

**CROWN**



**Service Manual**

**ESR4000** Series

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# **CROWN**

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**CROWN**

***SAFETY***

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## Safety Symbols used in the Manual

To help guide you through the manual and to highlight particular danger areas, we have used graphic illustrations:

### **DANGER**



**This symbol indicates life-threatening risks**

- Failure to comply with this notice may result in severe or fatal injuries to yourself or other people.

### **WARNING**



**This symbol indicates the risk of serious injury and/or serious material damage.**

- Failure to comply with this notice may result in severe injuries to yourself or other people and/or serious material damage.

### **CAUTION**



**This symbol indicates the risk of minor injury and/or minor material damage.**

- Failure to comply with this notice may result in minor injuries to yourself or other people and/or minor material damage.

### **INFORMATION**



**Contains additional information with supplementary notes and hints.**

### **OPTION**



**These items relate to optional features not supplied with the standard version.**

## General Maintenance and Repair Safety Notes

### **DANGER**



**Read the safety notices in the truck Maintenance and Operator's Manuals.**

- Failure to do so could result in severe or fatal injuries to maintenance personnel and/or other persons.

Motorised vehicles can be dangerous if maintenance and service are neglected. For this reason maintenance and inspections must be carried out at regular short intervals by trained personnel working to approved company guidelines.

### **DANGER**



**Follow all national/local safety regulations applicable for maintenance work, e.g. for work on higher levels.**

- Failure to do so could result in severe or fatal injuries to maintenance personnel and/or other persons.

## Maintenance and Repair

1. Maintenance work must only be carried out in accordance with the test and maintenance program contained in the present Maintenance Manual and any applicable service notices.
2. Only qualified and authorised personnel may carry out work on the truck.
3. Always keep fire extinguishers in good working condition. Do not approach fluid levels or leaks with a naked flame.
4. To clean, use a non flammable, non combustible cleaning solution which is groundwater-neutral. Only carry out cleaning with an oil separator. Protect the electrical system from dampness.
5. Keep the service area clean, dry and well-ventilated.
6. Do not allow oil to penetrate the ground or enter the draining system. Used oil must be recycled. Oil filters and desiccants must be treated as special waste products. Relevant applicable regulations must be followed.

7. Neutralise and thoroughly rinse any spilled battery fluid immediately.
8. Keep the truck clean. This will facilitate the location of loose or faulty components.
9. Make sure that capacity and data plates, warnings and labels are legible at all times.
10. Alterations or modifications by the owner or operator are not permitted without the express written authorisation from Crown.
11. Only use original Crown spare parts to ensure the reliability, safety and suitability of the Crown truck.

### Before Leaving the Truck

- Stop the truck.
- Lower the fork carriage fully.
- Apply the parking brake.
- Turn off the travel switch and remove the key.
- Block all wheels when parking on an uneven surface.

### Before Carrying out Work on the Truck

- Raise the truck to free the drive wheel. Press the emergency Stop button and disconnect the battery.
- Prevent the truck from rolling away.
- Before carrying out work on the hoist frame, the lift mast or on the fork carriage: Block these parts according to maintenance instructions in order to prevent them from dropping.
- Only carry out operational testing when there is sufficient room to manoeuvre, to avoid the risk of injury to yourself and others.

### Before Operating the Truck

- Check the safety devices.
- Get into the driver's seat.
- Check the operation of the lifting device, travel direction switch, speed control, steering, warning devices and brakes.

### Warnings and Labels on the Truck

During regular maintenance check that the warnings and labels on the truck are complete and legible.

- Clean any illegible labels.
- Replace any faulty or missing labels.

The order and meaning of the warnings and labels on the truck are described in section 10.9 of the parts manual.

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**CROWN**

***INTRODUCTION***

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## General

The present manual is designed for Customer Service engineers who wish to familiarise themselves with the maintenance work required for the various truck components.

It also contains troubleshooting sections which can be used to identify and remedy truck faults.

### **INFORMATION**



***This book is not an operating manual. It is designed solely for specialist personnel who have been trained and authorised to carry out the work described in the manual.***

This manual therefore contains fewer and less detailed warnings than the Operator's Manual, as the latter is aimed at persons who have very little or no prior experience at all.

## Operating Instructions

This manual contains no operating instructions. An operating instructions manual is supplied with the vehicle. Additional copies can be ordered as required.

With the help of this manual you and your personnel will be able to ensure the long service life, operational safety and error free functioning of your CROWN vehicle.

## Service Training

CROWN offers the appropriate vehicle related training for service personnel. Details on this training can be obtained from CROWN on request.

## Ordering Spare Parts

The maintenance manual does not cover spare parts. These are listed in a separate manual.

Spare parts can be ordered by quoting:

- The truck specification number
- The truck model number
- The truck serial number

This information can be found on the truck's data plate. Only if this information is provided can the order be processed quickly, correctly and reliably.

Please refer to the Technical Specifications Sheet for the utilisable loads, technical data and dimensions for this

series. Brochures can be obtained from your CROWN dealer or from the following address:

**CROWN Gabelstapler GmbH**  
**Kronstadter Str. 11**  
**81677 Munich**  
**GERMANY**  
**Tel.: +49 (0)89 / 93 002 -0**  
**Fax: +49 (0)89 / 93 002 -175 oder 133**

## Using the Manual

The Maintenance Manual is written in three independent language blocks: **English, German and French.**

Each language block in turn is divided into chapters and sections.

The table on the following page shows how the manual is structured.

Sections Maintenance	
Section	Description
IDX	Table of Content
MA	Safety
ITD	Introduction
M1	Lubrication and Adjustment
M2	Hydraulics
M3	Drive Unit
M4	Electrical
M5	Brake
M6	Steering
M7	Mast / Lifting Mechanism
M8	Cylinder
DIA	Electrical Diagrams
HYD	Hydraulic Schematic

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**Page Numbering in the Manual**

The page numbers are on the left and right-hand sides of the page footer.

If a page has been modified since the last edition, a revision number will be found in the middle of the footer:

02 REV. 2/99 means the second amendment to this page in February 1999.

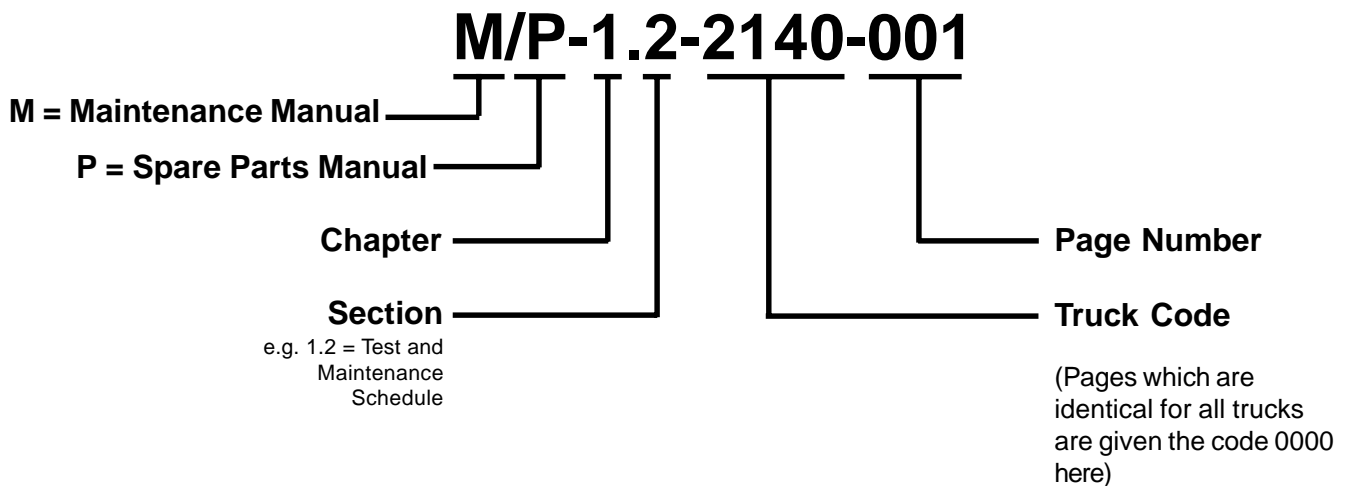
The page numbers are not necessarily consecutive!

The back page of the manual contains a print number in the following form:

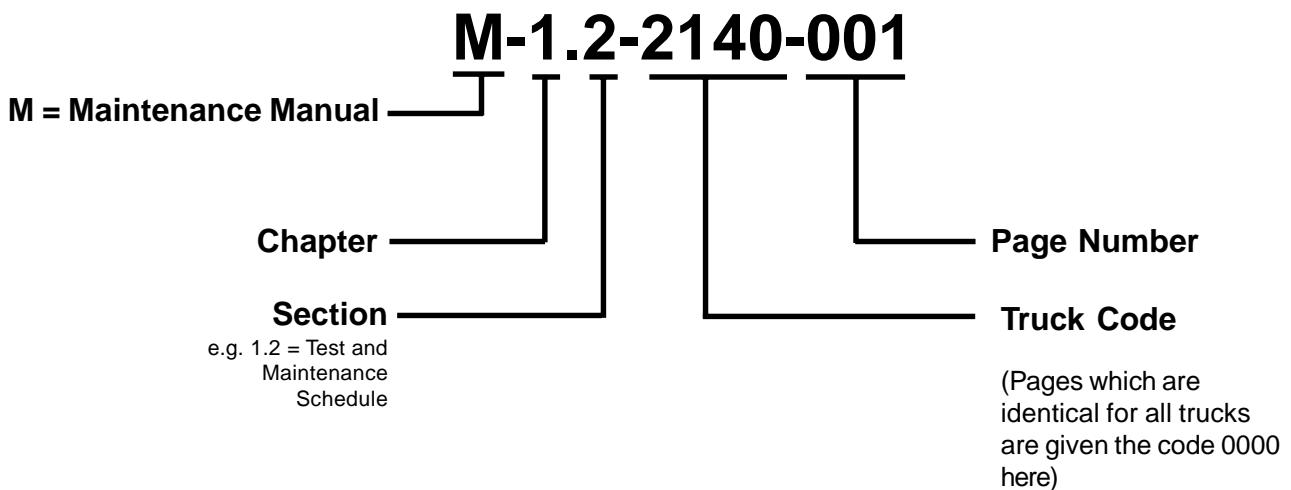
**MS-ESR4000-GB-D-F 02/00**

In this example, 02/00 is the edition date.

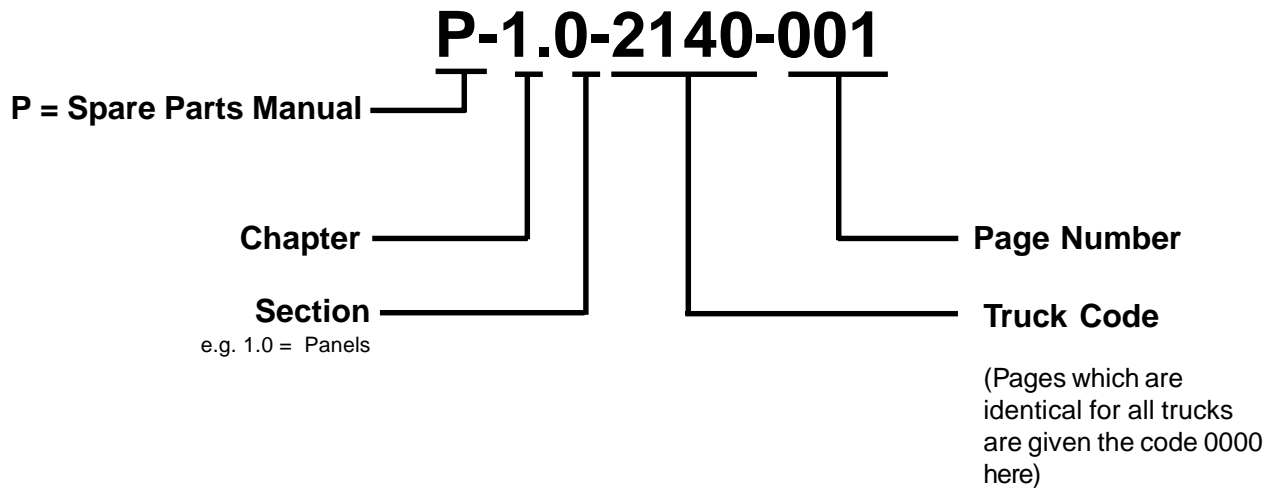
A page beginning with M/P- is *identical* in both the maintenance and spare parts manuals:



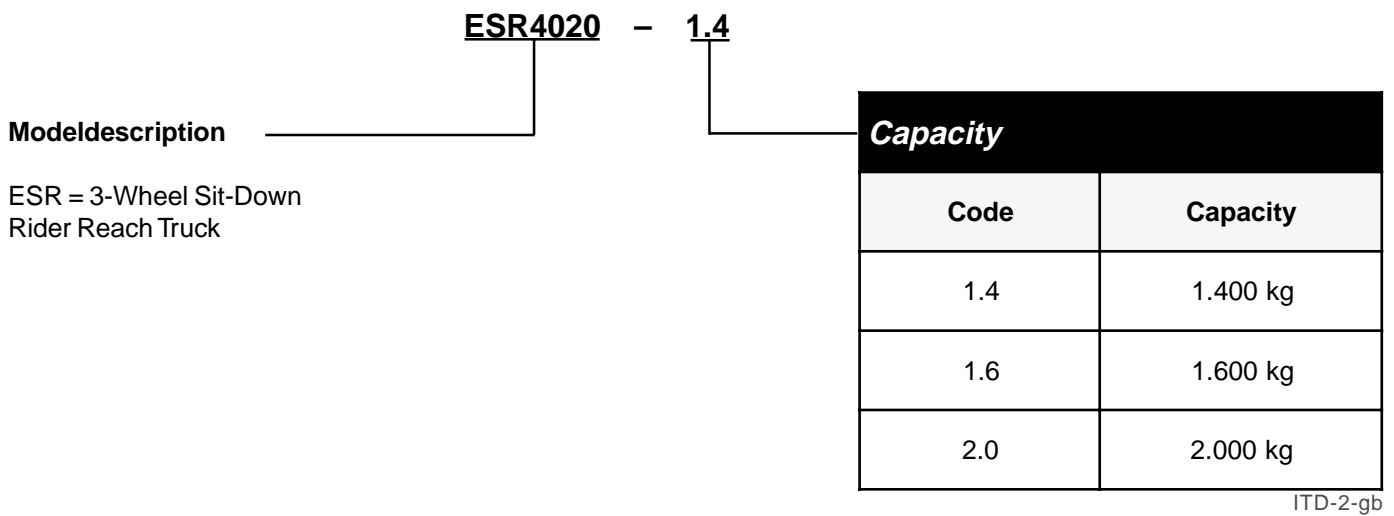
A page beginning with M- is *only* contained in the maintenance manual:



A page beginning with P- is *only* contained in the spare parts manual:



**Model-Number**





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# **CROWN**

## ***LUBRICATION AND ADJUSTMENT***

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## Jacking up the Truck

Apply a jack with sufficient capacity, hard wooden blocks and wedges as shown in Fig. M1633.

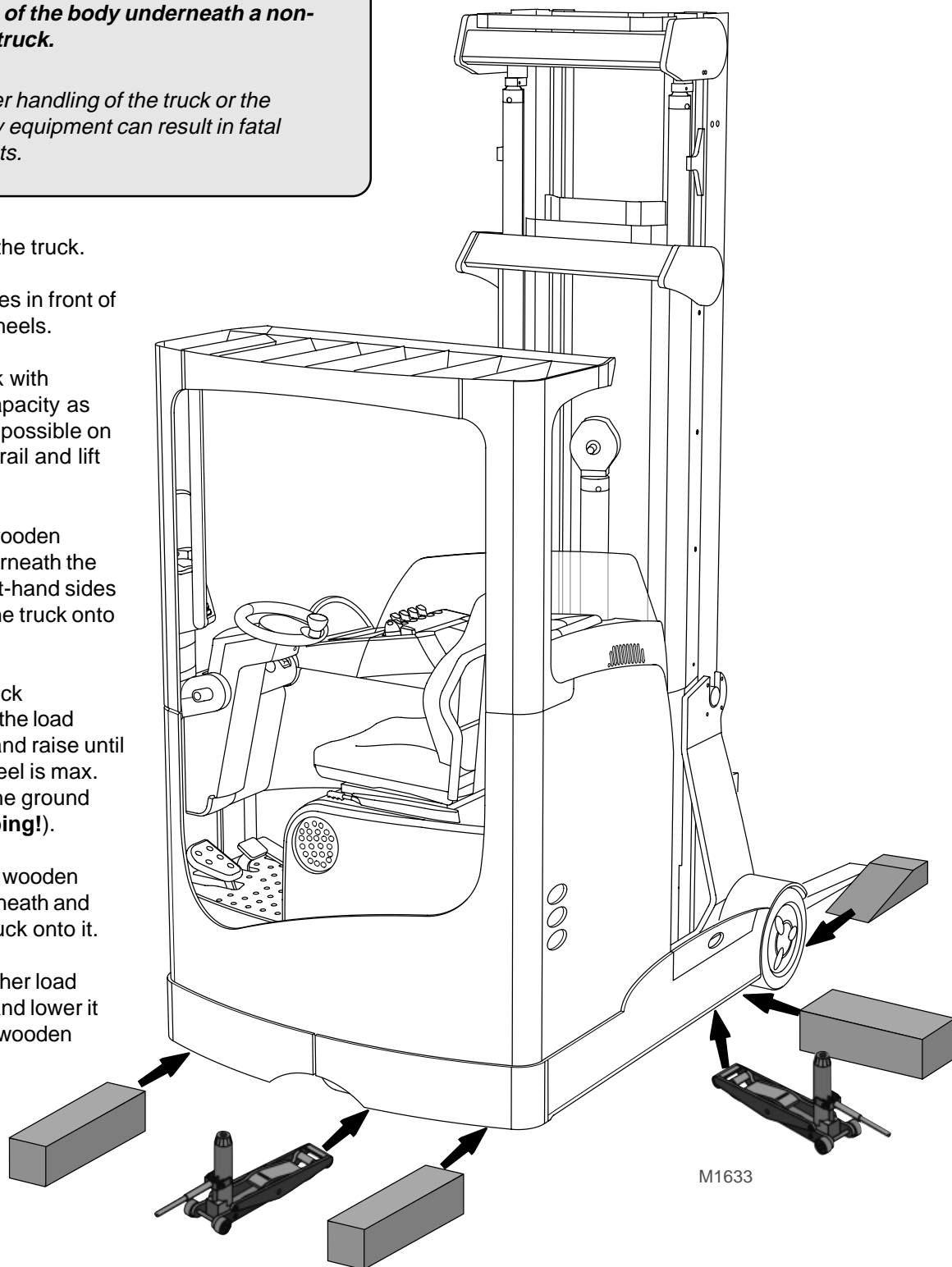
**DANGER**



**Always support the raised truck on square blocks or other appropriate material to relieve the trolley. Never put your hands or other parts of the body underneath a non-supported truck.**

- *Improper handling of the truck or the auxiliary equipment can result in fatal accidents.*

- Fully lower the truck.
- Place wedges in front of both load wheels.
- Apply a jack with sufficient capacity as centrally as possible on the skirting rail and lift the truck.
- Slide hard wooden blocks underneath the left and right-hand sides and lower the truck onto them.
- Apply the jack underneath the load wheel arm and raise until the load wheel is max. 10 mm off the ground (**risk of tipping!**).
- Slide a hard wooden block underneath and lower the truck onto it.
- Raise the other load wheel arm and lower it onto a hard wooden block.



M1633