

# SERVICE MANUAL

MOBILE ELEVATING WORK PLATFORM  
**S1530E, S1930E, S2032E,  
S2046E, S2632E, S2646E,  
S3246E, S4046E, S4550E**

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

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## 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.

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## Acronyms Glossary

2WD	Two Wheel Drive
AC	Alternating Current
CAN	Controller Area Network
DC	Direct Current
ECU	Electronic Control Unit
MECU	Machine Electronic Control Unit
PIL	Parts Identification List

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## **03 - Safety - Yours and Others**

### **Introduction**

All machinery can be hazardous. When a machine is correctly operated and maintained, it is a safe machine to work with. When it is carelessly operated or poorly maintained it can become a danger to you (the operator) and others.

In this manual and on the machine you will find warning messages, read and understand them. They inform you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your employer or JCB dealer to explain them.

Safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking of what hazards there might be and how to avoid them.

Do not work with the machine until you are sure that you can control it.

Do not start any work until you are sure that you and those around you will be safe.

If you are not sure of anything, about the machine or the work, ask someone who knows. Do not assume anything.

Remember:

- Be careful
- Be alert
- Be safe.

## 06 - Safety Warnings

### Introduction

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

The signal word 'DANGER' indicates a hazardous situation which, if not avoided, will result in death or serious injury.

The signal word 'WARNING' indicates a hazardous situation which, if not avoided, could result in death or serious injury.

The signal word 'CAUTION' indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

The signal word 'Notice' indicates a hazardous situation which, if not avoided, could result in machine damage.

The safety alert system (shown) also helps to identify important safety messages in this manual and on the machine. When you see this symbol, be alert, your safety is involved, carefully read the message that follows, and inform other operators.

**Figure 1. The safety alert system**



## **09 - General Safety**

### **Introduction**

#### **Training**

To operate the machine safely you must know the machine and have the skill to use it. You must abide by all relevant laws, health and safety regulations that apply to the country you are operating in. The operator's manual instructs you on the machine, its controls and its safe operation; it is not a training manual. If you are a new operator, get yourself trained in the skills of using a machine before trying to work with it. If you don't, you will not do your job well, and you will be a danger to yourself and others. In some markets and for work on certain jobsites you may be required to have been trained and assessed in accordance with an operator competence scheme. Make sure that you and your machine comply with relevant local laws and jobsite requirements - it is your responsibility.

#### **Care and Alertness**

All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be alert for hazards.

#### **Clothing**

You can be injured if you do not wear the correct clothing. Loose clothing can get caught in the machinery. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained. Remove rings, watches and personal jewellery.

#### **Alcohol and Drugs**

It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.

#### **Feeling Unwell**

Do not attempt to operate the machine if you are feeling unwell. By doing so you could be a danger to yourself and those you work with.

#### **Mobile Phones**

Switch off your mobile phone before entering an area with a potentially explosive atmosphere. Sparks in such an area could cause an explosion or fire resulting in death or serious injury.

#### **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.

#### **Raised Machine**

Never position yourself or any part of your body inside the raised scissor pack which is not correctly supported. If the machine moves unexpectedly you could become trapped and suffer serious injury or be killed.

#### **Lightning**

Lightning can kill you. Do not use the machine if there is lightning in your area.

#### **Machine Modifications**

This machine is manufactured in compliance with prevailing legislative requirements. It must not be altered in any way which could affect or invalidate its compliance. For advice consult your JCB dealer.

## **12 - Maintenance Safety**

### **Introduction**

#### **Raised Machine**

Never position yourself or any part of your body inside the raised scissor pack which is not correctly supported. If the machine moves unexpectedly you could become trapped and suffer serious injury or be killed.

#### **Compressed Air**

Compressed air is dangerous. Wear personal protective equipment. Never point a compressed air jet at yourself or others.

#### **Springs**

Always wear personal protective equipment when dismantling assemblies containing components under pressure from springs. This will protect against eye injury from components accidentally flying out.

#### **Metal Splinters**

You can be injured by flying metal splinters when driving metal pins in or out. Use a soft faced hammer or copper drift to remove and install metal pins. Always wear personal protective equipment.

#### **Repairs**

If your machine does not function correctly in any way, get it repaired straight away. Neglect of necessary repairs could result in an accident or affect your health. Do not try to do repairs or any other type of maintenance work you do not understand. To avoid injury and/or damage get the work done by a specialist engineer.

#### **Hydraulic Pressure**

Hydraulic fluid at system pressure can injure you. Before connecting or removing any hydraulic hose, residual hydraulic pressure trapped in the service hose line must be vented. Make sure the hose service line has been vented before connecting or removing hoses. Make sure the machine cannot be started while the hoses are open.

#### **'O' rings, Seals and Gaskets**

Badly installed, damaged or rotted 'O' rings, seals and gaskets can cause leakages and possible accidents. Renew whenever disturbed unless otherwise instructed. Do not use Trichloroethane or paint thinners near 'O' rings and seals.

#### **Soft Ground**

A machine can sink into soft ground. Never work under a machine on soft ground.

### **Working Under the Machine**

Make the machine safe. Make sure the park brake is engaged and machine is fully isolated. Remove the machine key switch, disconnect the battery. Use blocks to prevent unintentional movement of the wheels.

#### **Hydraulic Hoses**

Never re-use hydraulic hose end crimps or use reusable hose end crimps.

#### **Personal Protective Equipment**

Use the appropriate personal protective equipment before performing maintenance on the machine, otherwise you could be injured.

#### **Working at Height**

Use appropriate access equipment such as ladders or a working platform if it is necessary to work at height to perform maintenance tasks on the machine. If you do not use suitable access equipment there is a risk of falling, resulting in personal injury or death.

## 18 - Operating Safety

### Introduction

#### Training

Make sure that you have had adequate training and that you are confident in your ability to operate the machine safely before you use it. Practice using the machine and its attachments until you are completely familiar with the controls and what they do. With a careful, well trained and experienced operator, your machine is a safe and efficient machine. With an inexperienced or careless operator, it can be dangerous. Do not put your life, or the lives of others, at risk by using the machine irresponsibly. Before you start to work, tell your colleagues what you will be doing and where you will be working. On a busy site, use a signalman.

Before doing any job not covered in this manual, find out the correct procedure. Your local JCB distributor will be glad to advise you.

#### Machine Condition

A defective machine can injure you or others. Do not operate a machine which is defective or has missing parts. Make sure the maintenance procedures in this manual are completed before using the machine.

#### Machine Limits

Operating the machine beyond its design limits can damage the machine, it can also be dangerous. Do not operate the machine outside its limits. Do not try to upgrade the machine performance with unapproved modifications or additional equipment.

#### Communications

Bad communications can cause accidents. Keep people around you informed of what you will be doing. If you will be working with other people, make sure any hand signals that may be used are understood by everybody. Worksites can be noisy, do not rely on spoken commands.

#### Parking

An incorrectly parked machine can move without an operator. Follow the instructions in the Operator's Manual to park the machine correctly.

#### Banks and Trenches

Banked material and trenches can collapse. Do not work or drive too close to banks and trenches where there is danger of collapse.

#### Safety Barriers

Unguarded machines in public places can be dangerous. In public places, or where your visibility is reduced, place barriers around the work area to keep people away.

#### Sparks

Explosions and fire can be caused by sparks from the electrical system. Do not use the machine in closed areas where there is flammable material, vapour or dust.

#### Regulations

Obey all laws, worksite and local regulations which affect you and your machine.

#### Electrical Power Cables

You could be electrocuted or badly burned if you get the machine or its attachments too close to electrical power cables.

You are strongly advised to make sure that the safety arrangements on site comply with the local laws and regulations concerning work near electric power lines.

Before you start using the machine, check with your electricity supplier if there are any buried power cables on the site.

There is a minimum clearance required for working beneath overhead power cables. You must obtain details from your local electricity supplier.

#### Machine Safety

Stop work at once if a fault develops. Abnormal sounds and smells can be signs of trouble. Examine and repair before resuming work.

#### Travelling at High Speeds

Travelling at high speeds can cause accidents. Always travel at a safe speed to suit working conditions.

#### Confined Areas

Pay extra attention to proximity hazards when operating in confined areas. Proximity hazards include buildings, traffic and bystanders.

#### Safe Working Loads

Overloading the machine can damage it and make it unstable. Study the specifications in the Operator's Manual before using the machine.

#### Lightning

If there is lightning, stay away from the machine and do not use the machine. If you are on the machine, exit the machine and get to safety. Do not attempt to mount or enter the machine.

If the machine is struck by lightning do not use the machine until it has been checked for damage and malfunction by trained personnel.

## **21 - Worksite Safety**

### **Introduction**

"Workplace Inspection" will help operators to determine whether the workplace is suitable for operation. Operators must inspect the workplace before they move machines there. It is the operator's responsibility to understand and keep in mind the hazards in the workplace, He/she shall pay attention and avoid these problems when move, install and operate the machine. Check for hazards such as but not limited to:

- Drop-offs, or potholes including those concealed by water mud, etc.
- Slopes.
- Bumps and floor obstructions.
- Debris.
- Over head obstructions and electrical conductors.
- Hazardous locations and atmospheres.
- Inadequate surface and support to withstand all load forces imposed by the platform in all operating configurations.
- Wind and weather conditions.
- Presence of unauthorized persons.
- Other possible unsafe conditions.

## 24 - Risk Assessment

### Introduction

It is the responsibility of the competent people that plan the work and operate the machine to make a judgement about the safe use of the machine, they must take into account the specific application and conditions of use at the time.

It is essential that a risk assessment of the work to be done is completed and that the operator obeys any safety precautions that the assessment identifies.

If you are unsure of the suitability of the machine for a specific task, contact your JCB dealer who will be pleased to advise you.

The following considerations are intended as suggestions of some of the factors to be taken into account when a risk assessment is made. Other factors may need to be considered.

A good risk assessment depends on the training and experience of the operator. Do not put your life or the lives of others at risk.

### Personnel

- Are all persons who will take part in the operation sufficiently trained, experienced and competent? Are they fit and sufficiently rested? A sick or tired operator is a dangerous operator.
- Is supervision needed? Is the supervisor sufficiently trained and experienced?
- As well as the machine operator, are any assistants or lookouts needed?

### The Machine

- Is it in good working order?
- Have any reported defects been corrected?
- Have the daily checks been carried out?
- Are the tyres in good condition?
- Is the battery sufficiently charged to complete the job?

### Working Area

- Is it level?
- Is the ground solid? Will it support the weight of the machine when loaded?
- How rough is the ground? Are there any sharp projections which could cause damage, particularly to the tyres?
- Are there any obstacles or hazards in the area, for example, debris, excavations, manhole covers, power lines?
- Is the space sufficient for safe manoeuvring?

- Are any other machines or persons likely to be in or to enter the area while operations are in progress?

### The Route to be Travelled

- How solid is the ground, will it provide sufficient traction and braking? Soft ground will affect the stability of the machine and this must be taken into account.
- How steep are any slopes, up/down/across? A cross slope is particularly hazardous, is it possible to detour to avoid them?

### Weather

- How windy is it? High wind will adversely affect the stability of a loaded machine.
- Is it raining or is rain likely? The ground that was solid and smooth when dry will become uneven and slippery when wet, and it will not give the same conditions for traction, steering or braking.

### Emergency Plan

Make sure that emergency rescue plan is in place and understood by those involved when operating the machine from platform controller at height.

## 27 - Maintenance Positions

### Introduction

Make the machine safe before you start a maintenance procedure.

1. Park the machine on level, solid (slabbed/paved) ground.
2. Remove the machine key switch.
3. Disconnect the battery to prevent accidental operation.
4. Put the chocks on the side of all wheels.

controls are not operated whilst they are in the working envelope of the machine and attachment, otherwise the other person could be killed or injured if a control is moved accidentally.

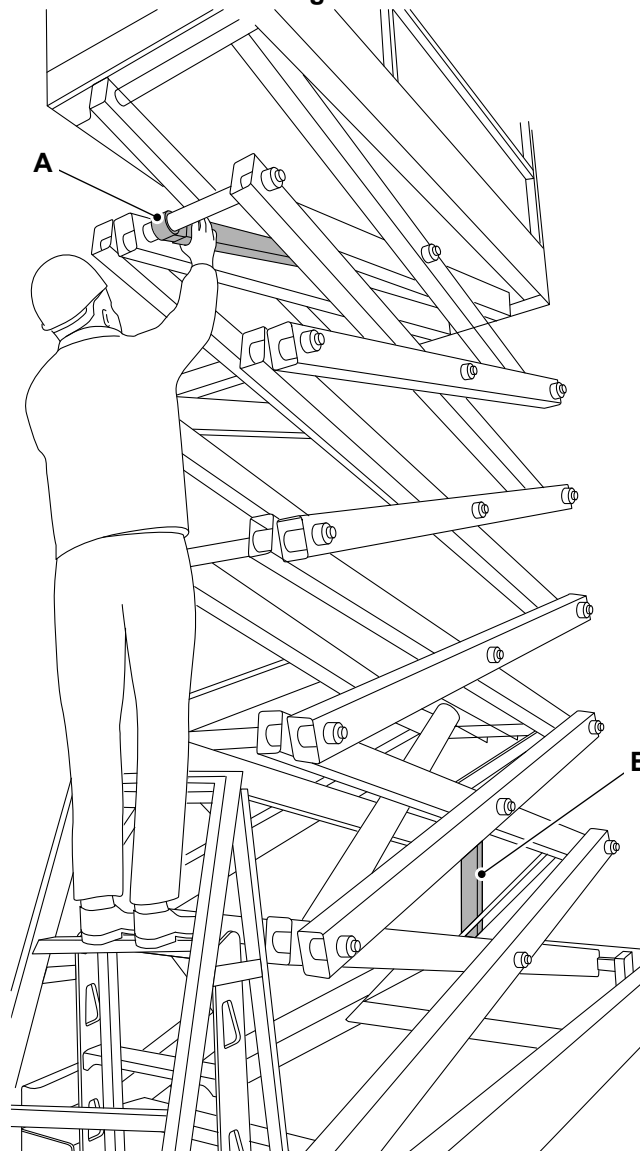
Make sure that the safety strut is installed before performing the maintenance task on raised platform.

When installing the upper safety strut always maintain three points of contact with ladder and scissor end bar. Use scissor end bar as handrails.

### Maintenance Position- Platform Raised

**▲ WARNING** If a second person is involved with the operation ensure that the machine

**Figure 2.**



**A** Upper safety strut

**B** Lower safety strut

The minimum clearance height required to install the safety struts is shown. Refer to Table 1.

**Table 1.**

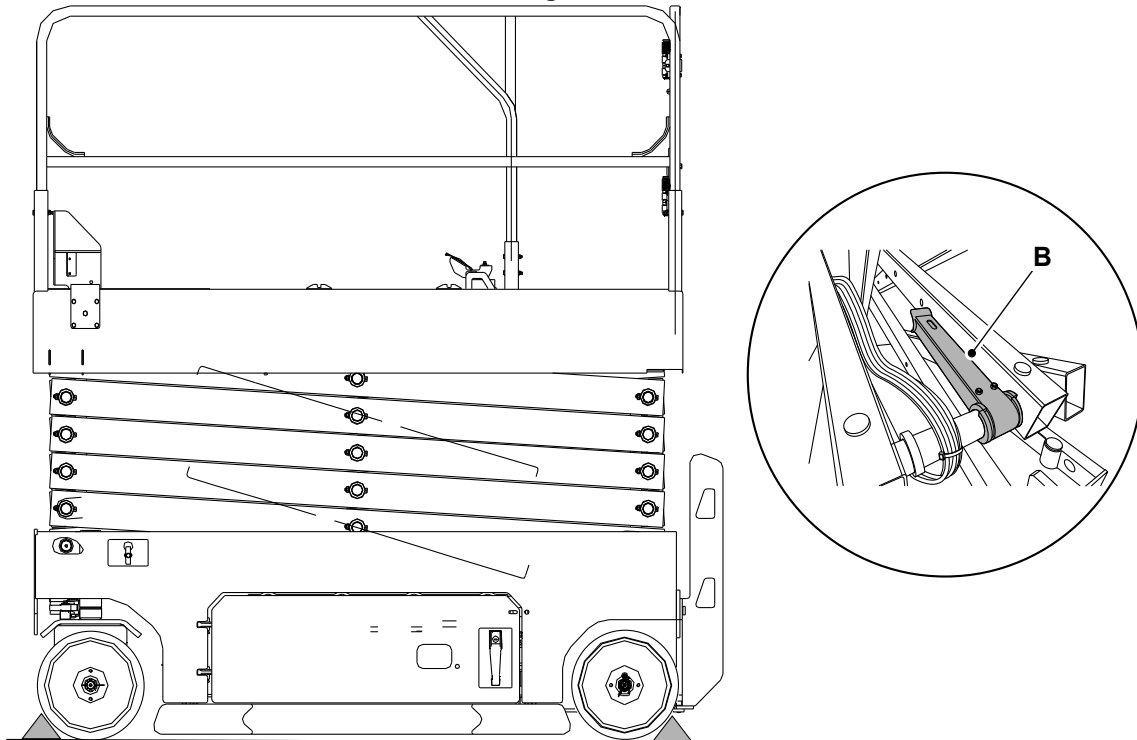
<b>Machine</b>	<b>Length</b>
S1530E	3.25m
S1930E	3.61m
S2032E	3.3m
S2046E	3.3m
S2632E	3.75m
S2646E	3.75m
S3246E	4.2m

Machine	Length
S4046E	4.6m
S4550E	4.6m

### Maintenance Position- Platform Lowered

Make sure that the safety strut is in stored position before lowering the platform.

Figure 3.



**B** Safety struts stowage position



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## 03 - Model and Serial Number

### Introduction

This manual provides information for the following model(s) in the JCB machine range:

<b>Model</b>	<b>From:</b>	<b>To:</b>
S1530E	2532501	
S1930E	2532501	
S2032E	2532501	
S2046E	2532501	
S2632E	2532501	
S2646E	2532501	
S3246E	2532501	
S4046E	2532501	
S4550E	2533185	

## 06 - Using the Manual

### Introduction

Information in this manual conforms to a standard JCB service manual format. The format uses section headings taken from a PIL (Parts Identification

List). These headings are assigned numerical identification references.

**Table 2.**

Example	Section	Main Assembly / Heading	Component / Sub-heading
PIL reference	33	03	03
Heading	Electrical System	Battery	Isolator Switch

Information within each PIL reference is included under a set of standard headings such as Introduction, Health and Safety, Technical Data and Operation for example. Where additional relevant

information is contained within another PIL reference a cross reference is provided.

The main systems information is contained in the manual as follows.

**Table 3.**

System	PIL Reference	Heading
Hydraulic System	30-00-50	Schematic Circuit
Electrical System	33-03-03	Battery - Isolator Switch
	33-09-00	Power Distribution (including fuses and relays)
	33-00-50	Schematic Circuit
Electronic Diagnostic	33-57	Electronic Diagnostic (including Servicemaster)

### Machine Variants

Where information is different depending on machine variant, the applicable information sets are included within the same PIL reference. Headings are included to identify which information is for which variant. Make sure you use the correct information.

### Diagnostics

Information in this manual can help you diagnose machine faults.

Before attempting to diagnose possible faults check the following.

- Ensure that the operator understands the machine controls, functions and use. Refer to the applicable Operator Manual.
- Check that the maintenance record complies with the applicable schedule for the operating environment. Refer to PIL 78-24.
- Check that the fluids in use comply with the standards specified. Refer to PIL 75-00.
- Ensure that the machine electronic set-up is applicable. Use the applicable Servicemaster vehicle set-up tool. Refer to PIL 33-57-03.

- Use the applicable Servicemaster diagnostics tools. Refer to PIL 33-57-03.

### Torque Tightening

When you replace components, always tighten the applicable fixings to the correct torque value. Use the torque tightening values contained in the individual procedures (Remove and Install, Disassemble and Assemble etc.). If no torque values are specified, use the standard torque tightening values. Refer to Fasteners and Fixings, Screws, Bolts, Nuts, Technical Data (PIL 72-00). For the torque setting to be effective, do the following before you install the fixings.

- Make sure that all the applicable component assemblies are correct.
- Make sure that the applicable fixings are to the correct specification. If necessary discard the original fixings and replace them with new ones. The relevant procedures indicate when this is necessary.
- Make sure that the applicable fixings and threaded holes are free from contamination. This includes dirt, debris, old sealants and compounds, fluids and lubricants.



## 09 - Description

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## 00 - General

### Technical Data

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(For: S1530E)

Below mentioned technical data is applicable for fully charged machines at ambient temperature, 10–30°C (50.0–86.0°F).

**Table 4.**

Description	Data
Maximum platform height	4.6m
Maximum working height	6.6m
Extension outreach	0.9m
Overall length (stowed)	1.78m
Overall width (stowed)	0.76m
Overall height (stowed, guardrail folded)	1.84m
Overall height (stowed, guardrail unfolded)	2.11m
Overall weight	1,330kg
Platform size (L x W x H)	1.64m x 0.76m x 1.1m
Load capacity	280kg
Maximum platform occupants (outdoor)	1
Maximum platform occupants (indoor)	2
Maximum allowable side force (indoor)	400N
Maximum allowable side force (outdoor)	200N
Maximum allowable wind speed (outdoor)	12.5m/s
Maximum allowable slope (front/back)	3°
Maximum allowable slope (side/side)	1.5°
Ground clearance (raised)	0.07m
Wheelbase	1.33m
Turning radius (outside)	1.49m
Turning radius (inside)	0.04m
Gradeability	30%
Maximum driving speed, Hare mode (Platform stowed) <sup>(1)</sup>	3km/h (1.9mph), 12 ± 1s to travel 10m
Maximum driving speed, Tortoise mode (Platform stowed) <sup>(1)</sup>	1.8km/h (1.1mph), 21 ± 2s to travel 10m
Maximum driving speed (Platform raised) <sup>(1, 2)</sup>	0.8km/h (0.5mph), 45 ± 4s to travel 10m
Platform raising time (loaded)	15–20s
Platform raising time (no load)	19 ± 2s

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