Caution:** Do not move transmission shift lever for change of travel direction at high engine speed. Do not use "Towmotorque" transmission as a constant braking power at low engine speeds.

### 15. Picking Up the Load

a. Approach the load squarely and stop the truck. Apply parking brake. Move the tilt control lever (par. 11) forward and bring the mast column to the vertical position. Raise or lower forks, as necessary, to the proper height to pick up the load. Forks should be spaced evenly between pallet stringers and should not bump or jar loads.

b. Drive the truck forward until the forks are positioned under the load or fully inserted in the pallet.

c. Move the lift control lever (par. 11) to the rear and accelerate the engine to raise the load approximately 12 inches above ground level, then release the control lever. Move the tilt control lever backward to tilt the forks backward. Release the lever and decelerate the engine.

d. Move the transmission shift lever (par. 11) in the desired direction of travel, then press the accelerator pedal and move the load to the desired location.

### 16. Driving With the Load

a. For maximum stability of load and truck, drive with load as low as possible and still maintain floor clearance.

b. Tilt mast column back.

c. Drive forward on upgrades, and drive in reverse for downgrades.

d. For better vision, drive backwards with bulky loads.

### 17. Depositing the Load

#### a. Depositing the Load on a Tiered Stack.

- (1) Drive truck into loading position.
- (2) Move the lift control lever to the rear and accelerate the engine until the load reaches the desired height above the tier.
- (3) Drive truck forward until the load is above its resting place. To slowly maneuver the truck forward, high engine speed is necessary for this operation. Use the creeper control pedal (par. 11). Use the brake pedal to stop the truck, then apply parking brake.
- (4) Move the transmission shift lever to neutral. Move the tilt control lever forward and tilt the forks forward until the load is aligned with the tier.
- (5) Move the lift control lever forward and carefully lower the load into position on the tier. Continue to lower the forks until they can be withdrawn easily from the pallet.
- (6) Move the transmission shift lever to the reverse position. Release parking brake, then slowly back truck away from the stack until the forks are clear.
- (7) Move the lift control lever forward to lower the forks into the normal traveling position (8 to 10 in. above floor level).

#### b. Depositing the Load in a Storage Area.

- (1) Drive truck into unloading position for deposit of load. Press brake pedal to stop the truck.
- (2) Apply parking brake, and move transmission shift lever to neutral position.
- (3) Move the tilt control lever forward and bring mast column to a vertical position.
- (4) Move the lift control lever forward and carefully lower load to the ground. Continue to lower the forks until they can be withdrawn easily from under the load.
- (5) Move transmission shift lever into reverse position. Release parking brake, then slowly back truck away from the deposited load.

## 18. Stopping the Truck

- a. Remove foot from accelerator pedal.
- b. Apply gradual pressure on the brake pedal to bring truck to a smooth stop. Avoid sudden stops.
- c. Apply the parking brake, and move transmission shift lever to the neutral position.
- d. Move the tilt control lever forward to bring the mast column to a vertical position.
- e. Move the lift control lever forward to lower the forks to the ground.
- f. Turn ignition switch to the OFF position.

## 19. Operation in Extreme Heat

### a. *Cooling System.*

- (1) Be sure system is clean and water is circulating.
- (2) Keep water level as high as possible.
- (3) Check the belts more often for proper adjustment.
- (4) If engine becomes overheated from lack of water, allow to cool before adding water; then add water in small amounts. Use only clean, clear water when filling radiator. Avoid salt or mineral water solutions.
- (5) Keep radiator fins free of foreign matter.

### b. *Electrical System.*

- (1) *Battery.* Check the battery electrolyte level often, maintaining the level  $\frac{1}{2}$ -inch above the plates. Have the specific gravity of the electrolyte checked often. Have battery recharged if below 1.225.
- (2) *Wiring system.* Inspect for secure mountings, bare wires, tight connections, chafing, and short circuits.

### c. *Fuel System.*

- (1) Operate the engine on the leanest fuel adjustment that will develop full engine power.
- (2) Keep the air cleaner and its connecting tube to the carburetor intake clean and airtight.

### d. *Transmission and Driving Axle.*

- (1) Keep all vent holes clean.
- (2) Inspect for leaks.

## 20. Operation in Extreme Cold

a. *Shelter.* Store the truck in a heated building or in a shelter if possible. If a shelter is not available, park the truck with the front end facing into the wind and cover the truck with a tarpaulin.

b. *Cooling System.* Make certain that the cooling system contains the correct mixture of anti-freeze for the temperature likely to be encountered. If the truck is to be out of operation for an appreciable length of time and antifreeze is not available, drain the cooling system when the temperature is likely to go below 30° F., or lower. Attach a tag to the steering wheel to warn personnel that the cooling system has been drained.

e. *Engine.* Operation of engine at subzero temperatures presents problems that require special precautions. Careful lubrication by maintenance personnel is required if damage or failure is to be avoided. Keep crankcase filled. Follow instructions on lubrication order. Before starting engine pull choke lever out as far as possible, to provide the rich mixture necessary. Be sure that the fuel lines and system are kept free of water.

d. *Ignition System.* Keep all terminals clean and tight. Have battery recharged if below 1.225. A battery with a low specific gravity (1.200) will freeze and become useless at 15° below zero. Do not add water to the battery unless the engine is to be operated immediately. If the truck is not parked in a shelter, remove the battery and store it in a warm place.

## 21. Operation in Tropical Areas

In tropical areas, corrosive action will take place almost immediately where paint is chipped or scratched from the truck. Inspect the truck often for signs of defective paint. Electrical system (generators, starting motor, wiring, etc.) is treated with a fungicidal varnish to prevent mildew. If this condition is found, retreat affected areas with fungicidal varnish using a paintbrush.

## 22. Operation in Sandy or Dusty Areas

a. *Fuel System.* Service air cleaner more frequently in accordance with instructions on lubrication order.

b. *Cooling System.* Keep radiator free of sand and dust.

c. *Hydraulic System.* Keep hydraulic cylinder plungers, lift chains, and oil tank breather cap clean. When hydraulic hoist is not in use, lower carriage and tilt mast backward.

## Section IV. OPERATION OF EQUIPMENT USED IN CONJUNCTION WITH THE TRUCK

### 23. General

This section contains instructions for operating the portable fire extinguisher (fig. 8) that is supplied with the truck. The fire extinguisher is located at the right side of the driver's seat. The mounting bracket is provided with a metal extension to lock the thumb-operated discharge valve in a safe position, when the extinguisher is clamped to the bracket. This will prevent accidental discharge of the fire extinguisher.

### 24. Operating the Extinguisher

- a. Unsnap the clamp and swing outward.
- b. Unhook extinguisher from mounting bracket.
- c. Holding extinguisher in either hand and with the other hand press down on thumb control discharge valve.
- d. Direct discharge at base of fire and move extinguisher back and forth with a sweeping motion.



Figure 8. Portable fire extinguisher, installed view.

## CHAPTER 3

### MAINTENANCE INSTRUCTIONS

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#### Section I. SPECIAL TOOLS AND EQUIPMENT

##### 25. Special Tools

There are no special tools necessary for the operation or maintenance of this truck.

##### 26. Equipment

The items of equipment supplied with this truck are listed in the basic issue item list (app. II).

#### Section II. LUBRICATION

##### 27. General

The lubrication of this truck is the responsibility of the using organization and will be performed by organizational maintenance personnel.

##### 28. Operator Responsibilities

The operator will be alert to detect signs of truck malfunctioning from lack of lubrication. He will report these conditions immediately to the proper authority.

#### Section III. PREVENTIVE MAINTENANCE SERVICES UNDER USUAL CONDITIONS

##### 29. General

To insure that the truck is ready for operation at all times, it must be inspected systematically, so that defects will be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed are listed and described in paragraph 30. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the truck will be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if

a malfunction is noted during operation which would damage the equipment if operation were continued. All malfunctions will be recorded with the corrective action taken on DA Form 2404 at the earliest opportunity.

##### 30. Daily Preventive Maintenance Services

This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by the operator. Refer to figure 9 for the daily preventive maintenance services.

#### Section IV. TROUBLESHOOTING

##### 31. Definition

Troubleshooting is the process of locating and correcting malfunctions that may occur under normal operation conditions, and is the responsibility of the using organization.

##### 32. Operator Responsibilities

The operator will report to the proper authority any deficiencies noted before, during, or after operation. Report any strange noises or subnormal operation immediately and as accurately as possible.

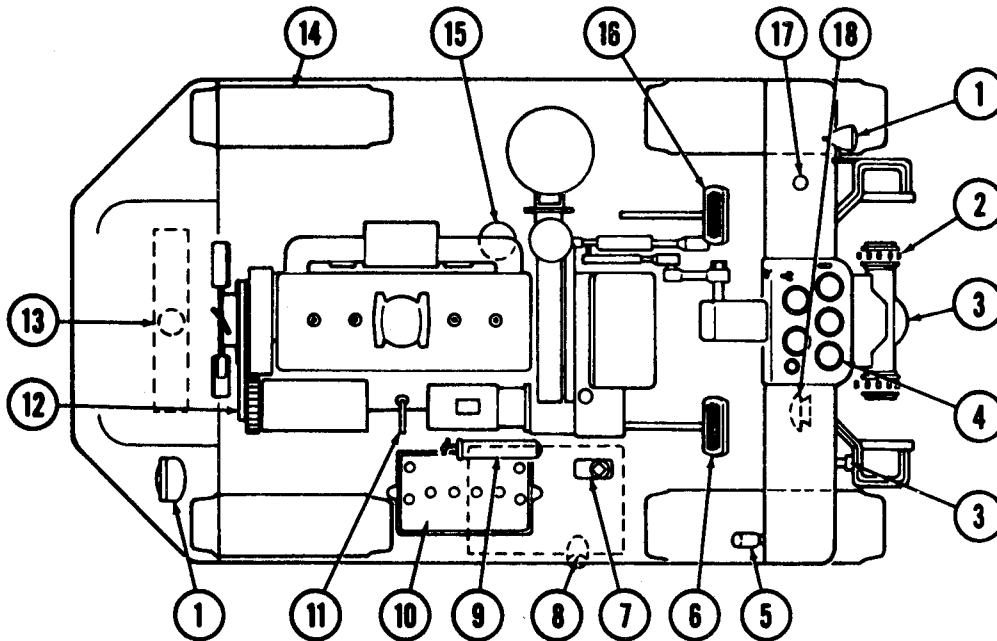
# PREVENTIVE MAINTENANCE SERVICES

## DAILY

TM 10-3930-235-10

FORK LIFT TRUCK

TOWMOTOR MODELS  
462SG4024-100, 462SG4024-144 and 502PG4024-144



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR REF
1	LIGHTS. Inspect for burned-out lamps.	
2	LIFT CHAINS. Inspect for cracked, broken or excessively worn links. (Weekly)	
3	LIFT AND TILT CYLINDERS. Inspect for leaks.	
4	CONTROLS AND INSTRUMENTS. With the unit operating, check for proper operation. Normal operating readings for instruments are as follows:  <div style="display: flex; justify-content: space-between;"> <div> Ammeter Hourmeter Oil Pressure gage Temperature gage </div> <div> Slight positive charge Indicates total hours of operation 30 to 40 psi 160° to 180°F </div> </div>	
5	HAND BRAKE. Check operation.	

Figure 9. Daily preventive maintenance services.



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER		PAR REF
6	SERVICE BRAKE. Inspect for full pedal pressure when broke pedal is applied. Brake pedal free play is 1/2 inch.	
7	BRAKE MASTER CYLINDER. Inspect for leaks.	
8	FUEL TANK. Add fuel as required.	
9	FIRE EXTINGUISHER. Inspect for broken seal, and full charge.	
10	BATTERY. Inspect for cracks and leaks. Fill to 1/2 inch above the plates. Clean venthole in filler cap before installing. In freezing weather run engine minimum of 1 hour after adding water. (Weekly)	
11	OIL LEVEL GAGE. Add oil as indicated by level gage. Reference current L.O.	
12	DRIVE BELTS. Proper adjustment is a deflection of 1/2 inch midway between pulleys. Replace worn, frayed or cracked belt. (Weekly)	
13	RADIATOR. Proper coolant level is bottom of filler neck.	
14	TIRES. Inspect for cuts. Remove embedded foreign material. Inflate to 70 psi for drive axle (front) and 100 psi for steer axle (rear).	
15	FUEL PUMP AND FILTER. Drain sediment. (Weekly)	
16	CREEPER PEDAL. Inspect for proper pedal operation. Full pedal travel is approximately 5". Pedal should travel from normal position, approximately 2" before creeping begins. The next 1-1/2 to 2" of downward pedal travel controls majority of creeping speeds. Remainder of stroke disconnects creeping action.	
17	HYDRAULIC OIL TANK. Inspect for leaks, add oil as required. Reference current L.O. (Weekly)	
18	HORN. Check operation.	

MEC 3930-235-10/9

Figure 9 - Continued.

## CHAPTER 4

### DEMOLITION OF TRUCK

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#### 33. Authority

The truck will be destroyed only if there is danger of capture and use by the aggressor, and only after the order is given by the unit commander. Destroy the same parts on all similar equipment to prevent salvage by the aggressor.

#### 34. Methods

**Warning: Observe adequate safety precautions.**

##### *a. Destruction By Hand.*

- (1) Smash the items listed below with a sledge, a hammer, or an ax:
  - (a) Controls.
  - (b) Valves.
  - (c) Hydraulic cylinders.
  - (d) Hydraulic pump.
  - (e) Carburetor.
  - (f) Manifold.
  - (g) Generator.
  - (h) Distributor.
  - (i) Ignition coil.
  - (j) Spark plugs.
  - (k) Battery.
- (2) Smash the items listed below by using a

heavy hammer to drive a pointed steel bar into the parts:

- (a) Engine.
- (b) Drive axle and differential.
- (c) Gear housing.
- (d) Steering gear housing.
- (e) Radiator.
- (f) Oil and fuel tanks.

- (3) Destroy the items listed below by cutting them or ripping them out:

- (a) Wires.
- (b) Cables.
- (c) Lines.

##### *b. Destruction by Misuse.*

- (1) Drain the crankcase and radiator, disconnect the radiator fan, and run the engine at full throttle.
- (2) Place sand, gravel, nuts, bolts, screws, or broken glass in the fuel tank.
- (3) Pack cloths saturated with gasoline around the engine and inside the truck, and set the cloths afire.
- (4) Remove the carburetor, the generator, and the distributor and bury them in the ground or throw them into a body of water.

# APPENDIX I

## REFERENCES

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### 1. Dictionaries of Terms and Abbreviations

AR 320-5	Dictionary of the United States Army Terms
AR 320-50	Authorized Abbreviations and Brevity Codes

### 2. Fire Protection

TM 5-687	Repair and Utilities; Fire Protection Equipment and Appliances; Inspections, Operations, Preventive Maintenance
TM 9-1799	Ordnance Maintenance; Fire Extinguishers

### 3. Painting and Preservation

TB ENG 60	Preservation and Painting of Serviceable Corps of Engineers Equipment
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### 4. Preventive Maintenance

AR 750-5	Organization, Policies, and Responsibilities for Maintenance Operation
TM 9-6140-200-15	Storage Batteries, Lead-Acid Type
TM 38-750	Army Equipment Record Procedures

### 5. Publication Indexes

DA Pam 108-1	Index of Army Motion Pictures, Filmstrips, Slides, Tapes, and Phono-Recordings
DA Pam 310-1	Index of Administrative Publications
DA Pam 310-2	Index of Blank Forms
DA Pam 310-3	Index of Doctrinal, Training, and Organizational Publications
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 4, 6, 7, 8, and 9) Supply Bulletins, Lubrication Orders, and Modification Work Orders
DA Pam 310-5	Index of Graphic Training Aids and Devices
DA Pam 310-25	Index of Supply Manuals-Engineer Type Items

## **6. Operating Instructions**

AR 600-55                      Motor Vehicle Driver-Selection, Testing and Licensing

## **7. Supply Publications**

C-9100 SL                      Fuels, Lubricant, Oils, and Waxes

## **8. Shipment and Limited Storage**

AR 743-505                      Limited Storage of Engineer's Mechanical Equipment

SB 38-100                      Preservation, Packaging and Packing Materials, Supplies and Equipment used by the Army

TM 38-230                      Preservation, Packaging, and Packing of Military Supplies and Equipment

## **9. Training Aids**

FM 5-25                      Explosives and Demolition

FM 21-5                      Military Training

FM 21-6                      Techniques of Military Instruction

FM 21-30                      Military Symbols

TM 21-300                      Driver Selection and Training (Wheeled Vehicles)

## APPENDIX II

### BASIC ISSUE ITEMS LIST AND MAINTENANCE AND OPERATING SUPPLIES

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#### Section I. INTRODUCTION

##### 1. General

Section II lists the accessories, tools, and publications required for maintenance and operation, initially issued with, or authorized for the models MHE-190 and MHE-191 forklifts. Section III lists the maintenance and operating supplies required for initial operation.

##### 2. Explanation of Columns Contained in Section II

*a. Source Codes.* The information provided in each column is as follows:

- (1) *Material.* This column lists the basic materiel code number of the supply service assigned responsibility for the part. Blank spaces denote supply responsibility of the preparing agency. General Engineer supply parts are identified by the letters "GE" in parentheses, following the nomenclature in the description column. Other basic materiel code numbers are-

- 3-Chemical Materiel
- 5-Engineer Materiel
- 11-Signal Materiel
- 12-Adjutant General

- (2) *Source.* The selection status and source of supply for each part are indicated by one of the following code symbols:

- (a) P1-applied to repair parts which are low-mortality parts, stocked in or supplied from supply service depots, and authorized for installation at indicated maintenance levels.
- (b) X2-applied to repair parts which are not stocked. The indicated maintenance echelon requiring such repair parts will attempt to obtain them through cannibalization; if not obtain-

able through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.

- (3) *Maintenance.* The lowest maintenance level authorized to use, stock, install, or manufacture the part is indicated by the following code symbol; O-Organizational Maintenance.

- (4) *Recoverability.* When no code is shown in the recoverability column the part is considered expendable.

*b. Federal Stock No.* When a Federal stock number is available for a part, it will be shown in this column, and will be used for requisitioning purposes.

##### *c. Description.*

- (1) The item name and a brief description of the part is shown.
- (2) A five-digit Federal supply code for manufacturer and/or other supply services is shown in parentheses followed by the manufacturer's part number. This number will be used for requisitioning purposes when no Federal stock number is indicated in the Federal stock No. column. *Example:* (08645) 86453.

*d. Unit of issue.* If no abbreviation is shown in this column, the unit of issue is "each,"

*e. Quantity Authorized.* This column lists the quantities of repair parts, accessories, tools, or publications authorized for issue to the equipment operator or crew as required.

*f. Quantity Issued With Equipment.* This column lists the quantities of repair parts, accessories, tools, or publications that are initially issued with each item of equipment. Those indicated by an asterisk are to be requisitioned through normal supply channels as required.

*g. Illustrations.* This column is subdivided into two columns which provides the following information:

- (1) *Figure.* Provides the identifying number of the illustration.
- (2) *Item.* Provides the referenced number for the parts shown in the illustration.

### 3. Index to Federal Supply Code for Information:

78640 Towmotor Corp.

### 4. Explanation of Columns Contained in Section III

*a. Item.* This column contains numerical sequenced item number, assigned to each component application, to facilitate reference.

*b. Component Application.* This column identifies the component application of each maintenance or operating supply item.

*c. Source of Supply.* This column lists the basic materiel code number of the supply service resigned responsibility for the item. Blank spaces denote supply responsibility of the preparing agency. The basic materiel code number is:

9-Ordnance Materiel.

*d. Federal Stock Number.* The Federal stock number will be shown in this column and will be used for requisitioning purposes.

*e. Description.* The item and a brief description are shown.

*f. Quantity Required for Initial Operation.* This column lists the quantity of each maintenance or operating supply item required for initial operation of the equipment.

*g. Quantity Required for 8 Hours Operation.* Quantities listed represent the estimated requirements for an average 8 hours of operation.

*h. Notes.* This column contains informative notes keyed to data appearing in the preceding column.

## Section II. BASIC ISSUE ITEMS LIST

Source Codes				Federal stock No.	Description	Unit of issue	Quantity authorized	Quantity issued with equipment	Illustration	
Materiel	Source	Maintenance	Recoverability						Fig.	Item
					GROUP 31—BASIC ISSUE ITEMS, MANUFACTURER INSTALLED					
					3100—BASIC ISSUE ITEMS, MANUFACTURER OR DEPOT INSTALLED					
3	P1	O	-----	6810-249-9354	ACID: Sulfuric, electrolyte dilute, specific gravity 1.280 1—Gallon Container.	-----	1	1		
12			-----	7510-889-3494	BINDER, Log Book-----	-----	1	1		
11	P1	O	-----	6140-635-5208	BATTERY: Storage, 12 V. (Repair Parts Manual Group 0612).	-----	1	1		
12			-----		DEPARTMENT OF THE ARMY TECHNICAL MANUAL TM 10-3930-237-10.	-----	2	2		
5	X2	O	-----	4210-893-1092	EXTINGUISHER, Fire, dry chemical, charged, hand, pressurized w/dry air or nitrogen gas; w/pressure gage; squeeze grip control; steel cylinder, enameled red, class 4-B, C; 2½ lb; w/universal bracket.	-----	1	1	8	
	X2	O	-----		FORK: Assembly MHE 190 (78640) 87089 (Repair Parts Manual Group 2405).	-----	2	2		
	X2	O	-----		FORK: Assembly MHE 191 (78640) 87088 (Repair Parts Manual Group 2405).	-----	2	2		

### Section III. MAINTENANCE AND OPERATING SUPPLIES

Item	Component application	Source of supply	Federal stock No.	Description	Quantity required for initial operation	Quantity required for 8 hours operation	Notes
1	0101 CRANKCASE.			OIL, LUBRICATING: (1) 5-gal pail as follows:			(1) Includes quantity of oil to fill engine oil systems as follows: 4 qt—crankcase 1 qt—oil filter (2) See 9100SL for additional data and requisitional procedure.  (3) See current LO for grade application and replenishment intervals. (4) Use oil as prescribed in item 1. (5) Tank capacity. (6) Average fuel consumption is 0.68 gal per hour of continuous operation. (7) Represents quantity of oil to fill reservoir to proper level. (8) Use oil as prescribed in item 6.
			9150-231-6653	Grade 9250 (2).....	5 at 3/4	(3).	
			9150-265-9435	OE-30 (2).....		(3).	
			9150-231-9037	Grade 9110 (2).....		(3).	
			9150-265-9428	OE-10 (2).....		(3).	
			9150-242-7603	OES (2).....		(3).	
2	0304 AIR CLEANER.			OIL, LUBRICATING (4).....	1/2 qt.	(3).	
3	0306 FUEL TANK.		9130-264-6218	GASOLINE: Automotive (5) bulk.....	5.8 gal.	8 gal.	
4	0501 RADIATOR.			WATER: Antifreeze 1-gal can as follows:	11 qt.		
		9	6850-243-1992	ethyleng-glycol antifreeze (2).....			
		9	6850-174-1806	55-gal drum as follows:			
				Compound arctic (2).....			
5	0710 TRANS-MISSION.			OIL, LUBRICATING (4).....	12 qt.	(3).	
				OE-10.....			
				OES.....			
6	1002 DIFFERENTIAL.			OIL LUBRICATING: 5-gal pail as follows:			
			9150-557-5844	GO-90.....	2 1/4 qt.		
			9150-257-5440	GOS.....		(3).	
7	1204 HYDRAULIC BRAKE SYSTEM.			HYDRAULIC FLUID: 1-gal can as follows:		(3).	
			9150-231-9071	HB-nonpetroleum base automotive.....	1/2 pt (7).....		
			9150-252-6375	HB-nonpetroleum base automotive, arctic type.....	1/2 pt (7).....		
8	1404 GEARCASE STEERING.			OIL LUBRICATING: (8).....	2 1/2 pt.	(3).	
				GO-90.....			
				GOS.....			
9	1413 HYDRAULIC SYSTEM, POWER STEERING.			OIL LUBRICATING: (4) (7).....	2 qt.	(3).	
				OE-10.....			
				OES.....			
10	4308 HYDRAULIC TANK.			OIL LUBRICATING: (4) (7).....	6 1/2 gal.	(3).	
				OE-10.....			
				OES.....			
11	GENERAL APPLICATION.		9150-231-9064	PL-LIGHT, LUBRICATING OIL.....	1.....	(3).	
				PRESERVATIVE 1-qt can. (2).....			
12	GENERAL APPLICATION.		9150-190-0905	GAA GREASE AUTOMOTIVE AND ARTILLERY, 5-lb can.	1.....	(3).	

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,  
*General, United States Army,  
Chief of Staff.*

Official:

J. C. LAMBERT,  
*Major General, United States Army,  
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NG: State AG (3).

USAR: None.

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











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