



Learning Outcomes for N100 Excavator as a Crane

Learning Outcome	Instructor Notes
Have a basic understanding of the industry, the dangers of working in the industry and their responsibilities as an operator	Explain the structure of the course and the need to comply with your instructions at all times • Explain that the industry is very dangerous and that only safe working practices will be adopted throughout the course • Personal safety is not just the absence of physical injury, can be affected by noise, vibration and can lead to lost time, lost income, expense for the employer, etc • Explain Health & Safety at Work Act 1974, Restraining systems in accordance with risk assessment, PUWER Regulations, LOLER Regulations, COSHH, Working at Height Regulations, BS 7121, ACOP L113, risk assessments, method statements, lift plans, codes of practice and other relevant legislation • Remind learners that operators have moral obligations, legal obligations and environmental obligations • Explain reporting structures, the importance of good communication on site (colleagues, management, and other workers on site)
Be able to conform to manufacturers requirements as per technical data, conform to relevant regulations and legislation	Explain the importance of the manufacturer's requirements and that it will be used throughout the course. Stress that it has to be used in alliance with all relevant legislation • Explain and demonstrate the use of duty charts, lift plans, method statements, risk assessments, lifting requirements and limitations
Be able to locate, identify and explain Safe Working loads, lifting capacity chart and explain different lifting configurations and working ranges	Explain the different types of safe working loads for excavators, lifting equipment and accessories • Explain the capacity chart and different configurations that must be considered • Explain and demonstrate the various working ranges of the excavator and how stability can be affected
Identify and explain different lifting procedures, explain what task could fall into each category	Explain how different lifting procedures are categorised under: Basic lifts – Intermediate lifts – Complex lifts
Identify and explain centres of gravity and calculate estimated weights of loads	Explain and demonstrate procedures to be adopted including: Load density and shapes • Different types of loads • Load integrity, centres of gravity • How to calculate the estimated weight of a load • The consequence of moisture content • Information / tare sheets and load markings
Identify any overhead / proximity hazards	Explain the importance of Identifying overhead hazards, also identifying any proximity hazards in the lifting area. Explain the recommended safe distances agreed in the industry and in the HSE publication GS6
Be able to agree the signal codes / hand signals, direction of movement, safe working and safe landing, placement zone with the slinger / signaller	Explain the following fully: Signal codes / hand signals, direction of movement and safe landing placement zone • Explain the importance of the slinger / signaller and how the agreed signals must be followed • Explain the importance of the exclusion zone for the direction of travel and landing / securing area



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Ensure excavator is in a safe condition for attachments to be fitted	Explain and demonstrate procedures to be adopted including: The use of the Safety lock lever or any other safety device when any attachment is being connected to the designated lifting point on the dipper / boom • Explain that this is to prevent any unintentional movement of the machine that could lead to an injury or fatality • Explain the importance of reducing the engine revs so verbal communication can be maintained, the position of the excavator, uneven ground, wet ground, soft ground etc
Checked load integrity and security by carrying out trial lift	Explain and demonstrate procedures to be adopted including: The reason for and importance of a trial lift • Load density and shapes • Different types of loads • Load integrity • Centres of gravity • The consequences of moisture content and how it could affect the lift
Be able to lift, move and land a load to a designated position in a safe and controlled manner, ensuring minimum uncontrolled movement	Explain and demonstrate procedures to be adopted including: Tracking / driving the excavator whilst carrying a load • Performing turns in various directions and keeping load swings to a minimum • Counteracting load swing • Safe carrying height • Lifting in confined spaces • Travelling over uneven and soft ground conditions and the effect on the load • Tag lines etc
Environmental considerations	Explain and demonstrate; Ground damage • Vibration from the lifting machine • Ground contamination • Debris • Fuel and oil spills etc
Carry out all out-of-service and securing procedures	Explain and demonstrate; Lower all equipment, shut down engine, remove keys and isolate • Damage checking • Ensure all attachments removed before lowering boom / dipper • Security of equipment • Release all hydraulic pressure in the system

****Please note that these learning outcomes have been developed on the premise that the suspended loads will be slung by a dedicated qualified, competent and authorised slinger / signaller. Where on occasion the excavator operator may be required to sling the loads they are to transport they too must be qualified, competent and authorised slinger / signallers***

****The learning outcomes listed should not be considered in isolation and may be added to in order to accurately reflect the learner's duties and working environment***