LANLEO19 - SQA Unit Code F9GG 04
Service and repair land-based soil preparation, cultivation and plant establishment equipment

Overview

This standard covers the underpinning knowledge of the construction and operating principles of:

1. Implements and machinery
2. Fixed equipment and storage facilities.

It includes the recognition of faults, methods of repair, calibration and verification of performance. Equipment covered can be found in one or more of the following associated sectors of land-based engineering, e.g. agriculture, horticulture, amenities, ground care, arboriculture and forestry.

This standard covers the soil preparation, cultivation and plant establishment equipment which involves soil engaging machinery and implements which are used to work the soil either through being pushed or pulled. The machinery and implements could include ploughs, cultivators, graders, slitters, lifting shares, or rollers and pressers.

Equipment also covered in this standard is machinery powered by a PTO shaft or direct from a motor providing rotary or reciprocating movements. Such machinery could include powered harrows, de-stoners, drainage/pipe laying or soils aeration equipment.

Machinery and equipment used for drilling, planting and the distribution of materials for the purpose of crop establishment (planting) crop protection and growth such as liquid solid or granular materials are covered in this standard. The machinery used could be sprayers, fertiliser distributors, irrigation, seed placement/drilling equipment or injection equipment.

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Performance criteria

You must be able to:

P1 remove and refit components from soil preparation, cultivation and plant establishment machinery, e.g. ploughs, graders, power harrows, rotavators, separators, seed drills, planters, sprayers and spreaders of liquids, granular and solid material

P2 dismantle, repair and reinstate soil preparation, cultivation and plant establishment machinery and their components to manufacturers' specifications

P3 set trailed and mounted machines to interface with the prime mover, e.g. set track widths, furrow widths, maximum lift heights, stabilisation

P4 carry out soil preparation, cultivation and plant establishment machine and implement field settings to manufacturers' specifications

P5 calibrate application rates and spacing of plants, sprays, seeds, liquids and fertilizers this may include but is not limited to sprayers, seed drills and spreaders

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Knowledge and understanding

You need to know and understand:

K1 the types, construction and function of soil engaging, preparation and cultivation machinery and equipment used to lift, move, drain, invert, separate, profile and prepare land

K2 the types, construction and function of plant establishment machinery and equipment used to plant, sow, irrigate, fertilise, spray and spread

K3 how to remove and replace components from soil preparation, cultivation and plant establishment machinery and equipment

K4 how to dismantle, repair and reinstate soil preparation, cultivation and plant establishment machinery and equipment to the manufacturer's specification

K5 the methods and mechanisms used to meter application rates of sprays, fertiliser, seeds, liquids and solids and their calibration

K6 the causes of excessive wear to soil engaging parts

K7 how to set and verify the performance of soil preparation, cultivation and plant establishment machinery and equipment

K8 recognise the impact of soil, seed, fertiliser types, crops, weather conditions and their influence on machinery performance settings

Links to other NOS

Refer to LEO1 Recognise and reduce hazards in the land-based engineering work area, for guidance on safe working practices.

Refer to LEO4 Core land-based engineering principles – Mechanical principles, for guidance related to fundamental engineering principles and practices.

Refer to LEO29 Monitor the handover and installation of land-based equipment for guidance related to operational requirements.

Refer to LEO2 Organisational procedures in land-based engineering for guidance related to procedural or administrative recording and reporting practices.

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