

Construction Skills Certification Scheme

Candidate Pack for– CSCS 180° Excavator

Please read this document carefully. Further information and clarification may be obtained from the CSCS Operations Unit, phone 01 5332500

Guidance Notes for Candidates

The following documents are also attached:

- Part 1 – Skills Self-Analysis
- Part 2 – Applicant Details
- Part 3 – Endorsement of Operating Competence
- Part 4 – Practical Test Criteria

Aim of Programme

The CSCS plant training and assessment programme enables trained construction plant operators to gain recognition for their achievements by the way of certification and provide an opportunity for participants to demonstrate their skills, knowledge and attitudes associated with plant operations, which provides suitable certification.

Candidate Profile

Candidates for this programme must:

- Have at least six months full time experience operating as a trainee 180° excavator operator in construction in accordance with the 5th Schedule – of the Safety, Health and Welfare at Work (Construction) Regulations 2013 – S.I. No. 291 of 2013. The six months experience must be within the last two years.
- Possess a valid 'Safe Pass' registration card
- Be at least 18 years of age

Note: The above items must be verified by the current or previous employer (Part 3 of this pack)

Application Requirements

- Approved Training organisations must send the Candidate Pack and Course Notes to the Candidate at least five days prior to the course date.
- Sections A, B, and C of Part 2 need to be completed by the applicant with Part 3 completed by the employer.
- Section C of part 2 must list at least six months full time experience operating as a trainee 180° excavator operator.
- Part 1 Skills Self-analysis, Part 2 - Applicant Details and Part 3 - Endorsement of Operating Competence must be completed and submitted to the chosen Approved Training Organisation at least one-day prior to attending the one-day training and assessment programme. Failure to do so will result in the candidate being unable to complete the programme.

Candidates must bring with them on the day:- a passport sized photograph, their Safe Pass card plus safety helmet, safety boots, reflective 'hi-viz' jacket and gloves.

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One Day Programme Content

Induction

Registration and induction will be undertaken at the start of the day. Candidates **must** present their Safe Pass card and photograph to the Instructor. Parts 1, 2 and 3 of the Candidate Pack must be already submitted to the Provider.

Skills Validation Session

Candidates will undertake a minimum of a 3 hour Skills Validation Session with the course instructor. The Skills Validation Session cannot give skills and knowledge not already held but allows trained operators to eliminate 'bad habits' gained on site.

Please note that the instructor has the right to refuse the candidate access to the test if they have demonstrated dangerous operating skills that contravene any part of the Safety, Health and Welfare at Work Regulations.

Theory Test

On completion of the Skills Validation Session, candidates are allowed 45 minutes to undertake a multi-choice question paper. Questions will be based on the following:

- Legislation and regulations
- Employer and employee responsibilities
- Safe working practices
- Machine components and functions
- Correct operating techniques
- Pre-use checks and basic maintenance
- Road travel (where relevant)
- Types and characteristics of materials and loads
- Site safety
- Shut down and securing procedures

Subjects that the questions will be based on will be covered during the Skills Validation Session.

To be successful on the theory test, candidates must achieve a minimum of 70% of the total available marks. Candidates who achieve a minimum of 85% will be awarded a credit.

Practical Test

On the test the candidate will demonstrate tasks with the excavator. The tasks to be undertaken, equipment required and a sample grading sheet is contained in Part 4 of this pack – Practical Test criteria. Part 4 of this pack details the equipment and resources needed for the test and the tasks the candidate will be expected to carry out with a 180° excavator.

The grading sheet is divided into essential items and scored marks. Scored marks allow a limited number of minor errors to be made. To succeed, the candidate must achieve all essential items and not exceed the maximum score. Candidates who score no penalty marks as well as all the essential marks will be awarded a credit. The practical test has a maximum time of 1 hour and 15 minutes in which all tasks must be completed.

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Feedback and Certification

If a candidate meets the required standard, the approved training organisation will send the relevant assessment documentation to SOLAS for certification and registration. The CSCS card is printed and posted to the training provider for distribution to Learners. A QQI certificate will also be awarded as a result of a pass on the one-day programme. Candidates who achieve a credit in the theory test **and** practical test will be awarded an overall credit.

Candidates who are referred will receive written feedback from the assessor, and may be advised to undertake further training and/or site experience.

If a candidate is successful in the theory but not the practical part of the test, then they may reattempt just the practical part. If the candidate has not been successful in the theory test, then they may not attempt the practical test.

This concession may only occur if the candidate returns to the same approved trainer and training organisation within 9 months. If they choose to go to a different organisation, they will have to do both the practical and theory parts again.

For learners who do not reach the required standard, a period of 5 days must elapse before they can retake the test.

Registration Card Duration

CSCS registration cards are valid for five years and can be renewed up to six months before the expiry date.

Cancellation of Certificates and Registration Cards

Where it is discovered that the information provided by the Applicant was incorrect or the programme was not delivered in accordance with SOLAS specifications the Certification and registration card may be withdrawn and the relevant authorities notified.

DATA PROTECTION NOTICE

PARTICIPANT AND EMPLOYER DATA PROTECTION NOTICE

1. PERSONAL DATA COLLECTED AND OBTAINED

This Data Protection Notice ("Notice") sets out the basis on which SOLAS ("SOLAS", "we", "our" or "us") of Block 1, Castleforbes House, Castleforbes Road, Dublin 1 will use the personal details ("Personal Data") provided when completing the application form (the "Form") to be registered as a CSCS/QSCS cardholder. This Notice also details how SOLAS will process this Personal Data for the purpose of assessing the Form and, if successful, issuing a CSCS/QSCS card to you ("Card"). The Personal Data we obtain from you will be held by SOLAS as a controller. SOLAS will collect and process the Personal Data that you provide in the Form.

IMPORTANT: where you provide Personal Data about other individuals (e.g. your existing/previous employer or endorsers), you agree that you are responsible for ensuring that such individuals know their Personal Data will be used by SOLAS accordance with this Notice.

2. HOW AND WHY WE PROCESS YOUR PERSONAL DATA

This section details how ("legal basis") and why ("purposes") we process your Personal Data:

Legal basis: it is necessary to process your Personal Data to enter into and perform our contract with you including for the following purposes: (a) to process your Form; (b) to issue you with a Card; (c) to verify your Card on an ongoing basis; (d) to renew your Card where you ask us to do so; and (e) to respond to you when we receive any correspondence from you. **IMPORTANT:** If you do not provide us with your Personal Data so that we can process it for the above purposes, we will not be able to assess or process your Form, issue you with or renew your Card and/or communicate with you as necessary in relation to your Form and/or your Card.

Legal basis: it is also necessary to process your Personal Data for the purpose of complying with legal obligations to which we are subject including to fulfil our statutory functions.

3. DISCLOSURE OF YOUR PERSONAL DATA

We may disclose some or all of your Personal Data to the following parties: SOLAS business units, SOLAS agents or service providers including CSCS/QSCS trainers, your existing or potential employers, government and state authorities including in particular the Construction Industry Federation (CIF), Credit Card Systems Ireland Ltd and Quality and Qualifications Ireland. We may also disclose your Personal Data to third parties if we are under a legal duty to disclose or share your Personal Data in order to comply with any legal or regulatory obligation or request or to perform a public function.

4. KEEPING YOUR PERSONAL DATA

We will keep your Personal Data for the period for which your Card is valid and/or renewed and for a period of 7.5 years from when your Card expires and/or is not renewed. In some cases, we will need to retain your Personal Data for longer periods for compliance with legal obligations imposed on us or where we are a party to legal proceedings with you, and to ensure you a continued client service. Such Personal Data will be securely retained in line with the SOLAS records retention and disposal Procedure.

5. YOUR RIGHTS

The following are your rights to address any concerns or queries regarding the processing of your Personal Data. You can exercise any of these rights by submitting a request to the Data Protection Officer, SOLAS, Block 1, Castleforbes House, Dublin 1. We will provide you with information on any action taken upon your request in relation to any of these rights without undue delay and at the latest within one month of receiving your request. We may extend this by up to 2 months if necessary, however we will inform you if this arises. You have the right to lodge a complaint with the Data Protection Commission with regards to our processing of your Personal Data.

- The Right to Access
- The Right to Rectification
- The Right to Erasure
- The Right to Restriction of Processing
- The Right to Object to Processing
- The Right to Withdraw Consent
- The Right to Data Portability
- The Right to Object Automated Decision Making

6. CHANGES TO THIS NOTICE

We may amend this Notice from time to time, in whole or part, at our sole discretion. Any changes to this notice will be posted on the SOLAS CSCS/QSCS website at <http://www.solas.ie/Pages/CSCS.aspx>

If at any time we decide to use your Personal Data in a manner significantly different from that stated in this Notice, or otherwise disclosed to you at the time it was collected, we will notify you by e-mail, and you will have a choice as to whether or not we use your information in the new manner.

7. CONTACT US

If you have questions or concerns about this Notice, please contact the SOLAS Data Protection Officer at SOLAS Data Protection Officer, SOLAS, Castleforbes House, Dublin 1

Construction Skills Certification Scheme

Part 1 - Skills Self-Analysis CSCS 180° Excavator

Introduction

The aim of this form is to allow applicants to measure their knowledge and experience on the safe use of 180° Excavators against the questions below. This is to ensure that all those attending the One-day Trained Operator Programme have sufficient skills and knowledge to comfortably meet the required standards. This section **must** be completed and returned to the chosen Approved Training Organisation prior to or on the day of attending the one-day training and assessment programme.

Instructions to the Applicant

Please take your time and answer all questions honestly, as dishonest answers mean that you may be unsuccessful on the course programme. On completion, add up the total number of questions you have scored as 'yes' and refer to the Assessment Grading which will analyse your knowledge and experience.

Assessment Questions

Please answer **all** questions as indicated:

	Yes	No
1. can you identify and use all the controls correctly?	<input type="checkbox"/>	<input type="checkbox"/>
2. can you extract information from the operator's handbook?	<input type="checkbox"/>	<input type="checkbox"/>
3. do you correctly carry out all pre-use and running checks?	<input type="checkbox"/>	<input type="checkbox"/>
4. can you correctly configure the excavator for site and road travel?	<input type="checkbox"/>	<input type="checkbox"/>
5. have you travelled over differing types of terrain including rough, undulating ground?	<input type="checkbox"/>	<input type="checkbox"/>
6. can you travel up & down steep substantial slopes correctly?	<input type="checkbox"/>	<input type="checkbox"/>
7. can you set the excavator correctly to dig below or level ground, and/or load vehicles?	<input type="checkbox"/>	<input type="checkbox"/>
8. do you know the minimum distance spoil should be kept from a trench and why?	<input type="checkbox"/>	<input type="checkbox"/>
9. do you know the recommended minimum distance when working near power lines?	<input type="checkbox"/>	<input type="checkbox"/>
10. can you explain the purpose of the stabilisers and when they should be used?	<input type="checkbox"/>	<input type="checkbox"/>
11. can you excavate and grade materials to site tolerances?	<input type="checkbox"/>	<input type="checkbox"/>
12. have you loaded vehicles correctly and without delay?	<input type="checkbox"/>	<input type="checkbox"/>
13. have you changed buckets using correct methods?	<input type="checkbox"/>	<input type="checkbox"/>
14. do you know the correct procedure when placing or unloading the excavator onto or from a vehicle bed or trailer?	<input type="checkbox"/>	<input type="checkbox"/>
15. can you shut down and secure the excavator correctly after work?	<input type="checkbox"/>	<input type="checkbox"/>

Yes Total _____

Candidate Name Date

Construction Skills Certification Scheme

Part 1 - Skills Self-Analysis CSCS 180° Excavator

Assessment Grading

If you have scored 11 – 15

You appear to have a good understanding of 180° excavator operations to comfortably participate on the trained operator course programme.

If you have scored 8 – 10

Your understanding of 180° excavator operations is limited and we advise that you acquire further knowledge before attending the trained operator course programme. Remedial training and further site experience is advised.

Less than 8

Your supposed understanding of 180° excavator operations is very limited and we strongly advise you not to attend the course until you have undertaken remedial or full training.

Assessment Requirements

Should a candidate have any particular assessment requirements i.e. need a translator or reader/writer or any other form of special needs, the approved training organisation **must** be informed well in advance of attending the one day programme so that the appropriate help may be sourced.

Information regarding a candidate's particular requirements will be treated with the strictest confidence by the approved training organisation.

REMINDER

Candidates must bring with them on the day:

Passport sized photograph	<input type="checkbox"/>
Safe Pass card	<input type="checkbox"/>
Safety helmet	<input type="checkbox"/>
Safety boots	<input type="checkbox"/>
Reflective 'hi-viz' jacket	<input type="checkbox"/>
Gloves	<input type="checkbox"/>

Further information and clarification may be obtained from the CSCS Unit Office or phone 015332500

Construction Skills Certification Scheme
Part 2 - Application Details CSCS 180° Excavator

Section A Applicant Details

Surname Forenames.....

Address
.....

Tel: Date of Birth:

PPS Number Safe Pass Expiry Date:

Candidate Profile

Candidates for this programme must:

- Have at least six months full time experience operating as a trainee 180° excavator operator in construction in accordance with the 5th Schedule – of the Safety, Health and Welfare at Work (Construction) Regulations 2013 – S.I. No. 291 of 2013. The six months experience must be within the last two years.
- Possess a valid 'Safe Pass' registration card
- Be at least 18 years of age

Section B Applicant Declaration

I confirm that the information detailed in this application, and any submitted information is valid, genuine and correct.

- I have as least six months full time experience operating as a trainee 180° Excavator operator in construction within the last two years
- I am in possession of a valid 'Safe Pass' registration card
- I am at least 18 years of age

Please sign

Date:

Construction Skills Certification Scheme
Part 2 - Application Details CSCS 180° Excavator

Section C Applicant Experience

Please briefly list work carried out with a 180° excavator for at least six months, including dates and location of work.

Dates from/to	Machine make & model	Location and brief details of work done
<i>Example</i> 9 Dec 14– 22 May 2015	JCB 3CX	<i>Barron Homebuilds, Kilty Street, Dublin. Excavating foundations, drains, and general landscaping</i>
		<p style="text-align: right;"><i>(continue on a separate sheet if needed)</i></p>

Construction Skills Certification Scheme

Part 3 - Endorsement of Operating Competence - 180° Excavator

Applicant Name.....

This endorsement of operating competence must be completed by an existing or previous employer. This part can only be completed by a supervisor or line manager of the employer.

The endorsing individual should only initial the statements where they can confirm that the applicant can carry out the work. Some endorsements may require the initials of more than one endorser.

Copies of this form may be made if there are more than two endorsers signing.

Each statement must be initialled by the endorser. The applicant can only be considered competent providing **all** statements are signed by one or more endorsers in the Endorsers details section.

I consider that the above named applicant is able to competently:	Initials
1. Check, inspect and maintain a 180° excavator for efficient and safe use under construction site conditions	
2. Strip, remove and segregate top and subsoil's, and carry out reinstatements	
3. Load a variety of vehicles i.e. dumpers, dump trucks, tippers etc with a 180° excavator	
4. Set and excavate to line and level for a variety of 180° excavations	
5. Lift and place loads in relation to site works with a 180° excavator	
6. Park, shut down, secure and leave the 180° excavator in a safe condition	
7. Follow given instructions and manufacturer's requirements when working with the 180° excavator	

Endorser's Details

Full Name:

Company name and address:

Position: Contact Tel no:

Relationship to Applicant.....

The named individual signing this section must be in a supervisory or managerial position, nominated by the employer organisation.

Declaration

We/I the employer confirm that:

- the applicant has as least six months full time experience operating as a trainee 180° excavator operator in construction within the last two years
- the applicant is in possession of a valid 'Safe Pass' registration card
- the information detailed in this application, and any submitted information is valid, genuine and correct.

Name: _____

Date: _____

Construction Skills Certification Scheme

Part 4 - Practical Test Specifications - 180° Excavator

Equipment and Resources

- Serviceable 180° excavator of at least 6 tonnes operating weight, which meets current legislation, certified for lifting. The excavator must be fitted with a quick hitch and a general purpose excavating bucket on the backhoe and a clamshell type (4 in 1) front loader bucket, with the operator's manual.
- A vehicle(s) for loading. For front loader use, this must be a rear tipping vehicle having a capacity equivalent to 5 full bucket loads of the excavator being used for the test. A forward tipping dumper may be used for backhoe use. Assisting operators must be competent and qualified (CSCS Card where relevant).
- An area of ground, clear of hazards which must include:
 - uneven, rough terrain
 - a slope(s) not less than 18% (1:5.5) incline (The slope must be at least 1.5 times the length of the machine)
 - a level area to allow for excavations up to 2.0 metres deep
- a stockpile of material for loading purposes
- A replacement backhoe bucket for changing purposes.
- 1 x load which must be a minimum of 50% of the maximum lifting capacity of the backhoe with stabilisers
- Suitable certificated lifting accessories.
- Cones/materials etc to create restrictions for travelling and manoeuvring.
- Appropriate marking, sighting and lining equipment to ensure excavation levels and centres

Tasks

The Candidate needs to:

1. Carry out full pre-start and running checks as required by the manufacturer.
2. Prepare the excavator for travel.
3. Travel to the excavating area. The route must include:
 - travelling up and down the incline(s)
 - passing through a restriction being no more than the width of the excavator plus 800mm, in a forward and reverse direction
 - travelling over rough, uneven terrain
4. Excavate 2 x trenches, 5 metres in length with square ends at right angles to each other. The depth of the excavations must be 1.0 metre deep +/- 30mm by 1 x bucket width. (refer to plan)
5. On completion of task 4, excavate 1 x trench 2 metres in length, starting from midpoint of one of the 5 metre trenches, and 1 x trench 2 metres in length starting at one end of the same 5 metre length trench. The depth of the excavations must be 1.0 metre deep +/- 30mm by 1 x bucket width (refer to plan). These trenches **must** be excavated towards the open trench.
6. On completion of task 5, reinstate and compact the earthworks back to level using the applicable functions of the front loader bucket.
7. Load material from the stockpile into the vehicles to capacity using the front loader and the backhoe. There must be a minimum of four full bucket loads using the backhoe (the vehicle may be partially loaded using the backhoe whilst excavating the trenches).
 - Remove the existing backhoe bucket and set the excavator to lift the Load. Lift the Load and slew a minimum of 160 degrees. Once landed return the load to the original starting point and detach
8. Attach the replacement bucket
9. Travel the excavator to a park position, shut down and secure.

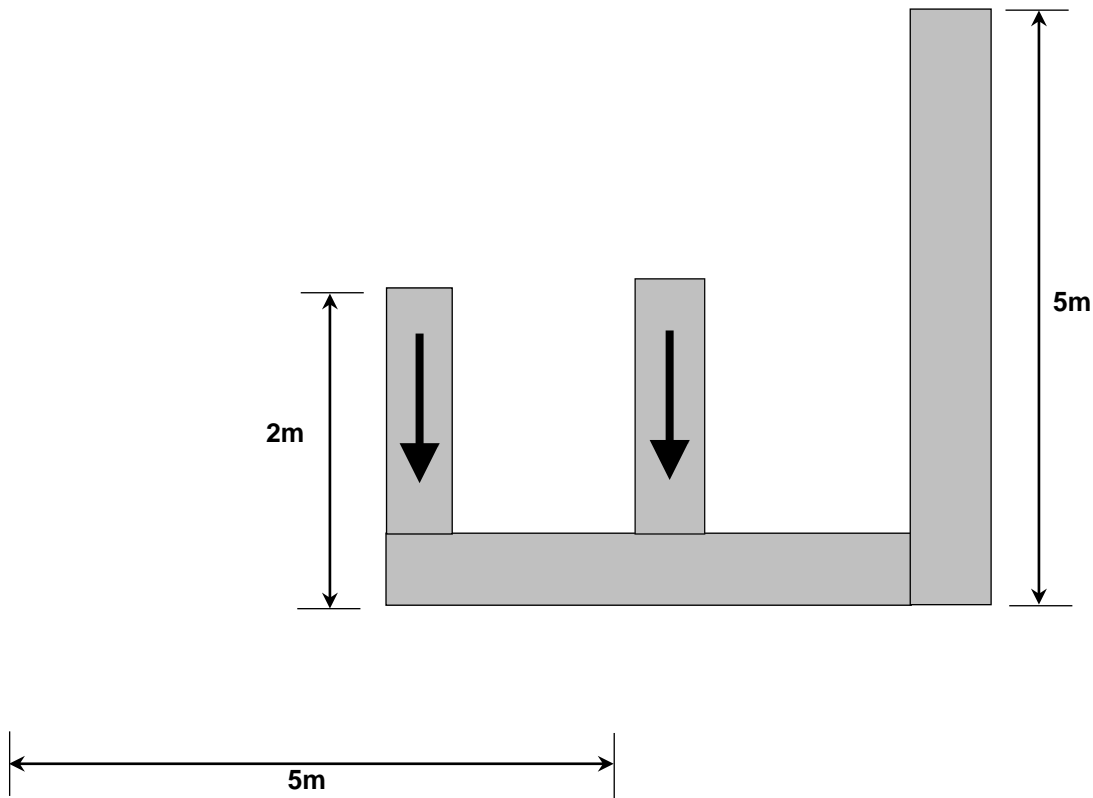
Time

- The candidate must complete all tasks within 1 hour and 15 minutes (75 minutes)

Notes

- Verbal questions may be used for task 1, but **only** on items not able to be checked due to heat of the engine, i.e. coolant, oil level etc.
- The incline must be either one ramp with sufficient manoeuvring area on top **or**
Two ramps with a level area at the top to halt the excavator

Excavation Plan



Example of Practical Assessment marking sheet

1. Carry out pre-start and running checks (verbal questions correctly answered if engine hot)
2. Mount and dismount correctly
3. Maintain full observation
4. Keep clear of all hazards whilst travelling
5. Travel correctly on the inclines
6. Keep the excavated material clear of trench
7. Ensure excavated trenches conform to the stated sizes and tolerances
8. Reinstall the excavated area back to the original contours
9. Ensure the vehicle was evenly loaded but not overloaded
10. Conform with legislation and manufacturer's instructions

SOLAS

An tSeirbhís Oideachais Leanúnaigh agus Scileanna
Further Education and Training Authority



Construction Skills Certification Scheme

Safe Operation of Earthmoving Plant



180 Degree Excavator

Construction Skills Certification Scheme

Safe Operation of Earthmoving Plant

180 Degree Excavator

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The Construction Skills Certification Unit has made every effort to ensure that the information contained within this publication is accurate. Its content should be used as guidance material and not as a replacement for current regulations.

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SOLAS

An tSeirbhís Oideachais Leanúnaigh agus Scileanna
Further Education and Training Authority



Receipt

I have received a copy of the CSCS Safe Operation of Earthmoving Plant – 180 Degree Excavator notes and agree to read it carefully and comply with all the guidance and advice on safety and good working practices which it contains.

Signature	
Full Name	
Date	

Name of Company or Organisation	
Address	

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Acknowledgements

Extracts from BS 7121: Part 1 are reproduced with the kind permission of the British Standards Institution. Complete copies can be obtained by post from B.S.I. Sales, 389 Chiswick High Road, London W4 4AL.

Extracts and illustration by kind permission of CITB-Construction Skills

Introduction

This guide for the safe operation of 180 Degree Excavators has been produced for plant operators. It sets out to provide guidance in an easy to read form, paying particular attention to the duties of the 180 Degree Excavator operator. It covers a wide range of operating conditions and activities, and aims to promote safe working practices which comply with current legislation and the precautions to be taken if accidents are to be avoided.

Specific sections on the preparation and operation of 180 Degree Excavators contain readily accessible information in a checklist format with a simple **Do's** and **Don'ts** message.

This guide complements manufacturers' instructions and recommendations with regard to:

- general safety legislation and safe operating procedures for 180 Degree Excavators
- safe and efficient use of 180 Degree Excavators
- basic operator maintenance.

Manufacturer's operating manuals must always be used for the relevant machine and referred to as and when required. The manufacturer of the machine has no direct control over the operation of the machine – *it is the responsibility of the operator to work safely at all times.*

This guide does not attempt to try to cover every aspect of working conditions when using 180 Degree Excavators and does not cover every make and model of 180 Degree Excavator available.

1 Safety, the law and you

This section provides guidance for employers, employees and the self-employed who use mobile plant equipment. Minimum legal requirements are outlined which relate to the safe use of mobile plant. Various Acts of the Oireachtas and statutory requirements, examples of which are listed below, provide the definitive legislation to be followed.

Legislation

Legislation to be followed includes the Safety, Health and Welfare at Work Act 2005 (SHAWWA). Parts of the Act and other regulations connected with the operation of plant include:

- *General Duties of Employer*
- *General Duties of Employee and Persons in Control of Places of Work*
- Protective and Preventive Measures
- Safety Representatives and Safety Consultation
- The Health and Safety Authority
- Offences and Penalties

All Health and Safety rules also apply to self-employed persons.

Regulations and Codes of Practice

Regulations made under an Act of the Oireachtas are mandatory

Safety, Health and Welfare at Work (Construction) Regulations 2006 S.I No. 291 of 2013 include

- Design and Management
- General Duties of Contractors and others
- General Safety Provisions
- Excavations, Shafts, Earthworks, Underground Works and Tunnels
- Cofferdams and Caissons
- Compressed Air
- Explosives
- General Health Hazards
- Construction Work on or Adjacent to Water
- Transport, Earthmoving and Materials-Handling Machinery and Locomotives
- Demolition
- Roads
- Construction Site Welfare Facilities
- SCHEDULE 4 - Safety Awareness Scheme
- SCHEDULE 5 - Construction Skills Certification Scheme
- SCHEDULE 6 - Procedure for Selection of Site Safety Representatives
- SCHEDULE 7 - List of Machinery

- **The Safety, Health and Welfare at Work (General Application) Regulations 2007 S.I. No. 299** include:
- Workplace and Work Equipment
- Use of Work Equipment
- Personal Protective Equipment
- Manual Handling of Loads
- Display Screen Equipment
- Electricity
- Work at Height
- Control of Noise at Work
- Control of Vibration at Work
- Safety Signs at Places of Work
- First-aid
- Explosive Atmosphere at Places of Work

The introduction of the above legislation, which protects people at work and those who may be affected by their actions, has helped to improve our working environment.

The legislation concerns employers, employees and the self-employed, and makes people responsible for their actions, as well as their omissions, including others affected by their actions.

Regulations made under an Act of the Oireachtas are mandatory and may be supplemented by an Approved Code of Practice (ACoP), which advises organisations and their staff on how to comply with the law.

If the advice of the ACoP is followed then generally you are meeting the requirements and complying with the law. If you, or your organisation, are prosecuted for breaking a health and safety law and it is proven you did not follow the advice in the ACoP, you must prove you have complied with the law in another way.

Penalties can be imposed on persons who are found guilty of a Health and Safety Offence (on summary conviction), which may include:

- a fine
- a term of imprisonment.

Penalties may be imposed for:

- Contravening any of the relevant statutory provisions
- disobeying a Prohibition notice
- unauthorised disclosure of information
- a breach of the conditions of a licence.

Duties of personnel

It is in the interest of every employer and employee involved in the use of mobile plant and equipment to promote safety within their workplace.

Legal duties of employers

'Every employer shall ensure, so far as is reasonably practicable, the safety, health and welfare at work of his or her employees.' *

Employers have a duty to:

- provide a safe working environment that is without risk to health
- provide and maintain safe plant and equipment and ensure it has been designed, constructed, tested and examined to be safe
- carry out risk assessments and provide their employees with clear and appropriate information on any risks that exist in the workplace and how they intend to reduce those risks
- prepare a safety statement based on the risk assessment
- provide suitable protective clothing and equipment (PPE) to ensure the health and safety at work of their employees. *'Every employer shall ensure that any measure taken by him or her relating to safety, health and welfare at work do not involve financial cost to his or her employees'* *
- provide employees with any necessary information, including legal requirements, adequate instruction, training and supervision *'in a form, and manner and, as appropriate, language that is reasonably likely to be understood by the employee concerned'* *
- obtain the services of a competent person for Health and Safety purposes
- provide adequate welfare facilities

Legal duties of employees

In general terms, the law says that you must:

- be responsible and as safe and careful as possible in your work, so as not to put the health and safety of yourself or others at risk, including members of the public
- co-operate with and assist your employer or any other person, as far as necessary, to enable them to carry out their legal duties in health and safety
- not interfere with or misuse any safety devices or equipment
- not intentionally or recklessly interfere with anything provided in the interest of health, safety and welfare
- follow your employer's procedures and the manufacturer's instructions which apply to the care and safe operation of the machine you are responsible for
- inform your employer, without unreasonable delay, of any work situation that you are aware of which presents a risk to the health and safety of yourself and others
- report (without delay) any defects in plant and equipment which

**Source: Safety, Health and Welfare at Work Act 2005*

Legal duties of employees

In general terms, the law says that you must:

- be responsible and as safe and careful as possible in your work, so as not to put the health and safety of yourself or others at risk, including members of the public
- co-operate with and assist your employer or any other person, as far as necessary, to enable them to carry out their legal duties in health and safety
- not interfere with or misuse any safety devices or equipment
- not intentionally or recklessly interfere with anything provided in the interest of health, safety and welfare
- follow your employer's procedures and the manufacturer's instructions which apply to the care and safe operation of the machine you are responsible for
- inform your employer, without unreasonable delay, of any work situation that you are aware of which presents a risk to the health and safety of yourself and others
- report (without delay) any defects in plant and equipment which might endanger safety.

All Health and Safety rules also apply to self-employed persons.

2. Accident prevention and control

Accidents are unplanned, unwanted events which can injure or kill people. Industry also pays a price with loss of working hours, loss of production and damage to plant and equipment and extra costs.

Remember that **you**, as an operator of plant equipment, **are the key to safety**: good safety practices not only protect you but also protect others around you.

Accidents can be caused by unsafe working practices and attitudes of people in the workplace. By following a safety programme and adopting safe working practices, unsafe conditions can be avoided. This contributes to improving safety in the workplace.

Prevention can remove or reduce the likelihood of an accident by following some basic rules, for example:

Do

- Protect yourself – wear all protective clothing and personal safety equipment issued to you or required by your working conditions
- Follow a safety programme – understand and follow safety procedures when working on site and using plant and work equipment
- Assess your ability to do the job – ensure you are fully aware of the job requirements and how they need to be carried out
- Stay alert – know where to get help. Know the first aid and emergency procedures
- Make yourself aware – study the manufacturer's operator's manual for using your plant and equipment. If the manual is not provided, ask your supervisor or the suppliers of the plant/equipment to supply one
- Report faulty/unsafe plant or equipment and any dangerous occurrences and incidents
- Travel the plant equipment safely so as not to affect its stability
- Be careful – human error is caused by carelessness, fatigue, preoccupation and lack of concentration. Ensure you watch out for others who are affected by your actions
- Ensure all personal injuries, no matter how slight, are reported and entered in the accident book (or equivalent)
- Take advantage of any training programme offered by your employer or contractor. You are never too old to learn new practices or techniques.

Don't

- Use plant or work equipment that you have not been trained to use
- Overload any plant or work equipment either by lifting or loading
- Operate plant and work equipment unsafely or at unsafe speeds
- Throw or drop objects from plant or work equipment
- Attempt to carry out work on moving parts of plant or work equipment with the safety guards removed
- Indulge in horseplay on plant or work equipment
- Attempt to operate any type of plant or work equipment if you are under the influence of drugs, alcohol or any other substance which affects your health or judgement
- Ignore warning instructions or safety signs.

3. Safe use of 180 Degree Excavators

If you are an operator of a 180 Degree Excavator you are legally required to be responsible for your own safety and that of others who are working nearby.

Common sense plays a major part in the safe operation and working of a 180 Degree Excavator. All operators should be aware of dangers and hazards, which could injure them or other site workers nearby, or cause damage to the machine.

Operators of 180 Degree Excavators are responsible at all times for the safety of their machine and its load.

Simple measures taken by yourself, your employer and by following some basic rules can reduce the possibility of risk. For example:

Do

- Comply fully with instructions given by site managers and supervisors
- Follow the manufacturer's instructions (operator manuals) for the specific 180 Degree Excavator you are operating
- Take safety precautions when using your machine prior to, during and after work
- Operate within the machine's capabilities.

Don't

- Operate any machine unless you have received appropriate training and are authorised to do so
- Ignore hazards
- Misuse, tamper or interfere with your machine and any associated safety equipment provided to you
- Endanger your own health and safety, or that of anyone else, through being negligent.

Before use

- Always check that the 180 Degree Excavator is serviceable and safe to use
- Carry out daily checks and maintenance
- Check working areas for hazards and obstacles, which could affect the operation of the 180 Degree Excavator.

During operation

Do

- Look out for people working and hazards such as trenches, potholes and cables
- Face the machine and use the steps and handholds when getting on or off. Ensure you maintain three points of contact
- Wear the seat belt.
- Ensure when loading vehicles with the 'backhoe' that they park in the most appropriate 'position' to enable the slew movement to be kept to a minimum
- Ensure when loading vehicles with the front bucket or the backhoe bucket that the load is evenly distributed and does not overload the vehicle
- Choose a digging position to suit the task you are doing with the backhoe. Set the front bucket and stabilisers when positioning for excavating
- Avoid digging downhill if possible. Whenever possible, dump the load on the uphill side of the excavation. Following these precautions will help keep the machine stable
- Place excavated material clear of the excavation to prevent the weight of the material collapsing the sides and to prevent spillback
- Keep a safe distance from other plant or vehicles
- Ensure all cab doors are closed or are locked in the open position
- Take care when loading vehicles that you do not hit the vehicle with either the bonnet of the loading bucket or with the bucket itself
- When working with the loader, set the backhoe straight behind the machine as for road travel
- Keep the loader bucket low to the ground when travelling to enable increased visibility and stability
- Before leaving the machine unattended: drive clear of the working area; stop and apply brakes; disengage drive and controls; stop engine and remove ignition key
- Keep your boots as clean as possible in wet/muddy conditions. Brakes become less effective in these conditions. Wet/muddy boots can cause your feet to slip off the foot controls at vital moments.

Don't

- Allow anyone to hitch a ride in the cab
- Allow anyone to be lifted in the front bucket or the backhoe bucket
- Allow anybody to work under any raised attachments
- Work or drive too close to banks or trenches where there is danger of collapse
- Indulge in games or horseplay
- Reverse the machine any great distance – turn around and face the direction of travel when travelling with the 180 degree excavator
- Run the engine in an enclosed area for long periods
- Leave the machine unattended with the engine running.

After use

- Park on firm, level ground; apply handbrake and all safety locks; ensure drive and controls are disengaged
- Stop engine and shut down in accordance with the manufacturer's recommendations
- Clean out any material from the track assembly
- Top up the fuel tank.

Additional precautions to be followed for 180° Excavators

Do

- Communicate regularly with your work colleagues and others, and keep them informed of what you will be doing
- Ensure that if signals are to be used to communicate they are approved and understood by everybody involved (see appendix A for illustration)
- Ensure the area where you will be working has been checked for the presence of any buried live services before commencing any excavations
- Ensure you work within the minimum clearance required for working beneath overhead power cables. Check with site management and the local electricity supplier
- Take extra care when travelling across a slope. If the slope is too steep your machine could roll over
- Make yourself aware that due to the design characteristics of 180 Degree Excavators it is possible to excavate underneath the machine and thereby affect its stability
- Take extra care when travelling up and down hillsides and on embankments. Ground conditions can change dramatically due to weather conditions
- Travel (whenever possible) in reverse when you are carrying a loaded front bucket downhill. Travel forward when you are going uphill. With heavily loaded buckets do not travel faster than the speed recommended by the manufacturer

- Set the rear view mirrors to give you a close view behind the machine when you are correctly seated
- Use the services of a signaller/banks person to assist you if visibility is restricted or there are obstructions in the vicinity
- Ensure that when you are installing/changing an hydraulically operated attachment your machine is correctly set up to suit the attachment
- Ensure the engine speed is pre-set to suit an hydraulically operated attachment
- Ensure when changing buckets all pins are greased and all locking devices are sound and secure. If you are using a quick hitch device, ensure all retaining devices are secure. Operate your machine's dipper and bucket rams several times to check that the bucket is secure before attempting to use it
- *Road travel: before taking 180 Degree Excavator on public roads, ensure the machine is prepared for road travel, complies with all traffic regulations and obey all driving laws (you may need to refer to the manufacturer's operating handbook before selecting the road travelling positions for the backhoe on your specific machine)*

Don't

- Undercut an excavation face below or above your work position
- Dump material in one sudden movement. Roll the bucket forward in stages until it is empty. Use the control lever to rock the bucket back and forth to loosen any sticky material
- Swing the bucket of your machine over a vehicle cab
- Overload skips, hoppers or vehicles
- Load vehicles with a driver in the seat unless a FOPS cab is fitted
- Overload your machine – this can damage it and make it unstable
- Attempt to use attachments that are unsuitable to use with your machine
- Rely on the spoken commands, sites can be noisy. Follow approved signals
- Attempt to tip/push materials into excavations where there is no edge protection (stop block or berm)
- Operate too close to banks or excavations
- **Note:**
As an operator of a 180 Degree Excavator you should be aware that there are regulations concerning the use of excavators used as cranes or lifting appliances. Your machine and the lifting gear you use may require certification to carry out lifting duties. The regulations are quite clear on what items require certification. You or your company may be requested by your client or the Health and Safety Authority to produce this certification before you commence work or during work activities on site. You should always comply with this request. If you are unsure what to do in this situation consult your supervisor for further guidance. Ensure you always operate within the rated capacity of your machine (refer to the manufacturer's operating manual)

4. Operator servicing and maintenance duties

The Operator's contribution to maintenance of the machine is of prime importance.

It is essential that adequate time and facilities are provided to carry out maintenance of your machine. Supplies of materials and substances (oils, greases, coolants etc.) should always be to hand, with suitable provision for storing them.

All maintenance should be carried out in accordance with the manufacturer's recommendations and your company's procedures.

Whatever system of maintenance and servicing is used, all operators have the responsibility to ensure the machine is in a safe condition for work.

Pre-use checks: It is estimated that the recommended pre-use checks of many manufacturers would include the checking and adjustments of the following:

- fluids – engine oil, coolant, transmission, brake, hydraulic
- tyres – rims, wheel nuts, wall and tread, pressures
- hydraulic pipe/hose condition, security leakages
- hydraulic rams condition, security, leakages
- lights, warning and safety appliances, such as reversing devices, horn protective guards
- ROPS/FOPS, seat and seat belts, driving position, mirrors
- controls, gauges, warning lights and other types of safety devices.

Running checks

- Hot/Cold starting methods
- Function of steering/brakes/hydraulic/electrical and mechanical systems
- During cold weather and extremely hot conditions always be aware of the operating temperature of the machine.

Maintenance and servicing schedules

Apart from daily pre-start checks, servicing schedules are usually based on machine running hours, therefore regular checks need to be kept on the machine's hour-meter reading.

Operators are likely to carry out only basic servicing on their machine in accordance with the manufacturer's recommendations and company procedures. In addition to pre-start and running checks, operators would usually be responsible for:

- cleaning air filter dust bowls
- draining water and sediment/fuel/water separators
- replenishing coolants, lubricants and fluids
- greasing all greasing pins and pivot points
- checking battery levels and condition of their terminals and cables
- carrying out minor adjustments.

You should only carry out the servicing on your machine if you have been trained and have been authorised to do so.

Do not attempt to carry out any major maintenance, repairs or adjustments to your machine which you are not authorised to carry out. This must be done by a suitably qualified and competent person!

Do

- Ensure the machine is on firm and level ground before attempting to carry out any operator maintenance
- Where practically possible, place signs on the machine to prevent accidental start up before carrying out your operator maintenance duties
- Carry out regular visual checks for any defects, damage, leaks
- Keep footplates and steps clean and free from mud, dirt, oil, ice and snow etc.
- Complete daily/weekly maintenance/defect sheets if your company issues them to you. All faults/defects should be reported immediately and corrected before the machine is used.

Don't

- Attempt to carry out any operator maintenance on a machine with a hot engine
- Attempt to inspect or clean the machine with the engine running
- Attempt to refuel or top up lubricants and fluids while the engine is running
- Remove the hydraulic tank filler cap or cover plate while the engine is running, stop the engine and release the pressure
- Remove the radiator cap when the engine is hot
- Add coolant to a hot engine
- Overfill the engine oil or fuel tank.

5. 180 Degree Excavator safety checklist

Safety starts with you. Remember! You, as a 180 Degree Excavator operator are the key to safety. You are legally responsible for your own safety and that of others working nearby.

Accidents are unplanned, unwanted events, which can injure or kill people. Simple measures taken by your employer and yourself can reduce the risk of them happening.

Fines can be imposed on your employer and yourself for breaching Health and Safety Regulations (in some instances it can also lead to imprisonment).

Ensure you wear all protective clothing and equipment and personal safety equipment (PPE) issued to you or required by your working conditions.

Only operate a 180 Degree Excavator that you have been trained to use and are familiar with.

Passengers should not be carried on your machine (even for the shortest of journeys).

Enlist the services of a signaller/banksperson to assist you if your vision is restricted or there are obstructions in the vicinity. Ensure there is edge protection when tipping materials into excavations.

Report all accidents (no matter how slight), faulty/damaged plant and equipment and any dangerous incidents. Stay alert, know where to get help, know the emergency procedures on site.

Always drive your 180 Degree Excavator with due consideration for others and adjust your speed to suit weather and site conditions. If you need to drive on the road: obey all driving laws, ensure the machine is prepared for road travel and comply with the traffic regulations.

Travel your 180 Degree Excavator safely, so as not to affect its stability. Take extra care when travelling on slopes or on hillsides.

Inspect your machine and working area at regular intervals before use to spot any defects, hazards or distractions. Take nothing for granted!

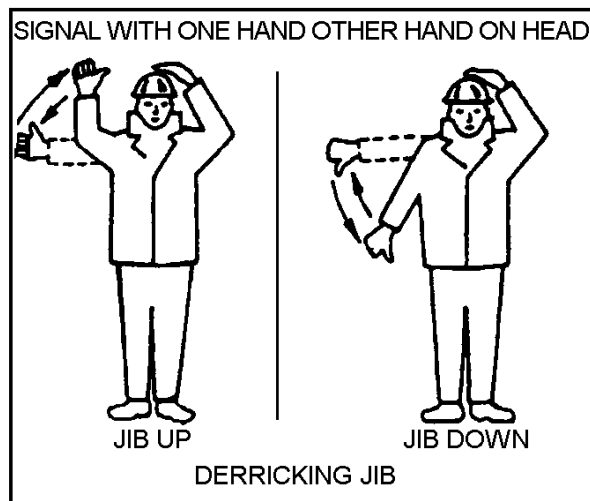
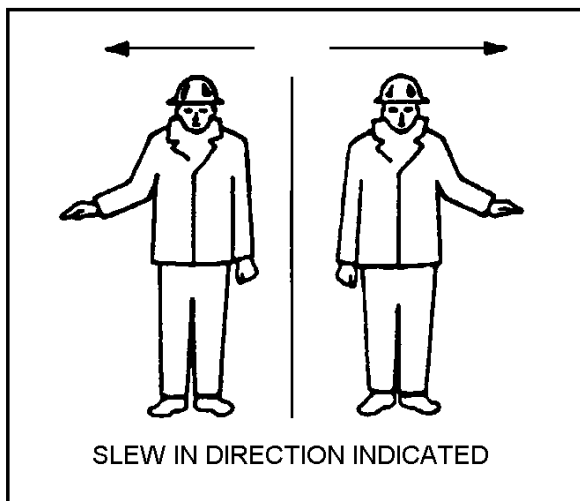
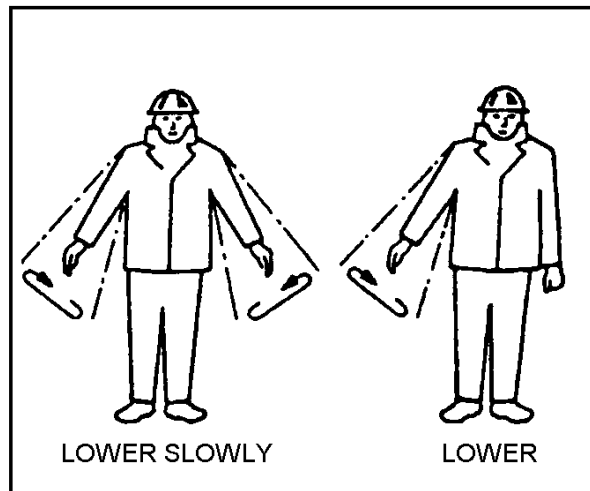
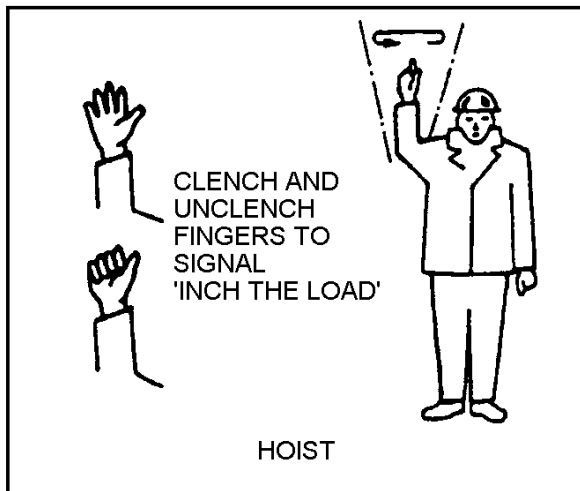
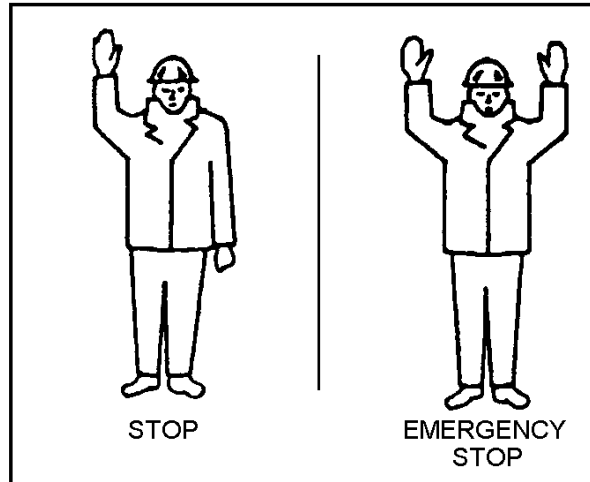
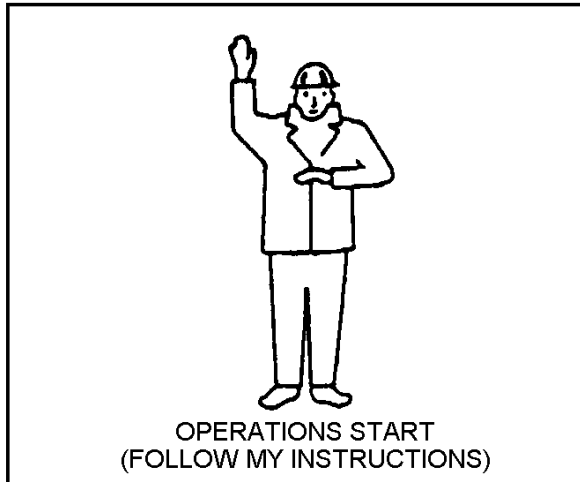
Observe all warning/safety signs and traffic regulations on site.

Never carry out a manoeuvre with your 180 Degree Excavator if it is likely to endanger yourself and others (even if your work colleagues request it to try and cut corners on a job). If in any doubt seek guidance from your supervisor.

Shut down, secure and isolate your 180 Degree Excavator in accordance with the manufacturer's recommendations and your company's procedures.

APPENDIX A

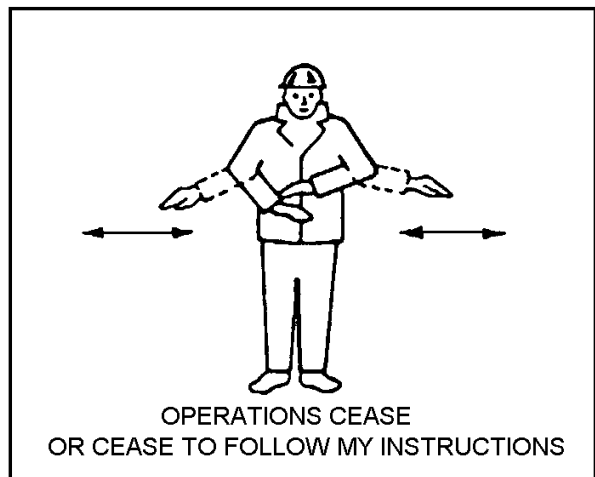
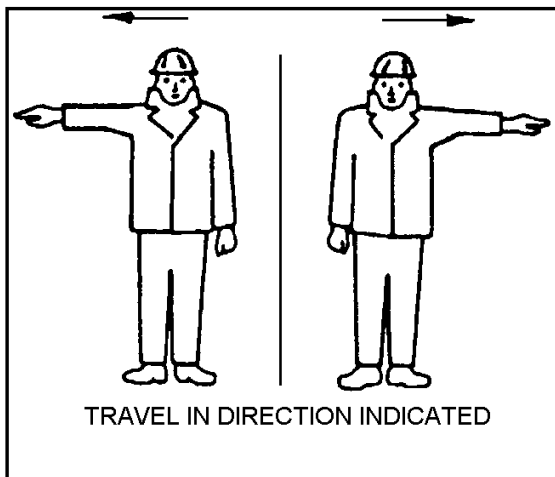
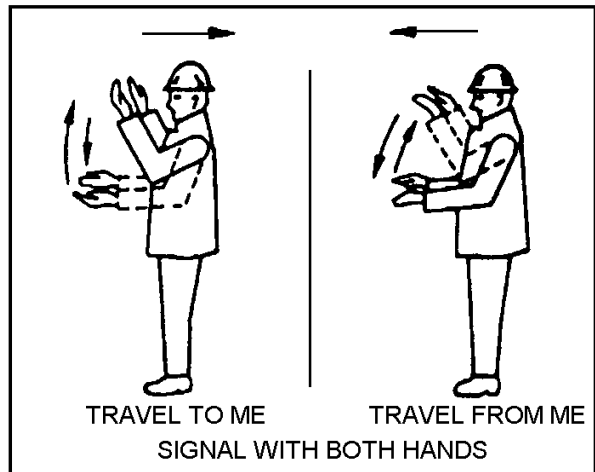
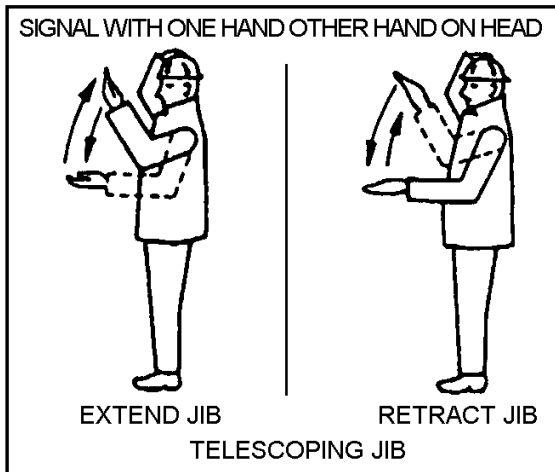
Recommended signals



Note:

The signaller should stand in a secure position where he/she can see the load and can be seen clearly by the driver and should face the driver if possible. Each signal should be distinct and clear.

Recommended signals (continued)



Appendix B Statutory Certification Required for Excavator or Loader

- The Safety Health and Welfare at Work (General Applications) Regulations 2007 came into operation on 1st November 2007 and are quite clear on what items of plant require certification.
- Forms for recording Tests/Inspections are no longer prescribed. Any form can be used provided it contains the information specified in Part E of Schedule 1 of the Regulations

Excavator or Loader used as a Crane

Regulation No	What is it	Who completes it	When is it required
55. [2] (a) [ii]	Certificate of Safe Working Load.	Competent Person.	Before machine is first used as a Crane or after substantial alteration /repair.
55. [2] (j)	Report of results of thorough examination.	Competent person	Every 12 months or after substantial alteration/repair.
43. [1] f)	Report of results of weekly inspection	User/Operator	Weekly
43. [2]	Report of the results of test and thorough examination	Competent person	After any substantial alteration or repair affecting its strength or stability.

Notes:

- An Excavator or Loader which is hydraulically-operated must be fitted with check valves on the cylinders used for lifting. (Except for machines with a maximum rated lift capacity of 1000kg or less.)
- Unless a machine is fitted with a Safe Load Indicator the Safe Working Load shall be the same for all radii at which the Jib or boom is operated and shall not be greater than the load which the machine is in its least stable configuration is designed to lift with that jib or boom.

Lifting Accessories. (Chains, Ropes and lifting gear)

Regulation No	What is required	Who completes it	When is it required
57. [1] (a) (v)	Certificate of Test & Examination.	Manufacturer / Supplier.	When supplied and while Lifting Gear is in use.
57. [1] (a) (v)	Report of Results of thorough examination	Competent Person.	Every six months.
57. [1] (i)	Report of annealing or appropriate heat treatment.	Competent Person.	When Heat Treated and at intervals as specified by the Competent Person.

Notes:

- Lifting accessories include: chains, chain slings, rope slings (except a fibre rope sling), or similar gear, rings, links, hooks, plate clamps, shackles, swivels and spreader beams etc.
- A Certificate of Test and Examination is not required for a fibre rope or a fibre rope sling. Regulation 57 states "in the case of a fibre rope or a fibre rope sling, information from the manufacturer on its safe working load is available" and "it is marked in plain legible figures and letters with a Safe Working Load and a means of identification.