# SERVICE MANUAL

LOADER
**457**

EN - 9813/4150 - ISSUE 6 - 12/2017

This manual contains original instructions, verified by the manufacturer (or their authorized representative).

Copyright 2017 © JCB SERVICE.
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any other means, electronic, mechanical, photocopying or otherwise, without prior permission from JCB SERVICE.

www.jcb.com

# Foreword

## The Operator's Manual

⚠

You and others can be killed or seriously injured if you operate or maintain the machine without first studying the Operator's Manual. You must understand and follow the instructions in the Operator's Manual. If you do not understand anything, ask your employer or JCB dealer to explain it.

Do not operate the machine without an Operator's Manual, or if there is anything on the machine you do not understand.

Treat the Operator's Manual as part of the machine. Keep it clean and in good condition. Replace the Operator's Manual immediately if it is lost, damaged or becomes unreadable.

## Contents

**01 - Machine**

**03 - Attachments, Couplings and Load Handling**

**06 - Body and Framework**

**09 - Operator Station**

**12 - Heating, Ventilating and Air-Conditioning (HVAC)**

**15 - Engine**

**18 - Fuel and Exhaust System**

**21 - Cooling System**

**24 - Brake System**

**25 - Steering System**

**27 - Driveline**

**30 - Hydraulic System**

**33 - Electrical System**

**72 - Fasteners and Fixings**

**75 - Consumable Products**

**78 - After Sales**

MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 Order the manual at mid-west-tech.com >

# 01 - Machine

**Contents** **Page No.**


Acronyms Glossary ..... 01-2

01-03 Safety
- 01-03-03 Safety - Yours and Others ..... 01-3
- 01-03-06 Safety Warnings ..... 01-4
- 01-03-09 General Safety ..... 01-5
- 01-03-12 Maintenance Safety ..... 01-6
- 01-03-18 Operating Safety ..... 01-8
- 01-03-21 Worksite Safety ..... 01-10
- 01-03-24 Risk Assessment ..... 01-11
- 01-03-27 Maintenance Positions ..... 01-12

01-06 About this Manual
- 01-06-03 Model and Serial Number ..... 01-17
- 01-06-06 Using the Manual ..... 01-18

01-09 Description
- 01-09-12 Main Component Locations ..... 01-21
- 01-09-15 Service Point Locations ..... 01-22

01-33 Cleaning
- 01-33-00 General ..... 01-25





MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 Order the manual at mid-west-tech.com >

# 03 - Safety

**Contents** **Page No.**

01-03-03 Safety - Yours and Others ..... 01-3
01-03-06 Safety Warnings ..... 01-4
01-03-09 General Safety ..... 01-5
01-03-12 Maintenance Safety ..... 01-6
01-03-18 Operating Safety ..... 01-8
01-03-21 Worksite Safety ..... 01-10
01-03-24 Risk Assessment ..... 01-11
01-03-27 Maintenance Positions ..... 01-12



MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 Order the manual at mid-west-tech.com >

# 03 - Attachments, Couplings and Load Handling

**Contents** **Page No.**


03-00 Attachments
- 03-00-00 General ..... 03-3

03-09 Lift Arm Quickhitch
- 03-09-00 General ..... 03-7
- 03-09-06 Hydraulic Quickhitch ..... 03-8

03-30 Shovel
- 03-30-00 General ..... 03-17





MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 **Order the manual at mid-west-tech.com >**

(For: 457 [T4F], Multi Lever Controls, ZX)

Figure 568. Multi Lever Control.....Page 30-37



MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 Order the manual at mid-west-tech.com >

**Table 194. Front Display Faults**

| Fault Codes | Description |
|---|---|
| B1021-21 | Screen was level low |
| B10C4-00 | Operator not present |
| P06B8-44 | Error log full |
| P1115-1E | Fuel Gauge - Out of range (OOR) |
| P2264-00 | Water in fuel |
| P2280-22 | Engine air filter blocked |
| P2560-21 | Coolant level low |

**Table 195. Hydraulic ECU Faults**

| Fault Codes | Description |
|---|---|
| B102E-15 | Auxiliary changeover solenoid back driven |
| B102F-11 | Auxiliary changeover solenoid short circuit |
| B1030-13 | Auxiliary changeover solenoid open circuit |
| C100D-15 | Tow Hitch Rotate Solenoid back driven |
| C100E-11 | Tow Hitch Rotate Solenoid short circuit |
| C100F-13 | Tow Hitch Rotate Solenoid open circuit |
| C152E-62 | Boom Lever rationality fault |
| C152F-23 | Boom Lever track 1 - Out of range (OOR) |
| C1531-23 | Boom Lever Track 2 - Out of range (OOR) |
| C1538-62 | Bucket Lever rationality fault |
| C1539-23 | Bucket Lever Track 1 - Out of range (OOR) |
| C153B-23 | Bucket Lever Track 2 - Out of range (OOR) |
| C1595-13 | Lift Solenoid - Open circuit |
| C1596-11 | Lift Solenoid - Short circuit to ground |
| C1597-12 | Lift Solenoid - Short circuit to battery |
| C1598-13 | Lower Solenoid - Open circuit |
| C1599-11 | Lower Solenoid - Short circuit to ground |
| C159A-12 | Lower Solenoid - Short circuit to battery |
| C159B-13 | Crowd Solenoid - Open circuit |
| C159C-11 | Crowd Solenoid - Short circuit to ground |
| C159D-12 | Crowd Solenoid - Short circuit to battery |
| C159E-13 | Dump Solenoid - Open circuit |
| C159F-11 | Dump Solenoid - Short circuit to ground |
| C15A0-12 | Dump Solenoid - Short circuit to battery |
| C15A1-13 | Lift and lower solenoid return - Open circuit |
| C15A2-11 | Lift and lower solenoid return - Short circuit to ground |
| C15A3-12 | Lift and lower solenoid return - Short circuit to battery |
| C15A4-13 | Crowd and dump solenoid return - Open circuit |
| C15A5-11 | Crowd and dump solenoid return - Short circuit to ground |
| C15A6-12 | Crowd and dump solenoid return - Short circuit to battery |

**Table 196. IO Module 1 Faults**

| Fault Codes | Description |
|---|---|
| B10CB-13 | Front auxiliary work lamps - Open circuit |
| B10CB-19 | Front auxiliary work lamps - Over current |
| B10CB-2A (1) | Front auxiliary work lights - On when demanded off |
| B10CB-2A (2) | Front auxiliary work lights - Off when demanded on |
| B10CB-4B | Front auxiliary work lamps - Thermal shutdown |
| B10CC-13 | Heated mirrors and rear screen - Open circuit |
| B10CC-19 | Heated mirrors and rear screen - Over current |
| B10CC-2A (1) | Heated mirrors and rear screen - On when demanded off |
| B10CC-2A (2) | Heated mirrors and rear screen - Off when demanded on |
| B10CC-4B | Heated mirrors and rear screen - Thermal shutdown |
| B10CD-13 | Left hand front work lamps - Open circuit |
| B10CD-19 | Left hand front work lamps - Over current |
| B10CD-2A (1) | Left hand front work lamps - On when demanded off |
| B10CD-2A (2) | Left hand front work lamps - Off when demanded on |
| B10CD-4B | Left hand front work lamps - Thermal shutdown |
| B10CE-13 | Right hand front work lamps - Open circuit |
| B10CE-19 | Right hand front work lamps - Over current |
| B10CE-2A (1) | Right hand front work lamps - On when demanded off |



MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 Order the manual at mid-west-tech.com >

## Technical Data

**Table 235. Locking Fluids Approved Product Information**

| Subsection | Commercial name | Product Number | Colour | Shelf life | Strength | Comments |
|---|---|---|---|---|---|---|
| High strength | Loctite 270<br>R.A.S. threadlock for studs (red) | 4101/0100 | Green fluorescent | 365d | 80–120bar (1,159.4–1,739.1psi) breakaway strength | For the retention of threads up to M20 diameter where disassembly is unlikely and for locking bearings etc. onto shafts and into housing. Has a maximum gap fill of 0.05mm. |
| High strength | Loctite 638 | 4101/1400 | Green, UV fluorescent | 365d | More than 250bar (3,623.2psi) compressive shear strength | Maximum gap fill of 0.25mm. Maximum strength at room temperature. |
| High strength | Permabond A115 | 4101/0500 | Red, fluorescent | 365d | 100–150bar (1,449.3–2,173.9psi) prevailing strength | Fast curing (10–15min) thread locking up to M20, especially for use on oily surfaces, plated and clean parts. |
| High strength | Loctite 648<br>Permabond A118 | 4101/0600 | Green, fluorescent | 365d | More than 250bar (3,623.2psi) compressive shear strength | Designed for holding gears and sprockets onto gearbox shafts and rotors on electric motor shafts. |
| High strength | Loctite 2701 | 4101/1700 | Green | 365d | 260–500bar (3,768.1–7,246.3psi) breakaway torque | Designed for permanent locking and sealing of threaded fasteners. Particularly suited for use on inactive substrates and/or where maximum resistance to hot oil is required. |
| Medium to high | Loctite 243 | 4101/1100 | Blue | 365d | 140–340bar (2,029.0–4,927.5psi) breakaway torque | Suitable for all nuts, bolts, screws up to M36. |
| Medium strength | Permabond A119 | 4101/0900 | Blue | 365d | 80–120bar (1,159.4–1,739.1psi) static shear strength | Maximum gap fill of 0.25mm. Handling strength in 10–15min. |
| Medium strength | Loctite 640 | 4101/1200 | Green, fluorescent | 365d | 150–330bar (2,173.9–4,782.6psi) static shear strength | Product has a slow cure rate, used on parts unlikely to be disassembled. |
| Medium strength | Loctite 242<br>Permabond A1042<br>Permabond A113 | 4101/0200 | Blue, fluorescent | 365d | 80–120bar (1,159.4–1,739.1psi) static shear strength | Suitable for all nuts, bolts and screws up to M36 and hydraulic fittings up to 25mm in diameter. Permabond A113 and A1042 are the preferred choices. The difference between A113 and A1042 is timing for handling and working strength. A113 handling time 10–25min, working strength 1h. A1042 handling time 5–10min, working strength 30min. |



MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 Order the manual at mid-west-tech.com >

## Remove and Install

### Remove

⚠ **CAUTION** When working on the HVAC System gloves, eye protection and protective clothing must be worn. Refrigerant may be released which can be harmful to your skin or eyes.

1. Make the machine safe with the lift arm lowered.
   Refer to: PIL 01-03-27.
2. Install the articulation strut.
   Refer to: PIL 06-27-15.
3. Refer to the HVAC (Heating Ventilation Air Conditioning) unit health and safety information.
   Refer to: PIL 12-00-00.
4. Open the HVAC access panel on the right side of the machine.

**Figure 128.**



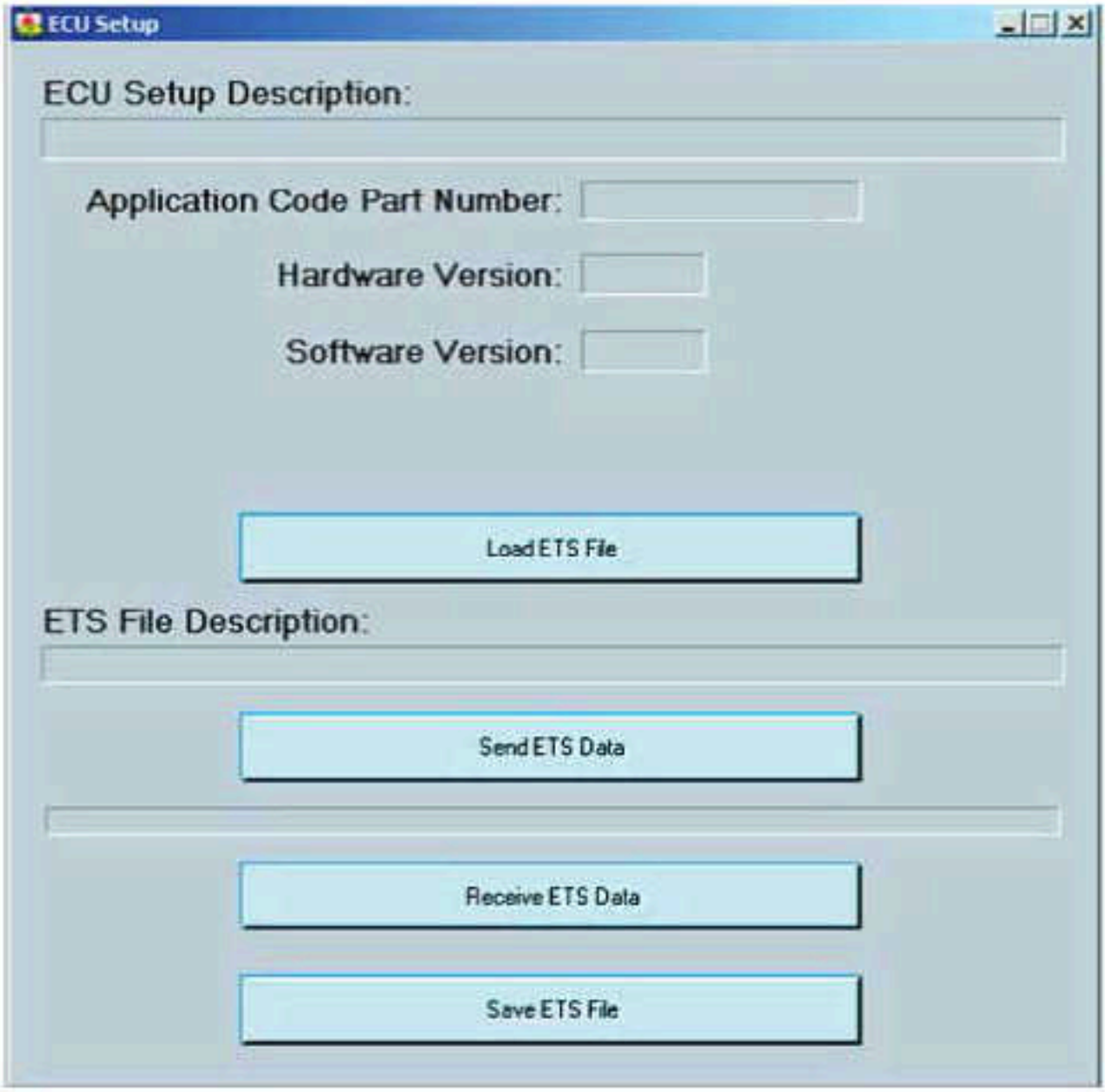

**B** Access panel

5. Remove the HVAC unit from the machine.
   Refer to: PIL 12-03-00.
6. Remove the screws that attach the rear cover to the HVAC housing assembly.
7. Remove the HVAC rear cover.
8. Remove the fixings that attach the blower motor assembly to the blower bulkhead assembly.
9. Remove the blower motor assembly slowly from the HVAC unit until the wiring connections of the motor are accessible.
10. Mark the wiring connections and disconnect.



MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 Order the manual at mid-west-tech.com >

Figure 793.




**ETS Function**

The ETS function provides a means of loading and uploading gearbox ECU software setup files between the ECU and the computer. On earlier versions of servicemaster a separate program was required to perform this function. This is now incorporated within shiftmaster diagnostics 2.3. The setup files have a file name extension of ets.

- Load ETS File: A revision to the gearbox ECU software file may be supplied by JCB for installation on particular ECU models. Store the file on the computer which is to be connected to the gearbox ECU. The shiftmaster diagnostic program needs to open this file and obtain the software version and other applicable information to make sure it is compatible with the ECU connected to the computer.
- Send ETS Data: This allows the computer to send a software setup file to the gearbox ECU.
- Receive ETS Data: This reads the existing setup file from the gearbox ECU.
- Save ETS File: This saves the data received from the ECU onto the computer.



MidWestTech | JCB 457 Loader Service Manual | Publication 9813-4150 Order the manual at mid-west-tech.com >