

Load Control (Supplement)

[⇒ Introduction \(□ 1\)](#)

[⇒ LCS \(Six Valve Manifold\) \(□ 9\)](#)

[⇒ LC1 and LC4 \(540-170 Only\) \(□ 37\)](#)

[⇒ LC2 and LC3 \(□ 67\)](#)

[⇒ LC5 \(□ 151\)](#)

[⇒ MC05 \(□ 187\)](#)

[⇒ MC06 \(□ 217\)](#)

[⇒ Fault Finding \(□ 321\)](#)

[⇒ Testing and Adjustment \(□ 329\)](#)



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Contents	Page No.
Introduction	
About This Supplement	1
About the Load Control Systems	2
Identification	3
Care and Safety	7
LCS (Six Valve Manifold)	
Introduction	9
Circuit Description	11
Hydraulics Schematic	20
Electrical Schematic	22
Harness Data	24
Logic Sequence	28
Calibration	31
LC1 and LC4 (540-170 Only)	
Introduction	37
Circuit Description	39
Hydraulics Schematic	47
Harness Data	50
Logic Sequence	54
Installation	56
Calibration	62
LC2 and LC3	
Introduction	67
Circuit Description - 528-70	69
Circuit Description - 535-95, 531-70, 536-70 and 541-70	75
Circuit Description - 533-105 and 540-140	86
Circuit Description - 535-125 HiViz and 535-140 HiViz	99
Hydraulics Schematic	109
Harness Data	114
Logic Sequence (All LC2/LC3 Systems)	131
Calibration	133
LC5	
Introduction	151
Circuit Description	153
Hydraulics Schematic	169
Harness Data	172
Logic Sequence	178
Calibration	180
MC05	
Introduction	187
Circuit Description	189
Hydraulics Schematic	201
Harness Data	204
Electrical Schematics	209
Logic Sequence	211
Calibration	213
MC06	
Introduction	217
Circuit Descriptions - Parallel Machines	219

Contents	Page No.
Circuit Description - LSP + Gearpump Machines	235
Circuit Description - LSP + Variflow Machines	250
Hydraulics Schematics	265
Harness Data	277
Electrical Schematics	300
Logic Sequence	305
Calibration	307
 Fault Finding	
All Load Control Systems	321
 Testing and Adjustment	
Testing	329
Adjustment	340

Introduction

About This Supplement

Machine Model and Serial Number

This publication provides information for the following Load Control Systems:

- LCS (Six Valve Manifold) Load Control System
- LC1/LC4 Load Control System
- LC2/LC3 Load Control System
- LC5 Load Control System
- MC05 Load Control System
- MC06 Load Control System

See the appropriate system topic for machine serial nos., where relevant.

Using the Service Manual Supplement

This manual is a supplement to the JCB Loadall Service Manual. The information covers the JCB Loadall machines fitted with the Load Control System.

Each variant of Load Control System (see opposite) is dealt with separately, each having its own topic in this Supplement.

Only those areas of the machine which are different from the standard Loadall are dealt with here. For all other information refer to the appropriate Loadall Service Manual.

Unless specified otherwise, all references to 'Service Manual' in this supplement are to be taken as meaning the Service Manual specific to the standard machine.

Read the standard Service Manual and this supplement completely and carefully to familiarise yourself with the machine before carrying out any servicing procedures.

Units of Measurement

T1-001_2

In this publication, the S.I. system of units is used. For example, liquid capacities are given in litres. The Imperial units follow in parentheses () eg 28 litres (6 gal).

Cross References

T1-004_2

In this publication, page cross references are made by presenting the subject title printed in bold, italic and underlined. It is preceded by the 'go to' symbol. The number of the page upon which the subject begins, is indicated within the brackets. For example: ➔ **Cross References** (**1**).

About the Load Control Systems

General Information

A Load Control System (LCS) is an enhancement to the devices that JCB currently fit as standard, i.e. loadcharts, boom extension markers and Load Moment Indicator (LMI). These are still the primary source of information to allow the operator to operate the machine correctly. The Load Control System offers additional control if the operator makes an inadvertent movement of the load. The system must not be relied upon as the primary source of protection for the machine. The duty of care is still with the operator/site agent to:

- know the mass and load centre of loads being handled.
- know boom angle and extension that will be required to place the load (this can be checked by doing a dry run first without the load)
- whilst moving the load, obey LMI indications, lift charts and boom extension markers.

Note: *Note: The LCS provides a degree of protection only against the machine tipping forward. It does not protect against tipping sideways or rearwards, nor tipping due to the machine being used on unsuitable ground nor operator mishandling (sharp direction changes, etc.).*

Neither will the system protect against instability due to the stabiliser legs being lifted nor misuse of the chassis levelling (sway) function (if either of these options are fitted).

Identification

There are many variants of the Load Control System. Although they all have a common purpose - to help prevent the load moving into a position which would make the machine unstable - there are variations in the way this is achieved on different Loadall models. Also, some variants of the system incorporate additional features such as stabiliser isolation and load retrieval. The following table

will help you identify which variant may be installed on any particular model of Loadall.

Note: For 536-60, 536-70, 531-70, 535-95 and 541-70 machines, you will need also to refer to the table of Hydraulic System Variants. → [Table 2. Identification of Hydraulic System Variants \(536-60, 536-70, 535-95, 531-70 & 541-70\) \(5\)](#)

Table 1. System Applicability, Identifying Features and Territorial Availability

Territories	540-170	540-140	537-135	535-140 Hi-Viz	535-140	535-125 Hi-Viz	535-125	535-95	533-105	532-120	541-70	536-70	531-70	536-60	528-70	System	Description and Identifying Features	Visual Identifier
France			●					●	●	●					●	LCS	Original system (now obsolete). Identifying features: large 6-valve manifold mounted on the chassis side plate and twin aperture LMI.	
Rest of the World (ROW) (not Australia/New Zealand)		●	●	●	●	●	●	●	●	●	●	●	●		●	LC2	2 stage cut -out system. Identifying features: Additional switch in cab for Load Control selection. Load Control Valve inserted between pump and valve block and single aperture LMI with 4 way and 6 way connectors.	
ROW (not Australia/New Zealand)		●	●	●	●	●	●		●	●						LC3	As LC2 + stabiliser isolation. Identifying features: as LC2, plus stabilisers isolate at 10° boom angle.	

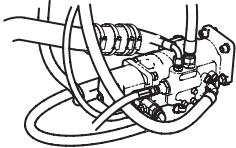
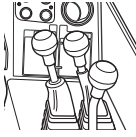
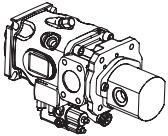
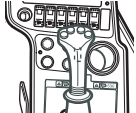
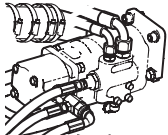
Territories	540-170	540-140	537-135	535-140 Hi-Viz	535-140	535-125 Hi-Viz	535-125	535-95	533-105	532-120	541-70	536-70	531-70	536-60	528-70	System	Description and Identifying Features	Visual Identifier
ROW (not Australia/New Zealand)		●		●	●	●	●									LC5	2 stage cut -out system + lift & retract to retrieve load. Identifying features: Additional switch in cab for Load Control selection. Load Control Valve inserted between pump and valve block, single aperture LMI with 4 way and 6 way connectors and switches on the valve block.	
ROW (not Australia/New Zealand)	●															LC1	540-170 system. Identifying features: twin LMI aperture with 4 way & 6 way connectors.	
ROW (not Australia/New Zealand)	●															LC4	As LC1+ stabiliser isolation. Identifying features: as LC1, plus stabilisers isolate at 10° boom angle.	
Australia/New Zealand	●															MCO5	As LC1 + AS1418.19. Identifying features: twin aperture LMI with 4 way & 8 way connectors.	
Australia/New Zealand				●		●		●	●		●	●	●	●		MCO6	2 stage cut-out system + lift & retract to retrieve load + AS1418.19. Identifying features: Additional switch in cab for Load Control selection. Boom back switch, single aperture LMI with 4 way & 6 way connectors.	

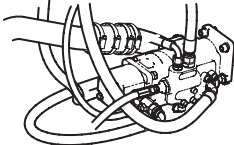
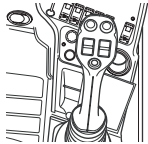
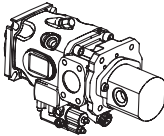
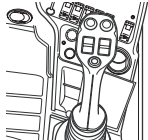
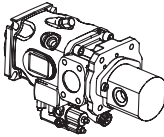
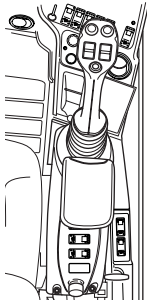
Hydraulic System Variants (536-60, 536-70, 535-95, 531-70 & 541-70)

The hydraulic circuit of the 536-60, 536-70, 535-95, 531-70 and 541-70 machines may be one of a number of variants. Each variant requires a slightly different Load Control System. If you are working with one of these machines it is important that you know which type of hydraulic system is

installed, to ensure that you refer to the correct hydraulic and electrical diagrams in this supplement. The following table shows the easily identifiable differences between hydraulic systems.

Table 2. Identification of Hydraulic System Variants (536-60, 536-70, 535-95, 531-70 & 541-70)

System Type	Main Pump Type	Control Lever Type
Parallel System	Fixed flow double or triple gear pump. 	Parallel control valve (black) with four manual spools. Separate control levers for boom and auxiliary services. 
	Fixed flow double or triple gear pump. 	Parallel control valve (black) with two electro servo and two manual spools. Cab mounted control lever with push button controls. 
	Fixed flow double gear pump. 	Parallel control valve (black) with two integrated electro servo spools and two manual spools. Cab mounted control lever with thumbwheel controls. Hydraulic services are controlled by a machine control ECU with electronic flowshare feature. 

System Type	Main Pump Type	Control Lever Type
LSP Gearpump System	Fixed flow triple gear pump. 	Flowshare control valve (blue) with two proportional electro servo and two manual spools. Cab mounted control lever with thumb wheel controls. 
LSP Variflow System	Variable flow pump with one fixed flow gearpump for cooling fan, sway and servo oil supply. 	Flowshare control valve (blue) with two electro servo and two manual spools. Cab mounted control lever with thumbwheel controls. 
	Variable flow pump with one fixed flow gearpump for cooling fan, sway and servo oil supply. 	Flowshare control valve (blue) with four integrated electro servo spools. Seat pod mounted control lever with thumbwheel controls 

Care and Safety

Safety Notices

In this publication and on the machine, there are safety notices. Each notice starts with a signal word. The signal word meanings are given below.

DANGER

Denotes an extreme hazard exists. If proper precautions are not taken, it is highly probable that the operator (or others) could be killed or seriously injured.

INT-1-2-1

WARNING

Denotes a hazard exists. If proper precautions are not taken, the operator (or others) could be killed or seriously injured.

INT-1-2-2

CAUTION

Denotes a reminder of safety practices. Failure to follow these safety practices could result in injury to the operator (or others) and possible damage to the machine.

INT-1-2-3

General Safety

DANGER

Study this Supplement and the Service Manual for the machine before carrying out any maintenance work on the machine. You must always understand and observe the relevant laws and regulations. If you are unsure about anything, ask your JCB Distributor.

INT-1-2-6

**Thank you very much for
your reading. Please Click
Here. Then Get COMPLETE
MANUAL. NO WAITING**



NOTE:

**If there is no response to
click on the link above,
please download the PDF
document first and then
click on it.**

LCS (Six Valve Manifold)

Introduction

Machine Model and Serial Number

The LCS Load Control System (LCS) is compatible with following models in the JCB Loadall machine range:

- 528-70 Up to SN 797511
- 532-120 Up to SN 1064455
- 533-105 Up to SN 1064702
- 535-95 Up to SN 1064715
- 537-135 Up to SN1064473

General Description

When the LCS is selected, it reduces the risk of tipping forward when the machine reaches a predetermined point near to its maximum working limit.

This is achieved by stopping boom lower, boom extend, dump and crowd functions, in order to prevent further movement of a load past the predetermined point.

Boom lift and boom retract functions are allowed in order to retrieve the load from a point of cutout.

The system has two working modes, Load Control Mode and Ground Work Mode. Load Control Mode is automatically entered when the machine is started.

Note: *The LCS provides a degree of protection only against the machine tipping forward. It does not protect against tipping sideways or rearwards, nor tipping due to the machine being used on unsuitable ground nor operator mishandling (sharp direction changes, etc.).*

Neither will the system protect against instability due to the stabiliser legs being lifted nor misuse of the chassis levelling (sway) function (if either of these options are fitted). The stabilisers and/or chassis levelling rams are not interlocked into the LCS.

In Load Control mode, the boom lower hydraulic supply is progressively reduced (derated) as the weight on the rear axle becomes less, ensuring that the load movement is stopped smoothly and without jerking. The tilt hydraulic flow is also restricted; this restriction is constant

throughout the range. The extend function operates as normal until the limit is reached.

It is, therefore, a characteristic of the system that lowering and tilt movements are slightly slower than when Ground Work mode is selected. This is normal and does not indicate a machine fault.

Once the limit is reached, any movement of the load which would further reduce the stability of the machine is prevented. This means that extend, lower, crowd and dump functions are all disabled.

In Ground Work mode, the system functions as the standard LMI.

Testing procedures described in this manual should be carried out on level ground with the road wheels in the straight ahead position.

The LCS Indicator Display

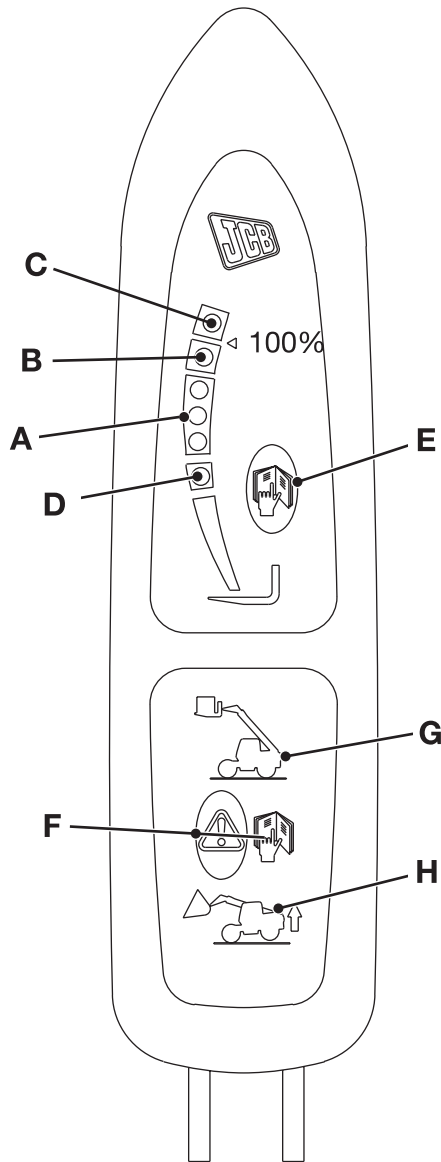


Fig 1.

- | | | |
|----------|--------------------------|--|
| A | Green LEDs (3) | Safe when lit |
| B | Amber LED | Caution when lit - approaching machine stability limits |
| C | Red LED | Danger when lit - machine at limit of stability |
| D | Power ON indicator | |
| E | Display button | |
| F | Mode change button | |
| G | Load Control mode symbol | Lit when Load Control mode selected, flashes when red LED C is lit (in Load Control mode) |
| H | Ground Work mode symbol | Lit when Ground Work mode selected |