NOCTI

Job Ready Pilot Blueprint

Pilot Assessment

Content is Subject To Change Prior to Full Implementation

Agriculture Mechanics - Pilot

Code: 2302 / Version: 01

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JOB READY ASSESSMENT BLUEPRINT

AGRICULTURE MECHANICS - PILOT

Test Code: 2302
Version: 1

Specific Competencies and Skills Tested in this Assessment:

Health and Safety
Identify and explain basic first aid
Define and identify appropriate PPE and proper work attire
Define and identify regulatory standards
Describe and identify electrical, hydraulic, and mechanical systems safety

Welding, Fabrication, and Repair (CNC)
Demonstrate knowledge of safety in welding, fabrication, and repair
Explain measurement and measurement techniques
Identify welding shop materials and requirements
Identify and compare types of welding processes
Identify and compare cutting and machining techniques

Power Equipment and Machinery (Infield Equipment)
Demonstrate knowledge of equipment operation and operational safety
Explain maintenance requirements and techniques
Demonstrate the understanding of sensors and basic control systems
Identify and compare engines and motors
Demonstrate knowledge and usage of manuals and schematics
Identify and explain power trains

Agricultural Structures
Identify and list types of buildings
Identify electrical and control systems
Demonstrate knowledge of building layout/surveying/blueprints
Identify and describe usage of tools and equipment
Identify and explain plumbing and irrigation
Demonstrate knowledge of framing and framing techniques
Identify and describe environmental and natural resource systems

Agriculture Mechanics - PILOT (continued)

Agribusiness

Demonstrate knowledge of business and farm operations
Demonstrate knowledge of record keeping
Demonstrate knowledge of general economics, business, and loan options
Demonstrate understanding of customer, client, and labor relations

Careers in Agriculture Mechanics

Explain resumé writing and job application criteria
Identify and list different fields of study and career fields in the agriculture mechanics industry
Identify education resources and options available in the agriculture mechanics industry

Agriculture Engineering (e.g., CAD, Computer Systems, CNC, and M, G code)

Define types of satellite-based technology
Define types of computer-based (shop and manufacturing) technology/systems
Define types of software-based (office and field) technology/systems

Written Assessment:

Administration Time: 2 hours and 30 minutes
Number of Questions: 145

Areas Covered:

13% Health and Safety
22% Welding, Fabrication, and Repair (CNC)
19% Power Equipment and Machinery (Infield Equipment)
19% Agricultural Structures
8% Agribusiness
8% Careers in Agriculture Mechanics
11% Agriculture Engineering (e.g., CAD, Computer Systems, CNC, and M, G code)

Sample Questions:

It is important to only move someone with a suspected _____ injury if there are imminent danger concerns.

A. head
B. spinal
C. leg
D. arm

The center of wall stud is indicated with a _____ at 16 inches on a measuring tape.

A. red dot
B. red square
C. black diamond
D. black arrow

Oxygen and fuel gas are used in _____ processes.

A. plasma
B. laser
C. waterjet
D. oxy-fuel

Three points of contact are recommended when climbing in and out of machinery to avoid

A. falling
B. tripping
C. slipping
D. stumbling

Agriculture Mechanics - PILOT (continued)

A battery serves as the source of power for most

A. engine ignition systems
B. hydraulic lift mechanisms
C. fuel injection systems
D. power steering systems

A circuit is a completed _____ through which electricity flows.

A. path
B. trail
C. loop
D. lane

A header is the structural component of a doorway that

A. supports the movement of the door
B. provides insulation for the frame
C. connects the trim to the studs
D. carries the load of the wall

A tract of land measuring 43,560 square feet is considered a/an

A. hectare
B. acre
C. furlong
D. mile

A portfolio is a collection of materials that reflect

A. knowledge, skills, and accomplishments
B. qualifications, references, and experience
C. personal opinions, goals, and hobbies
D. tasks, attendance records, and schedules

An agricultural engineer requires a

A. high school diploma
B. Master's Degree
C. Bachelor's Degree
D. Doctoral Degree

Performance Assessment:

Administration Time: 2 hours and 40 minutes
Number of Jobs: 4

Areas Covered:

24% **Precision Measurement**

Participant will measure bolts using a caliper and pitch gauge, measure the crankshaft PTO outside diameter using a micrometer, set up and measure the endplay using a dial indicator, check the air gap of the magneto pickup using a feeler gauge, clean the work area, and notify evaluator when complete.

22% **Framing Stairs**

Participant will measure and cut a single stair stringer for a 36-inch rise that meets National Building Code specifications, clean the work area, and notify evaluator when complete.

27% **Electrical Diagnostics**

Participant will locate the vehicle or implement battery and quantify battery voltage, voltage drop, and DC current draw, and record.

27% **Metal Fabrication**

Participant will draw a pattern on a mild steel plate, set up torches, cut out the pattern, grind a bevel, use a butt weld to complete weld, clean work area, and notify evaluator when complete.

Sample Job: Electrical Diagnostics

Maximum Job Time: 30 minutes

Participant Activity: Participant will quantify battery voltage with the ignition switch in the on and off positions, the voltage drop across the battery terminal with the ignition in the on position, and the DC current draw from the battery's positive terminal with the ignition switch in the on position.