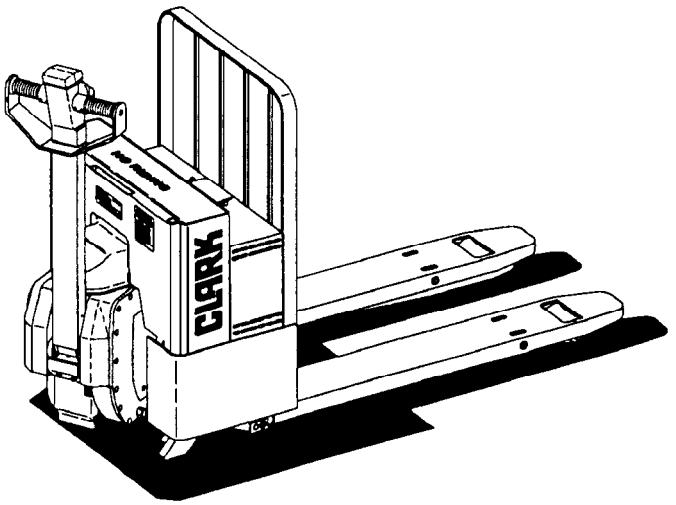
# Service Manual

## SM 611




## WP 40

CLARK
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**This service publication** provides information covering normal service, maintenance and repair of the Clark industrial trucks noted on the cover. It has been specifically prepared to help owners and service personnel maintain these trucks in efficient and safe operating condition.

Regular, correct maintenance and care of industrial trucks is not only important for long and efficient truck life; it is essential for safe operation. The importance of proper maintenance through planned service, inspection and qualified repairs cannot be emphasized too strongly.

To assist in keeping industrial trucks in good operating condition, this manual includes preventive maintenance procedures to be performed at regular intervals. These are essential to the service life and safe operation of all industrial trucks. Instructions for safety inspections, operational checks, cleaning, and lubrication are provided for reference in setting-up and conducting a recommended periodic Planned Maintenance (PM) program.

Refer to the Operator's Manual, located on the truck, for additional information on the operation, care and maintenance of your truck.

Genuine Clark replacement parts should be used for all service and repair requirements. Substitute parts from other sources may be different than original parts and may not meet OSHA or other safety requirements.

Any reference to brand names other than Clark in this manual is made simply as an example of the type of tools and materials recommended for use and, as such, should not be considered as an endorsement. Equivalents, if available, may be used.

For more information on maintenance and repair of these trucks, contact your authorized Clark dealer.

***NOTICE***

*The descriptions and specifications included in this manual were in effect at the time of printing. Clark Equipment Company reserves the right to discontinue models at any time, or make improvements and changes in specifications or design without notice and without incurring obligation. Specifications, torques, pressures, measurements, adjustments, illustrations and other items may* change at any time. Contact your authorized CLARK dealer for information on possible *updates or revisions.*

# IMPORTANT SAFETY NOTICE

**Read and understand all safety precautions and warnings before performing repairs on lift trucks.**

Appropriate service methods and proper repair procedures are essential to the safe, reliable operation of industrial trucks as well as the personal safety of the individual doing the work. This Service Manual provides general directions for accomplishing service and repair work with tested, effective techniques. Following them will help assure successful repair and reliable truck operation.

There are numerous variations in procedures, techniques, tools, and parts for servicing industrial trucks, as well as in the skill of the individual doing the work. This manual cannot possibly anticipate all such variations and provide advice or precautions as to each. Accordingly, anyone departing from the instructions provided in this manual through procedures used or choice of tools, materials, and parts may jeopardize his or her personal safety and/or the safety of the vehicle user.

Improper or careless techniques cause accidents. Don't take chances with incorrect or damaged equipment. Read and understand the procedures for safe operation and maintenance outlined in this manual.

**STAY ALERT!** Follow safety rules, regulations and procedures. Accidents can be avoided by recognizing dangerous procedures or situations before they occur.

**DRIVE AND WORK SAFELY** and follow the safety signs and their messages displayed on the truck and in this manual.

## General Precautions

The following list contains general precautions that should be followed when working on a lift truck:

- **Always wear safety glasses for eye protection.**
- **Remove rings, watches, loose jewelry and open clothing before working on a vehicle, to avoid serious injury.**
- **Do not smoke while working on a vehicle.**
- **Put ignition switch in the OFF position, unless otherwise required by the procedure.**
- **Set the parking brake. Place wheel chocks or wood blocks of 4" x 4" size or larger to the front and rear surfaces of the tires to provide further restraint from inadvertent vehicle movement.**
- **Use safety stands or blocks whenever a procedure requires you to be under the vehicle.**
- **Service Electric Truck Batteries in a well-ventilated area to avoid the danger of igniting explosive gases.**
- **Always Discharge the Capacitors prior to working on or around electrical components.**
- **Avoid contact with Battery Acid. The battery contains corrosive acid which can cause injury.**

TABLE OF CONTENTS

Section 4 Frame

## 0.1 Truck Identification

This repair manual covers the following Clark Products: WP-40 Low Lift Pallet Trucks from serial number WP40-1-8163 and above.

Clark reserves the right to change the information and specifications contained within this manual at any time without incurring any obligation relating to such changes.

## 0.2 System Operation

Federal and State laws require that operators be completely trained in the safe operation of lift trucks.

An Operator's Manual is attached to every Clark lift truck when it is manufactured. If the Operator's Manual is missing from the truck a new manual may be obtained by contacting Clark Technical Publication by Fax at 414 798-8757.

This manual is not a training manual. The information contained in this service manual is intended as a guide to help the authorized technician safely repair the truck.

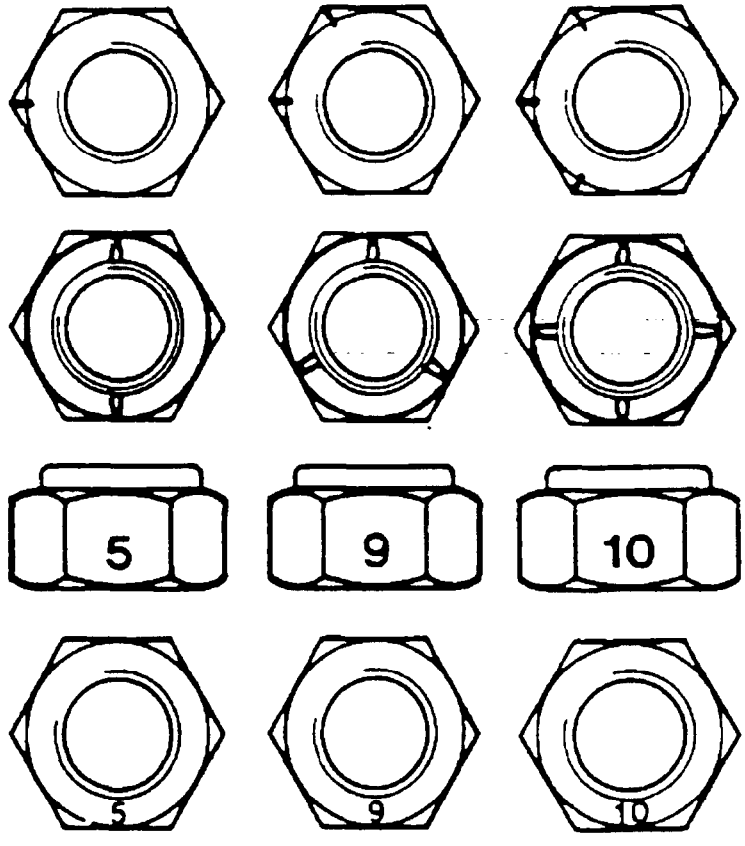
## 0.3 Specifications

## I. Specifications

| | | | |
|---|---|---|---|
| A. | Electrical - Maximum AMP Draw | | |
| | 1. Drive Motor Armature - Cable A2 | 12 volt | 24 volt |
| | a) In Top Variable Speed | 71A | 45A |
| | 2. Lift Pump Motor - Cable A1 | | |
| | a) Against Pressure Relief | 200A | 115A |

| | | |
|---|---|---|
| B. | Hydraulic System | |
| | 1. Type of Fluid | Hydo 32 (standard)<br>Texaco 15 (Freezer only) |
| | 2. Capacity | Approx. 1 quart |
| C. | Tires and Wheels | |
| | 1. Drive Tire | 10.5 x 5 x 6.5 inches |
| | 2. Load Wheels | 3.25 x 5 inches |
| F. | Fluids and Lubricants | |
| | 1. Hydraulic Fluid | |
| | a) Standard | HYDO 32 |
| | b) Freezer application | Texaco 15 |
| | 2. Lubricating Grease | Texas Refineries C & C #880 |
| | 3. Transmission Oil | 85W 90 API GL5 |

# *INCH (SAE) AND METRIC FASTENERS*



## INTRODUCTION

Threaded fasteners like bolts, nuts, capscrews and studs are made to specifications that describe the mechanical strength and hardness of the fastener. A fastener used in a design application is selected according to its specifications. Clark buys parts from many countries. There are several standards used by these countries in the manufacture of threaded fasteners. Many of these fasteners are similar, but cannot be used as direct replacement.

Service persons must use replacement fasteners that have the same specifications. Fasteners made to each specification have identification marks for that specification. This specification is commonly called "Grade" for SAE standards and "property" for metric standards. This section describes the identification of some common fasteners.

The metric system used by Clark is described as SI (International System of Units, also called SI in all languages). The SI system of measurement is described in ISO Standard 1000, 1973.

## NOMENCLATURE, THREADS

The thread design is specified by a series of numbers and letters for inch and metric fasteners. (See Figure 1). The diameter of the shank of the fastener is shown first in the series [M12=12mm, M20=20mm (1/2=1/2 inch, 3/4=3/4 inch)].

The number of threads per inch is normally not shown for inch nomenclature and only the UNC (Unified National Coarse) or UNF (Unified National Fine) is shown. This number of threads per inch is not shown because a UNC or UNF fastener has a standard number of threads per inch for a specific diameter.

The length of a shank is often indicated as part of the description of a fastener. This length is shown in inches for inch fasteners and in millimeters for metric fasteners.
A capscrew will have the following description:

| INCH | METRIC |
|---|---|
| 1/2 x 13 UNC x 1-1/2<br>A B C D | M12 x 1.75 x 50<br>A B C |
| A = SHANK DIAMETER<br>B = NUMBER OF THREADS PER UNIT OF LENGTH<br>C = TYPE OF THREAD<br>D = SHANK LENGTH | A = THREAD SIZE<br>B = PITCH<br>C = LENGTH |

FIGURE 1 - THREAD DESIGN