SERVICE MANUAL

LOADALL (ROUGH TERRAIN VARIABLE REACH TRUCK)
506-23, 509-23, 512-26

EN - 9813/9400 - ISSUE 1 - 11/2017

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 Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Truck S... 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 01-15
- 01-06-06 Using the Manual 01-16

01-09 Description
- 01-09-00 General 01-19
- 01-09-03 Log Moving/Object Handling 01-21
- 01-09-06 Optional Equipment and Attachments 01-22
- 01-09-12 Main Component Locations 01-23
- 01-09-15 Service Point Locations 01-24

01-33 Cleaning
- 01-33-00 General 01-33

MidWestTech | JCB Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Tru... 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 Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Tru... Order the manual at mid-west-tech.com >

09 - Description

Contents **Page No.**

01-09-00 General 01-19
01-09-03 Log Moving/Object Handling 01-21
01-09-06 Optional Equipment and Attachments 01-22
01-09-12 Main Component Locations 01-23
01-09-15 Service Point Locations 01-24

MidWestTech | JCB Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Tru... Order the manual at mid-west-tech.com >

Disassemble and Assemble

Consumables

Description	Part No.	Size
Cleaner/Degreaser - General purpose solvent based parts cleaner	4104/1557	0.4L
JCB Activator	4104/0251	0.2L
	4104/0253	1L
JCB Threadlocker and Sealer (Medium Strength)	4101/0250	0.01L
	4101/0251	0.05L

Lifting Equipment

You can be injured if you use incorrect or faulty lifting equipment. You must identify the weight of the item to be lifted then choose lifting equipment that is strong enough and suitable for the job. Make sure that lifting equipment is in good condition and complies with all local regulations.

Single piston rams

Disassembly

⚠ **CAUTION** If air or hydraulic pressure is used to force out the piston assembly, ensure that the end cap is securely installed. Severe injury can be caused by a suddenly released piston rod.

The disassembly and assembly procedures for many jcb hydraulic rams are same.

The ram must be removed from the machine before you disassemble it.

The ram shown in the illustration is not installed with HBCV (Hose Burst Check Valve). If HBCV is installed also with the ram, the disassembly and assembly procedure will remain unchanged and can be carried out without the removal of the check valve.

1. Place the ram assembly on a locally manufactured strip or on a rebuild bench.

Figure 1176.



2. Use the correct size spanner to remove the end cap and then remove the piston rod assembly from the cylinder.
3. Place the piston rod assembly on the bench in place of the ram cylinder.
4. Remove and discard the seal 1,seal 2 and the wear ring 1, wear ring 2 from the piston head.
5. Put appropriate sized screw threaded into the extractor hole to remove dowel from the piston head.
6. Use the correct size spanner to remove the piston head from the rod and then discard the O-ring 1.
7. For extension ram, after removal of then piston, slide and remove the spacer from the piston rod.
8. Remove the gland bearing and the end cap from the piston rod.
9. Remove the O-ring 2, wiper seal and the rod seal.
10. Check the end cap bearing for damage, scores or nicks. If damaged, the bearing must be replaced as part of the end cap assembly.
11. Make sure that the metal components are free from scoring, nicks and burrs. A damaged piston rod will reduce the life of gland seals.
12. Check the bore of the ram cylinder for damage.

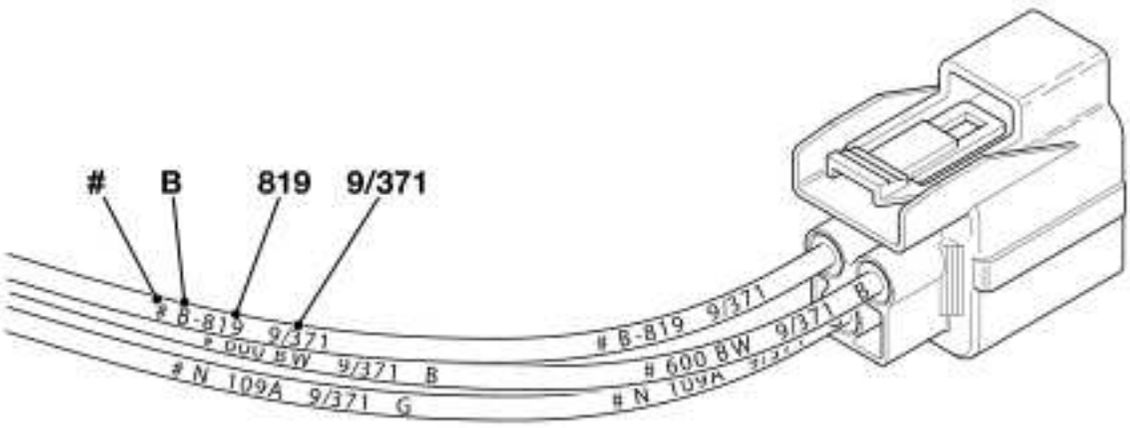
MidWestTech | JCB Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Tru... Order the manual at mid-west-tech.com >

Component Identification

Wire and Harness Number Identification

This section details the allocation of wire numbers and the identification of wires in the wiring harness.

Figure 1413.



The illustration shows a typical connector and wires. Each wire has an individual identification number permanently marked on it, at regular intervals along it's length. The number stamped on the wire identifies the following:

Table 577. Wire and Harness Number Identification

Identification Number	Description
#	The # indicates the start of the identification number. It is always printed to the left of the identification number.
B	If applicable- The colour of the flying lead that the harness wire should mate with. For instance, if wire 819 from harness 719/37100 mated with a flying lead coloured black (colour code B) then the number printed on the wire would be B-819 9/371.
819	The wire's unique identification number. The wire functions and numbers allocated to them are consistent through out the JCB range of products. Refer to Wire Numbers and Functions.
9/371	If applicable- The part number of the harness that the wire originates from. If the harness part number is 719/37100, the number printed on the harness wires will be 9/371 (71 and 00 are common numbers and therefore deleted).

Wire Numbers and Functions

Table 578. Wires 000-199 (These numbers are reserved for ignition feeds, heater start circuits and start circuits)

Wire Number	Description
Wires 000 - 099	Unfused ignition feeds
Wires 100 - 199	Fused ignition feeds

Table 579. Wires 200-399 (These numbers are reserved for battery feeds)

Wire Number	Description
Wires 200 - 299	Unfused battery feeds
Wires 300 - 399	Fused battery feeds

MidWestTech | JCB Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Tru... Order the manual at mid-west-tech.com >

Fault Code	Description	Severity
P0341-00	Cam Signal Drift Higher Than Threshold	Service
P0341-2F	Trivial	
P0341-31	Cam Signal Lost (No Cam Signal Seen In 2 Crank Rotations)	Service
P0341-31	Cam Signal Fault (Missing Event Within The Expected Window)	Service
P0341-85	Cam Signal Fault (Overspeed Detected)	Critical
P0350-02	Error Monitoring For System Protection Based On Ignition Switch Input	Operator
P0371-00	Crank Signal Is Too Close To The Previous One	Service
P0372-31	Elapsed Time Between CPS Events Is Too High	Service
P0374-31	Crank Signal Lost (No CPS Signal Seen In 1 Cam Rotation)	Service
P0380-00	Trivial	
P0380-13	Trivial	
P0383-11	Trivial	
P0384-12	Trivial	
P0400-00	EGR Flow Reached Its Limit	Service
P0404-00	EGR Valve Control Fault	Trivial
P0406-23	Trivial	
P0470-00	Exhaust Manifold Pressure (P3) Signal ADC Fault	Service
P0472-23	Exhaust Manifold Pressure (P3) Signal Low Fault	Service
P0473-24	Exhaust Manifold Pressure (P3) Signal High Fault	Service
P0504-08	Park Brake Switch Plausibly Error	Operator
P0504-08	Foot Brake Switch Plausibly Error	Operator
P0504-64	Park Brake Switch Plausibly Error	Operator
P0504-64	Foot Brake Switch Plausibly Error	Operator
P0520-00	Low Oil Pressure Lamp/Gauge Drive Short Circuit (SC)	Trivial
P0520-11	Low Oil Pressure Lamp/Gauge Drive Short Circuit To Ground (SC2Gnd)	Trivial
P0520-12	Low Oil Pressure Lamp/Gauge Drive Short Circuit To Battery Voltage (SC2Vbatt)	Trivial
P0520-13	Low Oil Pressure Lamp/Gauge Drive Open Circuit (OC)	Trivial
P0521-00	Oil Pressure Sensor Signal Global Fault	Critical
P0522-23	High Oil Pressure During Engine Running	Critical
P0523-23	Engine Oil Pressure Low -	Critical
P0523-24	Engine Oil Pressure Sensor Fault (High Voltage Fault)	Critical

MidWestTech | JCB Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Tru... Order the manual at mid-west-tech.com >

60 - Pilot Pressure Supply Main

Remove and Install

Remove

1. This procedure applies to servo pilot pressure valves installed from machine serial number 2472234 onwards.
2. Make the machine safe.
   Refer to: PIL 01-03.
3. Remove the cab side panel. Refer to Figure 1143.

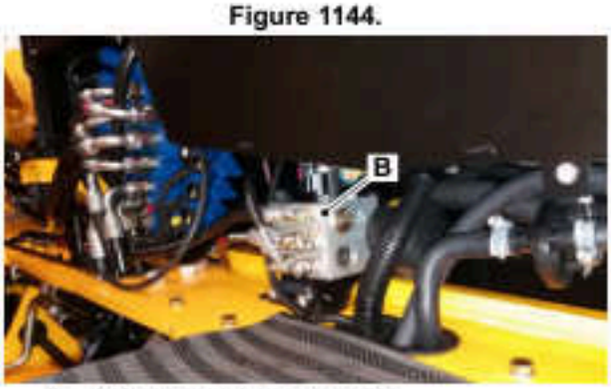
Figure 1143.



A Cab side panel

4. Identify the servo pilot pressure valve under the cab. Refer to Figure 1144.

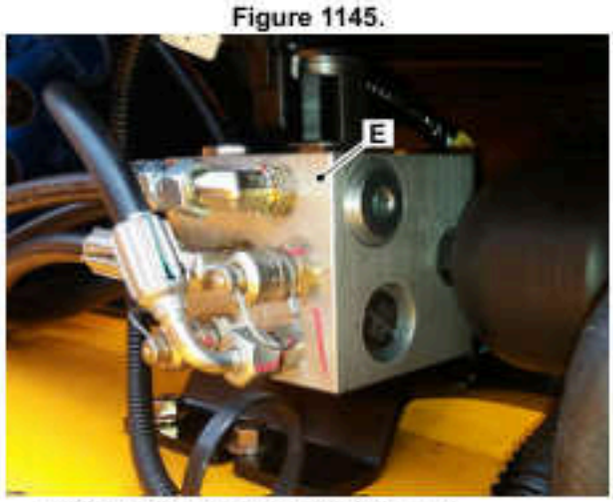
Figure 1144.



B Servo pilot pressure valve

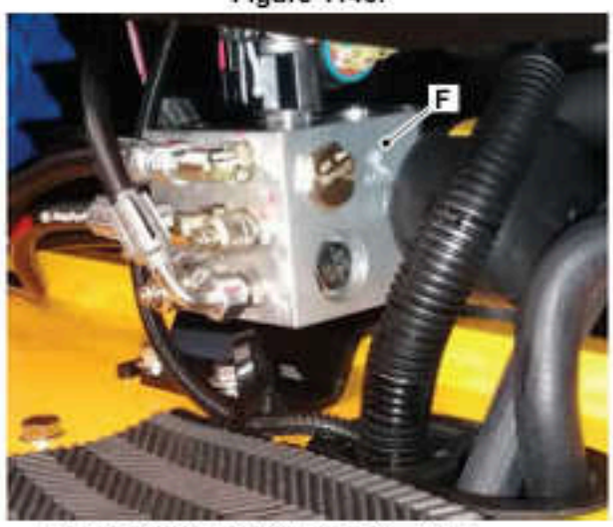
5. Discharge the hydraulic pressure .
   Refer to: PIL 30.
6. Refer to Refer to Figure 1145. and Refer to Figure 1146. for old and new servo pilot pressure valves.

Figure 1145.



E Servo pilot pressure valve - Old

Figure 1146.



F Servo pilot pressure valve - New

7. Unscrew and remove the filter cartridge. Be aware that there could be some residual hydraulic pressure. Refer to Figure 1147.

MidWestTech | JCB Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Tru... Order the manual at mid-west-tech.com >

(For: 512-26 [T4F])

Figure 1340. 2 Speed Washer/Wiper (Agri Xtra (servo), Agri Super) 160/F3101- Issue 3 (sheet 2 of 57)..... Page 33-95
Figure 1341. Single Speed Washer/Wiper (Agri Plus) 160/F3101- Issue 3 (sheet 3 of 57)..... Page 33-99
Figure 1342. Roadlights Panel (Agri Xtra (servo), Agri Super) 160/F3101- Issue 3 (sheet 4 of 57)..... Page 33-103
Figure 1343. Roadlights Panel (Agri Plus) 160/F3101- Issue 3 (sheet 5 of 57)..... Page 33-107
Figure 1344. Roadlights- Chassis (Agri Xtra (servo), Agri Super, Agri Plus) 160/F3101- Issue 3 (sheet 6 of 57)..... Page 33-111
Figure 1345. Work Lights and Beacon (Agri Xtra (servo), Agri Super, Agri Plus, 550-80) 160/F3101- Issue 3 (sheet 7 of 57)..... Page 33-115
Figure 1346. Air Conditioning and Other Cab Functions (Agri Xtra (servo), Agri Super) 160/F3101- Issue 3 (sheet 8 of 57)..... Page 33-119
Figure 1347. Air Conditioning and Other Cab Functions (Agri Plus) 160/F3101- Issue 3 (sheet 9 of 57)..... Page 33-123
Figure 1348. Park Brake (Agri Xtra (servo), Agri Super) 160/F3101- Issue 3 (sheet 10 of 57)..... Page 33-127
Figure 1349. Park Brake (Agri Plus) 160/F3101- Issue 3 (sheet 11 of 57)..... Page 33-131
Figure 1350. Joystick (Agri Xtra (servo)) 160/F3101- Issue 3 (sheet 12 of 57)..... Page 33-135
Figure 1351. Joystick (Agri Xtra (servo)) 160/F3101- Issue 3 (sheet 13 of 57)..... Page 33-139
Figure 1352. Joystick (Agri Super) 160/F3101- Issue 3 (sheet 14 of 57)..... Page 33-143
Figure 1353. Joystick (Agri Plus) 160/F3101- Issue 3 (sheet 15 of 57)..... Page 33-147
Figure 1354. Joystick (Agri Super, Agri Plus) 160/F3101- Issue 3 (sheet 16 of 57)..... Page 33-151
Figure 1355. Electro Hydraulic Control (LSV Plus) 160/F3101- Issue 3 (sheet 17 of 57)..... Page 33-155
Figure 1356. Electro Hydraulic Control (Electro LSV Plus) 160/F3101- Issue 3 (sheet 18 of 57)..... Page 33-159
Figure 1357. Electro Hydraulic Control (Electro S LSV Plus) 160/F3101- Issue 3 (sheet 19 of 57)..... Page 33-163
Figure 1358. Electro Hydraulic Control (LSV Plus, Electro LSV Plus, Electro S LSV Plus) 160/F3101- Issue 3 (sheet 20 of 57)..... Page 33-167
Figure 1359. Steer Mode (Agri Xtra (servo), Agri Super) 160/F3101- Issue 3 (sheet 21 of 57)..... Page 33-171
Figure 1360. Steer Mode (Agri Plus) 160/F3101- Issue 3 (sheet 22 of 57)..... Page 33-175
Figure 1361. Machine Side Engine (Agri Xtra (servo), Agri Super, Agri Plus) 160/F3101 Issue 3 (sheet 23 of 57)..... Page 33-179
Figure 1363. Machine Side Engine (Agri Xtra (servo), Agri Super, Agri Plus) 160/F3101 Issue 3 (sheet 25 of 57)..... Page 33-183
Figure 1364. T3 Electronic Engine (Agri Xtra (servo), Agri Super, Agri Plus) 160/F3101 Issue 3 (sheet 26 of 57)..... Page 33-187
Figure 1365. SRS (Agri Xtra (servo)) 160/F3101 Issue 3 (sheet 27 of 57)..... Page 33-191
Figure 1366. SRS (Agri Super, Agri Plus) 160/F3101 Issue 3 (sheet 28 of 57)..... Page 33-195
Figure 1367. Warning Lights (Agri Xtra (servo), Agri Super) 160/F3101 Issue 3 (sheet 29 of 57)..... Page 33-199
Figure 1368. Warning Lights (Agri Plus) 160/F3101 Issue 3 (sheet 30 of 57)..... Page 33-203
Figure 1369. Left Side Column Switch (Agri Xtra (servo), Agri Super) 160/F3101 Issue 3 (sheet 31 of 57)..... Page 33-207
Figure 1370. Left Side Column Switch (Agri Plus) 160/F3101 Issue 3 (sheet 32 of 57)..... Page 33-211
Figure 1371. Heated Screen, LMI and Radio (Agri Xtra (servo), Agri Super, Agri Plus) 160/F3101 Issue 3 (sheet 33 of 57)..... Page 33-215
Figure 1372. Auxiliary and Tow (Agri Xtra (servo), Agri Super, Agri Plus) 160/F3101 Issue 3 (sheet 34 of 57)..... Page 33-219
Figure 1373. Hitch (Agri Xtra (servo)) 160/F3101 Issue 3 (sheet 35 of 57)..... Page 33-223
Figure 1374. Hitch (Agri Super, Agri Plus) 160/F3101 Issue 3 (sheet 36 of 57)..... Page 33-227

MidWestTech | JCB Loadall Rough Terrain 506-23, 509-23, 512-26 Variable Reach Tru... Order the manual at mid-west-tech.com >