CROWN



Service Manual

ESR4000 Series

MidWestTech | Crown ESR4000 Forklift Service Manual | Publication 812550-006

Order the manual at mid-west-tech.com >

Index

MA – SAFETY	PAGE	SER. NO. SEC.	ISSUE
Symbols Used In The Manual	**M/P-MA-0000-001**		
General Maintenance and Repair Safety Instructions	**M/P-MA-0000-001**		
- Maintenance and Repair	M/P-MA-0000-002		
- Before Parking the Truck	M/P-MA-0000-002		
- Before Working on the Truck	M/P-MA-0000-002		
- Before Starting the Truck	M/P-MA-0000-002		
Truck Warnings and Labels	**M/P-MA-0000-002**		

ITD – INTRODUCTION	PAGE	SER. NO. SEC.	ISSUE
General	**M/P-ITD-2140-001**		
- Operating Instructions	M/P-ITD-2140-001		
- Service Training	M/P-ITD-2140-001		
- Ordering Spare Parts	M/P-ITD-2140-001		
- Using the Manual	M/P-ITD-2140-001		
- Page Numbering in the Manual	M/P-ITD-2140-002		
Model Number	**M/P-ITD-2140-003**		

M1 – LUBRICATION AND ADJUSTMENT	PAGE	SER. NO. SEC.	ISSUE
Jacking up the Truck	**M-1.0-2140-001**		
Raising the Truck with a Crane	**M-1.0-2140-002**		
Towing the Truck	**M-1.0-2140-002**		
Component Access	**M-1.0-2140-003**		
- Removing the Floorboard	M-1.0-2140-004		Rev.1 08/00
- Seat Disassembly / Installation	M-1.0-2140-004		
- Plastic Panel Disassembly / Assembly	M-1.0-2140-004		
Maintenance	**M-1.1-2140-001**		
- Driver Participation	M-1.1-2140-001		
- Daily Maintenance Log	M-1.1-2140-001		
- Recommended Lubricants and Oils	M-1.1-2140-002		
- Lubrication Items and Intervals	M-1.2-2140-001		
- Inspection and Maintenance Schedule	M-1.2-2140-002		Rev.1 08/00
Torques	**M-1.9-0000-001**		

M2 – HYDRAULICS	PAGE	SER. NO. SEC.	ISSUE
Changing Hydraulic Oil	**M-2.0-0000-001**		
Hydraulic Pipes and Accessories	**M-2.1-2140-001**		
- Filter	M-2.2-2140-002		
- Tank	M-2.3-2140-002		
- System Bleeding	M-2.3-2140-002		
- Drift Test	M-2.3-2140-002		
Funtional Description	**M-2.3-2140-003**		
Hydraulic Symbols	**M-2.3-2140-013**		
Valve Block	**M-2.4-2140-001**		
- Safety Valve Setting (RV1 and RV2)	M-2.4-2140-001		
- Proportional Valve Setting (PVA and PVH)	M-2.4-2140-001		

M3 – DRIVE UNIT	PAGE	SER. NO. SEC.	ISSUE
Drive Unit	**M-3.1-2140-001**		
- Removal	M-3.1-2140-001		
- Draining the Oil	M-3.1-2140-001		
- Steering Chain Removal	M-3.1-2140-002		
- Drive Wheel Removal	M-3.1-2140-002		
- Tools	M-3.1-2140-003		

Printed in Germany

MidWestTech | Crown ESR4000 Forklift Service Manual | Publication 812550-006 Order the manual at mid-west-tech.com >

- Measurement Tools M-3.1-2140-004
- Equipment M-3.1-2140-005

Gear Unit Maintenance M-3.1-2140-008
- Disassembly M-3.1-2140-510
- Pre-Assembly Test M-3.1-2140-013
- Assembly M-3.1-2140-013
- Final Assembly M-3.1-2140-019
- Gear Upper Section Assembly M-3.1-2140-021
- Live Ring Bearing Maintenance M-3.1-2140-021
- Gear Unit Assembly M-3.1-2140-022

M4 – ELECTRICS	PAGE	SER. NO. SEC.	ISSUE
Electrics - General	**M-4.0-0000-001**		
- Wire Colour Codes	M-4.0-0000-001		
- Abbreviations	M-4.0-0000-002		
- Electrical Symbols	M-4.0-0000-004		
Load Monitor (Display)	**M-4.3-2140-200**		
- Troubleshooting	M-4.3-2140-203		
Encoder ECR2	**M-4.3-2140-300**		
ESR4000 Status Codes	**M-4.3-2140-400**		
- Power-up circuit diagram	M-4.3-2140-401		
- Status codes 200 to 294	M-4.3-2140-402		
- Status codes 311 to 399	M-4.3-2140-427		
- Status codes 813 to 838	M-4.2-2140-403		Rev.1 08/00
Access 1-2-3	**M-4.3-2140-600**		
- Access 1, Design and Function	M-4.3-2140-600		
- Battery Discharge Indicator	M-4.3-2140-601		
- Power "on"	M-4.3-2140-601		
- Operator Improper Sequence Error	M-4.3-2140-601		
- Service Due Key Display	M-4.3-2140-601		
- Navigation Keys	M-4.3-2140-602		
- Message Display	M-4.3-2140-602		
- Load Monitor	M-4.3-2140-601		
Operator Menu	M-4.3-2140-603		
Service Menu	M-4.3-2140-605		
Analyzer Menu	M-4.3-2140-606		
Calibration Menu	M-4.3-2140-611		
- Accessing the CALIBRATION Menu	M-4.3-2140-613		
- When to calibrate	M-4.3-2140-613		
- Calibration Procedures	M-4.3-2140-613		
- Calibration Complete	M-4.3-2140-613		
Features Menu	M-4.3-2140-621		
Menü HOUR METERS	M-4.3-2140-629		Rev.1 08/00
Log Events Menu	M-4.3-2140-630		
Performance Menu	M-4.3-2140-631		
Utilities Menu	M-4.3-2140-644		Rev.1 08/00
Emergency Disconnect Contactor	**M-4.4-2140-001**		
Battery Maintenance	**M-4.6-2140-001**		
Charging the Battery	M-4.6-2140-001		
Replacing the Battery	M-4.6-2140-001		
Traction / Pump Motor Maintenance	**M-4.35-2140-001**		
- Access	M-4.35-2140-001		
- Maintenance	M-4.35-2140-001		

M5 – BRAKE	PAGE	SER. NO. SEC.	ISSUE
Brake System	**M-5.0-2140-001**		
- Bleeding the Brake System	M-5.0-2140-001		
- Motor Brake	M-5.0-2140-002		

Printed in Germany

MidWestTech | Crown ESR4000 Forklift Service Manual | Publication 812550-006 Order the manual at mid-west-tech.com >

- Operating Brake Adjustment M-5.0-2140-002
Parking Brake M-5.0-2140-003
- Parking Brake Adjustment M-5.0-2140-003
- Brake System Bleeding M-5.0-2140-004
- Motor Brake Disassembly M-5.0-2140-004
Load Wheel Brake System M-5.0-2140-006
- Load Wheel Brake Adjustment M-5.0-2140-006
- Brake System Bleeding M-5.0-2140-007

M6 – STEERING **PAGE** **SER. NO. SEC.** **ISSUE**

- Steering M-6.0-2140-001
  - Steering Unit Disassembly M-6.0-2140-002
  - Hydraulic Motor Disassembly M-6.0-2140-003
  - Steering Chain Adjustment M-6.0-2140-004
- POT6 (Steer Angle Display) Replacement M-6.0-2140-005
  - Assembly and Adjustment M-6.0-2140-005

M7 – MAST **PAGE** **SER. NO. SEC.** **ISSUE**

Mast M-7.0-2140-001
- Torque Requirements M-7.0-2140-001
- Fork Adjustments M-7.0-2140-001
- Mast Testing (Assembled) M-7.0-2140-001
- Flaking M-7.0-2140-001
- Shock Absorbers M-7.0-2140-001
- Mast Dampening Screws, Adjustment M-7.0-2140-001
- Mast Disassembly M-7.0-2140-003
- Mast Assembly M-7.0-2140-003
- Mast Rollers M-7.0-2140-004
  - Mast Roller Adjustment M-7.0-2140-004
  - Mast Play Control M-7.0-2140-004
- Fork Carriage M-7.0-2140-006
  - Disassembly M-7.0-2140-006
  - Assembly M-7.0-2140-006
  - Fork Carriage Roller Adjustment M-7.0-2140-007

Lift Chains M-7.5-2140-001
- General M-7.5-0000-001
- Inspection M-7.5-0000-001
  - Cleaning M-7.5-0000-001
  - Wear M-7.5-0000-001
  - Freedom of Movement M-7.5-0000-002
  - Chain Tension M-7.5-0000-002
  - Chain Anchor and Pulleys M-7.5-0000-002
  - Worn or Missing Plates M-7.5-0000-002
  - Protruding or Turned Chain Pins M-7.5-0000-002
  - Corrosion M-7.5-0000-003
  - Chain Lateral Wear M-7.5-0000-003
  - Uneven Chain Tension M-7.5-0000-003
  - Misalignment of Lift Components M-7.5-0000-003
- Lift Chain Lubrication M-7.6-0000-001

Fork Tine Test M-7.6-0000-002
- General M-7.6-0000-002
- Fork Identification M-7.6-0000-002
- Repairs M-7.6-0000-002
- Crack Inspection M-7.6-0000-002
- Fork Identification M-7.6-0000-002
- Fork Blade Warping M-7.6-0000-003
- Verticality Test M-7.6-0000-003
- Measuring the Fork Tip Width M-7.6-0000-004
- Fork Tine Height Difference M-7.6-0000-004

Printed in Germany

MidWestTech | Crown ESR4000 Forklift Service Manual | Publication 812550-006 Order the manual at mid-west-tech.com >

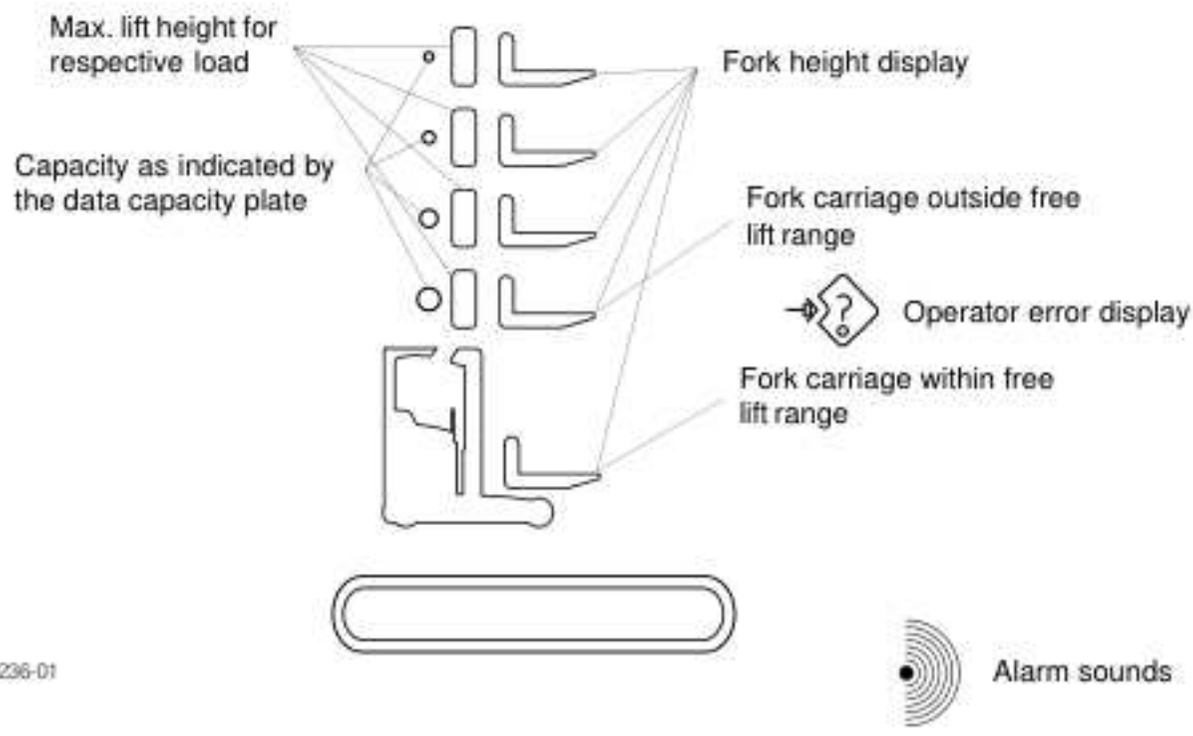
Capacity Data Monitor

The capacity data monitor CDM operates in conjunction with the load sensor LS on the fork carriage to calculate the weight of the load, the monitor switch FKS to calculate the fork carriage position and the height encoder ECR2.

For the CDM to operate correctly, the maximum permissible loads according to the data capacity plate must be entered for the respective lift heights in the FEATURES menu, under F10 "Capacity".

- Information is displayed via the ACCESS 1 operator display.
- The load sensor LS receives a continuous pressure signal from the tilt cylinder via a hydraulic line. This signal is proportional to the load and is transmitted to the truck control system.
- The monitor switch for the fork carriage position FKS cuts out the load signal transmission as soon as the fork carriage reaches one of its two limits. In this position it is impossible to calculate the load due to the additional pressure in the tilt cylinder.
- The encoder ECR2 transmits the signal for the fork carriage height display. To do this, the option "Ht Encoder" must be enabled in the FEATURES menu under item F4.
- The data capacity plate states the residual capacities for the individual lift heights and ranges. This data must be entered in menü F10 "Capacity". In this way the control system calculates the maximum lift height for each load and displays this on the CDM via a LED.

Capacity Data Monitor (on ACCESS 1 operator display)



Printed in Germany

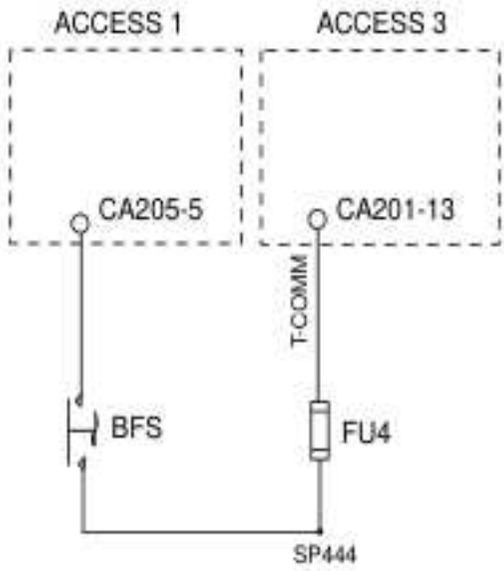
MidWestTech | Crown ESR4000 Forklift Service Manual | Publication 812550-006 Order the manual at mid-west-tech.com >

BFS (Brake fluid switch): Brake fluid level too low — STATUS CODE 843

1. Check brake fluid level.
   - **Brake fluid level too low:** Replenish brake fluid. Bleed brake circuit if necessary.
   - **Brake fluid level correct:** Disconnect wire from CA205-5 at ACCESS 1 and view code again.
     - **Code changes:** Faulty wiring or BFS. Repair / replace.
     - **Code 843 remains:** Error in ACCESS 1 (see note).

NOTE

If truck operates, then this could be a random nuisance code. Monitor code frequency and inform Crown Service if necessary.



843

ACCESS 3: Internal Error — STATUS CODE 851

1. See note.

NOTE

If truck operates, then this could be a random nuisance code. Monitor code frequency and inform Crown Service if necessary.

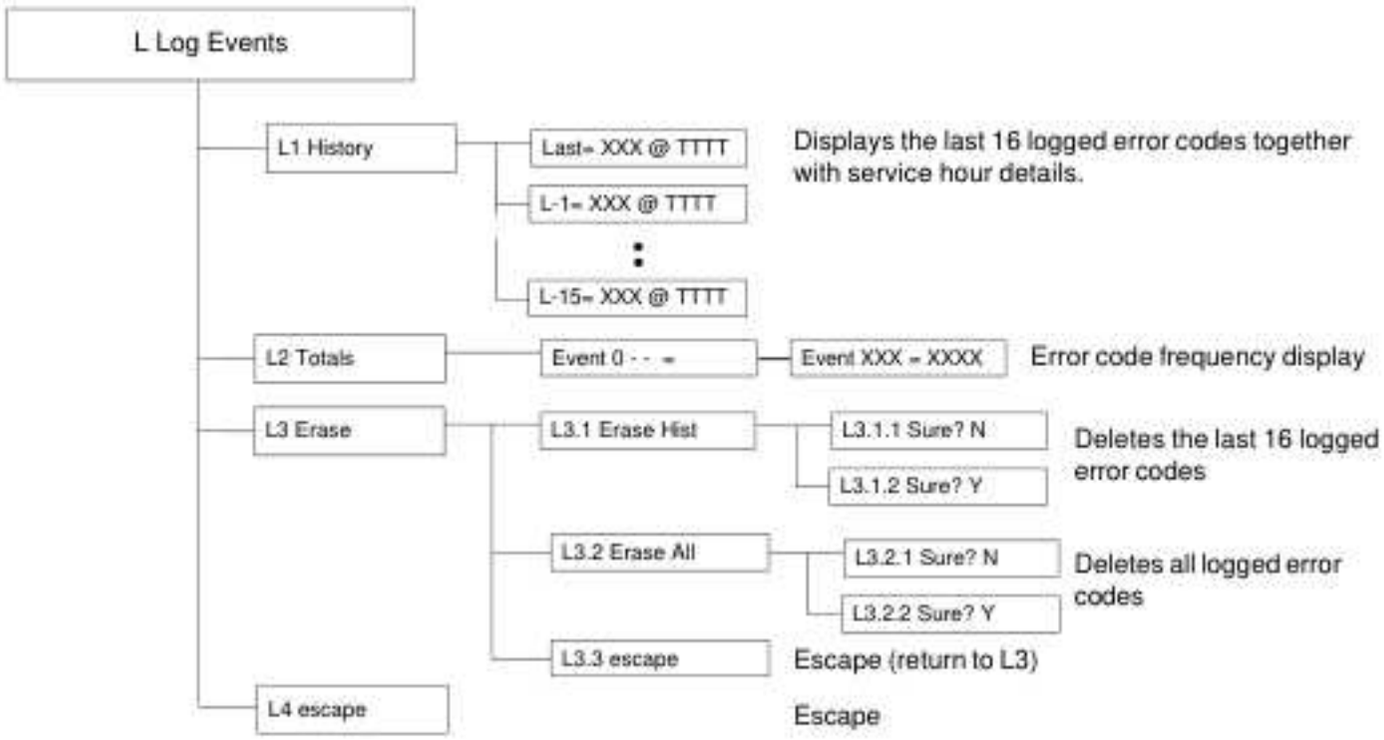
Printed in Germany

MidWestTech | Crown ESR4000 Forklift Service Manual | Publication 812550-006 Order the manual at mid-west-tech.com >

LOG EVENTS Menu

Menu for viewing and processing logged error codes. This menu is only available on service levels 2 and 3.

To move left and right in the menu use ENTER, to scroll up and down use the arrow keys ▲ and ▼.



Menu 12

MidWestTech | Crown ESR4000 Forklift Service Manual | Publication 812550-006 Order the manual at mid-west-tech.com >

Mast Disassembly

WARNING

All assembly work on the mast is hazardous

Unsecured stage masts and attachments can sever limbs or even cause fatal injuries. Always block and secure the respective components properly prior to starting assembly.

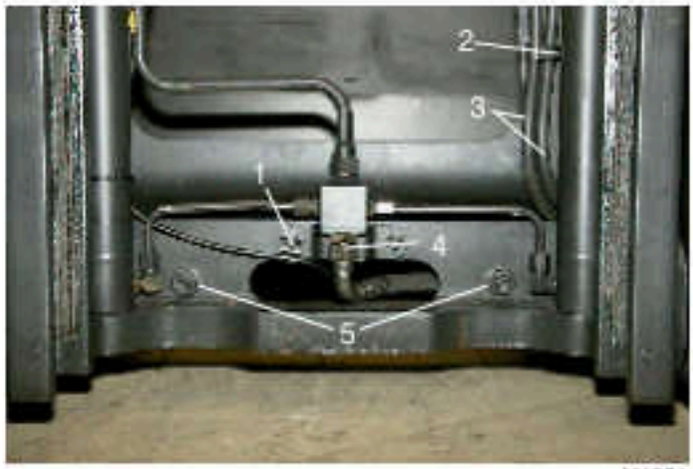
To disassemble the mast proceed as follows:

- Extend the reach assembly fully.
- Disconnect the battery.
- Secure the truck to prevent it from rolling away.
- Prepare a bowl to collect any spilled oil.
- Secure the upper mast section with appropriate devices. **All stage masts must be secured.**
- Loosen the plug connections in the reach assembly frame (Fig. M1655), and remove any cable binders in the mast track.



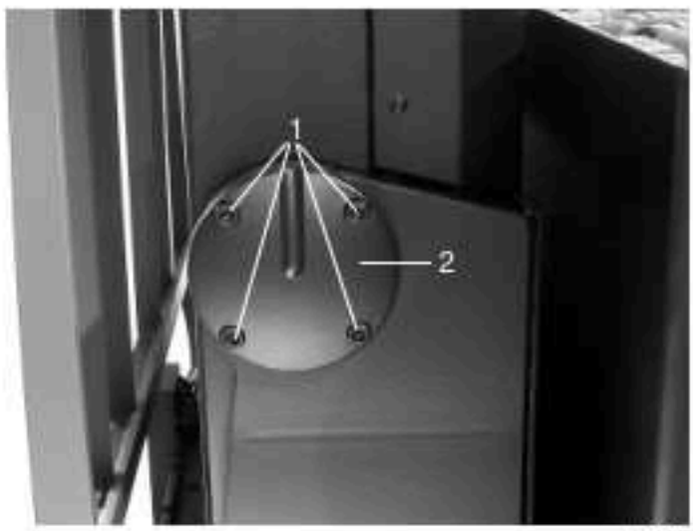
M1655

- Remove clamp (1, Fig. M1651). Thread the wiring through the hole and attach it to the mast with adhesive tape to prevent it from being damaged during assembly and disassembly.
- Remove clamp (2, Fig. M1651). Remove hydraulic lines (3, Fig. M1651) from the screw connection above the mast and seal them. Secure them to prevent them from potential damage.



M1651

- Loosen the hydraulic connection (4, Fig. M1651) and plug the line.



M1662

- Remove the four screws (1, Fig. M1662) from the left and right-hand truck supports. Remove lid (2, Fig. M1662). Remove any shims underneath it and for re-assembly purposes mark the side they were fitted on.
- Remove two nuts (5, Fig. M1651) and their respective screws.
- Carefully lift the mast up out of the supports. Place it on a suitable surface.

Mast Assembly

Assembly is the reverse of disassembly. Bleed the hydraulic system!

Printed in Germany

MidWestTech | Crown ESR4000 Forklift Service Manual | Publication 812550-006 Order the manual at mid-west-tech.com >